Model codes

Explanation of codes

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

RV – 80 E – 121 – A – B

Model code	Frame number	Series code	Ratio code	Input gear code Input spline code	Output shaft clamp code
RV	6	E: Main bearing built-in type	31, 43, 53.5, 59, 79, 103	A: Standard gear A B: Standard gear B Z: No gear	B: Bolt-clamping output shaft type P: Pin/bolt clamping output shaft type
	20		57, 81, 105, 121, 141, 161		
	40		57, 81, 105, 121, 153		
	80		57, 81, 101, 121, 153		
	110		81, 111, 161, 175		
	160		81, 101, 129, 145, 171		
	320		81, 101, 118.5, 129, 141, 171, 185		
	450		81, 101, 118.5, 129, 154.8, 171, 192.4		

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-6E	31	31	30	101 / 0.07	81 / 0.11	72 / 0.15	66 / 0.19	62 / 0.22	58 / 0.25	54 / 0.30	50 / 0.35	47 / 0.40
	43	43	42									
	53.5	53.5	52.5									
	59	59	58									
	79	79	78									
	103	103	102									
RV-20E	57	57	56	231 / 0.16	188 / 0.26	167 / 0.35	153 / 0.43	143 / 0.50	135 / 0.57	124 / 0.70	115 / 0.81	110 / 0.92
	81	81	80									
	105	105	104									
	121	121	120									
	141	141	140									
	161	161	160									
RV-40E	57	57	56	572 / 0.40	465 / 0.65	412 / 0.86	377 / 1.05	353 / 1.23	334 / 1.40	307 / 1.71	287 / 2.00	271 / 2.27
	81	81	80									
	105	105	104									
	121	121	120									
	153	153	152									
RV-80E	57	57	56	1,088 / 0.76	885 / 1.24	784 / 1.64	719 / 2.01	672 / 2.35	637 / 2.67	584 / 3.26	546 / 3.81	517 / 4.33
	81	81	80									
	101	101	100									
	121	121	120									
	153	*1(153)	*1(152)									
RV-110E	81	81	80	1,499 / 1.05	1,215 / 1.70	1,078 / 2.26	990 / 2.76	925 / 3.23	875 / 3.67	804 / 4.49		
	111	111	110									
	161	161	160									
	175	1227/7	1220/7									
RV-160E	81	81	80	2,176 / 1.52	1,774 / 2.48	1,568 / 3.28	1,441 / 4.02	1,343 / 4.69	1,274 / 5.34			
	101	101	100									
	129	129	128									
	145	145	144									
	171	171	170									
RV-320E	81	81	80	4,361 / 3.04	3,538 / 4.94	3,136 / 6.57	2,881 / 8.05	2,695 / 9.41	2,548 / 10.7			
	101	101	100									
	118.5	118.5	117.5									
	129	129	128									
	141	141	140									
	171	171	170									
	185	185	184									
RV-450E	81	81	80	6,135 / 4.28	4,978 / 6.95	4,410 / 9.24	4,047 / 11.3	3,783 / 13.2				
	101	101	100									
	118.5	118.5	117.5									
	129	129	128									
	154.8	2013/13	2000/13									
	171	171	170									
	192	1347/7	1340/7									

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 =75: Reduction gear efficiency (%)

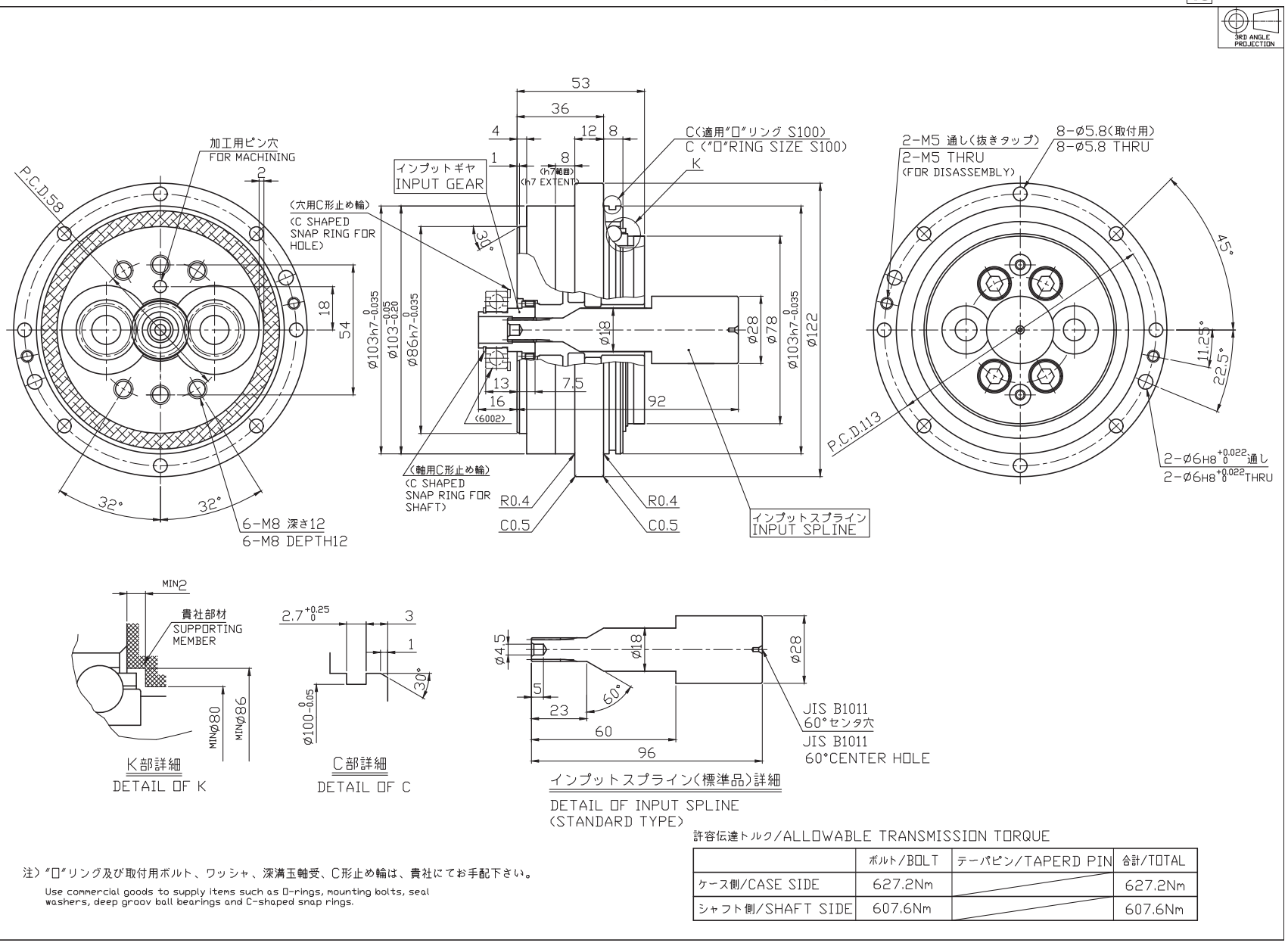
Note: The input capacity is a reference value.

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 93)

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.)	Wr Allowable radial load (Note 10)	Reduced value of the inertia moment for the input shaft (Note 5)	Weight
(Nm)	(rpm)	(h)	(Nm)	(Nm)	(r/min)	(arc.min.)	(arc.min.)	(arc.sec.)	(%)	(Nm)	(Nm)	(N)	(kgm^2)	(kg)
58	30	6,000	117	294	100	1.5	1.5	80	70	196	392	2,139	2.63×10^{-6} 2.00×10^{-6} 1.53×10^{-6} 1.39×10^{-6} 1.09×10^{-6} 0.74×10^{-6}	2.5
167	15	6,000	412	833	75	1.0	1.0	70	75	882	1,764	7,784	9.66×10^{-6} 6.07×10^{-6} 4.32×10^{-6} 3.56×10^{-6} 2.88×10^{-6} 2.39×10^{-6}	4.7
412	15	6,000	1,029	2,058	70	1.0	1.0	60	85	1,666	3,332	11,593	3.25×10^{-5} 2.20×10^{-5} 1.63×10^{-5} 1.37×10^{-5} 1.01×10^{-5}	9.3
784	15	6,000	1,960	Bolt joint 3,920 Pin/bolt joint 3,185	70	1.0	1.0	50	85	Bolt joint 2,156 Pin/bolt joint 1,735	Bolt joint 4,312 Pin/bolt joint 2,156	Bolt joint 12,987 Pin/bolt joint 10,451	8.16×10^{-5} 6.00×10^{-5} 4.82×10^{-5} 3.96×10^{-5} 2.98×10^{-5}	Bolt joint 13.1 Pin/bolt joint 12.7
1,078	15	6,000	2,695	5,390	50	1.0	1.0	50	85	2,940	5,880	16,647	9.88×10^{-5} 6.96×10^{-5} 4.36×10^{-5} 3.89×10^{-5}	17.4
1,568	15	6,000	3,920	Bolt joint 7,840 Pin/bolt joint 6,615	45	1.0	1.0	50	85	3,920	Bolt joint 7,840 Pin/bolt joint 6,762	18,587	1.77×10^{-4} 1.40×10^{-4} 1.06×10^{-4} 0.87×10^{-4} 0.74×10^{-4}	26.4
3,136	15	6,000	7,840	Bolt joint 15,680 Pin/bolt joint 12,250	35	1.0	1.0	50	80	Bolt joint 7,056 Pin/bolt joint 6,174	Bolt joint 14,112 Pin/bolt joint 10,976	Bolt joint 28,066 Pin/bolt joint 24,558	4.83×10^{-4} 3.79×10^{-4} 3.15×10^{-4} 2.84×10^{-4} 2.54×10^{-4} 1.97×10^{-4} 1.77×10^{-4}	44.3
4,410	15	6,000	11,025	Bolt joint 22,050 Pin/bolt joint 18,620	25	1.0	1.0	50	85	8,820	Bolt joint 17,640 Pin/bolt joint 13,524	30,133	8.75×10^{-4} 6.91×10^{-4} 5.75×10^{-4} 5.20×10^{-4} 4.12×10^{-4} 3.61×10^{-4} 3.07×10^{-4}	66.4

Note: 4. The allowable moment will differ depending on the thrust load. Check the allowable moment diagram (p. 91).
5. The inertia moment value is for the reduction gear. It does not include the inertia moment for the 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. Contact us regarding speed ratios other than those listed above.
9. 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.
10. When radial load b is applied within dimension b, use the reduction gear within the allowable radial load.
11. *1 The R=153 for the RV-80E is only for the bolt-clamping output shaft type (page 20, 21).

RV-6E Bolt clamping output shaft type (2 piece input gear) Type code RV-6E-Speed ratio 31/43-A-B



注) "□"リング及び取付用ボルト、ワッシャ、深溝玉軸受、C形止め輪は、貴社にてお手配下さい。

Use commercial goods to supply items such as O-rings, mounting bolts, seal washers, deep groov ball bearings and C-shaped snap rings.

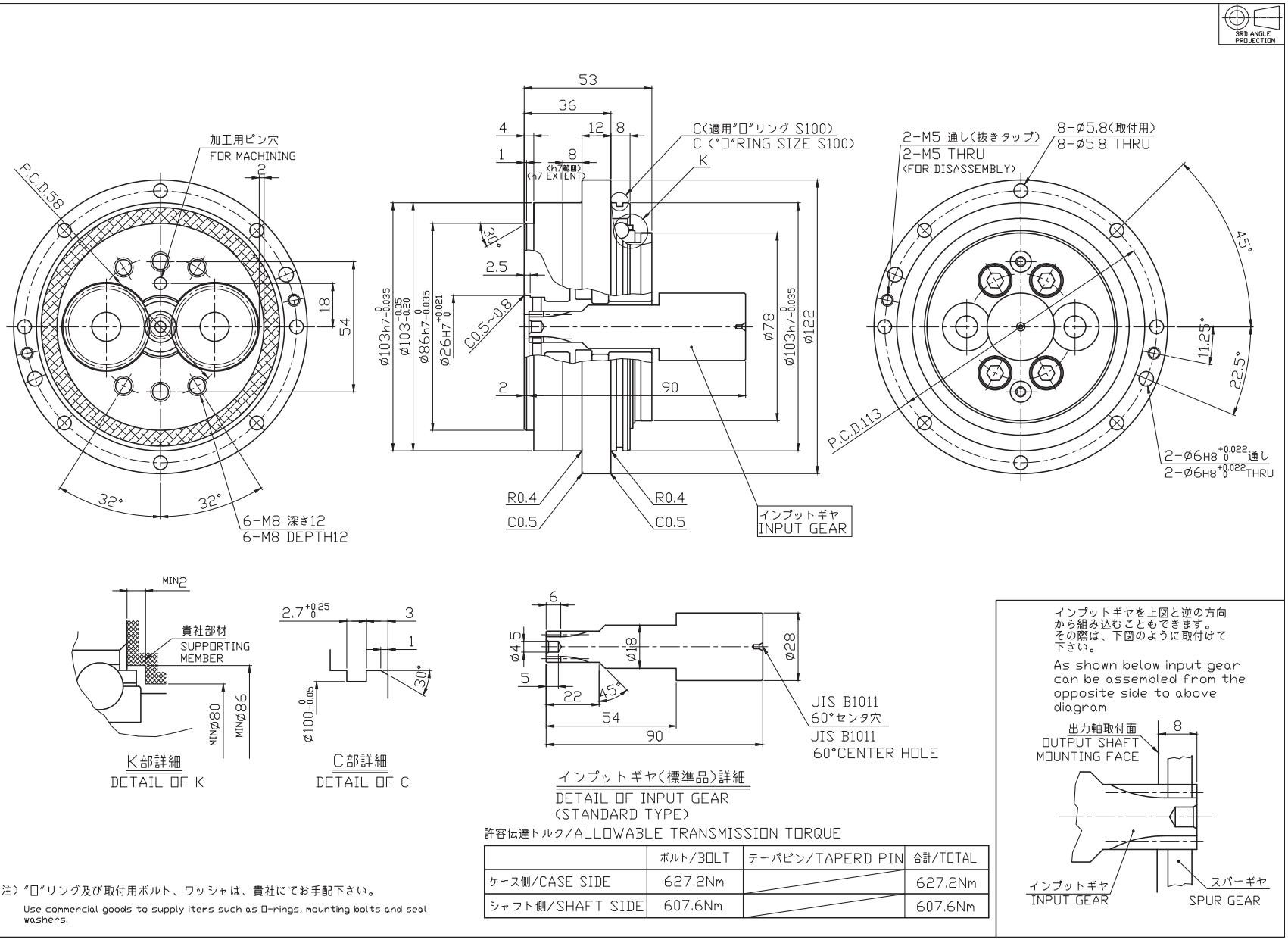
許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	627.2Nm		627.2Nm
シャフト側/SHAFT SIDE	607.6Nm		607.6Nm

Specifications and dimensions are subject to change without notice.

RV-6E　Bolt clamping output shaft type (1 piece input gear)　Type code RV-6E-□-A-B

Speed ratio



インプットギヤを上図と逆の方向から組み込むこともできます。その際は、下図のように取付けて下さい。

As shown below input gear can be assembled from the opposite side to above diagram

許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	627.2Nm		627.2Nm
シャフト側/SHAFT SIDE	607.6Nm		607.6Nm

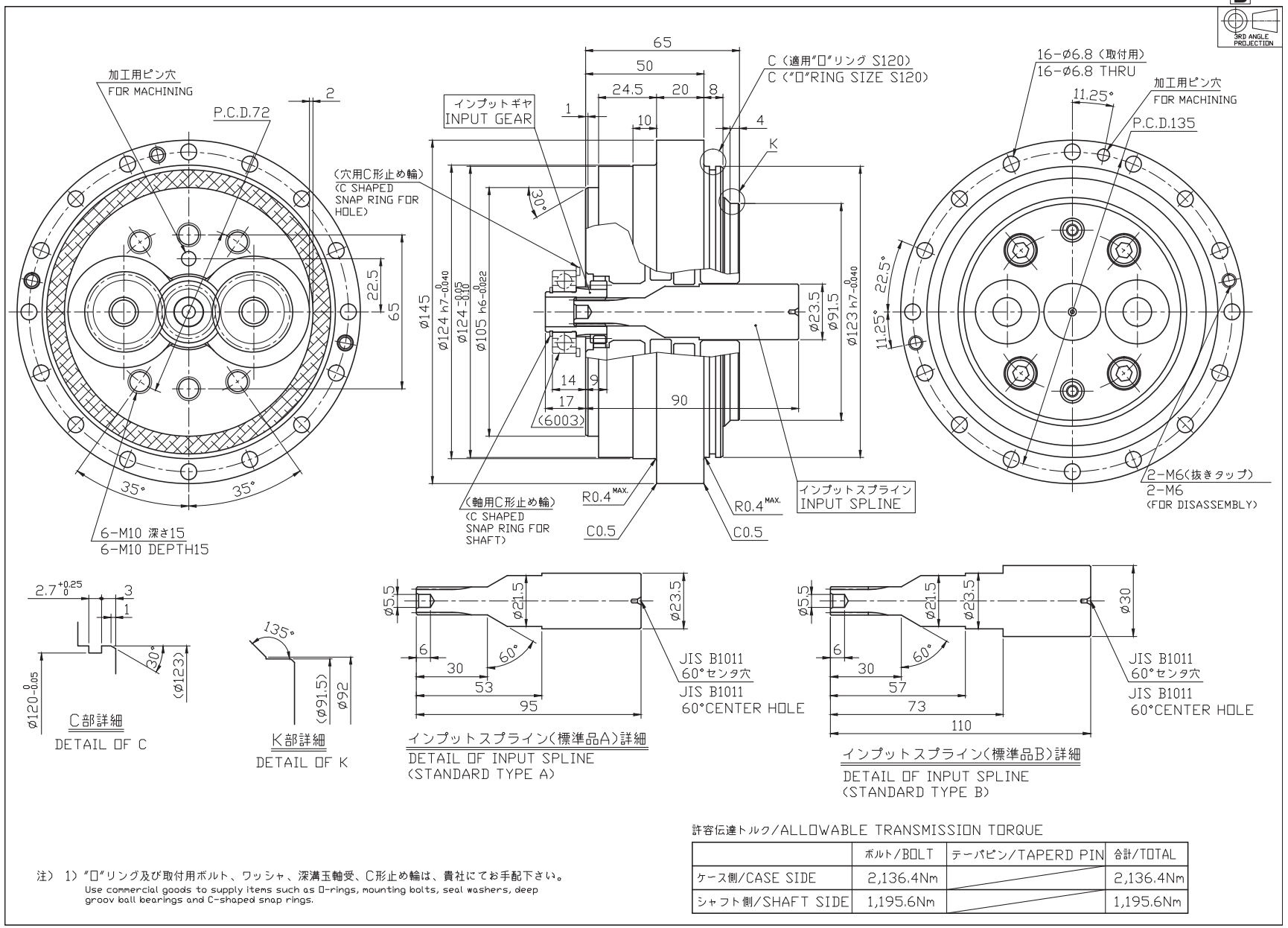
注) "□"リング及び取付用ボルト、ワッシャは、貴社にてお手配下さい。

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-20E　Bolt clamping output shaft type (2 piece input gear)　Type code RV-20E-57-A/B-B

Speed ratio



許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

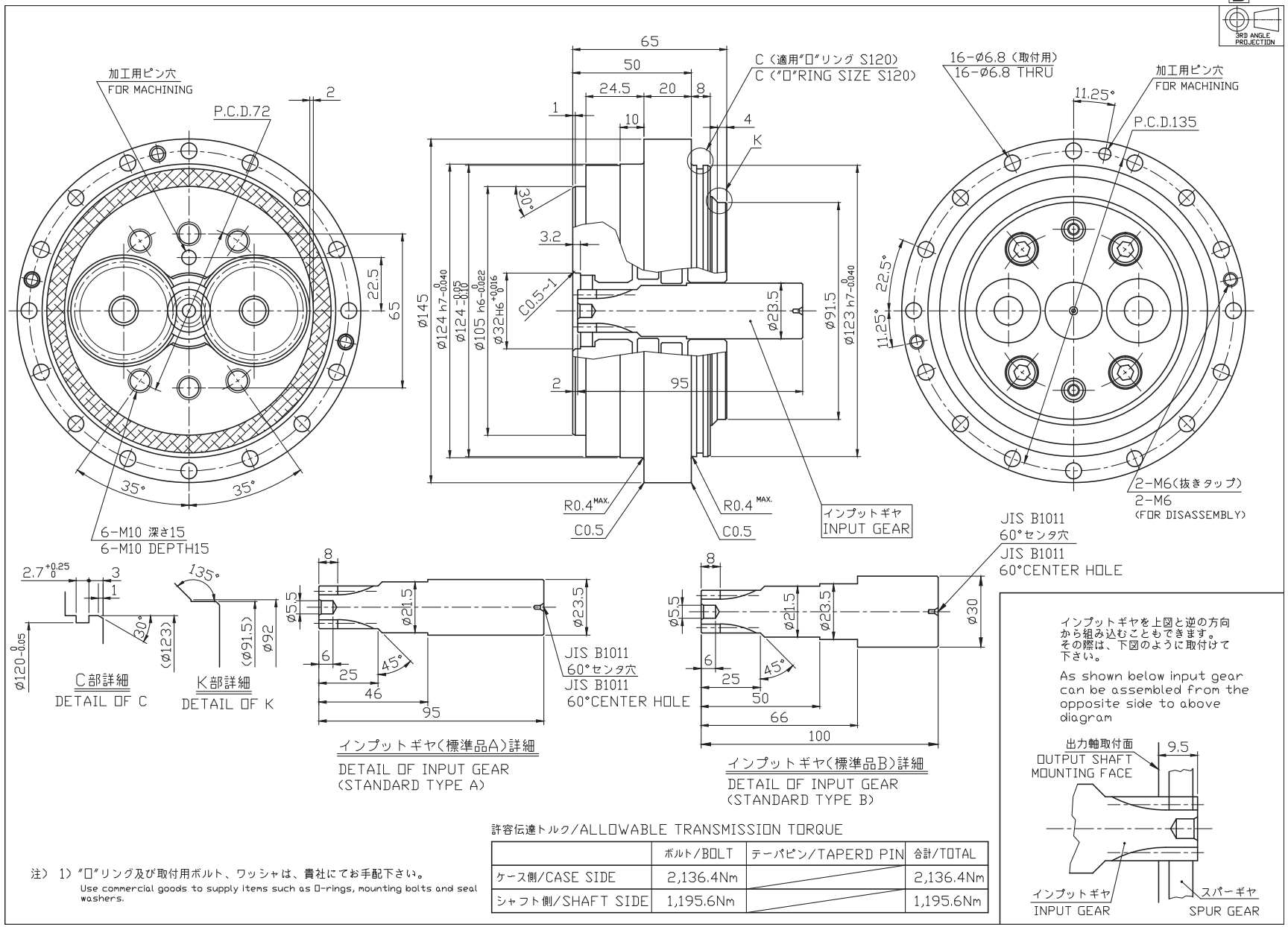
	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	2,136.4Nm		2,136.4Nm
シャフト側/SHAFT SIDE	1,195.6Nm		1,195.6Nm

注) 1) "□"リング及び取付用ボルト、ワッシャ、深溝玉軸受、C形止め輪は、貴社にてお手配下さい。
Use commercial goods to supply items such as O-rings, mounting bolts, seal washers, deep groov ball bearings and C-shaped snap rings.

Specifications and dimensions are subject to change without notice.

RV-20E　Bolt clamping output shaft type (1 piece input gear)　Type code RV-20E-□-A/B-B

Speed ratio



インプットギヤを上図と逆の方向から組み込むこともできます。その際は、下図のように取付けて下さい。

As shown below input gear can be assembled from the opposite side to above diagram

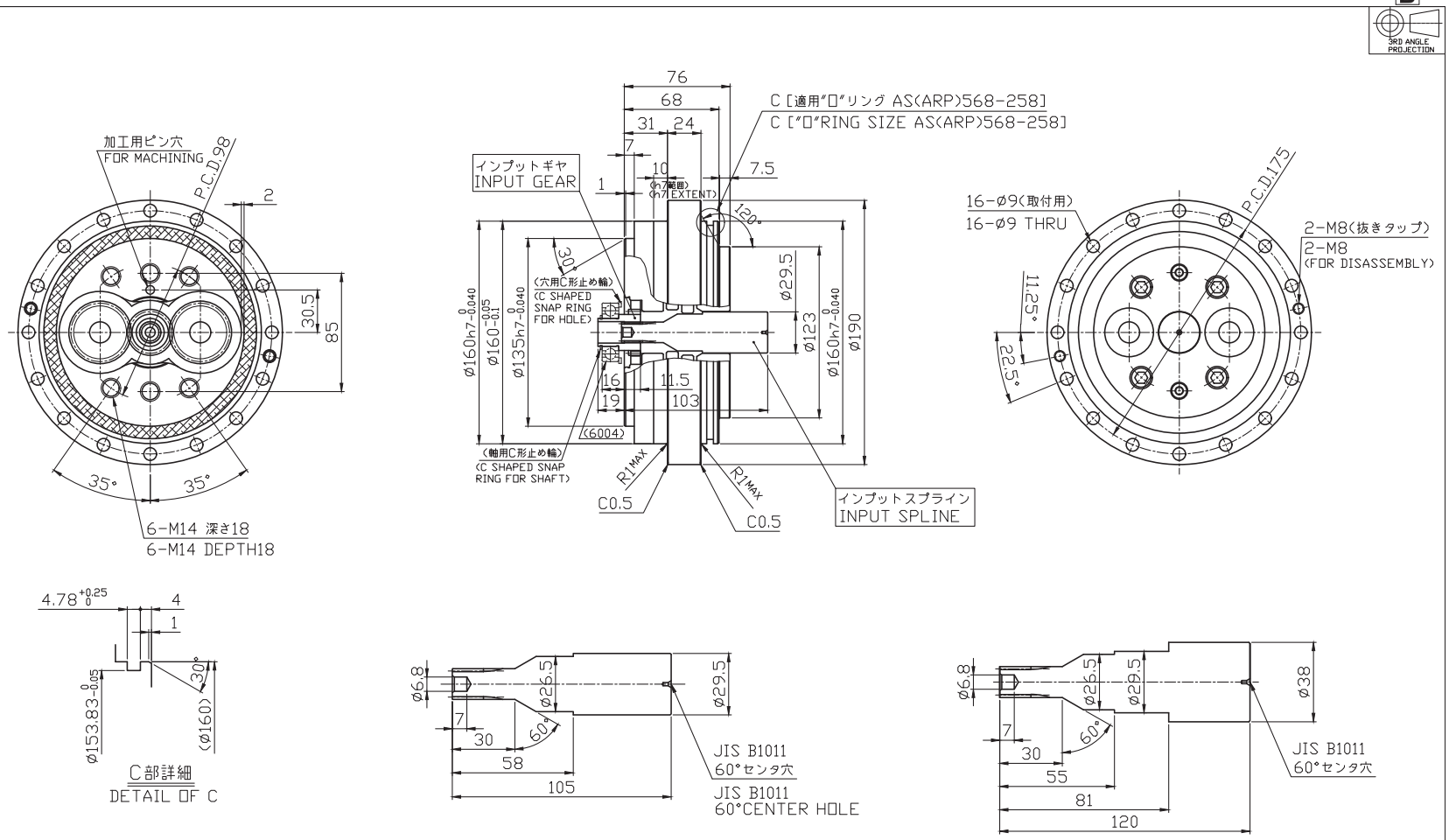
許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	2,136.4Nm		2,136.4Nm
シャフト側/SHAFT SIDE	1,195.6Nm		1,195.6Nm

注）1）"□"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-40E　Bolt clamping output shaft type (2 piece input gear)　Type code RV-40E-Speed ratio 57-A/B-B



注) "□"リング及び取付用ボルト、ワッシャ、深溝玉軸受、C形止め輪は、貴社にてお手配下さい。
Use commercial goods to supply items such as O-rings, mounting bolts, seal washers, deep groov ball bearings and C-shaped snap rings.

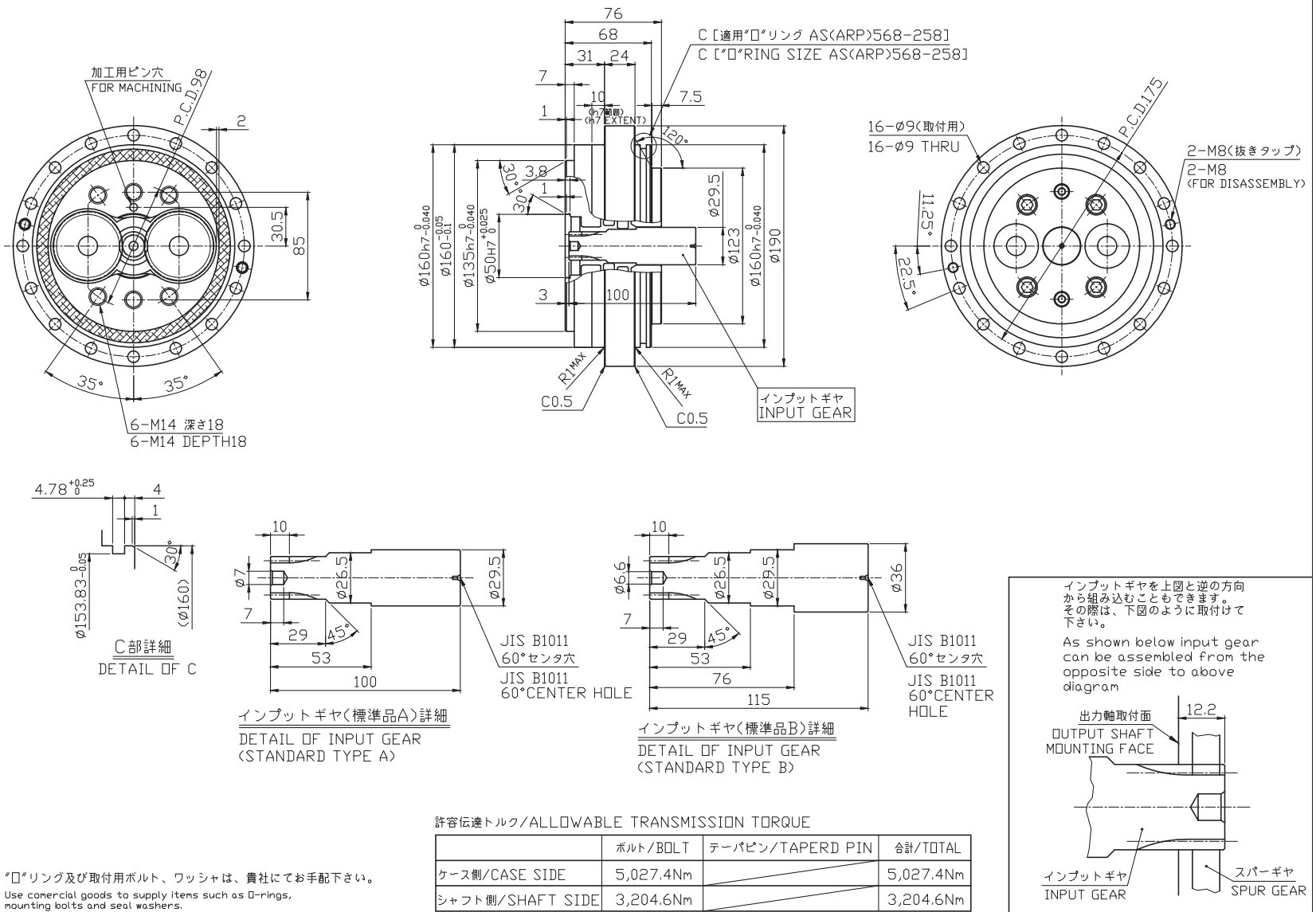
許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	5,027.4Nm		5,027.4Nm
シャフト側/SHAFT SIDE	3,204.6Nm		3,204.6Nm

Specifications and dimensions are subject to change without notice.

RV-40E　Bolt clamping output shaft type (1 piece input gear)　Type code RV-40E-□-A/B-B

Speed ratio



インプットギヤを上図と逆の方向から組み込むこともできます。その際は、下図のように取付けて下さい。

As shown below input gear can be assembled from the opposite side to above diagram

許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

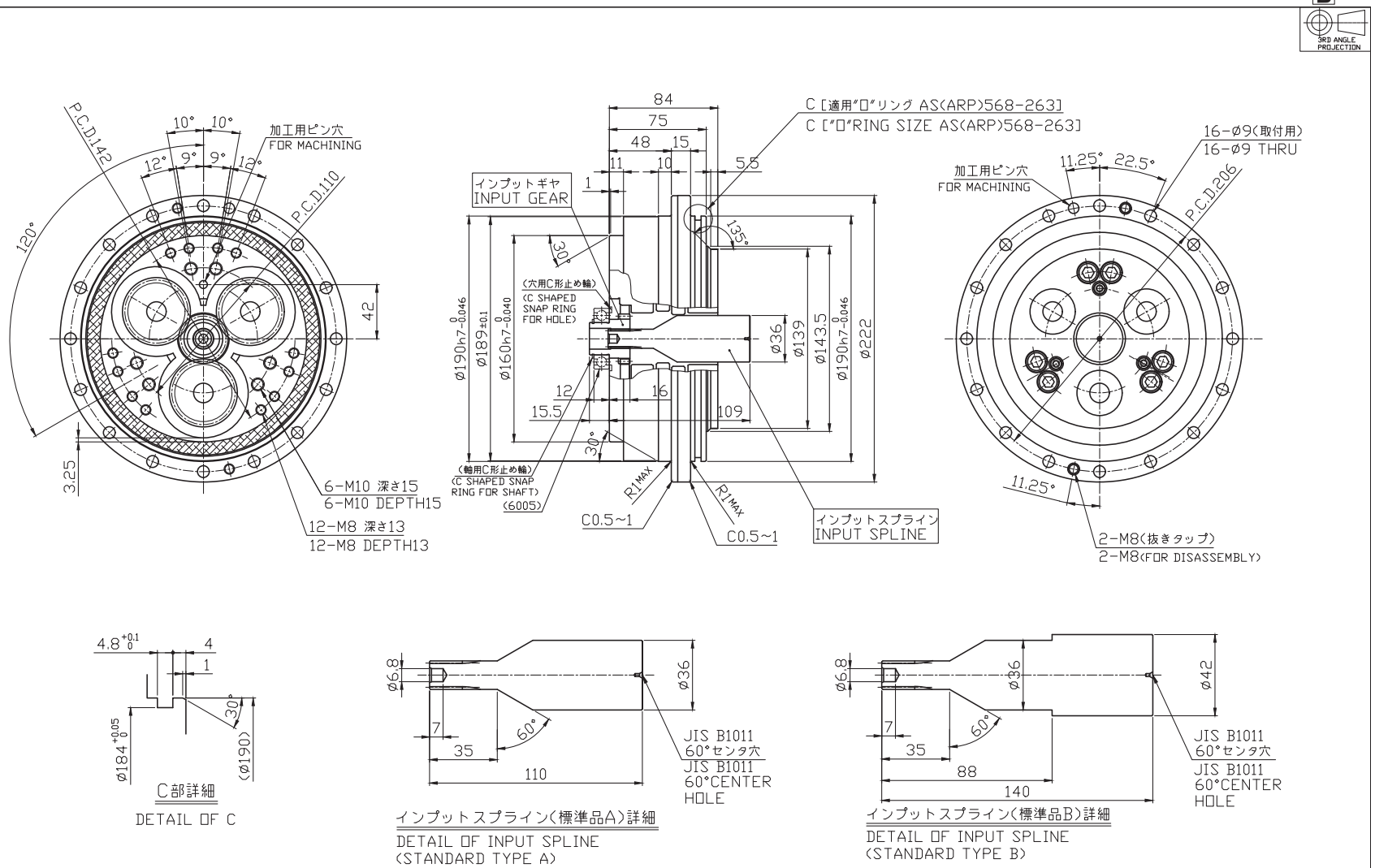
	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	5,027.4Nm		5,027.4Nm
シャフト側/SHAFT SIDE	3,204.6Nm		3,204.6Nm

注）"□"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 comercial goods to supply items such as O-rings, mounting bolts and seal washers.

Specifications and dimensions are subject to change without notice.

RV-80E　Bolt clamping output shaft type (2 piece input gear)　Type code RV-80E-57-A/B-B

Speed ratio



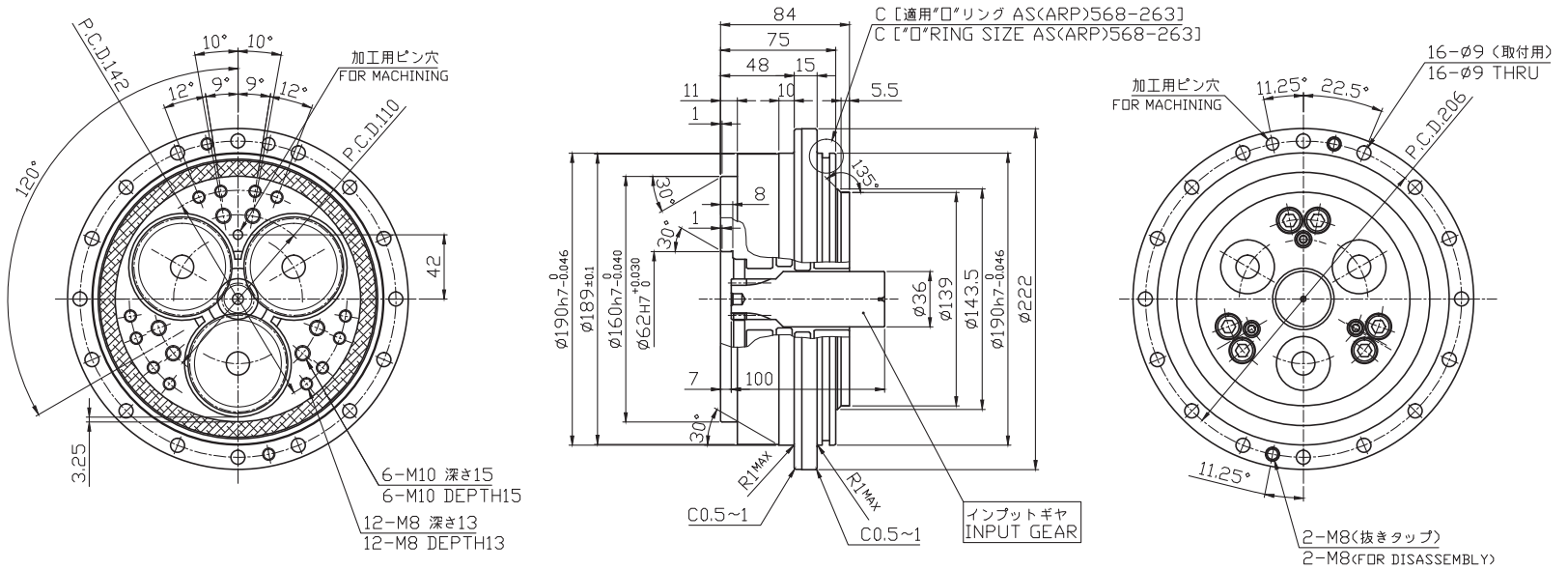
許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

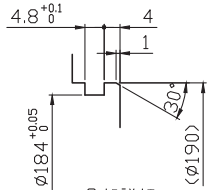
	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	5,919.2Nm		5,919.2Nm
シャフト側/SHAFT SIDE	4,939.2Nm		4,939.2Nm

注）"□"リング及び取付用ボルト、ワッシャ、深溝玉軸受、C形止め輪は、貴社にてお手配下さい。
Use commercial goods to supply items such as O-rings, mounting bolts, seal washers, deep groov ball bearings and C-shaped snap rings.

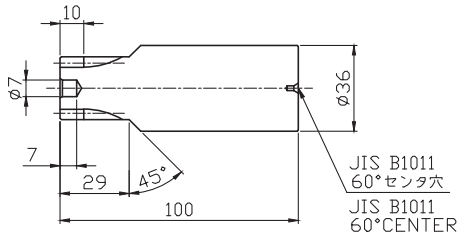
Specifications and dimensions are subject to change without notice.

RV-80E　Bolt clamping output shaft type (1 piece input gear)　Type code RV-80E-□-(Speed ratio A/B)-B

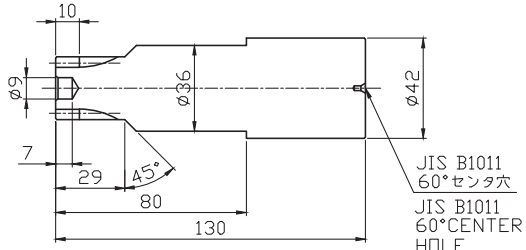




C部詳細
DETAIL OF C

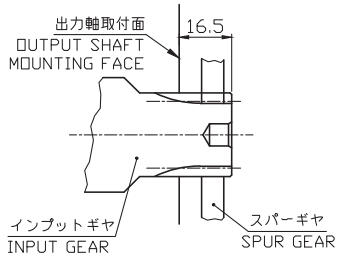


インプットギヤ(標準品A)詳細
DETAIL OF INPUT GEAR
(STANDARD TYPE A)



インプットギヤ(標準品B)詳細
DETAIL OF INPUT GEAR
(STANDARD TYPE B)

インプットギヤを上図と逆の方向から組み込むこともできます。
その際は、下図のように取付けて下さい。
As shown below input gear can be assembled from the opposite side to above diagram



許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

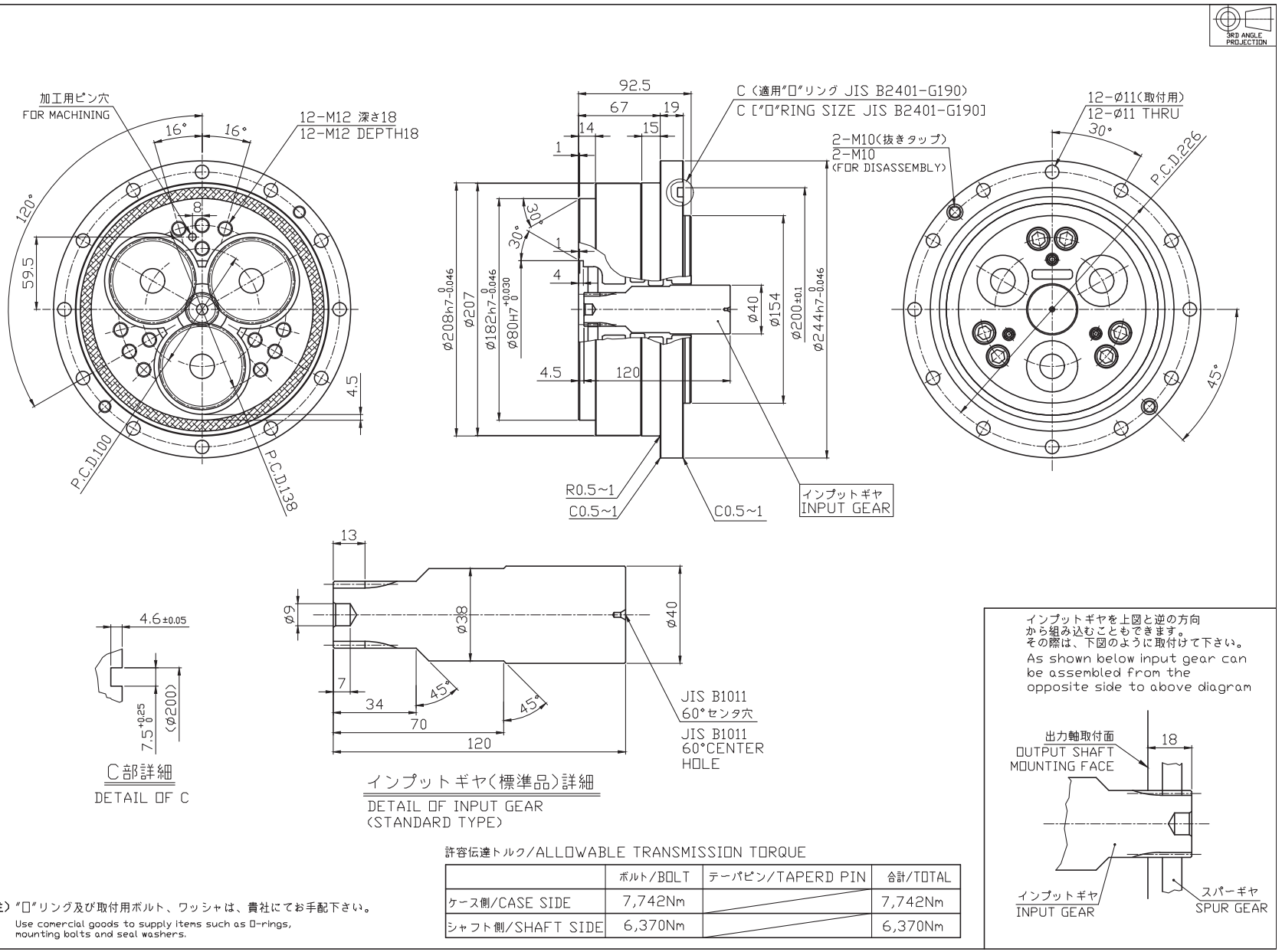
	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	5,919.2Nm		5,919.2Nm
シャフト側/SHAFT SIDE	4,939.2Nm		4,939.2Nm

注) "□"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 comercial goods to supply items such as O-rings, mounting bolts and seal washers.

Specifications and dimensions are subject to change without notice.

RV-110E　Bolt clamping output shaft type (1 piece input gear)　Type code RV-110E-□-A-B

Speed ratio



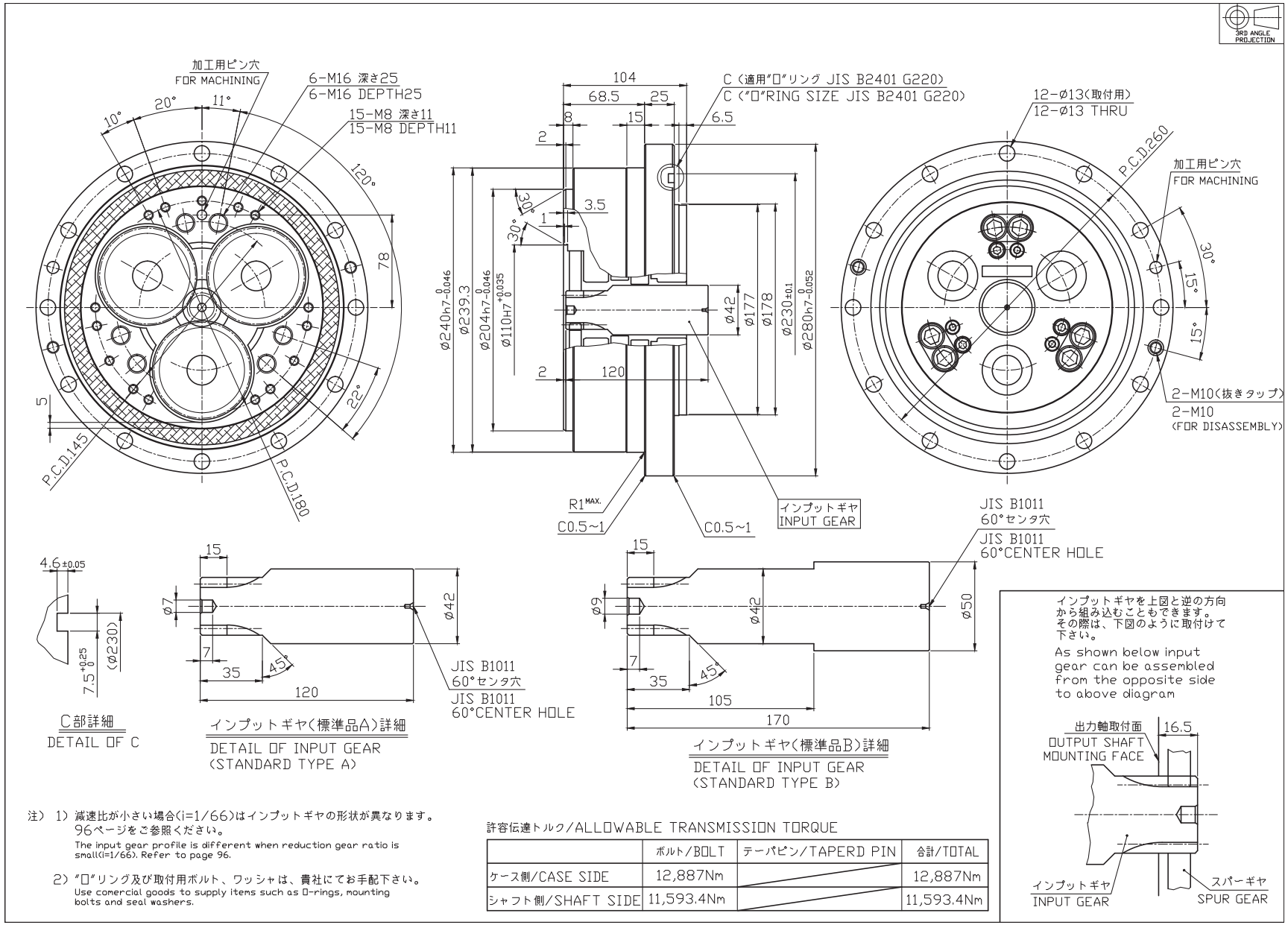
許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	7,742Nm		7,742Nm
シャフト側/SHAFT SIDE	6,370Nm		6,370Nm

注）"□"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 comercial goods to supply items such as O-rings, mounting bolts and seal washers.

Specifications and dimensions are subject to change without notice.

RV-160E　Bolt clamping output shaft type (1 piece input gear)　Type code RV-160E-□-(Speed ratio A/B)-B



注）1）減速比が小さい場合(i=1/66)はインプットギヤの形状が異なります。
96ページをご参照ください。
The input gear profile is different when reduction gear ratio is small(i=1/66). Refer to page 96.

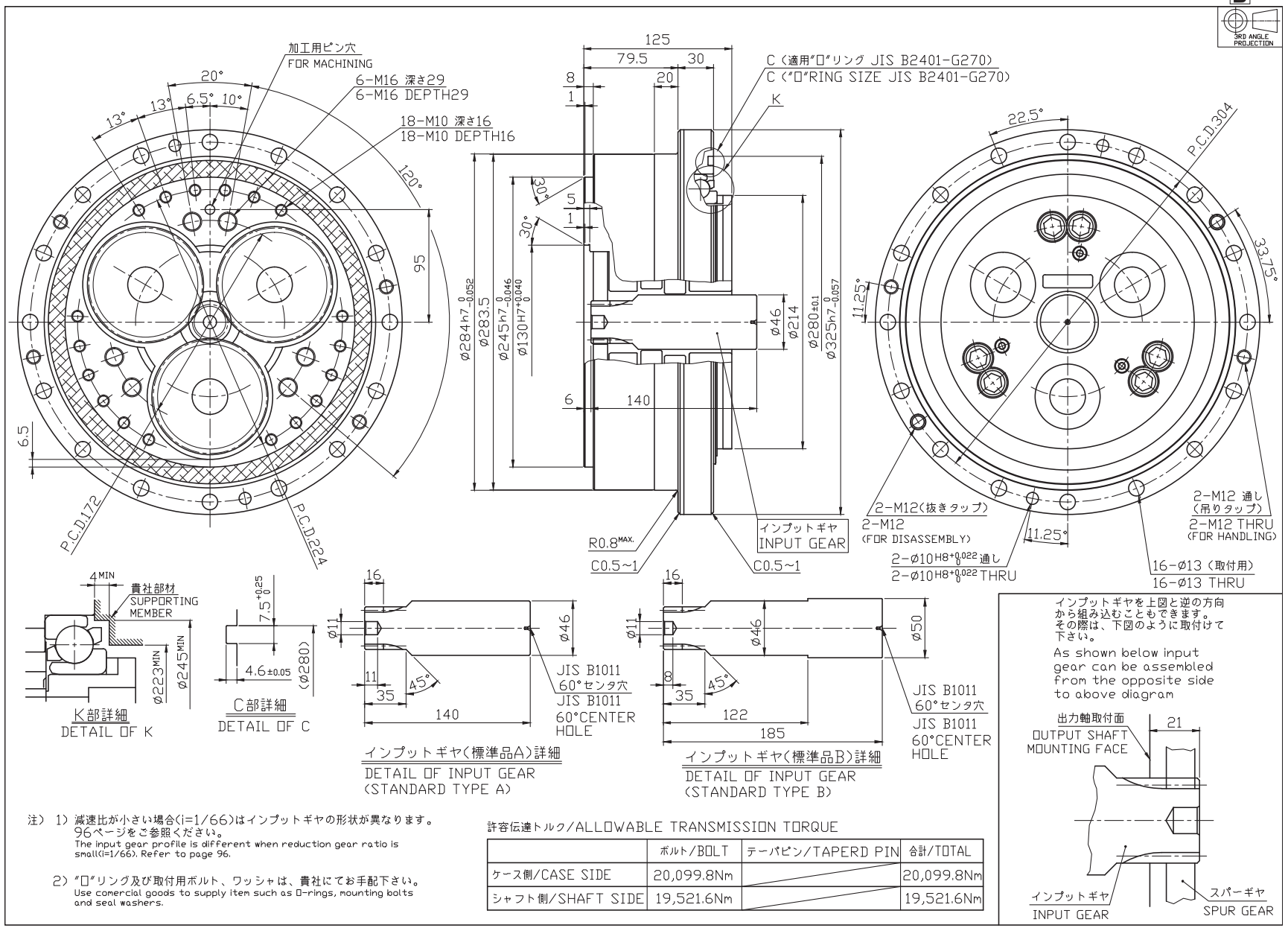
2）"□"リング及び取付用ボルト、ワッシャは、貴社にてお手配下さい。
Use comercial goods to supply items such as O-rings, mounting bolts and seal washers.

許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	12,887Nm		12,887Nm
シャフト側/SHAFT SIDE	11,593.4Nm		11,593.4Nm

Specifications and dimensions are subject to change without notice.

RV-320E　Bolt clamping output shaft type (1 piece input gear)　Type code RV-320E-□-Speed ratio A/B-B



注）1）減速比が小さい場合(i=1/66)はインプットギヤの形状が異なります。
96ページをご参照ください。
The input gear profile is different when reduction gear ratio is small(i=1/66). Refer to page 96.

2）"□"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 comercial goods to supply item such as O-rings, mounting bolts and seal washers.

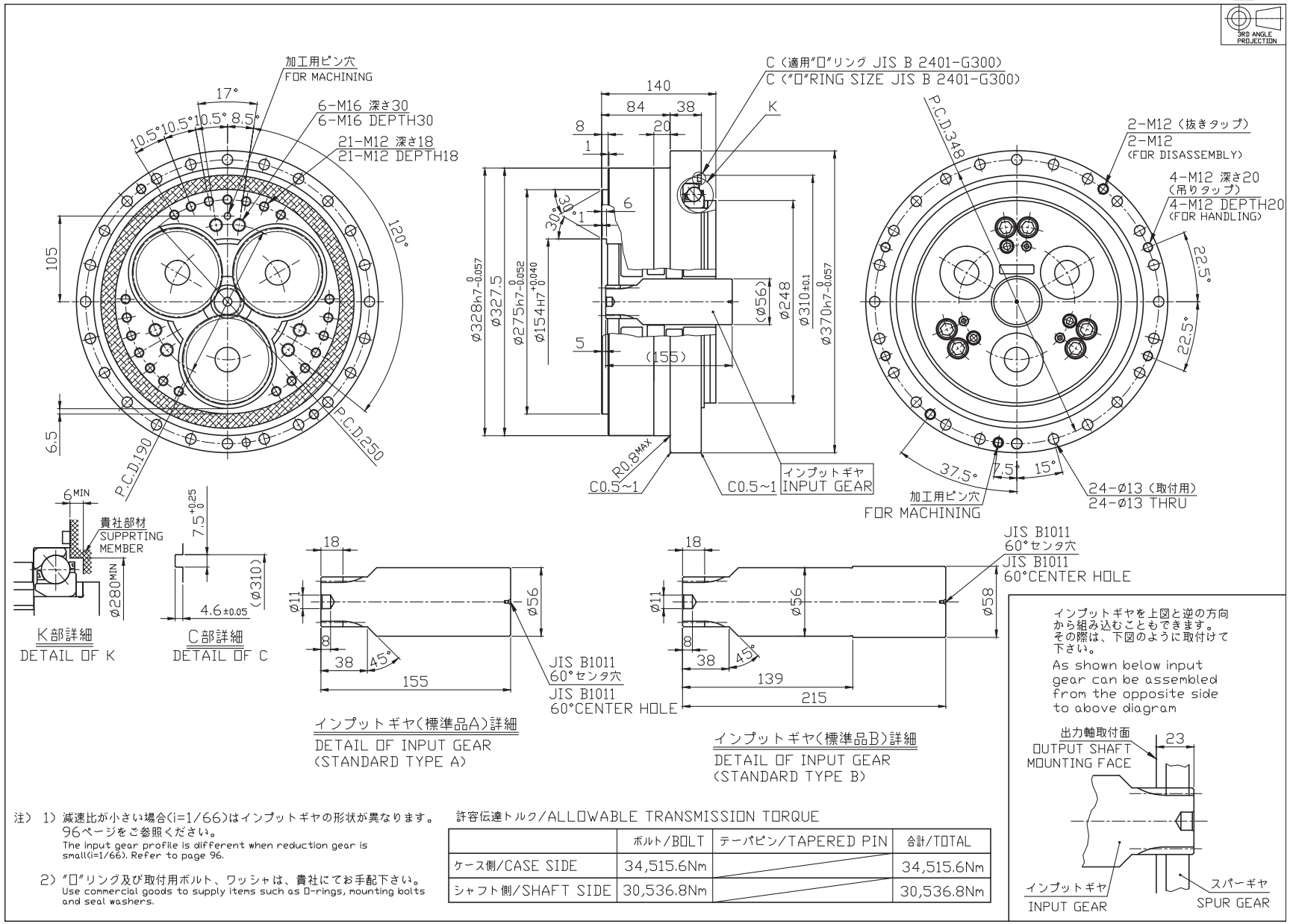
許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	20,099.8Nm		20,099.8Nm
シャフト側/SHAFT SIDE	19,521.6Nm		19,521.6Nm

Specifications and dimensions are subject to change without notice.

RV-450E　Bolt clamping output shaft type (1 piece input gear)　Type code RV-450E-□- A/B -B

Speed ratio



注）1）減速比が小さい場合(i=1/66)はインプットギヤの形状が異なります。
96ページをご参照ください。
The input gear profile is different when reduction gear is small(i=1/66). Refer to page 96.

2）"□"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.

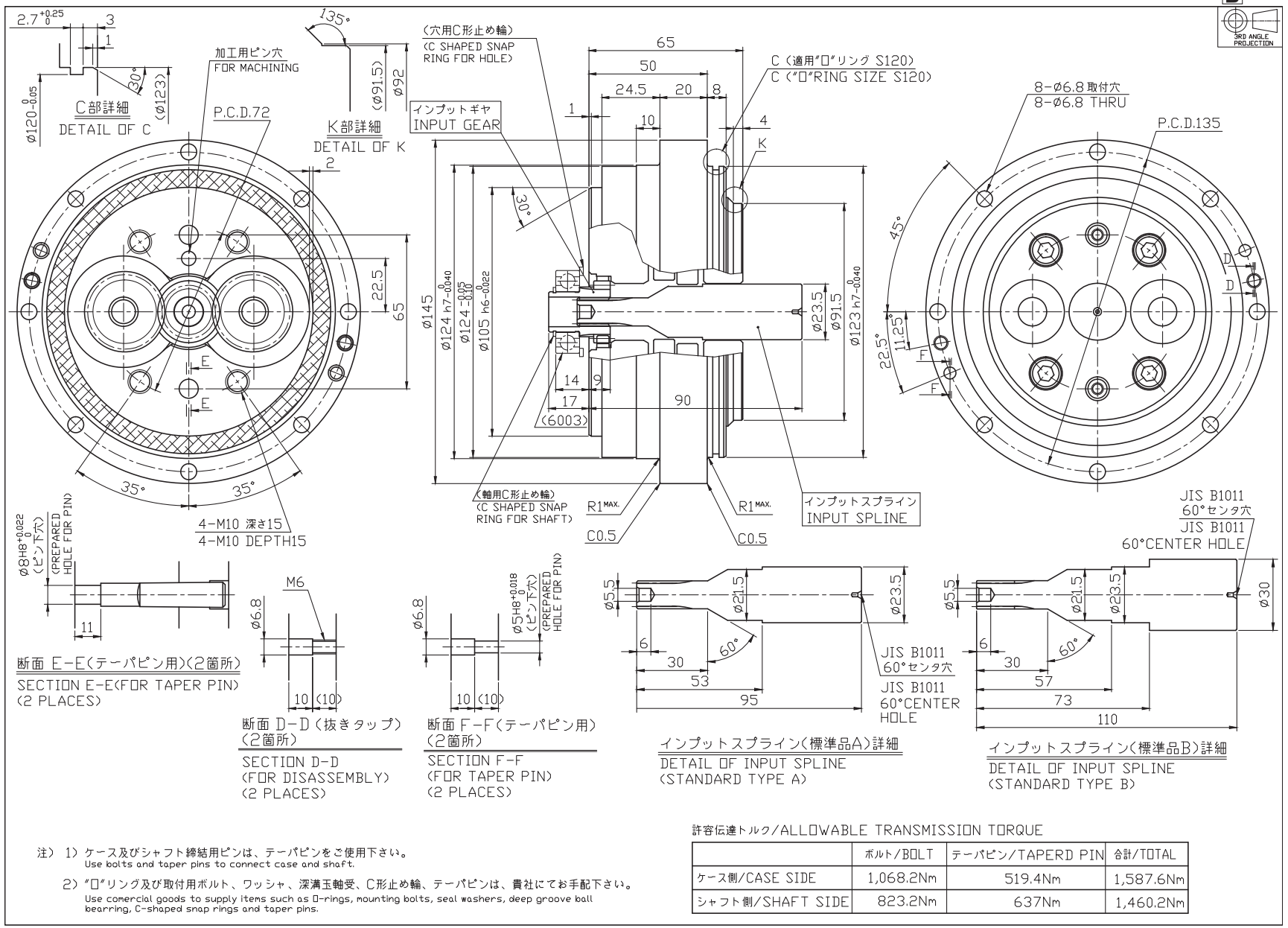
許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

	ボルト/BOLT	テーパピン/TAPERED PIN	合計/TOTAL
ケース側/CASE SIDE	34,515.6Nm		34,515.6Nm
シャフト側/SHAFT SIDE	30,536.8Nm		30,536.8Nm

Specifications and dimensions are subject to change without notice.

RV-20E Pin and bolt clamping output shaft type (2 piece input gear)

Type code RV-20E-Speed ratio 57-A/B-P



注) 1) ケース及びシャフト締結用ピンは、テーパピンをご使用下さい。
Use bolts and taper pins to connect case and shaft.

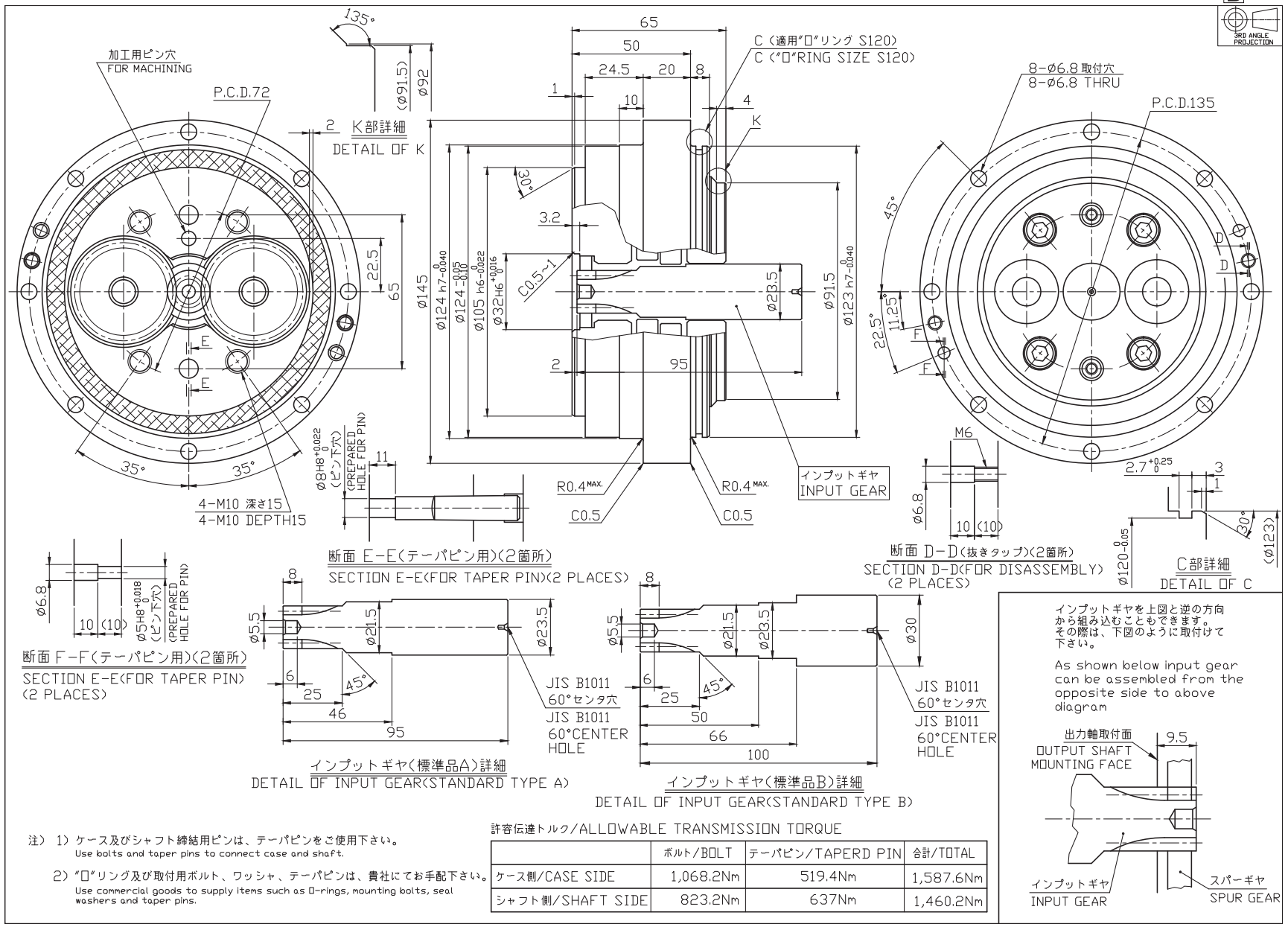
2) "□"リング及び取付用ボルト、ワッシャ、深溝玉軸受、C形止め輪、テーパピンは、貴社にてお手配下さい。
Use comercial goods to supply items such as □-rings, mounting bolts, seal washers, deep groove ball bearring, C-shaped snap rings and taper pins.

許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	1,068.2Nm	519.4Nm	1,587.6Nm
シャフト側/SHAFT SIDE	823.2Nm	637Nm	1,460.2Nm

Specifications and dimensions are subject to change without notice.

RV-20E　Pin and bolt clamping output shaft type (1 piece input gear)　Type code RV-20E-□-Speed ratio A/B-P



注）1）ケース及びシャフト締結用ピンは、テーパピンをご使用下さい。
Use bolts and taper pins to connect case and shaft.

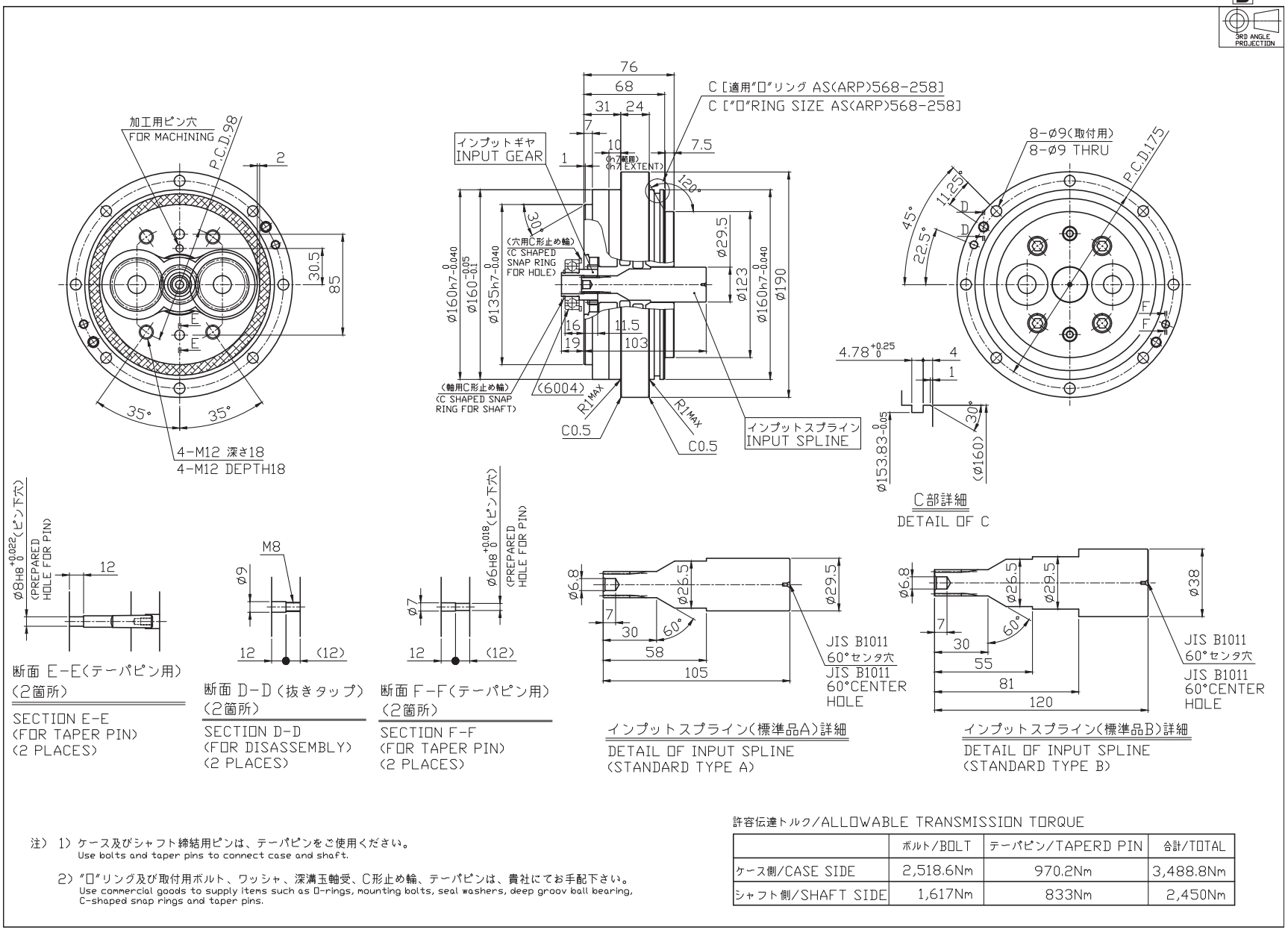
2）"□"リング及び取付用ボルト、ワッシャ、テーパピンは、貴社にてお手配下さい。
Use commercial goods to supply items such as □-rings, mounting bolts, seal washers and taper pins.

許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	1,068.2Nm	519.4Nm	1,587.6Nm
シャフト側/SHAFT SIDE	823.2Nm	637Nm	1,460.2Nm

Specifications and dimensions are subject to change without notice.

RV-40E　Pin and bolt clamping output shaft type (2 piece input gear)　Type code RV-40E-57-(Speed ratio A/B)-P



許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	2,518.6Nm	970.2Nm	3,488.8Nm
シャフト側/SHAFT SIDE	1,617Nm	833Nm	2,450Nm

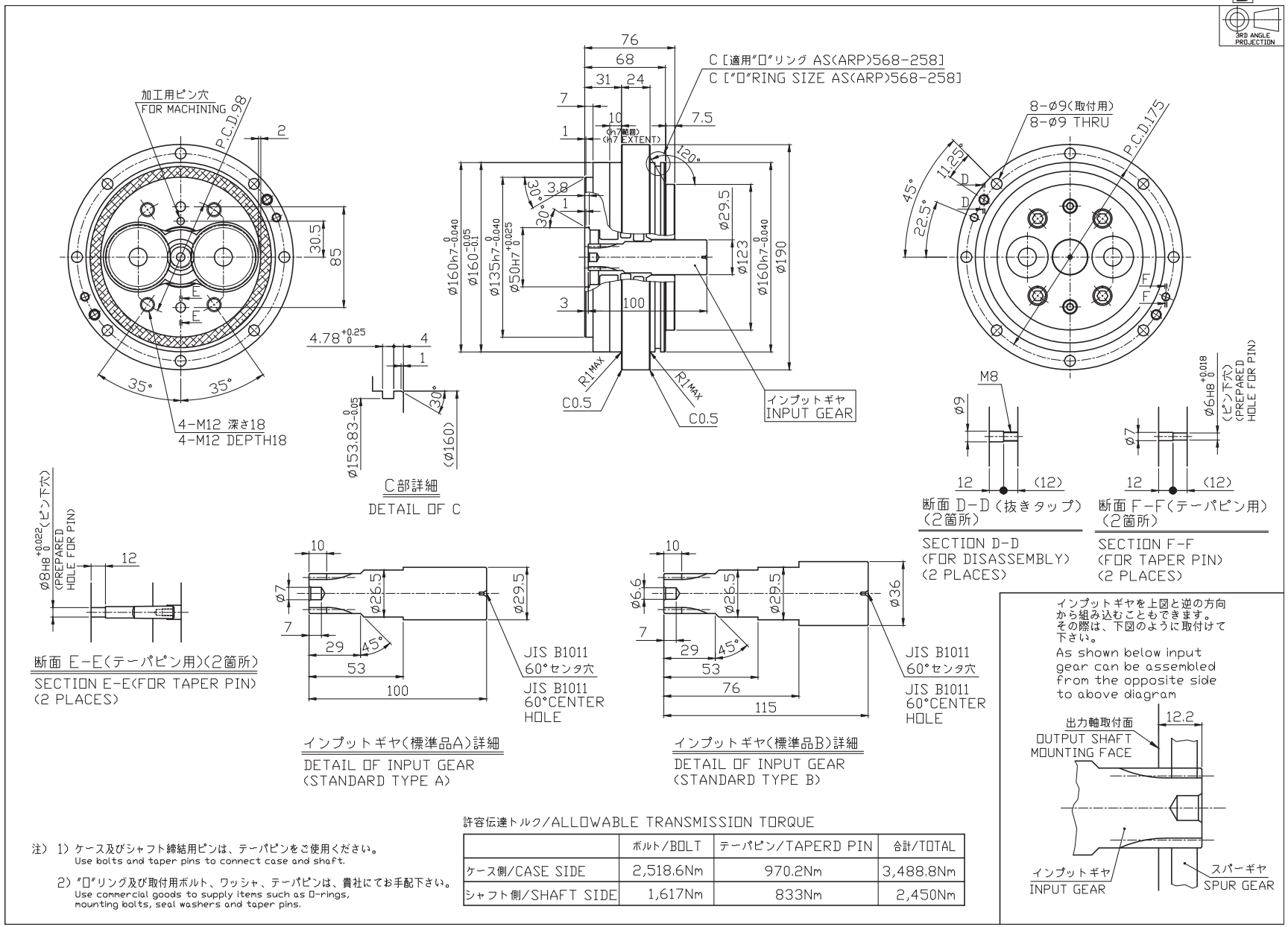
注) 1) ケース及びシャフト締結用ピンは、テーパピンをご使用ください。
Use bolts and taper pins to connect case and shaft.

2) "□"リング及び取付用ボルト、ワッシャ、深溝玉軸受、C形止め輪、テーパピンは、貴社にてお手配下さい。
Use commercial goods to supply items such as □-rings, mounting bolts, seal washers, deep groov ball bearing, C-shaped snap rings and taper pins.

Specifications and dimensions are subject to change without notice.

RV-40E　Pin and bolt clamping output shaft type (1 piece input gear)　Type code RV-40E-□-A/B-P

Speed ratio



許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	2,518.6Nm	970.2Nm	3,488.8Nm
シャフト側/SHAFT SIDE	1,617Nm	833Nm	2,450Nm

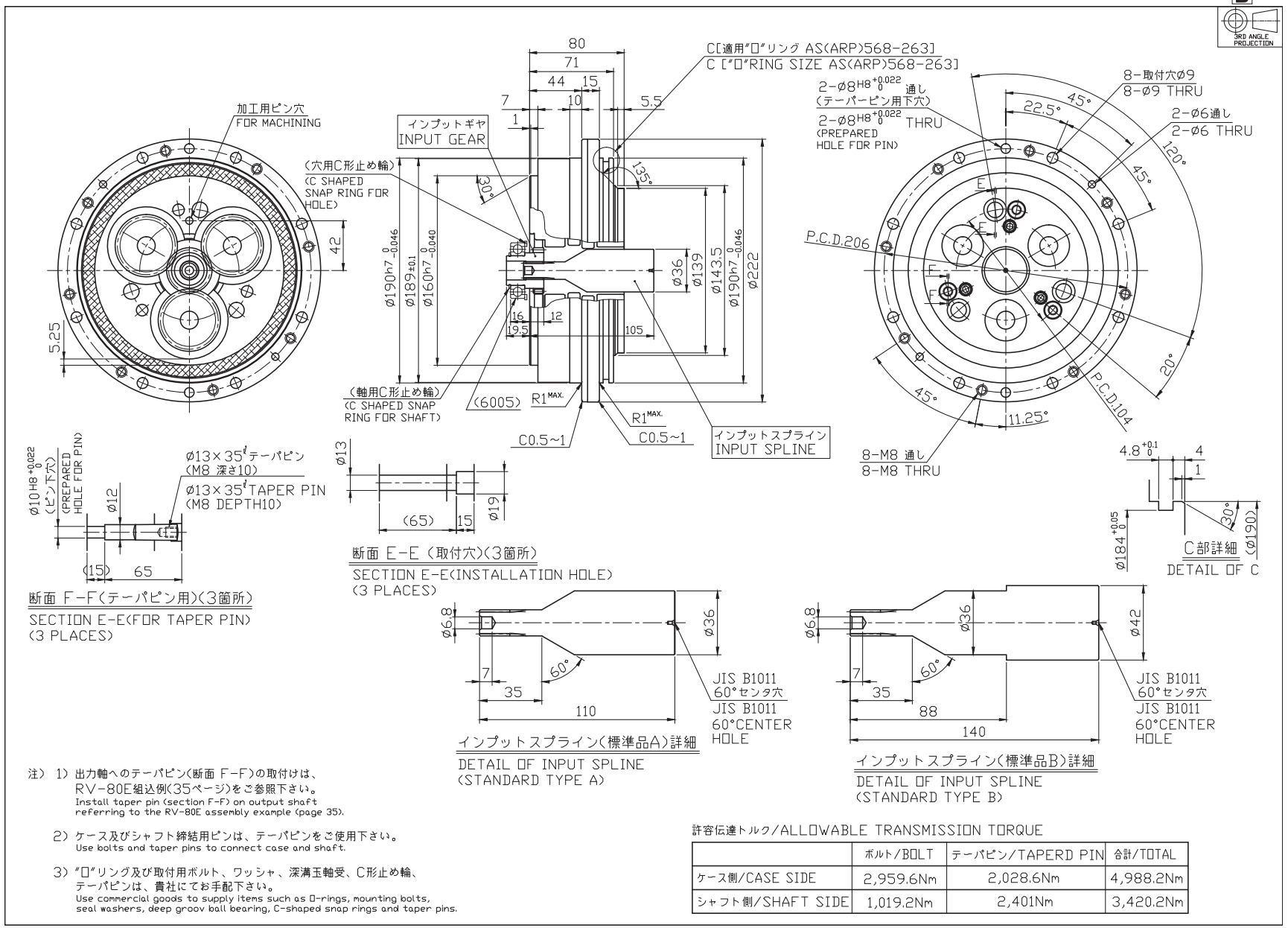
注）1）ケース及びシャフト締結用ピンは、テーパピンをご使用ください。
Use bolts and taper pins to connect case and shaft.

2）"□"リング及び取付用ボルト、ワッシャ、テーパピンは、貴社にてお手配下さい。
Use commercial goods to supply items such as □-rings, mounting bolts, seal washers and taper pins.

Specifications and dimensions are subject to change without notice.

RV-80E　Pin and bolt clamping output shaft type (2 piece input gear)　Type code RV-80E-57-A/B-P

Speed ratio



注) 1) 出力軸へのテーパピン(断面 F-F)の取付けは、
RV-80E組込例(35ページ)をご参照下さい。
Install taper pin (section F-F) on output shaft referring to the RV-80E assembly example (page 35).

2) ケース及びシャフト締結用ピンは、テーパピンをご使用下さい。
Use bolts and taper pins to connect case and shaft.

3) "□"リング及び取付用ボルト、ワッシャ、深溝玉軸受、C形止め輪、テーパピンは、貴社にてお手配下さい。
Use commercial goods to supply items such as O-rings, mounting bolts, seal washers, deep groov ball bearing, C-shaped snap rings and taper pins.

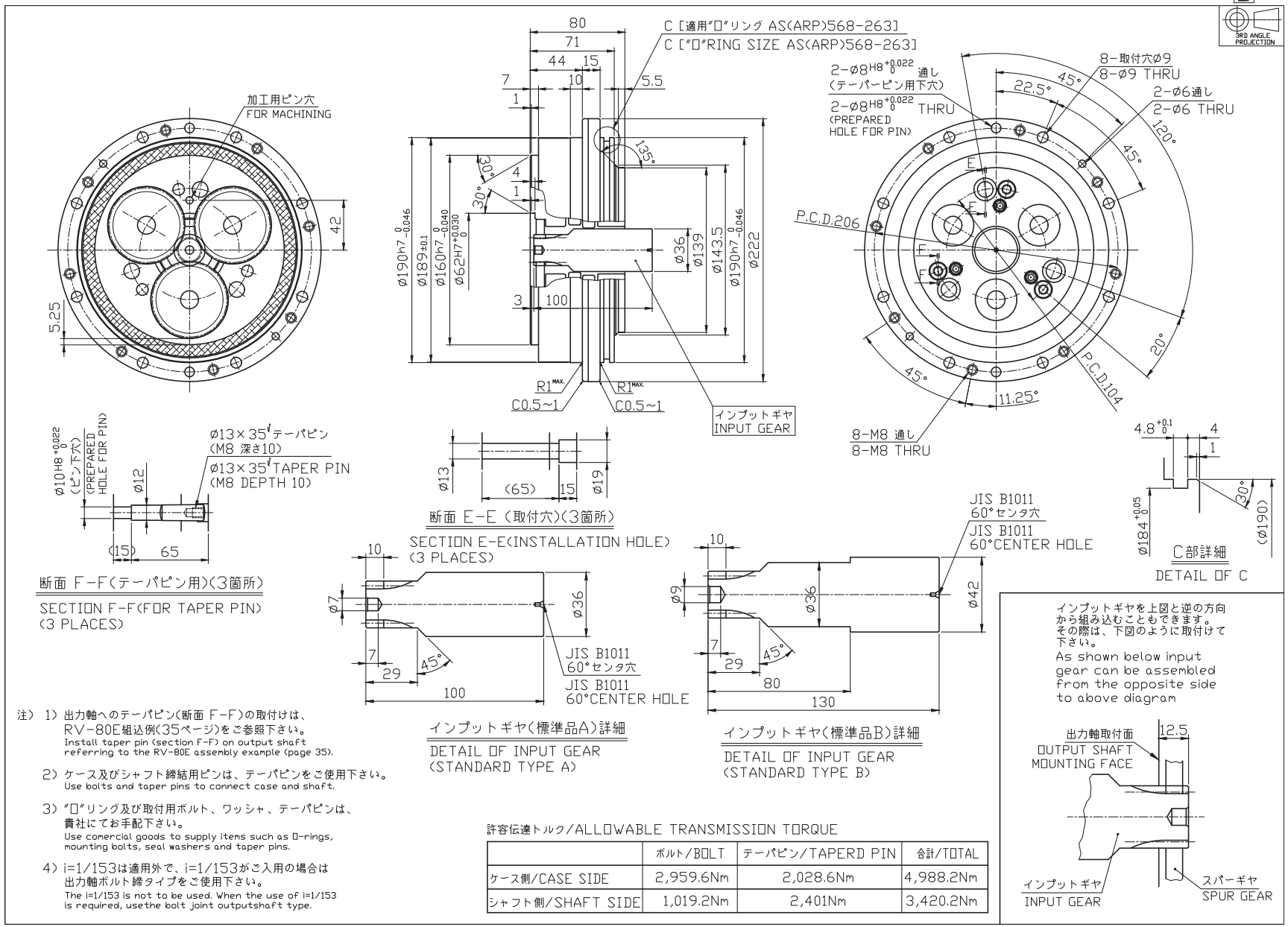
許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	2,959.6Nm	2,028.6Nm	4,988.2Nm
シャフト側/SHAFT SIDE	1,019.2Nm	2,401Nm	3,420.2Nm

Specifications and dimensions are subject to change without notice.

RV-80E　Pin and bolt clamping output shaft type (1 piece input gear)　Type code RV-80E-□-A/B-P

Speed ratio



インプットギヤを上図と逆の方向から組み込むこともできます。その際は、下図のように取付けて下さい。

As shown below input gear can be assembled from the opposite side to above diagram

注）1）出力軸へのテーパピン(断面 F-F)の取付けは、RV-80E組込例(35ページ)をご参照下さい。
Install taper pin (section F-F) on output shaft referring to the RV-80E assembly example (page 35).

2）ケース及びシャフト締結用ピンは、テーパピンをご使用下さい。
Use bolts and taper pins to connect case and shaft.

3）"□"リング及び取付用ボルト、ワッシャ、テーパピンは、貴社にてお手配下さい。
Use comercial goods to supply items such as □-rings, mounting bolts, seal washers and taper pins.

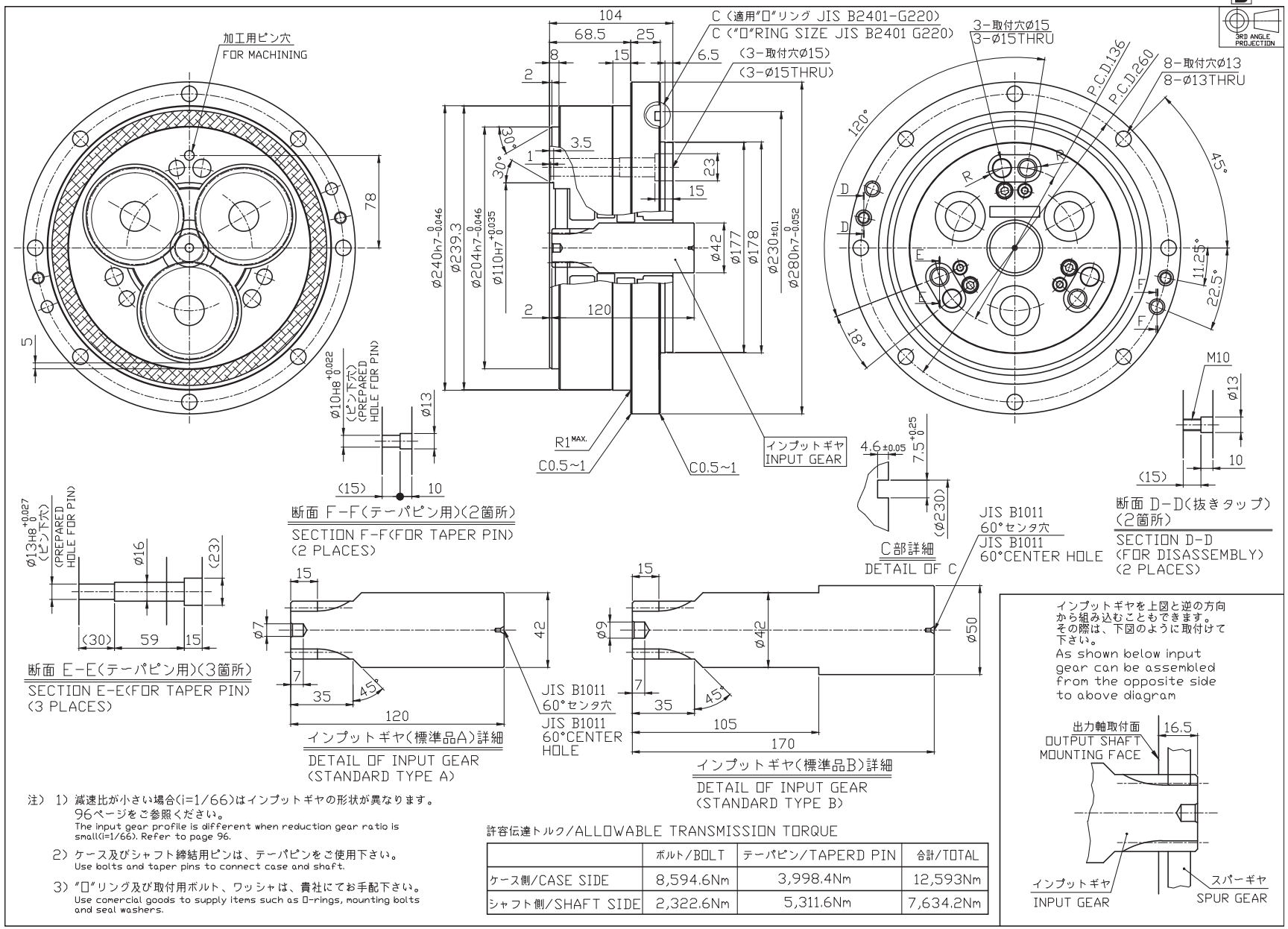
4）i=1/153は適用外で、i=1/153がご入用の場合は出力軸ボルト締タイプをご使用下さい。
The i=1/153 is not to be used. When the use of i=1/153 is required, usethe bolt joint outputshaft type.

許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	2,959.6Nm	2,028.6Nm	4,988.2Nm
シャフト側/SHAFT SIDE	1,019.2Nm	2,401Nm	3,420.2Nm

Specifications and dimensions are subject to change without notice.

RV-160E Pin and bolt clamping output shaft type (1 piece input gear) Type code RV-160E-□-Speed ratio A/B-P



注） 1）減速比が小さい場合(i=1/66)はインプットギヤの形状が異なります。
96ページをご参照ください。
The input gear profile is different when reduction gear ratio is small(i=1/66). Refer to page 96.

2）ケース及びシャフト締結用ピンは、テーパピンをご使用下さい。
Use bolts and taper pins to connect case and shaft.

3）"□"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 comercial goods to supply items such as □-rings, mounting bolts and seal washers.

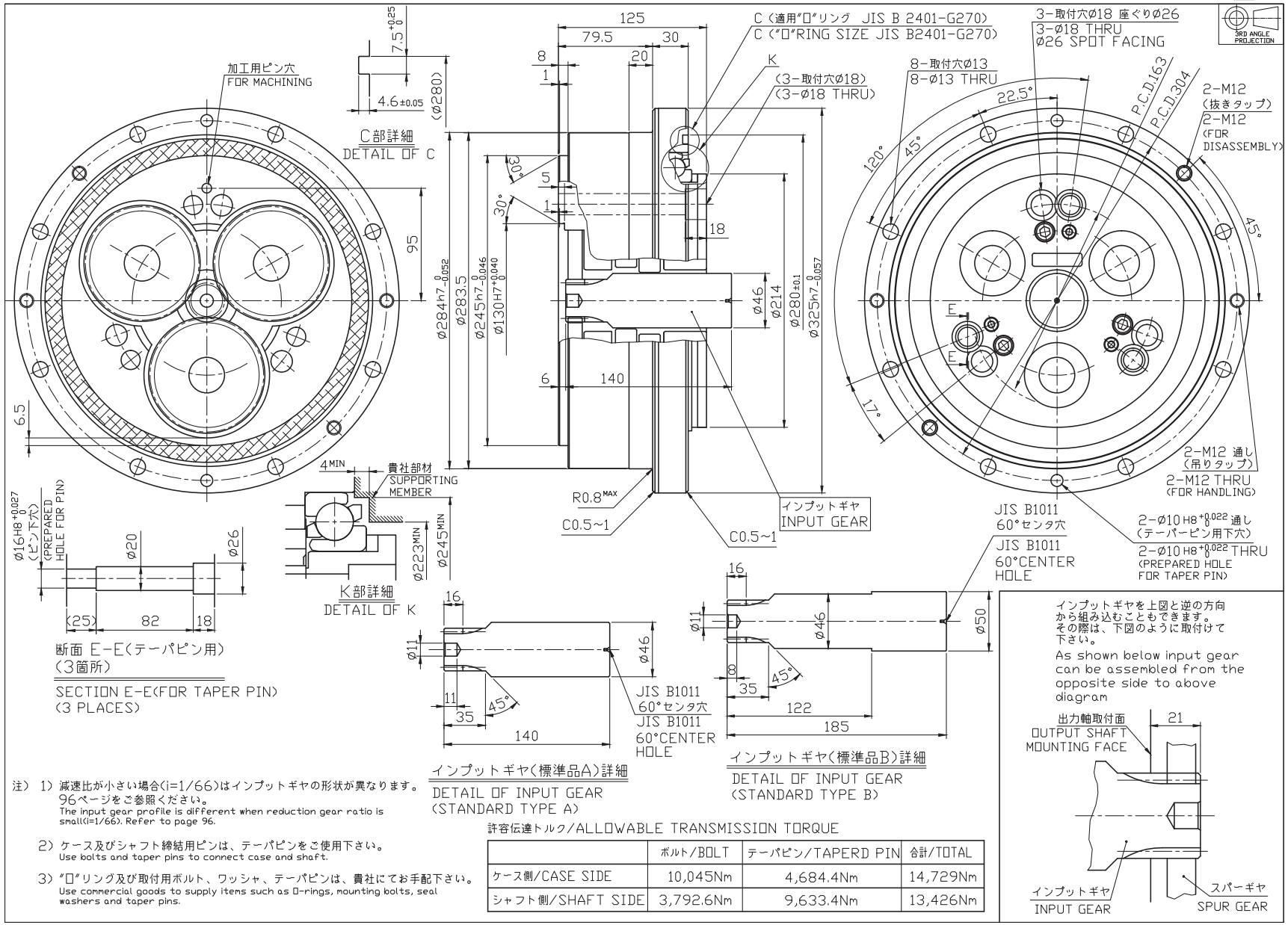
許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	8,594.6Nm	3,998.4Nm	12,593Nm
シャフト側/SHAFT SIDE	2,322.6Nm	5,311.6Nm	7,634.2Nm

Specifications and dimensions are subject to change without notice.

RV-320E Pin and bolt clamping output shaft type (1 piece input gear) Type code RV-320E-□-$\frac{A}{B}$-P

Speed ratio



インプットギヤを上図と逆の方向から組み込むこともできます。その際は、下図のように取付けて下さい。

As shown below input gear can be assembled from the opposite side to above diagram

注) 1) 減速比が小さい場合(i=1/66)はインプットギヤの形状が異なります。96ページをご参照ください。
The input gear profile is different when reduction gear ratio is small(i=1/66). Refer to page 96.

2) ケース及びシャフト締結用ピンは、テーパピンをご使用下さい。
Use bolts and taper pins to connect case and shaft.

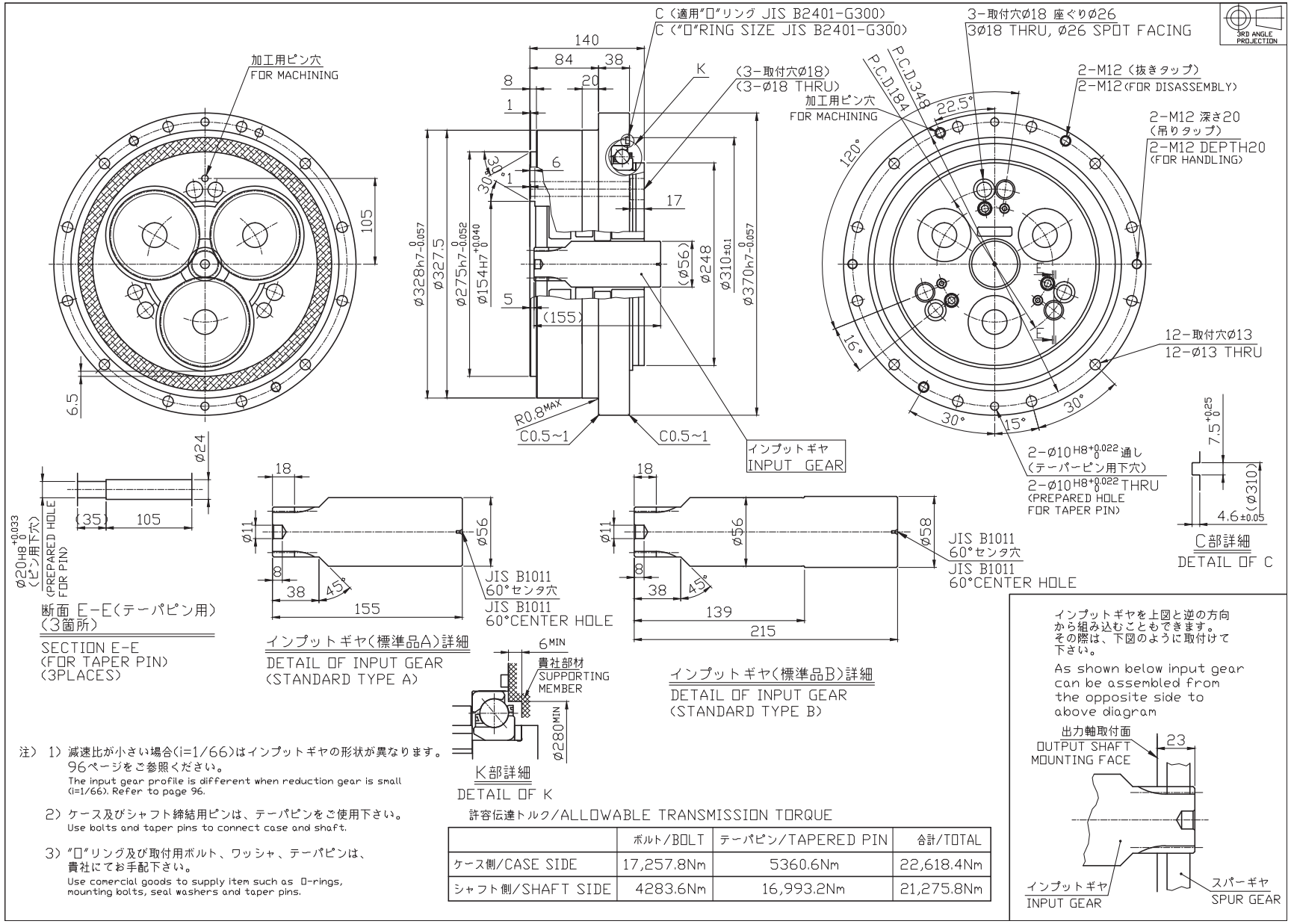
3) "□"リング及び取付用ボルト、ワッシャ、テーパピンは、貴社にてお手配下さい。
Use commercial goods to supply items such as O-rings, mounting bolts, seal washers and taper pins.

許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

	ボルト/BOLT	テーパピン/TAPERD PIN	合計/TOTAL
ケース側/CASE SIDE	10,045Nm	4,684.4Nm	14,729Nm
シャフト側/SHAFT SIDE	3,792.6Nm	9,633.4Nm	13,426Nm

Specifications and dimensions are subject to change without notice.

RV-450E Pin and bolt clamping output shaft type (1 piece input gear) Type code RV-450E-□-(Speed ratio A/B)-P



注） 1）減速比が小さい場合(i=1/66)はインプットギヤの形状が異なります。
96ページをご参照ください。
The input gear profile is different when reduction gear is small (i=1/66). Refer to page 96.

2）ケース及びシャフト締結用ピンは、テーパピンをご使用下さい。
Use bolts and taper pins to connect case and shaft.

3）"□"リング及び取付用ボルト、ワッシャ、テーパピンは、
貴社にてお手配下さい。
Use comercial goods to supply item such as □-rings, mounting bolts, seal washers and taper pins.

許容伝達トルク/ALLOWABLE TRANSMISSION TORQUE

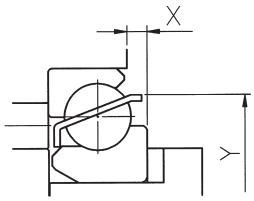
	ボルト/BOLT	テーパピン/TAPERED PIN	合計/TOTAL
ケース側/CASE SIDE	17,257.8Nm	5360.6Nm	22,618.4Nm
シャフト側/SHAFT SIDE	4283.6Nm	16,993.2Nm	21,275.8Nm

Specifications and dimensions are subject to change without notice.

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 E 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 table on the right to make sure that the bearing retainer does not come in contact with the motor mounting flange.

	X	Y
RV-6E	MAX1.9	MAX ø 85
RV-320E	MAX3.2	MAX ø 222.2
RV-450E	MAX5.5	MAX ø 285

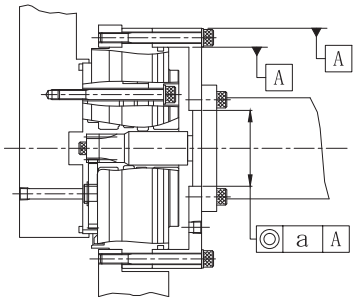
With other models, the retainer does not stick out from the casing.

Assembly accuracy

Design the motor mounting flange to the following accuracy.
Poor assembly accuracy causes vibration and noise.

Unit: mm

Model	Tolerance for concentricity a	Type	Concentricity tolerance a
RV-6E	MAX0.03	RV-110E	MAX0.03
RV-20E	MAX0.03	RV-160E	MAX0.05
RV-40E	MAX0.03	RV-320E	MAX0.05
RV-80E	MAX0.03	RV-450E	MAX0.05



Installation procedure

- Typical installation examples for reduction gears to be mounted on the mating components are shown below.
  Be sure to apply the specified amount of the specified grease during assembly. (See page 111-112)
- Refer to the O-ring seals shown to make a seal design for the mounting side.
- If O-ring (II) cannot be used due to the structure, apply the appropriate liquid sealant from the table on the right.
- If a seal cannot be formed by applying liquid sealants due to the structure, use O-ring (I) and (III) on page 36.

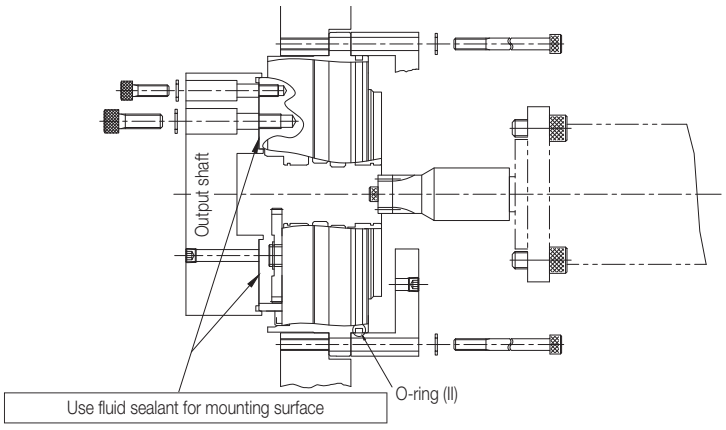
Recommended liquid sealant

Manufacturer	Characteristics and applications
ThreeBond 1211 (ThreeBond Co.)	• Silicone-based, solventless type • Semi-dry gasket
HermeSeal SS-60F (Nihon Hermetics Co.)	• One-part, non-solvent elastic sealant • Metal contact side (flange surface) seal • Any product basically equivalent to ThreeBond 1211
Loctite 515 (Henkel)	• Anaerobic flange sealant • Metal contact side (flange surface) seal

Notes 1. Do not use these sealants for copper material or copper alloy material.
2. If these sealants need to be used under special conditions such as concentrated alkali, pressurized steam, etc., please contact Nabtesco.

•Bolt clamping output shaft type

Note: The sizes of bolts for tightening the output shaft are not all the same. Make sure that each bolt is tightened with the specified torque after assembling.



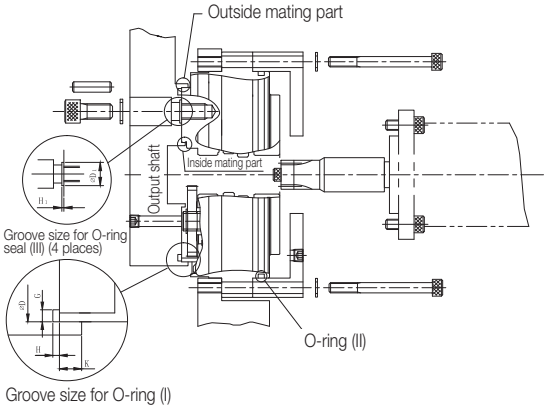
O-ring (II)

	Applicable O-ring
RV-6E	S100
RV-20E	S120
RV-40E	AS568-258
RV-80E	AS568-263
RV-110E	G190
RV-160E	G220
RV-320E	G270
RV-450E	G300

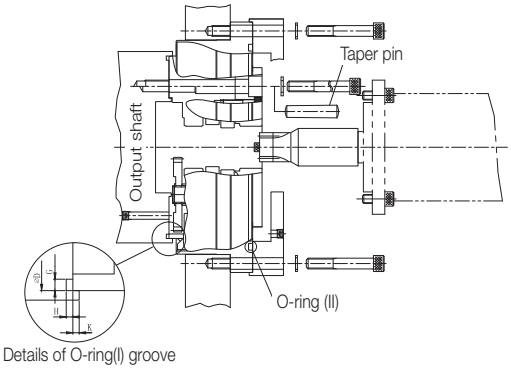
•Pin/bolt clamping output shaft type

Note: The prepared pinhole and the output shaft need to be reamed jointly with a reamer before knocking in the taper pin.
The reduction gear needs to be appropriately masked during reaming to prevent chips from entering inside.

Installation of RV-20E, 40E

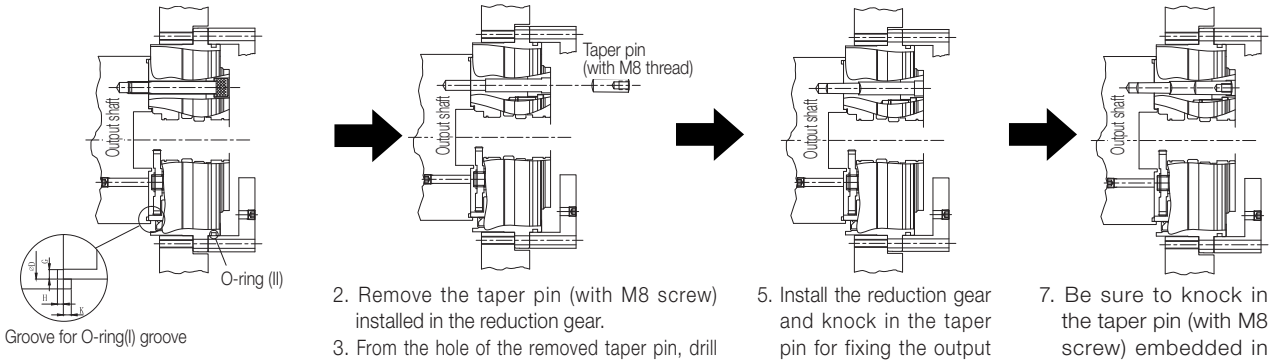


Installation of RV-160E, 320E, 450E



Installation example for RV-80E

A different method is used on RV-80E to knock in the taper pin, so follow the next procedure for assembling.



1. Loosely tighten the hexagon socket head cap screw to temporarily secure the reduction gear shaft to the output shaft.
2. Remove the taper pin (with M8 screw) installed in the reduction gear.
3. From the hole of the removed taper pin, drill a hole for the taper pin (10 mm. dia.) in the output shaft. (At this time, masking is needed to prevent chips from entering the reduction gear.)
4. After reaming, remove the bolt to remove the reduction gear, then remove any chips and burrs.
5. Install the reduction gear and knock in the taper pin for fixing the output shaft.
6. Tighten the hexagon socket head cap screw securely to fix the reduction gear to the output shaft.
7. Be sure to knock in the taper pin (with M8 screw) embedded in the reduction gear. Use a taper pin with screw.

Dimensions for O-ring (I) seal

(Unit: mm)

			For RV-20E(A)	For RV-20E(B)	For RV-40E	For RV-80E	For RV-110E	For RV-160E	For RV-320E	For RV-450E
Dimensions	O-ring	ID No.	AS568-045	S100	S132	AS568-163	AS568-167	AS568-265	AS568-271	AS568-275
		Wire dia.	ø 1.78 ±0.07	ø 2.0 ±0.1	ø 2.0 ±0.1	ø 2.62 ±0.07	ø 2.62 ±0.07	ø 3.53 ±0.1	ø 3.53 ±0.1	ø 3.53 ±0.1
		I. D.	ø 101.32 ±0.38	ø 99.5 ±0.4	ø 131.5 ±0.6	ø 152.07 ±0.58	ø 177.47 ±0.58	ø 196.44 ±0.76	ø 234.54 ±0.76	ø 266.29 ±0.76
	Groove dimensions	Outside dia.: D	ø 105	ø 105	ø 135	ø 160	ø 182	ø 204	ø 243	ø 273
		Depth: H	1.27 ±0.05	$1.5\ ^{0}_{-0.1}$	$1.5\ ^{0}_{-0.1}$	2.06 ±0.05	2.06 ±0.05	2.82 ±0.05	2.82 ±0.05	2.82 ±0.05
		Width: G	$2.39\ ^{+0.25}_{0}$	$2.7\ ^{+0.25}_{0}$	$2.7\ ^{+0.25}_{0}$	$3.58\ ^{+0.25}_{0}$	$3.58\ ^{+0.25}_{0}$	$4.78\ ^{+0.25}_{0}$	$4.78\ ^{+0.25}_{0}$	$4.78\ ^{+0.25}_{0}$
		Height: K (For reference)	3	3	3	3	3	4	4	4

O-ring (II) seal dimensions

(Unit: mm)

	For RV-20E	For RV-40E	For RV-80E	For RV-160E	For RV-320E	For RV-450E
ID No.	S120	AS568-258	AS568-263	G220	G270	G300

Dimensions for O-ring (III) seal

(Unit: mm)

			For RV-20E	For RV-40E
Dimensions	O-ring	ID No.	S12.5	S14
		Wire dia.	ø 1.5 ±0.1	ø 1.5 ±0.1
		I. D.	ø 12	ø 13.5
	Groove dimensions	Outside dia: D_1	ø 14.8 ±0.1	ø 16.3 ±0.1
		Depth: H_1	$1\ ^{0}_{-0.1}$	$1\ ^{0}_{-0.1}$

Notes 1. Use O-ring seal of either type (A) or type (B).
2. The S type ID number is the manufacturer's own standard.