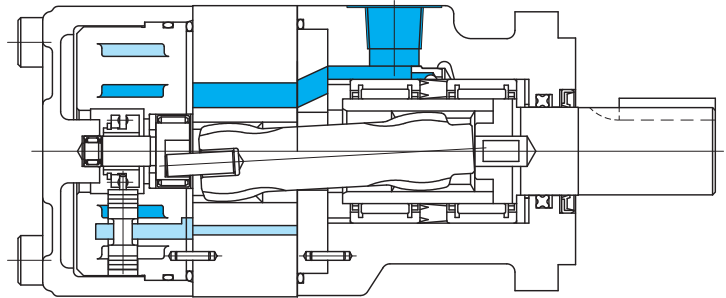
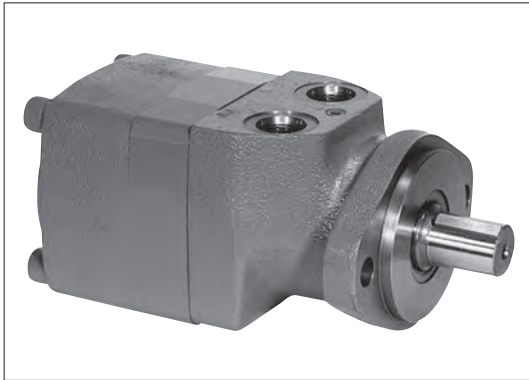
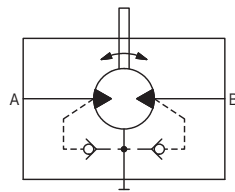


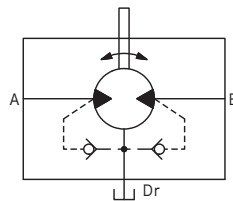
High torque low speed internal gear motors CR series



Functional Symbols



Internal drain type



External drain type

Model Code

(F3)-CR-04-2S(T)4(L)-30-(S)(D)-JA-(S150)-(J)

1 2 3 4 5 6 7 8 9 10 11 12 13

- | | |
|---|---|
| <p>1 Hydraulic fluid
Omit: mineral oil
F3: Phosphate ester</p> <p>2 High torque low speed internal gear motors
CR Series</p> <p>3 Motor displacement code</p> <p>4 Mounting
2: 2-bolt flange (not applicable for G type piping)
3: Foot bracket (not applicable for G type piping)
4: 4-bolt flange
5: 4-bolt square flange (not applicable for S type piping)</p> <p>5 Porting
S: 7/8-14UNF threaded port (SAE O-ring seal) in body
P: Rc1/2 taper threaded port in body
G: Flange piping in body</p> <p>6 Tachometer
Omit: no tachometer mounting connection (standard)
T: With tachometer mounting connection (see 12)
Note: Consult Tokyo Keiki for mounting tachometer.</p> <p>7 Shaft end configuration
0: Parallel shaft with square key (1")
4: Parallel shaft with square key (1-1/4")
8: Involute spline shaft (1-1/4")
12: 25 mm parallel, keyed
13: 32 mm parallel, keyed</p> <p>8 Rotation direction (viewed from shaft end)
Omit: left rotation with inlet port 'A' (right rotation with inlet port 'B')
L: Right rotation with inlet port 'A' (left rotation with inlet port 'B')</p> | <p>9 Design no.</p> <p>10 Distributor valve
Omit: standard spool distributor valve
S: Low pulsation type spool distributor valve</p> <p>11 Drain port
Omit: no drain port (internal drain, standard)
D: Rc1/8 drain port located on same side as main ports (external drain)</p> <p>12 Tachometer mounting
Designated only when 6 is 'T'
S150: X-ring seal used at mounting connection (used both for internal and external drain)
S151: Shaft seal used at mounting connection (This is used only for the external drain type, and 'D' must be entered in 11 without fail.)</p> <p>13 Tapered pipe connection
Designated when 5 is 'P' type or 11 is 'D' type</p> |
|---|---|

Specifications

Model Code	Displacement cm ³ /rev	Working Pressure MPa		Flow L/min		*2 Torque (Pressure Differential) N·M		Speed (Rated) min ⁻¹	Max. Back Pressure MPa	*1 Weight kg
		Rating	*3 Max.	Rating	*3 Max.	Rating	*3 Max.			
CR-04	62	21	28	60	80	185	245	790	7	10.3
CR-06	95	18	24			245	325	545		10.3
CR-07	106	21	28			310	415	465		11.0
CR-08	123					360	480	395		11.3
CR-09	153	16	21.5			460	610	315		11.8
CR-10	167	18	24			380	505	300		11.0
CR-11	184	15	20			480	640	265		12.3
CR-12	192	12.5	16.5			400	535	265		11.3
CR-14	239	14	18.5			420	560	215		11.8
CR-15	246	10.5	14			500	665	195		13.3
CR-18	288	13	15.5			420	560	180		12.3
CR-19	306	8	10.5			550	655	170		13.3
CR-23	383					420	560	135		13.3

*1 Weight for flange type mounting. Add 2kg for foot bracket and 1kg for tachometer types.

*2 There may be torque limitations due to shaft end configuration. See page N5-4 for shaft configuration and allowable torque.

*3 'Max.' refers to instantaneous max. Not recommended for continuous operation.

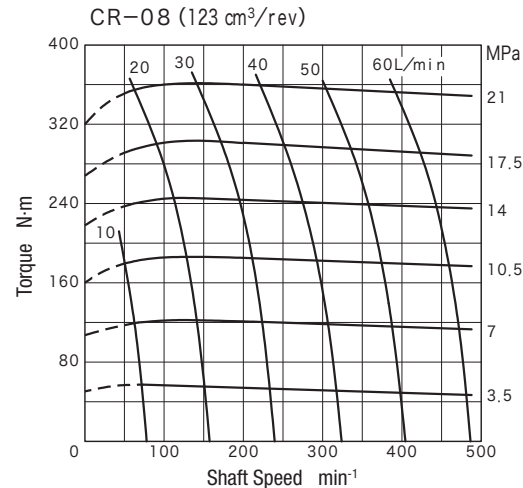
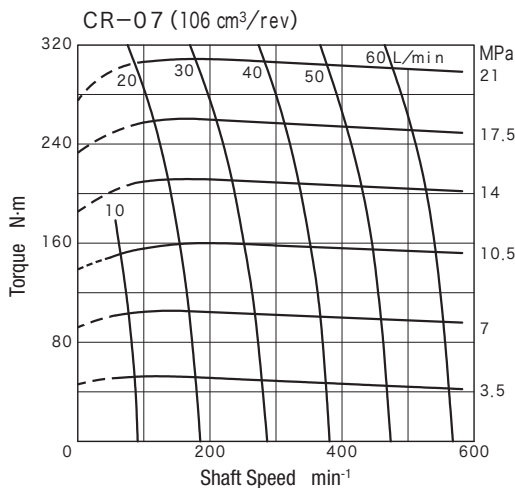
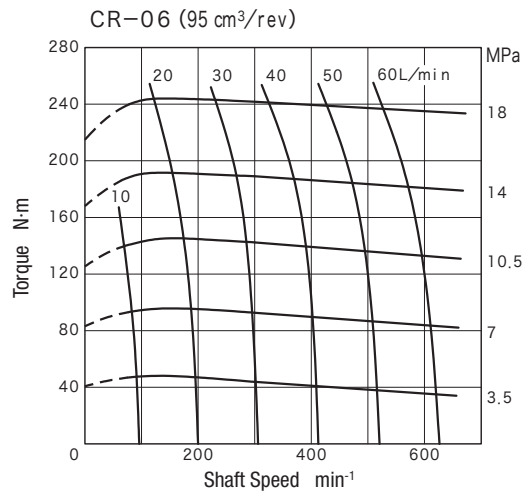
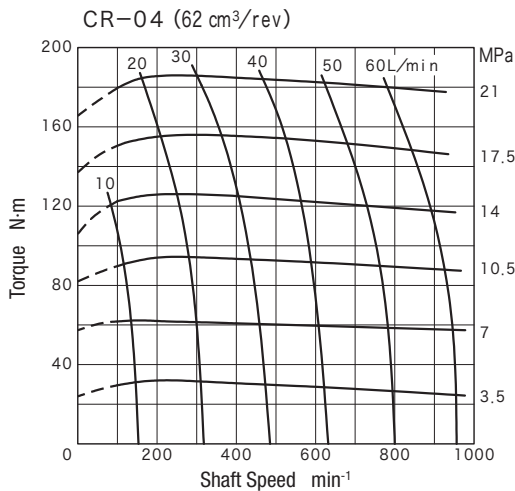
- Models: 13 displacements (6 gerotor widths, 3 eccentricities) (62 to 383 cm³/rev)
- Mounting: flange and foot mounting (2 types, 4 versions)
- Shaft: spline shaft, parallel shaft (2 types, 5 versions)

Motor Selection

Refer to the Characteristics Curves to select appropriate model based on the required pressure differential, speed, and torque. For example, appropriate motor for pressure differential 10.5 MPa, speed 300 min⁻¹, and torque 240 N·m would be CR-10. Required flow 53 L/min can also be determined.

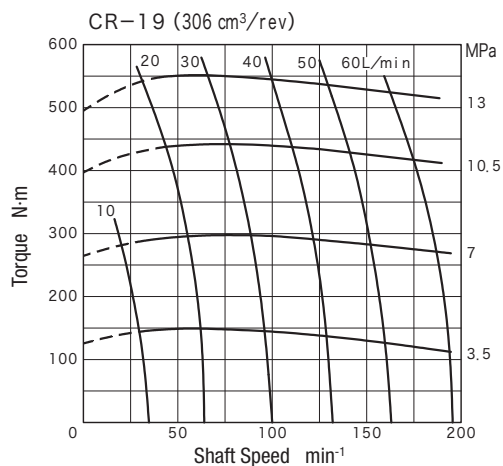
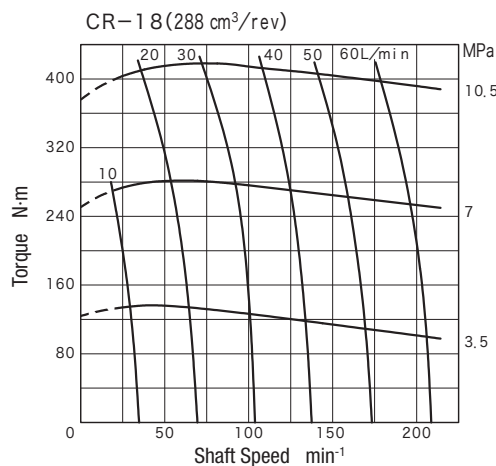
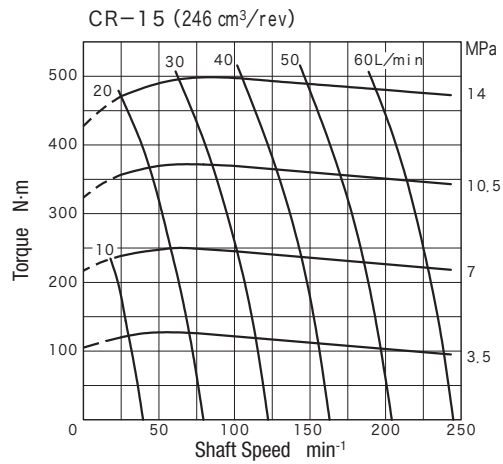
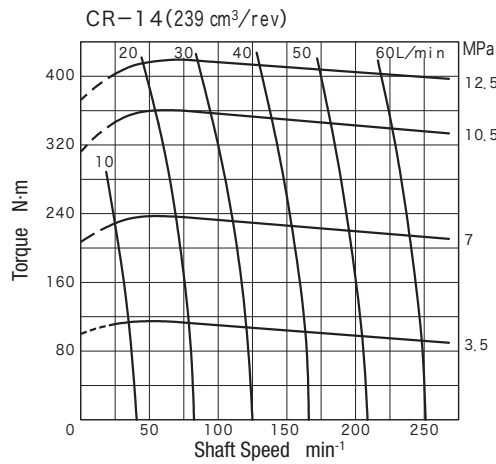
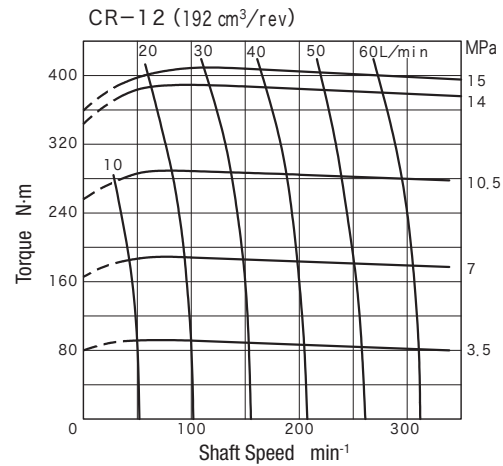
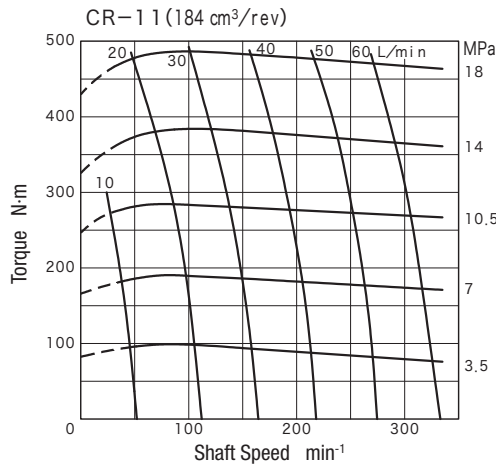
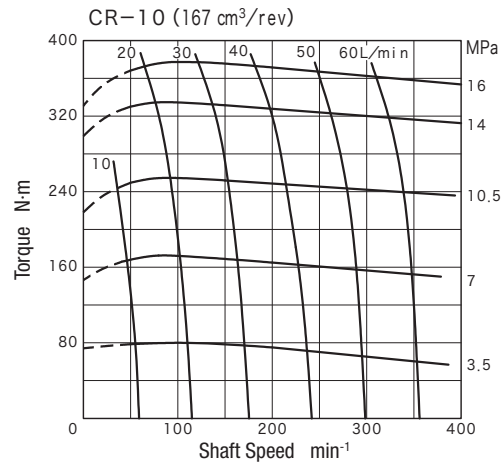
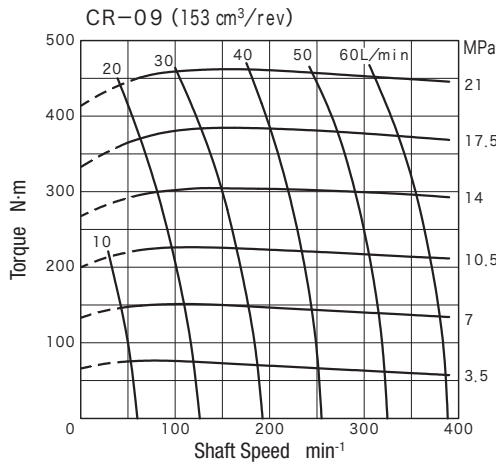
Characteristics Curves (value with ISO VG32 equivalent fluid operating at 49°C (22 mm²/s) (typical examples))

Note: Some characteristics may be different for low pulsation spool type (S type) motor. Consult Tokyo Keiki.



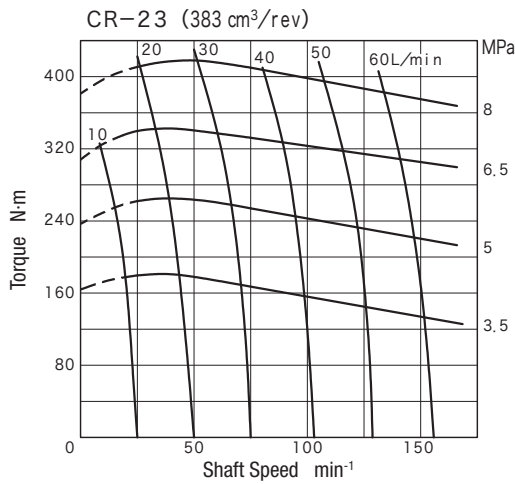
Characteristics Curves (value with ISO VG32 equivalent fluid operating at 49°C (22 mm²/s) (typical examples))

Note: Some characteristics may be different for low pulsation spool type (S type) motor. Consult Tokyo Keiki.



Characteristics Curves (value with ISO VG32 equivalent fluid operating at 49°C (22 mm²/s) (typical examples))

Note: Some characteristics may be different for low pulsation spool type (S type) motor. Consult Tokyo Keiki.



Notes on Operation

- Concerning radial loads and thrust loads

As a basic rule, do not apply radial load or thrust load from an external source to the shaft end. When motors are to be operated by belt, chain, gear drive or some other form of indirect drive, consult with Tokyo Keiki.

- Shaft end configuration and allowable torque

Allowable torque will differ according to shaft end configuration. Application torque and braking torque should not exceed the values in the table below.

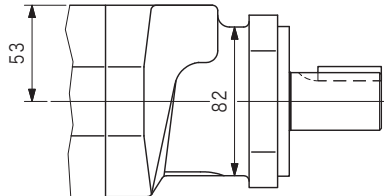
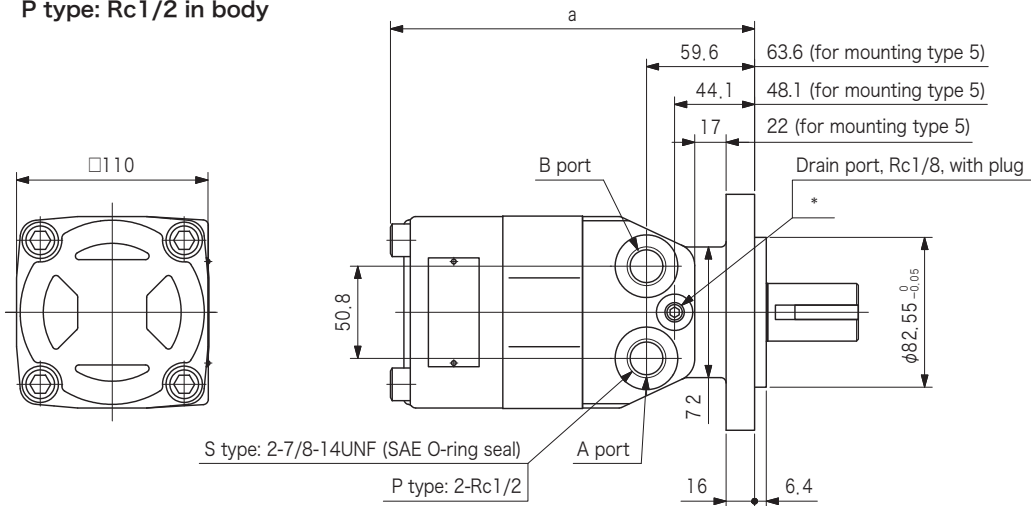
Shaft Type	Allowable Torque N·m
0	230
4	460
8	660
12	230
13	660

Dimensions

● Porting

S type: 7/8-14UNF (SAE O-ring seal) in body (not applied to mounting type 5)

P type: Rc1/2 in body

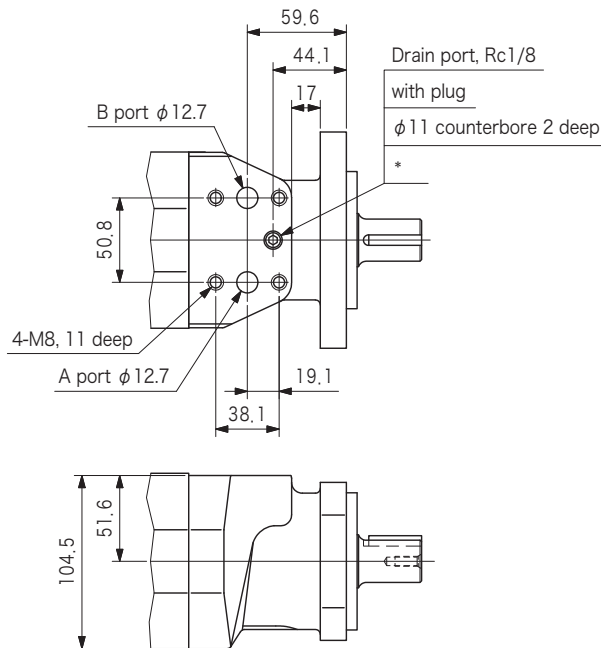


Model Code	a
CR-04, CR-06	169.5
CR-07, CR-10	179
CR-08, CR-12	182
CR-09, CR-14	188.5
CR-11, CR-18	195
CR-15, CR-19, CR-23	207.5

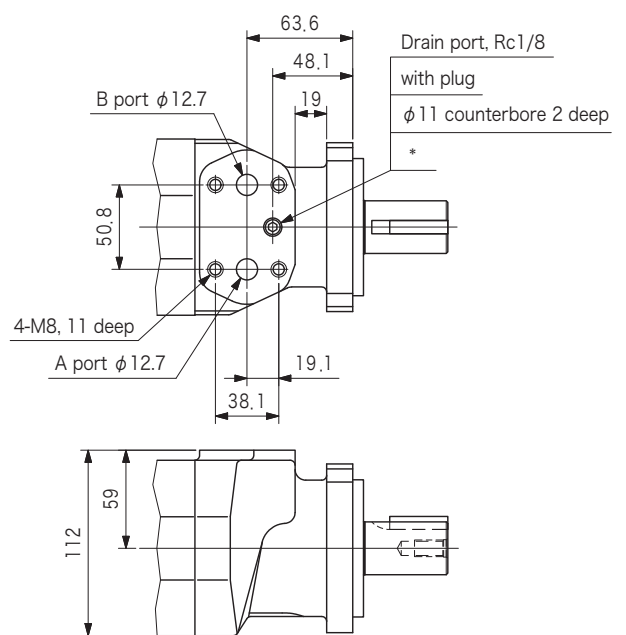
Note:

* Remove plug for external drain type motor.

G type: flange connection in body (for mounting type 4)



G type: (for mounting type 5)



Note:

* Remove plug for external drain type motor.

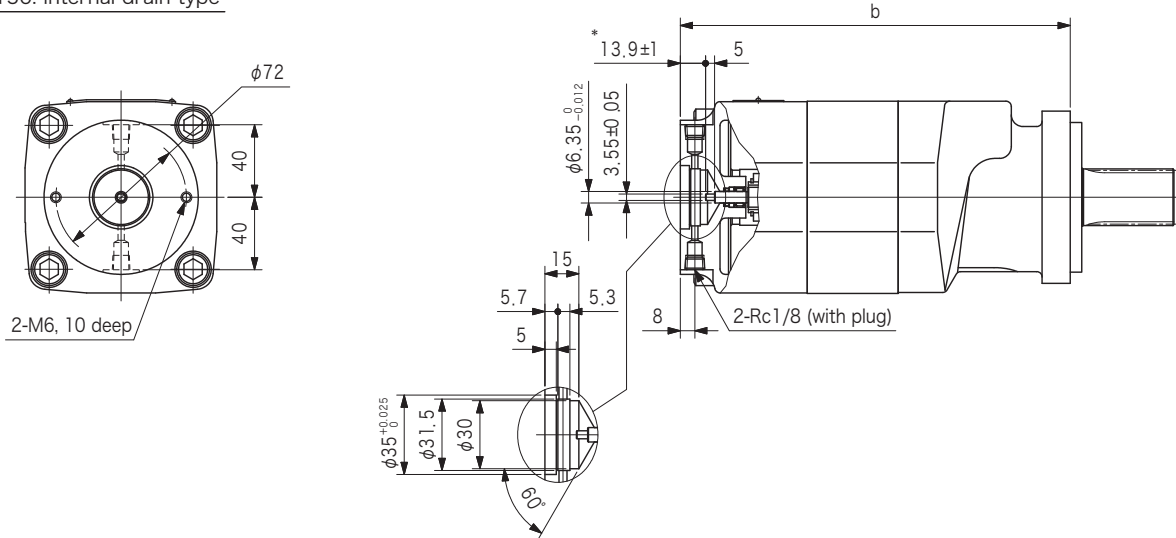
Dimensions

● Porting

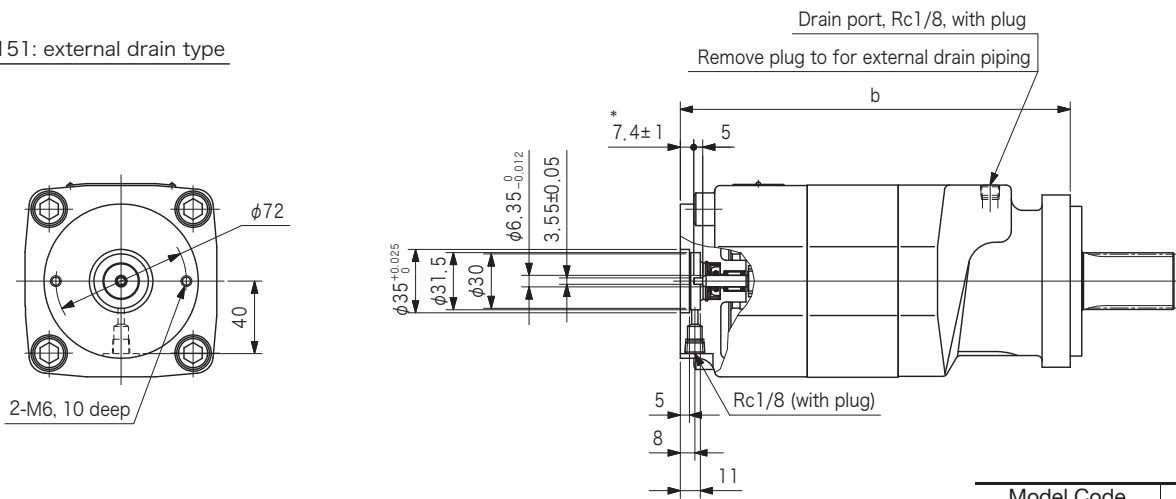
T type: With tachometer mounting connection [Set the reduction gear ratio to 6:1 (rotation ratio 1:6).

As the rotation direction, select the direction which is opposite to that of the motor output shaft.]

S150: internal drain type



S151: external drain type



Note:

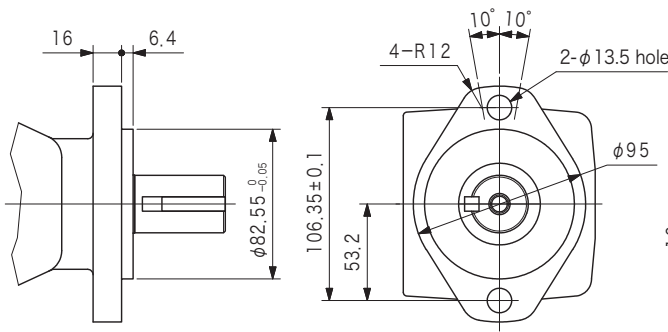
* Dimensions differ for S150 and S151.

Model Code	b
CR-04, CR-06	177.5
CR-07, CR-10	187
CR-08, CR-12	190
CR-09, CR-14	196.5
CR-11, CR-18	203
CR-15, CR-19, CR-23	215.5

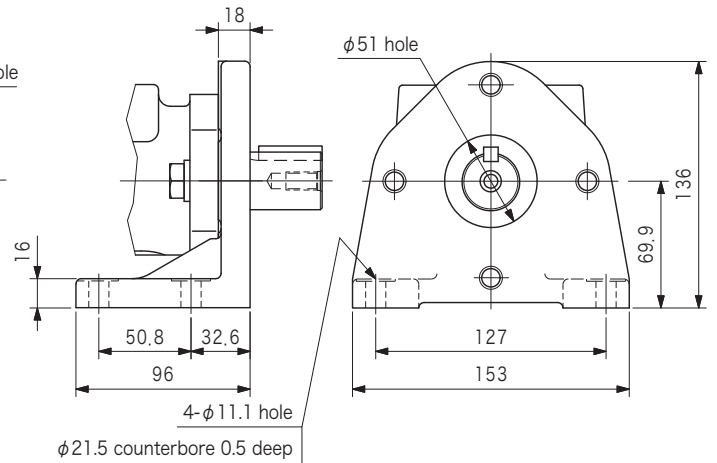
Dimensions

● Mounting

2 type: 2-bolt flange mounting

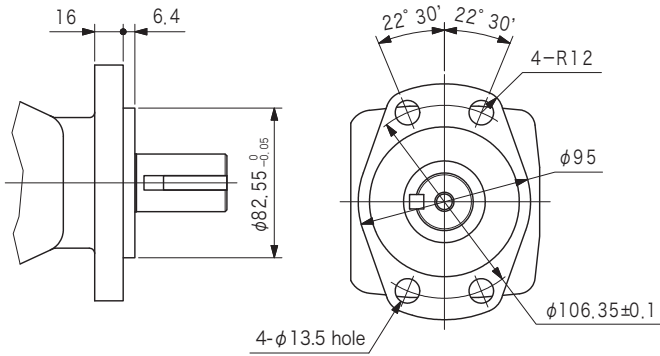


3 type: foot bracket mounting (2 type foot bracket mounting)

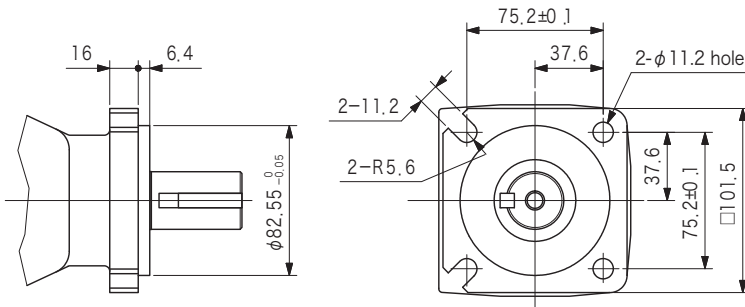


Note:
Cannot be used if there is radial load.

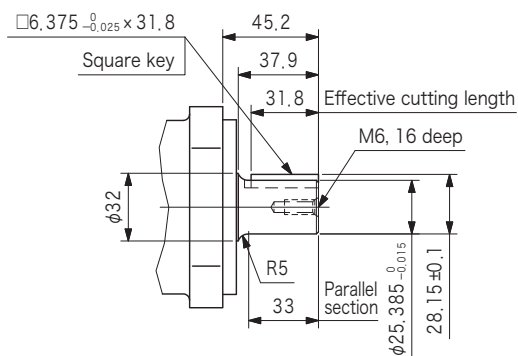
4 type: 4-bolt flange mounting



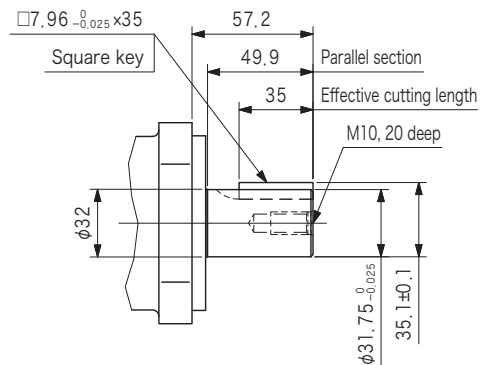
5 type: 4-bolt square flange mounting



0 type: square key parallel shaft (1")



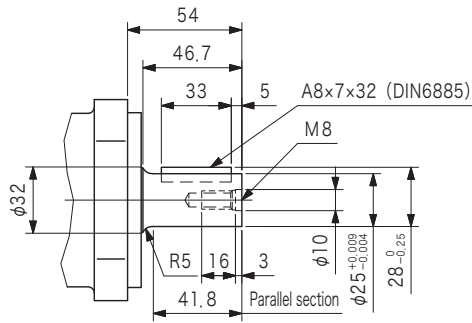
4 type: square key parallel shaft (1-1/4")



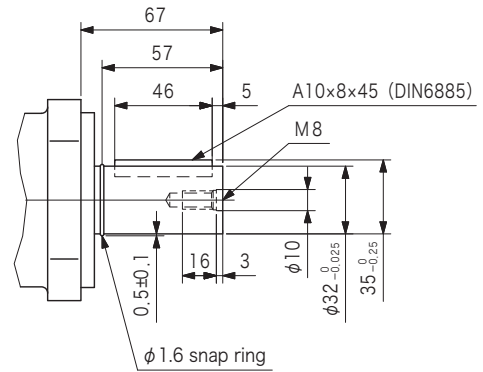
Dimensions

● Shaft end configuration

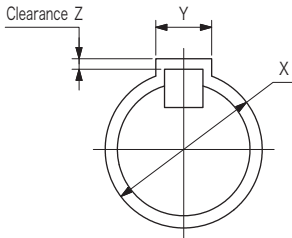
12 type: parallel shaft with key ($\phi 25$)



13 type: parallel shaft with key ($\phi 32$)

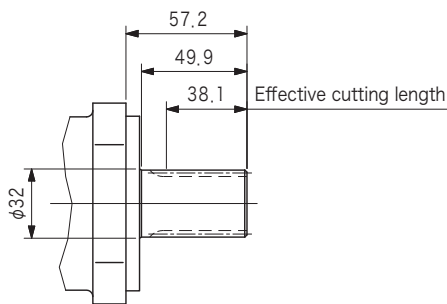


● Shaft with key coupling dimensions



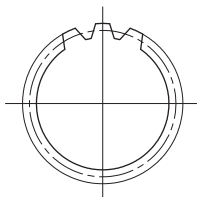
Shaft Type	X	Y	Z
0	$\phi 25.385^{+0.021}_0$	$6.375^{+0.03}_0$	0.1~0.5
4	$\phi 31.75^{+0.025}_0$	$7.96^{+0.036}_0$	0.1~0.5
12	$\phi 25^{+0.021}_0$	$8^{+0.036}_0$	0.1~0.5
13	$\phi 32^{+0.025}_0$	$10^{+0.036}_0$	0.1~0.5

8 type: involute spline shaft



Involute Spline Specifications		
Pitch diameter = $\phi 29.634$		
Flat root side fit		
Teeth = 14	D.P. = 12/24	Pressure angle = 30°
Minor diameter	T.I.F.D.	Major diameter
$\phi 26.99^{+0.033}_0$	$\phi 27.488 \text{ max.}$	$\phi 31.22^{+0.12}_0$
Over pin diameter = $35.798^{+0.045}_0$ (when using $\phi 4.064$ pin)		

● Involute spline coupling dimensions

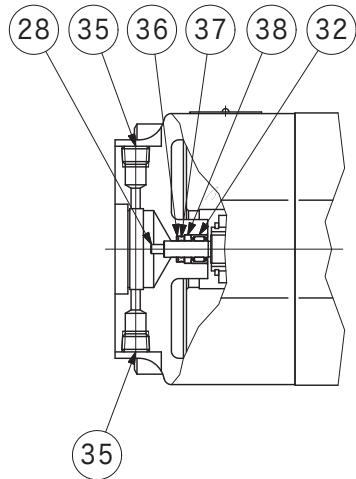
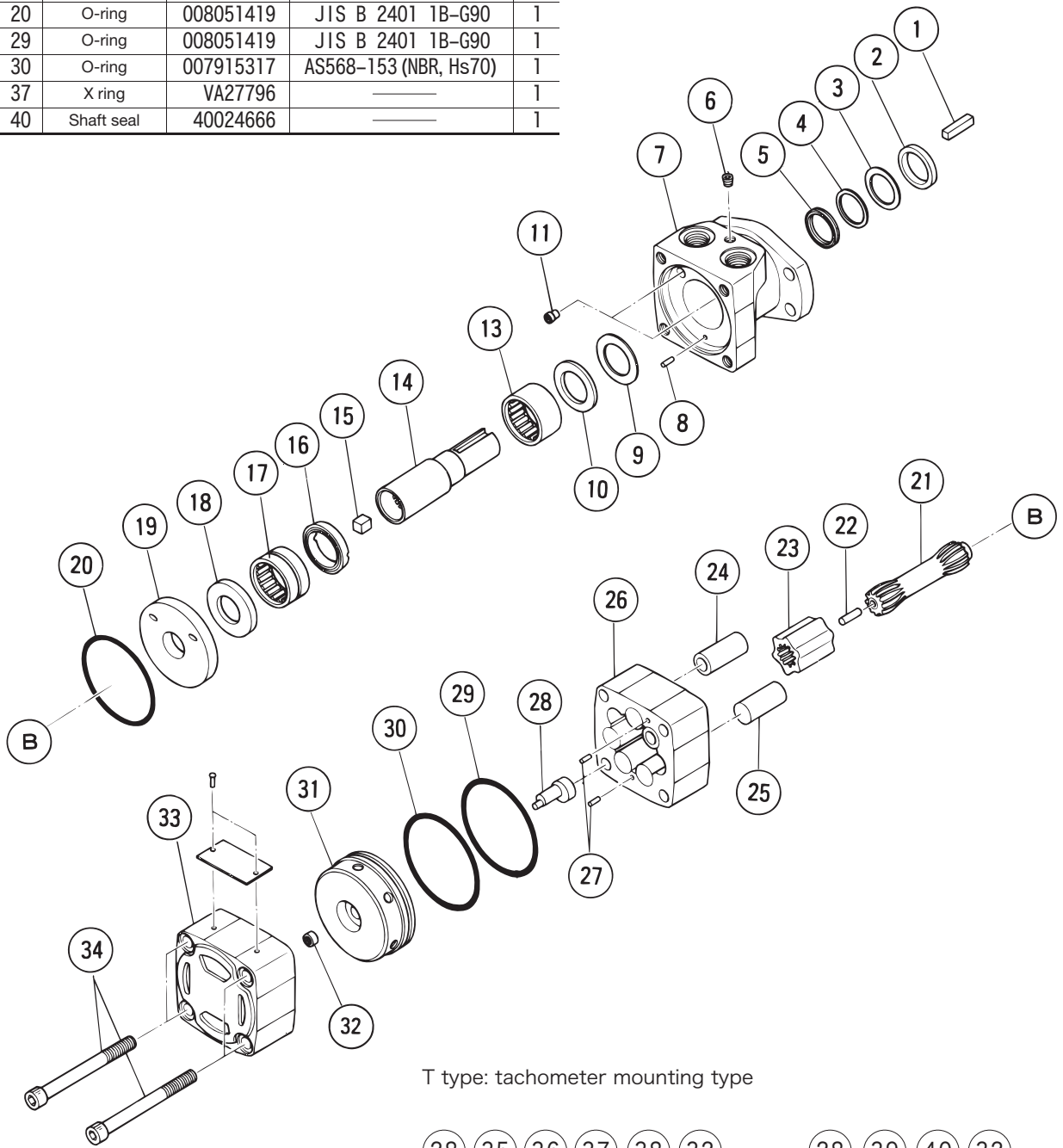


8 Type
Flat root side fit
D.P. = 12/24 Teeth = 14
Pressure angle = 30°
Pitch diameter = $\phi 29.634$
Major diameter = $\phi 31.75^{+0.035}_0$
Minor diameter = $\phi 27.59^{+0.125}_0$
T.I.F.D. = $\phi 31.326 \text{ min.}$
When $\phi 3.6576$ pin is used, over pin diameter is $24.355^{+0.05}_0$

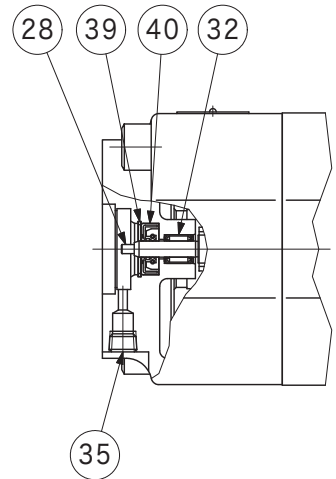
Construction

Seal List

No.	Name	Part No.	Standard	Qty
2	Wiper	VA20981	—	1
4	Backup ring	VA16454	—	1
5	X ring	VA16453	—	1
20	O-ring	008051419	JIS B 2401 1B-G90	1
29	O-ring	008051419	JIS B 2401 1B-G90	1
30	O-ring	007915317	AS568-153 (NBR, Hs70)	1
37	X ring	VA27796	—	1
40	Shaft seal	40024666	—	1



S150



S151