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BAZ



BEVEL GEAR

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Application

GATE VALVE



GLOBE VALVE



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## Company Introduction

Zhejiang Litong Valve Actuation Co., Ltd, a technology-oriented enterprise, integrates R&D, production, sales and service as a whole, specializes in valve worm gear and bevel gear products.

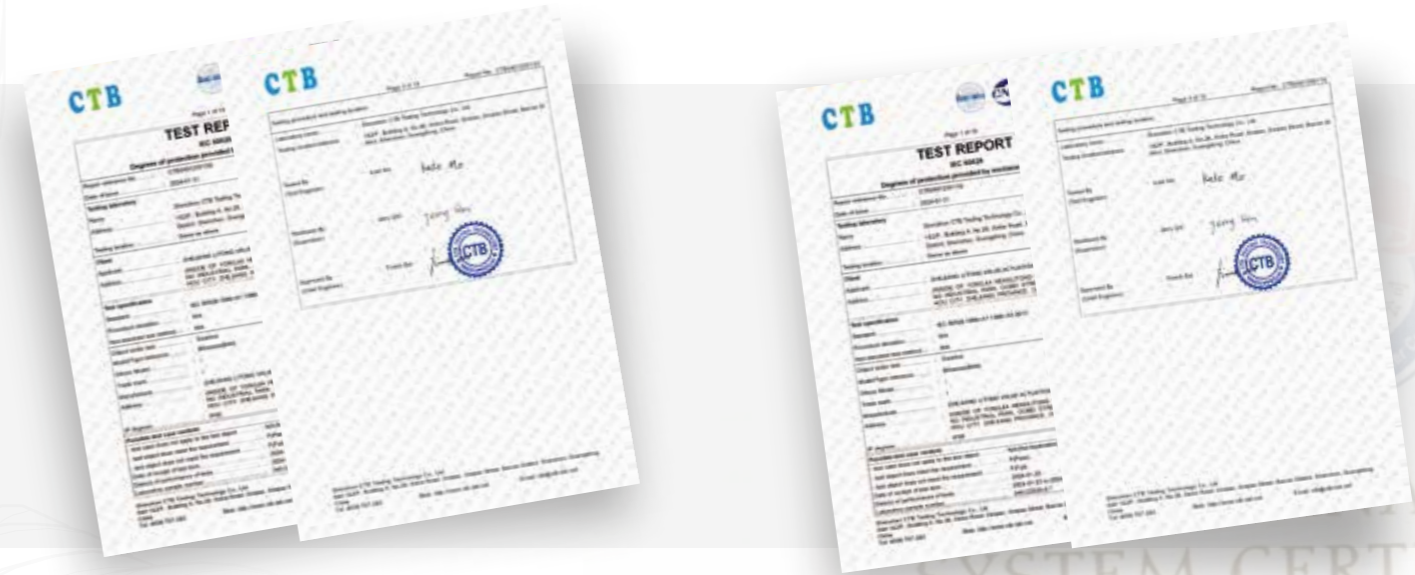
Since founded in 2018, we have vigorously developed ERP informatization, digital management, intelligent manufacturing, 6S site management, and have passed ISO9001 quality management system, established laboratory and testing center with advanced manufacturing facilities and testing equipment. Testing equipment include dynamic torque test stand, static torque test stand, high- & low-temp test station, waterproof test stand, metallographic analyzer, hardness detector, spectral analyzer, etc., to ensure product quality and performance.

We will continue to improve quality, adhere to technological innovation, and constantly improve management level to provide our customer with better quality products and services.



### Main Products

We produce quarter-turn and multi-turn gearbox optional with Ductile Iron, Carbon Steel, Low-temp Carbon Steel, Stainless Steel and other special body materials. Torque range of quarter-turn gearbox covers from 400Nm~300000Nm, multi-turn from 500Nm~30000Nm. With default application to ambient temperature, high-temp, low-temp, and cryogenic application can also be customized, same for default IP67 waterproof grade, IP68 or higher grade also can be customized.

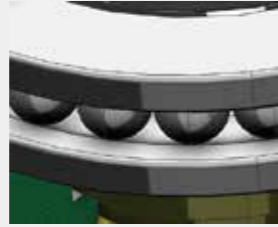


### Certification

- Bevel Gear Torque & Water-proof IP 67 Report
- Bevel Gear Water-proof IP 68 Report
- Bevel Gear Water-proof IP 65 Report
- Practical New Patent – Single Stage Gear Design
- Practical New Patent – Double Stage Gear Design
- Patent - Appearance Design

### ISO 9001 Quality Management System Certificate





**Ball Thrust Bearing**

The nut 2 end is supported by a ball thrust bearing, which can withstand the larger thrust generated by the gear, reduce friction, and increase transmission efficiency.

**bevel gear shaft**

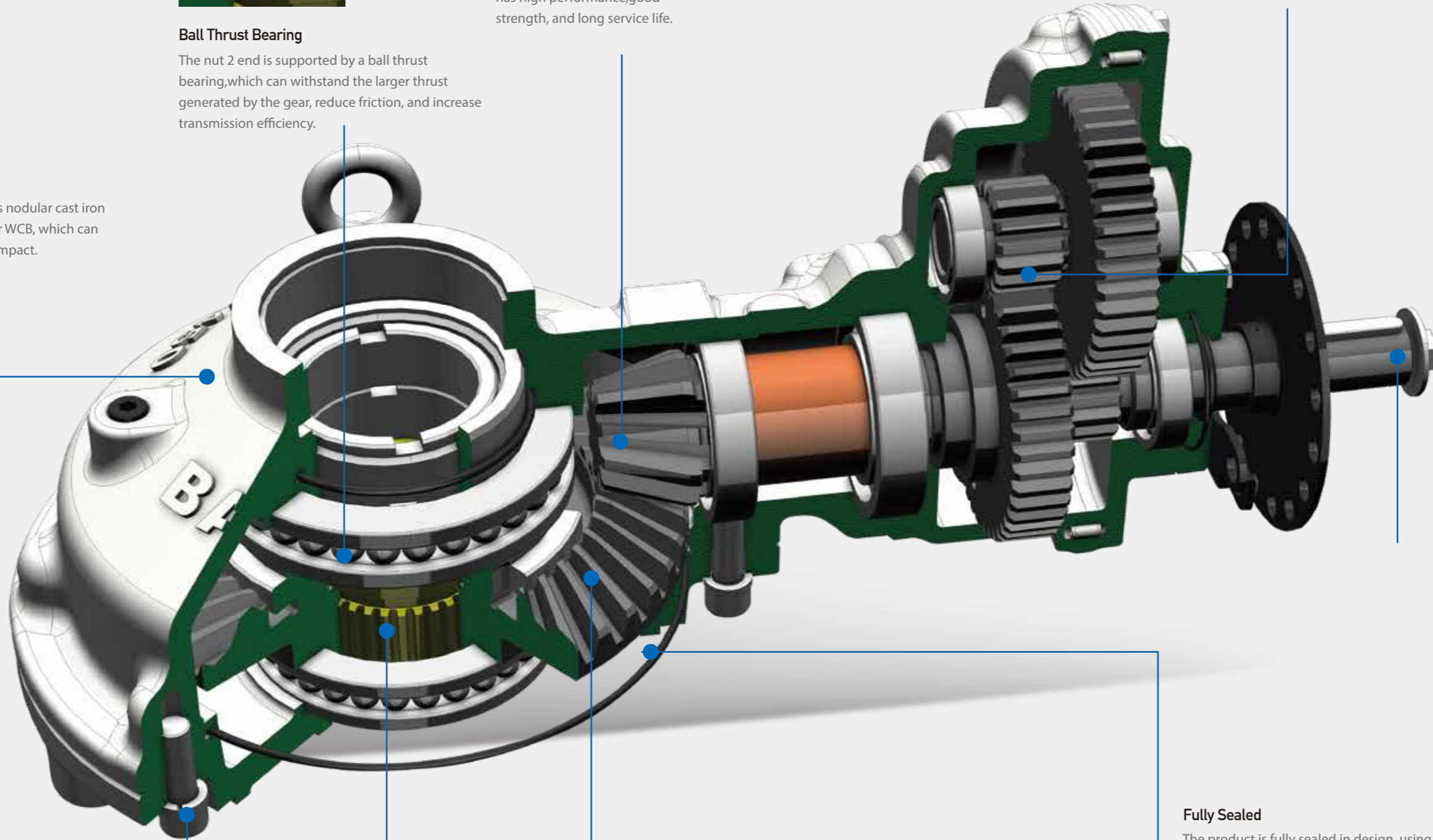
The material of the 5 bevel gear shaft adopts alloy steel 20CrMnTi heat treatment, which has high performance, good strength, and long service life.

**Gear**

The gear material adopts alloy steel 20CrMnTi heat treatment or 40Cr heat treatment, which has high performance, good strength and long service life.

**Gravity Impact**

The shell material is nodular cast iron precision casting or WCB, which can withstand gravity impact.



**Input Shaft**

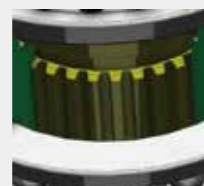
Electrophoresis or blackening of input shaft for rust prevention treatment

**Fully Sealed**

The product is fully sealed in design, using O-ring, sealing gasket, sealant, etc. The conventional waterproof grade can reach IP67, and the waterproof grade can be customized to IP68

**Alloy Steel 20CrMnTi**

The gear disc material is made of alloy steel 20CrMnTi, which has high performance, good strength, and long service life.



**Nut materials customized**

Nut materials can be selected from D-2 high nickel cast iron, QAL9-4 aluminum bronze, H62 brass, QT450-10 ductile iron, etc

**8.8 level of fasteners**

Mechanical performance level of fasteners: 8.8



## For Multi-turn Valves

# PRODUCT INTRODUCTION

Currently, we have two series of multi-turn valve actuation products: BA & DBA series. BA for manual operation, DBA for motor operated valves (MOV).

### Application



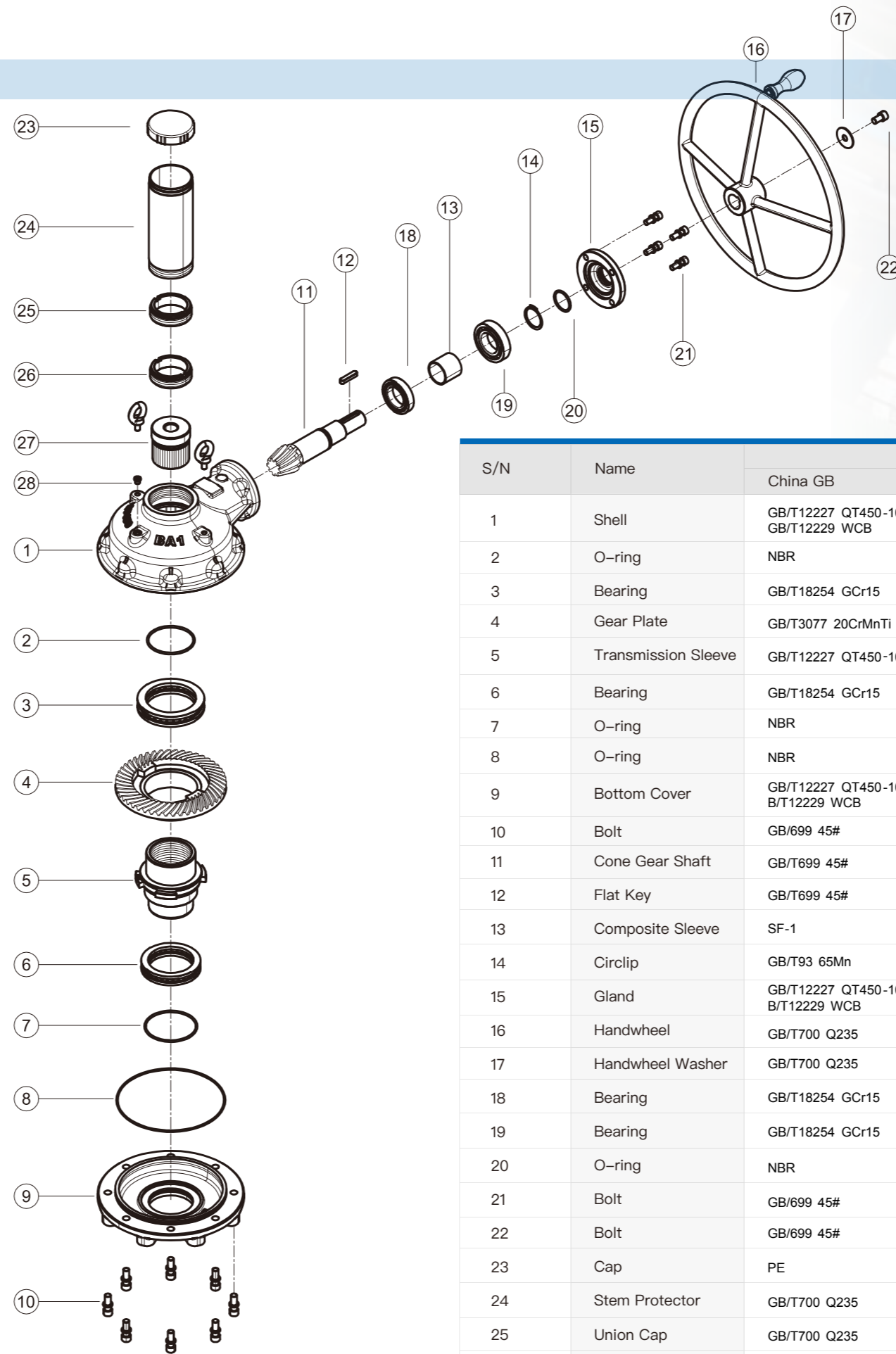
Applicable to multi-turn valves such as Gate valves, Globe valves, and other linear travel valves, can be widely used for variety of harsh environment and special-temp industrial sites.

### Product Customization

- Water-proof grade: IP 68.
- Stainless steel or special material shaft.
- Application to low-temp conditions -29°C, -46°C, -60°C, etc.
- Ductile iron, WCB, Low-temp Carbon Steel, Stainless Steel body material.
- Handwheel dimension.

### Product Features

- Complete models, each model optional with single or double stage, so to provide better choice.
- Flange connection conforms with ISO 5211.
- Default application temperature: -20°C to + 120°C.
- Water-proof grade: IP 65.
- Various forms of operation input: manual, manual with locking device, chainwheel, or actuator.
- Flange connection with actuator flange ISO5210 F series top flange or JB2920.
- Shaft key, flat hole, square, trapezoidal thread optional for connection with valves.
- Nut material of multi-turn gearbox optional with D-2, H62, QAL 9-4, ductile or special materials.
- Stem protector length can be customized according to customer requirement.
- Mounting flange with valve can be customized as three-claw as JB 2920.
- Standard hand wheel material is welded pipe, optional with casting steel hand wheel.

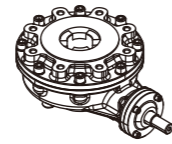
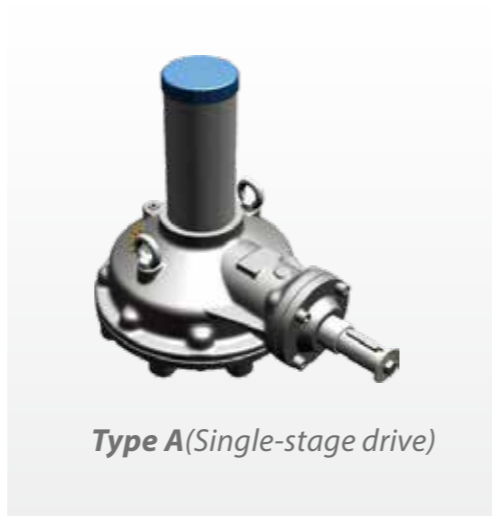
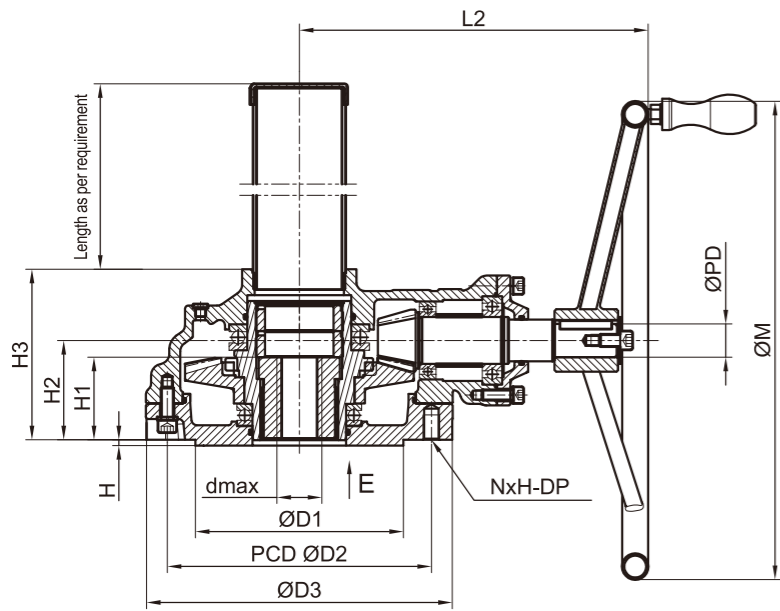


S/N	Name	Bill of Material	
		China GB	ASTM
1	Shell	GB/T12227 QT450-10 GB/T12229 WCB	ASTMA53665 -45-12 ASTMA216 WCR
2	O-ring	NBR	NBR
3	Bearing	GB/T18254 GCr15	ASTMA295-52100
4	Gear Plate	GB/T3077 20CrMnTi	Alloy steel
5	Transmission Sleeve	GB/T12227 QT450-10	ASTM A536 65-45-12
6	Bearing	GB/T18254 GCr15	ASTM A295-52100
7	O-ring	NBR	NBR
8	O-ring	NBR	NBR
9	Bottom Cover	GB/T12227 QT450-10 B/T12229 WCB	ASTM A536 65-45-12 ASTM A216 WCB
10	Bolt	GB/699 45#	ASTM A29M-1045
11	Cone Gear Shaft	GB/T699 45#	ASTM A29M-1045
12	Flat Key	GB/T699 45#	ASTM A29M-1045
13	Composite Sleeve	SF-1	SF-1
14	Circlip	GB/T93 65Mn	ASTM A29-1566
15	Gland	GB/T12227 QT450-10 B/T12229 WCB	ASTM A536 65-45-12 ASTM A216 WCB
16	Handwheel	GB/T700 Q235	ASTM A283M Gr.C
17	Handwheel Washer	GB/T700 Q235	ASTM A283M Gr.C
18	Bearing	GB/T18254 GCr15	ASTM A295-52100
19	Bearing	GB/T18254 GCr15	ASTM A295-52100
20	O-ring	NBR	NBR
21	Bolt	GB/699 45#	ASTM A29M-1045
22	Bolt	GB/699 45#	ASTM A29M-1045
23	Cap	PE	PE
24	Stem Protector	GB/T700 Q235	ASTM A283M Gr.C
25	Union Cap	GB/T700 Q235	ASTM A283M Gr.C
26	Union Cap	GB/T700 Q235	ASTM A283M Gr.C
27	Nut	GB/T1176 H62 YS/T 649 QAI9-4 ASTMA439 D-2	ASTM C85500 ASTM C61900 ASTM A439 D-2
28	Grease Nipple	GB/T700 Q235	ASTM A283M Gr.C

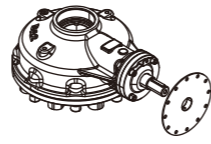


For Multi-turn Valves

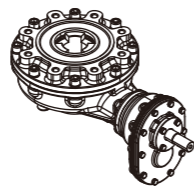
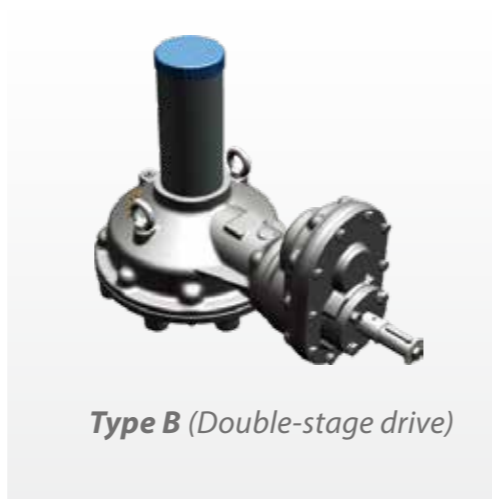
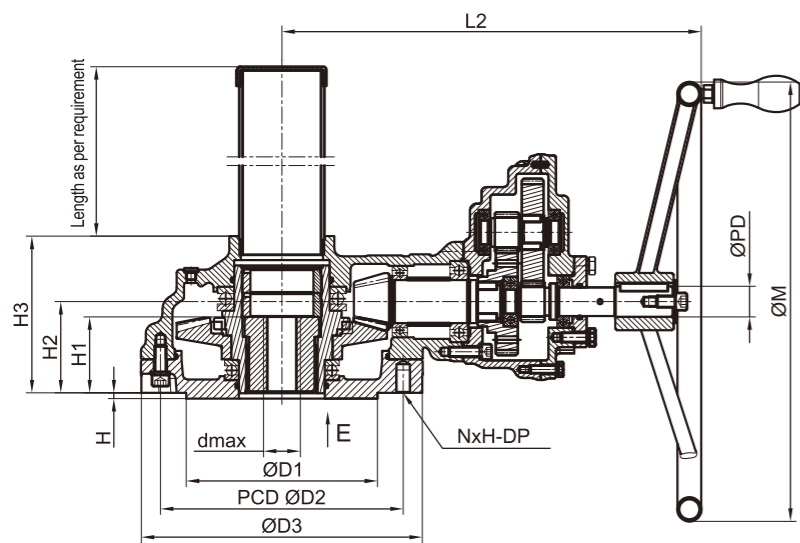
BA SERIES



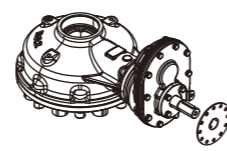
Optional JB2920 Three-claw Output Flange



Locking Device Available w/ Handwheel



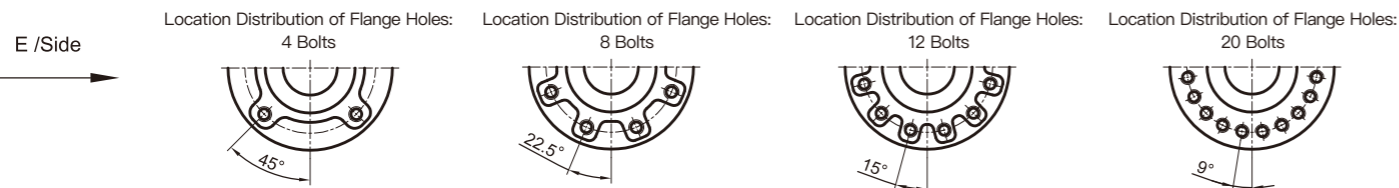
Optional JB2920 Three-claw Output Flange



Locking Device Available w/ Handwheel

BA SERIES

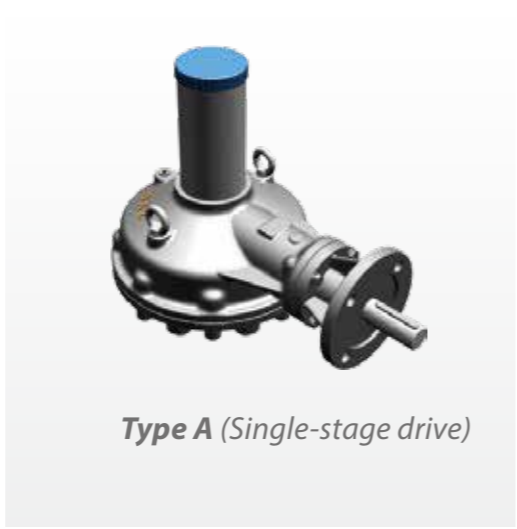
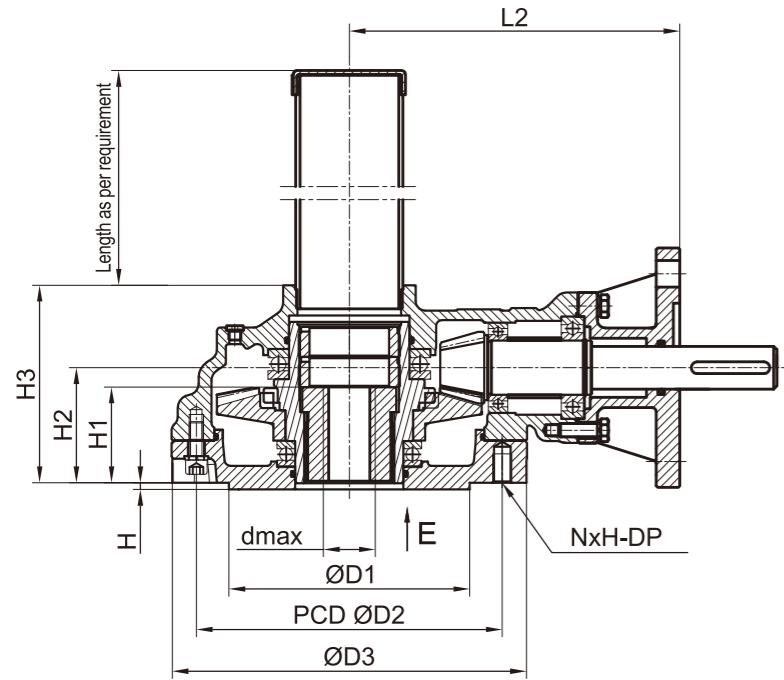
Type	Model	Technical Parameter							Mounting Flange Dimension				Outline Dimension				Handwheel Dimension			
		Flange	Ratio	Output Torque Nm	Input Torque Nm	Amplification Coefficient ±15%	Max Stem mm	Max. Thrust KN	D1	D2	N×M-DP	D3	H	H1	H2	H3	L2	PD	KEY	M
A	BA00	F14	3.25:1	500	180	2.8	38	127	100	140	4×M16-24	175	3	58	76	124	259	25	8	305
	BA0	F16	4:1	850	250	3.4	44	141	130	165	4×M20-30	210	3	70	84	133	274	25	8	410
	BA0A	F16	4.3:1	1200	335	3.6	52	268	130	165	4×M20-30	210	3	67	92	143	289	25	8	410
		160							200	8×M16-24	245	4	64	89	140	289				
	BA1	F25	5:1	1700	405	4.2	57	268	200	254	8×M16-24	295	4	80	95	164	335	32	10	460
	BA2	F30	6:1	3000	590	5.1	70	308	230	298	8×M20-30	350	4	105	135	210	413	32	10	610
BA3	F35	7:1	4500	750	6	85	402	260	356	8×M30-45	415	5	149	154	259	455	32	10	610	
B	BA00-1SS	F14	11.5:1	500	60	8.3	38	127	100	140	4×M16-24	175	3	58	76	124	335	25	8	305
	BA0-1SS	F16	14.1:1	1200	120	10.1	44	141	130	165	4×M20-30	210	3	70	84	133	350	25	8	410
	BA1-1SS	F25	19:1	2250	165	13.7	57	268	200	254	8×M16-24	295	4	80	95	164	439	25	8	460
	BA2-1SS	F30	27.2:1	4500	230	19.6	70	308	230	298	8×M20-30	350	4	105	135	210	522	32	10	610
	BA3-1SS	F35	42.9:1	6500	210	31	85	450	260	356	8×M30-45	415	5	149	154	259	604	32	10	610
	BA3B-1SS	F35	42.9:1	9000	290	31	115	865	260	356	8×M30-45	415	5	170	164	305	604	32	10	610
	BA4-1SS	F40	48:1	14000	403	34.7	125	1400	300	406	8×M36-54	475	5	210	193	341	719	32	10	710



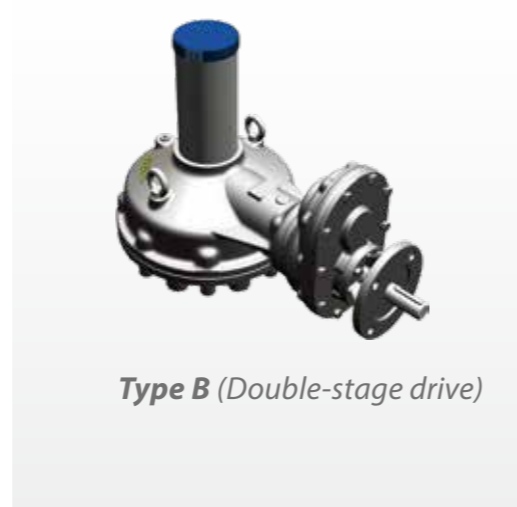
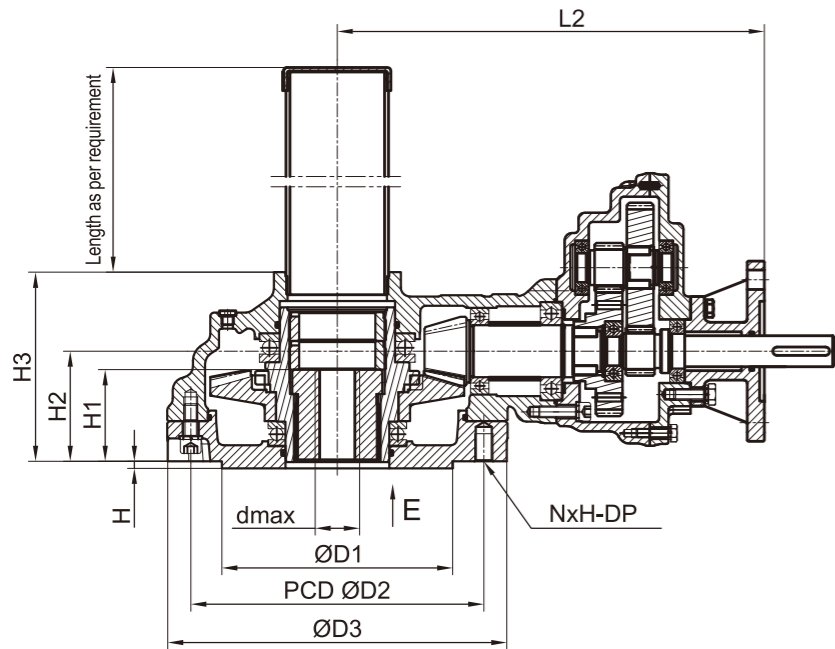


For Multi-turn Valves

DBA MOV Series



Optional JB2920 Three-claw Output / Input Flange



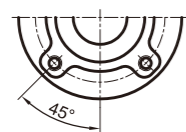
Optional JB2920 Three-claw Output / Input Flange

DBA MOV Series

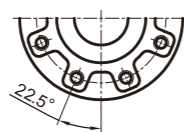
Type	Model	Technical Parameters							Mounting Flange Dimensions				Outline Dimensions			Actuator Mounting Flange			
		Output Torque Nm	Input Torque Nm	Mechanical Efficiency ±15%	Std. Ratio	Optional Ratio Range	Flange	Max Shaft mm	Max. Thrust KN	D1	D2	NxM-DP	D3	H	H1	H2	H3	ISO5210 flange	JB 2920 flange
A	DBA00	500	180	0.85	3.25:1	/	F14	38	127	100	140	4×M16-24	175	3	58	76	124	F10	2
B	DBA00-1SS		60	0.72	11.5:1	6.6~11.5												F10	3
A	DBA0	850	250	0.85	4:1	/	F16	44	141	130	165	4×M20-30	210	3	70	84	133	F10	2
B	DBA0-1SS		85	0.72	14.1:1	8.1~14.1												F10	3
A	DBA0A	1200	330	0.85	4.3:1	/	F16	52	268	130	165	4×M20-30	210	3	67	92	143	F10	2
B	DBA0A-1SS						F20			160	200							8×M16-24	245
A	DBA1	2250	590	0.85	4.5:1	5:1	F25	57	268	200	254	8×M16-24	295	4	80	95	164	F10	2
B	DBA1-1SS		165	0.72	19:1	10.4~37												F14	3
A	DBA2	4500	1020	0.85	5.22:1	6:1	F30	70	308	230	298	8×M20-30	350	4	105	135	210	F14	3
B	DBA2-1SS		230	0.72	27.2:1	15~59.7												F16	4
A	DBA3	6500	1350	0.85	5.67:1	7:1	F35	85	402	260	356	8×M30-45	415	5	149	154	259	F14	3
B	DBA3-1SS		210	0.72	42.9:1	18~89.5												F16	4
A	DBA3B	9000	1870	0.85	5.67:1	/	F35	115	865	260	356	8×M30-45	415	5	170	164	305	F14	3
B	DBA3B-1SS		290	0.72	42.9:1	18~89.5												F16	4
A	DBA4	14000	2600	0.85	6.33:1	/	F40	125	1400	300	406	8×M36-54	475	5	210	193	341	F16	4
B	DBA4-1SS		403	0.72	48:1	20~100												F25	5

E /Side

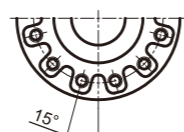
Location Distribution of Flange Holes: 4 Bolts



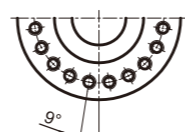
Location Distribution of Flange Holes: 8 Bolts



Location Distribution of Flange Holes: 12 Bolts



Location Distribution of Flange Holes: 20 Bolts

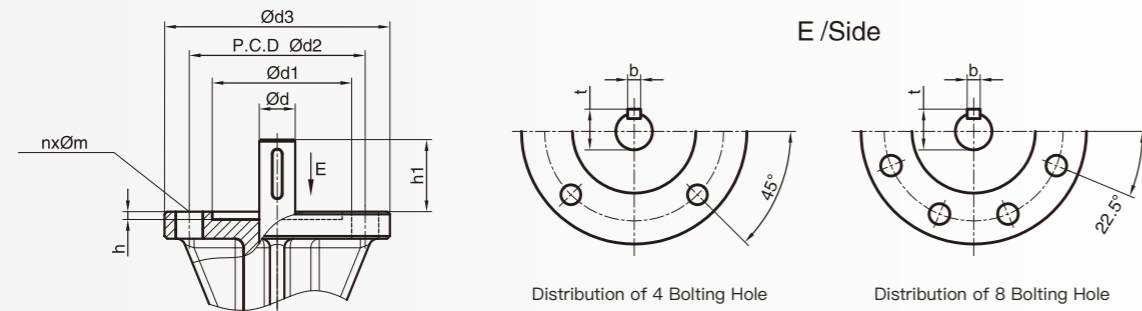




**BEVEL  
GEAR**

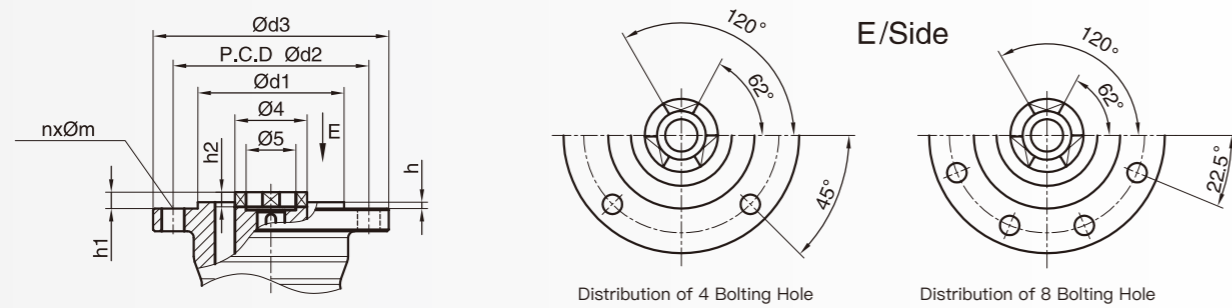
**Fit with electric actuator**

**Flange Dimension to mount with ISO 5210 Electric Actuator**



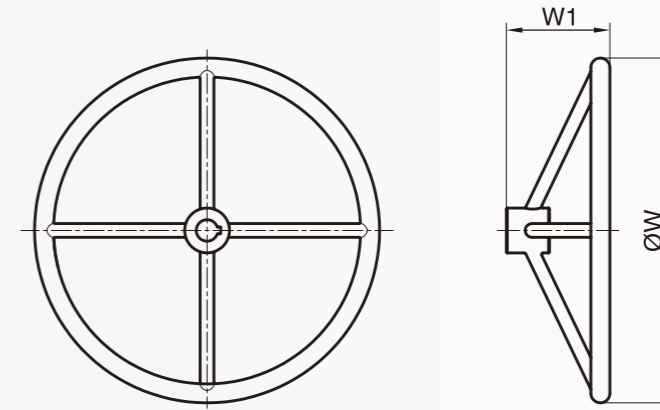
Flange Model	d1	d2	d3	n×m	h	d	b	h1	t
F10	70	102	125	4×12	3	20	6	40	22.5
F14	100	140	175	4×18	4	30	8	60	33
F16	130	165	210	4×22	5	30	8	60	33
						40	12	80	43
						40	12	80	43
F25	200	254	300	8×18	5	45	14	80	48.5
						50	14	80	53.5
						40	12	80	43
F30	230	298	350	8×22	5	45	14	80	48.5
						50	14	80	53.5
						60	18	100	64

**Flange Dimension to mount with JB 2920 Electric Actuator**



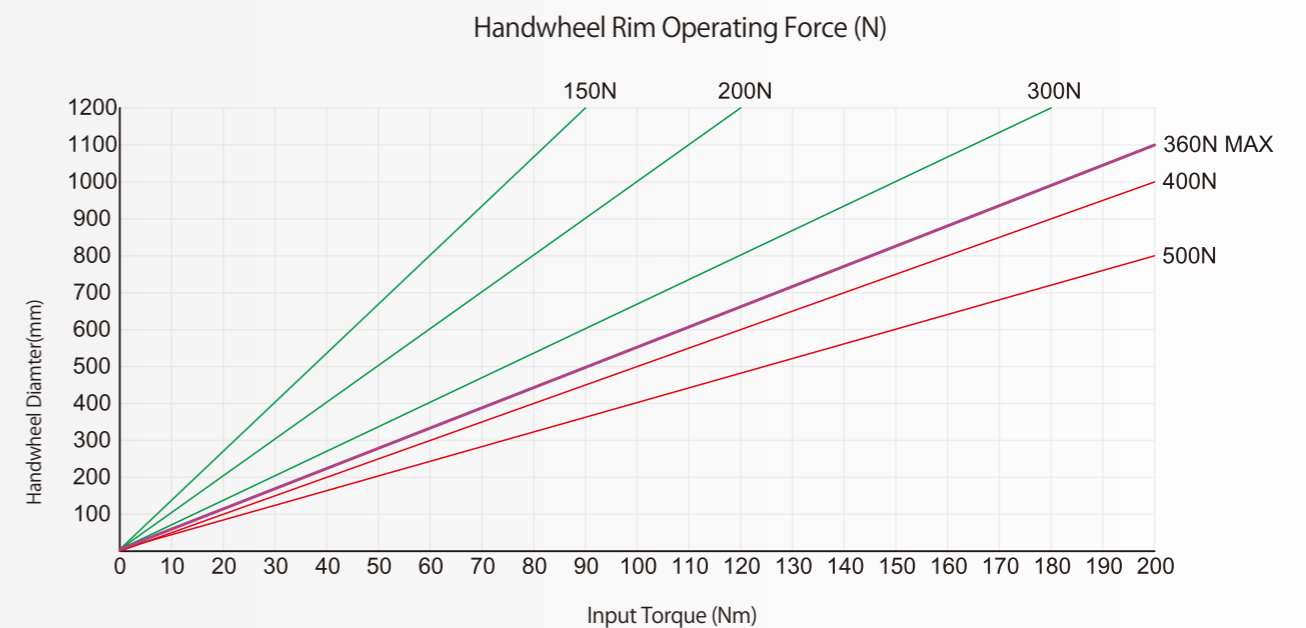
Flange Model	Actuator Model	d1	d2	d3	h	n×m	h1	d4	d5	h2
2	Z05\Z10	90	120	145	4	4×12	10	45	30	8
3	Z20\Z30	125	160	185	4	4×14	12	58	42	10
4	Z45\Z60	150	195	225	5	4×18	14	72	46	12
5	Z90\Z120	180	235	275	5	4×22	16	82	58	14
7	Z180\Z250	220	285	330	6	4×26	19	98	65	16
8	Z350\Z500	280	340	380	6	8×22	23	118	80	20
9	Z800	300	380	430	8	8×26	28	128	85	25
10	Z1000	360	450	510	8	8×33	33	158	105	30

**Handwheel Dimension**



W	250	305	360	410	460	500	550	610	650	710	750	810	900	1000
W1	90	90	90	90	90	90	90	100	100	200	200	200	200	200

**Handwheel & Operating Force Chart**



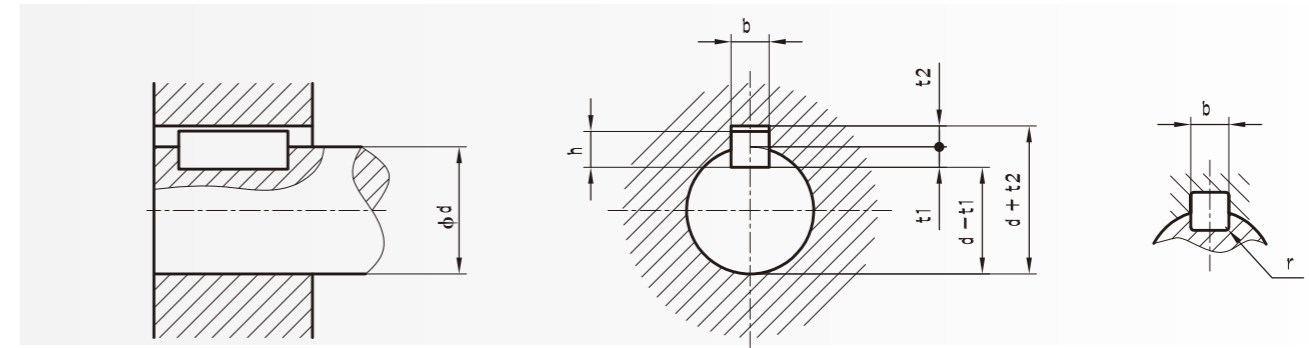
$$\text{Handwheel Diameter(mm)} = \frac{\text{Input Torque(Nm)} \times 1000 \times 2}{\text{Handwheel Rim Operating Force (N)}}$$



**Model Selection for API Gate/Globe Valves (Only for reference)**

Model	150Lb (2.0MPa)	300Lb (5.0MPa)	600Lb (10.0MPa)	900Lb (15.0MPa)	1500Lb (25.0MPa)	2500Lb (42.0MPa)
BA series						
BA00	10"-12"	6"-8"	4"	2"-3"	2"-3"	2"-3"
BA0	14"	10"	6"	4"	4"	4"
BA0A	16"	12"	8"	6"	/	/
BA1	18"-20"	14"	10"	8"	6"	/
BA1-1SS	/	16"	12"	/	/	6"
BA2	24"-30"	18"-20"	/	10"	8"	/
BA2-1SS	32"-36"	24"	14"-16"	12"-14"	10"	8"
BA3	30"-32"	/	18"-20"	14"-16"	12"	/
BA3-1SS	40"-42"	/	18"-20"	/	12"	10"
BA3B-1SS	48"	30"	24"	18"	14"	/
BA4-1SS	/	32"	/	20"-24"	16"	12"

**Shaft, bore diameter, flat key shall be selected per GB/T1095**



Shaft/Bore d	Key Size		Keyway Dimension			
	Width b(h8)	Thickness h(h8)	Shaft t1		Bore t2	
			Size	Tolerance	Size	Tolerance
>6~8	2	2	1.2	+0.10~+0.00	1	+0.10~+0.00
>8~10	3	3	1.8	+0.10~+0.00	1.4	+0.10~+0.00
>10~12	4	4	2.5	+0.10~+0.00	1.8	+0.10~+0.00
>12~17	5	5	3.0	+0.10~+0.00	2.3	+0.10~+0.00
>17~22	6	6	3.5	+0.10~+0.00	2.8	+0.10~+0.00
>22~30	8	7	4.0	+0.20~+0.00	3.3	+0.20~+0.00
>30~38	10	8	5.0	+0.20~+0.00	3.3	+0.20~+0.00
>38~44	12	8	5.0	+0.20~+0.00	3.3	+0.20~+0.00
>44~50	14	9	5.5	+0.20~+0.00	3.8	+0.20~+0.00
>50~58	16	10	6.0	+0.20~+0.00	4.3	+0.20~+0.00
>58~65	18	11	7.0	+0.20~+0.00	4.4	+0.20~+0.00
>65~75	20	12	7.5	+0.20~+0.00	4.9	+0.20~+0.00
>75~85	22	14	9.0	+0.20~+0.00	5.4	+0.20~+0.00
>85~95	25	14	9.0	+0.20~+0.00	5.4	+0.20~+0.00
>95~110	28	16	10.0	+0.20~+0.00	6.4	+0.20~+0.00
>110~130	32	18	11.0	+0.20~+0.00	7.4	+0.20~+0.00
>130~150	36	20	12.0	+0.30~+0.00	8.4	+0.30~+0.00
>150~170	40	22	13.0	+0.30~+0.00	9.4	+0.30~+0.00
>170~200	45	25	15.0	+0.30~+0.00	10.4	+0.30~+0.00
>200~230	50	28	17.0	+0.30~+0.00	11.4	+0.30~+0.00
>230~260	56	32	20.0	+0.30~+0.00	12.4	+0.30~+0.00
>260~290	63	32	20.0	+0.30~+0.00	12.4	+0.30~+0.00
>290~330	70	36	22.0	+0.30~+0.00	14.4	+0.30~+0.00
>330~380	80	40	25.0	+0.30~+0.00	15.4	+0.30~+0.00