Nidec

Precision Gear Technology Catalog

NIDEC-SHIMPO CORPORATION

Letter from the President

The NIDEC-SHIMPO CORPORATION was originally founded in Kyoto Japan in 1952. Since our inception, we have made every possible effort to improve our manufacturing skill and capabilities, including the advancement of power transmission products to support new technologies and markets. NIDEC-SHIMPO initially established an industry-wide leadership position in the area of mechanical variable speed drives. We are very proud of our storied past with mechanical drive technology, through which NIDEC-SHIMPO helped contribute to the growth of the emerging industries that are now the cornerstone of our world economy today.

Over time, within the field of power transmission engineering, NIDEC-SHIMPO has maintained the highest level of skill and production quality throughout the industry. We have earned a reputation as a long term dependable partner to our customers, and this solid reputation is firmly supported by the many industrial awards we hold, such as the Japanese Machinery Society Award, and Deming Award, among others.

Today, the growing global market for motion control has driven us to continuously develop products that provide the highest level of accuracy, reliability and value for our customers. We are technical experts across all of the various gear technologies we offer, and are the only company in the world producing such a wide range of product. Our Precision Gear Technology Catalog provides in-depth technical detail for our planetary, worm, cycloidal and rotary index table products.

NIDEC-SHIMPO promises to continue to provide high precision power transmission products at unmatched value, which solve the new requirements of our customer base and allow them to be competitive in an increasingly tough global market. Within our company, we have coined this promise as "Enduring Process of SHIMPO" - a pledge by our employees to approach all of their day-to-day work activities with full effort, full dedication, and full energy to support the evolving needs of our customers.

Your continued support and loyal patronage to our company is highly appreciated. Thank you for your time.

Best Regards,
President
T. Nishimoto

T. Nishimoto
西本達也

Table of contents

NIDEC Corporation

With annual sales exceeding $11 Billion, the NIDEC Corporation is the world's largest manufacturer of brushless DC motors. NIDEC has operations in 40 countries through 297 group companies. Founded in 1973 by current Chairman of the Board and CEO, Shigenobu Nagamori, the NIDEC Corporation has built out a portfolio of motor technologies that span all industries and impact us in our everyday lives. NIDEC is making significant contributions to energy savings by developing and manufacturing highly efficient motor and drive technologies—technologies that keep the world moving forward.

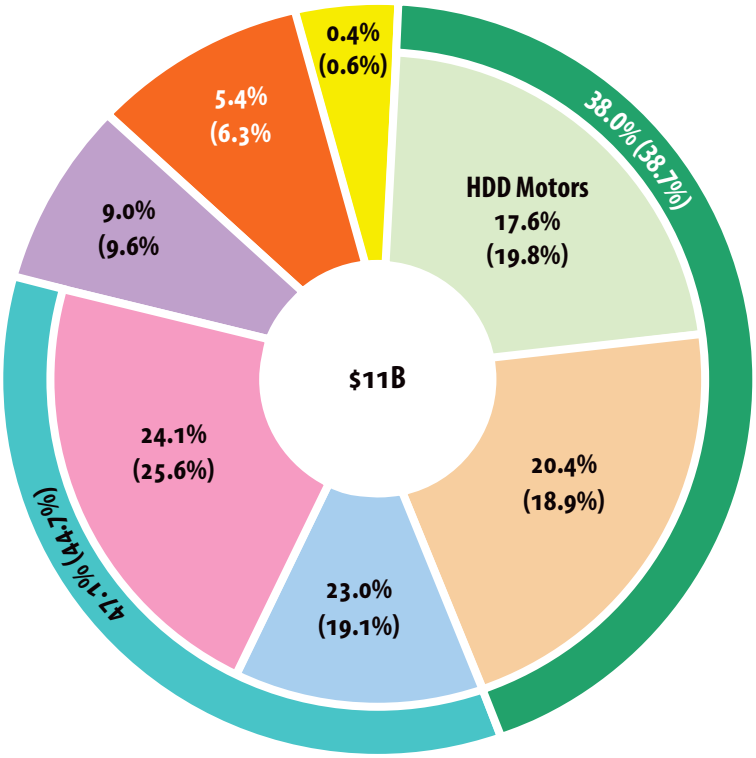
Corporate Headquarters
Kyoto, Japan

Share Listing
New York Stock Exchange
Tokyo Nikkei Stock Exchange

Bond Rating
JCR: A+
R&I: A+

The NIDEC Group umbrella includes over 150 corporate subsidiaries that span the globe. More than 100,000 employees are supplying products and services to customers every day, in over 150 countries. The NIDEC Group companies are categorized into the following complementary business segments:

Sales by Product Group (FY2016)



Automotive, Appliance, Commercial & Industrial Products
Motors for automobiles, home electronic appliances and industrial equipment

Small Precision Motors

HDD Motors

Other Small Motors
Optical disk drive motors, OA equipment motors, polygon scanners, MPU cooling fans, game machine fans, PC/communications fans, home appliance fans, automobile fans, vibration motors, brush motors, stepping motors, actuator units

Auto
Vibration motors, brush motors, stepping motors

Appliance Commercial Industrial
Game machine consoles, MPU cooling fans, PC/communications devices, home appliances, automobiles

Machinery:
Industrial robots, card readers, circuit board testers, high-speed press machines, chip mounters, measuring equipment, power transmission equipment, factory automation systems

Electronic & Optical Components:
Camera shutters, switches, trimmer potentiometers, precision plastic mold products

Others:
Logistics and services, musical instruments

The NIDEC Group has numerous manufacturing operations across the globe, which allows them to maintain a leading global market share position across its primary focus areas. NIDEC invests a significant portion of its yearly revenue in R&D in order to remain in the forefront of precision motor and drive technology. NIDEC believes strongly in education and established its own Institute for Industrial Science in 2016.

The NIDEC Corporation continues to expand its product portfolio in various motor technologies and has maintained its leadership position through aggressive product development and global acquisitions. The corporate slogan – **All for Dreams** – coined by founder Shigenobu Nagamori himself, epitomizes the NIDEC Group spirit and the promise to continue to deliver on the high value products and technologies that make our dreams possible.

We begin with dreams.
Dreams drive our motivation.
Dreams are our future.
The world's dreams, people's dreams, our dreams.
Our passion creates ideas that make dreams come alive.
Technology and products that were only dreams become reality.
All for dreams
Dreams challenge and the Nidec-Group
will continue to meet the challenge.
For the world's tomorrow,
we will develop the world's first technologies and provide the world's best products. We will continue our part in creating a better society.

NIDEC-SHIMPO

NIDEC-SHIMPO has established itself as the leading supplier of precision gearing solutions to the industrial automation marketplace. Since 1952, when we introduced the world's first mechanical variable speed drive, NIDEC-SHIMPO has expanded into a diverse manufacturer of high precision power transmission systems for highly dynamic motion control applications.

In 1994, SHIMPO was acquired by the NIDEC Corporation and became formally known as NIDEC-SHIMPO. NIDEC-SHIMPO began to focus on accelerating production volumes as the global market for motion control and mechatronics grew at an accelerated rate. We saw a unique opportunity to supply our customer base with the highest variety of transmission technologies, which brought forward strain wave, index table and worm gear products to complement our existing portfolio of planetary and cycloidal gearheads. The result for our customers was a single source drive solutions supplier.

Today, our company is shipping over 100,000 gearheads per month out of our manufacturing plants in Kyoto and Shanghai. Our products are used in robotics, machine tools, food packaging, printing, pulp & paper, material handling, medical, semiconductor and aerospace related systems. Our diverse product portfolio, state-of-the-art equipment, engineering know-how and manufacturing scale allow our customers to compete and expand their businesses globally. Our aim is to continue to innovate and provide the highest quality, best-in-class products and services for our customer base.

Sales and Distribution Network

NIDEC-SHIMPO is committed to being a world class partner for our customers. To support the needs of a constantly expanding and evolving global economy, we continue to invest heavily in extending the footprint of our support network, distribution channels and manufacturing capabilities. Our customers know our products will always be supported, no matter where they're shipped.

We utilize the latest manufacturing techniques, equipment technology and inventory management systems to ensure our products to get market fast. In addition to our primary manufacturing and assembly facilities in Japan, China and the US, we have over 30 stocking points throughout the Americas, Asia-Pacific and Europe. We leverage our broad scale but rely on these local regions to intimately serve the needs of our customers in an increasingly competitive environment. This guarantees a high level of flexibility for various gearbox adaptations and the fastest delivery times in the industry.

NIDEC-SHIMPO offers worldwide support with application assistance, installation and start-up, troubleshooting and repair as well as phone support and internet tools. Our footprint allows us to handle multi-national projects with distributed design and build locations, helping equipment manufacturers speed up their time to market. Whether the need is for emergency service or international project coordination, NIDEC-SHIMPO is a company you can rely on.

NIDEC-SHIMPO has grown to over 2,400 employees strong with a presence across five continents. Our engineering staff, customer support team and distribution partners undergo rigorous product training to ensure the quickest response to our customers' needs.

Global Connections

Americas

- ✷ Glendale Heights, IL
- Monterrey
- Querétaro
- São Paulo

Europe

- Lyon
- Dettenhausen

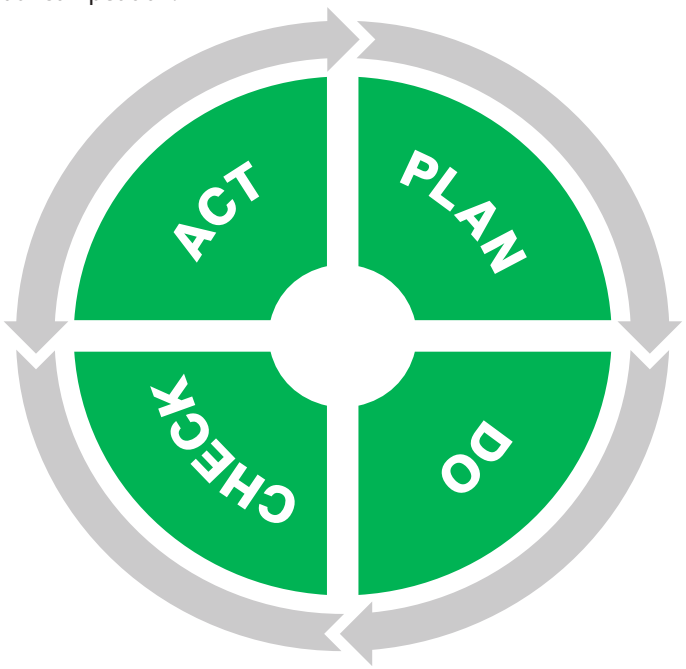
Asia-Pacific

- ✷ Kyoto (Headquarters)
- Beijing
- Shanghai
- Pinghu
- Xianggang
- Seoul
- Taiwan
- Singapore
- Bangalore

Total Quality Management

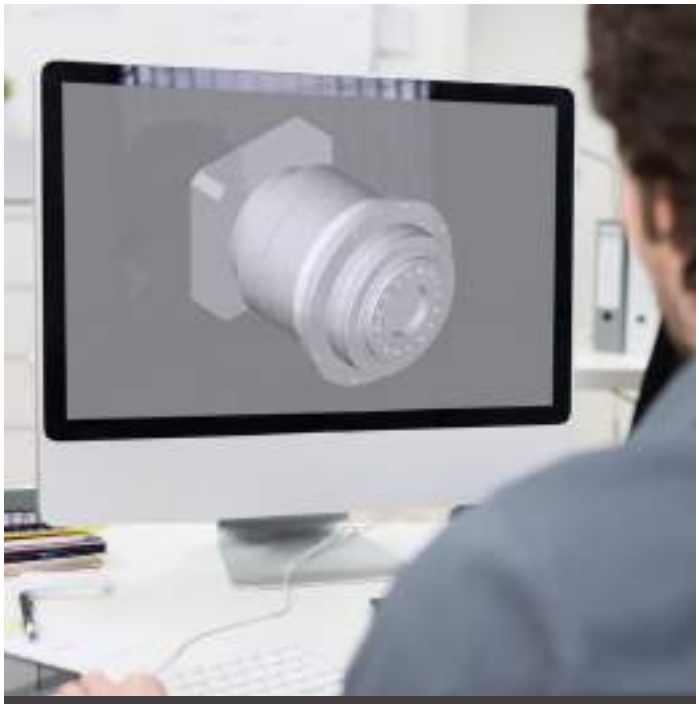
The spirit of challenge is basic to the NIDEC-SHIMPO culture, influencing all aspects of product development, manufacturing and customer satisfaction. The practice of challenging each individual in our organization has helped drive innovation and foster an environment of continuous improvement. We place quality and reliability at the forefront of everything we do—from design, to production, to service. We refuse to cut corners and continue to set standards within our industry.

In 1969 NIDEC-SHIMPO received The Deming Prize for our outstanding quality control based on the Total Quality Management (TQM) Method. Since that time, NIDEC-SHIMPO's desire to deliver top notch products has steered us towards internalizing a unique statistical quality control procedure across all departments and functional teams. Our rigid quality control program and Kaizen philosophy influences all aspects of product development, raw material procurement, production, logistics and post-sales support. By instilling the Deming Cycle – ***Plan, Do, Check, Act*** – deep within our company culture, NIDEC-SHIMPO develops and manufactures products that exceed our customers' specifications and requirements across all criteria when benchmarked against our competition.



NIDEC-SHIMPO constantly measures the reliability of new technologies, consistency of raw materials, and failures rates of all components within our products to ensure new and existing designs exceed the performance benchmarks we put in place. For example, we utilize the highest quality case hardened carbon steel when designing gears for optimum safety under high pressures and bending. Our gears are carburized and also undergo a proprietary secondary finishing operation after heat treatment to improve accuracy and surface finish, which protects against wear and reduces noise during operation. Our bearings are only sourced from leading manufacturers in Japan.

What truly sets us apart is our testing. No other manufacturer in our industry puts their products through such strenuous tests as



STATE-OF-THE-ART TECHNOLOGY

NIDEC-SHIMPO. We conduct several tests during development, most of which are done at 10 million cycles. We run accelerated endurance tests at full load, in a variety of environmental conditions, to demonstrate that our calculated safety factors are achieved in reality. Our gearheads are 100% exit-tested and critical factors such as backlash, noise, vibration and no-load running torque are recorded and serialized for each of the million plus products we ship yearly. From bearings, to seals, to castings, our quality inspections at material point of entry are as stringent as any testing done throughout our manufacturing process. We can setup and execute unique bench tests to mimic our customers' motion profiles and operating conditions—making us a partner from prototyping through production.

Our quality management system has been certified according to ISO 9001:2008 and ISO 14001:2004 standards. Copies of these certificates for our manufacturing facilities can be found on our website. NIDEC-SHIMPO regularly undergoes strict quality audits. We take this process very seriously, realizing we must maintain these standards in order to build brand awareness and establish credibility globally.

NIDEC-SHIMPO will continue to challenge itself and our individual employees while striving for greater levels of product quality. It is a daunting challenge, as the incremental gains in quality become smaller and much harder to achieve. However, the challenge is ingrained within the spirit of each NIDEC-SHIMPO employee. This ***"Do It Now, Complete The Job and Follow Through"*** Attitude exhibited by our employees helps create superior products for the global marketplace.

Manufacturing Strength and Capabilities

NIDEC-SHIMPO's state-of-the-art manufacturing facilities are located in Kyoto, Japan and Shanghai, China. Both facilities have undergone significant expansions over the past few years, bringing our combined monthly output to over 100,000 units. These facilities house several hundred gear fabrication machines, CNC machines and test equipment. Gear cutting, hobbing, shaping, milling, EDM, broaching, heat treatment and secondary finishing processes are all employed under one roof, giving us complete control over the entire manufacturing process.

NIDEC-SHIMPO utilizes the latest robotics and automation equipment, allowing for fast machine tool changeover times, increased productivity, increased safety, reduced labor cost and reduced defect rates. Automated storage and retrieval systems and automated guided vehicles are used to ensure the proper parts get to where they need to be, quickly.

Our company thrives on challenging designs that often daunt others. These include extremely accurate products with <1 arc-min backlash, gearboxes designed to withstand extreme temperatures, units customized to meet certain weight targets, special lubrication and unique output shafts for streamlined connection to the

customer equipment. Our cleanroom facility houses special product assembly for medical, semiconductor, aerospace and other mission-critical customer applications.

We strongly believe and have proved in practice that providing a high quality product can not only lower our own manufacturing costs, but can allow our customers to reduce their costs and compete globally. Lean processes, rigorous inventory control, modular design, fewer returns, reduced waste and negligible repair translate to reduced costs that enable NIDEC-SHIMPO to offer a superior, cost-effective product.

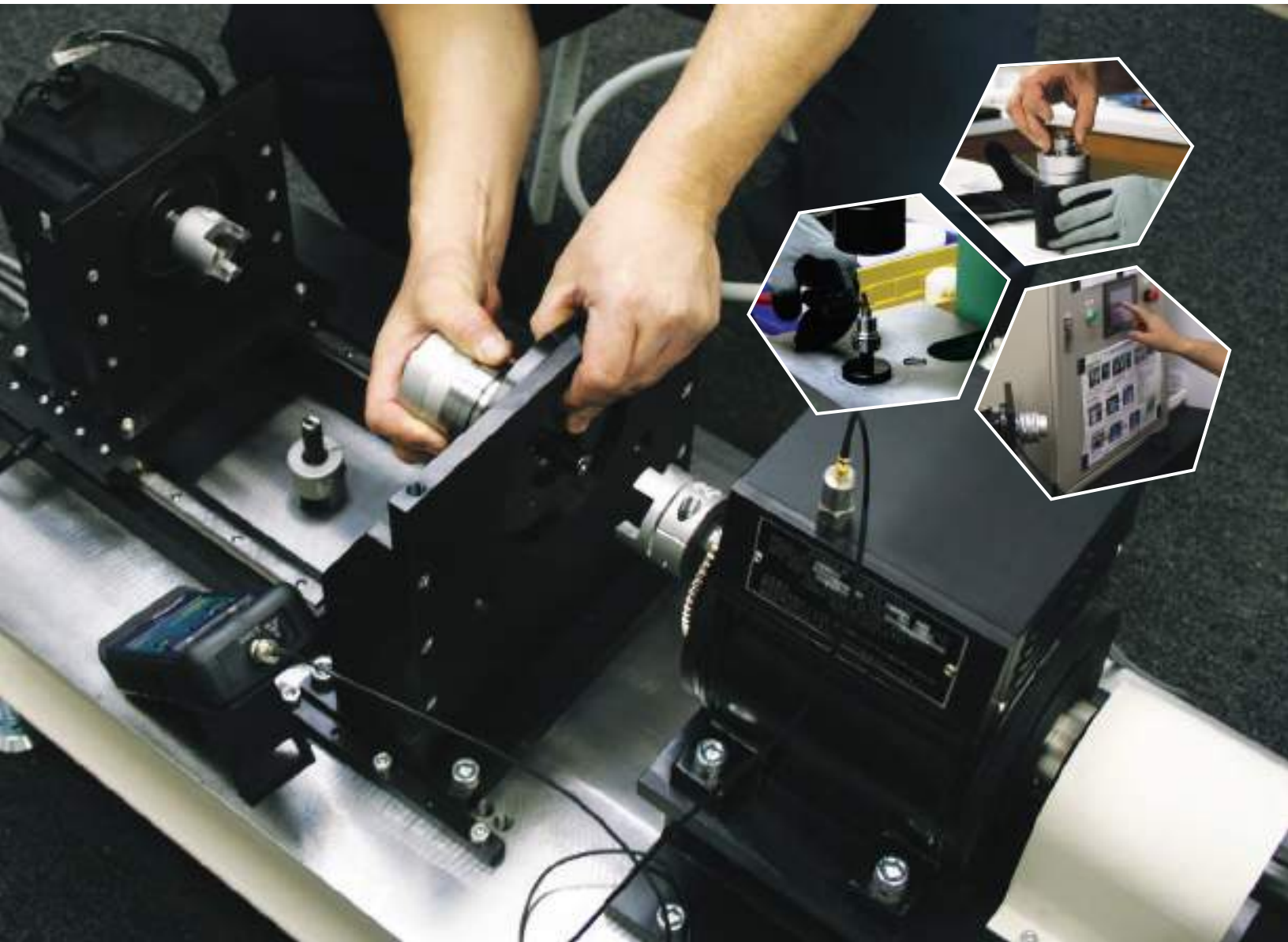
We have developed a core competency at quickly developing products and applying our know-how to efficiently scale-up a manufacturing process from prototype testing to large volume production. We promise to leverage this intrinsic skill set in order to continue to push the product development envelope and provide the greatest value to our customers. If you are a new customer considering our products for the first time, we strongly encourage and welcome a visit to any of our manufacturing facilities to see our capabilities first-hand.

North American Assembly Operations

NIDEC-SHIMPO services the North American market through our Headquarters and 50,000 sq. ft. assembly facility in Glendale Heights, Illinois. This facility houses our sales, design and application engineering and customer support teams. We assemble over 75% of our products in North America, most of which can ship within 1 week. Motor adapters are readily available for easy mounting to any servomotor manufacturers' models. With over $3MM in inventory, next day delivery is available for several common models and for emergency replacements for equipment in the field.

We are highly flexible and can fulfill custom requirements such as special output shafts dimensions, coatings, lubrication, materials of construction and integrated product assemblies. Our products are 100% exit-tested to ensure all performance specifications are met, giving our customers security and peace of mind. Each gearbox is inspected for noise, backlash, vibration, no-load running torque, concentricity and input shaft slipping using the latest equipment and methods. Our 5 Year Standard Warranty is our way of demonstrating NIDEC-SHIMPO's commitment to quality and durability over the long term.

Local, personal support is a phone call or email away. Each NIDEC-SHIMPO customer has a dedicated team of customer service and technical support professionals, on-standby to assist with pricing, delivery, sizing, repairs, installation support or other needs. We strive to deliver the highest quality, value and service in the industry.



Unmatched Product Availability

Whether our customer is an OEM bringing a new product to market or an end user maintaining equipment in their manufacturing plant, down time is not an option. Our manufacturing, local assembly, inventory and distribution process ensures seamless communication between all parties and the fastest turnaround times. Put us to the test and see how we can save you time and money.

Solutions for Industry

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 units 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

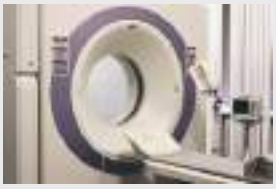
Our products can be customized with coatings and lubrication to meet various food grade and wash down requirements. Our EJS series is the ultimate hygienic solution for extreme environments. Cost-effective planetary and worm options are available for OEMs transitioning from mechanical to servo technology.

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.

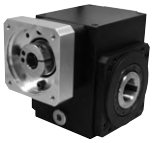
Product Overview

					
Product Series		**VRSF**	**VRL**	**VRB**	**VRS**
Catalog Page		16	28	60	92
Axis of Orientation		Inline	Inline	Inline	Inline
Gear Technology		Helical planetary	Helical planetary	Helical planetary	Helical planetary
Frame Size	Smallest	B (60mm)	050	042	060
	Largest	E (170mm)	235	220	240
	Variety	4	7	7	7
Ratio	Minimum	3	3	3	3
	Maximum	81	100	100	100
	Variety	9	23	23	23
Output Mounting Style					
Solid keyed shaft, tapped holes		■	■		
Solid keyed shaft, through holes				■	■
Solid smooth shaft, tapped holes			■		
Solid smooth shaft, through holes				■	■
Flange output					
Hollow shaft					
Lubrication					
Grease		■	■	■	■
Oil					
Output Bearing Type					
Ball Bearing		■	■	■	
Tapered Roller Bearing					■
Cross Roller Bearing					
Performance Specification					
Radial Load		Standard	Standard	Standard	Excellent
Thrust Load		Standard	Standard	Standard	Excellent
Backlash Rating (arc-min)		≤ 15	≤ 5	≤ 3	≤ 3
Torsional Rigidity		Standard	Standard	Standard	Excellent
Efficiency		Excellent	Excellent	Excellent	Excellent

					
Product Series		**VRT**	**ERH**	**NEV**	**EVL**
Catalog Page		124	446	160	180
Axis of Orientation		Inline	Inline	Right-angle	Right-angle
Gear Technology		Helical planetary	Cycloidal	Spiral bevel/Planetary	Spiral bevel/Planetary
Frame Size	Smallest	047	B (145mm)	B (60mm)	070
	Largest	285	F (230mm)	E (170mm)	235
	Variety	8	10	4	6
Ratio	Minimum	4	11	3	3
	Maximum	100	71	105	100
	Variety	20	7	7	23
Output Mounting Style					
Solid keyed shaft, tapped holes			■	■	■
Solid keyed shaft, through holes					
Solid smooth shaft, tapped holes					■
Solid smooth shaft, through holes					
Flange output		■			
Hollow shaft			■	■	
Lubrication					
Grease		■	■	■	■
Oil			■		
Output Bearing Type					
Ball Bearing		■	■	■	■
Tapered Roller Bearing		■	■		
Cross Roller Bearing					
Performance Specification					
Radial Load		Excellent	Standard	Standard	Standard
Thrust Load		Excellent	Standard	Standard	Standard
Backlash Rating (arc-min)		≤ 3	≤ 6	≤ 30	≤ 6-9
Torsional Rigidity		Excellent	Excellent	Standard	Standard
Efficiency		Excellent	Excellent	Excellent	Excellent

Product Overview

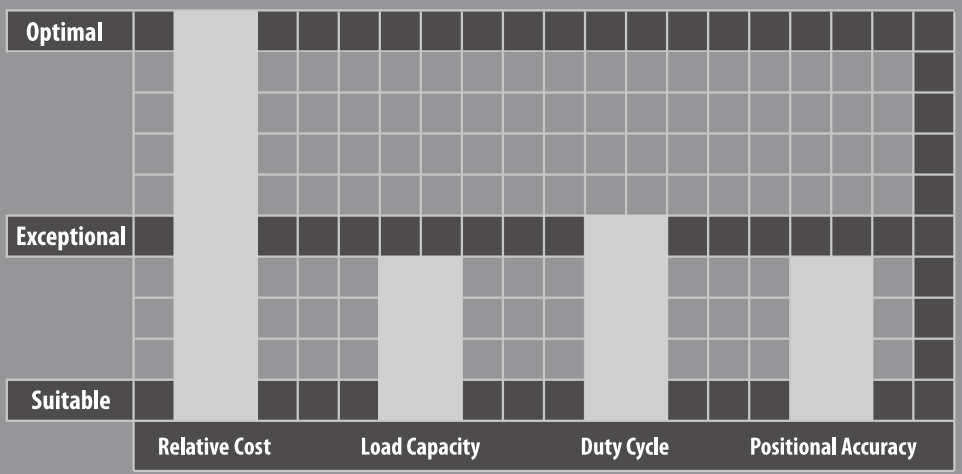
						
Product Series		**EVB**	**EVS**	**EVT**	**EJM**	**EJL**
Catalog Page		208	236	268	296	314
Axis of Orientation		Right-angle	Right-angle	Right-angle	Right-angle	Right-angle
Gear Technology		Spiral bevel/Planetary	Spiral bevel/Planetary	Spiral bevel/Planetary	Globoidal worm	Globoidal worm
Frame Size	Smallest	060	060	064	02	25
	Largest	220	240	255	09	200
	Variety	6	7	6	6	11
Ratio	Minimum	3	3	4	5	3.125
	Maximum	100	100	100	60	90
	Variety	23	23	20	10	13
Output Mounting Style						
Solid keyed shaft, tapped holes					■	■
Solid keyed shaft, through holes		■	■			
Solid smooth shaft, tapped holes						
Solid smooth shaft, through holes		■	■			
Flange output				■		■
Hollow shaft					■	■
Lubrication						
Grease		■	■	■		
Oil					■	■
Output Bearing Type						
Ball Bearing		■		■	■	
Tapered Roller Bearing			■	■		■
Cross Roller Bearing						
Performance Specification						
Radial Load		Standard	Excellent	Excellent	Standard	Excellent
Thrust Load		Standard	Excellent	Excellent	Standard	Excellent
Backlash Rating (arc-min)		≤ 4-7	≤ 4-7	≤ 4-7	≤ 12-40	≤ 0.5-15
Torsional Rigidity		Standard	Excellent	Excellent	Standard	Excellent
Efficiency		Excellent	Excellent	Excellent	Moderate	Excellent

						
Product Series		**EJH**	**EJP**	**EJS**	**STH**	**STR**
Catalog Page		350	368	386	408	416
Axis of Orientation		Right-angle	Right-angle	Right-angle	Various	Various
Gear Technology		Globoidal worm	Globoidal worm	Globoidal worm	Planetary/hollow rotary	Globoidal cam
Frame Size	Smallest	15	38	39	070	040
	Largest	35	89	76	070	240
	Variety	5	5	5	1	7
Ratio	Minimum	5	5	5	12	15
	Maximum	60	60	60	400	2000
	Variety	13	13	10	14	24
Output Mounting Style						
Solid keyed shaft, tapped holes		■	■	■		
Solid smooth shaft, tapped holes						
Solid smooth shaft, tapped holes						
Solid smooth shaft, through holes						
Flange output		■	■		■	■
Hollow shaft		■	■	■	■	■
Lubrication						
Grease					■	■
Oil		■	■	■		
Output Bearing Type						
Ball Bearing						
Tapered Roller Bearing		■	■	■		
Cross Roller Bearing					■	■
Performance Specification						
Radial Load		Excellent	Excellent	Excellent	Standard	Excellent
Thrust Load		Excellent	Excellent	Excellent	Standard	Excellent
Backlash Rating (arc-min)		≤ 6-32	≤ 0-24	≤ 8-24	≤ 2-4	0
Torsional Rigidity		Standard	Standard	Standard	Standard	Excellent
Efficiency		Moderate	Moderate	Moderate	Excellent	Standard

VRSF SERIES

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.

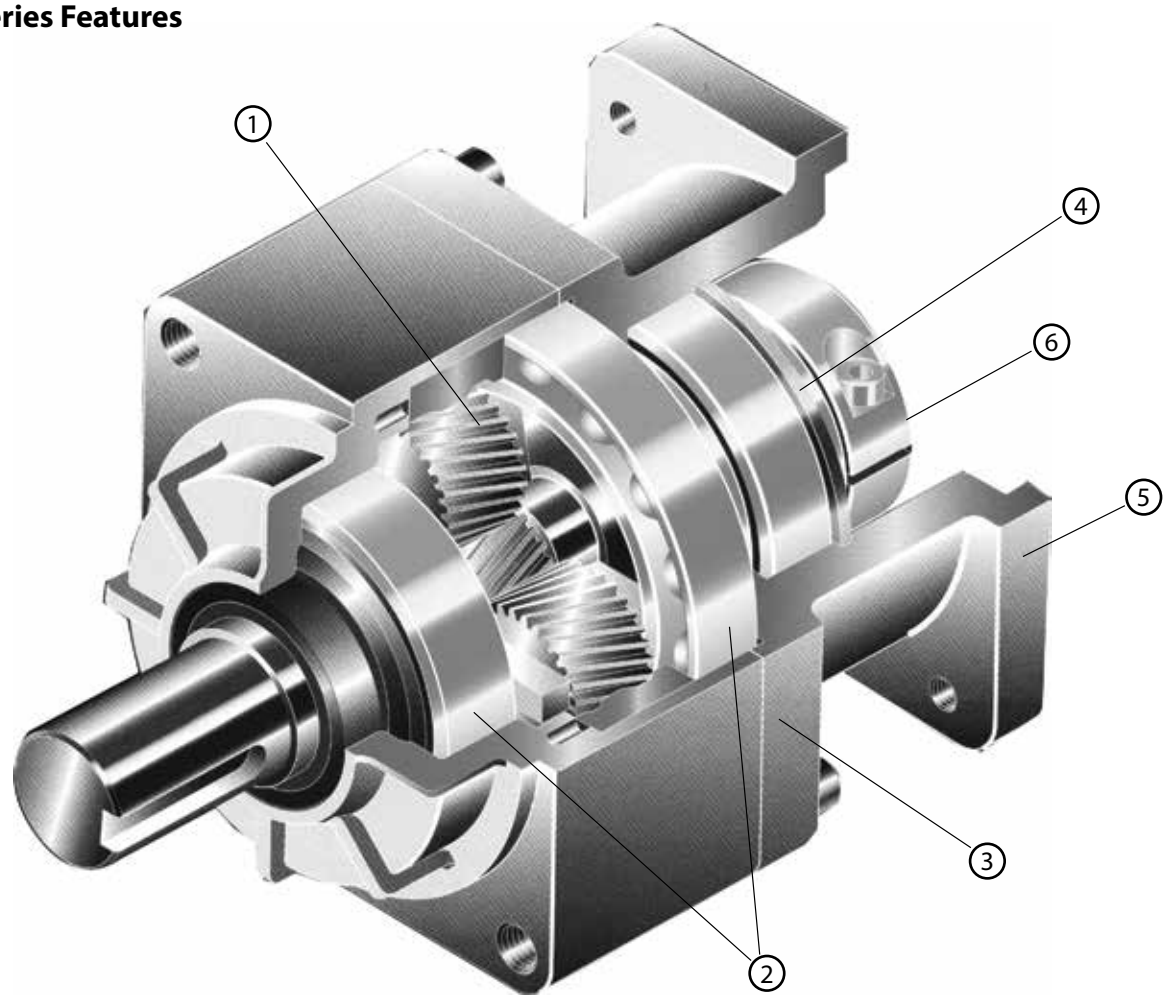
The VRSF is available in four frame sizes, putting out a peak output torque of 274Nm across 9 reduction ratios. The VRSF is the ideal choice for OEMs producing high volume machines where cost is critical, accuracy relatively important and duty cycle not overly extreme. The VRSF's aluminum body has made 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.



VRSF SERIES

- 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

VRSF Series 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

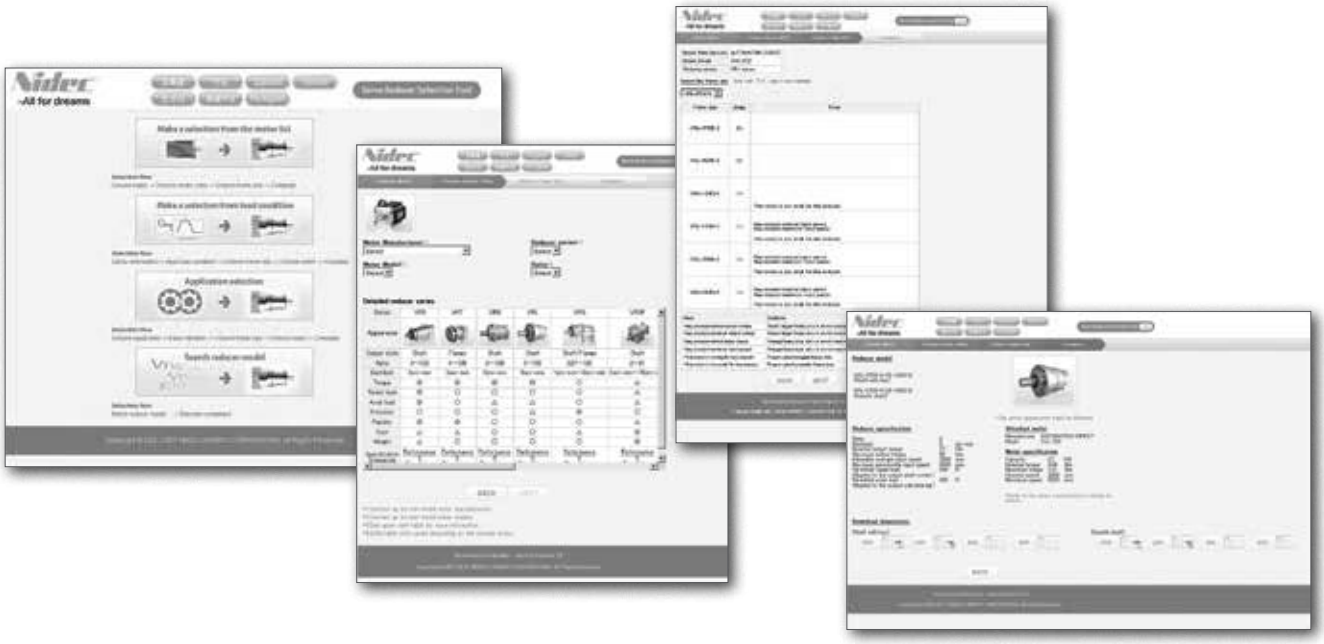
VRSF Series Model Code

VRSF - LB - 15 - C - 19HB16

- **19HB16** — Motor mounting code (*1)
- **C** — Frame size: B, C, D, E
- **15** — Ratio: 1-Stage: 3, 5, S9; 2-Stage: 15, 20, 25, 35, 45, 81
- **LB** — Backlash: No code: Standard (15 arc-min); LB: Low (5 arc-min)
- **VRSF** — Series

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

Contact us for additional information or refer to our online gearhead selection tool.
Selection tool www.nidec-shimpo.co.jp/selection/eng



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
Maximum Radial Load	[N]	*8	882N			882N			
Maximum Axial Load	[N]	*9	441N			441N			
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.081	0.059	0.052	0.057	0.056	0.056	0.052
Moment of Inertia (≤Ø 14)	[kgcm2]	--	0.150	0.130	0.120	0.130	0.130	0.130	0.120
Efficiency	[%]	*10	90			85			
Torsional Rigidity	[Nm/arcmin]	*11	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]	*12	≤ 72			≤ 65			
Protection Class	--	*13	IP65			IP65			
Ambient Temperature	[°C]	--	0-40			0-40			
Permitted Housing Temperature	[°C]	--	90			90			
Weight (≤Ø 8)	[kg]	*14	0.58			0.75			
Weight (≤Ø 14)	[kg]	*14	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 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 NIDEC-SHIMPO for the testing conditions and environment

*13) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

*14) 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
Maximum Radial Load	[N]	*8	1670N			1670N					
Maximum Axial Load	[N]	*9	833N			833N					
Moment of Inertia (≤Ø 8)	[kgcm2]	--	--	--	--	0.077	0.070	0.062	0.055	0.053	0.052
Moment of Inertia (≤Ø 14)	[kgcm2]	--	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	[%]	*10	90			85					
Torsional Rigidity	[Nm/arcmin]	*11	3			3					
Backlash (Standard)	[Arc-min]	--	≤ 15			≤ 15					
Backlash (Low)	[Arc-min]	--	≤ 5			≤ 5					
Backlash (Precision)	[Arc-min]	--	≤ 3			≤ 3					
Noise Level	[dB]	*12	≤ 72			≤ 65					
Protection Class	--	*13	IP 65			IP65					
Ambient Temperature	[°C]	--	0-40			0-40					
Permitted Housing Temperature	[°C]	--	90			90					
Weight (≤Ø 8)	[kg]	*14	--			1.8					
Weight (≤Ø 14)	[kg]	*14	1.8			1.9					
Weight (≤Ø 19)	--	*14	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 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 NIDEC-SHIMPO for the testing conditions and environment

*13) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

*14) 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
Maximum Radial Load	[N]	*8	2060N			2060N					
Maximum Axial Load	[N]	*9	1030N			1030N					
Moment of Inertia (≤Ø 8)	[kgcm2]	--	--	--	--	--	--	--	--	--	0.10
Moment of Inertia (≤Ø 14)	[kgcm2]	--	1.30	0.59	0.38	0.37	0.35	0.34	0.30	0.29	0.29
Moment of Inertia (≤Ø 19)	[kgcm2]	--	1.80	1.10	0.90	0.86	0.84	0.83	0.79	0.78	0.77
Moment of Inertia (≤Ø 28)	[kgcm2]	--	3.60	2.90	2.70	2.70	2.70	2.70	--	--	--
Efficiency	[%]	*10	90			85					
Torsional Rigidity	[Nm/arcmin]	*11	6			6					
Backlash (Standard)	[Arc-min]	--	≤ 15			≤ 15					
Backlash (Low)	[Arc-min]	--	≤ 5			≤ 5					
Backlash (Precision)	[Arc-min]	--	≤ 3			≤ 3					
Noise Level	[dB]	*12	≤ 72			≤ 65					
Protection Class	--	*13	IP65			IP65					
Ambient Temperature	[°C]	--	0-40			0-40					
Permitted Housing Temperature	[°C]	--	90			90					
Weight (≤Ø 8)	[kg]	*14	--			2.8					
Weight (≤Ø 14)	[kg]	*14	2.8			3.3					
Weight (≤Ø 19)	[kg]	*14	3.2			3.7					
Weight (≤Ø 28)	[kg]	*14	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 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 NIDEC-SHIMPO for the testing conditions and environment

*13) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

*14) 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
Maximum Radial Load	[N]	*8	3530N			3530N					
Maximum Axial Load	[N]	*9	1765N			1765N					
Moment of Inertia (≤Ø 8)	[kgcm2]	--	--	--	0.61	0.63	0.56	0.53	0.40	0.35	0.34
Moment of Inertia (≤Ø 14)	[kgcm2]	--	4.40	1.90	1.20	1.10	1.10	1.00	0.90	0.85	0.84
Moment of Inertia (≤Ø 19)	[kgcm2]	--	6.20	3.70	2.90	3.30	3.20	3.20	2.80	2.70	2.70
Moment of Inertia (≤Ø 28)	[kgcm2]	--	14.00	11.00	11.00	11.00	11.00	11.00	--	--	--
Efficiency	[%]	*10	90			85					
Torsional Rigidity	[Nm/arcmin]	*11	20			20					
Backlash (Standard)	[Arc-min]	--	≤ 15			≤ 15					
Backlash (Low)	[Arc-min]	--	≤ 5			≤ 5					
Backlash (Precision)	[Arc-min]	--	≤ 3			≤ 3					
Noise Level	[dB]	*12	≤ 75			≤ 75					
Protection Class	--	*13	IP65			IP65					
Ambient Temperature	[°C]	--	0-40			0-40					
Permitted Housing Temperature	[°C]	--	90			90					
Weight (≤Ø 8)	[kg]	*14	6.1			7.1					
Weight (≤Ø 14)	[kg]	*14	6.5			7.5					
Weight (≤Ø 19)	[kg]	*12	7.4			9.3					
Weight (≤Ø 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 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

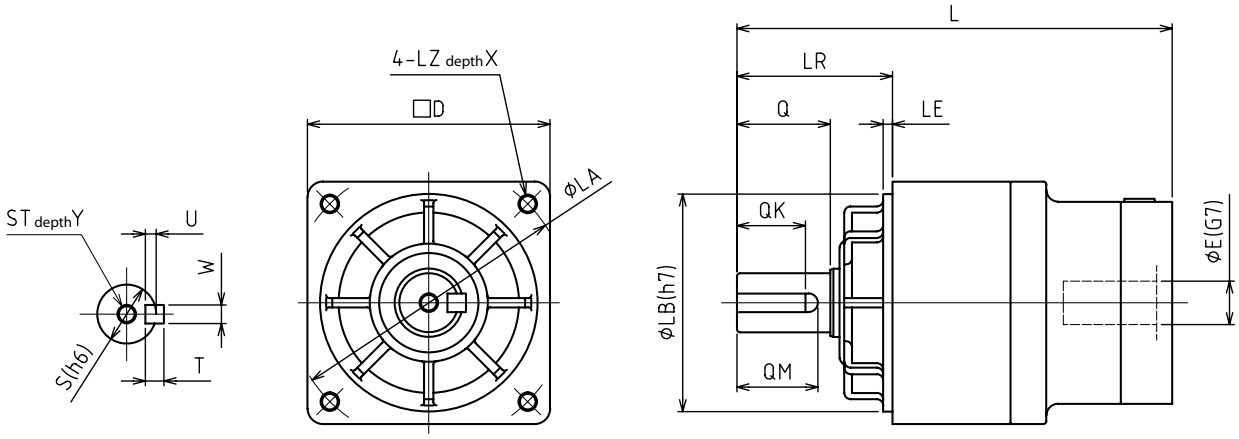
*11) This does not include lost motion

*12) Contact NIDEC-SHIMPO for the testing conditions and environment

*13) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

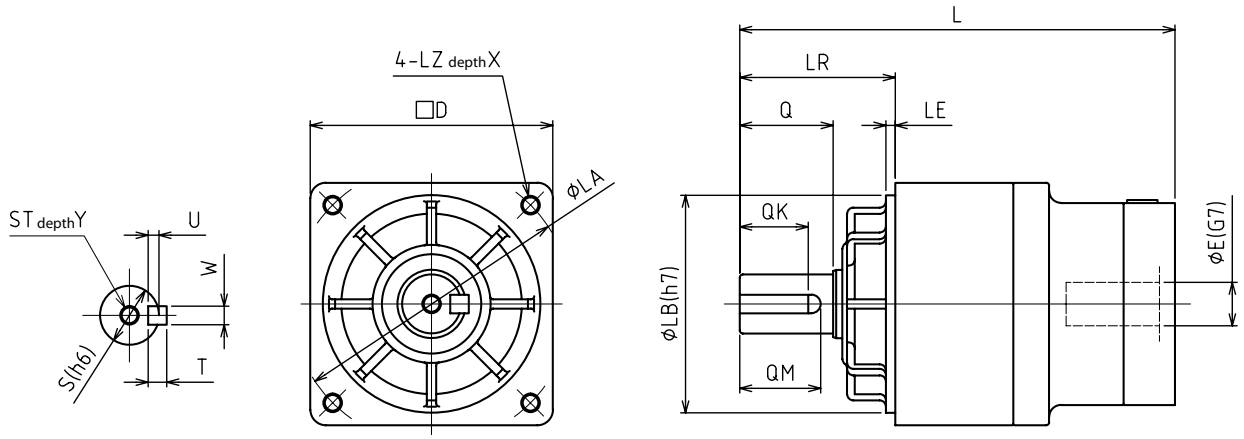
*14) The weight may vary slightly between models

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



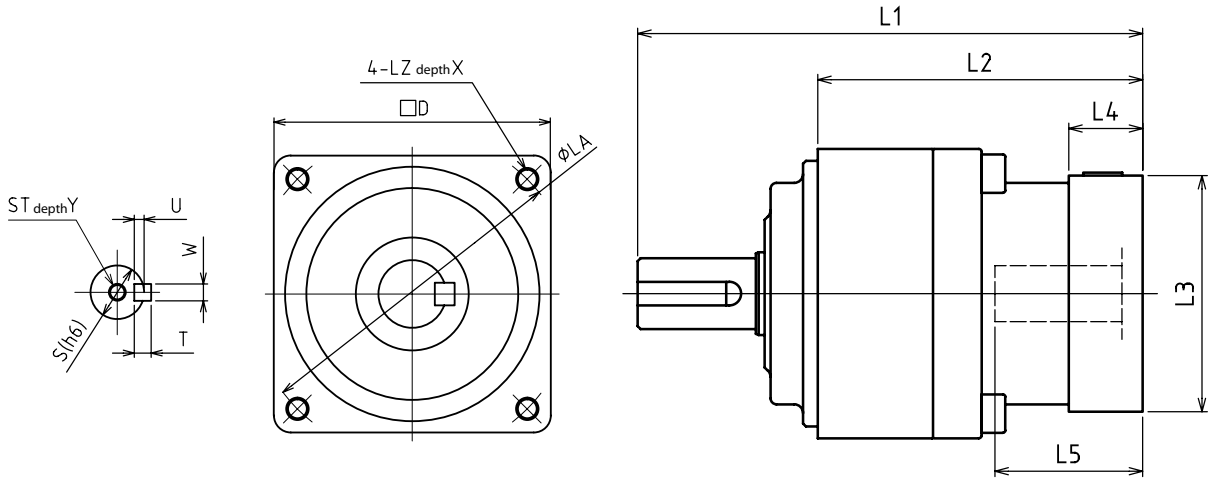
Frame Size	Ratio	Input Bore Dia. E	Dimensions															
			L	LR	S	ST	Y	Q	QM	QK	W×U	T	D	LB	LE	LA	LZ	X
B	1-Stage	≦φ8	104.5	32	12	M5	10	20	18	16	4×2.5	4	52	50	3	60	M5	12
		≦φ14	107.5															
	2-Stage	≦φ8	115.5															
		≦φ14	118.5															

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



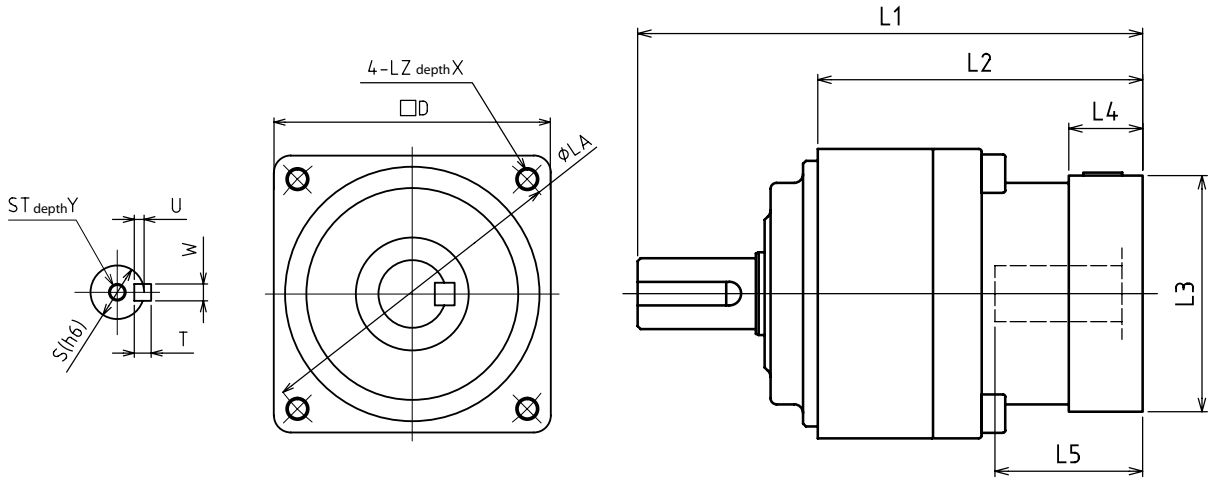
Frame Size	Ratio	Input Bore Dia. E	Dimensions															
			L	LR	S	ST	Y	Q	QM	QK	W×U	T	D	LB	LE	LA	LZ	X
C	1-Stage	≦φ14	140	50	19	M6	12	30	26	22	6×3.5	6	78	70	3	90	M6	20
		≦φ19	156															
	2-Stage	≦φ8	147.5															
		≦φ14	150.5															

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	W×U	T	D	LB	LE	LA	LZ	X
D	1-Stage	≦φ14	155	61	24	M8	16	40	35	30	8×4	7	98	90	5	115	M8	20
		≦φ19	171															
		≦φ28	186															
	2-Stage	≦φ8	163															
		≦φ14	169															
		≦φ19	184															
		≦φ28	200.5															

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

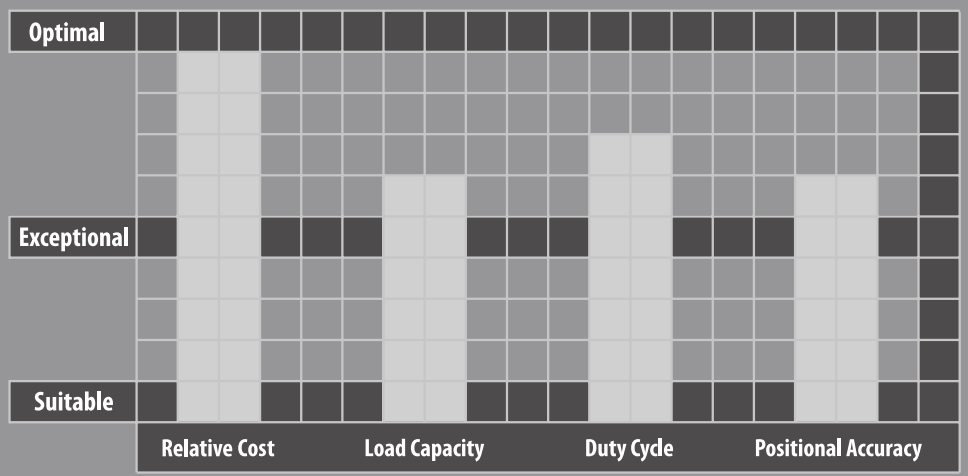


Frame Size	Ratio	Input Bore Dia. E	Dimensions															
			L	LR	S	ST	Y	Q	QM	QK	W×U	T	D	LB	LE	LA	LZ	X
E	1-Stage	≦φ14	189	75	32	M10	20	55	52	45	10×5	8	125	110	5	135	M10	20
		≦φ19	198.5															
		≦φ28	224															
		≦φ38	240															
	2-Stage	≦φ14	210															
		≦φ19	225															
		≦φ28	246.5															
		≦φ38	261.5															

VRL SERIES

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.

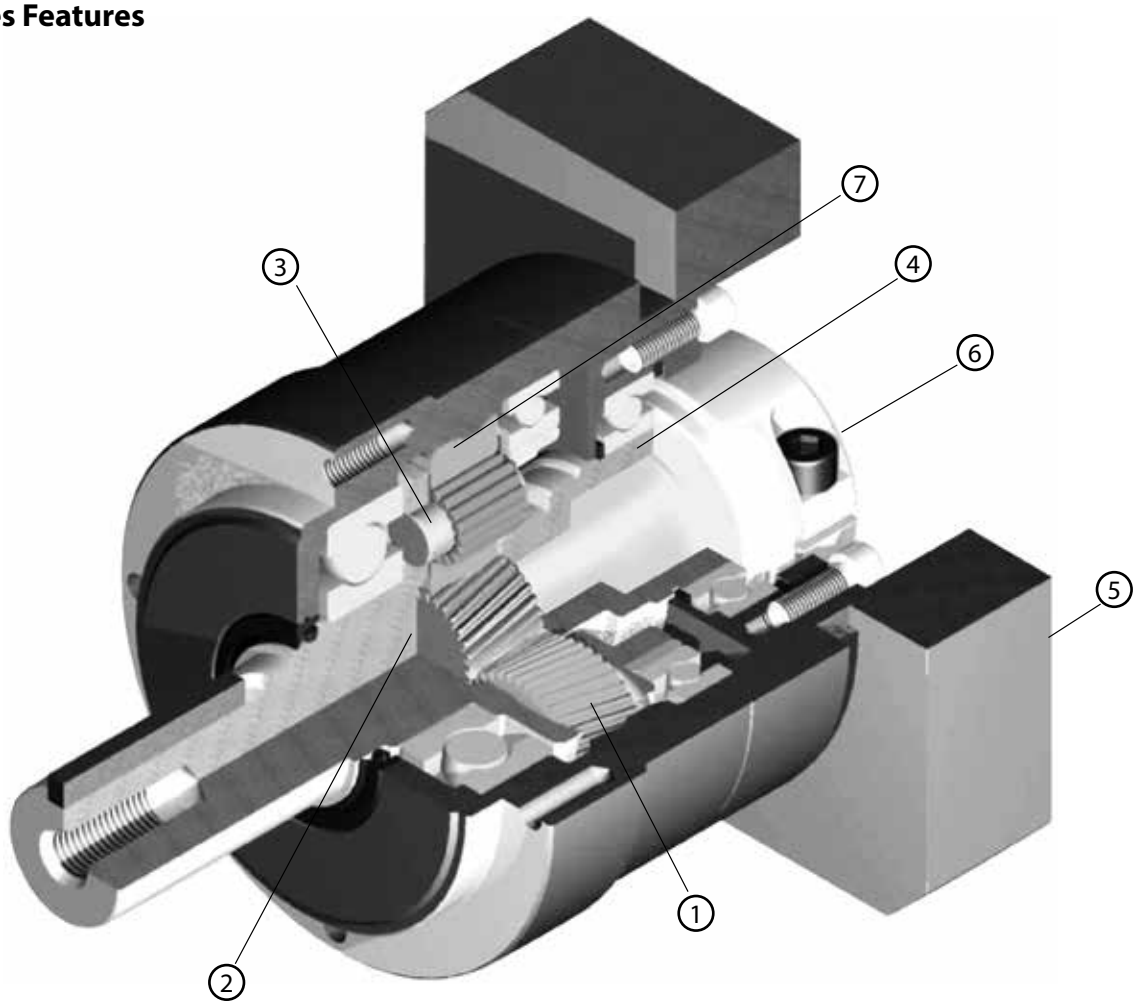
The VRL is an excellent choice for servo applications in packaging, handling and automation systems. A variety of standard wash down and food grade options are available, making it an attractive option for the toughest environments. We offer the broadest selection of frame sizes and ratios, giving our 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.



VRL SERIES

- 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
- Assembled in the USA, with immediate delivery

VRL Series 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

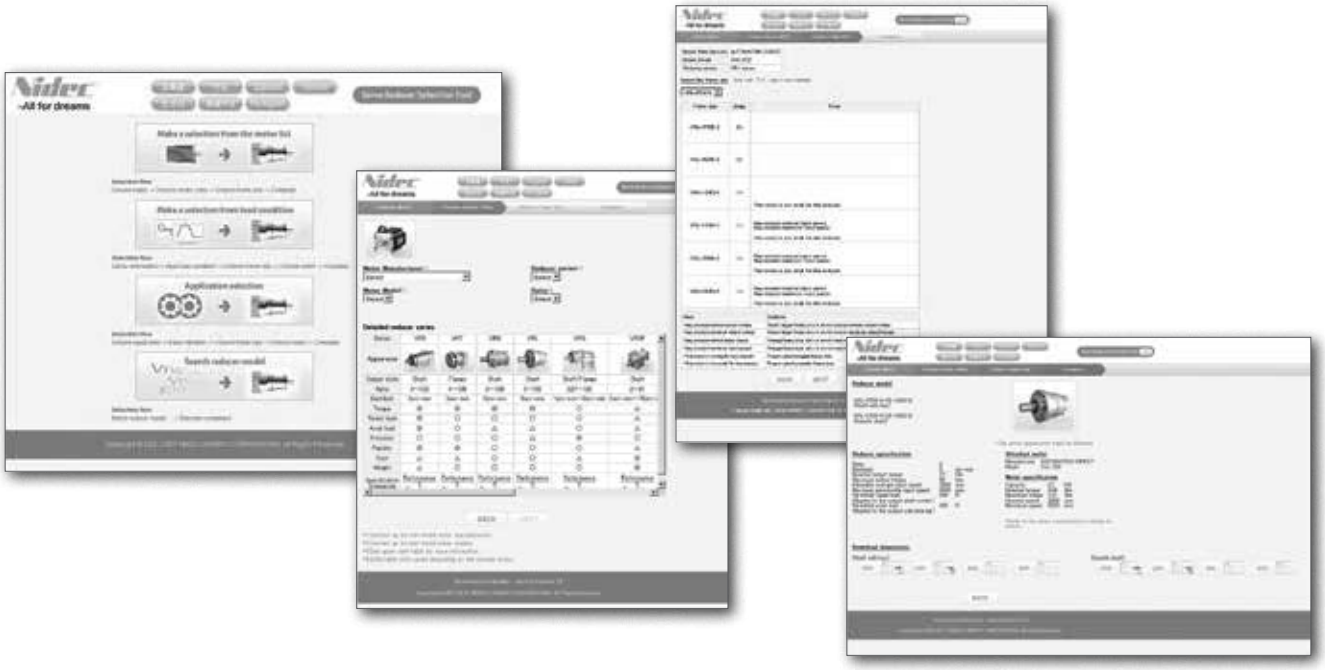
VRL Series Model Code

VRL – 090 C – 7 – K 5 – 19HB16

- VRL — Series
- 090 — Frame size: 050, 070, 090, 120, 155, 205, 235
- C — Design version
- 7 — 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
- K — Output mounting style: K: Keyed Shaft; S: Smooth shaft
- 5 — Backlash: 5 arc-min
- 19HB16 — Motor mounting code (*1)

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

Contact us for additional information or refer to our online gearhead selection tool.
Selection tool www.nidec-shimpo.co.jp/selection/eng



VRL 050 1-Stage Specifications

Frame Size			**050**							
Ratio	Units	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	6	9	9	9	9	9	6	6
Maximum Acceleration Torque	[Nm]	*2	12	18	18	18	18	18	12	12
Emergency Stop Torque	[Nm]	*3	30	35	35	35	35	35	30	30
Nominal Input Speed	[rpm]	*4	4000							
Maximum Input Speed	[rpm]	*5	8000							
No Load Running Torque	[Nm]	*6	0.03							
Permitted Radial Load	[N]	*7	240	270	290	310	320	340	350	360
Permitted Axial Load	[N]	*8	270	300	330	360	380	410	430	450
Maximum Radial Load	[N]	*9	710							
Maximum Axial Load	[N]	*10	640							
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.053	0.041	0.036	0.034	0.032	0.031	0.031	0.030
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.17	0.16	0.15	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]	--	≤ 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	0.7							

VRL 050 2-Stage Specifications

Frame Size			**050**							
Ratio	Units	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	6	9	9	9	9	9	9	9
Maximum Acceleration Torque	[Nm]	*2	12	18	18	18	18	12	18	18
Emergency Stop Torque	[Nm]	*3	30	35	35	35	35	30	35	35
Nominal Input Speed	[rpm]	*4	4000							
Maximum Input Speed	[rpm]	*5	8000							
No Load Running Torque	[Nm]	*6	0.01							
Permitted Radial Load	[N]	*7	410	420	460	490	510	520	550	570
Permitted Axial Load	[N]	*8	540	550	610	640	640	640	640	640
Maximum Radial Load	[N]	*9	710							
Maximum Axial Load	[N]	*10	640							
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.035	0.038	0.034	0.034	0.038	0.030	0.034	0.030
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arc-min]	*12	2							
Maximum Torsional Backlash	[arc-min]	--	≤ 7							
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							

VRL 050 2-Stage Specifications

Frame Size	**050**								
Ratio	Units	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	6	9	9	9	9	6	6
Maximum Acceleration Torque	[Nm]	*2	12	18	18	18	18	12	12
Emergency Stop Torque	[Nm]	*3	30	35	35	35	35	30	30
Nominal Input Speed	[rpm]	*4	4000						
Maximum Input Speed	[rpm]	*5	8000						
No Load Running Torque	[Nm]	*6	0.01						
Permitted Radial Load	[N]	*7	600	620	660	690	710	710	710
Permitted Axial Load	[N]	*8	640	640	640	640	640	640	640
Maximum Radial Load	[N]	*9	710						
Maximum Axial Load	[N]	*10	640						
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.034	0.030	0.030	0.030	0.030	0.030	0.030
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arc-min]	*12	2						
Maximum Torsional Backlash	[arc-min]	--	≤ 7						
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						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

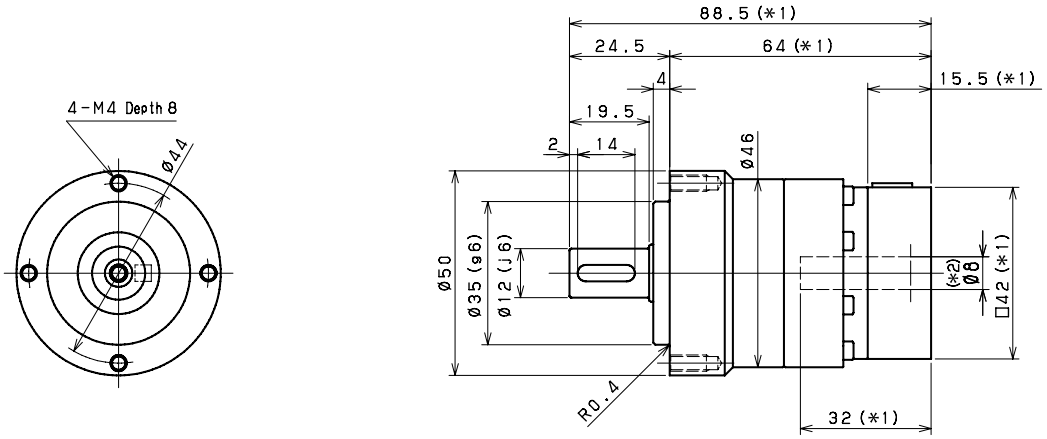
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

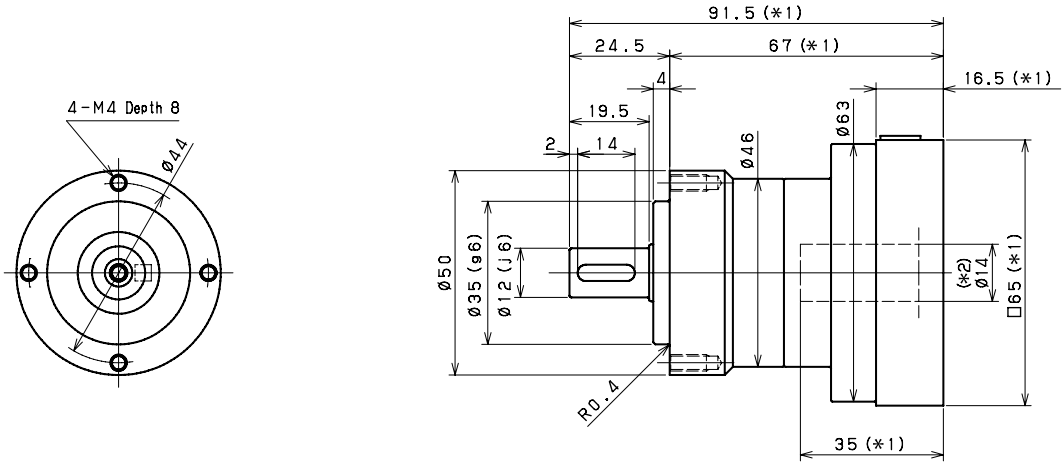
*15) The weight may vary slightly between models

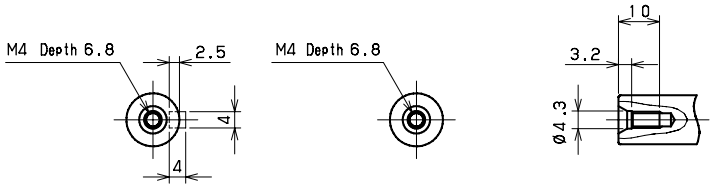
VRL 050 1-Stage Dimensions

Input bore size ≦φ8 mm



Input bore size ≦φ14 mm





Keyed shaft

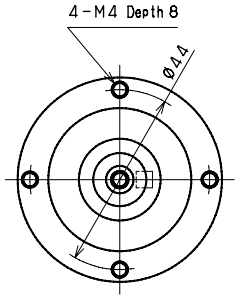
Smooth shaft

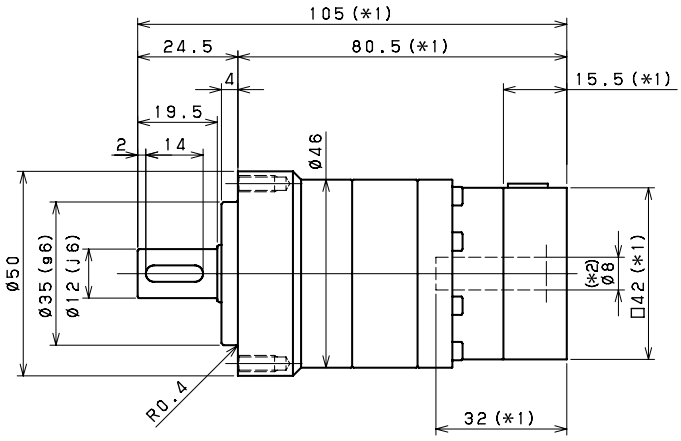
*1) Length will vary depending on motor

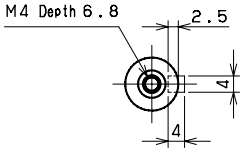
*2) Bushing will be inserted to adapt to motor shaft

VRL 050 2-Stage Dimensions

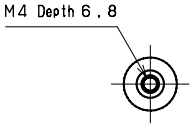
Input bore size ≦φ8 mm



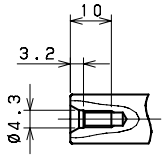




Keyed shaft



Smooth shaft



*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**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	18	27	27	27	27	27	18	18
Maximum Output Torque	[Nm]	*2	35	50	50	50	50	50	35	35
Emergency Stop Torque	[Nm]	*3	80	100	100	100	100	100	80	80
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.08							
Permitted Radial Load	[N]	*7	430	470	510	540	570	600	620	640
Permitted Axial Load	[N]	*8	310	360	390	430	460	480	510	530
Maximum Radial Load	[N]	*9	1200							
Maximum Axial Load	[N]	*10	1100							
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.14	0.095	0.077	0.068	0.062	0.059	0.057	0.056
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.25	0.21	0.19	0.18	0.17	0.17	0.17	0.17
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.53	0.48	0.46	0.46	0.45	0.45	0.44	0.44
Efficiency	[%]	*11	95							
Torsional Rigidity	[Nm/arcmin]	*12	3							
Maximum Torsional Backlash	[Arc-min]	--	≤ 5							
Noise Level	dB [A]	*13	≤ 66							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	1.5							

VRL 070 2-Stage Specifications

Frame Size			**070**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	18	27	27	27	27	18	27	27
Maximum Output Torque	[Nm]	*2	35	50	50	50	50	35	50	50
Emergency Stop Torque	[Nm]	*3	80	100	100	100	100	80	100	100
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.04							
Permitted Radial Load	[N]	*7	740	750	810	870	910	930	980	1000
Permitted Axial Load	[N]	*8	630	650	720	790	830	860	920	970
Maximum Radial Load	[N]	*9	1200							
Maximum Axial Load	[N]	*10	1100							
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.064	0.070	0.062	0.061	0.068	0.051	0.061	0.051
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.18	0.18	0.17	0.17	0.18	0.16	0.17	0.16
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.45	0.46	0.45	0.45	0.46	0.44	0.45	0.44
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arcmin]	*12	3							
Maximum Torsional Backlash	[Arc-min]	--	≤ 5							
Noise Level	dB [A]	*13	≤ 66							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	1.7							

VRL 070 2-Stage Specifications

Frame Size			**070**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	18	27	27	27	27	18	18
Maximum Output Torque	[Nm]	*2	35	50	50	50	50	35	35
Emergency Stop Torque	[Nm]	*3	80	100	100	100	100	80	80
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*6	0.04						
Permitted Radial Load	[N]	*7	1100	1100	1200	1200	1200	1200	1200
Permitted Axial Load	[N]	*8	1000	1100	1100	1100	1100	1100	1100
Maximum Radial Load	[N]	*9	1200						
Maximum Axial Load	[N]	*10	1100						
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.061	0.051	0.051	0.051	0.051	0.051	0.051
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.17	0.16	0.16	0.16	0.16	0.16	0.16
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.45	0.44	0.44	0.44	0.44	0.44	0.44
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arcmin]	*12	3						
Maximum Torsional Backlash	[Arc-min]	--	≤ 5						
Noise Level	dB [A]	*13	≤ 66						
Protection Class	--	*14	IP54 (IP65)						
Ambient Temperature	[°C]	--	0-40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*15	1.7						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

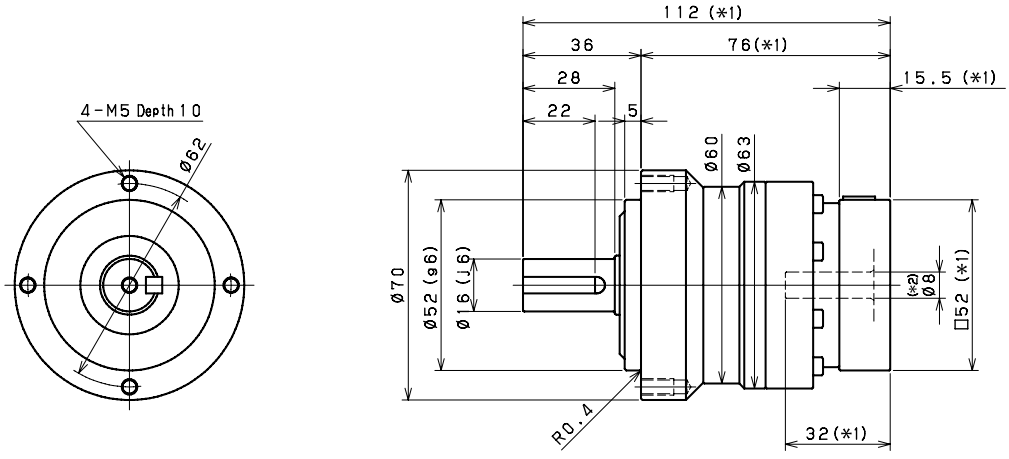
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

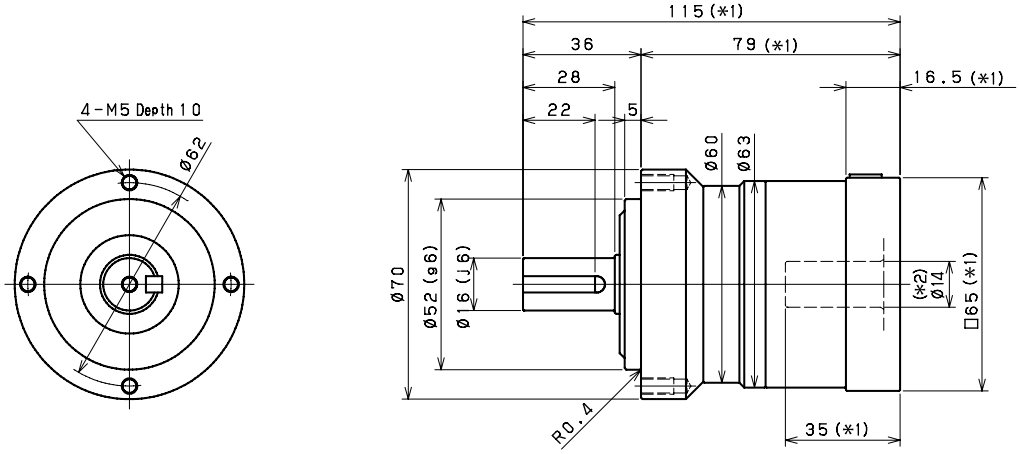
*15) The weight may vary slightly between models

VRL 070 1-Stage Dimensions

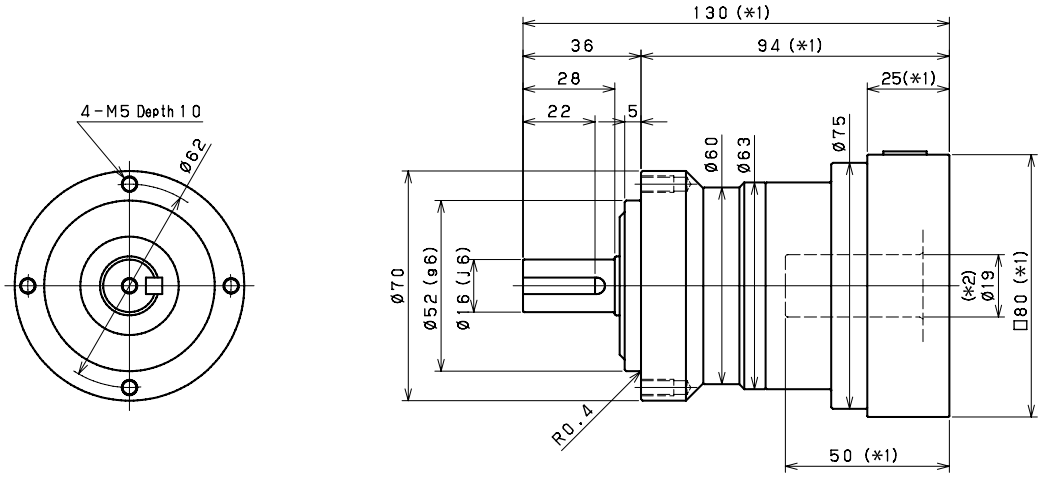
Input bore size ≦φ8 mm

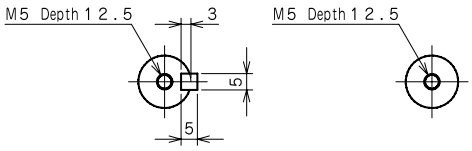


Input bore size ≦φ14 mm



Input bore size ≦φ19 mm





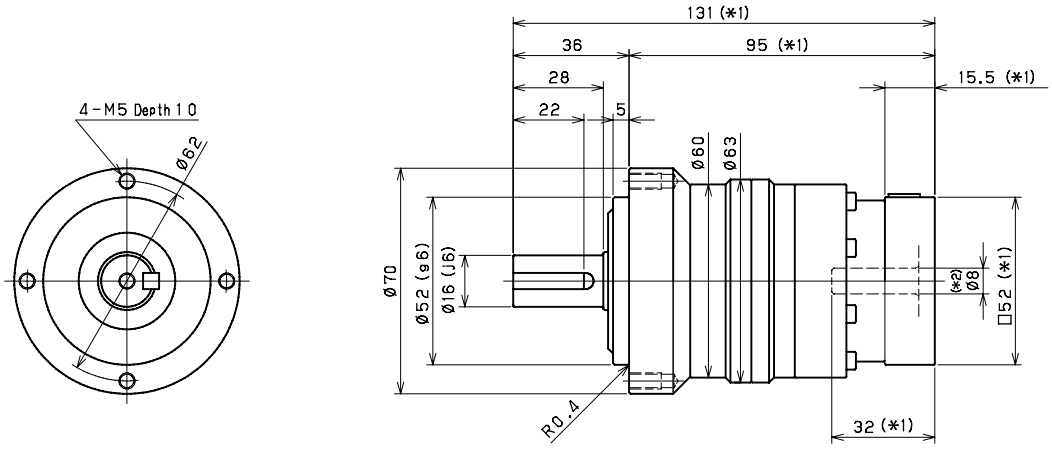
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

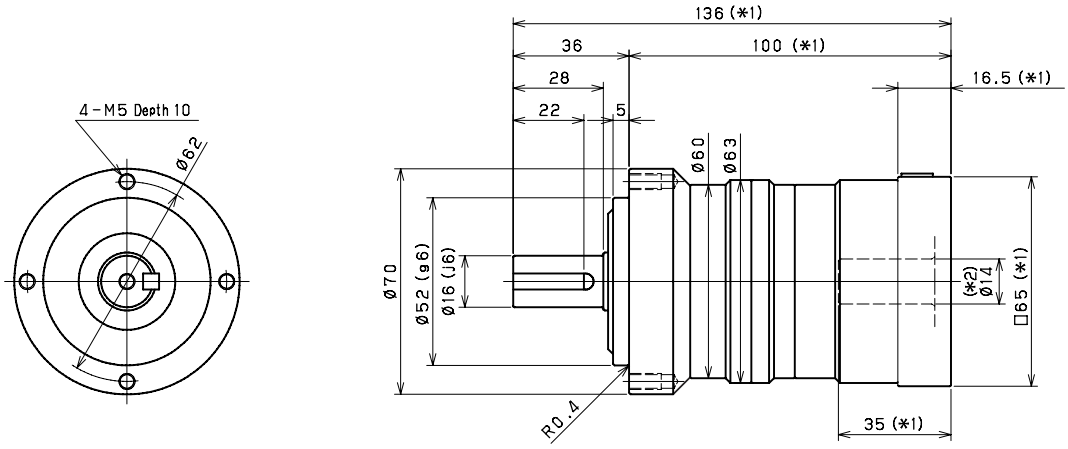
*2) Bushing will be inserted to adapt to motor shaft

VRL 070 2-Stage Dimensions

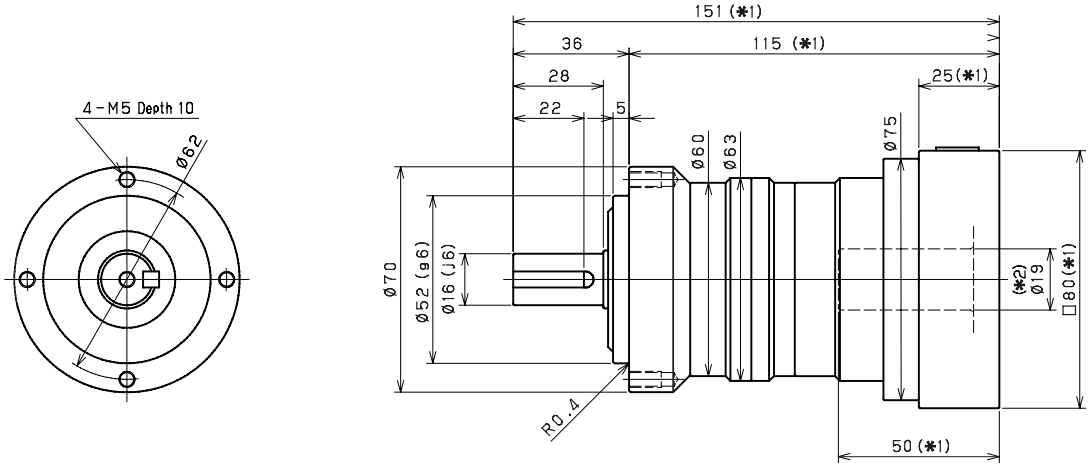
Input bore size ≦φ8 mm

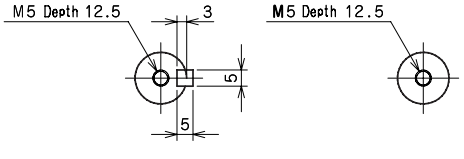


Input bore size ≦φ14 mm



Input bore size ≦φ19 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**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	50	75	75	75	75	75	50	50
Maximum Acceleration Torque	[Nm]	*2	80	125	125	125	125	125	80	80
Emergency Stop Torque	[Nm]	*3	200	250	250	250	250	250	200	200
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.35							
Permitted Radial Load	[N]	*7	810	890	960	1000	1100	1100	1200	1200
Permitted Axial Load	[N]	*8	930	1100	1200	1300	1300	1400	1500	1600
Maximum Radial Load	[N]	*9	2400							
Maximum Axial Load	[N]	*10	2200							
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.72	0.50	0.41	0.36	0.33	0.31	0.30	0.30
Moment of Inertia (≤ Ø 19)	--	--	1.1	0.90	0.80	0.75	0.73	0.71	0.70	0.70
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.9	2.7	2.6	2.5	2.5	2.5	2.5	2.5
Efficiency	[%]	*11	95							
Torsional Rigidity	[Nm/arc-min]	*12	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	3.5							

VRL 090 2-Stage Specifications

Frame Size			**090**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	50	75	75	75	75	50	75	75
Maximum Acceleration Torque	[Nm]	*2	80	125	125	125	125	80	125	125
Emergency Stop Torque	[Nm]	*3	200	250	250	250	250	200	250	250
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.06							
Permitted Radial Load	[N]	*7	1400	1400	1500	1600	1700	1700	1800	1900
Permitted Axial Load	[N]	*8	1900	1900	2100	2200	2200	2200	2200	2200
Maximum Radial Load	[N]	*9	2400							
Maximum Axial Load	[N]	*10	2200							
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.20	0.25	0.19	0.19	0.24	0.12	0.18	0.11
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.36	0.41	0.35	0.35	0.40	0.28	0.35	0.28
Moment of Inertia (≤ Ø 19)	--	--	0.75	0.79	0.74	0.74	0.78	0.67	0.73	0.67
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.5	2.5	2.5	2.5	2.5	2.4	2.5	2.4
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arc-min]	*12	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
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							

VRL 090 2-Stage Specifications

Frame Size			**090**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	50	75	75	75	75	50	50
Maximum Acceleration Torque	[Nm]	*2	80	125	125	125	125	80	80
Emergency Stop Torque	[Nm]	*3	200	250	250	250	250	200	200
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*6	0.06						
Permitted Radial Load	[N]	*7	2000	2100	2200	2300	2400	2400	2400
Permitted Axial Load	[N]	*8	2200	2200	2200	2200	2200	2200	2200
Maximum Radial Load	[N]	*9	2400						
Maximum Axial Load	[N]	*10	2200						
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.18	0.11	0.11	0.11	0.11	0.11	0.11
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.34	0.27	0.27	0.27	0.27	0.27	0.27
Moment of Inertia (≤ Ø 19)	--	--	0.73	0.67	0.67	0.67	0.67	0.67	0.67
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.5	2.4	2.4	2.4	2.4	2.4	2.4
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arc-min]	*12	10						
Maximum Torsional Backlash	[arc-min]	--	≤ 5						
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						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

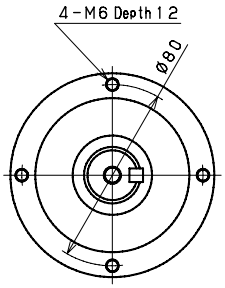
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

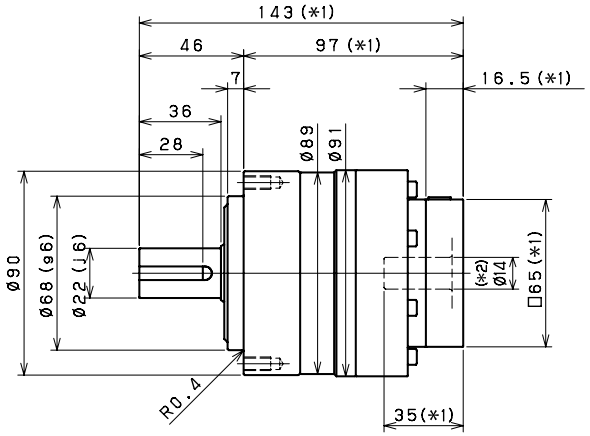
*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

*15) The weight may vary slightly between models

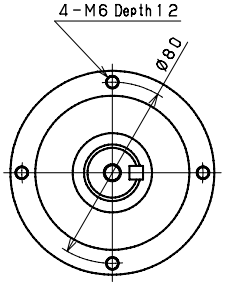
VRL 090 1-Stage Dimensions

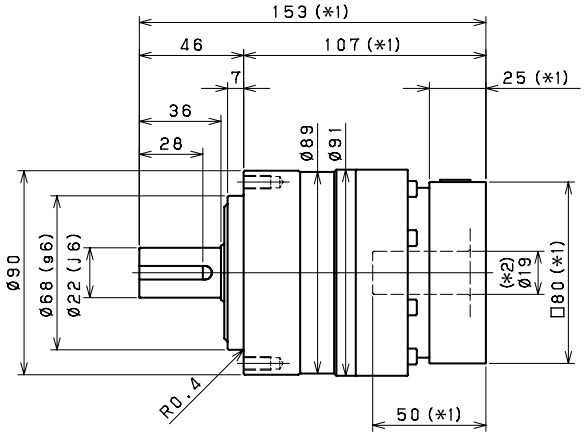
Input bore size ≦φ14 mm



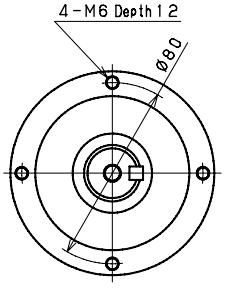


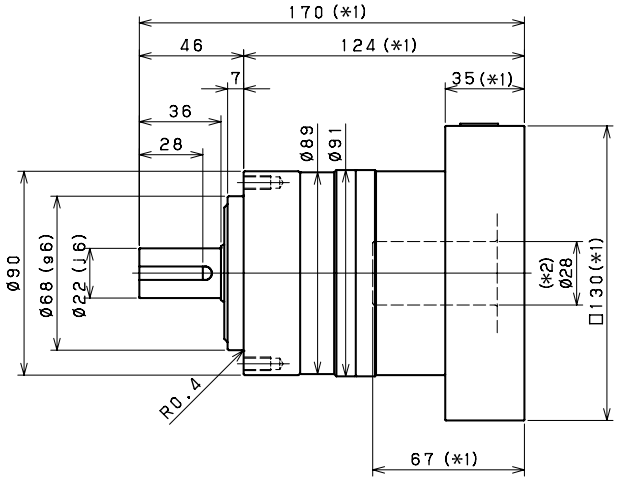
Input bore size ≦φ19 mm

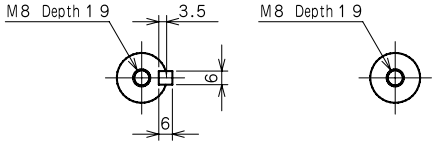




Input bore size ≦φ28 mm







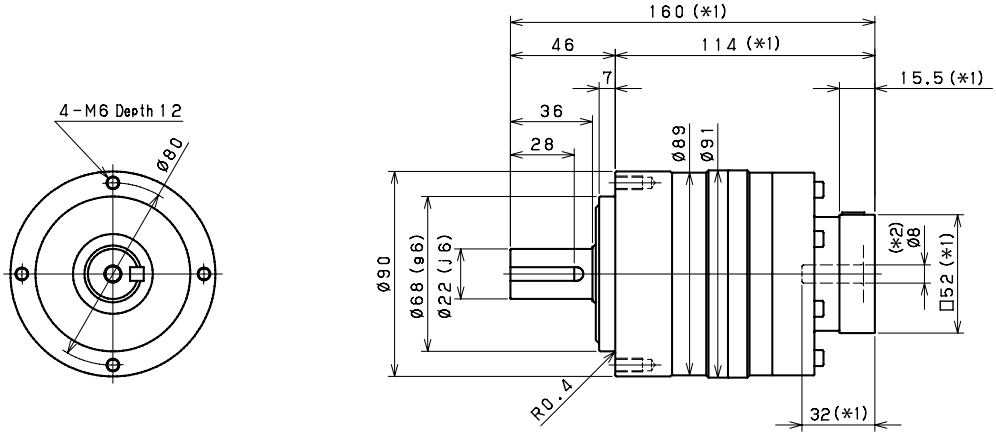
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

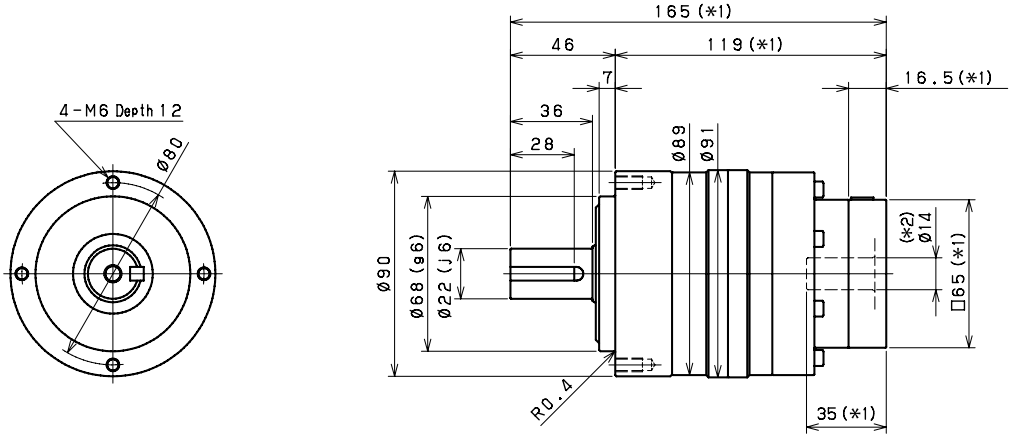
*2) Bushing will be inserted to adapt to motor shaft

VRL 090 2-Stage Dimensions

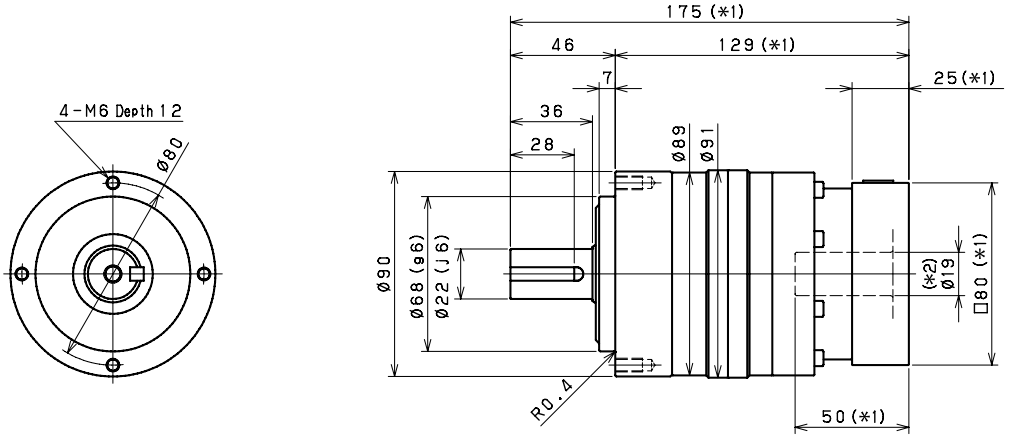
Input bore size ≦φ8 mm

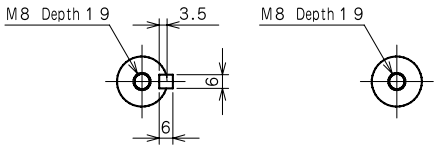


Input bore size ≦φ14 mm



Input bore size ≦φ19 mm (*3)





Keyed shaft Smooth shaft

*1) Length will vary depending on motor

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

*3) 28mm input bore is available for this frame size. Use our online configurator to make your selection or contact us for assistance

VRL 120 1-Stage Specifications

Frame Size			**120**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	120	120	180	180	180	180	120	120
Maximum Output Torque	[Nm]	*2	225	330	330	330	330	330	225	225
Emergency Stop Torque	[Nm]	*3	500	625	625	625	625	625	500	500
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*14	1.30							
Permitted Radial Load	[N]	*6	1300	1500	1600	1700	1800	1900	1900	2000
Permitted Axial Load	[N]	*7	1500	1700	1900	2000	2100	2300	2400	2500
Maximum Radial Load	[N]	*8	4300							
Maximum Axial Load	[N]	*9	3900							
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	3.2	2.0	1.4	1.2	1.0	0.92	0.86	0.83
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	5.1	3.7	3.1	2.9	2.8	2.7	2.6	2.6
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	12	10	9.5	9.3	9.1	9.0	8.9	8.9
Efficiency	[%]	*11	95							
Torsional Rigidity	[Nm/arc-min]	*12	31							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*13	≤ 71							
Protection Class		*15	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	*16	90							
Weight	[kg]	*10	7.8							

VRL 120 2-Stage Specifications

Frame Size			**120**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	120	180	180	180	180	120	180	180
Maximum Output Torque	[Nm]	*2	225	330	330	330	330	225	330	330
Emergency Stop Torque	[Nm]	*3	500	625	625	625	625	500	625	625
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*14	0.42							
Permitted Radial Load	[N]	*6	2300	2300	2500	2700	2800	2900	3000	3200
Permitted Axial Load	[N]	*7	3000	3100	3400	3700	3900	3900	3900	3900
Maximum Radial Load	[N]	*8	4300							
Maximum Axial Load	[N]	*9	3900							
Moment of Inertia (≤Ø 8)	[kgcm2]	--	-	-	-	-	-	-	-	-
Moment of Inertia (≤Ø 14)	[kgcm2]	--	0.77	0.98	0.72	0.70	0.92	0.38	0.68	0.37
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	1.2	1.4	1.1	1.1	1.3	0.78	1.1	0.77
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.9	3.1	2.8	2.8	3.0	2.5	2.8	2.5
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	9.2	9.4	9.1	9.1	9.3	8.8	9.1	8.8
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arc-min]	*12	31							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*13	≤ 71							
Protection Class		*15	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	*16	90							
Weight	[kg]	*10	8.7							

VRL 120 2-Stage Specifications

Frame Size			**120**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	120	180	180	180	180	120	120
Maximum Output Torque	[Nm]	*2	225	330	330	330	330	225	225
Emergency Stop Torque	[Nm]	*3	500	625	625	625	625	500	500
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*14	0.42						
Permitted Radial Load	[N]	*6	3300	3400	3600	3800	4000	4200	4300
Permitted Axial Load	[N]	*7	3900	3900	3900	3900	3900	3900	3900
Maximum Radial Load	[N]	*8	4300						
Maximum Axial Load	[N]	*9	3900						
Moment of Inertia (≤Ø 8)	[kgcm2]	--	-	0.19	0.19	0.19	0.19	0.19	0.19
Moment of Inertia (≤Ø 14)	[kgcm2]	--	0.68	0.36	0.36	0.36	0.36	0.36	0.36
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	1.1	0.76	0.76	0.76	0.76	0.76	0.76
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.8	2.5	2.5	2.5	2.5	2.5	2.5
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	9.1	8.8	8.8	8.8	8.8	8.8	8.8
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arc-min]	*12	31						
Maximum Torsional Backlash	[arc-min]	--	≤ 5						
Noise Level	dB [A]	*13	≤ 71						
Protection Class		*15	IP54 (IP65)						
Ambient Temperature	[°C]	--	0-40						
Permitted Housing Temperature	[°C]	*16	90						
Weight	[kg]	*10	8.7						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

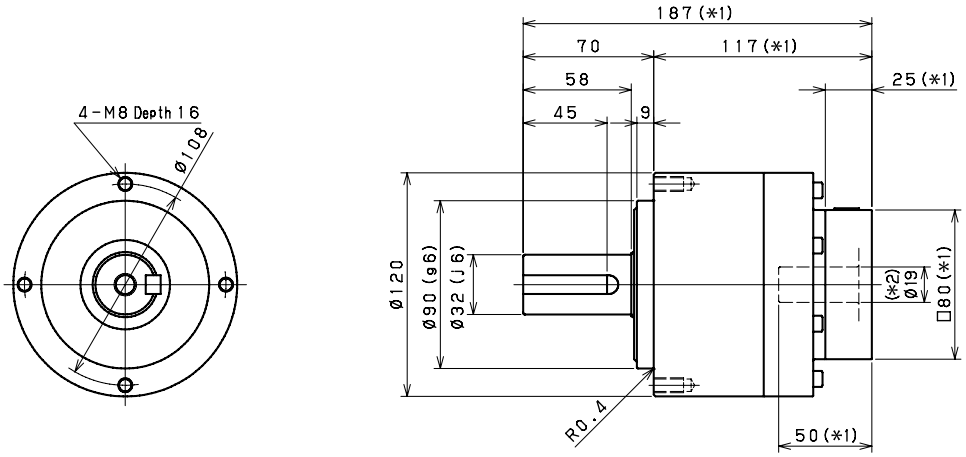
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

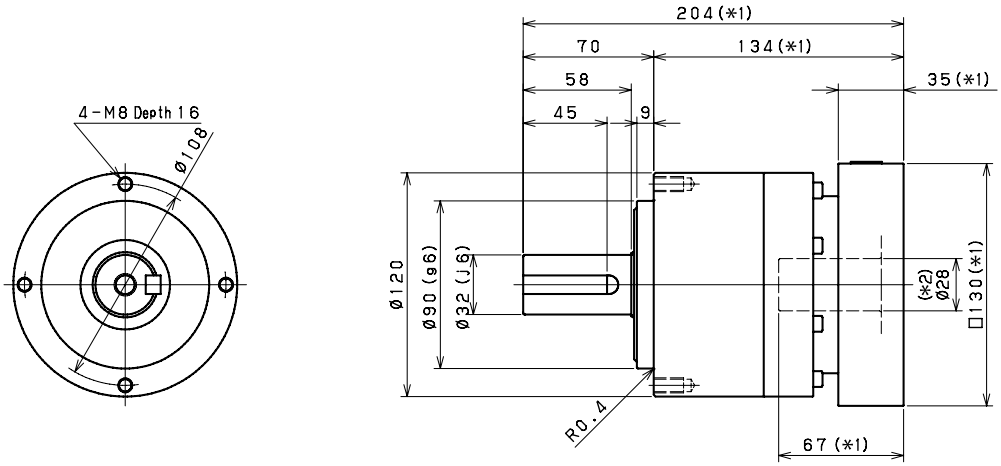
*15) The weight may vary slightly between models

VRL 120 1-Stage Dimensions

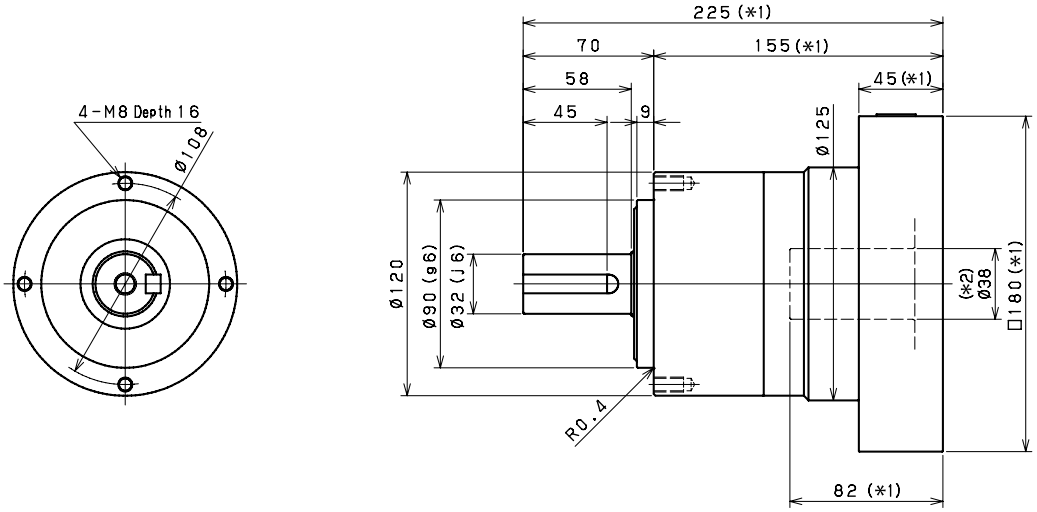
Input bore size ≦φ19 mm

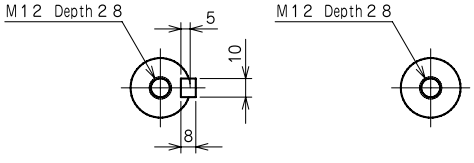


Input bore size ≦φ28 mm



Input bore size ≦φ38 mm





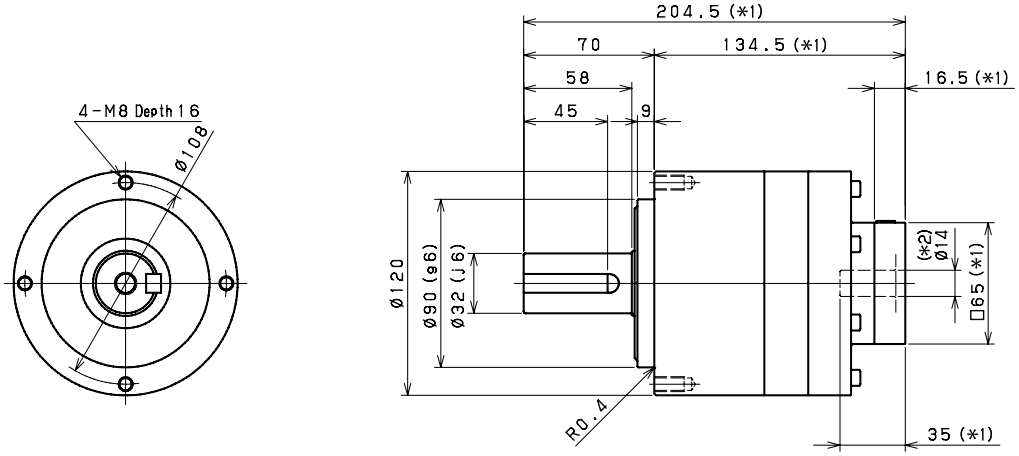
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

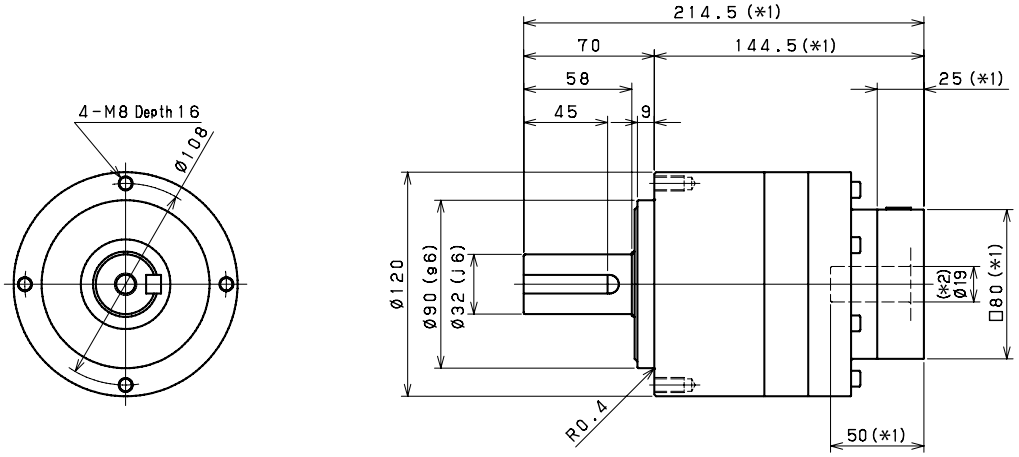
*2) Bushing will be inserted to adapt to motor shaft

VRL 120 2-Stage Dimensions

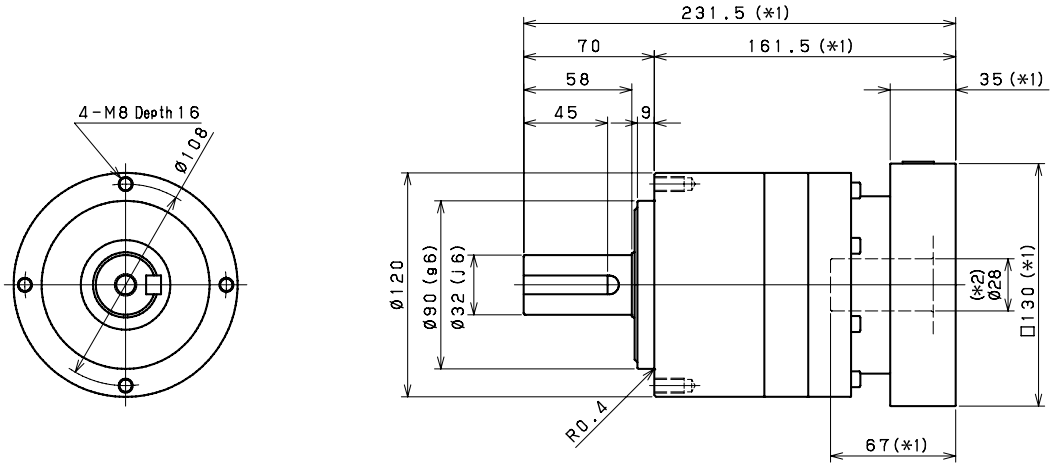
Input bore size ≦φ14 mm

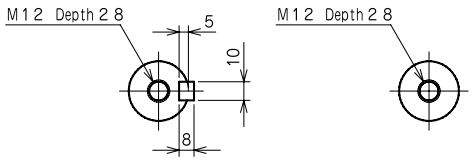


Input bore size ≦φ19 mm



Input bore size ≦φ28 mm (*3)





Keyed shaft Smooth shaft

*1) Length will vary depending on motor

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

*3) 38mm input bore is available for this frame size. Use our online configurator to make your selection or contact us for assistance

VRL 155 1-Stage Specifications

Frame Size			**155**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	240	240	360	360	360	360	240	240
Maximum Acceleration Torque	[Nm]	*2	470	700	700	700	700	700	470	470
Emergency Stop Torque	[Nm]	*3	1000	1250	1250	1250	1250	1250	1000	1000
Nominal Input Speed	[rpm]	*4	2000							
Maximum Input Speed	[rpm]	*5	4000							
No Load Running Torque	[Nm]	*6	1.63							
Permitted Radial Load	[N]	*7	3200	3500	3800	4000	4200	4400	4600	4700
Permitted Axial Load	[N]	*8	2400	2700	3000	3300	3500	3700	3900	4100
Maximum Radial Load	[N]	*9	9100							
Maximum Axial Load	[N]	*10	8200							
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	12	7.3	5.3	4.3	3.9	3.5	3.3	3.2
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	18	14	12	11	10	9.9	9.7	9.6
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	35	29	27	26	25	25	25	25
Efficiency	[%]	*11	95							
Torsional Rigidity	[Nm/arc-min]	*12	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	16							

VRL 155 2-Stage Specifications

Frame Size			**155**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	240	360	360	360	360	240	360	360
Maximum Acceleration Torque	[Nm]	*2	470	700	700	700	700	470	700	700
Emergency Stop Torque	[Nm]	*3	1000	1250	1250	1250	1250	1000	1250	1250
Nominal Input Speed	[rpm]	*4	2000							
Maximum Input Speed	[rpm]	*5	4000							
No Load Running Torque	[Nm]	*6	0.56							
Permitted Radial Load	[N]	*7	5400	5500	6000	6400	6700	6800	7200	7500
Permitted Axial Load	[N]	*8	4900	5000	5500	6100	6400	6600	7000	7500
Maximum Radial Load	[N]	*9	9100							
Maximum Axial Load	[N]	*10	8200							
Moment of Inertia (≤Ø 14)	[kgcm2]	--	-	-	-	-	-	-	-	-
Moment of Inertia (≤Ø 19)	[kgcm2]	--	2.6	3.5	2.4	2.4	3.3	1.1	2.3	1.1
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	4.4	5.3	4.2	4.1	5.1	2.9	4.1	2.8
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	11	12	10	10	11	9.2	10	9.1
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	26	27	25	25	26	24	25	24
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arc-min]	*12	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	18							

VRL 155 2-Stage Specifications

Frame Size			**155**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	240	360	360	360	360	240	240
Maximum Acceleration Torque	[Nm]	*2	470	700	700	700	700	470	470
Emergency Stop Torque	[Nm]	*3	1000	1250	1250	1250	1250	1000	1000
Nominal Input Speed	[rpm]	*4	2000						
Maximum Input Speed	[rpm]	*5	4000						
No Load Running Torque	[Nm]	*6	0.56						
Permitted Radial Load	[N]	*7	7800	8100	8600	9100	9100	9100	9100
Permitted Axial Load	[N]	*8	7900	8200	8200	8200	8200	8200	8200
Maximum Radial Load	[N]	*9	9100						
Maximum Axial Load	[N]	*10	8200						
Moment of Inertia (≤Ø 14)	[kgcm2]	--	-	0.65	0.64	0.64	0.63	0.63	0.63
Moment of Inertia (≤Ø 19)	[kgcm2]	--	2.3	1.1	1.1	1.1	1.1	1.1	1.1
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	4.0	2.8	2.8	2.8	2.8	2.8	2.8
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	10	9.1	9.1	9.1	9.1	9.1	9.1
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	25	24	24	24	24	24	24
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arc-min]	*12	60						
Maximum Torsional Backlash	[arc-min]	--	≤ 5						
Noise Level	dB [A]	*13	≤ 67						
Protection Class	--	*14	IP54 (IP65)						
Ambient Temperature	[°C]	--	0-40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*15	18						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

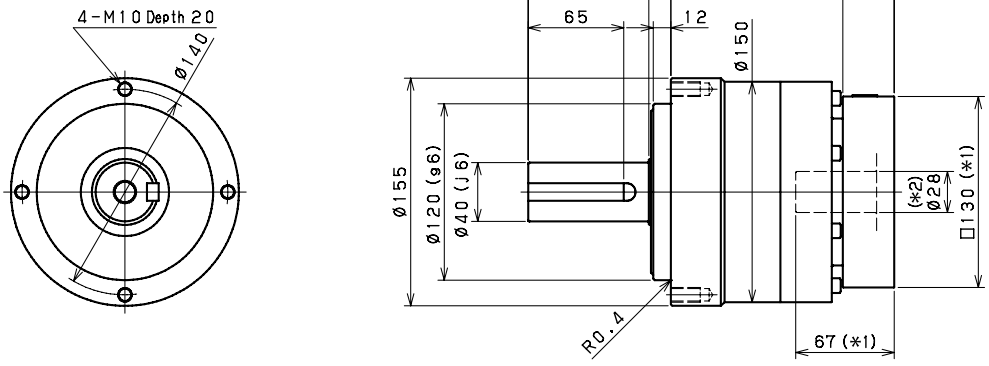
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

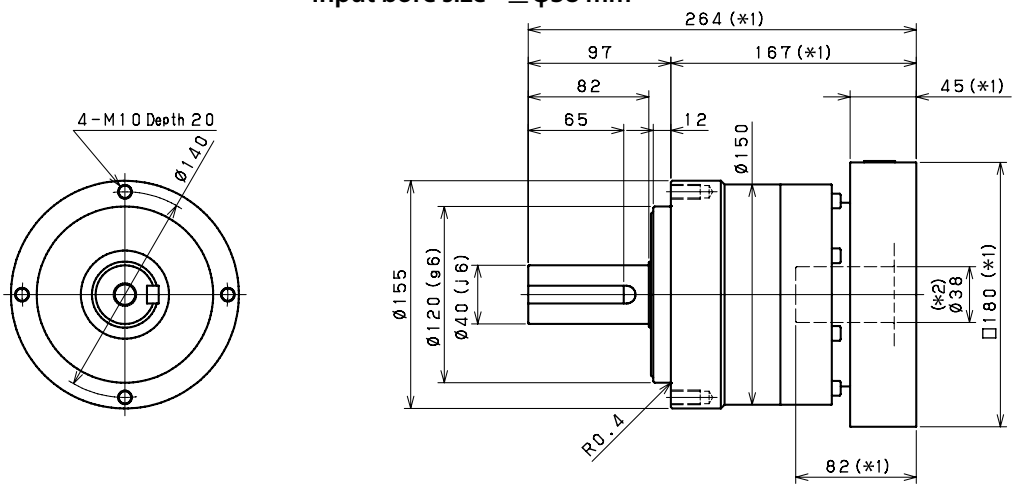
*15) The weight may vary slightly between models

VRL 155 1-Stage Dimensions

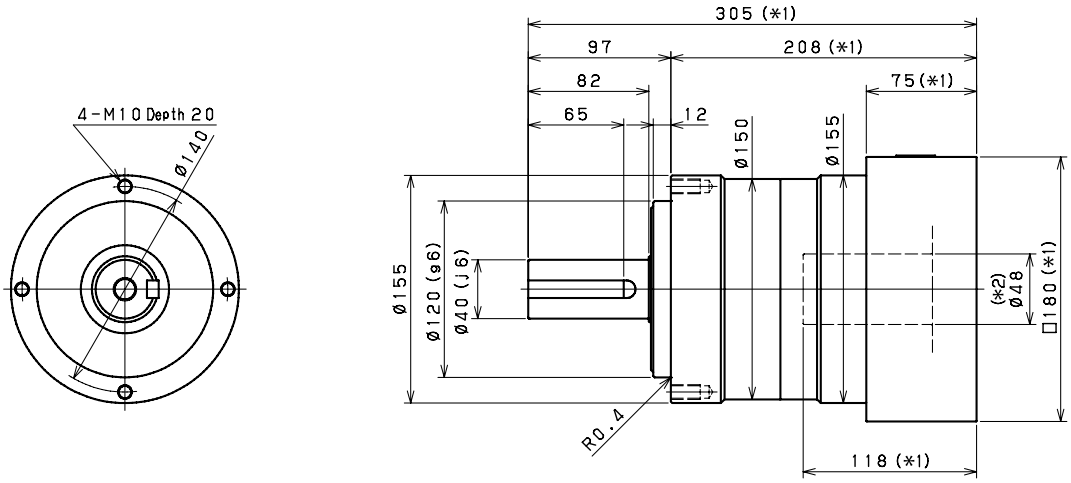
Input bore size ≦φ28 mm

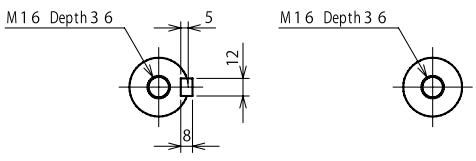


Input bore size ≦φ38 mm



Input bore size ≦φ48 mm





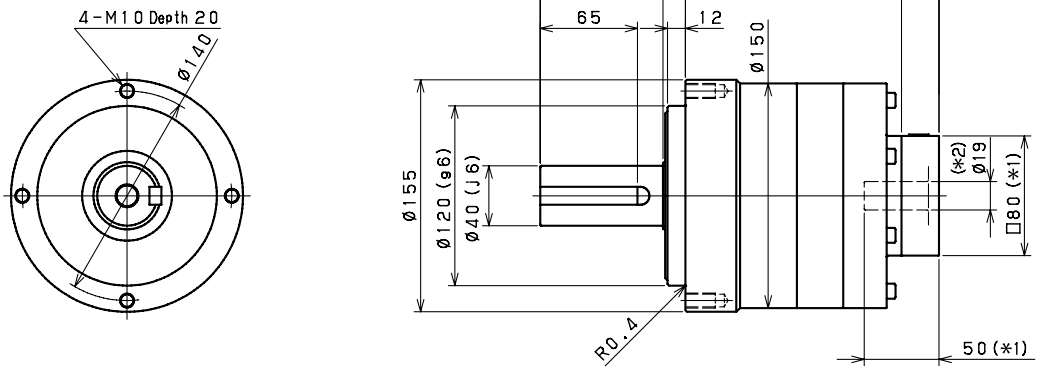
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

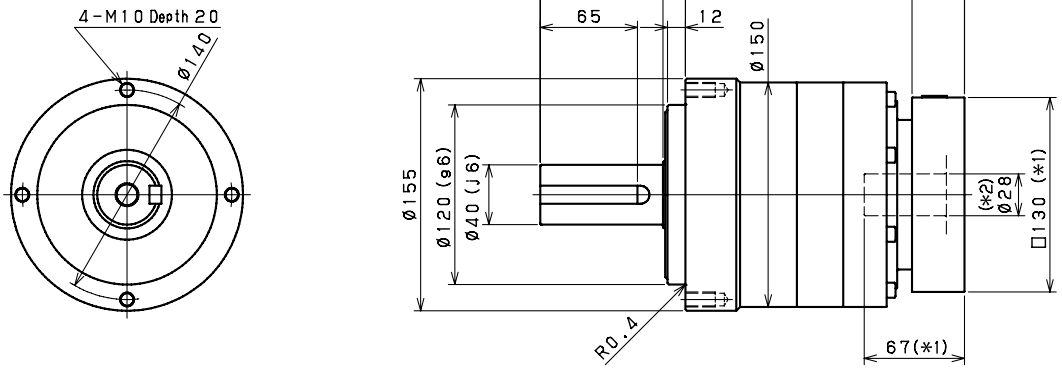
*2) Bushing will be inserted to adapt to motor shaft

VRL 155 2-Stage Dimensions

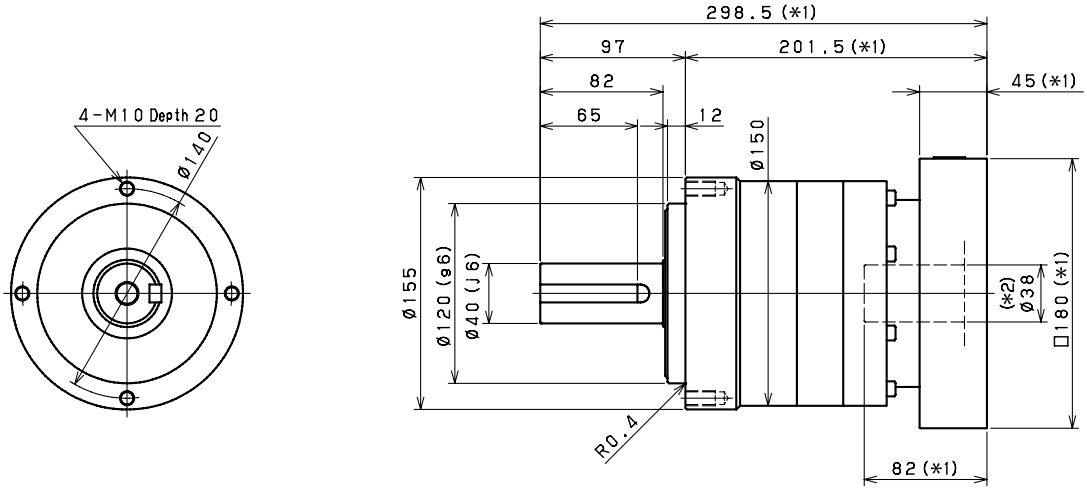
Input bore size ≦φ19 mm

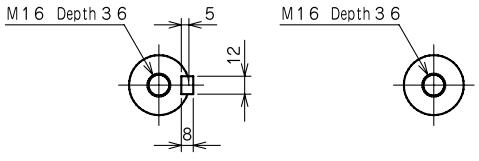


Input bore size ≦φ28 mm



Input bore size ≦φ38 mm (*3)





Keyed shaft Smooth shaft

*1) Length will vary depending on motor

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

*3) 48mm input bore is available for this frame size. Use our online configurator to make your selection or contact us for assistance

VRL 205 1-Stage Specifications

Frame Size			**205**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	500	750	750	750	750	750	500	500
Maximum Acceleration Torque	[Nm]	*2	970	1400	1400	1400	1400	1400	970	970
Emergency Stop Torque	[Nm]	*3	2200	2750	2750	2750	2750	2750	2200	2200
Nominal Input Speed	[rpm]	*4	1500							
Maximum Input Speed	[rpm]	*5	3000							
No Load Running Torque	[Nm]	*6	2.68							
Permitted Radial Load	[N]	*7	5600	6200	6700	7100	7400	7800	8100	8400
Permitted Axial Load	[N]	*8	4300	4900	5400	5800	6300	6600	7000	7300
Maximum Radial Load	[N]	*9	15000							
Maximum Axial Load	[N]	*10	14000							
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	43	26	19	15	14	13	12	12
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	57	41	34	31	29	28	27	27
Moment of Inertia (≤ Ø 65)	[kgcm2]	--	110	85	78	75	73	72	71	71
Efficiency	[%]	*11	95							
Torsional Rigidity	[Nm/arc-min]	*12	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	39							

VRL 205 2-Stage Specifications

Frame Size			**205**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	500	750	750	750	750	500	750	750
Maximum Acceleration Torque	[Nm]	*2	970	1400	1400	1400	1400	970	1400	1400
Emergency Stop Torque	[Nm]	*3	2200	2750	2750	2750	2750	2200	2750	2750
Nominal Input Speed	[rpm]	*4	1500							
Maximum Input Speed	[rpm]	*5	3000							
No Load Running Torque	[Nm]	*6	1.39							
Permitted Radial Load	[N]	*7	9600	9800	11000	11000	12000	12000	13000	13000
Permitted Axial Load	[N]	*8	8700	8900	9900	11000	11000	12000	13000	13000
Maximum Radial Load	[N]	*9	15000							
Maximum Axial Load	[N]	*10	14000							
Moment of Inertia (≤Ø 19)	[kgcm2]	--	-	-	-	-	-	-	-	-
Moment of Inertia (≤Ø 28)	[kgcm2]	--	8.8	11	8.1	7.9	11	4.0	7.6	3.9
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	15	18	14	14	17	10	14	10
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	30	33	29	29	32	25	29	25
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arc-min]	*12	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 5							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	40							

VRL 205 2-Stage Specifications

Frame Size			**205**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	500	750	750	750	750	500	500
Maximum Acceleration Torque	[Nm]	*2	970	1400	1400	1400	1400	970	970
Emergency Stop Torque	[Nm]	*3	2200	2750	2750	2750	2750	2200	2200
Nominal Input Speed	[rpm]	*4	1500						
Maximum Input Speed	[rpm]	*5	3000						
No Load Running Torque	[Nm]	*6	1.39						
Permitted Radial Load	[N]	*7	14000	14000	15000	15000	15000	15000	15000
Permitted Axial Load	[N]	*8	14000	14000	14000	14000	14000	14000	14000
Maximum Radial Load	[N]	*9	15000						
Maximum Axial Load	[N]	*10	14000						
Moment of Inertia (≤Ø 19)	[kgcm2]	--	-	1.9	1.9	1.8	1.8	1.8	1.8
Moment of Inertia (≤Ø 28)	[kgcm2]	--	7.6	3.8	3.8	3.8	3.7	3.7	3.7
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	14	10	10	10	10	10	10
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	29	25	25	25	25	25	25
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arc-min]	*12	175						
Maximum Torsional Backlash	[arc-min]	--	≤ 5						
Noise Level	dB [A]	*13	≤ 67						
Protection Class	--	*14	IP54 (IP65)						
Ambient Temperature	[°C]	--	0-40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*15	40						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

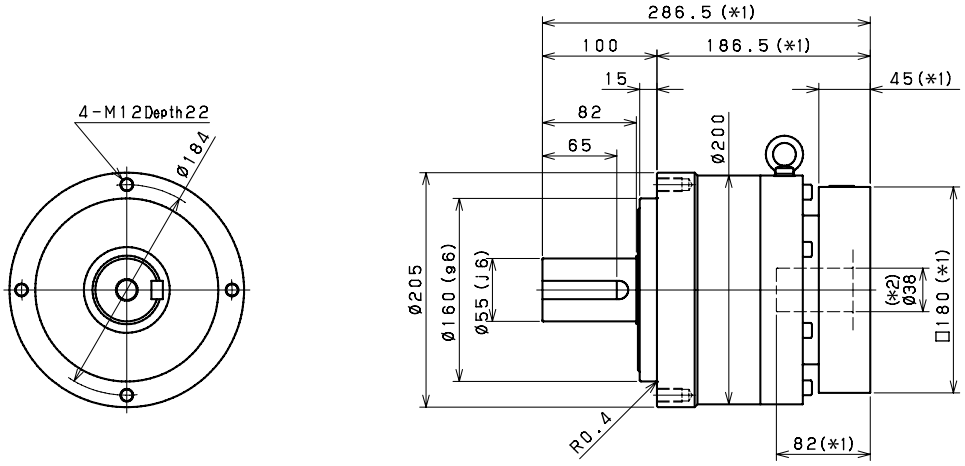
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

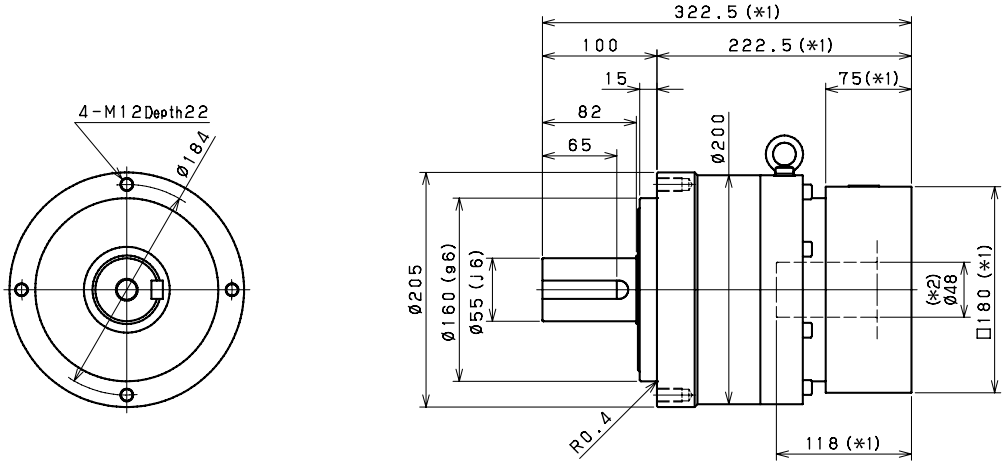
*15) The weight may vary slightly between models

VRL 205 1-Stage Dimensions

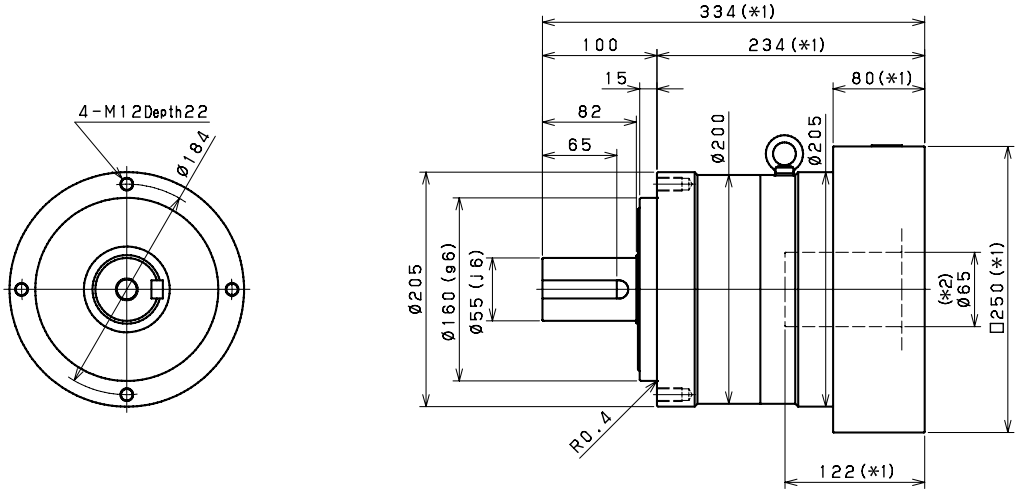
Input bore size ≦φ38 mm

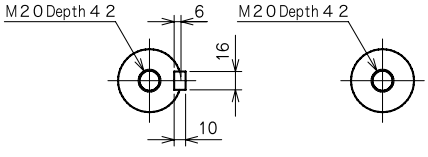


Input bore size ≦φ48 mm



Input bore size ≦φ65 mm





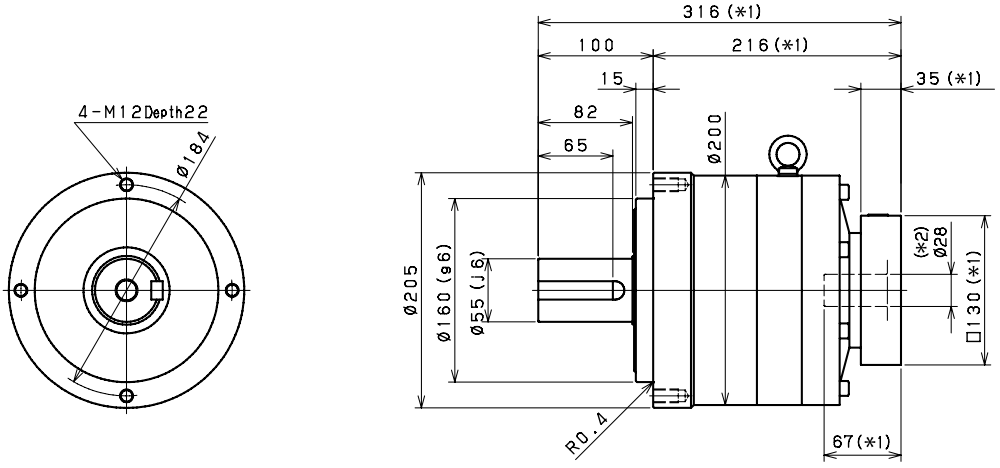
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

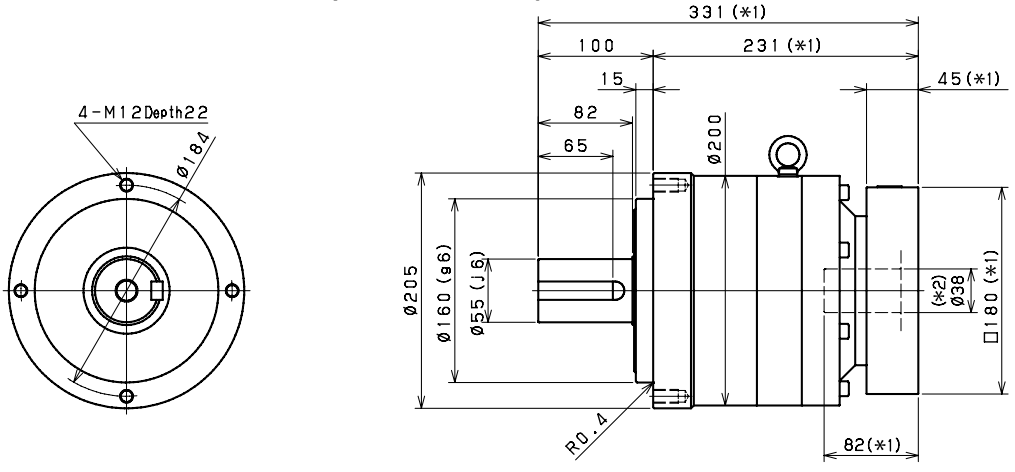
*2) Bushing will be inserted to adapt to motor shaft

VRL 205 2-Stage Dimensions

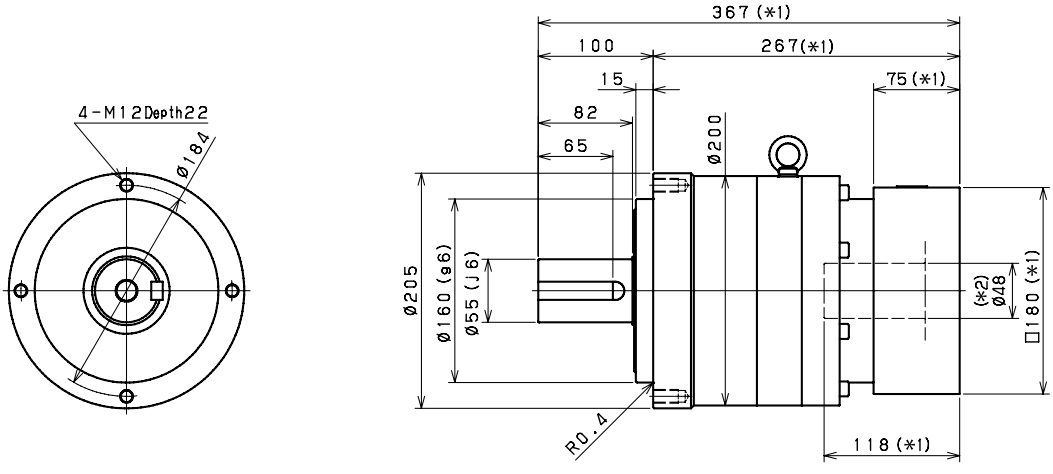
Input bore size ≦φ28 mm

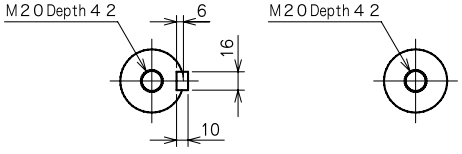


Input bore size ≦φ38 mm



Input bore size ≦φ48 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**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	1000	1500	1500	1500	1500	1500	1000	1000
Maximum Acceleration Torque	[Nm]	*2	1600	2300	2300	2300	2300	2200	1900	1600
Emergency Stop Torque	[Nm]	*3	4000	5000	5000	5000	5000	5000	4000	4000
Nominal Input Speed	[rpm]	*4	1000							
Maximum Input Speed	[rpm]	*5	2000							
No Load Running Torque	[Nm]	*6	2.92							
Permitted Radial Load	[N]	*7	5800	6400	6900	7300	7700	8000	8400	8700
Permitted Axial Load	[N]	*8	6400	7200	7900	8600	9200	9700	10000	11000
Maximum Radial Load	[N]	*9	15000							
Maximum Axial Load	[N]	*10	14000							
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	110	54	42	35	33	30	29	28
Moment of Inertia (≤ Ø 65)	[kgcm2]	--	160	98	85	79	76	74	73	72
Efficiency	[%]	*11	97							
Torsional Rigidity	[Nm/arc-min]	*12	400							
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	55							

VRL 235 2-Stage Specifications

Frame Size			**235**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	1000	1500	1500	1500	1500	1000	1500	1500
Maximum Acceleration Torque	[Nm]	*2	1600	2300	2300	2300	2300	1600	2300	2300
Emergency Stop Torque	[Nm]	*3	4000	5000	5000	5000	5000	4000	5000	5000
Nominal Input Speed	[rpm]	*4	1000							
Maximum Input Speed	[rpm]	*5	2000							
No Load Running Torque	[Nm]	*6	1.14							
Permitted Radial Load	[N]	*7	9900	10000	11000	12000	12000	13000	13000	14000
Permitted Axial Load	[N]	*8	13000	13000	14000	14000	14000	14000	14000	14000
Maximum Radial Load	[N]	*9	15000							
Maximum Axial Load	[N]	*10	14000							
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	-	-	-	-	-	-	-	-
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	20	24	19	18	23	12	18	12
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	34	39	33	33	37	26	32	26
Efficiency	[%]	*11	92							
Torsional Rigidity	[Nm/arc-min]	*12	400							
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	57							

VRL 235 2-Stage Specifications

Frame Size			**235**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	1000	1500	1500	1500	1500	1000	1000
Maximum Acceleration Torque	[Nm]	*2	1300	2300	2300	2300	1800	1300	1200
Emergency Stop Torque	[Nm]	*3	4000	5000	5000	5000	5000	4000	4000
Nominal Input Speed	[rpm]	*4	1000						
Maximum Input Speed	[rpm]	*5	2000						
No Load Running Torque	[Nm]	*6	1.14						
Permitted Radial Load	[N]	*7	14000	15000	15000	15000	15000	15000	15000
Permitted Axial Load	[N]	*8	14000	14000	14000	14000	14000	14000	14000
Maximum Radial Load	[N]	*9	15000						
Maximum Axial Load	[N]	*10	14000						
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	-	4.7	4.7	4.6	4.6	4.6	4.6
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	18	12	11	11	11	11	11
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	32	26	26	26	26	26	26
Efficiency	[%]	*11	92						
Torsional Rigidity	[Nm/arc-min]	*12	400						
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	57						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

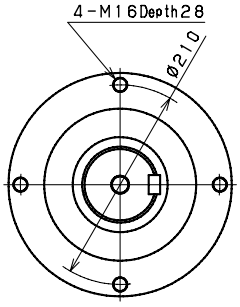
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

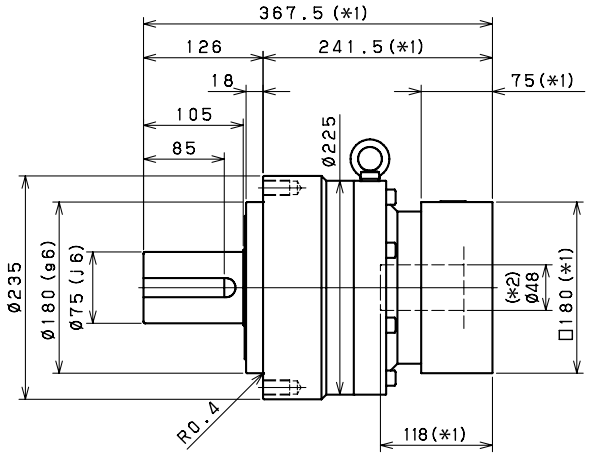
*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

*15) The weight may vary slightly between models

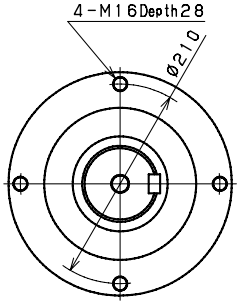
VRL 235 1-Stage Dimensions

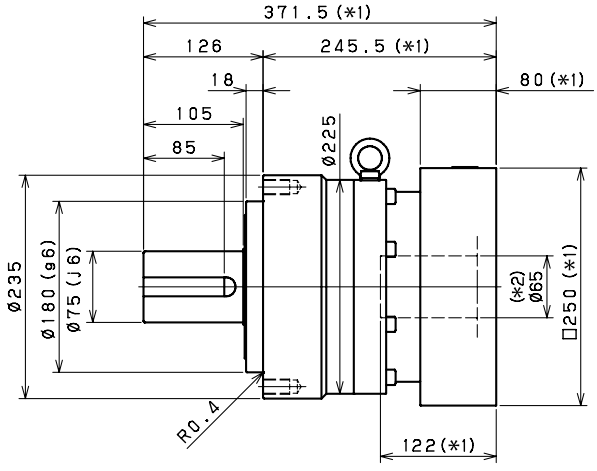
Input bore size ≦φ48 mm

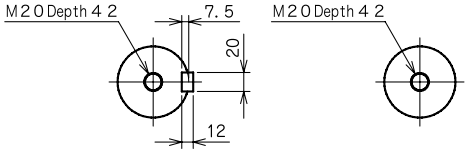




Input bore size ≦φ65 mm







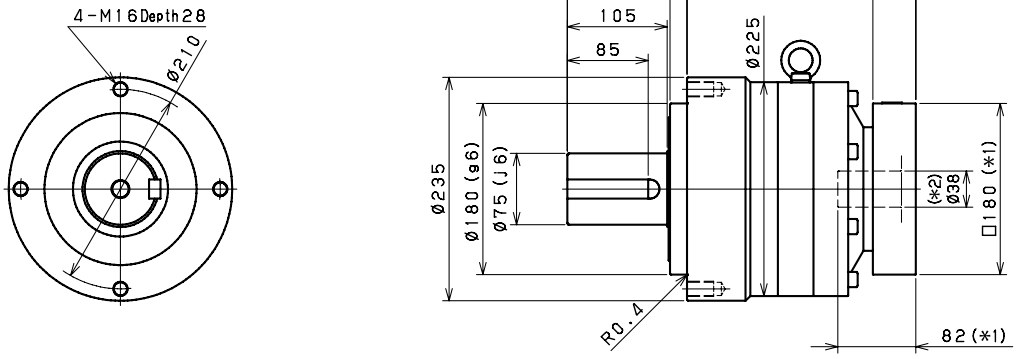
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

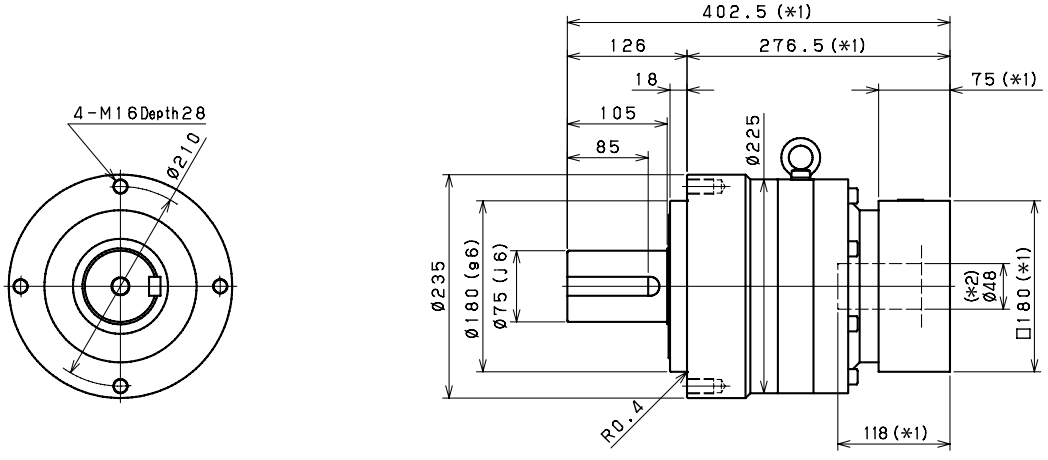
*2) Bushing will be inserted to adapt to motor shaft

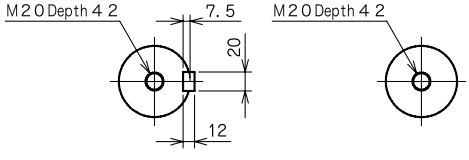
VRL 235 2-Stage Dimensions

Input bore size ≦φ38 mm



Input bore size ≦φ48 mm





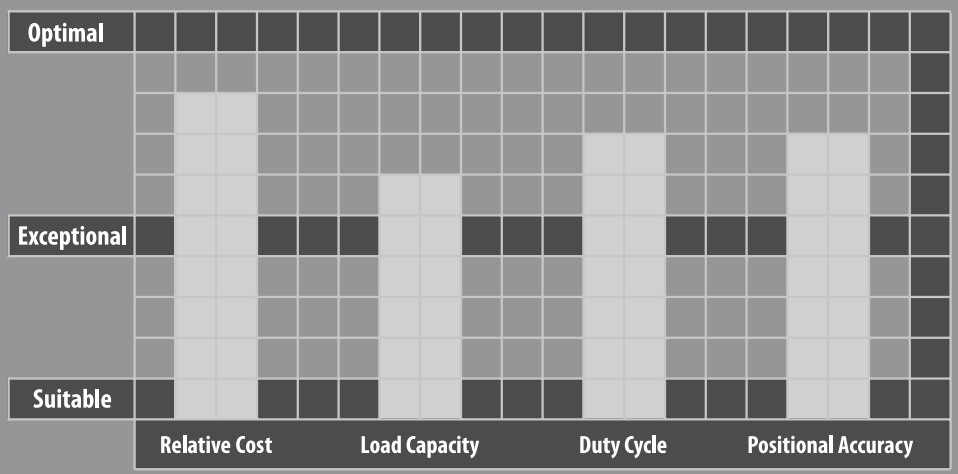
*1) Length will vary depending on motor

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

VRB SERIES

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.

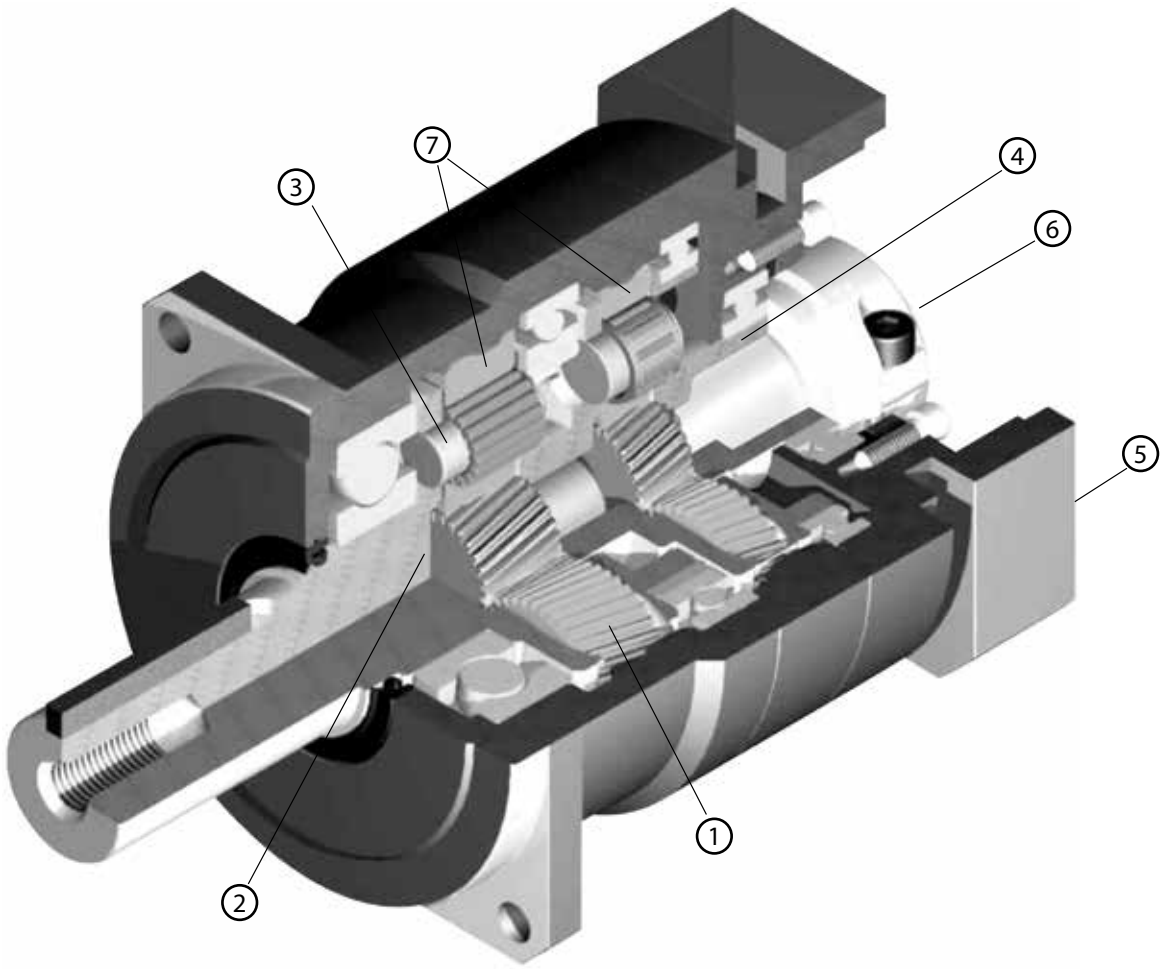
Various standard wash down and food grade options are available, making the VRB an attractive choice for the toughest environments. We offer the broadest selection of frame sizes and ratios, with immediate availability on most configurations. Industry standard mounting dimensions allow the VRB to be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



VRB SERIES

- 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
- Assembled in the USA, with immediate delivery

VRB Series 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

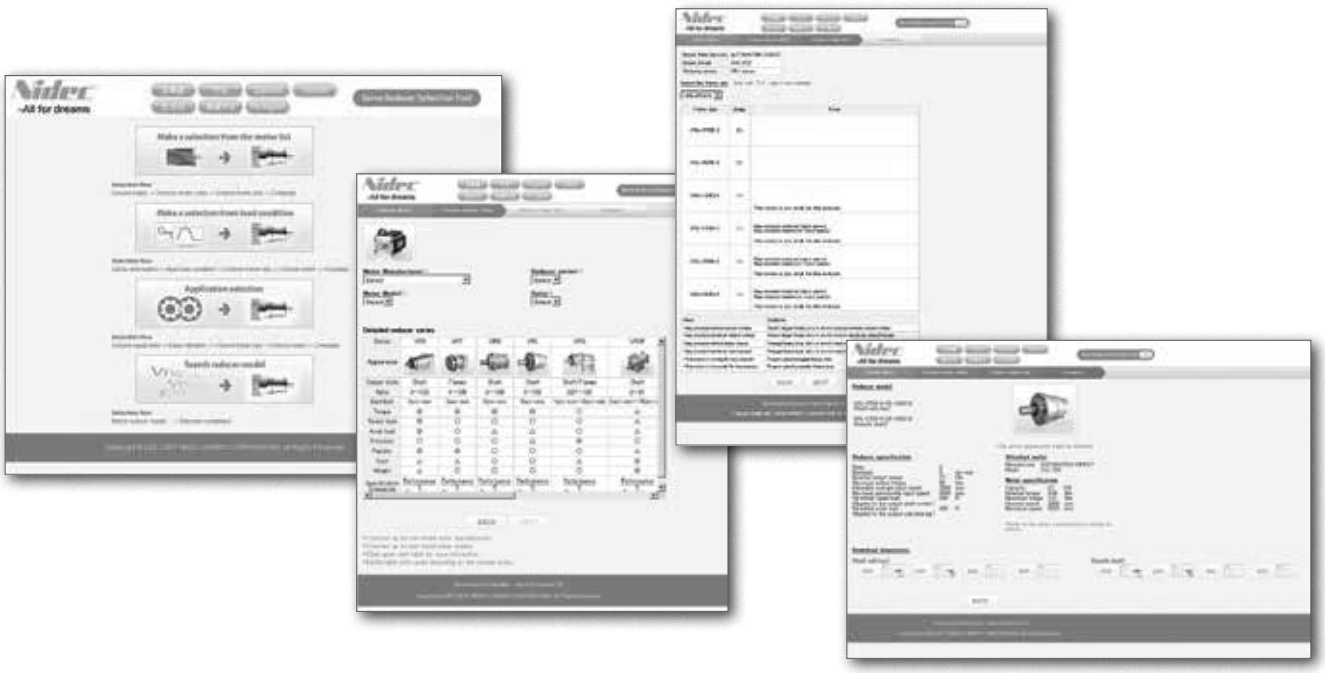
VRB Series Model Code

VRB – 090 C – 7 – K 3 – 19HB16

- VRB — Series
- 090 — Frame size: 042, 060, 090, 115, 140, 180, 220
- C — Design version
- 7 — 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
- K — Output mounting style: K: Keyed shaft; S: Smooth shaft
- 3 — Backlash: 3 arc-min
- 19HB16 — Motor mounting code (*1)

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

Contact us for additional information or refer to our online gearhead selection tool.
Selection tool www.nidec-shimpo.co.jp/selection/eng



VRB 042 1-Stage Specifications

Frame Size			**042**							
Ratio	Units	Notes	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	6	9	9	9	9	9	6	6
Maximum Acceleration Torque	[Nm]	*2	12	18	18	18	18	18	12	12
Emergency Stop Torque	[Nm]	*3	30	35	35	35	35	35	30	30
Nominal Input Speed	[rpm]	*4	4000							
Maximum Input Speed	[rpm]	*5	8000							
No Load Running Torque	[Nm]	*6	0.03							
Permitted Radial Load	[N]	*7	240	270	290	310	320	340	350	360
Permitted Axial Load	[N]	*8	270	300	330	360	380	410	430	450
Maximum Radial Load	[N]	*9	710							
Maximum Axial Load	[N]	*10	640							
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.053	0.041	0.036	0.034	0.032	0.031	0.031	0.030
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.17	0.16	0.15	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	0.6							

VRB 042 2-Stage Specifications

Frame Size			**042**							
Ratio	Units	Notes	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	6	9	9	9	9	6	9	9
Maximum Acceleration Torque	[Nm]	*2	12	18	18	18	18	12	18	18
Emergency Stop Torque	[Nm]	*3	30	35	35	35	35	30	35	35
Nominal Input Speed	[rpm]	*4	4000							
Maximum Input Speed	[rpm]	*5	8000							
No Load Running Torque	[Nm]	*6	0.01							
Permitted Radial Load	[N]	*7	410	420	460	490	510	520	550	570
Permitted Axial Load	[N]	*8	540	550	610	640	640	640	640	640
Maximum Radial Load	[N]	*9	710							
Maximum Axial Load	[N]	*10	640							
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.035	0.038	0.034	0.034	0.038	0.030	0.034	0.030
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	0.7							

VRB 042 2-Stage Specifications

Frame Size			**042**						
Ratio	Units	Notes	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	6	9	9	9	9	6	6
Maximum Acceleration Torque	[Nm]	*2	12	18	18	18	18	12	12
Emergency Stop Torque	[Nm]	*3	30	35	35	35	35	30	30
Nominal Input Speed	[rpm]	*4	4000						
Maximum Input Speed	[rpm]	*5	8000						
No Load Running Torque	[Nm]	*6	0.01						
Permitted Radial Load	[N]	*7	600	620	660	690	710	710	710
Permitted Axial Load	[N]	*8	640	640	640	640	640	640	640
Maximum Radial Load	[N]	*9	710						
Maximum Axial Load	[N]	*10	640						
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.034	0.030	0.030	0.030	0.030	0.030	0.030
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	0.7						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

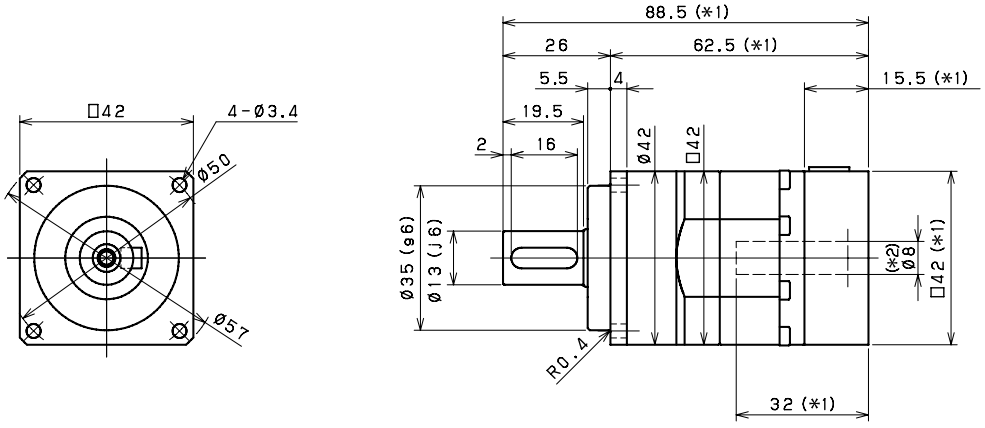
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

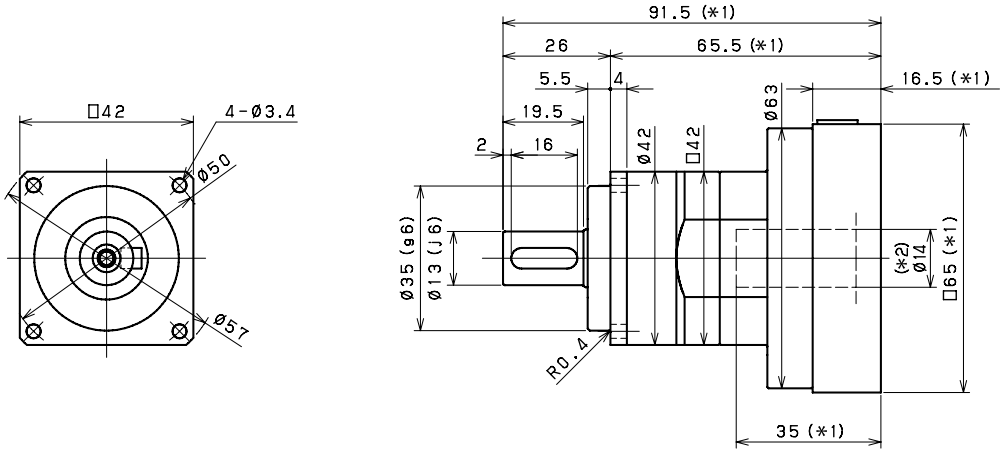
*15) The weight may vary slightly between models

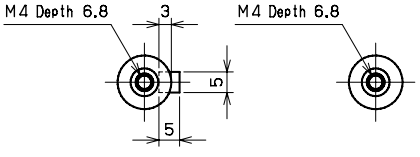
VRB 042 1-Stage Dimensions

Input bore size ≦φ8 mm

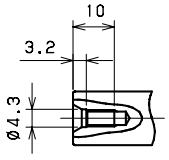


Input bore size ≦φ14 mm





Keyed shaft Smooth shaft

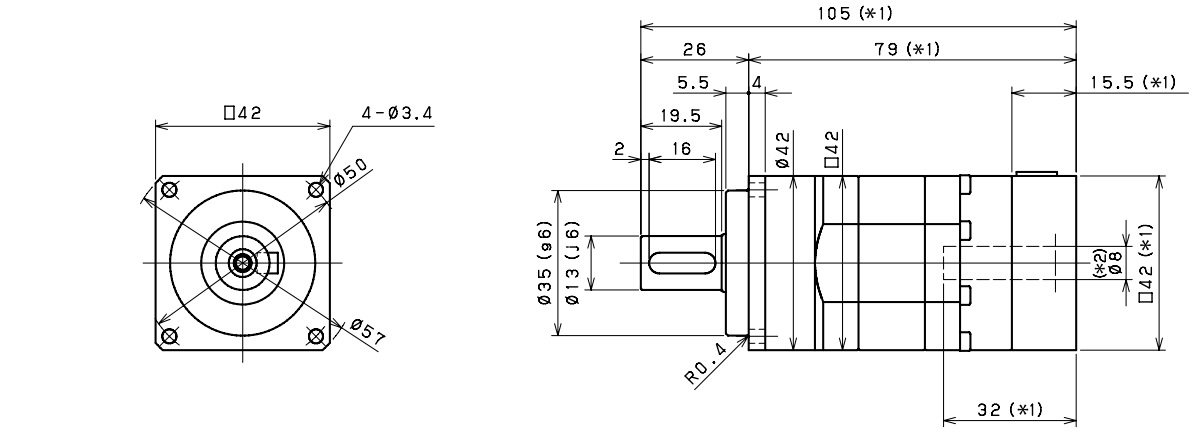


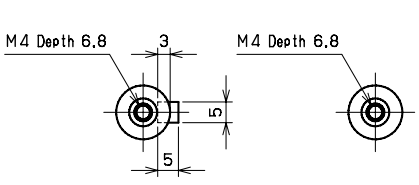
*1) Length will vary depending on motor

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

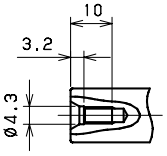
VRB 042 2-Stage Dimensions

Input bore size ≦φ8 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**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	18	27	27	27	27	27	18	18
Maximum Acceleration Torque	[Nm]	*2	35	50	50	50	50	50	35	35
Emergency Stop Torque	[Nm]	*3	80	100	100	100	100	100	80	80
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.15							
Permitted Radial Load	[N]	*7	430	470	510	540	570	600	620	640
Permitted Axial Load	[N]	*8	310	360	390	430	460	480	510	530
Maximum Radial Load	[N]	*9	1200							
Maximum Axial Load	[N]	*10	1100							
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.14	0.095	0.077	0.068	0.062	0.059	0.057	0.056
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.25	0.21	0.19	0.18	0.17	0.17	0.17	0.17
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.53	0.48	0.46	0.46	0.45	0.45	0.44	0.44
Efficiency	[%]	*11	95							
Torsional Rigidity	[Nm/arc-min]	*12	3							
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							

VRB 060 2-Stage Specifications

Frame Size			**060**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	18	27	27	27	27	18	27	27
Maximum Acceleration Torque	[Nm]	*2	35	50	50	50	50	35	50	50
Emergency Stop Torque	[Nm]	*3	80	100	100	100	100	80	100	100
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.04							
Permitted Radial Load	[N]	*7	740	750	810	870	910	930	980	1000
Permitted Axial Load	[N]	*8	630	650	720	790	830	860	920	970
Maximum Radial Load	[N]	*9	1200							
Maximum Axial Load	[N]	*10	1100							
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.064	0.070	0.062	0.061	0.068	0.051	0.061	0.051
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.18	0.18	0.17	0.17	0.18	0.16	0.17	0.16
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.45	0.46	0.45	0.45	0.46	0.44	0.45	0.44
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arc-min]	*12	3							
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							

VRB 060 2-Stage Specifications

Frame Size			**060**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	18	27	27	27	27	18	18
Maximum Acceleration Torque	[Nm]	*2	35	50	50	50	50	35	35
Emergency Stop Torque	[Nm]	*3	80	100	100	100	100	80	80
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*6	0.04						
Permitted Radial Load	[N]	*7	1100	1100	1200	1200	1200	1200	1200
Permitted Axial Load	[N]	*8	1000	1100	1100	1100	1100	1100	1100
Maximum Radial Load	[N]	*9	1200						
Maximum Axial Load	[N]	*10	1100						
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.061	0.051	0.051	0.051	0.051	0.051	0.051
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.17	0.16	0.16	0.16	0.16	0.16	0.16
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.45	0.44	0.44	0.44	0.44	0.44	0.44
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arc-min]	*12	3						
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						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

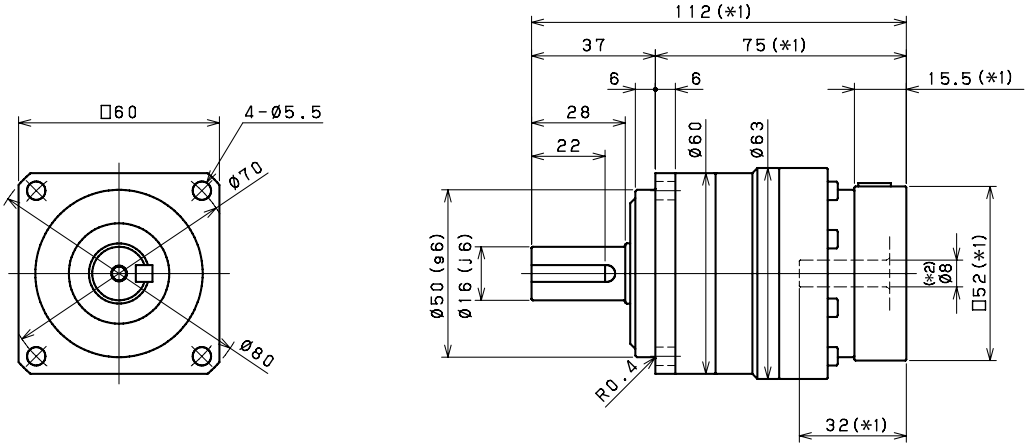
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

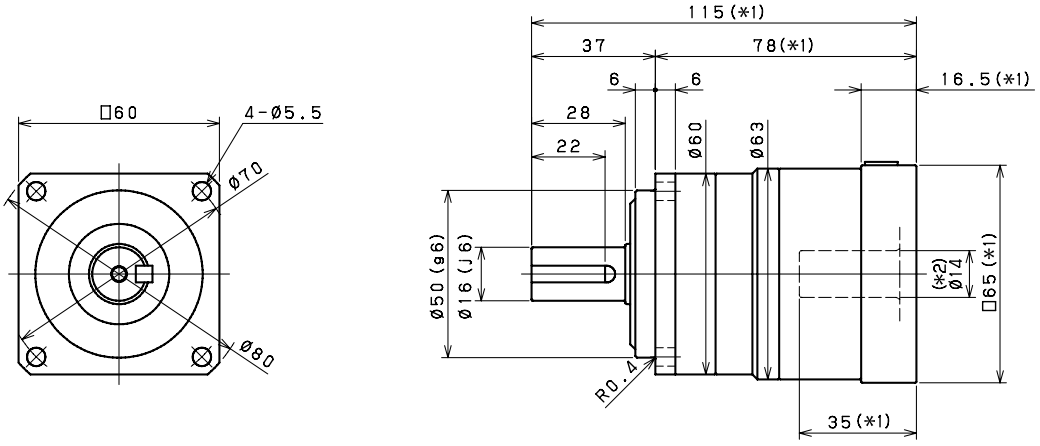
*15) The weight may vary slightly between models

VRB o6o 1-Stage Dimensions

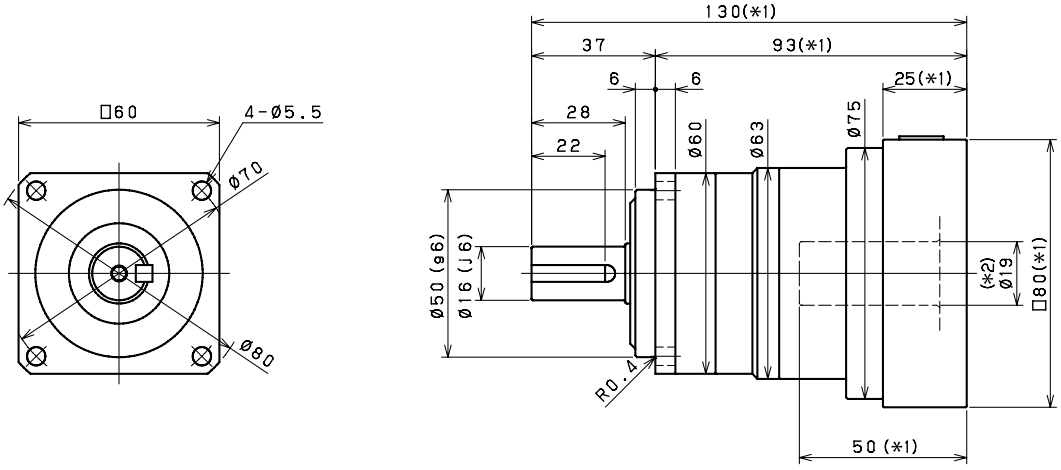
Input bore size ≦φ8 mm

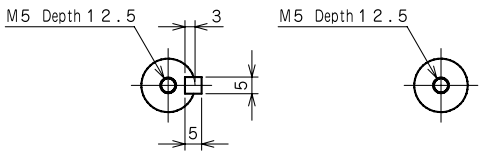


Input bore size ≦φ14 mm



Input bore size ≦φ19 mm





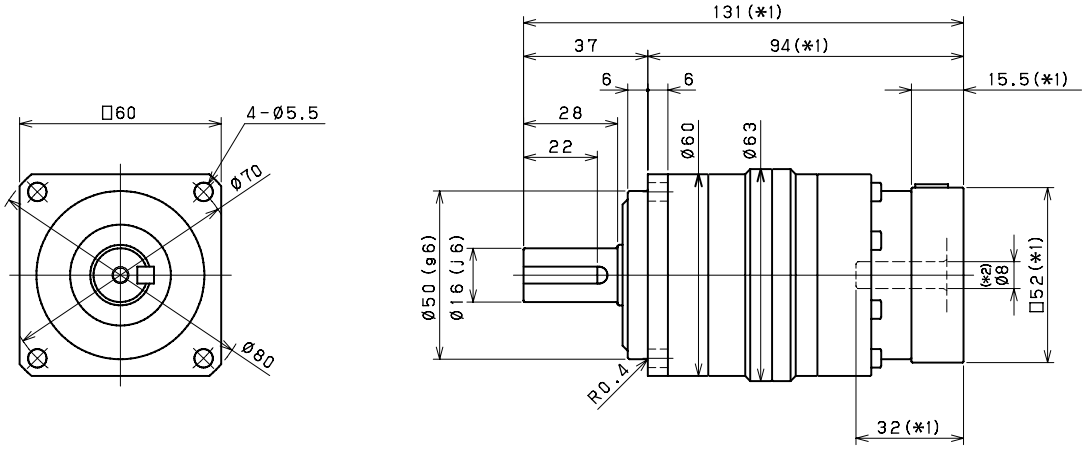
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

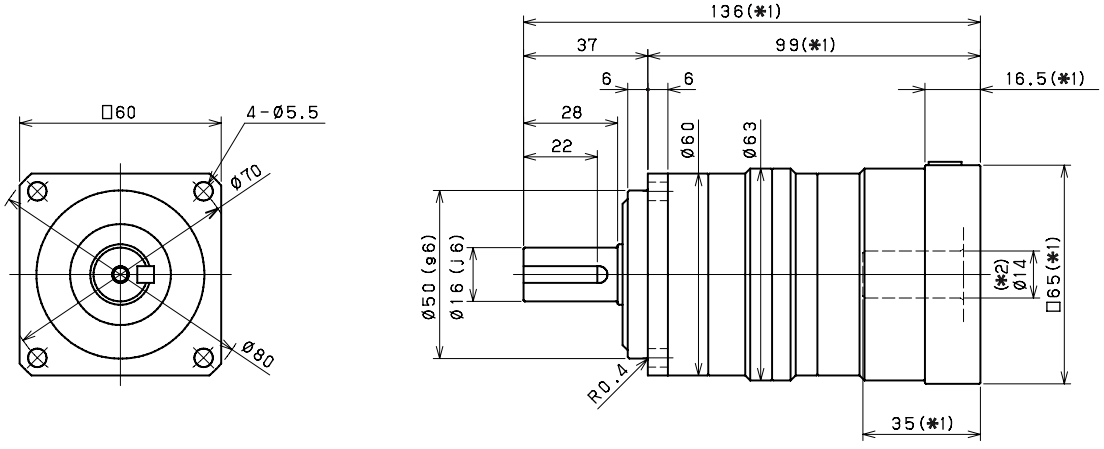
*2) Bushing will be inserted to adapt to motor shaft

VRB o6o 2-Stage Dimensions

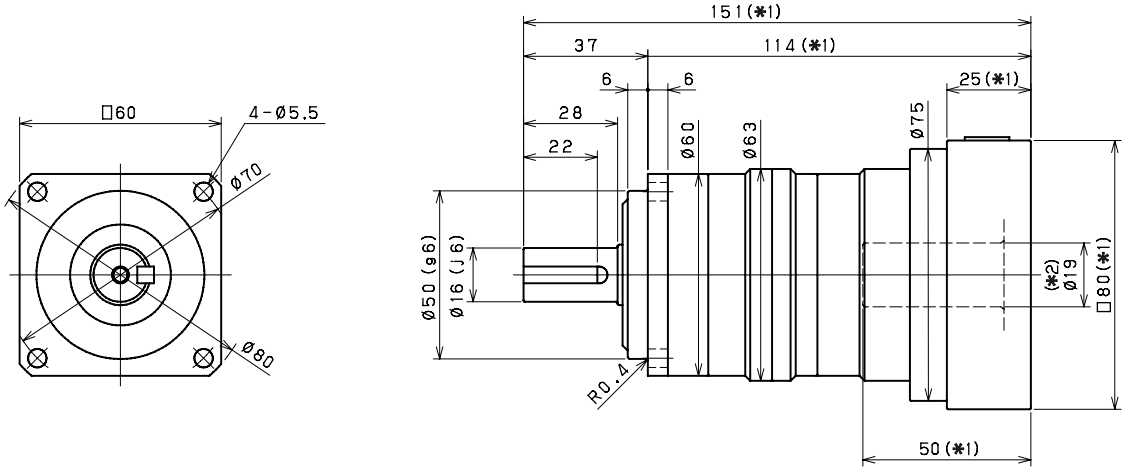
Input bore size ≦φ8 mm

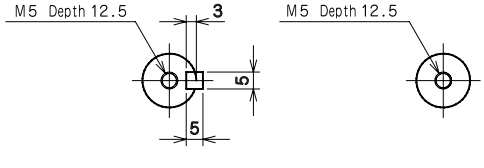


Input bore size ≦φ14 mm



Input bore size ≦φ19 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**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	50	75	75	75	75	75	50	50
Maximum Acceleration Torque	[Nm]	*2	80	125	125	125	125	125	80	80
Emergency Stop Torque	[Nm]	*3	200	250	250	250	250	250	200	200
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.35							
Permitted Radial Load	[N]	*7	810	890	960	1000	1100	1100	1200	1200
Permitted Axial Load	[N]	*8	930	1100	1200	1300	1300	1400	1500	1600
Maximum Radial Load	[N]	*9	2400							
Maximum Axial Load	[N]	*10	2200							
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.72	0.50	0.41	0.36	0.33	0.31	0.30	0.30
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	1.1	0.90	0.80	0.75	0.73	0.71	0.70	0.70
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.9	2.7	2.6	2.5	2.5	2.5	2.5	2.5
Efficiency	[%]	*11	95							
Torsional Rigidity	[Nm/arc-min]	*12	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	3.7							

VRB 090 2-Stage Specifications

Frame Size			**090**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	50	75	75	75	75	50	75	75
Maximum Acceleration Torque	[Nm]	*2	80	125	125	125	125	80	125	125
Emergency Stop Torque	[Nm]	*3	200	250	250	250	250	200	250	250
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.06							
Permitted Radial Load	[N]	*7	1400	1400	1500	1600	1700	1700	1800	1900
Permitted Axial Load	[N]	*8	1900	1900	2100	2200	2200	2200	2200	2200
Maximum Radial Load	[N]	*9	2400							
Maximum Axial Load	[N]	*10	2200							
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.20	0.25	0.19	0.19	0.24	0.12	0.18	0.11
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.36	0.41	0.35	0.35	0.40	0.28	0.35	0.28
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.75	0.79	0.74	0.74	0.78	0.67	0.73	0.67
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.5	2.5	2.5	2.5	2.5	2.4	2.5	2.4
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arc-min]	*12	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	4.2							

VRB 090 2-Stage Specifications

Frame Size			**090**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	50	75	75	75	75	50	50
Maximum Acceleration Torque	[Nm]	*2	80	125	125	125	125	80	80
Emergency Stop Torque	[Nm]	*3	200	250	250	250	250	200	200
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*6	0.06						
Permitted Radial Load	[N]	*7	2000	2100	2200	2300	2400	2400	2400
Permitted Axial Load	[N]	*8	2200	2200	2200	2200	2200	2200	2200
Maximum Radial Load	[N]	*9	2400						
Maximum Axial Load	[N]	*10	2200						
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.18	0.11	0.11	0.11	0.11	0.11	0.11
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.34	0.27	0.27	0.27	0.27	0.27	0.27
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.73	0.67	0.67	0.67	0.67	0.67	0.67
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.5	2.4	2.4	2.4	2.4	2.4	2.4
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arc-min]	*12	10						
Maximum Torsional Backlash	[arc-min]	--	≤ 3						
Noise Level	dB [A]	*13	≤ 67						
Protection Class	--	*14	IP54 (IP65)						
Ambient Temperature	[°C]	--	0-40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*15	4.2						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

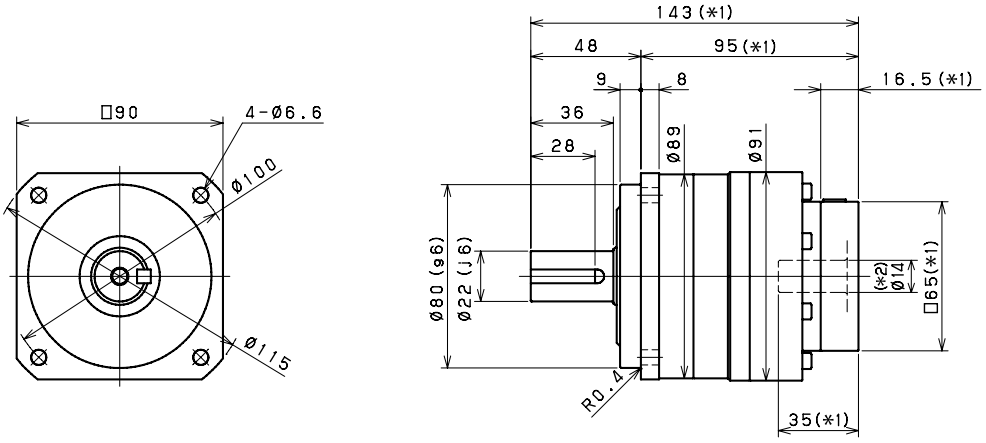
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

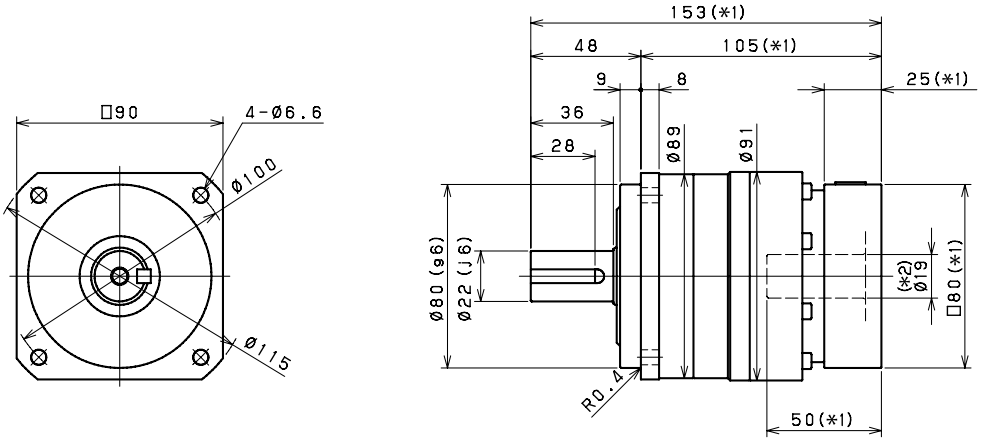
*15) The weight may vary slightly between models

VRB 090 1-Stage Dimensions

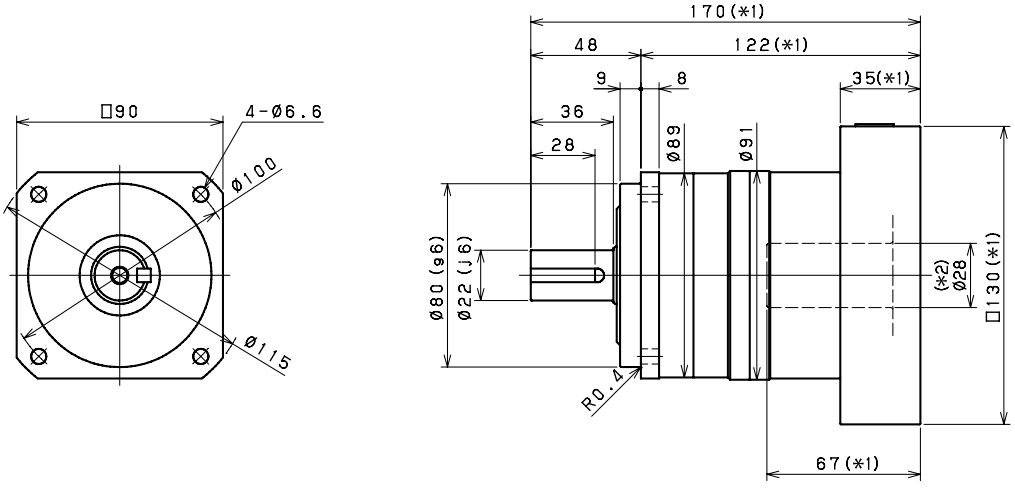
Input bore size ≦φ14 mm

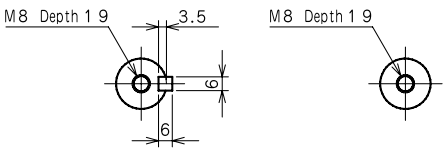


Input bore size ≦φ19 mm



Input bore size ≦φ28 mm





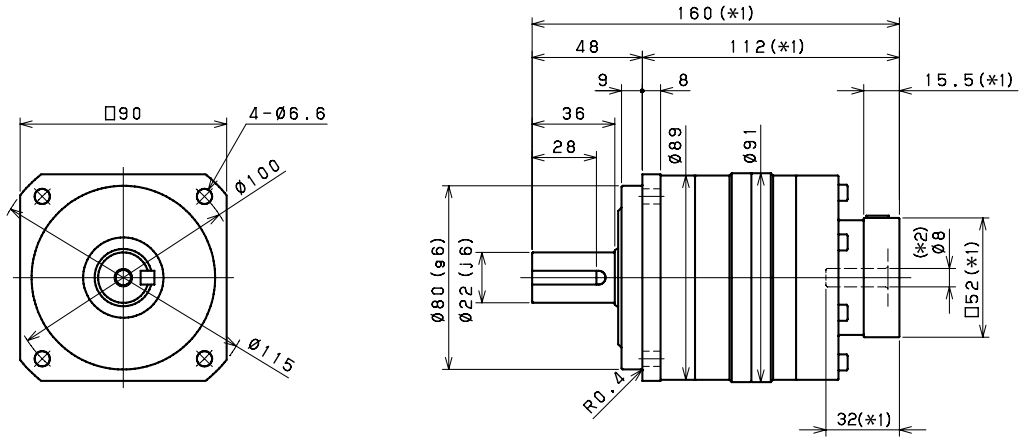
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

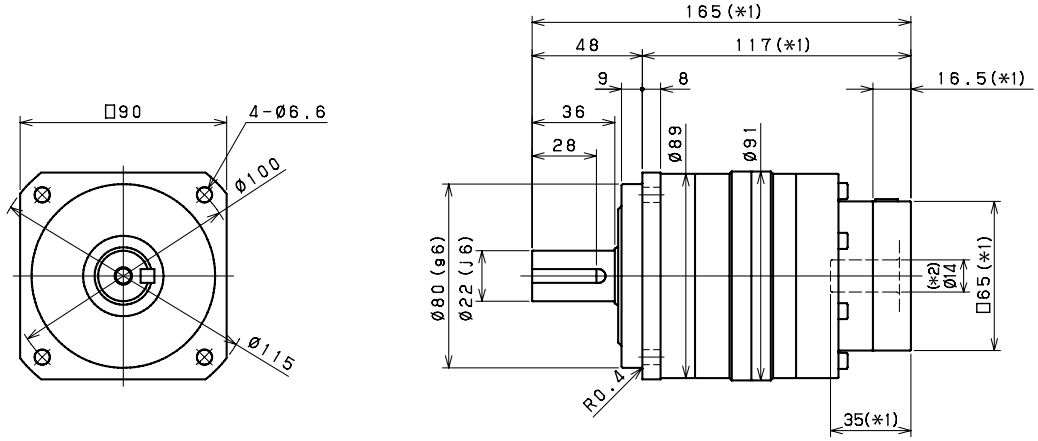
*2) Bushing will be inserted to adapt to motor shaft

VRB 090 2-Stage Dimensions

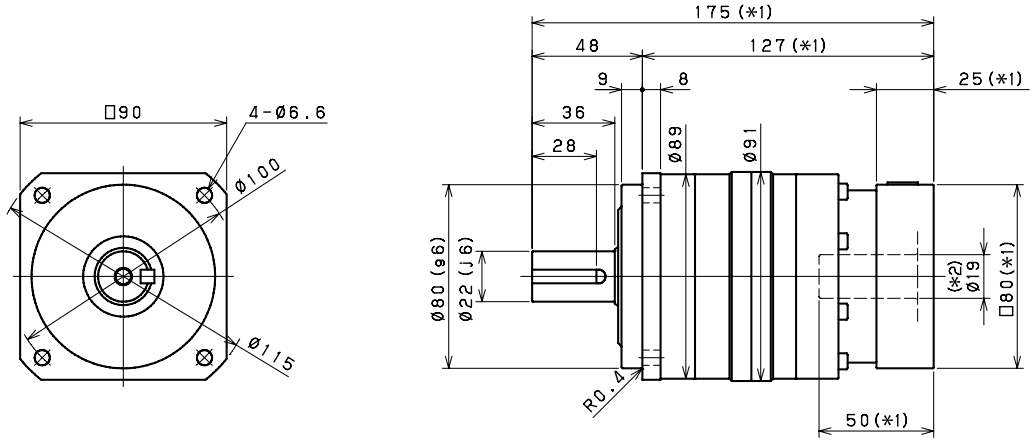
Input bore size ≦φ8 mm

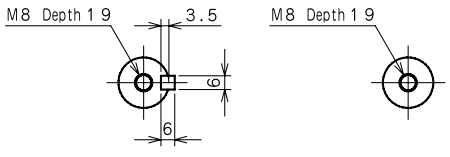


Input bore size ≦φ14 mm



Input bore size ≦φ19 mm (*3)





Keyed shaft Smooth shaft

*1) Length will vary depending on motor

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

*3) 28mm input bore is available for this frame size. Use our online configurator to make your selection or contact us for assistance

VRB 115 1-Stage Specifications

Frame Size	**115**									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	120	120	180	180	180	180	120	120
Maximum Acceleration Torque	[Nm]	*2	225	330	330	330	330	330	225	225
Emergency Stop Torque	[Nm]	*3	500	625	625	625	625	625	500	500
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	1.30							
Permitted Radial Load	[N]	*7	1300	1500	1600	1700	1800	1900	1900	2000
Permitted Axial Load	[N]	*8	1500	1700	1900	2000	2100	2300	2400	2500
Maximum Radial Load	[N]	*9	4300							
Maximum Axial Load	[N]	*10	3900							
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	3.2	2.0	1.4	1.2	1.0	0.92	0.86	0.83
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	5.1	3.7	3.1	2.9	2.8	2.7	2.6	2.6
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	12	10	9.5	9.3	9.1	9.0	8.9	8.9
Efficiency	[%]	*11	95							
Torsional Rigidity	[Nm/arc-min]	*12	31							
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							

VRB 115 2-Stage Specifications

Frame Size	**115**									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	120	180	180	180	180	120	180	180
Maximum Acceleration Torque	[Nm]	*2	225	330	330	330	330	225	330	330
Emergency Stop Torque	[Nm]	*3	500	625	625	625	625	500	625	625
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.42							
Permitted Radial Load	[N]	*7	2300	2300	2500	2700	2800	2900	3000	3200
Permitted Axial Load	[N]	*8	3000	3100	3400	3700	3900	3900	3900	3900
Maximum Radial Load	[N]	*9	4300							
Maximum Axial Load	[N]	*10	3900							
Moment of Inertia (≤Ø 8)	[kgcm2]	--	-	-	-	-	-	-	-	-
Moment of Inertia (≤Ø 14)	[kgcm2]	--	0.77	0.98	0.72	0.70	0.92	0.38	0.68	0.37
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	1.2	1.4	1.1	1.1	1.3	0.78	1.1	0.77
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.9	3.1	2.8	2.8	3.0	2.5	2.8	2.5
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	9.2	9.4	9.1	9.1	9.3	8.8	9.1	8.8
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arc-min]	*12	31							
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	8.9							

VRB 115 2-Stage Specifications

Frame Size	**115**								
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	120	180	180	180	180	120	120
Maximum Acceleration Torque	[Nm]	*2	225	330	330	330	330	225	225
Emergency Stop Torque	[Nm]	*3	500	625	625	625	625	500	500
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*6	0.42						
Permitted Radial Load	[N]	*7	3300	3400	3600	3800	4000	4200	4300
Permitted Axial Load	[N]	*8	3900	3900	3900	3900	3900	3900	3900
Maximum Radial Load	[N]	*9	4300						
Maximum Axial Load	[N]	*10	3900						
Moment of Inertia (≤Ø 8)	[kgcm2]	--	-	0.19	0.19	0.19	0.19	0.19	0.19
Moment of Inertia (≤Ø 14)	[kgcm2]	--	0.68	0.36	0.36	0.36	0.36	0.36	0.36
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	1.1	0.76	0.76	0.76	0.76	0.76	0.76
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.8	2.5	2.5	2.5	2.5	2.5	2.5
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	9.1	8.8	8.8	8.8	8.8	8.8	8.8
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arc-min]	*12	31						
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	8.9						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

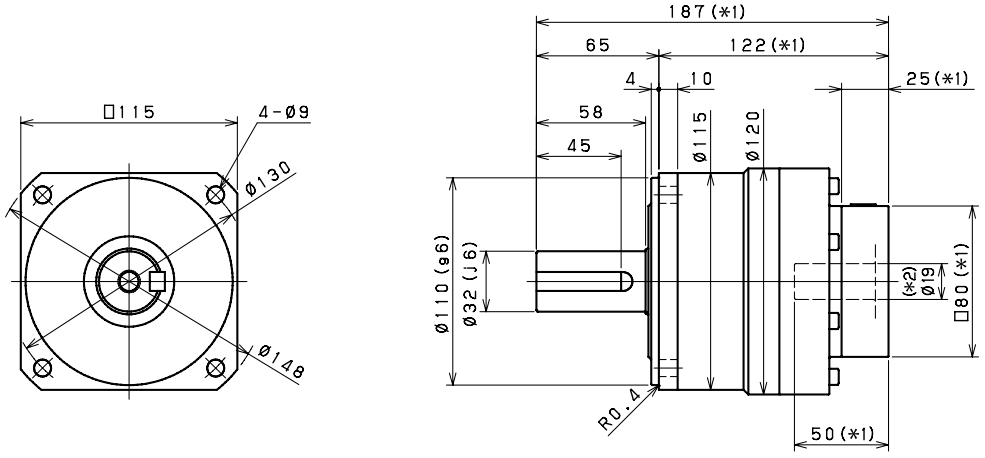
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

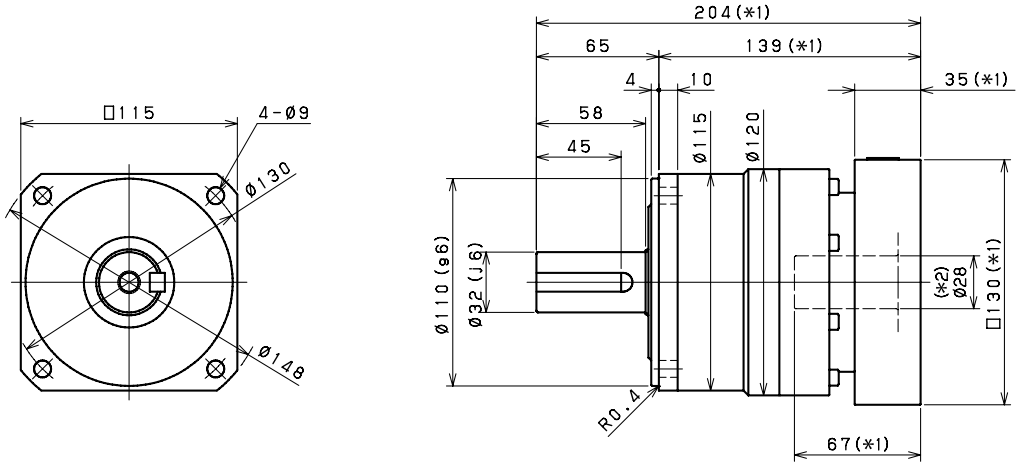
*15) The weight may vary slightly between models

VRB 115 1-Stage Dimensions

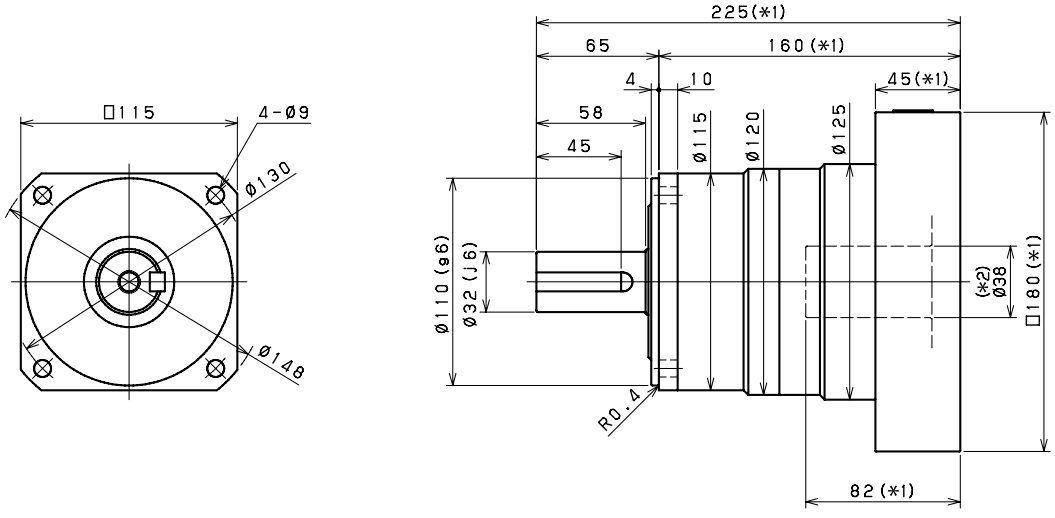
Input bore size ≦φ19 mm

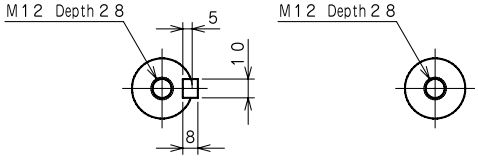


Input bore size ≦φ28 mm



Input bore size ≦φ38 mm





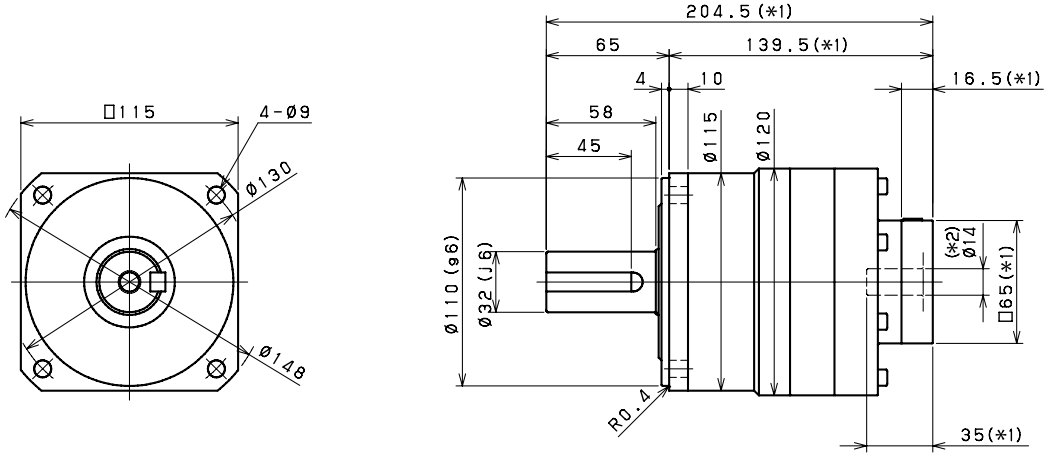
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

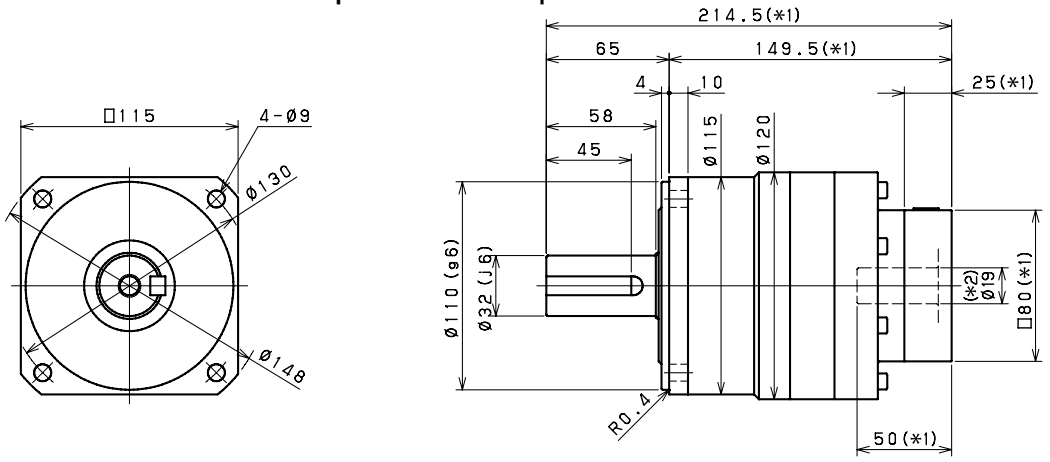
*2) Bushing will be inserted to adapt to motor shaft

VRB 115 2-Stage Dimensions

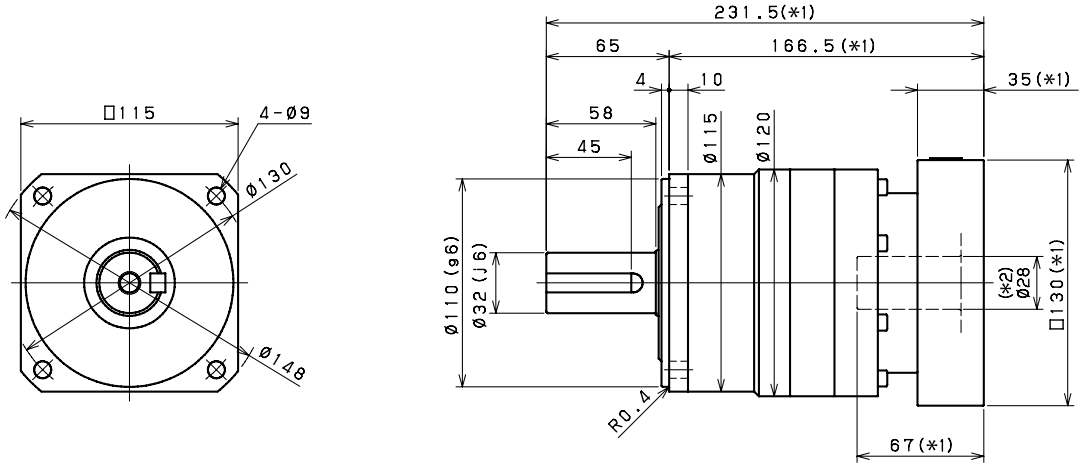
Input bore size ≦φ14 mm

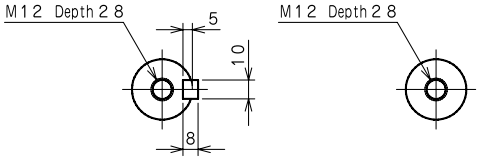


Input bore size ≦φ19 mm



Input bore size ≦φ28 mm (*3)





Keyed shaft Smooth shaft

*1) Length will vary depending on motor

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

*3) 38mm input bore is available for this frame size. Use our online configurator to make your selection or contact us for assistance

VRB 140 1-Stage Specifications

Frame Size			**140**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	240	240	360	360	360	360	240	240
Maximum Acceleration Torque	[Nm]	*2	470	700	700	700	700	700	470	470
Emergency Stop Torque	[Nm]	*3	1000	1250	1250	1250	1250	1250	1000	1000
Nominal Input Speed	[rpm]	*4	2000							
Maximum Input Speed	[rpm]	*5	4000							
No Load Running Torque	[Nm]	*6	1.63							
Permitted Radial Load	[N]	*7	3200	3500	3800	4000	4200	4400	4600	4700
Permitted Axial Load	[N]	*8	2400	2700	3000	3300	3500	3700	3900	4100
Maximum Radial Load	[N]	*9	9100							
Maximum Axial Load	[N]	*10	8200							
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	12	7.3	5.3	4.3	3.9	3.5	3.3	3.2
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	18	14	12	11	10	9.9	9.7	9.6
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	35	29	27	26	25	25	25	25
Efficiency	[%]	*11	95							
Torsional Rigidity	[Nm/arc-min]	*12	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	16							

VRB 140 2-Stage Specifications

Frame Size			**140**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	240	360	360	360	360	240	360	360
Maximum Acceleration Torque	[Nm]	*2	470	700	700	700	700	470	700	700
Emergency Stop Torque	[Nm]	*3	1000	1250	1250	1250	1250	1000	1250	1250
Nominal Input Speed	[rpm]	*4	2000							
Maximum Input Speed	[rpm]	*5	4000							
No Load Running Torque	[Nm]	*6	0.56							
Permitted Radial Load	[N]	*7	5400	5500	6000	6400	6700	6800	7200	7500
Permitted Axial Load	[N]	*8	4900	5000	5500	6100	6400	6600	7000	7500
Maximum Radial Load	[N]	*9	9100							
Maximum Axial Load	[N]	*10	8200							
Moment of Inertia (≤Ø 14)	[kgcm2]	--	-	-	-	-	-	-	-	-
Moment of Inertia (≤Ø 19)	[kgcm2]	--	2.6	3.5	2.4	2.4	3.3	1.1	2.3	1.1
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	4.4	5.3	4.2	4.1	5.1	2.9	4.1	2.8
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	11	12	10	10	11	9.2	10	9.1
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	26	27	25	25	26	24	25	24
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arc-min]	*12	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	17							

VRB 140 2-Stage Specifications

Frame Size			**140**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	240	360	360	360	360	240	240
Maximum Acceleration Torque	[Nm]	*2	470	700	700	700	700	470	470
Emergency Stop Torque	[Nm]	*3	1000	1250	1250	1250	1250	1000	1000
Nominal Input Speed	[rpm]	*4	2000						
Maximum Input Speed	[rpm]	*5	4000						
No Load Running Torque	[Nm]	*6	0.56						
Permitted Radial Load	[N]	*7	7800	8100	8600	9100	9100	9100	9100
Permitted Axial Load	[N]	*8	7900	8200	8200	8200	8200	8200	8200
Maximum Radial Load	[N]	*9	9100						
Maximum Axial Load	[N]	*10	8200						
Moment of Inertia (≤Ø 14)	[kgcm2]	--	-	0.65	0.64	0.64	0.63	0.63	0.63
Moment of Inertia (≤Ø 19)	[kgcm2]	--	2.3	1.1	1.1	1.1	1.1	1.1	1.1
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	4.0	2.8	2.8	2.8	2.8	2.8	2.8
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	10	9.1	9.1	9.1	9.1	9.1	9.1
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	25	24	24	24	24	24	24
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arc-min]	*12	60						
Maximum Torsional Backlash	[arc-min]	--	≤ 3						
Noise Level	dB [A]	*13	≤ 67						
Protection Class	--	*14	IP54 (IP65)						
Ambient Temperature	[°C]	--	0-40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*15	17						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

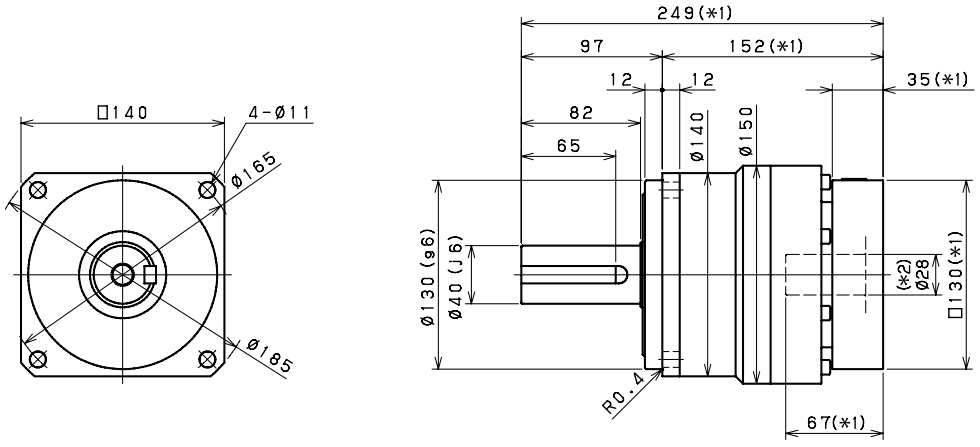
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

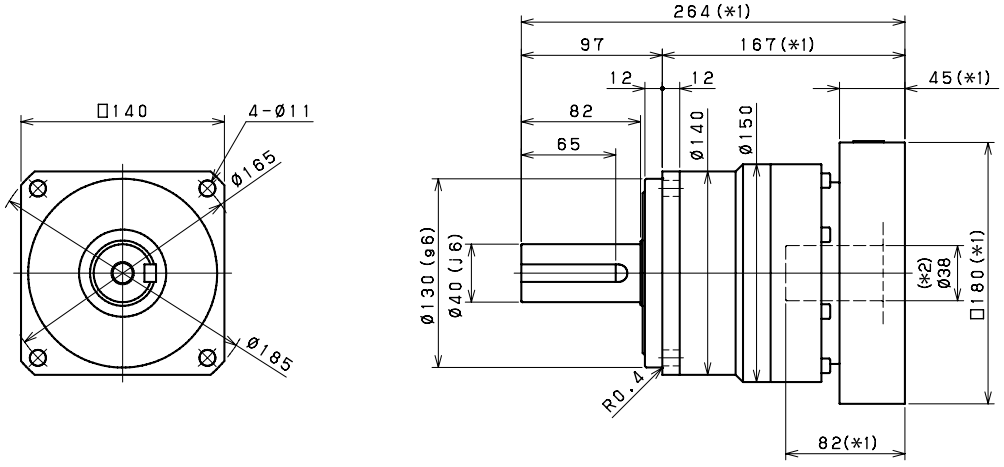
*15) The weight may vary slightly between models

VRB 140 1-Stage Dimensions

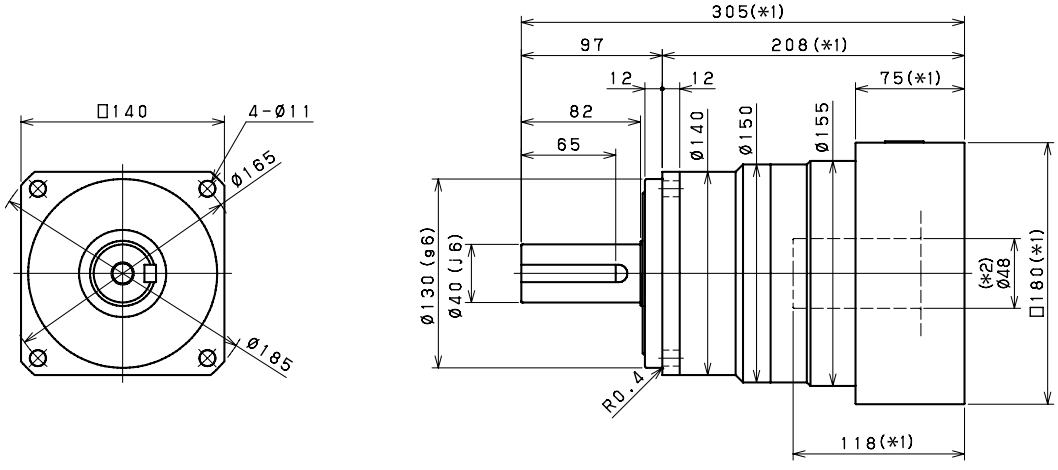
Input bore size ≦φ28 mm

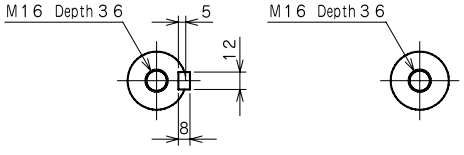


Input bore size ≦φ38 mm



Input bore size ≦φ48 mm





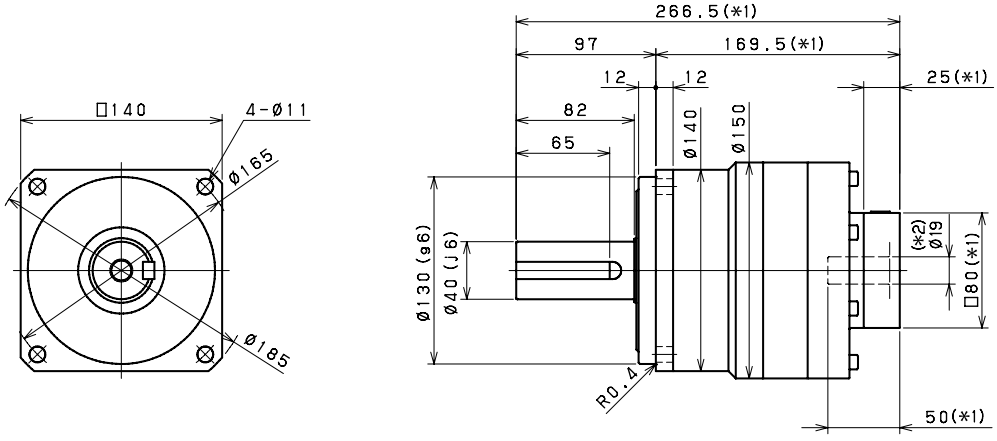
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

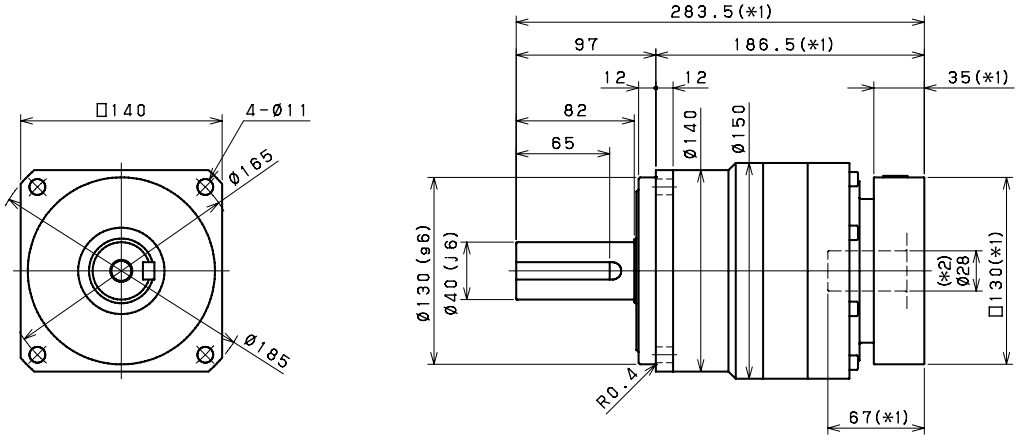
*2) Bushing will be inserted to adapt to motor shaft

VRB 140 2-Stage Dimensions

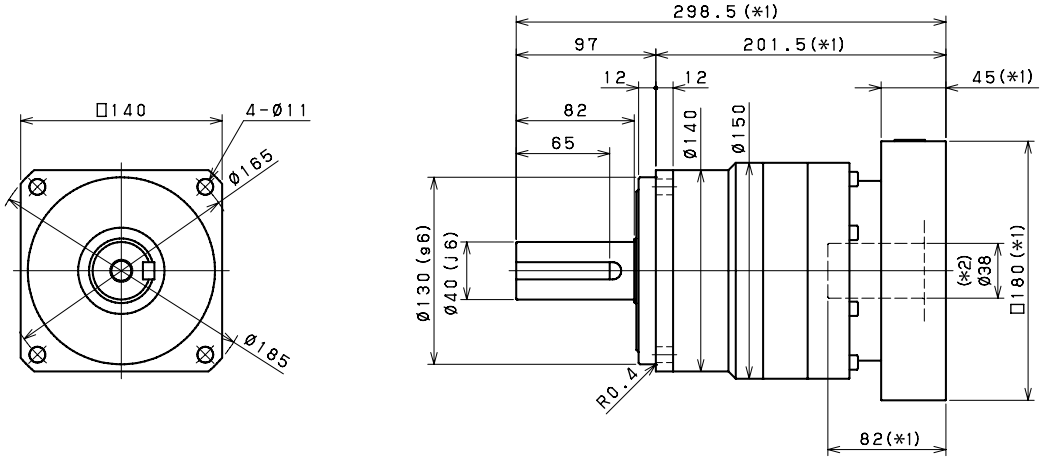
Input bore size ≦φ19 mm

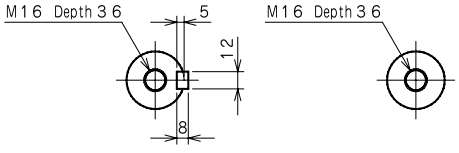


Input bore size ≦φ28 mm



Input bore size ≦φ38 mm (*3)





Keyed shaft Smooth shaft

*1) Length will vary depending on motor

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

*3) 48mm input bore is available for this frame size. Use our online configurator to make your selection or contact us for assistance

VRB 180 1-Stage Specifications

Frame Size			**180**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	500	750	750	750	750	750	500	500
Maximum Acceleration Torque	[Nm]	*2	970	1400	1400	1400	1400	1400	970	970
Emergency Stop Torque	[Nm]	*3	2200	2750	2750	2750	2750	2750	2200	2200
Nominal Input Speed	[rpm]	*4	1500							
Maximum Input Speed	[rpm]	*5	3000							
No Load Running Torque	[Nm]	*6	2.68							
Permitted Radial Load	[N]	*7	5600	6200	6700	7100	7400	7800	8100	8400
Permitted Axial Load	[N]	*8	4300	4900	5400	5800	6300	6600	7000	7300
Maximum Radial Load	[N]	*9	15000							
Maximum Axial Load	[N]	*10	14000							
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	43	26	19	15	14	13	12	12
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	57	41	34	31	29	28	27	27
Moment of Inertia (≤ Ø 65)	[kgcm2]	--	110	85	78	75	73	72	71	71
Efficiency	[%]	*11	95							
Torsional Rigidity	[Nm/arc-min]	*12	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	36							

VRB 180 2-Stage Specifications

Frame Size			**180**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	500	750	750	750	750	500	750	750
Maximum Acceleration Torque	[Nm]	*2	970	1400	1400	1400	1400	970	1400	1400
Emergency Stop Torque	[Nm]	*3	2200	2750	2750	2750	2750	2200	2750	2750
Nominal Input Speed	[rpm]	*4	1500							
Maximum Input Speed	[rpm]	*5	3000							
No Load Running Torque	[Nm]	*6	1.39							
Permitted Radial Load	[N]	*7	9600	9800	11000	11000	12000	12000	13000	13000
Permitted Axial Load	[N]	*8	8700	8900	9900	11000	11000	12000	13000	13000
Maximum Radial Load	[N]	*9	15000							
Maximum Axial Load	[N]	*10	14000							
Moment of Inertia (≤Ø 19)	[kgcm2]	--	-	-	-	-	-	-	-	-
Moment of Inertia (≤Ø 28)	[kgcm2]	--	8.8	11	8.1	7.9	11	4.0	7.6	3.9
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	15	18	14	14	17	10	14	10
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	30	33	29	29	32	25	29	25
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arc-min]	*12	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	37							

VRB 180 2-Stage Specifications

Frame Size			**180**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	500	750	750	750	750	500	500
Maximum Acceleration Torque	[Nm]	*2	970	1400	1400	1400	1400	970	970
Emergency Stop Torque	[Nm]	*3	2200	2750	2750	2750	2750	2200	2200
Nominal Input Speed	[rpm]	*4	1500						
Maximum Input Speed	[rpm]	*5	3000						
No Load Running Torque	[Nm]	*6	1.39						
Permitted Radial Load	[N]	*7	14000	14000	15000	15000	15000	15000	15000
Permitted Axial Load	[N]	*8	14000	14000	14000	14000	14000	14000	14000
Maximum Radial Load	[N]	*9	15000						
Maximum Axial Load	[N]	*10	14000						
Moment of Inertia (≤Ø 19)	[kgcm2]	--	-	1.9	1.9	1.8	1.8	1.8	1.8
Moment of Inertia (≤Ø 28)	[kgcm2]	--	7.6	3.8	3.8	3.8	3.7	3.7	3.7
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	14	10	10	10	10	10	10
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	29	25	25	25	25	25	25
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arc-min]	*12	175						
Maximum Torsional Backlash	[arc-min]	--	≤ 3						
Noise Level	dB [A]	*13	≤ 67						
Protection Class	--	*14	IP54 (IP65)						
Ambient Temperature	[°C]	--	0-40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*15	37						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

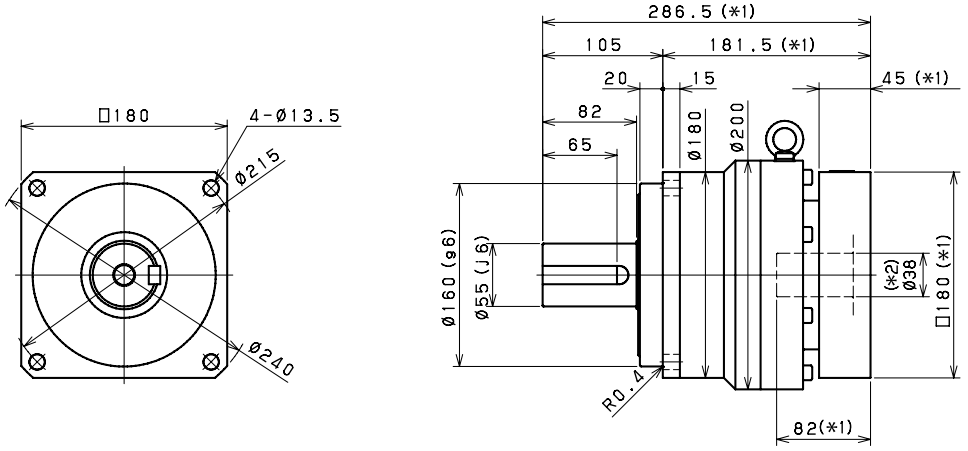
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

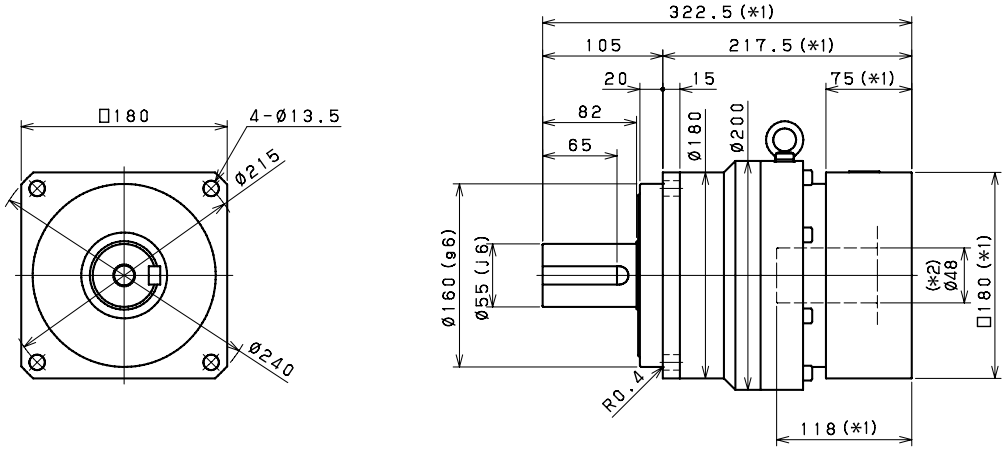
*15) The weight may vary slightly between models

VRB 180 1-Stage Dimensions

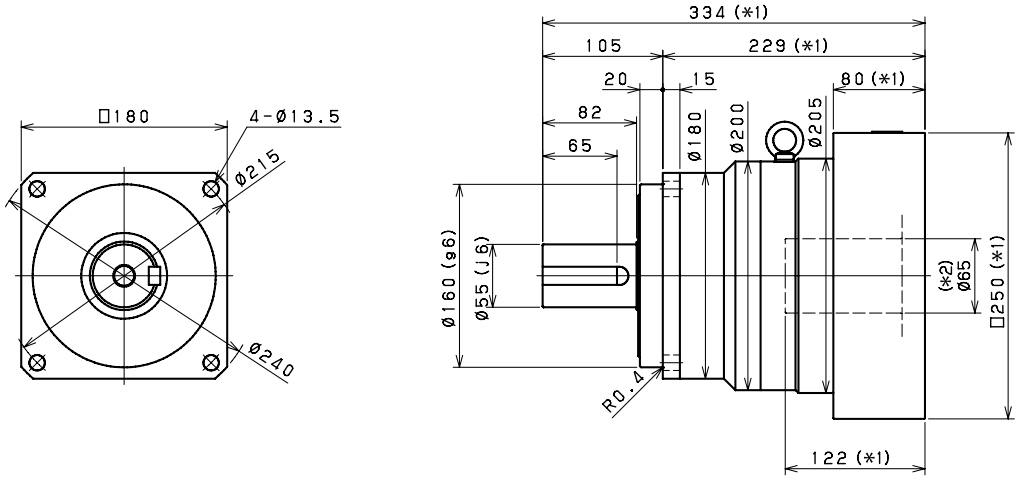
Input bore size ≦φ38 mm

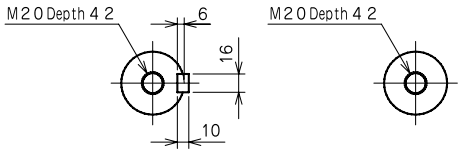


Input bore size ≦φ48 mm



Input bore size ≦φ65 mm





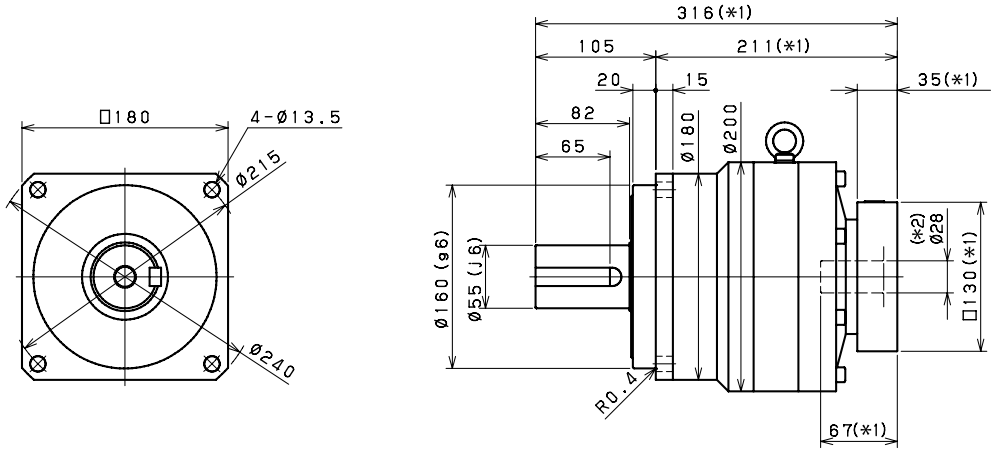
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

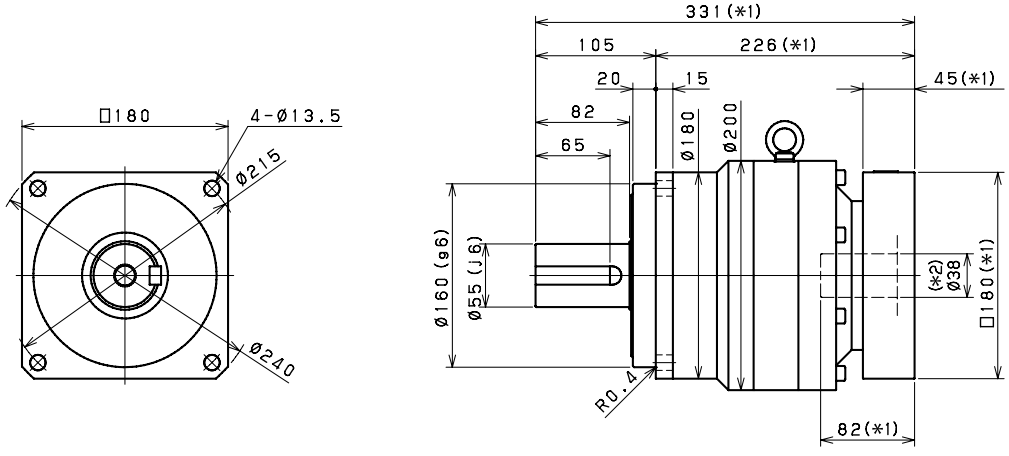
*2) Bushing will be inserted to adapt to motor shaft

VRB 180 2-Stage Dimensions

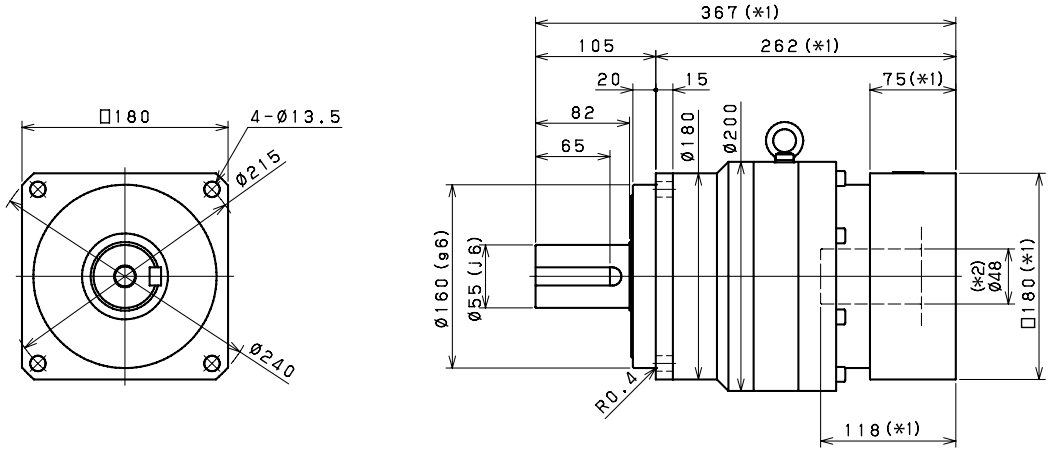
Input bore size ≦φ28 mm

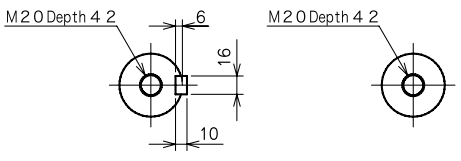


Input bore size ≦φ38 mm



Input bore size ≦φ48 mm





Keyed shaft Smooth shaft

*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**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	1000	1500	1500	1500	1500	1500	1000	1000
Maximum Acceleration Torque	[Nm]	*2	1600	2300	2300	2300	2300	2200	1900	1600
Emergency Stop Torque	[Nm]	*3	4000	5000	5000	5000	5000	5000	4000	4000
Nominal Input Speed	[rpm]	*4	1000							
Maximum Input Speed	[rpm]	*5	2000							
No Load Running Torque	[Nm]	*6	2.92							
Permitted Radial Load	[N]	*7	5800	6400	6900	7300	7700	8000	8400	8700
Permitted Axial Load	[N]	*8	6400	7200	7900	8600	9200	9700	10000	11000
Maximum Radial Load	[N]	*9	15000							
Maximum Axial Load	[N]	*10	14000							
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	110	54	42	35	33	30	29	28
Moment of Inertia (≤ Ø 65)	[kgcm2]	--	160	98	85	79	76	74	73	72
Efficiency	[%]	*11	97							
Torsional Rigidity	[Nm/arc-min]	*12	400							
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	53							

VRB 220 2-Stage Specifications

Frame Size			**220**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	1000	1500	1500	1500	1500	1000	1500	1500
Maximum Acceleration Torque	[Nm]	*2	1600	2300	2300	2300	2300	1600	2300	2300
Emergency Stop Torque	[Nm]	*3	4000	5000	5000	5000	5000	4000	5000	5000
Nominal Input Speed	[rpm]	*4	1000							
Maximum Input Speed	[rpm]	*5	2000							
No Load Running Torque	[Nm]	*6	1.14							
Permitted Radial Load	[N]	*7	9900	10000	11000	12000	12000	13000	13000	14000
Permitted Axial Load	[N]	*8	13000	13000	14000	14000	14000	14000	14000	14000
Maximum Radial Load	[N]	*9	15000							
Maximum Axial Load	[N]	*10	14000							
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	-	-	-	-	-	-	-	-
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	20	24	19	18	23	12	18	12
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	34	39	33	33	37	26	32	26
Efficiency	[%]	*11	92							
Torsional Rigidity	[Nm/arc-min]	*12	400							
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	54							

VRB 220 2-Stage Specifications

Frame Size			**220**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	1000	1500	1500	1500	1500	1000	1000
Maximum Acceleration Torque	[Nm]	*2	1300	2300	2300	2300	1800	1300	1200
Emergency Stop Torque	[Nm]	*3	4000	5000	5000	5000	5000	4000	4000
Nominal Input Speed	[rpm]	*4	1000						
Maximum Input Speed	[rpm]	*5	2000						
No Load Running Torque	[Nm]	*6	1.14						
Permitted Radial Load	[N]	*7	14000	15000	15000	15000	15000	15000	15000
Permitted Axial Load	[N]	*8	14000	14000	14000	14000	14000	14000	14000
Maximum Radial Load	[N]	*9	15000						
Maximum Axial Load	[N]	*10	14000						
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	-	4.7	4.7	4.6	4.6	4.6	4.6
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	18	12	11	11	11	11	11
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	32	26	26	26	26	26	26
Efficiency	[%]	*11	92						
Torsional Rigidity	[Nm/arc-min]	*12	400						
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	54						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

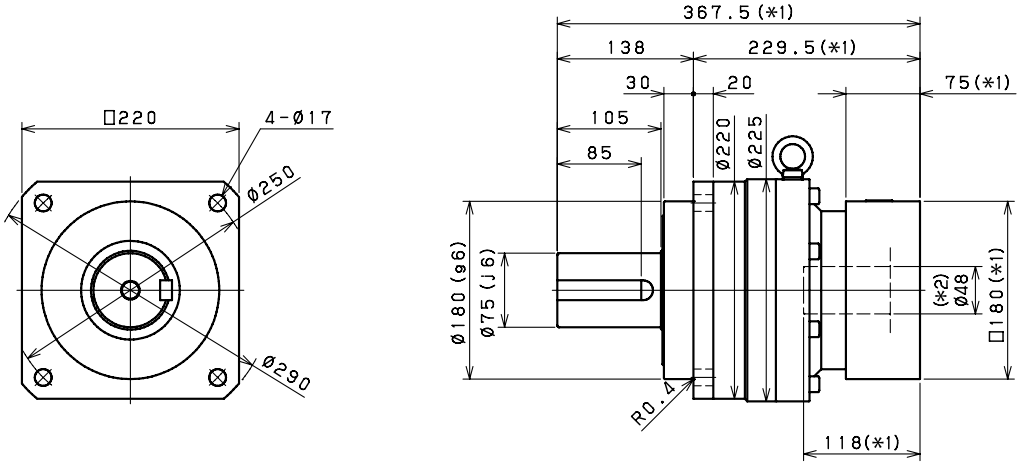
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

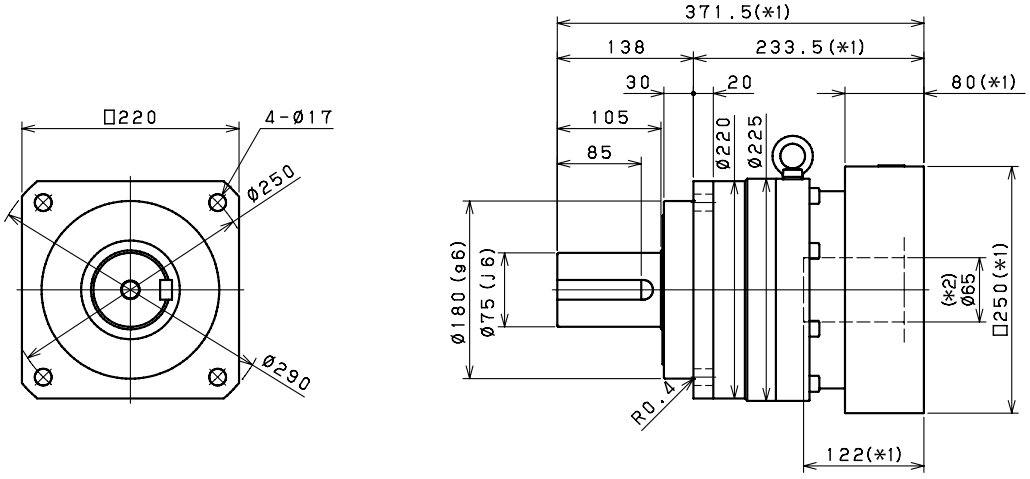
*15) The weight may vary slightly between models

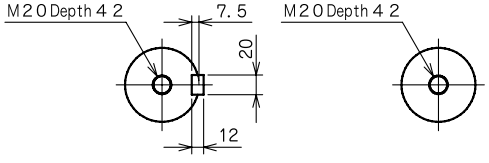
VRB 220 1-Stage Dimensions

Input bore size ≦φ48 mm



Input bore size ≦φ65 mm





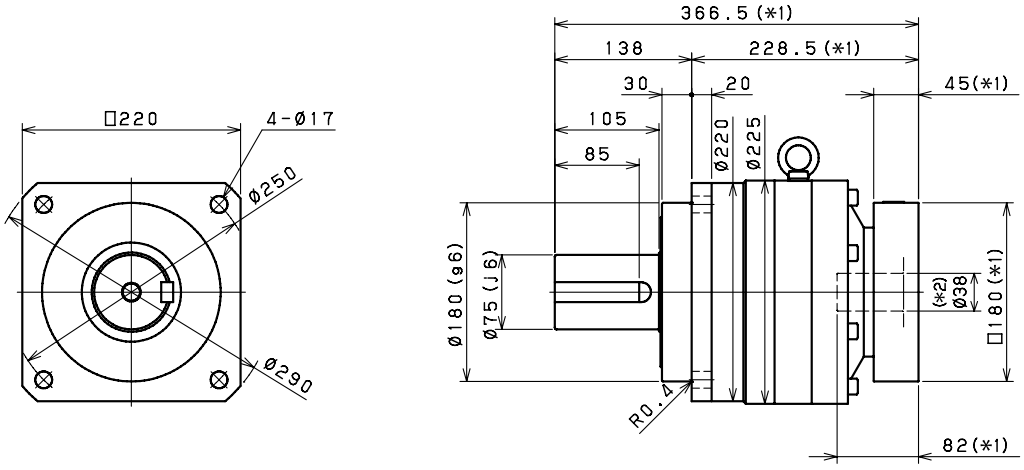
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

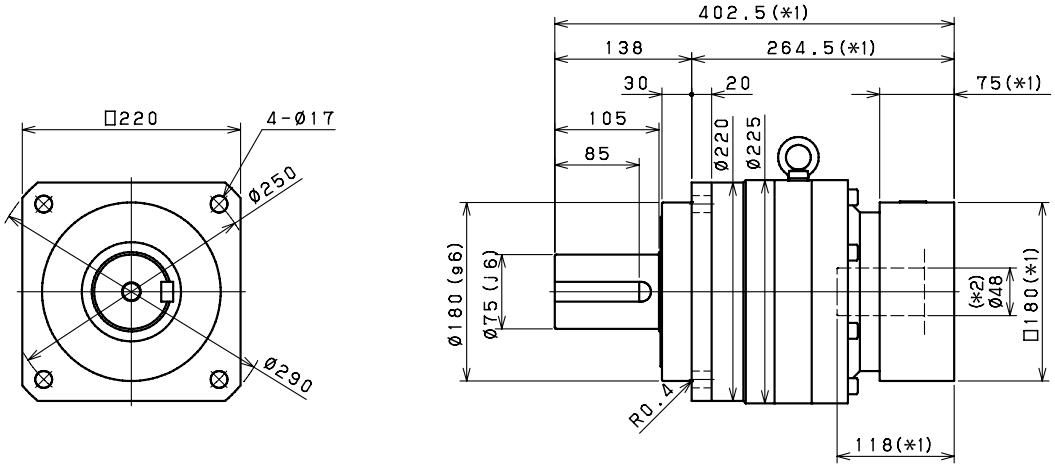
*2) Bushing will be inserted to adapt to motor shaft

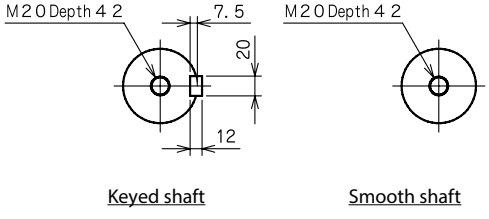
VRB 220 2-Stage Dimensions

Input bore size ≦φ38 mm



Input bore size ≦φ48 mm





Keyed shaft　　Smooth shaft

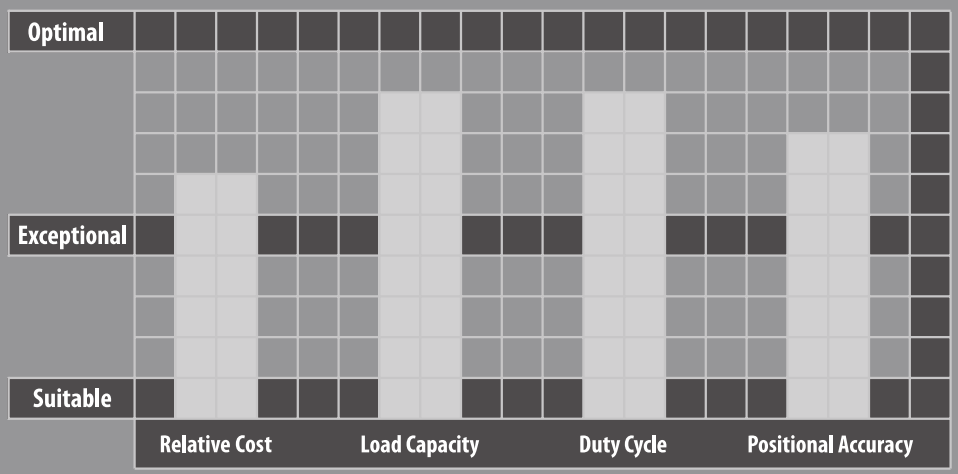
*1) Length will vary depending on motor

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

VRS SERIES

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.

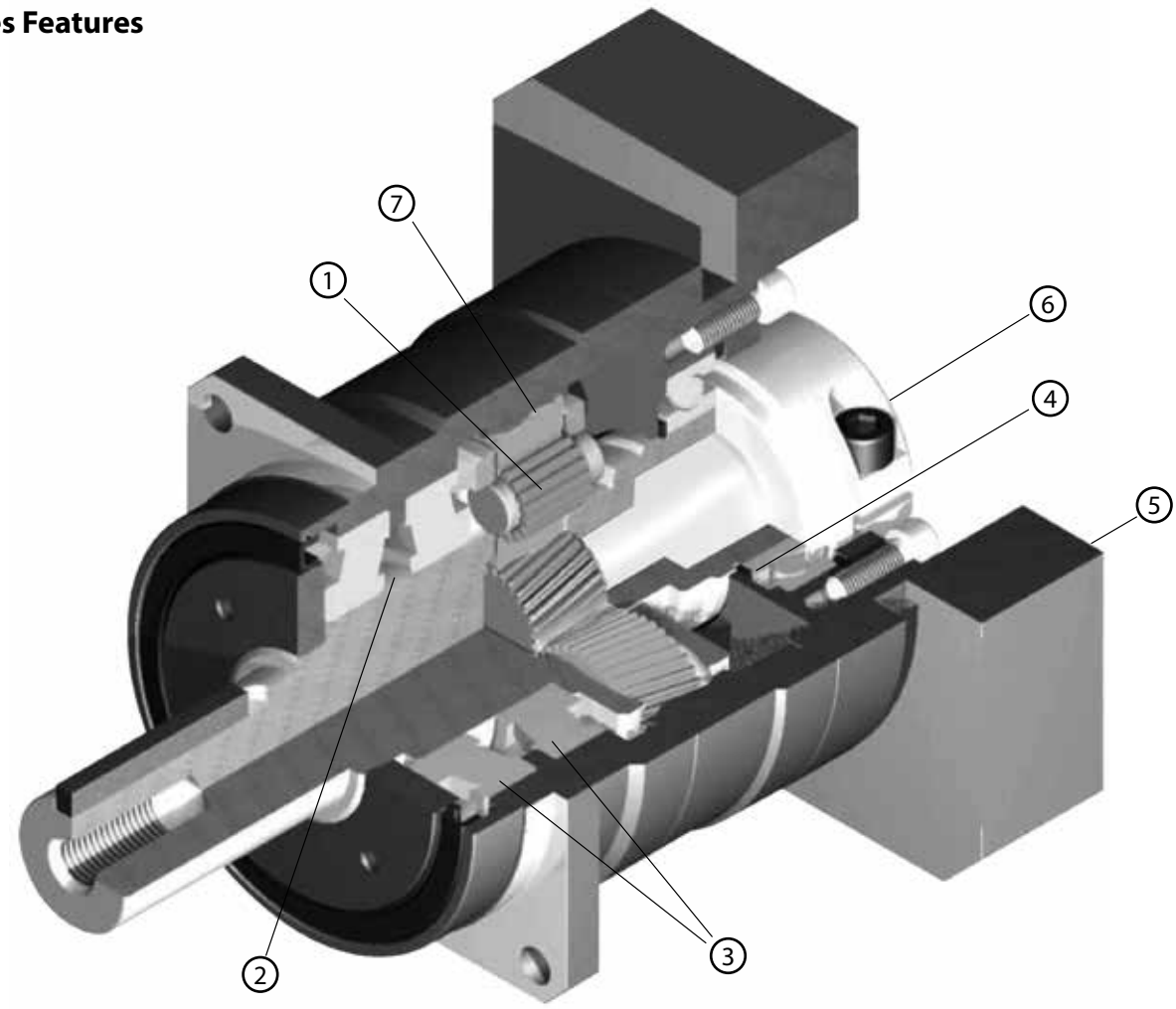
The VRS is available with reduced backlash, less than 2 arc-min, to handle dynamic machine tool and robotic applications with ease. With maximum acceleration torques up to 3700Nm, this product is an excellent partner to higher capacity servomotor models. Our customers specify this product when the industry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



VRS SERIES

- 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
- Assembled in the USA

VRS Series 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

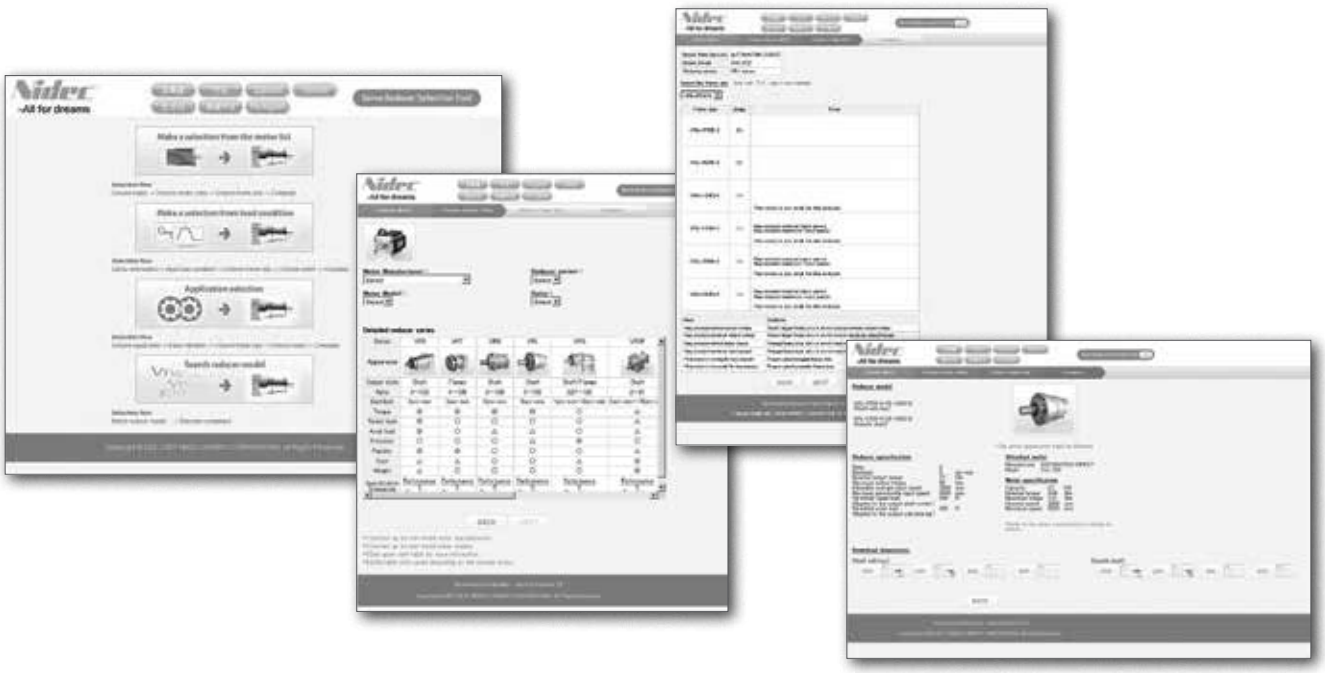
VRS Series Model Code

VRS – 100 C – 7 – K 3 – 19HB16

- **VRS** — Series
- **100** — Frame size: 060, 075, 100, 140, 180, 210, 240
- **C** — Design version
- **7** — 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
- **K** — Output mounting style: K: Keyed shaft, S: Smooth shaft
- **3** — Backlash: 3 arc-min
- **19HB16** — Motor mounting code (*1)

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

Contact us for additional information or refer to our online gearhead selection tool.
Selection tool www.nidec-shimpo.co.jp/selection/eng



VRS 060 1-Stage Specifications

Frame Size			**060**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	18	27	27	27	27	27	18	18
Maximum Acceleration Torque	[Nm]	*2	35	50	50	50	50	50	35	35
Emergency Stop Torque	[Nm]	*3	80	100	100	100	100	100	80	80
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.15							
Permitted Radial Load	[N]	*7	1700	1900	2000	2100	2200	2300	2400	2400
Permitted Axial Load	[N]	*8	2300	2500	2700	2700	2700	2700	2700	2700
Maximum Radial Load	[N]	*9	3000							
Maximum Axial Load	[N]	*10	2700							
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.15	0.10	0.080	0.070	0.064	0.060	0.058	0.056
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.26	0.21	0.19	0.18	0.18	0.17	0.17	0.17
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.54	0.49	0.47	0.46	0.45	0.45	0.45	0.44
Efficiency	[%]	*11	95							
Torsional Rigidity	[Nm/arc-min]	*12	3							
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							

VRS 060 2-Stage Specifications

Frame Size			**060**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	18	27	27	27	27	18	27	27
Maximum Acceleration Torque	[Nm]	*2	35	50	50	50	50	35	50	50
Emergency Stop Torque	[Nm]	*3	80	100	100	100	100	80	100	100
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.04							
Permitted Radial Load	[N]	*7	2800	2800	3000	3000	3000	3000	3000	3000
Permitted Axial Load	[N]	*8	2700	2700	2700	2700	2700	2700	2700	2700
Maximum Radial Load	[N]	*9	3000							
Maximum Axial Load	[N]	*10	2700							
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.064	0.070	0.062	0.062	0.068	0.052	0.061	0.051
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.18	0.18	0.17	0.17	0.18	0.16	0.17	0.16
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.45	0.46	0.45	0.45	0.46	0.44	0.45	0.44
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arc-min]	*12	3							
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	1.8							

VRS 060 2-Stage Specifications

Frame Size			**060**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	18	27	27	27	27	18	18
Maximum Acceleration Torque	[Nm]	*2	35	50	50	50	50	35	35
Emergency Stop Torque	[Nm]	*3	80	100	100	100	100	80	80
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*6	0.04						
Permitted Radial Load	[N]	*7	3000	3000	3000	3000	3000	3000	3000
Permitted Axial Load	[N]	*8	2700	2700	2700	2700	2700	2700	2700
Maximum Radial Load	[N]	*9	3000						
Maximum Axial Load	[N]	*10	2700						
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.061	0.051	0.051	0.051	0.051	0.051	0.051
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.17	0.16	0.16	0.16	0.16	0.16	0.16
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.45	0.44	0.44	0.44	0.44	0.44	0.44
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arc-min]	*12	3						
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	1.8						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

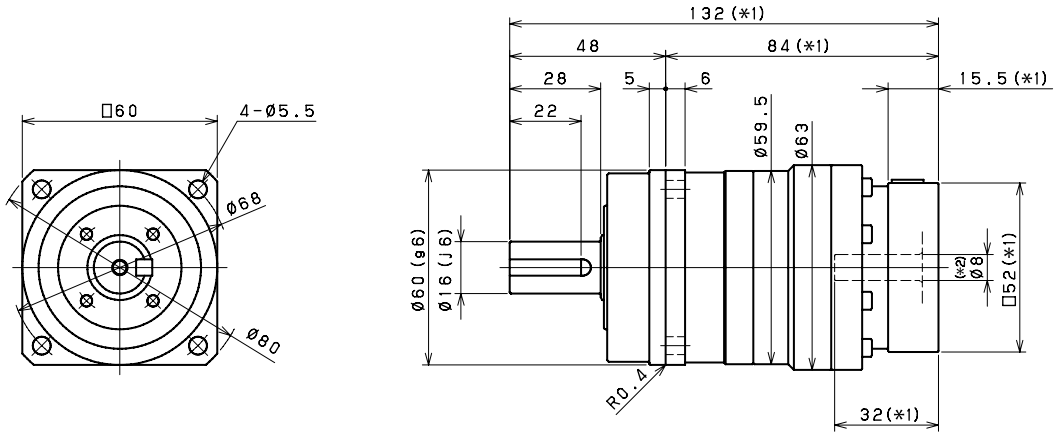
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

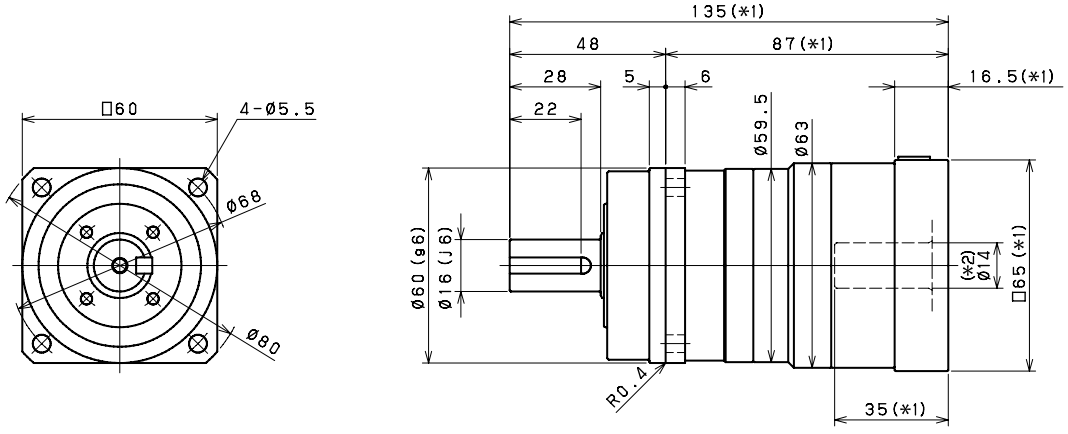
*15) The weight may vary slightly between models

VRS 060 1-Stage Dimensions

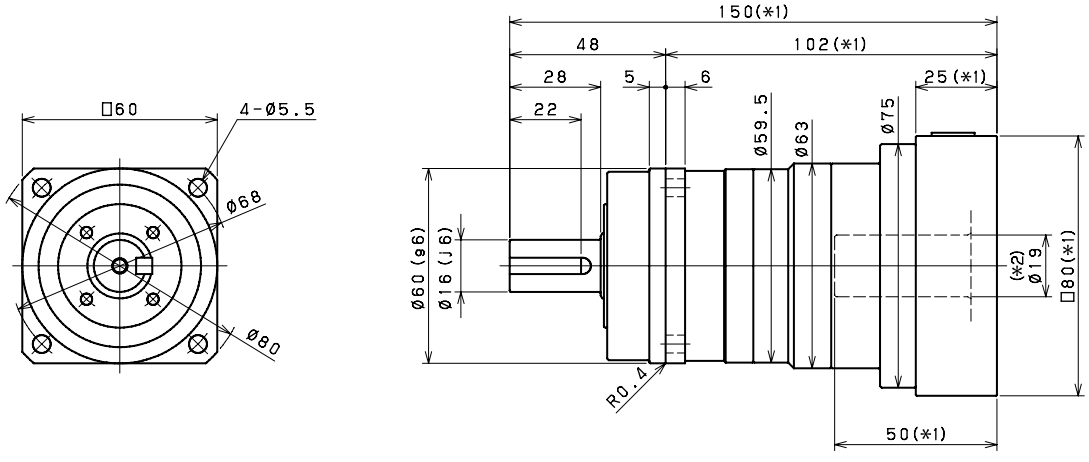
Input bore size ≦φ8 mm

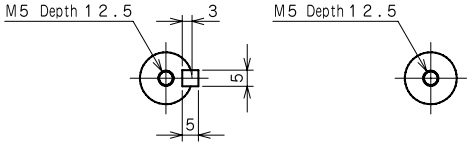


Input bore size ≦φ14 mm



Input bore size ≦φ19 mm





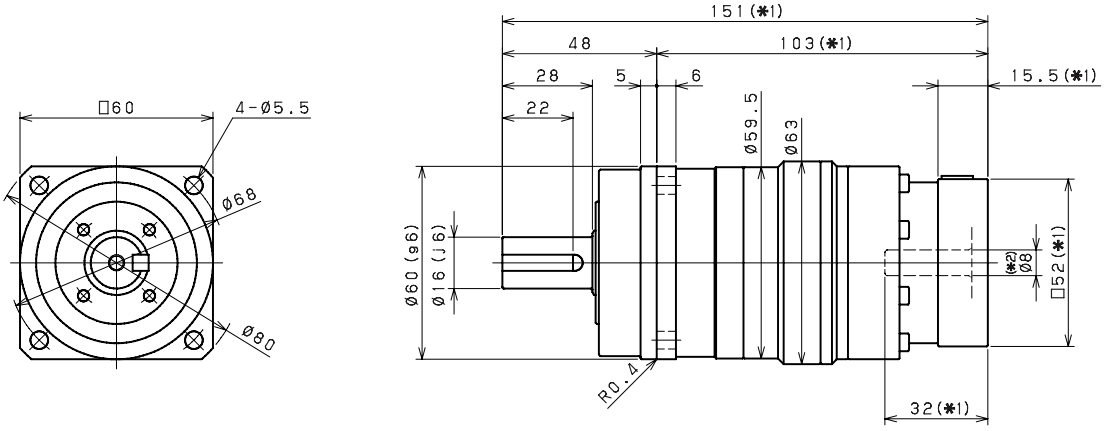
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

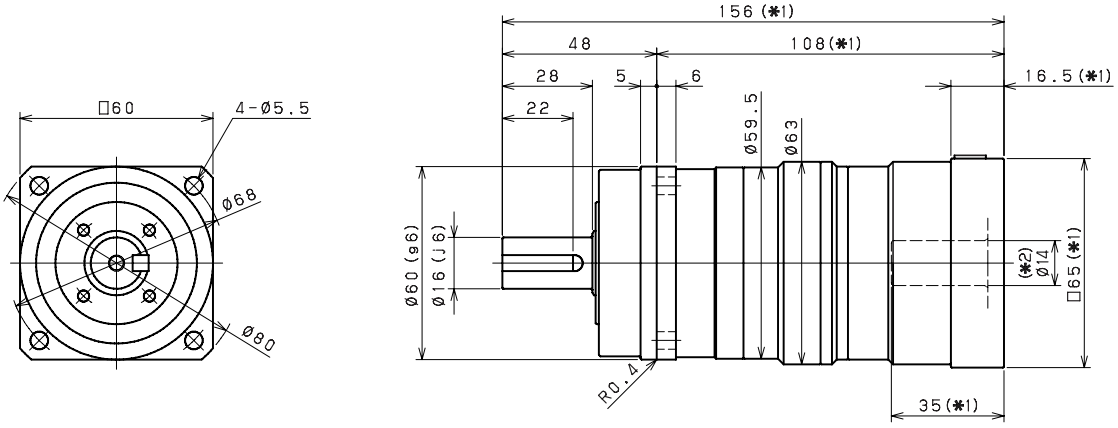
*2) Bushing will be inserted to adapt to motor shaft

VRS 060 2-Stage Dimensions

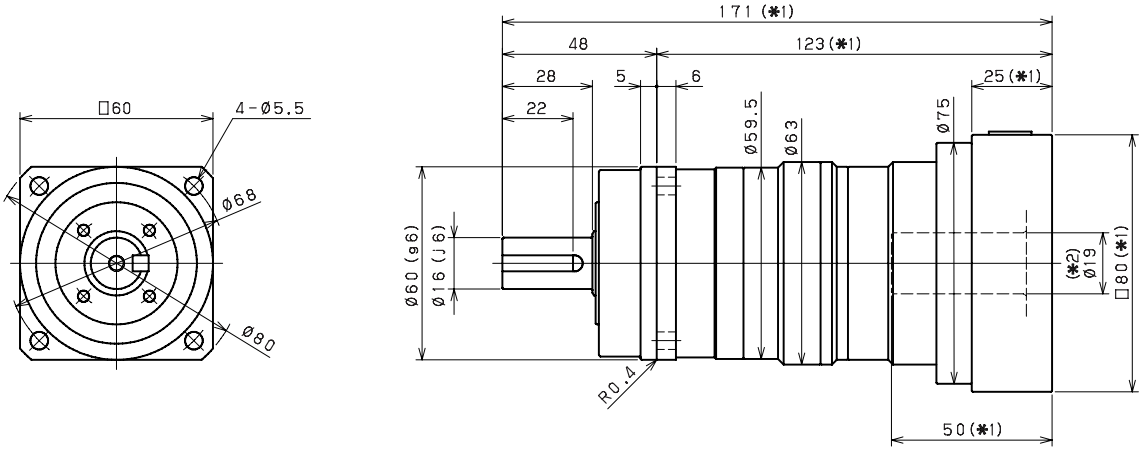
Input bore size ≦φ8 mm

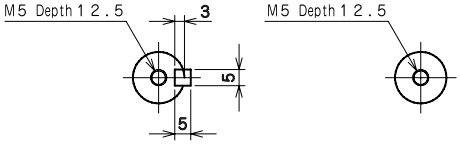


Input bore size ≦φ14 mm



Input bore size ≦φ19 mm





Keyed shaft Smooth shaft

*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**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	50	75	75	75	75	75	50	50
Maximum Acceleration Torque	[Nm]	*2	80	125	125	125	125	125	80	80
Emergency Stop Torque	[Nm]	*3	200	250	250	250	250	250	200	200
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.35							
Permitted Radial Load	[N]	*7	2300	2500	2700	2800	3000	3100	3200	3300
Permitted Axial Load	[N]	*8	3400	3700	3900	3900	3900	3900	3900	3900
Maximum Radial Load	[N]	*9	4300							
Maximum Axial Load	[N]	*10	3900							
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.68	0.48	0.39	0.34	0.32	0.31	0.30	0.29
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	1.1	0.87	0.79	0.74	0.72	0.71	0.70	0.69
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.9	2.6	2.6	2.5	2.5	2.5	2.5	2.4
Efficiency	[%]	*11	95							
Torsional Rigidity	[Nm/arc-min]	*12	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	3.4							

VRS 075 2-Stage Specifications

Frame Size			**075**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	50	75	75	75	75	50	75	75
Maximum Acceleration Torque	[Nm]	*2	80	125	125	125	125	80	125	125
Emergency Stop Torque	[Nm]	*3	200	250	250	250	250	200	250	250
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.06							
Permitted Radial Load	[N]	*7	3700	3800	4000	4300	4300	4300	4300	4300
Permitted Axial Load	[N]	*8	3900	3900	3900	3900	3900	3900	3900	3900
Maximum Radial Load	[N]	*9	4300							
Maximum Axial Load	[N]	*10	3900							
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.20	0.25	0.19	0.19	0.24	0.12	0.18	0.11
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.36	0.41	0.35	0.35	0.40	0.28	0.34	0.27
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.75	0.79	0.74	0.73	0.78	0.67	0.73	0.67
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.5	2.5	2.5	2.5	2.5	2.4	2.5	2.4
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arc-min]	*12	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	3.8							

VRS 075 2-Stage Specifications

Frame Size			**075**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	50	75	75	75	75	50	50
Maximum Acceleration Torque	[Nm]	*2	80	125	125	125	125	80	80
Emergency Stop Torque	[Nm]	*3	200	250	250	250	250	200	200
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*6	0.06						
Permitted Radial Load	[N]	*7	4300	4300	4300	4300	4300	4300	4300
Permitted Axial Load	[N]	*8	3900	3900	3900	3900	3900	3900	3900
Maximum Radial Load	[N]	*9	4300						
Maximum Axial Load	[N]	*10	3900						
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.18	0.11	0.11	0.11	0.11	0.11	0.11
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.34	0.27	0.27	0.27	0.27	0.27	0.27
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.73	0.67	0.67	0.67	0.67	0.67	0.67
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.5	2.4	2.4	2.4	2.4	2.4	2.4
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arc-min]	*12	10						
Maximum Torsional Backlash	[arc-min]	--	≤ 3						
Noise Level	dB [A]	*13	≤ 67						
Protection Class	--	*14	IP54 (IP65)						
Ambient Temperature	[°C]	--	0-40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*15	3.8						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

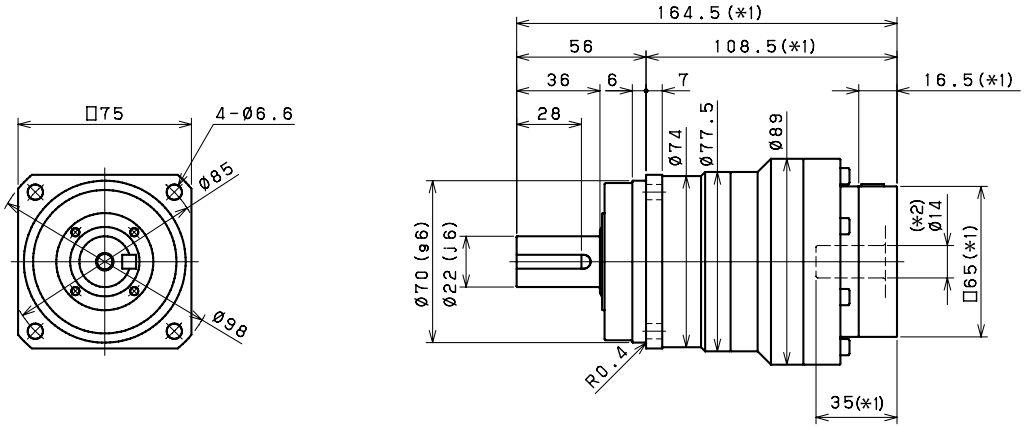
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

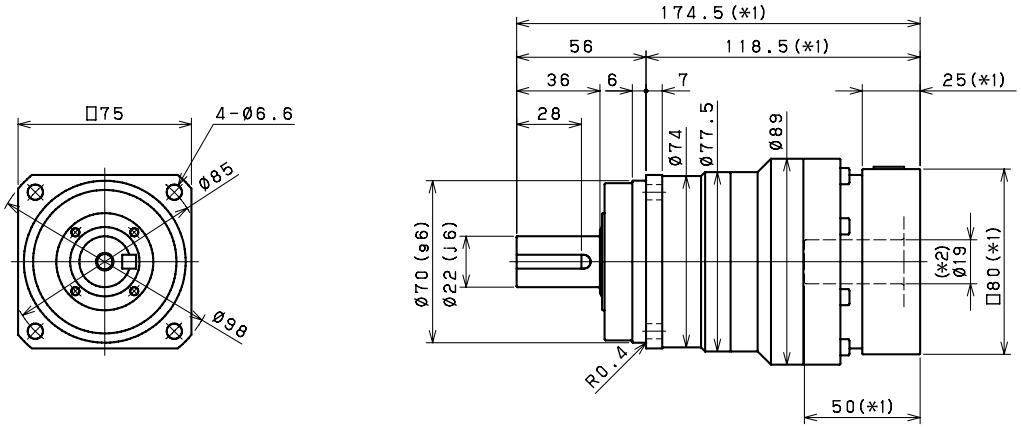
*15) The weight may vary slightly between models

VRS 075 1-Stage Dimensions

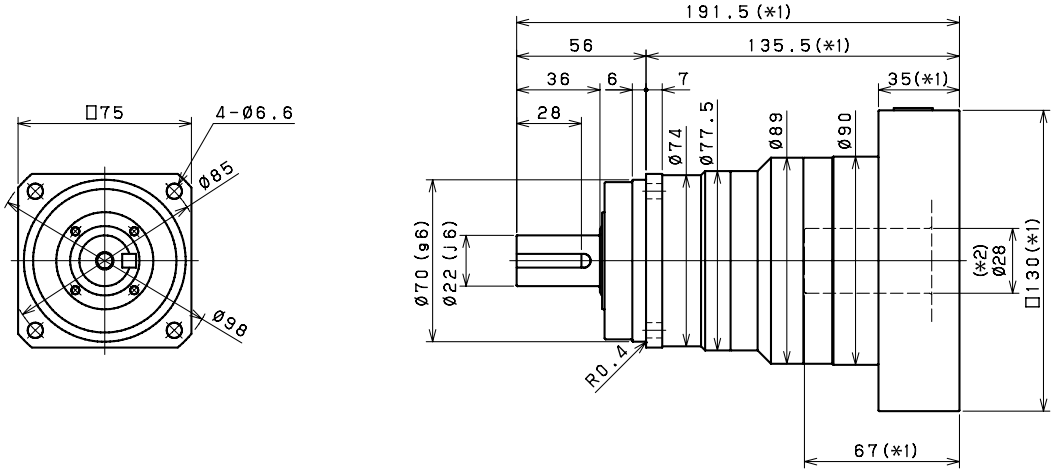
Input bore size ≦φ14 mm

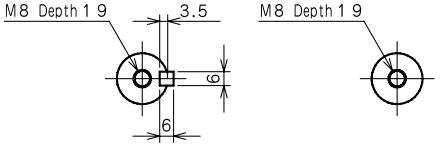


Input bore size ≦φ19 mm



Input bore size ≦φ28 mm





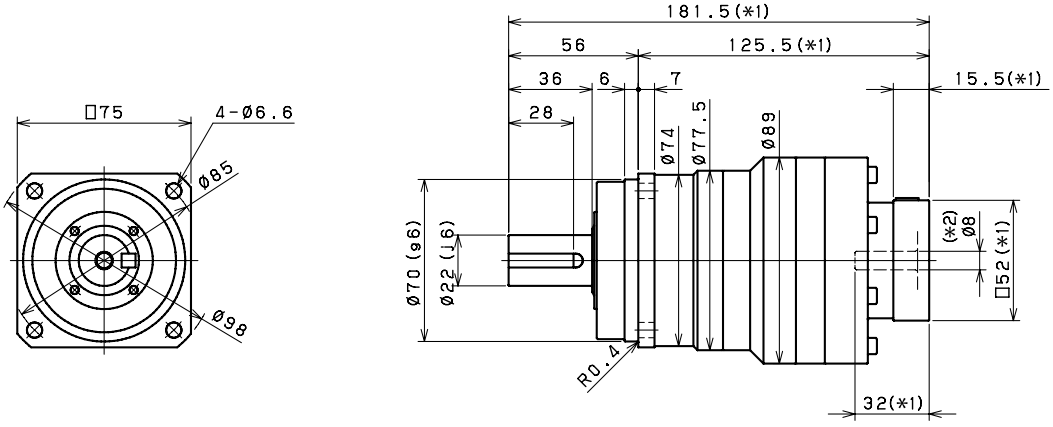
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

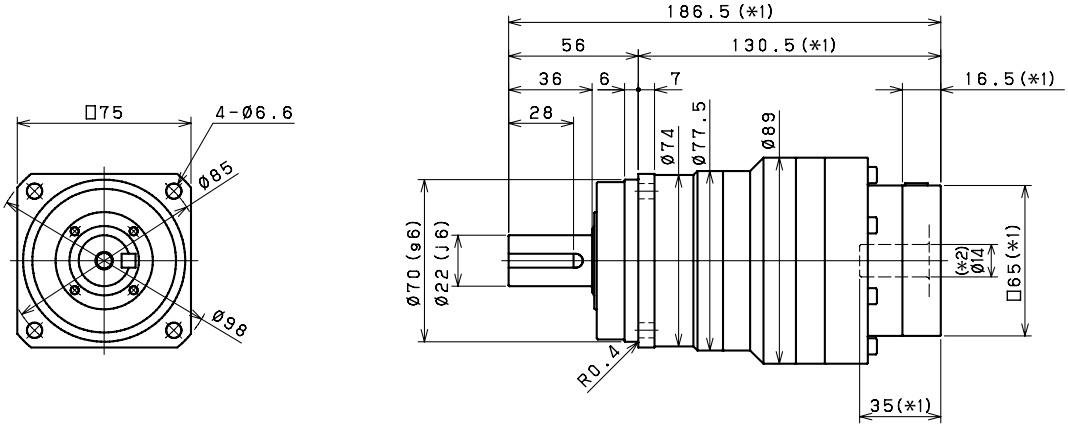
*2) Bushing will be inserted to adapt to motor shaft

VRS 075 2-Stage Dimensions

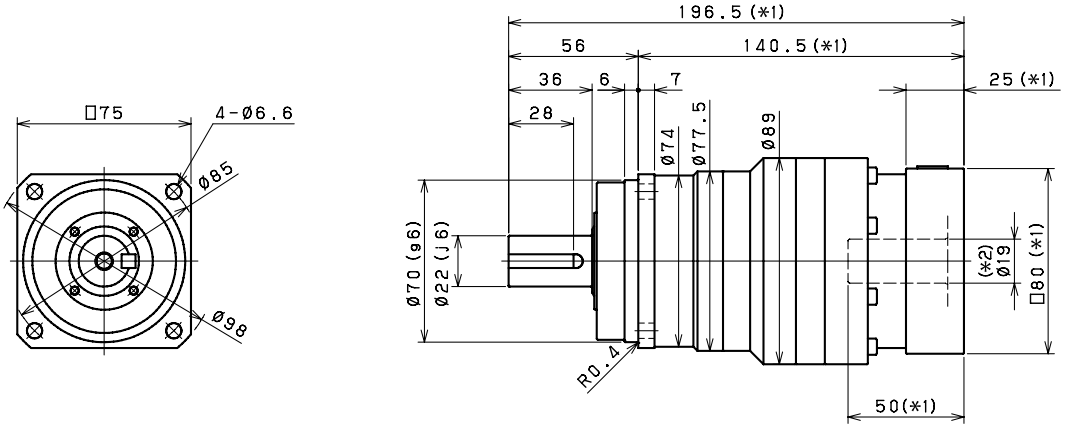
Input bore size ≦φ8 mm

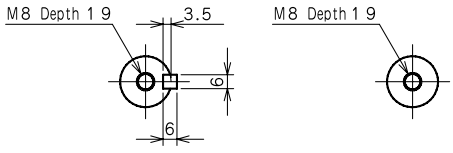


Input bore size ≦φ14 mm



Input bore size ≦φ19 mm (*3)





Keyed shaft

Smooth shaft

*1) Length will vary depending on motor

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

*3) 28mm input bore is available for this frame size. Use our online configurator to make your selection or contact us for assistance

VRS 100 1-Stage Specifications

Frame Size			**100**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	120	120	180	180	180	180	120	120
Maximum Acceleration Torque	[Nm]	*2	225	330	330	330	330	330	225	225
Emergency Stop Torque	[Nm]	*3	500	625	625	625	625	625	500	500
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	1.30							
Permitted Radial Load	[N]	*7	3400	3700	4000	4200	4400	4600	4800	4900
Permitted Axial Load	[N]	*8	4800	5200	5600	5900	6100	6300	6300	6300
Maximum Radial Load	[N]	*9	7000							
Maximum Axial Load	[N]	*10	6300							
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	3.1	1.9	1.4	1.1	1.0	0.91	0.85	0.82
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	5.0	3.7	3.1	2.8	2.7	2.6	2.6	2.5
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	12	10	9.5	9.2	9.1	8.9	8.9	8.8
Efficiency	[%]	*11	95							
Torsional Rigidity	[Nm/arc-min]	*12	31							
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	8.1							

VRS 100 2-Stage Specifications

Frame Size			**100**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	120	180	180	180	180	120	180	180
Maximum Acceleration Torque	[Nm]	*2	225	330	330	330	330	225	330	330
Emergency Stop Torque	[Nm]	*3	500	625	625	625	625	500	625	625
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.42							
Permitted Radial Load	[N]	*7	5600	5700	6100	6500	6700	6900	7000	7000
Permitted Axial Load	[N]	*8	6300	6300	6300	6300	6300	6300	6300	6300
Maximum Radial Load	[N]	*9	7000							
Maximum Axial Load	[N]	*10	6300							
Moment of Inertia (≤Ø 8)	[kgcm2]	--	-	-	-	-	-	-	-	-
Moment of Inertia (≤Ø 14)	[kgcm2]	--	0.76	0.97	0.72	0.70	0.92	0.38	0.68	0.37
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	1.1	1.4	1.1	1.1	1.3	0.78	1.1	0.77
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.9	3.1	2.8	2.8	3.0	2.5	2.8	2.5
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	9.2	9.4	9.1	9.1	9.3	8.8	9.1	8.8
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arc-min]	*12	31							
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	8.8							

VRS 100 2-Stage Specifications

Frame Size			**100**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	120	180	180	180	180	120	120
Maximum Acceleration Torque	[Nm]	*2	225	330	330	330	330	225	225
Emergency Stop Torque	[Nm]	*3	500	625	625	625	625	500	500
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*6	0.42						
Permitted Radial Load	[N]	*7	7000	7000	7000	7000	7000	7000	7000
Permitted Axial Load	[N]	*8	6300	6300	6300	6300	6300	6300	6300
Maximum Radial Load	[N]	*9	7000						
Maximum Axial Load	[N]	*10	6300						
Moment of Inertia (≤Ø 8)	[kgcm2]	--	-	0.19	0.19	0.19	0.19	0.19	0.19
Moment of Inertia (≤Ø 14)	[kgcm2]	--	0.68	0.36	0.36	0.36	0.36	0.36	0.36
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	1.1	0.76	0.76	0.76	0.76	0.76	0.76
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.8	2.5	2.5	2.5	2.5	2.5	2.5
Moment of Inertia (≤Ø 38)	[kgcm2]	--	9.1	8.8	8.8	8.8	8.8	8.8	8.8
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arc-min]	*12	31						
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	8.8						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

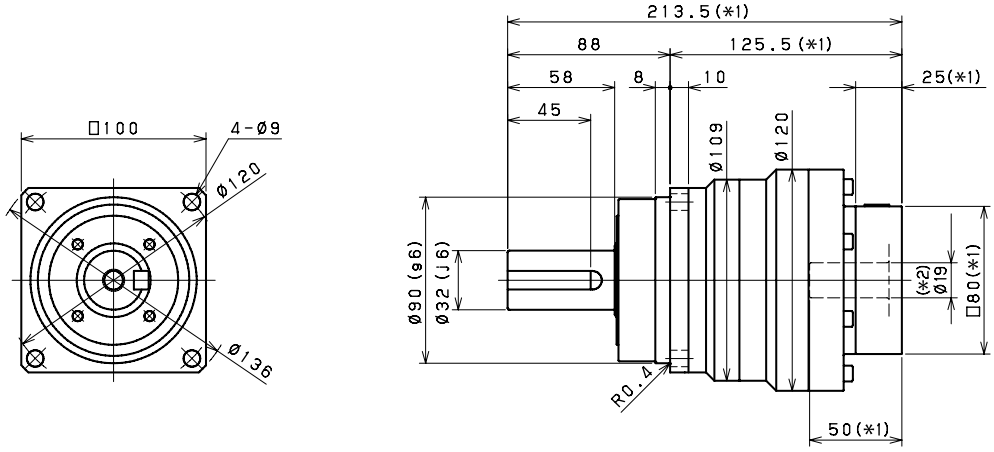
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

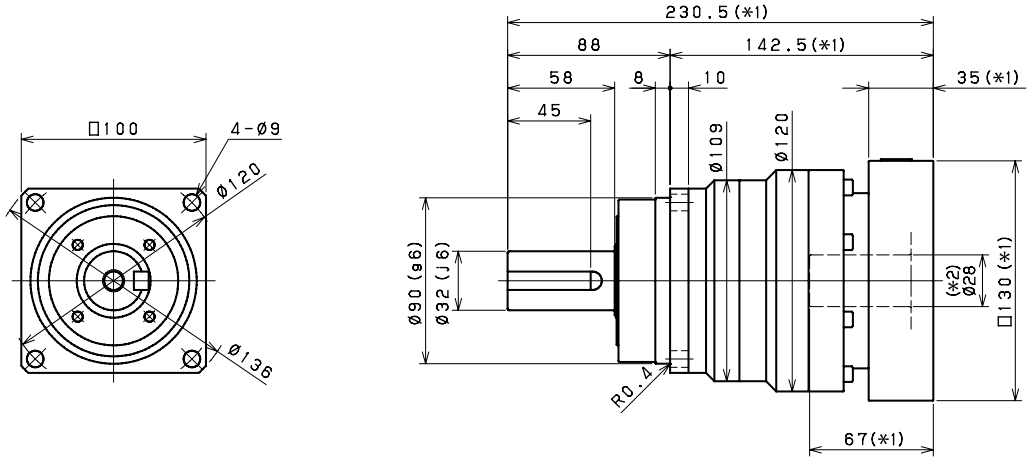
*15) The weight may vary slightly between models

VRS 100 1-Stage Dimensions

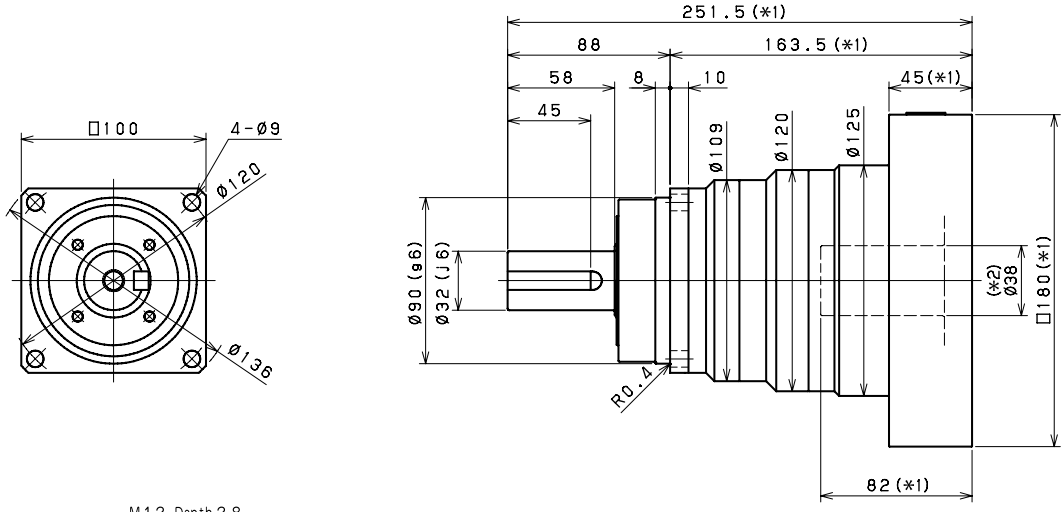
Input bore size ≦φ19 mm

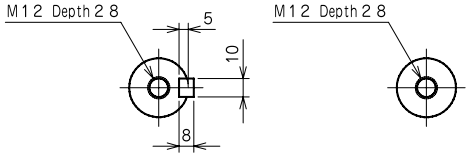


Input bore size ≦φ28 mm



Input bore size ≦φ38 mm





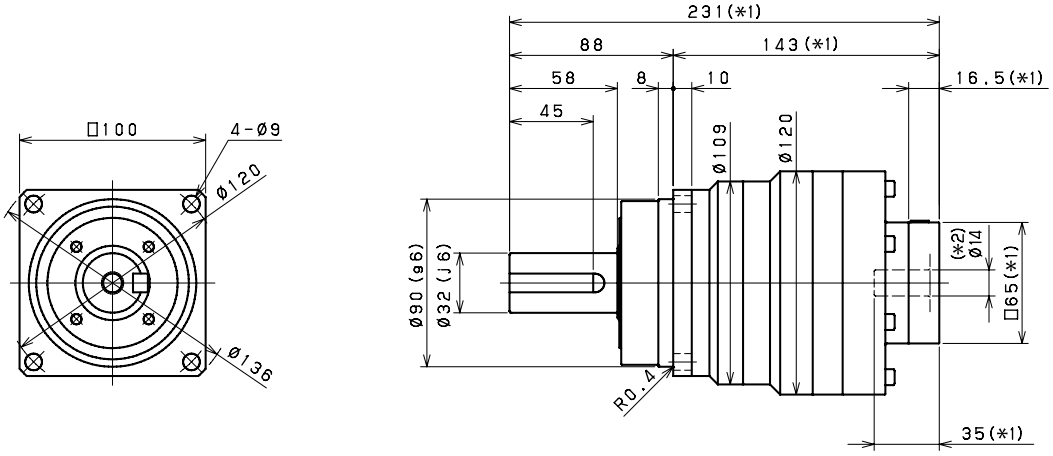
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

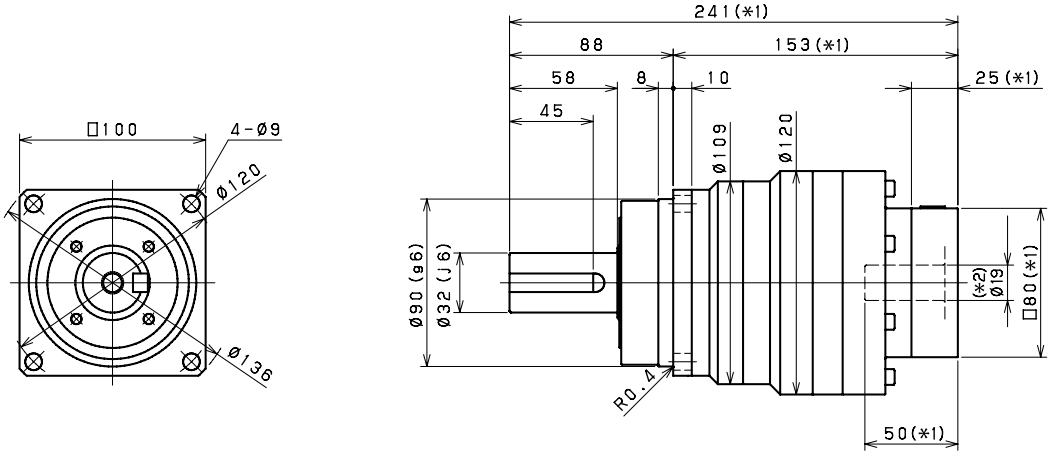
*2) Bushing will be inserted to adapt to motor shaft

VRS 100 2-Stage Dimensions

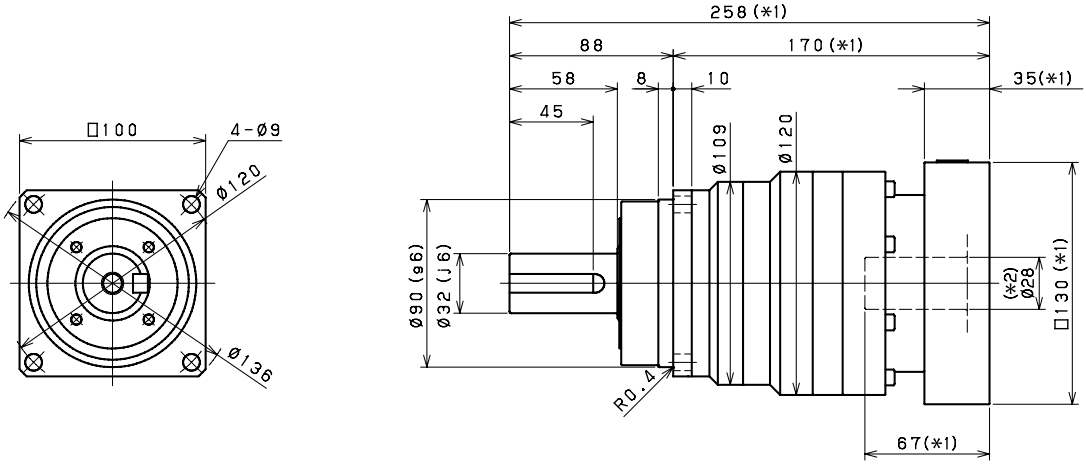
Input bore size ≦φ14 mm

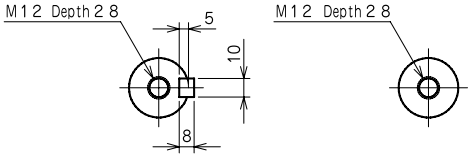


Input bore size ≦φ19 mm



Input bore size ≦φ28 mm (*3)





Keyed shaft Smooth shaft

*1) Length will vary depending on motor

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

*3) 38mm input bore is available for this frame size. Use our online configurator to make your selection or contact us for assistance

VRS 140 1-Stage Specifications

Frame Size			**140**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	240	240	360	360	360	360	240	240
Maximum Acceleration Torque	[Nm]	*2	470	700	700	700	700	700	470	470
Emergency Stop Torque	[Nm]	*3	1000	1250	1250	1250	1250	1250	1000	1000
Nominal Input Speed	[rpm]	*4	2000							
Maximum Input Speed	[rpm]	*5	4000							
No Load Running Torque	[Nm]	*6	1.63							
Permitted Radial Load	[N]	*7	6700	7400	7900	8300	8700	9100	9400	9700
Permitted Axial Load	[N]	*8	9000	9000	9000	9000	9000	9000	9000	9000
Maximum Radial Load	[N]	*9	10000							
Maximum Axial Load	[N]	*10	9000							
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	12	7.2	5.2	4.3	3.8	3.5	3.3	3.2
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	18	14	12	11	10	9.9	9.7	9.6
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	35	29	27	26	25	25	25	25
Efficiency	[%]	*11	95							
Torsional Rigidity	[Nm/arc-min]	*12	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	17							

VRS 140 2-Stage Specifications

Frame Size			**140**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	240	360	360	360	360	240	360	360
Maximum Acceleration Torque	[Nm]	*2	470	700	700	700	700	470	700	700
Emergency Stop Torque	[Nm]	*3	1000	1250	1250	1250	1250	1000	1250	1250
Nominal Input Speed	[rpm]	*4	2000							
Maximum Input Speed	[rpm]	*5	4000							
No Load Running Torque	[Nm]	*6	0.56							
Permitted Radial Load	[N]	*7	10000	10000	10000	10000	10000	10000	10000	10000
Permitted Axial Load	[N]	*8	9000	9000	9000	9000	9000	9000	9000	9000
Maximum Radial Load	[N]	*9	10000							
Maximum Axial Load	[N]	*10	9000							
Moment of Inertia (≤Ø 14)	[kgcm2]	--	-	-	-	-	-	-	-	-
Moment of Inertia (≤Ø 19)	[kgcm2]	--	2.6	3.5	2.4	2.4	3.3	1.1	2.3	1.1
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	4.4	5.3	4.2	4.1	5.1	2.9	4.1	2.8
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	11	12	10	10	11	9.2	10	9.1
Moment of Inertia (≤Ø 48)	[kgcm2]	--	26	27	25	25	26	24	25	24
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arc-min]	*12	60							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	19							

VRS 140 2-Stage Specifications

Frame Size			**140**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	240	360	360	360	360	240	240
Maximum Acceleration Torque	[Nm]	*2	470	700	700	700	700	470	470
Emergency Stop Torque	[Nm]	*3	1000	1250	1250	1250	1250	1000	1000
Nominal Input Speed	[rpm]	*4	2000						
Maximum Input Speed	[rpm]	*5	4000						
No Load Running Torque	[Nm]	*6	0.56						
Permitted Radial Load	[N]	*7	10000	10000	10000	10000	10000	10000	10000
Permitted Axial Load	[N]	*8	9000	9000	9000	9000	9000	9000	9000
Maximum Radial Load	[N]	*9	10000						
Maximum Axial Load	[N]	*10	9000						
Moment of Inertia (≤Ø 14)	[kgcm2]	--	-	0.65	0.64	0.64	0.63	0.63	0.63
Moment of Inertia (≤Ø 19)	[kgcm2]	--	2.3	1.1	1.1	1.1	1.1	1.1	1.1
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	4.0	2.8	2.8	2.8	2.8	2.8	2.8
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	10	9.1	9.1	9.1	9.1	9.1	9.1
Moment of Inertia (≤Ø 48)	[kgcm2]	--	25	24	24	24	24	24	24
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arc-min]	*12	60						
Maximum Torsional Backlash	[arc-min]	--	≤ 3						
Noise Level	dB [A]	*13	≤ 67						
Protection Class	--	*14	IP54 (IP65)						
Ambient Temperature	[°C]	--	0-40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*15	19						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

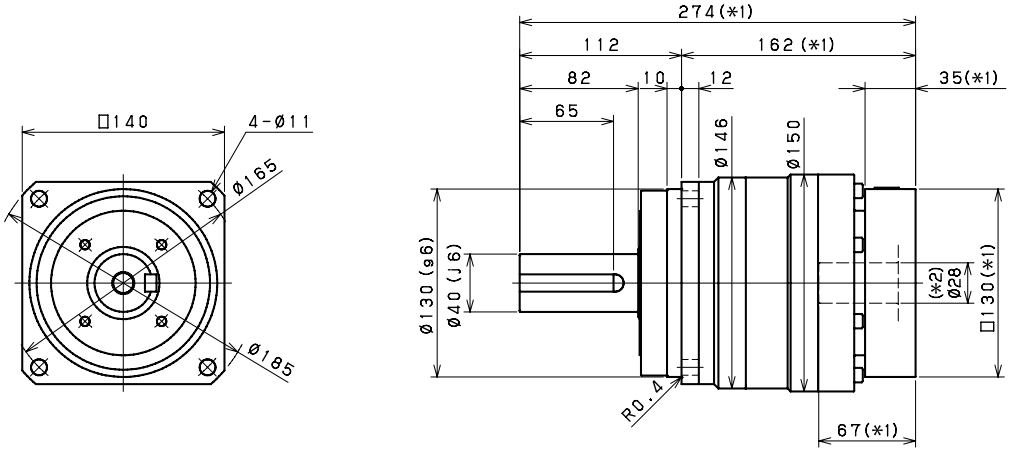
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

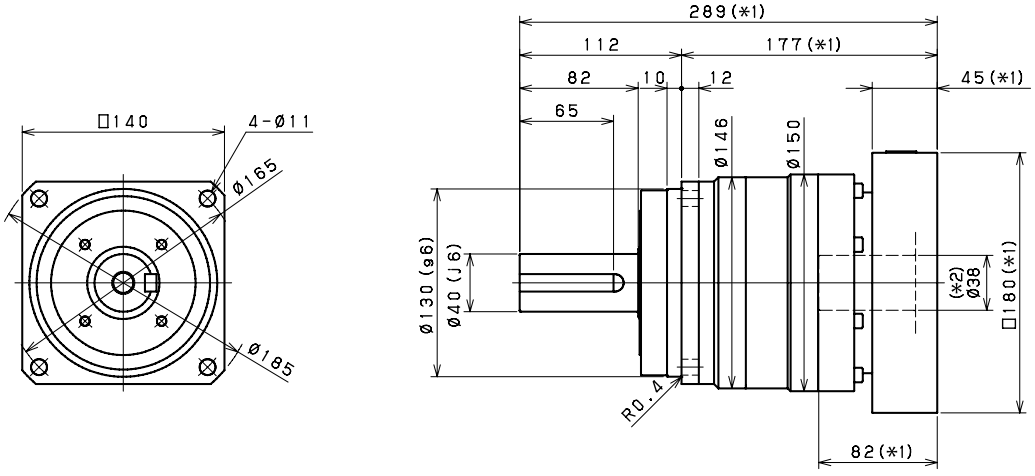
*15) The weight may vary slightly between models

VRS 140 1-Stage Dimensions

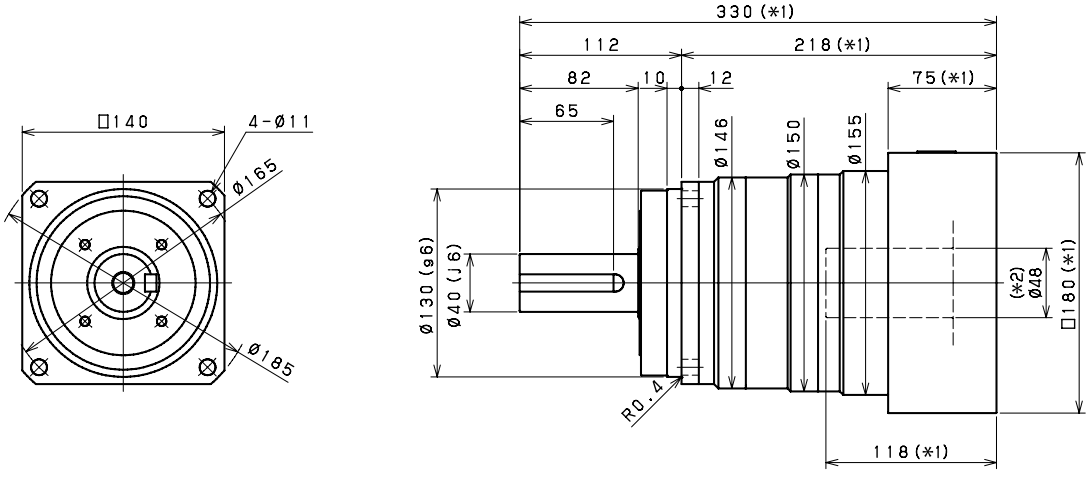
Input bore size ≦φ28 mm

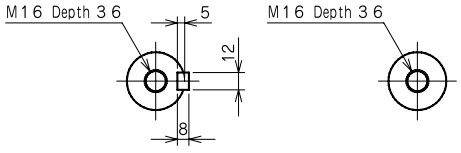


Input bore size ≦φ38 mm



Input bore size ≦φ48 mm





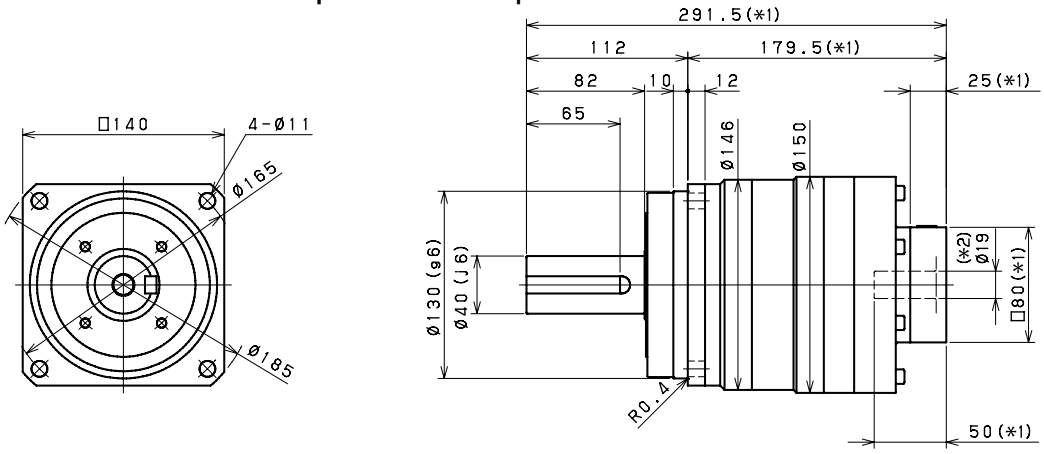
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

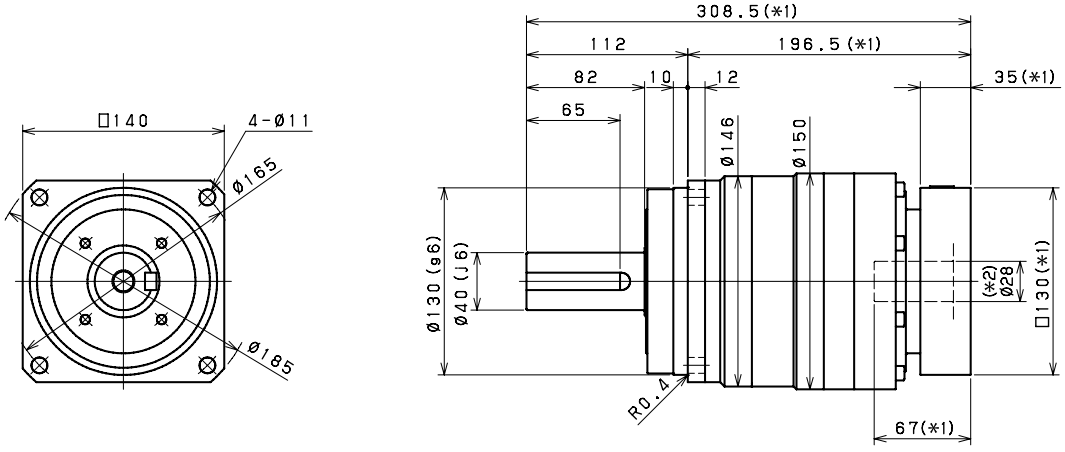
*2) Bushing will be inserted to adapt to motor shaft

VRS 140 2-Stage Dimensions

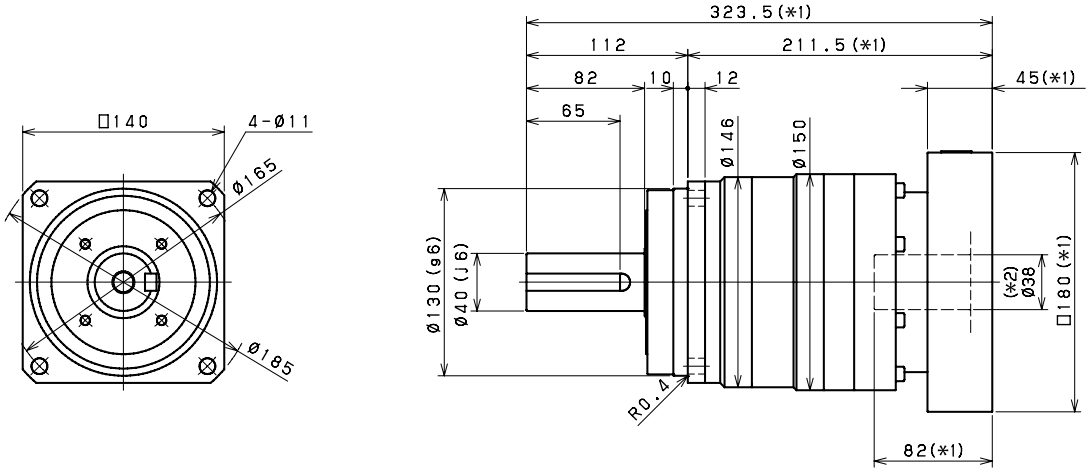
Input bore size ≦φ19 mm

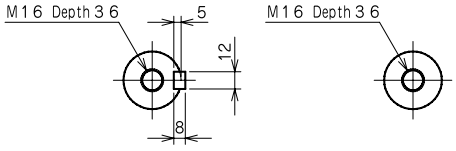


Input bore size ≦φ28 mm



Input bore size ≦φ38 mm (*3)





Keyed shaft

Smooth shaft

*1) Length will vary depending on motor

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

*3) 48mm input bore is available for this frame size. Use our online configurator to make your selection or contact us for assistance

VRS 180 1-Stage Specifications

Frame Size			**180**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	500	750	750	750	750	750	500	500
Maximum Acceleration Torque	[Nm]	*2	970	1400	1400	1400	1400	1400	970	970
Emergency Stop Torque	[Nm]	*3	2200	2750	2750	2750	2750	2750	2200	2200
Nominal Input Speed	[rpm]	*4	1500							
Maximum Input Speed	[rpm]	*5	3000							
No Load Running Torque	[Nm]	*6	2.68							
Permitted Radial Load	[N]	*7	12000	13000	14000	15000	16000	17000	17000	18000
Permitted Axial Load	[N]	*8	16000	17000	17000	17000	17000	17000	17000	17000
Maximum Radial Load	[N]	*9	19000							
Maximum Axial Load	[N]	*10	17000							
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	41	25	18	15	13	12	12	11
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	55	40	33	30	29	27	27	26
Moment of Inertia (≤ Ø 65)	[kgcm2]	--	110	84	78	74	73	71	71	70
Efficiency	[%]	*11	95							
Torsional Rigidity	[Nm/arc-min]	*12	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	39							

VRS 180 2-Stage Specifications

Frame Size			**180**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	500	750	750	750	750	500	750	750
Maximum Acceleration Torque	[Nm]	*2	970	1400	1400	1400	1400	970	1400	1400
Emergency Stop Torque	[Nm]	*3	2200	2750	2750	2750	2750	2200	2750	2750
Nominal Input Speed	[rpm]	*4	1500							
Maximum Input Speed	[rpm]	*5	3000							
No Load Running Torque	[Nm]	*6	1.39							
Permitted Radial Load	[N]	*7	19000	19000	19000	19000	19000	19000	19000	19000
Permitted Axial Load	[N]	*8	17000	17000	17000	17000	17000	17000	17000	17000
Maximum Radial Load	[N]	*9	19000							
Maximum Axial Load	[N]	*10	17000							
Moment of Inertia (≤Ø 19)	[kgcm2]	--	-	-	-	-	-	-	-	-
Moment of Inertia (≤Ø 28)	[kgcm2]	--	8.7	11	8.1	7.8	11	4.0	7.6	3.9
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	15	18	14	14	17	10	14	10
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	30	32	29	29	32	25	29	25
Moment of Inertia (≤ Ø 65)	[kgcm2]	--	34	39	33	33	38	26	32	26
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arc-min]	*12	175							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*13	≤ 67							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	39							

VRS 180 2-Stage Specifications

Frame Size	**180**								
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	500	750	750	750	750	500	500
Maximum Acceleration Torque	[Nm]	*2	970	1400	1400	1400	1400	970	970
Emergency Stop Torque	[Nm]	*3	2200	2750	2750	2750	2750	2200	2200
Nominal Input Speed	[rpm]	*4	1500						
Maximum Input Speed	[rpm]	*5	3000						
No Load Running Torque	[Nm]	*6	1.39						
Permitted Radial Load	[N]	*7	19000	19000	19000	19000	19000	19000	19000
Permitted Axial Load	[N]	*8	17000	17000	17000	17000	17000	17000	17000
Maximum Radial Load	[N]	*9	19000						
Maximum Axial Load	[N]	*10	17000						
Moment of Inertia (≤Ø 19)	[kgcm2]	--	-	1.9	1.9	1.8	1.8	1.8	1.8
Moment of Inertia (≤Ø 28)	[kgcm2]	--	7.6	3.8	3.8	3.8	3.7	3.7	3.7
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	14	10	10	10	10	10	10
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	29	25	25	25	25	25	25
Moment of Inertia (≤ Ø 65)	[kgcm2]	--	32	26	26	26	26	26	26
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arc-min]	*12	175						
Maximum Torsional Backlash	[arc-min]	--	≤ 3						
Noise Level	dB [A]	*13	≤ 67						
Protection Class	--	*14	IP54 (IP65)						
Ambient Temperature	[°C]	--	0-40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*15	39						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

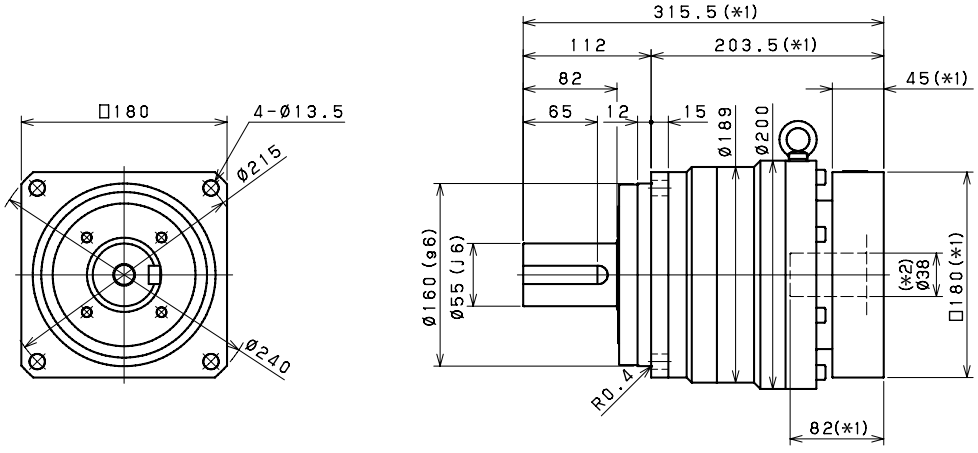
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

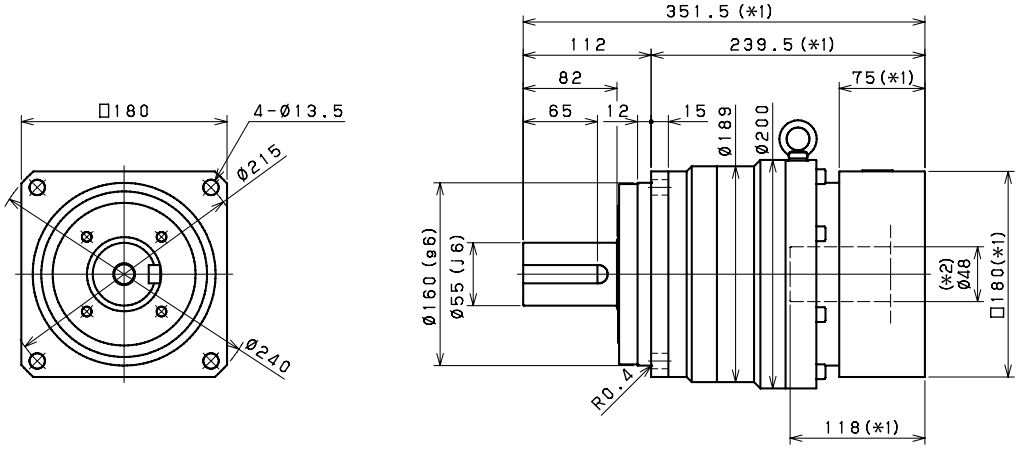
*15) The weight may vary slightly between models

VRS 180 1-Stage Dimensions

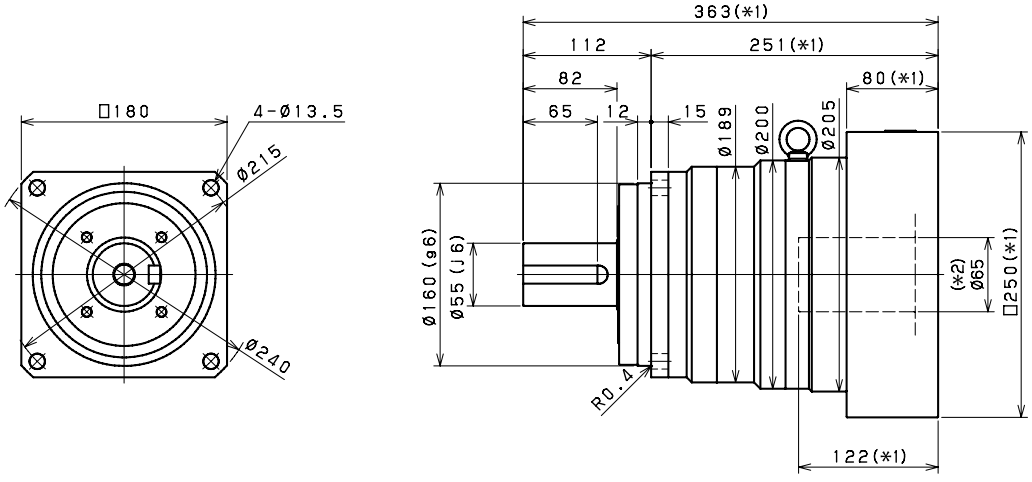
Input bore size ≦φ38 mm

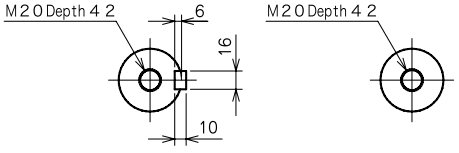


Input bore size ≦φ48 mm



Input bore size ≦φ65 mm





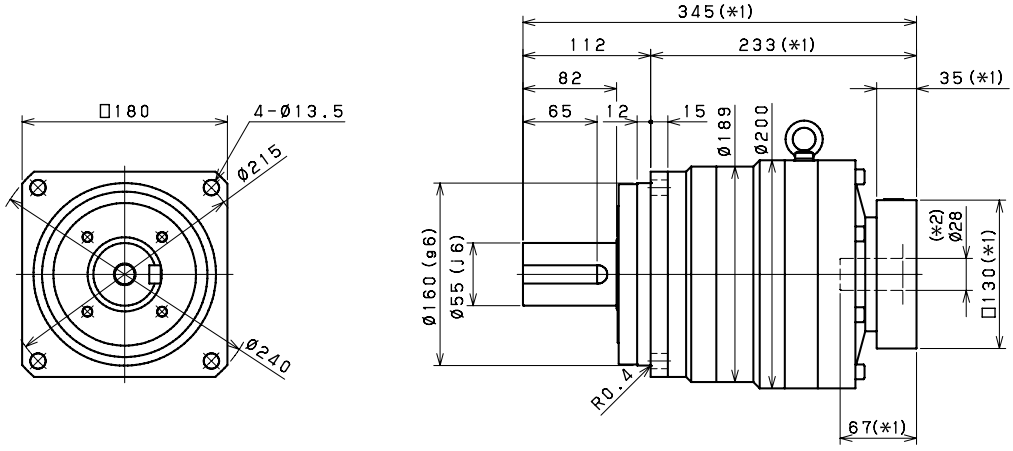
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

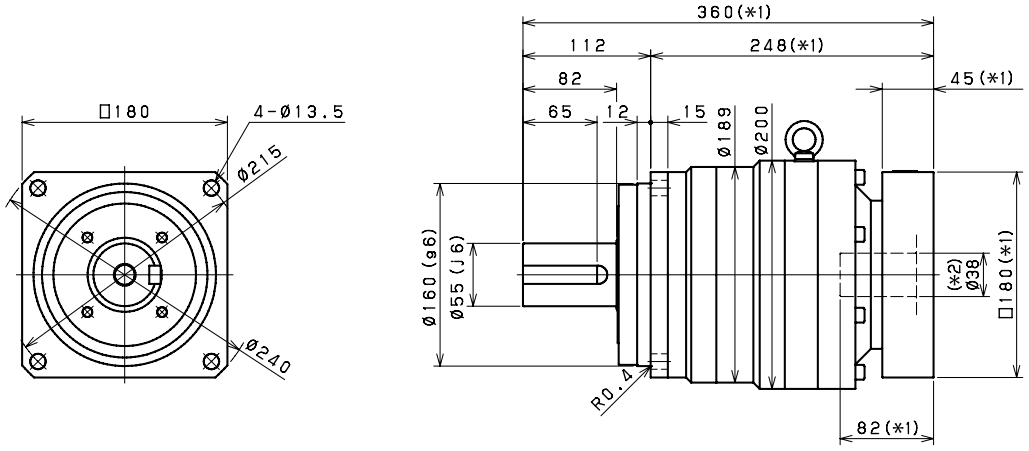
*2) Bushing will be inserted to adapt to motor shaft

VRS 180 2-Stage Dimensions

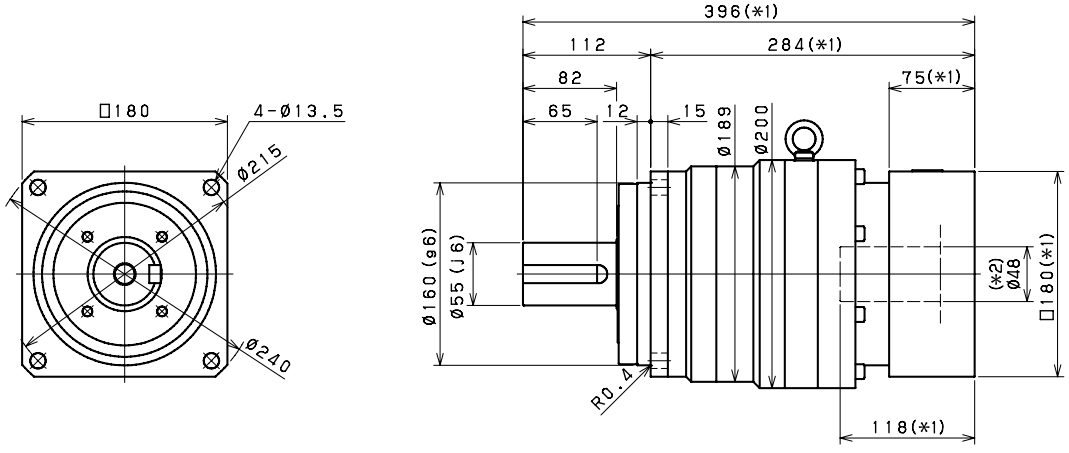
Input bore size ≦φ28 mm

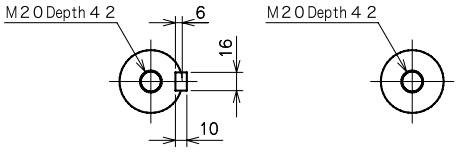


Input bore size ≦φ38 mm



Input bore size ≦φ48 mm





Keyed shaft Smooth shaft

*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**									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	1000	1500	1500	1500	1500	1500	1000	1000
Maximum Acceleration Torque	[Nm]	*2	1600	2300	2300	2300	2300	2200	1900	1600
Emergency Stop Torque	[Nm]	*3	4000	5000	5000	5000	5000	5000	4000	4000
Nominal Input Speed	[rpm]	*4	1000							
Maximum Input Speed	[rpm]	*5	2000							
No Load Running Torque	[Nm]	*6	2.92							
Permitted Radial Load	[N]	*7	17000	18000	20000	21000	22000	23000	24000	24000
Permitted Axial Load	[N]	*8	22000	22000	22000	22000	22000	22000	22000	22000
Maximum Radial Load	[N]	*9	24000							
Maximum Axial Load	[N]	*10	22000							
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	110	55	42	36	33	31	29	28
Moment of Inertia (≤ Ø 65)	[kgcm2]	--	160	99	86	80	77	74	73	72
Efficiency	[%]	*11	97							
Torsional Rigidity	[Nm/arc-min]	*12	400							
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	59							

VRS 210 2-Stage Specifications

Frame Size	**210**									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	1000	1500	1500	1500	1500	1000	1500	1500
Maximum Acceleration Torque	[Nm]	*2	1600	2300	2300	2300	2300	1600	2300	2300
Emergency Stop Torque	[Nm]	*3	4000	5000	5000	5000	5000	4000	5000	5000
Nominal Input Speed	[rpm]	*4	1000							
Maximum Input Speed	[rpm]	*5	2000							
No Load Running Torque	[Nm]	*6	1.14							
Permitted Radial Load	[N]	*7	24000	24000	24000	24000	24000	24000	24000	24000
Permitted Axial Load	[N]	*8	22000	22000	22000	22000	22000	22000	22000	22000
Maximum Radial Load	[N]	*9	24000							
Maximum Axial Load	[N]	*10	22000							
Moment of Inertia (≤Ø 28)	[kgcm2]	--	-	-	-	-	-	-	-	-
Moment of Inertia (≤Ø 38)	[kgcm2]	--	20	24	19	18	23	12	18	12
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	34	39	33	33	38	26	32	26
Efficiency	[%]	*11	92							
Torsional Rigidity	[Nm/arc-min]	*12	400							
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	60							

VRS 210 2-Stage Specifications

Frame Size			**210**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	1000	1500	1500	1500	1500	1000	1000
Maximum Acceleration Torque	[Nm]	*2	1300	2300	2300	2300	1800	1300	1200
Emergency Stop Torque	[Nm]	*3	4000	5000	5000	5000	5000	4000	4000
Nominal Input Speed	[rpm]	*4	1000						
Maximum Input Speed	[rpm]	*5	2000						
No Load Running Torque	[Nm]	*6	1.14						
Permitted Radial Load	[N]	*7	24000	24000	24000	24000	24000	24000	24000
Permitted Axial Load	[N]	*8	22000	22000	22000	22000	22000	22000	22000
Maximum Radial Load	[N]	*9	24000						
Maximum Axial Load	[N]	*10	22000						
Moment of Inertia (≤Ø 28)	[kgcm2]	--	-	4.7	4.7	4.6	4.6	4.6	4.6
Moment of Inertia (≤Ø 38)	[kgcm2]	--	18	12	11	11	11	11	11
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	32	26	26	26	26	26	26
Efficiency	[%]	*11	92						
Torsional Rigidity	[Nm/arc-min]	*12	400						
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	60						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

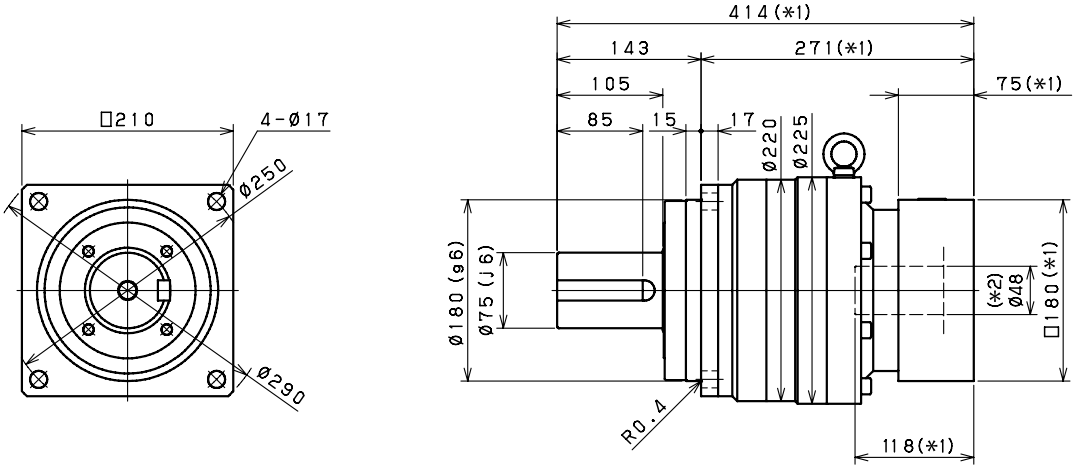
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

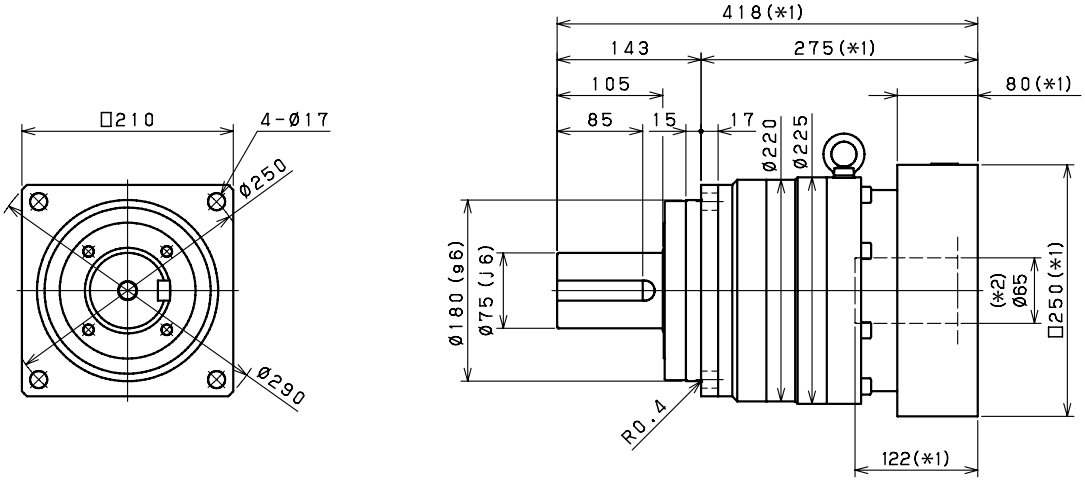
*15) The weight may vary slightly between models

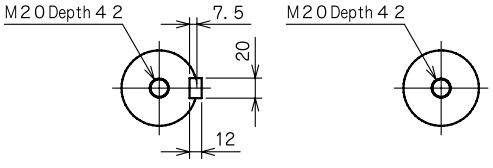
VRS 210 1-Stage Dimensions

Input bore size ≦φ48 mm



Input bore size ≦φ65 mm





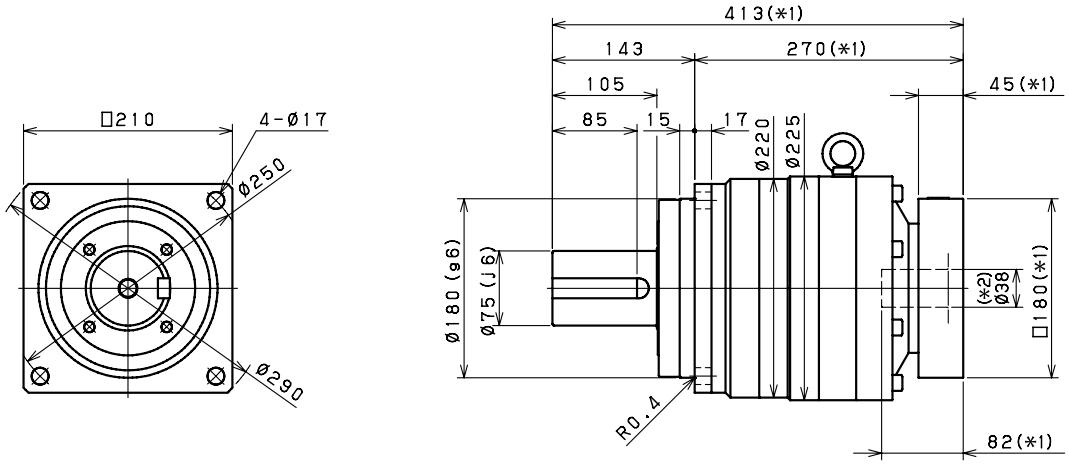
Keyed shaft Smooth shaft

*1) Length will vary depending on motor.

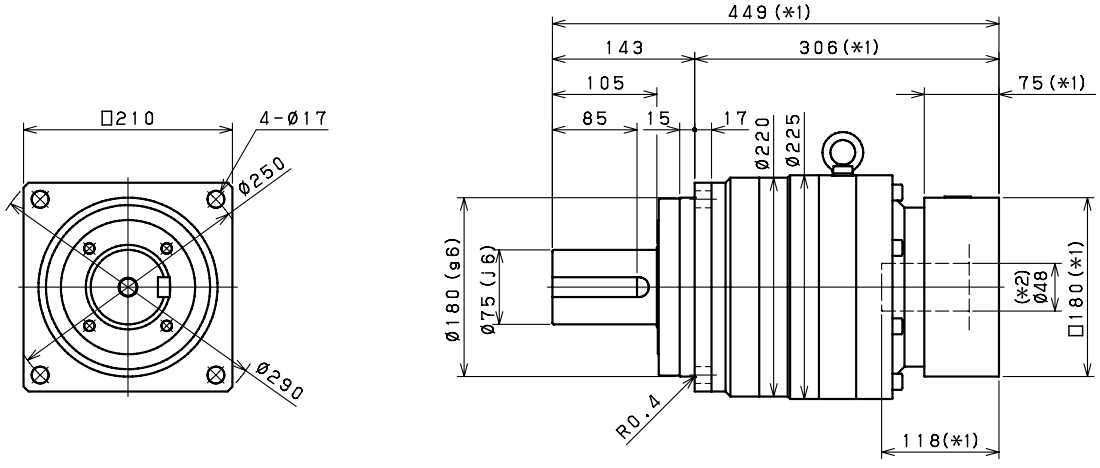
*2) Bushing will be inserted to adapt to motor shaft

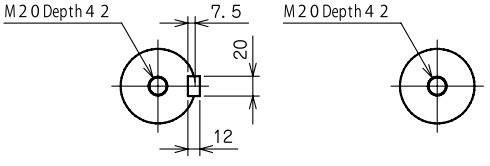
VRS 210 2-Stage Dimensions

Input bore size ≦φ38 mm



Input bore size ≦φ48 mm





Keyed shaft　　Smooth shaft

*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**									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	1600	2400	2400	2400	2400	2400	1600	1600
Maximum Acceleration Torque	[Nm]	*2	2500	3700	3700	3700	3700	3600	3000	2600
Emergency Stop Torque	[Nm]	*3	6000	8000	8000	8000	8000	8000	6000	6000
Nominal Input Speed	[rpm]	*4	1000							
Maximum Input Speed	[rpm]	*5	2000							
No Load Running Torque	[Nm]	*6	5.96							
Permitted Radial Load	[N]	*7	21000	22000	24000	25000	26000	28000	29000	29000
Permitted Axial Load	[N]	*8	27000	27000	27000	27000	27000	27000	27000	27000
Maximum Radial Load	[N]	*9	30000							
Maximum Axial Load	[N]	*10	27000							
Moment of Inertia (≤ Ø 65)	[kgcm2]	--	230	130	110	92	86	81	78	77
Efficiency	[%]	*11	97							
Torsional Rigidity	[Nm/arc-min]	*12	550							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*13	≤ 62							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	85							

VRS 240 2-Stage Specifications

Frame Size	**240**									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	1600	2400	2400	2400	2400	1600	2400	2400
Maximum Acceleration Torque	[Nm]	*2	2500	3700	3700	3700	3700	2500	3700	3700
Emergency Stop Torque	[Nm]	*3	6000	8000	8000	8000	8000	6000	8000	8000
Nominal Input Speed	[rpm]	*4	1000							
Maximum Input Speed	[rpm]	*5	2000							
No Load Running Torque	[Nm]	*6	1.28							
Permitted Radial Load	[N]	*7	30000	30000	30000	30000	30000	30000	30000	30000
Permitted Axial Load	[N]	*8	27000	27000	27000	27000	27000	27000	27000	27000
Maximum Radial Load	[N]	*9	30000							
Maximum Axial Load	[N]	*10	27000							
Moment of Inertia (≤Ø 38)	[kgcm2]	--	-	-	-	-	-	-	-	-
Moment of Inertia (≤Ø 48)	[kgcm2]	--	47	55	45	44	52	32	43	31
Efficiency	[%]	*11	92							
Torsional Rigidity	[Nm/arc-min]	*12	550							
Maximum Torsional Backlash	[arc-min]	--	≤ 3							
Noise Level	dB [A]	*13	≤ 62							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	89							

VRS 240 2-Stage Specifications

Frame Size			**240**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	1600	2400	2400	2400	2400	1600	1600
Maximum Acceleration Torque	[Nm]	*2	2100	3700	3700	3700	2700	2100	1800
Emergency Stop Torque	[Nm]	*3	6000	8000	8000	8000	8000	6000	6000
Nominal Input Speed	[rpm]	*4	1000						
Maximum Input Speed	[rpm]	*5	2000						
No Load Running Torque	[Nm]	*6	1.28						
Permitted Radial Load	[N]	*7	30000	30000	30000	30000	30000	30000	30000
Permitted Axial Load	[N]	*8	27000	27000	27000	27000	27000	27000	27000
Maximum Radial Load	[N]	*9	30000						
Maximum Axial Load	[N]	*10	27000						
Moment of Inertia (≤Ø 38)	[kgcm2]	--	-	14	13	13	13	13	13
Moment of Inertia (≤Ø 48)	[kgcm2]	--	43	31	31	31	31	31	31
Efficiency	[%]	*11	92						
Torsional Rigidity	[Nm/arc-min]	*12	550						
Maximum Torsional Backlash	[arc-min]	--	≤ 3						
Noise Level	dB [A]	*13	≤ 62						
Protection Class	--	*14	IP54 (IP65)						
Ambient Temperature	[°C]	--	0-40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*15	89						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

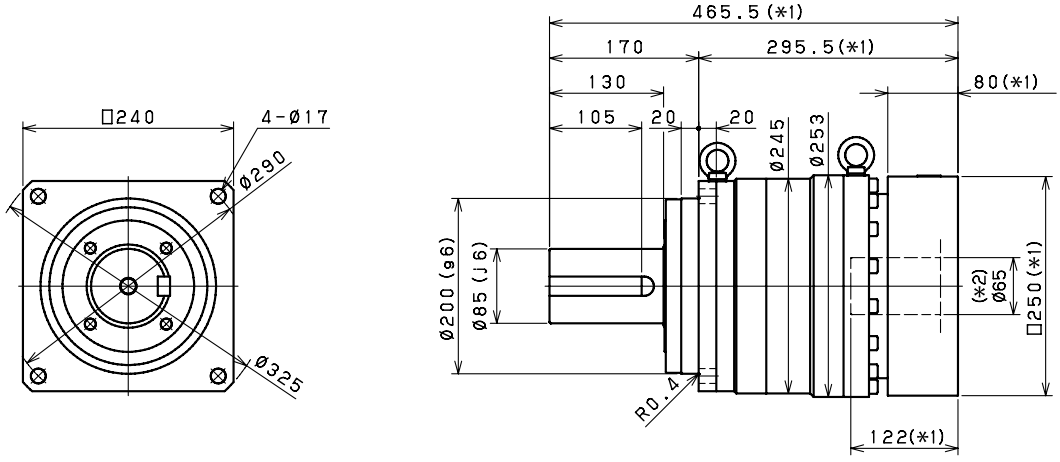
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

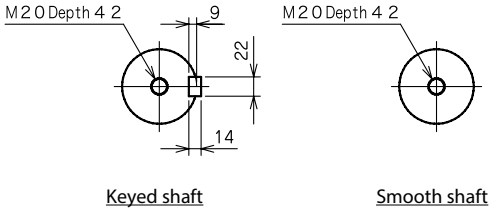
*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

*15) The weight may vary slightly between models

VRS 240 1-Stage Dimensions

Input bore size ≦φ65 mm





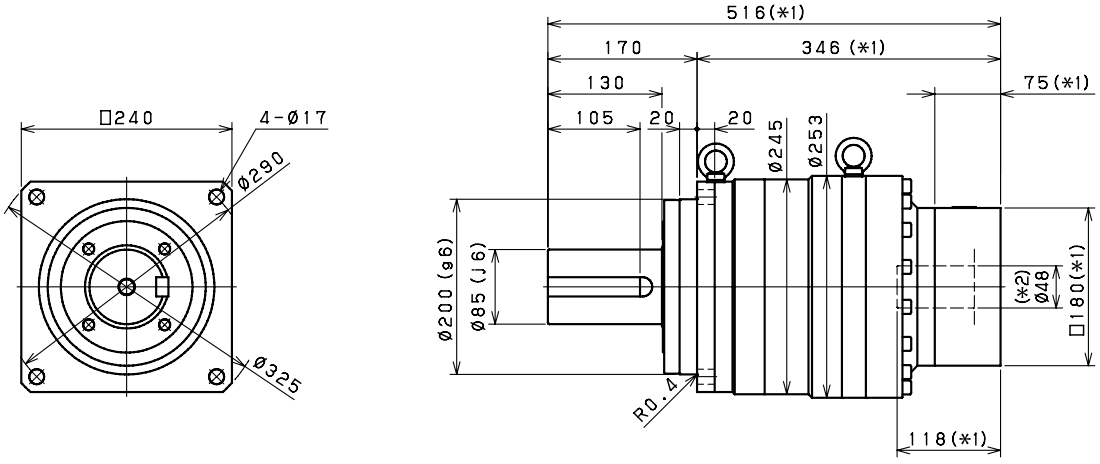
Keyed shaft Smooth shaft

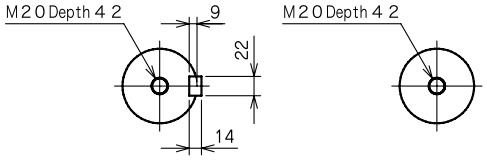
*1) Length will vary depending on motor

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

VRS 240 2-Stage Dimensions

Input bore size ≦φ48 mm





Keyed shaft Smooth shaft

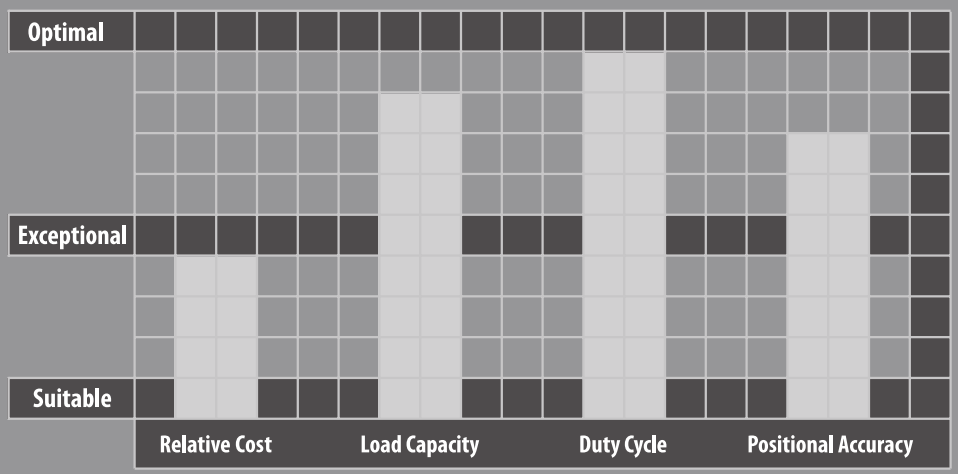
*1) Length will vary depending on motor

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

VRT SERIES

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.

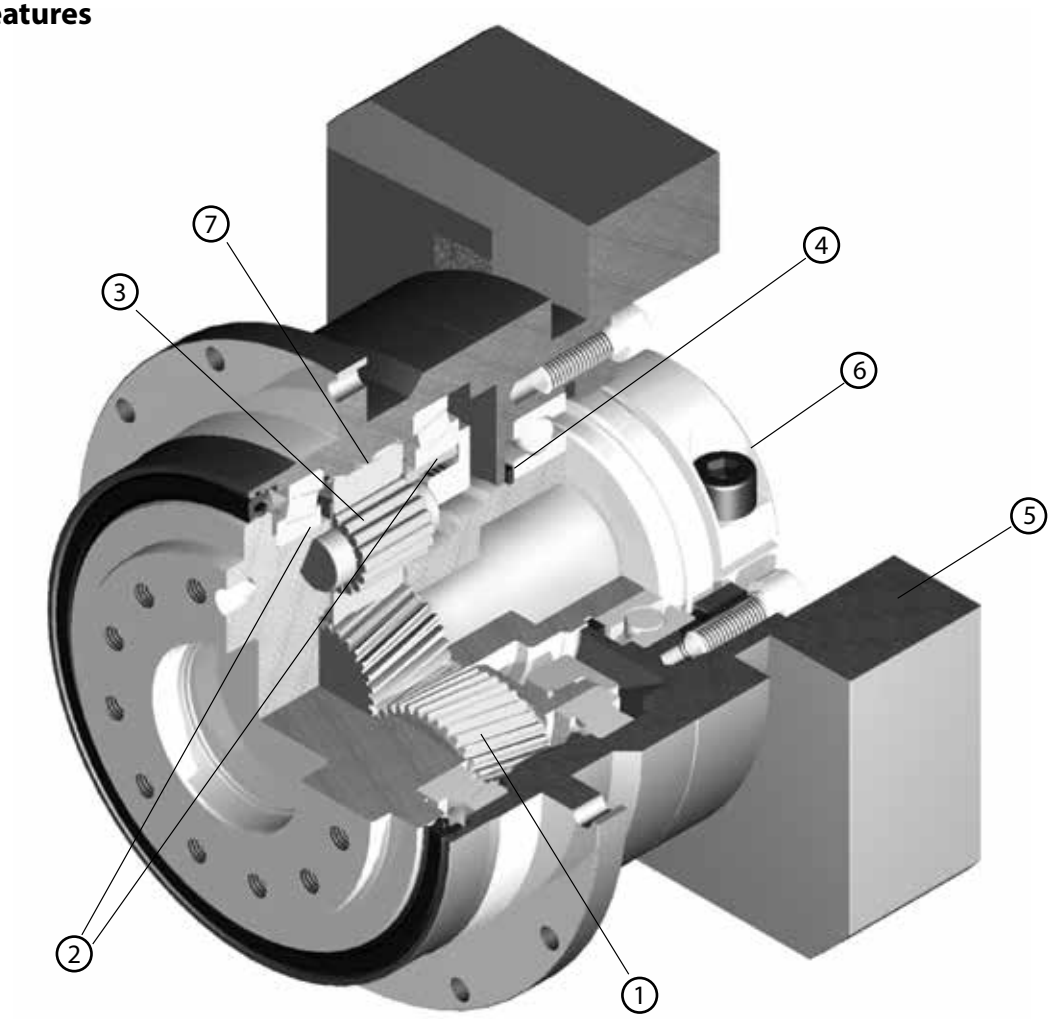
This product comes standard with <3 arc-min backlash, but is also available with reduced options down to <1 arc-min. The VRT is the most robust planetary solution in the marketplace and is used across a numerous range of applications including 7th axis robot shuttles, dial tables, end of arm tooling and any other axis where installation space, reduced assembly time and torque density play an important role.



VRT SERIES

- 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

VRT Series 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

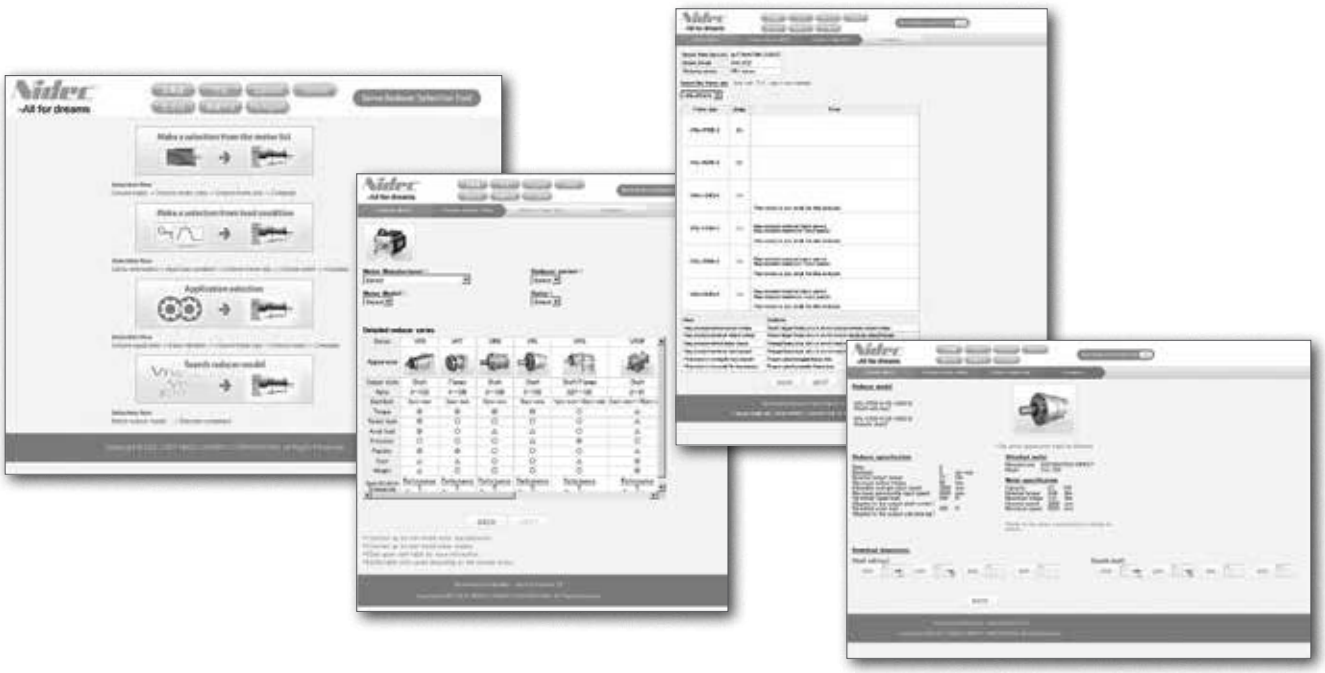
VRT Series Model Code

VRT	–	110	C	–	7	–	F	3	–	19HB16

- Motor mounting code (*1)
- Backlash: ≤ 3 arc-min
- Output mounting style: F: Flange
- Ratio: 1-Stage: 4, 5, 7, 10; 2-Stage: 16, 20, 25, 28, 35, 40, 50, 70, 100
- Design version
- Frame size: 047, 064, 090, 110, 140, 200, 255, 285
- Series

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

Contact us for additional information or refer to our online gearbox selection tool.
Selection tool www.nidec-shimpo.co.jp/selection/eng



VRT 047 1-Stage Specifications

Frame Size			**047**						
Ratio	Unit	Notes	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	9	9	9	9	9	6	6
Maximum Acceleration Torque	[Nm]	*2	18	18	18	18	18	12	12
Emergency Stop Torque	[Nm]	*3	35	35	35	35	35	30	30
Nominal Input Speed	[rpm]	*4	4000						
Maximum Input Speed	[rpm]	*5	8000						
No Load Running Torque	[Nm]	*6	0.03						
Permitted Radial Load	[N]	*7	270	300	310	330	350	360	370
Permitted Axial Load	[N]	*8	300	330	360	390	410	430	450
Maximum Radial Load	[N]	*9	1100						
Maximum Axial Load	[N]	*10	550						
Maximum Tilting Moment	[Nm]	*11	32						
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.052	0.043	0.038	0.036	0.034	0.033	0.032
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.17	0.16	0.15	0.15	0.15	0.15	0.15
Efficiency	[%]	*12	95						
Torsional Rigidity	[Nm/arc-min]	*13	2						
Maximum Torsional Backlash	[arc-min]	--	≤ 3						
Noise Level	dB [A]	*14	≤ 61						
Protection Class	--	*15	IP54 (IP65)						
Ambient Temperature	[°C]	--	0 - 40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*16	0.7						

VRT 047 2-Stage Specifications

Frame Size			**047**						
Ratio	Unit	Notes	16	20	25	28	35	40	45
Nominal Output Torque	[Nm]	*1	9	9	9	9	9	9	6
Maximum Acceleration Torque	[Nm]	*2	18	18	18	18	18	18	12
Emergency Stop Torque	[Nm]	*3	35	35	35	35	35	35	30
Nominal Input Speed	[rpm]	*4	4000						
Maximum Input Speed	[rpm]	*5	8000						
No Load Running Torque	[Nm]	*6	0.01						
Permitted Radial Load	[N]	*7	440	470	510	530	570	590	620
Permitted Axial Load	[N]	*8	550	550	550	550	550	550	550
Maximum Radial Load	[N]	*9	1100						
Maximum Axial Load	[N]	*10	550						
Maximum Tilting Moment	[Nm]	*11	32						
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.039	0.035	0.034	0.038	0.034	0.030	0.034
Efficiency	[%]	*12	90						
Torsional Rigidity	[Nm/arc-min]	*13	2						
Maximum Torsional Backlash	[arc-min]	--	≤ 5						
Noise Level	dB [A]	*14	≤ 61						
Protection Class	--	*15	IP54 (IP65)						
Ambient Temperature	[°C]	--	0 - 40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*16	0.8						

VRT 047 2-Stage Specifications

Frame Size	**047**							
Ratio	Unit	Notes	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	9	9	9	9	6	6
Maximum Acceleration Torque	[Nm]	*2	18	18	18	18	12	12
Emergency Stop Torque	[Nm]	*3	35	35	35	35	30	30
Nominal Input Speed	[rpm]	*4	4000					
Maximum Input Speed	[rpm]	*5	8000					
No Load Running Torque	[Nm]	*6	0.01					
Permitted Radial Load	[N]	*7	640	680	710	750	780	800
Permitted Axial Load	[N]	*8	550	550	550	550	550	550
Maximum Radial Load	[N]	*9	1100					
Maximum Axial Load	[N]	*10	550					
Maximum Tilting Moment	[Nm]	*11	32					
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.030	0.030	0.030	0.030	0.030	0.030
Efficiency	[%]	*12	90					
Torsional Rigidity	[Nm/arc-min]	*13	2					
Maximum Torsional Backlash	[arc-min]	--	≤ 5					
Noise Level	dB [A]	*14	≤ 61					
Protection Class	--	*15	IP54 (IP65)					
Ambient Temperature	[°C]	--	0 - 40					
Permitted Housing Temperature	[°C]	--	90					
Weight	[kg]	*16	0.8					

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The moment is the maximum load at output flange surface

*12) The efficiency at the nominal output torque rating

*13) This does not include lost motion

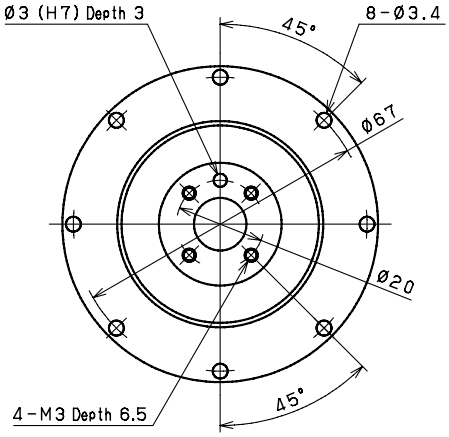
*14) Contact NIDEC-SHIMPO for the testing conditions and environment

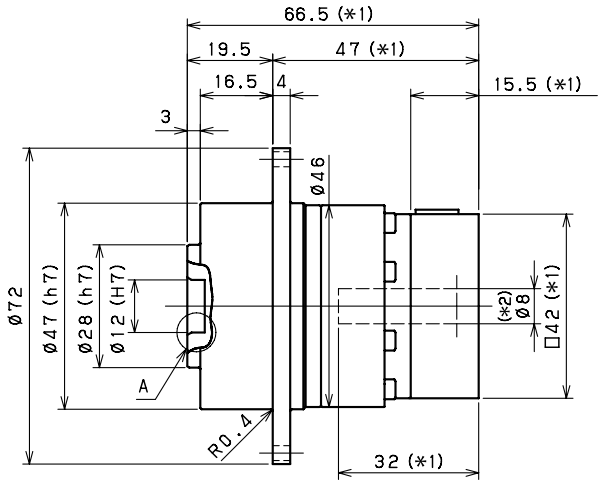
*15) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

*16) The weight may vary slightly between models

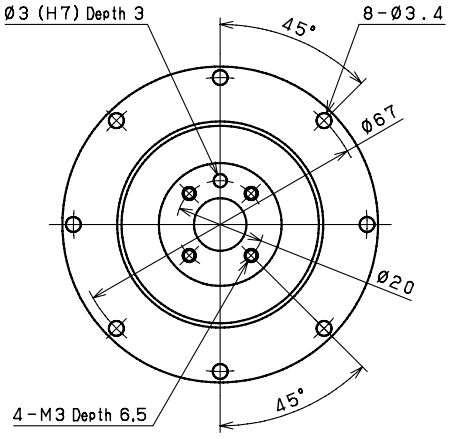
VRT 047 1-Stage Dimensions

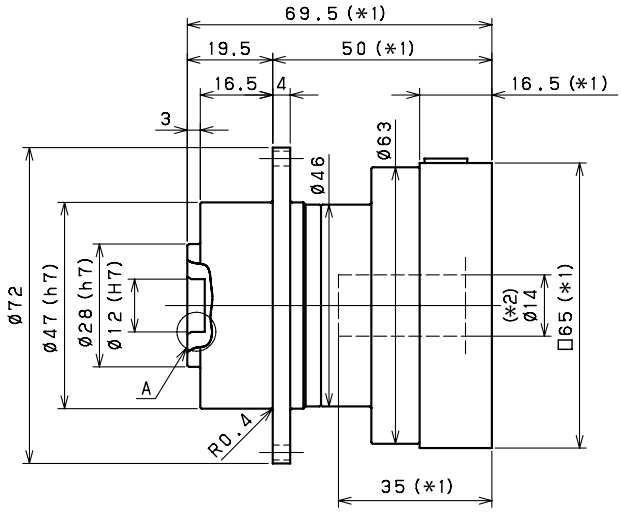
Input bore size ≦φ8 mm





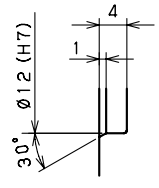
Input bore size ≦φ14 mm





*1) Length will vary depending on motor

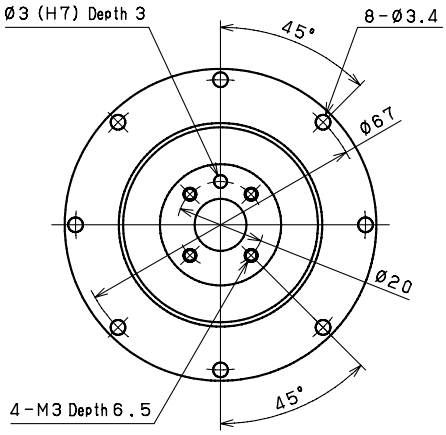
*2) Bushing will be inserted to adapt to motor shaft

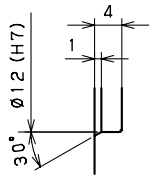


Enlarged detail A

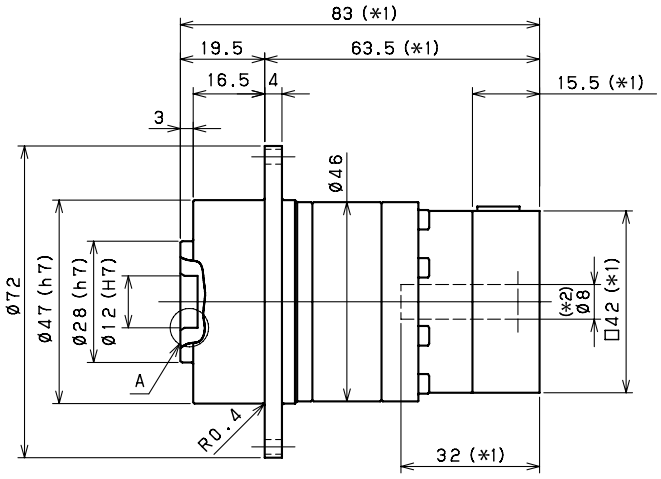
VRT 047 2-Stage Dimensions

Input bore size ≦φ8 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**						
Ratio	Unit	Note	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	27	27	27	27	27	18	18
Maximum Acceleration Torque	[Nm]	*2	50	50	50	50	50	35	35
Emergency Stop Torque	[Nm]	*3	100	100	100	100	100	80	80
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*6	0.08						
Permitted Radial Load	[N]	*7	370	400	420	440	460	480	500
Permitted Axial Load	[N]	*8	360	390	430	460	480	510	530
Maximum Radial Load	[N]	*9	1500						
Maximum Axial Load	[N]	*10	750						
Maximum Tilting Moment	[Nm]	*11	58						
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.13	0.10	0.085	0.075	0.068	0.064	0.062
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.24	0.21	0.20	0.19	0.18	0.18	0.17
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.52	0.49	0.47	0.46	0.46	0.45	0.45
Efficiency	[%]	*12	95						
Torsional Rigidity	[Nm/arc-min]	*13	7.5						
Maximum Torsional Backlash	[arc-min]	--	≤ 3						
Noise Level	dB [A]	*14	≤ 66						
Protection Class	--	*15	IP54 (IP65)						
Ambient Temperature	[°C]	--	0 - 40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*16	1.4						

VRT 064 2-Stage Specifications

Frame Size			**064**						
Ratio	Unit	Note	16	20	25	28	35	40	45
Nominal Output Torque	[Nm]	*1	27	27	27	27	27	27	18
Maximum Acceleration Torque	[Nm]	*2	50	50	50	50	50	50	35
Emergency Stop Torque	[Nm]	*3	100	100	100	100	100	100	80
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*6	0.04						
Permitted Radial Load	[N]	*7	580	630	680	700	760	790	820
Permitted Axial Load	[N]	*8	650	720	750	750	750	750	750
Maximum Radial Load	[N]	*9	1500						
Maximum Axial Load	[N]	*10	750						
Maximum Tilting Moment	[Nm]	*11	58						
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.072	0.064	0.062	0.069	0.061	0.051	0.061
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.18	0.18	0.17	0.18	0.17	0.16	0.17
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.46	0.45	0.45	0.46	0.45	0.44	0.45
Efficiency	[%]	*12	90						
Torsional Rigidity	[Nm/arc-min]	*13	7.5						
Maximum Torsional Backlash	[arc-min]	--	≤ 3						
Noise Level	dB [A]	*14	≤ 66						
Protection Class	--	*15	IP54 (IP65)						
Ambient Temperature	[°C]	--	0 - 40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*16	1.6						

VRT o64 2-Stage Specifications

Frame Size	**064**							
Ratio	Unit	Note	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	27	27	27	27	18	18
Maximum Acceleration Torque	[Nm]	*2	50	50	50	50	35	35
Emergency Stop Torque	[Nm]	*3	100	100	100	100	80	80
Nominal Input Speed	[rpm]	*4	3000					
Maximum Input Speed	[rpm]	*5	6000					
No Load Running Torque	[Nm]	*6	0.04					
Permitted Radial Load	[N]	*7	850	910	950	1000	1000	1100
Permitted Axial Load	[N]	*8	750	750	750	750	750	750
Maximum Radial Load	[N]	*9	1500					
Maximum Axial Load	[N]	*10	750					
Maximum Tilting Moment	[Nm]	*11	58					
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.051	0.051	0.051	0.051	0.051	0.051
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.16	0.16	0.16	0.16	0.16	0.16
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.44	0.44	0.44	0.44	0.44	0.44
Efficiency	[%]	*12	90					
Torsional Rigidity	[Nm/arc-min]	*13	7.5					
Maximum Torsional Backlash	[arc-min]	--	≤ 3					
Noise Level	dB [A]	*14	≤ 66					
Protection Class	--	*15	IP54 (IP65)					
Ambient Temperature	[°C]	--	0 - 40					
Permitted Housing Temperature	[°C]	--	90					
Weight	[kg]	*16	1.6					

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The moment is the maximum load at output flange surface

*12) The efficiency at the nominal output torque rating

*13) This does not include lost motion

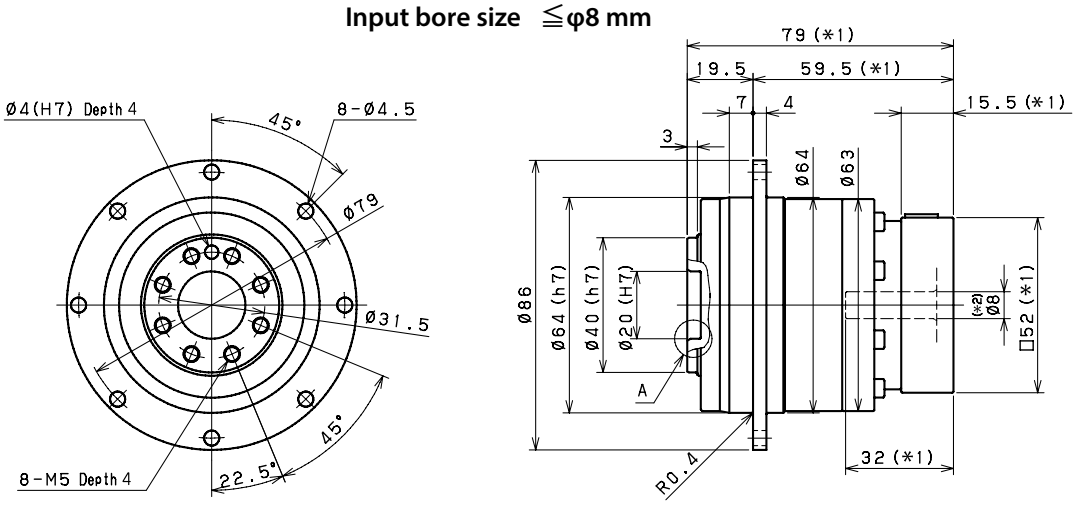
*14) Contact NIDEC-SHIMPO for the testing conditions and environment

*15) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

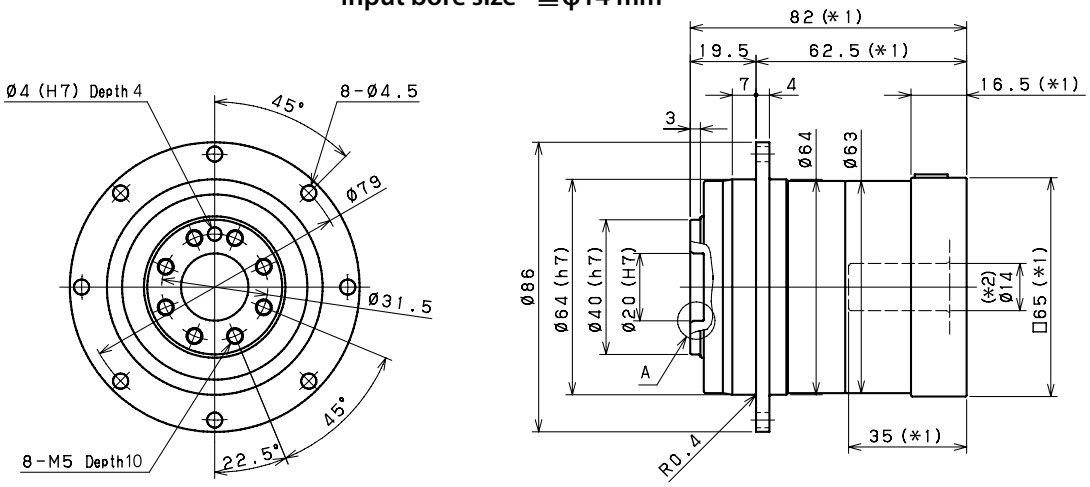
*16) The weight may vary slightly between models

VRT 064 1-Stage Dimensions

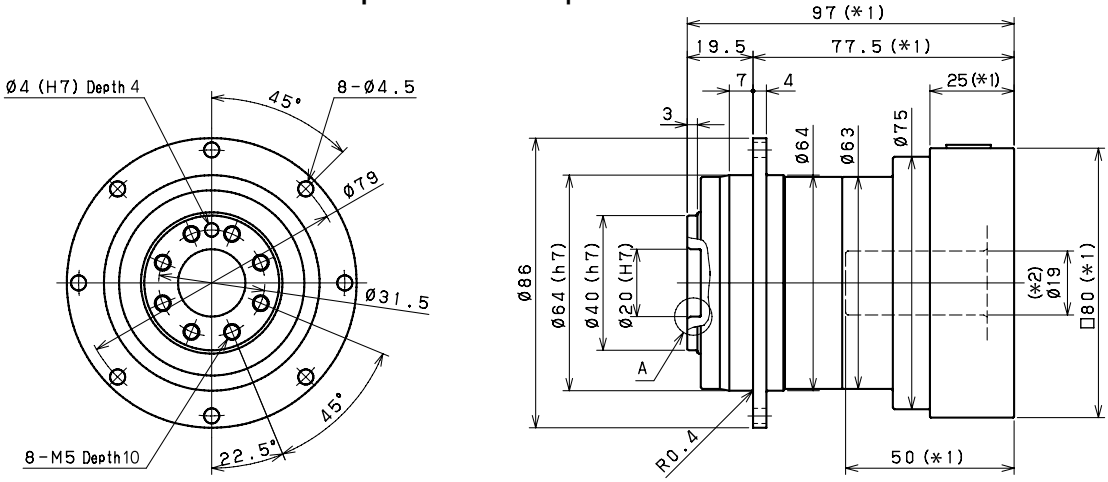
Input bore size ≦φ8 mm

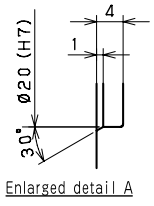


Input bore size ≦φ14 mm



Input bore size ≦φ19 mm



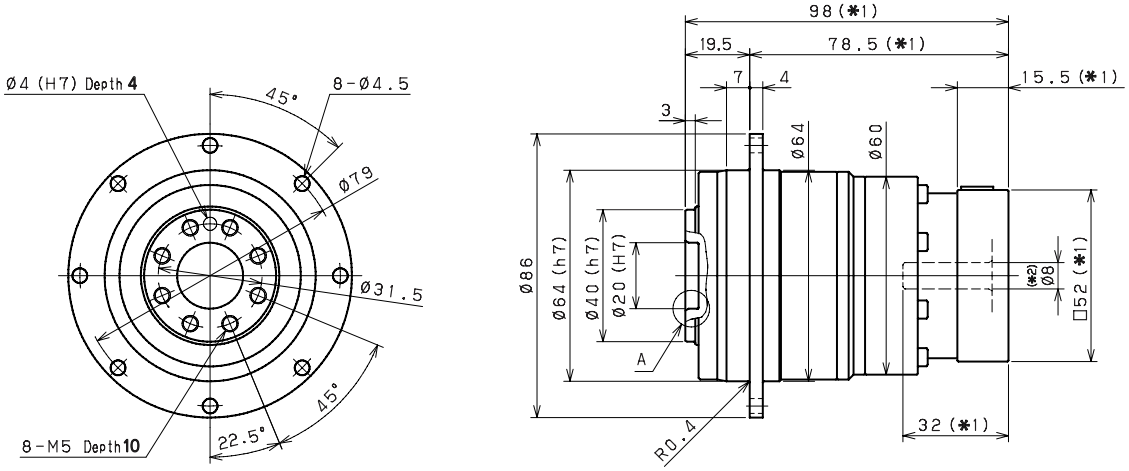


*1) Length will vary depending on motor

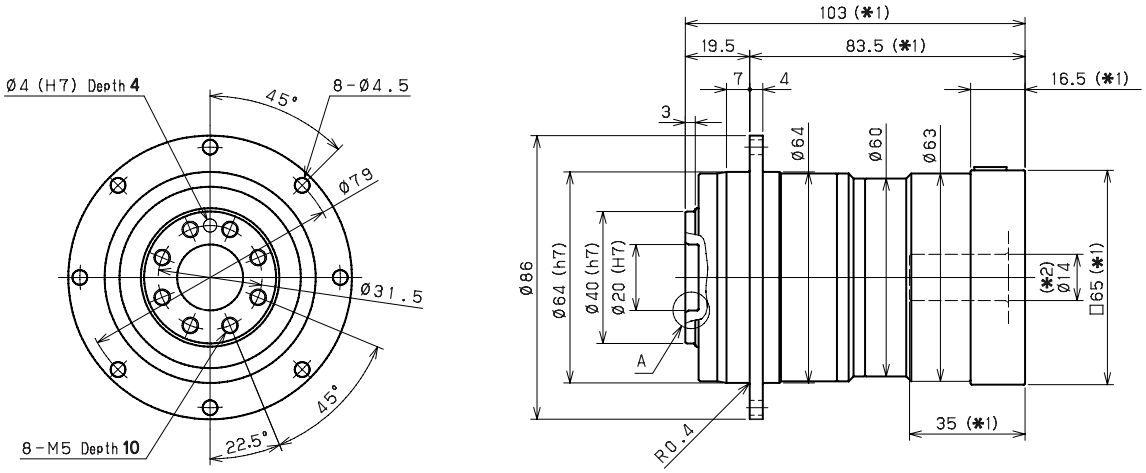
*2) Bushing will be inserted to adapt to motor shaft

VRT o64 2-Stage Dimensions

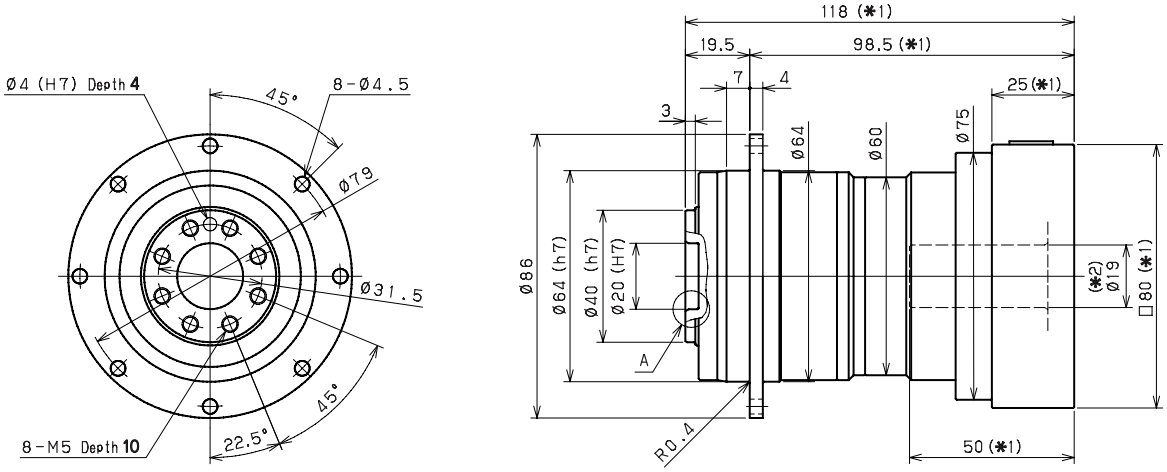
Input bore size ≦φ8 mm

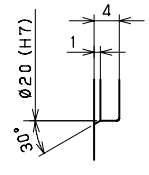


Input bore size ≦φ14 mm



Input bore size ≦φ19 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**						
Ratio	Unit	Note	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	75	75	75	75	75	50	50
Maximum Acceleration Torque	[Nm]	*2	125	125	125	125	125	80	80
Emergency Stop Torque	[Nm]	*3	250	250	250	250	250	200	200
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	720	780	830	870	910	950	980
Permitted Axial Load	[N]	*8	620	680	740	790	830	880	920
Maximum Radial Load	[N]	*9	3300						
Maximum Axial Load	[N]	*10	1700						
Maximum Tilting Moment	[Nm]	*11	170						
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.78	0.58	0.48	0.42	0.38	0.36	0.34
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	1.2	0.98	0.87	0.82	0.78	0.75	0.74
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.9	2.7	2.6	2.6	2.5	2.5	2.5
Efficiency	[%]	*12	95						
Torsional Rigidity	[Nm/arc-min]	*13	22						
Maximum Torsional Backlash	[arc-min]	--	≤ 3						
Noise Level	dB [A]	*14	≤ 67						
Protection Class	--	*15	IP54 (IP65)						
Ambient Temperature	[°C]	--	0 - 40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*16	3.6						

VRT 090 2-Stage Specifications

Frame Size			**090**					
Ratio	Unit	Note	16	20	25	28	35	40
Nominal Output Torque	[Nm]	*1	75	75	75	75	75	75
Maximum Acceleration Torque	[Nm]	*2	125	125	125	125	125	125
Emergency Stop Torque	[Nm]	*3	250	250	250	250	250	250
Nominal Input Speed	[rpm]	*4	3000					
Maximum Input Speed	[rpm]	*5	6000					
No Load Running Torque	[Nm]	*6	0.05					
Permitted Radial Load	[N]	*7	1200	1200	1300	1400	1500	1600
Permitted Axial Load	[N]	*8	1100	1200	1400	1400	1600	1700
Maximum Radial Load	[N]	*9	3300					
Maximum Axial Load	[N]	*10	1700					
Maximum Tilting Moment	[Nm]	*11	170					
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.26	0.20	0.19	0.24	0.19	0.12
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.43	0.36	0.36	0.40	0.35	0.28
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.81	0.75	0.74	0.79	0.74	0.67
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.5	2.5	2.5	2.5	2.5	2.4
Efficiency	[%]	*12	90					
Torsional Rigidity	[Nm/arc-min]	*13	22					
Maximum Torsional Backlash	[arc-min]	--	≤ 3					
Noise Level	dB [A]	*14	≤ 67					
Protection Class	--	*15	IP54 (IP65)					
Ambient Temperature	[°C]	--	0 - 40					
Permitted Housing Temperature	[°C]	--	90					
Weight	[kg]	*16	4					

VRT 090 2-Stage Specifications

Frame Size	090								
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	50	75	75	75	75	50	50
Maximum Acceleration Torque	[Nm]	*2	80	125	125	125	125	80	80
Emergency Stop Torque	[Nm]	*3	200	250	250	250	250	200	200
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*6	0.05						
Permitted Radial Load	[N]	*7	1600	1700	1800	1900	2000	2000	2100
Permitted Axial Load	[N]	*8	1700	1700	1700	1700	1700	1700	1700
Maximum Radial Load	[N]	*9	3300						
Maximum Axial Load	[N]	*10	1700						
Maximum Tilting Moment	[Nm]	*11	170						
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.19	0.12	0.11	0.11	0.11	0.11	0.11
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.35	0.28	0.27	0.27	0.27	0.27	0.27
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.73	0.67	0.67	0.67	0.67	0.67	0.67
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.5	2.4	2.4	2.4	2.4	2.4	2.4
Efficiency	[%]	*12	90						
Torsional Rigidity	[Nm/arc-min]	*13	22						
Maximum Torsional Backlash	[arc-min]	--	≤3						
Noise Level	dB [A]	*14	≤ 67						
Protection Class	--	*15	IP54 (IP65)						
Ambient Temperature	[°C]	--	0 - 40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*16	4						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The moment is the maximum load at output flange surface

*12) The efficiency at the nominal output torque rating

*13) This does not include lost motion

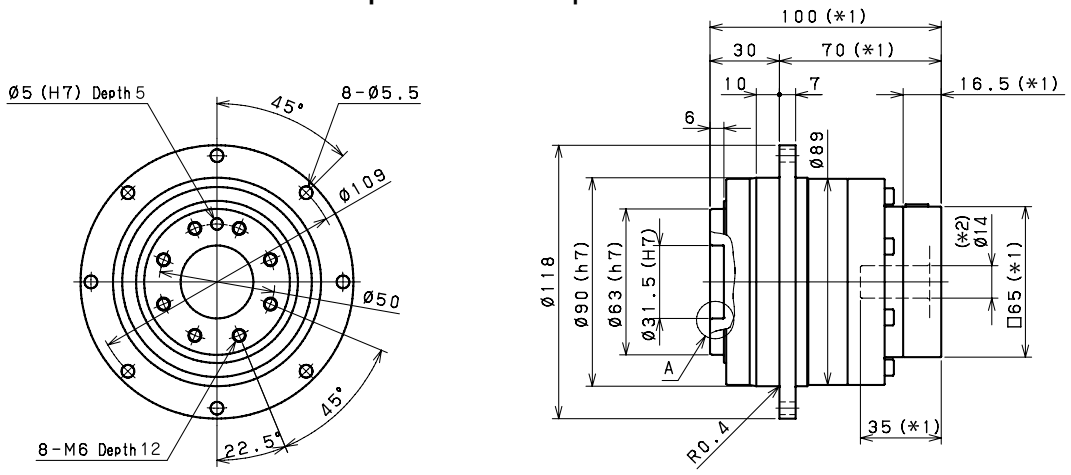
*14) Contact NIDEC-SHIMPO for the testing conditions and environment

*15) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

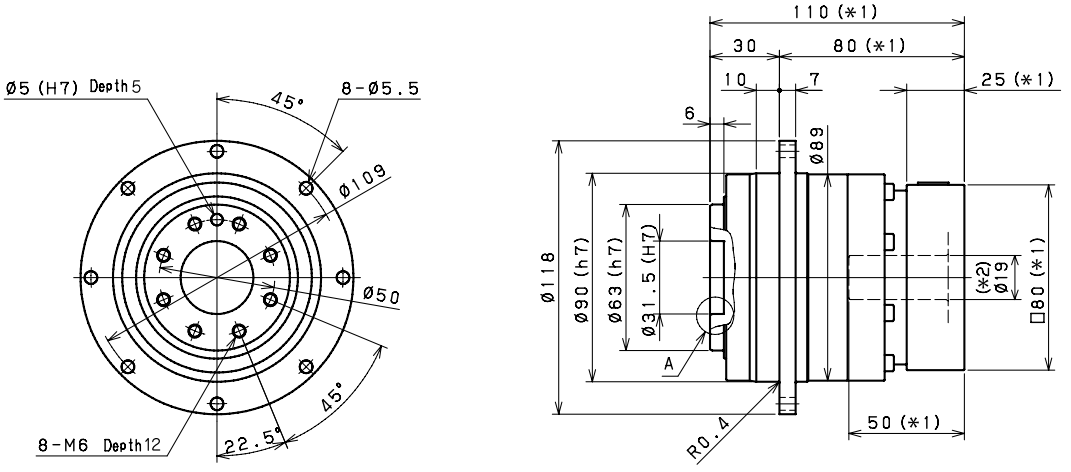
*16) The weight may vary slightly between models

VRT 090 1-Stage Dimensions

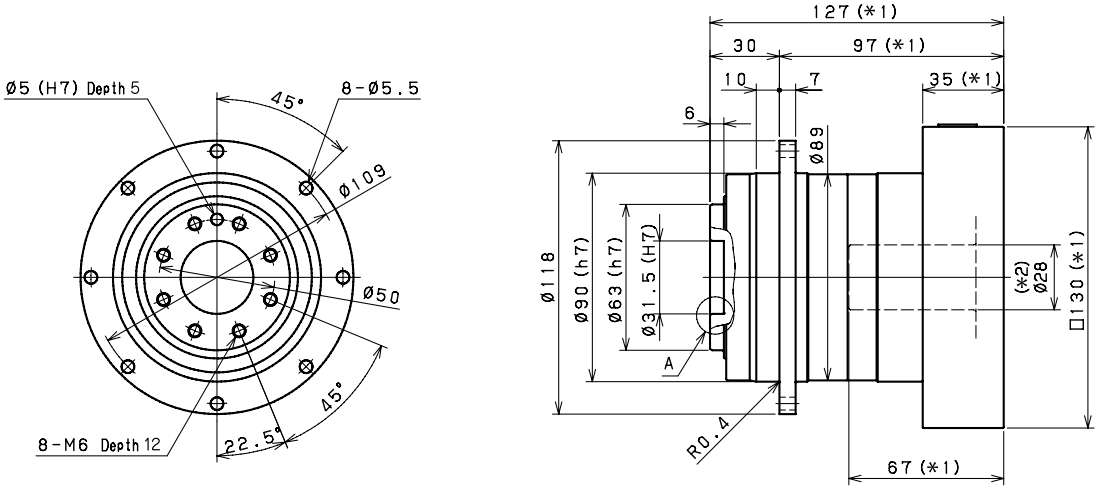
Input bore size ≦φ14 mm

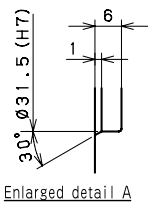


Input bore size ≦φ19 mm



Input bore size ≦φ28 mm



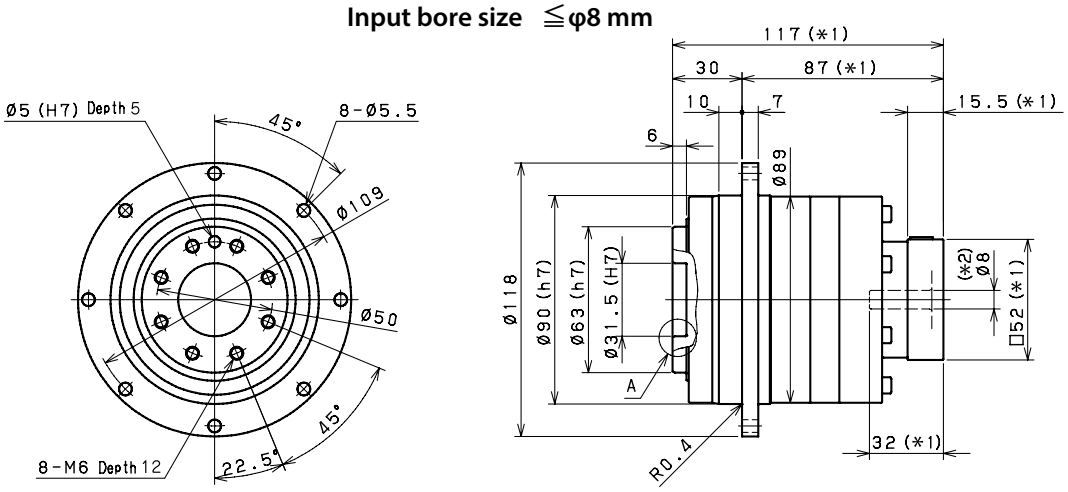


*1) Length will vary depending on motor

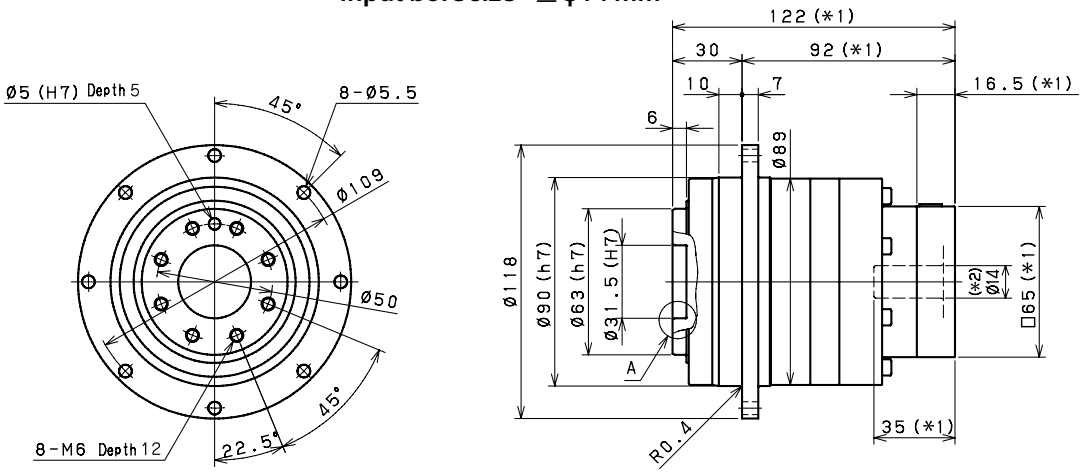
*2) Bushing will be inserted to adapt to motor shaft

VRT 090 2-Stage Dimensions

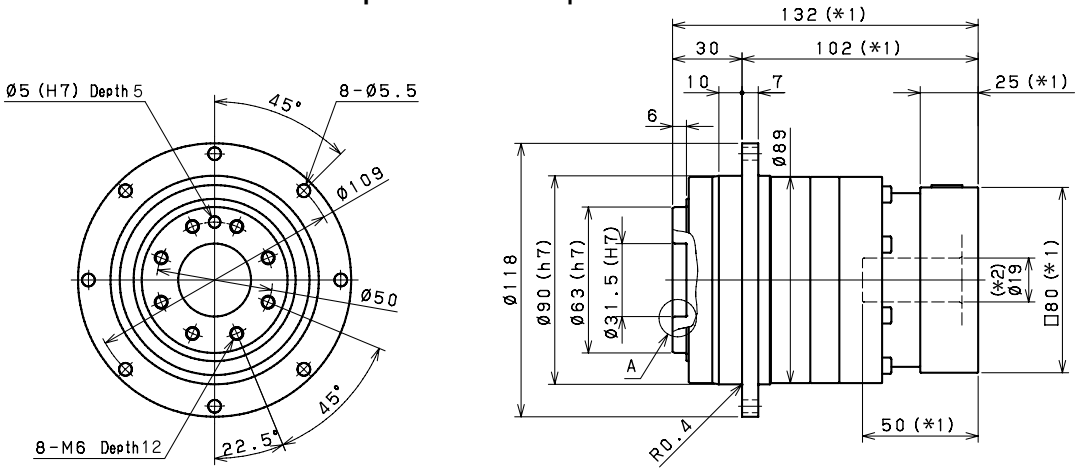
Input bore size ≦φ8 mm

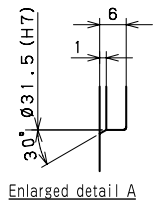


Input bore size ≦φ14 mm



Input bore size ≦φ19 mm (*3)





*1) Length will vary depending on motor

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

*3) 28mm input bore is available for this frame size. Use our online configurator to make your selection or contact us for assistance

VRT 110 1-Stage Specifications

Frame Size	**110**					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	120	180	180	120
Maximum Output Torque	[Nm]	*2	330	330	330	225
Emergency Stop Torque	[Nm]	*3	625	625	625	500
Nominal Input Speed	[rpm]	*4	3000			
Maximum Input Speed	[rpm]	*5	6000			
No Load Running Torque	[Nm]	*6	0.77			
Permitted Radial Load	[N]	*7	4700	5000	5600	6200
Permitted Axial Load	[N]	*8	3200	3400	3800	4200
Maximum Radial Load	[N]	*9	12000			
Maximum Axial Load	[N]	*10	8800			
Maximum Tilting Moment	[Nm]	*11	990			
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	3.1	2.1	1.3	0.99
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	4.8	3.8	3.1	2.7
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	11	10	9.5	9.0
Efficiency	[%]	*12	95			
Torsional Rigidity	[Nm/arcmin]	*13	60			
Maximum Torsional Backlash	[Arc-min]	--	≤ 3			
Noise Level	dB [A]	*14	≤ 71			
Protection Class	--	*15	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*16	7.8			

VRT 110 2-Stage Specifications

Frame Size	**110**					
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			
Maximum Tilting Moment	[Nm]	*11	990			
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	-	-	-	-
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	1.0	0.76	0.73	0.94
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	1.4	1.1	1.1	1.3
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	3.2	2.9	2.9	3.1
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	9.5	9.2	9.1	9.4
Efficiency	[%]	*12	90			
Torsional Rigidity	[Nm/arcmin]	*13	60			
Maximum Torsional Backlash	[Arc-min]	--	≤ 3			
Noise Level	dB [A]	*14	≤ 71			
Protection Class	--	*15	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*16	8.6			

VRT 110 2-Stage Specifications

Frame Size	**110**						
Ratio	Unit	Note	35	40	50	70	100
Nominal Output Torque	[Nm]	*1	180	180	180	180	120
Maximum Output Torque	[Nm]	*2	330	330	330	330	225
Emergency Stop Torque	[Nm]	*3	625	625	625	625	500
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	9000	9400	10000	11000	12000
Permitted Axial Load	[N]	*8	6100	6400	6800	7500	8400
Maximum Radial Load	[N]	*9	12000				
Maximum Axial Load	[N]	*10	8800				
Maximum Tilting Moment	[Nm]	*11	990				
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	-	-	0.20	0.19	0.19
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.70	0.38	0.37	0.36	0.36
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	1.1	0.78	0.77	0.76	0.76
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	2.8	2.5	2.5	2.5	2.5
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	9.1	8.8	8.8	8.8	8.8
Efficiency	[%]	*12	90				
Torsional Rigidity	[Nm/arcmin]	*13	60				
Maximum Torsional Backlash	[Arc-min]	--	≤ 3				
Noise Level	dB [A]	*14	≤ 71				
Protection Class	--	*15	IP54 (IP65)				
Ambient Temperature	[°C]	--	0 - 40				
Permitted Housing Temperature	[°C]	--	90				
Weight	[kg]	*16	8.6				

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The moment is the maximum load at output flange surface

*12) The efficiency at the nominal output torque rating

*13) This does not include lost motion

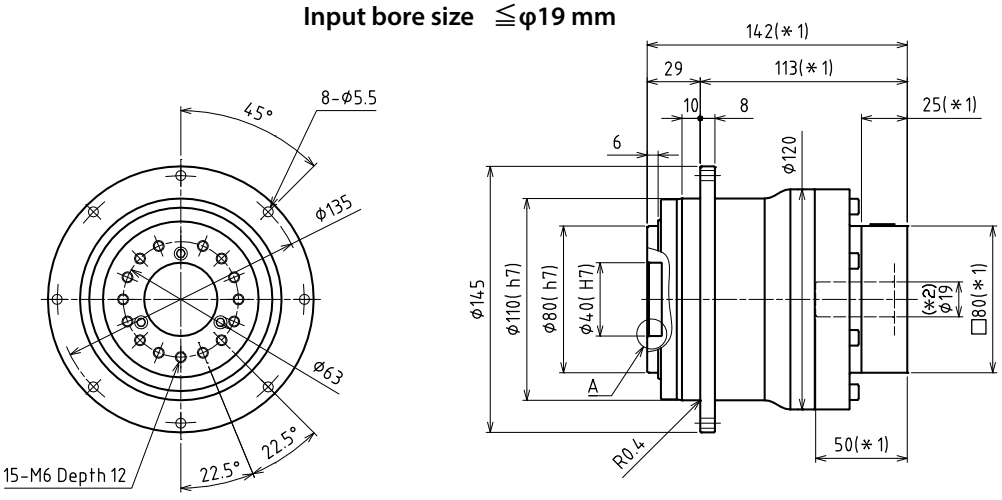
*14) Contact NIDEC-SHIMPO for the testing conditions and environment

*15) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

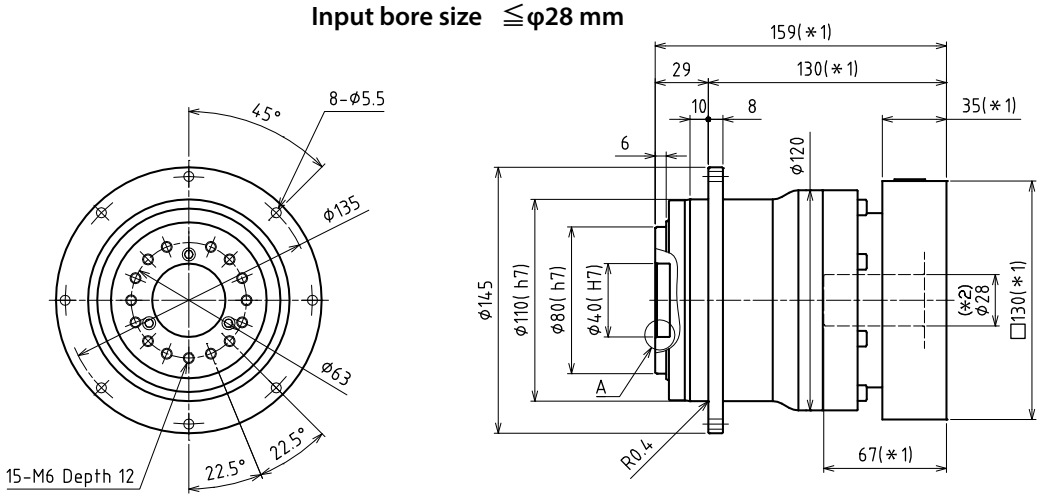
*16) The weight may vary slightly between models

VRT 110 1-Stage Dimensions

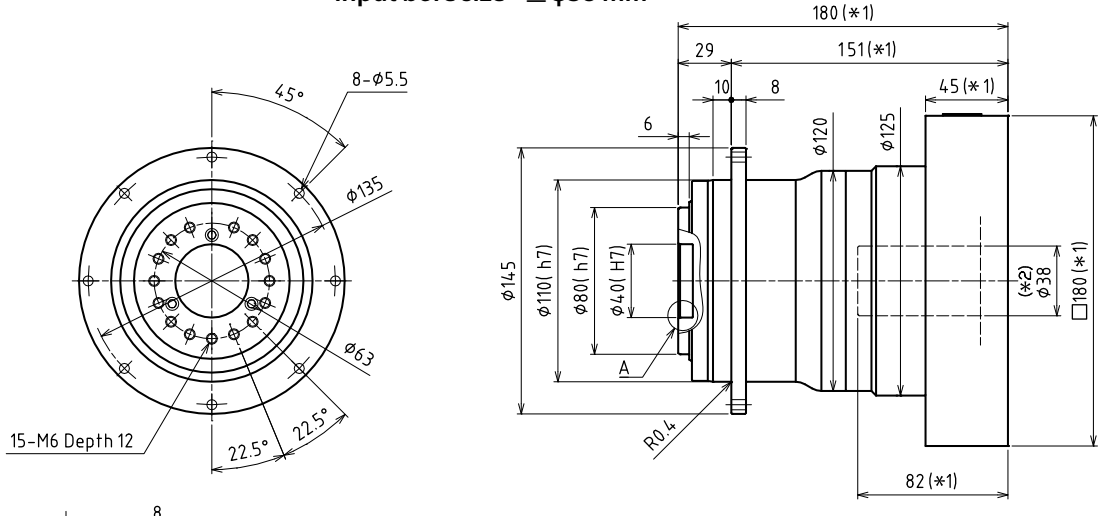
Input bore size ≦φ19 mm

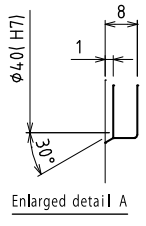


Input bore size ≦φ28 mm



Input bore size ≦φ38 mm



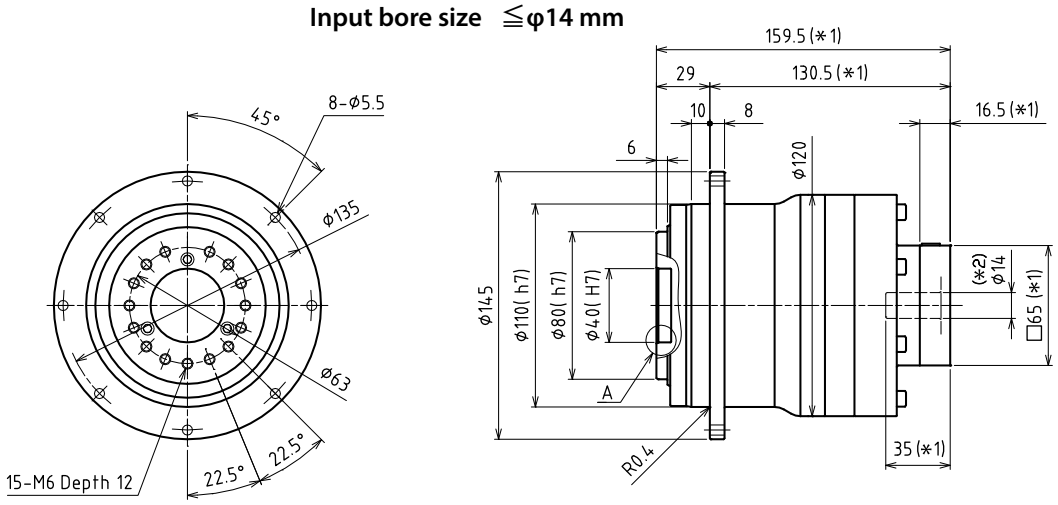


*1) Length will vary depending on motor

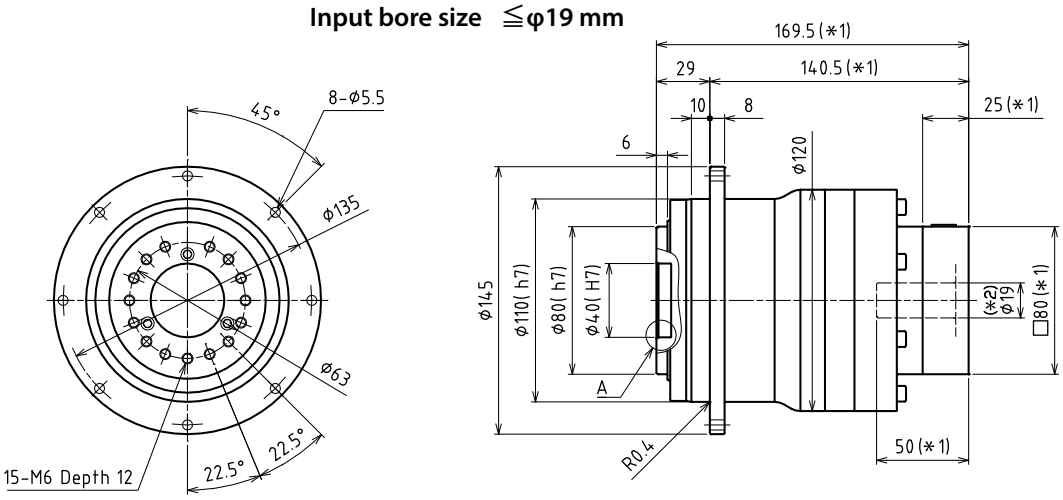
*2) Bushing will be inserted to adapt to motor shaft

VRT 110 2-Stage Dimensions

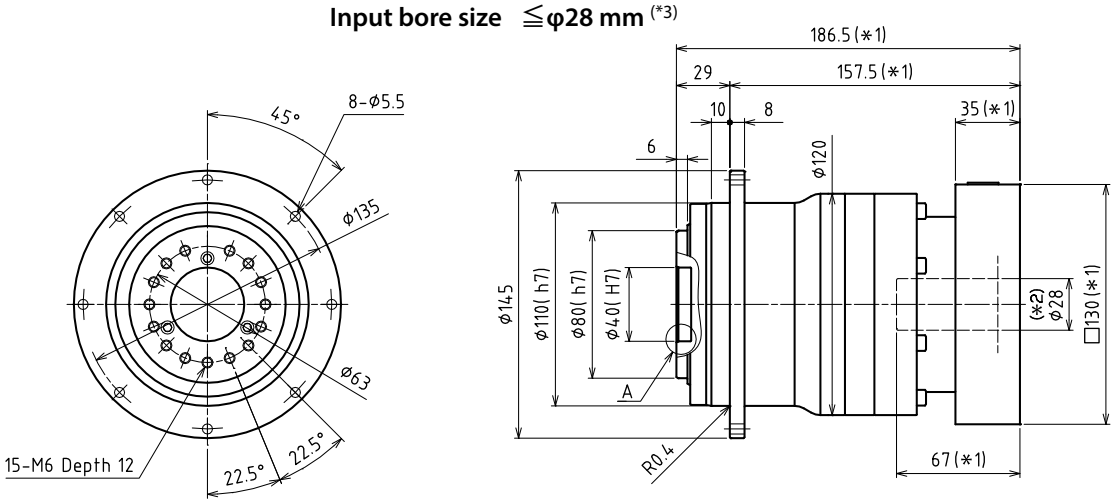
Input bore size ≦φ14 mm

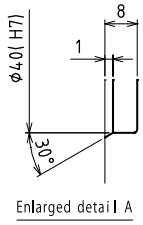


Input bore size ≦φ19 mm



Input bore size ≦φ28 mm (*3)





*1) Length will vary depending on motor

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

*3) 38mm input bore is available for this frame size. Use our online configurator to make your selection or contact us for assistance

VRT 140 1-Stage Specifications

Frame Size	**140**					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	240	360	360	240
Maximum Output Torque	[Nm]	*2	700	700	700	470
Emergency Stop Torque	[Nm]	*3	1250	1250	1250	1000
Nominal Input Speed	[rpm]	*4	2000			
Maximum Input Speed	[rpm]	*5	4000			
No Load Running Torque	[Nm]	*6	1.00			
Permitted Radial Load	[N]	*7	8000	8500	9400	10000
Permitted Axial Load	[N]	*8	5600	6000	6700	7400
Maximum Radial Load	[N]	*9	19000			
Maximum Axial Load	[N]	*10	14000			
Maximum Tilting Moment	[Nm]	*11	2000			
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	11	7.7	5.1	3.8
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	18	14	12	10
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	33	29	27	25
Efficiency	[%]	*12	95			
Torsional Rigidity	[Nm/arcmin]	*13	140			
Maximum Torsional Backlash	[Arc-min]	*14	≤ 3			
Noise Level	dB [A]	--	≤ 67			
Protection Class	--	*15	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*16	15			

VRT 140 2-Stage Specifications

Frame Size	**140**					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	360	360	360	360
Maximum Output Torque	[Nm]	*2	700	700	700	700
Emergency Stop Torque	[Nm]	*3	1250	1250	1250	1250
Nominal Input Speed	[rpm]	*4	2000			
Maximum Input Speed	[rpm]	*5	4000			
No Load Running Torque	[Nm]	*6	0.54			
Permitted Radial Load	[N]	*7	12000	13000	14000	14000
Permitted Axial Load	[N]	*8	8500	9100	9800	10000
Maximum Radial Load	[N]	*9	19000			
Maximum Axial Load	[N]	*10	14000			
Maximum Tilting Moment	[Nm]	*11	2000			
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	-	-	-	-
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	3.8	2.6	2.5	3.4
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	5.5	4.3	4.2	5.1
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	12	11	11	11
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	27	26	25	26
Efficiency	[%]	*12	90			
Torsional Rigidity	[Nm/arcmin]	*13	140			
Maximum Torsional Backlash	[Arc-min]	*14	≤ 3			
Noise Level	dB [A]	--	≤ 67			
Protection Class	--	*15	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*16	17			

VRT 140 2-Stage Specifications

Frame Size	**140**						
Ratio	Unit	Note	35	40	50	70	100
Nominal Output Torque	[Nm]	*1	360	360	360	360	240
Maximum Output Torque	[Nm]	*2	700	700	700	700	470
Emergency Stop Torque	[Nm]	*3	1250	1250	1250	1250	1000
Nominal Input Speed	[rpm]	*4	2000				
Maximum Input Speed	[rpm]	*5	4000				
No Load Running Torque	[Nm]	*6	0.54				
Permitted Radial Load	[N]	*7	15000	16000	17000	19000	19000
Permitted Axial Load	[N]	*8	11000	11000	12000	13000	14000
Maximum Radial Load	[N]	*9	19000				
Maximum Axial Load	[N]	*10	14000				
Maximum Tilting Moment	[Nm]	*11	2000				
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	-	-	0.68	0.65	0.64
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	2.4	1.1	1.1	1.1	1.1
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	4.1	2.9	2.9	2.8	2.8
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	10	9.2	9.1	9.1	9.1
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	25	24	24	24	24
Efficiency	[%]	*12	90				
Torsional Rigidity	[Nm/arcmin]	*13	140				
Maximum Torsional Backlash	[Arc-min]	*14	≤ 3				
Noise Level	dB [A]	--	≤ 67				
Protection Class	--	*15	IP54 (IP65)				
Ambient Temperature	[°C]	--	0 - 40				
Permitted Housing Temperature	[°C]	--	90				
Weight	[kg]	*16	17				

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The moment is the maximum load at output flange surface

*12) The efficiency at the nominal output torque rating

*13) This does not include lost motion

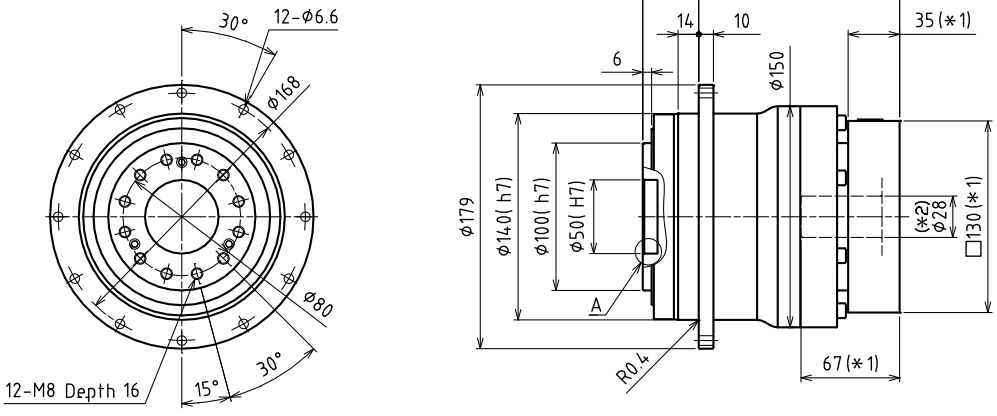
*14) Contact NIDEC-SHIMPO for the testing conditions and environment

*15) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

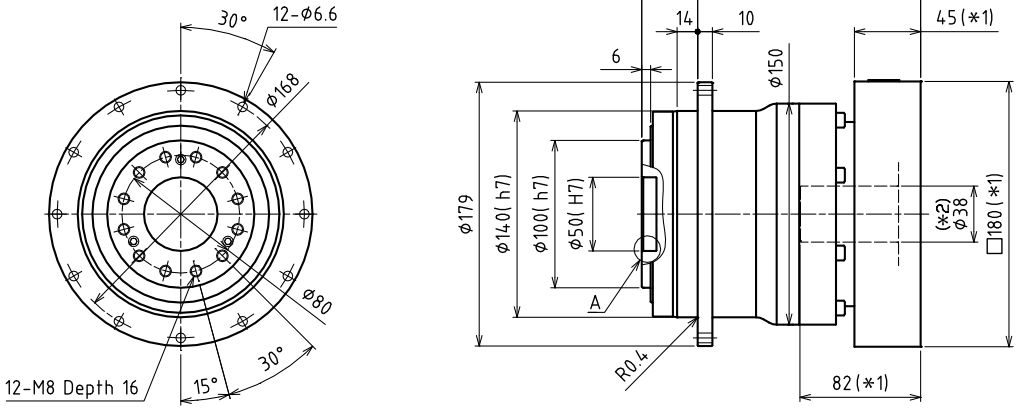
*16) The weight may vary slightly between models

VRT 140 1-Stage Dimensions

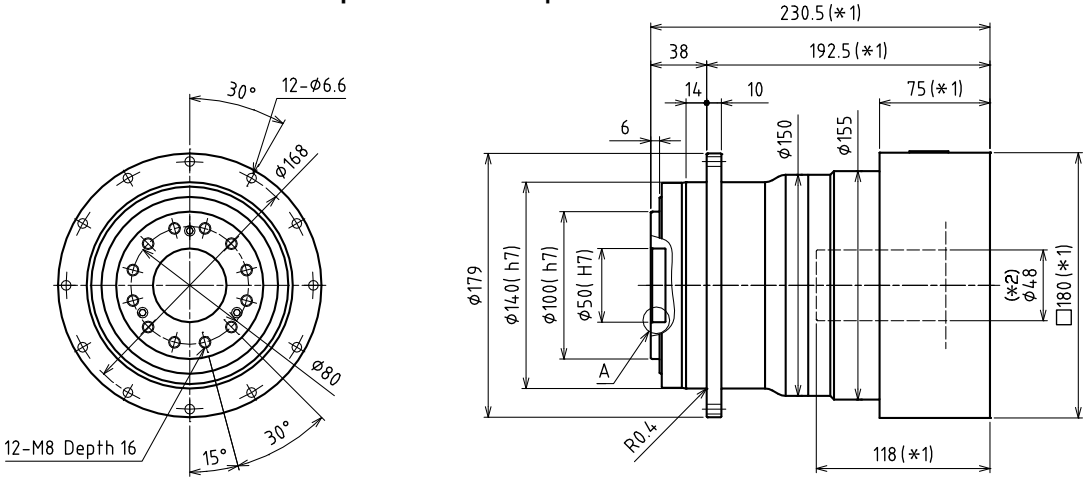
Input bore size ≦φ28 mm

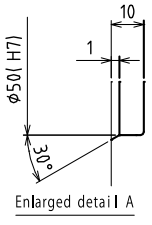


Input bore size ≦φ38 mm



Input bore size ≦φ48 mm



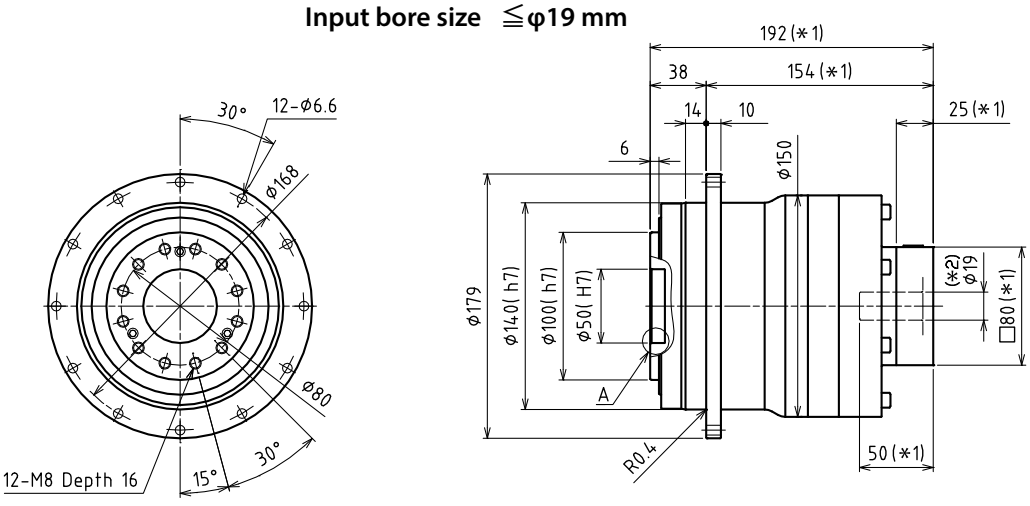


*1) Length will vary depending on motor.

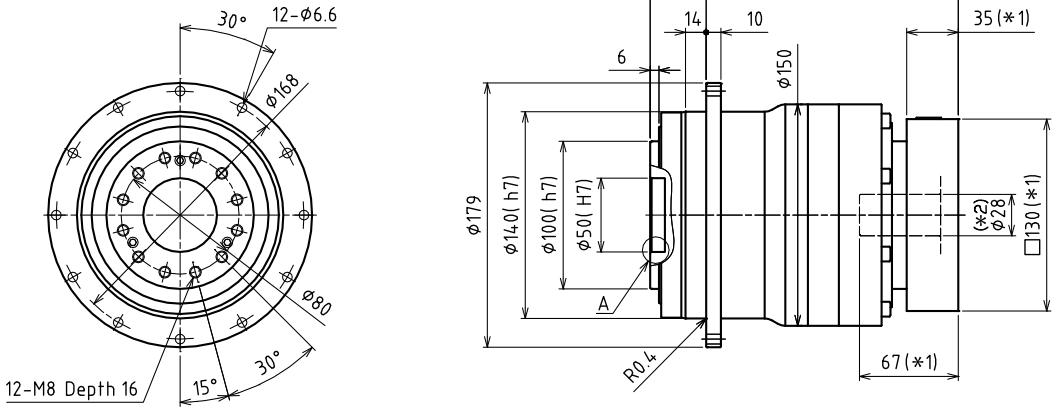
*2) Bushing will be inserted to adapt to motor shaft

VRT 140 2-Stage Dimensions

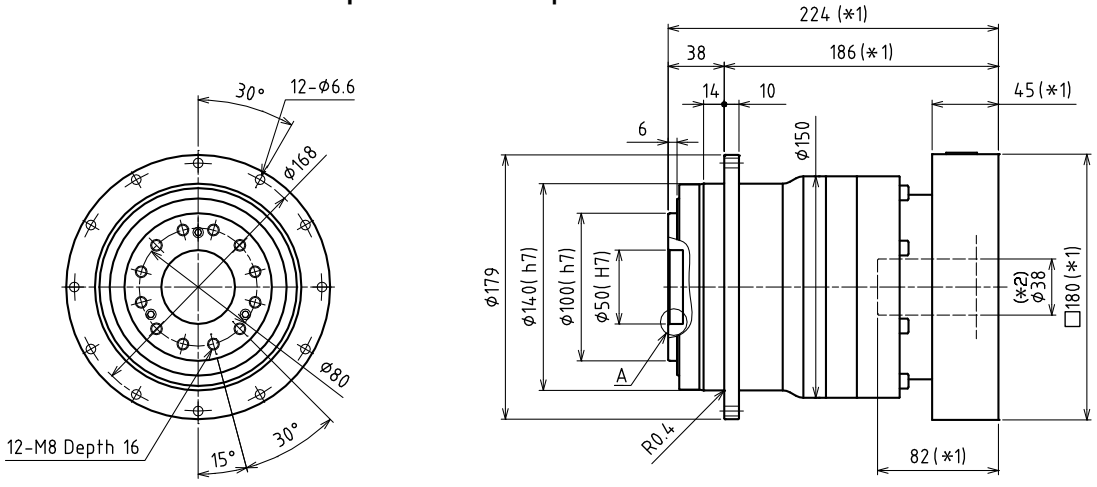
Input bore size ≦φ19 mm

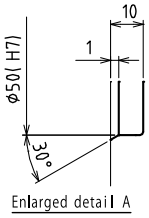


Input bore size ≦φ28 mm



Input bore size ≦φ38 mm (*3)





*1) Length will vary depending on motor

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

*3) 48mm input bore is available for this frame size. Use our online configurator to make your selection or contact us for assistance

VRT 200 1-Stage Specifications

Frame Size	**200**					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	750	750	750	500
Maximum Output Torque	[Nm]	*2	1400	1400	1400	970
Emergency Stop Torque	[Nm]	*3	2750	2750	2750	2200
Nominal Input Speed	[rpm]	*4	1500			
Maximum Input Speed	[rpm]	*5	3000			
No Load Running Torque	[Nm]	*6	1.9			
Permitted Radial Load	[N]	*7	18000	19000	21000	23000
Permitted Axial Load	[N]	*8	12000	13000	14000	16000
Maximum Radial Load	[N]	*9	40000			
Maximum Axial Load	[N]	*10	30000			
Maximum Tilting Moment	[Nm]	*11	5300			
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	53	36	23	16
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	68	51	37	31
Moment of Inertia (≤ Ø 65)	[kgcm2]	--	110	95	81	75
Efficiency	[%]	*12	95			
Torsional Rigidity	[Nm/arcmin]	*13	320			
Maximum Torsional Backlash	[Arc-min]	*14	≤ 3			
Noise Level	dB [A]	--	≤ 67			
Protection Class	--	*15	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*16	42			

VRT 200 2-Stage Specifications

Frame Size	**200**					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	750	750	750	750
Maximum Output Torque	[Nm]	*2	1400	1400	1400	1400
Emergency Stop Torque	[Nm]	*3	2750	2750	2750	2750
Nominal Input Speed	[rpm]	*4	1500			
Maximum Input Speed	[rpm]	*5	3000			
No Load Running Torque	[Nm]	*6	1.3			
Permitted Radial Load	[N]	*7	27000	28000	30000	31000
Permitted Axial Load	[N]	*8	18000	19000	21000	21000
Maximum Radial Load	[N]	*9	40000			
Maximum Axial Load	[N]	*10	30000			
Maximum Tilting Moment	[Nm]	*11	5300			
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	-	-	-	-
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	13	9.2	8.6	11
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	19	15	15	18
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	34	30	30	32
Efficiency	[%]	*12	90			
Torsional Rigidity	[Nm/arcmin]	*13	320			
Maximum Torsional Backlash	[Arc-min]	*14	≤ 3			
Noise Level	dB [A]	--	≤ 67			
Protection Class	--	*15	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*16	43			

VRT 200 2-Stage Specifications

Frame Size	**200**						
Ratio	Unit	Note	35	40	50	70	100
Nominal Output Torque	[Nm]	*1	750	750	750	750	500
Maximum Output Torque	[Nm]	*2	1400	1400	1400	1400	970
Emergency Stop Torque	[Nm]	*3	2750	2750	2750	2750	2200
Nominal Input Speed	[rpm]	*4	1500				
Maximum Input Speed	[rpm]	*5	3000				
No Load Running Torque	[Nm]	*6	1.3				
Permitted Radial Load	[N]	*7	34000	35000	37000	40000	40000
Permitted Axial Load	[N]	*8	23000	24000	25000	28000	30000
Maximum Radial Load	[N]	*9	40000				
Maximum Axial Load	[N]	*10	30000				
Maximum Tilting Moment	[Nm]	*11	5300				
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	-	-	2.1	1.9	1.9
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	8.0	4.1	4.0	3.8	3.8
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	14	10	10	10	10
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	29	25	25	25	25
Efficiency	[%]	*12	90				
Torsional Rigidity	[Nm/arcmin]	*13	320				
Maximum Torsional Backlash	[Arc-min]	*14	≤ 3				
Noise Level	dB [A]	--	≤ 67				
Protection Class	--	*15	IP54 (IP65)				
Ambient Temperature	[°C]	--	0 - 40				
Permitted Housing Temperature	[°C]	--	90				
Weight	[kg]	*16	43				

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The moment is the maximum load at output flange surface

*12) The efficiency at the nominal output torque rating

*13) This does not include lost motion

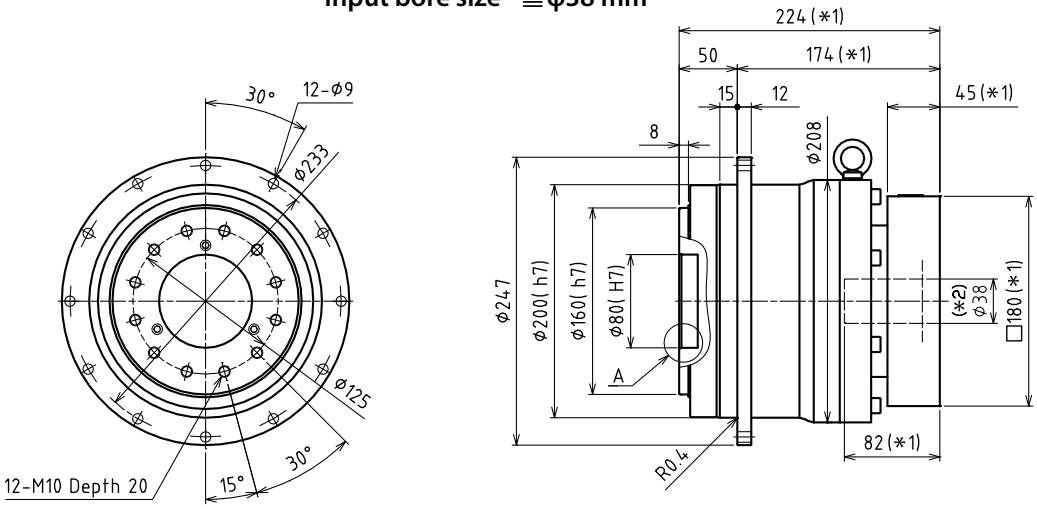
*14) Contact NIDEC-SHIMPO for the testing conditions and environment

*15) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

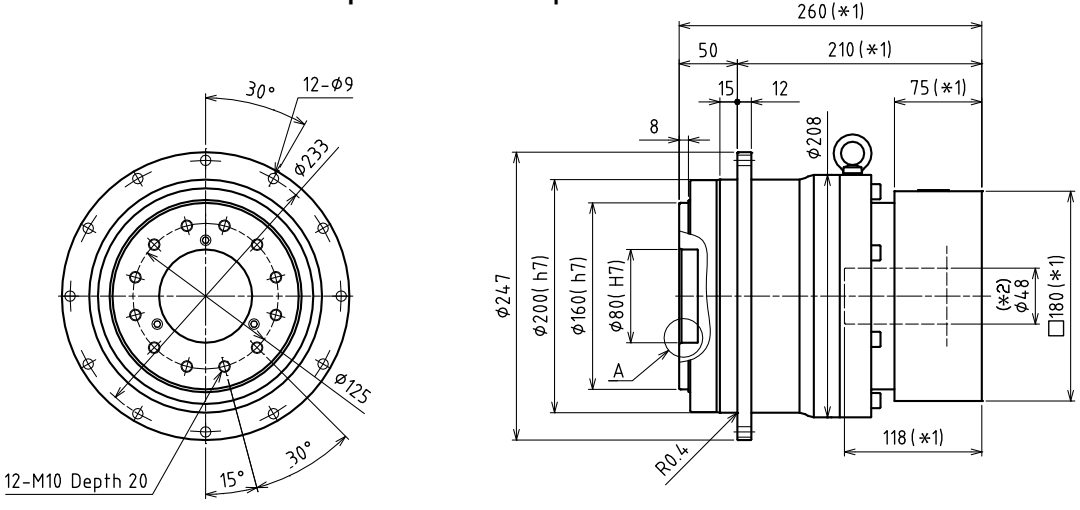
*16) The weight may vary slightly between models

VRT 200 1-Stage Dimensions

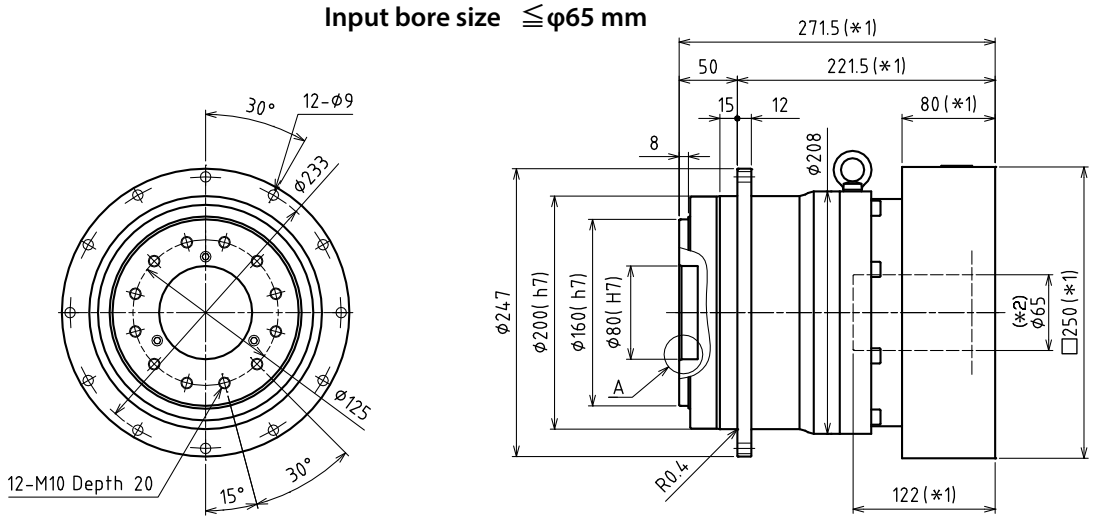
Input bore size ≦φ38 mm

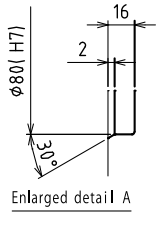


Input bore size ≦φ48 mm



Input bore size ≦φ65 mm



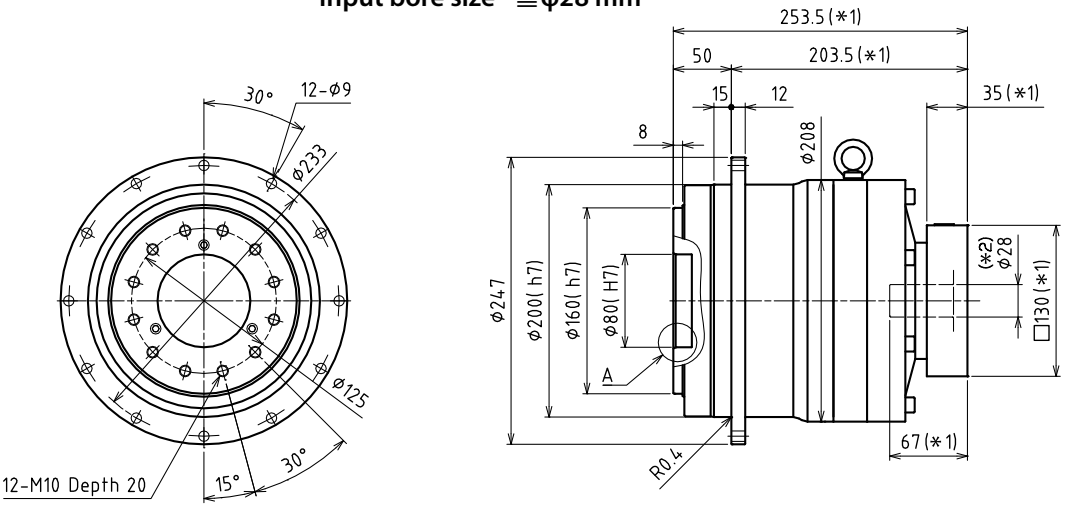


*1) Length will vary depending on motor

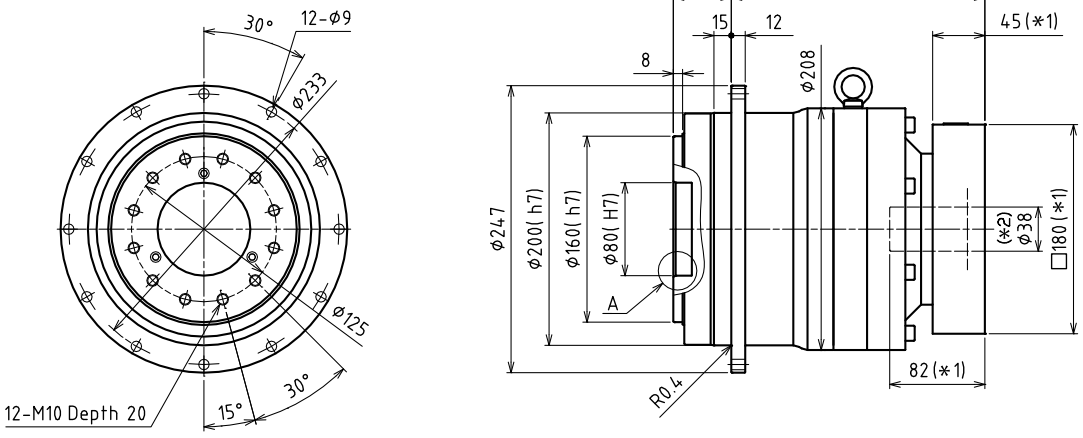
*2) Bushing will be inserted to adapt to motor shaft

VRT 200 2-Stage Dimensions

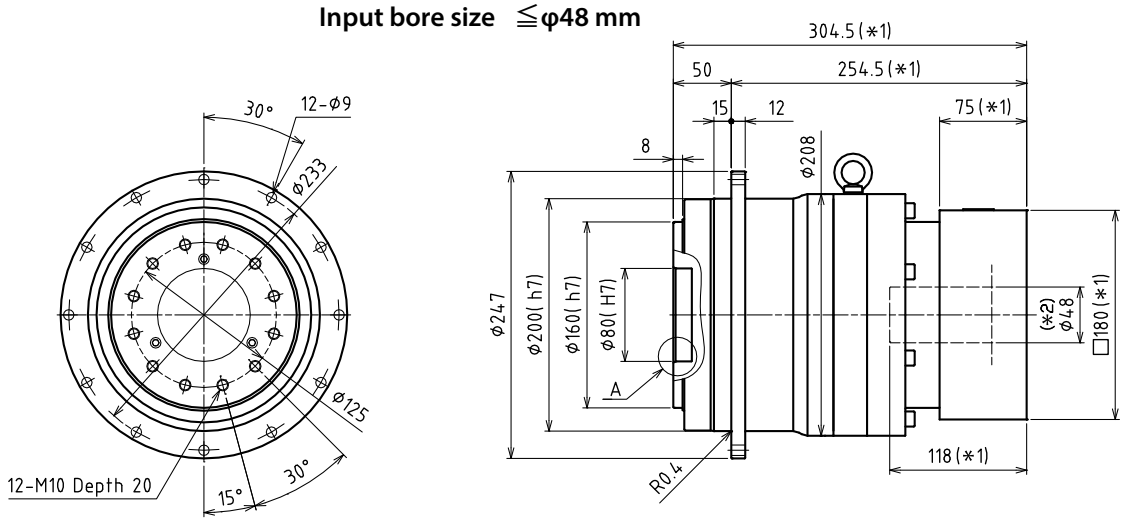
Input bore size ≦φ28 mm

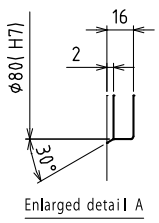


Input bore size ≦φ38 mm



Input bore size ≦φ48 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**					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	2400	2400	2400	1600
Maximum Output Torque	[Nm]	*2	3700	3700	3700	2600
Emergency Stop Torque	[Nm]	*3	8000	8000	8000	6000
Nominal Input Speed	[rpm]	*4	1000			
Maximum Input Speed	[rpm]	*5	2000			
No Load Running Torque	[Nm]	*6	2.5			
Permitted Radial Load	[N]	*7	31000	33000	36000	40000
Permitted Axial Load	[N]	*8	22000	24000	26000	29000
Maximum Radial Load	[N]	*9	64000			
Maximum Axial Load	[N]	*10	48000			
Maximum Tilting Moment	[Nm]	*11	11000			
Moment of Inertia (≤ Ø 65)	[kgcm2]	--	180	130	100	84
Efficiency	[%]	*12	95			
Torsional Rigidity	[Nm/arcmin]	*13	840			
Maximum Torsional Backlash	[Arc-min]	*14	≤ 3			
Noise Level	dB [A]	--	≤ 62			
Protection Class	--	*15	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*16	84			

VRT 255 2-Stage Specifications

Frame Size	**255**					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	2400	2400	2400	2400
Maximum Output Torque	[Nm]	*2	3700	3700	3700	3700
Emergency Stop Torque	[Nm]	*3	8000	8000	8000	8000
Nominal Input Speed	[rpm]	*4	1000			
Maximum Input Speed	[rpm]	*5	2000			
No Load Running Torque	[Nm]	*6	1.0			
Permitted Radial Load	[N]	*7	46000	49000	53000	55000
Permitted Axial Load	[N]	*8	34000	36000	38000	40000
Maximum Radial Load	[N]	*9	64000			
Maximum Axial Load	[N]	*10	48000			
Maximum Tilting Moment	[Nm]	*11	11000			
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	-	-	-	-
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	58	47	45	53
Efficiency	[%]	*12	90			
Torsional Rigidity	[Nm/arcmin]	*13	840			
Maximum Torsional Backlash	[Arc-min]	*14	≤ 3			
Noise Level	dB [A]	--	≤ 62			
Protection Class	--	*15	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*16	89			

VRT 255 2-Stage Specifications

Frame Size	**255**						
Ratio	Unit	Note	35	40	50	70	100
Nominal Output Torque	[Nm]	*1	2400	2400	2400	2400	1600
Maximum Output Torque	[Nm]	*2	3700	3700	3700	3700	1800
Emergency Stop Torque	[Nm]	*3	8000	8000	8000	8000	6000
Nominal Input Speed	[rpm]	*4	1000				
Maximum Input Speed	[rpm]	*5	2000				
No Load Running Torque	[Nm]	*6	1.0				
Permitted Radial Load	[N]	*7	59000	61000	64000	64000	64000
Permitted Axial Load	[N]	*8	42000	44000	47000	48000	48000
Maximum Radial Load	[N]	*9	64000				
Maximum Axial Load	[N]	*10	48000				
Maximum Tilting Moment	[Nm]	*11	11000				
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	-	-	14	13	13
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	44	32	32	31	31
Efficiency	[%]	*12	90				
Torsional Rigidity	[Nm/arcmin]	*13	840				
Maximum Torsional Backlash	[Arc-min]	*14	≤ 3				
Noise Level	dB [A]	--	≤ 62				
Protection Class	--	*15	IP54 (IP65)				
Ambient Temperature	[°C]	--	0 - 40				
Permitted Housing Temperature	[°C]	--	90				
Weight	[kg]	*16	89				

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The moment is the maximum load at output flange surface

*12) The efficiency at the nominal output torque rating

*13) This does not include lost motion

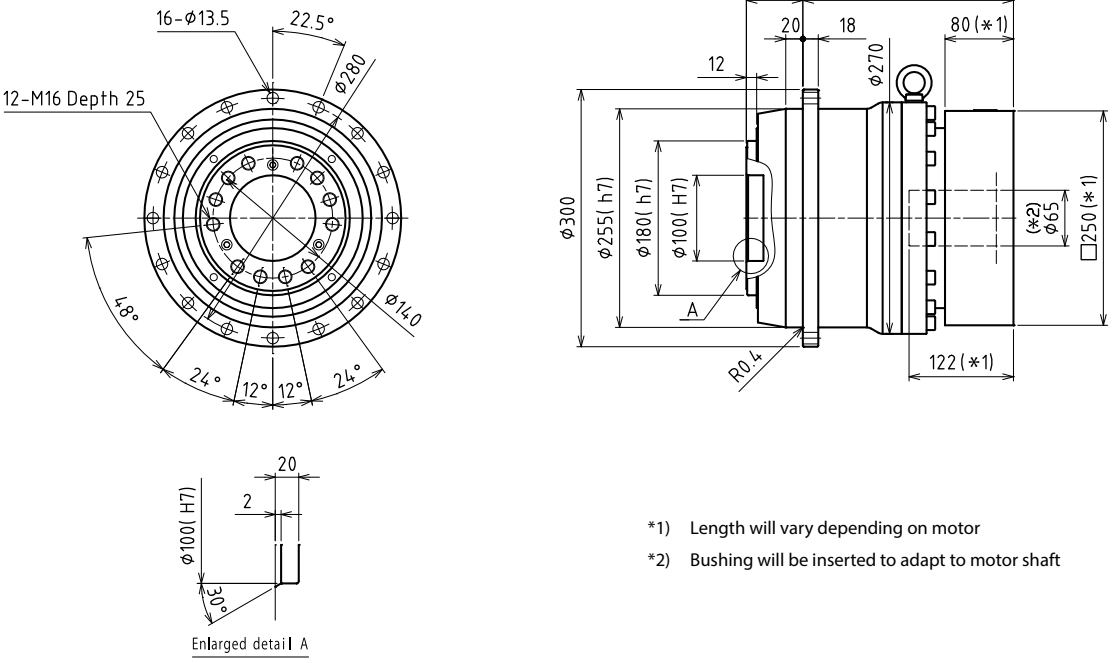
*14) Contact NIDEC-SHIMPO for the testing conditions and environment

*15) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

*16) The weight may vary slightly between models

VRT 255 1-Stage Dimensions

Input bore size ≦φ65 mm

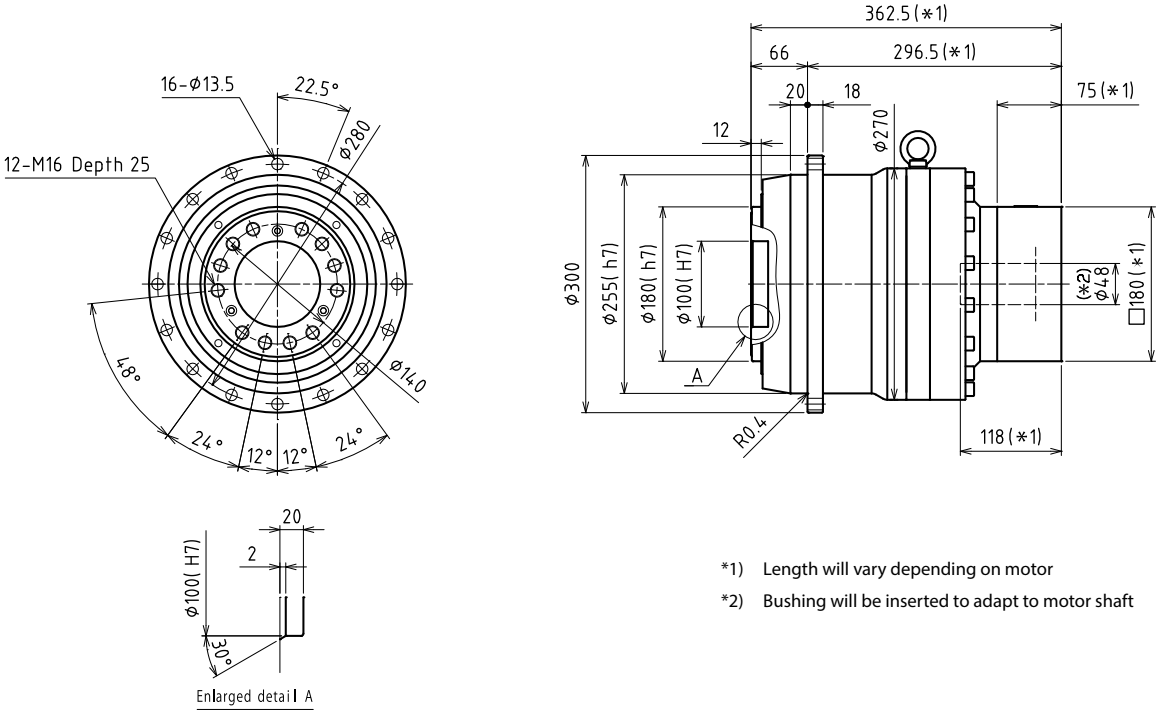


*1) Length will vary depending on motor

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

VRT 255 2-Stage Dimensions

Input bore size ≦φ48 mm



*1) Length will vary depending on motor

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

VRT 285 1-Stage Specifications

Frame Size	**285**					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	3300	3300	3300	2200
Maximum Output Torque	[Nm]	*2	5300	5300	5300	3700
Emergency Stop Torque	[Nm]	*3	12000	12000	12000	10000
Nominal Input Speed	[rpm]	*4	1000			
Maximum Input Speed	[rpm]	*5	2000			
No Load Running Torque	[Nm]	*6	2.7			
Permitted Radial Load	[N]	*7	40000	42000	47000	52000
Permitted Axial Load	[N]	*8	34000	36000	40000	45000
Maximum Radial Load	[N]	*9	86000			
Maximum Axial Load	[N]	*10	64000			
Maximum Tilting Moment	[Nm]	*11	18000			
Moment of Inertia (≤ Ø 65)	[kgcm2]	--	270	190	130	96
Efficiency	[%]	*12	95			
Torsional Rigidity	[Nm/arcmin]	*13	1200			
Maximum Torsional Backlash	[Arc-min]	*14	≤ 3			
Noise Level	dB [A]	--	≤ 63			
Protection Class	--	*15	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*16	110			

VRT 285 2-Stage Specifications

Frame Size	**285**					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	2750	3300	3300	3300
Maximum Output Torque	[Nm]	*2	5300	5300	5300	5300
Emergency Stop Torque	[Nm]	*3	12000	12000	12000	12000
Nominal Input Speed	[rpm]	*4	1000			
Maximum Input Speed	[rpm]	*5	2000			
No Load Running Torque	[Nm]	*6	0.6			
Permitted Radial Load	[N]	*7	60000	64000	69000	71000
Permitted Axial Load	[N]	*8	51000	55000	59000	61000
Maximum Radial Load	[N]	*9	86000			
Maximum Axial Load	[N]	*10	64000			
Maximum Tilting Moment	[Nm]	*11	18000			
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	-	-	-	-
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	63	50	47	55
Efficiency	[%]	*12	90			
Torsional Rigidity	[Nm/arcmin]	*13	1200			
Maximum Torsional Backlash	[Arc-min]	*14	≤ 3			
Noise Level	dB [A]	--	≤ 63			
Protection Class	--	*15	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*16	120			

VRT 285 2-Stage Specifications

Frame Size	**285**						
Ratio	Unit	Note	35	40	50	70	100
Nominal Output Torque	[Nm]	*1	3300	3300	3300	3300	2200
Maximum Output Torque	[Nm]	*2	5300	5300	5300	5300	2500
Emergency Stop Torque	[Nm]	*3	12000	12000	12000	12000	10000
Nominal Input Speed	[rpm]	*4	1000				
Maximum Input Speed	[rpm]	*5	2000				
No Load Running Torque	[Nm]	*6	0.6				
Permitted Radial Load	[N]	*7	76000	79000	85000	86000	86000
Permitted Axial Load	[N]	*8	64000	64000	64000	64000	64000
Maximum Radial Load	[N]	*9	86000				
Maximum Axial Load	[N]	*10	64000				
Maximum Tilting Moment	[Nm]	*11	18000				
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	-	-	14	14	13
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	45	33	32	31	31
Efficiency	[%]	*12	90				
Torsional Rigidity	[Nm/arcmin]	*13	1200				
Maximum Torsional Backlash	[Arc-min]	*14	≤ 3				
Noise Level	dB [A]	--	≤ 63				
Protection Class	--	*15	IP54 (IP65)				
Ambient Temperature	[°C]	--	0 - 40				
Permitted Housing Temperature	[°C]	--	90				
Weight	[kg]	*16	120				

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The moment is the maximum load at output flange surface

*12) The efficiency at the nominal output torque rating

*13) This does not include lost motion

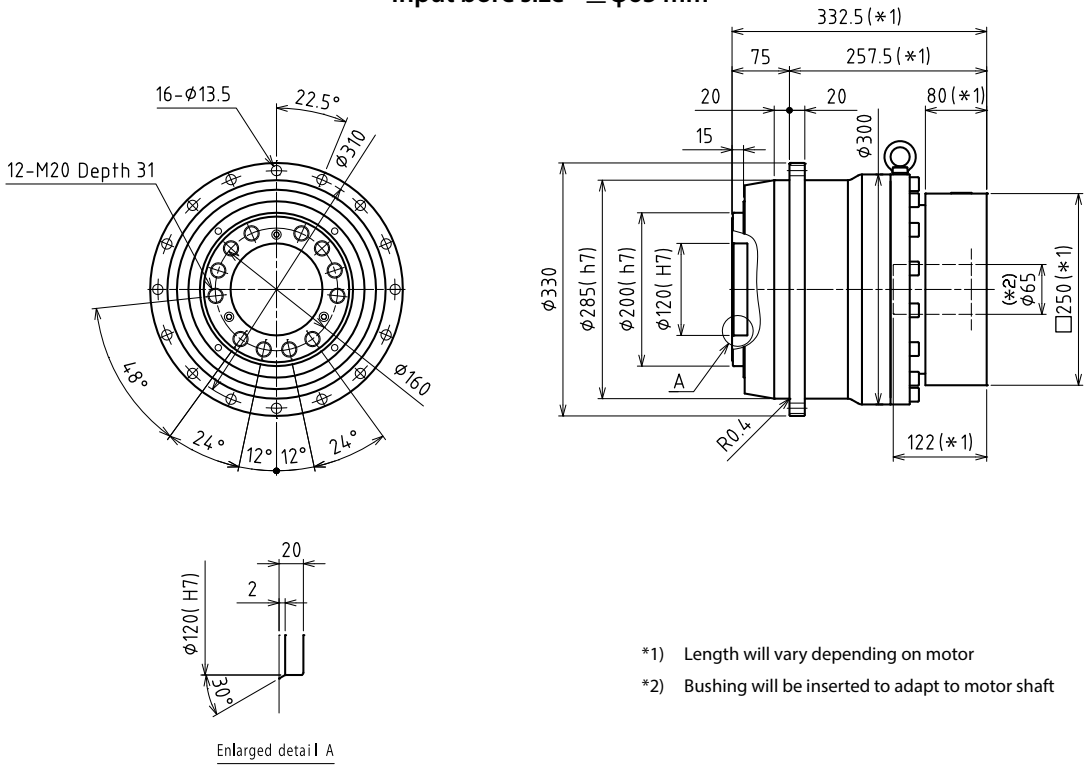
*14) Contact NIDEC-SHIMPO for the testing conditions and environment

*15) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

*16) The weight may vary slightly between models

VRT 285 1-Stage Dimensions

Input bore size ≦φ65 mm

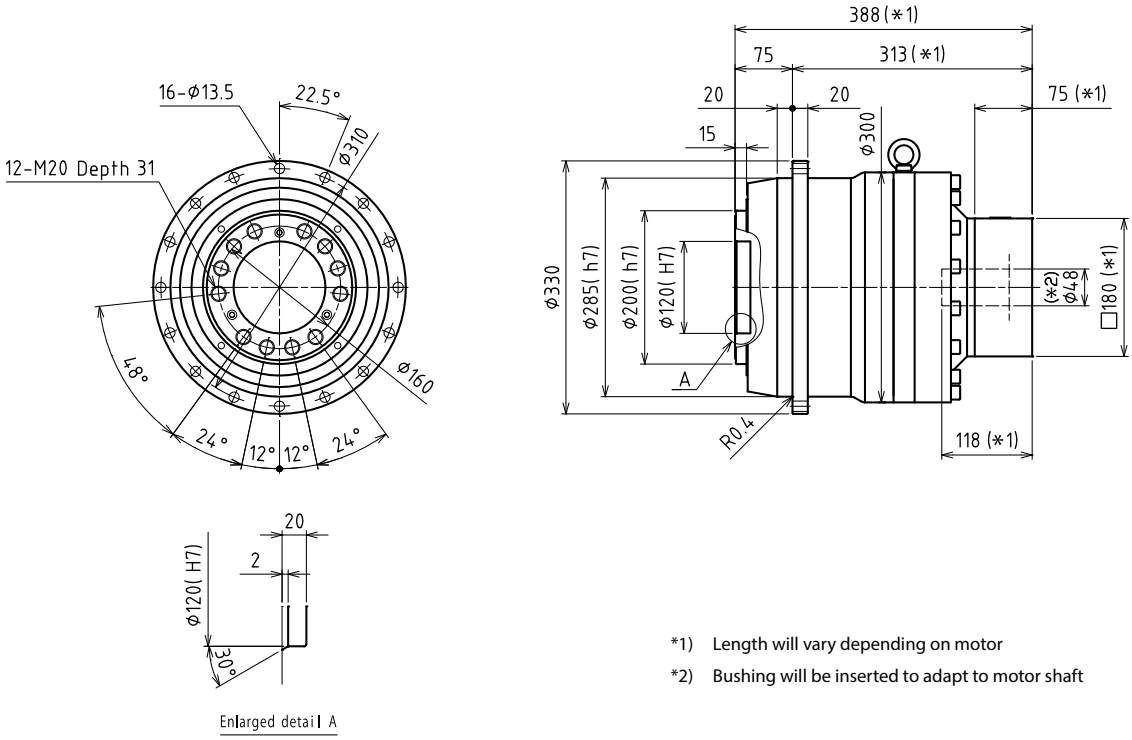


*1) Length will vary depending on motor

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

VRT 285 2-Stage Dimensions

Input bore size ≦φ48 mm



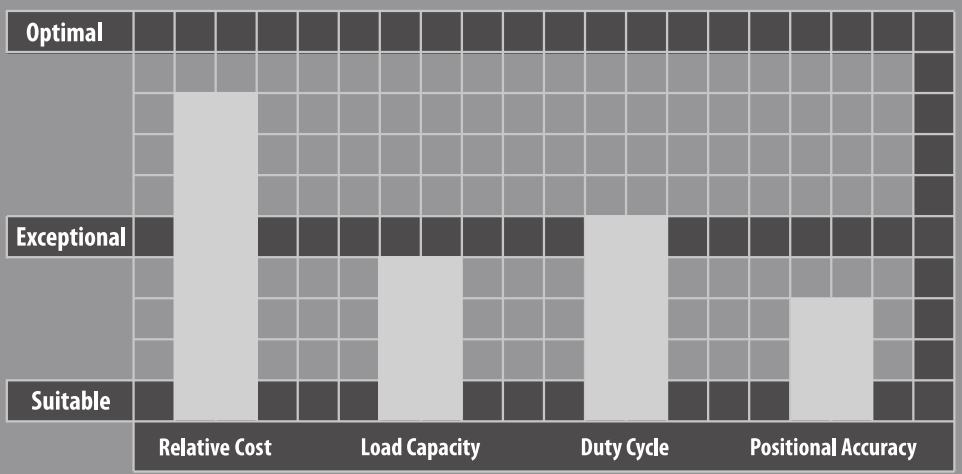
*1) Length will vary depending on motor

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

NEV SERIES

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.

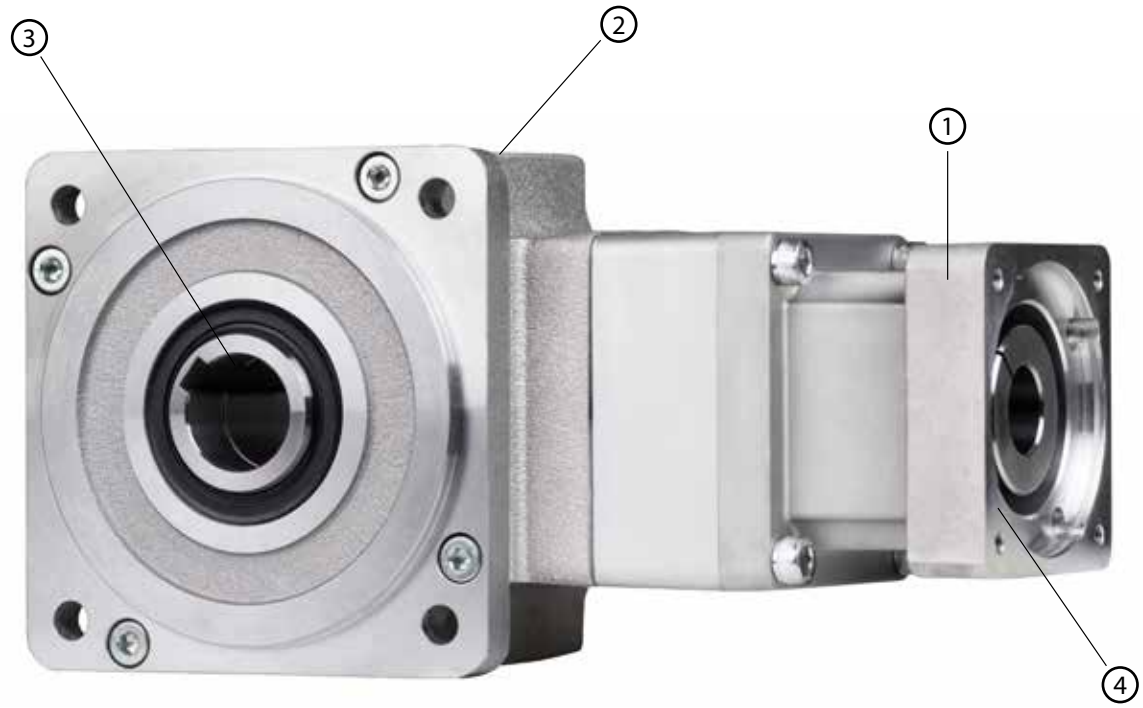
The NEV has a lightweight aluminum frame with either a hollow or solid output shaft configuration. It can handle motors ranging between 50w and 3.5kW, achieving nominal output torque ratings ranging between 6 Nm to 90 Nm. Four frame sizes and ratios between 5:1 and 105:1 are available, as well as various wash down options, making this product ideal for applications in food & beverage.



NEV SERIES

- 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

NEV Series 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

NEV Series Model Code

NEVAF	C	05	070	1403	7	00

Modifications (*1)

Output shaft style: 6: Solid
7: Hollow

Motor Shaft Bushing

Code	OD (mm)	ID (mm)
0801	8	6
0802	8	6.350
0803	8	5
1401	14	6
1402	14	8
1403	14	11
1404	14	6.350
1405	14	9.525
1406	14	12.700
1407	14	12
1408	14	10
1409	14	9
1410	14	5
1901	19	11
1902	19	14
1903	19	16
1904	19	9.525
1905	19	12.700
1906	19	15.875
1907	19	12
1908	19	10
1909	19	9
1910	19	8
2401	24	14
2402	24	16
2403	24	19
2404	24	12.700
2405	24	15.875
2406	24	22
2407	24	19.050
2408	24	11

Motor Bolt Circle Diameter

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

Ratio: 2-Stage：05, 09, 15, 27
3-Stage：45, 75, 105

Frame size: B, C, D, E

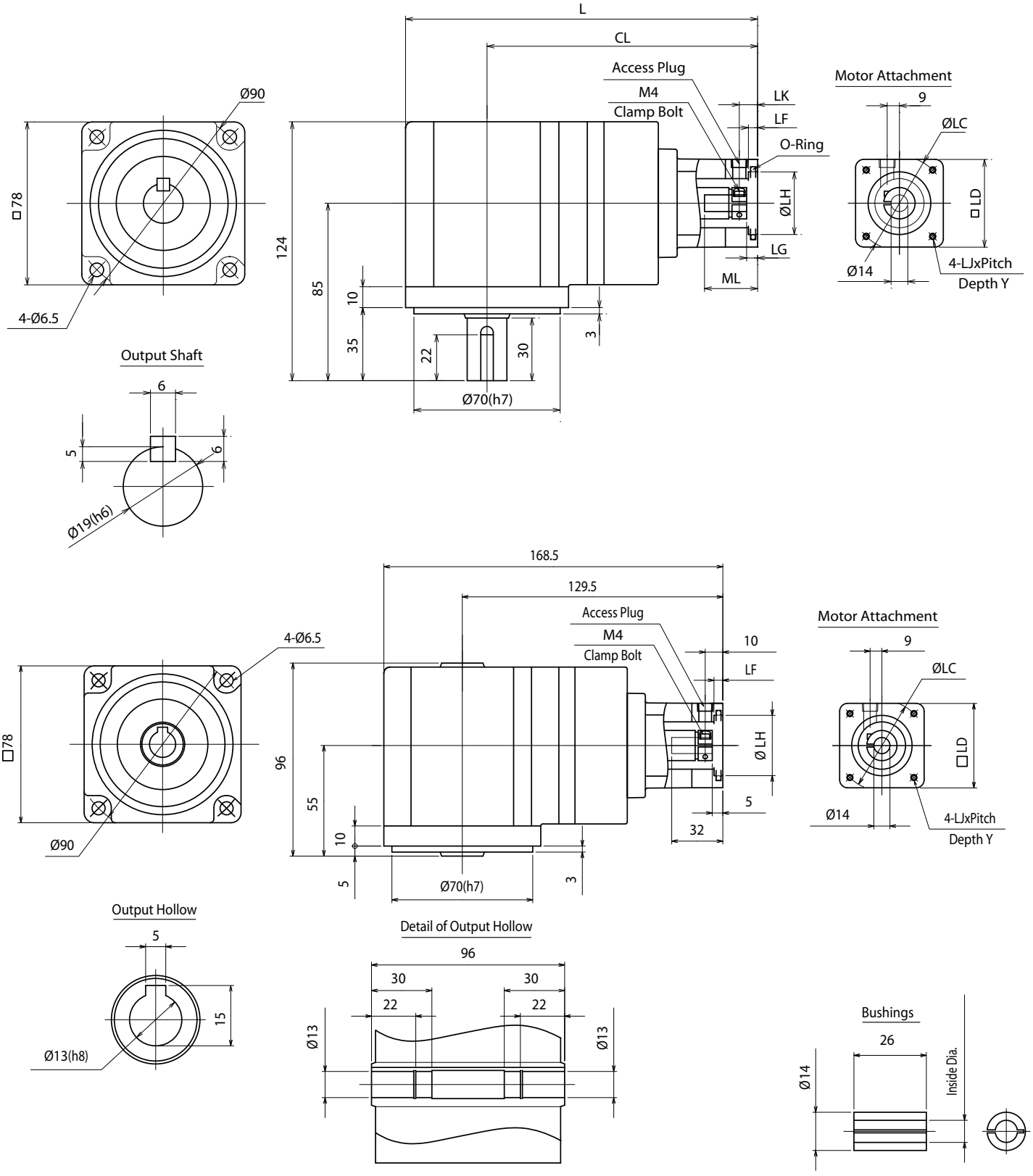
Series

*1) Contact us for washdown, food grade or other modifications

NEV B-Frame 2-Stage Specifications

Frame Size	**B (78mm)**					
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 (≤Ø 8)	[kgcm2]	--	--	--	--	--
Moment of Inertia (≤ Ø14)	[kgcm2]	--	0.275	0.110	0.059	0.146
Efficiency	[%]	--	85			
Torsional Rigidity	[Nm/arcmin]	--	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			

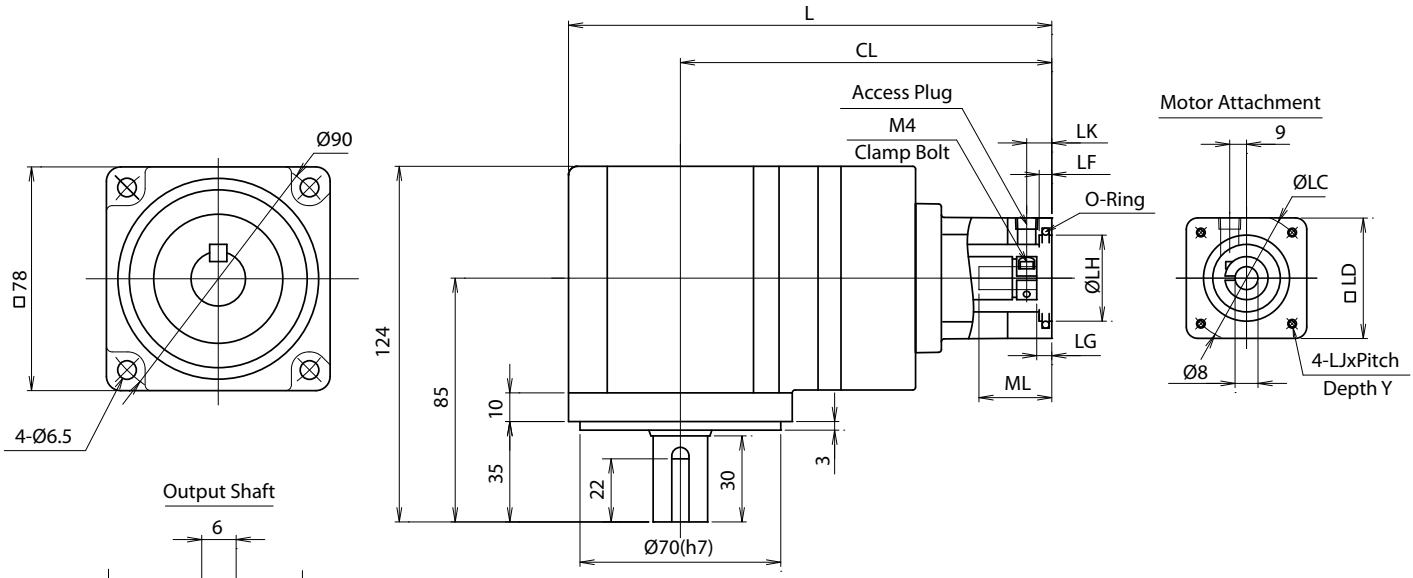
NEV B-Frame (78mm) 2-Stage Dimensions – Ratios: 5:1, 9:1, 15:1, 27:1

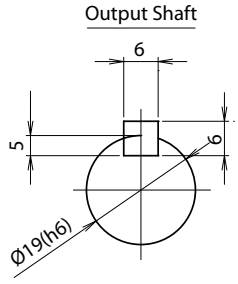


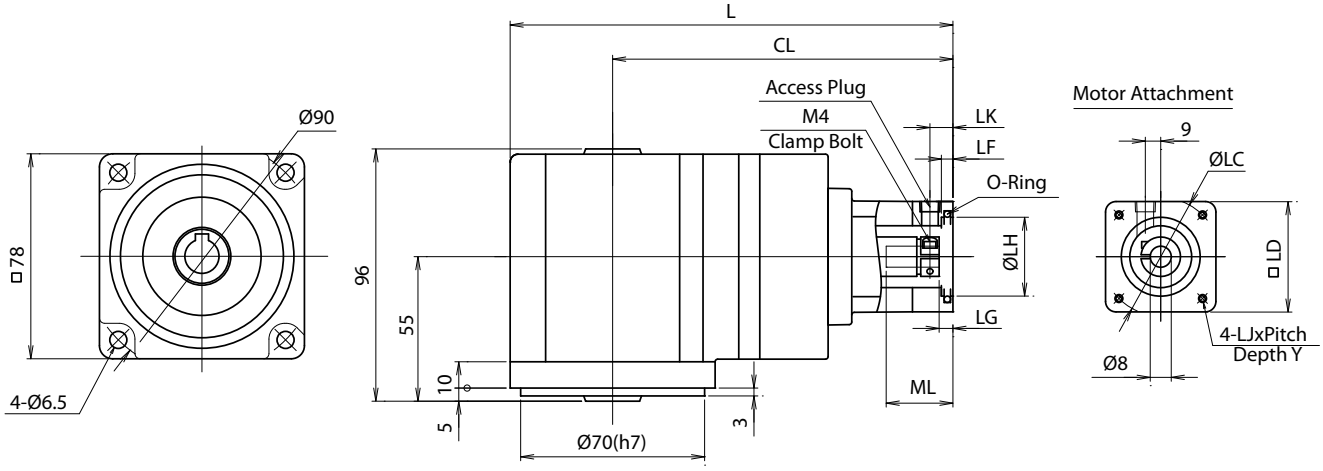
NEV B-Frame 3-Stage Specifications

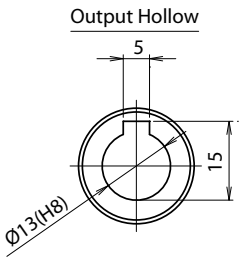
Frame Size	**B (78mm)**				
Ratio	Units	Note	45	75	105
Nominal Output Torque	[Nm]	--	10	15	15
Maximum Acceleration Torque	[Nm]	--	30	30	30
Emergency Stop Torque	[Nm]	--	50	50	50
Nominal Input Speed	[rpm]	--	3000		
Maximum Input Speed	[rpm]	--	6000		
No Load Running Torque	[Nm]	--	0.109		
Permitted Radial Load	[N]	--	1800	1800	1800
Permitted Axial Load	[N]	--	900	900	900
Moment of Inertia (≤Ø 8)	[kgcm2]	--	0.091	0.083	0.078
Moment of Inertia (≤ Ø14)	[kgcm2]	--	--	--	--
Efficiency	[%]	--	80		
Torsional Rigidity	[Nm/arcmin]	--	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		

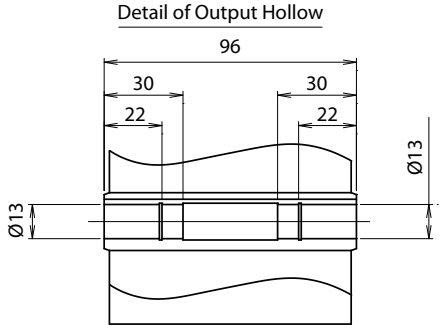
NEV B-Frame (78mm) 3-Stage Dimensions – Ratios: 45:1, 75:1, 105:1

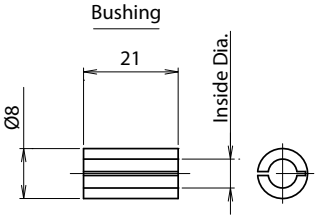








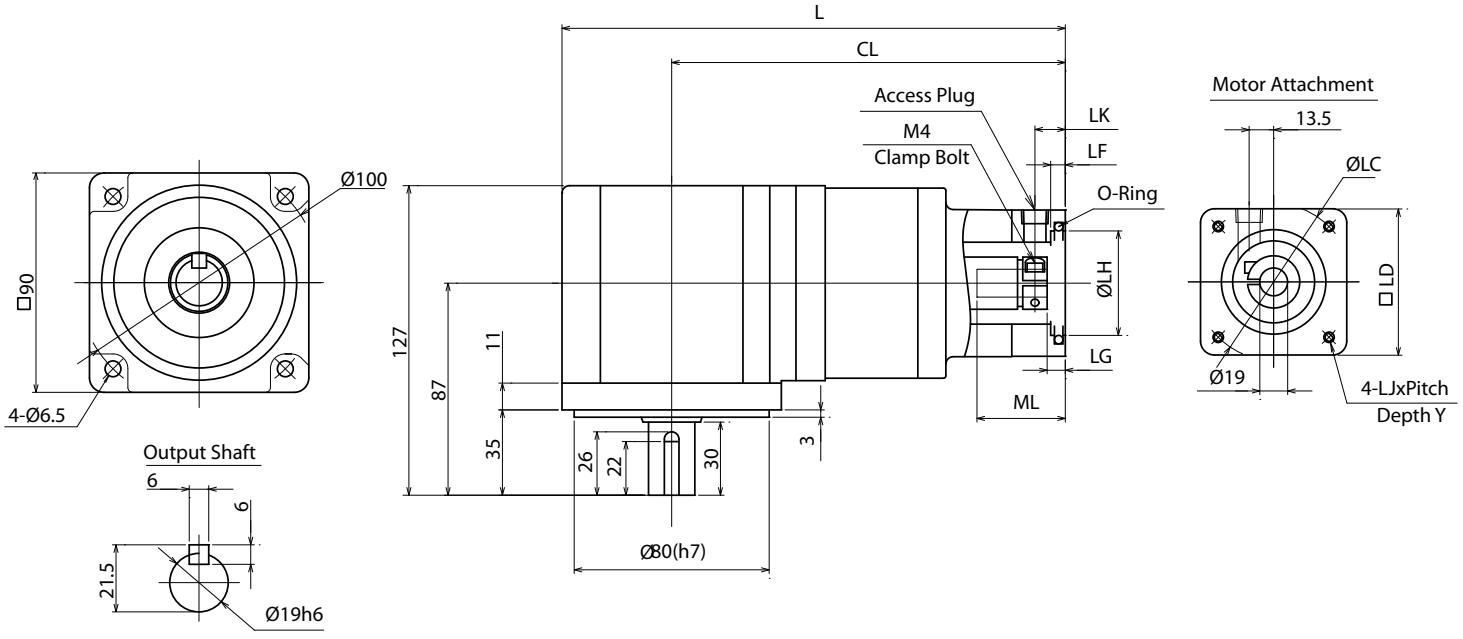


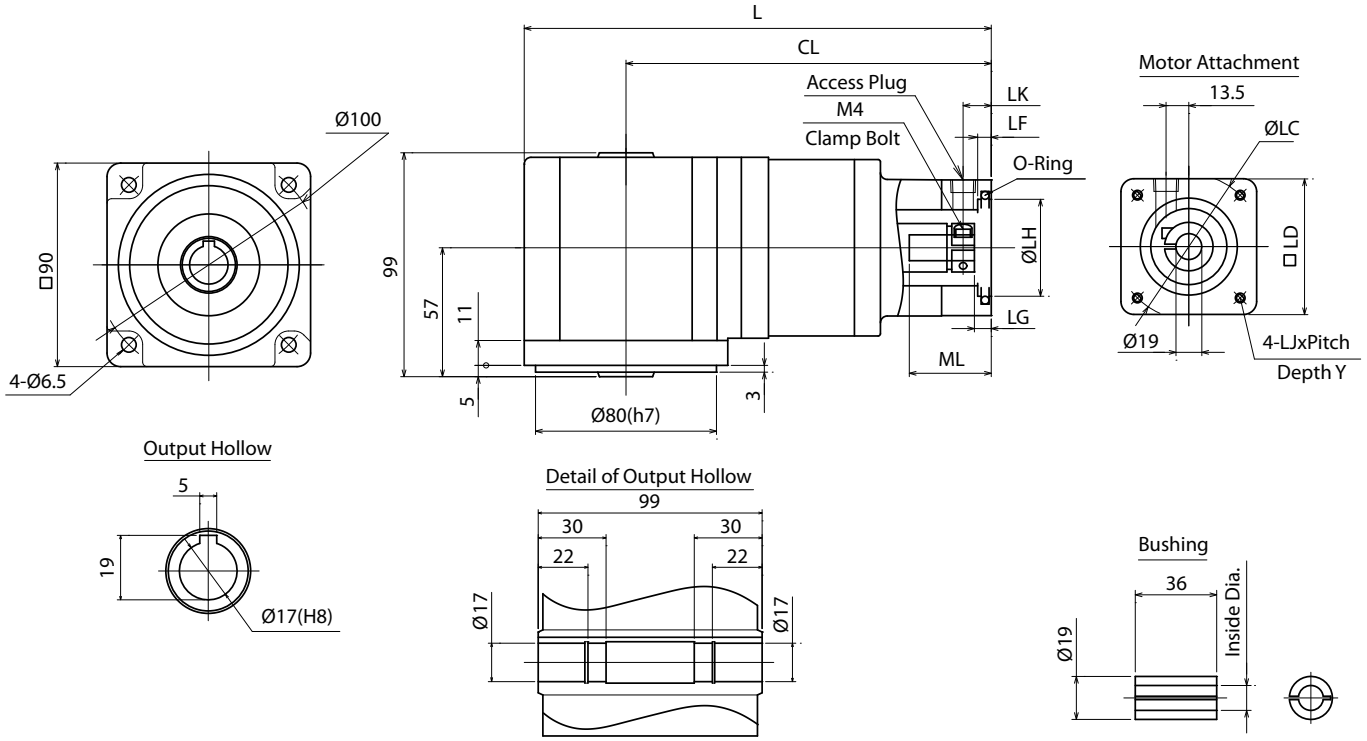


NEV C-Frame 2-Stage Specifications

Frame Size	**C (90mm)**					
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 (≤Ø14)	[kgcm2]	--	--	--	--	--
Moment of Inertia (≤ Ø19)	[kgcm2]	--	0.806	0.744	0.415	0.585
Efficiency	[%]	--	85			
Torsional Rigidity	[Nm/arcmin]	--	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 (90mm) 2-Stage Dimensions – Ratios: 5:1, 9:1, 15:1, 27:1

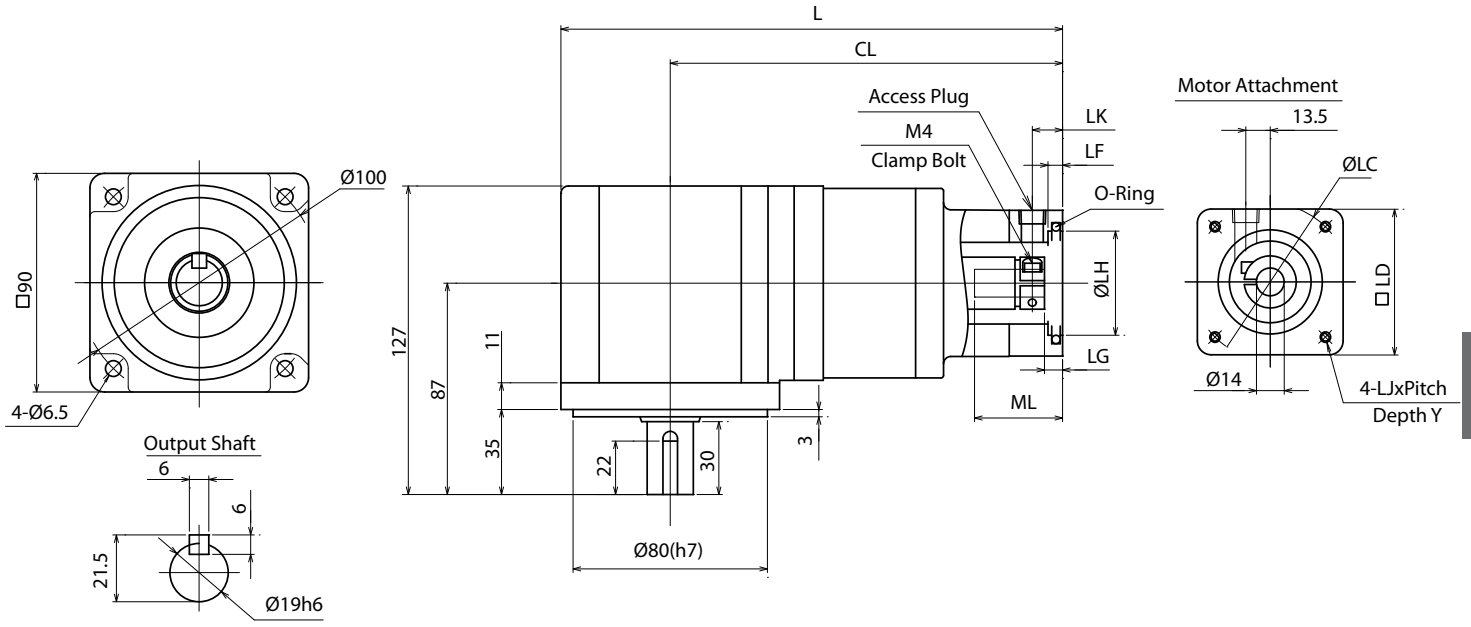


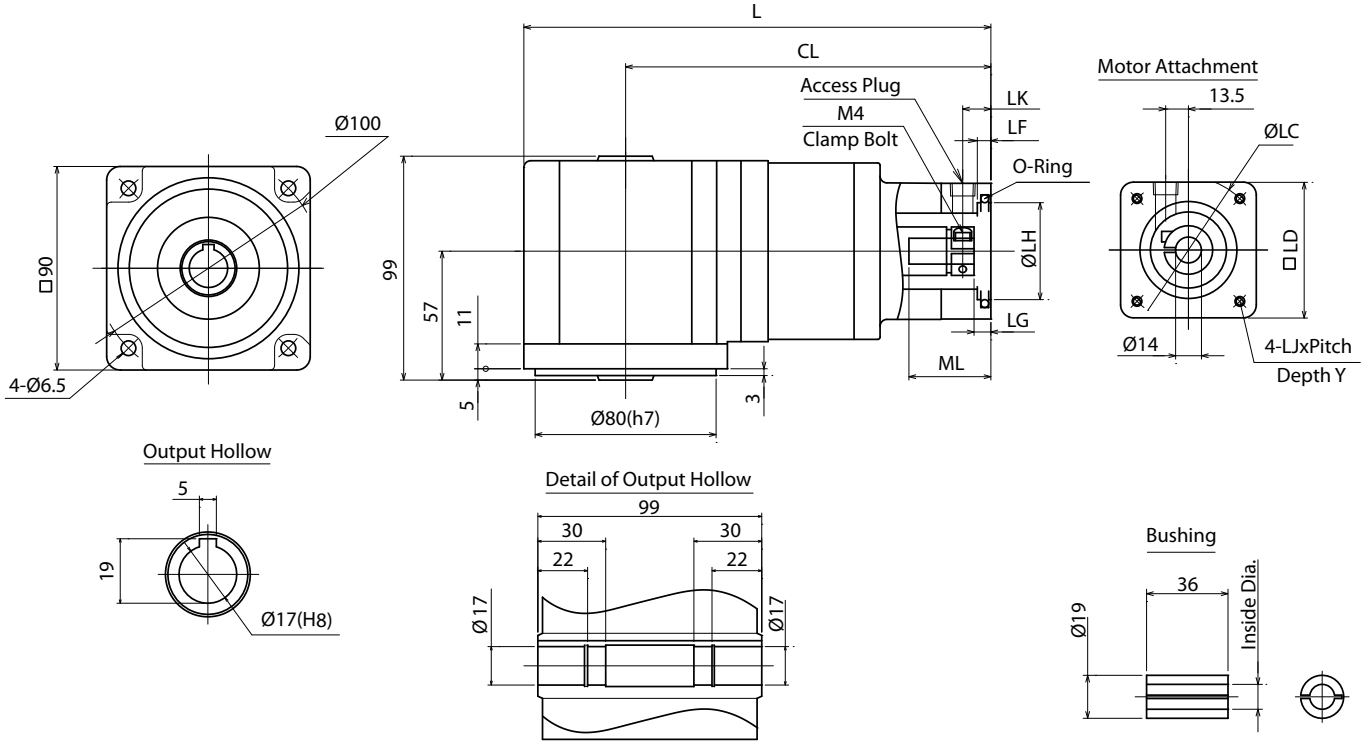


NEV C-Frame 3-Stage Specifications

Frame Size	**C (90mm)**				
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 (≤Ø14)	[kgcm2]	--	0.794	0.690	0.590
Moment of Inertia (≤ Ø19)	[kgcm2]	--	--	--	--
Efficiency	[%]	--	80		
Torsional Rigidity	[Nm/arcmin]	--	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 (90mm) 3-Stage Dimensions – Ratios: 45:1, 75:1, 105:1

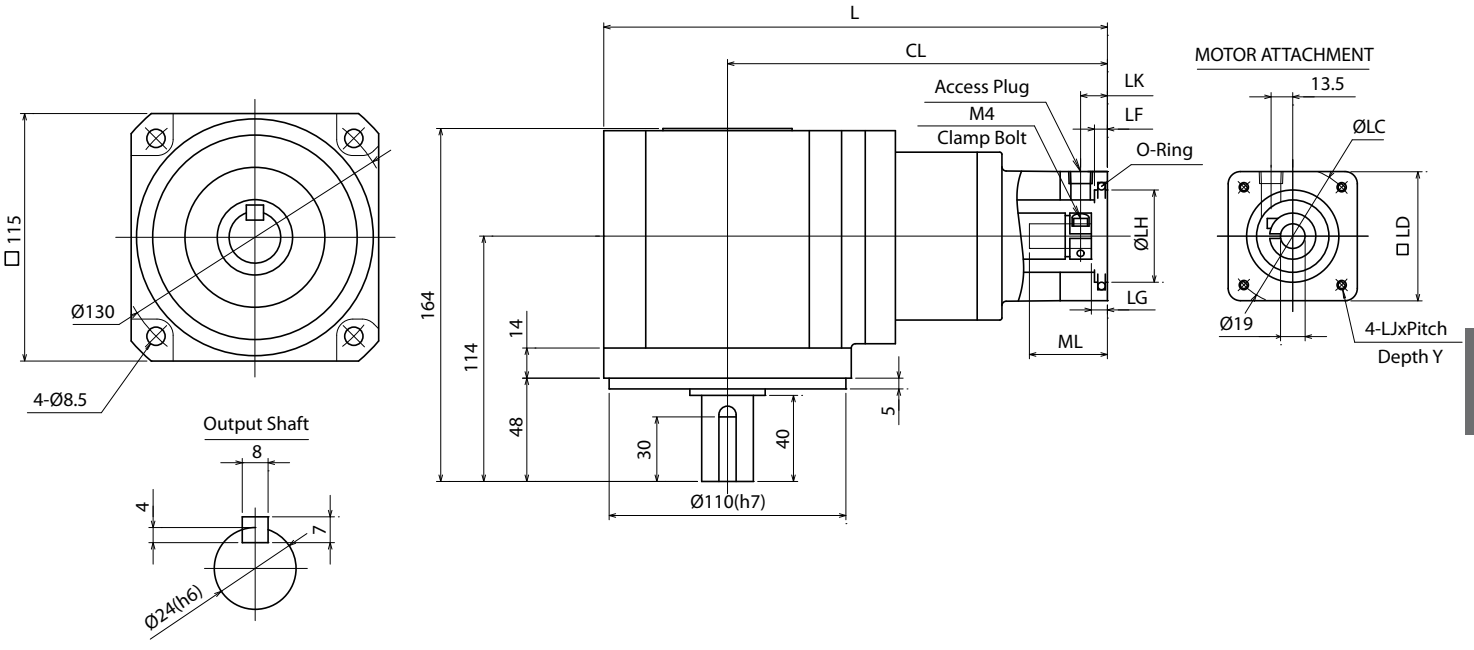


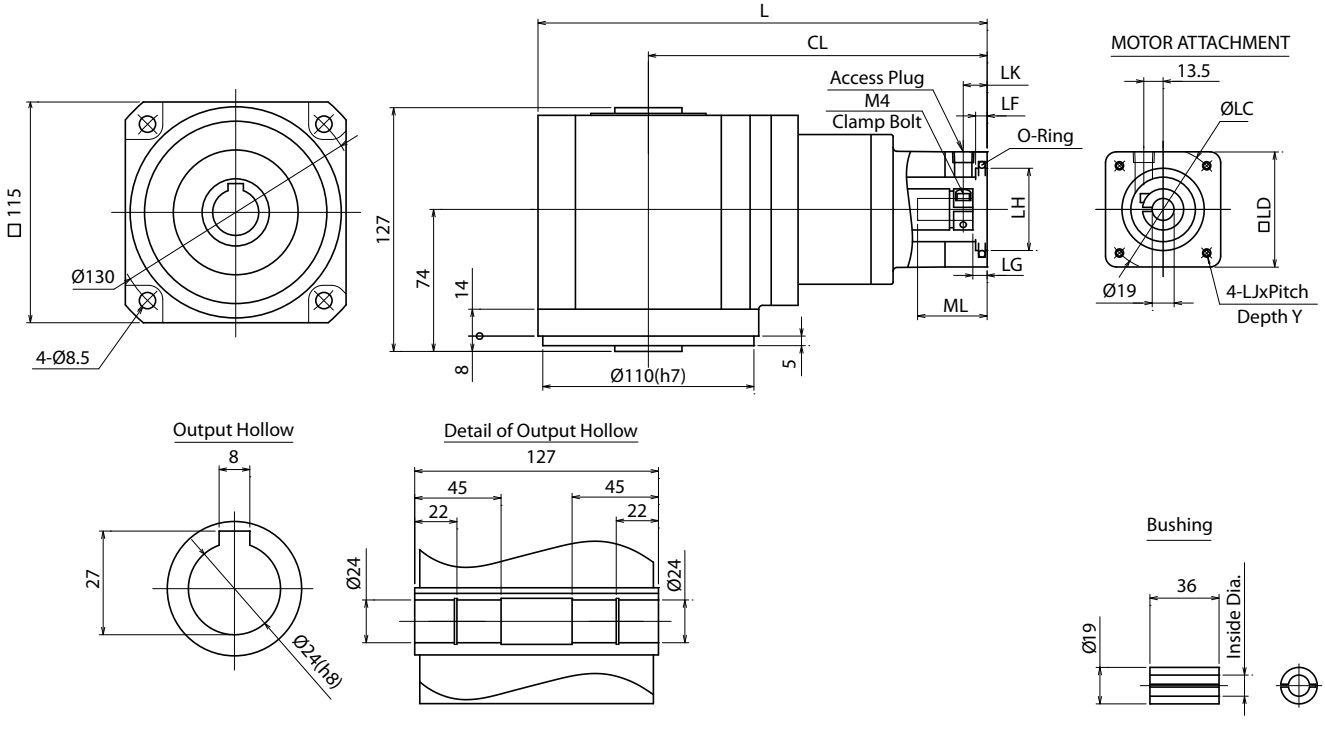


NEV D-Frame 2-Stage Specifications

Frame Size	**D (115mm)**					
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 (≤Ø14)	[kgcm2]	--	--	--	--	--
Moment of Inertia (≤ Ø19)	[kgcm2]	--	1.502	1.254	0.464	0.720
Efficiency	[%]	--	85			
Torsional Rigidity	[Nm/arcmin]	--	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 (115mm) 2-Stage Dimensions – Ratios: 5:1, 9:1, 15:1, 27:1

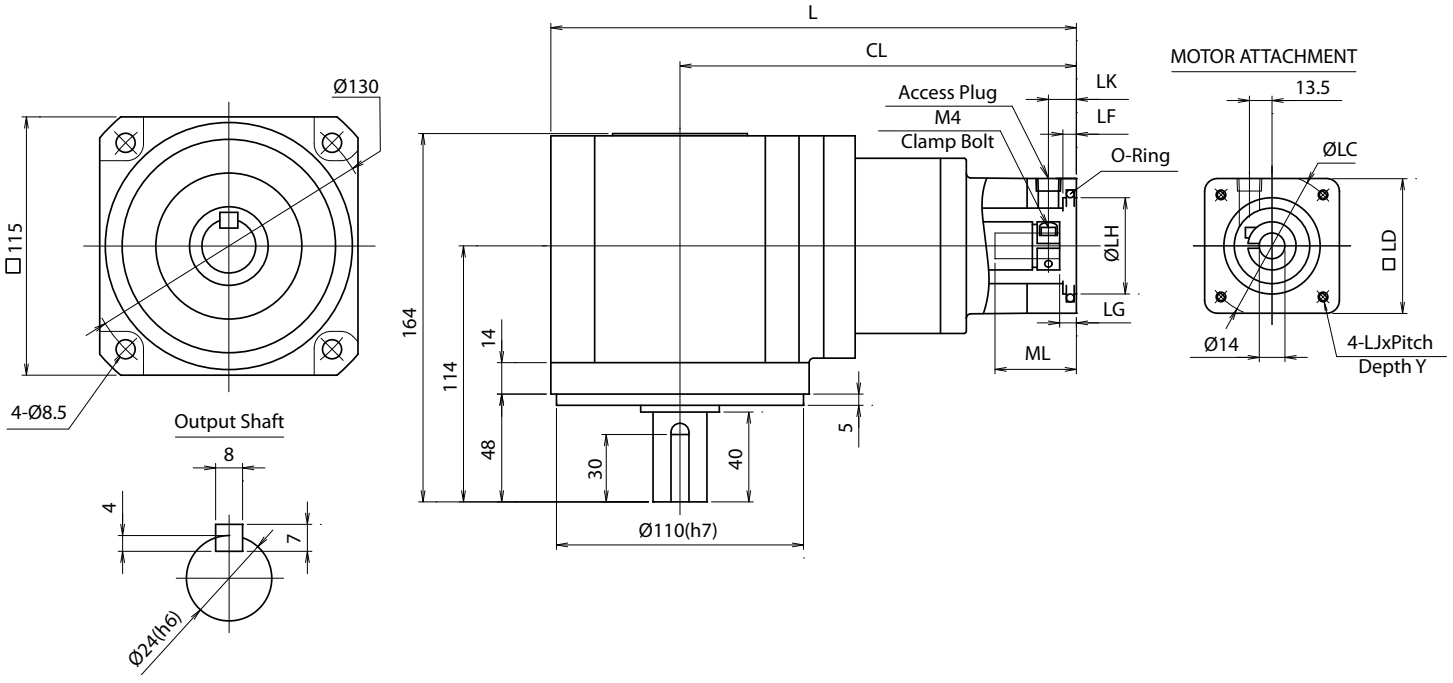


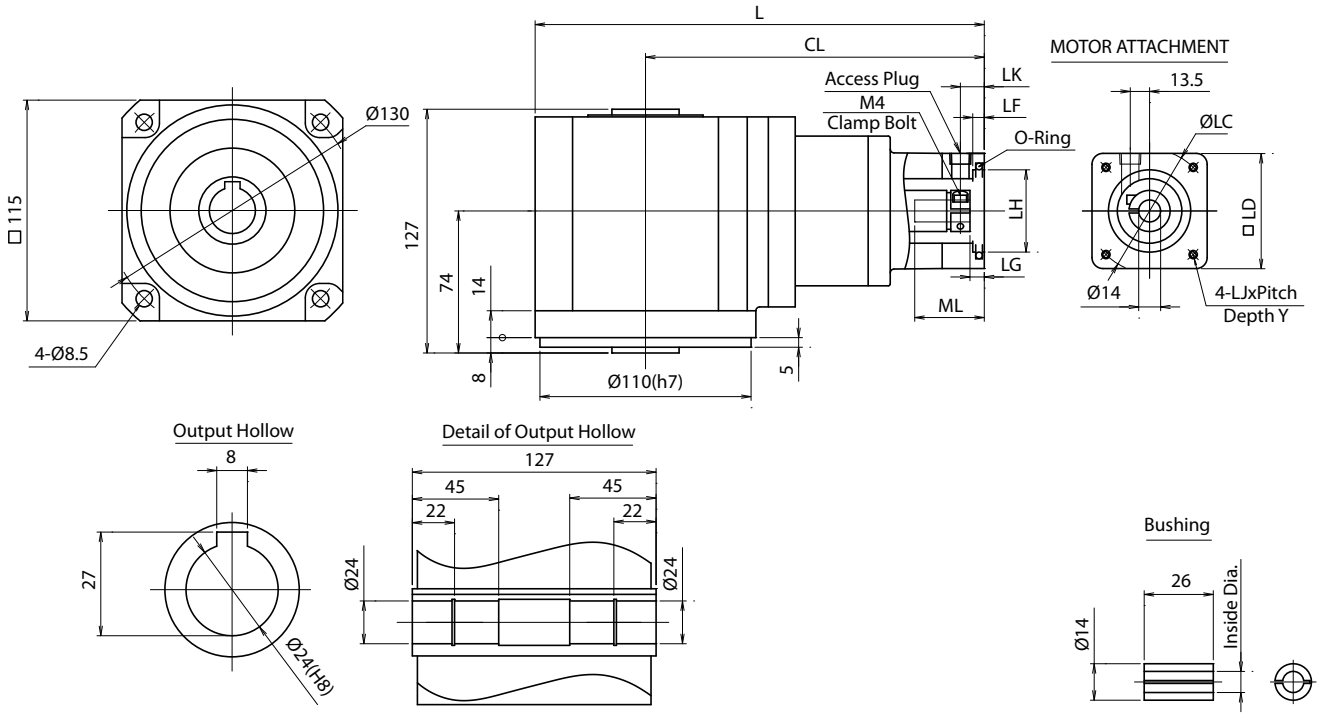


NEV D-Frame 3-Stage Specifications

Frame Size	**D (115mm)**				
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 (≤Ø14)	[kgcm2]	--	0.806	0.694	0.648
Moment of Inertia (≤ Ø19)	[kgcm2]	--	--	--	--
Efficiency	[%]	--	80		
Torsional Rigidity	[Nm/arcmin]	--	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 (115mm) 3-Stage Dimensions – Ratios: 45:1, 75:1, 105:1



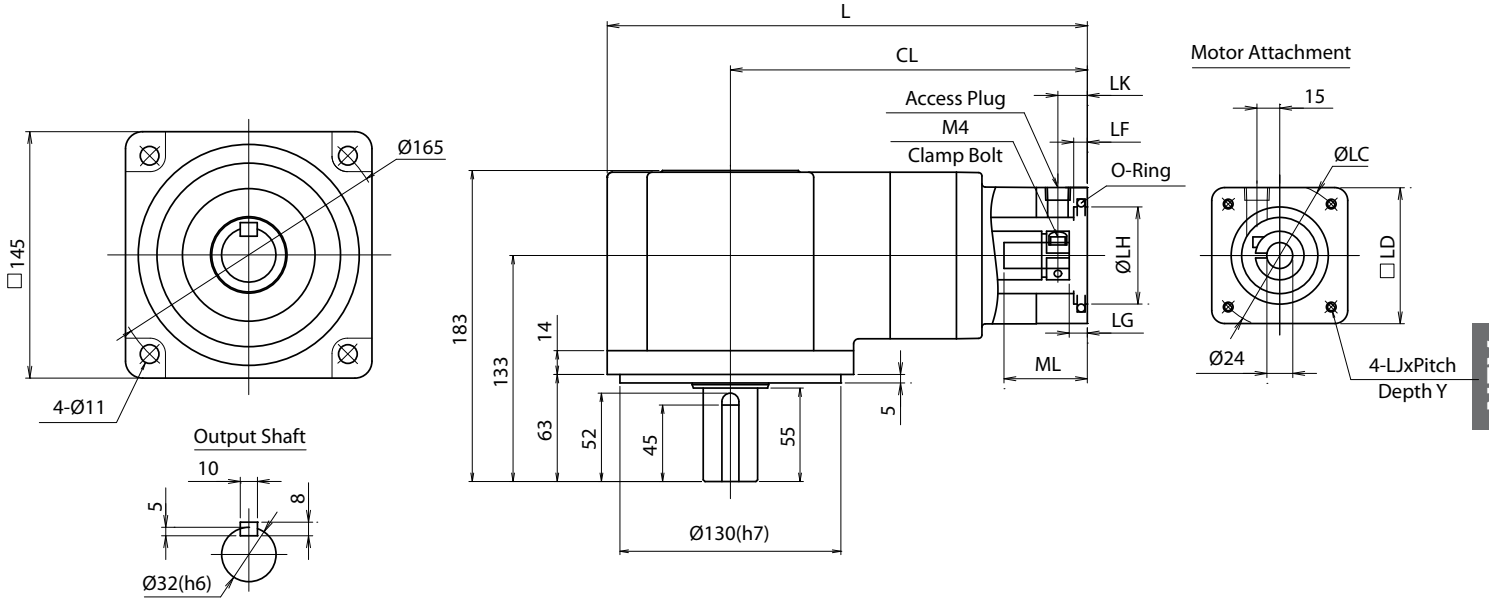


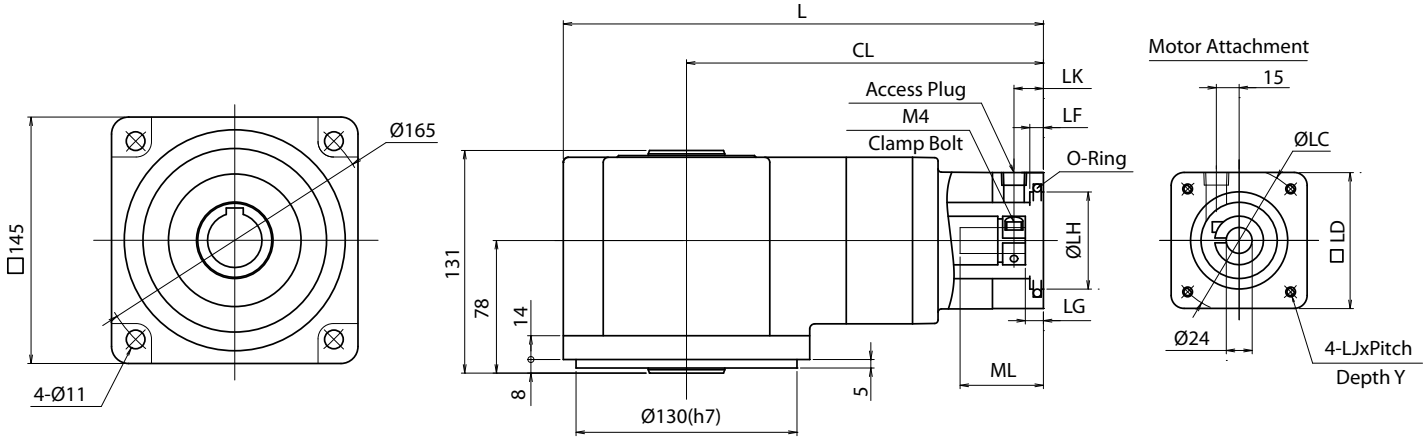
NEV

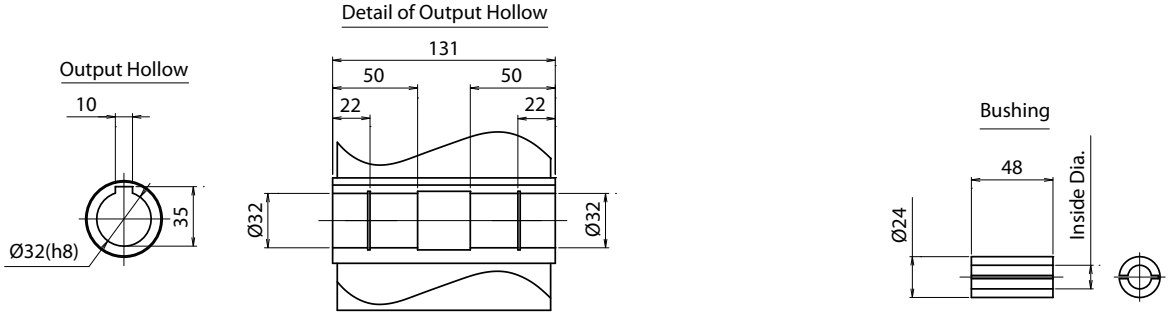
NEV E-Frame 2-Stage Specifications

Frame Size	**E (145mm)**					
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 (≤Ø19)	[kgcm2]	--	--	--	--	--
Moment of Inertia (≤ Ø24)	[kgcm2]	--	3.559	2.940	1.193	2.044
Efficiency	[%]	--	85			
Torsional Rigidity	[Nm/arcmin]	--	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 (145mm) 2-Stage Dimensions – Ratios: 5:1, 9:1, 15:1, 27:1



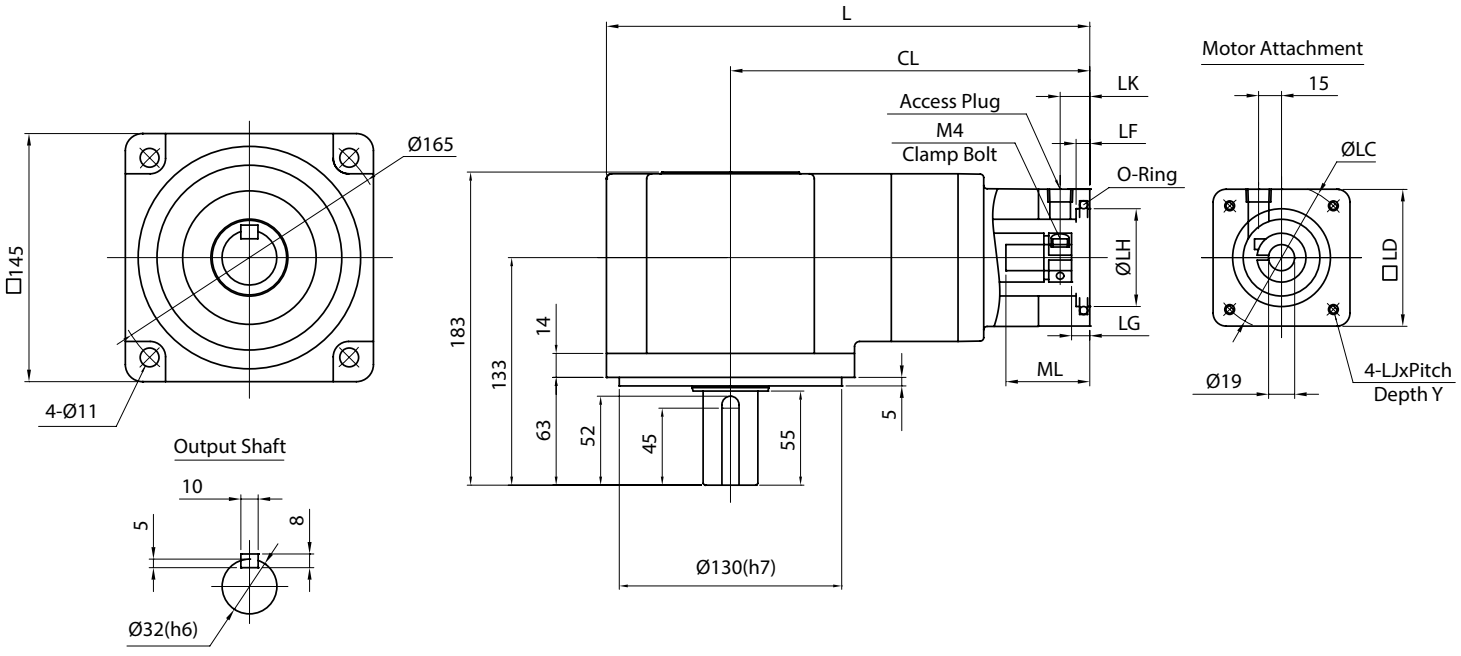


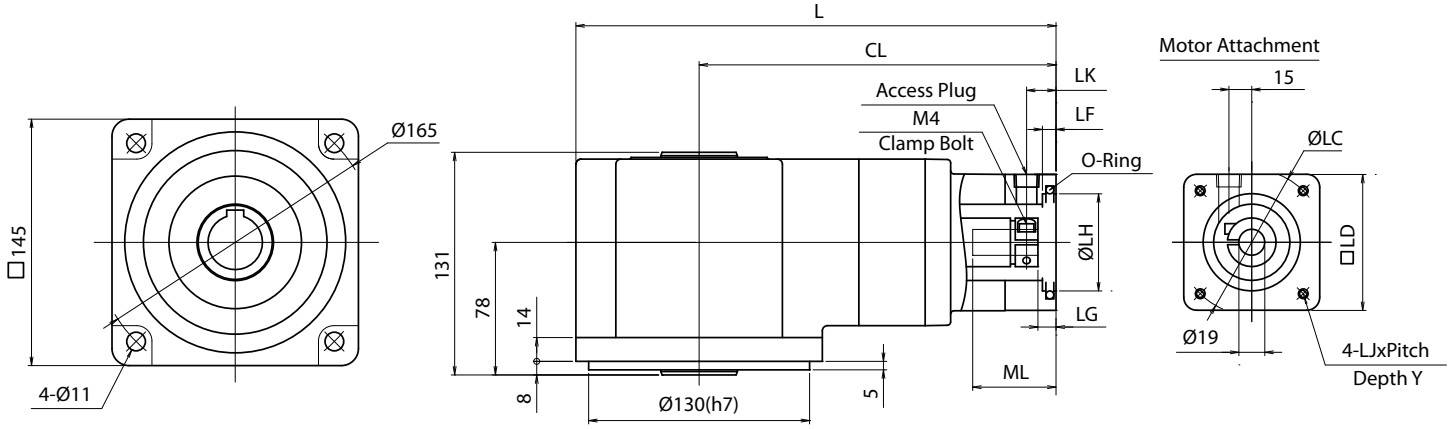


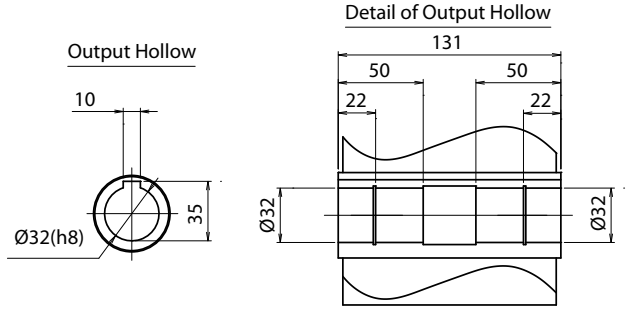
NEV E-Frame 3-Stage Specifications

Frame Size	**E (145mm)**				
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 (≤Ø19)	[kgcm2]	--	1.878	1.303	1.184
Moment of Inertia (≤ Ø24)	[kgcm2]	--	--	--	--
Efficiency	[%]	--	80		
Torsional Rigidity	[Nm/arcmin]	--	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 (145mm) 3-Stage Dimensions – Ratios: 45:1, 75:1, 105:1



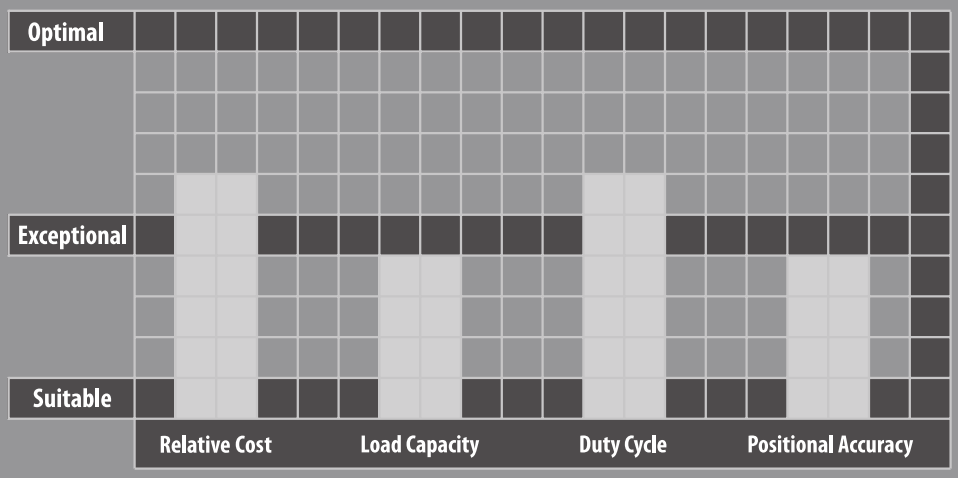




EVL SERIES

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.

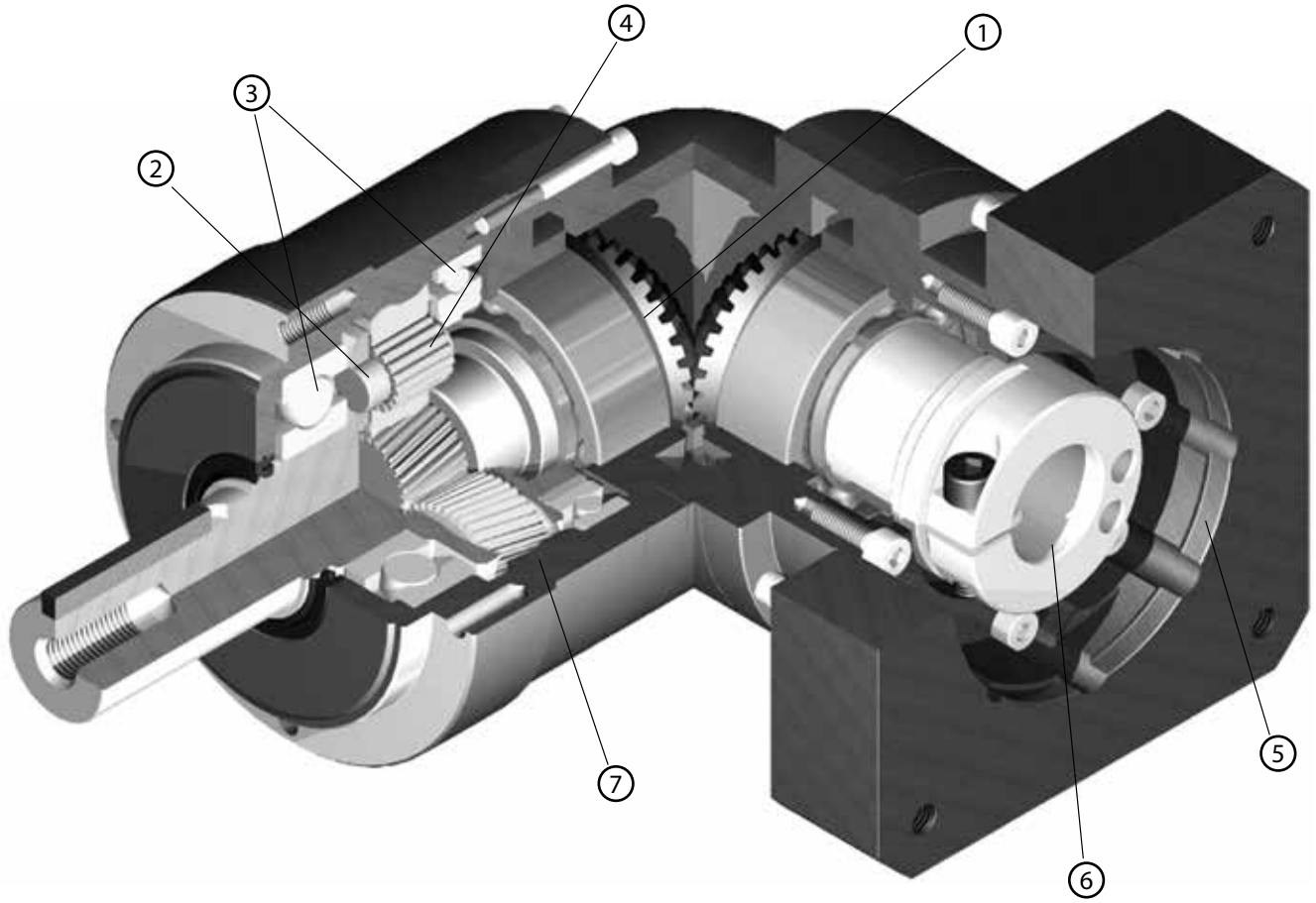
The EVL is a solid choice for servo applications in packaging, handling and automation systems. A variety of standard wash down and food grade options are available, making it an attractive option for the toughest environments. We offer the broadest selection of frame sizes and ratios, giving our customers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



EVL SERIES

- 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
- Assembled in the USA

EVL Series 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

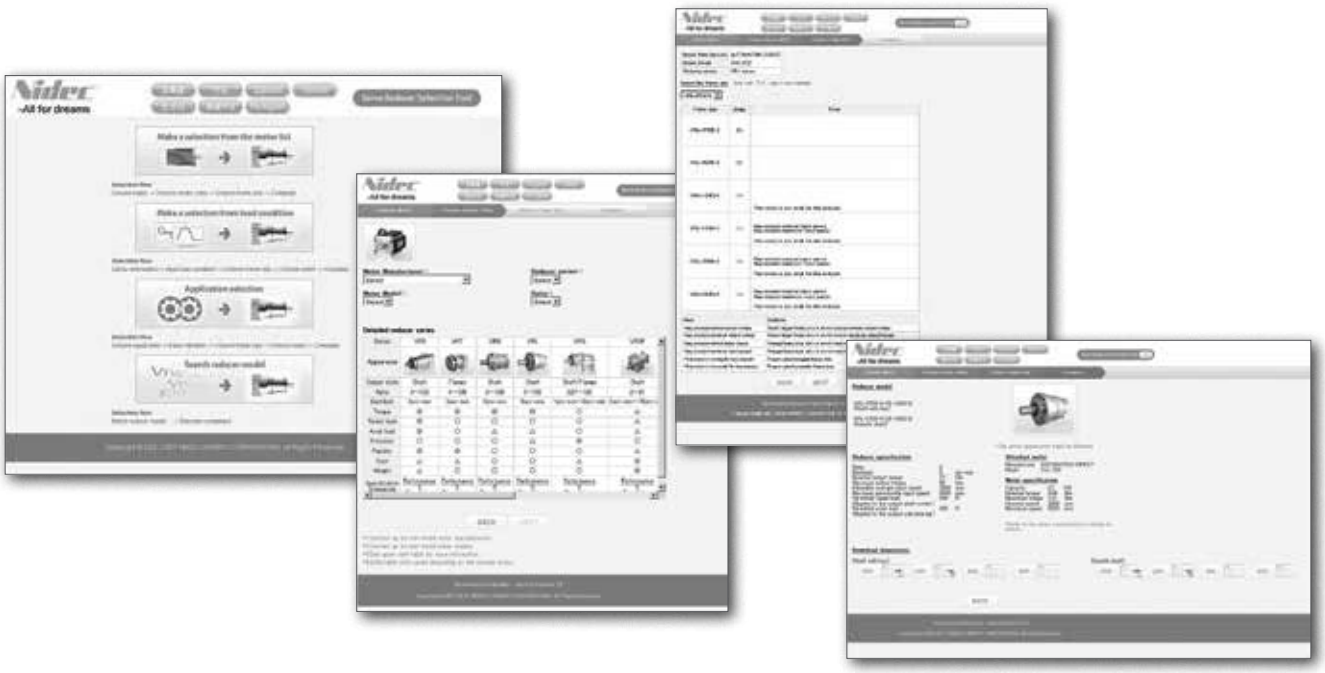
EVL Series Model Code

EVL – 090 B – 7 – K 6 – 19HB16

- Motor mounting code (*1)
- Backlash: 070, 090, 120, 155: 6–9 arc-min; 205, 235: 8–11 arc-min
- 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
- Design version
- Frame size: 070, 090, 120, 155, 205, 235
- Series

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

Contact us for additional information or refer to our online gearbox selection tool.
Selection tool www.nidec-shimpo.co.jp/selection/eng



EVL 070 2-Stage Specifications

Frame Size			**070**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	12	16	22	24	24	24	16	16
Maximum Acceleration Torque	[Nm]	*2	24	32	40	45	45	45	32	32
Emergency Stop Torque	[Nm]	*3	50	65	80	90	90	90	65	65
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.33							
Permitted Radial Load	[N]	*7	430	470	510	540	570	600	620	640
Permitted Axial Load	[N]	*8	310	360	390	430	460	480	510	530
Maximum Radial Load	[N]	*9	1200							
Maximum Axial Load	[N]	*10	1100							
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.310	0.270	0.250	0.240	0.230	0.230	0.230	0.230
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.390	0.340	0.320	0.310	0.310	0.310	0.300	0.300
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.580	0.530	0.510	0.500	0.500	0.500	0.490	0.490
Efficiency	[%]	*11	93							
Torsional Rigidity	[Nm/arc-min]	*12	3							
Maximum Torsional Backlash	[arc-min]	--	≤ 6							
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							

EVL 070 3-Stage Specifications

Frame Size			**070**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	16	24	24	24	24	16	24	24
Maximum Acceleration Torque	[Nm]	*2	32	45	45	45	45	32	45	45
Emergency Stop Torque	[Nm]	*3	65	90	90	90	90	65	90	90
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.20							
Permitted Radial Load	[N]	*7	740	750	810	870	910	930	980	100
Permitted Axial Load	[N]	*8	630	650	720	790	830	860	920	970
Maximum Radial Load	[N]	*9	1200							
Maximum Axial Load	[N]	*10	1100							
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.073	0.079	0.071	0.071	0.077	0.062	0.070	0.061
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.118	0.124	0.116	0.115	0.122	0.106	0.115	0.106
Efficiency	[%]	*11	88							
Torsional Rigidity	[Nm/arc-min]	*12	3							
Maximum Torsional Backlash	[arc-min]	--	≤ 9							
Noise Level	dB [A]	*13	≤ 80							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	1.7							

EVL 070 3-Stage Specifications

Frame Size			**070**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	16	24	24	24	24	16	16
Maximum Acceleration Torque	[Nm]	*2	32	45	45	45	45	32	32
Emergency Stop Torque	[Nm]	*3	65	90	90	90	90	65	65
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*6	0.20						
Permitted Radial Load	[N]	*7	1100	1100	1200	1200	1200	1200	1200
Permitted Axial Load	[N]	*8	1000	1100	1100	1100	1100	1100	1100
Maximum Radial Load	[N]	*9	1200						
Maximum Axial Load	[N]	*10	1100						
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.070	0.061	0.061	0.061	0.061	0.061	0.061
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.115.	0.106	0.106	0.105	0.105	0.105	0.105
Efficiency	[%]	*11	88						
Torsional Rigidity	[Nm/arc-min]	*12	3						
Maximum Torsional Backlash	[arc-min]	--	≤ 9						
Noise Level	dB [A]	*13	≤ 80						
Protection Class	--	*14	IP54 (IP65)						
Ambient Temperature	[°C]	--	0-40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*15	1.7						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

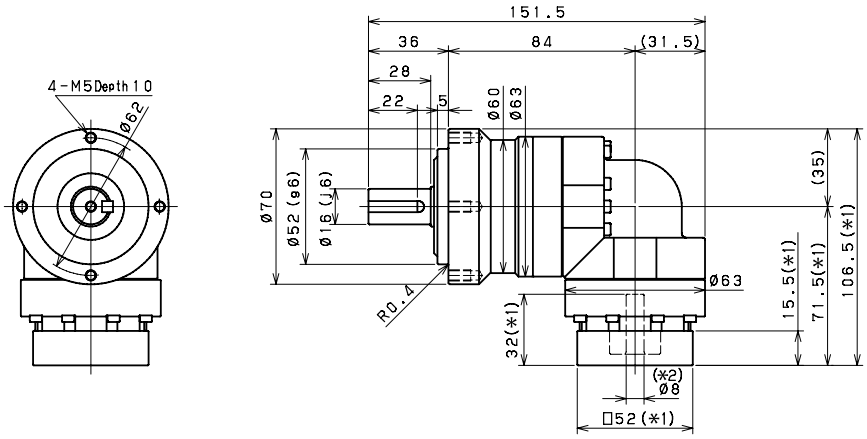
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

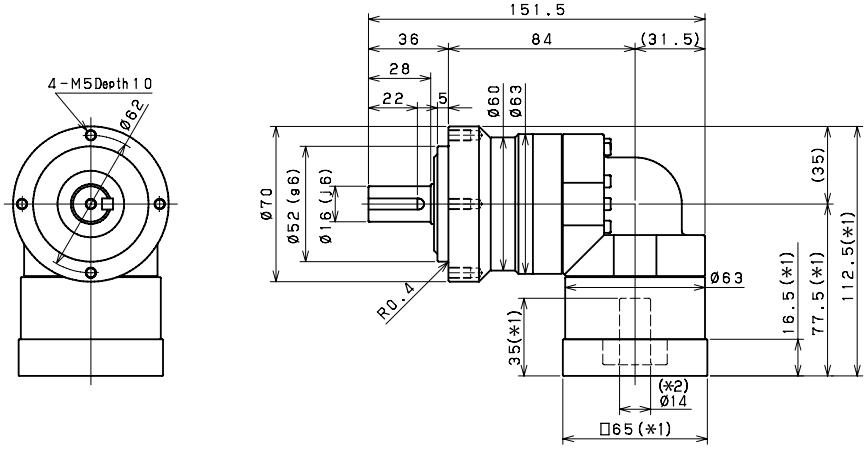
*15) The weight may vary slightly between models

EVL 070 2-Stage Dimensions

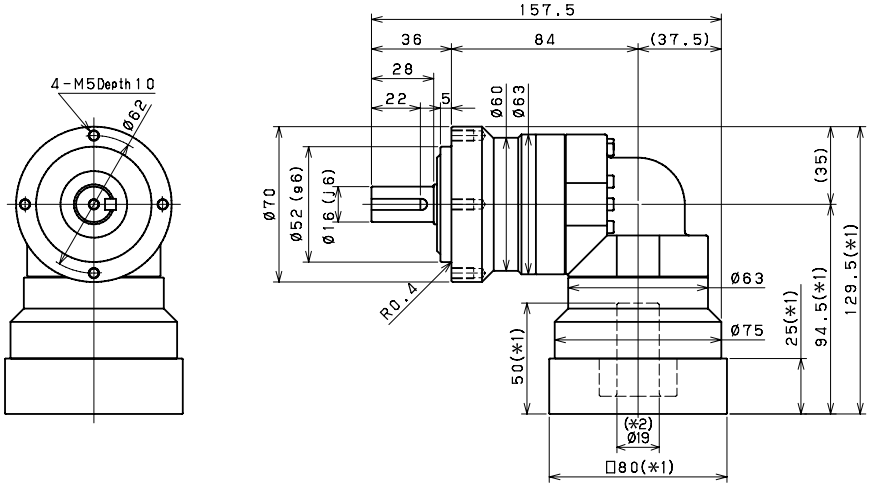
Input bore size ≦φ8 mm

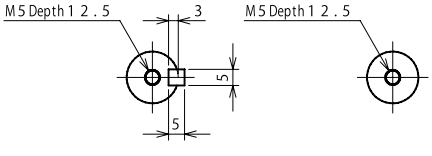


Input bore size ≦φ14 mm



Input bore size ≦φ19 mm





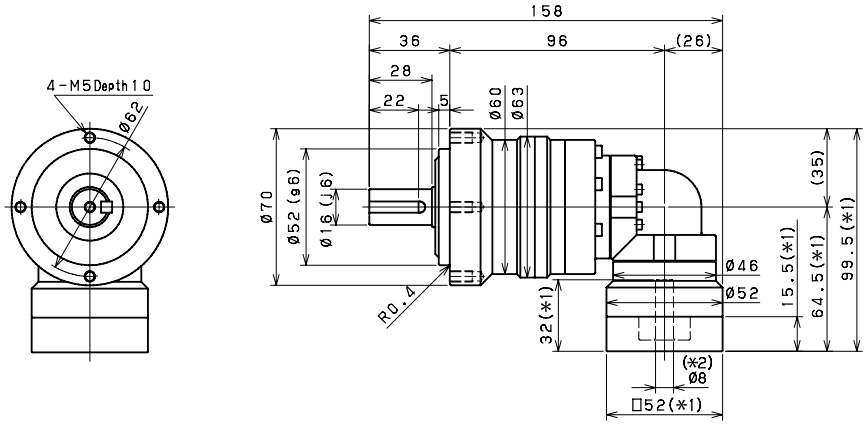
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

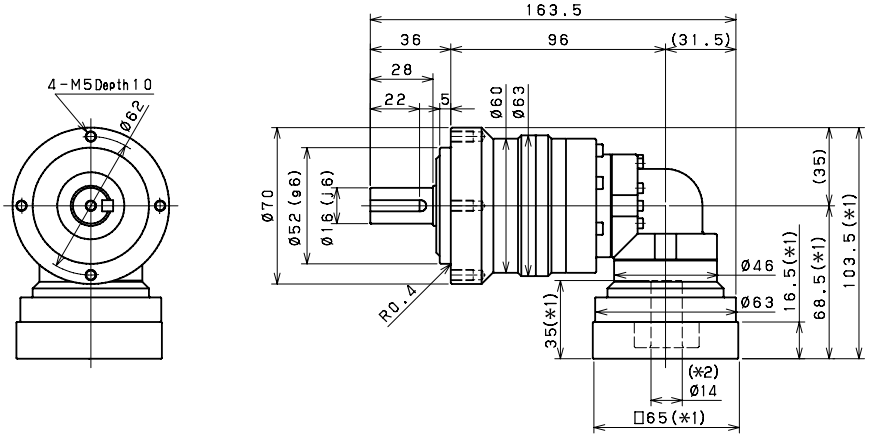
*2) Bushing will be inserted to adapt to motor shaft

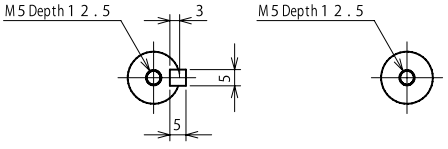
EVL 070 3-Stage Dimensions

Input bore size ≦φ8 mm



Input bore size ≦φ14 mm





Keyed shaft Smooth shaft

*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**									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	45	60	65	65	65	65	45	45
Maximum Acceleration Torque	[Nm]	*2	65	90	90	90	90	90	65	65
Emergency Stop Torque	[Nm]	*3	130	170	220	220	220	220	170	170
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	1.13							
Permitted Radial Load	[N]	*7	810	890	960	1000	1100	1100	1200	1200
Permitted Axial Load	[N]	*8	930	1100	1200	1300	1300	1400	1500	1600
Maximum Radial Load	[N]	*9	2400							
Maximum Axial Load	[N]	*10	2200							
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	2.120	1.890	1.800	1.760	1.730	1.710	1.700	1.690
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	2.450	2.220	2.130	2.090	2.060	2.040	2.030	2.020
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	4.570	4.350	4.260	4.210	4.180	4.170	4.160	4.150
Efficiency	[%]	*11	93							
Torsional Rigidity	[Nm/arc-min]	*12	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 6							
Noise Level	dB [A]	*13	≤ 80							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	4.9							

EVL 090 3-Stage Specifications

Frame Size	**090**									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	45	65	65	65	65	45	65	65
Maximum Acceleration Torque	[Nm]	*2	65	110	110	110	110	65	110	110
Emergency Stop Torque	[Nm]	*3	170	220	220	220	220	170	220	220
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.55							
Permitted Radial Load	[N]	*7	1400	1400	1500	1600	1700	1700	1800	1900
Permitted Axial Load	[N]	*8	1900	1900	2100	2200	2200	2200	2200	2200
Maximum Radial Load	[N]	*9	2400							
Maximum Axial Load	[N]	*10	2200							
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.340	0.380	0.330	0.320	0.370	0.250	0.320	0.250
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.410	0.460	0.400	0.400	0.450	0.330	0.400	0.320
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.600	0.650	0.590	0.590	0.640	0.510	0.590	0.510
Efficiency	[%]	*11	88							
Torsional Rigidity	[Nm/arc-min]	*12	10							
Maximum Torsional Backlash	[arc-min]	--	≤ 9							
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							

EVL 090 3-Stage Specifications

Frame Size			**090**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	45	65	65	65	65	45	45
Maximum Acceleration Torque	[Nm]	*2	65	110	1110	110	110	65	65
Emergency Stop Torque	[Nm]	*3	170	220	220	220	220	170	170
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*6	0.55						
Permitted Radial Load	[N]	*7	2000	2100	2200	2300	2400	2400	2400
Permitted Axial Load	[N]	*8	2200	2200	2200	2200	2200	2200	2200
Maximum Radial Load	[N]	*9	2400						
Maximum Axial Load	[N]	*10	2200						
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.320	0.250	0.250	0.250	0.250	0.250	0.250
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.390	0.320	0.320	0.320	0.320	0.320	0.320
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.580	0.510	0.510	0.510	0.510	0.510	0.510
Efficiency	[%]	*11	88						
Torsional Rigidity	[Nm/arc-min]	*12	10						
Maximum Torsional Backlash	[arc-min]	--	≤ 9						
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						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

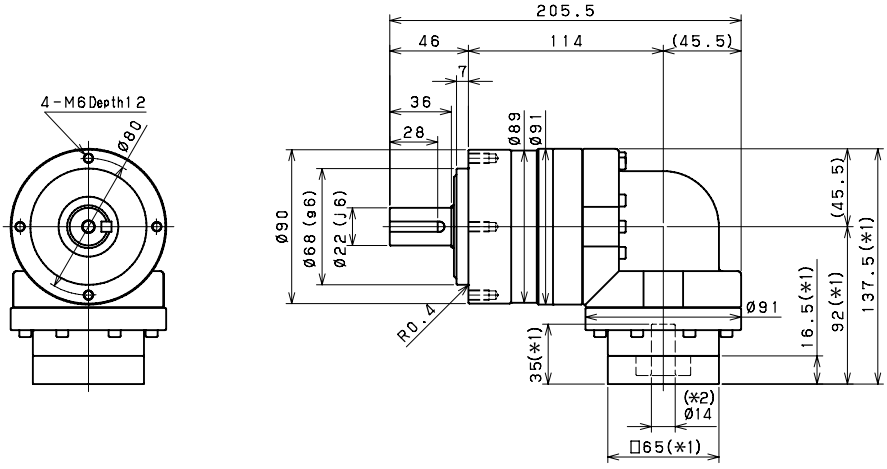
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

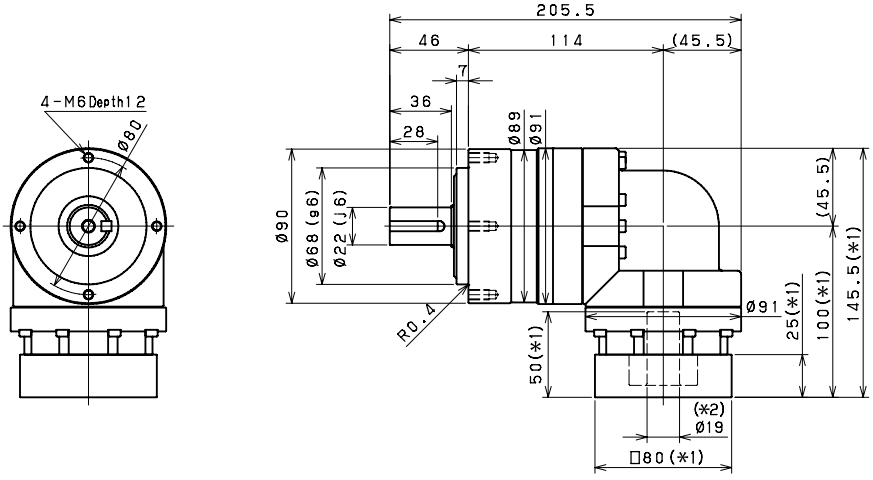
*15) The weight may vary slightly between models

EVL 090 2-Stage Dimensions

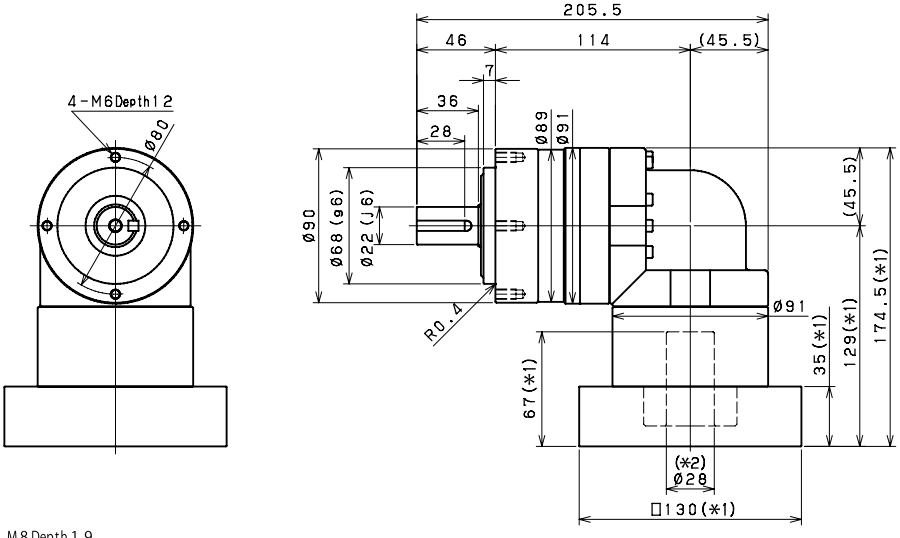
Input bore size ≦φ14 mm

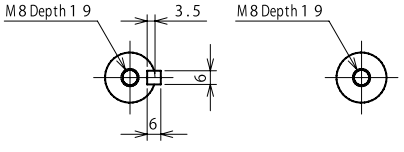


Input bore size ≦φ19 mm



Input bore size ≦φ28 mm





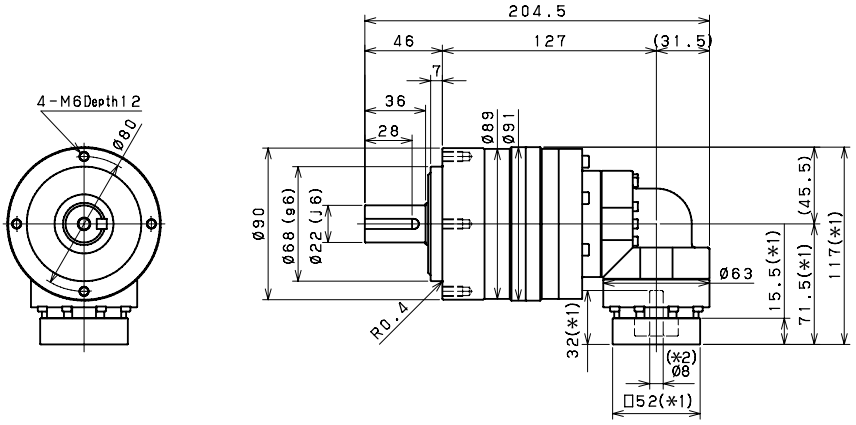
Keyed shaft Smooth shaft

*1) Length will vary depending on motor.

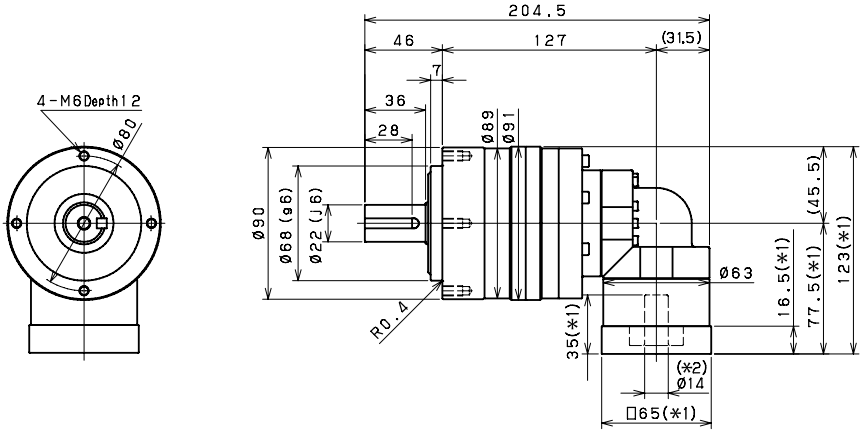
*2) Bushing will be inserted to adapt to motor shaft

EVL o90 3-Stage Dimensions

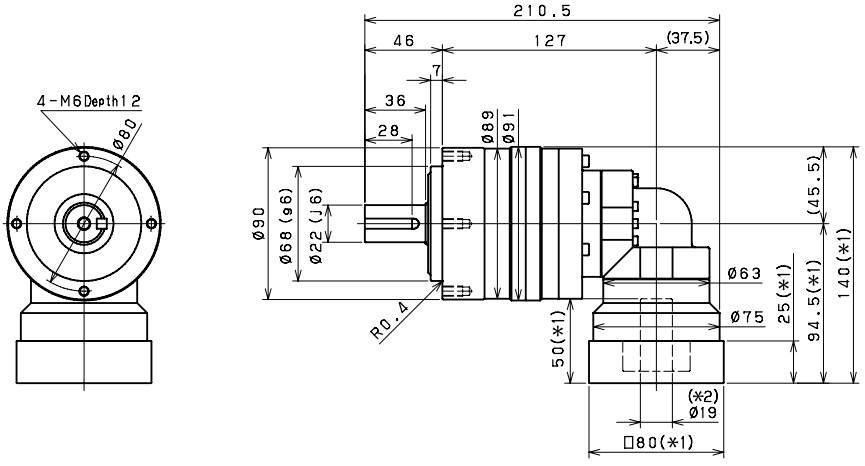
Input bore size ≦φ8 mm

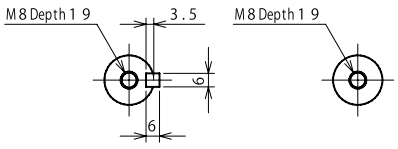


Input bore size ≦φ14 mm



Input bore size ≦φ19 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**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	75	100	120	150	150	150	110	110
Maximum Acceleration Torque	[Nm]	*2	150	200	240	300	300	300	200	200
Emergency Stop Torque	[Nm]	*3	320	430	500	550	550	550	450	450
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	1.88							
Permitted Radial Load	[N]	*7	1300	1500	1600	1700	1800	1900	1900	2000
Permitted Axial Load	[N]	*8	1500	1700	1900	2000	2100	2300	2400	2500
Maximum Radial Load	[N]	*9	4300							
Maximum Axial Load	[N]	*10	3900							
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	6.740	5.490	5.020	4.770	4.650	4.550	4.490	4.460
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	8.340	7.080	6.610	6.360	6.240	6.140	6.080	6.050
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	15.410	14.150	13.690	13.430	13.310	13.220	13.160	13.120
Efficiency	[%]	*11	93							
Torsional Rigidity	[Nm/arc-min]	*12	31							
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	10.2							

EVL 120 3-Stage Specifications

Frame Size			**120**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	110	130	150	150	150	110	150	150
Maximum Acceleration Torque	[Nm]	*2	200	260	300	300	300	200	300	300
Emergency Stop Torque	[Nm]	*3	450	550	550	550	550	450	550	550
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	1.11							
Permitted Radial Load	[N]	*7	2300	2300	2500	2700	2800	2900	3000	3200
Permitted Axial Load	[N]	*8	3000	3100	3400	3700	3900	3900	3900	3900
Maximum Radial Load	[N]	*9	4300							
Maximum Axial Load	[N]	*10	3900							
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	2.250	2.460	2.200	2.180	2.400	1.870	2.160	1.860
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	2.580	2.790	2.530	2.510	2.730	2.200	2.490	2.190
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	4.700	4.910	4.650	4.640	4.860	4.330	4.620	4.320
Efficiency	[%]	*11	88							
Torsional Rigidity	[Nm/arc-min]	*12	31							
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	10							

EVL 120 3-Stage Specifications

Frame Size			**120**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	110	150	150	150	150	110	110
Maximum Acceleration Torque	[Nm]	*2	200	300	300	300	300	200	200
Emergency Stop Torque	[Nm]	*3	450	550	550	550	550	450	450
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*6	1.11						
Permitted Radial Load	[N]	*7	3300	3400	3600	3800	4000	4200	4300
Permitted Axial Load	[N]	*8	3900	3900	3900	3900	3900	3900	3900
Maximum Radial Load	[N]	*9	4300						
Maximum Axial Load	[N]	*10	3900						
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	2.150	1.860	1.850	1.850	1.850	1.850	1.850
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	2.480	2.190	2.180	2.180	2.180	2.180	2.180
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	4.610	4.310	4.310	4.310	4.310	4.310	4.310
Efficiency	[%]	*11	88						
Torsional Rigidity	[Nm/arc-min]	*12	31						
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	10						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

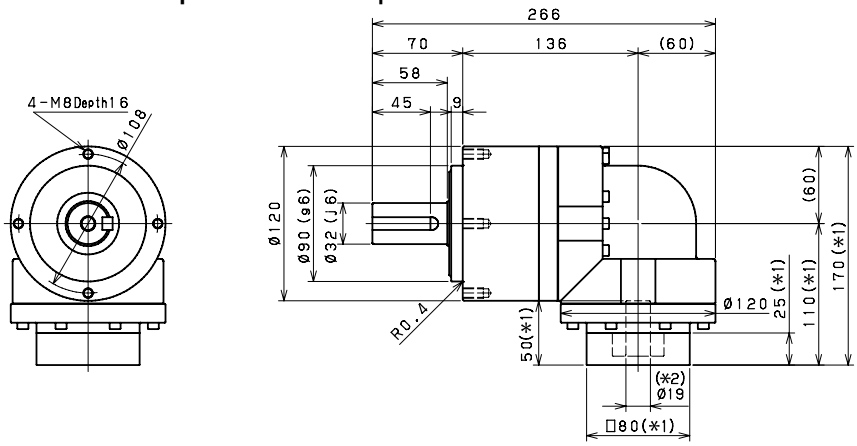
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

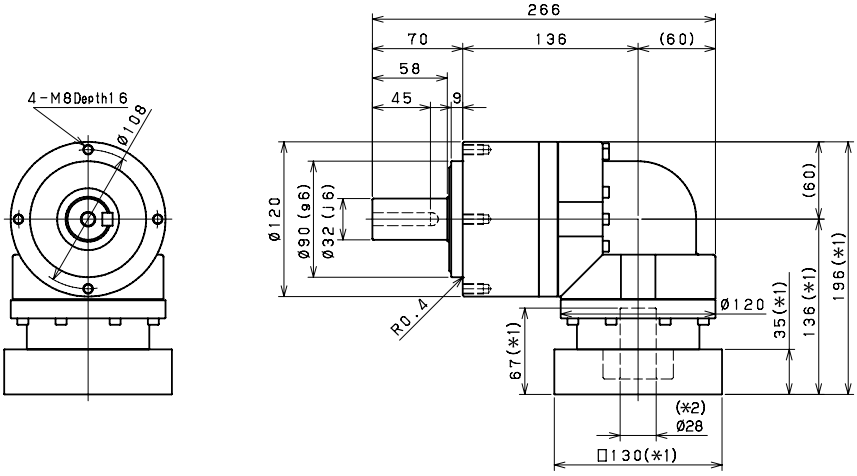
*15) The weight may vary slightly between models

EVL 120 2-Stage Dimensions

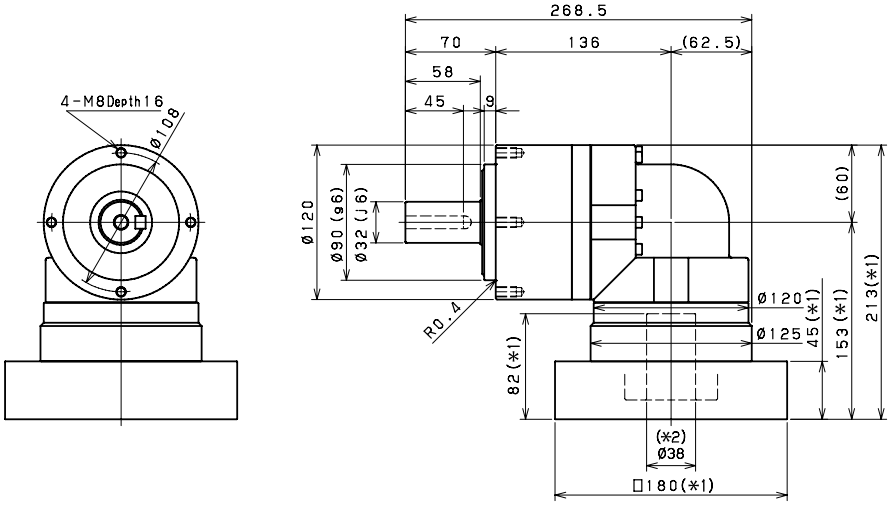
Input bore size ≦φ19 mm

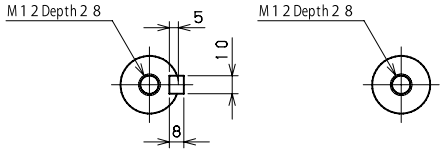


Input bore size ≦φ28 mm



Input bore size ≦φ38 mm





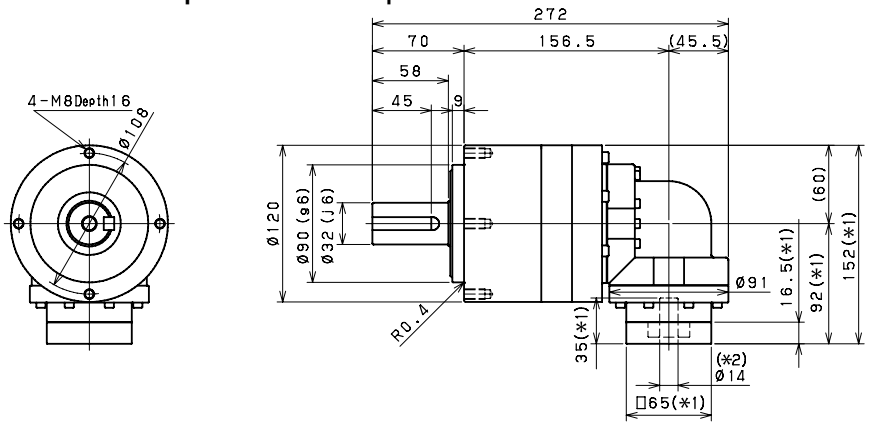
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

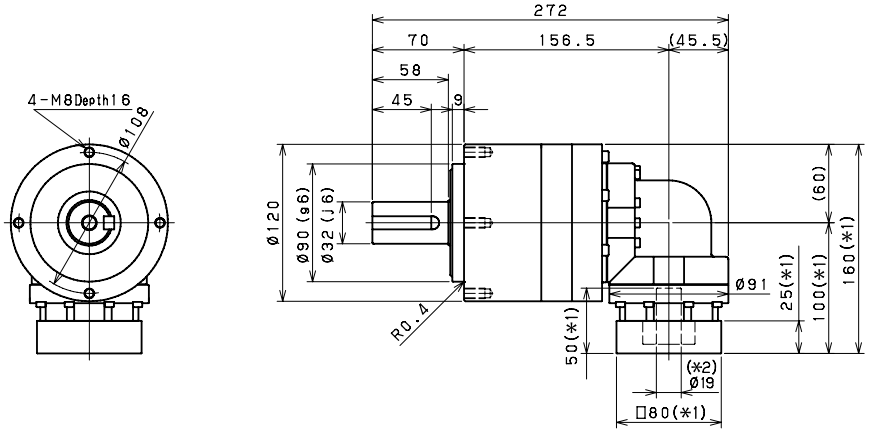
*2) Bushing will be inserted to adapt to motor shaft

EVL 120 3-Stage Dimensions

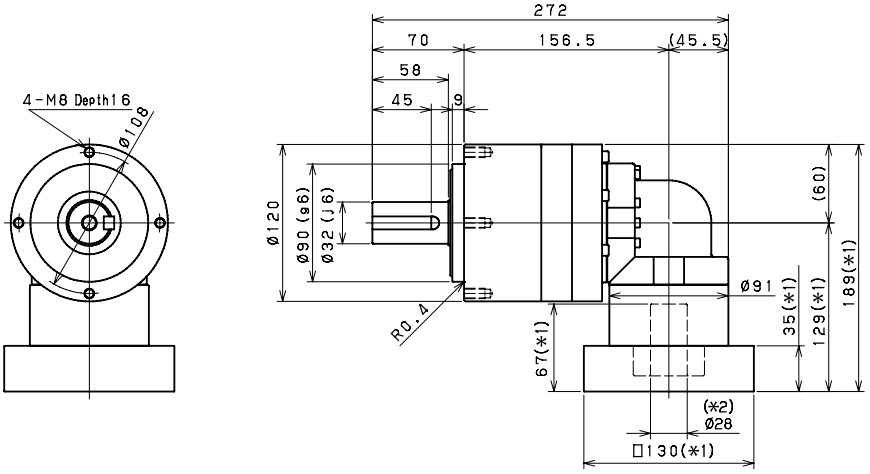
Input bore size ≦φ14 mm

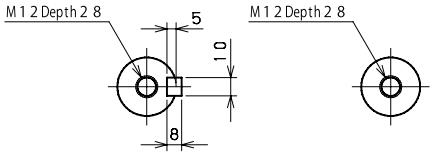


Input bore size ≦φ19 mm



Input bore size ≦φ28 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**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	130	170	200	260	300	300	200	200
Maximum Acceleration Torque	[Nm]	*2	260	340	400	520	600	600	400	400
Emergency Stop Torque	[Nm]	*3	700	950	1100	1100	1100	1100	750	750
Nominal Input Speed	[rpm]	*4	2000							
Maximum Input Speed	[rpm]	*5	4000							
No Load Running Torque	[Nm]	*6	3.26							
Permitted Radial Load	[N]	*7	3200	3500	3800	4000	4200	4400	4600	4700
Permitted Axial Load	[N]	*8	2400	2700	3000	3300	3500	3700	3900	4100
Maximum Radial Load	[N]	*9	9100							
Maximum Axial Load	[N]	*10	8200							
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	23.130	18.570	16.910	16.010	15.580	15.230	14.770	14.660
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	27.500	22.940	21.280	20.380	19.950	19.610	19.410	19.030
Moment of Inertia (≤ Ø 48)	[kgcm2]	--	40.730	36.170	34.510	33.610	33.180	32.840	32.370	32.260
Efficiency	[%]	*11	93							
Torsional Rigidity	[Nm/arc-min]	*12	60							
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	19.8							

EVL 155 3-Stage Specifications

Frame Size			**155**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	200	300	300	300	300	200	300	300
Maximum Acceleration Torque	[Nm]	*2	400	600	600	600	600	400	600	600
Emergency Stop Torque	[Nm]	*3	750	1100	1100	1100	1100	750	1100	1100
Nominal Input Speed	[rpm]	*4	2000							
Maximum Input Speed	[rpm]	*5	4000							
No Load Running Torque	[Nm]	*6	2.56							
Permitted Radial Load	[N]	*7	5400	5500	6000	6400	6700	6800	7200	7500
Permitted Axial Load	[N]	*8	4900	5000	5500	6100	6400	6600	7000	7500
Maximum Radial Load	[N]	*9	9100							
Maximum Axial Load	[N]	*10	8200							
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	6.400	7.290	6.220	6.150	7.090	4.990	6.090	4.950
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	8.000	8.880	7.810	7.750	8.680	6.580	7.690	6.540
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	15.070	15.960	14.890	14.820	15.760	13.660	14.760	13.610
Efficiency	[%]	*11	88							
Torsional Rigidity	[Nm/arc-min]	*12	60							
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	20.4							

EVL 155 3-Stage Specifications

Frame Size			**155**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	200	300	300	300	300	200	200
Maximum Acceleration Torque	[Nm]	*2	400	600	600	600	600	400	400
Emergency Stop Torque	[Nm]	*3	750	1100	1100	1100	1100	750	750
Nominal Input Speed	[rpm]	*4	2000						
Maximum Input Speed	[rpm]	*5	4000						
No Load Running Torque	[Nm]	*6	2.56						
Permitted Radial Load	[N]	*7	7800	8100	8600	9100	9100	9100	9100
Permitted Axial Load	[N]	*8	7900	8200	8200	8200	8200	8200	8200
Maximum Radial Load	[N]	*9	9100						
Maximum Axial Load	[N]	*10	8200						
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	6.070	4.930	4.920	4.910	4.910	4.910	4.910
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	7.660	6.520	6.510	6.510	6.500	6.500	6.500
Moment of Inertia (≤ Ø 38)	[kgcm2]	--	14.740	13.590	13.590	13.580	13.580	13.570	13.570
Efficiency	[%]	*11	88						
Torsional Rigidity	[Nm/arc-min]	*12	60						
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	20.4						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

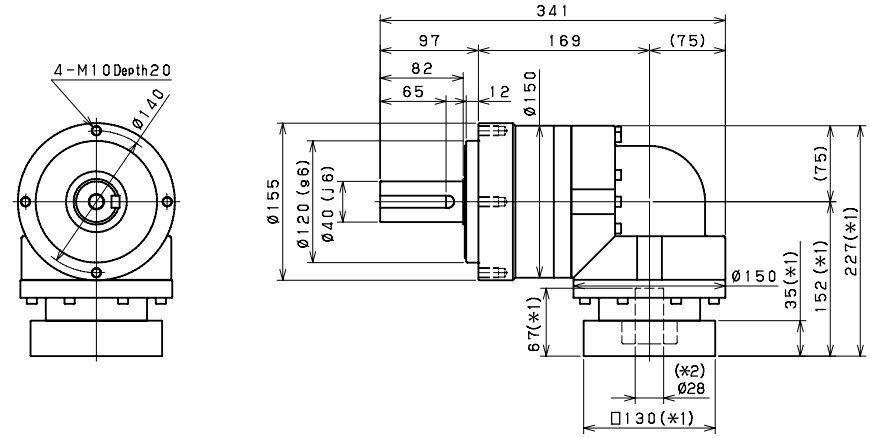
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

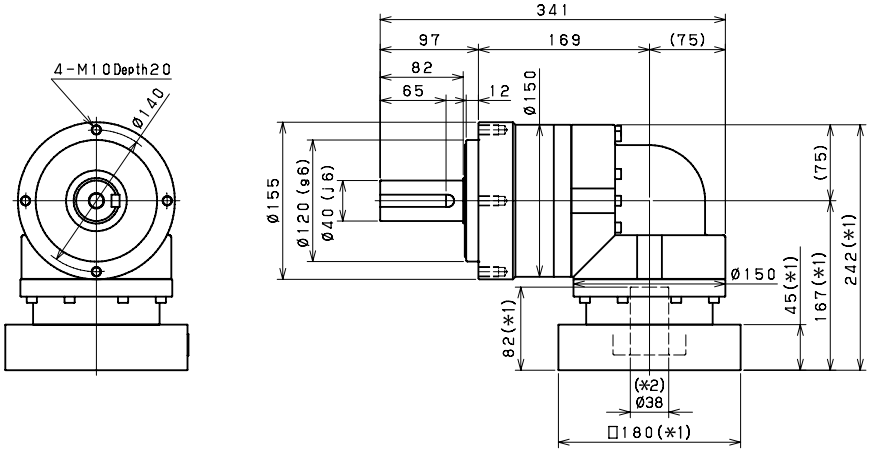
*15) The weight may vary slightly between models

EVL 155 2-Stage Dimensions

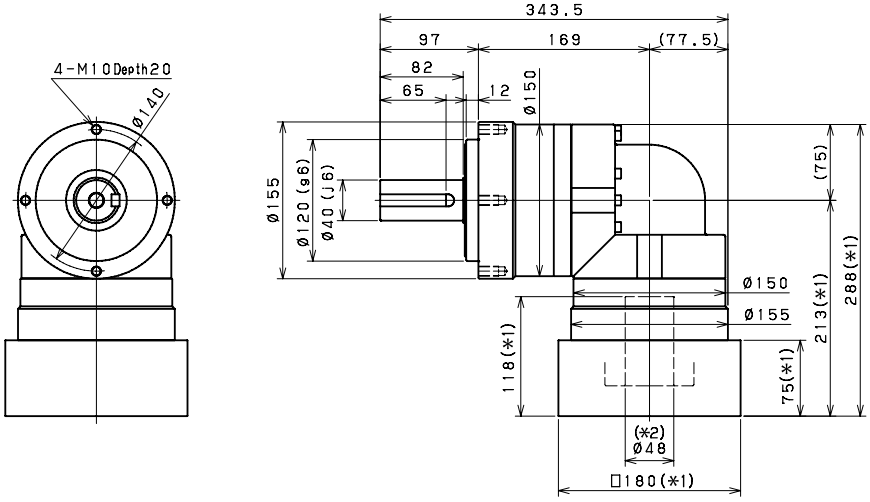
Input bore size ≦φ28 mm

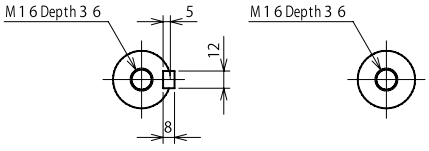


Input bore size ≦φ38 mm



Input bore size ≦φ48 mm





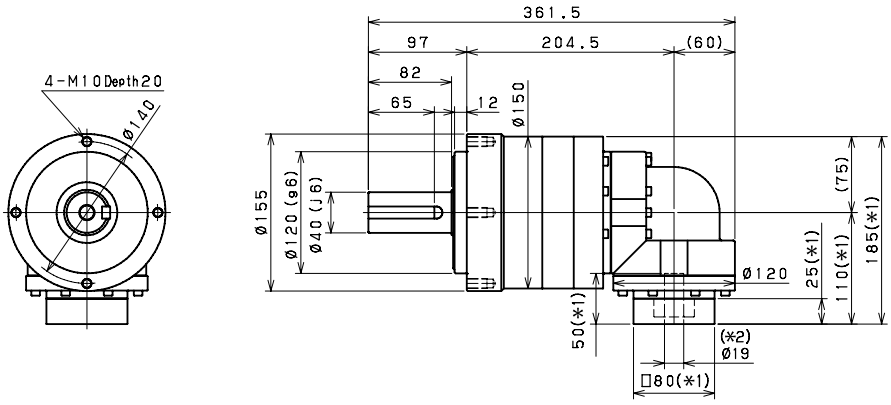
Keyed shaft Smooth shaft

*1) Length will vary depending on motor.

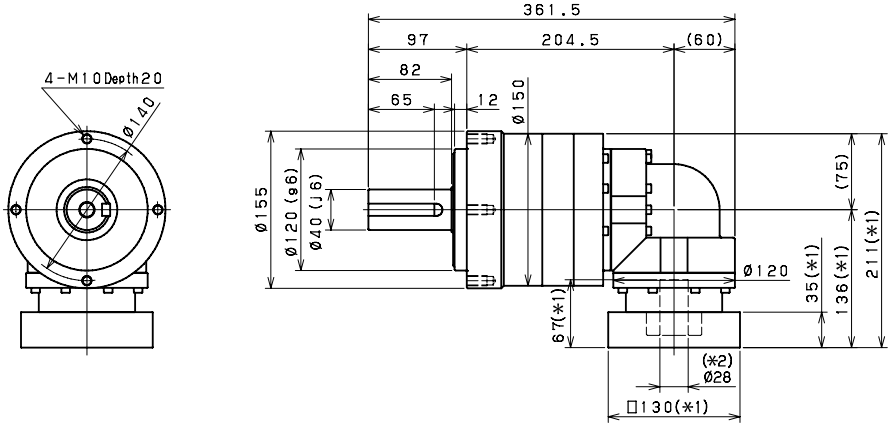
*2) Bushing will be inserted to adapt to motor shaft

EVL 155 3-Stage Dimensions

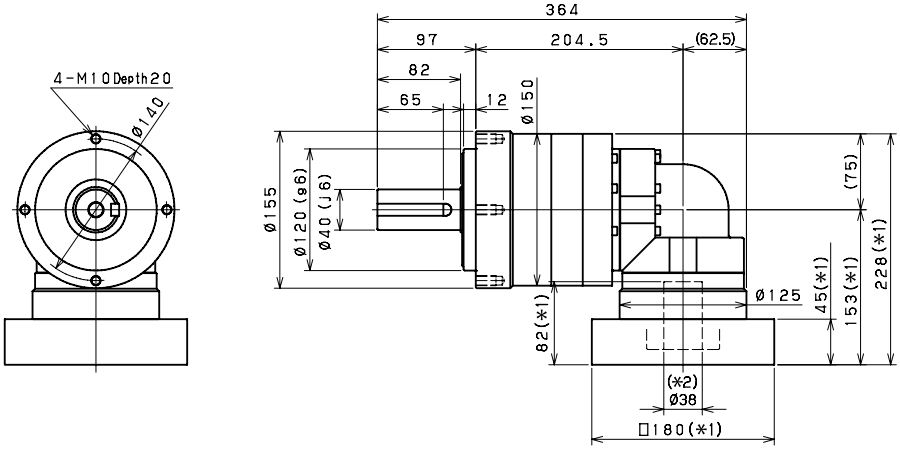
Input bore size ≦φ19 mm

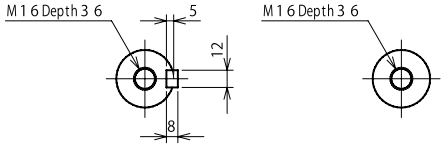


Input bore size ≦φ28 mm



Input bore size ≦φ38 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**							
Ratio	Units	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	400	575	600	600	600	600	400	400
Maximum Acceleration Torque	[Nm]	*2	575	770	960	1120	1120	1120	775	775
Emergency Stop Torque	[Nm]	*3	1300	1700	2000	2500	2500	2500	2000	2000
Nominal Input Speed	[rpm]	*4	1500							
Maximum Input Speed	[rpm]	*5	3000							
No Load Running Torque	[Nm]	*6	10.8							
Permitted Radial Load	[N]	*7	5600	6200	6700	7100	7400	7800	8100	8400
Permitted Axial Load	[N]	*8	4300	4900	5400	5800	6300	6600	7000	7300
Maximum Radial Load	[N]	*9	15000							
Maximum Axial Load	[N]	*10	14000							
Moment of Inertia (≤Ø 38)	[kgcm2]	--	93.71	77.72	71.89	68.74	66.43	65.27	64.60	64.28
Moment of Inertia (≤Ø 48)	[kgcm2]	--	128.6	112.6	106.8	103.6	101.3	100.1	99.46	99.14
Moment of Inertia (≤ Ø 65)	[kgcm2]	--	214.2	198.2	192.4	189.2	186.9	185.7	185.1	184.7
Efficiency	[%]	*11	93							
Torsional Rigidity	[Nm/arcmin]	*12	175							
Maximum Torsional Backlash	[Arc-min]	--	≤ 8							
Noise Level	dB [A]	*13	≤ 85							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	52							

EVL 205 3-Stage Specifications

Frame Size			**205**							
Ratio	Units	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	400	555	600	600	600	400	600	600
Maximum Acceleration Torque	[Nm]	*2	775	1120	1120	1120	1120	775	1120	1120
Emergency Stop Torque	[Nm]	*3	2000	2500	2500	2500	2500	2000	2500	2500
Nominal Input Speed	[rpm]	*4	1500							
Maximum Input Speed	[rpm]	*5	3000							
No Load Running Torque	[Nm]	*6	4.7							
Permitted Radial Load	[N]	*7	9600	9800	11000	11000	12000	12000	13000	13000
Permitted Axial Load	[N]	*8	8700	8900	9900	11000	11000	12000	13000	13000
Maximum Radial Load	[N]	*9	15000							
Maximum Axial Load	[N]	*10	14000							
Moment of Inertia (≤Ø 28)	[kgcm2]	--	11.49	12.09	11.15	10.98	11.59	10.33	10.83	10.24
Moment of Inertia (≤Ø 38)	[kgcm2]	--	20.28	20.88	19.94	19.77	20.38	19.11	19.62	19.03
Moment of Inertia (≤Ø 48)	[kgcm2]	--	25.10	25.70	24.76	24.59	25.20	23.94	24.44	23.85
Efficiency	[%]	*11	88							
Torsional Rigidity	[Nm/arcmin]	*12	175							
Maximum Torsional Backlash	[Arc-min]	--	≤ 11							
Noise Level	dB [A]	*13	≤ 85							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	39							

EVL 205 3-Stage Specifications

Frame Size			**205**						
Ratio	Units	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	400	600	600	600	600	400	400
Maximum Acceleration Torque	[Nm]	*2	775	1120	1120	1120	1120	775	775
Emergency Stop Torque	[Nm]	*3	2000	2500	2500	2500	2500	2000	2000
Nominal Input Speed	[rpm]	*4	1500						
Maximum Input Speed	[rpm]	*5	3000						
No Load Running Torque	[Nm]	*6	4.7						
Permitted Radial Load	[N]	*7	14000	14000	15000	15000	15000	15000	15000
Permitted Axial Load	[N]	*8	14000	14000	14000	14000	14000	14000	14000
Maximum Radial Load	[N]	*9	15000						
Maximum Axial Load	[N]	*10	14000						
Moment of Inertia (≤Ø 28)	[kgcm2]	--	10.76	10.20	10.18	10.16	10.15	10.15	10.14
Moment of Inertia (≤Ø 38)	[kgcm2]	--	19.55	18.99	18.96	18.95	18.94	18.93	18.93
Moment of Inertia (≤Ø 48)	[kgcm2]	--	24.37	23.81	23.78	23.77	23.76	23.75	23.75
Efficiency	[%]	*11	88						
Torsional Rigidity	[Nm/arcmin]	*12	175						
Maximum Torsional Backlash	[Arc-min]	--	≤ 11						
Noise Level	dB [A]	*13	≤ 85						
Protection Class	--	*14	IP54 (IP65)						
Ambient Temperature	[°C]	--	0-40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*15	39						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

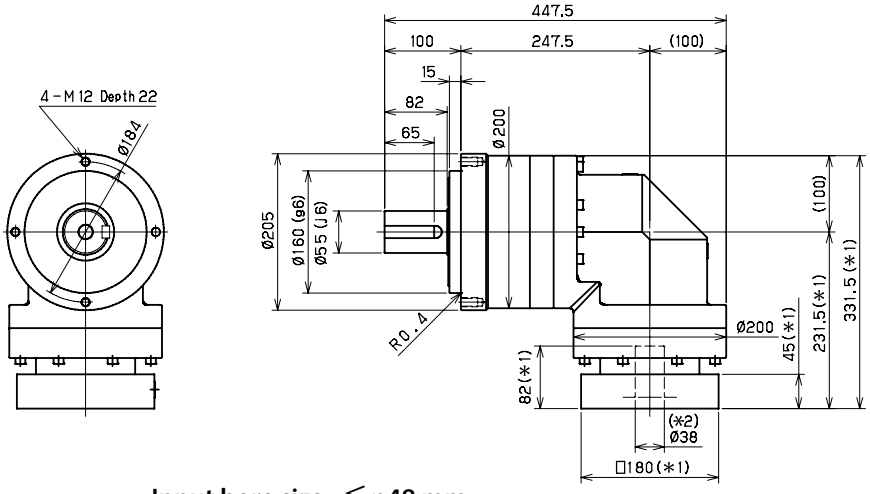
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

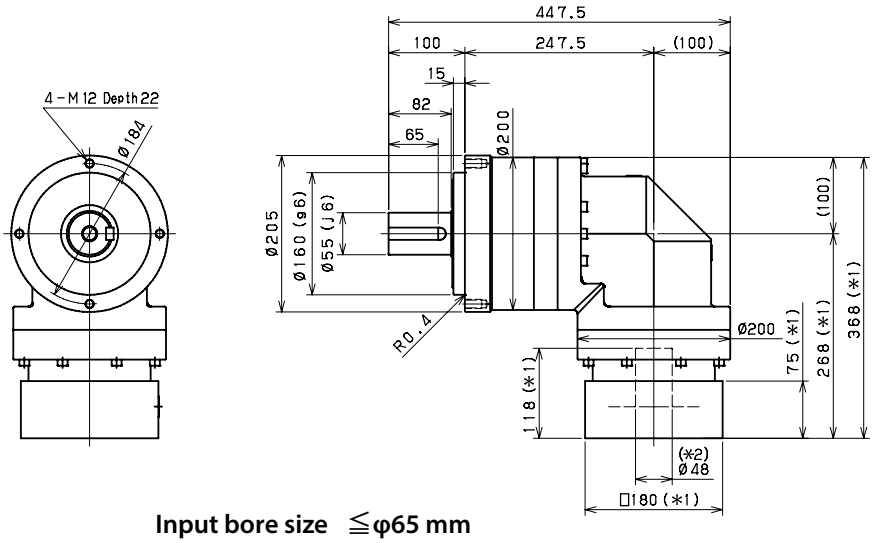
*15) The weight may vary slightly between models

EVL 205 2-Stage Dimensions

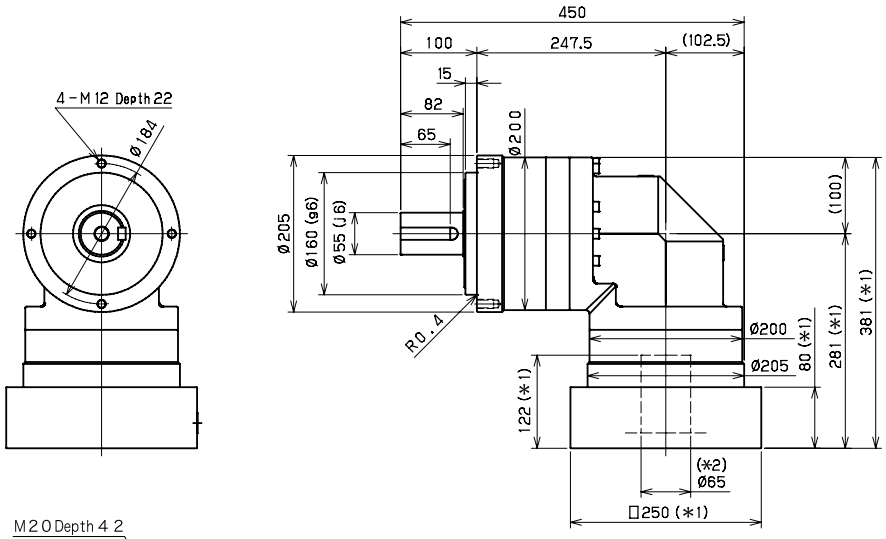
Input bore size ≦φ38 mm

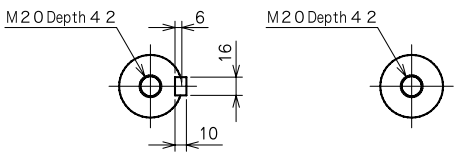


Input bore size ≦φ48 mm



Input bore size ≦φ65 mm





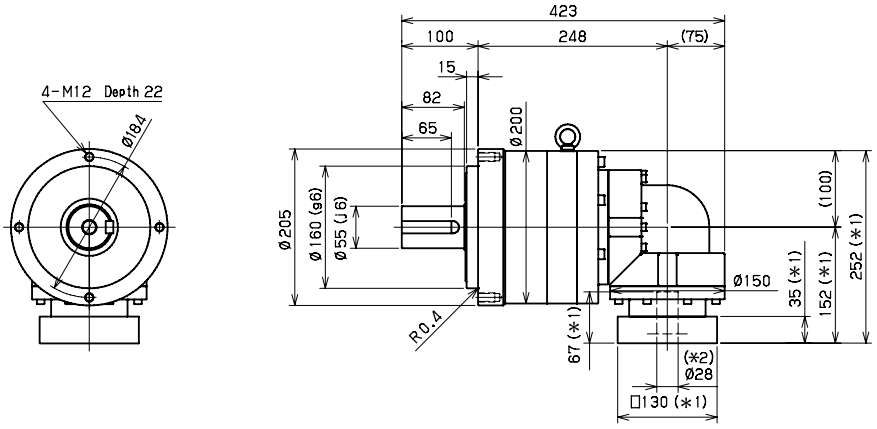
Keyed shaft Smooth shaft

*1) Length will vary depending on motor.

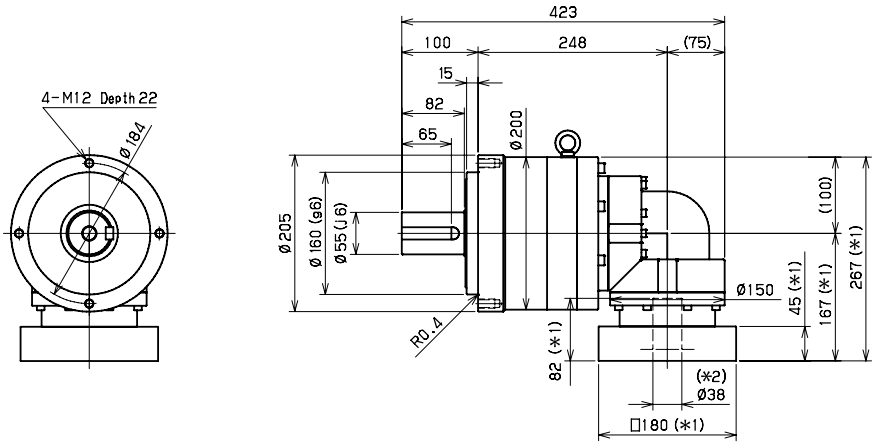
*2) Bushing will be inserted to adapt to motor shaft

EVL 205 3-Stage Dimensions

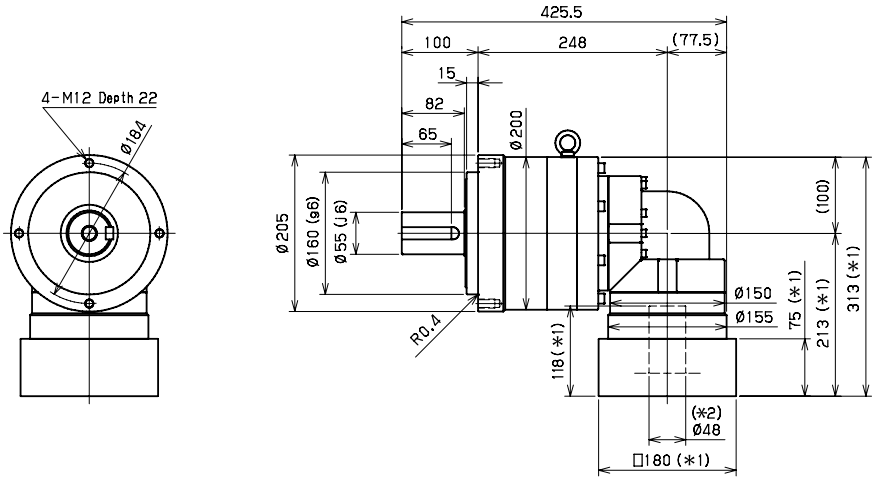
Input bore size ≦φ28 mm

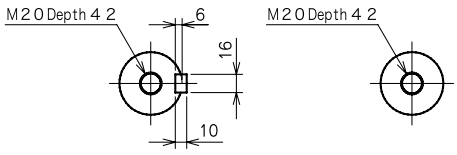


Input bore size ≦φ38 mm



Input bore size ≦φ48 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**							
Ratio	Units	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	575	765	960	1150	1200	1200	800	800
Maximum Acceleration Torque	[Nm]	*2	1015	1355	1695	1840	1840	1760	1520	1280
Emergency Stop Torque	[Nm]	*3	2500	3300	4000	4500	4500	4500	3600	3600
Nominal Input Speed	[rpm]	*4	1000							
Maximum Input Speed	[rpm]	*5	2000							
No Load Running Torque	[Nm]	*6	14.5							
Permitted Radial Load	[N]	*7	5800	6400	6900	7300	7700	8000	8400	8700
Permitted Axial Load	[N]	*8	6400	7200	7900	8600	9200	9700	10000	11000
Maximum Radial Load	[N]	*9	15000							
Maximum Axial Load	[N]	*10	14000							
Moment of Inertia (≤Ø 48)	[kgcm2]	--	148.00	122.90	113.30	108.10	104.70	102.70	101.60	101.00
Moment of Inertia (≤ Ø 65)	[kgcm2]	--	223.20	198.10	188.60	183.30	180.00	178.00	176.80	176.20
Efficiency	[%]	*11	93							
Torsional Rigidity	[Nm/arcmin]	*12	400							
Maximum Torsional Backlash	[Arc-min]	--	≤ 8							
Noise Level	dB [A]	*13	≤ 85							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	68							

EVL 235 3-Stage Specifications

Frame Size			**235**							
Ratio	Units	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	800	1200	1200	1200	1200	800	1200	1200
Maximum Acceleration Torque	[Nm]	*2	1280	1840	1840	1840	1840	1280	1840	1840
Emergency Stop Torque	[Nm]	*3	3600	4500	4500	4500	4500	3600	4500	4500
Nominal Input Speed	[rpm]	*4	1000							
Maximum Input Speed	[rpm]	*5	2000							
No Load Running Torque	[Nm]	*6	10.2							
Permitted Radial Load	[N]	*7	9900	10000	11000	12000	12000	13000	13000	14000
Permitted Axial Load	[N]	*8	13000	13000	14000	14000	14000	14000	14000	14000
Maximum Radial Load	[N]	*9	15000							
Maximum Axial Load	[N]	*10	14000							
Moment of Inertia (≤Ø 38)	[kgcm2]	--	36.32	37.24	35.75	35.47	36.39	34.39	35.21	34.25
Moment of Inertia (≤Ø 48)	[kgcm2]	--	66.14	67.06	65.57	65.28	66.21	64.21	65.03	64.07
Efficiency	[%]	*11	88							
Torsional Rigidity	[Nm/arcmin]	*12	400							
Maximum Torsional Backlash	[Arc-min]	--	≤ 11							
Noise Level	dB [A]	*13	≤ 85							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0-40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	70							

EVL 235 3-Stage Specifications

Frame Size			**235**						
Ratio	Units	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	800	1200	1200	1200	1200	800	800
Maximum Acceleration Torque	[Nm]	*2	1040	1840	1840	1840	1440	1040	960
Emergency Stop Torque	[Nm]	*3	3600	4500	4500	4500	4500	3600	3600
Nominal Input Speed	[rpm]	*4	1000						
Maximum Input Speed	[rpm]	*5	2000						
No Load Running Torque	[Nm]	*6	10.2						
Permitted Radial Load	[N]	*7	14000	15000	15000	15000	15000	15000	15000
Permitted Axial Load	[N]	*8	14000	14000	14000	14000	14000	14000	14000
Maximum Radial Load	[N]	*9	15000						
Maximum Axial Load	[N]	*10	14000						
Moment of Inertia (≤Ø 38)	[kgcm2]	--	35.10	34.18	34.14	34.11	34.10	34.09	34.08
Moment of Inertia (≤Ø 48)	[kgcm2]	--	64.92	63.99	63.95	63.93	63.91	63.90	63.90
Efficiency	[%]	*11	88						
Torsional Rigidity	[Nm/arcmin]	*12	400						
Maximum Torsional Backlash	[Arc-min]	--	≤ 11						
Noise Level	dB [A]	*13	≤ 85						
Protection Class	--	*14	IP54 (IP65)						
Ambient Temperature	[°C]	--	0-40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*15	70						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

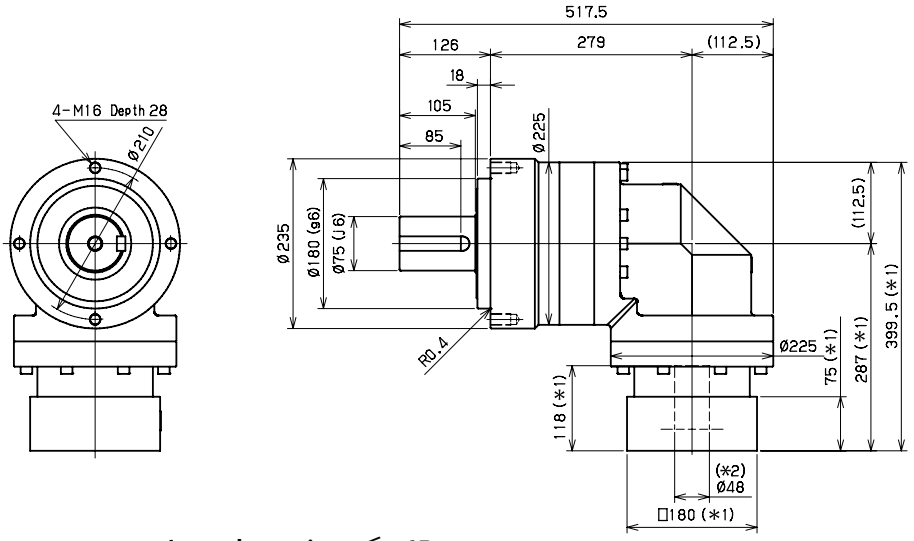
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

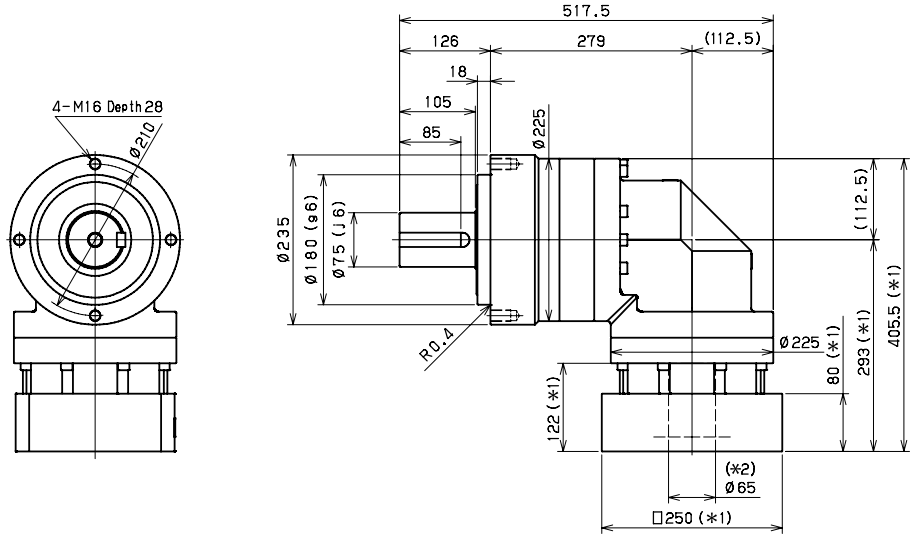
*15) The weight may vary slightly between models

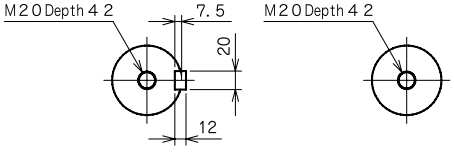
EVL 235 2-Stage Dimensions

Input bore size ≦φ48 mm



Input bore size ≦φ65 mm





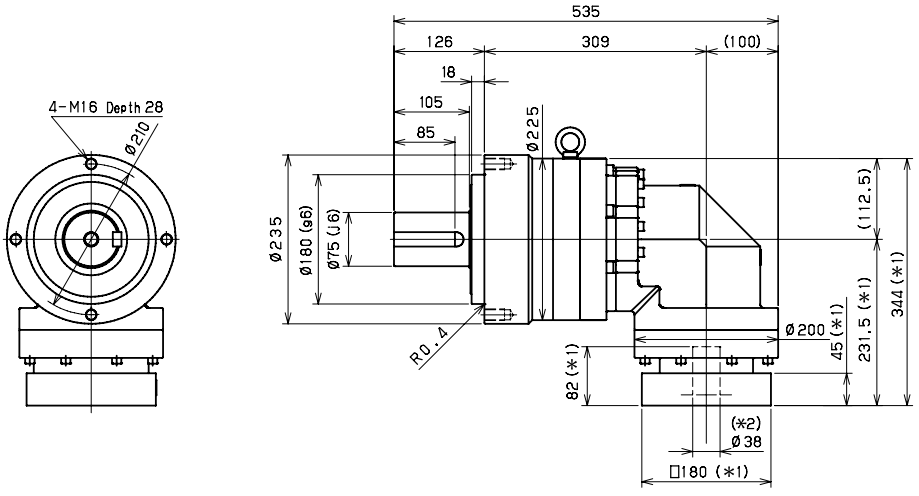
Keyed shaft Smooth shaft

*1) Length will vary depending on motor.

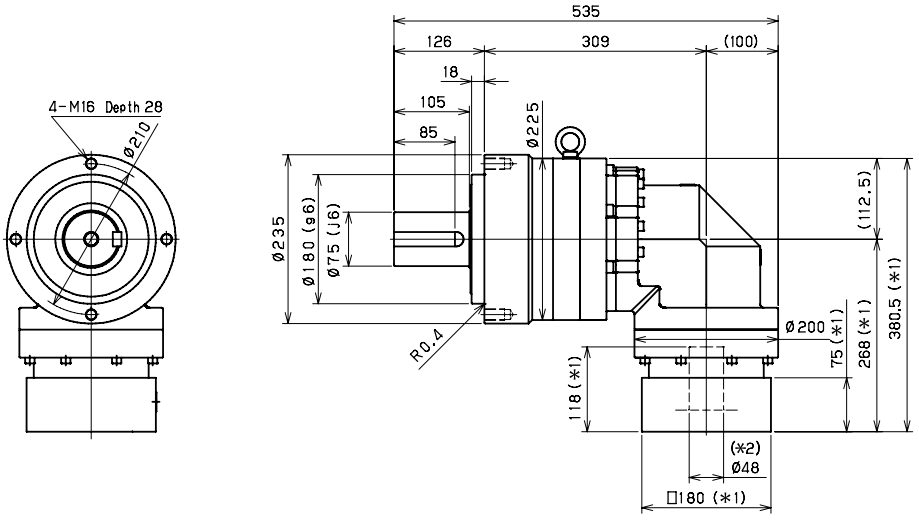
*2) Bushing will be inserted to adapt to motor shaft

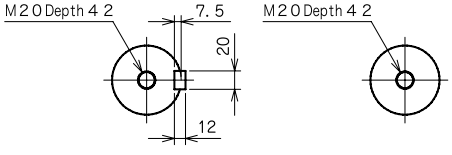
EVL 235 3-Stage Dimensions

Input bore size ≦φ38 mm



Input bore size ≦φ48 mm





Keyed shaft Smooth shaft

*1) Length will vary depending on motor.

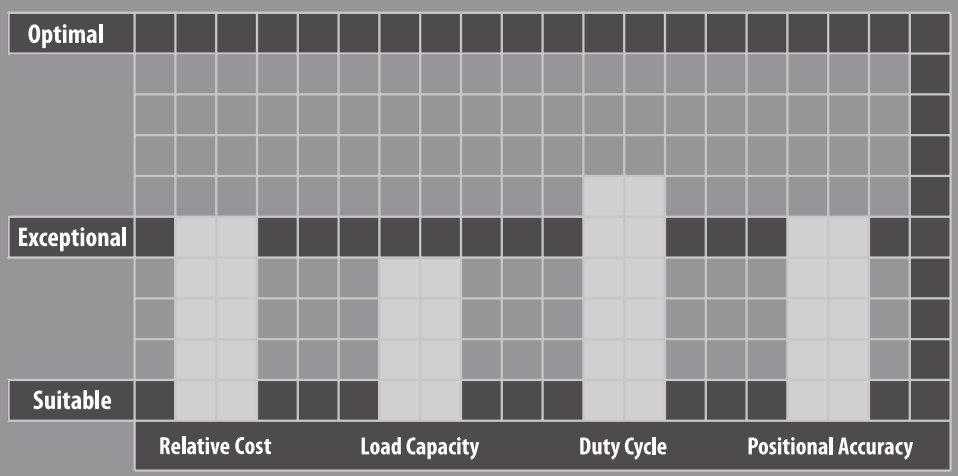
*2) Bushing will be inserted to adapt to motor shaft

EVL

EVB SERIES

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.

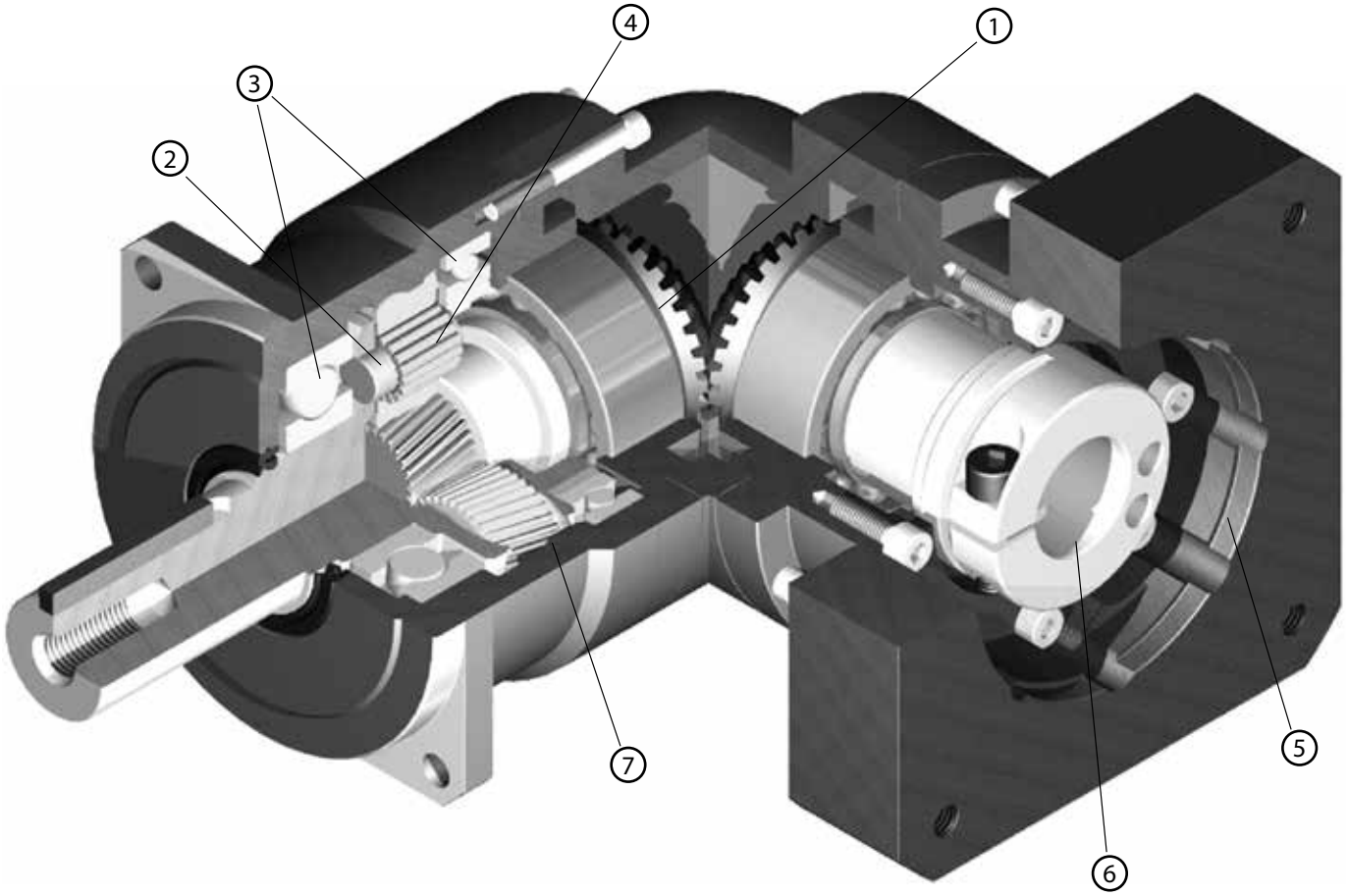
Various standard wash down and food grade options are available, making the EVB an attractive choice for the toughest environments. We offer the broadest selection of frame sizes and ratios, with immediate availability on most configurations. Industry standard mounting dimensions allow the EVB to be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



EVB SERIES

- 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
- Industry standard mounting dimensions
- Assembled in the USA

EVB Series 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

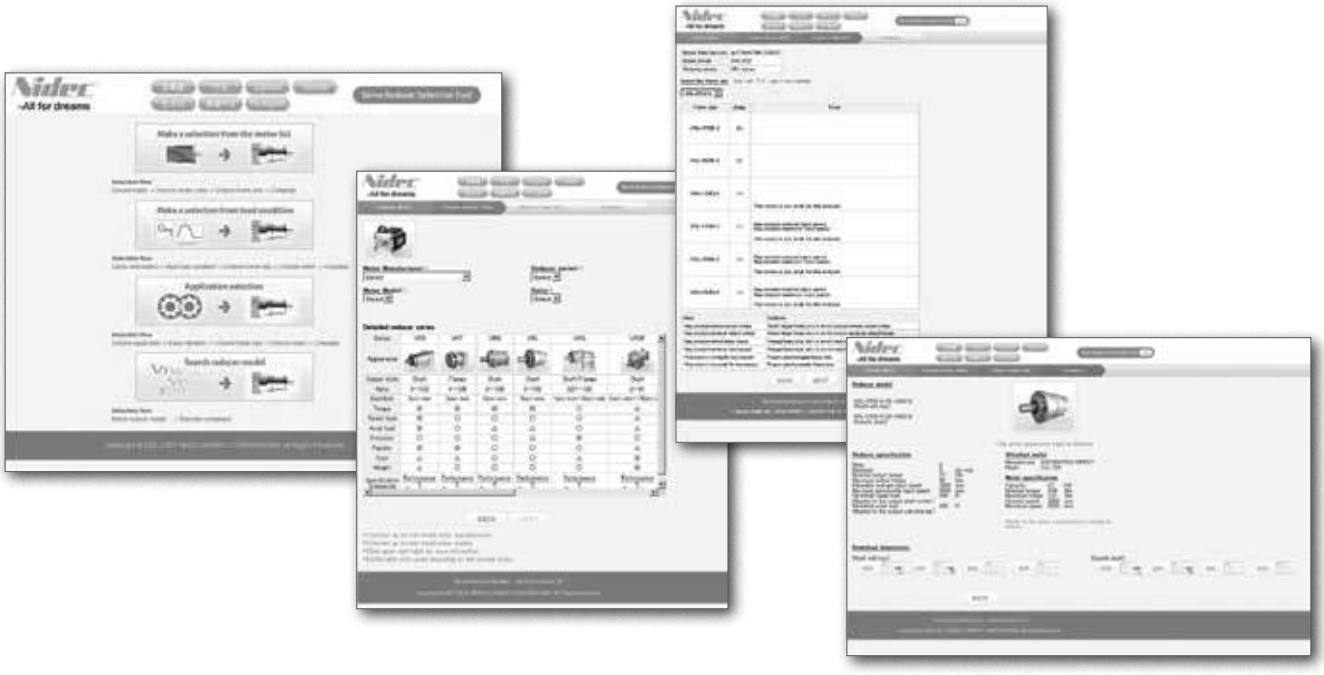
EVB Series Model Code

EVB – 090 – 7 – K 4 – 19HB16

- **EVB** — Series
- **090** — Frame size: 060, 090, 115, 140, 180, 220
- **7** — 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
- **K** — Output mounting style:
  - K: Keyed shaft
  - S: Smooth shaft
- **4** — Backlash:
  - 060, 090, 115, 140: ≤ 4 - 7 arc-min
  - 180, 220: ≤ 8 - 11 arc-min
- **19HB16** — Motor mounting code (*1)

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

Contact us for additional information or refer to our online gearbox selection tool.
Selection tool www.nidec-shimpo.co.jp/selection/eng



EVB 060 2-Stage Specifications

Frame Size			**060**							
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	12	16	22	24	24	24	16	16
Maximum Acceleration Torque	[Nm]	*2	24	32	40	45	45	45	32	32
Emergency Stop Torque	[Nm]	*3	50	65	80	90	90	90	65	65
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.33							
Permitted Radial Load	[N]	*7	430	470	510	540	570	600	620	640
Permitted Axial Load	[N]	*8	310	360	390	430	460	480	510	530
Maximum Radial Load	[N]	*9	1200							
Maximum Axial Load	[N]	*10	1100							
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.310	0.270	0.250	0.240	0.230	0.230	0.230	0.230
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.390	0.340	0.320	0.310	0.310	0.310	0.300	0.300
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.580	0.530	0.510	0.500	0.500	0.500	0.490	0.490
Efficiency	[%]	*11	93							
Torsional Rigidity	[Nm/arc-min]	*12	3							
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	1.8							

EVB 060 3-Stage Specifications

Frame Size			**060**							
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	16	24	24	24	24	16	24	24
Maximum Acceleration Torque	[Nm]	*2	32	45	45	45	45	32	45	45
Emergency Stop Torque	[Nm]	*3	65	90	90	90	90	65	90	90
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.20							
Permitted Radial Load	[N]	*7	740	750	810	870	910	930	980	1000
Permitted Axial Load	[N]	*8	630	650	720	790	830	860	920	970
Maximum Radial Load	[N]	*9	1200							
Maximum Axial Load	[N]	*10	1100							
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.073	0.079	0.071	0.071	0.077	0.062	0.070	0.061
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.118	0.124	0.116	0.115	0.122	0.106	0.115	0.106
Efficiency	[%]	*11	88							
Torsional Rigidity	[Nm/arc-min]	*12	3							
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							

EVB 060 3-Stage Specifications

Frame Size			**060**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	16	24	24	24	24	16	16
Maximum Acceleration Torque	[Nm]	*2	32	45	45	45	45	32	32
Emergency Stop Torque	[Nm]	*3	65	90	90	90	90	65	65
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*6	0.20						
Permitted Radial Load	[N]	*7	1100	1100	1200	1200	1200	1200	1200
Permitted Axial Load	[N]	*8	1000	1100	1100	1100	1100	1100	1100
Maximum Radial Load	[N]	*9	1200						
Maximum Axial Load	[N]	*10	1100						
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.070	0.061	0.061	0.061	0.061	0.061	0.061
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.115	0.106	0.106	0.105	0.105	0.105	0.105
Efficiency	[%]	*11	88						
Torsional Rigidity	[Nm/arc-min]	*12	3						
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						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

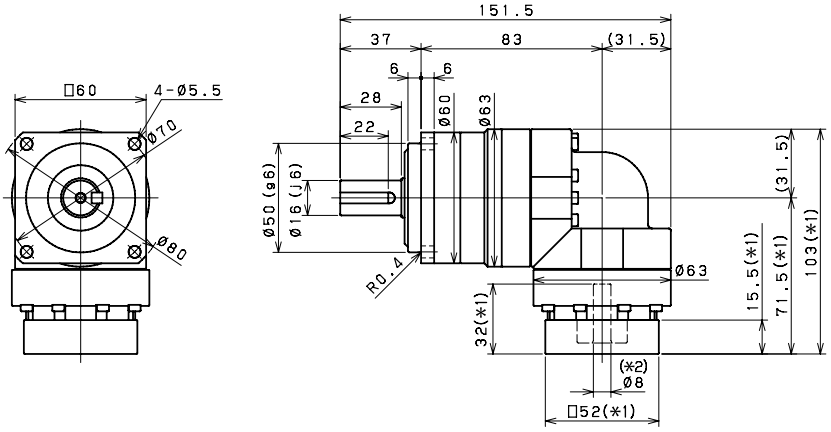
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

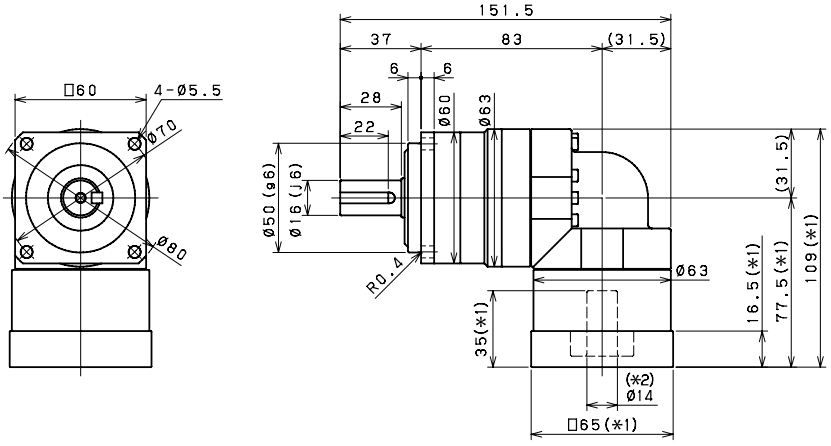
*15) The weight may vary slightly between models

EVB 060 2-Stage Dimensions

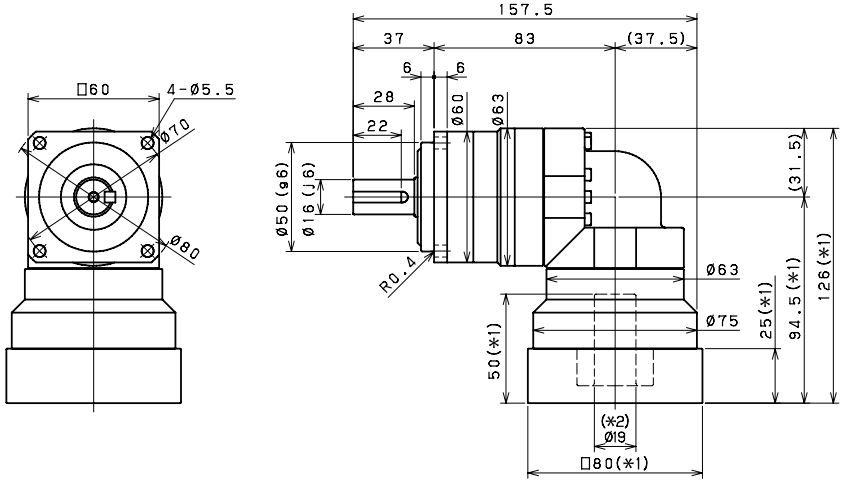
Input bore size ≦φ8 mm

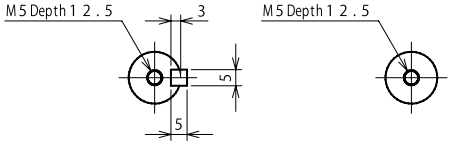


Input bore size ≦φ14 mm



Input bore size ≦φ19 mm





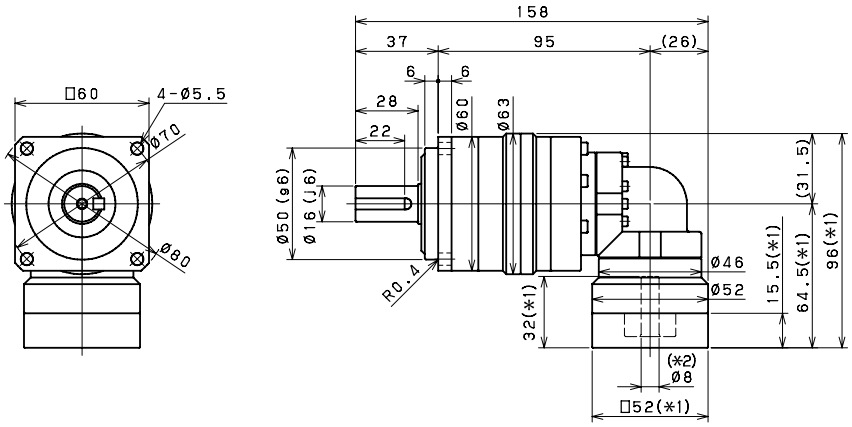
Keyed shaft Smooth shaft

*1) Length will vary depending on motor

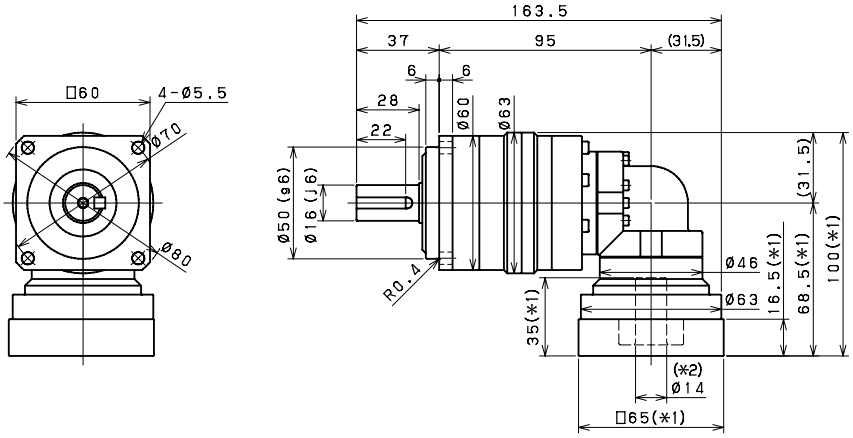
*2) Bushing will be inserted to adapt to motor shaft

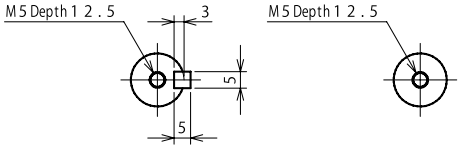
EVB 060 3-Stage Dimensions

Input bore size ≦φ8 mm



Input bore size ≦φ14 mm





Keyed shaft Smooth shaft

*1) Length will vary depending on motor

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

EVB

EVB 090 2-Stage Specifications

Frame Size	**090**									
Ratio	Unit	Note	3	4	5	6	7	8	9	10
Nominal Output Torque	[Nm]	*1	45	60	65	65	65	65	45	45
Maximum Acceleration Torque	[Nm]	*2	65	90	90	90	90	90	65	65
Emergency Stop Torque	[Nm]	*3	130	170	220	220	220	220	170	170
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	1.13							
Permitted Radial Load	[N]	*7	810	890	960	1000	1100	1100	1200	1200
Permitted Axial Load	[N]	*8	930	1100	1200	1300	1300	1400	1500	1600
Maximum Radial Load	[N]	*9	2400							
Maximum Axial Load	[N]	*10	2200							
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	2.120	1.890	1.800	1.760	1.730	1.710	1.700	1.690
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	2.450	2.220	2.130	2.090	2.060	2.040	2.030	2.020
Moment of Inertia (≤ Ø 28)	[kgcm2]	--	4.570	4.350	4.260	4.210	4.180	4.170	4.160	4.150
Efficiency	[%]	*11	93							
Torsional Rigidity	[Nm/arc-min]	*12	10							
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							

EVB 090 3-Stage Specifications

Frame Size	**090**									
Ratio	Unit	Note	15	16	20	25	28	30	35	40
Nominal Output Torque	[Nm]	*1	45	65	65	65	65	45	65	65
Maximum Acceleration Torque	[Nm]	*2	65	110	110	110	110	65	110	110
Emergency Stop Torque	[Nm]	*3	170	220	220	220	220	170	220	220
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.55							
Permitted Radial Load	[N]	*7	1400	1400	1500	1600	1700	1700	1800	1900
Permitted Axial Load	[N]	*8	1900	1900	2100	2200	2200	2200	2200	2200
Maximum Radial Load	[N]	*9	2400							
Maximum Axial Load	[N]	*10	2200							
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.340	0.380	0.330	0.320	0.370	0.250	0.320	0.250
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.410	0.460	0.400	0.400	0.450	0.330	0.400	0.320
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.600	0.650	0.590	0.590	0.640	0.510	0.590	0.510
Efficiency	[%]	*11	88							
Torsional Rigidity	[Nm/arc-min]	*12	10							
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	4.4							

EVB 090 3-Stage Specifications

Frame Size			**090**						
Ratio	Unit	Note	45	50	60	70	80	90	100
Nominal Output Torque	[Nm]	*1	45	65	65	65	65	45	45
Maximum Acceleration Torque	[Nm]	*2	65	110	110	110	110	65	65
Emergency Stop Torque	[Nm]	*3	170	220	220	220	220	170	170
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*6	0.55						
Permitted Radial Load	[N]	*7	2000	2100	2200	2300	2400	2400	2400
Permitted Axial Load	[N]	*8	2200	2200	2200	2200	2200	2200	2200
Maximum Radial Load	[N]	*9	2400						
Maximum Axial Load	[N]	*10	2200						
Moment of Inertia (≤ Ø 8)	[kgcm2]	--	0.320	0.250	0.250	0.250	0.250	0.250	0.250
Moment of Inertia (≤ Ø 14)	[kgcm2]	--	0.390	0.320	0.320	0.320	0.320	0.320	0.320
Moment of Inertia (≤ Ø 19)	[kgcm2]	--	0.580	0.510	0.510	0.510	0.510	0.510	0.510
Efficiency	[%]	*11	88						
Torsional Rigidity	[Nm/arc-min]	*12	10						
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	4.4						

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

*2) The maximum torque when starting or stopping operation

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

*4) The average input speed

*5) The maximum intermittent input speed

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

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

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

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

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

*11) The efficiency at the nominal output torque rating

*12) This does not include lost motion

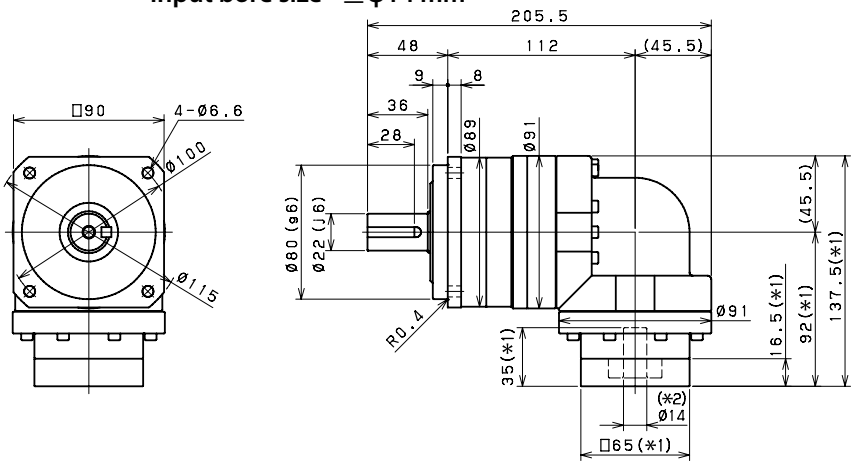
*13) Contact NIDEC-SHIMPO for the testing conditions and environment

*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details

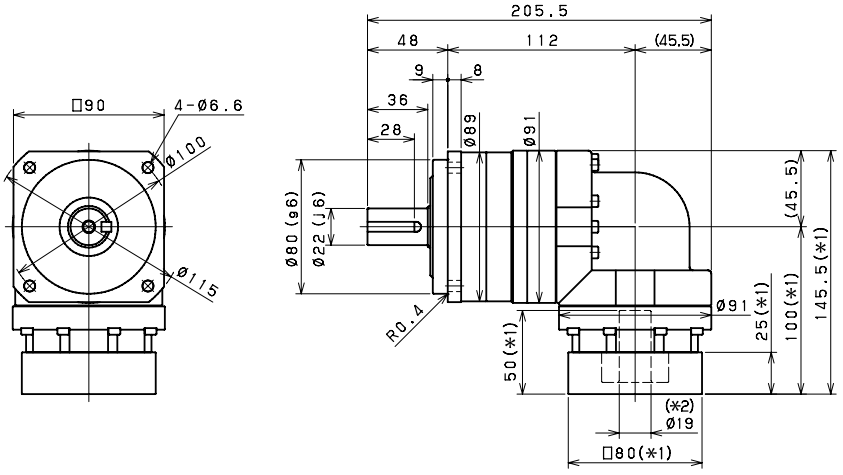
*15) The weight may vary slightly between models

EVB 090 2-Stage Dimensions

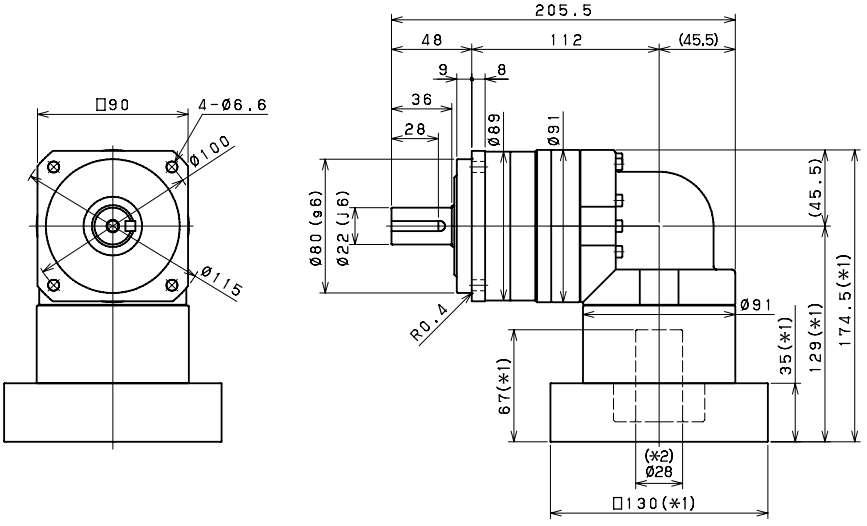
Input bore size ≦φ14 mm

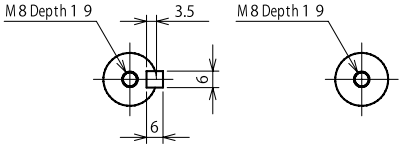


Input bore size ≦φ19 mm



Input bore size ≦φ28 mm





Keyed shaft Smooth shaft

*1) Length will vary depending on motor

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