



402 Series Valve Gearbox

► For Part-turn Application





About us

Tianjin Beifang Valve Actuator Co., Ltd. (BF for short) always focus on the design and manufacture of excellent valve actuator and control equipment.

BF attaches great importance to product design, and the design team has strong product design and innovation ability. BF has complete intellectual property rights and a number of technical patents. Over the years, our products have been annual exported in batches and were widely and successfully used in water treatment, oil, electricity, chemical and other industries.

BF acquired the authentication of quality management system standards ISO9000 of DNV in 1998. Strict quality control in all stages and constantly improving the product quality control standards is the consensus of the staff.

BF believes that only solid the software and hardware foundation to achieve long-term stable development. We have set up some advanced computer-aided system, such as product design, resource management, production management, and soon. And we have set up the platform of precision machining mainly based on CNC machining center. We also continue to establish and improve a documented management system.

BF will design and manufacture products solidly and continue our efforts to create more value for customers.

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Summary

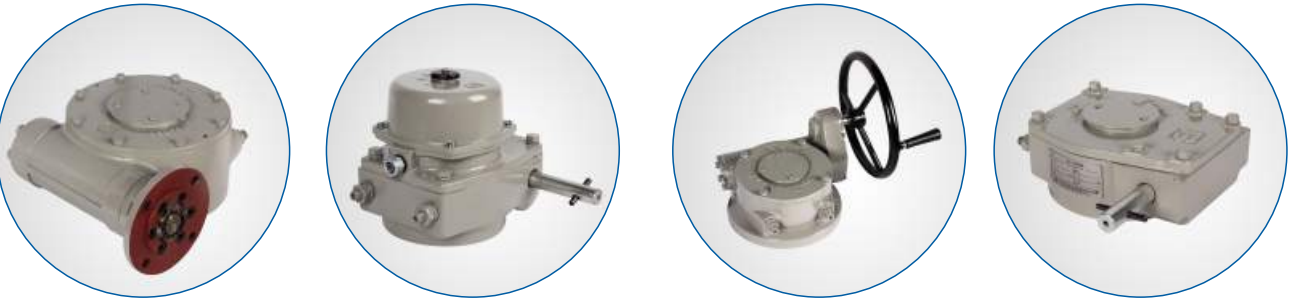
- ▶ **Applicability** They provide a reliable position control of butterfly, ball valves, as well as similar ones.
- ▶ **Torque** 150 ~ 640000 Nm

Features

- ▶ 402 series with design features of high strength, efficiency and water tightness can be applied to different kinds of working environment. IP65 enclosure is standard, and IP67 or IP68 (GB4208) enclosure can be provided if need.
- ▶ Beside as manual actuators, 402 series also can be used as electric actuators for part-turn valves when combining with multi-turn electric actuators.
- ▶ For manual operation, 402 series have a variety of additional reduction mechanism to reduce manual operation force and meet the needs of different operating positions.
- ▶ 402 series can be extended to install the limit switch and a potentiometer which can transmit valve position signal.

Model and specification

4027	G	-	L	:	F30-21	:	F25-09	Input connection code (If it is handwheel, omit the code)
								Connection code for valve
								Work environment:
								Null Standard: -20~+80 °C
								L Low temperature : -40~+80 °C
								U Ultralow temperature : -60~+60 °C
								Code of structural form (Please refer to page 4 and page 5)
								Model



Structure

1

The pointer provides local monitoring of valve position clearly.

2

Two adjustable mechanical stop bolts in open and close direction are provided for limiting the travel of valve.

3

The worm wheel made of ductile cast iron has high strength and good wearability.

4

The use of tin bronze bearing and thrust ball bearing improves the drive efficiency.

5

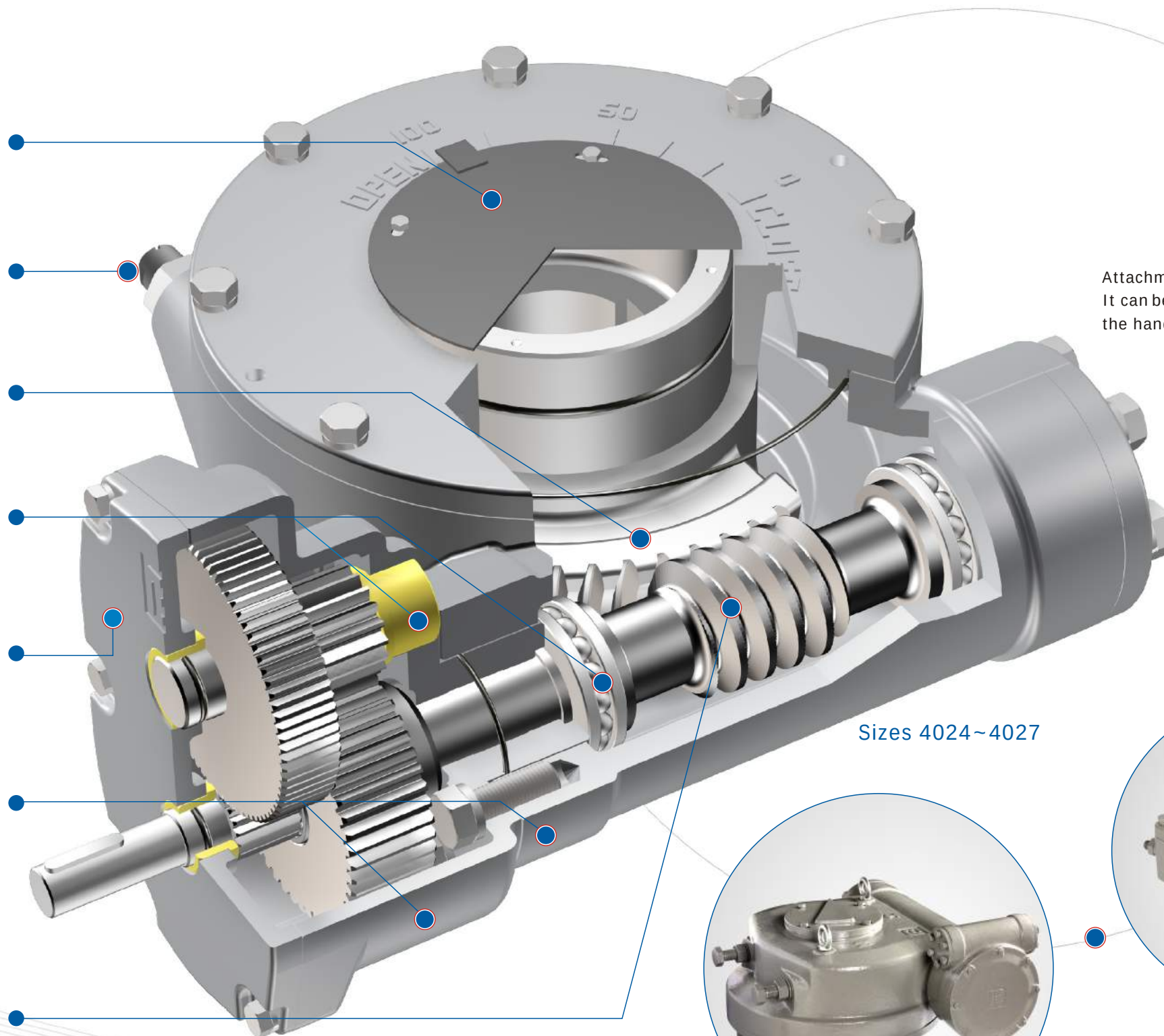
The actuators with the higher output torque are equipped with a gear reducer, which make manual operation more laborsaving.

6

Both the worm and gear boxes are made of grey cast iron or ductile cast iron. There are O-rings at all contacting portion. The main house is filled with gear lubricating grease and it is not need to refresh the grease periodically.

7

The worm shaft is made of quality carbon steel, and the helical teeth are quenched with high frequency.



Attachment : Valve position indicator
It can be independently mounted on the handwheel shaft end.



Attachment: Switch box
It can be independently mounted to feedback the valve position signal. (Exclude 4020~4023)

Sizes 4024~4027

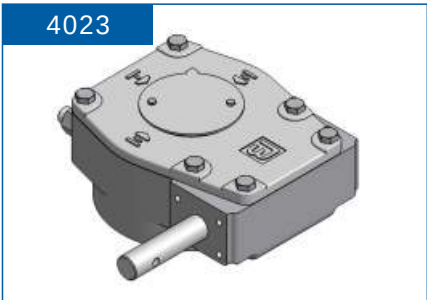
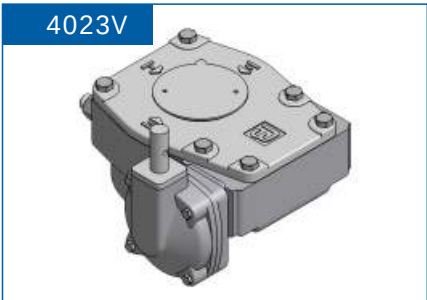
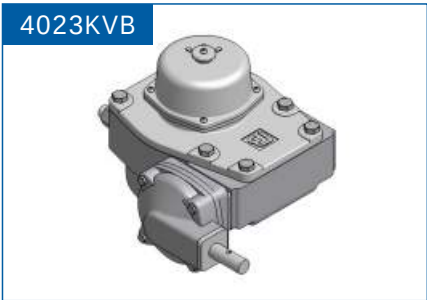
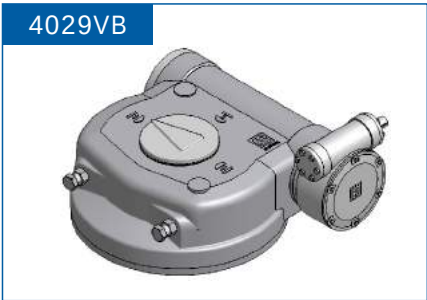
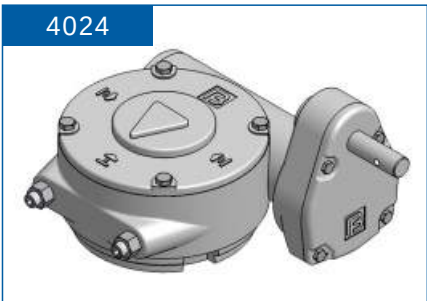


Sizes 4028 ~ 40212

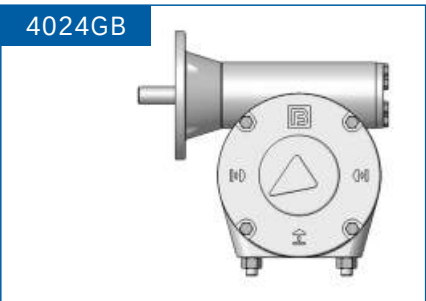
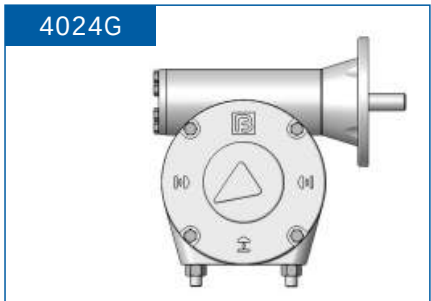


Sizes 4020 ~ 4023

Structural form



Structural form		Code	Suitable model.
Direct manual operation			4020, 4021, 4022, 4023
With spur gearbox			4024, 4025, 4026, 4027
With bevel gearbox	Vertical	V	4022, 4023
	Lateral	VB	
With worm gearbox	Vertical	V	4024, 4025, 4026, 4027, 4028, 4028.5, 4029, 4029.5, 40210, 40211, 40212
	Lateral	VB	
Combining with multi-turn electric actuators	Installation location A	G	
	Installation location B	GB	
Output electric signal: Two micro switches supply passive contacts for full open/close of valve	Direct manual operation	K	4020, 4021, 4022, 4023
	With spur gearbox	K	4024, 4025, 4026, 4027
	With bevel gearbox	KV KVB	4022, 4023
	With worm gearbox	KV KVB	4024, 4025, 4026, 4027, 4028, 4028.5, 4029, 4029.5, 40210, 40211, 40212
Output electric signal : Two micro switches supply passive contacts for full open/close of valve. A potentiometer feedback the position signal of valve. (Percentage)	Direct manual operation	KW	4020, 4021, 4022, 4023
	With spur gearbox	KW	4024, 4025, 4026, 4027
	With bevel gearbox	LV LVB	4022, 4023
	With worm gearbox	LV LVB	4024, 4025, 4026, 4027, 4028, 4028.5, 4029, 4029.5, 40210, 40211, 40212

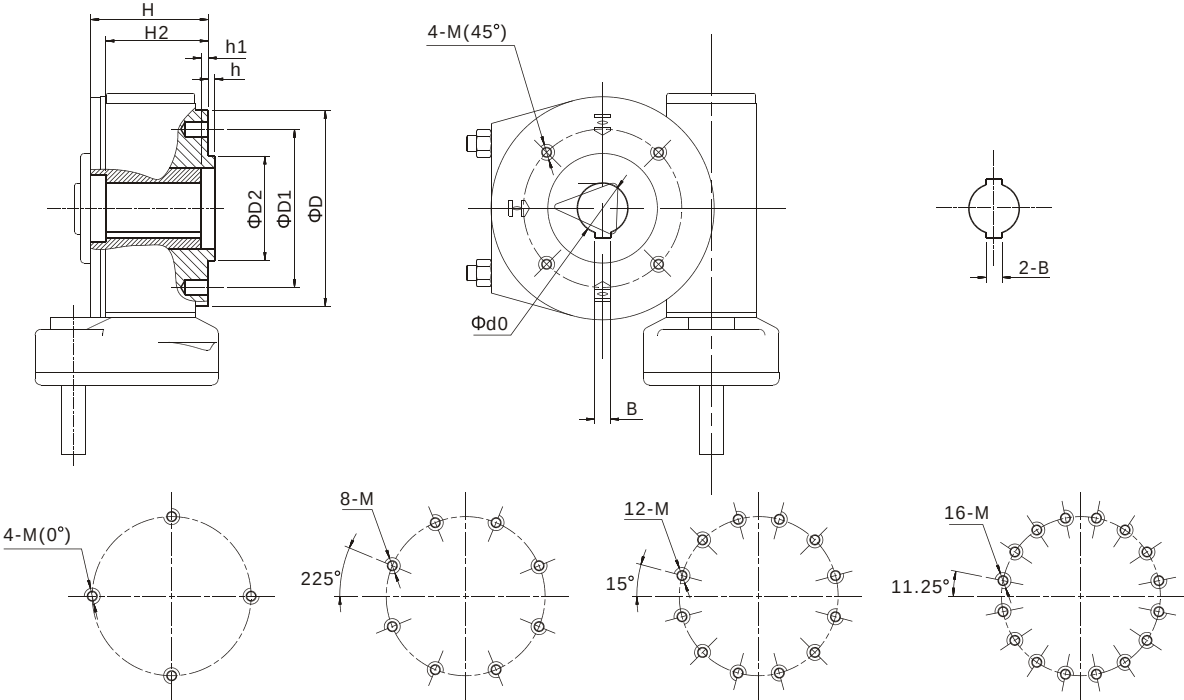


Technical parameter

Model.	Output torque ⁰⁾ Nm	Structural form ¹⁾	Total efficiency	Reduction ratio ²⁾			Handwheel turns	Handwheel torque ³⁾ Nm	Dia. of handwheel mm	Weight ⁴⁾
				Worm-wheel	Additional gearbox	Total ratio				
4020	150		0.3	30	-	30	7.5	17	Φ120	5
4021	300		0.3	48	-	48	12	21	Φ220	7
4022	600		0.3	56	-	56	14	36	Φ320	11
		V •	0.27	56	3.75	210	52.5	11	Φ320	14
4023	1200		0.3	56	-	56	14	72	Φ400	18
		V •	0.27	56	3.75	210	52.5	21	Φ320	21
4024	2500		0.27	58	2.5	145	36	68	Φ400	40
		V •	0.11	58	14	812	203	26	Φ320	38
		G •	0.3	58	-	-	-	-	-	34
4025	5000		0.27	56	6.33	354.5	89	62	Φ400	71
		V •	0.11	56	17	952	238	44	Φ400	68
		G •	0.3	56	-	-	-	-	-	53
4026	10000		0.27	56	6.49	363.4	91	125	Φ500	124
		V •	0.12	56	20	1120	280	75	Φ400	118
		G •	0.3	56	-	-	-	-	-	93
4027	20000		0.27	56	9.91	555	139	164	Φ500	199
		V •	0.11	56	23	1288	322	130	Φ500	190
		G •	0.3	56	-	-	-	-	-	152
4028	40000	V •	0.09	52	48	2400	600	185	Φ500	405
		G •	0.28	52	-	-	-	-	-	334
4028.5	60000	V •	0.09	52	54	2808	702	237	Φ600	507
		G •	0.28	52	-	-	-	-	-	421
4029	80000	V •	0.09	52	54	2808	702	317	Φ600	599
		G •	0.28	52	-	-	-	-	-	503
4029.5	120000	V •	0.09	56	51	2856	714	467	Φ800	844
		G •	0.28	56	-	-	-	-	-	717
40210	160000	V •	0.09	58	60	2940	735	605	Φ800	1123
		G •	0.28	58	-	-	-	-	-	964
40211	320000	V • ⁵⁾								
		G •	0.26	66	-	-	-	-	-	2186
40212	640000	V • ⁵⁾								
		G •	0.26	72	-	-	-	-	-	3712

0) Allowable instantaneous torque is 1.1 to 1.3 times the value in the table.
1) “V” represents the structural form of beginning with the letter V, and “G” represents the structural form of beginning with the letter G.
2) If special reduction ratio is required, please contact us.
3) The handwheel torque is the value in the table when the output torque is the rated value
4) The weight of the handwheel is not included. In addition, the value may change with different mounting dimensions.
5) The technical data of sizes 40211 and 40212 could be arranged with the consumer.

Mounting dimension



Model	Connection code ¹⁾	Outside diameter	Center distance of screwed holes	Screw hole Qty.-size				Stem diameter	Keyway Qty.-width		
		Φ D	Φ D1	-M	Φ D2	h	h1	Φ d0(F9)	B	H	H2
4020	F07a-03a	90	70	°	-	-	4	19	5	70	42
4021	J09-04a	115	89	°	-	-	6	22.2	5	70	50
4022	J10a-06a	150	108	°	-	-	5	31.7	8	70	55
4023	F14b-07a	175	140	°	-	-	7	38	10	93	67
4024	F16a-10a	210	165	°	-	-	7	50.7	16	118	79
4025	F25a-11	300	254		200(H9)	-5	8	55	2-16	148	94
4026	F25a-17	300	254		200(H9)	-6	8	85	2-22	180	130
4027	F30a-21	350	298		230(H9)	-6	9	105	2-28	213	160
4028	F40-28	475	406		300(f8)	5	9	140	2-36	275	230
4028.5	F40-32	475	406		300(f8)	5	9	160	2-40	310	270
4029	F48-38	560	483		370(f8)	5	11	190	2-45	310	270
4029.5	F48-42	560	483		370(f8)	5	11	210	2-50	340	300
40210	J70-48	800	700		560(f8)	5	11	240	2-56	375	350
40211	²⁾										
40212	²⁾										

1) The mounting dimension in the table is default. If special mounting dimensions are required, please contact us.

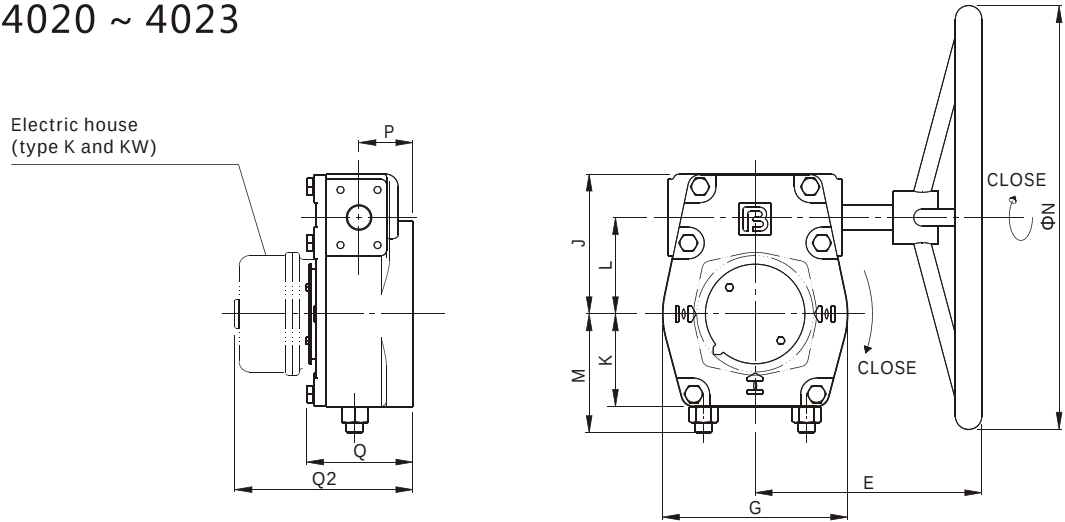
2) The mounting dimension of sizes 40211 and 40212 can be arranged with the consumer

Max. diameter of stem

4020	4021	4022	4023	4024	4025	4026	4027	4028	4028.5	4029	4029.5	40210	40211	40212
22	34	48	58	75	95	120	150	190	190	195	240	250	305	380

Overall dimension

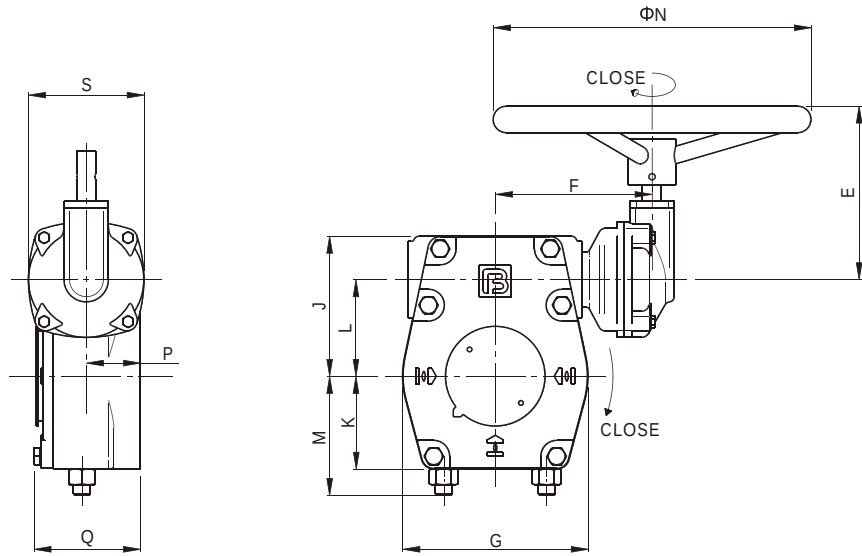
4020 ~ 4023



	E	G	J	K	L	M*	N	P	Q	Q2
4020	136	90	65	45	41	57	120	35	77	150
4021	183	125	95	63	63	75	220	40	78	150
4022	178	150	107	75	72	95	320	43	84	157
4023	188	175	132	88	91	110	400	55	105	175

* The exact value depends on the final position

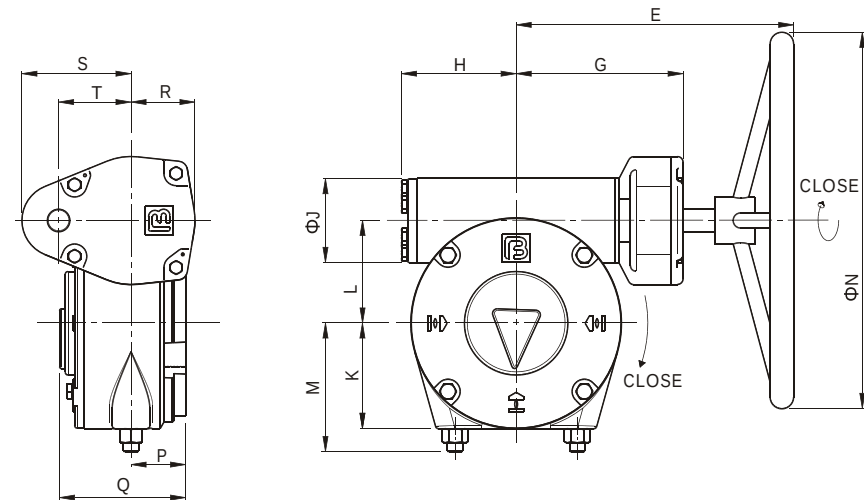
4022VB ~ 4023VB



	E	F	G	J	K	L	M*	N	P	Q	S
4022	164	137	150	107	75	72	95	320	43	84	110
4023	164	148	175	132	88	91	110	320	55	105	110

* The exact value depends on the final position.

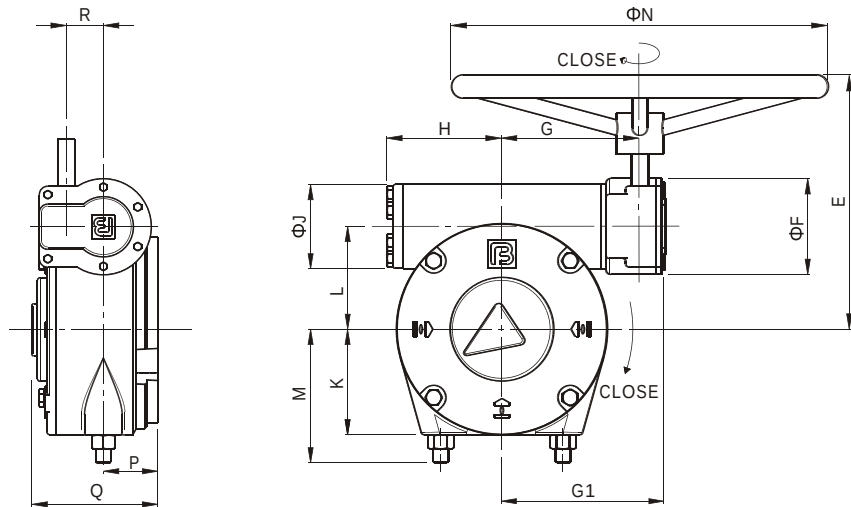
4024-4027



	E	G	H	J	K	L	M*	N	P	Q	R	S	T
4024	283	184	126	90	112	109	140	400	58	130	72	116	77
4025	349	252	154	108	140	138	180	400	72	160	70	139	0
4026	427	299	188	140	175	170	215	500	85	196	83	165	0
4027	493	358	232	166	208	202	233	500	105	230	100	199	0

* The exact value depends on the final position

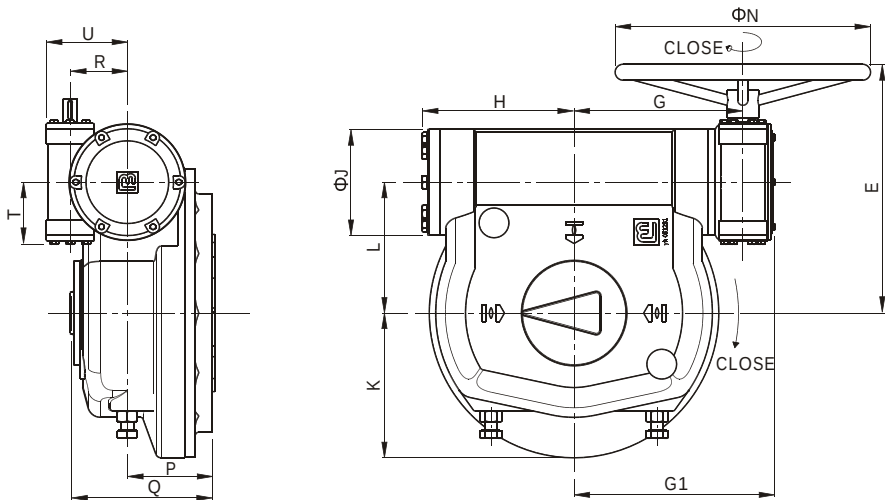
4024VB ~ 4027VB



	E	F	G	G1	H	J	K	L	M*	N	P	Q	R
4024	294	120	147	174	126	90	112	109	140	320	58	130	50
4025	296	145	179	212	154	108	140	138	180	400	72	160	60
4026	340	184	217	255	188	140	175	170	215	400	85	196	80
4027	429	208	262	326	232	166	208	202	233	500	105	230	103

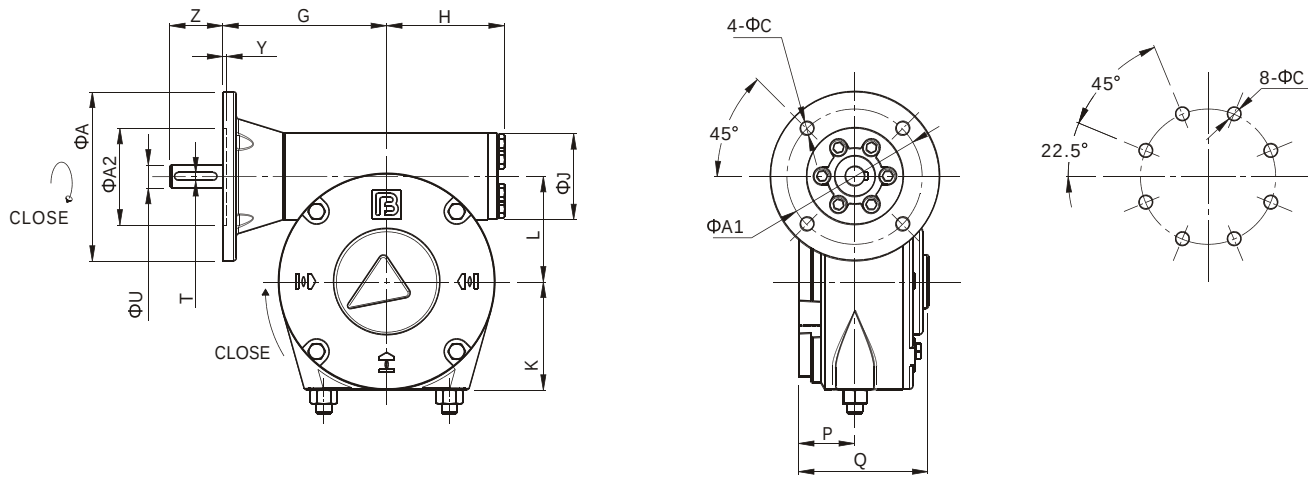
* The exact value depends on the final position

4028VB ~ 40210VB



	E	G	G1	H	J	K	L	N	P	Q	R	T	U
4028	479	334	402	300	216	280	238	500	175	301	118.5	130	170
4028.5	568	357	429	319	240	305	281	600	185	336	134	149	191
4029	590	397	469	361	250	339	307.5	600	200	334	134	149	191
4029.5	674	436	515	386	282	385	365.5	800	215	371	157	166	219
40210	726	476	576	426	320	430	410.5	800	170	425	180	189	250

4024GB ~ 40212GB



	A	A1	A2	C	G	H	J	K	L	P	Q	T	U	Y	Z
4024	145	120	75	8- 9	135	126	90	112	109	58	130	8	25	-3.5	45
4025	175	140	100	4- 18	197	154	108	140	138	72	160	8	30	6	49
4026	225	184	134	4- 22	230	188	140	175	170	85	196	10	38	-4	62
4027	300	254	200	8- 18	280	232	166	207	202	105	230	14	45	6	69
4028	350	298	230	8- 22	320	300	216	280	238	175	300	18	62	-5	108
4028.5	415	356	260	8- 32	390	319	240	305	281	185	336	18	65	8	108
4029	415	356	260	8- 32	395	361	250	339	308	200	334	2-20	75	8	108
4029.5	415	356	260	8- 32	460	386	282	385	365.5	215	371	2-22	80	8	135
40210	415	356	260	8- 32	540	426.5	320	430	410.5	170	425	2-22	85	8	135
40211	475	406	300	8-39	620	534	406	535	462	285	520	2-28	100	10	165
40212	475	406	300	8-39	810	690	520	695	576	342	600	2-32	120	10	165

* The exact value depends on the final position