

Optimum Reliability in Motion Control Units

SANDEX- α Alpha Series

INDEXING DRIVES



9AD/11AD/15AD/23AD

As the world's attention shifts toward global environmental issues, companies are placing strong emphasis on internationally recognized guidelines such as ISO14000. The trend is to raise productivity and efficiency without compromising conservation efforts.

Sankyo looks at this as an opportunity to build environment-friendly products with sound, perfected, and reliable motion characteristics. Introducing the Sandex α (Alpha) series, a new addition to our Sandex series, which has provided the industry with quality indexing equipment for 25 years.

The Sandex α series is a low profile indexing drive featuring a cost-effective geared motor. Notice these easy-to-integrate and ease-of-use features:

- Frequency inverter comes standard. No more clutch/brake components or other wearable parts
- Rigid output surface for directly mounting dials.

Ecology and economy -- two words synonymous with today's industrial sector. Two qualities you get when you integrate the Sandex α series into today's highly productive automation machines.



SANDEX Alpha series

Description

The α series is an all-in-one indexing drive complete with geared motor mounted directly on the input shaft. The indexing motion comes from the same roller gear cam mechanism found in all of our Sandex products. As a result, you get ease of use and maintenance with all the qualities of a Sandex.

The α series comes with a frequency inverter allowing controlled starts and stops without a clutch/brake mechanism. By eliminating mechanical elements, we succeeded in reducing costs and maintenance.

Features

- Center distances available in eight standard sizes: 70, 90, 110, 150, 190, 230, 330, and 450mm.
- Wide selection of stops: 2 to 32
- Rigid large flange surface
- Low profile housing
- Standard hollow fixed shaft inside output flange
- Can be mounted with up to 3 pairs of timing cams and sensors
- Optional Torque Limiters for output shaft
- Standard hollow-center shaft-type geared motor with inverter controller.

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! Units used in this document

This catalog uses SI units, particularly in the Specifications and Torque Capacity Table. It should be noted that moment of inertia is expressed at a fourth (1/4) of the GD² in the metric system.

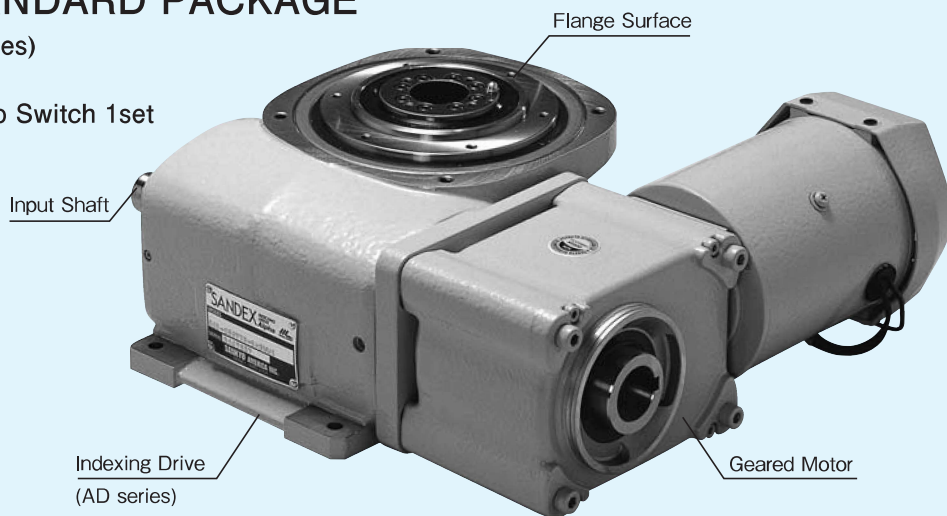
Note : Geared motor shown in optional special paint color.

α SERIES STANDARD PACKAGE

- Indexing Drive(AD series)
- Geared Motor
- Timing Cam and Photo Switch 1set

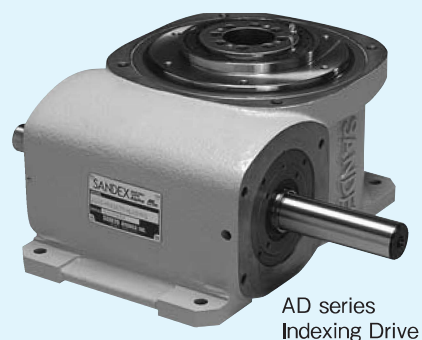
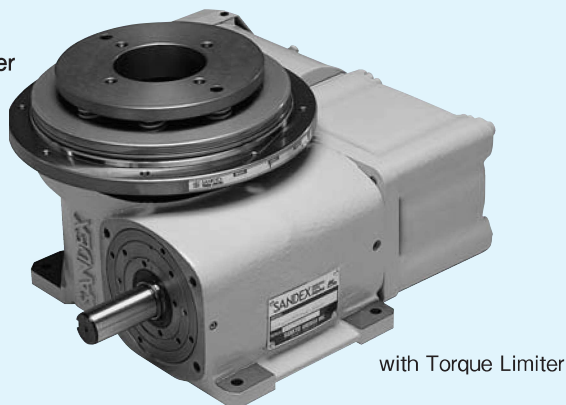


Timing Cam-Photo Switch



Option

- Torque Limiter



Alpha Series (Standard Type)

1DWELL (7AD~45AD)

S/θ	120°	150°	180°	210°	240°	270°	300°	330°
2								△
3							△	△
4					△	△		
5				△	△	○		
6			△	△	○	○		
8		△	△	○	○	○		
10	△	△	○	○	○	○		
12	△	△	○	○	○	○		
15	△	△	○	○	○	○		
16	△	△	○	○	○	○		

2DWELL (7AD~45AD)

S/θ	120°	150°	180°	210°	240°	270°	300°	330°
16				○	○	○		
20				○	○	○		
24				○	○	○		
32				○	○	○		

S : Number of stops
 θ : Index period
 △ SMS-3 Curve or SMCV-3 Curve
 ○ SMS-3 Curve only
 △ SMCV-3 Curve only

- : Can not be produced
- : Can be produced as special instruction

Note: 2 DWELL drives will two indexes and two stops per one rotation of camshaft. The total indexing period per one rotation of the camshaft can be found in the index period column.

Model	7AD	9AD	11AD	15AD	19AD	23AD	33AD	45AD
G geared motor power (kW)	0.1/0.2	0.2/0.4	0.4/0.75	0.75/1.5 (2.2)	1.5/2.2	2.2/3.7 (5.5)	5.5/7.5 (11)	11/15 (18)
Timing cam and photo switch	Up to 3 sets on double-end input shafts						Up to 3 sets with optional extended shaft	
Optional torque limiter	7TAD	9TAD	11TAD	15TAD	19TAD	23TAD	—	—
Optional inverter	Be selected by us as requested							

The number of motor power in () is a special instruction.

7AD



33AD



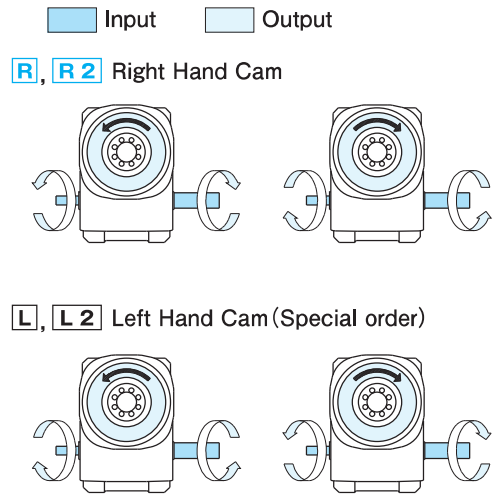
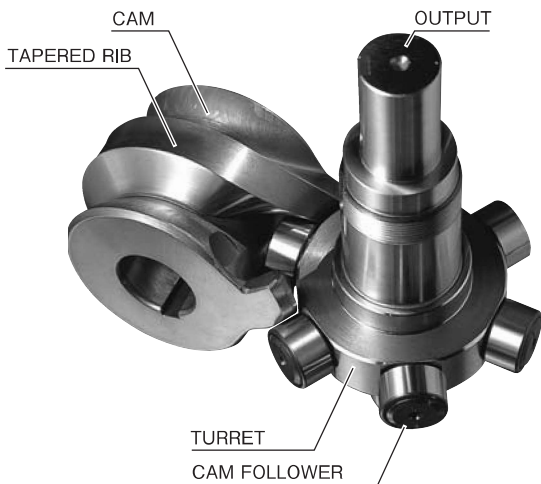
*Specifications and dimensions are subject to change without notice. Always double check before ordering.

Model Code

9 AD - 0 8 1 8 7 R - S R3 VW 1 X

a
b
c₁
c₂
d
e
f
g
h
i
j

a Size	b Model	c ₁ Number of Stops (S)	c ₂ Index Period (θ)	d Motion Curve	e Hand of Cam
9 90mm	AD Alpha Series	08 8 Stop	18 180°	7 SMS-3 Curve	R 1 Dwell Right Hand Cam
Shaft-to-shaft distance 7 , 9 , 11 15 , 19 , 23 33 , 45 are available	AD Alpha Series	Number of stops of the Indexing Drive.	Cam rotation period (during which the output moves.) (Total angle at 2 dwell)	7 SMS-3 Curve (SANKYO Modified Sine) 8 SMCV-3 Curve (SANKYO Modified Constant Velocity) 9 Custom-made Motion Curve (Special order)	Indicates rotating direction of input and output shafts and number of dwells. 1 Dwell 2 Dwell Right Hand Cam R R2 Left Hand Cam L L2



Geared Motor

Example

GM 0.75 - 30 A S - 15AD -02

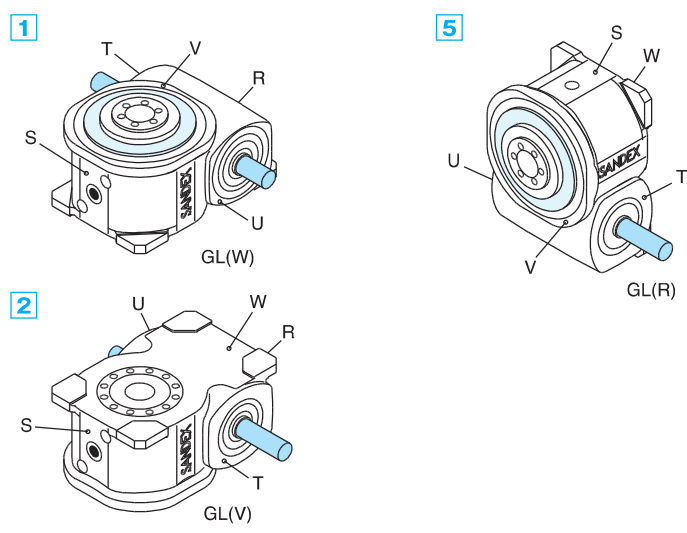
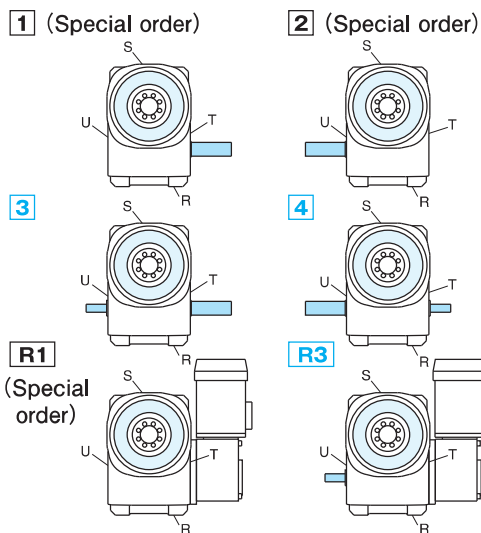
a
b
c
d
e
f
g

a Model	b Motor power	c Gear ratio	d Motor voltage	e Specification	f Model size	g Revision code
GM Geared motor	Indicates the motor power 0.20.2kW 0.75 ...0.75kW 3.73.7kW 1111kW	Indicates the gear ratio 1010 2020 20.37 ..20.37	Indicates the motor voltage A 200/220V B 230V	Indicates the specification of geared motor S Standard (Sankyo model)	Indicates the size and model of Alpha series	Indicates the revision number of the product code listed in the geared motor properties table. *This cell is left blank when there is no revision number.

Model Selection information

Sandex model codes are specified by a combination of numbers and alphabetic characters. An erroneously specified product code will usually result in a product unusable in other applications. Use the same caution when specifying the product code for the geared motor and optional torque limiters. When specifying other requirements such as special gear ratios, motor voltages, copper plated terminal boxes, etc., include the symbol X at the end of the product code and attach a separate user requirements sheet. Queries concerning price, volume, and delivery should be directed to a Sankyo salesman or representative.

f Output	g Input Shaft Projection	h Mounting Holes	i Mounting Position	j Special Instruction
S Standard	R3 Both T and U surface	VW	1	X
S Standard L with Torque Limiter on output	Input shaft projection as shown below. 7AD~23AD 1, 2, R1 become special order 33AD & 45AD In case of input shaft projecting at the both side, one side will be extended shaft for installation timing cam.	7AD~23AD Tapped mounting holes on surface V and through mounting holes on surface W come automatically. 33AD & 45AD Tapped mounting holes on surface R,V,W come automatically.	Mounting position as shown below. 1, 2, 5 are available	Include the symbol X in case of special orders <input type="checkbox"/> Standard (No Symbols) <input checked="" type="checkbox"/> Special Instructions



Timing Cam-Photo Switch

TC	1	15AD
a	b	c
a Model	b Number	c Model size
TC Timing cam +Photo switch	1 ...1set 2 ...2set 3 ...3set	Indicates the size and model of Alpha series mounting timing cam.

Torque Limiter(option)

Model code example 15 TAD - 20 L			
a	b	c	d
a Torque limiter size	b Model	c Maximum tripping torque(Tmax)	d Type of spring
Indicates the size of the torque limiter 7, 9, 11, 15, 19, 23 Choose same size as Alpha series	Indicates the type of torque limiter TAD Alpha-type	Indicates the maximum tripping torque 20 Tmax = 200N·m	Two types of springs are available: L, H L Light-duty coil springs H Heavy-duty coil springs

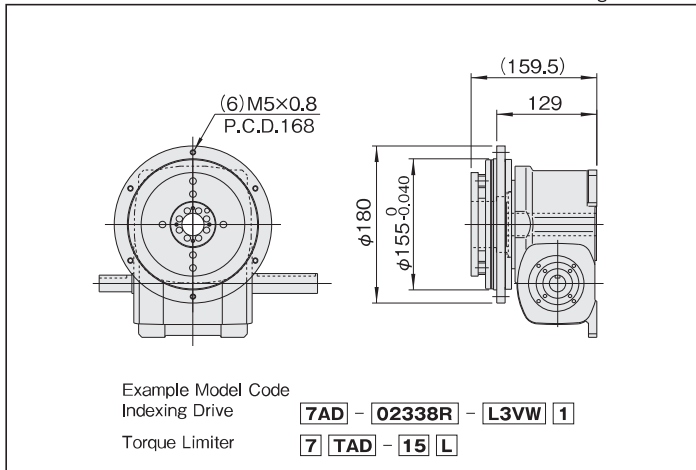
Specifications of geared motor

Table 7AD-3

Code		Motor Power (kW)	Actual Gear Ratio (i)	Output Shaft Speed N_M (rpm)		Output Allowable Torque T_R (N·m)		Moment of inertia J_M (kg·m ²)	Weight (kg)
200/220V	230V			50Hz	60Hz	50Hz	60Hz		
GM0.1-20AS-7AD-01	GM0.1-20BS-7AD-01	0.1	20	75	90	11	8.6	8.0×10^{-4}	6.5
GM0.1-25AS-7AD-01	GM0.1-25BS-7AD-01		25	60	72	13	11		
GM0.1-30AS-7AD-01	GM0.1-30BS-7AD-01		30	50	60	16	13		
GM0.1-40AS-7AD-01	GM0.1-40BS-7AD-01		40	37.5	45	21	18		
GM0.1-50AS-7AD-01	GM0.1-50BS-7AD-01		50	30	36	25	22		
GM0.2-10AS-7AD-01	GM0.2-10BS-7AD-01	0.2	10	150	180	11	9.2	10.0×10^{-4}	8.5
GM0.2-15AS-7AD-01	GM0.2-15BS-7AD-01		15	100	120	17	14		
GM0.2-20AS-7AD-01	GM0.2-20BS-7AD-01		20	75	90	23	19		
GM0.2-25AS-7AD-01	GM0.2-25BS-7AD-01		25	60	72	27	24		
GM0.2-30AS-7AD-01	GM0.2-30BS-7AD-01		30	50	60	33	27		
GM0.2-40AS-7AD-01	GM0.2-40BS-7AD-01		40	37.5	45	44	37		
GM0.2-50AS-7AD-01	GM0.2-50BS-7AD-01	50	30	36	55	46			

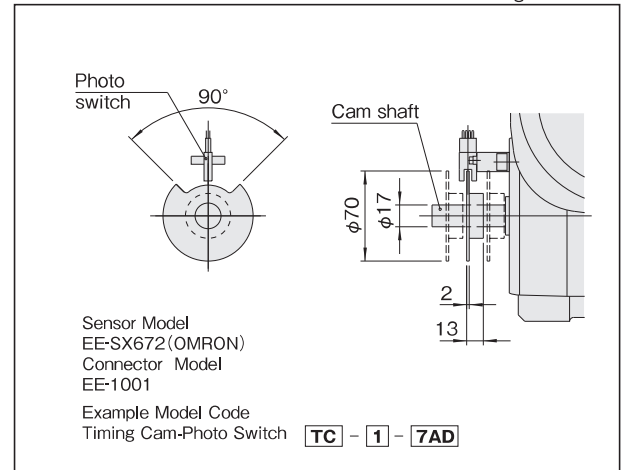
Torque limiter mounting specifications (option)

Figure 7AD-3



Timing cam-Photo switch

Figure 7AD-4



Precautions

- The dimension drawing (Figure 7AD-1, 7AD-2) shows the standard mounting position for geared motor.
- Model 7AD can be equipped with 0.1kW and 0.2kW motor. Exchange is not permitted after purchase because of different hollow size of geared motor.
- Model 7AD can be equipped with torque limiter 7TAD.
- Up to 3 sets of timing cams and photo switches can be added as necessary. The notch angle (90°) of timing cam is not adjustable.

Standard input shaft (T surface side)

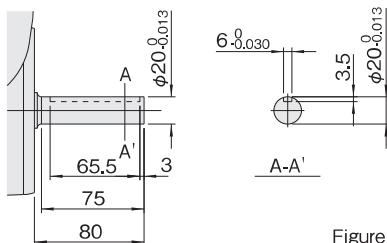


Figure 7AD-5

Output fixed flange specifications

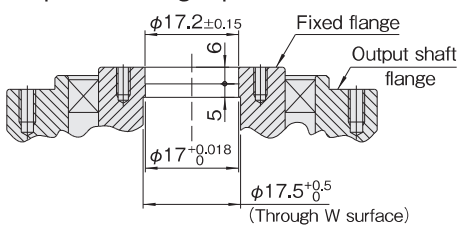


Figure 7AD-6

Locations of oil plug, etc., and oil capacity

Figure 7AD-7

Mounting position	1	2	5
Location			
Oil capacity (ℓ)	0.4	0.7	0.8

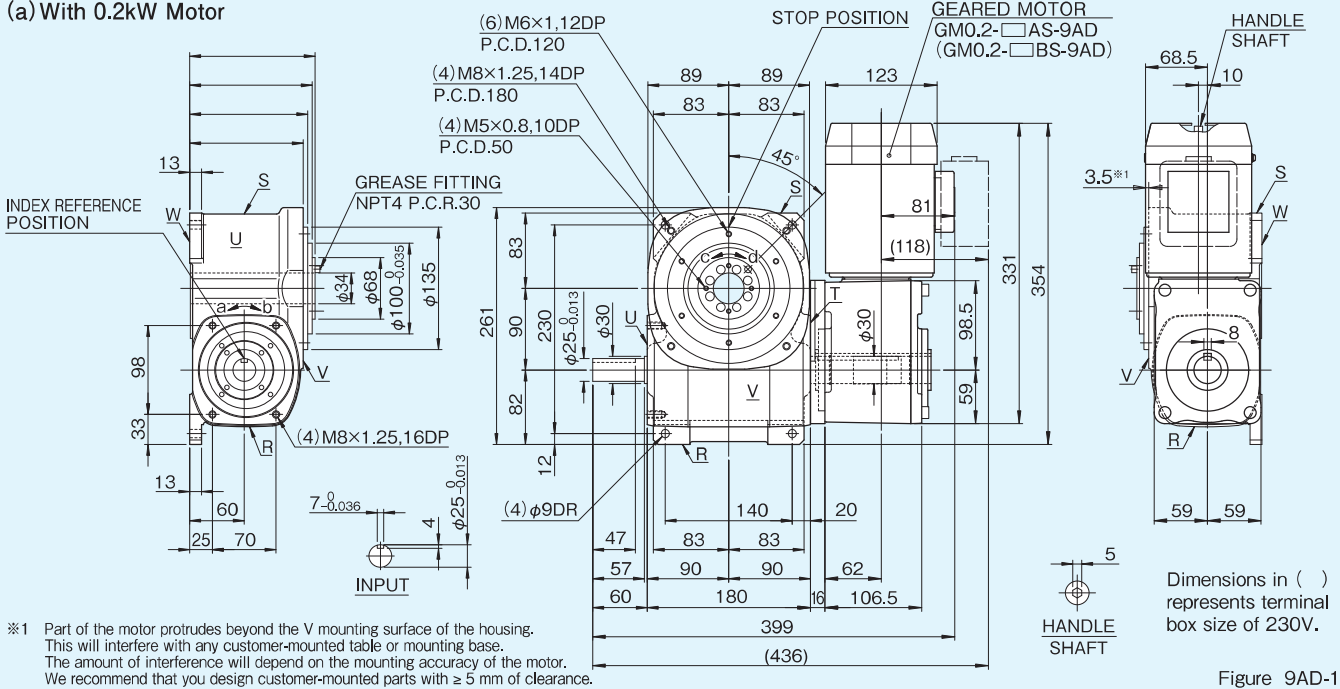
Precautions

- Each point indicated in the mounting positions shown in Figure 7AD-7 represents (starting at top) the oil plug (PT1/4), oil level (VA-01), and drain (PT1/4).
- The mounting positions correspond to code i for the indexing drives.
- The oil capacities indicated in Figure 7AD-7 are given in general figures and will differ according to the profile of the cam and the number of cam followers.

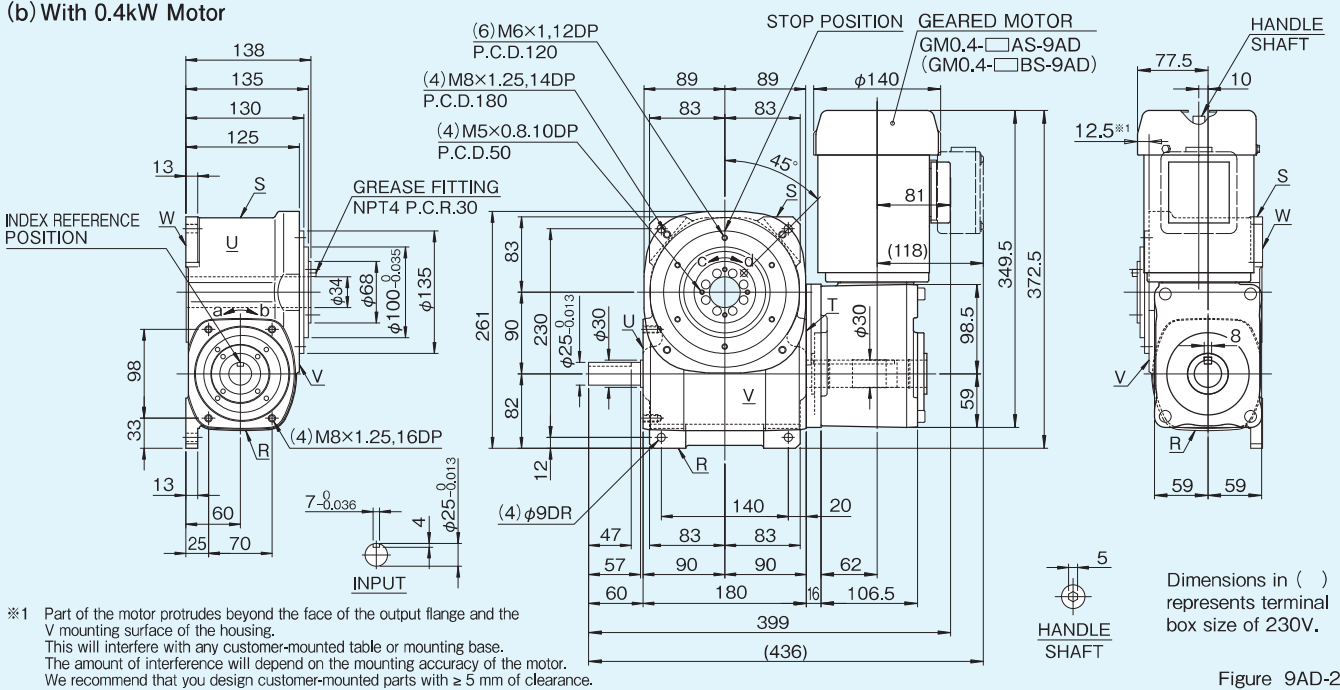
9AD Dimensions

(Unit : mm)

(a) With 0.2kW Motor



(b) With 0.4kW Motor



Specifications

Table 9AD-1

Item	Symbol	Unit	Value	Item	Symbol	Unit	Value	Item	Symbol	Unit	Value
Output allowable axial load	P_1	N	4900	Input allowable axial load	P_4	N	2500	Indexing accuracy (1 DWELL)		sec	±30
Output allowable radial load	P_2	N	2100	Input maximum repetitious bending force	P_5	N	2500	Indexing accuracy (2 DWELL)		sec	±60
Output static torque	T_s	N·m	Refer to Torque Capacity Table	Input maximum repetitious allowable torque	P_6	N·m	245	Repetitive accuracy		sec	30
Output torsional rigidity	K_1	$\frac{N \cdot m}{rad}$	2.64×10^5	Input torsional rigidity	K_2	$\frac{N \cdot m}{rad}$	3.36×10^4	Product weight (Index body)		kg	24
Output inertia	J_o	$kg \cdot m^2$	1.11×10^{-2}	Input inertia	J_c	$kg \cdot m^2$	2.5×10^{-3}	Housing color		Ivory	
Output allowable bending moment	P_3	N·m	98					Geared motor paint color		Light Silver	

Note: Input inertia: J is calculated in dwell.

1N·m≒0.102kgf·m

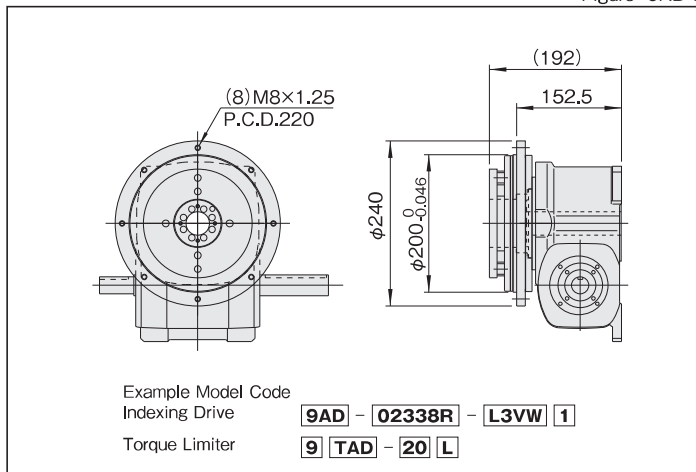
Specifications of geared motor

Table 9AD-3

Code		Motor Power (kW)	Actual Gear Ratio (i)	Output Shaft Speed N _M (rpm)		Output Allowable Torque T _R (N·m)		Moment of inertia J _M (kg·m ²)	Weight (kg)
200/220V	230V			50Hz	60Hz	50Hz	60Hz		
GM0.2-20AS-9AD	GM0.2-20BS-9AD	0.2	20	75	90	22.5	18.6	0.74×10 ⁻³	9.8
GM0.2-25AS-9AD	GM0.2-25BS-9AD		25	60	72	27.4	23.5		
GM0.2-30AS-9AD	GM0.2-30BS-9AD		30	50	60	33.3	27.4		
GM0.2-40AS-9AD	GM0.2-40BS-9AD		40	37.5	45	44.1	37.2		
GM0.2-50AS-9AD	GM0.2-50BS-9AD		50	30	36	55.9	46.1		
GM0.4-10AS-9AD	GM0.4-10BS-9AD	0.4	10	150	180	22.5	18.6	0.90×10 ⁻³	10.5
GM0.4-15AS-9AD	GM0.4-15BS-9AD		15	100	120	33.3	27.4		
GM0.4-20AS-9AD	GM0.4-20BS-9AD		20	75	90	44.1	37.2		
GM0.4-25AS-9AD	GM0.4-25BS-9AD		25	60	72	55.9	46.1		
GM0.4-30AS-9AD	GM0.4-30BS-9AD		30	50	60	66.6	55.9		
GM0.4-40AS-9AD	GM0.4-40BS-9AD		40	37.5	45	84.3	70.6		
GM0.4-50AS-9AD	GM0.4-50BS-9AD	50	30	36	106.0	88.2			

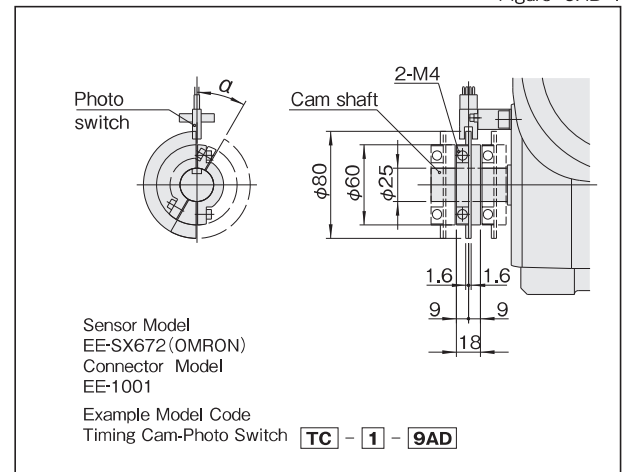
Torque limiter mounting specifications (option)

Figure 9AD-3



Timing cam-Photo switch

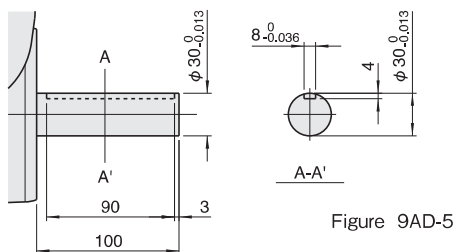
Figure 9AD-4



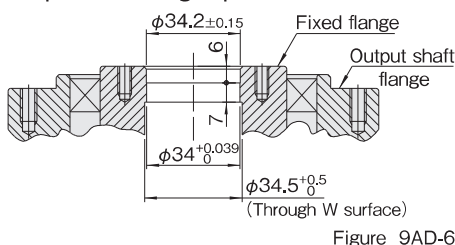
Precautions

- The dimension drawing (Figure 9AD-1, 9AD-2) shows the standard mounting position for the geared motor.
- Model 9AD can be equipped with 0.2kW and 0.4kW motor. Note, when using the 0.4kW motor, the motor will protrude beyond the indexer flange.
- Model 9AD can be equipped with torque limiter 9TAD.
- Up to 3 sets of timing cams and photo switches can be added as necessary. The timing cam can be freely adjusted to any period [α] below 180°.

Standard input shaft (T surface side)



Output fixed flange specifications



Locations of oil plug, etc., and oil capacity

Figure 9AD-7

Mounting position	1	2	5
Location			
Oil capacity (ℓ)	0.5	0.9	1.0

Precautions

- Each point indicated in the mounting positions shown in Figure 9AD-7 represents (starting at top) the oil plug (PT3/8), oil level (VA-01), and drain (PT3/8).
- The mounting positions correspond to code i for the indexing drives.
- The oil capacities indicated in Figure 9AD-7 are given in general figures and will differ according to the profile of the cam and the number of cam followers.

11AD Dimensions

(Unit : mm)

(a) With 0.4kW Motor

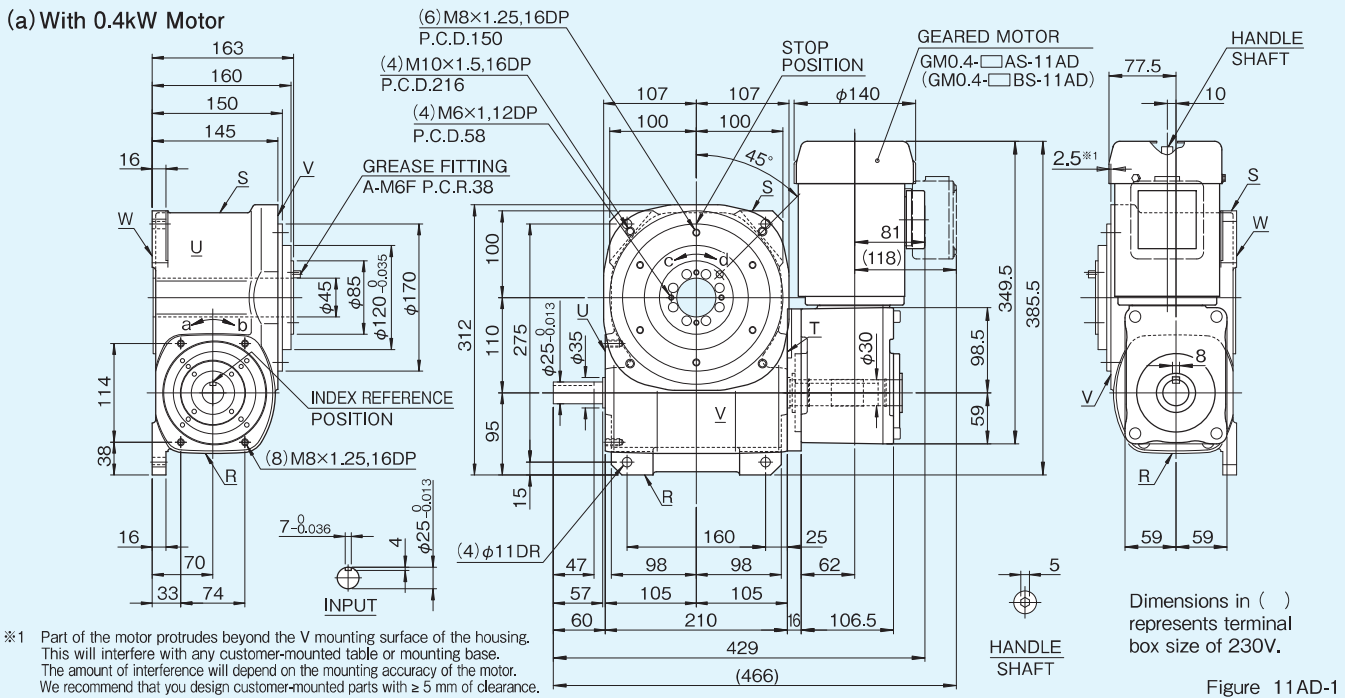


Figure 11AD-1

(b) With 0.75kW Motor

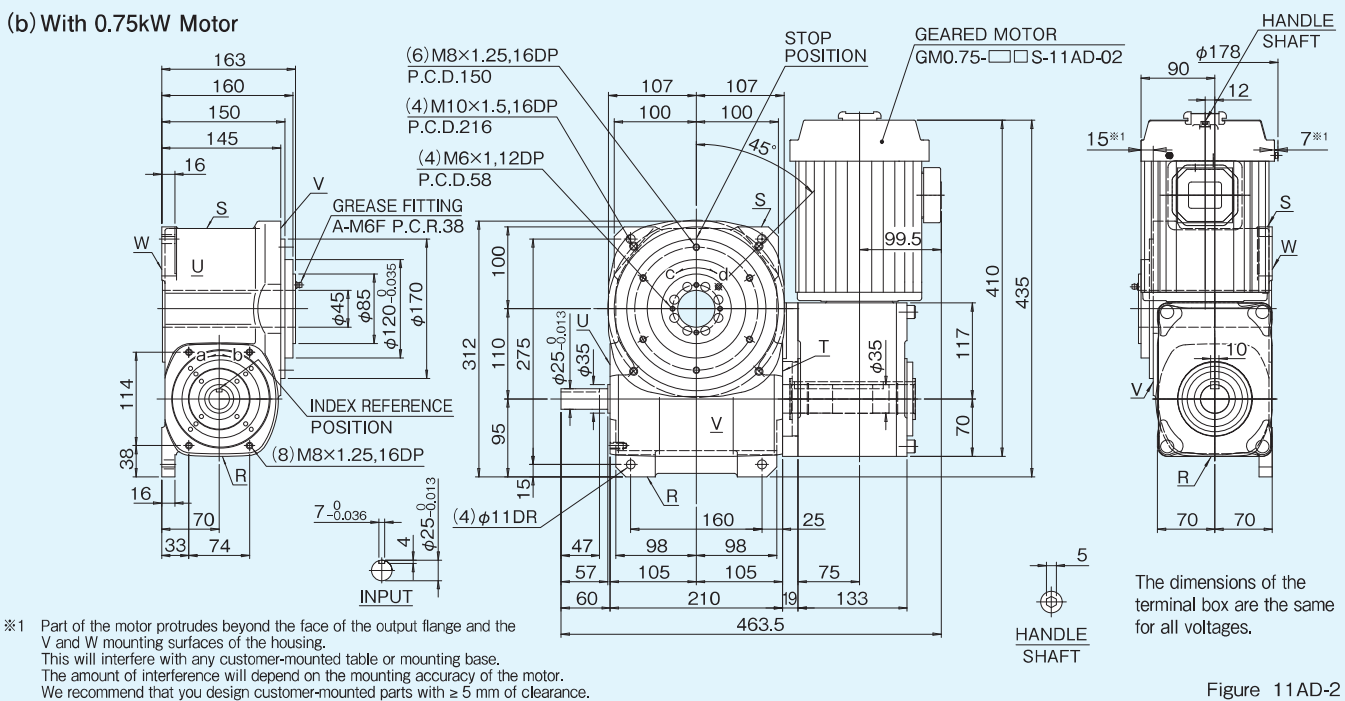


Figure 11AD-2

Specifications

Table 11AD-1

Item	Symbol	Unit	Value	Item	Symbol	Unit	Value	Item	Symbol	Unit	Value
Output allowable axial load	P ₁	N	6800	Input allowable axial load	P ₄	N	3000	Indexing accuracy (1 DWELL)		sec	±30
Output allowable radial load	P ₂	N	3400	Input maximum repetitious bending force	P ₅	N	3500	Indexing accuracy (2 DWELL)		sec	±60
Output static torque	T _s	N·m	Refer to Torque Capacity Table	Input maximum repetitious allowable torque	P ₆	N·m	294	Repetitive accuracy		sec	30
Output torsional rigidity	K ₁	N·m/rad	4.43×10 ⁵	Input torsional rigidity	K ₂	N·m/rad	3.98×10 ⁴	Product weight (Index body)		kg	42
Output inertia	J _o	kg·m ²	3.47×10 ⁻²	Input inertia	J _c	kg·m ²	6.0×10 ⁻³	Housing color		Ivory	
Output allowable bending moment	P ₃	N·m	147					Geared motor paint color		Light Silver	

Note: Input inertia: J is calculated in dwell.

1N·m≒0.102kgf·m

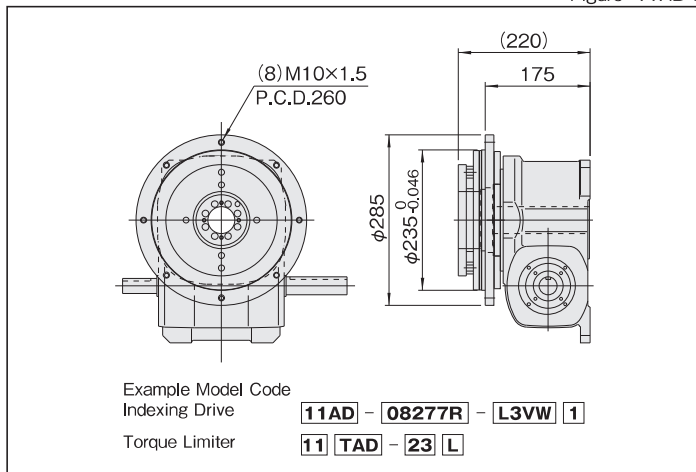
Specifications of geared motor

Table 11AD-3

Code		Motor Power (kW)	Actual Gear Ratio (i)	Output Shaft Speed N_M (rpm)		Output Allowable Torque T_R (N·m)		Moment of inertia J_M (kg·m ²)	Weight (kg)
200/220V	230V			50Hz	60Hz	50Hz	60Hz		
GM0.4-20AS-11AD	GM0.4-20BS-11AD	0.4	20	75	90	44.1	37.2	0.90×10^{-3}	10.5
GM0.4-25AS-11AD	GM0.4-25BS-11AD		25	60	72	55.9	46.1		
GM0.4-30AS-11AD	GM0.4-30BS-11AD		30	50	60	66.6	55.9		
GM0.4-40AS-11AD	GM0.4-40BS-11AD		40	37.5	45	84.3	70.6		
GM0.4-50AS-11AD	GM0.4-50BS-11AD		50	30	36	106.0	88.2		
GM0.75-10AS-11AD-02	GM0.75-10BS-11AD-02	0.75	10	150	180	42.1	34.3	1.83×10^{-3}	24
GM0.75-15AS-11AD-02	GM0.75-15BS-11AD-02		15	100	120	62.7	51.9		
GM0.75-20AS-11AD-02	GM0.75-20BS-11AD-02		20	75	90	83.3	69.6		
GM0.75-25AS-11AD-02	GM0.75-25BS-11AD-02		25	60	72	104	87.2		
GM0.75-30AS-11AD-02	GM0.75-30BS-11AD-02		30	50	60	125	104		
GM0.75-40AS-11AD-02	GM0.75-40BS-11AD-02		40	37.5	45	159	132		
GM0.75-50AS-11AD-02	GM0.75-50BS-11AD-02		50	30	36	198	165		

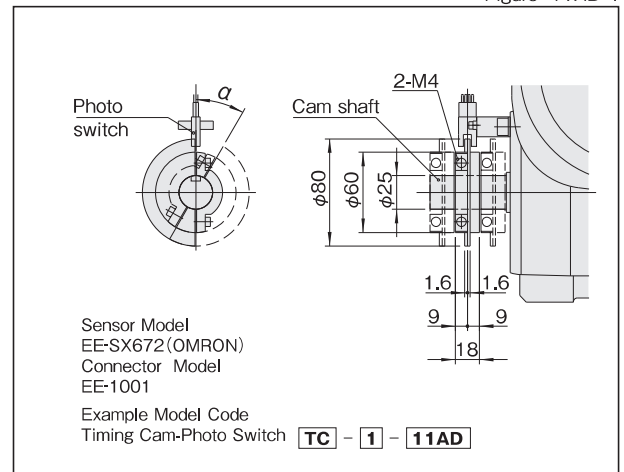
Torque limiter mounting specifications (option)

Figure 11AD-3



Timing cam-Photo switch

Figure 11AD-4



Precautions

- The dimension drawing (Figure 11AD-1, 11AD-2) shows the standard mounting position for geared motor.
- Model 11AD can be equipped with 0.4kW and 0.75kW motor. Exchange is not permitted after purchase because of different hollow size of geared motor.
- When using the 0.75kW motor, the motor will protrude beyond the indexer flange, and geared motor's bottom surface will also protrude beyond Index W surface.
- Model 11AD can be equipped with torque limiter 11TAD.
- Up to 3 sets of timing cams and photo switches can be added as necessary. The timing cam can be freely adjusted to any period α below 180°.

Standard input shaft (T surface side)

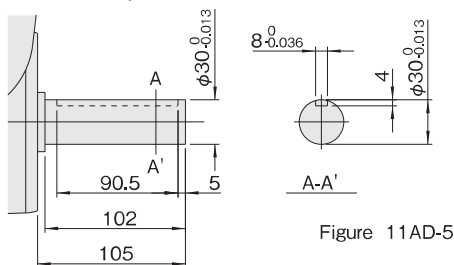


Figure 11AD-5

Output fixed flange specifications

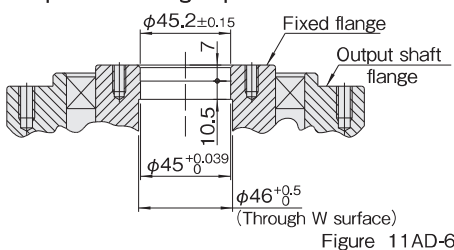


Figure 11AD-6

Locations of oil plug, etc., and oil capacity

Figure 11AD-7

Mounting position	1	2	5
Location			
Oil capacity (ℓ)	0.8	1.4	1.6

Precautions

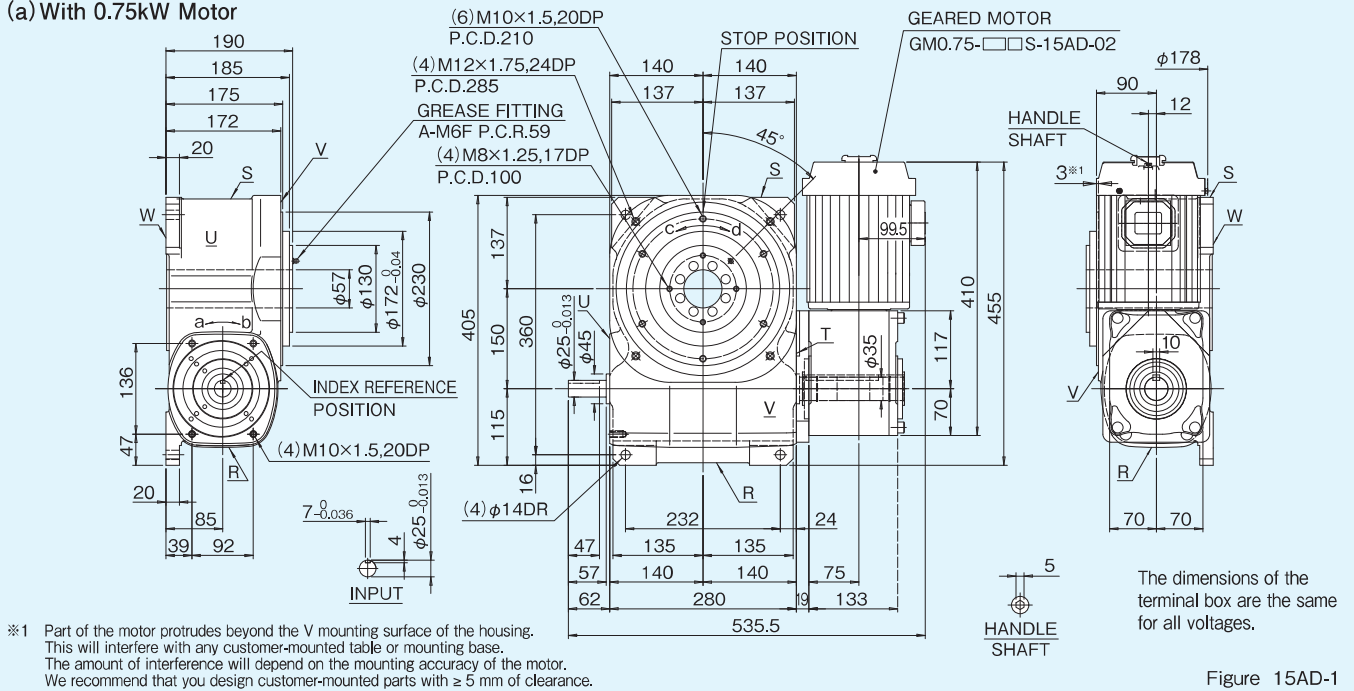
- Each point indicated in the mounting positions shown in Figure 11AD-7 represents (starting at top) the oil plug (PT1/2), oil level (VA), and drain (PT1/2).
- The mounting positions correspond to code i for the indexing drives.
- The oil capacities indicated in Figure 11AD-7 are given in general figures and will differ according to the profile of the cam and the number of cam followers.

15AD

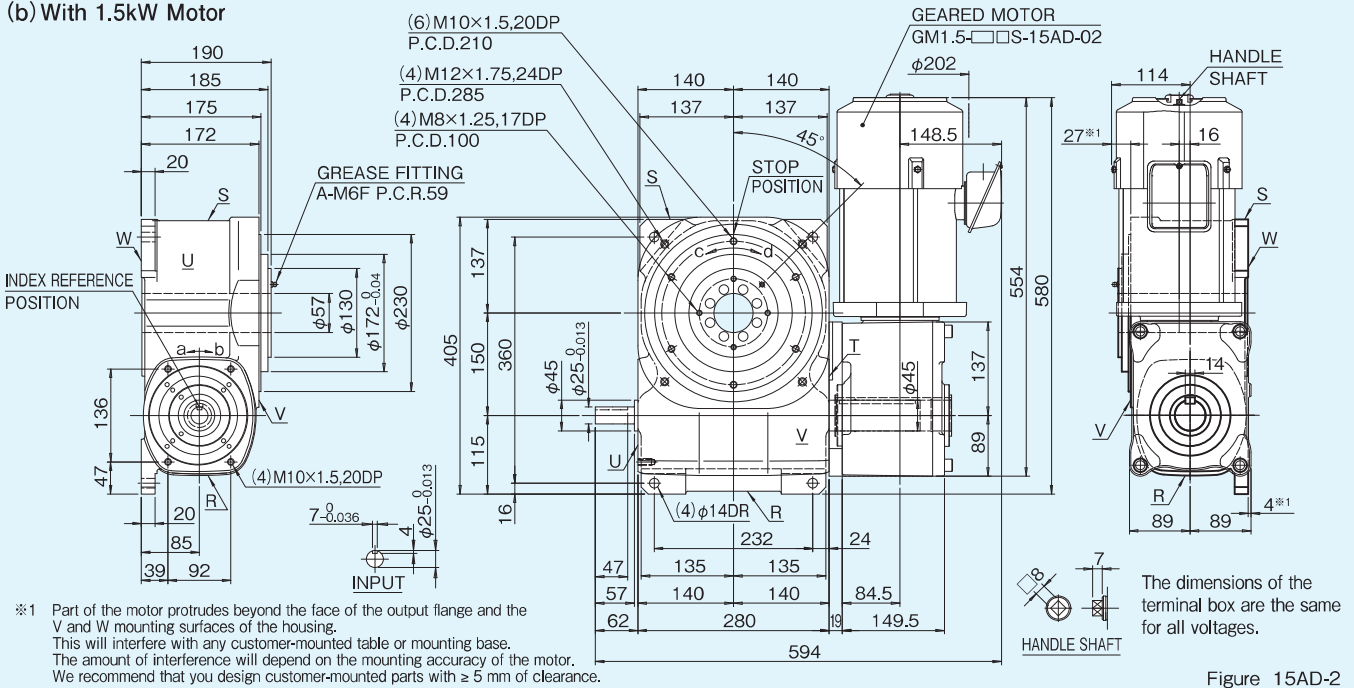
15AD Dimensions

[Unit : mm]

(a) With 0.75kW Motor



(b) With 1.5kW Motor



Specifications

Table 15AD-1

Item	Symbol	Unit	Value	Item	Symbol	Unit	Value	Item	Symbol	Unit	Value
Output allowable axial load	P_1	N	11000	Input allowable axial load	P_4	N	4000	Indexing accuracy (1 DWELL)		sec	± 30
Output allowable radial load	P_2	N	6800	Input maximum repetitive bending force	P_5	N	4000	Indexing accuracy (2 DWELL)		sec	± 60
Output static torque	T_s	N·m	Refer to Torque Capacity Table	Input maximum repetitive allowable torque	P_6	N·m	392	Repetitive accuracy		sec	30
Output torsional rigidity	K_1	$\frac{\text{N}\cdot\text{m}}{\text{rad}}$	2.37×10^6	Input torsional rigidity	K_2	$\frac{\text{N}\cdot\text{m}}{\text{rad}}$	6.64×10^4	Product weight (Index body)		kg	85
Output inertia	J_o	$\text{kg}\cdot\text{m}^2$	0.162	Input inertia	J_c	$\text{kg}\cdot\text{m}^2$	0.020	Housing color		Ivory	
Output allowable bending moment	P_3	N·m	333.2					Geared motor paint color		Light Silver	

Note: Input inertia: J is calculated in dwell.

1N·m \approx 0.102kgf·m

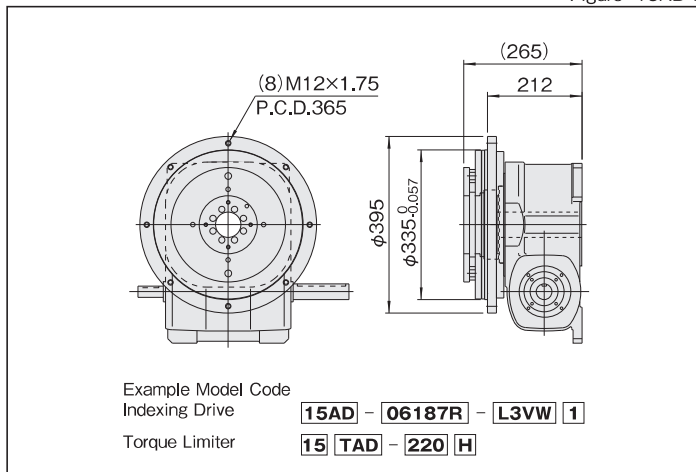
Specifications of geared motor

Table 15AD-3

Code		Motor Power (kW)	Actual Gear Ratio (i)	Output Shaft Speed N _M (rpm)		Output Allowable Torque T _R (N·m)		Moment of inertia J _M (kg·m ²)	Weight (kg)
200/220V	230V			50Hz	60Hz	50Hz	60Hz		
GM0.75-20AS-15AD-02	GM0.75-20BS-15AD-02								
GM0.75-25AS-15AD-02	GM0.75-25BS-15AD-02	25	60	72	104	87.2			
GM0.75-30AS-15AD-02	GM0.75-30BS-15AD-02	30	50	60	125	104			
GM0.75-40AS-15AD-02	GM0.75-40BS-15AD-02	40	37.5	45	159	132			
GM0.75-50AS-15AD-02	GM0.75-50BS-15AD-02	50	30	36	198	165			
GM1.5-10AS-15AD-02	GM1.5-10BS-15AD-02	1.5	10	150	180	83.3	69.6	6.2×10 ⁻³	41
GM1.5-15AS-15AD-02	GM1.5-15BS-15AD-02		15	100	120	124	104		
GM1.5-20AS-15AD-02	GM1.5-20BS-15AD-02		20	75	90	166	138		
GM1.5-25AS-15AD-02	GM1.5-25BS-15AD-02		25	60	72	208	173		
GM1.5-30AS-15AD-02	GM1.5-30BS-15AD-02		30	50	60	249	208		
GM1.5-40AS-15AD-02	GM1.5-40BS-15AD-02		40	37.5	45	317	264		
GM1.5-50AS-15AD-02	GM1.5-50BS-15AD-02		50	30	36	396	330		

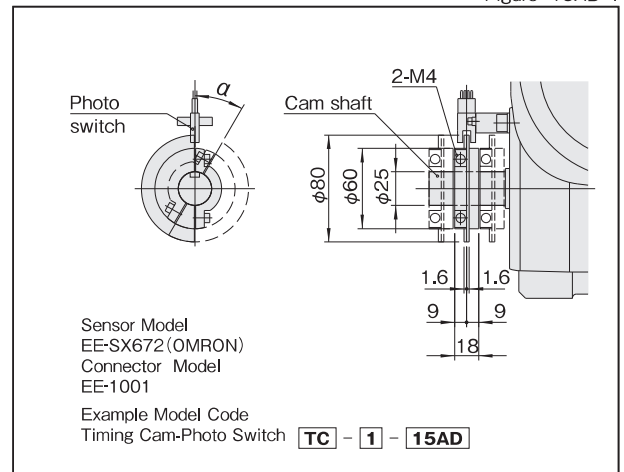
Torque limiter mounting specifications (option)

Figure 15AD-3



Timing cam-Photo switch

Figure 15AD-4



Precautions

- The dimension drawing (Figure 15AD-1, 15AD-2) shows the standard mounting position for geared motor.
- Model 15AD can be equipped with 0.75kW and 1.5kW motor. Exchange is not permitted after purchase because of different hollow size of geared motor. 2.2kW motor is also available as special instructions.
- When using the 1.5kW motor, the motor will protrude beyond the indexer flange, and geared motor's bottom surface will also protrude beyond Index W surface.
- Model 15AD can be equipped with torque limiter 15TAD.
- Up to 3 sets of timing cams and photo switches can be added as necessary. The timing cam can be freely adjusted to any period [α] below 180°.

Standard input shaft (T surface side)

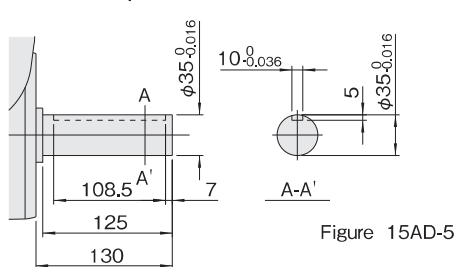


Figure 15AD-5

Output fixed flange specifications

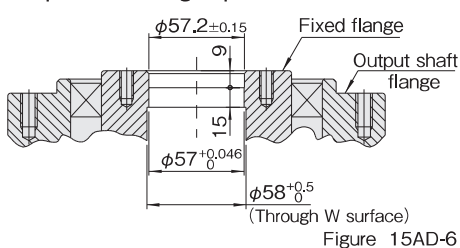


Figure 15AD-6

Locations of oil plug, etc., and oil capacity

Figure 15AD-7

Mounting position	1	2	5
Location			
Oil capacity (ℓ)	2.2	3	3.3

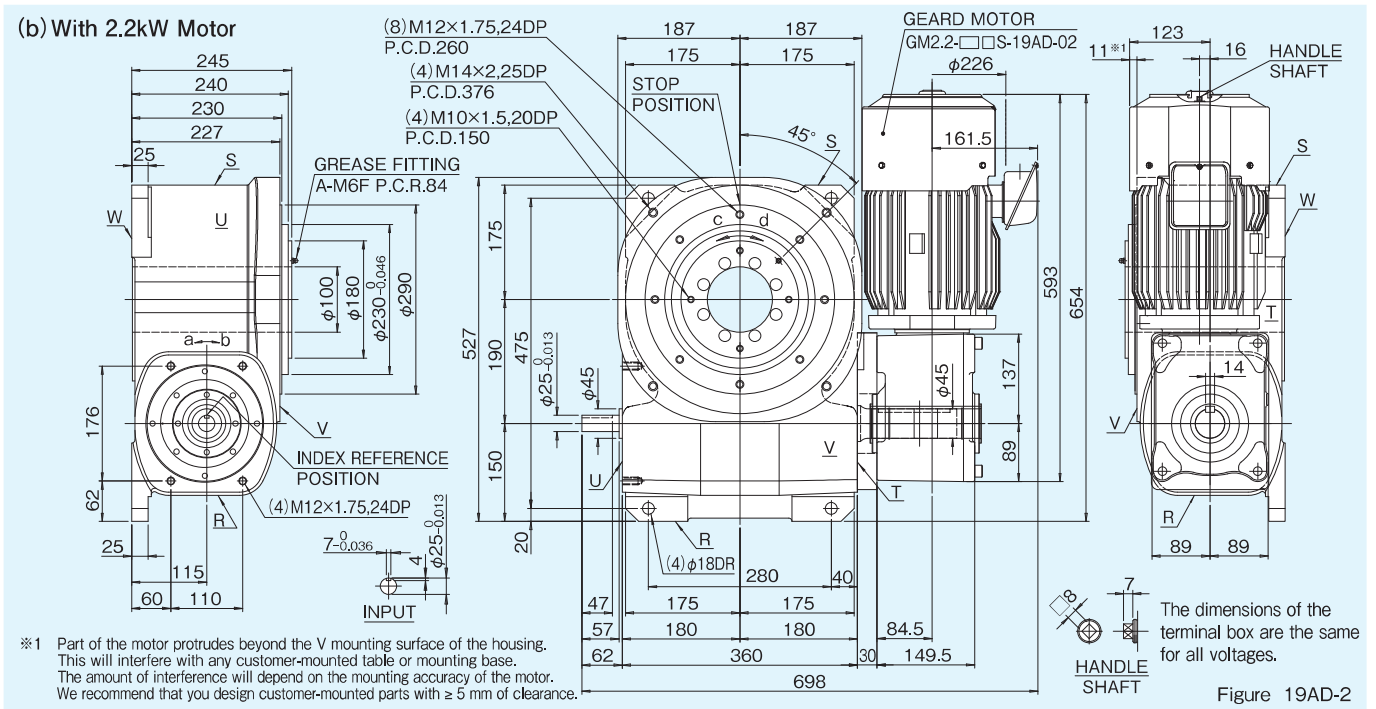
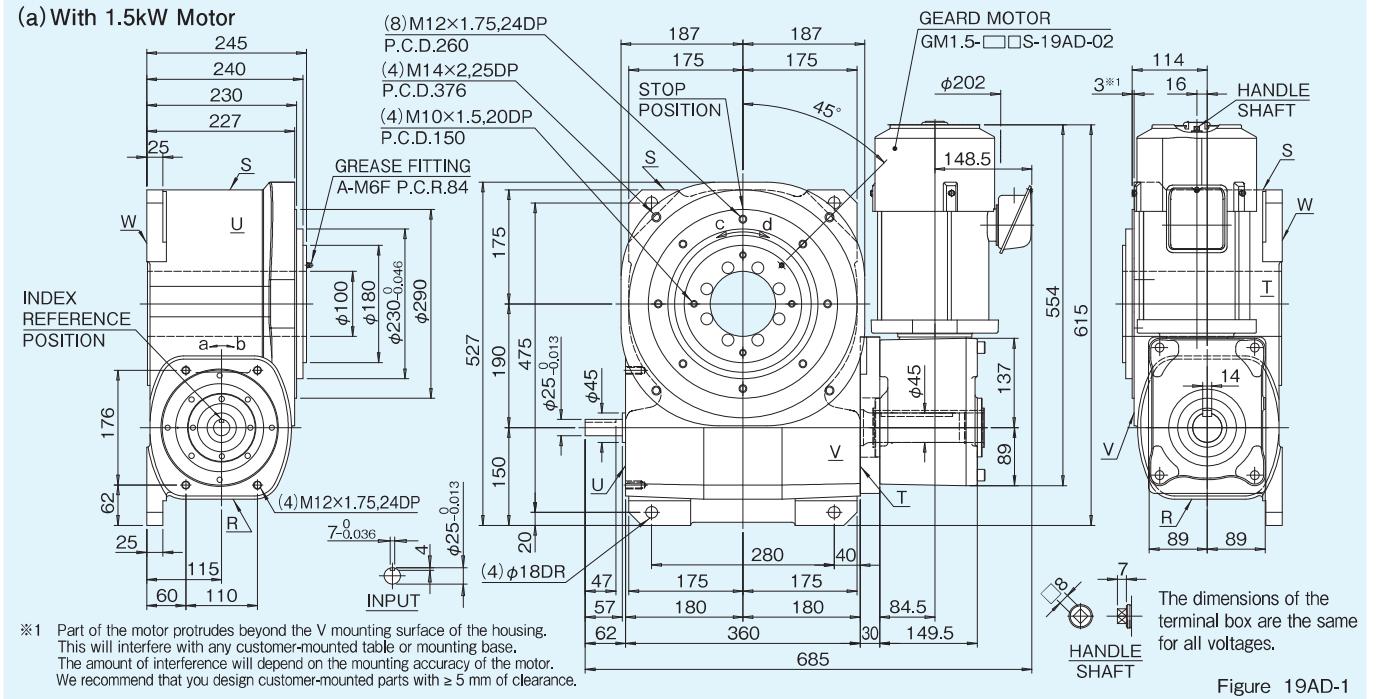
Precautions

- Each point indicated in the mounting positions shown in Figure 15AD-7 represents (starting at top) the oil plug (PT1/2), oil level (VA), and drain (PT1/2).
- The mounting positions correspond to code i for the indexing drives.
- The oil capacities indicated in Figure 15AD-7 are given in general figures and will differ according to the profile of the cam and the number of cam followers.

19AD

19AD Dimensions

(Unit : mm)



Specifications

Table 19AD-1

Item	Symbol	Unit	Value	Item	Symbol	Unit	Value	Item	Symbol	Unit	Value
Output allowable axial load	P_1	N	18000	Input allowable axial load	P_4	N	5000	Indexing accuracy (1 DWELL)		sec	± 30
Output allowable radial load	P_2	N	9000	Input maximum repetitious bending force	P_5	N	5000	Indexing accuracy (2 DWELL)		sec	± 60
Output static torque	T_s	N·m	Refer to Torque Capacity Table	Input maximum repetitious allowable torque	P_6	N·m	600	Repetitive accuracy		sec	30
Output torsional rigidity	K_1	$\frac{\text{N}\cdot\text{m}}{\text{rad}}$	3.5×10^6	Input torsional rigidity	K_2	$\frac{\text{N}\cdot\text{m}}{\text{rad}}$	8.4×10^4	Product weight (Index body)		kg	180
Output inertia	J_o	$\text{kg}\cdot\text{m}^2$	0.549	Input inertia	J_c	$\text{kg}\cdot\text{m}^2$	0.105	Housing color		Ivory	
Output allowable bending moment	P_3	N·m	600					Geared motor paint color		Light Silver	

Note: Input inertia: J is calculated in dwell.

1N·m \approx 0.102kgf·m

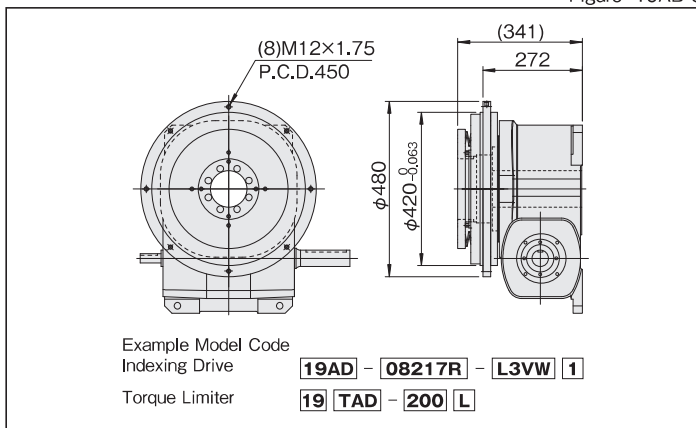
Specifications of geared motor

Table 19AD-3

Code		Motor Power (kW)	Actual Gear Ratio (i)	Output Shaft Speed N _M (rpm)		Output Allowable Torque T _R (N·m)		Moment of inertia J _M (kg·m ²)	Weight (kg)
200/220V	230V			50Hz	60Hz	50Hz	60Hz		
GM1.5-20AS-19AD-02	GM1.5-20BS-19AD-02	1.5	20	75	90	166	138	6.2×10 ⁻³	41
GM1.5-25AS-19AD-02	GM1.5-25BS-19AD-02		25	60	72	208	173		
GM1.5-30AS-19AD-02	GM1.5-30BS-19AD-02		30	50	60	249	208		
GM1.5-40AS-19AD-02	GM1.5-40BS-19AD-02		40	37.5	45	317	264		
GM1.5-50AS-19AD-02	GM1.5-50BS-19AD-02		50	30	36	396	330		
GM2.2-25AS-19AD-02	GM2.2-10BS-19AD-02	2.2	10	150	180	122	102	8.8×10 ⁻³	48
GM2.2-15AS-19AD-02	GM2.2-15BS-19AD-02		15	100	120	182	152		
GM2.2-20AS-19AD-02	GM2.2-20BS-19AD-02		20	75	90	244	203		
GM2.2-25AS-19AD-02	GM2.2-25BS-19AD-02		25	60	72	290	242		
GM2.2-30AS-19AD-02	GM2.2-30BS-19AD-02		30	50	60	349	290		
GM2.2-40AS-19AD-02	GM2.2-40BS-19AD-02		40	37.5	45	465	387		
GM2.2-50AS-19AD-02	GM2.2-50BS-19AD-02		50	30	36	581	484		

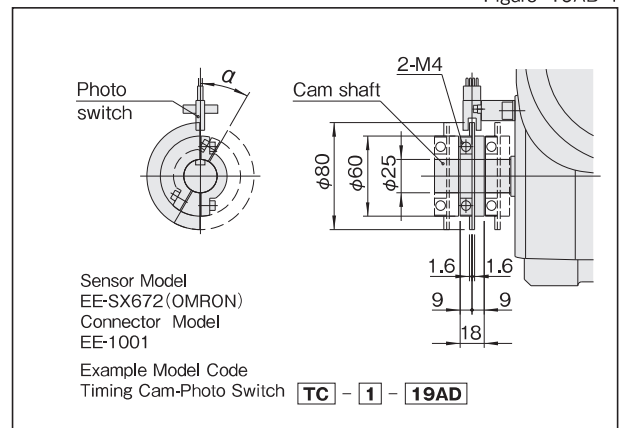
Torque limiter mounting specifications (option)

Figure 19AD-3



Timing cam-Photo switch

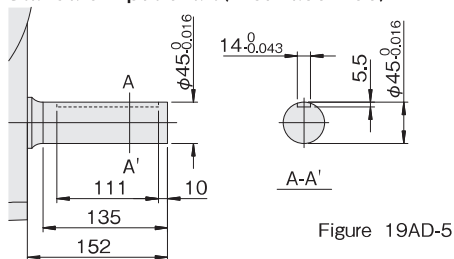
Figure 19AD-4



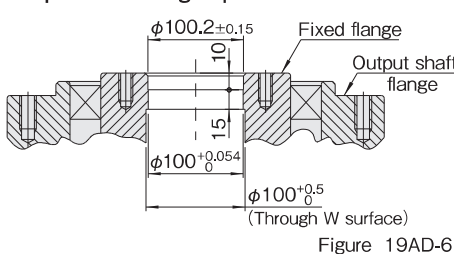
Precautions

- The dimension drawing (Figure 19AD-1, 19AD-2) shows the standard mounting position for geared motor.
- Model 19AD can be equipped with 1.5kW and 2.2kW motor. When using the 1.5kW and 2.2kW motor, the motor will protrude beyond the indexer flange, and geared motor's bottom surface will also protrude beyond Index W surface.
- Model 19AD can be equipped with torque limiter 19TAD.
- Up to 3 sets of timing cams and photo switches can be added as necessary. The timing cam can be freely adjusted to any period [α] below 180°.

Standard input shaft (T surface side)



Output fixed flange specifications



Locations of oil plug, etc., and oil capacity

Figure 19AD-7

Mounting position	1	2	5
Location			
Oil capacity (ℓ)	5	6	6.5

Precautions

- Each point indicated in the mounting positions shown in Figure 19AD-7 represents (starting at top) the oil plug (PT3/4), oil level (VB), and drain (PT3/4).
- The mounting positions correspond to code i for the indexing drives.
- The oil capacities indicated in Figure 19AD-7 are given in general figures and will differ according to the profile of the cam and the number of cam followers.

23AD

23AD Dimensions

[Unit : mm]

(a) With 2.2kW Motor

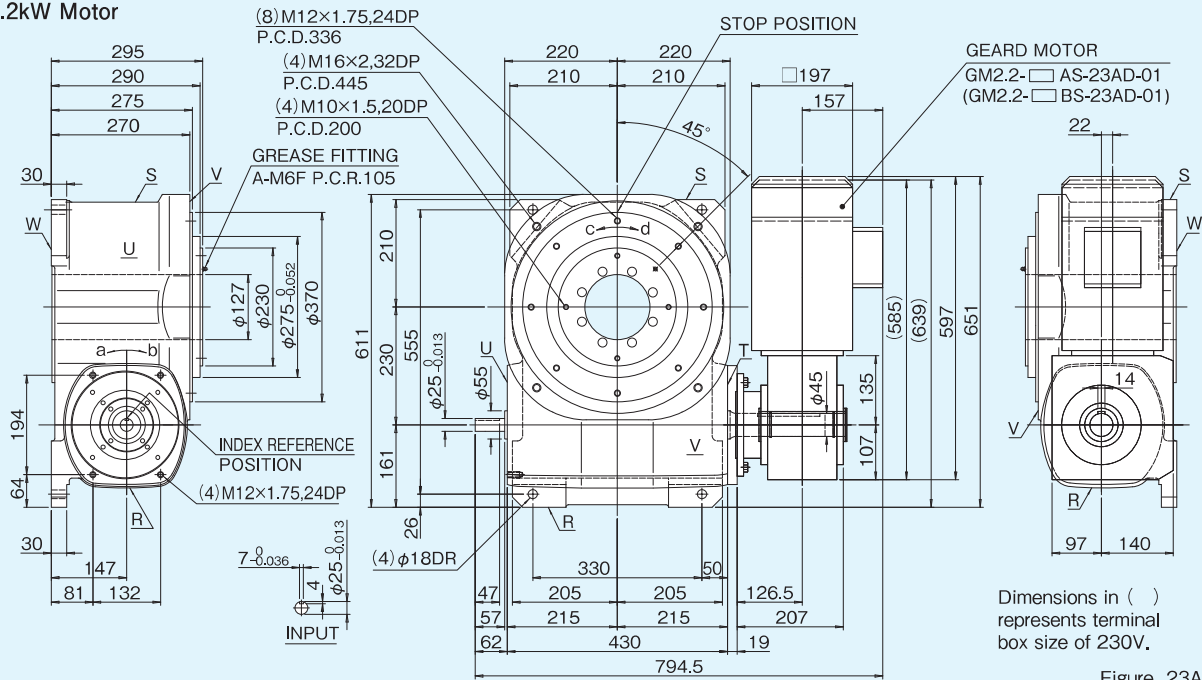


Figure 23AD-1

(b) With 3.7kW Motor

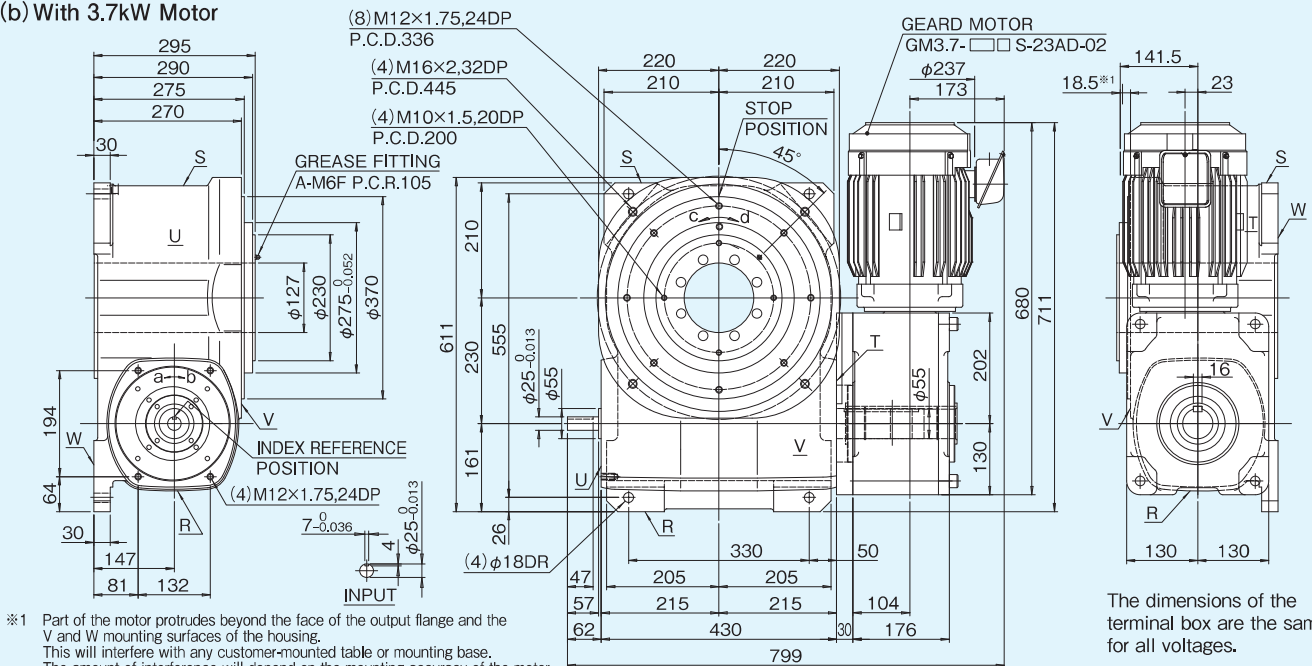


Figure 23AD-2

※1 Part of the motor protrudes beyond the face of the output flange and the V and W mounting surfaces of the housing. This will interfere with any customer-mounted table or mounting base. The amount of interference will depend on the mounting accuracy of the motor. We recommend that you design customer-mounted parts with 5 mm of clearance.

The dimensions of the terminal box are the same for all voltages.

Specifications

Table 23AD-1

Item	Symbol	Unit	Value	Item	Symbol	Unit	Value	Item	Symbol	Unit	Value
Output allowable axial load	P ₁	N	27000	Input allowable axial load	P ₄	N	6000	Indexing accuracy (1 DWELL)		sec	±30
Output allowable radial load	P ₂	N	12000	Input maximum repetitive bending force	P ₅	N	6000	Indexing accuracy (2 DWELL)		sec	±60
Output static torque	T _s	N·m	Refer to Torque Capacity Table	Input maximum repetitive allowable torque	P ₆	N·m	784	Repetitive accuracy		sec	30
Output torsional rigidity	K ₁	N·m/rad	6.2×10 ⁶	Input torsional rigidity	K ₂	N·m/rad	1.14×10 ⁵	Product weight (Index body)		kg	285
Output inertia	J _o	kg·m ²	1.685	Input inertia	J _c	kg·m ²	0.136	Housing color		Ivory	
Output allowable bending moment	P ₃	N·m	980					Geared motor paint color		2.2kW···Ivory 3.7kW···Light Silver	

Note: Input inertia: J is calculated in dwell.

1N·m≒0.102kgf·m

Specifications of geared motor

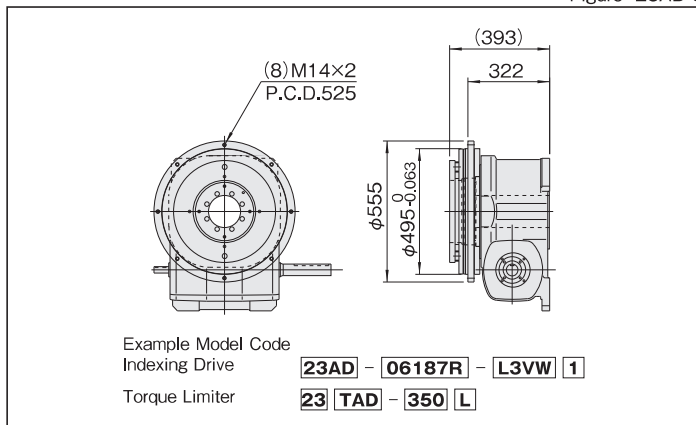
Table 23AD-3

Code		Motor Power (kW)	Actual Gear Ratio (i)	Output Shaft Speed N _M (rpm)		Output Allowable Torque T _R (N·m)		Moment of inertia J _M (kg·m ²)	Weight (kg)
200/220V	230V			50Hz	60Hz	50Hz	60Hz		
GM2.2-20.37AS-23AD-01	GM2.2-20.37BS-23AD-01	2.2	20.37	69	82	275	230	11.2×10 ⁻³	60
GM2.2-23.33AS-23AD-01	GM2.2-23.33BS-23AD-01		23.33	60	72	295	250		
GM2.2-26.93AS-23AD-01	GM2.2-26.93BS-23AD-01		26.93	52	62	340	285		
GM2.2-29.63AS-23AD-01	GM2.2-29.63BS-23AD-01		29.63	47	57	375	315		
GM2.2-34.80AS-23AD-01	GM2.2-34.80BS-23AD-01		34.80	40	48	435	365		
GM2.2-36.85AS-23AD-01	GM2.2-36.85BS-23AD-01		36.85	38	46	460	385		
GM2.2-41.89AS-23AD-01	GM2.2-41.89BS-23AD-01		41.89	34	40	520	440		
GM2.2-46.40AS-23AD-01	GM2.2-46.40BS-23AD-01		46.40	30	36	570	485		
GM3.7-10AS-23AD-02	GM3.7-10BS-23AD-02	3.7	10	150	180	205	171	16.7×10 ⁻³	80
GM3.7-15AS-23AD-02	GM3.7-15BS-23AD-02		15	100	120	308	256		
GM3.7-20AS-23AD-02	GM3.7-20BS-23AD-02		20	75	90	410	341		
GM3.7-25AS-23AD-02	GM3.7-25BS-23AD-02		25	60	72	489	407		
GM3.7-30AS-23AD-02	GM3.7-30BS-23AD-02		30	50	60	586	489		
GM3.7-40AS-23AD-02	GM3.7-40BS-23AD-02		40	37.5	45	782	652		
GM3.7-50AS-23AD-02	GM3.7-50BS-23AD-02		50	30	36	977	814		

※2.2-kW 230-VAC motor (GM2.2-□BS-23AD-01) is only available for 60 Hz.

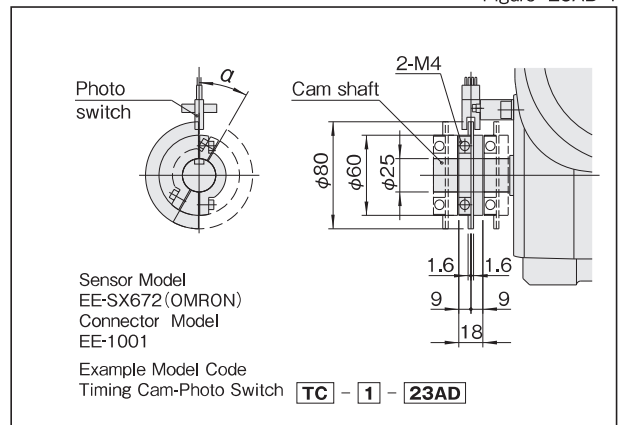
Torque limiter mounting specifications (option)

Figure 23AD-3



Timing cam-Photo switch

Figure 23AD-4



Precautions

- The dimension drawing (Figure 23AD-1, 23AD-2) shows the standard mounting position for geared motor.
- Model 23AD can be equipped with 2.2kW and 3.7kW motor. Exchange is not permitted after purchase because of different hollow size of geared motor. 5.5kW motor is also available as special instructions.
- When using the 3.7kW motor, reducer box will protrude beyond the indexer flange.
- Model 23AD can be equipped with torque limiter 23TAD.
- Up to 3 sets of timing cams and photo switches can be added as necessary. The timing cam can be freely adjusted to any period [a] below 180°.

Standard input shaft (T surface side)

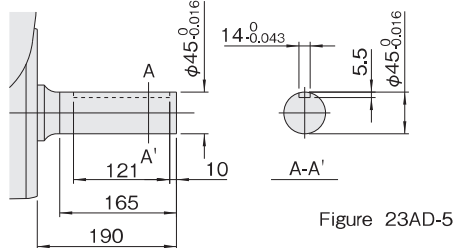


Figure 23AD-5

Output fixed flange specifications

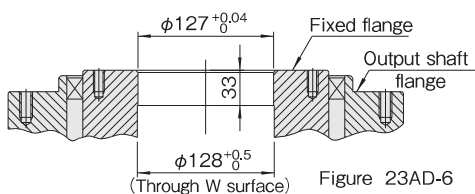


Figure 23AD-6

Locations of oil plug, etc., and oil capacity

Figure 23AD-7

Mounting position	1	2	5
Location			
Oil capacity (ℓ)	10	12	13

Precautions

- Each point indicated in the mounting positions shown in Figure 23AD-7 represents (starting at top) the oil plug (PT3/4), oil level (VB), and drain (PT3/4).
- The mounting positions correspond to code i for the indexing drives.
- The oil capacities indicated in Figure 23AD-7 are given in general figures and will differ according to the profile of the cam and the number of cam followers.

33AD

33AD Dimensions

[Unit : mm]

(a) With 5.5kW Motor

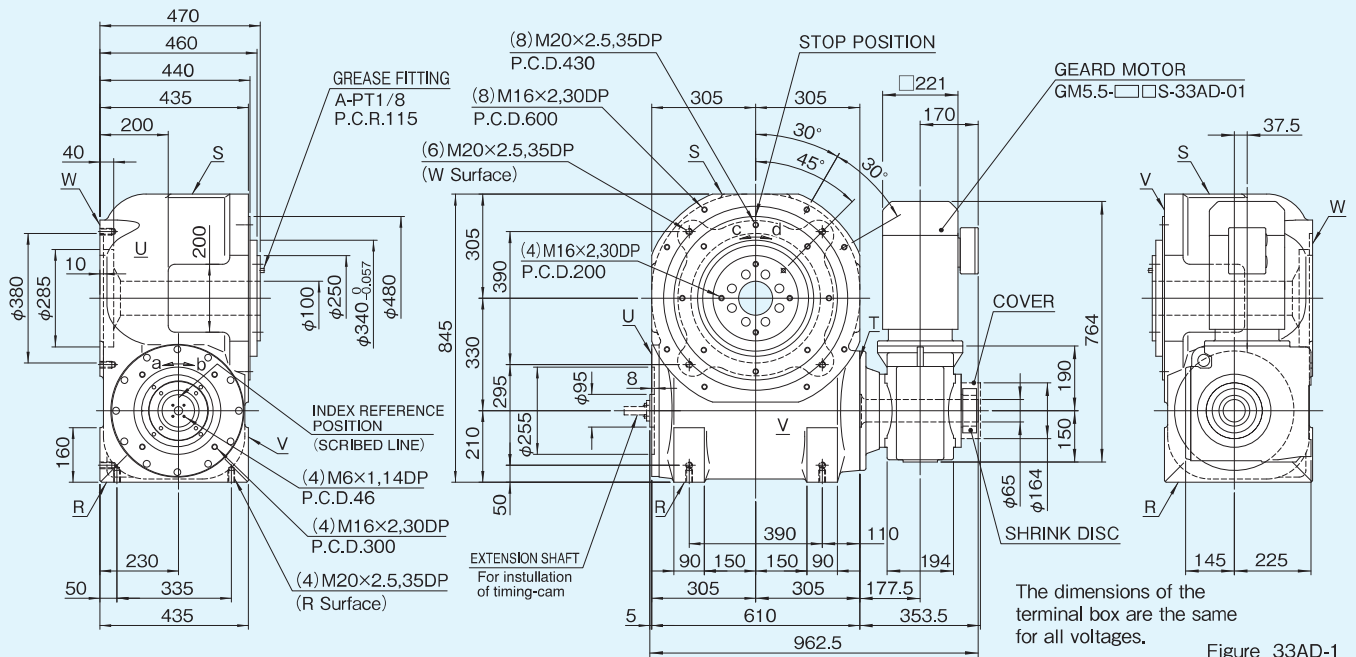


Figure 33AD-1

(b) With 7.5kW Motor

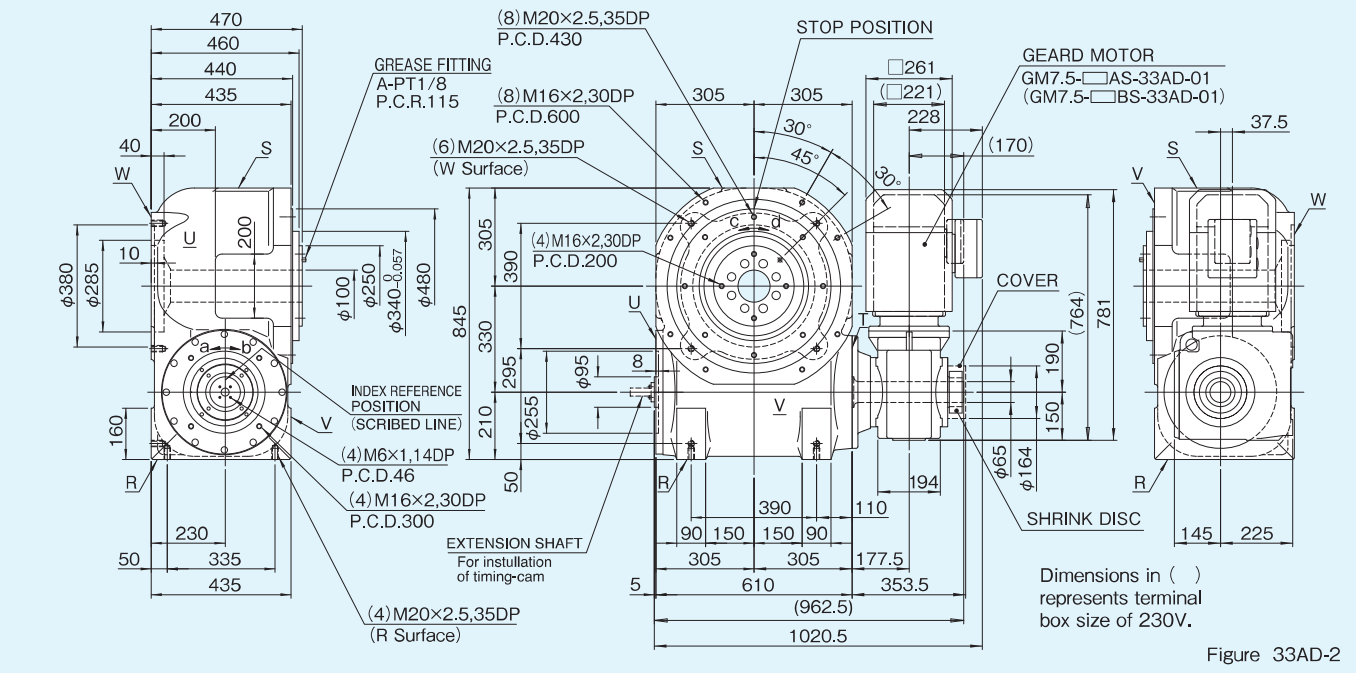


Figure 33AD-2

Specifications

Table 33AD-1

Item	Symbol	Unit	Value	Item	Symbol	Unit	Value	Item	Symbol	Unit	Value
Output allowable axial load	P_1	N	34890	Input allowable axial load	P_4	N	18440	Indexing accuracy (1 DWELL)		sec	± 20
Output allowable radial load	P_2	N	33570	Input maximum repetitive bending force	P_5	N	20900	Indexing accuracy (2 DWELL)		sec	± 40
Output static torque	T_s	N·m	Refer to Torque Capacity Table	Input maximum repetitive allowable torque	P_6	N·m	6400	Repetitive accuracy		sec	20
Output torsional rigidity	K_1	$\frac{N \cdot m}{rad}$	1.68×10^7	Input torsional rigidity	K_2	$\frac{N \cdot m}{rad}$	4.19×10^5	Product weight (Index body)		kg	1000
Output inertia	J_o	$kg \cdot m^2$	8.29	Input inertia	J_c	$kg \cdot m^2$	1.71	Housing color		Ivory	
Output allowable bending moment	P_3	N·m	2030					Geared motor paint color		Ivory	

Note: Input inertia: J is calculated in dwell.

1N·m \approx 0.102kgf·m

Specifications of geared motor

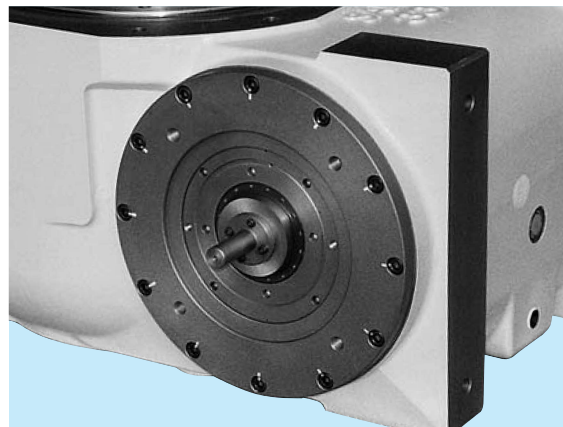
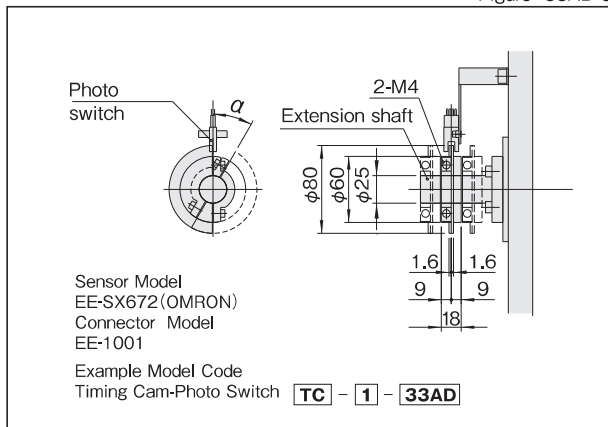
Table 33AD-3

Code		Motor Power (kW)	Actual Gear Ratio (i)	Output Shaft Speed N _M (rpm)		Output Allowable Torque T _R (N·m)		Moment of inertia J _M (kg·m ²)	Weight (kg)
200/220V	230V			50Hz	60Hz	50Hz	60Hz		
GM5.5-19.70AS-33AD-01	GM5.5-19.70BS-33AD-01	5.5	19.70	73	87	670	565	25.8×10 ⁻³	152
GM5.5-25.50AS-33AD-01	GM5.5-25.50BS-33AD-01		25.50	56	67	860	725		
GM5.5-31.43AS-33AD-01	GM5.5-31.43BS-33AD-01		31.43	46	55	1040	870		
GM5.5-34.96AS-33AD-01	GM5.5-34.96BS-33AD-01		34.96	41	49	1150	970		
GM5.5-39.10AS-33AD-01	GM5.5-39.10BS-33AD-01		39.10	37	44	1280	1080		
GM5.5-44.03AS-33AD-01	GM5.5-44.03BS-33AD-01		44.03	33	39	1440	1210		
GM5.5-47.91AS-33AD-01	GM5.5-47.91BS-33AD-01		47.91	30	36	1560	1310		
GM5.5-57.00AS-33AD-01	GM5.5-57.00BS-33AD-01		57.00	25	30	1840	1550		
GM7.5-10.93AS-33AD-01	GM7.5-10.93BS-33AD-01	7.5	10.93	133	159	510	425	38.1×10 ⁻³	166
GM7.5-15.64AS-33AD-01	GM7.5-15.64BS-33AD-01		15.64	93	111	720	605		
GM7.5-19.70AS-33AD-01	GM7.5-19.70BS-33AD-01		19.70	74	88	910	760		
GM7.5-25.50AS-33AD-01	GM7.5-25.50BS-33AD-01		25.50	57	68	1170	980		
GM7.5-31.43AS-33AD-01	GM7.5-31.43BS-33AD-01		31.43	46	55	1400	1170		
GM7.5-34.96AS-33AD-01	GM7.5-34.96BS-33AD-01		34.96	41	50	1550	1300		
GM7.5-39.10AS-33AD-01	GM7.5-39.10BS-33AD-01		39.10	37	45	1730	1450		
GM7.5-44.03AS-33AD-01	GM7.5-44.03BS-33AD-01		44.03	33	40	1940	1630		

※230 VAC is only available for 60 Hz.

Torque limiter mounting specifications (option)

Figure 33AD-3



Mounting extended shaft

Precautions

- The dimension drawing (Figure 33AD-1, 33AD-2) shows the standard mounting position for geared motor.
- Model 33AD can be equipped with 5.5kW and 7.5kW motor. 11kW motor is also available as special instructions.
- Up to 3 sets of timing cams and photo switches can be added as necessary. The timing cam can be freely adjusted to any period [a] below 180°.

Standard input shaft (T surface side)

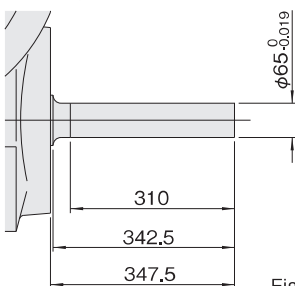


Figure 33AD-4

Output fixed flange specifications

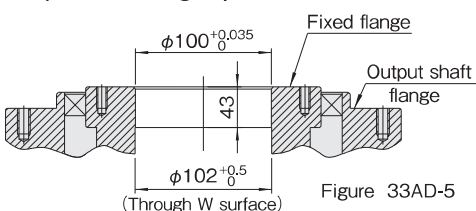


Figure 33AD-5

Locations of oil plug, etc., and oil capacity

Figure 33AD-6

Mounting position	1	2	5
Location			
Oil capacity (ℓ)	60	55	60

Precautions

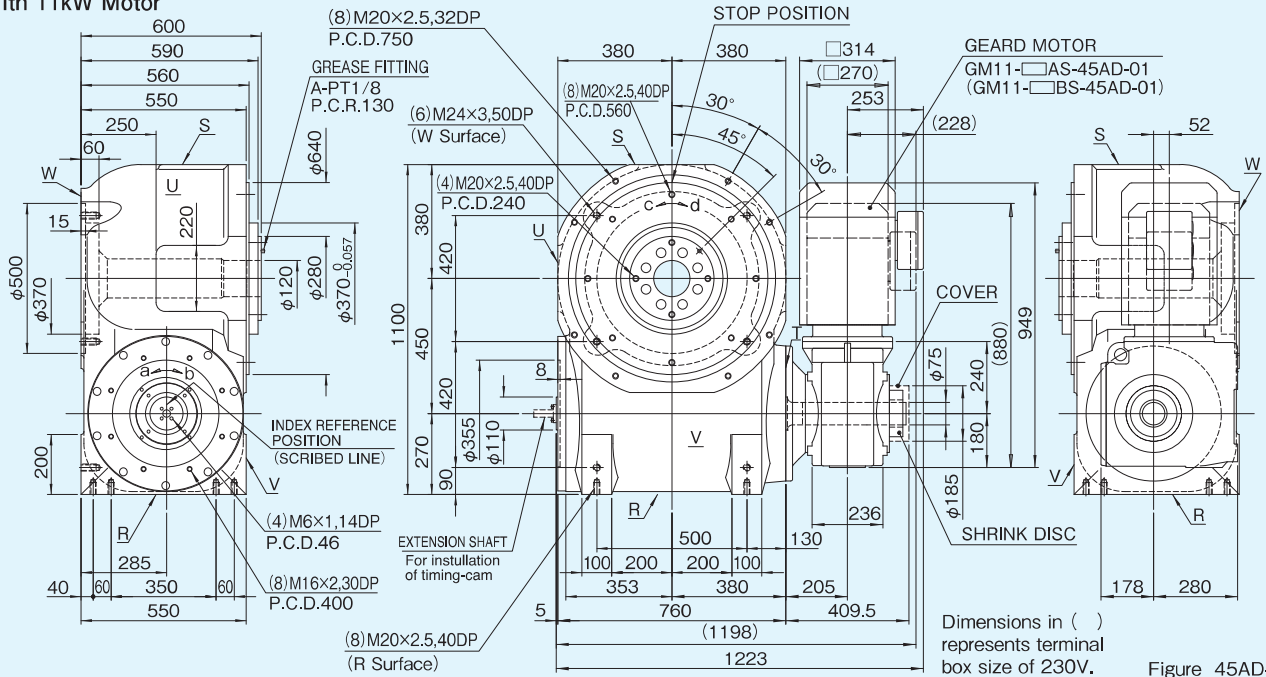
- Each point indicated in the mounting positions shown in Figure 33AD-6 represents (starting at top) the oil plug (PT3/4), oil level (VB), and drain (PT3/4).
- The mounting positions correspond to code i for the indexing drives.
- The oil capacities indicated in Figure 33AD-6 are given in general figures and will differ according to the profile of the cam and the number of cam followers.

45AD

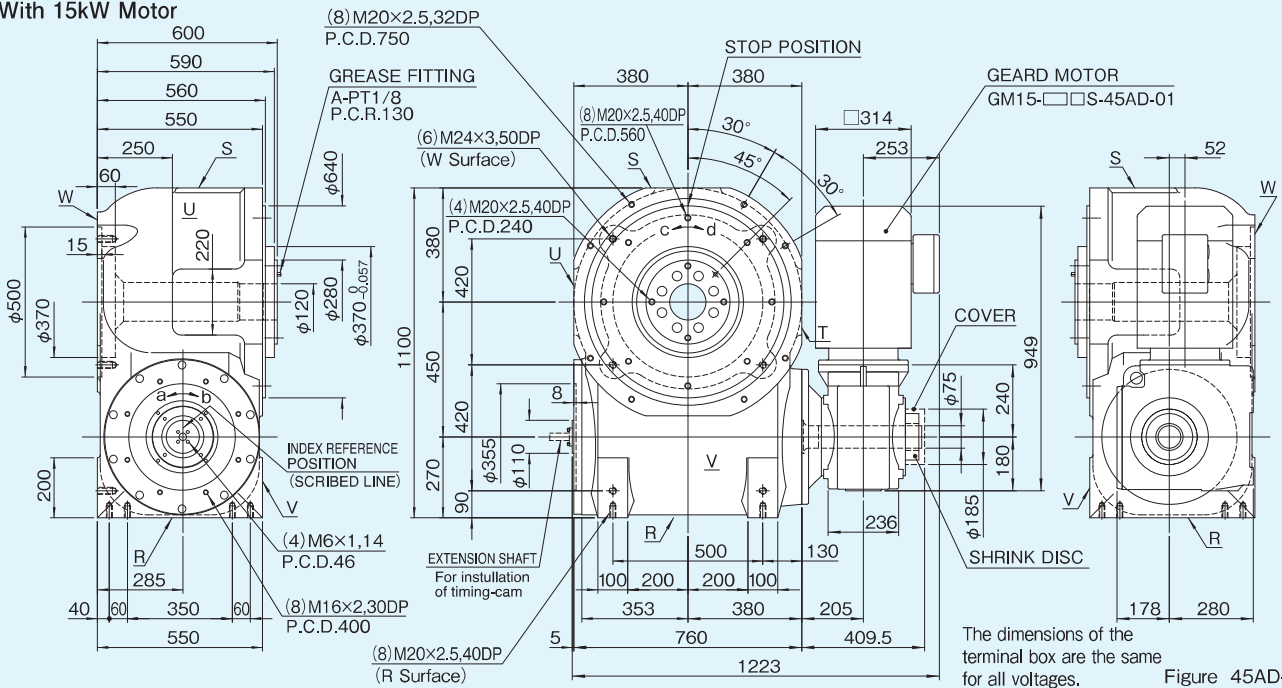
45AD Dimensions

[Unit : mm]

(a) With 11kW Motor



(b) With 15kW Motor



Specifications

Table 45AD-1

Item	Symbol	Unit	Value	Item	Symbol	Unit	Value	Item	Symbol	Unit	Value
Output allowable axial load	P_1	N	47460	Input allowable axial load	P_4	N	25100	Indexing accuracy (1 DWELL)		sec	± 20
Output allowable radial load	P_2	N	40750	Input maximum repetitive bending force	P_5	N	27000	Indexing accuracy (2 DWELL)		sec	± 40
Output static torque	T_s	N·m	Refer to Torque Capacity Table	Input maximum repetitive allowable torque	P_6	N·m	8400	Repetitive accuracy		sec	20
Output torsional rigidity	K_1	$\frac{N \cdot m}{rad}$	3.18×10^7	Input torsional rigidity	K_2	$\frac{N \cdot m}{rad}$	6.44×10^5	Product weight (Index body)		kg	About 1600
Output inertia	J_o	$kg \cdot m^2$	25.78	Input inertia	J_c	$kg \cdot m^2$	7.90	Housing color		Ivory	
Output allowable bending moment	P_3	N·m	3070					Geared motor paint color		Ivory	

Note: Input inertia: J is calculated in dwell.

1N·m \approx 0.102kgf·m

Specifications of geared motor

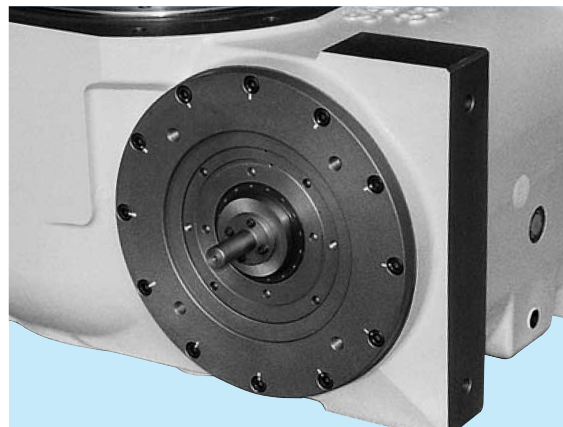
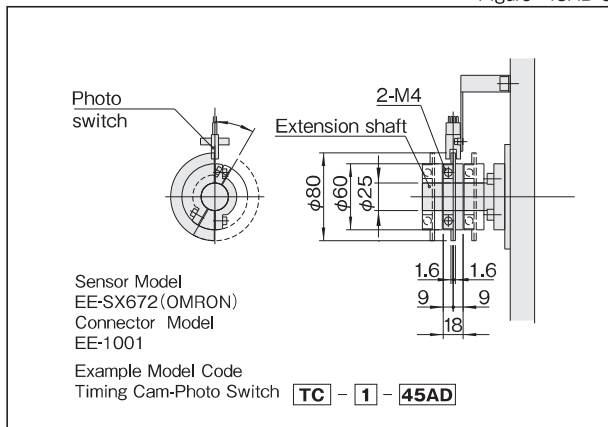
Table 45AD-3

Code		Motor Power (kW)	Actual Gear Ratio (i)	Output Shaft Speed N _M (rpm)		Output Allowable Torque T _R (N·m)		Moment of inertia J _M (kg·m ²)	Weight (kg)
200/220V	230V			50Hz	60Hz	50Hz	60Hz		
GM11-19.23AS-45AD-01	GM11-19.23BS-45AD-01	11	19.23	75	90	1320	1110	81.7×10 ⁻³	271
GM11-23.59AS-45AD-01	GM11-23.59BS-45AD-01		23.59	61	73	1610	1350		
GM11-26.39AS-45AD-01	GM11-26.39BS-45AD-01		26.39	55	66	1800	1510		
GM11-32.60AS-45AD-01	GM11-32.60BS-45AD-01		32.60	44	53	2160	1820		
GM11-36.05AS-45AD-01	GM11-36.05BS-45AD-01		36.05	40	48	2380	2000		
GM11-40.65AS-45AD-01	GM11-40.65BS-45AD-01		40.65	36	43	2680	2250		
GM11-44.89AS-45AD-01	GM11-44.89BS-45AD-01		44.89	32	39	2950	2480		
GM11-49.87AS-45AD-01	GM11-49.87BS-45AD-01		49.87	29	35	3270	2750		
GM15-9.55AS-45AD-01	GM15-9.55BS-45AD-01	15	9.55	153	183	890	745	113.0×10 ⁻³	321
GM15-15.42AS-45AD-01	GM15-15.42BS-45AD-01		15.42	95	114	1430	1200		
GM15-21.23AS-45AD-01	GM15-21.23BS-45AD-01		21.23	69	82	1970	1640		
GM15-26.39AS-45AD-01	GM15-26.39BS-45AD-01		26.39	55	66	2430	2040		
GM15-32.60AS-45AD-01	GM15-32.60BS-45AD-01		32.60	45	54	2920	2450		
GM15-36.05AS-45AD-01	GM15-36.05BS-45AD-01		36.05	41	49	3230	2700		
GM15-40.65AS-45AD-01	GM15-40.65BS-45AD-01		40.65	36	43	3630	3040		
GM15-44.89AS-45AD-01	GM15-44.89BS-45AD-01		44.89	33	39	4000	3350		

※230 VAC is only available for 60 Hz.

Torque limiter mounting specifications (option)

Figure 45AD-3



Mounting extended shaft

Precautions

- The dimension drawing(Figure 45AD-1, 45AD-2) shows the standard mounting position for geared motor.
- Model 45AD can be equipped with 11kW and 15kW motor. 18.5kW motor is also available as special instructions.
- Up to 3 sets of timing cams and photo switches can be added as necessary. The timing cam can be freely adjusted to any period [α] below 180°.

Standard input shaft (T surface side)

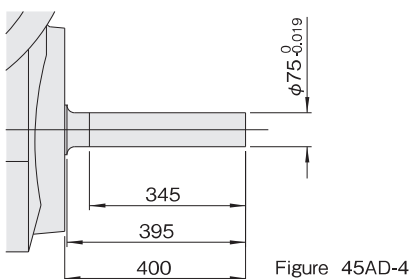


Figure 45AD-4

Output fixed flange specifications

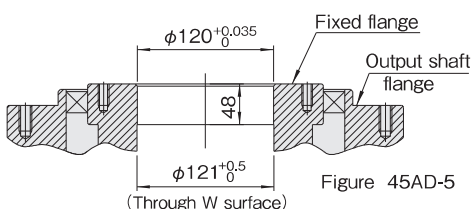


Figure 45AD-5

Locations of oil plug, etc., and oil capacity

Figure 45AD-6

Mounting position	1	2	5
Location			
Oil capacity (ℓ)	115	105	115

Precautions

- Each point indicated in the mounting positions shown in Figure 45AD-6 represents (starting at top) the oil plug (PT1), oil level (VB), and drain (PT1).
- The mounting positions correspond to code i for the indexing drives.
- The oil capacities indicated in Figure 45AD-6 are given in general figures and will differ according to the profile of the cam and the number of cam followers.

7AD Torque Capacity Tables

7AD Torque Transmission Capacity Table

- (1) 1-dwell with cam curve SMS-3 (cam curve code 7)
- (2) 1-dwell with cam curve SMCV-3 (cam curve code 8)
- (3) 2-dwell with cam curve SMS-3 (cam curve code 7)

Notes

The dynamic rated torque output, the Top values, given in this table are calculated based on an expected service life of 8,000 hours, and proper operating conditions such as mounting and lubrication.

(1) 7AD Cam curve SMS-3 (cam curve code 7) 1 Dwell

Number of Stops S	Index Period θ (deg)	CODE	Static-rated Output Torque T_s (N·m)	Dynamic-rated Output Torque Internal Inertia Load Torque						Camshaft Frictional Torque T_x (N·m)	Sankyo Cam Follower SCF (mm)	
				Top (N·m) T_{oi} (N·m)								
				Input Shaft Speed (Index/min)								
				25	50	75	100	125	150	200		
4	270	7AD 0427 7R	204.8	80.3	80.3	80.3 0.1	80.3 0.1	80.3 0.2	80.3 0.3	75.4 0.5	4.9	16
5	240	7AD 0524 7R	78.1	57.9	47.0	41.6 0.1	38.2 0.1	35.7 0.2	33.8 0.3	31.0 0.5	2.5	14
	270	7AD 0527 7R	227.6	84.6	84.6	84.6 0.1	84.6 0.1	84.6 0.2	84.6 0.2	84.6 0.4	4.6	16
6	180	7AD 0618 7R	238.1	191.4	160.5 0.1	142.2 0.1	130.4 0.2	122.0 0.3	115.5 0.4	105.9 0.8	5.6	22
	210	7AD 0621 7R	256.7	196.0	159.2	141.0 0.1	129.3 0.1	120.9 0.2	114.5 0.3	105.0 0.6	5.3	22
	240	7AD 0624 7R	271.5	193.6	157.3	139.3 0.1	127.7 0.1	119.5 0.2	113.1 0.2	103.8 0.4	5.2	22
	270	7AD 0627 7R	283.2	190.9	155.0	137.3 0.1	125.9 0.1	117.8 0.1	111.5 0.2	102.3 0.3	5.0	22
8	180	7AD 0818 7R	247.3	119.1	119.1	119.1 0.1	119.1 0.1	119.1 0.2	119.1 0.3	112.5 0.6	4.7	19
	210	7AD 0821 7R	286.6	209.9	195.7	173.3 0.1	159 0.1	148.7 0.2	140.7 0.2	129.1 0.4	5.0	22
	240	7AD 0824 7R	297.8	214.0	191.7	169.7 0.1	155.7 0.1	145.6 0.1	137.8 0.2	126.4 0.3	4.8	22
	270	7AD 0827 7R	306.3	217.1	187.6	166.1	152.4 0.1	142.5 0.1	135.0 0.1	123.8 0.3	4.7	22
10	180	7AD 1018 7R	251.7	89.0	89.0	89.0 0.1	89.0 0.1	89.0 0.2	89.0 0.3	89.0 0.5	4.3	16
	210	7AD 1021 7R	275.9	125.8	125.8	125.8 0.1	125.8 0.1	125.8 0.1	125.8 0.2	125.4 0.3	4.3	19
	240	7AD 1024 7R	283.3	127.5	127.5	127.5	127.5 0.1	127.5 0.1	127.5 0.2	122.1 0.3	4.2	19
	270	7AD 1027 7R	288.6	128.7	128.7	128.7	128.7 0.1	128.7 0.1	128.7 0.1	119.0 0.2	4.2	19
12	120	7AD 1212 7R	84.7	76.2	72.1 0.1	63.8 0.1	58.6 0.2	54.8 0.3	51.9 0.5	47.6 0.9	2.4	14
	150	7AD 1215 7R	91.6	82.4	70.1	62.1 0.1	57.0 0.1	53.3 0.2	50.4 0.3	46.3 0.6	2.3	14
	180	7AD 1218 7R	263.5	91.1	91.1	91.1 0.1	91.1 0.1	91.1 0.1	91.1 0.2	91.1 0.4	4.1	16
	210	7AD 1221 7R	271.5	92.5	92.5	92.5	92.5 0.1	92.5 0.1	92.5 0.2	92.5 0.3	4.0	16
	240	7AD 1224 7R	277.1	93.4	93.4	93.4	93.4 0.1	93.4 0.1	93.4 0.1	93.4 0.2	3.9	16
	270	7AD 1227 7R	281.1	94.1	94.1	94.1	94.1	94.1 0.1	94.1 0.1	94.1 0.2	3.9	16
15	150	7AD 1515 7R	48.7	43.8	37.8	33.4 0.1	30.7 0.1	28.7 0.2	27.2 0.3	24.9 0.4	2.1	12
	180	7AD 1518 7R	50.5	44.8	36.4	32.2	29.6 0.1	27.6 0.1	26.2 0.2	24.0 0.3	2.0	12
	210	7AD 1521 7R	102.5	89.8	72.9	64.6	59.2 0.1	55.4 0.1	52.4 0.1	48.1 0.2	2.2	14
	240	7AD 1524 7R	104.0	86.9	70.6	62.5	57.3	53.6 0.1	50.8 0.1	46.6 0.2	2.1	14
	270	7AD 1527 7R	105.1	84.3	68.5	60.6	55.6	52.0 0.1	49.2 0.1	45.2 0.1	2.1	14
16	150	7AD 1615 7R	49.4	44.4	38.9	34.5 0.1	31.6 0.1	29.6 0.2	28.0 0.2	25.7 0.4	2.0	12
	180	7AD 1618 7R	51.0	45.9	37.4	33.2	30.4 0.1	28.4 0.1	26.9 0.2	24.7 0.3	2.0	12
	210	7AD 1621 7R	52.0	44.5	36.1	32.0	29.3 0.1	27.4 0.1	26.0 0.1	23.8 0.2	2.0	12
	240	7AD 1624 7R	52.8	43.0	34.9	30.9	28.4	26.5 0.1	25.1 0.1	23.1 0.2	2.0	12
	270	7AD 1627 7R	53.3	41.7	33.9	30.0	27.5	25.7	24.4 0.1	22.4 0.1	1.9	12

Note) The torque transmission capacity is the same whether the rotating direction of the cam is right hand (R) or left hand (L). All models in the torque capacity table are shown as type R.

1N·m≒0.102kgf·m

(2) 7AD Cam curve SMCV-3 (cam curve code 8) 1 Dwell

Number of Stops S	Index Period θ (deg)	CODE	Static-rated Output Torque T_s (N·m)	Dynamic-rated Output Torque Internal Inertia Load Torque							Top (N·m) T_{oi} (N·m)	Camshaft Frictional Torque T_x (N·m)	Sankyo Cam Follower SCF (mm)
				Input Shaft Speed (Index/min)									
				25	50	75	100	125	150	200			
2	330	7AD 0233 8R	67.8	39.9	32.4 0.1	28.7 0.1	26.3 0.2	24.6 0.4	23.3 0.6	21.4 1.0	2.6	14	
	270	7AD 0327 8R	76.2	49.5	40.2 0.1	35.6 0.1	32.7 0.2	30.6 0.4	28.9 0.5	26.5 1.0	2.5	14	
3	300	7AD 0330 8R	221.5	83.5	83.5 0.1	83.5 0.1	83.5 0.2	83.5 0.3	82.3 0.4	75.5 0.8	4.6	16	
	240	7AD 0424 8R	241.4	117.7	117.7 0.1	117.7 0.1	113.2 0.2	105.8 0.4	100.2 0.5	91.9 0.9	4.8	19	
4	270	7AD 0427 8R	252.3	120.3	120.3 0.1	120.3 0.1	111.7 0.2	104.4 0.3	98.9 0.4	90.7 0.7	4.7	19	
	210	7AD 0521 8R	236.0	86.2	86.2 0.1	86.2 0.1	86.2 0.2	86.2 0.4	86.2 0.5	86.2 1.0	4.5	16	
5	240	7AD 0524 8R	247.0	88.2	88.2 0.1	88.2 0.1	88.2 0.2	88.2 0.3	88.2 0.4	88.2 0.7	4.3	16	
	180	7AD 0618 8R	277.2	206.5	173.2 0.1	153.4 0.2	140.7 0.3	131.6 0.4	124.6 0.6	114.3 1.1	5.1	22	
6	210	7AD 0621 8R	291.4	208.8	169.6 0.1	150.2 0.1	137.8 0.2	128.8 0.3	122.0 0.5	111.9 0.8	4.9	22	
	150	7AD 0815 8R	261.0	122.3	122.3 0.1	122.3 0.2	122.3 0.3	122.3 0.5	122.3 0.7	122.1 1.2	4.5	19	
8	180	7AD 0818 8R	302.0	215.5	210.4 0.1	186.3 0.1	170.9 0.2	159.8 0.3	151.3 0.5	138.8 0.8	4.8	22	
	120	7AD 1012 8R	247.0	88.2	88.2 0.1	88.2 0.2	88.2 0.4	88.2 0.6	88.2 0.8	88.2 1.5	4.3	16	
10	150	7AD 1015 8R	262.2	90.9	90.9 0.1	90.9 0.1	90.9 0.2	90.9 0.4	90.9 0.5	90.9 0.9	4.1	16	
	120	7AD 1212 8R	94.7	85.2	76.2 0.1	67.5 0.2	61.9 0.3	57.9 0.5	54.8 0.7	50.3 1.2	2.3	14	
12	150	7AD 1215 8R	271.8	92.5	92.5 0.1	92.5 0.1	92.5 0.2	92.5 0.3	92.5 0.4	92.5 0.8	4.0	16	
	120	7AD 1512 8R	49.9	44.9	40.9 0.1	36.2 0.1	33.2 0.3	31.0 0.4	29.4 0.6	27.0 1.0	2.0	12	
15	150	7AD 1515 8R	51.7	46.5	38.9	34.4 0.1	31.6 0.2	29.5 0.2	28.0 0.4	25.7 0.6	2.0	12	
	120	7AD 1612 8R	50.5	45.4	42.1 0.1	37.3 0.1	34.2 0.2	32.0 0.4	30.3 0.5	27.8 0.9	2.0	12	
16	150	7AD 1615 8R	52.1	46.8	40.0	35.4 0.1	32.5 0.2	30.4 0.2	28.7 0.3	26.4 0.6	2.0	12	

(3) 7AD Cam curve SMS-3 (cam curve code 7) 2 Dwell

S	θ (deg)	CODE	T_s (N·m)	Input Shaft Speed (Index/min)						T_x (N·m)	SCF (mm)	
				25	50	75	100	125	150			200
16	210	7AD 1621 7R2	286.6	209.9	209.9	209.9	195.7 0.1	183.0 0.1	173.3 0.1	159.0 0.2	5.0	22
	240	7AD 1624 7R2	297.8	214.0	214.0	208.9	191.7	179.2 0.1	169.7 0.1	155.7 0.2	4.8	22
	270	7AD 1627 7R2	306.3	217.1	217.1	204.5	187.6	175.5	166.1 0.1	152.4 0.1	4.7	22
20	180	7AD 2018 7R2	251.7	89.0	89.0	89.0	89.0 0.1	89.0 0.1	89.0 0.1	89.0 0.2	4.3	16
	210	7AD 2021 7R2	261.8	90.8	90.8	90.8	90.8	90.8 0.1	90.8 0.1	90.8 0.2	4.1	16
	240	7AD 2024 7R2	269.1	92.1	92.1	92.1	92.1	92.1 0.1	92.1 0.1	92.1 0.1	4.1	16
	270	7AD 2027 7R2	288.6	128.7	128.7	128.7	128.7	128.7	128.7 0.1	128.7 0.1	4.2	19
24	180	7AD 2418 7R2	96.1	86.4	83.7	74.1	68.0 0.1	63.6 0.1	60.2 0.1	55.2 0.2	2.2	14
	210	7AD 2421 7R2	99.1	89.1	81.2	71.9	66.0	61.7 0.1	58.4 0.1	53.6 0.1	2.2	14
	240	7AD 2424 7R2	101.3	91.1	78.8	69.8	64.0	59.9	56.7 0.1	52.0 0.1	2.2	14
	270	7AD 2427 7R2	281.1	94.1	94.1	94.1	94.1	94.1	94.1 0.1	94.1 0.1	3.9	16
32	180	7AD 3218 7R2	51.0	45.9	45.9	40.8	37.4	35.0 0.1	33.2 0.1	30.4 0.1	2.0	12
	210	7AD 3221 7R2	52.0	46.8	44.5	39.4	36.1	33.8	32.0 0.1	29.3 0.1	2.0	12
	240	7AD 3224 7R2	52.8	47.5	43.0	38.1	34.9	32.7	30.9 0.1	28.4 0.1	2.0	12
	270	7AD 3227 7R2	53.3	47.9	41.7	36.9	33.9	31.7	30.0	27.5 0.1	1.9	12

Note) A 2-dwell cam performs two identical indexes and stops per one turn of the input shaft. The indexing angle is the total indexing angle per one turn of the input shaft.

1N·m=0.102kgf·m

9AD Torque Capacity Tables

9AD Torque Transmission Capacity Table

- (1) 1-dwell with cam curve SMS-3 (cam curve code 7)
- (2) 1-dwell with cam curve SMCV-3 (cam curve code 8)
- (3) 2-dwell with cam curve SMS-3 (cam curve code 7)

Notes

The dynamic rated torque output, the Top values, given in this table are calculated based on an expected service life of 8,000 hours, and proper operating conditions such as mounting and lubrication.

(1) 9AD Cam curve SMS-3 (cam curve code 7) 1 Dwell

Number of Stops S	Index Period θ (deg)	CODE	Static-rated Output Torque T_s (N·m)	Dynamic-rated Output Torque Top (N·m)							Camshaft Frictional Torque T_x (N·m)	Sankyo Cam Follower SCF (mm)
				Internal Inertia Load Torque		Input Shaft Speed (Index/min)						
				25	50	75	100	125	150	200		
4	270	9AD 0427 7R	276.8	187.6	152.3 0.1	134.9 0.2	123.7 0.4	115.7 0.6	109.6 0.8	100.5 1.5	6.6	19
5	240	9AD 0524 7R	276.3	197.2	160.2 0.1	141.9 0.2	130.1 0.4	121.7 0.6	115.2 0.8	105.7 1.5	6.1	16
	270	9AD 0527 7R	308.9	219.6	178.4 0.1	157.9 0.2	144.9 0.3	135.5 0.5	128.3 0.7	117.7 1.2	6.2	19
6	180	9AD 0618 7R	441.9	366.2	297.4 0.2	263.4 0.3	241.6 0.6	225.9 0.9	213.9 1.4	196.2 2.4	8.8	26
	210	9AD 0621 7R	479.8	364.3	295.9 0.1	262.0 0.2	240.3 0.4	224.8 0.7	212.8 1.0	195.2 1.8	8.4	26
	240	9AD 0624 7R	510.2	360.9	293.2 0.1	259.6 0.2	238.1 0.3	222.7 0.5	210.8 0.8	193.4 1.4	8.1	26
	270	9AD 0627 7R	534.8	356.7	289.7 0.1	256.5 0.2	235.3 0.3	220.1 0.4	208.4 0.6	191.1 1.1	7.9	26
8	180	9AD 0818 7R	510.2	459.2	373.4 0.1	330.6 0.3	303.3 0.5	283.6 0.7	268.5 1.1	246.3 1.9	8.1	26
	210	9AD 0821 7R	541.9	452.3	367.4 0.1	325.3 0.2	298.4 0.3	279.1 0.5	264.2 0.8	242.4 1.4	7.8	26
	240	9AD 0824 7R	566.0	444.1	360.7 0.1	319.4 0.1	293.0 0.3	274.0 0.4	259.4 0.6	238.0 1.1	7.6	26
	270	9AD 0827 7R	584.4	435.6	353.8 0.1	313.3 0.1	287.4 0.2	268.8 0.3	254.5 0.5	233.4 0.8	7.4	26
10	180	9AD 1018 7R	377.1	335.3	272.4 0.1	241.2 0.2	221.2 0.4	206.9 0.6	195.9 0.8	179.7 1.4	6.3	22
	210	9AD 1021 7R	393.2	327.0	265.6 0.1	235.2 0.1	215.7 0.3	201.7 0.4	191.0 0.6	175.2 1.1	6.2	22
	240	9AD 1024 7R	404.9	318.7	258.9 0.1	229.2 0.1	210.3 0.2	196.7 0.3	186.2 0.5	170.8 0.8	6.0	22
	270	9AD 1027 7R	413.5	310.9	252.5 0.1	223.6 0.1	205.1 0.2	191.8 0.3	181.6 0.4	166.6 0.6	5.9	22
12	120	9AD 1212 7R	299.8	269.8	245.9 0.2	217.8 0.4	199.8 0.6	186.8 1.0	176.9 1.4	162.3 2.5	5.9	16
	150	9AD 1215 7R	324.4	292.0	239.2 0.1	211.8 0.2	194.3 0.4	181.7 0.6	172.1 0.9	157.8 1.6	5.6	16
	180	9AD 1218 7R	360.5	320.5	260.3 0.1	230.5 0.2	211.4 0.3	197.7 0.5	187.2 0.7	171.7 1.2	5.7	19
	210	9AD 1221 7R	372.1	310.9	252.5 0.1	223.6 0.1	205.1 0.2	191.8 0.3	181.6 0.5	166.6 0.9	5.5	19
	240	9AD 1224 7R	380.2	301.9	245.2 0.1	217.2 0.1	199.2 0.2	186.3 0.3	176.4 0.4	161.8 0.7	5.4	19
	270	9AD 1227 7R	386.2	293.7	238.6 0.1	211.2 0.1	193.8 0.1	181.2 0.2	171.6 0.3	157.4 0.5	5.4	19
15	150	9AD 1515 7R	343.6	309.2	267.9 0.1	237.2 0.2	217.6 0.3	203.5 0.5	192.7 0.8	176.7 1.3	5.4	16
	180	9AD 1518 7R	355.7	317.7	258.0 0.1	228.5 0.1	209.6 0.2	196.0 0.4	185.6 0.5	170.2 0.9	5.3	16
	210	9AD 1521 7R	363.6	306.7	249.1 0.1	220.6 0.1	202.3 0.2	189.2 0.3	179.1 0.4	164.3 0.7	5.2	16
	240	9AD 1524 7R	369.0	296.8	241.1 0.1	213.5 0.1	195.8 0.1	183.1 0.2	173.4 0.3	159.1 0.5	5.1	16
	270	9AD 1527 7R	372.8	288.0	233.9 0.1	207.1 0.1	190.0 0.1	177.7 0.2	168.2 0.2	154.3 0.4	5.0	16
16	150	9AD 1615 7R	348.3	313.5	276.0 0.1	244.3 0.2	224.1 0.3	209.6 0.5	198.5 0.7	182.1 1.3	5.3	16
	180	9AD 1618 7R	359.2	323.3	265.3 0.1	234.9 0.1	215.5 0.2	201.6 0.3	190.8 0.5	175.1 0.9	5.2	16
	210	9AD 1621 7R	366.3	315.0	255.8 0.1	226.5 0.1	207.8 0.2	194.4 0.3	184.0 0.4	168.8 0.6	5.1	16
	240	9AD 1624 7R	371.2	304.6	247.4 0.1	219.1 0.1	201.0 0.1	188.0 0.2	178.0 0.3	163.2 0.5	5.0	16
	270	9AD 1627 7R	374.6	295.4	239.9 0.1	212.5 0.1	194.9 0.1	182.3 0.2	172.6 0.2	158.3 0.4	5.0	16

Note) The torque transmission capacity is the same whether the rotating direction of the cam is right hand (R) or left hand (L). All models in the torque capacity table are shown as type R.

1N·m≒0.102kgf·m

(2) 9AD Cam curve SMCV-3 (cam curve code 8) 1 Dwell

Number of Stops S	Index Period θ (deg)	CODE	Static-rated Output Torque T_s (N·m)	Dynamic-rated Output Torque Internal Inertia Load Torque							Top (N·m) T_{oi} (N·m)	Camshaft Frictional Torque T_x (N·m)	Sankyo Cam Follower SCF (mm)
				Input Shaft Speed (Index/min)									
				25	50	75	100	125	150	200			
2	330	9AD 0233 8R	253.7	152.4	123.8 0.2	109.6 0.4	100.5 0.7	94.0 1.1	89.0 1.6	81.7 2.9	6.9	19	
	3	270	9AD 0327 8R	269.4	168.7	137.1 0.2	121.4 0.4	111.3 0.7	104.1 1.1	98.6 1.6	90.4 2.8	6.2	16
		300	9AD 0330 8R	283.7	167.8	136.3 0.1	120.7 0.3	110.7 0.6	103.5 0.9	98.0 1.3	89.9 2.3	6.0	16
4	240	9AD 0424 8R	309.2	205.4	166.8 0.2	147.7 0.4	135.5 0.7	126.7 1.1	120.0 1.5	110.0 2.7	6.2	19	
	270	9AD 0427 8R	324.4	203.0	164.9 0.1	146.0 0.3	133.9 0.5	125.3 0.8	118.6 1.2	108.8 2.1	6.1	19	
5	210	9AD 0521 8R	303.1	215.0	174.7 0.2	154.7 0.4	141.9 0.7	132.7 1.1	125.6 1.6	115.2 2.9	5.8	16	
	240	9AD 0524 8R	318.0	211.6	171.9 0.1	152.2 0.3	139.6 0.6	130.6 0.9	123.6 1.2	113.4 2.2	5.7	16	
6	180	9AD 0618 8R	522.1	398.0 0.1	323.3 0.2	286.2 0.5	262.6 0.9	245.6 1.3	232.5 1.9	213.3 3.4	8.0	26	
	210	9AD 0621 8R	552.3	390.8	317.5 0.2	281.1 0.4	257.9 0.6	241.2 1.0	228.3 1.4	209.4 2.5	7.7	26	
8	150	9AD 0815 8R	369.9	321.0 0.1	260.7 0.2	230.9 0.5	211.8 0.9	198.1 1.4	187.5 2.0	172.0 3.6	6.4	22	
	180	9AD 0818 8R	575.0	488.0	396.3 0.2	351.0 0.4	321.9 0.7	301.1 1.0	285.1 1.5	261.5 2.7	7.5	26	
10	120	9AD 1012 8R	318.0	286.2 0.1	234.8 0.3	207.9 0.6	190.7 1.1	178.4 1.7	168.9 2.4	154.9 4.3	5.7	16	
	150	9AD 1015 8R	358.6	313.2	254.4 0.2	225.2 0.4	206.6 0.7	193.2 1.1	183.0 1.5	167.8 2.7	5.7	19	
12	120	9AD 1212 8R	355.0	319.5 0.1	291.7 0.2	258.3 0.5	237.0 0.9	221.6 1.5	209.8 2.1	192.5 3.8	5.7	19	
	150	9AD 1215 8R	372.5	335.3	279.5 0.2	247.5 0.3	227.0 0.6	212.3 0.9	201.0 1.4	184.4 2.4	5.5	19	
15	120	9AD 1512 8R	351.9	316.7	289.9 0.2	256.7 0.4	235.4 0.7	220.2 1.2	208.5 1.7	191.2 3.0	5.3	16	
	150	9AD 1515 8R	363.9	327.5	275.7 0.1	244.1 0.3	223.9 0.5	209.4 0.7	198.3 1.1	181.9 1.9	5.1	16	
16	120	9AD 1612 8R	355.8	320.2	298.2 0.2	264.1 0.4	242.2 0.7	226.6 1.1	214.5 1.6	196.8 2.8	5.3	16	
	150	9AD 1615 8R	366.6	329.9	283.1 0.1	250.7 0.3	230.0 0.4	215.1 0.7	203.6 1.0	186.8 1.8	5.1	16	

(3) 9AD Cam curve SMS-3 (cam curve code 7) 2 Dwell

S	θ (deg)	CODE	T_s (N·m)	Input Shaft Speed (Index/min)							T_x (N·m)	SCF (mm)
				25	50	75	100	125	150	200		
16	210	9AD 1621 7R 2	368.9	332.0	285.9	253.1 0.1	232.2 0.2	217.2 0.3	205.6 0.4	188.6 0.6	6.4	22
	240	9AD 1624 7R 2	384.2	345.0	280.3	248.2 0.1	227.6 0.1	212.9 0.2	201.6 0.3	184.9 0.5	6.3	22
	270	9AD 1627 7R 2	584.4	526.0	435.6	385.7 0.1	353.8 0.1	330.9 0.2	313.3 0.2	287.4 0.4	7.4	26
20	180	9AD 2018 7R 2	377.1	339.4	335.3	296.9 0.1	272.4 0.2	254.7 0.3	241.2 0.4	221.2 0.7	6.3	22
	210	9AD 2021 7R 2	393.2	353.9	327.0	289.5 0.1	265.6 0.1	248.4 0.2	235.2 0.3	215.7 0.5	6.2	22
	240	9AD 2024 7R 2	404.9	364.4	318.7	282.2 0.1	258.9 0.1	242.1 0.2	229.2 0.2	210.3 0.4	6.0	22
	270	9AD 2027 7R 2	413.5	372.2	310.9	275.3	252.5 0.1	236.2 0.1	223.6 0.2	205.1 0.3	5.9	22
24	180	9AD 2418 7R 2	360.5	324.5	320.5	283.8 0.1	260.3 0.1	243.4 0.2	230.5 0.3	211.4 0.6	5.7	19
	210	9AD 2421 7R 2	372.1	334.9	310.9	275.3 0.1	252.5 0.1	236.2 0.2	223.6 0.2	205.1 0.4	5.5	19
	240	9AD 2424 7R 2	380.2	342.2	301.9	267.3 0.0	245.2 0.1	229.4 0.1	217.2 0.2	199.2 0.3	5.4	19
	270	9AD 2427 7R 2	386.2	347.6	293.7	260.1 0.0	238.6 0.1	223.1 0.1	211.2 0.1	193.8 0.3	5.4	19
32	180	9AD 3218 7R 2	359.2	323.3	323.3	289.3 0.1	265.3 0.1	248.2 0.2	234.9 0.2	215.5 0.4	5.2	16
	210	9AD 3221 7R 2	366.3	329.7	315.0	278.9	255.8 0.1	239.3 0.1	226.5 0.2	207.8 0.3	5.1	16
	240	9AD 3224 7R 2	371.2	334.1	304.6	269.7	247.4 0.1	231.4 0.1	219.1 0.1	201.0 0.2	5.0	16
	270	9AD 3227 7R 2	374.6	337.1	295.4	261.6	239.9	224.4 0.1	212.5 0.1	194.9 0.2	5.0	16

Note) A 2-dwell cam performs two identical indexes and stops per one turn of the input shaft. The indexing angle is the total indexing angle per one turn of the input shaft.

1N·m=0.102kgf·m

11AD Torque Capacity Tables

11AD Torque Transmission Capacity Table

(1) 1-dwell with cam curve SMS-3 (cam curve code 7)

(2) 1-dwell with cam curve SMCV-3 (cam curve code 8)

(3) 2-dwell with cam curve SMS-3 (cam curve code 7)

Notes

The dynamic rated torque output, the Top values, given in this table are calculated based on an expected service life of 8,000 hours, and proper operating conditions such as mounting and lubrication.

(1) 11AD Cam curve SMS-3 (cam curve code 7) 1 Dwell

Number of Stops S	Index Period θ (deg)	CODE	Static-rated Output Torque T_s (N·m)	Dynamic-rated Output Torque Top (N·m)								Camshaft Frictional Torque T_x (N·m)	Sankyo Cam Follower SCF (mm)
				Internal Inertia Load Torque				Toi (N·m)					
				25	50	75	100	125	150	200	200		
4	270	11AD 0427 7R	540.7	387.7 0.1	314.9 0.3	278.8 0.6	255.8 1.1	239.2 1.7	226.5 2.5	207.8 4.5	10.2	26	
	240	11AD 0524 7R	365.1	307.1 0.1	249.4 0.3	220.8 0.7	202.6 1.3	189.5 2.0	179.4 2.9	164.5 5.2	8.1	22	
5	270	11AD 0527 7R	606.3	455.5 0.1	370.0 0.2	327.6 0.5	300.5 0.9	281.1 1.4	266.1 2.1	244.1 3.7	9.5	26	
	180	11AD 0618 7R	680.3	564.2 0.1	458.3 0.4	405.8 1.0	372.2 1.8	348.1 2.8	329.6 4.0	302.4 7.1	12.4	32	
6	210	11AD 0621 7R	738.2	561.2 0.1	455.8 0.3	403.6 0.7	370.3 1.3	346.3 2.0	327.8 2.9	300.7 5.2	11.8	32	
	240	11AD 0624 7R	784.9	555.9 0.1	451.6 0.3	399.8 0.6	366.8 1.0	343.0 1.6	324.8 2.3	297.9 4.0	11.4	32	
	270	11AD 0627 7R	822.5	549.3 0.2	446.2 0.2	395.1 0.4	362.4 0.8	339.0 1.2	320.9 1.8	294.4 3.2	11.1	32	
8	180	11AD 0818 7R	756.5	666.3 0.1	541.2 0.3	479.2 0.7	439.6 1.3	411.1 2.1	389.3 3.0	357.1 5.3	10.9	30	
	210	11AD 0821 7R	833.4	696.5 0.1	565.7 0.2	500.9 0.6	459.5 1.0	429.8 1.5	406.9 2.2	373.2 4.0	11.0	32	
	240	11AD 0824 7R	870.1	683.7 0.2	555.4 0.2	491.8 0.4	451.1 0.8	421.9 1.2	399.4 1.7	366.4 3.0	10.7	32	
	270	11AD 0827 7R	898.3	670.6 0.1	544.7 0.1	482.3 0.3	442.4 0.6	413.8 0.9	391.8 1.3	359.4 2.4	10.4	32	
10	180	11AD 1018 7R	678.0	603.6 0.1	490.3 0.3	434.1 0.6	398.2 1.0	372.4 1.6	352.6 2.3	323.5 4.1	8.9	26	
	210	11AD 1021 7R	708.9	589.3 0.2	478.7 0.2	423.8 0.4	388.8 0.8	363.6 1.2	344.3 1.7	315.8 3.0	8.7	26	
	240	11AD 1024 7R	891.4	745.1 0.2	605.2 0.2	535.9 0.3	491.6 0.6	459.7 1.0	435.3 1.4	399.3 2.5	9.8	30	
	270	11AD 1027 7R	913.2	727.9 0.1	591.3 0.1	523.6 0.3	480.3 0.5	449.2 0.8	425.3 1.1	390.1 2.0	9.6	30	
12	120	11AD 1212 7R	524.0	471.6 0.1	471.6 0.5	449.0 1.2	411.9 2.1	256.8 3.3	243.2 4.8	223.1 8.6	7.1	19	
	150	11AD 1215 7R	642.7	578.4 0.1	578.4 0.4	512.4 0.8	470.1 1.4	293.1 2.2	277.5 3.2	254.5 5.6	7.4	22	
	180	11AD 1218 7R	690.8	621.7 0.1	568.0 0.2	503.0 0.6	461.4 1.0	287.7 1.5	272.4 2.2	249.8 3.9	7.1	22	
	210	11AD 1221 7R	725.6	653.0 0.2	555.9 0.2	492.2 0.4	451.5 0.7	281.5 1.1	266.5 1.6	244.5 2.9	6.9	22	
	240	11AD 1224 7R	751.2	669.0 0.1	543.4 0.1	481.1 0.3	441.4 0.6	275.2 0.9	260.5 1.2	239.0 2.2	6.8	22	
	270	11AD 1227 7R	1087.2	613.8 0.1	498.6 0.1	441.5 0.2	405.0 0.4	378.8 0.6	358.6 0.9	328.9 1.6	8.1	26	
15	150	11AD 1515 7R	637.9	574.1 0.1	574.1 0.3	574.1 0.6	537.2 1.1	290.1 1.7	274.6 2.5	251.9 4.5	6.5	19	
	180	11AD 1518 7R	673.3	606.0 0.2	606.0 0.2	569.6 0.4	522.5 0.8	282.1 1.2	267.1 1.7	245.0 3.1	6.4	19	
	210	11AD 1521 7R	697.6	627.8 0.1	625.2 0.1	553.6 0.3	507.8 0.6	274.2 0.9	259.6 1.3	238.2 2.3	6.2	19	
	240	11AD 1524 7R	714.9	643.4 0.1	608.1 0.1	538.4 0.2	493.9 0.4	266.7 0.7	252.5 1.0	231.6 1.7	6.1	19	
	270	11AD 1527 7R	727.6	654.8 0.1	592.1 0.1	524.3 0.2	481.0 0.3	259.7 0.5	245.9 0.8	225.6 1.4	6.1	19	
16	150	11AD 1615 7R	651.2	586.1 0.1	586.1 0.3	586.1 0.6	556.2 1.0	300.3 1.6	284.3 2.4	260.8 4.2	6.5	19	
	180	11AD 1618 7R	684.1	615.7 0.2	615.7 0.2	588.3 0.4	539.7 0.7	291.4 1.1	275.9 1.6	253.1 2.9	6.3	19	
	210	11AD 1621 7R	706.4	635.8 0.1	635.8 0.1	570.8 0.3	523.6 0.5	282.7 0.8	267.7 1.2	245.6 2.1	6.2	19	
	240	11AD 1624 7R	722.2	650.0 0.1	626.2 0.1	554.5 0.2	508.6 0.4	274.7 0.6	260.0 0.9	238.5 1.6	6.1	19	
	270	11AD 1627 7R	733.6	660.2 0.1	609.2 0.1	539.4 0.2	494.8 0.3	267.2 0.5	253.0 0.7	232.1 1.3	6.0	19	

Note) The torque transmission capacity is the same whether the rotating direction of the cam is right hand (R) or left hand (L). All models in the torque capacity table are shown as type R.

1N·m≒0.102kgf·m

(2) 11AD Cam curve SMCV-3 (cam curve code 8) 1 Dwell

Number of Stops S	Index Period θ (deg)	CODE	Static-rated Output Torque T_s (N·m)	Dynamic-rated Output Torque Internal Inertia Load Torque						Top (N·m) T_{oi} (N·m)	Camshaft Frictional Torque T_x (N·m)	Sankyo Cam Follower SCF (mm)
				Input Shaft Speed (Index/min)								
				25	50	75	100	125	150			
2	330	11AD 0233 8R	340.2	200.9 0.1	163.2 0.5	144.5 1.1	132.5 2.0	123.9 3.2	117.3 4.6	107.6 8.1	8.7	22
3	270	11AD 0327 8R	321.8	225.7 0.1	183.3 0.6	162.3 1.3	148.9 2.4	139.2 3.7	131.8 5.3	120.9 9.4	7.5	19
	300	11AD 0330 8R	344.2	226.1 0.1	183.7 0.5	162.6 1.1	149.2 1.9	139.5 3.0	132.1 4.3	121.2 7.6	7.3	19
4	240	11AD 0424 8R	392.8	284.6 0.1	231.2 0.6	204.7 1.3	187.8 2.3	175.6 3.5	166.3 5.1	152.5 9.1	7.8	22
	270	11AD 0427 8R	638.3	421.2 0.1	342.1 0.4	303.0 0.9	277.9 1.6	259.9 2.5	246.1 3.6	225.7 6.3	9.3	26
5	210	11AD 0521 8R	413.0	339.9 0.2	276.1 0.6	244.5 1.4	224.3 2.4	209.8 3.8	198.6 5.4	182.2 9.6	7.7	22
	240	11AD 0524 8R	441.8	337.8 0.1	274.4 0.5	242.9 1.0	222.8 1.8	208.4 2.9	197.3 4.2	181.0 7.4	7.4	22
6	180	11AD 0618 8R	803.0	613.0 0.2	497.9 0.6	440.9 1.4	404.4 2.5	378.2 4.0	358.1 5.7	328.5 10.1	11.2	32
	210	11AD 0621 8R	849.2	601.9 0.1	488.9 0.5	432.9 1.0	397.1 1.9	371.4 2.9	351.6 4.2	322.6 7.4	10.8	32
8	150	11AD 0815 8R	804.6	724.1 0.2	596.2 0.7	527.9 1.5	484.3 2.7	452.9 4.2	428.8 6.1	393.3 10.8	10.5	30
	180	11AD 0818 8R	854.0	716.0 0.1	581.6 0.5	515.0 1.1	472.4 1.9	441.8 2.9	418.3 4.2	383.7 7.5	10.1	30
10	120	11AD 1012 8R	441.8	397.6 0.2	374.8 0.9	331.9 2.1	304.4 3.7	284.7 5.8	269.6 8.3	247.3 14.8	7.4	22
	150	11AD 1015 8R	484.8	436.3 0.1	367.2 0.6	325.1 1.3	298.2 2.4	278.9 3.7	264.1 5.3	242.2 9.5	7.1	22
12	120	11AD 1212 8R	675.2	607.7 0.2	607.7 0.8	561.6 1.8	515.1 3.1	321.2 4.9	304.1 7.0	278.9 12.5	7.2	22
	150	11AD 1215 8R	727.0	654.3 0.1	615.5 0.5	545.0 1.1	499.9 2.0	311.7 3.1	295.1 4.5	270.7 8.0	6.9	22
15	120	11AD 1512 8R	662.0	595.8 0.2	595.8 0.6	595.8 1.4	585.1 2.5	315.9 3.9	299.1 5.6	274.4 9.9	6.4	19
	150	11AD 1515 8R	698.6	628.7 0.1	628.7 0.4	612.8 0.9	562.1 1.6	303.5 2.5	287.4 3.6	263.6 6.3	6.2	19
16	120	11AD 1612 8R	673.6	606.2 0.1	606.2 0.6	606.2 1.3	604.8 2.3	326.6 3.6	309.2 5.2	283.6 9.3	6.4	19
	150	11AD 1615 8R	707.3	636.6 0.1	636.6 0.4	631.8 0.8	579.6 1.5	313.0 2.3	296.3 3.4	271.8 6.0	6.2	19

(3) 11AD Cam curve SMS-3 (cam curve code 7) 2 Dwell

S	θ (deg)	CODE	T_s (N·m)	Input Shaft Speed (Index/min)						T_x (N·m)	SCF (mm)	
				25	50	75	100	125	150			200
16	210	11AD 1621 7R 2	833.4	750.1	696.5 0.1	616.7 0.3	565.7 0.5	529.1 0.8	500.9 1.1	459.5 2.0	11.0	32
	240	11AD 1624 7R 2	870.1	783.1	683.7 0.1	605.4 0.2	555.4 0.4	519.4 0.6	491.8 0.9	451.1 1.5	10.7	32
	270	11AD 1627 7R 2	898.3	808.5	670.6 0.1	593.8 0.2	544.7 0.3	509.4 0.5	482.3 0.7	442.4 1.2	10.4	32
20	180	11AD 2018 7R 2	678.0	610.2	603.6 0.1	534.5 0.3	490.3 0.5	458.5 0.8	434.1 1.2	398.2 2.1	8.9	26
	210	11AD 2021 7R 2	708.9	638.0	589.3 0.1	521.8 0.2	478.7 0.4	447.7 0.6	423.8 0.8	388.8 1.5	8.7	26
	240	11AD 2024 7R 2	891.4	802.3	745.1 0.1	659.7 0.2	605.2 0.3	566.0 0.5	535.9 0.7	491.6 1.2	9.8	30
	270	11AD 2027 7R 2	913.2	821.9	727.9 0.1	644.6 0.1	591.3 0.2	553.0 0.4	523.6 0.5	480.3 1.0	9.6	30
24	180	11AD 2418 7R 2	690.8	621.7	621.7 0.1	619.2 0.3	568.0 0.5	354.2 0.8	335.3 1.1	307.6 2.0	7.1	22
	210	11AD 2421 7R 2	725.6	653.0	653.0 0.1	606.0 0.2	555.9 0.4	346.6 0.6	328.1 0.8	301.0 1.4	6.9	22
	240	11AD 2424 7R 2	751.2	676.1	669.0 0.1	592.4 0.2	543.4 0.3	338.8 0.4	320.8 0.6	294.2 1.1	6.8	22
	270	11AD 2427 7R 2	1087.2	755.7	613.8 0.0	543.5 0.1	498.6 0.2	466.3 0.3	441.5 0.4	405.0 0.8	8.1	26
32	180	11AD 3218 7R 2	684.1	615.7	615.7 0.1	615.7 0.2	615.7 0.4	358.8 0.6	339.7 0.8	311.6 1.5	6.3	19
	210	11AD 3221 7R 2	706.4	635.8	635.8 0.1	635.8 0.2	635.8 0.3	348.1 0.4	329.6 0.6	302.3 1.1	6.2	19
	240	11AD 3224 7R 2	722.2	650.0	650.0 0.1	650.0 0.1	626.2 0.2	338.1 0.3	320.1 0.5	293.7 0.8	6.1	19
	270	11AD 3227 7R 2	733.6	660.2	660.2 0.1	660.2 0.1	609.2 0.2	329.0 0.3	311.5 0.4	285.7 0.6	6.0	19

Note) A 2-dwell cam performs two identical indexes and stops per one turn of the input shaft. The indexing angle is the total indexing angle per one turn of the input shaft.

1N·m≒0.102kgf·m

15AD Torque Capacity Tables

15AD Torque Transmission Capacity Table

- (1) 1-dwell with cam curve SMS-3 (cam curve code 7)
- (2) 1-dwell with cam curve SMCV-3 (cam curve code 8)
- (3) 2-dwell with cam curve SMS-3 (cam curve code 7)

Notes

The dynamic rated torque output, the Top values, given in this table are calculated based on an expected service life of 8,000 hours, and proper operating conditions such as mounting and lubrication.

(1) 15AD Cam curve SMS-3 (cam curve code 7) 1 Dwell

Number of Stops S	Index Period θ (deg)	CODE	Static-rated Output Torque T_s (N·m)	Dynamic-rated Output Torque Top (N·m)								Camshaft Frictional Torque T_x (N·m)	Sankyo Cam Follower SCF (mm)
				Internal Inertia Load Torque				Toi (N·m)					
				25	50	75	100	125	150	200			
4	270	15AD 0427 7R	872.2	657.4 0.3	534.0 1.3	472.8 3.0	433.7 5.4	405.7 8.4	384.1 12.1	352.3 21.6	17.2	32	
	240	15AD 0524 7R	899.6	741.9 0.3	602.6 1.4	533.6 3.1	489.4 5.5	457.8 8.6	433.4 12.3	397.6 22.0	16.1	30	
5	270	15AD 0527 7R	964.3	741.4 0.3	602.2 1.1	533.3 2.4	489.2 4.3	457.5 6.8	433.1 9.8	397.3 17.3	15.7	30	
	180	15AD 0618 7R	1309.2	1135.9 0.5	922.6 2.1	817.0 4.7	749.4 8.3	700.9 12.9	663.6 18.6	608.7 33.1	22.1	40	
6	210	15AD 0621 7R	2014.8	1634.0 0.4	1327.2 1.5	1175.2 3.4	1078.0 6.1	1008.2 9.5	954.5 13.7	875.6 24.3	25.4	47	
	240	15AD 0624 7R	2158.5	1624.8 0.3	1319.8 1.2	1168.6 2.6	1072.0 4.7	1002.6 7.3	949.2 10.5	870.7 18.6	24.5	47	
	270	15AD 0627 7R	2276.9	1610.9 0.2	1308.4 0.9	1158.6 2.1	1062.8 3.7	993.9 5.7	941.0 8.3	863.2 14.7	23.8	47	
	180	15AD 0818 7R	1555.5	1400.0 0.4	1186.5 1.6	1050.6 3.6	963.7 6.4	901.3 10.0	853.4 14.4	782.8 25.7	20.5	40	
8	210	15AD 0821 7R	2311.5	2056.5 0.3	1670.4 1.2	1479.0 2.7	1356.8 4.8	1268.9 7.5	1201.4 10.8	1102.0 19.2	23.6	47	
	240	15AD 0824 7R	2430.2	2025.8 0.2	1645.5 0.9	1457.0 2.1	1336.5 3.7	1250.0 5.7	1183.5 8.3	1085.6 14.7	22.9	47	
	270	15AD 0827 7R	2523.1	1992.5 0.2	1618.4 0.7	1433.0 1.6	1314.5 2.9	1229.4 4.5	1164.0 6.5	1067.7 11.6	22.4	47	
	180	15AD 1018 7R	1384.0	1245.6 0.3	1077.7 1.3	954.3 2.9	875.4 5.1	818.7 8.0	775.1 11.5	711.0 20.5	17.2	35	
10	210	15AD 1021 7R	1471.4	1306.2 0.2	1061.0 0.9	939.4 2.1	861.8 3.8	806.0 5.9	763.1 8.5	700.0 15.0	16.7	35	
	240	15AD 1024 7R	1913.0	1659.5 0.2	1347.9 0.7	1193.5 1.7	1094.8 3.0	1023.9 4.7	969.4 6.7	889.3 11.9	18.4	40	
	270	15AD 1027 7R	1973.6	1627.0 0.1	1321.6 0.6	1170.2 1.3	1073.4 2.4	1003.9 3.7	950.5 5.3	871.9 9.4	18.1	40	
	120	15AD 1212 7R	1111.1	1000.0 0.6	1000.0 2.5	1000.0 5.6	923.0 10.0	575.5 15.7	544.9 22.6	499.8 40.1	13.5	26	
12	150	15AD 1215 7R	1569.9	1369.7 0.4	1112.6 1.5	985.1 3.3	903.7 6.0	704.3 9.3	666.8 13.4	611.7 23.8	14.7	30	
	180	15AD 1218 7R	1744.1	1423.6 0.3	1156.3 1.1	1023.9 2.4	939.2 4.2	732.0 6.6	693.0 9.5	635.7 16.8	14.8	32	
	210	15AD 1221 7R	1826.7	1391.1 0.2	1129.9 0.8	1000.5 1.7	917.8 3.1	715.3 4.8	677.2 6.9	621.2 12.3	14.4	32	
	240	15AD 1224 7R	2282.0	1567.5 0.2	1273.2 0.6	1127.3 1.4	1034.1 2.5	879.2 3.8	832.4 5.5	763.6 9.8	15.9	35	
	270	15AD 1227 7R	2339.4	1531.9 0.1	1244.3 0.5	1101.8 1.1	1010.7 1.9	859.3 3.0	813.6 4.4	746.3 7.8	15.7	35	
	150	15AD 1515 7R	1388.9	1250.0 0.3	1250.0 1.3	1250.0 2.9	1223.1 5.2	660.4 8.2	625.3 11.7	573.6 20.9	12.4	26	
15	180	15AD 1518 7R	1792.0	1513.9 0.2	1229.6 0.8	1088.8 1.9	998.8 3.4	778.4 5.3	737.0 7.6	676.0 13.5	13.8	30	
	210	15AD 1521 7R	1852.5	1469.7 0.2	1193.7 0.6	1057.0 1.4	969.6 2.5	755.7 3.9	715.5 5.6	656.3 10.0	13.5	30	
	240	15AD 1524 7R	1895.3	1428.1 0.1	1160.0 0.5	1027.2 1.1	942.2 1.9	734.3 3.0	695.3 4.3	637.8 7.6	13.3	30	
	270	15AD 1527 7R	1998.6	1473.9 0.1	1197.1 0.4	1060.0 0.9	972.4 1.5	757.9 2.4	717.5 3.5	658.2 6.1	13.6	32	
16	150	15AD 1615 7R	1422.9	1280.6 0.3	1280.6 1.2	1280.6 2.8	1269.3 4.9	685.4 7.7	648.9 11.1	595.3 19.7	12.3	26	
	180	15AD 1618 7R	1508.2	1357.4 0.2	1357.4 0.9	1348.8 1.9	1237.2 3.4	668.1 5.3	632.5 7.7	580.2 13.7	12.0	26	
	210	15AD 1621 7R	1567.8	1411.0 0.2	1411.0 0.6	1313.0 1.4	1204.4 2.5	650.4 3.9	615.7 5.6	564.8 10.0	11.8	26	
	240	15AD 1624 7R	1610.4	1449.4 0.1	1443.8 0.5	1278.5 1.1	1172.8 1.9	633.3 3.0	599.6 4.3	550.0 7.7	11.7	26	
	270	15AD 1627 7R	1941.1	1428.9 0.1	1160.6 0.4	1027.7 0.8	942.7 1.4	734.7 2.2	695.6 3.2	638.1 5.7	13.1	30	

Note) The torque transmission capacity is the same whether the rotating direction of the cam is right hand (R) or left hand (L). All models in the torque capacity table are shown as type R.

1N·m≒0.102kgf·m

(2) 15AD Cam curve SMCV-3 (cam curve code 8) 1 Dwell

Number of Stops S	Index Period θ (deg)	CODE	Static-rated Output Torque T_s (N·m)	Dynamic-rated Output Torque Internal Inertia Load Torque							Top (N·m) T_{oi} (N·m)	Camshaft Frictional Torque T_x (N·m)	Sankyo Cam Follower SCF (mm)
				Input Shaft Speed (Index/min)									
				25	50	75	100	125	150	200			
2	330	15AD 0233 8R	757.4	499.0 0.6	405.3 2.5	358.9 5.7	329.2 10.1	307.9 15.8	291.5 22.8	267.4 40.5	17.3	30	
	270	15AD 0327 8R	673.7	500.0 0.7	406.2 2.8	359.6 6.2	329.9 11.1	308.5 17.3	292.1 24.9	268.0 44.3	14.2	26	
3	300	15AD 0330 8R	724.6	502.4 0.6	408.1 2.2	361.4 5.0	331.5 9.0	310.0 14.0	293.5 20.2	269.2 35.8	13.9	26	
	240	15AD 0424 8R	1001.7	729.9 0.6	592.8 2.4	524.9 5.4	481.5 9.7	450.4 15.1	426.4 21.8	391.1 38.7	16.2	32	
4	270	15AD 0427 8R	1066.4	726.9 0.5	590.4 1.9	522.8 4.3	479.6 7.7	448.5 12.0	424.7 17.2	389.5 30.6	15.8	32	
	210	15AD 0521 8R	1013.2	819.5 0.6	665.6 2.5	589.4 5.7	540.7 10.2	505.7 15.9	478.7 22.9	439.2 40.7	15.3	30	
5	240	15AD 0524 8R	1121.1	862.8 0.5	700.8 2.0	620.5 4.4	569.2 7.9	532.4 12.3	504.0 17.8	462.3 31.6	15.4	32	
	180	15AD 0618 8R	1600.6	1256.0 0.7	1020.2 2.9	903.3 6.6	828.6 11.8	775.0 18.4	733.7 26.5	673.1 47.0	20.2	40	
6	210	15AD 0621 8R	2362.5	1769.3 0.5	1437.2 2.2	1272.6 4.9	1167.3 8.6	1091.7 13.5	1033.6 19.4	948.2 34.5	23.3	47	
	150	15AD 0815 8R	1345.8	1211.2 0.8	1003.6 3.3	888.7 7.4	815.2 13.1	762.4 20.5	721.8 29.5	662.2 52.5	17.4	35	
8	180	15AD 0818 8R	1811.7	1576.5 0.1	1280.5 0.5	1133.8 1.1	1040.1 1.9	972.7 2.9	921.0 4.2	844.8 7.5	19.0	40	
	120	15AD 1012 8R	1080.6	972.5 1.0	902.2 3.9	798.8 8.8	732.8 15.6	685.3 24.3	648.9 35.1	595.2 62.3	14.9	30	
10	150	15AD 1015 8R	1224.5	1102.1 0.6	935.7 2.5	828.5 5.7	760.0 10.1	710.8 15.8	673.0 22.8	617.3 40.4	14.8	32	
	120	15AD 1212 8R	1706.7	1536.0 0.8	1291.8 3.3	1143.9 7.4	1049.3 13.2	817.8 20.6	774.3 29.7	710.2 52.8	14.9	32	
12	150	15AD 1215 8R	1829.9	1540.2 0.5	1251.0 2.1	1107.8 4.8	1016.2 8.4	792.0 13.2	749.8 19.0	687.8 33.8	14.4	32	
	120	15AD 1512 8R	1450.5	1305.5 0.7	1305.5 2.9	1305.5 6.5	1305.5 11.6	721.7 18.1	683.2 26.1	626.8 46.3	12.2	26	
15	150	15AD 1515 8R	1854.9	1626.8 0.4	1321.3 1.7	1170.0 3.9	1073.3 6.9	836.5 10.8	792.0 15.6	726.5 27.7	13.5	30	
	120	15AD 1612 8R	1480.9	1332.8 0.7	1332.8 2.7	1332.8 6.1	1332.8 10.9	747.6 17.1	707.8 24.6	649.3 43.7	12.1	26	
16	150	15AD 1615 8R	1570.1	1413.1 0.4	1413.1 1.7	1413.1 3.9	1333.3 7.0	720.0 10.9	681.6 15.7	625.3 27.9	11.8	26	

(3) 15AD Cam curve SMS-3 (cam curve code 7) 2 Dwell

S	θ (deg)	CODE	T_s (N·m)	Input Shaft Speed (Index/min)							T_x (N·m)	SCF (mm)
				25	50	75	100	125	150	200		
16	210	15AD 1621 7R 2	1341.6	1207.4 0.1	1115.3 0.6	987.5 1.3	905.9 2.3	847.2 3.6	802.1 5.2	735.8 9.2	17.5	35
	240	15AD 1624 7R 2	1774.5	1597.1 0.1	1431.2 0.5	1267.3 1.0	1162.5 1.8	1087.2 2.8	1029.3 4.1	944.2 7.2	19.2	40
	270	15AD 1627 7R 2	2523.1	2270.8 0.1	1992.5 0.4	1764.3 0.8	1618.4 1.5	1513.6 2.3	1433.0 3.3	1314.5 5.8	22.4	47
20	180	15AD 2018 7R 2	1384.0	1245.6 0.2	1245.6 0.6	1174.8 1.4	1077.7 2.6	1007.9 4.0	954.3 5.8	875.4 10.2	17.2	35
	210	15AD 2021 7R 2	1833.8	1650.4 0.1	1650.4 0.5	1497.5 1.1	1373.6 1.9	1284.7 3.0	1216.3 4.4	1115.7 7.8	18.9	40
	240	15AD 2024 7R 2	1913.0	1721.7 0.1	1659.5 0.4	1469.4 0.8	1347.9 1.5	1260.6 2.3	1193.5 3.4	1094.8 6.0	18.4	40
	270	15AD 2027 7R 2	1973.6	1776.2 0.1	1627.0 0.3	1440.7 0.7	1321.6 1.2	1236.0 1.8	1170.2 2.7	1073.4 4.7	18.1	40
24	180	15AD 2418 7R 2	1744.1	1569.7 0.1	1423.6 0.5	1260.6 1.2	1156.3 2.1	901.2 3.3	853.2 4.7	782.7 8.4	14.8	32
	210	15AD 2421 7R 2	1826.7	1644.0 0.1	1391.1 0.4	1231.8 0.9	1129.9 1.5	880.6 2.4	833.8 3.5	764.8 6.2	14.4	32
	240	15AD 2424 7R 2	1887.1	1672.4 0.1	1358.4 0.3	1202.8 0.7	1103.3 1.2	859.9 1.8	814.1 2.7	746.8 4.7	14.1	32
	270	15AD 2427 7R 2	2339.4	1886.0 0.1	1531.9 0.2	1356.5 0.5	1244.3 1.0	1057.9 1.5	1001.6 2.2	918.8 3.9	15.7	35
32	180	15AD 3218 7R 2	1508.2	1357.4 0.1	1357.4 0.4	1357.4 1.0	1357.4 1.7	822.5 2.7	778.7 3.8	714.3 6.8	12.0	26
	210	15AD 3221 7R 2	1567.8	1411.0 0.1	1411.0 0.3	1411.0 0.7	1411.0 1.3	800.7 2.0	758.1 2.8	695.4 5.0	11.8	26
	240	15AD 3224 7R 2	1610.4	1449.4 0.1	1449.4 0.2	1449.4 0.5	1443.8 1.0	779.6 1.5	738.1 2.2	677.1 3.8	11.7	26
	270	15AD 3227 7R 2	1941.1	1747.0 0.0	1428.9 0.2	1265.2 0.4	1160.6 0.7	904.6 1.1	856.4 1.6	785.6 2.8	13.1	30

Note) A 2-dwell cam performs two identical indexes and stops per one turn of the input shaft. The indexing angle is the total indexing angle per one turn of the input shaft.

1N·m=0.102kgf·m

19AD Torque Capacity Tables

19AD Torque Transmission Capacity Table

- (1) 1-dwell with cam curve SMS-3 (cam curve code 7)
- (2) 1-dwell with cam curve SMCV-3 (cam curve code 8)
- (3) 2-dwell with cam curve SMS-3 (cam curve code 7)

Notes

The dynamic rated torque output, the Top values, given in this table are calculated based on an expected service life of 8,000 hours, and proper operating conditions such as mounting and lubrication.

(1) 19AD Cam curve SMS-3 (cam curve code 7) 1 Dwell

Number of Stops S	Index Period θ (deg)	CODE	Static-rated Output Torque T_s (N·m)	Dynamic-rated Output Torque Top (N·m)						Camshaft Frictional Torque T_x (N·m)	Sankyo Cam Follower SCF (mm)	
				Internal Inertia Load Torque		Input Shaft Speed (Index/min)		Toi (N·m)				
				25	50	75	100	125	200			
4	270	19AD 0427 7R	2054.0	1456.1 1.0	1182.8 4.1	1047.3 9.3	960.7 16.5	898.5 25.8	850.7 37.2	780.3 66.1	33.0	40
5	240	19AD 0524 7R	2144.1	1751.8 1.2	1422.9 4.6	1259.9 10.4	1155.8 18.5	1080.9 28.8	1023.4 41.5	938.8 73.8	32.1	40
	270	19AD 0527 7R	2290.2	1747.6 0.9	1419.5 3.6	1256.9 8.2	1153.0 14.6	1078.4 22.8	1021.0 32.8	936.5 58.3	31.1	40
6	180	19AD 0618 7R	2687.7	2320.3 1.8	1884.7 7.1	1668.8 15.9	1530.8 28.2	1431.7 44.1	1355.5 63.5	1243.4 112.8	39.4	52
	210	19AD 0621 7R	3865.9	3278.2 1.4	2662.7 5.5	2357.7 12.3	2162.8 21.9	2022.8 34.2	1915.1 49.2	1756.7 87.5	44.5	60
	240	19AD 0624 7R	4174.2	3272.7 1.0	2658.2 4.2	2353.8 9.4	2159.1 16.7	2019.3 26.2	1911.9 37.7	1753.8 67.0	43.0	60
	270	19AD 0627 7R	4433.9	3255.8 0.8	2644.6 3.3	2341.7 7.4	2148.0 13.2	2009.0 20.7	1902.0 29.8	1744.8 52.9	41.8	60
8	180	19AD 0818 7R	3177.0	2859.3 1.4	2413.2 5.4	2136.8 12.2	1960.1 21.7	1833.2 33.9	1735.6 48.8	1592.1 86.8	36.5	52
	210	19AD 0821 7R	3416.9	2941.9 1.0	2389.6 4.0	2115.9 9.0	1940.9 15.9	1815.2 24.9	1718.6 35.9	1576.5 63.8	35.2	52
	240	19AD 0824 7R	4778.9	4139.9 0.8	3362.6 3.3	2977.5 7.4	2731.3 13.1	2554.4 20.4	2418.5 29.4	2218.5 52.3	40.3	60
	270	19AD 0827 7R	4992.8	4084.6 0.6	3317.7 2.6	2937.7 5.8	2694.8 10.3	2520.3 16.2	2386.2 23.3	2188.9 41.3	39.4	60
10	180	19AD 1018 7R	2995.5	2696.0 1.1	2324.9 4.3	2058.6 9.7	1888.4 17.3	1766.1 27.0	1672.1 38.9	1533.9 69.1	30.9	47
	210	19AD 1021 7R	3168.5	2810.8 0.8	2283.0 3.2	2021.6 7.1	1854.4 12.7	1734.3 19.8	1642.0 28.6	1506.2 50.8	30.1	47
	240	19AD 1024 7R	3872.3	3355.5 0.6	2725.5 2.5	2413.3 5.6	2213.8 10.0	2070.5 15.6	1960.2 22.5	1798.2 40.1	33.0	52
	270	19AD 1027 7R	3988.3	3287.2 0.5	2670.0 2.0	2364.2 4.5	2168.7 7.9	2028.3 12.4	1920.3 17.8	1761.5 31.6	32.4	52
12	120	19AD 1212 7R	1964.9	1768.4 1.9	1768.4 7.8	1661.1 17.4	1523.7 31.0	1187.6 48.5	1124.4 69.8	1031.4 124.1	26.0	35
	150	19AD 1215 7R	3136.3	2674.5 1.2	2172.3 5.0	1923.5 11.2	1764.5 19.8	1650.2 31.0	1562.4 44.7	1433.2 79.4	29.3	40
	180	19AD 1218 7R	3341.0	2613.4 0.9	2122.8 3.4	1879.6 7.8	1724.2 13.8	1612.6 21.5	1526.7 31.0	1400.5 55.1	28.3	40
	210	19AD 1221 7R	3485.6	2548.8 0.6	2070.3 2.5	1833.1 5.7	1681.6 10.1	1572.7 15.8	1489.0 22.8	1365.9 40.5	27.7	40
	240	19AD 1224 7R	3590.2	2485.2 0.5	2018.6 1.9	1787.4 4.4	1639.6 7.8	1533.4 12.1	1451.8 17.4	1331.8 31.0	27.2	40
	270	19AD 1227 7R	4227.1	2974.4 0.4	2415.9 1.6	2139.2 3.7	1962.4 6.5	1835.3 10.2	1737.6 14.7	1593.9 26.1	28.2	47
15	150	19AD 1515 7R	2852.3	2567.1 1.0	2513.8 4.0	2225.9 9.0	2041.8 16.0	1350.3 25.1	1278.4 36.1	1172.7 64.2	24.0	35
	180	19AD 1518 7R	3022.8	2720.5 0.7	2450.1 2.8	2169.5 6.3	1990.1 11.1	1316.1 17.4	1246.0 25.1	1143.0 44.6	23.5	35
	210	19AD 1521 7R	3141.6	2827.4 0.5	2384.9 2.0	2111.8 4.6	1937.1 8.2	1281.1 12.8	1212.9 18.4	1112.6 32.8	23.0	35
	240	19AD 1524 7R	3226.7	2858.8 0.4	2322.1 1.6	2056.1 3.5	1886.1 6.3	1247.3 9.8	1180.9 14.1	1083.3 25.1	22.7	35
	270	19AD 1527 7R	3263.1	2936.8 0.3	2394.1 1.4	2119.9 3.0	1944.6 5.4	1818.7 8.5	1721.9 12.2	1579.5 21.6	26.2	40
16	150	19AD 1615 7R	2764.3	2487.9 0.9	2396.5 3.7	2122.0 8.4	1946.5 14.9	1287.3 23.3	1218.8 33.5	1118.0 59.6	23.2	32
	180	19AD 1618 7R	3075.3	2767.8 0.7	2532.7 2.6	2242.6 5.9	2057.2 10.5	1360.5 16.4	1288.0 23.6	1181.5 41.9	23.3	35
	210	19AD 1621 7R	3184.7	2866.2 0.5	2460.9 1.9	2179.0 4.3	1998.9 7.7	1321.9 12.0	1251.5 17.3	1148.0 30.8	22.9	35
	240	19AD 1624 7R	3262.3	2936.1 0.4	2392.9 1.5	2118.8 3.3	1943.6 5.9	1285.4 9.2	1216.9 13.3	1116.3 23.6	22.6	35
	270	19AD 1627 7R	3318.9	2868.3 0.3	2329.8 1.2	2062.9 2.6	1892.4 4.7	1251.4 7.3	1184.8 10.5	1086.9 18.6	22.4	35

Note) The torque transmission capacity is the same whether the rotating direction of the cam is right hand (R) or left hand (L). All models in the torque capacity table are shown as type R.

1N·m≒0.102kgf·m

(2) 19AD Cam curve SMCV-3 (cam curve code 8) 1 Dwell

Number of Stops S	Index Period θ (deg)	CODE	Static-rated Output Torque T_s (N·m)	Dynamic-rated Output Torque Internal Inertia Load Torque						Top (N·m) T_{oi} (N·m)	Camshaft Frictional Torque T_x (N·m)	Sankyo Cam Follower SCF (mm)
				Input Shaft Speed (Index/min)								
				25	50	75	100	125	150			
2	330	19AD 0233 8R	1866.9	1178.1 2.0	956.9 7.8	847.3 17.7	777.2 31.4	726.9 49.1	688.2 70.6	631.3 125.6	34.5	40
	3	270	19AD 0327 8R	2080.7	1491.6 2.1	1211.5 8.6	1072.8 19.3	984.1 34.3	920.3 53.7	871.4 77.3	799.3 137.4	32.5
		300	19AD 0330 8R	2213.5	1490.6 1.7	1210.7 7.0	1072.0 15.6	983.4 27.8	919.7 43.5	870.8 62.6	798.8 111.3	31.6
4	240	19AD 0424 8R	2618.8	1983.4 2.1	1611.0 8.5	1426.5 19.0	1308.5 33.8	1223.8 52.9	1158.7 76.2	1062.9 135.4	32.9	47
	270	19AD 0427 8R	2781.7	1973.2 1.7	1602.7 6.7	1419.1 15.0	1301.8 26.7	1217.5 41.8	1152.7 60.2	1057.4 107.0	32.0	47
5	210	19AD 0521 8R	2424.9	1897.9 2.0	1541.6 7.8	1365.0 17.6	1252.2 31.4	1171.1 49.0	1108.7 70.5	1017.1 125.4	30.5	40
	240	19AD 0524 8R	2563.5	1874.8 1.5	1522.8 6.0	1348.4 13.5	1236.9 24.0	1156.8 37.5	1095.2 54.0	1004.7 96.0	29.6	40
6	180	19AD 0618 8R	3265.7	2557.6 2.5	2077.4 10.0	1839.5 22.5	1687.4 40.0	1578.1 62.6	1494.1 90.1	1370.6 160.2	36.0	52
	210	19AD 0621 8R	4625.2	3585.7 1.9	2912.5 7.8	2578.9 17.5	2365.7 31.0	2212.5 48.5	2094.8 69.8	1921.5 124.1	40.9	60
8	150	19AD 0815 8R	2918.8	2626.9 2.7	2172.9 10.8	1924.0 24.4	1764.9 43.3	1650.7 67.7	1562.8 97.5	1433.6 173.3	31.3	47
	180	19AD 0818 8R	3677.3	3196.4 1.9	2596.2 7.7	2298.9 17.3	2108.8 30.8	1972.3 48.1	1867.3 69.3	1712.9 123.2	33.9	52
10	120	19AD 1012 8R	2563.5	2307.2 3.0	2080.2 12.0	1841.9 27.0	1689.6 48.0	1580.2 75.0	1496.1 108.0	1372.4 192.0	29.6	40
	150	19AD 1015 8R	2761.4	2485.3 1.9	2019.2 7.7	1787.9 17.3	1640.1 30.7	1533.9 48.0	1452.3 69.1	1332.2 122.9	28.5	40
12	120	19AD 1212 8R	2728.5	2455.7 2.5	2319.2 10.1	2053.6 22.7	1883.8 40.4	1761.8 63.2	1668.0 91.0	1530.1 161.8	28.6	40
	150	19AD 1215 8R	2890.2	2601.2 1.6	2232.4 6.5	1976.7 14.6	1813.2 25.9	1695.8 40.4	1605.6 58.2	1472.8 103.5	27.7	40
15	120	19AD 1512 8R	2968.1	2671.3 2.2	2671.3 8.9	2427.8 20.0	2227.1 35.6	1472.8 55.6	1394.4 80.1	1279.1 142.4	23.6	35
	150	19AD 1515 8R	3146.2	2831.6 1.4	2640.1 5.7	2337.8 12.8	2144.5 22.8	1418.2 35.6	1342.7 51.3	1231.7 91.1	23.0	35
16	120	19AD 1612 8R	2866.9	2580.2 2.1	2580.2 8.3	2310.6 18.6	2119.6 33.1	1401.7 51.6	1327.1 74.4	1217.4 132.2	22.9	32
	150	19AD 1615 8R	3188.9	2870.0 1.3	2724.1 5.4	2412.1 12.1	2212.6 21.4	1463.3 33.5	1385.4 48.2	1270.8 85.7	22.9	35

(3) 19AD Cam curve SMS-3 (cam curve code 7) 2 Dwell

S	θ (deg)	CODE	T_s (N·m)	Input Shaft Speed (Index/min)						T_x (N·m)	SCF (mm)	
				25	50	75	100	125	150			200
16	210	19AD 1621 7R 2	2910.5	2619.5 0.5	2414.8 1.9	2138.3 4.4	1961.5 7.8	1834.5 12.2	1736.8 17.5	1593.2 31.1	31.3	47
	240	19AD 1624 7R 2	3605.2	3244.7 0.4	2903.2 1.5	2570.7 3.4	2358.1 6.1	2205.4 9.5	2088.0 13.7	1915.4 24.4	34.3	52
	270	19AD 1627 7R 2	4992.8	4493.5 0.3	4084.6 1.3	3616.8 2.9	3317.7 5.2	3102.9 8.1	2937.7 11.6	2694.8 20.7	39.4	60
20	180	19AD 2018 7R 2	2623.2	2360.9 0.5	2294.0 1.9	2031.2 4.2	1863.3 7.5	1742.6 11.7	1649.9 16.9	1513.4 30.1	29.3	40
	210	19AD 2021 7R 2	3168.5	2851.7 0.4	2810.8 1.6	2488.8 3.6	2283.0 6.3	2135.2 9.9	2021.6 14.3	1854.4 25.4	30.1	47
	240	19AD 2024 7R 2	3872.3	3485.1 0.3	3355.5 1.3	2971.2 2.8	2725.5 5.0	2549.0 7.8	2413.3 11.3	2213.8 20.0	33.0	52
	270	19AD 2027 7R 2	3988.3	3589.5 0.2	3287.2 1.0	2910.7 2.2	2670.0 4.0	2497.1 6.2	2364.2 8.9	2168.7 15.8	32.4	52
24	180	19AD 2418 7R 2	3341.0	3006.9 0.4	2613.4 1.7	2314.1 3.9	2122.8 6.9	1985.3 10.8	1879.6 15.5	1724.2 27.6	28.3	40
	210	19AD 2421 7R 2	3485.6	3137.0 0.3	2548.8 1.3	2256.9 2.8	2070.3 5.1	1936.2 7.9	1833.1 11.4	1681.6 20.3	27.7	40
	240	19AD 2424 7R 2	3590.2	3059.6 0.2	2485.2 1.0	2200.5 2.2	2018.6 3.9	1887.9 6.1	1787.4 8.7	1639.6 15.5	27.2	40
	270	19AD 2427 7R 2	4227.1	3661.9 0.2	2974.4 0.8	2633.7 1.8	2415.9 3.3	2259.5 5.1	2139.2 7.3	1962.4 13.0	28.2	47
32	180	19AD 3218 7R 2	3075.3	2767.8 0.3	2767.8 1.3	2761.0 2.9	2532.7 5.2	1674.9 8.2	1585.8 11.8	1454.7 21.0	23.3	35
	210	19AD 3221 7R 2	3184.7	2866.2 0.2	2866.2 1.0	2682.7 2.2	2460.9 3.9	1627.4 6.0	1540.8 8.7	1413.4 15.4	22.9	35
	240	19AD 3224 7R 2	3262.3	2936.1 0.2	2936.1 0.7	2608.6 1.7	2392.9 2.9	1582.5 4.6	1498.2 6.6	1374.3 11.8	22.6	35
	270	19AD 3227 7R 2	3318.9	2987.0 0.1	2868.3 0.6	2539.8 1.3	2329.8 2.3	1540.7 3.6	1458.7 5.2	1338.1 9.3	22.4	35

Note) A 2-dwell cam performs two identical indexes and stops per one turn of the input shaft. The indexing angle is the total indexing angle per one turn of the input shaft.

1N·m=0.102kgf·m

23AD Torque Capacity Tables

23AD Torque Transmission Capacity Table

- (1) 1-dwell with cam curve SMS-3 (cam curve code 7)
- (2) 1-dwell with cam curve SMCV-3 (cam curve code 8)
- (3) 2-dwell with cam curve SMS-3 (cam curve code 7)

Notes

The dynamic rated torque output, the Top values, given in this table are calculated based on an expected service life of 8,000 hours, and proper operating conditions such as mounting and lubrication.

(1) 23AD Cam curve SMS-3 (cam curve code 7) 1 Dwell

Number of Stops S	Index Period θ (deg)	CODE	Static-rated Output Torque T_s (N·m)	Dynamic-rated Output Torque Top (N·m)							Camshaft Frictional Torque T_x (N·m)	Sankyo Cam Follower SCF (mm)
				Internal Inertia Load Torque			Input Shaft Speed (Index/min)					
				25	50	75	100	125	150	200		
4	270	23AD 0427 7R	2691.9	2035.7 3.2	1653.5 12.9	1464.1 29.1	1343.0 51.8	1256.1 80.9	1189.2 116.5	1090.9 207.1	38.7	47
	240	23AD 0524 7R	2963.4	2417.9 3.1	1964.0 12.4	1739.0 27.9	1595.2 49.6	1492.0 77.5	1412.5 111.7	1295.7 198.5	37.6	47
5	270	23AD 0527 7R	3169.1	2413.7 2.5	1960.5 9.8	1736.0 22.1	1592.4 39.2	1489.3 61.3	1410.0 88.2	1293.5 156.9	36.5	47
	180	23AD 0618 7R	4245.3	3684.0 5.0	2992.3 20.0	2649.6 45.0	2430.5 80.0	2273.2 125.0	2152.2 180.0	1974.2 320.0	52.1	60
6	210	23AD 0621 7R	5879.5	4985.4 3.6	4049.4 14.5	3585.6 32.6	3289.1 57.9	3076.2 90.5	2912.4 130.4	2671.6 231.7	57.6	70
	240	23AD 0624 7R	6364.0	4983.0 2.8	4047.5 11.1	3583.9 25.0	3287.6 44.4	3074.7 69.3	2911.0 99.8	2670.3 177.4	55.5	70
	270	23AD 0627 7R	6775.0	4962.9 2.2	4031.2 8.8	3569.5 19.7	3274.3 35.0	3062.3 54.8	2899.3 78.9	2659.6 140.2	53.8	70
	180	23AD 0818 7R	5058.4	4552.6 3.6	3857.2 14.5	3415.4 32.6	3133.0 58.0	2930.2 90.6	2774.2 130.4	2544.8 231.9	48.0	60
8	210	23AD 0821 7R	5464.8	4712.8 2.7	3828.0 10.6	3389.5 24.0	3109.3 42.6	2907.9 66.5	2753.2 95.8	2525.5 170.3	46.2	60
	240	23AD 0824 7R	7325.3	6331.5 2.2	5142.8 8.7	4553.8 19.6	4177.3 34.8	3906.8 54.3	3698.8 78.2	3393.0 139.0	51.8	70
	270	23AD 0827 7R	7669.2	6253.5 1.7	5079.5 6.9	4497.7 15.4	4125.8 27.5	3858.6 42.9	3653.3 61.8	3351.2 109.9	50.6	70
	180	23AD 1018 7R	4187.8	3769.0 3.0	3286.2 12.1	2909.8 27.2	2669.2 48.4	2496.4 75.7	2363.5 108.9	2168.1 193.7	38.6	52
10	210	23AD 1021 7R	4469.4	3990.7 2.2	3241.4 8.9	2870.2 20.0	2632.9 35.6	2462.4 55.6	2331.3 80.0	2138.6 142.3	37.4	52
	240	23AD 1024 7R	6252.1	5412.6 1.7	4396.4 6.7	3892.9 15.1	3571.0 26.8	3339.8 42.0	3162.0 60.4	2900.6 107.4	43.0	60
	270	23AD 1027 7R	6456.4	5309.4 1.3	4312.6 5.3	3818.6 11.9	3502.9 21.2	3276.1 33.1	3101.7 47.7	2845.2 84.9	42.2	60
	120	23AD 1212 7R	3100.4	2790.4 6.6	2661.4 26.3	2356.6 59.3	2161.7 105.3	1684.8 164.6	1595.1 237.0	1463.2 421.4	30.4	40
12	150	23AD 1215 7R	5078.9	3778.7 3.6	3069.2 14.4	2717.7 32.3	2493.0 57.5	2331.6 89.9	2207.5 129.4	2024.9 230.0	34.2	47
	180	23AD 1218 7R	6387.4	4562.0 2.6	3705.5 10.3	3281.1 23.1	3009.8 41.1	2814.9 64.2	2665.1 92.5	2444.7 164.4	37.2	52
	210	23AD 1221 7R	6727.8	4470.4 1.9	3631.1 7.5	3215.2 17.0	2949.4 30.2	2758.4 47.2	2611.6 67.9	2395.6 120.8	36.3	52
	240	23AD 1224 7R	6980.2	4374.7 1.4	3553.3 5.8	3146.4 13.0	2886.2 23.1	2699.3 36.1	2555.7 52.0	2344.3 92.5	35.5	52
	270	23AD 1227 7R	7170.6	4280.0 1.1	3476.5 4.6	3078.3 10.3	2823.8 18.3	2640.9 28.5	2500.3 41.1	2293.6 73.1	35.0	52
	150	23AD 1515 7R	3960.0	3564.0 3.4	3564.0 13.6	3564.0 30.7	3311.8 54.6	1959.1 85.3	1854.8 122.8	1701.5 218.3	28.0	40
15	180	23AD 1518 7R	4255.0	3829.5 2.4	3829.5 9.5	3543.1 21.3	3250.2 37.9	1922.7 59.2	1820.3 85.3	1669.8 151.6	27.2	40
	210	23AD 1521 7R	6051.6	4077.3 1.5	3311.8 6.0	2932.5 13.5	2690.0 24.0	2515.8 37.4	2381.9 53.9	2184.9 95.8	31.2	47
	240	23AD 1524 7R	6201.3	3965.3 1.1	3220.8 4.6	2851.9 10.3	2616.1 18.3	2446.7 28.7	2316.5 41.3	2125.0 73.4	30.7	47
	270	23AD 1527 7R	6310.6	3861.2 0.9	3136.3 3.6	2777.1 8.2	2547.5 14.5	2382.5 22.6	2255.7 32.6	2069.2 58.0	30.4	47
16	150	23AD 1615 7R	4069.4	3662.5 3.2	3662.5 12.8	3662.5 28.9	3444.2 51.4	2037.4 80.3	1929.0 115.6	1769.5 205.5	27.7	40
	180	23AD 1618 7R	4348.4	3913.6 2.2	3913.6 8.9	3674.6 20.1	3370.8 35.7	1994.0 53.7	1887.9 80.3	1731.8 142.7	27.0	40
	210	23AD 1621 7R	4547.2	4092.5 1.6	4051.9 6.6	3587.8 14.7	3291.2 26.2	1946.9 40.9	1843.3 59.0	1690.9 104.8	26.5	40
	240	23AD 1624 7R	4691.8	4222.6 1.3	3954.2 5.0	3501.3 11.3	3211.8 20.1	1900.0 31.4	1798.8 45.1	1650.1 80.3	26.1	40
	270	23AD 1627 7R	4799.4	4319.5 1.0	3860.4 4.0	3418.3 8.9	3135.7 15.9	1854.9 24.8	1756.2 35.7	1611.0 63.4	25.8	40

Note) The torque transmission capacity is the same whether the rotating direction of the cam is right hand (R) or left hand (L). All models in the torque capacity table are shown as type R.

1N·m≒0.102kgf·m

(2) 23AD Cam curve SMCV-3 (cam curve code 8) 1 Dwell

Number of Stops S	Index Period θ (deg)	CODE	Static-rated Output Torque T_s (N·m)	Dynamic-rated Output Torque Internal Inertia Load Torque							Top (N·m) T_{oi} (N·m)	Camshaft Frictional Torque T_x (N·m)	Sankyo Cam Follower SCF (mm)
				Input Shaft Speed (Index/min)									
				25	50	75	100	125	150	200			
2	330	23AD 0233 8R	2506.5	1632.4 5.7	1325.9 23.0	1174.0 51.6	1077.0 91.8	1007.2 143.5	953.6 206.6	874.8 367.3	40.6	47	
	270	23AD 0327 8R	2874.3	2057.5 5.8	1671.2 23.0	1479.8 51.8	1357.5 92.1	1269.6 143.9	1202.0 207.2	1102.6 368.4	38.1	47	
3	300	23AD 0330 8R	3061.0	2057.2 4.7	1671.0 18.7	1479.6 42.0	1357.3 74.6	1269.4 116.6	1201.8 167.9	1102.4 298.4	37.1	47	
	240	23AD 0424 8R	3598.6	2767.2 5.9	2247.7 23.7	1990.2 53.4	1825.7 94.9	1707.5 148.2	1616.6 213.4	1482.9 379.4	41.2	52	
4	270	23AD 0427 8R	3849.7	2762.8 4.7	2244.1 18.7	1987.0 42.2	1822.7 74.9	1704.7 117.1	1614.0 168.6	1480.5 299.8	40.0	52	
	210	23AD 0521 8R	3323.5	2665.3 5.8	2164.9 23.0	1917.0 51.8	1758.5 92.0	1644.6 143.8	1557.1 207.0	1428.3 368.1	35.7	47	
5	240	23AD 0524 8R	3534.9	2640.9 4.4	2145.1 17.6	1899.4 39.6	1742.3 70.5	1629.5 110.1	1542.8 158.5	1415.2 281.8	34.6	47	
	180	23AD 0618 8R	5208.0	4080.4 7.1	3314.3 28.4	2934.7 63.9	2692.1 113.6	2517.7 177.4	2383.7 255.5	2186.6 454.2	47.3	60	
6	210	23AD 0621 8R	7079.5	5470.5 5.1	4443.4 20.6	3934.5 46.3	3609.2 82.2	3375.5 128.5	3195.8 185.0	2931.6 329.0	52.7	70	
	150	23AD 0815 8R	5481.5	4933.4 7.4	4241.0 29.6	3755.3 66.7	3444.8 118.5	3221.7 185.1	3050.2 266.6	2798.0 474.0	46.2	60	
8	180	23AD 0818 8R	5912.2	5133.9 5.1	4170.0 20.6	3692.4 46.3	3387.1 82.3	3167.8 128.6	2999.2 185.1	2751.2 329.1	44.4	60	
	120	23AD 1012 8R	3462.9	3116.6 9.4	3005.4 37.7	2661.2 84.9	2441.1 150.9	2283.1 235.8	2161.6 339.6	1982.8 603.7	34.6	47	
10	150	23AD 1015 8R	4480.8	4032.7 6.2	3590.3 24.7	3179.1 55.7	2916.2 99.0	2727.4 154.6	2582.2 222.7	2368.7 395.9	37.4	52	
	120	23AD 1212 8R	5334.8	4140.8 8.0	3363.4 31.9	2978.2 71.7	2731.9 127.5	2555.0 199.3	2419.0 287.0	2219.0 510.2	33.4	47	
12	150	23AD 1215 8R	5743.2	4018.2 5.1	3263.8 20.4	2890.0 45.9	2651.0 81.6	2479.4 127.5	2347.4 183.7	2153.3 326.5	32.2	47	
	120	23AD 1512 8R	4159.0	3743.1 7.6	3743.1 30.3	3743.1 68.1	3629.0 121.1	2146.7 189.1	2032.5 272.4	1864.4 484.2	27.5	40	
15	150	23AD 1515 8R	4476.6	4028.9 4.8	4028.9 19.4	3838.6 43.6	3521.2 77.5	2083.0 121.1	1972.1 174.3	1809.0 309.9	26.7	40	
	120	23AD 1612 8R	4258.2	3832.4 7.1	3832.4 28.5	3832.4 64.1	3767.1 113.9	2228.4 178.0	2109.8 256.3	1935.4 455.7	27.2	40	
16	150	23AD 1615 8R	4555.0	4099.5 4.6	4099.5 18.2	3972.3 41.0	3643.9 72.9	2155.5 113.9	2040.8 164.1	1872.1 291.7	26.5	40	

(3) 23AD Cam curve SMS-3 (cam curve code 7) 2 Dwell

S	θ (deg)	CODE	T_s (N·m)	Input Shaft Speed (Index/min)							T_x (N·m)	SCF (mm)
				25	50	75	100	125	150	200		
16	210	23AD 1621 7R 2	5464.8	4918.3 1.3	4712.8 5.3	4173.0 12.0	3828.0 21.3	3580.1 33.3	3389.5 47.9	3109.3 85.2	46.2	60
	240	23AD 1624 7R 2	7325.3	6592.8 1.1	6331.5 4.3	5606.4 9.8	5142.8 17.4	4809.8 27.2	4553.8 39.1	4177.3 69.5	51.8	70
	270	23AD 1627 7R 2	7669.2	6902.3 0.9	6253.5 3.4	5537.3 7.7	5079.5 13.7	4750.6 21.5	4497.7 30.9	4125.8 54.9	50.6	70
20	180	23AD 2018 7R 2	3591.8	3232.6 1.5	3232.6 5.9	2919.6 13.3	2678.2 23.6	2504.8 36.9	2371.5 53.2	2175.4 94.5	34.2	47
	210	23AD 2021 7R 2	4469.4	4022.5 1.1	3990.7 4.4	3533.6 10.0	3241.4 17.8	3031.6 27.8	2870.2 40.0	2632.9 71.1	37.4	52
	240	23AD 2024 7R 2	6252.1	5626.9 0.8	5412.6 3.4	4792.7 7.6	4396.4 13.4	4111.7 21.0	3892.9 30.2	3571.0 53.7	43.0	60
	270	23AD 2027 7R 2	6456.4	5810.8 0.7	5309.4 2.7	4701.3 6.0	4312.6 10.6	4033.3 16.6	3818.6 23.9	3502.9 42.4	42.2	60
24	180	23AD 2418 7R 2	5458.1	4566.0 1.2	3708.7 5.0	3283.9 11.2	3012.4 20.0	2817.3 31.2	2667.4 44.9	2446.8 79.9	33.0	47
	210	23AD 2421 7R 2	5732.4	4467.8 0.9	3629.0 3.7	3213.4 8.3	2947.7 14.7	2756.8 22.9	2610.1 33.0	2394.2 58.7	32.2	47
	240	23AD 2424 7R 2	5934.2	4367.3 0.7	3547.3 2.8	3141.1 6.3	2881.3 11.2	2694.8 17.5	2551.3 25.3	2340.4 44.9	31.6	47
	270	23AD 2427 7R 2	7170.6	5269.3 0.6	4280.0 2.3	3789.8 5.1	3476.5 9.1	3251.3 14.3	3078.3 20.5	2823.8 36.5	35.0	52
32	180	23AD 3218 7R 2	4348.4	3913.6 1.1	3913.6 4.5	3913.6 10.0	3913.6 17.8	2454.9 27.9	2324.2 40.1	2132.1 71.3	27.0	40
	210	23AD 3221 7R 2	4547.2	4092.5 0.8	4092.5 3.3	4092.5 7.4	4051.9 13.1	2396.9 20.5	2269.4 29.5	2081.7 52.4	26.5	40
	240	23AD 3224 7R 2	4691.8	4222.6 0.6	4222.6 2.5	4222.6 5.6	3954.2 10.0	2339.1 15.7	2214.6 22.6	2031.5 40.1	26.1	40
	270	23AD 3227 7R 2	4799.4	4319.5 0.5	4319.5 2.0	4208.4 4.5	3860.4 7.9	2283.7 12.4	2162.1 17.8	1983.3 31.7	25.8	40

Note) A 2-dwell cam performs two identical indexes and stops per one turn of the input shaft. The indexing angle is the total indexing angle per one turn of the input shaft.

1N·m=0.102kgf·m

33AD Torque Capacity Tables

33AD Torque Transmission Capacity Table

- (1) 1-dwell with cam curve SMS-3 (cam curve code 7)
- (2) 1-dwell with cam curve SMCV-3 (cam curve code 8)
- (3) 2-dwell with cam curve SMS-3 (cam curve code 7)

Notes

The dynamic rated torque output, the Top values, given in this table are calculated based on an expected service life of 8,000 hours, and proper operating conditions such as mounting and lubrication.

(1) 33AD Cam curve SMS-3 (cam curve code 7) 1 Dwell

Number of Stops S	Index Period θ (deg)	CODE	Static-rated Output Torque T_s (N·m)	Dynamic-rated Output Torque Top (N·m)						Camshaft Frictional Torque T_x (N·m)	Sankyo Cam Follower SCF (mm)	
				Internal Inertia Load Torque		Toi (N·m)		Toi (N·m)				
				25	50	75	100	125	200			
4	270	33AD 04277R	6229.4	5606.5 16.3	4772.9 65.3	4226.2 146.8	3876.8 261.0	3625.7 407.8	3432.7 587.3	76.5	70	
	240	33AD 05247R	5278.6	4750.8 16.3	2449.9 65.2	3763.1 146.7	3452.0 260.7	3228.4 407.4	3056.6 586.6	63.7	60	
5	270	33AD 05277R	5653.8	5088.5 12.9	4245.6 51.5	3759.4 115.9	3448.5 206.0	3225.2 321.9	3053.6 463.5	2801.1 824.0	61.6	60
	180	33AD 06187R	7933.3	7140.0 24.9	6910.4 99.4	6118.9 223.7	5613.0 397.7	5249.5 621.3	4970.1 894.7	96.0	80	
6	210	33AD 06217R	11122.6	10010.4 19.0	9279.5 75.9	8216.7 170.7	7537.3 303.5	7049.3 474.2	6674.1 682.9	6122.2 1214.1	105.0	90
	240	33AD 06247R	12969.3	11672.4 14.9	10330.0 59.7	9146.9 134.2	8390.6 238.6	7847.3 372.8	7429.6 536.9	6815.2 954.4	108.4	100
	270	33AD 06277R	13815.1	12433.6 11.8	10291.4 47.1	9112.7 106.1	8359.2 188.5	7817.9 294.6	7401.8 424.2	6789.8 754.1	105.0	100
8	180	33AD 08187R	9500.9	8550.8 19.2	8550.8 76.7	7919.7 172.5	7264.9 306.7	6794.5 479.2	6432.8 690.1	5900.9 1226.8	87.8	80
	210	33AD 08217R	13094.8	11785.3 14.8	11785.3 59.2	10565.9 133.1	9692.3 236.7	9064.7 369.8	8582.2 532.6	7872.6 946.8	96.8	90
	240	33AD 08247R	13930.2	12537.1 11.3	11824.0 45.3	10469.8 101.9	9604.1 181.2	8982.2 283.1	8504.1 407.7	7800.9 724.9	93.8	90
	270	33AD 08277R	15661.2	14095.1 9.3	12983.7 37.0	11496.6 83.3	10546.0 148.1	9863.2 231.4	9338.2 333.3	8566.0 592.4	98.1	100
10	180	33AD 10187R	8241.5	7417.4 14.9	7417.4 59.8	6807.8 134.5	6244.9 239.1	5840.5 373.5	5529.6 537.9	5072.4 956.3	66.4	70
	210	33AD 10217R	11321.8	10189.6 11.6	10189.6 46.3	9239.5 104.2	8475.5 185.3	7926.7 289.5	7504.8 416.9	6884.3 741.1	80.1	80
	240	33AD 10247R	11851.3	10666.2 8.9	10256.6 35.5	9081.9 79.8	8331.0 141.9	7791.5 221.6	7376.8 319.2	6766.8 567.4	78.0	80
	270	33AD 10277R	15698.4	14128.6 7.4	13573.0 29.7	12018.4 66.9	11024.7 118.9	10310.8 185.8	9762.0 267.6	8954.8 475.8	87.6	90
12	120	33AD 12127R	4260.6	3834.5 29.2	3834.5 116.7	3834.5 262.5	3834.5 466.7	3673.5 729.2			50.9	52
	150	33AD 12157R	6343.9	5709.5 19.2	5709.5 76.6	5709.5 172.4	5480.0 306.5	5125.2 478.9	4852.4 689.6	4451.2 1226.0	57.3	60
	180	33AD 12187R	8715.8	7844.2 13.8	7844.2 55.2	7844.2 124.2	7284.0 220.8	6812.3 345.0	6449.7 496.8	5916.4 883.3	63.8	70
	210	33AD 12217R	9226.9	8304.2 10.1	8304.2 40.6	7800.8 91.3	7155.8 162.2	6692.5 253.5	6336.2 365.0	5812.3 648.9	62.0	70
	240	33AD 12247R	9611.1	8650.0 7.8	8638.3 31.1	7649.0 69.9	7016.5 124.2	6562.2 194.1	6212.9 279.5	5699.2 496.8	60.7	70
	270	33AD 12277R	9904.2	8913.7 6.1	8464.6 24.5	7495.1 55.2	6875.4 98.1	6430.2 153.3	6087.9 220.8	5584.5 392.6	59.6	70
15	150	33AD 15157R	5254.7	4729.2 15.1	4729.2 60.4	4729.2 135.9	4472.8 241.6	4183.2 377.5	3960.5 543.6	3633.0 966.4	46.3	52
	180	33AD 15187R	7421.0	6678.9 10.8	6678.9 43.3	6678.9 97.5	6152.7 173.2	5754.3 270.7	5448.0 389.8	4997.5 693.0	53.1	60
	210	33AD 15217R	7729.3	6956.4 8.0	6956.4 31.8	6535.8 71.6	5995.4 127.3	5607.2 198.9	5308.7 286.4	4869.8 509.1	51.9	60
	240	33AD 15247R	7951.2	7156.1 6.1	7156.1 24.4	6368.7 54.8	5842.1 97.5	5463.8 152.3	5173.0 219.3	4745.2 389.8	50.9	60
	270	33AD 15277R	8115.0	7303.5 4.8	7013.8 19.3	6210.5 43.3	5697.0 77.0	5328.1 120.3	5044.5 173.2	4627.4 308.0	50.2	60
16	150	33AD 16157R	5373.6	4836.2 14.2	4836.2 56.8	4836.2 127.9	4636.7 227.3	4336.5 355.2	4105.7 511.5	3766.2 909.3	45.7	52
	180	33AD 16187R	7557.0	6801.3 10.2	6801.3 40.8	6801.3 91.9	6364.5 163.3	5952.4 255.2	5635.5 367.5	5169.6 653.3	52.5	60
	210	33AD 16217R	7841.6	7057.4 7.5	7057.4 30.0	6748.2 67.5	6190.2 120.0	5789.4 187.5	5481.2 270.0	5028.0 480.0	51.4	60
	240	33AD 16247R	8044.5	7240.0 5.7	7240.0 23.0	6566.5 51.7	6023.6 91.9	5633.5 143.5	5333.7 206.7	4892.7 367.5	50.5	60
	270	33AD 16277R	8193.0	7373.7 4.5	7224.2 18.2	6396.8 40.8	5867.9 72.6	5487.9 113.4	5195.8 163.3	4766.2 290.4	49.9	60

Note) The torque transmission capacity is the same whether the rotating direction of the cam is right hand (R) or left hand (L). All models in the torque capacity table are shown as type R.

1N·m=0.102kgf·m

(2) 33AD Cam curve SMCV-3 (cam curve code 8) 1 Dwell

Number of Stops S	Index Period θ (deg)	CODE	Static-rated Output Torque T_s (N·m)	Dynamic-rated Output Torque Internal Inertia Load Torque						Camshaft Frictional Torque T_x (N·m)	Sankyo Cam Follower SCF (mm)	
				Top (N·m) T_{oi} (N·m)								
				Input Shaft Speed (Index/min)								
25	50	75	100	125	150	200						
2	330	33AD 02338R	4451.4	3523.1 30.2	2861.6 120.9	2533.9 272.1	2324.4 483.7			69.3	60	
3	270	33AD 03278R	5116.9	4448.5 30.3	3613.3 121.1	3199.4 272.6	2934.9 484.5	2744.9 757.1		64.7	60	
	300	33AD 03308R	6896.9	5988.6 25.2	4864.2 100.9	4307.1 227.1	3951.0 403.7	3695.2 630.7	3498.5 908.2	72.7	70	
4	240	33AD 04248R	7159.8	6526.1 29.3	5300.9 117.2	4693.7 263.8	4305.6 468.9	4026.8 732.7	3812.5 1055.1	71.4	70	
	270	33AD 04278R	9791.9	8812.7 24.2	7246.2 96.8	6416.2 217.7	5885.7 387.0	5504.6 604.7	5211.6 870.8	4780.7 1548.0	86.5	80
5	210	33AD 05218R	7515.8	6764.3 31.2	6318.0 124.7	5594.4 280.5	5131.8 498.7	4799.5 779.2	4544.0 1122.0	4168.3 1994.7	69.7	70
	240	33AD 05248R	8019.8	7217.8 23.9	6270.1 95.5	5552.0 214.8	5092.9 381.8	4763.1 596.5	4509.6 859.0	4136.7 1527.2	67.4	70
6	180	33AD 06188R	12438.2	11194.3 36.7	10277.5 146.6	9100.4 329.9	8347.9 586.4	7807.3 916.3	7391.8 1319.5		99.4	90
	210	33AD 06218R	14442.9	12998.6 27.6	11346.6 110.6	10047.1 248.9	9216.3 442.4	8619.5 691.2	8160.8 995.4	7486.0 1769.6	102.6	100
8	150	33AD 08158R	10326.6	9293.9 39.2	9393.9 156.7	8720.9 352.7	7999.8 627.0	7481.8 979.6	7083.6 1410.7	6497.9 2507.8	84.2	80
	180	33AD 08188R	11175.2	10057.7 27.2	9700.3 108.9	8589.3 244.9	7879.1 435.4	7368.9 680.3	6976.7 979.6	6399.8 1741.5	80.7	80
10	120	33AD 10128R	8019.8	7217.8 47.7	7217.8 190.9	7217.8 429.5	6957.1 763.6	6506.6 1193.1	6160.3 1718.0		67.4	70
	150	33AD 10158R	11349.6	10214.6 32.2	10214.6 128.9	10214.6 290.0	9387.2 515.5	8779.4 805.4	8312.1 1159.8	7624.8 2061.9	80.0	80
12	120	33AD 12128R	6699.6	6029.6 42.5	6029.6 170.0	6029.6 382.4	6021.5 679.9	5631.5 1062.3	5331.8 1529.7		55.9	60
	150	33AD 12158R	9247.3	8322.6 28.2	8322.6 112.8	8322.6 253.9	7924.6 451.4	7411.4 705.3	7017.0 1015.6	6436.8 1805.5	62.0	70
15	120	33AD 15128R	7279.8	6551.9 34.6	6551.9 138.3	6551.9 311.3	6551.9 553.3	6436.5 864.6	6093.9 1245.0		53.6	60
	150	33AD 15158R	7741.2	6967.1 22.1	6967.1 88.5	6967.1 199.2	6637.3 354.1	6207.5 553.3	5877.1 796.8	5391.2 1416.5	51.8	60
16	120	33AD 16128R	7425.7	6683.1 32.6	6683.1 130.4	6683.1 293.4	6683.1 521.7	6663.6 815.1	6308.9 1173.7		53.1	60
	150	33AD 16158R	7852.6	7067.3 20.9	7067.3 83.5	7067.3 187.8	6852.5 333.9	6408.8 521.7	6067.6 751.2	5565.9 1335.4	51.4	60

(3) 33AD Cam curve SMS-3 (cam curve code 7) 2 Dwell

S	θ (deg)	CODE	T_s (N·m)	Input Shaft Speed (Index/min)						T_x (N·m)	SCF (mm)	
				25	50	75	100	125	150			200
16	210	33AD 16217R2	10293.8	9264.4 7.0	9264.4 28.2	9264.4 63.4	8889.1 112.7	8313.5 176.0	7871.0 253.5	7220.2 450.7	84.3	80
	240	33AD 16247R2	13930.2	12537.1 5.7	12537.1 22.7	12537.1 51.0	11824.0 90.6	11058.4 141.6	10469.8 203.9	9604.1 362.4	93.8	90
	270	33AD 16277R2	15661.2	14095.1 4.6	14095.1 18.5	14095.1 41.7	12983.7 74.1	12143.0 115.7	11496.6 166.6	10546.0 296.2	98.1	100
20	180	33AD 20187R2	6496.0	5846.4 7.2	5846.4 29.0	5846.4 65.2	5702.6 115.9	5333.4 181.1	5049.5 260.7	4632.0 463.5	57.3	60
	210	33AD 20217R2	11321.8	10189.6 5.8	10189.6 23.2	10189.6 52.1	10189.6 92.6	9758.9 144.7	9239.5 208.4	8475.5 370.5	80.1	80
	240	33AD 20247R2	15152.5	13637.2 4.7	13637.2 18.8	13637.2 42.3	13637.2 75.3	12919.9 117.6	12232.2 169.4	11220.8 301.1	89.5	90
	270	33AD 20277R2	15698.4	14128.6 3.7	14128.6 14.9	14128.6 33.5	13573.0 59.5	12694.1 92.9	12018.4 133.8	11024.7 237.9	87.6	90
24	180	33AD 24187R2	8715.8	7844.2 6.9	7844.2 27.6	7844.2 62.1	7844.2 110.4	7844.2 172.5	7844.2 248.4	7284.0 441.6	63.8	70
	210	33AD 24217R2	9226.9	8304.2 5.1	8304.2 20.3	8304.2 45.6	8304.2 81.1	8239.4 126.7	7800.8 182.5	7155.8 324.5	62.0	70
	240	33AD 24247R2	12461.1	11215.4 3.7	11215.4 14.8	11215.4 33.2	11215.4 59.1	10669.8 92.3	10101.8 132.8	9266.5 236.1	75.6	80
	270	33AD 24277R2	12788.0	11509.2 3.0	11509.2 11.7	11509.2 26.3	11155.7 46.7	10433.3 72.9	9878.0 105.0	9061.2 186.6	74.2	80
32	180	33AD 32187R2	7557.0	6801.3 5.1	6801.3 20.4	6801.3 45.9	6801.3 81.7	6801.3 127.6	6801.3 183.7	6364.5 326.7	52.5	60
	210	33AD 32217R2	7841.6	7057.4 3.7	7057.4 15.0	7057.4 33.7	7057.4 60.0	7057.4 93.7	6748.2 135.0	6190.2 240.0	51.4	60
	240	33AD 32247R2	8044.5	7240.0 2.9	7240.0 11.5	7240.0 25.8	7240.0 45.9	6935.7 71.8	6566.5 103.4	6023.6 183.7	50.5	60
	270	33AD 32277R2	8193.0	7373.7 2.3	7373.7 9.1	7373.7 20.4	7224.2 36.3	6756.4 56.7	6396.8 81.7	5867.9 145.2	49.9	60

Note) A 2-dwell cam performs two identical indexes and stops per one turn of the input shaft.
The indexing angle is the total indexing angle per one turn of the input shaft.

1N·m=0.102kgf·m

45AD Torque Capacity Tables

45AD Torque Transmission Capacity Table

- (1) 1-dwell with cam curve SMS-3 (cam curve code 7)
- (2) 1-dwell with cam curve SMCV-3 (cam curve code 8)
- (3) 2-dwell with cam curve SMS-3 (cam curve code 7)

Notes

The dynamic rated torque output, the Top values, given in this table are calculated based on an expected service life of 8,000 hours, and proper operating conditions such as mounting and lubrication.

(1) 45AD Cam curve SMS-3 (cam curve code 7) 1 Dwell

Number of Stops S	Index Period θ (deg)	CODE	Static-rated Output Torque T_s (N·m)	Dynamic-rated Output Torque Top (N·m)					Camshaft Frictional Torque T_x (N·m)	Sankyo Cam Follower SCF (mm)	
				Internal Inertia Load Torque		Input Shaft Speed (Index/min)					
				75	100	125	150	200			
4	270	45AD 04277R	16076.9	14178.0	11516.1	10197.1	9354.0	8748.3	8282.6	155.9	100
				52.5	210.2	472.9	840.7	1313.5	1891.5		
5	240	45AD 05247R	15847.8	14263.0	12326.8	10915.0	10012.5	9364.1	8865.7	140.8	90
				53.3	213.4	480.1	853.4	1333.5	1920.3		
5	270	45AD 05277R	16817.1	15090.6	12257.3	10853.5	9956.1	9311.4	8815.8	136.0	90
				42.1	168.6	379.3	674.3	1053.6	1517.2		
6	180	45AD 06187R	26959.2	24263.3	22453.4	19881.8	18237.9	17056.9	16149.0	197.7	120
				81.9	327.7	737.2	1310.6	2047.9	2949.0		
	210	45AD 06217R	29388.5	26449.6	22383.8	19820.1	18181.3	17004.0	16098.9	188.1	120
				60.2	240.7	541.6	962.9	1504.6	14767.8		
240	45AD 06247R	31368.1	27352.8	22217.3	19672.7	18046.1	16877.6	15979.2	180.9	120	
			46.1	184.3	414.7	737.2	1151.9	1658.8			
270	45AD 06277R	32982.2	27073.9	21990.8	19472.2	17862.1	16705.5	15816.3	175.3	120	
			36.4	145.6	327.7	582.5	910.2	1310.6			
8	180	45AD 08187R	31368.1	28231.3	28231.3	25117.9	23041.0	21549.1	20402.1	180.9	120
				64.1	256.2	576.5	1024.9	1601.4	2306.0		
	210	45AD 08217R	33451.7	30106.5	27969.9	24766.5	22718.6	21247.6	20116.6	173.7	120
				47.1	188.3	423.6	753.0	1176.5	1694.2		
240	45AD 08247R	35049.3	31544.4	27505.8	24355.5	22341.7	20895.0	19782.8	168.3	120	
			36.0	144.1	324.3	576.5	900.8	1297.1			
270	45AD 08277R	36287.0	32658.3	27015.6	23921.4	21943.5	20522.6	19430.2	164.1	120	
			28.5	113.9	256.2	455.5	711.7	1024.9			
10	180	45AD 10187R	33540.1	30186.1	30186.1	27704.0	25413.3	23767.8	22502.7	168.7	110
				51.4	205.6	462.5	822.3	1284.8	1850.1		
	210	45AD 10217R	36005.8	32405.2	32243.1	28550.3	26189.6	24493.8	23190.0	165.0	120
				39.4	157.4	354.2	629.8	984.0	1417.0		
240	45AD 10247R	37257.3	33531.6	31510.8	27901.8	25594.7	23937.4	22663.3	160.7	120	
			30.1	120.5	271.2	482.2	753.4	1084.9			
270	45AD 10277R	38194.8	34375.3	30797.1	27269.9	25015.0	23395.3	22150.0	157.3	120	
			23.8	95.2	214.3	381.0	595.3	857.2			
12	120	45AD 12127R	13278.8	11950.9	11950.9	11950.9	11950.9	11181.5	10586.4	117.3	80
				96.0	384.0	864.0	1536.1	2400.1	3456.2		
	150	45AD 12157R	18835.4	16951.8	16951.8	16929.0	15529.2	14523.6	13750.6	126.5	90
				63.6	254.4	572.4	1017.6	1590.0	2289.7		
	180	45AD 12187R	21459.4	19313.5	19313.5	18358.8	16840.8	15750.3	14912.0	130.2	100
				45.4	181.5	408.5	726.2	1134.6	1633.9		
210	45AD 12217R	22366.3	20129.7	20129.7	17895.7	16416.0	15353.0	14535.8	126.5	100	
			33.3	133.4	300.1	533.5	833.6	1200.4			
240	45AD 12247R	23020.4	20718.4	19698.7	17442.6	16000.3	14964.3	14167.8	123.7	100	
			25.5	102.1	229.8	408.5	638.2	919.1			
270	45AD 12277R	23503.5	21153.2	19213.3	17012.7	15606.0	14595.5	13818.6	121.6	100	
			20.2	80.7	181.5	322.7	504.3	726.2			
15	150	45AD 15157R	15855.4	14269.9	14269.9	14269.9	13345.1	12481.0	11816.6	106.3	80
				50.2	200.9	432.1	803.7	1255.8	1808.3		
	180	45AD 15187R	16623.4	14961.0	14961.0	14103.2	12937.1	12099.4	11455.4	103.1	80
				34.9	139.5	314.0	558.1	872.1	1255.8		
	210	45AD 15217R	17144.0	15429.6	15429.6	13675.1	12544.4	11732.1	11107.6	100.7	80
25.6				102.5	230.7	410.1	640.7	922.6			
240	45AD 15247R	22287.4	20058.6	19703.3	17446.6	16004.1	14967.8	14171.1	112.3	90	
			20.5	81.9	184.2	327.4	511.6	736.7			
270	45AD 15277R	22606.0	20345.4	19154.7	16960.9	15558.5	14551.0	13776.5	110.7	90	
			16.2	64.7	145.5	258.7	404.2	582.1			
16	150	45AD 16157R	16146.9	14532.2	14532.2	14532.2	13792.7	12899.6	12213.0	105.1	80
				5.0	189.7	426.7	758.7	1185.4	1707.0		
	180	45AD 16187R	16855.0	15169.5	15169.5	14544.5	13341.8	12477.9	11813.8	102.0	80
				32.9	131.7	296.4	526.8	823.2	1185.4		
	210	45AD 16217R	17329.8	15596.9	15596.9	14081.4	12917.1	12080.7	11437.7	99.9	80
24.2				96.8	217.7	387.1	604.8	870.9			
240	45AD 16247R	17660.4	15894.4	15423.4	13656.9	12527.7	11716.5	11092.8	98.2	80	
			18.5	74.1	166.7	296.4	463.0	666.8			
270	45AD 16277R	17898.3	16108.5	14987.8	13271.2	12173.9	11385.6	10779.6	97.0	80	
			14.6	58.5	131.7	234.2	365.9	526.8			

Note) The torque transmission capacity is the same whether the rotating direction of the cam is right hand (R) or left hand (L). All models in the torque capacity table are shown as type R.

1N·m=0.102kgf·m

(2) 45AD Cam curve SMCV-3 (cam curve code 8) 1 Dwell

Number of Stops S	Index Period θ (deg)	CODE	Static-rated Output Torque T_s (N·m)	Dynamic-rated Output Torque Internal Inertia Load Torque						Camshaft Frictional Torque T_x (N·m)	Sankyo Cam Follower SCF (mm)	
				Top (N·m) T_{oi} (N·m)								
				Input Shaft Speed (Index/min)								
25	50	75	100	125	150	200						
2	330	45AD 02338R	13617.3	10369.8 98.1	8422.9 392.3	7458.2 882.6	6841.5 1569.1			153.2	90	
	270	45AD 03278R	15421.5	12959.2 98.7	10526.1 394.8	9320.5 888.2	8549.9 1579.0	7996.2 2467.2		143.0	90	
3	300	45AD 03308R	17523.5	14285.2 81.6	11603.2 326.2	10274.2 734.0	9424.7 1305.0	8814.4 2039.0		148.2	100	
	240	45AD 04248R	29763.5	26787.2 99.1	21919.3 396.3	19408.8 891.8	17804.0 1585.4	16651.2 2477.1	15764.9 3567.1	181.8	110	
4	270	45AD 04278R	32144.5	28212.8 80.8	22915.9 323.3	20291.3 727.5	18613.5 1293.2	17408.3 2020.7	16481.7 2909.8	178.1	120	
	210	45AD 05218R	18804.1	16923.7 101.1	14910.2 404.4	13202.5 910.0	12110.9 1617.7	11326.7 2527.7		142.0	100	
5	240	45AD 05248R	19802.8	17822.5 77.4	14700.2 309.6	13016.5 696.7	11940.3 1238.6	11167.1 1935.2	10572.7 2786.7	137.3	100	
	180	45AD 06188R	32144.5	28930.0 116.3	24517.9 465.1	21709.8 1046.6	19914.7 1860.5	18625.2 2907.1	17633.8 4186.2	178.1	120	
6	210	45AD 06218R	34139.3	29701.7 85.4	24125.3 341.7	21362.2 788.9	19595.8 1366.9	18327.0 2135.8	17351.5 3075.6	171.3	120	
	150	45AD 08158R	33535.7	30182.1 130.9	30182.1 523.8	27431.3 1178.5	25163.2 2095.1	23533.8 3273.5	22281.2 4713.9	20438.8 8380.2	173.4	120
8	180	45AD 08188R	35651.8	32086.7 90.9	30241.8 363.7	26778.1 818.4	24564.0 1454.9	22973.4 2273.3	21750.6 3273.5	19952.1 5819.6	166.2	120
	120	45AD 10128R	19802.8	17822.5 154.8	17822.5 619.3	17781.1 1393.4	16310.9 2477.1	15254.7 3870.5		137.3	100	
10	150	45AD 10158R	35283.1	31754.8 105.1	31754.8 420.2	30012.3 945.5	27530.7 1680.9	25748.1 2626.4	24377.6 3782.0	162.8	110	
	120	45AD 12128R	21044.9	18940.4 145.0	18940.4 579.8	18940.4 1304.6	18834.5 2319.4	17614.9 3624.0		131.8	100	
12	150	45AD 12158R	22401.6	20161.4 92.8	20161.4 371.1	19812.0 835.0	18173.9 1484.4	16997.1 2319.4	16092.4 3339.9	126.3	100	
	120	45AD 15128R	16379.8	14741.9 111.4	14741.9 445.7	14741.9 1002.7	14503.0 1827.7	13564.0 2785.4		104.1	80	
15	150	45AD 15158R	21869.9	19682.9 74.4	19682.9 297.5	19682.9 669.3	18254.1 1189.8	17072.1 1859.1	16163.4 2677.1	114.2	90	
	120	45AD 16128R	16631.4	14968.3 105.2	14968.3 420.7	14968.3 946.5	14967.3 1682.7	13998.1 2629.3		103.2	80	
16	150	45AD 16158R	17347.9	15613.1 67.3	15613.1 269.2	15585.1 605.8	14296.5 1077.0	13370.8 1682.7	12659.1 2423.1	99.8	80	

(3) 45AD Cam curve SMS-3 (cam curve code 7) 2 Dwell

S	θ (deg)	CODE	T_s (N·m)	Input Shaft Speed (Index/min)						T_x (N·m)	SCF (mm)	
				25	50	75	100	125	150			200
16	210	45AD 16217R2	33451.7	30106.5 23.5	30106.5 94.1	30106.5 211.8	27969.9 376.5	26158.8 588.3	24766.5 847.1	22718.6 1506.0	173.7	120
	240	45AD 16247R2	35049.3	31544.4 18.0	31544.4 72.1	29985.1 162.1	27505.8 288.3	25724.8 450.4	24355.5 648.6	22341.7 1153.0	168.3	120
	270	45AD 16277R2	36287.0	32658.3 14.2	33260.1 56.9	29450.7 128.1	27015.6 227.8	25266.3 355.9	23921.4 512.5	21943.5 911.0	164.1	120
20	180	45AD 20187R2	33540.1	30186.1 25.7	30186.1 102.8	30186.1 231.3	30186.1 411.1	29261.6 642.4	27704.0 925.1	25413.3 1644.6	168.7	110
	210	45AD 20217R2	36005.8	32405.2 19.7	32405.2 78.7	32405.2 177.1	32243.1 314.9	30155.3 492.0	28550.3 708.5	26189.6 1259.5	165.0	120
	240	45AD 20247R2	37257.3	33531.6 15.1	33531.6 60.3	33531.6 135.6	31510.8 241.1	29470.4 376.7	27901.8 542.4	25594.7 964.3	160.7	120
	270	45AD 20277R2	38194.8	34375.3 11.9	34375.3 47.6	33573.1 107.1	30797.1 190.5	28803.0 297.6	27269.9 428.6	25015.0 761.9	157.3	120
24	180	45AD 24187R2	21459.4	19313.5 22.7	19313.5 90.8	19313.5 204.2	19313.5 363.1	19313.5 567.3	18358.8 816.9	16840.8 1452.3	130.2	100
	210	45AD 24217R2	22366.3	20129.7 16.7	20129.7 66.7	20129.7 150.0	20210.4 266.8	18901.8 416.8	17895.7 600.2	16416.0 1067.0	126.5	100
	240	45AD 24247R2	23020.4	20718.4 12.8	20718.4 51.1	20718.4 114.9	19698.7 204.2	18423.2 319.1	17442.6 459.5	16000.3 816.9	123.7	100
	270	45AD 24277R2	23503.5	21153.2 10.1	21153.2 40.3	20945.1 90.8	19213.3 161.4	17969.2 252.1	17012.7 363.1	15606.0 645.5	121.6	100
32	180	45AD 32187R2	16855.0	15169.5 16.5	15169.5 65.9	15169.5 148.2	15169.5 263.4	15169.5 411.6	14544.5 592.7	13341.8 1053.7	102.0	80
	210	45AD 32217R2	17329.8	15596.9 12.1	15596.9 48.4	15596.9 108.9	15596.9 193.5	14873.1 302.4	14081.4 435.5	12917.1 774.1	99.9	80
	240	45AD 32247R2	17660.4	15894.4 9.3	15894.4 37.0	15894.4 83.3	15423.4 148.2	14424.7 231.5	13656.9 333.4	12527.7 592.7	98.2	80
	270	45AD 32277R2	17898.3	16108.5 7.3	16108.5 29.3	16108.5 65.9	14987.8 117.1	14017.3 182.9	13271.2 263.4	12173.9 468.3	97.0	80

Note) A 2-dwell cam performs two identical indexes and stops per one turn of the input shaft.
The indexing angle is the total indexing angle per one turn of the input shaft.

1N·m=0.102kgf·m

Sizing

Sizing Advice

When sizing a Sandex Alpha Series, make sure to follow these guidelines to ensure best performance and to prevent premature breakage.

The conditions for driving the input and the loads on the output shaft are also important factors. Make sure you know these conditions before sizing your indexer.

Feel free to consult with your Sankyo representative as these calculations involve unique index-related formulas and symbols.

Sankyo can also size an indexer for you by performing the necessary torque calculations. Use the FAX Sheet at the end of this brochure for prompt service.

Sizing Procedure

<Sizing Procedure>

(1) Determine the number of stops (S)

Select the number of stops from the Standard Specifications that best suits the usage conditions.

(2) Determine the indexing angle (θ)

Calculate a temporary indexing angle based on the ratio of stopping time versus indexing time. Then find the closest indexing angle from the Standard Specifications list.

$$t_1 : t_2 = (360 - \theta) : \theta$$

If you need a long stopping time ratio, start and stop the cam shaft with a VFD or a brake motor.

In this case, select the indexing angle by considering the amount of time needed for braking. Try to find the widest angle possible (240° to 270° is generally recommended).

You may need to review the indexing angle if, for example, you are using variable frequency control for high-speed operation.

If in doubt, contact a Sankyo representative.

(3) Calculate the input speed (N)

$$N = \frac{60}{t_2} \cdot \frac{\theta}{360 \times m}$$

(4) Calculate the moment of inertia (J) [Formula (A)]

Calculate the moment of inertia J for each element: table, fixture, workpiece.

(5) Calculate the required torque (T_t) [Formulas (B, C, D, and E)]

Calculate the inertia torque (T_i), friction torque (T_f), and working load torque (T_w). Then, calculate the required torque (T_t).

(6) Select a model

Based on the number of stops, indexing angle, cam curve, and rotating speed, select a size where the dynamic rated output torque T_{op} (see Torque Capacity Table) is greater than the required torque T_t .

(7) Calculate the cam shaft torque (T_c) [Formula (F)]

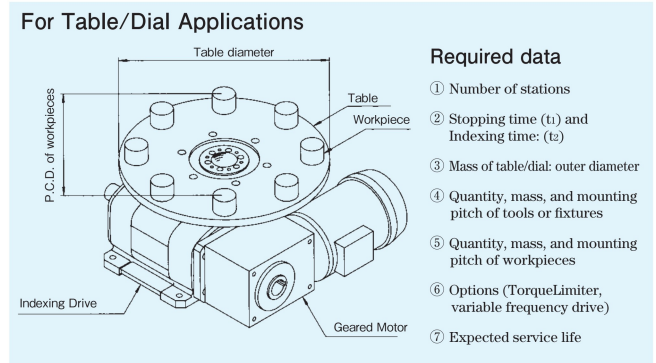
(8) Select the motor size [Formula (G)]

Calculate the required motor power (P_s), and then select an appropriate motor.

Symbols Used for Sizing

a_4 : Backlash factor	Lh : Expected service life (hr)	S : Number of stops	T_s : Static rated output torque (N·m)
A_m : Non-dimensional maximum acceleration	m : Number of dwells	t_1 : Stopping time (sec)	T_t : Required torque of output shaft (N·m)
Ba : Equivalent backlash of the output shaft	M : Mass (kg)	t_2 : Indexing time (sec)	T_w : Working load torque (N·m)
E : Regenerative braking efficiency of the VFD	N : Input speed (rpm)	t_d : Start and braking time (sec)	T_x : Cam shaft friction torque (N·m)
F : Working load (N)	N_d : Maximum output speed (rpm)	t_D : Dwell time (sec)	V_m : Non-dimensional maximum velocity
i : Gear ratio ($i > 1$)	N_M : Motor speed (rpm)	T_c : Cam shaft torque (N·m)	W : Load weight (N)
J : Total moment of inertia of output load (kg·m ²)	N_r : Geared motor output speed (rpm)	T_d : Starting and stopping torque (N·m)	β : Working angle (deg)
J_c : Moment of inertia of input shaft (kg·m ²)	P : Feed pitch (m)	T_f : Friction torque (N·m)	γ : Speed ratio $\gamma > 1$
J_M : Moment of inertia of motor (kg·m ²)	P_{INV} : VFD capacity (kW)	T_i : Inertia torque (N·m)	θ : Indexing angle (deg)
J_{MC} : Equivalent moment of inertia on motor shaft (kg·m ²)	P_s : Motor power (kW)	T_{oi} : Internal inertia load torque (N·m)	θ_d : Braking angle of input shaft (deg)
K : Radius of gyration (m)	Q_m : Non-dimensional maximum cam shaft torque factor	T_{op} : Dynamic rated output torque (N·m)	μ : Friction coefficient
Lf : Life factor	R : Rotational pitch circle diameter (m)	T_R : Allowable output torque of the geared motor (N·m)	ε : Inertia load ratio

Figure 37-1



(9) Calculate the backlash factor (a_4)

1. Determine the total amount (B_i) of backlash, torsion, and deflection in the input drive.

● If using a hypoid gear reducer [F2S/F3S/HMT]: $B_i = 0.6$

● If using a worm gear reducer (SAF/SHF): $B_i = 0.4$

● For other transmission elements, refer to the SANDEX General Catalog (A71 to 77) to calculate this factor.

2. Calculate the equivalent backlash (B_a) in output shaft

$$B_a = \frac{B_i \times V_m \times 360}{S \cdot \theta}$$

3. Calculate the inertia load factor (ε)

$$\varepsilon = \frac{T_i + T_{oi} - T_f}{T_s}$$

4. Determine the backlash factor (a_4)

Based on the equivalent backlash of the output shaft and the inertia load factor, find the backlash factor by referring to Table 38-5.

(10) Check the expected lifetime (Lh) [Formula (H)]

Calculate the life factor Lf, and then determine Lh.

Find the approximate life value in Table 38-4.

(11) Select a geared motor

Check the Geared Motor Characteristics Table to make sure the motor you selected in Step 8 will fit your selected indexer. Some models may allow you to mount a geared motor that is one frame larger as a special option. Make sure to read the notes under the characteristics table.

2. From the characteristics table, select the gear ratio (i) for the input shaft speed (N).

If you are using variable frequency control, select a gear ratio that represents the speed of the input shaft during continuous rotation at 40 to 60 Hz.

3. Make sure the allowable output torque (T_R) of the geared motor is greater than the cam shaft torque (T_c).

Formulas

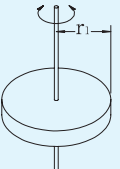
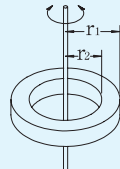
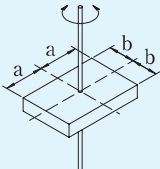
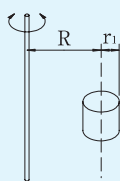
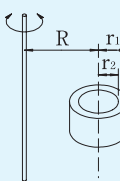
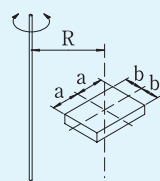
Table 38-1

	Rotating Motions	Linear Motions
(A) Moment of inertia J	$J=MK^2$ (kg·m ²)	$J= M \left(\frac{S \cdot P}{2\pi} \right)^2$ (kg·m ²)
(B) Inertia torque Ti Ti	$T_i=226.2A_m \frac{J \cdot N^2}{S \cdot (\theta/m)^2}$ (N·m)	$T_i=5.73A_m \frac{M \cdot S \cdot P^2 \cdot N^2}{(\theta/m)^2}$ (N·m)
(C) Friction torque Tf	$T_f=W \cdot \mu \cdot R$ (N·m)	$T_f= \frac{W \cdot \mu \cdot S \cdot P}{2\pi}$ (N·m)
(D) Working load torque Tw	$T_w=R \cdot F \cdot \cos \beta$ (N·m)	$T_w= \frac{F \cdot S \cdot P}{2\pi} \cos \beta$ (N·m)
(E) Required torque Tt	$T_t=T_i+T_f+T_w$ (N·m)	
(F) Cam shaft torque Tc	$T_c=500Q_m \frac{1}{S \cdot \theta} (T_t+T_{oi})+T_x$ (N·m)	
(G) Motor power Ps	$P_s= \frac{T_c \cdot N}{9550}$ (kW)	
(H) Expected service life Lh	$L_h= 8000L_f^{10/3}$ (hr)	$L_f= \frac{T_{op}}{a_4(T_i+T_{oi})+T_f+T_w}$
(I) VFD capacity PINVI	$P_{INVI}= \frac{a_4 \times T_c \times N}{9550 \times E}$ (kW)	

For indirect drives Use the following formulas when obtaining rotation or linear motion indirectly from the output shaft.
 Equivalent moment of inertia $J_e = J / \gamma^2$ Equivalent friction torque $T_{fe} = T_f / \gamma$
 Equivalent working load torque $T_{we} = T_w / \gamma$ Equivalent inertia torque $T_{ie} = T_i / \gamma$

Radius of Gyration K

Table 38-2

		
$K^2 = \frac{r_1^2}{2}$	$K^2 = \frac{r_1^2+r_2^2}{2}$	$K^2 = \frac{a^2+b^2}{3}$
		
$K^2 = \frac{r_1^2}{2} + R^2$	$K^2 = \frac{r_1^2+r_2^2}{2} + R^2$	$K^2 = \frac{a^2+b^2}{3} + R^2$

Cam curve characteristic value (Am, Vm, Qm)

Table 38-3

Cam curve	Code	Max velocity Vm	Max acceleration Am	Max cam shaft torque factor Qm
SMS-3	7	1.818	±4.848	±1.178
SMCV-3	8	1.290	±6.882	±0.836

Life factor Lf and Life hours Lh (hr)

Table 38-4

Lh(hr)	Lf	Lh(hr)	Lf	Lh(hr)	Lf
2000	0.659	10000	1.06	26000	1.42
3000	0.745	12000	1.12	28000	1.45
4000	0.812	14000	1.18	30000	1.48
5000	0.868	16000	1.23	35000	1.55
6000	0.917	18000	1.27	40000	1.62
7000	0.960	20000	1.31	45000	1.67
8000	1.00	22000	1.35	50000	1.73
9000	1.03	24000	1.39	55000	1.78

Backlash Factors a4

Table 38-5

Ba \ ε	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
0.05	1.00	1.05	1.07	1.09	1.10	1.12	1.12	1.13	1.14	1.15	1.16	1.17	1.18	1.19	1.19	1.20	1.21
0.1	1.02	1.11	1.15	1.18	1.21	1.24	1.26	1.27	1.29	1.31	1.33	1.35	1.37	1.39	1.41	1.43	1.44
0.2	1.06	1.21	1.30	1.36	1.42	1.48	1.51	1.54	1.57	1.60	1.63	1.66	1.69	1.72	1.75	1.78	1.81
0.3	1.08	1.28	1.40	1.48	1.56	1.64	1.68	1.72	1.76	1.80	1.84	1.88	1.92	1.96	2.00	2.04	2.08
0.4	1.10	1.35	1.50	1.60	1.70	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35
0.5	1.12	1.42	1.60	1.72	1.84	1.96	2.02	2.08	2.14	2.20	2.26	2.32	2.38	2.44	2.50	2.56	2.62

ε : Inertia load ratio

Ba : Equivalent backlash of the output shaft

Sizing a Variable Frequency Drive

Notes on Sizing Variable Frequency Drives (VFD)

If you are going to use a VFD to start and stop the Alpha Series, the VFD must be sized properly for the operating conditions. However, as long as it has sufficient capacity, it can be used regardless of the type that you select.

Refer to the brochure for the VFD you are considering, and use the following procedure to make sure it has enough capacity.

Upon request, Sankyo can size the VFD for you if you provide us with the pertinent information.

Procedure for Sizing a VFD

<Sizing Procedure>

The VFD model that you choose must be sized according to the capacity required to continuously drive the Alpha Series indexer cam shaft (P_{INV1}), and the capacity required to start and stop the motor when the indexer is in dwell position (P_{INV2}). The latter must take into account the characteristics of the geared motor, such as moment of inertia

(Note) The VFD capacity of interest is not the rated capacity, but the nominal capacity (when driving a standard motor).

<Capacity when driving the input shaft continuously:P_{INV1}>

(1) Determining the efficiency (E) of the regenerative braking torque

The regenerative braking efficiency (E) depends on the manufacturer, model, and capacity of the VFD. It also depends on whether an external resistor is used. Check the brochure for the VFD.

The value of E is 1.5 for 150%, 1.0 for 100%, 0.5 for 50%, and 0.2 for 20%.

(2) Calculating the VFD capacity (P_{INV1}) [Formula (I)]

Calculate the capacity of the VFD, and then select a motor size that is greater than the motor capacity selected for Step (8) on page 37.

<Capacity required to start and stop the motor:P_{INV2}>

(1) Calculating the dwell time (t_D)

Determine the dwell time (stop time) when the cam shaft (input shaft) of the Alpha Series is driven continuously at the operating speed.

$$t_D = \frac{60}{N} \times \frac{360 - \theta}{360}$$

If your application calls for an input shaft speed above 100 rpm, contact a Sankyo representative first.

(2) Calculating the equivalent moment of inertia on motor shaft (J_{MC})

1. Check the moment of inertia of input shaft (J_C) in the Table of Characteristics.

2. Check the moment of inertia of motor (J_M) in the Table of Characteristics.

3. Calculate the equivalent moment of inertia on the motor shaft (J_{MC}) without including the load on the output shaft.

$$J_{MC} = \frac{J_C}{i^2} + J_M$$

(3) Determining the VFD capacity (P_{INV})

1. Check the speed of the motor to be used (N_M)

50Hz···1500rpm, 60Hz···1800rpm

2. Calculate the VFD capacity (P_{INV2})

$$P_{INV2} = \frac{J_{MC} \times N_M^2}{91406 \times t_D}$$

3. Determine the VFD capacity (P_{INV}) required to drive the Alpha Series

Determine the required capacity of the VFD for driving the Alpha Series such that the following condition is met.

$$P_{INV} \geq P_{INV1}, P_{INV2}$$

(4) Calculating the starting and braking time (t_d)

Calculate the time it takes for the VFD to start and brake the motor.

$$t_d = \frac{J_{MC} \times N_M^2}{91406 \times P_{INV}}$$

(Note) Some VFD models allow you to set the braking time in increments of 0.1 seconds.

In this case, set it to 0.1 seconds.

Depending on the manufacturer or model, the ramp up and ramp down times can only be set within a prescribed range. Make sure to check the catalog for your VFD.

(5) Braking angle of cam shaft (θ_d)

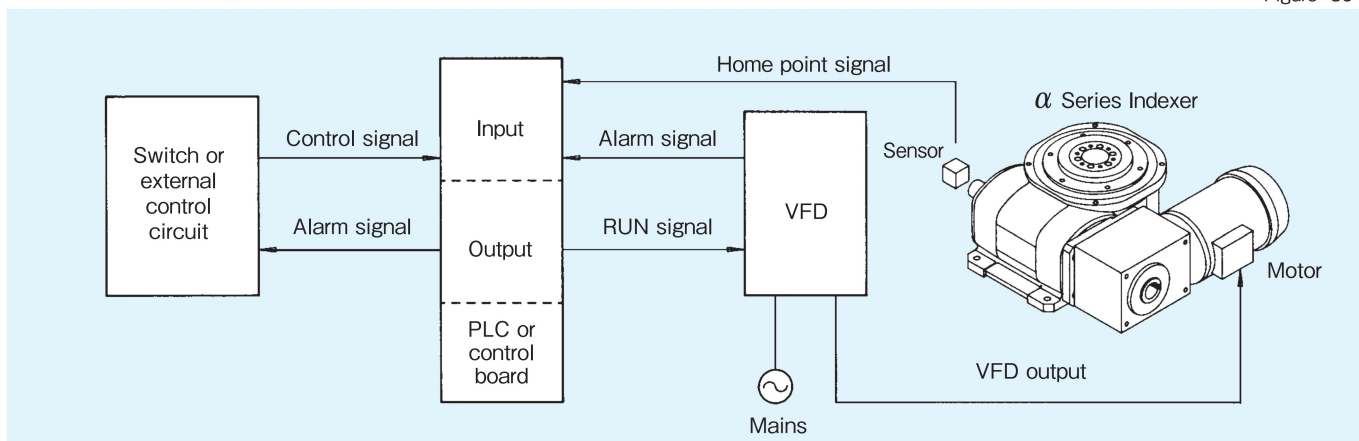
Calculate the braking angle of the cam shaft required to detect a signal from a sensor and timing cam or plate.

$$\theta = 3 \times N \times t_d$$

This θ_d is the angle required to start or stop the indexer, so it must be equal to 2θ_d to allow for adjustment of the timing cam or plate.

Control Block Diagram

Figure 39-1



Torque Limiter

Dimensions

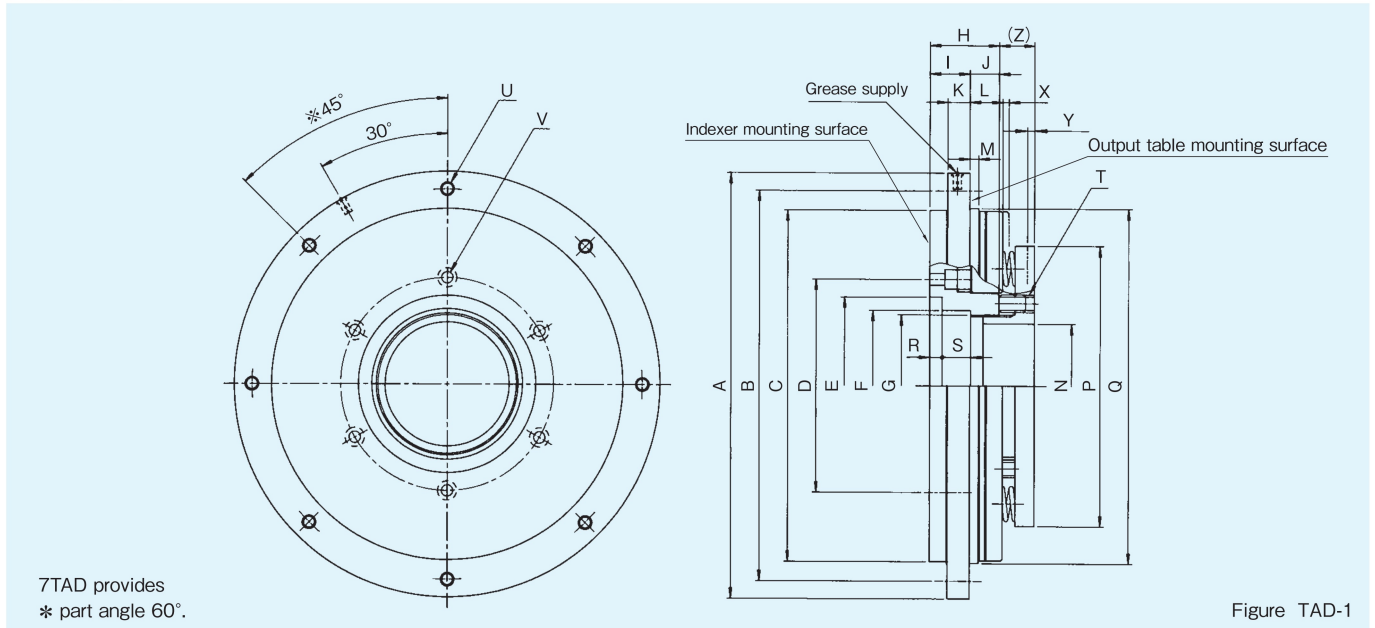


Table of dimensions

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R	S	T	U	V	X	Y _{max}	Z
7TAD	φ180	φ168	φ152	φ85	φ70 ^{+0.03}	φ60	M55×2	33	19	14	10.5	14	5	φ47	φ107	φ155 ⁰ _{-0.04}	7	10	4-M5	6-M5×0.8	6-6.6DR.	3	5	16.5
9TAD	φ240	φ220	φ198	φ120	φ100 ^{+0.035}	φ85	M80×2	39	22.5	16.5	12.5	17.5	5	φ70	φ158	φ200 ⁰ _{-0.046}	7	16	4-M10	8-M8×1.25	6-6.6DR.	3.5	7	23
11TAD	φ285	φ260	φ229	φ150	φ120 ^{+0.035}	φ108	M105×2	44	25	19	14.5	20	6	φ95	φ186	φ235 ⁰ _{-0.046}	12	13	4-M10	8-M10×1.5	6-9DR.	3.7	7.5	26
15TAD	φ395	φ365	φ328	φ210	φ172 ^{+0.040}	φ155	M145×2	64	37	27	20	27	6	φ130	φ256	φ335 ⁰ _{-0.057}	12	33	4-M10	8-M12×1.75	6-11DR.	5.5	7	26
19TAD	φ480	φ450	φ419	φ260	φ230 ^{+0.046}	φ186	M180×2	77	42	35	21	33	8	φ166	φ326	φ420 ⁰ _{-0.063}	16	43	4-M10	8-M12×1.75	8-14DR.	5.6	7	34
23TAD	φ555	φ525	φ494	φ336	φ275 ^{+0.052}	φ262	M260×2	82	47	35	25	35	9	φ246	φ402	φ495 ⁰ _{-0.063}	17	44	4-M10	8-M14×2	8-14DR.	6.5	8	36

(Unit : mm)

Specifications

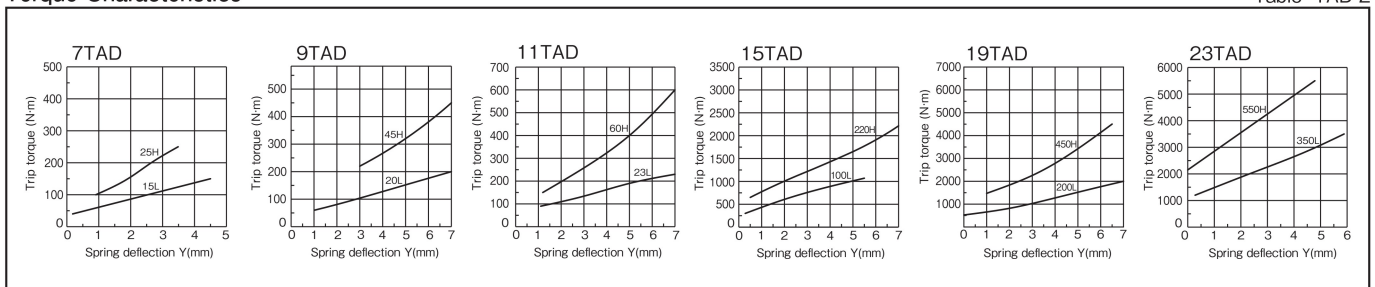
Model	Code	Range of tripping torque (N·m)	Thread pitch on torque adjusting nut (mm)	Max. allowable radial load (N)	Max. allowable thrust load (N)	Max. allowable bending moment (N·m)	Max. revolution per minute (r.p.m.)	Moment of inertia (kg·m ²)	Mass (kg)
7TAD	7TAD-15L	40 ~ 150	2	2450	2950	45	200	0.02	4.5
	7TAD-25H	100 ~ 250							
9TAD	9TAD-20L	60 ~ 200	2	5200	5000	100	200	0.07	9.6
	9TAD-45H	140 ~ 450							
11TAD	11TAD-23L	90 ~ 230	2	7300	7000	180	200	0.15	15
	11TAD-60H	150 ~ 600							
15TAD	15TAD-100L	300 ~ 1000	2	11800	12000	430	140	0.8	43
	15TAD-220H	650 ~ 2200							
19TAD	19TAD-200L	600 ~ 2000	2	16800	17000	750	120	2.1	74
	19TAD-450H	1500 ~ 4500							
23TAD	23TAD-350L	1200 ~ 3500	2	24800	35000	1950	100	4.5	110
	23TAD-550H	2000 ~ 5500							

X : When an overload occurs, the overload detection panel moves X mm. This movement is used to activate a sensing device and thereby allows the user to control operation of the mechanism involved.

(Z) : Since this dimension is the reference value for the amount the torque adjustment nut protrudes when the spring height is at its maximum (free), please pay attention to any possible interference with peripheral equipment or material when installing the part. In addition, the (Z) dimension may fluctuate due to variations in the free spring height.

Y : Since this dimension is the amount that the spring has been deflected from the spring free height, read the spring deflection Y by looking at the cutoff torque in the torque characteristic chart. Tighten the torque adjustment nut until it reaches the cutoff torque value Y.
*Since the Y_{max} value shown in the dimension table makes the mechanism inoperable, do not tighten the nut beyond this value.

Torque Characteristics



Handling

Handling Procedures for the Alpha Series

An indexer that uses a roller gear cam mechanism is precision equipment. Improper handling can lead to premature breakage, and it can damage the automated machinery in which it is integrated.

Make sure you fully understand this aspect the product and handle it properly.

(1) Installation

Use an oil stone to hone the mounting surface free from nicks, burr, and residual paint.

Clean the surface and apply grease or mineral oil to prevent rust. Then, install the indexer.

The indexer is subject to sharp fluctuating loads so make sure it is mounted securely.

(2) Environment

The ambient operating conditions may have a significant impact on the performance of this indexer.

Review the conditions where the indexer will be installed beforehand, and take all necessary preventive measures.

a) The ambient operating temperature for a standard indexer is from 0°C to 40 40°C.

b) An indexer that is used in a moist atmosphere is prone to rusting.

Rust proof thoroughly.

c) The input and output shaft is sealed with an oil seal. Depending on the amount and type of dust, this seal can wear and eventually leak. Consider a furnishing a protective cover.

d) Electrical current can cause the indexer to wear. Make sure electrical circuits are properly insulated.

(3) Operation

Automated machines built around an indexer usually has many parts that are intricately assembled. Often, the machine will not run after it is first assembled.

After assembling the major components, you should always operate the machine by hand, or micro-jog if available, to make sure the parts move without interference.

Motor sizes from 0.4 to 1.5 kW have a hex-wrench hole, where the fan is mounted, to allow hand-operated testing.

(This hole is square for 1.5-kW motors.)

Always test run by hand, or micro-jog if available, to make sure the operation is smooth.

Then, run with power and check for noise, vibration, temperature changes, oil leaks, and other possible signs of failure.

(4) Handling the input shaft

When center line of the keyway in the input shaft points toward the turret, the input shaft is at the indexing angle reference position.

On an indexer, the starting position of the indexing angle and the key should be used for positioning and for the safe transmission of shock loads. During normal operation, the key should not be relied upon. Instead, use a different means of transmission.

(5) Handling the output

a) The output of an indexer is subject to positive and negative inertia torque as it indexes and stops, thus requiring sufficient stiffness to ensure positioning accuracy. There is no tolerance for vibration.

The output on the AD Type models is designed with a wide flange surface to allow precision mounting of tables or dials.

b) To ensure precise positioning of the workstations on the table, bore an oversized center hole by 0.1 to 0.2 mm. Center the table by moving it radially and the direction of rotation, then tighten the bolts and, if necessary, insert a knock pin.

The recommended tightening torques for bolts in the indexer flange are given below.

	Mounting bolts		(Recommended) knock pin holes	
	Size	Tightening torque	Machining positions	Machining depth
7AD	6-M6	13.5 N·m	P.C.D. 85	12mm
9AD	6-M6	13.5 N·m	P.C.D. 120	12mm
11AD	6-M8	34 N·m	P.C.D. 150	16mm
15AD	6-M10	67.5 N·m	P.C.D. 210	20mm
19AD	8-M12	84 N·m	P.C.D. 260	24mm
23AD	8-M12	84 N·m	P.C.D. 336	24mm
33AD	8-M20	402 N·m	P.C.D. 430	35mm
45AD	8-M20	402 N·m	P.C.D. 560	40mm

c) The center of the output is standard equipped with a robust fixed flange with a thru-hole.

You can directly mount your fixed table to this flange.

You can machine a hole in your mounting base where the center of the output will be. This provides a convenient passage for piping and wiring.

(6) Lubrication

Lubrication serves an important role. It reduces friction of rolling parts, removes frictional heat, and prevents rust, in addition to other benefits.

Use of improperly selected oil will reduce the accuracy and life. Make sure to select an oil that suits the operating conditions.

Sankyo recommends the use of a good quality mineral oil with pressure additives. Do not mix with oil from different manufacturers.

The viscosity depends on the operating speed. Use the table below to select the proper oil.

(7) Maintenance and servicing

a) Backlash in the input and output will increase over time.

Always perform regular inspections and adjustments.

b) If the indexer is over filled with oil, the indexer will show abnormal temperature rises and may even leak. Make sure the indexer has the proper amount of oil at all times.

c) Replace the lubrication oil every 3,000 hours. Or, if the indexer is not operated that long, replace it at least once every one to two years.

(8) Lubrication of the geared motor

● For 0.1 kW to 1.5 kW and 2.2 kW (19AD, 3.7 kW motors)

These motors are lubricated by grease.

Normally, the grease does not need to be replaced or added.

● For 2.2 kW (23AD), and 5.5 kW to 15 kW motors

Replace the oil every 10,000 hours of operation, or once every two years, whichever comes first.

Lubrication oil	Product name	ISO viscosity grade
Mineral oil	Mobilgear 600 XP 680	VG680

The amount of oil to fill depends on the mounting position.

	2.2kW	5.5/7.5kW	11/15kW
Indexer is mounted in positions 1 or 2	1ℓ	3.8ℓ	7ℓ
Indexer is mounted in position 5	2.9ℓ	11.2ℓ	21ℓ

Input shaft speed (rpm)	7AD~23AD	33AD, 45AD
20 or slower	680	680
Between 20 and 100	460	320
Between 100 and 200	320	220

Oil Viscosities (units: cSt)

Table 41-1

Viscosity cSt/40°C	Oil brands			
	Idemitsu	ENEOS	Cosmo	Exxon Mobile
680	Daphne Super Gear Oil 680	Bonnok TS680	Cosmo Gear SE680	Mobilgear 600 XP 680
460	Daphne Super Gear Oil 460	Bonnok TS460	Cosmo Gear SE460	Mobilgear 600 XP 460
320	Daphne Super Gear Oil 320	Bonnok TS320	Cosmo Gear SE320	Mobilgear 600 XP 320
220	Daphne Super Gear Oil 220	Bonnok TS220	Cosmo Gear SE220	Mobilgear 600 XP 220

[Special Note] If the input shaft speed is a borderline value, choose the viscosity of the higher grade (larger number).

(1cSt=1mm²/s)

Our contact person: _____

Model Sizing Form for the SANDEX- α series

Customer's Company, Department		TEL
Address		FAX
Name	Email	

Application

Number of stops	Working time : t ₁ [sec]	Index time : t ₂ [sec]
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Index Dial Application

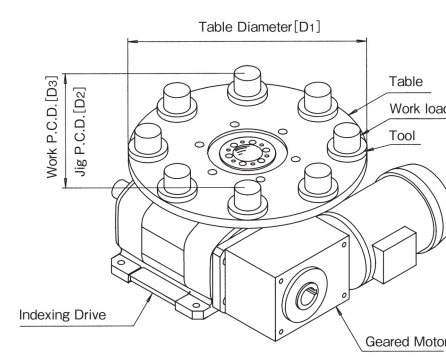
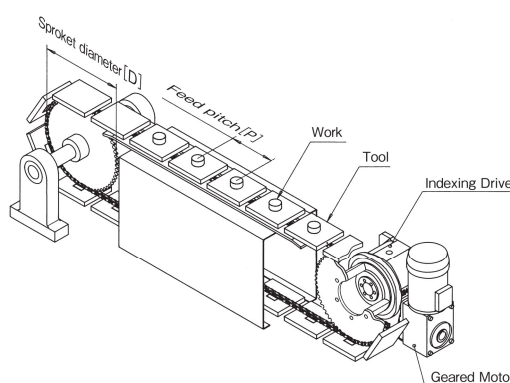


Table diameter : D ₁	[mm]
Table weight : M ₁	[kg]
Jig P.C.D. : D ₂	[mm]
Weight per tool : M ₂	[kg]
Number of tool : n ₂	
Work P.C.D. : D ₃	[mm]
Weight per work : M ₃	[kg]
Number of work : n ₃	

Conveyor Application

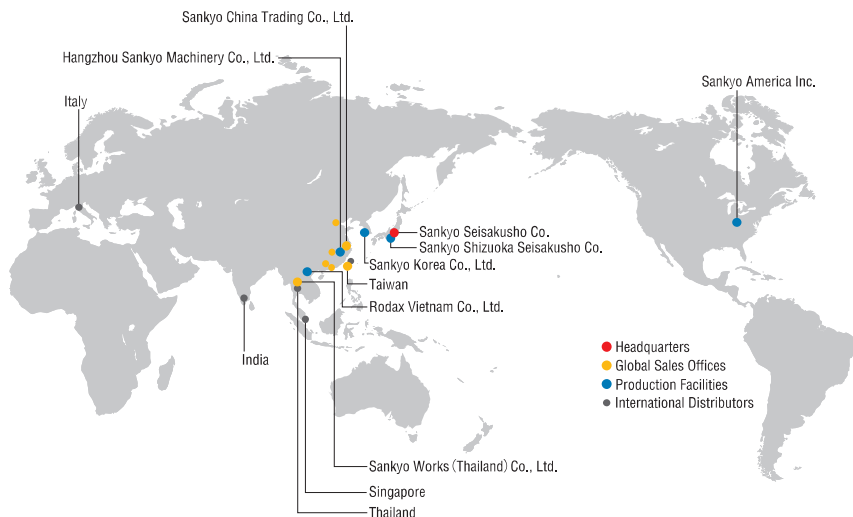


Feed pitch : P	[mm]
Weight of chain with attachment : M ₁	[kg]
Weight of tool : M ₂	[kg]
Weight of work : M ₃	[kg]
Sprocket diameter : D	[mm]
Weight per sprocket : M ₄	[kg]
Number of sprocket : n ₄	
Coefficient of friction : μ	

Geared Motor <input type="checkbox"/> Yes <input type="checkbox"/> No	Torque Limiter <input type="checkbox"/> Yes <input type="checkbox"/> No	Timing Cam - Photo Switch <input type="checkbox"/> Yes (1. 2. 3) <input type="checkbox"/> No
--------------------------------------------------------------------------	----------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------

MEMO

Global network



Group Companies

Sankyo America Inc.

10655 State Route 47 Sidney, Ohio, 45365 U.S.A.
Phone: +1-(0)937-498-4901 Fax: +1-(0)937-498-9403
Email: sales@sankyoautomation.com

Sankyo Korea Co., Ltd.

1449-48 Seobu-ro, Gwonsaon-gu, Suwon-si, Gyeonggi-do, 16643 Korea
Phone: +82-(0)31-895-5991 Fax: +82-(0)31-895-6607
Email: kr-sales@rollerdrive.com

Sankyo China Trading Co., Ltd.

[Shanghai Sales Office]
Room 1103, Block B, No.391 Guiping Road,
Shanghai 200233 China
Phone: +86-(0)21-5445-2813 Fax: +86-(0)21-5445-2340
Email: sales@sankyochina-trading.com

[Shenzhen Sales Office]
Unit 19j, Tower B, Neo Building, No.6009 Shennan Avenue,
Futian District, Shenzhen China
Phone: +86-(0)755-8230-0270 Fax: +86-(0)755-8236-4605

[Tianjin Sales Office]
Room 1905, Pengzhanfeiwo Building A, Crossing Yale Road Yaolin Road,
Xiqing District, Tianjin 300380 China
Phone: +86-(0)22-2312-1005 Fax: +86-(0)22-2312-1007

[Guangzhou Sales Office]

Room 913, Xing Pu Building, No.12 Guan Hong Road,
Guangzhou Economic Development Zone, Huang Pu,
Guang Zhou 510670 China
Phone: +86-(0)20-8985-1846 Fax: +86-(0)20-8225-7346

[Wuhan Sales Office]

Room 2301, Taihe Square, No.134 Wusheng Road, Wuhan,
Hubei Province China
Phone: +86-(0)27-8568-5818 Fax: +86-(0)27-8568-2818

Hangzhou Sankyo Machinery Co., Ltd.

No.2518 Jiang Dong 2 Road, Hangzhou Jiang Dong Industrial Park,
Xiaoshan Zone, Hangzhou, Zhejiang, China
Phone: +86-(0)571-8283-3311 Fax: +86-(0)571-8283-1133

Rodax Vietnam Co., Ltd.

Plot No. M1, Thang Long Industrial Park II
Di Su, My Hao, Hung Yen, Viet Nam
Phone: +84-(0)221-3-589701 Fax: +84-(0)221-3-589708

Sankyo Works (Thailand) Co., Ltd.

9/31 Moo 5, Phaholyotin Road, Klongnueng,
Klong Luang, Patumthani 12120 Thailand
Phone: +66-(0)2-516-5355 Fax: +66-(0)2-068-0931
Email: sales@sankyo-works.co.th

Contact us

Mon–Fri AM8:30–12:00 PM13:00–17:30 UTC + 09:00 (JST) (Except public holidays and company holidays)

■ **Headquarters**
(International Sales Division) 3-37-3 Tabatashinmachi, Kita-ku, Tokyo, Japan 114-8538
Phone: +81-(0)3-3800-3330
Fax: +81-(0)3-3800-3380
Email: overseas@sankyo-seisakusho.co.jp
URL: <http://www.sankyo-seisakusho.co.jp>

■ **Taiwan Sales Office** No.21, Ln.152, Jianxing Rd., Sanhe Vil., Daya Dist., Taichung City 42876, Taiwan (R.O.C.)
Phone: +886-(0)4-2359-4048
Fax: +886-(0)4-2359-4720
Email: tw-sales@rollerdrive.com



<http://www.sankyo-seisakusho.co.jp>

For further information, questions, or inquiries,
please contact us by e-mail or visit our website.
*Specifications and dimensions are subject to change without notice.
Consult Sankyo sales before ordering.

高精度ゼロバックラッシポジションナ

The ZERO-Backlash Positioner

RollerDrive[®]

RA series



The ZERO-Backlash Technology

優れた機能・性能の追及により生まれたメカニズム。

A mechanism developed through the pursuit of outstanding functionality and performance

ゼロバックラッシュ・テクノロジー により実現する卓越した“動き”。

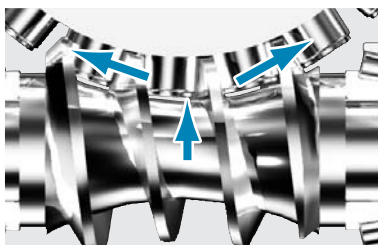
Superior movement achieved with zero-backlash technology

FA装置においてサーボシステムを用いた動作制御は装置性能を大きく左右する重要な要素です。当然装置の仕様や性能は期待通りの“動き”が得られる事を前提に構成されますが、動作制御部にバックラッシュ、剛性不足、制御上の不安定さ等の要因があると入力制御指令に対して出力動作が乱れ、期待通りの性能を得る事が困難になります。

RollerDrive® RA シリーズは、サーボモータを機械的に減速し、強大なトルク、剛性、安定性を得ると同時に、独自の予圧機構によるゼロバックラッシュ化により入力制御指令に忠実な出力動作を得る事が可能です。加えて、転がり伝達による高効率、磨耗レスの実現と入出力軸の直交レイアウトによるコンパクト化、大口径中空軸標準装備等の使いやすさも兼ね備えた革新的なFAモーションコントロールユニットです。

In FA equipment, motion control using servo systems is a crucial element which greatly affects equipment performance. Naturally, equipment specifications and performance are designed assuming that the expected motion is attained, but if there are factors such as backlash, insufficient rigidity or control instability in the motion control section, then output motion will deviate from input control commands, and it will be difficult to attain the expected performance.

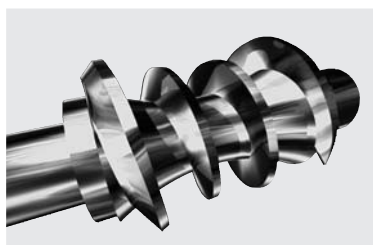
With the RollerDrive RA Series, a servomotor is mechanically reduced while maintaining powerful torque, rigidity and stability, and output motion faithful to input control commands can be attained by achieving zero-backlash with our unique preload mechanism. This is a revolutionary FA motion control unit, which combines rolling transmission for high-efficiency and elimination of wear, an orthogonal layout of input and output axes for greater compactness, and standard features like a large diameter hollow shaft for greater ease-of-use.



予圧 Preload

くさび形の入力軸リブがローラフォロアに予圧状態で接触しバックラッシュを完全除去。予圧は入力軸側の調整機構によって調整されます。

Wedge-shaped input shaft ribs make contact with roller followers in the preload state, and this completely eliminates backlash. Preload is adjusted using an adjustment mechanism on the input shaft side.



入力軸 Input shaft

合金鋼製入力軸は厳しい精度を満たす為、最新の加工理論と設備により製造。高速回転時の自励振動を抑えるためのバランスングも施されています。

In order to meet stringent accuracy requirements, the alloy steel input shaft is manufactured using state-of-the-art machining theory and equipment. Balancing is also done to control self-induced oscillation during high-speed rotation.

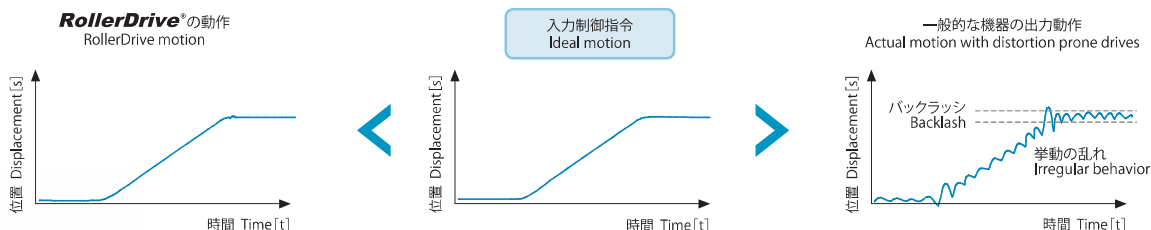


ローラフォロア Roller followers

転動体軸受け構造で、回転しながらトルクを伝達。転がり接触なので、長期間使用しても初期精度を半永久的に維持します。

These are roller bearing structures which transmit torque while rotating. Contact points are in rolling contact, so the initial accuracy can be maintained permanently, even with long-term use.

真に高品質な“動き”の追求 In pursuit of true high-quality motion



従来のモーション機器における“動き”の品質は主に静止状態での精度や剛性により評価されていました。しかし現実的には、静止時はもちろん動作中の精度、安定性がFA装置の性能に大きな影響を与えます。

バックラッシュがあったり、応答性が劣るモーション機器では、動的な精度悪化や挙動の乱れにより制御指令通りの動きを作れず、必要な性能を得る事が困難です。

RollerDrive® は、ゼロバックラッシュ・テクノロジーによって入力制御指令に忠実な出力動作を作り出し、あらゆるFA装置の性能向上を実現します。

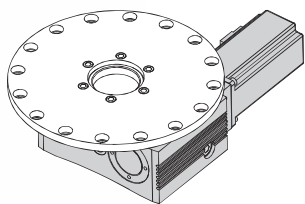
With previous motion equipment, the quality of motion was evaluated primarily based on accuracy and rigidity in the stationary state. Naturally, these stationary characteristics are important, but in reality, accuracy and stability during movement have a large impact on the performance of FA equipment.

In motion equipment with backlash or inferior response, motion does not proceed in accordance with control commands due to deterioration of dynamic accuracy and irregular behavior, and thus it is difficult to attain the necessary performance.

RollerDrive improves the performance of all FA equipment by employing zero-backlash technology to create output operation faithful to input control commands.

あらゆるFA装置の性能を向上 Improves performance of all FA equipment

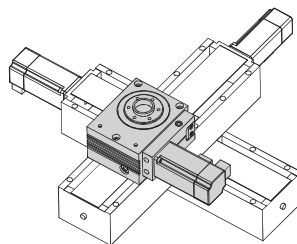
高速精密位置決め
High-speed precision positioning



整定時間が早く、精密な位置決めが可能になります。動作中の速度変動も極小で、高精度な同期にも対応。また、メンテナンスが殆んど不要で、FAシステムのライフサイクルコストを抑えます。

Settling time is short, and this enables precise positioning. Speed fluctuation during movement is extremely small, and high-accuracy synchronization is also possible. Almost no maintenance is necessary, and this helps control life-cycle costs of FA systems.

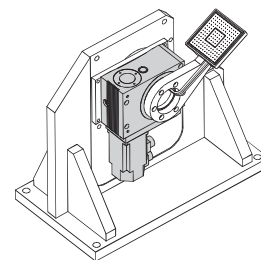
高精度θ軸ポジショナー (注:P14設置方法参照)
High-accuracy θ -axis positioner



RollerDrive® は、出力回転振れが小さく、高精度 θ 軸ポジショナーやアラインメントテーブルとしてお使いいただけます。薄型コンパクトで、X-Yステージ等と組み合わせての使用にも最適です。

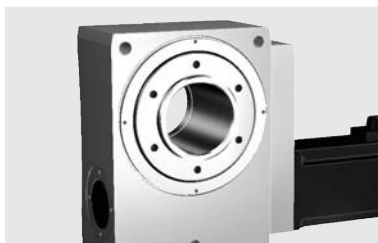
RollerDrive has small output rotation deflection, and can be used as a high-accuracy θ -axis positioner or as an alignment table. It is thin and compact, and ideal for use in combination with an X-Y stage etc.

旋回・揺動アーム駆動
Rotary/Pivot arm drive



スピード、往復繰り返し精度が向上し、駆動部レイアウトを薄く、コンパクトにする事が出来ます。また、出力軸の大口径中空穴により、配管、ケーブル類の設置が容易です。

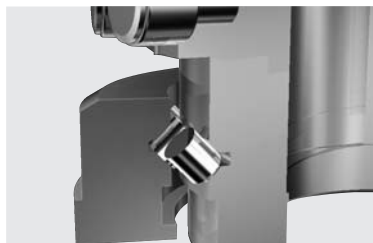
Speed and reciprocating repeat accuracy can be improved, and the drive section layout can be made thinner and more compact. Pipe and cable installation is easy using the large-diameter through hole for the output shaft.



大口径中空出力軸 Large diameter hollow output shaft

配線、配管等が容易な他、別機器の軸を通すなど設計の幅を広げます。

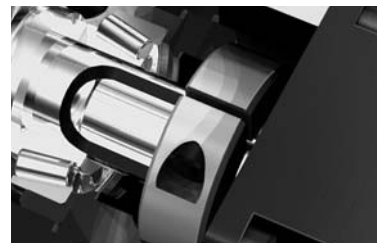
This enables easy wiring and piping, and a broader range of design possibilities, such as passing the shaft of other equipment through the hole.



クロスローラ Cross roller

出力部には高剛性で振れが極めて小さいクロスローラベアリングを内蔵。

A highly-rigid cross roller bearing with extremely small deflection is built into the output section.



モータ軸締結 Motor shaft coupling

モータ軸は入力軸とリジッドに締結。モータの動きをダイレクトに伝えます。モータベース部は組付誤差吸収が可能な構造となっています (PAT.P)。

The motor shaft is rigidly coupled with the input shaft. Motor motion is transmitted directly. The motor base structure enables absorption of mounting error (PAT.P).

仕様 RollerDrive specifications

能力表 Specification sheet

RAシリーズは、潤滑方式により性能が異なります。潤滑方式は基本仕様となるグリス潤滑仕様と高速運転が可能なおイル潤滑仕様があります。どちらの仕様が適しているかはお客様の仕様条件によって決まります。選定した潤滑仕様が適切かどうかを検討する際には、性能表との比較を行い、弊社の規定する期待寿命時間を満たす条件で運転可能かどうかをご検討ください。この条件は、右頁(p.4)に示す動定格トルクのグラフで囲む範囲に速度とトルクが収まるかどうかで確認できます。

The RA series has two different lubrication options. Select the lubrication type according to your actual operating conditions. Grease lubrication is the standard lubrication method, while oil lubrication should be selected for high-speed operation. To check that the service life of the RollerDrive will be satisfactory, please compare the specifications for each lubrication type. On the dynamic rated output torque curve (see page 4), when the point (Torque and Speed) is below the curve, an expected life of over 12,000 is ensured.

グリス潤滑仕様 Grease lubrication type

※ 受注生産品です。Order products

機種 Model		RA40	RA63	RA80		RA100		RA125	
減速比 Gear ratio		15	20	20	30*	20	30*	20	30*
起動停止時上限トルク Upper limit torque at start/stop	N·m	57.7	129.3	202.3	147.9	564.8	250.3	938.6	637.5
最高入力回転数 Max. input speed	min ⁻¹	3,000		2,500		2,000		1,600	
定格入力回転数 Rated input speed	min ⁻¹	900	800	700		600			
位置決め精度 Angular transmission accuracy	arc·sec 以下 arc·sec or less	90	60	40					
繰返し精度 Angular repeatability accuracy	arc·sec 以下 arc·sec or less	±10	±7	±5					
面振れ量 Surface runout	μm以下 μm or less	10							
許容アキシャル荷重 Permissible axial load	N	999	1,657	3,302		3,724		8,178	
許容ラジアル荷重 Permissible radial load	N	669	1,359	2,819		3,109		7,452	
許容モーメント荷重 Permissible moment load	N·m	33	79	210		284		764	
製品重量 Weight	kg	2.5	5.6	11.6		21.5		36.3	

オイル潤滑仕様 Oil lubrication type

※ 受注生産品です。Order products

機種 Model		RA40	RA63	RA80		RA100		RA125	
減速比 Gear ratio		15	20	20	30*	20	30*	20	30*
起動停止時上限トルク Upper limit torque at start/stop	N·m	71.0	159.2	249.0	182.1	695.4	308.2	1,155.6	784.8
最高入力回転数 Max. input speed	min ⁻¹	3,000							
定格入力回転数 Rated input speed	min ⁻¹	1,300	1,100	1,000		900			
位置決め精度 Angular transmission accuracy	arc·sec 以下 arc·sec or less	90	60	40					
繰返し精度 Angular repeatability accuracy	arc·sec 以下 arc·sec or less	±10	±7	±5					
面振れ量 Surface runout	μm以下 μm or less	10							
許容アキシャル荷重 Permissible axial load	N	999	1,657	3,302		3,724		8,178	
許容ラジアル荷重 Permissible radial load	N	669	1,359	2,819		3,109		7,452	
許容モーメント荷重 Permissible moment load	N·m	33	79	210		284		764	
製品重量 Weight	kg	2.5	5.6	11.6		21.5		36.3	

《運転上の注意》 Operation precautions

ローラドライブの本体温度が60℃を超える状況下では運転しないでください。高温下の運転では潤滑油が劣化する恐れがあります。

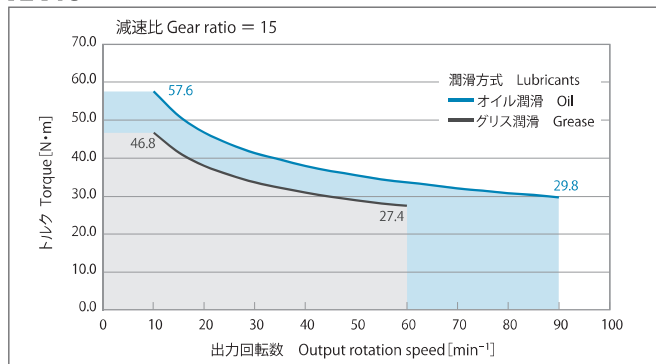
Please do not exceed 60°C operating temperature conditions of the RollerDrive. Operation at the high temperatures may lead to the degradation of lubricant performance.

動定格トルク Dynamic rated output torque

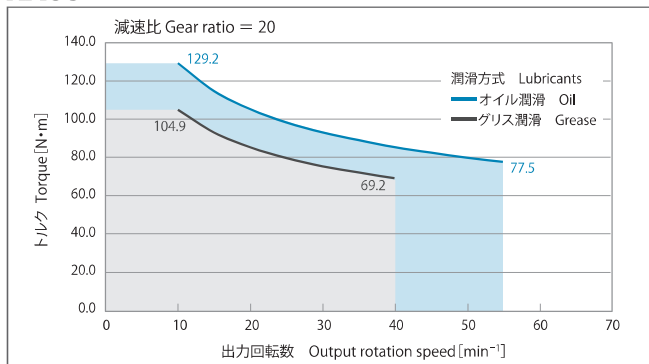
RollerDriveの期待寿命時間(12,000時間)を満たす条件として、出力軸に作用する負荷トルクの限界値を示します。動定格トルクは、出力回転数によって変化します。

The dynamic rated output torque is value of load torque for which an expected service life of 12,000 hours or greater is ensured. The dynamic rated output torque is dependent on the output rotation speed.

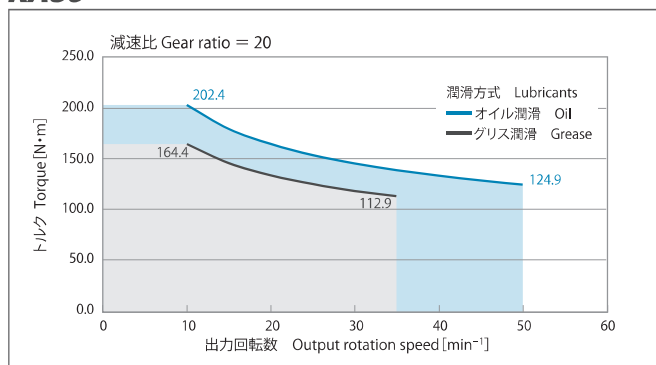
RA40



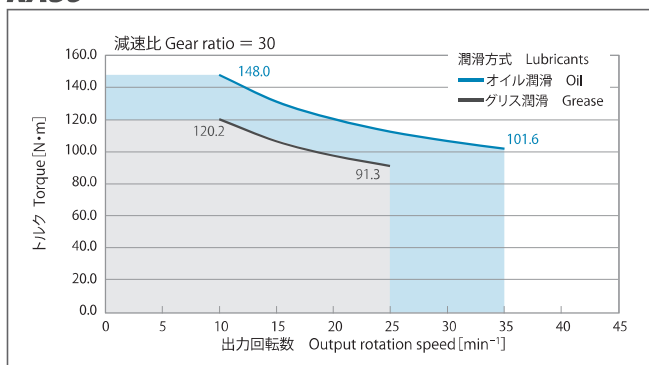
RA63



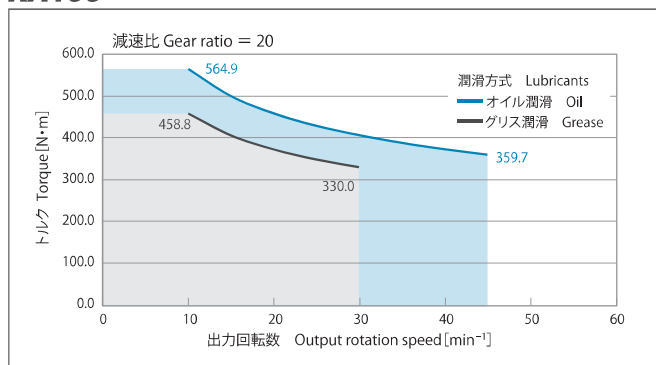
RA80



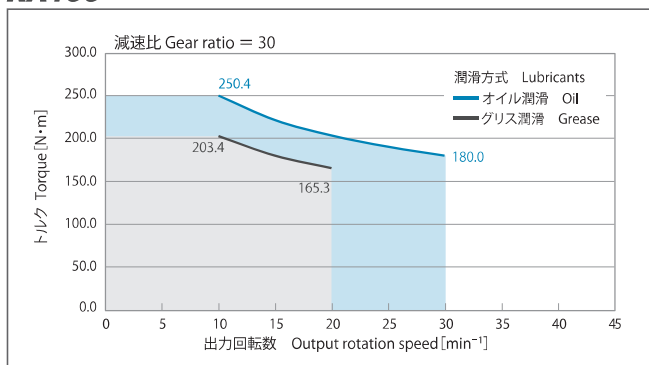
RA80



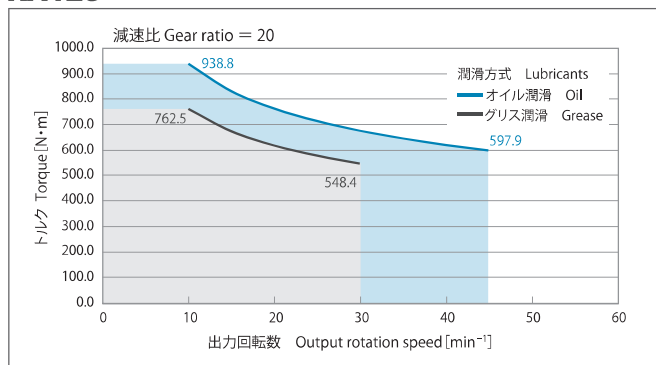
RA100



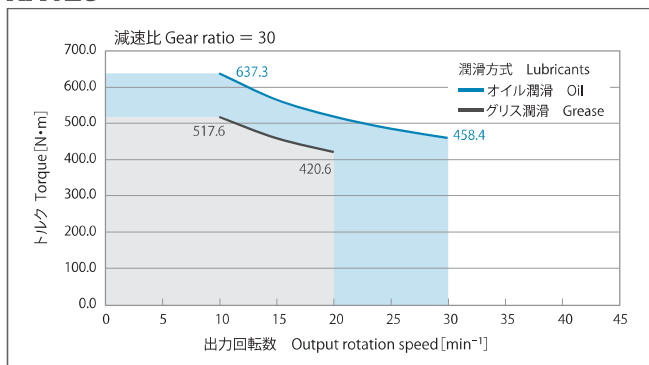
RA100



RA125



RA125



仕様 RollerDrive specifications

効率 Efficiency

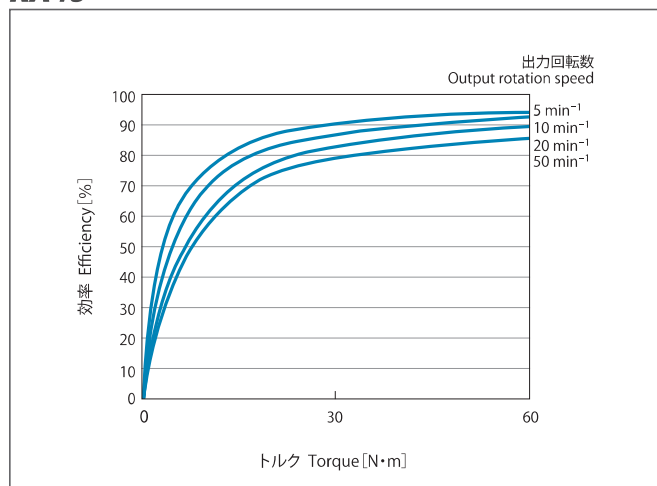
入力されたパワーが出力へ伝達される割合を示します。

RollerDrive®の動作機構は転がり接触によるため高い効率を示します。

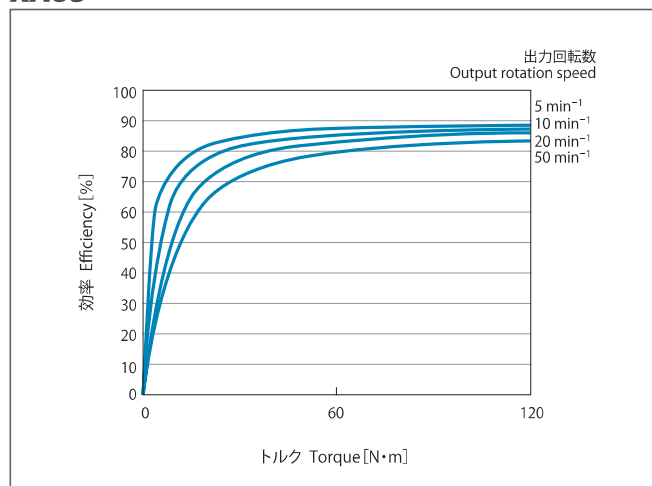
効率は負荷トルク、回転数、温度等の条件によって変化します。

This indicates the percent of input power which is transmitted to the output. The RollerDrive motion mechanism has high efficiency because it employs rolling contact. Efficiency varies depending on conditions such as load torque, rotation speed and temperature.

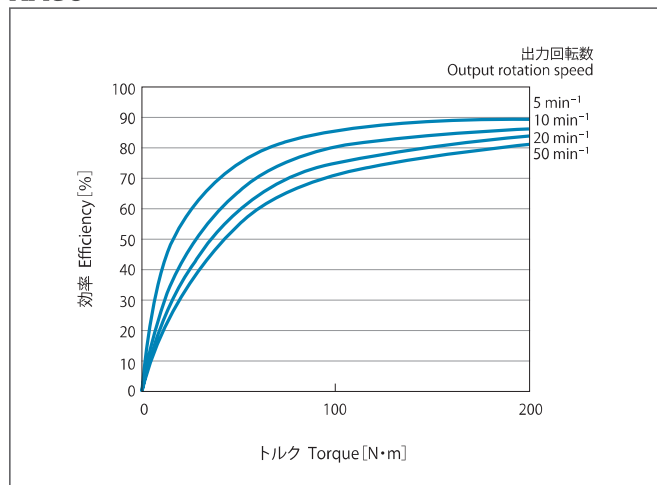
RA40



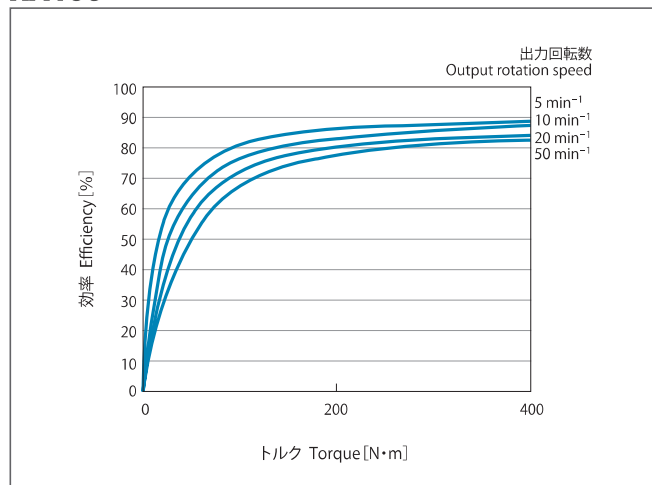
RA63



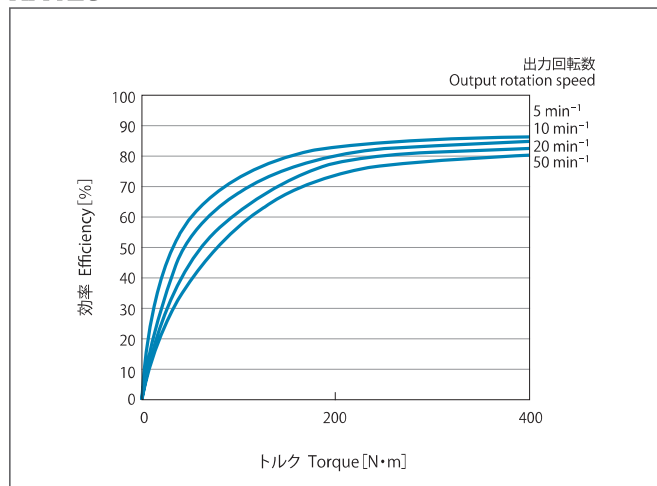
RA80



RA100



RA125

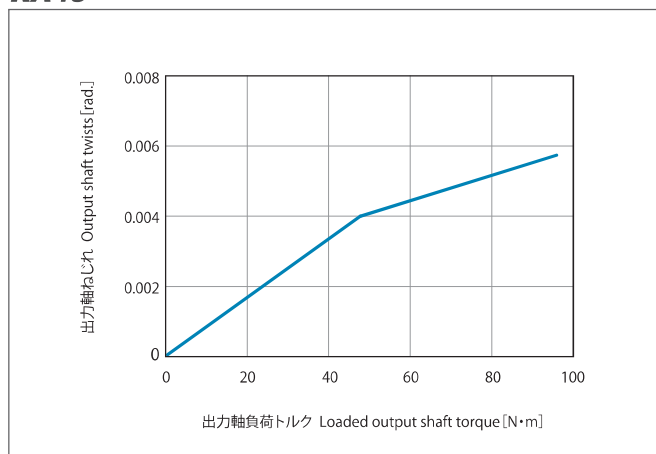


ねじり剛性 Torsional rigidity

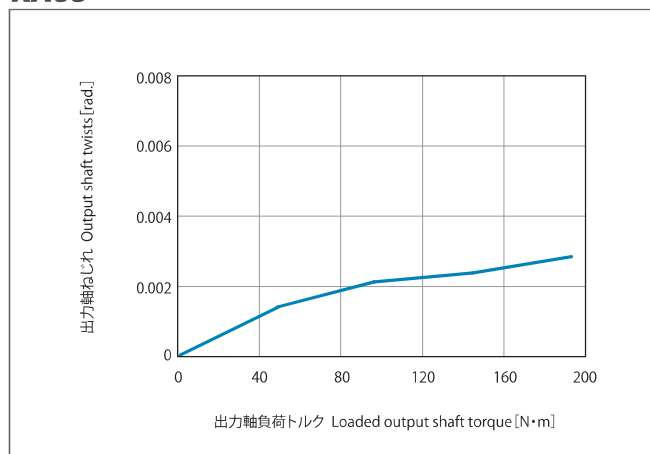
出力軸トルクに対する軸のねじれやすさがねじり剛性で、ヒステリシス曲線上の50%と100%定格トルクの2点を結んだ直線の傾きで表されます(⇒ p.25)。ねじり剛性が高いほどトルクに対する変形が少なく、固有振動数が高くなります。

Torsional rigidity is the ease with which the shaft twists in response to output shaft torque, and is expressed as the slope of the line connecting the two points for 50% and 100% rated torque on the hysteresis curve (⇒ p.25). The higher the torsional rigidity, the smaller the deformation in response to torque, and the higher the natural frequency.

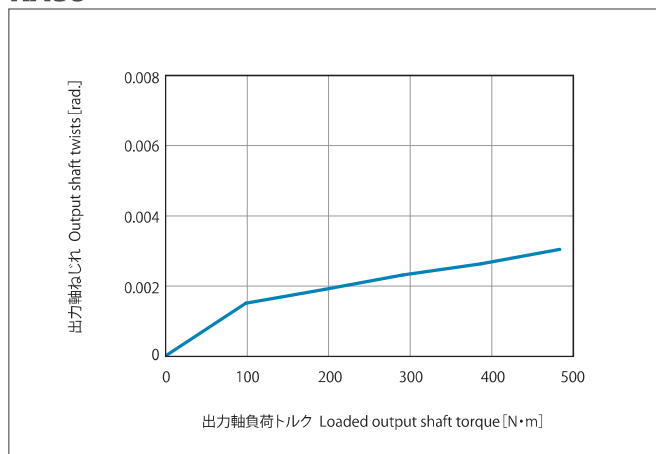
RA40



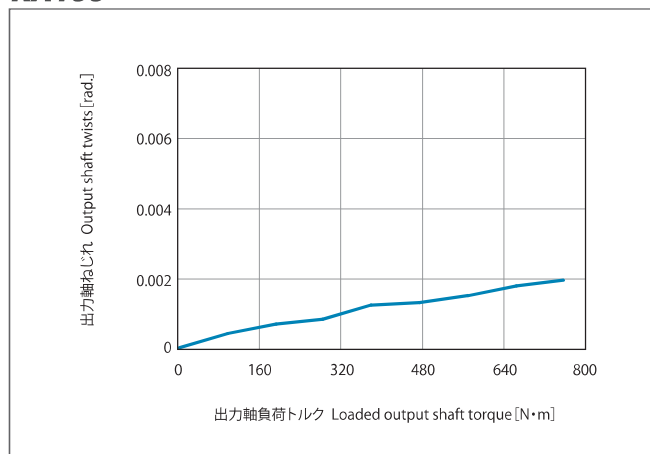
RA63



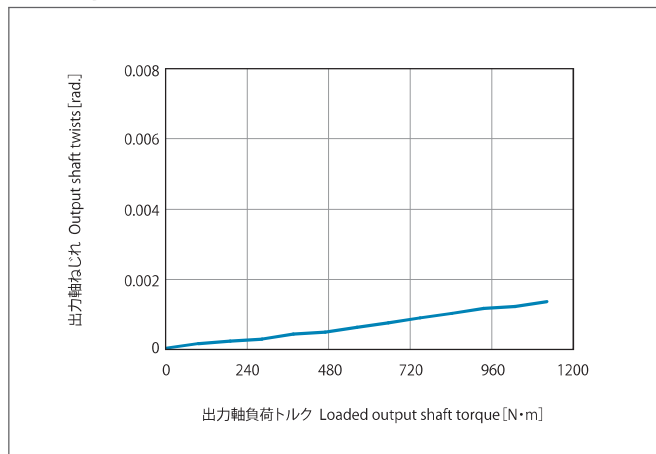
RA80



RA100



RA125



機種 model	ねじり剛性 Torsional rigidity [$\times 10^4 \text{N}\cdot\text{m}/\text{rad}$]
RA40	2.8
RA63	9.0
RA80	24.5
RA100	43.9
RA125	74.4

製品コード Model Code

製品コード Model Code

RA 63 - 20 G T - AB /X

① ② ③ ④ ⑤ ⑥ ⑦

① 機種 Model	② サイズ Size	③ 減速比 Gear ratio	④ 潤滑方式と取付姿勢 Lubrication and mounting position	⑤ モーター取付面 Servomotor position	⑥ アタッチメントコード Servomotor fastener elements	⑦ 特別仕様 Special Instruction
RA	40	15	グリス潤滑の場合 Grease lubrication G:全姿勢対応 All positions are available	T:正面右側に装着 Mounted on right side as viewed from front	各サイズごとの モーターマッチング表を 参照してください See list of mountable servomotors ➔ p.15~24	カタログに示す標準 仕様の場合、記入不要 Please don't fill if there are standard spec shown in this catalog. /X:特別仕様 ^{※2} Special instruction
	63	20				
	80 100 125	20 (30) ^{※1}	オイル潤滑の場合 ^{※1} Oil lubrication 1・2・3・4・5・6 各コードの取付姿勢対応表 See list of "Mounting position" code ➔ 下図 fig.A	U:正面左側に装着 Mounted on left side as viewed from front		

※1 受注生産品です Order products ※2 特別仕様の例(弊社にご相談ください) Example of special instruction (Please discuss with our company)
 ・カタログにない減速比が必要な場合。 If a non-standard gear ratio is necessary.
 ・対応モータ表にないサーボモータ、またはステッピングモータを装着する場合。 If you want to mount another model instead of compatible servomotor or stepping motor.

サーボモータの取付について About installation of servo motor

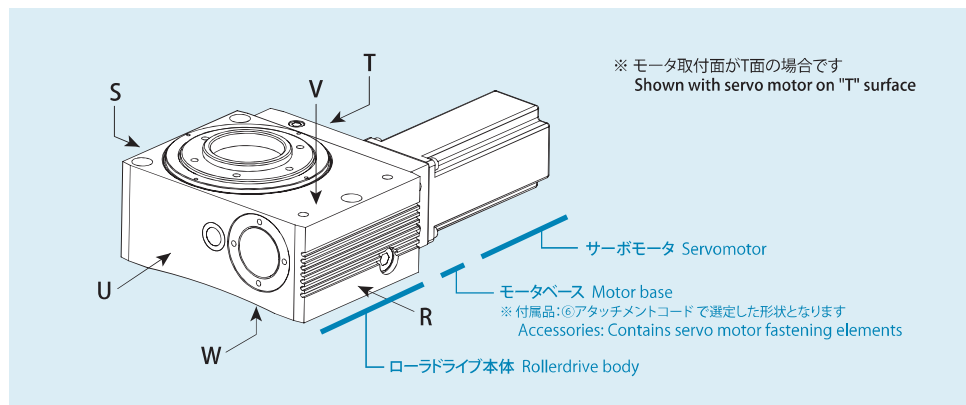
サーボモータの取付作業はお客様のご負担となります。取付作業のマニュアルは製品に同梱されておりますので、内容をよくご理解したうえで作業を行ってください。

Installing a servo motor to the RollerDrive should be done by the customer. The instruction manual is included with the product. Please read this manual carefully before installing a servo motor for a better understanding.

fig.A 使用姿勢コード Mounting Position

1	2	3	4	5	6
W面が下面 W surface on bottom	V面が下面 V surface on bottom	U面が下面 U surface on bottom	T面が下面 T surface on bottom	R面が下面 R surface on bottom	S面が下面 S surface on bottom

fig.B ローラドライブ各部、取付面の呼称 RollerDrive Surfaces



対応モータ Compatible servomotors

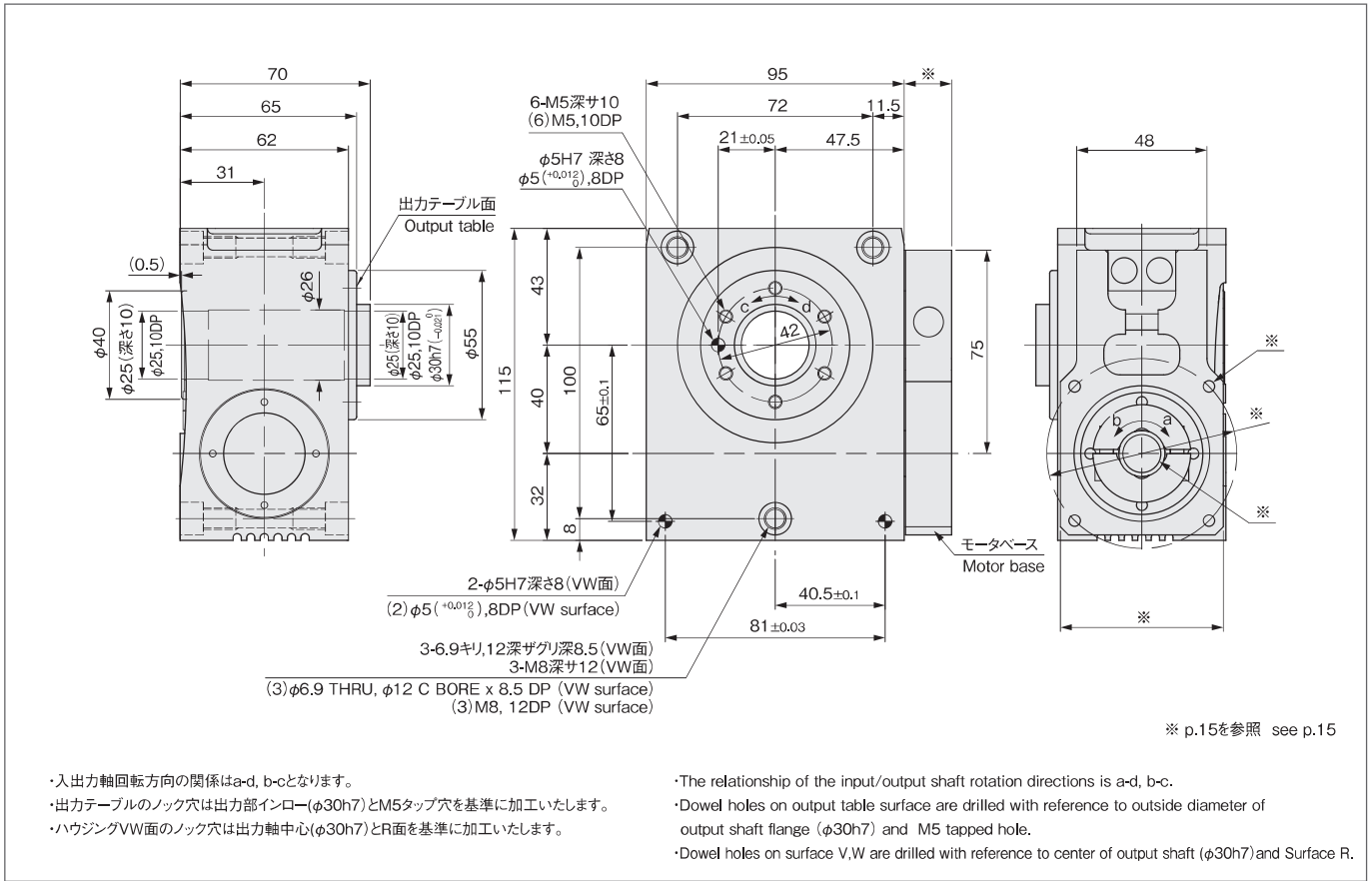
メーカー Manufacture	シリーズ Servo series	型式 Motor	モータ出力 Rated output [kW]				
			RA40	RA63	RA80	RA100	RA125
(株)安川電機 Yaskawa Electric	Σ-V	SGMAV	0.2/0.4	0.4/0.55	0.75/1		
		SGMGV		0.45	0.85/1.3	0.85/1.3/1.8	
		SGMJV	0.2/0.4	0.4			
		SGMSV			1.5/2/2.5	1.5/2/2.5/3/4	2.5/3/4
三菱電機(株) Mitsubishi Electric	J3	HF-KP	0.2/0.4	0.4	0.75		
		HF-MP	0.2/0.4	0.4	0.75		
		HF-SP			0.5/0.85/1/1.5		0.85/1/1.5
	J4	HG-KR	0.2/0.4	0.4	0.75		
		HG-MR	0.2/0.4	0.4	0.75		
		HG-SR			0.5/0.85/1/1.5		1/1.5
パナソニック(株) Panasonic	MINAS A5	MDME			1/1.5/2		
		MHMD	0.2/0.4	0.4			
		MSMD	0.2/0.4	0.4	0.75		
		MSME	0.2/0.4	0.4	0.75/1/1.5/2		
ファナック(株) FANUC	α_i	α_iF		0.5/0.75	1.4/1.6	1.4/1.6	
		α_iS		0.75	1/2.5	2.5/2.7	
	β_i	β_iS	0.35/0.5	0.5/0.75	0.75/1.2/1.8	1.2/1.8	
(株)キーエンス KEYENCE	SV	SV-M	0.2	0.4	0.75/0.85/1.3	0.85/1.3/1.8	0.85/1.3/1.8
山洋電気(株) SANYO DENKI	R2	R2AA	0.2/0.4	0.4	0.55/0.75/1/1.2/1.8	1.2/1.8	
	Q1	Q1AA			1/1.5/2	1.5/2/2.5/3/4/5	1.5/2/2.5/3/4/5
オムロン(株) OMRON	G	R88M-G	0.2/0.4	0.4	0.75/1/1.5/2		
	G5	R88M-K	0.2/0.4	0.4	0.75/1/1.5/2		
取付寸法、モーター一覧表 Mounting dimensions, Mountable servomotors			⇒ p.15~16	⇒ p.17~18	⇒ p.19~20	⇒ p.21~22	⇒ p.23~24

※ サーボモータはキー溝の無いタイプをご用意ください。Please prepare the servo motor with no keyway.

外形寸法 Dimensions

RA40

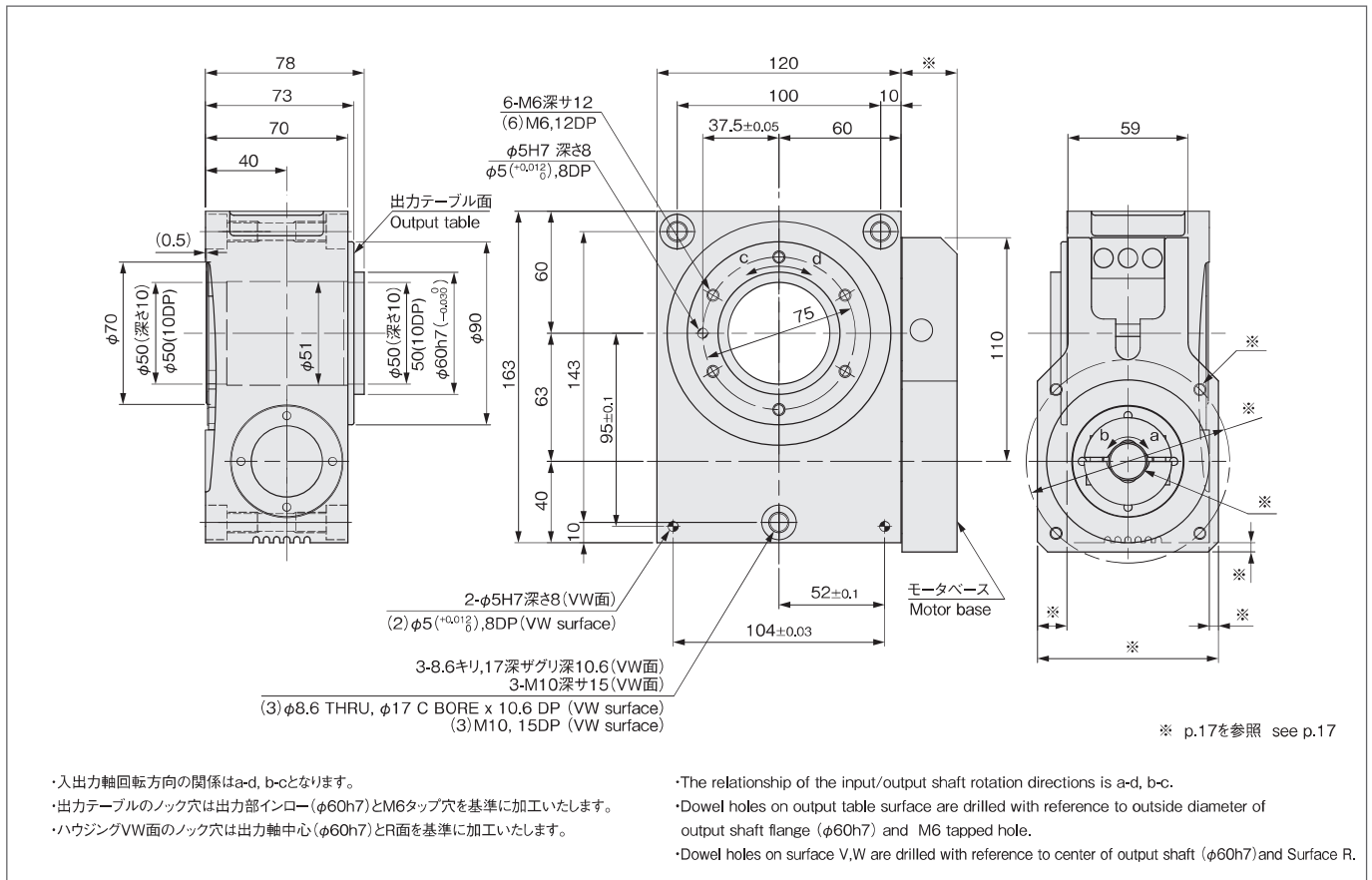
単位 Unit:mm



オイル栓、オイルレベル、ドレンの位置(オイル潤滑仕様の場合) Position of oil level and oil plug and drain (Case of oil lubrication)

単位 Unit:mm

視点 View from	取付姿勢 Mounting position	1		2		3		4		5		6			
View from	モータ取付面 Servomotor position	T	U	T	U	T	U	T	U	T	U	T	U		
S面 S surface side		A	オイル栓 Oil plug RC1/4	オイル栓 Oil plug RC1/4	ドレン Drain RC1/4	ドレン Drain RC1/4					オイル栓 Oil plug RC1/4	オイル栓 Oil plug RC1/4	ドレン Drain RC1/4	ドレン Drain RC1/4	
		A-1	70	70	70	70					70	70	70	70	
		A-2	46	46	46	46					46	46	46	46	
V面 V surface side		B											オイルレベル Oil level (W面に加工) (W surface only)	オイルレベル Oil level (W面に加工) (W surface only)	
		B-1											66	66	
		B-2											22	22	
R面 R surface side		C					オイルレベル Oil level	オイルレベル Oil level	オイルレベル Oil level	オイルレベル Oil level					
		C-1					29	29	66	66					
		C-2					31	31	31	31					
		D	ドレン Drain RC1/4	ドレン Drain RC1/4	オイル栓 Oil plug RC1/4	オイル栓 Oil plug RC1/4	ドレン Drain RC1/4	ドレン Drain RC1/4	ドレン Drain RC1/4	ドレン Drain RC1/4	ドレン Drain RC1/4	ドレン Drain RC1/4	ドレン Drain RC1/4	オイル栓 Oil plug RC1/4	オイル栓 Oil plug RC1/4
		D-1	26	26	26	26	66.5	66.5	28.5	28.5	26	26	26	26	
		D-2	14	14	14	14	14	14	14	14	14	14	14	14	
U面 U surface side		E							オイル栓 Oil plug RC1/8	オイル栓 Oil plug RC1/8					
		E-1							37	37					
		E-2							69	69					
		F	オイルレベル Oil level		オイルレベル Oil level							オイルレベル Oil level			
		F-1	31		31							31			
		F-2	68		68							68			
T面 T surface side		G					オイル栓 Oil plug RC1/8	オイル栓 Oil plug RC1/8							
		G-1					37	37							
		G-2					69	69							
		H		オイルレベル Oil level		オイルレベル Oil level						オイルレベル Oil level			
		H-1		31		31						31			
		H-2		68		68						68			



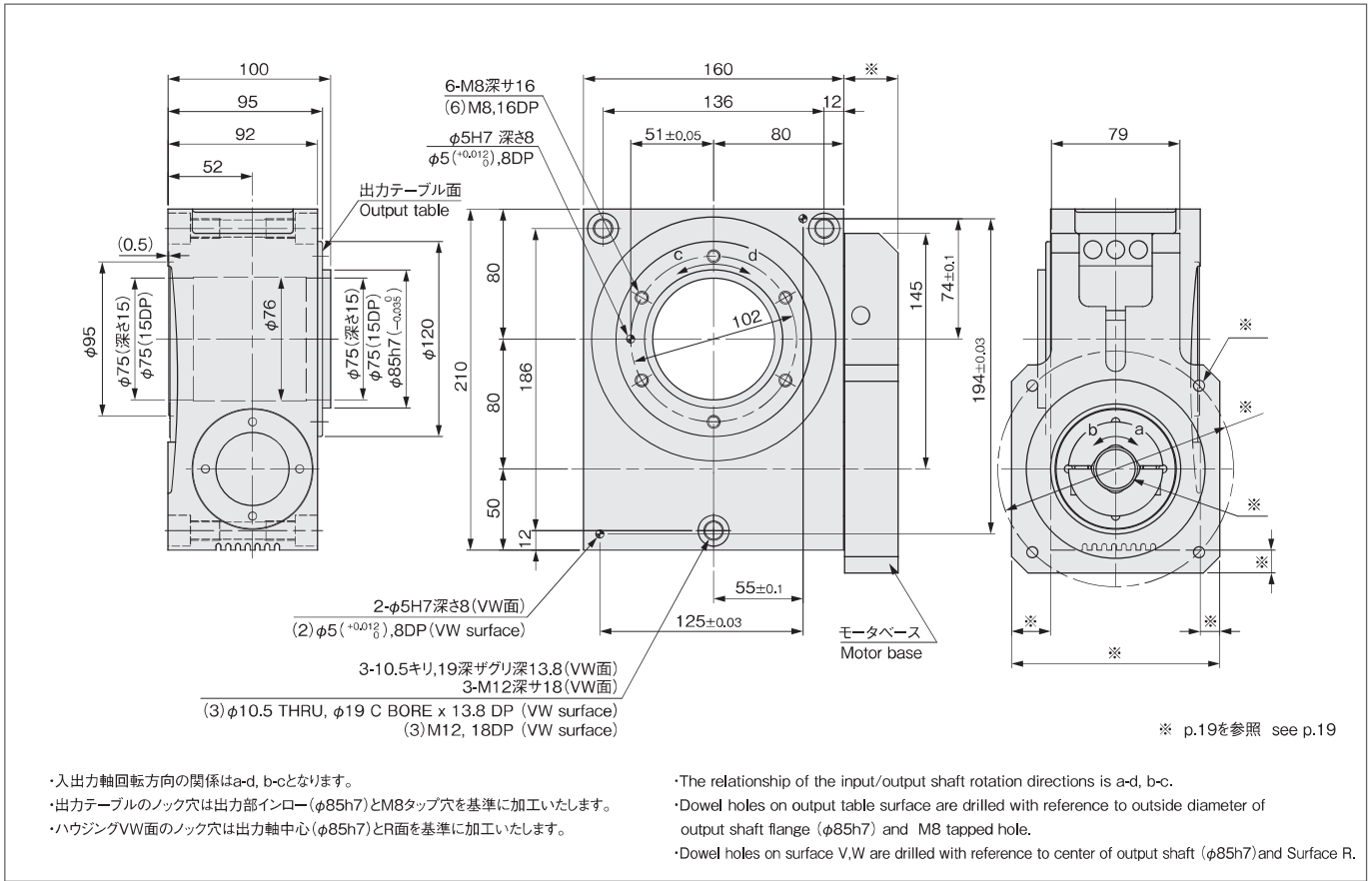
オイル栓、オイルレベル、ドレンの位置(オイル潤滑仕様の場合) Position of oil level and oil plug and drain (Case of oil lubrication)

視点 View from	取付姿勢 Mounting position	1		2		3		4		5		6			
	モータ取付面 Servomotor position	T	U	T	U	T	U	T	U	T	U	T	U		
S面 S surface side		A	オイル栓 Oil plug RC3/8	オイル栓 Oil plug RC3/8	ドレン Drain RC3/8	ドレン Drain RC3/8					オイル栓 Oil plug RC3/8	オイル栓 Oil plug RC3/8	ドレン Drain RC3/8	ドレン Drain RC3/8	
		A-1	92	92	92	92					92	92	92	92	
		A-2	51	51	51	51					51	51	51	51	
V面 V surface side		B											オイルレベル Oil level (W面に加工) (W surface only)	オイルレベル Oil level (W面に加工) (W surface only)	
		B-1											90	90	
		B-2											42	42	
R面 R surface side		C					オイルレベル Oil level	オイルレベル Oil level	オイルレベル Oil level	オイルレベル Oil level					
		C-1					32	32	88	88					
		C-2					40	40	40	40					
		D	ドレン Drain RC3/8	ドレン Drain RC3/8	オイル栓 Oil plug RC3/8	オイル栓 Oil plug RC3/8	ドレン Drain RC3/8	ドレン Drain RC3/8	ドレン Drain RC3/8	ドレン Drain RC3/8	ドレン Drain RC3/8	ドレン Drain RC3/8	ドレン Drain RC3/8	オイル栓 Oil plug RC3/8	オイル栓 Oil plug RC3/8
		D-1	32	32	32	32	88	88	32	32	32	32	32	32	
D-2	18	18	18	18	18	18	18	18	18	18	18	18	18		
U面 U surface side		E							オイル栓 Oil plug RC3/8	オイル栓 Oil plug RC3/8					
		E-1							48	48					
		E-2							120	120					
		F	オイルレベル Oil level		オイルレベル Oil level							オイルレベル Oil level			
		F-1	40		40							40			
F-2	80		80							80					
T面 T surface side		G					オイル栓 Oil plug RC3/8	オイル栓 Oil plug RC3/8							
		G-1					48	48							
		G-2					120	120							
		H		オイルレベル Oil level		オイルレベル Oil level						オイルレベル Oil level			
		H-1		40		40						40			
H-2		80		80						80					

外形寸法 Dimensions

RA80

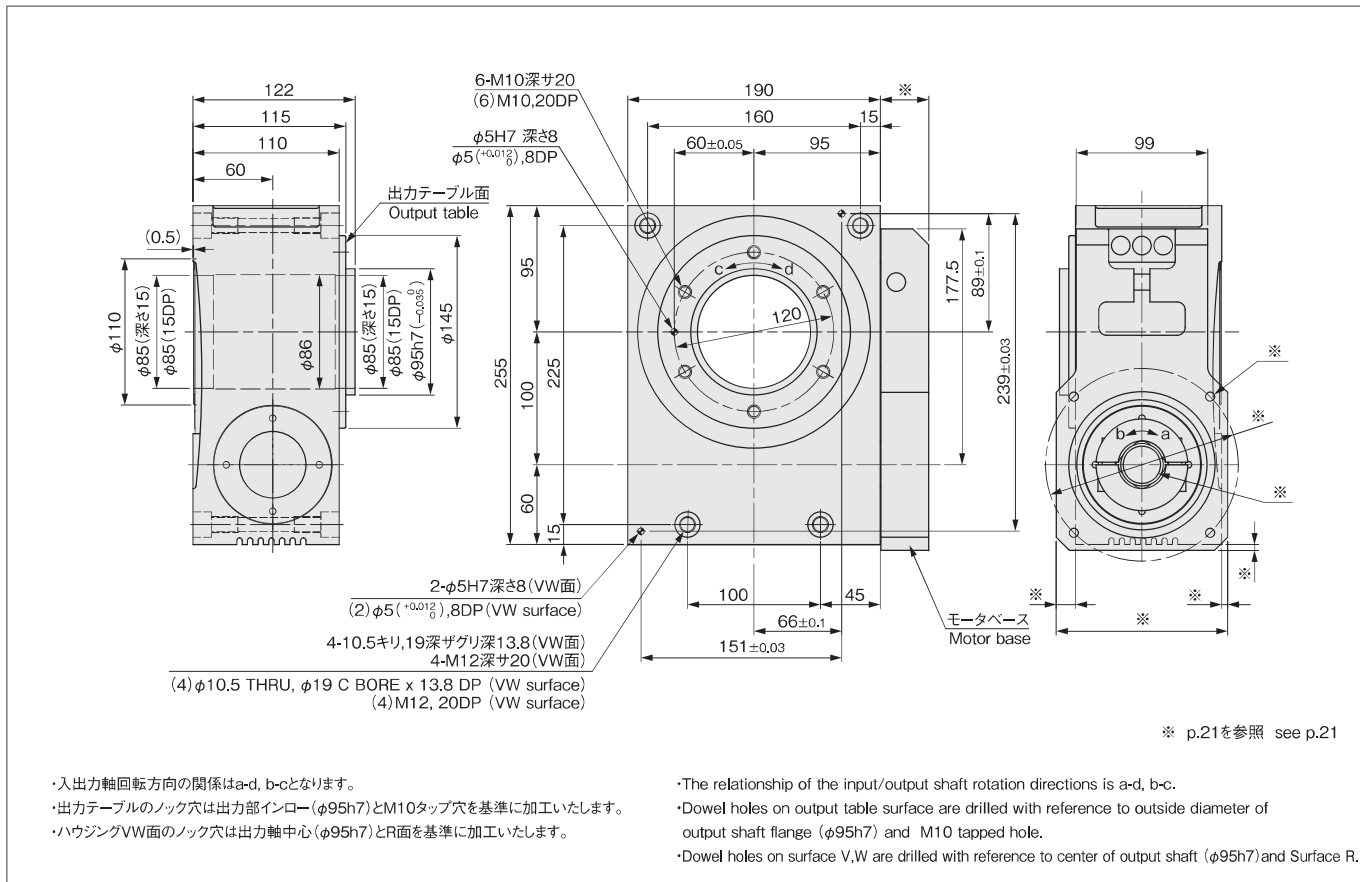
単位 Unit:mm



オイル栓、オイルレベル、ドレンの位置(オイル潤滑仕様の場合) Position of oil level and oil plug and drain (Case of oil lubrication)

単位 Unit:mm

視点 View from	取付姿勢 Mounting position	1		2		3		4		5		6			
	モーター取付面 Servomotor position	T	U	T	U	T	U	T	U	T	U	T	U		
S面 S surface side		A	オイル栓 Oil plug RC1/2	オイル栓 Oil plug RC1/2	ドレン Drain RC1/2	ドレン Drain RC1/2	ドレン Drain RC1/2	ドレン Drain RC1/2	ドレン Drain RC1/2	ドレン Drain RC1/2	オイル栓 Oil plug RC1/2	オイル栓 Oil plug RC1/2	ドレン Drain RC1/2	ドレン Drain RC1/2	
		A-1	120	120	120	120	127	127	33	33	120	120	120	120	
		A-2	66	66	66	66	52	52	52	52	66	66	66	66	
		B					オイルレベル Oil level	オイルレベル Oil level	オイルレベル Oil level	オイルレベル Oil level					
		B-1					40	40	120	120					
		B-2					52	52	52	52					
V面 V surface side		C											オイルレベル Oil level (W面に加工) (W surface only)	オイルレベル Oil level (W面に加工) (W surface only)	
		C-1											115	115	
		C-2												45	45
		D													
R面 R surface side		D													
		D-1													
		D-2													
		E	ドレン Drain RC1/2	ドレン Drain RC1/2	オイル栓 Oil plug RC1/2	オイル栓 Oil plug RC1/2					ドレン Drain RC1/2	ドレン Drain RC1/2	オイル栓 Oil plug RC1/2	オイル栓 Oil plug RC1/2	
		E-1	45	45	45	45					45	45	45	45	
		E-2	20	20	20	20					20	20	20	20	
U面 U surface side		F							オイル栓 Oil plug RC1/4	オイル栓 Oil plug RC1/4					
		F-1							67	67					
		F-2							162	162					
		G	オイルレベル Oil level		オイルレベル Oil level							オイルレベル Oil level			
		G-1	52		52							52			
		G-2	104		104							104			
T面 T surface side		H					オイル栓 Oil plug RC1/4	オイル栓 Oil plug RC1/4							
		H-1					67	67							
		H-2					162	162							
		J		オイルレベル Oil level		オイルレベル Oil level						オイルレベル Oil level			
		J-1		52		52						52			
		J-2		104		104						104			



オイル栓、オイルレベル、ドレンの位置(オイル潤滑仕様の場合) Position of oil level and oil plug and drain (Case of oil lubrication)

視点 View from	取付姿勢 Mounting position	1		2		3		4		5		6		
View from	Motor position	T	U	T	U	T	U	T	U	T	U	T	U	
S面 S surface side		A	オイル栓 Oil plug RC1/2	オイル栓 Oil plug RC1/2	ドレン Drain RC1/2	ドレン Drain RC1/2	ドレン Drain RC1/2	ドレン Drain RC1/2	ドレン Drain RC1/2	ドレン Drain RC1/2	オイル栓 Oil plug RC1/2	オイル栓 Oil plug RC1/2	ドレン Drain RC1/2	ドレン Drain RC1/2
		A-1	142	142	142	142	155	155	35	35	142	142	142	142
		A-2	85	85	85	85	68	68	68	68	85	85	85	85
		B					オイルレベル Oil level	オイルレベル Oil level	オイルレベル Oil level	オイルレベル Oil level				
		B-1					43	43	147	147				
		B-2					68	68	68	68				
V面 V surface side		C											オイルレベル Oil level (W面に加工) (W surface only)	オイルレベル Oil level (W面に加工) (W surface only)
		C-1											115	115
		C-2												45
R面 R surface side		D												
		D-1												
		D-2												
		E	ドレン Drain RC1/2	ドレン Drain RC1/2	オイル栓 Oil plug RC1/2	オイル栓 Oil plug RC1/2					ドレン Drain RC1/2	ドレン Drain RC1/2	オイル栓 Oil plug RC1/2	オイル栓 Oil plug RC1/2
		E-1	95	95	95	95					95	95	95	95
		E-2	24	24	24	24					24	24	24	24
U面 U surface side		F							オイル栓 Oil plug RC3/8	オイル栓 Oil plug RC3/8				
		F-1							80	80				
		F-2							170	170				
		G	オイルレベル Oil level		オイルレベル Oil level						オイルレベル Oil level			
		G-1	60		60						60			
		G-2	125		125						125			
T面 T surface side		H					オイル栓 Oil plug RC3/8	オイル栓 Oil plug RC3/8						
		H-1					80	80						
		H-2					170	170						
		J		オイルレベル Oil level		オイルレベル Oil level					オイルレベル Oil level			
		J-1		60		60					60			
		J-2		125		125					125			

お取り扱いについて Handling

設置場所

標準仕様のローラドライブは、点検、保守が容易な以下のような場所へ設置してください。

- ・周囲温度5℃～40℃
運転時モータや製品内部の発熱により、製品表面温度が高くなる場合がありますので、60℃を超えないように送風等による冷却を行ってください。
- ・湿度85%以下(結露無き事)
- ・真空、高圧でないところ
- ・水、油、薬品、埃等の飛散の無い場所
- ・爆発性ガス、有害ガスおよび液体の無いところ
- ・直射日光が当たらないところ
- ・過度の衝撃や外力が加わらないところ
- ・電磁ノイズが少なく、電流から絶縁されているところ
(特に溶接機等の近くは注意)
- ・放射性物質、強磁場の無いところ
- ・ドレン、レベルの確認、アクセスのしやすいところ

設置方法

ローラドライブを使用姿勢にし、平滑で丈夫な場所へ設置します。本体設置後、出力フランジへ駆動対象物を取り付けます。

締付用ボルトは緩み防止のためロックタイト242または相当品を塗布して、トルクレンチを使用し、規定トルクで締付けて下さい。(締付けトルクは下表に従ってください。)

締付トルク表1

ハウジングねじ部(アルミニウム系)

ねじの呼び	規定締付トルク(DIN6.8)
M8	18.5 Nm
M10	36.0 Nm
M12	63.0 Nm
M16	158.0 Nm

締付トルク表2

出力軸ねじ部(鉄系材料)

ねじの呼び	規定締付トルク(DIN10.9)
M5	8.5 Nm
M6	14.0 Nm
M8	35.0 Nm
M10	69.0 Nm
M12	120.0 Nm

本カタログに記載している内容はRA本体が移動しない仕様によるものとなります。
RA本体をスライドや回転等の移動をさせる仕様の場合は弊社までお問い合わせください。

潤滑油について

RAシリーズの潤滑方式は基本仕様となるグリス潤滑仕様と高速運転が可能なオイル潤滑仕様があります。

グリス潤滑の場合、基本的にメンテナンスフリーですので、グリスの定期交換は行いません。(潤滑についてご不明点がございましたら、弊社へお問い合わせください。)

使用潤滑グリス: ENEOS株式会社

パイロノック グリース ユニバーサル 2

オイル潤滑仕様の本体にグリスを後から充填し、使用する事はできません。

オイル潤滑の場合、高性能の潤滑油を使用しています。化学的、熱的に安定した潤滑油ですが、より長期間の製品寿命を確保する為、稼動3,000時間毎を目安にオイル交換を行ってください。潤滑油の状態はオイルレベルから確認できます。本体は停止した状態で確認を行ってください。オイルの量、色を確認し、減少や、変色などが認められる場合には、運転時間によらず新しいオイルに交換してください。尚、運転中オイルに細かな気泡が入る場合がありますが品質上問題はありません。

オイル交換をする際は下記の標準指定潤滑油を使用してください。これ以外の潤滑油を使用した場合、寿命の低下、部品の劣化などの可能性があります。

標準指定潤滑油: Mobil SHC629 (VG150)

Installation Site

The product should be installed in a place satisfying the following conditions:

- ・ Environment temperature from 5 to 40 °C
Due to heat generated by the motor and internally by the RollerDrive, the surface temperature of the product may rise. Please take steps to cool the unit, such as a fan or the like, so that the surface temperature does not exceed 60°C.
- ・ Humidity under 85% (no condensation)
- ・ Non vacuum or extreme pressure
- ・ No exposure to water, oil, chemicals, dusts, etc.
- ・ No existence of explosive gas, other hazardous gas, or radio active materials
- ・ No direct sunlight
- ・ Excessive shock or force does not act
- ・ Grounded from electric current
- ・ Minimum electro magnetic noise (be cautious on welding machines)
- ・ Easy to carry out maintenance and check oil level and drain

Installing

Put the product with proper orientation on a flat and rigid surface.

Fix a rotating table or a component on the output flange.

Tighten screws with proper tightening torque by using torque wrench. Apply LOCTITE 242 (recommended) or equivalent agent when tightening screws to avoid being loosened during operation. Tightening torque should follow tables show in below.

Tightening torque table A

Housing screws (Aluminium alloy)

Screw size	Tightening torque(DIN6.8)
M8	18.5 Nm
M10	36.0 Nm
M12	63.0 Nm
M16	158.0 Nm

Tightening torque table B

Output flange (Steel alloy)

Screw size	Tightening torque(DIN10.9)
M5	8.5 Nm
M6	14.0 Nm
M8	35.0 Nm
M10	69.0 Nm
M12	120.0 Nm

The information in this brochure assumes the RA unit is stationary. If the RA unit is to be moved, such as a sliding or rotating motion, consult with Sankyo beforehand.

Lubricants

The unit may have the standard grease lubrication system or the high-speed oil lubrication system.

If your RA uses grease lubrication, grease changes are usually unnecessary as the unit is essentially maintenance-free. (If you have any questions regarding lubrication, contact Sankyo.)

Brand of grease used: ENEOS Corporation

PYRONOC GREASE UNIVERSAL 2

It is not possible to replace oil with grease or vice versa.

For oil lubrication although high quality and long life lubricant is used for RollerDrive RA series, it should be refilled every 3,000 hours of operation. Condition of a lubricant can be checked from the oil level gauge. Checking should be carried out when the product is stopped. Check color and amount, and if there are significant changes, refill the lubricant no matter the operation hours.

Small bubbles, which can appear in oil during operation, do not affect for its lubrication property.

Use the following lubricant for refill.

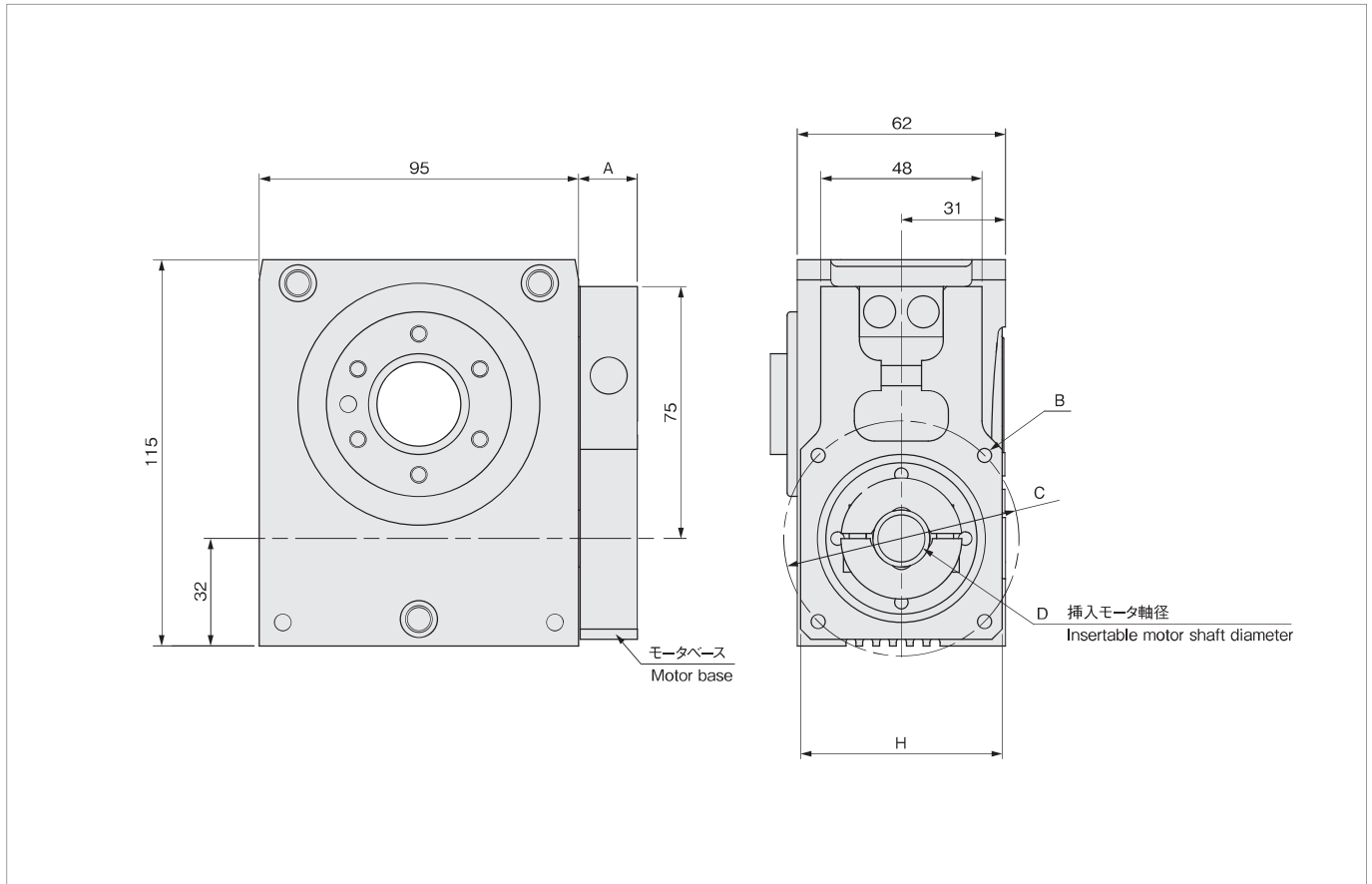
Standard lubricant: Mobil SHC629 (VG150)

Use of different oil can cause wearing or other problems.

RA40 サーボモータマッチング表 List of mountable servomotors

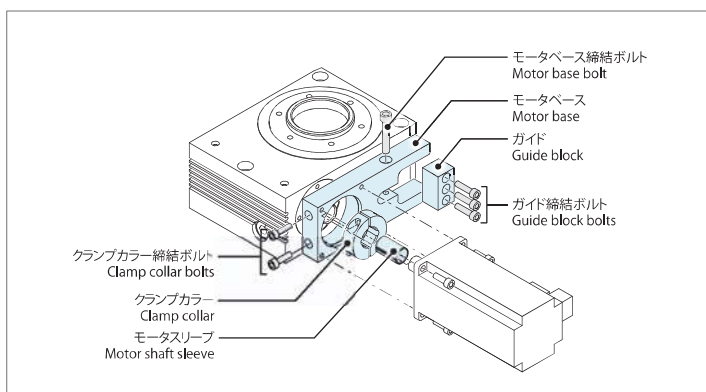
取付寸法図 Mounting dimensions

単位 Unit:mm



アタッチメントコード Servomotor fastener elements	A	B	C	D	H
AB	19.5	4-M5 深サ10 (4)M5, 10DP	φ70	φ9	□60
AN				φ14	
BA		4-M4 深サ8 (4)M4, 8DP		φ11	
BN				φ14	

サーボモータ装着図 Servomotor installation schematic



付属品 Accessories	アタッチメントコード Servomotor fastener elements	
	AN	その他 Other All
モータベース Motor base	○	○
ガイド Guide block	○	○
クランプカラー Clamp collar	○	○
モータスリーブ Motor shaft sleeve		○
モータベース締結ボルト Motor base bolt	M6x35 (1)	
クランプカラー 締結ボルト Clamp collar bolts	M5x15 (2)	
ガイド固定ボルト Guide block bolts	M5x20 (2)	

対応モーター一覧 Compatible servomotors

RA40のイナーシャ(入力軸換算) :
Input conversion moment of inertia : $0.292 \times 10^{-4} [\text{kg} \cdot \text{m}^2]$

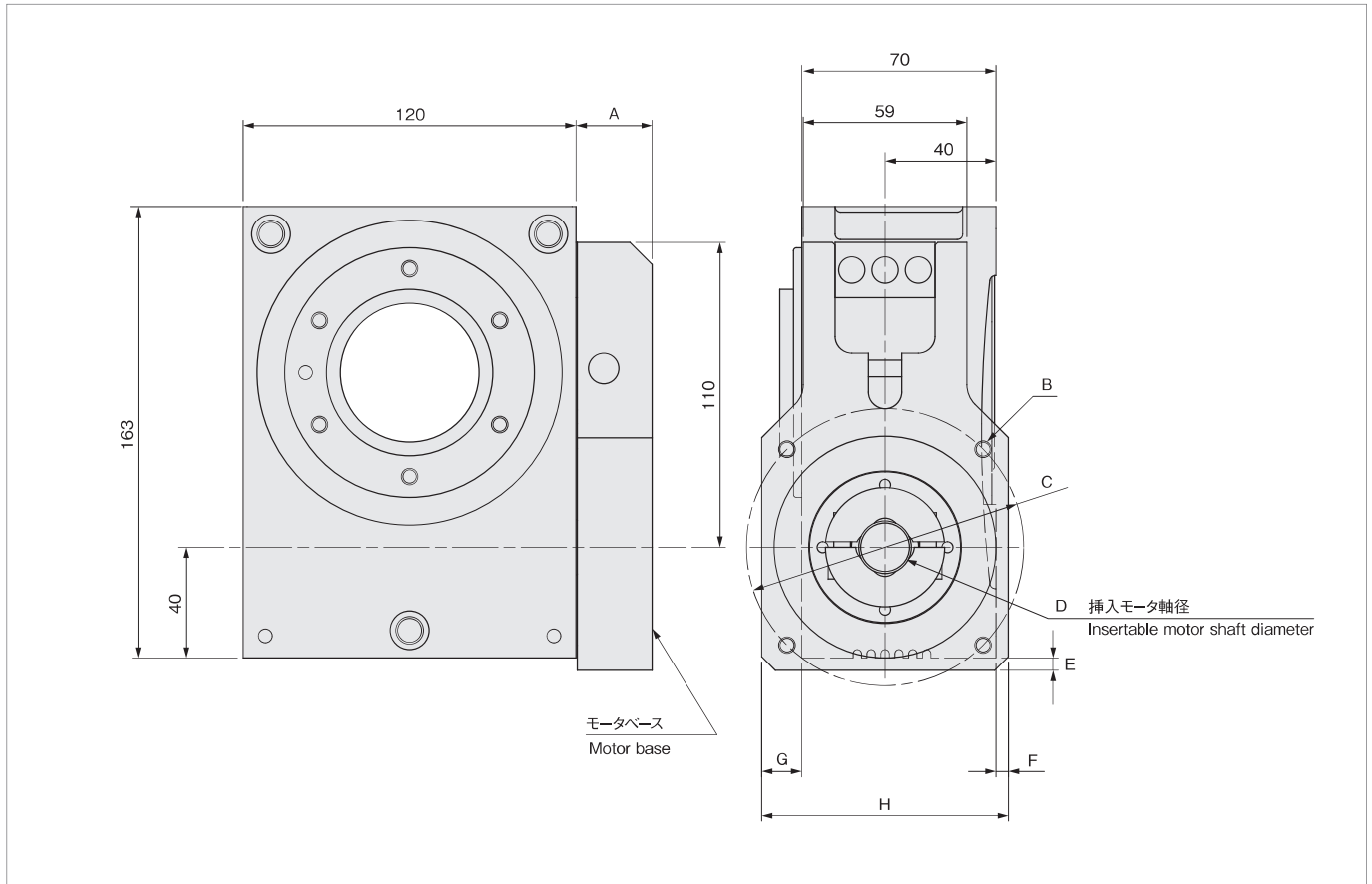
メーカー Manufacture	シリーズ Servo series	型式 Motor	モーター容量 Rated output [kW]	定格トルク Rated torque [N·m]	定格回転数 Rated rotation speed [min ⁻¹]	モーターイナーシャ Motor rotor inertia [$\times 10^{-4} \text{kg} \cdot \text{m}^2$]	アタッチメントコード Servomotor fastener elements
安川電機 Yaskawa Electric	Σ-V	SGMAV-02A	0.2	0.64	3,000	0.116	AN
		SGMAV-04A	0.4	1.27	3,000	0.19	AN
		SGMJV-02A	0.2	0.64	3,000	0.259	AN
		SGMJV-04A	0.4	1.27	3,000	0.442	AN
三菱電機 Mitsubishi Electric	J3	HF-KP23	0.2	0.64	3,000	0.24	AN
		HF-KP43	0.4	1.30	3,000	0.42	AN
		HF-MP23	0.2	0.64	3,000	0.088	AN
		HF-MP43	0.4	1.30	3,000	0.15	AN
	J4	HG-KR23	0.2	0.64	3,000	0.221	AN
		HG-KR43	0.4	1.30	3,000	0.371	AN
		HG-MR23	0.2	0.64	3,000	0.0865	AN
		HG-MR43	0.4	1.30	3,000	0.142	AN
パナソニック Panasonic	MINAS A5	MSMD02	0.2	0.64	3,000	0.14	BA
		MSME02	0.2	0.64	3,000	0.14	BA
		MSMD04	0.4	1.30	3,000	0.26	BN
		MSME04	0.4	1.30	3,000	0.26	BN
		MHMD02	0.2	0.64	3,000	0.42	BA
		MHMD04	0.4	1.30	3,000	0.67	BN
ファナック FANUC	β	βISO.5/6000	0.35	0.65	4,000	0.18	AB
		βIS1/6000	0.5	1.20	4,000	0.34	AN
キーエンス KEYENCE	SV	SV-M020	0.2	0.64	3,000	0.259	AN
山洋電気 SANYO DENKI	R2	R2AA06020F	0.2	0.64	3,000	0.219	AN
		R2AA06040H	0.4	1.27	3,000	0.412	AN
		R2AA06040F	0.4	1.27	3,000	0.412	AN
オムロン OMRON	G5	R88M-K20030	0.2	0.64	3,000	0.14	BA
		R88M-K40030	0.4	1.30	3,000	0.26	BN
	G	R88M-G20030	0.2	0.64	3,000	0.14	BA
		R88M-G40030	0.4	1.30	3,000	0.26	BN

※ サーボモーターはキー溝の無いタイプをご用意ください。Please prepare the servo motor with no keyway.

RA63 サーボモータマッチング表 List of mountable servomotors

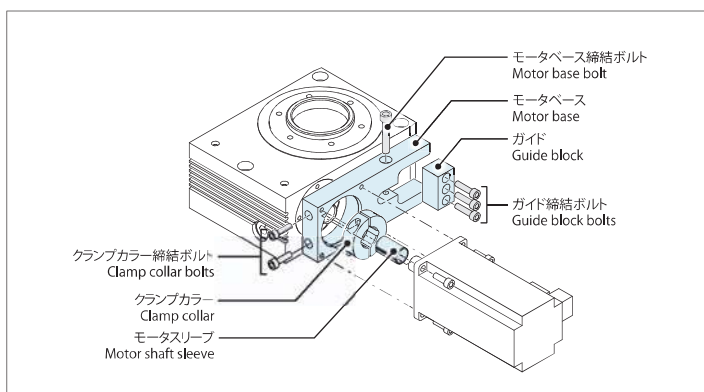
取付寸法図 Mounting dimensions

単位 Unit:mm



アタッチメントコード Servomotor fastener elements	A	B	C	D	E	F	G	H
AB	20.5	4-M5 深サ10 (4)M5, 10DP	φ70	φ14				□59
BB		4-M4 深サ10 (4)M4, 10DP						
CA	27.5	4-M6 深サ12 (4)M6, 12DP	φ100	φ10	4.5	4.5	14.5	□89
CB				φ14				
CN				φ16				

サーボモータ装着図 Servomotor installation schematic



付属品 Accessories	アタッチメントコード Servomotor fastener elements	
	CN	その他 Other All
モータベース Motor base	○	○
ガイド Guide block	○	○
クランプカラー Clamp collar	○	○
モータスリーブ Motor shaft sleeve		○
モータベース締結ボルト Motor base bolt	M6x40 (1)	
クランプカラー締結ボルト Clamp collar bolts	M6x18 (2)	
ガイド固定ボルト Guide block bolts	M5x20 (3)	

対応モーター一覧 Compatible servomotors

RA63のイナーシャ(入力軸換算) :
Input conversion moment of inertia : $0.862 \times 10^{-4} [\text{kg} \cdot \text{m}^2]$

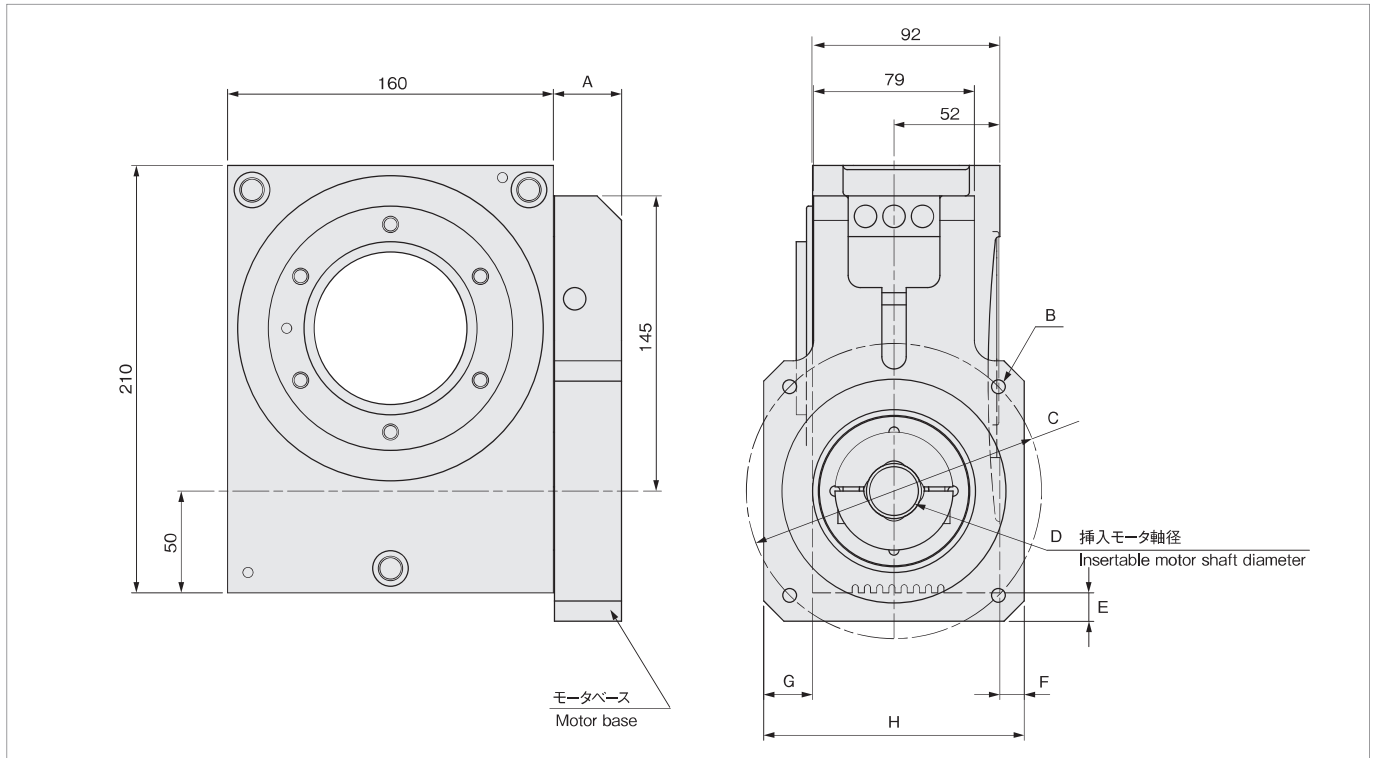
メーカー Manufacture	シリーズ Servo series	型式 Motor	モーター容量 Rated output [kW]	定格トルク Rated torque [N·m]	定格回転数 Rated rotation speed [min ⁻¹]	モーターイナーシャ Motor rotor inertia [$\times 10^{-4} \text{kg} \cdot \text{m}^2$]	アタッチメントコード Servomotor fastener elements
安川電機 Yaskawa Electric	Σ-V	SGMAV-04A	0.4	1.27	3,000	0.19	AB
		SGMAV-06A	0.55	1.75	3,000	0.326	AB
		SGMGV-05A	0.45	2.86	1,500	3.33	CN
		SGMJV-04A	0.4	1.27	3,000	0.442	AB
三菱電機 Mitsubishi Electric	J3	HF-KP43	0.4	1.30	3,000	0.42	AB
		HF-MP43	0.4	1.30	3,000	0.15	AB
	J4	HG-KR43	0.4	1.30	3,000	0.371	AB
		HG-MR43	0.4	1.30	3,000	0.142	AB
パナソニック Panasonic	MINAS A5	MSMD04	0.4	1.30	3,000	0.26	BB
		MSME04	0.4	1.30	3,000	0.26	BB
		MHMD04	0.4	1.30	3,000	0.67	BB
ファナック FANUC	α	αiS2/5000	0.75	2.00	4,000	2.91	CA
		αiF1/5000	0.5	1.00	5,000	3.05	CA
		αiF2/5000	0.75	2.00	4,000	5.26	CA
	β	βiS1/6000	0.5	1.20	4,000	0.34	AB
		βiS2/4000	0.5	2.00	4,000	2.91	CA
		βiS4/4000	0.75	3.50	4,000	5.15	CB
キーエンス KEYENCE	SV	SV-M040	0.4	1.27	3,000	0.442	AB
山洋電気 SANYO DENKI	R2	R2AA06040H	0.4	1.27	3,000	0.412	AB
	R2	R2AA06040F	0.4	1.27	3,000	0.412	AB
オムロン OMRON	G5	R88M-K40030	0.4	1.30	3,000	0.26	BB
	G	R88M-G40030	0.4	1.30	3,000	0.26	BB

※ サーボモータはキー溝の無いタイプをご用意ください。Please prepare the servo motor with no keyway.

RA80 サーボモータマッチング表 List of mountable servomotors

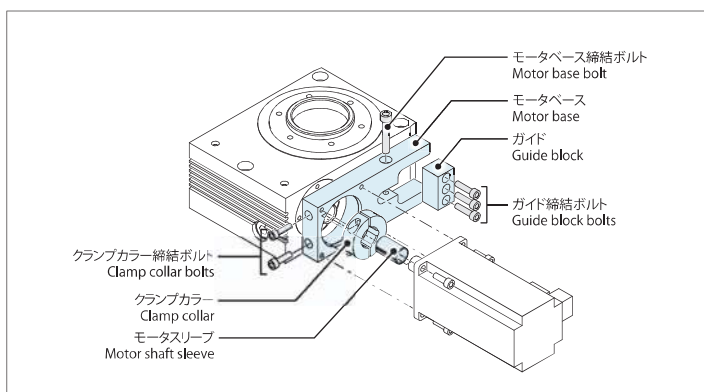
取付寸法図 Mounting dimensions

単位 Unit:mm



アタッチメントコード Servomotor fastener elements	A	B	C	D	E	F	G	H			
AB	21.5	4-M6 深サ13 (4)M6, 13DP	φ90	φ19				□79			
AD				φ16							
BA	28.5		φ100	φ14				4.5	□89		
CN	22.5			φ24							
DB	25.5	4-M8 深サ16 (4)M8, 16DP	φ115	φ19			9	□98			
DC				φ22							
EB	34.5		φ145	φ19				14	12	24	□128
EC				φ22							
EN		φ24									
FB	21.5	4-M5 深サ10 (4)M5, 10DP	φ90	φ19				□79			

サーボモータ装着図 Servomotor installation schematic



付属品 Accessories	アタッチメントコード Servomotor fastener elements	
	CN, EN	その他 Other All
モータベース Motor base	○	○
ガイド Guide block	○	○
クランプカラー Clamp collar	○	○
モータスリーブ Motor shaft sleeve		○
モータベース締結ボルト Motor base bolt		M6x50 (1)
クランプカラー 締結ボルト Clamp collar bolts		M8x20 (2)
ガイド固定ボルト Guide block bolts		M6x25 (3)

対応モーター一覧 Compatible servomotors

RA80のイナーシャ(入力軸換算) : 3.066x10⁻⁴[kg・m²] (減速比 Gear ratio:20)
 RA80 Moment of inertia (Input conversion) : 2.748x10⁻⁴[kg・m²] (減速比 Gear ratio:30)

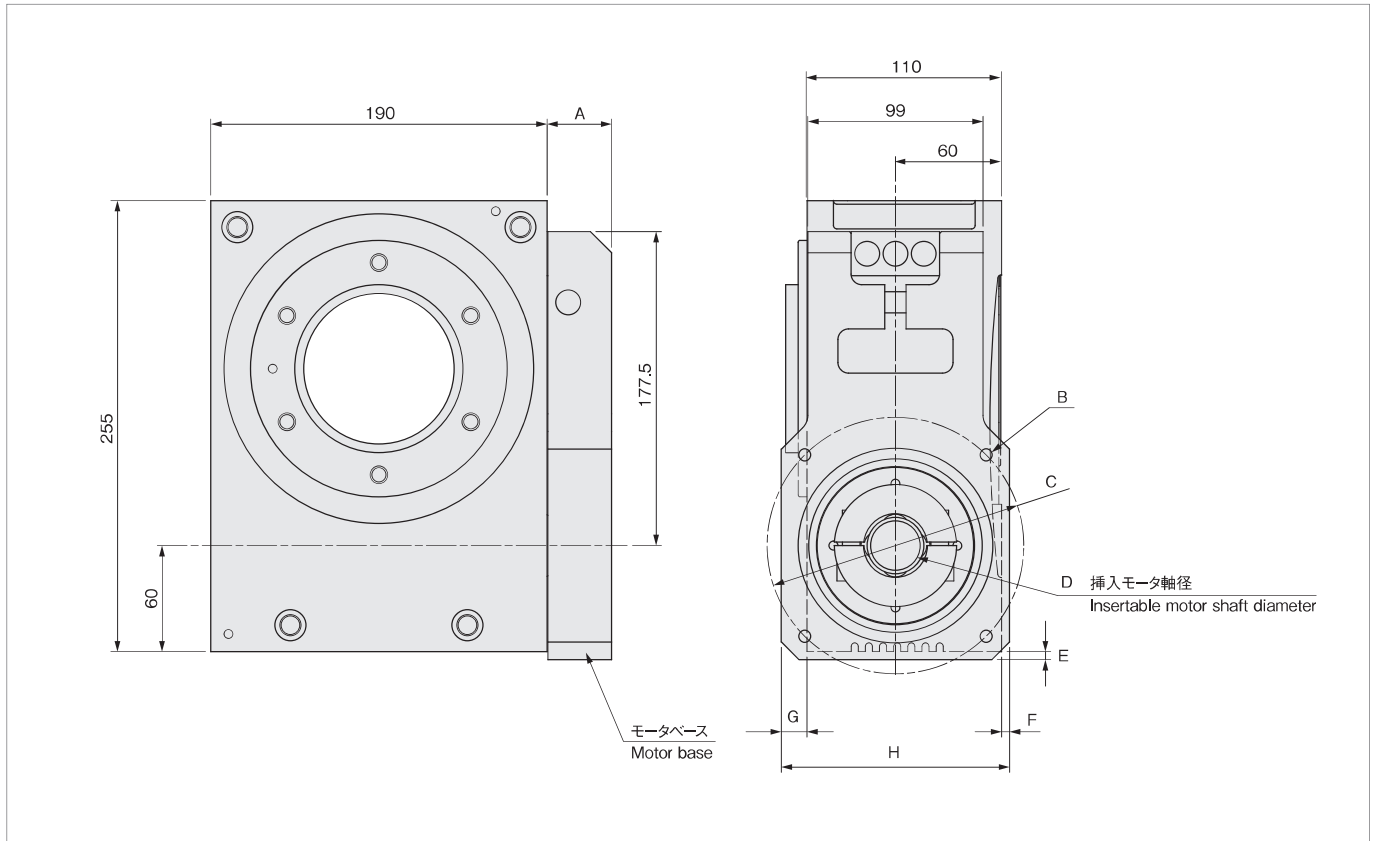
メーカー Manufacture	シリーズ Servo series	型式 Motor	モーター容量 Rated output [kW]	定格トルク Rated torque [N・m]	定格回転数 Rated rotation speed [min ⁻¹]	モーターイナーシャ Motor rotor inertia [x10 ⁻⁴ kg・m ²]	アタッチメントコード Servomotor fastener elements
安川電機 Yaskawa Electric	Σ-V	SGMAV-08A	0.75	2.39	3,000	0.769	AB
		SGMAV-10A	1	3.18	3,000	1.2	AB
		SGMSV-15A	1.5	4.90	3,000	2	CN
		SGMSV-20A	2	6.36	3,000	2.47	CN
		SGMSV-25A	2.5	7.96	3,000	3.19	CN
		SGMJV-08A	0.75	2.39	3,000	1.57	AB
		SGMGV-09A	0.85	5.39	1,500	13.9	EB
		SGMGV-13A	1.3	8.34	1,500	19.9	EC
三菱電機 Mitsubishi Electric	J3	HF-KP73	0.75	2.40	3,000	1.43	AB
		HF-MP73	0.75	2.40	3,000	0.6	AB
		HF-SP51	0.5	4.77	1,000	11.9	EN
		HF-SP52	0.5	2.39	2,000	6.1	EN
		HF-SP524	0.5	2.39	2,000	6.1	EN
		HF-SP81	0.85	8.12	1,000	17.8	EN
		HF-SP102	1	4.77	2,000	11.9	EN
		HF-SP1024	1	4.77	2,000	11.9	EN
	J4	HF-SP152	1.5	7.16	2,000	17.8	EN
		HF-SP1524	1.5	7.16	2,000	17.8	EN
		HG-KR73	0.75	2.40	3,000	1.26	AB
		HG-MR73	0.75	2.40	3,000	0.586	AB
		HG-SR51	0.5	4.80	1,000	11.6	EN
		HG-SR52	0.5	2.40	2,000	7.26	EN
		HG-SR81	0.85	8.10	1,000	16	EN
		HG-SR102	1	4.80	2,000	11.6	EN
パナソニック Panasonic	MINAS A5	HG-SR152	1.5	7.20	2,000	16	EN
		MSMD08	0.75	2.40	3,000	0.87	FB
		MSME08	0.75	2.40	3,000	0.87	FB
		MSME10	1	3.18	3,000	2.03	DB
		MSME15	1.5	4.77	3,000	2.84	DB
		MSME20	2	6.37	3,000	3.68	DB
		MDME10	1	4.77	2,000	4.6	EC
		MDME15	1.5	7.16	2,000	6.7	EC
ファナック FANUC	α	MDME20	2	9.55	2,000	8.72	EC
		αiS4/5000	1	4.00	4,000	5.15	BA
		αiS8/4000	2.5	8.00	4,000	11.7	EB
		αiF4/4000	1.4	4.00	4,000	13.5	EB
	β	αiF8/3000	1.6	8.00	3,000	25.7	EB
		βiS4/4000	0.75	3.50	4,000	5.15	BA
		βiS8/3000	1.2	7.00	2,000	11.7	EB
		βiS12/3000	1.8	11.00	2,000	22.8	EN
キーエンス KEYENCE	SV	SV-M075	0.75	2.39	3,000	1.57	AB
		SV-M100A	0.85	5.39	1,500	13.9	EB
		SV-M150A	1.3	8.34	1,500	19.9	EC
山洋電気 SANYO DENKI	R2	R2AA08075F	0.75	2.39	3,000	1.82	AD
		R2AA10075F	0.75	2.39	3,000	2	DC
		R2AA10100F	1	3.18	3,000	3.5	DC
		R2AA13050H	0.55	2.60	2,000	3.1	EC
		R2AA13050D	0.55	2.60	2,000	3.1	EC
		R2AA13120B	1.2	5.70	2,000	6	EC
		R2AA13120L	1.2	5.70	2,000	6	EC
		R2AA13120D	1.2	5.70	2,000	6	EC
		R2AA13180H	1.8	8.60	2,000	9	EC
		R2AA13180D	1.8	8.60	2,000	9	EC
	Q1	Q1AA10100D	1	3.19	3,000	1.29	DC
		Q1AA10150D	1.5	4.79	3,000	1.61	DC
		Q1AA10200D	2	6.37	3,000	2.15	CD
		R88M-G75030	0.75	2.40	3,000	0.87	FB
オムロン OMRON	G	R88M-G1K530T	1.5	4.77	3,000	2.59	DB
		R88M-G2K030T	2	6.36	3,000	3.46	DB
		R88M-G1K020T	1	4.80	2,000	6.17	EC
		R88M-G1K520T	1.5	7.15	2,000	11.2	EC
	G5	R88M-G2K020T	2	9.54	2,000	15.2	EC
		R88M-K75030	0.75	2.40	3,000	0.87	FB
		R88M-K1K030	1	3.18	3,000	2.03	DB
		R88M-K1K530	1.5	4.77	3,000	2.84	DB
R88M-K2K030	R88M-K2K030	2	6.37	3,000	3.68	DB	
	R88M-K1K020	1	4.77	2,000	4.6	EC	
	R88M-K1K520	1.5	7.16	2,000	6.7	EC	
	R88M-K2K020	2	9.55	2,000	8.72	EC	

※ サーボモーターはキー溝の無いタイプをご用意ください。Please prepare the servo motor with no keyway.

RA100 サーボモータマッチング表 List of mountable servomotors

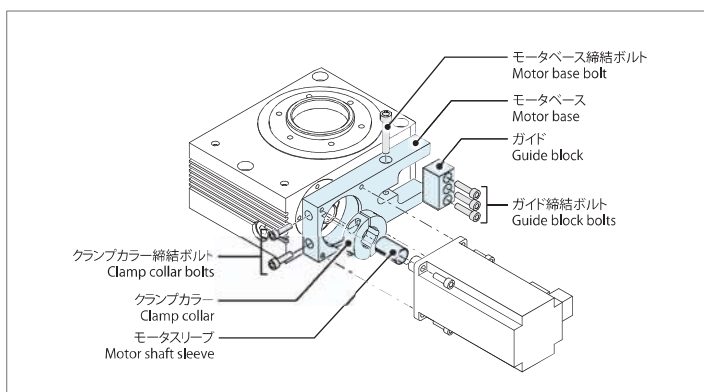
取付寸法図 Mounting dimensions

単位 Unit:mm



アタッチメントコード Servomotor fastener elements	A	B	C	D	E	F	G	H
BC	24.5	4-M6 深サ10 (4)M6, 10DP	φ115	φ24				□99
CB				φ22				
DA	37.5	4-M8 深サ16 (4)M8, 16DP	φ145	φ19	4.5	4.5	14.5	□129
DB				φ22				
DC				φ24				
DN				φ28				

サーボモータ装着図 Servomotor installation schematic



付属品 Accessories	アタッチメントコード Servomotor fastener elements	
	DN	その他 Other All
モータベース Motor base	○	○
ガイド Guide block	○	○
クランプカラー Clamp collar	○	○
モータスリーブ Motor shaft sleeve		○
モータベース締結ボルト Motor base bolt		M8x60 (1)
クランプカラー締結ボルト Clamp collar bolts		M10x30 (2)
ガイド固定ボルト Guide block bolts		M8x30 (3)

対応モーター一覧 Compatible servomotors

RA100のイナーシャ(入力軸換算) : $8.687 \times 10^{-4} [\text{kg} \cdot \text{m}^2]$ (減速比 Gear ratio: 20)
 RA100 Moment of inertia (Input conversion) : $7.598 \times 10^{-4} [\text{kg} \cdot \text{m}^2]$ (減速比 Gear ratio: 30)

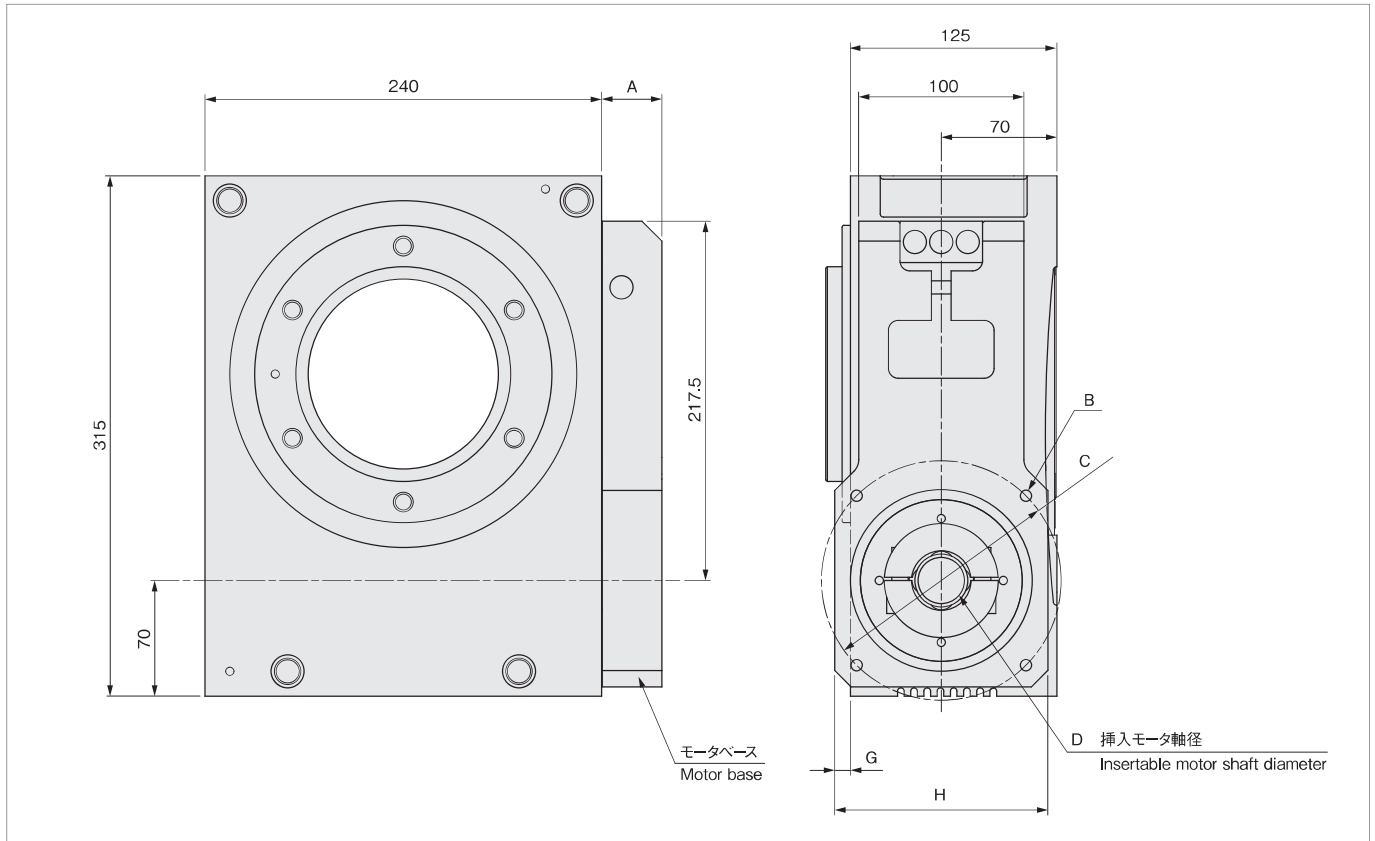
メーカー Manufacture	シリーズ Servo series	型式 Motor	モータ容量 Rated output [kW]	定格トルク Rated torque [N·m]	定格回転数 Rated rotation speed [min ⁻¹]	モータイナーシャ Motor rotor inertia [$\times 10^{-4} \text{kg} \cdot \text{m}^2$]	アタッチメントコード Servomotor fastener elements	
安川電機 Yaskawa Electric	Σ-V	SGMSV-15A	1.5	4.90	3,000	2	BC	
		SGMSV-20A	2	6.36	3,000	2.47	BC	
		SGMSV-25A	2.5	7.96	3,000	3.19	BC	
		SGMSV-30A	3	9.80	3,000	7	DN	
		SGMSV-40A	4	12.60	3,000	9.6	DN	
		SGMGV-09A	0.85	5.39	1,500	13.9	DA	
		SGMGV-13A	1.3	8.34	1,500	19.9	DB	
		SGMGV-20A	1.8	11.50	1,500	26	DC	
三菱電機 Mitsubishi Electric	J3	HF-SP51	0.5	4.77	1,000	11.9	DC	
		HF-SP81	0.85	8.12	1,000	17.8	DC	
		HF-SP102	1	4.77	2,000	11.9	DC	
		HF-SP1024	1	4.77	2,000	11.9	DC	
		HF-SP152	1.5	7.16	2,000	17.8	DC	
			HF-SP1524	1.5	7.16	2,000	17.8	DC
	J4	HG-SR51	0.5	4.80	1,000	11.6	DC	
		HG-SR81	0.85	8.10	1,000	16	DC	
		HG-SR102	1	4.80	2,000	11.6	DC	
		HG-SR152	1.5	7.20	2,000	16	DC	
ファナック FANUC	α	αiS8/4000	2.5	8.00	4,000	11.7	DA	
		αiS12/4000	2.7	12.00	3,000	22.8	DC	
		αiF4/4000	1.4	4.00	4,000	13.5	DA	
		αiF8/3000	1.6	8.00	3,000	25.7	DA	
	β	βiS8/3000	1.2	7.00	2,000	11.7	DA	
		βiS12/3000	1.8	11.00	2,000	22.8	DC	
キーエンス KEYENCE	SV	SV-M100A	0.85	5.39	1,500	13.9	DA	
		SV-M150A	1.3	8.34	1,500	19.9	DB	
		SV-M200A	1.8	11.50	1,500	26	DC	
山洋電気 SANYO DENKI	R2	R2AA13120B	1.2	5.70	2,000	6	DB	
		R2AA13120L	1.2	5.70	2,000	6	DB	
		R2AA13120D	1.2	5.70	2,000	6	DB	
		R2AA13180H	1.8	8.60	2,000	9	DB	
		R2AA13180D	1.8	8.60	2,000	9	DB	
	Q1	Q1AA10150D	1.5	4.79	3,000	1.61	CB	
		Q1AA10200D	2	6.37	3,000	2.15	CB	
		Q1AA10250D	2.5	7.97	3,000	2.65	CB	
		Q1AA13300D	3	9.50	3,000	4.92	DN	
		Q1AA13400D	4	12.70	3,000	6.43	DN	
		Q1AA13500D	5	15.70	3,000	8.47	DN	

※ サーボモータはキー溝の無いタイプをご用意ください。Please prepare the servo motor with no keyway.

RA125 サーボモータマッチング表 List of mountable servomotors

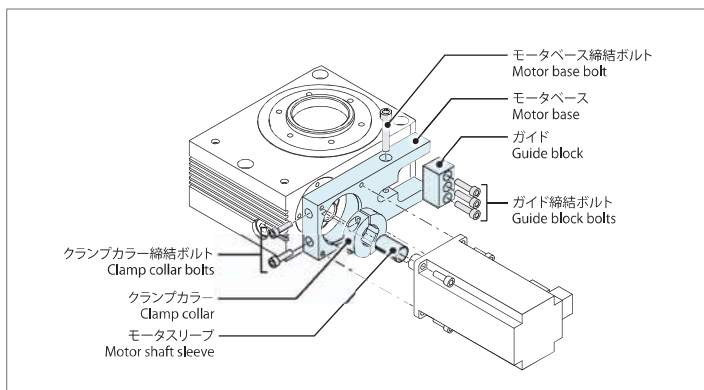
取付寸法図 Mounting dimensions

単位 Unit:mm



アタッチメントコード Servomotor fastener elements	A	B	C	D	G	H
AC	24.5	4-M6 深サ12 (4)M6, 12DP	φ115	φ24		□100
BB				φ22		
BN				φ28		
CA	37.5	4-M8 深サ16 (4)M8, 16DP	φ145	φ19	9.5	□129
CB				φ22		
CC				φ24		
CN				φ28		

サーボモータ装着図 Servomotor installation schematic



付属品 Accessories	アタッチメントコード Servomotor fastener elements	
	BN, CN	その他 Other All
モータベース Motor base	○	○
ガイド Guide block	○	○
クランプカラー Clamp collar	○	○
モータスリーブ Motor shaft sleeve		○
モータベース締結ボルト Motor base bolt		M8x60 (1)
クランプカラー 締結ボルト Clamp collar bolts		M10x30 (2)
ガイド固定ボルト Guide block bolts		M8x30 (3)

対応モーター一覧 Compatible servomotors

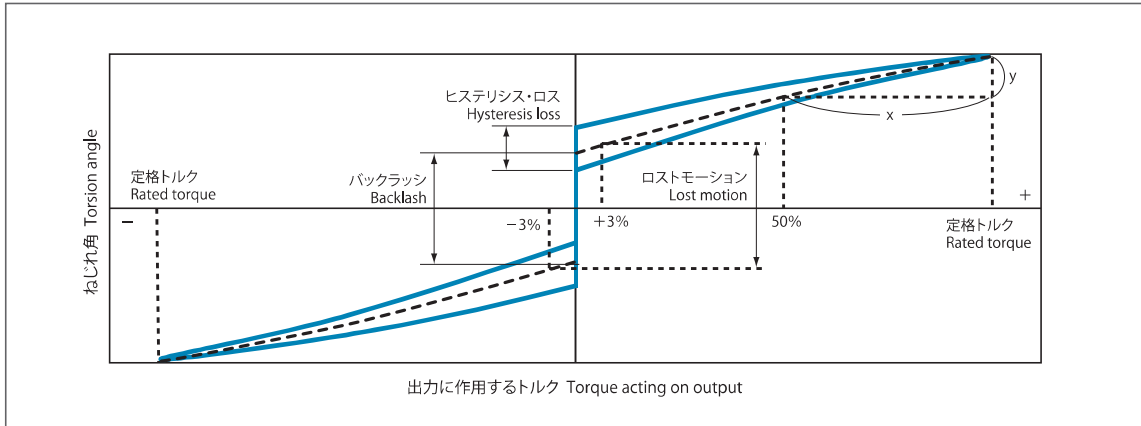
RA125のイナーシャ(入力軸換算) : 14.853x10⁻⁴[kg・m²] (減速比 Gear ratio:20)
 RA125 Moment of inertia (Input conversion) : 11.539x10⁻⁴[kg・m²] (減速比 Gear ratio:30)

メーカー Manufacture	シリーズ Servo series	型式 Motor	モーター容量 Rated output [kW]	定格トルク Rated torque [N・m]	定格回転数 Rated rotation speed [min ⁻¹]	モーターイナーシャ Motor rotor inertia [x10 ⁻⁴ kg・m ²]	アタッチメントコード Servomotor fastener elements
安川電機 Yaskawa Electric	Σ-V	SGMSV-25A	2.5	7.96	3,000	3.19	AC
		SGMSV-30A	3	9.80	3,000	7	CN
		SGMSV-40A	4	12.60	3,000	9.6	CN
		SGMGV-09A	0.85	5.39	1,500	13.9	CA
		SGMGV-13A	1.3	8.34	1,500	19.9	CB
		SGMGV-20A	1.8	11.50	1,500	26	CC
三菱電機 Mitsubishi Electric	J3	HF-SP81	0.85	8.12	1,000	17.8	CC
		HF-SP102	1	4.77	2,000	11.9	CC
		HF-SP1024	1	4.77	2,000	11.9	CC
		HF-SP152	1.5	7.16	2,000	17.8	CC
		HF-SP1524	1.5	7.16	2,000	17.8	CC
	J4	HG-SR81	0.85	8.10	1,000	16	CC
		HG-SR102	1	4.80	2,000	11.6	CC
		HG-SR152	1.5	7.20	2,000	16	CC
ファナック FANUC	α	αiS8/4000	2.5	8.00	4,000	11.7	CA
		αiS12/4000	2.7	12.00	3,000	22.8	CC
		αiF4/4000	1.4	4.00	4,000	13.5	CA
		αiF8/3000	1.6	8.00	3,000	25.7	CA
	β	βiS8/3000	1.2	7.00	2,000	11.7	CA
		βiS12/3000	1.8	11.00	2,000	22.8	CC
キーエンス KEYENCE	SV	SV-M100A	0.85	5.39	1,500	13.9	CA
		SV-M150A	1.3	8.34	1,500	19.9	CB
		SV-M200A	1.8	11.50	1,500	26	CC
山洋電気 SANYO DENKI	R2	R2AA13120B	1.2	5.70	2,000	6	CB
		R2AA13120L	1.2	5.70	2,000	6	CB
		R2AA13120D	1.2	5.70	2,000	6	CB
		R2AA13180H	1.8	8.60	2,000	9	CB
		R2AA13180D	1.8	8.60	2,000	9	CB
	Q1	Q1AA10150D	1.5	4.79	3,000	1.61	BB
		Q1AA10200D	2	6.37	3,000	2.15	BB
		Q1AA10250D	2.5	7.97	3,000	2.65	BB
		Q1AA13300D	3	9.50	3,000	4.92	CN
		Q1AA13400D	4	12.70	3,000	6.43	CN
		Q1AA13500D	5	15.70	3,000	8.47	CN

※ サーボモーターはキー溝の無いタイプをご用意ください。Please prepare the servo motor with no keyway.

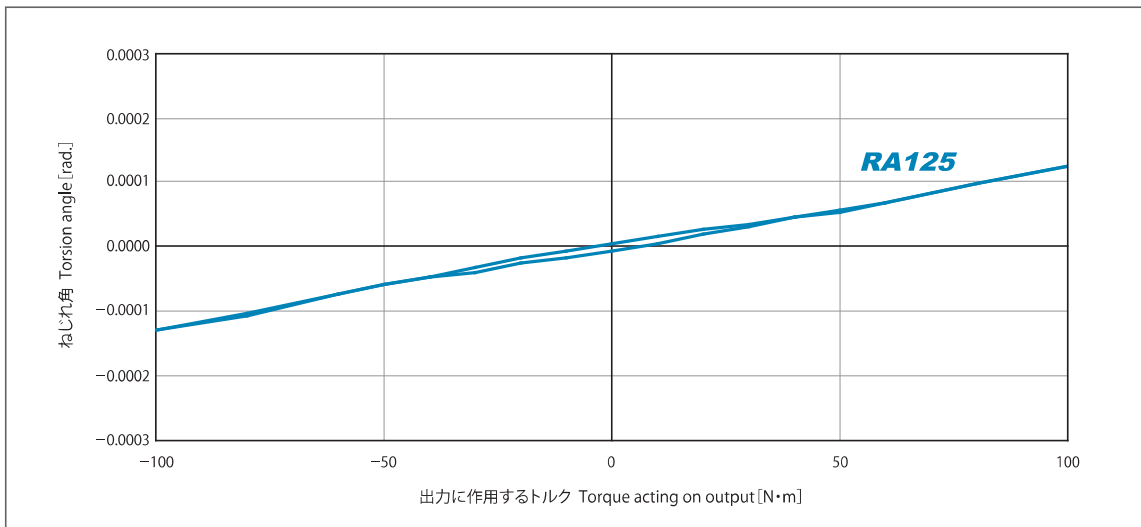
バックラッシ、ロストモーション、ヒステリシス・ロス Backlash, lost motion, hysteresis loss

一般的なヒステリシス線図 General hysteresis graph



- | | | | |
|-----------|-------------------------------------|------------------------|----------------------------------------------------------------------------------------------------------------|
| ※ バックラッシ | トルクゼロでも生じ得る回転角(ガタツキ) | Backlash | Rotation angle which can arise even with zero torque (looseness) |
| ロストモーション | ±3%定格トルクを加えた時に生じるヒステリシス曲線幅の中間点のねじれ角 | Lost motion | Torsion angle of the midpoint of the hysteresis curve width which arises when applying ±3% rated torque |
| ヒステリシス・ロス | トルクを正逆に加えた際に、完全に戻りきらないねじれ角 | Hysteresis loss | Torsion angle where there is no complete return, when torque is applied in both forward and reverse directions |

RollerDrive® ヒステリシス線図 RollerDrive hysteresis graph



一般的なポジショナにおいて出力軸にトルクを加え、発生したねじれ角をプロットしていくと以下のヒステリシス線図が得られます。ヒステリシス線図からバックラッシ、ロストモーション、ヒステリシス・ロスをそれぞれ以下に示すように定義する事が出来ます。ロストモーションとヒステリシス・ロスは材料の物性に依存し、いかなる構造物でも生じます。一方バックラッシは構造上のスキマやガタツキのある場合にのみ発生します。バックラッシは精度やサーボゲイン等に大きく影響する為、出来る限り小さくする必要があります。**RollerDrive®** は、独自の予圧構造によりバックラッシを完全に除去すると共に、材質、構造の最適化研究の成果によりロストモーションとヒステリシス・ロスを極めて小さな値に抑制しています。

For a general positioner, the hysteresis graph can be obtained by applying torque to the output shaft, and plotting the generated torsion angle.

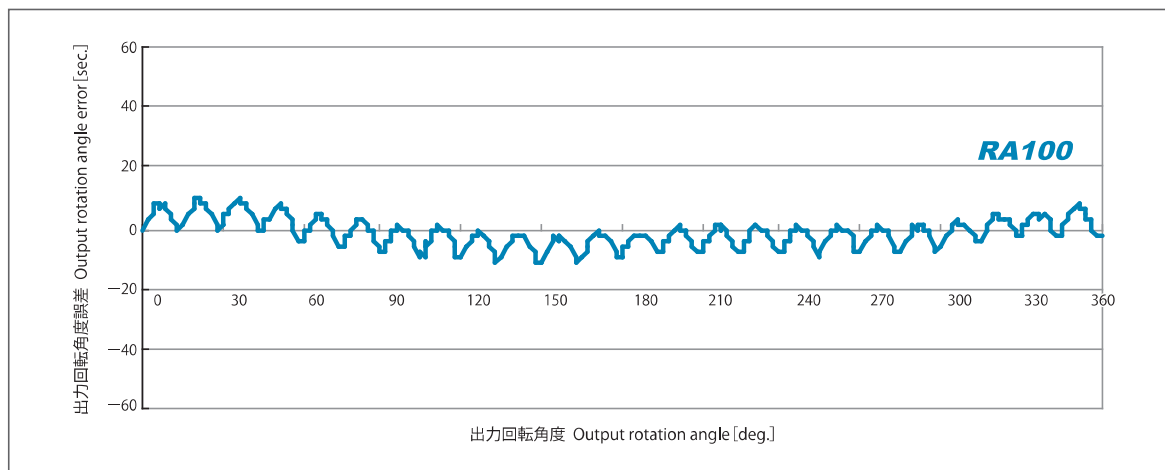
Backlash, lost motion and hysteresis loss can each be defined from the hysteresis graph, as indicated above.

Lost motion and hysteresis loss depend on the material characteristics, and occur in all types of structures. Backlash, on the other hand, occurs only when there are gaps or looseness in the structure. Backlash has a major effect on accuracy, servo gain and similar factors, and must be minimized.

With RollerDrive, backlash is completely eliminated using our unique preload structure, and lost motion and hysteresis loss are controlled to extremely small values due to the results of research on optimizing materials and structures.

角度伝達精度 Angular transmission accuracy

RollerDrive® 角度伝達精度 RollerDrive angular transmission accuracy

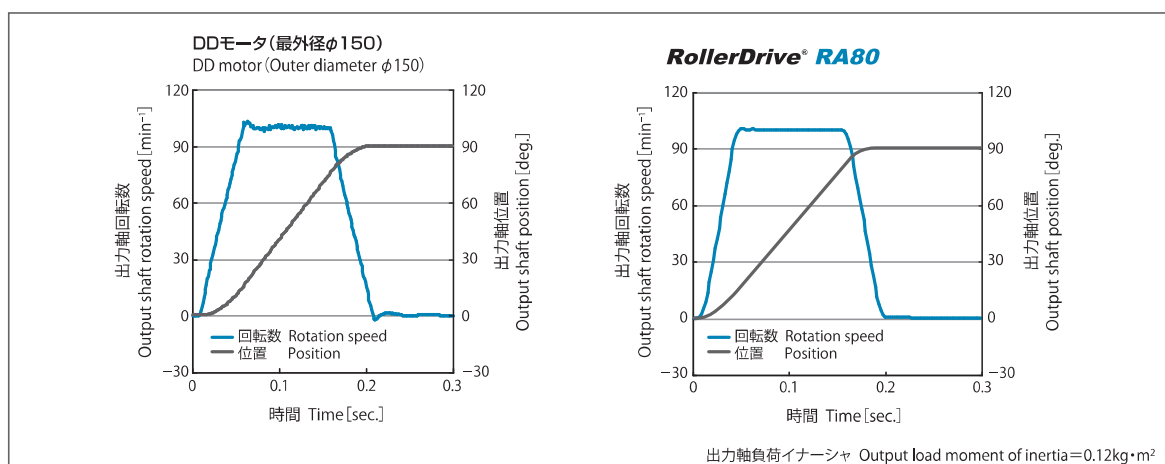


角度伝達精度は、入力される回転角度に対する理論的な出力角度と実際の出力角度の差で、主に入力出力軸の加工精度によって決まります。RAシリーズ標準仕様の角度伝達精度は40～90 [arc.sec.] 以下です。

Angular transmission accuracy is the difference between the theoretical output angle and actual output angle-in response to an input rotation angle-and is primarily determined by the machining precision of the input/output shafts. Angular transmission accuracy with RA Series standard specifications is 40～90 [arc.sec.] or less.

ダイナミック特性 Dynamic characteristics

90°回転時の出力動作特性比較 Comparison of output motion characteristics during a 90° rotation

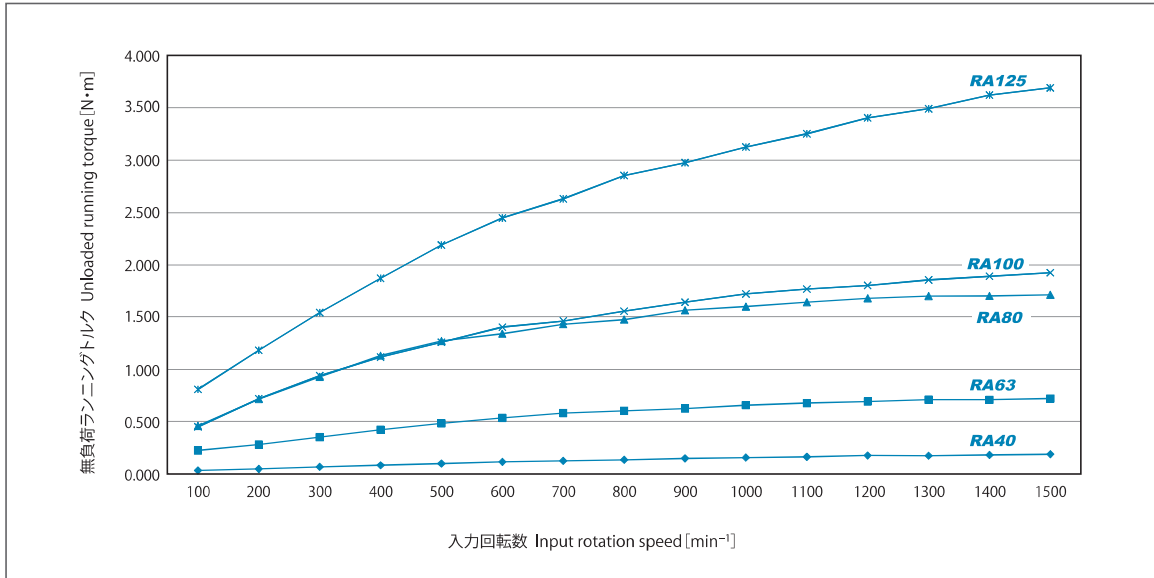


従来モーション機器の性能は主に静止状態での精度や剛性に主眼が置かれていましたが、**RollerDrive®** は、ゼロバックラッシュテクノロジーにより静的特性だけでなく、優れたダイナミック特性(動的特性)も実現しています。例えば同じ負荷、同じ動作条件下でダイレクトドライブモータと**RollerDrive®**を比較した場合、最終位置での停止精度はほぼ同じ値となりますが、動作中の回転数(速度)を見ると、ダイレクトドライブでは外乱、制御遅れにより乱れが生じている一方**RollerDrive®**では殆んど乱れることなく、入力制御信号に対して忠実に出力動作している事が分かります。**RollerDrive®**が動的なアプリケーション、例えば転写、連続測定、連続加工等で高い品質、精度を提供できる理由がここにあります。

When evaluating the performance of conventional motion equipment, the focus has been accuracy and rigidity in the stationary state, but the RollerDrive, zero-backlash technology provides superior static and dynamic characteristics. For example, in a comparison between a direct drive motor and RollerDrive under the same load and operation conditions, stop accuracy at the final position takes almost the same value, but when we look at rotation speed during operation, the direct drive exhibits disturbance and irregularity due to control delay, but the RollerDrive, there is almost no irregularity, and the output motion is faithful to the input control signal. This is the reason why RollerDrive can provide high quality and accuracy in dynamic applications such as transferring(liquid crystal etc.), continuous measurement and continuous processing.

無負荷ランニングトルク Unloaded running torque

RollerDrive® 無負荷ランニングトルク RollerDrive unloaded running torque



出力軸に負荷トルクが掛からない状態での、入力軸における必要駆動トルクです。潤滑油の粘性抵抗により、速度に比例して増加します。

This is the drive torque necessary at the input shaft, in the state where no load torque is applied to the output shaft. It increases in proportion with speed, depending on the viscous resistance of lubricating oil.

保護構造、クリーンルーム等への対応 Protective structure, compatibility with clean rooms etc.

塵、水に対する保護構造等級は下表の通りです。

表記は塵、水の侵入に対する保護等級の目安で、塵、水、腐食に対する防止性能を保証するものではありません。水がかかるような環境でのご使用には、状況に応じ必要なカバーや防錆処理が必要となります。

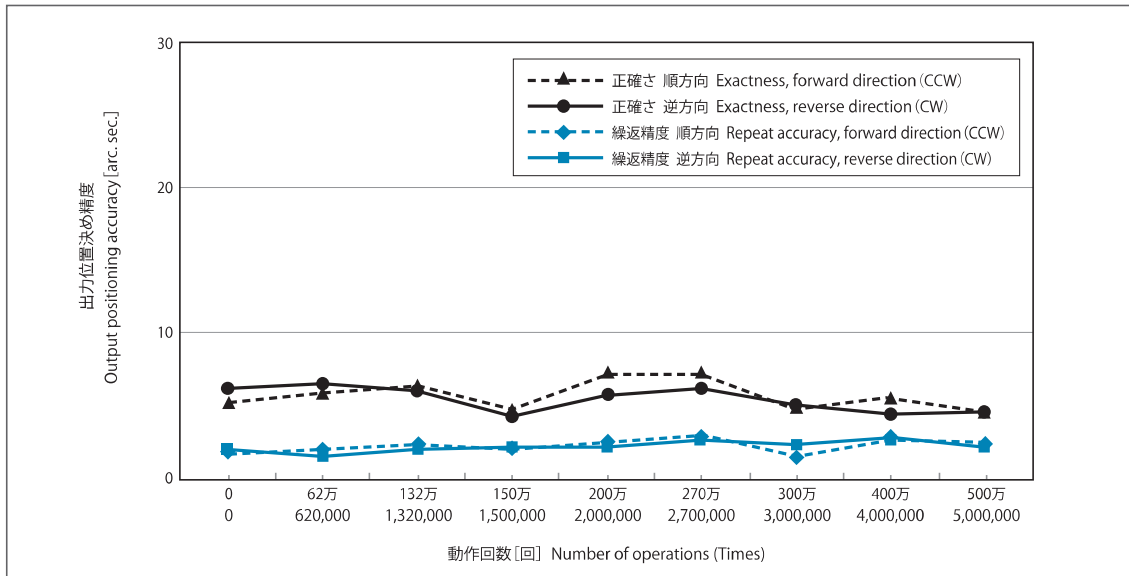
The protective structure codes for dust and water are as indicated in the following Table.

The indicated codes are guidelines to the grade of protection against infiltration of dust and water, and are not a guarantee of protective performance against dust, water or corrosion. When using this equipment in an environment where it may be exposed to water, covering or anti-corrosion treatment may be needed to suit the situation.

RAシリーズ本体保護等級 RA Series main unit protection code	IP54 相当 equivalent
-----------------------------------------------------	--------------------

耐久性 Durability

RollerDrive® 位置決め精度経時変化試験 Test of changes in RollerDrive positioning accuracy over time



試験条件 Test conditions	
RollerDriveサイズ RollerDrive size	RA125クラス試験機 RA125 class test machine
出力負荷質量 Output load weight	152 kg (φ500mm)
出力負荷慣性モーメント Output load moment of inertia	4.69 kg・m ²
出力回転角度 Output rotation angle	0-345 degree (往復 Reciprocating)
出力最高回転数 Output maximum rotation speed	100 min ⁻¹
加速時間 Acceleration time	0.100 sec
等速時間 Uniform speed time	0.475 sec.
減速時間 Deceleration time	0.100 sec.

RollerDrive® は、すべての回転要素が転がり接触状態で動作する為、磨耗やそれによる精度的な経年劣化が殆どありません。500万回動作試験後の位置決め精度の変化はほぼゼロに等しく、**RollerDrive®** の優れた精度が長期間持続する事を示しております。

In the RollerDrive, all rotating elements operate in a state of rolling contact, and thus there is almost no wear, or degradation in accuracy over time.

There is almost no change in positioning accuracy after testing operation 5 million times, and this shows that the outstanding accuracy of the RollerDrive can be maintained over the long term.

定格寿命 Rated service life

RollerDrive® RA シリーズの定格寿命は、ローラフォロアの転がり寿命で決まります。転がり寿命とは、繰り返し動作によりフレーキングと呼ばれる疲労破壊現象が起きるまでの時間を指し、転がりベアリングの寿命計算でも採用されている概念です。

RollerDrive® RA シリーズの定格トルクは、定格寿命12,000時間、信頼度95%を基準にしており、実際の寿命時間は基準時間である12,000時間に負荷トルクと定格トルクの比率の3.33乗を乗じたものになります。寿命に関わるローラフォロアは自社製で、独自の高剛性構造を持ち、高い品質基準をクリアした鋼材のみを使用しておりますので、長期間安心してご使用いただけます。

The rated service life of the RollerDrive RA Series is determined by the rolling life of the roller followers. "Rolling life" refers to the time until a fatigue breakdown phenomenon called "flaking" occurs due to repetitive operation, and is a concept which is also used for calculating service life of roller bearings.

Rated torque of the RollerDrive RA Series is based on a rated service life of 12,000 hours and a reliability of 95%, and the actual service life time is found by multiplying the reference time of 12,000 hours by the ratio of load torque to rated torque raised to the power of 3.33. Roller followers affecting service life are made by Sankyo, have a unique high-rigidity structure, and use only steel which clears stringent quality standards, so they can be used anxiety-free over the long term.

⚠ 本製品適用用途の制限について Limitations on the use of this product

- 本製品の動作によって直接人命に関わったり、人体に危害を及ぼす用途への適用はできません。適用制限対象は以下の用途を含みます。
 - i. 医療機器
 - ii. 原子力関連機器
 - iii. 航空宇宙機器
 - iv. 爆発、腐食、毒性物質取扱い機器 等
- 上記用途への適用を検討する場合は弊社へご相談下さい。
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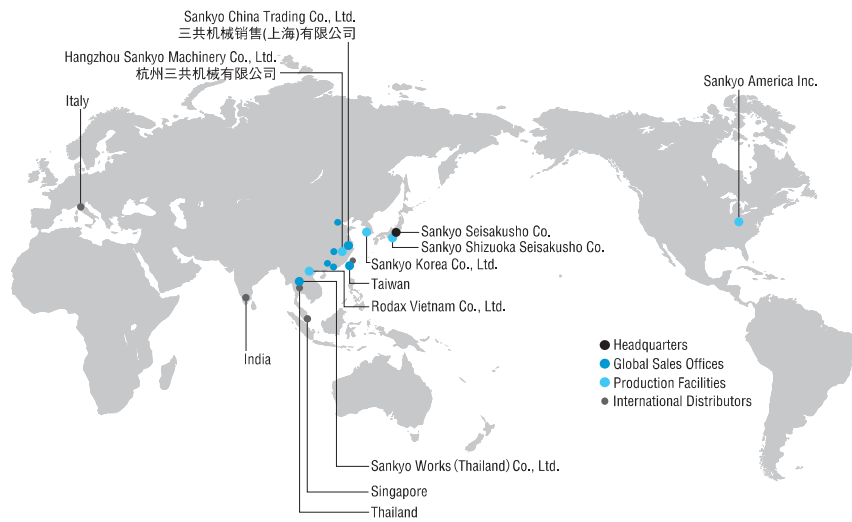
- This product cannot be used in applications where operation of the product has a direct impact in human life, or can cause bodily harm to people. The scope of these use limitations includes the following applications:
 - i. Medical equipment
 - ii. Nuclear power related equipment
 - iii. Aerospace equipment
 - iv. Equipment for handling explosive, corrosive or toxic substances etc.
- Please consult with our company if you are considering use in one of the above applications.
- If there is a possibility that this product will be used in a final use location outside Japan, in weapons or equipment for weapon manufacture, then it may be subject to regulation due to the Foreign Exchange and Foreign Trade Control Law. Please take extra care with regard to the application and region of use, and properly submit applications and follow procedures if necessary.

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グローバルネットワーク Global network



Group Companies

Sankyo America Inc.
10655 State Route 47 Sidney, Ohio, 45365 U.S.A.
Phone: +1-(0)937-498-4901 Fax: +1-(0)937-498-9403
Email: sales@sankyoautomation.com

Sankyo Korea Co., Ltd.
1449-48 Seobu-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do, 16643 Korea
Phone: +82-(0)31-895-5991 Fax: +82-(0)31-895-6607
Email: kr-sales@rollerdrive.com

Sankyo China Trading Co., Ltd.
[Shanghai Sales Office]
Room 1103, Block B, No.391 Guiping Road,
Shanghai 200233 China
Phone: +86-(0)21-5445-2813 Fax: +86-(0)21-5445-2340
Email: sales@sankyochina-trading.com

[Shenzhen Sales Office]
Unit 19, Tower B, Neo Building, No.6009 Shennan Avenue,
Futian District, Shenzhen China
Phone: +86-(0)755-8230-0270 Fax: +86-(0)755-8236-4605

[Tianjin Sales Office]
Room 1905, Pengzhanfeiwo Building A, Crossing Yale Road Yaolin Road,
Xiqing District, Tianjin 300380 China
Phone: +86-(0)22-2312-1005 Fax: +86-(0)22-2312-1007

[Guangzhou Sales Office]
Room 913, Xing Pu Building, No.12 Guan Hong Road,
Guangzhou Economic Development Zone, Huang Pu,
Guang Zhou 510670 China
Phone: +86-(0)20-8985-1846 Fax: +86-(0)20-8225-7346

[Wuhan Sales Office]
Room 2301, Taihe Square, No.134 Wusheng Road, Wuhan,
Hubei Province China
Phone: +86-(0)27-8568-5818 Fax: +86-(0)27-8568-2818

Hangzhou Sankyo Machinery Co., Ltd.
No.2518 Jiang Dong 2 Road, Hangzhou Jiang Dong Industrial Park,
Xiaoshan Zone, Hangzhou, Zhejiang, China
Phone: +86-(0)571-8283-3311 Fax: +86-(0)571-8283-1133

Rodax Vietnam Co., Ltd.
Plot No. M1, Thang Long Industrial Park II
Di Su, My Hao, Hung Yen, Viet Nam
Phone: +84-(0)221-3-589701 Fax: +84-(0)221-3-589708

Sankyo Works (Thailand) Co., Ltd.
9/31 Moo 5, Phaholyotin Road, Klongnueng,
Klong Luang, Patumthani 12120 Thailand
Phone: +66-(0)2-516-5355 Fax: +66-(0)2-068-0931
Email: sales@sankyo-works.co.th

お問い合わせ相談窓口 Contact us

月曜～金曜8:30～12:00, 13:00～17:30(祝祭日、当社休業日を除く) *FAX、電子メールは24時間受け付けております。
Mon-Fri AM8:30-12:00 PM13:00-17:30 UTC + 09:00 (JST) (Except public holidays and company holidays)

■本 社 東京都北区田端新町3-37-3 〒114-8538
Phone: 03-3800-3330
Fax: 03-3800-3380
Email: sales@sankyo-seisakusho.co.jp
URL: http://www.sankyo-seisakusho.co.jp

■Headquarters (International Sales Division) 3-37-3 Tabatashinmachi, Kita-ku, Tokyo, Japan 114-8538
Phone: +81-(0)3-3800-3330
Fax: +81-(0)3-3800-3380
Email: overseas@sankyo-seisakusho.co.jp
URL: http://www.sankyo-seisakusho.co.jp

■東京営業所 東京都北区田端新町3-37-3 〒114-8538
Phone: 03-3800-3330
Fax: 03-3893-7065
Email: tky-sales@sankyo-seisakusho.co.jp

■宮城出張所 宮城県栗原市志波姫南郷蓬田西2-1 〒989-5611
Phone: 0228-23-5122
Fax: 0228-23-5123
Email: myg-sales@sankyo-seisakusho.co.jp

■名古屋営業所 愛知県名古屋市昭和区福江1-3-3 〒466-0059
Phone: 052-857-0577
Fax: 052-883-5188
Email: ngy-sales@sankyo-seisakusho.co.jp

■静岡出張所 静岡県菊川市本所2290 〒439-0018
Phone: 0537-36-5715
Fax: 0537-36-2381
Email: szk-sales@sankyo-seisakusho.co.jp

■大阪営業所 大阪府東大阪市長田東1-1-10 〒577-0012
Phone: 06-6618-7000
Fax: 06-6618-7001
Email: osk-sales@sankyo-seisakusho.co.jp

■台湾支店 日商三共股份有限公司 台湾分公司
臺灣42876臺中市大雅區三和里建興路152巷21號
Phone: +886-(0)4-2359-4048
Fax: +886-(0)4-2359-4720
Email: tw-sales@rollerdrive.com



FAX送付先:
 (株)三共製作所 営業部 行
 最寄りの宛先へご送付ください

FAX宛先
 東京 03-3893-7065 宮城 0228-23-5123
 名古屋 052-883-5188 静岡 0537-36-2381
 大阪 06-6618-7001

電子メールで送付する場合: sales@sankyo-seisakusho.co.jp

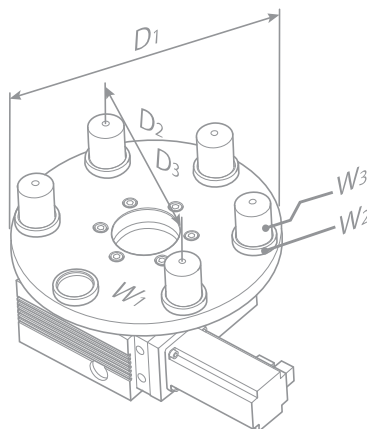
RollerDrive® RA シリーズ 機種選定シート

貴社名、部署名		TEL
ご住所		FAX
お名前	メールアドレス	

A) 用途

B) 概要図と負荷条件、使用環境など

(RA出力軸に装着するテーブル、ワーク、治具、および回転中に作用する負荷を図示してください)



テーブル直径: D_1	[mm]
テーブル質量: W_1	[kg]
治具P.C.D: D_2	[mm]
1つ当りの治具質量: W_2	[kg]
治具数量: n_2	[個]
ワークP.C.D: D_3	[mm]
1つ当りのワーク質量: W_3	[kg]

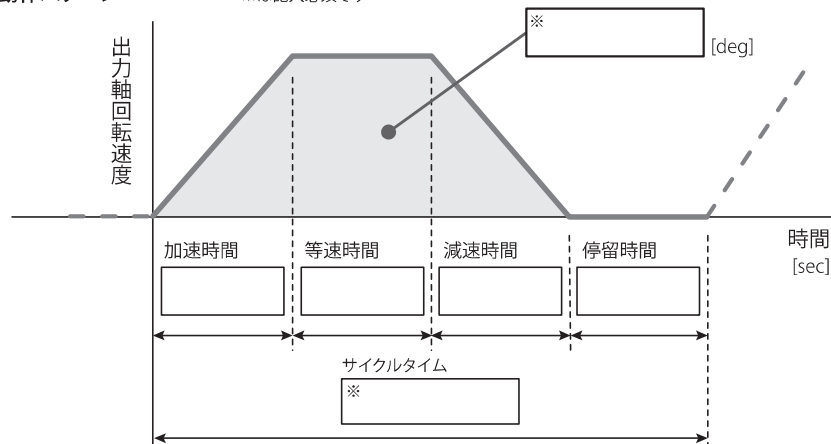
出力軸に作用する荷重

アキシャル/ラジアル荷重 [N]	モーメント荷重 [N·m]	ワーク数量: n_3 [個]
---------------------	------------------	---------------------

C) 動作パターン

※は記入必須です

割出角度(1サイクルで送る回転角度)



E) ご使用サーボモータ

メーカー _____
 型番 _____
 モータ容量(定格出力) _____ [kW]

F) サーボモータの装着方向

T 面側 (正面から見て右側)
 U 面側 (正面から見て左側)
 どちらかを○で囲んでお選びください

D) 潤滑方式と使用姿勢

カタログp.3, 4, 7を参照

各項目は、いずれか1つお選びください

- 潤滑方式: グリス潤滑 オイル潤滑
 使用姿勢: W面が下面 V面が下面 U面が下面 T面が下面
 R面が下面 S面が下面

G) アタッチメントコード

カタログp.15~24を参照

注意 本機種選定はRA本体が移動しない仕様によるものとなります。
 RA本体をスライドや回転等の移動をさせる仕様の場合は弊社までお問い合わせください。



Approved performance



株式会社

三共製作所

Sankyo Seisakusho co.

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販売店



SANKYO
SEISAKUSHO CO.

RollerDrive

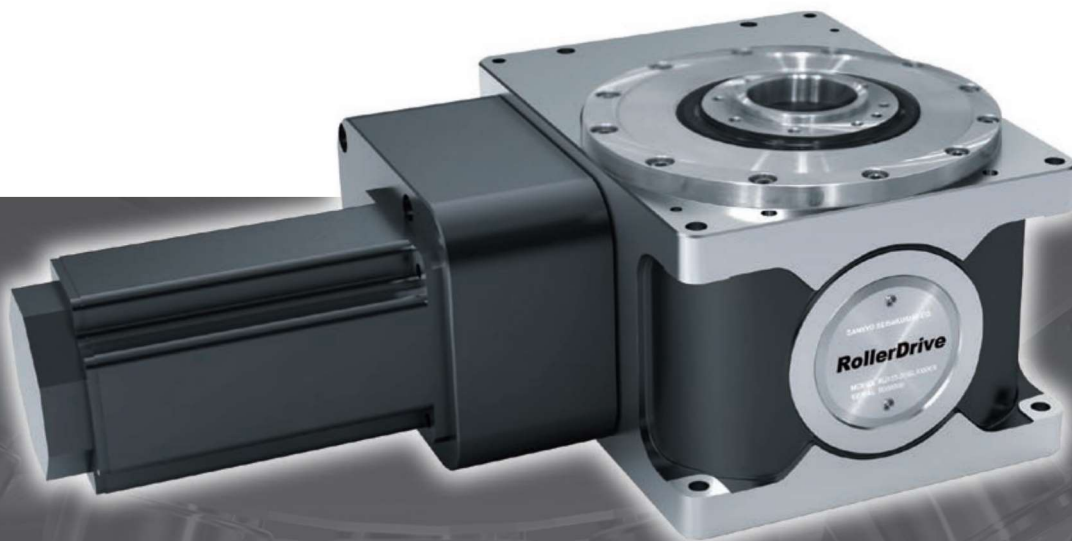
RU series

Universal Positioning Unit

RollerDrive[®]

RU Series

RU40, 63, 80, 100, 125



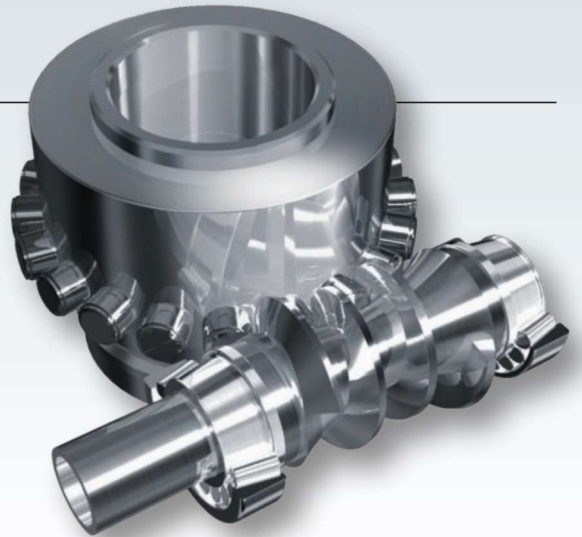
The ZERO-Backlash Technology

A mechanism developed through the pursuit of outstanding functionality and performance.

Superior movement achieved with zero-backlash technology

In FA equipment, motion control using servo systems is a crucial element which greatly affects equipment performance. Naturally, equipment specifications and performance are designed assuming that the expected motion is attained, but if there are factors such as backlash, insufficient rigidity or control instability in the motion control section, then output motion will deviate from input control commands, and it will be difficult to attain the expected performance.

With the RollerDrive RU Series, a servomotor is mechanically reduced while maintaining powerful torque, rigidity and stability. An output motion faithful to input control commands can be attained by achieving zero-backlash with our unique preloaded mechanism. This is a revolutionary FA motion control unit, which combines rolling transmission for high-efficiency and elimination of wear, an orthogonal layout of input and output axes for greater compactness, and standard features like a large diameter hollow shaft for greater ease-of-use.



Theory of Operation

The RollerDrive is a positioner that uses the roller gear cam mechanism, one of the finest motion control mechanisms available. The unit is constructed from an input shaft and a turret (output shaft) that is assembled with roller followers.

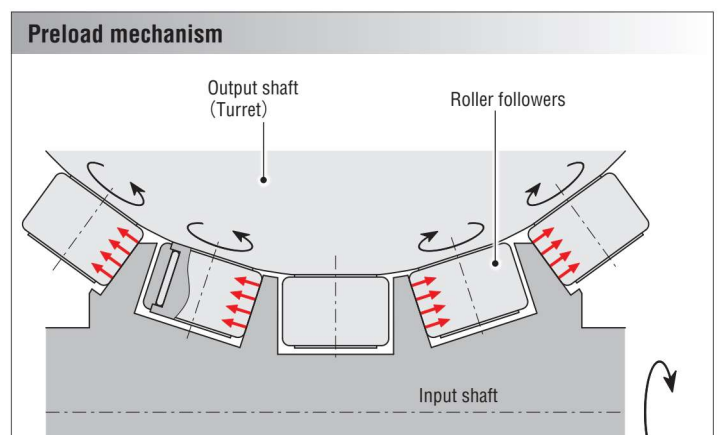
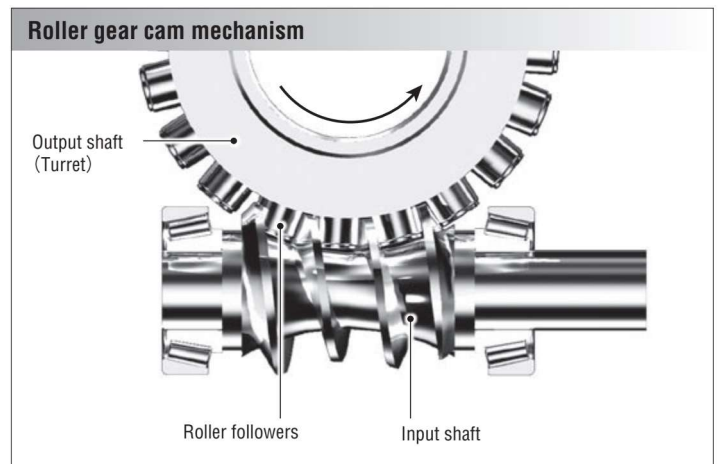
The roller followers are preloaded against a screw-like input shaft to eliminate backlash.

Our proprietary adjustment mechanism provides optimum preload.

The roller followers in the turret use internal roller bearings to transfer torque while rotating.

This mechanism ensures zero backlash, precision, and efficiency while preventing wear. It also provides long-term, consistent accuracy.

The servomotor drive delivers unparalleled, ultimate motion control.

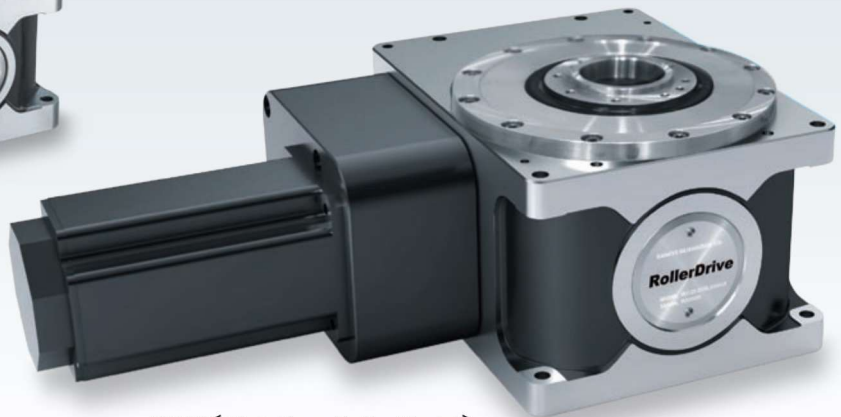


RollerDrive® RU Series

All-Purpose Model for Various Applications



RU40 (Standard Gear Ratio Model)



RU80 (High Gear Ratio Model)

Feature

1

Heavy-duty drive with a compact motor

Our product lineup includes high gear ratio reducers that use proprietary reducer gears to deliver heavy torque using a small servomotor.

Gear ratios are 1/20, 1/60 (RU40 comes with 1/15 or 1/45)

Feature

2

High rigidity

The internal structure was redesigned with a cast iron housing and heavy-duty output bearing for high rigidity.

Feature

3

Flexible Servomotor Options

Compatible with a wide range of servomotor sizes (for each brand). Servomotors are coupling-mounted for installation. Easy to install even for first-time users.

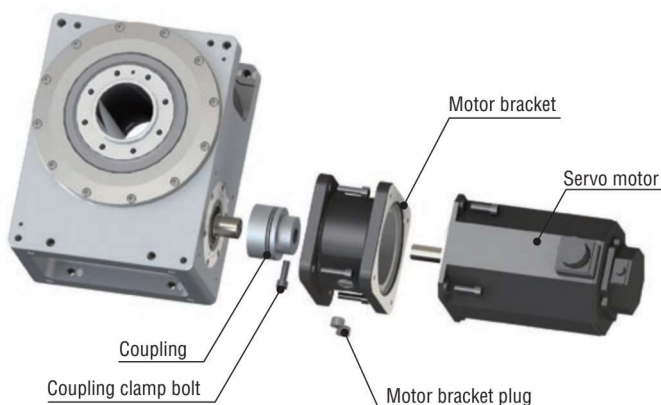
Feature

4

Suitable for Use in Harsh Environments

We offer a water-proof and dust-proof option that uses a special seal for protection against washdown and dust-prone environments.

Motor mount (Standard gear ratio model)



Compatible with various servomotor makes

FANUC	Mitsubishi Electric
Yasukawa Electric	KEYENCE
Panasonic	OMRON
SANYO DENKI	Fuji Electric

Consult for use with motors not listed above.

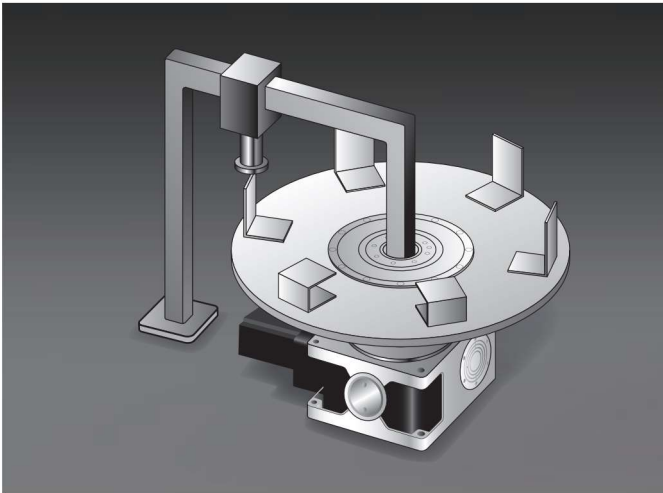
Applications



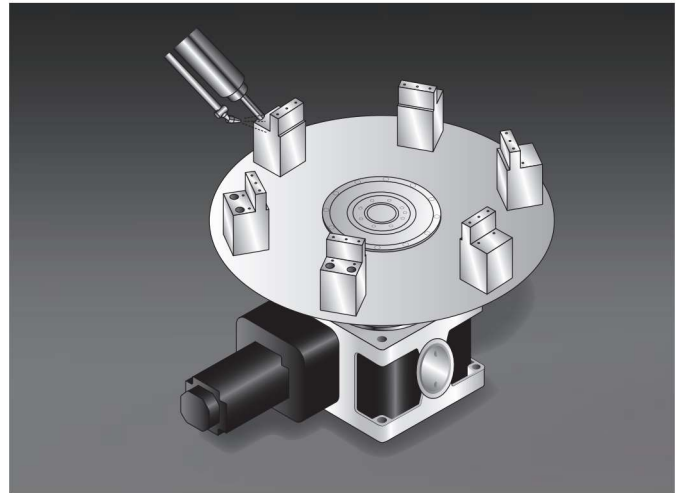
Oscillating Work with Off-Center Loads



Automotive Welding and Assembly Process



Using the Hollow Shaft for Crimping



Boring Machine



Rotary Positioner for Welding Machines



Vertical Ball Screw Drive

Model Code

Model Code

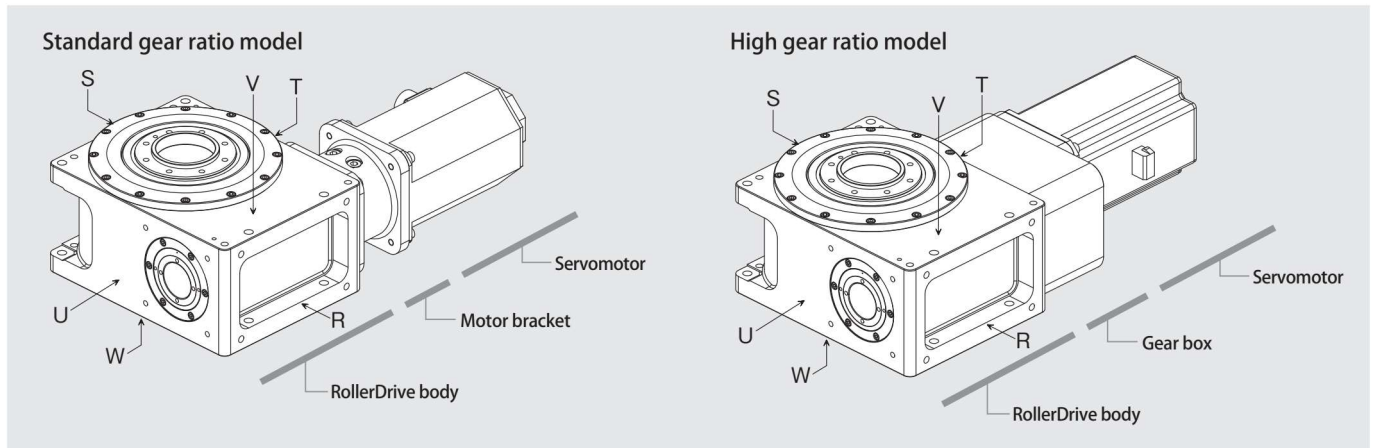
RU 63 - 20 GT - AR - A

① ② ③ ④ ⑤ ⑥ ⑦

① Model	② Size	③ Gear ratio	④ Lubrication and mounting position	⑤ Servomotor position	⑥ Attachment code	⑦ Waterproof and dustproof option
RU RUX ^{※1} (High accuracy type)	40	15, 45	Grease lubrication G: All positions are available Oil lubrication ^{※1} 1·2·3·4·5·6 See Oil lubrication mounting position code	T: Standard Mounts on right side U: Mounts on left side	A R Position of access hole (Access hole only on side S for high gear ratio models) Attachment code See Dimensions Diagrams for each size. ➡ P.7~16	Blank: None A: Include
	63	20, 60				
	80					
	100					
	125					

※1 The RUX (High-precision model) is not available in size 40.
 ※2 Order products

Figure B. RollerDrive Surfaces



※ Shown with servomotor on "T" surface

Figure A. Oil lubrication mounting position code

1	2	3	4	5	6
W surface on bottom	V surface on bottom	U surface on bottom	T surface on bottom	R surface on bottom	S surface on bottom

Position of access hole

R	S	V	W
Toward R surface	Toward S surface	Toward V surface	Toward W surface

RollerDrive Specifications

The RU series has two different lubrication options. Select the lubrication type according to your operating conditions. Grease lubrication is the standard lubrication method, while oil lubrication should be selected for high-speed operation. To check that the service life of the RollerDrive will be satisfactory, please compare the specifications for each lubrication type. On the dynamic rated output torque curve (see page 6), when the point (Torque and Speed) is below the curve, an expected life of over 12,000 hours is ensured.

Capacity Table [Grease Lubrication]

Sizes			RU40		RU63		RU80		RU100		RU125		
Gear ratio			15	45	20	60	20	60	20	60	20	60	
Max Acceleration Torque start/stop		N·m	67		155		211		647		1,098		
Static rated output torque		N·m	100		250		360		1,000		1,800		
Maximum output speed**		min ⁻¹	200		150		125		100		80		
Rated output speed**		min ⁻¹	60		40		35		30		30		
Internal moment of inertia at the input shaft			×10 ⁻⁴ kg·m ²	0.53	0.15	1.85	0.53	5.05	1.94	9.51	5.45	32.99	13.51
Angular transmission accuracy	Standard accuracy model	arcsec or less	90		60				40				
	High accuracy model	arcsec or less	—		30				20				
Angular repeatability accuracy	Standard accuracy model	arcsec or less	±10		±7				±5				
	High accuracy model	arcsec or less	—		±3				±2				
Output shaft axial runout (Side V)	Standard accuracy model	μm or less							10				
	High accuracy model	μm or less	—						2				
Output shaft radial runout (Side V)	Standard accuracy model	μm or less							10				
	High accuracy model	μm or less	—						2				
Allowable axial load output shaft		N	3,000		12,500		16,500		21,000		50,000		
Allowable radial load output shaft		N	2,000		11,000		14,000		18,000		35,000		
Allowable moment load output shaft		N·m	100		700		1,000		1,700		5,000		
Weight		kg	9	10	20	22	35	40	50	55	95	100	

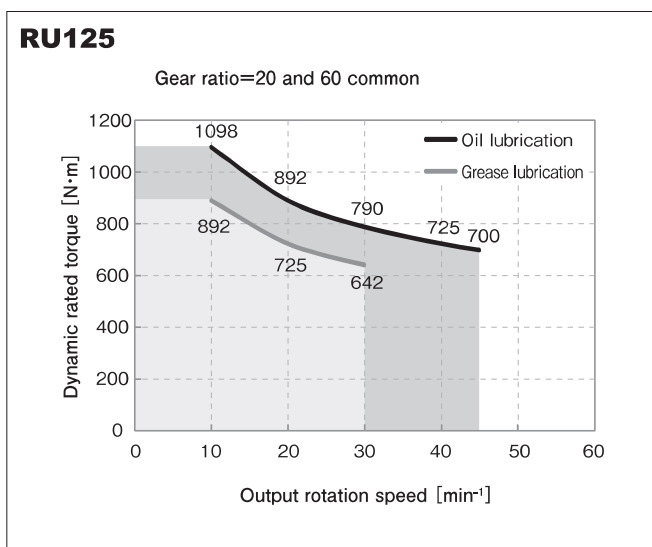
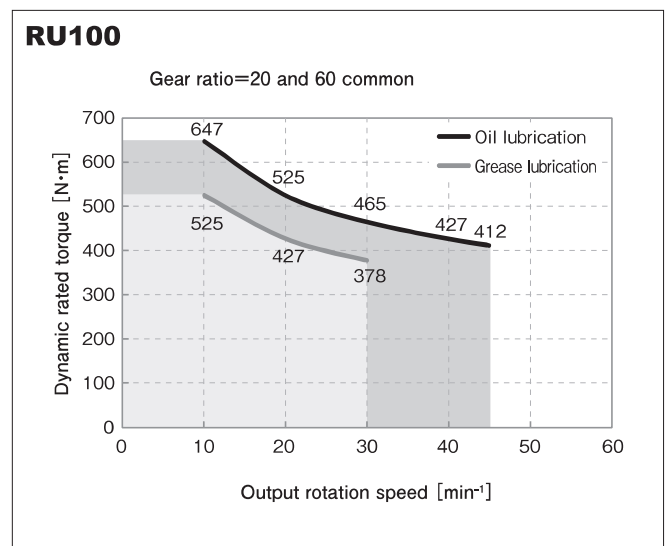
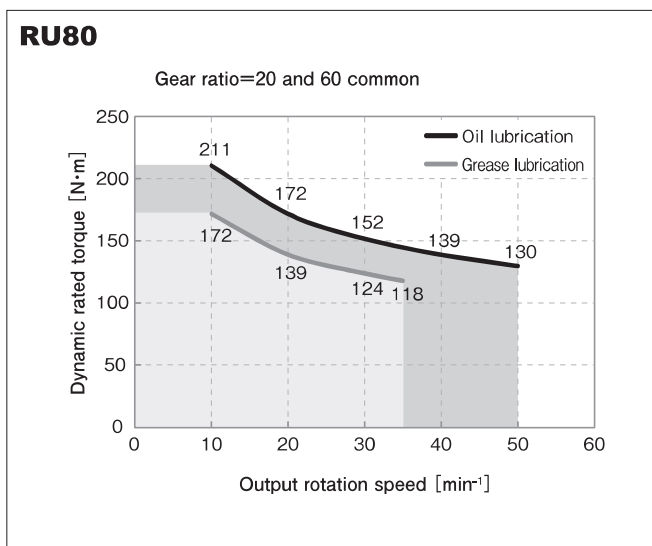
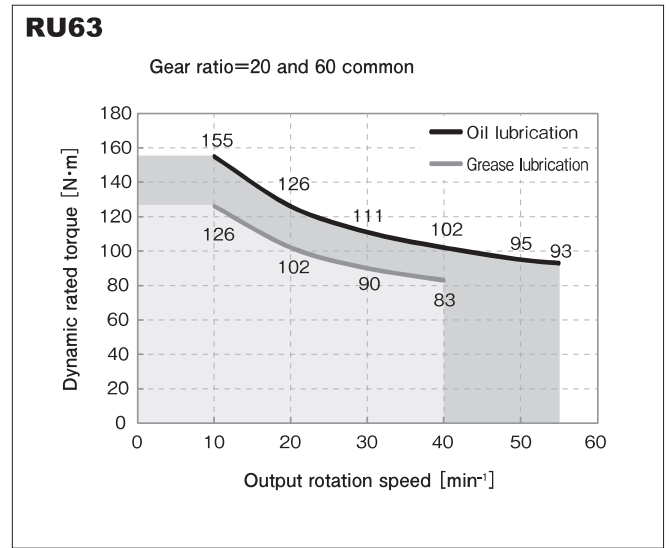
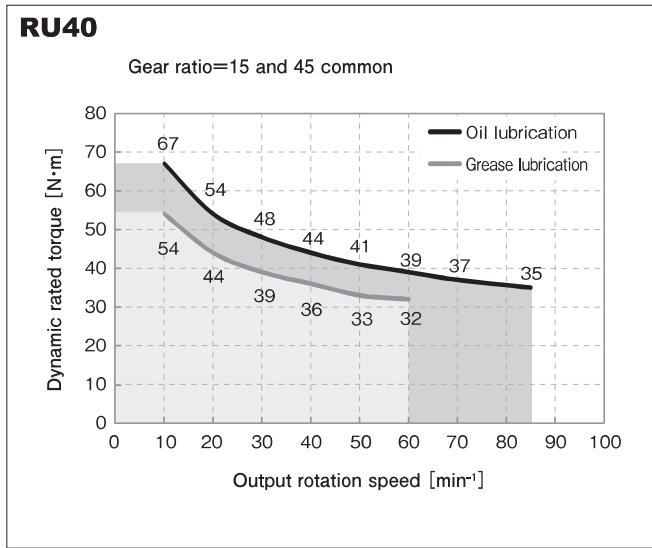
Capacity Table [Oil Lubrication]

Sizes			RU40		RU63		RU80		RU100		RU125		
Gear ratio			15	45	20	60	20	60	20	60	20	60	
Max Acceleration Torque start/stop		N·m	82		191		260		796		1,352		
Static rated output torque		N·m	100		250		360		1,000		1,800		
Maximum output speed**		min ⁻¹	200		150		150		150		150		
Rated output speed**		min ⁻¹	86		55		50		45		45		
Internal moment of inertia at the input shaft			×10 ⁻⁴ kg·m ²	0.53	0.15	1.85	0.53	5.05	1.94	9.51	5.45	32.99	13.51
Angular transmission accuracy	Standard accuracy model	arcsec or less	90		60				40				
	High accuracy model	arcsec or less	—		30				20				
Angular repeatability accuracy	Standard accuracy model	arcsec or less	±10		±7				±5				
	High accuracy model	arcsec or less	—		±3				±2				
Output shaft axial runout (Side V)	Standard accuracy model	μm or less							10				
	High accuracy model	μm or less	—						2				
Output shaft radial runout (Side V)	Standard accuracy model	μm or less							10				
	High accuracy model	μm or less	—						2				
Allowable axial load output shaft		N	3,000		12,500		16,500		21,000		50,000		
Allowable radial load output shaft		N	2,000		11,000		14,000		18,000		35,000		
Allowable moment load output shaft		N·m	100		700		1,000		1,700		5,000		
Weight		kg	9	10	20	22	35	40	50	55	95	100	

* If you want to rotate the output continuously for 360 ° or more, please contact us in advance.

Dynamic Rated Output Torque

The dynamic rated output torque is the load torque for which an expected service life of 12,000 hours or greater is ensured. The dynamic rated output torque is dependent on the output rotation speed.

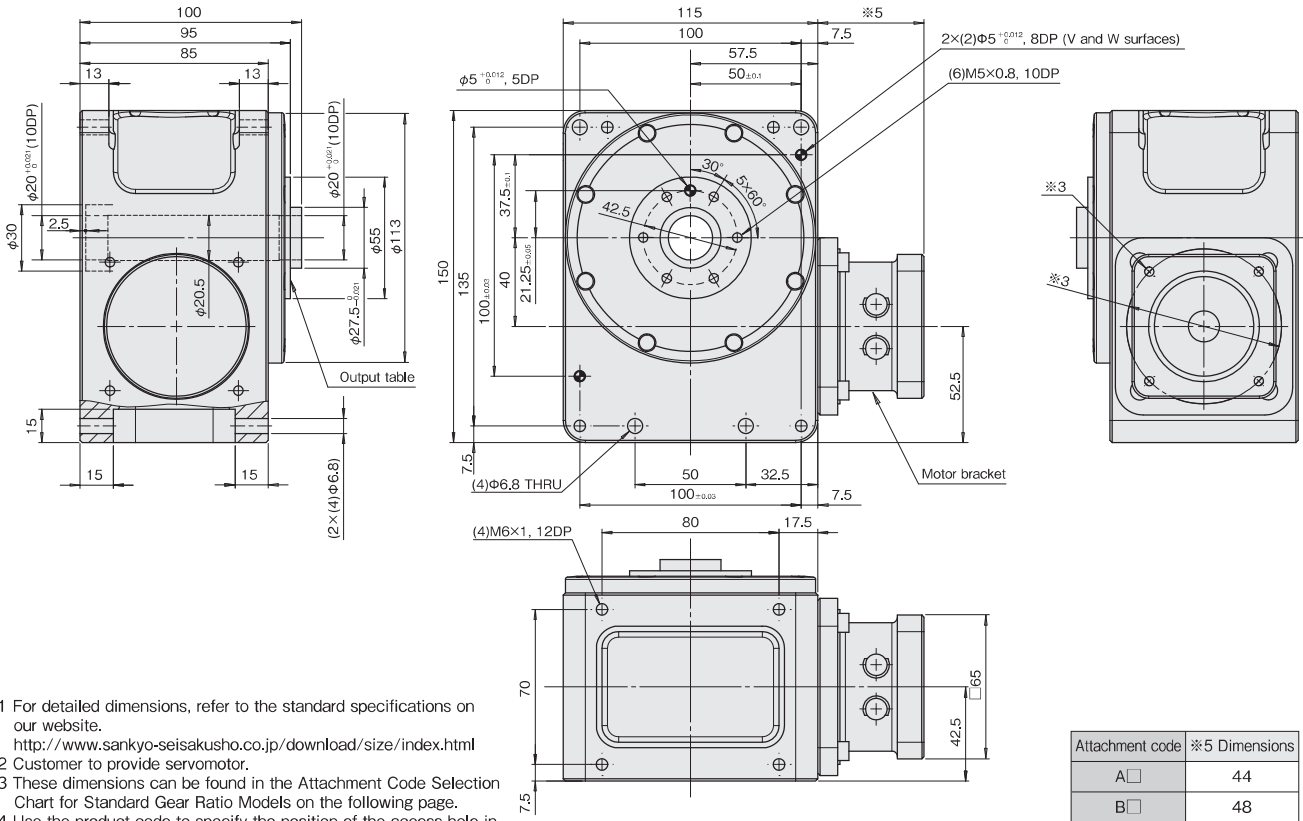


RU40 Dimensions

Standard Gear Ratio Model Dimension Drawings (Gear ratio=15)

RU40

Unit:mm

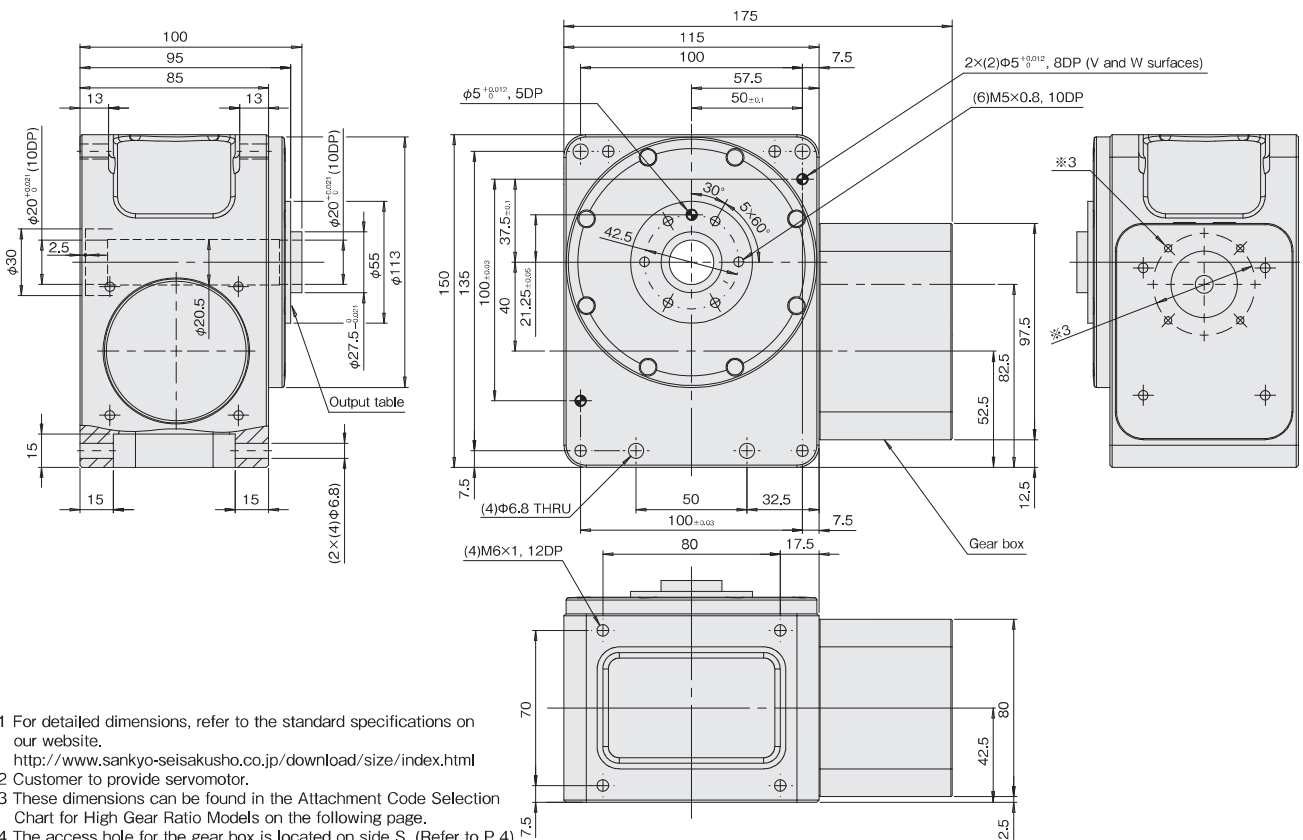


- ※1 For detailed dimensions, refer to the standard specifications on our website.
<http://www.sankyo-seisakusho.co.jp/download/size/index.html>
- ※2 Customer to provide servomotor.
- ※3 These dimensions can be found in the Attachment Code Selection Chart for Standard Gear Ratio Models on the following page.
- ※4 Use the product code to specify the position of the access hole in the motor bracket. (Refer to P.4)

High Gear Ratio Model Dimension Drawings (Gear ratio=45)

RU40

Unit:mm

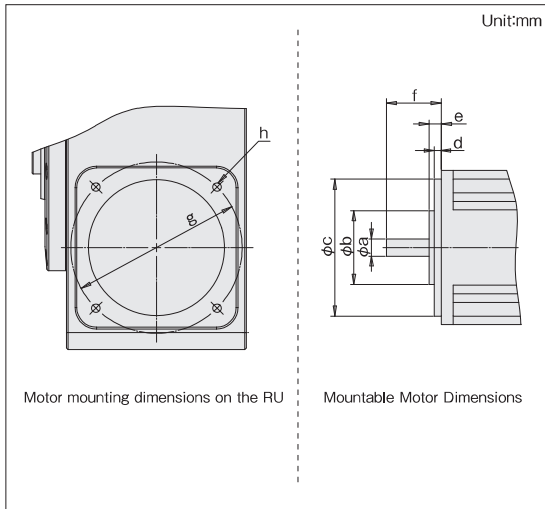


- ※1 For detailed dimensions, refer to the standard specifications on our website.
<http://www.sankyo-seisakusho.co.jp/download/size/index.html>
- ※2 Customer to provide servomotor.
- ※3 These dimensions can be found in the Attachment Code Selection Chart for High Gear Ratio Models on the following page.
- ※4 The access hole for the gear box is located on side S. (Refer to P.4)

RU40 Dimensions

Attachment Code Selection Chart Standard Gear Ratio Models [Gear ratio=24] With Attachment **RU40**

Check the dimensions for a to h in the diagram below, and choose the proper attachment code.

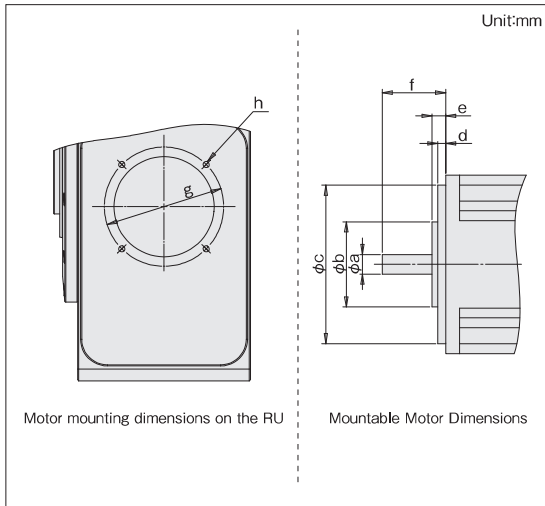


Attachment code	a	b	c	d	e	f	g	h	Max motor torque
A□	$\phi 9_{-0.009}^0$	Less than $\phi 45$	$\phi 50$	Less than 4	Less than 13.5	25~26.5	70	(4)M5×0.8, 8DP	5.33N·m
B□	$\phi 14_{-0.011}^0$			Less than 5	Less than 17.5	29.5~30.5		(4)M5×0.8, 12DP	

※1 The most common servomotors suitable for these models are given on page 17.

Attachment Code Selection Chart High Gear Ratio Models [Gear ratio=45] With Attachment **RU40**

Check the dimensions for a to h in the diagram below, and choose the proper attachment code.



Attachment code	a	b	c	d	e	f	g	h	Max motor torque
AS	$\phi 8_{-0.009}^0$	-	$\phi 30$	Less than 6	-	25~33.5	46	(4)M4×0.7, 8DP	3.54N·m

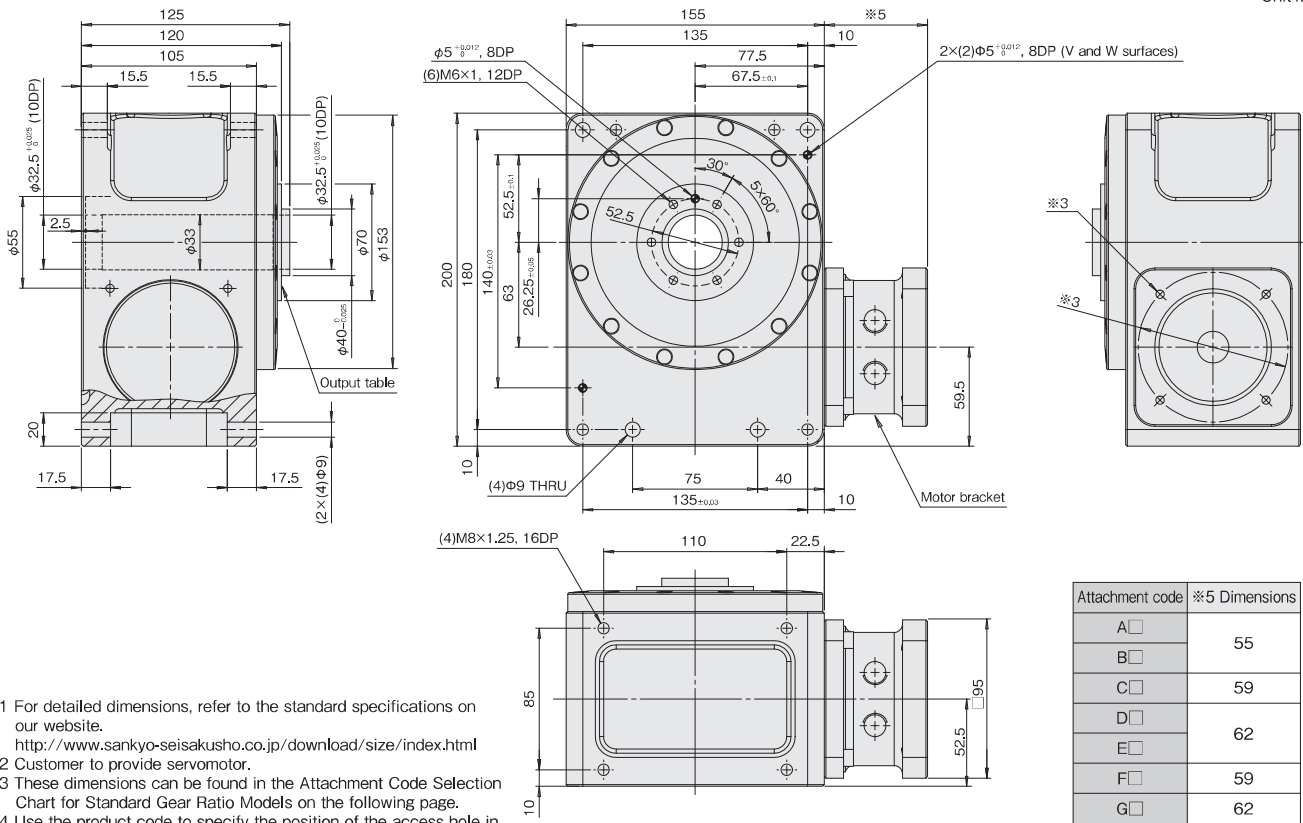
※1 The most common servomotors suitable for these models are given on page 17.

RU63 Dimensions

Standard Gear Ratio Model Dimension Drawings (Gear ratio=20)

RU63

Unit:mm

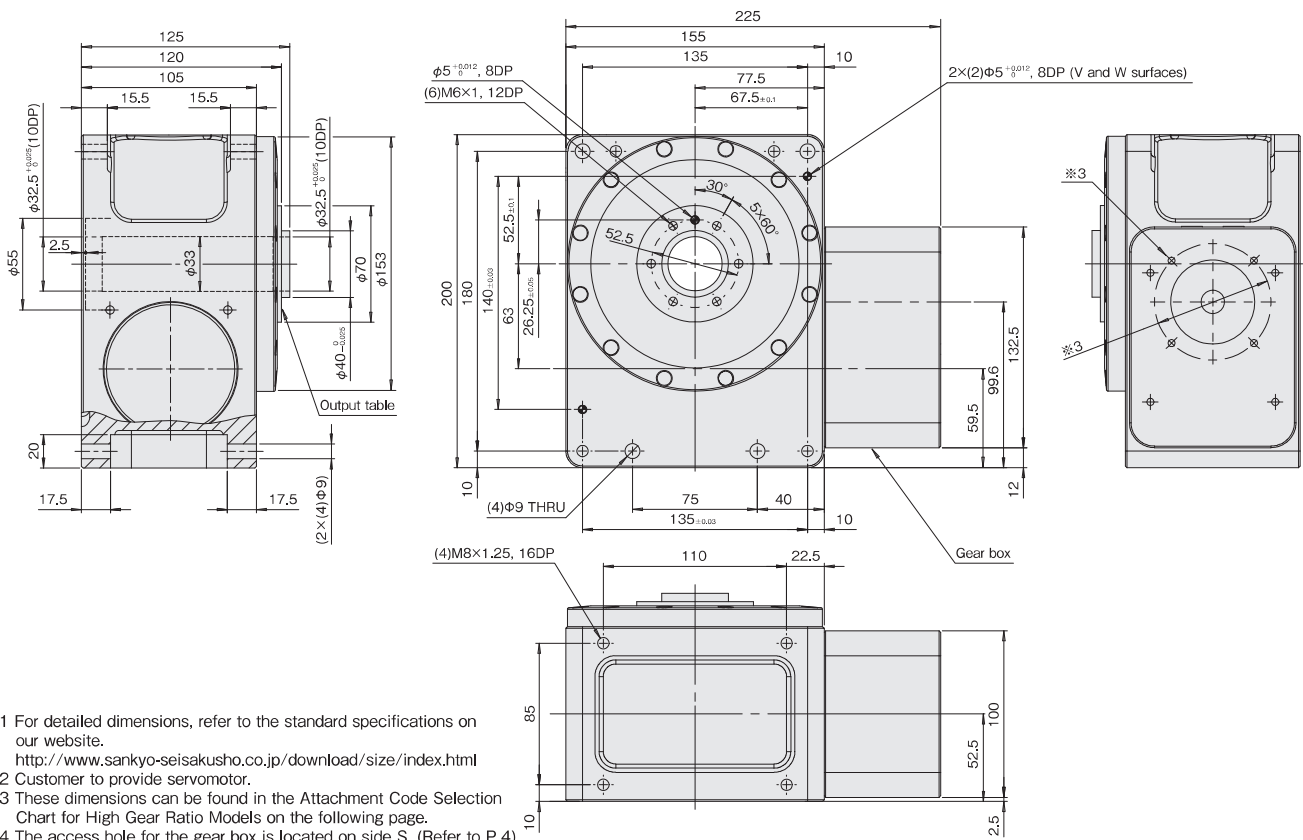


- ※1 For detailed dimensions, refer to the standard specifications on our website.
<http://www.sankyo-seisakusho.co.jp/download/size/index.html>
- ※2 Customer to provide servomotor.
- ※3 These dimensions can be found in the Attachment Code Selection Chart for Standard Gear Ratio Models on the following page.
- ※4 Use the product code to specify the position of the access hole in the motor bracket. (Refer to P.4)

High Gear Ratio Model Dimension Drawings (Gear ratio=60)

RU63

Unit:mm

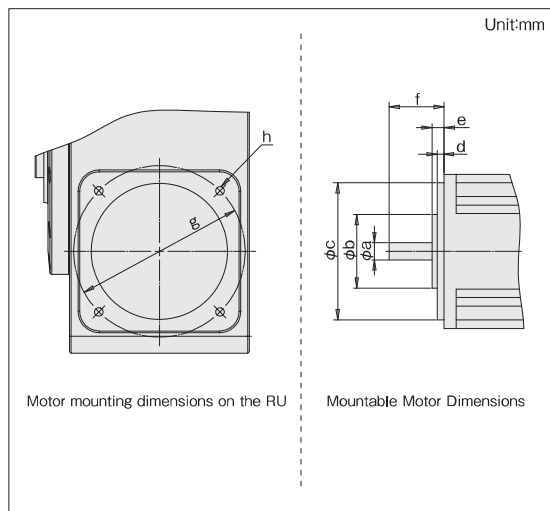


- ※1 For detailed dimensions, refer to the standard specifications on our website.
<http://www.sankyo-seisakusho.co.jp/download/size/index.html>
- ※2 Customer to provide servomotor.
- ※3 These dimensions can be found in the Attachment Code Selection Chart for High Gear Ratio Models on the following page.
- ※4 The access hole for the gear box is located on side S. (Refer to P.4)

RU63 Dimensions

Attachment Code Selection Chart Standard Gear Ratio Models [Gear ratio=20] With Attachment **RU63**

Check the dimensions for a to h in the diagram below, and choose the proper attachment code.

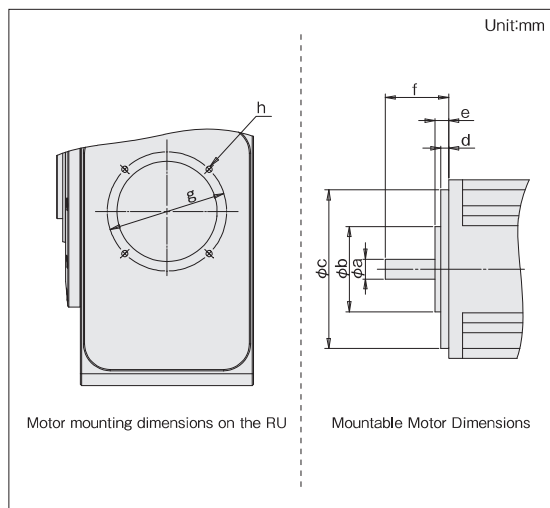


Attachment code	a	b	c	d	e	f	g	h	Max motor torque	
A□	$\phi 10_{-0.009}^0$	Less than $\phi 65$	$\phi 80$	Less than 5	Less than 16.2	32~34	100	(4)M6×1, 8DP	16.66N·m	
B□	$\phi 14_{-0.011}^0$			Less than 6	Less than 20.2	36~38		(4)M6×1, 12DP		
C□	$\phi 16_{-0.011}^0$		$\phi 70$	Less than 4	Less than 23.2	40~41	90	(4)M6×1, 15DP		
D□	$\phi 19_{-0.013}^0$			$\phi 80$	Less than 6	Less than 20.2	36~38	100		(4)M6×1, 12DP
E□	$\phi 16_{-0.011}^0$			$\phi 70$	Less than 4	Less than 23.2	40~41	90		(4)M6×1, 15DP
F□	$\phi 14_{-0.011}^0$									
G□	$\phi 16_{-0.011}^0$									

※1 The most common servomotors suitable for these models are given on page 18.

Attachment Code Selection Chart High Gear Ratio Models [Gear ratio=60] With Attachment **RU63**

Check the dimensions for a to h in the diagram below, and choose the proper attachment code.



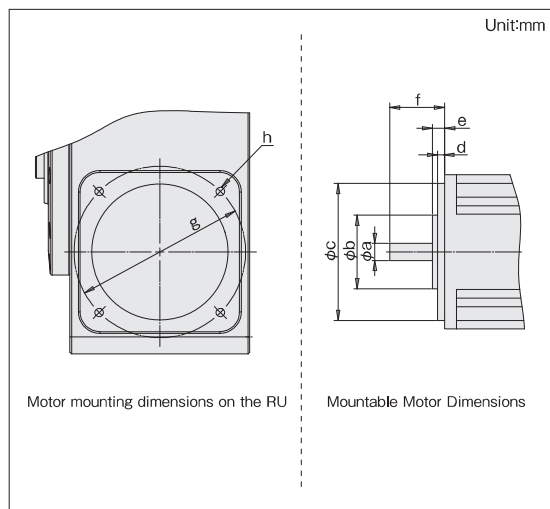
Attachment code	a	b	c	d	e	f	g	h	Max motor torque
AS	$\phi 9_{-0.009}^0$	-	$\phi 50$	Less than 4	-	25~31	70	(4)M5×0.8, 10DP	6.85N·m
BS	$\phi 14_{-0.011}^0$								

※1 The most common servomotors suitable for these models are given on page 18.

RU80 Dimensions

Attachment Code Selection Chart Standard Gear Ratio Models [Gear ratio=20] With Attachment **RU80**

Check the dimensions for a to h in the diagram below, and choose the proper attachment code.

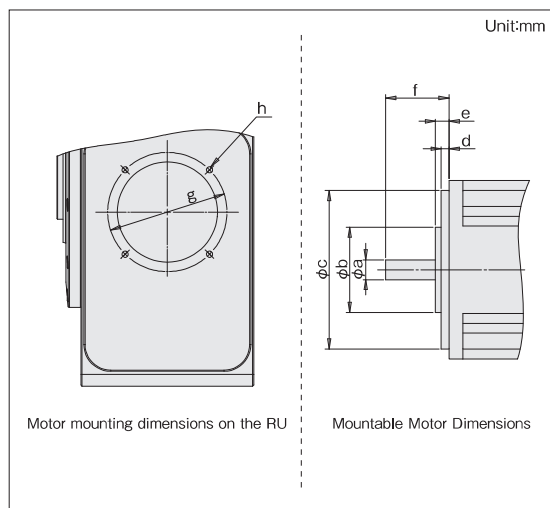


Attachment code	a	b	c	d	e	f	g	h	Max motor torque
A□	$\phi 10_{-0.009}^0$	Less than $\phi 65$	$\phi 80$	Less than 5	Less than 16.7	32~34	100	(4)M6×1, 9DP	16.66N·m
B□	$\phi 14_{-0.011}^0$			Less than 6	Less than 20.2	36.5~37.5		(4)M6×1, 13DP	
C□	$\phi 16_{-0.011}^0$		Less than 5	Less than 24.2	40~41.5	(4)M6×1, 17DP			
D□	$\phi 19_{-0.013}^0$		$\phi 70$	Less than 5		90	(4)M6×1, 12DP		
E□	$\phi 22_{-0.013}^0$	Less than $\phi 75$	$\phi 110$	Less than 7	Less than 32.3	55~59.5	145	(4)M8×1.25, 15DP	53.33N·m
F□	$\phi 24_{-0.013}^0$								
G□	$\phi 24_{-0.021}^0$								
H□	$\phi 16_{-0.011}^0$	Less than $\phi 65$	$\phi 80$	Less than 6	Less than 20.2	36.5~37.5	100	(4)M6×1, 13DP	16.66N·m
J□	$\phi 16_{-0.011}^0$			$\phi 70$	Less than 5	Less than 24.2	40~41.5	90	
K□									

※1 The most common servomotors suitable for these models are given on pages 19 to 20.

Attachment Code Selection Chart High Gear Ratio Models [Gear ratio=60] With Attachment **RU80**

Check the dimensions for a to h in the diagram below, and choose the proper attachment code.



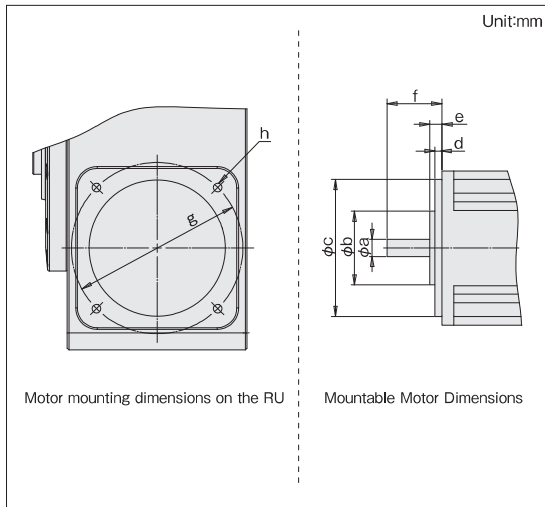
Attachment code	a	b	c	d	e	f	g	h	Max motor torque
AS	$\phi 10_{-0.009}^0$	Less than $\phi 65$	$\phi 80$	Less than 7	Less than 12.5	30~50.5	100	(4)M6×1, 12DP	13.59N·m
BS	$\phi 14_{-0.011}^0$								
CS	$\phi 16_{-0.011}^0$								
DS	$\phi 19_{-0.013}^0$		$\phi 70$						
ES	$\phi 14_{-0.011}^0$								
FS	$\phi 16_{-0.011}^0$								

※1 The most common servomotors suitable for these models are given on page 20.

RU100 Dimensions

Attachment Code Selection Chart Standard Gear Ratio Models [Gear ratio=20] With Attachment **RU100**

Check the dimensions for a to h in the diagram below, and choose the proper attachment code.

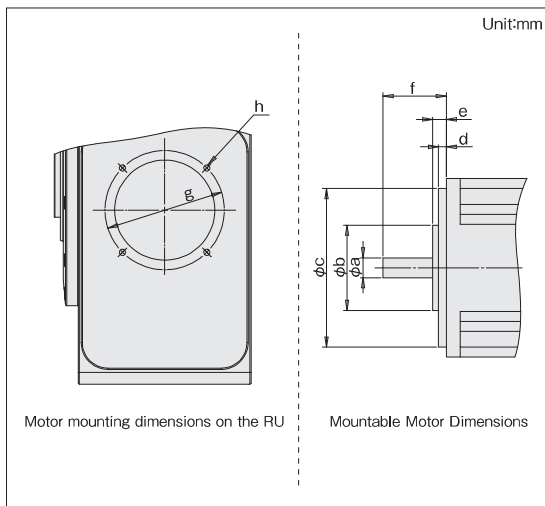


Attachment code	a	b	c	d	e	f	g	h	Max motor torque
B□	$\phi 19_{-0.013}^0$	Less than $\phi 90$	$\phi 110$	Less than 7	Less than 33.3	55~60	145	(4)M8x1.25, 15DP	53.33N·m
C□	$\phi 22_{-0.013}^0$								
D□	$\phi 24_{-0.013}^0$								
	$\phi 24_{-0.021}^0$								

※1 The most common servomotors suitable for these models are given on page 21.

Attachment Code Selection Chart High Gear Ratio Models [Gear ratio=60] With Attachment **RU100**

Check the dimensions for a to h in the diagram below, and choose the proper attachment code.



Attachment code	a	b	c	d	e	f	g	h	Max motor torque
AS	$\phi 10_{-0.009}^0$		$\phi 80$	Less than 9.5		30~50	100	(4)M6x1, 12DP	29.81N·m
BS	$\phi 14_{-0.011}^0$								
CS	$\phi 16_{-0.011}^0$								
DS	$\phi 19_{-0.013}^0$	-	$\phi 110$	Less than 7		50~60	145	(4)M8x1.25, 16DP	
ES	$\phi 22_{-0.013}^0$								
FS	$\phi 24_{-0.021}^0$								
	$\phi 24_{-0.013}^0$								

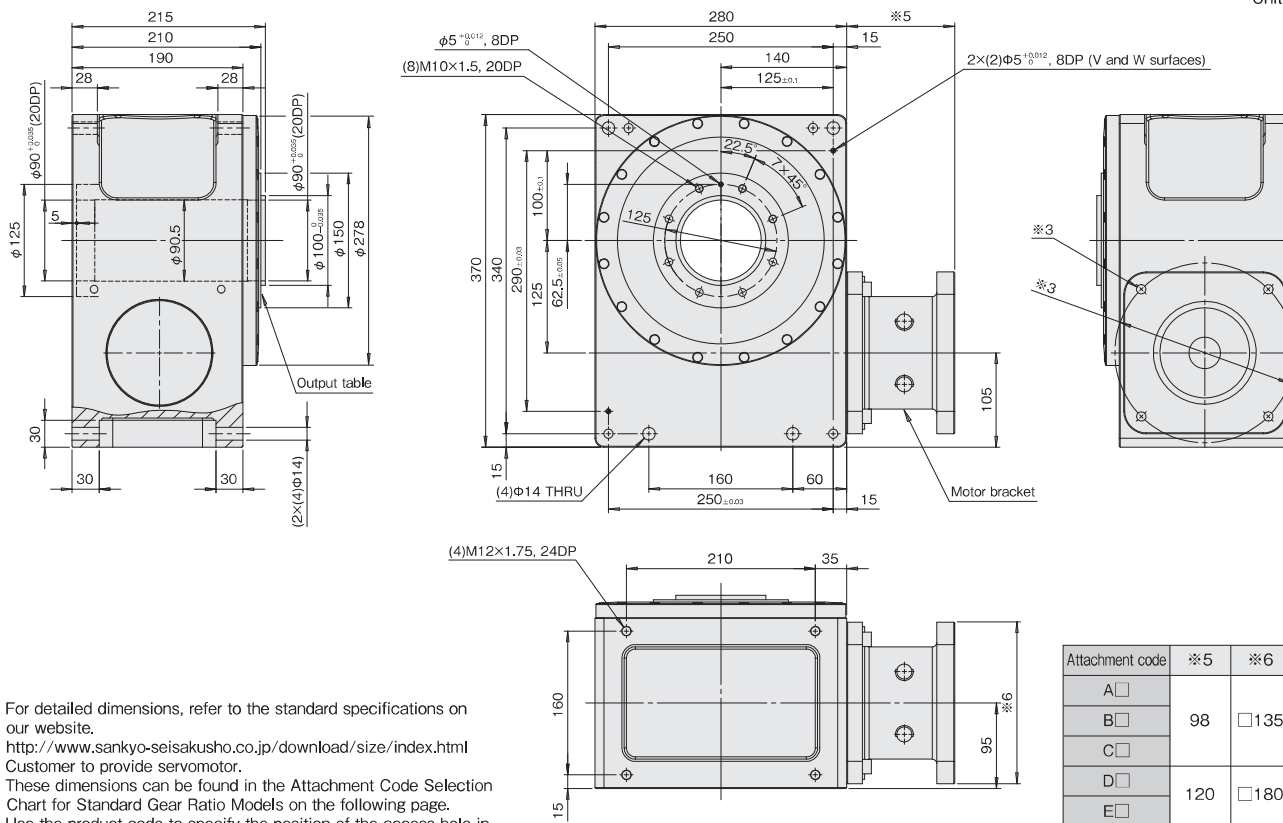
※1 The most common servomotors suitable for these models are given on pages 22 to 23.
 ※2 If the attachment code is DS, ES, or FS, the gear box will have a motor mounting flange.
 For detailed dimensions, refer to the standard specifications on our website.
<http://www.sankyo-seisakusho.co.jp/download/size/index.html>

RU125 Dimensions

Standard Gear Ratio Model Dimension Drawings (Gear ratio=20)

RU125

Unit:mm

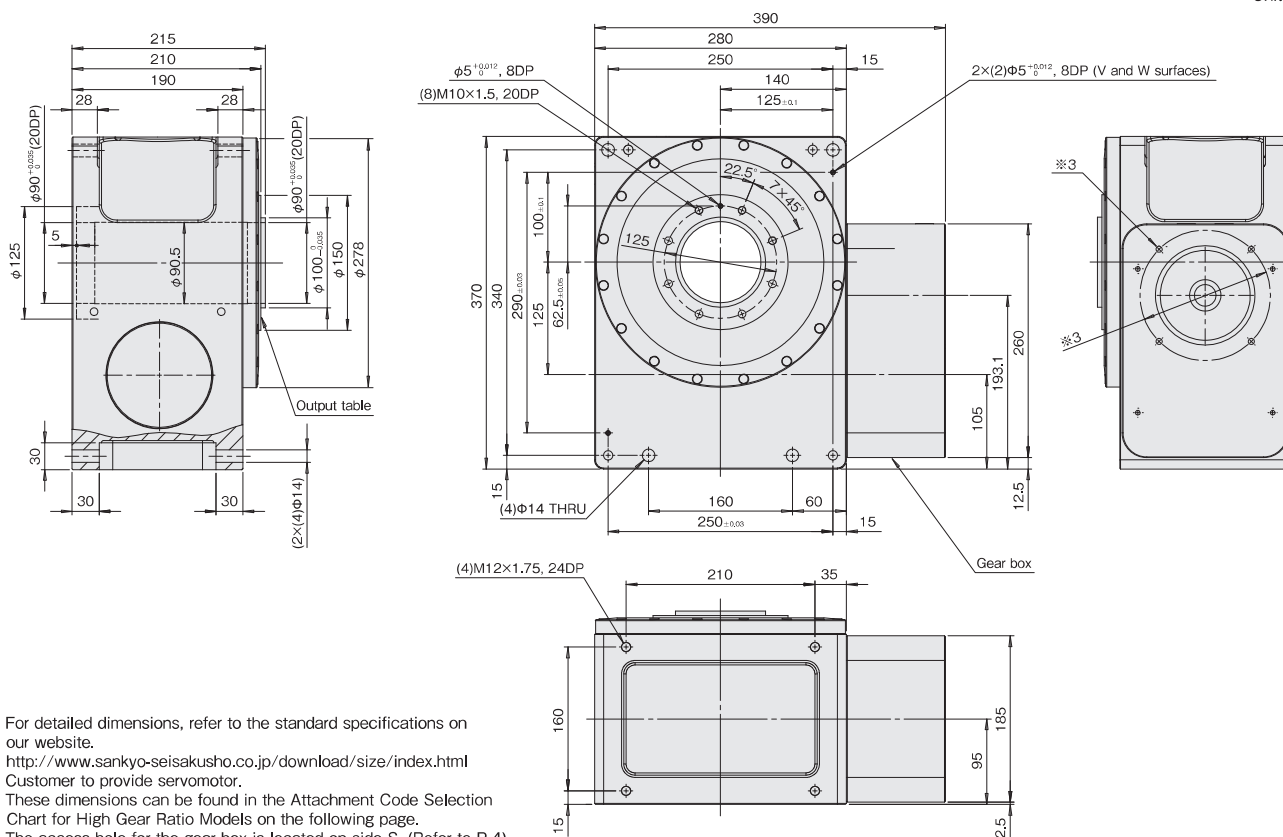


- ※1 For detailed dimensions, refer to the standard specifications on our website.
<http://www.sankyo-seisakusho.co.jp/download/size/index.html>
- ※2 Customer to provide servomotor.
- ※3 These dimensions can be found in the Attachment Code Selection Chart for Standard Gear Ratio Models on the following page.
- ※4 Use the product code to specify the position of the access hole in the motor bracket. (Refer to P.4)

High Gear Ratio Model Dimension Drawings (Gear ratio=60)

RU125

Unit:mm

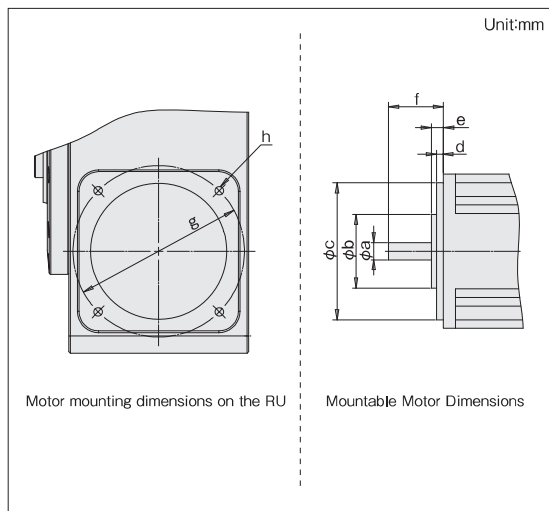


- ※1 For detailed dimensions, refer to the standard specifications on our website.
<http://www.sankyo-seisakusho.co.jp/download/size/index.html>
- ※2 Customer to provide servomotor.
- ※3 These dimensions can be found in the Attachment Code Selection Chart for High Gear Ratio Models on the following page.
- ※4 The access hole for the gear box is located on side S. (Refer to P.4)

RU125 Dimensions

Attachment Code Selection Chart Standard Gear Ratio Models [Gear ratio=20] With Attachment RU125

Check the dimensions for a to h in the diagram below, and choose the proper attachment code.

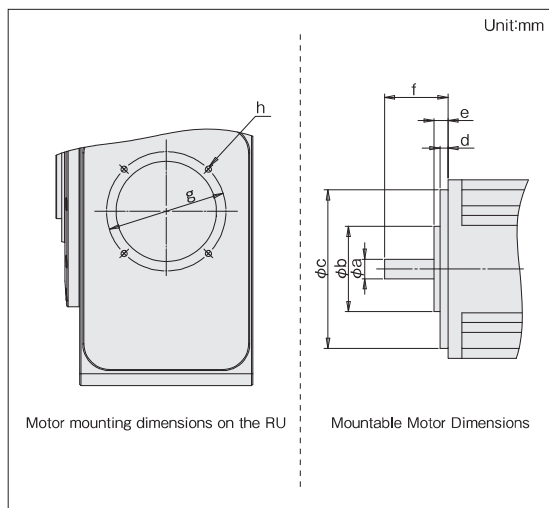


Attachment code	a	b	c	d	e	f	g	h	Max motor torque
A□	$\phi 19_{-0.013}^0$	Less than $\phi 90$	$\phi 110$	Less than 7	Less than 31.3	55~61	145	(4)M8×1.25, 20DP	53.33N·m
B□	$\phi 22_{-0.013}^0$								
C□	$\phi 24_{-0.013}^0$	Less than $\phi 100$	$\phi 114.3$	Less than 7	Less than 47.8	79~83	200	(4)M12×1.75, 20DP	86.66N·m
D□	$\phi 24_{-0.021}^0$								
E□	$\phi 35_{-0.016}^0$								133.33N·m

※1 The most common servomotors suitable for these models are given on pages 23 to 24.

Attachment Code Selection Chart High Gear Ratio Models [Gear ratio=60] With Attachment RU125

Check the dimensions for a to h in the diagram below, and choose the proper attachment code.



Attachment code	a	b	c	d	e	f	g	h	Max motor torque
AS	$\phi 19_{-0.013}^0$	-	$\phi 110$	Less than 6.5	-	50~65.5	145	(4)M8×1.25, 16DP	45.28N·m
BS	$\phi 22_{-0.013}^0$								
CS	$\phi 24_{-0.013}^0$								

※1 The most common servomotors suitable for these models are given on pages 24 to 25.

Compatible Servomotor Models

RU40 Standard gear ratio model (Gear ratio=15)

Manufacture	Servo series	Motor	Rated output [kW]	Rated torque [N·m]	Rated rotation speed [min ⁻¹]	Motor rotor inertia [x10 ⁻⁴ kg·m ²]	Motor mounting code
KEYENCE	SV	SV-M040	0.40	1.27	3,000	0.44	B□
SANYO DENKI	R2	R2AA06040F	0.40	1.27	3,000	0.41	B□
		R2AA06040H	0.40	1.27	3,000	0.41	B□
FANUC	β	β iS1/6000	0.50	1.20	6,000	0.34	B□
Fuji Electric	GYB	GYB401D5	0.40	1.27	3,000	0.42	B□
	GYS	GYS401D5	0.40	1.27	3,000	0.25	B□
Mitsubishi Electric	CNC	HF-KP43	0.40	1.30	3,000	0.42	B□
	J4	HG-KR43	0.40	1.30	3,000	0.37	B□
	J5	HK-KT43W	0.40	1.30	3,000	0.41	B□
Yaskawa Electric	Σ -V	SGMAV-04A	0.40	1.27	3,000	0.19	B□
		SGMAV-06A	0.55	1.75	3,000	0.33	B□
		SGMJV-04A	0.40	1.27	3,000	0.44	B□
		SGMJV-06A	0.60	1.91	3,000	0.67	B□
	Σ -7	SGM7A-04A	0.40	1.27	3,000	0.22	B□
		SGM7A-06A	0.60	1.91	3,000	0.32	B□
		SGM7J-04A	0.40	1.27	3,000	0.49	B□
		SGM7J-06A	0.60	1.91	3,000	0.80	B□

The box in the Attachment Code indicates the location of the access holes for the motor bracket. Specify with the product code. (Refer to page 4.)
Please prepare the servo motor with no keyway. Consult Sankyo for using with motors not listed above.

RU40 High gear ratio model (Gear ratio=45)

Manufacture	Servo series	Motor	Rated output [kW]	Rated torque [N·m]	Rated rotation speed [min ⁻¹]	Motor rotor inertia [x10 ⁻⁴ kg·m ²]	Motor mounting code
Yaskawa Electric	Σ -V	SGMAV-C2A	0.15	0.47	3,000	0.05	AS
		SGMJV-C2A	0.15	0.47	3,000	0.09	AS
	Σ -7	SGM7A-C2A	0.15	0.48	3,000	0.05	AS
		SGM7J-C2A	0.15	0.48	3,000	0.09	AS

On high gear ratio models, the access hole faces the S surface. Please prepare the servo motor with no keyway. Consult Sankyo for using with motors not listed above.

RU63 Standard gear ratio model (Gear ratio=20)

Manufacture	Servo series	Motor	Rated output [kW]	Rated torque [N·m]	Rated rotation speed [min ⁻¹]	Motor rotor inertia [x10 ⁻⁴ kg·m ²]	Motor mounting code
KEYENCE	SV	SV-M075	0.75	2.39	3,000	1.57	E□
SANYO DENKI	R2	R2AAB8075F	0.75	2.38	3,000	1.64	F□
		R2AA08075F	0.75	2.39	3,000	1.82	G□
		R2AAB8100F	1.00	3.18	3,000	2.38	F□
		R2AAB8100H	1.00	3.18	3,000	2.38	F□
FANUC	α	α iF1/5000	0.50	1.00	5,000	3.05	A□
		α iF2/5000	0.75	2.00	4,000	5.26	A□
		α iS2/5000	0.75	2.00	4,000	2.91	A□
		α iS2/6000	1.00	2.00	6,000	2.91	A□
	β	β iS2/4000	0.50	2.00	4,000	2.91	A□
Fuji Electric	GYB	GYB751D5	0.75	2.39	3,000	1.43	E□
	GYS	GYS751D5	0.75	2.39	3,000	0.85	G□
Mitsubishi Electric	CNC	HF-75	0.75	1.80	4,000	2.80	B□
		HF-105	1.00	2.40	4,000	5.10	B□
		HF-H75	0.75	1.80	4,000	2.60	B□
		HF-H105	1.00	2.40	4,000	5.10	B□
	J4	HG-MR73	0.75	2.40	3,000	0.59	E□
		HG-KR73	0.75	2.40	3,000	1.26	E□
	J5	HK-KT7M3W	0.75	2.40	3,000	1.37	E□
Yaskawa Electric	Σ -V	SGMAV-08A	0.75	2.39	3,000	0.77	E□
		SGMAV-10A	1.00	3.18	3,000	1.20	E□
		SGMGV-03A	0.30	1.96	1,500	2.48	C□
		SGMGV-05A	0.45	2.86	1,500	3.33	D□
		SGMJV-08A	0.75	2.39	3,000	1.57	E□
	Σ -7	SGM7G-03A	0.30	1.96	1,500	2.48	D□
		SGM7G-05A	0.45	2.86	1,500	3.33	D□
		SGM7A-08A	0.75	2.39	3,000	0.78	E□
		SGM7J-08A	0.75	2.39	3,000	1.59	E□
		SGM7A-10A	1.00	3.18	3,000	0.97	E□

The box in the Attachment Code indicates the location of the access holes for the motor bracket. Specify with the product code. (Refer to page 4.)
Please prepare the servo motor with no keyway. Consult Sankyo for using with motors not listed above.

RU63 High gear ratio model (Gear ratio=60)

Manufacture	Servo series	Motor	Rated output [kW]	Rated torque [N·m]	Rated rotation speed [min ⁻¹]	Motor rotor inertia [x10 ⁻⁴ kg·m ²]	Motor mounting code
KEYENCE	SV	SV-M020	0.20	0.63	3,000	0.26	BS
		SV-M040	0.40	1.27	3,000	0.44	BS
SANYO DENKI	R2	R2AA06020F	0.20	0.63	3,000	0.22	BS
		R2AA06040F	0.40	1.27	3,000	0.41	BS
		R2AA06040H	0.40	1.27	3,000	0.41	BS
FANUC	β	βiS0.5/6000	0.35	0.65	6,000	0.18	AS
		βiS1/6000	0.50	1.20	6,000	0.34	BS
Fuji Electric	GYB	GYB201D5	0.20	0.63	3,000	0.24	BS
		GYB401D5	0.40	1.27	3,000	0.42	BS
	GYS	GYS201D5	0.20	0.63	3,000	0.14	BS
		GYS401D5	0.40	1.27	3,000	0.25	BS
Mitsubishi Electric	CNC	HF-KP23	0.20	0.64	3,000	0.23	BS
		HF-KP43	0.40	1.30	3,000	0.42	BS
	J4	HG-KR23	0.20	0.64	3,000	0.22	BS
		HG-KR43	0.40	1.30	3,000	0.37	BS
	J5	HK-KT23W	0.20	0.64	3,000	0.21	BS
		HK-KT43W	0.40	1.30	3,000	0.41	BS
Yaskawa Electric	Σ-V	SGMJV-02A	0.20	0.63	3,000	0.26	BS
		SGMAV-04A	0.40	1.27	3,000	0.19	BS
		SGMJV-04A	0.40	1.27	3,000	0.44	BS
		SGMAV-06A	0.55	1.75	3,000	0.33	BS
		SGMJV-06A	0.60	1.91	3,000	0.67	BS
	Σ-7	SGM7J-02A	0.20	0.64	3,000	0.26	BS
		SGM7A-04A	0.40	1.27	3,000	0.22	BS
		SGM7J-04A	0.40	1.27	3,000	0.49	BS
		SGM7A-06A	0.60	1.91	3,000	0.32	BS
		SGM7J-06A	0.60	1.91	3,000	0.80	BS

On high gear ratio models, the access hole faces the S surface.
Please prepare the servo motor with no keyway. Consult Sankyo for using with motors not listed above.

Compatible Servomotor Models

RU80 Standard gear ratio model (Gear ratio=20)

Manufacture	Servo series	Motor	Rated output [kW]	Rated torque [N·m]	Rated rotation speed [min ⁻¹]	Motor rotor inertia [x10 ⁻⁴ kg·m ²]	Motor mounting code
OMRON	G	R88M-G1K020T	1.00	4.80	2,000	6.17	G□
		R88M-G1K520T	1.50	7.15	2,000	11.20	G□
		R88M-G2K020T	2.00	9.54	2,000	15.20	G□
		R88M-G3K030T	3.00	9.54	3,000	6.77	G□
	G5	R88M-K1K020F	1.00	4.77	2,000	4.60	G□
		R88M-K1K020H	1.00	4.77	2,000	4.60	G□
		R88M-K1K520F	1.50	7.16	2,000	6.70	G□
		R88M-K1K520H	1.50	7.16	2,000	6.70	G□
		R88M-K2K020F	2.00	9.55	2,000	8.72	G□
		R88M-K2K020H	2.00	9.55	2,000	8.72	G□
		R88M-K3K030H	3.00	9.55	3,000	6.50	G□
		R88M-K3K030F	3.00	9.55	3,000	6.50	G□
KEYENCE	SV	SV-M075	0.75	2.39	3,000	1.57	E□
		SV-M100A	0.85	5.39	1,500	13.90	F□
		SV-M150A	1.30	8.34	1,500	19.90	G□
		SV-M200A	1.80	11.5	1,500	26.00	H□
SANYO DENKI	R2	R2AA13050D	0.55	2.60	2,000	3.10	G□
		R2AA13050H	0.55	2.60	2,000	3.10	G□
		R2AA13120B	1.20	5.70	2,000	6.00	G□
		R2AA13120D	1.20	5.70	2,000	6.00	G□
		R2AA13120L	1.20	5.70	2,000	6.00	G□
		R2AA13180D	1.80	8.60	2,000	9.00	G□
		R2AA13180H	1.80	8.60	2,000	9.00	G□
		R2AAB8075F	0.75	2.38	3,000	1.64	J□
		R2AA08075F	0.75	2.39	3,000	1.82	K□
		R2AAB8100F	1.00	3.18	3,000	2.38	J□
R2AAB8100H	1.00	3.18	3,000	2.38	J□		
Panasonic	MINAS_A5	MDME102_C	1.00	4.77	2,000	4.60	G□
		MDME152_C	1.50	7.16	2,000	6.70	G□
		MDME202_C	2.00	9.55	2,000	8.72	G□
		MSME302_C	3.00	9.55	3,000	6.50	G□
FANUC	α	αiF1/5000	0.50	1.00	5,000	3.05	A□
		αiF2/5000	0.75	2.00	4,000	5.26	A□
		αiF4/5000	1.40	4.00	4,000	13.50	F□
		αiF8/3000	1.60	8.00	3,000	25.70	F□
		αis2/5000	0.75	2.00	4,000	2.91	A□
		αis2/6000	1.00	2.00	6,000	2.91	A□
		αis8/6000	2.20	8.00	6,000	11.70	F□
		αis8/4000	2.50	8.00	4,000	11.70	F□
		αis12/4000	2.70	12.00	3,000	22.80	H□
		β	βiS2/4000	0.50	2.00	4,000	2.91
	βiS8/3000		1.20	7.00	2,000	11.70	F□
	βiS12/2000		1.40	10.50	2,000	22.80	H□
	βiS12/3000		1.80	11.00	2,000	22.80	H□
	Fuji Electric	GYB	GYB751D5	0.75	2.39	3,000	1.43
GYC102D5			1.00	3.18	3,000	3.19	H□
GYC		GYC152D5	1.50	4.78	3,000	4.44	H□
		GYC202D5	2.00	6.37	3,000	5.69	H□
GYG		GYG102C5	1.00	4.77	2,000	15.14	G□
		GYG132B5	1.30	8.28	1,500	22.33	G□
		GYG152C5	1.50	7.16	2,000	22.33	G□
		GYG202C5	2.00	9.55	2,000	29.51	G□
		GYG501B5	0.50	3.18	1,500	11.55	F□
		GYG501C5	0.50	2.39	2,000	7.96	F□
GYG751C5	0.75	3.58	2,000	11.55	F□		
	GYG851B5	0.85	5.41	1,500	15.15	F□	
Mitsubishi Electric	CNC	HC152	1.50	7.16	2,000	20.00	H□
		HC153	1.50	4.77	3,000	20.00	H□
		HF-54	0.50	1.60	3,000	6.10	H□
		HF-75	0.75	1.80	4,000	2.80	B□
		HF-104	1.00	3.20	3,000	11.90	H□
		HF-105	1.00	2.40	4,000	5.10	B□
		HF-123	1.20	5.70	2,000	11.90	H□
		HF-142	1.40	6.70	2,000	17.80	H□
		HF-154	1.50	4.80	3,000	17.80	H□
HF-223	2.20	10.50	2,000	23.70	H□		

RU80 Standard gear ratio model (Gear ratio=20)

Manufacture	Servo series	Motor	Rated output [kW]	Rated torque [N·m]	Rated rotation speed [min ⁻¹]	Motor rotor inertia [x10 ⁻⁴ kg·m ²]	Motor mounting code
Mitsubishi Electric	CNC	HF-224	2.20	7.00	3,000	23.70	H□
		HF-H54	0.50	1.60	3,000	6.10	H□
		HF-H75	0.75	1.80	4,000	2.60	B□
		HF-H104	1.00	3.20	3,000	11.90	H□
		HF-H105	1.00	2.40	4,000	5.10	B□
		HF-H154	1.50	4.80	3,000	17.80	H□
		HP-54	0.50	1.60	3,000	4.60	H□
		HP-104	1.00	3.20	3,000	7.70	H□
		HP-154	1.50	4.80	3,000	12.00	H□
		HP-224	2.20	6.40	3,000	20.00	H□
		HP-H54	0.50	1.60	3,000	4.60	H□
		HP-H104	1.00	3.20	3,000	7.70	H□
	HP-H154	1.50	4.80	3,000	12.00	H□	
	HP-H224	2.20	6.40	3,000	20.00	H□	
	J4	HG-KR73	0.75	2.40	3,000	1.26	E□
		HG-SR51	0.50	4.80	1,000	11.60	H□
		HG-SR52	0.50	2.40	2,000	7.26	H□
		HG-SR524	0.50	2.40	2,000	7.26	H□
		HG-SR102	1.00	4.80	2,000	11.60	H□
		HG-SR1024	1.00	4.80	2,000	11.60	H□
		HG-SR152	1.50	7.20	2,000	16.00	H□
		HG-SR1524	1.50	7.20	2,000	16.00	H□
		HG-SR81	0.85	8.10	1,000	16.00	H□
		J5	HK-KT7M3W	0.75	2.40	3,000	1.37
HK-ST52W			0.50	2.40	2,000	5.90	H□
HK-ST1724W			0.85	8.10	1,000	11.40	H□
HK-ST102W	1.00		4.80	2,000	8.65	H□	
Yaskawa Electric	Σ-V	SGMAV-10A	1.00	3.18	3,000	1.20	E□
		SGMGV-03A	0.30	1.96	1,500	2.48	C□
		SGMGV-05A	0.45	2.86	1,500	3.33	D□
		SGMGV-09A	0.85	5.39	1,500	13.90	F□
		SGMGV-13A	1.30	8.34	1,500	19.90	G□
		SGMGV-20A	1.80	11.5	1,500	26.00	H□
		SGMJV-08A	0.75	2.39	3,000	1.57	E□
		Σ-7	SGM7G-03A	0.30	1.96	1,500	2.48
	SGM7G-05A		0.45	2.86	1,500	3.33	D□
	SGM7J-08A		0.75	2.39	3,000	1.59	E□
	SGM7G-09A		0.85	5.39	1,500	13.90	H□
	SGM7A-10A		1.00	3.18	3,000	0.97	E□
	SGM7G-13A		1.30	8.34	1,500	19.90	H□
	SGM7G-20A		1.80	11.50	1,500	26.00	H□

The box in the Attachment Code indicates the location of the access holes for the motor bracket. Specify with the product code. (Refer to page 4.)
Please prepare the servo motor with no keyway. Consult Sankyo for using with motors not listed above.

RU80 High gear ratio model (Gear ratio=60)

Manufacture	Servo series	Motor	Rated output [kW]	Rated torque [N·m]	Rated rotation speed [min ⁻¹]	Motor rotor inertia [x10 ⁻⁴ kg·m ²]	Motor mounting code
KEYENCE	SV	SV-M075	0.75	2.39	3,000	1.57	DS
SANYO DENKI	R2	R2AAB8075F	0.75	2.38	3,000	1.64	CS
		R2AAB8100F	1.00	3.18	3,000	2.38	CS
		R2AAB8100H	1.00	3.18	3,000	2.38	CS
		R2AA08020F	0.20	0.63	3,000	0.52	ES
		R2AA08075F	0.75	2.39	3,000	1.82	FS
FANUC	α	αiF1/5000	0.50	1.00	5,000	3.05	AS
		αiF2/5000	0.75	2.00	4,000	5.26	AS
		αis2/5000	0.75	2.00	4,000	2.91	AS
		αis2/6000	1.00	2.00	6,000	2.91	AS
	β	βis2/4000	0.50	2.00	4,000	2.91	AS
Fuji Electric	GYB	GYB751D5	0.75	2.39	3,000	1.43	DS
	GYC	GYC201D5	0.20	0.63	3,000	0.21	ES
		GYC401D5	0.40	1.27	3,000	0.41	ES
GYS	GYS751D5	0.75	2.39	3,000	0.85	FS	

Compatible Servomotor Models

RU80 High gear ratio model (Gear ratio=60)

Manufacture	Servo series	Motor	Rated output [kW]	Rated torque [N·m]	Rated rotation speed [min ⁻¹]	Motor rotor inertia [x10 ⁻⁴ kg·m ²]	Motor mounting code
Mitsubishi Electric	CNC	HF-75	0.75	1.80	4,000	2.80	BS
		HF-105	1.00	2.40	4,000	5.10	BS
		HF-H75	0.75	1.80	4,000	2.60	BS
		HF-H105	1.00	2.40	4,000	5.10	BS
	J4	HG-KR73	0.75	2.40	3,000	1.26	DS
		HG-MR73	0.75	2.40	3,000	0.59	DS
J5	HK-KT7M3W	0.75	2.40	3,000	1.37	DS	
Yaskawa Electric	Σ-V	SGMAV-08A	0.75	2.39	3,000	0.77	DS
		SGMAV-10A	1.00	3.18	3,000	1.20	DS
		SGMGV-03A	0.30	1.96	1,500	2.48	BS
		SGMGV-05A	0.45	2.86	1,500	3.33	CS
		SGMJV-08A	0.75	2.39	3,000	1.57	DS
	Σ-7	SGM7G-03A	0.30	1.96	1,500	2.48	CS
		SGM7G-05A	0.45	2.86	1,500	3.33	CS
		SGM7A-08A	0.75	2.39	3,000	0.78	DS
		SGM7J-08A	0.75	2.39	3,000	1.59	DS
		SGM7A-10A	1.00	3.18	3,000	0.97	DS

On high gear ratio models, the access hole faces the S surface.

Please prepare the servo motor with no keyway. Consult Sankyo for using with motors not listed above.

RU100 Standard gear ratio model (Gear ratio=20)

Manufacture	Servo series	Motor	Rated output [kW]	Rated torque [N·m]	Rated rotation speed [min ⁻¹]	Motor rotor inertia [x10 ⁻⁴ kg·m ²]	Motor mounting code
OMRON	G	R88M-G1K020T	1.00	4.80	2,000	6.17	C□
		R88M-G1K520T	1.50	7.15	2,000	11.20	C□
		R88M-G2K020T	2.00	9.54	2,000	15.20	C□
		R88M-G3K030T	3.00	9.54	3,000	6.77	C□
	G5	R88M-K1K020F	1.00	4.77	2,000	4.60	C□
		R88M-K1K020H	1.00	4.77	2,000	4.60	C□
		R88M-K1K520F	1.50	7.16	2,000	6.70	C□
		R88M-K1K520H	1.50	7.16	2,000	6.70	C□
		R88M-K2K020F	2.00	9.55	2,000	8.72	C□
		R88M-K2K020H	2.00	9.55	2,000	8.72	C□
		R88M-K3K030F	3.00	9.55	3,000	6.50	C□
		R88M-K3K030H	3.00	9.55	3,000	6.50	C□
KEYENCE	SV	SV-M100A	0.85	5.39	1,500	13.90	B□
		SV-M150A	1.30	8.34	1,500	19.90	C□
		SV-M200A	1.80	11.50	1,500	26.00	D□
SANYO DENKI	R2	R2AA13050D	0.55	2.60	2,000	3.10	C□
		R2AA13050H	0.55	2.60	2,000	3.10	C□
		R2AA13120B	1.20	5.70	2,000	6.00	C□
		R2AA13120D	1.20	5.70	2,000	6.00	C□
		R2AA13120L	1.20	5.70	2,000	6.00	C□
		R2AA13180D	1.80	8.60	2,000	9.00	C□
		R2AA13180H	1.80	8.60	2,000	9.00	C□
Panasonic	MINAS_A5	MDME102_C	1.00	4.77	2,000	4.60	C□
		MDME152_C	1.50	7.16	2,000	6.70	C□
		MDME202_C	2.00	9.55	2,000	8.72	C□
		MSME302_C	3.00	9.55	3,000	6.50	C□
FANUC	α	αiF4/5000	1.40	4.00	4,000	13.50	B□
		αiF8/3000	1.60	8.00	3,000	25.70	B□
		αis8/4000	2.50	8.00	4,000	11.70	B□
		αis8/6000	2.20	8.00	6,000	11.70	B□
		αis12/4000	2.70	12.00	3,000	22.80	D□
	β	βiS8/3000	1.20	7.00	2,000	11.70	B□
		βiS12/2000	1.40	10.50	2,000	22.80	D□
		βiS12/3000	1.80	11.00	2,000	22.80	D□

RU100 Standard gear ratio model (Gear ratio=20)

Manufacture	Servo series	Motor	Rated output [kW]	Rated torque [N·m]	Rated rotation speed [min ⁻¹]	Motor rotor inertia [x10 ⁻⁴ kg·m ²]	Motor mounting code
Fuji Electric	GYC	GYC102D5	1.00	3.18	3,000	3.19	D□
		GYC152D5	1.50	4.78	3,000	4.44	D□
		GYC202D5	2.00	6.37	3,000	5.69	D□
	GYG	GYG102C5	1.00	4.77	2,000	15.14	C□
		GYG132B5	1.30	8.28	1,500	22.33	C□
		GYG152C5	1.50	7.16	2,000	22.33	C□
		GYG202C5	2.00	9.55	2,000	29.51	C□
		GYG501B5	0.50	3.18	1,500	11.55	B□
		GYG501C5	0.50	2.39	2,000	7.96	B□
		GYG751C5	0.75	3.58	2,000	11.55	B□
Mitsubishi Electric	CNC	HC152	1.50	7.16	2,000	20.00	D□
		HC153	1.50	4.77	3,000	20.00	D□
		HF-123	1.20	5.70	2,000	11.90	D□
		HF-142	1.40	6.70	2,000	17.80	D□
		HF-154	1.50	4.80	3,000	17.80	D□
		HF-223	2.20	10.50	2,000	23.70	D□
		HF-224	2.20	7.00	3,000	23.70	D□
		HF-H154	1.50	4.80	3,000	17.80	D□
		HP-154	1.50	4.80	3,000	12.00	D□
		HP-224	2.20	6.40	3,000	20.00	D□
		HP-H154	1.50	4.80	3,000	12.00	D□
		HP-H224	2.20	6.40	3,000	20.00	D□
	J4	HG-SR51	0.50	4.80	1,000	11.60	D□
		HG-SR81	0.85	8.10	1,000	16.00	D□
		HG-SR102	1.00	4.80	2,000	11.60	D□
		HG-SR1024	1.00	4.80	2,000	11.60	D□
		HG-SR152	1.50	7.20	2,000	16.00	D□
	J5	HG-SR1524	1.50	7.20	2,000	16.00	D□
		HK-ST1724W	0.85	8.10	1,000	11.40	D□
		HK-ST102W	1.00	4.80	2,000	8.65	D□
Yaskawa Electric	Σ-V	SGMGV-09A	0.85	5.39	1,500	13.90	B□
		SGMGV-13A	1.30	8.34	1,500	19.90	C□
		SGMGV-20A	1.80	11.50	1,500	26.00	D□
	Σ-7	SGM7G-09A	0.85	5.39	1,500	13.90	D□
		SGM7G-13A	1.30	8.34	1,500	19.90	D□
		SGM7G-20A	1.80	11.50	1,500	26.00	D□

The box in the Attachment Code indicates the location of the access holes for the motor bracket. Specify with the product code. (Refer to page 4.) Please prepare the servo motor with no keyway. Consult Sankyo for using with motors not listed above.

RU100 High gear ratio model (Gear ratio=60)

Manufacture	Servo series	Motor	Rated output [kW]	Rated torque [N·m]	Rated rotation speed [min ⁻¹]	Motor rotor inertia [x10 ⁻⁴ kg·m ²]	Motor mounting code
OMRON	G	R88M-G1K020T	1.00	4.80	2,000	6.17	ES
		R88M-G1K520T	1.50	7.15	2,000	11.20	ES
		R88M-G2K020T	2.00	9.54	2,000	15.20	ES
		R88M-G3K030T	3.00	9.54	3,000	6.77	ES
	G5	R88M-K1K020F	1.00	4.77	2,000	4.60	ES
		R88M-K1K020H	1.00	4.77	2,000	4.60	ES
		R88M-K1K520F	1.50	7.16	2,000	6.70	ES
		R88M-K1K520H	1.50	7.16	2,000	6.70	ES
		R88M-K2K020F	2.00	9.55	2,000	8.72	ES
		R88M-K2K020H	2.00	9.55	2,000	8.72	ES
		R88M-K3K030F	3.00	9.55	3,000	6.50	ES
KEYENCE	SV	SV-M100A	0.85	5.39	1,500	13.90	DS
		SV-M150A	1.30	8.34	1,500	19.90	ES
		SV-M200A	1.80	11.50	1,500	26.00	FS
SANYO DENKI	R2	R2AA13050D	0.55	2.60	2,000	3.10	ES
		R2AA13050H	0.55	2.60	2,000	3.10	ES
		R2AA13120B	1.20	5.70	2,000	6.00	ES
		R2AA13120D	1.20	5.70	2,000	6.00	ES
		R2AA13120L	1.20	5.70	2,000	6.00	ES
		R2AA13180D	1.80	8.60	2,000	9.00	ES
		R2AA13180H	1.80	8.60	2,000	9.00	ES

Compatible Servomotor Models

RU100 High gear ratio model (Gear ratio=60)

Manufacture	Servo series	Motor	Rated output [kW]	Rated torque [N·m]	Rated rotation speed [min ⁻¹]	Motor rotor inertia [x10 ⁻⁴ kg·m ²]	Motor mounting code
Panasonic	MINAS_A5	MDME102_C	1.00	4.77	2,000	4.60	ES
		MDME152_C	1.50	7.16	2,000	6.70	ES
		MDME202_C	2.00	9.55	2,000	8.72	ES
		MSME302_C	3.00	9.55	3,000	6.50	ES
FANUC	α	αiF2/5000	0.75	2.00	4,000	5.26	AS
		αiF4/5000	1.40	4.00	4,000	13.50	DS
		αiF8/3000	1.60	8.00	3,000	25.70	DS
		αis2/5000	0.75	2.00	4,000	2.91	AS
		αis2/6000	1.00	2.00	6,000	2.91	AS
		αis8/6000	2.20	8.00	6,000	11.70	DS
	β	βiS2/4000	0.50	2.00	4,000	2.91	AS
		βiS8/3000	1.20	7.00	2,000	11.70	DS
βiS12/2000		1.40	10.50	2,000	22.80	FS	
Fuji Electric	GYC	GYC102D5	1.00	3.18	3,000	3.19	FS
		GYC152D5	1.50	4.78	3,000	4.44	FS
		GYC202D5	2.00	6.37	3,000	5.69	FS
	GYG	GYG102C5	1.00	4.77	2,000	15.14	ES
		GYG152C5	1.50	7.16	2,000	22.33	ES
		GYG202C5	2.00	9.55	2,000	29.51	ES
		GYG501C5	0.50	2.39	2,000	7.96	DS
Mitsubishi Electric	CNC	HC153	1.50	4.77	3,000	20.00	FS
		HF-54	0.50	1.60	3,000	6.10	FS
		HF-75	0.75	1.80	4,000	2.80	BS
		HF-104	1.00	3.20	3,000	11.90	FS
		HF-105	1.00	2.40	4,000	5.10	BS
		HF-123	1.20	5.70	2,000	11.90	FS
		HF-142	1.40	6.70	2,000	17.80	FS
		HF-H54	0.50	1.60	3,000	6.10	FS
		HF-H75	0.75	1.80	4,000	2.60	BS
		HF-H104	1.00	3.20	3,000	11.90	FS
		HF-H105	1.00	2.40	4,000	5.10	BS
		HP-54	0.50	1.60	3,000	4.60	FS
		HP-104	1.00	3.20	3,000	7.70	FS
		HP-H54	0.50	1.60	3,000	4.60	FS
	HP-H104	1.00	3.20	3,000	7.70	FS	
	HP-H154	1.50	4.80	3,000	12.00	FS	
	J4	HG-SR51	0.50	4.80	1,000	11.60	FS
		HG-SR52	0.50	2.40	2,000	7.26	FS
		HG-SR81	0.85	8.10	1,000	16.00	FS
		HG-SR524	0.50	2.40	2,000	7.26	FS
		HG-SR102	1.00	4.80	2,000	11.60	FS
		HG-SR1024	1.00	4.80	2,000	11.60	FS
		HG-SR152	1.50	7.20	2,000	16.00	FS
		HG-SR1524	1.50	7.20	2,000	16.00	FS
	J5	HK-ST52W	0.50	2.40	2,000	5.90	FS
		HK-ST1724W	0.85	8.10	1,000	11.40	FS
		HK-ST102W	1.00	4.80	2,000	8.65	FS
	Yaskawa Electric	Σ-V	SGMGV-03A	0.30	1.96	1,500	2.48
SGMGV-05A			0.45	2.86	1,500	3.33	CS
SGMGV-09A			0.85	5.39	1,500	13.90	DS
SGMGV-13A			1.30	8.34	1,500	19.90	ES
SGMGV-20A			1.80	11.50	1,500	26.00	FS
Σ-7		SGM7G-03A	0.30	1.96	1,500	2.48	CS
		SGM7G-05A	0.45	2.86	1,500	3.33	CS
		SGM7G-09A	0.85	5.39	1,500	13.90	FS
		SGM7G-13A	1.30	8.34	1,500	19.90	FS
		SGM7G-20A	1.80	11.50	1,500	26.00	FS

On high gear ratio models, the access hole faces the S surface.

Please prepare the servo motor with no keyway. Consult Sankyo for using with motors not listed above.

RU125 Standard gear ratio model (Gear ratio=20)

Manufacture	Servo series	Motor	Rated output [kW]	Rated torque [N·m]	Rated rotation speed [min ⁻¹]	Motor rotor inertia [x10 ⁻⁴ kg·m ²]	Motor mounting code	
OMRON	G	R88M-G1K520T	1.50	7.15	2,000	11.20	B□	
		R88M-G2K010T	2.00	19.10	1,000	35.50	D□	
		R88M-G2K020T	2.00	9.54	2,000	15.20	B□	
		R88M-G3K010T	3.00	28.40	1,000	55.70	D□	
		R88M-G3K030T	3.00	9.54	3,000	6.77	B□	
	G5	R88M-K1K520F	1.50	7.16	2,000	6.70	B□	
		R88M-K1K520H	1.50	7.16	2,000	6.70	B□	
		R88M-K2K010F	2.00	19.10	1,000	30.30	D□	
		R88M-K2K010H	2.00	19.10	1,000	30.30	D□	
		R88M-K2K020F	2.00	9.55	2,000	8.72	B□	
		R88M-K2K020H	2.00	9.55	2,000	8.72	B□	
		R88M-K3K010F	3.00	28.70	1,000	48.40	D□	
		R88M-K3K010H	3.00	28.70	1,000	48.40	D□	
		KEYENCE	SV	SV-M100A	0.85	5.39	1,500	13.90
SV-M150A	1.30			8.34	1,500	19.90	B□	
SV-M200A	1.80			11.50	1,500	26.00	C□	
SANYO DENKI	R2	R2AA13180D	1.80	8.60	2,000	9.00	B□	
		R2AA13180H	1.80	8.60	2,000	9.00	B□	
Panasonic	MINAS_A5	MDME152_C	1.50	7.16	2,000	6.70	B□	
		MDME202_C	2.00	9.55	2,000	8.72	B□	
		MHME202_C	2.00	9.55	2,000	57.80	D□	
		MGME202_C	2.00	19.10	1,000	30.30	D□	
		MGME302_C	3.00	28.70	1,000	48.40	D□	
		MHME302_C	3.00	14.30	2,000	90.50	D□	
		MHME402_C	4.00	19.10	2,000	112.00	D□	
		MHME502_C	5.00	23.90	2,000	162.00	D□	
FANUC	α	α iF8/3000	1.60	8.00	3,000	25.70	A□	
		α iF12/4000	3.00	12.00	3,000	62.00	D□	
		α iF22/3000	4.00	22.00	3,000	120.00	D□	
		α iF30/4000	7.00	30.00	3,000	170.00	E□	
		α iF40/3000	6.00	38.00	2,000	220.00	E□	
		α iF40/3000Fan	9.00	53.00	2,000	220.00	E□	
		α is8/6000	2.20	8.00	6,000	11.70	A□	
		α is8/4000	2.50	8.00	4,000	11.70	A□	
		α is12/4000	2.70	12.00	3,000	22.80	C□	
		α is22/4000	4.50	22.00	3,000	52.70	D□	
		α is30/4000	5.50	30.00	3,000	75.90	E□	
		α is40/4000	5.50	40.00	3,000	99.00	E□	
		β	β iS12/2000	1.40	10.50	2,000	22.80	C□
	β iS12/3000		1.80	11.00	2,000	22.80	C□	
	β iS22/2000		2.50	20.00	2,000	52.70	D□	
	β iS22/3000		3.00	20.00	2,000	52.70	D□	
	β iS30/2000		3.00	27.00	2,000	75.90	D□	
	β iS40/2000		3.00	36.00	1,500	99.00	E□	
	Fuji Electric		GYG	GYG102C5	1.00	4.77	2,000	15.14
		GYG132B5		1.30	8.28	1,500	22.33	B□
GYG152C5		1.50		7.16	2,000	22.33	B□	
GYG202C5		2.00		9.55	2,000	29.51	B□	
GYG501B5		0.50		3.18	1,500	11.55	A□	
GYG501C5		0.50		2.39	2,000	7.96	A□	
GYG751C5		0.75		3.58	2,000	11.55	A□	
GYG851B5		0.85		5.41	1,500	15.15	A□	
Mitsubishi Electric	CNC	HC202	2.00	9.55	2,000	42.50	D□	
		HC352	3.50	16.70	2,000	82.00	D□	
		HC452	4.50	21.50	2,000	121.00	E□	
		HC702	7.00	33.40	2,000	160.00	E□	
		HC353	3.50	11.10	3,000	82.00	D□	
		HC453	4.50	14.30	3,000	121.00	D□	
		HC703	7.00	22.30	3,000	160.00	E□	
		HF-223	2.20	10.50	2,000	23.70	C□	
		HF-302	3.00	14.30	2,000	75.00	D□	
		HF-303	3.00	14.30	2,000	75.00	D□	
		HF-354	3.50	11.10	3,000	75.00	E□	
		HF-453	4.50	14.30	3,000	112.00	E□	
		HF-703	7.00	22.30	3,000	154.00	E□	
		HF-H354	3.50	11.10	3,000	75.00	E□	
		HF-H453	4.50	14.30	3,000	112.00	E□	
		HF-H703	7.00	22.30	3,000	154.00	E□	

Compatible Servomotor Models

RU125 Standard gear ratio model (Gear ratio=20)

Manufacture	Servo series	Motor	Rated output [kW]	Rated torque [N·m]	Rated rotation speed [min ⁻¹]	Motor rotor inertia [x10 ⁻⁴ kg·m ²]	Motor mounting code
Mitsubishi Electric	J4	HG-SR81	0.85	8.10	1,000	16.00	C□
		HG-SR201	2.00	19.10	1,000	78.60	D□
		HG-SR202	2.00	9.50	2,000	46.80	D□
		HG-SR2024	2.00	9.50	2,000	46.80	D□
		HG-SR301	3.00	28.60	1,000	99.70	E□
		HG-SR421	4.20	40.10	1,000	151.00	E□
		HG-SR502	5.00	23.90	2,000	99.70	D□
		HG-SR5024	5.00	23.90	2,000	99.70	D□
	J5	HG-SR702	7.00	33.40	2,000	151.00	E□
		HG-SR7024	7.00	33.40	2,000	151.00	E□
		HK-ST1724W	0.85	8.10	1,000	11.40	C□
		HK-ST3524W	2.00	19.10	1,000	53.60	D□
		HK-ST202W	2.00	9.50	2,000	36.40	D□
		HK-ST5024W	3.00	28.60	1,000	70.80	E□
		HK-ST7024W	4.20	40.10	1,000	105.00	E□
		HK-ST502W	5.00	23.90	2,000	70.80	D□
Yaskawa Electric	Σ-V	SGMGV-09A	0.85	5.39	1,500	13.90	A□
		SGMGV-13A	1.30	8.34	1,500	19.90	B□
		SGMGV-20A	1.80	11.50	1,500	26.00	C□
	Σ-7	SGM7G-09A	0.85	5.39	1,500	13.90	C□
		SGM7G-13A	1.30	8.34	1,500	19.90	C□
		SGM7G-20A	1.80	11.50	1,500	26.00	C□

The box in the Attachment Code indicates the location of the access holes for the motor bracket. Specify with the product code. (Refer to page 4.)
Please prepare the servo motor with no keyway. Consult Sankyo for using with motors not listed above.

RU125 High gear ratio model (Gear ratio=60)

Manufacture	Servo series	Motor	Rated output [kW]	Rated torque [N·m]	Rated rotation speed [min ⁻¹]	Motor rotor inertia [x10 ⁻⁴ kg·m ²]	Motor mounting code
OMRON	G	R88M-G1K020T	1.00	4.80	2,000	6.17	BS
		R88M-G1K520T	1.50	7.15	2,000	11.20	BS
		R88M-G2K020T	2.00	9.54	2,000	15.20	BS
		R88M-G3K020T	3.00	14.30	2,000	22.30	CS
		R88M-G3K030T	3.00	9.54	3,000	6.77	BS
		R88M-G4K030T	4.00	12.60	3,000	12.70	CS
	G5	R88M-G5K030T	5.00	15.80	3,000	17.80	CS
		R88M-K1K020F	1.00	4.77	2,000	4.60	BS
		R88M-K1K020H	1.00	4.77	2,000	4.60	BS
		R88M-K1K520F	1.50	7.16	2,000	6.70	BS
		R88M-K1K520H	1.50	7.16	2,000	6.70	BS
		R88M-K2K020F	2.00	9.55	2,000	8.72	BS
		R88M-K2K020H	2.00	9.55	2,000	8.72	BS
		R88M-K3K020F	3.00	14.30	2,000	12.90	CS
		R88M-K3K020H	3.00	14.30	2,000	12.90	CS
		R88M-K3K030F	3.00	9.55	3,000	6.50	BS
		R88M-K3K030H	3.00	9.55	3,000	6.50	BS
		KEYENCE	SV	R88M-K4K030F	4.00	12.70	3,000
R88M-K4K030H	4.00			12.70	3,000	12.90	CS
R88M-K5K030F	5.00			15.90	3,000	17.40	CS
SV	SV-M100A		0.85	5.39	1,500	13.90	AS
	SV-M150A		1.30	8.34	1,500	19.90	BS
	SV-M200A		1.80	11.50	1,500	26.00	CS
SANYO DENKI	R2	R2AA13050D	0.55	2.60	2,000	3.10	BS
		R2AA13050H	0.55	2.60	2,000	3.10	BS
		R2AA13120B	1.20	5.70	2,000	6.00	BS
		R2AA13120D	1.20	5.70	2,000	6.00	BS
		R2AA13120L	1.20	5.70	2,000	6.00	BS
		R2AA13180D	1.80	8.60	2,000	9.00	BS
		R2AA13180H	1.80	8.60	2,000	9.00	BS

RU125 High gear ratio model (Gear ratio=60)

Manufacture	Servo series	Motor	Rated output [kW]	Rated torque [N·m]	Rated rotation speed [min ⁻¹]	Motor rotor inertia [x10 ⁻⁴ kg·m ²]	Motor mounting code	
Panasonic	MINAS_A5	MDME102_C	1.00	4.77	2,000	4.60	BS	
		MDME152_C	1.50	7.16	2,000	6.70	BS	
		MDME202_C	2.00	9.55	2,000	8.72	BS	
		MDME302_C	3.00	14.30	2,000	12.90	CS	
		MSME302_C	3.00	9.55	3,000	6.50	BS	
		MSME402_C	4.00	12.70	3,000	12.90	CS	
		MSME502_C	5.00	15.90	3,000	17.40	CS	
FANUC	α	αiF4/5000	1.40	4.00	4,000	13.50	AS	
		αiF8/3000	1.60	8.00	3,000	25.70	AS	
		αis8/4000	2.50	8.00	4,000	11.70	AS	
		αis8/6000	2.20	8.00	6,000	11.70	AS	
		αis12/4000	2.70	12.00	3,000	22.80	CS	
	β	βis8/3000	1.20	7.00	2,000	11.70	AS	
		βis12/2000	1.40	10.50	2,000	22.80	CS	
Fuji Electric	GYC	GYC102D5	1.00	3.18	3,000	3.19	CS	
		GYC152D5	1.50	4.78	3,000	4.44	CS	
		GYC202D5	2.00	6.37	3,000	5.69	CS	
	GYG	GYG102C5	1.00	4.77	2,000	15.14	BS	
		GYG152C5	1.50	7.16	2,000	22.33	BS	
		GYG202C5	2.00	9.55	2,000	29.51	BS	
		GYG501C5	0.50	2.39	2,000	7.96	AS	
		GYG751C5	0.75	3.58	2,000	11.55	AS	
	Mitsubishi Electric	CNC	HC152	1.50	7.16	2,000	20.00	CS
			HC153	1.50	4.77	3,000	20.00	CS
HF-123			1.20	5.70	2,000	11.90	CS	
HF-142			1.40	6.70	2,000	17.80	CS	
HF-154			1.50	4.80	3,000	17.80	CS	
HF-223			2.20	10.50	2,000	23.70	CS	
HF-224			2.20	7.00	3,000	23.70	CS	
HF-H154			1.50	4.80	3,000	17.80	CS	
HP-154			1.50	4.80	3,000	12.00	CS	
HP-224			2.20	6.40	3,000	20.00	CS	
HP-H154			1.50	4.80	3,000	12.00	CS	
HP-H224			2.20	6.40	3,000	20.00	CS	
J4		HG-SR51	0.50	4.80	1,000	11.60	CS	
		HG-SR81	0.85	8.10	1,000	16.00	CS	
		HG-SR102	1.00	4.80	2,000	11.60	CS	
		HG-SR1024	1.00	4.80	2,000	11.60	CS	
		HG-SR152	1.50	7.20	2,000	16.00	CS	
		HG-SR1524	1.50	7.20	2,000	16.00	CS	
J5		HK-ST52W	0.50	2.40	2,000	5.90	CS	
		HK-ST102W	1.00	4.80	2,000	8.65	CS	
Yaskawa Electric	Σ-V	SGMGV-09A	0.85	5.39	1,500	13.90	AS	
		SGMGV-13A	1.30	8.34	1,500	19.90	BS	
		SGMGV-20A	1.80	11.50	1,500	26.00	CS	
	Σ-7	SGM7G-09A	0.85	5.39	1,500	13.90	CS	
		SGM7G-13A	1.30	8.34	1,500	19.90	CS	
		SGM7G-20A	1.80	11.50	1,500	26.00	CS	

On high gear ratio models, the access hole faces the S surface.
Please prepare the servo motor with no keyway. Consult Sankyo for using with motors not listed above.

Oil Plug, Oil Level Gauge, Drain Port (for oil lubricated units)

Unit:mm

Mounting position	1	2	3	4	5	6
RU40						
A	Oil plug Rc 1/4 (20-mm dia, deep, counterbore depth 20)	Drain plug Rc 1/4 (20-mm dia, deep, counterbore depth 20)	Oil plug Rc 1/4 (20-mm dia, deep, counterbore depth 20)	Drain plug Rc 1/4 (20-mm dia, deep, counterbore depth 20)	Oil plug Rc 1/4 (18-mm dia, deep, counterbore depth 7.5)	Drain plug Rc 1/4 (18-mm dia, deep, counterbore depth 7.5)
A1	67.5	47.5	27.5	87.5	20.5	119.5
A2	62.5	22.5	42.5	42.5	20.5	57.5
B	Oil level gauge	Oil level gauge	Oil level gauge	Oil level gauge	Oil level gauge	Oil level gauge
B1	57.5	57.5	57.5	57.5	52.5	52.5
B2	42.5	42.5	42.5	42.5	42.5	42.5
C	Drain plug Rc 1/4 (20-mm dia, deep, counterbore depth 20)	Oil plug Rc 1/4 (20-mm dia, deep, counterbore depth 20)	Drain plug Rc 1/4 (20-mm dia, deep, counterbore depth 20)	Oil plug Rc 1/4 (20-mm dia, deep, counterbore depth 20)	Drain plug Rc 1/4 (20-mm dia, deep, counterbore depth 7.5)	Oil plug Rc 1/4 (20-mm dia, deep, counterbore depth 7.5)
C1	47.5	67.5	87.5	27.5	119.5	20.5
C2	22.5	62.5	42.5	42.5	57.5	20.5
Oil volume (L)	0.2	0.2	0.2	0.2	0.1	0.2
RU63						
A	Oil plug Rc 1/4 (20-mm dia, deep, counterbore depth 25)	Drain plug Rc 1/4 (20-mm dia, deep, counterbore depth 25)	Oil plug Rc 1/4 (20-mm dia, deep, counterbore depth 25)	Drain plug Rc 1/4 (20-mm dia, deep, counterbore depth 25)	Oil plug Rc 1/4 (20-mm dia, deep, counterbore depth 7.5)	Drain plug Rc 1/4 (20-mm dia, deep, counterbore depth 7.5)
A1	92.5	62.5	32.5	122.5	15.5	167.5
A2	82.5	22.5	52.5	52.5	48.5	77.5
B	Oil level gauge	Oil level gauge	Oil level gauge	Oil level gauge	Oil level gauge	Oil level gauge
B1	77.5	77.5	77.5	77.5	140.5	140.5
B2	52.5	52.5	52.5	52.5	112.5	112.5
C	Drain plug Rc 1/4 (20-mm dia, deep, counterbore depth 25)	Oil plug Rc 1/4 (20-mm dia, deep, counterbore depth 25)	Drain plug Rc 1/4 (20-mm dia, deep, counterbore depth 25)	Oil plug Rc 1/4 (20-mm dia, deep, counterbore depth 25)	Drain plug Rc 1/4 (20-mm dia, deep, counterbore depth 7.5)	Oil plug Rc 1/4 (20-mm dia, deep, counterbore depth 7.5)
C1	62.5	92.5	122.5	32.5	167.5	15.5
C2	22.5	82.5	52.5	52.5	77.5	48.5
Oil volume (L)	0.4	0.4	0.4	0.4	0.2	0.5
RU80						
A	Oil plug Rc 3/8 (30-mm dia, deep, counterbore depth 27.5)	Drain plug Rc 3/8 (30-mm dia, deep, counterbore depth 27.5)	Oil plug Rc 3/8 (30-mm dia, deep, counterbore depth 27.5)	Drain plug Rc 3/8 (30-mm dia, deep, counterbore depth 27.5)	Oil plug Rc 1/4 (20-mm dia, deep, counterbore depth 7.5)	Drain plug Rc 1/4 (20-mm dia, deep, counterbore depth 7.5)
A1	115	75	33	157	22	215
A2	110	30	55	85	40	95
B	Oil level gauge	Oil level gauge	Oil level gauge	Oil level gauge	Oil level gauge	Oil level gauge
B1	95	95	95	95	175	175
B2	70	70	70	70	145	145
C	Drain plug Rc 3/8 (30-mm dia, deep, counterbore depth 27.5)	Oil plug Rc 3/8 (30-mm dia, deep, counterbore depth 27.5)	Drain plug Rc 3/8 (30-mm dia, deep, counterbore depth 27.5)	Oil plug Rc 3/8 (30-mm dia, deep, counterbore depth 27.5)	Drain plug Rc 1/4 (20-mm dia, deep, counterbore depth 7.5)	Oil plug Rc 1/4 (20-mm dia, deep, counterbore depth 7.5)
C1	75	115	157	33	215	22
C2	30	110	85	55	95	40
Oil volume (L)	1.0	0.7	0.9	0.9	0.6	1.2
RU100						
A	Oil plug Rc 3/8 (30-mm dia, deep, counterbore depth 30)	Drain plug Rc 3/8 (30-mm dia, deep, counterbore depth 30)	Oil plug Rc 3/8 (30-mm dia, deep, counterbore depth 30)	Drain plug Rc 3/8 (30-mm dia, deep, counterbore depth 30)	Oil plug Rc 3/8 (25-mm dia, deep, counterbore depth 2.5)	Drain plug Rc 3/8 (25-mm dia, deep, counterbore depth 2.5)
A1	150	80	38	192	18	250
A2	110.5	34.5	52.5	92.5	115	145
B	Oil level gauge	Oil level gauge	Oil level gauge	Oil level gauge	Oil level gauge	Oil level gauge
B1	115	115	115	115	215	215
B2	72.5	72.5	72.5	72.5	115	115
C	Drain plug Rc 3/8 (30-mm dia, deep, counterbore depth 30)	Oil plug Rc 3/8 (30-mm dia, deep, counterbore depth 30)	Drain plug Rc 3/8 (30-mm dia, deep, counterbore depth 30)	Oil plug Rc 3/8 (30-mm dia, deep, counterbore depth 30)	Drain plug Rc 3/8 (25-mm dia, deep, counterbore depth 7.5)	Oil plug Rc 3/8 (25-mm dia, deep, counterbore depth 7.5)
C1	80	150	192	38	250	18
C2	34.5	110.5	92.5	52.5	145	115
Oil volume (L)	1.5	1.1	1.3	1.3	0.7	1.9
RU125						
A	Oil plug Rc 3/8 (30-mm dia, deep, counterbore depth 35)	Drain plug Rc 3/8 (30-mm dia, deep, counterbore depth 35)	Oil plug Rc 3/8 (30-mm dia, deep, counterbore depth 35)	Drain plug Rc 3/8 (30-mm dia, deep, counterbore depth 35)	Oil plug Rc 3/8 (30-mm dia, deep, counterbore depth 2.5)	Drain plug Rc 3/8 (30-mm dia, deep, counterbore depth 2.5)
A1	175	105	40	240	20	320
A2	150	40	60	130	140	175
B	Oil level gauge	Oil level gauge	Oil level gauge	Oil level gauge	Oil level gauge	Oil level gauge
B1	140	140	140	140	265	265
B2	95	95	95	95	140	140
C	Drain plug Rc 3/8 (30-mm dia, deep, counterbore depth 35)	Oil plug Rc 3/8 (30-mm dia, deep, counterbore depth 35)	Drain plug Rc 3/8 (30-mm dia, deep, counterbore depth 35)	Oil plug Rc 3/8 (30-mm dia, deep, counterbore depth 35)	Drain plug Rc 3/8 (30-mm dia, deep, counterbore depth 7.5)	Oil plug Rc 3/8 (30-mm dia, deep, counterbore depth 7.5)
C1	105	175	240	40	320	20
C2	40	150	130	60	175	140
Oil volume (L)	4.0	2.8	3.4	3.4	2.3	4.5

Note 1) If model RU40 is mounted in positions 5 or 6, the oil level gauge will be installed on side T or U, whichever side the motor is not mounted on.
 Note 2) The counterbore depth is the depth from the outermost surface of the side on which the oil plug and related parts are mounted.

Handling

Mounting the Motor

Motor to be mounted by customer.

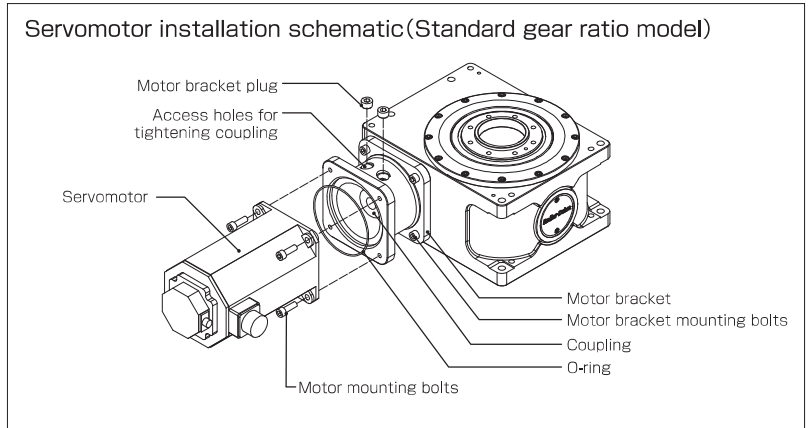
Mount the motor by following the procedure that applies to your model.

(1) Standard gear ratio model

- ① Mount motor to motor bracket.
- ② Fasten coupling to motor shaft.
- ③ Fasten the motor bracket plugs.

[Supplied parts]

Motor bracket plugs x2, O-ring

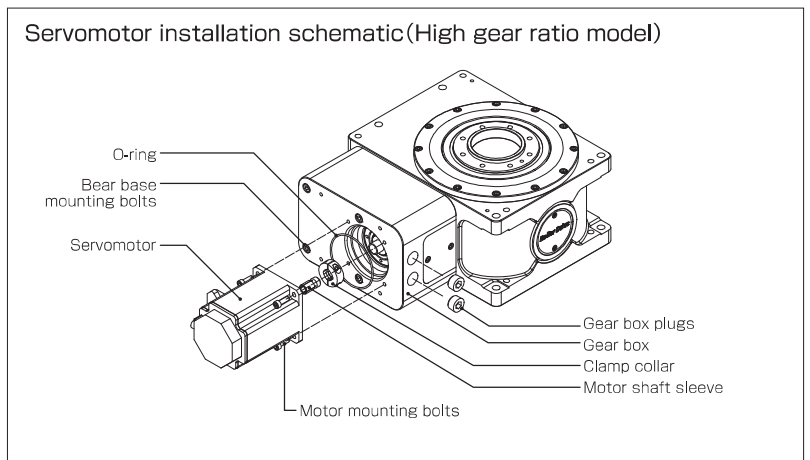


(2) High gear ratio model

- ① Hand-tighten the clamp collar to the gear shaft.
- ② Insert the motor shaft sleeve in the gear shaft. (The motor sleeve is not used for certain motor models.)
- ③ Mount the motor to the gear box.
- ④ Tighten the clamp collar.
- ⑤ Tighten the gear box plugs into the access holes for tightening the clamp collar.

[Supplied parts]

Gear box plugs x2, O-rings x1 to x4, motor shaft sleeve, clamp collar, clamp collar bolt x2



Installation Site

The product should be installed in a place satisfying the following conditions:

- Environment temperature from 5 to 40 °C
Due to heat generated by the motor and internally by the RollerDrive, the surface temperature of the product may rise. Please take steps to cool the unit, such as a fan or the like, so that the surface temperature does not exceed 60°C.
- Humidity under 85% (no condensation)
- Non vacuum or extreme pressure
- No exposure to water, oil, chemicals, dusts, etc.
- No existence of explosive gas, other hazardous gas, or radio active materials
- No direct sunlight
- Excessive shock or force does not act
- Grounded from electric current
- Minimum electro magnetic noise (be cautious on welding machines)
- Easy to carry out maintenance and check oil level and drain

Handling

Lubricants

The unit may have the standard grease lubrication system or the high-speed oil lubrication system.

● Grease lubrication

Units designed for grease lubrication are virtually free of maintenance and do not require regular grease changes.

Grease used in the RollerDrive: ENEOS Corporation PYRONOC GREASE UNIVERSAL 2

Grease used in the High gear ratio gear box: ENEOS Corporation PYRONOC GREASE UNIVERSAL 0

● Oil lubrication

These units use high-performance lubrication oil. The lubrication oil will remain chemically and thermally stable, but should be replaced every 3,000 hours of operation to prolong the life of the unit. Use the oil level gauge to check the condition of the lubrication. Check lubrication when the unit has stopped. If the oil appears low or discolored, change it with fresh oil regardless of the hours of operation. Occasionally, air bubbles may form in the oil during operation but this is natural and not a quality concern.

※:Use the following lubricant for refill.

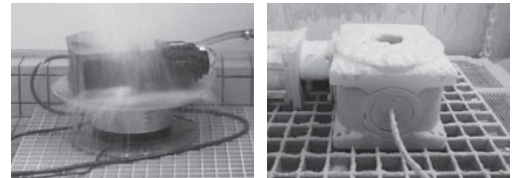
Standard lubricant: Mobil SHC629 (VG150)

Use of different oil can cause wearing or other problems.

Notes on Water-proof, Dust-proof Products

Water-proofing and dust-proofing are provided as options to protect the RU Series. Sankyo performed industrial testing based on IEC60529 for IP66M conditions. Thereafter, TÜV Rheinland Japan confirmed that the RU Series chassis was free of water and dust intrusion.

[Testing was done on the RU80 (reduction ratio 20).]



IP is an abbreviation for International Protection and classifies and rates the degree of protection against the intrusion of foreign matter such as steel balls, copper wire, dust, and water, etc. IP6X indicates complete protection against dust particulate, and IPX6 indicates protection against water sprayed at high pressure (100 l per minute) from various angles. The suffix 'M' indicates the water ingress test was performed with the output shaft rotating.

- Water-proof and dust-proof protection does not ensure protection against failures or unlimited lifetime.
- It does not provide protection against the intrusion of solids and liquids under all environments.
- This product has not been rust-proofed. If subject to water or moisture, non-painted machined surfaces (such as the output shaft and mounting surfaces on the housing) will rust.
- When not adding water proof/dust-proof options, the protection code for RU series main unit is IP54 equivalent.

⚠ Notes

Limitations on the use of this product

- This product cannot be used in applications where operation of the product has a direct impact in human life, or can cause bodily harm to people. The scope of these use limitations includes the following applications:
 - i. Medical equipment
 - ii. Nuclear power related equipment
 - iii. Aerospace equipment
 - iv. Equipment for handling explosive, corrosive or toxic substances etc.
- Please consult with our company if you are considering use in one of the above applications.
- If there is a possibility that this product will be used in a final use location outside Japan, in weapons or equipment for weapon manufacture, then it may be subject to regulation due to the Foreign Exchange and Foreign Trade Control Law. Please take extra care with regard to the application and region of use, and properly submit applications and follow procedures if necessary.
- When used in grinding machines, the seal device on the outer periphery of the output shaft may become damaged. The warranty does not cover any such damage.

Notes on information

- Specifications, dimensions and other information relating to this product provided in this catalog are subject to change without prior notice.
- The information in this catalog is current as of March 2022.
- Patent rights and copyrights for some mechanisms, trademarks, images, drawings and other material in this catalog all belong to Sankyo Seisakusho Co. Copying, reuse or distribution of any material in this catalog without the permission of Sankyo Seisakusho is forbidden.

Our contact person: _____

Model Sizing Form for the **RollerDrive® RU** series

Customer's Company, Department		TEL
Address		FAX
Name	Email	

A) Application

B) Overview drawing, loads, operating environment, etc.

(Draw a sketch of the table, workpieces, fixtures, etc., to mount on the output shaft of the RU, and indicate any loads that will occur during rotation.)

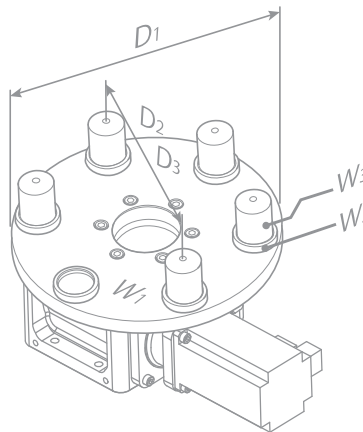
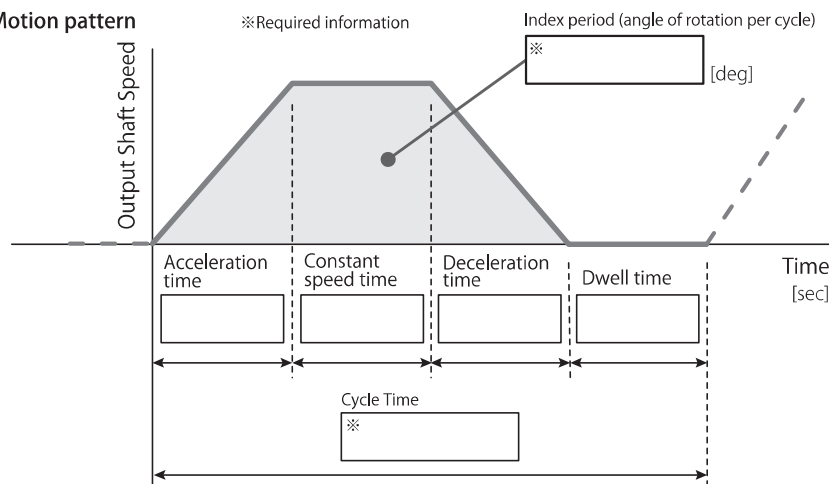


Table diameter : D_1	[mm]
Table mass : W_1	[kg]
P.C.D of fixtures : D_2	[mm]
Mass per fixture : W_2	[kg]
Number of fixtures : n_2	[pcs.]
P.C.D of workpieces : D_3	[mm]
Mass per workpiece : W_3	[kg]
Number of workpieces : n_3	[pcs.]

Load that acts upon the output shaft

Axial/radial loads [N]	Moment load [N·m]	Number of workpieces : n_3 [pcs.]
---------------------------	----------------------	----------------------------------------

C) Motion pattern



E) Intended servomotor

Manufacture _____

Model No. _____

Motor size (rated output) _____ [kW]

F) Mounting direction of servomotor

T surface (right side viewed from front)
U surface (left side viewed from front)
Circle applicable answer.

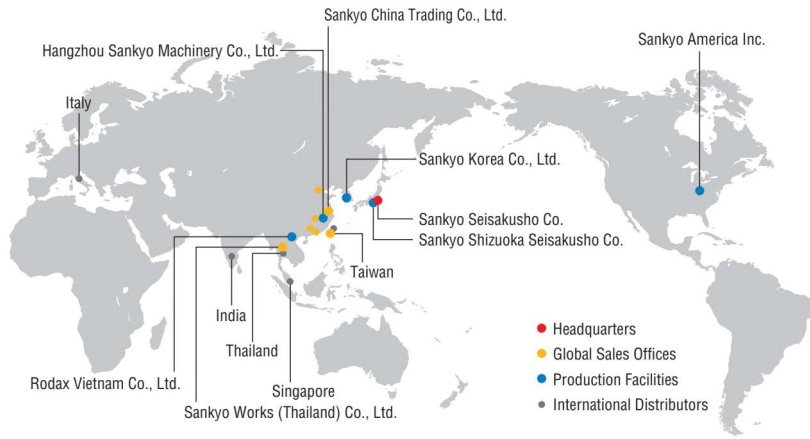
D) Lubrication and product mounting position

Select one from each question.

- Lubrication system : Grease lubrication Oil lubrication
- Product mounting position : W surface on bottom V surface on bottom U surface on bottom
 T surface on bottom R surface on bottom S surface on bottom

G) Motor mounting code

Global network



Group Companies

Sankyo America Inc.

10655 State Route 47 Sidney, Ohio, 45365 U.S.A.
Phone: +1-(0)937-498-4901 Fax: +1-(0)937-498-9403
Email: sales@sankyoautomation.com

Sankyo Korea Co., Ltd.

1449-48 Seobu-ro, Gwonseon-gu,
Suwon-si, Gyeonggi-do, 16643 Korea
Phone: +82-(0)31-895-5991 Fax: +82-(0)31-895-6607
Email: kr-sales@rollerdrive.com

Sankyo China Trading Co., Ltd.

[Shanghai Sales Office]
Room 1103, Block B, No.391 Guiping Road, Shanghai 200233 China
Phone: +86-(0)21-5445-2813 Fax: +86-(0)21-5445-2340
Email: sales@sankyo-china-trading.com

[Shenzhen Sales Office]

Unit 19J, Tower B, NEO Building, No.6009 Shennan Avenue,
Futian District, Shenzhen China
Phone: +86-(0)755-8230-0270 Fax: +86-(0)755-8236-4605

[Tianjin Sales Office]

Room 1905, Pengzhanfeiwo Building A, Crossing Yale Road Yaolin Road,
Xiqing District, Tianjin 300380 China
Phone: +86-(0)22-2312-1005 Fax: +86-(0)22-2312-1007

[Guangzhou Sales Office]

Room 913, Xing Pu building, No.12 Guan Hong Road,
Guangzhou Economic Development Zone, Huang Pu,
Guang Zhou 510670 China
Phone: +86-(0)20-8985-1846 Fax: +86-(0)20-8225-7346

[Wuhan Sales Office]

Room 2301, Taihe Square, No.134 Wusheng Road, Wuhan,
Hubei Province China
Phone: +86-(0)27-8568-5818 Fax: +86-(0)27-8568-2818

Hangzhou Sankyo Machinery Co., Ltd.

No.2518 Jiang Dong 2 Road, Hangzhou Jiang Dong Industrial Park,
Xiaoshan Zone, Hangzhou, Zhejiang, China
Phone: +86-(0)571-8283-3311 Fax: +86-(0)571-8283-1133

Rodax Vietnam Co., Ltd.

Plot No. M1, Thang Long Industrial Park II
Di Su, My Hao, Hung Yen, Viet Nam
Phone: +84-(0)221-3-589701 Fax: +84-(0)221-3-589708

Sankyo Works (Thailand) Co., Ltd.

9/31 Moo 5, Phaholyotin Road, Klongnueng,
Klong Luang, Patumthani 12120 Thailand
Phone: +66-(0)2-516-5355 Fax: +66-(0)2-068-0931
Email: sales@sankyo-works.co.th

Contact us

Mon–Fri AM8:30–12:00 PM13:00–17:30 UTC + 09:00 (JST) (Except public holidays and company holidays)

■ **Headquarters**
(International Sales Division) 3-37-3 Tabatashinmachi, Kita-ku, Tokyo, Japan 114-8538
Phone: +81-(0)3-3800-3330
Fax: +81-(0)3-3800-3380
Email: overseas@sankyo-seisakusho.co.jp
URL: <http://www.sankyo-seisakusho.co.jp>

■ **Taiwan Sales Office** No.21, Ln.152, Jianxing Rd., Sanhe Vil., Daya Dist., Taichung City 42876, Taiwan (R.O.C.)
Phone: +886-(0)4-2359-4048
Fax: +886-(0)4-2359-4720
Email: tw-sales@rollerdrive.com



<http://www.sankyo-seisakusho.co.jp>

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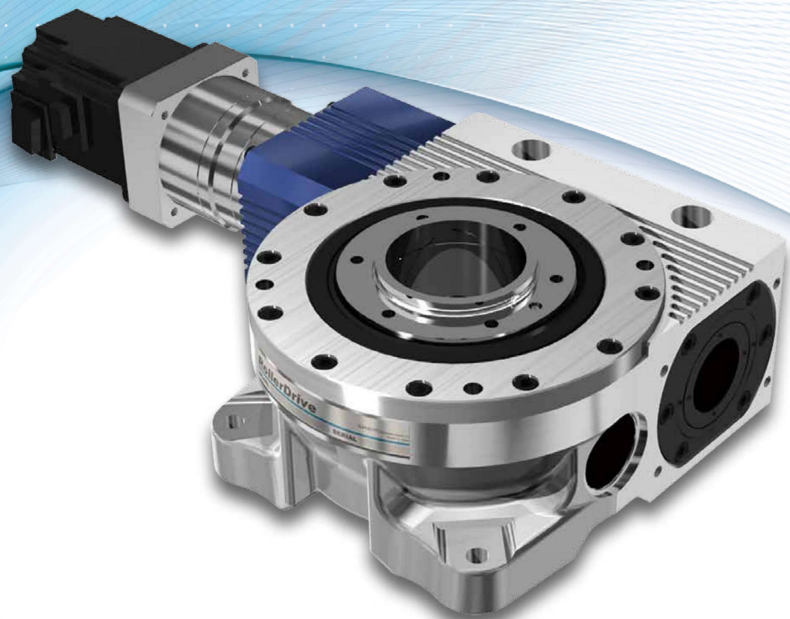
Zero Backlash Positioner

RollerDrive[®]

 **RGV** series Standard Model

Varied lineup of reduction ratios and sizes

Large output torque from a compact servo motor



The ZERO-Backlash Technology

A mechanism developed through the pursuit of outstanding functionality and performance

Superior movement achieved with zero-backlash technology

The RollerDrive is a zero-backlash reducer that utilizes a rolling transmission method with preload adjustment for high-dimensional accuracy, responsiveness, and rigidity with stable performance over long periods.

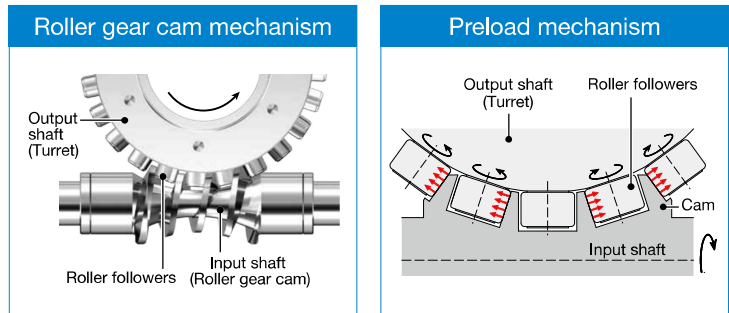
The large-diameter hole construction with a direct input/output shaft layout enables a compact design with zero backlash.

Meanwhile, the rolling transmission method of the RollerDrive provides a characteristic long service life.

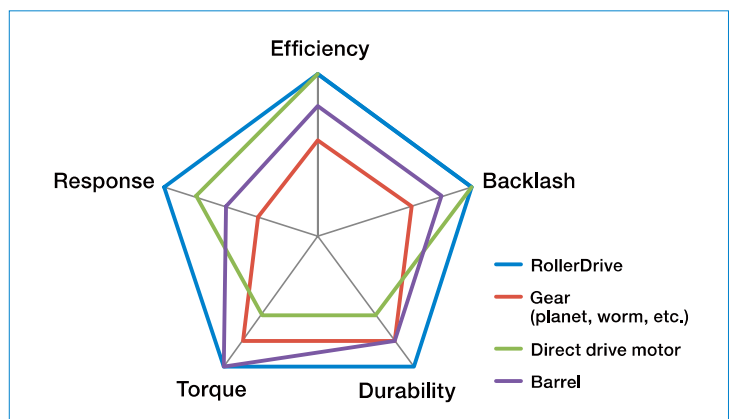


Positioner Lineup

For general factory automation	
MR Ultra-compact model	
RGV Standard model	
RGR Large-diameter model	
RA Lightweight model	
RU High-rigidity model	
For welding machines	
SP Standard model	
RW High-accuracy model	

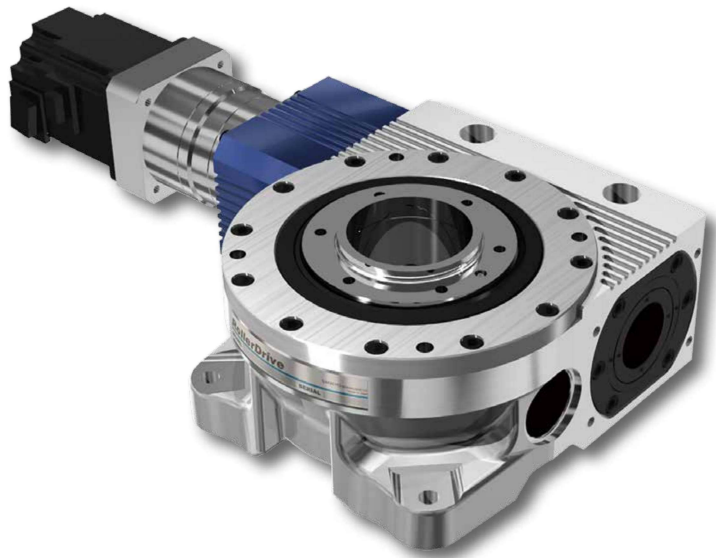


Performance Comparison



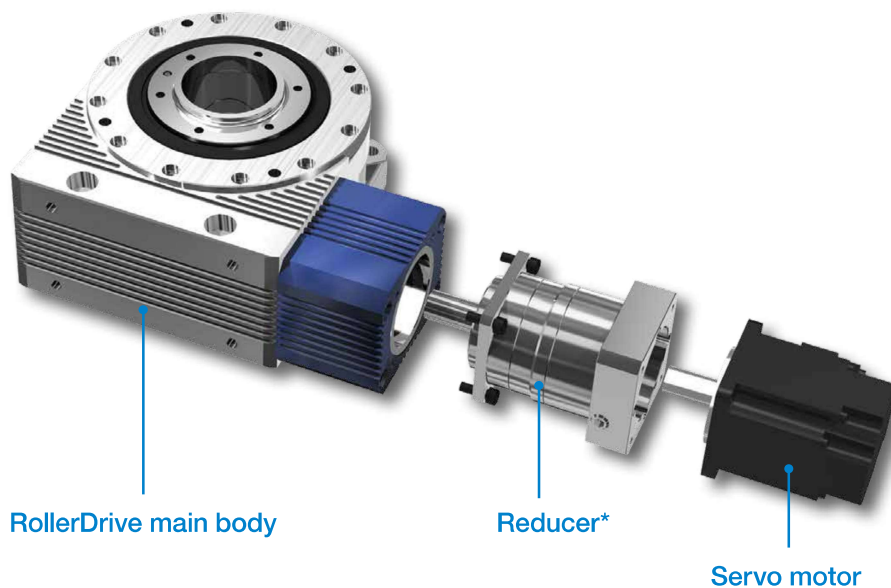
RollerDrive® RGV series

Zero-backlash positioner Standard model



Features

- ▶ Varied lineup of reduction ratios and sizes
- ▶ Large output torque from a compact servo motor
- ▶ Capable of handling heavy and uneven loads easily
- ▶ Lightweight and compact



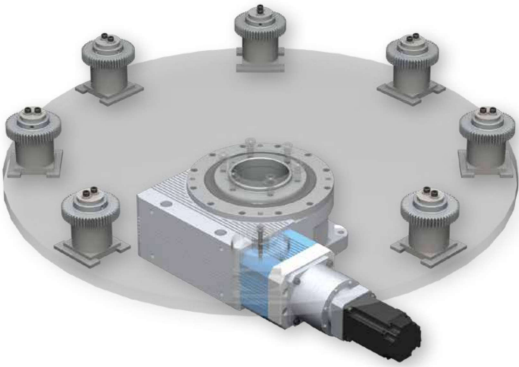
RollerDrive main body

Reducer*

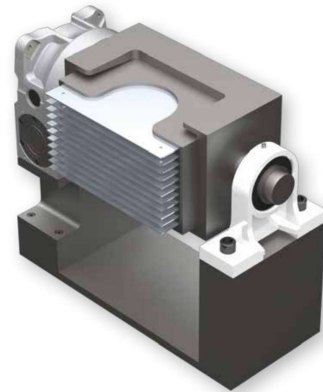
Servo motor

*For high gear ratio model

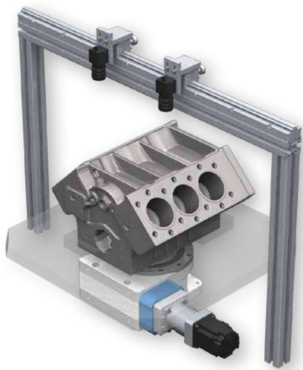
Applications



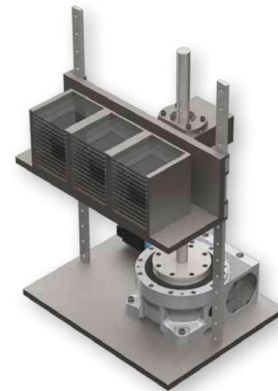
Index table



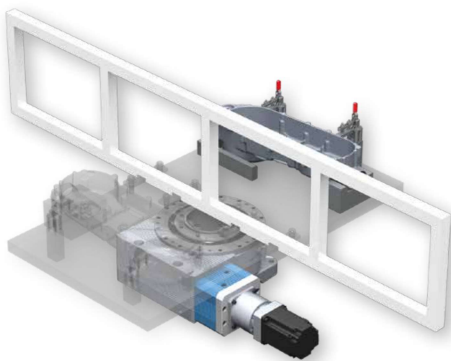
Cradle drive



Workpiece positioner



Ball screw drive



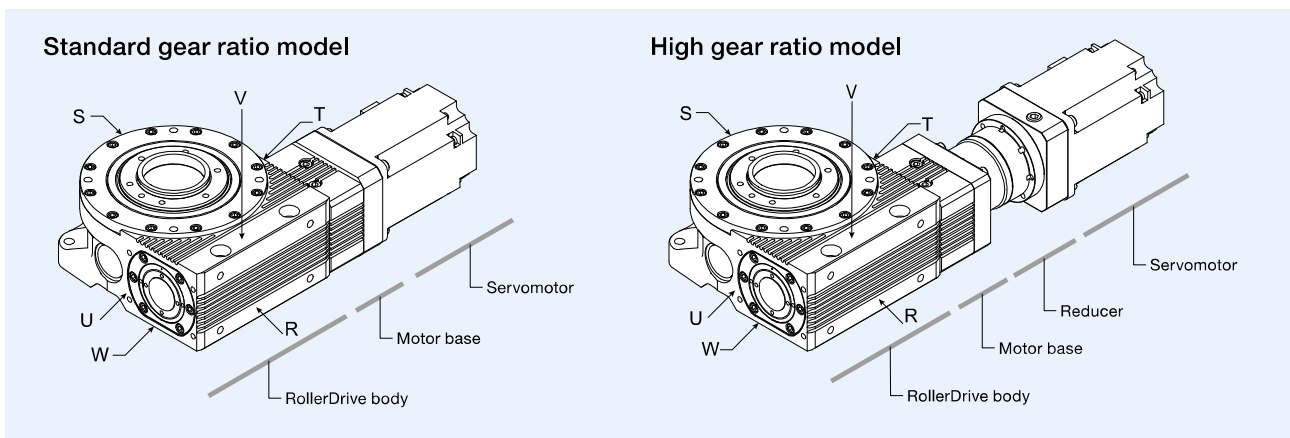
Turntable

Product Code

Product Code

1	2	3	4	5	6	7
RGV	063	072	G	T	A	BJC
1	2	3	4	5	6	7
Model	Size	Gear ratio	Lubrication method	Servomotor position	Options	Attachment code
RGV	040	015, 045, 075	G : Grease lubrication Usable in any position /direction For oil lubrication: 1/2/3/4/5/6 See oil lubrication mounting codes below	T : Standard Mounted on right side of main unit U : Mounted on left side of main unit	Blank : None A : Rustproof specification B : Rustproof/dustproof/waterproof specification	See the list of mountable motors for each size ⇒ P. 19 to 28
	063					
	080					
	100					
	125					

RollerDrive components and mounting surface designations



* Shown with servomotor on "T" surface

Oil lubrication mounting codes

1	2	3	4	5	6
W surface toward bottom	V surface toward bottom	U surface toward bottom	T surface toward bottom	R surface toward bottom	S surface toward bottom



Product Specifications

Grease lubrication type

Model		RGV040			RGV063					
Main unit gear ratio		15			12			24		
Reducer gear ratio		—	3	5	—	3	5	—	3	5
Total gear ratio		15	45	75	12	36	60	24	72	120
Start / Stop limit torque	N · m	67			64.2			109.8		
Static output torque	N · m	100			87			184		
Maximum input speed	min ⁻¹	1,800	5,400	6,000	1,200	3,600	6,000	1,600	4,800	6,000
Rated input speed	min ⁻¹	900	2,700	3,000	600	1,800	3,000	800	2,400	3,000
Maximum output speed ^{*1}	min ⁻¹	120		80	100			66.7		50
Rated output speed ^{*1}	min ⁻¹	60		40	50			33.3		25
Internal moment of inertia at the input shaft ^{*2}	× 10 ⁻⁴ kg · m ²	0.243			0.851			0.642		
Equivalent moment of inertia of motor shaft ^{*3}	× 10 ⁻⁴ kg · m ²	0.39	0.21	0.16	1.68	0.44	0.26	1.47	0.41	0.25
Repeatability ^{*4}	arc sec or less	± 10			± 7					
Allowable axial load (load weight)	N	1,155			2,988			3,486		
Allowable radial load	N	766			2,642			3,082		
Allowable moment load	N · m	42			160			176		
Weight (not including motor) ^{*5}	kg	4.3	4.9		8.3	9.7		8.3	9.7	

Model		RGV080						RGV100						RGV125					
Main unit gear ratio		12		24		12		24		12		24		12		24			
Reducer gear ratio		—	3	5	—	3	5	—	3	5	—	3	5	—	3	5	—	3	5
Total gear ratio		12	36	60	24	72	120	12	36	60	24	72	120	12	36	60	24	72	120
Start / Stop limit torque	N · m	108.6			183.8			269.5			457			453.2			771.8		
Static output torque	N · m	155			323			374.5			782			632			1,326		
Maximum input speed	min ⁻¹	1,100	3,300	5,500	1,400	4,200	6,000	1,000	3,000	5,000	1,300	3,900	6,000	900	2,700	4,500	1,200	3,600	6,000
Rated input speed	min ⁻¹	550	1,650	2,750	700	2,100	3,000	500	1,500	2,500	650	1,950	3,000	450	1,350	2,250	600	1,800	3,000
Maximum output speed ^{*1}	min ⁻¹	91.7			58.3			50			83.3			54.2			50		
Rated output speed ^{*1}	min ⁻¹	45.8			29.2			25			41.7			27.1			25		
Internal moment of inertia at the input shaft ^{*2}	× 10 ⁻⁴ kg · m ²	2.843			2.237			7.031			5.248			18.799			13.539		
Equivalent moment of inertia of motor shaft ^{*3}	× 10 ⁻⁴ kg · m ²	3.67	0.66	0.34	3.07	0.59	0.31	9.23	3.92	1.17	7.45	3.72	1.10	26.60	5.85	3.66	21.34	5.27	3.45
Repeatability ^{*4}	arc sec or less	± 5						± 5						± 5					
Allowable axial load (load weight)	N	3,687			4,015			4,118			4,242			7,510			8,301		
Allowable radial load	N	3,192			3,546			3,496			3,741			6,624			7,321		
Allowable moment load	N · m	253			278			446			520			1,005			1,164		
Weight (not including motor) ^{*5}	kg	15.2	16.3		15.2	16.3		26.1	29.0		26.1	29.0		44.9	48.8		44.9	48.8	

*1 Contact Sankyo in the case of output with continuous rotation at 360 degrees or more.

*2 Does not include coupling and reducer.

*3 Maximum value may vary depending on motor specifications.

*4 Indicates the accuracy for the main unit without the reducer.

*5 May vary slightly depending on reduction ratio and motor specifications/dimensions.

Product Specifications

Oil lubrication type

Model		RGV040			RGV063					
Main unit gear ratio		15			12			24		
Reducer gear ratio		—	3	5	—	3	5	—	3	5
Total gear ratio		15	45	75	12	36	60	24	72	120
Start / Stop limit torque	N · m	82			79			135.2		
Static output torque	N · m	100			87			184		
Maximum input speed	min ⁻¹	2,400	6,000		2,600	6,000		2,600	6,000	
Rated input speed	min ⁻¹	1,200	3,000		1,300	3,000		1,300	3,000	
Maximum output speed ^{*1}	min ⁻¹	160	133.3	80	216.7	166.7	100	108.3	83.3	50
Rated output speed ^{*1}	min ⁻¹	80	66.7	40	108.3	83.3	50	54.2	41.7	25
Internal moment of inertia at the input shaft ^{*2}	× 10 ⁻⁴ kg · m ²	0.243			0.851			0.642		
Equivalent moment of inertia of motor shaft ^{*3}	× 10 ⁻⁴ kg · m ²	0.39	0.21	0.16	1.68	0.44	0.26	1.47	0.41	0.25
Repeatability ^{*4}	arc sec or less	± 10			± 7					
Allowable axial load (load weight)	N	1,155			2,988			3,486		
Allowable radial load	N	766			2,642			3,082		
Allowable moment load	N · m	42			160			176		
Weight (not including motor) ^{*5}	kg	4.3	4.9		8.3	9.7		8.3	9.7	

Model		RGV080						RGV100						RGV125					
Main unit gear ratio		12			24			12			24			12			24		
Reducer gear ratio		—	3	5	—	3	5	—	3	5	—	3	5	—	3	5	—	3	5
Total gear ratio		12	36	60	24	72	120	12	36	60	24	72	120	12	36	60	24	72	120
Start / Stop limit torque	N · m	133.7			226.2			331.8			562.3			557.9			950.2		
Static output torque	N · m	155			323			374.5			782			632			1,326		
Maximum input speed	min ⁻¹	2,200	6,000		2,200	6,000		2,000	6,000		2,000	6,000		1,920	5,760	6,000	1,920	5,760	6,000
Rated input speed	min ⁻¹	1,100	3,000		1,100	3,000		1,000	3,000		1,000	3,000		960	2,880	3,000	960	2,880	3,000
Maximum output speed ^{*1}	min ⁻¹	183.3	166.7	100	91.7	83.3	50	166.7	100	83.3	50	160	100	80	50	160	100	80	50
Rated output speed ^{*1}	min ⁻¹	91.7	83.3	50	45.8	41.7	25	83.3	50	41.7	25	80	50	40	25	80	50	40	25
Internal moment of inertia at the input shaft ^{*2}	× 10 ⁻⁴ kg · m ²	2,843			2,237			7,031			5,248			18,799			13,539		
Equivalent moment of inertia of motor shaft ^{*3}	× 10 ⁻⁴ kg · m ²	3.67	0.66	0.34	3.07	0.59	0.31	9.23	3.92	1.17	7.45	3.72	1.10	26.60	5.85	3.66	21.34	5.27	3.45
Repeatability ^{*4}	arc sec or less	± 5						± 5						± 5					
Allowable axial load (load weight)	N	3,687			4,015			4,118			4,242			7,510			8,301		
Allowable radial load	N	3,192			3,546			3,496			3,741			6,624			7,321		
Allowable moment load	N · m	253			278			446			520			1,005			1,164		
Weight (not including motor) ^{*5}	kg	15.2	16.3		15.2	16.3		26.1	29.0		26.1	29.0		44.9	48.8		44.9	48.8	

*1 Contact Sankyo in the case of output with continuous rotation at 360 degrees or more.

*2 Does not include coupling and reducer.

*3 Maximum value may vary depending on motor specifications.

*4 Indicates the accuracy for the main unit without the reducer.

*5 May vary slightly depending on reduction ratio and motor specifications/dimensions.

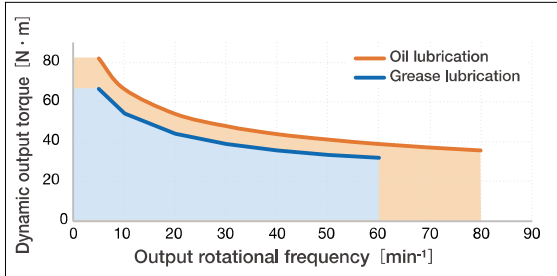


Dynamic output torque

The limit for the load torque acting on the output shaft is indicated to satisfy the expected lifetime (12,000 hours) of the RollerDrive. Dynamic output torque varies according to the output rotational frequency.

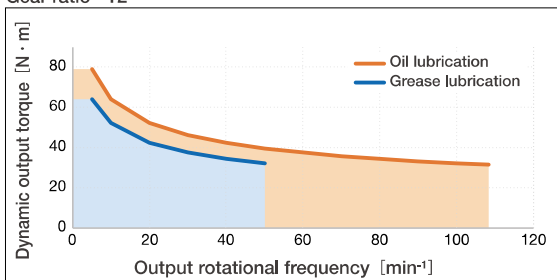
RGV040

Gear ratio=15

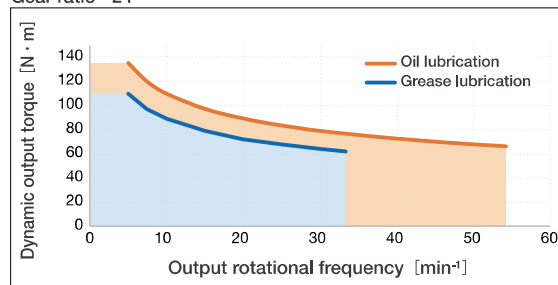


RGV063

Gear ratio=12

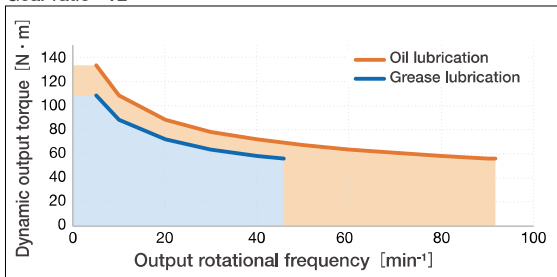


Gear ratio=24

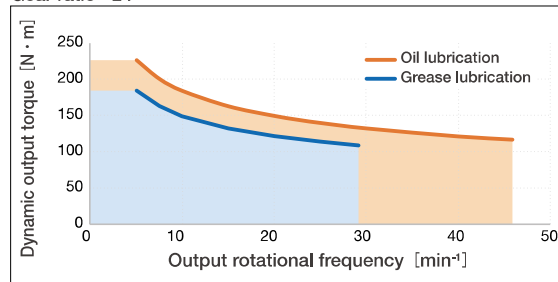


RGV080

Gear ratio=12

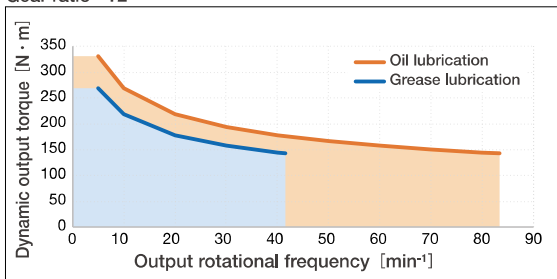


Gear ratio=24

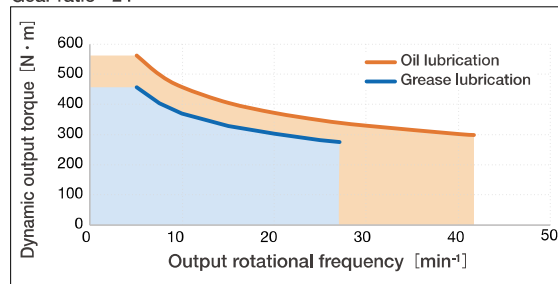


RGV100

Gear ratio=12

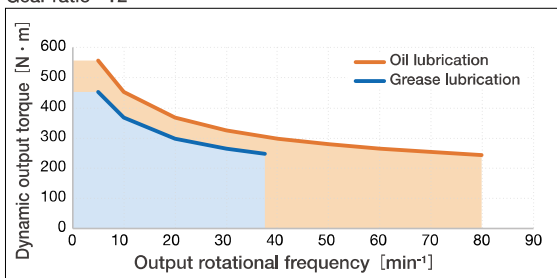


Gear ratio=24

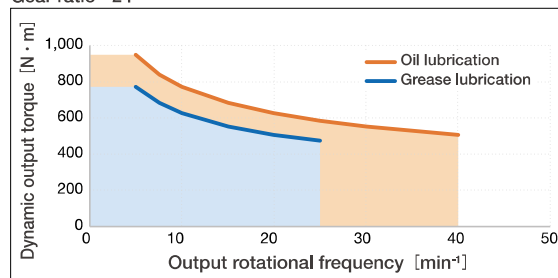


RGV125

Gear ratio=12



Gear ratio=24

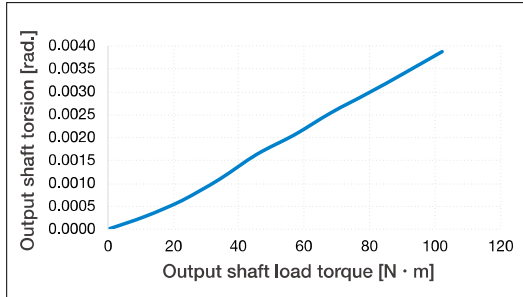




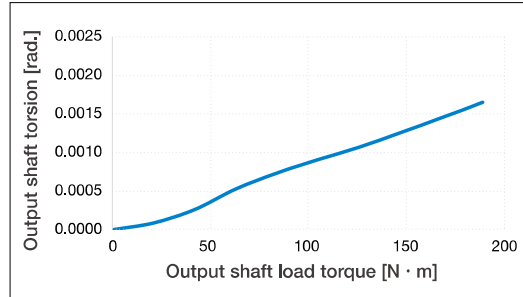
Torsional Rigidity

Torsional rigidity is the degree of shaft torsion for the output shaft torque.
Higher torsional rigidity means less torque deformation and higher natural frequency.

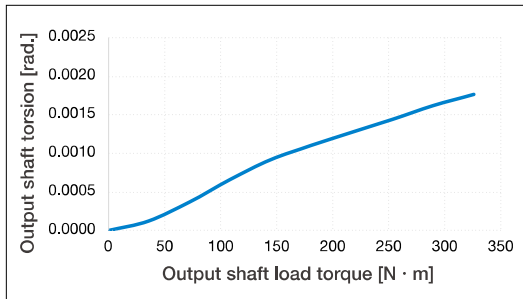
RGV040



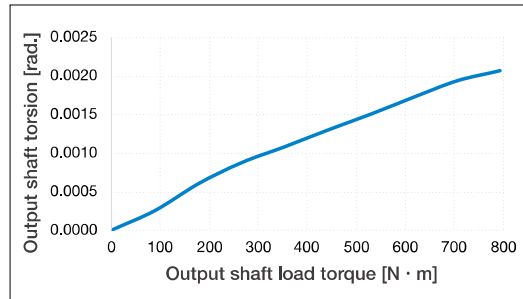
RGV063



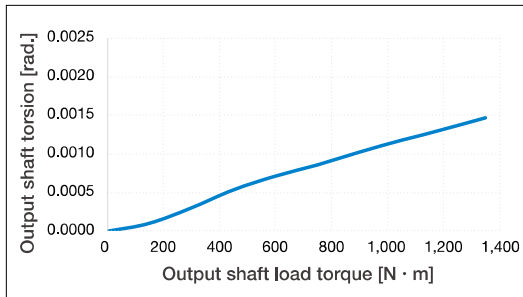
RGV080



RGV100

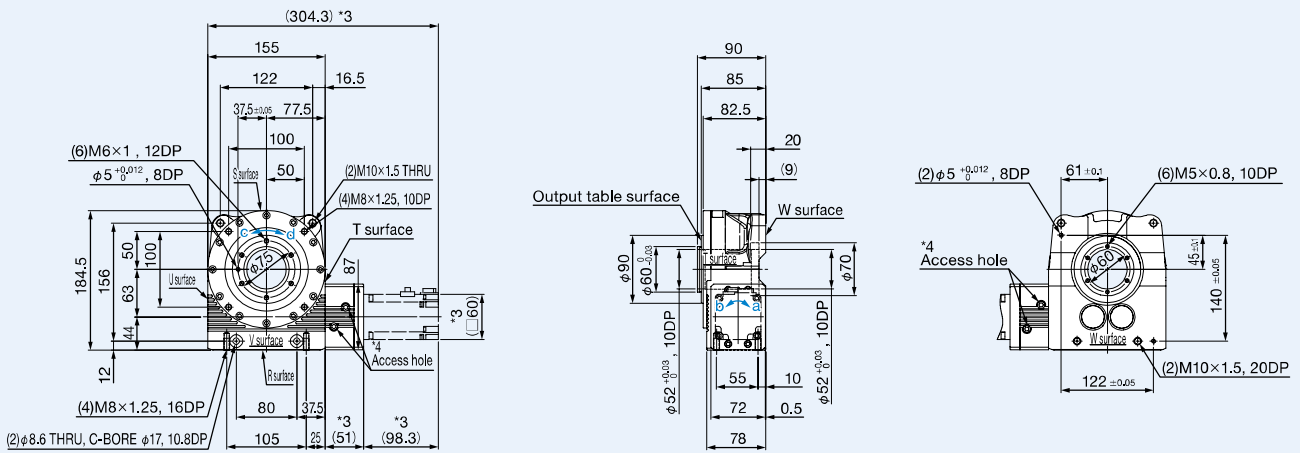


RGV125

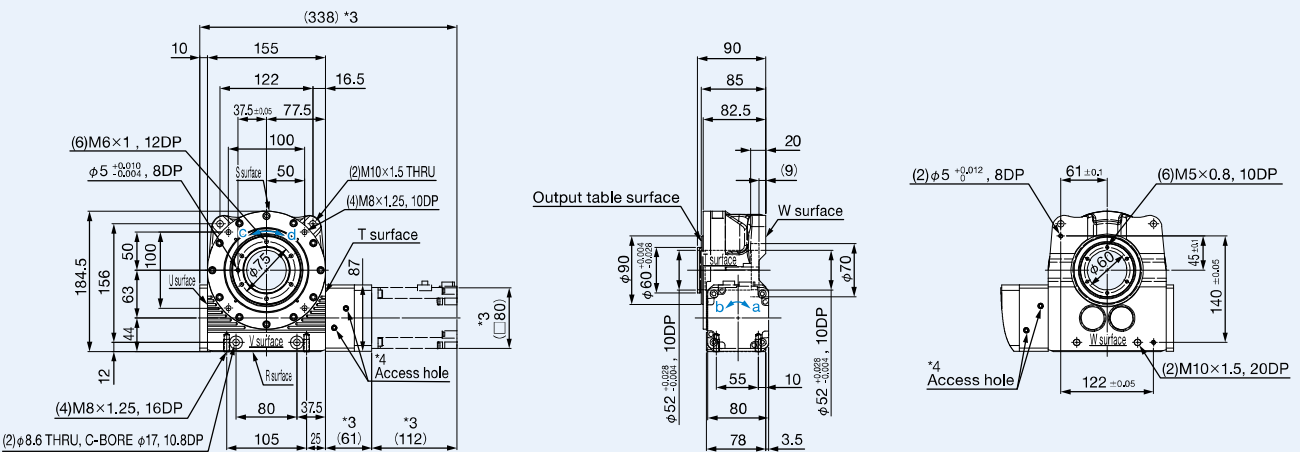


RGV063 Dimensions of Standard Gear Ratio Models

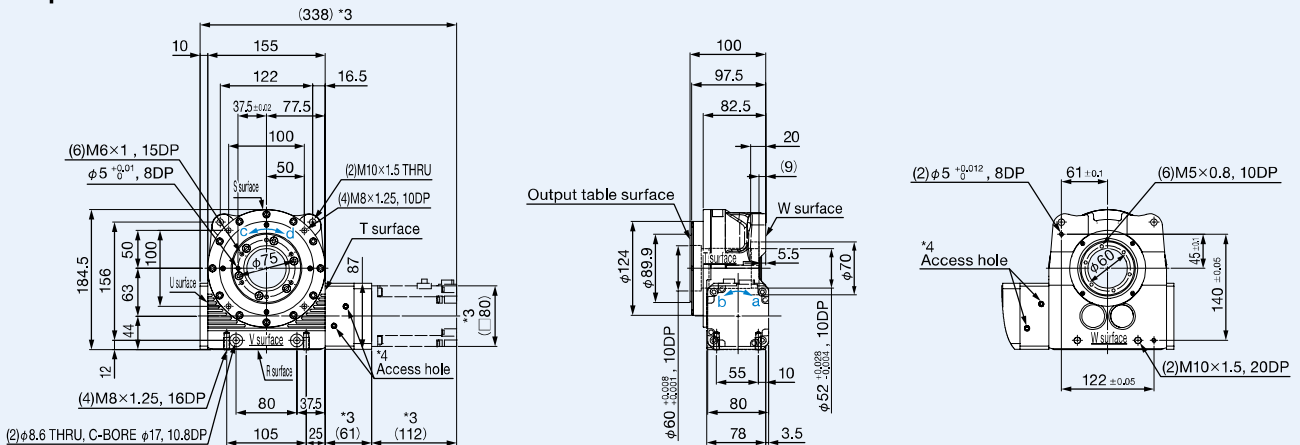
Options: None



Options: A



Options: B



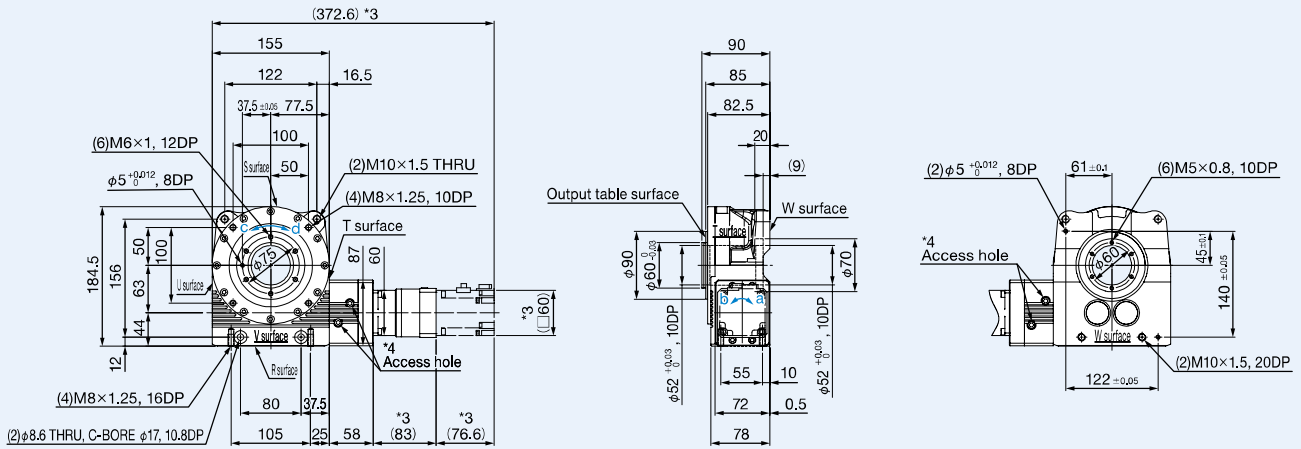
*1 This drawing is for a model where the motor is mounted on the T surface. *2 The rotating directions of input-output axes are related as a-d and b-c.

*3 Dimensions in parentheses () vary depending on the motor. *4 There is one access holes on the V surface and one on the W surface.

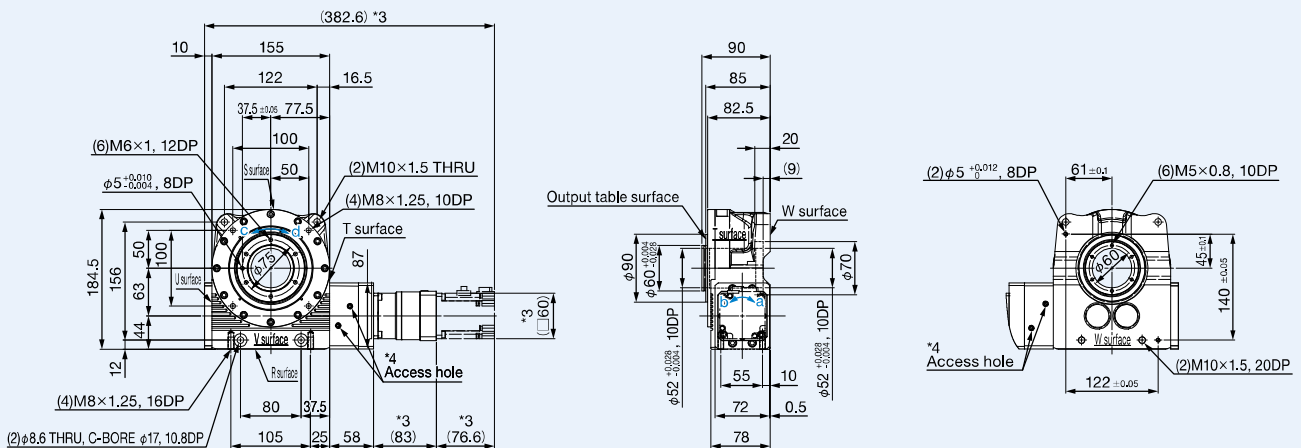
11 *5 Due to its mounting position, the positions of the oil plug, oil level, and drain differ for the oil lubrication type. See P. 29. *6 The servo motor will need to be prepared by the customer.

RGV063 Dimensions of High Gear Ratio Models

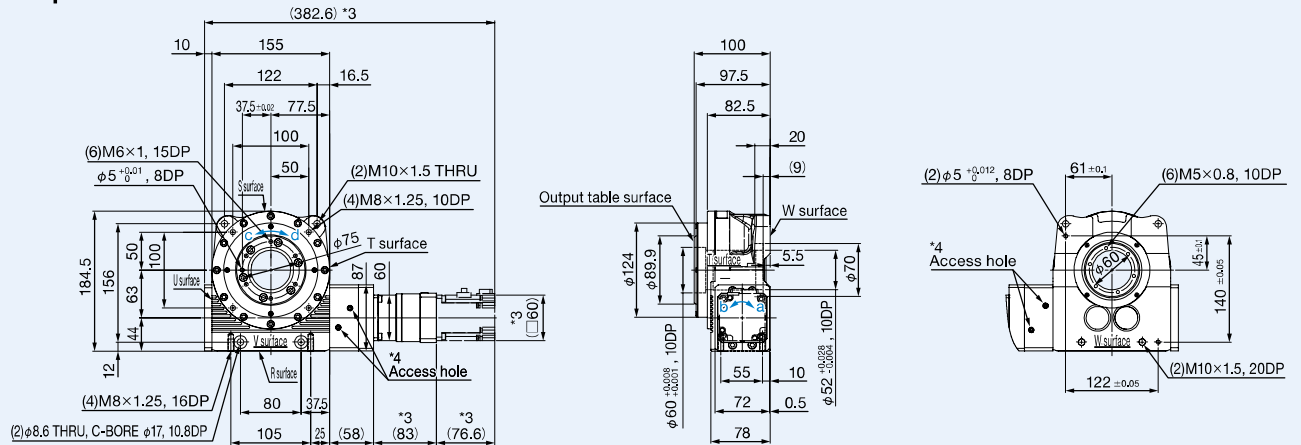
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Options: A



Options: B



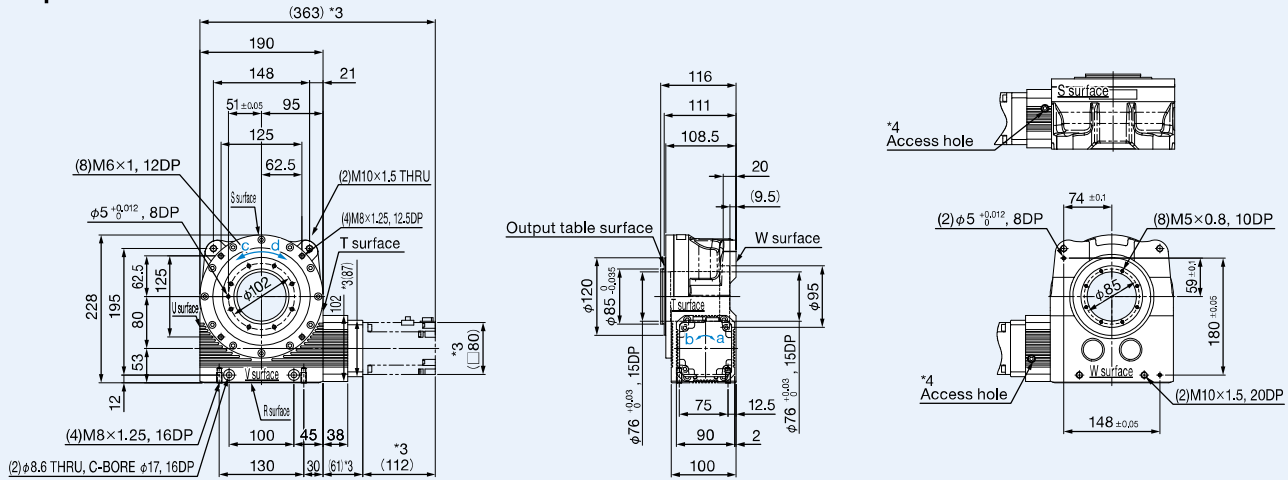
*1 This drawing is for a model where the motor is mounted on the T surface. *2 The rotating directions of input-output axes are related as a-d and b-c.

*3 Dimensions in parentheses () vary depending on the motor. *4 There is one access holes on the V surface and one on the W surface.

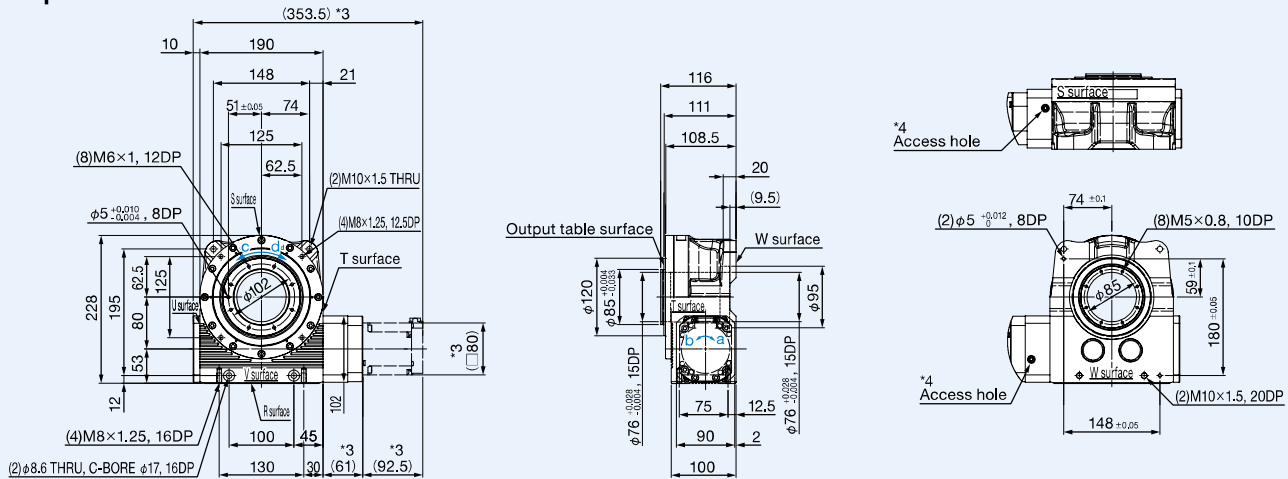
*5 Due to its mounting position, the positions of the oil plug, oil level, and drain differ for the oil lubrication type. See P. 29. *6 The servo motor will need to be prepared by the customer.

RGV80 Dimensions of Standard Gear Ratio Models

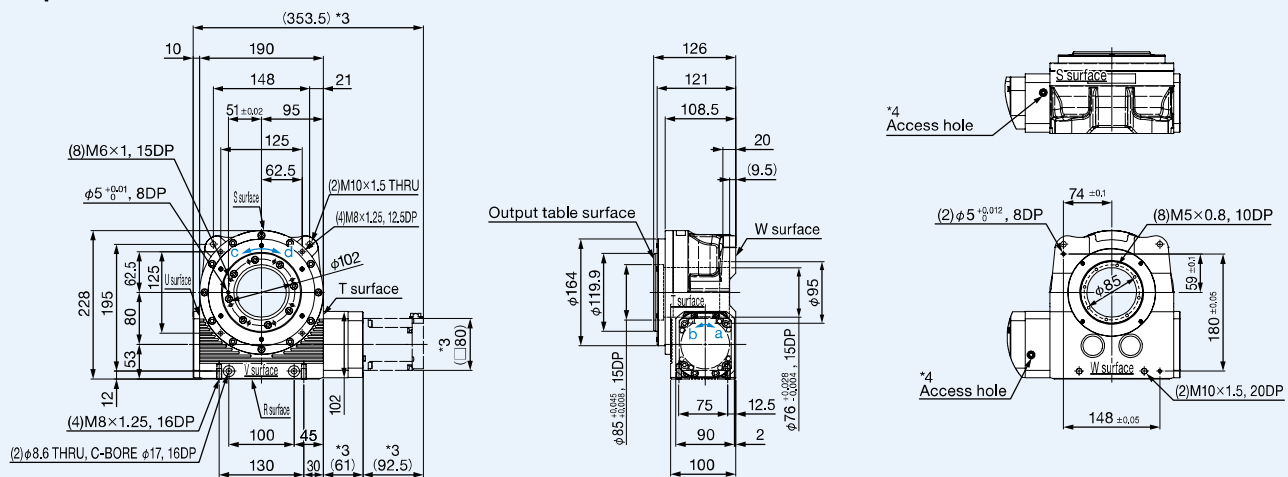
Options: None



Options: A



Options: B



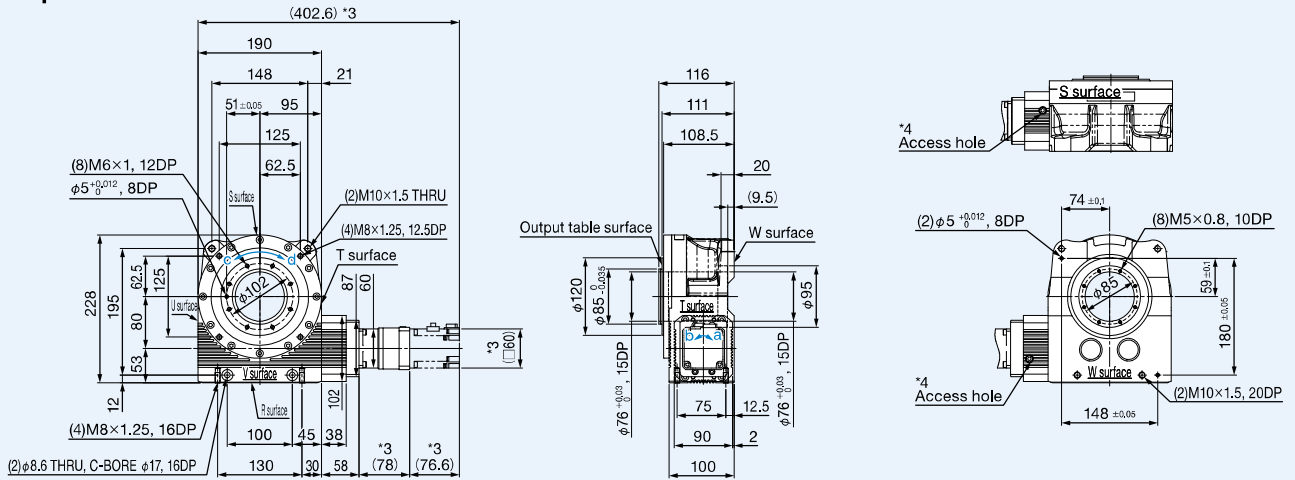
*1 This drawing is for a model where the motor is mounted on the T surface. *2 The rotating directions of input-output axes are related as a-d and b-c.

*3 Dimensions in parentheses () vary depending on the motor. *4 There is one access hole on the S surface and one on the W surface.

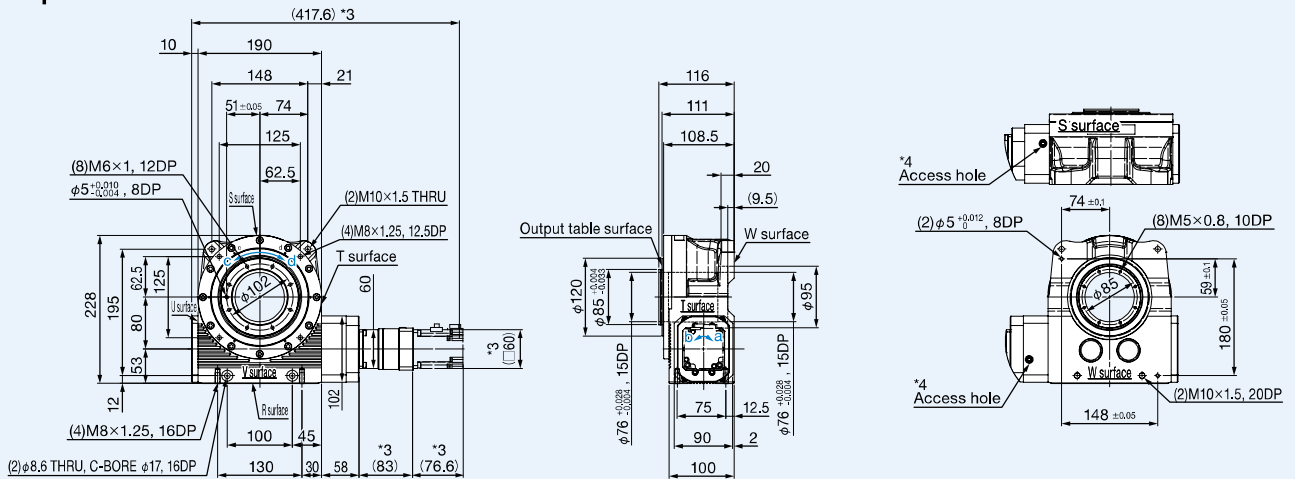
13 *5 Due to its mounting position, the positions of the oil plug, oil level, and drain differ for the oil lubrication type. See P. 29. *6 The servo motor will need to be prepared by the customer.

RGV80 Dimensions of High Gear Ratio Models

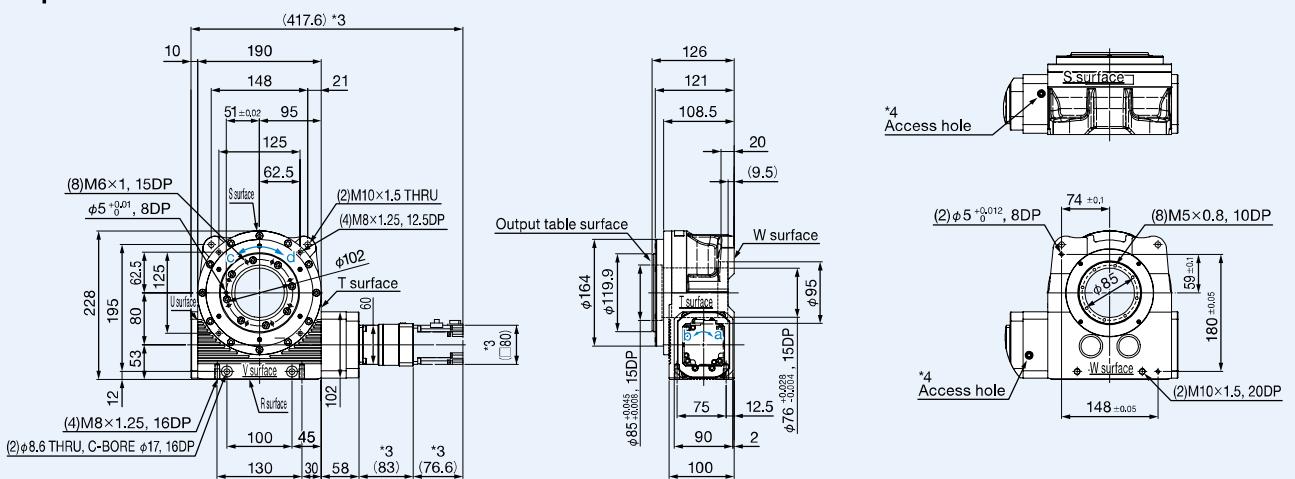
Options: None



Options: A



Options: B



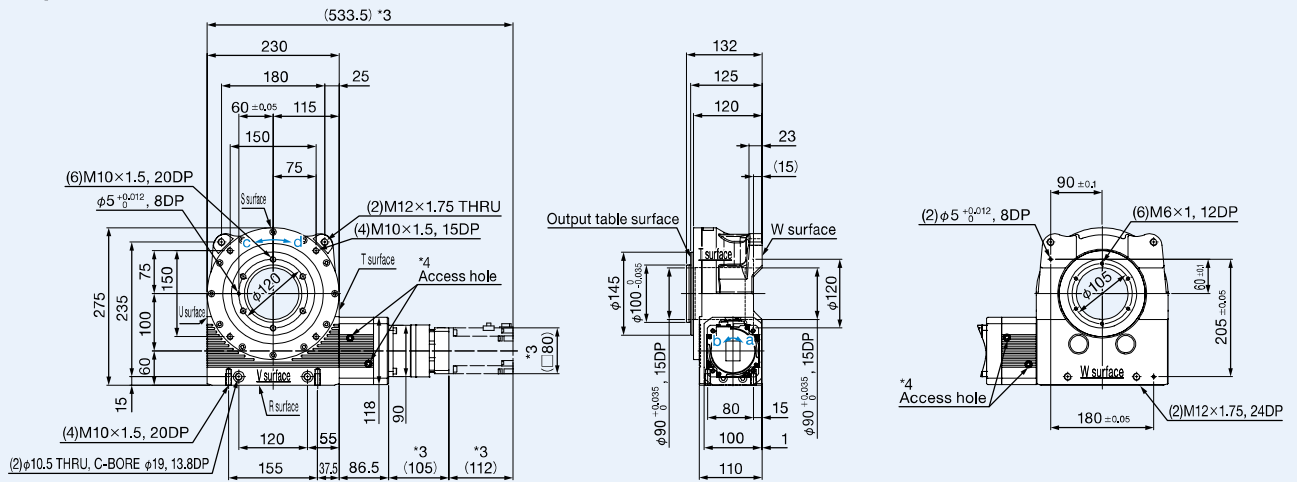
*1 This drawing is for a model where the motor is mounted on the T surface. *2 The rotating directions of input-output axes are related as a-d and b-c.

*3 Dimensions in parentheses () vary depending on the motor. *4 There is one access hole on the S surface and one on the W surface.

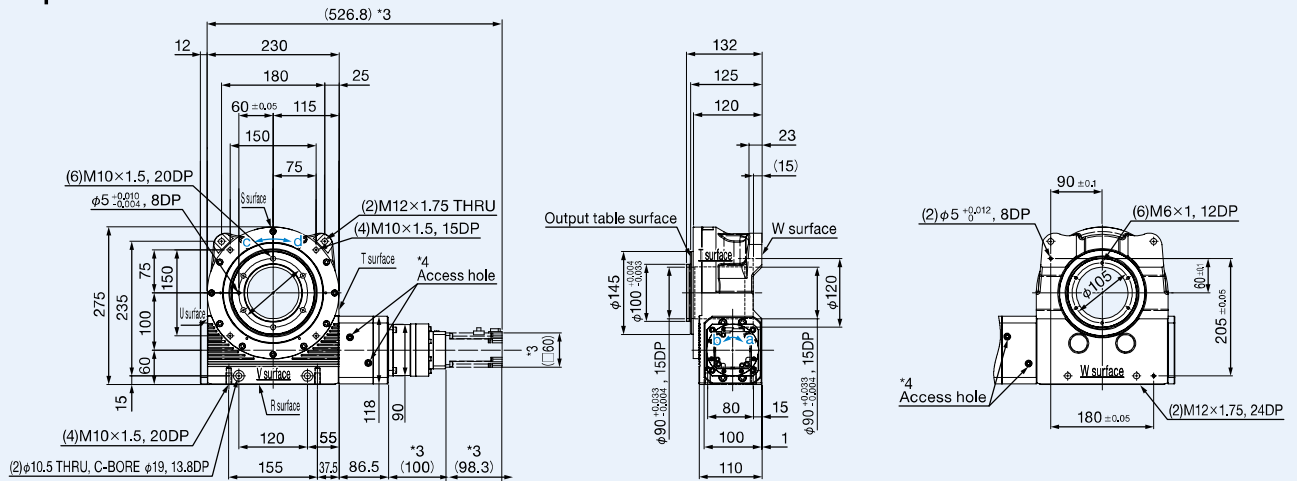
*5 Due to its mounting position, the positions of the oil plug, oil level, and drain differ for the oil lubrication type. See P. 29. *6 The servo motor will need to be prepared by the customer.

RGV100 Dimensions of High Gear Ratio Models

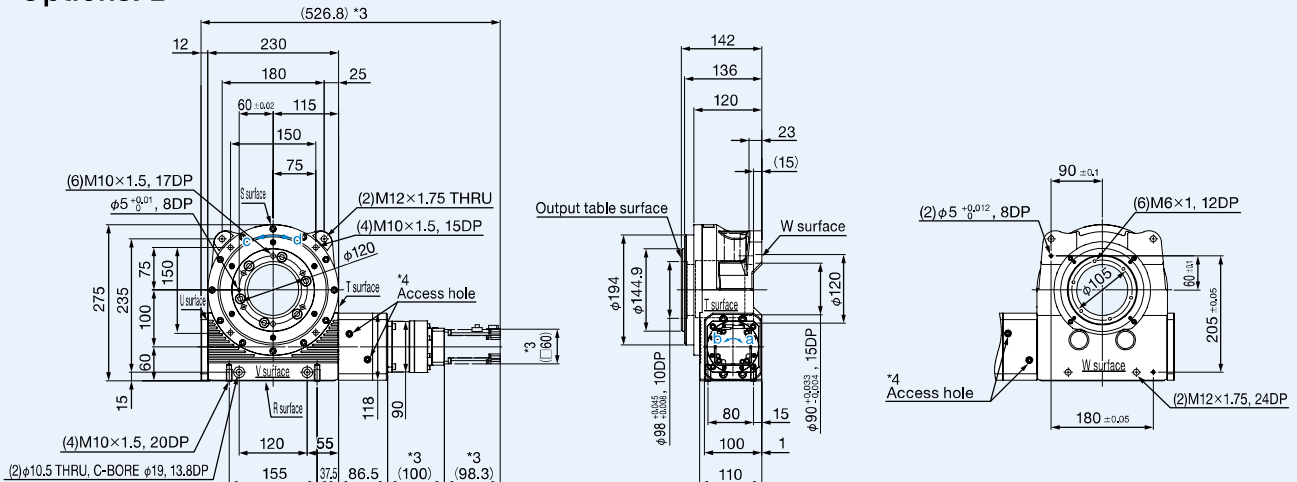
Options: None



Options: A



Options: B



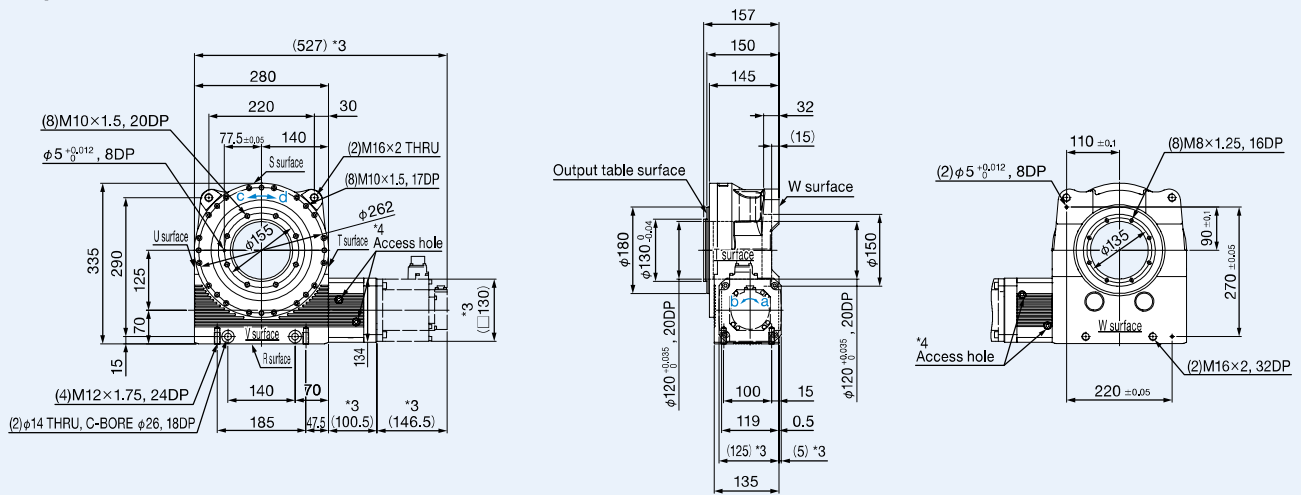
*1 This drawing is for a model where the motor is mounted on the T surface. *2 The rotating directions of input-output axes are related as a-d and b-c.

*3 Dimensions in parentheses () vary depending on the motor. *4 There is one access holes on the V surface and one on the W surface.

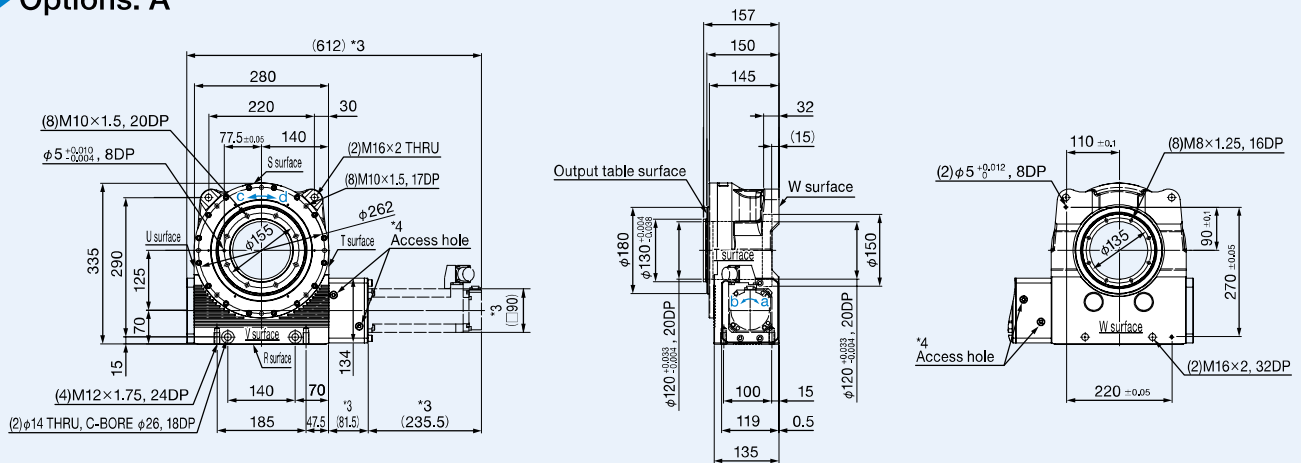
*5 Due to its mounting position, the positions of the oil plug, oil level, and drain differ for the oil lubrication type. See P. 29. *6 The servo motor will need to be prepared by the customer.

RGV125 Dimensions of Standard Gear Ratio Models

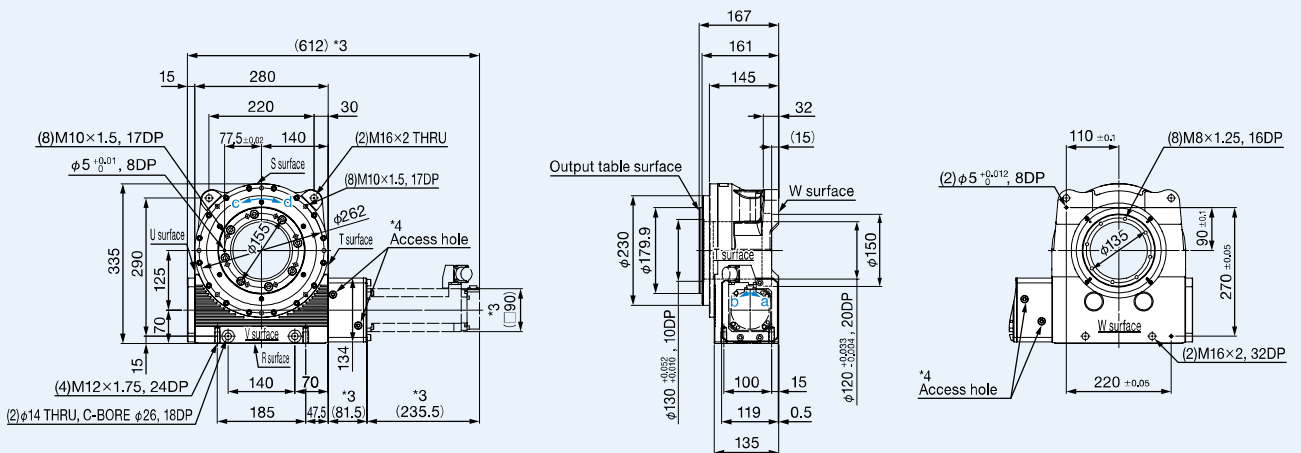
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Options: A



Options: B



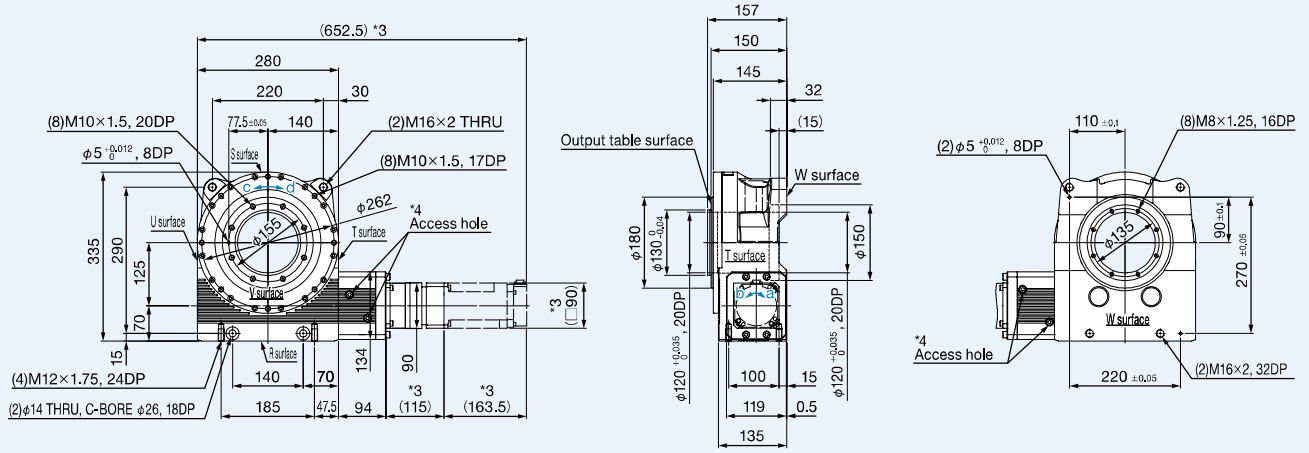
*1 This drawing is for a model where the motor is mounted on the T surface. *2 The rotating directions of input-output axes are related as a-d and b-c.

*3 Dimensions in parentheses () vary depending on the motor. *4 There is one access holes on the V surface and one on the W surface.

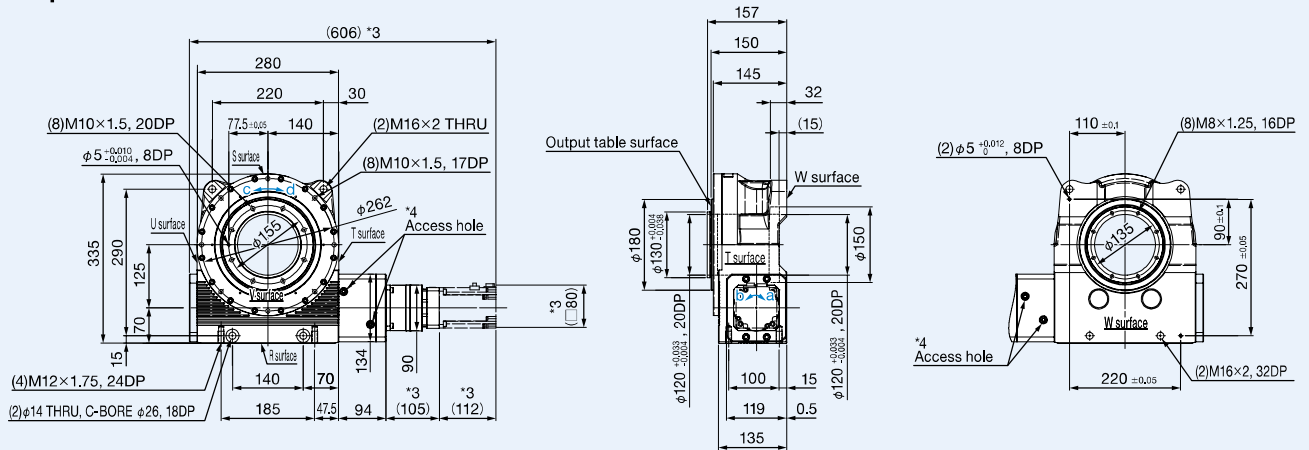
17 *5 Due to its mounting position, the positions of the oil plug, oil level, and drain differ for the oil lubrication type. See P. 29. *6 The servo motor will need to be prepared by the customer.

RGV125 Dimensions of High Gear Ratio Models

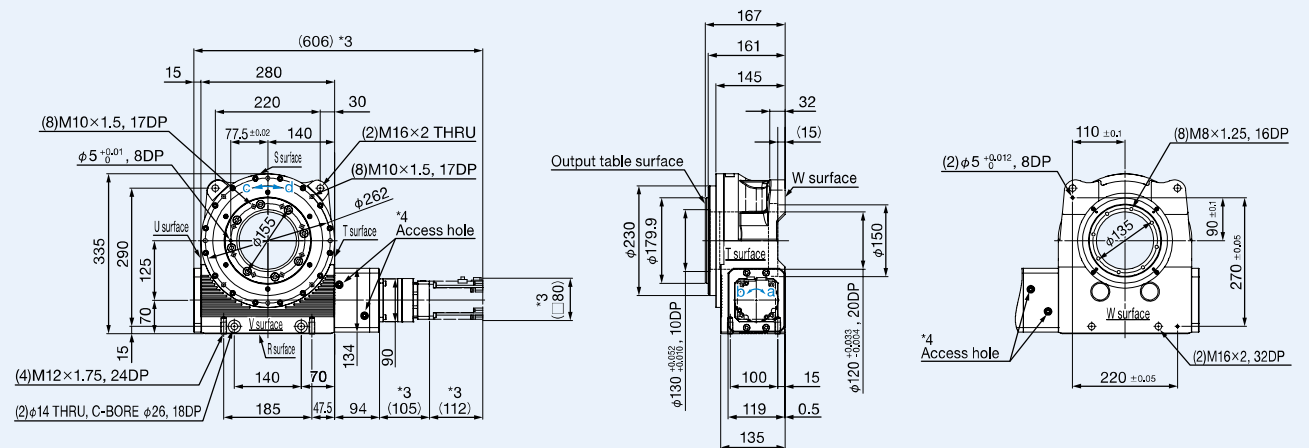
Options: None



Options: A



Options: B



*1 This drawing is for a model where the motor is mounted on the T surface. *2 The rotating directions of input-output axes are related as a-d and b-c.

*3 Dimensions in parentheses () vary depending on the motor. *4 There is one access holes on the V surface and one on the W surface.

*5 Due to its mounting position, the positions of the oil plug, oil level, and drain differ for the oil lubrication type. See P. 29. *6 The servo motor will need to be prepared by the customer.



List of Mountable Servo Motors

RGV040 Standard gear ratio model [Gear ratio = 15]

Manufacturer	Series	Model	Motor capacity [kW]	Motor rated torque [N · m]	Motor max. torque [N · m]	Rated rotation speed [min ⁻¹]	Motor inertia [$\times 10^{-4}$ kg · m ²]	Attachment code	Corresponding reduction ratio
OMRON	G	R88M-G40030H, T	0.4	1.3	3.67	3,000	0.26	CD	○
	G5	R88M-K40030H, T	0.4	1.3	3.8	3,000	0.26	CD	○
KEYENCE	SV	SV-M040	0.4	1.27	4.46	3,000	0.442	DD	○
	SV2	SV2-M040A	0.4	1.27	4.46	3,000	0.486	DD	○
Panasonic	MINAS_A5	MSMD042G1	0.4	1.3	3.8	3,000	0.26	CD	○
		MHMD042G1	0.4	1.3	3.8	3,000	0.67	CD	○
		MSME042G1	0.4	1.3	3.8	3,000	0.26	CD	○
	MINAS_A6	MSMF042L1	0.4	1.27	3.82	3,000	0.27	CD	○
		MHMF042L1	0.4	1.27	4.46	3,000	0.56	CD	○
FANUC	β is	β iS1/6000	0.5	1.2	5	6,000	0.34	DD	○
Mitsubishi Electric	J4	HG-MR43	0.4	1.3	3.8	3,000	0.142	DD	○
		HG-KR43	0.4	1.3	4.5	3,000	0.371	DD	○
	J5	HK-KT43W	0.4	1.3	4.5	3,000	0.41	DD	○
		HK-KT63W	0.6	1.9	6.7	3,000	0.598	DD	▲
		HK-KT434W	0.2	1.3	4.5	1,500	0.41	DD	○
		HK-KT634W	0.3	1.9	6.7	1,500	0.598	DD	▲
Yaskawa Electric	Σ -7	SGM7J-04A	0.4	1.27	4.46	3,000	0.486	DD	○
		SGM7J-06A	0.6	1.91	6.69	3,000	0.8	DD	▲
		SGM7A-04A	0.4	1.27	4.46	3,000	0.216	DD	○
		SGM7A-06A	0.6	1.91	6.69	3,000	0.315	DD	▲
Sanyo Denki	R2	R2AA06040H	0.4	1.27	4.8	3,000	0.412	DD	○
		R2AA06040F	0.4	1.27	4.8	3,000	0.412	DD	○
	R5	R5AA06040H	0.4	1.27	4.8	3,000	0.414	DD	○
		R5AA06040F	0.4	1.27	4.8	3,000	0.414	DD	○

*1 The customer will be responsible for preparing a servo motor with no keyway.

*2 Contact Sanyo for servo motors with brakes or with oil seals.

*3 "▲" indicates usability with the maximum torque limit applied to the servo motor. See "Servo motor torque limit" on page 32 for more information.

RGV040 High gear ratio model [Gear ratio = 45, 75]

Manufacturer	Series	Model	Motor capacity [kW]	Motor rated torque [N · m]	Motor max. torque [N · m]	Rated rotation speed [min ⁻¹]	Motor inertia [$\times 10^{-4}$ kg · m ²]	Attachment code	Corresponding reduction ratio	
									45	75
OMRON	G	R88M-G10030H, T	0.1	0.32	0.9	3,000	0.051	ZG	-	○
		R88M-G20030H, T	0.2	0.64	1.78	3,000	0.14	BJC	○	-
	G5	R88M-K10030H, T	0.1	0.32	0.95	3,000	0.051	ZG	-	○
		R88M-K20030H, T	0.2	0.64	1.91	3,000	0.14	BJC	○	-
KEYENCE	SV	SV-M010	0.1	0.318	1.11	3,000	0.0665	ZG	-	○
		SV-M020	0.2	0.637	2.23	3,000	0.259	BK	○	-
	SV2	SV2-M010A	0.1	0.318	1.11	3,000	0.0659	ZG	-	○
		SV2-M020A	0.2	0.637	2.23	3,000	0.263	BK	○	-
Panasonic	MINAS_A5	MSMD012G1	0.1	0.32	0.95	3,000	0.051	ZF	-	○
		MSMD022G1	0.2	0.64	1.91	3,000	0.14	BJC	○	-
		MHMD022G1	0.2	0.64	1.91	3,000	0.42	BJC	○	-
		MSME012G1	0.1	0.32	0.95	3,000	0.051	ZF	-	○
		MSME022G1	0.2	0.64	1.91	3,000	0.14	BJC	○	-
	MINAS_A6	MSMF012L1	0.1	0.32	0.95	3,000	0.048	ZF	-	○
		MSMF022L1	0.2	0.64	1.91	3,000	0.14	BJC	○	-
		MHMF012L1	0.1	0.32	1.11	3,000	0.071	ZG	-	○
		MHMF022L1	0.2	0.64	2.23	3,000	0.29	BJC	○	-
FANUC	β is	β iS0.3/5000	0.1	0.32	0.96	4,000	0.034	ZH	-	○
		β iS0.4/5000	0.13	0.4	1	4,000	0.1	BKA	-	○
Mitsubishi Electric	J4	HG-KR13	0.1	0.32	1.1	3,000	0.0777	ZG	-	○
		HG-KR23	0.2	0.64	2.2	3,000	0.221	BM	○	-
	J5	HK-KT13W	0.1	0.32	1.1	3,000	0.0686	ZG	-	○
		HK-KT1M3W	0.15	0.48	1.7	3,000	0.0977	ZG	○	▲
		HK-KT23W	0.2	0.64	2.2	3,000	0.209	BM	○	-
Yaskawa Electric	Σ -7	SGM7J-01A	0.1	0.318	1.11	3,000	0.0659	ZG	-	○
		SGM7J-C2A	0.15	0.477	1.67	3,000	0.0915	ZG	○	▲
		SGM7J-02A	0.2	0.637	2.23	3,000	0.263	BK	○	-
		SGM7A-01A	0.1	0.318	1.11	3,000	0.0337	ZG	-	○
		SGM7A-C2A	0.15	0.477	1.67	3,000	0.0458	ZG	○	▲
		SGM7A-02A	0.2	0.637	2.23	3,000	0.139	BK	○	-
		SGM7P-01A	0.1	0.318	0.955	3,000	0.0592	BE	-	○
Sanyo Denki	R2	R2AA04010F	0.1	0.318	1.18	3,000	0.0627	ZH	-	○
		R2AA06010F	0.1	0.318	1.13	3,000	0.117	BF	-	○
		R2AA06020F	0.2	0.637	2.2	3,000	0.219	BM	○	-
	R5	R5AA06020F	0.2	0.637	2.2	3,000	0.198	BM	○	-
		R5AA06020H	0.2	0.637	2.2	3,000	0.198	BM	○	-

*1 The customer will be responsible for preparing a servo motor with no keyway.

*2 Contact Sanyo for servo motors with brakes or with oil seals.

*3 "▲" indicates usability with the maximum torque limit applied to the servo motor. See "Servo motor torque limit" on page 32 for more information.

RGV063 Standard gear ratio model [Gear ratio = 12、24]

Manufacturer	Series	Model	Motor capacity [kW]	Motor rated torque [N·m]	Motor max. torque [N·m]	Rated rotation speed [min ⁻¹]	Motor inertia [$\times 10^{-4}$ kg·m ²]	Attachment code	Corresponding reduction ratio	
									12	24
OMRON	G	R88M-G40030H、T	0.4	1.3	3.67	3,000	0.26	CD	-	○
		R88M-G75030H、T	0.75	2.4	7.05	3,000	0.87	GF	○	○
	G5	R88M-K40030H、T	0.4	1.3	3.8	3,000	0.26	CD	-	○
		R88M-K75030H、T	0.75	2.4	7.1	3,000	0.87	GF	○	○
KEYENCE	SV	SV-M040	0.4	1.27	4.46	3,000	0.442	DD	-	○
		SV-M075	0.75	2.39	8.36	3,000	1.57	FF	▲	▲
	SV2	SV2-M040A	0.4	1.27	4.46	3,000	0.486	DD	-	○
		SV2-M075A	0.75	2.39	8.36	3,000	1.59	FF	▲	▲
Panasonic	MINAS_A5	MSMD042G1	0.4	1.3	3.8	3,000	0.26	CD	-	○
		MSMD082G1	0.75	2.4	7.1	3,000	0.87	GF	○	○
		MHMD042G1	0.4	1.3	3.8	3,000	0.67	CD	-	○
		MHMD082G1	0.75	2.4	7.1	3,000	1.51	GF	○	○
		MSME042G1	0.4	1.3	3.8	3,000	0.26	CD	-	○
		MSME082G1	0.75	2.4	7.1	3,000	0.87	GF	○	○
	MINAS_A6	MSMF042L1	0.4	1.27	3.82	3,000	0.27	CD	-	○
		MSMF082L1	0.75	2.39	7.16	3,000	0.96	GF	○	○
		MHMF042L1	0.4	1.27	4.46	3,000	0.56	CD	-	○
		MHMF082L1	0.75	2.39	8.36	3,000	1.56	GF	▲	▲
Mitsubishi Electric	J4	HG-MR43	0.4	1.3	3.8	3,000	0.142	DD	-	○
		HG-MR73	0.75	2.4	7.2	3,000	0.586	FF	○	○
		HG-KR43	0.4	1.3	4.5	3,000	0.371	DD	-	○
		HG-KR73	0.75	2.4	8.4	3,000	1.26	FF	▲	▲
	J5	HK-KT43W	0.4	1.3	4.5	3,000	0.41	DD	-	○
		HK-KT63W	0.6	1.9	6.7	3,000	0.598	DD	○	○
		HK-KT43UW	0.4	1.3	4.5	3,000	0.726	ED	-	○
		HK-KT7M3W	0.75	2.4	8.4	3,000	1.37	FF	▲	▲
		HK-KT434W	0.2	1.3	4.5	1,500	0.41	DD	-	○
		HK-KT634W	0.3	1.9	6.7	1,500	0.598	DD	○	○
HK-KT7M34W	0.375	2.4	8.4	1,500	1.37	FF	▲	▲		
Yaskawa Electric	Σ -7	SGM7J-04A	0.4	1.27	4.46	3,000	0.486	DD	-	○
		SGM7J-06A	0.6	1.91	6.69	3,000	0.8	DD	○	○
		SGM7J-08A	0.75	2.39	8.36	3,000	1.59	FF	▲	▲
		SGM7A-04A	0.4	1.27	4.46	3,000	0.216	DD	-	○
		SGM7A-06A	0.6	1.91	6.69	3,000	0.315	DD	○	○
		SGM7A-08A	0.75	2.39	8.36	3,000	0.775	FF	▲	▲
		SGM7P-04A	0.4	1.27	3.82	3,000	0.409	ED	-	○
Sanyo Denki	R2	R2AA06040F	0.4	1.27	4.8	3,000	0.412	DD	-	○
		R2AA06040H	0.4	1.27	4.8	3,000	0.412	DD	-	○
		R2AA08040F	0.4	1.27	4.4	3,000	1.04	ED	-	○
	R5	R5AA06040F	0.4	1.27	4.8	3,000	0.414	DD	-	○
		R5AA06040H	0.4	1.27	4.8	3,000	0.414	DD	-	○
		R5AA08075F	0.75	2.39	7.5	3,000	1.65	FE	-	○

*1 The customer will be responsible for preparing a servo motor with no keyway.
 *2 Contact Sankyo for servo motors with brakes or with oil seals.
 *3 "▲" indicates usability with the maximum torque limit applied to the servo motor. See "Servo motor torque limit" on page 32 for more information.

RGV063 High gear ratio model [Gear ratio = 36、60、72、120]

Manufacturer	Series	Model	Motor capacity [kW]	Motor rated torque [N·m]	Motor max. torque [N·m]	Rated rotation speed [min ⁻¹]	Motor inertia [$\times 10^{-4}$ kg·m ²]	Attachment code	Corresponding reduction ratio			
									36	60	72	120
OMRON	G	R88M-G20030H、T	0.20	0.64	1.78	3,000	0.14	BJC	○	▲	○	▲
	G5	R88M-K20030H、T	0.20	0.64	1.91	3,000	0.14	BJC	○	▲	○	▲
KEYENCE	SV	SV-M020	0.20	0.637	2.23	3,000	0.259	BK	○	▲	○	▲
	SV2	SV2-M020A	0.20	0.637	2.23	3,000	0.263	BK	○	▲	○	▲
Panasonic	MINAS_A5	MSMD022G1	0.20	0.64	1.91	3,000	0.14	BJC	○	▲	○	▲
		MHMD022G1	0.20	0.64	1.91	3,000	0.42	BJC	○	▲	○	▲
		MSME022G1	0.20	0.64	1.91	3,000	0.14	BJC	○	▲	○	▲
	MINAS_A6	MSMF022L1	0.20	0.64	1.91	3,000	0.27	BJC	○	▲	○	▲
		MHMF022L1	0.20	0.64	2.23	3,000	0.56	BJC	○	▲	○	▲
Mitsubishi Electric	J4	HG-MR23	0.20	0.64	1.90	3,000	0.0865	BM	○	▲	○	▲
		HG-KR23	0.20	0.64	2.20	3,000	0.221	BM	○	▲	○	▲
	J5	HK-KT23W	0.20	0.64	2.20	3,000	0.209	BM	○	▲	○	▲
Yaskawa Electric	Σ -7	SGM7J-02A	0.20	0.637	2.23	3,000	0.263	BK	○	▲	○	▲
		SGM7A-02A	0.20	0.637	2.23	3,000	0.139	BK	○	▲	○	▲
Sanyo Denki	R2	R2AA06020F	0.20	0.637	2.20	3,000	0.219	BM	○	▲	○	▲
	R5	R5AA06020H	0.20	0.637	2.20	3,000	0.198	BM	○	▲	○	▲
R5AA06020F		0.20	0.637	2.20	3,000	0.198	BM	○	▲	○	▲	

*1 The customer will be responsible for preparing a servo motor with no keyway.
 *2 Contact Sankyo for servo motors with brakes or with oil seals.
 *3 "▲" indicates usability with the maximum torque limit applied to the servo motor. See "Servo motor torque limit" on page 32 for more information.



List of Mountable Servo Motors

RGV080 Standard gear ratio model [Gear ratio = 12, 24]

Manufacturer	Series	Model	Motor capacity [kW]	Motor rated torque [N · m]	Motor max. torque [N · m]	Rated rotation speed [min ⁻¹]	Motor inertia [$\times 10^{-4}$ kg · m ²]	Attachment code	Corresponding reduction ratio			
									12	24		
OMRON	G	R88M-G75030H, T	0.75	2.4	7.05	3,000	0.87	HE	○	○		
		R88M-G1K030T	1	3.18	9.1	3,000	1.69	IE	○	○		
		R88M-G1K530T	1.5	4.77	12.8	3,000	2.59	JE	○	○		
	G5	R88M-K75030H, T	0.75	2.4	7.1	3,000	0.87	HE	○	○		
		R88M-K1K030H, T	1	3.18	9.55	3,000	2.03	JE	○	○		
KEYENCE	SV	SV-M075	0.75	2.39	8.36	3,000	1.57	FE	○	○		
	SV2	SV2-M075A	0.75	2.39	8.36	3,000	1.59	FE	○	○		
Panasonic	MINAS_A5	MSMD082G1	0.75	2.4	7.1	3,000	0.87	HE	○	○		
		MHMD082G1	0.75	2.4	7.1	3,000	1.51	HE	○	○		
		MSME082G1	0.75	2.4	7.1	3,000	0.87	HE	○	○		
		MSME102G1	1	3.18	9.55	3,000	2.03	JE	○	○		
		MSME152G1	1.5	4.77	14.3	3,000	2.84	JE	▲	▲		
	MINAS_A6	MSMF082L1	0.75	2.39	7.16	3,000	0.96	HE	○	○		
		MSMF092L1	1	3.18	9.55	3,000	1.26	HE	○	○		
		MSMF102L1	1	3.18	9.55	3,000	2.15	JE	○	○		
		MSMF152L1	1.5	4.77	14.3	3,000	3.1	JE	▲	▲		
		MHMF082L1	0.75	2.39	8.36	3,000	1.56	HE	○	○		
		MHMF092L1	1	3.18	11.1	3,000	2.03	HE	○	○		
		MHMF102L1	1	4.77	14.3	2,000	22.9	HE	▲	▲		
		FANUC	α iF	α iF2/5000	0.75	2	8.3	4,000	5.26	AA	-	○
				α iS2/5000	0.75	2	7.8	4,000	2.91	AA	-	○
α iS	α iS2/6000		1	2	6	6,000	2.91	AA	-	○		
	α iS4/5000		1	4	8.8	4,000	5.15	AC	○	○		
	α iS4/6000		1	3	7.5	6,000	5.15	AC	○	○		
β iS	β iS2/4000		0.5	2	7	4,000	2.91	AA	-	○		
	β iS4/4000	0.75	3.5	10	3,000	5.15	AC	○	○			
Mitsubishi Electric	J4	HG-MR73	0.75	2.4	7.2	3,000	0.586	FE	○	○		
		HG-KR73	0.75	2.4	8.4	3,000	1.26	FE	○	○		
		HG-JR73	0.75	2.4	7.2	3,000	2.09	GD	○	○		
		HG-JR103	1	3.2	9.6	3,000	2.65	GD	○	○		
		HG-JR153	1.5	4.8	14.3	3,000	3.79	GD	▲	▲		
	J5	HK-KT63W	0.6	1.9	6.7	3,000	0.598	CB	-	○		
		HK-KT7M3W	0.75	2.4	8.4	3,000	1.37	FE	○	○		
		HK-KT103W	1	3.2	11.1	3,000	1.68	FE	○	○		
		HK-KT7M3UW	0.75	2.4	8.4	3,000	2.11	GE	○	○		
		HK-KT103UW	1	3.2	11.1	3,000	2.74	GE	○	○		
		HK-KT153W	1.5	4.8	16.7	3,000	4.38	GE	▲	▲		
		HK-KT634W	0.3	1.9	6.7	1,500	0.598	CB	-	○		
		HK-KT7M34W	0.375	2.4	8.4	1,500	1.37	FE	○	○		
		HK-KT1034W	0.5	3.2	11.1	1,500	1.68	FE	○	○		
Yaskawa Electric	Σ -7	SGM7J-06A	0.6	1.91	6.69	3,000	0.8	CB	-	○		
		SGM7J-08A	0.75	2.39	8.36	3,000	1.59	FE	○	○		
		SGM7A-06A	0.6	1.91	6.69	3,000	0.315	CB	-	○		
		SGM7A-08A	0.75	2.39	8.36	3,000	0.775	FE	○	○		
		SGM7A-10A	1	3.18	11.1	3,000	0.971	FE	○	○		
		SGM7A-15A	1.5	4.9	14.7	3,000	2	LG	▲	▲		
		SGM7G-03A	0.3	1.96	5.88	1,500	2.48	GD	-	○		
SGM7G-05A	0.45	2.86	8.92	1,500	3.33	GD	○	○				
Sanyo Denki	R2	R2AA08075F	0.75	2.39	8.5	3,000	1.82	FD	○	○		
		R2AAB8100H	1	3.18	11.6	3,000	2.38	ED	○	○		
		R2AA10075F	0.75	2.39	8.6	3,000	2	KF	○	○		
		R2AAB8075F	0.75	2.38	11	3,000	1.64	ED	○	○		
	R5	R5AA08075D	0.75	2.39	8.5	3,000	1.65	FD	○	○		
		R5AA08075F	0.75	2.39	7.5	3,000	1.65	FD	○	○		

*1 The customer will be responsible for preparing a servo motor with no keyway.

*2 Contact Sankyo for servo motors with brakes or with oil seals.

*3 "▲" indicates usability with the maximum torque limit applied to the servo motor. See "Servo motor torque limit" on page 32 for more information.

RGV080 High gear ratio model [Gear ratio = 36、60、72、120]

Manufacturer	Series	Model	Motor capacity [kW]	Motor rated torque [N · m]	Motor max. torque [N · m]	Rated rotation speed [min ⁻¹]	Motor inertia [$\times 10^{-4}$ kg · m ²]	Attachment code	Corresponding reduction ratio			
									36	60	72	120
OMRON	G	R88M-G20030H, T	0.2	0.64	1.78	3,000	0.14	BJC	-	○	-	○
		R88M-G40030H, T	0.4	1.3	3.67	3,000	0.26	BJ	○	▲	○	▲
	G5	R88M-K20030H, T	0.2	0.64	1.91	3,000	0.14	BJC	-	○	-	○
		R88M-K40030H, T	0.4	1.3	3.8	3,000	0.26	BJ	○	▲	○	▲
KEYENCE	SV	SV-M020	0.2	0.637	2.23	3,000	0.259	BK	-	○	-	○
		SV-M040	0.4	1.27	4.46	3,000	0.442	BK	-	▲	○	▲
	SV2	SV2-M020A	0.2	0.637	2.23	3,000	0.263	BK	-	○	-	○
		SV2-M040A	0.4	1.27	4.46	3,000	0.486	BK	-	▲	○	▲
Panasonic	MINAS_A5	MSMD022G1	0.2	0.64	1.91	3,000	0.14	BJC	-	○	-	○
		MSMD042G1	0.4	1.3	3.8	3,000	0.26	BJ	○	▲	○	▲
		MHMD022G1	0.2	0.64	1.91	3,000	0.42	BJC	-	○	-	○
		MHMD042G1	0.4	1.3	3.8	3,000	0.67	BJ	○	▲	○	▲
		MSME022G1	0.2	0.64	1.91	3,000	0.14	BJC	-	○	-	○
		MSME042G1	0.4	1.3	3.8	3,000	0.26	BJ	○	▲	○	▲
	MINAS_A6	MSMF022L1	0.2	0.64	1.91	3,000	0.14	BJC	-	○	-	○
		MSMF042L1	0.4	1.27	3.82	3,000	0.27	BJ	○	▲	○	▲
		MHMF022L1	0.2	0.64	2.23	3,000	0.29	BJC	-	○	-	○
		MHMF042L1	0.4	1.27	4.46	3,000	0.56	BJ	-	▲	○	▲
FANUC	β iS	β iS0.5/6000	0.35	0.65	2.5	6,000	0.18	BKA	-	○	-	○
Mitsubishi Electric	J4	HG-MR23	0.2	0.64	1.9	3,000	0.0865	BM	-	○	-	○
		HG-MR43	0.4	1.3	3.8	3,000	0.142	BM	○	▲	○	▲
		HG-KR23	0.2	0.64	2.2	3,000	0.221	BM	-	○	-	○
		HG-KR43	0.4	1.3	4.5	3,000	0.371	BM	▲	▲	▲	▲
	J5	HK-KT23W	0.2	0.64	2.2	3,000	0.209	BM	-	○	-	○
		HK-KT23UW	0.2	0.64	1.9	3,000	0.419	DG	-	○	-	○
		HK-KT43W	0.4	1.3	4.5	3,000	0.41	BM	▲	▲	▲	▲
Yaskawa Electric	Σ -7	SGM7J-02A	0.2	0.637	2.23	3,000	0.263	BK	-	○	-	○
		SGM7J-04A	0.4	1.27	4.46	3,000	0.486	BK	-	▲	○	▲
		SGM7A-02A	0.2	0.637	2.23	3,000	0.139	BK	-	○	-	○
		SGM7A-04A	0.4	1.27	4.46	3,000	0.216	BK	-	▲	○	▲
		SGM7P-02A	0.2	0.637	1.91	3,000	0.263	DF	-	○	-	○
		SGM7P-04A	0.4	1.27	3.82	3,000	0.409	DF	○	▲	○	▲
Sanyo Denki	R2	R2AA06020F	0.2	0.637	2.2	3,000	0.219	BM	-	○	-	○
		R2AA06040H	0.4	1.27	4.8	3,000	0.412	BM	▲	▲	▲	▲
	R5	R5AA06020F	0.2	0.637	2.2	3,000	0.198	BM	-	○	-	○
		R5AA06020H	0.2	0.637	2.2	3,000	0.198	BM	-	○	-	○
		R5AA06040F	0.4	1.27	4.8	3,000	0.414	BM	▲	▲	▲	▲
		R5AA06040H	0.4	1.27	4.8	3,000	0.414	BM	▲	▲	▲	▲

*1 The customer will be responsible for preparing a servo motor with no keyway.

*2 Contact Sanyo for servo motors with brakes or with oil seals.

*3 "▲" indicates usability with the maximum torque limit applied to the servo motor. See "Servo motor torque limit" on page 32 for more information.



List of Mountable Servo Motors

RGV100 Standard gear ratio model [Gear ratio = 12, 24]

Manufacturer	Series	Model	Motor capacity [kW]	Motor rated torque [N · m]	Motor max. torque [N · m]	Rated rotation speed [min ⁻¹]	Motor inertia [× 10 ⁻⁴ kg · m ²]	Attachment code	Corresponding reduction ratio	
									12	24
OMRON	G	R88M-G1K530T	1.5	4.77	12.8	3,000	2.59	HE	○	○
		R88M-G2K030T	2	6.36	18.4	3,000	3.46	HE	○	○
		R88M-G3K030T	3	9.54	27	3,000	6.77	IF	○	○
	G5	R88M-K1K530H, T	1.5	4.77	14.3	3,000	2.84	HE	○	○
		R88M-K2K030H, T	2	6.37	19.1	3,000	3.68	HE	○	○
		R88M-K3K030H, T	3	9.55	28.6	3,000	6.5	IF	○	○
KEYENCE	SV	SV-M100	0.85	5.39	13.8	1,500	13.9	IE	○	○
		SV-M150	1.3	8.34	23.3	1,500	19.9	IF	○	○
		SV-M200	1.8	11.5	28.7	1,500	26	IG	○	○
	SV2	SV2-M100A	0.85	5.39	14.2	1,500	13.9	IG	○	○
		SV2-M150A	1.3	8.34	23.3	1,500	19.9	IG	○	○
		SV2-M200A	1.8	11.5	28.7	1,500	26	IG	○	○
Panasonic	MINAS_A5	MSME152G1	1.5	4.77	14.3	3,000	2.84	HE	○	○
		MSME202G1	2	6.37	19.1	3,000	3.68	HE	○	○
		MSME302G1	3	9.55	28.6	3,000	6.5	IF	○	○
		MDME102G1	1	4.77	14.3	2,000	4.6	IF	○	○
		MDME152G1	1.5	7.16	21.5	2,000	6.7	IF	○	○
		MDME202G1	2	9.55	28.6	2,000	8.72	IF	○	○
	MINAS_A6	MSMF152L1	1.5	4.77	14.3	3,000	3.1	HE	○	○
		MSMF202L1	2	6.37	19.1	3,000	4.06	HE	○	○
		MSMF302L1	3	9.55	28.6	3,000	7.04	IF	○	○
		MHMF102L1	1	4.77	14.3	2,000	22.9	LF	○	○
		MHMF152L1	1.5	7.16	21.5	2,000	33.4	LF	○	○
		MDMF102L1	1	4.77	14.3	2,000	6.18	IF	○	○
		MDMF152L1	1.5	7.16	21.5	2,000	9.16	IF	○	○
		MDMF202L1	2	9.55	28.6	2,000	12.1	IF	○	○
FANUC	α iF	α iF4/5000	1.4	4	15	4,000	13.5	IE	○	○
		α iF8/3000	1.6	8	29	3,000	25.7	IE	○	○
		α iF8/4000	2.2	8	32	4,000	25.7	IE	-	○
	α iS	α iS4/5000	1	4	8.8	4,000	5.15	AC	○	○
		α iS8/4000	2.5	8	32	4,000	11.7	IE	-	○
		α iS8/6000	2.2	8	22	6,000	11.7	IE	○	○
	β iS	β iS12/2000	1.4	10.5	21	2,000	22.8	IG	○	○
		β iS12/3000	1.8	11	27	2,000	22.8	IG	○	○
		β iS8/3000	1.2	7	15	2,000	11.7	IE	○	○
Mitsubishi Electric	J4	HG-SR51	0.5	4.8	14.3	1,000	11.6	IG	○	○
		HG-SR81	0.85	8.1	24.4	1,000	16	IG	○	○
		HG-SR102	1	4.8	14.3	2,000	11.6	IG	○	○
		HG-SR152	1.5	7.2	21.5	2,000	16	IG	○	○
		HG-JR153	1.5	4.8	14.3	3,000	3.79	BD	○	○
		HG-JR203	2	6.4	19.1	3,000	4.92	BD	○	○
	J5	HG-JR353	3.3	10.5	32	3,000	13.2	IH	▲	○
		HK-KT153W	1.5	4.8	16.7	3,000	4.38	BE	○	○
		HK-KT203W	2	6.4	19.1	3,000	5.65	BE	○	○
		HK-KT202W	2	9.5	28.6	2,000	8.18	BE	○	○
		HK-KT1534W	0.75	4.8	21.5	1,500	4.38	BE	○	○
		HK-KT2034W	1	6.4	25.5	1,500	5.65	BE	○	○
		HK-ST102W	1	4.8	14.3	2,000	8.65	IG	○	○
		HK-ST172W	1.75	8.4	25.1	2,000	11.4	IG	○	○
		HK-ST202AW	2	9.5	28.6	2,000	16.9	IG	○	○
Yaskawa Electric	Σ -7	SGM7A-15A	1.5	4.9	14.7	3,000	2	KG	○	○
		SGM7A-20A	2	6.36	19.1	3,000	2.47	KG	○	○
		SGM7A-25A	2.5	7.96	23.9	3,000	3.19	KG	○	○
		SGM7A-30A	3	9.8	29.4	3,000	7	LH	○	○
		SGM7P-15A	1.5	4.77	14.3	3,000	4.02	JE	○	○
		SGM7G-09A	0.85	5.39	14.2	1,500	13.9	IG	○	○
		SGM7G-13A	1.3	8.34	23.3	1,500	19.9	IG	○	○
		SGM7G-20A	1.8	11.5	28.7	1,500	26	IG	○	○
Sanyo Denki	R2	R2AA13120B	1.2	5.7	16	2,000	6	IF	○	○
		R2AA13120D	1.2	5.7	16	2,000	6	IF	○	○
		R2AA13120L	1.2	5.7	20	2,000	6	IF	○	○
		R2AA13180D	1.8	8.6	25	2,000	9	IF	○	○
		R2AA13180H	1.8	8.6	22	2,000	9	IF	○	○
		R2AA13200D	2	9.5	30	2,000	12.2	IH	○	○
		R2AA13200L	2	9.5	24	2,000	12.2	IH	○	○

*1 The customer will be responsible for preparing a servo motor with no keyway.

*2 Contact Sanyo for servo motors with brakes or with oil seals.

*3 "▲" indicates usability with the maximum torque limit applied to the servo motor. See "Servo motor torque limit" on page 32 for more information.

RGV100 High gear ratio model [Gear ratio = 36、60、72、120]

Manufacturer	Series	Model	Motor capacity [kW]	Motor rated torque [N · m]	Motor max. torque [N · m]	Rated rotation speed [min ⁻¹]	Motor inertia [$\times 10^{-4}$ kg · m ²]	Attachment code	Corresponding reduction ratio			
									36	60	72	120
OMRON	G	R88M-G40030H, T	0.4	1.3	3.67	3,000	0.26	BJ	-	○	○	○
		R88M-G75030H, T	0.75	2.4	7.05	3,000	0.87	DB	○	▲	○	▲
		R88M-G1K030T	1	3.18	9.1	3,000	1.69	EC	○	▲	○	▲
	G5	R88M-K40030H, T	0.4	1.3	3.8	3,000	0.26	BJ	-	○	○	○
		R88M-K75030H, T	0.75	2.4	7.1	3,000	0.87	DB	○	▲	○	▲
		R88M-K1K030H, T	1	3.18	9.55	3,000	2.03	FB	○	▲	○	▲
KEYENCE	SV	SV-M040	0.4	1.27	4.46	3,000	0.442	BK	-	○	○	○
		SV-M075	0.75	2.39	8.36	3,000	1.57	DC	○	▲	○	▲
	SV2	SV2-M040A	0.4	1.27	4.46	3,000	0.486	BK	-	○	○	○
		SV2-M075A	0.75	2.39	8.36	3,000	1.59	DC	○	▲	○	▲
Panasonic	MINAS_A5	MSMD042G1	0.4	1.3	3.8	3,000	0.26	BJ	-	○	○	○
		MSMD082G1	0.75	2.4	7.1	3,000	0.87	DB	○	▲	○	▲
		MHMD042G1	0.4	1.3	3.8	3,000	0.67	BJ	-	○	○	○
		MHMD082G1	0.75	2.4	7.1	3,000	1.51	DB	○	▲	○	▲
		MSME042G1	0.4	1.3	3.8	3,000	0.26	BJ	-	○	○	○
		MSME082G1	0.75	2.4	7.1	3,000	0.87	DB	○	▲	○	▲
		MSME102G1	1	3.18	9.55	3,000	2.03	FB	○	▲	○	▲
	MINAS_A6	MSMF042L1	0.4	1.27	3.82	3,000	0.27	BJ	-	○	○	○
		MSMF082L1	0.75	2.39	7.16	3,000	0.96	DB	○	▲	○	▲
		MSMF092L1	1	3.18	9.55	3,000	1.26	DB	○	▲	○	▲
		MSMF102L1	1	3.18	9.55	3,000	2.15	FB	○	▲	○	▲
		MHMF042L1	0.4	1.27	4.46	3,000	0.56	BJ	-	○	○	○
		MHMF082L1	0.75	2.39	8.36	3,000	1.56	DB	○	▲	○	▲
FANUC	α iF	α iF1/5000	0.5	1	5.3	5,000	3.05	EDB	-	○	-	○
		α iF2/5000	0.75	2	8.3	4,000	5.26	EDB	○	▲	○	▲
	α iS	α iS2/5000	0.75	2	7.8	4,000	2.91	EDB	○	▲	○	▲
		α iS2/6000	1	2	6	6,000	2.91	EDB	○	○	○	○
		α iS4/5000	1	4	8.8	4,000	5.15	ED	○	▲	○	▲
		α iS4/6000	1	3	7.5	6,000	5.15	ED	○	▲	○	▲
	β iS	β iS2/4000	0.5	2	7	4,000	2.91	EDB	○	▲	○	▲
		β iS4/4000	0.75	3.5	10	3,000	5.15	ED	○	▲	○	▲
Mitsubishi Electric	J4	HG-MR43	0.4	1.3	3.8	3,000	0.142	BM	-	○	○	○
		HG-MR73	0.75	2.4	7.2	3,000	0.586	DC	○	▲	○	▲
		HG-KR43	0.4	1.3	4.5	3,000	0.371	BM	-	○	○	○
		HG-KR73	0.75	2.4	8.4	3,000	1.26	DC	○	▲	○	▲
		HG-JR53	0.5	1.6	4.8	3,000	1.52	ECD	○	○	○	○
		HG-JR73	0.75	2.4	7.2	3,000	2.09	ECD	○	▲	○	▲
		HG-JR103	1	3.2	9.6	3,000	2.65	ECD	○	▲	○	▲
	J5	HK-KT43W	0.4	1.3	4.5	3,000	0.41	BM	-	○	○	○
		HK-KT63W	0.6	1.9	6.7	3,000	0.598	BM	○	▲	○	▲
		HK-KT43UW	0.4	1.3	4.5	3,000	0.726	DG	-	○	○	○
		HK-KT7M3W	0.75	2.4	8.4	3,000	1.37	DC	○	▲	○	▲
		HK-KT7M3UW	0.75	2.4	8.4	3,000	2.11	EB	○	▲	○	▲
		HK-KT434W	0.2	1.3	4.5	1,500	0.41	BM	-	○	○	○
		HK-KT634W	0.3	1.9	6.7	1,500	0.598	BM	○	▲	○	▲
		HK-KT7M34W	0.375	2.4	8.4	1,500	1.37	DC	○	▲	○	▲
		HK-ST52W	0.5	2.4	7.2	2,000	5.9	HFF	○	▲	○	▲
Yaskawa Electric	Σ -7	SGM7J-04A	0.4	1.27	4.46	3,000	0.486	BK	-	○	○	○
		SGM7J-06A	0.6	1.91	6.69	3,000	0.8	BK	○	▲	○	▲
		SGM7J-08A	0.75	2.39	8.36	3,000	1.59	DC	○	▲	○	▲
		SGM7A-04A	0.4	1.27	4.46	3,000	0.216	BK	-	○	○	○
		SGM7A-06A	0.6	1.91	6.69	3,000	0.315	BK	○	▲	○	▲
		SGM7A-08A	0.75	2.39	8.36	3,000	0.775	DC	○	▲	○	▲
		SGM7P-04A	0.4	1.27	3.82	3,000	0.409	DF	-	○	○	○
		SGM7P-08A	0.75	2.39	7.16	3,000	2.1	HA	○	▲	○	▲
		SGM7G-03A	0.3	1.96	5.88	1,500	2.48	ECD	○	○	○	○
SGM7G-05A	0.45	2.86	8.92	1,500	3.33	ECD	○	▲	○	▲		
Sanyo Denki	R2	R2AA06040F	0.4	1.27	4.8	3,000	0.412	BM	-	○	○	○
		R2AA06040H	0.4	1.27	4.8	3,000	0.412	BM	-	○	○	○
		R2AA08040F	0.4	1.27	4.4	3,000	1.04	DG	-	○	○	○
		R2AA08075F	0.75	2.39	8.5	3,000	1.82	DCD	○	▲	○	▲
	R5	R5AA06040F	0.4	1.27	4.8	3,000	0.414	BM	-	○	○	○
		R5AA06040H	0.4	1.27	4.8	3,000	0.414	BM	-	○	○	○
		R5AA08075D	0.75	2.39	8.5	3,000	1.65	DCD	○	▲	○	▲
		R5AA08075F	0.75	2.39	7.5	3,000	1.65	DCD	○	▲	○	▲

*1 The customer will be responsible for preparing a servo motor with no keyway.

*2 Contact Sankyo for servo motors with brakes or with oil seals.

*3 "▲" indicates usability with the maximum torque limit applied to the servo motor. See "Servo motor torque limit" on page 32 for more information.



List of Mountable Servo Motors

RGV125 Standard gear ratio model [Gear ratio = 12、24]

Manufacturer	Series	Model	Motor capacity [kW]	Motor rated torque [N · m]	Motor max. torque [N · m]	Rated rotation speed [min ⁻¹]	Motor inertia [× 10 ⁻⁴ kg · m ²]	Attachment code	Corresponding reduction ratio	
									12	24
OMRON	G	R88M-G1K530T	1.5	4.77	12.8	3,000	2.59	OB	○	○
		R88M-G2K030T	2	6.36	18.4	3,000	3.46	OB	○	○
		R88M-G3K030T	3	9.54	27	3,000	6.77	PC	○	○
		R88M-G4K030T	4	12.6	36.3	3,000	12.7	ID	○	○
		R88M-G5K030T	5	15.8	45.1	3,000	17.8	ID	○	○
	G5	R88M-K1K530H. T	1.5	4.77	14.3	3,000	2.84	OB	○	○
		R88M-K2K030H. T	2	6.37	19.1	3,000	3.68	OB	○	○
		R88M-K3K030H. T	3	9.55	28.6	3,000	6.5	PC	○	○
KEYENCE	SV	SV-M100	0.85	5.39	13.8	1,500	13.9	PB	○	○
		SV-M150	1.3	8.34	23.3	1,500	19.9	PC	○	○
		SV-M200	1.8	11.5	28.7	1,500	26	PD	○	○
	SV2	SV2-M100A	0.85	5.39	14.2	1,500	13.9	PD	○	○
		SV2-M150A	1.3	8.34	23.3	1,500	19.9	PD	○	○
		SV2-M200A	1.8	11.5	28.7	1,500	26	PD	○	○
Panasonic	MINAS_A5	MSME152G1	1.5	4.77	14.3	3,000	2.84	OB	○	○
		MSME202G1	2	6.37	19.1	3,000	3.68	OB	○	○
		MSME302G1	3	9.55	28.6	3,000	6.5	PC	○	○
		MSME402G1	4	12.7	38.2	3,000	12.9	ID	○	○
		MSME502G1	5	15.9	47.7	3,000	17.4	ID	○	○
		MDME102G1	1	4.77	14.3	2,000	4.6	PC	○	○
		MDME152G1	1.5	7.16	21.5	2,000	6.7	PC	○	○
		MDME202G1	2	9.55	28.6	2,000	8.72	PC	○	○
	MINAS_A6	MDME302G1	3	14.3	43	2,000	12.9	ID	○	○
		MSMF152L1	1.5	4.77	14.3	3,000	3.1	OB	○	○
		MSMF202L1	2	6.37	19.1	3,000	4.06	OB	○	○
		MSMF302L1	3	9.55	28.6	3,000	7.04	PC	○	○
		MSMF402L1	4	12.7	38.2	3,000	14.4	ID	○	○
		MSMF502L1	5	15.9	47.7	3,000	19	ID	○	○
		MHMF102L1	1	4.77	14.3	2,000	22.9	IC	○	○
		MHMF152L1	1.5	7.16	21.5	2,000	33.4	IC	○	○
		MDMF102L1	1	4.77	14.3	2,000	6.18	PC	○	○
		MDMF152L1	1.5	7.16	21.5	2,000	9.16	PC	○	○
FANUC	α iF	α iF8/3000	1.6	8	29	3,000	25.7	PB	○	○
		α iF8/4000	2.2	8	32	4,000	25.7	PB	○	○
	α iS	α iS8/4000	2.5	8	32	4,000	11.7	PB	-	○
		α iS8/6000	2.2	8	22	6,000	11.7	PB	-	○
		α iS12/4000	2.7	12	46	3,000	22.8	PD	○	○
		α iS12/6000	2.2	11	52	4,000	22.8	PD	○	○
β iS	β iS8/3000	1.2	7	15	2,000	11.7	PB	-	○	
	β iS12/2000	1.4	10.5	21	2,000	22.8	PD	○	○	
	β iS12/3000	1.8	11	27	2,000	22.8	PD	○	○	
Mitsubishi Electric	J4	HG-SR51	0.5	4.8	14.3	1,000	11.6	PD	○	○
		HG-SR81	0.85	8.1	24.4	1,000	16	PD	○	○
		HG-SR102	1	4.8	14.3	2,000	11.6	PD	○	○
		HG-SR152	1.5	7.2	21.5	2,000	16	PD	○	○
		HG-JR153	1.5	4.8	14.3	3,000	3.79	BA	○	○
		HG-JR203	2	6.4	19.1	3,000	4.92	BA	○	○
		HG-JR353	3.3	10.5	32	3,000	13.2	PE	○	○
	J5	HG-JR503	5	15.9	47.7	3,000	19	PE	○	○
		HK-KT153W	1.5	4.8	16.7	3,000	4.38	BB	○	○
		HK-KT203W	2	6.4	19.1	3,000	5.65	BB	○	○
		HK-KT202W	2	9.5	28.6	2,000	8.18	BB	○	○
		HK-KT1534W	0.75	4.8	21.5	1,500	4.38	BB	○	○
		HK-KT2034W	1	6.4	25.5	1,500	5.65	BB	○	○
		HK-KT2024W	1	9.5	38.2	1,000	8.18	BB	○	○
		HK-ST102W	1	4.8	14.3	2,000	8.65	PD	○	○
		HK-ST172W	1.75	8.4	25.1	2,000	11.4	PD	○	○
		HK-ST202AW	2	9.5	28.6	2,000	16.9	PD	○	○
		HK-ST302W	3	14.3	43	2,000	22.4	PD	○	○
J5	HK-ST1024W	0.6	5.7	17.2	1,000	8.65	PD	○	○	
	HK-ST1724W	0.85	8.1	24.4	1,000	11.4	PD	○	○	
	HK-ST2024AW	1	9.5	33.4	1,000	16.9	PD	○	○	
	HK-ST3024W	1.5	14.3	43	1,000	22.4	PD	○	○	

*1 The customer will be responsible for preparing a servo motor with no keyway.
 *2 Contact Sankyo for servo motors with brakes or with oil seals.

RGV125 Standard gear ratio model [Gear ratio = 12, 24]

Manufacturer	Series	Model	Motor capacity [kW]	Motor rated torque [N · m]	Motor max. torque [N · m]	Rated rotation speed [min ⁻¹]	Motor inertia [× 10 ⁻⁴ kg · m ²]	Attachment code	Corresponding reduction ratio	
									12	24
Yaskawa Electric	Σ -7	SGM7A-20A	2	6.36	19.1	3,000	2.47	JD	-	○
		SGM7A-25A	2.5	7.96	23.9	3,000	3.19	JD	○	○
		SGM7A-30A	3	9.8	29.4	3,000	7	IE	○	○
		SGM7A-40A	4	12.6	37.8	3,000	9.6	IE	○	○
		SGM7A-50A	5	15.8	47.6	3,000	12.3	IE	○	○
		SGM7A-70A	7	22.3	54	3,000	12.3	IE	-	○
		SGM7G-09A	0.85	5.39	14.2	1,500	13.9	PD	○	○
		SGM7G-13A	1.3	8.34	23.3	1,500	19.9	PD	○	○
		SGM7G-20A	1.8	11.5	28.7	1,500	26	PD	○	○
Sanyo Denki	R2	R2AA13120B	1.2	5.7	16	2,000	6	PC	○	○
		R2AA13120L	1.2	5.7	20	2,000	6	PC	○	○
		R2AA13120D	1.2	5.7	16	2,000	6	PC	○	○
		R2AA13180H	1.8	8.6	22	2,000	9	PC	○	○
		R2AA13200L	2	9.5	24	2,000	12.2	PE	○	○
		R2AA13180D	1.8	8.6	25	2,000	9	PC	○	○
		R2AA13200D	2	9.5	30	2,000	12.2	PE	○	○

*1 The customer will be responsible for preparing a servo motor with no keyway.

*2 Contact Sankyo for servo motors with brakes or with oil seals.



List of Mountable Servo Motors

RGV125 High gear ratio model [Gear ratio = 36, 60, 72, 120]

Manufacturer	Series	Series	Motor capacity [kW]	Motor rated torque [N · m]	Motor max. torque [N · m]	Rated rotation speed [min ⁻¹]	Motor inertia [× 10 ⁻⁴ kg · m ²]	Attachment code	Corresponding reduction ratio			
									36	60	72	120
OMRON	G	R88M-G75030H, T	0.75	2.4	7.05	3,000	0.87	DB	○	○	○	○
		R88M-G1K030T	1	3.18	9.1	3,000	1.69	EC	○	○	○	○
		R88M-G1K530T	1.5	4.77	12.8	3,000	2.59	FB	○	▲	○	▲
		R88M-G2K030T	2	6.36	18.4	3,000	3.46	FB	▲	-	○	-
	G5	R88M-K75030H, T	0.75	2.4	7.1	3,000	0.87	DB	○	○	○	○
		R88M-K1K030H, T	1	3.18	9.55	3,000	2.03	FB	○	○	○	○
R88M-K1K530H, T		1.5	4.77	14.3	3,000	2.84	FB	○	▲	○	▲	
KEYENCE	SV	SV-M075	0.75	2.39	8.36	3,000	1.57	DC	○	○	○	○
		SV-M100	0.85	5.39	13.8	1,500	13.9	HB	○	-	○	▲
	SV2	SV2-M075A	0.75	2.39	8.36	3,000	1.59	DC	○	○	○	○
		SV2-M100A	0.85	5.39	14.2	1,500	13.9	HBF	○	-	○	▲
Panasonic	MINAS_A5	MSMD082G1	0.75	2.4	7.1	3,000	0.87	DB	○	○	○	○
		MHMD082G1	0.75	2.4	7.1	3,000	1.51	DB	○	○	○	○
		MSME082G1	0.75	2.4	7.1	3,000	0.87	DB	○	○	○	○
		MSME102G1	1	3.18	9.55	3,000	2.03	FB	○	○	○	○
		MSME152G1	1.5	4.77	14.3	3,000	2.84	FB	○	▲	○	▲
		MDME102G1	1	4.77	14.3	2,000	4.6	HAE	○	▲	○	▲
	MINAS_A6	MSMF082L1	0.75	2.39	7.16	3,000	0.96	DB	○	○	○	○
		MSMF092L1	1	3.18	9.55	3,000	1.26	DB	○	○	○	○
		MSMF102L1	1	3.18	9.55	3,000	2.15	FB	○	○	○	○
		MSMF152L1	1.5	4.77	14.3	3,000	3.1	FB	○	▲	○	▲
		MHMF082L1	0.75	2.39	8.36	3,000	1.56	DB	○	○	○	○
		MHMF092L1	1	3.18	11.1	3,000	2.03	DB	○	▲	○	▲
		MHMF102L1	1	4.77	14.3	2,000	22.9	HBE	○	▲	○	▲
		MDMF102L1	1	4.77	14.3	2,000	6.18	HAE	○	▲	○	▲
FANUC	α iF	α iF2/5000	0.75	2	8.3	4,000	5.26	EDB	○	○	○	○
		α iF4/5000	1.4	4	15	4,000	13.5	HB	○	▲	○	▲
	α iS	α iS2/5000	0.75	2	7.8	4,000	2.91	EDB	○	○	○	○
		α iS2/6000	1	2	6	6,000	2.91	EDB	○	○	○	○
		α iS4/5000	1	4	8.8	4,000	5.15	ED	○	○	○	○
		α iS4/6000	1	3	7.5	6,000	5.15	ED	○	○	○	○
	β iS	β iS2/4000	0.5	2	7	4,000	2.91	EDB	○	○	○	○
		β iS4/4000	0.75	3.5	10	3,000	5.15	ED	○	○	○	○
		β iS8/3000	1.2	7	15	2,000	11.7	HB	○	-	○	-
Mitsubishi Electric	J4	HG-MR73	0.75	2.4	7.2	3,000	0.586	DC	○	○	○	○
		HG-KR73	0.75	2.4	8.4	3,000	1.26	DC	○	○	○	○
		HG-SR51	0.5	4.8	14.3	1,000	11.6	HFF	○	▲	○	▲
		HG-SR52	0.5	2.4	7.2	2,000	7.26	HFF	○	○	○	○
		HG-SR102	1	4.8	14.3	2,000	11.6	HFF	○	▲	○	▲
		HG-JR73	0.75	2.4	7.2	3,000	2.09	ECD	○	○	○	○
		HG-JR103	1	3.2	9.6	3,000	2.65	ECD	○	○	○	○
		HG-JR153	1.5	4.8	14.3	3,000	3.79	ECD	○	▲	○	▲
	J5	HK-KT7M3W	0.75	2.4	8.4	3,000	1.37	DC	○	○	○	○
		HK-KT103W	1	3.2	11.1	3,000	1.68	DC	○	▲	○	▲
		HK-KT7M3UW	0.75	2.4	8.4	3,000	2.11	EB	○	○	○	○
		HK-KT103UW	1	3.2	11.1	3,000	2.74	EB	○	▲	○	▲
		HK-KT153W	1.5	4.8	16.7	3,000	4.38	EB	○	▲	○	▲
		HK-KT7M34W	0.375	2.4	8.4	1,500	1.37	DC	○	○	○	○
		HK-KT1034W	0.5	3.2	11.1	1,500	1.68	DC	○	▲	○	▲
		HK-ST52W	0.5	2.4	7.2	2,000	5.9	HFF	○	○	○	○
HK-ST102W	1	4.8	14.3	2,000	8.65	HFF	○	▲	○	▲		
HK-ST524W	0.3	2.9	11.5	1,000	5.9	HFF	○	▲	○	▲		
HK-ST1024W	0.6	5.7	17.2	1,000	8.65	HFF	○	-	○	-		

*1 The customer will be responsible for preparing a servo motor with no keyway.

*2 Contact Sankyo for servo motors with brakes or with oil seals.

*3 "▲" indicates usability with the maximum torque limit applied to the servo motor. See "Servo motor torque limit" on page 32 for more information.

RGV125 High gear ratio model [Gear ratio = 36、60、72、120]

Manufacturer	Series	Model	Motor capacity [kW]	Motor rated torque [N · m]	Motor max. torque [N · m]	Rated rotation speed [r/min]	Motor inertia [$\times 10^{-4}$ kg · m ²]	Attachment code	Corresponding reduction ratio			
									36	60	72	120
Yaskawa Electric	Σ -7	SGM7J-08A	0.75	2.39	8.36	3,000	1.59	DC	○	○	○	○
		SGM7A-08A	0.75	2.39	8.36	3,000	0.775	DC	○	○	○	○
		SGM7A-10A	1	3.18	11.1	3,000	0.971	DC	○	▲	○	▲
		SGM7A-15A	1.5	4.9	14.7	3,000	2	FD	○	▲	○	▲
		SGM7P-08A	0.75	2.39	7.16	3,000	2.1	HA	○	○	○	○
		SGM7P-15A	1.5	4.77	14.3	3,000	4.02	HA	○	▲	○	▲
		SGM7G-03A	0.3	1.96	5.88	1,500	2.48	ECD	○	○	○	○
		SGM7G-05A	0.45	2.86	8.92	1,500	3.33	ECD	○	○	○	○
		SGM7G-09A	0.85	5.39	14.2	1,500	13.9	HB	○	-	○	▲
Sanyo Denki	R2	R2AA08075F	0.75	2.39	8.5	3,000	1.82	DC	○	○	○	○
		R2AB8100H	1	3.18	11.6	3,000	2.38	EB	○	▲	○	▲
		R2AA10075F	0.75	2.39	8.6	3,000	2	FEE	○	○	○	○
		R2AA13050H	0.55	2.6	9	2,000	3.1	HFE	○	○	○	○
		R2AA13050D	0.88	2.6	7	2,000	3.1	HFE	○	○	○	○
		R2AA13120B	1.2	5.7	16	2,000	6	HFE	○	-	○	-
		R2AB8075F	0.75	2.38	11	3,000	1.64	EB	○	▲	○	○
		R2AB8100F	1	3.18	14.3	3,000	2.38	EB	○	▲	○	▲
		R2AA10100F	1	3.18	14.3	3,000	3.5	FEE	○	▲	○	▲
	R2AA13120D	1.2	5.7	16	2,000	6	HFE	○	-	○	-	
	R5	R5AA08075D	0.75	2.39	8.5	3,000	1.65	DC	○	○	○	○
		R5AA08075F	0.75	2.39	7.5	3,000	1.65	DC	○	○	○	○

*1 The customer will be responsible for preparing a servo motor with no keyway.

*2 Contact Sankyo for servo motors with brakes or with oil seals.

*3 "▲" indicates usability with the maximum torque limit applied to the servo motor. See "Servo motor torque limit" on page 32 for more information.

Oil Plug, Oil Level, Drain Position (Oil lubrication types)

Unit: mm

Mounting position	1	2	3	4	5	6
RGV040						
A	Oil plug Rc1/4	Oil plug Rc1/4	Oil plug Rc1/4	Oil plug Rc1/4	Oil plug Rc1/4	Oil plug Rc1/4
A1	55	14	26	89	20	20
A2	53.5	53.5	56	56	57.5	57.5
B	Oil level	Oil level	Oil level	Oil level	Oil level	Oil level
B1	32.5	32.5	39.5	75.5	38	38
B2	68.5	68.5	38	38	75.5	75.5
C	Drain Rc1/4	Drain Rc1/4	Drain Rc1/4	Drain Rc1/4	Drain Rc1/4	Drain Rc1/4
C1	14	55	89	26	20	20
C2	53.5	53.5	56	56	57.5	57.5
Oil amount (L)	0.09	0.1	0.13	0.12	0.05	0.14
RGV063						
A	Oil plug Rc1/4	Oil plug Rc1/4	Oil plug Rc1/4	Oil plug Rc1/4	Oil plug Rc1/4	Oil plug Rc1/4
A1	55	20	32	123	23.5	23
A2	98	77.5	32	32	77.5	77.5
B	Oil level	Oil level	Oil level	Oil level	Oil level	Oil level
B1	36.5	36.5	58.5	96.5	44	44
B2	107	107	44	44	96.5	96.5
C	Drain Rc1/4	Drain Rc1/4	Drain Rc1/4	Drain Rc1/4	Drain Rc1/4	Drain Rc1/4
C1	20	55	32	32	23	23.5
C2	77.5	98	123	32	77.5	77.5
Oil amount (L)	0.15	0.16	0.2	0.19	0.1	0.21
RGV080						
A	Oil plug Rc3/8	Oil plug Rc3/8	Oil plug Rc3/8	Oil plug Rc3/8	Oil plug Rc1/4	Oil plug Rc3/8
A1	73	22	41	149	29	31
A2	120	95	34	34	95	95
B	Oil level	Oil level	Oil level	Oil level	Oil level	Oil level
B1	47	47	66	124	51	51
B2	133	133	51	51	124	124
C	Drain Rc3/8	Drain Rc3/8	Drain Rc3/8	Drain Rc3/8	Drain Rc3/8	Drain Rc1/4
C1	22	73	149	41	31	29
C2	95	120	34	34	95	95
Oil amount (L)	0.31	0.35	0.43	0.42	0.18	0.48
RGV100						
A	Oil plug Rc1/2	Oil plug Rc1/2	Oil plug Rc1/2	Oil plug Rc1/2	Oil plug Rc3/8	Oil plug Rc1/2
A1	80	25	48	182	39	32
A2	145	115	48	48	115	115
B	Oil level	Oil level	Oil level	Oil level	Oil level	Oil level
B1	51	51	74	156	72	72
B2	160	160	72	72	156	156
C	Drain Rc1/2	Drain Rc1/2	Drain Rc1/2	Drain Rc1/2	Drain Rc1/2	Drain Rc3/8
C1	25	80	182	48	32	39
C2	115	145	48	48	115	115
Oil amount (L)	0.46	0.56	0.7	0.68	0.37	0.65
RGV125						
A	Oil plug Rc1/2	Oil plug Rc1/2	Oil plug Rc1/2	Oil plug Rc1/2	Oil plug Rc3/8	Oil plug Rc1/2
A1	95	30	55	225	43	35
A2	180	140	50	50	140	140
B	Oil level	Oil level	Oil level	Oil level	Oil level	Oil level
B1	60	60	88	192	88	88
B2	195	195	88	88	192	192
C	Drain Rc1/2	Drain Rc1/2	Drain Rc1/2	Drain Rc1/2	Drain Rc1/2	Drain Rc3/8
C1	30	95	225	55	35	43
C2	140	180	50	50	140	140
Oil amount (L)	0.79	1.01	1.22	1.2	0.7	1.1

Attention: _____

Date: _____

Our contact person: _____

Model Sizing Form for the **RollerDrive® RGV series**

Customer's Company, Department		Tel
Address		Fax
Name	Email	

A) Application

B) Overview drawing, loads, operating environment, etc.

(Include any tables, workpieces, or jigs that will be attached to the RGV output shaft, and any loads that will be applied during rotation.)

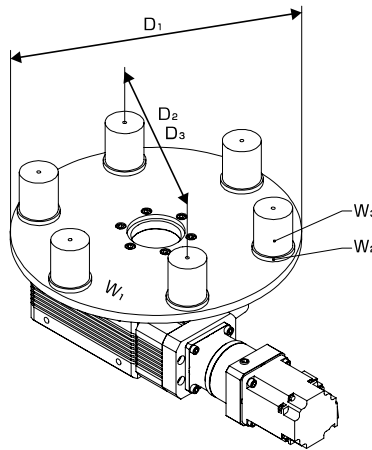
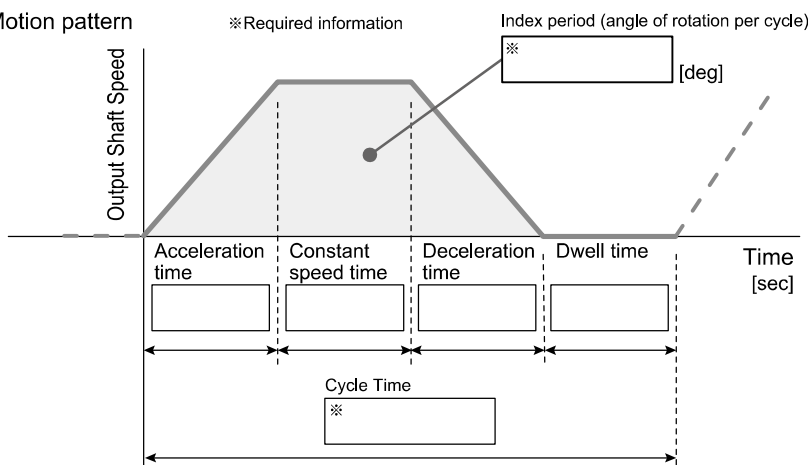


Table diameter : D ₁	[mm]
Table weight : W ₁	[kg]
Jig P.C.D. : D ₂	[mm]
Weight per jig : W ₂	[kg]
Jig quantity : n ₂	[pcs]
Workpiece P.C.D. : D ₃	[mm]
Weight per workpiece : W ₃	[kg]

Load applied to output shaft

Axial/radial load	Moment load	Workpiece quantity : n ₃
[N]	[N·m]	[pcs]

C) Motion pattern



E) Intended servomotor

Manufacturer _____

Model No. _____

Motor power (rated output) _____ [kW]

F) Mounting direction of servomotor
 T surface (right side viewed from front)
 U surface (left side viewed from front)
 Circle applicable answer.

G) Attachment code

D) Lubrication method and position/direction

Please choose one.

Lubrication method : <input type="checkbox"/> Grease lubrication	Position/direction : <input type="checkbox"/> W surface toward bottom	<input type="checkbox"/> V surface toward bottom
<input type="checkbox"/> Oil lubrication	<input type="checkbox"/> U surface toward bottom	<input type="checkbox"/> T surface toward bottom
	<input type="checkbox"/> R surface toward bottom	<input type="checkbox"/> S surface toward bottom

H) Options

None A : Rustproof

B : Rustproof/dustproof/waterproof

Handling

▶ Installation Site

The RollerDrive products with standard specifications should be installed in locations where they can be easily checked and maintained. Specifically:

- Environment temperature from 5 to +40°C
Depending on the operation pattern, the product surface temperature may rise because of heating in the motor or the product itself. Ensure cooling to 60°C or less using a fan or the like.
- Humidity under 85% (no condensation)
- Non vacuum or extreme pressure
- No exposure to water, oil, chemicals, dusts, etc.
- No existence of explosive gas, other hazardous gas, or radio active materials
- No direct sunlight
- Excessive shock or force does not act
- Minimal electromagnetic noise, and isolated from currents (Take particular care near welders, etc.).
- Minimum electro magnetic noise (be cautious on welding machines)

▶ Installation Procedure

The RollerDrive should be put in the operating position and installed on a smooth, robust place. After installing the main unit, attach the drive target to the output flange.

Tightening torque (Table 1)

Housing threads (aluminum)

Unit : N·m

Tightening torque (Table 2)

Output shaft threads (iron-based) Unit : N·m

Thread size	Specified tightening torque (DIN6.8)	Thread size	Specified tightening torque (DIN10.9)
M6	7.5	M4	4.1
M8	18.5	M5	8.5
M10	36.0	M6	14.0
M12	63.0	M8	35.0
M16	158.0	M10	69.0

To prevent the bolts from loosening inadvertently, apply Loctite 242 or equivalent and use a torque wrench to apply the specified torque. (Refer to the tables on the left for the tightening torque.)

▶ Lubrication

RGV series products are available in one of two lubrication methods: Grease lubrication, which is the basic specification, or oil lubrication, which allows for high-speed rotation.

• Grease lubrication

Units are generally maintenance-free, eliminating the need for regular grease replacement. (Please contact Sankyo for any questions about lubrication.)

Lubricating grease: Epnoc grease AP (N) 2 from ENEOS Corporation

• Oil lubrication

Units use high-performance oil for lubrication. Although the oil used for lubrication is scientifically and thermally stable, change the oil after every 3,000 hours of operation to ensure a longer product service life. The oil level indicator can be used to check the condition of the lubricating oil. Stop operation before checking the condition.

Check the amount and color of the oil. If the oil amount has decreased, or if discoloration is found, replace the oil regardless of the operating time. Note that fine bubbles may appear in the oil during operation. This does not indicate a problem with the oil quality.

* When changing the oil, use only the lubricating oil specified below.

Using an oil other than the one specified below for lubrication may shorten the product's service life or cause the components to deteriorate.

Specified standard lubricating oil: Mobil SHC629 (VG150)

Please refer to the instruction manual for product handling details.

Handling

▶ Rustproof/dustproof/waterproof specifications

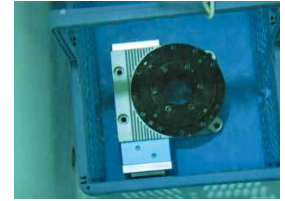
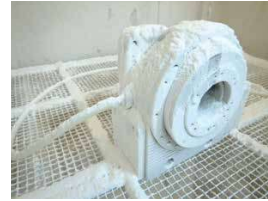
Rustproof/dustproof/waterproof specifications are available protection options for RGR series units.

Following tests conducted under IP67 testing conditions (IEC 60529), TÜV Rheinland Japan Ltd., has confirmed that the RGR series housing is waterproof and dustproof.

(Tests were performed with the RGV063 (gear ratio: 24).)

IP is the abbreviation for International Protection, which indicates the degree of protection necessary to prevent foreign matter (steel balls, copper wires, dust, water, etc.) from entering the housing of electrical or mechanical products. A rating of IP6X indicates complete protection against dust, and IPX7 indicates that there is no intrusion of water even if a product is submerged in water at a specified pressure (at 15 cm to 1 m below the surface) for a certain amount of time (at least 30 minutes).

- A rustproof/dustproof/waterproof rating is not a guarantee against malfunction or for a specific operational lifetime.
- Units are not protected from the intrusion of all solids and liquids under all environments.
- RGV series units are rated IP54 or equivalent unless the dustproof/waterproof option is specified.



⚠ Servo motor torque limit

When using a motor indicated with “▲” in the list of mountable servo motors, take measures to limit the torque before use.

The RollerDrive may be damaged if the maximum instantaneous servo motor torque exceeds the static output torque of the RGV main unit such as during an emergency stop. To prevent the RollerDrive from being damaged, use the servo motor torque limit function and prevent the device from exceeding the static output torque such as during an emergency stop by turning off the power supply after a rapid stop. For emergency stop operations, implement a risk assessment at your company and select the most appropriate stop category.

- ⚠ Malfunctions caused by emergency stops, power failures, or torque limit function failures are not covered under warranty. Refer to the table to the right for torque limit settings.

List of torque limit setting values

Model	Total gear ratio	Setting value[N · m]
RGV040	15	6.6
	75	1.3
RGV063	12	7.2
	24	7.6
	60	1.4
	120	1.5
	12	12.9
RGV080	24	13.4
	36	4.3
	60	2.5
	72	4.4
	120	2.6
RGV100	12	31.2
	24	32.5
	60	6.2
	120	6.5
RGV125	36	17.5
	60	10.5
	120	11

⚠ Limitations on the use of this product

- This product cannot be used in applications where operation of the product has a direct impact in human life, or can cause bodily harm to people.

The scope of these use limitations includes the following applications:

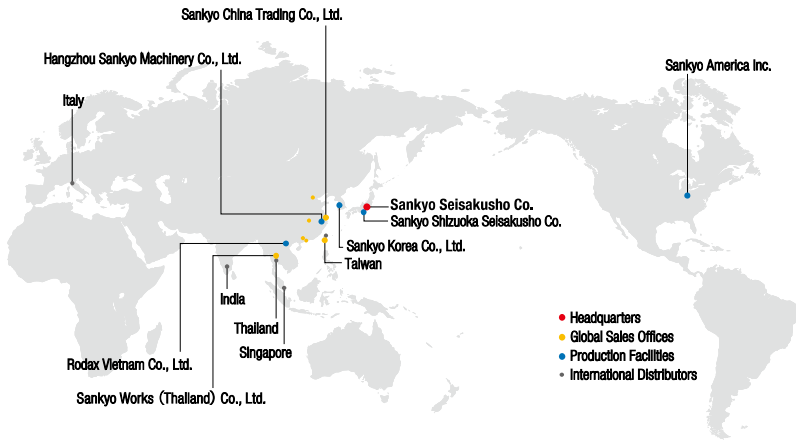
- Medical equipment
- Nuclear power related equipment
- Aerospace equipment
- Equipment for handling explosive, corrosive or toxic substances etc.

- Please consult with our company if you are considering use in one of the above applications.
- If there is a possibility that this product will be used in a final use location outside Japan, in weapons or equipment for weapon manufacture, then it may be subject to regulation due to the Foreign Exchange and Foreign Trade Control Law. Please take extra care with regard to the application and region of use, and properly submit applications and follow procedures if necessary.

⚠ Notes on information

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Global network



Group Companies

Sankyo America Inc.

10655 State Route 47 Sidney, Ohio, 45365 U.S.A.
 Phone: +1-(0)937-498-4901 Fax: +1-(0)937-498-9403
 Email: sales@sankyoautomation.com

Sankyo Korea Co., Ltd.

1449-48 Seobu-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do, 16643 Korea
 Phone: +82-(0)31-895-5991 Fax: +82-(0)31-895-6607
 Email: kr-sales@rollerdrive.com

Sankyo China Trading Co., Ltd.

[Shanghai Sales Office]
 Room 1103, Block B, No.391 Guiping Road,
 Shanghai 200233 China
 Phone: +86-(0)21-5445-2813 Fax: +86-(0)21-5445-2340
 Email: sales@sankyochina-trading.com

[Shenzhen Sales Office]

Unit 19J, Tower B, NEO Building, No.6009 Shennan Avenue,
 Futian District, Shenzhen China
 Phone: +86-(0)755-8230-0270 Fax: +86-(0)755-8236-4605

[Tianjin Sales Office]

Room 1905, Pengzhanfeiwo Building A, Crossing Yale Road Yaolin Road,
 Xiqing District, Tianjin 300380 China
 Phone: +86-(0)22-2312-1005 Fax: +86-(0)22-2312-1007

[Guangzhou Sales Office]

Room 913, Xing Pu building, No.12 Guan Hong Road,
 Guangzhou Economic Development Zone, Huang Pu, Guang Zhou 510670 China
 Phone: +86-(0)20-8985-1846 Fax: +86-(0)20-8225-7346

[Wuhan Sales Office]

Room 2301, Taihe Square, No.134 Wusheng Road, Wuhan,
 Hubei Province China
 Phone: +86-(0)27-8568-5818 Fax: +86-(0)27-8568-2818

Hangzhou Sankyo Machinery Co., Ltd.

No.2518 Jiang Dong 2 Road, Hangzhou Jiang Dong Industrial Park,
 Xiaoshan Zone, Hangzhou, Zhejiang, China
 Phone: +86-(0)571-8283-3311 Fax: +86-(0)571-8283-1133

Rodax Vietnam Co., Ltd.

Plot No. M1, Thang Long Industrial Park II
 Di Su, My Hao, Hung Yen, Viet Nam
 Phone: +84-(0)221-3-589701 Fax: +84-(0)221-3-589708

Sankyo Works (Thailand) Co., Ltd.

9/31 Moo 5, Phaholyotin Road, Klongnueng,
 Klong Luang, Patumthani 12120 Thailand
 Phone: +66-(0)2-516-5355 Fax: +66-(0)2-068-0931
 Email: sales@sankyo-works.co.th

Contact us

Mon-Fri AM8:30-12:00 PM13:00-17:30 UTC + 09:00 (JST) (Except public holidays and company holidays)

■ Headquarters (International Sales Division)

3-37-3 Tabatashinmachi, Kita-ku, Tokyo, Japan 114-8538
 Phone: +81-(0)3-3800-3330
 Fax: +81-(0)3-3800-3380
 Email: overseas@sankyo-seisakusho.co.jp
 URL: <http://www.sankyo-seisakusho.co.jp>

■ Taiwan Sales Office

No.21, Ln.152, Jianxing Rd., Sanhe Vil., Daya Dist., Taichung City 42876, Taiwan (R.O.C.)
 Phone: +886-(0)4-2359-4048
 Fax: +886-(0)4-2359-4720
 Email: tw-sales@rollerdrive.com





<http://www.sankyo-seisakusho.co.jp>

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