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CM009



JQA-EM7212



ISO 9001
JQA-1190



JQA-OH0278



レジリエンス認証
事業継続および社会貢献
認証番号 E0000053



RV®

Nabtesco®

Precision Equipment Company

Precision Reduction Gear RV™

PRODUCT GUIDE

Innovation In Action
Vision 2030

Our innovative motion control technologies deliver safety, security and comfort in the transport and lifestyle fields

Nabtesco Corporation was founded in 2003 through the merger of Nabco, Ltd. (est. 1925) and Teijin Seiki Co., Ltd. (est. 1944). The move combined Nabco's proven fluid and pneumatic control technologies with the cutting and assembly technologies developed by Teijin Seiki. Since this time, we have been working to build on the technological and business foundation inherited from both companies, with motion control technologies as our core. This focus has enabled us to expand our operations into a wide range of new fields.

Eight core products Nabtesco is contributing to society



Please see our Website for details about the sources of data for market shares.

Precision Reduction Gear RV™ Supporting a Wide Range of Cutting-Edge Industries around the World



Nabtesco's Precision Reduction Gear RV™ is key components used in the joints of industrial robots, enabling precise movement while maintaining optimum power. Nabtesco has over 30 years of experience in this field and currently holds a major share of the global market. We are also actively working to expand applications for our gears into new fields, including machine tools as well as FPD and semiconductor production systems.

RV® Global Business Network



How to search for products

- 1 Search for products in the **"INDEX by Application"** (page 9 to 10) You can find products by each application.
- 2 Search for products in the **"INDEX by Product"** (page 11 to 12) You can view the lineups for each series.
- 3 Search for products in the **"Product comparison table"** (page 13 to 14) You can compare the differences and features of each product.

How to view product pages

You can access each product page on the Website.

You can watch videos of application examples.

RV™-N

Our top-selling Precision Reduction Gear RV™, with a proven record in the robotics industry

Compact N Series gears deliver great potential! Based on our Precision Reduction Gear RV™ which achieve 10 million units already shipped, the new RV™-N SERIES models have been made even more compact and lightweight.

FEATURES

- Compact body
- Lightweight
- High accuracy (backlash ≤ 1 arc.min.)
- High shock load resistance (withstands 5 x rated torque)
- Good accel. performance (up to 2.5 x rated torque)

ADVANTAGES

- Dimensions: 8 to 20% smaller
- Weight: 16 to 36% lighter

6-axis robot VIDEO

SCARA robot VIDEO

RV™-N SPECIFICATION

Model RV	25N	42N	60N	80N	100N	125N	160N	200N	250N	320N	400N	500N	630N	800N	1000N
Standard ratio	41	41	41	41	41	41	41	41	75	81	105	137.5	173	223	273
High accuracy	107.66"	105	102.17"	101	102.17"	102.17"	102.81"	117	123	123	142.44	142.44	248	248	248
High shock load resistance	137	136	141	141	141	141	145.61"	156	162	162	183	183	316.31"	316.31"	316.31"
Good accel. performance	164.07"	164.07"	161	171	181	181	201	201	201	201	201	201	201	201	201
Rated torque (Nm)	245	412	600	784	1,000	1,225	1,600	2,000	2,500	3,125	3,906	4,906	6,000	7,500	9,000
Allowable acceleration (distribution torque) (mm/s²)	652	1,029	1,500	1,960	2,500	3,062	4,000	5,125	6,400	8,000	10,000	12,500	15,625	19,000	22,500
Allowable moment (distribution torque) (Nm)	1,225	2,058	3,000	3,920	5,000	6,125	8,000	10,000	12,500	15,625	19,000	23,750	29,688	36,750	44,000
Rated output speed (rpm)	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Allowable output speed (rpm)	110	100	94	88	83	79	48	27	25	19	23	20	20	20	20
Duty ratio (%)	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Rated service life (hr)	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Backlash (arc min.)	61	113	200	212	312	334	490	948	1,620	2,600	3,685	5,160	7,160	9,660	12,740
Allowable moment (Nm)	784	1,660	2,000	2,150	2,700	3,450	4,000	7,050	11,000	15,000	21,000	28,000	36,000	46,000	59,000
Allowable thrust load (N)	2,610	5,220	5,880	6,530	9,000	13,000	14,700	25,000	32,000	44,000	59,200	79,400	103,600	137,800	179,000

RV™-N DIMENSIONS

Model RV	25N	42N	60N	80N	100N	125N	160N	200N	250N	320N	400N	500N	630N	800N	1000N
A (mm)	133	159	183	189	208	221	238	295	325	395	440	520	600	720	820
B (mm)	94.7	118.7	140.7	140.7	160.7	160.7	179.7	222.7	253.7	316.7	356.7	426.7	496.7	596.7	696.7
C (mm)	42	65.5	69.5	74	80	80	104	131	137.5	170	195.5	230	270	330	370
D (mm)	113.7	136.7	160.7	160.7	179.7	180.7	202.7	252.7	283.7	356.7	396.7	476.7	556.7	656.7	756.7
Weight (kg)	3.8	6.3	8.9	9.3	13	13.9	22.1	44	57.2	102	157	212	267	322	377

For more detailed specifications, refer to the product catalogs.

For details of terminology, refer to the "Glossary" on page 60.

Note: The product catalogs can be downloaded from here.



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Product information

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Used in so many places! Precision Reduction Gear RV™

Watch video

RV application: Lithium Ion Battery manufacturing facilities

What is Precision Reduction Gear RV™?

Precision reduction gear RV™ is a reduction gear for precise motion control which uses a planocentric reduction gear mechanism. This reduction gear design has advantages in rigidity and resistance against overload with a compact body due to a large number of simultaneously engaged gear teeth. Furthermore, minimal backlash, rotational vibration and low inertia lead to rapid acceleration, smooth motion and accurate positioning.

- High accuracy (backlash & lost motion: Less than 1 arc.min.)
- High rigidity
- High shock load resistance
- High torque density (High torque & Compact body)
- Wide range of reduction speed ratios
- Minimal vibration



Watch video

Installation example on a vertical articulated robot

Automotive manufacturing process



Machine tools



POINT

- Simplified design and production
- High accuracy positioning



Welding process



POINT

- High load
- High accuracy positioning



Logistics / Transportation

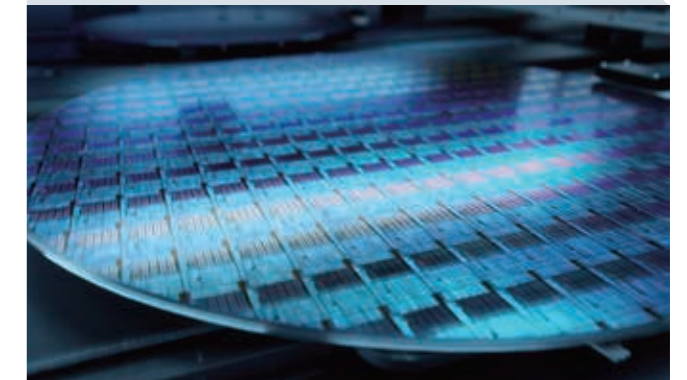


POINT

- Time reduction
- Reliability

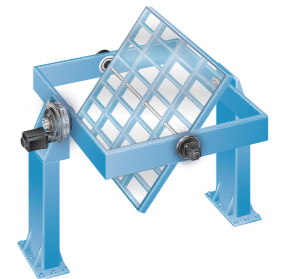


Semiconductor / FPD manufacturing process

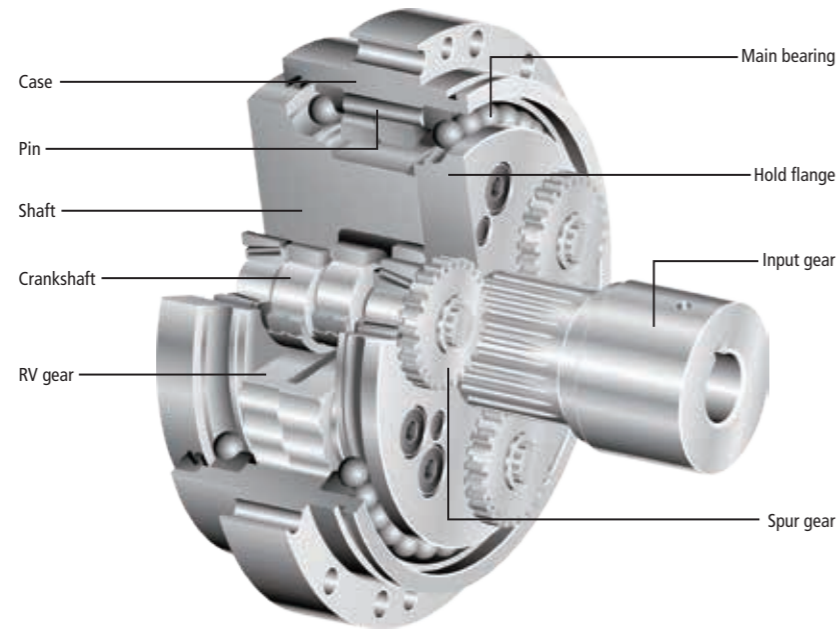


POINT

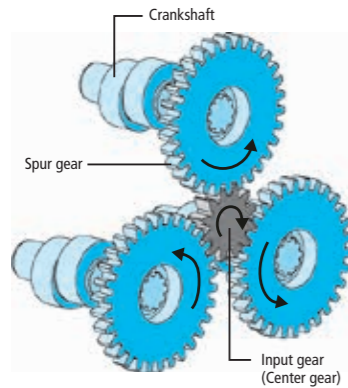
- High load and compact
- Reliability
- Clean environment



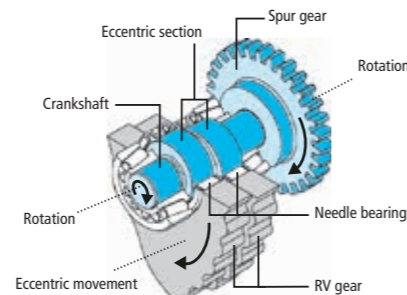
We also develop sensors to detect the early stages of failure in the Precision Reduction Gear RV™. For details, refer to page 55 to 56.



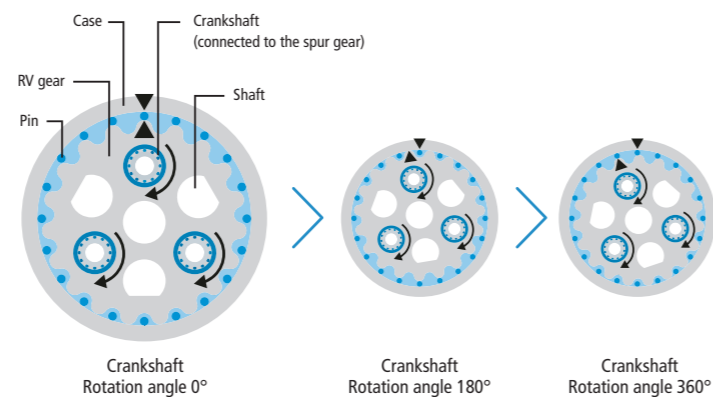
1. Rotation of the servomotor is transmitted through the input gear to the spur gears, and the speed is reduced according to the gear ratio between the input gear and the spur gears.
2. The crankshafts rotate at the same speed, as they are directly connected to the spur gears.



3. Two RV gears are mounted on crankshafts with needle bearings.
4. When the crankshafts rotate, the RV gears rotate eccentrically.

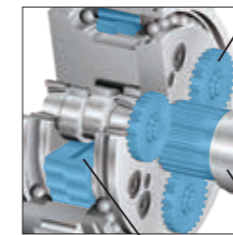


5. The pins are arrayed in grooves inside the case. The number of pins is one more than the number of teeth on the RV gear.
6. When the crankshafts make one complete rotation, the RV gear teeth rotate one step in the opposite direction.
7. The rotation is transmitted to the output shaft via the crankshafts. The rotation speed of the crankshafts is reduced according to the number of pins.
8. The total speed ratio is a product of the speed ratio of the 1st and 2nd stage reduction.



2-Stage Reduction Structure

Speed reduction by 1st stage (spur gears) & 2nd stage (pin & gear)



Changeable speed ratio

- Wide range of speed ratios with the same outer diameter (low speed ratio – high speed ratio)

BENEFITS

More compact machine High speed ratio enables smaller servomotor

Small input part (input gear)

- Low inertia

BENEFITS

Smaller servomotor needed

Low speed rotation of the inner components (the RV gear)

- Minimal vibration

BENEFITS

Enhanced machine accuracy Reduced heat build-up

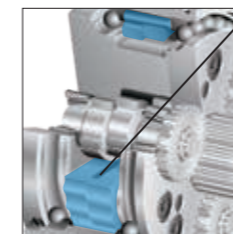
Watch video



How RV works? Operating Principle of Nabtesco's RV

Pin & Gear Structure

The arrayed pins on the inner side of the case & the RV gears



The large number of simultaneous engagement of pins & teeth of the RV gears

- Minimal backlash & lost motion (≤ 1 arc. min.)
- High shock load resistance (withstands 5 x rated torque)

BENEFITS

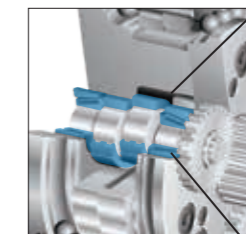
Enhanced machine accuracy

Enhanced machine durability

*Excluding some models

Rolling Contact Structure

Roller bearings



Low friction

- Excellent start efficiency
- Minimal backlash & lost motion

BENEFITS

Energy saving (smaller servomotor)

Enhanced machine accuracy

Low wear

- Low material degradation

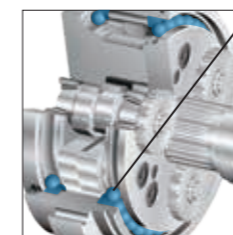
BENEFITS

Easy maintenance

(no backlash adjustment)

Integrated Outer Load Support Bearings Structure

Original angular ball bearings



Large load capacity (no need for additional support structures)

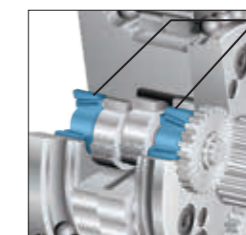
e.g. RS-900A
Allowable thrust load (N): 88,200 N
Allowable moment: 44,100 Nm

BENEFITS

Reduced assembly man-hours

Two-sided Support Structure

Crankshafts supported by the shaft & the hold flange



High resistance against force

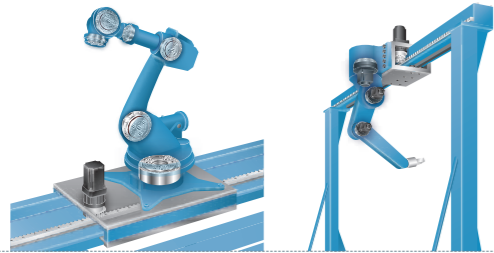
- High torsional rigidity
- Minimal vibration
- High shock load resistance (withstands 5 x rated torque)

BENEFITS

Enhanced machine accuracy

Enhanced machine durability

Robot

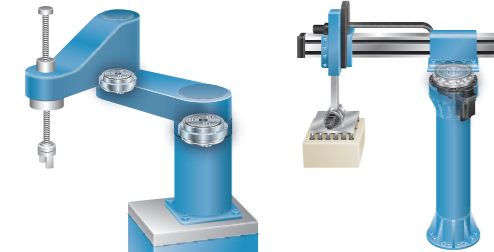


Vertical Articulated Robot Shaft Drives



RV™-N P.15 RV™-C/GA P.17 RV™-Z/ZC P.19 RV™-E P.20 GH P.35

Slider / Gantry



SCARA, Pick & Place



RV™-N P.15 RV™-C/GA P.17 RV™-Z/ZC P.19 RV™-E P.20

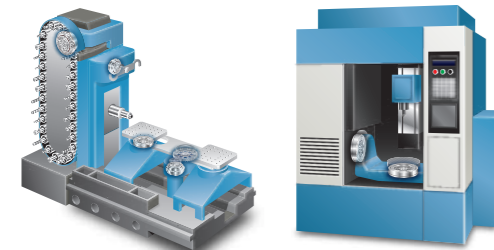


Parallel Link



RF-P P.22

Machine Tools



Trunnion Table



RD2 P.23

ATC

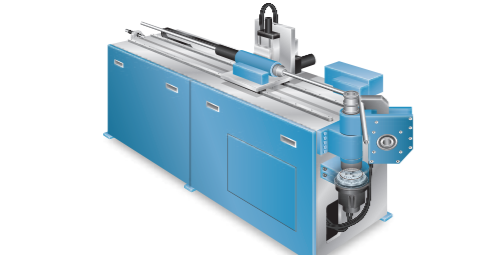


RA P.37 AF P.41

APC



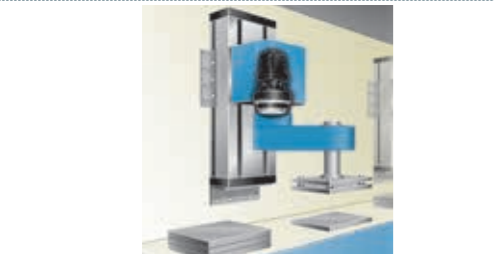
RD2 P.23 AF P.41



Pipe Bending



RD2 P.23 RH-N P.31 AF P.41



High Speed Rotation Table



GH P.35

Machine Head Indexer



RV™-N P.15 RV™-Z/ZC P.19 RV™-E P.20



Roller Rotation



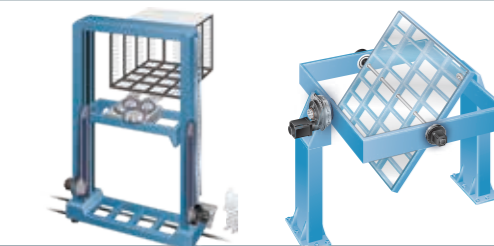
GH P.35

Roller Indexer



RD2 (RDR) P.23

FPD



Stacker



RV™-Original P.21



RD2 P.23



GH P.35

Inspection Equipment

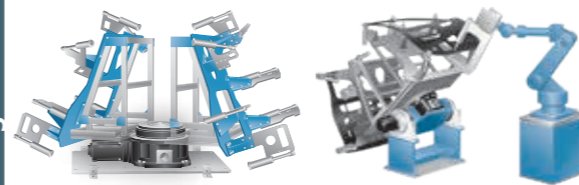


RD2 P.23



AF P.41

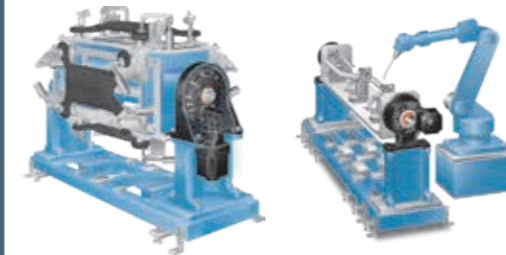
Welding



Turn Table



RVP-C P.49 RS P.29 RH Foot Type P.33



Positioner



RVP-B P.47 RD2 P.23 RH-C P.32 RH Foot Type P.33 AF P.41

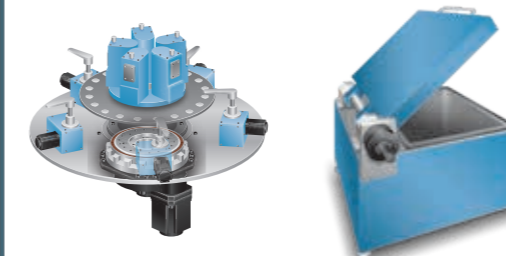


Positioner



RVP-A P.45

FA



Indexer



RS P.29 RD2 (RDR) P.23

High-load Cantilever Drive



RT-G P.39 RT P.43

Antenna



Shaft Drive



RD2 (RDS) P.23

Medical



Scanner



RD2 P.23

AGV



Mecanum Drive Unit



RWV P.51

Wheel Drive



RF-P P.22

COMPONENT SETS

Recommended for users who are thinking about creating their own free designs, using a single reduction gear with flanges and other items

RV™-N ⓘ 245 to 28,000 Nm Ⓜ 41 to 273 P.15

- Solid shaft
- Backlash 1 arc.min.

RV™-C/CA ⓘ 98 to 11,760 Nm P.17

- Hollow shaft
- Backlash 1 arc.min.

RV™-Z/ZC ⓘ 265 to 12,000 Nm P.19

- Solid shaft / hollow shaft
- Backlash 1 arc.min.

RV™-E ⓘ 58 to 14,700 Nm Ⓜ 31 to 236.29 P.20

- Solid shaft
- Backlash 1 arc.min.

RV™-Original ⓘ 137 to 8,820 Nm Ⓜ 57 to 192.42 P.21

- Solid shaft
- Backlash 1 arc.min.
- No support bearing

RF-P ⓘ 100 to 350 Nm Ⓜ 19 to 51 P.22

- Solid shaft
- Backlash 2 arc.min.
- High speed

GEARHEADS

Recommended for users who need a product that is pre-lubricated and attached to a motor flange, allowing it to be connected to a servomotor for immediate use

RD2 RD_-E ⓘ 58 to 3,136 Nm Ⓜ 31 to 185 P.23

- Solid shaft
- Backlash 1 to 2 arc.min.
- Support for three types of inputs (straight, right angle, pulley)

RD2 RD_-C ⓘ 98 to 3,136 Nm Ⓜ 81 to 356.5 P.25

- Hollow shaft
- Backlash 1 to 1.5 arc.min.
- Support for three types of inputs (straight, right angle, pulley)

RD2 Foot Type P.27

- Base Flange for RD2

RS ⓘ 490 to 8,820 Nm Ⓜ 65.4 to 240 P.29

- Hollow shaft
- Backlash 1 to 1.5 arc.min.
- Right angle input
- Table type

RH-N ⓘ 4,900 to 7,000 Nm Ⓜ 81 to 284.4 P.31

- Solid shaft
- Backlash 1 arc.min.

RH-C ⓘ 8,820 Nm Ⓜ 186 to 330 P.32

- Hollow shaft
- Backlash 1 arc.min.

RH Foot Type ⓘ 1,470 to 3,136 Nm Ⓜ 78.3 to 152 P.33

- Hollow shaft
- Backlash 1 arc.min.

GH ⓘ 69 to 980 Nm Ⓜ 11 to 31.4 P.35

- Solid shaft
- Backlash 6 arc.min.
- High speed

RA-EA/EC ⓘ 167 to 1,568 Nm Ⓜ 80 to 170 P.37

- Solid shaft
- Backlash 1 arc.min.
- For machine tools

HR P.38

- Support of high vacuums

RT-G P.39

- Specifications with brake assist
- Right angle input

SERVO ACTUATORS

Recommended for users who need a product with an integrated design that is easy to install and operate (includes a servomotor connected to reduction gear)

AF-N ⓘ 82 to 3,856 Nm Ⓜ 81 to 252.33 P.41

- Solid shaft
- Backlash 1 arc.min.
- With servomotor

AF-C ⓘ 460 to 3,002 Nm Ⓜ 120 to 157 P.41

- Hollow shaft
- Backlash 1 arc.min.
- With servomotor

RT-N/E ⓘ 1,960 to 36,366 Nm Ⓜ 5,757 to 13,468.76 P.43

- Solid shaft
- Backlash 1 arc.min.
- High reduction ratio

POSITIONER UNITS

Recommended for users who are looking for a positioner product that is compatible with all major servomotors and has a wide range of optional parts, enabling it to be used in combined operations with various robots

RVP-A ⓘ 980 to 1,600 Nm Ⓜ 100.5 to 156 P.45

- 2-axis positioner unit
- Backlash 1 arc.min.

RVP-B ⓘ 980 to 1,568 Nm Ⓜ 66 to 258 P.47

- BBQ positioner unit
- Backlash 1 to 1.5 arc.min.

RVP-C ⓘ 3,136 to 3,724 Nm Ⓜ 170 to 706.5 P.49

- Variable tilt angle turntable unit
- Backlash 1 arc.min.

AGV DRIVE UNITS

Recommended for users who are seeking an AGV drive unit that is compact, thanks to its in-wheel design, yet can handle high loads and that can also be used simply by mounting it in a frame

RVW ⓘ 7 to 1,225 Nm Ⓜ 30 to 80 P.51

- In-wheel design
- Loading capacity of 1,960 to 24,500 N

LUBRICANTS

Lubricants that unlock the true potential of our Precision Reduction Gear RV™

RVGREASE™ LB00 P.53

VIGOGREASE® REO P.54

RVOIL™ SB150 P.54

NEW SOLUTIONS

Introduction of developing of dedicated products for specific applications

RVSR P.55

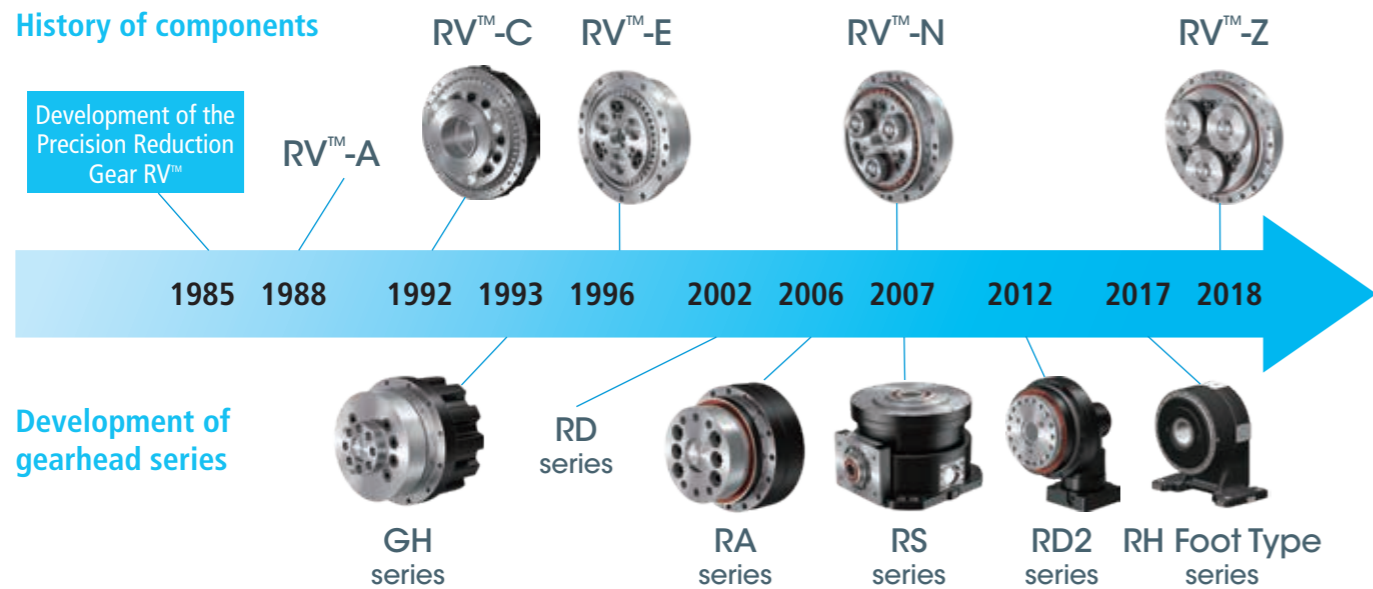
- Failure detection sensor
- For RVOIL™ only

Waterproof application P.57

- Waterproof and rustproof
- Equivalent to IP 69K

History of the Precision Reduction Gear RV™

History of components



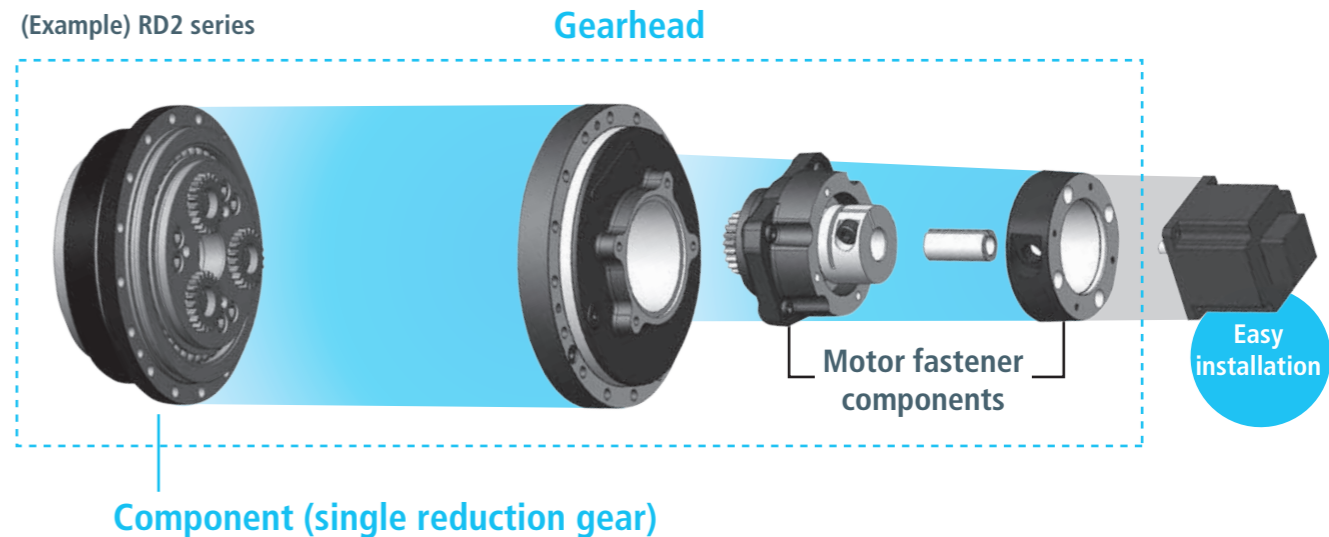
Component

The Precision Reduction Gear RV™ boasts high accuracy, high rigidity, and high reliability as a standalone reduction gear. We have continually developed a variety of products to meet the evolving needs of our customers and the demands of the times.

	RV™-N	RV™-C	RV™-CA	RV™-Z/ZC	RV™-E	RV™-Original	RF-P
	 P.15	 P.17	 P.18	 P.19	 P.20	 P.21	 P.22
Structure	Solid shaft	Hollow shaft	Hollow shaft	Solid, hollow shaft	Solid shaft	Solid shaft	Solid shaft
Features	Standard model	Improved wiring and piping routing	No center gear required	Improved moment rigidity	Long selling model	No support bearing	High speed capacity (Max. 250 rpm)
	Compact and lightweight	High payload support	Slim structure	Improved torsional rigidity	Slim	Large moment capacity (External bearing support type)	Long service life (20,000 h)
Input system	Input gear	Input gear Center gear	Input gear	Input gear Center gear (ZC only)	Input gear	Input gear	Input gear
Backlash/Lost motion	≤ 1 arc.min./≤ 1 arc.min.	≤ 1 arc.min./≤ 1 arc.min.	≤ 1 arc.min./≤ 1 arc.min.	≤ 1 arc.min./≤ 1 arc.min.	≤ 1 arc.min./≤ 1 arc.min.	≤ 1 arc.min./≤ 1 arc.min.	≤ 2 arc.min./≤ 2 arc.min.
Allowable torque during acceleration and deceleration (Nm)	254 to 28,000	98 to 11,760	2,548 to 5,000	265 to 12,000	58 to 14,700	137 to 8,820	100 to 350
Model/Type	Standard 12 models	Standard 13 models	Standard 3 models	Standard 13 models (Z) Standard 4 models (ZC)	Standard 8 models	Standard 8 models	Standard 3 models

Note: For all series, grease / lubrication is to be supplied by the customer.

Difference between components and gearheads



Gearhead

Lineup of each series with enhanced usability based on the components. Pre-lubricated product with a motor flange attached achieves faster assembly.

	RD2	RS	High RH output support Type (RH-N, 900C)	RH Foot Type (RH-155C, 320CA)	GH	RA	RT-G
	 P.23	 P.29	 P.31	 P.33	 P.35	 P.37	 P.39
Structure	Solid, hollow shaft	Solid shaft	Solid, hollow shaft	Hollow shaft	Solid shaft	Solid shaft	Solid shaft
Features	Selectable input types (Straight, right angle, pulley)	Table type	High output torque	Slim	High speed capability	Precision indexing	Equipped with brake assist
	Enhanced Design Versatility with a Broad Range of Options	Low profile design due to right angle input shaft	Large moment	Equipped with base flange	Reduced cycle time	Selectable rotation types (Shaft rotation, case rotation)	Space-saving design with a right angle input shaft
	Equipped with base flange (Option)	Capable of handling loads of up to 9 tons	Compact and lightweight	Easy installation on BBQ positioner	Enhanced shock load resistance	—	—
Backlash/Lost motion	≤ 1 arc.min./≤ 1 arc.min. (Excluding some models)	≤ 1 arc.min./≤ 1 arc.min. (Excluding some models)	≤ 1 arc.min./≤ 1 arc.min.	≤ 1 arc.min./≤ 1 arc.min.	≤ 6 arc.min./≤ 6 arc.min. (10 min for GH-100 only)	≤ 1 arc.min./≤ 1 arc.min.	≤ 1.5 arc.min./≤ 1.5 arc.min.
Allowable torque during acceleration and deceleration (Nm)	58 to 3,136	490 to 8,820	4,900 to 8,820	1,470 to 3,136	69 to 980	167 to 1,568	9,310 to 12,250
Model/Type	12 models 131 types	8 models	3 models	2 models	5 models	8 models	2 models

Note: All series are pre-lubricated.

RV™-N

PRODUCT
WEB SITE
RV™-N

Our top-selling Precision Reduction Gear RV™, with a proven record in the robotics industry

Compact N Series gears deliver great potential!! Based on our Precision Reduction Gear RV™ which achieve 10 million units already shipped, the new RV™-N SERIES models have been made even more compact and lightweight.

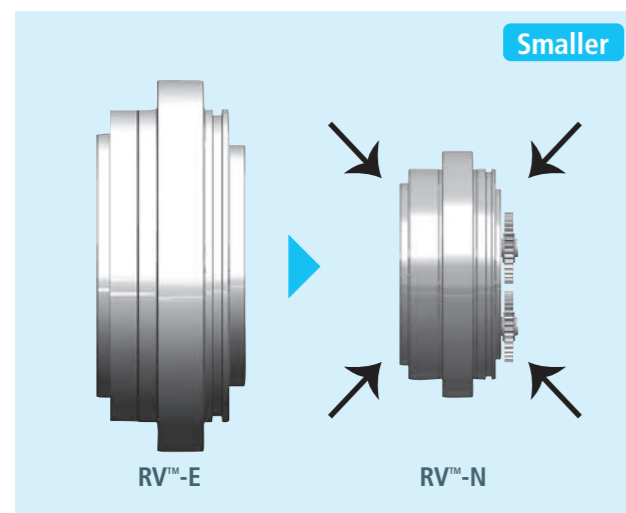


FEATURES

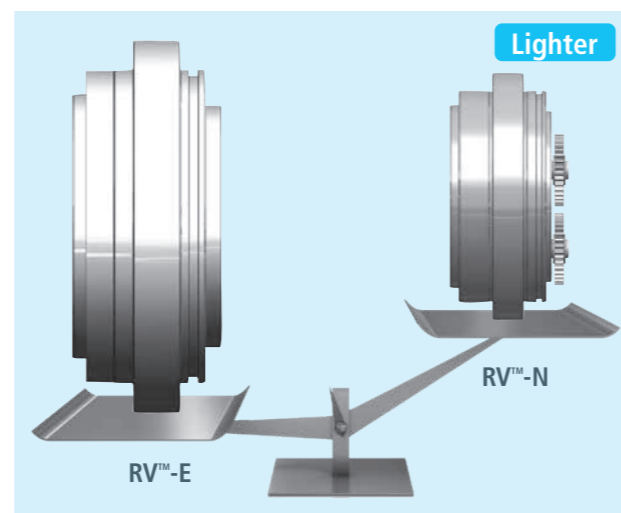
- Compact body
- Lightweight
- High accuracy (backlash ≤ 1 arc.min.)
- High shock load resistance (withstands 5 x rated torque)
- Good accel. performance (up to 2.5 x rated torque)

ADVANTAGES

Dimensions 8 to 20% smaller



Weight 16 to 36% lighter



6-axis robot



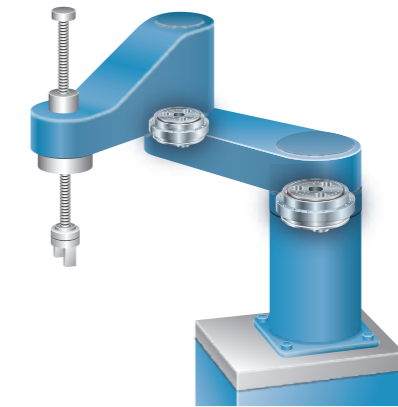
VIDEO



SCARA robot



VIDEO



RV™-N SPECIFICATION

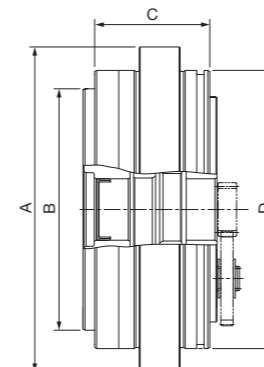
Model RV-	25N	42N	60N	80N	100N	125N	160N	380N	500N	700N	900N	2800N ²
Standard ratio	41	41	41	41	41	41	41	75	81	105	137.5	273
	81	81	81	81	81	81	81	93	105	118	183	
	107.66 ^{*1}	105	102.17 ^{*1}	101	102.17 ^{*1}	102.17 ^{*1}	102.81 ^{*1}	117	123	142.44	248	
	126	126	121	129	121	121	125.21 ^{*1}	139	144	159	292.2	
	137	141	145.61 ^{*1}	141	141	145.61 ^{*1}	156	162	159	183	316.71 ^{*1}	
	164.07 ^{*1}	164.07 ^{*1}	161	171	161	161	201	185	192.75	203.52 ^{*1}		
Rated torque (Nm)	245	412	600	784	1,000	1,225	1,600	3,724	4,900	7,000	9,000	28,000
Allowable acceleration/ deceleration torque (Nm)	612	1,029	1,500	1,960	2,500	3,062	4,000	9,310	12,250	17,500	22,500	70,000
Momentary max. allowable torque (Nm)	1,225	2,058	3,000	3,920	5,000	6,125	8,000	18,620	24,500	35,000	45,000	140,000
Rated output speed (rpm)	15	15	15	15	15	15	15	15	15	15	15	15
Allowable output speed: Duty ratio 40% (reference value) (rpm)	110	100	94	88	83	79	48	27	25	19	23	20
Rated service life (h)	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Backlash/Lost motion (arc.min.)	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	2/2
Torsional rigidity (reference value) (Nm/arc.min.)	61	113	200	212	312	334	490	948	1,620	2,600	3,685	15,600
Allowable moment (Nm)	784	1,660	2,000	2,150	2,700	3,430	4,000	7,050	11,000	15,000	12,740	62,000
Allowable thrust load (N)	2,610	5,220	5,880	6,530	9,000	13,000	14,700	25,000	32,000	44,000	39,200	70,400

*1 The speed ratio is 1/XX and indivisible. For more details, please contact us. *2 RV-2800N is designed for oil lubrication.

RV™-N DIMENSIONS

Model RV-	25N	42N	60N	80N	100N	125N	160N	380N	500N	700N	900N	2800N
A (Ømm)	133	159	183	189	208	221	238	295	325	395	440	720
B (Ømm)	94h7	118h7	140h7	140h7	160h7	160h7	179h7	222h7	253h7	315h7	335h7	560h7
C (mm)	62	65.5	69.5	74	80	80	104	131	137.5	170	195.5	270
D (Ømm)	113h7	136h7	160h7	160h7	179h7	186h7	202h7	252h7	284h7	350h7	364h7	633h8
Weight (kg)	3.8	6.3	8.9	9.3	13	13.9	22.1	44	57.2	102	157	583

RV™-N





A hollow shaft construction that delivers the same high precision, rigidity, torque and load capacity as the Precision Reduction Gear RV™ series

This hollow shaft type of Precision Reduction Gear RV™ offers better handling thanks to its improved piping and cable layout while maintaining its original compactness and light weight.

It also provides superior torsional and moment rigidity.

FEATURES

Hollow shaft construction

Backlash ≤ 1 arc.min.

Lost motion ≤ 1 arc.min.

Internal main bearing



An addition to the RV™-C lineup that does not require a center gear

The CA series' slim structure has been optimized for the rotary axes of robots, helping to reduce equipment widths for greater space savings.

FEATURES

Hollow shaft construction

Backlash ≤ 1 arc.min.

Lost motion ≤ 1 arc.min.

Internal main bearing



RV™-C SPECIFICATION

Model RV-	10C	27C	50C	100C	120C	155C	200C	320C	400CS	500C	700CS	900C	1200C
Standard ratio*1	27	36.57 ²	32.54 ²	36.75	36.75	33.62 ²	34.86 ²	35.61 ²	33.14 ²	37.34 ²	33.14 ²	42.83 ²	42.83 ²
Rated torque (Nm)	98	265	490	980	1,176	1,470	1,960	3,136	3,920	4,900	6,860	8,820	11,760
Allowable acceleration/ deceleration torque (Nm)	245	662	1,225	2,450	2,940	3,675	4,900	7,840	9,800	12,250	17,150	22,050	29,400
Momentary max. allowable torque (Nm)	490	1,323	2,450 ³	4,900 ³	5,880	7,350	9,800 ³	15,680	19,600	24,500	34,300	44,100	58,800
Rated output speed (rpm)	15	15	15	15	15	15	15	15	15	15	15	15	15
Allowable output speed: Duty ratio 100% (reference value) (rpm)	80	60	50	40	38.5	30	30	25	15	20	14.5	10	9
Rated service life (h)	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Backlash/Lost motion (arc.min.)	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Torsional rigidity (reference value) (Nm/arc.min.)	47	147	255	510	588	735	980	1,960	2,940	3,430	4,375	4,900	5,880
Allowable moment (Nm)	686	980	1,764	2,450	3,920	7,056	8,820	20,580	24,500	34,300	29,400	44,100	44,100
Allowable thrust load (N)	5,880	8,820	11,760	13,720	15,680	17,640	19,600	29,400	34,330	39,200	37,000	51,000	51,000

*1 The speed ratio does not include the input gear (option).

*2 The speed ratio is 1/XX and indivisible. For more details, please contact us.

*3 The value is for the bolt clamping output shaft type.

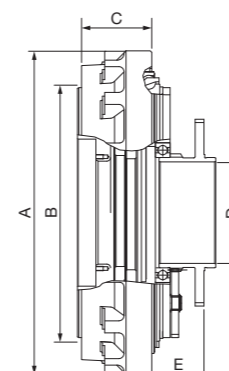
RV™-C DIMENSIONS

Model RV-	10C	27C	50C	100C	120C	155C	200C	320C	400CS	500C	700CS	900C	1200C
A (Ømm)	147	182	222.5	250.5	250.5	293	347	440h7	485	520	485	543	570
B (Ømm)	110h7	140h7	176h7	199h7	199h7	234h7	260h7	340h7	347h7	390h7	386h7	390h7	390h7
C (mm)	49.5	57.5	68	72.6	72.6	89	102	101	124.4	130.5	124.4	144	162
D (Ømm)	31	43	57	71	71	80	90	138	150	138	150	130	130
E (mm)	26.35±0.6	31.35±0.65	34.35±0.65	39.35±0.65	39.35±0.65	47±1.2	56.2±0.85	71.75±0.9	66.6±1.15	81.7MAX	66.6±1.15	126.5±0.9	131.5±0.9
Weight (kg)	4.6	8.5	14.6	19.5	19.5	37	55.6	79.5	135	154	140	225	235

RV™-C



RV™-C



RV™-CA SPECIFICATION

Model RV-	260CA	320CA	500CA
Standard ratio	138.75 148 158.57* 170.76*	184.61* 193.84* 210 229.09* 250.90*	221.53*
Rated torque (Nm)	2,548	3,136	5,000
Allowable acceleration/ deceleration torque (Nm)	6,370	7,840	12,500
Momentary max. allowable torque (Nm)	12,740	15,680	25,000
Rated output speed (rpm)	15	15	15
Allowable output speed: Duty ratio 100% (reference value) (rpm)	21	25	10
Rated service life (h)	6,000	6,000	6,000
Backlash/Lost motion (arc.min.)	1/1	1/1	1/1
Torsional rigidity (reference value) (Nm/arc.min.)	1,540	1,960	3,380
Allowable moment (Nm)	12,740	20,580	30,000
Allowable thrust load (N)	24,500	29,400	37,750

* The speed ratio is 1/XX and indivisible. For more details, please contact us.

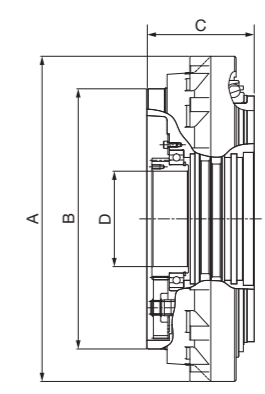
RV™-CA DIMENSIONS

Model RV-	260CA	320CA	500CA
A (Ømm)	390h7	450	486
B (Ømm)	315h7	360h7	386h7
C (mm)	148.5	148.5	179
D (Ømm)	130MIN	132MIN	140MIN
Weight (kg)	68.6	92.1	130

RV™-CA



RV™-CA



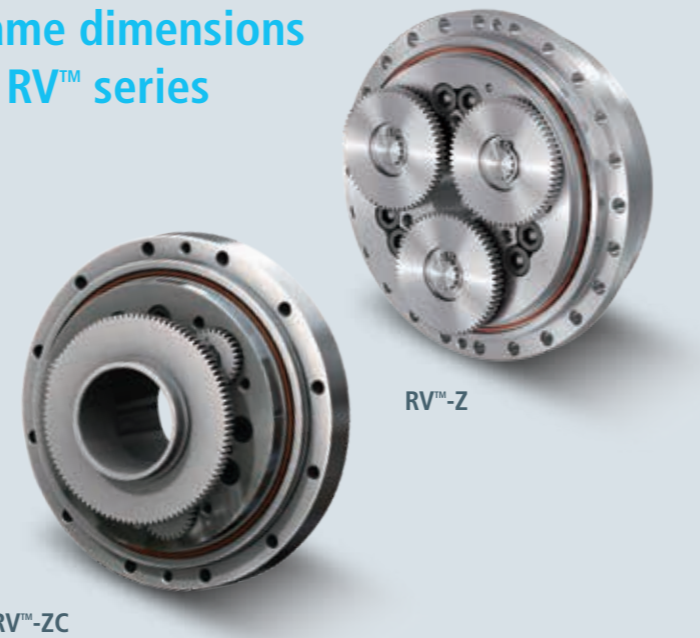
RV™-Z/ZC

Even greater rigidity with the same dimensions as the Precision Reduction Gear RV™ series

The shape of each part has been carefully optimized using both our proven technical expertise and CAE. This superior design allows units to be mounted on robots that perform welding or processing with large counterforces and also helps to reduce the cycle times of robots.

FEATURES

- Improved torsional rigidity
- Improved moment rigidity
- Backlash ≤ 1 arc.min.
- Lost motion ≤ 1 arc.min.



RV™-E

A top seller for many years, featuring an integrated main bearing

FEATURES

- Backlash ≤ 1 arc.min.
- Lost motion ≤ 1 arc.min.
- Internal main bearing



10 to 20% greater rigidity!

Improves damping when positioning robots, reduces deflection caused by high reaction forces

RV™-Z SPECIFICATION

Model RV-	265Z	430Z	600Z	1000Z	1300Z	1600Z	2200Z
Shape	Reverse assembly	Reverse assembly	Reverse assembly	Reverse assembly	Reverse assembly	Reverse assembly	Reverse assembly
Rated torque (Nm)	265	430	600	1,000	1,300	1,600	2,200
Allowable moment (Nm)	800	1,700	2,000	2,700	3,500	4,000	5,500
A (Ømm)	135	161	184	212	223	238	259
B (mm)	61	63	69.5	78.5	81	100.9	111
Weight (kg)	3.8	5.9	8.7	12.7	15.5	20.5	28

Model RV-	2800Z	3800Z	5000Z	5500Z	7000Z	9000Z	12000Z (under development)
Shape	Reverse assembly	Reverse assembly	Standard assembly	Standard assembly	Reverse assembly	Reverse assembly	Reverse assembly
Rated torque (Nm)	2,800	3,800	5,000	5,500	7,000	9,000	12,000
Allowable moment (Nm)	6,000	7,200	11,000	13,000	15,000	20,000	40,000
A (Ømm)	284	299	335	373	395	453	498
B (mm)	115	128	131.5	148.7	163	170	211
Weight (kg)	36	42.3	55.1	79.1	102.5	141	213

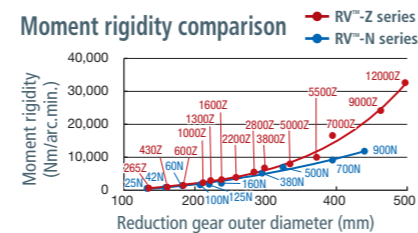
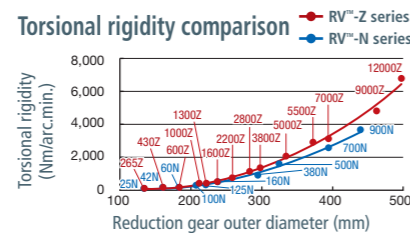
Note 1: The specifications of the models under development are subject to change.
Note 2: Each model will be provided in both standard and reverse configurations in the future. The dimensions table currently displays finalized models (development completed) and those with combined configurations.

RV™-ZC SPECIFICATION

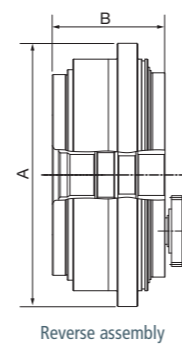
Model RV-	350ZC (under development)	600ZC	1200ZC (under development)	1500ZC (under development)	2000ZC (under development)	2600ZC (under development)	3200ZC	5000ZC	9000ZC
Shape	C	C	C	C	C	-	CT	CT	C
Rated torque (Nm)	350	600	1,200	1,500	2,000	2,600	3,200	5,000	9,000
Allowable moment (Nm)	1,600	3,000	4,000	7,200	9,000	14,000	25,000	35,000	45,000
A (Ømm)	-	224	-	-	335	-	440	485	543
B (mm)	-	79	-	-	108.5	-	142.5	168.5	189
Weight (kg)	-	13.4	-	-	43.2	-	88.4	130	208

Note 1: The specifications of the models under development are subject to change.
Note 2: Model 2600ZC or above will be provided in both C and CT configurations in the future. The dimensions table currently displays finalized models (development completed) and those with combined configurations.

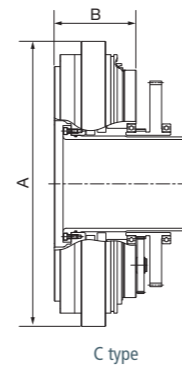
For more information, contact our sales representative.



RV™-Z



RV™-ZC



RV™-E SPECIFICATION

Model RV-	6E	20E	40E	80E	160E	320E	450E	1500E
Standard ratio	31 43 53.5 59 79 103	57 81 105 121 141 161	57 81 105 121 153	57 81 101 121 153 ^{*2}	81 101 129 145 171	81 101 129 141 171 185	81 101 118.5 129 154.84 ^{*1} 171 192.42 ^{*1}	65 156 164.47 ^{*1} 236.29 ^{*1}
Rated torque (Nm)	58	167	412	784	1,568	3,136	4,410	14,700
Allowable acceleration/ deceleration torque (Nm)	117	412	1,029	1,960	3,920	7,840	11,025	36,750
Momentary max. allowable torque (Nm)	294	833	2,058	3,920 ^{*3}	7,840 ^{*3}	15,680 ^{*3}	22,050 ^{*3}	73,500
Rated output speed (rpm)	30	15	15	15	15	15	15	15
Allowable output speed: Duty ratio 100% (reference value) (rpm)	100	75	70	70	45	35	25	10
Rated service life (h)	6,000	6,000	6,000	6,000	6,000	6,000	6,000	9,000
Backlash/Lost motion (arc.min.)	1.5/1.5	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Torsional rigidity (reference value) (Nm/arc.min.)	20	49	108	196	392	980	1,176	6,320
Allowable moment (Nm)	196	882	1,666	2,156 ^{*3}	3,920	7,056 ^{*3}	8,820	44,100
Allowable thrust load (N)	1,470	3,920	5,194	7,840	14,700	19,600	24,500	51,000

*1 The speed ratio is 1/XX and indivisible. For more details, please contact us.
*2 The speed ratio of 153 is applicable to only the bolt clamping output-shaft type.
*3 The value is for the bolt clamping output shaft type.

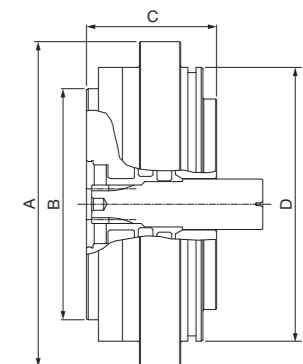
RV™-E DIMENSIONS

Model RV-	6E	20E	40E	80E	160E	320E	450E	1500E
A (Ømm)	122	145	190	222	280h7	325h7	370h7	570
B (Ømm)	86h7	105h6	135h7	160h7	204h7	245h7	275h7	390h7
C (mm)	53	65	76	84	104	125	140	220
D (Ømm)	103h7	123h7	160h7	190h7	280h7	325h7	370h7	494h7
Weight (kg)	2.5	4.7	9.3	13.1	26.4	44.3	66.4	298

6-axis robot



RV™-E



RV™-Original

The Precision Reduction Gear RV™ series' original bearingless model



FEATURES

- No support bearing
- Backlash ≤ 1 arc.min.
- High shock load resistance (withstands 5 x rated torque)
- Good accel. performance (up to 2.5 x rated torque)

RV™-Original SPECIFICATION

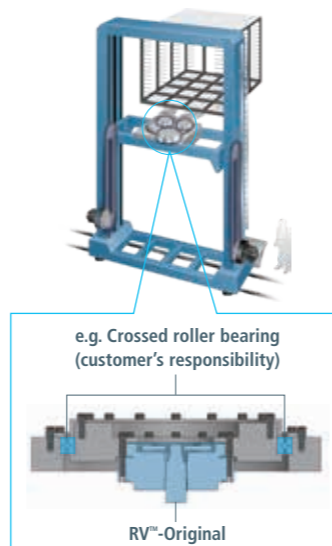
Model RV-	15	30	60	160	320	450	550	900
Standard ratio	57	57	57	81	81	81	123	31.42*
	81	81	81	101	101	101	141	
	105	105	101	129	118.5	118.5	163.5	
	121	121	121	145	129	129	192.42*	
	141	153	153	171	141	171	192.42*	
Rated torque (Nm)	137	333	637	1,568	3,136	4,410	5,390	8,820
Allowable acceleration/ deceleration torque (Nm)	274	833	1,592	3,920	7,840	11,025	13,475	22,050
Momentary max. allowable torque (Nm)	686	1,666	3,185	6,615	12,250	18,620	26,950	44,100
Rated output speed (rpm)	15	15	15	15	15	15	15	15
Allowable output speed: Duty ratio 100% (reference value) (rpm)	60	50	40	45	35	25	20	7.5
Rated service life (h)	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Backlash/Lost motion (arc.min.)	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Torsional rigidity (reference value) (Nm/arc.min.)	39.2	98	196	392	980	1,176	1,666	5,923

* The speed ratio is 1/XX and indivisible. For more details, please contact us.

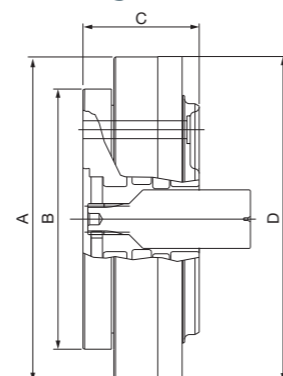
RV™-Original DIMENSIONS

Model RV-	15	30	60	160	320	450	550	900
A (Ømm)	129.9 ⁰ _{-0.05}	159.5±0.2	199.5	239.5	289.5	324.5	369.5	550
B (Ømm)	105h6	135h6	160h6	204h6	245	275	316h7	440h7
C (mm)	65	71.5	71.5	96	117.6	128.5	147	185
D (Ømm)	130h7	160h7	200h7	239.9 ⁰ _{-0.05}	290h7	325h7	370h7	550h7
Weight (kg)	3.6	6.2	9.7	19.5	34	47	72	223

Stacker



RV™-Original



RF-P

Higher speeds plus all the features of the Precision Reduction Gear RV™ lineup

This series delivers output speeds of up to 250 rpm. Its cycloid design also utilizes a two-stage gear reduction principle, helping to minimize both wear and backlash. These features enable highly precise positioning.

FEATURES

- High speed (Max. 250 rpm)
- High accuracy (backlash ≤ 2 arc.min.)
- Good accel. performance (up to 3 x rated torque)
- Adapted for use with food-grade oil
- Long service life (20,000 h)



RF-P SPECIFICATION

Model RF-	10P	19P	35P
Standard ratio	35.73*	19	20.55*
	41	26.2	
	42.17*	31	
	51		
Rated torque (Nm)	100	190	350
Allowable acceleration/ deceleration torque (Nm)	300	570	1,050
Momentary max. allowable torque (Nm)	500	570	1,050
Rated output speed (rpm)	50	50	50
Allowable output speed: Duty ratio 50% (reference value) (rpm)	250	200	140
Rated service life (h)	20,000	20,000	20,000
Backlash/Lost motion (arc.min.)	2/2	2/2	2/2
Torsional rigidity (reference value) (Nm/arc.min.)	42	66	149
Allowable moment (Nm)	460	960	1,100
Allowable thrust load (N)	2,200	3,000	4,000

* The speed ratio is 1/XX and indivisible. For more details, please contact us.

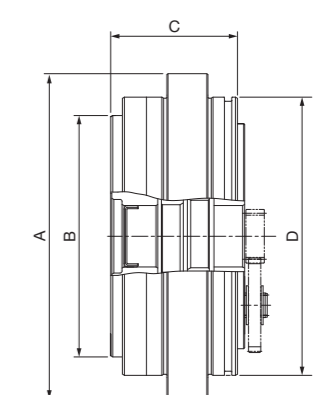
RF-P DIMENSIONS

Model RF-	10P	19P	35P
A (Ømm)	127	148	183
B (Ømm)	94h7	110h7	140h7
C (mm)	64.5	71	80
D (Ømm)	126.5h7	127h7	160h7
Weight (kg)	3.9	5.6	11

Parallel Link



RF-P



RD2 Solid Series

RD_E

PRODUCT WEB SITE



Gearhead model available in three input types

Featuring mounting parts compatible with all major servomotors and sealed with grease before shipping, this model's time-saving design makes it easier to use than ever.
Each type is highly user-friendly and provides outstanding performance.



FEATURES

- Completely sealed and pre-lubricated
- Backlash ≤ 1 arc.min.
- Lost motion ≤ 1 arc.min.
- Internal main bearing
- Major servomotor fastener components included

BENEFITS

- Usable in a wide range of applications
- Extensive lineup featuring 75 items

3 input options

Straight

Right angle

Pulley



RDS type



RDR type



RDP type

RD_E SPECIFICATION

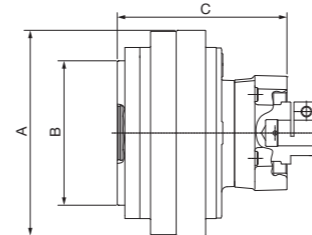
Model RDS- / RDR-	6E	20E	40E	80E	160E	320E
Standard ratio	31, 43, 53.5 79, 103	41, 57, 81 105, 121, 161	41, 57, 81 105, 121, 153	41, 57, 81 101, 121, 153	66, 81, 101 121, 145, 171	66, 81, 101 121, 141, 185
Rated torque (Nm)	RDS-E	58	167	412	784	1,568
	RDR-E	58	108 ^{i:41} 151 ^{i:57} 167 ^{i:81,105,121,161}	400 ^{i:41} 412 ^{i:57,81,105,121,153}	400 ^{i:41} 556 ^{i:57} 784 ^{i:81,101,121,153}	1,568
Allowable acceleration/ deceleration torque (Nm)	RDS-E	117	412	1,029	1,960	3,920
	RDR-E	117	271 ^{i:41} 378 ^{i:57} 412 ^{i:81,105,121,161}	1,000 ^{i:41} 1,029 ^{i:57,81,105,121,153}	1,000 ^{i:41} 1,390 ^{i:556} 1,960 ^{i:81,101,121,153}	3,920
Momentary max. allowable torque (Nm)	RDS-E	294	833	2,058	3,920	7,840
	RDR-E	294	543 ^{i:41} 755 ^{i:57} 833 ^{i:81,105,121,161}	2,000 ^{i:41} 2,058 ^{i:57,81,105,121,153}	2,000 ^{i:41} 2,781 ^{i:556} 3,920 ^{i:81,101,121,153}	7,840
Rated output speed (rpm)	30	15	15	15	15	15
Allowable input speed (rpm)	3,500	3,500	3,000	3,000	2,000	2,000
Rated service life (h)	6,000	6,000	6,000	6,000	6,000	6,000
Backlash/ Lost motion (arc.min.)	RDS-E	1.5/1.5	1/1	1/1	1/1	1/1
	RDR-E	2/2	1.5/1.5	1.5/1.5	1.5/1.5	1.5/1.5
Torsional rigidity (reference value) (Nm/arc.min.)	20	49	108	196	392	980
Allowable moment (Nm)	196	882	1,666	2,156	3,920	7,056
Allowable thrust load (N)	1,470	3,920	5,194	7,840	14,700	19,600

Model RDP-	6E	20E	40E	80E	160E	320E
Standard ratio	-	81	57	81	66	81
Rated torque (Nm)	-	167	412	784	1,568	3,136
Allowable acceleration/ deceleration torque (Nm)	-	412	1,029	1,960	3,920	7,840
Momentary max. allowable torque (Nm)	-	833	2,058	3,920	7,840	15,680
Rated output speed (rpm)	-	15	15	15	15	15
Allowable input speed (rpm)	-	3,500	3,000	3,000	2,000	2,000
Rated service life (h)	-	6,000	6,000	6,000	6,000	6,000
Backlash/Lost motion (arc.min.)	-	1/1	1/1	1/1	1/1	1/1
Torsional rigidity (reference value) (Nm/arc.min.)	-	49	108	196	392	980
Allowable moment (Nm)	-	882	1,666	2,156	3,920	7,056
Allowable thrust load (N)	-	3,920	5,194	7,840	14,700	19,600

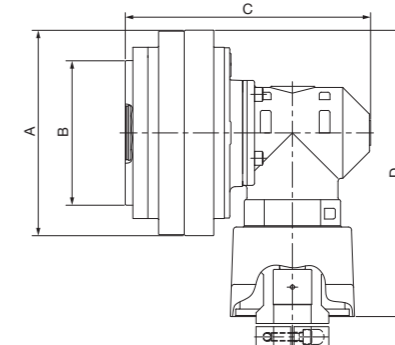
RD_E DIMENSIONS

Model RD_ -	6E	20E	40E	80E	160E	320E	
A (Ømm)	125.5	150	192	222	280	325	
B (Ømm)	86h7	105h6	135h7	160h7	204h7	245h7	
C (mm)	RDS-E	118.9/129.9	124.5/135.5	158.6/182.6	173/197	216.5/213.5	241/238
	RDR-E	178.4	184	229.1	243.5	352.5	377
	RDP-E	-	152	194.6	209	257	281.5
D (mm)	RDR-E	170.55/182.55	182.8/194.8	243.5/267.5	259/283	362.5/353.5	385/376
Weight (kg)	RDS-E	5.7/6.8	8.4/9.5	17.5/20	23.8/26.3	43.4/46.3	68.9/71.8
	RDR-E	7.2/8.2	9.9/10.9	20.5/23.2	26.8/29.6	65.6/68.1	91.2/93.7
	RDP-E	-	8.3	16.4	22.8	41.9	67.3

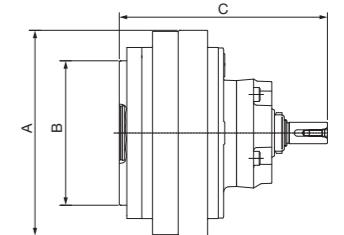
RDS-E



RDR-E



RDP-E



RD2 Hollow Shaft Series

RD_-C

PRODUCT WEB SITE



Gearhead model available in three input types

Featuring mounting parts compatible with all major servomotors and sealed with grease before shipping, this model's time-saving design makes it easier to use than ever.
Each type is highly user-friendly and provides outstanding performance.



FEATURES

- Completely sealed and pre-lubricated
- Backlash ≤ 1 arc.min.
- Lost motion ≤ 1 arc.min.
- Internal main bearing
- Major servomotor fastener components included

BENEFITS

- Usable in a wide range of applications
- Extensive lineup featuring 56 items

3 input options



RDS type



RDR type



RDP type

RD_-C SPECIFICATION

Model RDS- / RDR-	10C	27C	50C	100C	200C	320C
Standard ratio	81	99.82	109	100.5	105.83	115
	108	141.68	152.6	150	155.96	157
	153	184	196.2	210	206.09	207
	189	233.45	239.8	258	245.08	253
	243					356.5*
Rated torque (Nm)	98	265	490	980	1,960	3,136
Allowable acceleration/ deceleration torque (Nm)	245	662	1,225	2,450	4,900	7,840
Momentary max. allowable torque (Nm)	490	1,323	2,450	4,900	9,800	15,680
Rated output speed (rpm)	15	15	15	15	15	15
Allowable input speed (rpm)	3,500	3,500	3,000	3,000	2,000	2,000
Rated service life (h)	6,000	6,000	6,000	6,000	6,000	6,000
Backlash/ Lost motion (arc.min.)	RDS-C	1/1	1/1	1/1	1/1	1/1
	RDR-C	1.5/1.5	1.5/1.5	1.5/1.5	1.5/1.5	1.5/1.5
Torsional rigidity (reference value) (Nm/arc.min.)	47	147	255	510	980	1,960
Allowable moment (Nm)	686	980	1,764	2,450	8,820	20,580
Allowable thrust load (N)	5,880	8,820	11,760	13,720	19,600	29,400

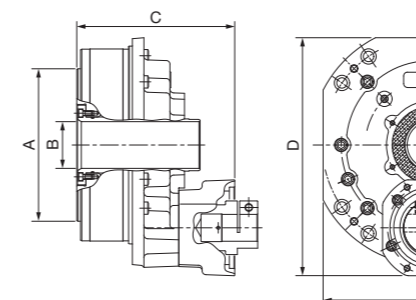
Model RDP-	10C	27C	50C	100C	200C	320C
Standard ratio	108	99.82	109	100.5	105.83	157
Rated torque (Nm)	98	265	490	980	1,960	3,136
Allowable acceleration/ deceleration torque (Nm)	245	662	1,225	2,450	4,900	7,840
Momentary max. allowable torque (Nm)	490	1,323	2,450	4,900	9,800	15,680
Rated output speed (rpm)	15	15	15	15	15	15
Allowable input speed (rpm)	3,500	3,500	3,000	3,000	2,000	2,000
Rated service life (h)	6,000	6,000	6,000	6,000	6,000	6,000
Backlash/Lost motion (arc.min.)	1/1	1/1	1/1	1/1	1/1	1/1
Torsional rigidity (reference value) (Nm/arc.min.)	47	147	255	510	980	1,960
Allowable moment (Nm)	686	980	1,764	2,450	8,820	20,580
Allowable thrust load (N)	5,880	8,820	11,760	13,720	19,600	29,400

RD_-C DIMENSIONS

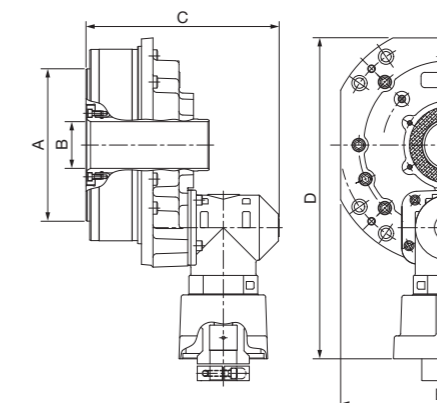
Model RD_-	10C	27C	50C	100C	200C	320C	
A (Ømm)	110h7	140h7	176h7	199h7	260h7	340h7	
B (Ømm)	25	36	48	61	75	120	
C (mm)	RDS-C	132/143	141/152	177.5/201.5	182.1/206.1	246/243	256.5/253.5
	RDR-C	191.5	200.5	248	252.6	382	392.5
	RDP-C	159.5	168.5	213.5	218.1	286.5	297
D (mm)	RDS-C	187.2/197.7	227.2/237.7	270/278.5	302/310.5	403/413	478.5/488.5
	RDR-C	254.5/266.5	294.5/306.5	363.5/387.5	395.5/419.5	550.5/541.5	626/617
	RDP-C	187.2	227.2	268	300	402.7	478.5
E (mm)	172.4	207.4	252	280	368	447	
Weight (kg)	RDS-C	10.4/11.5	16.5/17.6	29.9/32.3	37.9/40.4	95.5/98.4	141.4/144.3
	RDR-C	11.9/13.0	18.0/19.0	32.9/35.6	40.9/43.7	117.9/120.4	163.6/166.1
	RDP-C	10.3	16.4	28.8	36.9	93.8	139.7

* For the outer diameter and weight of the model with a 356.5 standard ratio, contact our service representative.

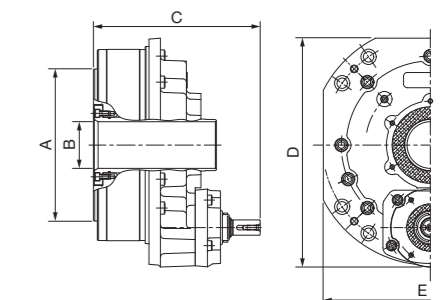
RDS-C



RDR-C



RDP-C



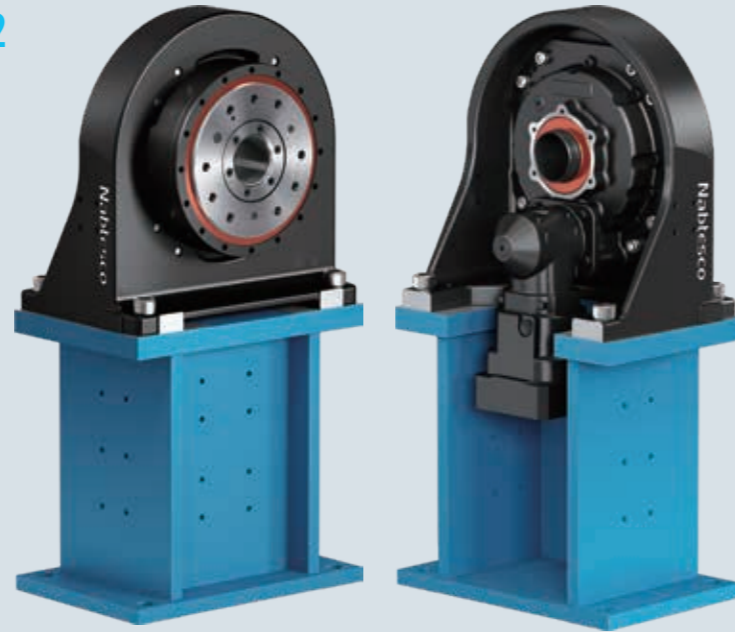
RD2 Foot Type

Optional Base Flange for RD2

A base flange that can be utilized with all RD2 series models is provided as an option. The flange significantly reduces the times required for equipment design, manufacturing and assembly.

FEATURES

Easier mounting of any RD2 model on equipment without altering its specifications thanks to the foot type structure
Compatible with many servomotors

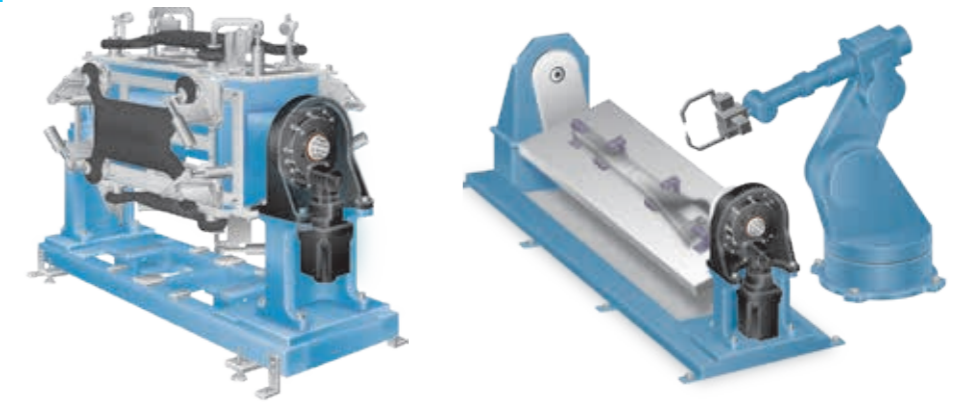


Straight input type		Right angle input type		Pulley input type	
RDS-E	RDS-C	RDR-E	RDR-C	RDP-E	RDP-C
+					
Base flange			Shipped as RD2 with base flange assembled e.g. RDR-100C		



VIDEO

Positioner

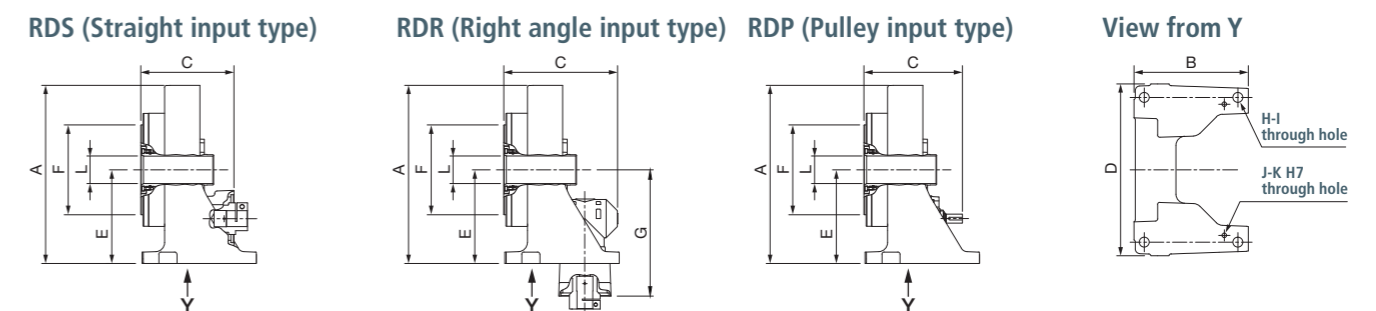


RD_-E Foot Type DIMENSIONS

Model RD_-	6E	20E	40E	80E	160E	320E
A (mm)	201.5	201.5	354	354	394	474.5
B (mm)	240	240	250	250	253	380
C (mm)	RDS-E	129.9	135.5	182.6	197	216.5
	RDR-E	178.4	184	229.1	243.5	352.5
	RDP-E	-	152	194.6	209	257
D (mm)	265	265	335	335	380	425
E (mm)	100	100	210	210	207	265
F (Ømm)	86h7	105h6	135h7	160h7	204h7	245h7
G (mm)	RDR-E	119.8	119.8	171.5	171.5	222.5
H (pcs)	4	4	4	4	4	4
I (Ømm)	17.5	17.5	17.5	17.5	22	22
J (pcs)	2	2	2	2	2	2
K (Ømm)	10	10	10	10	10	10
L (Ømm)	-	-	-	-	-	-
Weight (kg)	19	22	52	52	99	171

RD_-C Foot Type DIMENSIONS

Model RD_-	10C	27C	50C	100C	200C	320C
A (mm)	354	354	394	394	557	634.5
B (mm)	250	250	253	253	390	405
C (mm)	RDS-C	143	152	201.5	206.1	256.5
	RDR-C	191.5	200.5	248	252.6	392.5
	RDP-C	159.5	168.5	213.5	218.1	286.5
D (mm)	335	335	380	380	550	645
E (mm)	210	210	207	207	295	315
F (Ømm)	110h7	140h7	176h7	199h7	260h7	340h7
G (mm)	RDR-C	180.3	202.8	261.5	279.5	402.5
H (pcs)	4	4	4	4	8	8
I (Ømm)	17.5	17.5	22	22	22	22
J (pcs)	2	2	2	2	2	2
K (Ømm)	10	10	10	10	10	10
L (Ømm)	25	36	48	61	75	120
Weight (kg)	37	41	70	74	240	343



RS-A/B

PRODUCT
WEB SITE



RS



VIDEO

Low Profile, Infinitely Programmable Turntable

FEATURES

- Table type
- Right angle input
- Lineup capable of handling loads of up to 9 tons
- Backlash ≤ 1 arc.min. (1.5 arc.min. for RS-50A/50B)
- Lost motion ≤ 1 arc.min. (1.5 arc.min. for RS-50A/50B)
- Internal main bearing
- Major servomotor fastener components included
- Completely sealed and pre-lubricated



BENEFITS

- Easy to install (bolt tightening & locating pins only)
- Lower table height (low-profile body)



Lineup

50A

1.5 t



50B

1.5 t



260A

2.5 t



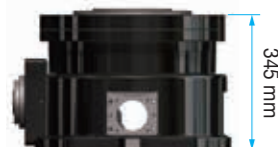
260B

2.5 t



320A

5 t



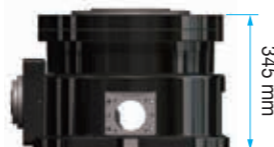
320B

5 t



400A

7 t



900A

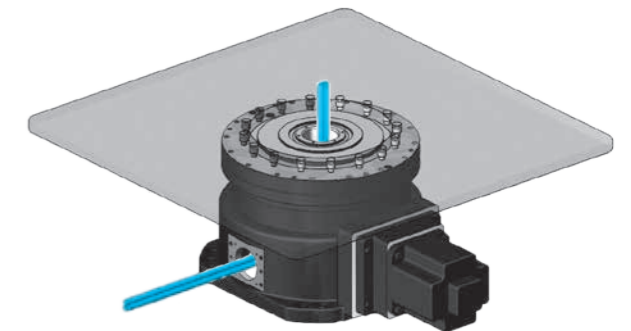
9 t



Welding equipment



Indexer



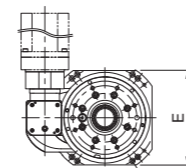
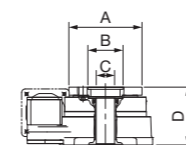
RS-A/B SPECIFICATION

Model RS-	50A	50B	260A	260B	320A	320B	400A	900A
Standard ratio	65.4 130.8 163.5 300	65.4 130.8 163.5	120	120	170	170	170	193.6 240
Rated torque (Nm)	490	490	2,548	2,548	3,136	3,136	3,920	8,820
Allowable acceleration/ deceleration torque (Nm)	1,225	1,225	6,370	6,370	7,840	7,840	9,800	17,640
Momentary max. allowable torque (Nm)	2,450	2,450	12,740	12,740	15,680	15,680	19,600	35,280
Rated output speed (rpm)	15	15	15	15	15	15	15	15
Allowable output speed: Duty ratio 100% (reference value) (rpm)	60	60	21.5	21.5	20	20	20	10
Rated service life (h)	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Backlash/Lost motion (arc.min.)	1.5/1.5	1.5/1.5	1/1	1/1	1/1	1/1	1/1	1/1
Torsional rigidity (reference value) (Nm/arc.min.)	255	255	1,540	1,540	1,570	1,570	2,450	4,900
Allowable moment (Nm)	1,764	1,764	12,740	12,740	20,580	20,580	24,500	44,100
Allowable thrust load (N)	14,700	14,700	24,500	24,500	49,000	49,000	72,000	88,200
Repeated positioning accuracy (ref. value)	± 5 arc.sec.	± 5 arc.sec.	± 5 arc.sec.	± 5 arc.sec.	± 5 arc.sec.	± 5 arc.sec.	± 5 arc.sec.	ASK
500 mm radius	± 0.012 mm	± 0.012 mm	± 0.012 mm	± 0.012 mm	± 0.012 mm	± 0.012 mm	± 0.012 mm	ASK

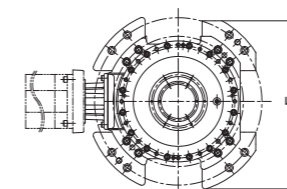
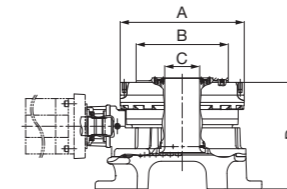
RS-A/B DIMENSIONS

Model RS-	50A	50B	260A	260B	320A	320B	400A	900A
A (Ømm)	200	176	390	390	470	550	470	543
B (Ømm)	95H7	93H7	290h7	290h7	300h7	440h7	300h7	390h7
C (Ømm)	50	50	110	110	85	85	85	95
D (mm)	158	136	335	233.5	345	245	345	400
E (mm)	258	258	543	430	480	480	480	583
Weight (kg)	45	40	165	129	290	290	290	480

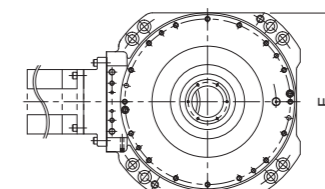
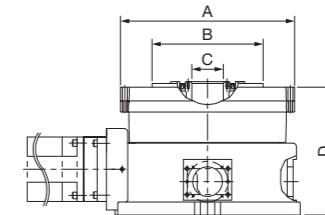
50A/50B



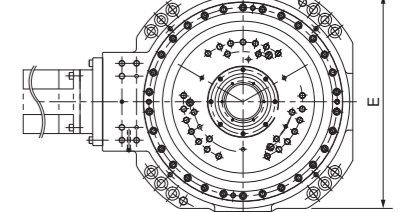
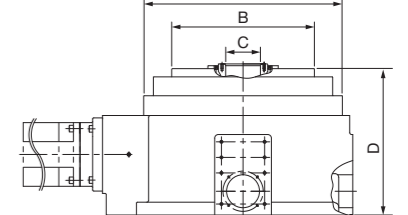
260A/260B



320A/320B/400A



900A



RH-N



RH-C



The most compact of all our gearhead models
High output torque support solid type

FEATURES

- High output torque
- Compact and lightweight
- Internal main bearing
- Compatible with many servomotors
- Pre-lubricated



RH-500N

Supports cantilever, dual support, and table types
Compact to fit equipment perfectly

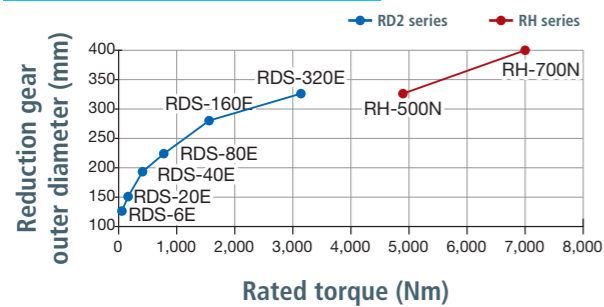
FEATURES

- High output torque
- Large moment
- Hollow shaft
- Compact and lightweight
- Internal main bearing
- Compatible with various robot external axis motors
- Pre-lubricated
- Supply/discharge port arranged for easier grease replacement



RH-900C

Torque comparison with RD2 series* Existing gearhead product



RH-N SPECIFICATION

Model RH-	500N	700N
Standard ratio*1	81 105 123 144 159 159	105 118 142.44 159 183
	192.75 209 222	203.52 228.5 268.42 284.4
Rated torque (Nm)	4,900	7,000
Allowable acceleration/deceleration torque (Nm)	12,250	17,500
Momentary max. allowable torque (Nm)	24,500	35,000
Rated output speed (rpm)	15	15
Allowable output speed: Duty ratio 40% (reference value) (rpm)*2	25	19
Rated service life (h)	6,000	6,000
Backlash/Lost motion (arc.min.)	1/1	1/1
Torsional rigidity (reference value) (Nm/arc.min.)	1,620	2,600
Allowable moment (Nm)	11,000	15,000
Allowable thrust load (N)	32,000	44,000

*1 Contact us regarding speed ratios other than those listed above.
*2 Duty ratio: 40% (The maximum allowable output speed will differ depending upon the duty ratio, load, and ambient temperature.)

Positioner



Pipe Bending

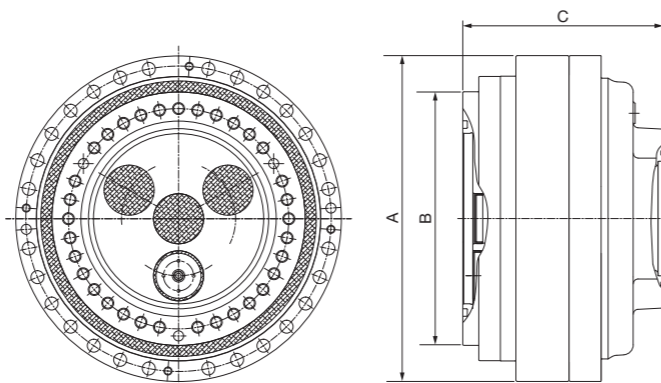


RH-N DIMENSIONS

Model RH-	500N	700N
A (Ømm)	325	398
B (Ømm)	253h7	315h7
C (mm)	200	229.5
Weight (kg)*	75	135

* The weight of the motor flange and input gear is not included.

RH-N



RH-C SPECIFICATION

Model RH-	900C
Standard ratio	186 258 330
Rated torque (Nm)	8,820
Allowable acceleration/deceleration torque (Nm)	22,050
Momentary max. allowable torque (Nm)	44,100
Rated output speed (rpm)	15
Allowable output speed: Duty ratio 35%* (reference value) (rpm)	28
Rated service life (h)	6,000
Backlash/Lost motion (arc.min.)	1/1
Torsional rigidity (reference value) (Nm/arc.min.)	4,900
Allowable moment (Nm)	44,100
Allowable thrust load (N)	88,200

* Duty ratio: 35% (The maximum allowable output speed will differ depending upon the duty ratio, load, and ambient temperature.)

RH-C DIMENSIONS

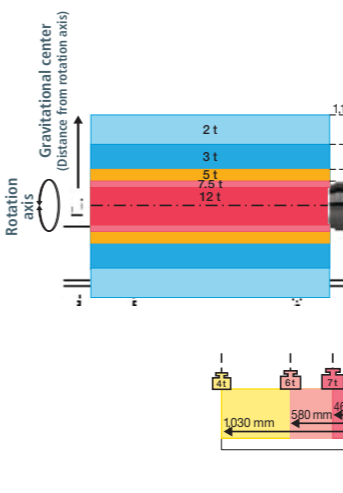
Model RH-	900C
A (Ømm)	610
B (Ømm)	390h7
C (mm)	335
D (Ømm)	132
Weight (kg)*	410

* The weight of the motor flange and input gear is not included.

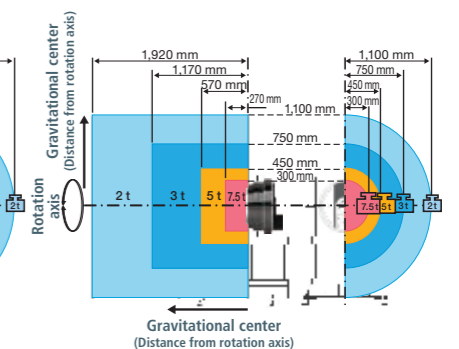
Center of Gravity Height and Allowable Load Range

* Loading beyond this range will exceed the startup/stop torque and/or allowable moment of the reduction gear, and may damage the reduction gear.
* Loads given are reference values.

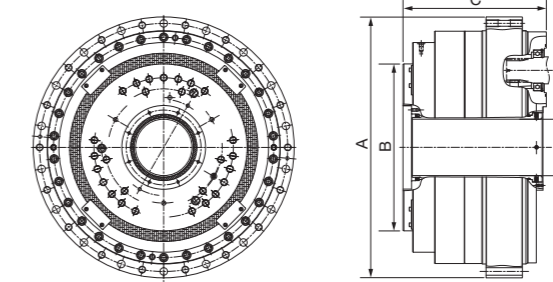
Supported on both ends



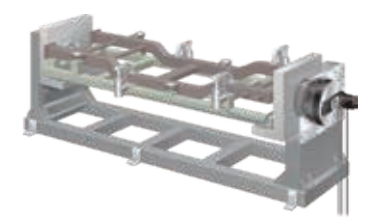
Single support



RH-900C



Suitable for long and large BBQ equipment that creates extremely high loads



RH Foot type

PRODUCT
WEB SITE



RH-155C/320CA

Precision reduction gearhead model
for positioners
Hollow shaft type equipped with
base flange

FEATURES

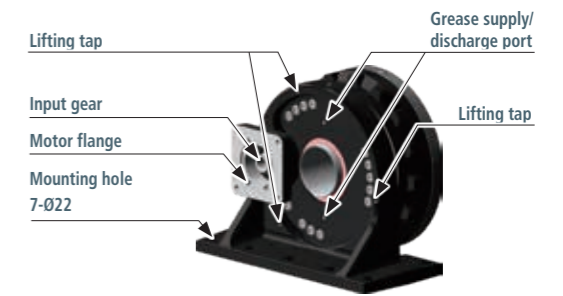
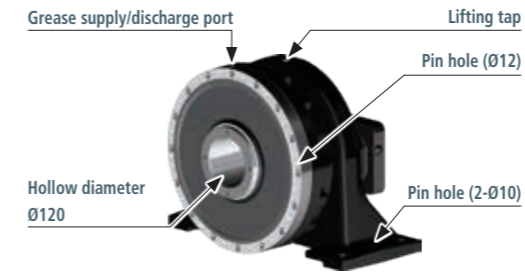
- Slim
- Hollow shaft structure
- Stable base flange structure makes it easy to attach to any system.
- Compatible with various robot external axis motors
- Pre-lubricated
- Supply/discharge port arranged for easier grease replacement

RH-320CA



RH-155C

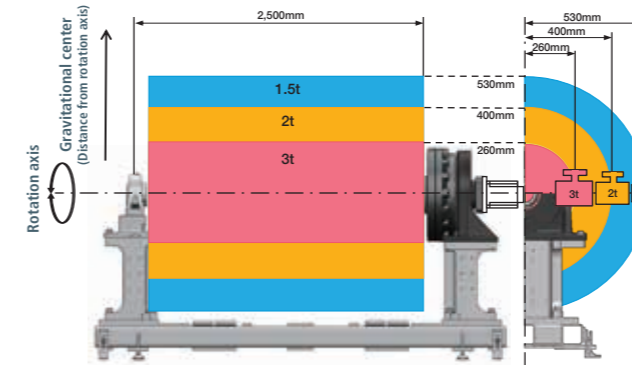
RH-320CA



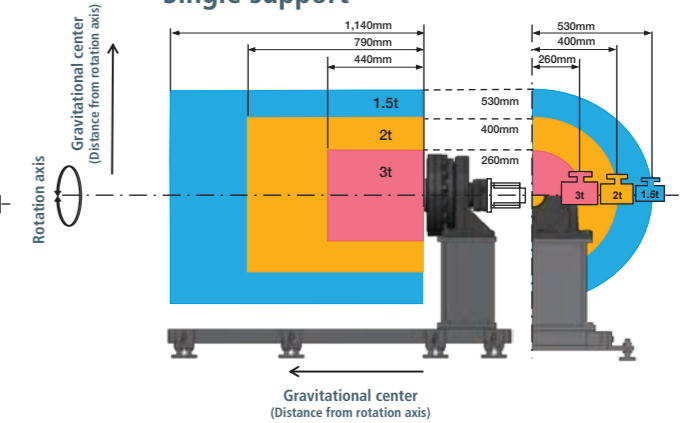
Center of Gravity Height and Allowable Load Range

* Loading beyond this range will exceed the startup/stop torque and/or allowable moment of the reduction gear, and may damage the reduction gear.
* Loads given are reference values.

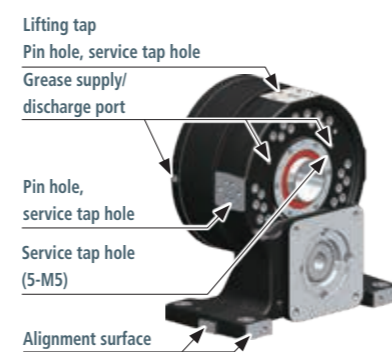
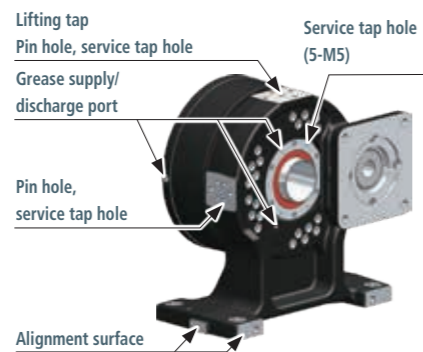
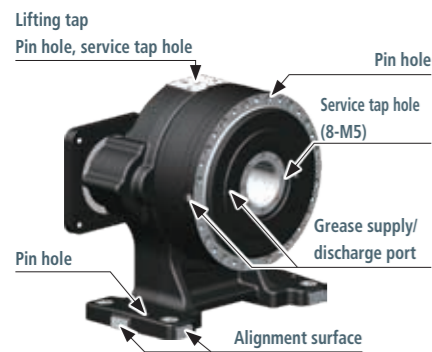
Supported on both ends



Single support



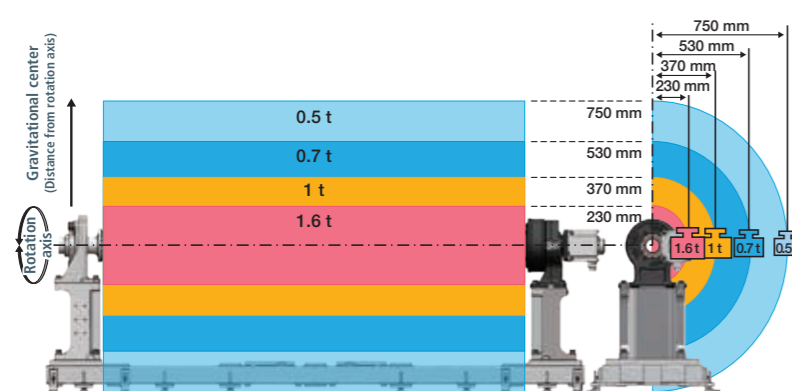
RH-155C



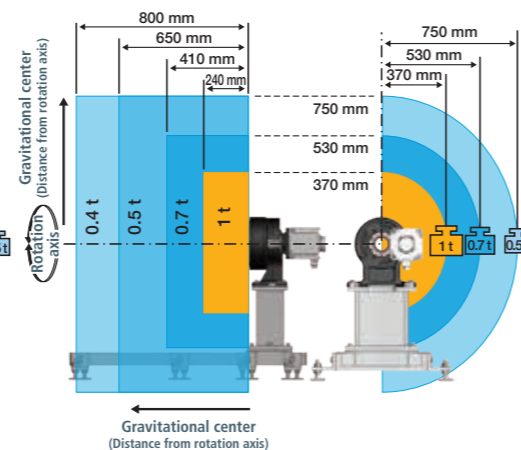
Center of Gravity Height and Allowable Load Range

* Loading beyond this range will exceed the startup/stop torque and/or allowable moment of the reduction gear, and may damage the reduction gear.
* Loads given are reference values.

Supported on both ends



Single support



RH-C/CA SPECIFICATION

Model RH-	155C	320CA
Standard ratio	78.3 104.4 120.46 ^{*1}	152
Rated torque (Nm)	1,470	3,136
Allowable acceleration/ deceleration torque (Nm)	3,675	7,840
Momentary max. allowable torque (Nm)	7,350	15,680
Rated output speed (rpm)	15	15
Allowable output speed: Duty ratio 35% ^{*2} (reference value) (rpm)	51	64
Rated service life (h)	6,000	6,000
Backlash/Lost motion (arc.min.)	1/1	1/1
Torsional rigidity (reference value) (Nm/arc.min.)	735	1,960
Allowable moment (Nm)	4,000	20,580
Allowable thrust load (N)	16,000	29,400

*1 The speed ratio is 1/XX and indivisible. For more details, please contact us.

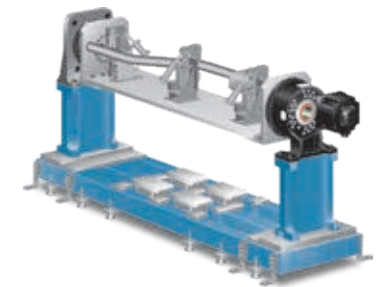
*2 Duty ratio: 35% (The maximum allowable output speed will differ depending upon the duty ratio, load, and ambient temperature.)

RH-C/CA DIMENSIONS

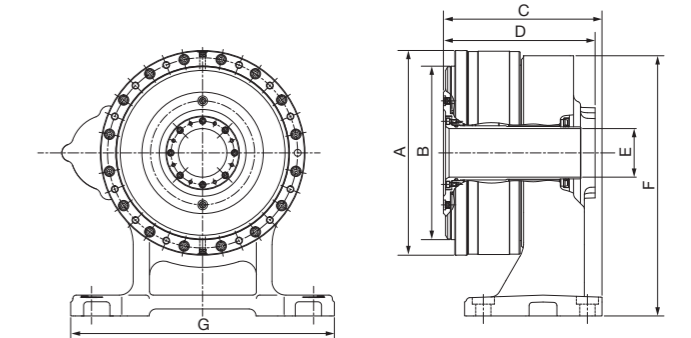
Model RH-	155C	320CA
A (Ømm)	295	450
B (Ømm)	250h7	400h7
C (mm)	228.5	364.5
D (mm)	218.5	252.5
E (Ømm)	70	120
F (mm)	375	445
G (mm)	380	600
Weight (kg)*	90	212

* The weight of the motor flange and input gear is not included.

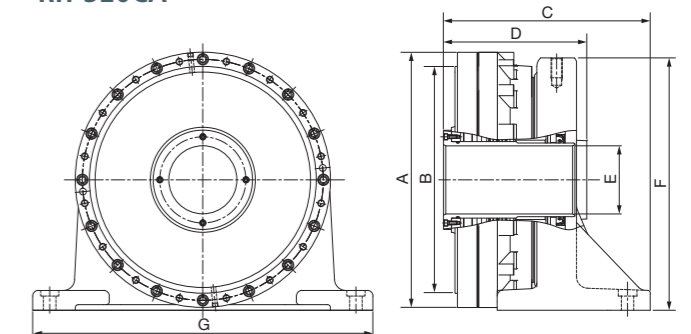
Dual Support BBQ Positioner



RH-155C



RH-320CA



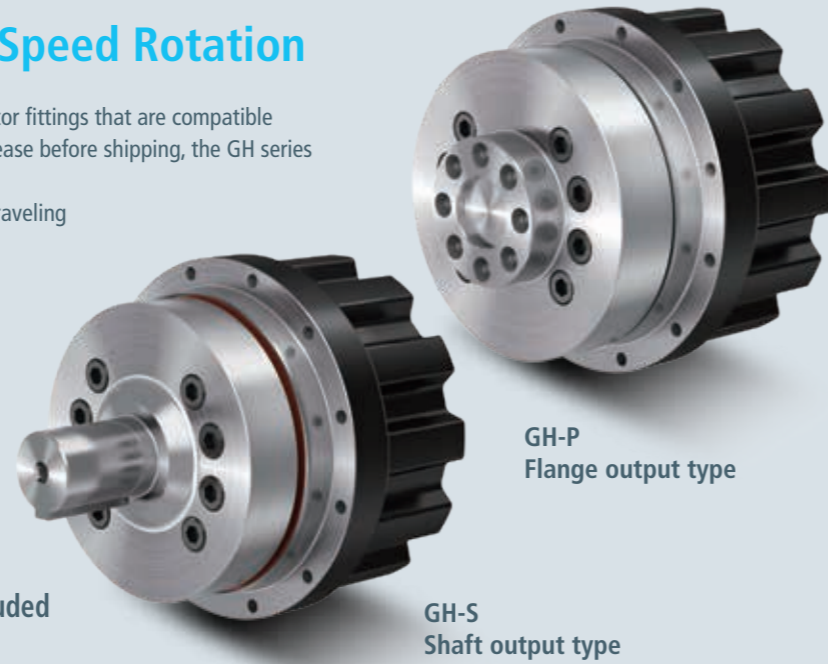


Gearhead Model for High Speed Rotation

High speed precision reduction gearhead model. With motor fittings that are compatible with major servomotor manufacturers and sealed with grease before shipping, the GH series design creates a convenient package for our customers. This gearhead can be used in many applications such as traveling shafts and lifting shafts.

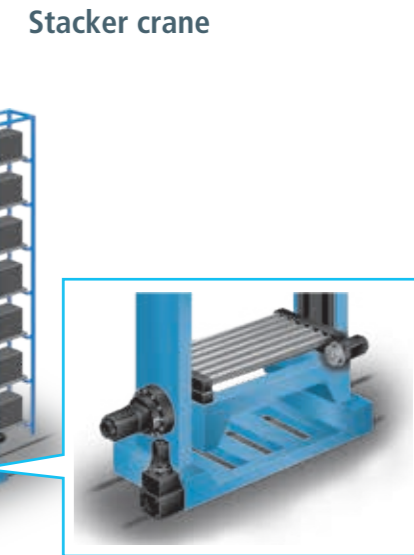
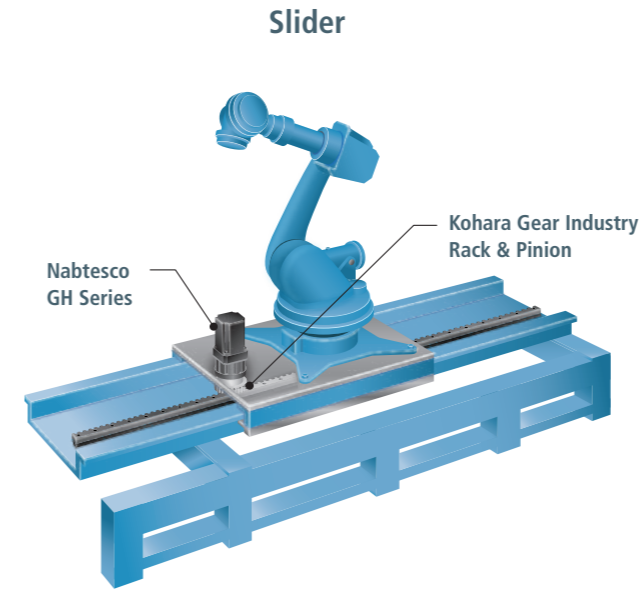
FEATURES

- High speed rotation
- Enhanced shock load resistance
- Reduced cycle time (Rapid acceleration and deceleration)
- Internal main bearing
- Major servomotor fastener components included
- Completely sealed and pre-lubricated



GH-P
Flange output type

GH-S
Shaft output type



GH SPECIFICATION

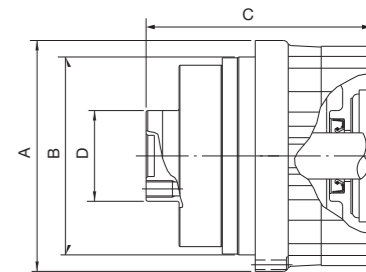
Model GH-	7	17	24	40	100
Standard ratio	11* 21 31*	11 21 31	11 21 31	11* 21 31*	20.375 31.4
Rated torque (Nm)	69	167	235	392	980
Allowable acceleration/ deceleration torque (Nm)	206	500	706	1,176	2,942
Momentary max. allowable torque (Nm)	480	1,166	1,646	2,744	6,865
Rated output speed (rpm)	50	50	50	50	50
Allowable output speed: Duty ratio 30% (reference value) (rpm)	270	270	250	250	135
Rated service life (h)	6,000	6,000	6,000	6,000	6,000
Backlash/Lost motion (arc.min.)	6/6	6/6	6/6	6/6	10/10
Torsional rigidity (reference value) (Nm/arc.min.)	20	45	65	108	382
Allowable moment (Nm)	460	804	843	1,823	4,900
Allowable thrust load (N)	1,372	1,960	2,940	2,940	5,586

* The speed ratio is 1/XX and indivisible. For more details, please contact us.

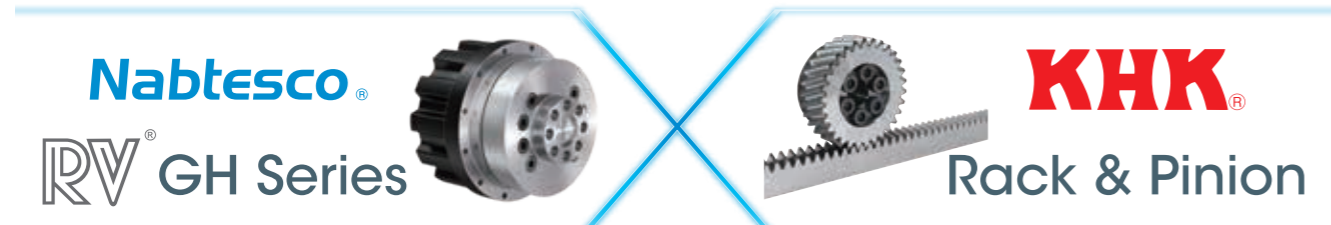
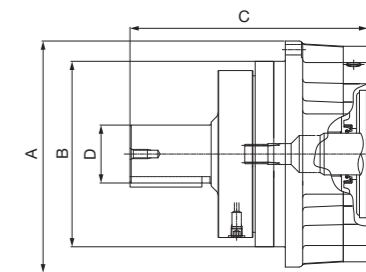
GH DIMENSIONS

Model GH-	7	17	24	40	100	
A (Ømm)	140	180	195	240	382	
B (Ømm)	120h7	151h7	160h7	200h7	310h7	
C (mm)	GH-P	136.2	157	146	202.2	237
	GH-S	158.2	200.2	205	281.2	-
D (Ømm)	GH-P	55h7	72h7	42js6	108h7	144h7
	GH-S	28h6	38h6	50h6	60h6	-
Weight (kg)	GH-P	8	15.5	15.5	35.5	90
	GH-S	8.1	15.6	17	37.9	-

GH-P Flange output type



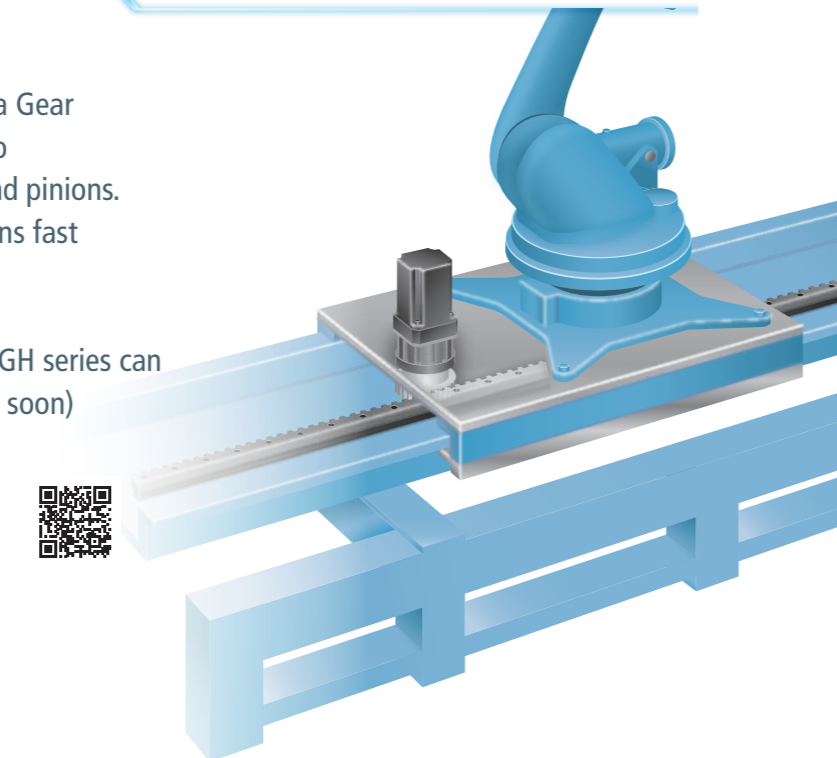
GH-S Shaft output type



A collaboration between Nabtesco and KHK (Kohara Gear Industry) to offer a complete solution with Nabtesco Precision Reduction Gear RV™ and KHK gear rack and pinions. Both companies offer a standard lineup, which means fast delivery and no time needed for design.

The optimum KHK rack and pinion products for the GH series can be selected on our website. (English version coming soon)

Please use this QR code to access further details on rack and pinion products.



RA-EA/EC

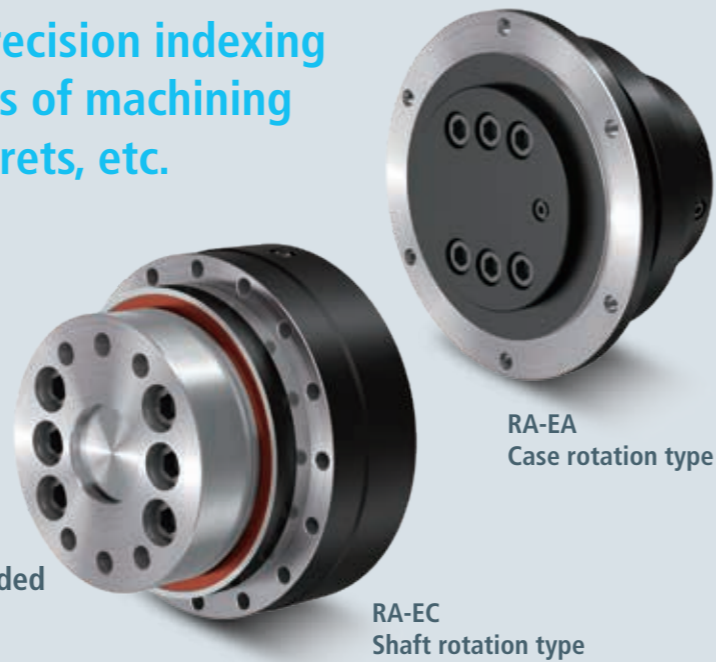
PRODUCT WEB SITE



Gearhead that ensures high precision indexing of the ATC arms and magazines of machining centers, tool posts of lathe turrets, etc.

FEATURES

- Backlash ≤ 1 arc.min.
- Lost motion ≤ 1 arc.min.
- Internal main bearing
- Major servomotor fastener components included
- Completely sealed and pre-lubricated



RA-EA
Case rotation type

RA-EC
Shaft rotation type

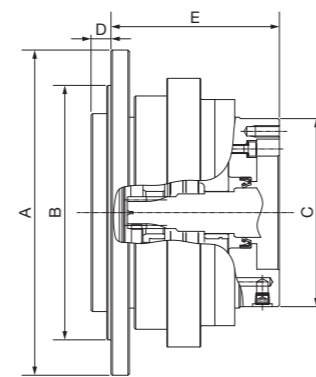
RA-EA/EC SPECIFICATION

Model RA-		20EA/20EC	40EA/40EC	80EA/80EC	160EA/160EC
Standard ratio	EA	80, 104, 120, 140, 160	80, 104, 120, 152	80, 100, 120, 152	80, 100, 128, 144, 170
	EC	81, 105, 121, 141, 161	81, 105, 121, 153	81, 101, 121, 153	81, 101, 129, 145, 171
Rated torque (Nm)		167	412	784	1,568
Allowable acceleration/deceleration torque (Nm)		412	1,029	1,960	3,920
Momentary max. allowable torque (Nm)		833	2,058	3,920	7,840
Rated output speed (rpm)		15	15	15	15
Allowable output speed: Duty ratio 40% (reference value) (rpm)		75	70	70	45
Rated service life (h)		6,000	6,000	6,000	6,000
Backlash/Lost motion (arc.min.)		1/1	1/1	1/1	1/1
Torsional rigidity (reference value) (Nm/arc.min.)		49	108	196	392
Allowable moment (Nm)		882	1,666	2,156	3,920
Allowable thrust load (N)		3,920	5,194	7,840	14,700

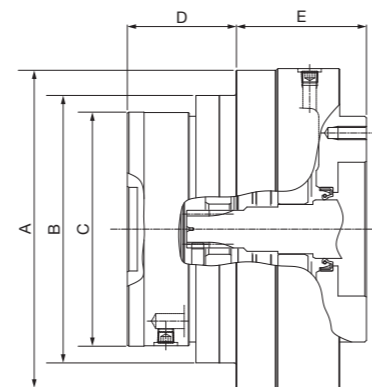
RA-EA/EC DIMENSIONS

Model RA-		20EA/20EC	40EA/40EC	80EA/80EC	160EA/160EC
A (Ømm)		175/150	230/192	260/226	325/290
B (Ømm)		140h7/124h7	180h7/160h7	210h7/190h7	270h7/240h7
C (Ømm)		124h7/110h7	160h7/140h7	190h7/170h7	240h7/210h7
D (mm)		17/59.1	14/65	16/77	15/108
E (mm)		93.6/59	119.1/78	127/72	168/85.5
Weight (kg)		10/9.5	18.5/20	28/27	58/59

RA-EA Case rotation type



RA-EC Shaft rotation type



HR

Vacuum Sealing Unit

HR series gearhead units combine a lip type vacuum seal and Precision Reduction Gear RV™ in a single highly compact device. They use a contact type lip that does not burst, helping to improve the safety and assembly times of robots and other equipment for transporting items such as FPDs and wafers.

FEATURES

- Support of high vacuums
- Compact and easy to install and operate
- Non-bursting, contact type lip seal



HR SPECIFICATION

Model HR	Vacuum sealing
Ref. degree of vacuum (Pa)	1.0×10^{-5}
He leak rate (Pa·m ³ /s)	1.0×10^{-10}
Heat resistant temperature (°C)	80
Cleanliness	Class10(ISO 4)
Recommended maintenance cycle	27,000 rotations or 2.5 years, whichever comes first
Allowable speed (rpm)	20 (However, the heat resistant temperature should not be exceeded)

Gearhead Unit for High Vacuums

All-in-One

Lip type vacuum seal
Shaft diameter: Ø27 to 285

RV™ / RD2

Servomotor (Prepared by customer)

Slim right angle input gearhead with brake assist



FEATURES

- Operation of brakes even during power outages for greater safety and security
- Safety mechanism equipped with brake assist
- Space-saving design with a right angle input shaft
- Compatible with many servomotors
- Easy installation

RT-G SPECIFICATION

Model RT-G	380N	500N
Reduction speed ratio (case rotation)	6,900	6,100
Rated torque (Nm)	9,310	12,250
Max torque (Nm)	9,310	12,250
Allowable input speed (rpm)	1,800	1,800
Backlash/Lost motion (arc.min.)	1.5/1.5	1.5/1.5
Allowable moment (Nm)	7,050	11,000
Allowable thrust load (N)	25,000	32,000

Opening and closing of large electric doors



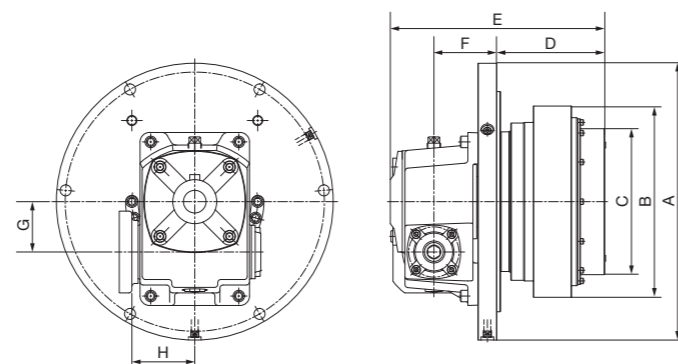
Opening and closing of lids for steel production equipment



RT-G DIMENSIONS

Model RT-G	380N	500N
A (Ømm)	440	460
B (Ømm)	304	325
C (Ømm)	232	256
D (mm)	172	168
E (mm)	341	338
F (mm)	100	100
G (mm)	80	80
H (mm)	120	120
Weight (kg)	112	125

RT-G



Customizations of our current lineup

We are already creating customized versions of some Nabtesco products in response to customer requests. Let's look at some examples.

Example of customization

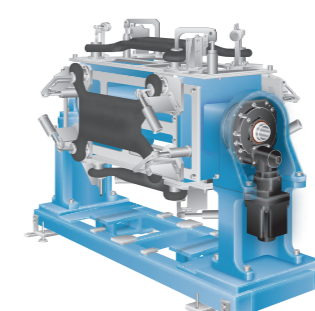
Improving facial runout smaller

For customers who require greater accuracy during rotation, we are able to more precisely machine the shaft surfaces of our Precision Reduction Gear RV™ to be mounted on our customers' base units. This processing creates smoother surfaces and significantly improves the accuracy of facial runout during rotation!

Applications



5-axis MC



Welding Positioner



Antenna

Example of customization

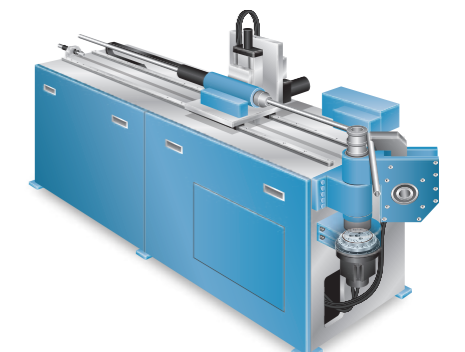
Adjusting for lost motion

For customers who desire even greater positioning accuracy, we can adjust our products to keep lost motion within half the normal level. The modification delivers a major improvement in repeatability!

Applications



Welding robots



Machine tools

For any requests, please contact our sales department directly or apply via our Website.

AF-N/C

PRODUCT WEB SITE



AF-N



AF-C



VIDEO

A highly compact actuator that is directly connected to a servomotor

AF series models combine a Precision Reduction Gear RV™ and servomotor in a single compact unit that delivers outstanding accuracy, rigidity and reliability.

This series features a built-in drive unit, which greatly simplifies the process of designing how to integrate and assemble them into the equipment and also significantly improves ease of use.

FEATURES

Fully integrated with Panasonic servomotor

Completely sealed and pre-lubricated

Solid shaft & hollow shaft

High accuracy (backlash ≤ 1 arc.min.)

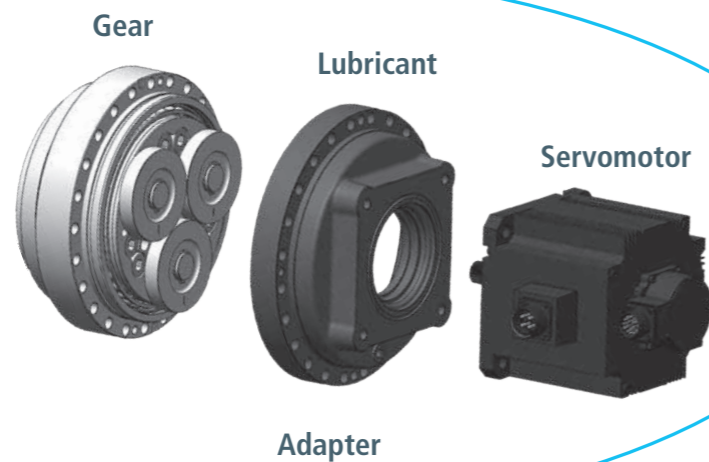
Compact body



BENEFITS

Reduction of Required Parts & Assembly Time

All-in-One



AF-N SPECIFICATION

Model AF-	17N	17N	42N	42N	80N	125N	380N	500N
Motor	Panasonic Corporation							
Manufacturer	Panasonic Corporation							
Series	A6							
Representative model	MHMF042L2	MDMF102L3	MDMF102L2	MDMF152L2	MDMF202L2	MHMF302L3	MDMF402SC	MDMF402L2
Rated capacity (kW)	0.4	1.0	1.0	1.5	2.0	3.0	4.0	4.0
Brake	With/Without	With	With	With	With	With	With	With
Encoder spec.	Single rotation: 23 bit absolute Multi-rotation: 16 bit (battery backup)							
Power voltage	200 to 230V AC+10%, -15% 50/60Hz							
Standard ratio	81	126	126	126	129	1,737/17	1,525/7	757/3
Rated torque (Nm)	82	415	481	722	986	1,169	3,329	3,856
Momentary max. torque (Nm)	289	415	1,029	1,029	1,960	3,062	9,310	11,567
Rated output speed (rpm)	37	15.9	15.9	15.9	15.5	19.6	9.2	7.9
Momentary max. speed (rpm)	80.2	31.7	31.7	31.7	31	39.1	17.4	15.1
Brake holding torque (Nm)	-/130	1,726	1,726	1,726	1,767	2,554	5,447	6,308
Allowable load inertia moment (kgm ²)	11	117	117	164	221	473	2,472	3,311
Backlash/Lost motion (arc.min.)	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Torsional rigidity (reference value) (Nm/arc.min.)	36	36	113	113	212	334	948	1,620
Allowable moment (Nm)	784	784	1,660	1,660	2,150	3,430	7,050	11,000
Allowable thrust load (N)	2,610	2,610	5,220	5,220	6,530	13,000	25,000	32,000

AF-N DIMENSIONS

Model AF-	17N (0.4 kW)	17N (1.0 kW)	42N (1.0 kW)	42N (1.5 kW)	80N	125N	380N	500N
A (Ømm)	133	133	159	159	189	221	295	325
B (Ømm)	94h7	94h7	118h7	118h7	140h7	160h7	222h7	253h7
C (mm)	189 / 218.3 With/Without	249.2	255	269	293.4	331.4	384.15	390
D (□mm)	60	130	130	130	130	176	176	176
Weight (kg)	7.2 (6.8)	15	16	17	26	39.7	75.1	91.1

The value in brackets is the specification for the type without a brake.

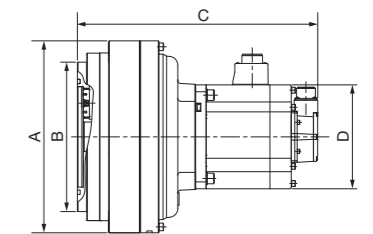
AF-C SPECIFICATION

Model AF-	50C	120C	200C	320C	320C
Motor	Panasonic Corporation				
Manufacturer	Panasonic Corporation				
Series	A6				A5
Representative model	MDMF102L2	MDMF202L2	MHMF302L2	MHMF502L3	MDME502SC
Rated capacity (kW)	1.0	2.0	3.0	5.0	5.0
Brake	Without	Without	With	With	With
Encoder spec.	Single rotation: 23 bit absolute Multi-rotation: 16 bit (battery backup)				Single rotation: 17 bit absolute Multi-rotation: 16 bit (battery backup)
Power voltage	200 to 230V AC+10%, -15% 50/60Hz				
Standard ratio	2289/19	120	155.96	157	157
Rated torque (Nm)	460	917	1,784	3,002	3,002
Momentary max. torque (Nm)	1,225	2,746	4,900	7,840	7,840
Rated output speed (rpm)	16.6	16.7	12.8	12.7	12.7
Momentary max. speed (rpm)	33.2	33.3	25.6	22.3	19.1
Brake holding torque (Nm)	-	-	3,899	6,924	3,847
Allowable load inertia moment (kgm ²)	84	158	1,057	1,763	1,216
Backlash/Lost motion (arc.min.)	1/1	1/1	1/1	1/1	1/1
Torsional rigidity (reference value) (Nm/arc.min.)	255	588	980	1,960	1,960
Allowable moment (Nm)	1,764	3,920	8,820	20,580	20,580
Allowable thrust load (N)	11,760	15,680	19,600	29,400	29,400

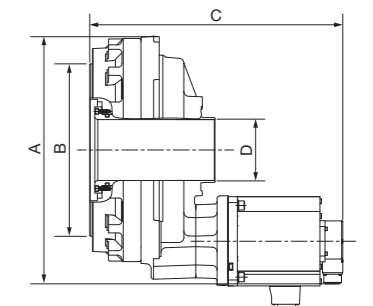
AF-C DIMENSIONS

Model AF-	50C	120C	200C	320C	320C
A (mm)	284	317.5	418	491.5	491.5
B (Ømm)	176h7	199h7	260h7	340h7	340h7
C (mm)	303	354.1	467.5	508.5	499
D (Ømm)	48	61	75	120	120
Weight (kg)	32	43	113	164	163

AF-N



AF-C



RT-N/E

Opening/closing actuator for heavy items that supports ultra-high reduction speed ratio of 5,000 or more.

Designed to deliver a high reduction ratio, compactness, and high precision. Featuring an integrated servomotor and pre-lubricated, significantly enhancing user convenience and saving time.

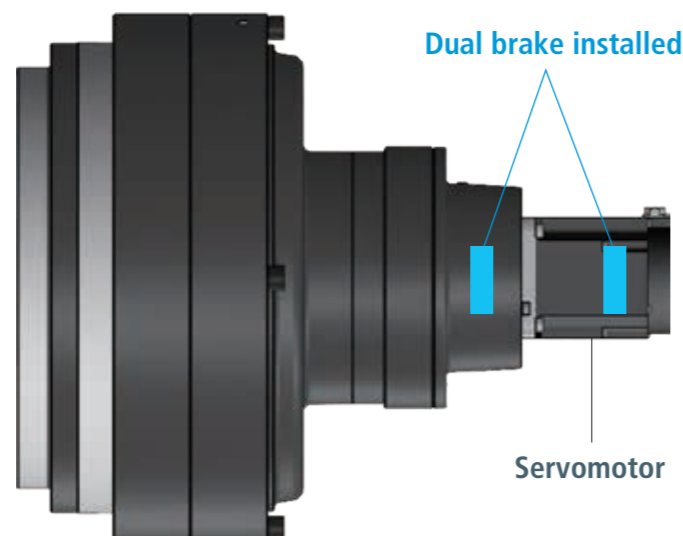
FEATURES

- Fully integrated with Mitsubishi Electric servomotor
- Pre-lubricated
- High reduction speed ratio
- High accuracy (backlash ≤ 1 arc.min.)
- Compact body



BENEFITS

Safe double brake specification



RT-N/E SPECIFICATION

The rotation axis can only be installed in the horizontal direction (as shown in Figure on page 43).

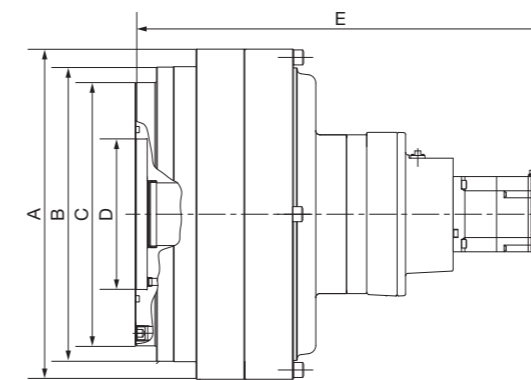
Model RT-	80E	160E	320E	450E	700N	1500E
Motor	Mitsubishi Electric Corporation					
Manufacturer	Mitsubishi Electric Corporation					
Model	HK-KT43UWBK		HK-KT7M3UWBK		HK-KT153WBK	
Rated capacity (kW)	0.4		0.75		1.5	
Brake rated voltage (V)	DC24V $\pm 10\%$					
Actuator brake rated voltage (V)	DC24V $\pm 10\%$					
Standard ratio	5,757	6,561	5,757	8,181	11,254.33*	13,468.76*
Rated torque (Nm)	1,960	3,920	7,840	11,025	17,286	36,366
Maximum torque (Nm)	1,960	3,920	7,840	11,025	17,500	36,750
Rated output speed (rpm)	0.521	0.457	0.521	0.367	0.266	0.223
Maximum output speed (rpm)	0.625	0.548	0.625	0.440	0.320	0.267
Brake holding torque (Nm)	1,960	3,920	7,840	11,025	17,500	36,750
Allowable load inertia moment (kgm ²)	28,636	37,192	81,200	163,975	310,317	1,284,365
Backlash/Lost motion (arc.min.)	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Allowable moment (Nm)	2,156	3,920	7,056	8,820	15,000	44,100
Allowable thrust load (N)	7,840	14,700	19,600	24,500	44,000	51,000

*The speed ratio is 1/XX and indivisible. For more details, please contact us.

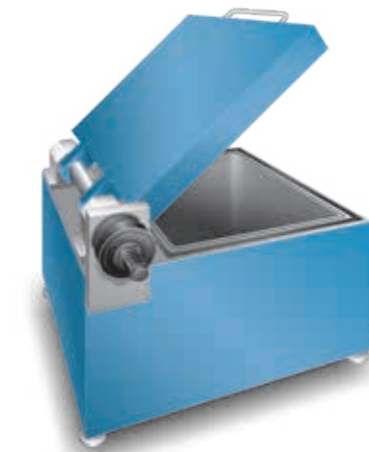
RT-N/E DIMENSIONS

Model RT-	80E	160E	320E	450E	700N	1500E
A (Ømm)	222	280	325	370	395	570
B (Ømm)	190h7	240h7	284h8	328h7	353h7	494h7
C (Ømm)	170	235 $_{-0.2}^0$	280 $_{-0.2}^0$	326 $_{-0.2}^0$	315h7	235 $_{-0.057}^{+0.094}$
D (Ømm)	62h7	-	-	-	180H7	-
E (mm)	378.6	401.5	443.3	459.8	488.8	611.1
Weight (kg)	40	62	107	140	199	377

RT



Cover open/close and reverser



RVP-A

PRODUCT
WEB SITE



RVP-A



VIDEO

2-axis positioner unit

"Compatible with various robot external motors" enables collaborative work with many different robots. Installation of Precision Reduction Gear RV™ helps to reduce cycle times and allows the use of small motors.

FEATURES

- Able to choose from multiple reduction ratios
- Compatible with various robot external axis motors
- Additional parts such as covers are available
- Completely sealed and pre-lubricated
- High-speed, high accuracy positioning
- Grounding unit for welding equipped

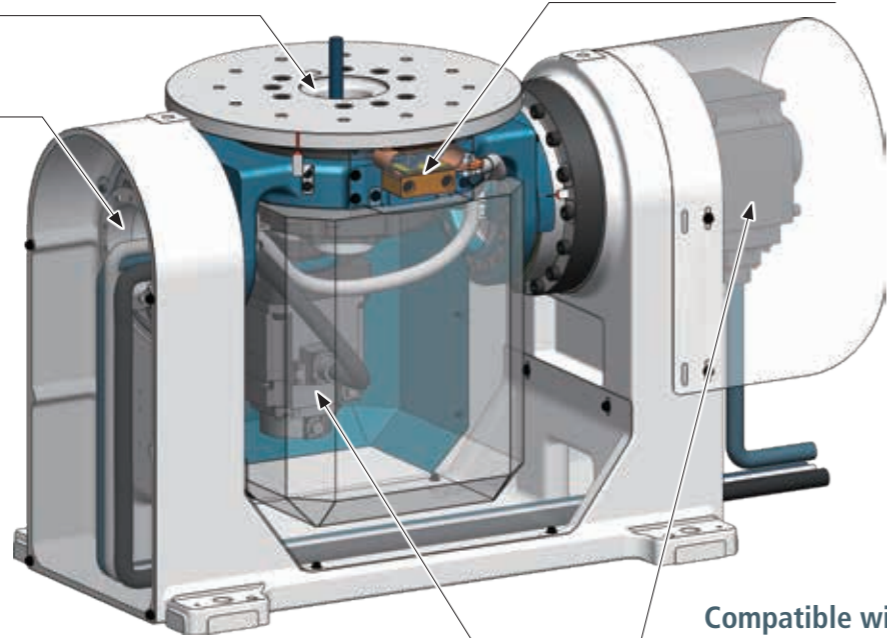


Name of each section

Hollow diameter
(Ø61 mm)

Hollow diameter
(Ø105 mm)

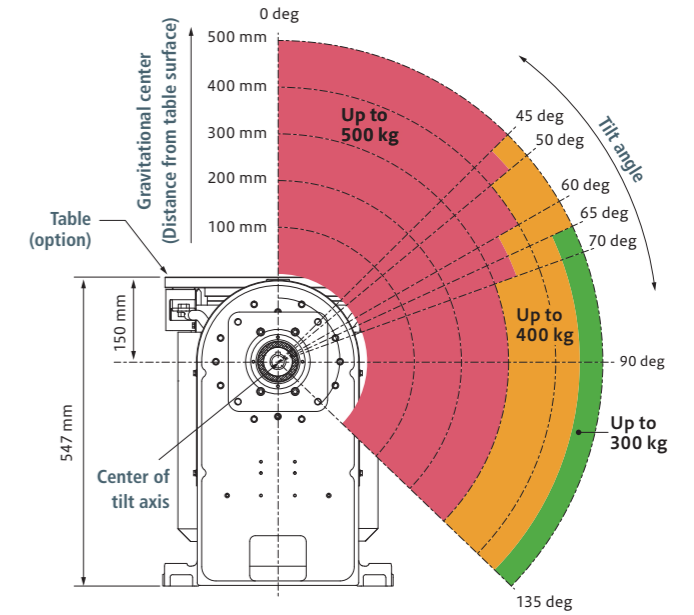
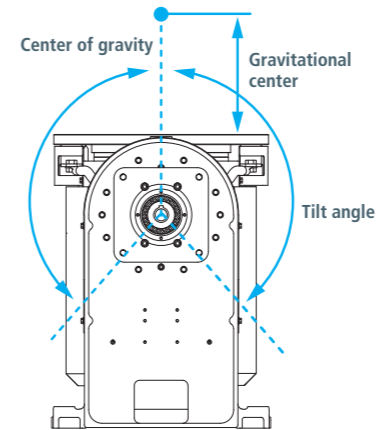
Grounding unit



Compatible with various
robot external axis motors

Center of Gravity Height and Allowable Load Range

Note 1: Loading beyond this range will exceed the allowable acceleration/ deceleration torque and/or allowable moment of the reduction gear, and may damage the reduction gear.
Note 2: Loads given are reference values.



RVP-A SPECIFICATION

Model RVP-A		05E-S	05E-F
Reduction speed ratio	Rotary axis	150	100.5
	Tilting axis	156	102.81*
Rated torque (Nm)	Rotary axis	980	
	Tilting axis	1,600	
Allowable acceleration/ deceleration torque (Nm)	Rotary axis	2,450	
	Tilting axis	4,000	
Momentary max. allowable torque (Nm)	Rotary axis	4,900	
	Tilting axis	8,000	
Rated output speed (rpm)	Rotary axis	15	
	Tilting axis	15	
Allowable output speed (reference value) (rpm)	Rotary axis	20	30
	Tilting axis	48	48
Rated service life (h)		6,000	6,000
Backlash/Lost motion (arc.min.)	Rotary axis	1/1	1/1
	Tilting axis	1/1	1/1
Allowable moment (Nm)		2,450	

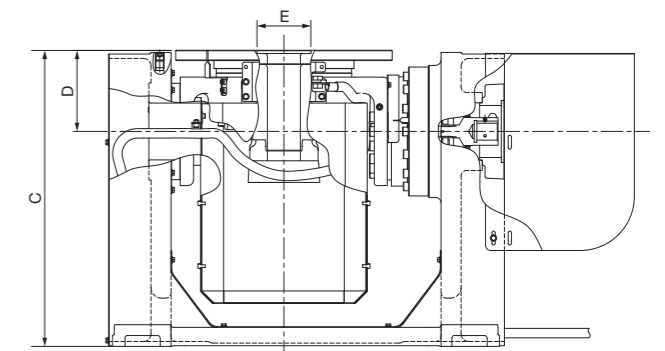
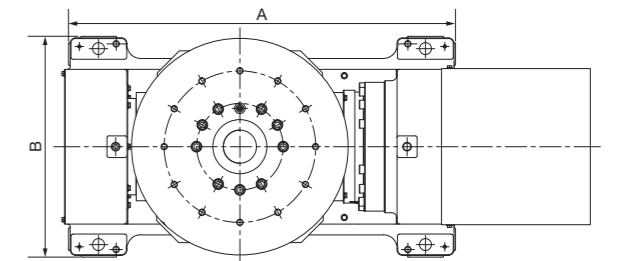
* The speed ratio is 1/XX and indivisible. For more details, please contact us.

RVP-A DIMENSIONS

Model RVP-A	05E-S	05E-F
A (mm)	715	715
B (mm)	408	408
C (mm)	547	547
D (mm)	150	150
E (Ømm)	100H7	100H7
Weight (kg)*	232	232

* The weight of the input gear and motor flange is not included.

RVP-A



RVP-B

PRODUCT
WEB SITE



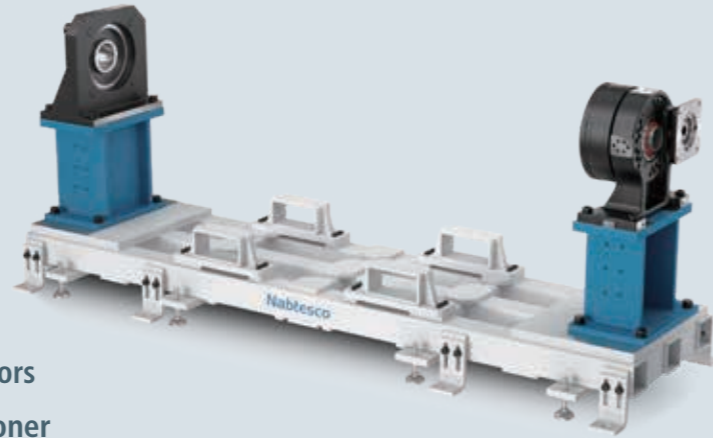
RVP-B



VIDEO

BBQ positioner unit

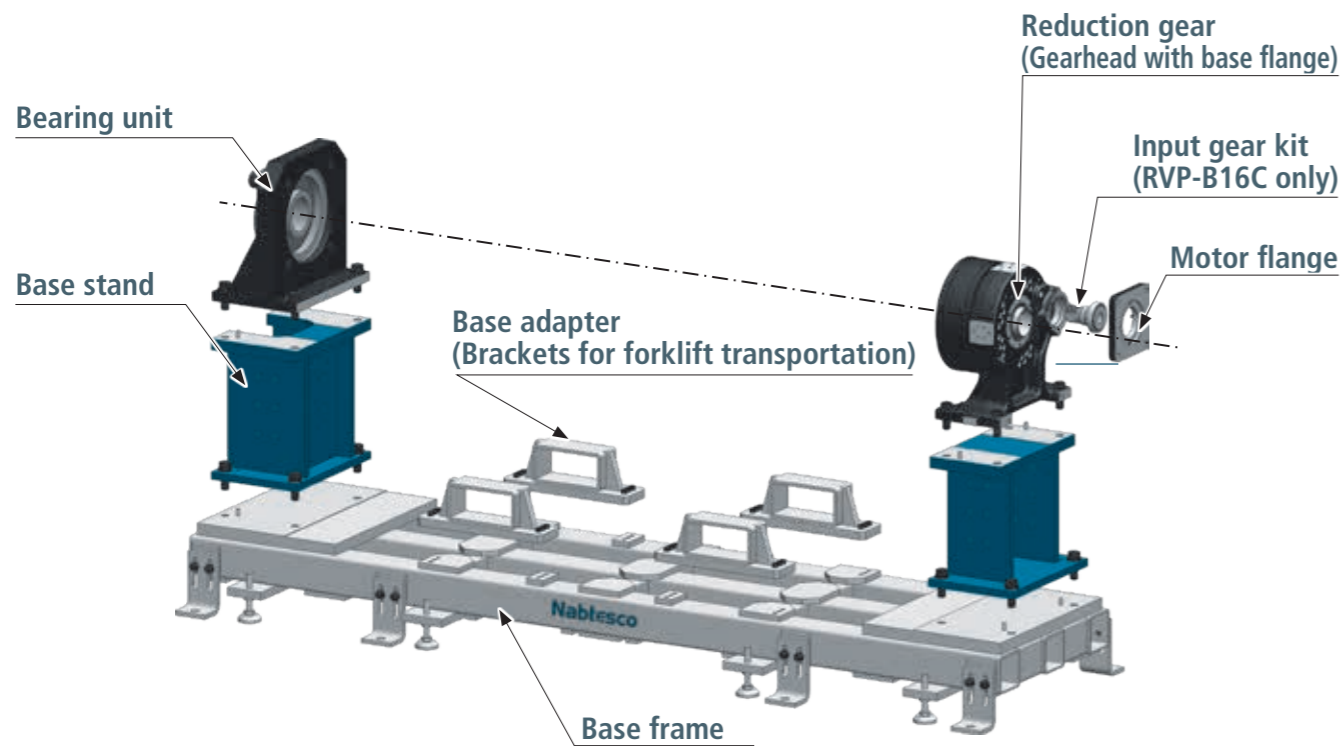
The BBQ positioner unit includes the optimal gearhead with base flange. All major parts are included, man-hours needed for design and production can be reduced. Furthermore, the high-rigidity, shock resistant frame allows for easy transportation and handling.



FEATURES

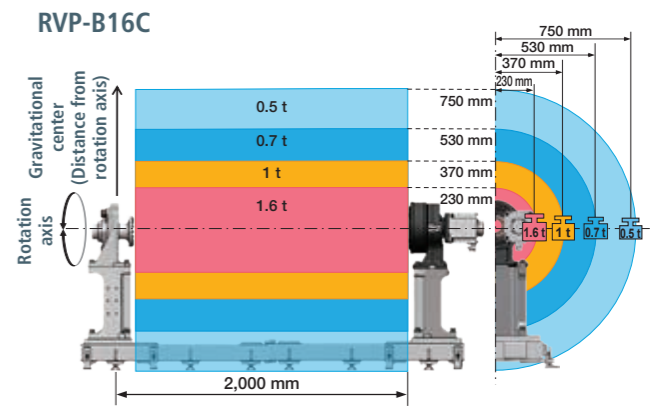
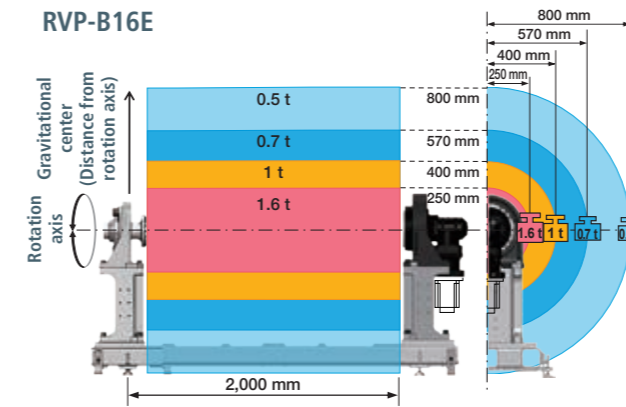
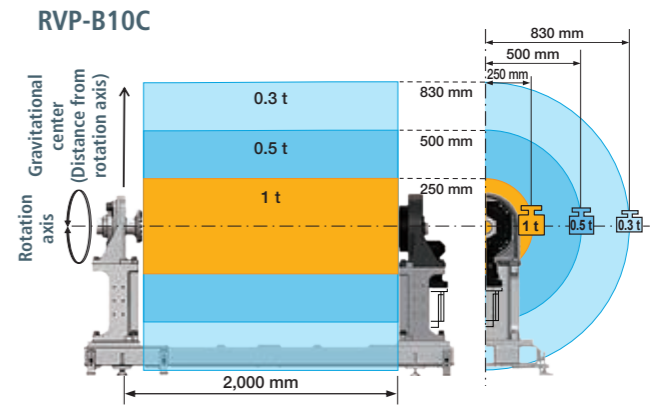
- Able to choose from multiple reduction ratios
- Compatible with various robot external axis motors
- Includes all main parts needed for BBQ positioner
- Completely sealed and pre-lubricated
- High shock resistance frame

Name of each section



Center of Gravity Height and Allowable Load Range

Note 1: Loading beyond this range will exceed the allowable moment of the reduction gear, and may damage the reduction gear.
Note 2: Loads given are reference values.



RVP-B SPECIFICATION

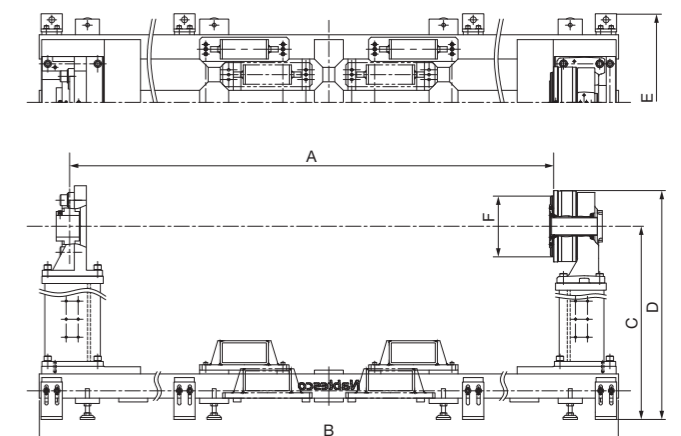
Model RVP-B	10C	16E	16C
Standard ratio	100.5	66	78.3
	150	81	104.4
	210	101	120.46
	258	121	
Rated torque (Nm)	980	1,568	1,470
Allowable acceleration/deceleration torque (Nm)	2,450	3,920	3,675
Momentary max. allowable torque (Nm)	4,900	7,840	7,350
Rated output speed (rpm)	15	15	15
Allowable output speed (reference value) (rpm)	30	30	51
Rated service life (h)	6,000	6,000	6,000
Backlash/ Lost motion (arc.min.)	Input shafts other than right angle type	1/1	1/1
	Right angle input shaft	1.5 / 1.5	1.5 / 1.5

RVP-B DIMENSIONS

Model RVP-B	10C	16E	16C
A (mm)	2,000/2,500*1	2,000/2,500*1	2,000/2,500*1
B (mm)	2,400/2,900	2,400/2,900	2,400/2,900
C (mm)	800/1,000*1	800/1,000*1	800/1,000*1
D (mm)	987/1,187	987/1,187	947.5/1,147.5
E (mm)	734	734	734
F (Ømm)	199h7	280h7	250h7
Weight (kg) ²	618 to 662	624 to 687	641 to 678

*1 The length between shafts and shaft height can be selected.
*2 The weight of the motor flange is not included.

RVP-B



RVP-C

PRODUCT
WEB SITE



RVP-C



VIDEO

Variable tilt angle turntable unit

A human centered design improves the workability, reducing the burden on workers and the time required for setting the part, and improving mixed model production.

Also, areas previously unreachable by robots can now be accessed by tilting the table and varying the height.

FEATURES

Compatible with various robot external axis motors

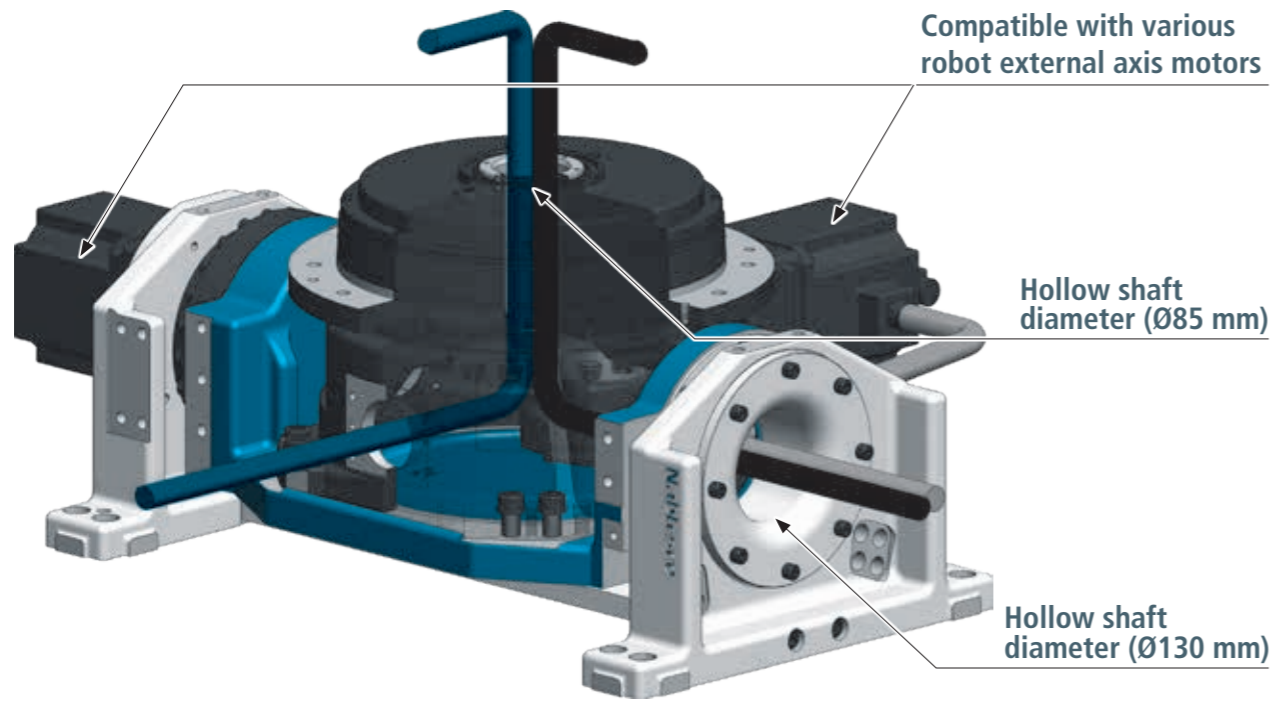
A wide variety of options are available

Completely sealed and pre-lubricated

The table can be tilted



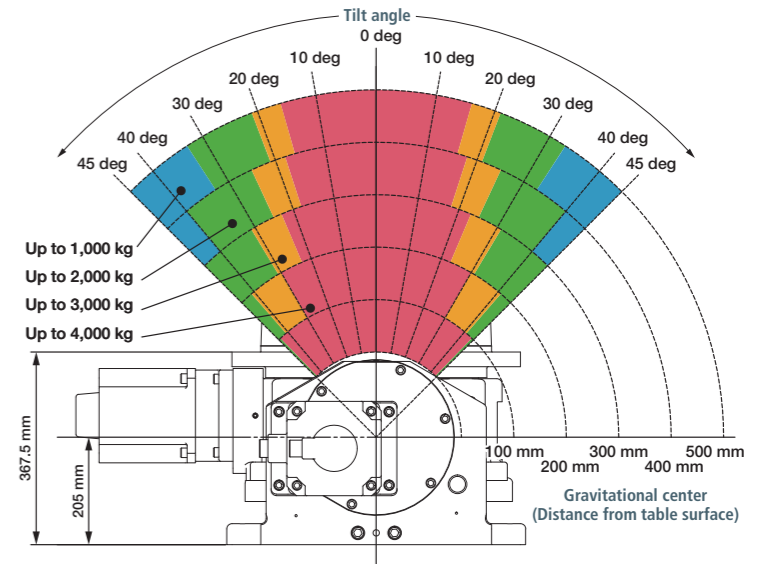
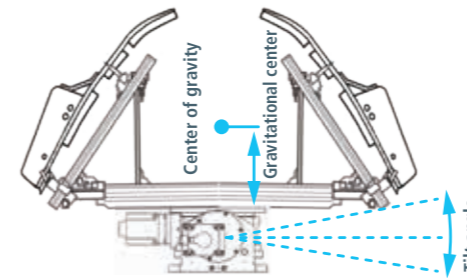
Cable Layout Example



Center of Gravity Height and Allowable Load Range

Note 1: Loading beyond this range will exceed the allowable acceleration/ deceleration torque and/or allowable moment of the reduction gear, and may damage the reduction gear.

Note 2: Loads given are reference values.



RVP-C SPECIFICATION

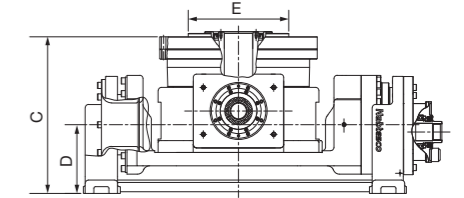
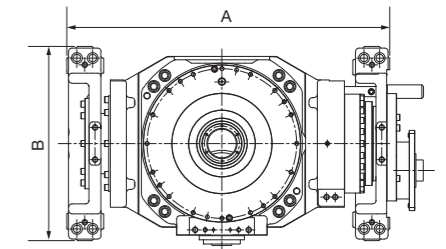
Model RVP-C		40-A	40-B
Standard ratio	Rotary axis	170	170
	Tilting axis	706.5	706.5
Rated torque (Nm)	Rotary axis	3,136	3,136
	Tilting axis	3,724	3,724
Allowable acceleration/ deceleration torque (Nm)	Rotary axis	7,840	7,840
	Tilting axis	9,310	9,310
Momentary max. allowable torque (Nm)	Rotary axis	15,680	15,680
	Tilting axis	18,620	18,620
Rated output speed (rpm)	Rotary axis	15	15
	Tilting axis	15	15
Allowable output speed (reference value) (rpm)	Rotary axis	20	20
	Tilting axis	11.5	11.5
Rated service life (h)		6,000	6,000
Backlash/Lost motion (arc.min.)	Rotary axis	1/1	1/1
	Tilting axis	1/1	1/1
Allowable moment (Nm)		9,310	9,310

RVP-C DIMENSIONS

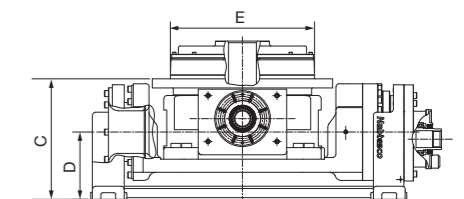
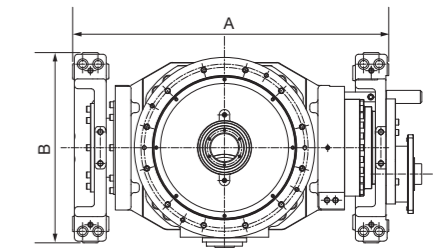
Model RVP-C	40-A	40-B
A (mm)	964	964
B (mm)	580	580
C (mm)	467.5	367.5
D (mm)	205	205
E (Ømm)	300h7	440h7
Weight (kg)*	221	221

* The weight of the input gear and motor flange is not included.

RVP-C40-A



RVP-C40-B





AGV Drive Unit

The RVW series' integrated in-wheel design incorporates a reduction gear inside a Mecanum wheel, making it more compact yet still able to support the large loads needed for AGVs.

FEATURES

Loading capacity of 1,960 to 24,500 N

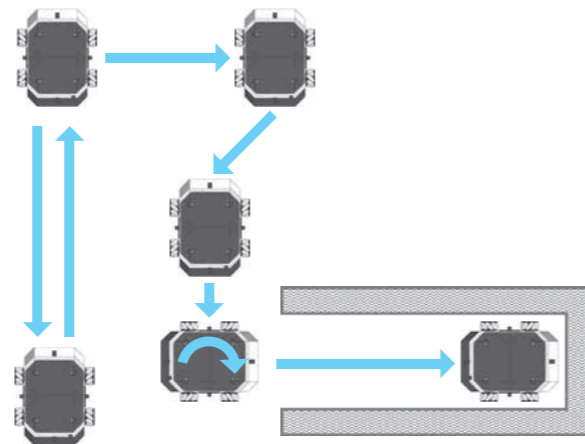
Integrated unit including a Mecanum wheel and reduction gear

In-wheel design



What is the Mecanum concept?

Mecanum AGV can travel smoothly in all directions and change direction freely. Moving into narrow spaces and accurate positioning are possible. It is suitable for applications that require transport within less space and accurate positioning.



Autonomous mobile robot



Assembly and maintenance of railroad vehicles



All-direction lifter Aerial work platform



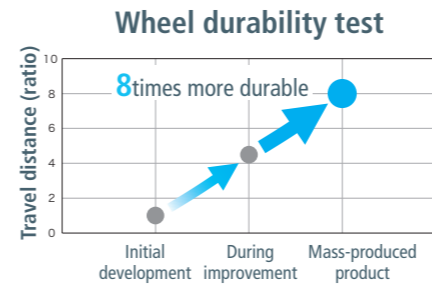
Transport of machines during assembly process

MERITS

High Durability

A structure and materials optimized using CAE analysis and repeated testing ensure high durability

Under a load of 250 kgf at a speed of 60 m/min, the RVW-10PG achieves approx. 8,000 km of travel (reference).

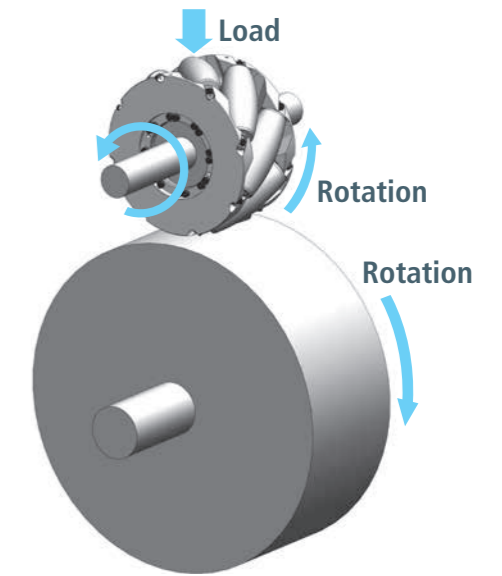
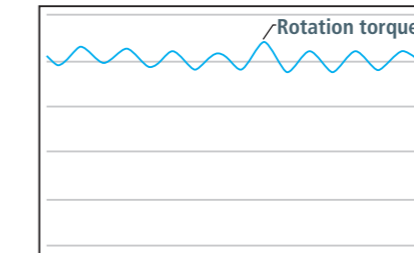


High Quality

We measure the rolling resistance coefficient* of every product and confirm that it is under the threshold before shipment.

*The rolling resistance coefficient (Crr) is calculated by subtracting the load from the rotation torque (T) of one wheel revolution.

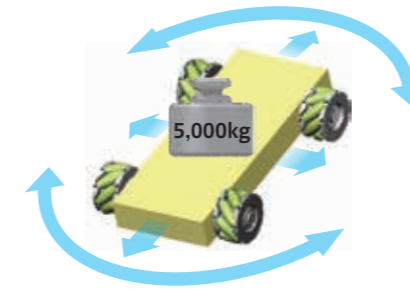
$$Crr = \frac{T}{r \times F} \quad (r: \text{wheel radius, } F: \text{load})$$



High Payload

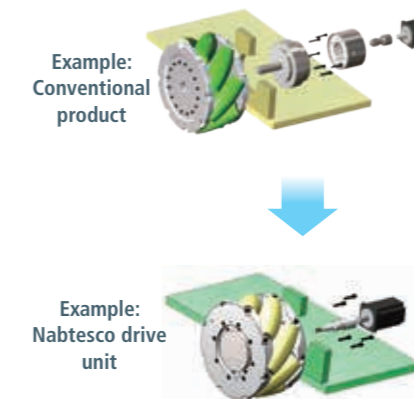
With Mecanum wheels, heavy objects can be easily transported! Mecanum wheel suitable for high loads

Example (RVW-20PG)
Loading capacity 2,500 kgf / Mecanum wheel



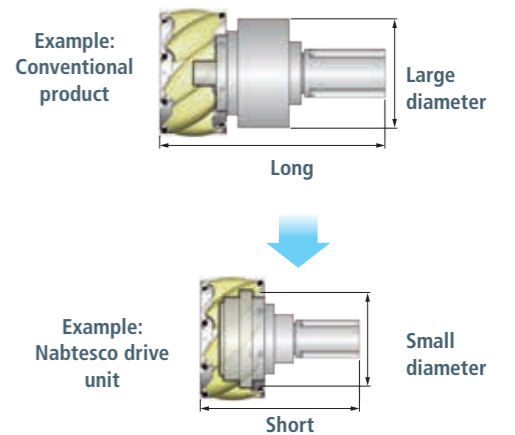
Easy installation

Mecanum AGV assembly made simple! Just install the Mecanum Wheel Drive Unit onto the AGV frame.



Compact body

Making compact AGV design possible! Uses an in-wheel structure.



RVW SPECIFICATION

Model RVW-	7PG	10PG	15PG	20PG
Allowable loading capacity/wheel (N) *1	1,960	4,900	14,700	24,500
Max. speed for allowable loading capacity (m/min)	60	60	30 [60*3]	30 [60*4]
Standard ratio	30	34.73	52.8	80
Backlash (arc.min.) *2	12	12	12	12
Lost motion (arc.min.) *2	12	12	12	12
Rated torque (Nm)*2	7	100	350	1,225
Allowable acceleration/deceleration torque (Nm)*2	16	300	1,050	2,000

*1 When the vehicle incorporates four Mecanum wheels, it is recommended that the total weight of the vehicle and its load should be less than three times the allowable loading capacity for one wheel, after taking into account variations in load distribution due to road surface conditions, etc.

*2 Performance of the reduction gear unit.

*3 Speed at a load of 7,350 N/wheel or less.

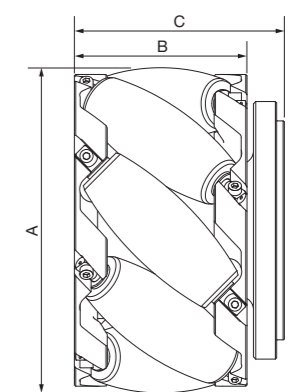
*4 Speed at a load of 12,250 N/wheel or less.

RVW DIMENSIONS

Model RVW-	7PG	10PG	15PG	20PG
A (Ømm)	178	254	381	508
B (mm)	96	134	200	278
C (mm) *5	118	166	234	308
Weight (kg) *5	12	32	104	210

*5 Subject to change depending on motor.

RVW



LUBRICANTS



The Safety Data Sheets (SDS) can be downloaded from each product page.

RVGREASE™ LB00

Improved low temperature characteristic based on the existing VIGOGREASE®

This high quality grease offers superior lubricating performance, with special properties that enable smooth rotation even during low temperature, low speed operation. Compared to existing greases, it provides exceptional performance during motor loads occurring under low temperatures, thereby reducing input torque and ensuring excellent rotation.

PRODUCT WEB SITE



RVGREASE™



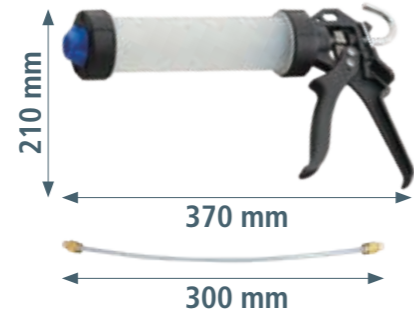
Product appearance:
Set of 10 small 270 g pouches /
16 kg pail / 170 kg drum

Application is extremely easy and efficient with this convenient set! It includes a high power grease gun and disposable size cartridges that do not need refilling.

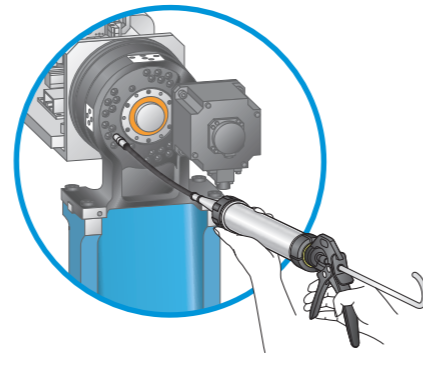
Product appearance: pouch, 270 g
Sold in sets of 10



Special starter kit



Contents of kit: Grease gun, dedicated hose



Usage example

Test items	Test method	RVGREASE™ LB00
Thickener	–	Lithium soap
Base oil	–	Synthetic hydrocarbon oil, Mineral oil
Base oil kinematic viscosity (40°C), mm ² /s	JIS K 2220 23. ASTM D 445	71.8
Appearance	–	Yellowish brown, buttery
Worked penetration	JIS K 2220 7. ASTM D 217	410
Dropping point, °C	JIS K 2220 8. ASTM D 566	188
Oxidation stability (99°C, 100 h), kPa	JIS K 2220 12. ASTM D 942	10
Working stability	JIS K 2220 15. FTMS 791C-313	427
Low-temperature torque (-30°C), mN•m	Drive torque	140
	Rotational torque	30
Four-ball EP, N	L.N.S.L.	1569
	W.P.	3089
	L.W.I.	647
	ASTM D 2596	

Note: The numbers shown above are typical property values, and are not guaranteed.



VIGOGREASE® REO

Precision reduction gears RV™ dedicated lubricating grease

Nabtesco, as a dedicated manufacturer of precision reduction gears, has developed the specific grease for precision reduction gears. Apply the appropriate amount of this lubricant to the Precision Reduction Gear RV™ to achieve its full capability. Considering environmental sustainability, we've replaced the commonly used barium sulfonate as a rust prevention agent with calcium sulfonate.

PRODUCT WEB SITE



VIGOGREASE®



Product appearance:
2kg can / 16 kg pail / 170 kg drum

Test items	Test method	VIGOGREASE® REO
Thickener	–	Lithium soap
Base oil	–	Synthetic hydrocarbon oil, Mineral oil
Base oil kinematic viscosity (40°C), mm ² /s	JIS K 2220 23. ASTM D 445	81.3
Appearance	–	Yellowish brown, buttery
Worked penetration	JIS K 2220 7. ASTM D 217	398
Dropping point, °C	JIS K 2220 8. ASTM D 566	190
Oil-separation property (100, 24h), mass%	JIS K 2220 11. ASTM D 6184 Mod.	17.5
Oxidation stability (99°C, 100 h), kPa	JIS K 2220 12. ASTM D 942	20
Working stability	JIS K 2220 15. FTMS 791C-313	406
Low-temperature torque (-30°C), mN•m	Drive torque	270
	Rotational torque	32
Four-ball EP, N	L.N.S.L.	1236
	W.P.	3089
	L.W.I.	549
	ASTM D 2596	

Note: The numbers shown above are typical property values, and are not guaranteed.

RVOIL™ SB150

An advanced oil that greatly improves both lubricating performance and refilling work

While the need for high lubricating performance and ease of replacement are usually conflicting requirements, SB150 RVOIL™ has achieved an ideal balance by combining newly developed additives with a specialized base oil. This advanced high grade oil has been created as the ultimate lubricant for Precision Reduction Gear RV™, supplying all the required properties. Thanks to its continuing durability and high purity, it can be used without impairing the life of the reduction gear or its lubrication in any way.

PRODUCT WEB SITE



RVOIL™



Product appearance:
20 L can / 200 L drum

Test items	Test method	RVOIL™ SB150
Base oil	–	Synthetic hydrocarbon oil, Mineral oil
Base oil kinematic viscosity (40°C, 100°C), mm ² /s	JIS K 2220 23. ASTM D 445	158 (40°C) 19.4 (100°C)
Viscosity Index	JIS K 2283	140
Appearance	–	Green
Flash point, °C	JIS K 2265-4	260
Rust-preventing characteristic (60°C, 24h)	ISO 7120, JIS K 2510	pass
Corrosiveness to copper (100°C, 3h)	ISO 2160, JIS K 2513	1a
Foaming characteristics (seq-I, 24°C), mL/mL	ISO 6247, JIS K 2518	0/0
Four-ball EP, N	L.N.S.L.	981
	W.P.	1961
	L.W.I.	410
	ASTM D 2783	

Note: The numbers shown above are typical property values, and are not guaranteed.

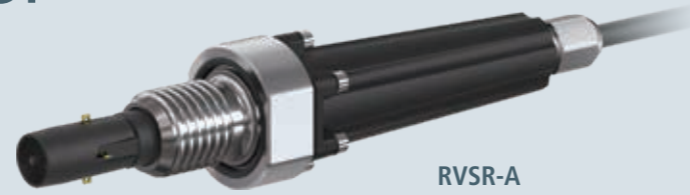


NEW SOLUTIONS

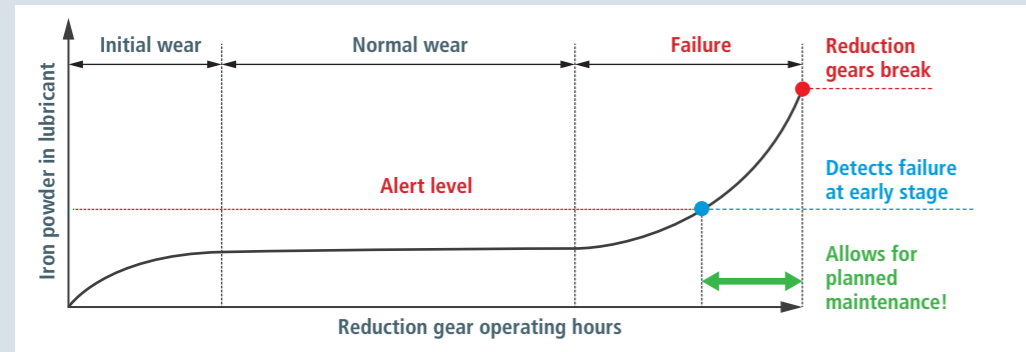
Introduction of developing of dedicated products for specific applications

Failure detection sensor RVSR

Detects the early stages of failure in the Precision Reduction Gear RV™ by monitoring changes in the amount of iron powder in lubricant. This enables planned maintenance before the reduction gear is damaged. Lineup of gearhead series with failure detection also available.

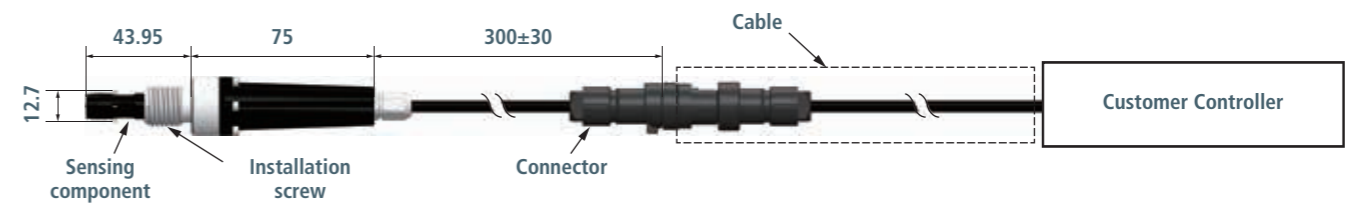


RVSR-A



Failure detection sensor RVSR-A specification

Items	Specification
Alarm Output	●Relay Output (Normal condition: CLOSE, Failure condition: OPEN) ●Max Applied Voltage: DC30V, Max Supply Current: 50mA
Power Supply	DC24V±10%, 0.1A or less
Environment	Temperature:0 ~ 65°C, Humidity: 20 ~ 80% (No condensation)
Vibration Resistance	Max Acceleration:5G, Frequency: 10 ~ 500Hz

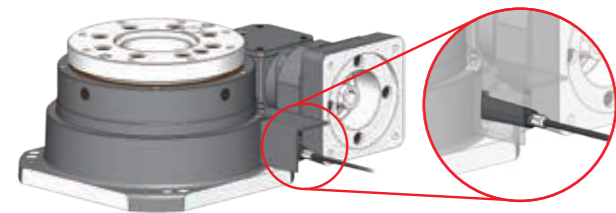


Product Line-up with Failure Detection Function

Note: We can also support models not listed here. Please contact us for more details.

RS series

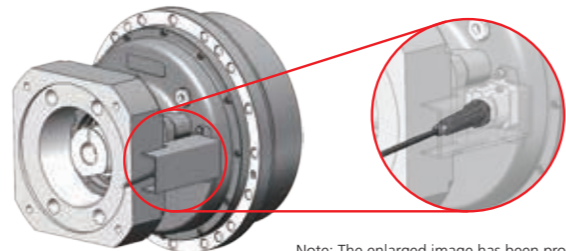
Side sensor model
RS-50A | RS-260A



Note: The enlarged image has been processed to make the cover transparent.

RD2 series

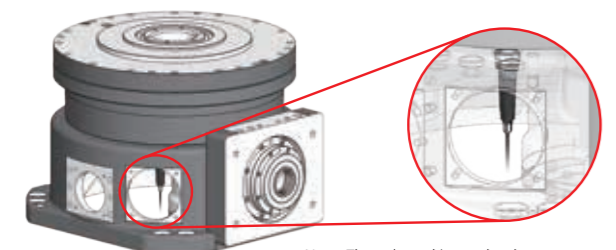
Solid shaft series
RD□-160E | RD□-320E



Note: The enlarged image has been processed to make the cover transparent.

Bottom sensor model

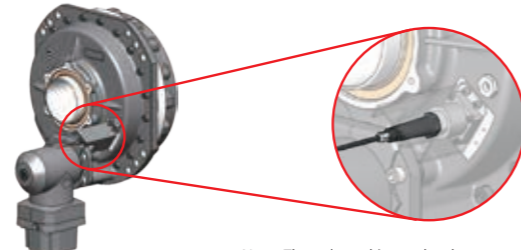
RS-320A | RS-400A | RS-900A



Note: The enlarged image has been processed to make the flange transparent.

Hollow shaft series

RD□-100C | RD□-200C | RD□-320C



Note: The enlarged image has been processed to make the cover transparent.

RH Foot type series

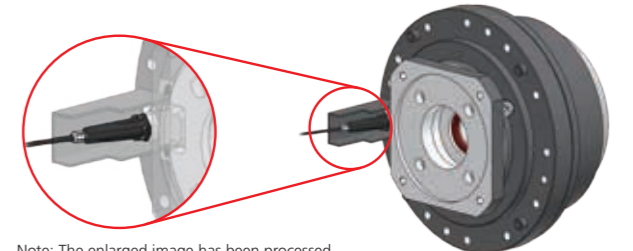
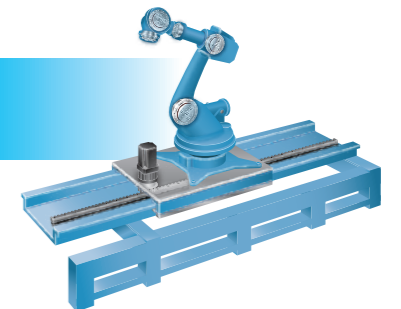
RH-155C-D | RH-155C-R
RH-320CA



Note: The enlarged image has been processed to make the cover transparent.

GH series

GH-100



Note: The enlarged image has been processed to make the flange transparent.

For oil only

For Precision Reduction Gear RV™ exclusive oil RVOIL™ SB150 only

Allows failure detection while maintaining lubrication performance. Even easier to use with good exchangeability.

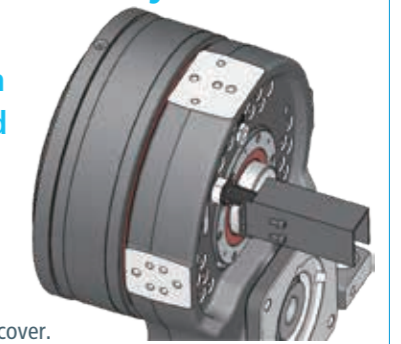
* The RH foot type series and GH series are shipped without lubricant.
* The failure detection function does not work with MOLYWHITE RE00, VIGOGREASE® RE0, or RVGREASA™ LB00.

Safety and Security

Equipped with a sensor protection cover as standard

Protects the sensor in case of emergency.

* Also available without cover.



NEW SOLUTIONS

Introduction of developing of dedicated products for specific applications

Waterproof application equivalent to IP 69K



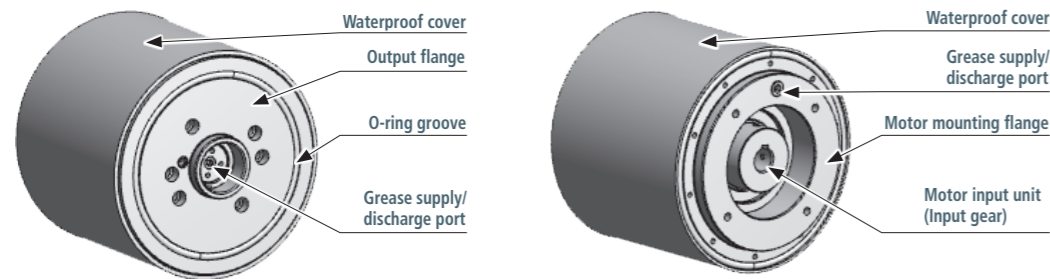
VIDEO



BENEFITS

- Waterproof and rustproof structure
- Compatibility with FDA-certified lubricants
- Fully cleanable stainless steel exterior

Name of each section



Applications

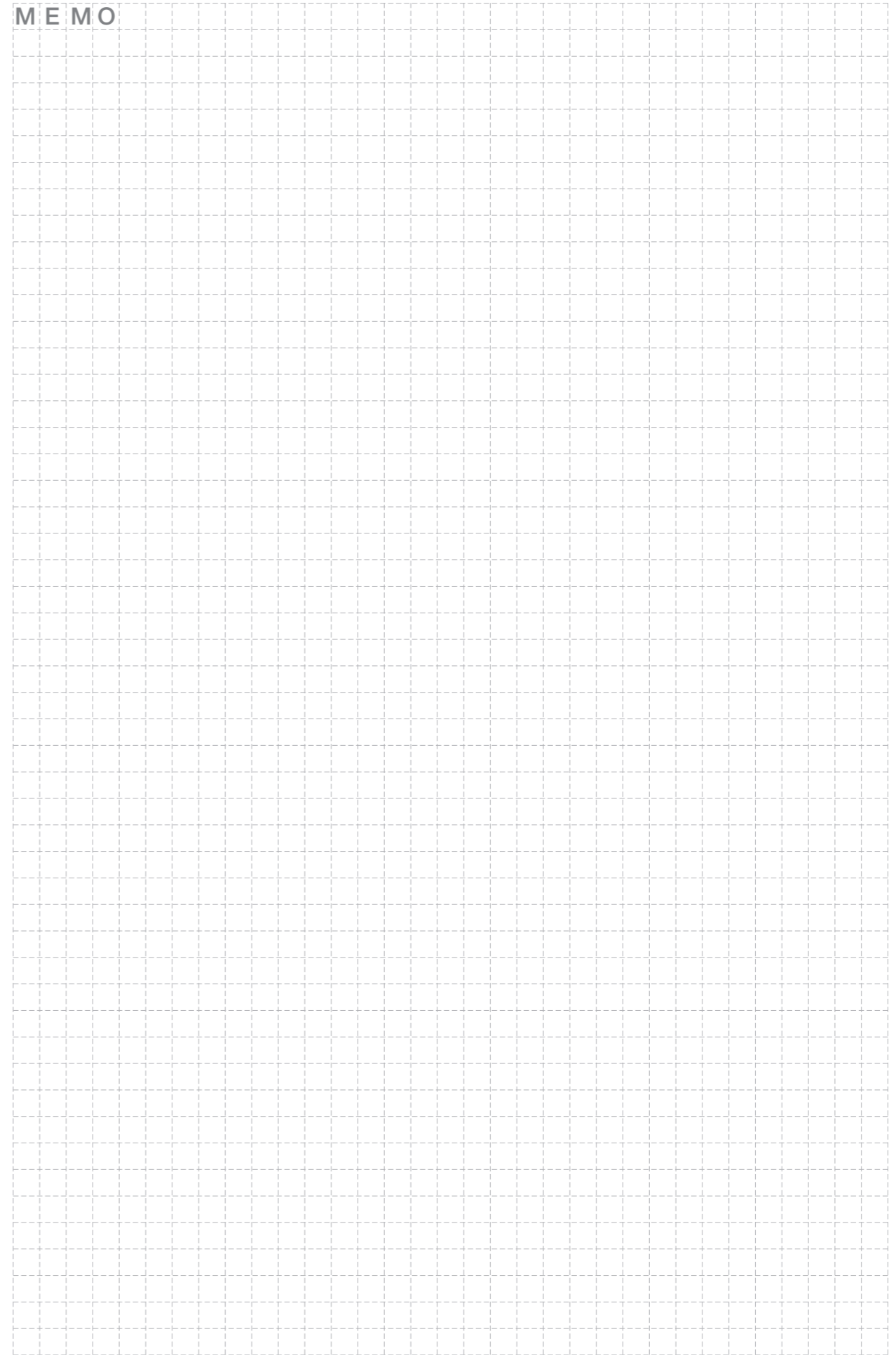


Food production equipment



Thanks to its high waterproofing, the equipment can be cleaned while still in operation!

M E M O



This product features high precision and high rigidity, however, it is necessary to strictly comply with various restrictions and make appropriate to maximize the product's features. Please read this technical document thoroughly and select and adopt an appropriate model based on the actual operating environment, method, and conditions your facility.

Export

When this product is exported from Japan, it may be subject to the export regulations provided in the "Foreign Exchange Order and Export Trade Control Order". Be sure to take sufficient precautions and perform the required export procedures in advance if the final operating party is related to the military or the product is to be used in the manufacture of weapons, etc.

Application

If failure or malfunction of the product may directly endanger human life or if it is used in units which may injure the human body (atomic facilities, space equipment, medical equipment, safety units, etc.), examination of individual situations is required. Contact our agent or nearest business office in such a case.

Safety measures

Although this product has been manufactured under strict quality control, a mistake in operation or misuse can result in breakdown or damage, or an accident resulting in injury or death. Be sure to take all appropriate safety measures, such as the installation of independent safeguards.

Product specifications indicated in this catalog

The specifications indicated in this catalog are based on Nabtesco evaluation methods. This product should only be used after confirming that it is appropriate for the operating conditions of your system. In addition, the reference values should be used purely for reference. They do not guarantee the indicated performance.

Operating environment

Use this product under the following environment:

- Location where the ambient temperature is between -10°C and 40°C (for AF series, between 0°C and + 40°C)
- Location where the humidity is less than 85% and no condensation occurs (for AF series, between 20% and 85% RH)
- Location where the altitude is less than 1,000 m
- Well-ventilated location

Do not install this product at the following locations.

- Locations where a lot of dust is collected
- Outdoor areas that are directly affected by wind and rain
- Locations near to areas that contain combustible, explosive, or corrosive gases and flammable materials
- Location that is heated due to heat transfer and radiation from peripherals and direct sun
- Locations where the performance of the motor can be affected by magnetic fields or vibration

Note 1: If the required installation environment cannot be established, contact our customer representative in advance.

Note 2: When using the reduction gear under special conditions (clean room, equipment for food, concentrated alkali, high-pressure steam, etc.), contact our customer representative in advance.

Maintenance

The standard replacement time for lubricant is 20,000 hours. However, when operation involves a reduction gear surface temperature above 40°C, the state of degradation of the lubricant should be checked in advance of that and the grease replaced earlier as necessary.

Operation temperature

Please operate under conditions where the surface temperature of the reduction gear does not exceed 60°C. If the temperature exceeds 60°C, there is a risk of damaging the product. The AF series also has addition limitations regarding the surface temperature of the motor. For details, please refer to the product catalogs and operation manuals.

Output rotation angle

When the range of the rotation angle is small (10 degrees or less), the service life of the reduction gear may be reduced due to poor lubrication or the internal parts being subject to a concentrated load.

Note: Contact us in case the rotation angle is 10 degrees or less.

Documents

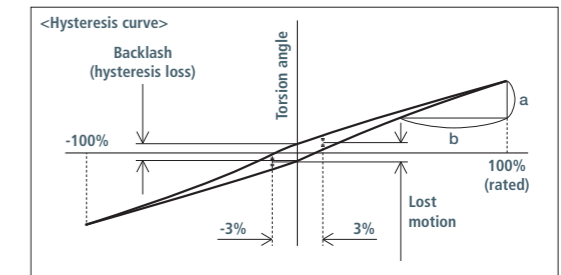
Product details, safety information and detailed instructions can be found in the product catalogs and operation manuals. These documents are downloadable from the following website.

URL : <https://precision.nabtesco.com/en/>

COMMON

Torsional rigidity, lost motion, Backlash (hysteresis loss)

When torque is applied to the output shaft while the input shaft is fixed, torsion occurs in the reduction gear. The change in torsion is described in the hysteresis curve, and Torsional rigidity, lost motion and backlash (hysteresis loss) can be calculated from this data. Torsional rigidity refers to the ratio of the torque to the torsion angle within the range from the half rated torque to rated torque (b/a). Lost motion refers to the torsion angle within the low loading area ($\pm 3\%$ of the rated torque). Backlash (hysteresis loss) refers to the torsion angle when the load torque is zero.



Allowable Moment and Allowable Thrust Load

The external load moment may be applied to the reduction gear during normal operation. The allowable values of the external moment and the external axial load at this time are each referred to as "allowable moment" and "Allowable Thrust Load".

For COMPONENT SETS, GEARHEADS

Rated service life

The lifetime resulting from the operation with the rated torque and the rated output speed is referred to as the "rated service life".

Momentary maximum allowable torque

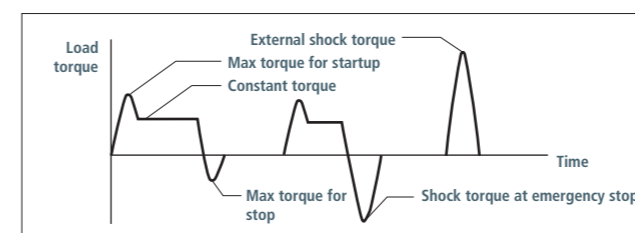
A large torque may be applied to the reduction gear due to execution of emergency stop or by an external shock. In such a situation, the allowable value of the momentary applied torque is referred to as "momentary maximum allowable torque".

Note: Be careful that the momentary excessive torque does not exceed the momentary maximum allowable torque.

Allowable acceleration/deceleration torque

When the machine starts or stops, the load torque to be applied to the reduction gear is larger than the constant-speed load torque due to the effect of the inertia torque of the rotating part. In such a situation, the allowable torque during starting/stopping is referred to as "allowable acceleration/deceleration torque".

Note: Be careful that the load torque, which is applied at startup and stop, does not exceed the allowable acceleration/deceleration torque.



Allowable output speed

The allowable value for the reduction gear's output speed during operation without a load is referred to as the "allowable output speed".

Note: Depending on the conditions of use (duty ratio, load, ambient temperature), the reduction gear temperature may exceed 60°C even when the speed is under the allowable output speed. In such a case, either take cooling measures or use the reduction gear at a speed that keeps the surface temperature at 60°C or lower.

For SERVO ACTUATORS

Rated torque

Calculated value with consideration of the motor rated torque, reduction speed ratio, and reduction gear efficiency.

Momentary maximum allowable torque

Calculated value with consideration of the motor torque, reduction speed ratio, and reduction gear efficiency when the motor torque limit is set.

Rated output speed

Calculated value with consideration of the motor rated speed and reduction speed ratio.

Momentary maximum output speed

Calculated value with consideration of the motor maximum speed and reduction speed ratio.

Note: Be aware of cooling conditions so that the surface temperature of the reduction gear does not exceed 60°C during use.

Brake holding torque

Calculated value with consideration of the motor brake torque, reduction speed ratio, and reduction gear efficiency.

Note: The motor built-in brake is for holding the stop state. Do not use the brake to stop a moving load.

Introduction of Our Website

Precision Reduction Gear RV™ Promotion Site

<https://precision.nabtesco.com/en/>

From a computer, please search us by company name.

Nabtesco Precision Equipment Company



Contents *Other contents are also available.



Members Only

Product Selection

Two types of product selection tool are available. You can check the selection results at any time from "My Page"

- Simplified product selection
- Detailed product selection



Members Only

Various downloadable materials

You can download product catalogs, leaflets, and 2D/3D CAD drawing data.



Application Video

Videos showing the mechanism and the operating principle of the precision reduction gear RV™, and application examples of products are now available.

Scan the QR code to view the YouTube channel of Precision Equipment Company.



Support Site

We deliver various materials such as a basic knowledge of reduction gears, the history of the precision reduction gear RV™, and example applications of each product.

Warranty

1. In the case where Nabtesco confirms that a defect of the Product was caused due to Nabtesco's design or manufacture within the Warranty Period of the Product, Nabtesco shall repair or replace such defective Product at its cost. The Warranty Period shall be from the delivery of the Product by Nabtesco or its distributor to you ("Customer") until the end of one (1) year thereafter, or the end of two thousand (2,000) hours from the initial operation of Customer' equipment incorporating the Product at end user's production line, whichever comes earlier.
2. Unless otherwise expressly agreed between the parties in writing, the warranty obligations for the Product shall be limited to the repair or replacement set forth herein. OTHER THAN AS PROVIDED HEREIN, THERE ARE NO WARRANTIES ON THE PRODUCT, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.
3. The warranty obligation under the Section 1 above shall not apply if:
 - (1) the defect was caused due to the use of the Product deviated from the Specifications or the working conditions provided by Nabtesco;
 - (2) the defect was caused due to exposure to foreign substances or contamination (dirt, sand etc.)
 - (3) lubricant or spare part other than the ones recommended by Nabtesco was used in the Product;
 - (4) the Product was used in an unusual environment (such as high temperature, high humidity, a lot of dust, corrosive/volatile/inflammable gas, pressurized/depressurized air, under water/liquid or others except for those expressly stated in the Specifications);
 - (5) the Product was disassembled, re-assembled, repaired or modified by anyone other than Nabtesco;
 - (6) the defect was caused due to the equipment into which the Product was installed;
 - (7) the defect was caused due to an accident such as fire, earthquake, lightning, flood or others; or
 - (8) the defect was due to any cause other than the design or manufacturing of the Product.
4. The warranty period for the repaired/replaced Product/part under the Section 1 above shall be the rest of the initial Warranty Period of the defective Product subjected to such repair/replace.

Please contact us for more details.