

PLANETARY GEARBOXES FLEXWAVE

Nidec
All for dreams





PLANETARY GEARBOXES - FLEXWAVE



OVERVIEW

2 - 3



WP-Series

Flexwave

5 ÷ 14



VRSF-Series

Planetary Inline Configuration
Economy class

15 ÷ 23



VRL-Series

Planetary Inline Configuration
General purpose

25 ÷ 55



VRB-Series

Planetary Inline Configuration
High accuracy, flange mount

57 ÷ 87



VRS-Series

Planetary Inline Configuration
High accuracy, load capacity

89 ÷ 118



VRT-Series

Planetary Inline Configuration
High accuracy, high load capacity, ISO flange mount

119 ÷ 152



NEV-Series

Planetary Right-angle Configuration
Economy class, hollow and solid shaft

153 ÷ 171



EVL-Series

Planetary Right-angle Configuration
General purpose

173 ÷ 199



EVB-Series

Planetary Right-angle Configuration
High accuracy, flange mount

201 ÷ 227



EVS-Series

Planetary Right-angle Configuration
High accuracy, high load capacity

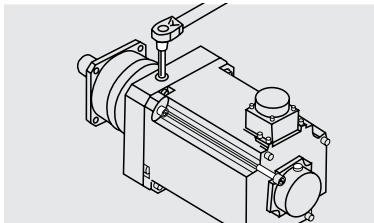
229 ÷ 258



EVT-Series

Planetary Right-angle Configuration
High accuracy, high load capacity, ISO flange mount

259 ÷ 284



TECHNICAL INFORMATION

285 ÷ 297



RACK&PINION

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ACCESSORIES

TRASCO ES® Couplings
SERVOPLUS® Couplings
SIT-LOCK® Keyless Locking Devices
SAFEMAX® Torque Limiters

305 ÷ 314



Machine Tool and Metal Forming

A robust portfolio of planetary, cycloidal, strain wave and rotary index table products to drive every axis of your machine. We offer accuracies down to the arc-second, which enable our customers to make the most accurate cuts. Our pancake gear Unità di misura are excellent solutions when space savings is of concern.



Assembly and Test Automation

Our wide range of technologies give custom machine builders design flexibility, all available from one source. Our servo-driven hollow shaft rotary indexers are often used in turn table applications, replacing legacy mechanical camming drives. Many products are available within 1-2 days, to accommodate project-based business.



Packaging and Filling

Our products can be customized with coatings and lubrication to meet various food grade and wash down requirements. Our EJS series is the ultimate hygienic solution for extreme environments. Cost-effective planetary and worm options are available for OEMs transitioning from mechanical to servo technology.



Material Handling

NIDEC-SHIMPO is the global leader in drive technology for the Automated Guided Vehicle (AGV) market. We supply compact, energy efficient solutions that are not only modular, but scalable. We have experience designing custom solutions that withstand tough environments and demanding loads.



Printing and Converting

Our gear reducers are designed to minimize the heat generation and are therefore capable of operating at higher speeds, continuously. Operating at lower temperatures, our products act as a “heat sink”, drawing heat from the servo motors, allowing them to run faster and longer.



Medical and Health Care Systems

We offer extremely accurate positioning characteristics and high quality gearheads that maintain a level of performance consistency required in medical applications. Our products are used across a gamut of applications, including diagnostic imaging, surgical robotics, exoskeleton systems and lab automation.



Robotics

NIDEC-SHIMPO is a leading supplier into the robotics industry. From 7th axis shuttle systems to end-of-arm tooling, we have solutions for every joint. Our strain wave gear component sets allow for optimized packaging, reduced weight and improved control. Both, standard products and custom engineered solutions are available.



Semiconductor and Circuit

A broad offering of high precision, clean room friendly planetary, strain wave and cycloidal solutions that are preferable over belt drives and other reduction methods that can introduce contamination. Custom coatings and materials of construction are available as necessary for corrosive chamber environments and different clean room classifications.

FLEXWAVE



Flexwave



FLEXWAVE elastic deformation reducer

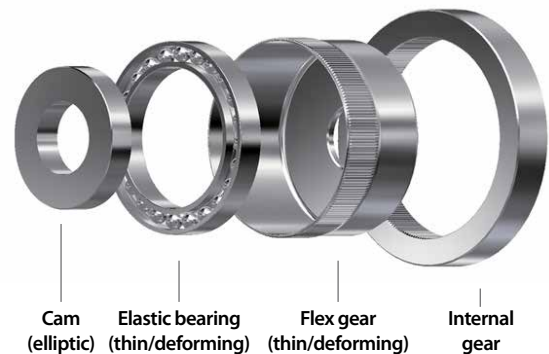
Achieving new heights in compact, fine precision gear technology

Description

The NIDEC-SHIMPO FLEXWAVE is a very compact reduction mechanism that achieves zero backlash, as well as exceptional accuracy and repeatability. The FLEXWAVE consists of three major internal elements – the elliptical wave generator subassembly, the flexible cup gear, and the inner ring gear. The

elasticity properties of the cup gear and the teeth differential between the cup gear and the inner ring gear result in the unique reduction characteristics. When compared to other reduction technologies, the FLEXWAVE offers the following advantages.

- Near Zero backlash
- High Efficiency ratings
- High reduction Rapportos in a compact footprint
- Exceptional repeatability and torsional stiffness
- Extremely light Peso with superior torque density



An Exposé on Strain Wave Gear Technology Reduction Mechanism

Strain wave gear technology centers on the elasticity and flexibility properties of a uniquely shaped metal structure. The strain wave gear set has three key elements; the elliptical wave generator subassembly, the flexible cup gear, and the inner ring gear.

- The elliptical wave generator subassembly is comprised of two components: an elliptical shaped disk and an outer ball bearing. The disk is inserted into the bearing, giving the bearing an elliptical shape as well. The wave generator assembly is the input section of the gear set.
- The flexible cup gear is the internal component that relies on unique elasticity properties to accommodate an elliptical deformation pattern. The sides of the cup gear are very thin, but the bottom of the cup gear is thick and rigid. This results in significant flexibility of the walls at the open end of the cup; but then the cup gear exhibits high rigidity at the closed end of the cup. Teeth are positioned radially around the perimeter of the open end of this cup gear.
- The flexible cup gear fits very tightly over the wave generator subassembly. When the wave generator is rotated, the cup gear deforms to the shape of a rotating ellipse but does not rotate with the wave generator.
- The inner ring gear is a rigid circular ring with teeth located on the interior perimeter. The wave generator and cup gear are placed inside this inner ring gear, meshing the teeth together. Because the cup gear has a deformed elliptical shape, the teeth will only mesh in two regions 180 degrees from each other, along the axis of the ellipse.
- As the wave generator subassembly rotates, the group of teeth of the cup gear that are engaged with those of the inner ring gear changes. The major axis of the cup gear actually rotates with the wave generator therefore; the points where the teeth mesh revolve around the center point at the same rate as the wave generator.

- The reduction is accomplished through a tooth count differential between the cup gear and the inner ring gear. For every full rotation of the wave generator subassembly, the cup gear rotates a minor amount backward because it has less teeth than the inner ring gear.

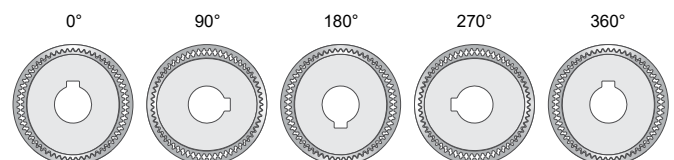
Reduction Ratio

The rotation the wave generator subassembly results in a much slower rotation of the cup gear in the opposite direction. For a strain wave gearing mechanism, the gearing reduction ratio can be calculated from the number of teeth on each gear:

As an example, if there are 202 teeth on the inner ring gear and 200 on the cup gear, the reduction ratio is

$$(200 - 202)/200 = -0.01$$

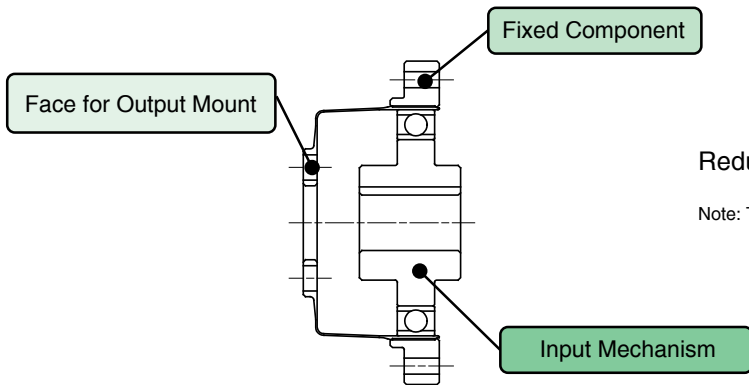
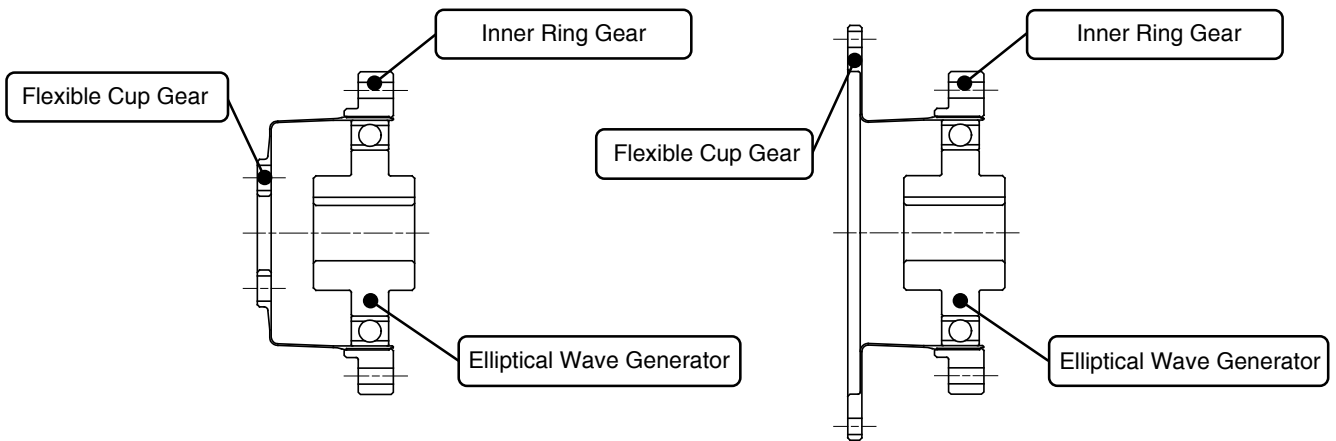
Therefore the cup rotates at 1/100 of the speed of the wave generator assembly and in the opposite direction. This method of reduction permits a variety of ratios to be set without changing overall gear set shape, increasing its weight, or adding reduction stages. The variety of reduction ratios possible is restricted by the structural tooth size limitation for any given configuration.



Applications

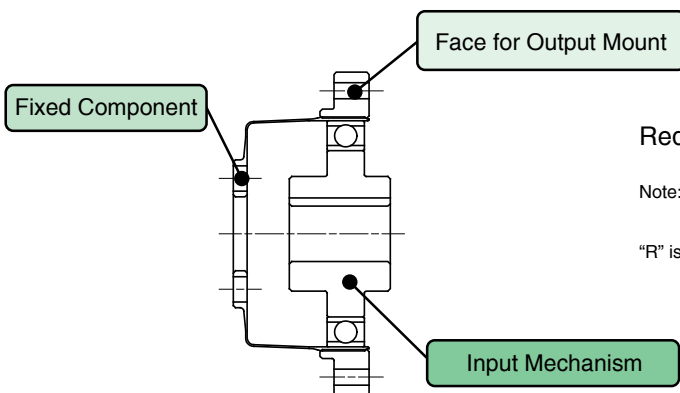
Robotics, medical equipment, semiconductor and circuit manufacturing, machine tools or any assembly automation applications requiring fine positioning.

Component Level Detail and Reduction Ratio



$$\text{Reduction ratio} = \frac{-1}{R}$$

Note: The input and output rotation directions are opposite



$$\text{Reduction ratio} = \frac{1}{R+1}$$

Note: The input and output rotation directions are same

"R" is the ratio. Please refer to "Reducer Specifications" in the next page

Part Number	WP C -35 -50 -CN -**
Model name - WP series	Specifications: input shaft diameter, etc.
Type: C = component type - S = symple unit type U = unit type	Code: CN, CF, SN, SNH, SNJ
Size: 35, 42, 50, 63, 80	Ratio: 50, 80, 100, 120

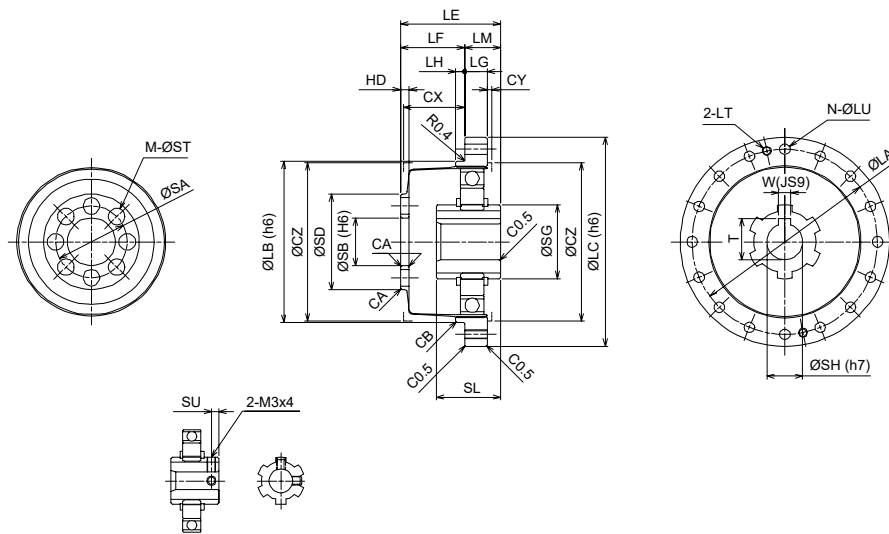
Frame size				
Size/Ratio	1/50	1/80	1/100	1/120
35				
42				
50				
63				
80				

Reducer specifications

Size	Ratio	Nominal Torque <i>The maximum value allowable at the input rotation speed of 2000r/min</i>	Maximum Torque <i>The maximum torque when starting and stopping</i>	Emergency Stop Torque <i>The maximum torque when it receives shock</i>	Nominal Speed <i>The maximum average input speed</i>	Maximum Speed <i>The maximum average input torque</i>	Permitted Axial Load <i>Values depend on the input shaft diameter, etc.</i>
		Nm	Nm	Nm	r/min	r/min	×10-4kgm2
35	50	7	23	46	3000	8500	0.027
	80	9	27	55			
	100	9	32	63			
42	50	21	44	91	3000	7300	0.055
	80	26	50	102			
	100	28	63	129			
	120	28	63	129			
50	50	33	73	127	3000	6500	0.158
	80	40	86	149			
	100	47	96	172			
	120	47	96	172			
63	50	51	127	242	3000	5600	0.385
	80	66	142	266			
	100	70	163	295			
	120	70	163	295			
80	50	89	253	447	3000	4800	1.03
	80	122	316	590			
	100	142	346	673			
	120	142	346	673			

Closed Style - Component Sub-assembly

WPC-CN / WPC-CF



INPUT SHAFT FOR 35 & 42

Size	LA	LB	LC	N *1	LU	LT	LE	LF	LG	LH	LM	SG	SH	SL	W
35	44	38	50	8 (6)	3.5	M3	28.5	17.5	6	2	11	15.8	6	18.5	-
42	54	48	60	16 (12)	3.5	M3	32.5	20	6.5	2.5	12.5	15.8	8	20.7	-
50	62	54	70	16 (12)	3.5	M3	33.5	21.5	7.5	3	12	24.8	12	21.5	4
63	75	67	85	16 (12)	4.5	M4	37	24	10	3	13	27.8	14	21.6	5
80	100	90	110	16 (12)	5.5	M5	44	28	14	3	16	27.8	14	23.6	5

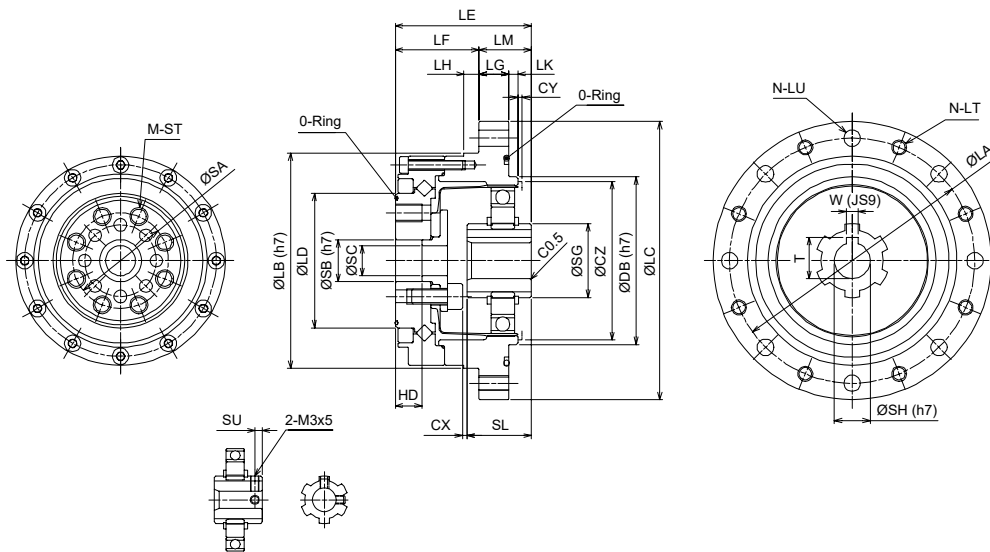
Size	T	SU	SA	SB	SD	M	ST	HD	CA	CB	CX	CY	CZ
35	-	2.5	17	11	23.5	6	4.5	2.4	C0.5	C0.3	17	1	38
42	-	3	19	10	27	6	5.5	3	C0.5	C0.3	19	1	45
50	13.8	-	24	16	32	8	5.5	3	C0.5	C0.5	20.5	1.5	53
63	16.3	-	30	20	40	8	6.5	3	C0.5	C0.5	23	1.5	66
80	16.3	-	40	26	52	8	8.8	3.2	C0.5	C0.5	26.8	1.5	86

*1) -CN and -CF are different in dimensions. The -CF value is shown in parentheses

*2) For details in the input section, check the drawings

Closed Style - Complete Unit Assembly

WPU-CN / WPU-CF



INPUT SHAFT FOR 35 & 42

Size	LA	LB	LC	LD	N *1	LT	LU	LE	LF	LG	LH	LK	LM	DB	SG
35	65	56	73	31	8 (6)	M4	4.5	41	27	7	3.5	2	14	38	15.8
42	71	63	79	38	8 (6)	M4	4.5	45	29	8	4	2	16	48	15.8
50	82	72	93	45	8 (6)	M5	5.5	45.5	28	10	5	3	17.5	56	24.8
63	96	86	107	58	10 (8)	M5	5.5	52	36	10	5	3	16	67	27.8
80	125	113	138	78	12	M6	6.5	62	45	12	5	3	17	90	27.8

Size	SH	SL	W	T	SU	SA	SB	SC	M	ST	HD	CX	CY	CZ
35	6	18.5	-	-	2.5	23	11	8	6	M4×8	9.5	1.6	1	38
42	8	20.7	-	-	3	27	10	7	6	M5×8	9.5	1.3	1	45
50	12	21.5	4	13.8	-	32	14	10	8	M6×9	9	1.5	1.5	53
63	14	21.6	5	16.3	-	42	20	15	8	M8×10	12	3.4	1.5	66
80	14	23.6	5	16.3	-	55	26	20	8	M10×12	15	5.2	1.5	86

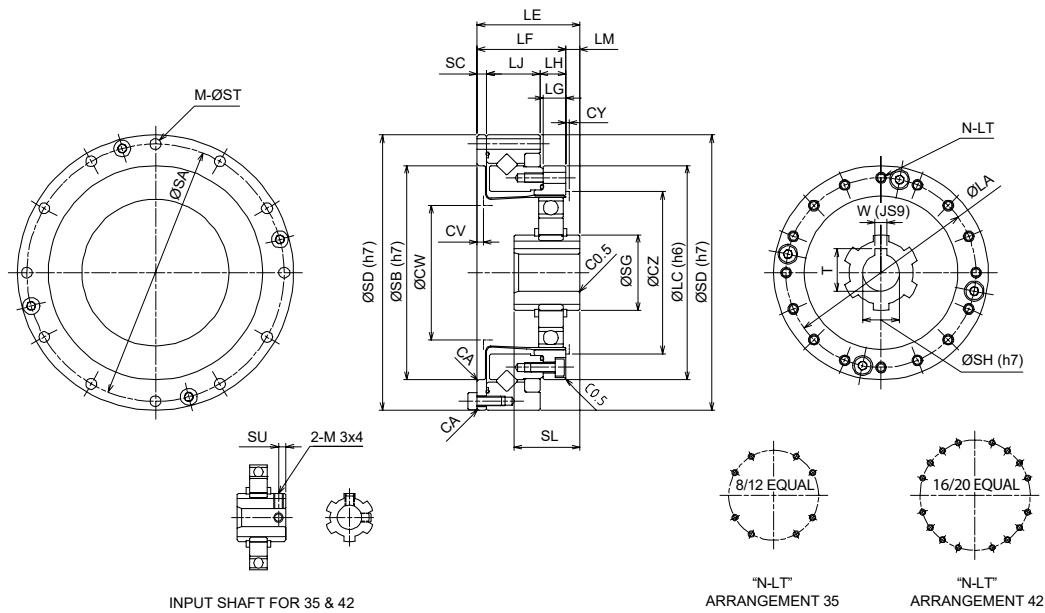
*1) -CN and -CF are different in dimensions. The -CF value is shown in parentheses

*2) For details in the input section, check the drawings

Open Style - Simple Contained Assembly



WPS-SN



INPUT SHAFT FOR 35 & 42

"N-LT" ARRANGEMENT 35

"N-LT" ARRANGEMENT 42

Size	LA	LC	LE	LF	LG	LH	LJ	LM
35	44	50	28.5	23.5	6	7	14.1	5
42	54	60	32.5	26.5	6.5	8	16	6
50	62	70	33.5	29	7.5	8.5	17.5	4.5
63	77	85	37	34	10	12	18.7	3
80	100	110	44	42	14	15	23.4	2

Size	SG	SH	SL	W	T	SU	SA	SB
35	15.8	6	18.5	-	-	2.5	64	48
42	15.8	8	20.7	-	-	3	74	60
50	24.8	12	21.5	4	13.8	-	84	70
63	27.8	14	21.6	5	16.3	-	102	88
80	27.8	14	23.6	5	16.3	-	132	114

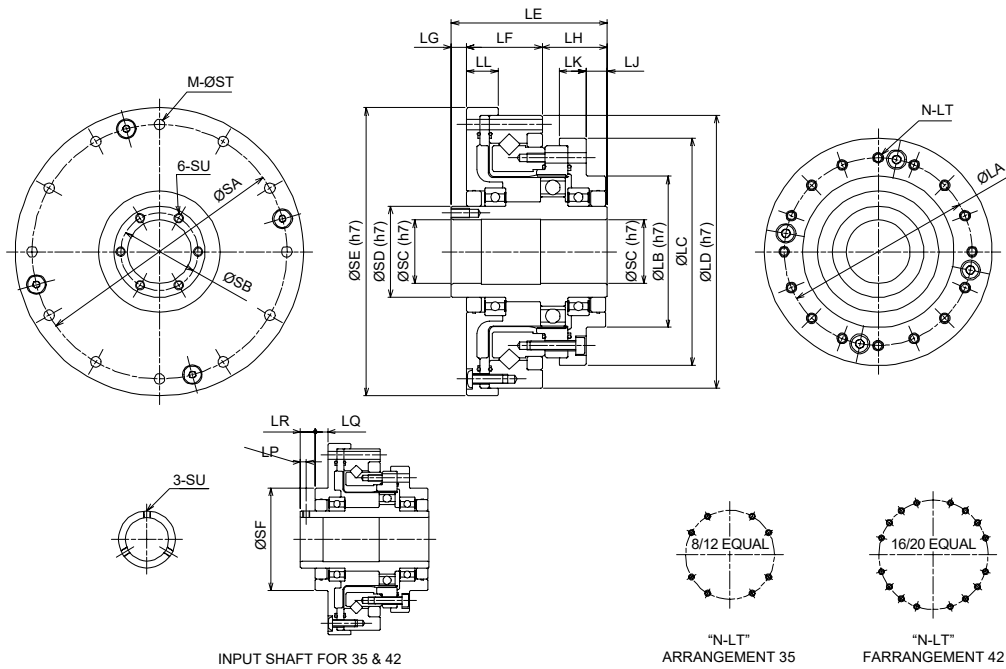
Size	SC	SD	M	ST	CA	CY	CZ	CV	CW	N	LT
35	2.4	70	8	3.5	C0.3	1	38	1.6	31	8	M3×5, φ3.5×6
42	3	80	12	3.5	C0.3	1	45	2	37	16	M3×6, φ3.5×6.5
50	3	90	12	3.5	C0.3	1.5	53	2	44	16	M3×6, φ3.5×7.5
63	3.3	110	12	4.5	C0.3	1.5	66	2	56	16	M4×7, φ4.5×10
80	3.6	142	12	5.5	C0.5	1.5	86	2	72	16	M5×8, φ5.5×14

*1) For details in the input section, check the drawings

Open Style - Complete Unit Assembly (Hollow shaft)



WPU-SNH



INPUT SHAFT FOR 35 & 42

"N-LT" ARRANGEMENT 35

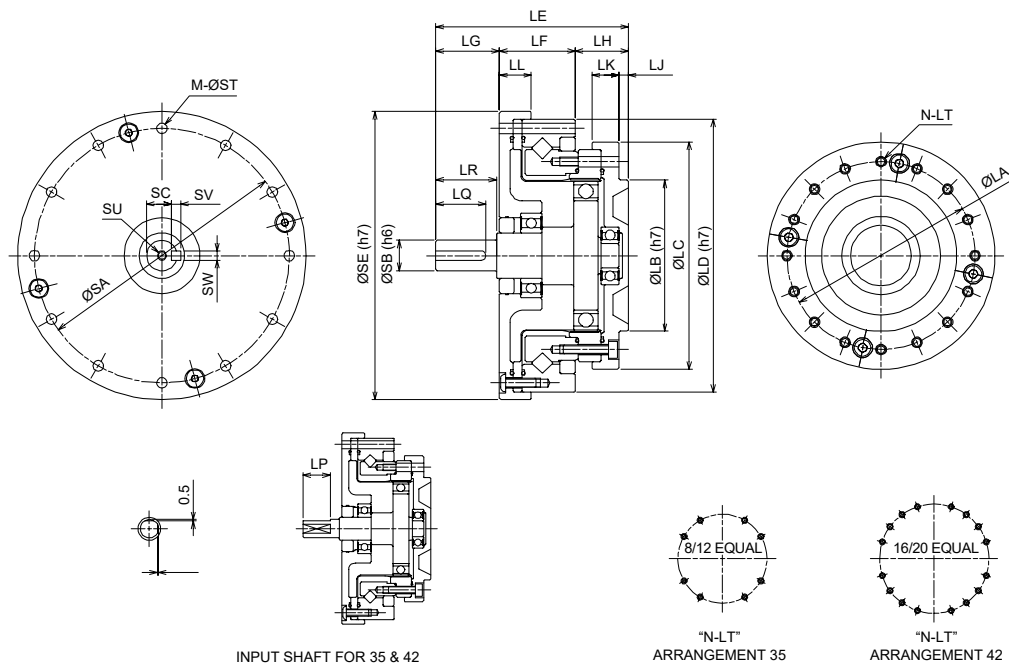
"N-LT" FARRANGEMENT 42

Size	LA	LB	LC	LD	LE	LF	LG	LH	LJ	LK	LL	LP	LQ	LR
35	44	36	54	70	52.5	20.5	12	20	7.5	8	9	2.5	5.5	6.5
42	54	45	64	80	56.5	23	12	21.5	8.5	8.5	10	2.5	5.5	6.5
50	62	50	75	90	51.5	25	5	21.5	7	9	10.5	-	-	-
63	77	60	90	110	55.5	26	6	23.5	6	8.5	10.5	-	-	-
80	100	85	115	142	65.5	32	7	26.5	5	9.5	12	-	-	-

Size	SA	SB	SC	SD	SE	SF	M	ST	SU	N	LT
35	64	-	14	20	74	36	8	3.5	M3	8	M3×5, φ3.5×11.5
42	74	-	19	25	84	45	12	3.5	M3	16	M3×6, φ3.5×12
50	84	25.5	21	30	95	-	12	3.5	M3×6	16	M3×6, φ3.5×13.5
63	102	33.5	29	38	115	-	12	4.5	M3×6	16	M4×7, φ4.5×15.5
80	132	40.5	36	45	147	-	12	5.5	M3×6	16	M5×8, φ5.5×20.5

Open Style - Complete Unit Assembly (Input shaft)

WPU-SNJ



INPUT SHAFT FOR 35 & 42

"N-LT" ARRANGEMENT 35

"N-LT" ARRANGEMENT 42

Size	LA	LB	LC	LD	LE	LF	LG	LH	LJ	LK	LL	LP	LQ	LR
35	44	36	54	70	50.5	20.5	15	15	2.5	8	9	11	-	-
42	54	45	64	80	56	23	17	16	3	8.5	10	12	-	-
50	62	50	75	90	63.5	25	21	17.5	3	9	10.5	-	16.5	20
63	77	60	90	110	72.5	26	26	20.5	3	8.5	10.5	-	22.5	25
80	100	85	115	142	84.5	32	26	26.5	5	9.5	12	-	22.5	25

Size	SA	SB	SC	SE	SV	SW	M	ST	SU	N	LT
35	64	6	-	74	-	-	8	3.5	M3	8	M3×5, φ3.5×11.5
42	74	8	-	84	-	-	12	3.5	M3	16	M3×6, φ3.5×12
50	84	10	8.2	95	3	3	12	3.5	M3×6	16	M3×6, φ3.5×13.5
63	102	14	11	115	5	5	12	4.5	M3×6	16	M4×7, φ4.5×15.5
80	132	14	11	147	5	5	12	5.5	M3×6	16	M5×8, φ5.5×20.5

VRSF SERIES

A close-up photograph of a silver-colored metal motor, likely a brushless DC motor, with a central shaft. The motor is shown from a three-quarter perspective, highlighting its compact and industrial design. The background is a soft, out-of-focus grey.

VRSF series

VRSF planetary gearbox in line

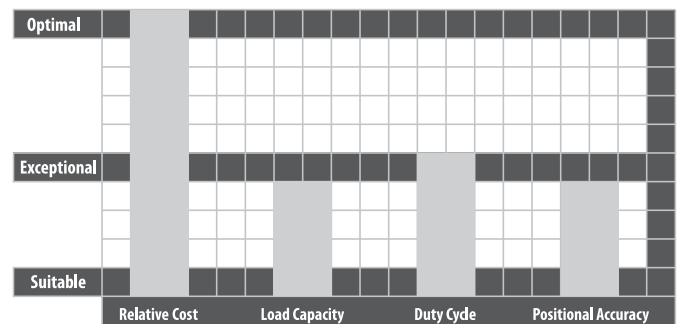
Lightweight and compact aluminum body

Description

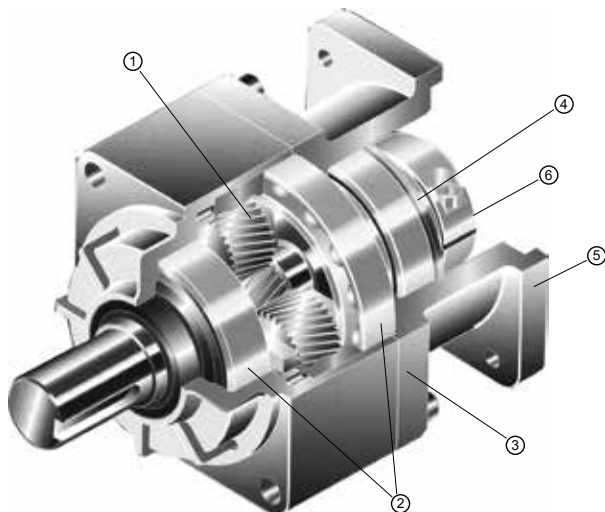
The intelligent, value engineered selection for lower duty cycle servo and stepper motor applications. The VRSF utilizes a lightweight aluminum frame, making it optimal for traveling axes and end of arm tooling systems. Helical cut gearing allows the VRSF to operate much quieter than the industry standard economy products which rely on spur gearing. The VRSF comes standard with 15 arc-minutes of backlash, but can also be configured to higher accuracy levels.

The VRSF is available in four frame sizes, putting out a peak output torque of 274Nm across 9 reduction ratios. The VRSF is the ideal choice for OEMs producing high volume machines where cost is critical, accuracy relatively important and duty cycle not overly extreme. The VRSF's aluminum body has made it a popular choice in medical, food packaging and other harsh environments. The VRSF can be fitted with a NEMA output flange, for standardized connection to customer equipment.

- Quiet operation: Helical cut gears contribute to reduced vibration and noise
- Wide range of mounting adapters offer a simple, precise attachment to any motor
- Lightweight aluminum body reduces excess weight
- Aluminum body, combined with other wash-down features can be used in harsh environments
- Maintenance-free solution that is lubricated for life. High performance grease allows flexible mounting in any orientation



Features



- 1 Carburized helical gears with proprietary secondary finishing process for higher accuracy and smooth, quiet operation
- 2 One piece output shaft and planet carrier with two bearings straddling the planet gears. Higher stiffness and safety factor, with guaranteed alignment of gearing
- 3 Aluminum body for a light weight solution, capable of withstanding corrosive environments
- 4 Input seal allows for IP65 ingress protection
- 5 Optimized mounting system with active centering on motor pilot diameter guarantees alignment of motor. Motor can be installed in any orientation
- 6 True concentric clamping connection, optimized for your motor. Reduced inertia for dynamic performance and balanced for high speed operation

Part Number	VRSF -LB -15 -C -19HB16
Model name - VRSF serie	
Backlash: No code - standard (15 arc-min) LB: low - (5 arc-min)	Motor mounting code (*)
Ratio: 1 stage: 3, 5, S9 - 2 stage: 15, 20, 25, 35, 45, 81	Size: B, C, D, E

*1) Code varies depending on the motor. Use the selection tool link below to configure the code

VRSF B-Frame 1-Stage and 2-Stage Specifications

Frame Size	B								
Stage	1-Stage					2-Stage			
Ratio	Units	Note	3	5	9	15	20	25	35
Nominal Output Torque	[Nm]	*1	3.43	2.84	2.35	4.02	5.00	6.27	3.84
Maximum Acceleration Torque	[Nm]	*2	10.3	8.53	7.25	12.2	15.0	19.0	11.5
Emergency Stop Torque	[Nm]	--	--	--	--	--	--	--	--
Nominal Input Speed	[rpm]	*3	3000			3000			
Maximum Input Speed	[rpm]	*4	5000			5000			
No Load Running Torque	[Nm]	*5	0.119			0.048			
Permitted Radial Load	[N]	*6	392	490	588	784	804	882	882
Permitted Axial Load	[N]	*7	196	245	294	392	402	441	441
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.081	0.059	0.052	0.057	0.056	0.056	0.052
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.150	0.130	0.120	0.130	0.130	0.130	0.120
Efficiency	[%]	*8	90			85			
Torsional Rigidity	[Nm/arc-min]	*9	0.8			0.8			
Backlash (Standard)	[arc-min]	--	≤ 15			≤ 15			
Backlash (Low)	[arc-min]	--	≤ 10			≤ 10			
Backlash (Precision)	[arc-min]	--	≤ 3			≤ 3			
Noise Level	[dB]	*10	≤ 72			≤ 65			
Protection Class	--	*11	IP65			IP65			
Ambient Temperature	[°C]	--	0-40			0-40			
Permitted Housing Temperature	[°C]	--	90			90			
Weight ($\leq \varnothing 8$)	[kg]	*12	0.58			0.75			
Weight ($\leq \varnothing 14$)	[kg]	*12	0.7			0.86			

*1) At nominal input speed, service life is 20,000 hours

*2) The maximum torque when starting or stopping operation

*3) The average input speed

*4) The maximum intermittent input speed

*5) Torque at no load applied to the input shaft at nominal input speed

*6) At this load and nominal input speed, service life will be 20,000 hours. (The radial load applied to the output side shaft center)

*7) At this load and nominal input speed, service life will be 20,000 hours. (The axial load applied to the output side bearing)

*8) The efficiency at the nominal output torque rating

*9) This does not include lost motion

*10) Contact SIT S.p.A. for the testing conditions and environment

*11) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details

*12) The weight may vary slightly between models

VRSF C-Frame 1-Stage and 2-Stage Specifications

Frame Size	C										
Stage	1-Stage					2-Stage					
Ratio	Units	Note	3	5	9	15	20	25	35	45	81
Nominal Output Torque	[Nm]	*1	6.86	11.5	9.7	16.2	21.1	26.4	15.5	9.5	9.7
Maximum Acceleration Torque	[Nm]	*2	20.6	34.3	29.2	48.6	63.3	79.2	46.6	28.6	29.2
Emergency Stop Torque	[Nm]	--	--	--	--	--	--	--	--	--	--
Nominal Input Speed	[rpm]	*3	3000			3000					
Maximum Input Speed	[rpm]	*4	5000			5000					
No Load Running Torque	[Nm]	*5	0.29			0.19					
Permitted Radial Load	[N]	*6	784	980	1180	1470	1570	1670	1670	1670	1670
Permitted Axial Load	[N]	*7	392	490	588	735	785	833	833	833	833
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	--	0.077	0.070	0.062	0.055	0.053	0.052
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.630	0.380	0.300	0.150	0.140	0.130	0.130	0.120	0.120
--	--	--	1.100	0.880	0.800	--	--	--	--	--	--
Efficiency	[%]	*8	90			85					
Torsional Rigidity	[Nm/arc-min]	*9	3			3					
Backlash (Standard)	[arc-min]	--	≤ 15			≤ 15					
Backlash (Low)	[arc-min]	--	≤ 5			≤ 5					
Backlash (Precision)	[arc-min]	--	≤ 3			≤ 3					
Noise Level	[dB]	*10	≤ 72			≤ 65					
Protection Class	--	*11	IP 65			IP65					
Ambient Temperature	[°C]	--	0-40			0-40					
Permitted Housing Temperature	[°C]	--	90			90					
Weight ($\leq \varnothing 8$)	[kg]	*12	--			1.8					
Weight ($\leq \varnothing 14$)	[kg]	*12	1.8			1.9					
Weight ($\leq \varnothing 19$)	--	*12	2.2			--					

*1) At nominal input speed, service life is 20,000 hours

*2) The maximum torque when starting or stopping operation

*3) The average input speed

*4) The maximum intermittent input speed

*5) Torque at no load applied to the input shaft at nominal input speed

*6) At this load and nominal input speed, service life will be 20,000 hours. (The radial load applied to the output side shaft center)

*7) At this load and nominal input speed, service life will be 20,000 hours. (The axial load applied to the output side bearing)

*8) The efficiency at the nominal output torque rating

*9) This does not include lost motion

*10) Contact SIT S.p.A. for the testing conditions and environment

*11) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details

*12) The weight may vary slightly between models

VRSF D-Frame 1-Stage and 2-Stage Specifications

Frame Size	D										
Stage	1-Stage					2-Stage					
Ratio	Units	Note	3	5	9	15	20	25	35	45	81
Nominal Output Torque	[Nm]	*1	18.3	23.5	18.2	30.4	40.6	50.7	37	28.3	17.8
Maximum Acceleration Torque	[Nm]	*2	54.9	70.6	54.7	91.2	122	152	111	85.2	53.5
Emergency Stop Torque	[Nm]	--	--	--	--	--	--	--	--	--	--
Nominal Input Speed	[rpm]	*3	3000			3000					
Maximum Input Speed	[rpm]	*4	5000			5000					
No Load Running Torque	[Nm]	*5	0.51			0.26					
Permitted Radial Load	[N]	*6	882	1080	1470	1760	1910	2060	2060	2060	2060
Permitted Axial Load	[N]	*7	441	539	735	882	955	1030	1030	1030	1030
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	--	--	--	--	--	--	0.10
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	1.30	0.59	0.38	0.37	0.35	0.34	0.30	0.29	0.29
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	1.80	1.10	0.90	0.86	0.84	0.83	0.79	0.78	0.77
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	3.60	2.90	2.70	2.70	2.70	2.70	--	--	--
Efficiency	[%]	*8	90			85					
Torsional Rigidity	[Nm/arc-min]	*9	6			6					
Backlash (Standard)	[arc-min]	--	≤ 15			≤ 15					
Backlash (Low)	[arc-min]	--	≤ 5			≤ 5					
Backlash (Precision)	[arc-min]	--	≤ 3			≤ 3					
Noise Level	[dB]	*10	≤ 72			≤ 65					
Protection Class	--	*11	IP65			IP65					
Ambient Temperature	[°C]	--	0-40			0-40					
Permitted Housing Temperature	[°C]	--	90			90					
Weight ($\leq \varnothing 8$)	[kg]	*12	--			2.8					
Weight ($\leq \varnothing 14$)	[kg]	*12	2.8			3.3					
Weight ($\leq \varnothing 19$)	[kg]	*12	3.2			3.7					
Weight ($\leq \varnothing 28$)	[kg]	*12	4.0			4.8					

*1) At nominal input speed, service life is 20,000 hours

*2) The maximum torque when starting or stopping operation

*3) The average input speed

*4) The maximum intermittent input speed

*5) Torque at no load applied to the input shaft at nominal input speed

*6) At this load and nominal input speed, service life will be 20,000 hours. (The radial load applied to the output side shaft center)

*7) At this load and nominal input speed, service life will be 20,000 hours. (The axial load applied to the output side bearing)

*8) The efficiency at the nominal output torque rating

*9) This does not include lost motion

*10) Contact SIT S.p.A. for the testing conditions and environment

*11) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details

*12) The weight may vary slightly between models

VRSF E-Frame 1-Stage and 2-Stage Specifications

Frame Size	E										
Stage	1-Stage					2-Stage					
Ratio	Units	Note	3	5	9	15	20	25	35	45	81
Nominal Output Torque	[Nm]	*1	44.1	56.8	73.5	91.4	78.4	65.4	71	91.3	43.3
Maximum Acceleration Torque	[Nm]	*2	132	171	221	274	235	196	213	274	130
Emergency Stop Torque	[Nm]	--	--	--	--	--	--	--	--	--	--
Nominal Input Speed	[rpm]	*3	3000			3000					
Maximum Input Speed	[rpm]	*4	5000			5000					
No Load Running Torque	[Nm]	*5	1.12			0.62					
Permitted Radial Load	[N]	*6	1370	1670	1960	2350	2500	2650	3430	3520	3530
Permitted Axial Load	[N]	*7	686	833	980	1180	1250	1320	1715	1760	1765
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	0.61	0.63	0.56	0.53	0.40	0.35	0.34
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	4.40	1.90	1.20	1.10	1.10	1.00	0.90	0.85	0.84
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	6.20	3.70	2.90	3.30	3.20	3.20	2.80	2.70	2.70
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	14.00	11.00	11.00	11.00	11.00	11.00	--	--	--
Efficiency	[%]	*8	90			85					
Torsional Rigidity	[Nm/arc-min]	*9	20			20					
Backlash (Standard)	[arc-min]	--	≤ 15			≤ 15					
Backlash (Low)	[arc-min]	--	≤ 5			≤ 5					
Backlash (Precision)	[arc-min]	--	≤ 3			≤ 3					
Noise Level	[dB]	*10	≤ 75			≤ 75					
Protection Class	--	*11	IP65			IP65					
Ambient Temperature	[°C]	--	0-40			0-40					
Permitted Housing Temperature	[°C]	--	90			90					
Weight ($\leq \varnothing 8$)	[kg]	*12	6.1			7.1					
Weight ($\leq \varnothing 14$)	[kg]	*12	6.5			7.5					
Weight ($\leq \varnothing 19$)	[kg]	*12	7.4			9.3					
Weight ($\leq \varnothing 28$)	[kg]	*12	9.8			11.7					

*1) At nominal input speed, service life is 20,000 hours

*2) The maximum torque when starting or stopping operation

*3) The average input speed

*4) The maximum intermittent input speed

*5) Torque at no load applied to the input shaft at nominal input speed

*6) At this load and nominal input speed, service life will be 20,000 hours. (The radial load applied to the output side shaft center)

*7) At this load and nominal input speed, service life will be 20,000 hours. (The axial load applied to the output side bearing)

*8) The efficiency at the nominal output torque rating

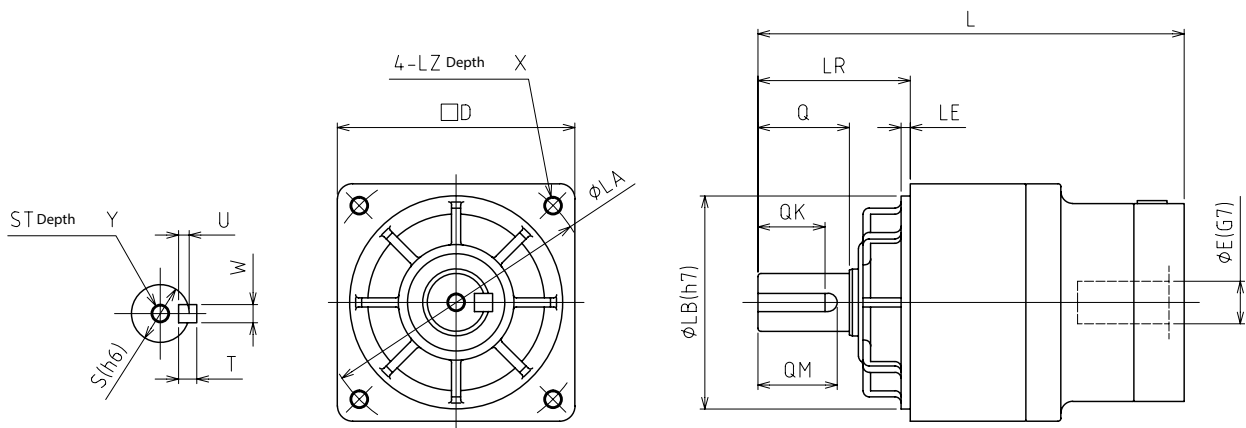
*9) This does not include lost motion

*10) Contact SIT S.p.A. for the testing conditions and environment

*11) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details

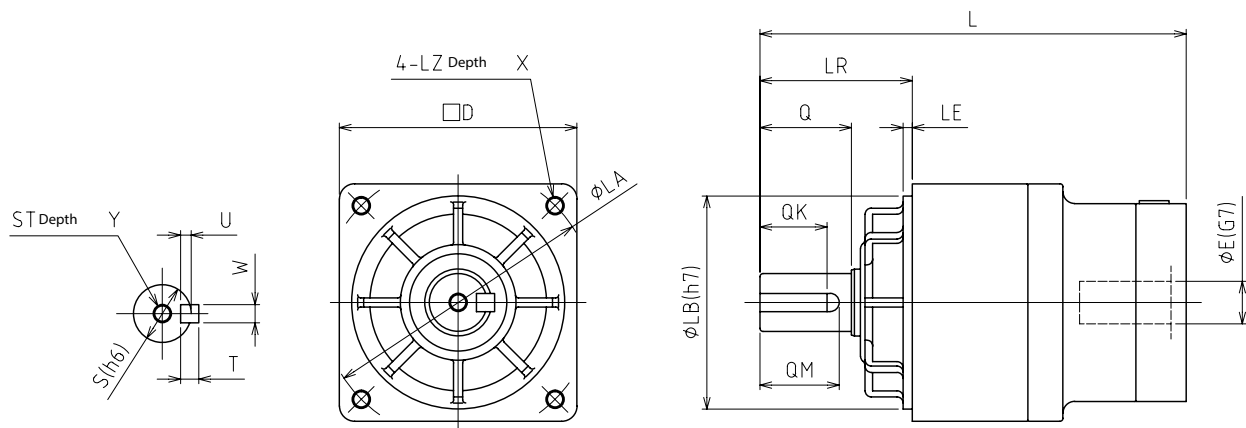
*12) The weight may vary slightly between models

VRSF B-Frame 1-Stage and 2-Stage Dimensions



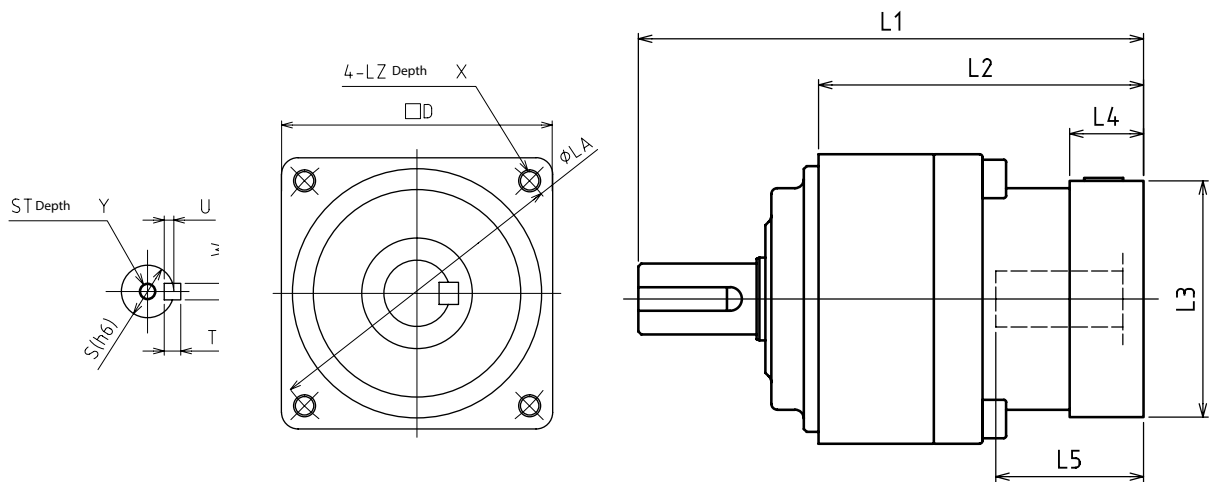
Frame Size	Ratio	Input Bore Dia. E	Dimensions															
			L	LR	S	ST	Y	Q	QM	QK	WxU	T	D	LB	LE	LA	LZ	X
B	1-Stage	≍ φ 8	104.5	32	12	M5	10	20	18	16	4x2.5	4	52	50	3	60	M5	12
		≍ φ 14	107.5															
	2-Stage	≍ φ 8	115.5															
		≍ φ 14	118.5															

VRSF C-Frame 1-Stage and 2-Stage Dimensions



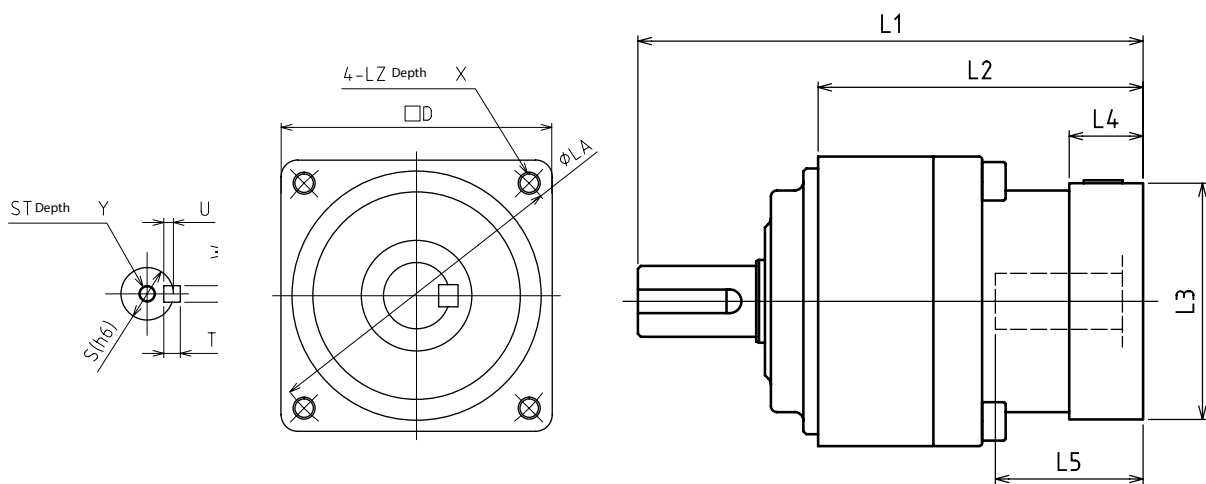
Frame Size	Ratio	Input Bore Dia. E	Dimensions															
			L	LR	S	ST	Y	Q	QM	QK	WxU	T	D	LB	LE	LA	LZ	X
C	1-Stage	≍ φ14	140	50	19	M6	12	30	26	22	6x3.5	6	78	70	3	90	M6	20
		≍ φ19	156															
	2-Stage	≍ φ 8	147.5															
		≍ φ14	150.5															

VRSF D-Frame 1-Stage and 2-Stage Dimensions



Frame Size	Ratio	Input Bore Dia. E	Dimensions															
			L	LR	S	ST	Y	Q	QM	QK	WxU	T	D	LB	LE	LA	LZ	X
D	1-Stage	≧ φ 14	155	61	24	M8	16	40	35	30	8x4	7	98	90	5	115	M8	20
		≧ φ 19	171															
		≧ φ 28	186															
	2-Stage	≧ φ 8	163															
		≧ φ 14	169															
		≧ φ 19	184															
		≧ φ 28	200.5															

VRSF E-Frame 1-Stage and 2-Stage Dimensions



Frame Size	Ratio	Input Bore Dia. E	Dimensions															
			L	LR	S	ST	Y	Q	QM	QK	WxU	T	D	LB	LE	LA	LZ	X
E	1-Stage	≧ φ 14	189	75	32	M10	20	55	52	45	10x5	8	125	110	5	135	M10	20
		≧ φ 19	198.5															
		≧ φ 28	224															
	2-Stage	≧ φ 14	210															
		≧ φ 19	225															
		≧ φ 28	246.5															
		≧ φ 38	261.5															

VRL SERIES

A detailed photograph of a VRL series motor is shown on the right side of the page. The motor is a compact, cylindrical device with a silver-colored metal finish. It features a central shaft with a threaded end. The motor is mounted on a base with two visible screws. The background is a light gray gradient.

VRL series

VRL planetary gearbox in line

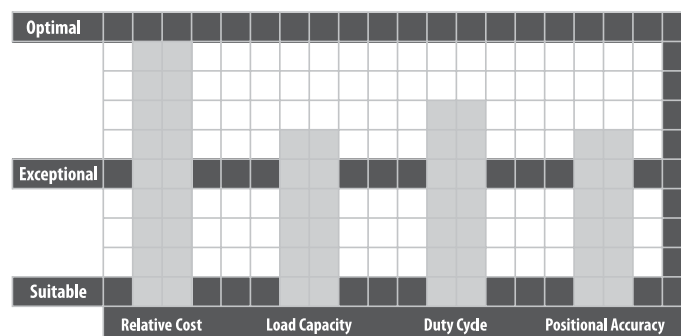
Reliability, complete product range

Description

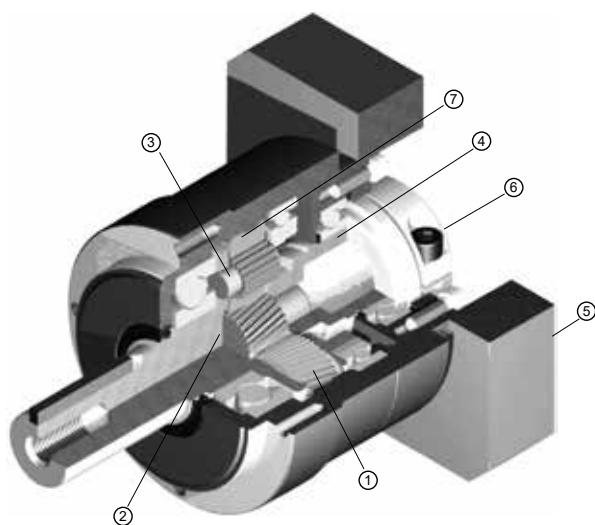
The VRL series is the all-rounder in the planetary gearbox marketplace. With helical gearing, robust internal construction, smooth operation and high torque density, this product is truly best-in-class. 5 arc-min backlash allows the VRL to be applied to a wide range of applications where accuracy and dynamics are in play, but cost is of concern. The VRL is an excellent choice for servo applications in

packaging, handling and automation systems. A variety of standard wash down and food grade options are available, making it an attractive option for the toughest environments. We offer the broadest selection of frame sizes and ratios, giving our customers more flexibility than ever before. Industry standard mounting dimensions allow the VRL to be implemented in legacy machine designs, saving our customers valuable time.

- The all-rounder for mid to high end motion control applications
- The widest range of frame sizes and ratios available in the market
- Best-In-class backlash (≤ 5 arc-min)
- Broad range of mounting adapters offer a simple, precise attachment to any motor
- Maintenance-free solution that is lubricated for life. High performance grease allows flexible mounting in any orientation
- Industry standard mounting dimensions



Features



1 Carburized helical gears with proprietary secondary finishing process for higher accuracy and smooth, quiet operation. 40% higher tooth surface area than the industry standard

- One piece output shaft and planet carrier with two bearings straddling the planet gears. Higher stiffness, torque capacity and safety factor, with guaranteed alignment of gearing
- Uncaged needle roller bearings provide excellent torque density and torsional rigidity. 43% larger bearing surface area compared to the rest of the industry
- Unique labyrinth input seal design greatly reduces heat and increases system efficiency. IP65 protection is available for wash down applications
- Optimized mounting system with active centering on motor pilot diameter guarantees alignment of motor. Motor can be installed in any orientation
- True concentric motor shaft clamping connection, optimized for your specific motor. Reduced inertia for dynamic performance and balanced for high speed operation
- Ring gear machined directly into the housing, not welded or pressed in. Provides greater concentricity and elimination of speed fluctuation

Part Number	VRL -090 C -7 -K 5 -19HB16			
Model name - VRL series	Size: 050, 070, 090, 120, 155, 205, 235	Version: B design version in exhaustion. Available on demand.	Backlash: 5 arc-min	Output mounting style: K: Keyed Shaft / S: Smooth shaft
			Ratio: 1 stage: 3, 4, 5, 6, 7, 8, 9, 10 2 stage: 15, 16, 20, 25, 28, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100	

*1) Code varies depending on the motor. Use the selection tool link below to configure the code

VRL 050 1-Stage Specifications

Frame Size	050									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	6	9	10	10	10	10	10	10
Maximum Acceleration Torque	[Nm]	*2	14	21	21	21	21	21	14	14
Maximum Torque	[Nm]	*3	17	25	25	25	25	25	17	17
Emergency Stop Torque	[Nm]	*4	30	35	35	35	35	35	30	30
Nominal Input Speed	[rpm]	*5	4000	4000	4000	4000	4000	4000	4000	4000
Maximum Input Speed	[rpm]	*6	8000	8000	8000	8000	8000	8000	8000	8000
No Load Running Torque	[Nm]	*7	0.03							
Maximum Radial Load	[N]	*8	710							
Maximum Axial Load	[N]	*9	640							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.053	0.041	0.036	0.034	0.032	0.031	0.031	0.030
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.17	0.16	0.15	0.15	0.15	0.15	0.15	0.15
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	2							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*12	≤ 61							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	0.7							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

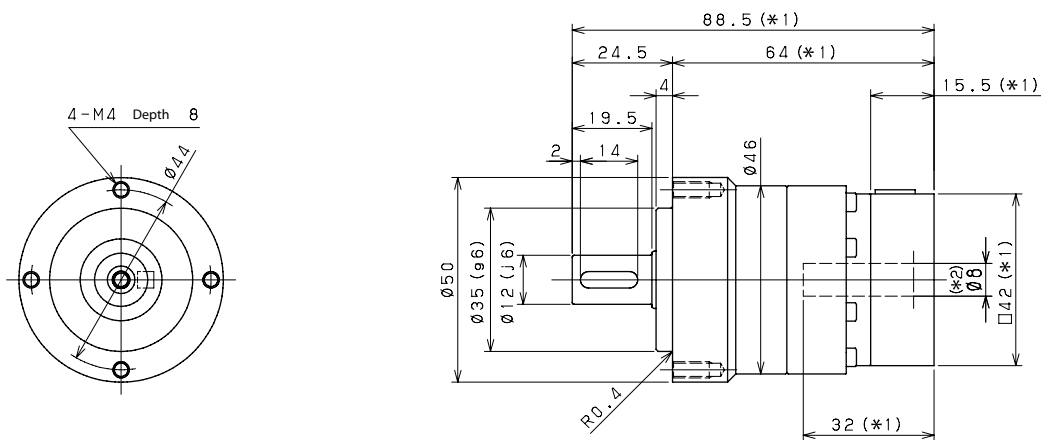
VRL 050 2-Stage Specifications

Frame Size	050									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	9	14	14	15	15	11	15	15
Maximum Acceleration Torque	[Nm]	*2	14	21	21	21	21	14	21	21
Maximum Torque	[Nm]	*3	17	21	21	21	21	14	21	21
Emergency Stop Torque	[Nm]	*4	30	35	35	35	35	30	35	35
Nominal Input Speed	[rpm]	*5	4000	4000	4000	4000	4000	4000	4000	4000
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500	8500
No Load Running Torque	[Nm]	*7	0.01							
Maximum Radial Load	[N]	*8	710							
Maximum Axial Load	[N]	*9	640							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.035	0.038	0.034	0.034	0.038	0.030	0.034	0.030
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	2							
Maximum Torsional Backlash	[arc-min]	--	≤ 7							
Noise Level	dB [A]	*12	≤ 61							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	0.8							

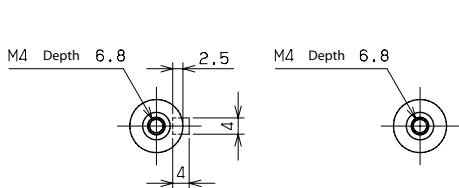
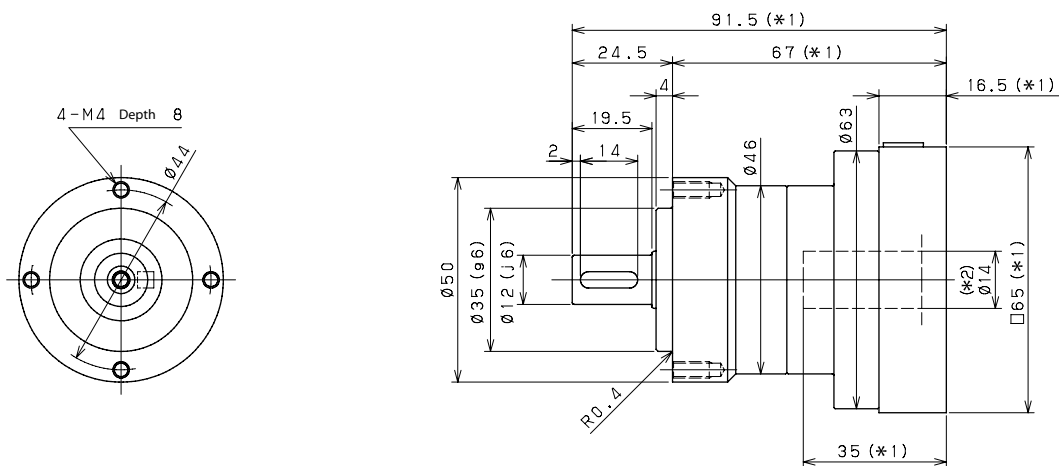
Frame Size	050									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	11	15	15	15	15	11	11	
Maximum Acceleration Torque	[Nm]	*2	14	21	21	21	21	14	14	
Maximum Torque	[Nm]	*3	14	21	21	21	21	14	14	
Emergency Stop Torque	[Nm]	*4	30	35	35	35	35	30	30	
Nominal Input Speed	[rpm]	*5	4000	4000	4000	4000	4000	4000	4000	
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500	
No Load Running Torque	[Nm]	*7	0.01							
Maximum Radial Load	[N]	*8	710							
Maximum Axial Load	[N]	*9	640							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.034	0.030	0.030	0.030	0.030	0.030	0.030	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	2							
Maximum Torsional Backlash	[arc-min]	--	≤ 7							
Noise Level	dB [A]	*12	≤ 61							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	0.8							

VRL 050 1-Stage Dimensions

Input bore size $\leq \varnothing 8$ mm

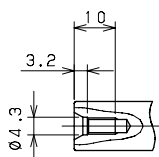


Input bore size $\leq \varnothing 14$ mm



Keyed shaft

Smooth shaft

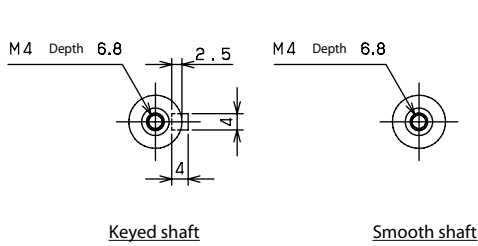
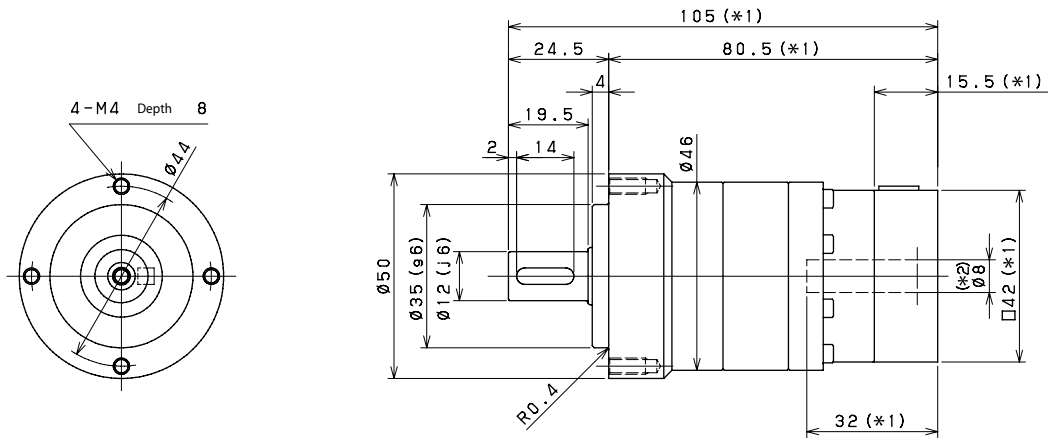


*1) Length will vary depending on motor

*2) Bushing will be inserted to adapt to motor shaft

VRL 050 2-Stage Dimensions

Input bore size $\leq \varnothing 8$ mm



*1) Length will vary depending on motor

*2) Bushing will be inserted to adapt to motor shaft

VRL 070 1-Stage Specifications

Frame Size	070									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	19	27	28	28	28	28	28	28
Maximum Acceleration Torque	[Nm]	*2	46	66	66	66	66	66	46	46
Maximum Torque	[Nm]	*3	55	79	79	79	79	76	55	55
Emergency Stop Torque	[Nm]	*4	80	100	100	100	100	100	80	80
Nominal Input Speed	[rpm]	*5	3300	3300	4000	4000	4000	4000	4000	4000
Maximum Input Speed	[rpm]	*6	7500	7500	7500	7500	7500	7500	7500	7500
No Load Running Torque	[Nm]	*7	0.08							
Maximum Radial Load	[N]	*8	1200							
Maximum Axial Load	[N]	*9	1100							
Moment of Inertia ($\leq \emptyset 8$)	[kgcm ²]	--	0.14	0.095	0.077	0.068	0.062	0.059	0.057	0.056
Moment of Inertia ($\leq \emptyset 14$)	[kgcm ²]	--	0.25	0.21	0.19	0.18	0.17	0.17	0.17	0.17
Moment of Inertia ($\leq \emptyset 19$)	[kgcm ²]	--	0.53	0.48	0.46	0.46	0.45	0.45	0.44	0.44
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	3							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*12	≤ 66							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	1.5							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

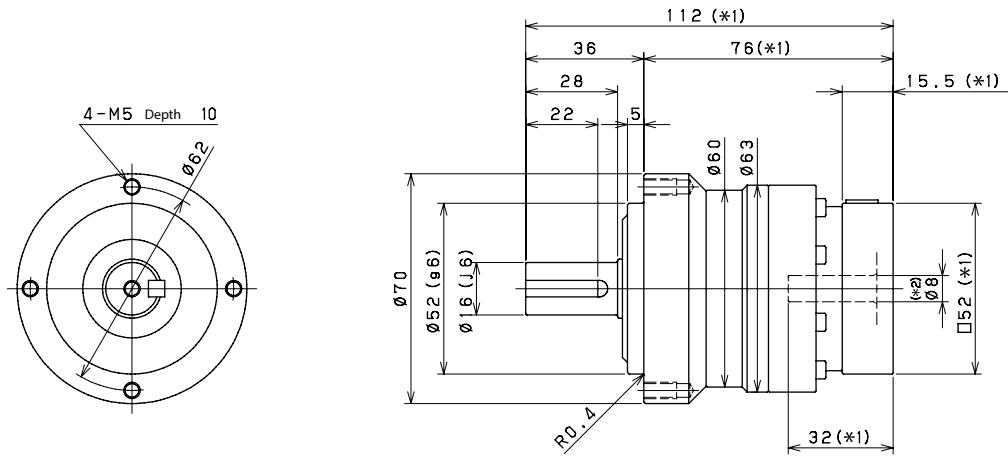
VRL 070 2-Stage Specifications

Frame Size	070									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	25	32	32	43	45	32	45	45
Maximum Acceleration Torque	[Nm]	*2	46	66	66	66	66	46	66	66
Maximum Torque	[Nm]	*3	46	66	66	66	66	46	66	66
Emergency Stop Torque	[Nm]	*4	80	100	100	100	100	80	100	100
Nominal Input Speed	[rpm]	*5	4000	4000	4000	4000	4000	4000	4000	4000
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500	8500
No Load Running Torque	[Nm]	*7	0.04							
Maximum Radial Load	[N]	*8	1200							
Maximum Axial Load	[N]	*9	1100							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.064	0.070	0.062	0.061	0.068	0.051	0.061	0.051
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.18	0.18	0.17	0.17	0.18	0.16	0.17	0.16
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.45	0.46	0.45	0.45	0.46	0.44	0.45	0.44
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	3							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*12	≤ 66							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	1.7							

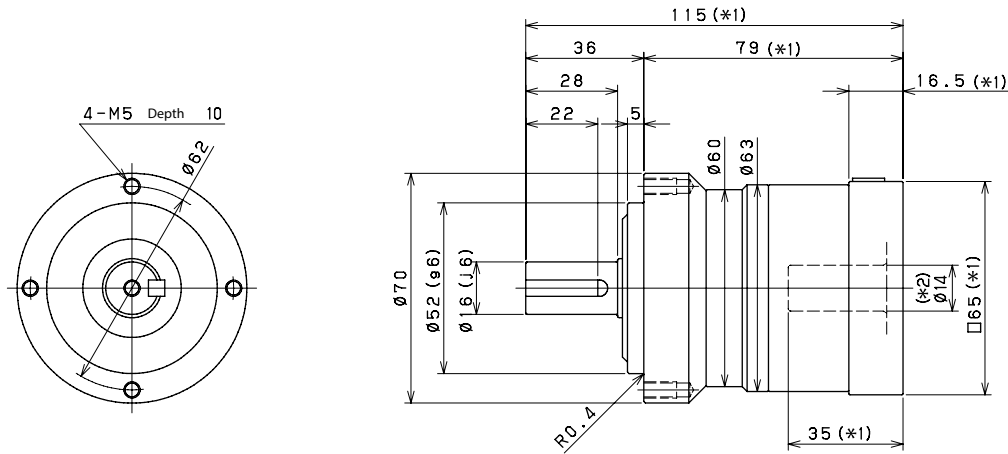
Frame Size	070									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	32	45	45	45	45	32	32	
Maximum Acceleration Torque	[Nm]	*2	46	66	66	66	66	46	46	
Maximum Torque	[Nm]	*3	46	66	66	66	66	46	46	
Emergency Stop Torque	[Nm]	*4	80	100	100	100	100	80	80	
Nominal Input Speed	[rpm]	*5	4000	4800	4800	5500	5500	5500	5500	
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500	
No Load Running Torque	[Nm]	*7	0.04							
Maximum Radial Load	[N]	*8	1200							
Maximum Axial Load	[N]	*9	1100							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.061	0.051	0.051	0.051	0.051	0.051	0.051	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.17	0.16	0.16	0.16	0.16	0.16	0.16	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.45	0.44	0.44	0.44	0.44	0.44	0.44	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	3							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*12	≤ 66							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	1.7							

VRL 070 1-Stage Dimensions

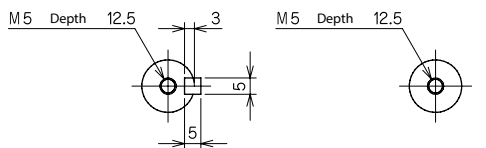
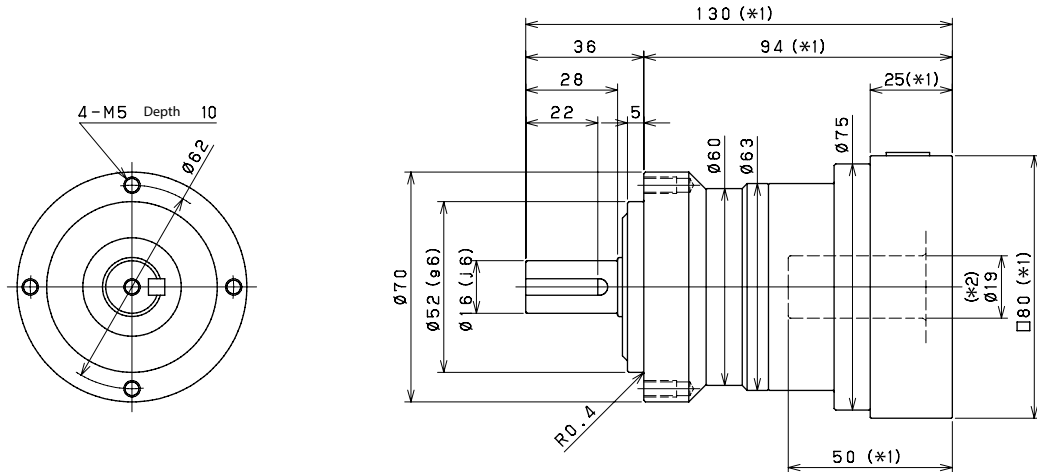
Input bore size $\leq \varnothing 8$ mm



Input bore size $\leq \varnothing 14$ mm



Input bore size $\leq \varnothing 19$ mm



Keyed shaft

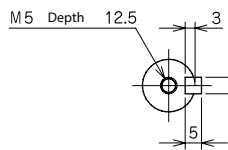
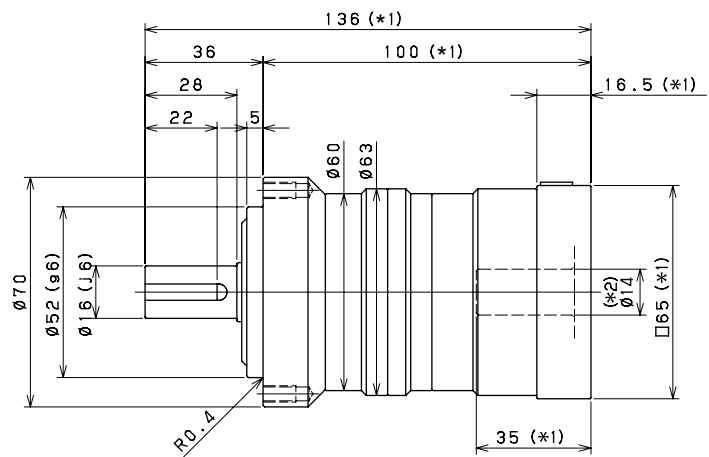
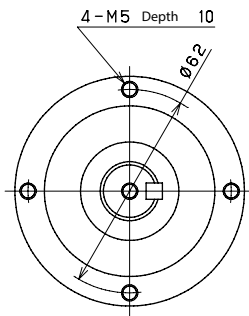
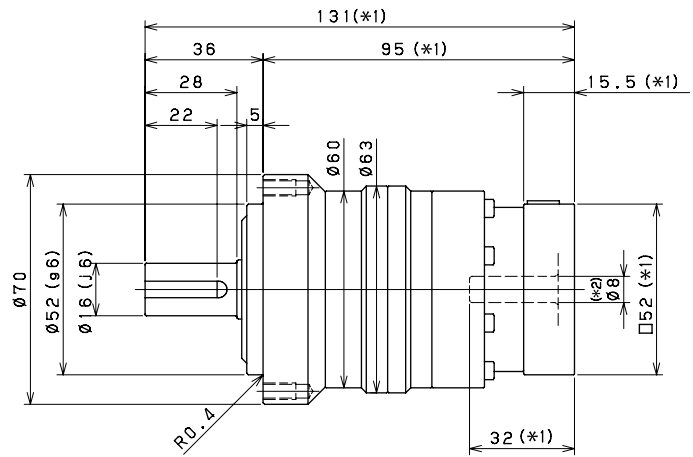
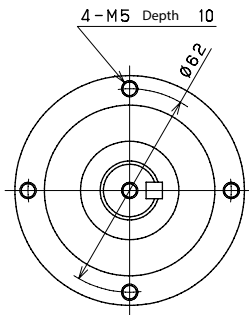
Smooth shaft

*1) Length will vary depending on motor

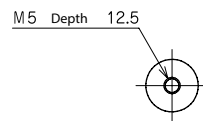
*2) Bushing will be inserted to adapt to motor shaft

VRL 070 2-Stage Dimensions

Input bore size $\leq \varnothing 8$ mm



Keyed shaft



Smooth shaft

*1) Length will vary depending on motor

*2) Bushing will be inserted to adapt to motor shaft

VRL 090 1-Stage Specifications

Frame Size	090									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	53	77	84	84	84	84	84	84
Maximum Acceleration Torque	[Nm]	*2	108	165	165	165	165	165	112	112
Maximum Torque	[Nm]	*3	135	200	200	195	195	190	145	145
Emergency Stop Torque	[Nm]	*4	200	250	250	250	250	250	200	200
Nominal Input Speed	[rpm]	*5	2900	2900	2900	2900	3100	3100	3100	3100
Maximum Input Speed	[rpm]	*6	7500	7500	7500	7500	7500	7500	7500	7500
No Load Running Torque	[Nm]	*7	0.35							
Maximum Radial Load	[N]	*8	2400							
Maximum Axial Load	[N]	*9	2200							
Moment of Inertia (≤ Ø 8)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia (≤ Ø 14)	[kgcm ²]	--	0.72	0.50	0.41	0.36	0.33	0.31	0.30	0.30
Moment of Inertia (≤ Ø 19)	[kgcm ²]	--	1.1	0.90	0.80	0.75	0.73	0.71	0.70	0.70
Moment of Inertia (≤ Ø 28)	[kgcm ²]	--	2.9	2.7	2.6	2.5	2.5	2.5	2.5	2.5
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	3.5							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_p , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

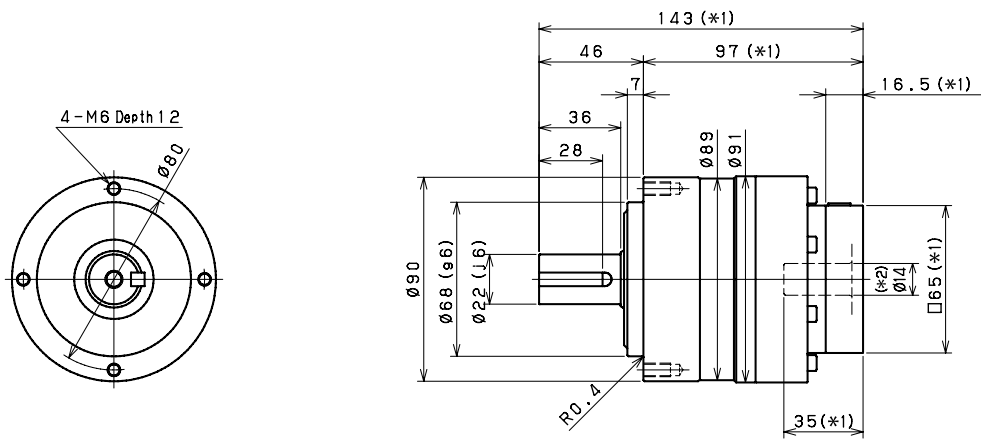
VRL 090 2-Stage Specifications

Frame Size	090									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	65	80	86	106	118	88	118	118
Maximum Acceleration Torque	[Nm]	*2	108	165	165	165	165	108	165	165
Maximum Torque	[Nm]	*3	108	165	165	165	165	108	165	165
Emergency Stop Torque	[Nm]	*4	200	250	250	250	250	200	250	250
Nominal Input Speed	[rpm]	*5	3500	3500	3500	3500	3500	3500	3500	3500
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500	8500
No Load Running Torque	[Nm]	*7	0.06							
Maximum Radial Load	[N]	*8	2400							
Maximum Axial Load	[N]	*9	2200							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.20	0.25	0.19	0.19	0.24	0.12	0.18	0.11
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.36	0.41	0.35	0.35	0.40	0.28	0.35	0.28
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.75	0.79	0.74	0.74	0.78	0.67	0.73	0.67
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.5	2.5	2.5	2.5	2.5	2.4	2.5	2.4
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	4							

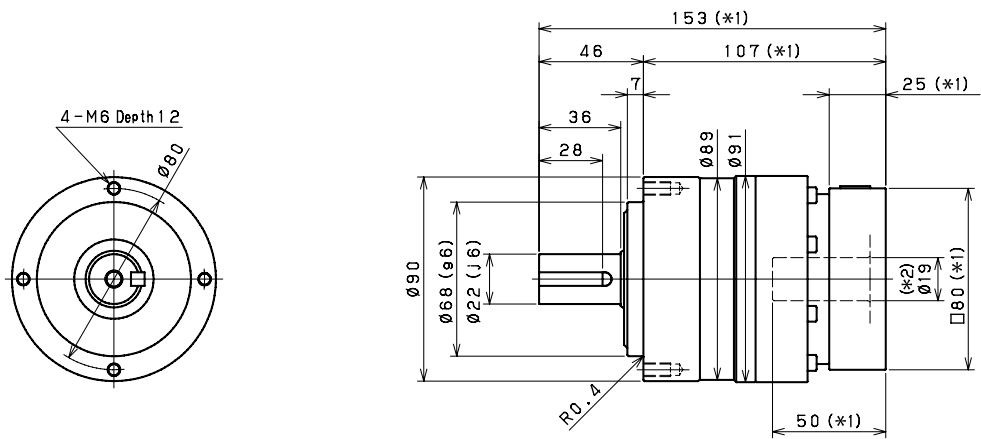
Frame Size	090									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	88	118	118	118	118	88	88	
Maximum Acceleration Torque	[Nm]	*2	112	165	165	165	165	112	112	
Maximum Torque	[Nm]	*3	112	165	165	165	165	112	112	
Emergency Stop Torque	[Nm]	*4	200	250	250	250	250	200	200	
Nominal Input Speed	[rpm]	*5	3500	3800	3800	4500	4500	4500	4500	
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500	
No Load Running Torque	[Nm]	*7	0.06							
Maximum Radial Load	[N]	*8	2400							
Maximum Axial Load	[N]	*9	2200							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.18	0.11	0.11	0.11	0.11	0.11	0.11	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.34	0.27	0.27	0.27	0.27	0.27	0.27	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.73	0.67	0.67	0.67	0.67	0.67	0.67	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.5	2.4	2.4	2.4	2.4	2.4	2.4	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	4							

VRL 090 1-Stage Dimensions

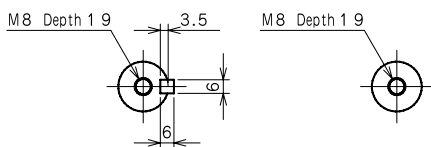
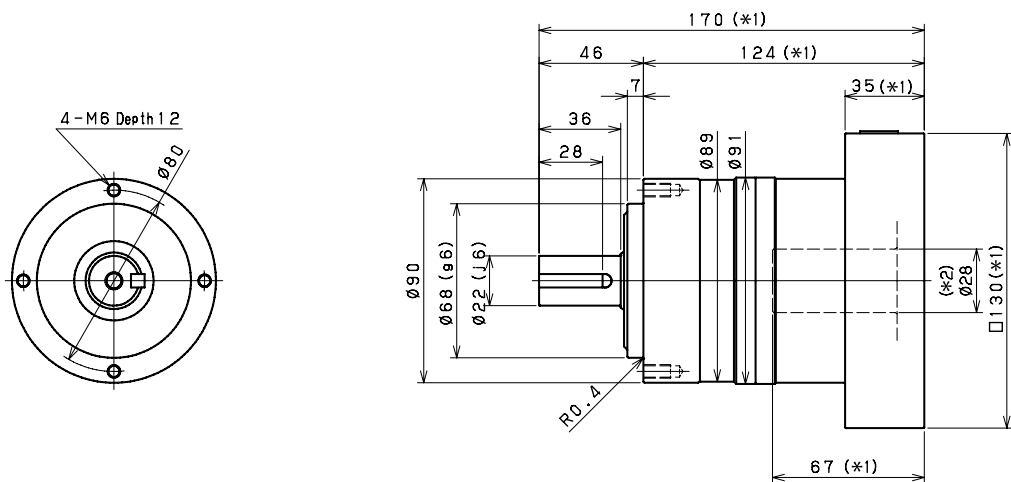
Input bore size $\leq \varnothing 14$ mm



Input bore size $\leq \varnothing 19$ mm



Input bore size $\leq \varnothing 28$ mm



Keyed shaft

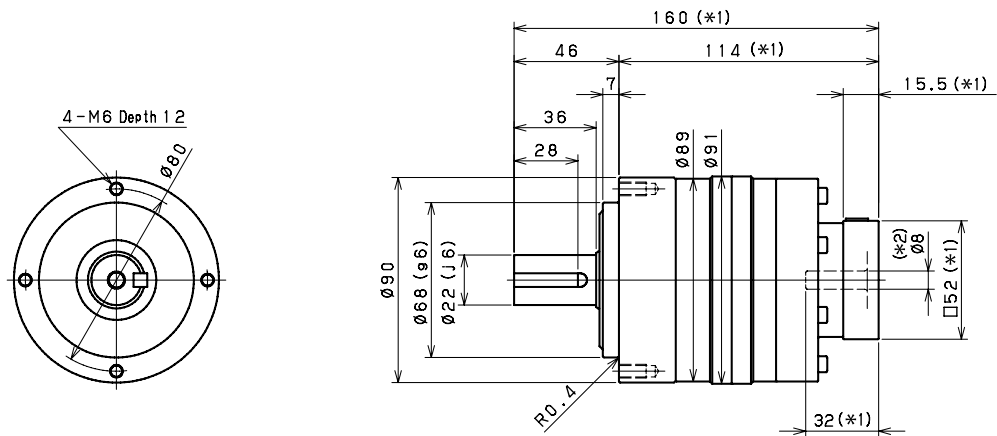
Smooth shaft

*1) Length will vary depending on motor

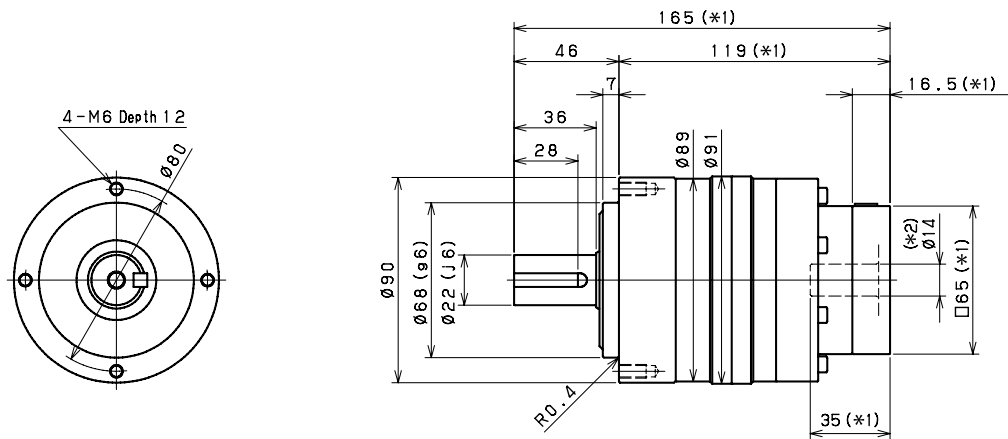
*2) Bushing will be inserted to adapt to motor shaft

VRL 090 2-Stage Dimensions

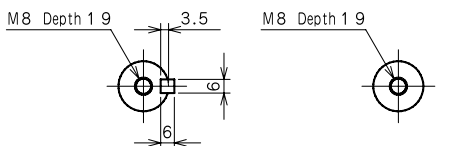
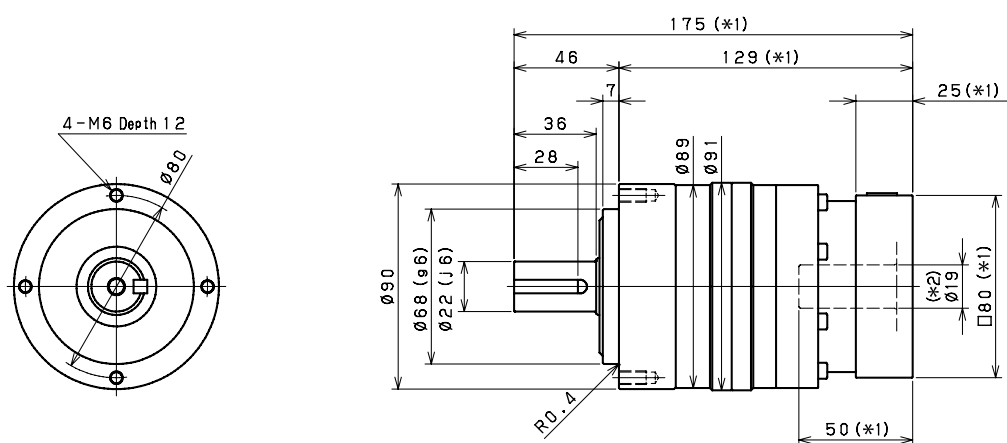
Input bore size $\leq \phi 8$ mm



Input bore size $\leq \phi 14$ mm



Input bore size $\leq \phi 19$ mm



Keyed shaft

Smooth shaft

*1) Length will vary depending on motor

*2) Bushing will be inserted to adapt to motor shaft

VRL 120 1-Stage Specifications

Frame Size	120									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	128	146	190	190	190	190	190	190
Maximum Acceleration Torque	[Nm]	*2	270	390	390	390	390	390	292	292
Maximum Torque	[Nm]	*3	340	490	490	480	480	480	370	370
Emergency Stop Torque	[Nm]	*4	500	625	625	625	625	625	500	500
Nominal Input Speed	[rpm]	*5	2800	2800	2800	2800	2800	2800	2800	2800
Maximum Input Speed	[rpm]	*6	5500	5500	5500	5500	5500	5500	5500	5500
No Load Running Torque	[Nm]	*7	1.30							
Maximum Radial Load	[N]	*8	4300							
Maximum Axial Load	[N]	*9	3900							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	3.2	2.0	1.4	1.2	1.0	0.92	0.86	0.83
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	5.1	3.7	3.1	2.9	2.8	2.7	2.6	2.6
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	12	10	9.5	9.3	9.1	9	8.9	8.9
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	31							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*13	≤ 71							
Protection Class	--	--	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	*13	90							
Weight	[kg]	*14	7.8							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

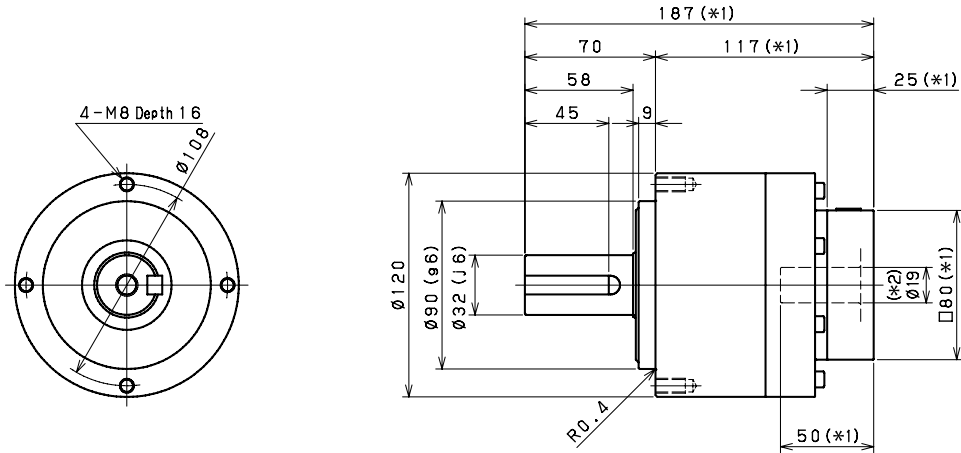
VRL 120 2-Stage Specifications

Frame Size	120									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	174	200	220	280	280	220	280	270
Maximum Acceleration Torque	[Nm]	*2	270	390	390	390	390	270	390	390
Maximum Torque	[Nm]	*3	270	390	390	390	390	270	390	390
Emergency Stop Torque	[Nm]	*4	500	625	625	625	625	500	625	625
Nominal Input Speed	[rpm]	*5	3100	3100	3100	3100	3100	3100	3100	3100
Maximum Input Speed	[rpm]	*6	6500	6500	6500	6500	6500	6500	6500	6500
No Load Running Torque	[Nm]	*7	0.42							
Maximum Radial Load	[N]	*8	4300							
Maximum Axial Load	[N]	*9	3900							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.77	0.98	0.72	0.70	0.92	0.38	0.68	0.37
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	1.2	1.4	1.1	1.1	1.3	0.78	1.1	0.77
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.9	3.1	2.8	2.8	3	2.5	2.8	2.5
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	9.2	9.4	9.1	9.1	9.3	8.8	9.1	8.8
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	31							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*13	≤ 71							
Protection Class	--	--	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	*13	90							
Weight	[kg]	*14	8.7							

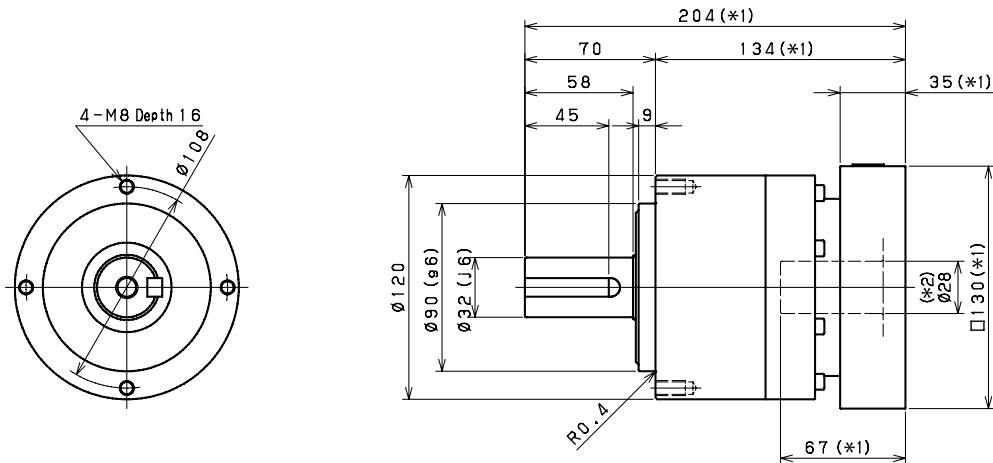
Frame Size	120									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	220	280	280	280	280	220	220	
Maximum Acceleration Torque	[Nm]	*2	292	390	390	390	390	292	292	
Maximum Torque	[Nm]	*3	292	390	390	390	390	292	292	
Emergency Stop Torque	[Nm]	*4	500	625	625	625	625	500	500	
Nominal Input Speed	[rpm]	*5	3100	3500	3500	4200	4200	4200	4200	
Maximum Input Speed	[rpm]	*6	6500	6500	6500	6500	6500	6500	6500	
No Load Running Torque	[Nm]	*7	0.42							
Maximum Radial Load	[N]	*8	4300							
Maximum Axial Load	[N]	*9	3900							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	0.19	0.19	0.19	0.19	0.19	0.19	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.68	0.36	0.36	0.36	0.36	0.36	0.36	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	1.1	0.76	0.76	0.76	0.76	0.76	0.76	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.8	2.5	2.5	2.5	2.5	2.5	2.5	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	9.1	8.8	8.8	8.8	8.8	8.8	8.8	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	31							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*13	≤ 71							
Protection Class	--	--	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	*13	90							
Weight	[kg]	*14	8.7							

VRL 120 1-Stage Dimensions

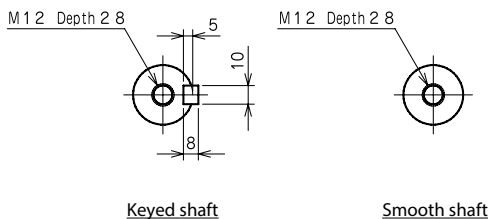
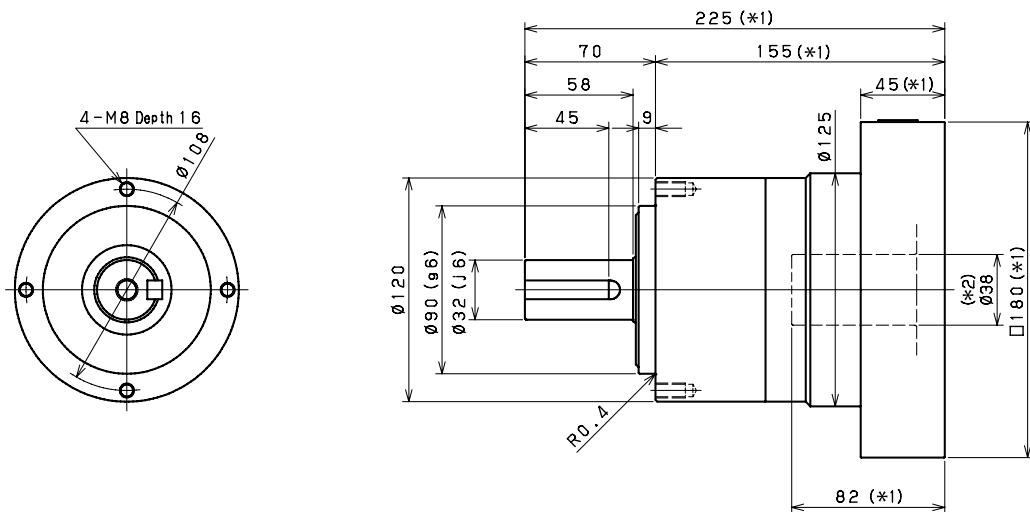
Input bore size $\leq \varnothing 19$ mm



Input bore size $\leq \varnothing 28$ mm



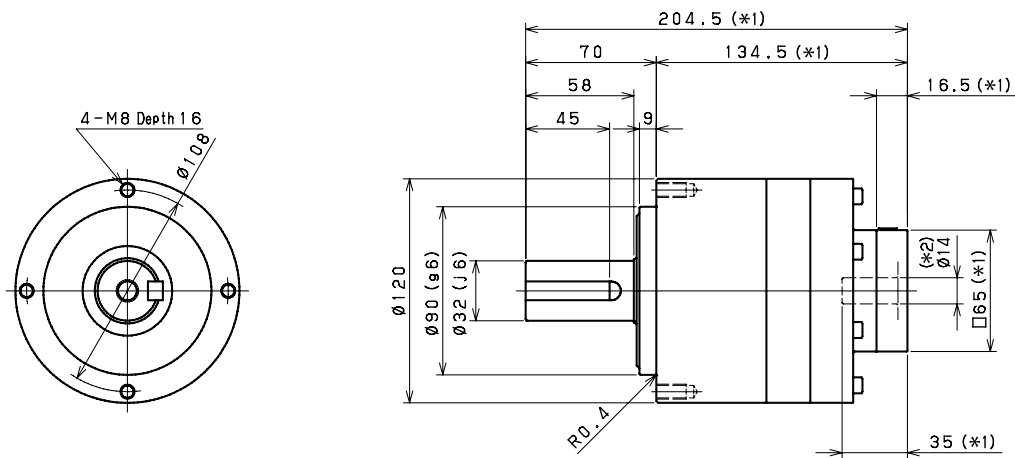
Input bore size $\leq \varnothing 38$ mm



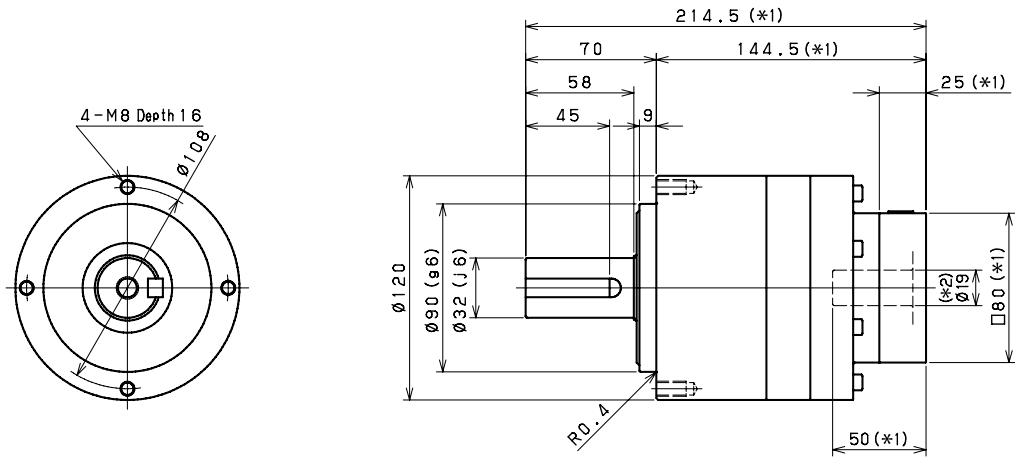
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRL 120 2-Stage Dimensions

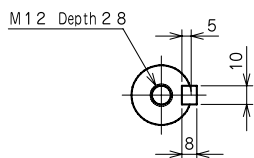
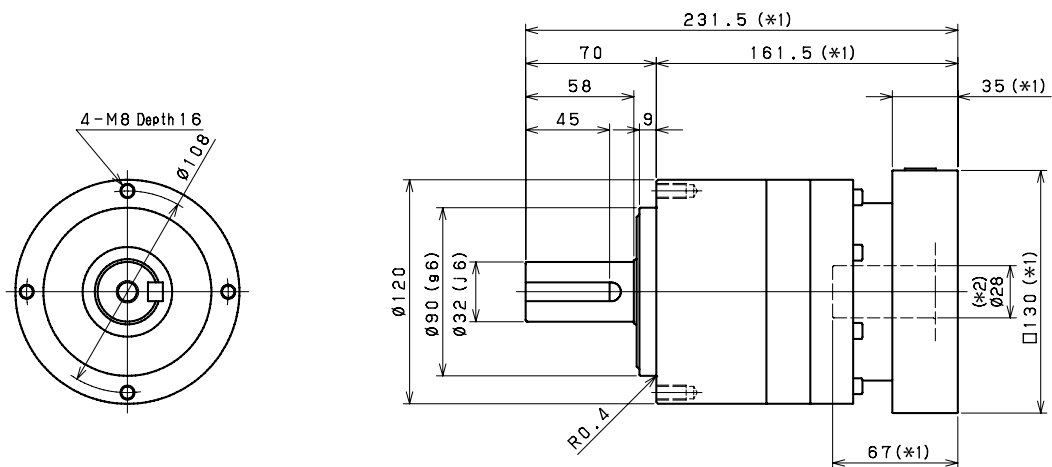
Input bore size $\leq \varnothing 14$ mm



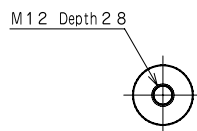
Input bore size $\leq \varnothing 19$ mm



Input bore size $\leq \varnothing 28$ mm



Keyed shaft



Smooth shaft

- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRL 155 1-Stage Specifications

Frame Size	155									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	248	280	380	380	380	380	380	380
Maximum Acceleration Torque	[Nm]	*2	560	840	840	840	840	840	610	610
Maximum Torque	[Nm]	*3	630	1000	1000	950	950	950	730	730
Emergency Stop Torque	[Nm]	*4	1000	1250	1250	1250	1250	1250	1000	1000
Nominal Input Speed	[rpm]	*5	2100	2100	2100	2100	2600	2600	2600	2600
Maximum Input Speed	[rpm]	*6	5000	5000	5000	5000	5000	5000	5000	5000
No Load Running Torque	[Nm]	*7	1.63							
Maximum Radial Load	[N]	*8	9100							
Maximum Axial Load	[N]	*9	8200							
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	12	7.3	5.3	4.3	3.9	3.5	3.3	3.2
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	18	14	12	11	10	9.9	9.7	9.6
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	35	29	27	26	25	25	25	25
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	16							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

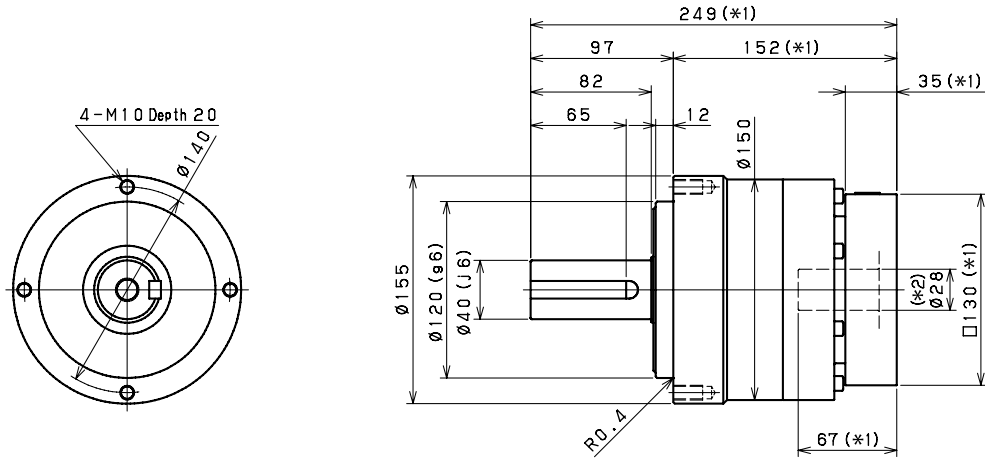
VRL 155 2-Stage Specifications

Frame Size	155									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	360	380	410	590	590	440	590	500
Maximum Acceleration Torque	[Nm]	*2	560	840	840	840	840	560	840	840
Maximum Torque	[Nm]	*3	560	840	840	840	840	560	840	840
Emergency Stop Torque	[Nm]	*4	1000	1250	1250	1250	1250	1000	1250	1250
Nominal Input Speed	[rpm]	*5	2900	2900	2900	2900	2900	2900	2900	2900
Maximum Input Speed	[rpm]	*6	6000	6000	6000	6000	6000	6000	6000	6000
No Load Running Torque	[Nm]	*7	0.56							
Maximum Radial Load	[N]	*8	9100							
Maximum Axial Load	[N]	*9	8200							
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.6	3.5	2.4	2.4	3.3	1.1	2.3	1.1
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.4	5.3	4.2	4.1	5.1	2.9	4.1	2.8
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	11	12	10	10	11	9.2	10	9.1
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	26	27	25	25	26	24	25	24
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	18							

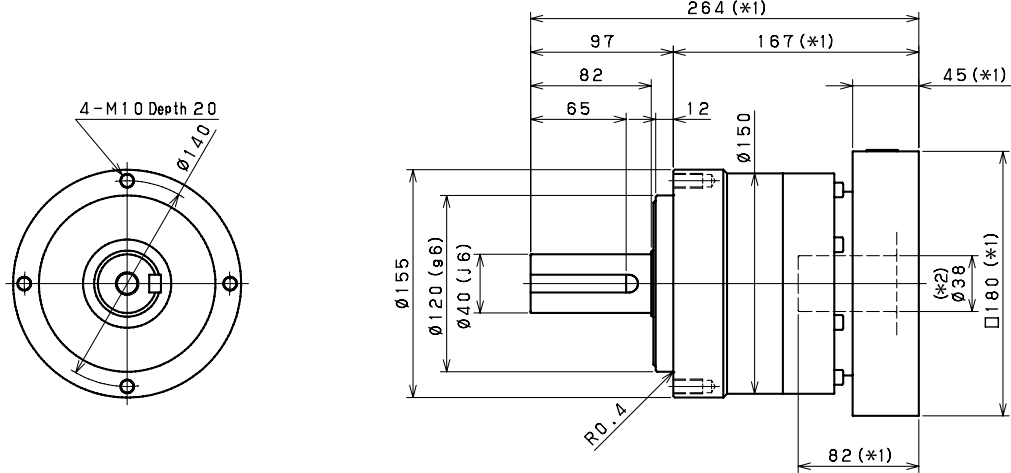
Frame Size	155									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	440	590	590	590	590	440	440	
Maximum Acceleration Torque	[Nm]	*2	610	840	840	840	840	610	610	
Maximum Torque	[Nm]	*3	610	840	840	840	840	610	610	
Emergency Stop Torque	[Nm]	*4	1000	1250	1250	1250	1250	1000	1000	
Nominal Input Speed	[rpm]	*5	2900	3200	3200	3900	3900	3900	3900	
Maximum Input Speed	[rpm]	*6	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque	[Nm]	*7	0.56							
Maximum Radial Load	[N]	*8	9100							
Maximum Axial Load	[N]	*9	8200							
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	0.65	0.64	0.64	0.63	0.63	0.63	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.3	1.1	1.1	1.1	1.1	1.1	1.1	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.0	2.8	2.8	2.8	2.8	2.8	2.8	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	10	9.1	9.1	9.1	9.1	9.1	9.1	
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	25	24	24	24	24	24	24	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	18							

VRL 155 1-Stage Dimensions

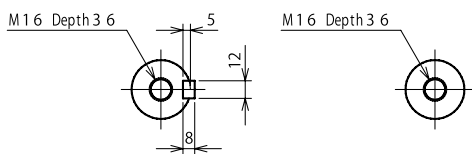
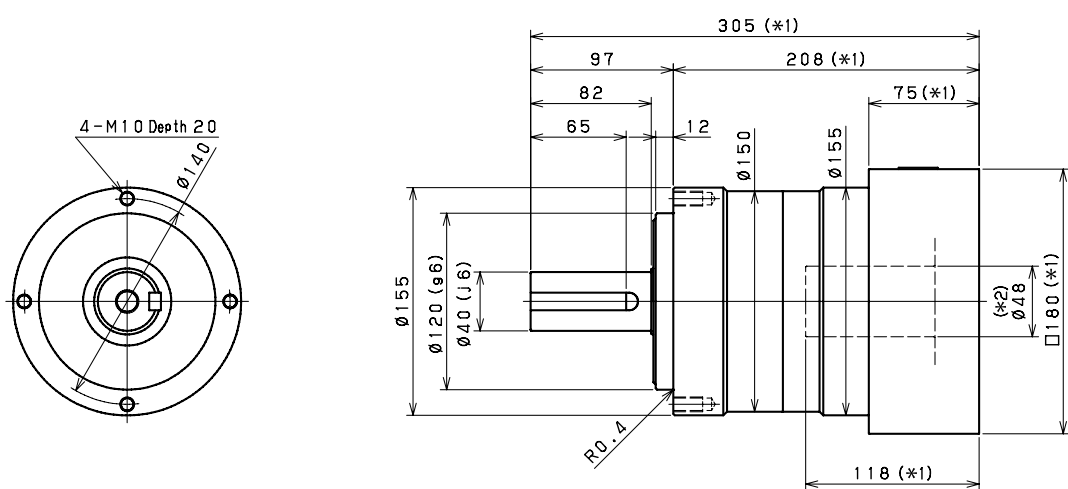
Input bore size $\leq \varnothing 28$ mm



Input bore size $\leq \varnothing 38$ mm



Input bore size $\leq \varnothing 48$ mm



Keyed shaft

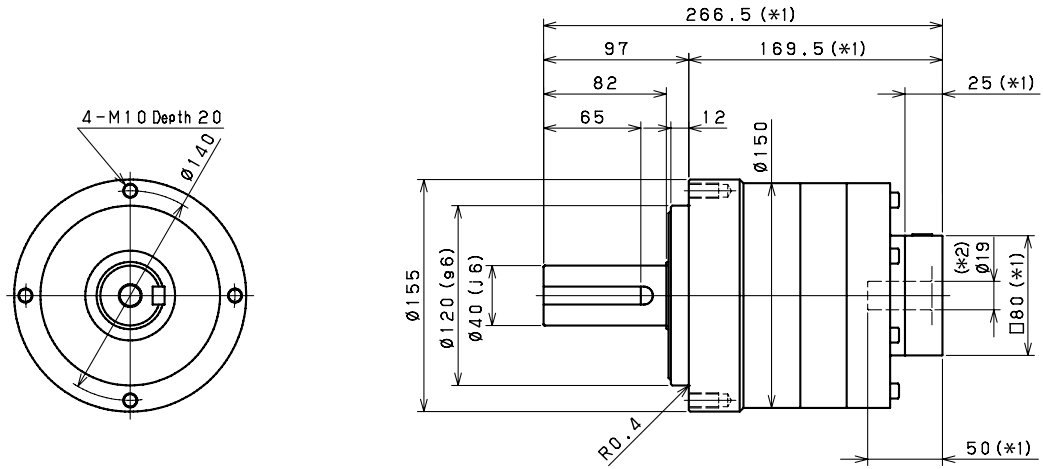
Smooth shaft

*1) Length will vary depending on motor

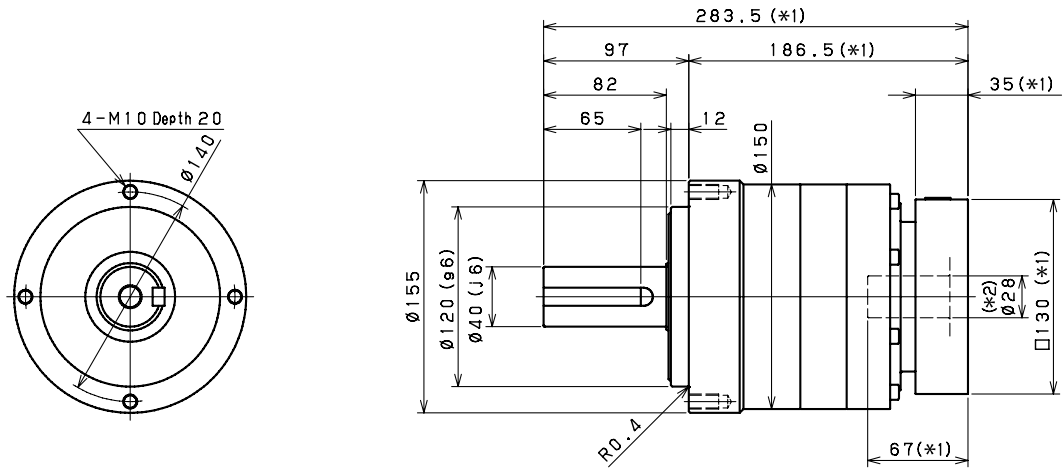
*2) Bushing will be inserted to adapt to motor shaft

VRL 155 2-Stage Dimensions

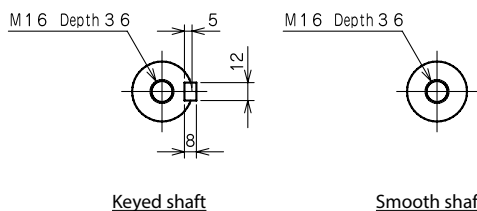
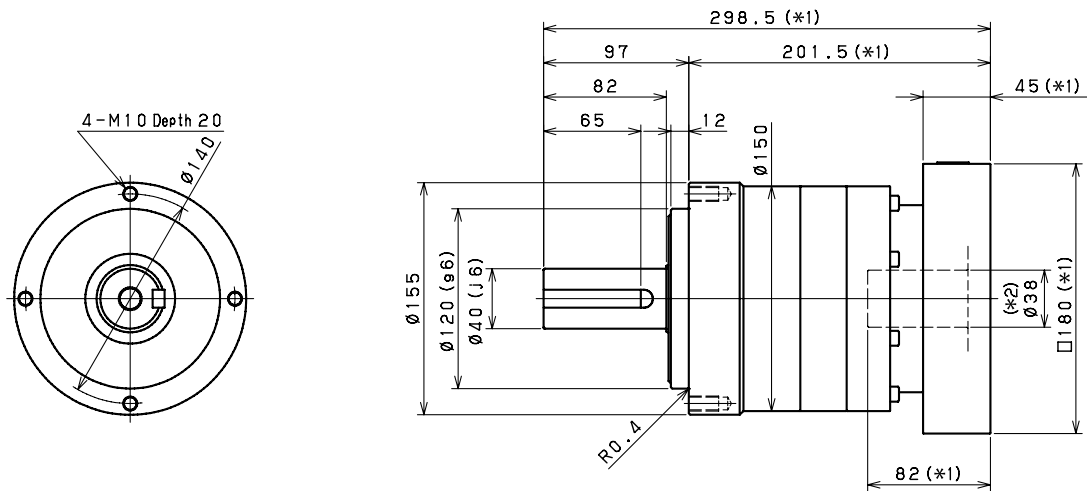
Input bore size $\leq \phi 19$ mm



Input bore size $\leq \phi 28$ mm



Input bore size $\leq \phi 38$ mm



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRL 205 1-Stage Specifications

Frame Size	205									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	570	850	910	910	910	910	910	910
Maximum Acceleration Torque	[Nm]	*2	1300	1850	1850	1850	1850	1850	1350	1350
Maximum Torque	[Nm]	*3	1450	2250	2250	2150	2150	2150	1750	1750
Emergency Stop Torque	[Nm]	*4	2200	2750	2750	2750	2750	2750	2200	2200
Nominal Input Speed	[rpm]	*5	1500	1500	1500	1500	2300	2300	2300	2300
Maximum Input Speed	[rpm]	*6	4500	4500	4500	4500	4500	4500	4500	4500
No Load Running Torque	[Nm]	*7	2.68							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	43	26	19	15	14	13	12	12
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	57	41	34	31	29	28	27	27
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	110	85	78	75	73	72	71	71
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	39							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

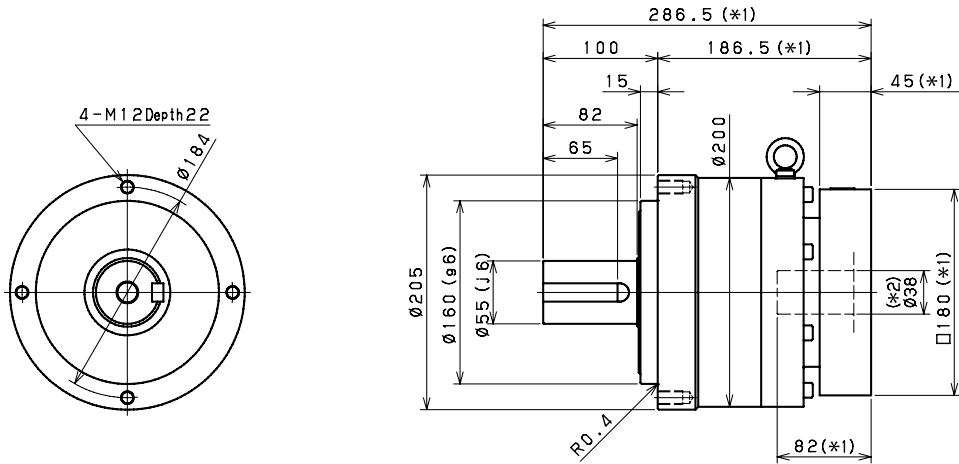
VRL 205 2-Stage Specifications

Frame Size	205										
Stage	2-Stage										
Ratio	Unit	Note	15	16	20	25	28	30	35	40	
Nominal Output Torque	[Nm]	*1	660	850	910	1100	1300	930	1300	1200	
Maximum Acceleration Torque	[Nm]	*2	1300	1850	1850	1850	1850	1300	1850	1850	
Maximum Torque	[Nm]	*3	1300	1850	1850	1850	1850	1300	1850	1850	
Emergency Stop Torque	[Nm]	*4	2200	2750	2750	2750	2750	2200	2750	2750	
Nominal Input Speed	[rpm]	*5	2700	2700	2700	2700	2700	2700	2700	2700	
Maximum Input Speed	[rpm]	*6	5000	5000	5000	5000	5000	5000	5000	5000	
No Load Running Torque	[Nm]	*7	1.39								
Maximum Radial Load	[N]	*8	15000								
Maximum Axial Load	[N]	*9	14000								
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--	--	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	8.8	11	8.1	7.9	11	4.0	7.6	3.9	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	15	18	14	14	17	10	14	10	
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	30	33	29	29	32	25	29	25	
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	90								
Torsional Rigidity	[Nm/arc-min]	*11	175								
Maximum Torsional Backlash	[arc-min]	--	≤ 5								
Noise Level	dB [A]	*12	≤ 67								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	40								

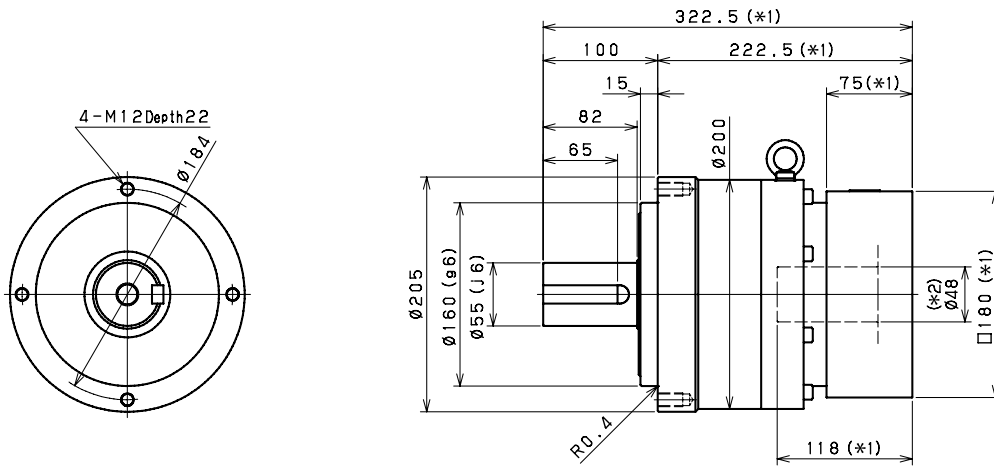
Frame Size	205									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	930	1300	1300	1300	1300	930	930	
Maximum Acceleration Torque	[Nm]	*2	1350	1850	1850	1850	1850	1350	1350	
Maximum Torque	[Nm]	*3	1350	1850	1850	1850	1850	1350	1350	
Emergency Stop Torque	[Nm]	*4	2200	2750	2750	2750	2750	2200	2200	
Nominal Input Speed	[rpm]	*5	2700	2900	2900	3400	3400	3400	3400	
Maximum Input Speed	[rpm]	*6	5000	5000	5000	5000	5000	5000	5000	
No Load Running Torque	[Nm]	*7	1.39							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	1.9	1.9	1.8	1.8	1.8	1.8	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	7.6	3.8	3.8	3.8	3.7	3.7	3.7	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	14	10	10	10	10	10	10	
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	29	25	25	25	25	25	25	
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	40							

VRL 205 1-Stage Dimensions

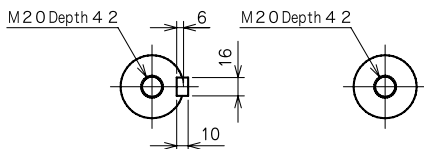
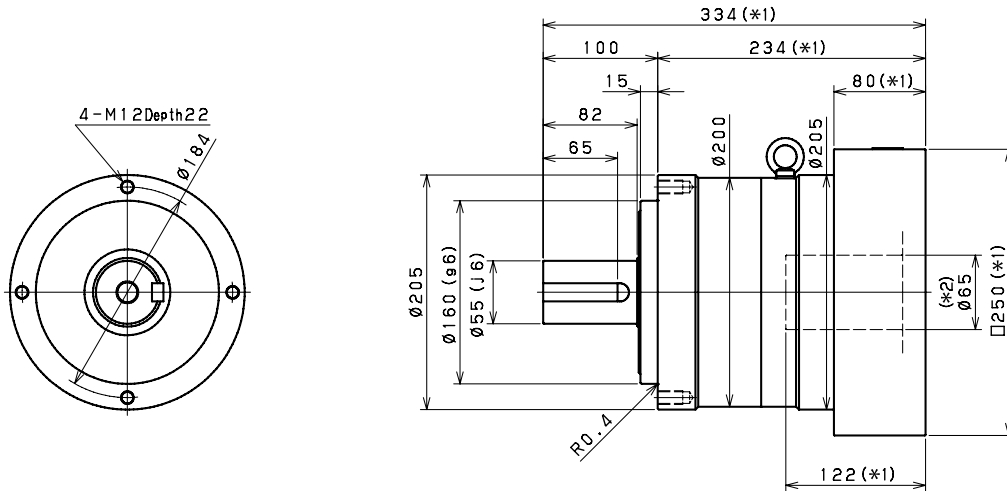
Input bore size $\geq \varnothing 38$ mm



Input bore size $\geq \varnothing 48$ mm



Input bore size $\geq \varnothing 65$ mm



Keyed shaft

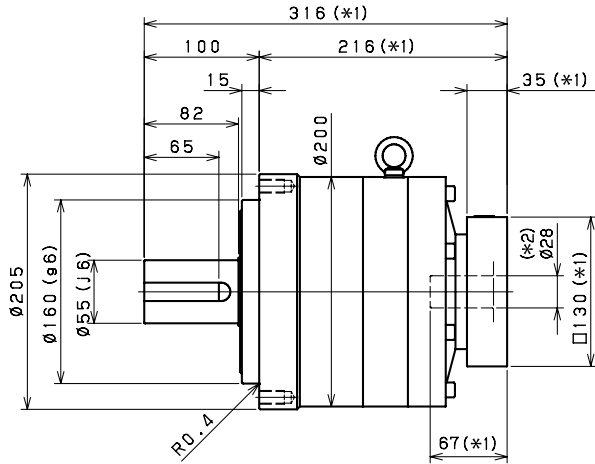
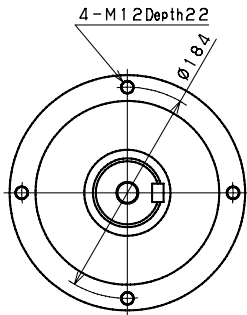
Smooth shaft

*1) Length will vary depending on motor

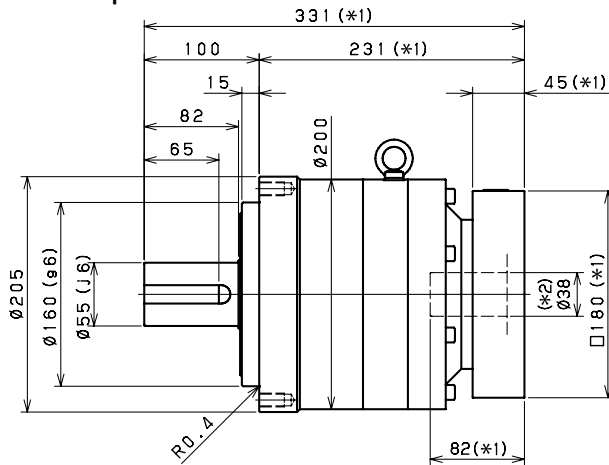
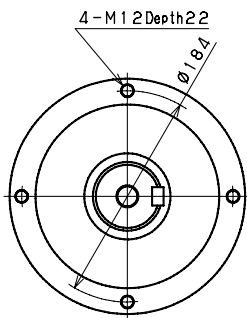
*2) Bushing will be inserted to adapt to motor shaft

VRL 205 2-Stage Dimensions

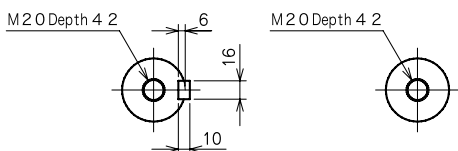
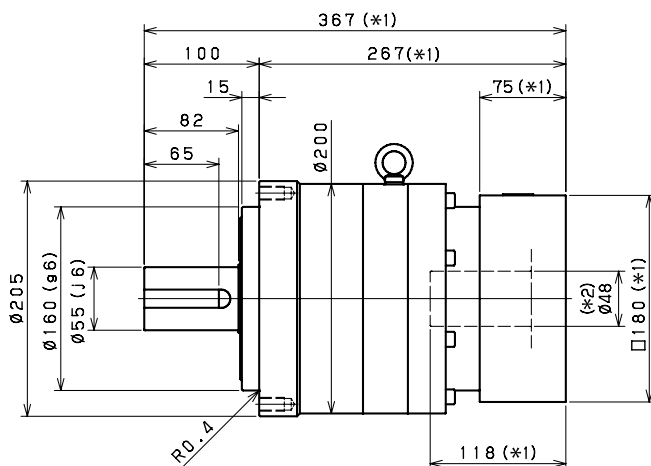
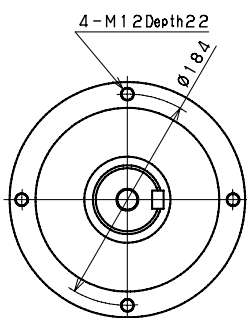
Input bore size $\leq \varnothing 28$ mm



Input bore size $\leq \varnothing 38$ mm



Input bore size $\leq \varnothing 48$ mm



Keyed shaft

Smooth shaft

- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRL 235 1-Stage Specifications

Frame Size	235									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	980	1400	1400	1600	1700	1700	1700	1700
Maximum Acceleration Torque	[Nm]	*2	2000	2900	2900	2900	2900	2900	2600	2200
Maximum Torque	[Nm]	*3	2400	3700	3700	3500	3500	3400	3000	2700
Emergency Stop Torque	[Nm]	*4	4000	5000	5000	5000	5000	5000	4000	4000
Nominal Input Speed	[rpm]	*5	1200	1200	1500	1500	1700	1700	2000	2000
Maximum Input Speed	[rpm]	*6	3000	3000	3000	3000	3000	3000	3000	3000
No Load Running Torque	[Nm]	*7	2.92							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	110	54	42	35	33	30	29	28
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	160	98	85	79	76	74	73	72
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*12	≤ 61							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	55							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

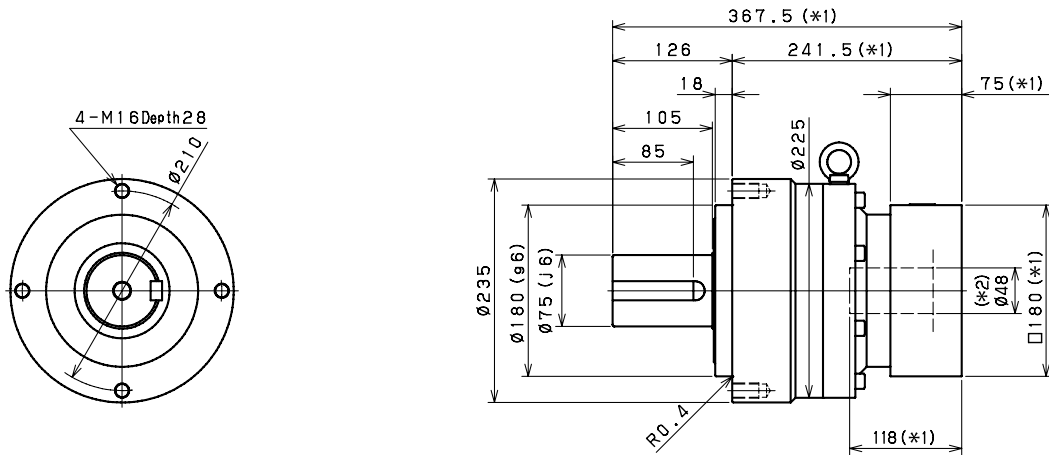
VRL 235 2-Stage Specifications

Frame Size	235									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	1100	1400	1500	1800	2000	1300	2000	2000
Maximum Acceleration Torque	[Nm]	*2	2000	2900	2900	2900	2900	2000	2900	2900
Maximum Torque	[Nm]	*3	2000	2900	2900	2900	2900	2000	2900	2900
Emergency Stop Torque	[Nm]	*4	4000	5000	5000	5000	5000	4000	5000	5000
Nominal Input Speed	[rpm]	*5	2200	2200	2200	2200	2200	2200	2200	2200
Maximum Input Speed	[rpm]	*6	4500	4500	4500	4500	4500	4500	4500	4500
No Load Running Torque	[Nm]	*7	1.14							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \emptyset 28$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \emptyset 38$)	[kgcm ²]	--	20	24	19	18	23	12	18	12
Moment of Inertia ($\leq \emptyset 48$)	[kgcm ²]	--	34	39	33	33	37	26	32	26
Moment of Inertia ($\leq \emptyset 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*12	≤ 61							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	57							

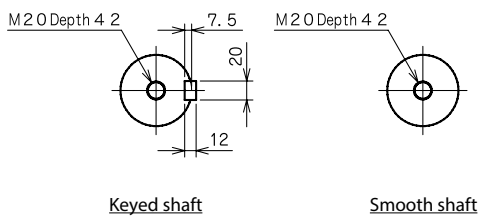
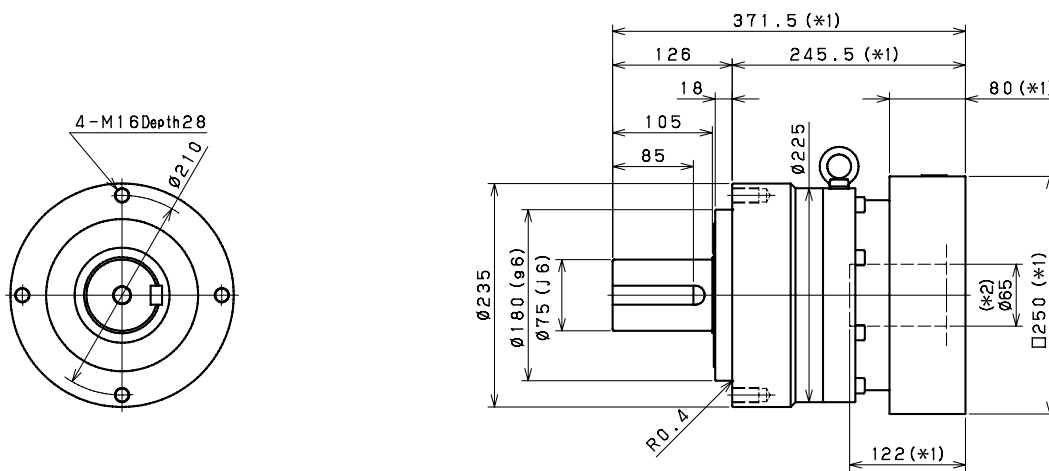
Frame Size	235									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	1300	2000	2000	2000	2000	1300	1300	
Maximum Acceleration Torque	[Nm]	*2	1800	2900	2900	2900	2500	1800	1600	
Maximum Torque	[Nm]	*3	1800	2900	2900	2900	2500	1800	1600	
Emergency Stop Torque	[Nm]	*4	4000	5000	5000	5000	5000	4000	4000	
Nominal Input Speed	[rpm]	*5	2200	2500	2500	3000	3000	3000	3000	
Maximum Input Speed	[rpm]	*6	4500	4500	4500	4500	4500	4500	4500	
No Load Running Torque	[Nm]	*7	1.14							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \emptyset 28$)	[kgcm ²]	--	--	4.7	4.7	4.6	4.6	4.6	4.6	
Moment of Inertia ($\leq \emptyset 38$)	[kgcm ²]	--	18	12	11	11	11	11	11	
Moment of Inertia ($\leq \emptyset 48$)	[kgcm ²]	--	32	26	26	26	26	26	26	
Moment of Inertia ($\leq \emptyset 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*12	≤ 61							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	57							

VRL 235 1-Stage Dimensions

Input bore size $\leq \varnothing 48$ mm



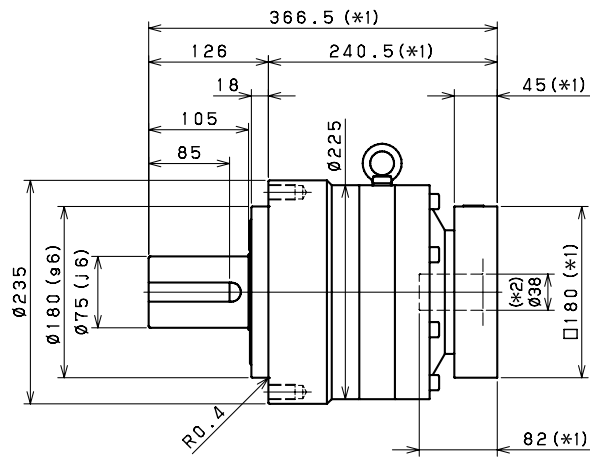
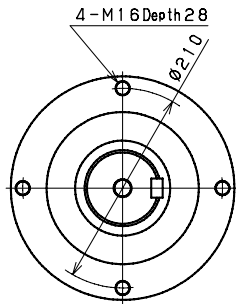
Input bore size $\leq \varnothing 65$ mm



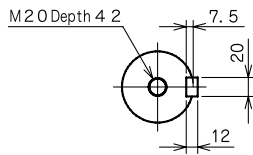
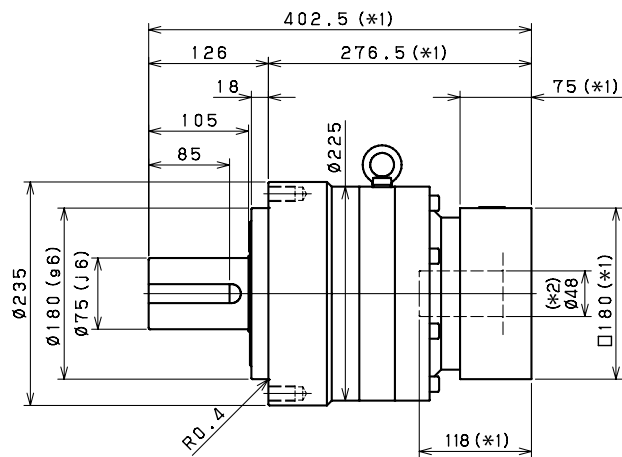
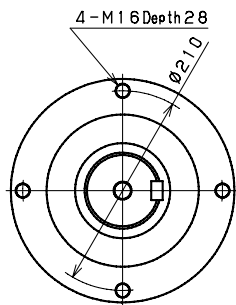
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRL 235 2-Stage Dimensions

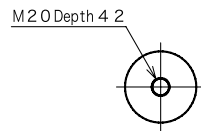
Input bore size $\leq \phi 38$ mm



Input bore size $\leq \phi 48$ mm



Keyed shaft



Smooth shaft

*1) Length will vary depending on motor

*2) Bushing will be inserted to adapt to motor shaft

VRB SERIES

A detailed photograph of a VRB series motor is shown on the right side of the page. The motor is a compact, cylindrical device with a silver-colored metal finish. It features a prominent output shaft extending from the top. The motor is mounted on a square base with four mounting holes. The entire unit is reflected on a glossy surface below it.

VRB series

VRB planetary gearbox in line

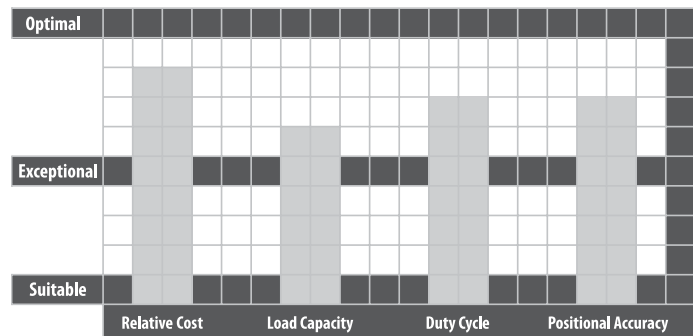
Precision, easy mounting by square flange

Description

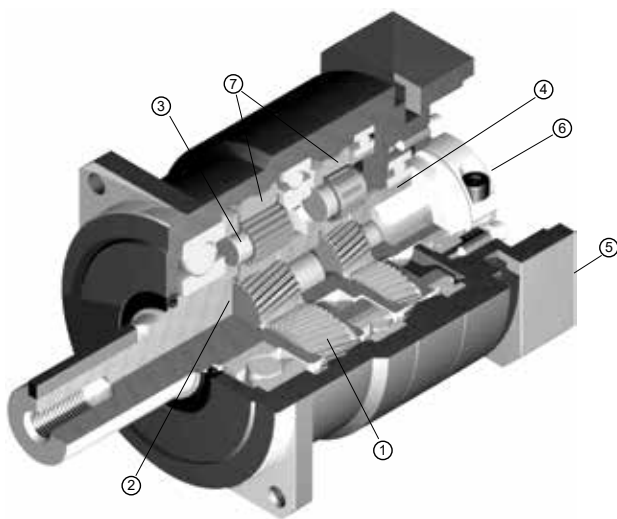
A valuable alternative for applications requiring high positional accuracy and dynamic performance. The VRB is a <3 arc-min gearbox that offers a through hole mounting design, making it easier to assemble onto various equipment. This product is an ideal fit for various belt drive and actuator applications found throughout the packaging and assembly cell automation markets. Various standard wash down and food grade options are

available, making the VRB an attractive choice for the toughest environments. We offer the broadest selection of frame sizes and ratios, with immediate availability on most configurations. Industry standard mounting dimensions allow the VRB to be employed in legacy equipment designs, saving our customers time and money.

- Exceptional value for high end motion control applications with demanding accuracy requirements
- The widest range of frame sizes and ratios available in the market
- Best-In-class backlash (≤ 3 arc-min)
- Broad range of mounting adapters offer a simple, precise attachment to any motor
- Maintenance-free solution that is lubricated for life. High performance grease allows flexible mounting in any orientation
- Industry standard through-bolt mounting style



Features



1 Carburized helical gears with proprietary secondary finishing process for higher accuracy and smooth, quiet operation. 40% higher tooth surface area than the industry standard

- 2 One piece output shaft and planet carrier with two bearings straddling the planet gears. Higher stiffness, torque capacity and safety factor, with guaranteed alignment of gearing
- 3 Uncaged needle roller bearings provide excellent torque density and torsional rigidity. 43% larger bearing surface area compared to the rest of the industry
- 4 Unique labyrinth input seal design greatly reduces heat and increases system efficiency. IP65 protection is available for wash down applications
- 5 Optimized mounting system with active centering on motor pilot diameter guarantees alignment of motor. Motor can be installed in any orientation
- 6 True concentric motor shaft clamping connection, optimized for your specific motor. Reduced inertia for dynamic performance and balanced for high speed operation
- 7 Ring gear machined directly into the housing, not welded or pressed in. Provides greater concentricity and elimination of speed fluctuation

Part Number	VRB -090 C -7 -K 3 -19HB16
Model name - VRB series	Motor mounting code (*)
Size: 042, 060, 090, 115, 140, 180, 220	Backlash: 3 arc-min
Version. B design version in exhaustion. Available on demand.	Output mounting style: K: Keyed Shaft / S: Smooth shaft
	Ratio: 1 stage: 3, 4, 5, 6, 7, 8, 9, 10 2 stage: 15, 16, 20, 25, 28, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100

*1) Motor mounting code varies depending on the motor. Use the selection tool link below to configure the code.

VRB 042 1-Stage Specifications

Frame Size	042									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	6	9	10	10	10	10	10	10
Maximum Acceleration Torque	[Nm]	*2	14	21	21	21	21	21	14	14
Maximum Torque	[Nm]	*3	17	25	25	25	25	25	17	17
Emergency Stop Torque	[Nm]	*4	30	35	35	35	35	35	30	30
Nominal Input Speed	[rpm]	*5	4000	4000	4000	4000	4000	4000	4000	4000
Maximum Input Speed	[rpm]	*6	8000	8000	8000	8000	8000	8000	8000	8000
No Load Running Torque	[Nm]	*7	0.03							
Maximum Radial Load	[N]	*8	710							
Maximum Axial Load	[N]	*9	640							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.053	0.041	0.036	0.034	0.032	0.031	0.031	0.030
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.17	0.16	0.15	0.15	0.15	0.15	0.15	0.15
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	2							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 61							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	0.6							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

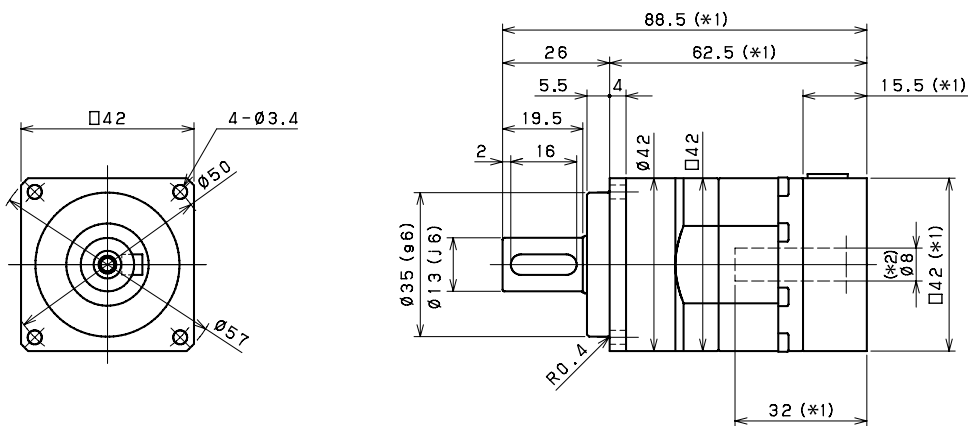
VRB 042 2-Stage Specifications

Frame Size	042									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	9	14	14	15	15	11	15	15
Maximum Acceleration Torque	[Nm]	*2	14	21	21	21	21	14	21	21
Maximum Torque	[Nm]	*3	14	21	21	21	21	14	21	21
Emergency Stop Torque	[Nm]	*4	30	35	35	35	35	30	35	35
Nominal Input Speed	[rpm]	*5	4000	4000	4000	4000	4000	4000	4000	4000
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500	8500
No Load Running Torque	[Nm]	*7	0.01							
Maximum Radial Load	[N]	*8	710							
Maximum Axial Load	[N]	*9	640							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.035	0.038	0.034	0.034	0.038	0.030	0.034	0.030
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	2							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*12	≤ 61							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	0.7							

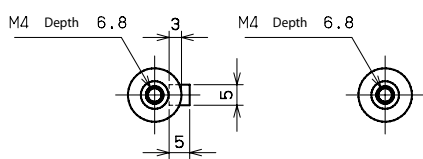
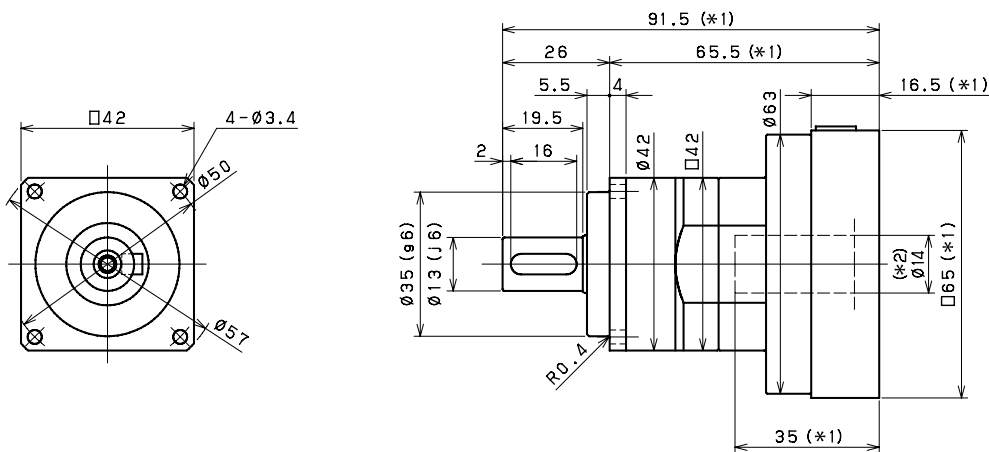
Frame Size	042									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	11	15	15	15	15	11	11	
Maximum Acceleration Torque	[Nm]	*2	14	21	21	21	21	14	14	
Maximum Torque	[Nm]	*3	14	21	21	21	21	14	14	
Emergency Stop Torque	[Nm]	*4	30	35	35	35	35	30	30	
Nominal Input Speed	[rpm]	*5	4000	4000	4000	4000	4000	4000	4000	
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500	
No Load Running Torque	[Nm]	*7	0.01							
Maximum Radial Load	[N]	*8	710							
Maximum Axial Load	[N]	*9	640							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.034	0.030	0.030	0.030	0.030	0.030	0.030	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	2							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*12	≤ 61							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	0.7							

VRB 042 1-Stage Dimensions

Input bore size $\leq \varnothing 8$ mm

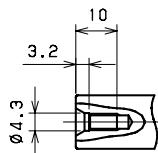


Input bore size $\leq \varnothing 14$ mm



Keyed shaft

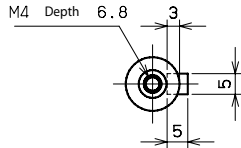
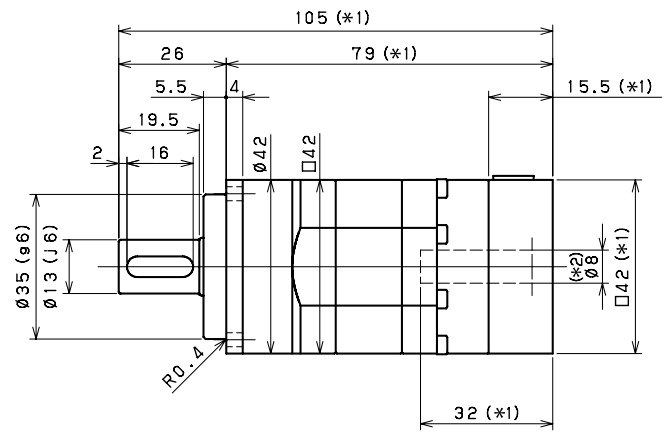
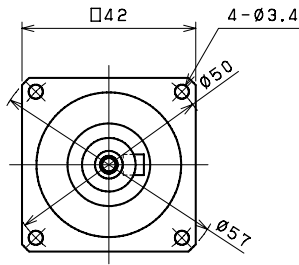
Smooth shaft



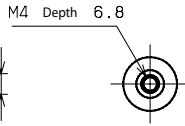
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRB 042 2-Stage Dimensions

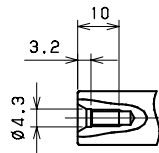
Input bore size $\leq \varnothing 8$ mm



Keyed shaft



Smooth shaft



*1) Length will vary depending on motor

*2) Bushing will be inserted to adapt to motor shaft

VRB 060 1-Stage Specifications

Frame Size	060									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	19	27	28	28	28	28	28	28
Maximum Acceleration Torque	[Nm]	*2	46	66	66	66	66	66	46	46
Maximum Torque	[Nm]	*3	55	79	79	79	79	76	55	55
Emergency Stop Torque	[Nm]	*4	80	100	100	100	100	100	80	80
Nominal Input Speed	[rpm]	*5	3300	3300	4000	4000	4000	4000	4000	4000
Maximum Input Speed	[rpm]	*6	7500	7500	7500	7500	7500	7500	7500	7500
No Load Running Torque	[Nm]	*7	0.15							
Maximum Radial Load	[N]	*8	1200							
Maximum Axial Load	[N]	*9	1100							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.14	0.095	0.077	0.068	0.062	0.059	0.057	0.056
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.25	0.21	0.19	0.18	0.17	0.17	0.17	0.17
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.53	0.48	0.46	0.46	0.45	0.45	0.44	0.44
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	3							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 66							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	1.4							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

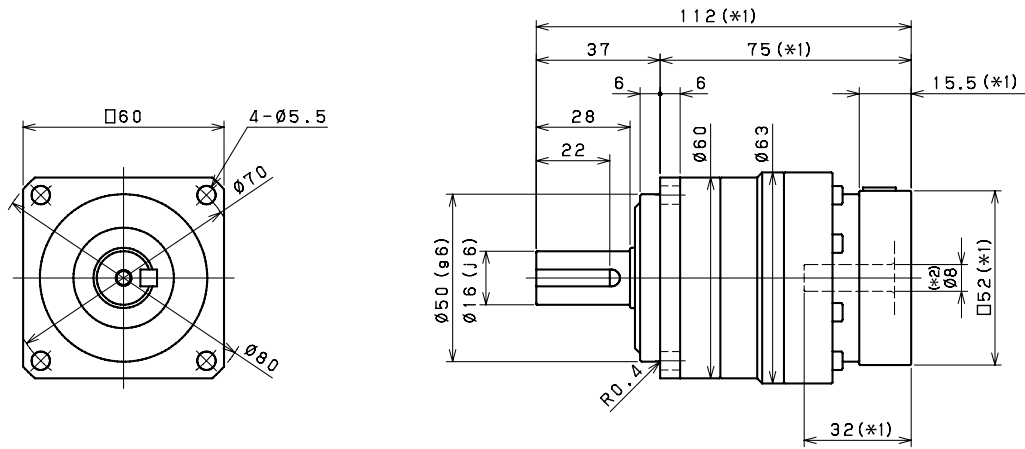
VRB 060 2-Stage Specifications

Frame Size	060									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	25	32	32	43	45	32	45	45
Maximum Acceleration Torque	[Nm]	*2	46	66	66	66	66	46	66	66
Maximum Torque	[Nm]	*3	46	66	66	66	66	46	66	66
Emergency Stop Torque	[Nm]	*4	80	100	100	100	100	80	100	100
Nominal Input Speed	[rpm]	*5	4000	4000	4000	4000	4000	4000	4000	4000
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500	8500
No Load Running Torque	[Nm]	*7	0.04							
Maximum Radial Load	[N]	*8	1200							
Maximum Axial Load	[N]	*9	1100							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.064	0.070	0.062	0.061	0.068	0.051	0.061	0.051
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.18	0.18	0.17	0.17	0.18	0.16	0.17	0.16
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.45	0.46	0.45	0.45	0.46	0.44	0.45	0.44
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	3							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 66							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	1.6							

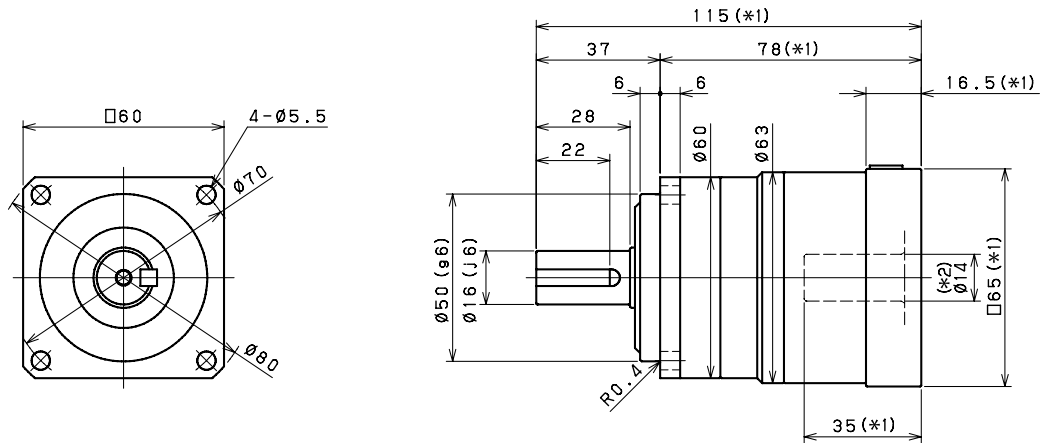
Frame Size	060									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	32	45	45	45	45	32	32	
Maximum Acceleration Torque	[Nm]	*2	46	66	66	66	66	46	46	
Maximum Torque	[Nm]	*3	46	66	66	66	66	46	46	
Emergency Stop Torque	[Nm]	*4	80	100	100	100	100	80	80	
Nominal Input Speed	[rpm]	*5	4000	4800	4800	5500	5500	5500	5500	
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500	
No Load Running Torque	[Nm]	*7	0.04							
Maximum Radial Load	[N]	*8	1200							
Maximum Axial Load	[N]	*9	1100							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.061	0.051	0.051	0.051	0.051	0.051	0.051	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.17	0.16	0.16	0.16	0.16	0.16	0.16	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.45	0.44	0.44	0.44	0.44	0.44	0.44	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	3							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 66							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	1.6							

VRB 060 1-Stage Dimensions

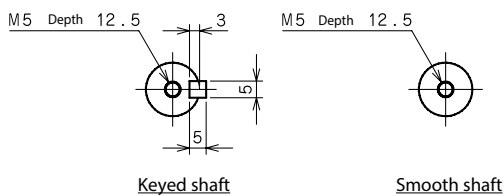
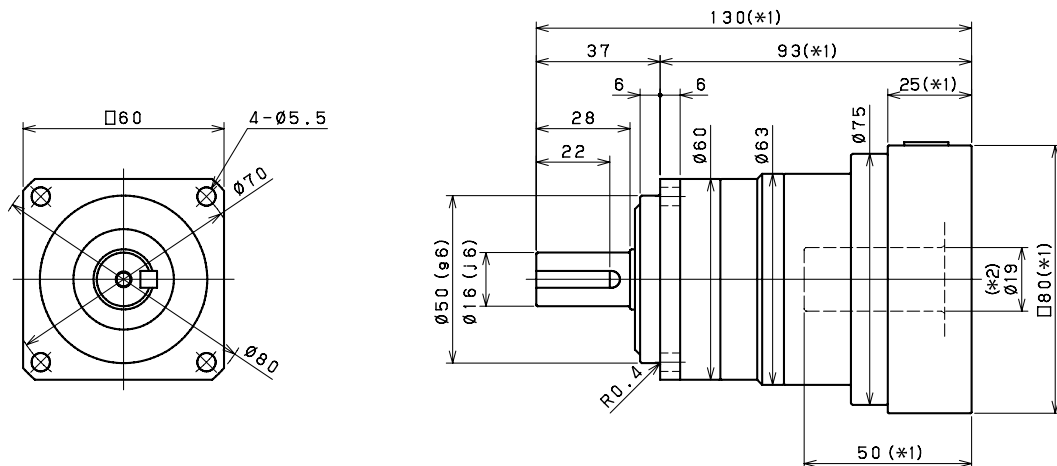
Input bore size $\leq \varnothing 8$ mm



Input bore size $\leq \varnothing 14$ mm



Input bore size $\leq \varnothing 19$ mm

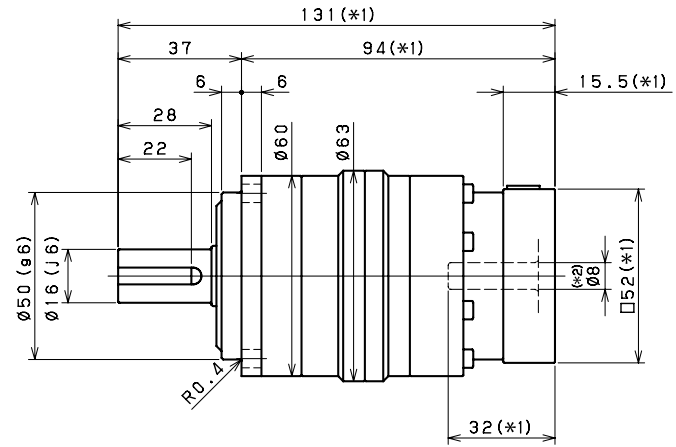
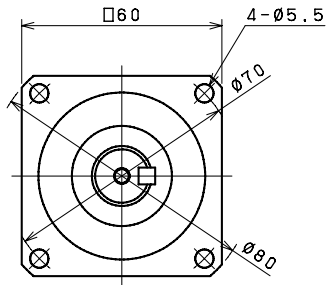


*1) Length will vary depending on motor

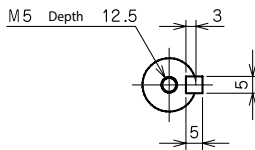
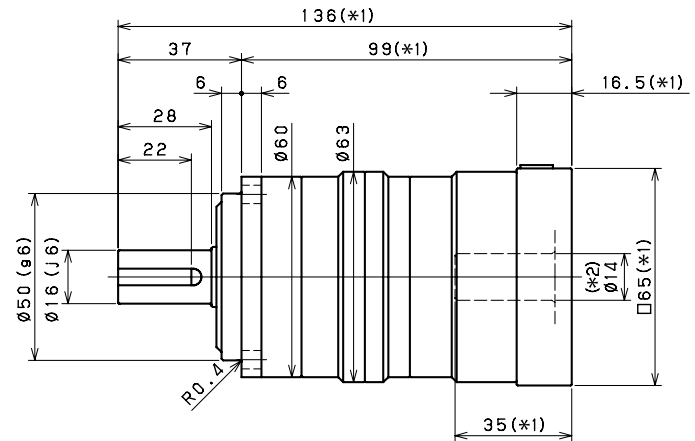
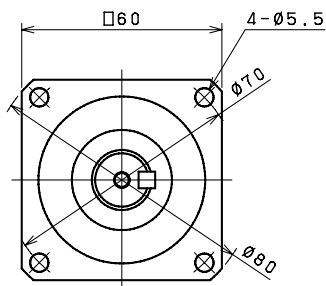
*2) Bushing will be inserted to adapt to motor shaft

VRB 060 2-Stage Dimensions

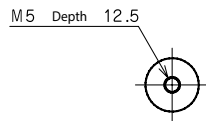
Input bore size $\leq \varnothing 8$ mm



Input bore size $\leq \varnothing 14$ mm



Keyed shaft



Smooth shaft

- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRB 090 1-Stage Specifications

Frame Size	090									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	53	77	84	84	84	84	84	84
Maximum Acceleration Torque	[Nm]	*2	108	165	165	165	165	165	112	112
Maximum Torque	[Nm]	*3	135	200	200	195	195	190	145	145
Emergency Stop Torque	[Nm]	*4	200	250	250	250	250	250	200	200
Nominal Input Speed	[rpm]	*5	2900	2900	2900	2900	3100	3100	3100	3100
Maximum Input Speed	[rpm]	*6	7500	7500	7500	7500	7500	7500	7500	7500
No Load Running Torque	[Nm]	*7	0.35							
Maximum Radial Load	[N]	*8	2400							
Maximum Axial Load	[N]	*9	2200							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.72	0.50	0.41	0.36	0.33	0.31	0.30	0.30
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	1.1	0.90	0.80	0.75	0.73	0.71	0.70	0.70
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.9	2.7	2.6	2.5	2.5	2.5	2.5	2.5
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	3.7							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

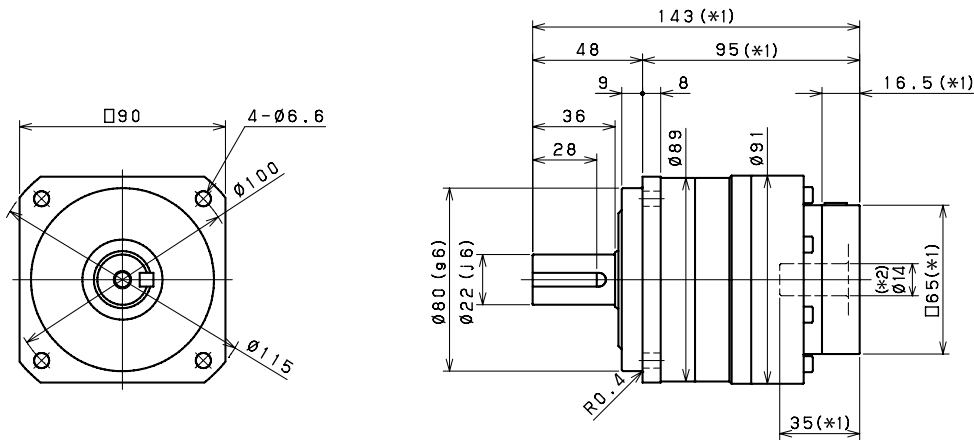
VRB 090 2-Stage Specifications

Frame Size	090									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	65	80	86	106	118	88	118	118
Maximum Acceleration Torque	[Nm]	*2	108	165	165	165	165	108	165	165
Maximum Torque	[Nm]	*3	108	165	165	165	165	108	165	165
Emergency Stop Torque	[Nm]	*4	200	250	250	250	250	200	250	250
Nominal Input Speed	[rpm]	*5	3500	3500	3500	3500	3500	3500	3500	3500
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500	8500
No Load Running Torque	[Nm]	*7	0.06							
Maximum Radial Load	[N]	*8	2400							
Maximum Axial Load	[N]	*9	2200							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.20	0.25	0.19	0.19	0.24	0.12	0.18	0.11
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.36	0.41	0.35	0.35	0.4	0.28	0.35	0.28
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.75	0.79	0.74	0.74	0.78	0.67	0.73	0.67
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.5	2.5	2.5	2.5	2.5	2.4	2.5	2.4
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	4.2							

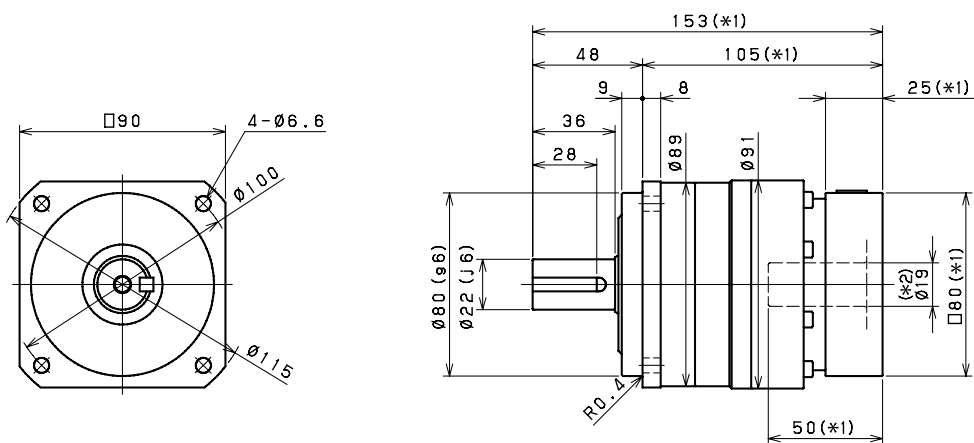
Frame Size	090									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	88	118	118	118	118	88	88	
Maximum Acceleration Torque	[Nm]	*2	112	165	165	165	165	112	112	
Maximum Torque	[Nm]	*3	112	165	165	165	165	112	112	
Emergency Stop Torque	[Nm]	*4	200	250	250	250	250	200	200	
Nominal Input Speed	[rpm]	*5	3500	3800	3800	4500	4500	4500	4500	
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500	
No Load Running Torque	[Nm]	*7	0.06							
Maximum Radial Load	[N]	*8	2400							
Maximum Axial Load	[N]	*9	2200							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.18	0.11	0.11	0.11	0.11	0.11	0.11	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.34	0.27	0.27	0.27	0.27	0.27	0.27	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.73	0.67	0.67	0.67	0.67	0.67	0.67	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.5	2.4	2.4	2.4	2.4	2.4	2.4	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	4.2							

VRB 090 1-Stage Dimensions

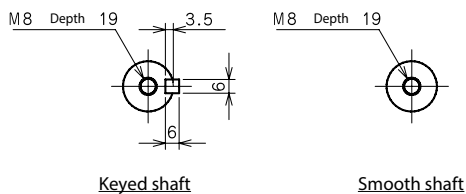
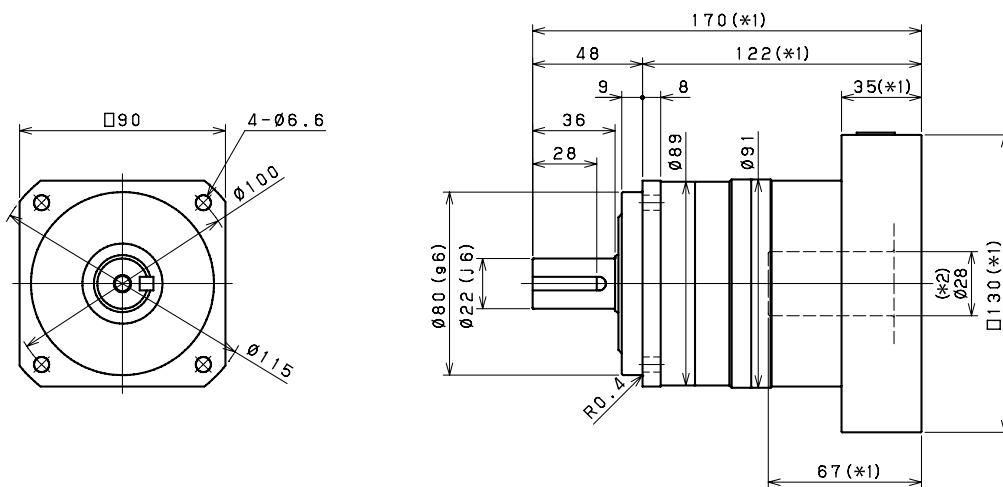
Input bore size $\leq \varnothing 14$ mm



Input bore size $\leq \varnothing 19$ mm



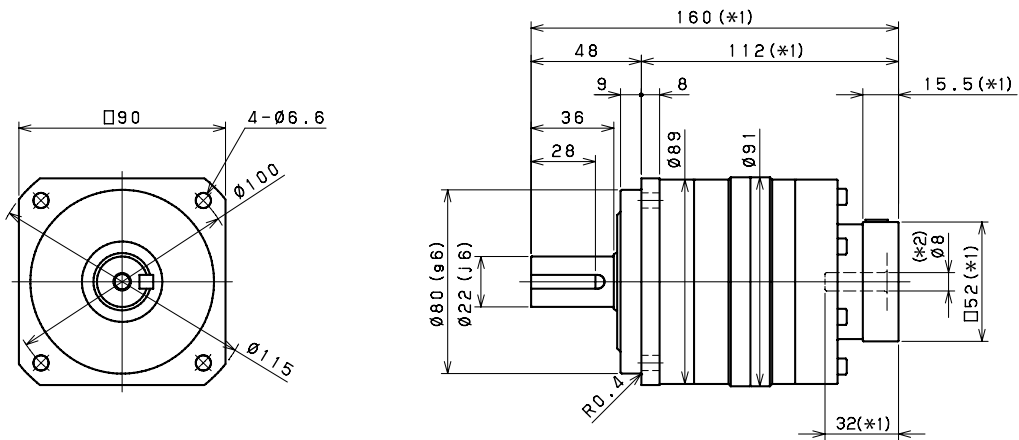
Input bore size $\leq \varnothing 28$ mm



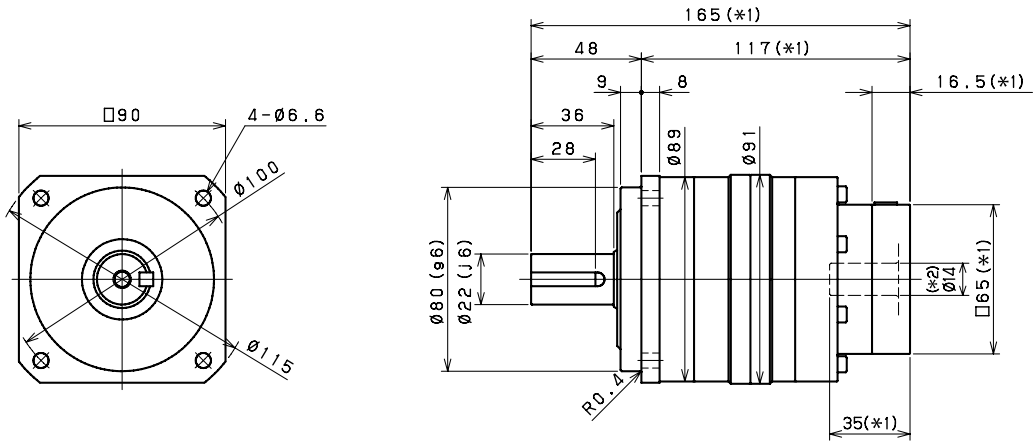
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRB 090 2-Stage Dimensions

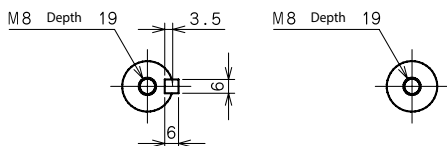
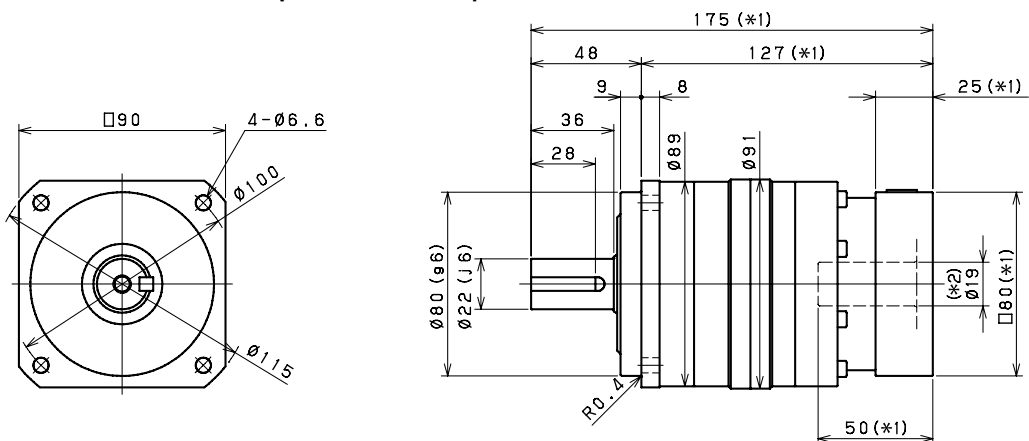
Input bore size $\leq \varnothing 8$ mm



Input bore size $\leq \varnothing 14$ mm



Input bore size $\leq \varnothing 19$ mm



Keyed shaft

Smooth shaft

- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRB 115 1-Stage Specifications

Frame Size	115									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	128	146	190	190	190	190	190	190
Maximum Acceleration Torque	[Nm]	*2	270	390	390	390	390	390	292	292
Maximum Torque	[Nm]	*3	340	490	490	480	480	480	370	370
Emergency Stop Torque	[Nm]	*4	500	625	625	625	625	625	500	500
Nominal Input Speed	[rpm]	*5	2800	2800	2800	2800	2800	2800	2800	2800
Maximum Input Speed	[rpm]	*6	5500	5500	5500	5500	5500	5500	5500	5500
No Load Running Torque	[Nm]	*7	1.30							
Maximum Radial Load	[N]	*8	4300							
Maximum Axial Load	[N]	*9	3900							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	3.2	2.0	1.4	1.2	1.0	0.92	0.86	0.83
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	5.1	3.7	3.1	2.9	2.8	2.7	2.6	2.6
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	12	10	9.5	9.3	9.1	9.0	8.9	8.9
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	31							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 71							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	8							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

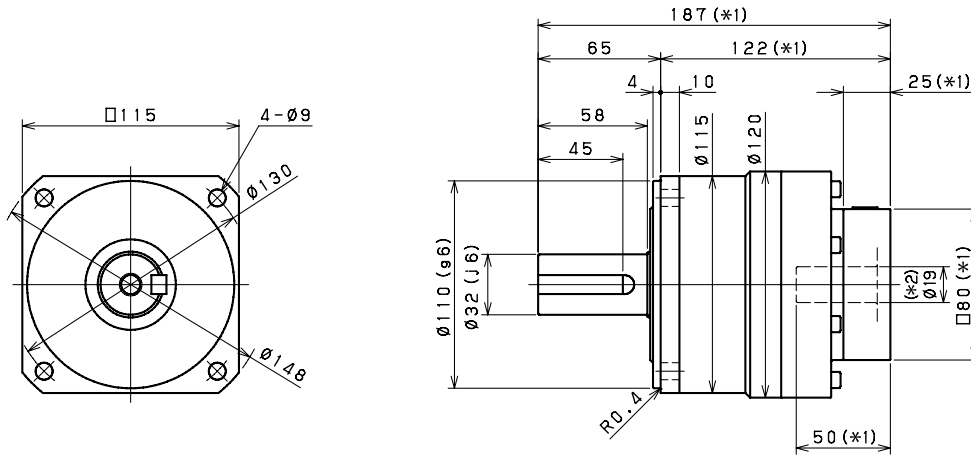
VRB 115 2-Stage Specifications

Frame Size	115									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	174	200	220	280	280	220	280	270
Maximum Acceleration Torque	[Nm]	*2	270	390	390	390	390	270	390	390
Maximum Torque	[Nm]	*3	270	390	390	390	390	270	390	390
Emergency Stop Torque	[Nm]	*4	500	625	625	625	625	500	625	625
Nominal Input Speed	[rpm]	*5	3100	3100	3100	3100	3100	3100	3100	3100
Maximum Input Speed	[rpm]	*6	6500	6500	6500	6500	6500	6500	6500	6500
No Load Running Torque	[Nm]	*7	0.42	--	--	--	--	--	--	--
Maximum Radial Load	[N]	*8	4300	--	--	--	--	--	--	--
Maximum Axial Load	[N]	*9	3900	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.77	0.98	0.72	0.70	0.92	0.38	0.68	0.37
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	1.2	1.4	1.1	1.1	1.3	0.78	1.1	0.77
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.9	3.1	2.8	2.8	3.0	2.5	2.8	2.5
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	9.2	9.4	9.1	9.1	9.3	8.8	9.1	8.8
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	31							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 71							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	8.9							

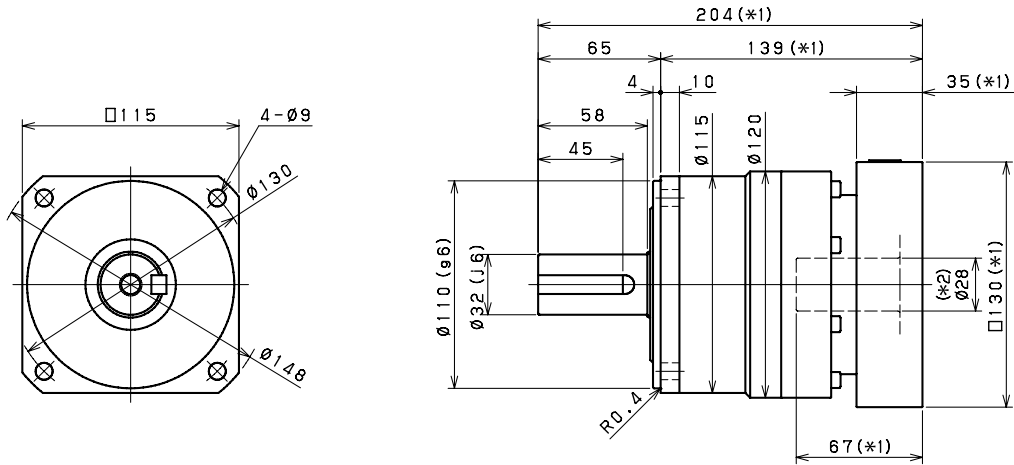
Frame Size	115									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	220	280	280	280	280	220	220	
Maximum Acceleration Torque	[Nm]	*2	292	390	390	390	390	292	292	
Maximum Torque	[Nm]	*3	292	390	390	390	390	292	292	
Emergency Stop Torque	[Nm]	*4	500	625	625	625	625	500	500	
Nominal Input Speed	[rpm]	*5	3100	3500	3500	4200	4200	4200	4200	
Maximum Input Speed	[rpm]	*6	6500	6500	6500	6500	6500	6500	6500	
No Load Running Torque	[Nm]	*7	0.42	--	--	--	--	--	--	
Maximum Radial Load	[N]	*8	4300	--	--	--	--	--	--	
Maximum Axial Load	[N]	*9	3900	--	--	--	--	--	--	
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	0.19	0.19	0.19	0.19	0.19	0.19	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.68	0.36	0.36	0.36	0.36	0.36	0.36	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	1.1	0.76	0.76	0.76	0.76	0.76	0.76	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.8	2.5	2.5	2.5	2.5	2.5	2.5	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	9.1	8.8	8.8	8.8	8.8	8.8	8.8	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	31							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 71							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	8.9							

VRB 115 1-Stage Dimensions

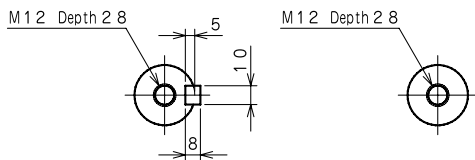
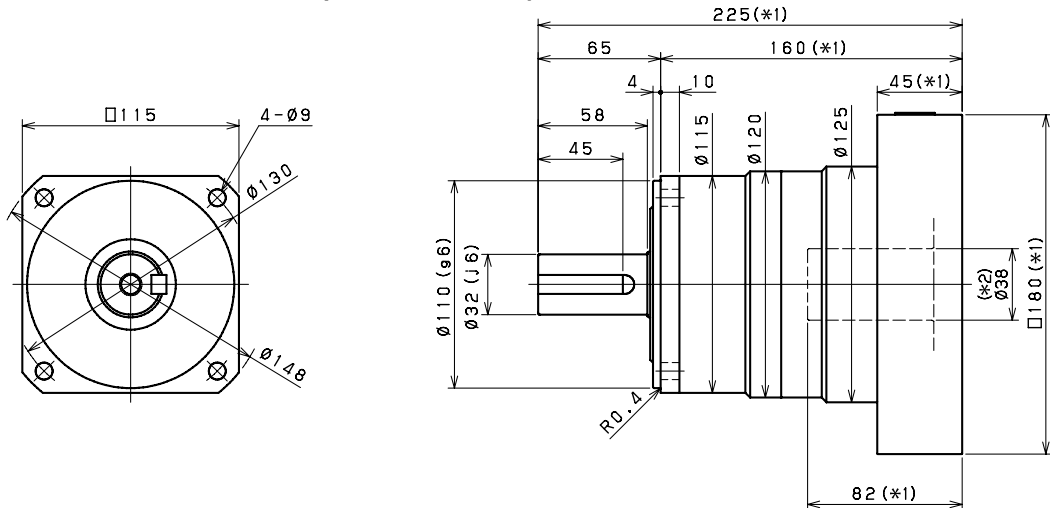
Input bore size $\leq \phi 19$ mm



Input bore size $\leq \phi 28$ mm



Input bore size $\leq \phi 38$ mm



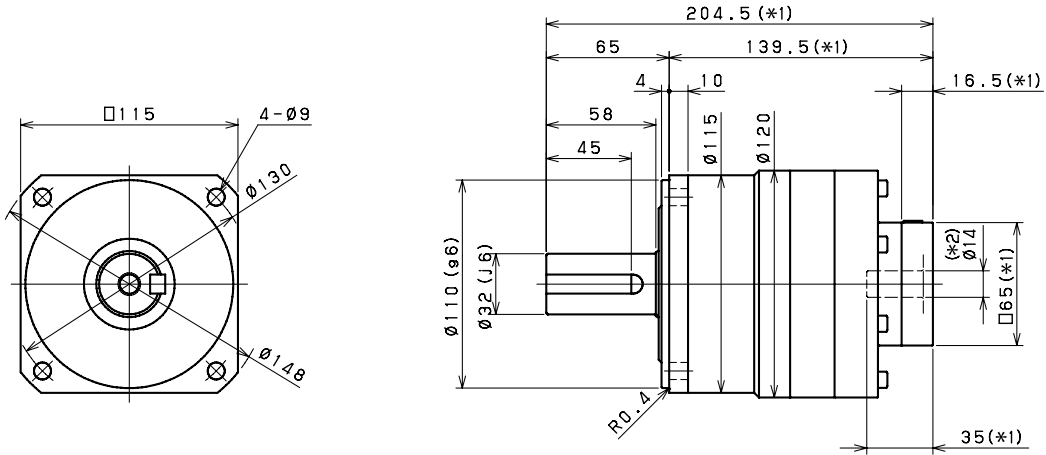
Keyed shaft

Smooth shaft

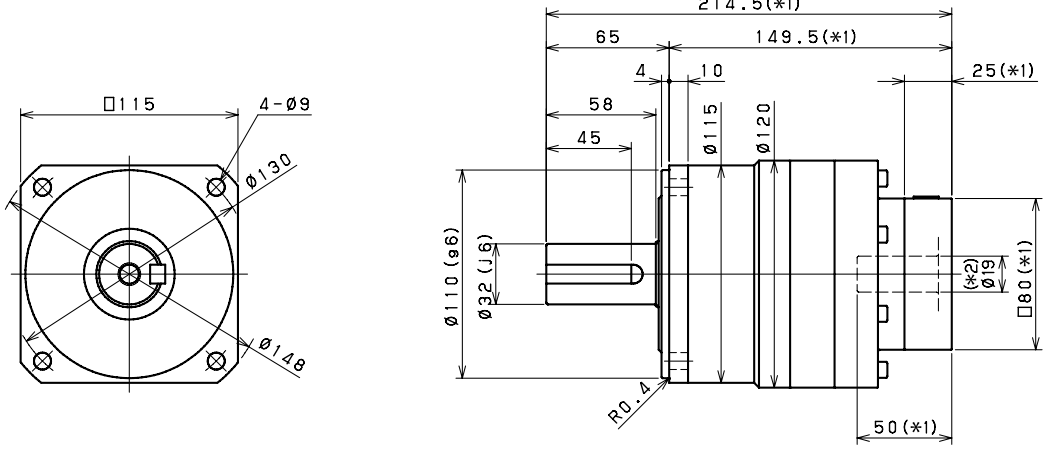
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRB 115 2-Stage Dimensions

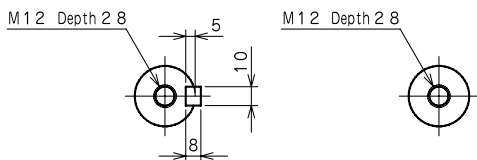
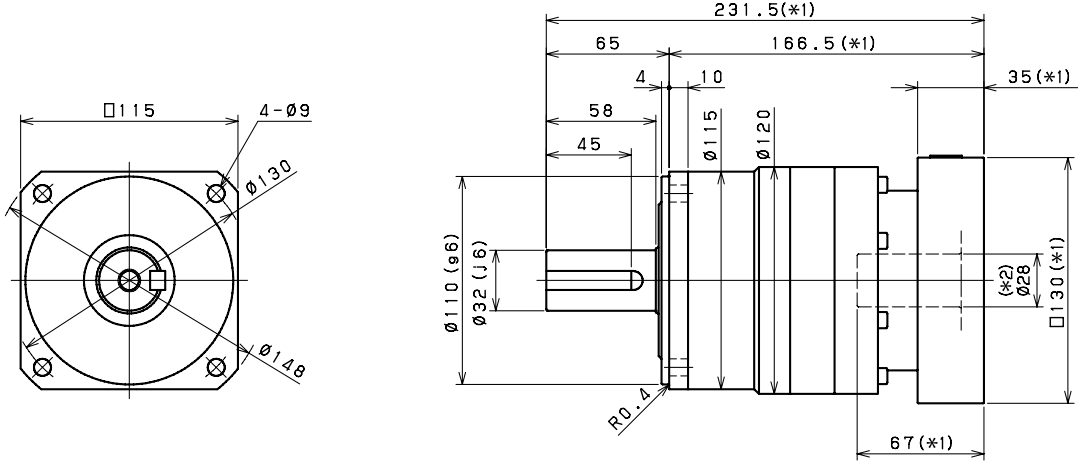
Input bore size $\leq \varnothing 14$ mm



Input bore size $\leq \varnothing 19$ mm



Input bore size $\leq \varnothing 28$ mm



Keyed shaft

Smooth shaft

- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRB 140 1-Stage Specifications

Frame Size	140									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	248	280	380	380	380	380	380	380
Maximum Acceleration Torque	[Nm]	*2	560	840	840	840	840	840	610	610
Maximum Torque	[Nm]	*3	630	1000	1000	950	950	950	730	730
Emergency Stop Torque	[Nm]	*4	1000	1250	1250	1250	1250	1250	1000	1000
Nominal Input Speed	[rpm]	*5	2100	2100	2100	2100	2600	2600	2600	2600
Maximum Input Speed	[rpm]	*6	5000	5000	5000	5000	5000	5000	5000	5000
No Load Running Torque	[Nm]	*7	1.63							
Maximum Radial Load	[N]	*8	9100							
Maximum Axial Load	[N]	*9	8200							
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	12	7.3	5.3	4.3	3.9	3.5	3.3	3.2
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	18	14	12	11	10	9.9	9.7	9.6
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	35	29	27	26	25	25	25	25
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	16							

*1) At nominal input speed, service life is 20,000 hours

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_p , for higher duty cycle applications

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value

*6) The maximum intermittent input speed

*7) Torque at no load applied to the input shaft at nominal input speed

*8) The maximum radial load that the gearbox can accept

*9) The maximum axial load that the gearbox can accept

*10) The efficiency at the nominal output torque rating

*11) This does not include lost motion

*12) Contact SIT S.p.A. for the testing conditions and environment

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details

*14) Weight may vary slightly between models

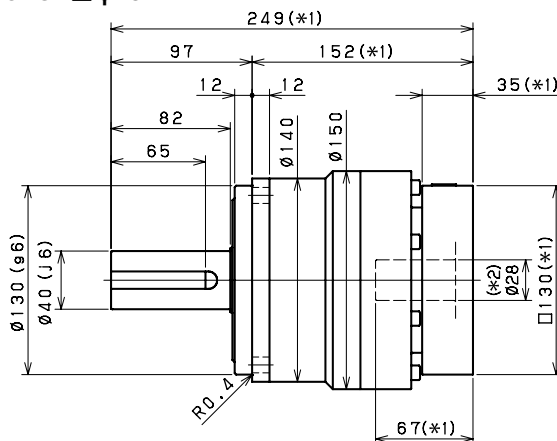
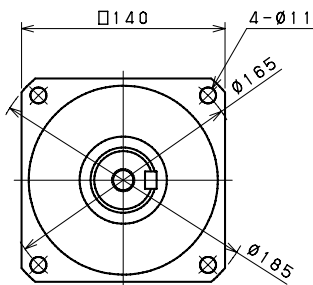
VRB 140 2-Stage Specifications

Frame Size	140									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	360	380	410	590	590	440	590	500
Maximum Acceleration Torque	[Nm]	*2	560	840	840	840	840	560	840	840
Maximum Torque	[Nm]	*3	560	840	840	840	840	560	840	840
Emergency Stop Torque	[Nm]	*4	1000	1250	1250	1250	1250	1000	1250	1250
Nominal Input Speed	[rpm]	*5	2900	2900	2900	2900	2900	2900	2900	2900
Maximum Input Speed	[rpm]	*6	6000	6000	6000	6000	6000	6000	6000	6000
No Load Running Torque	[Nm]	*7	0.56							
Maximum Radial Load	[N]	*8	9100							
Maximum Axial Load	[N]	*9	8200							
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.6	3.5	2.4	2.4	3.3	1.1	2.3	1.1
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.4	5.3	4.2	4.1	5.1	2.9	4.1	2.8
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	11	12	10	10	11	9.2	10	9.1
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	26	27	25	25	26	24	25	24
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	17							

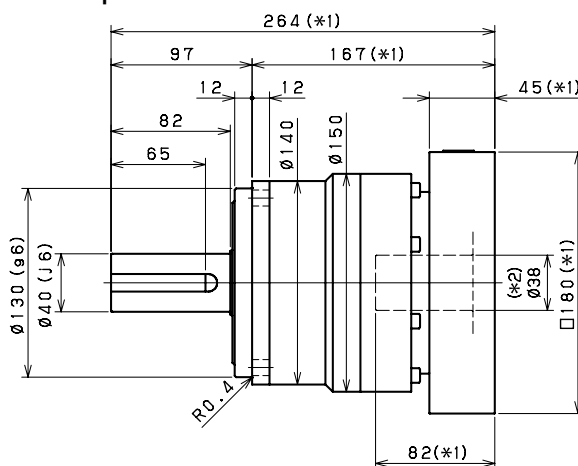
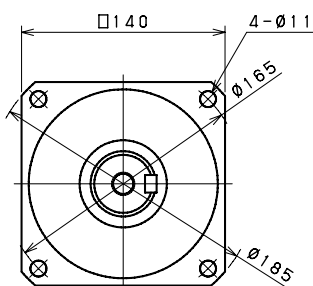
Frame Size	140									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	440	590	590	590	590	440	440	
Maximum Acceleration Torque	[Nm]	*2	610	840	840	840	840	610	610	
Maximum Torque	[Nm]	*3	610	840	840	840	840	610	610	
Emergency Stop Torque	[Nm]	*4	1000	1250	1250	1250	1250	1000	1000	
Nominal Input Speed	[rpm]	*5	2900	3200	3200	3900	3900	3900	3900	
Maximum Input Speed	[rpm]	*6	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque	[Nm]	*7	0.56							
Maximum Radial Load	[N]	*8	9100							
Maximum Axial Load	[N]	*9	8200							
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	0.65	0.64	0.64	0.63	0.63	0.63	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.3	1.1	1.1	1.1	1.1	1.1	1.1	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.0	2.8	2.8	2.8	2.8	2.8	2.8	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	10	9.1	9.1	9.1	9.1	9.1	9.1	
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	25	24	24	24	24	24	24	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	17							

VRB 140 1-Stage Dimensions

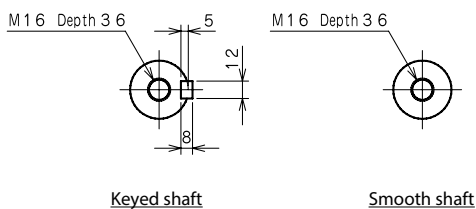
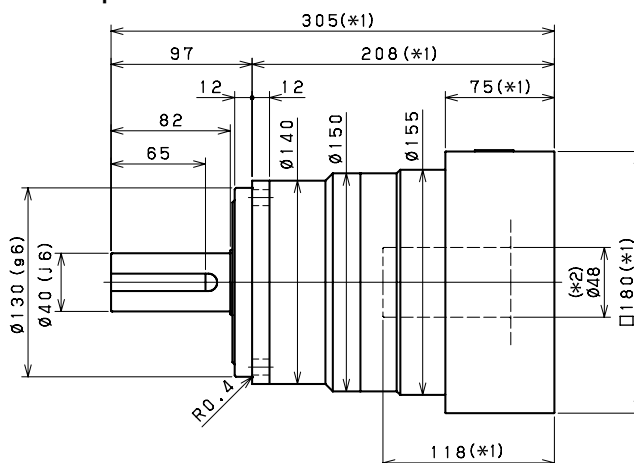
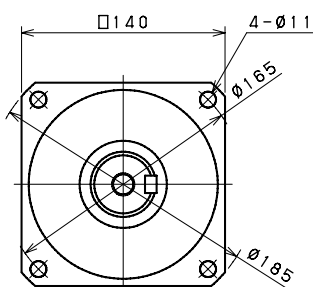
Input bore size $\leq \phi 28$ mm



Input bore size $\leq \phi 38$ mm



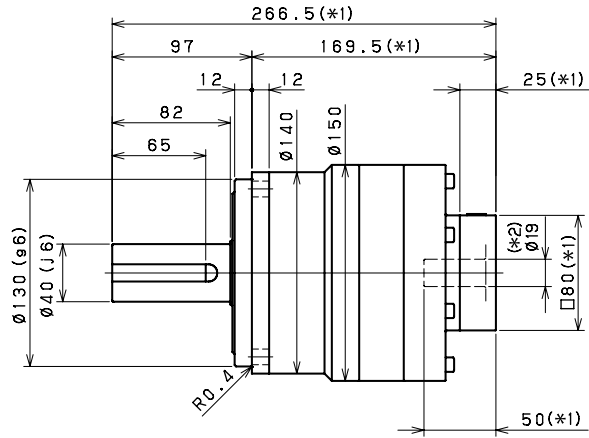
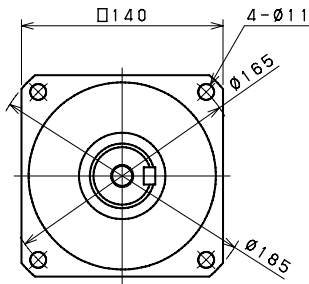
Input bore size $\leq \phi 48$ mm



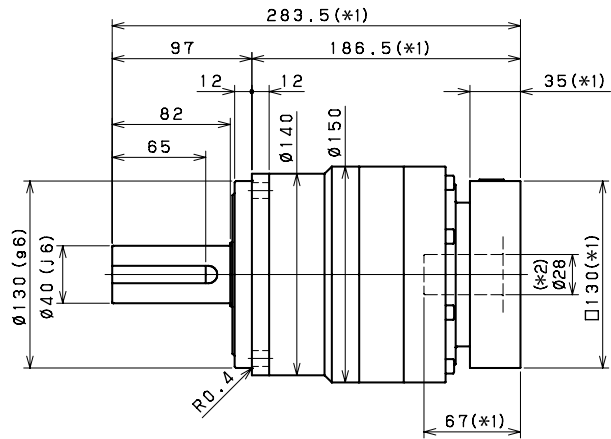
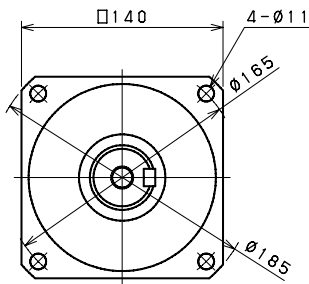
*1) Length will vary depending on motor
*2) Bushing will be inserted to adapt to motor shaft

VRB 140 2-Stage Dimensions

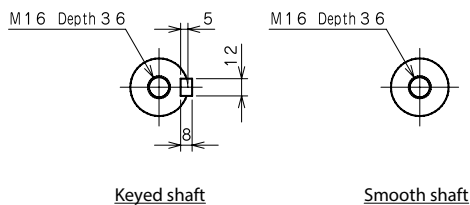
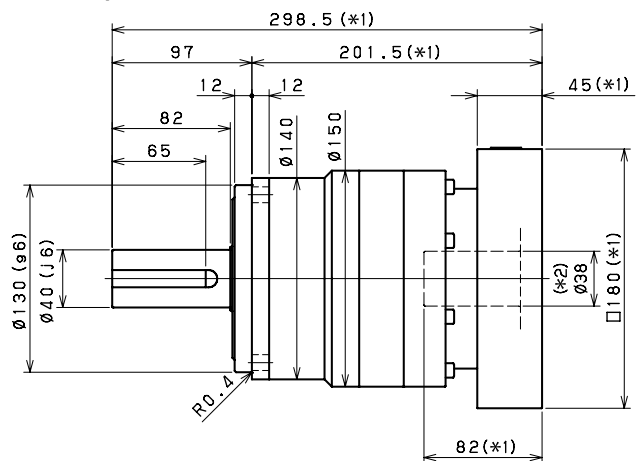
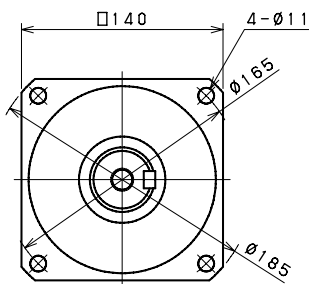
Input bore size $\leq \varnothing 19$ mm



Input bore size $\leq \varnothing 28$ mm



Input bore size $\leq \varnothing 38$ mm



*1) Length will vary depending on motor
 *2) Bushing will be inserted to adapt to motor shaft

VRB 180 1-Stage Specifications

Frame Size	180									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	570	850	910	910	910	910	910	910
Maximum Acceleration Torque	[Nm]	*2	1300	1850	1850	1850	1850	1850	1350	1350
Maximum Torque	[Nm]	*3	1450	2250	2250	2150	2150	2150	1750	1750
Emergency Stop Torque	[Nm]	*4	2200	2750	2750	2750	2750	2750	2200	2200
Nominal Input Speed	[rpm]	*5	1500	1500	1500	1500	2300	2300	2300	2300
Maximum Input Speed	[rpm]	*6	4500	4500	4500	4500	4500	4500	4500	4500
No Load Running Torque	[Nm]	*7	2.68							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	43	26	19	15	14	13	12	12
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	57	41	34	31	29	28	27	27
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	110	85	78	75	73	72	71	71
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	36							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

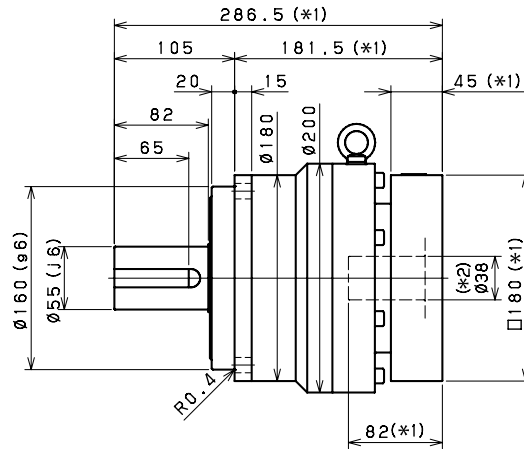
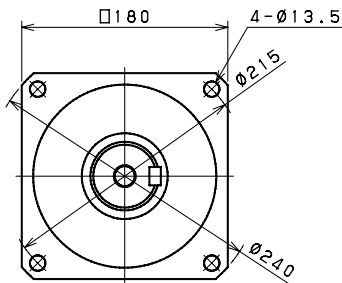
VRB 180 2-Stage Specifications

Frame Size	180									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	660	850	910	1100	1300	930	1300	1200
Maximum Acceleration Torque	[Nm]	*2	1300	1850	1850	1850	1850	1300	1850	1850
Maximum Torque	[Nm]	*3	1300	1850	1850	1850	1850	1300	1850	1850
Emergency Stop Torque	[Nm]	*4	2200	2750	2750	2750	2750	2200	2750	2750
Nominal Input Speed	[rpm]	*5	2700	2700	2700	2700	2700	2700	2700	2700
Maximum Input Speed	[rpm]	*6	5000	5000	5000	5000	5000	5000	5000	5000
No Load Running Torque	[Nm]	*7	1.39							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	8.8	11	8.1	7.9	11	4.0	7.6	3.9
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	15	18	14	14	17	10	14	10
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	30	33	29	29	32	25	29	25
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	37							

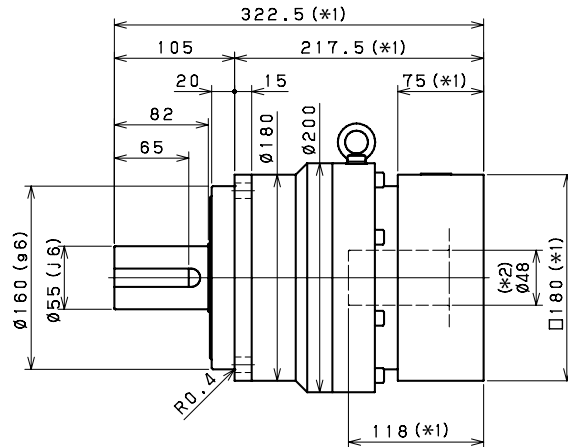
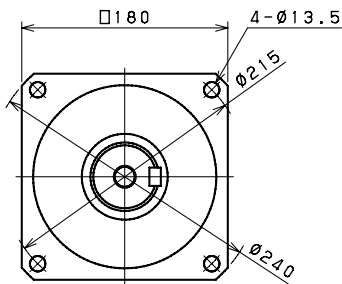
Frame Size	180									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	930	1300	1300	1300	1300	930	930	
Maximum Acceleration Torque	[Nm]	*2	1350	1850	1850	1850	1850	1350	1350	
Maximum Torque	[Nm]	*3	1350	1850	1850	1850	1850	1350	1350	
Emergency Stop Torque	[Nm]	*4	2200	2750	2750	2750	2750	2200	2200	
Nominal Input Speed	[rpm]	*5	2700	2900	2900	3400	3400	3400	3400	
Maximum Input Speed	[rpm]	*6	5000	5000	5000	5000	5000	5000	5000	
No Load Running Torque	[Nm]	*7	1.39							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	1.9	1.9	1.8	1.8	1.8	1.8	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	7.6	3.8	3.8	3.8	3.7	3.7	3.7	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	14	10	10	10	10	10	10	
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	29	25	25	25	25	25	25	
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	37							

VRB 180 1-Stage Dimensions

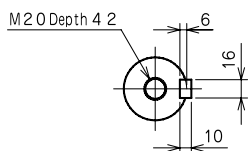
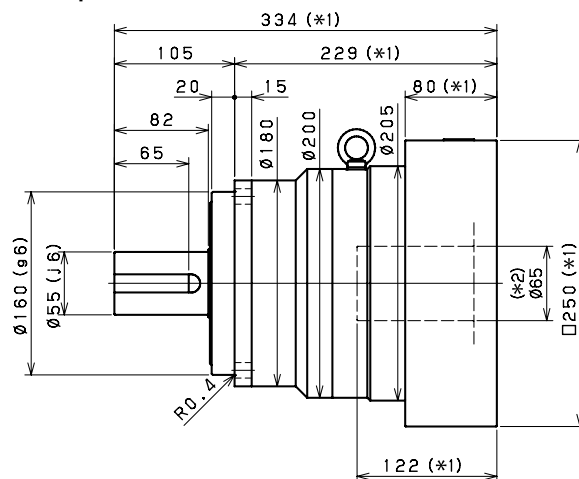
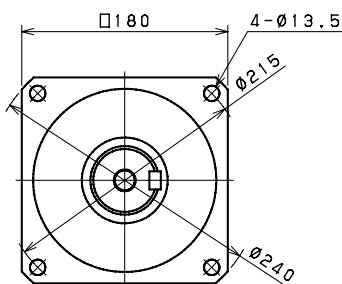
Input bore size $\leq \varnothing 38$ mm



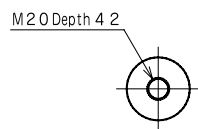
Input bore size $\leq \varnothing 48$ mm



Input bore size $\leq \varnothing 65$ mm



Keyed shaft



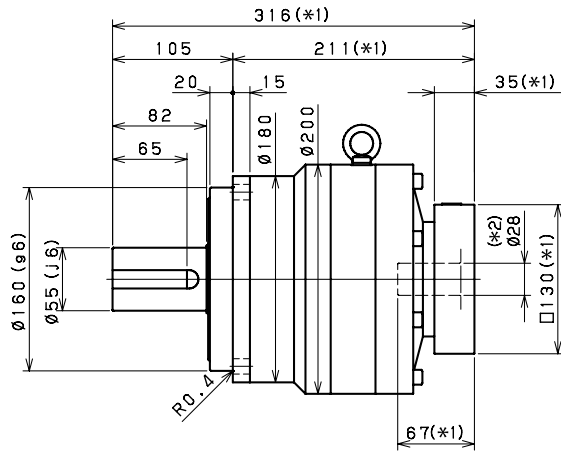
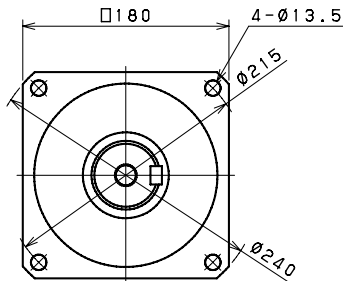
Smooth shaft

*1) Length will vary depending on motor

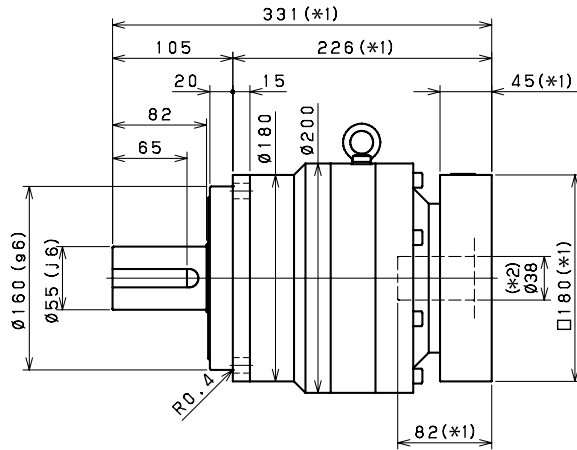
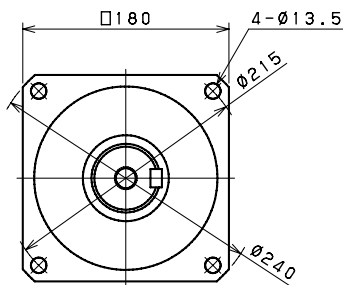
*2) Bushing will be inserted to adapt to motor shaft

VRB 180 2-Stage Dimensions

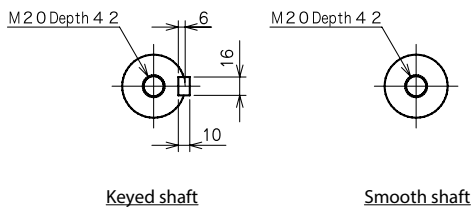
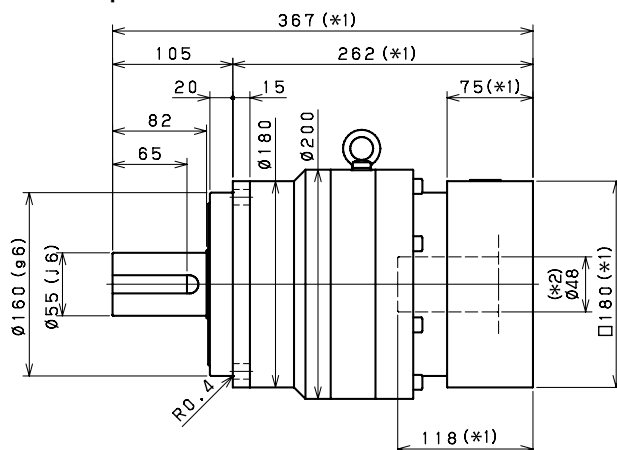
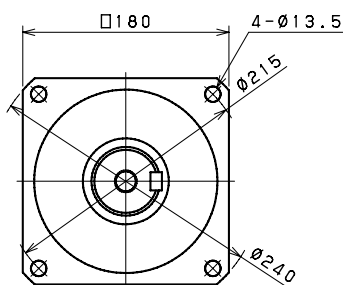
Input bore size $\leq \varnothing 28$ mm



Input bore size $\leq \varnothing 38$ mm



Input bore size $\leq \varnothing 48$ mm



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRB 220 1-Stage Specifications

Frame Size	220									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	980	1400	1400	1600	1700	1700	1700	1700
Maximum Acceleration Torque	[Nm]	*2	2000	2900	2900	2900	2900	2900	2600	2200
Maximum Torque	[Nm]	*3	2400	3700	3700	3500	3500	3400	3000	2700
Emergency Stop Torque	[Nm]	*4	4000	5000	5000	5000	5000	5000	4000	4000
Nominal Input Speed	[rpm]	*5	1200	1200	1500	1500	1700	1700	2000	2000
Maximum Input Speed	[rpm]	*6	3000	3000	3000	3000	3000	3000	3000	3000
No Load Running Torque	[Nm]	*7	2.92							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	110	54	42	35	33	30	29	28
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	160	98	85	79	76	74	73	72
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 61							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	53							

- *1) At nominal input speed, service life is 20,000 hours
- *2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_0 , for higher duty cycle applications
- *3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft
- *4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life
- *5) The average input speed at nominal input torque. Maintain housing temperature below permitted value
- *6) The maximum intermittent input speed
- *7) Torque at no load applied to the input shaft at nominal input speed
- *8) The maximum radial load that the gearbox can accept
- *9) The maximum axial load that the gearbox can accept
- *10) The efficiency at the nominal output torque rating
- *11) This does not include lost motion
- *12) Contact SIT S.p.A. for the testing conditions and environment
- *13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details
- *14) Weight may vary slightly between models

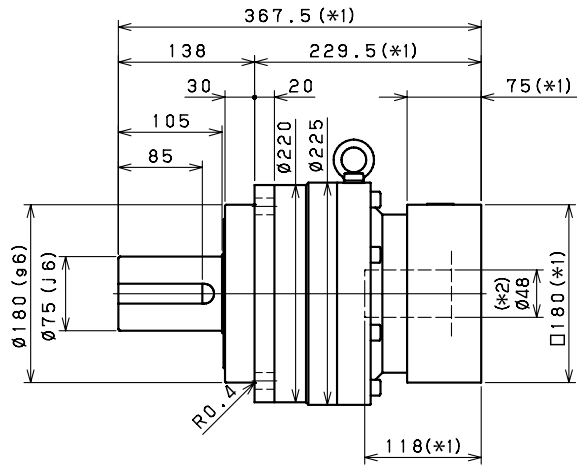
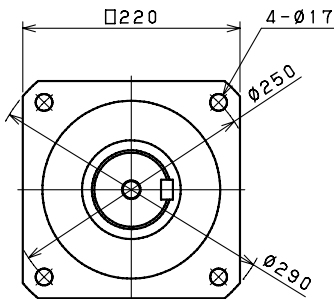
VRB 220 2-Stage Specifications

Frame Size	220									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	1100	1400	1500	1800	2000	1300	2000	2000
Maximum Acceleration Torque	[Nm]	*2	2000	2900	2900	2900	2900	2000	2900	2900
Maximum Torque	[Nm]	*3	2000	2900	2900	2900	2900	2000	2900	2900
Emergency Stop Torque	[Nm]	*4	4000	5000	5000	5000	5000	4000	5000	5000
Nominal Input Speed	[rpm]	*5	2200	2200	2200	2200	2200	2200	2200	2200
Maximum Input Speed	[rpm]	*6	4500	4500	4500	4500	4500	4500	4500	4500
No Load Running Torque	[Nm]	*7	1.14							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	20	24	19	18	23	12	18	12
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	34	39	33	33	37	26	32	26
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 61							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	54							

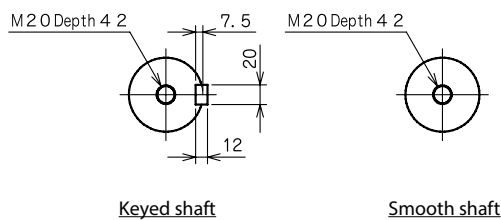
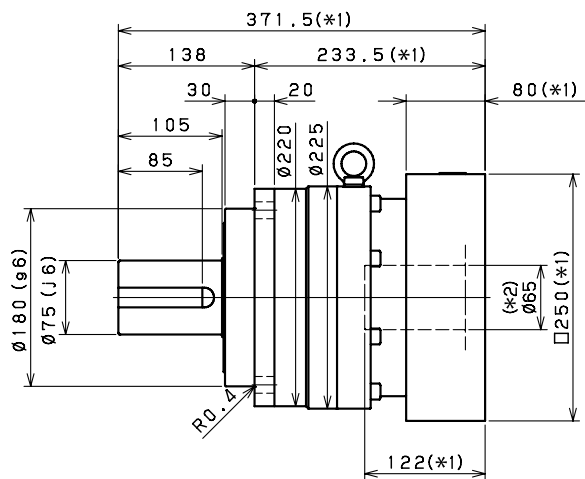
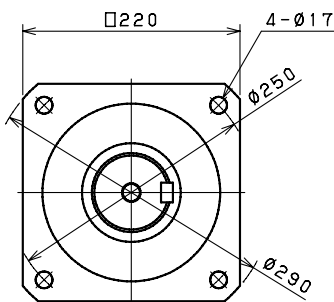
Frame Size	220									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	1300	2000	2000	2000	2000	1300	1300	
Maximum Acceleration Torque	[Nm]	*2	1800	2900	2900	2900	2500	1800	1600	
Maximum Torque	[Nm]	*3	1800	2900	2900	2900	2500	1800	1600	
Emergency Stop Torque	[Nm]	*4	4000	5000	5000	5000	5000	4000	4000	
Nominal Input Speed	[rpm]	*5	2200	2500	2500	3000	3000	3000	3000	
Maximum Input Speed	[rpm]	*6	4500	4500	4500	4500	4500	4500	4500	
No Load Running Torque	[Nm]	*7	1.14							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	4.7	4.7	4.6	4.6	4.6	4.6	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	18	12	11	11	11	11	11	
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	32	26	26	26	26	26	26	
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 61							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	54							

VRB 220 1-Stage Dimensions

Input bore size $\leq \phi 48$ mm



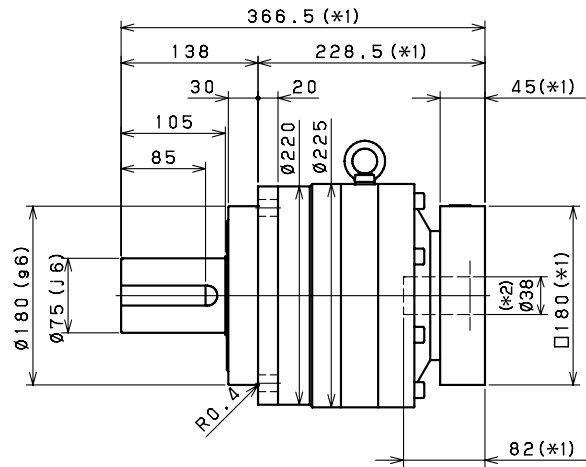
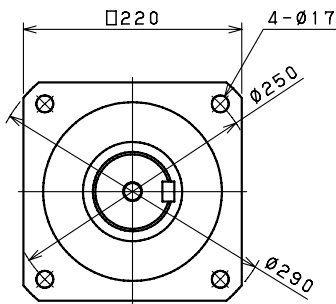
Input bore size $\leq \phi 65$ mm



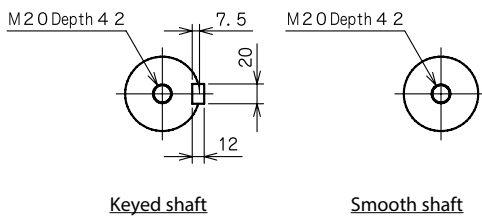
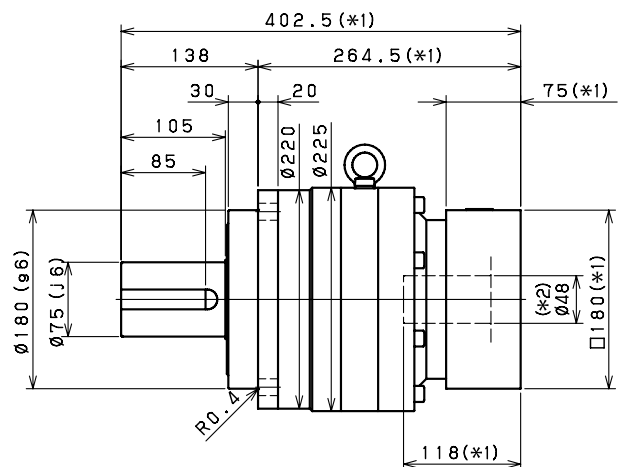
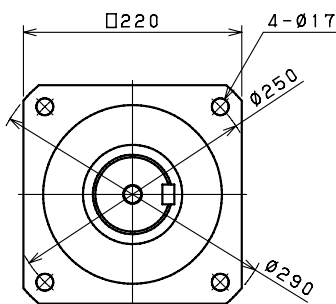
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRB 220 2-Stage Dimensions

Input bore size $\geq \phi 38$ mm



Input bore size $\geq \phi 48$ mm



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRS SERIES

A detailed photograph of a VRS series motor, showing its cylindrical body, mounting flange, and output shaft. The motor is shown from a low-angle perspective, highlighting its industrial design and metallic finish.

VRS series

VRS planetary gearbox in line

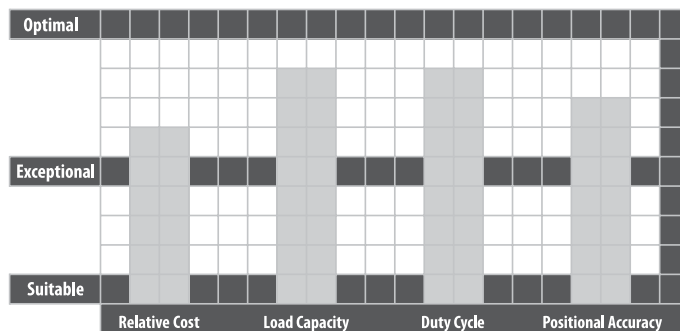
High precision, versatility and high radial and axial load

Description

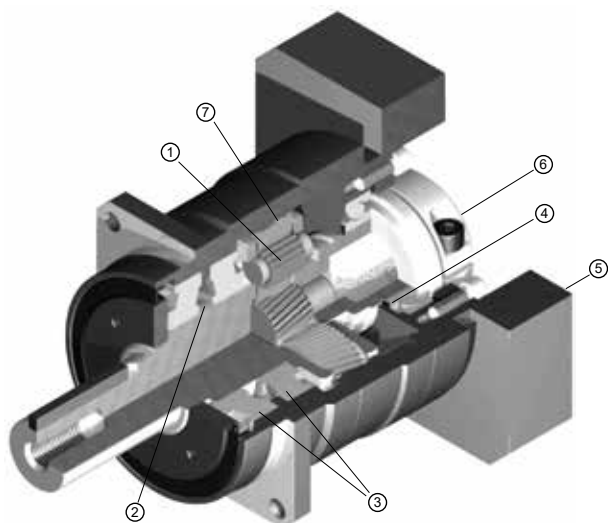
Compact and precise, the VRS is the ideal solution for demanding positioning accuracy and speed requirements. This product is a proven performer in higher speed, continuous duty applications where heat reduction is critical. Equipped with two rows of robust tapered roller bearings, the VRS runs smoothly and quietly even with the most challenging dynamic and static forces.

The VRS is available with reduced backlash, less than 2 arc-min, to handle dynamic machine tool and robotic applications with ease. With maximum acceleration torques up to 3700Nm, this product is an excellent partner to higher capacity servomotor models. Our customers specify this product when the industry standard is simply not good enough.

- Proven performer in high end motion control applications with demanding accuracy requirements
- Excellent fit for difficult overhung load situations or continuous duty cycles
- The widest range of frame sizes and ratios available in the market
- Best-In-class standard backlash (≤ 3 arc-min) with reduced backlash options available
- Broad range of mounting adapters offer a simple, precise attachment to any motor
- Maintenance-free solution that is lubricated for life. High performance grease allows flexible mounting in any orientation
- Industry standard through-bolt mounting style



Caratteristiche



1 Carburized, case hardened helical gears with proprietary secondary finishing process for higher accuracy and smooth, quiet operation

- 2 One piece output shaft and planet carrier with two robust tapered bearings straddling the planet gears. Higher radial/axial load capacity, stiffness, torque density and safety factor, with guaranteed alignment of gearing
- 3 Uncaged needle roller bearings provide excellent torque density and torsional rigidity
- 4 Unique labyrinth input seal design greatly reduces heat and increases system efficiency. IP65 protection is available for wash down applications
- 5 Optimized mounting system with active centering on motor pilot diameter guarantees alignment of motor. Motor can be installed in any orientation
- 6 True concentric motor shaft clamping connection, optimized for your specific motor. Reduced inertia for dynamic performance and balanced for high speed operation
- 7 Ring gear machined directly into the housing, not welded or pressed in. Provides greater concentricity and elimination of speed fluctuation

Part Number	VRS -100 C -7 -K 3 -19HB16			
Model name - VRS series	Size: 060, 075, 100, 140, 180, 210, 240	Version. B design version in exhaustion. Available on demand.	Motor mounting code (*)	Backlash: 3 arc-min
			Output mounting style: K - Keyed shaft / S - Smooth shaft	
Ratio: 1 stage: 3, 4, 5, 6, 7, 8, 9, 10 2 stage: 15, 16, 20, 25, 28, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100				

*1) Motor mounting code varies depending on the motor. Use the selection tool link below to configure the code.

VRS 060 1-Stage Specifications

Frame Size	060									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	19	27	28	28	28	28	28	28
Maximum Acceleration Torque	[Nm]	*2	46	66	66	66	66	66	46	46
Maximum Torque	[Nm]	*3	55	79	79	79	79	76	55	55
Emergency Stop Torque	[Nm]	*4	80	100	100	100	100	100	80	80
Nominal Input Speed	[rpm]	*5	3300	3300	4000	4000	4000	4000	4000	4000
Maximum Input Speed	[rpm]	*6	7500	7500	7500	7500	7500	7500	7500	7500
No Load Running Torque	[Nm]	*7	0.15							
Maximum Radial Load	[N]	*8	3000							
Maximum Axial Load	[N]	*9	2700							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.15	0.10	0.080	0.070	0.064	0.060	0.058	0.056
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.26	0.21	0.19	0.18	0.18	0.17	0.17	0.17
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.54	0.49	0.47	0.46	0.45	0.45	0.45	0.44
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	3.5							
Maximum Torsional Backlash	[arc-min]	--	Standard ≤ 3 / Reduced ≤ 2							
Noise Level	dB [A]	*12	≤ 66							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	1.6							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

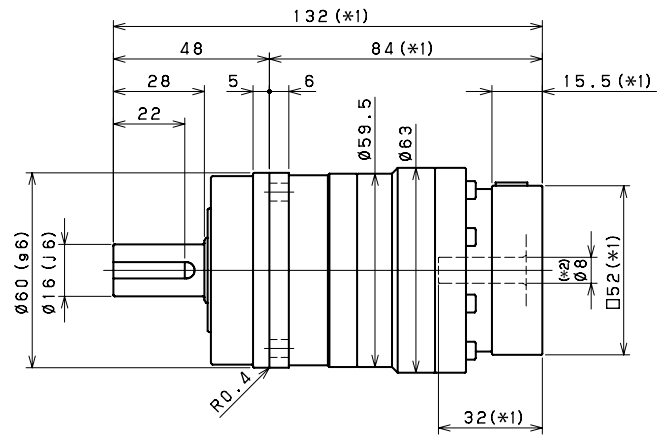
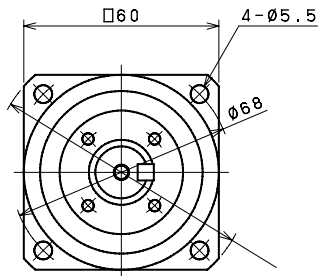
VRS 060 2-Stage Specifications

Frame Size	060									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	25	32	32	43	45	32	45	45
Maximum Acceleration Torque	[Nm]	*2	46	66	66	66	66	46	66	66
Maximum Torque	[Nm]	*3	46	66	66	66	66	46	66	66
Emergency Stop Torque	[Nm]	*4	80	100	100	100	100	80	100	100
Nominal Input Speed	[rpm]	*5	4000	4000	4000	4000	4000	4000	4000	4000
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500	8500
No Load Running Torque	[Nm]	*7	0.04							
Maximum Radial Load	[N]	*8	3000							
Maximum Axial Load	[N]	*9	2700							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.064	0.070	0.062	0.062	0.068	0.052	0.061	0.051
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.18	0.18	0.17	0.17	0.18	0.16	0.17	0.16
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.45	0.46	0.45	0.45	0.46	0.44	0.45	0.44
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	3.5							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 66							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	1.8							

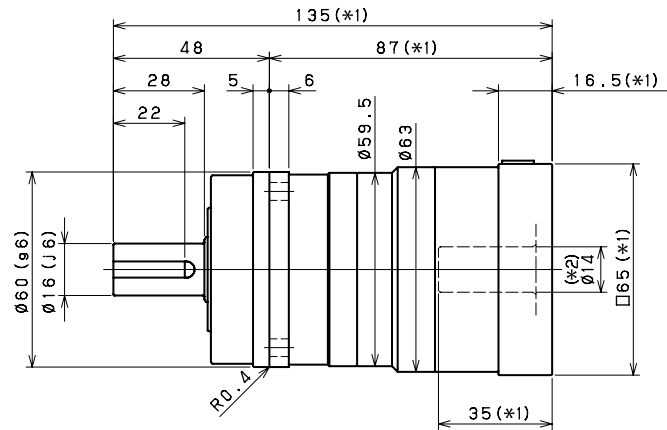
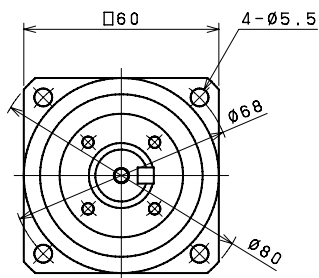
Frame Size	060									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	32	45	45	45	45	32	32	
Maximum Acceleration Torque	[Nm]	*2	46	66	66	66	66	46	46	
Maximum Torque	[Nm]	*3	46	66	66	66	66	46	46	
Emergency Stop Torque	[Nm]	*4	80	100	100	100	100	80	80	
Nominal Input Speed	[rpm]	*5	4000	4800	4800	5500	5500	5500	5500	
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500	
No Load Running Torque	[Nm]	*7	0.04							
Maximum Radial Load	[N]	*8	3000							
Maximum Axial Load	[N]	*9	2700							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.061	0.051	0.051	0.051	0.051	0.051	0.051	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.17	0.16	0.16	0.16	0.16	0.16	0.16	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.45	0.44	0.44	0.44	0.44	0.44	0.44	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	3.5							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 66							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	1.8							

VRS 060 1-Stage Dimensions

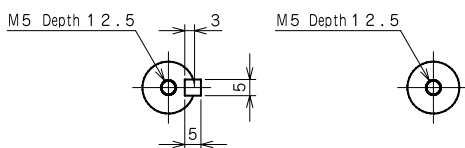
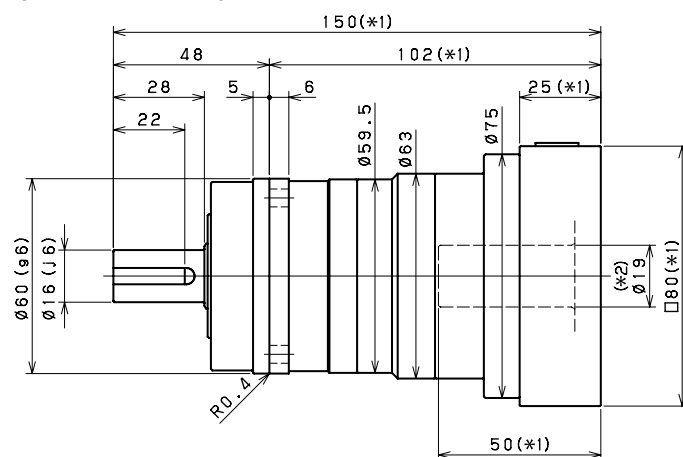
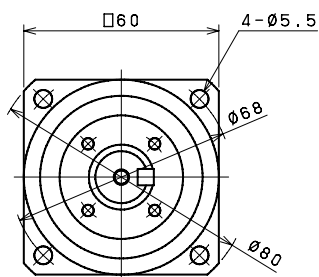
Input bore size $\leq \varnothing 8$ mm



Input bore size $\leq \varnothing 14$ mm



Input bore size $\leq \varnothing 19$ mm



Keyed shaft

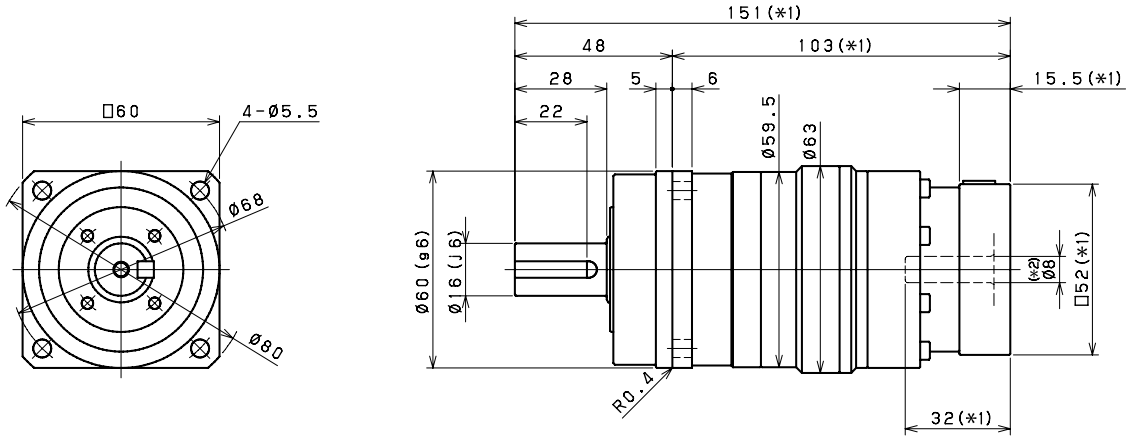
Smooth shaft

*1) Length will vary depending on motor

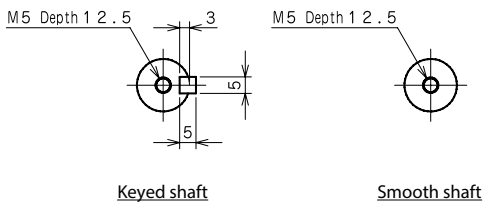
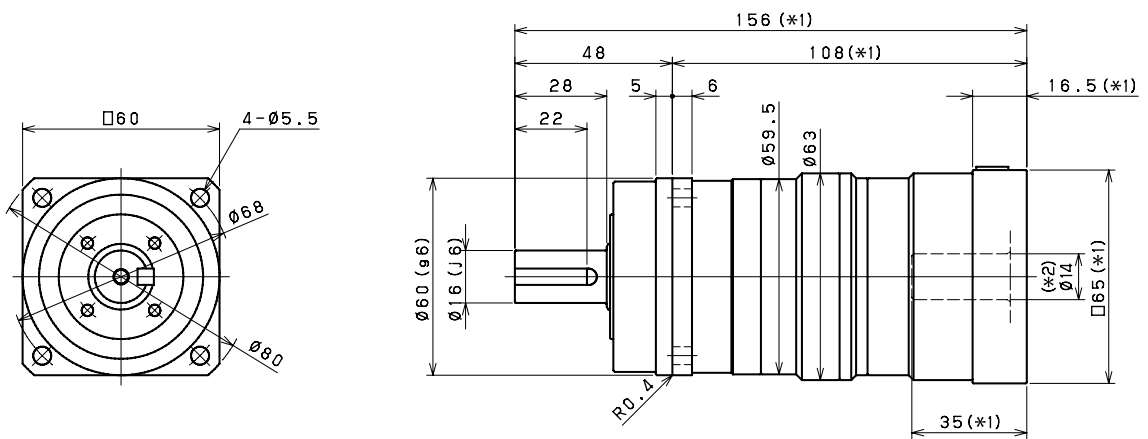
*2) Bushing will be inserted to adapt to motor shaft

VRS 060 2-Stage Dimensions

Input bore size $\leq \varnothing 8 \text{ mm}$



Input bore size $\leq \varnothing 14 \text{ mm}$



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRS 075 1-Stage Specifications

Frame Size	075									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	53	77	84	84	84	84	84	84
Maximum Acceleration Torque	[Nm]	*2	108	165	165	165	165	165	112	112
Maximum Torque	[Nm]	*3	135	200	200	195	195	190	145	145
Emergency Stop Torque	[Nm]	*4	200	250	250	250	250	250	200	200
Nominal Input Speed	[rpm]	*5	2900	2900	2900	2900	3100	3100	3100	3100
Maximum Input Speed	[rpm]	*6	7500	7500	7500	7500	7500	7500	7500	7500
No Load Running Torque	[Nm]	*7	0.35							
Maximum Radial Load	[N]	*8	4300							
Maximum Axial Load	[N]	*9	3900							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.68	0.48	0.39	0.34	0.32	0.31	0.30	0.29
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	1.1	0.87	0.79	0.74	0.72	0.71	0.70	0.69
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.9	2.6	2.6	2.5	2.5	2.5	2.5	2.4
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	Standard ≤ 3 / Reduced ≤ 2							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	3.4							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

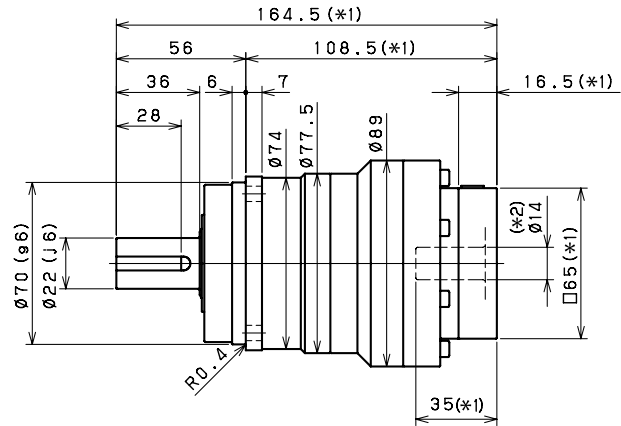
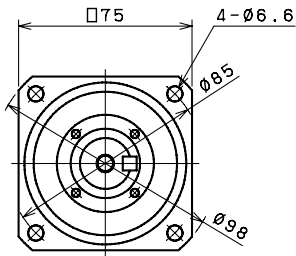
VRS 075 2-Stage Specifications

Frame Size	075									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	65	80	86	106	118	88	118	118
Maximum Acceleration Torque	[Nm]	*2	108	165	165	165	165	108	165	165
Maximum Torque	[Nm]	*3	108	165	165	165	165	108	165	165
Emergency Stop Torque	[Nm]	*4	200	250	250	250	250	200	250	250
Nominal Input Speed	[rpm]	*5	3500	3500	3500	3500	3500	3500	3500	3500
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500	8500
No Load Running Torque	[Nm]	*7	0.06							
Maximum Radial Load	[N]	*8	4300							
Maximum Axial Load	[N]	*9	3900							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.20	0.25	0.19	0.19	0.24	0.12	0.18	0.11
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.36	0.41	0.35	0.35	0.40	0.28	0.34	0.27
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.75	0.79	0.74	0.73	0.78	0.67	0.73	0.67
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.5	2.5	2.5	2.5	2.5	2.4	2.5	2.4
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	3.8							

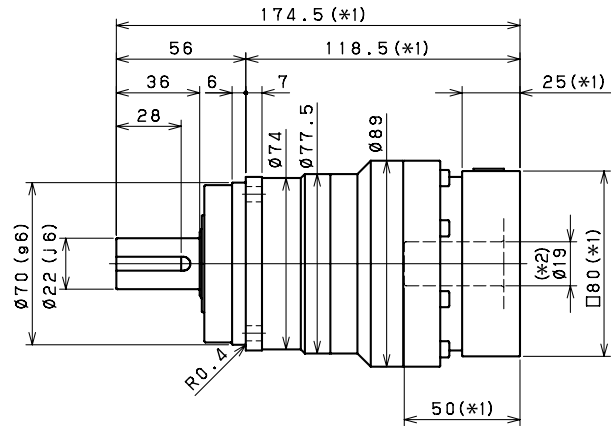
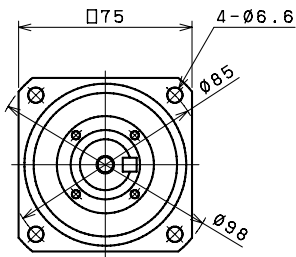
Frame Size	075									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	88	118	118	118	118	88	88	
Maximum Acceleration Torque	[Nm]	*2	112	165	165	165	165	112	112	
Maximum Torque	[Nm]	*3	112	165	165	165	165	112	112	
Emergency Stop Torque	[Nm]	*4	200	250	250	250	250	200	200	
Nominal Input Speed	[rpm]	*5	3500	3800	3800	4500	4500	4500	4500	
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500	
No Load Running Torque	[Nm]	*7	0.06							
Maximum Radial Load	[N]	*8	4300							
Maximum Axial Load	[N]	*9	3900							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.18	0.11	0.11	0.11	0.11	0.11	0.11	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.34	0.27	0.27	0.27	0.27	0.27	0.27	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.73	0.67	0.67	0.67	0.67	0.67	0.67	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.5	2.4	2.4	2.4	2.4	2.4	2.4	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	3.8							

VRS 075 1-Stage Dimensions

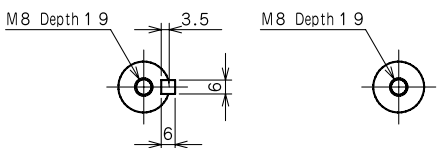
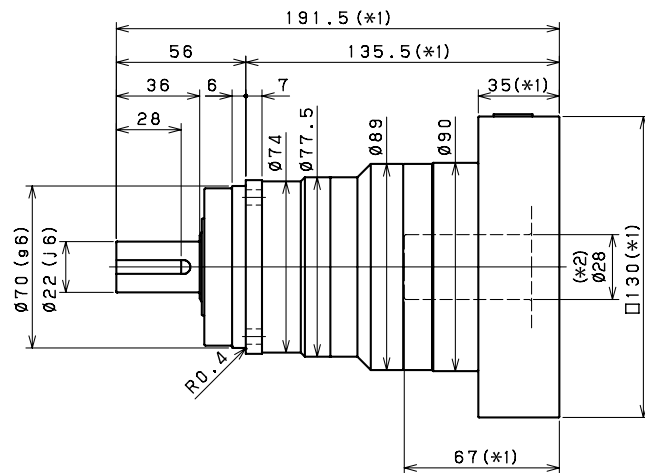
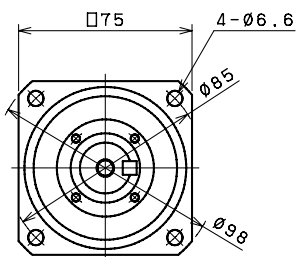
Input bore size $\leq \phi 14$ mm



Input bore size $\leq \phi 19$ mm



Input bore size $\leq \phi 28$ mm



Keyed shaft

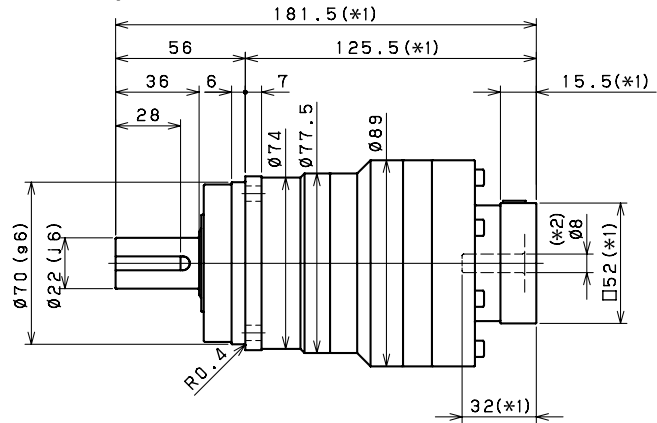
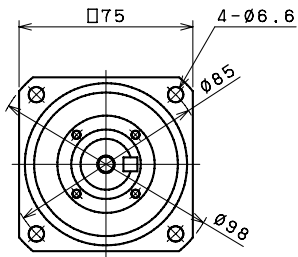
Smooth shaft

*1) Length will vary depending on motor

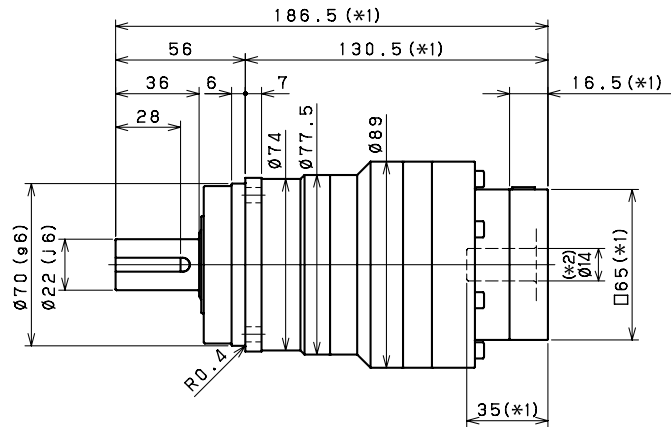
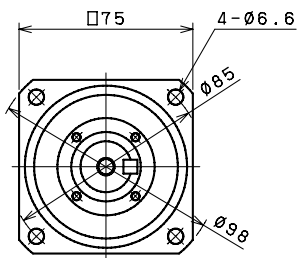
*2) Bushing will be inserted to adapt to motor shaft

VRS 075 2-Stage Dimensions

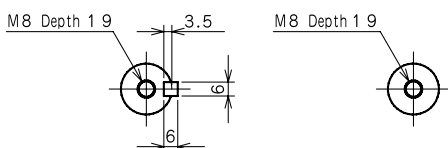
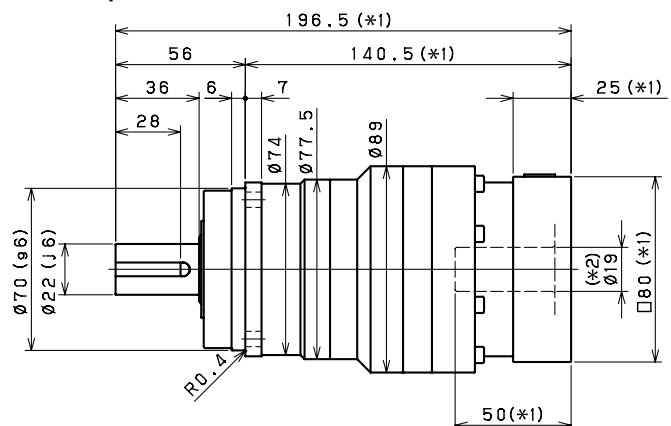
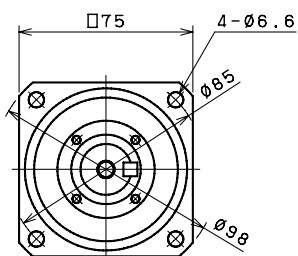
Input bore size $\leq \phi 8$ mm



Input bore size $\leq \phi 14$ mm



Input bore size $\leq \phi 19$ mm



Keyed shaft

Smooth shaft

- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRS 100 1-Stage Specifications

Frame Size	100									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	128	146	190	190	190	190	190	190
Maximum Acceleration Torque	[Nm]	*2	270	390	390	390	390	390	292	292
Maximum Torque	[Nm]	*3	340	490	490	480	480	480	370	370
Emergency Stop Torque	[Nm]	*4	500	625	625	625	625	625	500	500
Nominal Input Speed	[rpm]	*5	2800	2800	2800	2800	2800	2800	2800	2800
Maximum Input Speed	[rpm]	*6	5500	5500	5500	5500	5500	5500	5500	5500
No Load Running Torque	[Nm]	*7	1.30							
Maximum Radial Load	[N]	*8	7000							
Maximum Axial Load	[N]	*9	6300							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	3.1	1.9	1.4	1.1	1.0	0.91	0.85	0.82
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	5.0	3.7	3.1	2.8	2.7	2.6	2.6	2.5
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	12	10	9.5	9.2	9.1	8.9	8.9	8.8
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	31							
Maximum Torsional Backlash	[arc-min]	--	Standard ≤ 3 / Reduced ≤ 1							
Noise Level	dB [A]	*12	≤ 71							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	8.1							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

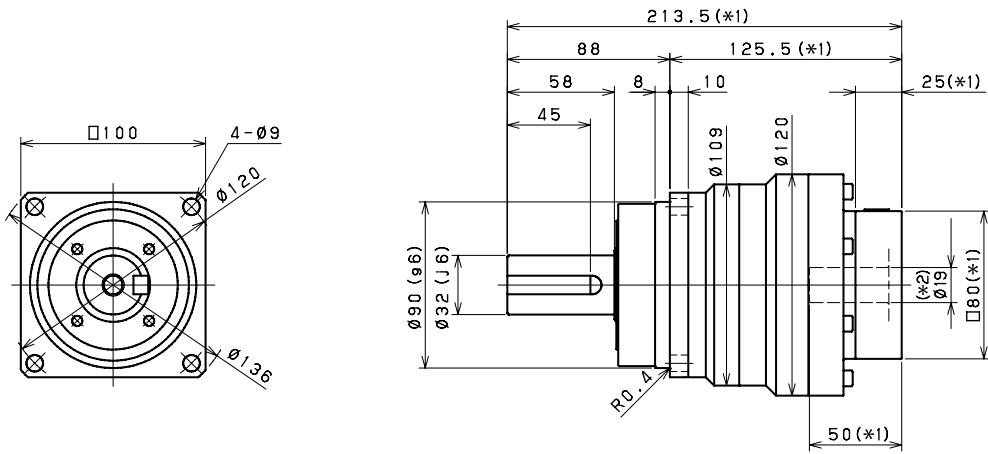
VRS 100 2-Stage Specifications

Frame Size	100									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	174	200	220	280	280	220	280	270
Maximum Acceleration Torque	[Nm]	*2	270	390	390	390	390	270	390	390
Maximum Torque	[Nm]	*3	270	390	390	390	390	270	390	390
Emergency Stop Torque	[Nm]	*4	500	625	625	625	625	500	625	625
Nominal Input Speed	[rpm]	*5	3100	3100	3100	3100	3100	3100	3100	3100
Maximum Input Speed	[rpm]	*6	6500	6500	6500	6500	6500	6500	6500	6500
No Load Running Torque	[Nm]	*7	0.42							
Maximum Radial Load	[N]	*8	7000							
Maximum Axial Load	[N]	*9	6300							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.76	0.97	0.72	0.70	0.92	0.38	0.68	0.37
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	1.1	1.4	1.1	1.1	1.3	0.78	1.1	0.77
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.9	3.1	2.8	2.8	3	2.5	2.8	2.5
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	9.2	9.4	9.1	9.1	9.3	8.8	9.1	8.8
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	31							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 71							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	8.8							

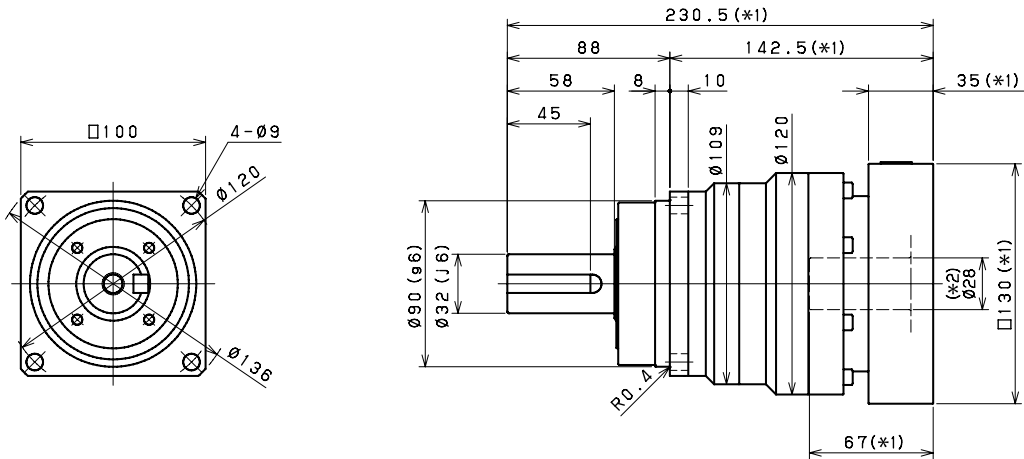
Frame Size	100									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	220	280	280	280	280	220	220	
Maximum Acceleration Torque	[Nm]	*2	292	390	390	390	390	292	292	
Maximum Torque	[Nm]	*3	292	390	390	390	390	292	292	
Emergency Stop Torque	[Nm]	*4	500	625	625	625	625	500	500	
Nominal Input Speed	[rpm]	*5	3100	3500	3500	4200	4200	4200	4200	
Maximum Input Speed	[rpm]	*6	6500	6500	6500	6500	6500	6500	6500	
No Load Running Torque	[Nm]	*7	0.42							
Maximum Radial Load	[N]	*8	7000							
Maximum Axial Load	[N]	*9	6300							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	0.19	0.19	0.19	0.19	0.19	0.19	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.68	0.36	0.36	0.36	0.36	0.36	0.36	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	1.1	0.76	0.76	0.76	0.76	0.76	0.76	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.8	2.5	2.5	2.5	2.5	2.5	2.5	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	9.1	8.8	8.8	8.8	8.8	8.8	8.8	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	31							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 71							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	8.8							

VRS 100 1-Stage Dimensions

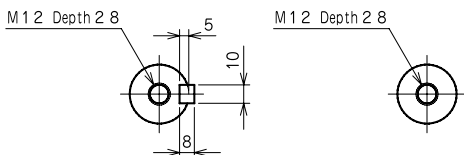
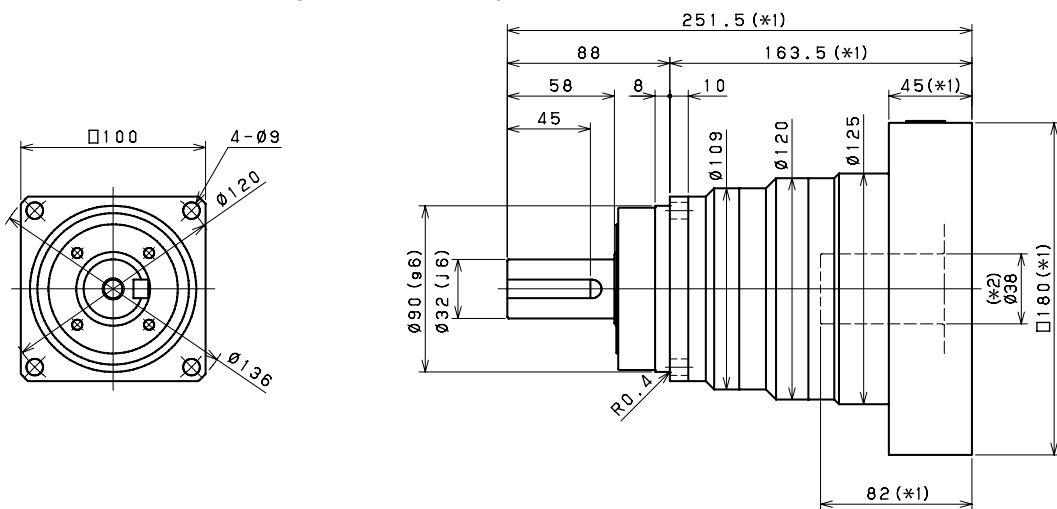
Input bore size $\leq \phi 19$ mm



Input bore size $\leq \phi 28$ mm



Input bore size $\leq \phi 38$ mm



Keyed shaft

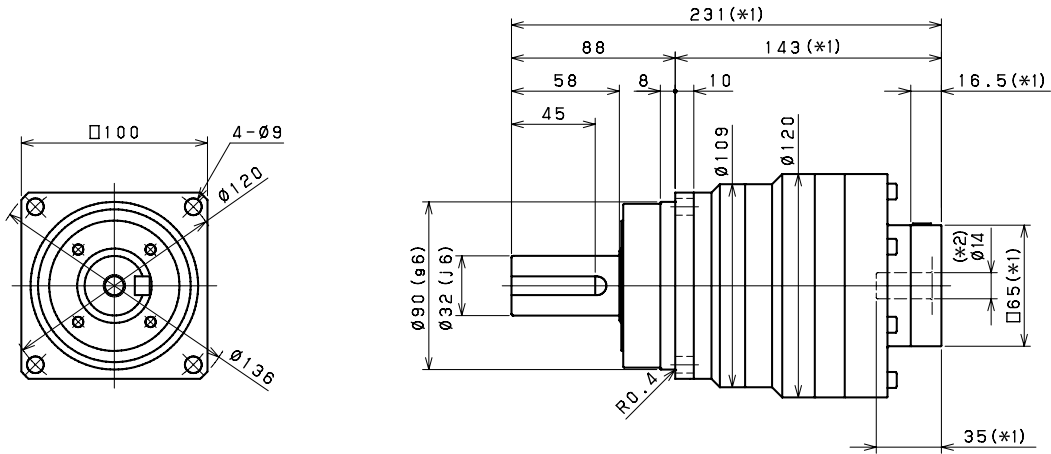
Smooth shaft

*1) Length will vary depending on motor

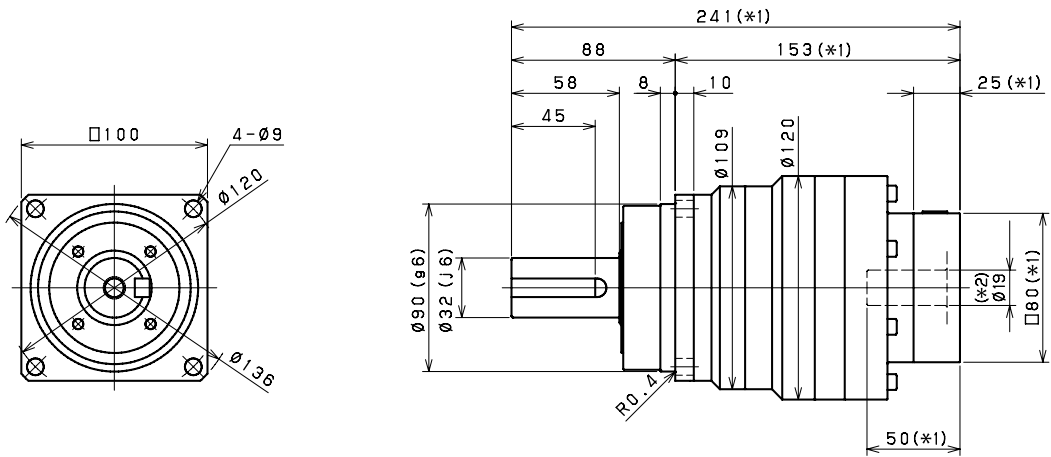
*2) Bushing will be inserted to adapt to motor shaft

VRS 100 2-Stage Dimensions

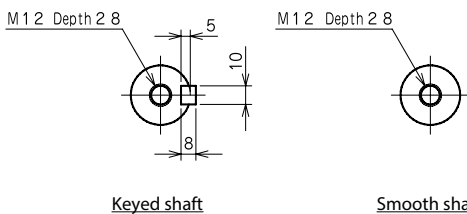
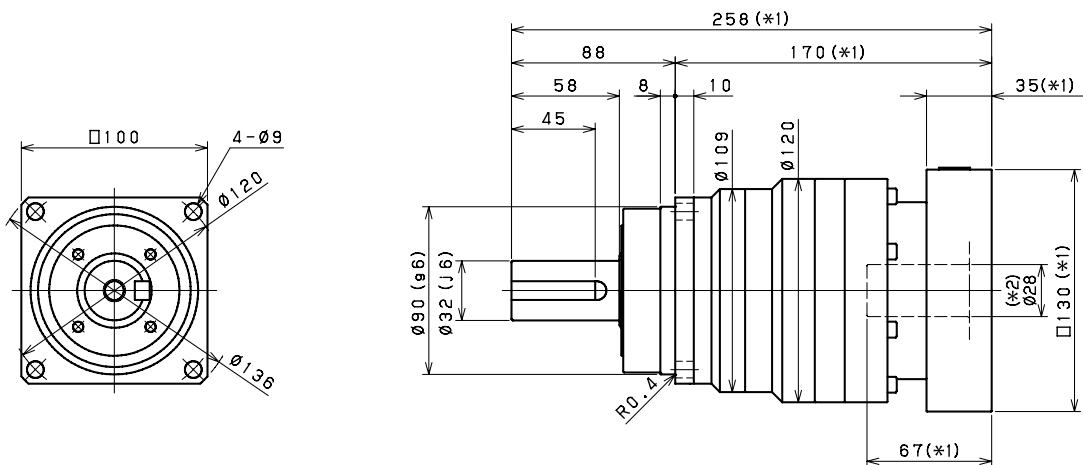
Input bore size $\leq \phi 14$ mm



Input bore size $\leq \phi 19$ mm



Input bore size $\leq \phi 28$ mm



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRS 140 1-Stage Specifications

Frame Size	140									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	248	280	380	380	380	380	380	380
Maximum Acceleration Torque	[Nm]	*2	560	840	840	840	840	840	610	610
Maximum Torque	[Nm]	*3	630	1000	1000	950	950	950	730	730
Emergency Stop Torque	[Nm]	*4	1000	1250	1250	1250	1250	1250	1000	1000
Nominal Input Speed	[rpm]	*5	2100	2100	2100	2100	2600	2600	2600	2600
Maximum Input Speed	[rpm]	*6	5000	5000	5000	5000	5000	5000	5000	5000
No Load Running Torque	[Nm]	*7	1.63							
Maximum Radial Load	[N]	*8	10000							
Maximum Axial Load	[N]	*9	9000							
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	12	7.2	5.2	4.3	3.8	3.5	3.3	3.2
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	18	14	12	11	10	9.9	9.7	9.6
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	35	29	27	26	25	25	25	25
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	60							
Maximum Torsional Backlash	[arc-min]	--	Standard ≤ 3 / Reduced ≤ 1							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	17							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

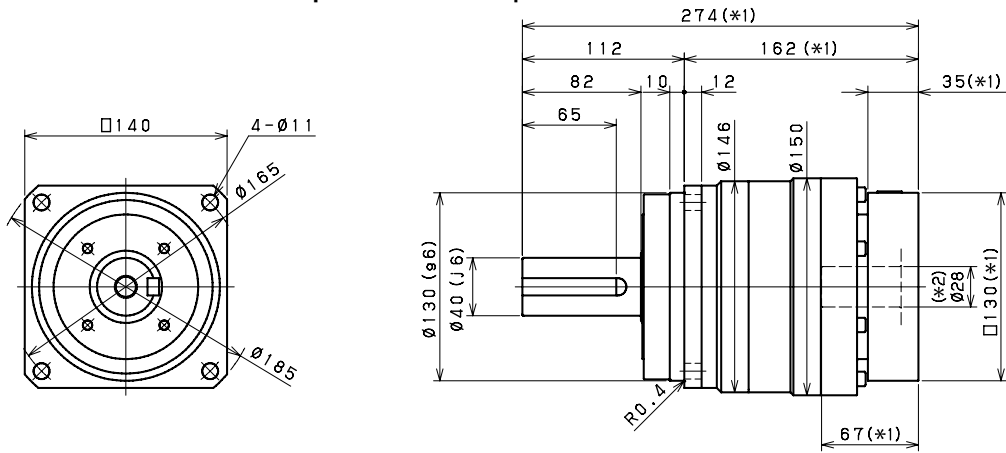
VRS 140 2-Stage Specifications

Frame Size	140										
Stage	2-Stage										
Ratio	Unit	Note	15	16	20	25	28	30	35	40	
Nominal Output Torque	[Nm]	*1	360	380	410	590	590	440	590	500	
Maximum Acceleration Torque	[Nm]	*2	560	840	840	840	840	560	840	840	
Maximum Torque	[Nm]	*3	560	840	840	840	840	560	840	840	
Emergency Stop Torque	[Nm]	*4	1000	1250	1250	1250	1250	1000	1250	1250	
Nominal Input Speed	[rpm]	*5	2900	2900	2900	2900	2900	2900	2900	2900	
Maximum Input Speed	[rpm]	*6	6000	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque	[Nm]	*7	0.56								
Maximum Radial Load	[N]	*8	10000								
Maximum Axial Load	[N]	*9	9000								
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--	--	--	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.6	3.5	2.4	2.4	3.3	1.1	2.3	1.1	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.4	5.3	4.2	4.1	5.1	2.9	4.1	2.8	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	11	12	10	10	11	9.2	10	9.1	
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	26	27	25	25	26	24	25	24	
Efficiency	[%]	*10	90								
Torsional Rigidity	[Nm/arc-min]	*11	60								
Maximum Torsional Backlash	[arc-min]	--	≤ 3								
Noise Level	dB [A]	*12	≤ 67								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	19								

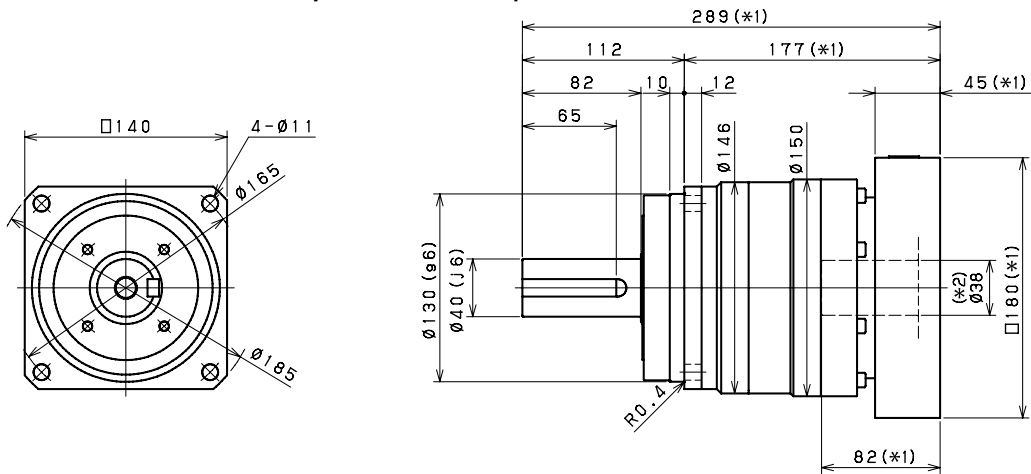
Frame Size	140									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	440	590	590	590	590	440	440	
Maximum Acceleration Torque	[Nm]	*2	610	840	840	840	840	610	610	
Maximum Torque	[Nm]	*3	610	840	840	840	840	610	610	
Emergency Stop Torque	[Nm]	*4	1000	1250	1250	1250	1250	1000	1000	
Nominal Input Speed	[rpm]	*5	2900	3200	3200	3900	3900	3900	3900	
Maximum Input Speed	[rpm]	*6	6000	6000	6000	6000	6000	6000	6000	
No Load Running Torque	[Nm]	*7	0.56							
Maximum Radial Load	[N]	*8	10000							
Maximum Axial Load	[N]	*9	9000							
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	0.65	0.64	0.64	0.63	0.63	0.63	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.3	1.1	1.1	1.1	1.1	1.1	1.1	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.0	2.8	2.8	2.8	2.8	2.8	2.8	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	10	9.1	9.1	9.1	9.1	9.1	9.1	
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	25	24	24	24	24	24	24	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	19							

VRS 140 1-Stage Dimensions

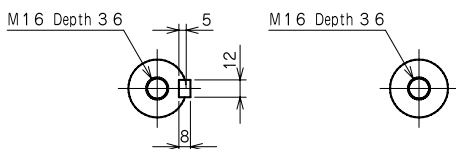
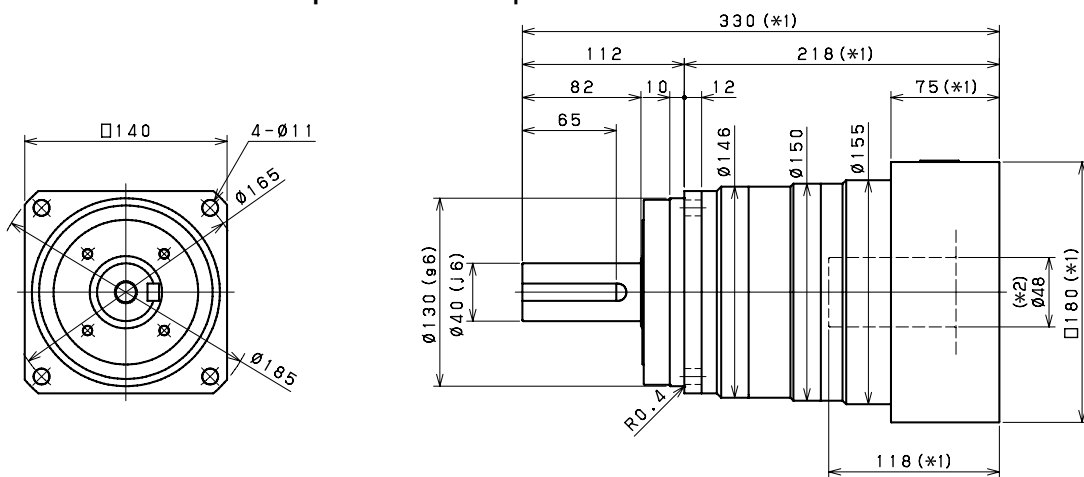
Input bore size $\leq \phi 28$ mm



Input bore size $\leq \phi 38$ mm



Input bore size $\leq \phi 48$ mm



Keyed shaft

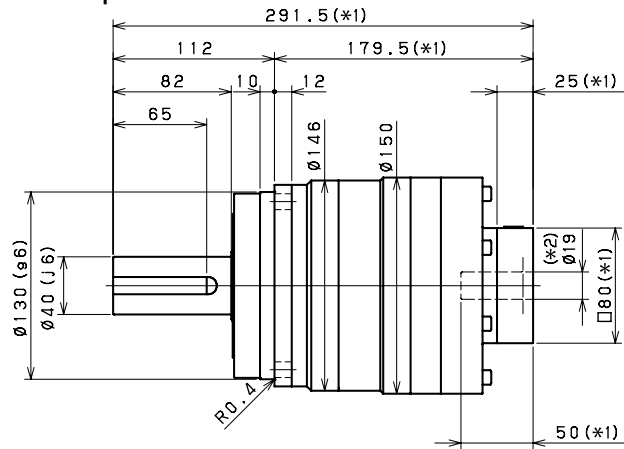
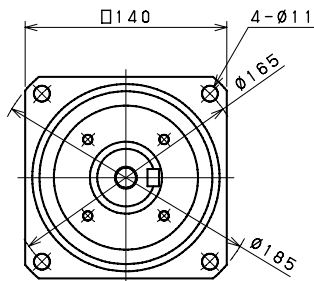
Smooth shaft

*1) Length will vary depending on motor

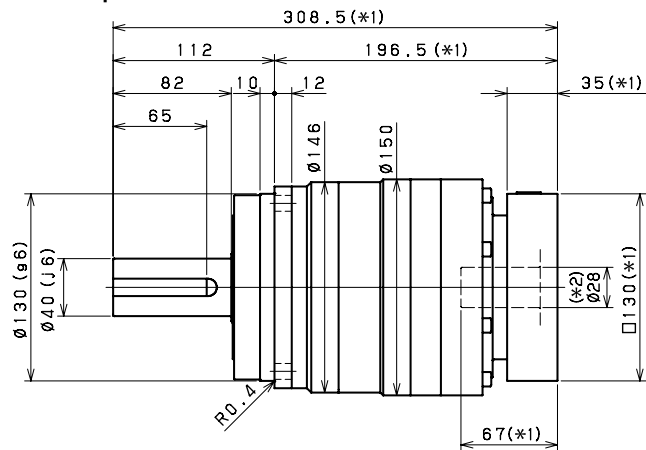
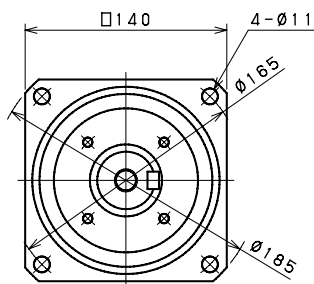
*2) Bushing will be inserted to adapt to motor shaft

VRS 140 2-Stage Dimensions

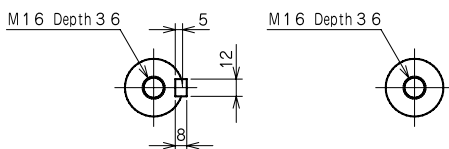
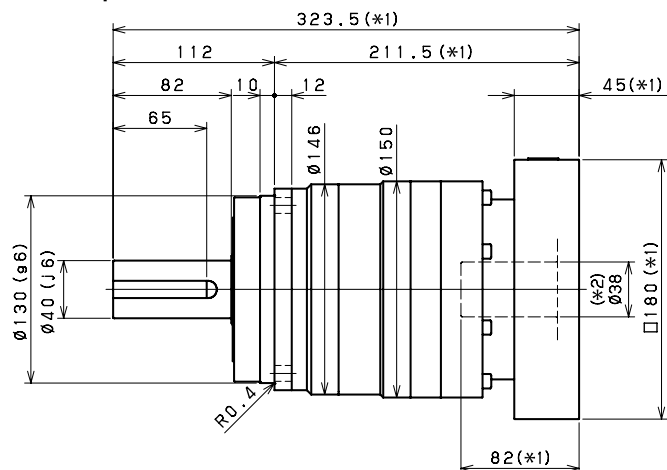
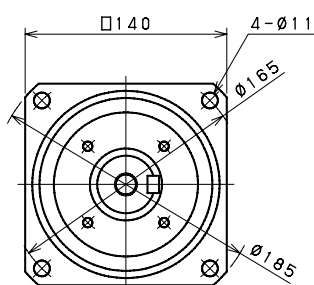
Input bore size $\leq \phi 19$ mm



Input bore size $\leq \phi 28$ mm



Input bore size $\leq \phi 38$ mm



Keyed shaft

Smooth shaft

- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRS 180 1-Stage Specifications

Frame Size	180									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	570	850	910	910	910	910	910	910
Maximum Acceleration Torque	[Nm]	*2	1300	1850	1850	1850	1850	1850	1350	1350
Maximum Torque	[Nm]	*3	1450	2250	2250	2150	2150	2150	1750	1750
Emergency Stop Torque	[Nm]	*4	2200	2750	2750	2750	2750	2750	2200	2200
Nominal Input Speed	[rpm]	*5	1500	1500	1500	1500	2300	2300	2300	2300
Maximum Input Speed	[rpm]	*6	4500	4500	4500	4500	4500	4500	4500	4500
No Load Running Torque	[Nm]	*7	2.68							
Maximum Radial Load	[N]	*8	19000							
Maximum Axial Load	[N]	*9	17000							
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	41	25	18	15	13	12	12	11
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	55	40	33	30	29	27	27	26
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	110	84	78	74	73	71	71	70
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	175							
Maximum Torsional Backlash	[arc-min]	--	Standard ≤ 3 / Reduced ≤ 1							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	39							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

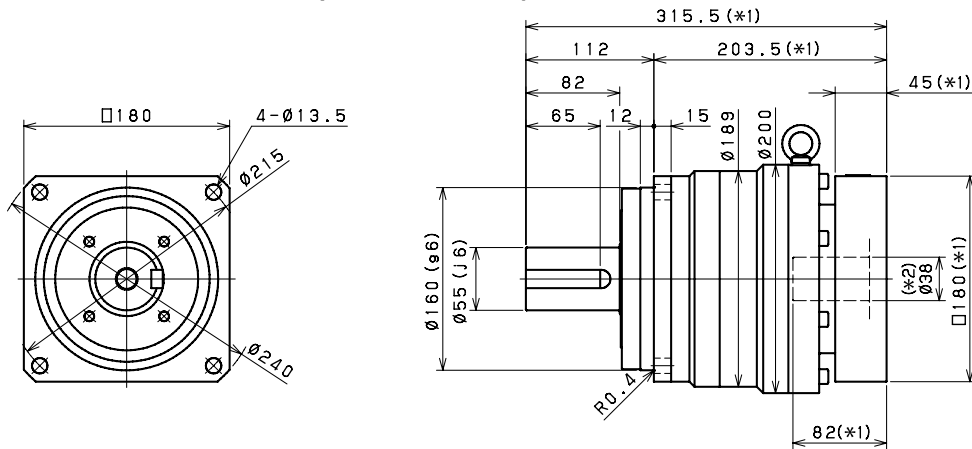
VRS 180 2-Stage Specifications

Frame Size	180									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	660	850	910	1100	1300	930	1300	1200
Maximum Acceleration Torque	[Nm]	*2	1300	1850	1850	1850	1850	1300	1850	1850
Maximum Torque	[Nm]	*3	1300	1850	1850	1850	1850	1300	1850	1850
Emergency Stop Torque	[Nm]	*4	2200	2750	2750	2750	2750	2200	2750	2750
Nominal Input Speed	[rpm]	*5	2700	2700	2700	2700	2700	2700	2700	2700
Maximum Input Speed	[rpm]	*6	5000	5000	5000	5000	5000	5000	5000	5000
No Load Running Torque	[Nm]	*7	1.39							
Maximum Radial Load	[N]	*8	19000							
Maximum Axial Load	[N]	*9	17000							
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	8.7	11	8.1	7.8	11	4	7.6	3.9
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	15	18	14	14	17	10	14	10
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	30	32	29	29	32	25	29	25
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	34	39	33	33	38	26	32	26
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	40							

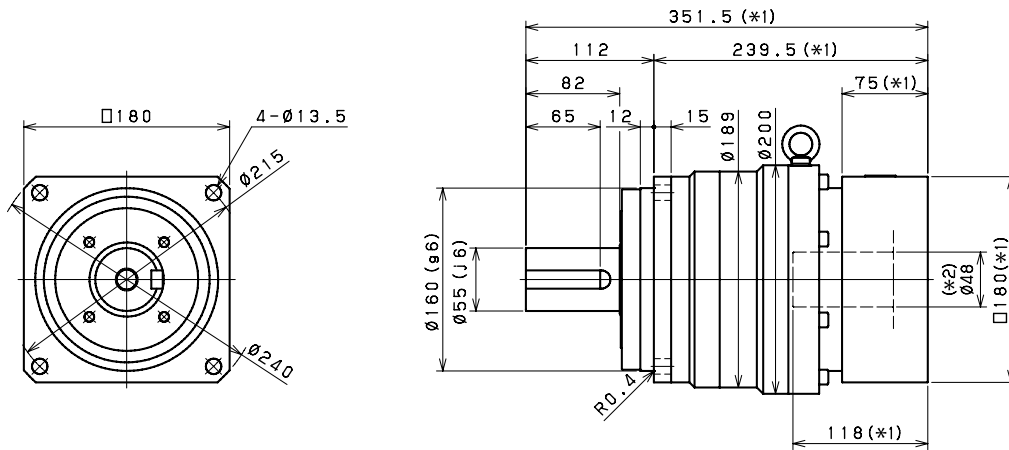
Frame Size	180									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	930	1300	1300	1300	1300	930	930	
Maximum Acceleration Torque	[Nm]	*2	1350	1850	1850	1850	1850	1350	1350	
Maximum Torque	[Nm]	*3	1350	1850	1850	1850	1850	1350	1350	
Emergency Stop Torque	[Nm]	*4	2200	2750	2750	2750	2750	2200	2200	
Nominal Input Speed	[rpm]	*5	2700	2900	2900	3400	3400	3400	3400	
Maximum Input Speed	[rpm]	*6	5000	5000	5000	5000	5000	5000	5000	
No Load Running Torque	[Nm]	*7	1.39							
Maximum Radial Load	[N]	*8	19000							
Maximum Axial Load	[N]	*9	17000							
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	1.9	1.9	1.8	1.8	1.8	1.8	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	7.6	3.8	3.8	3.8	3.7	3.7	3.7	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	14	10	10	10	10	10	10	
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	29	25	25	25	25	25	25	
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	32	26	26	26	26	26	26	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 67							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	40							

VRS 180 1-Stage Dimensions

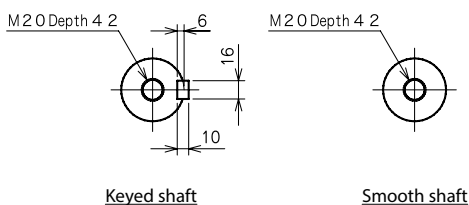
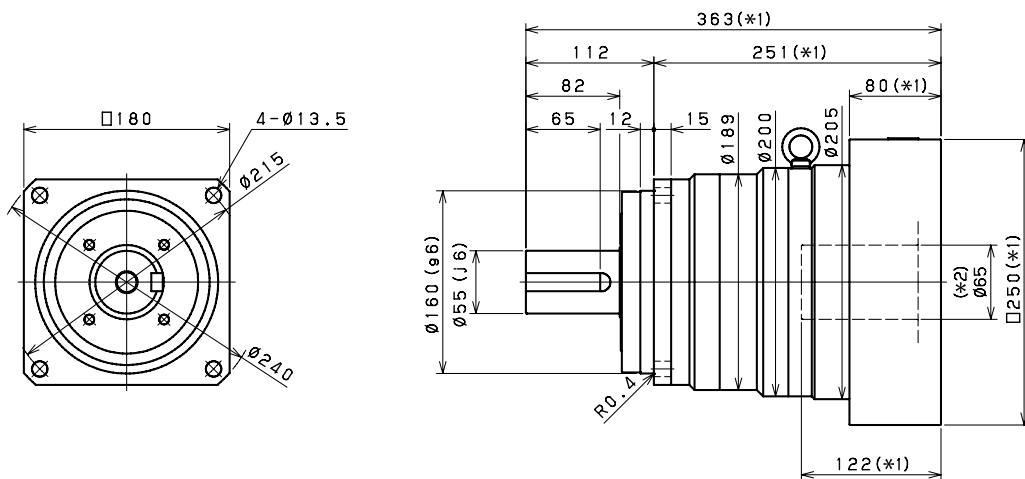
Input bore size $\cong \phi 38$ mm



Input bore size $\cong \phi 48$ mm



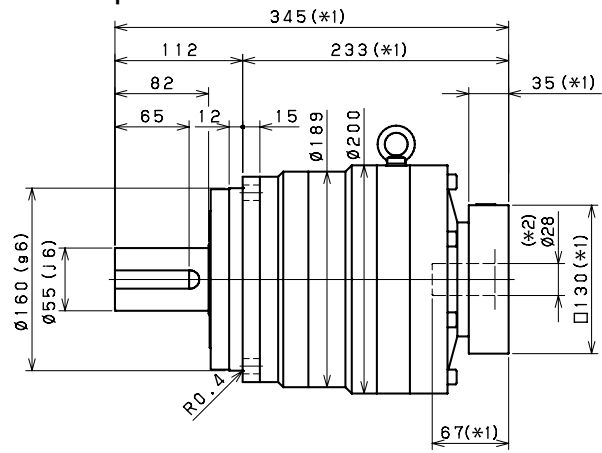
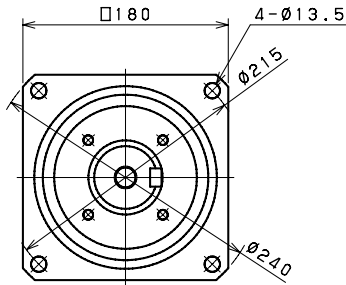
Input bore size $\cong \phi 65$ mm



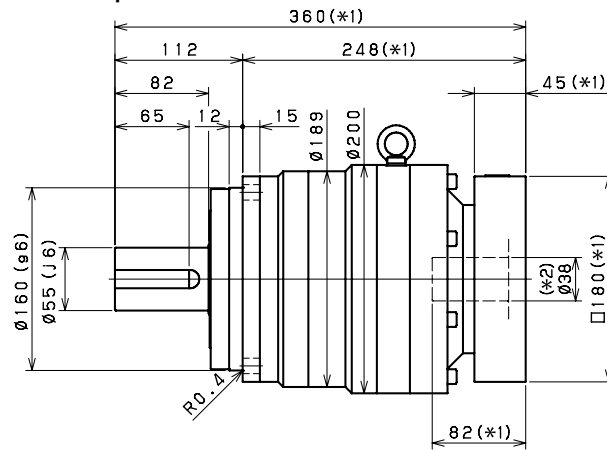
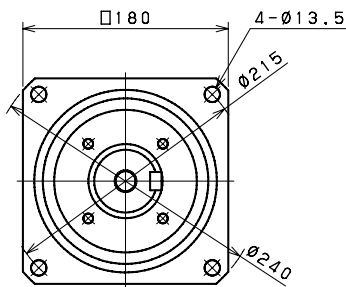
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRS 180 2-Stage Dimensions

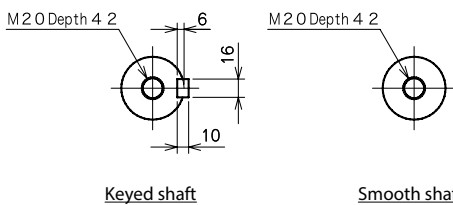
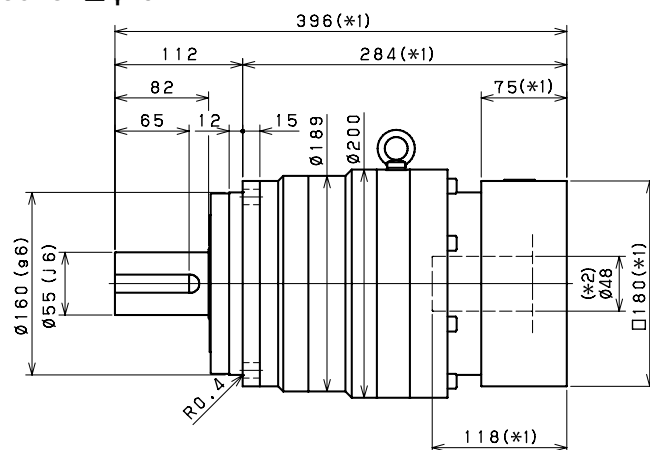
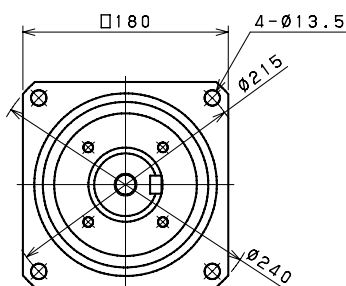
Input bore size $\leq \phi 28$ mm



Input bore size $\leq \phi 38$ mm



Input bore size $\leq \phi 48$ mm



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRS 210 1-Stage Specifications

Frame Size	210									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	980	1400	1400	1600	1700	1700	1700	1700
Maximum Acceleration Torque	[Nm]	*2	2000	2900	2900	2900	2900	2900	2600	2200
Maximum Torque	[Nm]	*3	2400	3700	3700	3500	3500	3400	3000	2700
Emergency Stop Torque	[Nm]	*4	4000	5000	5000	5000	5000	5000	4000	4000
Nominal Input Speed	[rpm]	*5	1200	1200	1500	1500	1700	1700	2000	2000
Maximum Input Speed	[rpm]	*6	3000	3000	3000	3000	3000	3000	3000	3000
No Load Running Torque	[Nm]	*7	2.92							
Maximum Radial Load	[N]	*8	24000							
Maximum Axial Load	[N]	*9	22000							
Moment of Inertia (≤ Ø 28)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia (≤ Ø 38)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia (≤ Ø 48)	[kgcm ²]	--	110	55	42	36	33	31	29	28
Moment of Inertia (≤ Ø 65)	[kgcm ²]	--	160	99	86	80	77	74	73	72
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 61							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	59							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

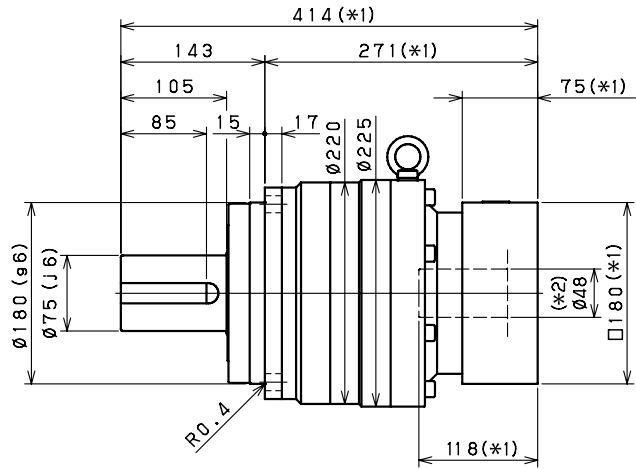
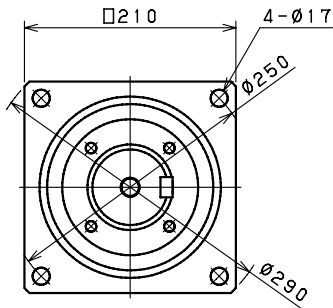
VRS 210 2-Stage Specifications

Frame Size	210									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	1100	1400	1500	1800	2000	1300	2000	2000
Maximum Acceleration Torque	[Nm]	*2	2000	2900	2900	2900	2900	2000	2900	2900
Maximum Torque	[Nm]	*3	2000	2900	2900	2900	2900	2000	2900	2900
Emergency Stop Torque	[Nm]	*4	4000	5000	5000	5000	5000	4000	5000	5000
Nominal Input Speed	[rpm]	*5	2200	2200	2200	2200	2200	2200	2200	2200
Maximum Input Speed	[rpm]	*6	4500	4500	4500	4500	4500	4500	4500	4500
No Load Running Torque	[Nm]	*7	1.14							
Maximum Radial Load	[N]	*8	24000							
Maximum Axial Load	[N]	*9	22000							
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	20	24	19	18	23	12	18	12
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	34	39	33	33	38	26	32	26
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 61							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	60							

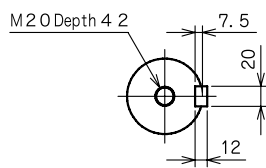
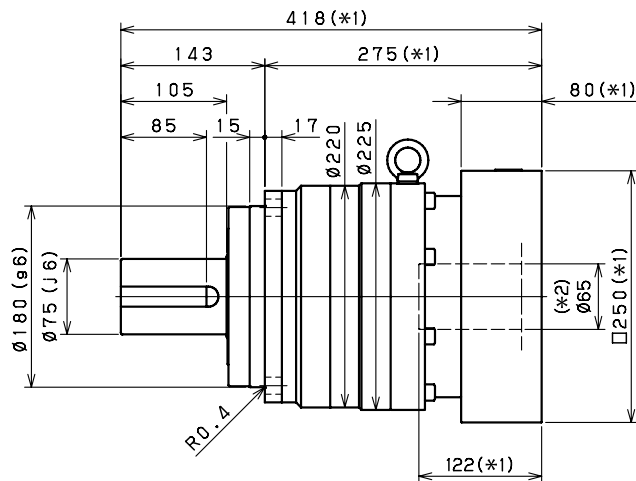
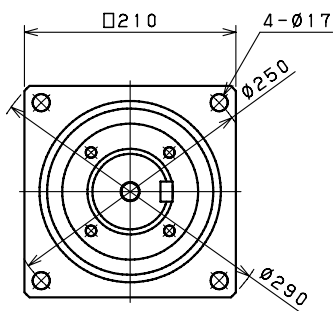
Frame Size	210									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	1300	2000	2000	2000	2000	1300	1300	
Maximum Acceleration Torque	[Nm]	*2	1800	2900	2900	2900	2500	1800	1600	
Maximum Torque	[Nm]	*3	1800	2900	2900	2900	2500	1800	1600	
Emergency Stop Torque	[Nm]	*4	4000	5000	5000	5000	5000	4000	4000	
Nominal Input Speed	[rpm]	*5	2200	2500	2500	3000	3000	3000	3000	
Maximum Input Speed	[rpm]	*6	4500	4500	4500	4500	4500	4500	4500	
No Load Running Torque	[Nm]	*7	1.14							
Maximum Radial Load	[N]	*8	24000							
Maximum Axial Load	[N]	*9	22000							
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	4.7	4.7	4.6	4.6	4.6	4.6	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	18	12	11	11	11	11	11	
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	32	26	26	26	26	26	26	
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 61							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	60							

VRS 210 1-Stage Dimensions

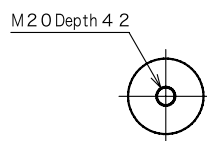
Input bore size $\leq \phi 48$ mm



Input bore size $\leq \phi 65$ mm



Keyed shaft



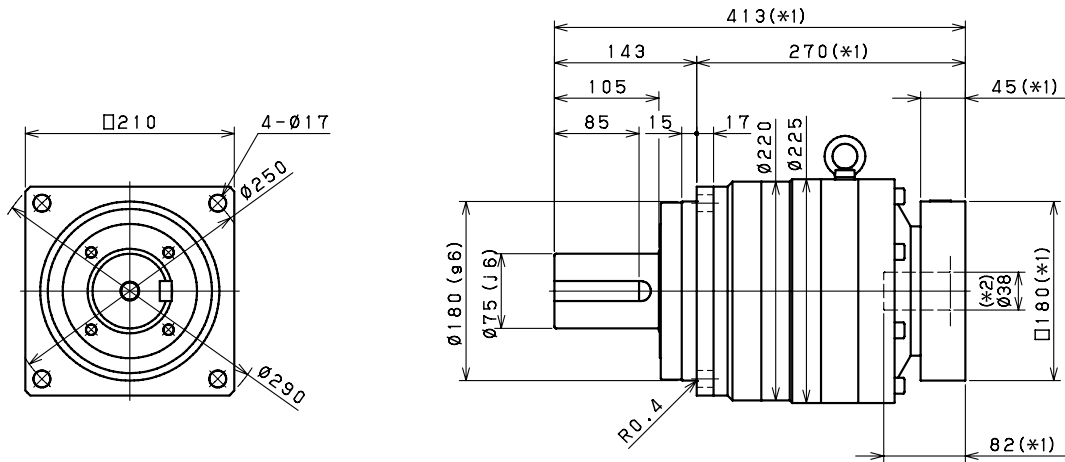
Smooth shaft

*1) Length will vary depending on motor.

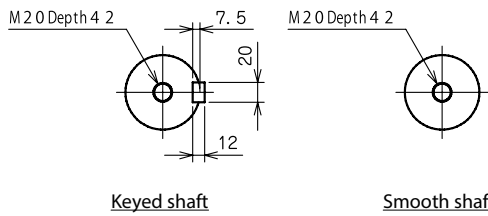
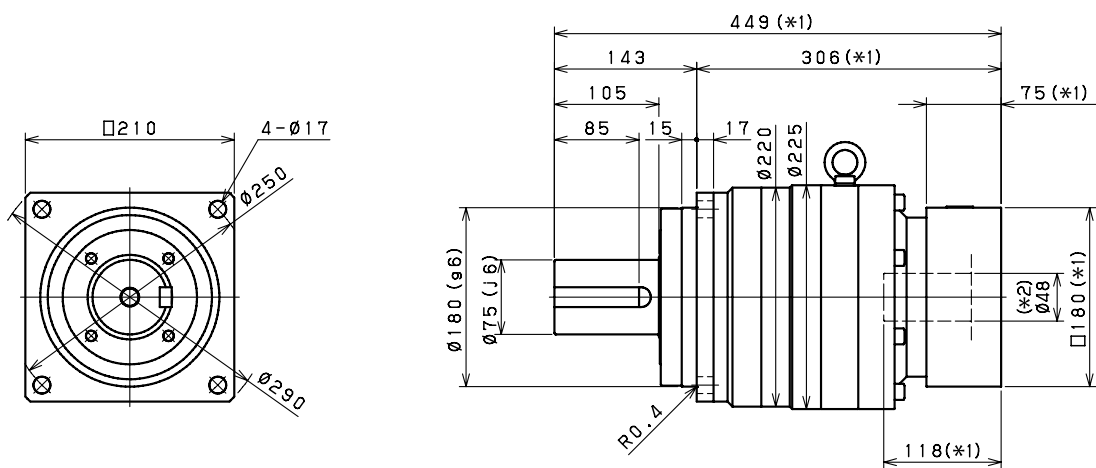
*2) Bushing will be inserted to adapt to motor shaft

VRS 210 2-Stage Dimensions

Input bore size $\leq \varnothing 38$ mm



Input bore size $\leq \varnothing 48$ mm



- *1) Length will vary depending on motor.
- *2) Bushing will be inserted to adapt to motor shaft

VRS 240 1-Stage Specifications

Frame Size	240									
Stage	1-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	1600	2400	2400	2600	2700	2700	2700	2700
Maximum Acceleration Torque	[Nm]	*2	3300	5100	5100	4800	4800	4700	4200	3600
Maximum Torque	[Nm]	*3	3800	5700	5700	5400	5400	5300	4700	4100
Emergency Stop Torque	[Nm]	*4	6000	8000	8000	8000	8000	8000	6000	6000
Nominal Input Speed	[rpm]	*5	1000	1000	1200	1200	1500	1500	1700	1700
Maximum Input Speed	[rpm]	*6	3000	3000	3000	3000	3000	3000	3000	3000
No Load Running Torque	[Nm]	*7	5.96							
Maximum Radial Load	[N]	*8	30000							
Maximum Axial Load	[N]	*9	27000							
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	230	130	110	92	86	81	78	77
Efficiency	[%]	*10	95							
Torsional Rigidity	[Nm/arc-min]	*11	550							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 62							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	85							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*14) Weight may vary slightly between models.

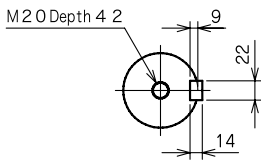
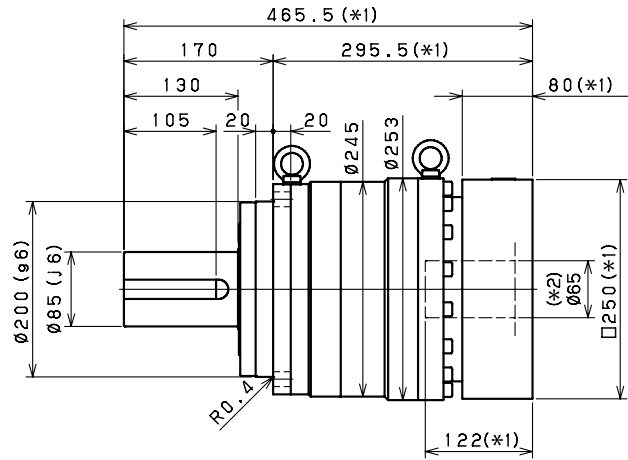
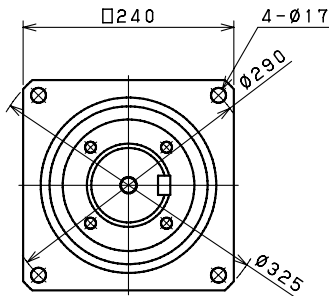
VRS 240 2-Stage Specifications

Frame Size	240									
Stage	2-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	2000	2400	2600	3200	3400	2000	3400	3400
Maximum Acceleration Torque	[Nm]	*2	3300	5100	5100	5100	4900	3300	4900	5100
Maximum Torque	[Nm]	*3	3300	5100	5100	5100	4900	3300	4900	5100
Emergency Stop Torque	[Nm]	*4	6000	8000	8000	8000	8000	6000	8000	8000
Nominal Input Speed	[rpm]	*5	2000	2000	2000	2000	2000	2000	2000	2000
Maximum Input Speed	[rpm]	*6	4500	4500	4500	4500	4500	4500	4500	4500
No Load Running Torque	[Nm]	*7	1.28							
Maximum Radial Load	[N]	*8	30000							
Maximum Axial Load	[N]	*9	27000							
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	47	55	45	44	52	32	43	31
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	550							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 62							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	89							

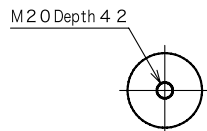
Frame Size	240									
Stage	2-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	2000	3400	3400	3400	3400	2000	2000	
Maximum Acceleration Torque	[Nm]	*2	2900	5100	4800	4900	3700	2900	2500	
Maximum Torque	[Nm]	*3	2900	5100	4800	4900	3700	2900	2500	
Emergency Stop Torque	[Nm]	*4	6000	8000	8000	8000	8000	6000	6000	
Nominal Input Speed	[rpm]	*5	2000	2200	2200	2800	2800	2800	2800	
Maximum Input Speed	[rpm]	*6	4500	4500	4500	4500	4500	4500	4500	
No Load Running Torque	[Nm]	*7	1.28							
Maximum Radial Load	[N]	*8	30000							
Maximum Axial Load	[N]	*9	27000							
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	14	13	13	13	13	13	
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	43	31	31	31	31	31	31	
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	90							
Torsional Rigidity	[Nm/arc-min]	*11	550							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*12	≤ 62							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	89							

VRS 240 1-Stage Dimensions

Input bore size $\leq \phi 65$ mm



Keyed shaft



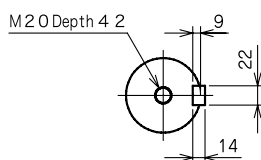
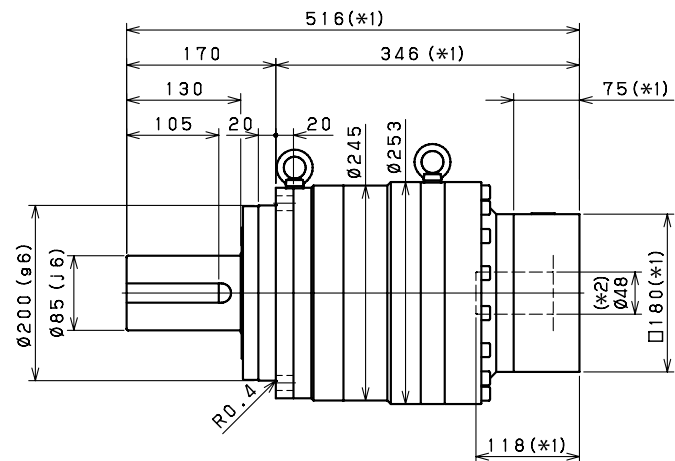
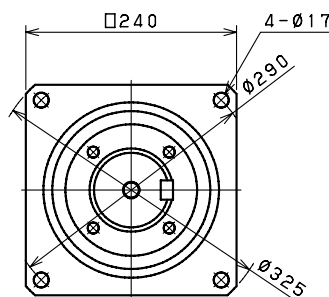
Smooth shaft

*1) Length will vary depending on motor

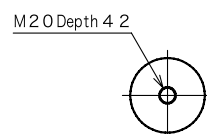
*2) Bushing will be inserted to adapt to motor shaft

VRS 240 2-Stage Dimensions

Input bore size $\leq \phi 48$ mm



Keyed shaft



Smooth shaft

*1) Length will vary depending on motor

*2) Bushing will be inserted to adapt to motor shaft

VRT SERIES

A detailed close-up photograph of industrial machinery, showing various metal parts, bolts, and a circular component with several holes. The lighting is dramatic, highlighting the metallic textures and sharp edges.

VRT series

VRT planetary gearbox in line

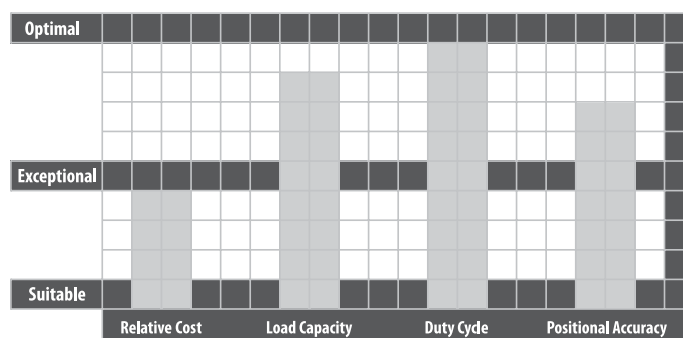
Compact design, extreme performance with ISO flange

Description

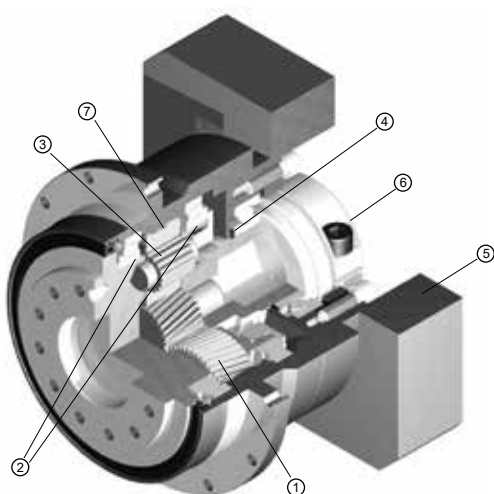
The VRT series sets the new standard in applications requiring extremely high torque density and rigidity. Its compact design and robotic industry ISO flange is ideal for equipment requiring high speed, high precision indexing movement and streamlined installation. The remarkable torsional stiffness and ultra low backlash combine to provide outstanding positioning accuracy. This product comes standard with <3 arc-min backlash, but is

also available with reduced options down to <1 arc-min. The VRT is the most robust planetary solution in the marketplace and is used across a numerous range of applications including 7th axis robot shuttles, dial tables, end of arm tooling and any other axis where installation space, reduced assembly time and torque density play an important role.

- The most compact and robust option for machine builders. Tapered roller bearings allow for high radial and axial loading
- ISO robotic mounting interface for superior flexibility and direct mounting of pinions, pulleys and turntables
- Exceptional torsional rigidity for high positional accuracy needs
- Best-In-class standard backlash (≤ 3 arc-min) with reduced backlash options available
- Broad range of mounting adapters offer a simple, precise attachment to any motor
- Maintenance-free solution that is lubricated for life. High performance grease allows flexible mounting in any orientation



Features



1 Carburized, case hardened helical gears with proprietary secondary finishing process for higher accuracy and smooth, quiet operation

- 2 One piece output shaft and planet carrier with two robust tapered bearings straddling the planet gears. Higher radial/axial load capacity, stiffness, torque density and safety factor, with guaranteed alignment of gearing
- 3 Uncaged needle roller bearings provide excellent torque density and torsional rigidity
- 4 Unique labyrinth input seal design greatly reduces heat and increases system efficiency. IP65 protection is available for wash down applications
- 5 Optimized mounting system with active centering on motor pilot diameter guarantees alignment of motor. Motor can be installed in any orientation
- 6 True concentric motor shaft clamping connection, optimized for your specific motor. Reduced inertia for dynamic performance and balanced for high speed operation
- 7 Ring gear machined directly into the housing, not welded or pressed in. Provides greater concentricity and elimination of speed fluctuation

Part Number	VRT -110 C -7 -F 3 -19HB16			
Model name - VRT series	Size: 047, 064, 090, 110, 140, 200, 255, 285	Version: B design version in exhaustion. Available on demand.	Motor mounting code (*)	Backlash: 3 arc-min
			Output mounting style: K - Keyed shaft / S - Smooth shaft	
Ratio: 1 stage: 4, 5, 7, 10 2 stage: 16, 20, 25, 28, 35, 40, 50, 70, 100				

*1) Motor mounting code varies depending on the motor. Use the selection tool link below to configure the code.

VRT 047 1-Stage Specifications

Frame Size	047										
Stage	1-Stage										
Ratio	Unit	Note	4	5	6	7	8	9	10		
Nominal Output Torque	[Nm]	*1	9	10	10	10	10	10	10		
Maximum Acceleration Torque	[Nm]	*2	21	21	21	21	21	14	14		
Maximum Torque	[Nm]	*3	25	25	25	25	25	17	17		
Emergency Stop Torque	[Nm]	*4	35	35	35	35	35	30	30		
Nominal Input Speed	[rpm]	*5	4000	4000	4000	4000	4000	4000	4000		
Maximum Input Speed	[rpm]	*6	8000	8000	8000	8000	8000	8000	8000		
No Load Running Torque	[Nm]	*7	0.03								
Maximum Radial Load	[N]	*8	1100								
Maximum Axial Load	[N]	*9	550								
Maximum Tilting Moment	[Nm]	*10	32								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.052	0.043	0.038	0.036	0.034	0.033	0.032		
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.17	0.16	0.15	0.15	0.15	0.15	0.15		
Efficiency	[%]	*11	95								
Torsional Rigidity	[Nm/arc-min]	*12	2								
Maximum Torsional Backlash	[arc-min]	--	≤ 3								
Noise Level	dB [A]	*13	≤ 61								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0 - 40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	0.7								

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The maximum load at output flange surface.

*11) The efficiency at the nominal output torque rating.

*12) This does not include lost motion.

*13) Contact SIT S.p.A. for the testing conditions and environment.

*14) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*15) Weight may vary slightly between models.

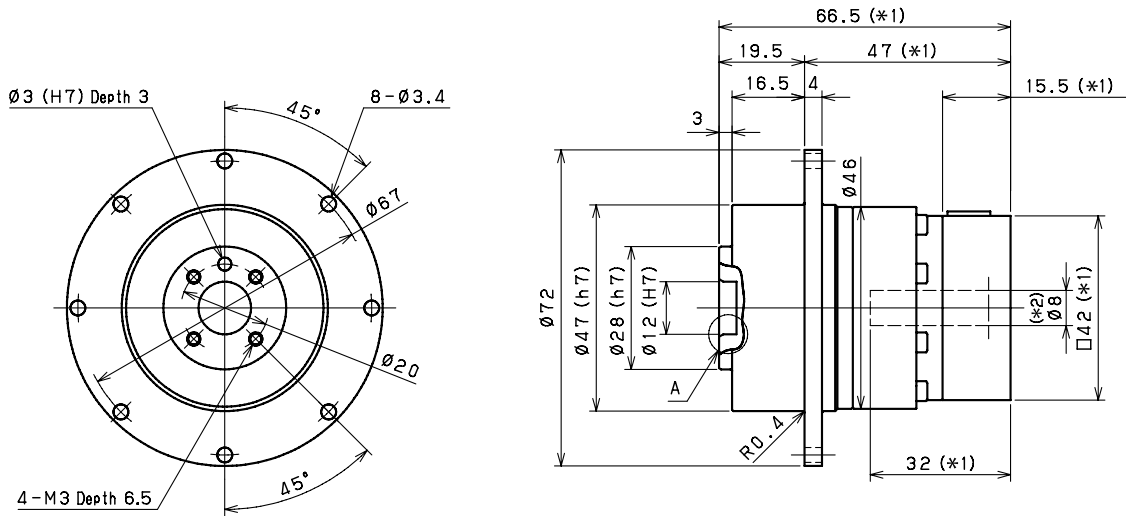
VRT 047 2-Stage Specifications

Frame Size	047										
Stage	2-Stage										
Ratio	Unit	Note	16	20	25	28	35	40	45		
Nominal Output Torque	[Nm]	*1	14	14	15	15	15	15	11		
Maximum Acceleration Torque	[Nm]	*2	21	21	21	21	21	21	14		
Maximum Torque	[Nm]	*3	21	21	21	21	21	21	14		
Emergency Stop Torque	[Nm]	*4	35	35	35	35	35	35	30		
Nominal Input Speed	[rpm]	*5	4000	4000	4000	4000	4000	4000	4000		
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500		
No Load Running Torque	[Nm]	*7	0.01								
Maximum Radial Load	[N]	*8	1100								
Maximum Axial Load	[N]	*9	550								
Maximum Tilting Moment	[Nm]	*10	32								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.039	0.035	0.034	0.038	0.034	0.030	0.034		
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--	--		
Efficiency	[%]	*11	90								
Torsional Rigidity	[Nm/arc-min]	*12	2								
Maximum Torsional Backlash	[arc-min]	--	≤ 5								
Noise Level	dB [A]	*13	≤ 61								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0 - 40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	0.8								

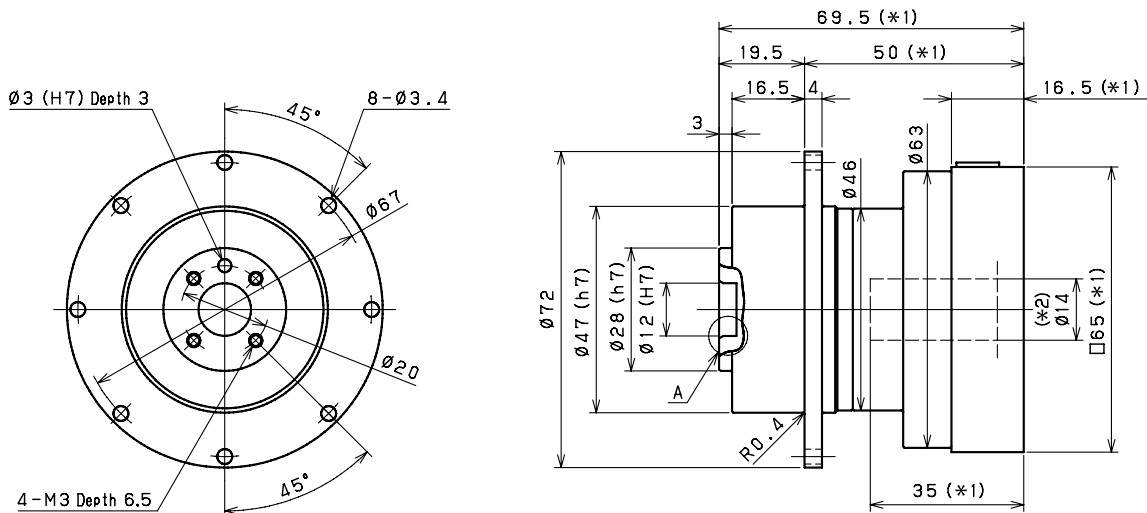
Frame Size	047										
Stage	2-Stage										
Ratio	Unit	Note	50	60	70	80	90	100			
Nominal Output Torque	[Nm]	*1	15	15	15	15	11	11			
Maximum Acceleration Torque	[Nm]	*2	21	21	21	21	14	14			
Maximum Torque	[Nm]	*3	21	21	21	21	14	14			
Emergency Stop Torque	[Nm]	*4	35	35	35	35	30	30			
Nominal Input Speed	[rpm]	*5	4000	4000	4000	4000	4000	4000			
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500			
No Load Running Torque	[Nm]	*7	0.01								
Maximum Radial Load	[N]	*8	1100								
Maximum Axial Load	[N]	*9	550								
Maximum Tilting Moment	[Nm]	*10	32								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.030	0.030	0.030	0.030	0.030	0.030			
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--			
Efficiency	[%]	*11	90								
Torsional Rigidity	[Nm/arc-min]	*12	2								
Maximum Torsional Backlash	[arc-min]	--	≤ 5								
Noise Level	dB [A]	*13	≤ 61								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0 - 40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	0.8								

VRT 047 1-Stage Dimensions

Input bore size $\leq \varnothing 8$ mm

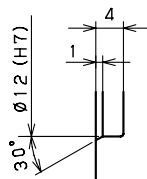


Input bore size $\leq \varnothing 14$ mm



*1) Length will vary depending on motor

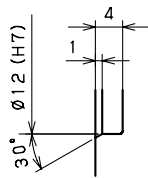
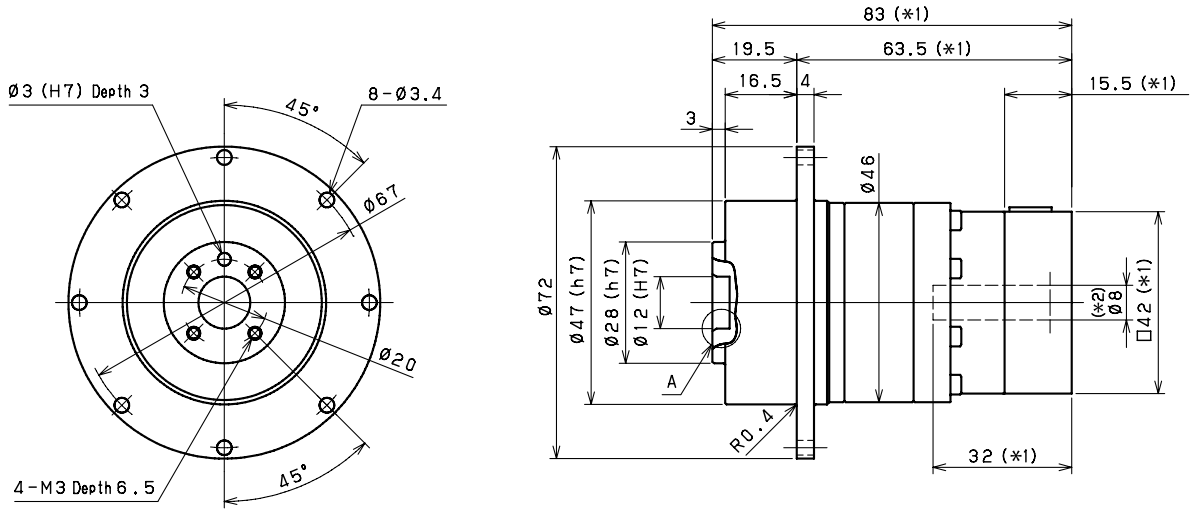
*2) Bushing will be inserted to adapt to motor shaft



Enlarged detail A

VRT 047 2-Stage Dimensions

Input bore size $\leq \varnothing 8$ mm



Enlarged detail A

- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRT 064 1-Stage Specifications

Frame Size	064										
Stage	1-Stage										
Ratio	Unit	Note	4	5	6	7	8	9	10		
Nominal Output Torque	[Nm]	*1	27	28	28	28	28	28	28		
Maximum Acceleration Torque	[Nm]	*2	66	66	66	66	66	46	46		
Maximum Torque	[Nm]	*3	79	79	79	79	76	55	55		
Emergency Stop Torque	[Nm]	*4	100	100	100	100	100	80	80		
Nominal Input Speed	[rpm]	*5	3300	4000	4000	4000	4000	4000	4000		
Maximum Input Speed	[rpm]	*6	7500	7500	7500	7500	7500	7500	7500		
No Load Running Torque	[Nm]	*7	0.08								
Maximum Radial Load	[N]	*8	1500								
Maximum Axial Load	[N]	*9	750								
Maximum Tilting Moment	[Nm]	*10	58								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	-	0.13	0.10	0.085	0.075	0.068	0.064	0.062		
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.24	0.21	0.20	0.19	0.18	0.18	0.17		
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.52	0.49	0.47	0.46	0.46	0.45	0.45		
Efficiency	[%]	*11	95								
Torsional Rigidity	[Nm/arc-min]	*12	12	12	11	11	8	8	8		
Maximum Torsional Backlash	[arc-min]	--	≤ 3								
Noise Level	dB [A]	*13	≤ 66								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0 - 40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	1.4								

- *1) At nominal input speed, service life is 20,000 hours.
- *2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.
- *3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.
- *4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.
- *5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.
- *6) The maximum intermittent input speed.
- *7) Torque at no load applied to the input shaft at nominal input speed.
- *8) The maximum radial load that the gearbox can accept.
- *9) The maximum axial load that the gearbox can accept.
- *10) The maximum load at output flange surface.
- *11) The efficiency at the nominal output torque rating.
- *12) This does not include lost motion.
- *13) Contact SIT S.p.A. for the testing conditions and environment.
- *14) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.
- *15) Weight may vary slightly between models.

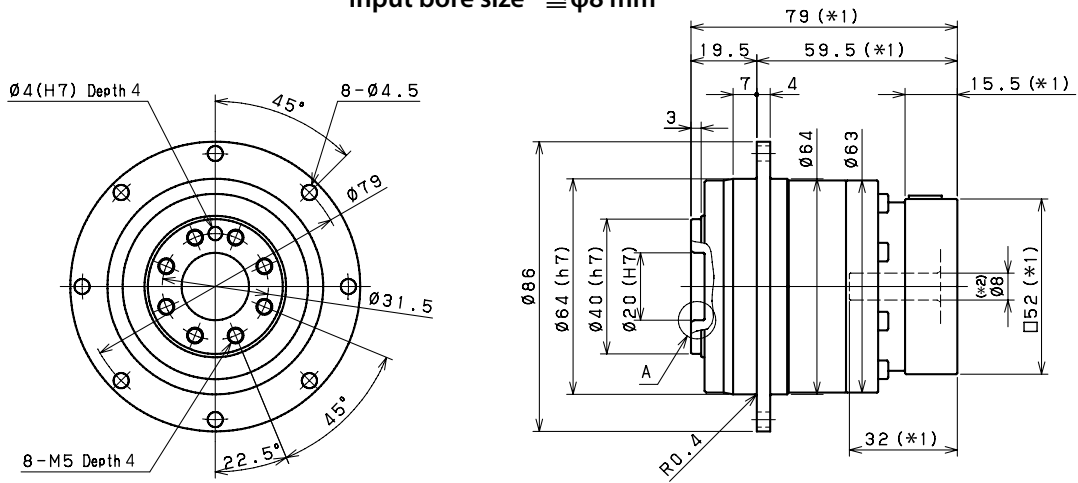
VRT 064 2-Stage Specifications

Frame Size	064										
Stage	2-Stage										
Ratio	Unit	Note	16	20	25	28	35	40	45		
Nominal Output Torque	[Nm]	*1	32	32	43	45	45	45	32		
Maximum Acceleration Torque	[Nm]	*2	66	66	66	66	66	66	46		
Maximum Torque	[Nm]	*3	66	66	66	66	66	66	46		
Emergency Stop Torque	[Nm]	*4	100	100	100	100	100	100	80		
Nominal Input Speed	[rpm]	*5	4000	4000	4000	4000	4000	4000	4000		
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500		
No Load Running Torque	[Nm]	*7	0.04								
Maximum Radial Load	[N]	*8	1500								
Maximum Axial Load	[N]	*9	750								
Maximum Tilting Moment	[Nm]	*10	58								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	-	0.072	0.064	0.062	0.069	0.061	0.051	0.061		
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.18	0.18	0.17	0.18	0.17	0.16	0.17		
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.46	0.45	0.45	0.46	0.45	0.44	0.45		
Efficiency	[%]	*11	90								
Torsional Rigidity	[Nm/arc-min]	*12	12	12	12	12	12	11	11		
Maximum Torsional Backlash	[arc-min]	--	≤ 3								
Noise Level	dB [A]	*13	≤ 66								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0 - 40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	1.6								

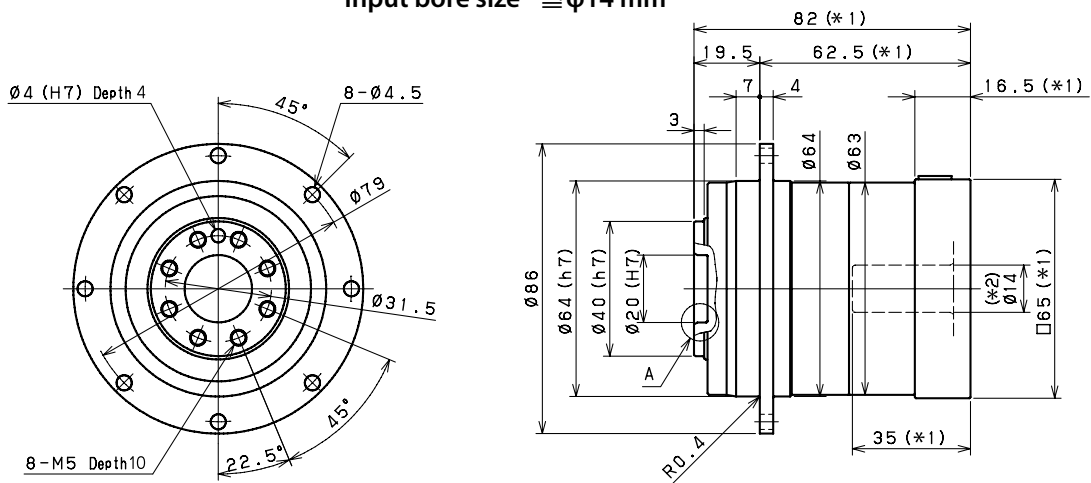
Frame Size	064										
Stage	2-Stage										
Ratio	Unit	Note	50	60	70	80	90	100			
Nominal Output Torque	[Nm]	*1	45	45	45	45	32	32			
Maximum Acceleration Torque	[Nm]	*2	66	66	66	66	46	46			
Maximum Torque	[Nm]	*3	66	66	66	66	46	46			
Emergency Stop Torque	[Nm]	*4	100	100	100	100	80	80			
Nominal Input Speed	[rpm]	*5	4800	4800	5500	5500	5500	5500			
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500			
No Load Running Torque	[Nm]	*7	0.04								
Maximum Radial Load	[N]	*8	1500								
Maximum Axial Load	[N]	*9	750								
Maximum Tilting Moment	[Nm]	*10	58								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	-	0.051	0.051	0.051	0.051	0.051	0.051	0.051		
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.16	0.16	0.16	0.16	0.16	0.16	0.16		
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.44	0.44	0.44	0.44	0.44	0.44	0.44		
Efficiency	[%]	*11	90								
Torsional Rigidity	[Nm/arc-min]	*12	12	9	11	7	7	8			
Maximum Torsional Backlash	[arc-min]	--	≤ 3								
Noise Level	dB [A]	*13	≤ 66								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0 - 40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	1.6								

VRT 064 1-Stage Dimensions

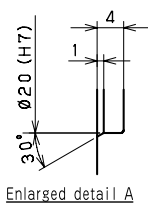
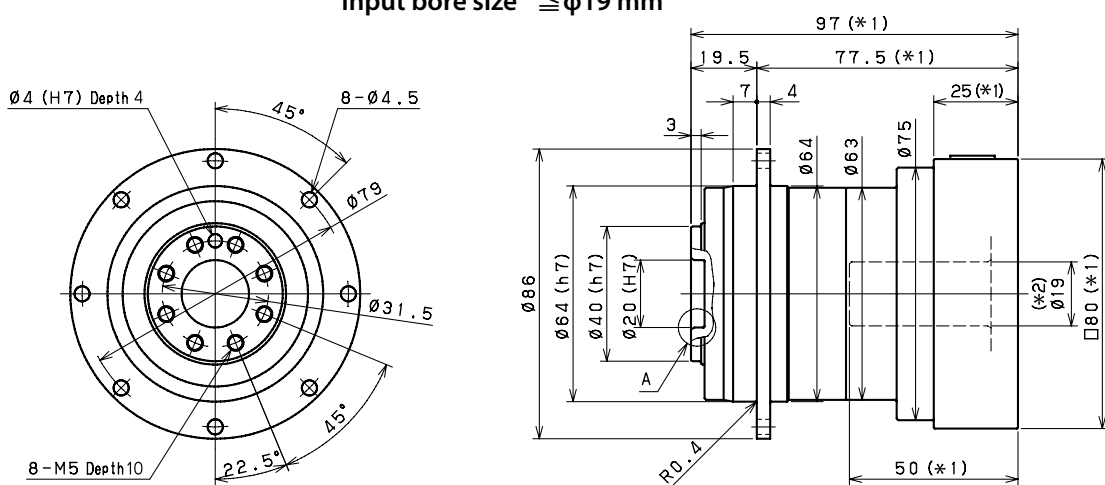
Input bore size $\leq \varnothing 8 \text{ mm}$



Input bore size $\leq \varnothing 14 \text{ mm}$



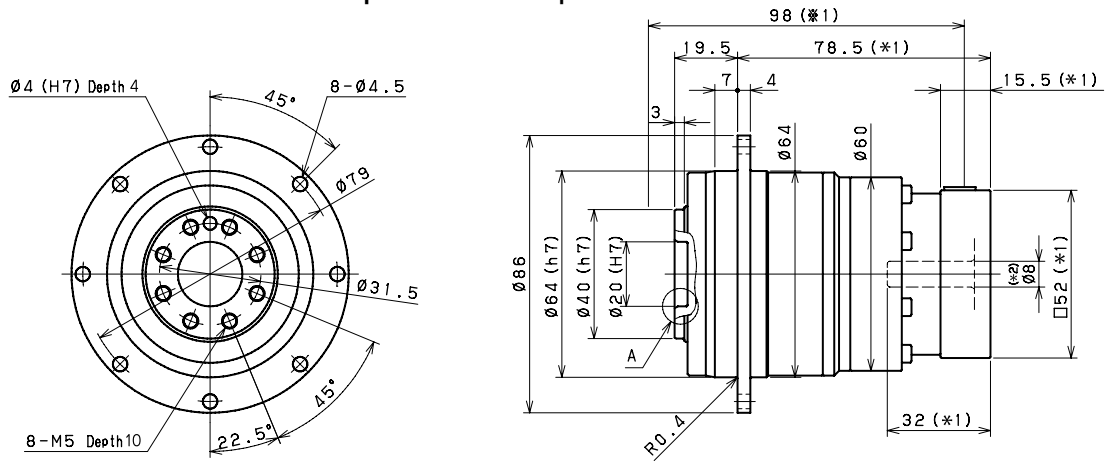
Input bore size $\leq \varnothing 19 \text{ mm}$



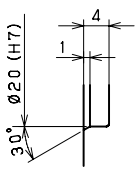
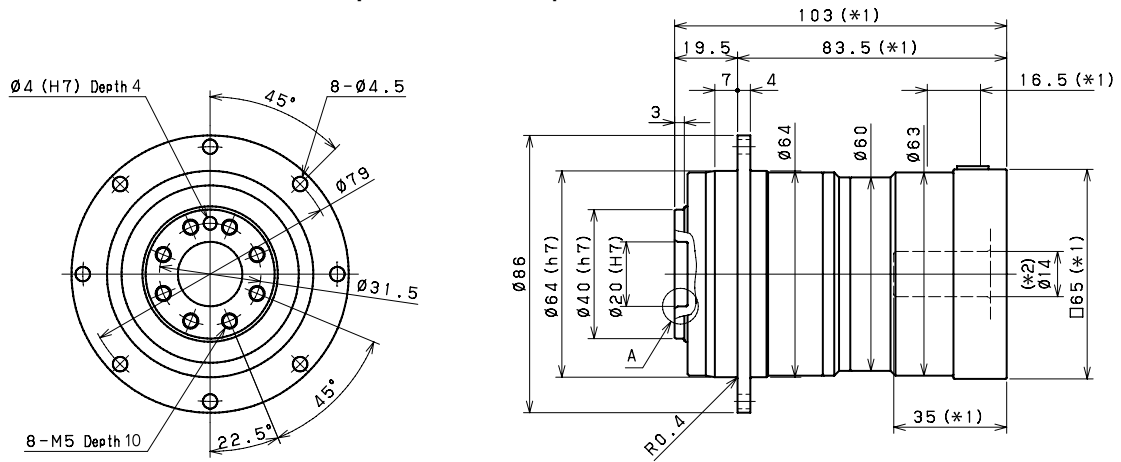
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRT 064 2-Stage Dimensions

Input bore size $\leq \varnothing 8 \text{ mm}$



Input bore size $\leq \varnothing 14 \text{ mm}$



Enlarged detail A

- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRT 090 1-Stage Specifications

Frame Size	090										
Stage	1-Stage										
Ratio	Unit	Note	4	5	6	7	8	9	10		
Nominal Output Torque	[Nm]	*1	77	84	84	84	84	84	84		
Maximum Acceleration Torque	[Nm]	*2	165	165	165	165	165	112	112		
Maximum Torque	[Nm]	*3	200	200	195	195	190	145	145		
Emergency Stop Torque	[Nm]	*4	250	250	250	250	250	200	200		
Nominal Input Speed	[rpm]	*5	2900	2900	2900	3100	3100	3100	3100		
Maximum Input Speed	[rpm]	*6	7500	7500	7500	7500	7500	7500	7500		
No Load Running Torque	[Nm]	*7	0.17								
Maximum Radial Load	[N]	*8	3300								
Maximum Axial Load	[N]	*9	1700								
Maximum Tilting Moment	[Nm]	*10	170								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	--	--	--	--	--		
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.78	0.58	0.48	0.42	0.38	0.36	0.34		
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	1.2	0.98	0.87	0.82	0.78	0.75	0.74		
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.9	2.7	2.6	2.6	2.5	2.5	2.5		
Efficiency	[%]	*11	95								
Torsional Rigidity	[Nm/arc-min]	*12	32	33	30	30	23	23	23		
Maximum Torsional Backlash	[arc-min]	--	Standard ≤ 3 / Reduced ≤ 1								
Noise Level	dB [A]	*13	≤ 67								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0 - 40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	3.6								

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The maximum load at output flange surface.

*11) The efficiency at the nominal output torque rating.

*12) This does not include lost motion.

*13) Contact SIT S.p.A. for the testing conditions and environment.

*14) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*15) Weight may vary slightly between models.

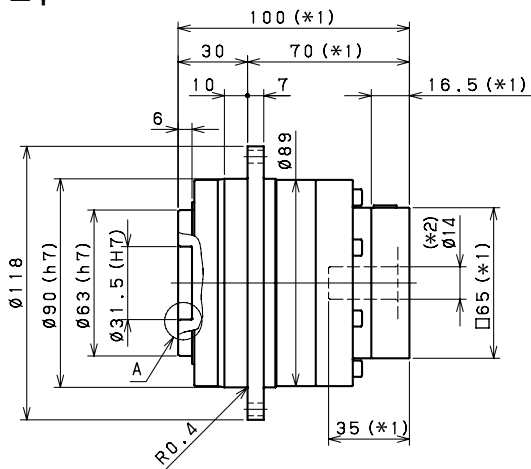
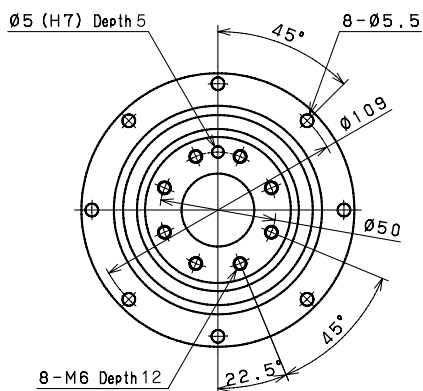
VRT 090 2-Stage Specifications

Frame Size	090										
Stage	2-Stage										
Ratio	Unit	Note	16	20	25	28	35	40	45		
Nominal Output Torque	[Nm]	*1	80	86	106	118	118	118	88		
Maximum Acceleration Torque	[Nm]	*2	165	165	165	165	165	165	112		
Maximum Torque	[Nm]	*3	165	165	165	165	165	165	112		
Emergency Stop Torque	[Nm]	*4	250	250	250	250	250	250	200		
Nominal Input Speed	[rpm]	*5	3500	3500	3500	3500	3500	3500	3500		
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500	8500		
No Load Running Torque	[Nm]	*7	0.05								
Maximum Radial Load	[N]	*8	3300								
Maximum Axial Load	[N]	*9	1700								
Maximum Tilting Moment	[Nm]	*10	170								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.26	0.20	0.19	0.24	0.19	0.12	0.19		
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.43	0.36	0.36	0.40	0.35	0.28	0.35		
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.81	0.75	0.74	0.79	0.74	0.67	0.73		
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.5	2.5	2.5	2.5	2.5	2.4	2.5		
Efficiency	[%]	*11	90								
Torsional Rigidity	[Nm/arc-min]	*12	32	32	32	31	32	30	30		
Maximum Torsional Backlash	[arc-min]	--	Standard ≤ 3 / Reduced ≤ 1								
Noise Level	dB [A]	*13	≤ 67								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0 - 40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	4								

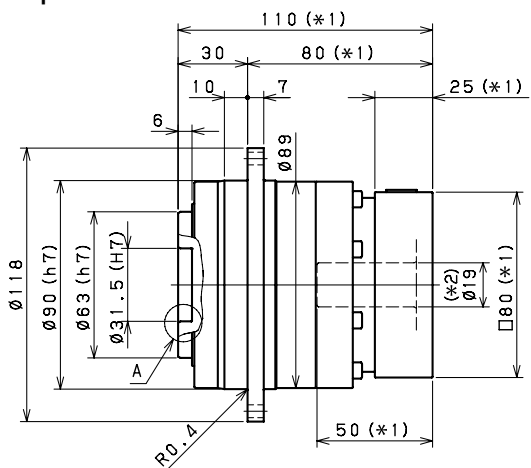
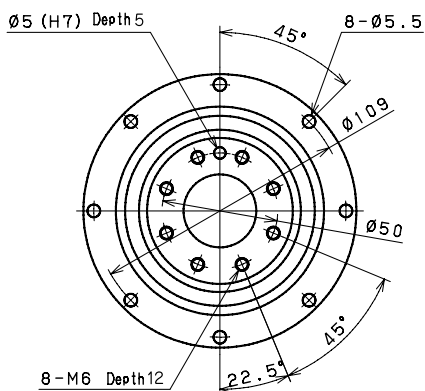
Frame Size	090									
Stage	2-Stage									
Ratio	Unit	Note	50	60	70	80	90	100		
Nominal Output Torque	[Nm]	*1	118	118	118	118	88	88		
Maximum Acceleration Torque	[Nm]	*2	165	165	165	165	112	112		
Maximum Torque	[Nm]	*3	165	165	165	165	112	112		
Emergency Stop Torque	[Nm]	*4	250	250	250	250	200	200		
Nominal Input Speed	[rpm]	*5	3800	3800	4500	4500	4500	4500		
Maximum Input Speed	[rpm]	*6	8500	8500	8500	8500	8500	8500		
No Load Running Torque	[Nm]	*7	0.05							
Maximum Radial Load	[N]	*8	3300							
Maximum Axial Load	[N]	*9	1700							
Maximum Tilting Moment	[Nm]	*10	170							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.12	0.11	0.11	0.11	0.11	0.11		
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.28	0.27	0.27	0.27	0.27	0.27		
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.67	0.67	0.67	0.67	0.67	0.67		
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.4	2.4	2.4	2.4	2.4	2.4		
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arc-min]	*12	30	24	28	22	22	22		
Maximum Torsional Backlash	[arc-min]	--	Standard ≤ 3 / Reduced ≤ 1							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0 - 40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	4							

VRT 090 1-Stage Specifications

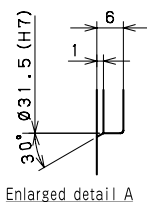
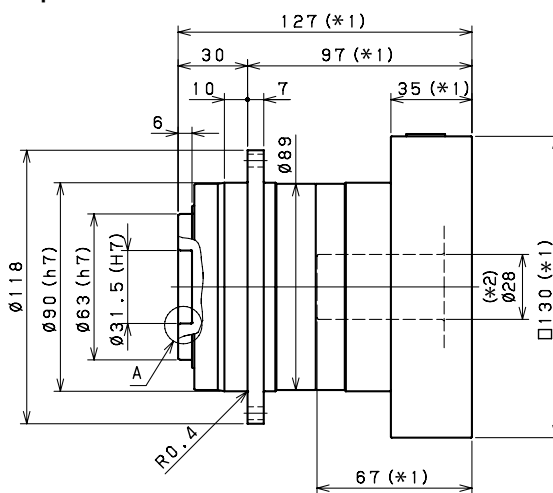
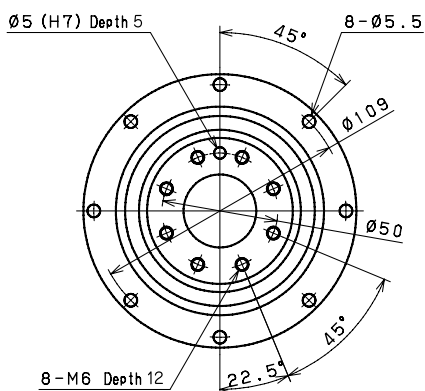
Input bore size $\leq \varnothing 14$ mm



Input bore size $\leq \varnothing 19$ mm



Input bore size $\leq \varnothing 28$ mm

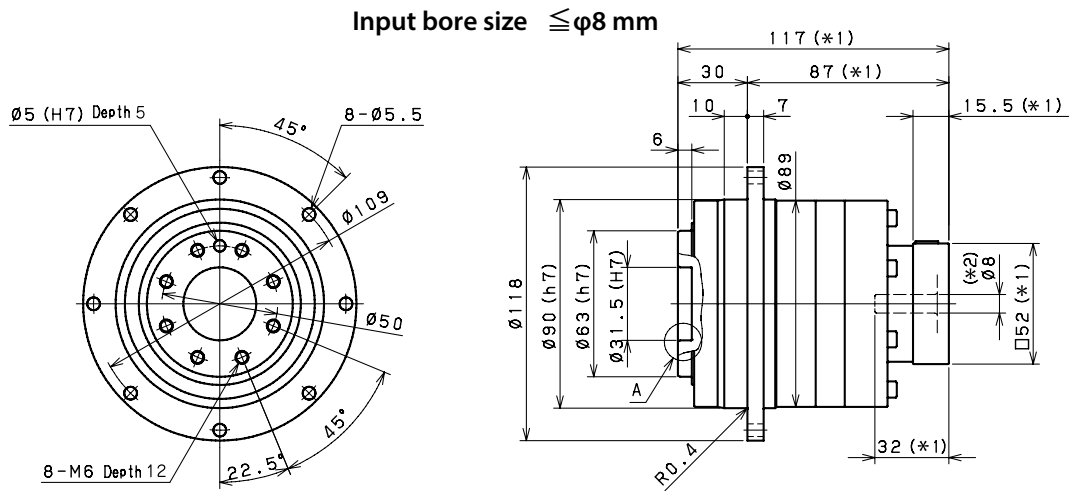


*1) Length will vary depending on motor

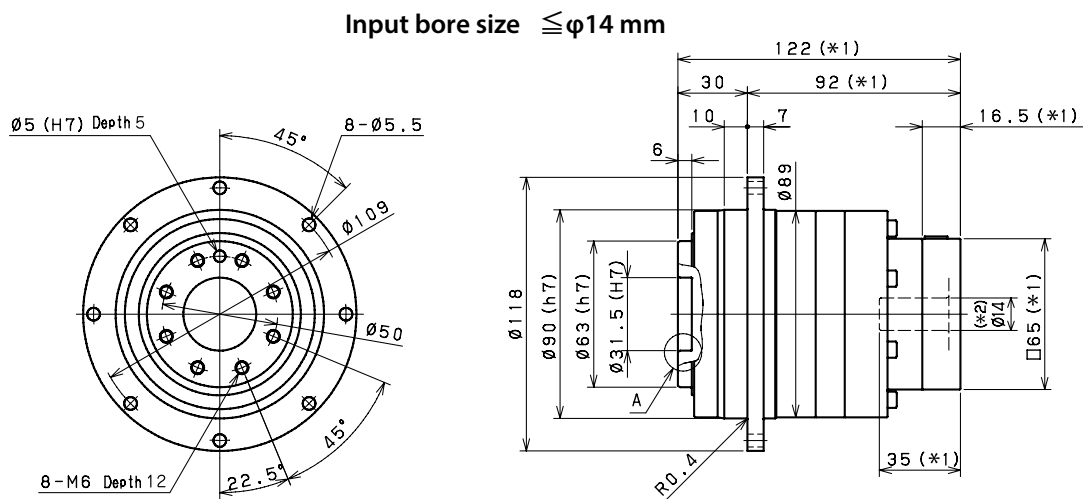
*2) Bushing will be inserted to adapt to motor shaft

VRT 090 2-Stage Dimensions

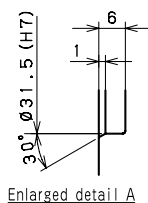
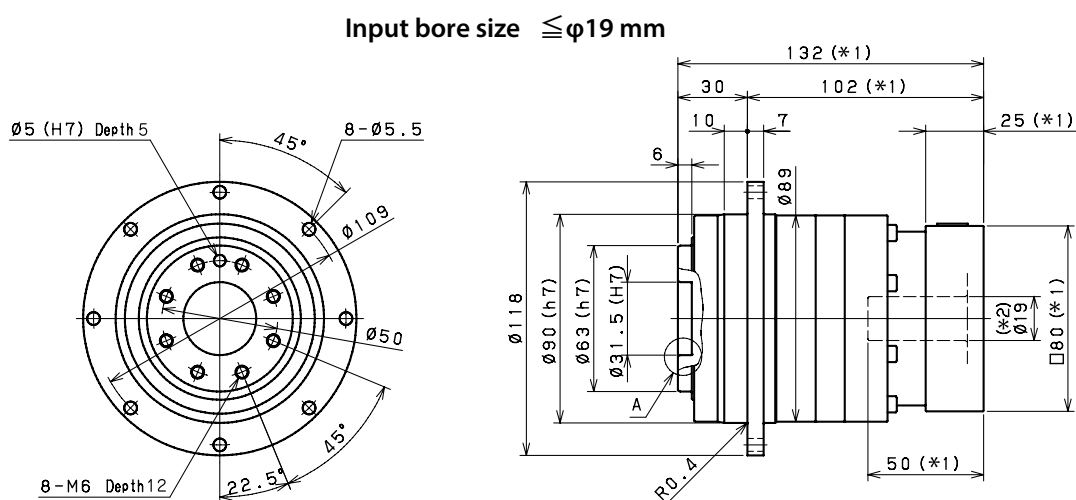
Input bore size $\leq \varnothing 8$ mm



Input bore size $\leq \varnothing 14$ mm



Input bore size $\leq \varnothing 19$ mm



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRT 110 1-Stage Specifications

Frame Size	110					
Stage	1-Stage					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	146	190	190	190
Maximum Acceleration Torque	[Nm]	*2	390	390	390	292
Maximum Torque	[Nm]	*3	490	490	480	370
Emergency Stop Torque	[Nm]	*4	625	625	625	500
Nominal Input Speed	[rpm]	*5	2800	2800	2800	2800
Maximum Input Speed	[rpm]	*6	5500	5500	5500	5500
No Load Running Torque	[Nm]	*7	0.77			
Maximum Radial Load	[N]	*8	12000			
Maximum Axial Load	[N]	*9	8800			
Maximum Tilting Moment	[Nm]	*10	990			
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	3.1	2.1	1.3	0.99
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.8	3.8	3.1	2.7
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	11	10	9.5	9.0
Efficiency	[%]	*11	95			
Torsional Rigidity	[Nm/arc-min]	*12	80	86	76	62
Maximum Torsional Backlash	[arc-min]	--	Standard ≤ 3 / Reduced ≤ 1			
Noise Level	dB [A]	*13	≤ 71			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	7.8			

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_0 , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The maximum load at output flange surface.

*11) The efficiency at the nominal output torque rating.

*12) This does not include lost motion.

*13) Contact SIT S.p.A. for the testing conditions and environment.

*14) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*15) Weight may vary slightly between models.

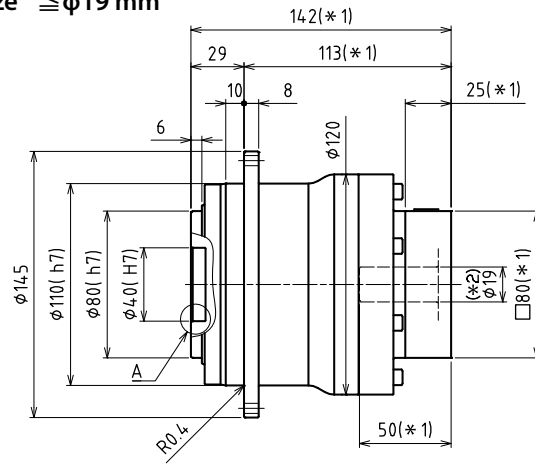
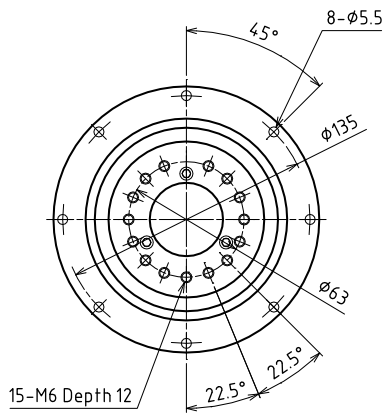
VRT 110 2-Stage Specifications

Frame Size	110					
Stage	2-Stage					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	180	180	180	180
Maximum Output Torque	[Nm]	*2	330	330	330	330
Emergency Stop Torque	[Nm]	*3	625	625	625	625
Nominal Input Speed	[rpm]	*4	3000			
Maximum Input Speed	[rpm]	*5	6000			
No Load Running Torque	[Nm]	*6	0.17			
Permitted Radial Load	[N]	*7	7100	7600	8200	8500
Permitted Axial Load	[N]	*8	4800	5200	5500	5700
Maximum Radial Load	[N]	*9	12000			
Maximum Axial Load	[N]	*10	8800			
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	1.000	0.800	0.700	0.900
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	1.500	1.200	1.200	1.400
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	3.400	3.100	3.100	3.300
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	11.000	11.000	11.000	11.000
Efficiency	[%]	*11	90			
Torsional Rigidity	[Nm/arc-min]	*12	60			
Maximum Torsional Backlash	[arc-min]	--	≤ 3			
Noise Level	dB [A]	*13	≤ 71			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	8.6			

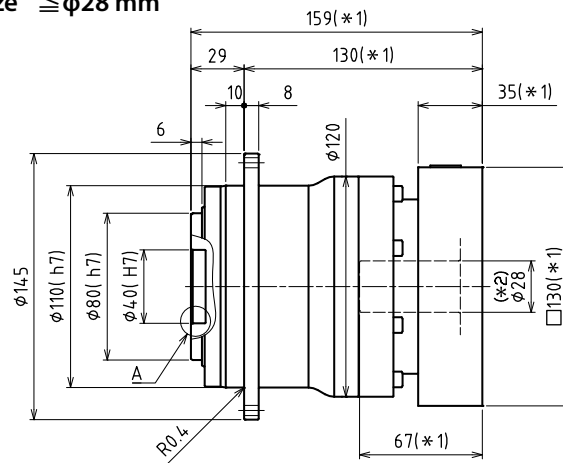
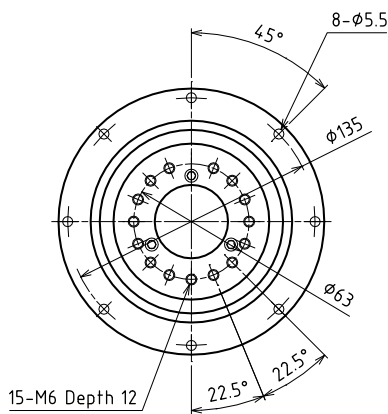
Frame Size	110						
Stage	2-Stage						
Ratio	Unit	Note	35	40	50	70	100
Nominal Output Torque	[Nm]	*1	280	270	280	280	220
Maximum Acceleration Torque	[Nm]	*2	390	390	390	390	292
Maximum Torque	[Nm]	*3	390	390	390	390	292
Emergency Stop Torque	[Nm]	*4	625	625	625	625	500
Nominal Input Speed	[rpm]	*5	3100	3100	3500	4200	4200
Maximum Input Speed	[rpm]	*6	6500	6500	6500	6500	6500
No Load Running Torque	[Nm]	*7	0.17				
Maximum Radial Load	[N]	*8	12000				
Maximum Axial Load	[N]	*9	8800				
Maximum Tilting Moment	[Nm]	*10	990				
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	0.20	0.19	0.19
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.70	0.38	0.37	0.36	0.36
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	1.1	0.78	0.77	0.76	0.76
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	2.8	2.5	2.5	2.5	2.5
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	9.1	8.8	8.8	8.8	8.8
Efficiency	[%]	*11	90				
Torsional Rigidity	[Nm/arc-min]	*12	82	76	80	71	60
Maximum Torsional Backlash	[arc-min]	--	Standard ≤ 3 / Reduced ≤ 1				
Noise Level	dB [A]	*13	≤ 71				
Protection Class	--	*14	IP54 (IP65)				
Ambient Temperature	[°C]	--	0 - 40				
Permitted Housing Temperature	[°C]	--	90				
Weight	[kg]	*15	8.6				

VRT 110 1-Stage Dimensions

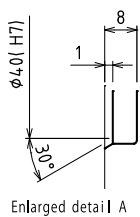
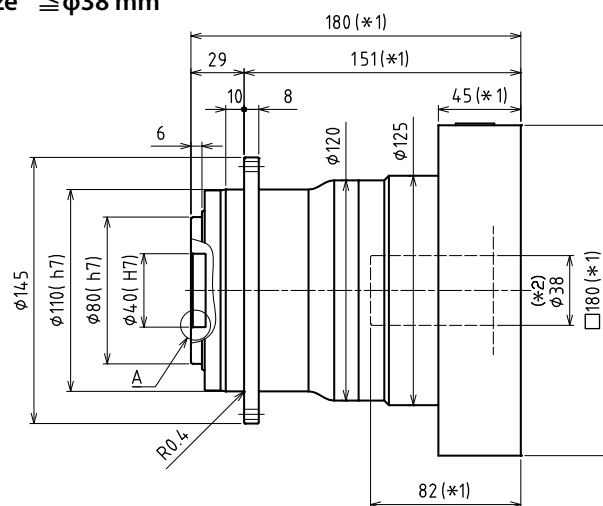
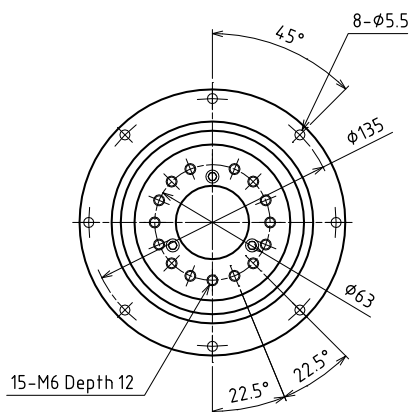
Input bore size $\geq \phi 19$ mm



Input bore size $\geq \phi 28$ mm



Input bore size $\geq \phi 38$ mm

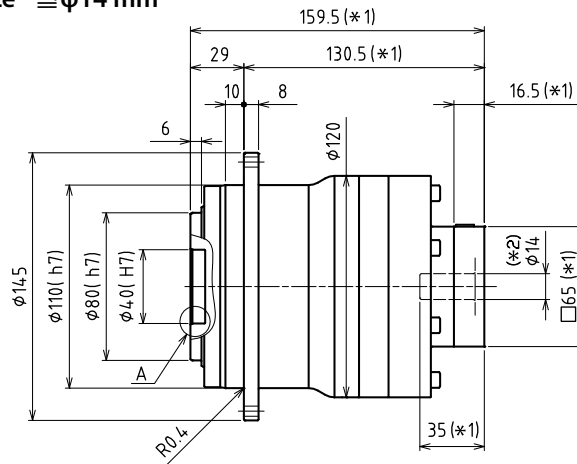
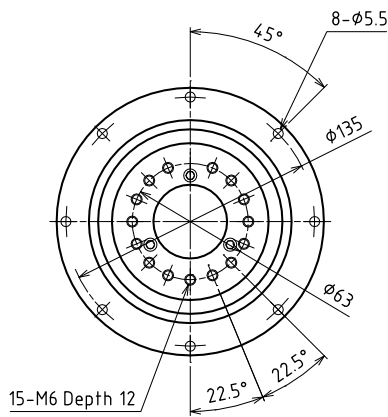


*1) Length will vary depending on motor

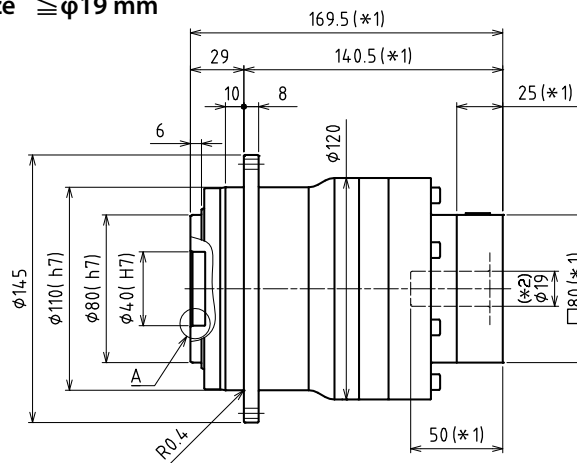
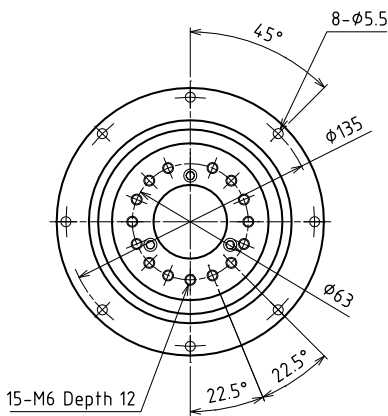
*2) Bushing will be inserted to adapt to motor shaft

VRT 110 2-Stage Dimensions

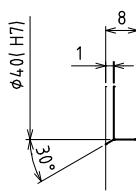
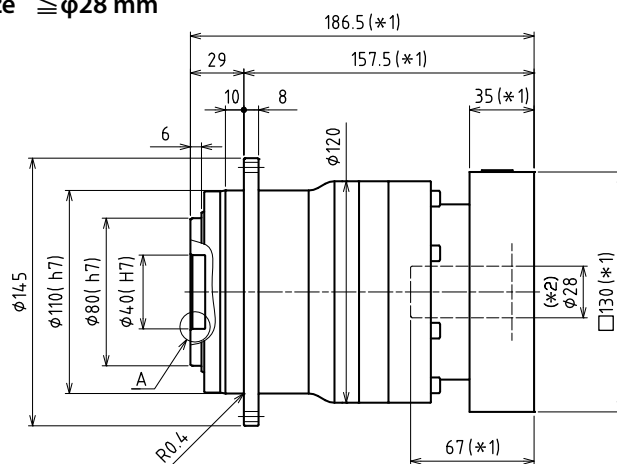
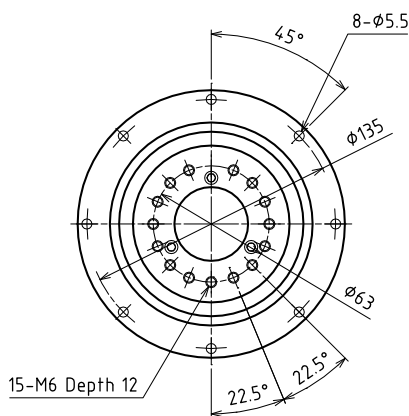
Input bore size $\leq \phi 14$ mm



Input bore size $\leq \phi 19$ mm



Input bore size $\leq \phi 28$ mm



Enlarged detail A

*1) Length will vary depending on motor

*2) Bushing will be inserted to adapt to motor shaft

VRT 140 1-Stage Specifications

Frame Size	140					
Stage	1-Stage					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	280	380	380	380
Maximum Acceleration Torque	[Nm]	*2	840	840	840	610
Maximum Torque	[Nm]	*3	1000	1000	950	730
Emergency Stop Torque	[Nm]	*4	1250	1250	1250	1000
Nominal Input Speed	[rpm]	*5	2100	2100	2600	2600
Maximum Input Speed	[rpm]	*6	5000	5000	5000	5000
No Load Running Torque	[Nm]	*7	1.00			
Maximum Radial Load	[N]	*8	19000			
Maximum Axial Load	[N]	*9	14000			
Maximum Tilting Moment	[Nm]	*10	2000			
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	11	7.7	5.1	3.8
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	18	14	12	10
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	33	29	27	25
Efficiency	[%]	*11	95			
Torsional Rigidity	[Nm/arc-min]	*12	190	187	159	140
Maximum Torsional Backlash	[arc-min]	*13	Standard ≤ 3 / Reduced ≤ 1			
Noise Level	dB [A]	--	≤ 67			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	15			

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_0 , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The maximum load at output flange surface.

*11) The efficiency at the nominal output torque rating.

*12) This does not include lost motion.

*13) Contact SIT S.p.A. for the testing conditions and environment.

*14) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*15) Weight may vary slightly between models.

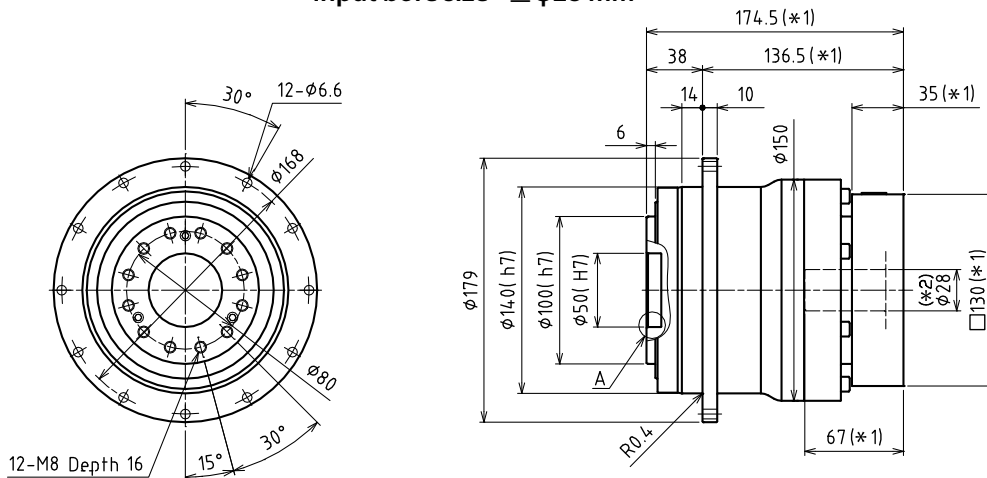
VRT 140 2-Stage Specifications

Frame Size	140					
Stage	2-Stage					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	380	410	590	590
Maximum Acceleration Torque	[Nm]	*2	840	840	840	840
Maximum Torque	[Nm]	*3	840	840	840	840
Emergency Stop Torque	[Nm]	*4	1250	1250	1250	1250
Nominal Input Speed	[rpm]	*5	2900	2900	2900	2900
Maximum Input Speed	[rpm]	*6	6000	6000	6000	6000
No Load Running Torque	[Nm]	*7	0.54			
Maximum Radial Load	[N]	*8	19000			
Maximum Axial Load	[N]	*9	14000			
Maximum Tilting Moment	[Nm]	*10	2000			
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	3.8	2.6	2.5	3.4
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	5.5	4.3	4.2	5.1
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	12	11	11	11
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	27	26	25	26
Efficiency	[%]	*11	90			
Torsional Rigidity	[Nm/arc-min]	*12	180	185	180	180
Maximum Torsional Backlash	[arc-min]	*13	Standard ≤ 3 / Reduced ≤ 1			
Noise Level	dB [A]	--	≤ 67			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	17			

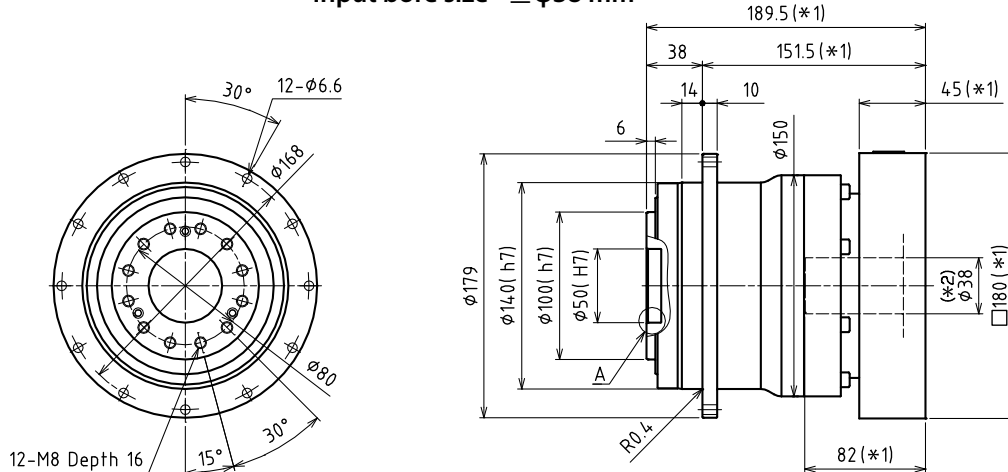
Frame Size	140						
Stage	2-Stage						
Ratio	Unit	Note	35	40	50	70	100
Nominal Output Torque	[Nm]	*1	590	500	590	590	440
Maximum Acceleration Torque	[Nm]	*2	840	840	840	840	610
Maximum Torque	[Nm]	*3	840	840	840	840	610
Emergency Stop Torque	[Nm]	*4	1250	1250	1250	1250	1000
Nominal Input Speed	[rpm]	*5	2900	2900	3200	3900	3900
Maximum Input Speed	[rpm]	*6	6000	6000	6000	6000	6000
No Load Running Torque	[Nm]	*7	0.54				
Maximum Radial Load	[N]	*8	19000				
Maximum Axial Load	[N]	*9	14000				
Maximum Tilting Moment	[Nm]	*10	2000				
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	0.68	0.65	0.64
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.4	1.1	1.1	1.1	1.1
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.1	2.9	2.9	2.8	2.8
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	10	9.2	9.1	9.1	9.1
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	25	24	24	24	24
Efficiency	[%]	*11	90				
Torsional Rigidity	[Nm/arc-min]	*12	175	175	175	145	140
Maximum Torsional Backlash	[arc-min]	*13	Standard ≤ 3 / Reduced ≤ 1				
Noise Level	dB [A]	--	≤ 67				
Protection Class	--	*14	IP54 (IP65)				
Ambient Temperature	[°C]	--	0 - 40				
Permitted Housing Temperature	[°C]	--	90				
Weight	[kg]	*15	17				

VRT 140 1-Stage Dimensions

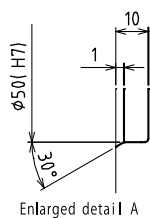
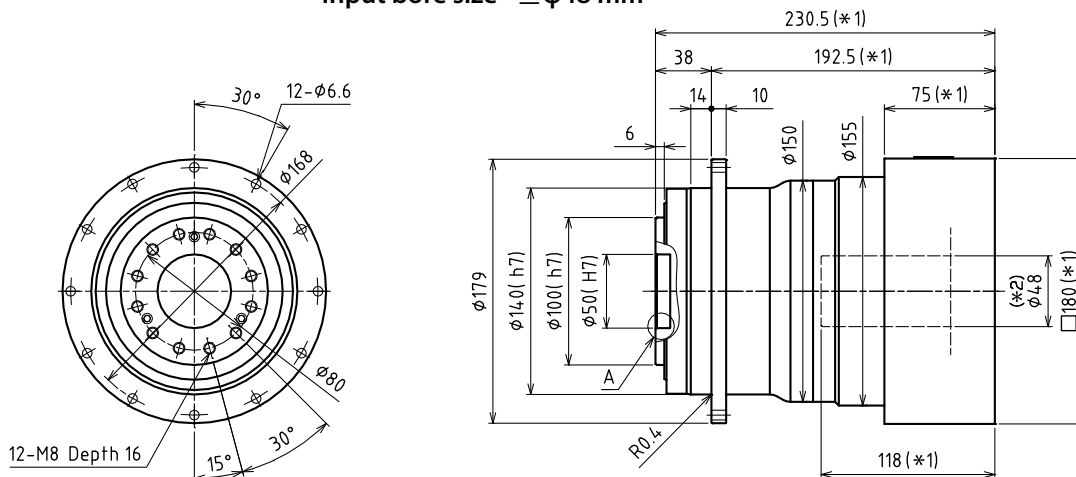
Input bore size $\leq \phi 28$ mm



Input bore size $\leq \phi 38$ mm



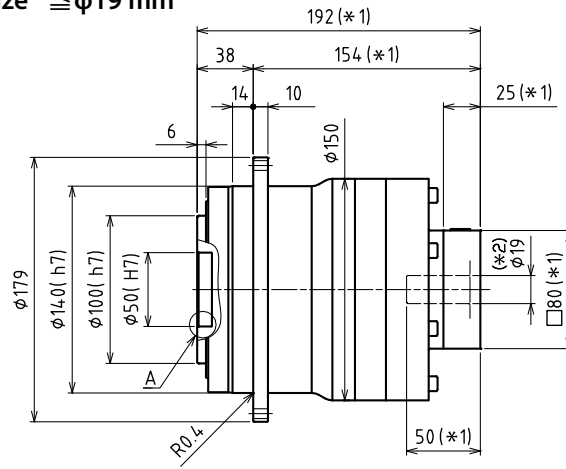
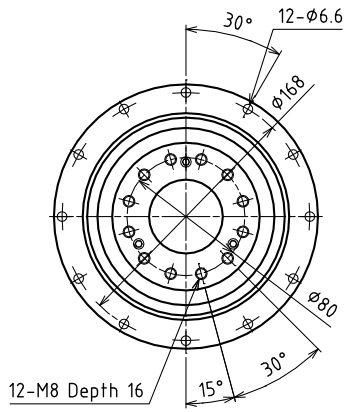
Input bore size $\leq \phi 48$ mm



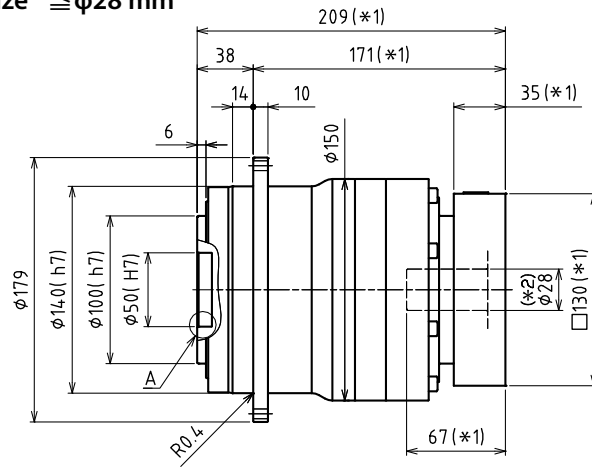
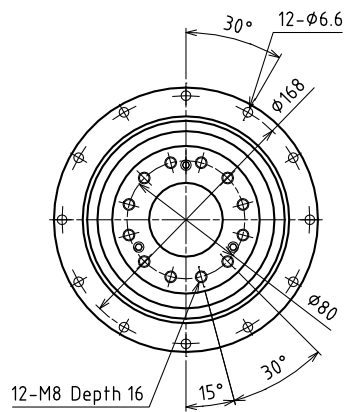
- *1) Length will vary depending on motor.
- *2) Bushing will be inserted to adapt to motor shaft

VRT 140 2-Stage Dimensions

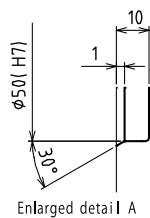
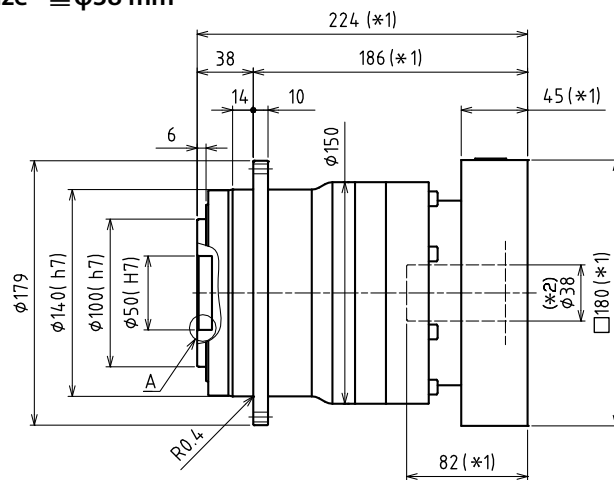
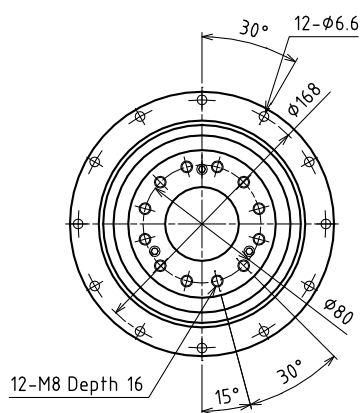
Input bore size $\leq \varnothing 19$ mm



Input bore size $\leq \varnothing 28$ mm



Input bore size $\leq \varnothing 38$ mm



*1) Length will vary depending on motor.

*2) Bushing will be inserted to adapt to motor shaft

VRT 200 1-Stage Specifications

Frame Size	200					
Stage	1-Stage					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	850	910	910	910
Maximum Acceleration Torque	[Nm]	*2	1850	1850	1850	1350
Maximum Torque	[Nm]	*3	2250	2250	2150	1750
Emergency Stop Torque	[Nm]	*4	2750	2750	2750	2200
Nominal Input Speed	[rpm]	*5	1500	1500	2300	2300
Maximum Input Speed	[rpm]	*6	4500	4500	4500	4500
No Load Running Torque	[Nm]	*7	1.9			
Maximum Radial Load	[N]	*8	40000			
Maximum Axial Load	[N]	*9	30000			
Maximum Tilting Moment	[Nm]	*10	5300			
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	53	36	23	16
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	68	51	37	31
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	110	95	81	75
Efficiency	[%]	*11	95			
Torsional Rigidity	[Nm/arc-min]	*12	610	610	550	445
Maximum Torsional Backlash	[arc-min]	*13	Standard ≤ 3 / Reduced ≤ 1			
Noise Level	dB [A]	--	≤ 67			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	42			

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The maximum load at output flange surface.

*11) The efficiency at the nominal output torque rating.

*12) This does not include lost motion.

*13) Contact SIT S.p.A. for the testing conditions and environment.

*14) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*15) Weight may vary slightly between models.

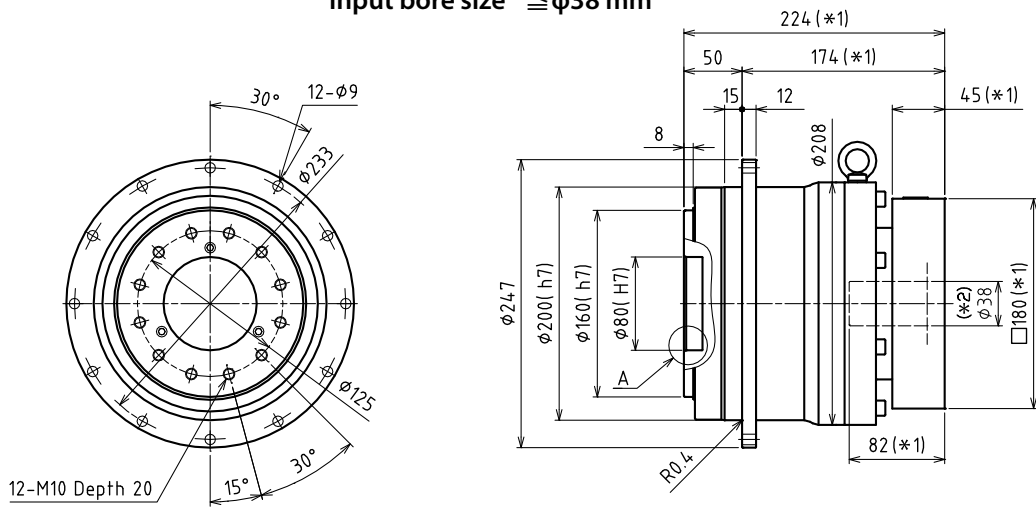
VRT 200 2-Stage Specifications

Frame Size	200					
Stage	2-Stage					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	850	910	1100	1300
Maximum Acceleration Torque	[Nm]	*2	1850	1850	1850	1850
Maximum Torque	[Nm]	*3	1850	1850	1850	1850
Emergency Stop Torque	[Nm]	*4	2750	2750	2750	2750
Nominal Input Speed	[rpm]	*5	2700	2700	2700	2700
Maximum Input Speed	[rpm]	*6	5000	5000	5000	5000
No Load Running Torque	[Nm]	*7	1.3			
Maximum Radial Load	[N]	*8	40000			
Maximum Axial Load	[N]	*9	30000			
Maximum Tilting Moment	[Nm]	*10	5300			
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	13	9.2	8.6	11
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	19	15	15	18
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	34	30	30	32
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--
Efficiency	[%]	*11	90			
Torsional Rigidity	[Nm/arc-min]	*12	585	580	570	560
Maximum Torsional Backlash	[arc-min]	*13	Standard ≤ 3 / Reduced ≤ 1			
Noise Level	dB [A]	--	≤ 67			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	43			

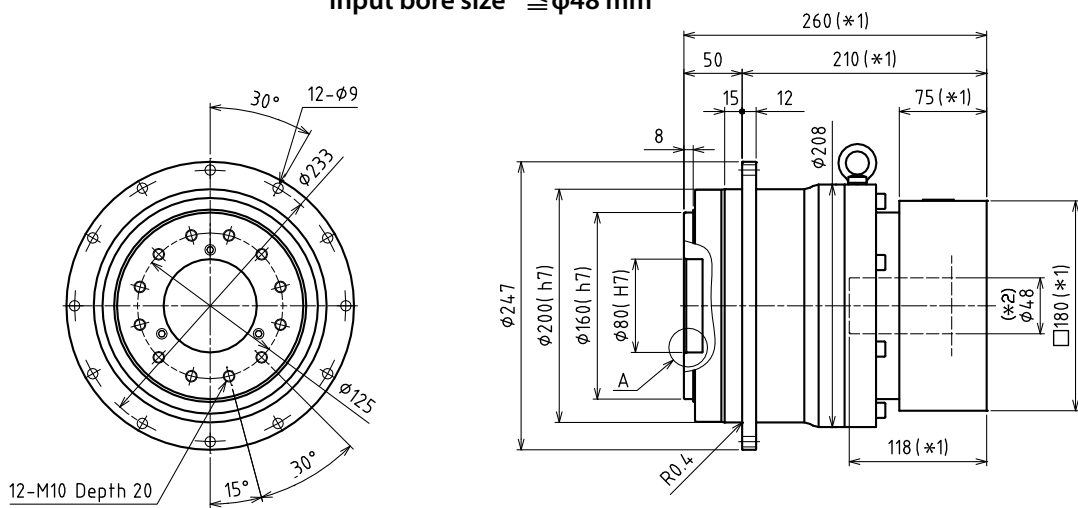
Frame Size	200						
Stage	2-Stage						
Ratio	Unit	Note	35	40	50	70	100
Nominal Output Torque	[Nm]	*1	1300	1200	1300	1300	930
Maximum Acceleration Torque	[Nm]	*2	1850	1850	1850	1850	1350
Maximum Torque	[Nm]	*3	1850	1850	1850	1850	1350
Emergency Stop Torque	[Nm]	*4	2750	2750	2750	2750	2200
Nominal Input Speed	[rpm]	*5	2700	2700	2900	3400	3400
Maximum Input Speed	[rpm]	*6	5000	5000	5000	5000	5000
No Load Running Torque	[Nm]	*7	1.3				
Maximum Radial Load	[N]	*8	40000				
Maximum Axial Load	[N]	*9	30000				
Maximum Tilting Moment	[Nm]	*10	5300				
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	2.1	1.9	1.9
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	8.0	4.1	4.0	3.8	3.8
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	14	10	10	10	10
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	29	25	25	25	25
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--
Efficiency	[%]	*11	90				
Torsional Rigidity	[Nm/arc-min]	*12	560	520	525	480	395
Maximum Torsional Backlash	[arc-min]	*13	Standard ≤ 3 / Reduced ≤ 1				
Noise Level	dB [A]	--	≤ 67				
Protection Class	--	*14	IP54 (IP65)				
Ambient Temperature	[°C]	--	0 - 40				
Permitted Housing Temperature	[°C]	--	90				
Weight	[kg]	*15	43				

VRT 200 1-Stage Dimensions

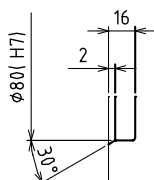
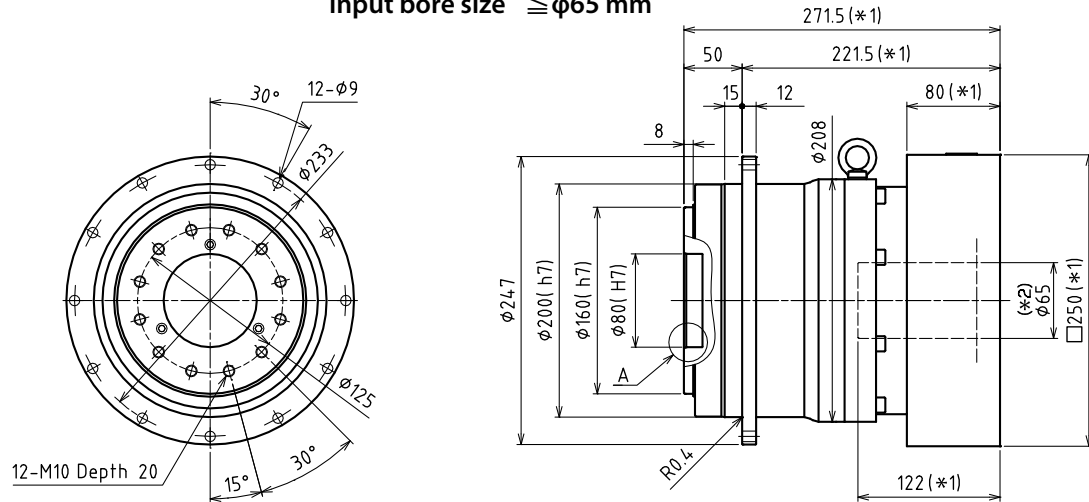
Input bore size $\cong \phi 38$ mm



Input bore size $\cong \phi 48$ mm



Input bore size $\cong \phi 65$ mm

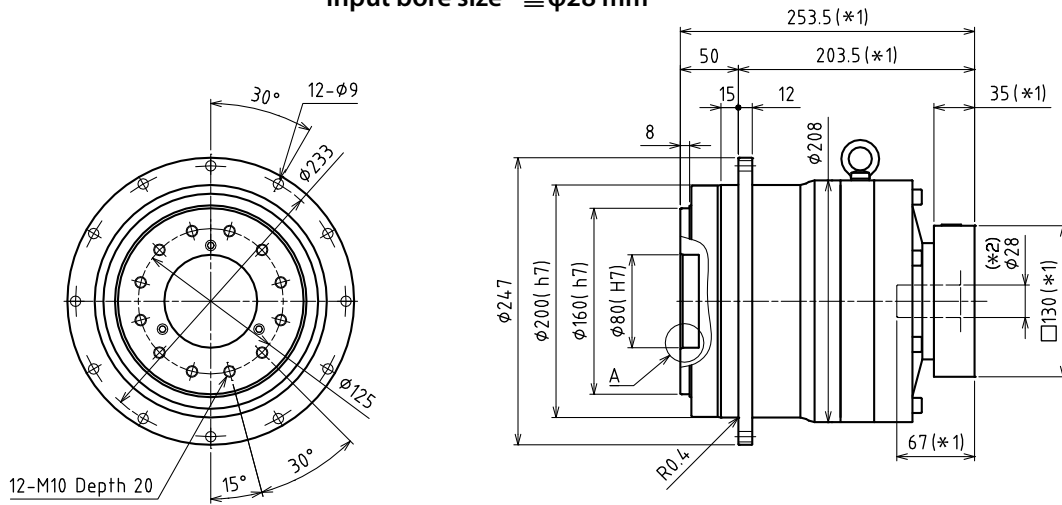


Enlarged detail A

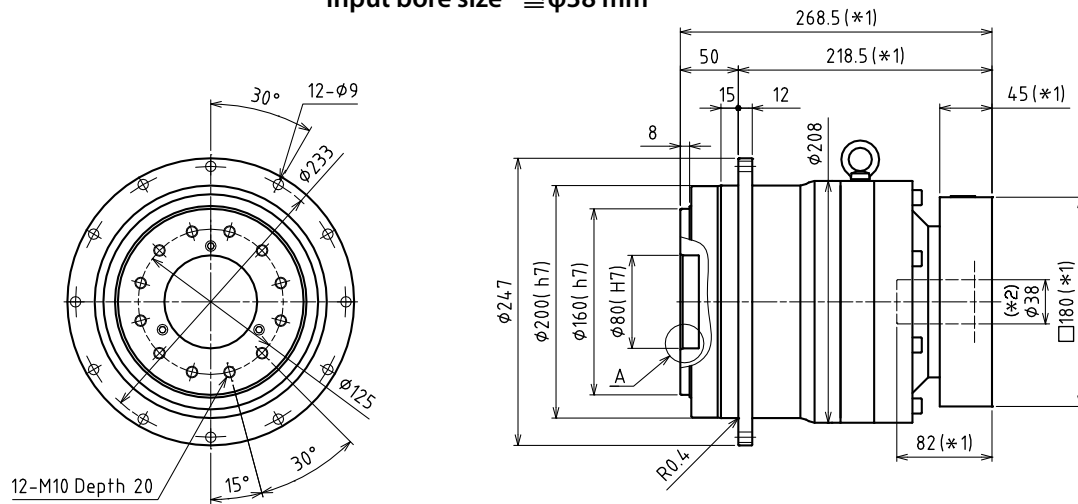
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRT 200 2-Stage Dimensions

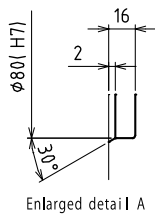
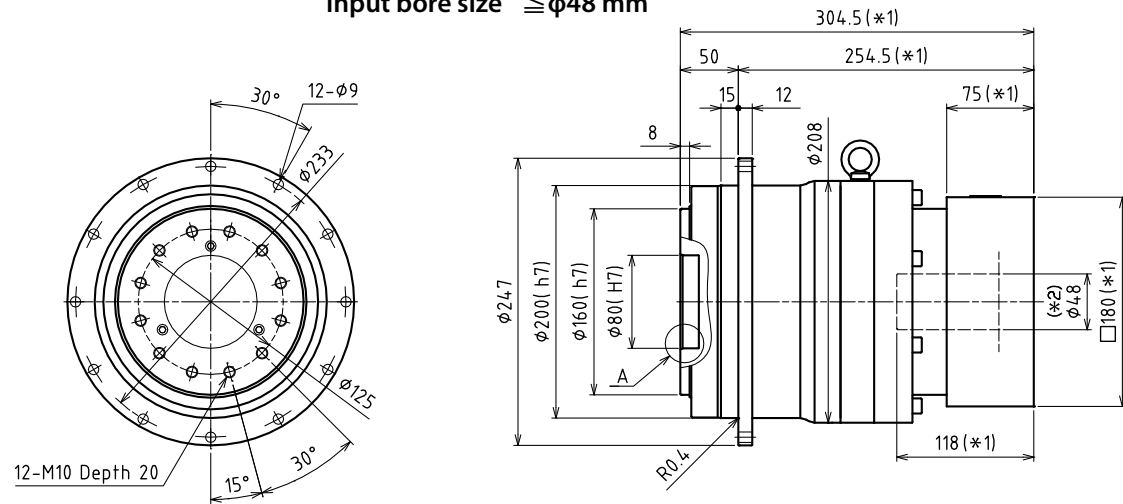
Input bore size $\leq \varnothing 28$ mm



Input bore size $\leq \varnothing 38$ mm



Input bore size $\leq \varnothing 48$ mm



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRT 255 1-Stage Specifications

Frame Size	255					
Stage	1-Stage					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	2400	2400	2700	2700
Maximum Acceleration Torque	[Nm]	*2	5100	5100	4800	3600
Maximum Torque	[Nm]	*3	5700	5700	5400	4100
Emergency Stop Torque	[Nm]	*4	8000	8000	8000	6000
Nominal Input Speed	[rpm]	*5	1000	1200	1500	1700
Maximum Input Speed	[rpm]	*6	3000	3000	3000	3000
No Load Running Torque	[Nm]	*7	2.5			
Maximum Radial Load	[N]	*8	64000			
Maximum Axial Load	[N]	*9	48000			
Maximum Tilting Moment	[Nm]	*10	11000			
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	180	130	100	84
Efficiency	[%]	*11	95			
Torsional Rigidity	[Nm/arc-min]	*12	840	1000	900	840
Maximum Torsional Backlash	[arc-min]	*13	≤ 3			
Noise Level	dB [A]	--	≤ 62			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	84			

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_p , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The maximum load at output flange surface.

*11) The efficiency at the nominal output torque rating.

*12) This does not include lost motion.

*13) Contact SIT S.p.A. for the testing conditions and environment.

*14) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.

*15) Weight may vary slightly between models.

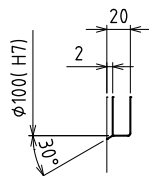
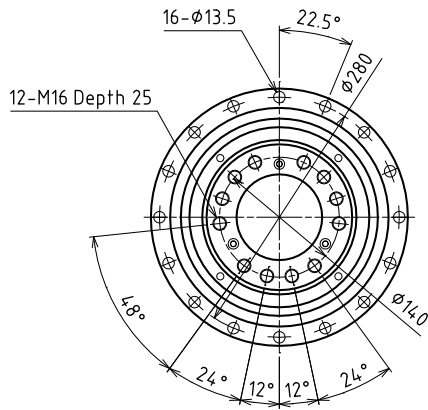
VRT 255 2-Stage Specifications

Frame Size	255					
Stage	2-Stage					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	2400	2600	3200	3400
Maximum Acceleration Torque	[Nm]	*2	5100	5100	5100	4900
Maximum Torque	[Nm]	*3	5100	5100	5100	4900
Emergency Stop Torque	[Nm]	*4	8000	8000	8000	8000
Nominal Input Speed	[rpm]	*5	2000	2000	2000	2000
Maximum Input Speed	[rpm]	*6	4500	4500	4500	4500
No Load Running Torque	[Nm]	*7	1.0			
Maximum Radial Load	[N]	*8	64000			
Maximum Axial Load	[N]	*9	48000			
Maximum Tilting Moment	[Nm]	*10	11000			
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	58	47	45	53
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--
Efficiency	[%]	*11	90			
Torsional Rigidity	[Nm/arc-min]	*12	840	850	950	840
Maximum Torsional Backlash	[arc-min]	*13	≤ 3			
Noise Level	dB [A]	--	≤ 62			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	89			

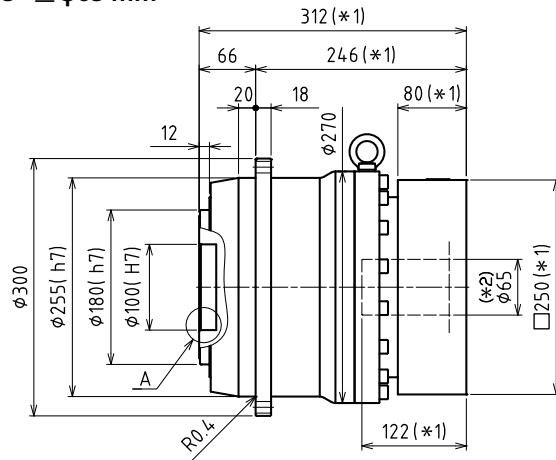
Frame Size	255						
Stage	2-Stage						
Ratio	Unit	Note	35	40	50	70	100
Nominal Output Torque	[Nm]	*1	3400	3400	3400	3400	2000
Maximum Acceleration Torque	[Nm]	*2	4900	5100	5100	4900	2500
Maximum Torque	[Nm]	*3	4900	5100	5100	4900	2500
Emergency Stop Torque	[Nm]	*4	8000	8000	8000	8000	6000
Nominal Input Speed	[rpm]	*5	2000	2000	2200	2800	2800
Maximum Input Speed	[rpm]	*6	4500	4500	4500	4500	4500
No Load Running Torque	[Nm]	*7	1.0				
Maximum Radial Load	[N]	*8	64000				
Maximum Axial Load	[N]	*9	48000				
Maximum Tilting Moment	[Nm]	*10	11000				
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	14	13	13
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	44	32	32	31	31
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--
Efficiency	[%]	*11	90				
Torsional Rigidity	[Nm/arc-min]	*12	900	840	840	840	840
Maximum Torsional Backlash	[arc-min]	*13	≤ 3				
Noise Level	dB [A]	--	≤ 62				
Protection Class	--	*14	IP54 (IP65)				
Ambient Temperature	[°C]	--	0 - 40				
Permitted Housing Temperature	[°C]	--	90				
Weight	[kg]	*15	89				

VRT 255 1-Stage Dimensions

Input bore size $\leq \phi 65$ mm



Enlarged detail A

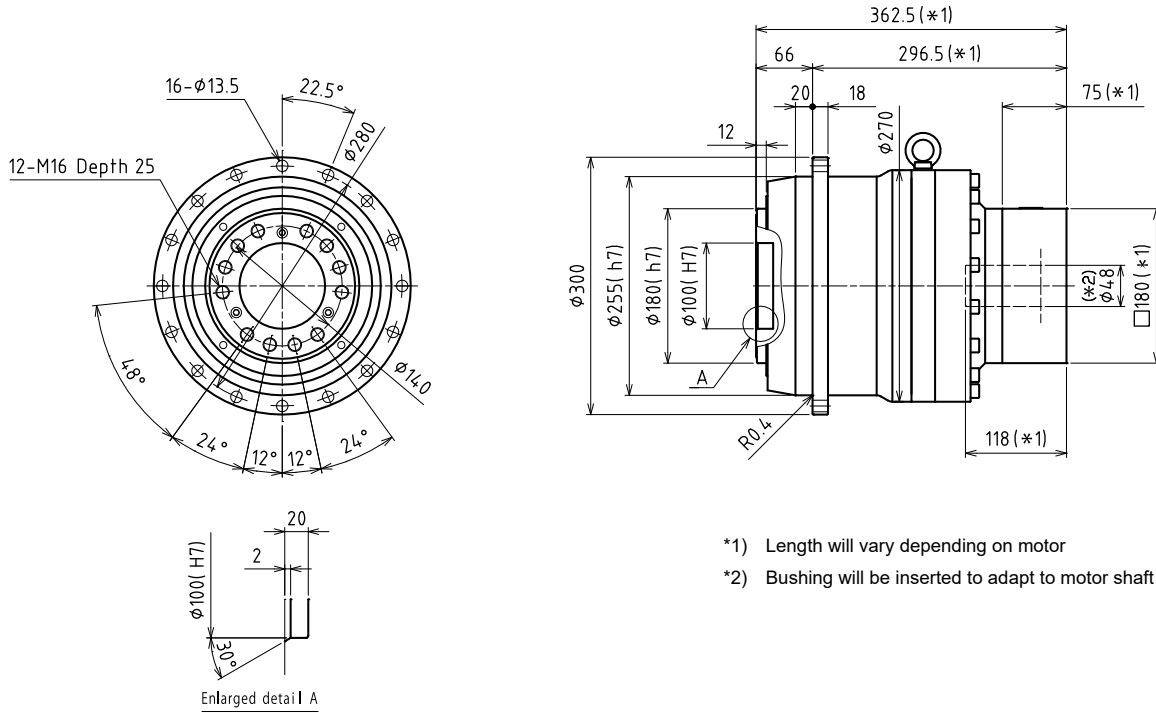


*1) Length will vary depending on motor

*2) Bushing will be inserted to adapt to motor shaft

VRT 255 2-Stage Dimensions

Input bore size $\leq \phi 48$ mm



VRT 285 1-Stage Specifications

Frame Size	285					
Stage	1-Stage					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	3400	3400	3400	3400
Maximum Acceleration Torque	[Nm]	*2	6700	6700	6700	5100
Maximum Torque	[Nm]	*3	7500	7500	7500	5900
Emergency Stop Torque	[Nm]	*4	12000	12000	12000	10000
Nominal Input Speed	[rpm]	*5	900	1100	1300	1300
Maximum Input Speed	[rpm]	*6	3000	3000	3000	3000
No Load Running Torque	[Nm]	*7	2.7			
Maximum Radial Load	[N]	*8	86000			
Maximum Axial Load	[N]	*9	64000			
Maximum Tilting Moment	[Nm]	*10	18000			
Moment of Inertia (≤ Ø 38)	[kgcm ²]	--	--	--	--	--
Moment of Inertia (≤ Ø 48)	[kgcm ²]	--	--	--	--	--
Moment of Inertia (≤ Ø 65)	[kgcm ²]	--	270	190	130	96
Efficiency	[%]	*11	95			
Torsional Rigidity	[Nm/arc-min]	*12	1200	1450	1300	1200
Maximum Torsional Backlash	[arc-min]	*13	≤ 3			
Noise Level	dB [A]	--	≤ 63			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	110			

- *1) At nominal input speed, service life is 20,000 hours.
- *2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.
- *3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.
- *4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.
- *5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.
- *6) The maximum intermittent input speed.
- *7) Torque at no load applied to the input shaft at nominal input speed.
- *8) The maximum radial load that the gearbox can accept.
- *9) The maximum axial load that the gearbox can accept.
- *10) The maximum load at output flange surface.
- *11) The efficiency at the nominal output torque rating.
- *12) This does not include lost motion.
- *13) Contact SIT S.p.A. for the testing conditions and environment.
- *14) IP65 (wash-down) is available as an option. Contact SIT S.P.A. for more details.
- *15) Weight may vary slightly between models.

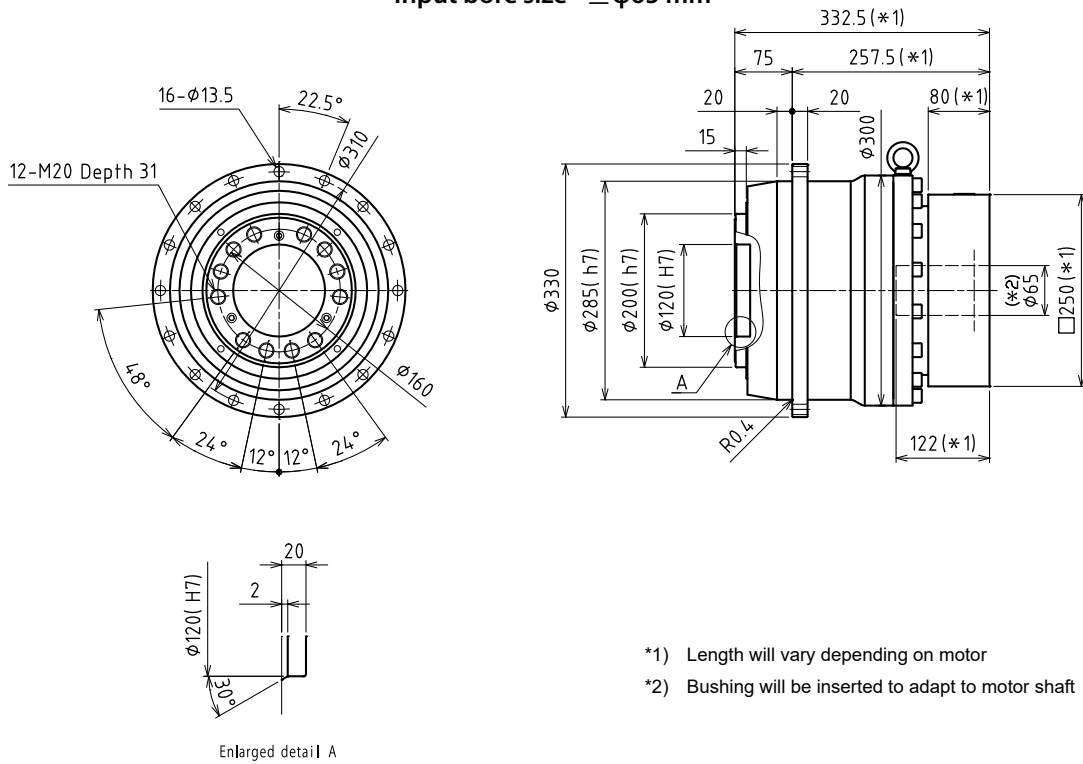
VRT 285 2-Stage Specifications

Frame Size	285					
Stage	2-Stage					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	2700	2900	3600	4200
Maximum Acceleration Torque	[Nm]	*2	6700	6700	6700	6700
Maximum Torque	[Nm]	*3	6700	6700	6700	6700
Emergency Stop Torque	[Nm]	*4	12000	12000	12000	12000
Nominal Input Speed	[rpm]	*5	1500	1500	1500	1500
Maximum Input Speed	[rpm]	*6	4000	4000	4000	4000
No Load Running Torque	[Nm]	*7	0.6			
Maximum Radial Load	[N]	*8	86000			
Maximum Axial Load	[N]	*9	64000			
Maximum Tilting Moment	[Nm]	*10	18000			
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	63	50	47	55
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--
Efficiency	[%]	*11	90			
Torsional Rigidity	[Nm/arc-min]	*12	1200	1400	1450	1200
Maximum Torsional Backlash	[arc-min]	*13	≤ 3			
Noise Level	dB [A]	--	≤ 63			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	120			

Frame Size	285						
Stage	2-Stage						
Ratio	Unit	Note	35	40	50	70	100
Nominal Output Torque	[Nm]	*1	4200	4200	4200	4200	2700
Maximum Acceleration Torque	[Nm]	*2	6700	6700	6700	6700	3400
Maximum Torque	[Nm]	*3	6700	6700	6700	6700	3400
Emergency Stop Torque	[Nm]	*4	12000	12000	12000	12000	10000
Nominal Input Speed	[rpm]	*5	1500	1500	2000	2200	2200
Maximum Input Speed	[rpm]	*6	4000	4000	4000	4000	4000
No Load Running Torque	[Nm]	*7	0.6				
Maximum Radial Load	[N]	*8	86000				
Maximum Axial Load	[N]	*9	64000				
Maximum Tilting Moment	[Nm]	*10	18000				
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	14	14	13
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	45	33	32	31	31
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--
Efficiency	[%]	*11	90				
Torsional Rigidity	[Nm/arc-min]	*12	1400	1200	1300	1250	1200
Maximum Torsional Backlash	[arc-min]	*13	≤ 3				
Noise Level	dB [A]	--	≤ 63				
Protection Class	--	*14	IP54 (IP65)				
Ambient Temperature	[°C]	--	0 - 40				
Permitted Housing Temperature	[°C]	--	90				
Weight	[kg]	*15	120				

VRT 285 1-Stage Dimensions

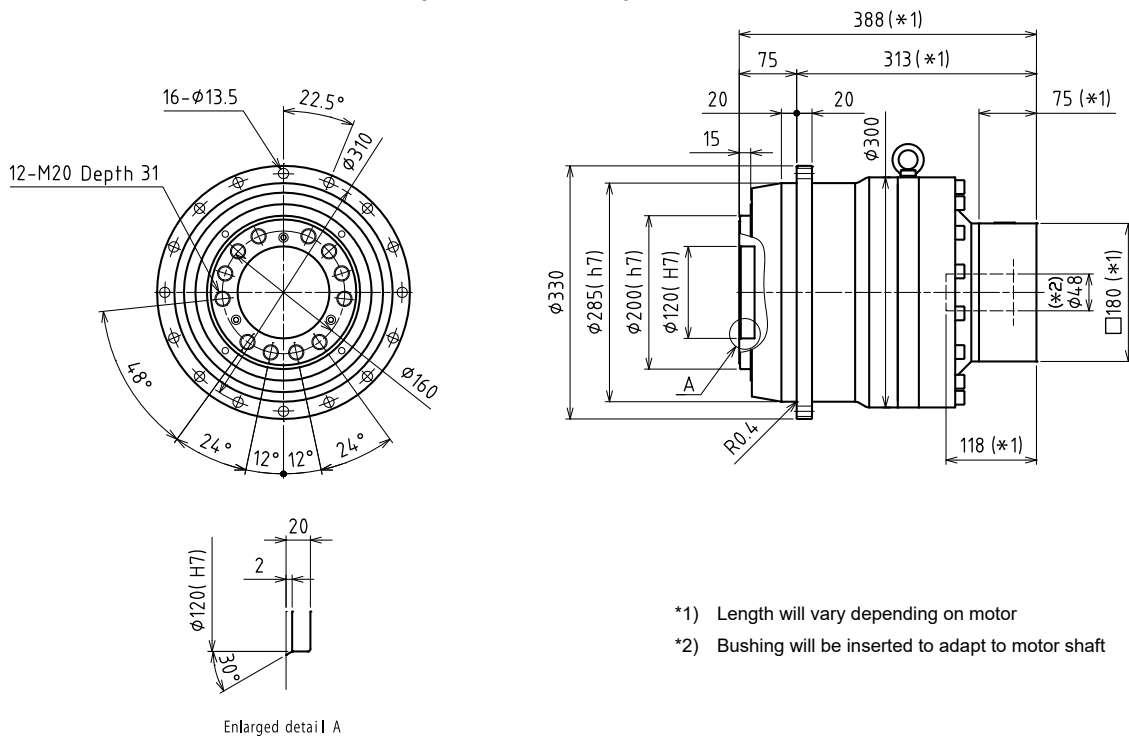
Input bore size $\leq \phi 65$ mm



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

VRT 285 2-Stage Dimensions

Input bore size $\leq \phi 48$ mm



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

NEV SERIES



NEV series



NEV planetary gearbox with right angle

Lightweight and compact aluminum body

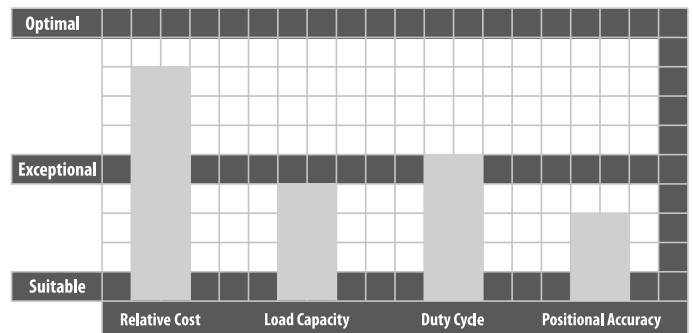
Description

The NEV right angle gearbox is the ideal solution for servo or stepper applications running primarily in one direction. With 30 arc-minute backlash, the NEV is an excellent cost-effective, compact choice for applications such as conveyors, where positioning is not as critical. The NEV is often used in situations where our customers upgrade induction duty motors to servos. The price point of this product helps OEMs control costs, especially when updating several axes on one machine. The performance, efficiency and footprint of the NEV allows it to outperform helical

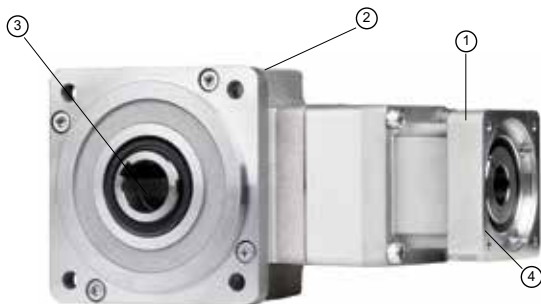
bevel or worm gearboxes in a similar class. The NEV has a lightweight aluminum frame with either a hollow or solid output shaft configuration.

It can handle motors ranging between 50w and 3.5kW, achieving nominal output torque ratings ranging between 6 Nm to 90 Nm. Four frame sizes and ratios between 5:1 and 105:1 are available, as well as various wash down options, making this product ideal for applications in food & beverage.

- Hollow output shaft option gives machine builders a very compact foot print
- Value engineered solution for simple servo and stepper motor applications
- Quiet operation: Helical cut gears contribute to reduced vibration and noise
- Wide range of mounting adapters offer a simple, precise attachment to any motor
- Lightweight aluminum body reduces excess weight
- Aluminum body, combined with other wash-down features can be used in harsh environments
- Maintenance-free solution that is lubricated for life. High performance grease allows flexible mounting in any orientation



Features



- 1 Motor adapter allows for flexible mounting to any motor manufacturer
- 2 Lightweight aluminum body, an excellent fit for washdown applications
- 3 Hollow or solid output shaft options
- 4 Input seal provides IP65 protection against the elements

Part Number	NEVAF C 05 070 1403 7 00
Model name - NEV series	Motor mounting code (*)
Size: B, C, D, E	Output shaft style: 6: Solid / 7: Hollow
Ratio: 2-Stage: 05, 09, 15, 27 3-Stage: 45, 75, 105	Motor Shaft Bushing
	Motor Bolt Circle Diameter

*1) Motor mounting code varies depending on the motor. Use the selection tool link below to configure the code.

Motor Bolt Circle Diameter table

Code	044	045	046	060	063	067	070	075	090	095	098	100	115	126	130	145	149	165	200
Dimensions [mm]	43.80 (NEMA 17)	45	46	60	63	66.68 (NEMA 23)	70	75	90	95	98.43 (NEMA 34)	100	115	125.73 (NEMA 42)	130	145	149.23 (NEMA 56)	165	200

Motor Shaft Bushing tables

Code	0801	0802	0803	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1901	1902
OD [mm]	8	8	8	14	14	14	14	14	14	14	14	14	14	19	19
ID [mm]	6	6.350	5	6	8	11	6.350	9.525	12.700	12	10	9	5	11	14

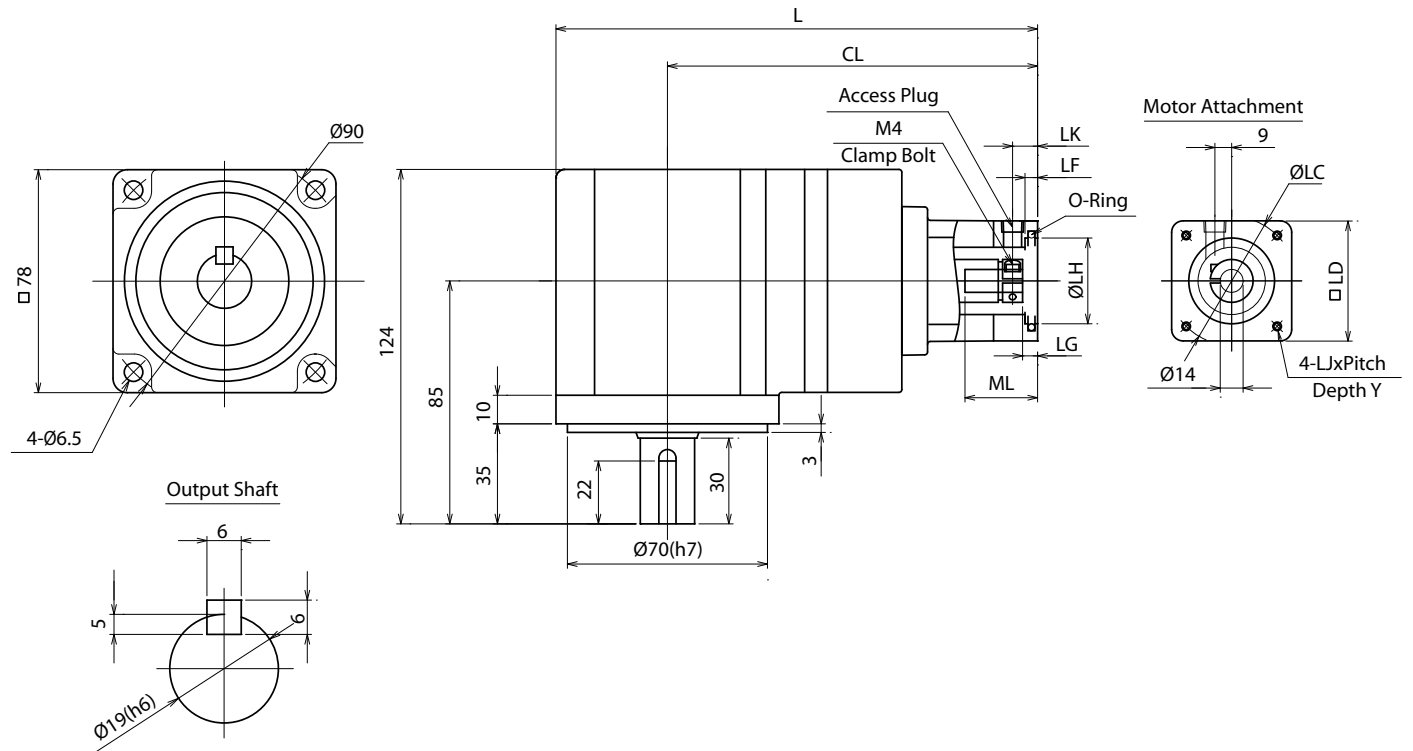
Code	1903	1904	1905	1906	1907	1908	1909	1910	2401	2402	2403	2404	2405	2406	2407	2408
OD [mm]	19	19	19	19	19	19	19	19	24	24	24	24	24	24	24	24
ID [mm]	16	9.525	12.700	15.875	12	10	9	8	14	16	19	12.700	15.875	22	19.050	11

NEV B-Frame 2-Stage Specifications

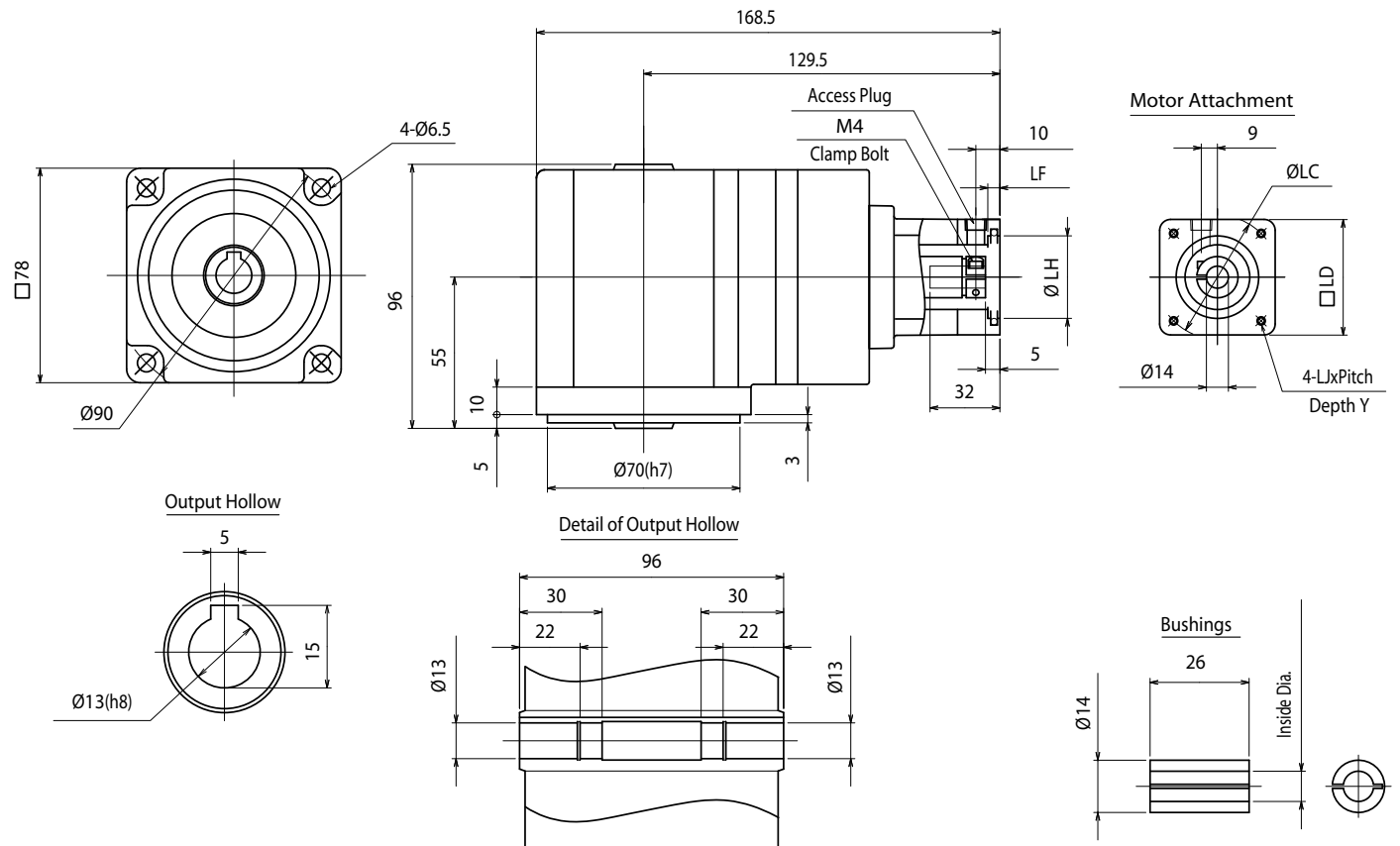
Frame Size	B (78 mm)					
Stage	2-Stage					
Ratio	Units	Note	5	9	15	27
Nominal Output Torque	[Nm]	--	6	6	10	10
Maximum Acceleration Torque	[Nm]	--	20	20	30	30
Emergency Stop Torque	[Nm]	--	35	40	50	50
Nominal Input Speed	[rpm]	--	3000			
Maximum Input Speed	[rpm]	--	6000			
No Load Running Torque	[Nm]	--	0.18			
Permitted Radial Load	[N]	--	1000	1200	1500	1800
Permitted Axial Load	[N]	--	500	600	750	900
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.275	0.110	0.059	0.146
Efficiency	[%]	--	85			
Torsional Rigidity	[Nm/arc-min]	--	0.4			
Maximum Torsional Backlash	[arc-min]	--	≤ 30			
Noise Level	[dB]	--	≤ 73			
Protection Class	--	--	IP65			
Ambient Temperature	[°C]	--	0-40			
Permitted Housing Temperature	[°C]	--	90			
Weight (Solid Output Shaft)	[kg]	--	3.8			
Weight (Hollow Output Shaft)	[kg]	--	3.6			

NEV B-Frame (78 mm) 2-Stage Dimensions – Ratios: 5:1, 9:1, 15:1, 27:1

Solid Output Shaft Type



Hollow Output Shaft Type

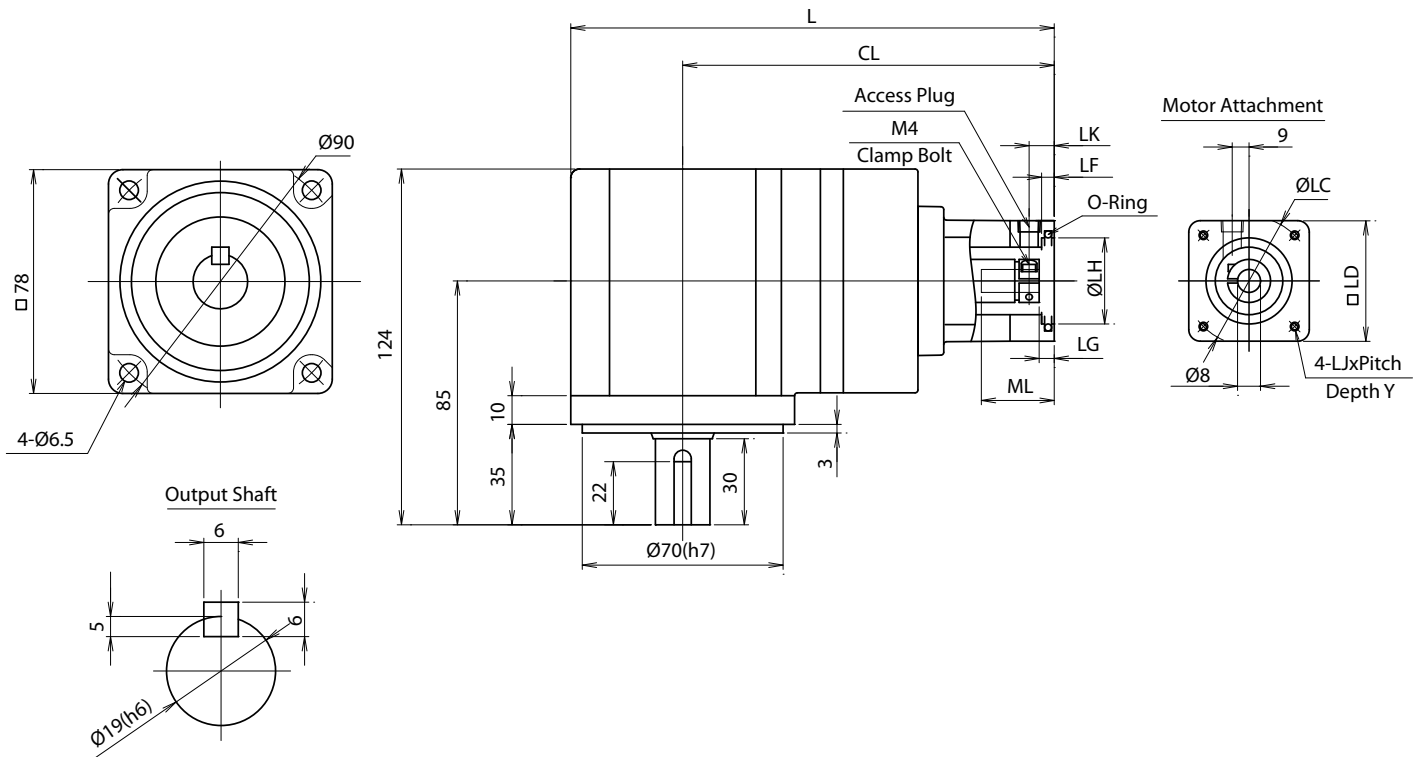


NEV B-Frame 3-Stage Specifications

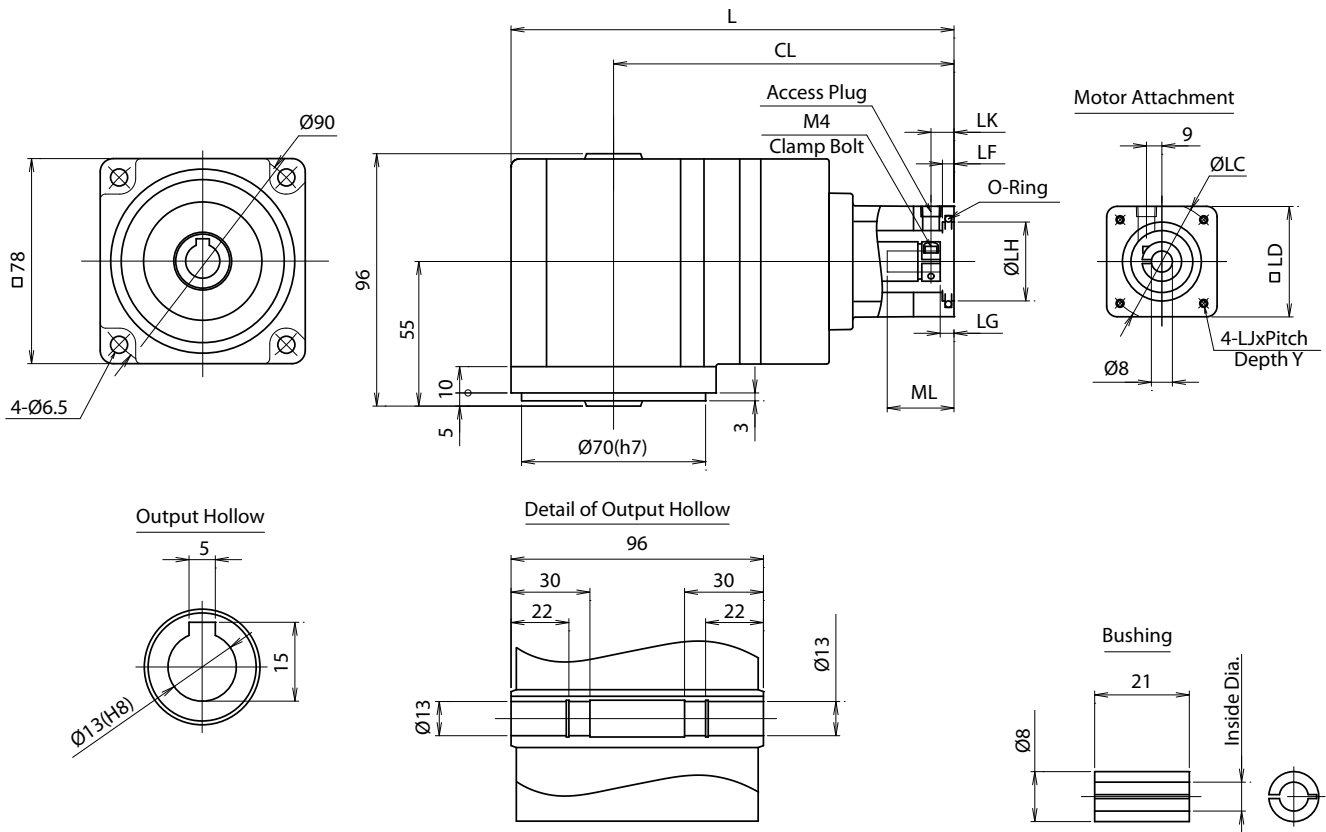
Frame Size	B (78 mm)				
Stage	3-Stage				
Ratio	Units	Note	45	75	105
Nominal Output Torque	[Nm]	--	10	15	15
Maximum Acceleration Torque	[Nm]	--	30	30	30
Emergency Stop Torque	[Nm]	--	50	50	50
Nominal Input Speed	[rpm]	--	3000		
Maximum Input Speed	[rpm]	--	6000		
No Load Running Torque	[Nm]	--	0.109		
Permitted Radial Load	[N]	--	1800	1800	1800
Permitted Axial Load	[N]	--	900	900	900
Moment of Inertia ($\leq \text{Ø} 8$)	[kgcm ²]	--	0.091	0.083	0.078
Moment of Inertia ($\leq \text{Ø} 14$)	[kgcm ²]	--	--	--	--
Efficiency	[%]	--	80		
Torsional Rigidity	[Nm/arc-min]	--	0.4		
Maximum Torsional Backlash	[arc-min]	--	≤ 30		
Noise Level	[dB]	--	≤ 63		
Protection Class	--	--	IP65		
Ambient Temperature	[°C]	--	0-40		
Permitted Housing Temperature	[°C]	--	90		
Weight (Solid Output Shaft)	[kg]	--	3.9		
Weight (Hollow Output Shaft)	[kg]	--	3.7		

NEV B-Frame (78 mm) 3-Stage Dimensions – Ratios: 45:1, 75:1, 105:1

Solid Output Shaft Type



Hollow Output Shaft Type



NEV C-Frame 2-Stage Specifications

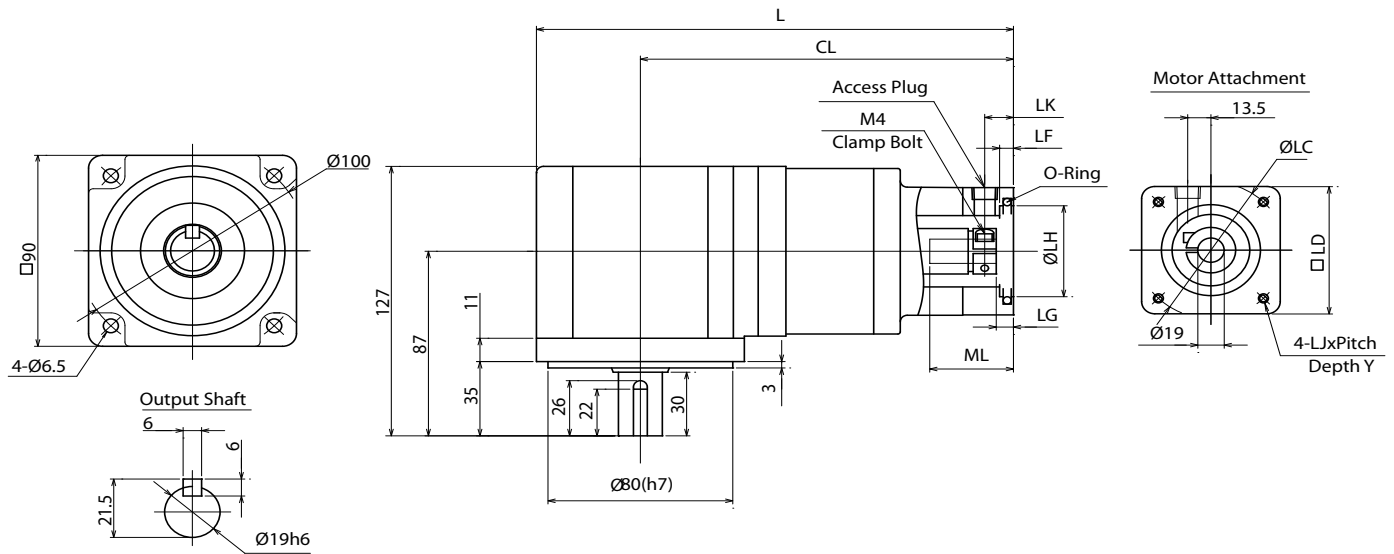
Frame Size	C (90 mm)					
Stage	2-Stage					
Ratio	Units	Note	5	9	15	27
Nominal Output Torque	[Nm]	--	15	20	20	30
Maximum Acceleration Torque	[Nm]	--	30	35	40	40
Emergency Stop Torque	[Nm]	--	50	50	60	75
Nominal Input Speed	[rpm]	--	3000			
Maximum Input Speed	[rpm]	--	6000			
No Load Running Torque	[Nm]	--	0.3			
Permitted Radial Load	[N]	--	1000	1500	1800	1800
Permitted Axial Load	[N]	--	500	750	900	900
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.806	0.744	0.415	0.585
Efficiency	[%]	--	85			
Torsional Rigidity	[Nm/arc-min]	--	1.0			
Maximum Torsional Backlash	[arc-min]	--	≤ 30			
Noise Level	[dB]	--	≤ 73			
Protection Class	--	--	IP65			
Ambient Temperature	[°C]	--	0-40			
Permitted Housing Temperature	[°C]	--	90			
Weight (Solid Output Shaft)	[kg]	--	4.1			
Weight (Hollow Output Shaft)	[kg]	--	4.0			

NEV C-Frame, 2-Stage Dimensions, Solid / Hollow Output Shaft Type – Ratios: 5:1, 9:1, 15:1, 27:1

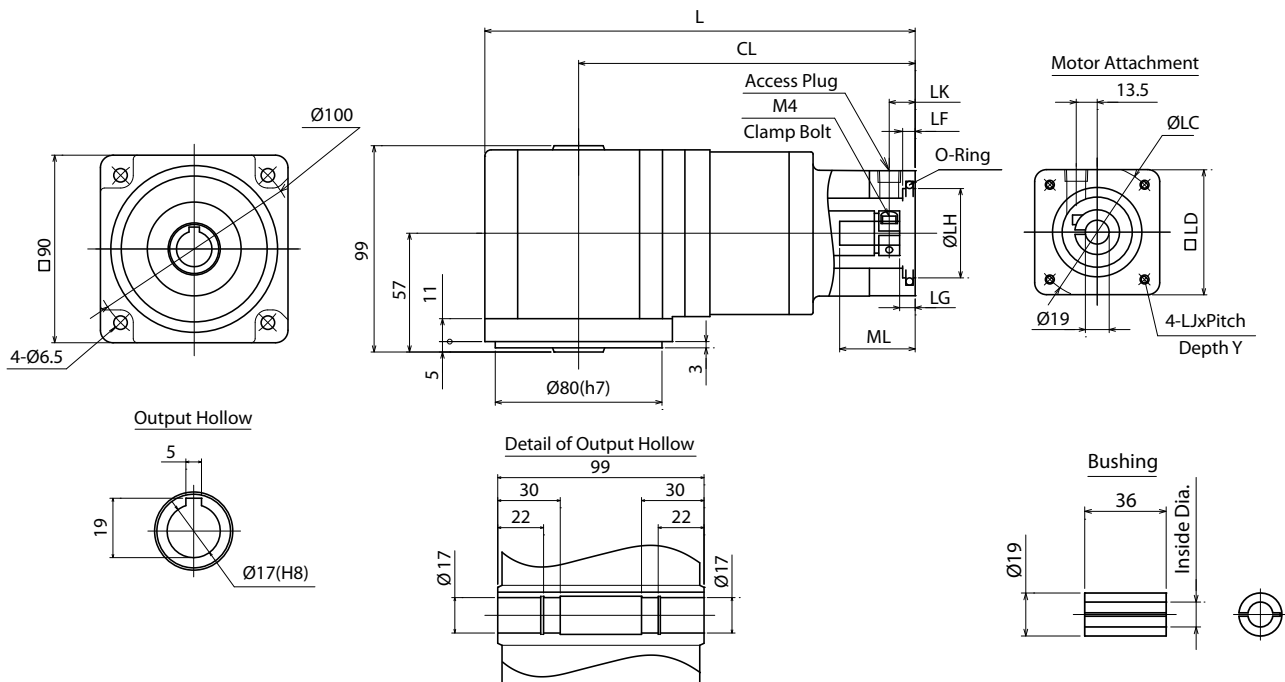
Adapter	Unit	Bolt Circle LC	Pilot LH	Square LD	Tapping Bolt LJ	Depth Y	Length		Plug LK	Flange Depth		
							L	CL		LF	LG	ML
C10	[mm]	63	40	60	M4x0.7	10	206.5	161.5	11	4	5	42
	[inch]	2.480	1.575	2.36	--	0.39	8.130	6.358	0.43	0.16	0.20	1.65
C11	[mm]	95	80	86	M6x1.0	--	206.5	161.5	11	4	5	42
	[inch]	3.740	3.150	3.39	--	--	8.130	6.358	0.43	0.16	0.20	1.65

NEV C-Frame (90 mm) 2-Stage Dimensions – Ratios: 5:1, 9:1, 15:1, 27:1

Solid Output Shaft Type



Hollow Output Shaft Type



Bushings

Bushing		1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911
Inside Diameter	[mm]	11	14	16	9.525	12.700	15.875	12	10	9	8	6.350
	[inch]	0.433	0.551	0.630	0.375	0.500	0.625	0.472	0.394	0.354	0.315	0.250

NEV C-Frame 3-Stage Specifications

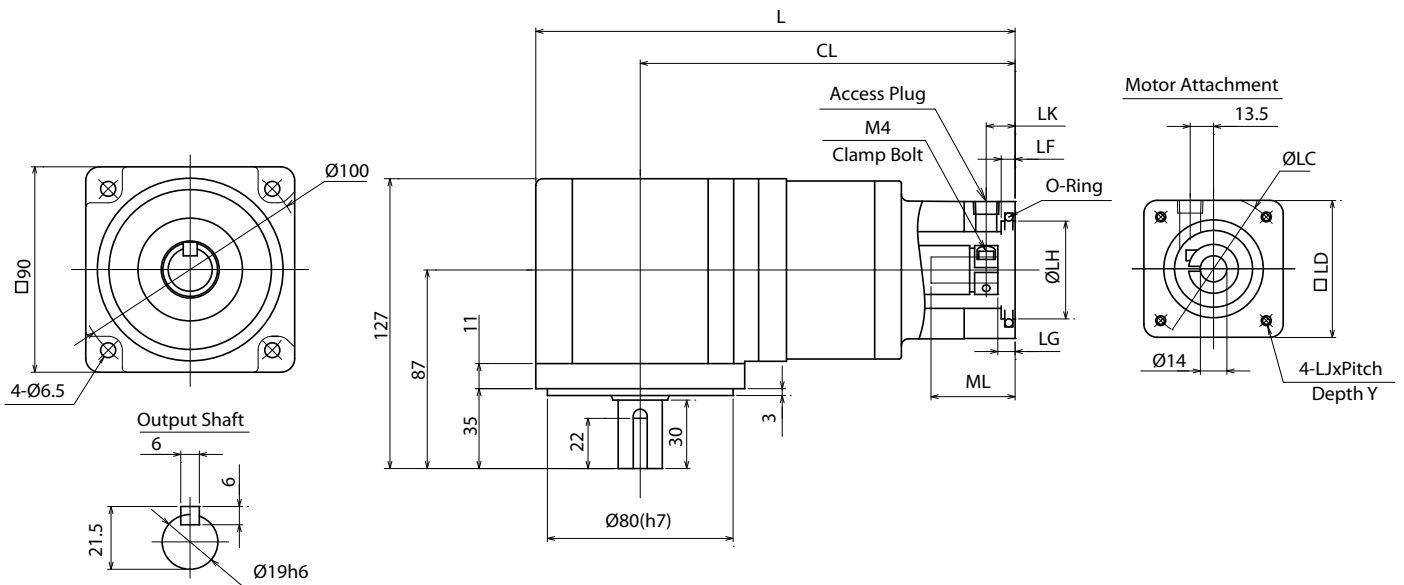
Frame Size	C (90 mm)				
Stage	3-Stage				
Ratio	Units	Note	45	75	105
Nominal Output Torque	[Nm]	--	30	30	30
Maximum Acceleration Torque	[Nm]	--	40	40	40
Emergency Stop Torque	[Nm]	--	75	75	75
Nominal Input Speed	[rpm]	--	3000		
Maximum Input Speed	[rpm]	--	6000		
No Load Running Torque	[Nm]	--	0.205		
Permitted Radial Load	[N]	--	1800	1800	1800
Permitted Axial Load	[N]	--	900	900	900
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.794	0.690	0.590
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--
Efficiency	[%]	--	80		
Torsional Rigidity	[Nm/arc-min]	--	1.0		
Maximum Torsional Backlash	[arc-min]	--	≤ 30		
Noise Level	[dB]	--	≤ 63		
Protection Class	--	--	IP65		
Ambient Temperature	[°C]	--	0-40		
Permitted Housing Temperature	[°C]	--	90		
Weight (Solid Output Shaft)	[kg]	--	4.3		
Weight (Hollow Output Shaft)	[kg]	--	4.2		

NEV C-Frame, 3-Stage Dimensions, Solid / Hollow Output Shaft Type – Ratios: 45:1, 75:1, 105:1

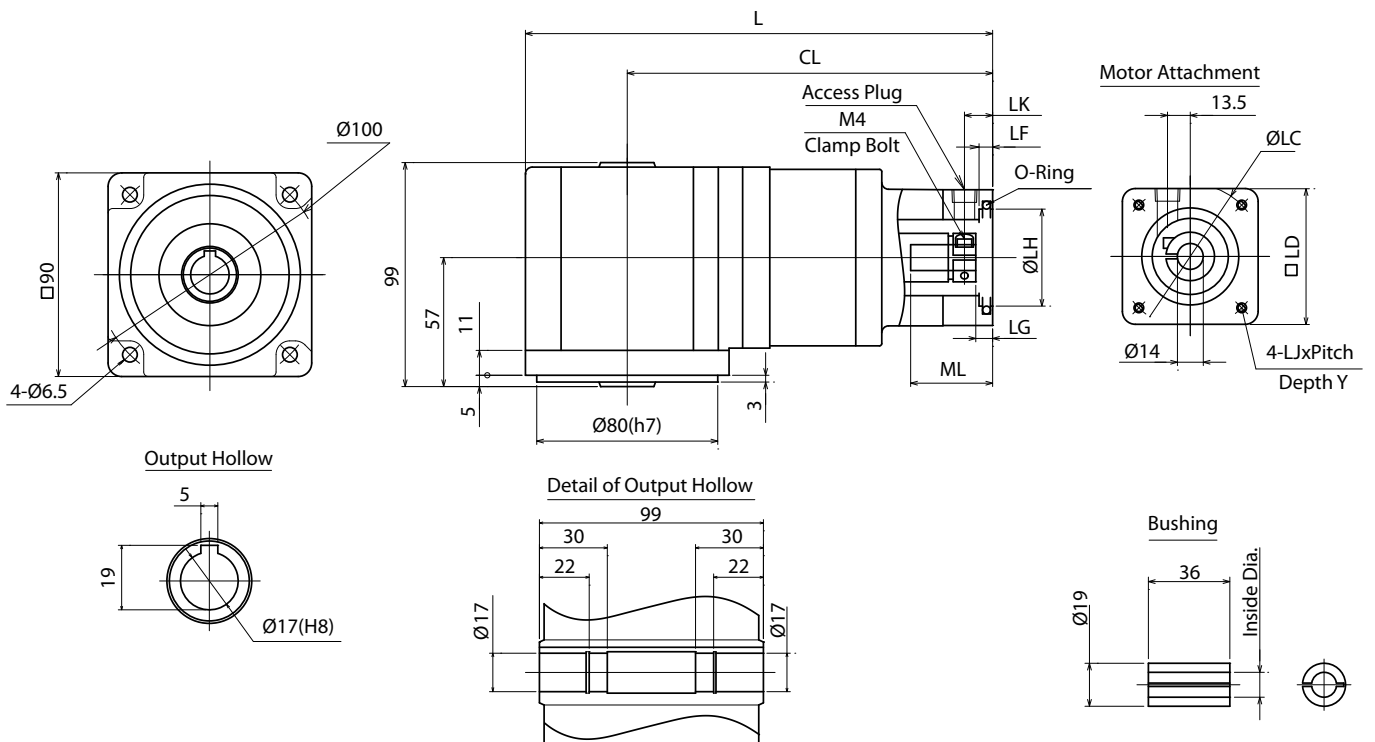
Adapter	Unit	Bolt Circle LC	Pilot LH	Square LD	Tapping Bolt LJ	Depth Y	Length		Plug LK	Flange Depth		
							L	CL		LF	LG	ML
C10	[mm]	63	40	60	M4x0.7	10	209	164	11	4	6	33
	[inch]	2.480	1.575	2.36	--	0.39	8.228	6.457	0.43	0.16	0.24	1.30
C11	[mm]	95	80	86	M6x1.0	-	209	164	11	4	6	33
	[inch]	3.740	3.150	3.39	--	-	8.228	6.457	0.43	0.16	0.24	1.30

NEV C-Frame (90 mm) 3-Stage Dimensions – Ratios: 45:1, 75:1, 105:1

Solid Output Shaft Type



Hollow Output Shaft Type



Bushings

Bushing		1401	1402	1403	1404	1405	1406	1407	1408	1409	1410
Inside Diameter	[mm]	6	8	11	6.350	9.525	12.700	12	10	9	5
	[inch]	0.236	0.315	0.433	0.250	0.375	0.500	0.472	0.394	0.354	0.197

NEV D-Frame 2-Stage Specifications

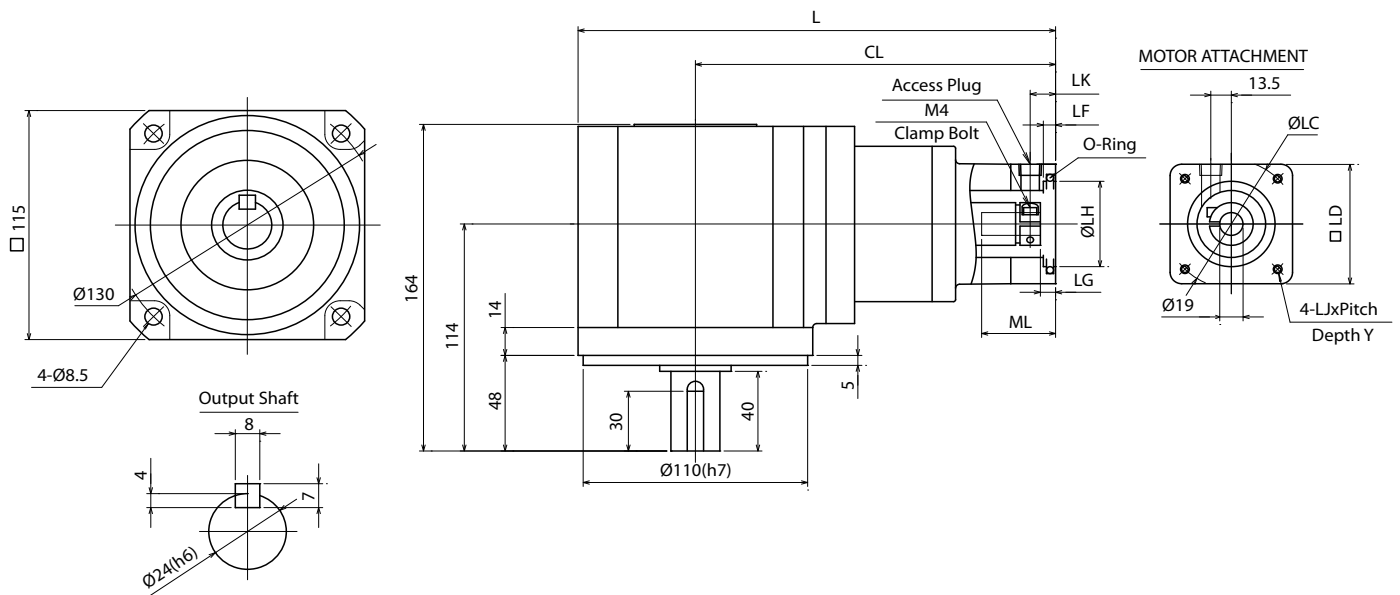
Frame Size	D (115 mm)					
Stage	2-Stage					
Ratio	Units	Note	5	9	15	27
Nominal Output Torque	[Nm]	--	25	25	25	40
Maximum Acceleration Torque	[Nm]	--	55	75	75	80
Emergency Stop Torque	[Nm]	--	100	140	140	180
Nominal Input Speed	[rpm]	--	3000			
Maximum Input Speed	[rpm]	--	6000			
No Load Running Torque	[Nm]	--	0.45			
Permitted Radial Load	[N]	--	2200	2200	2600	2600
Permitted Axial Load	[N]	--	1100	1100	1300	1300
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	1.502	1.254	0.464	0.720
Efficiency	[%]	--	85			
Torsional Rigidity	[Nm/arc-min]	--	1.2	1.5	1.5	1.5
Maximum Torsional Backlash	[arc-min]	--	≤ 30			
Noise Level	[dB]	--	≤ 73			
Protection Class	--	--	IP65			
Ambient Temperature	[°C]	--	0-40			
Permitted Housing Temperature	[°C]	--	90			
Weight (Solid Output Shaft)	[kg]	--	7.1			
Weight (Hollow Output Shaft)	[kg]	--	6.7			

NEV D-Frame, 2-Stage Dimensions, Solid / Hollow Output Shaft Type – Ratios: 5:1, 9:1, 15:1, 27:1

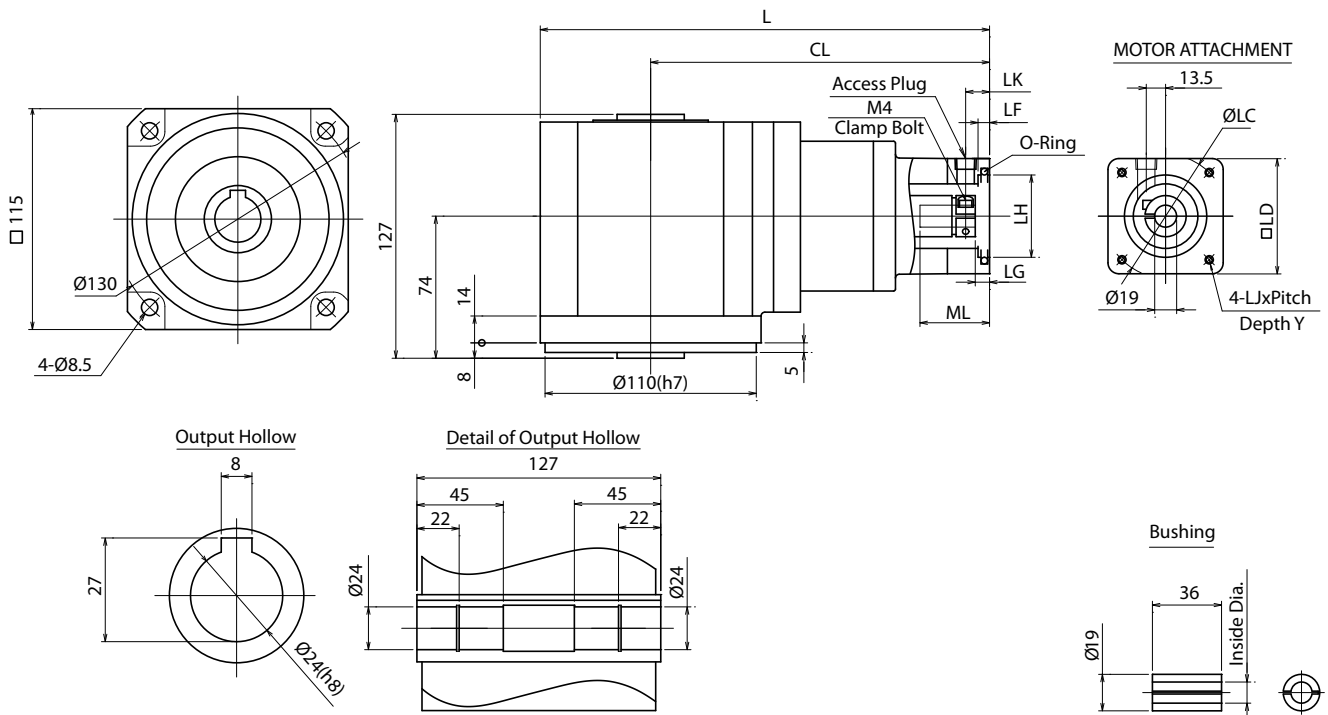
Adapter	Unit	Bolt Circle LC	Pilot LH	Square LD	Tapping Bolt LJ	Depth Y	Length		Plug LK	Flange Depth		
							L	CL		LF	LG	ML
D10	[mm]	63	40	60	M4x0.7	10	234	176.5	11	4	5	42
	[inch]	2.480	1.575	2.36	--	0.39	9.213	6.949	0.43	0.16	0.20	1.65
D11	[mm]	95	80	86	M6x1.0	16	234	176.5	11	4	5	42
	[inch]	3.740	3.150	3.39	--	0.63	9.213	6.949	0.43	0.16	0.20	1.65

NEV D-Frame (115 mm) 2-Stage Dimensions – Ratios: 5:1, 9:1, 15:1, 27:1

Solid Output Shaft Type



Hollow Output Shaft Type



Bushings

Bushing		1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911
Inside Diameter	[mm]	11	14	16	9.525	12.700	15.875	12	10	9	8	6.350
	[inch]	0.433	0.551	0.630	0.375	0.500	0.625	0.472	0.394	0.354	0.315	0.250

NEV D-Frame 3-Stage Specifications

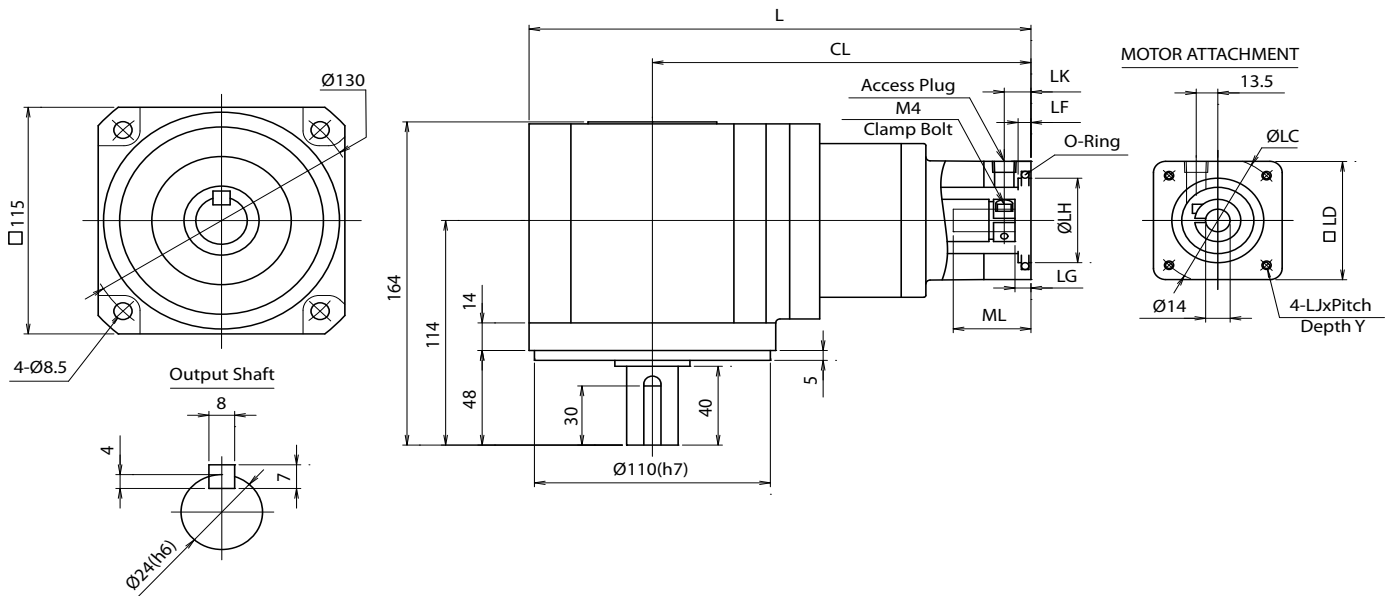
Frame Size	D (115 mm)				
Stage	3-Stage				
Ratio	Units	Note	45	75	105
Nominal Output Torque	[Nm]	--	45	50	50
Maximum Acceleration Torque	[Nm]	--	80	80	80
Emergency Stop Torque	[Nm]	--	180	180	180
Nominal Input Speed	[rpm]	--	3000		
Maximum Input Speed	[rpm]	--	6000		
No Load Running Torque	[Nm]	--	0.355		
Permitted Radial Load	[N]	--	2600	2600	2600
Permitted Axial Load	[N]	--	1300	1300	1300
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.806	0.694	0.648
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--
Efficiency	[%]	--	80		
Torsional Rigidity	[Nm/arc-min]	--	1.5		
Maximum Torsional Backlash	[arc-min]	--	≤ 30		
Noise Level	[dB]	--	≤ 67		
Protection Class	--	--	IP65		
Ambient Temperature	[°C]	--	0-40		
Permitted Housing Temperature	[°C]	--	90		
Weight (Solid Output Shaft)	[kg]	--	7.3		
Weight (Hollow Output Shaft)	[kg]	--	6.9		

NEV D-Frame, 3-Stage Dimensions, Solid / Hollow Output Shaft Type – Ratios: 45:1, 75:1, 105:1

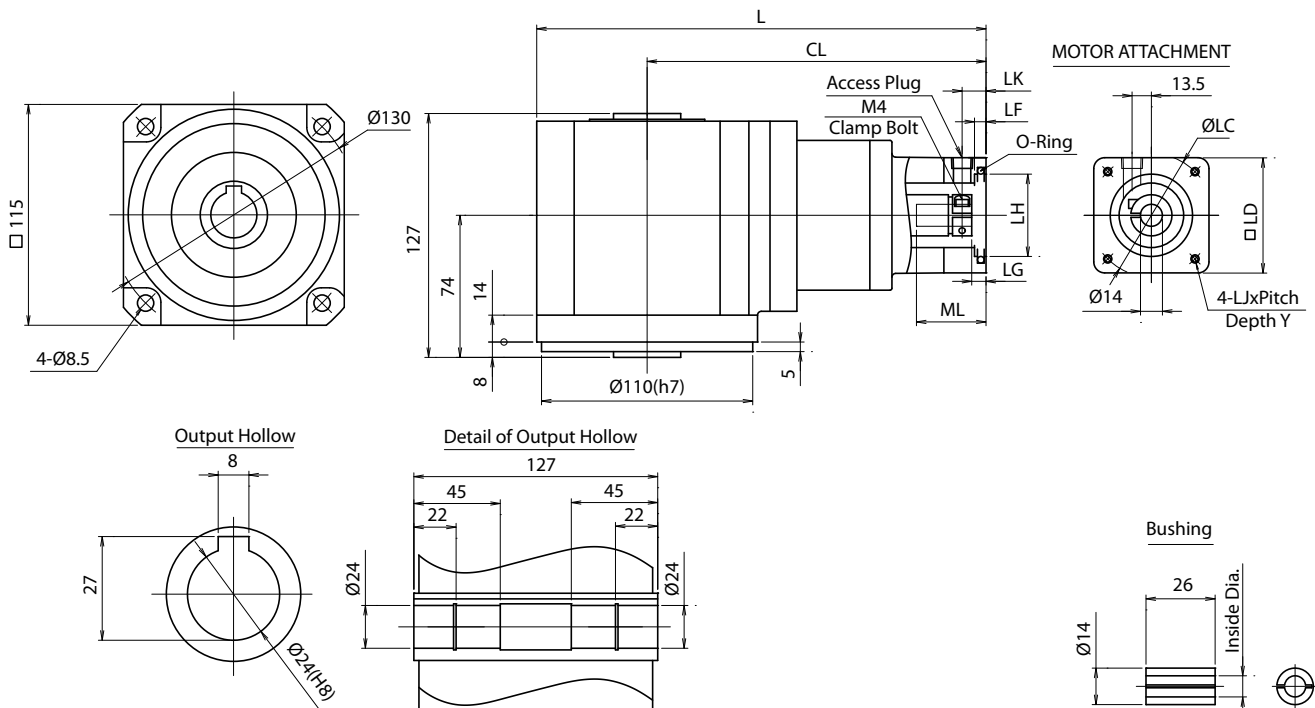
Adapter	Unit	Bolt Circle LC	Pilot LH	Square LD	Tapping Bolt LJ	Depth Y	Length		Plug LK	Flange Depth		
							L	CL		LF	LG	ML
D10	[mm]	63	40	60	M4x0.7	10	236.5	179	11	4	6	33
	[inch]	2.480	1.575	2.36	--	0.39	9.311	7.047	0.43	0.16	0.24	1.30
D11	[mm]	95	80	86	M6x1.0	16	236.5	179	11	4	6	33
	[inch]	3.740	3.150	3.39	--	0.63	9.311	7.047	0.43	0.16	0.24	1.30

NEV D-Frame (115 mm) 3-Stage Dimensions – Ratios: 45:1, 75:1, 105:1

Solid Output Shaft Type



Hollow Output Shaft Type



Bushings

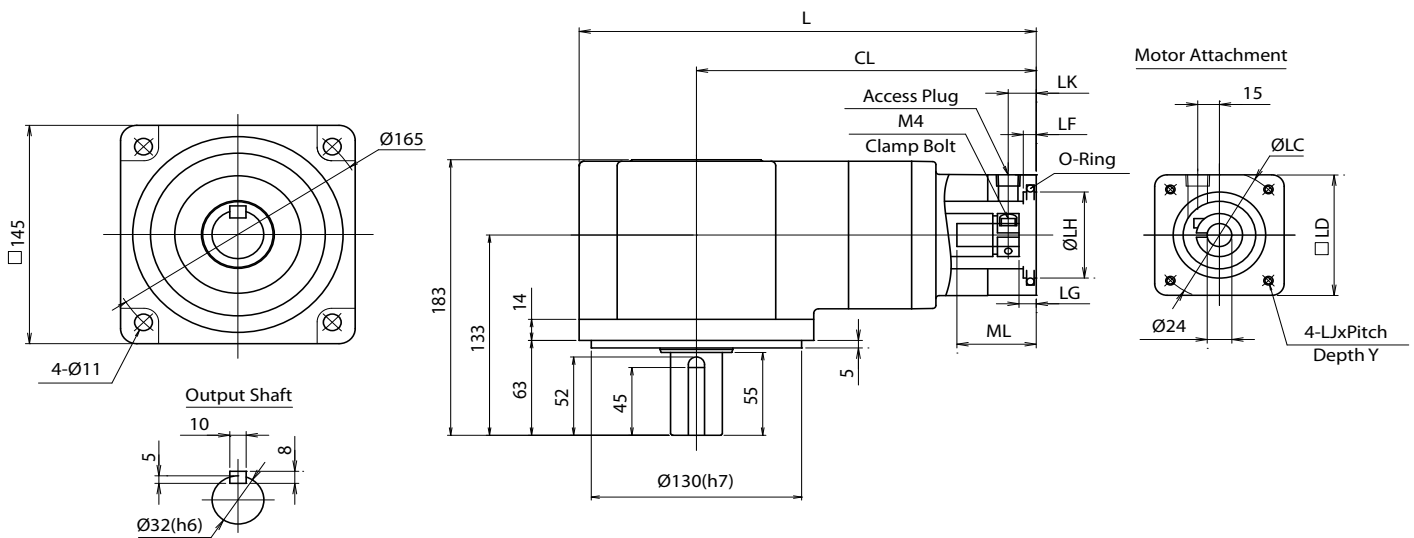
Bushing		1401	1402	1403	1404	1405	1406	1407	1408	1409	1410
Inside Diameter	[mm]	6	8	11	6.350	9.525	12.700	12	10	9	5
	[inch]	0.236	0.315	0.433	0.250	0.375	0.500	0.472	0.394	0.354	0.197

NEV E-Frame 2-Stage Specifications

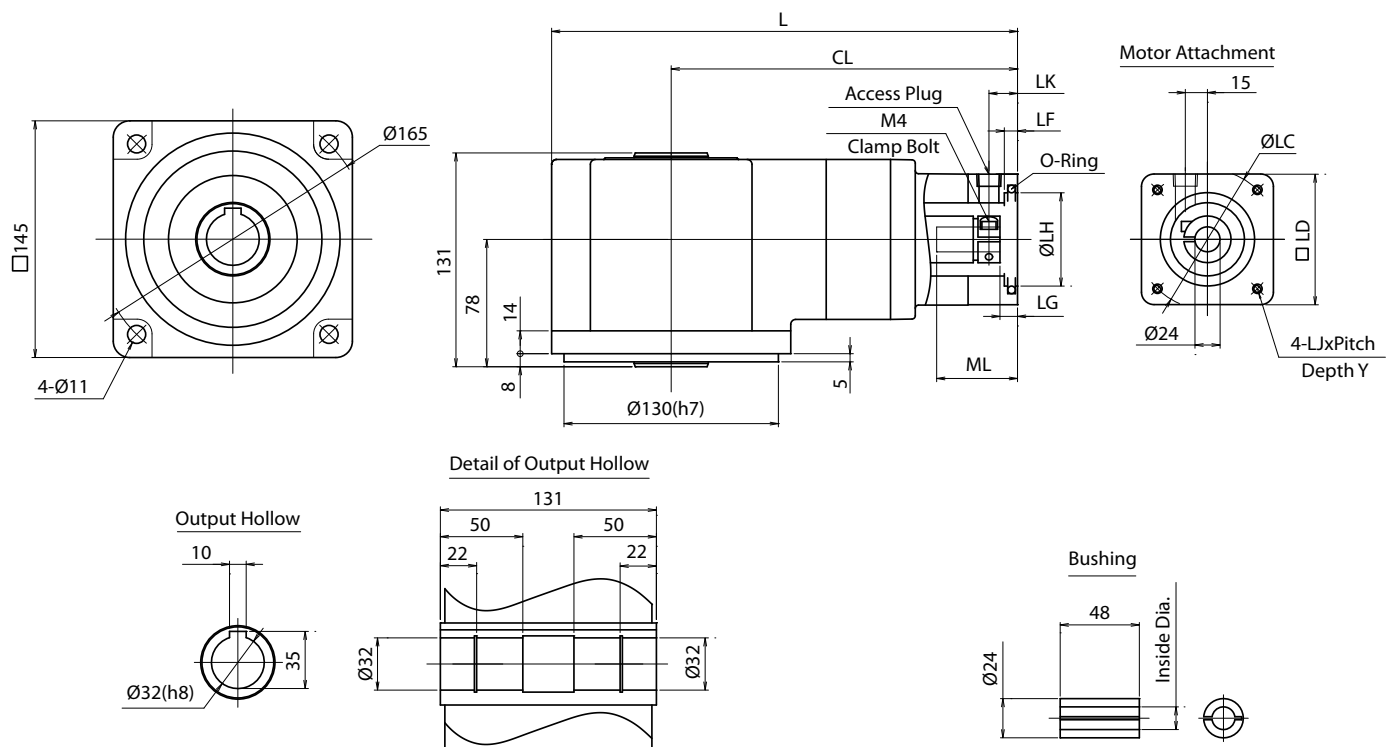
Frame Size	E (145 mm)					
Stage	2-Stage					
Ratio	Units	Note	5	9	15	27
Nominal Output Torque	[Nm]	--	50	50	55	60
Maximum Acceleration Torque	[Nm]	--	100	140	140	180
Emergency Stop Torque	[Nm]	--	250	250	250	300
Nominal Input Speed	[rpm]	--	3000			
Maximum Input Speed	[rpm]	--	6000			
No Load Running Torque	[Nm]	--	1.21			
Permitted Radial Load	[N]	--	3000	3000	3000	4000
Permitted Axial Load	[N]	--	1500	1500	1500	2000
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 24$)	[kgcm ²]	--	3.559	2.940	1.193	2.044
Efficiency	[%]	--	85			
Torsional Rigidity	[Nm/arc-min]	--	3.2	4.0	4.0	4.0
Maximum Torsional Backlash	[arc-min]	--	≤ 30			
Noise Level	[dB]	--	≤ 74			
Protection Class	--	--	IP65			
Ambient Temperature	[°C]	--	0-40			
Permitted Housing Temperature	[°C]	--	90			
Weight (Solid Output Shaft)	[kg]	--	11.0			
Weight (Hollow Output Shaft)	[kg]	--	10.0			

NEV E-Frame (145 mm) 2-Stage Dimensions – Ratios: 5:1, 9:1, 15:1, 27:1

Solid Output Shaft Type



Hollow Output Shaft Type



Bushings

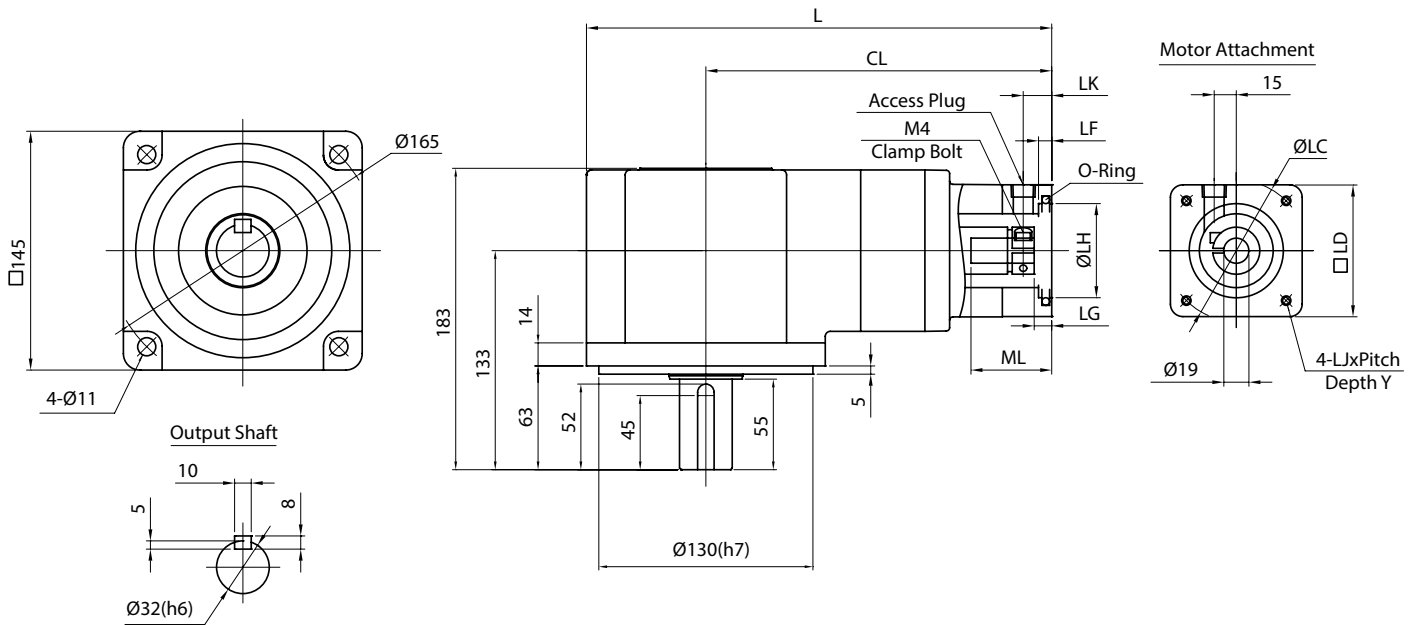
Bushing	2401	2402	2403	2404	2405	2406	2407	2408	
Inside Diameter	[mm]	14	16	19	12.700	15.875	22	19.050	11
	[inch]	0.551	0.630	0.748	0.500	0.625	0.866	0.750	0.433

NEV E-Frame 3-Stage Specifications

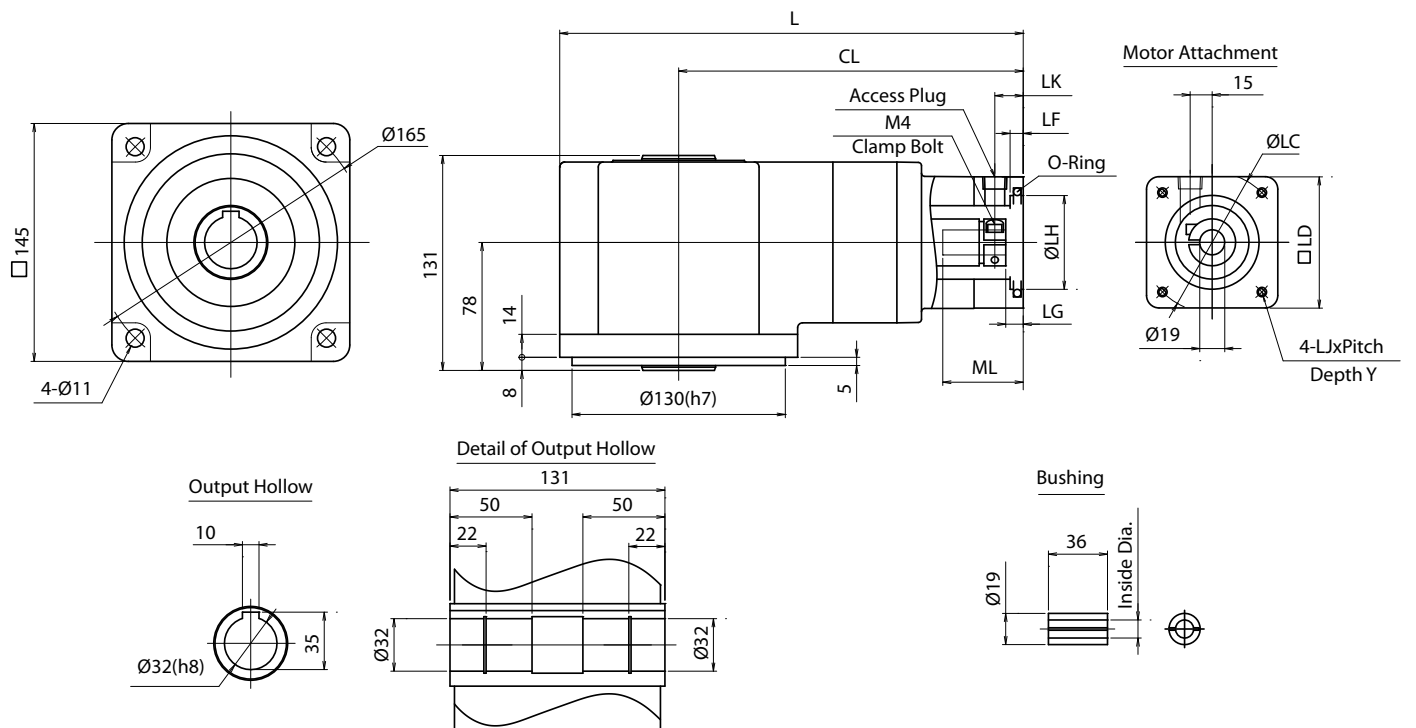
Frame Size	E (145 mm)				
Stage	3-Stage				
Ratio	Units	Note	45	75	105
Nominal Output Torque	[Nm]	--	80	90	90
Maximum Acceleration Torque	[Nm]	--	180	180	180
Emergency Stop Torque	[Nm]	--	300	300	300
Nominal Input Speed	[rpm]	--	3000		
Maximum Input Speed	[rpm]	--	6000		
No Load Running Torque	[Nm]	--	0.961		
Permitted Radial Load	[N]	--	4000	4000	4000
Permitted Axial Load	[N]	--	2000	2000	2000
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	1.878	1.303	1.184
Moment of Inertia ($\leq \varnothing 24$)	[kgcm ²]	--	--	--	--
Efficiency	[%]	--	80		
Torsional Rigidity	[Nm/arc-min]	--	4.0		
Maximum Torsional Backlash	[arc-min]	--	≤ 30		
Noise Level	[dB]	--	≤ 69		
Protection Class	--	--	IP65		
Ambient Temperature	[°C]	--	0-40		
Permitted Housing Temperature	[°C]	--	90		
Weight (Solid Output Shaft)	[kg]	--	11.4		
Weight (Hollow Output Shaft)	[kg]	--	10.4		

NEV E-Frame (145 mm) 3-Stage Dimensions – Ratios: 45:1, 75:1, 105:1

Solid Output Shaft Type



Hollow Output Shaft Type



Bushings

Bushing		1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911
Inside Diameter	[mm]	11	14	16	9.525	12.700	15.875	12	10	9	8	6.350
	[inch]	0.433	0.551	0.630	0.375	0.500	0.625	0.472	0.394	0.354	0.315	0.250

EVL SERIES

A detailed close-up photograph of a precision-machined metal shaft and bearing assembly. The shaft is polished and passes through a bearing housing. The housing has a flange with several screws. The background is a soft, out-of-focus grey.

EVL series

EVL planetary gearbox with right angle

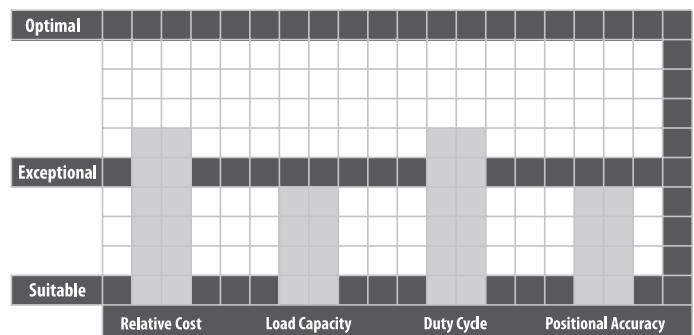
Reliability, complete product range

Description

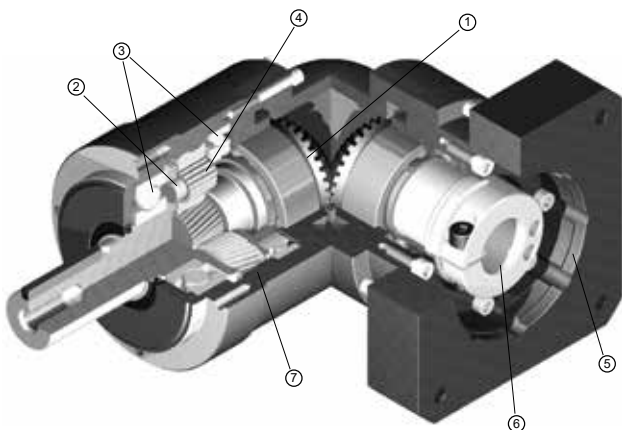
The right angle equivalent to the VRL series, the EVL provides our customers with an excellent solution when space and clearance are a serious limitation. Helical planetary gears team up with spiral bevel gears to provide a product with robust internal construction, smooth operation and high torque density. 6 arc-min backlash allows the VRL to be applied to a wide range of applications where accuracy and dynamics are in play, but cost is of concern.

The EVL is a solid choice for servo applications in packaging, handling and automation systems. A variety of standard wash down and food grade options are available, making it an attractive option for the toughest environments. We offer the broadest selection of frame sizes and ratios, giving our customers more flexibility than ever before. Industry standard mounting dimensions allow the EVL to be implemented in legacy machine designs, saving our customers valuable time.

- Compact, space-saving solution for mid to high end motion control applications
- The widest range of frame sizes and ratios available in the market
- Best-In-class backlash (≤ 6 arc-min)
- Broad range of mounting adapters offer a simple, precise attachment to any motor
- Maintenance-free solution that is lubricated for life. High performance grease allows flexible mounting in any orientation
- Industry standard mounting dimensions



Features



- 1 Right angle bevel gear configuration allows motor to be mounted at a 90 degree position from the gearbox, saving space
- 2 Carburized helical gears with proprietary secondary finishing process for higher accuracy and smooth, quiet operation. 40% higher tooth surface area than the industry standard
- 3 One piece output shaft and planet carrier with two bearings straddling the planet gears. Higher stiffness, torque capacity and safety factor, with guaranteed alignment of gearing
- 4 Uncaged needle roller bearings provide excellent torque density and torsional rigidity. 43% larger bearing surface area compared to the rest of the industry
- 5 Optimized mounting system with active centering on motor pilot diameter guarantees alignment of motor. Motor can be installed in any orientation
- 6 True concentric motor shaft clamping connection, optimized for your specific motor. Reduced inertia for dynamic performance and balanced for high speed operation
- 7 Ring gear machined directly into the housing, not welded or pressed in. Provides greater concentricity and elimination of speed fluctuation

Part Number	EVL -090 B -7 -K 6 -19HB16						
Model name - EVL series						Motor mounting code (*)	
Size: 070, 090, 120, 155, 205, 235						Backlash: 070, 090, 120, 155: 6-9 arc-min 205, 235: 8-11 arc-min	
Design version						Output mounting style: K: Keyed shaft - S: Smooth shaft	
						Ratio: 2-Stage: 3, 4, 5, 6, 7, 8, 9, 10 3-Stage: 15, 16, 20, 25, 28, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100	

*1) Motor mounting code varies depending on the motor. Use the selection tool link below to configure the code.

EVL 070 2-Stage Specifications

Frame Size	070										
Stage	2-Stage										
Ratio	Unit	Note	3	4	5	6	7	8	9	10	
Nominal Output Torque	[Nm]	*1	12	16	22	24	24	24	19	19	
Maximum Acceleration Torque	[Nm]	*2	29	38	48	54	54	54	38	38	
Maximum Torque	[Nm]	*3	33	45	56	63	63	61	45	45	
Emergency Stop Torque	[Nm]	*4	50	65	80	90	90	90	65	65	
Nominal Input Speed	[rpm]	*5	3300								
Maximum Input Speed	[rpm]	*6	6000								
No Load Running Torque	[Nm]	*7	0.33								
Maximum Radial Load	[N]	*8	1200								
Maximum Axial Load	[N]	*9	1100								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.31	0.27	0.25	0.24	0.23	0.23	0.23	0.23	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.39	0.34	0.32	0.31	0.31	0.31	0.30	0.30	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.58	0.53	0.51	0.50	0.50	0.50	0.49	0.49	
Efficiency	[%]	*10	93								
Torsional Rigidity	[Nm/arc-min]	*11	3								
Maximum Torsional Backlash	[arc-min]	--	≤ 6								
Noise Level	dB [A]	*12	≤ 80								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	1.9								

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_v , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

*14) Weight may vary slightly between models.

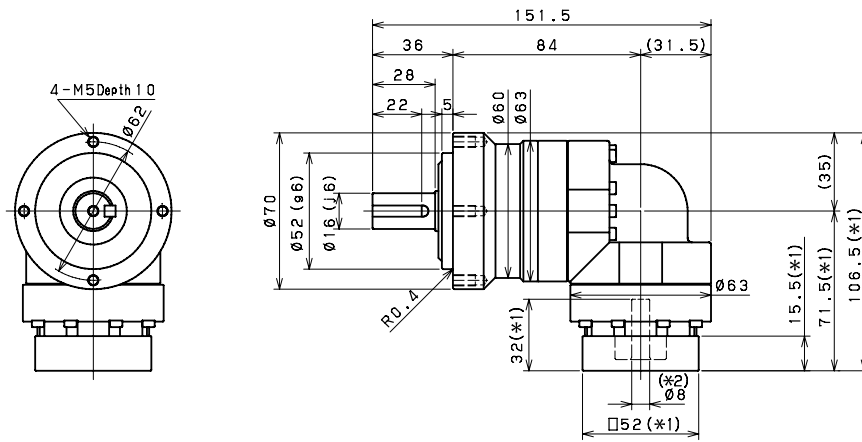
EVL 070 3-Stage Specifications

Frame Size	070										
Stage	3-Stage										
Ratio	Unit	Note	15	16	20	25	28	30	35	40	
Nominal Output Torque	[Nm]	*1	18	26	26	28	28	19	28	28	
Maximum Acceleration Torque	[Nm]	*2	38	54	54	54	54	38	54	54	
Maximum Torque	[Nm]	*3	38	54	54	54	54	38	54	54	
Emergency Stop Torque	[Nm]	*4	65	90	90	90	90	65	90	90	
Nominal Input Speed	[rpm]	*5	3800								
Maximum Input Speed	[rpm]	*6	6000								
No Load Running Torque	[Nm]	*7	0.20								
Maximum Radial Load	[N]	*8	1200								
Maximum Axial Load	[N]	*9	1100								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.073	0.079	0.071	0.071	0.077	0.062	0.070	0.061	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.118	0.124	0.116	0.115	0.122	0.106	0.115	0.106	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88								
Torsional Rigidity	[Nm/arc-min]	*11	3								
Maximum Torsional Backlash	[arc-min]	--	≤ 9								
Noise Level	dB [A]	*12	≤ 80								
Protection Class	--	*13	IP65								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	1.7								

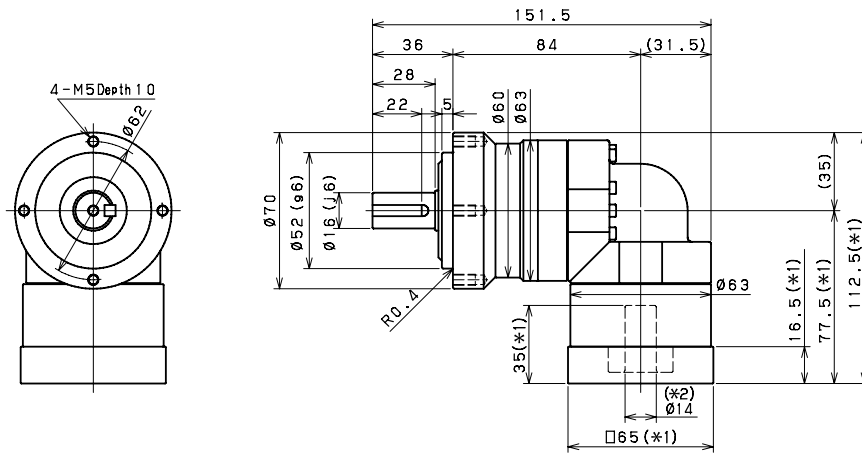
Frame Size	070										
Stage	3-Stage										
Ratio	Unit	Note	45	50	60	70	80	90	100		
Nominal Output Torque	[Nm]	*1	19	28	28	28	28	19	19		
Maximum Acceleration Torque	[Nm]	*2	38	54	54	54	54	38	38		
Maximum Torque	[Nm]	*3	38	54	54	54	54	38	38		
Emergency Stop Torque	[Nm]	*4	65	90	90	90	90	65	65		
Nominal Input Speed	[rpm]	*5	3800								
Maximum Input Speed	[rpm]	*6	6000								
No Load Running Torque	[Nm]	*7	0.20								
Maximum Radial Load	[N]	*8	1200								
Maximum Axial Load	[N]	*9	1100								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.070	0.061	0.061	0.061	0.061	0.061	0.061		
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.115	0.106	0.106	0.105	0.105	0.105	0.105		
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--		
Efficiency	[%]	*10	88								
Torsional Rigidity	[Nm/arc-min]	*11	3								
Maximum Torsional Backlash	[arc-min]	--	≤ 9								
Noise Level	dB [A]	*12	≤ 80								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	1.7								

EVL 070 2-Stage Dimensions

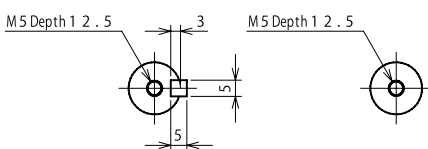
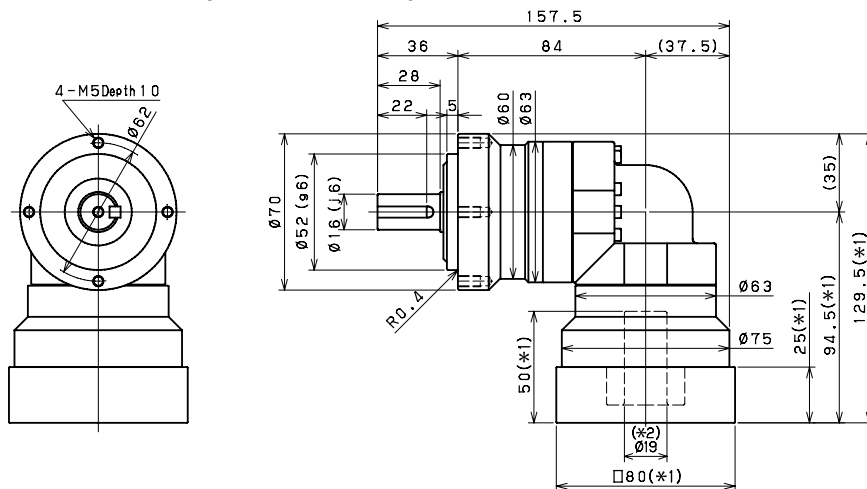
Input bore size $\leq \phi 8$ mm



Input bore size $\leq \phi 14$ mm



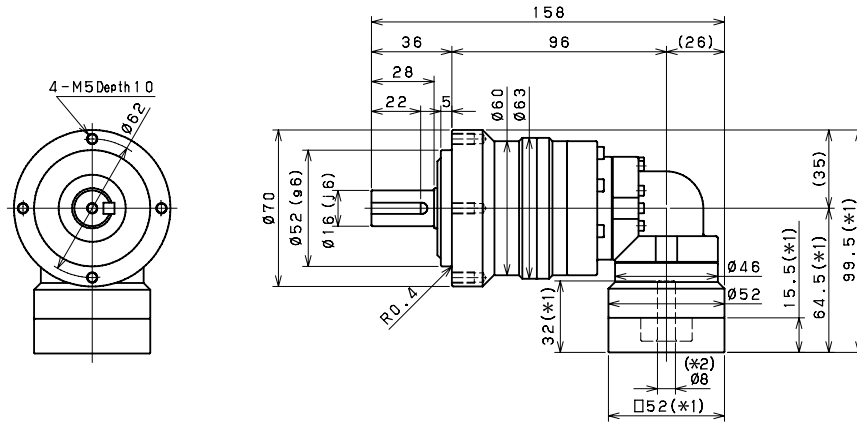
Input bore size $\leq \phi 19$ mm



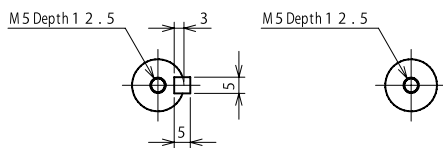
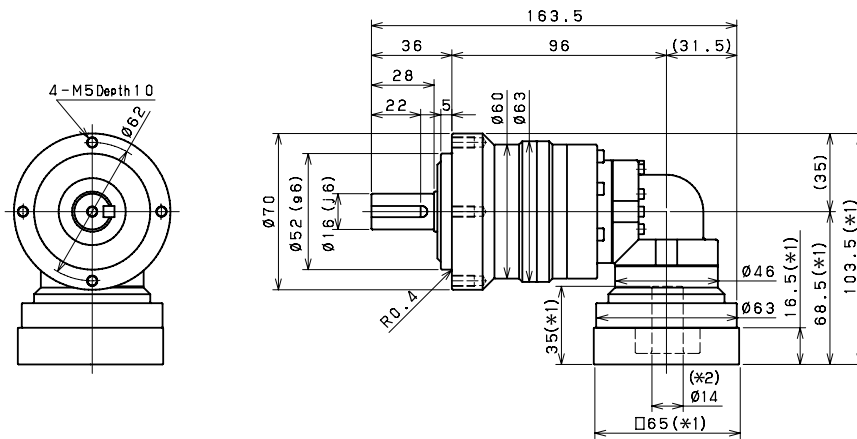
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVL 070 3-Stage Dimensions

Input bore size $\leq \varnothing 8$ mm



Input bore size $\leq \varnothing 14$ mm



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVL 090 2-Stage Specifications

Frame Size	090									
Stage	2-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	46	61	67	67	67	74	51	51
Maximum Acceleration Torque	[Nm]	*2	77	105	105	105	105	105	78	78
Maximum Torque	[Nm]	*3	90	121	121	119	119	117	93	93
Emergency Stop Torque	[Nm]	*4	130	170	220	220	220	220	170	170
Nominal Input Speed	[rpm]	*5	3000							
Maximum Input Speed	[rpm]	*6	6000							
No Load Running Torque	[Nm]	*7	1.13							
Maximum Radial Load	[N]	*8	2400							
Maximum Axial Load	[N]	*9	2200							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	2.12	1.89	1.80	1.76	1.73	1.71	1.70	1.69
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.45	2.22	2.13	2.09	2.06	2.04	2.03	2.02
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.57	4.35	4.26	4.21	4.18	4.17	4.16	4.15
Efficiency	[%]	*10	93							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 6							
Noise Level	dB [A]	*12	≤ 80							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	4.9							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

*14) Weight may vary slightly between models.

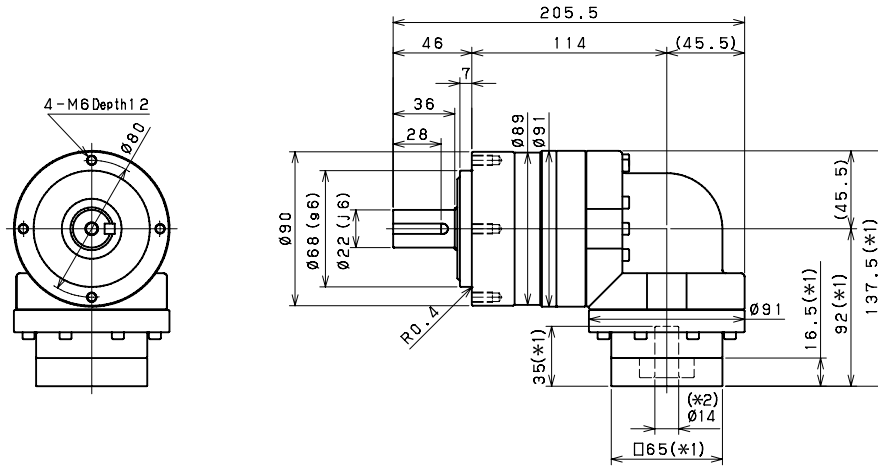
EVL 090 3-Stage Specifications

Frame Size	090									
Stage	3-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	43	66	68	72	78	47	73	78
Maximum Acceleration Torque	[Nm]	*2	77	128	128	128	128	77	128	128
Maximum Torque	[Nm]	*3	77	128	128	128	128	77	128	128
Emergency Stop Torque	[Nm]	*4	170	220	220	220	220	170	220	220
Nominal Input Speed	[rpm]	*5	3300							
Maximum Input Speed	[rpm]	*6	6000							
No Load Running Torque	[Nm]	*7	0.55							
Maximum Radial Load	[N]	*8	2400							
Maximum Axial Load	[N]	*9	2200							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.34	0.38	0.33	0.32	0.37	0.25	0.32	0.25
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.41	0.46	0.40	0.40	0.45	0.33	0.40	0.32
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.60	0.65	0.59	0.59	0.64	0.51	0.59	0.51
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 9							
Noise Level	dB [A]	*12	≤ 80							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	4.3							

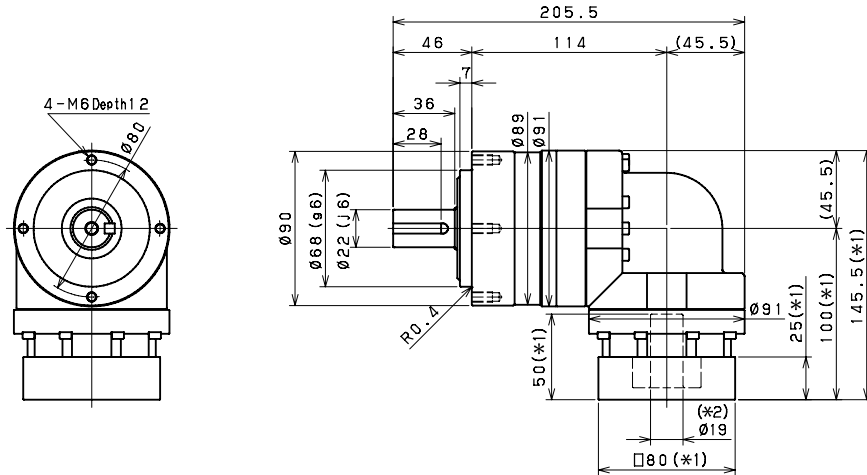
Frame Size	090									
Stage	3-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	47	73	73	73	78	52	52	
Maximum Acceleration Torque	[Nm]	*2	78	128	128	128	128	78	78	
Maximum Torque	[Nm]	*3	78	128	128	128	128	78	78	
Emergency Stop Torque	[Nm]	*4	170	220	220	220	220	170	170	
Nominal Input Speed	[rpm]	*5	3300							
Maximum Input Speed	[rpm]	*6	6000							
No Load Running Torque	[Nm]	*7	0.55							
Maximum Radial Load	[N]	*8	2400							
Maximum Axial Load	[N]	*9	2200							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.32	0.25	0.25	0.25	0.25	0.25	0.25	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.39	0.32	0.32	0.32	0.32	0.32	0.32	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.58	0.51	0.51	0.51	0.51	0.51	0.51	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 9							
Noise Level	dB [A]	*12	≤ 80							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	4.3							

EVL 090 2-Stage Dimensions

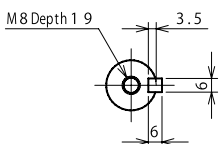
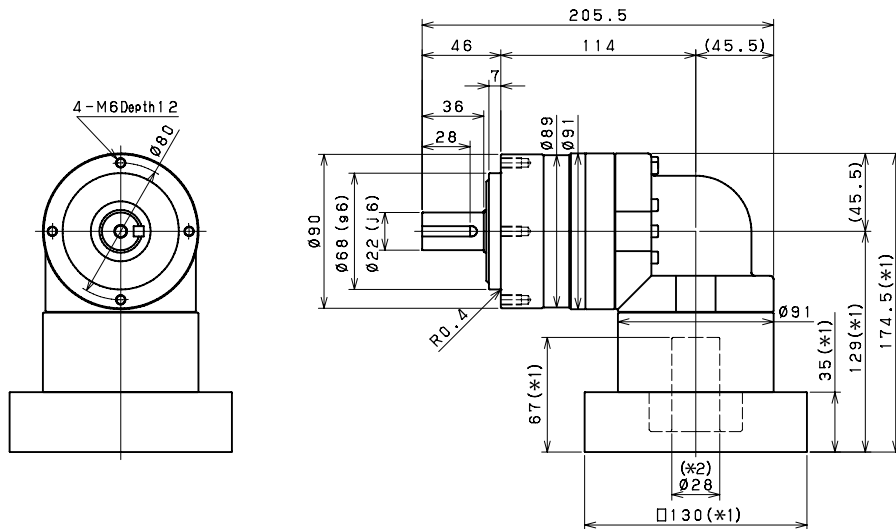
Input bore size $\leq \phi 14$ mm



Input bore size $\leq \phi 19$ mm



Input bore size $\leq \phi 28$ mm



Keyed shaft

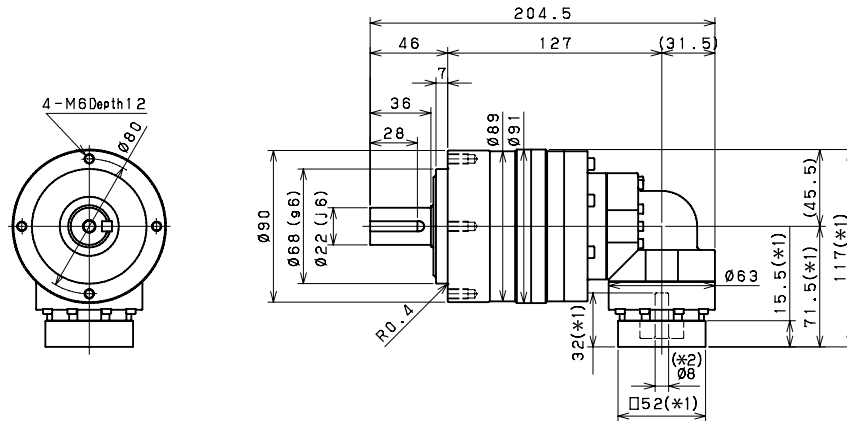
Smooth shaft

*1) Length will vary depending on motor.

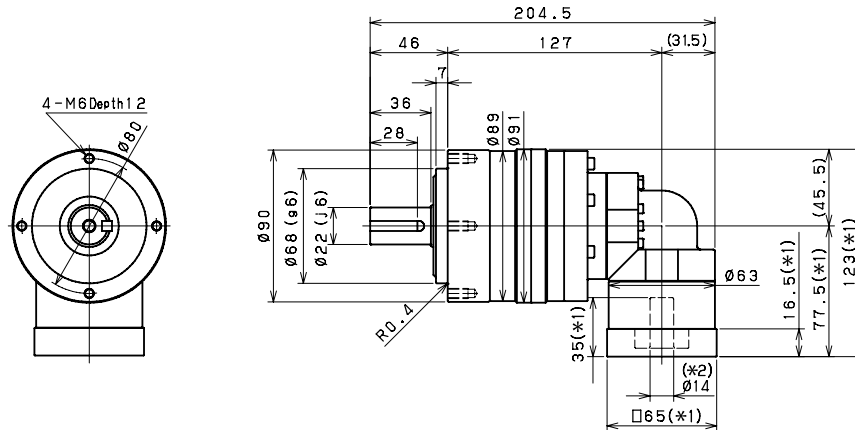
*2) Bushing will be inserted to adapt to motor shaft

EVL 090 3-Stage Dimensions

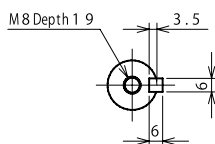
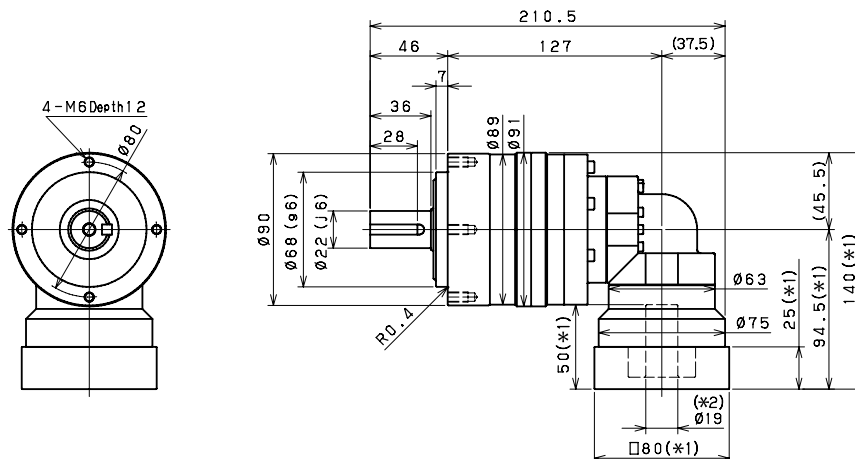
Input bore size $\leq \varnothing 8$ mm



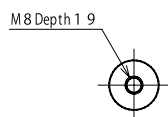
Input bore size $\leq \varnothing 14$ mm



Input bore size $\leq \varnothing 19$ mm



Keyed shaft



Smooth shaft

*1) Length will vary depending on motor.

*2) Bushing will be inserted to adapt to motor shaft

EVL 120 2-Stage Specifications

Frame Size	120										
Stage	2-Stage										
Ratio	Unit	Note	3	4	5	6	7	8	9	10	
Nominal Output Torque	[Nm]	*1	77	108	123	154	154	154	128	128	
Maximum Acceleration Torque	[Nm]	*2	172	227	272	340	340	340	240	240	
Maximum Torque	[Nm]	*3	205	271	325	401	401	401	288	288	
Emergency Stop Torque	[Nm]	*4	320	430	500	550	550	550	450	450	
Nominal Input Speed	[rpm]	*5	3000								
Maximum Input Speed	[rpm]	*6	6000								
No Load Running Torque	[Nm]	*7	1.88								
Maximum Radial Load	[N]	*8	4300								
Maximum Axial Load	[N]	*9	3900								
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--	--	--	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	6.74	5.49	5.02	4.77	4.65	4.55	4.49	4.46	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	8.34	7.08	6.61	6.36	6.24	6.14	6.08	6.05	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	15.41	14.15	13.69	13.43	13.31	13.22	13.16	13.12	
Efficiency	[%]	*10	93								
Torsional Rigidity	[Nm/arc-min]	*11	31								
Maximum Torsional Backlash	[arc-min]	--	≤ 6								
Noise Level	dB [A]	*12	≤ 85								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	10.2								

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

*14) Weight may vary slightly between models.

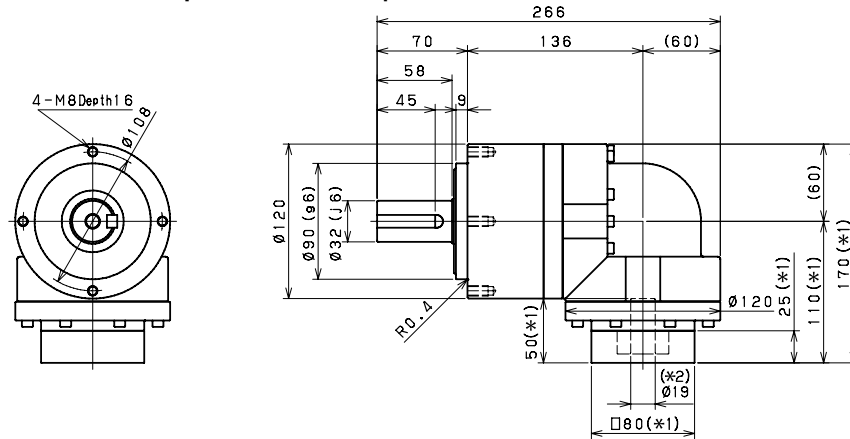
EVL 120 3-Stage Specifications

Frame Size	120									
Stage	3-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	125	136	162	174	174	132	174	172
Maximum Acceleration Torque	[Nm]	*2	229	295	340	340	340	229	340	340
Maximum Torque	[Nm]	*3	229	295	340	340	340	229	340	340
Emergency Stop Torque	[Nm]	*4	450	550	550	550	550	450	550	550
Nominal Input Speed	[rpm]	*5	3100							
Maximum Input Speed	[rpm]	*6	6000							
No Load Running Torque	[Nm]	*7	1.11							
Maximum Radial Load	[N]	*8	4300							
Maximum Axial Load	[N]	*9	3900							
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	2.25	2.46	2.20	2.18	2.40	1.87	2.16	1.86
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.58	2.79	2.53	2.51	2.73	2.20	2.49	2.19
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.70	4.91	4.65	4.64	4.86	4.33	4.62	4.32
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	31							
Maximum Torsional Backlash	[arc-min]	--	≤ 9							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	10							

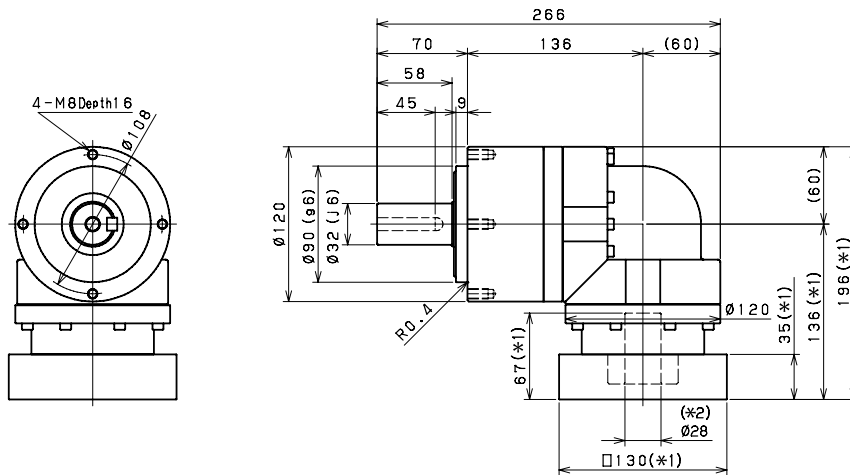
Frame Size	120									
Stage	3-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	132	174	174	174	174	132	132	
Maximum Acceleration Torque	[Nm]	*2	240	340	340	340	340	240	240	
Maximum Torque	[Nm]	*3	240	340	340	340	340	240	240	
Emergency Stop Torque	[Nm]	*4	450	550	550	550	550	450	450	
Nominal Input Speed	[rpm]	*5	3100							
Maximum Input Speed	[rpm]	*6	6000							
No Load Running Torque	[Nm]	*7	1.11							
Maximum Radial Load	[N]	*8	4300							
Maximum Axial Load	[N]	*9	3900							
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	2.15	1.86	1.85	1.85	1.85	1.85	1.85	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.48	2.19	2.18	2.18	2.18	2.18	2.18	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.61	4.31	4.31	4.31	4.31	4.31	4.31	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--	----	--	--	
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	31							
Maximum Torsional Backlash	[arc-min]	--	≤ 9							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	10							

EVL 120 2-Stage Dimensions

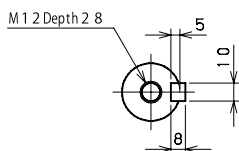
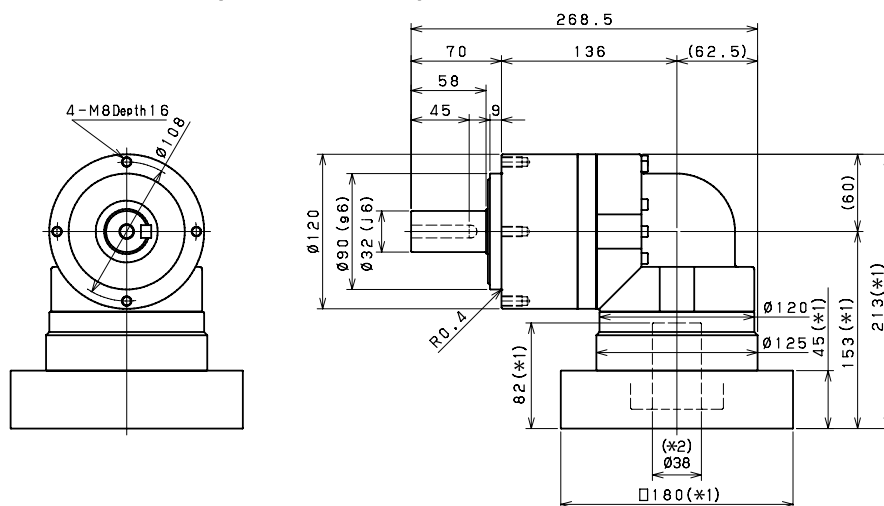
Input bore size $\leq \varnothing 19$ mm



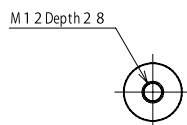
Input bore size $\leq \varnothing 28$ mm



Input bore size $\leq \varnothing 38$ mm



Keyed shaft

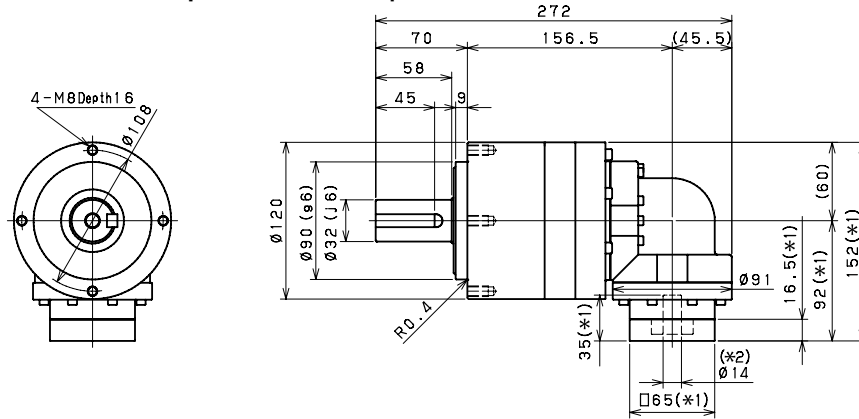


Smooth shaft

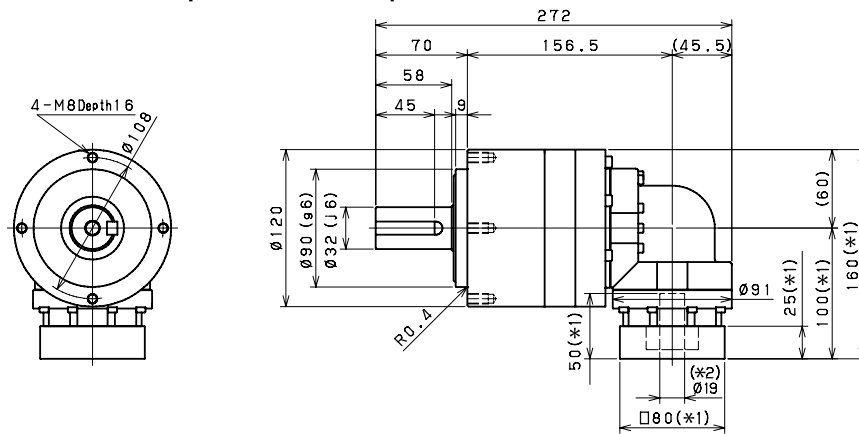
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVL 120 3-Stage Dimensions

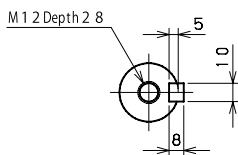
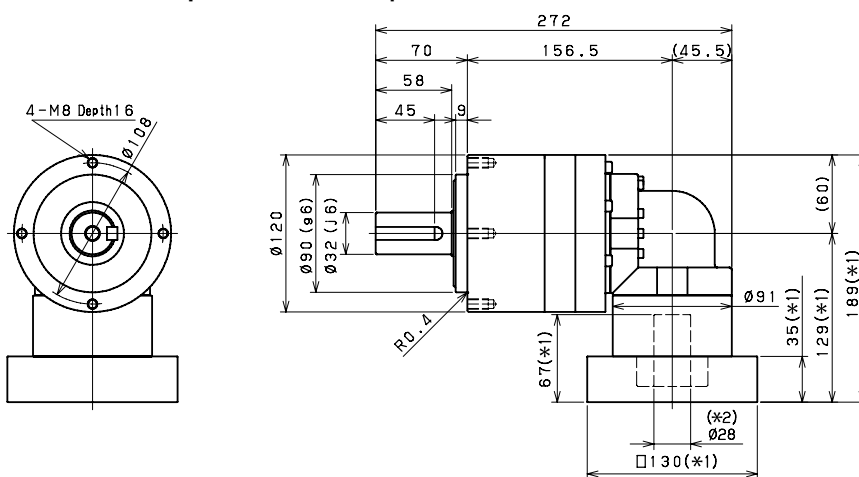
Input bore size $\leq \phi 14$ mm



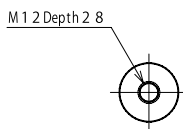
Input bore size $\leq \phi 19$ mm



Input bore size $\leq \phi 28$ mm



Keyed shaft



Smooth shaft

- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVL 155 2-Stage Specifications

Frame Size	155									
Stage	2-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	132	181	205	266	307	307	233	233
Maximum Acceleration Torque	[Nm]	*2	296	389	458	595	687	687	480	480
Maximum Torque	[Nm]	*3	329	452	531	664	766	766	559	559
Emergency Stop Torque	[Nm]	*4	700	950	1100	1100	1100	1100	750	750
Nominal Input Speed	[rpm]	*5	2000							
Maximum Input Speed	[rpm]	*6	5000							
No Load Running Torque	[Nm]	*7	3.26							
Maximum Radial Load	[N]	*8	9100							
Maximum Axial Load	[N]	*9	8200							
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	23.13	18.57	16.91	16.01	15.58	15.23	14.77	14.66
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	27.50	22.94	21.28	20.38	19.95	19.61	19.41	19.03
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	40.73	36.17	34.51	33.61	33.18	32.84	32.37	32.26
Efficiency	[%]	*10	93							
Torsional Rigidity	[Nm/arc-min]	*11	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 6							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	19.8							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

*14) Weight may vary slightly between models.

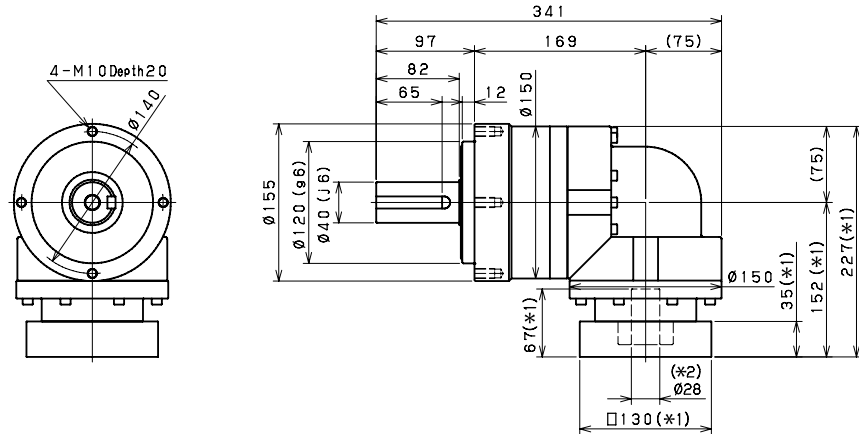
EVL 155 3-Stage Specifications

Frame Size	155									
Stage	3-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	230	307	316	352	352	240	352	337
Maximum Acceleration Torque	[Nm]	*2	456	687	687	687	687	456	687	687
Maximum Torque	[Nm]	*3	456	687	687	687	687	456	687	687
Emergency Stop Torque	[Nm]	*4	750	1100	1100	1100	1100	750	1100	1100
Nominal Input Speed	[rpm]	*5	2300							
Maximum Input Speed	[rpm]	*6	5000							
No Load Running Torque	[Nm]	*7	2.56							
Maximum Radial Load	[N]	*8	9100							
Maximum Axial Load	[N]	*9	8200							
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	6.40	7.29	6.22	6.15	7.09	4.99	6.09	4.95
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	8.00	8.88	7.81	7.75	8.68	6.58	7.69	6.54
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	15.07	15.96	14.89	14.82	15.76	13.66	14.76	13.61
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 9							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	20.4							

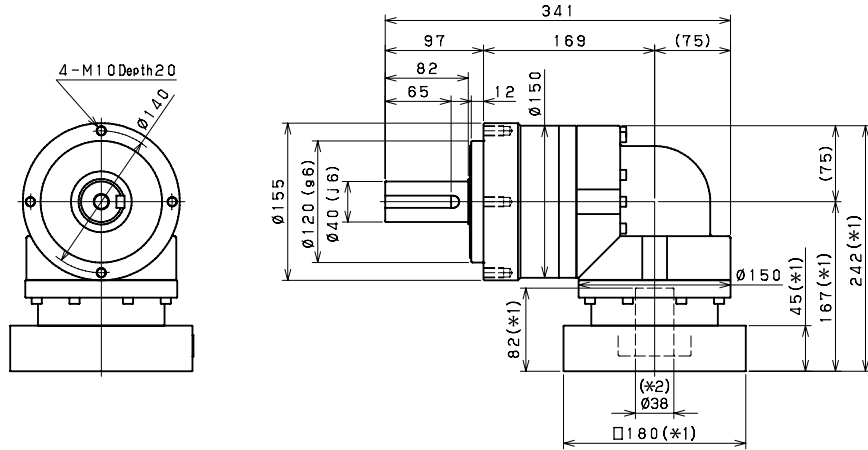
Frame Size	155									
Stage	3-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	240	352	352	352	352	240	240	
Maximum Acceleration Torque	[Nm]	*2	480	687	687	687	687	480	480	
Maximum Torque	[Nm]	*3	480	687	687	687	687	480	480	
Emergency Stop Torque	[Nm]	*4	750	1100	1100	1100	1100	750	750	
Nominal Input Speed	[rpm]	*5	2300							
Maximum Input Speed	[rpm]	*6	5000							
No Load Running Torque	[Nm]	*7	2.56							
Maximum Radial Load	[N]	*8	9100							
Maximum Axial Load	[N]	*9	8200							
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	6.07	4.93	4.92	4.91	4.91	4.91	4.91	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	7.66	6.52	6.51	6.51	6.50	6.50	6.50	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	14.74	13.59	13.59	13.58	13.58	13.57	13.57	
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 9							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	20.4							

EVL 155 2-Stage Dimensions

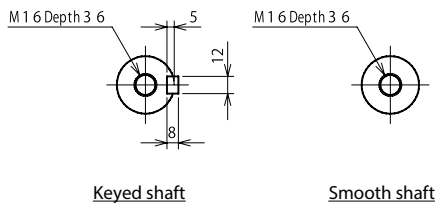
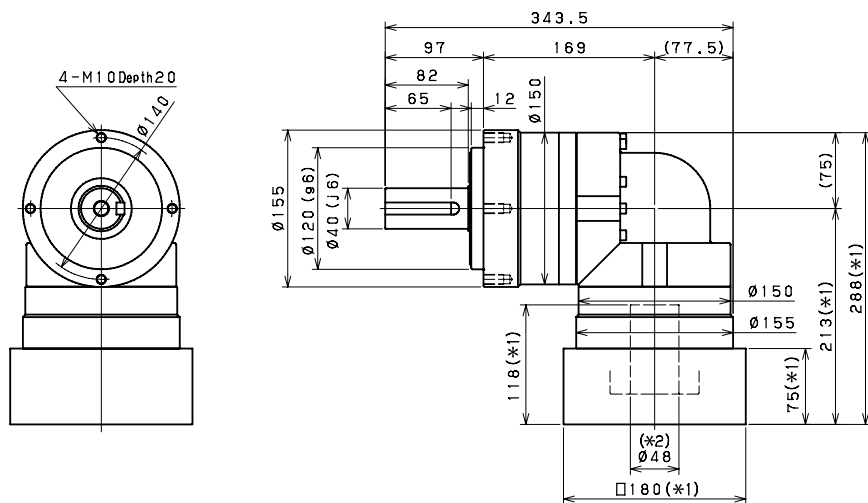
Input bore size $\leq \varnothing 28$ mm



Input bore size $\leq \varnothing 38$ mm



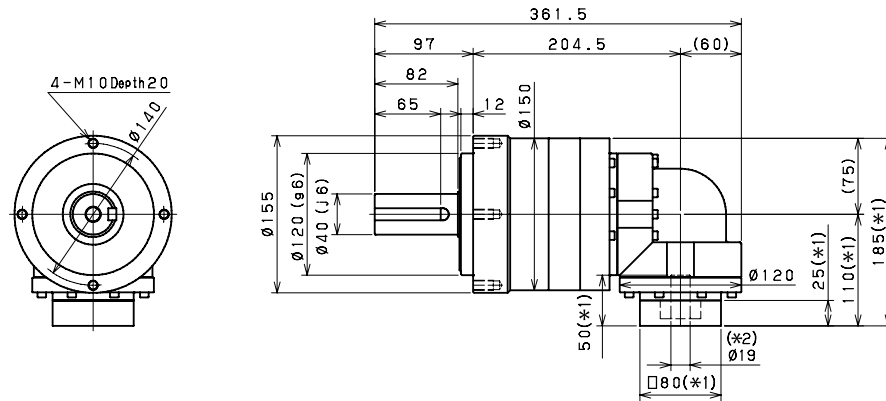
Input bore size $\leq \varnothing 48$ mm



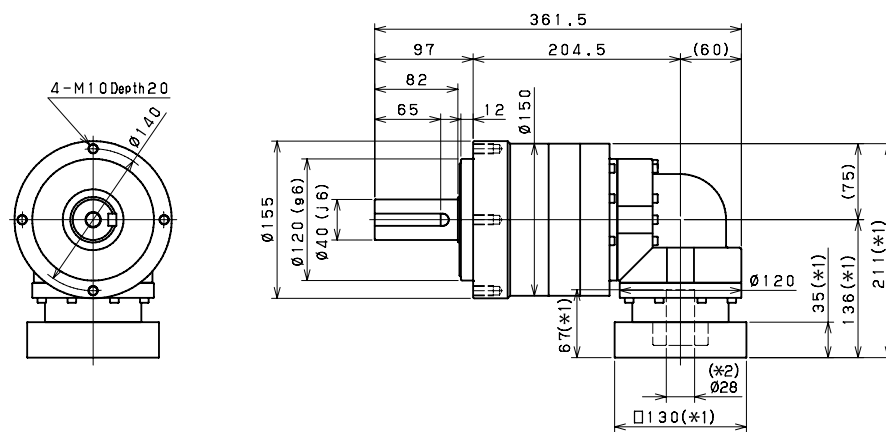
- *1) Length will vary depending on motor.
- *2) Bushing will be inserted to adapt to motor shaft

EVL 155 3-Stage Dimensions

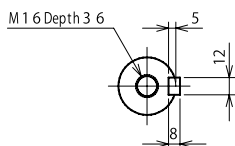
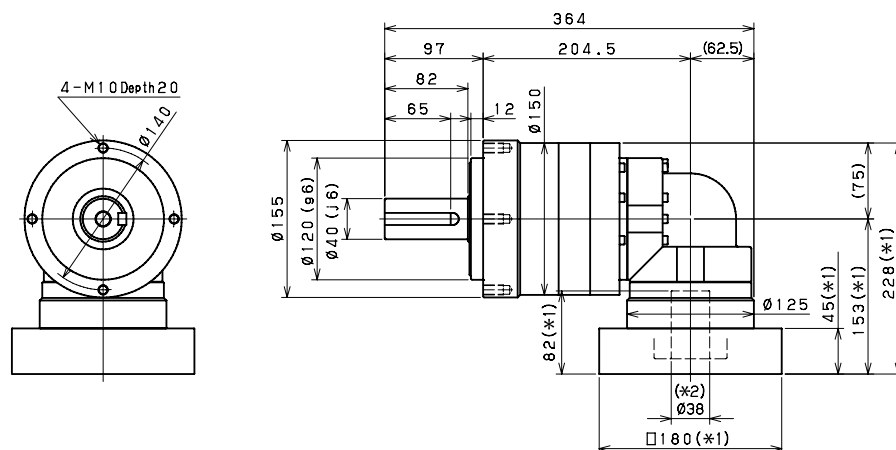
Input bore size $\leq \varnothing 19$ mm



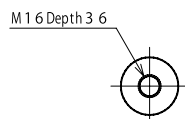
Input bore size $\leq \varnothing 28$ mm



Input bore size $\leq \varnothing 38$ mm



Keyed shaft



Smooth shaft

*1) Length will vary depending on motor.

*2) Bushing will be inserted to adapt to motor shaft

EVL 205 2-Stage Specifications

Frame Size	205									
Stage	2-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	421	604	646	646	646	646	478	478
Maximum Acceleration Torque	[Nm]	*2	679	904	1127	1315	1315	1315	931	931
Maximum Torque	[Nm]	*3	750	1064	1327	1498	1498	1498	1144	1144
Emergency Stop Torque	[Nm]	*4	1300	1700	2000	2500	2500	2500	2000	2000
Nominal Input Speed	[rpm]	*5	1500							
Maximum Input Speed	[rpm]	*6	4000							
No Load Running Torque	[Nm]	*7	10.8							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	93.71	77.72	71.89	68.74	66.43	65.27	64.60	64.28
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	128.6	112.6	106.8	103.6	101.3	100.1	99.46	99.14
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	214.2	198.2	192.4	189.2	186.9	185.7	185.1	184.7
Efficiency	[%]	*10	93							
Torsional Rigidity	[Nm/arc-min]	*11	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 8							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	52							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_0 , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

*14) Weight may vary slightly between models.

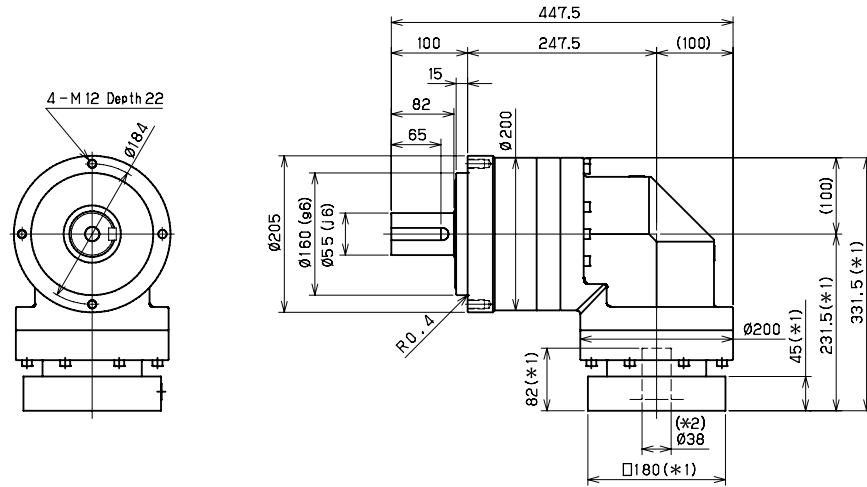
EVL 205 3-Stage Specifications

Frame Size	205									
Stage	3-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	442	583	646	683	710	480	710	465
Maximum Acceleration Torque	[Nm]	*2	916	1315	1315	1315	1315	916	1315	1315
Maximum Torque	[Nm]	*3	916	1315	1315	1315	1315	916	1315	1315
Emergency Stop Torque	[Nm]	*4	2000	2500	2500	2500	2500	2000	2500	2500
Nominal Input Speed	[rpm]	*5	2100							
Maximum Input Speed	[rpm]	*6	4000							
No Load Running Torque	[Nm]	*7	4.7							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	11.49	12.09	11.15	10.98	11.59	10.33	10.83	10.24
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	20.28	20.88	19.94	19.77	20.38	19.11	19.62	19.03
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	25.10	25.70	24.76	24.59	25.20	23.94	24.44	23.85
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 11							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	39							

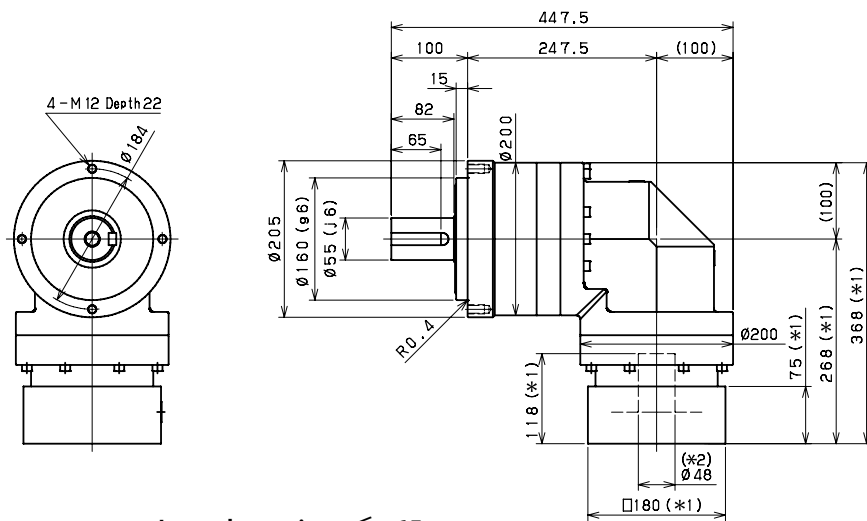
Frame Size	205									
Stage	3-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	480	710	710	710	710	480	480	
Maximum Acceleration Torque	[Nm]	*2	931	1315	1315	1315	1315	931	931	
Maximum Torque	[Nm]	*3	931	1315	1315	1315	1315	931	931	
Emergency Stop Torque	[Nm]	*4	2000	2500	2500	2500	2500	2000	2000	
Nominal Input Speed	[rpm]	*5	2100							
Maximum Input Speed	[rpm]	*6	4000							
No Load Running Torque	[Nm]	*7	4.7							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	10.76	10.20	10.18	10.16	10.15	10.15	10.14	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	19.55	18.99	18.96	18.95	18.94	18.93	18.93	
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	24.37	23.81	23.78	23.77	23.76	23.75	23.75	
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 11							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	39							

EVL 205 2-Stage Dimensions

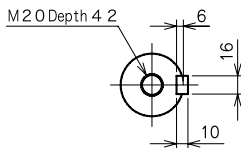
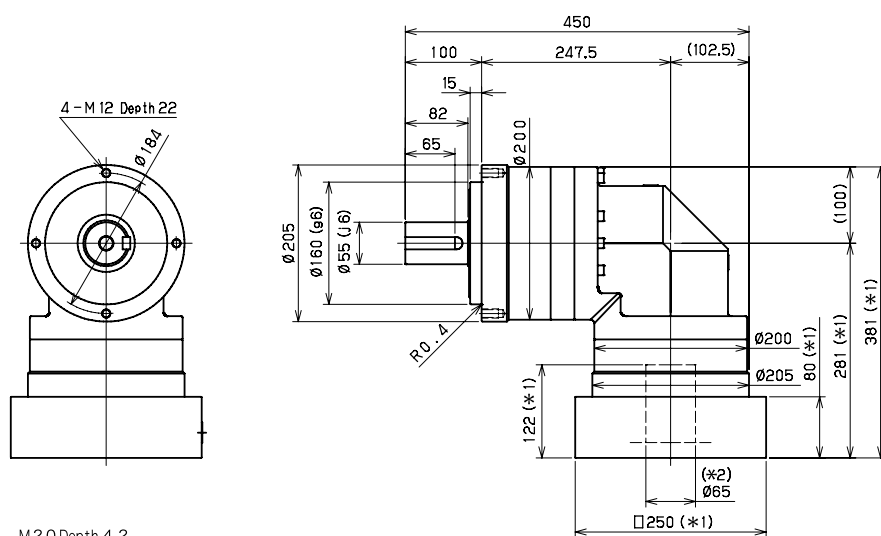
Input bore size $\leq \phi 38$ mm



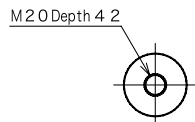
Input bore size $\leq \phi 48$ mm



Input bore size $\leq \phi 65$ mm



Keyed shaft



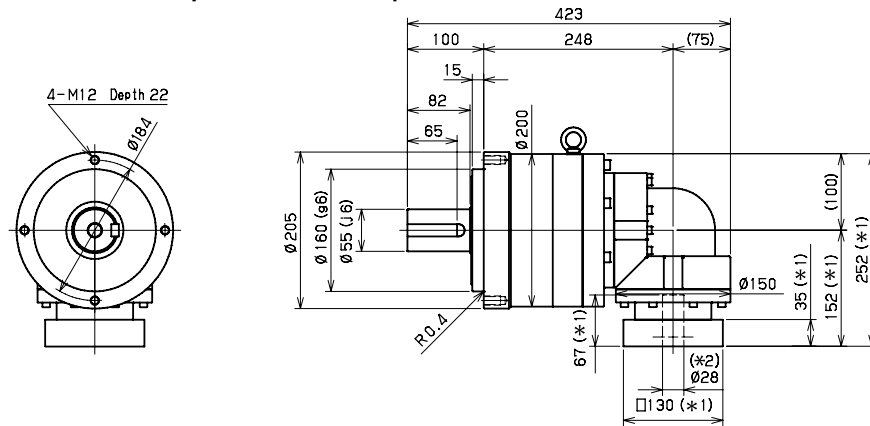
Smooth shaft

*1) Length will vary depending on motor.

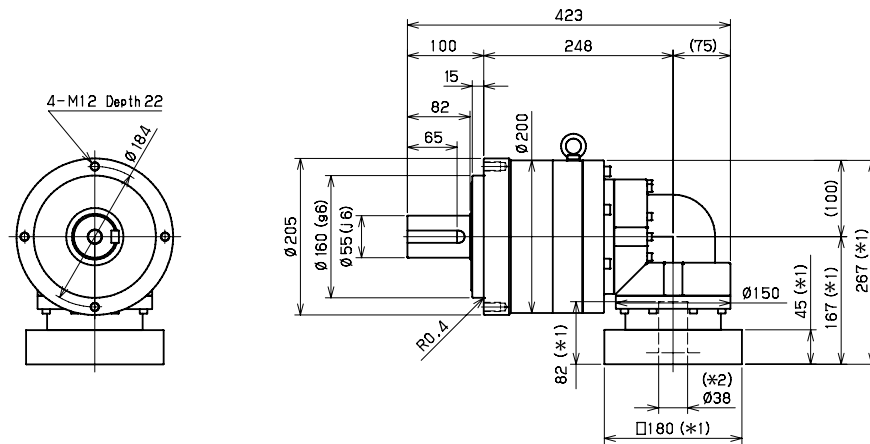
*2) Bushing will be inserted to adapt to motor shaft

EVL 205 3-Stage Dimensions

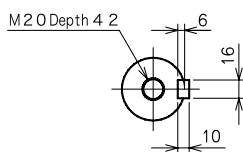
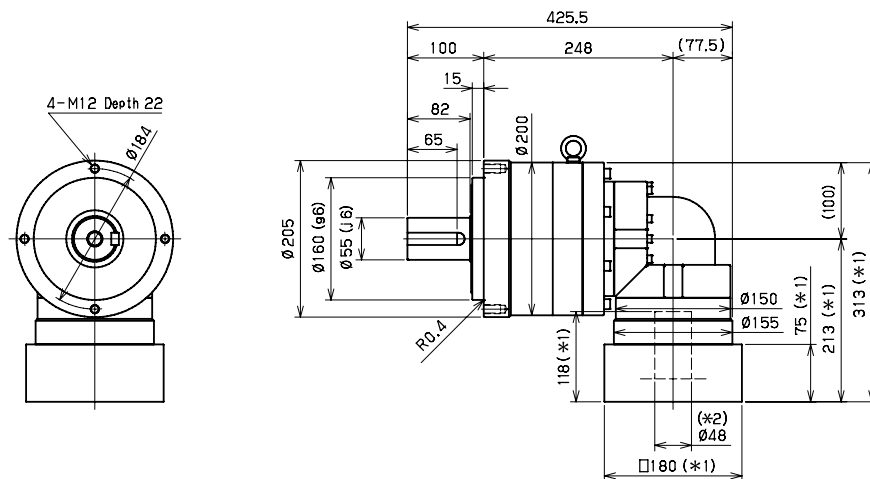
Input bore size $\leq \phi 28$ mm



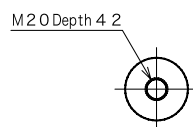
Input bore size $\leq \phi 38$ mm



Input bore size $\leq \phi 48$ mm



Keyed shaft



Smooth shaft

*1) Length will vary depending on motor.

*2) Bushing will be inserted to adapt to motor shaft

EVL 235 2-Stage Specifications

Frame Size	235									
Stage	2-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	575	765	960	1208	1313	1313	1064	1064
Maximum Acceleration Torque	[Nm]	*2	1160	1555	1945	2112	2112	2063	1812	1529
Maximum Torque	[Nm]	*3	1336	1861	2328	2441	2441	2339	2032	1787
Emergency Stop Torque	[Nm]	*4	2500	3300	4000	4500	4500	4500	3600	3600
Nominal Input Speed	[rpm]	*5	1200							
Maximum Input Speed	[rpm]	*6	3000							
No Load Running Torque	[Nm]	*7	14.5							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	148.0	122.9	113.3	108.1	104.7	102.7	101.6	101.0
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	223.2	198.1	188.6	183.3	180.0	178.0	176.8	176.2
Efficiency	[%]	*10	93							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 8							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	68							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_g , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

*14) Weight may vary slightly between models.

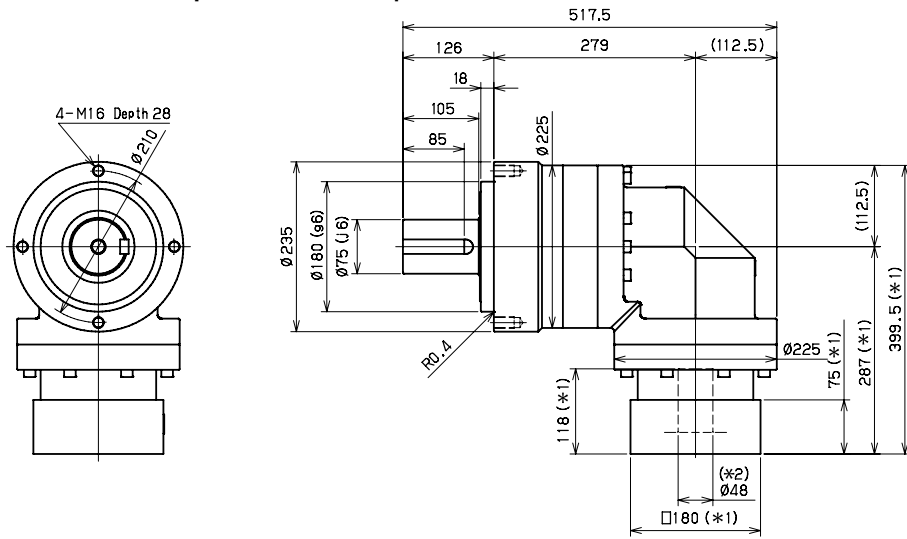
EVL 235 3-Stage Specifications

Frame Size	235									
Stage	3-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	858	1200	1200	1360	1440	948	1440	1440
Maximum Acceleration Torque	[Nm]	*2	1463	2112	2112	2112	2112	1463	2112	2112
Maximum Torque	[Nm]	*3	1463	2112	2112	2112	2112	1463	2112	2112
Emergency Stop Torque	[Nm]	*4	3600	4500	4500	4500	4500	3600	4500	4500
Nominal Input Speed	[rpm]	*5	1500							
Maximum Input Speed	[rpm]	*6	3000							
No Load Running Torque	[Nm]	*7	10.2							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \emptyset 38$)	[kgcm ²]	--	36.32	37.24	35.75	35.47	36.39	34.39	35.21	34.25
Moment of Inertia ($\leq \emptyset 48$)	[kgcm ²]	--	66.14	67.06	65.57	65.28	66.21	64.21	65.03	64.07
Moment of Inertia ($\leq \emptyset 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 11							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	70							

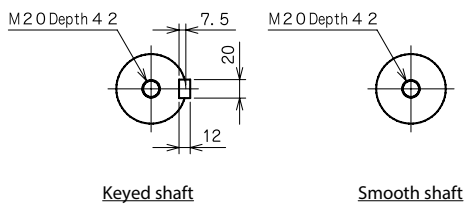
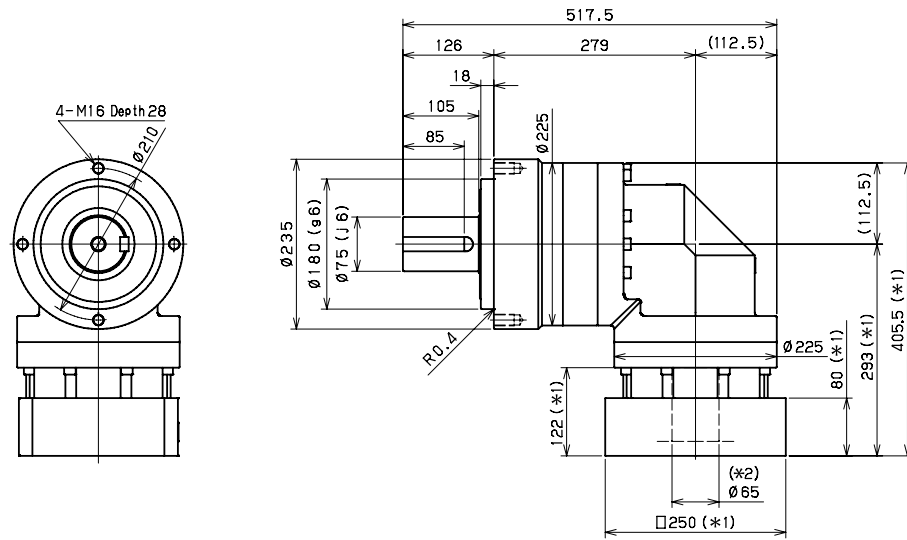
Frame Size	235									
Stage	3-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	948	1440	1440	1440	1440	948	948	
Maximum Acceleration Torque	[Nm]	*2	1246	2112	2112	2112	1728	1246	1131	
Maximum Torque	[Nm]	*3	1246	2112	2112	2112	1728	1246	1131	
Emergency Stop Torque	[Nm]	*4	3600	4500	4500	4500	4500	3600	3600	
Nominal Input Speed	[rpm]	*5	1500							
Maximum Input Speed	[rpm]	*6	3000							
No Load Running Torque	[Nm]	*7	10.2							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \emptyset 38$)	[kgcm ²]	--	35.10	34.18	34.14	34.11	34.10	34.09	34.08	
Moment of Inertia ($\leq \emptyset 48$)	[kgcm ²]	--	64.92	63.99	63.95	63.93	63.91	63.90	63.90	
Moment of Inertia ($\leq \emptyset 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 11							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	70							

EVL 235 2-Stage Dimensions

Input bore size $\leq \phi 48$ mm



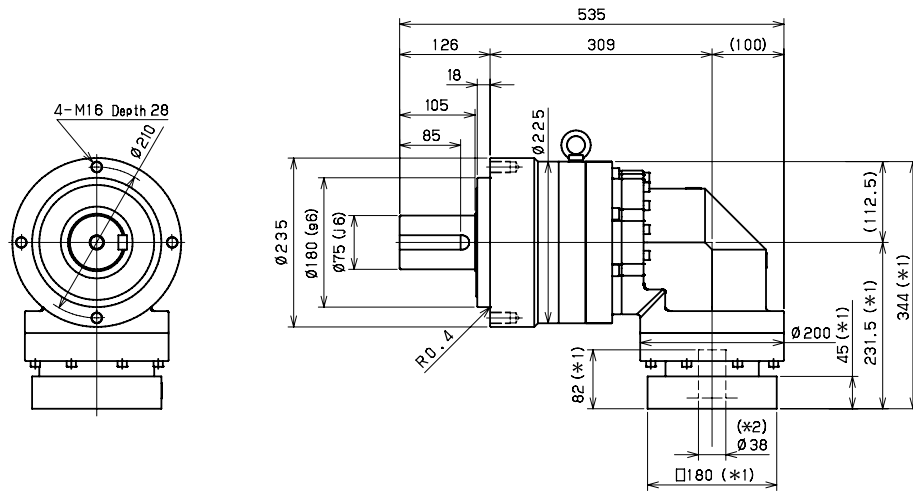
Input bore size $\leq \phi 65$ mm



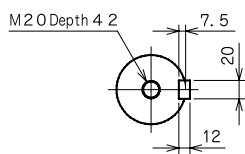
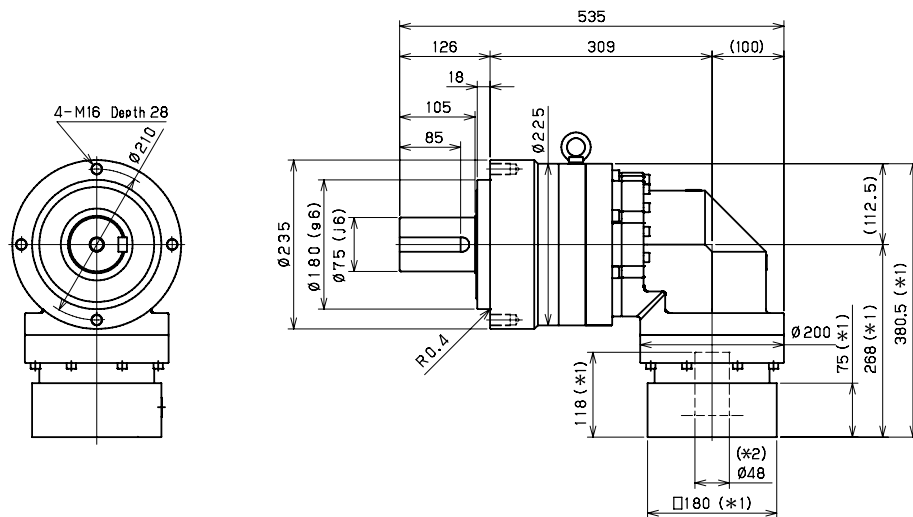
- *1) Length will vary depending on motor.
- *2) Bushing will be inserted to adapt to motor shaft

EVL 235 3-Stage Dimensions

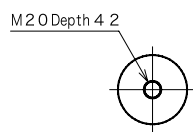
Input bore size $\leq \phi 38$ mm



Input bore size $\leq \phi 48$ mm



Keyed shaft



Smooth shaft

*1) Length will vary depending on motor.

*2) Bushing will be inserted to adapt to motor shaft

EVB SERIES

The background of the lower half of the page features a high-quality photograph of several industrial actuators. The actuators are made of polished metal, likely aluminum, and have a cylindrical design with various mounting flanges and ports. They are arranged in a way that shows different views and sizes, creating a sense of depth and technical precision. The lighting is soft, highlighting the metallic textures and sharp edges of the components.

EVB series

EVB planetary gearbox with right angle

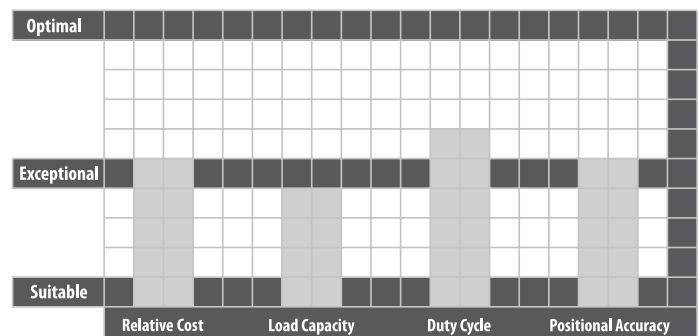
Precision, easy mounting by square flange

Description

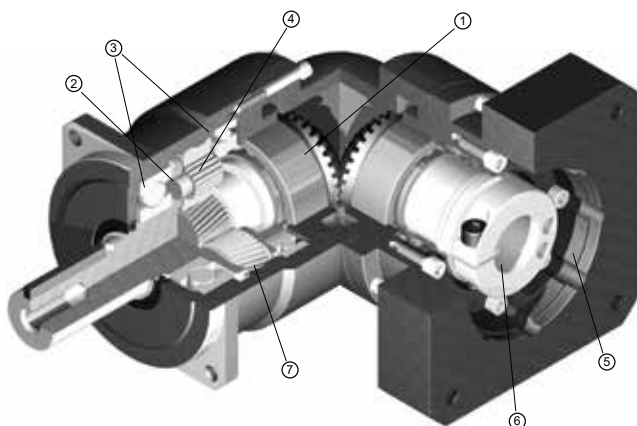
An excellent choice for applications requiring high positional accuracy and dynamic performance. The EVB is a ≤ 4 arc-min gearbox that offers a right angle design with a through hole mounting style, making it compact and easy to assemble onto various equipment. This product is an ideal fit for various belt drive and actuator applications found throughout the packaging and assembly cell automation markets.

Various standard wash down and food grade options are available, making the EVB an attractive choice for the toughest environments. We offer the broadest selection of frame sizes and ratios, with immediate availability on most configurations. Industry standard mounting dimensions allow the EVB to be employed in legacy equipment designs, saving our customers time and money.

- Compact, space-saving solution for mid to high end motion control applications
- The widest range of frame sizes and ratios available in the market
- Best-in-class backlash (≤ 4 arc-min)
- Broad range of mounting adapters offer a simple, precise attachment to any motor
- Maintenance-free solution that is lubricated for life. High performance grease allows flexible mounting in any orientation



Features



1 Right angle bevel gear configuration allows motor to be mounted at a 90 degree position from the gearbox, saving space

- 2 Carburized helical gears with proprietary secondary finishing process for higher accuracy and smooth, quiet operation. 40% higher tooth surface area than the industry standard
- 3 One piece output shaft and planet carrier with two bearings straddling the planet gears. Higher stiffness, torque capacity and safety factor, with guaranteed alignment of gearing
- 4 Uncaged needle roller bearings provide excellent torque density and torsional rigidity. 43% larger bearing surface area compared to the rest of the industry
- 5 Optimized mounting system with active centering on motor pilot diameter guarantees alignment of motor. Motor can be installed in any orientation
- 6 True concentric motor shaft clamping connection, optimized for your specific motor. Reduced inertia for dynamic performance and balanced for high speed operation
- 7 Ring gear machined directly into the housing, not welded or pressed in. Provides greater concentricity and elimination of speed fluctuation

Part Number	EVB -090 -7 -K 4 -19HB16			
Model name - EVB series				
Size: 060, 090, 115, 140, 180, 220	Motor mounting code (*)			
Ratio: 2 stage: 3, 4, 5, 6, 7, 8, 9, 10 3 stage: 15, 16, 20, 25, 28, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100	Backlash: 060, 140 \leq 4-7 arc-min / 180, 220 \leq 8-11 arc-min			
Output mounting style: K: Keyed shaft / S: Smooth shaft				

*1) Motor mounting code varies depending on the motor. Use the selection tool link below to configure the code.

EVB 060 2-Stage Specifications

Frame Size	060										
Stage	2-Stage										
Ratio	Unit	Note	3	4	5	6	7	8	9	10	
Nominal Output Torque	[Nm]	*1	12	16	22	24	24	24	19	19	
Maximum Acceleration Torque	[Nm]	*2	29	38	48	54	54	54	38	38	
Maximum Torque	[Nm]	*3	33	45	56	63	63	61	45	45	
Emergency Stop Torque	[Nm]	*4	50	65	80	90	90	90	65	65	
Nominal Input Speed	[rpm]	*5	3300								
Maximum Input Speed	[rpm]	*6	6000								
No Load Running Torque	[Nm]	*7	0.33								
Maximum Radial Load	[N]	*8	1200								
Maximum Axial Load	[N]	*9	1100								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.31	0.27	0.25	0.24	0.23	0.23	0.23	0.23	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.39	0.34	0.32	0.31	0.31	0.31	0.30	0.30	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.58	0.53	0.51	0.50	0.50	0.50	0.49	0.49	
Efficiency	[%]	*10	93								
Torsional Rigidity	[Nm/arc-min]	*11	3								
Maximum Torsional Backlash	[arc-min]	--	≤ 4								
Noise Level	dB [A]	*12	≤ 80								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	1.8								

- *1) At nominal input speed, service life is 20,000 hours.
- *2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_v for higher duty cycle applications.
- *3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.
- *4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.
- *5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.
- *6) The maximum intermittent input speed.
- *7) Torque at no load applied to the input shaft at nominal input speed.
- *8) The maximum radial load that the gearbox can accept.
- *9) The maximum axial load that the gearbox can accept.
- *10) The efficiency at the nominal output torque rating.
- *11) This does not include lost motion.
- *12) Contact SIT S.p.A. for the testing conditions and environment.
- *13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.
- *14) Weight may vary slightly between models.

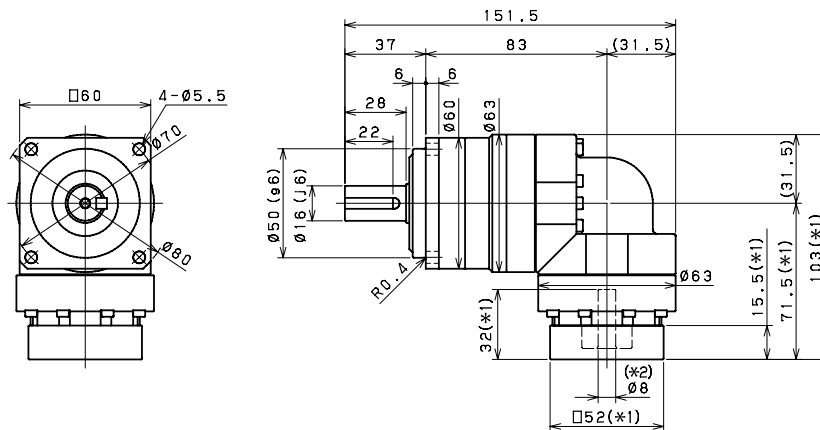
EVB 060 3-Stage Specifications

Frame Size	060										
Stage	3-Stage										
Ratio	Unit	Note	15	16	20	25	28	30	35	40	
Nominal Output Torque	[Nm]	*1	18	26	26	28	28	19	28	28	
Maximum Acceleration Torque	[Nm]	*2	38	54	54	54	54	38	54	54	
Maximum Torque	[Nm]	*3	38	54	54	54	54	38	54	54	
Emergency Stop Torque	[Nm]	*4	65	90	90	90	90	65	90	90	
Nominal Input Speed	[rpm]	*5	3800								
Maximum Input Speed	[rpm]	*6	6000								
No Load Running Torque	[Nm]	*7	0.20								
Maximum Radial Load	[N]	*8	1200								
Maximum Axial Load	[N]	*9	1100								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.073	0.079	0.071	0.071	0.077	0.062	0.070	0.061	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.118	0.124	0.116	0.115	0.122	0.106	0.115	0.106	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--			--	--	
Efficiency	[%]	*10	88								
Torsional Rigidity	[Nm/arc-min]	*11	3								
Maximum Torsional Backlash	[arc-min]	--	≤ 7								
Noise Level	dB [A]	*12	≤ 80								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	1.6								

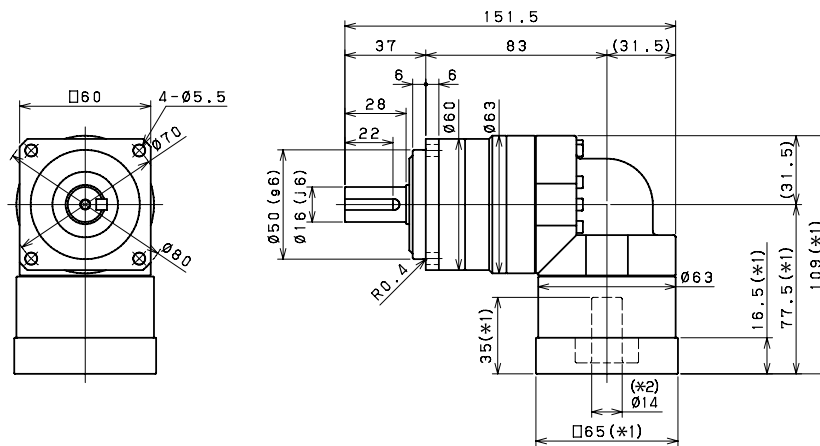
Frame Size	060										
Stage	3-Stage										
Ratio	Unit	Note	45	50	60	70	80	90	100		
Nominal Output Torque	[Nm]	*1	19	28	28	28	28	19	19		
Maximum Acceleration Torque	[Nm]	*2	38	54	54	54	54	38	38		
Maximum Torque	[Nm]	*3	38	54	54	54	54	38	38		
Emergency Stop Torque	[Nm]	*4	65	90	90	90	90	65	65		
Nominal Input Speed	[rpm]	*5	3800								
Maximum Input Speed	[rpm]	*6	6000								
No Load Running Torque	[Nm]	*7	0.2								
Maximum Radial Load	[N]	*8	1200								
Maximum Axial Load	[N]	*9	1100								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.070	0.061	0.061	0.061	0.061	0.061	0.061		
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.115	0.106	0.106	0.105	0.105	0.105	0.105		
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--		
Efficiency	[%]	*10	88								
Torsional Rigidity	[Nm/arc-min]	*11	3								
Maximum Torsional Backlash	[arc-min]	--	≤ 7								
Noise Level	dB [A]	*12	≤ 80								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	1.6								

EVB 060 2-Stage Dimensions

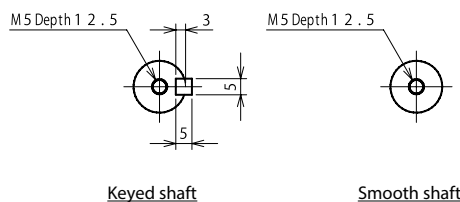
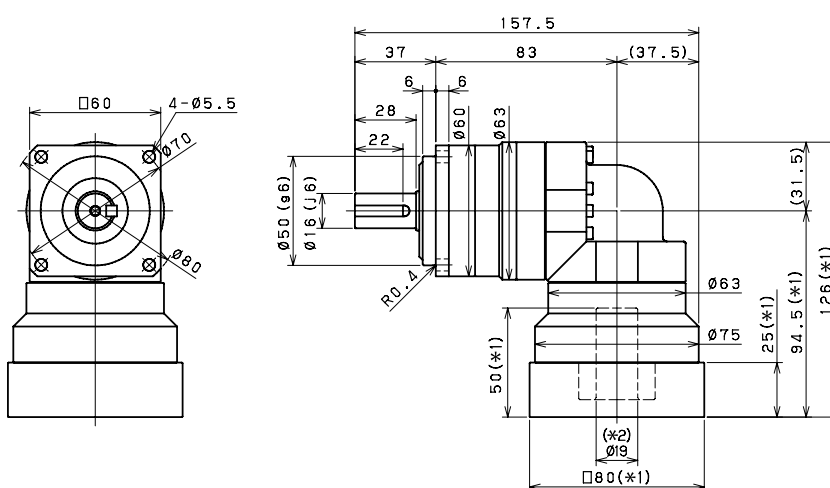
Input bore size $\leq \phi 8$ mm



Input bore size $\leq \phi 14$ mm



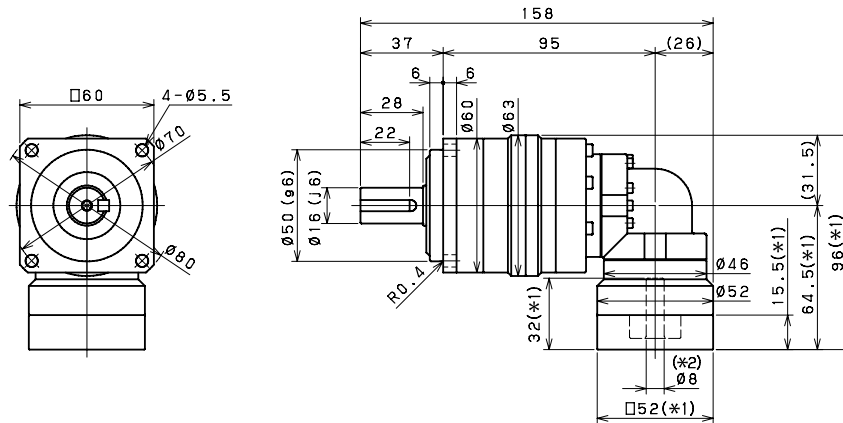
Input bore size $\leq \phi 19$ mm



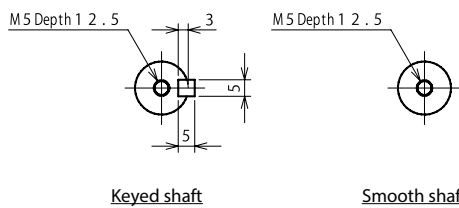
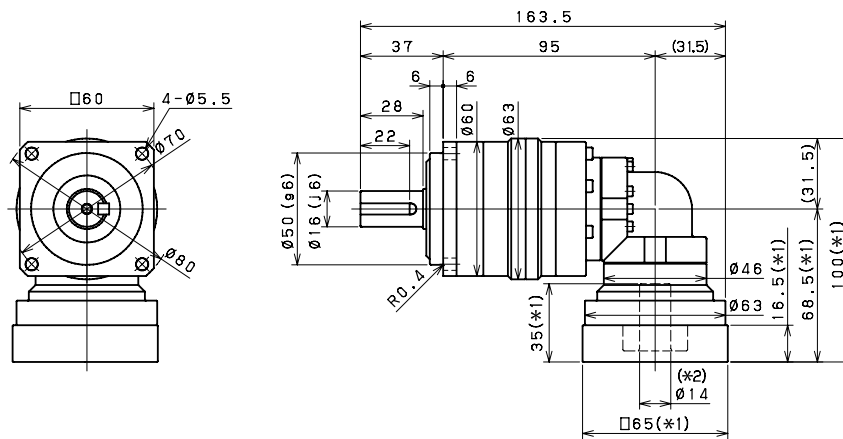
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVB 060 3-Stage Dimensions

Input bore size $\leq \varnothing 8 \text{ mm}$



Input bore size $\leq \varnothing 14 \text{ mm}$



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVB 090 2-Stage Specifications

Frame Size	090									
Stage	2-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	46	61	67	67	67	74	51	51
Maximum Acceleration Torque	[Nm]	*2	77	105	105	105	105	105	78	78
Maximum Torque	[Nm]	*3	90	121	121	119	119	117	93	93
Emergency Stop Torque	[Nm]	*4	130	170	220	220	220	220	170	170
Nominal Input Speed	[rpm]	*5	3000							
Maximum Input Speed	[rpm]	*6	6000							
No Load Running Torque	[Nm]	*7	1.13							
Maximum Radial Load	[N]	*8	2400							
Maximum Axial Load	[N]	*9	2200							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	2.12	1.89	1.80	1.76	1.73	1.71	1.70	1.69
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.45	2.22	2.13	2.09	2.06	2.04	2.03	2.02
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.57	4.35	4.26	4.21	4.18	4.17	4.16	4.15
Efficiency	[%]	*10	93							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 4							
Noise Level	dB [A]	*12	≤ 80							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	5.1							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

*14) Weight may vary slightly between models.

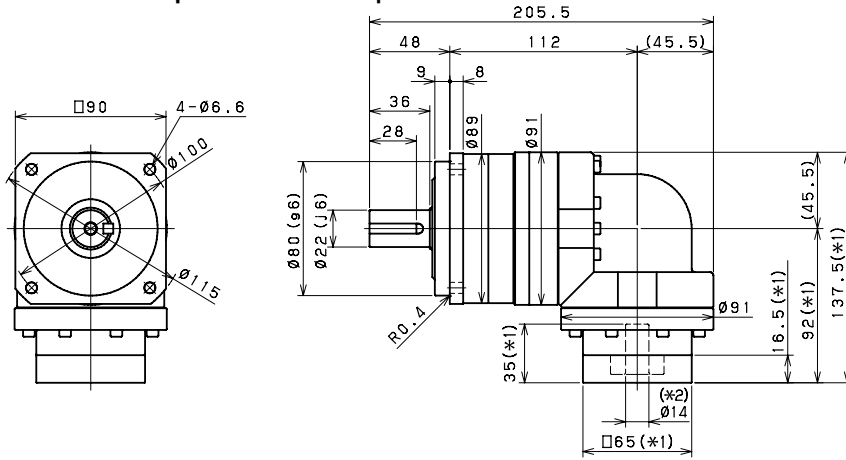
EVB 090 3-Stage Specifications

Frame Size	090									
Stage	3-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	43	66	68	72	78	47	73	78
Maximum Acceleration Torque	[Nm]	*2	77	128	128	128	128	77	128	128
Maximum Torque	[Nm]	*3	77	128	128	128	128	77	128	128
Emergency Stop Torque	[Nm]	*4	170	220	220	220	220	170	220	220
Nominal Input Speed	[rpm]	*5	3300							
Maximum Input Speed	[rpm]	*6	6000							
No Load Running Torque	[Nm]	*7	0.55							
Maximum Radial Load	[N]	*8	2400							
Maximum Axial Load	[N]	*9	2200							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.34	0.38	0.33	0.32	0.37	0.25	0.32	0.25
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.41	0.46	0.40	0.40	0.45	0.33	0.4	0.32
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.6	0.65	0.59	0.59	0.64	0.51	0.59	0.51
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 7							
Noise Level	dB [A]	*12	≤ 80							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	4.4							

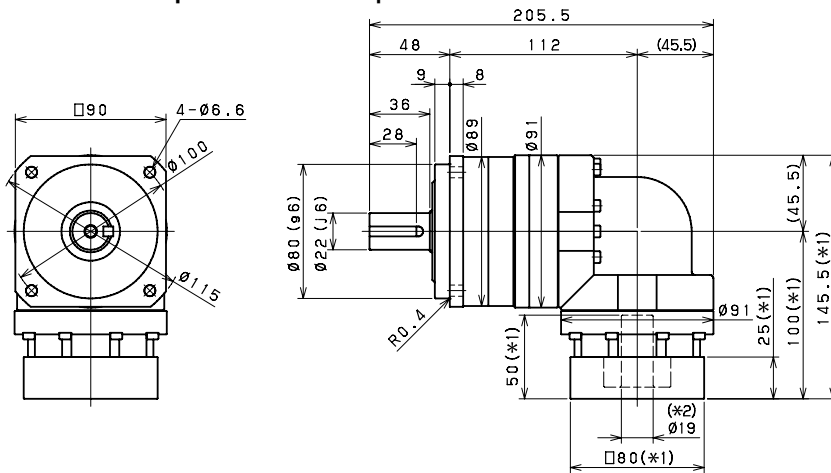
Frame Size	090									
Stage	3-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	47	73	73	73	78	52	52	
Maximum Acceleration Torque	[Nm]	*2	78	128	128	128	128	78	78	
Maximum Torque	[Nm]	*3	78	128	128	128	128	78	78	
Emergency Stop Torque	[Nm]	*4	170	220	220	220	220	170	170	
Nominal Input Speed	[rpm]	*5	3300							
Maximum Input Speed	[rpm]	*6	6000							
No Load Running Torque	[Nm]	*7	0.55							
Maximum Radial Load	[N]	*8	2400							
Maximum Axial Load	[N]	*9	2200							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.32	0.25	0.25	0.25	0.25	0.25	0.25	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.39	0.32	0.32	0.32	0.32	0.32	0.32	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.58	0.51	0.51	0.51	0.51	0.51	0.51	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 7							
Noise Level	dB [A]	*12	≤ 80							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	4.4							
Weight	[kg]	*15	4.4							

EVB 090 2-Stage Dimensions

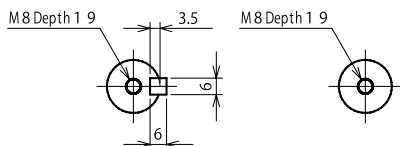
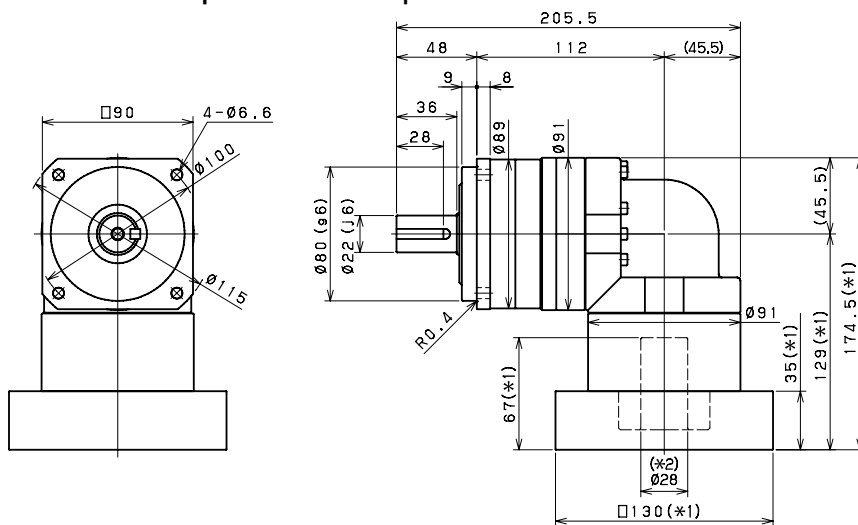
Input bore size $\leq \phi 14$ mm



Input bore size $\leq \phi 19$ mm



Input bore size $\leq \phi 28$ mm



Keyed shaft

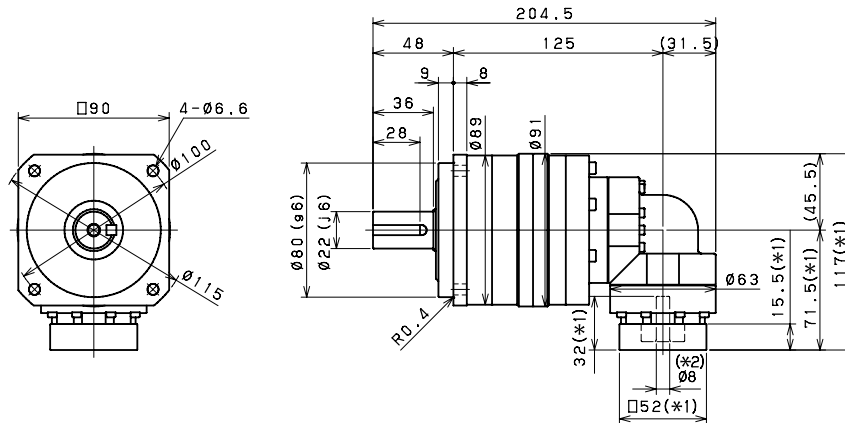
Smooth shaft

*1) Length will vary depending on motor

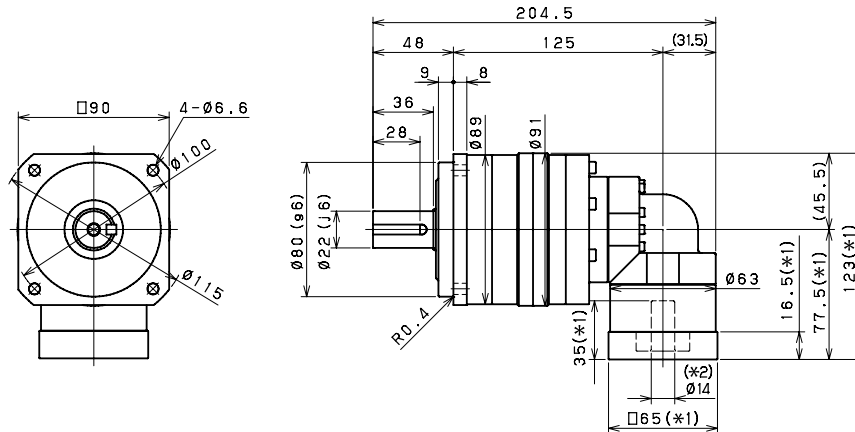
*2) Bushing will be inserted to adapt to motor shaft

EVB 090 3-Stage Dimensions

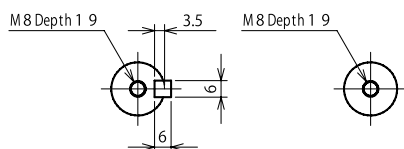
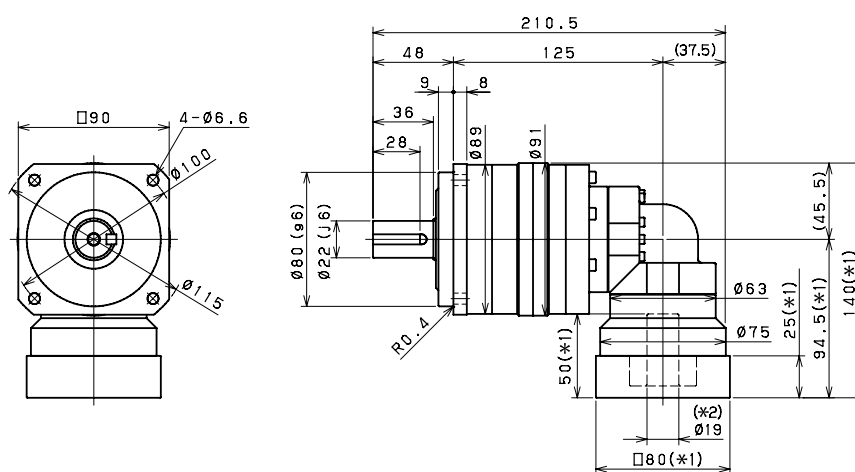
Input bore size $\leq \varnothing 8$ mm



Input bore size $\leq \varnothing 14$ mm



Input bore size $\leq \varnothing 19$ mm



Keyed shaft

Smooth shaft

*1) Length will vary depending on motor

*2) Bushing will be inserted to adapt to motor shaft

EVB 115 2-Stage Specifications

Frame Size	115										
Stage	2-Stage										
Ratio	Unit	Note	3	4	5	6	7	8	9	10	
Nominal Output Torque	[Nm]	*1	77	108	123	154	154	154	128	128	
Maximum Acceleration Torque	[Nm]	*2	172	227	272	340	340	340	240	240	
Maximum Torque	[Nm]	*3	205	271	325	401	401	401	288	288	
Emergency Stop Torque	[Nm]	*4	320	430	500	550	550	550	450	450	
Nominal Input Speed	[rpm]	*5	3000								
Maximum Input Speed	[rpm]	*6	6000								
No Load Running Torque	[Nm]	*7	1.88								
Maximum Radial Load	[N]	*8	4300								
Maximum Axial Load	[N]	*9	3900								
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--	--	--	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	6.74	5.49	5.02	4.77	4.65	4.55	4.49	4.46	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	8.34	7.08	6.61	6.36	6.24	6.14	6.08	6.05	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	15.41	14.15	13.69	13.43	13.31	13.22	13.16	13.12	
Efficiency	[%]	*10	93								
Torsional Rigidity	[Nm/arc-min]	*11	31								
Maximum Torsional Backlash	[arc-min]	--	≤ 4								
Noise Level	dB [A]	*12	≤ 85								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	10.4								

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_p , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

*14) Weight may vary slightly between models.

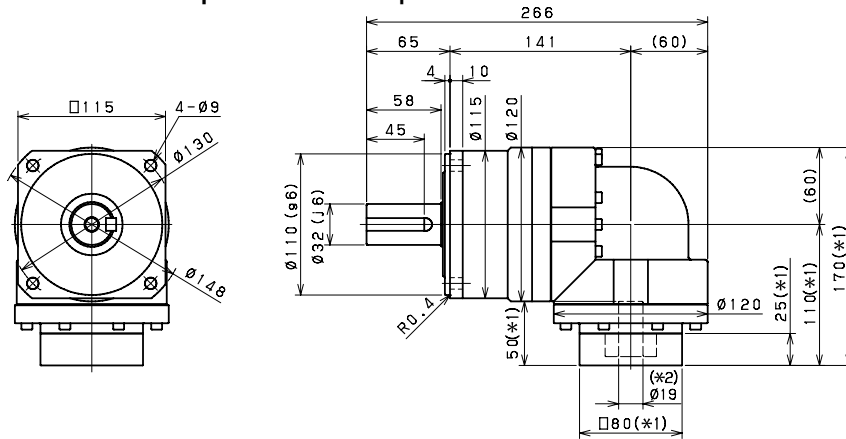
EVB 115 3-Stage Specifications

Frame Size	115									
Stage	3-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	125	136	162	174	174	132	174	172
Maximum Acceleration Torque	[Nm]	*2	229	295	340	340	340	229	340	340
Maximum Torque	[Nm]	*3	229	295	340	340	340	229	340	340
Emergency Stop Torque	[Nm]	*4	450	550	550	550	550	450	550	550
Nominal Input Speed	[rpm]	*5	3100							
Maximum Input Speed	[rpm]	*6	6000							
No Load Running Torque	[Nm]	*7	1.11							
Maximum Radial Load	[N]	*8	3900							
Maximum Axial Load	[N]	*9	3900							
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	2.25	2.46	2.20	2.18	2.40	1.87	2.16	1.86
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.58	2.79	2.53	2.51	2.73	2.20	2.49	2.19
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.70	4.91	4.65	4.64	4.86	4.33	4.62	4.32
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	31							
Maximum Torsional Backlash	[arc-min]	--	≤ 7							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	10.1							

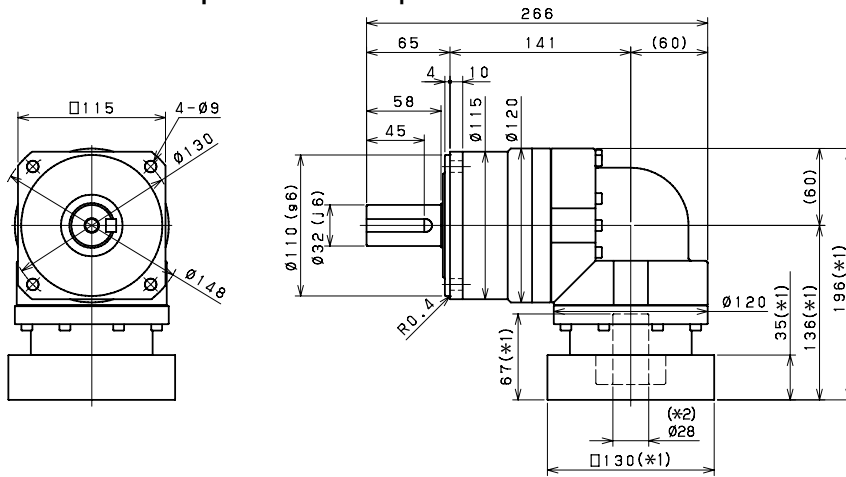
Frame Size	115									
Stage	3-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	132	174	174	174	174	132	132	
Maximum Acceleration Torque	[Nm]	*2	240	340	340	340	340	240	240	
Maximum Torque	[Nm]	*3	240	340	340	340	340	240	240	
Emergency Stop Torque	[Nm]	*4	450	550	550	550	550	450	450	
Nominal Input Speed	[rpm]	*5	3100							
Maximum Input Speed	[rpm]	*6	6000							
No Load Running Torque	[Nm]	*7	1.11							
Maximum Radial Load	[N]	*8	4300							
Maximum Axial Load	[N]	*9	3900							
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	2.15	1.86	1.85	1.85	1.85	1.85	1.85	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.48	2.19	2.18	2.18	2.18	2.18	2.18	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.61	4.31	4.31	4.31	4.31	4.31	4.31	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	31							
Maximum Torsional Backlash	[arc-min]	--	≤ 7							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	10.1							

EVB 115 2-Stage Dimensions

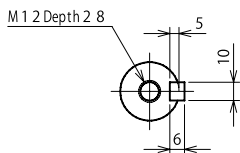
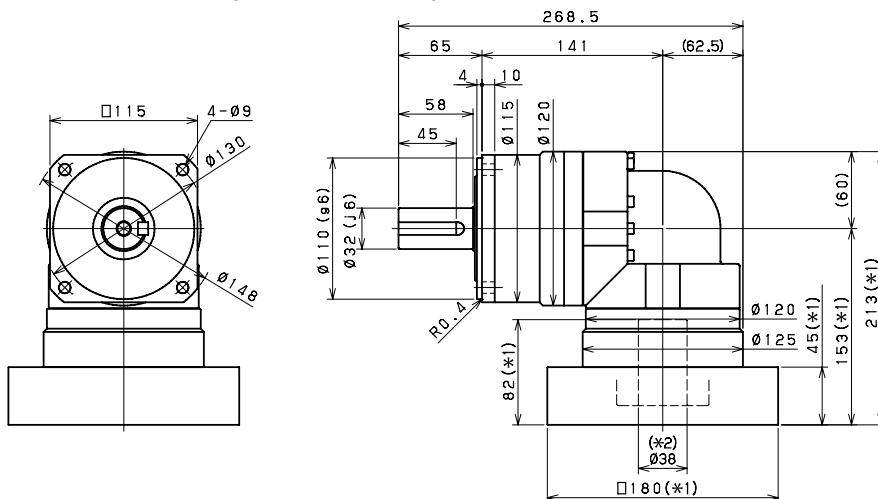
Input bore size $\leq \phi 19$ mm



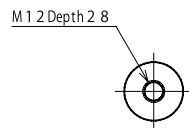
Input bore size $\leq \phi 28$ mm



Input bore size $\leq \phi 38$ mm



Keyed shaft

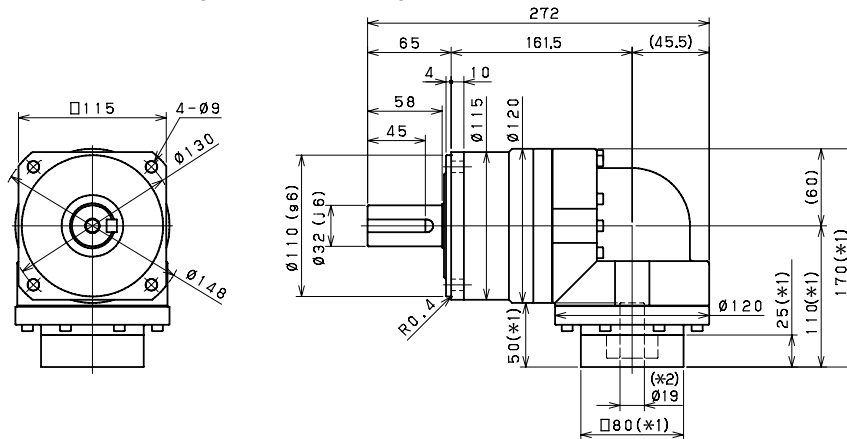


Smooth shaft

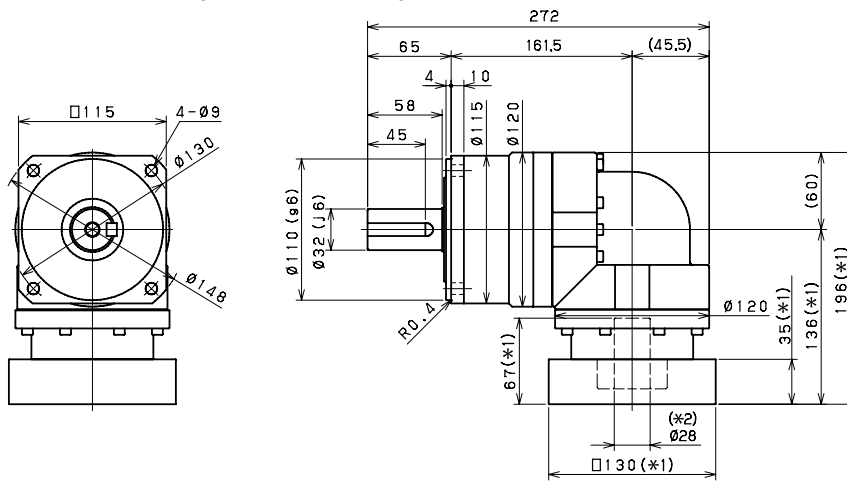
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVB 115 3-Stage Dimensions

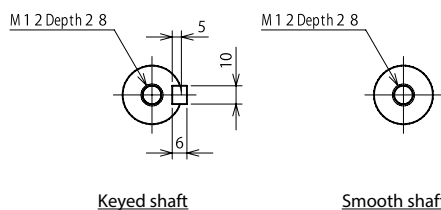
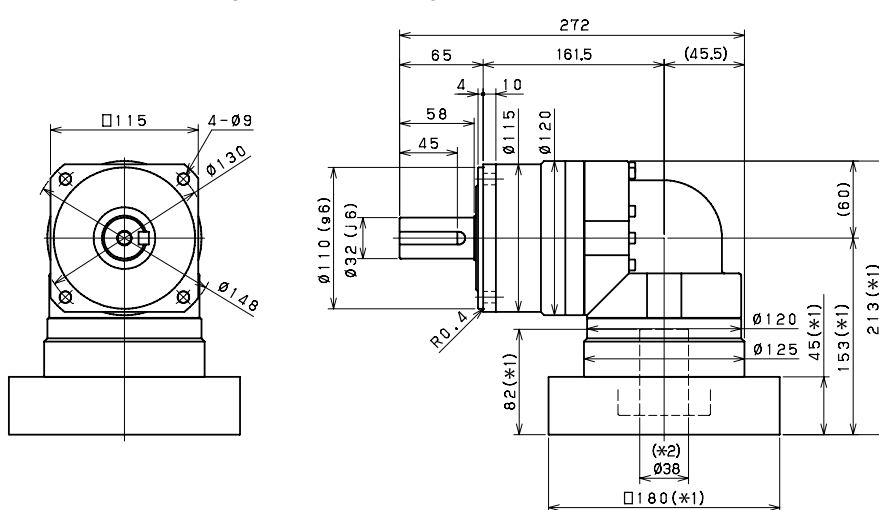
Input bore size $\leq \phi 14$ mm



Input bore size $\leq \phi 19$ mm



Input bore size $\leq \phi 28$ mm



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVB 140 2-Stage Specifications

Frame Size	140											
Stage	2-Stage											
Ratio	Unit	Note	3	4	5	6	7	8	9	10		
Nominal Output Torque	[Nm]	*1	132	181	205	266	307	307	233	233		
Maximum Acceleration Torque	[Nm]	*2	296	389	458	595	687	687	480	480		
Maximum Torque	[Nm]	*3	329	452	531	664	766	766	559	559		
Emergency Stop Torque	[Nm]	*4	700	950	1100	1100	1100	1100	750	750		
Nominal Input Speed	[rpm]	*5	2000									
Maximum Input Speed	[rpm]	*6	4000									
No Load Running Torque	[Nm]	*7	3.26									
Maximum Radial Load	[N]	*8	9100									
Maximum Axial Load	[N]	*9	8200									
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--	--		
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	23.13	18.57	16.91	16.01	15.58	15.23	14.77	14.66		
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	27.50	22.94	21.28	20.38	19.95	19.61	19.41	19.03		
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	40.73	36.17	34.51	33.61	33.18	32.84	32.37	32.26		
Efficiency	[%]	*10	93									
Torsional Rigidity	[Nm/arc-min]	*11	60									
Maximum Torsional Backlash	[arc-min]	--	≤ 4									
Noise Level	dB [A]	*12	≤ 85									
Protection Class	--	*13	IP54 (IP65)									
Ambient Temperature	[°C]	--	0-40									
Permitted Housing Temperature	[°C]	--	90									
Weight	[kg]	*14	19.1									

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

*14) Weight may vary slightly between models.

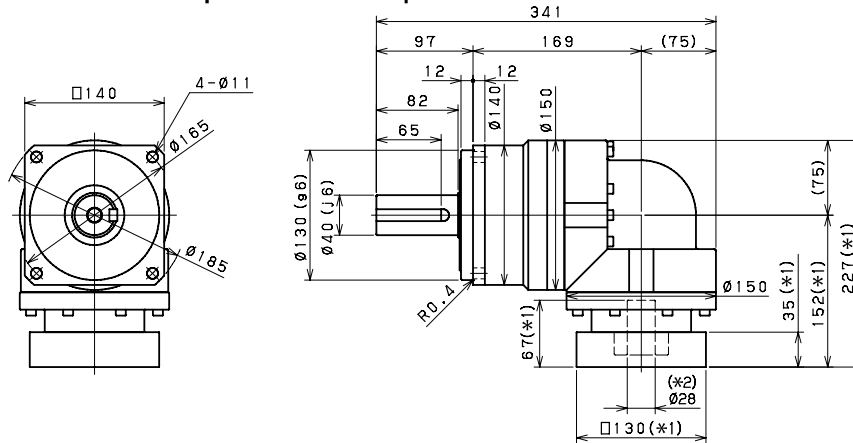
EVB 140 3-Stage Specifications

Frame Size	140									
Stage	3-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	230	307	316	352	352	240	352	337
Maximum Acceleration Torque	[Nm]	*2	456	687	687	687	687	456	687	687
Maximum Torque	[Nm]	*3	456	687	687	687	687	456	687	687
Emergency Stop Torque	[Nm]	*4	750	1100	1100	1100	1100	750	1100	1100
Nominal Input Speed	[rpm]	*5	2300							
Maximum Input Speed	[rpm]	*6	4000							
No Load Running Torque	[Nm]	*7	2.56							
Maximum Radial Load	[N]	*8	9100							
Maximum Axial Load	[N]	*9	8200							
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	6.40	7.29	6.22	6.15	7.09	4.99	6.09	4.95
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	8	8.88	7.81	7.75	8.68	6.58	7.69	6.54
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	15.07	15.96	14.89	14.82	15.76	13.66	14.76	13.61
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 7							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	19.6							

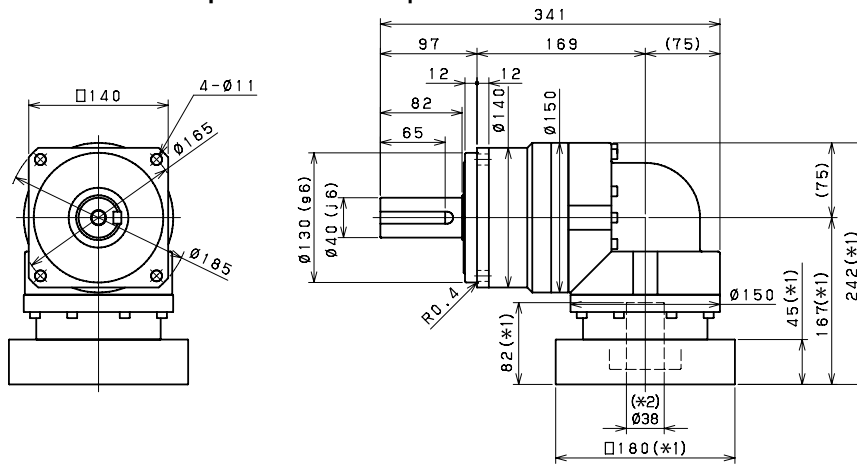
Frame Size	140									
Stage	3-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	240	352	352	352	352	240	240	
Maximum Acceleration Torque	[Nm]	*2	480	687	687	687	687	480	480	
Maximum Torque	[Nm]	*3	480	687	687	687	687	480	480	
Emergency Stop Torque	[Nm]	*4	750	1100	1100	1100	1100	750	750	
Nominal Input Speed	[rpm]	*5	2300							
Maximum Input Speed	[rpm]	*6	4000							
No Load Running Torque	[Nm]	*7	2.56							
Maximum Radial Load	[N]	*8	9100							
Maximum Axial Load	[N]	*9	8200							
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	6.07	4.93	4.92	4.91	4.91	4.91	4.91	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	7.66	6.52	6.51	6.51	6.50	6.50	6.50	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	14.74	13.59	13.59	13.58	13.58	13.57	13.57	
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 7							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	19.6							

EVB 140 2-Stage Dimensions

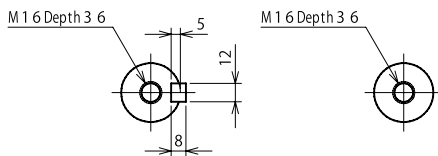
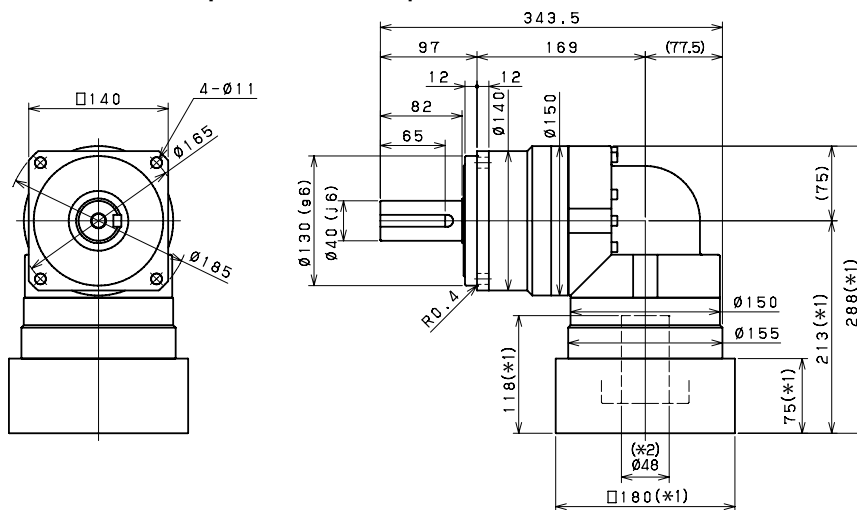
Input bore size $\leq \phi 28$ mm



Input bore size $\leq \phi 38$ mm



Input bore size $\leq \phi 48$ mm



Keyed shaft

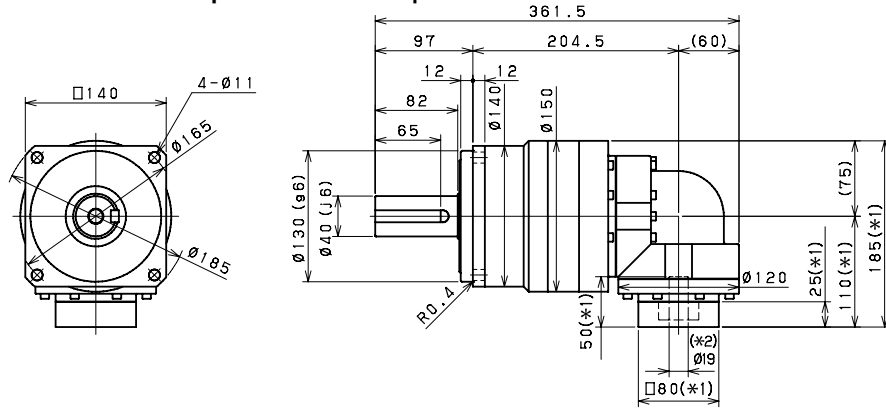
Smooth shaft

*1) Length will vary depending on motor

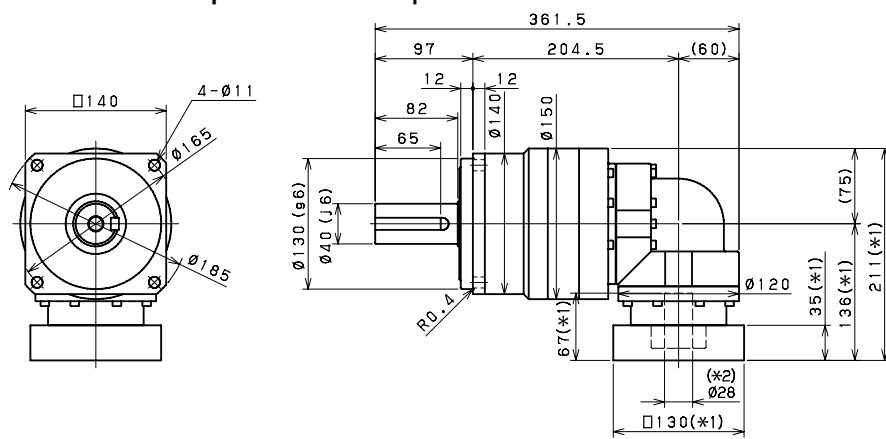
*2) Bushing will be inserted to adapt to motor shaft

EVB 140 3-Stage Dimensions

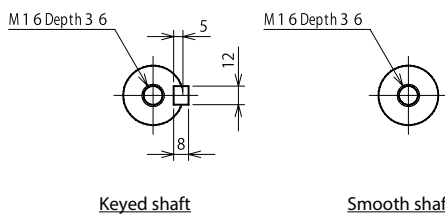
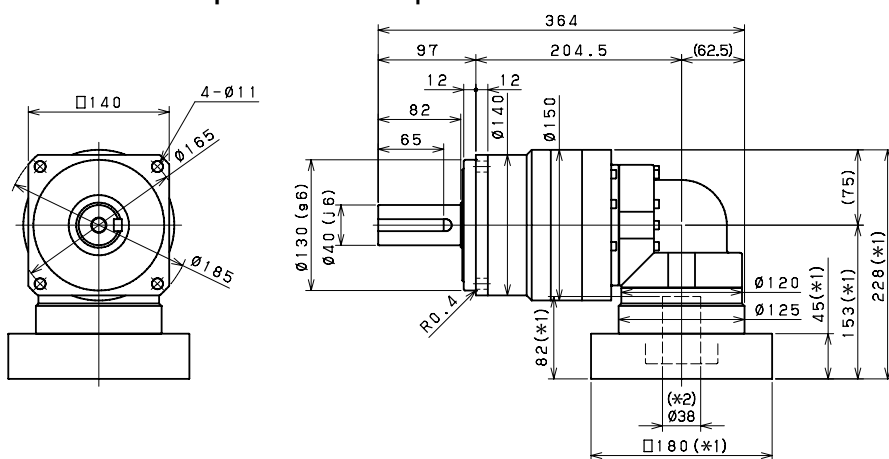
Input bore size $\leq \phi 19$ mm



Input bore size $\leq \phi 28$ mm



Input bore size $\leq \phi 38$ mm



*1) Length will vary depending on motor
*2) Bushing will be inserted to adapt to motor shaft

EVB 180 2-Stage Specifications

Frame Size	180									
Stage	2-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	421	604	646	646	646	646	478	478
Maximum Acceleration Torque	[Nm]	*2	679	904	1127	1315	1315	1315	931	931
Maximum Torque	[Nm]	*3	750	1064	1327	1498	1498	1498	1144	1144
Emergency Stop Torque	[Nm]	*4	1300	1700	2000	2500	2500	2500	2000	2000
Nominal Input Speed	[rpm]	*5	1500							
Maximum Input Speed	[rpm]	*6	4000							
No Load Running Torque	[Nm]	*7	10.8							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	93.71	77.72	71.89	68.74	66.43	65.27	64.6	64.28
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	128.6	112.6	106.8	103.6	101.3	100.1	99.46	99.14
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	214.2	198.2	192.4	189.2	186.9	185.7	185.1	184.7
Efficiency	[%]	*10	93							
Torsional Rigidity	[Nm/arc-min]	*11	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 6							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	49							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_0 , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

*14) Weight may vary slightly between models.

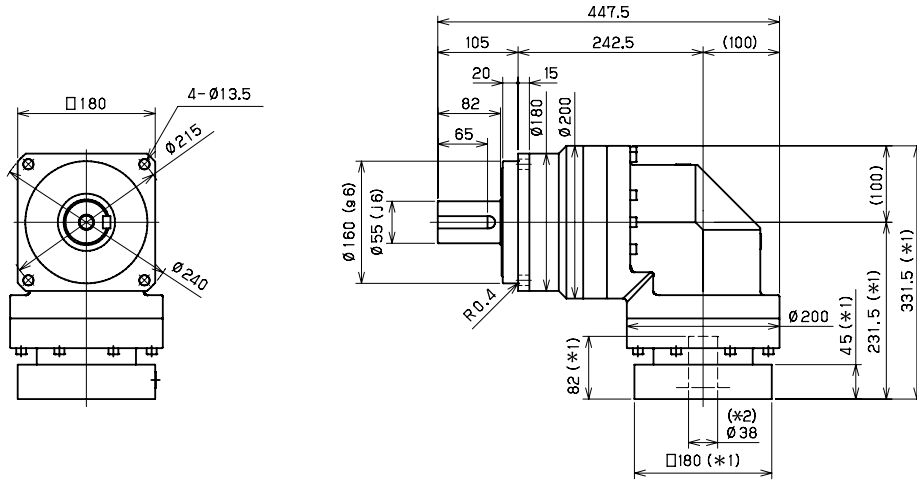
EVB 180 3-Stage Specifications

Frame Size	180									
Stage	3-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	442	583	646	683	710	480	710	465
Maximum Acceleration Torque	[Nm]	*2	916	1315	1315	1315	1315	916	1315	1315
Maximum Torque	[Nm]	*3	916	1315	1315	1315	1315	916	1315	1315
Emergency Stop Torque	[Nm]	*4	2000	2500	2500	2500	2500	2000	2500	2500
Nominal Input Speed	[rpm]	*5	2100							
Maximum Input Speed	[rpm]	*6	4000							
No Load Running Torque	[Nm]	*7	4.7							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \emptyset 28$)	[kgcm ²]	--	11.49	12.09	11.15	10.98	11.59	10.33	10.83	10.24
Moment of Inertia ($\leq \emptyset 38$)	[kgcm ²]	--	20.28	20.88	19.94	19.77	20.38	19.11	19.62	19.03
Moment of Inertia ($\leq \emptyset 48$)	[kgcm ²]	--	25.1	25.7	24.76	24.59	25.20	23.94	24.44	23.85
Moment of Inertia ($\leq \emptyset 65$)	[kgcm ²]	--			--	--	--	--	--	--
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 9							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	36							

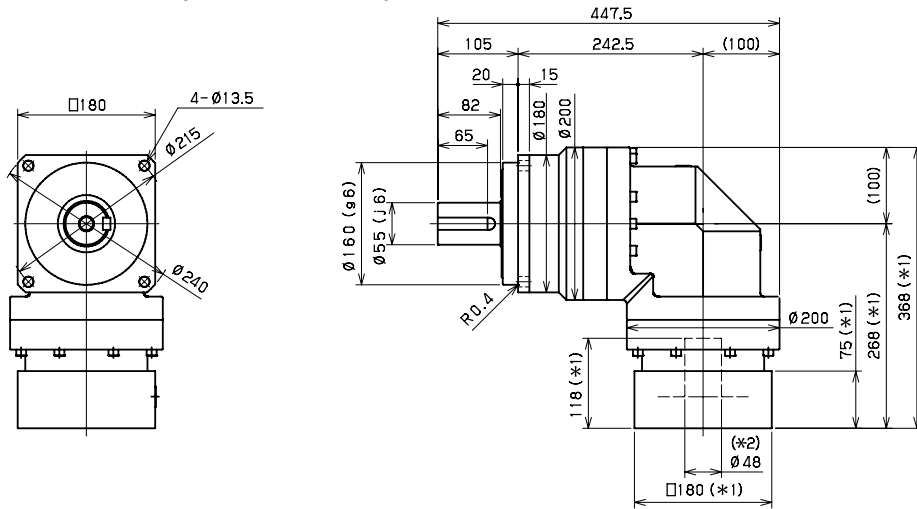
Frame Size	180									
Stage	3-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	480	710	710	710	710	480	480	
Maximum Acceleration Torque	[Nm]	*2	931	1315	1315	1315	1315	931	931	
Maximum Torque	[Nm]	*3	931	1315	1315	1315	1315	931	931	
Emergency Stop Torque	[Nm]	*4	2000	2500	2500	2500	2500	2000	2000	
Nominal Input Speed	[rpm]	*5	2100							
Maximum Input Speed	[rpm]	*6	4000							
No Load Running Torque	[Nm]	*7	4.7							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \emptyset 28$)	[kgcm ²]	--	10.76	10.2	10.18	10.16	10.15	10.15	10.14	
Moment of Inertia ($\leq \emptyset 38$)	[kgcm ²]	--	19.55	18.99	18.96	18.95	18.94	18.93	18.93	
Moment of Inertia ($\leq \emptyset 48$)	[kgcm ²]	--	24.37	23.81	23.78	23.77	23.76	23.75	23.75	
Moment of Inertia ($\leq \emptyset 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 9							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	36							

EVB 180 2-Stage Dimensions

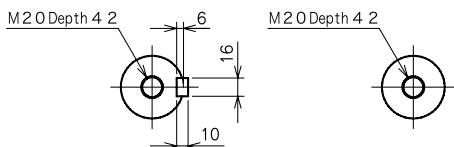
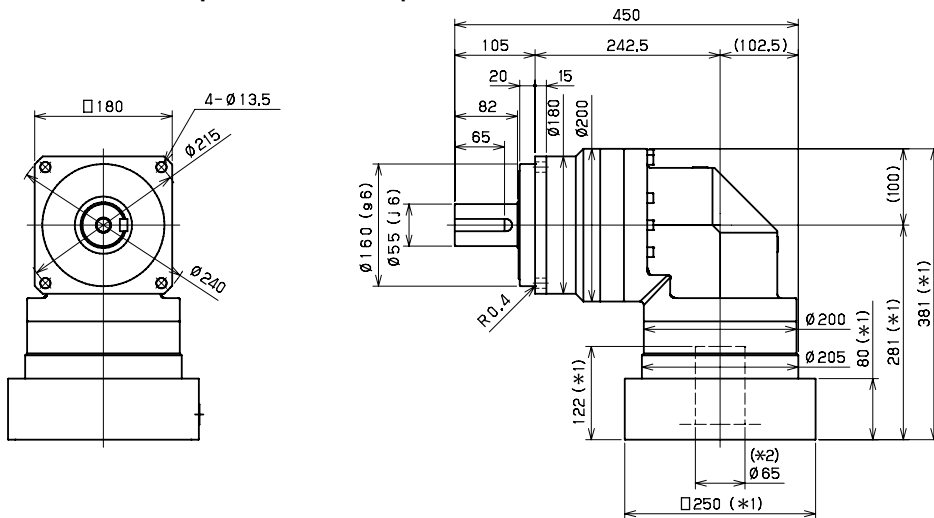
Input bore size $\leq \varnothing 38$ mm



Input bore size $\leq \varnothing 48$ mm



Input bore size $\leq \varnothing 65$ mm



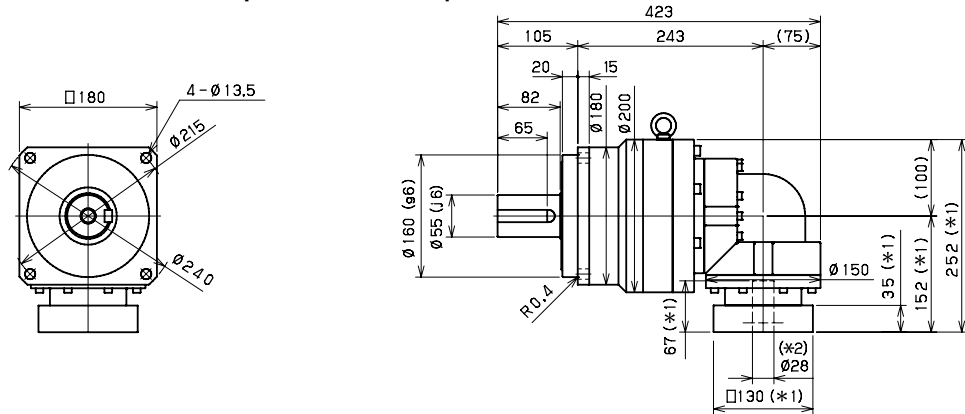
Keyed shaft

Smooth shaft

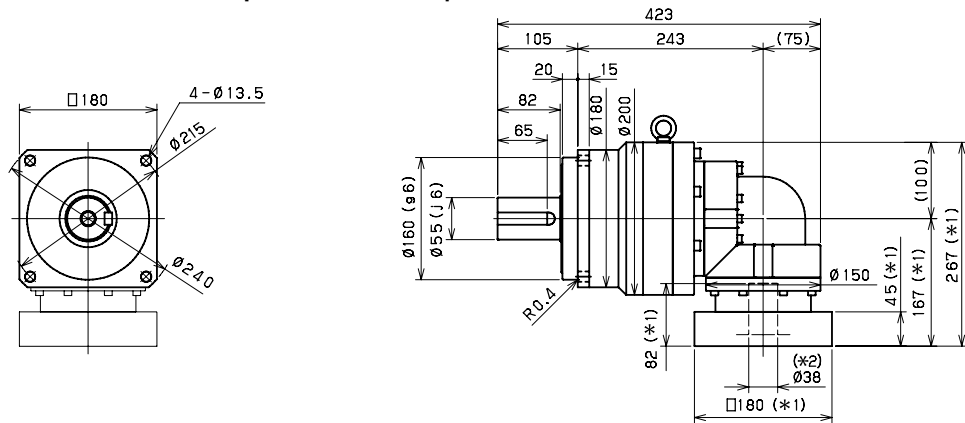
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVB 180 3-Stage Dimensions

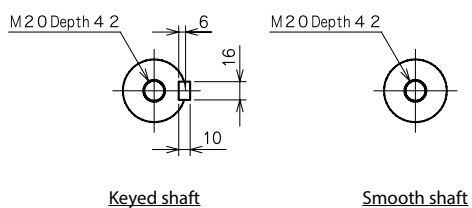
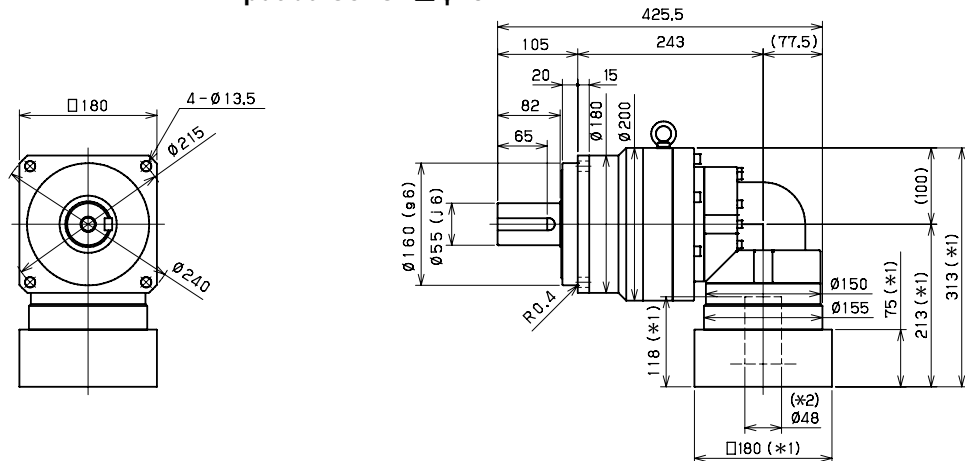
Input bore size $\cong \varnothing 28$ mm



Input bore size $\cong \varnothing 38$ mm



Input bore size $\cong \varnothing 48$ mm



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVB 220 2-Stage Specifications

Frame Size	220									
Stage	2-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	575	765	960	1208	1313	1313	1064	1064
Maximum Acceleration Torque	[Nm]	*2	1160	1555	1945	2112	2112	2063	1812	1529
Maximum Torque	[Nm]	*3	1336	1861	2328	2441	2441	2339	2032	1787
Emergency Stop Torque	[Nm]	*4	2500	3300	4000	4500	4500	4500	3600	3600
Nominal Input Speed	[rpm]	*5	1200							
Maximum Input Speed	[rpm]	*6	3000							
No Load Running Torque	[Nm]	*7	14.5							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	148.0	122.9	113.3	108.1	104.7	102.7	101.6	101.0
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	223.2	198.1	188.6	183.3	180.0	178.0	176.8	176.2
Efficiency	[%]	*10	93							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 6							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	66							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_p , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

*14) Weight may vary slightly between models.

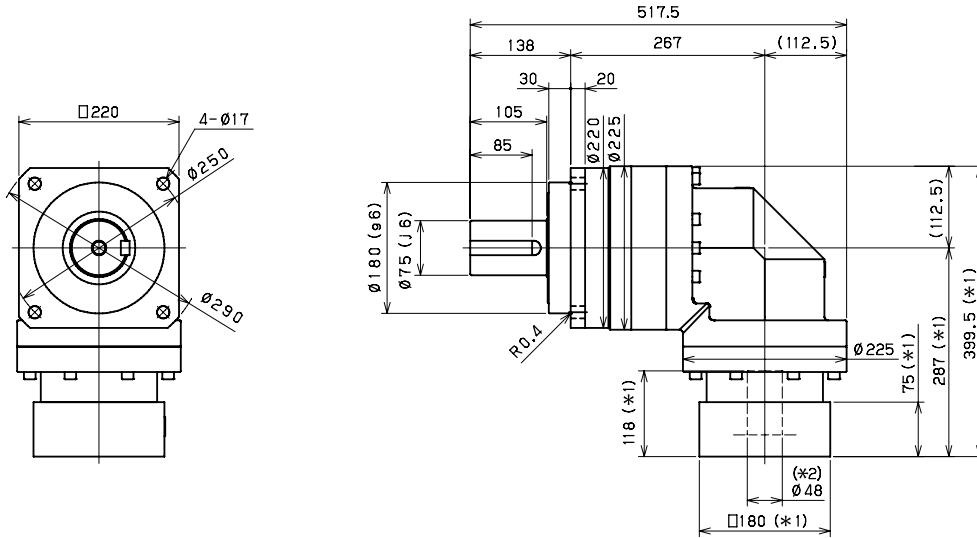
EVB 220 3-Stage Specifications

Frame Size	220									
Stage	3-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	858	1200	1200	1360	1440	948	1440	1440
Maximum Acceleration Torque	[Nm]	*2	1463	2112	2112	2112	2112	1463	2112	2112
Maximum Torque	[Nm]	*3	1463	2112	2112	2112	2112	1463	2112	2112
Emergency Stop Torque	[Nm]	*4	3600	4500	4500	4500	4500	3600	4500	4500
Nominal Input Speed	[rpm]	*5	1500							
Maximum Input Speed	[rpm]	*6	3000							
No Load Running Torque	[Nm]	*7	10.2							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \emptyset 38$)	[kgcm ²]	--	36.32	37.24	35.75	35.47	36.39	34.39	35.21	34.25
Moment of Inertia ($\leq \emptyset 48$)	[kgcm ²]	--	66.14	67.06	65.57	65.28	66.21	64.21	65.03	64.07
Moment of Inertia ($\leq \emptyset 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 9							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	67							

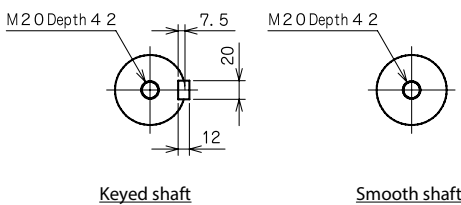
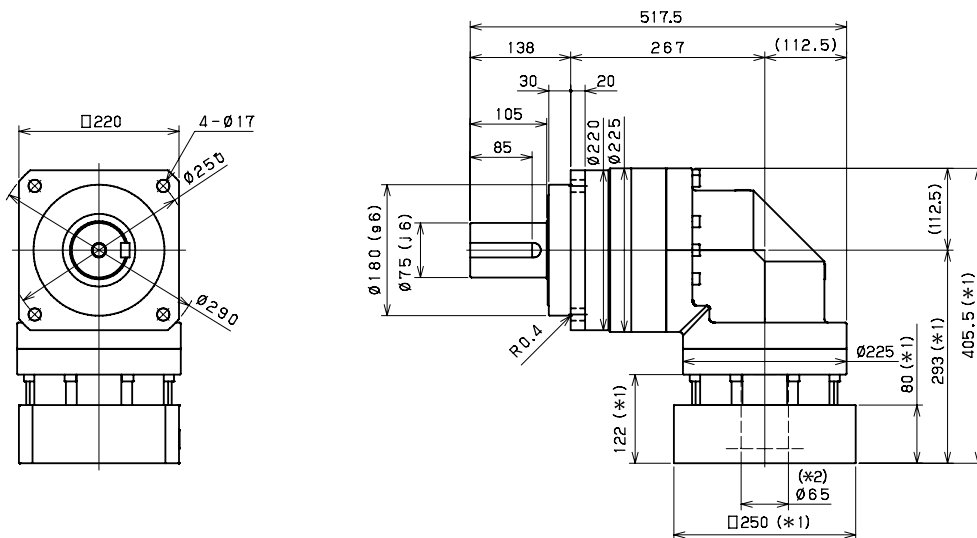
Frame Size	220									
Stage	3-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	948	1440	1440	1440	1440	948	948	
Maximum Acceleration Torque	[Nm]	*2	1246	2112	2112	2112	1728	1246	1131	
Maximum Torque	[Nm]	*3	1246	2112	2112	2112	1728	1246	1131	
Emergency Stop Torque	[Nm]	*4	3600	4500	4500	4500	4500	3600	3600	
Nominal Input Speed	[rpm]	*5	1500							
Maximum Input Speed	[rpm]	*6	3000							
No Load Running Torque	[Nm]	*7	10.2							
Maximum Radial Load	[N]	*8	15000							
Maximum Axial Load	[N]	*9	14000							
Moment of Inertia ($\leq \emptyset 38$)	[kgcm ²]	--	35.10	34.18	34.14	34.11	34.1	34.09	34.08	
Moment of Inertia ($\leq \emptyset 48$)	[kgcm ²]	--	64.92	63.99	63.95	63.93	63.91	63.90	63.90	
Moment of Inertia ($\leq \emptyset 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 9							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	67							

EVB 220 2-Stage Dimensions

Input bore size $\cong \phi 48$ mm



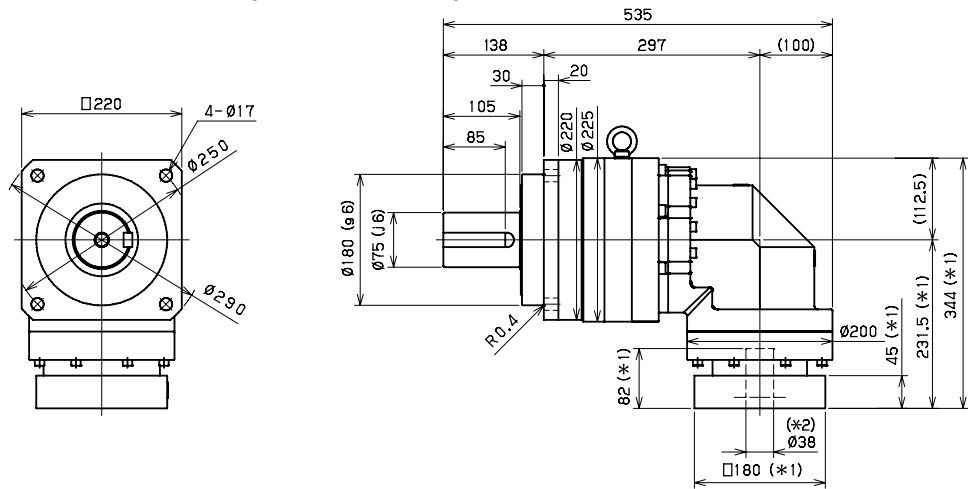
Input bore size $\cong \phi 65$ mm



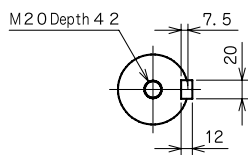
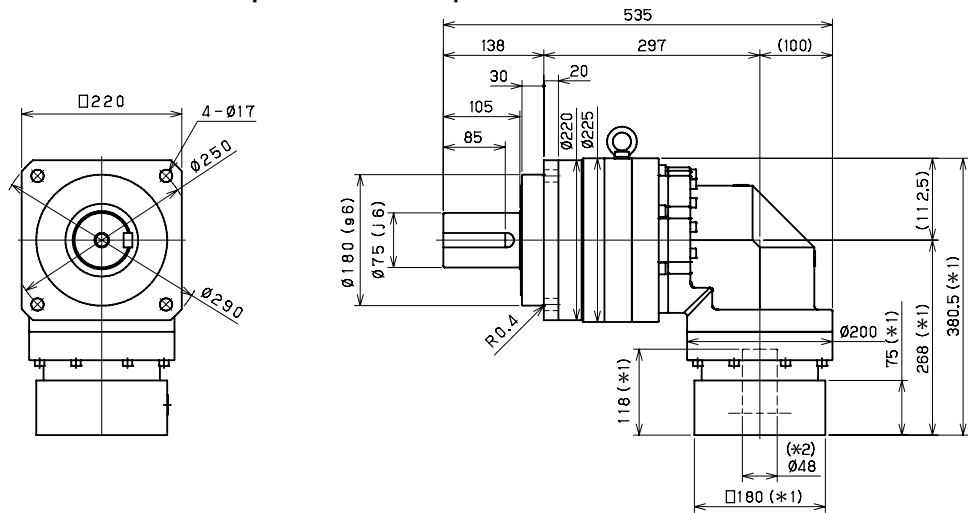
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVB 220 3-Stage Dimensions

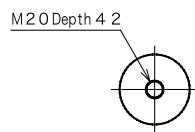
Input bore size $\leq \varnothing 38$ mm



Input bore size $\leq \varnothing 48$ mm



Keyed shaft



Smooth shaft

- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVS SERIES

A detailed photograph of industrial machinery, likely a motor or actuator, shown in a close-up, angled view. The components are metallic and polished, with various flanges, shafts, and mounting brackets visible. The background is a soft, out-of-focus grey.

EVS series

EVS planetary gearbox with right angle

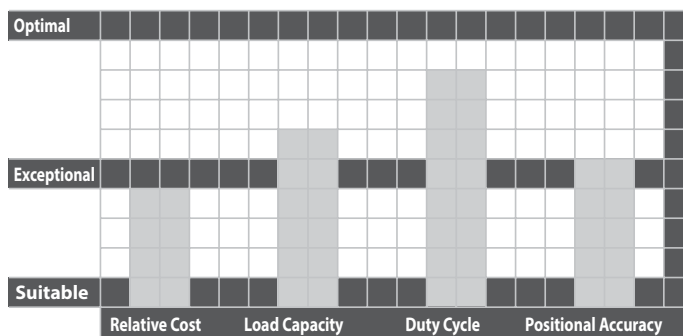
High precision, versatility and high radial and axial load

Description

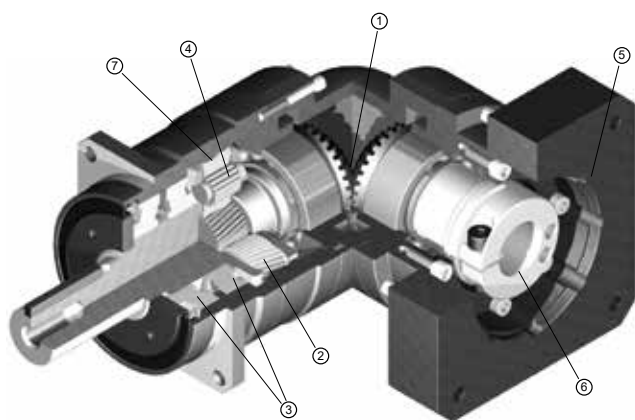
The EVS series is the right angle equivalent to the VRS. Compact and precise, the EVS is the ideal solution for demanding positioning accuracy and speed requirements. Equipped with two rows of robust tapered roller bearings, the EVS runs smoothly and quietly even with the most challenging dynamic and static forces.

The EVS comes with ≤ 4 arc-min backlash, to handle dynamic machine tool and robotic applications with ease. With maximum acceleration torques up to 2960Nm, this product is an excellent partner to higher capacity servomotor models. Our customers specify this product when the industry standard is simply not good enough.

- Proven performer in high end motion control applications with demanding accuracy requirements
- Excellent fit for difficult overhung load situations with a limited space envelope
- The widest range of frame sizes and ratios available in the market
- Best-In-class standard backlash of ≤ 4 arc-min
- Broad range of mounting adapters offer a simple, precise attachment to any motor
- Maintenance-free solution that is lubricated for life. High performance grease allows flexible mounting in any orientation
- Industry standard through-bolt mounting style



Features



1 Right angle bevel gear configuration allows motor to be mounted at a 90 degree position from the gearbox, saving space

- 2 Carburized helical gears with proprietary secondary finishing process for higher accuracy and smooth, quiet operation
- 3 One piece output shaft and planet carrier with dual tapered roller bearings. Higher stiffness, torque capacity and safety factor, with guaranteed alignment of gearing
- 4 Uncaged needle roller bearings provide excellent torque density and torsional rigidity
- 5 Optimized mounting system with active centering on motor pilot diameter guarantees alignment of motor. Motor can be installed in any orientation
- 6 True concentric motor shaft clamping connection, optimized for your specific motor. Reduced inertia for dynamic performance and balanced for high speed operation
- 7 Ring gear machined directly into the housing, not welded or pressed in. Provides greater concentricity and elimination of speed fluctuation

Part Number	EVS -100 B -7 -K 4 -19HB16
Model name - EVS series	Motor mounting code (*)
Size: 060, 075, 100, 140, 180, 210, 240	Backlash: 060, 075, 100, 140 $\leq 4 - 7$ arc-min / 180, 210, 240 $\leq 6 - 9$ arc-min
Design version	Output mounting style: K: Keyed shaft / S: Smooth shaft
Ratio: 2-Stage: 3, 4, 5, 6, 7, 8, 9, 10 3-Stage: 15, 16, 20, 25, 28, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100	

*1) Motor mounting code varies depending on the motor. Use the selection tool link below to configure the code.

EVS 060 2-Stage Specifications

Frame Size	060										
Stage	2-Stage										
Ratio	Unit	Note	3	4	5	6	7	8	9	10	
Nominal Output Torque	[Nm]	*1	12	16	22	24	24	24	19	19	
Maximum Acceleration Torque	[Nm]	*2	29	38	48	54	54	54	38	38	
Maximum Torque	[Nm]	*3	33	45	56	63	63	61	45	45	
Emergency Stop Torque	[Nm]	*4	50	65	80	90	90	90	65	65	
Nominal Input Speed	[rpm]	*5	3300								
Maximum Input Speed	[rpm]	*6	6000								
No Load Running Torque	[Nm]	*7	0.33								
Maximum Radial Load	[N]	*8	3000								
Maximum Axial Load	[N]	*9	2700								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.320	0.271	0.251	0.242	0.235	0.232	0.229	0.228	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.395	0.346	0.326	0.317	0.310	0.307	0.304	0.303	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.584	0.535	0.516	0.506	0.500	0.496	0.494	0.492	
Efficiency	[%]	*10	93								
Torsional Rigidity	[Nm/arc-min]	*11	3								
Maximum Torsional Backlash	[arc-min]	--	≤ 4								
Noise Level	dB [A]	*12	≤ 80								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	2.0								

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

*14) Weight may vary slightly between models.

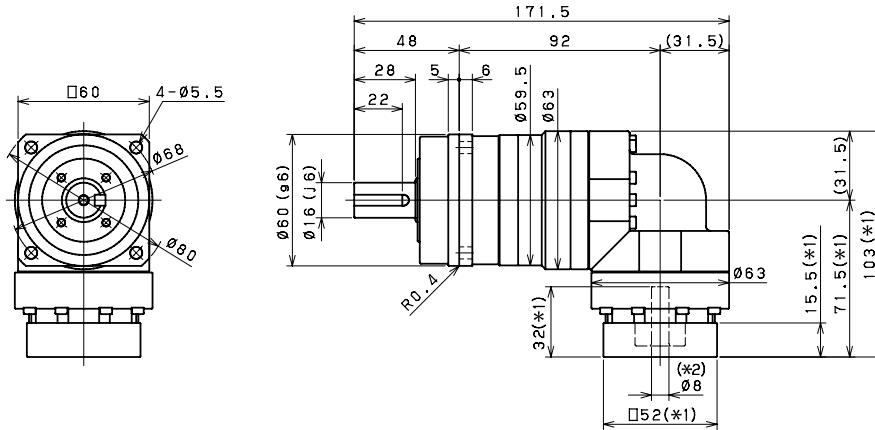
EVS 060 3-Stage Specifications

Frame Size	060										
Stage	3-Stage										
Ratio	Unit	Note	15	16	20	25	28	30	35	40	
Nominal Output Torque	[Nm]	*1	18	26	26	28	28	19	28	28	
Maximum Acceleration Torque	[Nm]	*2	38	54	54	54	54	38	54	54	
Maximum Torque	[Nm]	*3	38	54	54	54	54	38	54	54	
Emergency Stop Torque	[Nm]	*4	65	90	90	90	90	65	90	90	
Nominal Input Speed	[rpm]	*5	3800								
Maximum Input Speed	[rpm]	*6	6000								
No Load Running Torque	[Nm]	*7	0.20								
Maximum Radial Load	[N]	*8	3000								
Maximum Axial Load	[N]	*9	2700								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.074	0.079	0.072	0.071	0.077	0.062	0.070	0.061	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.118	0.124	0.116	0.115	0.122	0.106	0.115	0.106	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88								
Torsional Rigidity	[Nm/arc-min]	*11	3								
Maximum Torsional Backlash	[arc-min]	--	≤ 7								
Noise Level	dB [A]	*12	≤ 80								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	1.8								

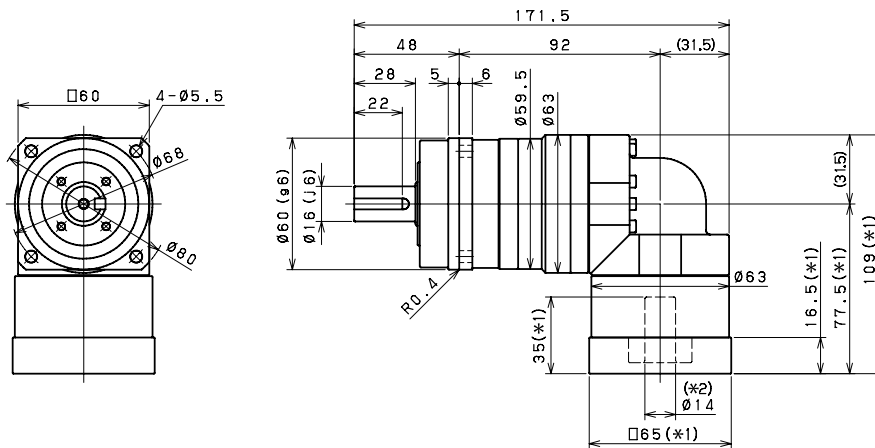
Frame Size	060										
Stage	3-Stage										
Ratio	Unit	Note	45	50	60	70	80	90	100		
Nominal Output Torque	[Nm]	*1	19	28	28	28	28	19	19		
Maximum Acceleration Torque	[Nm]	*2	38	54	54	54	54	38	38		
Maximum Torque	[Nm]	*3	38	54	54	54	54	38	38		
Emergency Stop Torque	[Nm]	*4	65	90	90	90	90	65	65		
Nominal Input Speed	[rpm]	*5	3800								
Maximum Input Speed	[rpm]	*6	6000								
No Load Running Torque	[Nm]	*7	0.2								
Maximum Radial Load	[N]	*8	3000								
Maximum Axial Load	[N]	*9	2700								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.070	0.061	0.061	0.061	0.061	0.061	0.061	0.061	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.115	0.106	0.106	0.106	0.105	0.105	0.105	0.105	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88								
Torsional Rigidity	[Nm/arc-min]	*11	3								
Maximum Torsional Backlash	[arc-min]	--	≤ 7								
Noise Level	dB [A]	*12	≤ 80								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	1.8								

EVS 060 2-Stage Dimensions

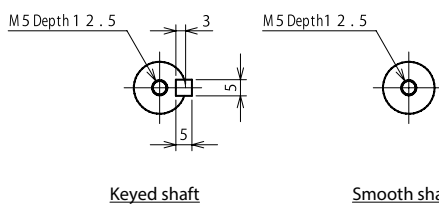
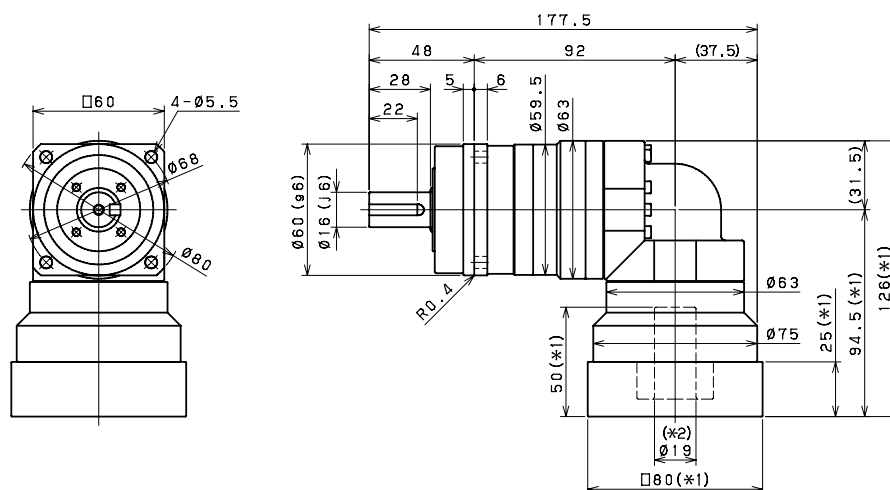
Input bore size $\leq \varnothing 8$ mm



Input bore size $\leq \varnothing 14$ mm



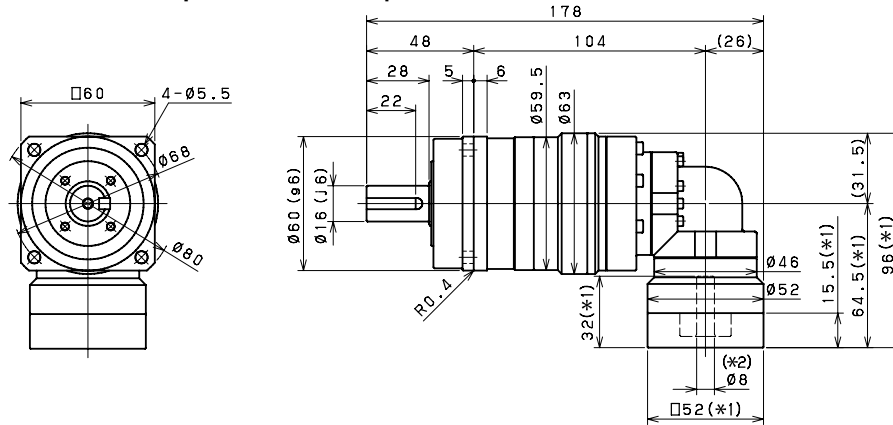
Input bore size $\leq \varnothing 19$ mm



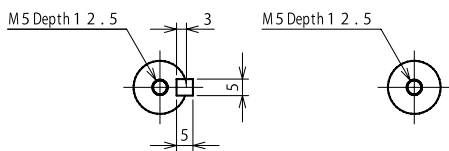
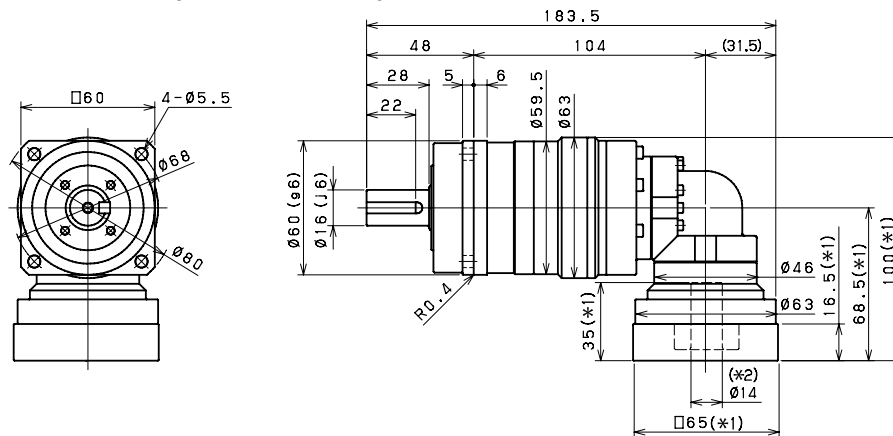
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVS 060 3-Stage Dimensions

Input bore size $\leq \varnothing 8$ mm



Input bore size $\leq \varnothing 14$ mm



Keyed shaft

Smooth shaft

- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVS 075 2-Stage Specifications

Frame Size	075									
Stage	2-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	46	61	67	67	67	74	51	51
Maximum Acceleration Torque	[Nm]	*2	77	105	105	105	105	105	78	78
Maximum Torque	[Nm]	*3	90	121	121	119	119	117	93	93
Emergency Stop Torque	[Nm]	*4	130	170	220	220	220	220	170	170
Nominal Input Speed	[rpm]	*5	3000							
Maximum Input Speed	[rpm]	*6	6000							
No Load Running Torque	[Nm]	*7	1.13							
Maximum Radial Load	[N]	*8	4300							
Maximum Axial Load	[N]	*9	3900							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	2.07	1.87	1.78	1.74	1.72	1.7	1.69	1.69
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.40	2.20	2.11	2.07	2.05	2.03	2.02	2.02
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.53	4.32	4.24	4.2	4.17	4.16	4.15	4.15
Efficiency	[%]	*10	93							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 4							
Noise Level	dB [A]	*12	≤ 80							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	4.8							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_v , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

*14) Weight may vary slightly between models.

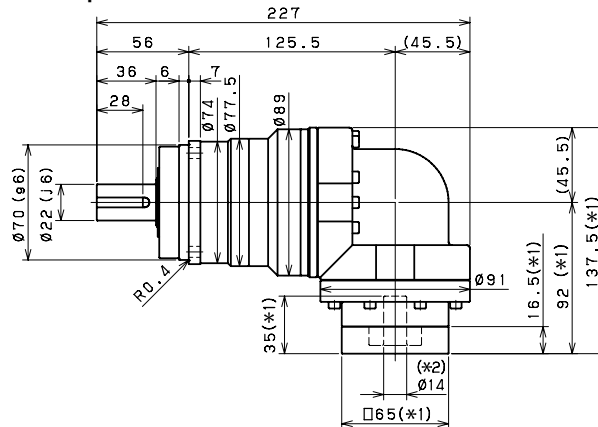
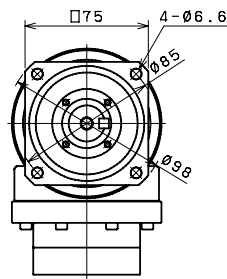
EVS 075 3-Stage Specifications

Frame Size	075									
Stage	3-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	43	66	68	72	78	47	73	78
Maximum Acceleration Torque	[Nm]	*2	77	128	128	128	128	77	128	128
Maximum Torque	[Nm]	*3	77	128	128	128	128	77	128	128
Emergency Stop Torque	[Nm]	*4	170	220	220	220	220	170	220	220
Nominal Input Speed	[rpm]	*5	3300							
Maximum Input Speed	[rpm]	*6	6000							
No Load Running Torque	[Nm]	*7	0.55							
Maximum Radial Load	[N]	*8	4300							
Maximum Axial Load	[N]	*9	3900							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.33	0.38	0.33	0.32	0.37	0.25	0.32	0.25
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.41	0.46	0.40	0.40	0.45	0.32	0.40	0.32
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.60	0.65	0.59	0.59	0.64	0.51	0.58	0.51
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 7							
Noise Level	dB [A]	*12	≤ 80							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	4.1							

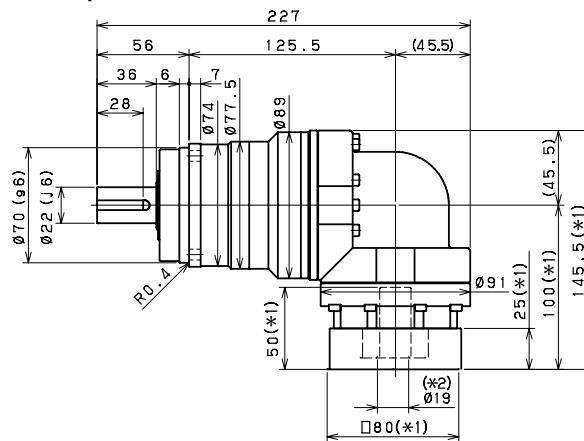
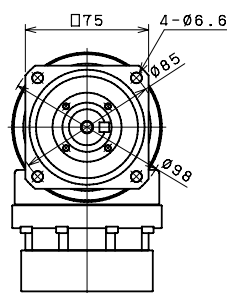
Frame Size	075									
Stage	3-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	47	73	73	73	78	52	52	
Maximum Acceleration Torque	[Nm]	*2	78	128	128	128	128	78	78	
Maximum Torque	[Nm]	*3	78	128	128	128	128	78	78	
Emergency Stop Torque	[Nm]	*4	170	220	220	220	220	170	170	
Nominal Input Speed	[rpm]	*5	3300							
Maximum Input Speed	[rpm]	*6	6000							
No Load Running Torque	[Nm]	*7	0.55							
Maximum Radial Load	[N]	*8	4300							
Maximum Axial Load	[N]	*9	3900							
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.32	0.25	0.25	0.25	0.25	0.25	0.25	
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.39	0.32	0.32	0.32	0.32	0.32	0.32	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.58	0.51	0.51	0.51	0.51	0.51	0.51	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 7							
Noise Level	dB [A]	*12	≤ 80							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	4.1							

EVS 075 2-Stage Dimensions

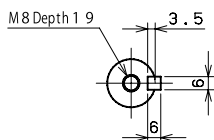
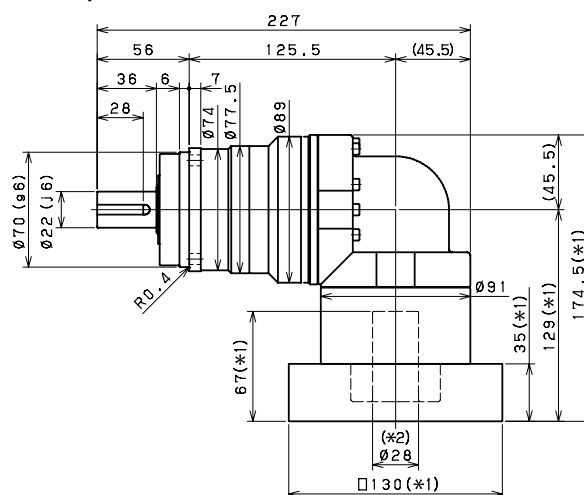
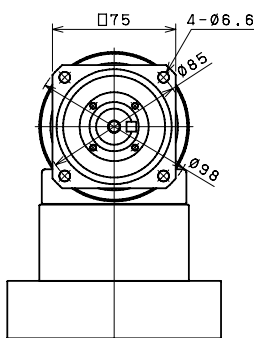
Input bore size $\leq \varnothing 14$ mm



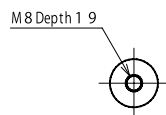
Input bore size $\leq \varnothing 19$ mm



Input bore size $\leq \varnothing 28$ mm



Keyed shaft



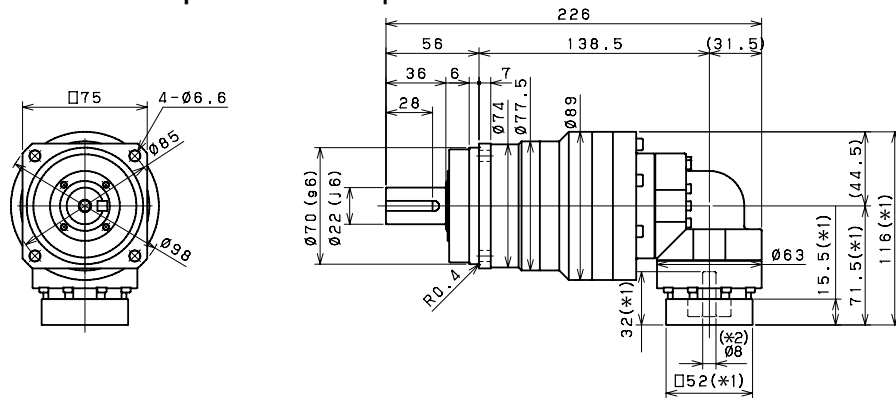
Smooth shaft

*1) Length will vary depending on motor

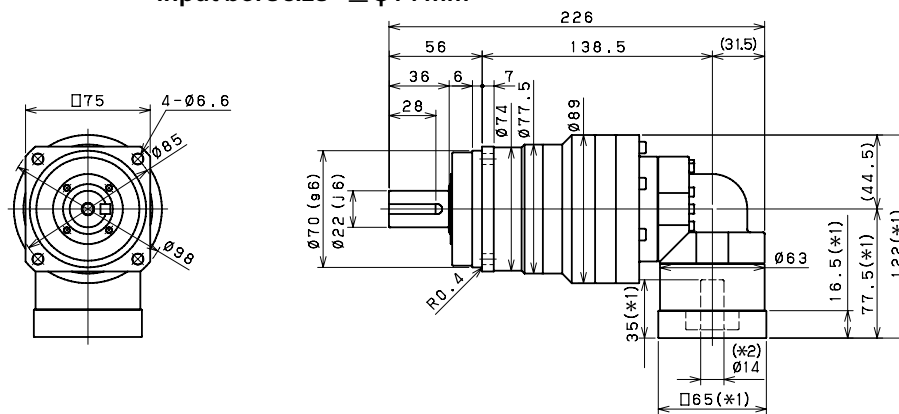
*2) Bushing will be inserted to adapt to motor shaft

EVS 075 3-Stage Dimensions

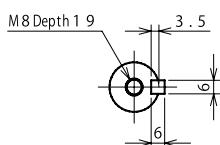
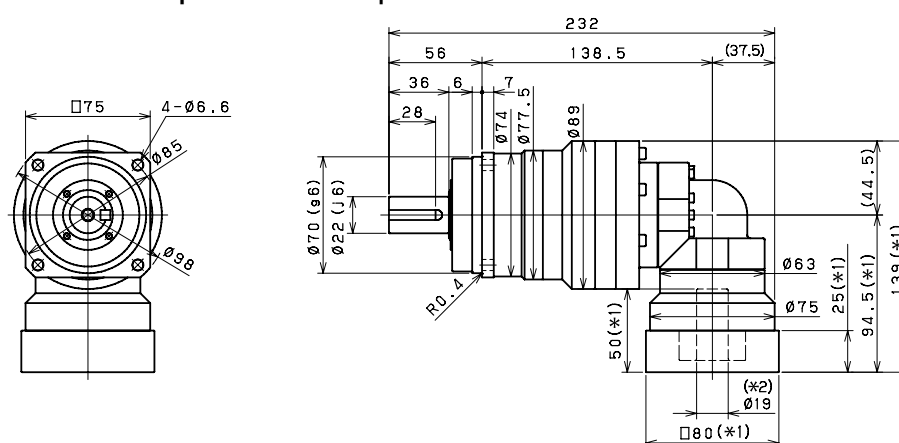
Input bore size $\leq \phi 8$ mm



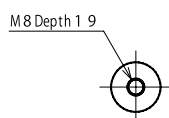
Input bore size $\leq \phi 14$ mm



Input bore size $\leq \phi 19$ mm



Keyed shaft



Smooth shaft

*1) Length will vary depending on motor

*2) Bushing will be inserted to adapt to motor shaft

EVS 100 2-Stage Specifications

Frame Size	100									
Stage	2-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	77	108	123	154	154	154	128	128
Maximum Acceleration Torque	[Nm]	*2	172	227	272	340	340	340	240	240
Maximum Torque	[Nm]	*3	205	271	325	401	401	401	288	288
Emergency Stop Torque	[Nm]	*4	320	430	500	550	550	550	450	450
Nominal Input Speed	[rpm]	*5	3000							
Maximum Input Speed	[rpm]	*6	6000							
No Load Running Torque	[Nm]	*7	1.88							
Maximum Radial Load	[N]	*8	7000							
Maximum Axial Load	[N]	*9	6300							
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	6.61	5.41	4.97	4.73	4.62	4.53	4.47	4.45
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	8.21	7.01	6.57	6.33	6.22	6.12	6.07	6.04
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	15.28	14.08	13.64	13.40	13.29	13.20	13.14	13.11
Efficiency	[%]	*10	93							
Torsional Rigidity	[Nm/arc-min]	*11	31							
Maximum Torsional Backlash	[arc-min]	--	≤ 4							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	10.5							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

*14) Weight may vary slightly between models.

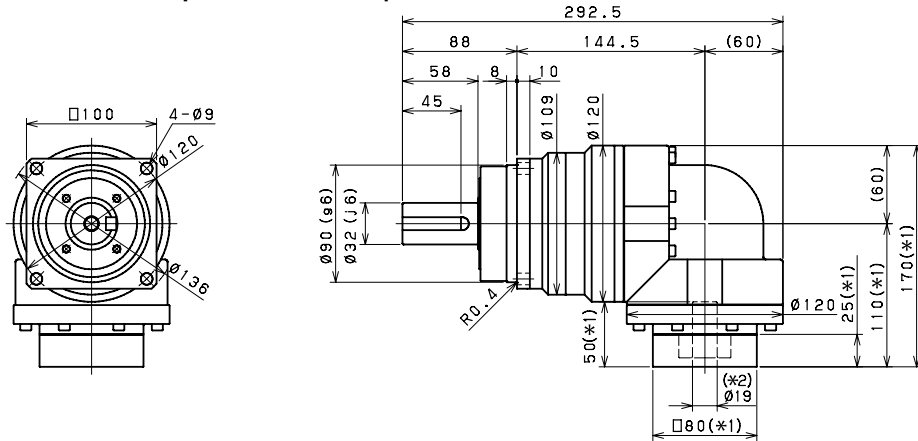
EVS 100 3-Stage Specifications

Frame Size	100									
Stage	3-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	125	136	162	174	174	132	174	172
Maximum Acceleration Torque	[Nm]	*2	229	295	340	340	340	229	340	340
Maximum Torque	[Nm]	*3	229	295	340	340	340	229	340	340
Emergency Stop Torque	[Nm]	*4	450	550	550	550	550	450	550	550
Nominal Input Speed	[rpm]	*5	3100							
Maximum Input Speed	[rpm]	*6	6000							
No Load Running Torque	[Nm]	*7	1.11							
Maximum Radial Load	[N]	*8	7000							
Maximum Axial Load	[N]	*9	6300							
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	2.24	2.45	2.19	2.18	2.40	1.87	2.16	1.86
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.57	2.78	2.52	2.51	2.73	2.20	2.49	2.19
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.70	4.91	4.65	4.63	4.86	4.33	4.62	4.32
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	31							
Maximum Torsional Backlash	[arc-min]	--	≤ 7							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	10.1							

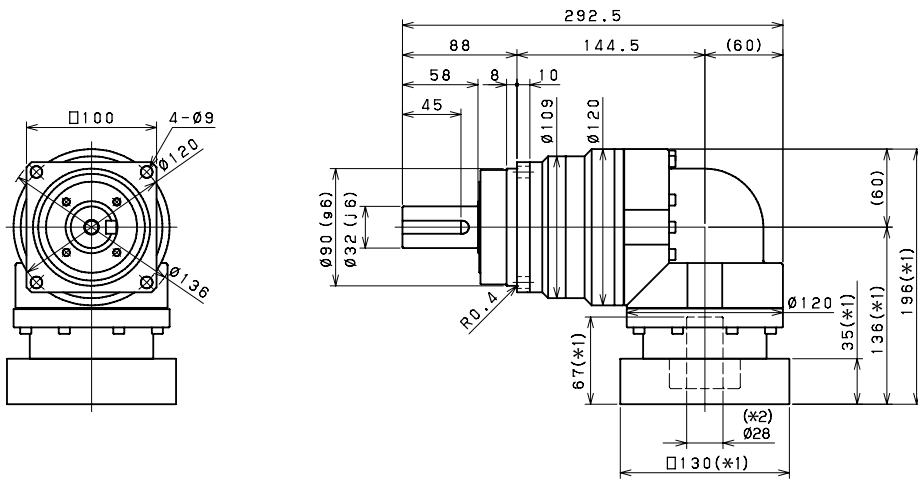
Frame Size	100									
Stage	3-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	132	174	174	174	174	132	132	
Maximum Acceleration Torque	[Nm]	*2	240	340	340	340	340	240	240	
Maximum Torque	[Nm]	*3	240	340	340	340	340	240	240	
Emergency Stop Torque	[Nm]	*4	450	550	550	550	550	450	450	
Nominal Input Speed	[rpm]	*5	3100							
Maximum Input Speed	[rpm]	*6	6000							
No Load Running Torque	[Nm]	*7	1.11							
Maximum Radial Load	[N]	*8	7000							
Maximum Axial Load	[N]	*9	6300							
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	2.15	1.86	1.85	1.85	1.85	1.85	1.85	
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.48	2.19	2.18	2.18	2.18	2.18	2.18	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.61	4.31	4.31	4.31	4.31	4.31	4.31	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	31							
Maximum Torsional Backlash	[arc-min]	--	≤ 7							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	10.1							

EVS 100 2-Stage Dimensions

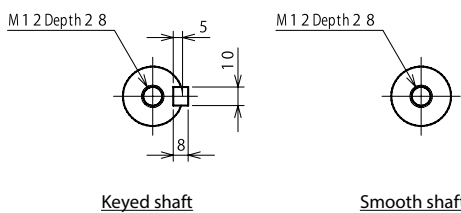
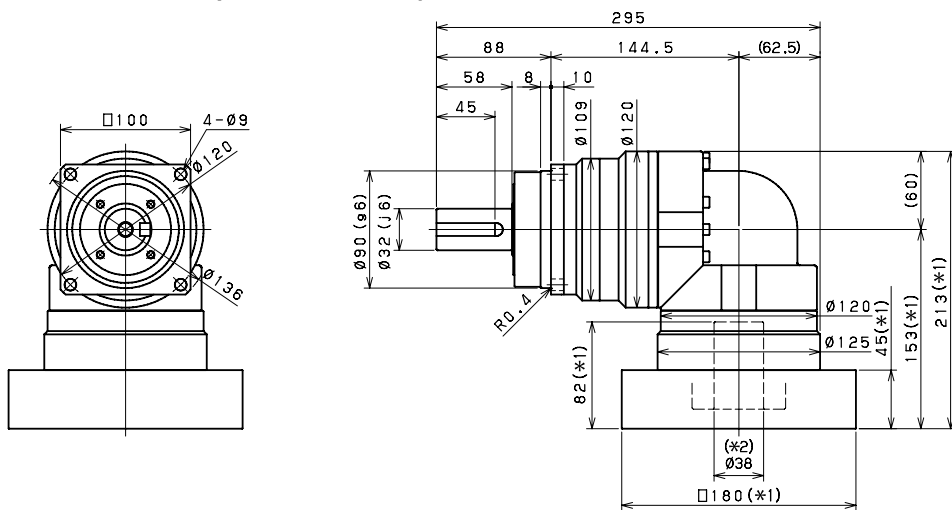
Input bore size $\leq \varnothing 19$ mm



Input bore size $\leq \varnothing 28$ mm



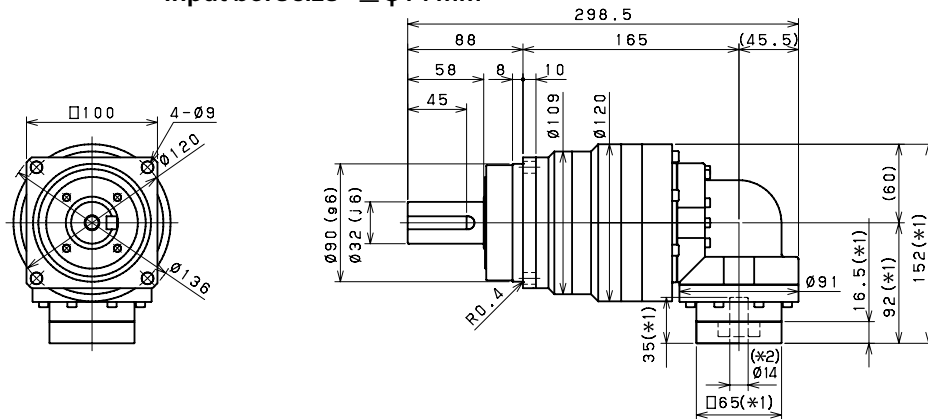
Input bore size $\leq \varnothing 38$ mm



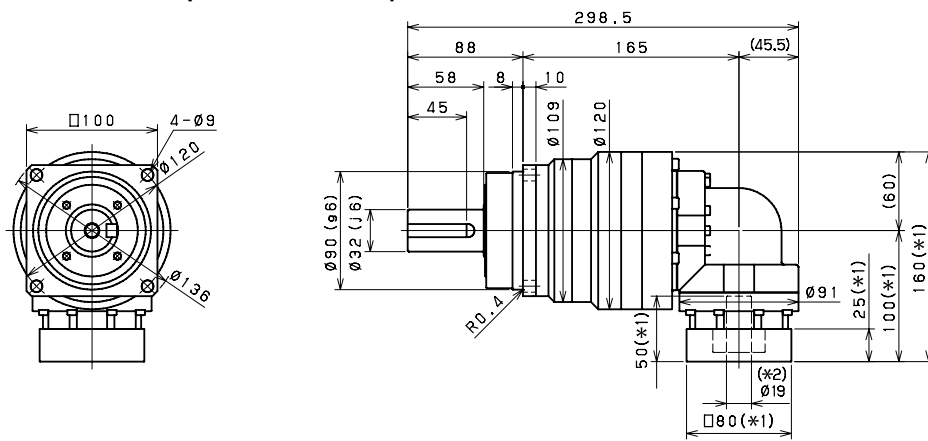
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVS 100 3-Stage Dimensions

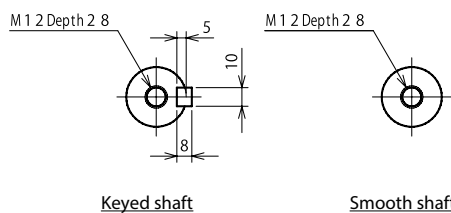
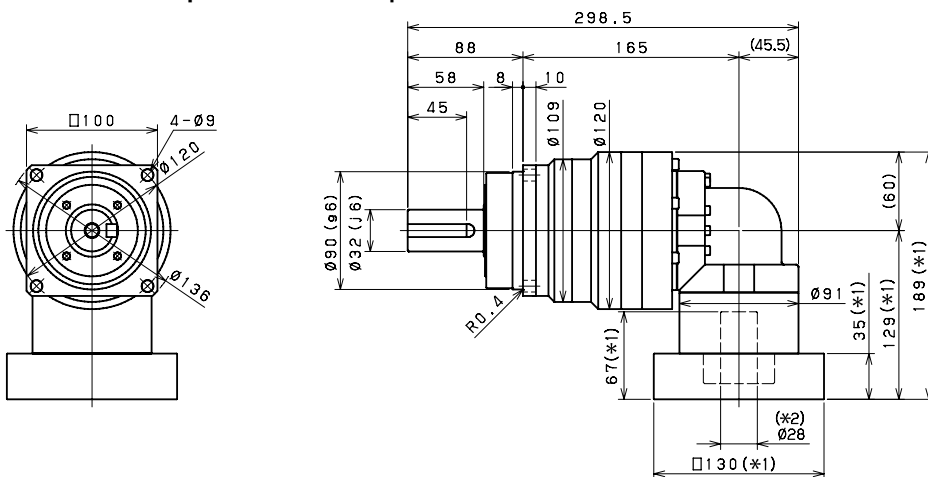
Input bore size $\leq \varnothing 14$ mm



Input bore size $\leq \varnothing 19$ mm



Input bore size $\leq \varnothing 28$ mm



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVS 140 2-Stage Specifications

Frame Size	140										
Stage	2-Stage										
Ratio	Unit	Note	3	4	5	6	7	8	9	10	
Nominal Output Torque	[Nm]	*1	132	181	205	266	307	307	233	233	
Maximum Acceleration Torque	[Nm]	*2	296	389	458	595	687	687	480	480	
Maximum Torque	[Nm]	*3	329	452	531	664	766	766	559	559	
Emergency Stop Torque	[Nm]	*4	700	950	1100	1100	1100	1100	750	750	
Nominal Input Speed	[rpm]	*5	2000								
Maximum Input Speed	[rpm]	*6	5000								
No Load Running Torque	[Nm]	*7	3.26								
Maximum Radial Load	[N]	*8	10000								
Maximum Axial Load	[N]	*9	9000								
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--	--	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	23.01	18.49	16.85	15.97	15.55	15.21	14.75	14.64	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	27.38	22.86	21.22	20.34	19.92	19.58	19.12	19.02	
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	40.61	36.09	34.45	33.57	33.15	32.81	32.25	32.25	
Efficiency	[%]	*10	93								
Torsional Rigidity	[Nm/arc-min]	*11	60								
Maximum Torsional Backlash	[arc-min]	--	≤ 4								
Noise Level	dB [A]	*12	≤ 85								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	20.6								

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

*14) Weight may vary slightly between models.

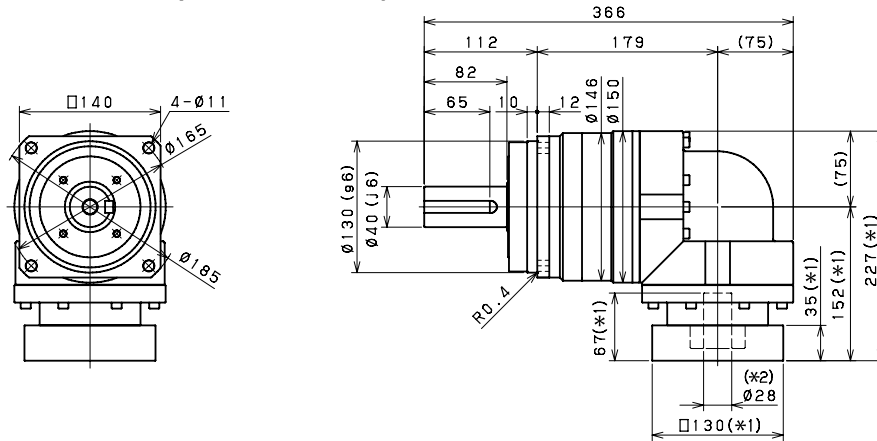
EVS 140 3-Stage Specifications

Frame Size	140									
Stage	3-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	230	307	316	352	352	240	352	337
Maximum Acceleration Torque	[Nm]	*2	456	687	687	687	687	456	687	687
Maximum Torque	[Nm]	*3	456	687	687	687	687	456	687	687
Emergency Stop Torque	[Nm]	*4	750	1100	1100	1100	1100	750	1100	1100
Nominal Input Speed	[rpm]	*5	2300							
Maximum Input Speed	[rpm]	*6	5000							
No Load Running Torque	[Nm]	*7	2.56							
Maximum Radial Load	[N]	*8	10000							
Maximum Axial Load	[N]	*9	9000							
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	6.40	7.29	6.22	6.15	7.09	4.99	6.09	4.94
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	7.99	8.88	7.81	7.75	8.68	6.58	7.68	6.54
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	15.06	15.95	14.88	14.82	15.75	13.66	14.76	13.61
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 7							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	20.7							

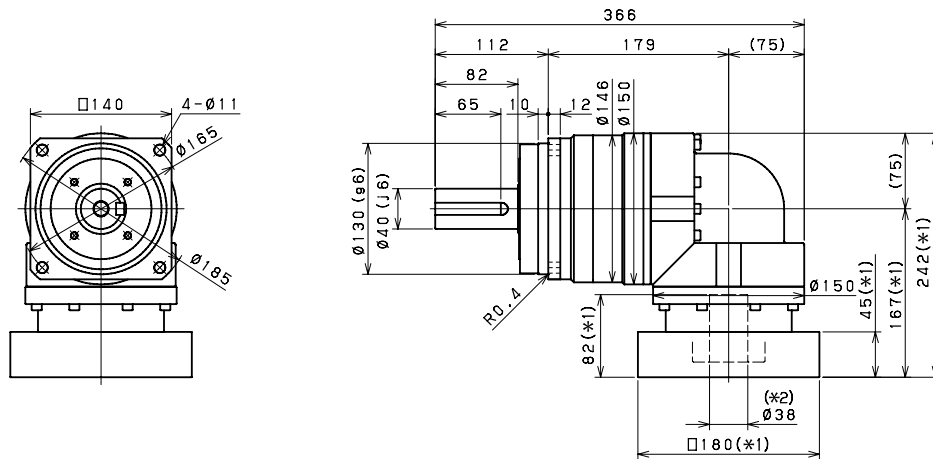
Frame Size	140									
Stage	3-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	240	352	352	352	352	240	240	
Maximum Acceleration Torque	[Nm]	*2	480	687	687	687	687	480	480	
Maximum Torque	[Nm]	*3	480	687	687	687	687	480	480	
Emergency Stop Torque	[Nm]	*4	750	1100	1100	1100	1100	750	750	
Nominal Input Speed	[rpm]	*5	2300							
Maximum Input Speed	[rpm]	*6	5000							
No Load Running Torque	[Nm]	*7	2.56							
Maximum Radial Load	[N]	*8	10000							
Maximum Axial Load	[N]	*9	9000							
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	6.07	4.93	4.92	4.91	4.91	4.91	4.91	
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	7.66	6.52	6.51	6.51	6.50	6.50	6.50	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	14.73	13.59	13.59	13.58	13.58	13.57	13.57	
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 7							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	20.7							

EVS 140 2-Stage Dimensions

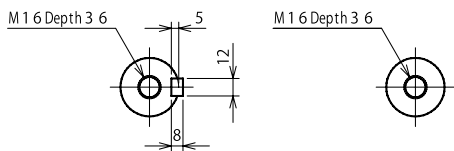
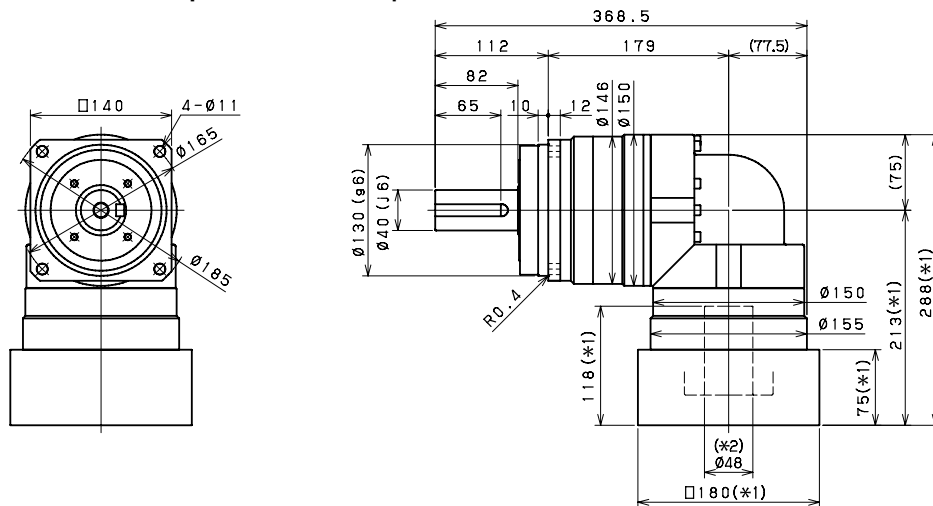
Input bore size $\leq \varnothing 28$ mm



Input bore size $\leq \varnothing 38$ mm



Input bore size $\leq \varnothing 48$ mm



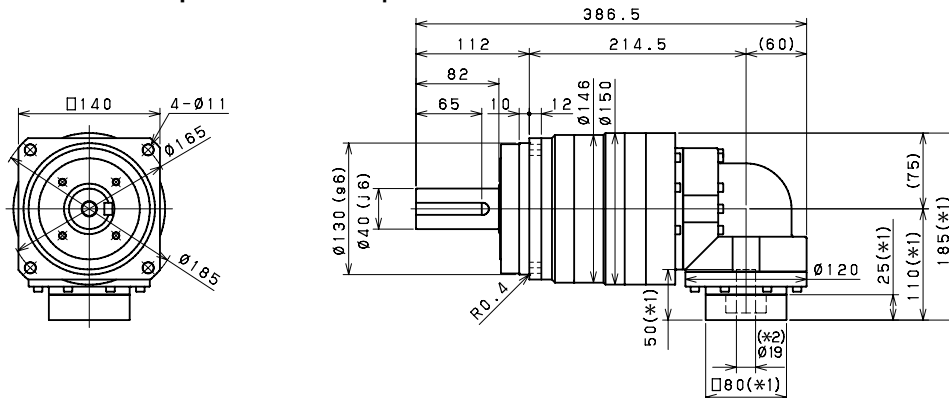
Keyed shaft

Smooth shaft

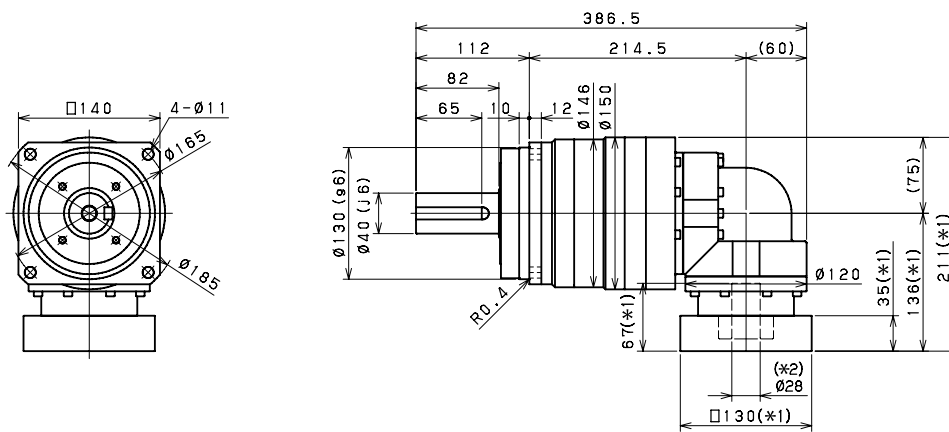
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVS 140 3-Stage Dimensions

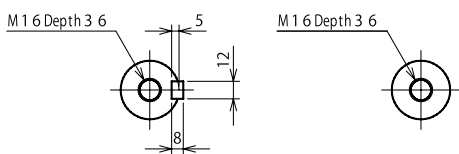
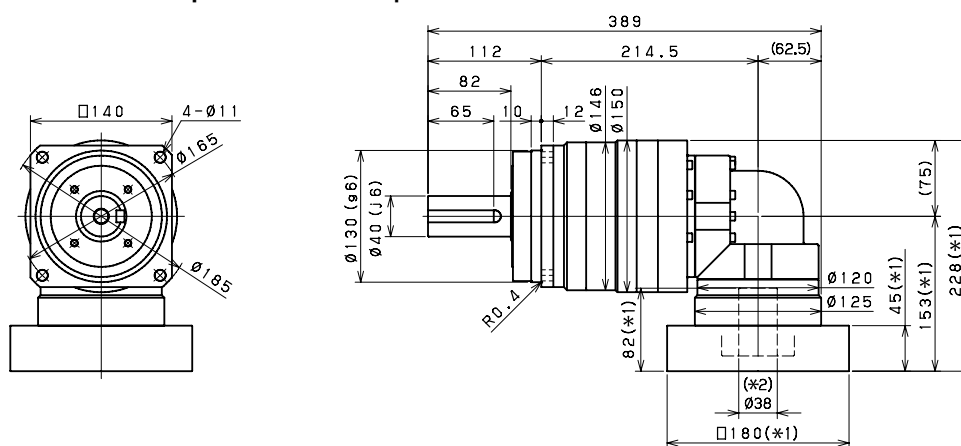
Input bore size $\leq \varnothing 19$ mm



Input bore size $\leq \varnothing 28$ mm



Input bore size $\leq \varnothing 38$ mm



Keyed shaft

Smooth shaft

*1) Length will vary depending on motor

*2) Bushing will be inserted to adapt to motor shaft

EVS 180 2-Stage Specifications

Frame Size	180									
Stage	2-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	421	604	646	646	646	646	478	478
Maximum Acceleration Torque	[Nm]	*2	679	904	1127	1315	1315	1315	931	931
Maximum Torque	[Nm]	*3	750	1064	1327	1498	1498	1498	1144	1144
Emergency Stop Torque	[Nm]	*4	1300	1700	2000	2500	2500	2500	2000	2000
Nominal Input Speed	[rpm]	*5	1500							
Maximum Input Speed	[rpm]	*6	4000							
No Load Running Torque	[Nm]	*7	10.8							
Maximum Radial Load	[N]	*8	19000							
Maximum Axial Load	[N]	*9	17000							
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	92.00	76.72	71.23	68.28	66.08	65.00	64.38	64.10
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	126.90	111.60	106.10	103.10	100.90	99.86	99.25	98.97
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	212.5	197.2	191.7	188.7	186.6	185.5	184.9	184.6
Efficiency	[%]	*10	93							
Torsional Rigidity	[Nm/arc-min]	*11	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 6							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	52							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

*14) Weight may vary slightly between models.

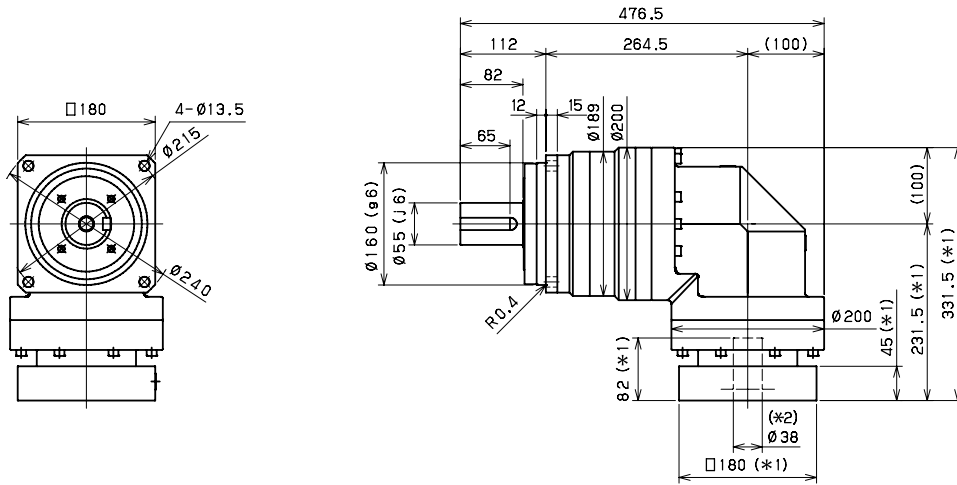
EVS 180 3-Stage Specifications

Frame Size	180									
Stage	3-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	442	583	646	683	710	480	710	465
Maximum Acceleration Torque	[Nm]	*2	916	1315	1315	1315	1315	916	1315	1315
Maximum Torque	[Nm]	*3	916	1315	1315	1315	1315	916	1315	1315
Emergency Stop Torque	[Nm]	*4	2000	2500	2500	2500	2500	2000	2500	2500
Nominal Input Speed	[rpm]	*5	2100							
Maximum Input Speed	[rpm]	*6	4000							
No Load Running Torque	[Nm]	*7	4.7							
Maximum Radial Load	[N]	*8	19000							
Maximum Axial Load	[N]	*9	17000							
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	11.42	12.03	11.11	10.96	11.57	10.31	10.82	10.23
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	20.21	20.82	19.90	19.74	20.36	19.10	19.60	19.02
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	25.03	25.64	24.72	24.56	25.18	23.92	24.42	23.84
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 9							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	39							

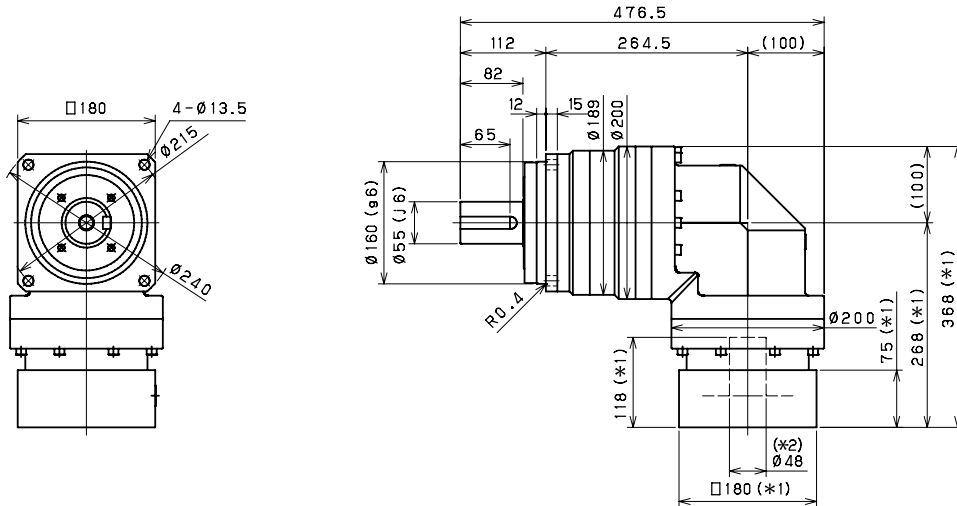
Frame Size	180									
Stage	3-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	480	710	710	710	710	480	480	
Maximum Acceleration Torque	[Nm]	*2	931	1315	1315	1315	1315	931	931	
Maximum Torque	[Nm]	*3	931	1315	1315	1315	1315	931	931	
Emergency Stop Torque	[Nm]	*4	2000	2500	2500	2500	2500	2000	2000	
Nominal Input Speed	[rpm]	*5	2100							
Maximum Input Speed	[rpm]	*6	4000							
No Load Running Torque	[Nm]	*7	4.7							
Maximum Radial Load	[N]	*8	19000							
Maximum Axial Load	[N]	*9	17000							
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	10.76	10.19	10.17	10.16	10.15	10.14	10.14	
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	19.54	18.98	18.96	18.94	18.94	18.93	18.93	
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	24.36	23.80	23.78	23.77	23.76	23.75	23.75	
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 9							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	39							

EVS 180 2-Stage Dimensions

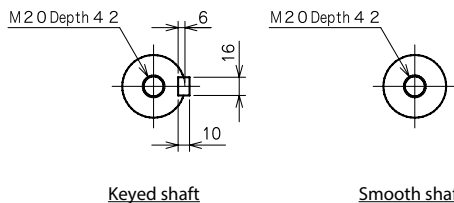
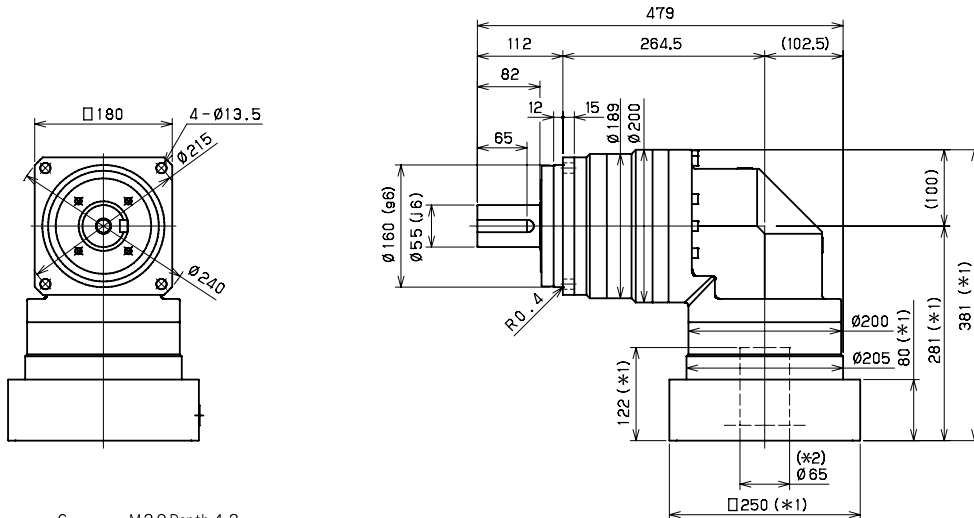
Input bore size $\geq \varnothing 38$ mm



Input bore size $\geq \varnothing 48$ mm



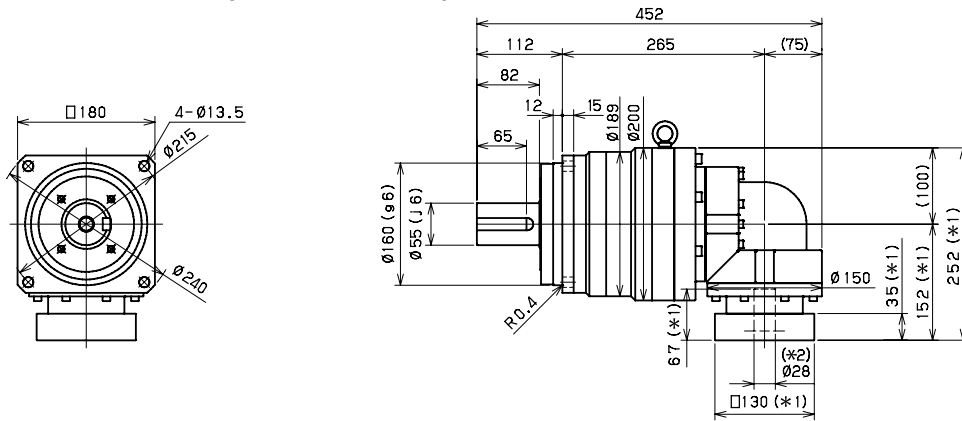
Input bore size $\geq \varnothing 65$ mm



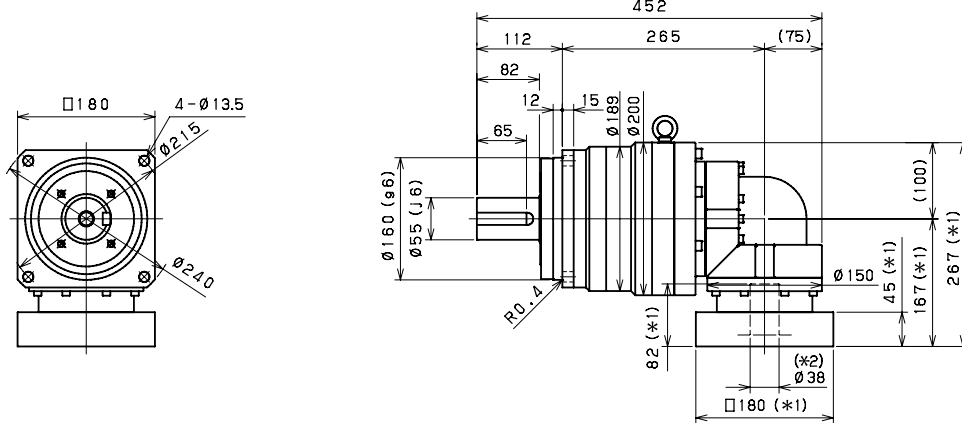
*1) Length will vary depending on motor
 *2) Bushing will be inserted to adapt to motor shaft

EVS 180 3-Stage Dimensions

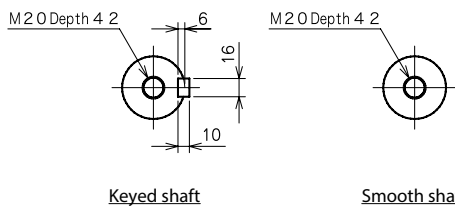
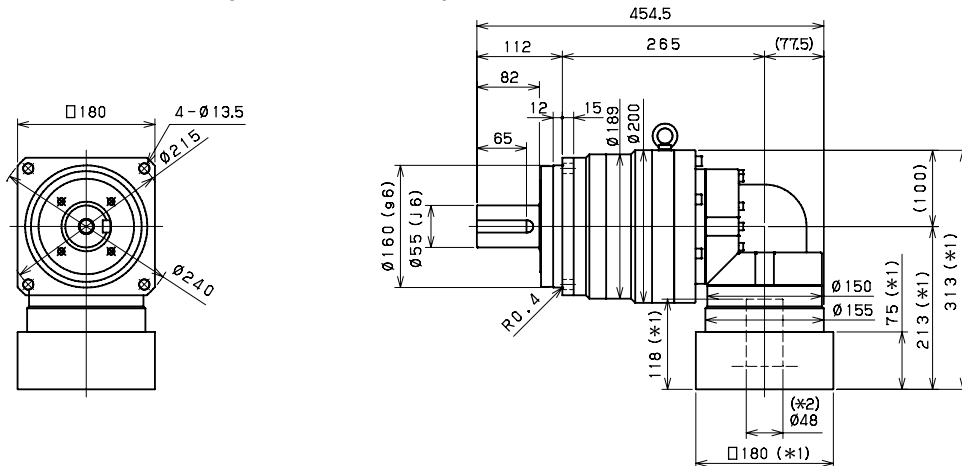
Input bore size $\cong \varnothing 28$ mm



Input bore size $\cong \varnothing 38$ mm



Input bore size $\cong \varnothing 48$ mm



*1) Length will vary depending on motor
*2) Bushing will be inserted to adapt to motor shaft

EVS 210 2-Stage Specifications

Frame Size	210									
Stage	2-Stage									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	575	765	960	1208	1313	1313	1064	1064
Maximum Acceleration Torque	[Nm]	*2	1160	1555	1945	2112	2112	2063	1812	1529
Maximum Torque	[Nm]	*3	1336	1861	2328	2441	2441	2339	2032	1787
Emergency Stop Torque	[Nm]	*4	2500	3300	4000	4500	4500	4500	3600	3600
Nominal Input Speed	[rpm]	*5	1200							
Maximum Input Speed	[rpm]	*6	3000							
No Load Running Torque	[Nm]	*7	14.5							
Maximum Radial Load	[N]	*8	24000							
Maximum Axial Load	[N]	*9	22000							
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	149.7	123.8	113.9	108.5	105.0	103.0	101.7	101.1
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	224.9	199.0	189.1	183.7	180.3	178.2	176.9	176.3
Efficiency	[%]	*10	93							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 6							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	71							

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

*14) Weight may vary slightly between models.

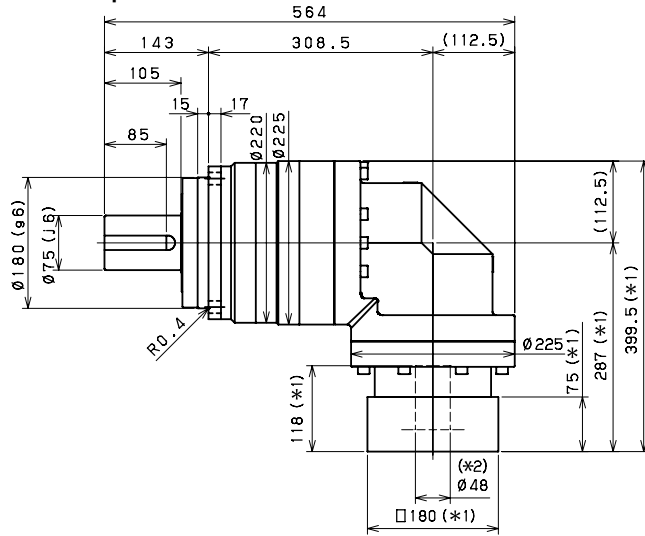
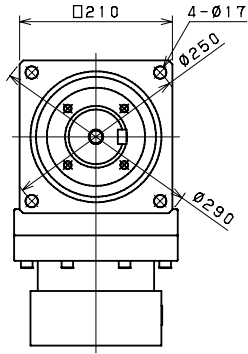
EVS 210 3-Stage Specifications

Frame Size	210									
Stage	3-Stage									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	858	1200	1200	1360	1440	948	1440	1440
Maximum Acceleration Torque	[Nm]	*2	1463	2112	2112	2112	2112	1463	2112	2112
Maximum Torque	[Nm]	*3	1463	2112	2112	2112	2112	1463	2112	2112
Emergency Stop Torque	[Nm]	*4	3600	4500	4500	4500	4500	3600	4500	4500
Nominal Input Speed	[rpm]	*5	1500							
Maximum Input Speed	[rpm]	*6	3000							
No Load Running Torque	[Nm]	*7	10.2							
Maximum Radial Load	[N]	*8	24000							
Maximum Axial Load	[N]	*9	22000							
Moment of Inertia ($\leq \emptyset 38$)	[kgcm ²]	--	36.39	37.30	35.79	35.49	36.41	34.41	35.22	34.26
Moment of Inertia ($\leq \emptyset 48$)	[kgcm ²]	--	66.21	67.12	65.61	65.31	66.23	64.23	65.04	64.08
Moment of Inertia ($\leq \emptyset 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	--
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 9							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	73							

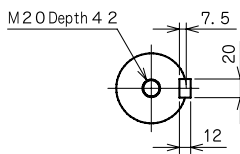
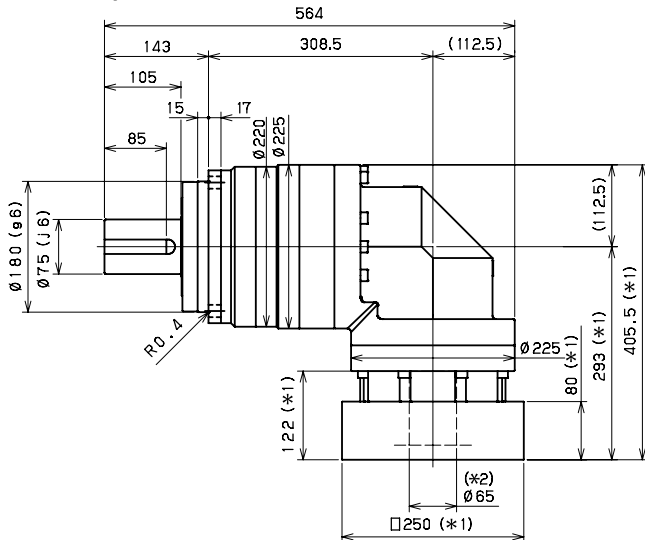
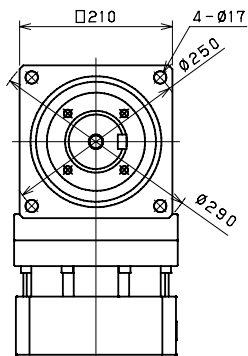
Frame Size	210									
Stage	3-Stage									
Ratio	Unit	Note	45	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	948	1440	1440	1440	1440	948	948	
Maximum Acceleration Torque	[Nm]	*2	1246	2112	2112	2112	1728	1246	1131	
Maximum Torque	[Nm]	*3	1246	2112	2112	2112	1728	1246	1131	
Emergency Stop Torque	[Nm]	*4	3600	4500	4500	4500	4500	3600	3600	
Nominal Input Speed	[rpm]	*5	1500							
Maximum Input Speed	[rpm]	*6	3000							
No Load Running Torque	[Nm]	*7	10.2							
Maximum Radial Load	[N]	*8	24000							
Maximum Axial Load	[N]	*9	22000							
Moment of Inertia ($\leq \emptyset 38$)	[kgcm ²]	--	35.11	34.18	34.14	34.12	34.10	34.09	34.08	
Moment of Inertia ($\leq \emptyset 48$)	[kgcm ²]	--	64.92	64.00	63.96	63.93	63.92	63.90	63.90	
Moment of Inertia ($\leq \emptyset 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88							
Torsional Rigidity	[Nm/arc-min]	*11	400							
Maximum Torsional Backlash	[arc-min]	--	≤ 9							
Noise Level	dB [A]	*12	≤ 85							
Protection Class	--	*13	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*14	73							

EVS 210 2-Stage Dimensions

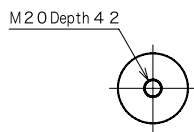
Input bore size $\leq \phi 48$ mm



Input bore size $\leq \phi 65$ mm



Keyed shaft



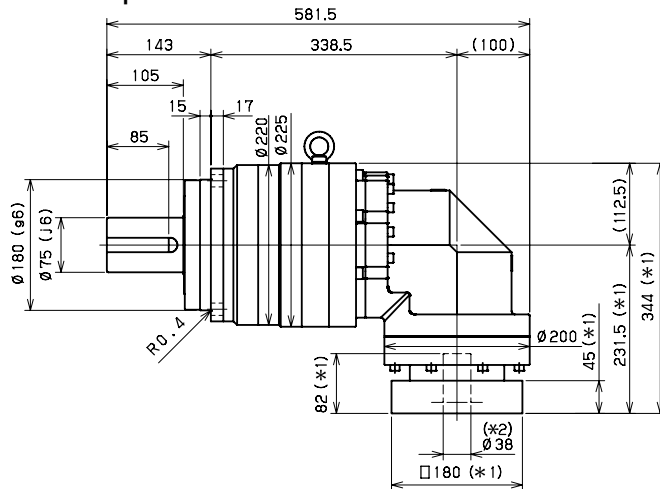
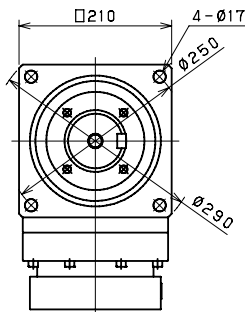
Smooth shaft

*1) Length will vary depending on motor

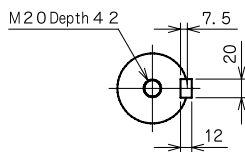
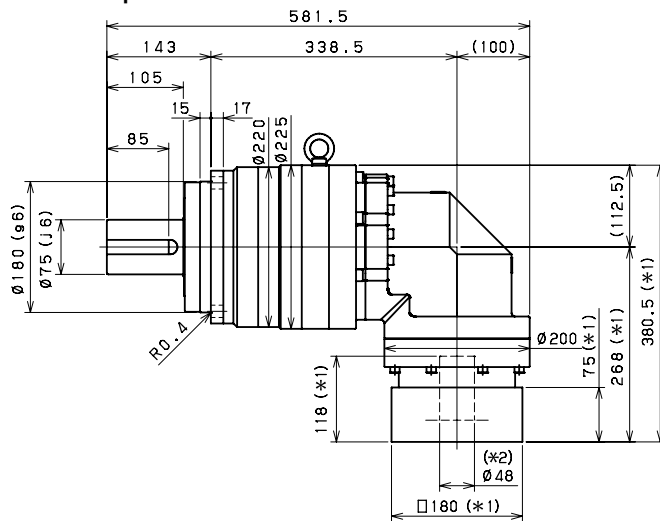
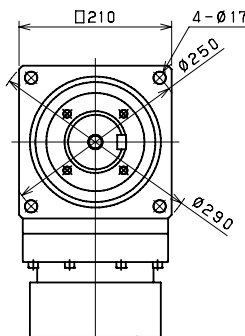
*2) Bushing will be inserted to adapt to motor shaft

EVS 210 3-Stage Dimensions

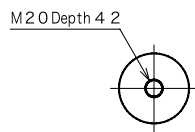
Input bore size $\leq \phi 38$ mm



Input bore size $\leq \phi 48$ mm



Keyed shaft



Smooth shaft

*1) Length will vary depending on motor

*2) Bushing will be inserted to adapt to motor shaft

EVS 240 2-Stage Specifications

Frame Size	240										
Stage	2-Stage										
Ratio	Unit	Note	3	4	5	6	7	8	9	10	
Nominal Output Torque	[Nm]	*1	1005	1340	1680	1992	2024	2024	1534	1534	
Maximum Acceleration Torque	[Nm]	*2	2334	3520	3520	3428	3428	3345	2873	2478	
Maximum Torque	[Nm]	*3	2642	3891	3891	3809	3809	3724	3179	2781	
Emergency Stop Torque	[Nm]	*4	4000	5400	6500	7200	7200	7200	5400	5400	
Nominal Input Speed	[rpm]	*5	1200								
Maximum Input Speed	[rpm]	*6	3000								
No Load Running Torque	[Nm]	*7	25.3								
Maximum Radial Load	[N]	*8	30000								
Maximum Axial Load	[N]	*9	27000								
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	--	--	--	--	--	--	--	--	
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	217.5	156.7	134.5	122.4	112.9	108.3	105.5	104.0	
Efficiency	[%]	*10	93								
Torsional Rigidity	[Nm/arc-min]	*11	550								
Maximum Torsional Backlash	[arc-min]	--	≤ 6								
Noise Level	dB [A]	*12	≤ 85								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	122								

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_p , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The efficiency at the nominal output torque rating.

*11) This does not include lost motion.

*12) Contact SIT S.p.A. for the testing conditions and environment.

*13) IP65 (wash-down) is available as an option. Contact SIT S.p.A. for more details.

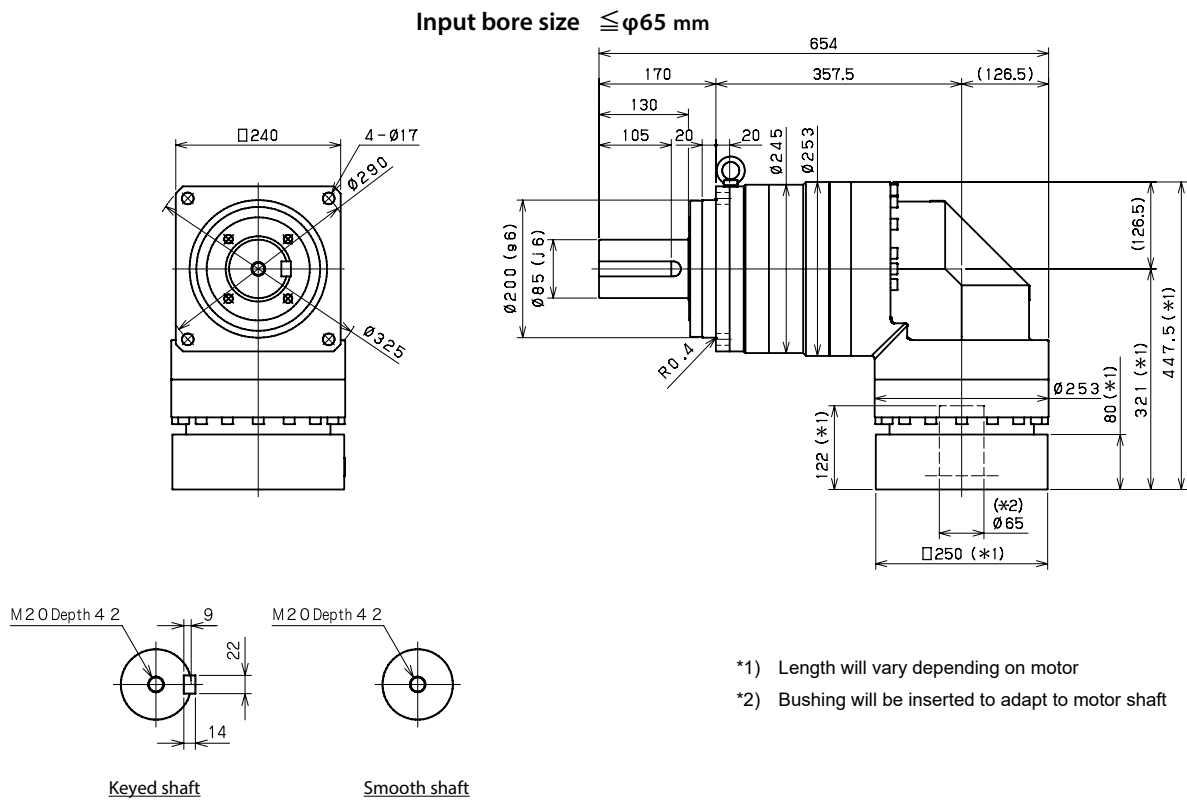
*14) Weight may vary slightly between models.

EVS 240 3-Stage Specifications

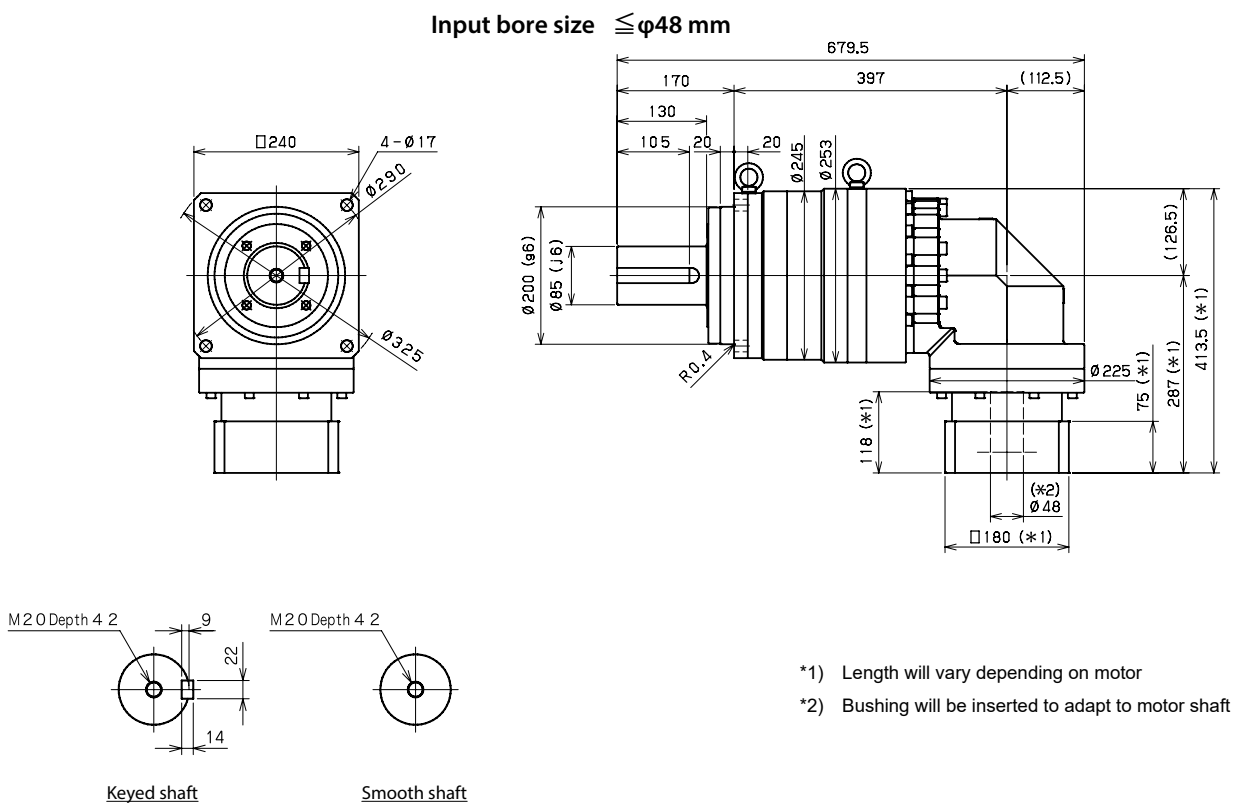
Frame Size	240										
Stage	3-Stage										
Ratio	Unit	Note	15	16	20	25	28	30	35	40	
Nominal Output Torque	[Nm]	*1	1405	1920	1992	2154	2195	1405	2195	2195	
Maximum Acceleration Torque	[Nm]	*2	2334	3520	3520	3520	3460	2334	3460	3520	
Maximum Torque	[Nm]	*3	2334	3520	3520	3520	3460	2334	3460	3520	
Emergency Stop Torque	[Nm]	*4	5400	7200	7200	7200	7200	5400	7200	7200	
Nominal Input Speed	[rpm]	*5	1500								
Maximum Input Speed	[rpm]	*6	3000								
No Load Running Torque	[Nm]	*7	16.4								
Maximum Radial Load	[N]	*8	30000								
Maximum Axial Load	[N]	*9	27000								
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	40.47	42.59	39.21	38.59	40.73	35.09	38.02	34.78	
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--	--	--	--	
Efficiency	[%]	*10	88								
Torsional Rigidity	[Nm/arc-min]	*11	550								
Maximum Torsional Backlash	[arc-min]	--	≤ 9								
Noise Level	dB [A]	*12	≤ 85								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	113								

Frame Size	240										
Stage	3-Stage										
Ratio	Unit	Note	45	50	60	70	80	90	100		
Nominal Output Torque	[Nm]	*1	1405	2195	2195	2195	2195	1405	1405		
Maximum Acceleration Torque	[Nm]	*2	2000	3520	3428	3460	2563	2000	1718		
Maximum Torque	[Nm]	*3	2000	3520	3428	3460	2563	2000	1718		
Emergency Stop Torque	[Nm]	*4	5400	7200	7200	7200	7200	5400	5400		
Nominal Input Speed	[rpm]	*5	1500								
Maximum Input Speed	[rpm]	*6	3000								
No Load Running Torque	[Nm]	*7	16.4								
Maximum Radial Load	[N]	*8	30000								
Maximum Axial Load	[N]	*9	27000								
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	37.78	34.62	34.53	34.48	34.45	34.42	34.41		
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--	--	--		
Efficiency	[%]	*10	88								
Torsional Rigidity	[Nm/arc-min]	*11	550								
Maximum Torsional Backlash	[arc-min]	--	≤ 9								
Noise Level	dB [A]	*12	≤ 85								
Protection Class	--	*13	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*14	113								

EVS 240 2-Stage Dimensions



EVS 240 3-Stage Dimensions



EVT SERIES

A detailed photograph of a silver-colored industrial motor, likely a synchronous motor, is shown from a three-quarter perspective. The motor has a cylindrical body with a flange at the front and a mounting base. The text 'EVT series' is overlaid on the image in a large, bold, green font, oriented vertically.

EVT series

EVT planetary gearbox with right angle

Compact design, extreme performance with ISO flange

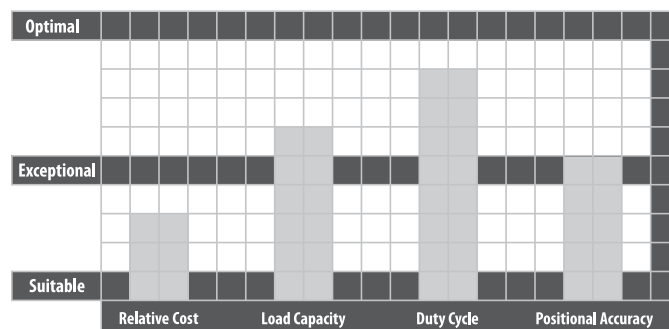
Description

The EVT combines the compactness and performance of the VRT series with a right angle bevel system to provide the ultimate space saving solution for highly dynamic applications. The ISO flange interface allows for easy mounting of index tables, pinions, timing belt pulleys and other mechanical components without the need for a coupling.

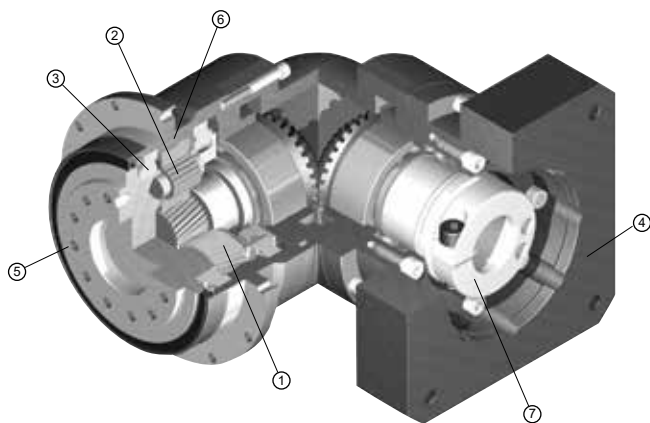
The EVT is advantageous in applications requiring high accuracy,

torsional stiffness and moment loading. Oversized dual tapered roller bearings allow the EVT to handle larger radial and thrust forces found in applications within the machine tool, aerospace or robotics industries. Available ratios range from 3:1 to 100:1—a total of 20 ratio configurations, giving machine builders more design flexibility than ever before.

- The most compact and robust option for machine builders
- ISO robotics industry mounting interface allowing superior flexibility in mounting of pinions, pulleys and turntables
- Best-in-class backlash (≤ 4 arc-min)
- Space-saving design, when minimal envelope is required
- Exceptional torsional rigidity for high positional accuracy needs
- Broad range of mounting adapters offer a simple, precise attachment to any motor
- Maintenance free solution that is lubricated for life. High performance grease allows flexible mounting in any orientation



Features



1 Carburized case hardened helical gear with proprietary secondary finishing process for higher accuracy and smooth, quiet operation

- 2 Uncaged needle roller bearings allow for higher rigidity and torque
- 3 One piece output shaft and planet carrier with two robust tapered bearings straddling the planet gears. Higher radial/axial load capacity, stiffness, torque density and safety factor, with guaranteed alignment of gearing
- 4 Optimized mounting system with active centering on motor pilot diameter guarantees alignment of motor. Motor can be installed in any orientation
- 5 ISO output flange allows easy mounting to indexing tables, pinions, timing belt pulleys and other mechanical components
- 6 Ring gear machined directly into the housing, not welded or pressed in. Greater concentricity and elimination of speed fluctuation
- 7 True concentric motor shaft clamping connection, optimized for your specific motor. Reduced inertia for dynamic performance and balanced for high speed operation

Part Number	EVT -090 B -25 -F 4 -14BK14
Model name - EVT series	Motor mounting code (*)
Size: 064, 090, 110, 140, 200, 255	Backlash: 4-9 arc-min
Design version	Output mounting style: F: Flanged
	Ratio: 2 stage: 4, 5, 6, 7, 8, 9, 10 3 stage: 15, 20, 25, 28, 35, 40, 45, 50, 60, 70, 80, 90, 100

*1) Motor mounting code varies depending on the motor. Use the selection tool link below to configure the code.

EVT 064 2-Stage Specifications

Frame Size	064										
Stage	2-Stage										
Ratio	Unit	Note	4	5	6	7	8	9	10		
Nominal Output Torque	[Nm]	*1	16	22	24	24	24	19	19		
Maximum Acceleration Torque	[Nm]	*2	38	48	54	54	54	38	38		
Maximum Torque	[Nm]	*3	45	56	63	63	61	45	45		
Emergency Stop Torque	[Nm]	*4	65	80	90	90	90	65	65		
Nominal Input Speed	[rpm]	*5	3300								
Maximum Input Speed	[rpm]	*6	6000								
No Load Running Torque	[Nm]	*7	0.33								
Maximum Radial Load	[N]	*8	1500								
Maximum Axial Load	[N]	*9	750								
Maximum Tilting Moment	[Nm]	*10	58								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.305	0.273	0.256	0.246	0.240	0.236	0.233		
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.379	0.348	0.331	0.321	0.315	0.311	0.308		
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.569	0.537	0.521	0.510	0.504	0.500	0.497		
Efficiency	[%]	*11	93								
Torsional Rigidity	[Nm/arc-min]	*12	7.5								
Maximum Torsional Backlash	[arc-min]	--	≤ 4								
Noise Level	dB [A]	*13	≤ 80								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	1.9								

- *1) At nominal input speed, service life is 20,000 hours.
- *2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.
- *3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.
- *4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.
- *5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.
- *6) The maximum intermittent input speed.
- *7) Torque at no load applied to the input shaft at nominal input speed.
- *8) The maximum radial load that the gearbox can accept.
- *9) The maximum axial load that the gearbox can accept.
- *10) The moment is the maximum load at output flange surface.
- *11) The efficiency at the nominal output torque rating.
- *12) This does not include lost motion.
- *13) Contact SIT S.p.A. for the testing conditions and environment.
- *14) Various wash-down options are available. Contact SIT S.p.A. for more details.
- *15) Weight may vary slightly between models.

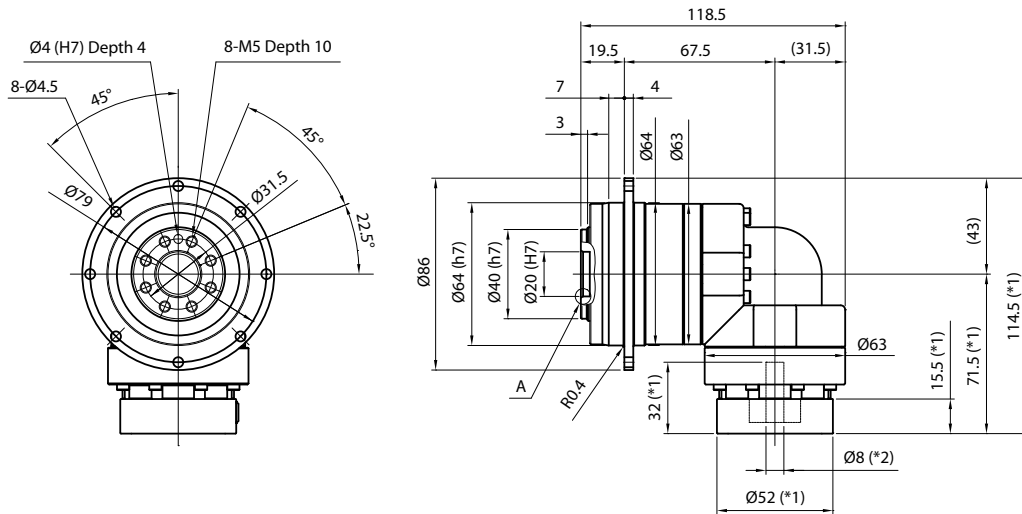
EVT 064 3-Stage Specifications

Frame Size	064										
Stage	3-Stage										
Ratio	Unit	Note	16	20	25	28	35	40	45		
Nominal Output Torque	[Nm]	*1	26	26	28	28	28	28	19		
Maximum Acceleration Torque	[Nm]	*2	54	54	54	54	54	54	38		
Maximum Torque	[Nm]	*3	54	54	54	54	54	54	38		
Emergency Stop Torque	[Nm]	*4	90	90	90	90	90	90	65		
Nominal Input Speed	[rpm]	*5	3800								
Maximum Input Speed	[rpm]	*6	6000								
No Load Running Torque	[Nm]	*7	0.2								
Maximum Radial Load	[N]	*8	1500								
Maximum Axial Load	[N]	*9	750								
Maximum Tilting Moment	[Nm]	*10	58								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.082	0.073	0.072	0.078	0.071	0.062	0.070		
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.126	0.118	0.116	0.123	0.115	0.106	0.115		
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--		
Efficiency	[%]	*11	88								
Torsional Rigidity	[Nm/arc-min]	*12	7.5								
Maximum Torsional Backlash	[arc-min]	--	≤ 7								
Noise Level	dB [A]	*13	≤ 80								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	1.6								

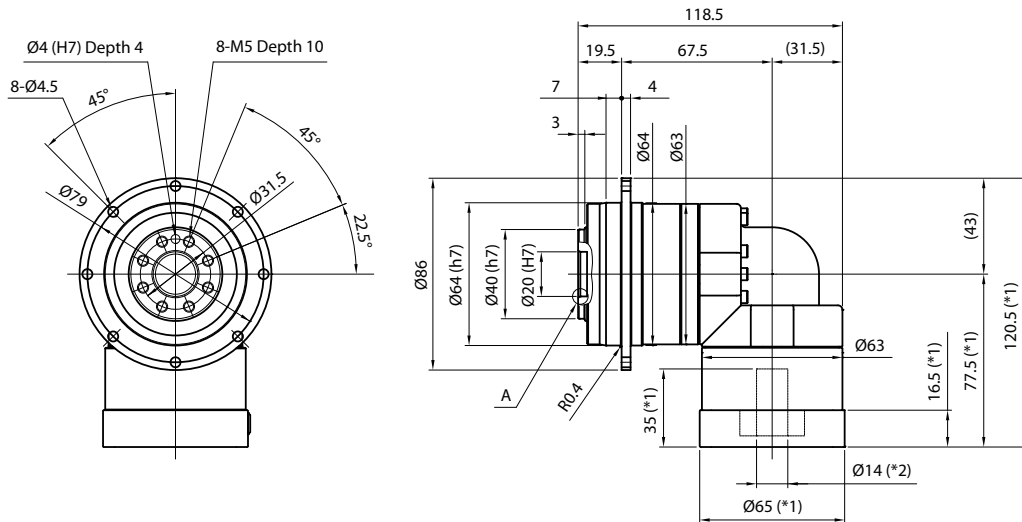
Frame Size	064										
Stage	3-Stage										
Ratio	Unit	Note	50	60	70	80	90	100			
Nominal Output Torque	[Nm]	*1	28	28	28	28	19	19			
Maximum Acceleration Torque	[Nm]	*2	54	54	54	54	38	38			
Maximum Torque	[Nm]	*3	54	54	54	54	38	38			
Emergency Stop Torque	[Nm]	*4	90	90	90	90	65	65			
Nominal Input Speed	[rpm]	*5	3800								
Maximum Input Speed	[rpm]	*6	6000								
No Load Running Torque	[Nm]	*7	0.2								
Maximum Radial Load	[N]	*8	1500								
Maximum Axial Load	[N]	*9	750								
Maximum Tilting Moment	[Nm]	*10	58								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.061	0.061	0.061	0.061	0.061	0.061	0.061		
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.106	0.106	0.106	0.106	0.106	0.106	0.105		
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	--	--	--	--	--	--	--		
Efficiency	[%]	*11	88								
Torsional Rigidity	[Nm/arc-min]	*12	7.5								
Maximum Torsional Backlash	[arc-min]	--	≤ 7								
Noise Level	dB [A]	*13	≤ 80								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	1.6								

EVT 064 2-Stage Dimensions

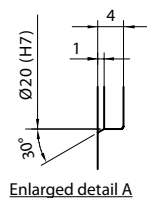
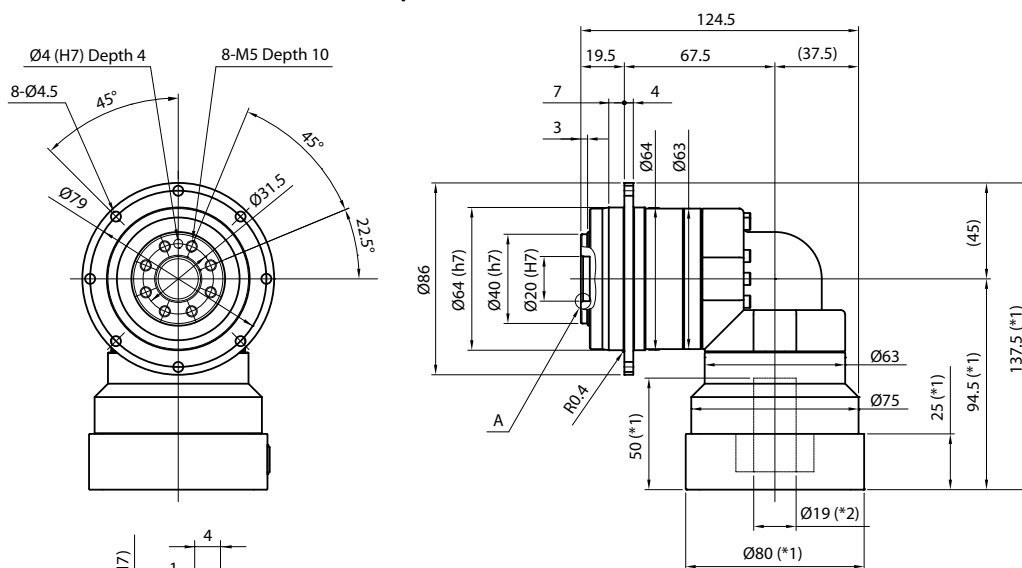
Input bore size ≤ø8mm



Input bore size ≤ø14mm



Input bore size ≤ø19mm

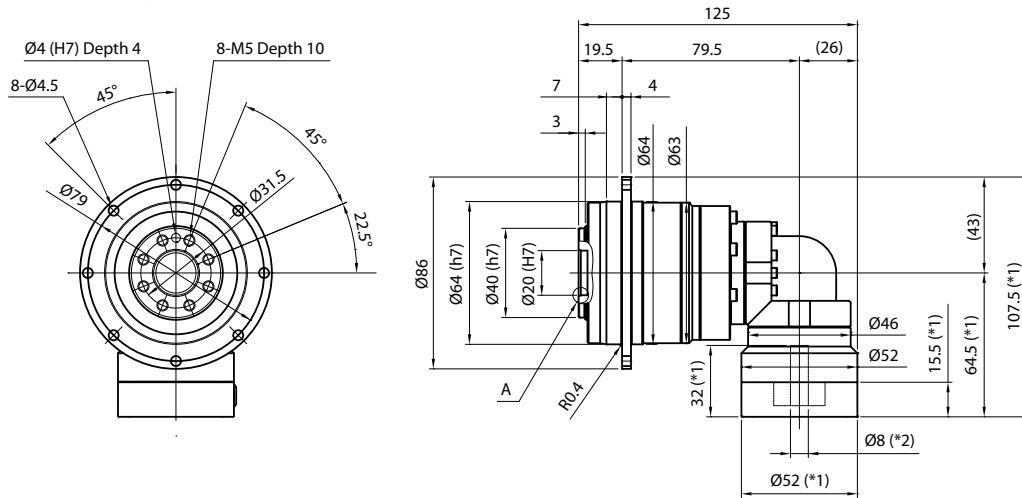


*1) Length will vary depending on motor

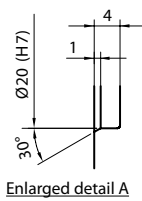
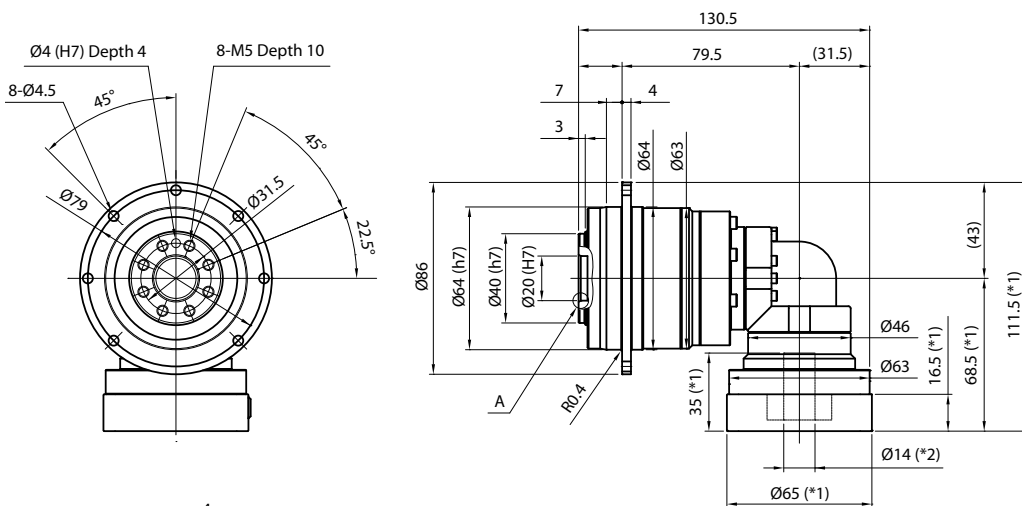
*2) Bushing will be inserted to adapt to motor shaft

EVT 064 3-Stage Dimensions

Input bore size ≤ø8mm



Input bore size ≤ø14mm



*1) Length will vary depending on motor

*2) Bushing will be inserted to adapt to motor shaft

EVT 090 2-Stage Specifications

Frame Size	090										
Stage	2-Stage										
Ratio	Unit	Note	4	5	6	7	8	9	10		
Nominal Output Torque	[Nm]	*1	61	67	67	67	74	51	51		
Maximum Acceleration Torque	[Nm]	*2	105	105	105	105	105	78	78		
Maximum Torque	[Nm]	*3	121	121	119	119	117	93	93		
Emergency Stop Torque	[Nm]	*4	170	220	220	220	220	170	170		
Nominal Input Speed	[rpm]	*5	3000								
Maximum Input Speed	[rpm]	*6	6000								
No Load Running Torque	[Nm]	*7	1.13								
Maximum Radial Load	[N]	*8	3300								
Maximum Axial Load	[N]	*9	1700								
Maximum Tilting Moment	[Nm]	*10	170								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	--	--	--	--	--	--	--		
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	2.17	1.98	1.88	1.81	1.78	1.75	1.73		
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.50	2.31	2.21	2.14	2.10	2.08	2.06		
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.63	4.43	4.33	4.27	4.23	4.21	4.19		
Efficiency	[%]	*11	93								
Torsional Rigidity	[Nm/arc-min]	*12	22								
Maximum Torsional Backlash	[arc-min]	--	≤ 4								
Noise Level	dB [A]	*13	≤ 80								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	5.1								

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The moment is the maximum load at output flange surface.

*11) The efficiency at the nominal output torque rating.

*12) This does not include lost motion.

*13) Contact SIT S.p.A. for the testing conditions and environment.

*14) Various wash-down options are available. Contact SIT S.p.A. for more details.

*15) Weight may vary slightly between models.

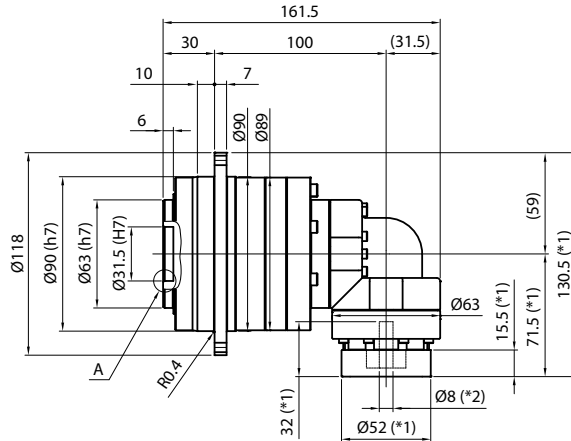
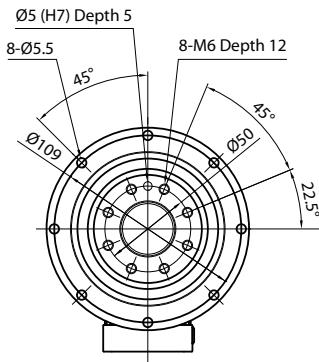
EVT 090 3-Stage Specifications

Frame Size	090										
Stage	3-Stage										
Ratio	Unit	Note	16	20	25	28	35	40	45		
Nominal Output Torque	[Nm]	*1	66	68	72	78	73	78	47		
Maximum Acceleration Torque	[Nm]	*2	128	128	128	128	128	128	78		
Maximum Torque	[Nm]	*3	128	128	128	128	128	128	78		
Emergency Stop Torque	[Nm]	*4	220	220	220	220	220	220	170		
Nominal Input Speed	[rpm]	*5	3300								
Maximum Input Speed	[rpm]	*6	6000								
No Load Running Torque	[Nm]	*7	0.55								
Maximum Radial Load	[N]	*8	3300								
Maximum Axial Load	[N]	*9	1700								
Maximum Tilting Moment	[Nm]	*10	170								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.40	0.34	0.33	0.38	0.32	0.25	0.32		
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.48	0.41	0.41	0.45	0.40	0.33	0.40		
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.66	0.60	0.59	0.64	0.59	0.51	0.59		
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--	--		
Efficiency	[%]	*11	88								
Torsional Rigidity	[Nm/arc-min]	*12	22								
Maximum Torsional Backlash	[arc-min]	--	≤ 7								
Noise Level	dB [A]	*13	≤ 80								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	4.3								

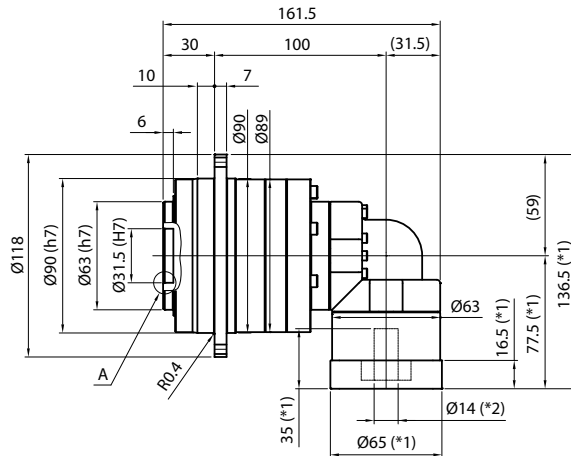
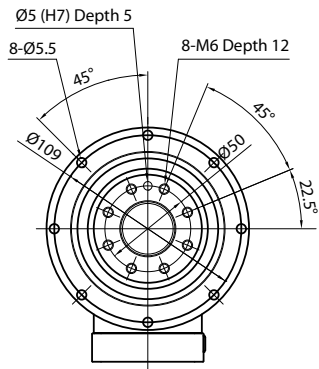
Frame Size	090										
Stage	3-Stage										
Ratio	Unit	Note	50	60	70	80	90	100			
Nominal Output Torque	[Nm]	*1	73	73	73	78	52	52			
Maximum Acceleration Torque	[Nm]	*2	128	128	128	128	78	78			
Maximum Torque	[Nm]	*3	128	128	128	128	78	78			
Emergency Stop Torque	[Nm]	*4	220	220	220	220	170	170			
Nominal Input Speed	[rpm]	*5	3300								
Maximum Input Speed	[rpm]	*6	6000								
No Load Running Torque	[Nm]	*7	0.55								
Maximum Radial Load	[N]	*8	3300								
Maximum Axial Load	[N]	*9	1700								
Maximum Tilting Moment	[Nm]	*10	170								
Moment of Inertia ($\leq \varnothing 8$)	[kgcm ²]	--	0.25	0.25	0.25	0.25	0.25	0.25			
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	0.32	0.32	0.32	0.32	0.32	0.32			
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	0.51	0.51	0.51	0.51	0.51	0.51			
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--	--	--			
Efficiency	[%]	*11	88								
Torsional Rigidity	[Nm/arc-min]	*12	22								
Maximum Torsional Backlash	[arc-min]	--	≤ 7								
Noise Level	dB [A]	*13	≤ 80								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0-40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	4.3								

EVT 090 3-Stage Dimensions

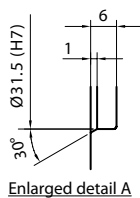
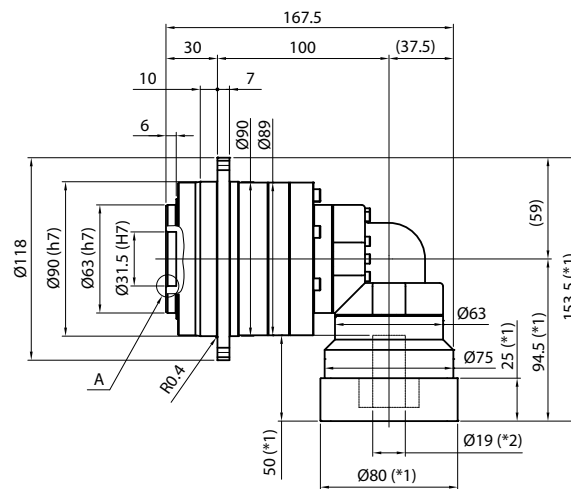
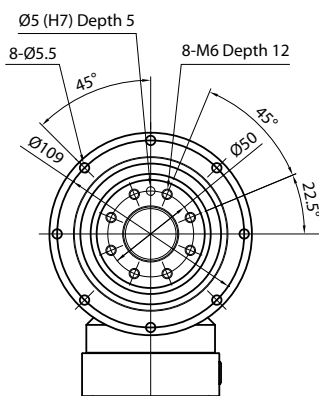
Input bore size $\leq \phi 8\text{mm}$



Input bore size $\leq \phi 14\text{mm}$



Input bore size $\leq \phi 19\text{mm}$



*1) Length will vary depending on motor

*2) Bushing will be inserted to adapt to motor shaft

EVT 110 2-Stage Specifications

Frame Size	110					
Stage	2-Stage					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	108	123	154	128
Maximum Acceleration Torque	[Nm]	*2	227	272	340	240
Maximum Torque	[Nm]	*3	271	325	401	288
Emergency Stop Torque	[Nm]	*4	430	500	550	450
Nominal Input Speed	[rpm]	*5	3000			
Maximum Input Speed	[rpm]	*6	6000			
No Load Running Torque	[Nm]	*7	1.88			
Maximum Radial Load	[N]	*8	8500			
Maximum Axial Load	[N]	*9	4300			
Maximum Tilting Moment	[Nm]	*10	990			
Moment of Inertia (≤ Ø 14)	[kgcm ²]	--	--	--	--	--
Moment of Inertia (≤ Ø 19)	[kgcm ²]	--	6.46	5.65	4.97	4.62
Moment of Inertia (≤ Ø 28)	[kgcm ²]	--	8.06	7.24	6.56	6.21
Moment of Inertia (≤ Ø 38)	[kgcm ²]	--	15.13	14.31	13.63	13.28
Efficiency	[%]	*11	93			
Torsional Rigidity	[Nm/arc-min]	*12	60			
Maximum Torsional Backlash	[arc-min]	--	≤ 4			
Noise Level	dB [A]	*13	≤ 85			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0-40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	9.5			

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The moment is the maximum load at output flange surface.

*11) The efficiency at the nominal output torque rating.

*12) This does not include lost motion.

*13) Contact SIT S.p.A. for the testing conditions and environment.

*14) Various wash-down options are available. Contact SIT S.p.A. for more details.

*15) Weight may vary slightly between models.

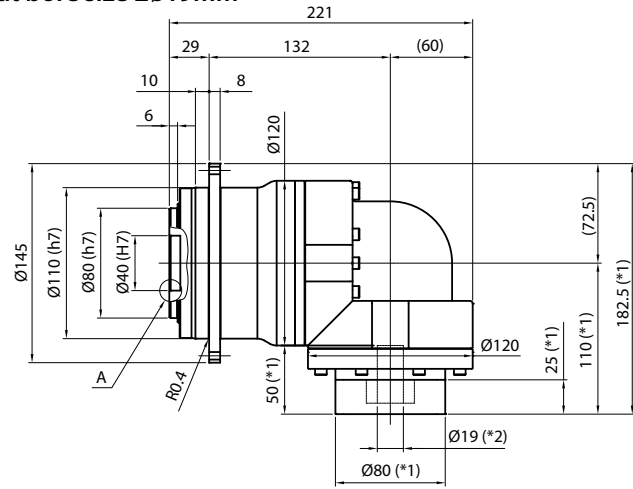
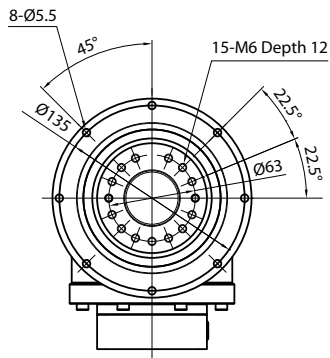
EVT 110 3-Stage Specifications

Frame Size	110					
Stage	3-Stage					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	136	162	174	174
Maximum Acceleration Torque	[Nm]	*2	295	340	340	340
Maximum Torque	[Nm]	*3	295	340	340	340
Emergency Stop Torque	[Nm]	*4	550	550	550	550
Nominal Input Speed	[rpm]	*5	3100			
Maximum Input Speed	[rpm]	*6	6000			
No Load Running Torque	[Nm]	*7	1.11			
Maximum Radial Load	[N]	*8	8500			
Maximum Axial Load	[N]	*9	4300			
Maximum Tilting Moment	[Nm]	*10	990			
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	2.52	2.24	2.20	2.42
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.85	2.57	2.53	2.75
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.98	4.69	4.66	4.88
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--
Efficiency	[%]	*11	88			
Torsional Rigidity	[Nm/arc-min]	*12	60			
Maximum Torsional Backlash	[arc-min]	--	≤ 7			
Noise Level	dB [A]	*13	≤ 85			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0-40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	9			

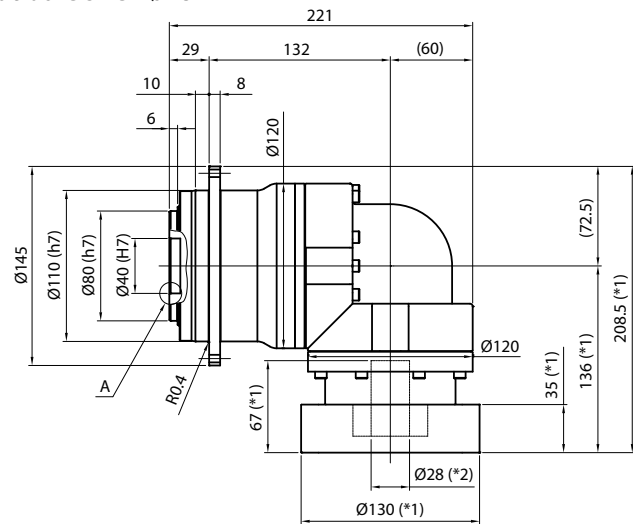
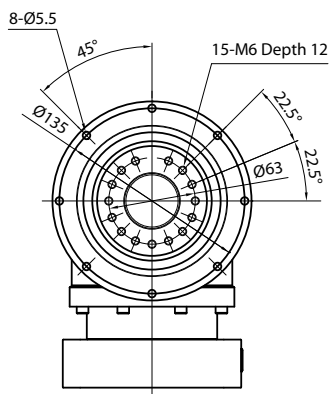
Frame Size	110						
Stage	3-Stage						
Ratio	Unit	Note	35	40	50	70	100
Nominal Output Torque	[Nm]	*1	174	172	174	174	132
Maximum Acceleration Torque	[Nm]	*2	340	340	340	340	240
Maximum Torque	[Nm]	*3	340	340	340	340	240
Emergency Stop Torque	[Nm]	*4	550	550	550	550	450
Nominal Input Speed	[rpm]	*5	3100				
Maximum Input Speed	[rpm]	*6	6000				
No Load Running Torque	[Nm]	*7	1.11				
Maximum Radial Load	[N]	*8	8500				
Maximum Axial Load	[N]	*9	4300				
Maximum Tilting Moment	[Nm]	*10	990				
Moment of Inertia ($\leq \varnothing 14$)	[kgcm ²]	--	2.17	1.87	1.86	1.85	1.85
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	2.50	2.20	2.19	2.18	2.18
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	4.63	4.33	4.32	4.31	4.31
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	--	--	--	--	--
Efficiency	[%]	*11	88				
Torsional Rigidity	[Nm/arc-min]	*12	60				
Maximum Torsional Backlash	[arc-min]	--	≤ 7				
Noise Level	dB [A]	*13	≤ 85				
Protection Class	--	*14	IP54 (IP65)				
Ambient Temperature	[°C]	--	0-40				
Permitted Housing Temperature	[°C]	--	90				
Weight	[kg]	*15	9				

EVT 110 2-Stage Dimensions

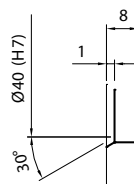
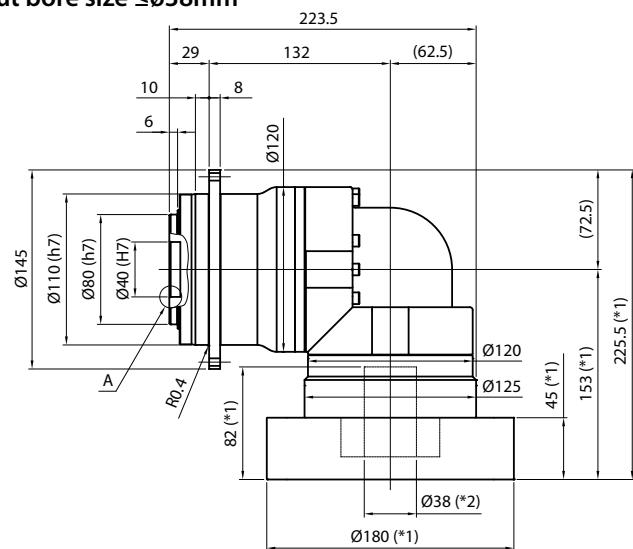
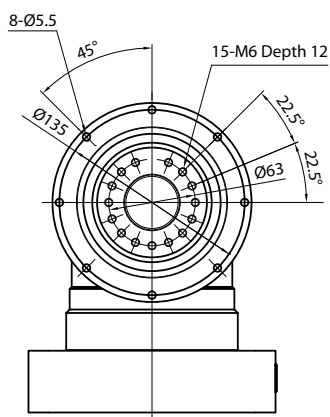
Input bore size $\leq \phi 19\text{mm}$



Input bore size $\leq \phi 28\text{mm}$



Input bore size $\leq \phi 38\text{mm}$



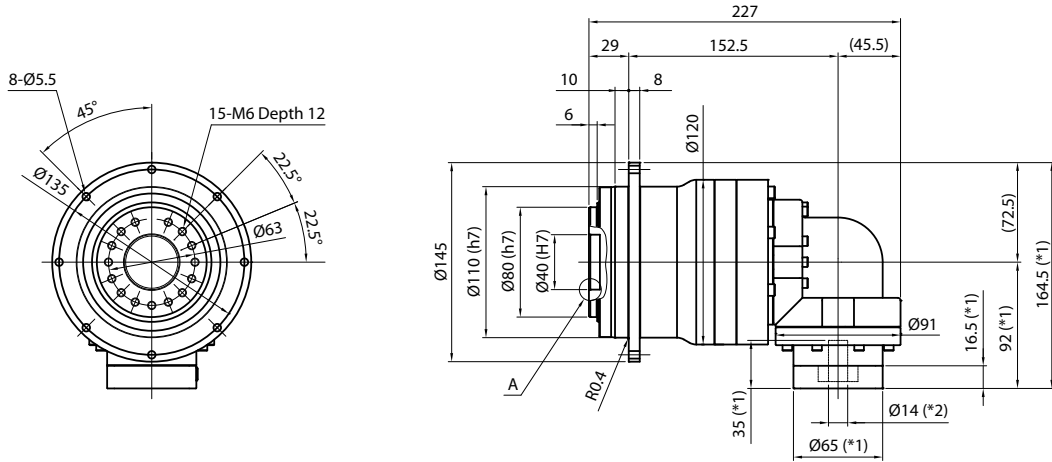
Enlarged detail A

*1) Length will vary depending on motor

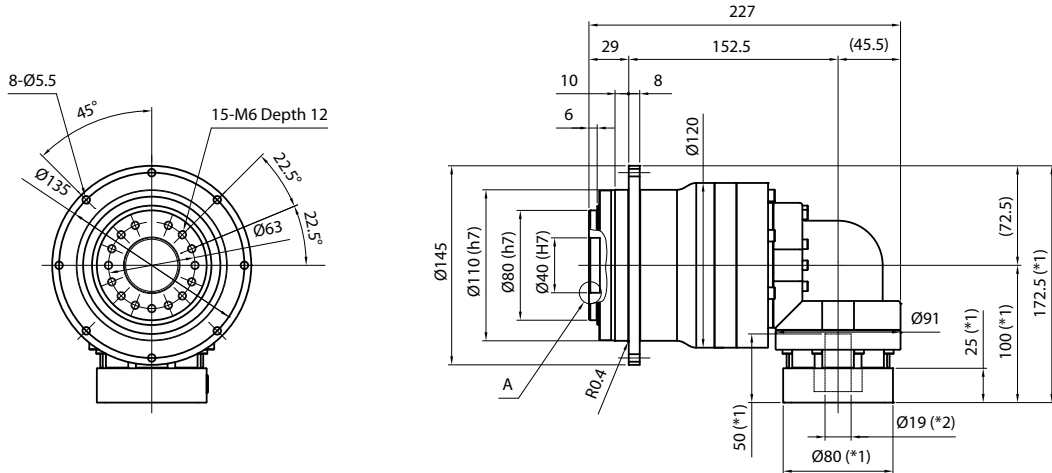
*2) Bushing will be inserted to adapt to motor shaft

EVT 110 3-Stage Dimensions

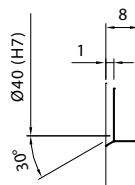
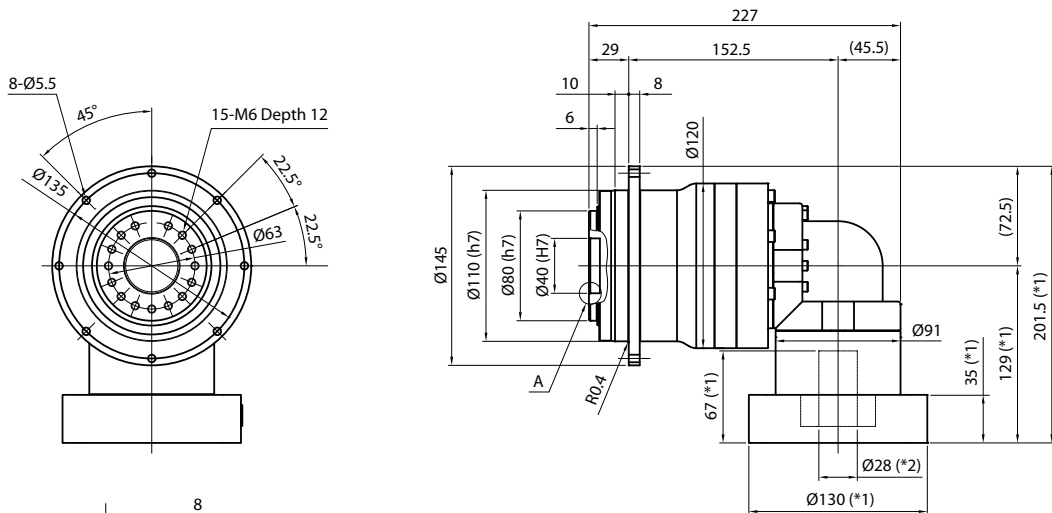
Input bore size $\leq \varnothing 14\text{mm}$



Input bore size $\leq \varnothing 19\text{mm}$



Input bore size $\leq \varnothing 28\text{mm}$



Enlarged detail A

*1) Length will vary depending on motor

*2) Bushing will be inserted to adapt to motor shaft

EVT 140 2-Stage Specifications

Frame Size	140					
Stage	2-Stage					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	181	205	307	233
Maximum Acceleration Torque	[Nm]	*2	389	458	687	480
Maximum Torque	[Nm]	*3	452	531	766	559
Emergency Stop Torque	[Nm]	*4	950	1100	1100	750
Nominal Input Speed	[rpm]	*5	2000			
Maximum Input Speed	[rpm]	*6	5000			
No Load Running Torque	[Nm]	*7	3.26			
Maximum Radial Load	[N]	*8	13000			
Maximum Axial Load	[N]	*9	6500			
Maximum Tilting Moment	[Nm]	*10	2000			
Moment of Inertia (≤ Ø 19)	[kgcm ²]	--	--	--	--	--
Moment of Inertia (≤ Ø 28)	[kgcm ²]	--	22.58	19.57	17.07	15.36
Moment of Inertia (≤ Ø 38)	[kgcm ²]	--	26.96	23.94	21.45	19.73
Moment of Inertia (≤ Ø 48)	[kgcm ²]	--	40.19	37.17	34.68	32.96
Efficiency	[%]	*11	93			
Torsional Rigidity	[Nm/arc-min]	*12	140			
Maximum Torsional Backlash	[arc-min]	--	≤ 4			
Noise Level	dB [A]	*13	≤ 85			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0-40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	17.4			

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_o , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The moment is the maximum load at output flange surface.

*11) The efficiency at the nominal output torque rating.

*12) This does not include lost motion.

*13) Contact SIT S.p.A. for the testing conditions and environment.

*14) Various wash-down options are available. Contact SIT S.p.A. for more details.

*15) Weight may vary slightly between models.

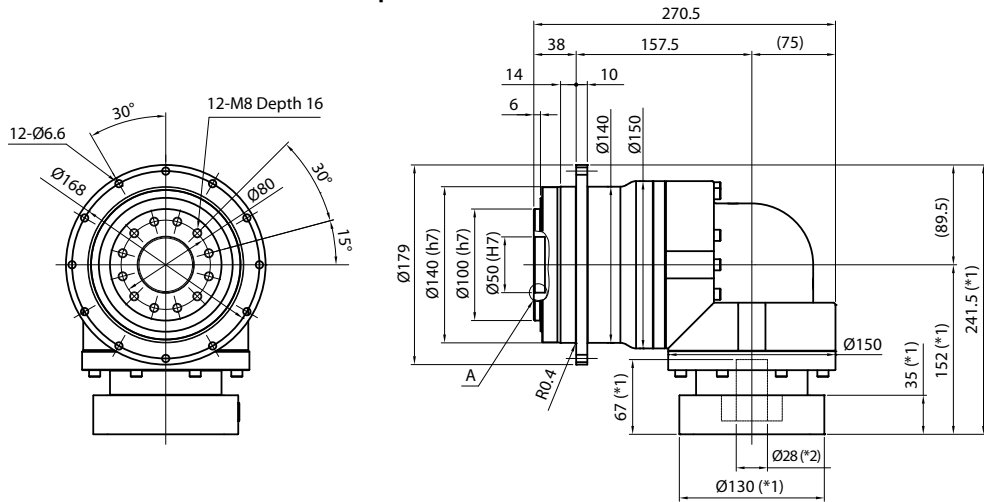
EVT 140 3-Stage Specifications

Frame Size	140					
Stage	3-Stage					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	307	316	352	352
Maximum Acceleration Torque	[Nm]	*2	687	687	687	687
Maximum Torque	[Nm]	*3	687	687	687	687
Emergency Stop Torque	[Nm]	*4	1100	1100	1100	1100
Nominal Input Speed	[rpm]	*5	2300			
Maximum Input Speed	[rpm]	*6	5000			
No Load Running Torque	[Nm]	*7	2.56			
Maximum Radial Load	[N]	*8	13000			
Maximum Axial Load	[N]	*9	6500			
Maximum Tilting Moment	[Nm]	*10	2000			
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	7.24	6.21	6.09	6.89
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	8.83	7.80	7.69	8.48
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	15.91	14.88	14.76	15.55
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	--	--	--	--
Efficiency	[%]	*11	88			
Torsional Rigidity	[Nm/arc-min]	*12	140			
Maximum Torsional Backlash	[arc-min]	--	≤ 7			
Noise Level	dB [A]	*13	≤ 85			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0-40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	17.6			

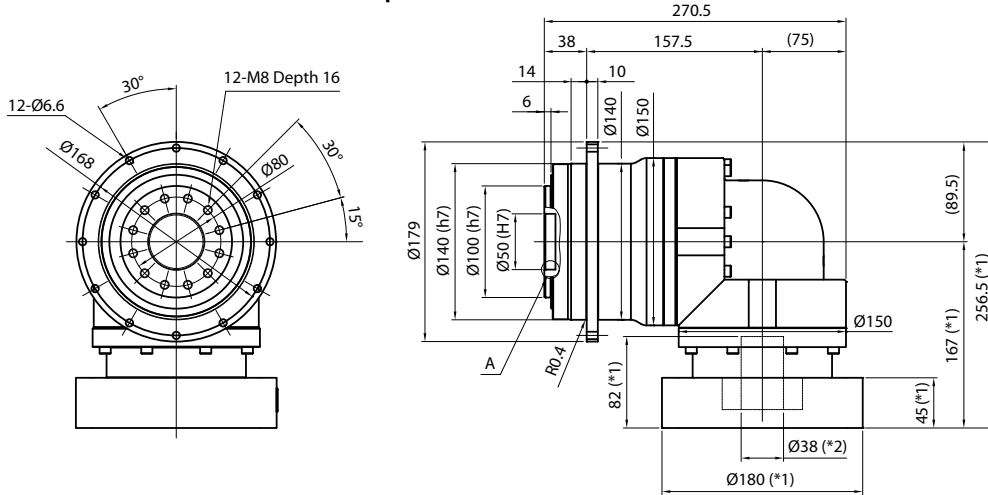
Frame Size	140						
Stage	3-Stage						
Ratio	Unit	Note	35	40	50	70	100
Nominal Output Torque	[Nm]	*1	352	337	352	352	240
Maximum Acceleration Torque	[Nm]	*2	687	687	687	687	480
Maximum Torque	[Nm]	*3	687	687	687	687	480
Emergency Stop Torque	[Nm]	*4	1100	1100	1100	1100	750
Nominal Input Speed	[rpm]	*5	2300				
Maximum Input Speed	[rpm]	*6	5000				
No Load Running Torque	[Nm]	*7	2.56				
Maximum Radial Load	[N]	*8	13000				
Maximum Axial Load	[N]	*9	6500				
Maximum Tilting Moment	[Nm]	*10	2000				
Moment of Inertia ($\leq \varnothing 19$)	[kgcm ²]	--	5.98	4.94	4.91	4.88	4.87
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	7.58	6.53	6.50	6.48	6.46
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	14.65	13.60	13.58	13.55	13.54
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	--	--	--	--	--
Efficiency	[%]	*11	88				
Torsional Rigidity	[Nm/arc-min]	*12	140				
Maximum Torsional Backlash	[arc-min]	--	≤ 7				
Noise Level	dB [A]	*13	≤ 85				
Protection Class	--	*14	IP54 (IP65)				
Ambient Temperature	[°C]	--	0-40				
Permitted Housing Temperature	[°C]	--	90				
Weight	[kg]	*15	17.6				

EVT 140 2-Stage Dimensions

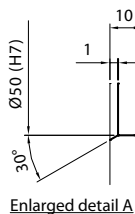
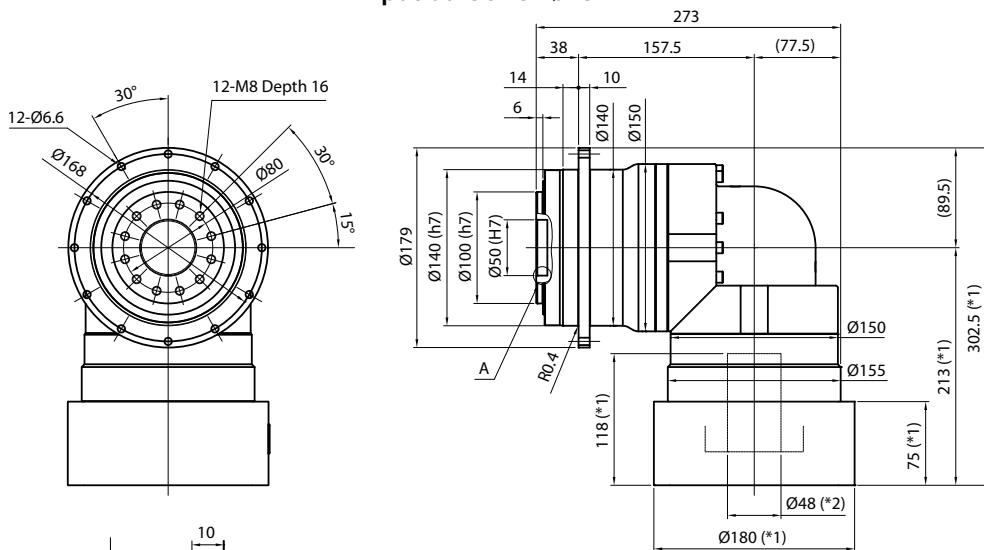
Input bore size $\leq \varnothing 28\text{mm}$



Input bore size $\leq \varnothing 38\text{mm}$



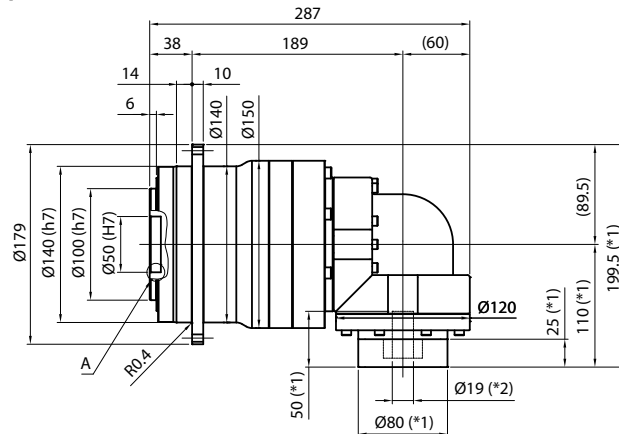
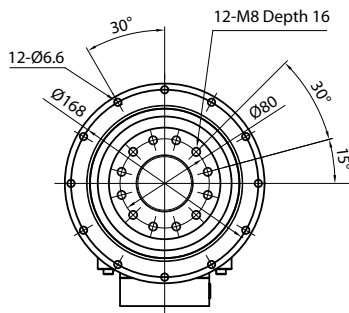
Input bore size $\leq \varnothing 48\text{mm}$



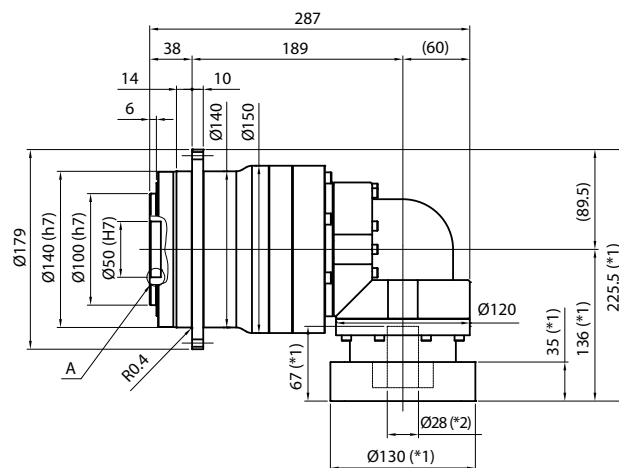
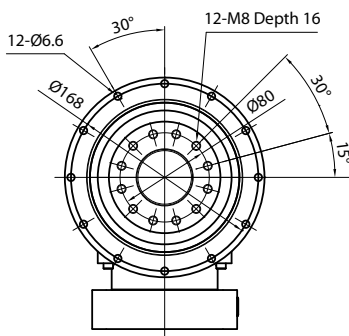
- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVT 140 3-Stage Dimensions

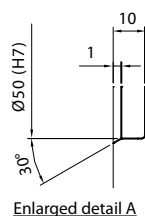
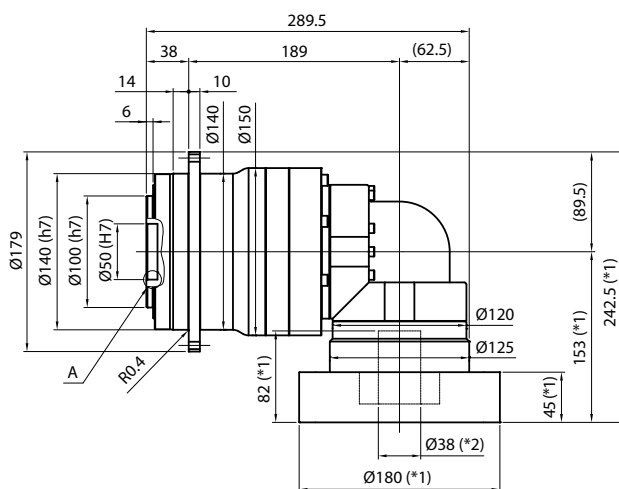
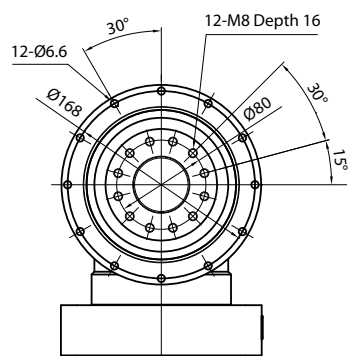
Input bore size $\leq \phi 19\text{mm}$



Input bore size $\leq \phi 28\text{mm}$



Input bore size $\leq \phi 38\text{mm}$



*1) Length will vary depending on motor

*2) Bushing will be inserted to adapt to motor shaft

EVT 200 2-Stage Specifications

Frame Size	200					
Stage	2-Stage					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	604	646	646	478
Maximum Acceleration Torque	[Nm]	*2	904	1127	1315	931
Maximum Torque	[Nm]	*3	1064	1327	1498	1144
Emergency Stop Torque	[Nm]	*4	1700	2000	2500	2000
Nominal Input Speed	[rpm]	*5	1500			
Maximum Input Speed	[rpm]	*6	4000			
No Load Running Torque	[Nm]	*7	10.8			
Maximum Radial Load	[N]	*8	25000			
Maximum Axial Load	[N]	*9	13000			
Maximum Tilting Moment	[Nm]	*10	5300			
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	93.44	81.86	71.47	66.72
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	138.1	123.3	109.6	103.4
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	223.7	208.9	195.2	189.0
Efficiency	[%]	*11	93			
Torsional Rigidity	[Nm/arc-min]	*12	320			
Maximum Torsional Backlash	[arc-min]	--	≤ 6			
Noise Level	dB [A]	*13	≤ 85			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0-40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	50			

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_v , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The moment is the maximum load at output flange surface.

*11) The efficiency at the nominal output torque rating.

*12) This does not include lost motion.

*13) Contact SIT S.p.A. for the testing conditions and environment.

*14) Various wash-down options are available. Contact SIT S.p.A. for more details.

*15) Weight may vary slightly between models.

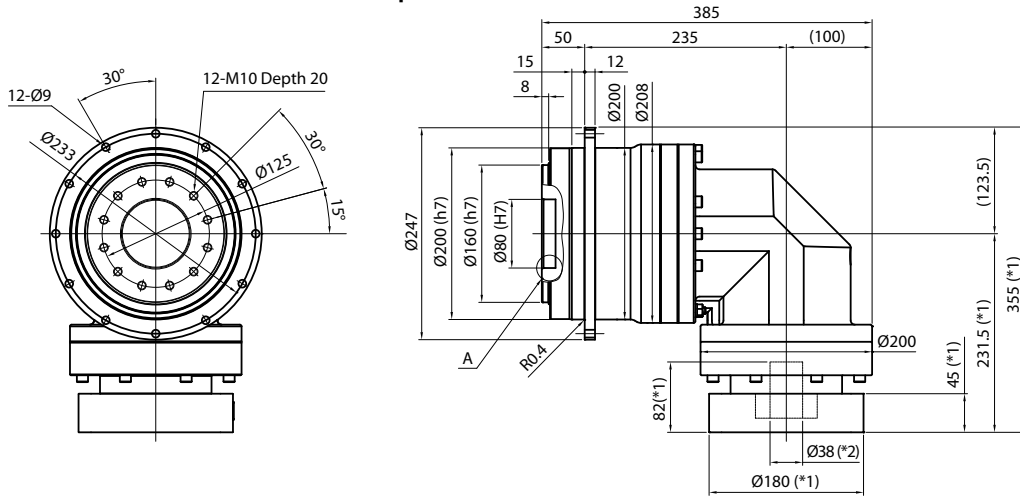
EVT 200 3-Stage Specifications

Frame Size	200					
Stage	3-Stage					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	583	646	683	710
Maximum Acceleration Torque	[Nm]	*2	1315	1315	1315	1315
Maximum Torque	[Nm]	*3	1315	1315	1315	1315
Emergency Stop Torque	[Nm]	*4	2500	2500	2500	2500
Nominal Input Speed	[rpm]	*5	2100			
Maximum Input Speed	[rpm]	*6	4000			
No Load Running Torque	[Nm]	*7	4.7			
Maximum Radial Load	[N]	*8	25000			
Maximum Axial Load	[N]	*9	13000			
Maximum Tilting Moment	[Nm]	*10	5300			
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	13.42	11.92	11.38	11.82
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	22.20	20.71	20.17	20.61
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	27.02	25.53	24.99	25.43
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--
Efficiency	[%]	*11	88			
Torsional Rigidity	[Nm/arc-min]	*12	320			
Maximum Torsional Backlash	[arc-min]	--	≤ 9			
Noise Level	dB [A]	*13	≤ 85			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0-40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	37			

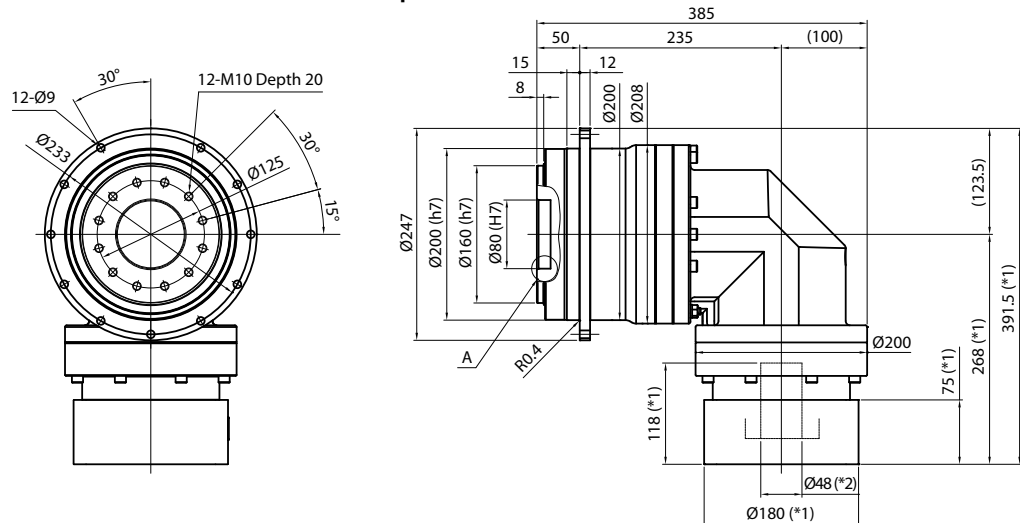
Frame Size	200						
Stage	3-Stage						
Ratio	Unit	Note	35	40	50	70	100
Nominal Output Torque	[Nm]	*1	710	465	710	710	480
Maximum Acceleration Torque	[Nm]	*2	1315	1315	1315	1315	931
Maximum Torque	[Nm]	*3	1315	1315	1315	1315	931
Emergency Stop Torque	[Nm]	*4	2500	2500	2500	2500	2000
Nominal Input Speed	[rpm]	*5	2100				
Maximum Input Speed	[rpm]	*6	4000				
No Load Running Torque	[Nm]	*7	4.7				
Maximum Radial Load	[N]	*8	25000				
Maximum Axial Load	[N]	*9	13000				
Maximum Tilting Moment	[Nm]	*10	5300				
Moment of Inertia ($\leq \varnothing 28$)	[kgcm ²]	--	10.9	10.5	10.3	10.2	10.2
Moment of Inertia ($\leq \varnothing 38$)	[kgcm ²]	--	19.69	19.26	19.13	19.01	18.94
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	24.51	24.08	23.95	23.83	23.77
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--
Efficiency	[%]	*11	88				
Torsional Rigidity	[Nm/arc-min]	*12	320				
Maximum Torsional Backlash	[arc-min]	--	≤ 9				
Noise Level	dB [A]	*13	≤ 85				
Protection Class	--	*14	IP54 (IP65)				
Ambient Temperature	[°C]	--	0-40				
Permitted Housing Temperature	[°C]	--	90				
Weight	[kg]	*15	37				

EVT 200 2-Stage Dimensions

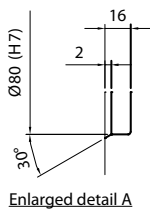
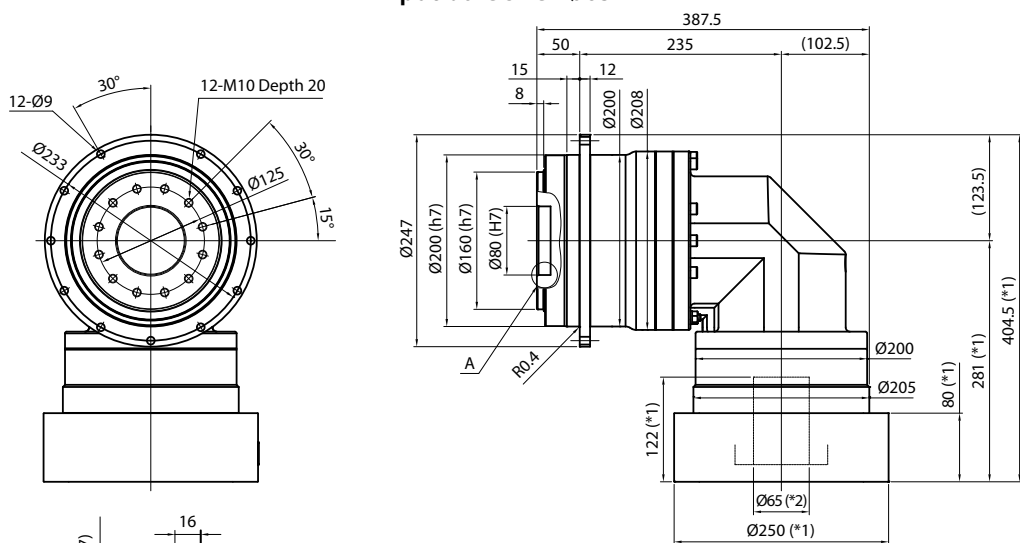
Input bore size $\leq \varnothing 38\text{mm}$



Input bore size $\leq \varnothing 48\text{mm}$



Input bore size $\leq \varnothing 65\text{mm}$

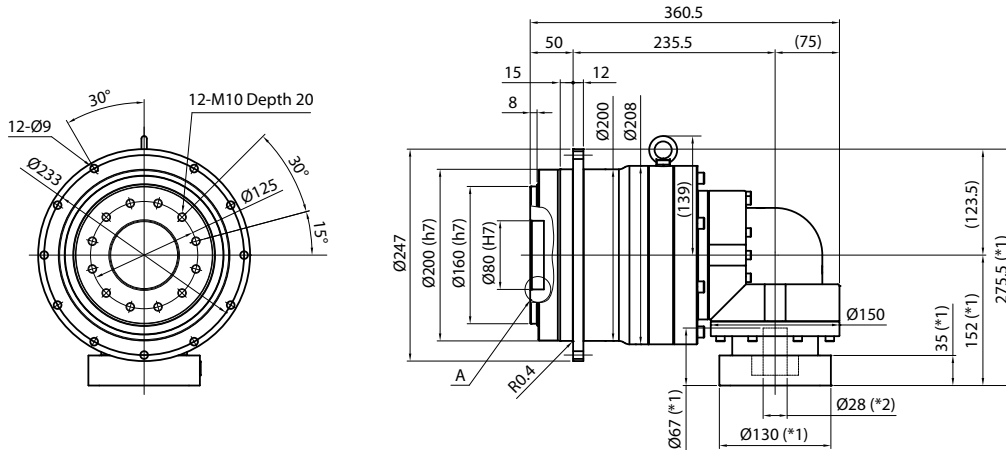


*1) Length will vary depending on motor

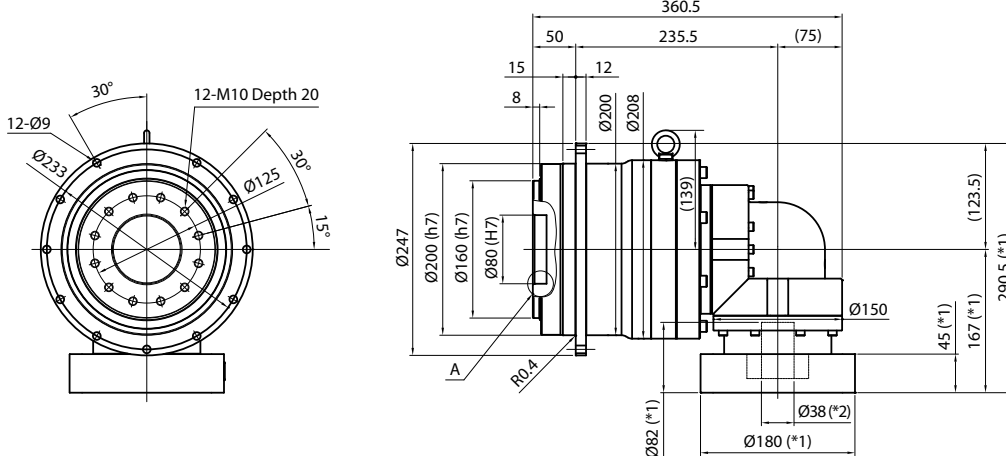
*2) Bushing will be inserted to adapt to motor shaft

EVT 200 3-Stage Dimensions

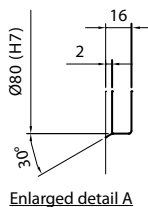
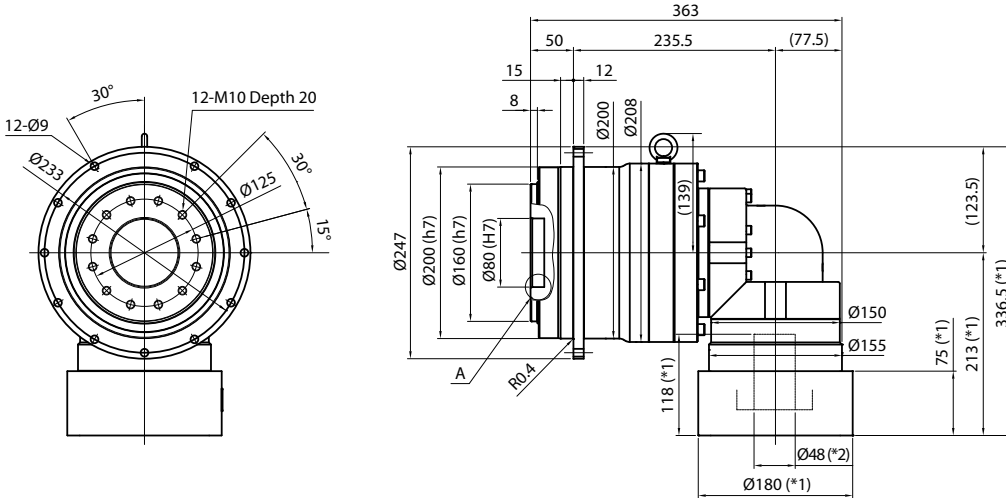
Input bore size $\leq \varnothing 28\text{mm}$



Input bore size $\leq \varnothing 38\text{mm}$



Input bore size $\leq \varnothing 48\text{mm}$



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVT 255 2-Stage Specifications

Frame Size	255					
Stage	2-Stage					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	1340	1680	2024	1534
Maximum Acceleration Torque	[Nm]	*2	3520	3520	3428	2478
Maximum Torque	[Nm]	*3	3891	3891	3809	2781
Emergency Stop Torque	[Nm]	*4	5400	6500	7200	5400
Nominal Input Speed	[rpm]	*5	1200			
Maximum Input Speed	[rpm]	*6	3000			
No Load Running Torque	[Nm]	*7	--			
Maximum Radial Load	[N]	*8	40000			
Maximum Axial Load	[N]	*9	20000			
Maximum Tilting Moment	[Nm]	*10	11000			
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	--	--	--	--
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	661.8	619.8	587.7	572.0
Efficiency	[%]	*11	93			
Torsional Rigidity	[Nm/arc-min]	*12	840			
Maximum Torsional Backlash	[arc-min]	--	≤ 6			
Noise Level	dB [A]	*13	≤ 85			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0-40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	110			

*1) At nominal input speed, service life is 20,000 hours.

*2) The maximum torque when starting or stopping operation. Apply Cycle Factor f_g , for higher duty cycle applications.

*3) Permitted 10,000 times during service life. Based on 10% of maximum radial load and smooth output shaft.

*4) The maximum torque allowed under a stress situation. Permitted 1,000 times during service life.

*5) The average input speed at nominal input torque. Maintain housing temperature below permitted value.

*6) The maximum intermittent input speed.

*7) Torque at no load applied to the input shaft at nominal input speed.

*8) The maximum radial load that the gearbox can accept.

*9) The maximum axial load that the gearbox can accept.

*10) The moment is the maximum load at output flange surface.

*11) The efficiency at the nominal output torque rating.

*12) This does not include lost motion.

*13) Contact SIT S.p.A. for the testing conditions and environment.

*14) Various wash-down options are available. Contact SIT S.p.A. for more details.

*15) Weight may vary slightly between models.

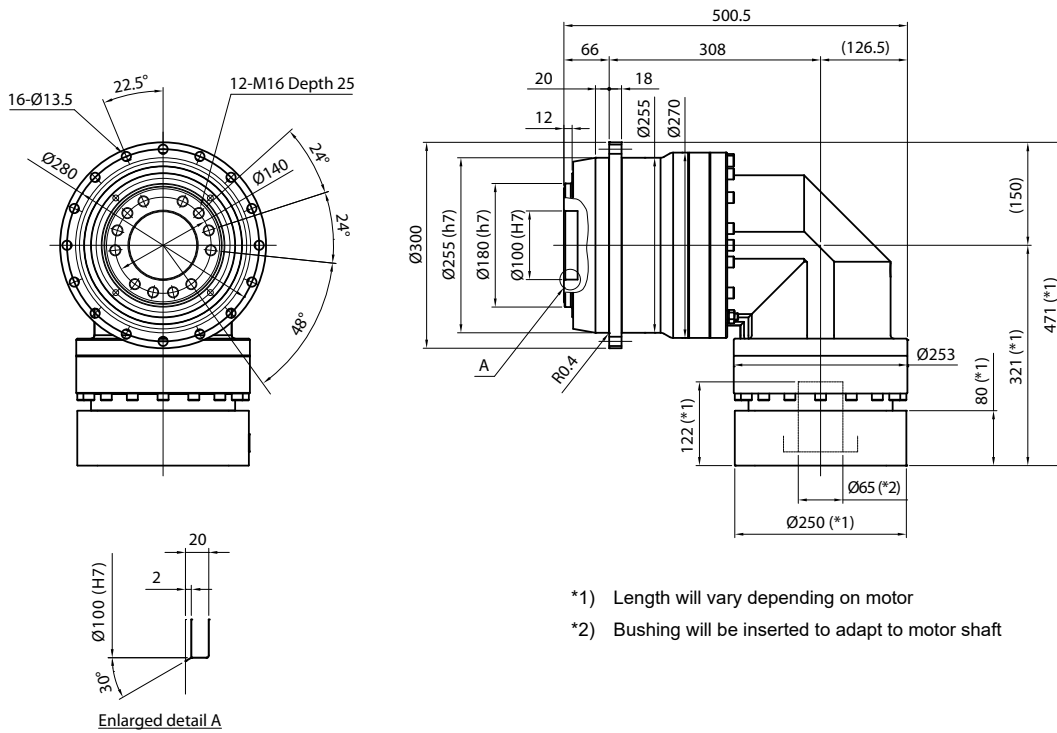
EVT 255 3-Stage Specifications

Frame Size	255					
Stage	3-Stage					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	1920	1992	2154	2195
Maximum Acceleration Torque	[Nm]	*2	3520	3520	3520	3460
Maximum Torque	[Nm]	*3	3520	3520	3520	3460
Emergency Stop Torque	[Nm]	*4	7200	7200	7200	7200
Nominal Input Speed	[rpm]	*5	1500			
Maximum Input Speed	[rpm]	*6	3000			
No Load Running Torque	[Nm]	*7	--			
Maximum Radial Load	[N]	*8	40000			
Maximum Axial Load	[N]	*9	20000			
Maximum Tilting Moment	[Nm]	*10	11000			
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	118.52	114.63	113.37	114.80
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--
Efficiency	[%]	*11	88			
Torsional Rigidity	[Nm/arc-min]	*12	840			
Maximum Torsional Backlash	[arc-min]	--	≤ 9			
Noise Level	dB [A]	*13	≤ 85			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0-40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	99			

Frame Size	255						
Stage	3-Stage						
Ratio	Unit	Note	35	40	50	70	100
Nominal Output Torque	[Nm]	*1	2195	2195	2195	2195	1405
Maximum Acceleration Torque	[Nm]	*2	3460	3520	3520	3460	1718
Maximum Torque	[Nm]	*3	3460	3520	3520	3460	1718
Emergency Stop Torque	[Nm]	*4	7200	7200	7200	7200	5400
Nominal Input Speed	[rpm]	*5	1500				
Maximum Input Speed	[rpm]	*6	3000				
No Load Running Torque	[Nm]	*7	--				
Maximum Radial Load	[N]	*8	40000				
Maximum Axial Load	[N]	*9	20000				
Maximum Tilting Moment	[Nm]	*10	11000				
Moment of Inertia ($\leq \varnothing 48$)	[kgcm ²]	--	112.25	109.37	109.05	108.77	108.62
Moment of Inertia ($\leq \varnothing 65$)	[kgcm ²]	--	--	--	--	--	--
Efficiency	[%]	*11	88				
Torsional Rigidity	[Nm/arc-min]	*12	840				
Maximum Torsional Backlash	[arc-min]	--	≤ 9				
Noise Level	dB [A]	*13	≤ 85				
Protection Class	--	*14	IP54 (IP65)				
Ambient Temperature	[°C]	--	0-40				
Permitted Housing Temperature	[°C]	--	90				
Weight	[kg]	*15	99				

EVT 255 2-Stage Dimensions

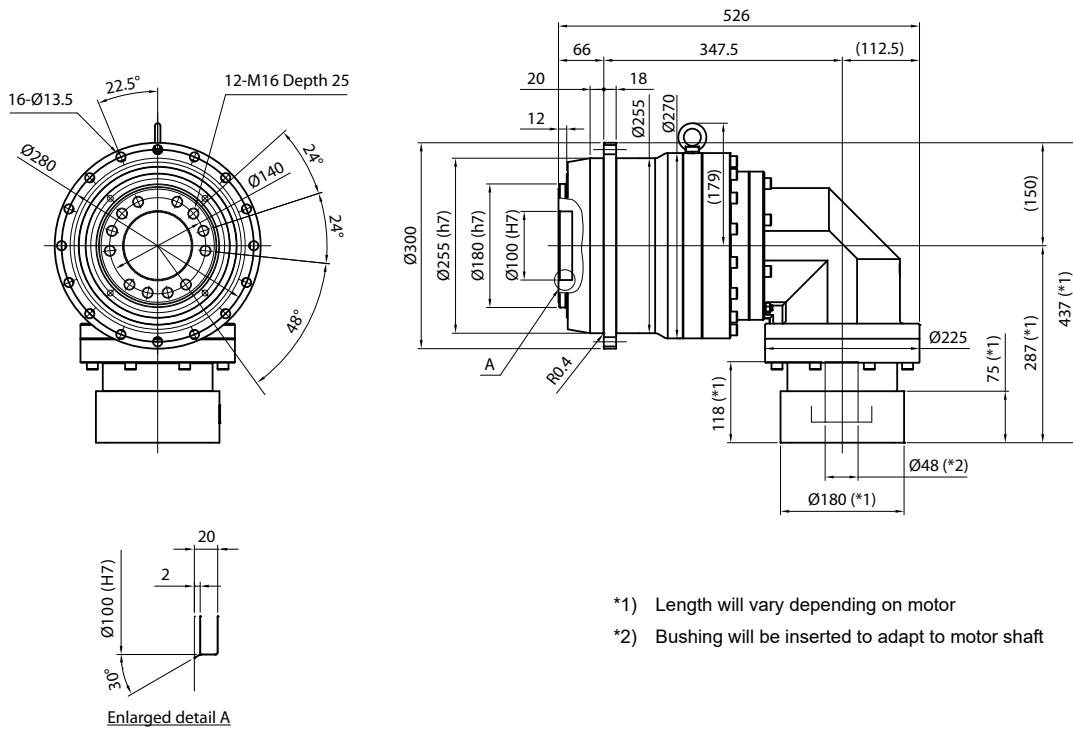
Input bore size $\leq \phi 65\text{mm}$



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

EVT 255 3-Stage Dimensions

Input bore size $\leq \phi 48\text{mm}$



- *1) Length will vary depending on motor
- *2) Bushing will be inserted to adapt to motor shaft

TECHNICAL INFORMATION



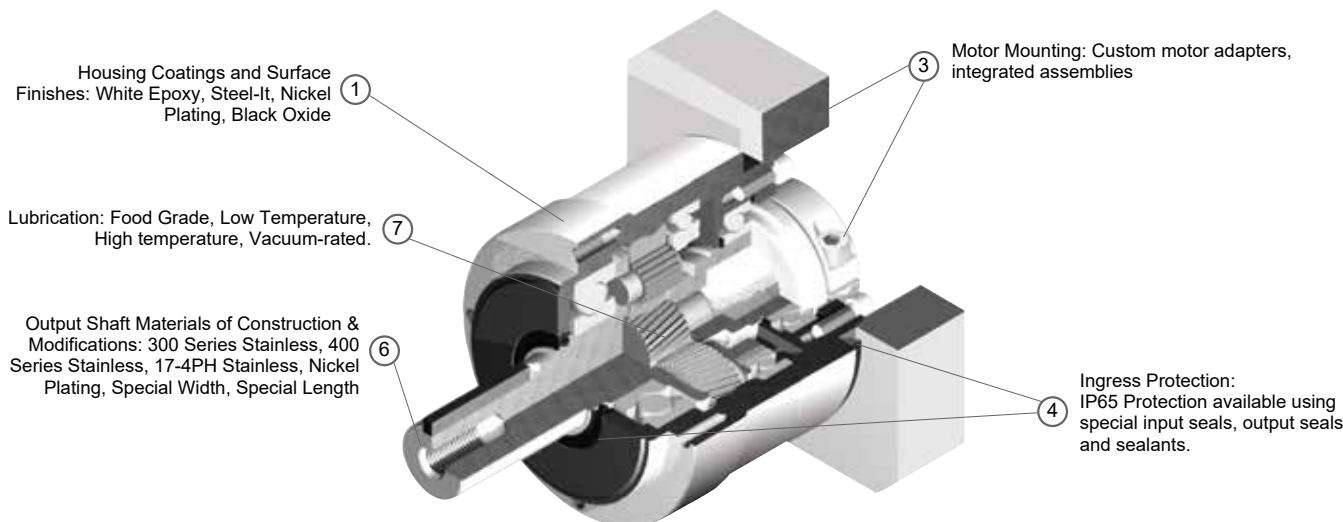
Technical Information

Options & Modifications

Build Your Ideal Gearbox

NIDEC-SHIMPO realizes that even with our vast range of products, you may not find exactly what you need for your application. We are highly capable of supplying custom solutions for OEMs, which include completely customized gearboxes or gear sets, modified standard designs and integrated product assemblies to meet unique application requirements. We work closely with our OEM customers during early phases

of development to create special designs that can overcome the harshest environments, tightest space constraints and most demanding positioning requirements. Whether your application requires weight relief, cost-down considerations, special coatings or materials of construction, NIDEC-SHIMPO can develop a product to meet your target.



Note: The following options and modifications may require minimum order quantities. Contact SIT S.p.A. for additional details.

Standard Planetary Washdown and Food Grade Options

Food, beverage, pharmaceutical and cosmetics equipment builders compete on their ability to deliver more innovative processing and packaging, with higher throughput and less downtime. Strict hygiene regulations require equipment to be cleaned often with water, steam and harsh chemicals that can quickly destroy ordinary machine components. These operating conditions pose challenges for gearbox manufactures and

NIDEC-SHIMPO is up to the task. NIDEC-SHIMPO offers standard, readily available wash-down and food grade options for our VRL and VRB planetary product lines in a select group of configurations. These options include stainless steel output shaft and fasteners, white epoxy or Steel-it paint and IP65 environmental protection. These readily available options are shown in the chart below:

Series	VRL		
Frame Size	070	090	120
1-Stage	3, 5, 7, 10:1		
2-Stage	15, 25, 28, 30, 35, 50, 70, 100:1		

Series	VRB		
Frame Size	060	090	115
1-Stage	3, 5, 7, 10:1		
2-Stage	15, 25, 28, 30, 35, 50, 70, 100:1		

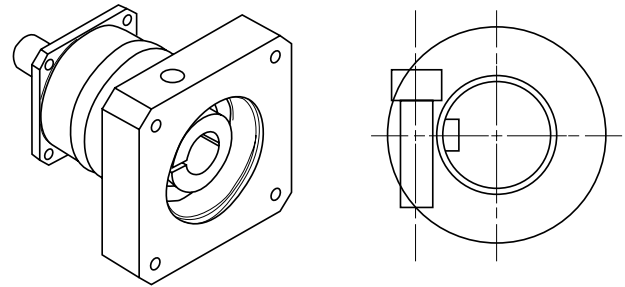
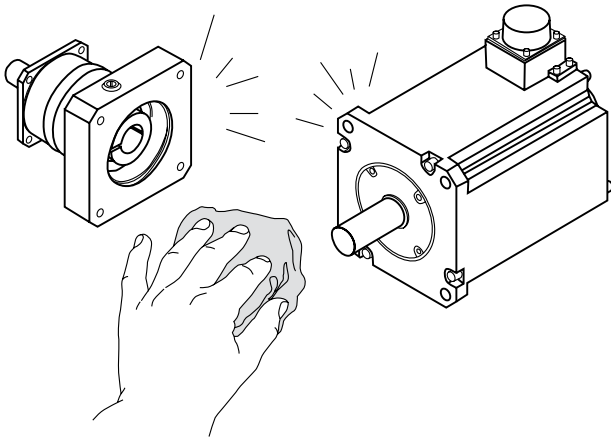
Part Number	VRB -090 7 K 3 19HB16 XV
Model name - VRB series	VRB
Size	090
Ratio	7
Output shaft style	K
Backlash	3
Adapter code	19HB16
Washdown, Food Grade Options	XV

Order Code	Description of Features
X V	Food Grade Grease; Food Grade White Epoxy; IP 65; SS shaft
-	Standard Grease; Standard Paint
W	Standard Grease; Food Grade White Epoxy
S	Standard Grease; Steel - It™
F	Food Grade Grease; Standard Paint
X	Food Grade Grease; Food Grade White Epoxy
G	Food Grade Grease; Steel - It™
-	Standard Protection; Standard Shaft, Fasteners
I	Standard Protection; Stainless Steel Shaft, Fasteners
V	IP65 Protection; Stainless Steel Shaft, Fasteners

Installation Instructions and Safety Precautions

Inspection and Preparations

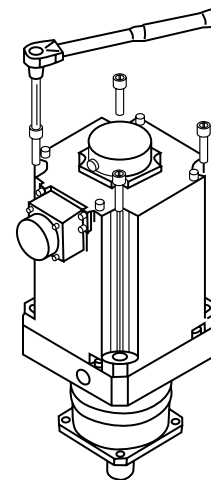
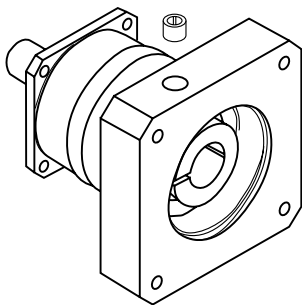
- A. Upon delivery of the gearbox, confirm that you received the exact model that was specified on your purchase order.
- B. Inspect for shipping damage. Notify the shipping agent immediately if any damage is discovered.
- C. Remove the protective covering from the output shaft.
- B. Carefully align the shaft bushing (if included) so that the opening in the bushing aligns with the opening in the input hub. It is also recommended that the motor shaft keyway (if present) aligns with the opening in the input hub clamp.



- D. Clean and de-grease the motor mounting surface and shaft, as well as the gearbox mounting surface, input hub bore, and shaft bushing (if included). This cleaning is very important for the shaft and bushing, to prevent slip during motion.

- C. Rotate the gearbox input hub so that the clamp bolt is aligned with the access hole. Loosen the clamp bolt.
- D. Remove the motor key (if supplied), as it is not required for proper installation and operation.

Motor Mounting



- A. Remove the access hole plug, allowing access to the motor shaft clamp.

- E. Slowly slide the motor into the gearbox, so that the motor shaft enters the gearbox input hub with motor shaft keyway (if present) aligned with gearbox input shaft clamp opening. Install the four motor flange bolts in a cross-wise pattern, to ensure proper alignment of motor to gearbox. Tighten the bolts to the proper torque using a torque wrench (see Table A).

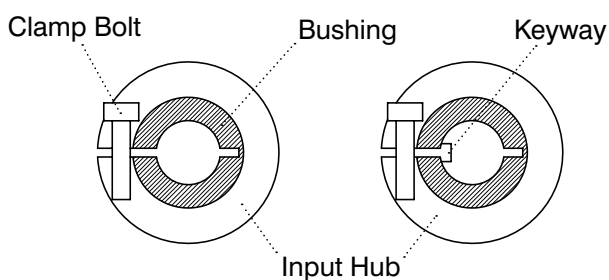
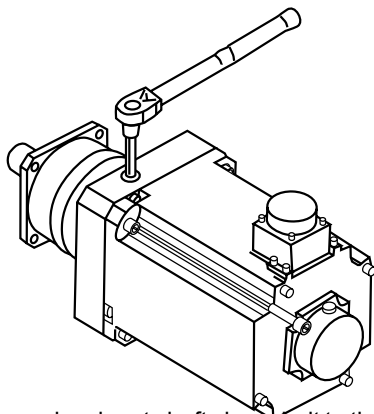


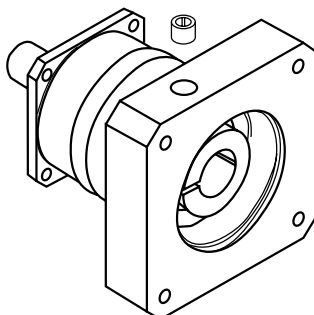
Table A

Motor Installation Bolt Size	Tightening Torque	
	(Nm)	(in lbs)
M3	1.3	12
M4	3.0	27
M5	6.0	53
M6	10	89
M8	20	171
M10	38	338
M12	67	596



F. Tighten the gearbox input shaft clamp bolt to the proper torque using a torque wrench (see Table B).

Clamp Bolt Size	Tightening Torque	
	(Nm)	(in lbs)
M3	2.0	18
M4	4.5	40
M5	9.0	80
M6	16	142
M8	36	318
M10	27	637
M12	125	1106



G. Re-install the access hole plug into the motor adapter plate. Assembly is complete.

Safety Precautions

- A. Avoid use in wet or corrosive areas, unless the gearbox is specified for these environments.
- B. Ambient temperature in the area of the gearbox must be in the range of 0° -40 °C, unless the gearbox is built to withstand a different temperature range.
- C. The gearbox (with motor) must be firmly attached to a vibration-free frame or fixture.
- D. The gearbox has been lubricated and can be operated immediately.
- E. At initial operation, check the direction of shaft rotation, then apply the load gradually.
- F. Avoid excessive loads.
- G. Ensure that the motor speed does not exceed the maximum RPM specified for the gearbox.
- H. Watch for the following problems and discontinue motion immediately:
 - a. Sharp increase in temperature
 - b. Abnormal noise
 - c. Unstable output speed
- I. The gearbox is not designed to be disassembled.
- J. The gearbox is lubricated for its lifetime with appropriate grease. No re-lubrication is required.

IP 65 Versions

If you have received an IP65 version of the gearbox, be sure to seal between the gearbox and motor interface with a sealant to ensure an IP65 rating of the gearbox / motor assembly. Also apply sealant to the access hole plug during step "G". Please contact SIT S.p.A. with any questions.

Motor Mounting Codes

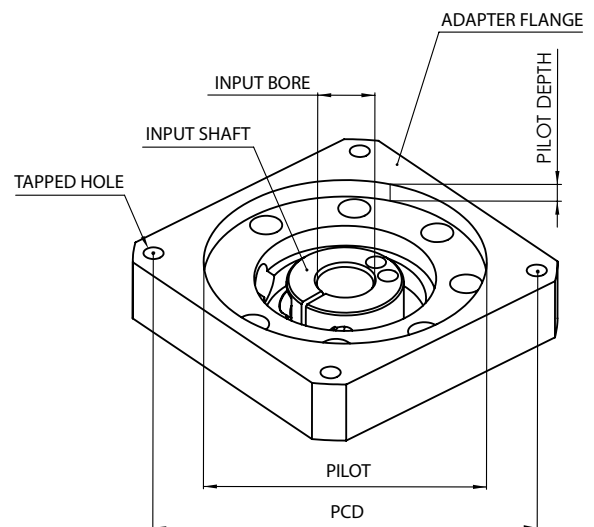
Our motor mounting codes can be configured automatically using our online selection tool. These tables supply the details behind these codes. The tables start with Input Bore measurement and the Part # Code, which are indicated at the end of every model code. For each Part # Code, the Pilot, PCD, Tapped Hole, and Pilot Depth, are explained.

Please note that even though the Part# Code may have the same letters (i.e. DC, FB, HA, etc), the Pilot and PCD dimensions may not be the same if a different input bore diameter. Locate the table by input bore diameter first, and then find the appropriate adapter Part# Code to check the dimensions. If you have any questions, Contact SIT S.P.A. for support.

Input Bore [mm]	Part# Code	Pilot [mm]	PCD [mm]	Tapped Hole	Pilot Depth [mm]
65	MA	114.3	200	M12	8
65	MB	200	235	M12	8
65	MC	180	215	M12	8
65	MD	180	265	M12	8
65	NA	230	265	M12	8
65	NB	230	265	M12	18
65	NC	230	290	M12	8
65	ND	230	265	M20	18
65	PA	250	300	M16	8
65	PB	250	320	M16	18
65	QA	300	350	M16	8
65	QB	280	325	M16	8

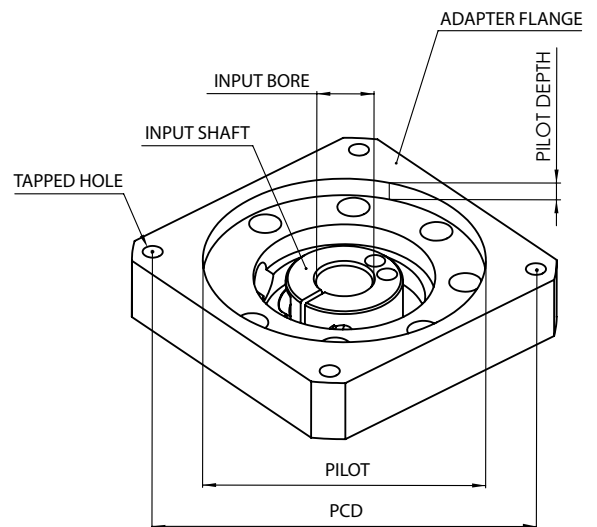
Input Bore [mm]	Part# Code	Pilot [mm]	PCD [mm]	Tapped Hole	Pilot Depth [mm]
48	KA	114.3	200	M12	8
48	KB	110	130	8.8	8
48	KC	130	215	M12	8
48	LA	180	215	M12	8
48	MA	180	265	M12	8
48	MB	200	235	M12	8
48	NA	230	265	M12	8
48	PA	250	300	M16	8

Input Bore [mm]	Part# Code	Pilot [mm]	PCD [mm]	Tapped Hole	Pilot Depth [mm]
38	HA	110	130	8.8	8
38	HB	110	145	M8	8
38	HE	110	130	M8	8
38	JA	130	165	M10	8
38	KA	114.3	200	M12	8
38	KB	130	215	M10	8
38	KC	130	215	M12	8
38	KD	95	200	M10	18
38	KE	114.3	200	M12	18
38	LA	180	215	M12	8
38	LB	180	215	M12	18
38	MA	180	265	M12	8
38	MB	200	235	M12	8
38	MC	215.9	184.15	13.7	5.5
38	MD	200	250	M8	18
38	NA	230	265	M12	8



Input Bore [mm]	Part# Code	Pilot [mm]	PCD [mm]	Tapped Hole	Pilot Depth [mm]
28	FA	80	100	M6	8
28	FB	95	115	M6	8
28	FC	95	115	M8	8
28	FD	95	115	M6	8
28	FE	95	115	M8	8
28	GA	55.563	125.73	M6	8
28	GB	63.5	127	M6	8
28	GC	95	130	M8	8
28	GD	110	130	M8	8
28	GE	110	130	M10	8
28	GF	110	130	8.8	8
28	GG	110	135	M8	8
28	GH	95	135	M8	8
28	HA	110	145	M8	8
28	HB	110	145	M8	18
28	HC	110	145	10.5	8
28	HD	114.3	149.23	10.5	8
28	HE	95	145	M8	18
28	HF	110	145	M8	8
28	JA	110	165	M8	8
28	JB	110	165	M10	8
28	JC	130	165	M10	8
28	JD	130	174	M10	28
28	JE	130	165	M10	18
28	JF	114.3	160	M10	8
28	KA	114.3	200	M12	8
28	KB	130	215	M10	8
28	KD	114.3	200	M12	18
28	KE	150	185	M10	8
28	LA	180	215	M12	8
28	LB	180	220	M12	18
28	MA	200	235	M12	8
28	MB	200	250	M8	18

Input Bore [mm]	Part# Code	Pilot [mm]	PCD [mm]	Tapped Hole	Pilot Depth [mm]
19 /	FC	95	115	M8	9
19 /	BK	50	70	M5	6
19	DA	60	90	M5	6
19	DB	70	90	M5	6
19	DC	70	90	M6	6
19	DD	70	90	M6	16
19	DE	70	90	M5	11
19	EA	73.025	98.43	M5	11
19	EB	80	100	M6	6
19	EC	80	100	M6	16
19	ED	60	98.99	M6	6
19	FA	95	115	M8	6
19	FB	95	115	M8	16
19	GA	55.563	125.73	M6	11
19	GB	95	130	M8	6
19	GC	110	130	M8	11
19	GD	110	130	8.8	6
19	GE	95	130	M8	16
19	GF	100	125	M8	16
19	GH	95	135	M8	11
19	HA	110	145	M8	6
19	HB	110	145	M8	21
19	HC	110	145	10.5	11
19	HD	114.3	149.23	M8	11
19	HE	114.3	149.23	10.5	11
19	JA	130	165	M10	16
19	JB	115	165	M8	21

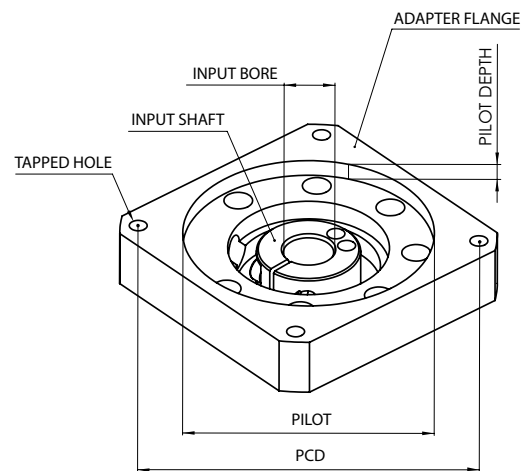


Our motor mounting codes can be configured automatically using our online selection tool. These tables supply the details behind these codes. The tables start with Input Bore measurement and the Part # Code, which are indicated at the end of every model code. For each Part # Code, the Pilot, pCD, Tapped Hole, and Pilot Depth, are explained.

Please note that even though the Part# Code may have the same letters (i.e. DC, FB, HA, etc), the Pilot and PCD dimensions may not be the same if a different input bore diameter. Locate the table by input bore diameter first, and then find the appropriate adapter Part# Code to check the dimensions. If you have any questions, Contact SIT S.p.A. for support.

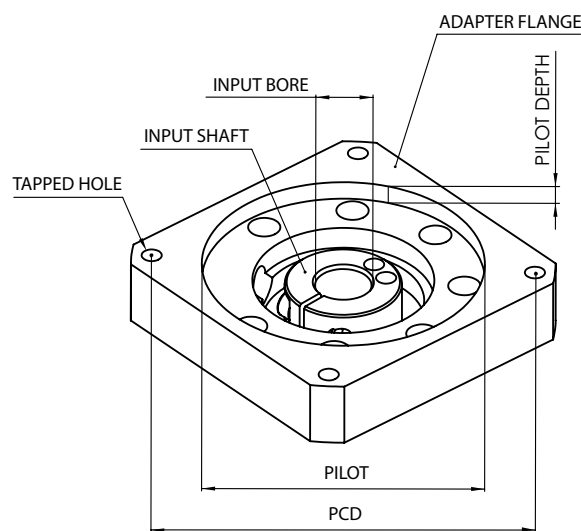
Input Bore [mm]	Part# Code	Pilot [mm]	PCD [mm]	Tapped Hole	Pilot Depth [mm]
14	BA	38.1	66.68	M4	5
14	BB	38.1	66.68	M5	5
14	BC	38.1	66.68	M5	10
14	BD	40	63	M4	5
14	BE	40	63	M5	5
14	BF	40	65	M5	5
14	BG	40	70	M4	5
14	BH	50	60	M4	10
14	BJ	50	70	M4	5
14	BK	50	70	M5	5
14	BL	50	70	M5	15
14	BM	50	70	M5	10
14	BN	50	70	M4	10
14	BP	36	70.71	M4	5
14	CA	60	75	M5	5
14	CB	60	75	M6	10
14	CC	60	80	M4	5
14	DA	50	95	M6	5
14	DB	60	85	M5	5
14	DC	60	90	M5	5
14	DD	70	85	6.5	5
14	DE	70	90	M5	10
14	DF	70	90	M6	5

Input Bore [mm]	Part# Code	Pilot [mm]	PCD [mm]	Tapped Hole	Pilot Depth [mm]
14	DG	70	90	M6	15
14	DH	70	95	M6	5
14	DJ	60	95	M5	5
14	DK	36.8	82.024	M6	15
14	DL	62	91.924	M5	10
14	EA	50	100	M6	5
14	EB	73.025	98.43	M5	5
14	EC	80	100	M6	5
14	ED	80	100	M6	15
14	EE	73.025	98.43	M6	15
14	EF	50	98.43	M5	5
14	EG	60	98.995	M5	5
14	EH	80	105	M6	15
14	EJ	60	98.995	M6	10
14	EK	73.025	98.43	M6	5
14	EL	73	94	M6	5
14	EM	83	104	M8	10
14	FA	60	115	M6	5
14	FB	95	115	M8	15
14	GA	80	139.7	M6	5
14	GB	80	130	M5	20
14	GC	94	120	M8	10
14	JA	115	165	M8	10



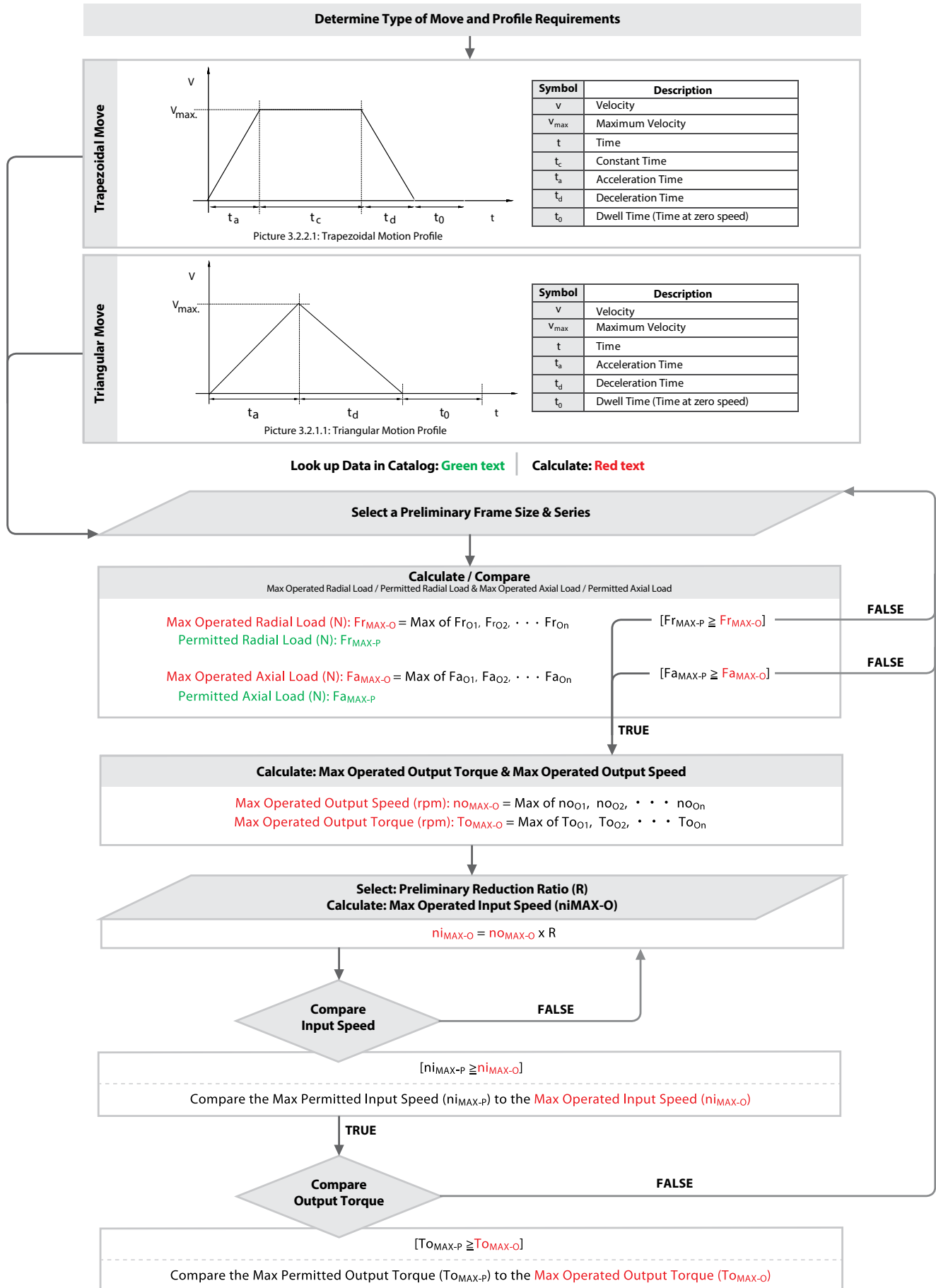
Input Bore [mm]	Part# Code	Pilot [mm]	PCD [mm]	Tapped Hole	Pilot Depth [mm]
8	AA	20.02	46.69	M3	5
8	AB	22	43.82	4.7	10
8	AC	22	48	M3	5
8	AD	22.22	50.8	M3	5
8	AE	25.4	38.89	4	10
8	AF	30	45	M3	5
8	AG	30	46	M4	5
8	AH	30	46	M4	10
8	AJ	30	46	3.5	10
8	AK	34	48	M3	10
8	AL	30	48	M3	5
8	AM	22	43.82	3.5	5
8	AN	40	50	M4	5
8	AQ	37.6	48	M3	5
8	BA	38.1	66.68	M4	5
8	BB	38.1	66.68	M5	5
8	BC	50	60	M4	10
8	BD	50	70	M4	5
8	BE	50	70	M5	5
8	BF	50	70	M5	10
8	BG	36	70.71	M4	5
8	BH	54	70	M4	5
8	BJ	50	58	M3	5
8	CA	50	80	M4	10

Input Bore [mm]	Part# Code	Pilot [mm]	PCD [mm]	Tapped Hole	Pilot Depth [mm]
S8	ZA	20.02	46.69	M3	5
S8	ZB	22	43.82	4.7	10
S8	ZC	22	48	M3	5
S8	ZD	22.22	50.8	M3	5
S8	ZE	25.4	38.89	4	10
S8	ZF	30	45	M3	5
S8	ZG	30	46	M4	5
S8	ZH	30	46	M4	10
S8	ZJ	30	46	3.5	10
S8	ZK	34	48	M3	10
S8	ZL	30	48	M3	5
S8	ZM	22	43.82	3.5	5
S8	ZN	40	50	M4	5
S8	ZQ	37.6	48	M3	5
S8	BA	38.1	66.68	M4	5
S8	BB	38.1	66.68	M5	5
S8	BC	50	60	M4	10
S8	BD	50	70	M4	5
S8	BE	50	70	M5	5
S8	BF	50	70	M5	10
S8	BG	36	70.71	M4	5
S8	BH	54	70	M4	5
S8	BJ	50	58	M3	5

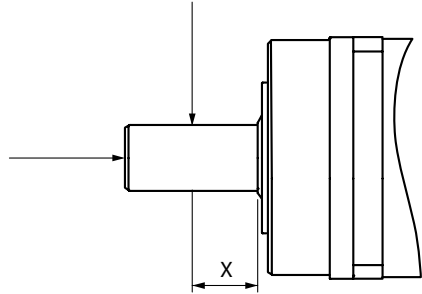


Selection Flow Charts

Procedure for Gearbox Selection



Calculate: Average Operated Radial Load & Average Operated Axial Load



Average Operated Radial Load (N):

$$Fr_{AVG-O} = \sqrt[3]{\frac{no_{O1} \cdot t_1 \cdot |Fr_{O1}|^3 + no_{O2} \cdot t_2 \cdot |Fr_{O2}|^3 + \dots + no_{On} \cdot t_n \cdot |Fr_{On}|^3}{no_{O1} \cdot t_1 + no_{O2} \cdot t_2 + \dots + no_{On} \cdot t_n}}$$

Average Operated Axial Load (N):

$$Fa_{AVG-O} = \sqrt[3]{\frac{no_{O1} \cdot t_1 \cdot |Ft_{O1}|^3 + no_{O2} \cdot t_2 \cdot |Ft_{O2}|^3 + \dots + no_{On} \cdot t_n \cdot |Ft_{On}|^3}{no_{O1} \cdot t_1 + no_{O2} \cdot t_2 + \dots + no_{On} \cdot t_n}}$$

Calculate: Average Operated Output Torque & Average Operated Output Speed

Average Operated Output Torque (Nm):

$$To_{AVG-O} = \sqrt[10]{\frac{no_{O1} \cdot t_1 \cdot |To_{O1}|^{10/3} + no_{O2} \cdot t_2 \cdot |To_{O2}|^{10/3} + \dots + no_{On} \cdot t_n \cdot |To_{On}|^{10/3}}{no_{O1} \cdot t_1 + no_{O2} \cdot t_2 + \dots + no_{On} \cdot t_n}}$$

Average Operated Output Speed (rpm):

$$no_{AVG-O} = \frac{no_{O1} \cdot t_1 + no_{O2} \cdot t_2 + \dots + no_{On} \cdot t_n}{t_1 + t_2 + \dots + t_n}$$

Calculate: Life

Bearing Life (Hours): $Lh = 20,000 \cdot \left(\frac{To_{AVG-P}}{To_{AVG-O}}\right)^P \cdot \left(\frac{ni_{AVG-P}}{no_{AVG-O}}\right)$

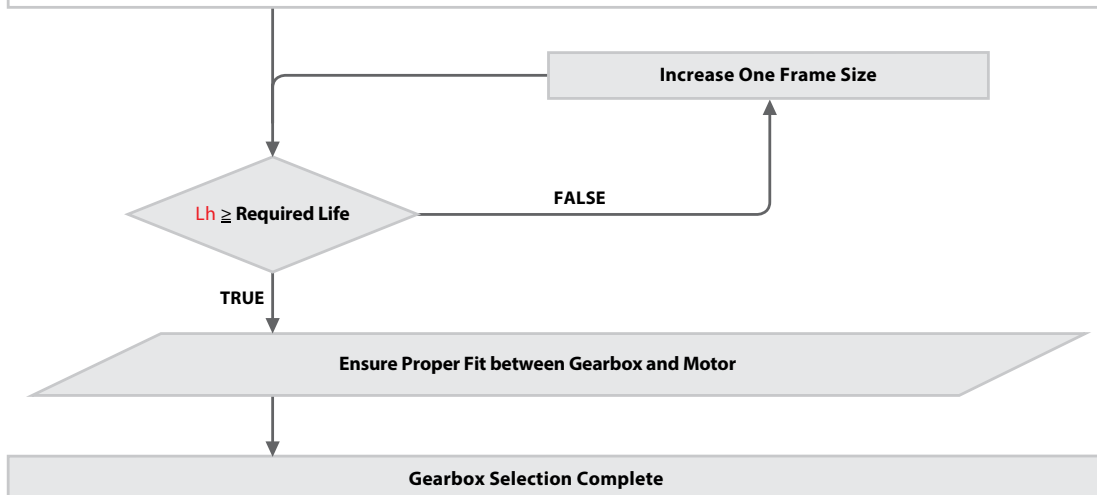
There are 3 Life calculations that should be taken into account:

1. Life of Needle Bearing
2. Life Due to Radial Load
3. Life Due to Thrust Load

Contact SIT S.p.A. for calculation details

Legend:

- To_{AVG-P} : Average Permitted Output Torque
- To_{AVG-O} : Average Operated Output Torque
- ni_{AVG-P} : Average Permitted Input Speed
- no_{AVG-O} : Average Operated Output Speed

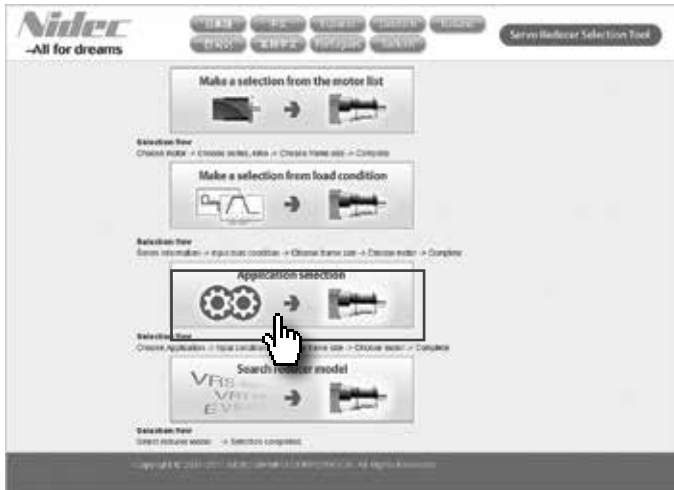


Contact SIT S.p.A. for details

Online Planetary Sizing and Selection Tool

Nidec-Shimpo's online Selection Tool makes it simple to configure our planetary product. The online Selection Tool has an extensive list of Servo Motor Specifications, Requirements and Application Specifications. See the Selection Tool example screens below to guide, support and help you with your application needs.

Selection Tool Screen Example 1



- Selection based on the Servo Motor Specifications
- Selection based on the Servo Motor Movement profile requirements
- Selection based on the Application Specifications includes all the above

Selection Tool Screen Example 3



- Fill in all the information for your application

Load condition		
Delivery weight	Ww	10 (kg)
Belt weight	Wc	11 (kg)

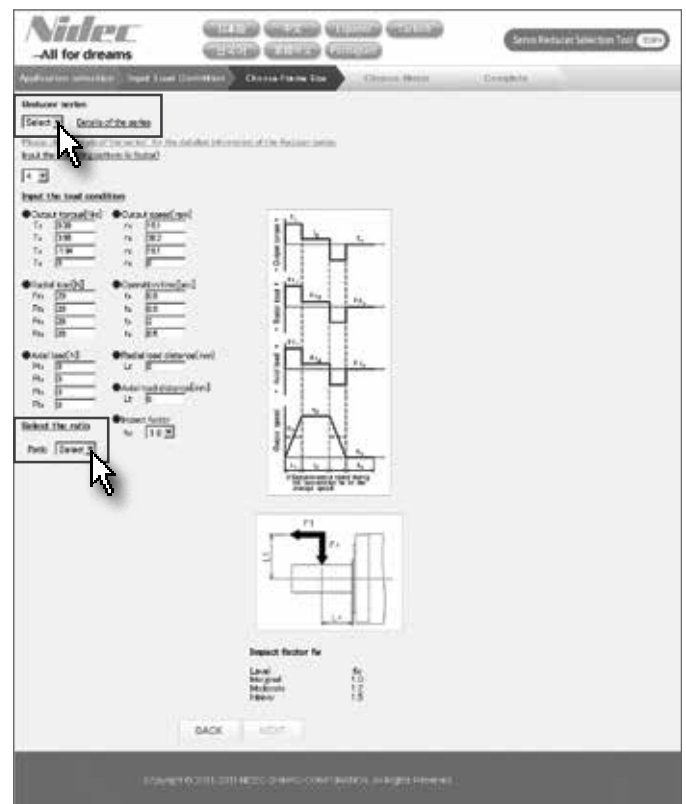
- Including the velocity, forces, mass, and move profile

Selection Tool Screen Example 2



- Select a application template based on your criteria

Selection Tool Screen Example 4



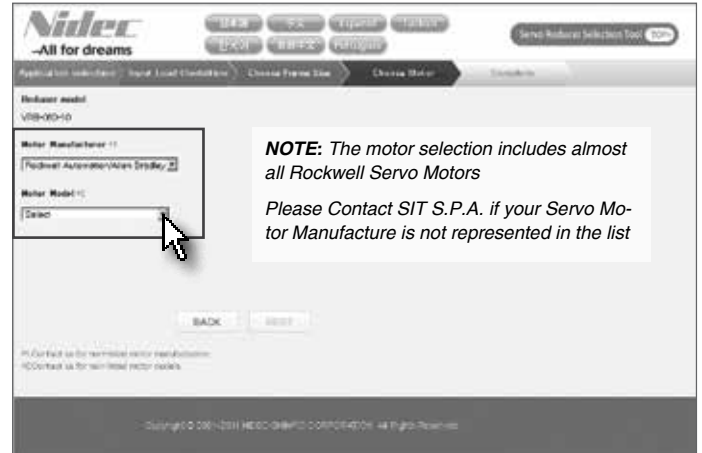
- Select a NIDEC-SHIMPO planetary gearbox series
- Select a Ratio that would put you near the rpm range for your application

Selection Tool Screen Example 5



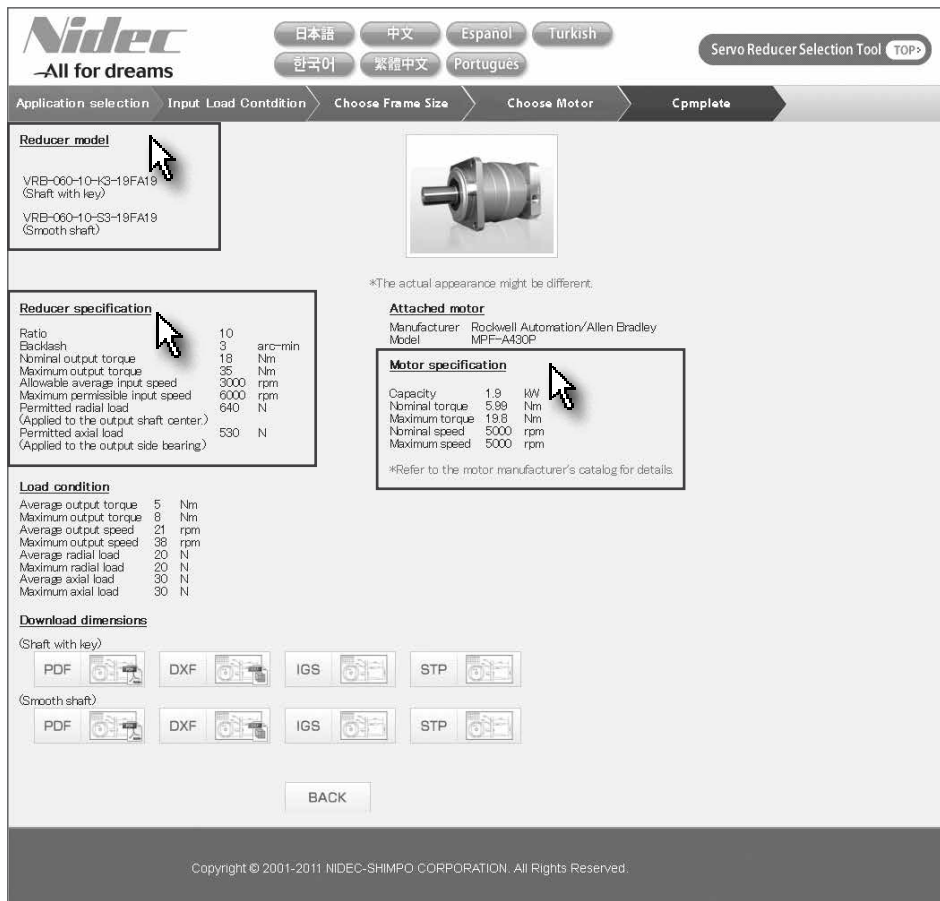
- The proper NIDEC-SHIMPO reducer frame size has been selected based on your application's criteria

Selection Tool Screen Example 6



- Select the Motor Manufacturer for your application from the list
- Select the appropriate motor via the "Motor Model drop down box"
- The manufacture Motor Model list includes new and former servo motors
- The sizing program does not select the servo motor drive

Selection Tool Screen Example 7



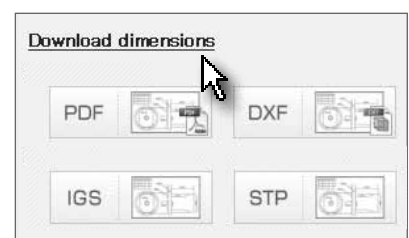
The resulting Load Condition can be helpful for sizing other related machine components

The Load Condition includes:

- Output Torque (Nm) and Output Velocity (rpm) of the Gearmotor

Load condition	
Average output torque	5 Nm
Maximum output torque	8 Nm
Average output speed	21 rpm
Maximum output speed	38 rpm
Average radial load	20 N
Maximum radial load	20 N
Average axial load	30 N
Maximum axial load	30 N

- These drawing formats can be downloaded: PDF, DXF, IGS, STP



Selection tool <http://sitspa.com/tools-online/>

RACK & PINION

A detailed photograph of a rack and pinion gear assembly. The image shows a close-up of the mesh between a rack and a pinion gear. The gears are made of a dark, polished metal. The rack is a long, thin gear with straight teeth, and the pinion is a smaller gear with curved teeth. The assembly is mounted on a metal housing. The background is a light, neutral color.

Rack & Pinion

Rack & Pinion

System of power transmission compact and quiet

Description

By shrinking the pinion with helical teeth, hardened and ground, through advanced technologies, or with SIT-LOCK® locking device, we are able to propose a system of power transmission compact and quiet. Thanks to precise mating pinion racks with helical teeth hardened

and ground, made in different materials and heat treatments designed for every need technical application, we are able to meet the increasingly high demands in terms of dynamics and precision.

Rack - Model Code

RK E- M2 1000 T 6

Rack	E: Helicoidal - D: Streight	M2	1000	T	6
------	-----------------------------	----	------	---	---

Quality: 5 - 6 - 7 - 8 - 9 - 10

T: Introduction hardening
 TC: Case Hardening
 N: Nitriding
 NN: No Treatment

Length [mm]

Rack & Pinion - Model Code

RKP E- 26 M2 F32 C6

Rack-Pinion	E: Helicoidal - D: Streight	26	M2	F32	C6
-------------	-----------------------------	----	----	-----	----

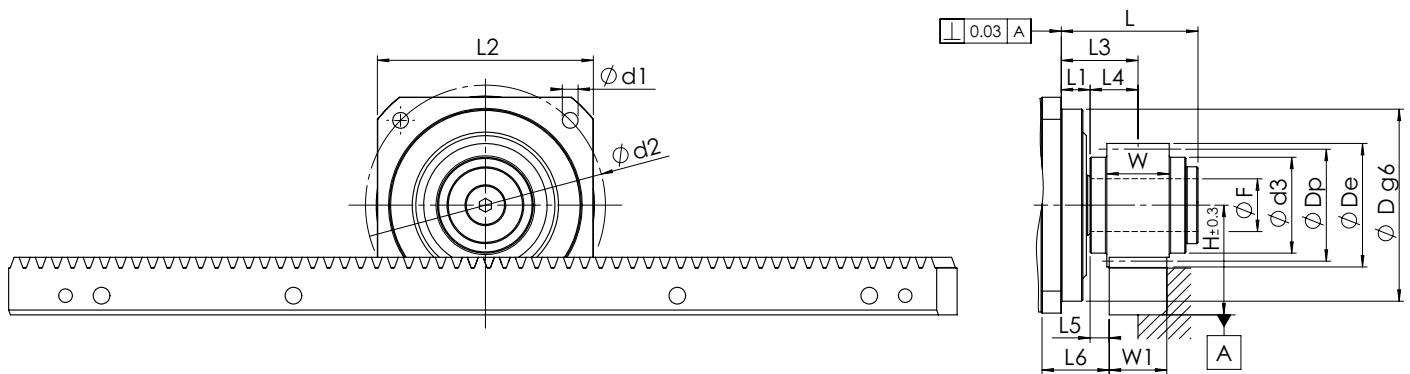
Quality: 5 - 6 - 7 - 8

T: Introduction hardening
 TC: Case Hardening
 N: Nitriding
 NN: No Treatment

Module: 2 - 3 - 4 - 5 - 6



Rack & Pinion transmission system precise and compact



VRB Series

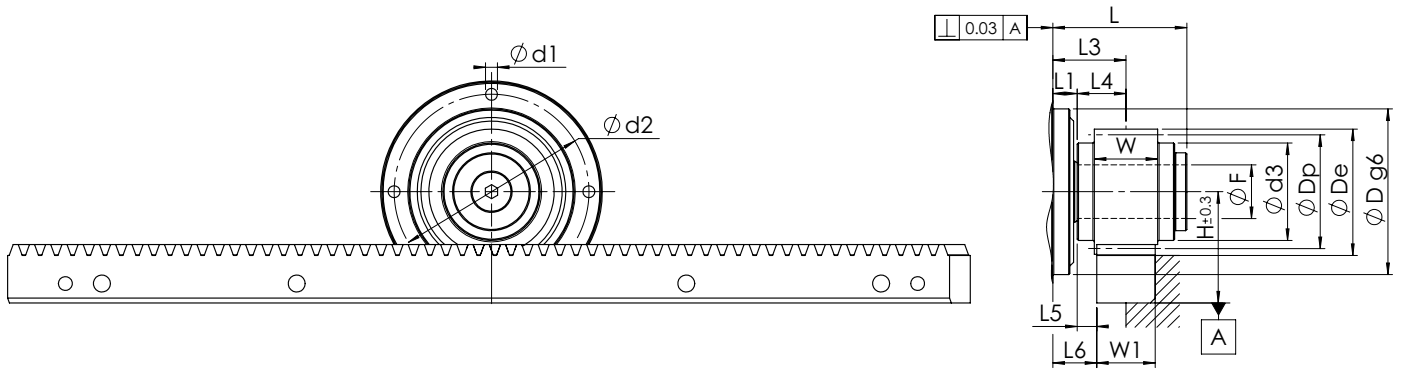
Size	M	z	H* [mm]	W [mm]	W1 [mm]	De [mm]	Dp [mm]	x [mm]	D g6 [mm]	d1 [mm]	d2 [mm]	d3 [mm]	L1 [mm]	L2 [mm]	L [mm]	L3 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	ØF [mm]	Pinion Weight [Kg]
VRB060C	2	18	4189	26	24	43,80	38,20	0,4	50	5,5	70	30	9	60	43	28	19	1	22	16	0,2
VRB090C	2	20	4402	26	24	48,041	42,44	0,4	80	6,6	100	36	12	90	55	37	25	13	33	22	0,3
VRB090C	2	22	45,73	26	24	51,46	46,69	0,2	80	6,6	100	40	12	90	55	32	20	8	28	22	0,4
VRB115C	2	26	49,58	26	24	59,17	55,17	0	110	9	130	45	7	115	74	28	21	9	26	32	0,5
VRB115C	3	25	65,79	31	29	85,58	79,58	0	110	9	130	60	7	115	74	28,5	21,5	7	24	32	1,5
VRB140C	3	24	64,19	31	29	82,39	76,39	0	130	11	165	58	15	140	107	50,5	35,5	21	48	40	1,2
VRB140C	4	21	79,56	40	39	97,13	89,13	0	130	11	165	62	15	140	107	79	64	44,5	71,5	40	2
VRB180C	4	24	85,93	40	39	109,86	101,86	0	160	13,5	215	80	23	180	116	87	64	44,5	82,5	55	2,6

VRS Series

Size	M	z	H [mm]	W [mm]	W1 [mm]	De [mm]	Dp [mm]	x [mm]	D g6 [mm]	d1 [mm]	d2 [mm]	d3 [mm]	L1 [mm]	L2 [mm]	L [mm]	L3 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	ØF [mm]	Pinion Weight [Kg]
VRS060C	2	18	41,89	26	24	43,80	38,20	0,4	60	5,5	68	30	20	60	54	39	19	7	33	16	0,2
VRS075C	2	20	44,02	26	24	48,041	42,44	0,4	70	6,6	85	36	20	75	63	45	25	13	40	22	0,3
VRS075C	2	22	45,73	26	24	51,46	46,69	0,2	70	6,6	85	40	20	75	63	40	20	8	35	22	0,4
VRS100C	2	26	49,58	26	24	59,17	55,17	0	90	9	120	45	30	100	97	51	21	9	49	32	0,5
VRS100C	3	25	65,79	31	29	85,58	79,58	0	90	9	120	60	30	100	97	51,5	21,5	7	47	32	1,5
VRS140C	3	24	64,19	31	29	82,39	76,40	0	130	11	165	58	30	140	122	65,5	35,5	21	63	40	1,2
VRS140C	4	21	79,56	40	39	97,13	89,13	0	130	11	165	62	30	140	122	94	64	44,5	86,5	40	2
VRS180C	4	24	85,93	40	39	109,86	101,86	0	160	13,5	215	80	30	160	123	94	64	44,5	86,5	55	2,6

z: Number of teeth
 De: External diameter
 Dp: Primitive diameter
 x: Correction profile

* We recommend the use of alignment device (tolerance ± 0.3 mm)
 Pressure angle $\alpha = 20^\circ$
 Helical inclination $\beta = 19^\circ 31' 42''$ left



VRL Series

Size	M	z	H* [mm]	W [mm]	W1 [mm]	De [mm]	Dp [mm]	x [mm]	D g6 [mm]	d1 [mm]	d2 [mm]	d3 [mm]	L1 [mm]	L [mm]	L3 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	ØF [mm]	Pinion Weight [Kg]
VRL070C	2	18	41,89	26	24	43,80	38,20	0,4	52	M5	62	30	8	42	27	19	7	15	16	0,2
VRL090C	2	20	44,02	26	24	48,041	42,44	0,4	68	M6	80	36	10	53	35	25	13	23	22	0,3
VRL090C	2	22	45,73	26	24	51,46	46,69	0,2	68	M6	80	40	10	53	30	20	8	18	22	0,4
VRL120C	2	26	49,58	26	24	59,17	55,17	0	90	M8	108	45	12	79	33	21	9	21	32	0,5
VRL120C	3	25	65,79	31	29	85,58	79,58	0	90	M8	108	60	12	79	33,5	21,5	7	19	32	1,5
VRL155C	3	24	64,19	31	29	82,39	76,40	0	120	M10	140	58	15	107	50,5	35,5	21	36	40	1,2
VRL155C	4	21	79,56	40	39	97,13	89,13	0	120	M10	140	62	15	107	79	64	44,5	59,5	40	2
VRL205C	4	24	85,93	40	39	109,86	101,85	0	150	M12	184	80	18	111	82	64	44,5	62,5	55	2,6

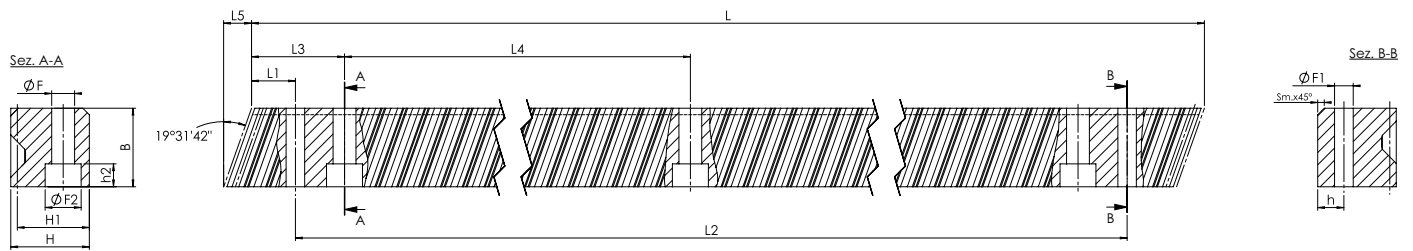
z: Number of teeth
 De: External diameter
 Dp: Primitive diameter
 x: Correction profile

* We recommend the use of alignment device (tolerance ± 0.3 mm)
 Pressure angle $\alpha = 20^\circ$
 Helical inclination $\alpha = 19^\circ 31' 42''$ left

Model frame size	M	Z	Ø Hole [mm]	Motor speed [min ⁻¹]	Ratio	Moving force [N]	Torque [Nm]	Speed [m/min.]	Weight [kg]
VRS060C VRL070C VRB060C	2	18	16/22	6000	3	950	18	240	0,2
VRS075C VRL090C VRB090C	2	22	22	6000	3	2150	50	293	0,4
VRS100C VRL120C VRB115C	2	26	32	6000	3	4350	120	346	0,5
	3	25	32						
VRS140C VRL155C VRB140C	3	24	40	4000	3	6300	240	370	1,2
	4	21	40						
VRS180C VRL205C VRB180C	4	24	55	3000	3	11000	500	320	1,5

Material	Heat treatment	HRC	Quality	Surface
16 Ni Cr Mo 5	Case hardening and induction hardening	60	Q5- Q6-Q7	Grinding
18 Ni Cr Mo 5	Case hardening and induction hardening	60	Q5-Q6-Q7	Grinding
C 45	Induction hardening	55-57	Q6-Q7	Grinding
31 Cr Mo 12	Nitriding	55	Q8	Milling

Precision helicoidal teeth



M	Pt [mm]	Single step error [mm]	Total step error [mm]	L [mm]	Z	L ₁ * [mm]	L ₂ [mm]	B [mm]	F [mm]	F ₁ [mm]	F ₂ [mm]	Sm. ^{+0.5} [mm]	H1 [mm]	h [mm]	h ₂ [mm]	H [mm]	L ₃ [mm]	L ₄ [mm]	L ₅ [mm]	Weight [Kg]
2	6.67	0.008	0.035	1000	150	31.7	936.6	24	7	5.7	11	2	22	8	7	24	62.5	125	8.5	4
3	10	0.009	0.035	1000	100	35	930	29	10	7.7	15	2	26	9	9	29	62.5	125	10.3	5.6
4	13.33	0.009	0.035	1000	75	33.3	933.4	39	10	7.7	15	3	35	12	9	39	62.5	125	13.8	10.3
5	16.67	0.01	0.035	1000	60	37.5	925	49	14	11.7	20	3	34	12	13	39	62.5	125	17.4	12.2
6	20	0.01	0.035	1000	50	37.5	925	59	18	15.7	26	3	43	16	17	49	62.5	125	20.9	18.3

* The installation of more racks determines the presence of gaps between the segments

Pt: Transverse Pitch

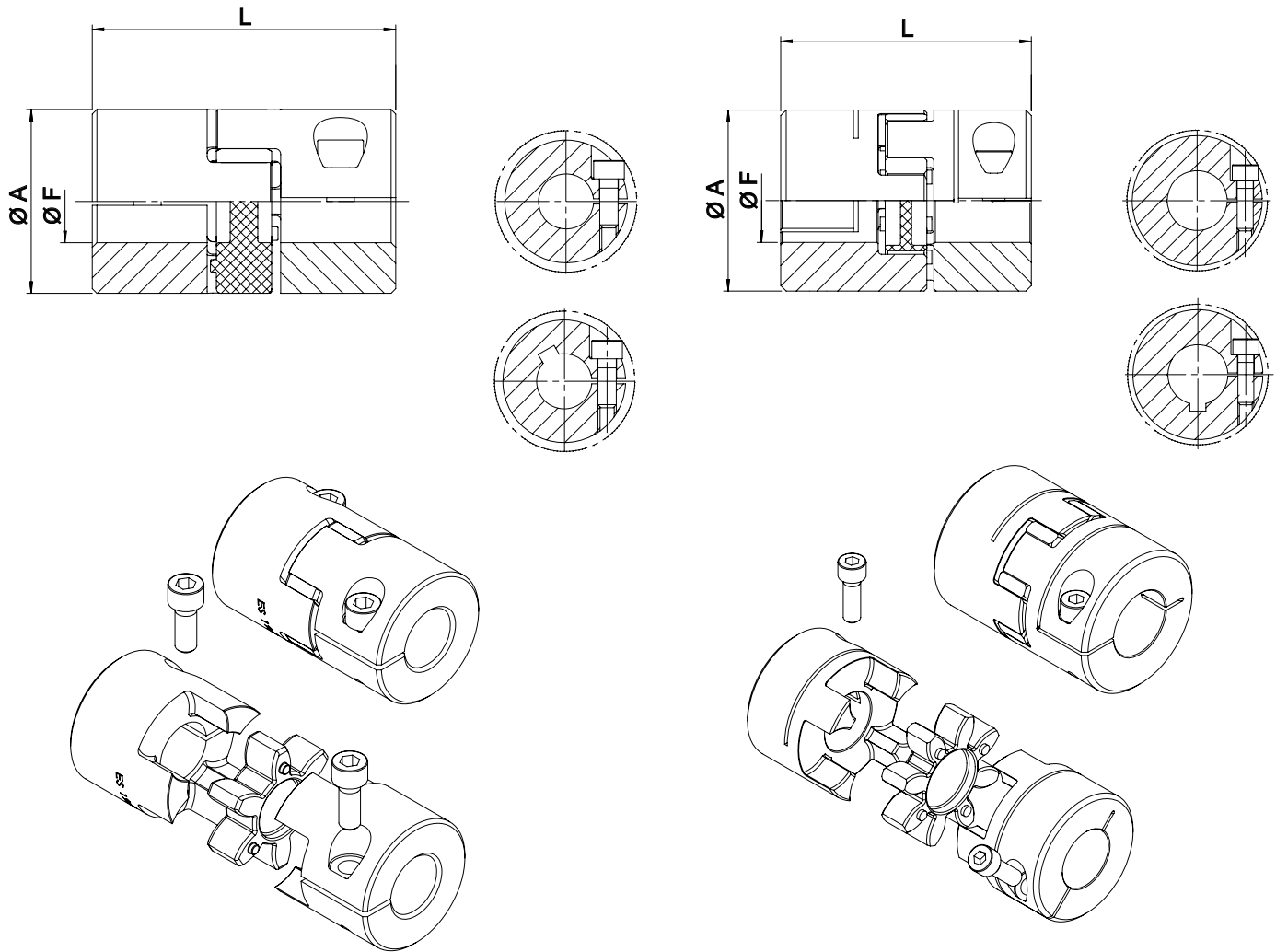
Material	Heat treatment	HRC	Quality	Surface
16 Mn Cr 5	Case hardening and induction hardening	58-60	Q5- Q6	Grinding
C 45	Induction hardening	55-57	Q6-Q7-Q8	Grinding
C 45	Induction hardening	55-57	Q8	Milling
42 Cr Mo 4	No treatment	-	Q8	Milling
31 Cr Mo 12	Nitriding	55	Q8	Milling
C 45	No treatment	-	Q9-Q10	Milling

ACCESSORIES

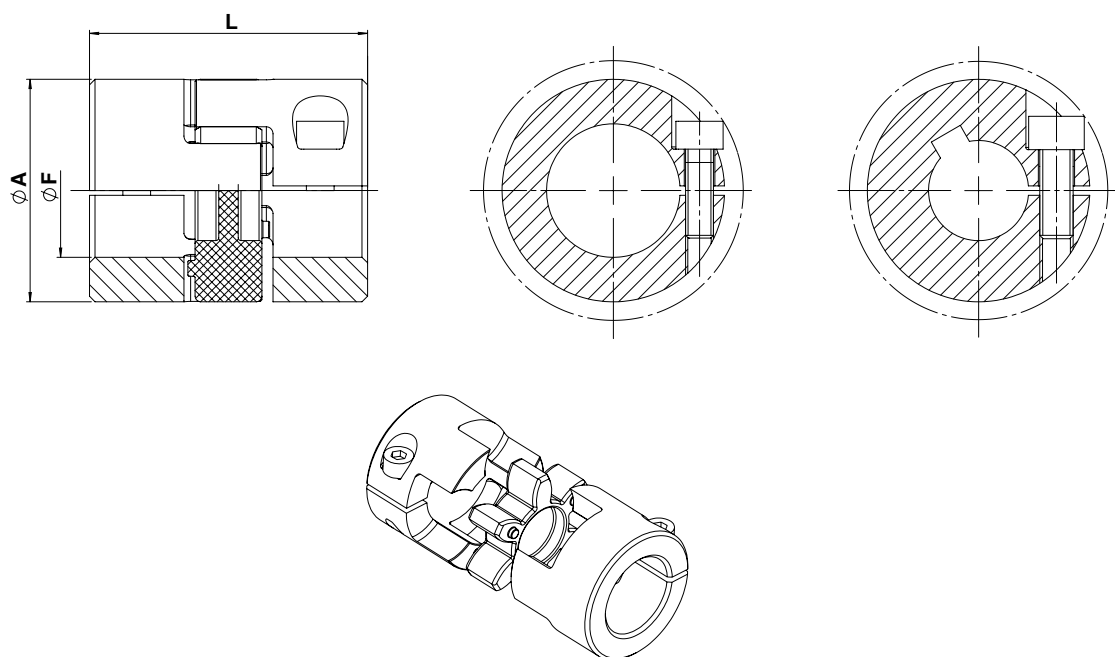
The background of the page features a photograph of several industrial metal accessories. On the left, a cylindrical component with a blue stripe and a bolt is visible. On the right, a larger cylindrical component with red rectangular slots is shown. In the foreground, a complex assembly with multiple black ports is visible. The word 'Accessories' is overlaid on this image in a large, bold, green font.

Accessories

GESM execution - with clamping hub



GESMC execution - with clamping hub (compact version)



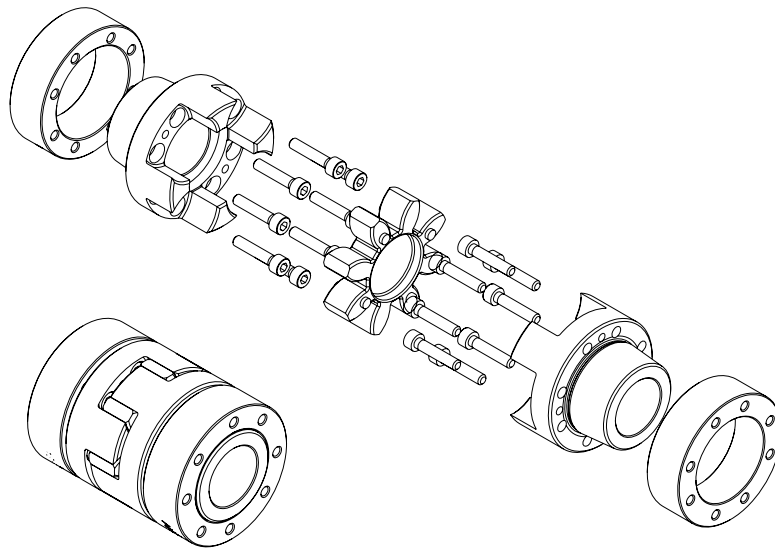
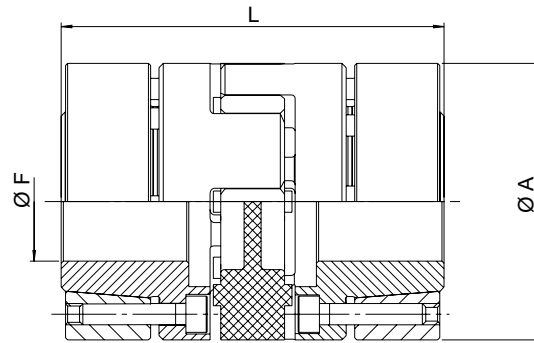
TRASCO ES® couplings - GESA execution

GESA execution - with shrink disc

Size	Hardness	Performance			Rigidity			Misalignment			Dimensions			
		Nominal torque T _{kn} [Nm]	Maximum torque T _{kmax} [Nm]	Maximum speed [rpm]	Static [Nm/rad]	Dinamic [Nm/rad]	Radial [Nm/rad]	Axial [mm]	Radial [mm]	Angular [°]	A [mm]	L (Lc) [mm]	F _{min} [mm]	F _{max} [mm]
14	80 Sh A	4	8	19000	60	180	153	1	0,21	1,1	30	50	6	14
	92 Sh A	8	15		115	344	336		0,15	1,0				
	98 Sh A	13	25		170	513	604		0,09	0,9				
	64 Sh D	16	32		235	702	856		0,06	0,8				
19/24	80 Sh A	5	10	14000	370	1120	740	1,2	0,15	1,1	40	66	10	20
	92 Sh A	10	20		820	1920	1260		0,10	1,0				
	98 Sh A	17	34		990	2350	2210		0,06	0,9				
	64 Sh D	21	42		2500	3800	2970		0,04	0,8				
24/28	80 Sh A	17	34	10600	860	1390	840	1,4	0,18	1,1	55	78	15	28
	92 Sh A	35	70		2300	5130	1900		0,14	1,0				
	98 Sh A	60	120		3700	8130	2940		0,10	0,9				
	64 Sh D	75	150		5000	11000	3700		0,07	0,8				
28/38	80 Sh A	46	92	8500	1370	2350	990	1,5	0,20	1,1	65	90	19	38
	92 Sh A	95	190		3800	7270	2100		0,15	1,0				
	98 Sh A	160	320		4200	10800	3680		0,11	0,9				
	64 Sh D	200	400		10000	20000	4400		0,08	0,8				
38/45	80 Sh A	95	190	7100	3000	6100	1400	1,8	0,22	1,1	80	114	20	45
	92 Sh A	190	380		5600	12000	2900		0,17	1,0				
	98 Sh A	325	650		8140	21850	5040		0,12	0,9				
	64 Sh D	405	810		25000	40000	6500		0,09	0,8				
42	80 Sh A	130	270	6000	4500	9600	1950	2	0,24	1,1	95	126	28	50
	92 Sh A	265	530		9800	20500	4100		0,19	1,0				
	98 Sh A	450	900		15180	34200	5940		0,14	0,9				
	64 Sh D	560	1120		37000	70000	7300		0,10	0,8				
48	80 Sh A	150	300	5600	5500	11200	2100	2,1	0,27	1,1	105	140	35	60
	92 Sh A	310	620		12000	22800	4500		0,23	1,0				
	98 Sh A	525	1050		16600	49400	6820		0,16	0,9				
	64 Sh D	655	1310		57000	100000	8300		0,11	0,8				
55	80 Sh A	200	400	5000	6000	11000	1500	2,2	0,28	1,1	120	160	35	65
	92 Sh A	410	820		13000	23100	3200		0,24	1,0				
	98 Sh A	685	1370		24000	63400	7100		0,17	0,9				
	64 Sh D	825	1650		100000	130000	9200		0,12	0,8				
65	92 Sh A	625	1250	4600	23500	35000	6410	2,6	0,25	1,0	135	185	40	70
	98 Sh A	900	1800		48000	71500	6620		0,18	0,9				
	64 Sh D	1040	2080		118000	19000	8850		0,13	0,8				

Bore range and respective torques of frictional engagement of the clamping hub [Nm]																										
Size	ø10	ø11	ø14	ø15	ø16	ø17	ø18	ø19	ø20	ø22	ø24	ø25	ø28	ø30	ø32	ø35	ø38	ø40	ø42	ø45	ø48	ø50	ø55	ø60	ø65	ø70
14	10	12	22																							
19/24	42	46	60	65	69	74	79	84	88																	
24/28				66	72	77	82	87	92	102	113	118	135													
28/38								175	185	205	225	235	266	287	308	339	373									
38/45									255	283	312	326	367	398	427	471	515	545	577	620						
42													420	460	500	563	627	670	714	790	850	880				
48																557	612	649	687	744	801	840	932	1033		
55																	986	1112	1140	1185	1284	1412	1420	1652	1680	1691
65																		1531	1580	1772	1840	1960	2049	2438	2495	2590

GESA execution - with shrink disc

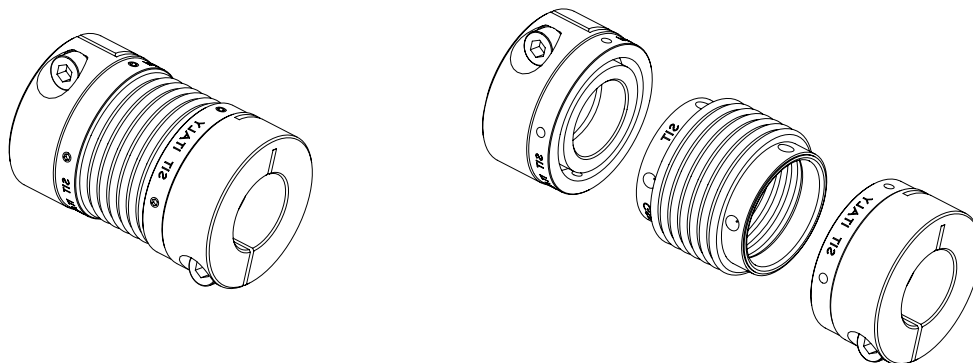
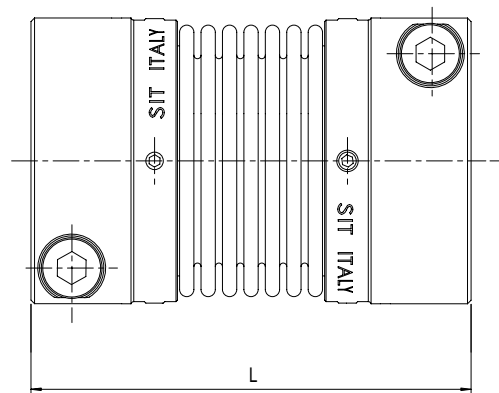
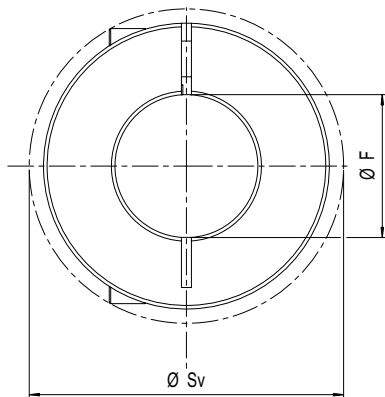


SERVOPLUS® couplings - GSP execution

GSP Series - bellows couplings

Size	Performance		Rigidity			Misalignment			Dimensions			
	Nominal torque T_{kn} [Nm]	Maximum speed [rpm]	Torsional [Nm/rad]	Dinamic [Nm/rad]	Radial [Nm/rad]	Axial [mm]	Radial [mm]	Angular [°]	Sv [mm]	L [mm]	F_{min} [mm]	F_{max} [mm]
16	5	14000	3050	29	9+2	± 0,5	0,20	1,5	36	50,5	5	16
20	15	11900	6600	42	126	± 0,6	0,20	1,5	44	62	8	20
30	35	8700	14800	65	155	± 0,8	0,25	1,5	58	72	10	30
38	65	7300	24900	72	212	± 0,8	0,25	2,0	73	84	14	38
45	150	5800	64000	88	492	± 1,0	0,30	2,0	89	103	14	45

Bore range and respective torques of frictional engagement of the clamping hub [Nm]																								
Size	ø5	ø6	ø7	ø8	ø9	ø10	ø11	ø12	ø14	ø15	ø16	ø18	ø19	ø20	ø24	ø25	ø28	ø30	ø32	ø35	ø38	ø40	ø42	ø45
16	4,9	5,9	6,9	7,8	8,8	9,8	10,8	11,8	13,7	14,7	15,7													
20				12,8	14,4	16	17,6	19,2	22,3	23,9	25,5	28,7	30,3	31,9										
30							24,9	27,1	31,7	33,9	36,2	40,7	43	45,2	54,3	56,5	63,3	67,9						
38												74,6	78,8	82,9	99,5	104	116	124	133	145	158			
45														132	158	165	184	198	211	231	250	263	277	296

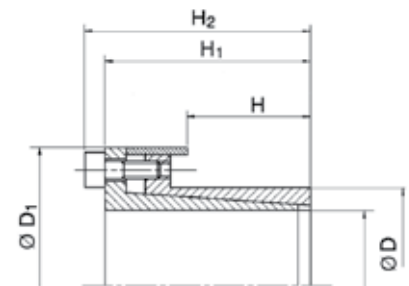
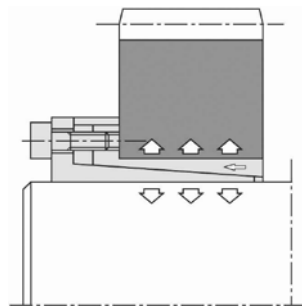


SIT-LOCK® Keyless Locking Devices

CAL3 execution - self-centering

d x D [mm]	d [mm]	D [mm]	H [mm]	H1 [mm]	H2 [mm]	D1 [mm]	M _T max [mm]
12x18	12	18	14	26	30	32	59
13x23	13	23	14	26	30	38	64
16x24	16	24	16	36	42	45	136
22x32	22	32	25	45	51	54	250
32x43	32	43	25	45	51	65	546
40x53	40	53	32	52	58	75	910
55x71	55	71	55	80	88	98	2600
75x95	75	95	65	96	106	126	5630
85x106	85	106	65	96	106	137	8507

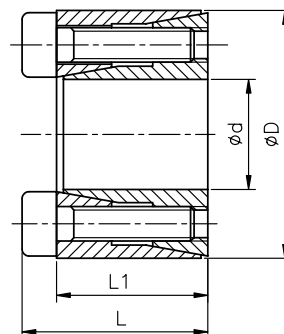
M_T = trasmissible torque moment



CAL15 execution - self-centering

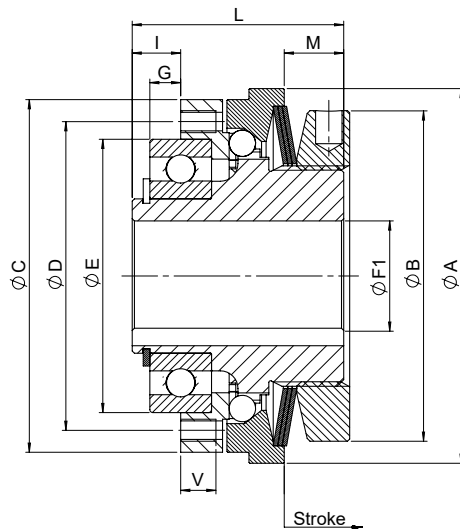
d x D [mm]	d [mm]	D [mm]	L [mm]	L1 [mm]	M _T max [mm]
12/22	12	22	15,5	13	23
16/32	16	32	21	17	80
22/40	22	40	26	21	180
32/55	32	55	32	26	555
40/65	40	65	37	31	925

M_T = trasmissible torque moment

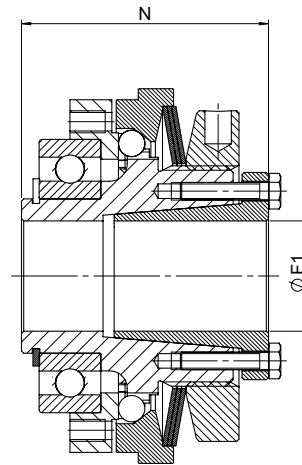


SAFEMAX® Torque Limiters

SAFEMAX® - GLS high precision and backlash free



Bore and keyway execution



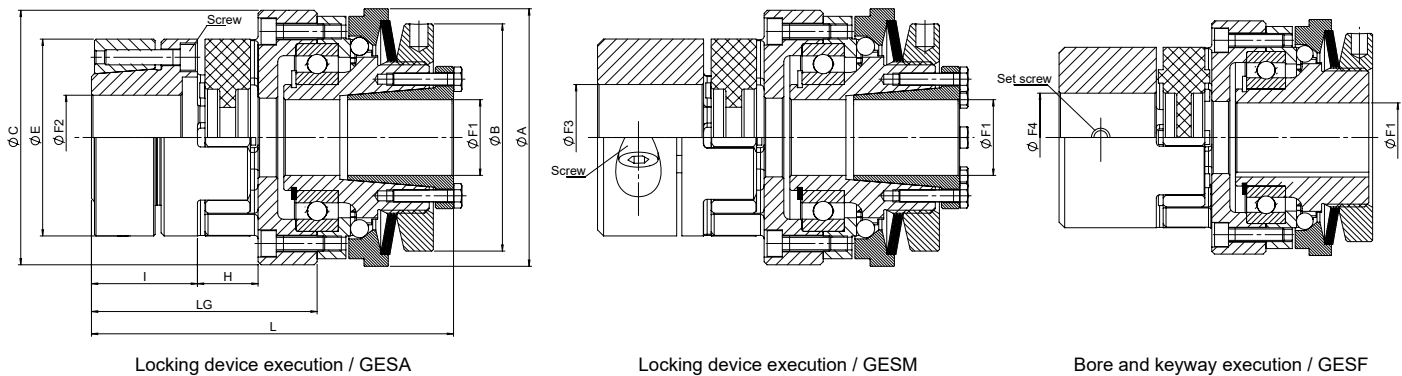
Bore and keyway execution

Size	Performances			Mass moments of inertia [10 ⁻⁶ kg m ²]	Weight [kg]	Screws flange	
	Setting torque range [Nm]		Max. speed [rpm]			N° and type	Tightening torque [Nm]
12	0,8	7	4000	20	0,2	6 x M3	1,5
17	3	23	4000	40	0,4	6 x M3	1,5
20	5	50	4000	270	0,9	8 x M4	3,0
25	9	100	3000	680	1,5	8 x M5	5,0
35	20	200	2500	1510	2,8	8 x M6	7,5
42	35	415	2000	2620	3,7	8 x M6	7,5
50	75	720	1200	6330	6,7	8 x M8	14

Dimensions												
Torque limiter size	F1 max [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	I [mm]	L [mm]	M [mm]	N [mm]	V [mm]
12	12	44	38	40	35	30	2	4,5	24	7	28,5	5
17	17	50	42	47	42	37	2	5	29	8,5	34,5	5
20	20	70	62	65	56	47	4	8	40	12	47	6
25	25	85	75	80	71	62	7	11	48	13,5	56	7
35	35*	100	82	95	85	75	9	14	59	16	67	9
42	42	115	97	110	100	90	8	16	64	17	73	10
50	50	135	117	130	116	100	6,5	18	75	20,5	86	11

*F1 : maximum diameter for finished bore with reduced keyway according to UNI 7510. Bore tolerance H7.

SAFEMAX® - Torque limiters GLS with TRASCO® ES

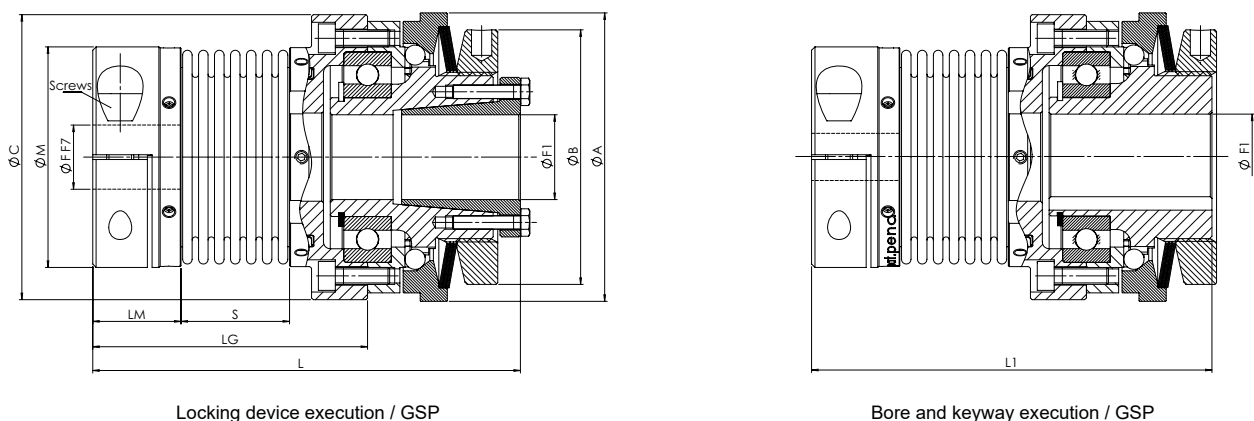


Torque limiter size	TRASCO® ES size	Dimensions											
		F ₁ max [mm]	F ₂ max [mm]	F ₃ max [mm]	F ₄ max [mm]	A [mm]	B [mm]	C [mm]	E [mm]	I [mm]	H [mm]	Lg [mm]	L [mm]
12	14	12	14	15	15	44	38	44	30	18,5	13	42	66
17	19/24	17	20	20	24	50	42	52	40	25	16	53	82,5
20	24/28	20	28	28	28	70	62	68	55	30	18	63	102
25	28/38	25	38	35	38	85	75	84	65	35	20	74,5	119,5
35	38/45	35*	45	45	45	100	82	100	80	45	24	93	146
42	42	42	50	50	55	115	97	115	95	50	26	100	157
50	48	50	60	55	60	135	117	138	105	56	28	110,5	178,5

*: maximum diameter for finished bore with reduced keyway according to UNI 7510.

F1, F2, F3, F4: bore tolerance H7.

SAFEMAX® - Torque limiters GLS with SERVOPLUS®



Torque limiter size	SERVOPLUS® size	Dimensions											
		F min [mm]	F max [mm]	F ₁ max [mm]	A [mm]	B [mm]	C [mm]	M [mm]	Lm [mm]	S [mm]	Lg [mm]	L [mm]	L ₁ [mm]
12	16	5	16	12	44	38	43	34	17	16,5	48	72	67,5
17	20	8	20	17	50	42	49	40	20,5	21	58	87,5	82
20	30	10	30	20	70	62	65	55	22,5	27	69	108	101
25	38	14	38	25	85	75	84	65	26	32	81	126	118
35	45	14	45	35*	100	82	104	83	31	41	102	155	147
42	42	42	50	50	55	115	97	115	95	50	26	100	157
50	48	50	60	55	60	135	117	138	105	56	28	110,5	178,5

NOTE:

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