ISO 9001
JQA-1190

VIGO DRIVE™

High Precision Gearheads

RD SERIES

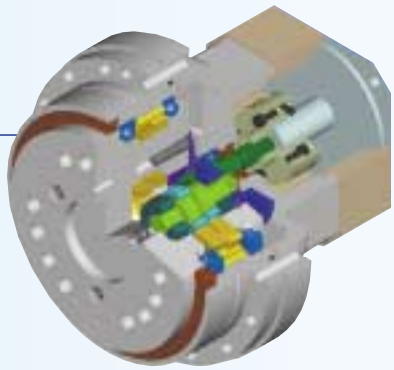
TEIJIN SEIKI

RD SERIES Gearheads for High-precision Control Taking your servo motor performance to the limit

The RD SERIES Gearheads are based upon the highly successful, high-precision RV Series Reduction Gears. The high-performance RV has over 2 million units in service in various applications around the world today. The RD SERIES are high-precision servomotor gearheads that provide significant advantages in terms of ease-of-use and cost for performance.

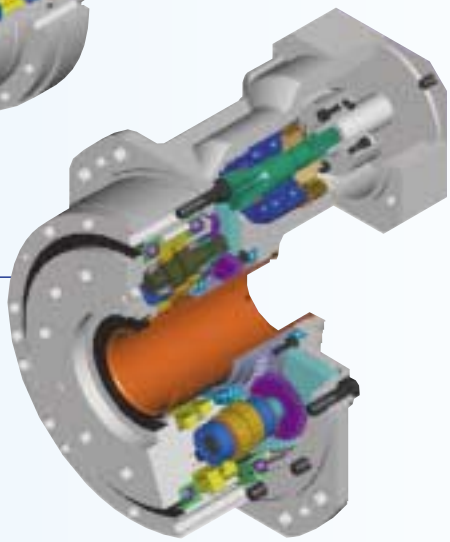
RD-E Series

Standard



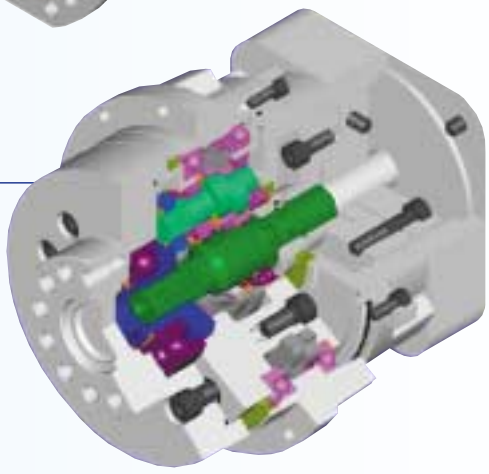
RD-C Series

Hollow Shaft



RD-G Series

High Speed



Features and Benefits

1. High shock load capability
   (Capable of 5 times the rated torque)
2. Ready-to-connect motor mounting design
3. Completely sealed unit (pre-greased)

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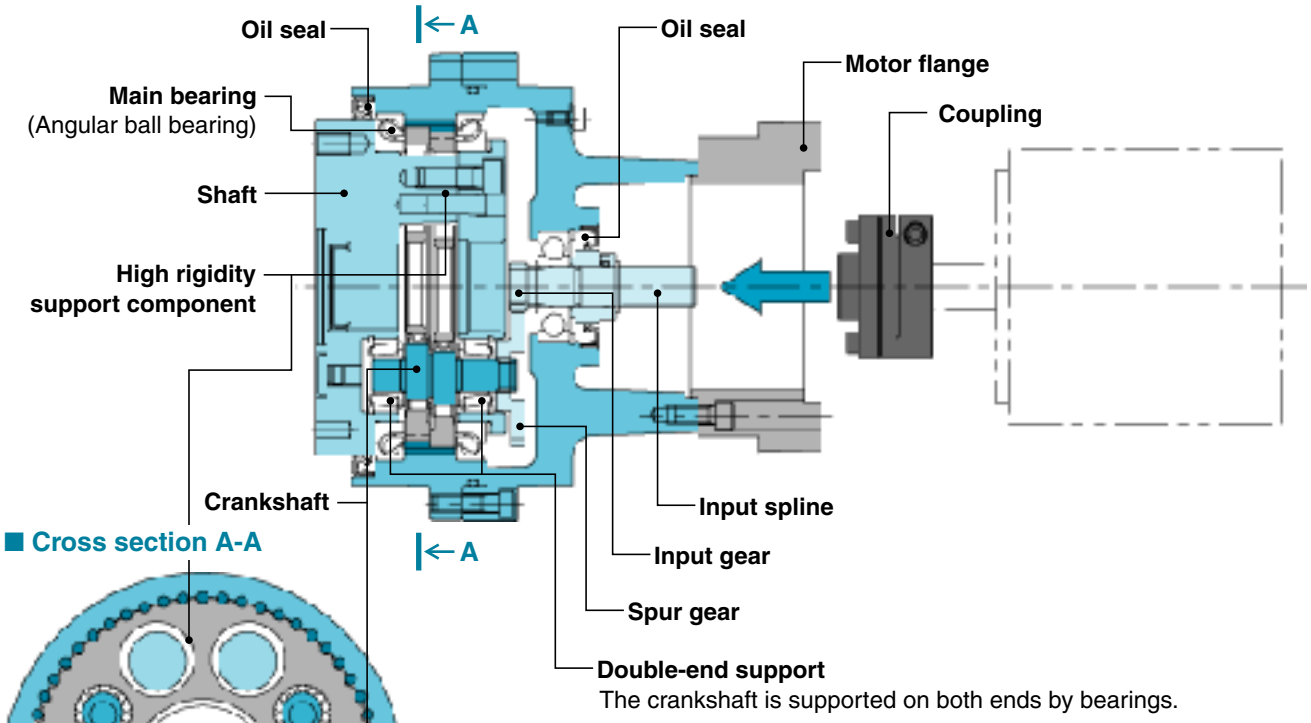
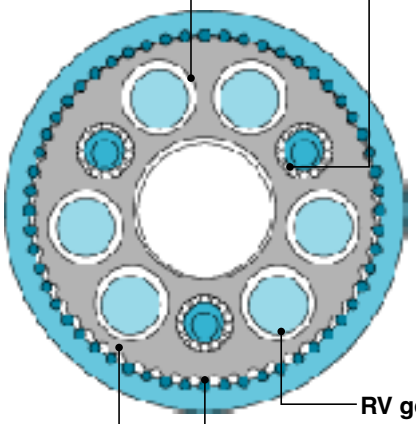
Features and Configurations | RD-E Series

High shock load capability High rigidity High precision High torque	**The double-end support design and unique pin gear mechanism provide the following advantages** **(1) Capable of 5 times the rated torque** **(2) High torsional rigidity** **(3) Low backlash [1 arc.min]** **(4) High torque density (capable of high torque with downsized gear)**
Heavy load support	**A set of internal main bearings (large angular ball bearings) enables complete support of heavy external loads.**
Maximum ease of use	**(1) Pre-greased** **(2) Coupling motor flange provide easy motor mounting**



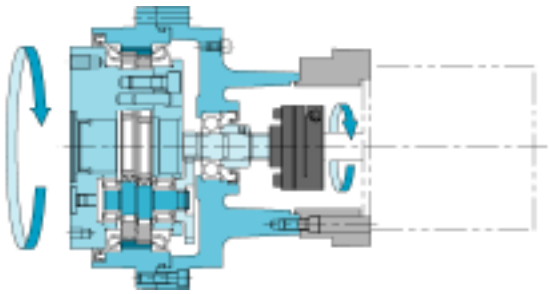
■ Cross section A-A



Rolling contact mechanism
The RV gear teeth are in constant, simultaneous contact with all of the pins.

■ Rotation direction

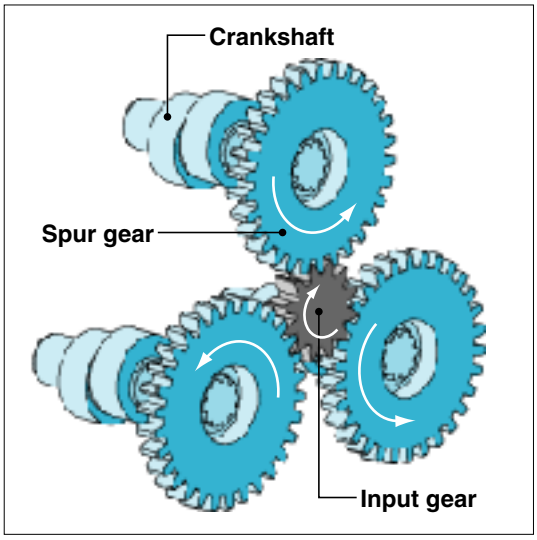
The rotation direction of the output shaft is the same as that of the servo motor.



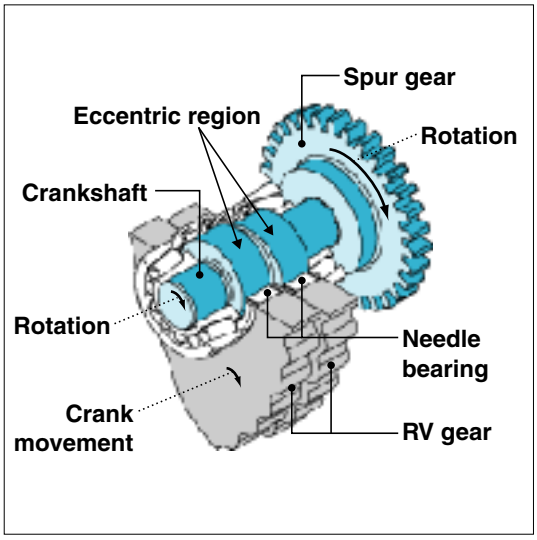
Principle of Operation | RD-E Series

1. Rotation of the servo motor is transmitted through the input gear to the spur gears, and the speed is reduced accordingly with the gear ratio between the input gear and the spur gears <Fig. 1>.
2. Since they are directly connected, the crankshafts have the same rotational speed as the spur gears <Fig. 1>.
3. Two RV gears are mounted around the needle bearings on the eccentric region of the crankshaft. (In order to balance the equal amount of force, two RV gears are mounted) <Fig. 2>.
4. When the crankshafts rotate, the two RV gears mounted on the eccentric sections also revolve eccentrically around the input axis (crank movement) <Fig. 2>.
5. Pins are arrayed in a constant pitch in the grooves inside the case. The number of pins is just one larger than the number of RV teeth <Fig. 3>.
6. As the crankshafts revolve one complete rotation, the RV gears revolve eccentrically one pitch of a pin (crank movement), with all the RV teeth in contact with all of the pins <Fig. 3>.
7. The rotation is then output to the shaft (output shaft) via the crankshaft so that the crankshaft rotation speed can be reduced in proportion to the number of pins <Fig. 3>.
8. The total reduction ratio is the product of the first reduction ratio multiplied by the second reduction ratio.

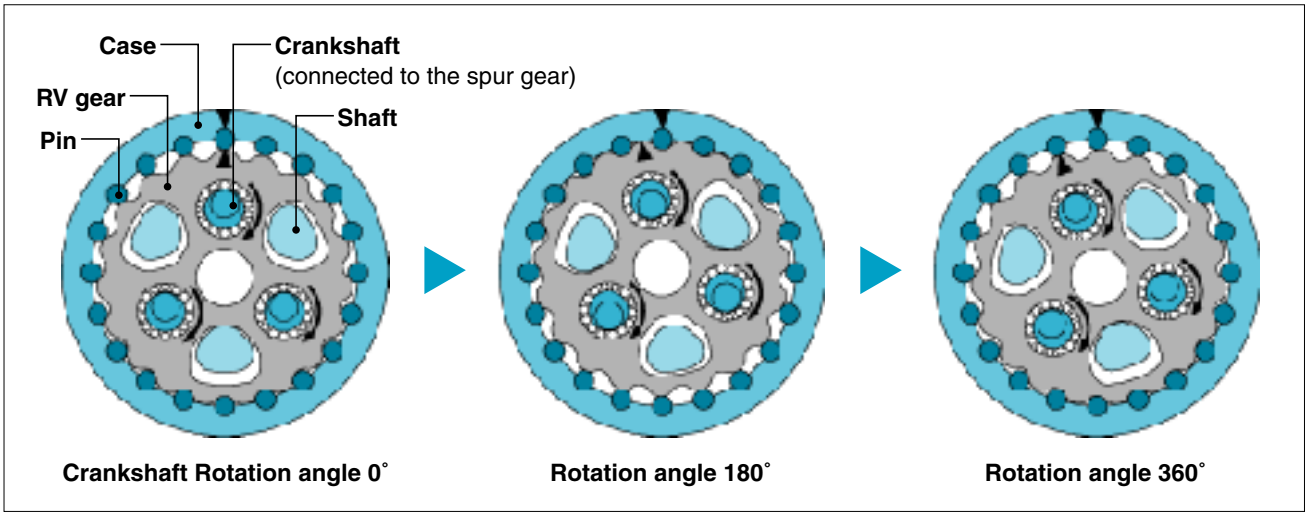
■ Fig. 1 First reduction section



■ Fig. 2 Crankshaft section

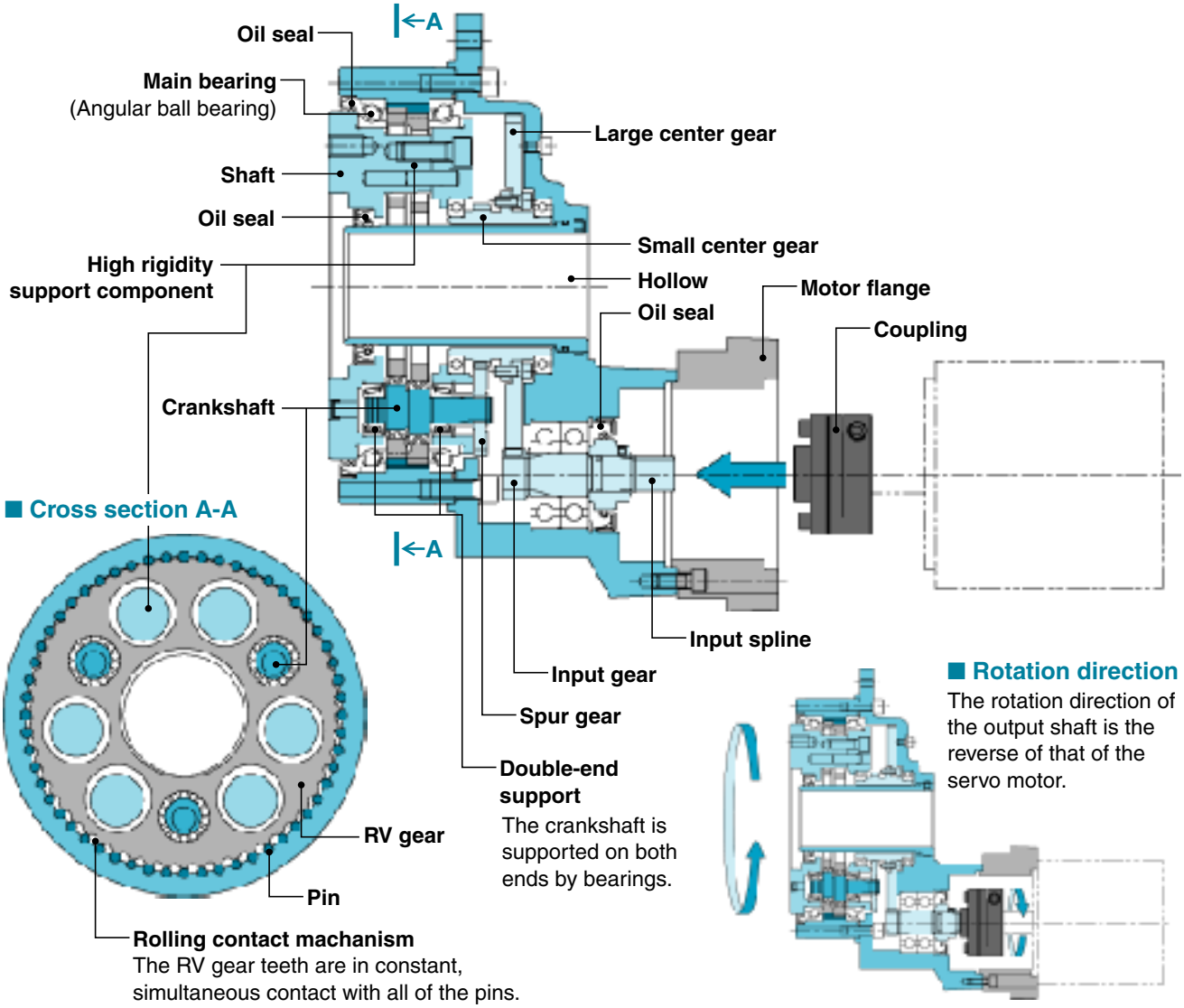


■ Fig. 3 Second reduction section



Features and Configurations | RD-C Series

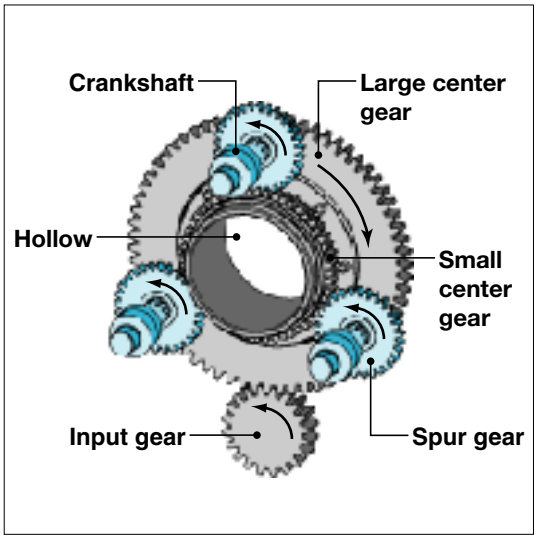
High shock load capability High rigidity High precision High reduction ratio	**The double-end support design and unique pin gear mechanism provide the following advantages** **(1) Capable of 5 times the rated torque** **(2) High torsional rigidity** **(3) Low backlash [1 arc.min]** **(4) High torque density (capable of high torque with downsized gear)** **(5) Capable of high reduction ratio (MAX I = 1/258)**
Heavy load support	**A set of internal main bearings (large angular ball bearings) enables complete support of heavy external loads.**
Maximum ease of use	**(1) The hollow shaft structure that allows routing of cables through the reduction gear** **(2) Pre-greased** **(3) Coupling motor flange provide easy motor mounting**



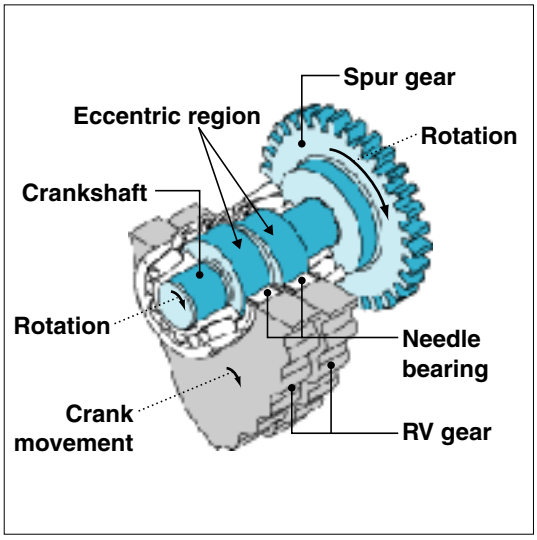
Principle of Operation | RD-C Series

1. Rotation of the servo motor is transmitted through the input gear to the large center gear, and is then transmitted through the small center gear to the spur gear. At this point, the speed is reduced accordingly to the gear ratio between the small center gear and the spur gear. This operation is carried out in the First reduction section <Fig. 1>.
2. Since they are directly connected, the crankshafts have the same rotational speed as the spur gears <Fig. 1>.
3. Two RV gears are mounted around the needle bearings on the eccentric region of the crankshaft. (In order to balance the equal amount of force, two RV gears are mounted) <Fig. 2>.
4. When the crankshafts rotate, the two RV gears mounted on the eccentric sections also revolve eccentrically around the input axis (crank movement) <Fig. 2>.
5. Pins are arrayed in a constant pitch in the grooves inside the case. The number of pins is just one larger than the number of RV teeth <Fig. 3>.
6. As the crankshafts revolve one complete rotation, the RV gears revolve eccentrically one pitch of a pin (crank movement), with all the RV teeth in contact with all of the pins <Fig. 3>.
7. The rotation is then output to the shaft (output shaft) via the crankshaft so that the crankshaft rotation speed can be reduced in proportion to the number of pins <Fig. 3>.
8. The total reduction ratio is the product of the first reduction ratio multiplied by the second reduction ratio.

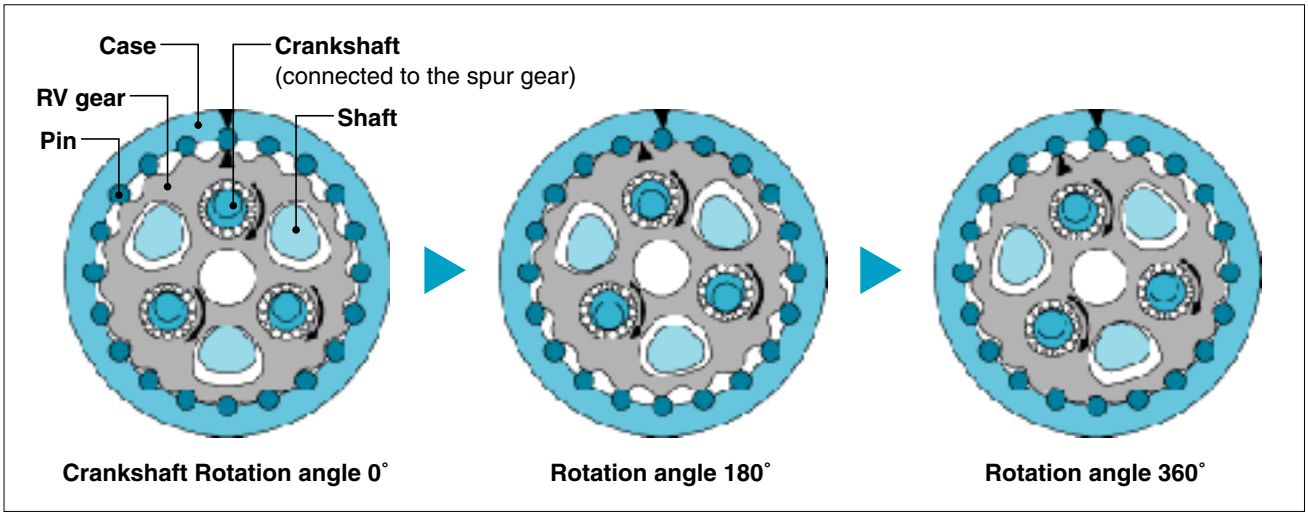
■ Fig. 1 First reduction section



■ Fig. 2 Crankshaft section

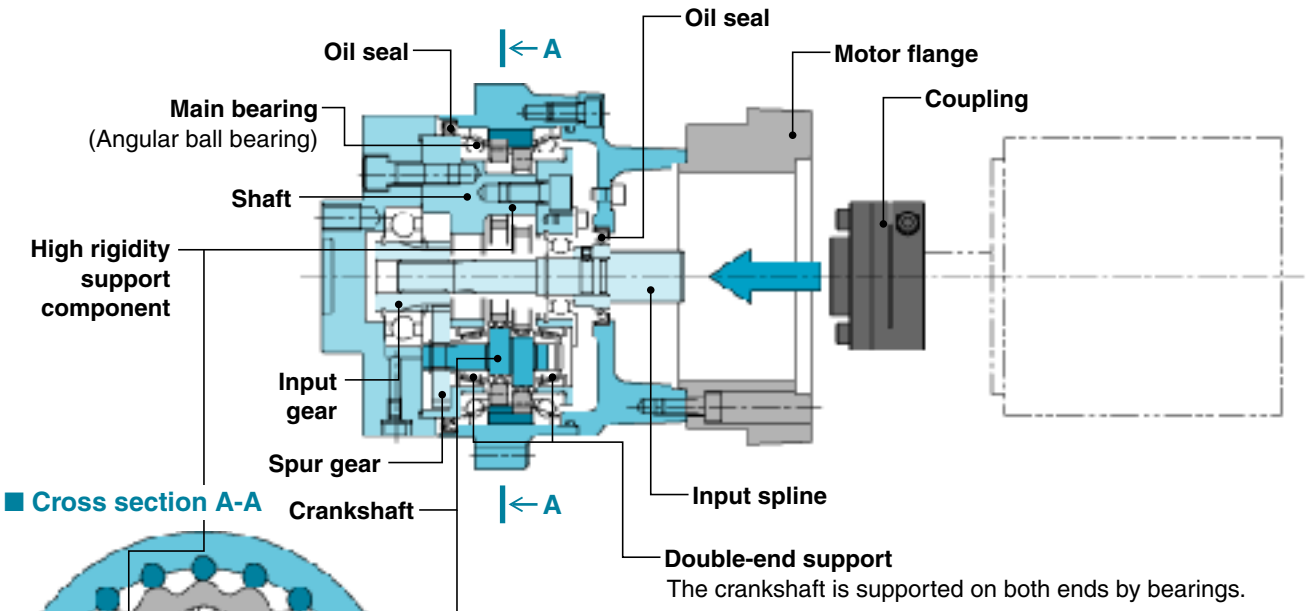


■ Fig. 3 Second reduction section

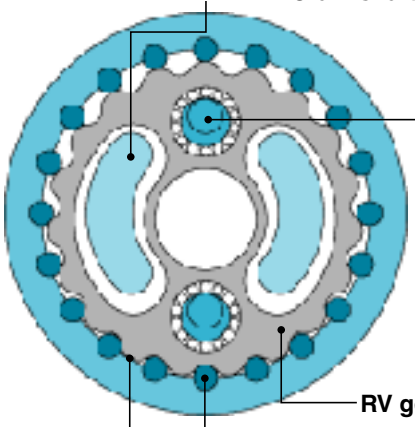


Features and Configurations | RD-G Series

High shock load capability High rigidity High precision High speed	**The double-end support design and unique pin gear mechanism provide the following advantages** **(1) Capable of 7 times the rated torque** **(2) High torsional rigidity as well as small backlash [6 arc.min]** **(3) Capable of high output speed with low reduction ratio (1/11 to 1/31)** **(4) High torque density**
Heavy load support	**A set of internal main bearings (large angular ball bearings) enables complete support of heavy external loads.**
Maximum ease of use	**(1) Pre-greased** **(2) Coupling motor flange provide easy motor mounting**



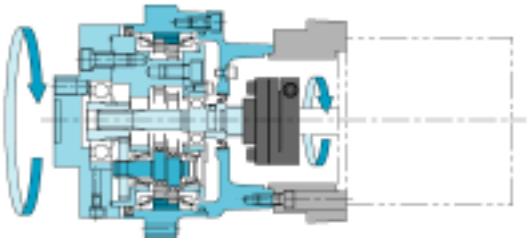
■ Cross section A-A



Rolling contact machanism
The RV gear teeth are in constant, simultaneous contact with all of the pins.

■ Rotation direction

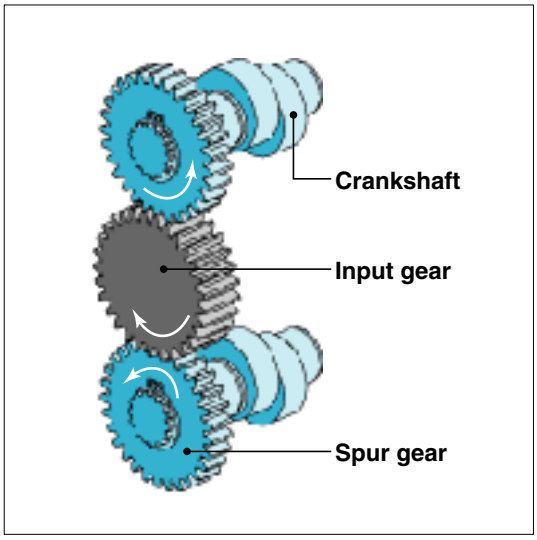
The rotation direction of the output shaft is the same as that of the servo motor.



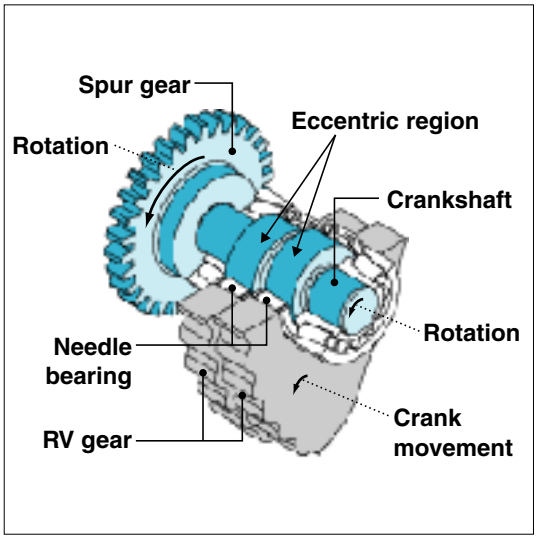
Principle of Operation | RD-G Series

1. Rotation of the servo motor is transmitted through the input gear to the spur gears, and the speed is reduced accordingly to the gear ratio between the input gear and the spur gears <Fig. 1>.
2. Since they are directly connected, the crankshafts have the same rotational speed as the spur gears <Fig. 1>.
3. Two RV gears are mounted around the needle bearings on the eccentric region of the crankshaft. (In order to balance the equal amount of force, two RV gears are mounted) <Fig. 2>.
4. When the crankshafts rotate, the two RV gears mounted on the eccentric sections also revolve eccentrically around the input axis (crank movement) <Fig. 2>.
5. Pins are arrayed in a constant pitch in the grooves inside the case. The number of pins is just one larger than the number of RV teeth <Fig. 3>.
6. As the crankshafts revolve one complete rotation, the RV gears revolve eccentrically one pitch of a pin (crank movement), with all the RV teeth in contact with all of the pins <Fig. 3>.
7. The rotation is then output to the shaft (output shaft) via the crankshaft so that the crankshaft rotation speed can be reduced in proportion to the number of pins <Fig. 3>.
8. The total reduction ratio is the product of the first reduction ratio multiplied by the second reduction ratio.

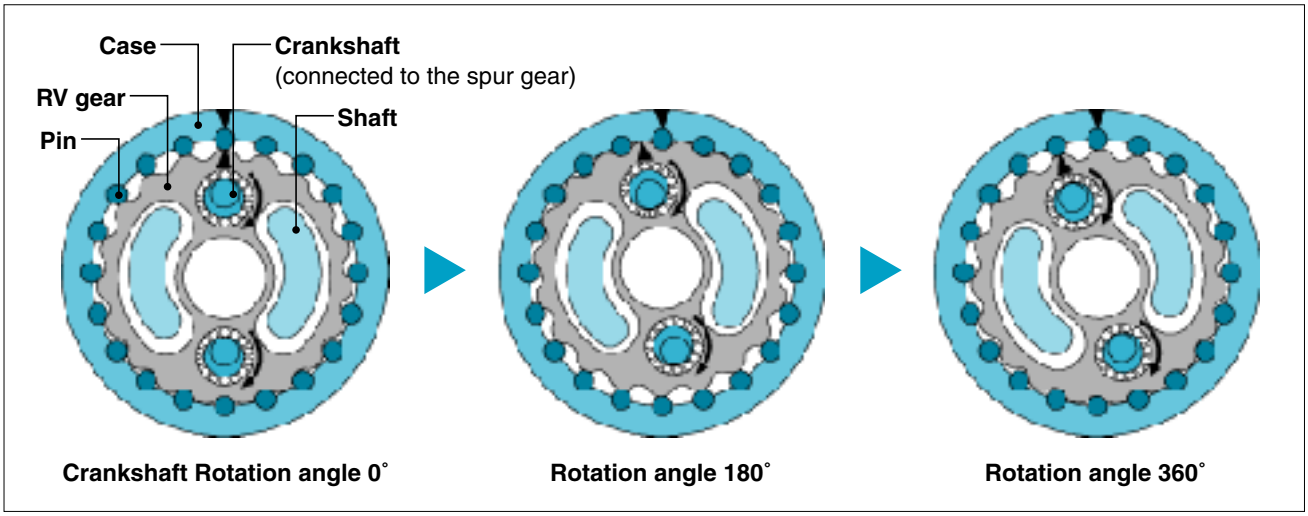
■ Fig. 1 First reduction section



■ Fig. 2 Crankshaft section



■ Fig. 3 Second reduction section



Rating Table

Model Code	Output Shaft Code	Ratio Code (Speed Ratio)					T_0 Rated Torque N-m (lb-in)	N_0 Rated Output Speed rpm	K Life Rating Hr	T_{S1} Allowable Acceleration/ Deceleration Torque N-m (lb-in)
RD-E Series										
RD-006E		031 (31)	043 (43)	054 (53.5)	079 (79)	103 (103)	58 (521)	30	6000	117 (1042)
RD-020E		041 (41)	057 (57)	081 (81)	105 (105)	161 (161)	167 (1476)	15	6000	412 (3645)
RD-040E		041 (41)	057 (57)	081 (81)	105 (105)	153 (153)	412 (3645)	15	6000	1029 (9114)
RD-080E		041 (41)	057 (57)	081 (81)	101 (101)	153 (153)	784 (6944)	15	6000	1960 (17359)
RD-160E		066 (66)	081 (81)	101 (101)	145 (145)	171 (171)	1568 (13887)	15	6000	3920 (34719)
RD-320E		066 (66)	081 (81)	101 (101)	141 (141)	185 (185)	3136 (27775)	15	6000	7840 (69437)
RD-C Series										
RD-010C		081 (81)	108 (108)	153 (153)	189 (189)	243 (243)	98 (868)	15	6000	245 (2170)
RD-027C		100 (99.82)	142 (141.68)	184 (184)	233 (233.45)		265 (2344)	15	6000	662 (5859)
RD-050C		109 (109)	153 (152.6)	196 (196.2)	240 (239.8)		490 (4340)	15	6000	1225 (10850)
RD-100C		101 (100.5)	150 (150)	210 (210)	258 (258)		980 (8680)	15	6000	2450 (21699)
RD-200C		106 (105.83)	156 (155.96)	206 (206.09)	245 (245.08)		1960 (17359)	15	6000	4900 (43398)
RD-320C		115 (115)	157 (157)	207 (207)	253 (253)		3136 (27775)	15	6000	7840 (69437)
RD-G Series										
RD-07G	P	11 (461/41)	21 (21)	31 (30.6)			69 (608)	50	6000	206 (1823)
RD-17G	P	11 (11)	21 (21)	31 (31)			167 (1476)	50	6000	500 (4427)
RD-40G	P	11 (419/39)	21 (21)	31 (723/23)			392 (3472)	50	6000	1176 (10416)

Note: 1. The rating table shows the specification values of each reduction gear.

2. The allowable output speed may be limited by heat depending on the operation rate.

3. For the moment of inertia of the reduction gear, refer to the external dimension drawings of the reduction gear and the coupling.

4. For dimension α, refer to “Allowable Moment And Maximum Axial Load” in the Glossary on page 10.

T_{S2} Momentary Maximum Allowable Torque N-m (lb-in)	N_{S1} Allowable Output Speed [Continuous] (Note 2) rpm	N_{S2} Allowable Output Speed [Intermittent] (Note 2) rpm	Backlash arc.min	Lost Motion arc.min	Torsional Rigidity N-m/ arc.min (lb-in/ arc.min)	Capacity of Main Bearing			
						M_0 Allowable Moment N-m (lb-in)	M_{S1} Momentary Maximum Allowable Moment N-m (lb-in)	F_0 Maximum Axial Load N (lb)	α Dimension α (Note 4) mm
294 (2604)	60	100	1.5	1.5	20 (177)	196 (1736)	392 (3472)	1470 (331)	78.5
833 (7378)	45	75	1.0	1.0	49 (434)	882 (7812)	1764 (15623)	3920 (882)	93.2
2058 (18227)	42	70	1.0	1.0	108 (955)	1666 (14755)	3332 (29511)	5194 (1168)	114.1
3920 (34719)	42	70	1.0	1.0	196 (1736)	2156 (19095)	4312 (38190)	7840 (1764)	138.6
7840 (69437)	27	45	1.0	1.0	392 (3472)	3920 (34719)	7840 (69437)	14700 (3307)	168.1
15680 (138874)	21	35	1.0	1.0	980 (8680)	7056 (62493)	14112 (124987)	19600 (4409)	203
490 (4340)	48	80	1.0	1.0	47 (417)	686 (6076)	1372 (12152)	5880 (1323)	91.2
1323 (11718)	36	60	1.0	1.0	147 (1302)	980 (8680)	1960 (17359)	8820 (1984)	112.1
2450 (21699)	30	50	1.0	1.0	255 (2257)	1764 (15623)	3528 (31247)	11760 (2646)	136.7
4900 (43398)	24	40	1.0	1.0	510 (4513)	2450 (21699)	4900 (43398)	13720 (3087)	148.9
9800 (86796)	18	30	1.0	1.0	980 (8680)	8820 (78117)	17640 (156233)	19600 (4409)	204.4
15680 (138874)	15	25	1.0	1.0	1960 (17359)	20580 (182272)	39200 (347185)	29400 (6614)	246
480 (4253)	150	270	6.0	6.0	47 (417)	363 (3212)	726 (6423)	1470 (331)	133.3
1166 (10329)	150	270	6.0	6.0	151 (1337)	608 (5381)	1216 (10763)	1960 (441)	156.9
2744 (24303)	150	250	6.0	6.0	255 (2257)	1372 (12152)	2744 (24303)	2940 (661)	198.1

Glossary

Life Rating

The lifetime resulting from the operation with the rated torque and the rated output speed is referred to as the “life rating ”.

Allowable Acceleration/Deceleration Torque

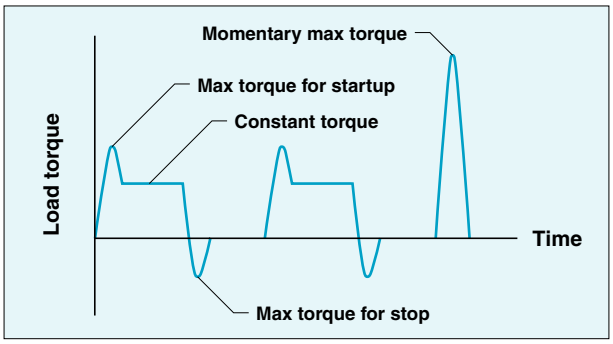
When the machine starts or stops, the load torque to be applied to the reduction gear is larger than the constant-speed load torque due to the effect of the inertia torque of the rotating part. In such a situation, the allowable torque during acceleration/deceleration is referred to as “allowable acceleration/deceleration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

Note: Be careful that the load torque, which is applied during normal operation, does not exceed the allowable acceleration/deceleration torque.

Momentary Maximum Allowable Torque

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

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



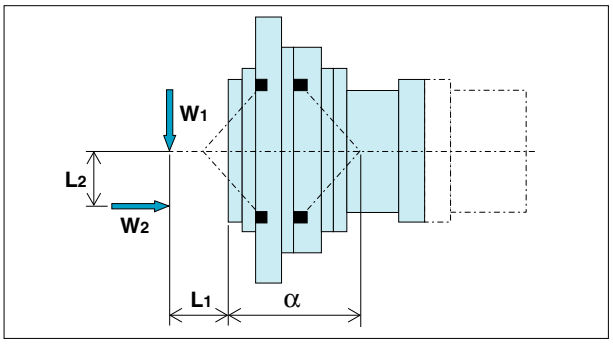
Allowable Moment and Maximum Axial Load

The external load moment may be applied to the reduction gear during normal operation. In such a situation, the allowable values of the external moment and the external axial load are respectively referred to as “allowable moment” and “maximum axial load”.

M_C : Load moment (N-m)
W_1, W_2 : Load (N)
L_1, L_2 : Distance to the point of load application (mm)
α : Designated dimension (mm) (Refer to the Rating Table.)

$$M_C = \frac{W_1 \times (L_1 + \alpha) + W_2 \times L_2}{1000}$$

Note: When the load moment and the axial load are applied concurrently, ensure that the reduction gear is used within the corresponding allowable moment range, which is indicated in the diagram on the next page.



Momentary Maximum Allowable Moment

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

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

Allowable Output Speed [Continuous]

The allowable output speed when the machine starts and stops repeatedly is referred to as “allowable output speed [Continuous]”.

Note: Maintain the environment and operation conditions so that the temperature of the reduction gear case is 60˚C or lower.

Allowable Output Speed [Intermittent]

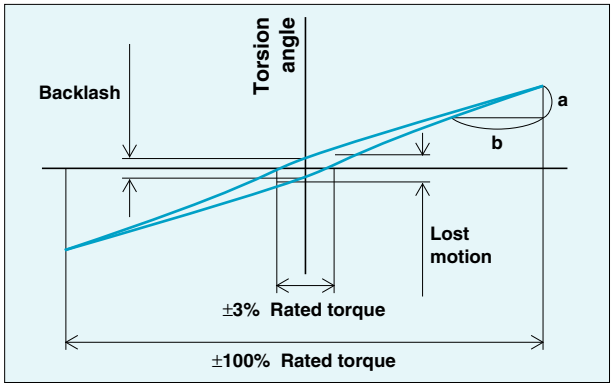
The allowable output speed during the operation in which the reduction gear is not activated frequently is referred to as “allowable output speed [Intermittent]”.

Note: Maintain the environment and operation conditions so that the temperature of the reduction gear case is 60˚C or lower.

Torsional Rigidity, Lost Motion, Backlash

When a torque is applied to the output shaft while the input shaft is fixed, torsion is generated according to the torque value and a hysteresis curve results.
The value of b/a is referred to as “torsional rigidity”.
The torsion angle at the mid point of the hysteresis curve width at ±3% of rated torque is referred to as “lost motion”.
The torsion angles when the torque indicated by the hysteresis curve is zero are referred to as “backlash”.

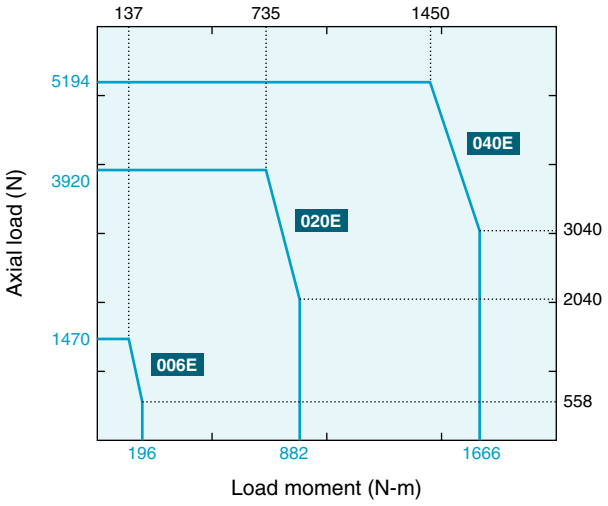
■ Hysteresis Curve

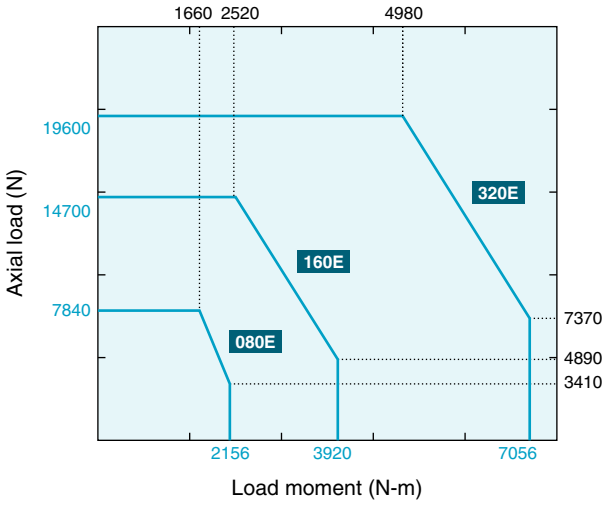


Performance

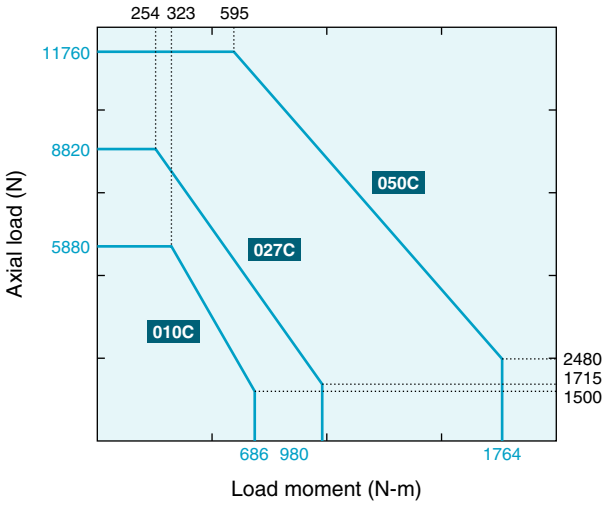
Allowable Moment Diagram

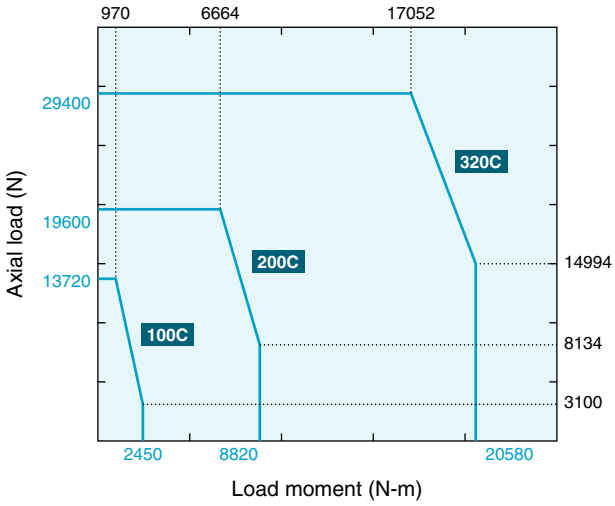
RD-E Series



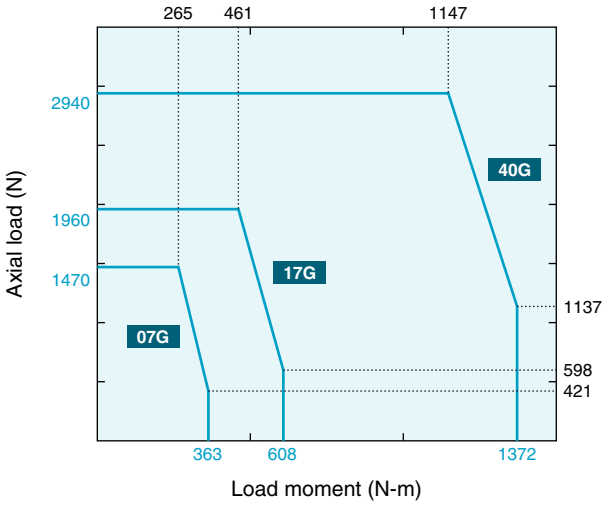


RD-C Series





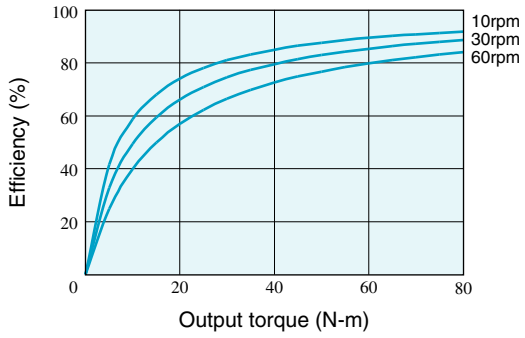
RD-G Series



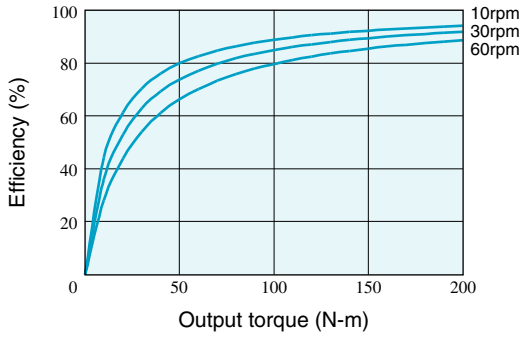
Efficiency Charts

RD-E Series Case temperature: 30˚C
Lubricant: Grease (Molywhite RE00)

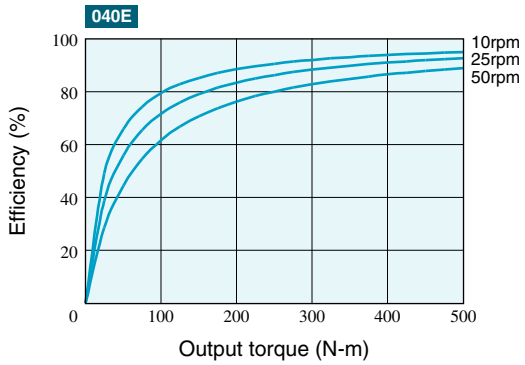
006E



020E



040E



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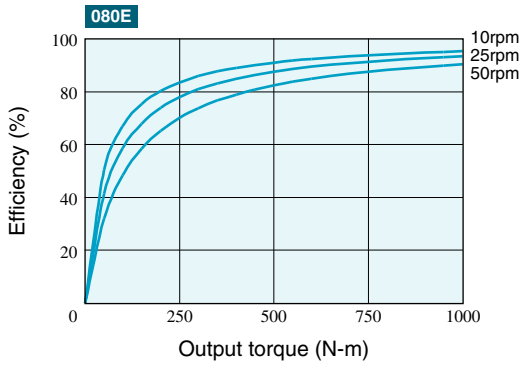

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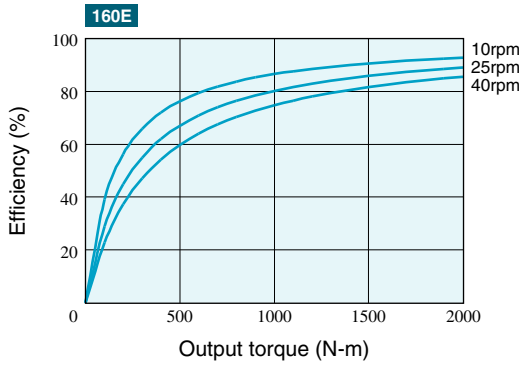

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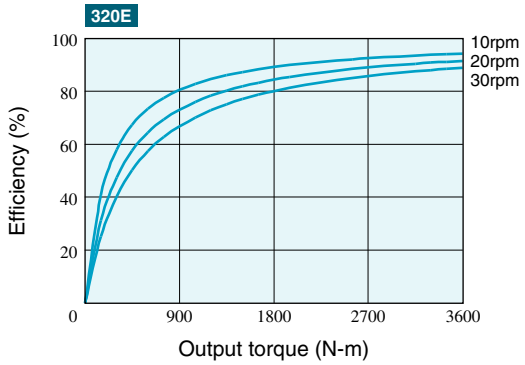
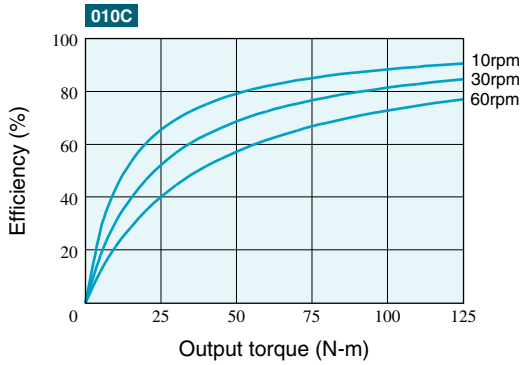
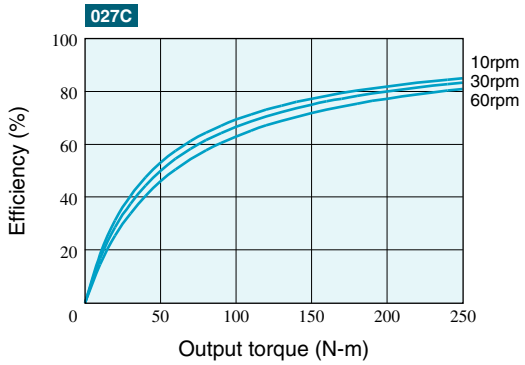


RD-C Series Case temperature: 30˚C
Lubricant: Grease (Molywhite RE00)

010C



027C



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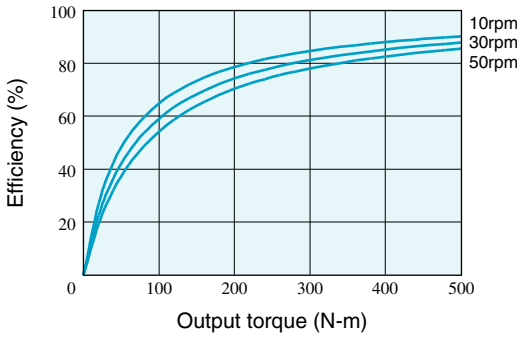
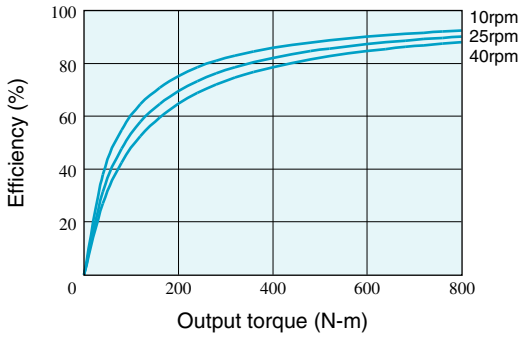
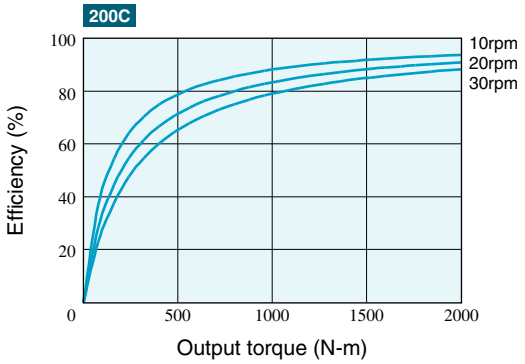


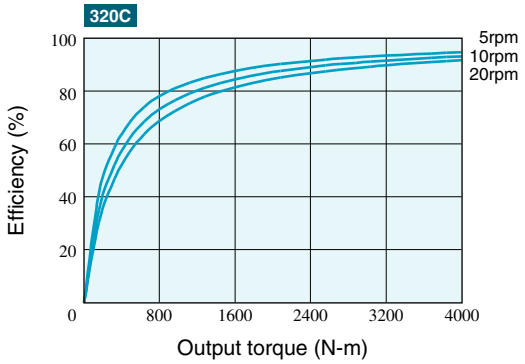
100C



200C



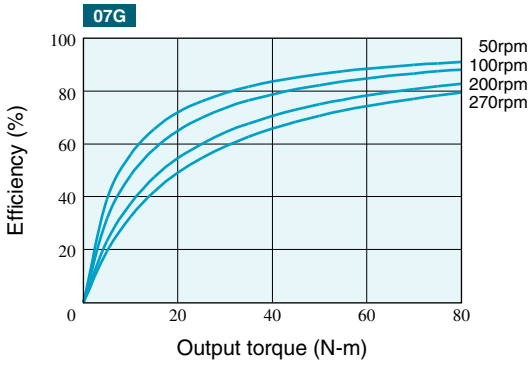
320C



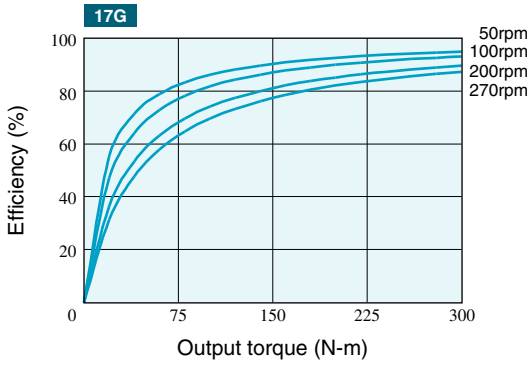
RD-G Series

Case temperature: 20˚C
Lubricant: Grease (Molywhite RE00)

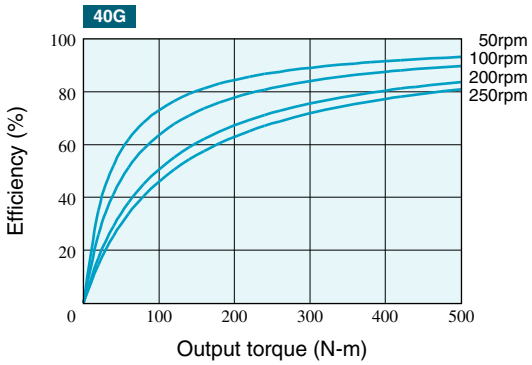
07G



17G



40G

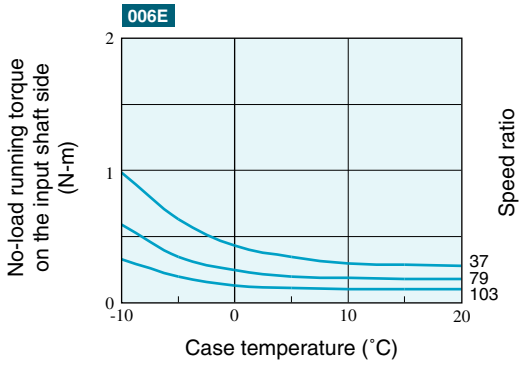


Low-temperature Characteristics (No-load running torque under low temperature)

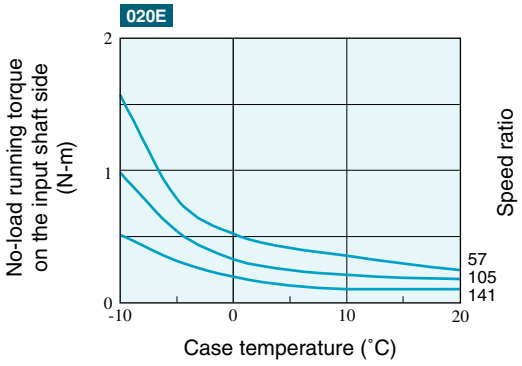
RD-E Series

Input speed: 2000 rpm
Lubricant: Grease (Molywhite RE00)

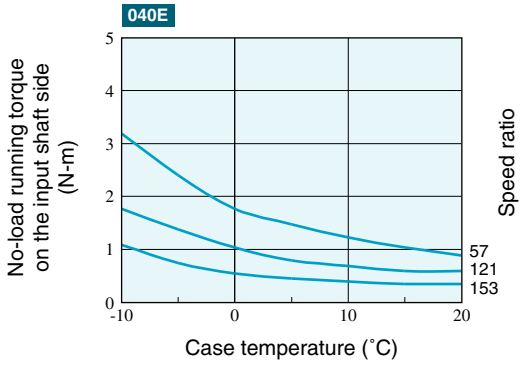
006E



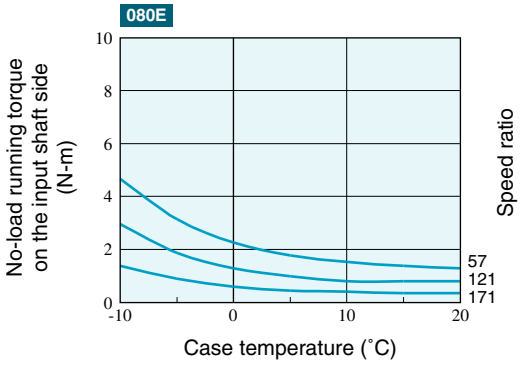
020E



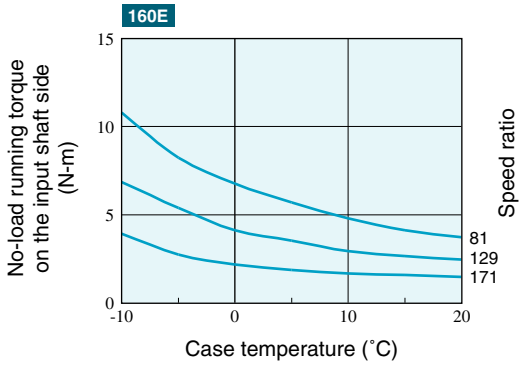
040E



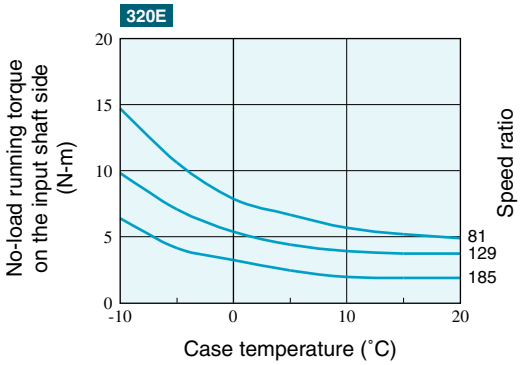
080E



160E



320E

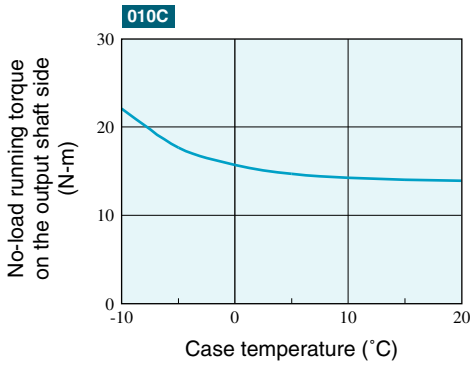


RD-C Series

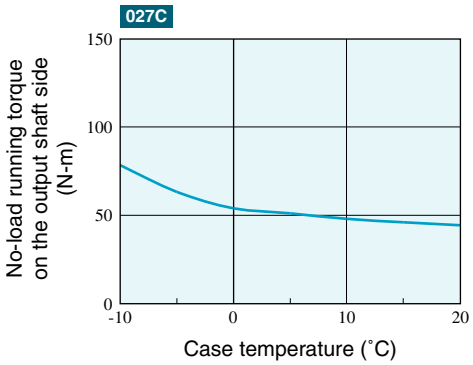
Output speed: 15 rpm
Lubricant: Grease (Molywhite RE00)
Loss at center gear is not included.

Note: Unlike the RD-E series and the RD-G series, the RD-C series uses no-load running torque on the output shaft side.

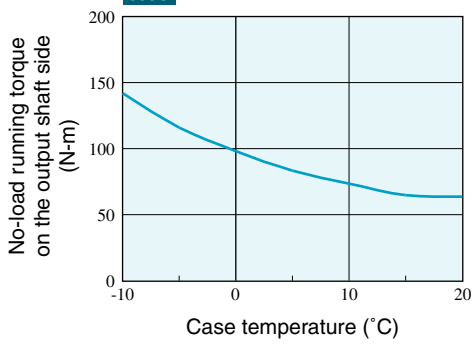
010C



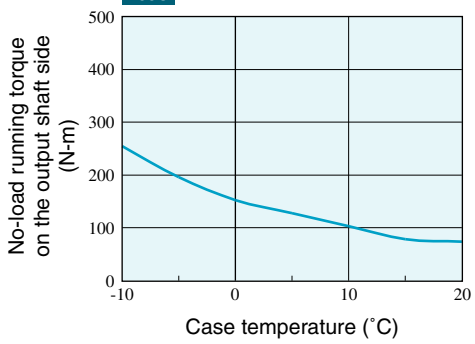
027C



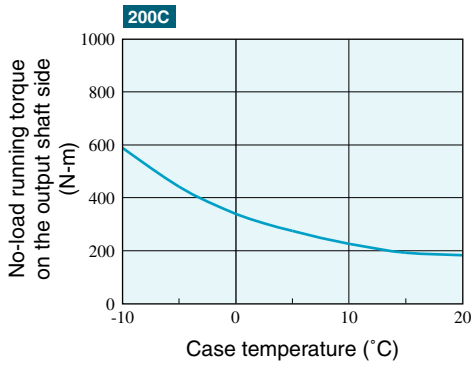
050C



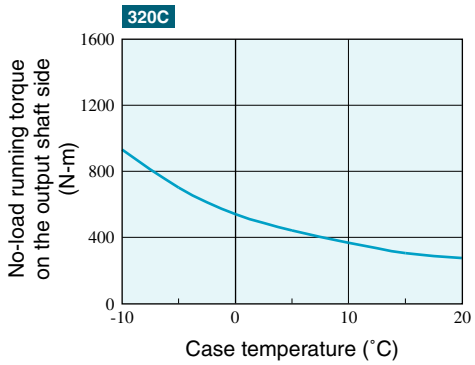
100C



200C



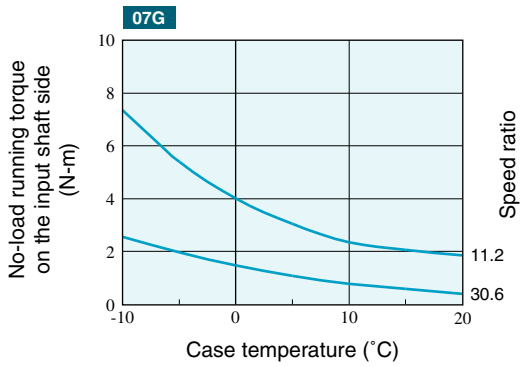
320C



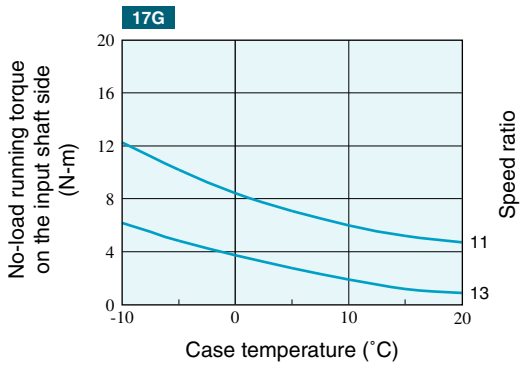
RD-G Series

Input speed: 2000 rpm
Lubricant: Grease (Molywhite RE00)

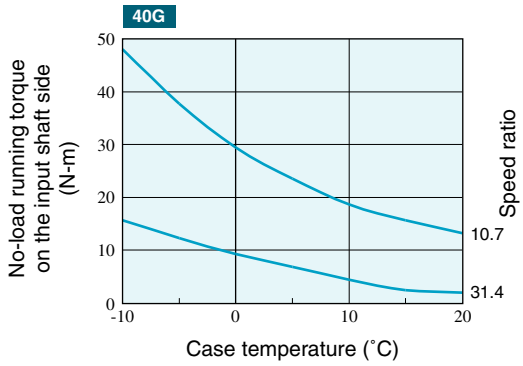
07G



17G



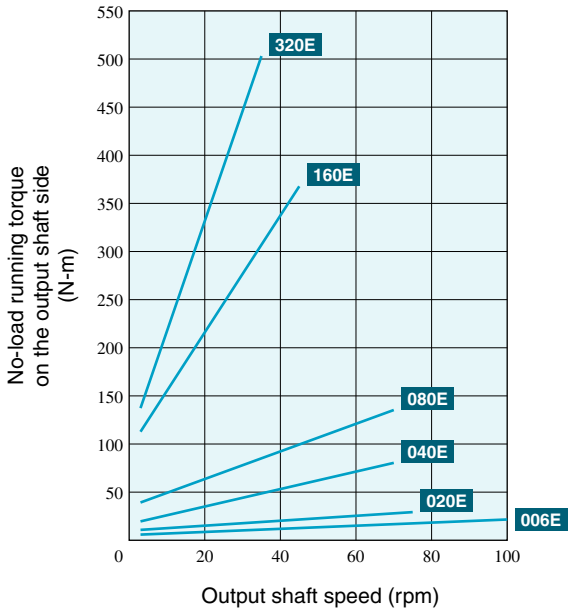
40G



No-load Running Torque

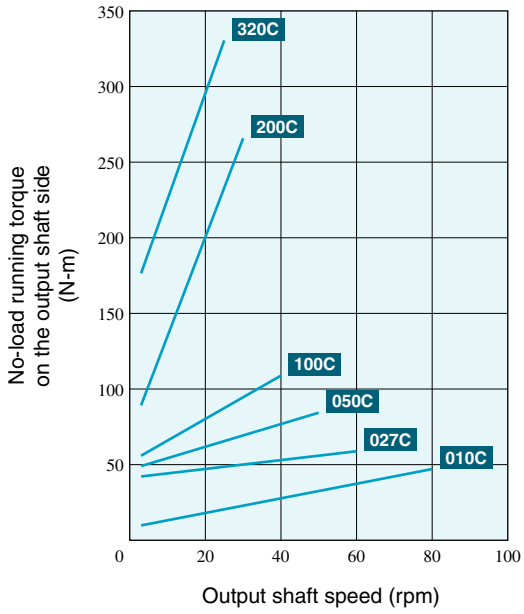
RD-E Series

Case temperature: 30˚C
Lubricant: Grease (Molywhite RE00)



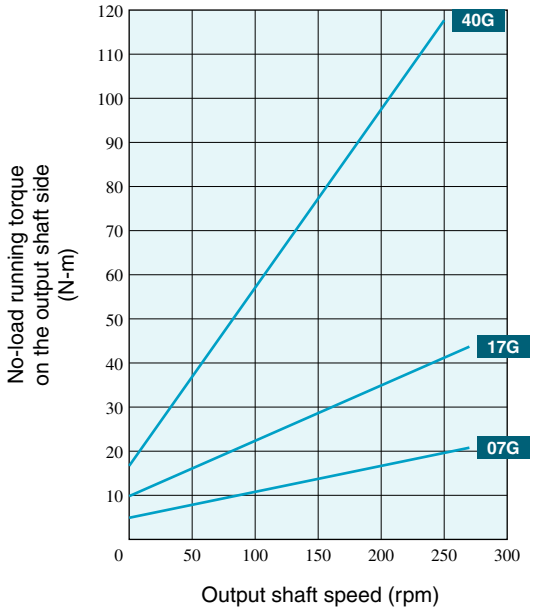
RD-C Series

Case temperature: 30˚C
Lubricant: Grease (Molywhite RE00)
Loss at center gear is not included.



RD-G Series

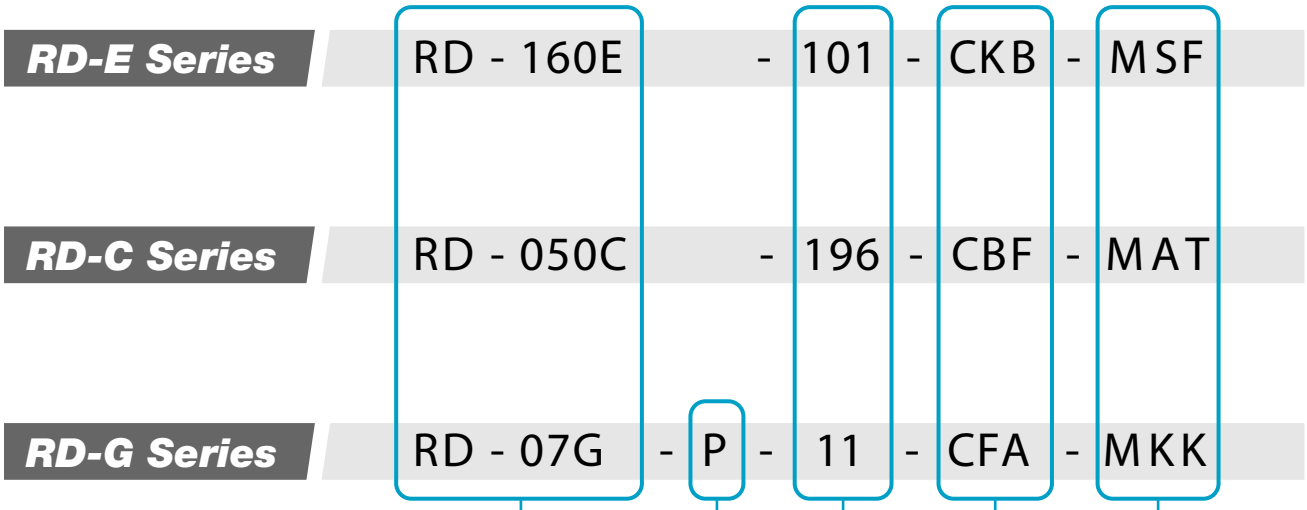
Case temperature: 20˚C
Lubricant: Grease (Molywhite RE00)



The no-load running torque that is converted to the input shaft side value should be figured out according to the following equation.

$$\text{No-load running torque on the input shaft side (N-m)} = \frac{\text{No-load running torque on the output shaft side (N-m)}}{\text{Speed ratio}}$$

Product Codes



Model Code

Refer to the Rating Table on pages 8 to 9.

Refer to the external dimension drawing of the reduction gear on pages 49 to 66.

Output Shaft Code

P: Flange
S: Shaft

Refer to the external dimension drawing of the reduction gear on pages 49 to 66.

Ratio Code

Refer to the Rating Table on pages 8 to 9.

Refer to the external dimension drawing of the reduction gear on pages 49 to 66.

Coupling Code

Refer to the external dimension drawing of the coupling on pages 67 to 79.

Motor Flange Code

Refer to the external dimension drawing of the motor flange on pages 81 to 91.

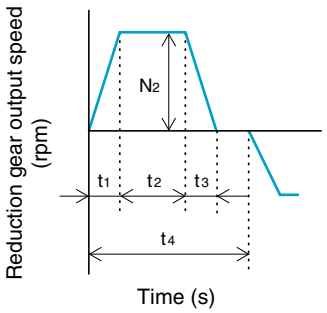
Selection of Product Code

Input and calculation of the load conditions

Input of the operation pattern

Input the operation pattern.

t_1	Acceleration time (s)	0.1
t_2	Constant-speed operation time (s)	0.8
t_3	Deceleration time (s)	0.1
t_4	One operation cycle time (s)	10



Input of the speed (output shaft for the reduction gear)

Input the speed of the output shaft for the reduction gear during normal operation.

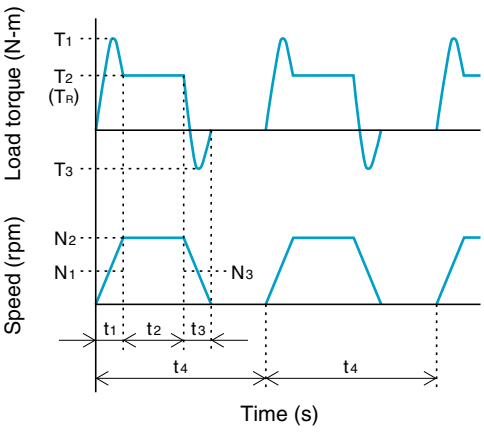
N_2	Constant speed (rpm)	20

N_1	Average speed for startup (rpm)	10	····· $N_1 = \frac{N_2}{2}$
N_3	Average speed for stop (rpm)	10	····· $N_3 = \frac{N_2}{2}$

Input of the constant speed torque (output shaft for the reduction gear)

Input the torque of the output shaft for the reduction gear during normal operation.

T_R	Constant speed torque (N-m)	1996



Input of the moment of inertia (output shaft for the reduction gear)

Input the load moment of inertia at the output shaft for the reduction gear.

I_R	Load moment of inertia (kg-m^2)	85

Calculation of the load torque (output shaft for the reduction gear)

Calculate the inertia torque during acceleration/deceleration of the output shaft for the reduction gear.

T_A	Inertia torque during acceleration (N-m)	1780	····· $T_A = \left\{ \frac{I_R \times (N_2 - 0)}{t_1} \right\} \times \frac{2\pi}{60}$
T_D	Inertia torque during deceleration (N-m)	-1780	····· $T_D = \left\{ \frac{I_R \times (0 - N_2)}{t_3} \right\} \times \frac{2\pi}{60}$

Calculate the load torque of the output shaft for the reduction gear.

T_1	Maximum torque for startup (N-m)	3776	····· $T_1 = \lvert T_A + T_R \rvert$
T_2	Constant speed torque (N-m)	1996	····· $T_2 = \lvert T_R \rvert$
T_3	Maximum torque for stop (N-m)	216	····· $T_3 = \lvert T_D + T_R \rvert$

Calculation of the average speed
(output shaft for the reduction gear)

Calculate the average speed of the output shaft for the reduction gear. (Downtime is not included.)

N_m	Average output speed (rpm)	18

····· $N_m = \dfrac{t_1 \bullet N_1 + t_2 \bullet N_2 + t_3 \bullet N_3}{t_1 + t_2 + t_3}$

Calculation of the average load torque
(output shaft for the reduction gear)

Calculate the average load torque of the output shaft for the reduction gear. (Downtime is not included.)

T_m	Average load torque (N-m)	2186

····· $T_m = \sqrt[\frac{10}{3}]{\dfrac{t_1 \bullet N_1 \bullet T_1^{\frac{10}{3}} + t_2 \bullet N_2 \bullet T_2^{\frac{10}{3}} + t_3 \bullet N_3 \bullet T_3^{\frac{10}{3}}}{t_1 \bullet N_1 + t_2 \bullet N_2 + t_3 \bullet N_3}}$

Selection of the reduction gear

Input of the specification values

Select a tentative model from the rating table.

Model	T_0 Rated Torque (N-m)	N_0 Rated Output Speed (rpm)	K Life Rating (Hr)	T_{S1} Allowable Acceleration/ Deceleration Torque (N-m)	T_{S2} Momentary Maximum Allowable Torque (N-m)	N_{S1} Allowable Output Speed [Continuous] (rpm)	N_{S2} Allowable Output Speed [Intermittent] (rpm)	M_0 Allowable Moment (N-m)	M_{S1} Momentary Maximum Allowable Moment (N-m)	F_0 Maximum Axial Load (N)	α Dimension α (mm)
006E	58	30	6000	117	294	60	100	196	392	1470	78.5
020E	167	15	6000	412	833	45	75	882	1764	3920	93.2
040E	412	15	6000	1029	2058	42	70	1666	3332	5194	114.1
080E	784	15	6000	1960	3920	42	70	2156	4312	7840	138.6
160E	1568	15	6000	3920	7840	27	45	3920	7840	14700	168.1
320E	**3136**	**15**	**6000**	**7840**	**15680**	**21**	**35**	**7056**	**14112**	**19600**	**203**

Comparison between the allowable output speed and the maximum actual output speed

Check the allowable output speed of the tentatively selected model.

N_{S1}	Allowable output speed [Continuous] (rpm)	21
N_{S2}	Allowable output speed [Intermittent] (rpm)	35

····· For the N_{S1} and N_{S2} values, refer to the rating table (page 9).

Check the maximum actual output speed of the tentatively selected model.

N_{max}	Maximum output speed (rpm)	20

····· $N_{max} = N_2$

◆Confirmation! "Is the maximum output speed the same as or lower than the allowable output speed?" → **OK**

Calculate the operation rate (operation time of the reduction gear/one operation cycle time).

O_P	Operation rate (%)	10

····· $O_P = \dfrac{t_1 + t_2 + t_3}{t_4} \times 100$

◆Confirmation! "Is the operation rate 50% or lower?" → **OK**

Note: If the operation rate is high, forced cooling may be required as a countermeasure against heating.

Comparison between the service life and the required life

Calculate the life of the tentatively selected model.

L_h	Life (Hr)	16647

····· $L_h = K \times \frac{N_0}{N_m} \times \left(\frac{T_0}{T_m}\right)^{\frac{10}{3}}$

For the K, N_0, T_0 values, refer to the rating table (page 8).

Q_1	Number of operation cycles per day (times)	8640
Q_2	Number of operating days per year (days)	365
Q_3	Number of operating hours per day (Hr)	2.4

····· $Q_3 = \frac{Q_1 \times (t_1 + t_2 + t_3)}{60 \times 60}$

Q_4	Number of operating hours per year (Hr)	876

····· $Q_4 = Q_3 \times Q_2$

Calculate the useful year of the tentatively selected model based on the operating hours.

L	Service life (year)	19.0

····· $L = \frac{L_h}{Q_4}$

L_{ex}	Required life (year)	10

◆**Confirmation! "Is the service life the same as or higher than the required life?"** ⟶ **OK**

Comparison between the allowable acceleration/deceleration torque and the maximum load torque

Check the allowable acceleration/deceleration torque of the tentatively selected model.

T_{S1}	Allowable acceleration/deceleration torque (N-m)	7840

····· For the T_{S1} value, refer to the rating table (page 8).

Check the maximum load torque that is applied to the reduction gear during operation.

T_{max}	Maximum load torque (N-m)	3776

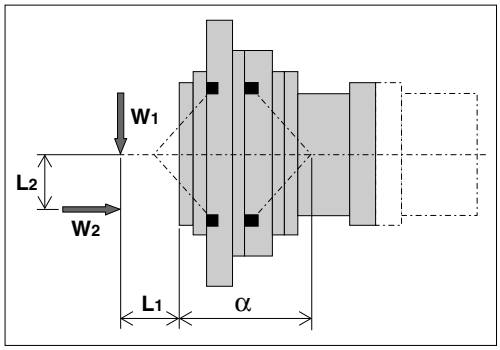
····· $T_{max} = T_1$

◆**Confirmation! "Is the maximum load torque the same as or lower than the allowableacceleration/deceleration torque?"** ⟶ **OK**

Input of the external load (output shaft for the reduction gear)

Input the external load that is applied to the output shaft for the reduction gear.

W_1	Radial load (N)	4900
L_1	Distance to the point of radial load application (mm)	100
W_2	Axial load (N)	0
L_2	Distance to the point of axial load application (mm)	0



Comparison between the allowable axial load and the axial load

Check the allowable axial load of the tentatively selected model.

F_0	Allowable axial load (N)	19600

····· For the F_0 value, refer to the rating table (page 9).

Check the axial load that is applied to the output shaft for the reduction gear during operation.

W_2	Axial load (N)	0

◆**Confirmation! "Is the axial load the same as or lower than the allowable axial load?"** ⟶ **OK**

Comparison between the allowable moment and the load moment

Check the allowable moment of the tentatively selected model.

M_0	Allowable moment (N-m)	7056

····· For the M_0 and α values, refer to the rating table (page 9).

Calculate the load moment that is applied to the output shaft for the reduction gear during operation.

M_C	Load moment (N-m)	1485

····· $M_C = \dfrac{W_1 \times (L_1 + \alpha) + W_2 \times L_2}{1000}$

◆Confirmation! "Is the load moment the same as or lower than the allowable moment?" ⟶ **OK**

Note: In the actual operation, it is necessary to check that the allowable moment range, which is indicated in the diagram on page 11, has not been exceeded.

Input of the selected motor characteristics

Input the motor specifications (i.e., torque, speed)

	Motor model	MMM-MM
P	Motor rated output (KW)	4.8
T_{M0}	Motor rated torque (N-m)	30
T_{M1}	Motor momentary maximum torque (N-m)	75
N_{M0}	Motor rated speed (rpm)	3000

Input of the speed ratio of the reduction gear

Calculate the maximum speed ratio based on the maximum speed of the output shaft for the reduction gear and the rated speed of the motor.

R_{max}	Maximum speed ratio of the reduction gear	150

····· $R_{max} = \dfrac{N_{M0}}{N_{max}}$

Select an optimal speed ratio from the rating table.

Model	Ratio code (R Speed ratio)				
006E	031 (31)	043 (43)	054 (53.5)	079 (79)	103 (103)
020E	041 (41)	057 (57)	081 (81)	105 (105)	161 (161)
040E	041 (41)	057 (57)	081 (81)	105 (105)	153 (153)
080E	041 (41)	057 (57)	081 (81)	101 (101)	153 (153)
160E	066 (66)	081 (81)	101 (101)	145 (145)	171 (171)
320E	066 (66)	081 (81)	101 (101)	**141 (141)**	185 (185)

Matching verification between the reduction gear and the motor

Check the operation conditions of the reduction gear.

N_m	Average output speed (rpm)	18
T_m	Average load torque (N-m)	2186

Input the efficiency of the reduction gear according to the efficiency charts shown on pages 12 and 13.

η_R	Efficiency of reduction gear	0.85

Note: When the reduction gear is used in a low temperature environment, refer to the charts of the low-temperature characteristics (no-load running torque under low temperature) shown on pages 14 and 15.

Input the speed ratio of the reduction gear.

R	Speed ratio of reduction gear	141

Calculate the average load torque of the input shaft for the reduction gear.

T_{in}	Average load torque of the input shaft for the reduction gear (N-m)	18.2	····· $T_{in} = \dfrac{T_m}{R \times \eta_R}$

◆Confirmation! "Is the average load torque of the input shaft for the reduction gear the same as or lower than the rated torque of the motor?" ⟶ OK

Note: If high detent torque is applied to the motor shaft when the reduction gear is halted, be sure to include this additional value.

Check the momentary maximum torque of the motor.

T_{M1}	Motor momentary maximum torque (N-m)	75

Calculate the maximum torque to be generated by the output shaft for the reduction gear at the point of motor momentary maximum torque.

T_{M1out}	Maximum torque generated at the output shaft for the reduction gear (N-m)	8989	····· $T_{M1out} = T_{M1} \bullet R \bullet \eta_R$

Check the momentary maximum allowable torque of the reduction gear.

T_{S2}	Momentary maximum allowable torque (N-m)	15680	····· For the T_{S2} value, refer to the rating table (page 9).

◆Confirmation! "Is the maximum torque generated at the output shaft for the reduction gear the same as or lower than the momentary maximum allowable torque?" ⟶ OK

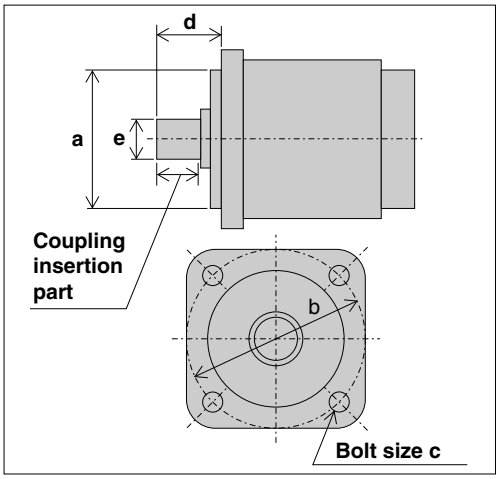
Note: If the maximum torque generated at the output shaft for the reduction gear exceeds the momentary maximum allowable torque, impose a limitation on the motor torque value.
Also, ensure that the shock torque, due to an emergency stop, is the same as or lower than the momentary maximum allowable torque.

Selection of the coupling and motor flange

Input of the selected motor shape

Input the motor specification (shape).

a	Motor mounting pilot diameter (mm)	Ø114.3 0 -0.025
b	Motor mounting bolt P.C.D (mm)	200
c	Motor mounting bolt size	M12
d	Motor shaft length (mm)	79
e	Motor shaft diameter (mm)	Ø35 +0.010 0



Selection of the coupling

Convert the momentary maximum allowable torque of the reduction gear to the torque on the input shaft side.

T_{S4}	Momentary maximum allowable torque on the input shaft side (N-m)	130.8

····· $T_{S4} = \frac{T_{S2}}{R} \times \frac{1}{\eta_R}$

The selected RD-320E-141 model is shown in External Dimension Drawing (2) of the reduction gear on page 57. According to this drawing, the dimensions of the spline shaft are 25 x 18 x 1.25. The motor shaft diameter of Ø35 (0 to Ø+0.010), is considered to be equivalent to the applicable shaft diameter of Ø35k6 (Ø+0.002 to Ø+0.018). Select the coupling code, which corresponds to the above spline and the applicable shaft, from the external dimension drawing of the coupling on page 73.

	Coupling code	CKB
D_{CP}	Coupling outside diameter (mm)	Ø82
S_{CP}	Coupling insertion length (mm)	33.5
T_{ai}	Coupling allowable transmission torque (N-m)	208.6

◆Confirmation!
"Is the coupling insertion length shorter than the coupling insertion length of the motor shaft?" → OK

Note: The motor shaft must be inserted to the coupling until its tip comes into contact with the partition plate of the coupling.

◆Confirmation! "Is the coupling allowable transmission torque the same as or more than the momentary maximum allowable torque on the input shaft side?" → OK

Note: The shock torque, due to an emergency stop, must not exceed the momentary maximum allowable torque.

Selection of the motor flange

The applicable reduction gear is noted on the upper right area in the external dimension drawing of the motor flange.The external dimension drawing of the applicable reduction gear (RD-320E) is shown on pages 88 to 91. Check each value according to the procedure below and then select the motor flange code from the external dimension drawing of the motor flange on page 89.
Motor mounting pilot diameter: Ø114.3 (Ø-0.025 to 0). Check it against value D.
Motor mounting bolt P.C.D: 200. Check it against value E.
Motor mounting bolt size: M12. Check it against value F.
Motor shaft length: 79. Check it against value "d" of the applicable motor shaft length.
Select the motor flange that meets the above conditions from the external dimension drawing of the motor flange.

	Motor flange code	MSF
H	Motor flange inside diameter (mm)	Ø137

◆Confirmation! "Is the motor flange inside diameter larger than the coupling outside diameter?" → OK

Note: If the coupling outside diameter is larger than the motor mounting pilot diameter, first connect the motor and the flange and then connect them to the coupling.

End of selections

Selected RD : RD - 320E - 141 - CKB - MSF

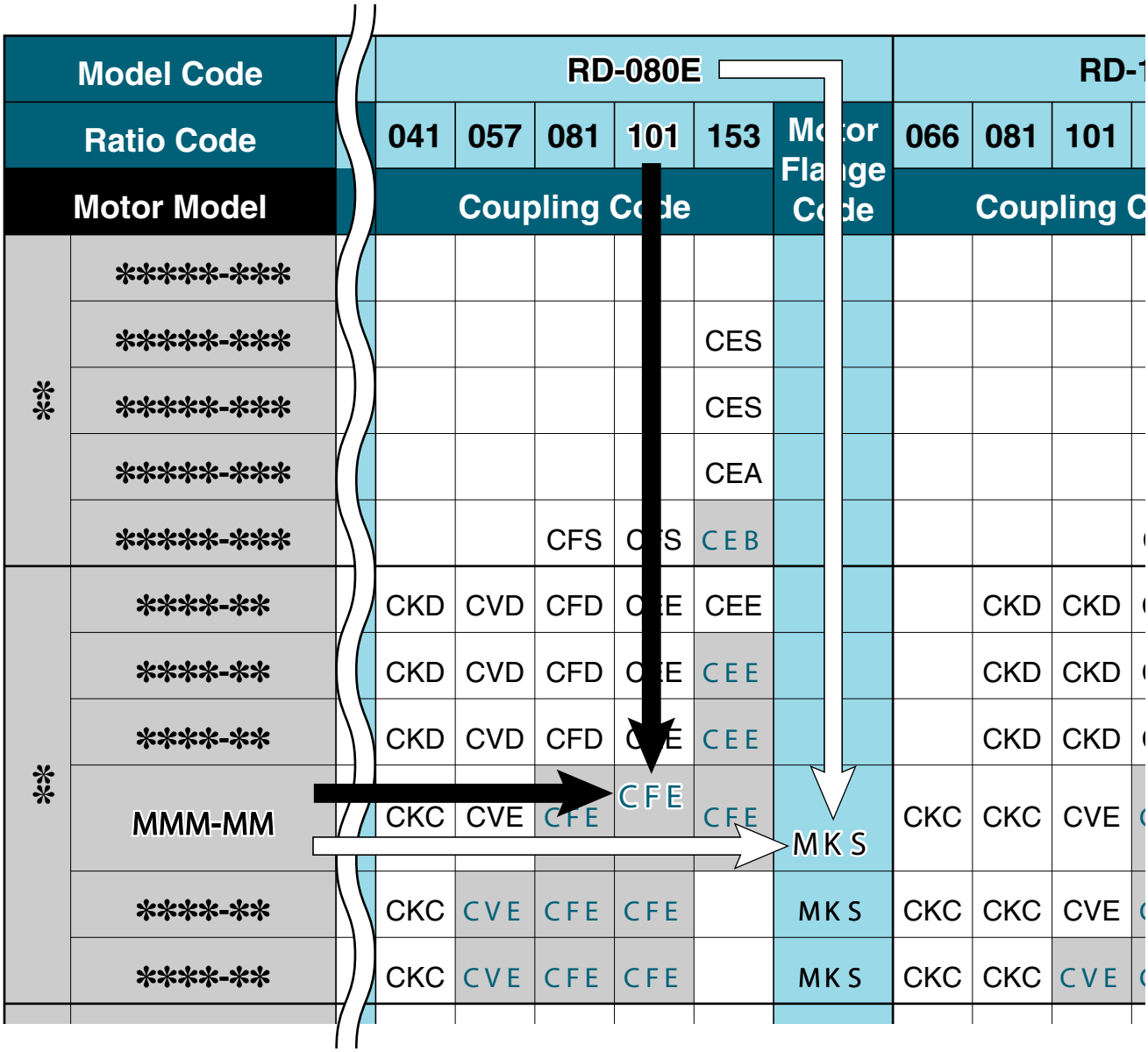
Model code | Ratio code | Coupling code | Motor flange code

Selected motor : MMM-MM

Note: Matching verification between the reduction gear and the motor in the above selection steps, should be used as a reference, since they have been matched based only on the torque comparisons during operation of the reduction gear. For more precise motor selection, the effective torque, load inertia moment, brake torque, regenerative ability, and so forth, must also be considered.

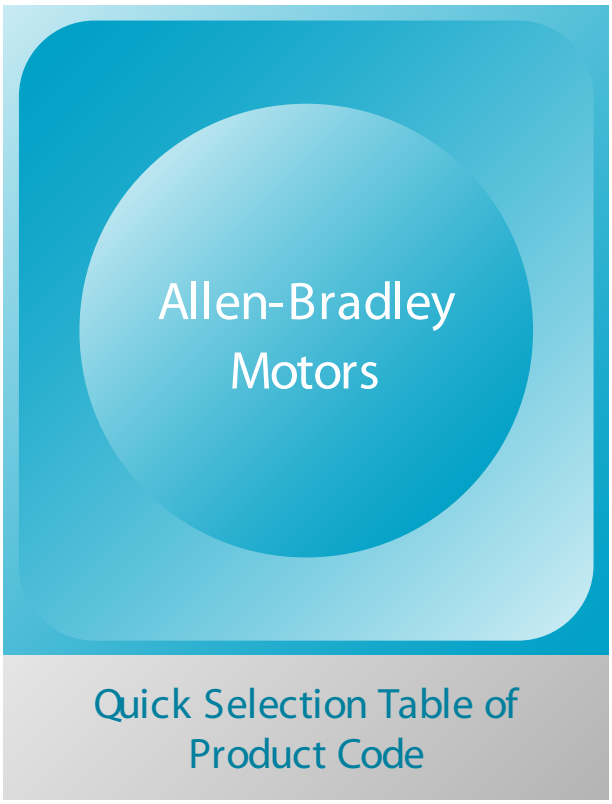
Quick Selection Table of Product Code

The coupling code and the motor flange code when the **RD-080E-101** is combined with the **MMM-MM** servo motor are selected in this table.
The point where black arrows from **MMM-MM** and from **RD-080E-101** intersect indicates the coupling code CFE.
The point where white arrows from **MMM-MM** and from **RD-080E** intersect indicates the motor flange code MKS.
In consequence of above, the product code of the selected RD series model is **RD-080E-101-CFE-MKS**.



Note: 1. Only the combinations that satisfy the following equation are colored.
(Rated torque of motor x 0.5) < {Rated torque of reduction gear / (Speed ratio x 0.8)} < (Rated torque of motor x 1.5)
2. The coupling is selected so that the following equation is satisfied.
(Allowable transmission torque of coupling) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}
3. Limitation must be imposed to the motor torque in the following case.
(Momentary maximum torque of motor) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}
4. The reduction gear should be selected so that the following equation is satisfied.
(Momentary maximum torque upon emergency stop) < {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}
5. Matching verification between the reduction gear and the motor in the above quick selection table, should be used as a reference, since they have been matched based only on the torque comparisons during operation of the reduction gear. For more precise motor selection, the effective torque, load inertia moment, brake torque, regenerative ability, and so forth, must also be considered.

*** A product code quick selection table for each motor model is provided in alphabetical order on the following pages.**



Quick Selection Table of Product Code

Allen-Bradley Motors and RD-E Series

Model Code		RD-006E						RD-020E						RD-040E						RD-080E						RD-160E						RD-320E					
Ratio Code		031	043	054	079	103	Motor Flange Code	041	057	081	105	161	Motor Flange Code	041	057	081	105	153	Motor Flange Code	041	057	081	101	153	Motor Flange Code	066	081	101	145	171	Motor Flange Code	066	081	101	141	185	Motor Flange Code
Motor Model		Coupling Code						Coupling Code						Coupling Code						Coupling Code						Coupling Code						Coupling Code					
1326AB	1326AB-B410J AM03	CAJ	CAJ	CAJ			MAY	CCC	CAJ	CAJ	CAJ	CAJ	MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	1326AB-B410G AM03	CAJ	CAJ	CAJ			MAY	CCC	CAJ	CAJ	CAJ		MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	1326AB-B410J AM04	CAJ	CAJ				MAY	CCC	CAJ	CAJ	CAJ		MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	1326AB-B410G AM04	CAJ	CAJ				MAY	CCC	CAJ	CAJ	CAJ		MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	1326AB-B410J AM05	CAJ	CAJ				MAY	CCC	CAJ	CAJ	CAJ		MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	1326AB-B420H AM03	CAJ	CAJ				MAY	CCC	CAJ	CAJ	CAJ		MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	1326AB-B420H AM04	CAJ					MAY	CCC	CAJ	CAJ			MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	1326AB-B420E AM03						MAY	CCC	CAJ	CAJ			MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	1326AB-B420E AM04						MAY	CCC	CAJ				MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	1326AB-B430E AM03						MAY	CCC	CAJ	CAJ			MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	1326AB-B430G AM04						MAY	CCC	CAJ				MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	1326AB-B430E AM04						MAY	CCC	CAJ				MAY			CEC	CEC	CEC	MKN					CEC	MKN												
F-4***	F-4030-Q 1398-DDM-020	CAF					MAV	CCB	CAF	CAF	CAF		MAV	CFS	CFS	CEB	CEB	CEB	MKL			CFS	CFS	CEB	MKL				CVS	CVS	MSB						MSB
	F-4030-Q 1398-DDM-019	CAF					MAV	CCB	CAF	CAF			MAV	CFS	CFS	CEB	CEB	CEB	MKL			CFS	CFS	CEB	MKL				CVS	CVS	MSB						MSB
	F-4050-Q 1398-DDM-019						MAV	CCB	CAF				MAV	CFS	CFS	CEB	CEB	CEB	MKL			CFS	CFS	CEB	MKL				CVS	CVS	MSB						MSB
	F-4050-Q 1398-DDM-030						MAV	CCB	CAF				MAV	CFS	CFS	CEB	CEB		MKL			CFS	CFS	CEB	MKL				CVS	CVS	MSB						MSB
	F-4075-R 1398-DDM-030						MAV	CCB					MAV	CFS	CFS	CEB	CEB		MKL			CFS	CFS	CEB	MKL				CVS	CVS	MSB						MSB
	F-4075-R 1398-DDM-075						MAV	CCB					MAV	CFS	CFS	CEB	CEB		MKL			CFS	CFS	CEB	MKL				CVS	CVS	MSB						MSB
F-6***	F-6100-R 1398-DDM-075													CJA	CJA				MKT	CKA	CKA	CJA	CJA		MKT	CKA	CKA	CKA	CKA	CKA	MSF				CKA	CKA	MSF
	F-6200-R 1398-DDM-075													CJA					MKT	CKA	CKA	CJA			MKT	CKA	CKA	CKA	CKA	CKA	MSF				CKA	CKA	MSF
	F-6200-R 1398-DDM-150													CJA					MKT	CKA	CKA	CJA			MKT	CKA	CKA	CKA	CKA	CKA	MSF				CKA	CKA	MSF
	F-6300-R 1398-DDM-075													CJA					MKT	CKA	CKA	CJA			MKT	CKA	CKA	CKA	CKA		MSF				CKA	CKA	MSF
	F-6300-R 1398-DDM-150													CJA					MKT	CKA	CKA	CJA			MKT	CKA	CKA	CKA	CKA		MSF				CKA	CKA	MSF

■ Allen-Bradley Motors and RD-E Series

Model Code		RD-006E						RD-020E						RD-040E						RD-080E						RD-160E						RD-320E					
Ratio Code		031	043	054	079	103	Motor Flange Code	041	057	081	105	161	Motor Flange Code	041	057	081	105	153	Motor Flange Code	041	057	081	101	153	Motor Flange Code	066	081	101	145	171	Motor Flange Code	066	081	101	141	185	Motor Flange Code
Motor Model		Coupling Code						Coupling Code						Coupling Code						Coupling Code						Coupling Code						Coupling Code					
MPL-A3**	MPL-A310P 1398-DDM-005	CAE	CAE	CAE	CAE	CAE	MAK		CAE	CAE	CAE	CAE	MAK						MKA						MKA												
	MPL-A320P 1398-DDM-005	CAE	CAE	CAE	CAE	CAE	MAK		CAE	CAE	CAE	CAE	MAK						MKA						MKA												
	MPL-A320H 1398-DDM-005	CAE	CAE	CAE	CAE		MAK		CAE	CAE	CAE	CAE	MAK						MKA						MKA												
	MPL-A310F 1398-DDM-005	CAE	CAE	CAE	CAE	CAE	MAK		CAE	CAE	CAE	CAE	MAK						MKA						MKA												
	MPL-A310P 1398-DDM-010	CAE	CAE	CAE	CAE		MAK		CAE	CAE	CAE	CAE	MAK						MKA						MKA												
	MPL-A310F 1398-DDM-010	CAE	CAE	CAE	CAE		MAK		CAE	CAE	CAE	CAE	MAK						MKA						MKA												
	MPL-A320P 1398-DDM-010	CAE	CAE	CAE	CAE		MAK		CAE	CAE	CAE	CAE	MAK						MKA						MKA												
	MPL-A320H 1398-DDM-010	CAE	CAE	CAE			MAK		CAE	CAE	CAE	CAE	MAK						MKA						MKA												
	MPL-A320H 1398-DDM-020	CAE	CAE	CAE			MAK		CAE	CAE	CAE	CAE	MAK						MKA						MKA												
	MPL-A320P 1398-DDM-020	CAE	CAE				MAK		CAE	CAE	CAE		MAK						MKA						MKA												
	MPL-A320P 1398-DDM-019	CAE	CAE				MAK		CAE	CAE	CAE		MAK						MKA						MKA												
	MPL-A320P 1398-DDM-030	CAE	CAE				MAK		CAE	CAE	CAE		MAK						MKA						MKA												
	MPL-A330P 1398-DDM-020	CAE					MAK		CAE	CAE	CAE		MAK						MKA						MKA												
	MPL-A330P 1398-DDM-019	CAE					MAK		CAE	CAE	CAE		MAK						MKA						MKA												

Note: 1. Only the combinations that satisfy the following equation are colored.
(Rated torque of motor x 0.5) < {Rated torque of reduction gear / (Speed ratio x 0.8)} < (Rated torque of motor x 1.5)

2. The coupling is selected so that the following equation is satisfied.
(Allowable transmission torque of coupling) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

3. Limitation must be imposed to the motor torque in the following case.
(Momentary maximum torque of motor) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

4. The reduction gear should be selected so that the following equation is satisfied.
(Momentary maximum torque upon emergency stop) < {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

5. Matching verification between the reduction gear and the motor in the above quick selection table, should be used as a reference, since they have been matched based only on the torque comparisons during operation of the reduction gear. For more precise motor selection, the effective torque, load inertia moment, brake torque, regenerative ability, and so forth, must also be considered.

Allen-Bradley Motors and RD-E Series

Model Code		RD-006E						RD-020E						RD-040E						RD-080E						RD-160E						RD-320E					
Ratio Code		031	043	054	079	103	Motor Flange Code	041	057	081	105	161	Motor Flange Code	041	057	081	105	153	Motor Flange Code	041	057	081	101	153	Motor Flange Code	066	081	101	145	171	Motor Flange Code	066	081	101	141	185	Motor Flange Code
Motor Model		Coupling Code						Coupling Code						Coupling Code						Coupling Code						Coupling Code						Coupling Code					
MPL-A4**	MPL-A430P 1398-DDM-020	CAJ					MAY	CCC	CAJ	CAJ	CAJ		MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	MPL-A430P 1398-DDM-019	CAJ					MAY	CCC	CAJ	CAJ			MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	MPL-A420P 1398-DDM-020	CAJ					MAY	CCC	CAJ	CAJ	CAJ		MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	MPL-A420P 1398-DDM-019	CAJ					MAY	CCC	CAJ	CAJ			MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	MPL-A420P 1398-DDM-030						MAY	CCC	CAJ	CAJ			MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	MPL-A430H 1398-DDM-020						MAY	CCC	CAJ	CAJ			MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	MPL-A430H 1398-DDM-019						MAY	CCC	CAJ				MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	MPL-A430P 1398-DDM-030						MAY	CCC	CAJ				MAY			CEC	CEC	CEC	MKN					CEC	MKN												
	MPL-A430H 1398-DDM-030						MAY	CCC	CAJ				MAY			CEC	CEC	CEC	MKN					CEC	MKN												

■ Allen-Bradley Motors and RD-C Series

Model Code		RD-010C						RD-027C					RD-050C					RD-100C					RD-200C					RD-320C				
Ratio Code		081	108	153	189	243	Motor Flange Code	100	142	184	233	Motor Flange Code	109	153	196	240	Motor Flange Code	101	150	210	258	Motor Flange Code	106	156	206	245	Motor Flange Code	115	157	207	253	Motor Flange Code
Motor Model		Coupling Code						Coupling Code					Coupling Code					Coupling Code					Coupling Code					Coupling Code				
1326AB	1326AB-B410J AM03	CBJ					MAY	CBJ	CBJ	CBJ	CBJ	MAY	CDC	CBJ	CBJ	CBJ	MAY		CEC	CEC	CEC	MKN					MKN					
	1326AB-B410G AM03	CBJ					MAY	CBJ	CBJ	CBJ	CBJ	MAY	CDC	CBJ	CBJ	CBJ	MAY		CEC	CEC	CEC	MKN					MKN					
	1326AB-B410J AM04	CBJ					MAY	CBJ	CBJ	CBJ	CBJ	MAY	CDC	CBJ	CBJ	CBJ	MAY		CEC	CEC	CEC	MKN					MKN					
	1326AB-B410G AM04						MAY	CBJ	CBJ	CBJ		MAY	CDC	CBJ	CBJ	CBJ	MAY		CEC	CEC	CEC	MKN					MKN					
	1326AB-B410J AM05						MAY	CBJ	CBJ	CBJ		MAY	CDC	CBJ	CBJ	CBJ	MAY		CEC	CEC	CEC	MKN					MKN					
	1326AB-B420H AM03	CBJ					MAY	CBJ	CBJ	CBJ	CBJ	MAY	CDC	CBJ	CBJ	CBJ	MAY		CEC	CEC	CEC	MKN					MKN					
	1326AB-B420H AM04						MAY	CBJ	CBJ			MAY	CDC	CBJ	CBJ	CBJ	MAY		CEC	CEC	CEC	MKN					MKN					
	1326AB-B420E AM03						MAY	CBJ				MAY	CDC	CBJ	CBJ	CBJ	MAY		CEC	CEC	CEC	MKN					MKN					
	1326AB-B420E AM04						MAY	CBJ				MAY	CDC	CBJ	CBJ		MAY		CEC	CEC	CEC	MKN					MKN					
	1326AB-B430E AM03						MAY	CBJ				MAY	CDC	CBJ	CBJ	CBJ	MAY		CEC	CEC	CEC	MKN					MKN					
	1326AB-B430G AM04						MAY	CBJ				MAY	CDC	CBJ	CBJ		MAY		CEC	CEC	CEC	MKN					MKN					
	1326AB-B430E AM04						MAY	CBJ				MAY	CDC	CBJ			MAY		CEC	CEC	CEC	MKN					MKN					
F-4***	F-4030-Q 1398-DDM-020						MAV	CBF	CBF			MAV	CDB	CBF	CBF	CBF	MAV	CFS	CEB	CEB	CEB	MKL			CVS	CVS	MKL					MSB
	F-4030-Q 1398-DDM-019						MAV	CBF	CBF			MAV	CDB	CBF	CBF	CBF	MAV	CFS	CEB	CEB	CEB	MKL			CVS	CVS	MKL					MSB
	F-4050-Q 1398-DDM-019						MAV	CBF				MAV	CDB	CBF	CBF		MAV	CFS	CEB	CEB	CEB	MKL			CVS	CVS	MKL					MSB
	F-4050-Q 1398-DDM-030						MAV					MAV	CDB	CBF			MAV	CFS	CEB	CEB	CEB	MKL			CVS	CVS	MKL					MSB
	F-4075-R 1398-DDM-030						MAV					MAV	CDB				MAV	CFS	CEB	CEB	CEB	MKL			CVS	CVS	MKL					MSB
	F-4075-R 1398-DDM-075						MAV					MAV	CDB				MAV	CFS	CEB	CEB	CEB	MKL			CVS	CVS	MKL					MSB
F-6***	F-6100-R 1398-DDM-075																	CJA	CJA			MKT	CKA	CKA	CKA	CKA	MKT	CLA	CLA	CLA	CLA	MSF
	F-6200-R 1398-DDM-075																	CJA				MKT	CKA	CKA	CKA	CKA	MKT	CLA	CLA	CLA	CLA	MSF
	F-6200-R 1398-DDM-150																	CJA				MKT	CKA	CKA	CKA	CKA	MKT	CLA	CLA	CLA	CLA	MSF
	F-6300-R 1398-DDM-075																	CJA				MKT	CKA	CKA	CKA		MKT	CLA	CLA	CLA	CLA	MSF
	F-6300-R 1398-DDM-150																	CJA				MKT	CKA	CKA	CKA		MKT	CLA	CLA	CLA	CLA	MSF

Note: 1. Only the combinations that satisfy the following equation are colored. (Rated torque of motor x 0.5) < {Rated torque of reduction gear / (Speed ratio x 0.8)} < (Rated torque of motor x 1.5)

2. The coupling is selected so that the following equation is satisfied. (Allowable transmission torque of coupling) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

3. Limitation must be imposed to the motor torque in the following case. (Momentary maximum torque of motor) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

4. The reduction gear should be selected so that the following equation is satisfied.
(Momentary maximum torque upon emergency stop) < {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

5. Matching verification between the reduction gear and the motor in the above quick selection table, should be used as a reference, since they have been matched based only on the torque comparisons during operation of the reduction gear. For more precise motor selection, the effective torque, load inertia moment, brake torque, regenerative ability, and so forth, must also be considered.

Allen-Bradley Motors and RD-C Series

Model Code		RD-010C						RD-027C					RD-050C					RD-100C					RD-200C					RD-320C				
Ratio Code		081	108	153	189	243	Motor Flange Code	100	142	184	233	Motor Flange Code	109	153	196	240	Motor Flange Code	101	150	210	258	Motor Flange Code	106	156	206	245	Motor Flange Code	115	157	207	253	Motor Flange Code
Motor Model		Coupling Code						Coupling Code					Coupling Code					Coupling Code					Coupling Code					Coupling Code				
MPL-A3**	MPL-A310P 1398-DDM-005	CBE	CBE	CBE	CBE	CBE	MAK	CBE	CBE	CBE	CBE	MAK		CBE	CBE	CBE	MAK					MKA					MKA				
	MPL-A320P 1398-DDM-005	CBE	CBE	CBE	CBE	CBE	MAK	CBE	CBE	CBE	CBE	MAK		CBE	CBE	CBE	MAK					MKA					MKA				
	MPL-A320H 1398-DDM-005	CBE	CBE				MAK	CBE	CBE	CBE	CBE	MAK		CBE	CBE	CBE	MAK					MKA					MKA				
	MPL-A310F 1398-DDM-005	CBE	CBE	CBE			MAK	CBE	CBE	CBE	CBE	MAK		CBE	CBE	CBE	MAK					MKA					MKA				
	MPL-A310P 1398-DDM-010	CBE	CBE	CBE			MAK	CBE	CBE	CBE	CBE	MAK		CBE	CBE	CBE	MAK					MKA					MKA				
	MPL-A310F 1398-DDM-010	CBE	CBE	CBE			MAK	CBE	CBE	CBE	CBE	MAK		CBE	CBE	CBE	MAK					MKA					MKA				
	MPL-A320P 1398-DDM-010	CBE	CBE				MAK	CBE	CBE	CBE	CBE	MAK		CBE	CBE	CBE	MAK					MKA					MKA				
	MPL-A320H 1398-DDM-010	CBE	CBE				MAK	CBE	CBE	CBE	CBE	MAK		CBE	CBE	CBE	MAK					MKA					MKA				
	MPL-A320H 1398-DDM-020	CBE					MAK	CBE	CBE	CBE	CBE	MAK		CBE	CBE	CBE	MAK					MKA					MKA				
	MPL-A320P 1398-DDM-020	CBE					MAK	CBE	CBE	CBE		MAK		CBE	CBE	CBE	MAK					MKA					MKA				
	MPL-A320P 1398-DDM-019	CBE					MAK	CBE	CBE	CBE		MAK		CBE	CBE	CBE	MAK					MKA					MKA				
	MPL-A320P 1398-DDM-030	CBE					MAK	CBE	CBE	CBE		MAK		CBE	CBE	CBE	MAK					MKA					MKA				
	MPL-A330P 1398-DDM-020						MAK	CBE	CBE	CBE		MAK		CBE	CBE	CBE	MAK					MKA					MKA				
	MPL-A330P 1398-DDM-019						MAK	CBE	CBE			MAK		CBE	CBE	CBE	MAK					MKA					MKA				

■ Allen-Bradley Motors and RD-C Series

Model Code		RD-010C						RD-027C					RD-050C					RD-100C					RD-200C					RD-320C				
Ratio Code		081	108	153	189	243	Motor Flange Code	100	142	184	233	Motor Flange Code	109	153	196	240	Motor Flange Code	101	150	210	258	Motor Flange Code	106	156	206	245	Motor Flange Code	115	157	207	253	Motor Flange Code
Motor Model		Coupling Code						Coupling Code					Coupling Code					Coupling Code					Coupling Code					Coupling Code				
MPL-A4**	MPL-A430P 1398-DDM-020						MAY	CBJ	CBJ			MAY	CDC	CBJ	CBJ	CBJ	MAY		CEC	CEC	CEC	MKN					MKN					
	MPL-A430P 1398-DDM-019						MAY	CBJ	CBJ			MAY	CDC	CBJ	CBJ	CBJ	MAY		CEC	CEC	CEC	MKN					MKN					
	MPL-A420P 1398-DDM-020						MAY	CBJ	CBJ			MAY	CDC	CBJ	CBJ	CBJ	MAY		CEC	CEC	CEC	MKN					MKN					
	MPL-A420P 1398-DDM-019						MAY	CBJ	CBJ			MAY	CDC	CBJ	CBJ	CBJ	MAY		CEC	CEC	CEC	MKN					MKN					
	MPL-A420P 1398-DDM-030						MAY	CBJ				MAY	CDC	CBJ	CBJ	CBJ	MAY		CEC	CEC	CEC	MKN					MKN					
	MPL-A430H 1398-DDM-020						MAY	CBJ				MAY	CDC	CBJ	CBJ	CBJ	MAY		CEC	CEC	CEC	MKN					MKN					
	MPL-A430H 1398-DDM-019						MAY	CBJ				MAY	CDC	CBJ	CBJ		MAY		CEC	CEC	CEC	MKN					MKN					
	MPL-A430P 1398-DDM-030						MAY	CBJ				MAY	CDC	CBJ	CBJ		MAY		CEC	CEC	CEC	MKN					MKN					
	MPL-A430H 1398-DDM-030						MAY	CBJ				MAY	CDC	CBJ			MAY		CEC	CEC	CEC	MKN					MKN					

Note: 1. Only the combinations that satisfy the following equation are colored.
(Rated torque of motor x 0.5) < {Rated torque of reduction gear / (Speed ratio x 0.8)} < (Rated torque of motor x 1.5)

2. The coupling is selected so that the following equation is satisfied.
(Allowable transmission torque of coupling) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

3. Limitation must be imposed to the motor torque in the following case.
(Momentary maximum torque of motor) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

4. The reduction gear should be selected so that the following equation is satisfied.
(Momentary maximum torque upon emergency stop) < {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

5. Matching verification between the reduction gear and the motor in the above quick selection table, should be used as a reference, since they have been matched based only on the torque comparisons during operation of the reduction gear. For more precise motor selection, the effective torque, load inertia moment, brake torque, regenerative ability, and so forth, must also be considered.

Allen-Bradley Motors and RD-G Series

Model Code		RD-07G				RD-17G				RD-40G			
Ratio Code		11	21	31	Motor Flange Code	11	21	31	Motor Flange Code	11	21	31	Motor Flange Code
Motor Model		Coupling Code				Coupling Code				Coupling Code			
1326AB	1326AB-B410J AM03		CEC	CEC	MKN				MKN				
	1326AB-B410G AM03		CEC	CEC	MKN				MKN				
	1326AB-B410J AM04		CEC	CEC	MKN				MKN				
	1326AB-B410G AM04		CEC	CEC	MKN				MKN				
	1326AB-B410J AM05		CEC	CEC	MKN				MKN				
	1326AB-B420H AM03		CEC	CEC	MKN				MKN				
	1326AB-B420H AM04		CEC	CEC	MKN				MKN				
	1326AB-B420E AM03		CEC	CEC	MKN				MKN				
	1326AB-B420E AM04		CEC	CEC	MKN				MKN				
	1326AB-B430E AM03		CEC	CEC	MKN				MKN				
	1326AB-B430G AM04		CEC	CEC	MKN				MKN				
	1326AB-B430E AM04		CEC		MKN				MKN				
F-4***	F-4030-Q 1398-DDM-020	CFS	CEB	CEB	MKL		CVS	CVS	MKL				MSB
	F-4030-Q 1398-DDM-019	CFS	CEB	CEB	MKL		CVS	CVS	MKL				MSB
	F-4050-Q 1398-DDM-019	CFS	CEB	CEB	MKL		CVS	CVS	MKL				MSB
	F-4050-Q 1398-DDM-030	CFS	CEB		MKL		CVS	CVS	MKL				MSB
	F-4075-R 1398-DDM-030	CFS			MKL		CVS	CVS	MKL				MSB
	F-4075-R 1398-DDM-075	CFS			MKL		CVS	CVS	MKL				MSB
F-6***	F-6100-R 1398-DDM-075	CJA			MKT	CKA	CKA	CKA	MKT		CLA	CLA	MSF
	F-6200-R 1398-DDM-075				MKT	CKA	CKA		MKT		CLA	CLA	MSF
	F-6200-R 1398-DDM-150				MKT	CKA	CKA		MKT		CLA	CLA	MSF
	F-6300-R 1398-DDM-075				MKT	CKA			MKT		CLA	CLA	MSF
	F-6300-R 1398-DDM-150				MKT	CKA			MKT		CLA	CLA	MSF

■ Allen-Bradley Motors and RD-G Series

Model Code		RD-07G				RD-17G				RD-40G			
Ratio Code		11	21	31	Motor Flange Code	11	21	31	Motor Flange Code	11	21	31	Motor Flange Code
Motor Model		Coupling Code				Coupling Code				Coupling Code			
MPL-A3**	MPL-A310P 1398-DDM-005				MKA				MKA				
	MPL-A320P 1398-DDM-005				MKA				MKA				
	MPL-A320H 1398-DDM-005				MKA				MKA				
	MPL-A310F 1398-DDM-005				MKA				MKA				
	MPL-A310P 1398-DDM-010				MKA				MKA				
	MPL-A310F 1398-DDM-010				MKA				MKA				
	MPL-A320P 1398-DDM-010				MKA				MKA				
	MPL-A320H 1398-DDM-010				MKA				MKA				
	MPL-A320H 1398-DDM-020				MKA				MKA				
	MPL-A320P 1398-DDM-020				MKA				MKA				
	MPL-A320P 1398-DDM-019				MKA				MKA				
	MPL-A320P 1398-DDM-030				MKA				MKA				
	MPL-A330P 1398-DDM-020				MKA				MKA				
	MPL-A330P 1398-DDM-019				MKA				MKA				
MPL-A4**	MPL-A430P 1398-DDM-020		CEC	CEC	MKN				MKN				
	MPL-A430P 1398-DDM-019		CEC	CEC	MKN				MKN				
	MPL-A420P 1398-DDM-020		CEC	CEC	MKN				MKN				
	MPL-A420P 1398-DDM-019		CEC	CEC	MKN				MKN				
	MPL-A420P 1398-DDM-030		CEC	CEC	MKN				MKN				
	MPL-A430H 1398-DDM-020		CEC	CEC	MKN				MKN				
	MPL-A430H 1398-DDM-019		CEC	CEC	MKN				MKN				
	MPL-A430P 1398-DDM-030		CEC	CEC	MKN				MKN				
	MPL-A430H 1398-DDM-030		CEC		MKN				MKN				

Note: 1. Only the combinations that satisfy the following equation are colored.
(Rated torque of motor x 0.5) < {Rated torque of reduction gear / (Speed ratio x 0.8)} < (Rated torque of motor x 1.5)

2. The coupling is selected so that the following equation is satisfied.
(Allowable transmission torque of coupling) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

3. Limitation must be imposed to the motor torque in the following case.
(Momentary maximum torque of motor) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

4. The reduction gear should be selected so that the following equation is satisfied.
(Momentary maximum torque upon emergency stop) < {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

5. Matching verification between the reduction gear and the motor in the above quick selection table, should be used as a reference, since they have been matched based only on the torque comparisons during operation of the reduction gear. For more precise motor selection, the effective torque, load inertia moment, brake torque, regenerative ability, and so forth, must also be considered.

Quick Selection Table of Product Code

SIEMENS Motors and RD-E Series

Model Code		RD-006E						RD-020E						RD-040E						RD-080E						RD-160E						RD-320E					
Ratio Code		031	043	054	079	103	Motor Flange Code	041	057	081	105	161	Motor Flange Code	041	057	081	105	153	Motor Flange Code	041	057	081	101	153	Motor Flange Code	066	081	101	145	171	Motor Flange Code	066	081	101	141	185	Motor Flange Code
Motor Model		Coupling Code						Coupling Code						Coupling Code						Coupling Code						Coupling Code						Coupling Code					
1FK7	1FK7 033-7AK71-1	CAC	CAC	CAC	CAC	CAC	MAD			CAC	CAC	CAC	MAD																								
	1FK7 040-5AK71-1	CAJ	CAJ	CAJ	CAJ	CAJ	MAK	CCC	CAJ	CAJ	CAJ	CAJ	MAK			CEC	CEC	CEC	MKA					CEC	MKA												
	1FK7 042-5AK71-1	CAJ	CAJ	CAJ			MAK	CCC	CAJ	CAJ	CAJ	CAJ	MAK			CEC	CEC	CEC	MKA					CEC	MKA												
	1FK7 043-7AK71-1	CAJ	CAJ	CAJ			MAK	CCC	CAJ	CAJ	CAJ	CAJ	MAK			CEC	CEC	CEC	MKA					CEC	MKA												
	1FK7 044-7AH71-1	CAJ	CAJ				MAK	CCC	CAJ	CAJ	CAJ		MAK			CEC	CEC	CEC	MKA					CEC	MKA												
	1FK7 061-7AH71-1						MAW	CCD	CCD	CCD			MAW	CFB	CED	CED	CED	CED	MKM		CVB	CFB	CED	CED	MKM				CVB	CVB							
	1FK7 060-5AH71-1						MAW	CCD	CCD	CCD			MAW	CFB	CED	CED	CED	CED	MKM		CVB	CFB	CED	CED	MKM				CVB	CVB							
	1FK7 080-5AH71-1													CJS	CJS	CJS	CJS	CJS	MKJ	CVC	CVC	CFC	CFC	CFC	MKJ	CKS	CVC	CVC	CVC	CVC	MSH				CKS	CVC	MSH
	1FK7 064-7AH71-1						MAW	CCD					MAW	CFB	CED	CED	CED		MKM		CVB	CFB	CED	CED	MKM				CVB	CVB							
	1FK7 063-5AH71-1						MAW	CCD					MAW	CFB	CED	CED	CED		MKM		CVB	CFB	CED	CED	MKM				CVB	CVB							
	1FK7 082-7AF71-1													CJS	CJS	CJS			MKJ	CVC	CVC	CFC	CFC	CFC	MKJ	CKS	CVC	CVC	CVC	CVC	MSH				CKS	CVC	MSH
	1FK7 083-5AH71-1													CJS	CJS				MKJ	CVC	CVC	CFC	CFC		MKJ	CKS	CVC	CVC	CVC	CVC	MSH				CKS	CVC	MSH
	1FK7 100-5AF71-1																		MKV	CMA	CMA				MKV	CMA	CMA	CMA	CMA	CMA	MSR	CWA	CWA	CMA	CMA	CMA	MSR
	1FK7 085-7AF71-1													CJS	CJS				MKJ	CVC	CVC	CFC	CFC		MKJ	CKS	CVC	CVC	CVC	CVC	MSH				CKS	CVC	MSH
	1FK7 101-5AF71-1																		MKV	CMA	CMA				MKV	CMA	CMA	CMA	CMA	CMA	MSR	CWA	CWA	CMA	CMA	CMA	MSR
	1FK7 103-5AF71-1																		MKV	CMA	CMA				MKV	CMA	CMA	CMA			MSR	CWA	CWA	CMA	CMA	CMA	MSR

■ SIEMENS Motors and RD-E Series

Model Code		RD-006E						RD-020E						RD-040E						RD-080E						RD-160E						RD-320E					
Ratio Code		031	043	054	079	103	Motor Flange Code	041	057	081	105	161	Motor Flange Code	041	057	081	105	153	Motor Flange Code	041	057	081	101	153	Motor Flange Code	066	081	101	145	171	Motor Flange Code	066	081	101	141	185	Motor Flange Code
Motor Model		Coupling Code						Coupling Code						Coupling Code						Coupling Code						Coupling Code						Coupling Code					
1FK6	1FK6 032-8AK71-1S	CAC	CAC	CAC	CAC	CAC	MAD			CAC	CAC	CAC	MAD																								
	1FK6 040-6AK71-1	CAJ	CAJ	CAJ	CAJ	CAJ	MAK	CCC	CAJ	CAJ	CAJ	CAJ	MAK			CEC	CEC	CEC	MKA					CEC	MKA												
	1FK6 042-6AF71-1	CAJ	CAJ	CAJ			MAK	CCC	CAJ	CAJ	CAJ		MAK			CEC	CEC	CEC	MKA					CEC	MKA												
	1FK6 060-6AF71-1						MAW	CCD	CCD	CCD			MAW	CFB	CED	CED	CED	CED	MKM		CVB	CFB	CED	CED	MKM				CVB	CVB							
	1FK6 080-6AF71-1													CJS	CJS	CJS	CJS	CJS	MKJ	CVC	CVC	CFC	CFC	CFC	MKJ	CKS	CVC	CVC	CVC	CVC	MSH				CKS	CVC	MSH
	1FK6 063-6AF71-1						MAW	CCD					MAW	CFB	CED	CED	CED		MKM		CVB	CFB	CED	CED	MKM				CVB	CVB							
	1FK6 083-6AF71-1													CJS	CJS				MKJ	CVC	CVC	CFC	CFC		MKJ	CKS	CVC	CVC	CVC	CVC	MSH				CKS	CVC	MSH
	1FK6 100-8AF71-1																		MKV	CMA	CMA				MKV	CMA	CMA	CMA	CMA	CMA	MSR	CWA	CWA	CMA	CMA	CMA	MSR
	1FK6 101-8AF71-1																		MKV	CMA	CMA				MKV	CMA	CMA	CMA	CMA	CMA	MSR	CWA	CWA	CMA	CMA	CMA	MSR
	1FK6 103-8AF71-1																		MKV	CMA	CMA				MKV	CMA	CMA	CMA			MSR	CWA	CWA	CMA	CMA	CMA	MSR

Note: 1. Only the combinations that satisfy the following equation are colored.
(Rated torque of motor x 0.5) < {Rated torque of reduction gear / (Speed ratio x 0.8)} < (Rated torque of motor x 1.5)

2. The coupling is selected so that the following equation is satisfied.
(Allowable transmission torque of coupling) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

3. Limitation must be imposed to the motor torque in the following case.
(Momentary maximum torque of motor) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

4. The reduction gear should be selected so that the following equation is satisfied.
(Momentary maximum torque upon emergency stop) < {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

5. Matching verification between the reduction gear and the motor in the above quick selection table, should be used as a reference, since they have been matched based only on the torque comparisons during operation of the reduction gear. For more precise motor selection, the effective torque, load inertia moment, brake torque, regenerative ability, and so forth, must also be considered.

■ SIEMENS Motors and RD-E Series

Model Code		RD-006E						RD-020E						RD-040E						RD-080E						RD-160E						RD-320E					
Ratio Code		031	043	054	079	103	Motor Flange Code	041	057	081	105	161	Motor Flange Code	041	057	081	105	153	Motor Flange Code	041	057	081	101	153	Motor Flange Code	066	081	101	145	171	Motor Flange Code	066	081	101	141	185	Motor Flange Code
Motor Model		Coupling Code						Coupling Code						Coupling Code						Coupling Code						Coupling Code						Coupling Code					
1FT 6	1FT6 021-6AK71-																																				
	1FT6 024-6AK71-																																				
	1FT6 031-4AK71-	CAC	CAC	CAC	CAC	CAC	MAD			CAC	CAC	CAC	MAD																								
	1FT6 034-4AK71-	CAC	CAC	CAC	CAC		MAD			CAC	CAC	CAC	MAD																								
	1FT6 041-4AK71-	CAJ	CAJ	CAJ			MAK	CCC	CAJ	CAJ	CAJ	CAJ	MAK			CEC	CEC	CEC	MKA					CEC	MKA												
	1FT6 061-6AK7M-	CCD	CCD				MAW	CCD	CCD	CCD	CCD		MAW	CFB	CED	CED	CED	CED	MKM		CVB	CFB	CED	CED	MKM				CVB	CVB							
	1FT6 044-4AK71-	CAJ					MAK	CCC	CAJ	CAJ			MAK			CED	CED	CEC	MKA					CEC	MKA												
	1FT6 062-6AK7M-						MAW	CCD	CCD	CCD			MAW	CFB	CED	CED	CED	CED	MKM		CVB	CFB	CED	CED	MKM				CVB	CVB							
	1FT6 081-8AK7M-													CJS	CJS	CJS	CJS	CJS	MKJ	CVC	CVC	CFC	CFC	CFC	MKJ	CKS	CVC	CVC	CVC	CVC	MSH				CKS	CVC	MSH
	1FT6 064-6AK7M-						MAW	CCD					MAW	CFB	CED	CED	CED		MKM		CVB	CFB	CED	CED	MKM				CVB	CVB							
	1FT6 082-8AK7M-													CJS	CJS	CJS			MKJ	CVC	CVC	CFC	CFC	CFC	MKJ	CKS	CVC	CVC	CVC	CVC	MSH				CKS	CVC	MSH
	1FT6 084-8AK7M-													CJS	CJS				MKJ	CVC	CVC	CFC	CFC		MKJ	CKS	CVC	CVC	CVC	CVC	MSH				CKS	CVC	MSH
	1FT6 086-8AH7M-													CJS					MKJ	CVC	CVC	CFC			MKJ	CKS	CVC	CVC	CVC	CVC	MSH				CKS	CVC	MSH
	1FT6 102-8AH7M-																		MKV	CMA	CMA				MKV	CMA	CMA	CMA	CMA	CMA	MSR	CWA	CWA	CMA	CMA	CMA	MSR
	1FT6 105-8AF7M-																		MKV	CMA					MKV	CMA	CMA				MSR	CWA	CWA	CMA	CMA	CMA	MSR
	1FT6 132-6AF71-																																				

■ SIEMENS Motors and RD-C Series

Model Code		RD-010C						RD-027C					RD-050C					RD-100C					RD-200C					RD-320C				
Ratio Code		081	108	153	189	243	Motor Flange Code	100	142	184	233	Motor Flange Code	109	153	196	240	Motor Flange Code	101	150	210	258	Motor Flange Code	106	156	206	245	Motor Flange Code	115	157	207	253	Motor Flange Code
Motor Model		Coupling Code						Coupling Code					Coupling Code					Coupling Code					Coupling Code					Coupling Code				
1FK7	1FK7 033-7AK71-1	CBC	CBC	CBC	CBC	CBC	MAD	CBC	CBC	CBC	CBC	MAD			CBC	CBC	MAD															
	1FK7 040-5AK71-1	CBJ	CBJ	CBJ			MAK	CBJ	CBJ	CBJ	CBJ	MAK	CDC	CBJ	CBJ	CBJ	MAK		CEC	CEC	CEC	MKA					MKA				
	1FK7 042-5AK71-1	CBJ					MAK	CBJ	CBJ	CBJ	CBJ	MAK	CDC	CBJ	CBJ	CBJ	MAK		CEC	CEC	CEC	MKA					MKA				
	1FK7 043-7AK71-1	CBJ					MAK	CBJ	CBJ	CBJ	CBJ	MAK	CDC	CBJ	CBJ	CBJ	MAK		CEC	CEC	CEC	MKA					MKA				
	1FK7 044-7AH71-1	CBJ					MAK	CBJ	CBJ	CBJ		MAK	CDC	CBJ	CBJ	CBJ	MAK		CEC	CEC	CEC	MKA					MKA				
	1FK7 061-7AH71-1						MAW	CDD				MAW	CDD	CDD	CDD	CDD	MAW	CFB	CED	CED	CED	MKM		CVB	CVB	CVB	MKM				CHB	
	1FK7 060-5AH71-1						MAW	CDD				MAW	CDD	CDD	CDD	CDD	MAW	CFB	CED	CED	CED	MKM		CVB	CVB	CVB	MKM				CHB	
	1FK7 080-5AH71-1																	CFC	CFC	CFC	CFC	MKJ	CVC	CVC	CVC	CVC	MKJ	CLS	CLS	CHC	CHC	MSH
	1FK7 064-7AH71-1						MAW					MAW	CDD				MAW	CFB	CED	CED	CED	MKM		CVB	CVB	CVB	MKM				CHB	
	1FK7 063-5AH71-1						MAW					MAW	CDD				MAW	CFB	CED	CED	CED	MKM		CVB	CVB	CVB	MKM				CHB	
	1FK7 082-7AF71-1																	CFC	CFC	CFC		MKJ	CVC	CVC	CVC	CVC	MKJ	CLS	CLS	CHC	CHC	MSH
	1FK7 083-5AH71-1																	CFC	CFC			MKJ	CVC	CVC	CVC	CVC	MKJ	CLS	CLS	CHC	CHC	MSH
	1FK7 100-5AF71-1																					MKV	CMA	CMA	CMA	CMA	MKV	CNA	CNA	CNA	CNA	MSR
	1FK7 085-7AF71-1																	CFC				MKJ	CVC	CVC	CVC	CVC	MKJ	CLS	CLS	CHC	CHC	MSH
	1FK7 101-5AF71-1																					MKV	CMA	CMA	CMA		MKV	CNA	CNA	CNA	CNA	MSR
	1FK7 103-5AF71-1																					MKV	CMA	CMA			MKV	CNA	CNA	CNA	CNA	MSR

Note: 1. Only the combinations that satisfy the following equation are colored.
(Rated torque of motor x 0.5) < {Rated torque of reduction gear / (Speed ratio x 0.8)} < (Rated torque of motor x 1.5)

2. The coupling is selected so that the following equation is satisfied.
(Allowable transmission torque of coupling) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

3. Limitation must be imposed to the motor torque in the following case.
(Momentary maximum torque of motor) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

4. The reduction gear should be selected so that the following equation is satisfied.
(Momentary maximum torque upon emergency stop) < {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

5. Matching verification between the reduction gear and the motor in the above quick selection table, should be used as a reference, since they have been matched based only on the torque comparisons during operation of the reduction gear. For more precise motor selection, the effective torque, load inertia moment, brake torque, regenerative ability, and so forth, must also be considered.

■ SIEMENS Motors and RD-C Series

Model Code		RD-010C						RD-027C					RD-050C					RD-100C					RD-200C					RD-320C				
Ratio Code		081	108	153	189	243	Motor Flange Code	100	142	184	233	Motor Flange Code	109	153	196	240	Motor Flange Code	101	150	210	258	Motor Flange Code	106	156	206	245	Motor Flange Code	115	157	207	253	Motor Flange Code
Motor Model		Coupling Code						Coupling Code					Coupling Code					Coupling Code					Coupling Code					Coupling Code				
1FK6	1FK6 032-8AK71-1S	CBC	CBC	CBC	CBC	CBC	MAD	CBC	CBC	CBC	CBC	MAD			CBC	CBC	MAD															
	1FK6 040-6AK71-1	CBJ	CBJ	CBJ			MAK	CBJ	CBJ	CBJ	CBJ	MAK	CDC	CBJ	CBJ	CBJ	MAK		CEC	CEC	CEC	MKA					MKA				
	1FK6 042-6AF71-1	CBJ					MAK	CBJ	CBJ	CBJ	CBJ	MAK	CDC	CBJ	CBJ	CBJ	MAK		CEC	CEC	CEC	MKA					MKA				
	1FK6 060-6AF71-1						MAW	CDD				MAW	CDD	CDD	CDD	CDD	MAW	CFB	CED	CED	CED	MKM		CVB	CVB	CVB	MKM				CHB	
	1FK6 080-6AF71-1																	CFC	CFC	CFC	CFC	MKJ	CVC	CVC	CVC	CVC	MKJ	CLS	CLS	CHC	CHC	MSH
	1FK6 063-6AF71-1						MAW					MAW	CDD				MAW	CFB	CED	CED	CED	MKM		CVB	CVB	CVB	MKM				CHB	
	1FK6 083-6AF71-1																	CFC	CFC			MKJ	CVC	CVC	CVC	CVC	MKJ	CLS	CLS	CHC	CHC	MSH
	1FK6 100-8AF71-1																					MKV	CMA	CMA	CMA	CMA	MKV	CNA	CNA	CNA	CNA	MSR
	1FK6 101-8AF71-1																					MKV	CMA	CMA	CMA		MKV	CNA	CNA	CNA	CNA	MSR
	1FK6 103-8AF71-1																					MKV	CMA	CMA			MKV	CNA	CNA	CNA	CNA	MSR

■ SIEMENS Motors and RD-C Series

Model Code		RD-010C						RD-027C					RD-050C					RD-100C					RD-200C					RD-320C				
Ratio Code		081	108	153	189	243	Motor Flange Code	100	142	184	233	Motor Flange Code	109	153	196	240	Motor Flange Code	101	150	210	258	Motor Flange Code	106	156	206	245	Motor Flange Code	115	157	207	253	Motor Flange Code
Motor Model		Coupling Code						Coupling Code					Coupling Code					Coupling Code					Coupling Code					Coupling Code				
1FT 6	1FT6 021-6AK71-																														
	1FT6 024-6AK71-																														
	1FT6 031-4AK71-	CBC	CBC	CBC	CBC	CBC	MAD	CBC	CBC	CBC	CBC	MAD			CBC	CBC	MAD														
	1FT6 034-4AK71-	CBC	CBC				MAD	CBC	CBC	CBC	CBC	MAD			CBC	CBC	MAD														
	1FT6 041-4AK71-	CBJ	CBJ				MAK	CBJ	CBJ	CBJ	CBJ	MAK	CDC	CBJ	CBJ	CBJ	MAK		CEC	CEC	CEC	MKA					MKA				
	1FT6 061-6AK7M-						MAW	CDD	CDD	CDD		MAW	CDD	CDD	CDD	CDD	MAW	CFB	CED	CED	CED	MKM		CVB	CVB	CVB	MKM				CHB	
	1FT6 044-4AK71-						MAK	CBJ	CBJ			MAK	CDC	CBJ	CBJ	CBJ	MAK		CEC	CEC	CEC	MKA					MKA				
	1FT6 062-6AK7M-						MAW	CDD				MAW	CDD	CDD	CDD	CDD	MAW	CFB	CED	CED	CED	MKM		CVB	CVB	CVB	MKM				CHB	
	1FT6 081-8AK7M-																	CFC	CFC	CFC	CFC	MKJ	CVC	CVC	CVC	CVC	MKJ	CLS	CLS	CHC	CHC	MSH
	1FT6 064-6AK7M-						MAW					MAW	CDD	CDD			MAW	CFB	CED	CED	CED	MKM		CVB	CVB	CVB	MKM				CHB	
	1FT6 082-8AK7M-																	CFC	CFC	CFC		MKJ	CVC	CVC	CVC	CVC	MKJ	CLS	CLS	CHC	CHC	MSH
	1FT6 084-8AK7M-																	CFC	CFC			MKJ	CVC	CVC	CVC	CVC	MKJ	CLS	CLS	CHC	CHC	MSH
	1FT6 086-8AH7M-																	CFC				MKJ	CVC	CVC	CVC		MKJ	CLS	CLS	CHC	CHC	MSH
	1FT6 102-8AH7M-																					MKV	CMA	CMA	CMA		MKV	CNA	CNA	CNA	CNA	MSR
	1FT6 105-8AF7M-																					MKV	CMA				MKV	CNA	CNA			MSR
	1FT6 132-6AF71-																															

Note: 1. Only the combinations that satisfy the following equation are colored.
(Rated torque of motor x 0.5) < {Rated torque of reduction gear / (Speed ratio x 0.8)} < (Rated torque of motor x 1.5)

2. The coupling is selected so that the following equation is satisfied.
(Allowable transmission torque of coupling) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

3. Limitation must be imposed to the motor torque in the following case.
(Momentary maximum torque of motor) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

4. The reduction gear should be selected so that the following equation is satisfied.
(Momentary maximum torque upon emergency stop) < {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

5. Matching verification between the reduction gear and the motor in the above quick selection table, should be used as a reference, since they have been matched based only on the torque comparisons during operation of the reduction gear. For more precise motor selection, the effective torque, load inertia moment, brake torque, regenerative ability, and so forth, must also be considered.

SIEMENS Motors and RD-G Series

Model Code		RD-07G				RD-17G				RD-40G			
Ratio Code		11	21	31	Motor Flange Code	11	21	31	Motor Flange Code	11	21	31	Motor Flange Code
Motor Model		Coupling Code				Coupling Code				Coupling Code			
1FK 7	1FK7 033-7AK71-1												
	1FK7 040-5AK71-1		CEC	CEC	MKA				MKA				
	1FK7 042-5AK71-1		CEC	CEC	MKA				MKA				
	1FK7 043-7AK71-1		CEC	CEC	MKA				MKA				
	1FK7 044-7AH71-1		CEC	CEC	MKA				MKA				
	1FK7 061-7AH71-1	CFB	CED	CED	MKM		CVB	CVB	MKM				
	1FK7 060-5AH71-1	CFB	CED	CED	MKM		CVB	CVB	MKM				
	1FK7 080-5AH71-1	CFC	CFC		MKJ	CKS	CVC	CVC	MKJ		CLS	CHC	MSH
	1FK7 064-7AH71-1	CFB			MKM		CVB	CVB	MKM				
	1FK7 063-5AH71-1	CFB			MKM		CVB	CVB	MKM				
	1FK7 082-7AF71-1	CFC			MKJ	CKS	CVC	CVC	MKJ		CLS	CHC	MSH
	1FK7 083-5AH71-1	CFC			MKJ	CKS	CVC	CVC	MKJ		CLS	CHC	MSH
	1FK7 100-5AF71-1				MKV	CMA	CMA		MKV	CWA	CNA	CNA	MSR
	1FK7 085-7AF71-1				MKJ	CKS	CVC		MKJ		CLS	CHC	MSH
	1FK7 101-5AF71-1				MKV	CMA			MKV	CWA	CNA	CNA	MSR
	1FK7 103-5AF71-1				MKV	CMA			MKV	CWA	CNA	CNA	MSR

Note: 1. Only the combinations that satisfy the following equation are colored.
(Rated torque of motor x 0.5) < {Rated torque of reduction gear / (Speed ratio x 0.8)} < (Rated torque of motor x 1.5)

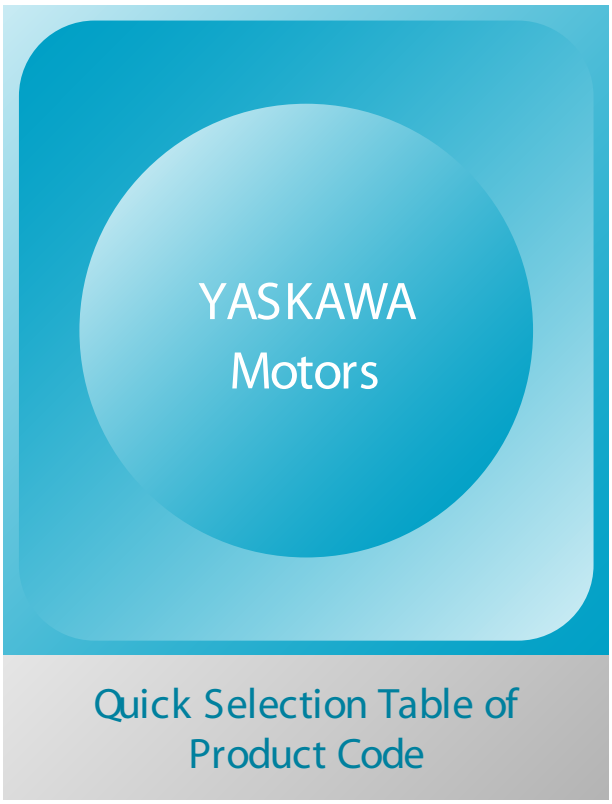
2. The coupling is selected so that the following equation is satisfied.
(Allowable transmission torque of coupling) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

3. Limitation must be imposed to the motor torque in the following case.
(Momentary maximum torque of motor) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

4. The reduction gear should be selected so that the following equation is satisfied.
(Momentary maximum torque upon emergency stop) < {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

5. Matching verification between the reduction gear and the motor in the above quick selection table, should be used as a reference, since they have been matched based only on the torque comparisons during operation of the reduction gear. For more precise motor selection, the effective torque, load inertia moment, brake torque, regenerative ability, and so forth, must also be considered.

Model Code		RD-07G				RD-17G				RD-40G			
Ratio Code		11	21	31	Motor Flange Code	11	21	31	Motor Flange Code	11	21	31	Motor Flange Code
Motor Model		Coupling Code				Coupling Code				Coupling Code			
1FK 6	1FK6 032-8AK71-1S												
	1FK6 040-6AK71-1		CEC	CEC	MKA				MKA				
	1FK6 042-6AF71-1		CEC	CEC	MKA				MKA				
	1FK6 060-6AF71-1	CFB	CED	CED	MKM		CVB	CVB	MKM				
	1FK6 080-6AF71-1	CFC	CFC		MKJ	CKS	CVC	CVC	MKJ		CLS	CHC	MSH
	1FK6 063-6AF71-1	CFB			MKM		CVB	CVB	MKM				
	1FK6 083-6AF71-1	CFC			MKJ	CKS	CVC	CVC	MKJ		CLS	CHC	MSH
	1FK6 100-8AF71-1				MKV	CMA	CMA		MKV	CWA	CNA	CNA	MSR
	1FK6 101-8AF71-1				MKV	CMA			MKV	CWA	CNA	CNA	MSR
	1FK6 103-8AF71-1				MKV	CMA			MKV	CWA	CNA	CNA	MSR
1FT 6	1FT6 021-6AK71-												
	1FT6 024-6AK71-												
	1FT6 031-4AK71-												
	1FT6 034-4AK71-												
	1FT6 041-4AK71-		CEC	CEC	MKA				MKA				
	1FT6 061-6AK7M-	CFB	CED	CED	MKM		CVB	CVB	MKM				
	1FT6 044-4AK71-		CEC	CEC	MKA				MKA				
	1FT6 062-6AK7M-	CFB	CED	CED	MKM		CVB	CVB	MKM				
	1FT6 081-8AK7M-	CFC	CFC		MKJ	CKS	CVC	CVC	MKJ		CLS	CHC	MSH
	1FT6 064-6AK7M-	CFB	CED		MKM		CVB	CVB	MKM				
	1FT6 082-8AK7M-	CFC			MKJ	CKS	CVC	CVC	MKJ		CLS	CHC	MSH
	1FT6 084-8AK7M-	CFC			MKJ	CKS	CVC		MKJ		CLS	CHC	MSH
	1FT6 086-8AH7M-				MKJ	CKS			MKJ		CLS	CHC	MSH
	1FT6 102-8AH7M-				MKV	CMA			MKV	CWA	CNA	CNA	MSR
	1FT6 105-8AF7M-				MKV				MKV	CWA	CNA		MSR
	1FT6 132-6AF71-												



Quick Selection Table of Product Code

■ YASKAWA Motors and RD-E Series

Model Code		RD-006E						RD-020E						RD-040E						RD-080E						RD-160E						RD-320E					
Ratio Code		031	043	054	079	103	Motor Flange Code	041	057	081	105	161	Motor Flange Code	041	057	081	105	153	Motor Flange Code	041	057	081	101	153	Motor Flange Code	066	081	101	145	171	Motor Flange Code	066	081	101	141	185	Motor Flange Code
Motor Model		Coupling Code						Coupling Code						Coupling Code						Coupling Code						Coupling Code						Coupling Code					
AH	SGMAH-01A		CAS	CAS	CAS	CAS	MAA				CAS	CAS	MAA																								
	SGMAH-02A	CAB	CAB	CAB	CAB	CAB	MAF			CAB	CAB	CAB	MAF						MKD						MKD												
	SGMAH-04A	CAB	CAB	CAB	CAB		MAF			CAB	CAB	CAB	MAF						MKD						MKD												
	SGMAH-08A	CAD	CAD				MAM			CAD	CAD		MAM					CEA	MKC						MKC												
DH	SGMDH-22A													CFE	CFE					CKC	CVE	CFE	CFE				CKC	CVE	CVE	CVE					CKC	CVE	
	SGMDH-32A													CFE						CKC	CVE	CFE	CFE				CKC	CVE	CVE	CVE					CKC	CVE	
	SGMDH-40A																																				
GH1.0	SGMGH-03A	CAF	CAF				MAT	CCB	CAF	CAF	CAF		MAT	CFS	CFS	CEB	CEB	CEB	MKK			CFS	CFS	CEB	MKK				CVS	CVS	MSA						MSA
	SGMGH-06A						MAT	CCB	CAF				MAT	CFS	CFS	CEB	CEB	CEB	MKK			CFS	CFS	CEB	MKK				CVS	CVS	MSA						MSA
	SGMGH-09A													CFA	CFA	CFA	CFA		MKK		CVA	CFA	CFA	CFA	MKK				CVA	CVA	MSA						MSA
	SGMGH-12A													CJB	CJB	CJB			MKT	CKB	CKB	CJB	CJB	CJB	MKT	CKB	CKB	CKB	CKB	CKB	MSF	CWS	CWS	CKB	CKB	CKB	MSF
	SGMGH-20A													CJB					MKT	CKB	CKB	CJB	CJB		MKT	CKB	CKB	CKB	CKB	CKB	MSF	CWS	CWS	CKB	CKB	CKB	MSF
	SGMGH-30A																		MKT	CKB	CKB				MKT	CKB	CKB	CKB			MSF	CWS	CWS	CKB	CKB	CKB	MSF
	SGMGH-40A																			CMB						CMB	CMB				RST	CWB	CNB	CMB	CMB		RST
	SGMGH-55A																									CMB					RST	CWB	CNB	CMB	CMB		RST
GH1.5	SGMGH-05A	CAF					MAT	CCB	CAF	CAF	CAF		MAT	CFS	CFS	CEB	CEB	CEB	MKK			CFS	CFS	CEB	MKK				CVS	CVS	MSA						MSA
	SGMGH-09A						MAT	CCB	CAF				MAT	CFS	CFS	CEB	CEB	CEB	MKK			CFS	CFS	CEB	MKK				CVS	CVS	MSA						MSA
	SGMGH-13A													CFA	CFA	CFA	CFA		MKK		CVA	CFA	CFA	CFA	MKK				CVA	CVA	MSA						MSA
	SGMGH-20A													CJB	CJB	CJB			MKT	CKB	CKB	CJB	CJB	CJB	MKT	CKB	CKB	CKB	CKB	CKB	MSF	CWS	CWS	CKB	CKB	CKB	MSF
	SGMGH-30A													CJB					MKT	CKB	CKB	CJB	CJB		MKT	CKB	CKB	CKB	CKB	CKB	MSF	CWS	CWS	CKB	CKB	CKB	MSF
	SGMGH-44A																		MKT	CKB	CKB				MKT	CKB	CKB	CKB			MSF	CWS	CWS	CKB	CKB	CKB	MSF
	SGMGH-55A																			CMB						CMB	CMB	CMB			RST	CWB	CNB	CMB	CMB	CMB	RST
	SGMGH-75A																									CMB	CMB				RST	CWB	CNB	CMB	CMB		RST

■ YASKAWA Motors and RD-E Series

Model Code		RD-006E						RD-020E						RD-040E						RD-080E						RD-160E						RD-320E					
Ratio Code		031	043	054	079	103	Motor Flange Code	041	057	081	105	161	Motor Flange Code	041	057	081	105	153	Motor Flange Code	041	057	081	101	153	Motor Flange Code	066	081	101	145	171	Motor Flange Code	066	081	101	141	185	Motor Flange Code
Motor Model		Coupling Code						Coupling Code						Coupling Code						Coupling Code						Coupling Code						Coupling Code					
PH	SGMPH-01A		CAS	CAS	CAS	CAS	MAF				CAS	CAS	MAF																								
	SGMPH-02A	CAB	CAB	CAB	CAB	CAB		CCS	CCS	CAB	CAB	CAB					CES	CES						CES												
	SGMPH-04A	CAB	CAB	CAB	CAB			CCS	CCS	CAB	CAB	CAB					CES	CES						CES												
	SGMPH-08A	CAD	CAD					CCA	CAD	CAD	CAD					CEA	CEA	CEA						CEA												
	SGMPH-15A							CCB	CAF	CAF	CAF			CFS	CFS	CEB	CEB	CEB				CFS	CFS	CEB					CVS	CVS							
SH	SGMSH-10A	CCE						CCE	CCE	CCE	CCE			CFD	CEE	CEE	CEE	CEE			CVD	CFD	CEE	CEE				CKD	CVD	CVD						CKD	
	SGMSH-15A							CCE	CCE					CFD	CEE	CEE	CEE	CEE			CVD	CFD	CEE	CEE				CKD	CVD	CVD						CKD	
	SGMSH-20A							CCE						CFD	CEE	CEE	CEE				CVD	CFD	CEE	CEE				CKD	CVD	CVD						CKD	
	SGMSH-30A													CFE	CFE	CFE			MKS		CVE	CFE	CFE	CFE	MKS			CVE	CVE	CVE	MSE					CVE	MSE
	SGMSH-40A													CFE	CFE				MKS		CVE	CFE	CFE		MKS			CVE	CVE	CVE	MSE					CVE	MSE
	SGMSH-50A													CFE					MKS		CVE	CFE	CFE		MKS			CVE	CVE	CVE	MSE					CVE	MSE
For robots	SGMPH-01A1A-YR11																																				
	SGMPH-02A1A-YR21																																				
	SGMPH-08A1A-YR11						MAX						MAX						MKQ						MKQ						MSC						MSC
	SGMDH-06A2A-YR12	CAD						CCA	CAD	CAD	CAD					CEA	CEA	CEA						CEA												
	SGMPH-15A1A-YR11						MAX						MAX						MKQ						MKQ						MSC						MSC
	SGMDH-12A2A-YR12																																				
	SGMDH-22A2A-YR11													CFD	CEE					CKD	CVD	CFD	CEE				CKD	CKD	CVD	CVD					CKD	CKD	
	SGMDH-32A2A-YR11													CFE						CKC	CVE	CFE	CFE			CKC	CKC	CVE	CVE	CVE					CKC	CVE	
	SGMDH-45A2B-YR12																			CKC						CKC	CKC								CKC	CVE	

Note: 1. Only the combinations that satisfy the following equation are colored.
(Rated torque of motor x 0.5) < {Rated torque of reduction gear / (Speed ratio x 0.8)} < (Rated torque of motor x 1.5)

2. The coupling is selected so that the following equation is satisfied.
(Allowable transmission torque of coupling) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

3. Limitation must be imposed to the motor torque in the following case.
(Momentary maximum torque of motor) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

4. The reduction gear should be selected so that the following equation is satisfied.
(Momentary maximum torque upon emergency stop) < {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

5. Matching verification between the reduction gear and the motor in the above quick selection table, should be used as a reference, since they have been matched based only on the torque comparisons during operation of the reduction gear. For more precise motor selection, the effective torque, load inertia moment, brake torque, regenerative ability, and so forth, must also be considered.

YASKAWA Motors and RD-C Series

Model Code		RD-010C						RD-027C					RD-050C					RD-100C					RD-200C					RD-320C				
Ratio Code		081	108	153	189	243	Motor Flange Code	100	142	184	233	Motor Flange Code	109	153	196	240	Motor Flange Code	101	150	210	258	Motor Flange Code	106	156	206	245	Motor Flange Code	115	157	207	253	Motor Flange Code
Motor Model		Coupling Code						Coupling Code					Coupling Code					Coupling Code					Coupling Code					Coupling Code				
AH	SGMAH-01A	CBS	CBS	CBS	CBS	CBS	MAA			CBS	CBS	MAA					MAA															
	SGMAH-02A	CBB	CBS	CBB	CBB	CBB	MAF	CBB	CBB	CBB	CBB	MAF			CBB	CBB	MAF					MKD					MKD				
	SGMAH-04A	CBB	CBB	CBB			MAF	CBB	CBB	CBB	CBB	MAF			CBB	CBB	MAF					MKD					MKD				
	SGMAH-08A	CBD					MAM	CBD	CBD	CBD		MAM			CBD	CBD	MAM					MKC					MKC				
DH	SGMDH-22A																	CFE	CFE				CKC	CVE	CVE	CVE			CLC	CHE	CHE	
	SGMDH-32A																	CFE					CKC	CVE	CVE				CLC	CHE	CHE	
	SGMDH-40A																															
GH1.0	SGMGH-03A	CBF					MAT	CBF	CBF	CBF		MAT	CDB	CBF	CBF	CBF	MAT	CFS	CEB	CEB	CEB	MKK			CVS	CVS	MKK					MSA
	SGMGH-06A						MAT	CBF				MAT	CDB	CBF	CBF		MAT	CFS	CEB	CEB	CEB	MKK			CVS	CVS	MKK					MSA
	SGMGH-09A																	CFA	CFA	CFA	CFA	MKK		CVA	CVA	CVA	MKK				CHA	MSA
	SGMGH-12A																	CJB	CJB	CJB		MKT	CKB	CKB	CKB	CKB	MKT	CLB	CLB	CLB	CLB	MSF
	SGMGH-20A																	CJB				MKT	CKB	CKB	CKB	CKB	MKT	CLB	CLB	CLB	CLB	MSF
	SGMGH-30A																					MKT	CKB	CKB			MKT	CLB	CLB	CLB	CLB	MSF
	SGMGH-40A																						CMB					CNB	CNB			RST
	SGMGH-55A																											CNB				RST
GH1.5	SGMGH-05A						MAT	CBF	CBF	CBF		MAT	CDB	CBF	CBF	CBF	MAT	CFS	CEB	CEB	CEB	MKK			CVS	CVS	MKK					MSA
	SGMGH-09A						MAT	CBF				MAT	CDB	CBF	CBF		MAT	CFS	CEB	CEB	CEB	MKK			CVS	CVS	MKK					MSA
	SGMGH-13A																	CFA	CFA	CFA	CFA	MKK		CVA	CVA	CVA	MKK				CHA	MSA
	SGMGH-20A																	CJB	CJB	CJB		MKT	CKB	CKB	CKB	CKB	MKT	CLB	CLB	CLB	CLB	MSF
	SGMGH-30A																	CJB				MKT	CKB	CKB	CKB	CKB	MKT	CLB	CLB	CLB	CLB	MSF
	SGMGH-44A																					MKT	CKB	CKB			MKT	CLB	CLB	CLB	CLB	MSF
	SGMGH-55A																						CMB					CNB	CNB	CNB		RST
	SGMGH-75A																											CNB	CNB			RST

■ YASKAWA Motors and RD-C Series

Model Code		RD-010C						RD-027C					RD-050C					RD-100C					RD-200C					RD-320C				
Ratio Code		081	108	153	189	243	Motor Flange Code	100	142	184	233	Motor Flange Code	109	153	196	240	Motor Flange Code	101	150	210	258	Motor Flange Code	106	156	206	245	Motor Flange Code	115	157	207	253	Motor Flange Code
Motor Model		Coupling Code						Coupling Code					Coupling Code					Coupling Code					Coupling Code					Coupling Code				
PH	SGMPH-01A	CBS	CBS	CBS	CBS	CBS	MAF			CBS	CBS	MAF					MAF														
	SGMPH-02A	CBB	CBB	CBB	CBB	CBB		CBB	CBB	CBB	CBB		CDS	CDS	CBB	CBB				CES	CES											
	SGMPH-04A	CBB	CBB	CBB				CBB	CBB	CBB	CBB		CDS	CDS	CBB	CBB				CES	CES											
	SGMPH-08A	CBD						CBD	CBD	CBD			CDA	CBD	CBD	CBD				CEA	CEA											
	SGMPH-15A							CBF					CDB	CBF	CBF					CEB	CEB											
SH	SGMSH-10A							CDE	CDE				CDE	CDE	CDE	CDE		CFD	CEE	CEE	CEE		CKD	CVD	CVD	CVD				CLD	CHD	
	SGMSH-15A							CDE					CDE	CDE	CDE			CFD	CEE	CEE	CEE		CKD	CVD	CVD	CVD				CLD	CHD	
	SGMSH-20A												CDE	CDE				CFD	CEE	CEE	CEE		CKD	CVD	CVD	CVD				CLD	CHD	
	SGMSH-30A																	CFE	CFE			MKS	CKC	CVE	CVE	CVE	MKS			CHE	CHE	MSE
	SGMSH-40A																	CFE	CFE			MKS	CKC	CVE	CVE	CVE	MKS			CHE	CHE	MSE
	SGMSH-50A																	CFE				MKS	CKC	CVE	CVE	CVE	MKS			CHE	CHE	MSE
For robots	SGMPH-01A1A-YR11																															
	SGMPH-02A1A-YR21																															
	SGMPH-08A1A-YR11						MAX					MAX					MAX					MKQ					MKQ					MSC
	SGMDH-06A2A-YR12							CBD	CBD				CDA	CBD	CBD	CBD				CEA	CEA											
	SGMPH-15A1A-YR11						MAX					MAX					MAX					MKQ					MKQ					MSC
	SGMDH-12A2A-YR12																															
	SGMDH-22A2A-YR11																	CFD	CEE				CKD	CVD	CVD	CVD			CLD	CLD	CHD	
	SGMDH-32A2A-YR11																	CFE					CKC	CVE	CVE				CLC	CHE	CHE	
	SGMDH-45A2B-YR12																						CKC						CLC			

Note: 1. Only the combinations that satisfy the following equation are colored.
(Rated torque of motor x 0.5) < {Rated torque of reduction gear / (Speed ratio x 0.8)} < (Rated torque of motor x 1.5)

2. The coupling is selected so that the following equation is satisfied.
(Allowable transmission torque of coupling) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

3. Limitation must be imposed to the motor torque in the following case.
(Momentary maximum torque of motor) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

4. The reduction gear should be selected so that the following equation is satisfied.
(Momentary maximum torque upon emergency stop) < {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

5. Matching verification between the reduction gear and the motor in the above quick selection table, should be used as a reference, since they have been matched based only on the torque comparisons during operation of the reduction gear. For more precise motor selection, the effective torque, load inertia moment, brake torque, regenerative ability, and so forth, must also be considered.

■ YASKAWA Motors and RD-G Series

Model Code		RD-07G				RD-17G				RD-40G			
Ratio Code		11	21	31	Motor Flange Code	11	21	31	Motor Flange Code	11	21	31	Motor Flange Code
Motor Model		Coupling Code				Coupling Code				Coupling Code			
AH	SGMAH-01A												
	SGMAH-02A			CES	MKD				MKD				
	SGMAH-04A			CES	MKD				MKD				
	SGMAH-08A			CEA	MKC				MKC				
DH	SGMDH-22A	CFE				CKC	CVE	CVE				CLC	
	SGMDH-32A	CFE				CKC	CVE					CLC	
	SGMDH-40A												
GH1.0	SGMGH-03A	CFS	CEB	CEB	MKK		CVS	CVS	MKK				MSA
	SGMGH-06A	CFS	CEB		MKK		CVS	CVS	MKK				MSA
	SGMGH-09A	CFA			MKK		CVA	CVA	MKK				MSA
	SGMGH-12A	CJB			MKT	CKB	CKB	CKB	MKT	CWS	CLB	CLB	MSF
	SGMGH-20A				MKT	CKB	CKB		MKT	CWS	CLB	CLB	MSF
	SGMGH-30A				MKT	CKB			MKT	CWS	CLB	CLB	MSF
	SGMGH-40A									CWB	CNB		RST
	SGMGH-55A									CWB			RST
GH1.5	SGMGH-05A	CFS	CEB	CEB	MKK		CVS	CVS	MKK				MSA
	SGMGH-09A	CFS	CEB	CEB	MKK		CVS	CVS	MKK				MSA
	SGMGH-13A	CFA			MKK		CVA	CVA	MKK				MSA
	SGMGH-20A	CJB			MKT	CKB	CKB	CKB	MKT	CWS	CLB	CLB	MSF
	SGMGH-30A				MKT	CKB	CKB		MKT	CWS	CLB	CLB	MSF
	SGMGH-44A				MKT	CKB			MKT	CWS	CLB	CLB	MSF
	SGMGH-55A					CMB				CWB	CNB		RST
	SGMGH-75A									CWB			RST

型番コード		RD-07G				RD-17G				RD-40G			
速比コード		11	21	31	Motor Flange Code	11	21	31	Motor Flange Code	11	21	31	Motor Flange Code
モータ型式		Coupling Code				Coupling Code				Coupling Code			
PH	SGMPH-01A												
	SGMPH-02A		CES	CES									
	SGMPH-04A		CES	CES									
	SGMPH-08A		CEA	CEA									
	SGMPH-15A		CEB	CEB				CVS					
SH	SGMSH-10A	CFD	CEE	CEE			CVD	CVD				CLD	
	SGMSH-15A	CFD	CEE	CEE			CVD	CVD				CLD	
	SGMSH-20A	CFD	CEE				CVD	CVD				CLD	
	SGMSH-30A	CFE			MKS	CKC	CVE	CVE	MKS			CLC	MSE
	SGMSH-40A	CFE			MKS	CKC	CVE	CVE	MKS			CLC	MSE
	SGMSH-50A				MKS	CKC	CVE		MKS			CLC	MSE
For robots	SGMPH-01A1A-YR11												
	SGMPH-02A1A-YR21												
	SGMPH-08A1A-YR11				MKQ				MKQ				MSC
	SGMDH-06A2A-YR12		CEA	CEA									
	SGMPH-15A1A-YR11				MKQ				MKQ				MSC
	SGMDH-12A2A-YR12												
	SGMDH-22A2A-YR11	CFD					CVD	CVD				CLD	
	SGMDH-32A2A-YR11	CFE				CKC	CVE					CLC	
	SGMDH-45A2B-YR12					CKC						CLC	

Note: 1. Only the combinations that satisfy the following equation are colored. (Rated torque of motor x 0.5) < {Rated torque of reduction gear / (Speed ratio x 0.8)} < (Rated torque of motor x 1.5)

2. The coupling is selected so that the following equation is satisfied. (Allowable transmission torque of coupling) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

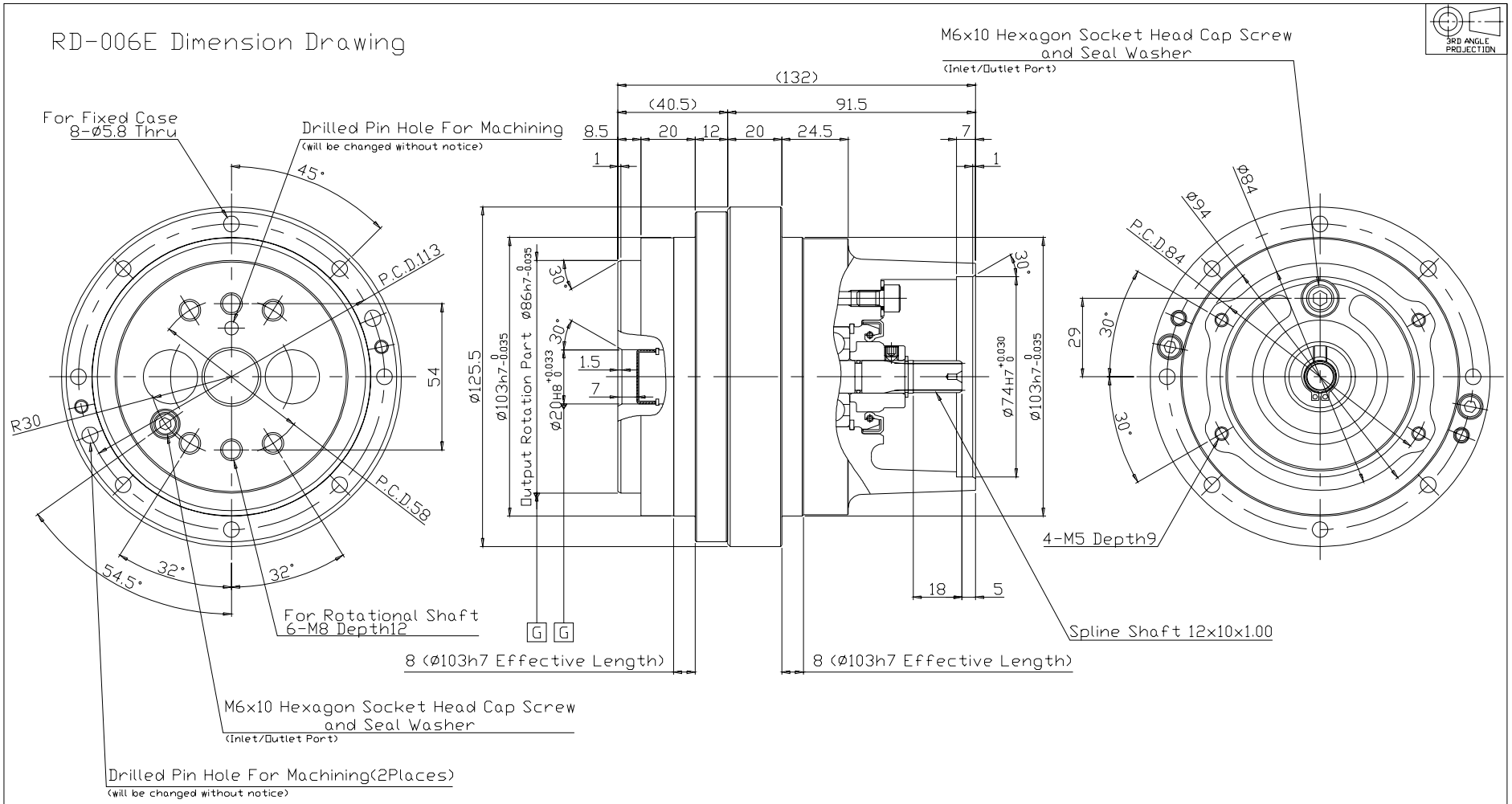
3. Limitation must be imposed to the motor torque in the following case. (Momentary maximum torque of motor) > {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

4. The reduction gear should be selected so that the following equation is satisfied.
(Momentary maximum torque upon emergency stop) < {Momentary maximum allowable torque of reduction gear / (Speed ratio x 0.8)}

5. Matching verification between the reduction gear and the motor in the above quick selection table, should be used as a reference, since they have been matched based only on the torque comparisons during operation of the reduction gear. For more precise motor selection, the effective torque, load inertia moment, brake torque, regenerative ability, and so forth, must also be considered.

External dimension drawing of the reduction gear

RD-006E Dimension Drawing

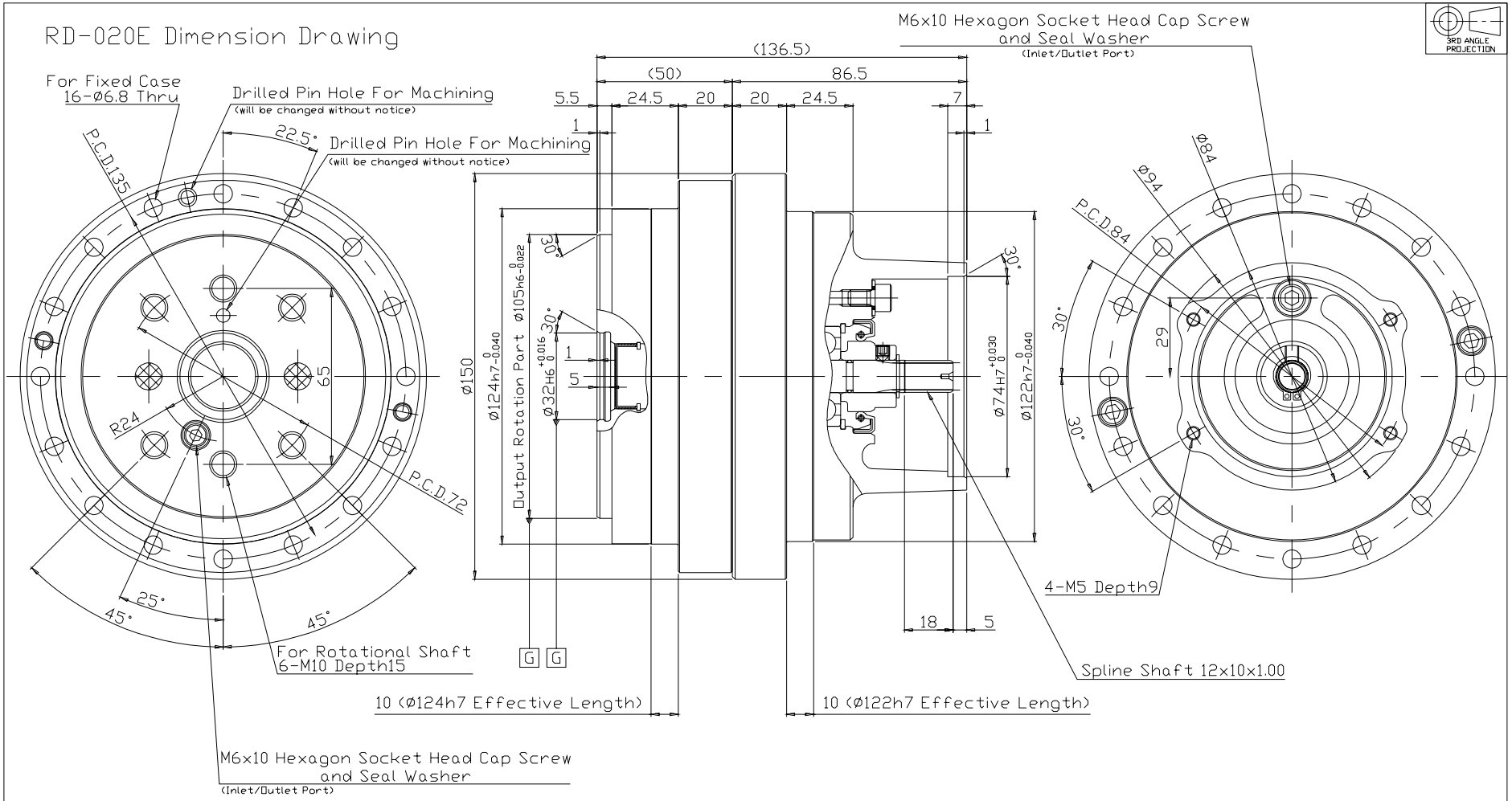


Note

1. Tightening torque of 8-M5 mounting bolts for the case : 9.01N-m(80lb-in)
2. Tightening torque of 6-M8 mounting bolts for the shaft : 37.2N-m(329lb-in)
3. Each bolt shall be used with serrated lock washer (external teeth).
4. The gearhead is pre-greased with Molywhite Re No.00.
5. Use one of the pilots of G.

Speed Ratio	Model Code	Weight (kg)	Moment of Inertia "I" (I=GD²/4) The Motor Axis Conversion (kg-m²)
31	RD-006E-031	5.5	1.22×10^{-5}
43	RD-006E-043		1.08×10^{-5}
53.5	RD-006E-054		1.00×10^{-5}
79	RD-006E-079		8.86×10^{-6}
103	RD-006E-103		8.42×10^{-6}

RD-020E Dimension Drawing

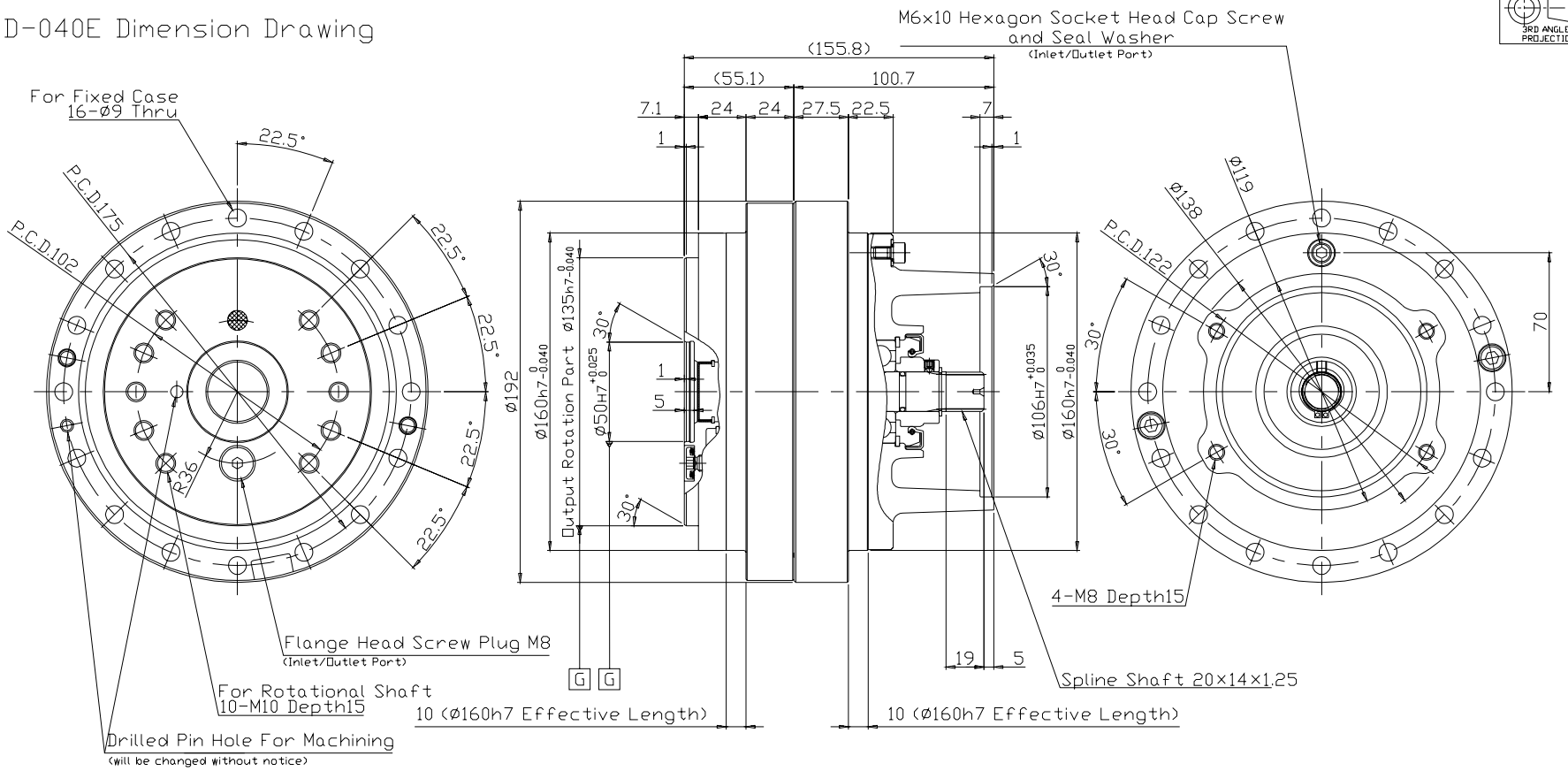


Note

1. Tightening torque of 16-M6 mounting bolts for the case : 15.6N-m(138lb-in)
2. Tightening torque of 6-M10 mounting bolts for the shaft : 73.5N-m(651lb-in)
3. Each bolt shall be used with serrated lock washer (external teeth).
4. The gearhead is pre-greased with Molywhite Re No.00.
5. Use one of the pilots of G.

Speed Ratio	Model Code	Weight (kg)	Moment of Inertia "I" (I=GD²/4) The Motor Axis Conversion (kg-m²)
41	RD-020E-041	8.2	2.63×10⁻⁵
57	RD-020E-057		1.89×10⁻⁵
81	RD-020E-081		1.45×10⁻⁵
105	RD-020E-105		1.24×10⁻⁵
161	RD-020E-161		1.01×10⁻⁵

RD-040E Dimension Drawing

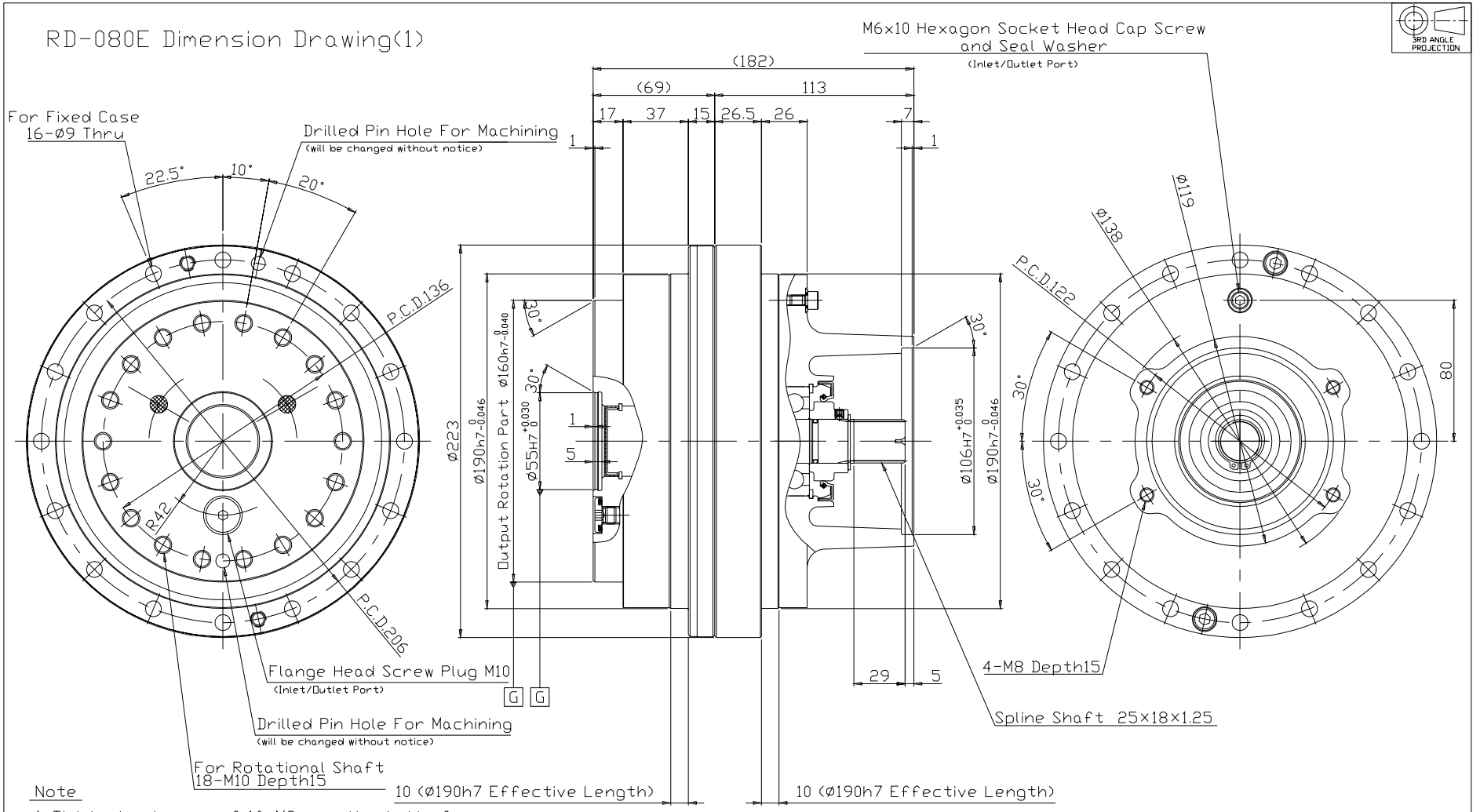


Note

1. Tightening torque of 16-M8 mounting bolts for the case : 37.2N-m(329lb-in)
2. Tightening torque of 10-M10 mounting bolts for the shaft : 73.5N-m(651lb-in)
3. Each bolt shall be used with serrated lock washer (external teeth).
4. The gearhead is pre-greased with Molywhite Re No.00.
5. Use one of the pilots of G.

Speed Ratio	Model Code	Weight (kg)	Moment of Inertia "I" (I=GD²/4) The Motor Axis Conversion (kg-m²)
41	RD-040E-041	17.3	9.89×10⁻⁵
57	RD-040E-057		7.42×10⁻⁵
81	RD-040E-081		5.82×10⁻⁵
105	RD-040E-105		5.09×10⁻⁵
153	RD-040E-153		4.37×10⁻⁵

RD-080E Dimension Drawing(1)

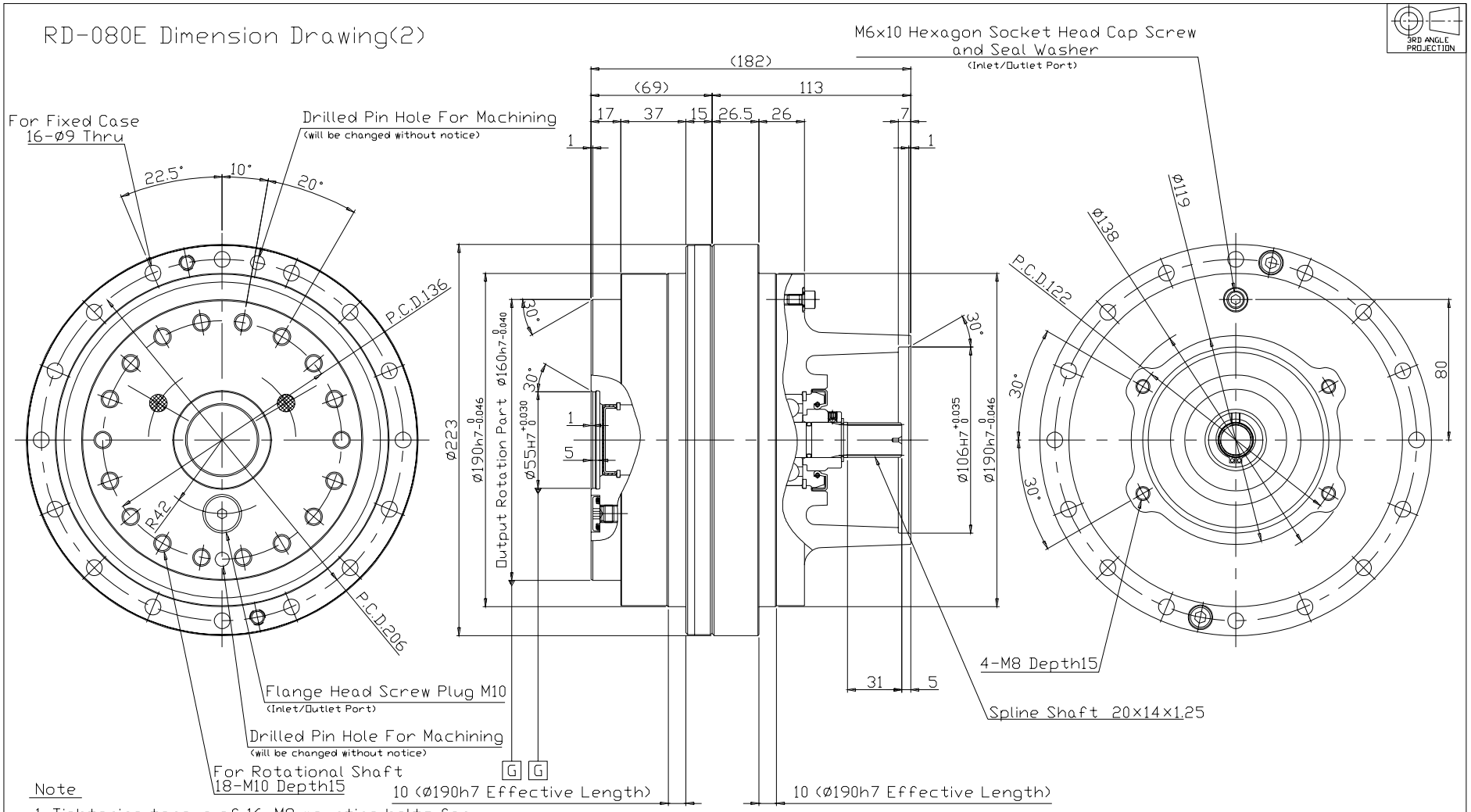


Note

1. Tightening torque of 16-M8 mounting bolts for the case : 37.2N-m(329lb-in)
2. Tightening torque of 18-M10 mounting bolts for the shaft : 73.5N-m(651lb-in)
3. Each bolt shall be used with serrated lock washer (external teeth).
4. The gearhead is pre-greased with Molywhite Re No.00.
5. Use one of the pilots of G.

Speed Ratio	Model Code	Weight (kg)	Moment of Inertia "I" (I=GD²/4) The Motor Axis Conversion (kg-m²)
41	RD-080E-041	25.2	2.24×10⁻⁴
57	RD-080E-057		1.77×10⁻⁴

RD-080E Dimension Drawing(2)

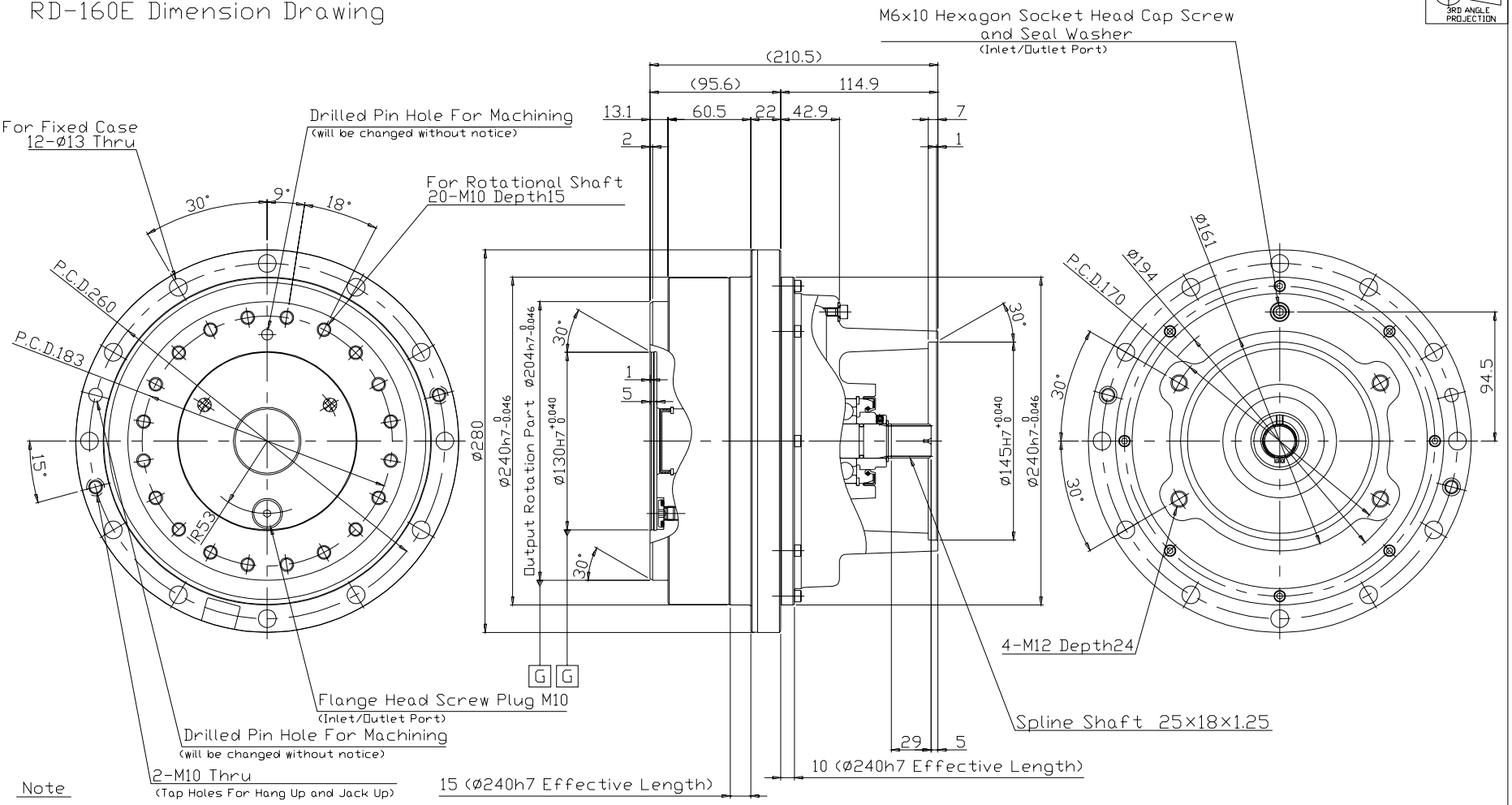


Note

1. Tightening torque of 16-M8 mounting bolts for the case : 37.2N-m(329lb-in)
2. Tightening torque of 18-M10 mounting bolts for the shaft : 73.5N-m(651lb-in)
3. Each bolt shall be used with serrated lock washer (external teeth).
4. The gearhead is pre-greased with Molywhite Re No.00.
5. Use one of the pilots of G.

Speed Ratio	Model Code	Weight (kg)	Moment of Inertia "I" ($I=GD^2/4$) The Motor Axis Conversion ($kg-m^2$)
81	RD-080E-081	25.2	9.67×10^{-5}
101	RD-080E-101		8.14×10^{-5}
153	RD-080E-153		6.16×10^{-5}

RD-160E Dimension Drawing

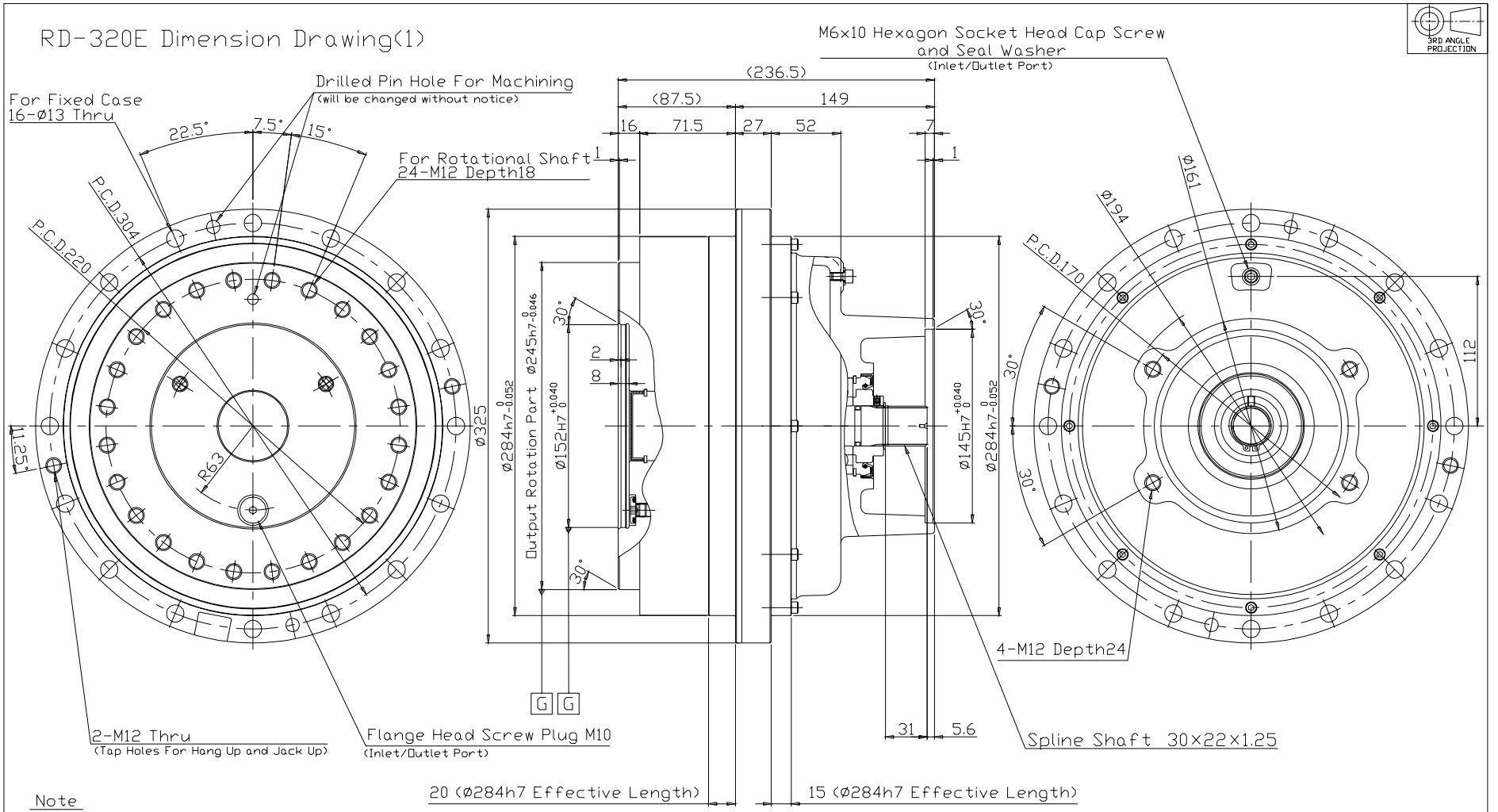


Note

1. Tightening torque of 12-M12 mounting bolts for the case : 128.4N-m(1137lb-in)
2. Tightening torque of 20-M10 mounting bolts for the shaft : 73.5N-m(651lb-in)
3. Each bolt shall be used with serrated lock washer (external teeth).
4. The gearhead is pre-greased with Molywhite Re No.00.
5. Use one of the pilots of G.

Speed Ratio	Model Code	Weight (kg)	Moment of Inertia "I" (I=GD²/4) The Motor Axis Conversion (kg-m²)
66	RD-160E-066	44.5	3.71×10⁻⁴
81	RD-160E-081		3.12×10⁻⁴
101	RD-160E-101		2.58×10⁻⁴
145	RD-160E-145		1.90×10⁻⁴
171	RD-160E-171		1.62×10⁻⁴

RD-320E Dimension Drawing(1)

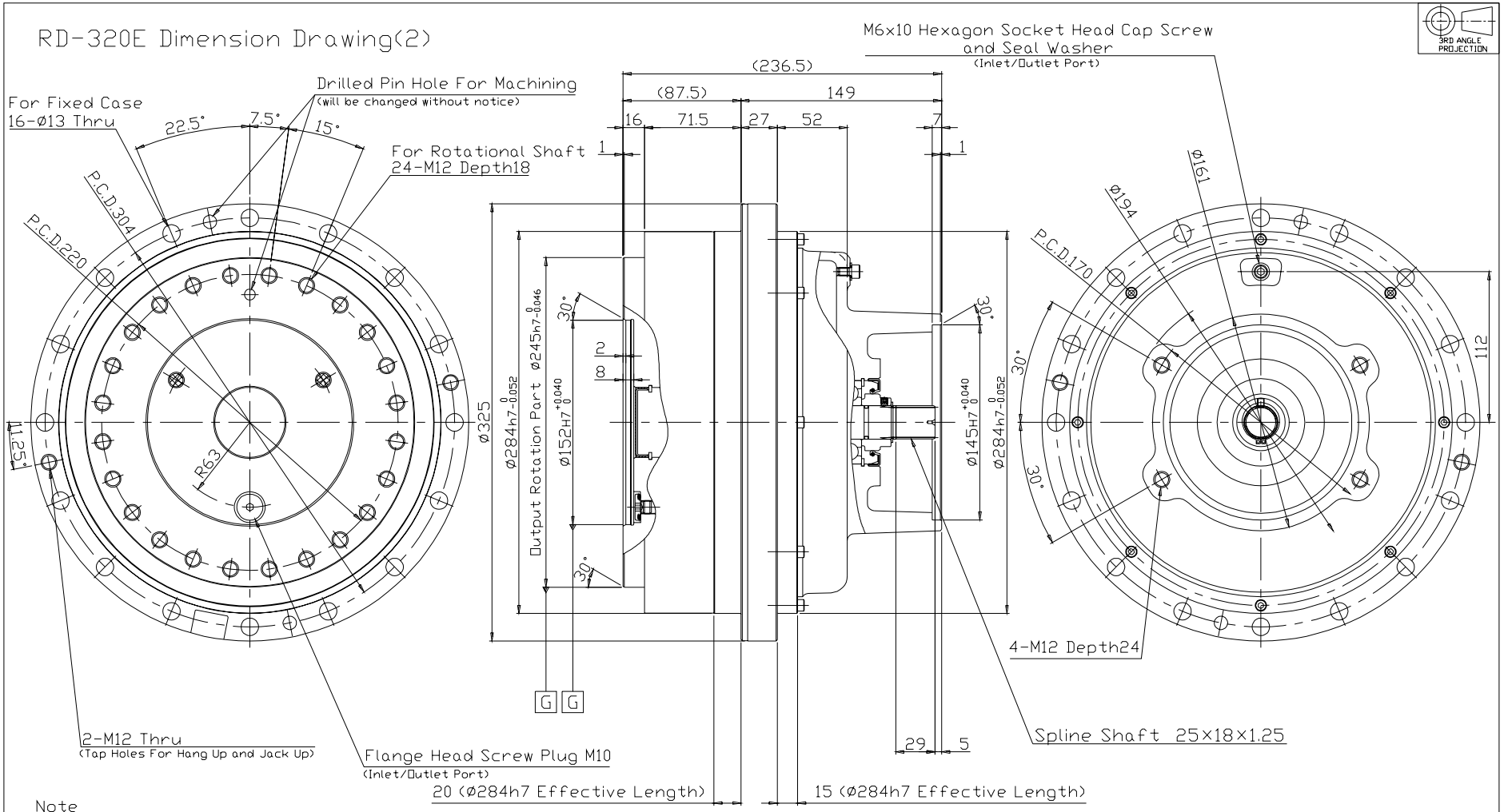


Note

1. Tightening torque of 16-M12 mounting bolts for the case : 128.4N-m(1137lb-in)
2. Tightening torque of 24-M12 mounting bolts for the shaft : 128.4N-m(1137lb-in)
3. Each bolt shall be used with serrated lock washer (external teeth).
4. The gearhead is pre-greased with Molywhite Re No.00.
5. Use one of the pilots of G.

Speed Ratio	Model Code	Weight (kg)	Moment of Inertia "I" (I=GD²/4) The Motor Axis Conversion (kg-m²)
66	RD-320E-066	68.7	9.10×10^{-4}
81	RD-320E-081		7.40×10^{-4}

RD-320E Dimension Drawing(2)

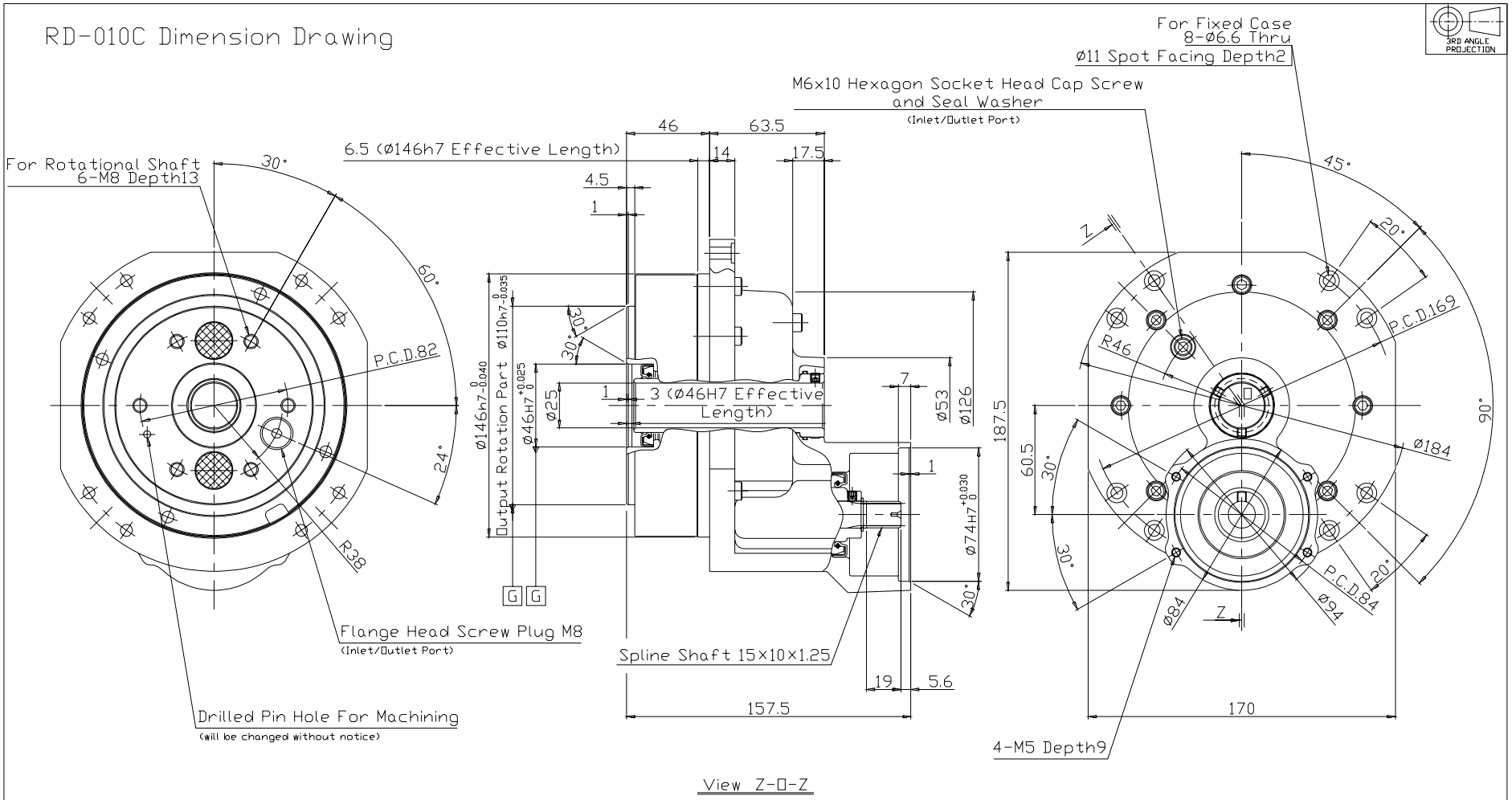


Note

1. Tightening torque of 16-M12 mounting bolts for the case : 128.4N-m(1137lb-in)
2. Tightening torque of 24-M12 mounting bolts for the shaft : 128.4N-m(1137lb-in)
3. Each bolt shall be used with serrated lock washer (external teeth).
4. The gearhead is pre-greased with Molywhite Re No.00.
5. Use one of the pilots of G.

Speed Ratio	Model Code	Weight (kg)	Moment of Inertia "I" ($I=GD^2/4$) The Motor Axis Conversion ($kg-m^2$)
101	RD-320E-101	68.7	5.08×10^{-4}
141	RD-320E-141		3.61×10^{-4}
185	RD-320E-185		2.76×10^{-4}

RD-010C Dimension Drawing

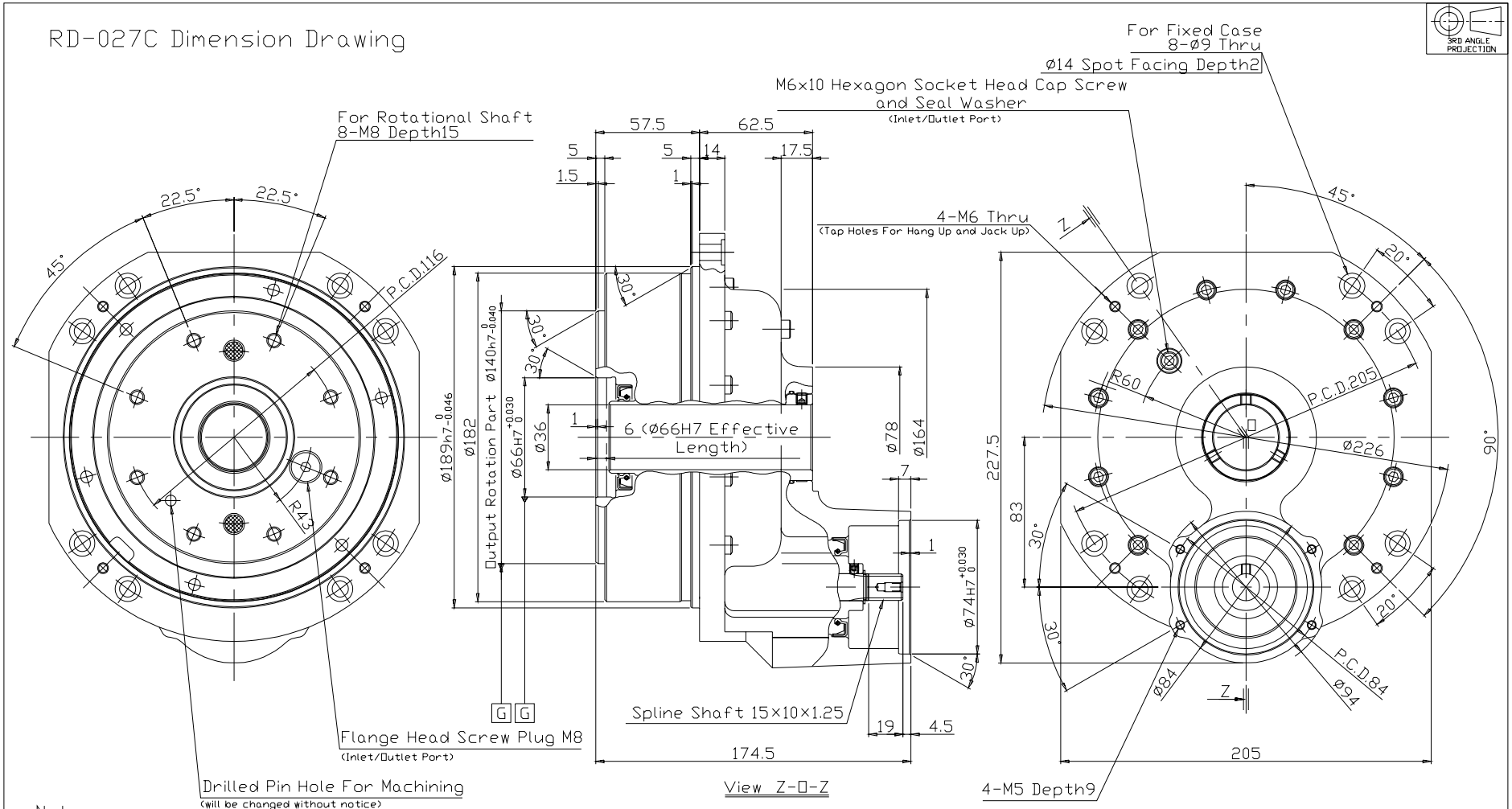


Note

1. Tightening torque of 8-M6 mounting bolts for the case : 15.6N-m(138lb-in)
2. Tightening torque of 6-M8 mounting bolts for the shaft : 37.2N-m(329lb-in)
3. Each bolt shall be used with serrated lock washer (external teeth).
4. The gearhead is pre-greased with Molywhite Re No.00.
5. Use one of the pilots of G.

Speed Ratio	Model Code	Weight (kg)	Moment of Inertia "I" (I=GD²/4) The Motor Axis Conversion (kg-m²)
81	RD-010C-081	10.0	6.75×10^{-5}
108	RD-010C-108		5.00×10^{-5}
153	RD-010C-153		3.55×10^{-5}
189	RD-010C-189		2.92×10^{-5}
243	RD-010C-243		2.39×10^{-5}

RD-027C Dimension Drawing

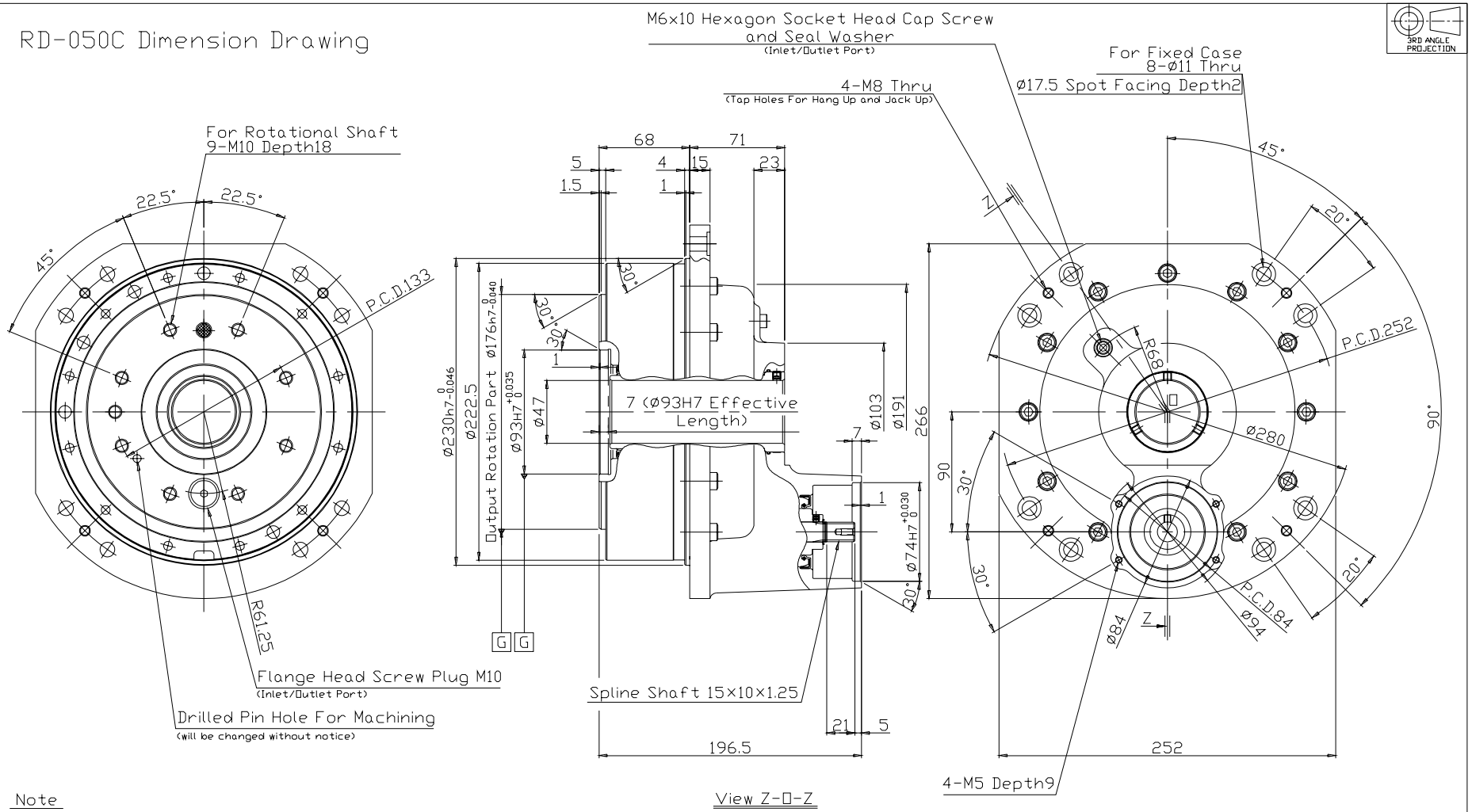


Note

1. Tightening torque of 8-M8 mounting bolts for the case : 37.2N-m(329lb-in)
2. Tightening torque of 8-M8 mounting bolts for the shaft : 37.2N-m(329lb-in)
3. Each bolt shall be used with serrated lock washer (external teeth).
4. The gearhead is pre-greased with Molywhite Re No.00.
5. Use one of the pilots of G.

Speed Ratio	Model Code	Weight (kg)	Moment of Inertia "I" (I=GD²/4) The Motor Axis Conversion (kg-m²)
99.82	RD-027C-100	16.1	2.32×10^{-4}
141.68	RD-027C-142		1.52×10^{-4}
184	RD-027C-184		1.20×10^{-4}
233.45	RD-027C-233		9.36×10^{-5}

RD-050C Dimension Drawing

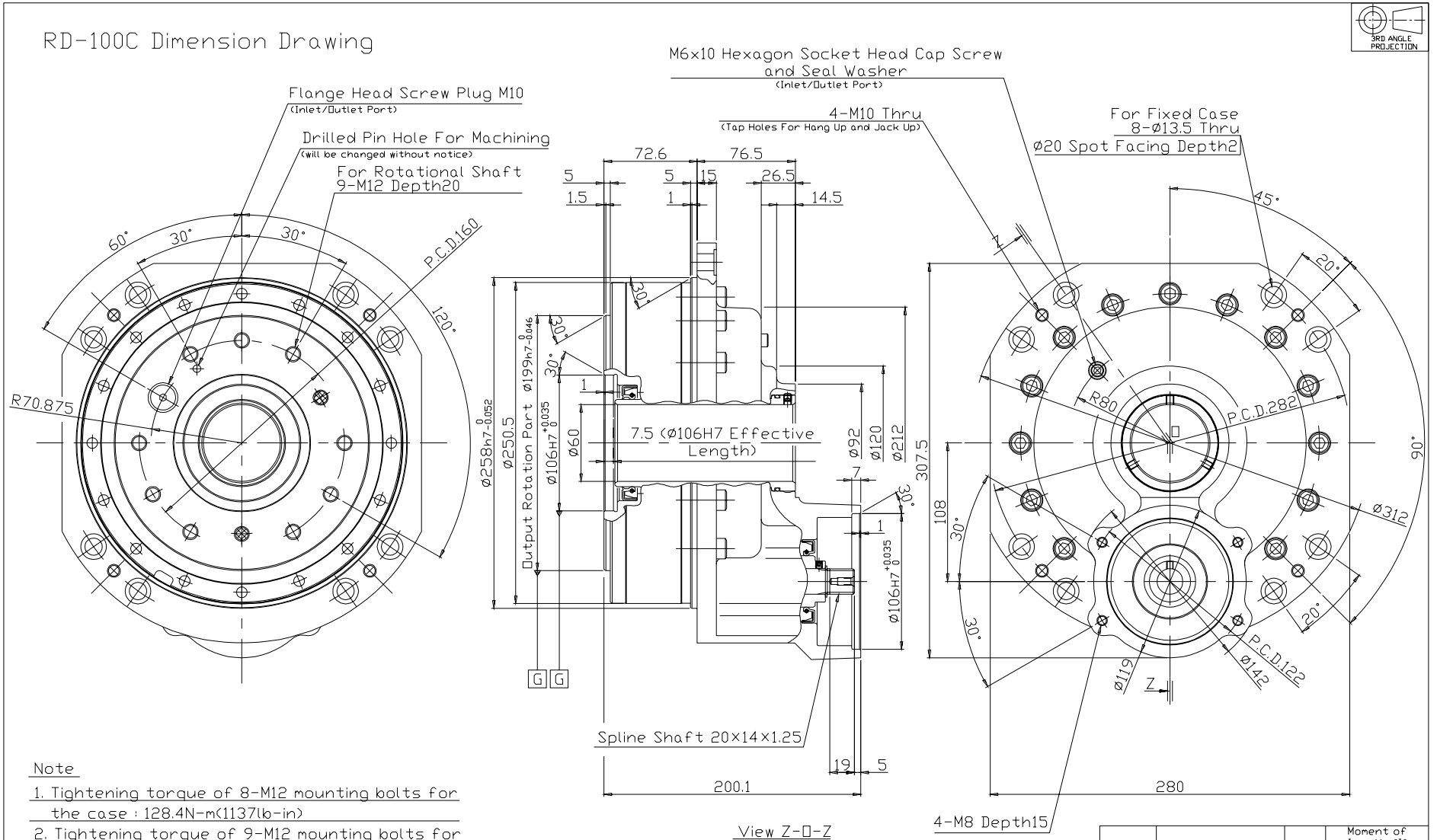


Note

1. Tightening torque of 8-M10 mounting bolts for the case : 73.5N-m(651lb-in)
2. Tightening torque of 9-M10 mounting bolts for the shaft : 73.5N-m(651lb-in)
3. Each bolt shall be used with serrated lock washer (external teeth).
4. The gearhead is pre-greased with Molywhite Re No.00.
5. Use one of the pilots of G.

Speed Ratio	Model Code	Weight (kg)	Moment of Inertia "I" ($I=GD^2/4$) The Motor Axis Conversion ($kg-m^2$)
109	RD-050C-109	26.2	2.09×10^{-4}
152.6	RD-050C-153		1.36×10^{-4}
196.2	RD-050C-196		1.02×10^{-4}
239.8	RD-050C-240		8.25×10^{-5}

RD-100C Dimension Drawing

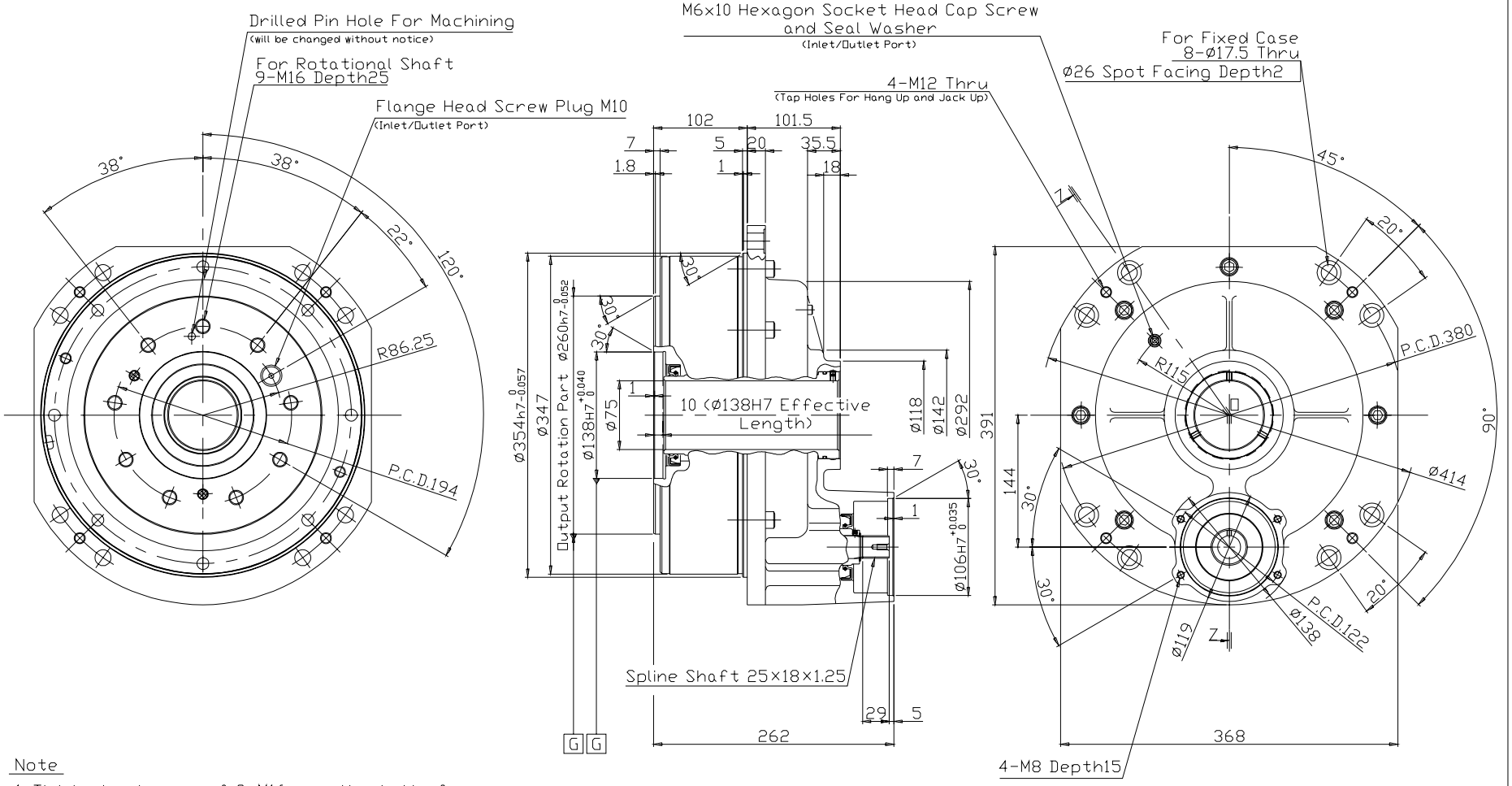


Note

1. Tightening torque of 8-M12 mounting bolts for the case : 128.4N-m(1137lb-in)
2. Tightening torque of 9-M12 mounting bolts for the shaft : 128.4N-m(1137lb-in)
3. Each bolt shall be used with serrated lock washer (external teeth).
4. The gearhead is pre-greased with Molywhite Re No.00.
5. Use one of the pilots of G.

Speed Ratio	Model Code	Weight (kg)	Moment of Inertia "I" (I=GD²/4) The Motor Axis Conversion (kg-m²)
100.5	RD-100C-101	34.9	8.34×10⁻⁴
150	RD-100C-150		4.97×10⁻⁴
210	RD-100C-210		3.32×10⁻⁴
258	RD-100C-258		2.64×10⁻⁴

RD-200C Dimension Drawing



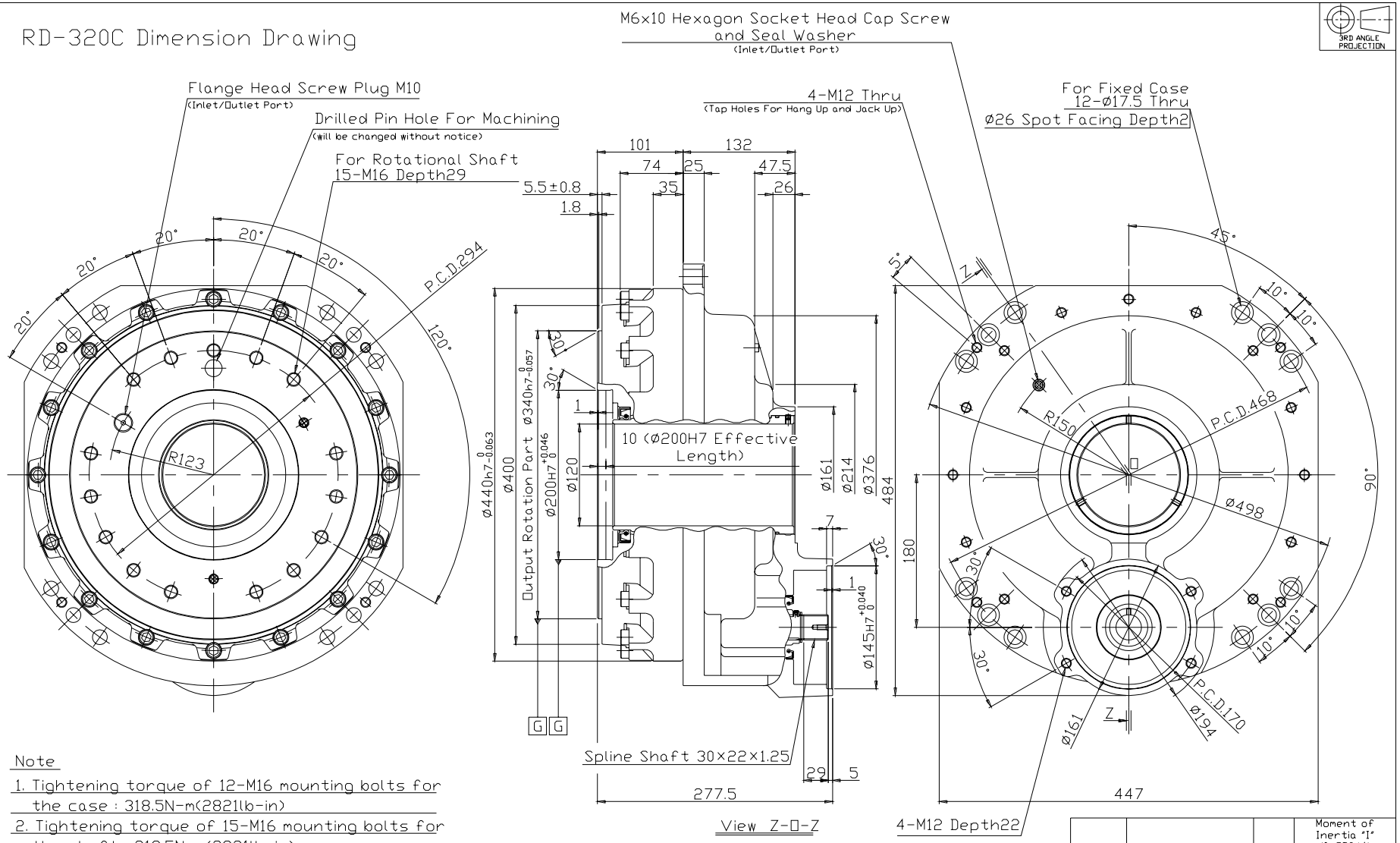
View Z-□-Z

Note

1. Tightening torque of 8-M16 mounting bolts for the case : 318.5N-m(2821lb-in)
2. Tightening torque of 9-M16 mounting bolts for the shaft : 318.5N-m(2821lb-in)
3. Each bolt shall be used with serrated lock washer (external teeth).
4. The gearhead is pre-greased with Molywhite Re No.00.
5. Use one of the pilots of G.

Speed Ratio	Model Code	Weight (kg)	Moment of Inertia "I" (I=GD²/4) The Motor Axis Conversion (kg-m²)
105.83	RD-200C-106	86.5	1.98×10^{-3}
155.96	RD-200C-156		1.18×10^{-3}
206.09	RD-200C-206		7.98×10^{-4}
245.08	RD-200C-245		6.44×10^{-4}

RD-320C Dimension Drawing

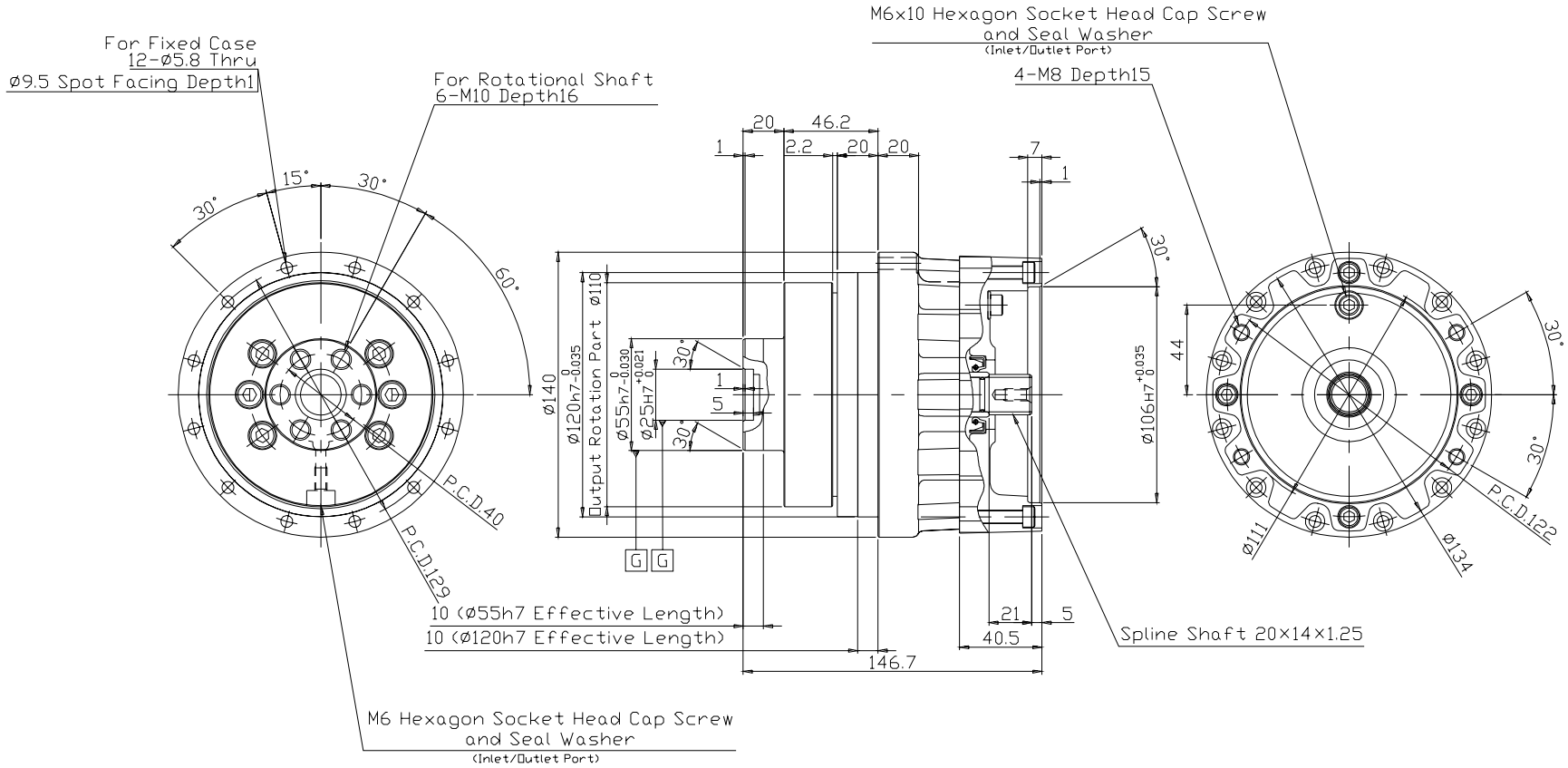


Note

1. Tightening torque of 12-M16 mounting bolts for the case : 318.5N-m(2821lb-in)
2. Tightening torque of 15-M16 mounting bolts for the shaft : 318.5N-m(2821lb-in)
3. Each bolt shall be used with serrated lock washer (external teeth).
4. The gearhead is pre-greased with Molywhite Re No.00.
5. Use one of the pilots of G.

Speed Ratio	Model Code	Weight (kg)	Moment of Inertia "I" (I=GD²/4) The Motor Axis Conversion (kg-m²)
115	RD-320C-115	133	5.53×10⁻³
157	RD-320C-157		3.49×10⁻³
207	RD-320C-207		2.29×10⁻³
253	RD-320C-253		1.69×10⁻³

RD-07G-P Dimension Drawing

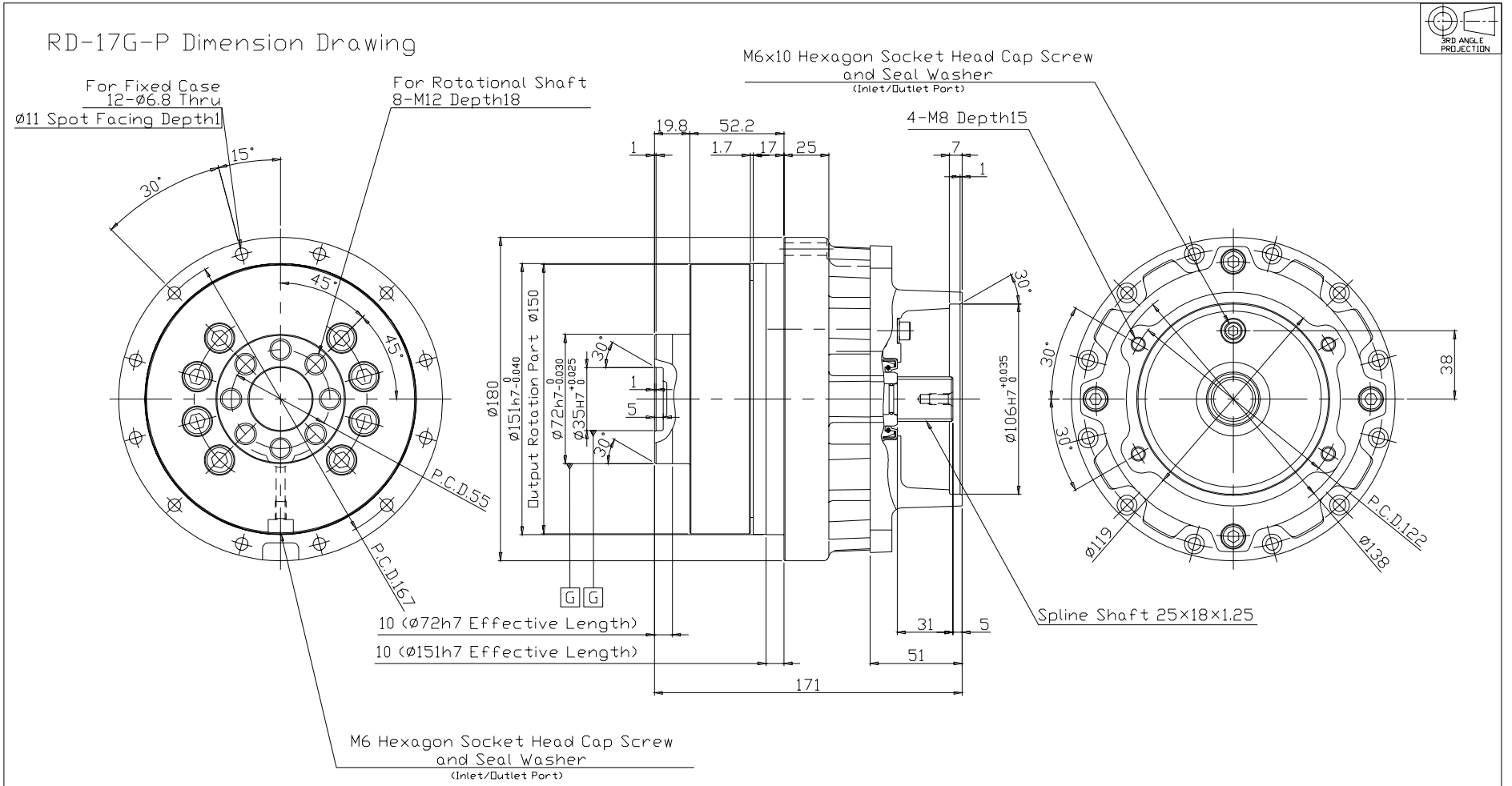


Note

1. Tightening torque of 12-M5 mounting bolts for the case : 9.01N-m(80lb-in)
2. Tightening torque of 6-M10 mounting bolts for the shaft : 73.5N-m(651lb-in)
3. Each bolt shall be used with serrated lock washer (external teeth).
4. The gearhead is pre-greased with Molywhite Re No.00.
5. Use one of the pilots of G.

Speed Ratio	Model Code	Weight (kg)	Moment of Inertia "I" ($I=GD^2/4$) The Motor Axis Conversion ($kg-m^2$)
11.24	RD-07G-P-11	11.8	5.05×10^{-5}
21	RD-07G-P-21		3.23×10^{-5}
30.6	RD-07G-P-31		2.69×10^{-5}

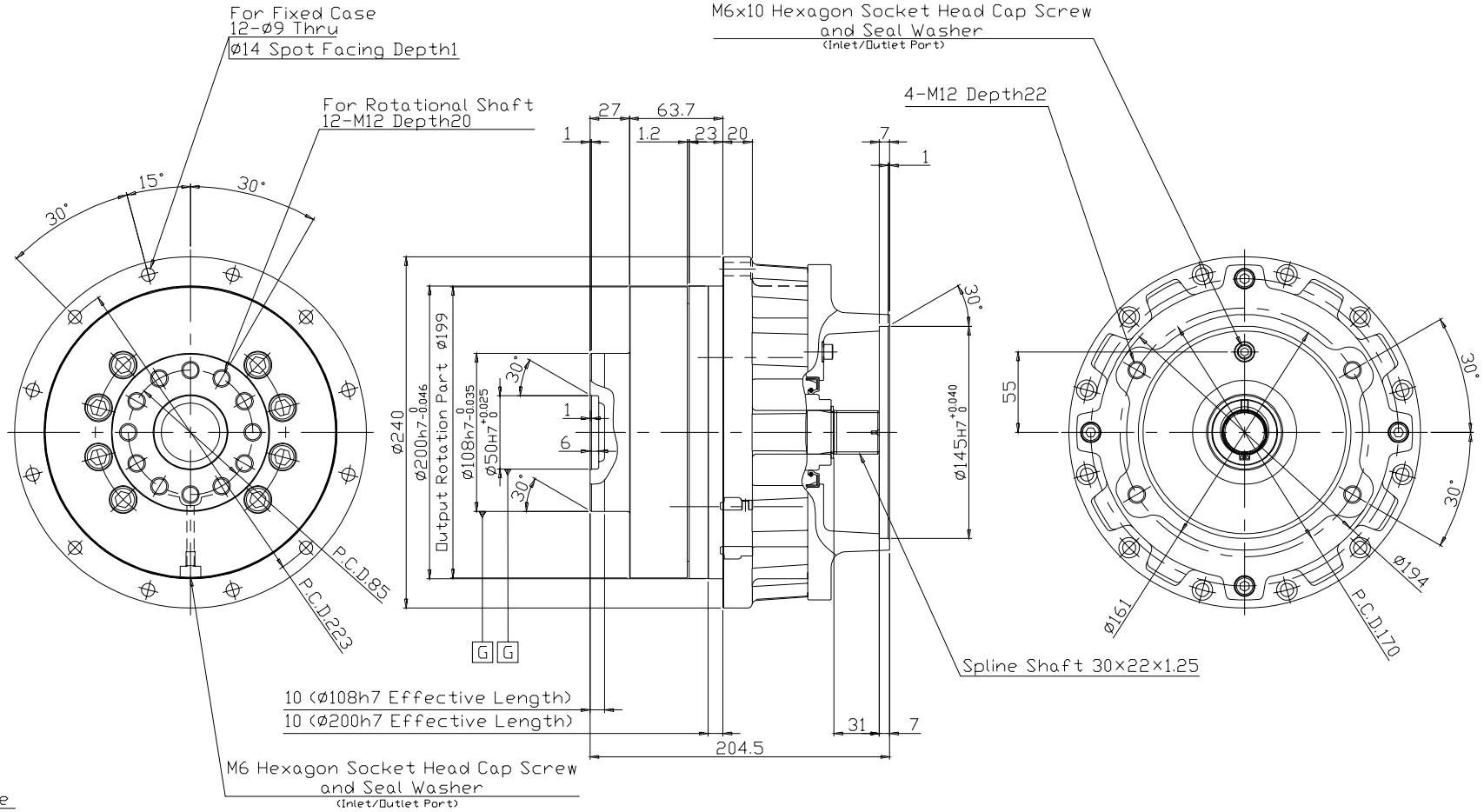
RD-17G-P Dimension Drawing



1. Tightening torque of 12-M6 mounting bolts for the case : 15.6N-m(138lb-in)
2. Tightening torque of 8-M12 mounting bolts for the shaft : 128.4N-m(1137lb-in)
3. Each bolt shall be used with serrated lock washer (external teeth).
4. The gearhead is pre-greased with Molywhite Re No.00.
5. Use one of the pilots of G.

Speed Ratio	Model Code	Weight (kg)	Moment of Inertia "I" (I=GD²/4) The Motor Axis Conversion (kg-m²)
11	RD-17G-P-11	22.0	2.04×10⁻⁴
21	RD-17G-P-21		1.23×10⁻⁴
31	RD-17G-P-31		1.02×10⁻⁴

RD-40G-P Dimension Drawing



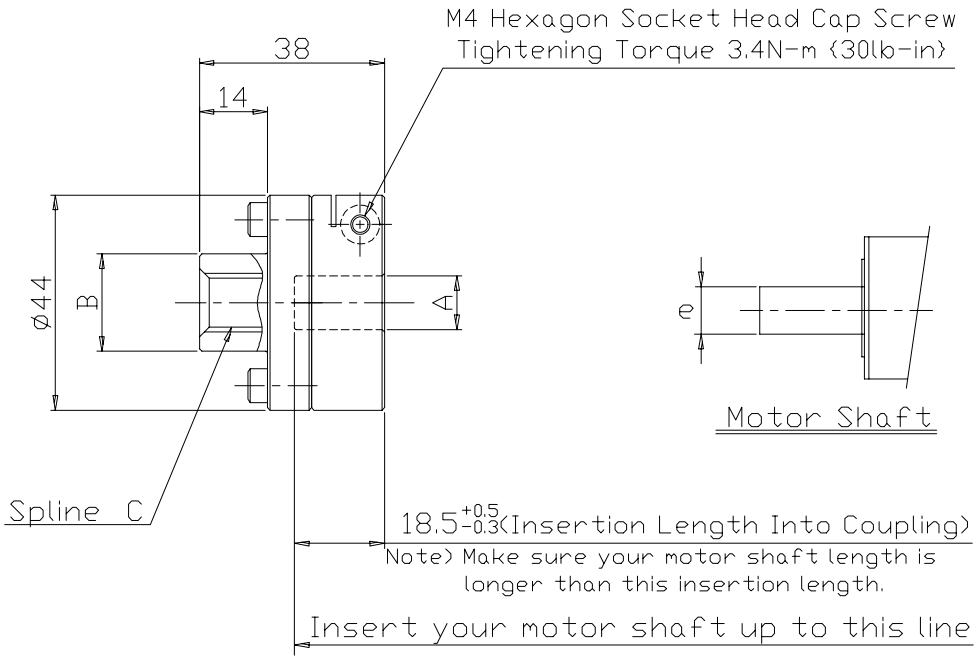
Note

1. Tightening torque of 12-M8 mounting bolts for the case : 37.2N-m(329lb-in)
2. Tightening torque of 12-M12 mounting bolts for the shaft : 128.4N-m(1137lb-in)
3. Each bolt shall be used with serrated lock washer (external teeth).
4. The gearhead is pre-greased with Molywhite Re No.00.
5. Use one of the pilots of G.

Speed Ratio	Model Code	Weight (kg)	Moment of Inertia "I" ($I=GD^2/4$) The Motor Axis Conversion ($kg-m^2$)
10.74	RD-40G-P-11	49.5	1.04×10^{-3}
21	RD-40G-P-21		6.49×10^{-4}
31.44	RD-40G-P-31		5.50×10^{-4}

External dimension drawing of the coupling

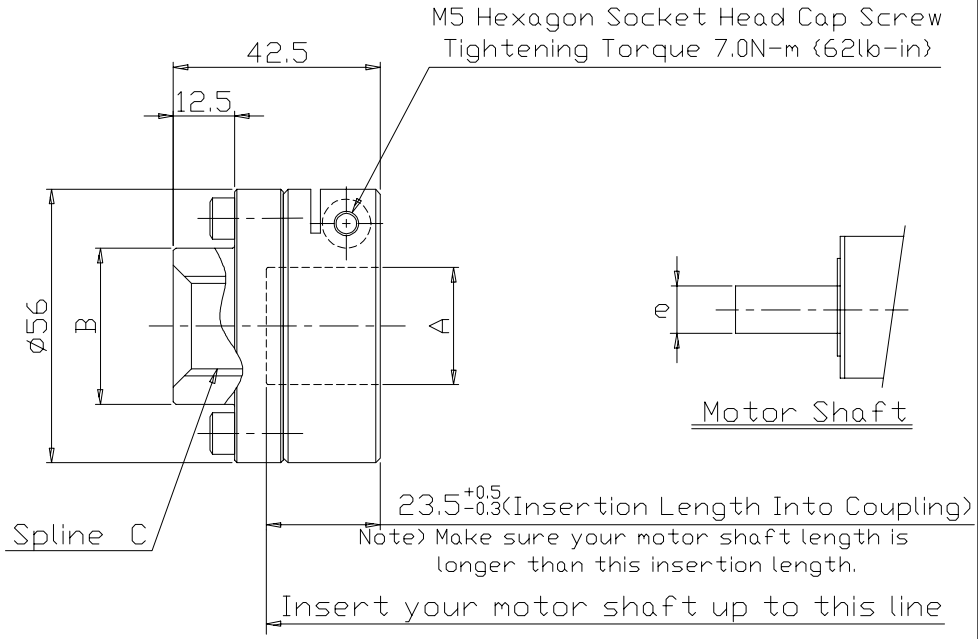
Coupling Dimension Drawing



Code	Dimensions mm			Allowable transmission torque N-m (lb-in)	Weight kg	Moment of Inertia (I=GD²/4) kg-m²	Applicable Motor Shaft Diameter e
	A	B	C				
CAS	ø8H8	ø20	12x10x1.00	10.3 (91)	0.18	1.689x10⁻⁴	ø 8h6
CAA	ø11H8			14.1 (125)	0.18	1.688x10⁻⁴	ø11h6
CAB	ø14H8			18.0 (159)	0.18	1.684x10⁻⁴	ø14h6
CAC	ø14F8			18.0 (159)	0.18	1.684x10⁻⁴	ø14k6
CAD	ø16H8			20.6 (182)	0.17	1.680x10⁻⁴	ø16h6
CAE	ø16F8			20.6 (182)	0.17	1.680x10⁻⁴	ø16k6
CAF	ø19H7			24.4 (216)	0.17	1.669x10⁻⁴	ø19h6
CAJ	ø19F7			24.4 (216)	0.17	1.669x10⁻⁴	ø19k6
CAH	ø9H8			11.6 (103)	0.18	1.689x10⁻⁴	ø 9h6
CBS	ø8H8	ø25	15x10x1.25	10.3 (91)	0.19	1.768x10⁻⁴	ø 8h6
CBA	ø11H8			14.1 (125)	0.19	1.766x10⁻⁴	ø11h6
CBB	ø14H8			18.0 (159)	0.18	1.762x10⁻⁴	ø14h6
CBC	ø14F8			18.0 (159)	0.18	1.762x10⁻⁴	ø14k6
CBD	ø16H8			20.6 (182)	0.18	1.758x10⁻⁴	ø16h6
CBE	ø16F8			20.6 (182)	0.18	1.758x10⁻⁴	ø16k6
CBF	ø19H7			24.4 (216)	0.18	1.748x10⁻⁴	ø19h6
CBJ	ø19F7			24.4 (216)	0.18	1.748x10⁻⁴	ø19k6
CBH	ø9H8			11.6 (103)	0.19	1.767x10⁻⁴	ø 9h6

3RD ANGLE PROJECTION

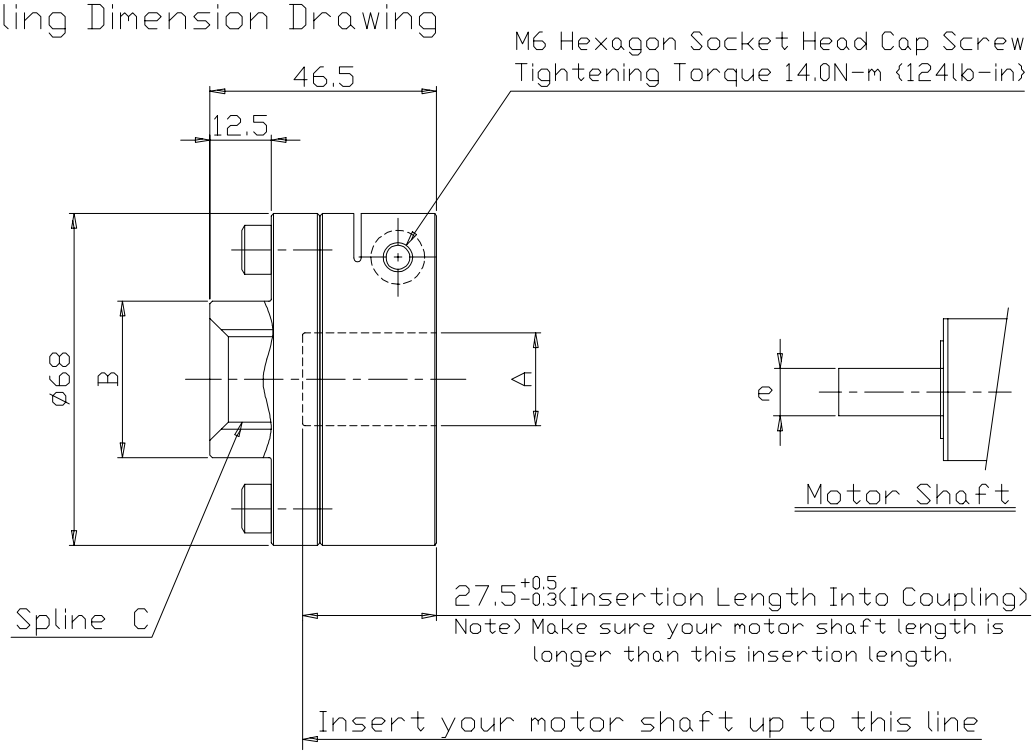
Coupling Dimension Drawing



Code	Dimensions mm			Allowable transmission torque N-m {lb-in}	Weight kg	Moment of Inertia (I=GD²/4) kg-m²	Applicable Motor Shaft Diameter e
	A	B	C				
CCS	ø14H8	ø20	12×10×1.00	31.7 {281}	0.33	5.156×10⁻⁴	ø14h6
CCA	ø16H8			36.3 {321}	0.33	5.150×10⁻⁴	ø16h6
CCB	ø19H7			43.1 {381}	0.32	5.136×10⁻⁴	ø19h6
CCC	ø19F7			43.1 {381}	0.32	5.136×10⁻⁴	ø19k6
CCD	ø24F7			54.4 {481}	0.31	5.093×10⁻⁴	ø24k6
CCE	ø24H7			54.4 {481}	0.31	5.093×10⁻⁴	ø24h6
CCF	ø10H8			22.7 {2001}	0.33	5.162×10⁻⁴	ø10h6
CDS	ø14H8	ø25	15×10×1.25	31.7 {281}	0.33	5.224×10⁻⁴	ø14h6
CDA	ø16H8			36.3 {321}	0.33	5.218×10⁻⁴	ø16h6
CDB	ø19H7			43.1 {381}	0.33	5.204×10⁻⁴	ø19h6
CDC	ø19F7			43.1 {381}	0.33	5.204×10⁻⁴	ø19k6
CDD	ø24F7			54.4 {481}	0.32	5.161×10⁻⁴	ø24k6
CDE	ø24H7			54.4 {481}	0.32	5.161×10⁻⁴	ø24h6
CDF	ø10H8			22.7 {2001}	0.34	5.230×10⁻⁴	ø10h6
CES	ø14H8	ø32	20×14×1.25	31.7 {281}	0.34	5.401×10⁻⁴	ø14h6
CEA	ø16H8			36.3 {321}	0.34	5.396×10⁻⁴	ø16h6
CEB	ø19H7			43.1 {381}	0.33	5.382×10⁻⁴	ø19h6
CEC	ø19F7			43.1 {381}	0.33	5.382×10⁻⁴	ø19k6
CED	ø24F7			54.4 {481}	0.33	5.339×10⁻⁴	ø24k6
CEE	ø24H7			54.4 {481}	0.33	5.339×10⁻⁴	ø24h6
CEF	ø10H8			22.7 {2001}	0.35	5.407×10⁻⁴	ø10h6

3RD ANGLE PROJECTION

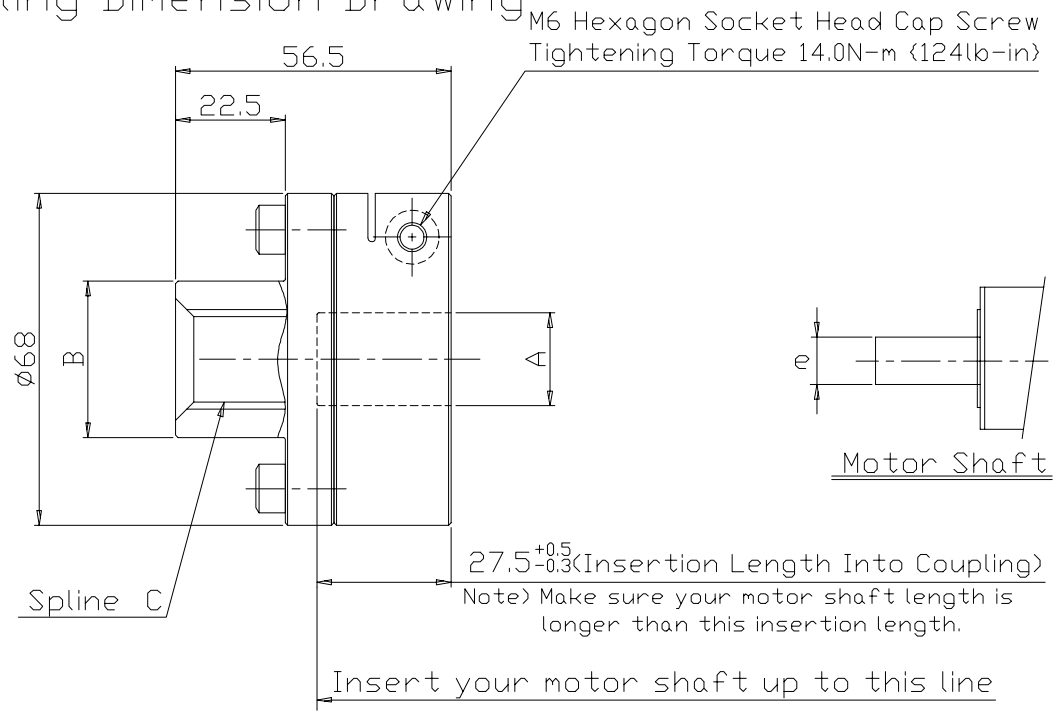
Coupling Dimension Drawing



Code	Dimensions mm			Allowable transmission torque N-m {lb-in}	Weight kg	Moment of Inertia (I=GD²/4) kg-m²	Applicable Motor Shaft Diameter e
	A	B	C				
CFS	ϕ19H7	ϕ32	20x14x1.25	73.0 {646}	0.53	1.229×10^{-3}	ϕ19h6
CFA	ϕ22H7			84.5 {748}	0.52	1.226×10^{-3}	ϕ22h6
CFB	ϕ24F7			92.2 {816}	0.51	1.224×10^{-3}	ϕ24k6
CFC	ϕ32F7			123.0 {1089}	0.49	1.206×10^{-3}	ϕ32k6
CFD	ϕ24H7			92.2 {816}	0.51	1.224×10^{-3}	ϕ24h6
CFE	ϕ28H7			107.6 {952}	0.50	1.217×10^{-3}	ϕ28h6

3RD ANGLE PROJECTION

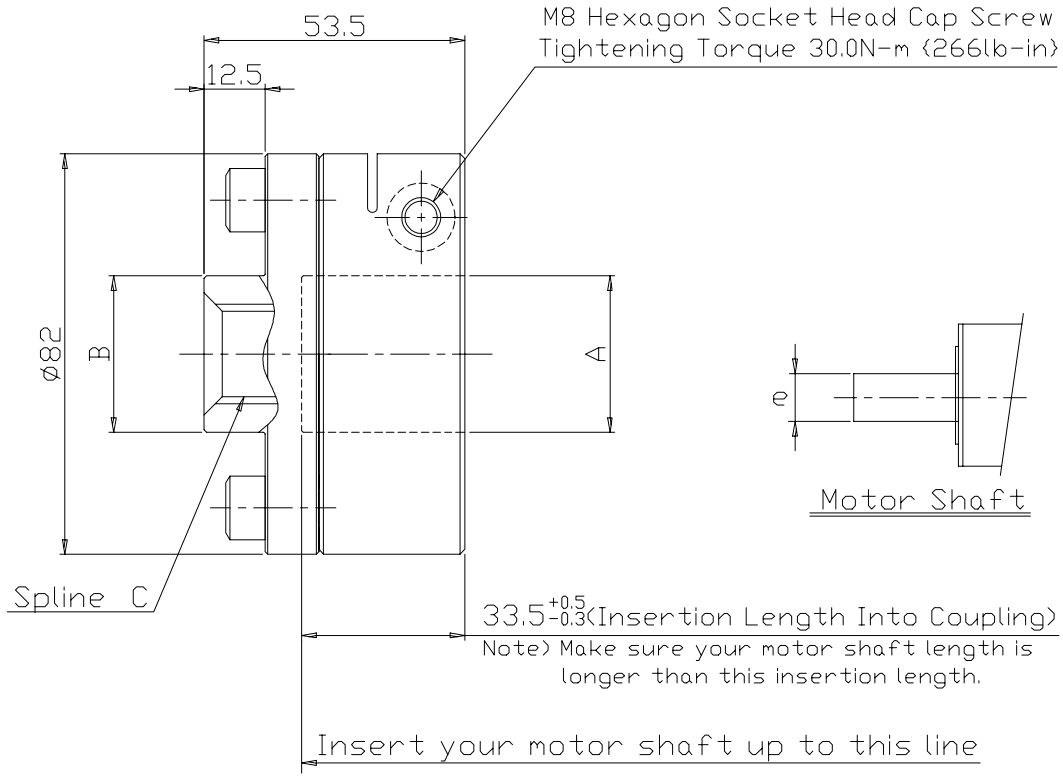
Coupling Dimension Drawing



Code	Dimensions mm			Allowable transmission torque N-m (lb-in)	Weight kg	Moment of Inertia (I=GD²/4) kg-m²	Applicable Motor Shaft Diameter e
	A	B	C				
CVS	ø19H7	ø37	25x18x1.25	73.0 (646)	0.57	1.291×10^{-3}	ø19h6
CVA	ø22H7			84.5 (748)	0.56	1.288×10^{-3}	ø22h6
CVB	ø24F7			92.2 (816)	0.56	1.285×10^{-3}	ø24k6
CVC	ø32F7			123.0 (1089)	0.53	1.267×10^{-3}	ø32k6
CVD	ø24H7			92.2 (816)	0.56	1.285×10^{-3}	ø24h6
CVE	ø28H7			107.6 (952)	0.55	1.278×10^{-3}	ø28h6
CHS	ø19H7	ø40	30x22x1.25	73.0 (646)	0.73	1.876×10^{-3}	ø19h6
CHA	ø22H7			84.5 (748)	0.72	1.874×10^{-3}	ø22h6
CHB	ø24F7			92.2 (816)	0.72	1.871×10^{-3}	ø24k6
CHC	ø32F7			123.0 (1089)	0.70	1.853×10^{-3}	ø32k6
CHD	ø24H7			92.2 (816)	0.72	1.871×10^{-3}	ø24h6
CHE	ø28H7			107.6 (952)	0.71	1.864×10^{-3}	ø28h6

3RD ANGLE PROJECTION

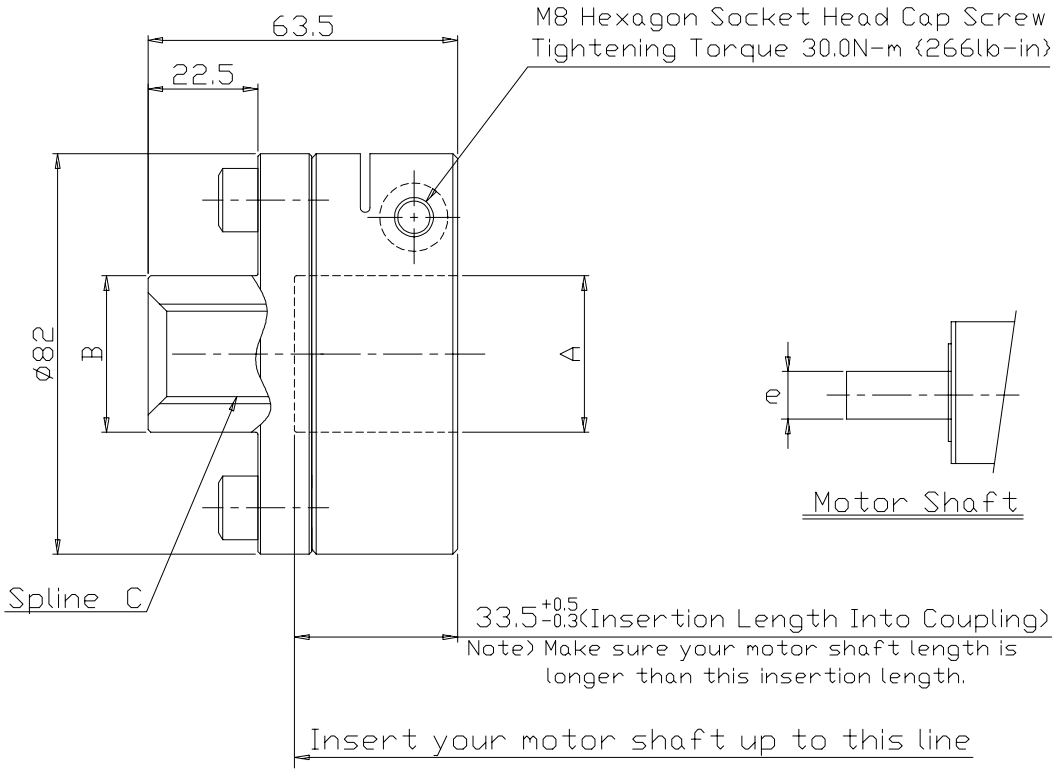
Coupling Dimension Drawing



Code	Dimensions mm			Allowable transmission torque N-m (lb-in)	Weight kg	Moment of Inertia (I=GD²/4) kg-m²	Applicable Motor Shaft Diameter e
	A	B	C				
CJS	ϕ32F7	ϕ32	20x14x1.25	190.7 (1688)	0.84	2.966x10⁻³	ϕ32K6
CJA	ϕ35H7			208.6 (1846)	0.83	2.952x10⁻³	ϕ35h6
CJB	ϕ35F7			208.6 (1846)	0.83	2.952x10⁻³	ϕ35k6
CJC	ϕ28H7			166.9 (1477)	0.85	2.980x10⁻³	ϕ28h6
CJD	ϕ24H7			143.0 (1266)	0.87	2.989x10⁻³	ϕ24h6

3RD ANGLE PROJECTION

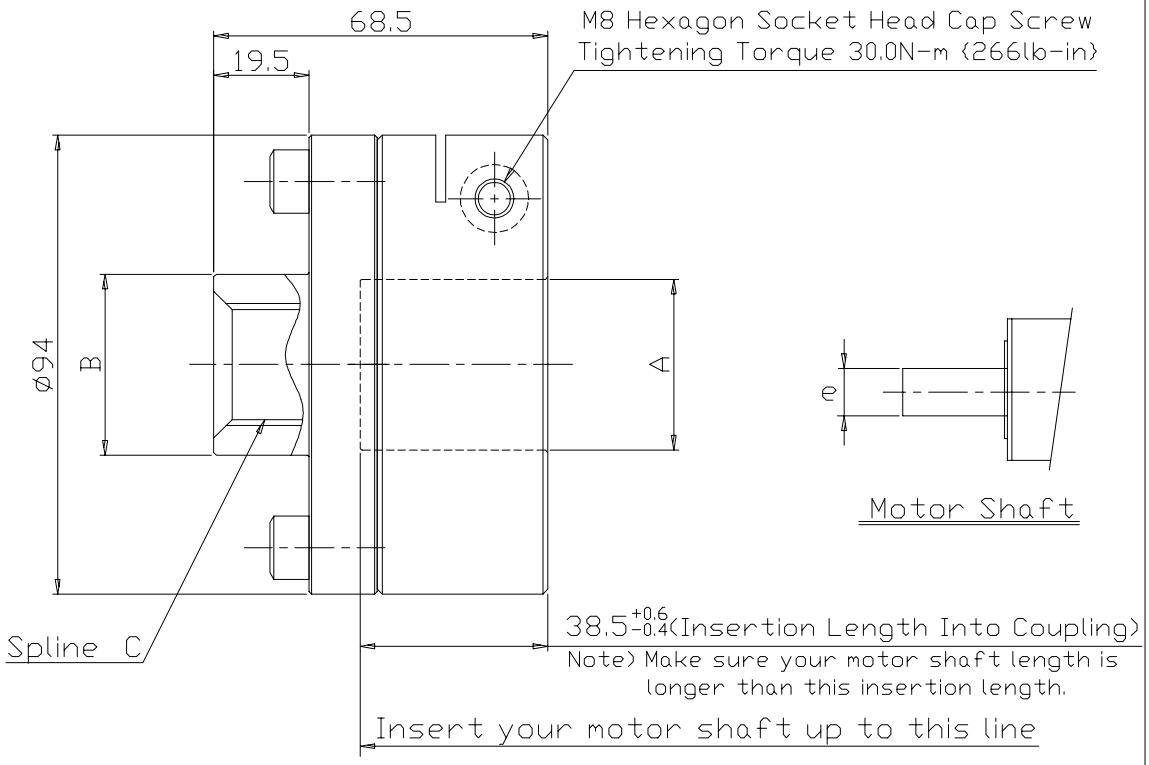
Coupling Dimension Drawing



Code	Dimensions mm			Allowable transmission torque N-m {lb-in}	Weight kg	Moment of Inertia (I=GD²/4) kg-m²	Applicable Motor Shaft Diameter e
	A	B	C				
CKS	ϕ32F7	ϕ37	25×18×1.25	190.7 {1688}	0.88	3.027×10⁻³	ϕ32k6
CKA	ϕ35H7			208.6 {1846}	0.87	3.013×10⁻³	ϕ35h6
CKB	ϕ35F7			208.6 {1846}	0.87	3.013×10⁻³	ϕ35k6
CKC	ϕ28H7			166.9 {1477}	0.89	3.041×10⁻³	ϕ28h6
CKD	ϕ24H7			143.0 {1266}	0.91	3.050×10⁻³	ϕ24h6
CLS	ϕ32F7	ϕ42	30×22×1.25	190.7 {1688}	0.81	3.070×10⁻³	ϕ32k6
CLA	ϕ35H7			208.6 {1846}	0.86	3.055×10⁻³	ϕ35h6
CLB	ϕ35F7			208.6 {1846}	0.86	3.055×10⁻³	ϕ35k6
CLC	ϕ28H7			166.9 {1477}	0.89	3.083×10⁻³	ϕ28h6
CLD	ϕ24H7			143.0 {1266}	0.91	3.092×10⁻³	ϕ24h6

3RD ANGLE PROJECTION

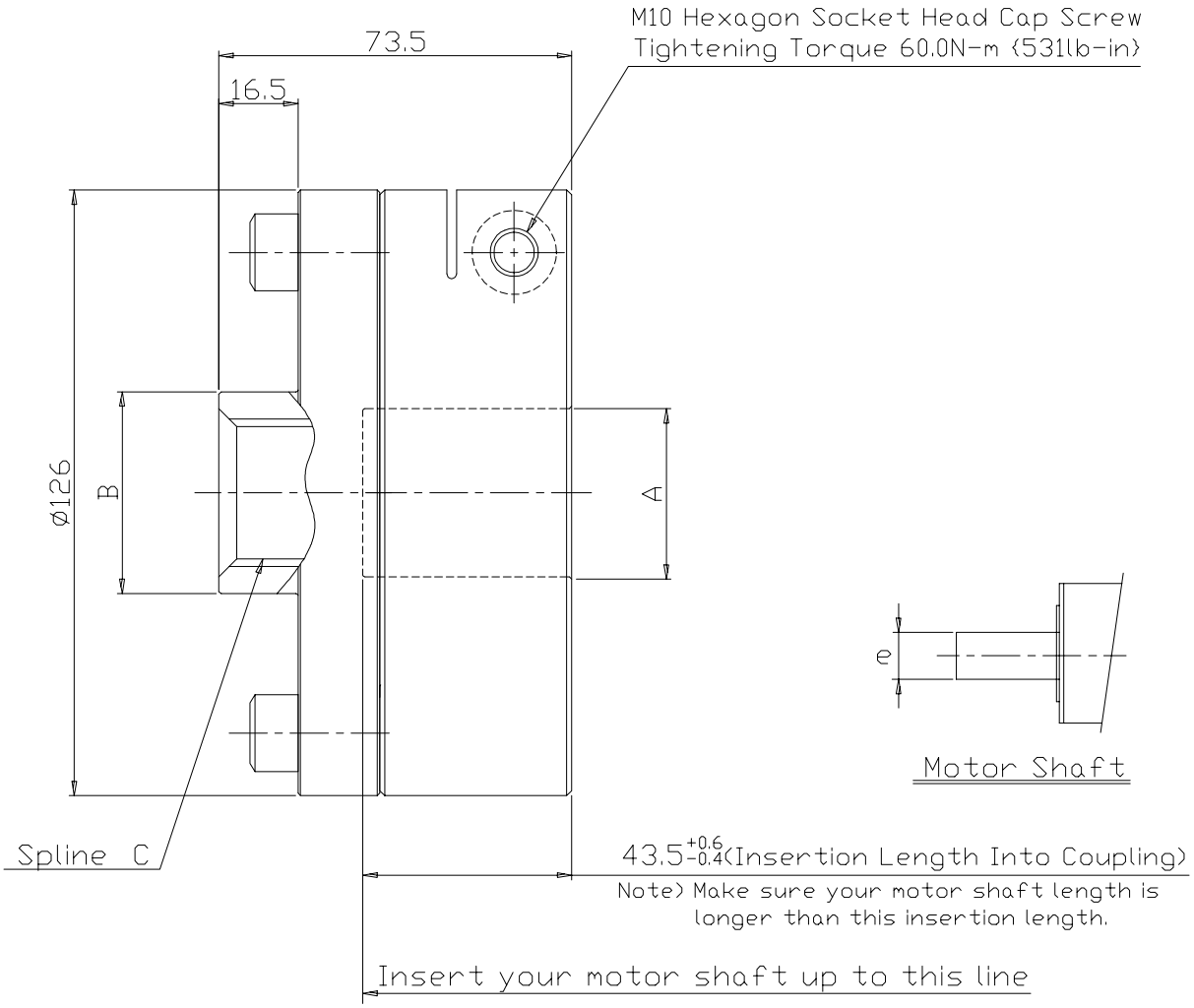
Coupling Dimension Drawing



Code	Dimensions mm			Allowable transmission torque N-m {lb-in}	Weight kg	Moment of Inertia ($I=GD^2/4$) kg-m²	Applicable Motor Shaft Diameter e
	A	B	C				
CMS	ø35F7	ø37	25×18×1.25	212.8 {1883}	1.36	6.282×10^{-3}	ø35k6
CMA	ø38F7			231.0 {2045}	1.35	6.261×10^{-3}	ø38k6
CMB	ø42H7			255.4 {2260}	1.32	6.223×10^{-3}	ø42h6
CMC	ø35H7			212.8 {1883}	1.36	6.282×10^{-3}	ø35h6
CNS	ø35F7	ø42	30×22×1.25	212.8 {1883}	1.35	6.314×10^{-3}	ø35k6
CNA	ø38F7			231.0 {2045}	1.34	6.292×10^{-3}	ø38k6
CNB	ø42H7			255.4 {2260}	1.31	6.254×10^{-3}	ø42h6
CNC	ø35H7			212.8 {1883}	1.35	6.314×10^{-3}	ø35h6

3RD ANGLE PROJECTION

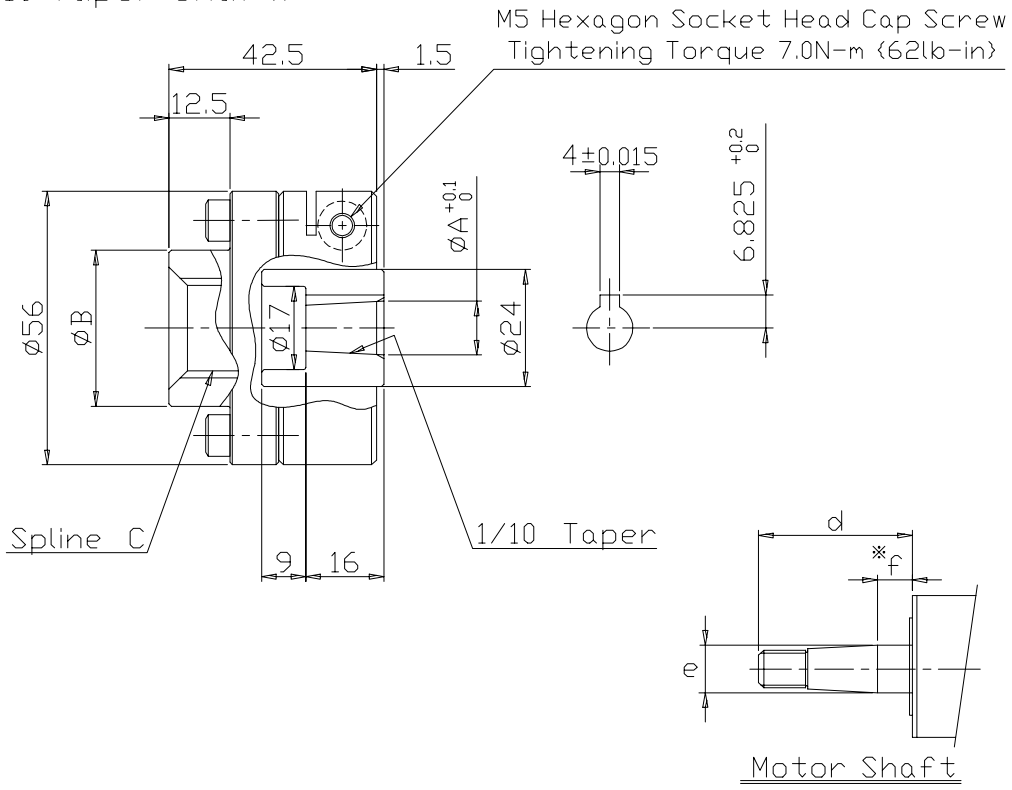
Coupling Dimension Drawing



Code	Dimensions mm			Allowable transmission torque N-m {lb-in}	Weight kg	Moment of Inertia (I=GD²/4) kg-m²	Applicable Motor Shaft Diameter e
	A	B	C				
CWS	ø35F7	ø42	30x22x1.25	442.0 {3912}	5.24	4.418×10^{-2}	ø35k6
CWA	ø38F7			479.9 {4247}	5.22	4.411×10^{-2}	ø38k6
CWB	ø42H7			530.4 {4694}	5.14	4.398×10^{-2}	ø42h6
CWC	ø35H7			442.0 {3912}	5.27	4.418×10^{-2}	ø35h6

3RD ANGLE PROJECTION

Coupling Dimension Drawing
(For 1/10 Taper Shaft)



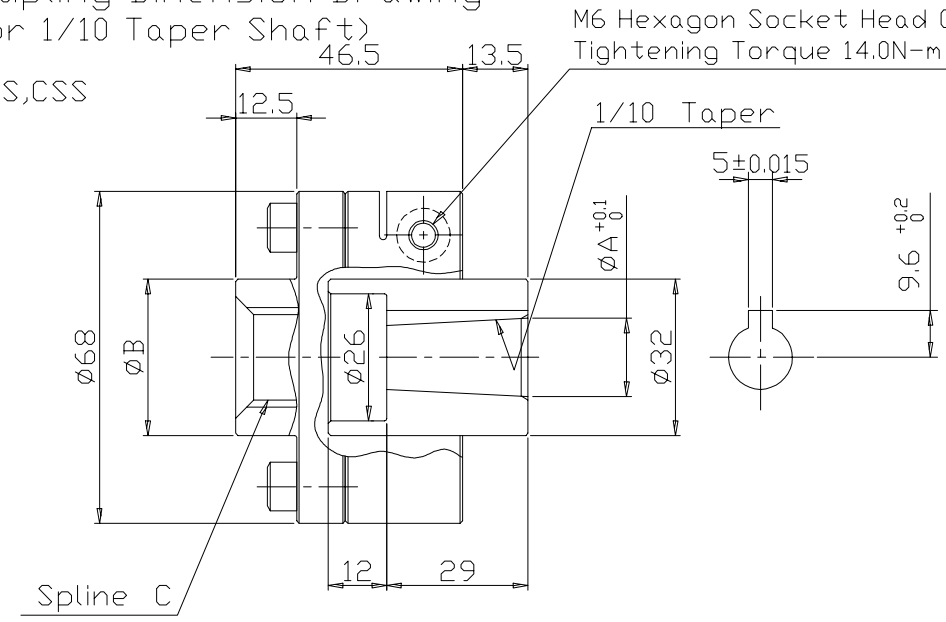
※Select a Motor Flange with the motor shaft length as (d)=f+25 mm when using coupling for a taper shaft : CCH,CDG

Code	Dimensions mm			Allowable transmission torque N-m {lb-in}	Weight kg	Moment of Inertia (I=GD²/4) kg-m²	Applicable Motor Shaft Diameter e
	A	B	C				
CCH	ϕ11	ϕ20	12×10×1.00	54.4 {481}	0.36	5.319×10⁻⁴	ϕ11
CDG	ϕ11	ϕ25	15×10×1.25	54.4 {481}	0.37	5.387×10⁻⁴	ϕ11

3RD ANGLE PROJECTION

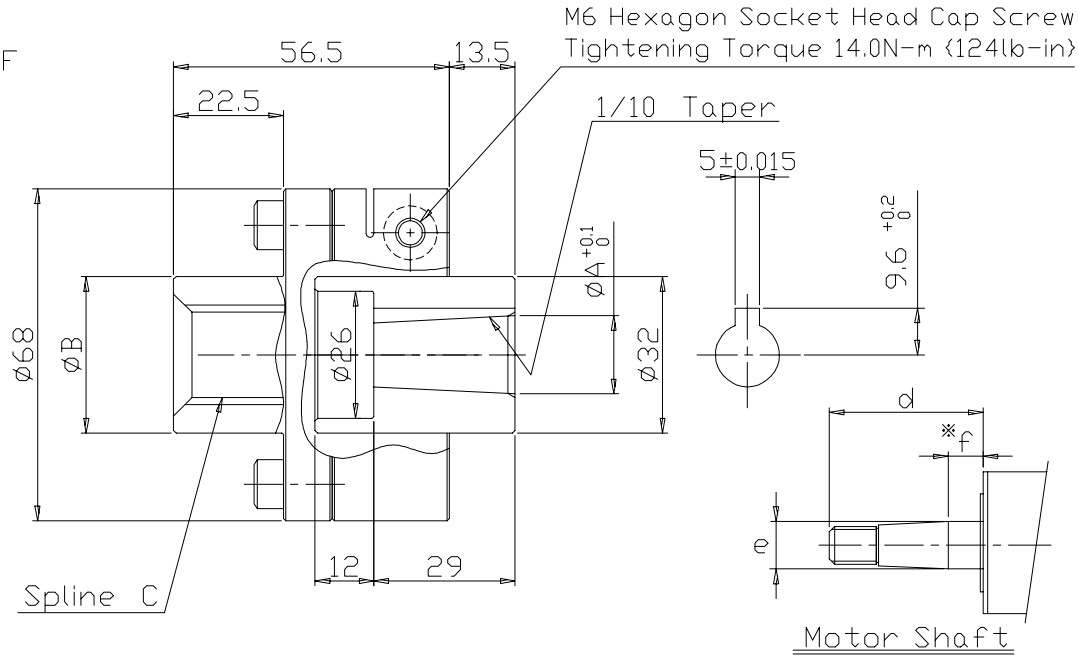
Coupling Dimension Drawing
(For 1/10 Taper Shaft)

CFF,CRS,CSS



Code	Dimensions mm			Allowable transmission torque N-m {lb-in}	Weight kg	Moment of Inertia (I=GD²/4) kg-m²	Applicable Motor Shaft Diameter e
	A	B	C				
CFF	ϕ16	ϕ32	20×14×1.25	123.0 {1089}	0.64	1.267×10⁻³	ϕ16
CRS	ϕ16	ϕ20	12×10×1.00	123.0 {1089}	0.63	1.243×10⁻³	ϕ16
CSS	ϕ16	ϕ25	15×10×1.25	123.0 {1089}	0.64	1.250×10⁻³	ϕ16
CVF	ϕ16	ϕ37	25×18×1.25	123.0 {1089}	0.68	1.329×10⁻³	ϕ16

CVF

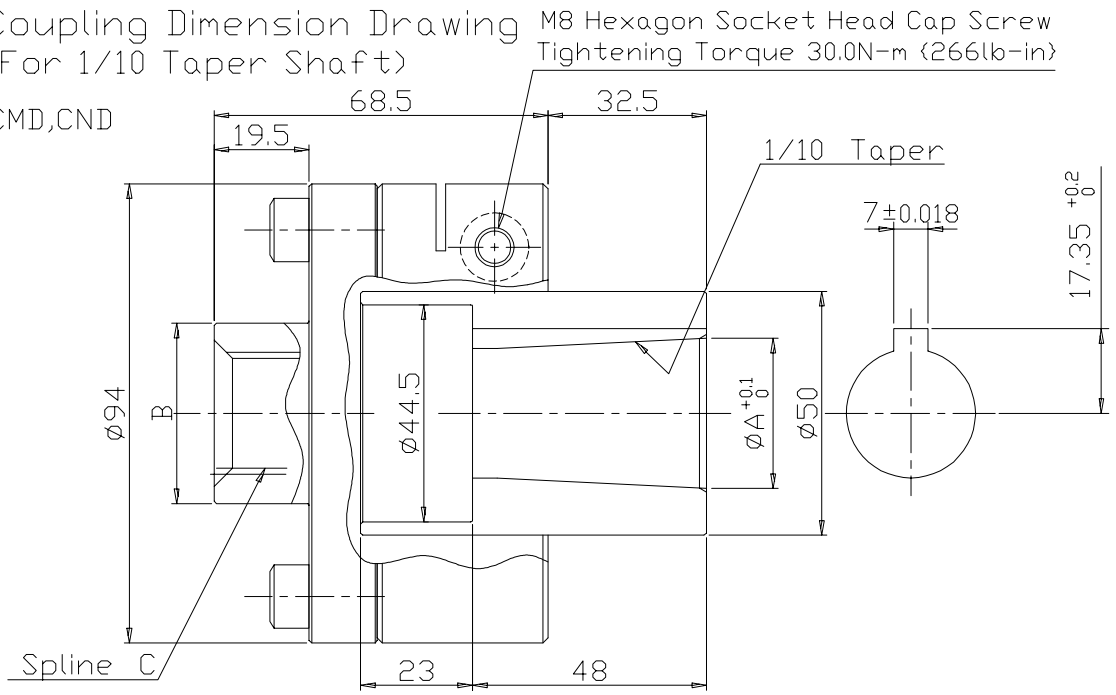


※ Select a Motor Flange with the motor shaft length as "(d)=f+41 mm" when using coupling for a taper shaft : CFF,CRS,CSS,CVF

3RD ANGLE PROJECTION

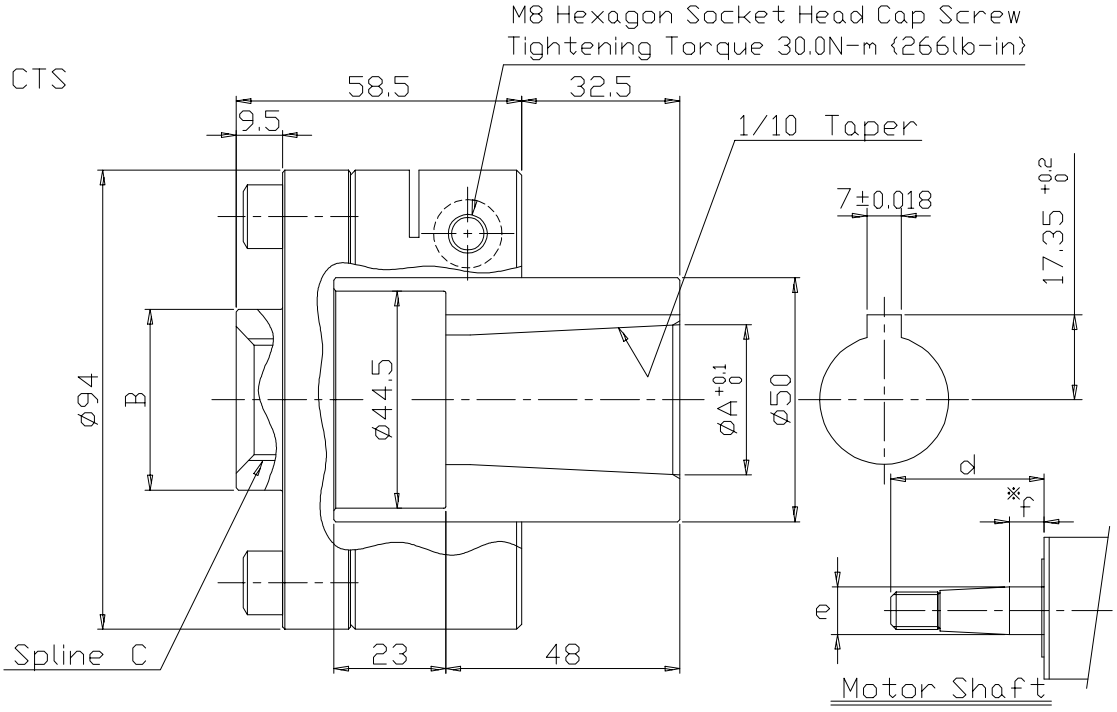
Coupling Dimension Drawing (For 1/10 Taper Shaft)

CMD,CND



Code	Dimensions mm			Allowable transmission torque N-m {lb-in}	Weight kg	Moment of Inertia (I=GD²/4) kg-m²	Applicable Motor Shaft Diameter e
	A	B	C				
CMD	ϕ30.8	ϕ37	25x18x1.25	304.0 {2691}	1.77	7.063x10⁻³	ϕ32
CND	ϕ30.8	ϕ42	30x22x1.25	304.0 {2691}	1.76	7.094x10⁻³	ϕ32
CTS	ϕ30.8	ϕ32	20x14x1.25	304.0 {2691}	1.73	7.010x10⁻³	ϕ32

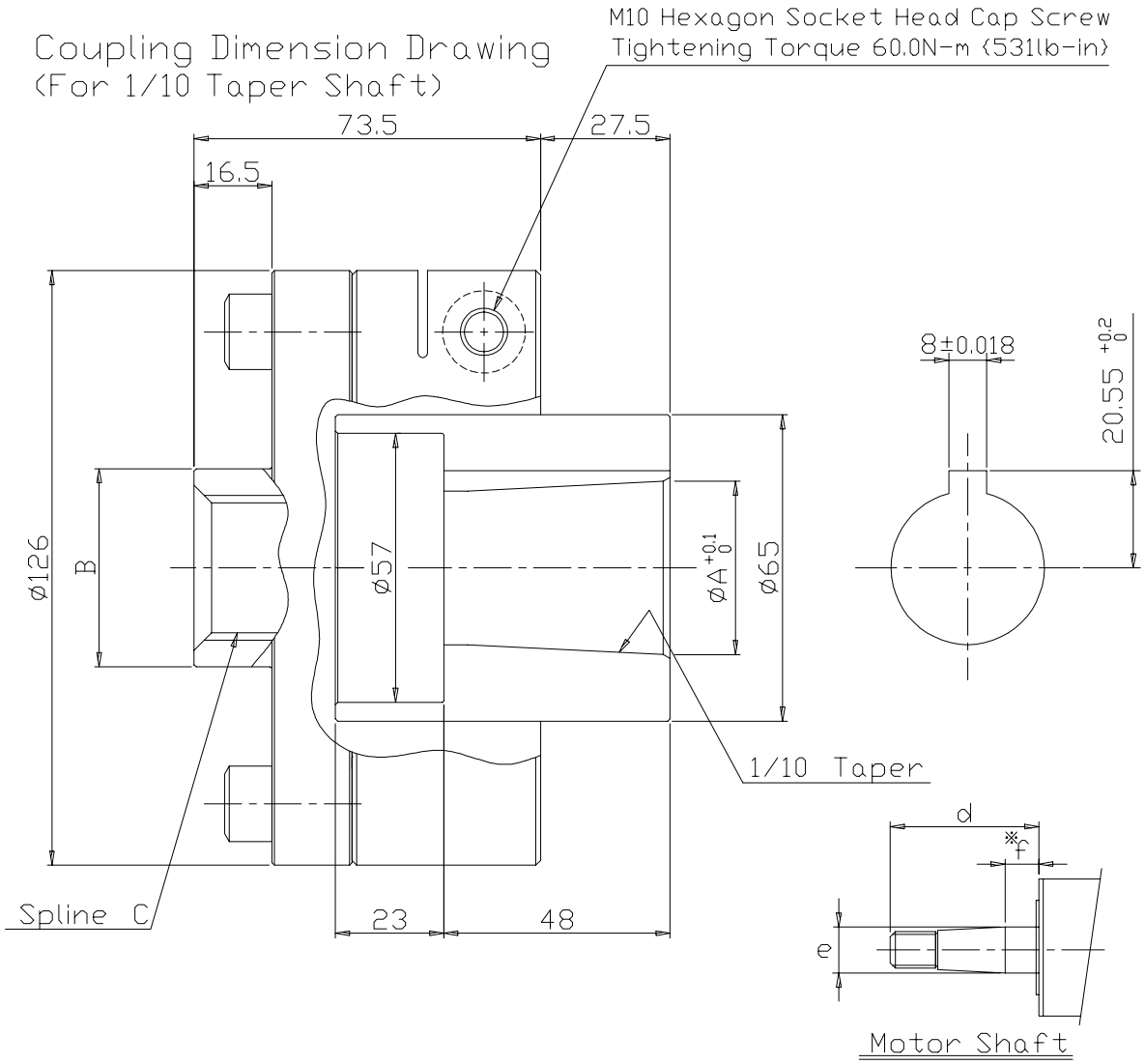
CTS



※Select a Motor Flange with the motor shaft length as "(d)=f+83 mm" when using coupling for a taper shaft : CMD,CND,CTS

3RD ANGLE PROJECTION

Coupling Dimension Drawing
(For 1/10 Taper Shaft)



Select a Motor Flange with the motor shaft length as "(d)=f+83 mm" when using coupling for a taper shaft : CWD

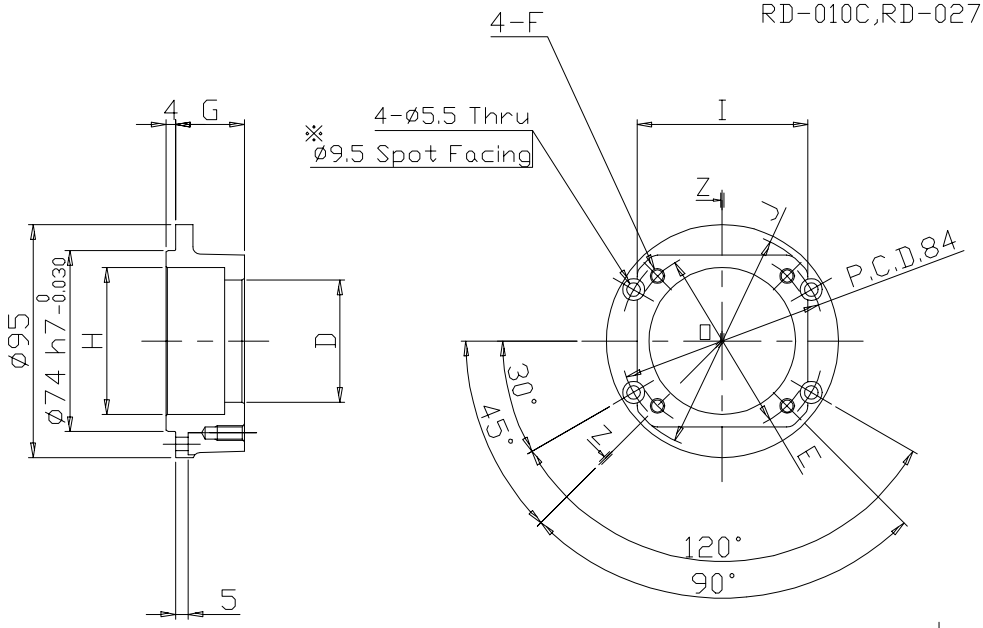
Code	Dimensions mm			Allowable transmission torque N-m {lb-in}	Weight kg	Moment of Inertia (I=GD²/4) kg-m²	Applicable Motor Shaft Diameter e
	A	B	C				
CWD	ø36.8	ø42	30x22x1.25	820.9 {7266}	5.43	4.505×10^{-2}	ø38

3RD ANGLE PROJECTION

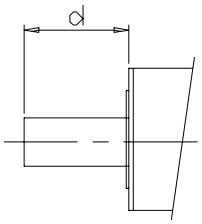
External dimension drawing of the motor flange

Motor Flange Dimension Drawing

Applicable Reduction Gear : RD-006E,RD-020E
RD-010C,RD-027C,RD-050C



Section Z-□-Z



Motor Shaft

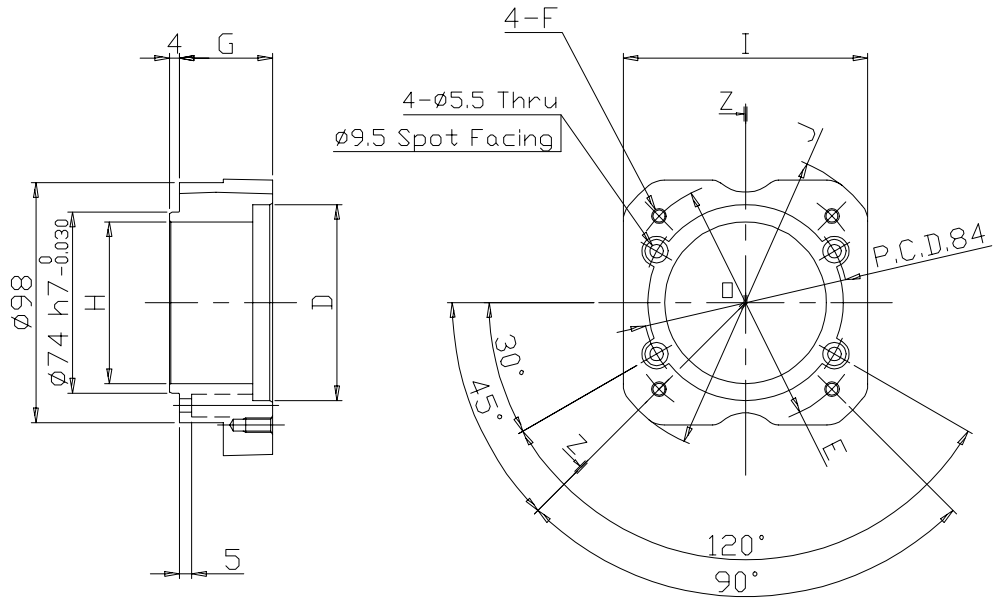
※ MAA、MAB : Without Spot Facing

Code	Dimensions mm							Weight kg	Applicable Motor Shaft Length "d" mm	
	D	E	F	G	H	I	J		Over	To
MAA	$\phi 30^{+0.030}_{+0.009}$	ϕ46	M4 Thru	28	ϕ50	□40	—	0.70	25	30
MAB		ϕ45	M3 Thru					0.70		
MAC	$\phi 60^{+0.037}_{+0.012}$	ϕ75	M6 Depth11	28	ϕ60	□70	ϕ90	0.62		
MAD			M5 Depth9					0.62		
MAE				23				0.54	20	25
MAF	$\phi 50^{+0.036}_{+0.011}$	ϕ70		28				0.68	25	30
MAH		ϕ60	M4 Depth8					0.68		
MAJ		ϕ70						0.68		

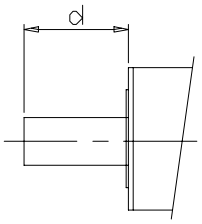
3RD ANGLE PROJECTION

Motor Flange Dimension Drawing

Applicable Reduction Gear : RD-006E,RD-020E
RD-010C,RD-027C,RD-050C



Section Z-□-Z



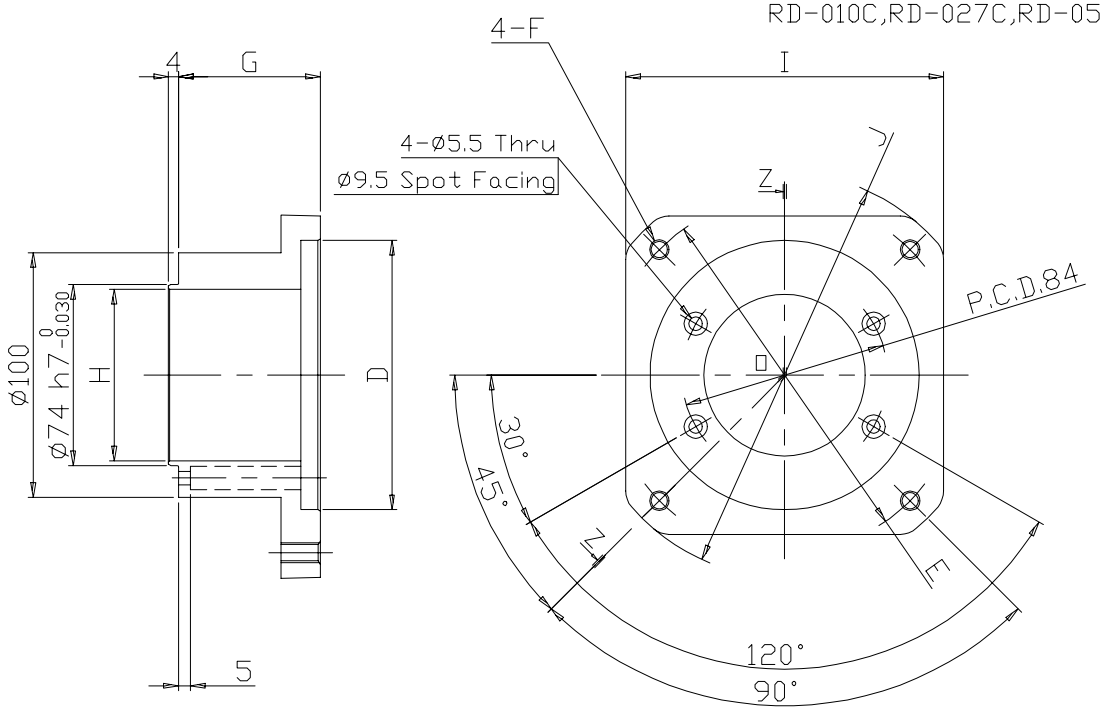
Motor Shaft

Code	Dimensions mm							Weight kg	Applicable Motor Shaft Length "d" mm	
	D	E	F	G	H	I	J		Over	To
MAK	ϕ80 +0.037 +0.012	ϕ100	M6 Depth11	38	ϕ66	□100	ϕ124	1.50	35	40
MAL				28				1.20	25	30
MAM	ϕ70 +0.037 +0.012	ϕ90		38				1.50	35	40
MAN			M5 Depth9	28				1.20	25	30
MAQ	ϕ80 +0.037 +0.012	ϕ100	M6 Depth11	33				1.40	30	35
MAR	ϕ70 +0.037 +0.012	ϕ90	M5 Depth9					1.40		
MAS	ϕ80 +0.037 +0.012	ϕ100	M6 Depth11	53				2.00	50	55

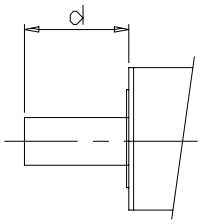
3RD ANGLE PROJECTION

Motor Flange Dimension Drawing

Applicable Reduction Gear : RD-006E,RD-020E
RD-010C,RD-027C,RD-050C



Section Z-□-Z



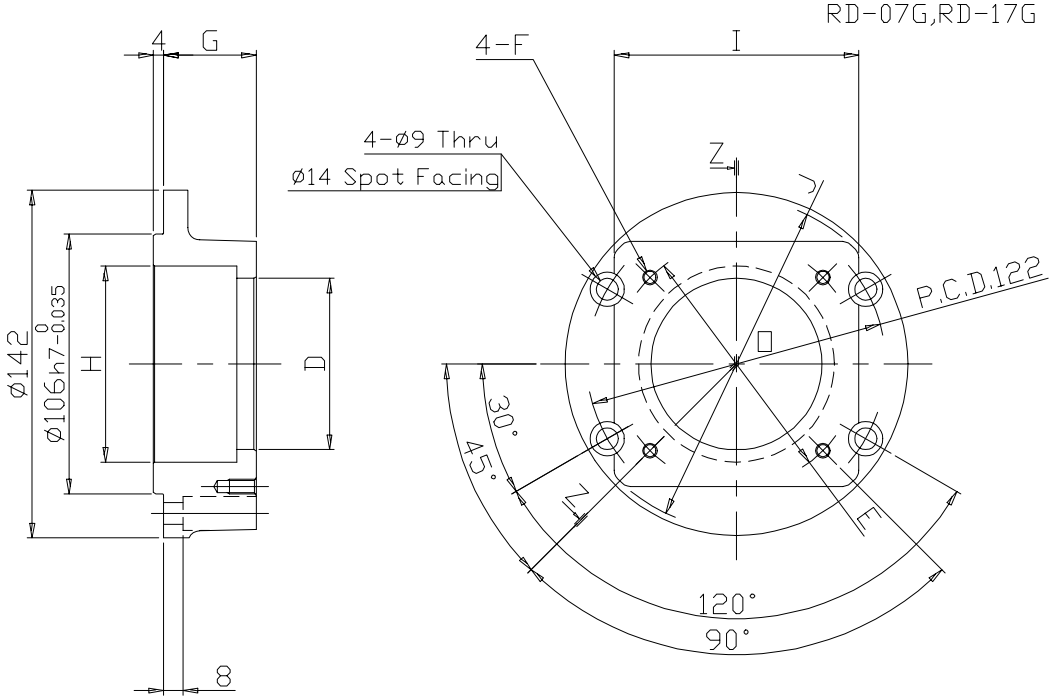
Motor Shaft

Code	Dimensions mm							Weight kg	Applicable Motor Shaft Length "d" mm	
	D	E	F	G	H	I	J		□ver	To
MAT	ϕ110 +0.038 +0.013	ϕ145	M8 Thru	58	ϕ70	□130	ϕ165	2.40	55	60
MAV				48	ϕ66			2.40	45	50
MAW		ϕ130						2.40		
MAX		ϕ145		53				2.70	50	55
MAY	ϕ95 +0.038 +0.013	ϕ115		38				2.10	35	40

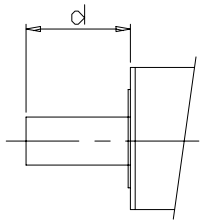
3RD ANGLE PROJECTION

Motor Flange Dimension Drawing

Applicable Reduction Gear : RD-040E,RD-080E
RD-100C,RD-200C
RD-07G,RD-17G



Section Z-□-Z



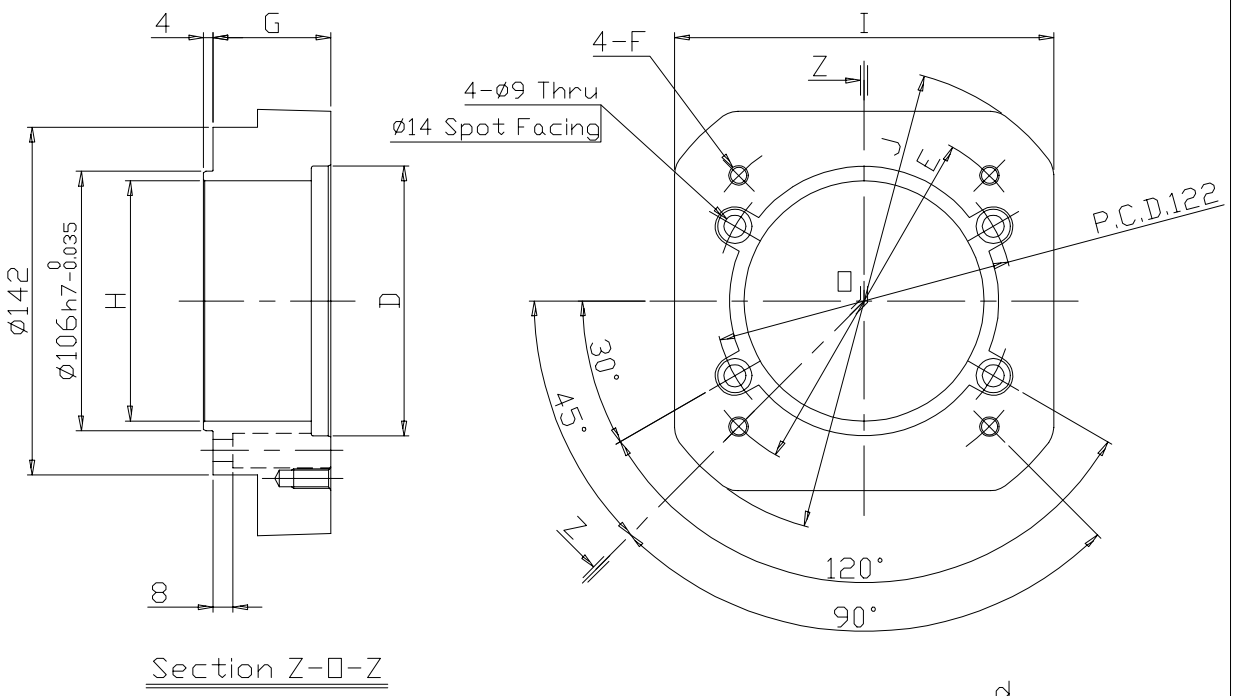
Motor Shaft

Code	Dimensions mm							Weight kg	Applicable Motor Shaft Length "d" mm	
	D	E	F	G	H	I	J		□ver	To
MKA	$\phi 80^{+0.037}_{+0.012}$	ϕ100	M6 Depth11	38	ϕ80	□100	ϕ135	2.00	35	40
MKB				28				1.60	25	30
MKC	$\phi 70^{+0.037}_{+0.012}$	ϕ90		38				2.00	35	40
MKD	$\phi 50^{+0.036}_{+0.011}$	ϕ70	M5 Depth9	28				1.60	25	30
MKE	$\phi 70^{+0.037}_{+0.012}$	ϕ90		33				1.80	30	35
MKF	$\phi 80^{+0.037}_{+0.012}$	ϕ100	M6 Depth11	53				3.00	50	55
MKH	$\phi 95^{+0.038}_{+0.013}$	ϕ115	M8 Depth15					3.00		

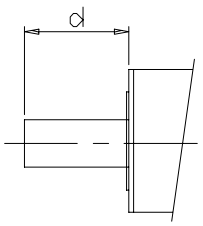
3RD ANGLE PROJECTION

Motor Flange Dimension Drawing

Applicable Reduction Gear : RD-040E,RD-080E
RD-100C,RD-200C
RD-07G,RD-17G



Section Z-□-Z



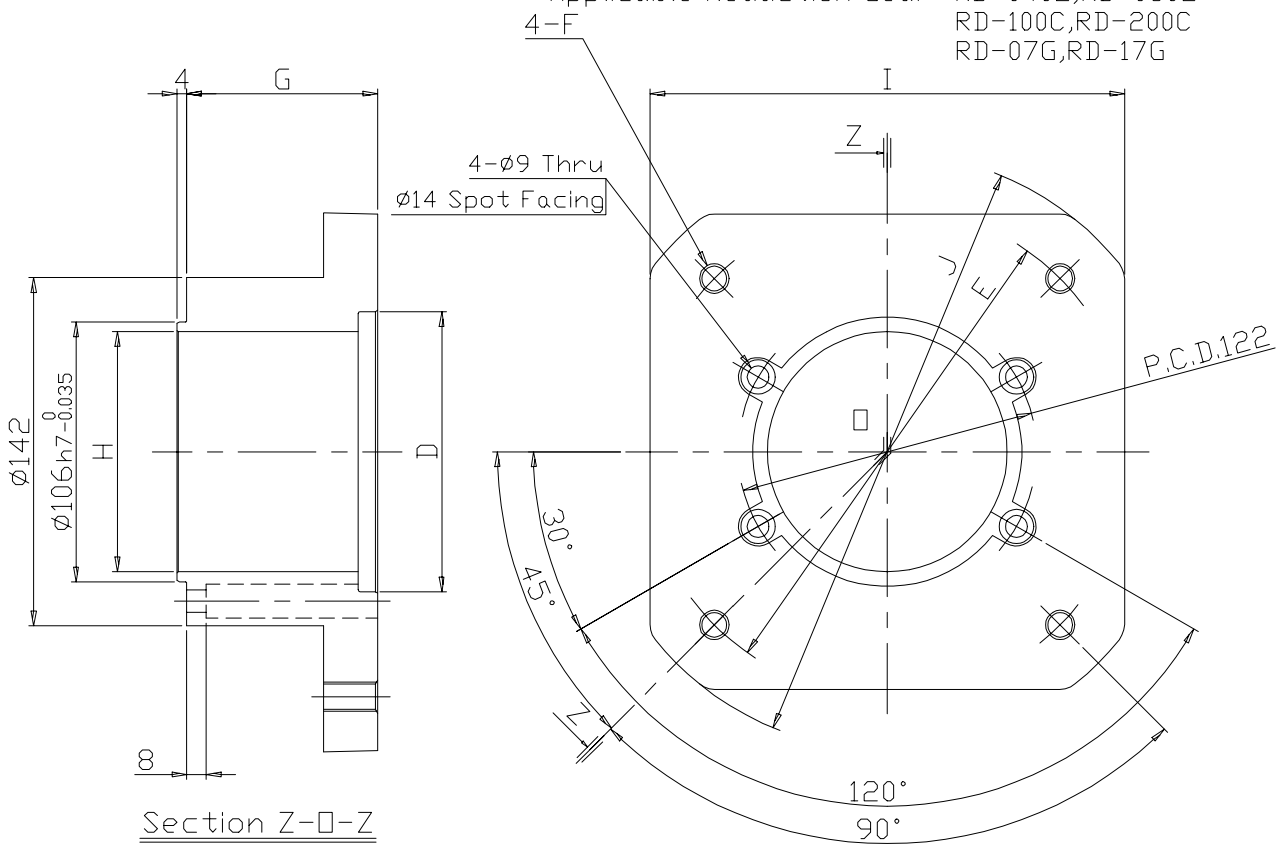
Motor Shaft

Code	Dimensions mm							Weight kg	Applicable Motor Shaft Length "d" mm	
	D	E	F	G	H	I	J		Over	To
MKJ	$\phi 130^{+0.039}_{+0.014}$	ϕ165	M10 Depth18	58	ϕ98	□155	ϕ190	5.20	55	60
MKK	$\phi 110^{+0.038}_{+0.013}$	ϕ145	M8 Depth15					5.40		
MKL				48				4.80	45	50
MKM		ϕ130						4.80		
MKN	$\phi 95^{+0.038}_{+0.013}$	ϕ115		38				3.70	35	40
MKQ	$\phi 110^{+0.038}_{+0.013}$	ϕ145		53				5.10	50	55
MKR	$\phi 130^{+0.039}_{+0.014}$	ϕ165	M10 Depth18	63				5.50	60	65
MKS	$\phi 110^{+0.038}_{+0.013}$	ϕ145	M8 Depth15					5.70		

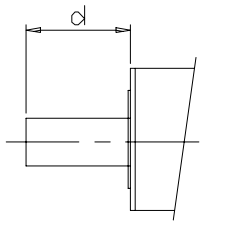
3RD ANGLE PROJECTION

Motor Flange Dimension Drawing

Applicable Reduction Gear : RD-040E,RD-080E
RD-100C,RD-200C
RD-07G,RD-17G



Section Z-□-Z



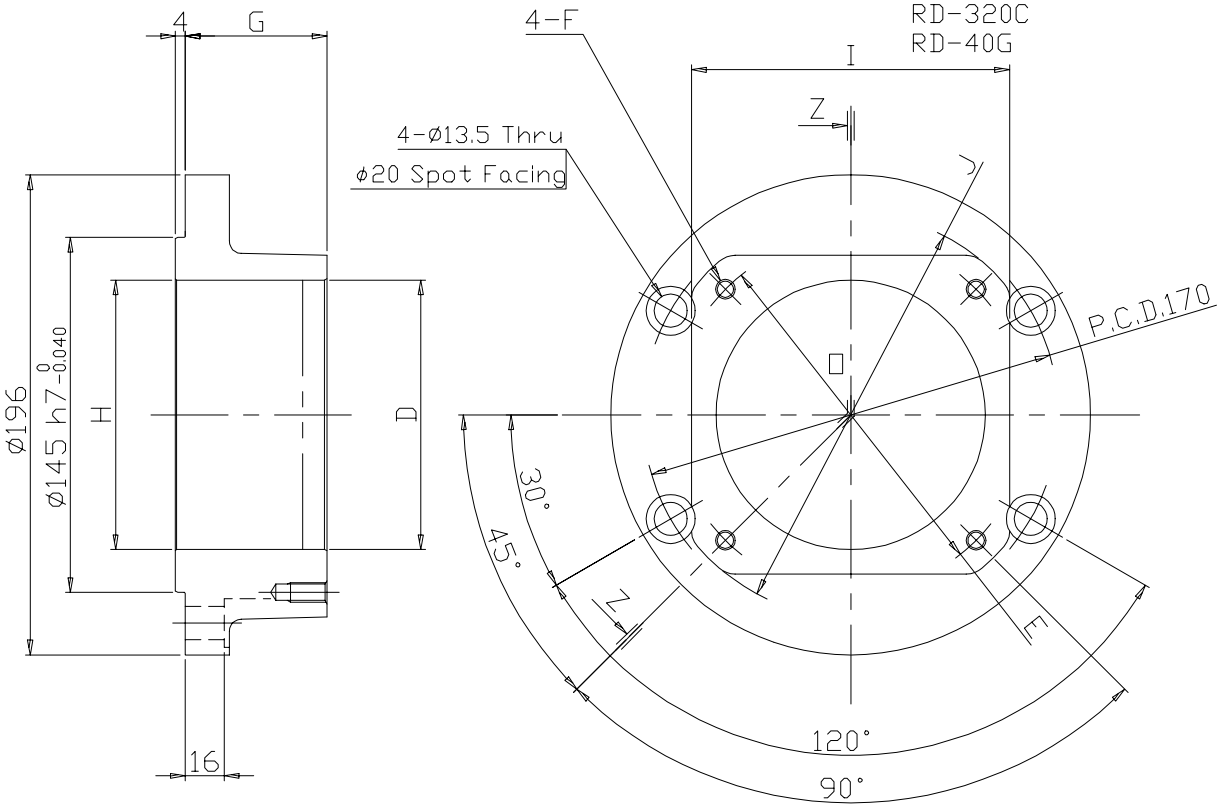
Motor Shaft

Code	Dimensions mm							Weight kg	Applicable Motor Shaft Length "d" mm	
	D	E	F	G	H	I	J		□ver	To
MKT	$\phi 114.3^{+0.038}_{+0.013}$	ø200	M12 Thru	78	ø98	□194	ø244	8.60	75	80
MKV	$\phi 180^{+0.039}_{+0.014}$	ø215						7.60		
MKW	$\phi 114.3^{+0.038}_{+0.013}$	ø200		103				9.00	100	105

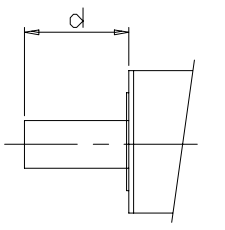
3RD ANGLE PROJECTION

Motor Flange Dimension Drawing

Applicable Reduction Gear : RD-160E,RD-320E
RD-320C
RD-40G



Section Z-□-Z



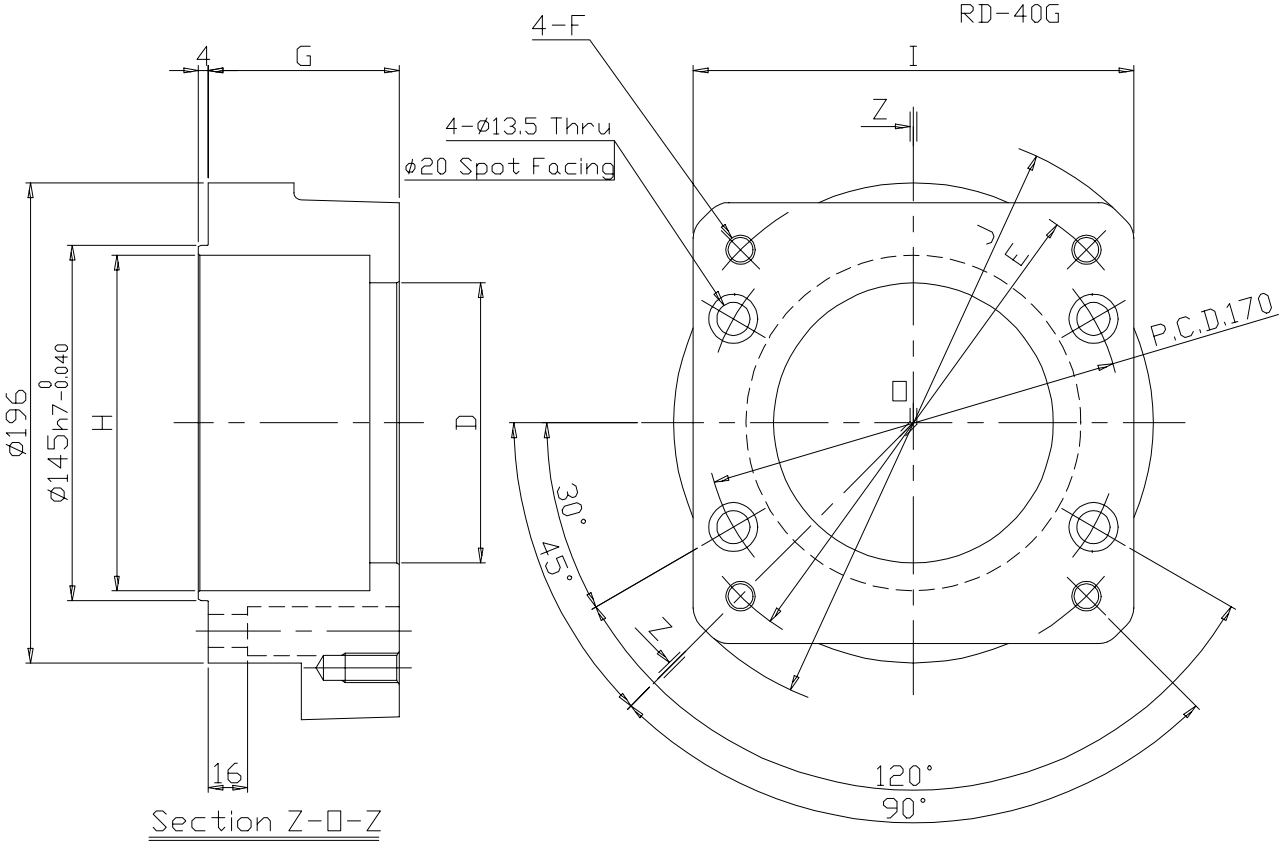
Motor Shaft

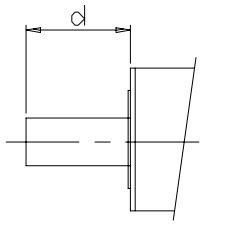
Code	Dimensions mm							Weight kg	Applicable Motor Shaft Length "d" mm	
	D	E	F	G	H	I	J		□ver	To
MSA	ø110 +0.038 +0.013	ø145	M8 Depth15	58	ø110	□130	ø165	5.50	55	60
MSB				48				4.80	45	50
MSC				53				5.20	50	55
MSD	ø95 +0.038 +0.013	ø115						5.20		
MSE	ø110 +0.038 +0.013	ø145		63				5.80	60	65

3RD ANGLE PROJECTION

Motor Flange Dimension Drawing

Applicable Reduction Gear : RD-160E,RD-320E
RD-320C
RD-40G





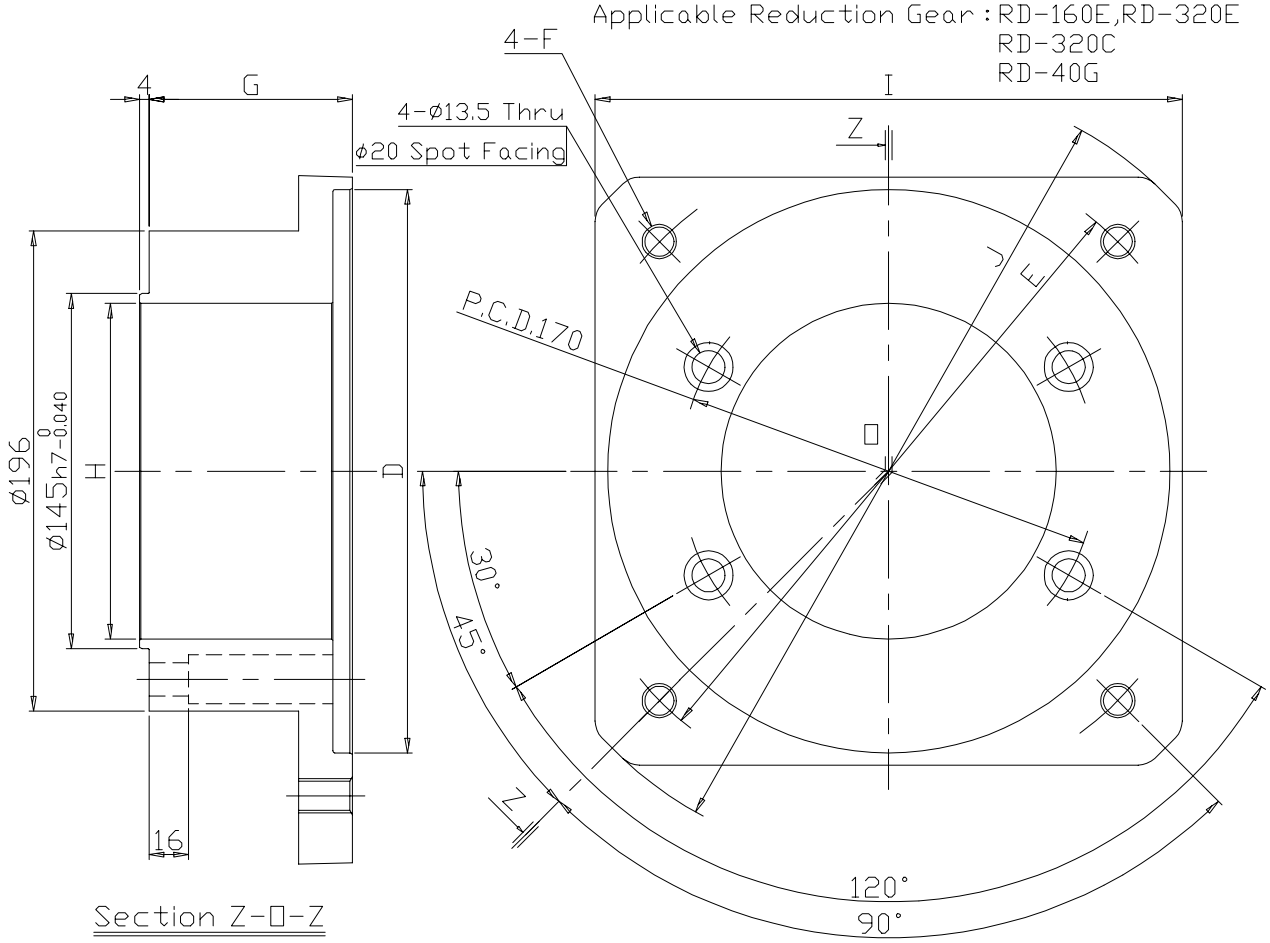
Motor Shaft

Code	Dimensions mm							Weight kg	Applicable Motor Shaft Length "d" mm	
	D	E	F	G	H	I	J		Over	To
MSF	$\phi 114.3^{+0.038}_{+0.013}$	ø200	M12 Depth22	78	ø137	□180	ø240	11.00	75	80
MSH	$\phi 130^{+0.039}_{+0.014}$	ø165	M10 Depth18	58				8.00	55	60
MSK				63				8.60	60	65
MSL	$\phi 114.3^{+0.038}_{+0.013}$	ø200	M12 Depth22	68				9.80	65	70
MSM				103				11.50	100	105

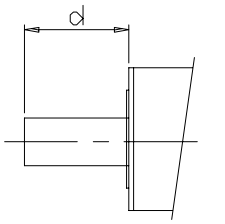
3RD ANGLE PROJECTION

Motor Flange Dimension Drawing

Applicable Reduction Gear : RD-160E,RD-320E
RD-320C
RD-40G



Section Z-□-Z



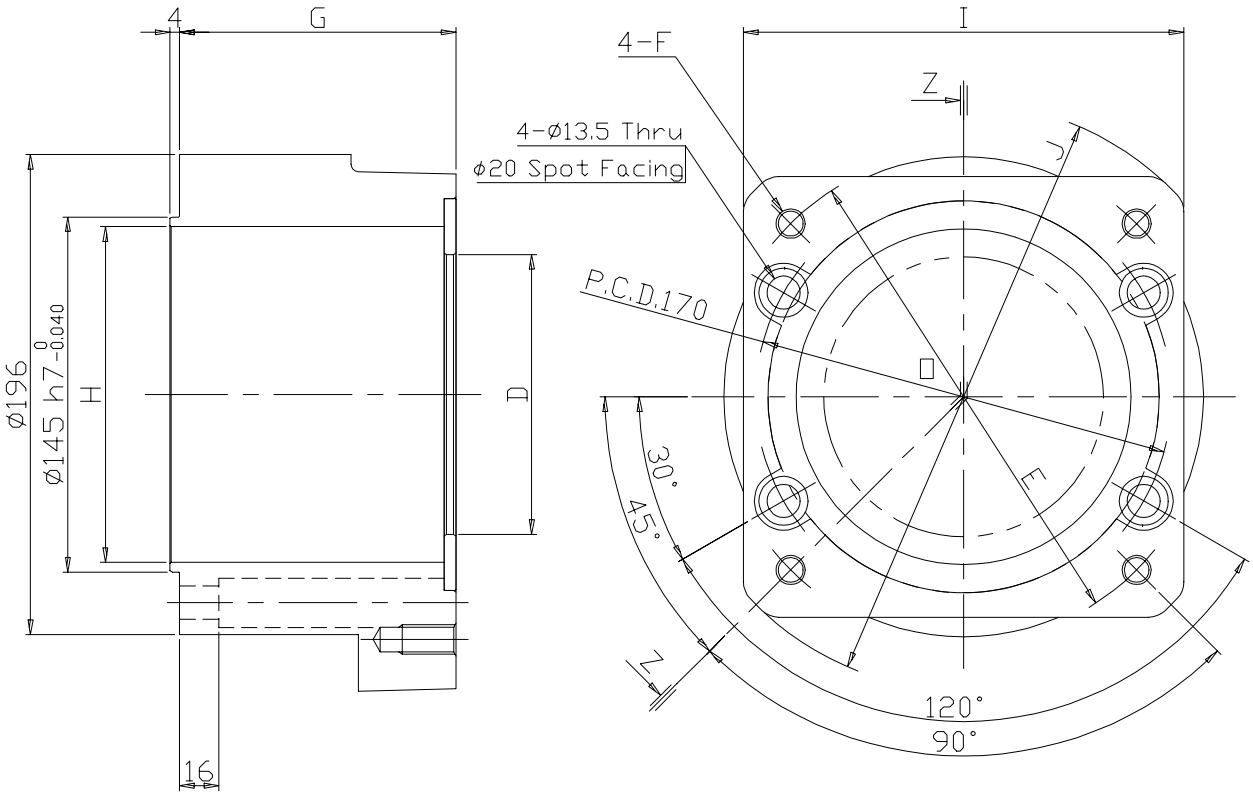
Motor Shaft

Code	Dimensions mm							Weight kg	Applicable Motor Shaft Length "d" mm	
	D	E	F	G	H	I	J		□ver	To
MSQ	ø230 +0.041 +0.016	ø265	M14 Thru	83	ø137	□240	ø320	13.00	80	85
MSR	ø180 +0.039 +0.014	ø215	M12 Thru	78				13.00	75	80

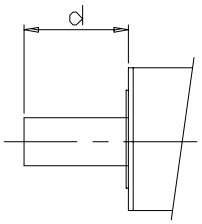
3RD ANGLE PROJECTION

Motor Flange Dimension Drawing

Applicable Reduction Gear : RD-160E,RD-320E
RD-320C
RD-40G



Section Z-□-Z



Motor Shaft

Code	Dimensions mm							Weight kg	Applicable Motor Shaft Length "d" mm	
	D	E	F	G	H	I	J		Over	To
RST	ø114.3 +0.035 0	ø200	M12 Depth22	113	ø137	□180	ø240	14.0	110	115
RSF				78				10.0	75	80
RSL				68				8.80	65	70
RSM				103				12.1	100	105

3RD ANGLE PROJECTION

Engineering Notes

Installation of the reduction gear and mounting it to the output shaft

When installing the reduction gear and mounting it to the output shaft, use hexagon socket head cap screws and tighten to the torque, as specified below, in order to satisfy the momentary maximum allowable torque, which is noted in the rating table.
Employment of the Belleville spring washer is recommended to prevent the bolt from loosening and protect the bolt seat surface from flaws.

<Bolt tightening torque and tightening force>

Hexagon socket head cap screw nominal size x pitch (mm)	Tightening torque (N-m)	Tightening force F (N)	Bolt specification
M5 x 0.8	9.01 ± 0.49	9310	◆ Hexagon socket head cap screw JIS B 1176 or Equivalent ◆ Strength class JIS B 1051 12.9 or Equivalent ◆ Thread JIS B 0205 6 g or class 2 or Equivalent
M6 x 1.0	15.6 ± 0.78	13180	
M8 x 1.25	37.2 ± 1.86	23960	
M10 x 1.5	73.5 ± 3.43	38080	
M12 x 1.75	128.4 ± 6.37	55100	
M14 x 2.0	204.8 ± 10.2	75860	
M16 x 2.0	318.5 ± 15.9	103410	

Note: 1. The tightening torque values listed are for steel or cast iron material.
2. If softer material, such as aluminum or stainless, is used, limit the tightening torque. Also pay attention to the system requirements of the transmission torque.

<Calculation of allowable transmission torque of bolts>

$$T = F \times \frac{D}{2} \times \mu \times n$$

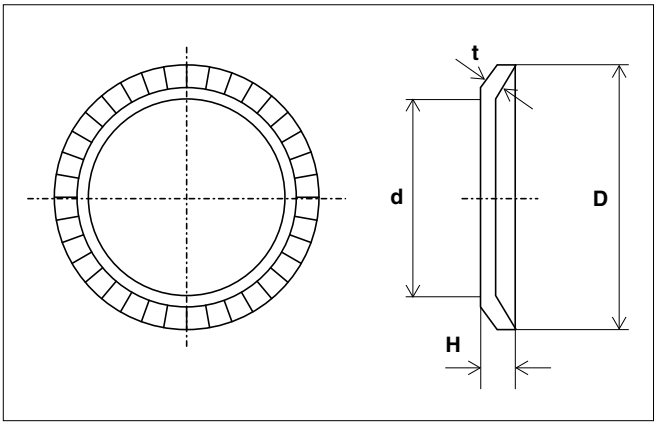
T	Allowable transmission torque by tightening bolt (N-m)
F	Bolt tightening force (N)
D	Bolt mounting P.C.D (mm)
μ	Friction factor μ=0.15: When grease remains on the mating face. μ=0.20: When grease is removed from the mating face.
n	Number of bolts (pcs.)

<Serrated lock washer External teeth for hexagonal socket bolt>

Teijin Seiki symbol: Bell-SW-2H (nominal size)
Material: Steel
Hardness: H_{RC} 40 to 48

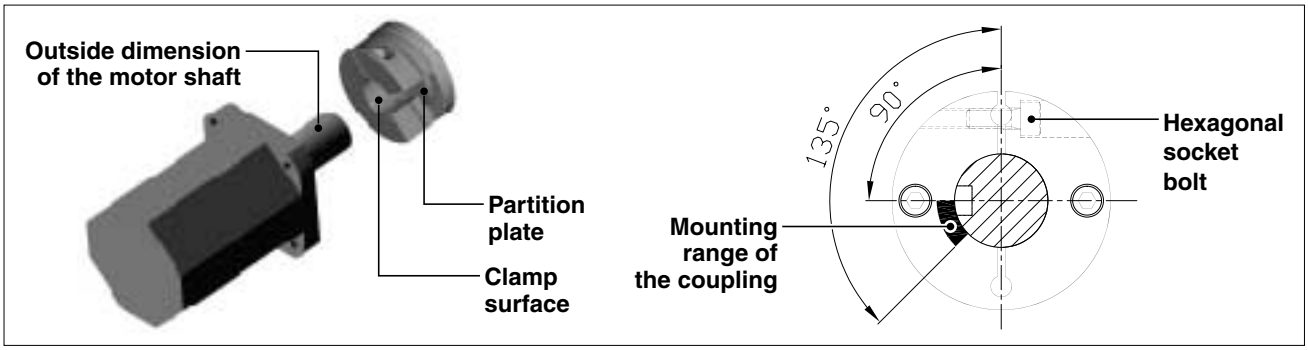
(Unit: mm)

Nominal size	ID and OD of Belleville spring washer		t	H
	d Basic size	D		
5	5.25	8.5	0.6	0.85
6	6.4	10	1.0	1.25
8	8.4	13	1.2	1.55
10	10.6	16	1.5	1.9
12	12.6	18	1.8	2.2
14	14.6	21	2.0	2.5
16	16.9	24	2.3	2.8



Note: When using any equivalent washer, select it with special care given to its outside diameter.

Coupling Assembly



The clamp coupling is stored in a packing box.

Note: Ensure that grease (Pyronoc Universal N6B) has been applied to the spline hole of the input shaft insertion opening. Without grease, the spline may be damaged on fitting.

Wipe the outside of the motor shaft and the clamp surface with a rag.

Note: If there is any foreign material or oil adhered to the outside of the motor shaft or the clamp surface of the clamp coupling motor shaft, tight fitting will not be achieved.

Insert the motor shaft into the coupling until its tip comes into contact with the partition plate of the coupling. Note that you can easily insert the motor shaft at first, but will feel greater pressure while inserting it the last several millimeters.

Note: 1. If there is a keyway on the motor shaft, remove the key and align the center of the keyway with the keyed shaft mounting range of the coupling. Otherwise, a tight fitting will not be achieved.

2. Forceful insertion of the motor shaft may damage the coupling.

3. If the motor shaft is not inserted up to the partition plate, the gear head may be damaged.

Confirm that the motor shaft has been inserted into the coupling until its tip comes into contact with the partition plate of the coupling and then tighten the coupling to the specified torque using the hexagon socket head cap screw.

Outside diameter of the coupling (mm)	Ø44	Ø56	Ø68	Ø82	Ø94	Ø126
Bolt size	M4	M5	M6	M8	M8	M10
Tightening torque (N-m)	3.4 ± 0.17	7 ± 0.35	14 ± 0.7	30 ± 1.5	30 ± 1.5	60 ± 3.0
Coupling insertion length (mm)	18.5	23.5	27.5	33.5	38.5	43.5

Note that when your motor shaft is tapered, attach the supplied adapter, which is tapered inside and straight outside, to the shaft before performing the above procedure.

Dimensional Tolerance of the Shaft (Abstract from JIS B 0401)

Standard dimension (mm)		Dimensional tolerance (μm)			
over	or less	**h6**	**h7**	**j6**	**k6**
3	6	0 -8	0 -12	+6 -2	+9 +1
6	10	0 -9	0 -15	+7 -2	+10 +1
10	18	0 -11	0 -18	+8 -3	+12 +1
18	30	0 -13	0 -21	+9 -4	+15 +2
30	50	0 -16	0 -25	+11 -5	+18 +2
50	80	0 -19	0 -30	+12 -7	+21 +2
80	120	0 -22	0 -35	+13 -9	+25 +3
120	180	0 -25	0 -40	+14 -11	+28 +3
180	250	0 -29	0 -46	+16 -13	+33 +4

▶ **Area** **In North and South America / In Europe and Africa / In Asia and others**
▶ **FAX** **TSAT(US): / Europe GmbH: / Tokyo Head Office:**
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Order Information Sheet

(**Please complete the form below and send it with your order.**) Date.

Company Name: Dept. Name:

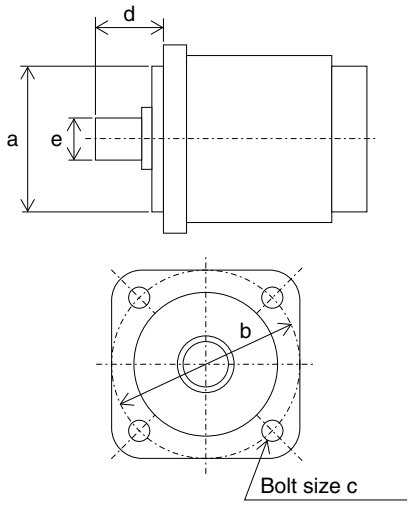
Name: E-mail:

TEL. - - FAX. - -

◆ System configuration and selected motor

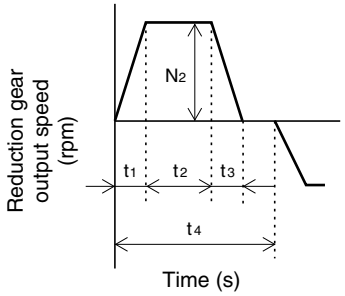
We would appreciate if you could provide your system configuration drawing that helps us to understand the speed, constant torque, and load inertia moment of the output shaft for the reduction gear.

System configuration



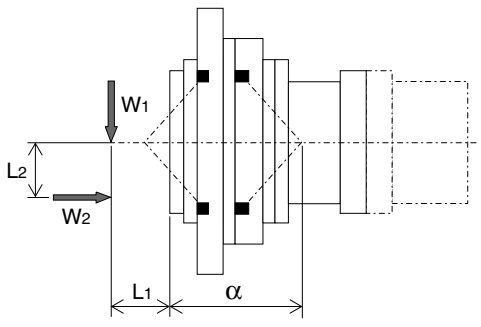
Motor model			**a**	Motor mounting pilot diameter (mm)	
P	Motor rated output (KW)		**b**	Motor mounting bolt P.C.D (mm)	
T_{M0}	Motor rated torque (N-m)		**c**	Motor mounting bolt size (mm)	
T_{M1}	Motor momentary maximum torque (N-m)		**d**	Motor shaft length (mm)	
N_{M0}	Motor rated speed (rpm)		**e**	Motor shaft diameter (mm)	

◆ Operation pattern (output shaft for the reduction gear)



t_1	Acceleration time (s)	
t_2	Constant speed operation time (s)	
t_3	Deceleration time (s)	
t_4	One operation cycle time (s)	
Q_1	Number of operation cycles per day (times)	
Q_2	Number of operating days per year (days)	
N_2	Constant speed (rpm)	
T_R	Constant torque (N-m)	
I_R	Load inertia moment (kg-m2)	

◆ External load (output shaft for the reduction gear)



W_1	Radial load (N)	
L_1	Distance to the point of radial load application (mm)	
W_2	Axial load (N)	
L_2	Distance to the point of axial load application (mm)	

Cautions for use of RD series

- If the end user of the product is a military interest or if the product is to be used in the manufacture of weapons, the product may be subject to export regulations prescribed in the Foreign Trade Control Act. Confirm these conditions before exporting the product and take the necessary steps.
- If failure or malfunction of the product may directly endanger human life or if it is used in units which may injure the human body (atomic facilities, space equipment, medical equipment, safety units, etc.), examination of individual situations is required. Contact our agent or nearest business office in such a case.
- Although this product has been manufactured under strict quality control, if it is to be used in equipment that could cause serious injury or damage to facilities as a result of failure of the product, all appropriate safety measures must be taken.
- When this product is used in a special environment (clean room, food handling facility, etc.), please contact our agent or nearest business office.

Guarantee

- Teijin Seiki Co., Ltd. guaranties that the RD Gearheads are free from defects in materials and workmanship.
- The term of guarantee shall be one year after delivery or 2,000 hours of operation after the installation on an actual machine, whichever is earlier, on condition that the product is operated under the rated operation conditions specified by us, under normal assembly and lubrication conditions.
- If any defect in materials or workmanship is detected during the above guarantee term, the product will be repaired or replaced at our expense, provided that the number of man-hours required for demounting and remounting the product from the machine, transportation expenses for re-delivery, warehousing and other incidental expenses shall be excluded from our obligation.
- No compensation will be provided for the lost opportunities or any other type of loss due to a shutdown of operation that was caused by a defect in the product.
- If compensation under the guarantee is discharged monetarily, the upper limit of the amount shall not exceed the selling price of the product which is the subject of the claim.

TEIJIN SEIKI CO., LTD.

• In North and South America
Teijin Seiki Advanced Technologies Inc. (TSAT)
31731 Northwestern Hwy., Suite 113E, Farmington Hills, Michigan 48334
PHONE: 248-538-9165 FAX: 248-538-9170
E-MAIL: info@teijinseiki.com
HomePage : www.teijinseiki.com

• In Europe and Africa
Teijin Seiki Europe GmbH
Klosterstraße 49, D-40211 Düsseldolf, Germany
PHONE: 49-211-173790 FAX: 49-211-364677
E-MAIL: info@teijinseiki.jis.de
HomePage : www.teijinseiki.de

• In Asia and others
Tokyo Head Office
Nishishinbashi TS Bldg., 3-3-1 Nishishinbashi, Minato-ku, Tokyo 105-8628, Japan
PHONE: 81-3-3578-7461 FAX: 81-3-3578-7471
E-MAIL: info-ps@teijinseiki.co.jp
HomePage : www.teijinseiki.co.jp

Tsu Plant (Engineering Department)
594 Ichimachida, Katada-cho, Tsu-shi, Mie Pref. 514-8533, Japan
PHONE: 81-59-237-4602 FAX: 81-59-237-4612

• Specifications are subject to change without notice.

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