**ZHEJIANG ROTORK ACTUATOR CO.,LTD**
Add：zhejiang wenzhou dongou industry area
Tel：0577-67372881 67372886
Fax：0577-67372882
http://www.zjrotork.com
http://www.chinarotork.cn
E-mail：rotork@chinarotork.cn

IA™

# Internet of Things+

## Remote Intelligent Electric Actuator

High Performance Multi-functions Non-Intrusive Design Operation In Order

**ZHEJIANG ROTORK ACTUATOR CO.,LTD**

# Contents



Tips:

1. All types in brochure are the normal ones. More types please connect our technicians.
2. All control boxes of actuators can be split.
3. Internet of Things+ Intelligent Electric Actuators are according to the Internet of Things specifications.



## —. Summary

IA IM series Remote control of intelligent electric actuator is the excellent product in the world. It provide the perfect functions, the best performance, light and the nice contour, adjustment simply, operation conveniently by using advantage super large scale digital integrated chip and special digital torque sensor and digital Hall sensor and operation in order.

To combine with valve become the unit of electric actuator, it is widely used for such automatic control systems as power, oil, gas, steel work, chemical factory, water and waste treatment. It not only meet requirement of of the modulating control frequently, but also suit to meet with regulated control.

The products have built in accordance with the standard: GB/T28270–2012<<intelligent electrical equipment>>´ Q/TK01–2011<<Remote control of intelligent electrical equipment>>´ Q/ZTK 02–2013<< Intelligent Electric Actuator Infra–red remote debugger>>´ GB3836.1–2010<<Explosive Atmospheres Part 1: Equipments–General requirements for >>´ <<GB3836.2–2010 Explosive Atmospheres– Part 2: Equipment protection by flameproof enclosures 『d』>>. GB/T24922–2010<<Flameproof valve electric actuator technology conditions>>.

**1. Main Features:**

*Using the super large scale integrated chips, powerful functions, high precision.
*Designing with Electromechanical integration , nice contour and light weight.
*Available Hysteresis control can be measure the torque value of the output shaft. Rising the testing acuracy of the torque value and enable display and monitor alternately. Torque tripped, stalled can be shown and alarmed.
*Using **absolute encoder** as the position transducer, detect the position, the pulse signals can be processed. Locating accuracy of the valve position is up to 1.0%.
*By using the non–intrusive infra–red setting tool set up the functions and parameters, adjusting and operating the actuator in local.
*Display in symbol and operating in order and it is easy to understand, view and operating.

**2. The Description of the Function**

*The protect function of the stroke limited.
*The protect function of the torque limited.
*The functions of the indication contacts.

1) Intermediate position 2) Opening
3) Closing 4)Running
5)Local stop 6)Local control
7)Remote control 8)Open interlock
9)Close interlock 10)Handwheel operating
11)Torque trip when opening 12)Torque trip when closing
13)Toque trip when running

*The Function of the Valve Alarm

1)Torque trip alarm a. Torque trip when closing b. Torque trip when opening
2)Stalled alarm a. Close stalled b. Open stalled

*The Function of the Control Alarm and Protect

1) ESD
2) Signal lost

*The Function of the Actuator Alarm and Protect

1) Overheating 2) Overheating in control box
3) Battery low 4) 24V error alarm
5) Phase lost 6) Sign lost
7) Inner communication error alarm 8) Local module error

* The Protect Function Inverse Run
* The Function of Push to Run / Self–Maintained Local Control
* The Choice Function of the Contact Type
* The Protect Function of the External Interlock
* The Protect Function of the Conditional Control
* The Function of the Two–wire Control
* The Function of the Torque Bypass
* The Function of the ESD override protection
* The Function of the Interrupt Setting
* The Function of the Extra Indication Contacts
* The Function of the Infra–red Setting Tool
* The Function of the LCD Display
* The Function of the Automatic Discriminant of Phase sequence

## = Types and Specifications

According the displacement of the output shaft, The actuator can be described as following:

a) Multi–turn remote control of intelligent electric actuator
b) Linear stroke remote control of intelligent electric actuator
c) Quarter turn remote control of intelligent electric actuator

According the duty, rate, circle, The actuator can be described as following:

a) IA series remote control of intelligent electric actuator (S2 25% ≤ 630 starts per hour)
b) IM series remote control of intelligent electric actuator
(S4 25% ≤ 630 starts ≤1200 starts per hour)

The actuator types:

1) IA series multi–turn remote control of intelligent electric actuator
2) IM series multi–turn remote control of intelligent electric actuator
3) IML series linear stroke modulating remote control of intelligent electric actuator
4) IA/Mow quarter turn series remote control of intelligent electric actuator
5) IM/Mow quarter turn series modulating remote control of intelligent electric actuator

The actuator specifications as shown table1, table2, table3, table4, table5,table6, table7.

## ≡ Main Technical Parameters

* Input Signal: 1) Analogue signal a. 4–20mA. DC input resistance 250Ω
b. 0–10mA. DC input resistance 250Ω
2)Switch signal
* Output Signal: 1) Valve position signal 4–20mA. DC Load resistance ≤ 750 Ω
*Output Shaft Torque, Speed, Stroke, Time As Shown : table1, table2, table3, table4, table5, table6, table7.
*The Consumed Power of the remote control of intelligent electric actuator as Shown: table1, table2
*Accuracy: 1) IA, IM multi–turn remote control of intelligent electric actuator ≤ ±1%
2) IA/Mow, IM/Mow quarter turn actuator remote control of intelligent electric actuator ≤ ±1%
3) IML linear stroke remote control of intelligent electric actuator ≤ ±1% (stroke ≥ 25mm)
*Control Deadband: 0.1~9.9% adjusting, default setting 0.5%
*Clearance 1) IA series multi–turn remote control of intelligent electric actuator ≤ 1°
2) IM series multi–turn remote control of intelligent electric actuator ≤ 1°
3) IML series linear stroke modulating remote control of intelligent electric actuator ≤ 1mm
4) IA/Mow quarter turn series remote control of intelligent electric actuator ≤ 1°
5) IM/Mow quarter turn series modulating remote control of intelligent electric actuator ≤ 1°
*Inhibit Operating Times: 0 ~ 99 seconds adjusting
*Power Supply: Single Phase AC: 220V
Three Phase AC: 380V´ 400V
Frequency: 50/60Hz(±1% )
( *lease connect us for special power supply)
*Enclosure: IP68
*Explosion Proof: 1) Setting tool Exia II CT4 2) Electric actuator Exd II BT4´ Exd II CT4
*Contact Capacity: 220V AC, 5A; 30V DC, 5A
*Ambient: 1) Ambient temperature: –25℃ ~ +70℃ (Explosion proof: –20℃ ~ +60℃ )
2) RH: 5%~ 98%
3) Atmosphere pressure: 86 ~ 106 kPa
4) Air medium: non–caustic
*Interference Performance;
1) Magnetic field: ≤ 400A/m, 50Hz
2) Common mode interference: 250V, 50Hz
3)Differential mode interference: 1V, 50Hz, 0~360°
4) Electrostatic discharge: 4kV
5) Electrical fast transient burst: power supply terminal 1000V; input signal terminal 500V
6) Radio–frequency electro magnetic field immunity: frequency 80~1000MHz field intensity 3V/m distance 1m
7) Surge immunity: 1kV



IA´IM RANGE

IA series multi-turn remote control of intelligent electric actuator performance data Table 1

| Type | Output Speed (rmp) | Torque (N.m) | Max Stem dia (mm) | Motor Power (kW) | Rated Current (A) | Flange Type (ISO5210) | Fuse (A) | Note |
|---|---|---|---|---|---|---|---|---|
| IA10 | 18 | 34 | 26(32) | 0.13 | 0.65 | F10 | 5 | |
| | 24 | | | | | | | |
| | 36 | | | | | | | |
| | 48 | | | | | | | |
| IA12 | 18 | 81 | 26(32) | 0.28 | 1.2 | F10 | 10 | |
| | 24 | | | | | | | |
| | 36 | | | | | | | |
| | 48 | 68 | | | | | | |
| IA18 | 18 | 108 | 26(32) | 0.28 | 1.2 | F10 | 10 | |
| | 24 | | | | | | | |
| IA20 | 18 | 203 | 38(51) | 0.81 | 2.4 | F14 | 20 | (10:1) |
| | 24 | | | | | | | |
| | 36 | 190 | | | | | | |
| | 48 | 185 | | | | | | |
| | 72 | 176 | | 106 | 307 | | | |
| | 96 | 142 | | | | | | |
| IA25 | 18 | 400 | 38(51) | 1.5 | 3.7 | F14 | 30 | (10:1) |
| | 24 | 400 | | | | | | |
| | 36 | 298 | | | | | | |
| | 48 | 244 | | | | | | |
| | 72 | 244 | | 1.6 | 3.7 | | | |
| | 96 | 230 | | | | | | |
| IA35 | 18 | 610 | 54(67) | 2.2 | 6 | F16 | 50 | (10:1) |
| | 24 | 610 | | | | | | |
| | 36 | 540 | | | | | | |
| | 48 | 474 | | | | | | |
| | 72 | 474 | | 3.24 | 6.9 | | | |
| | 96 | 366 | | | | | | |
| IA40 | 18 | 1020 | 64(76) | 2.65 | 6 | F25 | 60 | (10:1) |
| | 24 | 1020 | | | | | | |
| | 36 | 845 | | | | | | |
| | 48 | 680 | | | | | | |
| | 72 | 680 | | 3.24 | 6.9 | | 100 | |
| | 96 | 542 | | | | | | |
| IA70 | 18 | 1490 | 70(83) | 4.46 | 9.8 | F25 | 80 | (15:1) (20:1) |
| | 24 | 1490 | | | | | | |
| | 36 | 1290 | | | | | | |
| | 48 | 1020 | | 5.6 | 11.3 | | | |
| | 72 | 1020 | | | | | | |
| | 96 | 745 | | | | | | |
| IA90 | 18 | 2030 | 70(83) | 4.8 | 10.6 | F30 | 80 | (15:1) (20:1) |
| | 24 | 2030 | | | | | | |
| | 36 | 1700 | | | | | | |
| | 48 | 1355 | | | | | | |
| | 72 | 1355 | | 8 | 15.8 | | 120 | |
| | 96 | 1020 | | | | | | |
| IA91 | 144 | 1355 | 70(83) | 13.98 | 35 | F30 | 120 | (15:1) |
| IA95 | 24 | 3000 | 70(83) | 6.2 | 13.2 | F30 | 80 | (45:1) |

Due to the effects of inertia and drive nut wear, speeds not recommended for direct mounted gate valve applications.

| Type | Output Speed (rmp) | Torque (N.m) | Max Stem dia (mm) | Motor Power (kW) | Rated Current (A) | Flange Type (ISO5210) | Fuse (A) | Note |
|---|---|---|---|---|---|---|---|---|
| IA18/IB4-6 | 4 | 500 | 45 | 0.28 | 1.2 | F14 | 10 | |
| IA20/IB6-6 | 4 | 1100 | 65 | 0.81 | 2.4 | F16 | 20 | |
| IA25/IB6-4 | 6 | 1500 | 65 | 1.5 | 3.7 | F16 | 30 | |
| IA25/IB8-6 | 4 | 2000 | 75 | 1.5 | 3.7 | F25 | 50 | |
| IA35/IB8-4 | 6 | 2200 | 75 | 2.2 | 5.2 | F25 | 50 | |
| IA35/IB10-6 | 4 | 3200 | 70 | 2.2 | 5.2 | F30 | 50 | |
| IA40/IB10-4 | 4.5 | 3500 | 70(83) | 2.65 | 6 | F30 | 60 | (10:1) |
| | 6 | 3500 | | | | | | |
| IA40IB10-6 | 4 | 4400 | 70(83) | | | | | |
| IA70/IB10-4 | 9 | 4500 | 70(83) | 4.46 | 9.8 | F30 | 80 | (15:1) (20:1) |
| | 4.5 | 5000 | | | | | | |
| | 6 | 5000 | | | | | | |
| IA70/IB12-6 | 4 | 8000 | 110 | 4.46 | 9.8 | F30 | | |
| IA90/IB12-8 | 4.5 | 10000 | | 4.8 | 10.6 | F30 | | |
| IA95/IB14-5 | 4.8 | 13500 | 130 | 6.2 | 13.2 | F40 | | (15:1) (45:1) |

*Due to the effects of intertia an drive nut wear, speeds not recommended for direct mounted gate valve applications.

IM series multi-turn modulating remote control of intelligent electric actuator Table 2

| Type | Output Speed (rmp) | Torque (N.m) | Max Stem dia (mm) | Thrust Output Max(kN) | Motor Power (kW) | Motor | Rated Current (A) | Flange Type (ISO5210) | Fuse (A) | Note |
|---|---|---|---|---|---|---|---|---|---|---|
| IM10 | 18 | 17 | 32 | 44 | 0.13 | 4 | 0.65 | F10 | 5 | |
| | 24 | 17 | | | | | | | | |
| | 36 | 15.6 | | | | | | | | |
| | 48 | 13.6 | | | | | | | | |
| IM12 | 18 | 34.0 | 32 | 44 | 0.28 | 4 | 1.2 | F10 | 5 | |
| | 24 | 34.0 | | | | | | | | |
| | 36 | 30.0 | | | | | | | | |
| IM20 | 18 | 81.0 | 51 | 100 | 0.81 | 4 | 2.1 | F14 | 15 | (10:1) |
| | 24 | 81.0 | | | | | | | | |
| | 36 | 68.0 | | | | | | | | |
| | 48 | 54.0 | | | | | | | | |
| IM25 | 18 | 152.0 | 51 | 100 | 1.5 | 4 | 6.7 | F14 | 15 | (10:1) |
| | 24 | 152.0 | | | | | | | | |
| | 36 | 129.0 | | | | | | | | |
| | 48 | 102.0 | | | | | | | | |
| IM35 | 18 | 271.0 | 54 | 150 | 2.65 | 4 | 6 | F16 | 30 | (15:1) |
| | 24 | 271.0 | | | | | | | | |
| | 36 | 253.0 | | | | | | | | |
| | 48 | 203.0 | | | | | | | | |





IA/Mow series quarter turn remote control of intelligent electric actuator Table 3
Voltage 380V 50Hz, 90°

| No | Type | Torque (N.M) | Time (S) | No | Type | Torque (N.M) | Time (S) |
|---|---|---|---|---|---|---|---|
| 1 | IA10/MOW3-40 | 540 | 33 | 14 | IA25/MOW7-60 | 7012 | 50 |
| | | 540 | 25 | | | 7012 | 38 |
| | | 500 | 17 | | | 5920 | 25 |
| | | 430 | 13 | | | 4670 | 19 |
| 2 | IA10/MOW3-60 | 710 | 50 | 15 | IA35/MOW7-60 | --- | --- |
| | | 710 | 38 | | | 14000 | 38 |
| | | 650 | 25 | | | 9350 | 19 |
| | | 570 | 19 | | | 9350 | 13 |
| 3 | IA12/MOW4-40 | 1080 | 33 | 16 | IA20/MOW7R-180 | 10730 | 150 |
| | | 1080 | 25 | | | 10730 | 113 |
| | | 970 | 17 | | | 8940 | 75 |
| | | 860 | 13 | | | 7154 | 56 |
| 4 | IA12/MOW4-70 | 1420 | 58 | 17 | IA40/MOW8-60 | 21420 | 50 |
| | | 1420 | 44 | | | 21420 | 38 |
| | | 1280 | 29 | | | 17745 | 25 |
| | | 1130 | 22 | | | 14280 | 19 |
| 5 | IA18/MOW4-40 | 1730 | 25 | | | 14280 | 13 |
| | | | | 18 | IA25/MOW8R-180 | 20120 | 150 |
| | | | | | | 20120 | 113 |
| | | | | | | 16990 | 75 |
| | | | | | | 13410 | 56 |
| 6 | IA12/MOW5R-80 | 1960 | 66 | 19 | IA70/MOW9-60 | 31290 | 50 |
| | | 1960 | 50 | | | 31290 | 38 |
| | | 1770 | 34 | | | 27090 | 25 |
| | | 1570 | 25 | | | 21420 | 19 |
| 7 | IA18/MOW5-70 | --- | --- | | | 21420 | 13 |
| | | 2270 | 44 | 20 | IA35/MOW9R-180 | 38480 | 150 |
| 8 | IA20/MOW5-40 | 2600 | 33 | | | 38480 | 113 |
| | | 2600 | 25 | | | 36080 | 75 |
| | | 2170 | 17 | | | 28860 | 56 |
| | | 1730 | 13 | 21 | IA90/MOW9-60 | 42630 | 50 |
| 9 | IA12/MOW5R-120 | 2910 | 100 | | | 42630 | 38 |
| | | 2910 | 75 | | | 35700 | 25 |
| | | 2620 | 50 | | | 28455 | 19 |
| | | 2330 | 38 | | | 28455 | 13 |
| 10 | IA20MOW5-70 | 3410 | 58 | 22 | IA40/MOW10R-180 | 48100 | 150 |
| | | 3410 | 44 | | | 48100 | 113 |
| | | 2840 | 29 | | | 38480 | 75 |
| | | 2270 | 22 | 23 | IA95/MOW10-60 | 65000 | 38 |
| 11 | IA20/MOW6-70 | 4000 | 58 | 24 | IA90/MOW12R-120 | 100000 | 75 |
| | | 4000 | 44 | | | | |
| | | 4000 | 29 | | | | |
| | | 4000 | 22 | 25 | IA70/MOW12R-180 | 89000 | 112.5 |
| 12 | IA18/MOW6R-140 | 4120 | 88 | | | | |
| 13 | IA20/MOW6R-140 | 6180 | 116 | 26 | IA90/MOW12R-180 | 109500 | 112.5 |
| | | 6180 | 88 | | | | |
| | | 5150 | 58 | 27 | IA95/MOW12R-120 | 120000 | 75 |
| | | 4120 | 44 | | | | |

Note: More types please connect our technicians.

IM/Mow series quarter turn modulating remote control of intelligent electric actuator Table 4

Voltage 380V 50Hz, 90°

| No | Type | Torque (N.M) | Time (S) | No | Type | Torque (N.M) | Time (S) |
|---|---|---|---|---|---|---|---|
| 1 | IM10/MOW3-40 | 225 | 33 | 10 | IM20/MOW5-70 | 1400 | 44 |
| | | 225 | 25 | 11 | IM20/MOW6-70 | 1440 | 58 |
| | | 210 | 17 | | | 1440 | 44 |
| | | 180 | 13 | | | 1200 | 29 |
| 2 | IM10/MOW3-60 | 300 | 58 | | | 960 | 22 |
| | | 300 | 44 | 12 | IM18/MOW6R-140 | --- | --- |
| | | 270 | 29 | | | 1730 | 88 |
| | | 240 | 22 | 13 | IM20/MOW6R-140 | 2600 | 116 |
| 3 | IM12/MOW4-40 | 450 | 33 | | | 2600 | 88 |
| | | 450 | 25 | | | 2200 | 58 |
| | | 400 | 17 | | | 1750 | 44 |
| | | 360 | 13 | 14 | IM25/MOW7-60 | 3000 | 50 |
| 4 | IM12/MOW4-70 | 600 | 58 | | | 3000 | 38 |
| | | 600 | 44 | | | 2500 | 25 |
| | | 550 | 29 | | | 2000 | 19 |
| | | 475 | 22 | 15 | IM35/MOW7-60 | 5880 | 38 |
| 5 | IM18/MOW4-40 | --- | --- | | | 3950 | 19 |
| | | 725 | 25 | | | 3950 | 13 |
| 6 | IM12/MOW5R-80 | 825 | 66 | 16 | IM20/MOW7R-180 | 4500 | 150 |
| | | 825 | 50 | | | 4500 | 113 |
| | | 740 | 34 | | | 3800 | 75 |
| | | 660 | 25 | | | 3000 | 56 |
| 7 | IM18/MOW5-70 | --- | --- | 17 | IM25/MOW8R-180 | 8450 | 150 |
| | | 950 | 44 | | | 8450 | 113 |
| 8 | IM20/MOW5-40 | 1100 | 33 | | | 7150 | 75 |
| | | 1100 | 25 | | | 5650 | 56 |
| | | 910 | 17 | 18 | IM35/MOW9R-180 | 16200 | 150 |
| | | 725 | 13 | | | 16200 | 113 |
| 9 | IM12/MOW5R-120 | 1200 | 100 | | | 15200 | 75 |
| | | 1200 | 75 | | | 12200 | 56 |
| | | 1100 | 50 | | | | |
| | | 980 | 38 | | | | |





IML series linear stroke modulating remote control of intelligent electric actuator Table5

| Type | | IML10 | | | | IML12 | | | |
|---|---|---|---|---|---|---|---|---|---|
| Stem dia/lead | mm | 26/3 | | | | 26/3 | | | |
| Stroke Max | mm | 115 | | | | 115 | | | |
| Speed | mm/s | 0.45 | 0.6 | 0.9 | 1.2 | 0.9 | 1.2 | 1.8 | 2.4 |
| Thrust | kN | 7.94 | 7.94 | 7.3 | 6.35 | 15.9 | 15.9 | 14.3 | 12.7 |

| Type | | IML20 | | | | | IML20 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Stem dia/lead | mm | 36/3 | | | | | 36/6 | | | | |
| Stroke Max | mm | 115 | | | | | 115 | | | | |
| Speed | mm/s | 0.45 | 0.6 | 0.9 | 1.2 | 1.8 | 0.9 | 1.2 | 1.8 | 2.4 | 3.6 |
| Thrust | kN | 34.2 | 34.2 | 28.8 | 22.5 | 19.8 | 28.8 | 28.8 | 24.3 | 19.4 | 16.7 |

| Type | | IML25 | | | | | IML35 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Stem dia/lead | mm | 36/6 | | | | | 48/8 | | | | |
| Stroke Max | mm | 115 | | | | | 115 | | | | |
| Speed | mm/s | 0.9 | 1.2 | 1.8 | 2.4 | 3.6 | 1.2 | 1.6 | 2.4 | 3.2 | 4.8 |
| Thrust | kN | 54 | 54 | 45 | 36 | 36 | 72 | 72 | 67.5 | 54 | 54 |

220VAC/50Hz Multi-turn remote control of intelligent electric actuator torque Table 6

| Type | Motor Power W | Output 18rmp | Output 24rmp | Output 36rmp | Output 48rmp |
|---|---|---|---|---|---|
| IA/IM10 | 100 | 20/9 | 20/9 | 17/7 | 15/6 |
| IA/IM12 | 120 | 32/13 | 28/12 | 22/19 | 17/7 |
| IA/IM18 | 180 | 80/30 | 65/26 | 48/18 | 36/13 |
| IA/IM20 | 370 | 104/40 | 80/30 | 63/25 | 47/15 |
| IA/IM25 | 500 | 240/72 | 180/54 | 127/48 | 108/41 |
| IA/IM35 | 1300 | 500/113 | 375/113 | 28/85 | 210/65 |

220VAC/50Hz Linear stroke modulating remote control of intelligent electric actuator

Table 7

| Type | Motor Power W | Output 18rmp | Output 24rmp | Output 36rmp | Output 48rmp |
|---|---|---|---|---|---|
| IML18 | 300 | 9.9 | 8.9 | 6.8 | |
| IML20 | 750 | 11.3 | 11.3 | 11.3 | 10.8 |
| IML25 | 750 | 19.4 | 19.4 | 16.7 | 14.4 |
| IML35 | 1800 | 29.7 | 27.9 | 22 | 17.6 |

Note: More torques of 220VAC quarter turn please connect our technicians.

## ≥ Principle

IA IM series multi–turn remote control of intelligent electric actuator is drived by three phase servo Motor, decelerated by warm gear box. To transfer the torque bu the center column output shaft. The actuator has the hand/auto mechanical. Depress the hand/auto lever into hand position and rotate the handwheel to engaged the clutch. The center column output shaft can be drived. The handwheel will remain engaged until the actuator is operated electrically. When it will automatically disengage and return to motor drive. Torque sensor is assembled on the worm shaft. The pressure is proportional the torque of the output shaft. The position sensor detect the pulse signals from the output shaft by using the hall transducer joined with a bevel wheel.

The intelligent controller of the actuator receive the standard analogue signals or switch signals. The signals are compared with the position signals. Them the actuator is located at the position proportioned the input signal. The actuator also can be located the presetting position according to the interlock control, two–wore control or ESD signal. The actuator always meet with the requirement of the control system producing a correct instruction to spring the three phase solid state relay to provide the power to motor, to enable it normally working.

Using the supplied infra–red setting tool to access the actuator set up procedures, non–instrusive setting of torque level, position limits and all other control and indication functions or parameters can be made safely, quickly and conveniently.

IML series linear stroke modulating remote control of intelligent electric actuator is that it consists of a lead screw, pillars and a baseflange. Assembly arrangement attached to the base of the actuator. And it transmit the torque and speed of the multi–turn actuator into the linear stroke and thrust of the output shaft.

Quarter turn remote control of intelligent electric actuator consists of the second stage worm gearbox assembly. Arrangement attached to the base of the IA and IM multi–turn remote control of intelligent electric actuators.

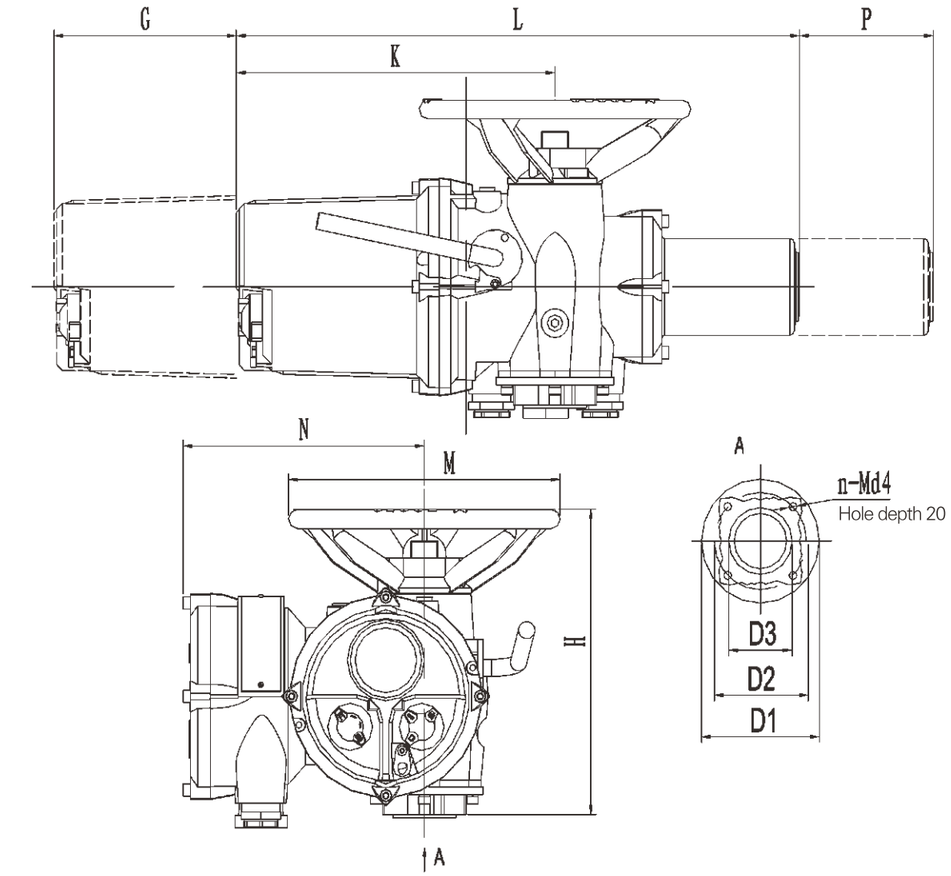




## > The Outline and the dimension for installing

1 IA, IM Series multi–turn actuator's outline and dimension for installing

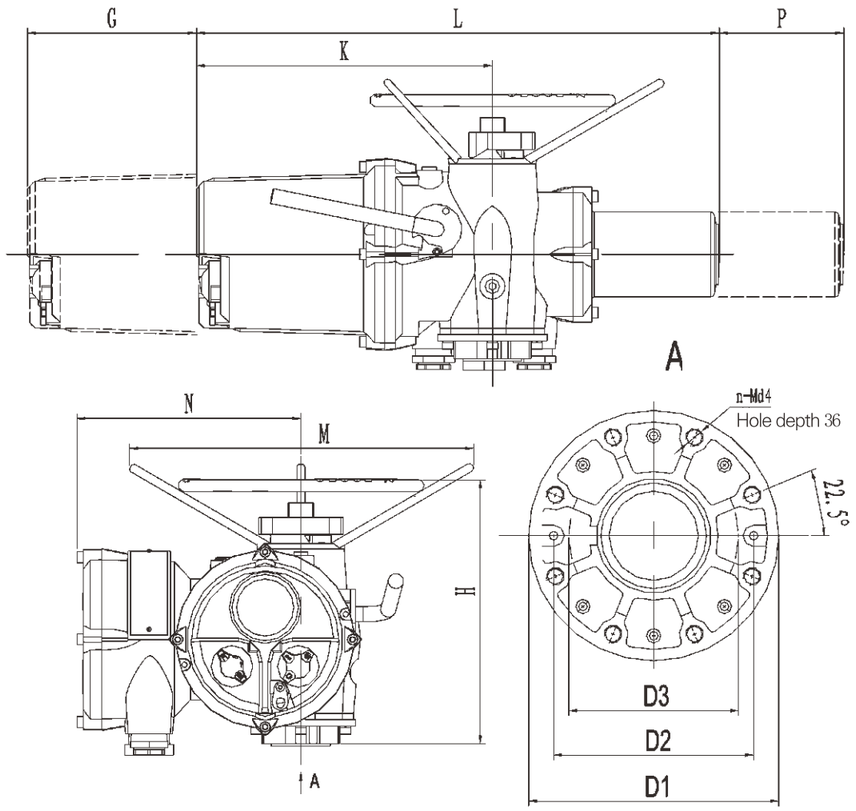
1.1 IA/IM10/12/18/20/25/35 multi–turn actuator's outline and dimension for installing




(mm)

| Actuator Type | G | H | K | L | M | N | P | D1 | D2 | D3 | n–Md4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IA/IM10/12/18 | 180 | 320 | 305 | 610 | Φ480 | 265 | 35 | Φ125 | Φ102 | Φ70 | 4–M10 |
| IA/IM20 | 180 | 380 | 340 | 660 | ⊖660 | 285 | 45 | ⊖176 | ⊖140 | ⊖100 | 4–M16 |
| IA/IM25 | 180 | 380 | 340 | 660 | ⊖660 | 285 | 45 | ⊖176 | ⊖140 | ⊖100 | 4–M16 |
| IA/IM35 | 180 | 420 | 365 | 705 | ⊖800 | 310 | 50 | ⊖215 | ⊖165 | ⊖130 | 4–M20 |

1.2 IA40 multi–turn actuator's outline and dimension for installing



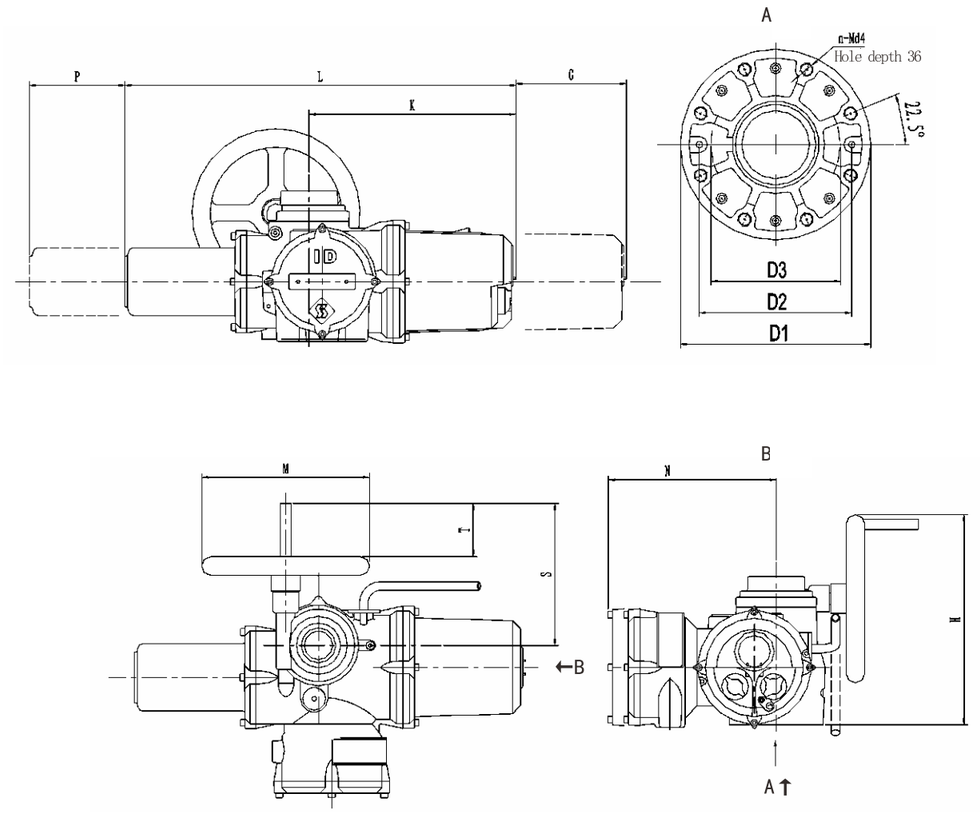

(mm)

| Actuator Type | G | H | K | L | M | N | P | D1 | D2 | D3 | n–Md4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IA40 | 180 | 460 | 450 | 900 | Φ830 | 358 | 60 | Φ300 | Φ254 | Φ200 | 8–M16 |





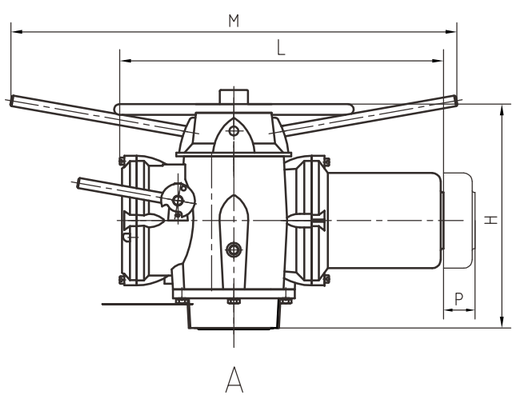
1.3 IA70/90/91/95 multi–turn actuator's outline and dimension for installing

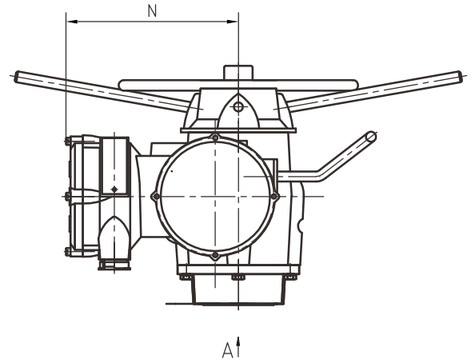


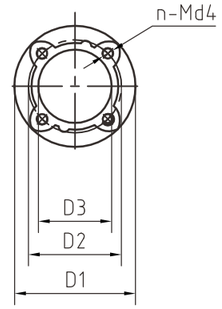

(mm)

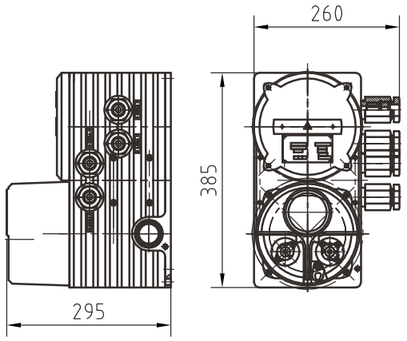
| Actuator Type | G | H | K | L | M | N | P | S | T | D1 | D2 | D3 | n–Md4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IA70 | 230 | 557 | 503 | 1024 | ⊖432 | 358 | 60 | 438 | 116 | ⊖300 | ⊖254 | ⊖200 | 8–M16 |
| IA91 | 230 | 577 | 503 | 1048 | ⊖432 | 358 | 60 | 438 | 116 | ⊖300 | ⊖254 | ⊖200 | 8–M16 |
| IA90/95 | 230 | 577 | 503 | 1024 | ⊖432 | 358 | 60 | 438 | 116 | ⊖350 | ⊖298 | ⊖230 | 8–M20 |

1.2 IA IM10/12/18/20/25/35 and IA40 multi–turn separated actuator's outline and dimension for installing



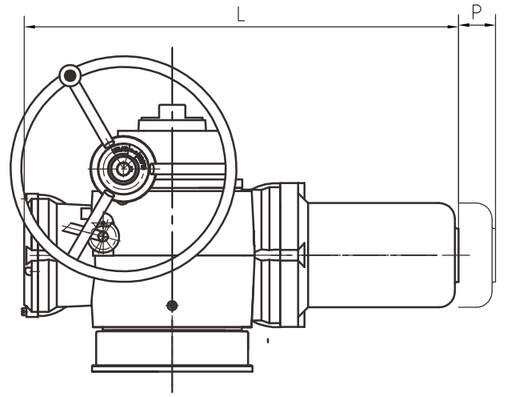



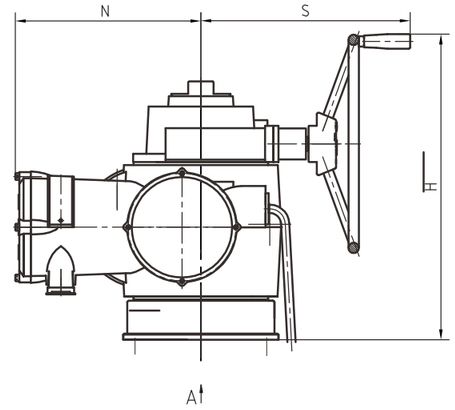

| Actuator Type | H | L | M | N | P | D1 | D2 | D3 | n–Md4 |
|---|---|---|---|---|---|---|---|---|---|
| IA/IM10/12/18 | 320 | 450 | ⊖480 | 265 | 35 | ⊖125 | ⊖102 | ⊖70 | 4–M10 |
| IA/IM20 | 380 | 600 | ⊖660 | 285 | 45 | ⊖176 | ⊖140 | ⊖100 | 4–M16 |
| IA/IM25 | 380 | 600 | ⊖660 | 285 | 45 | ⊖176 | ⊖140 | ⊖100 | 4–M16 |
| IA/IM35 | 420 | 620 | ⊖780 | 310 | 50 | ⊖215 | ⊖165 | ⊖130 | 4–M20 |
| IA40 | 460 | 750 | ⊖780 | 350 | 60 | ⊖300 | ⊖254 | ⊖200 | 8–M16 |

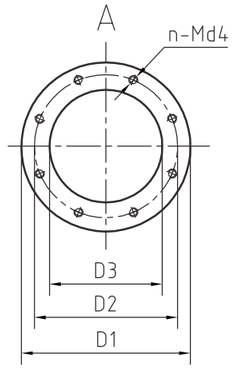


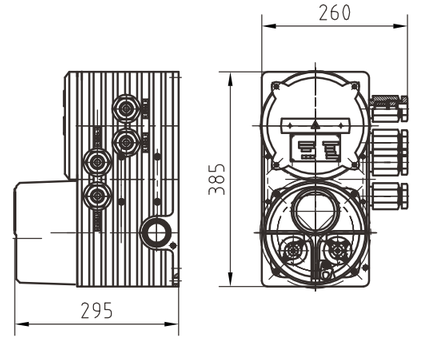


1.2 IA 70/90/91/95 multi–turn separated actuator's outline and dimension for installing



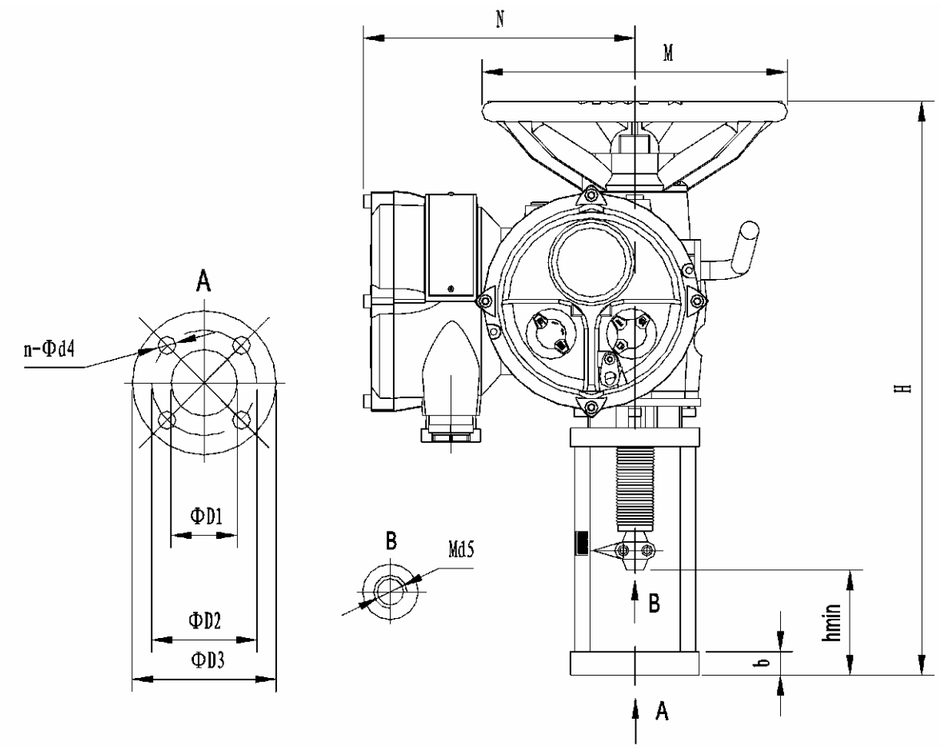




| Actuator Type | H | L | S | N | P | D1 | D2 | D3 | n–Md4 |
|---|---|---|---|---|---|---|---|---|---|
| IA70 | 600 | 750 | 438 | 358 | 60 | ⊖300 | ⊖254 | ⊖200 | 8–M16 |
| IA90/95 | 630 | 800 | 438 | 358 | 60 | ⊖350 | ⊖298 | ⊖230 | 8–M20 |

2 IML linear stroke actuator's outline and dimension for installing

Tips:
These types control boxes
of actuators can be split.




(mm)

| Actuator Type | N | M | H | b | ΦD1 | ΦD2 | ΦD3 | N–Φd4 | Md5 | hmin |
|---|---|---|---|---|---|---|---|---|---|---|
| IML10 | 265 | 300 | 660 | 22 | 60 | 80 | 140 | 2–Φ10 | M8 | 80 |
| IML12 | 265 | 300 | 660 | 22 | 80 | 105 | 140 | 4–Φ12 | M12×1.25 | 80 |
| IML20 | 280 | 508 | 720 | 30 | 95 | 118 | 200 | 4–Φ14 | M16×1.5 | 85 |
| IML25 | 280 | 508 | 720 | 30 | 100 | 130 | 200 | 4–Φ18 | M20×1.5 | 85 |



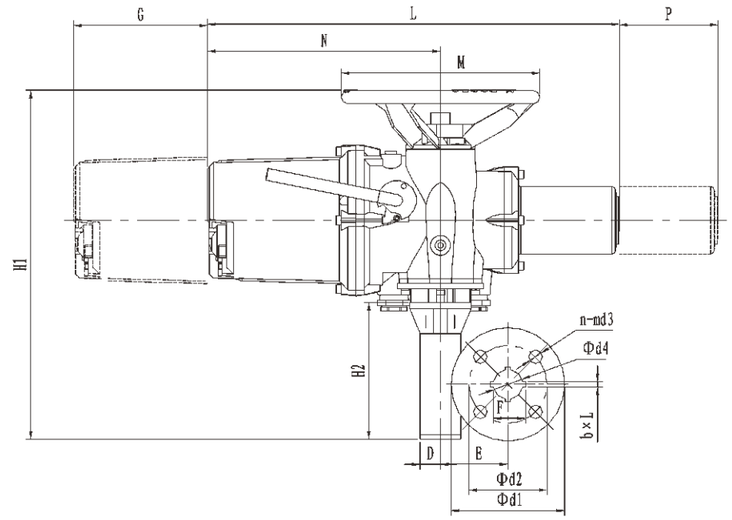


3 Quarter turn actuator's outline and dimension for installing

3.1 Assembly modality directly

3.1.A(1) The stair retardment

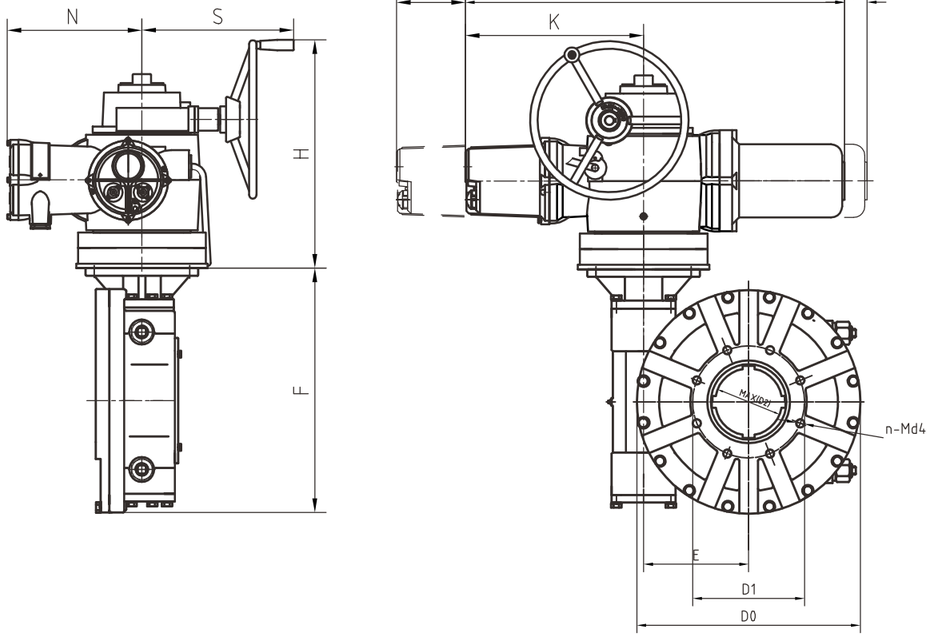
Tips:
These types control boxes
of actuators can be split.




| Actuator Type | D | E | $H_1$ | $H_2$ | G | L | M | N | P | b×L | $\Phi d_1$ | $\Phi d_2$ | $N-md_3$ | Max Stem Dia (mm) | Second Gearbox Input flange | Second Gearbox Output flange |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IA10/MOW3–40<br>IM10/MOW3–40<br>IA10/MOW3–70<br>IM10MOW3–70 | 35 | 76 | 524 | 204 | 180 | 560 | Φ300 | 320 | 35 | 14×80 | 170 | 102 | 4–M10 depth 22 45° EQU | 45 | F10 | F14 |
| IA12/MOW4–40<br>IM12/MOW4–40<br>IA12/MOW4–70<br>IM12MOW4–70<br>IM18MOW4–40 | 39 | 102 | 570 | 250 | 180 | 560 | Φ300 | 320 | 35 | 18×90 | 230 | 140 | 4–M16 depth 22 45° EQU | 60 | F10 | F14 |
| IA18/MOW5–70 | 50 | 136 | 640 | 320 | 180 | 560 | Φ300 | 320 | 35 | 22×105 | 285 | 165 | 4–M20 depth 16 45° EQU | 76 | F14 | F16 |
| IA20/MOW5–40<br>IM20/MOW5–40 | 50 | 136 | 700 | 320 | 180 | 678 | Φ508 | 340 | 45 | 22×105 | 285 | 165 | | 76 | F14 | F16 |
| IA20/MOW6–70<br>IM20/MOW6–70 | 50 | 178 | 710 | 330 | 180 | 678 | Φ508 | 340 | 45 | 28×143 | 375 | 254 | 8–M16 depth 16 22.5° EQU | 102 | F14 | F25 |
| IA25/MOW7–60<br>IM25/MOW7–60 | 70 | 210 | 845 | 465 | 180 | 678 | Φ508 | 340 | 45 | 28×143 | 450 | 254 | 8–M16 depth 24 22.5° EQU | 127 | F14 | F25 |
| IA35/MOW7–60<br>IM35/MOW7–60 | 70 | 210 | 885 | 465 | 180 | 715 | Φ762 | 365 | 50 | 28×143 | 450 | 254 | | 127 | F16 | F25 |
| IA40/MOW8–60 | 80 | 246 | 980 | 520 | 180 | 900 | Φ830 | 450 | 60 | 40×120 | 520 | 254 | | 153 | F14 | F25 |

3.1.A(2 ) The stair retardment

Tips:
These types control boxes
of actuators can be split.



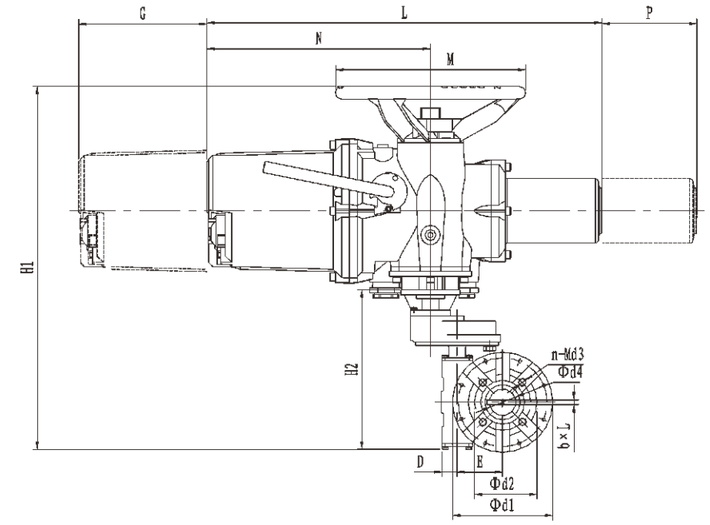

| Actuator Type | G | H | K | L | N | P | S | E | F | D0 | D1 | Max Stem Dia MAX(D2) | n–Md4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IA70/MOW9–60 | 230 | 600 | 470 | 970 | 358 | 60 | 438 | 280 | 650 | Θ595 | Θ298 | Θ175 | 8–M20 |
| IA90/MOW9–60 | 230 | 630 | 503 | 1024 | 358 | 60 | 438 | 280 | 650 | Θ595 | Θ298 | Θ175 | 8–M20 |
| IA95/MOW10–60 | 230 | 630 | 503 | 1024 | 358 | 60 | 438 | 343 | 765 | Θ735 | Θ356 | Θ200 | 8–M30 |





3.1.B(1 ) The two stage retardment

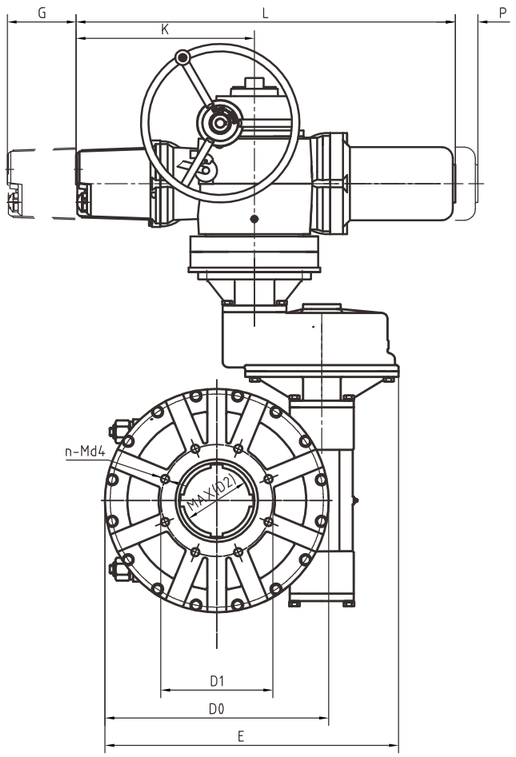
Tips:
These types control boxes
of actuators can be split.

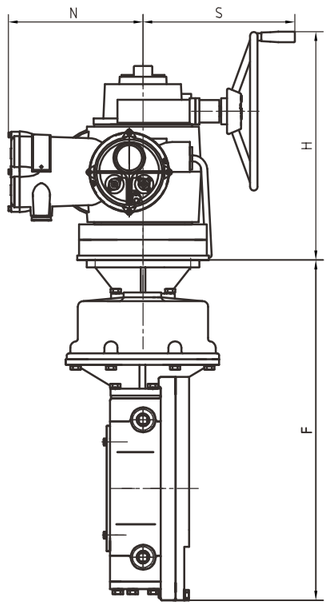



| Actuator Type | D | E | $H_1$ | $H_2$ | G | L | M | N | P | b×L | $\Phi d_1$ | $\Phi d_2$ | $N-md_3$ | Max Stem Dia (mm) | Second Gearbox | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | Input flange | Output flange |
| IA12/MOW5R–80<br>IM12/MOW5R–80<br>IA12/MOW5R–120<br>IM12MOW5R–120 | 50 | 200 | 767 | 447 | 180 | 560 | Φ300 | 320 | 35 | 22×105 | 285 | 165 | 4–M20 depth 22 45° EQU | 76 | F10 | F16 |
| IA18/MOW6R–140 | 50 | 241 | 777 | 457 | 180 | 560 | Φ300 | 320 | 35 | 28×143 | 375 | 254 | 8–M16 depth 20 45° EQU | 102 | F10 | F25 |
| IA20/MOW6R–140<br>IM20/MOW6R–140 | 50 | 241 | 837 | 457 | 180 | 678 | Φ508 | 320 | 45 | 28×143 | 375 | 254 | | 102 | F14 | F25 |
| IA20/MOW7R–180<br>IM20/MOW7R–180 | 70 | 329 | 1035 | 655 | 180 | 678 | Θ508 | 340 | 45 | 28×143 | 450 | 254 | 8–M16 depth 20 225° EQU | 127 | F14 | F25 |
| IA25/MOW8R–180<br>IM25/MOW8R–180 | 78 | 365 | 1105 | 725 | 180 | 678 | Θ508 | 340 | 45 | 40×120 | 520 | 254 | 8–M16 depth 24 225° EQU | 153 | F14 | F25 |
| IA35/MOW9R–180<br>IM35/MOW9R–180 | 85 | 280 | 1320 | 900 | 180 | 715 | Θ762 | 365 | 50 | 40×120 | 590 | 298 | 8–M20 depth 30 225° EQU | 178 | F16 | F30 |
| IA40/MOW10R-180 | 125 | 343 | 1412 | 952 | 180 | 900 | Θ830 | 450 | 60 | 40×120 | 725 | 356 | 8–M30 depth 36 225° EQU | 203 | F25 | F35 |

3.1.B(2). The two stage retardment

Tips:
These types control boxes
of actuators can be split.



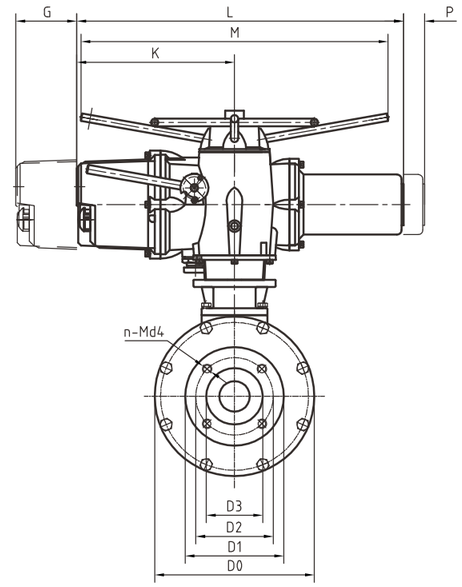

| Actuator Type | G | H | K | L | N | P | S | E | F | D0 | D1 | Max Stem Dia MAX(D2) | n–Md4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IA70/MOW12R-180 | 230 | 600 | 470 | 970 | 358 | 60 | 438 | 1140 | 1205 | ⊖970 | ⊖406 | ⊖250 | 8–M36 |
| IA90/MOW12R-180 | 230 | 630 | 503 | 1024 | 358 | 60 | 438 | 1140 | 1205 | ⊖970 | ⊖406 | ⊖250 | 8–M36 |

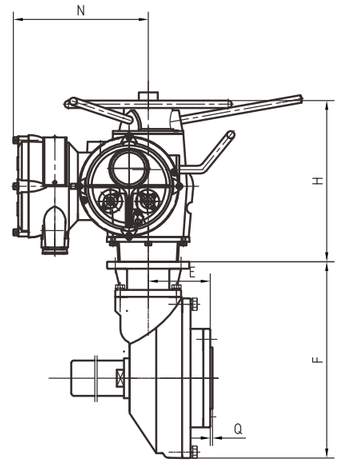




3.1.C(1). IA(10/20/25/35/40)/IB(4/6/8/10)Multi–turn actuator's outline and dimension

Tips:
These types control boxes
of actuators can be split.

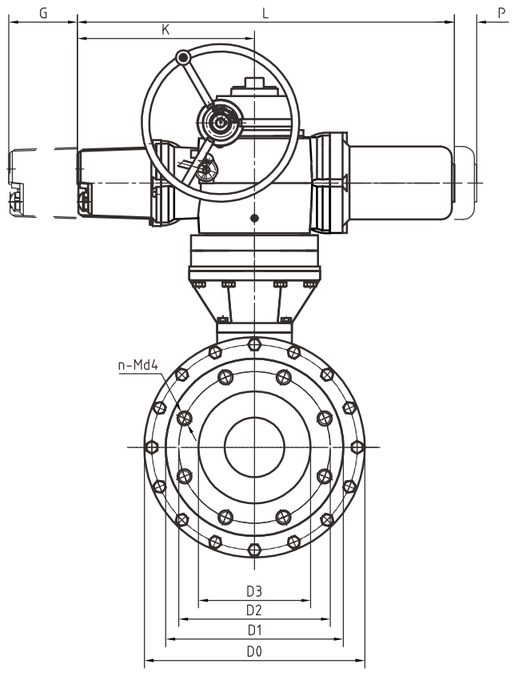


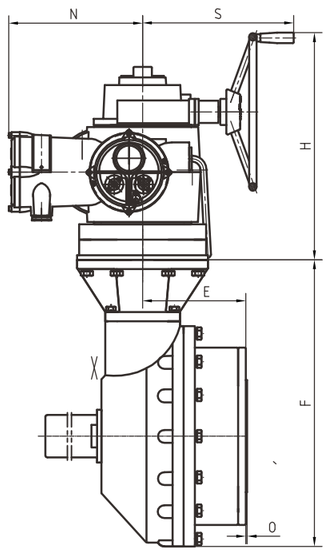




| Actuator Type | G | H | K | L | M | N | P | D0 | D1 | D2 | D3 | E | F | Q | Max Stem Dia MAX(D2) | n–Md4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IA10/IB4-4(6) | 180 | 320 | 305 | 610 | ⊖480 | 265 | 35 | ⊖245 | ⊖175 | ⊖140 | ⊖100 | 100 | 325 | 4 | ⊖45 | 4–M16 |
| IA20(25)/IB6-4 | 180 | 380 | 380 | 750 | ⊖660 | 285 | 45 | ⊖340 | ⊖210 | ⊖165 | ⊖130 | 148 | 418 | 5 | ⊖65 | 4–M20 |
| IA20(25)/IB6-6 | | | | | | | | | | | | 135 | | | | |
| IA35/IB8-4(6) | 180 | 420 | 365 | 770 | ⊖780 | 310 | 50 | ⊖425 | ⊖300 | ⊖254 | ⊖200 | 170 | 540 | 5 | ⊖75 | 8–M16 |
| IA40/IB10-4(6) | 180 | 460 | 450 | 900 | ⊖780 | 350 | 60 | ⊖566 | ⊖350 | ⊖298 | ⊖230 | 245 | 730 | 5 | ⊖80 | 8–M20 |

3.1.C(2) IA(70/90/95)/IB(10/12/14)Multi–turn actuator's outline and dimension

Tips:
These types control boxes
of actuators can be split.



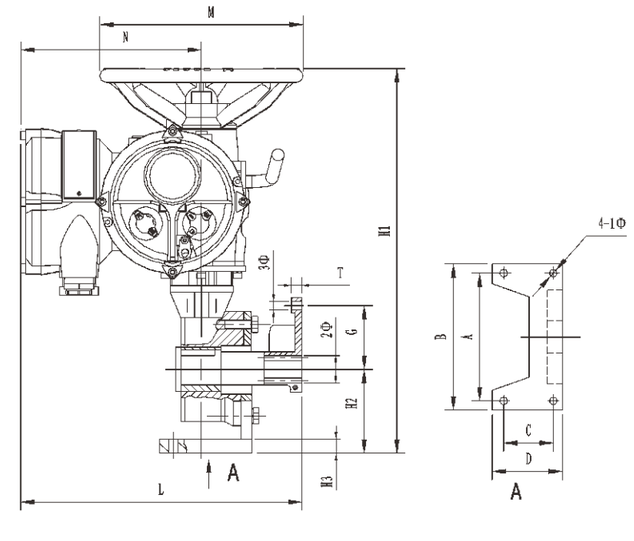

| Actuator Type | G | H | K | L | N | P | S | E | F | D0 | D1 | D2 | D3 | Q | Max Stem Dia MAX(D2) | n–Md4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IA70/IB10–4 | 230 | 600 | 470 | 970 | 358 | 60 | 438 | 245 | 730 | ⊖566 | ⊖350 | ⊖298 | ⊖230 | 5 | ⊖80 | 8–M20 |
| IA70/IB12–6 | 230 | 600 | 470 | 970 | 358 | 60 | 438 | 295 | 825 | ⊖635 | ⊖350 | ⊖298 | ⊖230 | 5 | ⊖100 | 8–M20 |
| IA90/IB12–8 | 230 | 630 | 503 | 1024 | 358 | 60 | 438 | 378 | 825 | ⊖635 | ⊖350 | ⊖298 | ⊖230 | 5 | ⊖100 | 8–M20 |
| IA95/IB14–5 | 230 | 630 | 503 | 1024 | 358 | 60 | 438 | 276 | 768 | ⊖590 | ⊖475 | ⊖406 | ⊖300 | 5 | ⊖130 | 8–M36 |





3.2 Locating assembly modality

Tips:
These types control boxes
of actuators can be split.




| Actuator Type | A | B | C | D | G | H1 | H2 | H3 | L | M | N | 1Φ | Max Stem Dia (mm) | 3Φ | T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IA10/MOW3–40<br>IM10/MOW3–40<br>IA10/MOW3–70<br>IM10MOW3–70 | 200 | 245 | 130 | 160 | 100 | 618 | 128 | 20 | 380 | Φ300 | 260 | Φ12 | Φ36 | Φ14 | 14 |
| IA12/MOW4–40<br>IM12/MOW4–40<br>IA12/MOW4–70<br>IM12MOW4–70<br>IM18MOW4–40 | 320 | 360 | 130 | 160 | 120 | 645 | 170 | 20 | 435 | ⊖300 | 260 | ⊖14 | ⊖40 | ⊖16 | 23 |
| IA18/MOW5–70 | 390 | 420 | 180 | 210 | 165 | 725 | 215 | 20 | 450 | Φ300 | 260 | Φ14 | Φ61 | Φ20 | 23 |
| IA20/MOW5–40<br>IM20/MOW5–40 | 390 | 430 | 180 | 210 | 165 | 785 | 215 | 20 | 465 | Φ508 | 260 | Φ14 | Φ61 | Φ20 | 25 |
| IA20/MOW6–70<br>IM20/MOW6–70 | 430 | 480 | 200 | 250 | 170 | 875 | 280 | 25 | 470 | Φ508 | 260 | Φ14 | Φ61 | Φ30 | 25 |
| IA18/MOW6R–140 | 430 | 480 | 200 | 250 | 170 | 830 | 250 | 25 | 470 | Φ300 | 260 | Φ14 | Φ61 | Φ30 | 25 |
| IA20/MOW6R–140<br>IM20/MOW6R–140 | 430 | 480 | 200 | 250 | 170 | 890 | 250 | 25 | 534 | Φ508 | 286 | Φ14 | Φ61 | Φ30 | 25 |
| IA25/MOW7–60<br>IM25/MOW7–60 | 510 | 560 | 270 | 315 | 170 | 1005 | 295 | 30 | 488 | Φ508 | 286 | Φ22 | Φ61 | Φ30 | 25 |
| IA35/MOW7–60<br>IM35/MOW7–60 | 510 | 560 | 270 | 305 | 170 | 1050 | 300 | 30 | 510 | Φ762 | 305 | Φ22 | Φ80 | Φ30 | 25 |
| IA20/MOW7R–180<br>IM20/MOW7R–180 | 510 | 560 | 270 | 315 | 170 | 1010 | 300 | 30 | 510 | Φ762 | 305 | Φ22 | Φ80 | Φ30 | 25 |
| IA25/MOW8R–180<br>IM25/MOW8R–180 | 590 | 640 | 320 | 370 | 250 | 1105 | 340 | 35 | 525 | Φ508 | 340 | Φ30 | Φ103 | Φ33 | 35 |
| IA35/MOW9R–180<br>IM35/MOW9R–180 | 700 | 785 | 340 | 395 | 290 | 1295 | 395 | 35 | 552 | Φ762 | 365 | Φ30 | Φ125 | Φ33 | 36 |

## The Demand For Mounting and Joining Mode

Before assembling it is necessary to select the suitable space to meet with the outline dimension of the actuator and the setting personal can approach and maintain conveniently.

The actuator can't be inverted assembly, only suit horizontal or vertical assembly.

Checking the mounting dimension of the actuator. Whether or not the drive bush match with the dimension of the valve. You can remove the drive bush from actuator for machining and enable it suit valve stem or gearbox input shaft. Then re–assembly it.

The dimension of the output flange for linear stroke actuators and quarter turn actuators is made as standard ISO5210. If required specially, Call the phone or the development or noticed int the order.

The output flange based on standard ISO5210 of the multi–turn actuator have two types of the drive bush; thrust base type A and Z, non–thrust base type B.

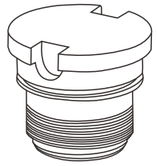
The base plates of the actuator IA/IM10, 12, 18, 20, 25, 35 can be removed. The base plate of the actuator IA40, 70, 90, 91, 95 are integrate base, But the flanges and drive bush of two type are meet with the standard ISO5210.

The drive bushes for IA/IM 10, 12, 18, 20, 25 and 35

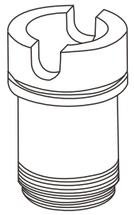
**Thrust**



Type A
for sizes IA10 to 35

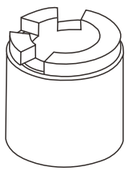


Type Z
for sizes IA10 to 35
Increased stem acceptance

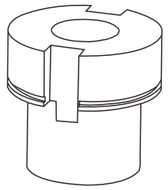


Type Z3
for sizes IA10 to 35
increased stem acceptance and reach

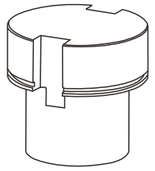
**Non–Thrust**



Type B1
For sizes IA10 to 35
Large fixed bore with ISO
Standard bore and keyway



Type B3
for sizes IA10 to 35
fixed bore with ISO standard
bore and keyway



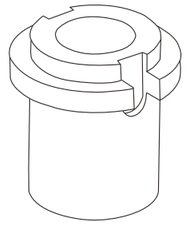
Type B4
for sizes IA10 to 35
blank drive bush for machining
by customer



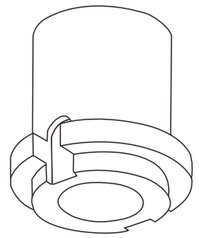


**Actuators IA40, 70, 90, 91, 95**

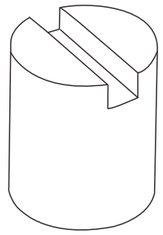
**Thrust**



Type A Position 1
For sizes IA40, 70,90

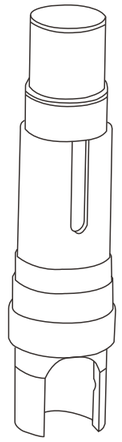


Type A Position 2
for sizes IA40, 70, 90

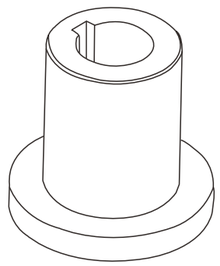


Type Z3
for sizes IA40, 70, 90, 95
Increased stem acceptance
and reach

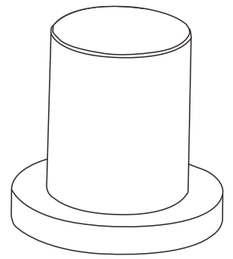
**Non–Thrust**



Type B1
For sizes IA40, 70, 90 large
Fixed bore with ISO
Standard bore and keyway



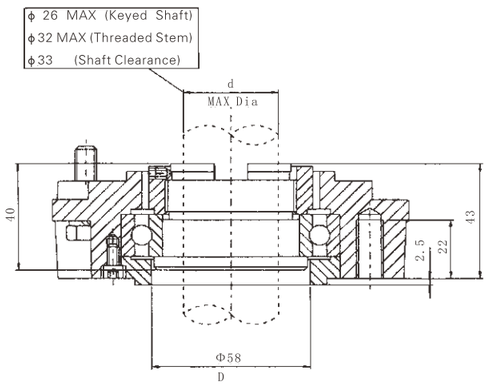
Type B3
for sizes IA40, 70, 90, 91
fixed bore with ISO standard
bore and keyway



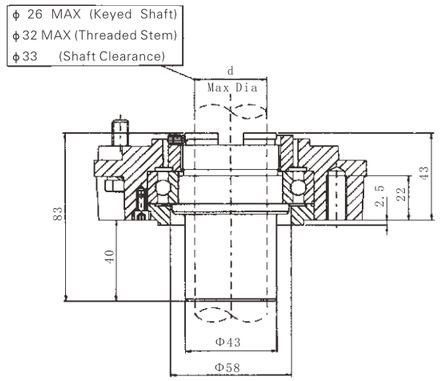
Type B4
for sizes IA40, 70, 90, 91 black
drive bush for machining by
customer

## IA/IM 10/12/18 output shaft joining mode and dimension

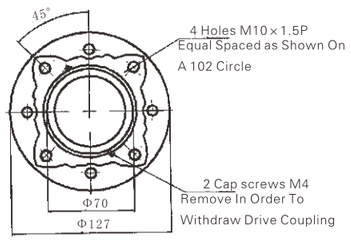
Type A Coupling Details



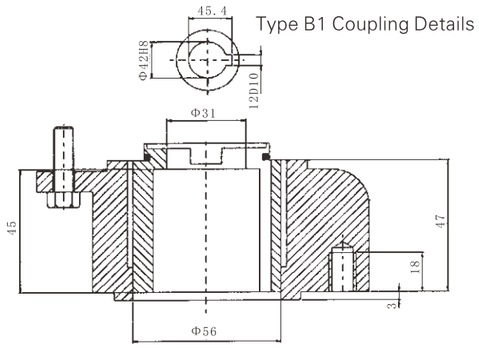

Type Z3 Coupling Details



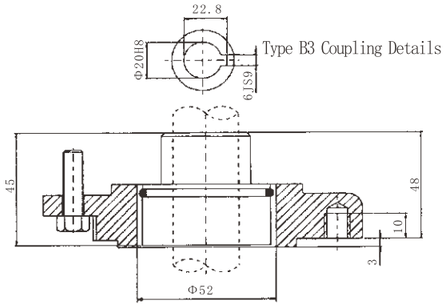

Type A1/Z3 Base F10



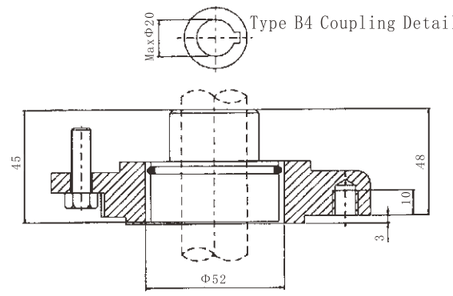

Type B1 Coupling Details



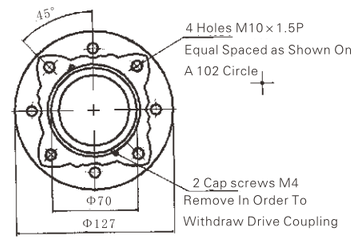

Type B3 Coupling Details




Type B4 Coupling Details




Type B1/B3/B4 Base F10

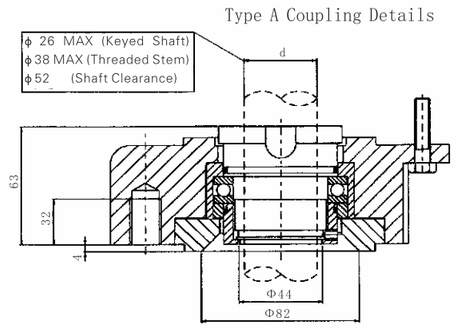




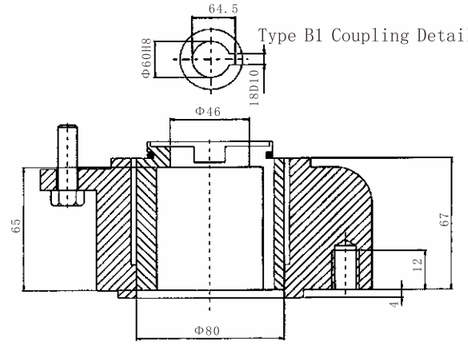



## IA/IM 20/25 output shaft Joining mode and dimension

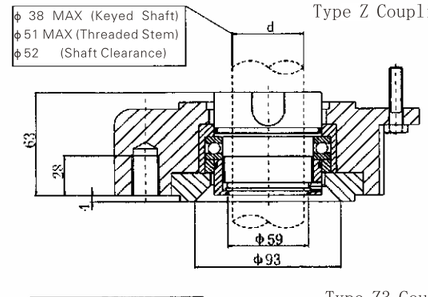
Type A Coupling Details



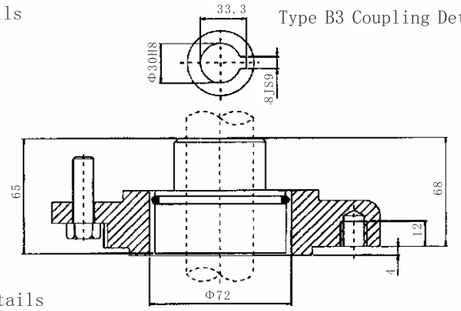

Type B1 Coupling Details



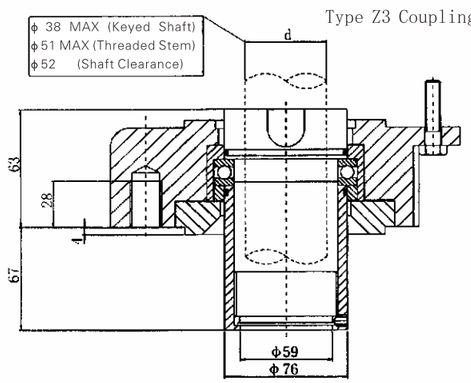

Type Z Coupling Details



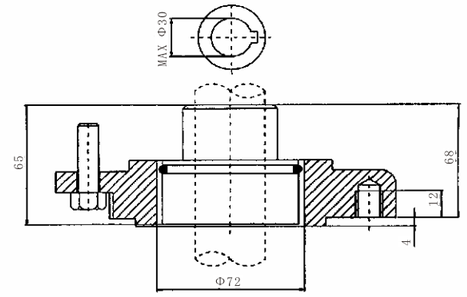

Type B3 Coupling Details



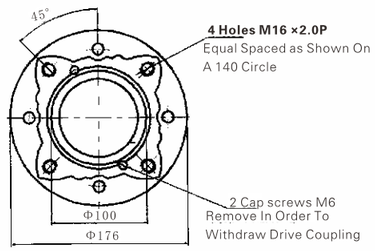

Type Z3 Coupling Details




Type B4 Coupling Details




Type A/Z/Z3 Base F14




Type B1/B3/B4 Base F14