گـروه صنعتـی
توکـل پویـا
TAVAKOL POOYA ARAK CO.
TAPCO

TAPCO

valve manual & powered actuator

BEVEL SERIES

GOOD IDEAS
CREATE FUTURE

version 02-4

Certificate of Registration

MOODY INTERNATIONAL

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

Moody International Certification Ltd.
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The certificate remains the property of Moody International Certification Limited to whom it must be returned on request.

Certificate of Registration

MOODY INTERNATIONAL

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

Certificate No. 10111208030
Issue Date: October 02, 2012
Expiry Date: October 01, 2015

Authorised Signature

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UKAS QUALITY MANAGEMENT 014

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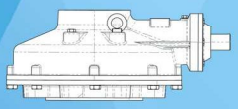
گروه صنعتی توکل پویا
TAVAKOL POOYA ARAK CO.
TAPCO

BEVEL GEARBOX



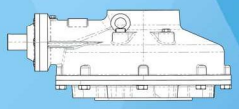
TAPCO
TAVAKOL POOYA ARAK co.

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 5211\5210.
- Permitted temperature range -35°c to +80°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 15years.
- Lubricant is recommended based on the ambient temperature.

2

BEVEL GEARBOX



PROCESS OF CODING

BEVEL GEARBOX

TB | 16 | M

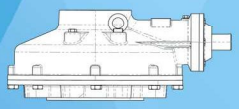
INPUT TYPE	M	MOTOR OPERATED
	H	MANUALLY OPERATED
OUTPUT FLANGE	12	F12
	14	F14
	16	F16
	25	F25
	30	F30
	35	F35
	40	F40
	48	F48
TYPE OF GEARBOX		TAPCO BEVEL GEAR

WITH INTERMEDIATE GEARBOX

TB | 16 | 2S | H

INPUT TYPE	M	MOTOR OPERATED
	H	MANUALLY OPERATED
GEAR TYPE OF INTERMEDIATE GEARBOX	S	SPUR GEAR
	B	BEVEL GEAR
	2S	DOUBLE SPUR
	SB	SPUR + BEVEL GEAR
	P	PLANETARY
	2P	DOUBLE PLANETARY
SERIES NO.		12/14/16/25/30/35/40/48
TYPE OF GEARBOX		TAPCO BEVEL GEAR

BEVEL GEARBOX



Main body

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

Stem nut

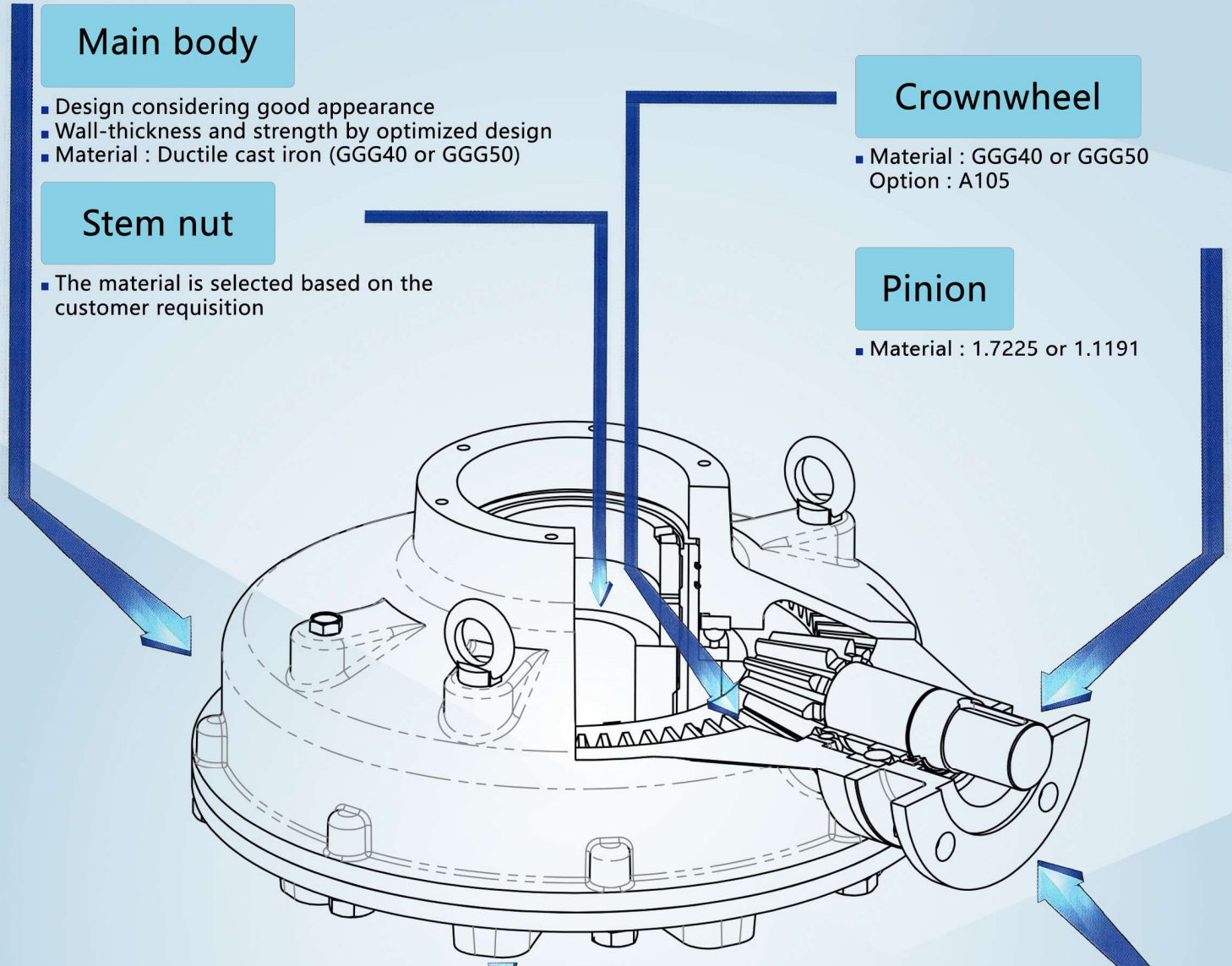
- The material is selected based on the customer requisition

Crownwheel

- Material : GGG40 or GGG50
  Option : A105

Pinion

- Material : 1.7225 or 1.1191



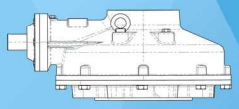
Flange for valve

- ISO EN ISO 5211

Motor/Manual operation

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

BEVEL GEARBOX

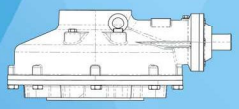


SPECIFICATION

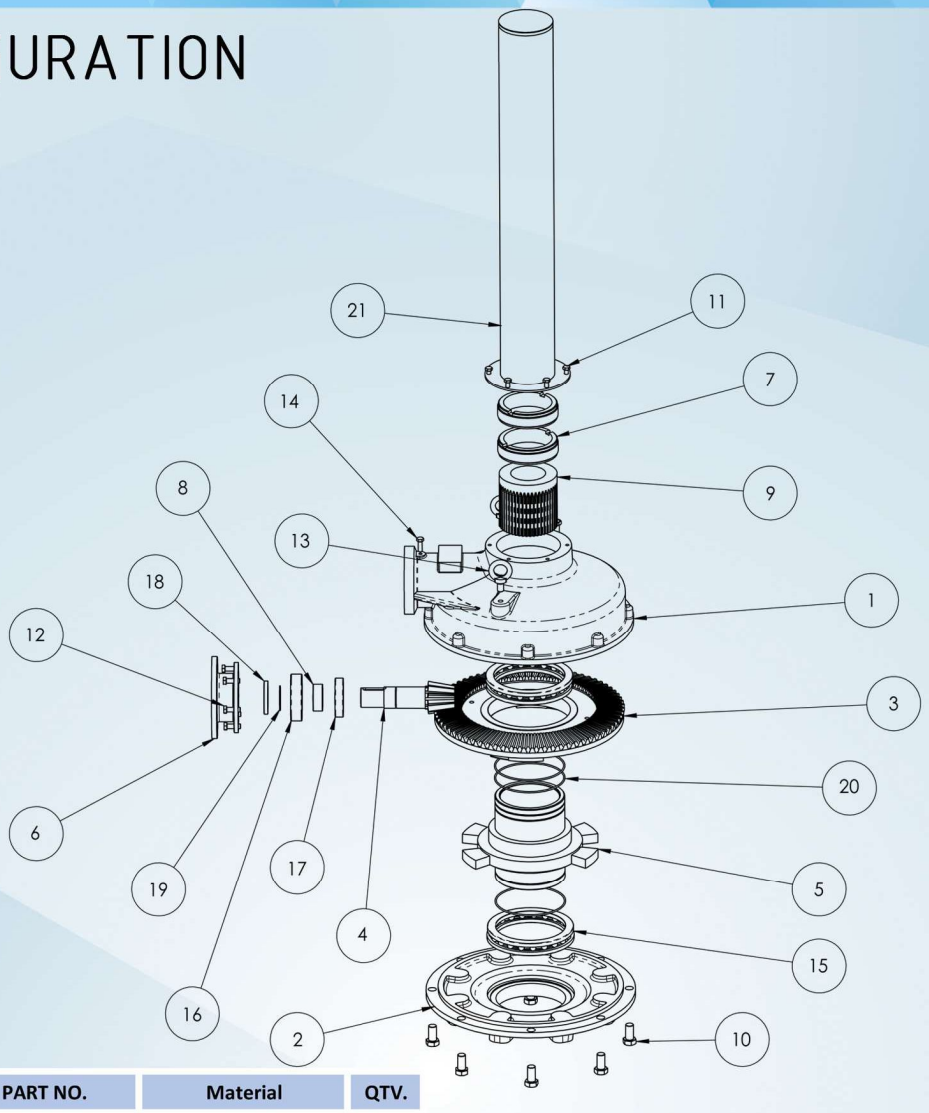
MODEL	OUTPUT					INPUT[1]		
	FLANGE		RATIO[2]	MAX STEM DIA.	ALLOWABLE OUTPUT TORQUE (N.m)	ØSHAFT	FLAT KEY	HANDWHEEL POSITION[3]
	MAIN (ISO5211)	OPTIONAL		Ømm				
TB12	F12	-	2.6:1	30	450	22	6*6	Vertical
TB14	F14	F12	2.6:1	38	450	22	6*6	Vertical
TB16	F16	F14	3.6:1	50	1100	28	8*7	Vertical
TB16-B			9.4:1			28	8*7	Horizontal
TB25	F25	F16	5:1	70	2600	28	8*7	Vertical
TB25-B			13.1:1			28	8*7	Horizontal
TB30	F30	F25	5.2:1	75	5000	32	10*8	Vertical
TB30-2S			18.2:1			28	8*7	Vertical
TB30-B			13.6:1			28	8*7	Horizontal
TB30-P			26:1 _ 31.2:1			28	8*7	Vertical
TB30-2P			130:1			28	8*7	Vertical
TB35	F35	F30	6.4:1	90	9000	40	12*8	Vertical
TB35-2S			22.4:1			28	8*7	Vertical
TB35-P			32:1 _ 38.4:1			28	8*7	Vertical
TB35-2P			160:1			28	8*7	Vertical
TB40	F40	F35	7:1	120	13000	50	14*9	Vertical
TB40-2S			24.5:1			28	8*7	Vertical
TB40-P			35:1 _ 42:1			28	8*7	Vertical
TB40-2P			252:1			28	8*7	Vertical
TB48	F48	F40	7.3:1	150	24000	50	16*10	Vertical
TB48-2S			40.1:1			28	8*7	Vertical
TB48-P			36.5:1 _ 43.8:1			28	8*7	Vertical
TB48-2P			262.8:1			28	8*7	Vertical

1-Input type shall be specified by customer (input shaft,input flange)
2-Gearbox ratio can be modified based on the customer requisition.
3-Handwheel position is according to the base

BEVEL GEARBOX



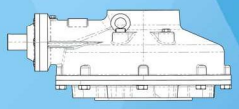
CONFIGURATION



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

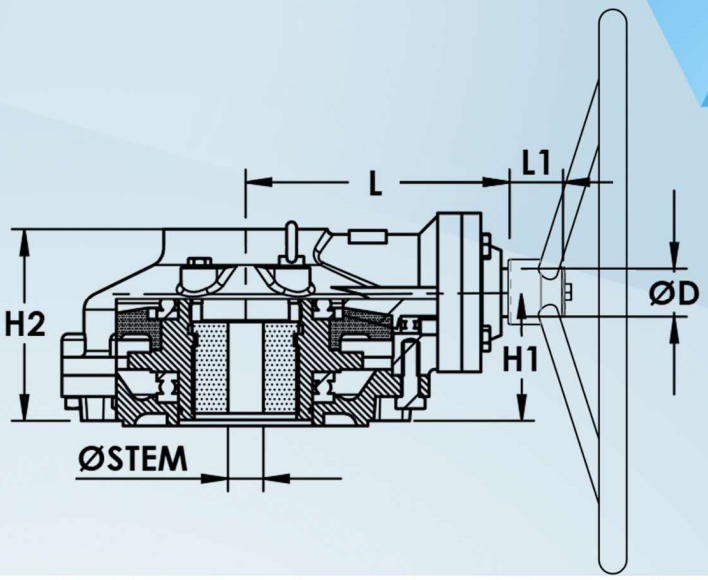
ITEM NO.	PART NO.	Material	QTY.
12	HEX.BOLT	8.8	7
13	EYE BOLT	Standard	2
14	GREASE FITTING	Standard	1
15	BEARING	Standard	1
16	BEARING	Standard	1
17	BEARING	Standard	1
18	SEAL	DIN 3760	1
19	CIRCLIP	Standard	1
20	O-RING	Standard	2
21	STEM PROTECTOR	ST37	1

BEVEL GEARBOX



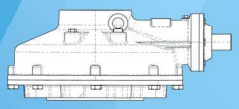
DIMENTION

>>bevel



DIM / MODEL	FLANGE SIZE (ISO 5211)	H1	H2	L	L1	ØD	FLAT KEY	GEAR RATIO	MAX STEM Ømm	HAND WHEEL	MAX. OUTPUT TORQUE (N.m)	WEIGHT (Kg)
TB12H	F12	86	127	145	32	22	6*6	2.6:1	30	TH25-09	450	14
TB14H	F14	86	127	145	32	22	6*6	2.6:1	38	TH25-09	450	14
TB16H	F16	88	135	178	40	28	8*7	3.6:1	50	TH40-09	1100	25
TB25H	F25	109	161	216	40	28	8*7	5:1	70	TH50-09	2600	50
TB30H	F30	134	209	295	55	32	10*8	5.2:1	75	TH70-09	5000	80
TB35H	F35	143	235	319	50	40	12*8	6.4:1	90	TH80-09	9000	123
TB40H	F40	300	280	354	70	50	14*9	7:1	120	TH80-09	13000	210
TB48H	F48	217	343	412	94	50	14*9	7.3:1	150	TH80-09	24000	320

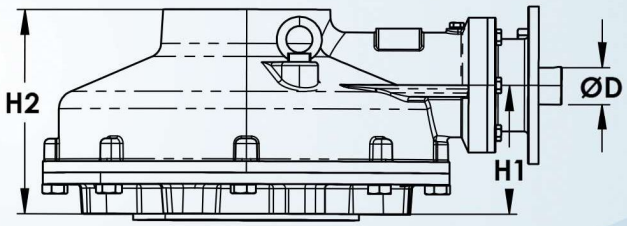
BEVEL GEARBOX



>>bevel +intermediate spur

DIM / MODEL	FLANGE SIZE (ISO 5211)	GEAR RATIO[1]	MAX STEM Ømm	MAX. OUTPUT TORQUE (N.m)
TB30-2SH	F30	18.2:1	75	5000
TB35-2SH	F35	22.4:1	90	9000
TB40-2SH	F40	24.5:1	120	13000
TB48-2SH	F48	40.1:1	150	24000

>>bevel+flange



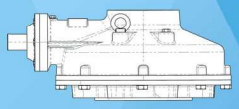
DIM / MODEL	FLANGE SIZE (ISO 5211)	H1	H2	GEAR RATIO	MAX STEM Ømm	MAX. OUTPUT TORQUE (N.m)	INPUT FLANGE
TB16-M	F16	88	135	3.6:1	50	1100	F10
TB25-M	F25	109	161	5:1	70	2600	F12
TB30-M	F30	134	209	5.2:1	75	5000	F14
TB35-M	F35	144	235	6.4:1	90	9000	F14
TB40-M	F40	300	280	7:1	120	13000	F16
TB48-M	F48	217	343	7.3:1	150	24000	F16

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

*-Input type shall be specified by customer (input shaft,input flange)

8

BEVEL GEARBOX

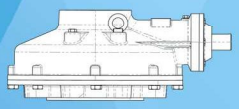


>>bevel+bevel

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

*-Input type shall be specified by customer (input shaft,input flange)

BEVEL GEARBOX



>>bevel+planetary

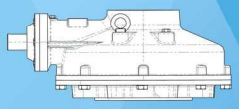
DIM / MODEL	FLANGE SIZE (ISO 5211)	GEAR RATIO[1]	MAX STEM Ømm	MAX. OUTPUT TORQUE (N.m)
TB30-PH	F30	26:1 - 31.2:1	75	5000
TB35-PH	F35	32:1 - 38.4:1	90	9000
TB40-PH	F40	35:1 - 42:1	120	13000
TB48-PH	F48	36.5:1 - 43.8:1	150	24000

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

*-Input type shall be specified by customer (input shaft,input flange)

10

BEVEL GEARBOX



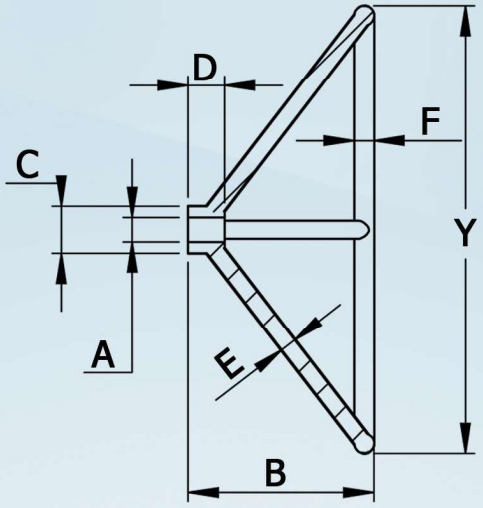
>>bevel+double planetary

DIM / MODEL	FLANGE SIZE (ISO 5211)	GEAR RATIO[1]	MAX STEM Ømm	MAX. OUTPUT TORQUE (N.m)
TB30-2PH	F30	130:1	75	5000
TB35-2PH	F35	160:1	90	9000
TB40-2PH	F40	252:1	120	13000
TB48-2PH	F48	262.8:1	150	24000

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

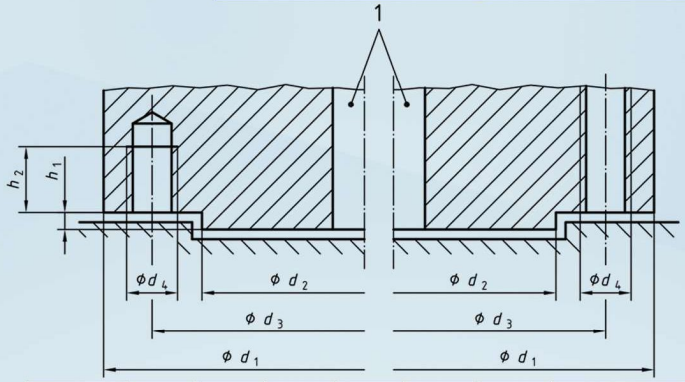
*-Input type shall be specified by customer (input shaft,input flange)

HANDWHEEL INFORMATION



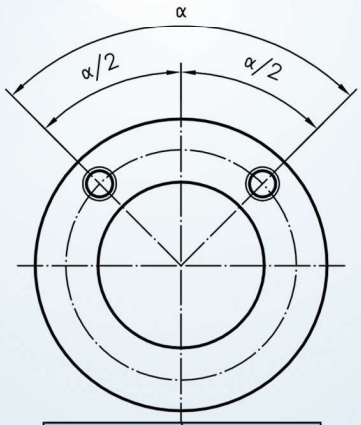
Model	Y	A	B	C	D	E	F	Flat key	No. of Blades
TH20-09	Ø200	18	90	50	32	15	21	6*6	4
TH25-09	Ø250	22	90	50	32	15	21	6*6	4
TH30-09	Ø300	22	90	50	32	15	21	6*6	4
TH35-17	Ø350	22	170	50	32	15	21	6*6	4
TH40-09	Ø400	22 , 28	90	50	32	15	21	6*6 _ 8*7	4
TH40-17	Ø400	22	170	50	32	15	21	6*6	4
TH50-09	Ø500	22 , 28	90	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	α/2
F03 TO F16	45°
F25 TO F40	22.5°
F48	15°
F60	9°

7 Dimensions and torques

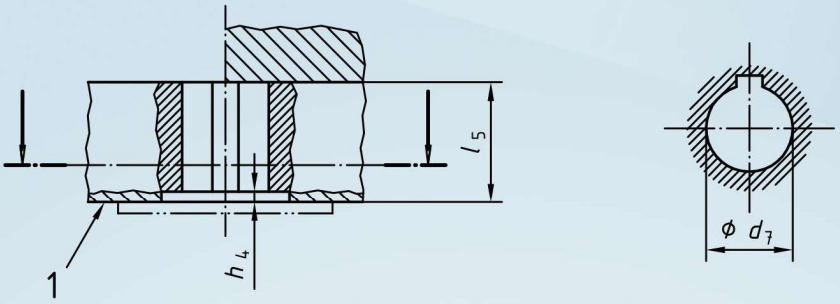


Figure 4 - Drive by key(s)

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_7H_9[ab]																	
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Max. transmissible torque Nm[d]				32	63	125	250	500	1000	1500	2000	3000	4000	8000	12000	16000	e	e	e	e	e

[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).

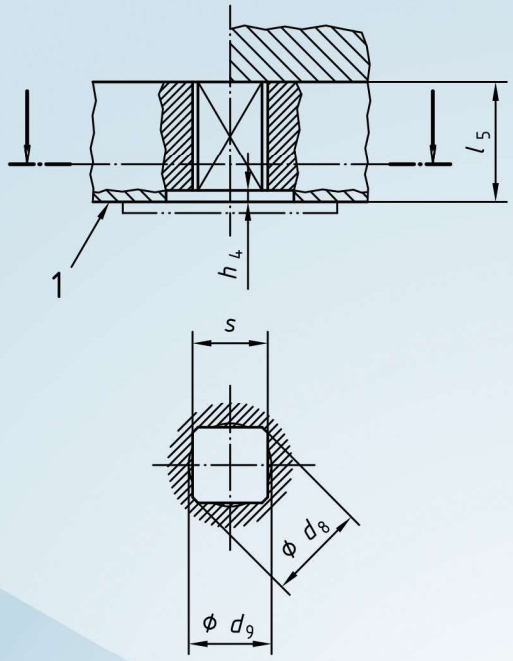
e The maximum transmissible torques shall be determined by calculation.

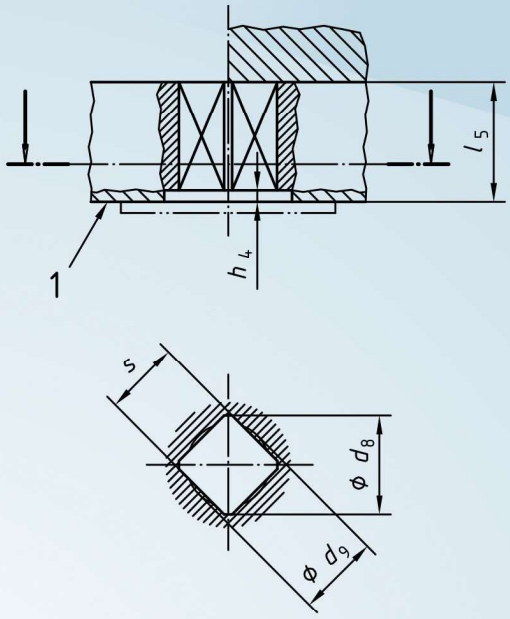
[f] $h_{4\ min.}$ = 0,5 mm.

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]
$Ød_{8\ min.}$			12.1	14.1	18.1	22.2	25.2	28.2	36.2	48.2	60.2	72.2	98.2
$Ød_{9\ max.}$			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

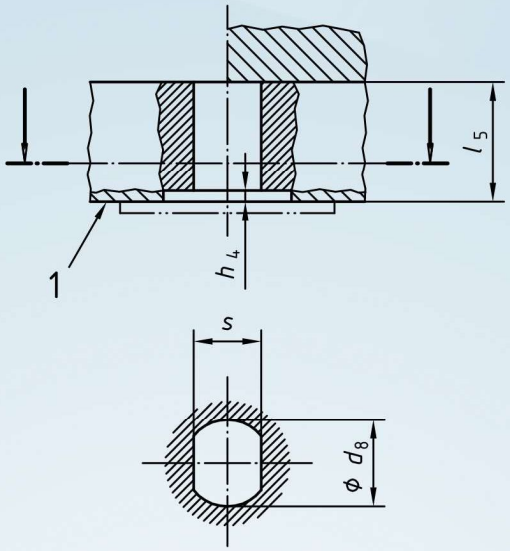
[b] Indicates the preferred dimension

[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										
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]
$\varnothing d_{8\ min.}$			12.1	14.1	18.1	22.2	25.2	28.2	36.2	48.2	60.2	72.2	98.2
$\varnothing d_{9\ max.}$			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

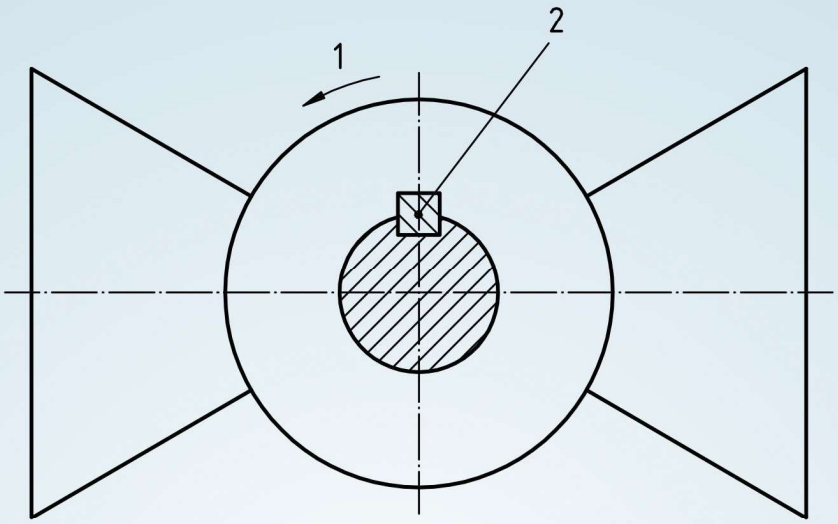
[c] Maximum transmissible torques are based on a maximum allowable torsional stress of 280 MPa for the driven component.

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.

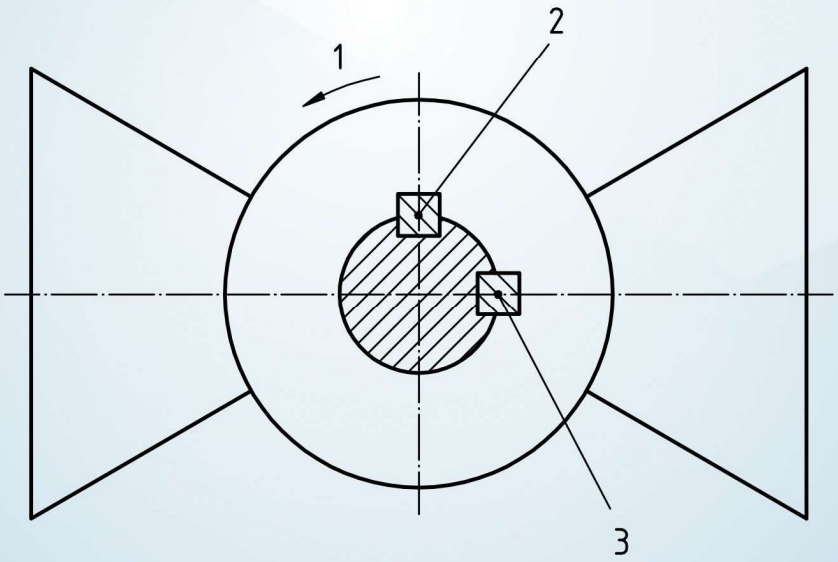
NOTE The standard closing direction is clockwise, as viewed from above the interface.



Key

1 Opening direction
2 Primary key

Figure 8 – Position of primary key on the driven component



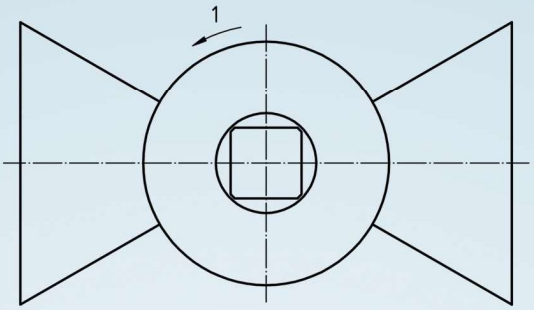
Key

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

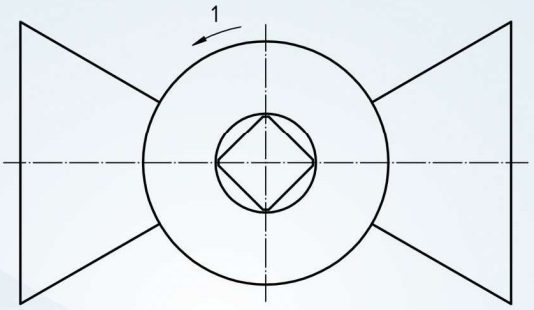
With the valve closed, the flat sides of the square head drive component shall be located as shown in Figures 10 or 11.



Key

1 Opening direction

Figure 10 – Position of parallel square head driven component



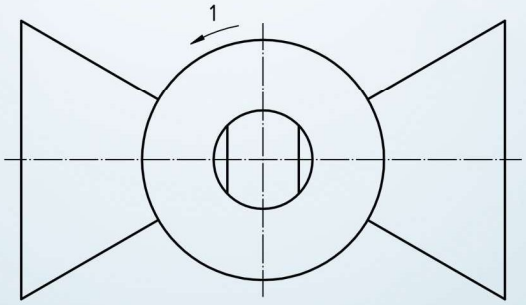
Key

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

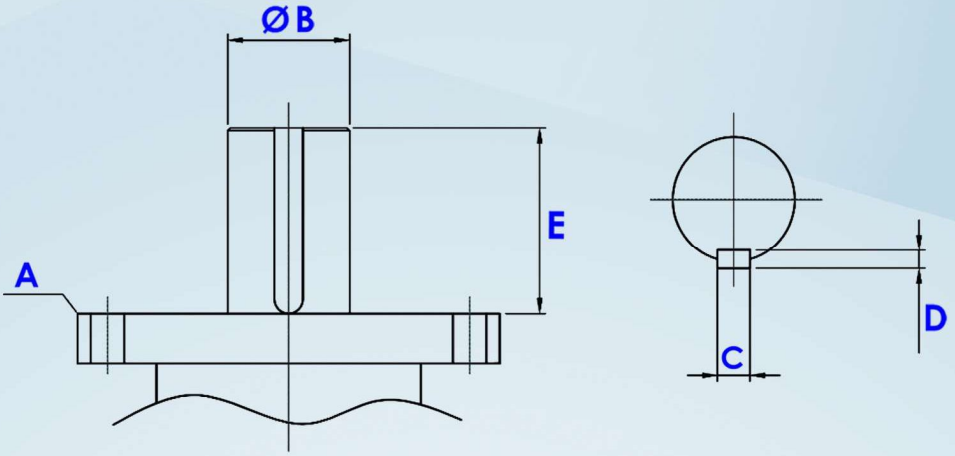
GLOBE VALVE SPECIFICATION

CLASS	ITEM	VAVLE 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"	2"	2-1/8"	2-1/4"
	Pitch (in)	0.167	0.167	0.2	0.2	0.2	0.25	0.25	0.25	0.333	0.333
	Tread Per Inch	6	6	5	5	5	4	4	4	3	3
	Single(S) or Double(D)	S	S	S	S	S	S	S	S	S	S
	Torque(N.m)	46.3	65.1	83.1	157	239	326	620	1198	1503	2067
300#	Stem Thread	3/4"	7/8"	1"	1-1/4"	1-3/4"	2"	2-1/4"	2-1/2"		
	Pitch (in)	0.167	0.167	0.2	0.2	0.25	0.25	0.333	0.333		
	Tread Per Inch	6	6	5	5	4	4	3	3		
	Single(S) or Double(D)	S	S	S	S	S	S	S	S		
	Torque(N.m)	61.9	84.8	118	218	727	1309	2160	3100		
600#	Stem Thread	1"	1-1/8"	1-1/4"	1-1/2"	2"	2-1/4"	2-3/4"	3"		
	Pitch (in)	0.2	0.2	0.2	0.25	0.25	0.333	0.333	0.5		
	Tread Per Inch	5	5	5	4	4	3	3	2		
	Single(S) or Double(D)	S	S	S	S	S	S	S	S		
	Torque(N.m)	142	244	316	602	1590	2782	4579	6216		
900#	Stem Thread	1-1/4"		1-3/8"	1-3/4"	2-1/4"	2-3/4"	3"	3-3/4"		
	Pitch (in)	0.2		0.25	0.25	0.333	0.333	0.5	0.5		
	Tread Per Inch	5		4	4	3	3	2	2		
	Single(S) or Double(D)	S		S	S	S	S	S	S		
	Torque(N.m)	285		528	1063	1792	3439	6544	10072		
1500#	Stem Thread	1-1/4"		1-3/4"	2-1/8"	2-3/4"	3"	3-3/4"			
	Pitch (in)	0.2		0.25	0.333	0.333	0.5	0.5			
	Tread Per Inch	5		4	3	3	2	2			
	Single(S) or Double(D)	S		S	S	S	S	S			
	Torque(N.m)	352		876	1816	3868	5011	11226			
2500#	Stem Thread	1-1/2"		1-7/8"	2-1/4"	2-7/8"	3-3/4"				
	Pitch (in)	0.25		0.25	0.333	0.5	0.5				
	Tread Per Inch	4		4	3	2	2				
	Single(S) or Double(D)	S		S	S	S	S				
	Torque(N.m)	502.3		959	2062	6530	9682				

GATE VALVE SPECIFICATION

CLASS	ITEM	VAVLE 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"	1-3/4"	1-7/8"	2"	2-1/8"	2-1/4"	2-1/2"	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	0.333	0.333	0.333	0.333	0.333	0.333	0.5
	Tread Per Inch	6	6	6	5	5	5	4	4	4	4	4	4	3	3	3	3	3	3	2
	Single(S) or Double(D)	S	S	S	S	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
	Torque(N.m)	16	17.9	24.1	38.1	75.9	111	182	269	325	435	565	748	897	1256	1411	1587	1935	2127	3239
300#	Stem Thread	3/4"	3/4"	7/8"	1"	1-1/4"	1-3/8"	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"	2-3/4"	2-7/8"		
	Pitch (in)	0.167	0.167	0.167	0.2	0.2	0.25	0.25	0.25	0.25	0.25	0.25	0.333	0.333	0.333	0.333	0.333	0.5		
	Tread Per Inch	6	6	6	5	4	4	4	4	4	4	4	3	3	3	3	3	2		
	Single(S) or Double(D)	S	S	S	S	D	D	D	D	D	D	D	D	D	D	D	D	D		
	Torque(N.m)	22.5	25.4	34.6	54.5	159	291	458	661	810	1088	1430	1778	2258	2823	3580	4115	5653		
600#	Stem Thread	3/4"	7/8"	1"	1-1/8"	1-1/2"	1-5/8"	1-7/8"	2"	2-1/4"	2-3/8"	2-1/2"	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	0.333	0.333	0.333	0.333	0.5	0.5					
	Tread Per Inch	6	6	5	5	4	4	4	4	3	3	3	3	2	2					
	Single(S) or Double(D)	S	S	S	S	D	D	D	D	D	D	D	D	D	D					
	Torque(N.m)	34.7	47	70	122	406	641	1023	1508	2098	2816	3038	3981	5977	6896					
900#	Stem Thread	1"		1-1/8"	1-1/4"	1-5/8"	1-7/8"	2-1/8"	2-1/4"	2-3/8"	2-1/2"									
	Pitch (in)	0.2		0.2	0.2	0.25	0.25	0.333	0.333	0.333	0.333									
	Tread Per Inch	5		5	5	4	4	3	3	3	3									
	Single(S) or Double(D)	S		S	S	D	D	D	D	D	D									
	Torque(N.m)	79.4		95	159	569	978	1728	2601	2997	4198									
1500#	Stem Thread	1"		1-1/4"	1-3/8"	1-3/4"	2-1/8"	2-1/2"	2-3/4"	3"	3"									
	Pitch (in)	0.2		0.2	0.25	0.25	0.333	0.333	0.333	0.5	0.5									
	Tread Per Inch	5		5	4	4	3	3	3	2	2									
	Single(S) or Double(D)	S		S	S	D	D	D	D	D	D									
	Torque(N.m)	116.6		224	349	1009	2025	3259	4437	6878	7069									
2500#	Stem Thread	1"		1-1/4"	1-3/8"	1-7/8"	2-3/8"	2-7/8"	3-1/4"											
	Pitch (in)	0.2		0.2	0.25	0.25	0.333	0.5	0.5											
	Tread Per Inch	5		5	4	4	3	2	2											
	Single(S) or Double(D)	S		S	S	D	D	D	D											
	Torque(N.m)	164.4		281	559	1407	2913	5748	8332											

BALL VALVE SPECIFICATION

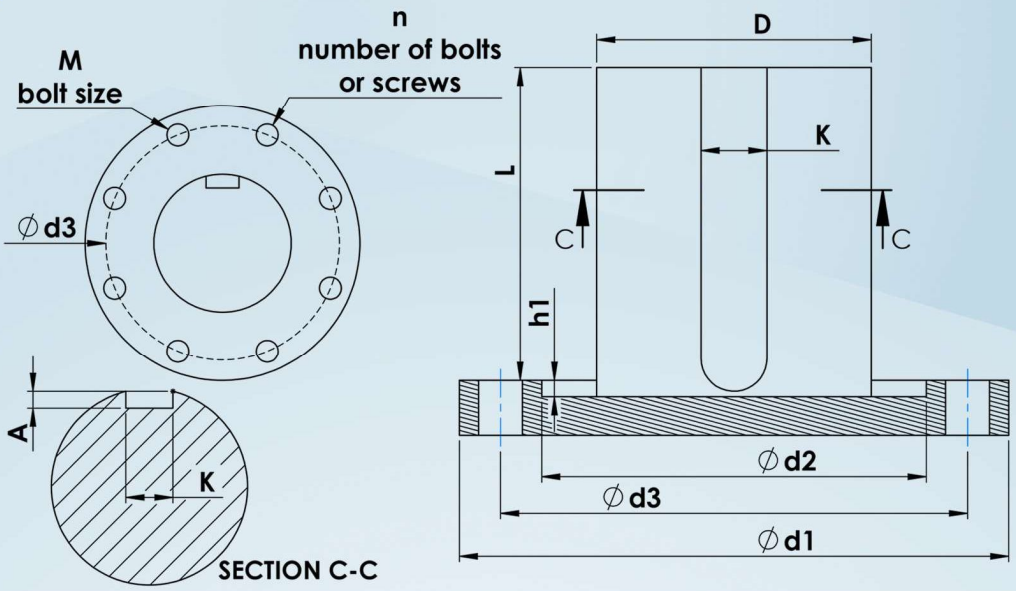


VALVE SIZE	TOQUE N.m	A(iso5211)	B mm	D*F*K	VALVE SIZE	TOQUE N.m	A(iso5211)	B mm	D*F*K
6"-150	500	F14	40	12*8*50	6"-300	1575	F14	40	12*8*50
8"-150	1550	F16	50	14*9*50	8"-300	2500	F16	50	14*9*50
10"-150	1650	F16	50	14*9*50	10"-300	2744	F25	60	18*11*70
12"-150	2350	F25	60	18*11*60	12"-300	4000	F25	70	20*12*60
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

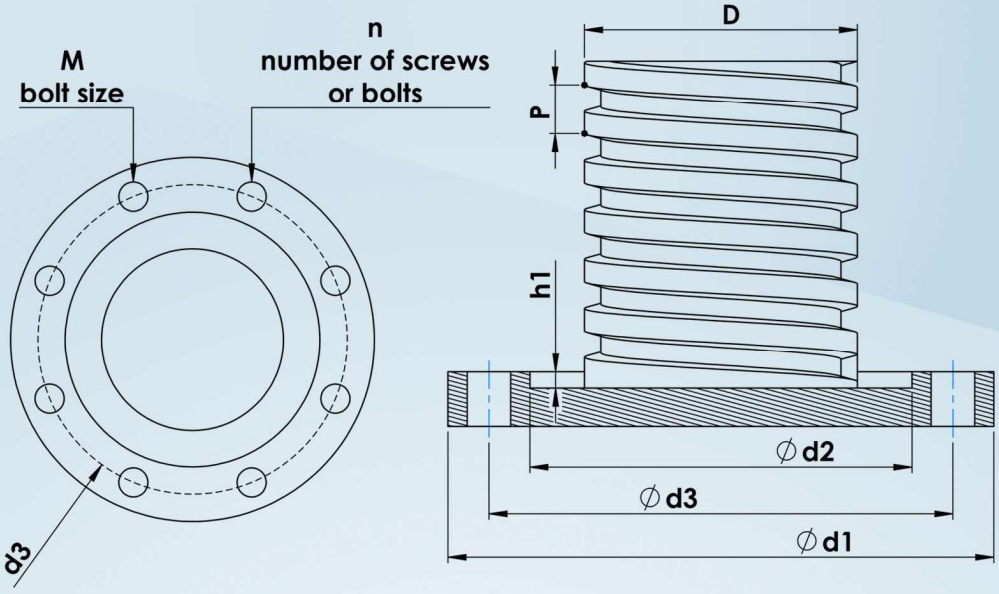
*- A : according to ISO5211
1- Valve's torques are calculated with 1.5 safety factor

GEARBOX SELECTION FORM



PLUG & BALL&BUTTERFLY VALVE GEARBOX SELECTION		CUSTOMER:		گروه صنعتی توکل پویا TAVAKOL POOYA ARAK CO. TAPCO	
تاریخ		شماره تماس		شخص رابط	
	قطرنافی_ϕd2		قطر استم_D		نوع شیر
	عمق نافی_ϕh1		خار ارتفاع خار*K*L		سایز شیر
	A		تعداد خار		کلاس شیر
آیا هنگامی که شیر باز است خار در جهت جریان است؟					
	ϕd1		عمود بر سطح زمین □		وضعیت هندویل
	ϕd3		موازی با سطح زمین □		
	سایز پیچ_M		تعداد پیچ_n		فلنج شیر
		ratio			گشتاور موردنیاز (B.T.O)
	شماره فنی عملگر		نوع عملگر		محرک گیربکس
	دور و گشتاورخروجی		هالوشفت		فلنج اتصال عملگر به گیربکس
گیربکس پیشنهادی سازنده				گیربکس انتخابی مشتری	
			۰۹۱۸۶۰۴۵۶۲۵	۰۸۶-۳۴۱۳۱۵۷۷	تلفن
info@ tapcogearbox.ir		ایمیل	www.tapcograbox.ir		وبسایت
tapcogearbox	اینستاگرام	آدرس:اراک،شهرک صنعتی حاجی آباد،خیابان صنعت،خیابان رز،چهار راه اول			

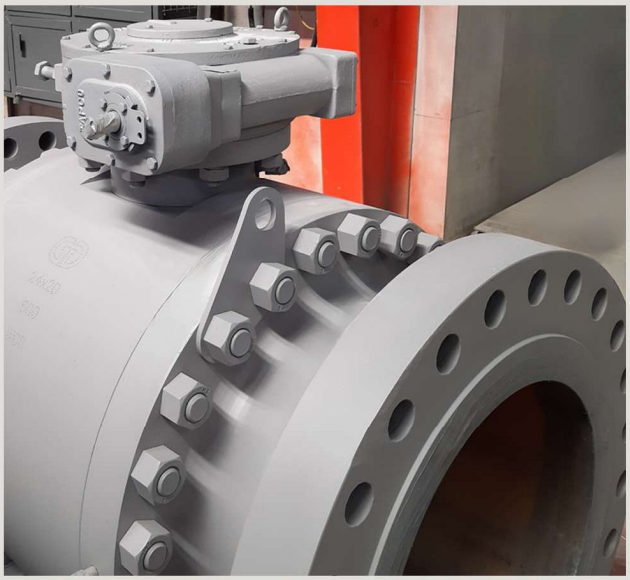
GEARBOX SELECTION FORM

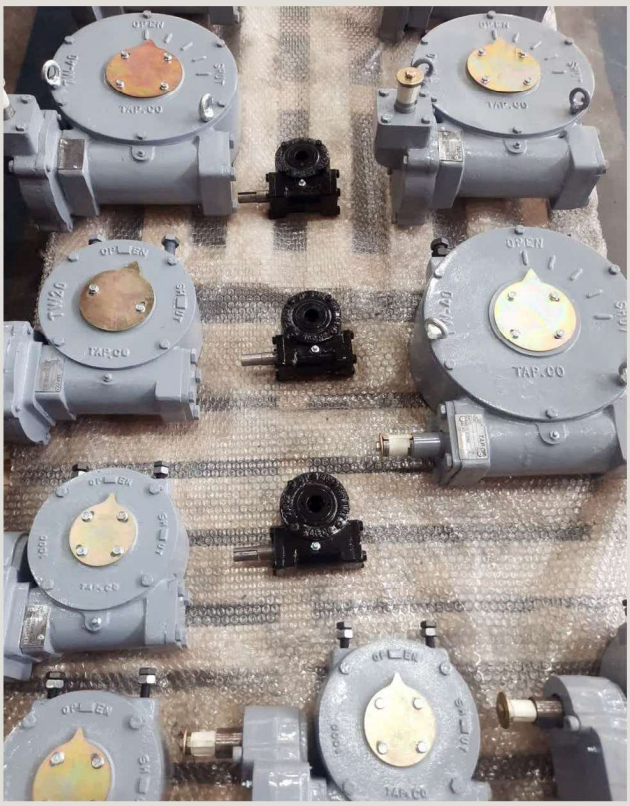


GATE & GLOBE VALVE GEARBOX SELECTION	CUSTOMER:			
تاریخ		شماره تماس		شخص رابط
	ϕd2_قطرنافی		قطر استم_D	نوع شیر
	ϕh1_عمق نافی		گام پیچ استم_P	سایز شیر
	ϕd3		تعداد راه پیچ استم	کلاس شیر
	ϕd1	عمود بر سطح زمین □		وضعیت هندویل
		موازی با سطح زمین □		
	سایز پیچ_M		تعداد پیچ_n	فلنج شیر
	ratio		نیروی عمودی	گشتاور موردنیاز (B.T.O)
	شماره فنی عملگر		نوع عملگر	محرک گیربکس
	دور و گشتاورخروجی		هالوشفت	فلنج اتصال عملگر به گیربکس
گیربکس پیشنهادی سازنده			گیربکس انتخابی مشتری	
		۰۹۱۸۶۰۴۵۶۲۵	۰۸۶-۳۴۱۳۱۵۷۷	تلفن
info@ tapcogearbox.ir	ایمیل	www.tapcogearbox.ir		وبسایت
tapcogearbox اینستاگرام		آدرس: اراک،شهرک صنعتی حاجی آباد،خیابان صنعت،خیابان رز،چهار راه اول		

GALLERY


CLOSE
OPEN





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گروه صنعتی توکل پویا اراک با نام تجاری TAPCO فعالیت خود را از سال 1380 با هدف ارائه خدمات ماشین کاری سبک و سنگین آغاز نموده و هم اکنون این مجموعه با کادری متشکل از مدیران ، مهندسین ، متخصصین و پرسنل کارآزموده ، خود را برای مشارکت در طراحی و اجرای پروژه های صنعتی آماده کرده است. مجموعه ماشین آلات گردآوری شده در این گروه صنعتی ساخت وسیعی از محصولات به ویژه در بخش های نفت و گاز ، صنایع خودرو سازی سبک و سنگین، صنایع فولاد و خودروهای ریلی را امکان پذیر نموده است.

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