

TAPCO

valve manual &
powered actuator

BEVEL
SERIES



*GOOD IDEAS
CREATE FUTURE*

Certificate of Registration



This is to certify that the
Quality Management Systems of:

Tavakol Poya Arak Industrial Group Co.

The corner of 1 Toseae, Toseae Street, No. 1 Industrial Zone, Arak-Iran

have been assessed and registered against the following international
standard:

ISO/TS 29001:2010

Approval is hereby granted for registration on the proviso that the
certification rules and conditions are observed at all times.

The scope of the registration:

**Design and Manufacturing of Oil and Gas Valves Gearbox and Machining
Services**

Certificate No. 1210010
Issue Date: October 02, 2012
Expiry Date: October 01, 2015



Authorised Signature

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Certificate of Registration



This is to certify that the
Quality Management System of:

Tavakol Poya Arak Industrial Group Co.

The corner of 1 Toseae, Toseae Street, No. 1 Industrial Zone, Arak-Iran

has been assessed and found compliant with the requirements of:

ISO 9001:2008

Approval is hereby granted for registration on the proviso that the
certification rules & conditions are observed at all times.

Certification Scope:

**Design and Manufacturing of Oil and Gas Valves Gearbox and Machining
Services**

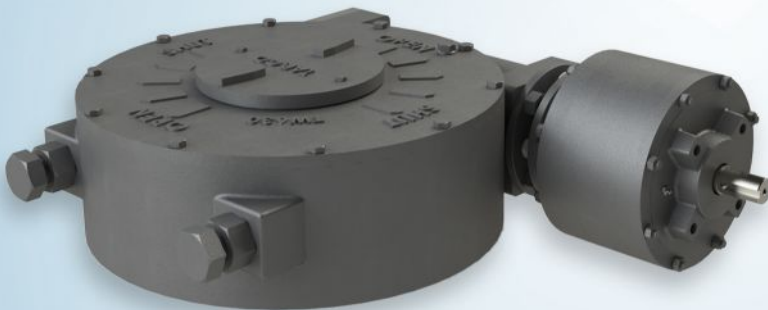
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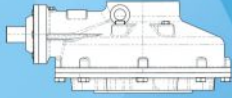


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BEVEL GEARBOX



TAPCO

TAVAKOL POOYA ARAK co.

Features of TAPCO bevel gearbox

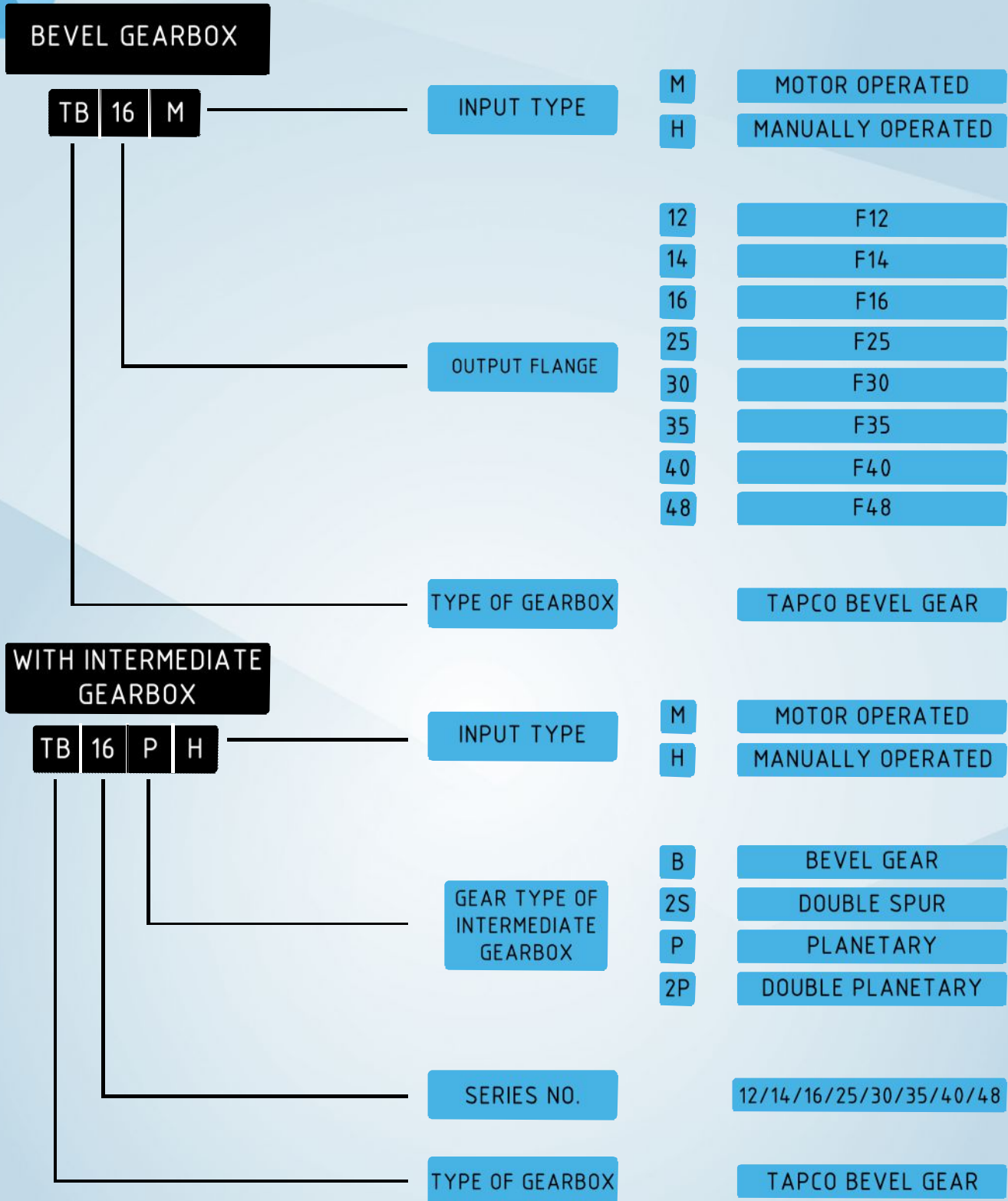
- TAPCO bevel gearbox are available to all kinds of industrial valve: gate valve, globe valve, conduit valve etc.
- Adopted to international flange standard of EN ISO 5210.
- Permitted temperature range -35°C to $+80^{\circ}\text{C}$
- Water-proof
- Stem nut material is chosen based on the customer requisition (phos. bronze, ductile cast iron, ...).
- Gear boxes are able to be operated by manual hand wheel or multi-turn electric actuator.
- Designed and manufactured with on-site experience and know-how for over 15 years.
- Lubricant is recommended based on the ambient temperature.



BEVEL GEARBOX

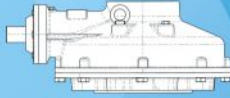


PROCESS OF CODING



3

BEVEL GEARBOX



Main body

- Design considering good appearance
- Wall-thickness and strength by optimized design
- Material : Ductile cast iron (GGG40 or GGG50)

Stem nut

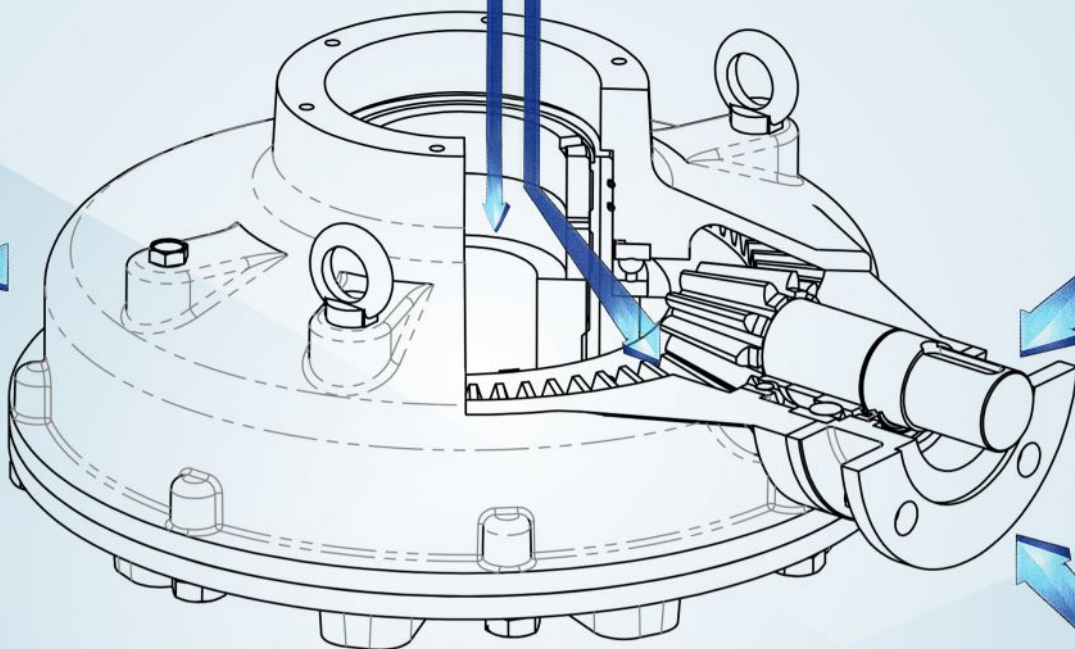
- The material is selected based on the customer requisition

Crownwheel

- Material : GGG40 or GGG50
Option : A105

Pinion

- Material : 1.7225 or 1.1191



Flange for valve

- ISO EN ISO 5210

Motor/Manual operation

- Motor type : Assembled mounting flange of EN ISO 5210 standard
- Manual type : Handwheel attached to manual shaft

BEVEL GEARBOX



SPECIFICATION

MODEL	OUTPUT SPECIFICATIONS					INPUT SPECIFICATIONS ¹			
	FLANGE		RATIO ²	MAX STEM DIA.	ALLOWABLE OUTPUT TORQUE (N.m)	ØSHAFT	FLAT KEY	INPUT FLANGE (Optional)	HANDWHEEL POSITION ³
	MAIN (ISO5211)	OPTIONAL		Ømm					
TB12	F12	-	2.6:1	30	450	22	6*6	F10	Vertical
TB14	F14	F12	2.6:1	38	450	22	6*6	F10	Vertical
TB16	F16	F14	3.6:1	50	1100	28	8*7	F10	Vertical
TB16-B			9.4:1			28	8*7	F10	Horizontal
TB25	F25	F16	5:1	70	2600	28	8*7	F12	Vertical
TB25-B			13.1:1			28	8*7	F10	Horizontal
TB25-P			15:1			28	8*7	F10	Vertical
TB30	F30	F25	5.2:1	75	5000	32	10*8	F14	Vertical
TB30-B			13.6:1			28	8*7	F10	Horizontal
TB30-P			26:1			28	8*7	F14	Vertical
TB35	F35	F30	6.4:1	90	9000	40	12*8	F14	Vertical
TB35-P			32:1 _ 38.4:1			28	8*7	F14	Vertical
TB40	F40	F35	7:1	120	13000	50	14*9	F16	Vertical
TB40-P			35:1 _ 42:1			32	10*8	F14	Vertical
TB40-2P			126:1			32	10*8	F14	Vertical
TB48	F48	F40	7.3:1	150	24000	50	14*9	F16	Vertical
TB48-P			43.8:1			32	10*8	F14	Vertical
TB48-2P			131.4:1			32	10*8	F14	Vertical

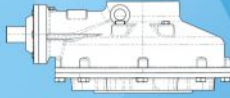
1-Input specification shall be specified by customer.

2-Gearbox ratio can be modified based on the customer requisition.

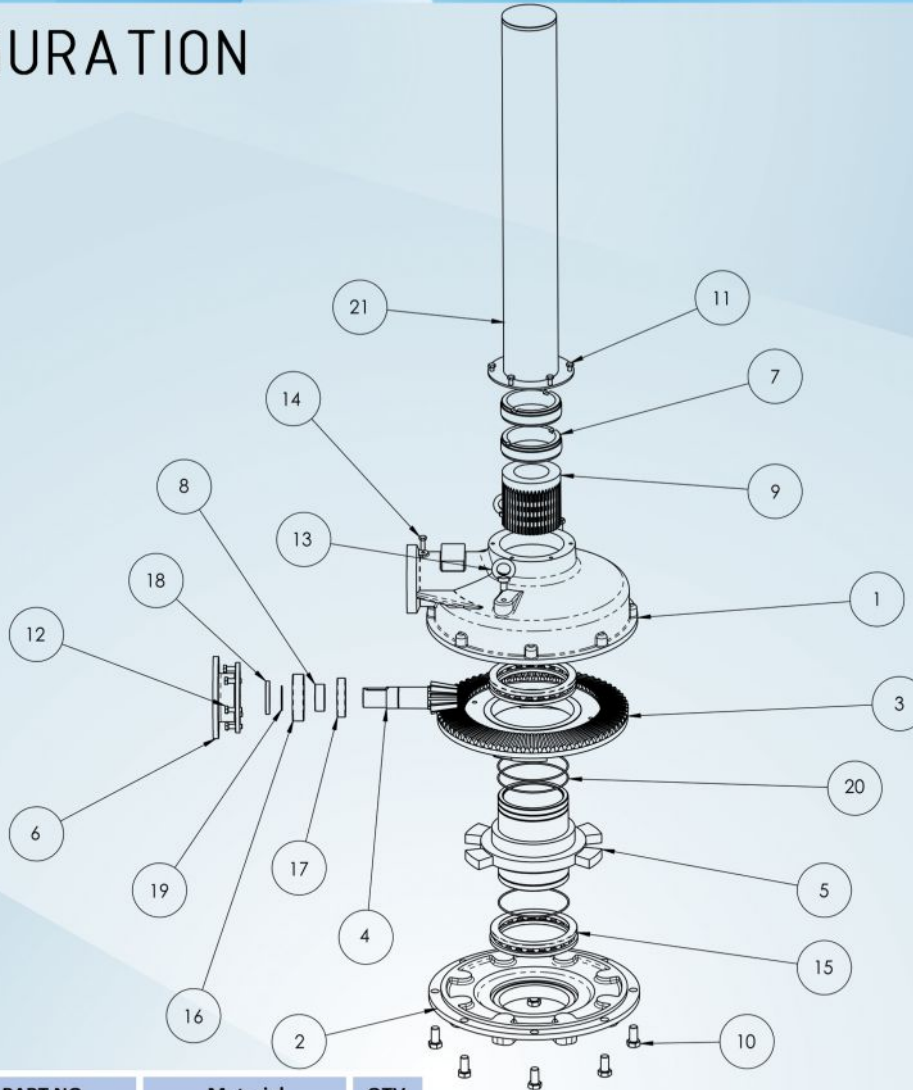
3-Handwheel position is according to the base

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BEVEL GEARBOX



CONFIGURATION



ITEM NO.	PART NO.	Material	QTV.
1	GEAR CASE	GGG40	1
2	FLANGE BASE	GGG40	1
3	CROWN WHEEL	GGG40 or A105	1
4	PINION	42CrMo4-(1.7225) or C45E-(1.1191)	1
5	COUPLING	GGG40	1
6	FLANGE	ST52	1
7	LOCK NUTS	ST37	2
8	COLLAR	-	1
9	STEM NUT	Optional	1
10	HEX.BOLT	8.8	-
11	HEX.BOLT	8.8	6

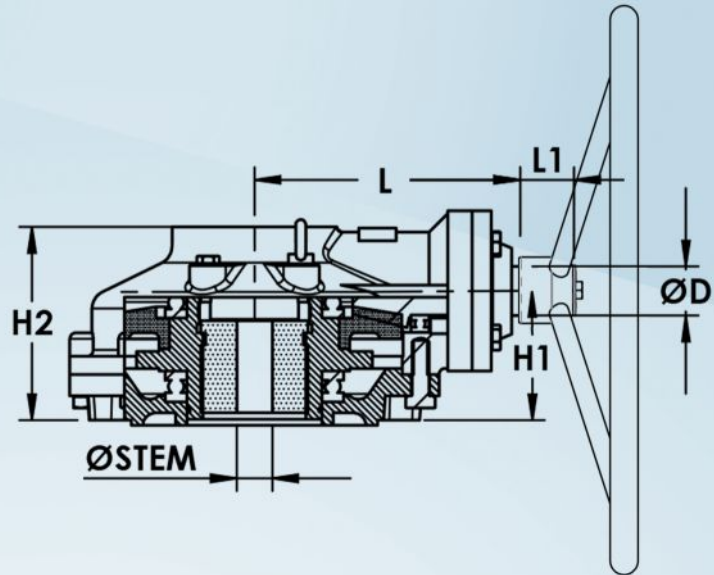
ITEM NO.	PART NO.	Material	QTY.
12	HEX.BOLT	8.8	7
13	EYE BOLT	Standard	2
14	GREASE FITTING	Standard	1
15	BEARING	Standard	1
16	BEARING	Standard	1
17	BEARING	Standard	1
18	SEAL	DIN 3760	1
19	CIRCLIP	Standard	1
20	O-RING	Standard	2
21	STEM PROTECTOR	ST37	1

BEVEL GEARBOX



DIMENSION

>>bevel



TB□H

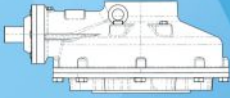
DIM	OUTPUT SPECIFICATION				EXTERNAL DIMENSIONS				INPUT SPECIFICATION ¹				WEIGHT (Kg)
	FLANGE SIZE (ISO 5211)	GEAR RATIO	MAX. OUTPUT TORQUE (N.m)	MAX STEM Ømm	H1	H2	L	L1	ØD	FLAT KEY	INPUT FLANGE (Optional)	HAND WHEEL	
TB12-H	F12	2.6:1	450	30	86	127	145	32	22	6*6	F10	TH30-09	14
TB14-H	F14	2.6:1	450	38	86	127	145	32	22	6*6	F10	TH30-09	14
TB16-H	F16	3.6:1	1100	50	88	135	178	40	28	8*7	F10	TH40-09	25
TB25-H	F25	5:1	2600	70	109	161	216	40	28	8*7	F12	TH50-09	50
TB30-H	F30	5.2:1	5000	75	134	209	295	55	32	10*8	F14	TH70-09	80
TB35-H	F35	6.4:1	9000	90	143	235	319	50	40	12*8	F14	TH80-09	123
TB40-H	F40	7:1	13000	120	300	280	354	70	50	14*9	F16	TH80-10	210
TB48-H	F48	7.3:1	24000	150	217	343	412	94	50	14*9	F16	TH80-10	320



TB□M

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BEVEL GEARBOX



>>bevel+bevel



DIM	OUTPUT SPECIFICATION				INPUT SPECIFICATION ¹			
	FLANGE SIZE (ISO 5211)	GEAR RATIO	MAX. OUTPUT TORQUE (N.m)	MAX STEM Ømm	ØD	FLAT KEY	INPUT FLANGE (Optional)	HAND WHEEL
MODEL								
TB16-BH	F16	9.4:1	1100	50	28	8*7	F10	TH40-17
TB25-BH	F25	13.1:1	2230	70	28	8*7	F10	TH40-17
TB30-BH	F30	13.6:1	5000	75	28	8*7	F10	TH40-17

BEVEL GEARBOX



>>bevel+planetary



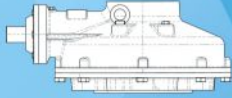
DIM	OUTPUT SPECIFICATIONS				INPUT SPECIFICATIONS ¹			
	FLANGE SIZE (ISO 5211)	GEAR RATIO*	MAX STEM Ømm	MAX. OUTPUT TORQUE (N.m)	ØSHAFT	FLAT KEY	INPUT FLANGE (Optional)	HAND WHEEL
TB25-PH	F25	25:1	70	2600	28	8*7	F10	TH40-09
TB30-PH	F30	26:1	75	5000	28	8*7	F14	TH40-09
TB35-PH	F35	32:1 - 38.4:1	90	9000	28	8*7	F14	TH50-09
TB40-PH	F40	35:1 - 42:1	120	13000	32	10*8	F14	TH70-09
TB48-PH	F48	43.8:1	150	24000	32	10*8	F14	TH70-09

*-Gearbox ratio can be modified based on the customer requisition.

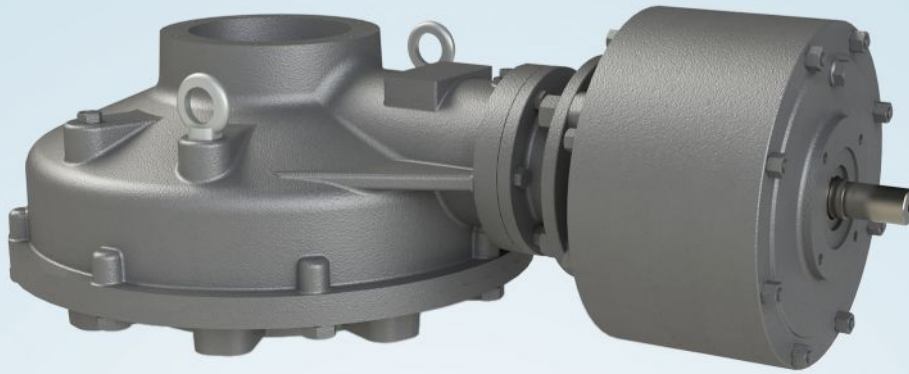
1-Input specification shall be specified by customer.

9

BEVEL GEARBOX



>>bevel+double
planetary

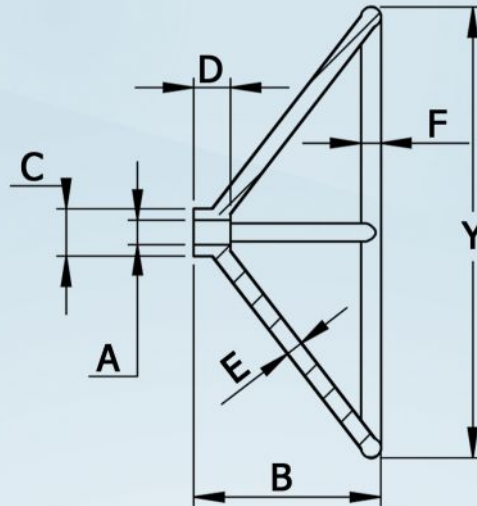


DIM	OUTPUT SPECIFICATION				INPUT SPECIFICATION ¹			
	FLANGE SIZE (ISO 5211)	GEAR RATIO*	MAX STEM Ømm	MAX. OUTPUT TORQUE (N.m)	ØSHAFT	FLAT KEY	INPUT FLANGE (Optional)	HAND WHEEL
TB40-2PH	F40	126:1	120	13000	28	8*7	F14	TH70-09
TB48-2PH	F48	131.4:1	150	24000	28	8*7	F14	TH70-09

*-Gearbox ratio can be modified based on the customer requisition.

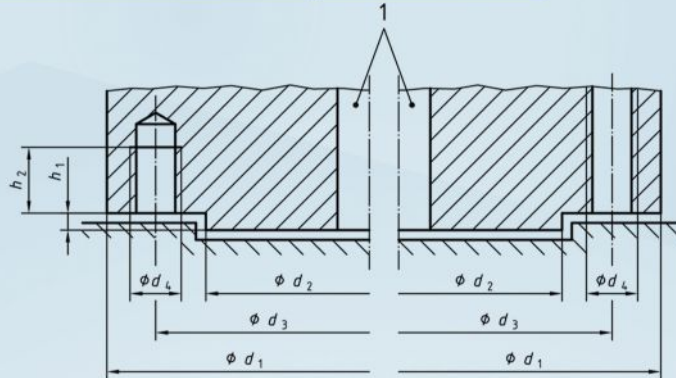
1-Input specification shall be specified by customer.

HANDWHEEL INFORMATION



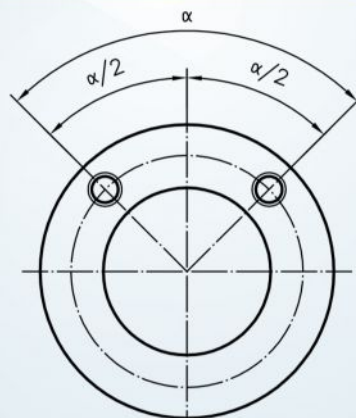
Model	Y	A	B	C	D	E	F	Flat key	No. of Blades
TH20-09	Ø200	18	90	50	32	15	21	6*6	4
TH25-09	Ø250	22	90	50	32	15	21	6*6	4
TH30-09	Ø300	22	90	50	32	15	21	6*6	4
TH35-17	Ø350	22	170	50	32	15	21	6*6	4
TH40-09	Ø400	22, 28	90	50	32	15	21	6*6_8*7	4
TH40-17	Ø400	22	170	50	32	15	21	6*6	4
TH50-09	Ø500	22, 28	90	50	32	15	21	6*6_8*7	4
TH50-17	Ø500	28	170	50	32	15	21	8*7	4
TH70-09	Ø700	28, 32	90	60	56	15	21	8*7_10*8	6
TH70-23	Ø700	28	230	50	41	15	21	8*7	6
TH80-09	Ø800	28, 40	90	50	41	15	21	8*7_12*8	6
TH80-23	Ø800	28	230	50	41	15	21	8*7	6

ISO 5211: Flange dimension



FLNAGE TYPE	D1	D2F8	D3	D4	H1max.	H2min.	Number of screws ,studs or bolts
F07	90	55	70	M8	3	12	4
F10	125	70	102	M10	3	15	4
F12	150	85	125	M12	3	18	4
F14	175	100	140	M16	4	24	4
F16	210	130	165	M20	5	30	4
F25	300	200	254	M16	5	24	8
F30	350	230	298	M20	5	30	8
F35	415	260	356	M30	5	45	8
F40	475	300	406	M36	8	54	8
F48	560	370	483	M36	8	54	12
F60	686	470	603	M36	8	54	20

ISO 5211: Position of holes



FLANGE TYPE	$\alpha/2$
F03 to F16	45°
F25 to F40	22.5°
F48	15°
F60	9°

7 Dimensions and torques

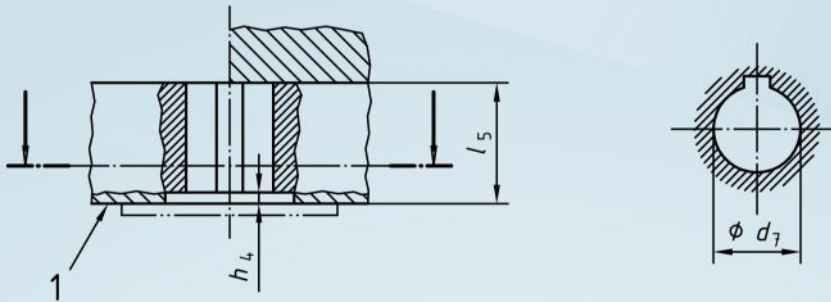


Figure 4 - Drive by key(s)

Table 4 - Dimensions and torques for drive by key(s)

Dimensions in millimetres

Flange type	Max. flange torque Nm.	h_4 max. ^f	l_5 min.	$d_7 H_9^{ab}$																		
				12	14	18 ^c	22	-	-	-	-	-	-	-	-	-	-	-	-	-		
F05	125	3.0	30	12	14	18 ^c	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
F07	250	3.0	35	-	14	18	22 ^c	28	-	-	-	-	-	-	-	-	-	-	-	-	-	
F10	500	3.0	45	-	-	18	22	28 ^c	36	42	-	-	-	-	-	-	-	-	-	-	-	
F12	1000	3.0	55	-	-	-	22	28	36 ^c	42	48	50	-	-	-	-	-	-	-	-	-	
F14	2000	5.0	65	-	-	-	-	28	36	42	48 ^c	50	60	-	-	-	-	-	-	-	-	
F16	4000	5.0	80	-	-	-	-	-	-	42	48	50	60 ^c	72	80	-	-	-	-	-	-	
F25	8000	5.0	110	-	-	-	-	-	-	-	48	50	60	72 ^c	80	98	100	-	-	-	-	
F30	16000	5.0	130	-	-	-	-	-	-	-	-	60	72	80	98 ^c	100	120	-	-	-	-	
F35	32000	5.0	180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	160	-	-	-	
F40	63000	8.0	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	180	-	-	
F48	125000	8.0	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	220	-	
F60	250000	8.0	310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	280	
Max. transmissible torque Nm ^d				32	63	125	250	500	1000	1500	2000	3000	4000	8000	12000	16000	°	°	°	°	°	°

^a For flange types F05 to F30 other dimensions of d_7 between those indicated are permitted for a maximum of 5 years after the publication of this standard.

^b For flange types above F30, the d_7 values given is the maximum and any value up to this maximum is permitted, subject to considerations in d below.

^c Indicates the preferred dimension.

^d For flange types F05 to F30, these are the corresponding torques which can be transmitted by the driving components having the d_7 dimensions. They are based on

^a max. allowable torsional stress of 280 MPa for the driven component, a max. compressive stress on the key of 350 MPa and an effective length of key engagement equal to $(l_5 - h_4)$.

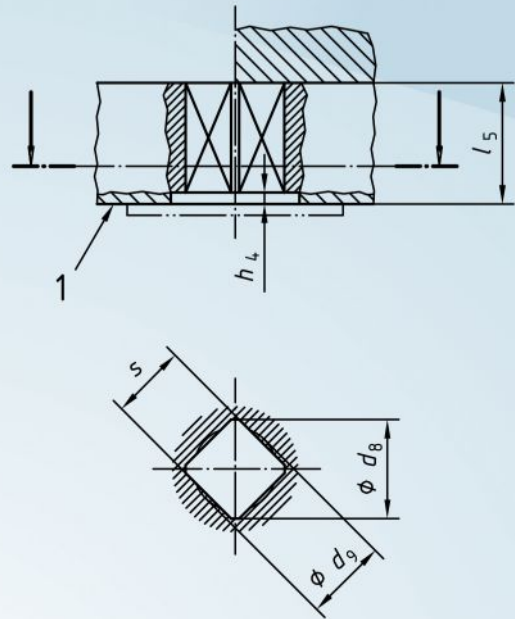
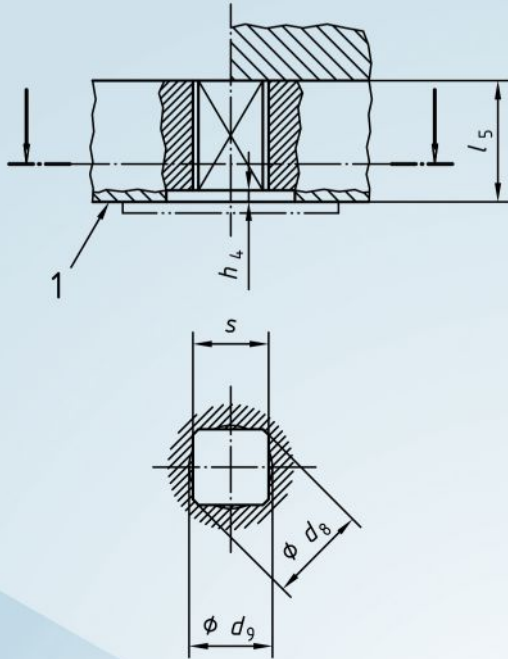
^e The maximum transmissible torques shall be determined by calculation.

^f $h_{4 \text{ min.}} = 0,5 \text{ mm.}$

7.3 Drive by parallel or diagonal square head

Dimensions of drive components for square heads shall meet the requirements of Figures 5 or 6 and Table 5. The choice of d_8 and d_9 depends on the manufacturing process.

The square drive positions shall be as specified in 8.2, Figures 10 or 11.



Key

1 Interface

Figure 5 - Drive by parallel square head

Figure 6 - Drive by diagonal square head

Table 5 - Dimensions and torques for drive by parallel or diagonal square head

Dimensions in millimetres

Flange type	Max. flange	h_4 max. ^f	s H11										
F03	32	1.5	9	-	-	-	-	-	-	-	-	-	-
F04	63	1.5	9	11 ^b	-	-	-	-	-	-	-	-	-
F05	125	3.0	9	11	14 ^b	-	-	-	-	-	-	-	-
F07	250	3.0	-	11	14	17 ^b	-	-	-	-	-	-	-
F10	500	3.0	-	-	14	17	19	22 ^b	-	-	-	-	-
F12	1000	3.0	-	-	-	17	19	22	27 ^b	-	-	-	-
F14	2000	5.0	-	-	-	-	-	22	27	36 ^b	-	-	-
F16	4000	5.0	-	-	-	-	-	-	27	36	46 ^b	-	-
F25	8000	5.0	-	-	-	-	-	-	-	36	46	55 ^b	-
F30	16000	5.0	-	-	-	-	-	-	-	-	46	55	75 ^b
ϕd_8 min.			12.1	14.1	18.1	22.2	25.2	28.2	36.2	48.2	60.2	72.2	98.2
ϕd_9 max.			9.5	11.6	14.7	17.9	20	23.1	28.4	38	48.5	57.9	79.1
l_5 min.			10	12	16	19	21	24	29	38	48	57	77
Max. transmissible torque Nm ^c			32	63	125	250	350	500	1000	2000	4000	8000	16000

^a h_4 min. = 0,5 mm

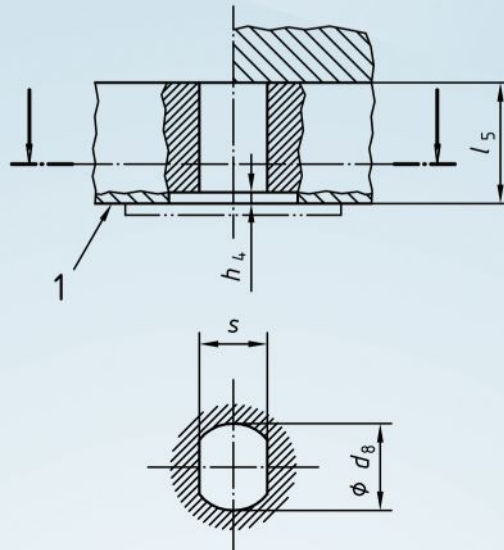
^b Indicates the preferred dimension

^c Maximum transmissible torques are based on a maximum allowable torsional stress of 280 MPa for the driven component.

7.4 Drive by flat head

Dimensions of drive components for flat head drive shall meet the requirements of Figure 7 and Table 6.

The flat head drive position shall be as specified in 8.3, Figure 12.



Key

1 Interface

Figure 7 - Drive by flat head

Table 6 - Dimensions and torques for drive by flat head

Dimensions in millimetres

Flange type	Max. flange	h_4 max. ^f	s H11										
			9	-	-	-	-	-	-	-	-	-	-
F03	32	1.5	9	-	-	-	-	-	-	-	-	-	-
F04	63	1.5	9	11 ^b	-	-	-	-	-	-	-	-	-
F05	125	3.0	9	11	14 ^b	-	-	-	-	-	-	-	-
F07	250	3.0	-	11	14	17 ^b	-	-	-	-	-	-	-
F10	500	3.0	-	-	14	17	19	22 ^b	-	-	-	-	-
F12	1000	3.0	-	-	-	17	19	22	27 ^b	-	-	-	-
F14	2000	5.0	-	-	-	-	-	22	27	36 ^b	-	-	-
F16	4000	5.0	-	-	-	-	-	-	27	36	46 ^b	-	-
F25	8000	5.0	-	-	-	-	-	-	-	36	46	55 ^b	-
F30	16000	5.0	-	-	-	-	-	-	-	-	46	55	75 ^b
ϕd_8 min.			12.1	14.1	18.1	22.2	25.2	28.2	36.2	48.2	60.2	72.2	98.2
ϕd_9 max.			9.5	11.6	14.7	17.9	20	23.1	28.4	38	48.5	57.9	79.1
l_5 min.			10	12	16	19	21	24	29	38	48	57	77
Max. transmissible torque Nm ^c			32	63	125	250	350	500	1000	2000	4000	8000	16000

^a h_4 min. = 0,5 mm

^b Indicates the preferred dimension

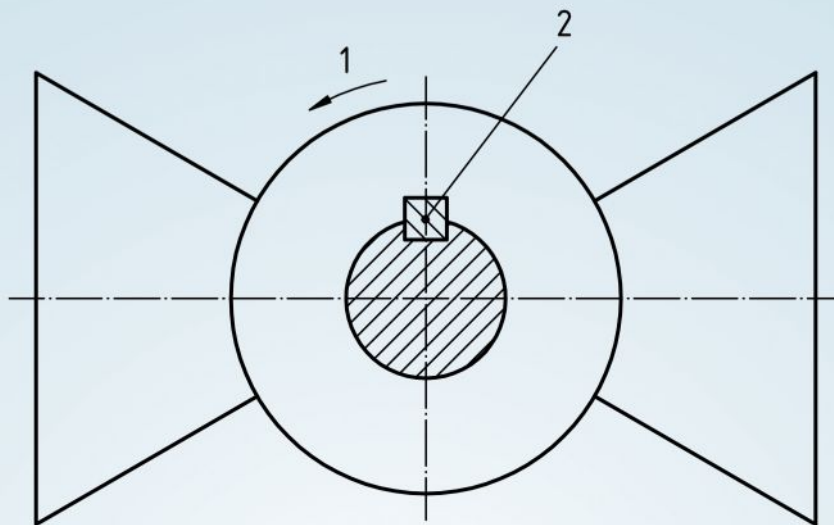
^c Maximum transmissible torques are based on a maximum allowable torsional stress of 280 MPa for the driven component.

8 Position of driven components at interface below part-turn actuator

8.1 Drive by key(s)

One or two keys may be used. With the valve closed the key(s) shall be located as shown in Figures 8 or 9. If more than two keys are required, their position shall be subject to an agreement between the supplier and the purchaser.

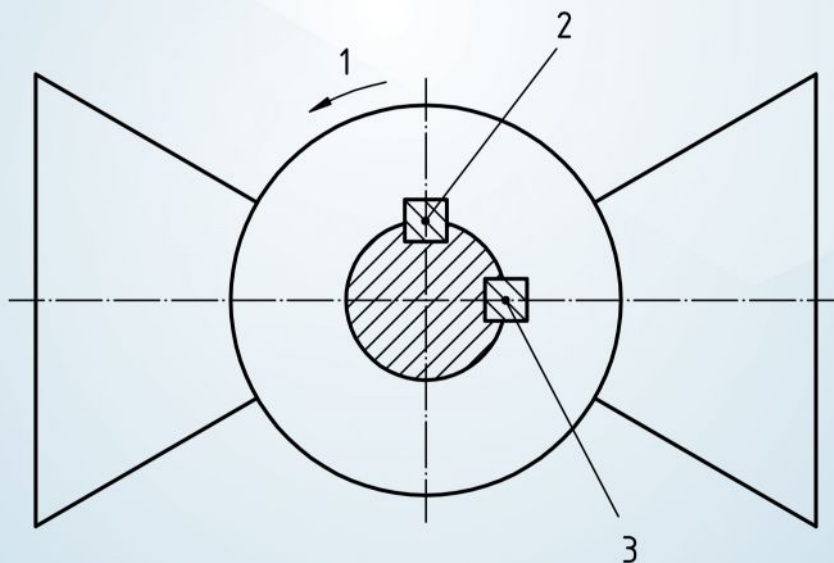
NOTE The standard closing direction is clockwise, as viewed from above the interface.



Key

- 1 Opening direction
- 2 Primary key

Figure 8 – Position of primary key on the driven component



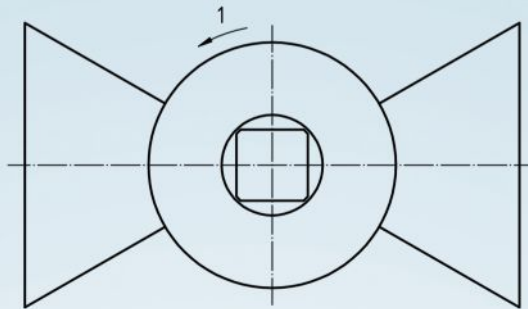
Key

- 1 Opening direction
- 2 Primary key
- 3 Secondary key

Figure 9 – Positions of primary and secondary keys on the driven component

8.2 Drive by parallel or diagonal square head

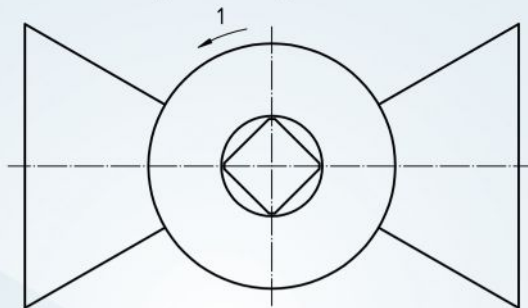
With the valve closed, the flat sides of the square head drive component shall be located as shown in Figures 10 or 11.



Key

1 Opening direction

Figure 10 – Position of parallel square head driven component



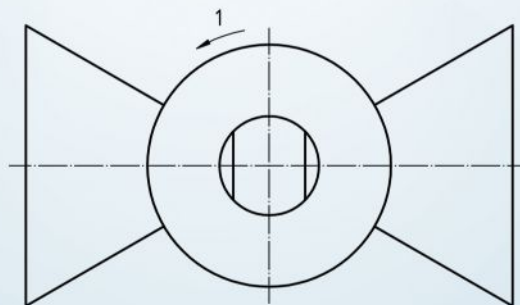
Key

1 Opening direction

Figure 11 – Position of diagonal square head driven component

8.3 Drive by flat head

With the valve closed, the flat sides of the flat head drive component shall be located as shown in Figure 12.



Key

1 Opening direction

Figure 12 - Position of flat head driven component

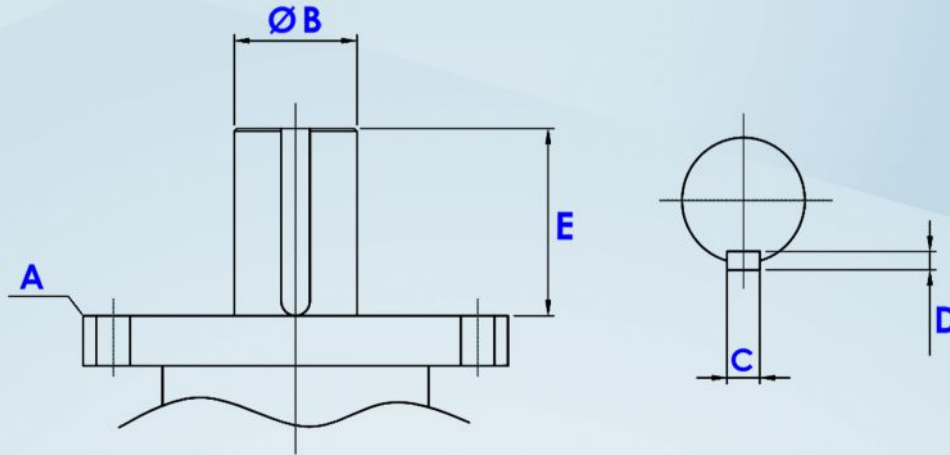
GLOBE VALVE SPECIFICATION

CLASS	ITEM	VALVE SIZE												
		2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"			
150#	Stem Thread	3/4"	7/8"	1"	1-1/8"	1-1/4"	1-3/8"	1-3/4"	1-3/4"	1-3/4"	1-3/4"	2"	2-1/8"	2-1/4"
	Pitch (in)	0.167	0.167	0.2	0.2	0.2	0.25	0.333	0.25	0.25	0.25	0.333	0.333	0.333
	Tread Per Inch Single(S) or Double(D) Torque(N.m)	6 S	6 S	5 S	5 S	5 S	4 S	3 S	4 S	4 S	4 S	4 S	4 S	3 S
300#	Stem Thread	3/4"	7/8"	1"	1-1/4"	1-1/2"	1-3/4"	2"	2-1/4"	2-3/4"	2-3/4"	2-3/4"	3"	3"
	Pitch (in)	0.167	0.167	0.2	0.25	0.25	0.333	0.25	0.333	0.333	0.333	0.333	0.5	0.5
	Tread Per Inch Single(S) or Double(D) Torque(N.m)	6 S	6 S	5 S	5 S	4 S	4 S	4 S	4 S	3 S	3 S	3 S	3 S	3 S
600#	Stem Thread	1"	1-1/8"	1-1/4"	1-1/2"	2"	2-1/4"	2-3/4"	2-3/4"	2-3/4"	3"	3"	3-3/4"	3-3/4"
	Pitch (in)	0.2	0.2	0.2	0.25	0.25	0.333	0.333	0.333	0.333	0.5	0.5	0.5	0.5
	Tread Per Inch Single(S) or Double(D) Torque(N.m)	5 S	5 S	5 S	4 S	4 S	4 S	3 S	3 S	3 S	2 S	2 S	2 S	2 S
900#	Stem Thread	1-1/4"	1-3/4"	1-3/4"	2-1/8"	2-3/4"	3"	3-3/4"	3-3/4"	3-3/4"	3-3/4"	3-3/4"	3-3/4"	3-3/4"
	Pitch (in)	0.2	0.25	0.25	0.333	0.333	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
	Tread Per Inch Single(S) or Double(D) Torque(N.m)	5 S	4 S	4 S	3 S	3 S	2 S	2 S	2 S	2 S	2 S	2 S	2 S	
1500#	Stem Thread	1-1/4"	1-3/4"	1-3/4"	2-1/8"	2-3/4"	3"	3-3/4"	3-3/4"	3-3/4"	3-3/4"	3-3/4"	3-3/4"	3-3/4"
	Pitch (in)	0.2	0.25	0.25	0.333	0.333	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
	Tread Per Inch Single(S) or Double(D) Torque(N.m)	5 S	4 S	4 S	3 S	3 S	2 S	2 S	2 S	2 S	2 S	2 S	2 S	
2500#	Stem Thread	1-1/2"	1-7/8"	1-7/8"	2-1/4"	2-7/8"	3-3/4"	3-3/4"	3-3/4"	3-3/4"	3-3/4"	3-3/4"	3-3/4"	3-3/4"
	Pitch (in)	0.25	0.25	0.25	0.333	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
	Tread Per Inch Single(S) or Double(D) Torque(N.m)	4 S	4 S	4 S	3 S	2 S	2 S	2 S	2 S	2 S	2 S	2 S	2 S	

GATE VALVE SPECIFICATION

CLASS	ITEM	VALVE SIZE																							
		2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	22"	24"	26"	28"	30"	32"	36"					
150#	Stem Thread	3/4"	3/4"	7/8"	1"	1-1/8"	1-1/4"	1-3/8"	1-1/2"	1-5/8"	1-7/8"	1-1/2"	1-5/8"	1-3/4"	1-7/8"	2"	2-1/8"	2-1/4"	2-1/2"	2-3/4"	2-1/2"	2-3/4"	2-3/4"	3"	
	Pitch (in)	0.167	0.167	0.167	0.2	0.2	0.2	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.5
	Tread Per Inch Single(S) or Double(D) Torque(N.m)	6 S	6 S	6 S	5 S	5 D	5 D	4 D	4 D	4 D	4 D	4 D	4 D	4 D	4 D	4 D	3 D	3 D	3 D	3 D	3 D	3 D	3 D	3 D	3 D
300#	Stem Thread	3/4"	3/4"	7/8"	1"	1-1/8"	1-1/4"	1-3/8"	1-1/2"	1-5/8"	1-7/8"	1-1/2"	1-5/8"	1-3/4"	1-7/8"	2"	2-1/4"	2-3/8"	2-1/2"	2-3/4"	2-1/2"	2-3/4"	2-3/4"	2-7/8"	3"
	Pitch (in)	0.167	0.167	0.167	0.2	0.2	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.5	0.5
	Tread Per Inch Single(S) or Double(D) Torque(N.m)	6 S	6 S	6 S	5 S	4 D	4 D	4 D	4 D	4 D	4 D	4 D	4 D	4 D	4 D	3 D	3 D	3 D	3 D	3 D	3 D	3 D	3 D	3 D	2
600#	Stem Thread	3/4"	7/8"	1"	1-1/8"	1-1/2"	1-5/8"	1-7/8"	1-1/2"	1-5/8"	1-7/8"	1-1/2"	1-5/8"	1-3/4"	1-7/8"	2"	2-1/4"	2-3/8"	2-1/2"	2-3/4"	2-1/2"	2-3/4"	2-3/4"	2-7/8"	3"
	Pitch (in)	0.167	0.167	0.2	0.2	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.5	0.5
	Tread Per Inch Single(S) or Double(D) Torque(N.m)	6 S	6 S	5 S	5 S	4 D	4 D	4 D	4 D	4 D	4 D	4 D	4 D	4 D	3 D	3 D	3 D	3 D	3 D	3 D	3 D	3 D	3 D	2	2
900#	Stem Thread	1"	1-1/4"	1-1/2"	1-3/4"	1-1/2"	1-5/8"	1-7/8"	1-1/2"	1-5/8"	1-7/8"	1-1/2"	1-5/8"	1-3/4"	1-7/8"	2"	2-1/4"	2-3/8"	2-1/2"	2-3/4"	2-1/2"	2-3/4"	2-3/4"	2-7/8"	3"
	Pitch (in)	0.2	0.2	0.2	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.5	0.5
	Tread Per Inch Single(S) or Double(D) Torque(N.m)	5 S	5 S	5 S	4 S	4 D	4 D	3 D	3 D	3 D	3 D	3 D	3 D	3 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2
1500#	Stem Thread	1"	1-1/4"	1-3/8"	1-3/8"	1-3/4"	1-3/4"	1-3/8"	1-1/2"	1-5/8"	1-7/8"	1-1/2"	1-5/8"	1-3/4"	1-7/8"	2"	2-1/4"	2-3/8"	2-1/2"	2-3/4"	2-1/2"	2-3/4"	2-3/4"	2-7/8"	3"
	Pitch (in)	0.2	0.2	0.25	0.25	0.25	0.25	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.5	0.5
	Tread Per Inch Single(S) or Double(D) Torque(N.m)	5 S	5 S	4 S	4 S	4 D	3 D	3 D	3 D	3 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2
2500#	Stem Thread	1"	1-1/4"	1-3/8"	1-3/8"	1-3/4"	1-3/4"	1-3/8"	1-1/2"	1-5/8"	1-7/8"	1-1/2"	1-5/8"	1-3/4"	1-7/8"	2"	2-1/4"	2-3/8"	2-1/2"	2-3/4"	2-1/2"	2-3/4"	2-3/4"	2-7/8"	3"
	Pitch (in)	0.2	0.2	0.25	0.25	0.25	0.25	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.5	0.5
	Tread Per Inch Single(S) or Double(D) Torque(N.m)	5 S	5 S	4 S	4 S	4 D	3 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2 D	2

BALL VALVE SPECIFICATION



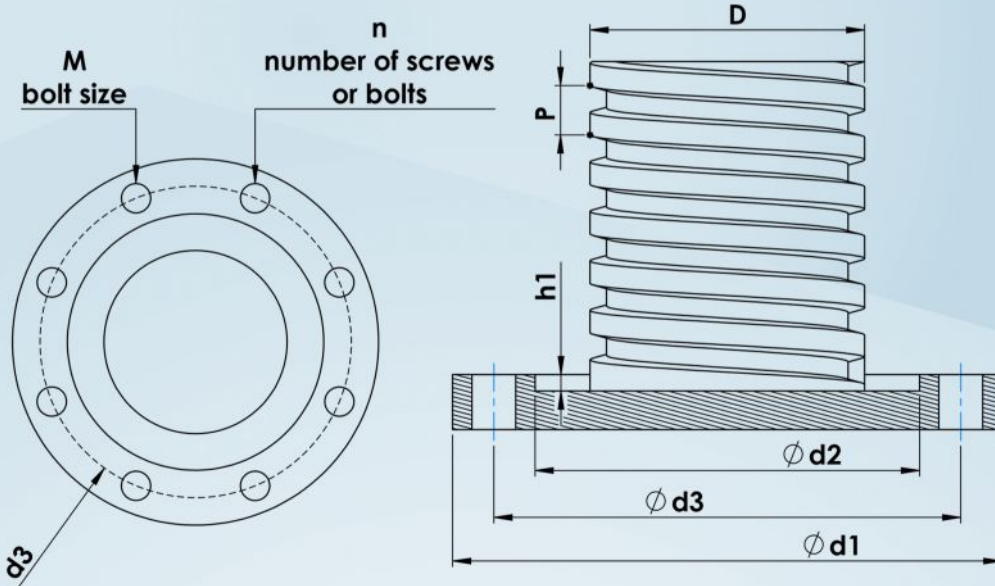
VALVE SIZE	TOQUE N.m	A(iso5211)	B mm	D*F*K	VALVE SIZE	TOQUE N.m	A(iso5211)	B mm	D*F*K
6"-150	500	F14	40	12*8*50	6"-300	1575	F14	40	12*8*50
8"-150	1550	F16	50	14*9*50	8"-300	2500	F16	50	14*9*50
10"-150	1650	F16	50	14*9*50	10"-300	2744	F25	60	18*11*70
12"-150	2350	F25	60	18*11*60	12"-300	4000	F25	70	20*12*60
14"-150	3600	F25	70	20*12*60	14"-300	6400	F25	70	20*12*90
16"-150	4550	F25	80	22*14*100	16"-300	8000	F25	80	22*14*100
18"-150	6900	F25	80	22*14*100	18"-300	9600	F30	80	22*14*100
20"-150	9000	F25	90	25*14*100	20"-300	16000	F35	100	28*16*130
24"-150	14600	F25	100	28*16*140	24"-300	25000	F30	120	32*18*140
26"-150		F30	100	28*16*170	30"-300	48000	F40	130	32*18*160






VALVE SIZE	TOQUE N.m	A(iso5211)	B mm	D*F*K	VALVE SIZE	TOQUE N.m	A(iso5211)	B mm	D*F*K
4"-600	700	F14	35	10*8*60	4"-900	1000	F16	50	14*9*50
6"-600	1800	F16	50	14*9*50	6"-900	1920	F16	50	14*9*50
8"-600	3750	F25	60	18*11*70	8"-900	5250	F25	65	18*11*60
12"-600	6450	F25	70	20*12*100	10"-900	6230	F25	75	20*12*60
14"-600	10800	F25	80	22*14*100	12"-900	9000	F25	90	25*14*80
16"-600	13712	F25	90	25*14*140	14"-900	15300	F25	100	28*16*100
18"-600	20250	F30	110	28*16*150	16"-900	19500	F30	120	32*18*130
20"-600	27000	F35	120	32*18*150	20"-900	38100	F35	140	36*20*150
24"-600	43500	F35	130	32*18*200	24"-900	62700	F40	140	36*20*150
26"-600	51000	F35	130	32*18*200	26"-900	73020	F40	150	36*20*200
					30"-900	11400	F60	160	40*22*200

*- A : according to ISO5211

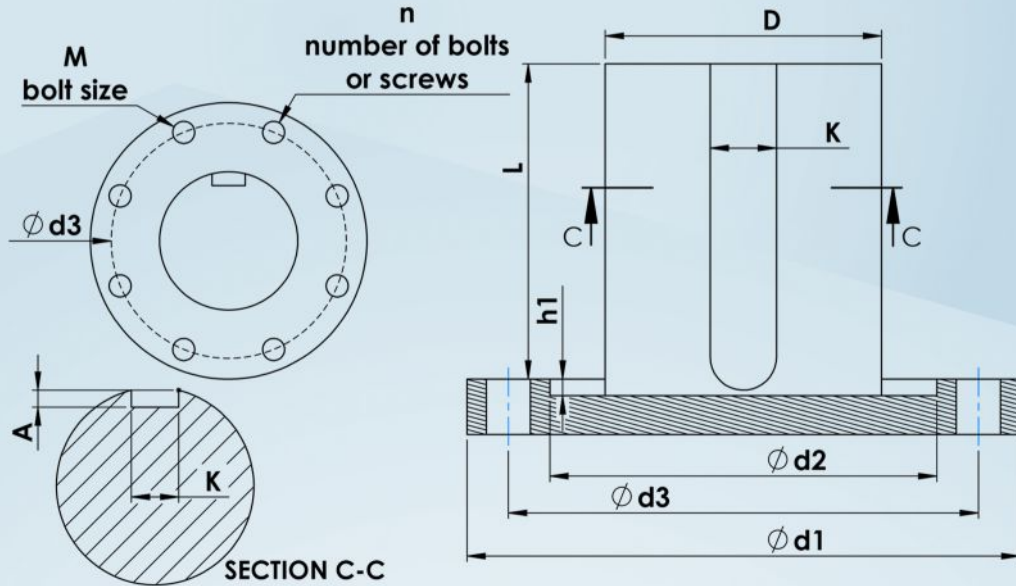
1- Valve's torques are calculated with 1.5 safety factor

GEARBOX SELECTION FORM



GATE & GLOBE VALVE GEARBOX SELECTION		CUSTOMER:			
تاریخ		شماره تماس		شخص رابط	
φd2_قطر نافی		D_قطر استم		نوع شیر	
φh1_عمق نافی		P_گام پیچ استم		سایز شیر	
φd3		تعداد راه پیچ استم		کلاس شیر	
φd1	<input type="checkbox"/> عمود بر سطح زمین <input type="checkbox"/> موازی با سطح زمین		وضعیت هندویل		
	M_سایز پیچ	n_تعداد پیچ	فلنج شیر		
ratio		نیروی عمودی	گشتاور موردنیاز (B.T.O)		
شماره فنی عملگر		نوع عملگر	محرك گیربکس		
دور و گشتاور خروجی		هالوشفت	فلنج اتصال عملگر به گیربکس		
گیربکس پیشنهادی سازنده			گیربکس انتخابی مشتری		
  		۰۹۱۸۶۰۴۵۶۲۵	۰۸۶-۳۴۱۳۱۵۷۷	تلفن	
info@tapcogearbox.com		ایمیل	www.tapcogearbox.com		وبسایت
tapcogearbox	 اینستاگرام	آدرس: اراک، شهرک صنعتی حاجی آباد، خیابان صنعت، خیابان رز، چهار راه اول			

GEARBOX SELECTION FORM



PLUG & BALL&BUTTERFLY VALVE GEARBOX SELECTION		CUSTOMER:			
تاریخ		شماره تماس		شخص رابط	
قطر نافی_ $\phi d2$		قطر استم_ D		نوع شیر	
عمق نافی_ $\phi h1$		خار $L * ارتفاع خار * K$		سایز شیر	
A		تعداد خار		کلاس شیر	
آیا هنگامی که شیر باز است خار در جهت جریان است؟					
$\phi d1$		<input type="checkbox"/> عمود بر سطح زمین		وضعیت هندویل	
$\phi d3$		<input type="checkbox"/> موازی با سطح زمین			
سایز پیچ_ M		تعداد پیچ_ n		فلنج شیر	
ratio				گشتاور موردنیاز (B.T.O)	
شماره فنی عملگر		نوع عملگر		محرك گیربکس	
دور و گشتاور خروجی		هالوشفت		فلنج اتصال عملگر به گیربکس	
گیربکس پیشنهادی سازنده			گیربکس انتخابی مشتری		
		۰۹۱۸۶۰۴۵۶۲۵		۰۸۶-۳۴۱۳۱۵۷۷	
info@tapcogearbox.com		ایمیل		www.tapcograbox.com	
tapcogearbox		اینستاگرام		آدرس: اراک، شهرک صنعتی حاجی آباد، خیابان صنعت، خیابان رز، چهار راه اول	

GALLERY











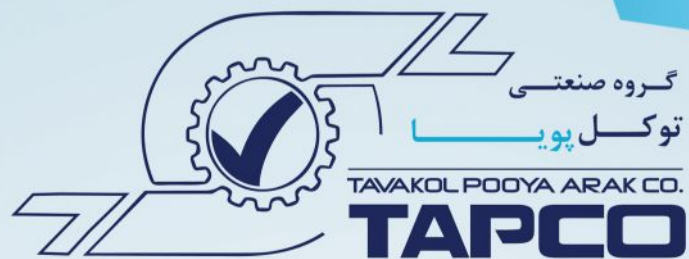
www.tapcogearbox.com



[@tapcogearbox](https://www.instagram.com/tapcogearbox)



گروه صنعتی توکل پویا اراک با نام تجاری TAPCO با رویکردی مهندسی محور و آینده‌نگر، فعالیت خود را از سال 1380 در حوزه طراحی، مهندسی و ساخت تجهیزات صنعتی آغاز نموده و امروز به پشتوانه دانش فنی، سرمایه انسانی متخصص و زیرساخت‌های تولیدی مناسب، حضوری مؤثر در پروژه‌های صنعتی کشور دارد. این مجموعه با بهره‌گیری از کادری متشکل از مدیران باتجربه، مهندسان متخصص و نیروهای فنی کارآزموده، فرآیند طراحی تا اجرای پروژه‌ها را به صورت یکپارچه و هدفمند دنبال می‌نماید. در همین راستا، ماشین‌آلات و تجهیزات تخصصی متناسب گردآوری شده است تا طرح‌ها با دقت، کیفیت بالا بدست مشتری برسند. از جمله حوزه‌های تخصصی شرکت تاپکو، می‌توان به طراحی، ساخت و توسعه تجهیزات مرتبط با خطوط انتقال سیالات اشاره نمود. در این حوزه، عملگرهای مورد استفاده در سامانه‌های شیرآلات صنعتی با تکیه بر اصول مهندسی، استانداردهای فنی و نیازهای عملیاتی پروژه‌ها طراحی و تولید می‌گردند؛ راهکارهایی قابل اعتماد برای صنایع که دقت، دوام و عملکرد پایدار را در اولویت قرار می‌دهند.



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