



Precision Reduction Gear RV™ Cseries

Model codes

Explanation of codes

•When placing an order or making an inquiry, please use the following codes to specify the appropriate model.

RV - **100** **C** - **36.75** - **A** - **B**

Model code	Frame number	Series code	Ratio code	Center gear code	Output shaft clamp code
RV	10	C: Hollow shaft type	27	A: Standard gear A Z: No gear	B: Bolt-clamping output shaft type T: Through-bolt clamping output shaft type
	27		36.57		
	50		32.54		
	100		36.75		
	200		34.86		
	320		35.61		
	500		37.34		

Rating table

Output speed (rpm)				5	10	15	20	25	30	40	50	60
Model	Ratio code	R Speed ratio		Output torque (Nm) / input capacity (kW)								
		Shaft rotation	Case rotation									
RV-10C	27	27	26	136 / 0.09	111 / 0.16	98 / 0.21	90 / 0.25	84 / 0.29	80 / 0.34	73 / 0.41	68 / 0.47	65 / 0.54
RV-27C	36.57	1,390/38	1352/38	368 / 0.26	299 / 0.42	265 / 0.55	243 / 0.68	227 / 0.79	215 / 0.90	197 / 1.10	184 / 1.29	174 / 1.46
RV-50C	32.54	1,985/61	1924/61	681 / 0.48	554 / 0.77	490 / 1.03	450 / 1.26	420 / 1.47	398 / 1.67	366 / 2.04	341 / 2.38	
RV-100C	36.75	36.75	35.75	1,362 / 0.95	1,107 / 1.55	980 / 2.05	899 / 2.51	841 / 2.94	796 / 3.33	730 / 4.08		
RV-200C	34.86	1,499/43	1456/43	2,724 / 1.90	2,215 / 3.09	1,960 / 4.11	1,803 / 5.04	1,686 / 5.88	1,597 / 6.69			
RV-320C	35.61	2,778/78	2700/78	4,361 / 3.04	3,538 / 4.94	3,136 / 6.57	2,881 / 8.05	2,690 / 9.41				
RV-500C	37.34	3,099/83	3016/83	6,811 / 4.75	5,537 / 7.73	4,900 / 10.26	4,498 / 12.56					

Note: 1. The allowable output speed will differ depending upon the duty ratio, load, and ambient temperature. Contact us regarding use above the allowable output speed N_{s0} .

2. The input capacity (kW) is calculated according to the following calculation formula:

$$\text{Input capacity (kW)} = \frac{2\pi \cdot N \cdot T}{60 \cdot \frac{\eta}{100} \cdot 10^3}$$

N : Output speed (rpm)
 T : Output torque (Nm)
 η : Reduction gear efficiency (%)

Note: The input capacity is a reference value.

3. When the reduction gear is used at low temperatures, there will be a larger no-load running torque. Note this characteristic when selecting a motor. (Refer to "Low temperature characteristic" on page 94.)

T ₀ Rated torque (Note 7)	N ₀ Rated output Speed	K Rated service life	T _{S1} Allowable acceleration/ deceleration torque	T _{S2} Momentary maximum allowable torque	N _{S0} Allowable output speed (Note 1)	Backlash	Lost motion MAX.	Angular transmission error MAX.	Startup efficiency (Typical value)	M _{O1} Allowable moment (Note 4)	M _{O2} Momentary allowable moment (Max.)	W _r Allowable radial load (Note 9)	Reduced value of the inertia moment for the input shaft (Note 5)	I (= $\frac{GD^2}{4}$) Inertia of center gear	Weight
(Nm)	(rpm)	(h)	(Nm)	(Nm)	(r/min)	(arc.min.)	(arc.min.)	(arc.sec.)	(%)	(Nm)	(Nm)	(N)	(kgm ²)	(kgm ²)	(kg)
98	15	6,000	245	490	80	1.0	1.0	70	75	686	1,372	5,755	1.38×10 ⁻⁶	0.678×10 ⁻³	4.6
264.6	15	6,000	662	1,323	60	1.0	1.0	70	80	980	1,960	6,520	0.550×10 ⁻⁴	0.563×10 ⁻³	8.5
490	15	6,000	1,225	Bolt joint 2,450 Through-bolt joint 1,960	50	1.0	1.0	60	75	1,764	3,528	9,428	1.82×10 ⁻⁴	0.363×10 ⁻²	14.6
980	15	6,000	2,450	Bolt joint 4,900 Through-bolt joint 3,430	40	1.0	1.0	50	80	2,450	4,900	11,801	0.475×10 ⁻³	0.953×10 ⁻²	19.5
1,960	15	6,000	4,900	Bolt joint 9,800 Through-bolt joint 7,350	30	1.0	1.0	50	80	8,820	17,640	31,455	1.39×10 ⁻³	1.94×10 ⁻²	55.6
3,136	15	6,000	7,840	15,680	25	1.0	1.0	50	85	20,580	39,200	57,087	0.518×10 ⁻²	0.405×10 ⁻¹	79.5
4,900	15	6,000	12,250	24,500	20	1.0	1.0	50	80	34,300	78,400	82,970	0.996×10 ⁻²	1.014×10 ⁻¹	154

Note: 4. The allowable moment will differ depending on the thrust load. Check the allowable moment diagram (p. 91).

5. The $\frac{GD^2}{4}$ value is a value for a discrete reduction gear, and the $\frac{GD^2}{4}$ for center and input gears is not included. Therefore, refer to the following equation regarding the $\frac{GD^2}{4}$ converted to motor shaft.

$$\frac{GD^2}{4} \text{ of reduction gear unit} + \frac{GD^2}{4} \text{ of center gear} + \frac{GD^2}{4} \text{ of input gear}$$

(Number of teeth on large center gear / Number of teeth on input gear)² + $\frac{GD^2}{4}$ of input gear

6. For the moment rigidity and torsional rigidity, refer to the calculation of tilt angle and the torsion angle (p. 99).

7. The rated torque is the value that produces the rated service life based on operation at the rated output speed; it does not indicate the maximum load. Refer to the "Glossary" (p.81) and the "Product selection flowchart" (p.82).

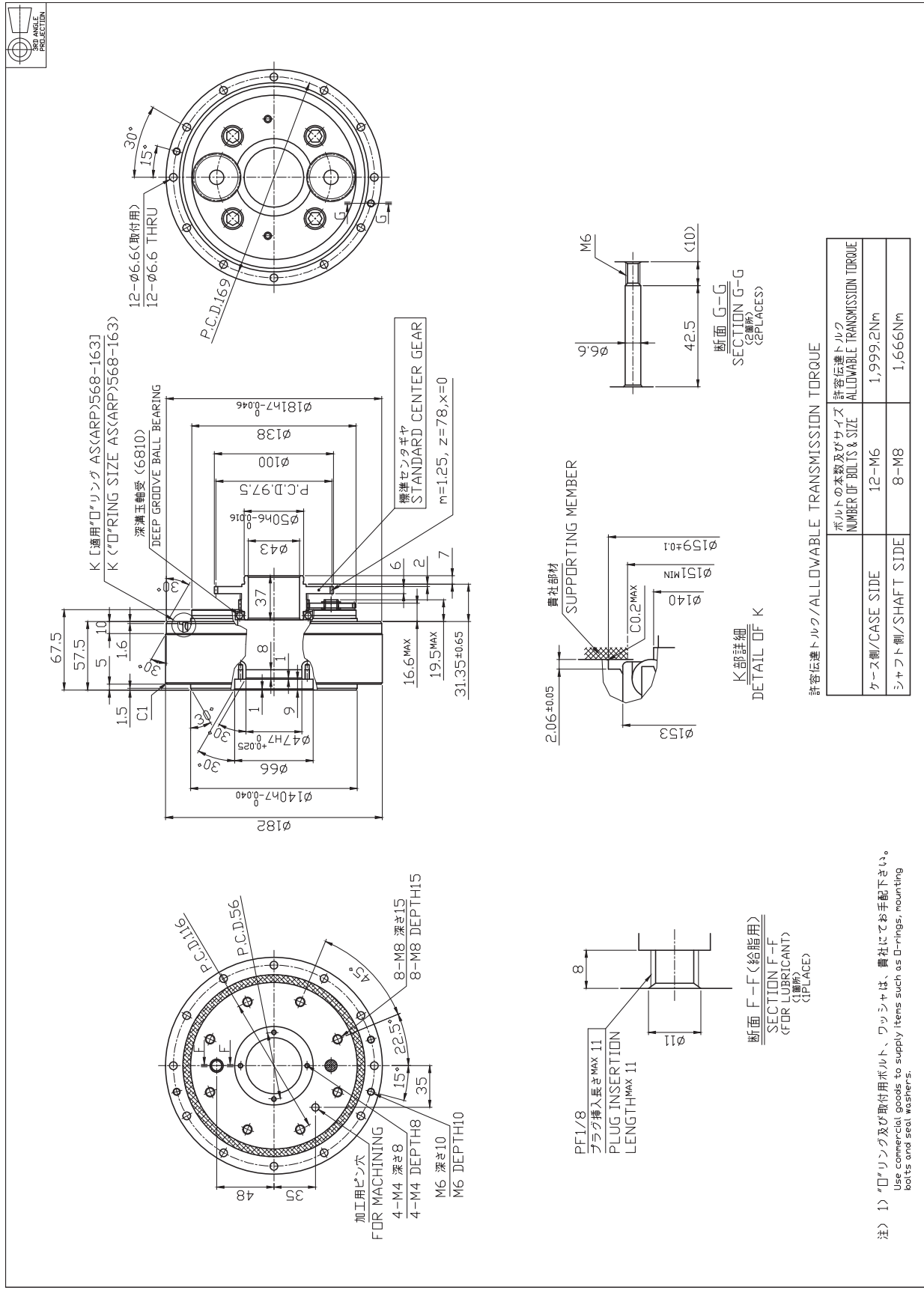
8. The specifications above are based on Nabtesco evaluation methods; this product should only be used after confirming that it is appropriate for the operating conditions of your system.

9. When a radial load is to be applied to a size within size b, use a value within the allowable radial load.

RV-27C Bolt clamping output shaft type

Speed ratio

Type code **RV-27C-36.57-A-B**



許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

ケース側/CASE SIDE	シャフト側/SHAFT SIDE	ボルトの本数及びサイズ NUMBER OF BOLTS & SIZE	許容伝達トルク ALLOWABLE TRANSMISSION TORQUE
12-M6	8-M8	1,999.2Nm	1,666Nm

注) 1) "O"リング及び取付用ボルト、ワッシャーは、貴社にてお配下さい。
Use commercial goods to supply items such as O-rings, mounting bolts and seat washers.

Specifications and dimensions are subject to change without notice.

Technical Information

Original series

C series

E series

RV-50C Bolt clamping output shaft type

Speed ratio
Type code RV-50C-32.54-A-B

9-M10 深さ18
 9-M10 DEPTH18
4-M4 深さ6
 4-M4 DEPTH6
加工用ピン穴
 FOR MACHINING
標準センターギヤ
 STANDARD CENTER GEAR
 $m=2, z=78, x=0$
許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

断面 E-E (給脂用)
 SECTION E-E
 (FOR LUBRICANT)
 (箇所)
 (PLACE)
断面 G-G
 SECTION G-G
 (箇所)
 (PLACES)

許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

ボルトの本数及びサイズ NUMBER OF BOLTS & SIZE	許容伝達トルク ALLOWABLE TRANSMISSION TORQUE
ケース側/CASE SIDE	8-M8 2,989Nm
シャフト側/SHAFT SIDE	9-M10 3,410.4Nm

注) 1) "O"リング及び取付用ボルト、ワッシャは、貴社にてお配下さい。
 Use commercial goods to supply items such as O-rings, mounting bolts and sect. washers.

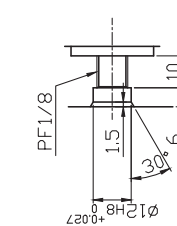
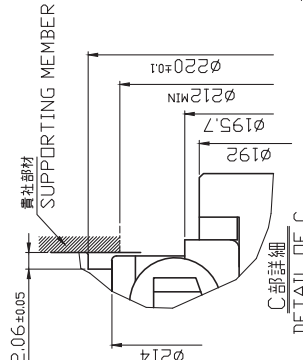
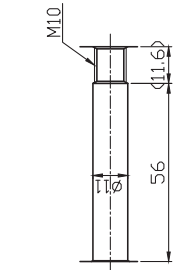
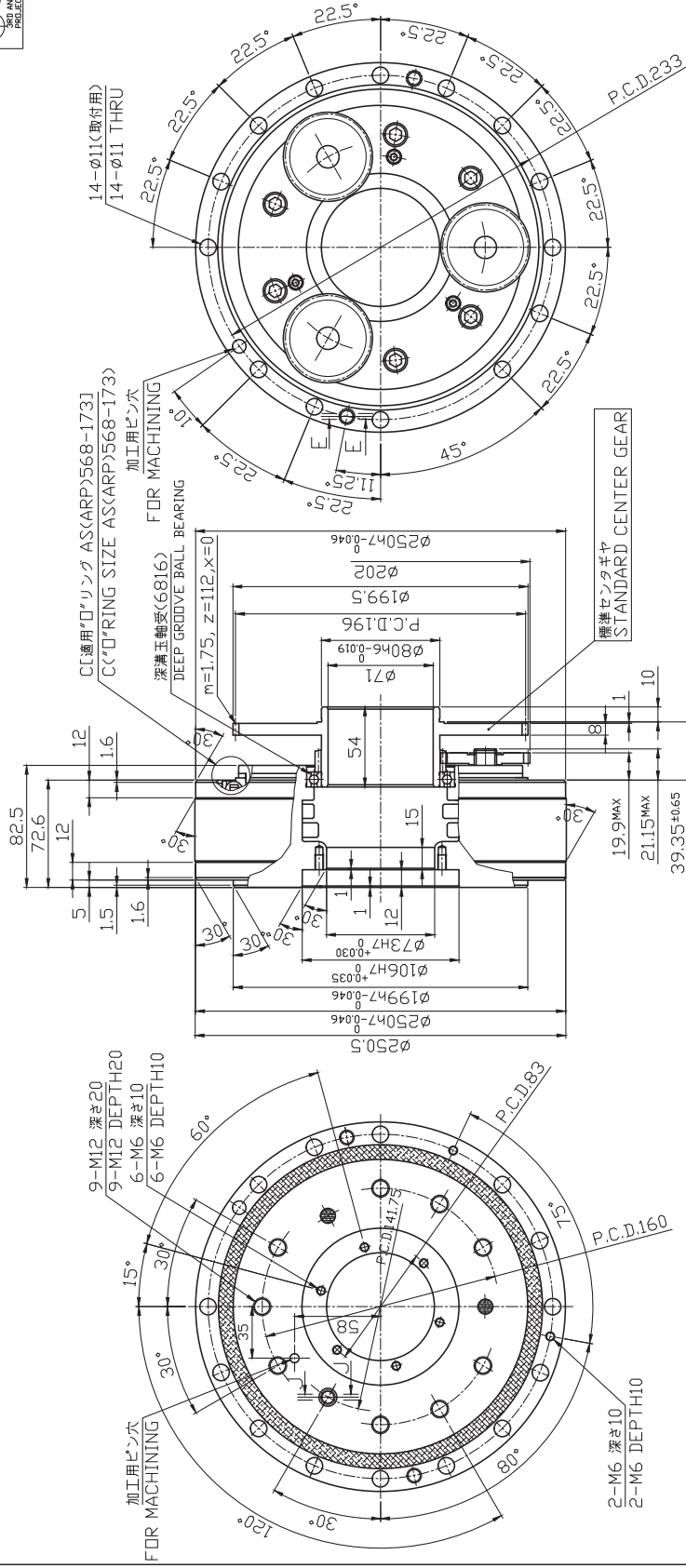
Specifications and dimensions are subject to change without notice.



RV-100C Bolt clamping output shaft type

Type code **RV-100C-36.75-A-B**

Speed ratio



許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

ケース側/CASE SIDE	シャフト側/SHAFT SIDE	ボルトの本数及びサイズ NUMBER OF BOLTS & SIZE	許容伝達トルク ALLOWABLE TRANSMISSION TORQUE
		14-M10	9,310Nm
		9-M12	5,948.6Nm

注) 1) “O”リング及び取付用ボルト、ワッシャーは、貴社にてお取り扱い。
Use commercial goods to supply items such as O-rings, mounting bolts and seat washers.

Specifications and dimensions are subject to change without notice.

Technical Information

Original series

C series

E series

RV-200C Bolt clamping output shaft type

Speed ratio **Type code RV-200C-34.86-A-B**

3RD ANGLE PROJECTION

加工用ピン穴 FOR MACHINING

4-M6 深さ13 4-M6 DEPTH13
9-M16 深さ25 9-M16 DEPTH25
P.C.D.172.5
P.C.D.194
P.C.D.324

2-M12 深さ26 (面端) 下穴通し
2-M12 DEPTH26(BOTH ENDS)
(PREPARED HOLE THRU)
6-M12 深さ26
6-M12 DEPTH26

45° 45° 22.5° 45°

C1.5~2
K [適用] ロリング AS(ARP)568-2771
K [適用] RING SIZE AS(ARP)568-277
K [適用] 軸受 (6820) 8-φ13 (取付用)
DEEP GROOVE BALL BEARING 8-φ13 THRU

標準センターギヤ STANDARD CENTER GEAR

10 1 13

31.2 MAX 33.2 MAX 56.2 ±0.85

PF1/8 深さ10 PF1/8 DEPTH 10

断面 J-J (給脂用)
SECTION J-J
(FOR LUBRICANT)
(給脂用切欠)

1.5 19 1.6 30

120.5 7 95 10 10 1.8 60° 60° C1.5~2 30° 30° 1 1 13 24 66 100h6-0.022 100h6-0.022 90 224 224 248 346h7-0.057 346h7-0.057 260h7-0.052 138h7+0.040 100h7+0.035 347 347

4-M6 深さ13 4-M6 DEPTH13
9-M16 深さ25 9-M16 DEPTH25
P.C.D.172.5
P.C.D.194
P.C.D.324

38° 12 38° 86 30°

6.5 MIN 2.7 ±0.05 4.7 303±0.1 282 MIN

歯社部材 SUPPORTING MEMBER

K部詳細
DETAIL OF K

許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

ボルトの本数及びサイズ NUMBER OF BOLTS & SIZE	許容伝達トルク ALLOWABLE TRANSMISSION TORQUE
8-M12	10,701.6Nm
9-M16	13,543Nm

ケース側/CASE SIDE
シャフト側/SHAFT SIDE

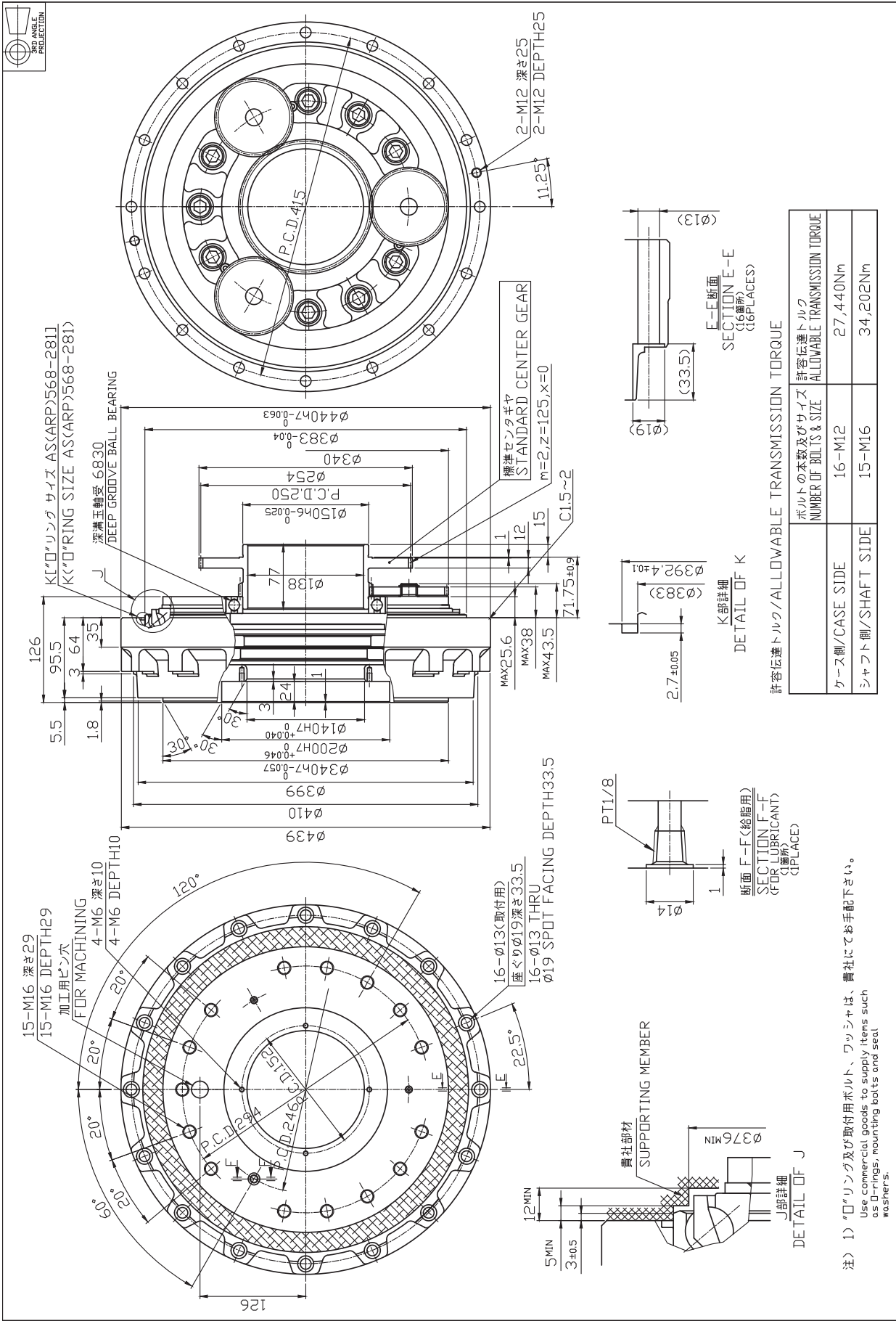
注) 1) 「ロリング及び取付用ボルト、ワッシャは、貴社にてお手配下さい。
Use commercial goods to supply items such as D-rings, mounting bolts and seal washers.

Specifications and dimensions are subject to change without notice.

RV-320C Bolt clamping output shaft type

Type code **RV-320C-35.61-A-B**

Speed ratio



注) 1) *Oリング及び取付用ボルト、ワッシャは、貴社にてお手配下さい。
Use commercial goods to supply items such as O-rings, mounting bolts and seal washers.

Specifications and dimensions are subject to change without notice.

Technical Information

Original series

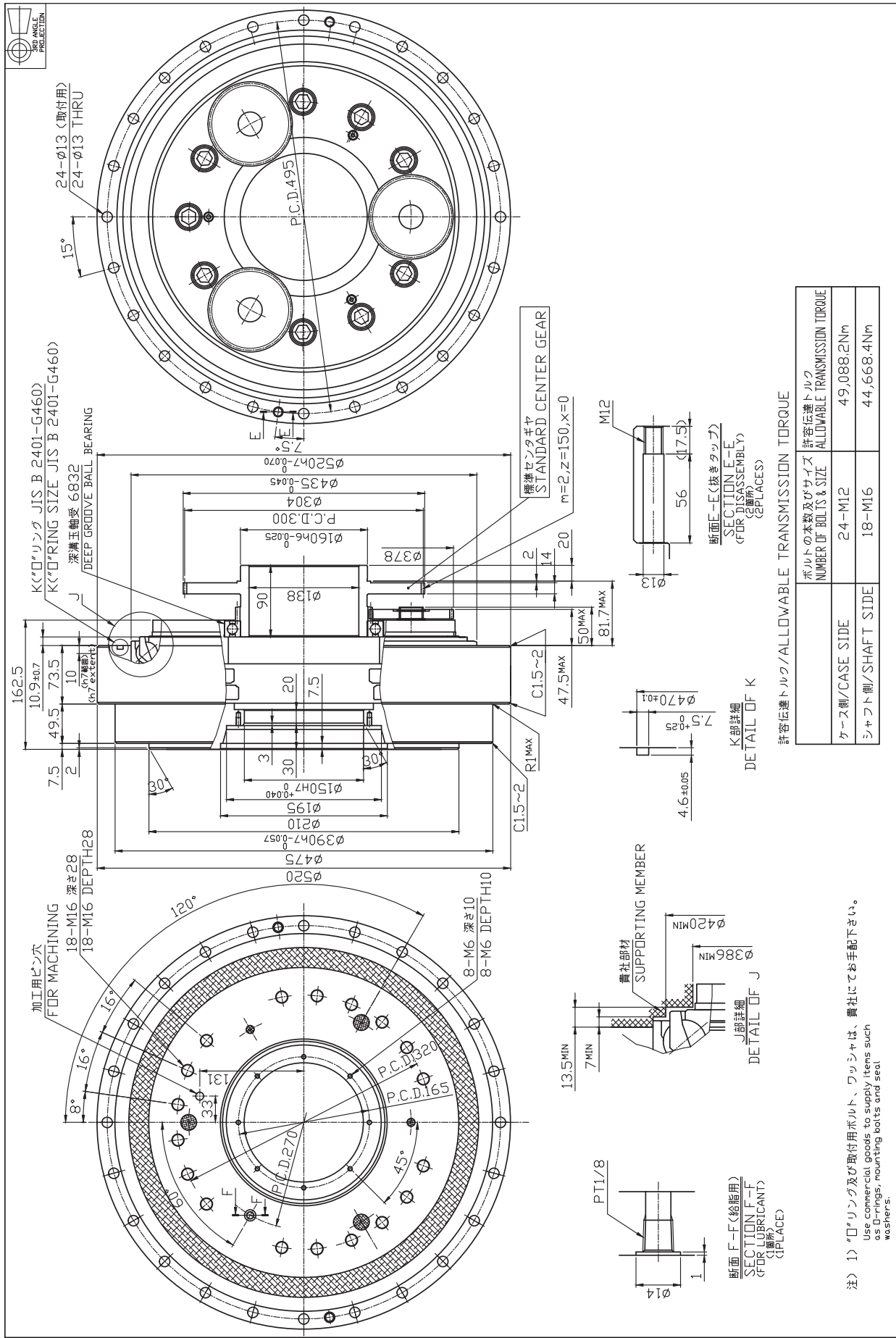
C series

E series

RV-500C Bolt clamping output shaft type

Type code RV-500C-37.34-A-B

Speed ratio

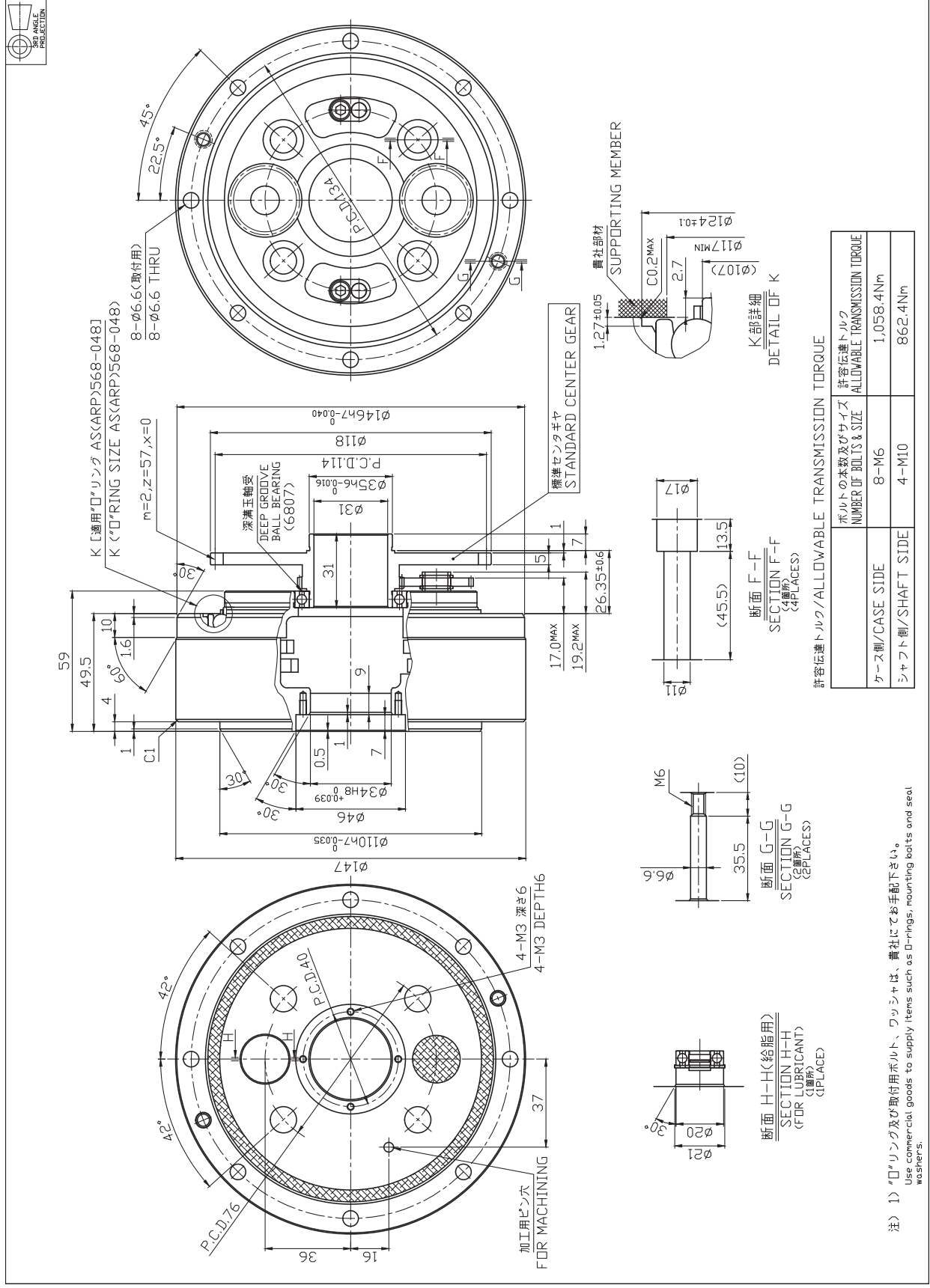


Specifications and dimensions are subject to change without notice.

RV-10C Through-bolt clamping output shaft type

Type code RV-10C-27-A-T

Speed ratio



許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE	
ボルトの本数及びサイズ NUMBER OF BOLTS & SIZE	許容伝達トルク ALLOWABLE TRANSMISSION TORQUE
ケース側/CASE SIDE	8-M6
シャフト側/SHAFT SIDE	4-M10
	1,058.4Nm
	862.4Nm

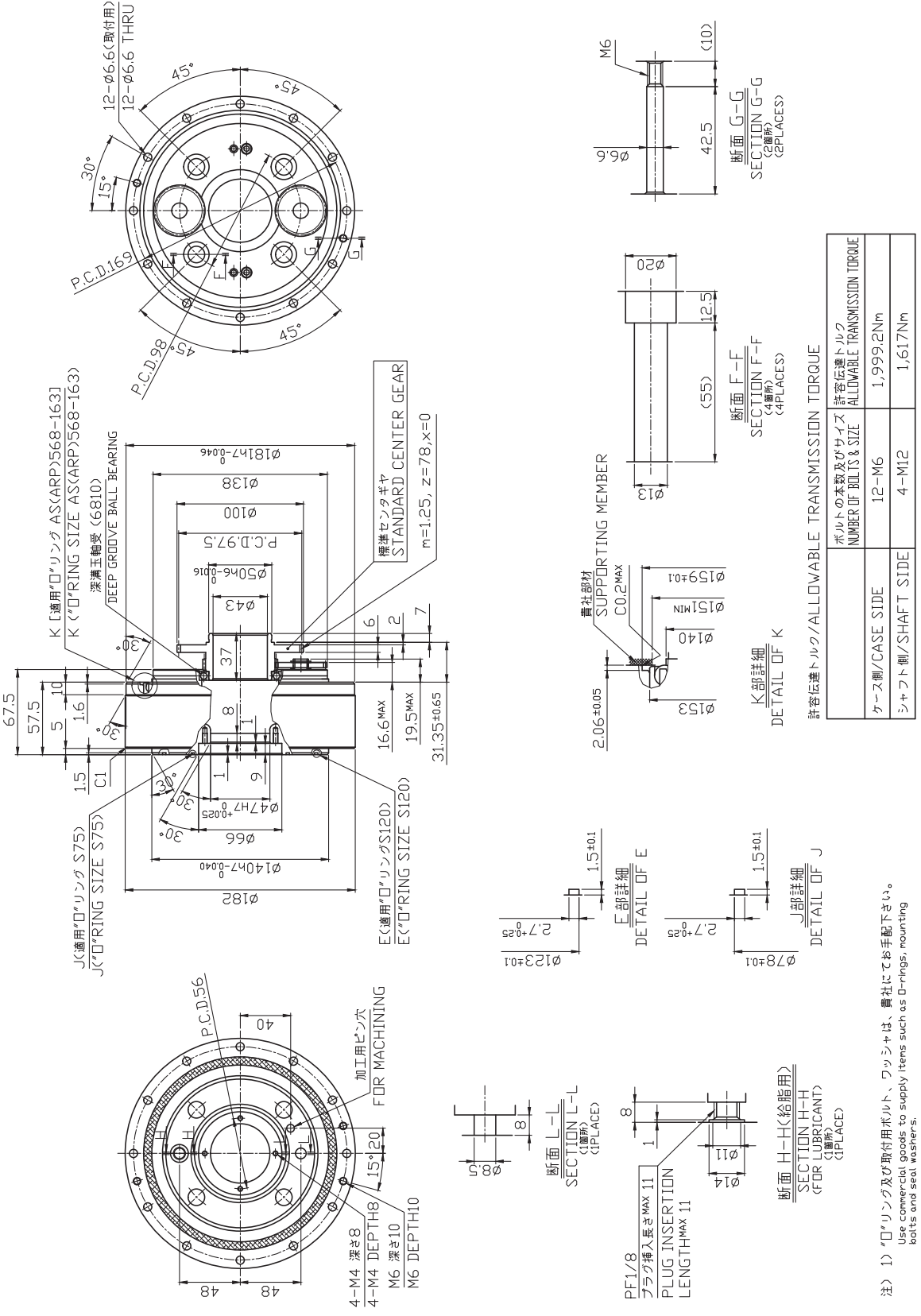
注) 1) "O"リング及び取付用ボルト、ワッシャは、貴社にてお手配下さい。
Use commercial goods to supply items such as O-rings, mounting bolts and seal washers.

Specifications and dimensions are subject to change without notice.

RV-27C Through-bolt clamping output shaft type

Type code RV-27C-36.57-A-T

Speed ratio



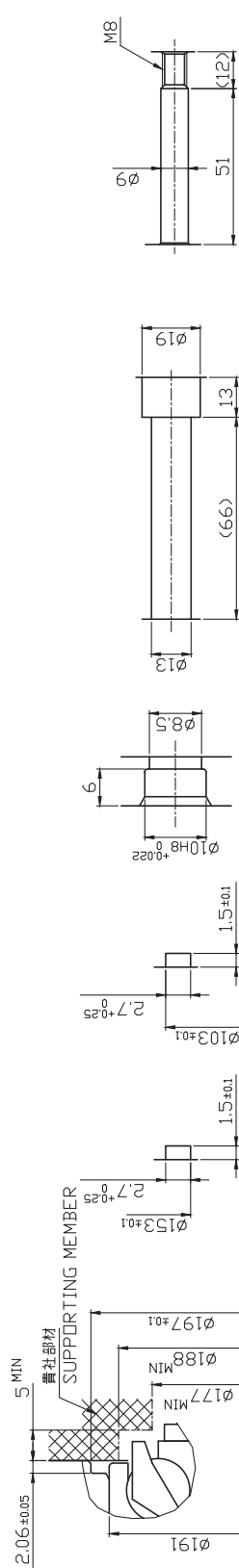
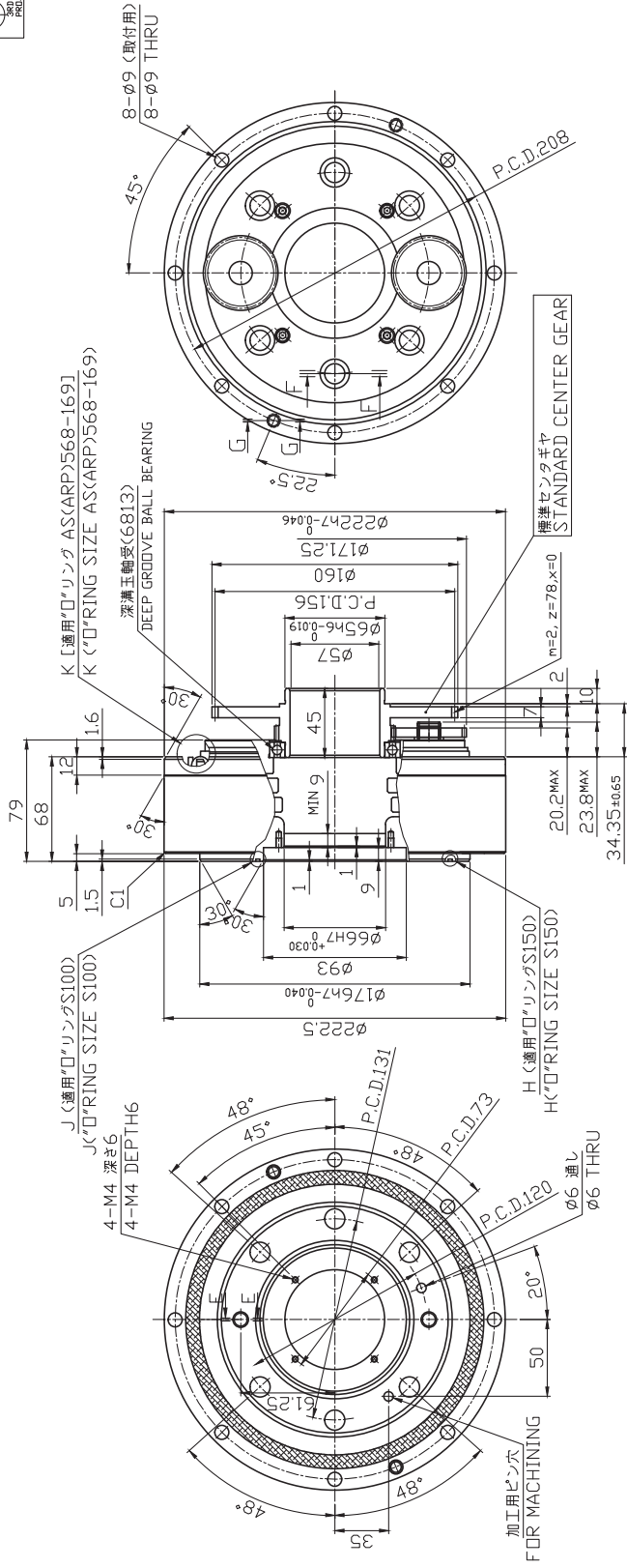
注) 1) "O"リング及び取付用ボルト、ワッシャは、貴社にてお手配下さい。
 Use commercial goods to supply items such as O-rings, mounting bolts and sect. washers.

Specifications and dimensions are subject to change without notice.

RV-50C Through-bolt clamping output shaft type

Type code **RV-50C-32.54-A-T**

Speed ratio



断面 E-E (給脂用)
SECTION E-E
(FOR LUBRICANT)
(REPLACES)

断面 F-F
SECTION F-F
(REPLACES)

断面 G-G
SECTION G-G
(REPLACES)

許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

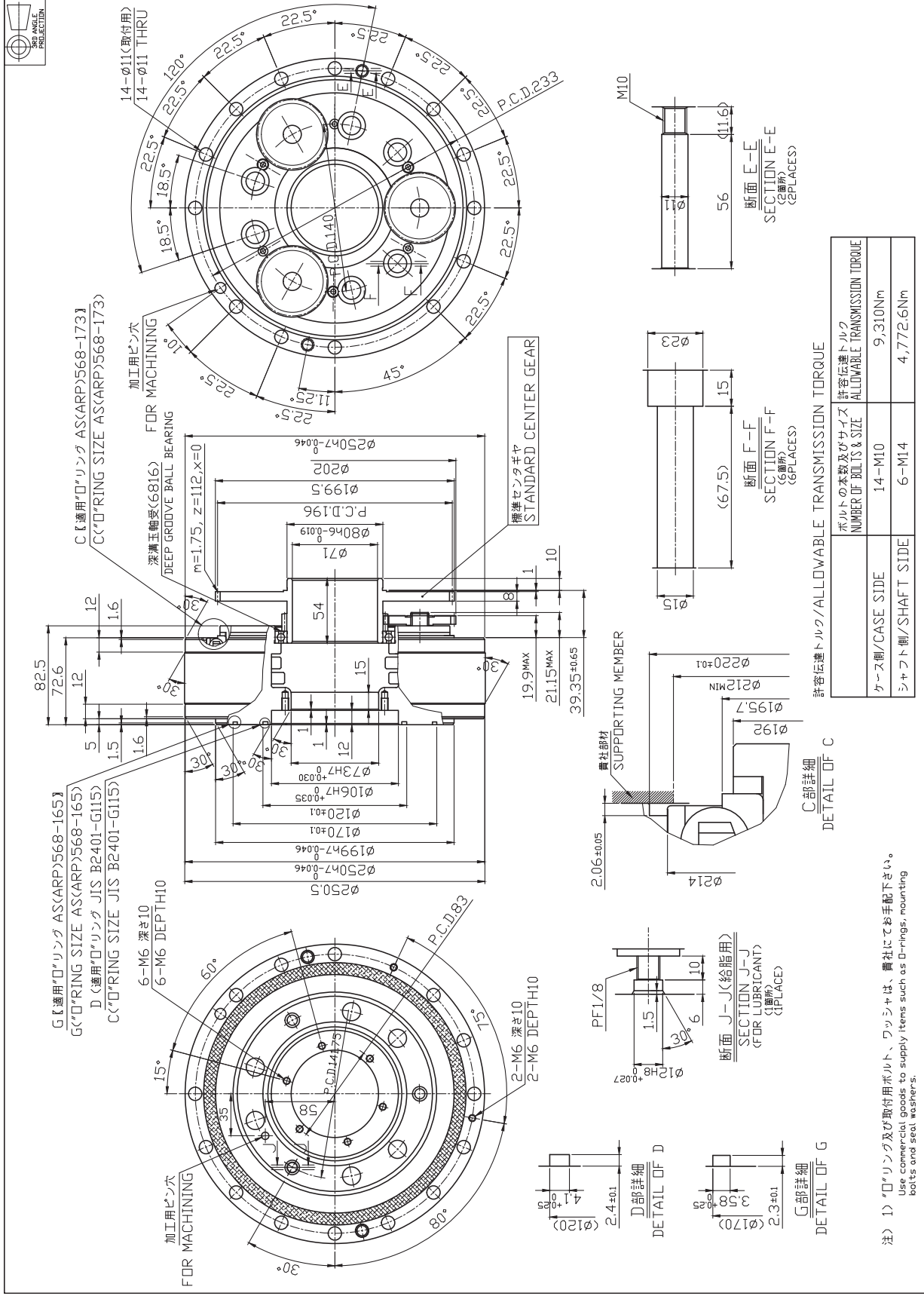
ボルトの本数及びサイズ NUMBER OF BOLTS & SIZE	許容伝達トルク ALLOWABLE TRANSMISSION TORQUE
ケース側/CASE SIDE	8-M8 2,989Nm
シャフト側/SHAFT SIDE	6-M12 3,243.8Nm

注) 1) “O”リング及び取付用ボルト、ワッシャーは、貴社にてお手配下さい。
Use commercial goods to supply items such as O-rings, mounting bolts and flat washers.

Specifications and dimensions are subject to change without notice.

RV-100C Through-bolt clamping output shaft type

Speed ratio
Type code RV-100C-36.75-A-T

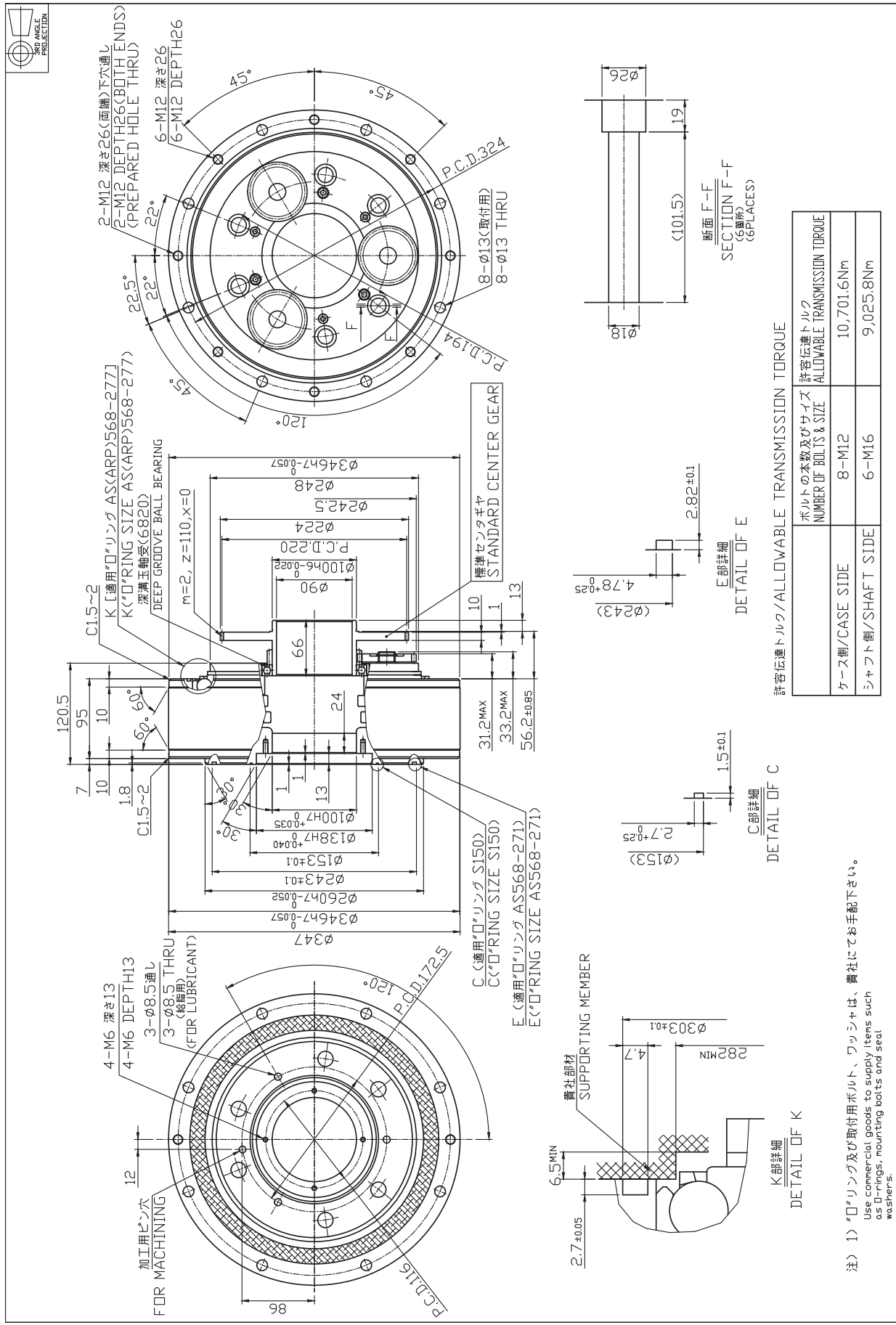


注) 1) Oリング及び取付用ボルト、ワッシャは、貴社にてお配下さい。
 Use commercial goods to supply items such as O-rings, mounting bolts and sect. washers.

Specifications and dimensions are subject to change without notice.

RV-200C Through-bolt clamping output shaft type

Speed ratio **34.86** - **A-T**



注) 1) *ボリリング及び取付用ボルト、ワッシャは、貴社にてお手配下さい。
 Use commercial goods to supply items such as bearings, mounting bolts and seal washers.

Specifications and dimensions are subject to change without notice.

Technical Information

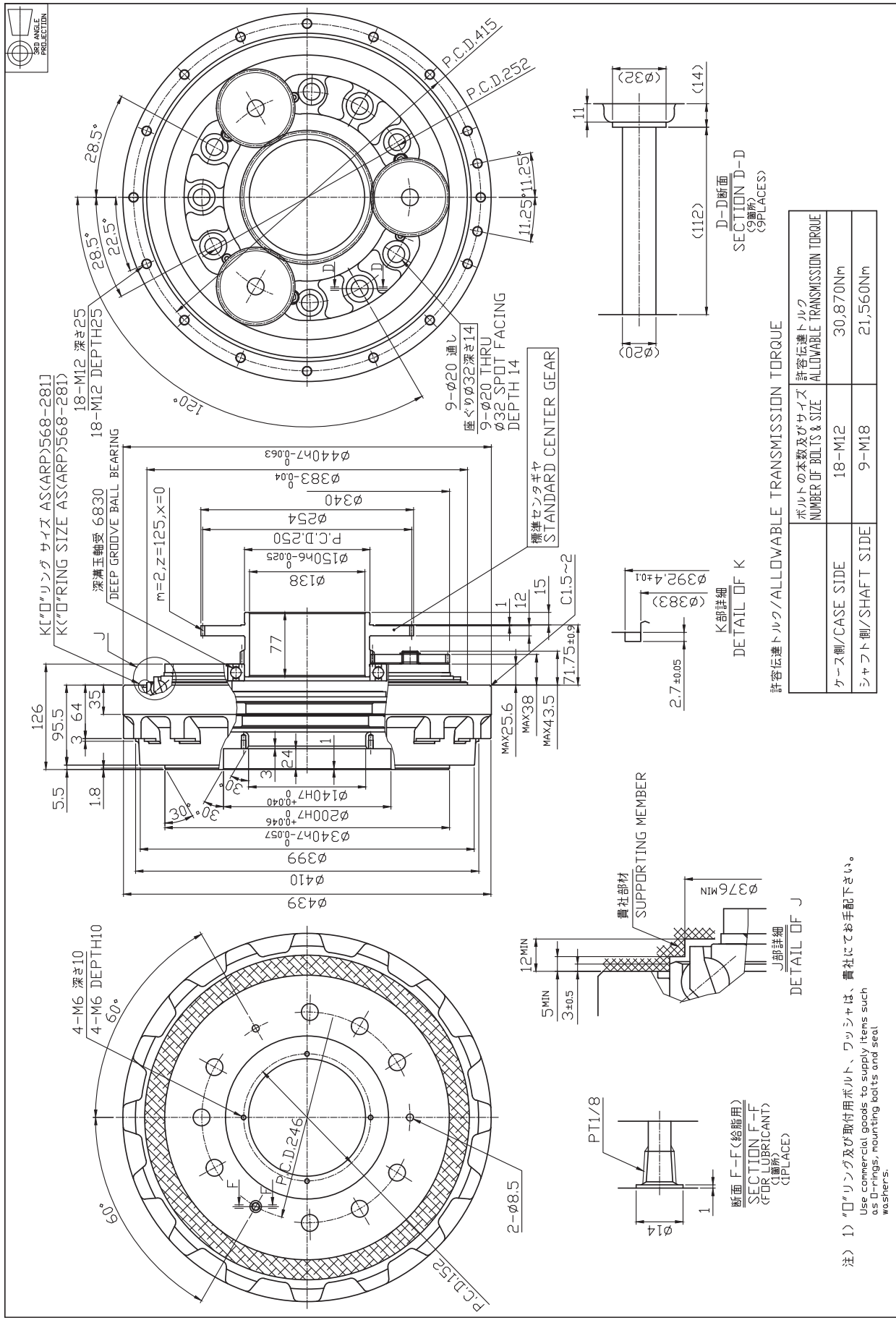
Original series

C series

E series

RV-320C Through-bolt clamping output shaft type

Speed ratio **35.61** - **A-T**



注) 1) フロリリング及び取付用ボルト、ワッシャは、貴社にてお手配下さい。
Use commercial goods to supply items such as fl-rings, mounting bolts and seal washers.

Specifications and dimensions are subject to change without notice.

Design points

Installation components

Design of the motor mounting flange

In order to avoid contact with reduction gear components, refer to the sizes indicated in the “External Dimensions” drawings when designing the motor mounting flange.

Note: The size and number of bolts for the motor mounting flange should be determined with the torque and moment taken into consideration, and should be positioned in line with the reduction gear’s case mounting holes.
 After installing the reduction gear, we recommend installing an add/drain grease fitting to enable grease replacement. An installation example is shown below.
 Use the specified tightening torque to uniformly tighten the hexagon socket head cap screws (with corresponding conical spring washers).

To obtain maximum performance from the C series, it is important to optimally design the assembly, installation, lubrication, and sealing. Be sure to read the following precautions before designing the above.

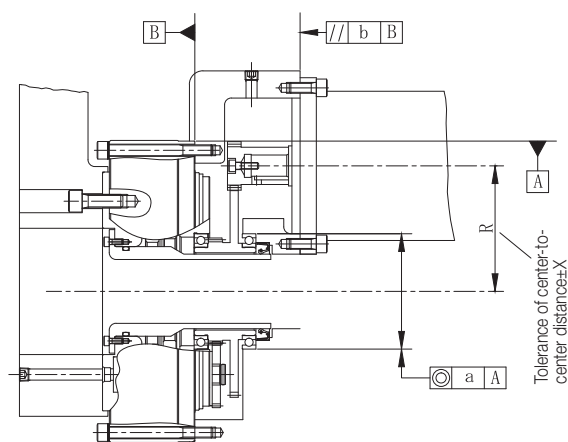
As angular ball bearings are used as the main bearings, design the mating component dimensions according to the dimensions shown in the “External Dimensions” drawings to make sure that the bearing retainer does not come in contact with the motor mounting flange.

Note: Two types of C series are available: bolt clamping output shaft type (refer to pages 40 to 46 for “External Dimensions” drawings, and through bolt clamping output shaft type (refer to pages 47 to 52 for “External Dimensions” drawings excluding RV-500C). Please be sure to specify when ordering.

Assembly accuracy

Design the mounting side components of the C series according to the following. Poor assembly accuracy causes vibration and particularly noise or backlash.

• **Assembly accuracy of RV-10C, 27C, 50C, 100C, 200C, 320C, and 500C**



R indicates distance from center of reduction gear to center of motor.

(Unit: mm)

Model	Tolerance of center to-center distance X	Concentricity tolerance a	Tolerance of parallelism b
RV-10C	±0.03	MAX0.03	MAX0.03
RV-27C			
RV-50C			
RV-100C			
RV-200C			
RV-320C			
RV-500C			