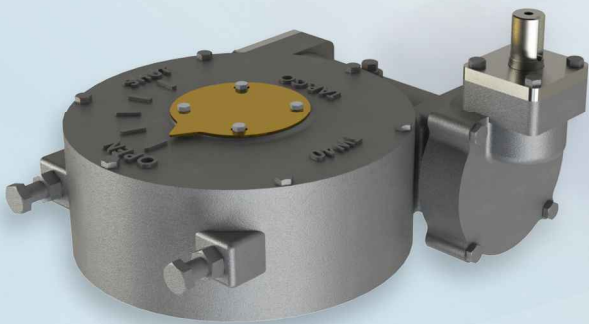


TAPCO

valve manual &
powered actuator



*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

Moody International Certification Ltd.
www.moodyint.com

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

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

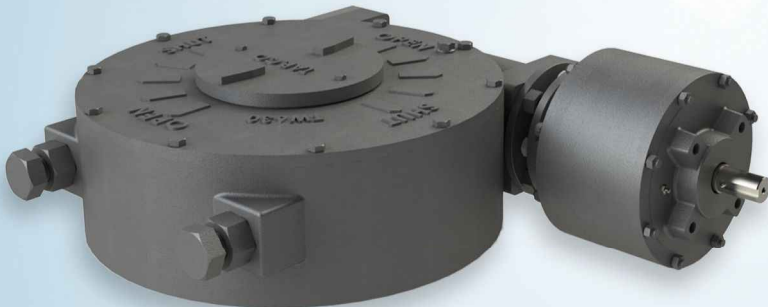
Certificate No. 10111208030
Issue Date: October 02, 2012
Expiry Date: October 01, 2015



Authorised Signature

Moody International Certification Ltd.
www.moodyint.com

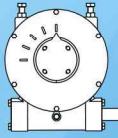
The use of the Accreditation Mark indicates accreditation in respect of those activities covered by the Accreditation Certificate 014.
The certificate remains the property of Moody International Certification Limited to whom it must be returned on request.



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1

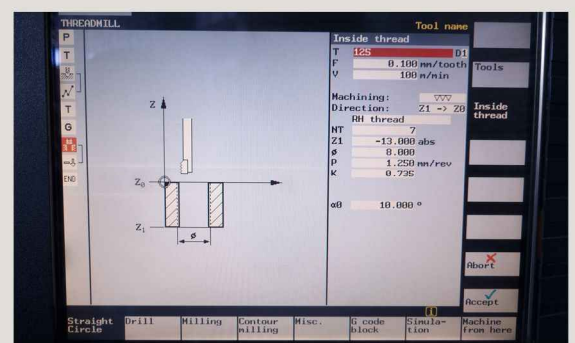
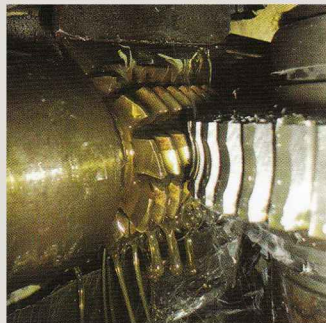
WORM GEARBOX



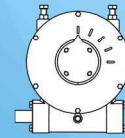
TAPCO TAVAKOL POOYA ARAK co.

Features of TAPCO worm gearbox

- TAPCO worm gearbox are available to all kinds of industrial valves-butterfly, ball and plug etc.
- Adopted to international flange standard of EN ISO 5211\5210.
- Gear design considering high efficiency and long-life span.
- Self-locking
- Permitted temperature range -35°C to $+80^{\circ}\text{C}$
- Water-proof
- Traveling angles : 135° , 180° , 360° , etc. (Default : 90°)
- Optional worm wheel of Phos.bronze and carbon steel for modulating and high speed. (Default: 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.



WORM GEARBOX



PROCESS OF CODING

WORM GEARBOX

TW 40 H -

END-STOP TYPE

- EXTERNAL END-STOP
- TN INTERNAL END-STOP

INPUT TYPE

- M MOTOR OPERATED
- H MANUALLY OPERATED

SERIES NO.
(MAXIMUM)
OUTPUT TORQUE

- 02 250 N.M
- 03 500 N.M
- 05 1000 N.M
- 10 2000 N.M
- 20 4000 N.M
- 40 8000 N.M
- 80 16000 N.M
- 160 40000 N.M
- 630 80000 N.M
- 1250 125000 N.M

TYPE OF GEARBOX

TAPCO WORM GEAR

WITH INTERMEDIATE GEARBOX

TW 40 P M TN

END-STOP TYPE

- EXTERNAL END-STOP
- TN INTERNAL END-STOP

INPUT TYPE

- M MOTOR OPERATED
- H MANUALLY OPERATED

GEAR TYPE OF
INTERMEDIATE
GEARBOX

- S SPUR GEAR
- B BEVEL GEAR
- W WORM GEAR
- PB PLANETARY + BEVEL GEAR
- P PLANETARY
- 2P DOUBLE PLANETARY

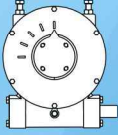
SERIES NO.

02/03/05/10/20/40/80
/160/630/1250

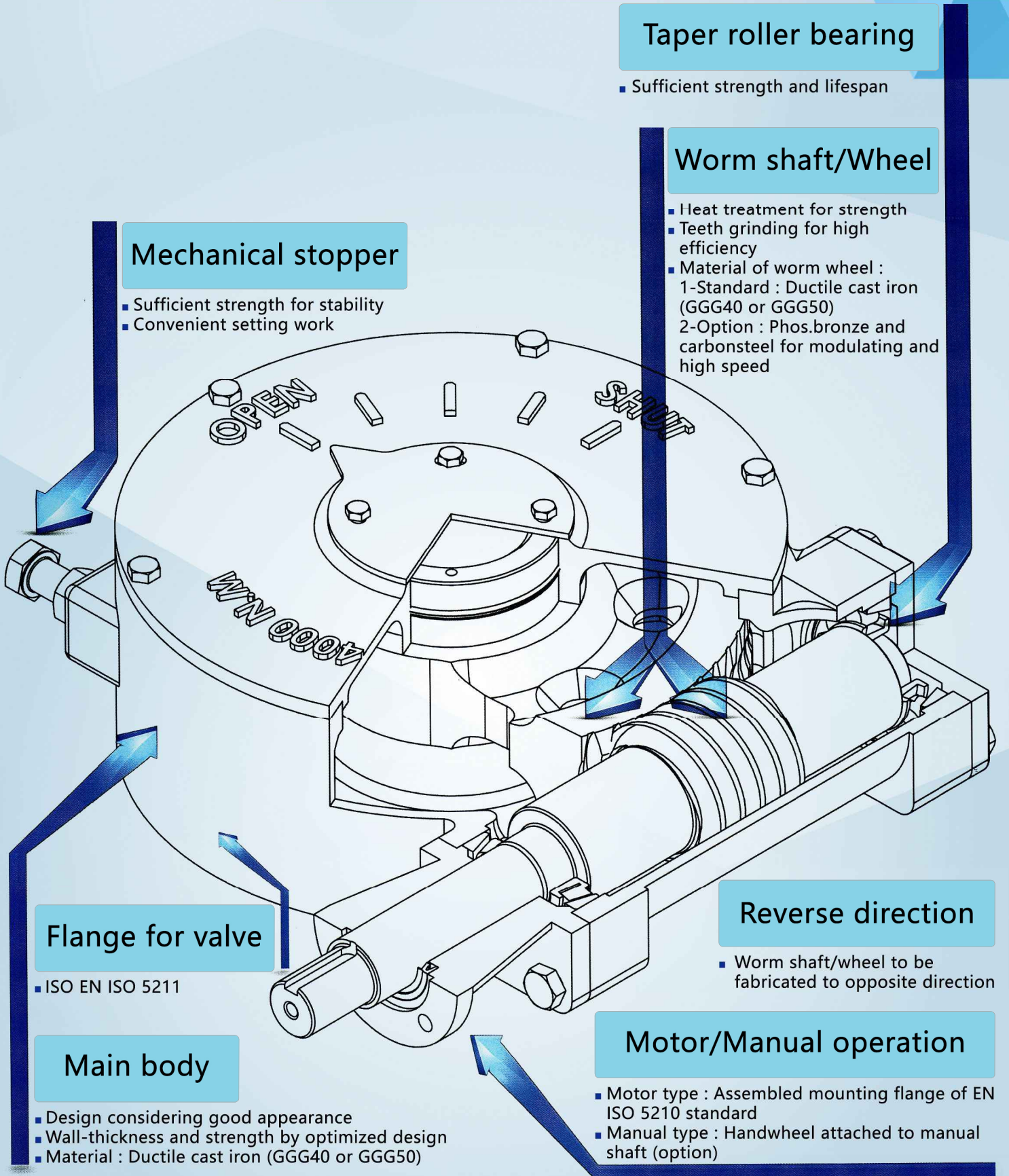
TYPE OF GEARBOX

TAPCO WORM GEAR

WORM GEARBOX



Design features



Mechanical stopper

- Sufficient strength for stability
- Convenient setting work

Taper roller bearing

- Sufficient strength and lifespan

Worm shaft/Wheel

- Heat treatment for strength
- Teeth grinding for high efficiency
- Material of worm wheel :
1-Standard : Ductile cast iron (GGG40 or GGG50)
2-Option : Phos.bronze and carbonsteel for modulating and high speed

Flange for valve

- ISO EN ISO 5211

Main body

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

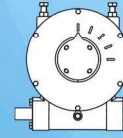
Reverse direction

- Worm shaft/wheel to be fabricated to opposite direction

Motor/Manual operation

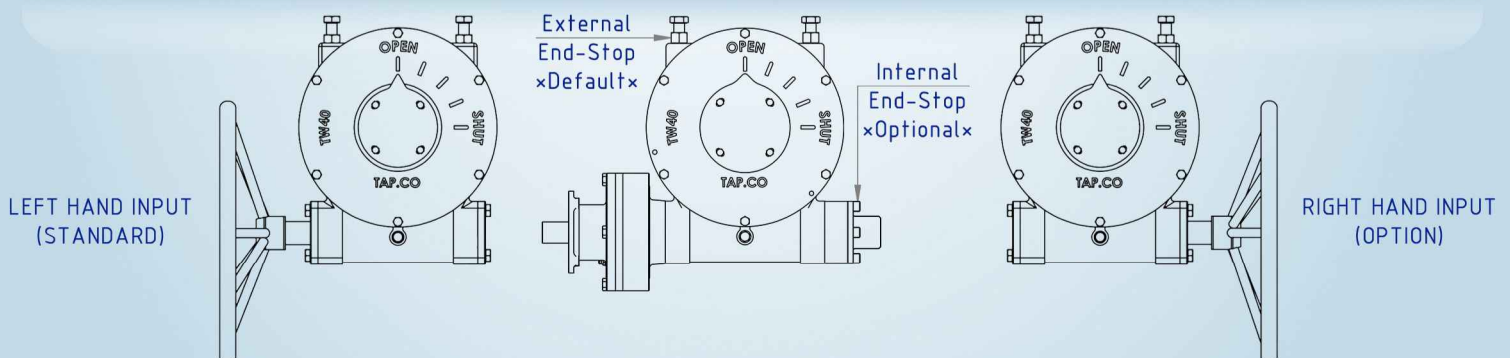
- Motor type : Assembled mounting flange of EN ISO 5211 standard
- Manual type : Handwheel attached to manual shaft (option)

WORM GEARBOX



SPECIFICATION

MODEL	OUTPUT SPECIFICATIONS								INPUT SPECIFICATIONS ¹			
	FLANGE		RATIO ²	No. OF TURNS FOR 90°	ALLOWABLE OUTPUT TORQUE (N.M)	DEFAULT STEM	RANGE OF STEM DIA.	STEM HEIGHT	ØSHAFT	FLAT KEY	INPUT FLANGE (Optional)	HANDWHEEL POSITION ³
	MAIN (ISO5211)	OPTIONAL										
TW02	F07	F05	25:1	6.25	250	16	16 - 22	64	18	6*6		Vertical
TW03	F10	F07	30:1	7.5	500	20	20 - 30	73	22	6*6	F10	Vertical
TW05	F12	F10	40:1	10	1000	44	25 - 44	85	22	6*6	F10	Vertical
TW05-B			104:1	26					22	6*6	F10	Horizontal
TW10	F14	F12	46:1	11.5	2000	50	35 - 50	95	22	6*6	F10	Vertical
TW10-S			98:1	24.5					28	8*7	F10	Vertical
TW10-B			121:1	25					22	6*6	F10	Horizontal
TW10-P			138:1	34.5					22	6*6	F10	Vertical
TW20	F16	F14	42:1	10.5	4000	55	50 - 60	110	28	8*7	F10	Vertical
TW20-S			89:1	22.3					28	8*7	F10	Vertical
TW20-B			131:1	32.75					28	8*7	F10	Horizontal
TW20-P			110:1	27.5					28	8*7	F10	Vertical
TW40	F25	F16	64:1	16	10000	70	60 - 80	120	28	8*7	F12	Vertical
TW40-S			136:1	34					28	8*7	F10	Vertical
TW40-B			200:1	50					28	8*7	F10	Horizontal
TW40-P			168:1	42					28	8*7	F10	Vertical
			192:1	48					28	8*7	F10	Vertical
			320:1	80								



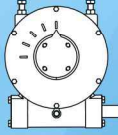
*-Every handwheel position and End-Stop systems are allowable for all models.

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

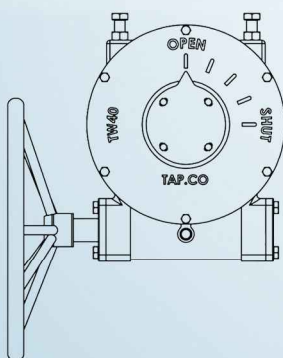
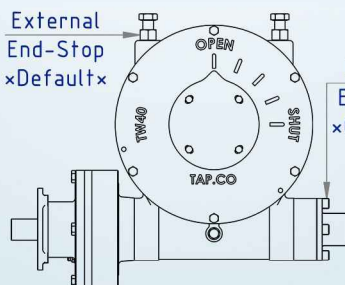
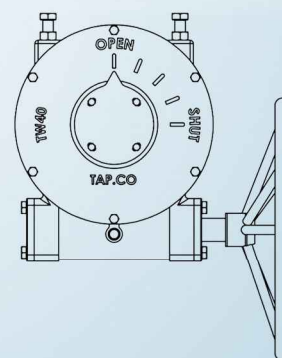
WORM GEARBOX



SPECIFICATION

MODEL	OUTPUT SPECIFICATION							INPUT SPECIFICATION ¹				
	FLANGE		RATIO ²	No. OF TURNS FOR 90°	ALLOWABLE OUTPUT TORQUE (N.M)	DEFAULT STEM	RANGE OF STEM DIA.	STEM HEIGHT	ØSHAFT	FLAT KEY	INPUT FLANGE (Optional)	HANDWHEEL POSITION ³
	MAIN (ISO5211)	OPTIONAL										
TW80	F30	F25	50:1	12.5	16000	95	90 - 100	131	32	10*8		Vertical
TW80-S			106:1	26.5					28	8*7	F10	Vertical
TW80-PB			392:1	98					28	8*7	F10	Horizontal
TW80-P			654:1	163.5					28	8*7	F10	Vertical
TW80-2P			150:1	37.5					28	8*7	F10	Vertical
TW80-2P			250:1	62.5					28	8*7	F10	Vertical
TW80-2P	450:1	112.5	28	8*7	F10	Vertical						
TW80-2P	750:1	187.5	28	8*7	F10	Vertical						
TW160	F35	F30	64:1	16	40000	110	110 - 140	145	32	10*8		Vertical
TW160-PB			502:1	125.5					28	8*7	F14	Horizontal
TW160-P			837:1	209					28	8*7	F14	Vertical
TW160-2P			320:1	80					28	8*7	F14	Vertical
TW160-2P			576:1	144					28	8*7	F10	Vertical
TW160-2P			960:1	240					28	8*7	F10	Vertical
TW160-2P_(HR)*	1600:1	400	28	8*7	F14	Vertical						
TW630	F40	F35	56:1	14	80000	140	140 - 160	205	40	12*8		Vertical
TW630-2P			840:1	210					28	8*7	F14	Vertical
TW630-2P	1400:1	350	28	8*7	F14	Vertical						
TW1250	F48	F40	64:1	16	125000	220	-	290	65	20*12		Vertical
TW1250-2P			1600:1	400					28	8*7	F16	Vertical
TW1250-2P_(HR)*			2304:1	576					28	8*7	F16	Vertical

LEFT HAND INPUT (STANDARD)

External End-Stop
xDefaultxInternal End-Stop
xOptionalx

RIGHT HAND INPUT (OPTION)

*-Every handwheel position and End-Stop systems are allowable for all models.

1-Input specification shall be specified by customer.

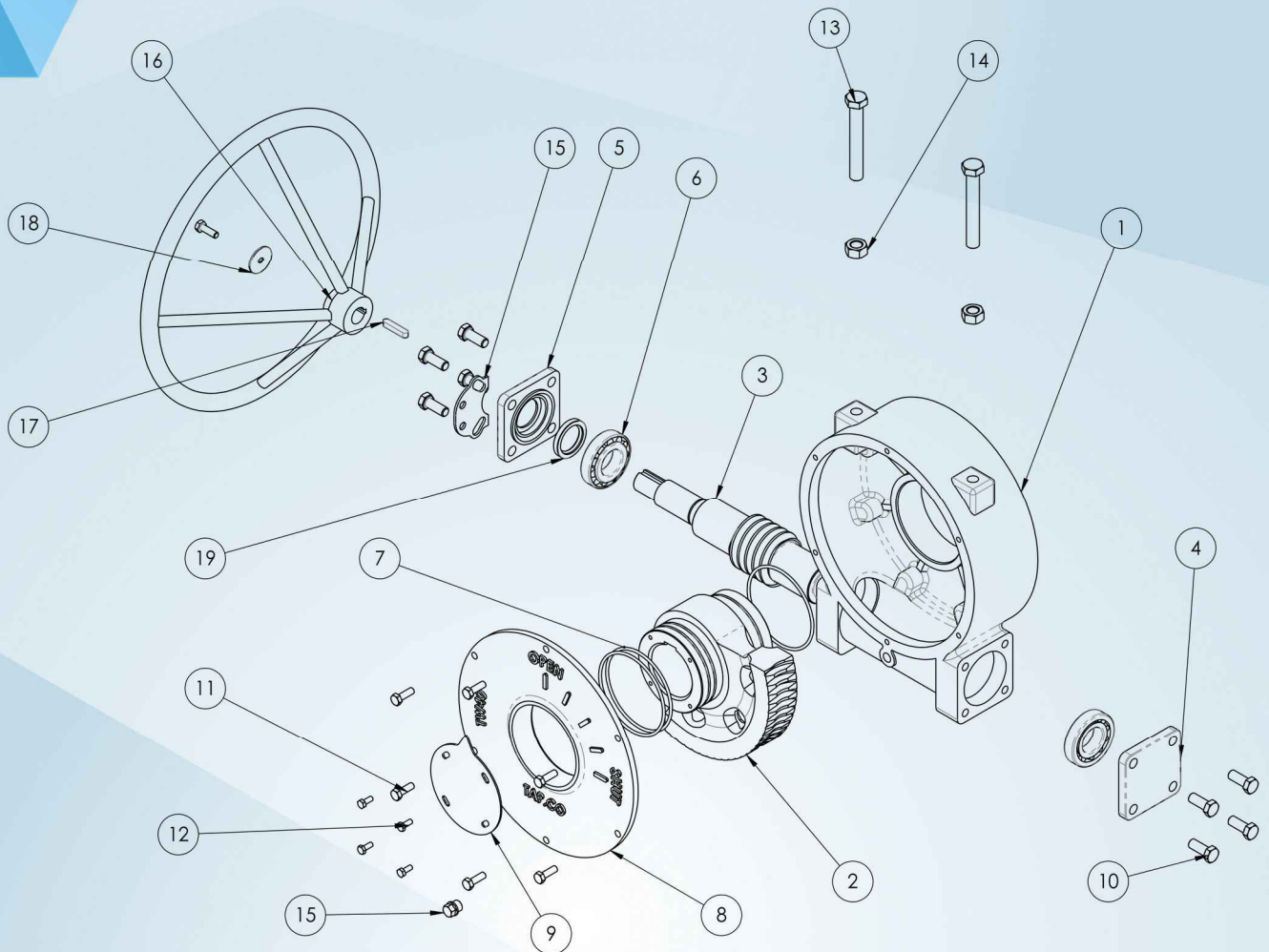
2-Gearbox ratio can be modified based on the customer requisition.

3-Handwheel position is according to the base

WORM GEARBOX



CONFIGURATION

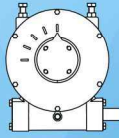


ITEM NO.	PART NO.	Material	QTY.
1	GEAR CASE	GGG40	1
2	WORM WHEEL	GGG40	1
3	WORM SHAFT	42CrMo4-(1.7225) or C45E-(1.1191)	1
4	COVER-B	ST37	1
5	COVER-A	ST37	1
6	TAPER ROLLER BEARING	Standard	1
7	O-RING	Standard	2
8	GEAR COVER	GGG40	1
9	INDICATOR	ST37	1
10	HEX.BOLT	8.8	8

ITEM NO.	PART NO.	Material	QTY.
11	HEX.BOLT	8.8	6
12	HEX.BOLT	8.8	4
13	HEX.BOLT	8.8	2
14	HEX.NUT	8.8	2
15	GREASE FITTING	8.8	1
16	HAND WHEEL	ST37	1
17	FLAT KEY	ST37	1
18	WASHER CLOSE	ST37	1
19	SEAL	DIN 3760	1

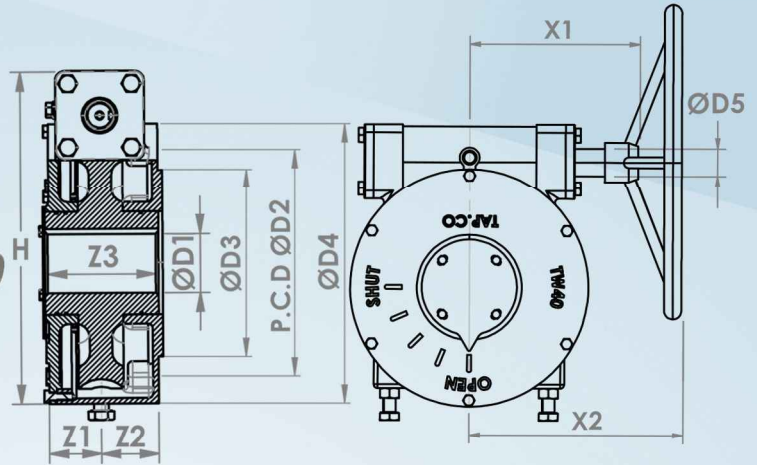
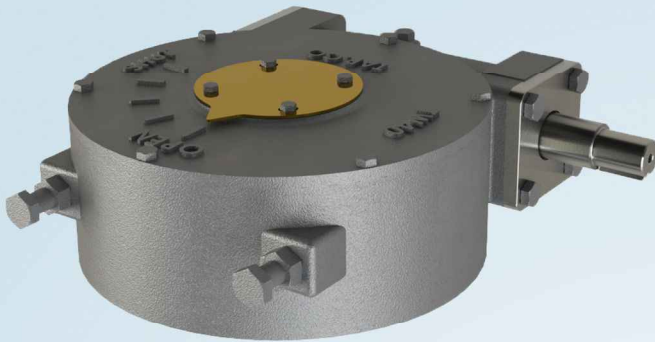
7

WORM GEARBOX



DIMENTION

>> WORM



DIMENSION	OUTPUT SPECIFICATIONS							EXTERNAL DIMENSIONS					INPUT SPECIFICATIONS ¹				
	FLANGE ISO 5211	DEFAULT STEM-ØD1*	P.C.D		ØD3	ØD4	FLAT KEY	Z1	Z2	Z3	H	X1	X2	ØD5	FLAT KEY	INPUT FLANGE (Optional)	HAND WHEEL
			ØD2	N×H×DP													
TW-02-H	F07	16	70	4×M8×12	55	90	6*6	34	28	64	121	109	168	18	6*6		TH20-09
TW-03-H	F10	20	102	4×M10×15	70	125	8*7	37	32	73	159	128	187	22	6*6	F10	TH25-09
TW-05-H	F12	44	125	4×M12×18	85	150	14*9	47	41	84	191	131	239	22	6*6	F10	TH35-17
TW-10-H	F14	50	140	4×M16×24	100	175	16*10	47	45	90	214	145	273	22	6*6	F10	TH40-17
TW-20-H	F16	55	165	4×M20×30	130	210	16*10	51	60	110	253	176	344	22	6*6	F10	TH50-17
TW-40-H	F25	70	254	8×M16×24	200	300	20*12	62	62	121	357	212	372	28	8*7	F12	TH70-23
TW-80-H	F30	95	298	8×M20×30	230	350	28*16	77	72	140	419	-	-	35	10*8		TH70-23
TW-160-H	F35	110	356	8×M30×45	260	415	32*18	73	84	180	485	-	-	35	10*8		TH80-23
TW-630-H	F40	140	406	8×M36×54	300	475	36*20	92	97	205	645	-	-	50	14*9		TH80-23
TW-1250-H	F48	220	483	12×M36×54	370	560	50*28	170	164	290	900	-	-	65	20*12		-

◆ Any desired ratio can be achieved using these base gearbox.

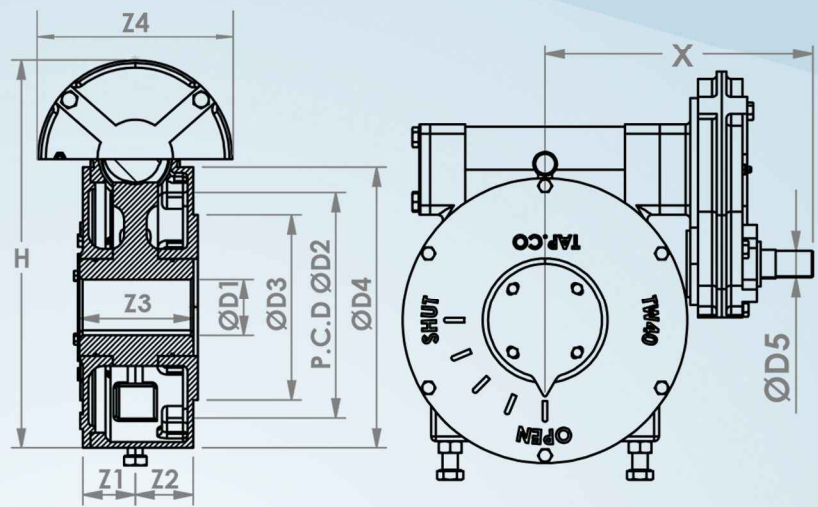
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F30:(90-110)_F35:(110-140)_F40:(140-160)

1-Input specification shall be specified by customer.

WORM GEARBOX



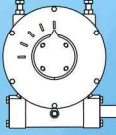
>> worm+spur



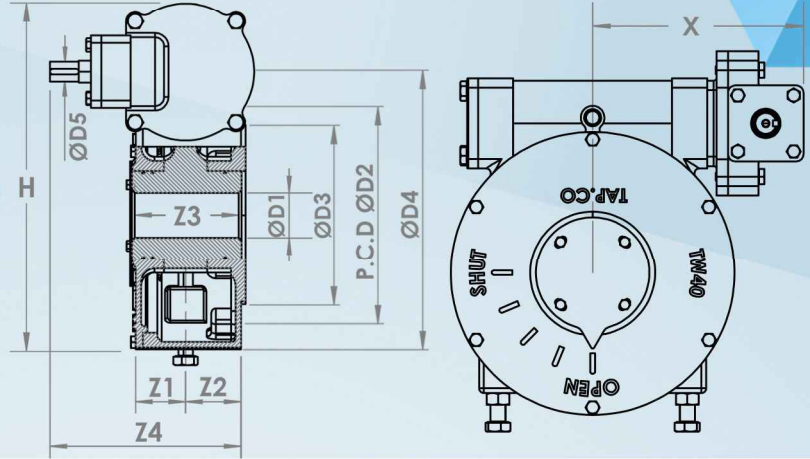
DIMENSION	OUTPUT SPECIFICATIONS							EXTERNAL DIMENSIONS						INPUT SPECIFICATIONS ¹			
	FLANGE ISO 5211	DEFAULT STEM-ØD1*	P.C.D		ØD3	ØD4	FLAT KEY	Z1	Z2	Z3	Z4	H	X	ØD5	FLAT KEY	INPUT FLANGE (Optional)	HAND WHEEL
			ØD2	N×H×DP													
TW10-SH	F14	50	140	4×M16×24	100	175	14*9	48	45	95	146	251	228	28	8*7	F10	TH35-17
TW20-SH	F16	55	165	4×M20×30	130	210	16*10	51	60	110	206	315	253	28	8*7	F10	TH40-17
TW40-SH	F25	70	254	8×M16×24	200	300	20*12	62	62	120	206	412	282	28	8*7	F10	TH50-17
TW80-SH	F30	95	298	8×M20×30	230	350	28*16	77	72	140	206	404	295	28	8*7	F10	TH50-17

*:F14:(35-50)_F16:(50-60)_F25:(60-80)_F30:(90-110)
 1-Input specification shall be specified by customer.

WORM GEARBOX

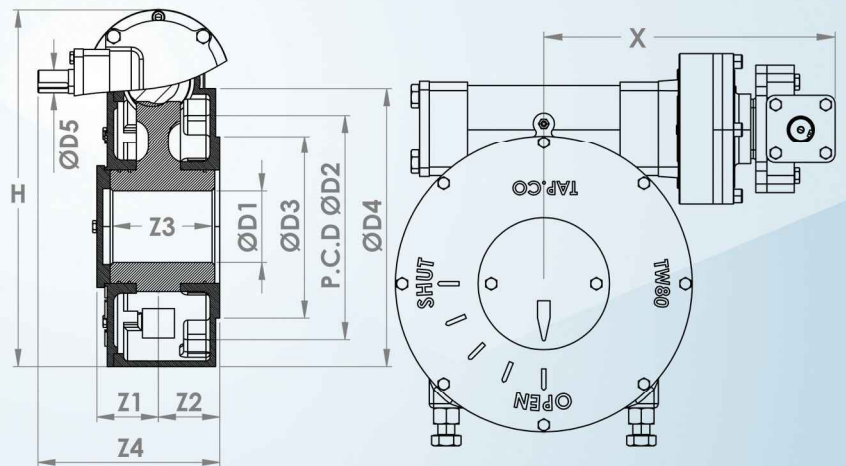
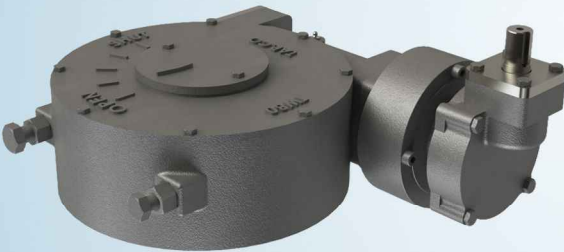


>> worm+bevel



DIMENSION	OUTPUT SPECIFICATIONS							EXTERNAL DIMENSIONS						INPUT SPECIFICATIONS ¹			
	FLANGE ISO 5211	DEFAULT STEM- ØD1 *	P.C.D		ØD3	ØD4	FLAT KEY	Z1	Z2	Z3	Z4	H	X	ØD5	FLAT KEY	INPUT FLANGE (Optional)	HAND WHEEL
			ØD2	N×H×DP													
TW-05-BH	F12	44	125	4×M12×18	85	150	14*9	47	41	85	191	231	177	28	8*7	F10	TH35-17
TW-10-BH	F14	50	140	4×M16×24	100	175	14*9	47	45	95	195	254	186	28	8*7	F10	TH35-17
TW-20-BH	F16	55	165	4×M20×30	130	210	16*10	51	60	110	210	288	199	28	8*7	F10	TH40-17
TW-40-BH	F25	70	254	8×M16×24	200	300	20*12	62	62	120	213	385	223	28	8*7	F10	TH50-17

>> worm+planetary +bevel

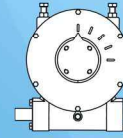


DIMENSION	OUTPUT SPECIFICATIONS							EXTERNAL DIMENSIONS						INPUT SPECIFICATIONS ¹			
	FLANGE ISO 5211	DEFAULT STEM- ØD1 *	P.C.D		ØD3	ØD4	FLAT KEY	Z1	Z2	Z3	Z4	H	X	ØD5	FLAT KEY	INPUT FLANGE (Optional)	HAND WHEEL
			ØD2	N×H×DP													
TW-80-PBH	F30	95	298	8×M20×30	230	350	28*16	77	72	131	222	448	344	28	8*7	F10	TH50-17
TW-160-PBH	F35	110	356	8×M30×45	260	415	32*18	73	84	145	231	535	369	28	8*7	F10	TH50-17

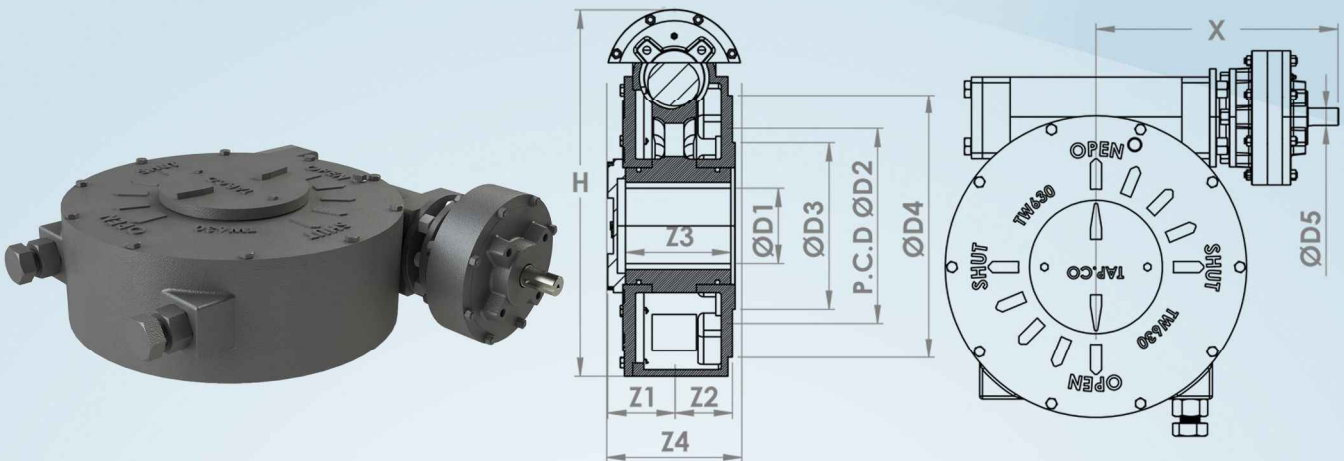
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1-Input specification shall be specified by customer.

WORM GEARBOX



>> worm+planetary

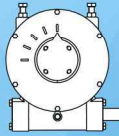


DIMENSION	OUTPUT SPECIFICATIONS							EXTERNAL DIMENSIONS					INPUT SPECIFICATIONS ¹				
	FLANGE ISO 5211	DEFAULT STEM-ØD1*	P.C.D		ØD3	ØD4	FLAT KEY	Z1	Z2	Z3	Z4	H	X	ØD5	FLAT KEY	INPUT FLANGE (Optional)	HAND WHEEL
			ØD2	N×H×DP													
TW-10-PH	F14	50	140	4×M16×24	100	175	16*10	47	45	90				28	8*7	F10	TH30-09
TW-20-PH	F16	55	165	4×M20×30	130	210	16*10	51	60	110	179	302	280	28	8*7	F10	TH40-17
TW-40-PH	F25	70	254	8×M16×24	200	300	20*12	62	62	121	179	399	308	28	8*7	F10	TH50-17
TW-80-PH	F30	95	298	8×M20×30	230	350	28*16	77	72	140	154	448	322	28	8*7	F10	TH50-17
TW-160-PH	F35	110	356	8×M30×45	260	415	32*18	73	84	180	187	535	347	28	8*7	F14	TH50-17

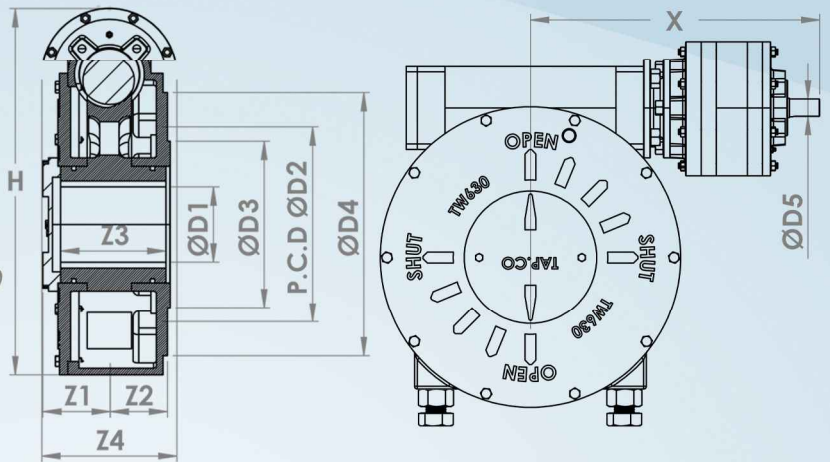
*:F14:(35-50)_F16:(50-60)_F25:(60-80)_F30:(90-110)_F35:(110-140)

1-Input specification shall be specified by customer.

WORM GEARBOX



>> worm+double planetary



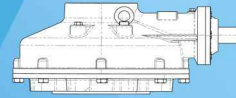
DIMENSION	OUTPUT SPECIFICATIONS							EXTERNAL DIMENSIONS						INPUT SPECIFICATIONS ¹			
	FLANGE ISO 5211	DEFAULT STEM-ØD1*	P.C.D		ØD3	ØD4	FLAT KEY	Z1	Z2	Z3	Z4	H	X	ØD5	FLAT KEY	INPUT FLANGE (Optional)	HAND WHEEL
			ØD2	N×H×DP													
TW-80-2PH	F30	95	298	8×M20×30	230	350	28*16	77	71	140	154	448	371	28	8*7	F10	TH50-17
TW-160-2PH	F35	110	356	8×M30×45	260	415	32*18	73	84	180	187	535	396	28	8*7	F10	TH50-17
TW-160-2PH_(HR) ¹	F35	110	356	8×M30×45	260	415	32*18	73	84	180	187	568	480	28	8*7	F14	TH50-09
TW-630-2PH	F40	140	406	8×M36×54	300	475	36*20	92	97	205	230	665	524	28	8*7	F14	TH50-17
TW-1250-2PH	F48	220	483	12×M36×54	370	560	50*28	170	164	290	-	-	-	-	-	F16	TH50-17
TW-1250-2PH_(HR) ²	F48	220	483	12×M36×54	370	560	50*28	170	164	290	-	-	-	-	-	F16	TH50-17

*:F25:(60-80)_F30:(90-110)_F35:(110-140)_F40:(140-160)

1-Input specification shall be specified by customer.

2-High ratio

BEVEL GEARBOX



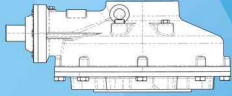
TAPCO TAVAKOL POOYA ARAK co.

Features of TAPCO bevel gearbox

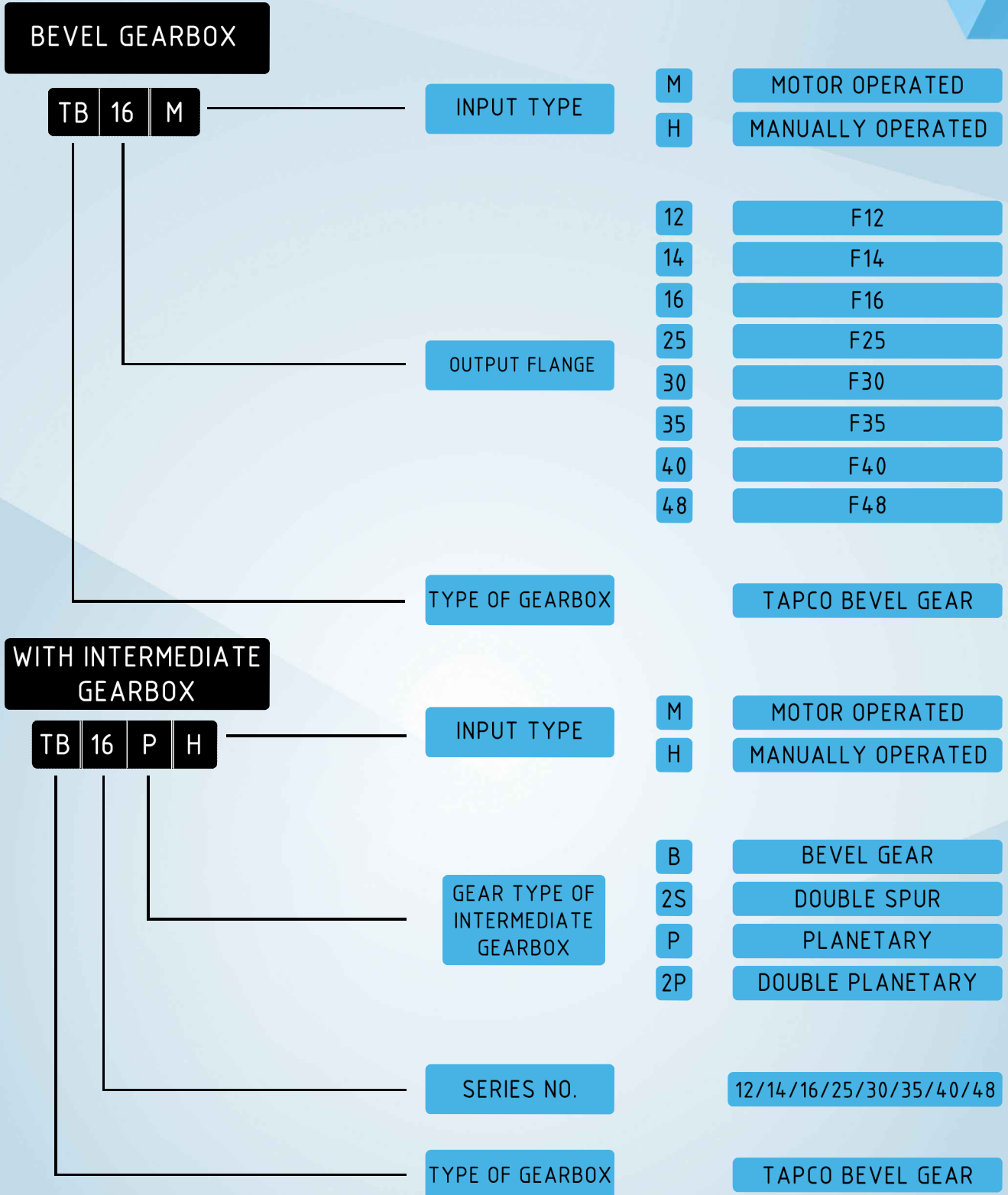
- TAPCO bevel gearbox are available to all kinds of industrial valve: gate valve, globe valve, conduit valve etc.
- Adopted to international flange standard of EN ISO 5210.
- Permitted temperature range -35°C to $+80^{\circ}\text{C}$
- Water-proof
- Stem nut material is chosen based on the customer requisition (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.



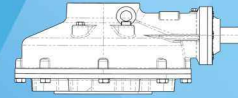
BEVEL GEARBOX



PROCESS OF CODING



BEVEL GEARBOX



Main body

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

Stem nut

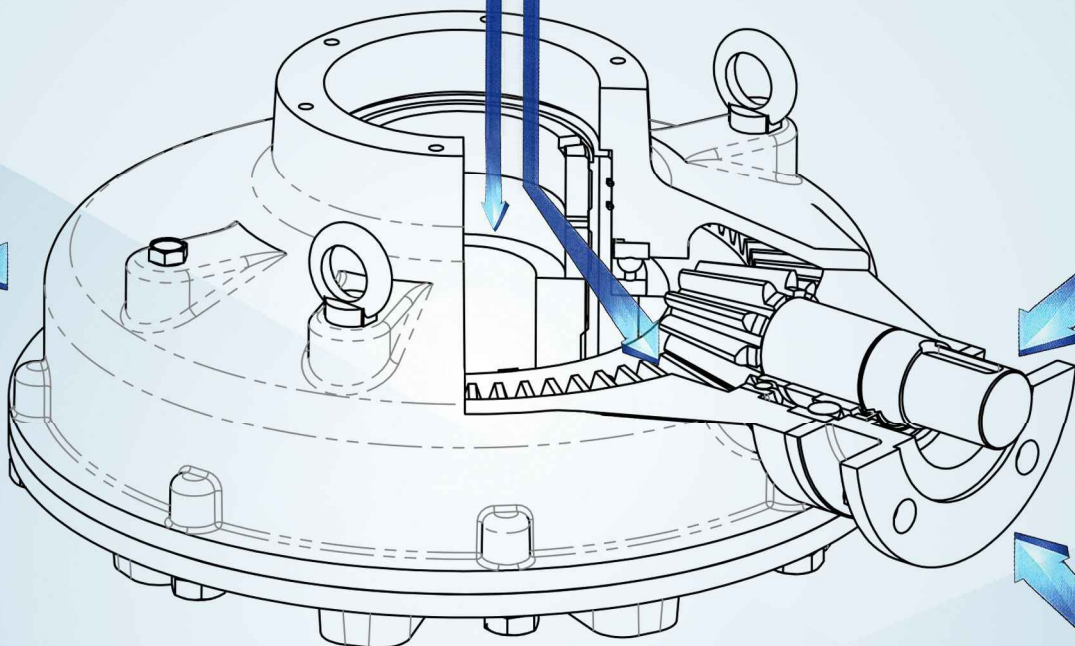
- The material is selected based on the customer requisition

Crownwheel

- Material : GGG40 or GGG50
Option : A105

Pinion

- Material : 1.7225 or 1.1191



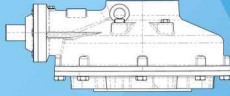
Flange for valve

- 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

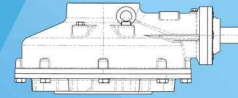
MODEL	OUTPUT SPECIFICATIONS					INPUT SPECIFICATIONS ¹			
	FLANGE		RATIO ²	MAX STEM DIA.	ALLOWABLE OUTPUT TORQUE (N.m)	ØSHAFT	FLAT KEY	INPUT FLANGE (Optional)	HANDWHEEL POSITION ³
	MAIN (ISO5211)	OPTIONAL		Ømm					
TB12	F12	-	2.6:1	30	450	22	6*6	F10	Vertical
TB14	F14	F12	2.6:1	38	450	22	6*6	F10	Vertical
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.

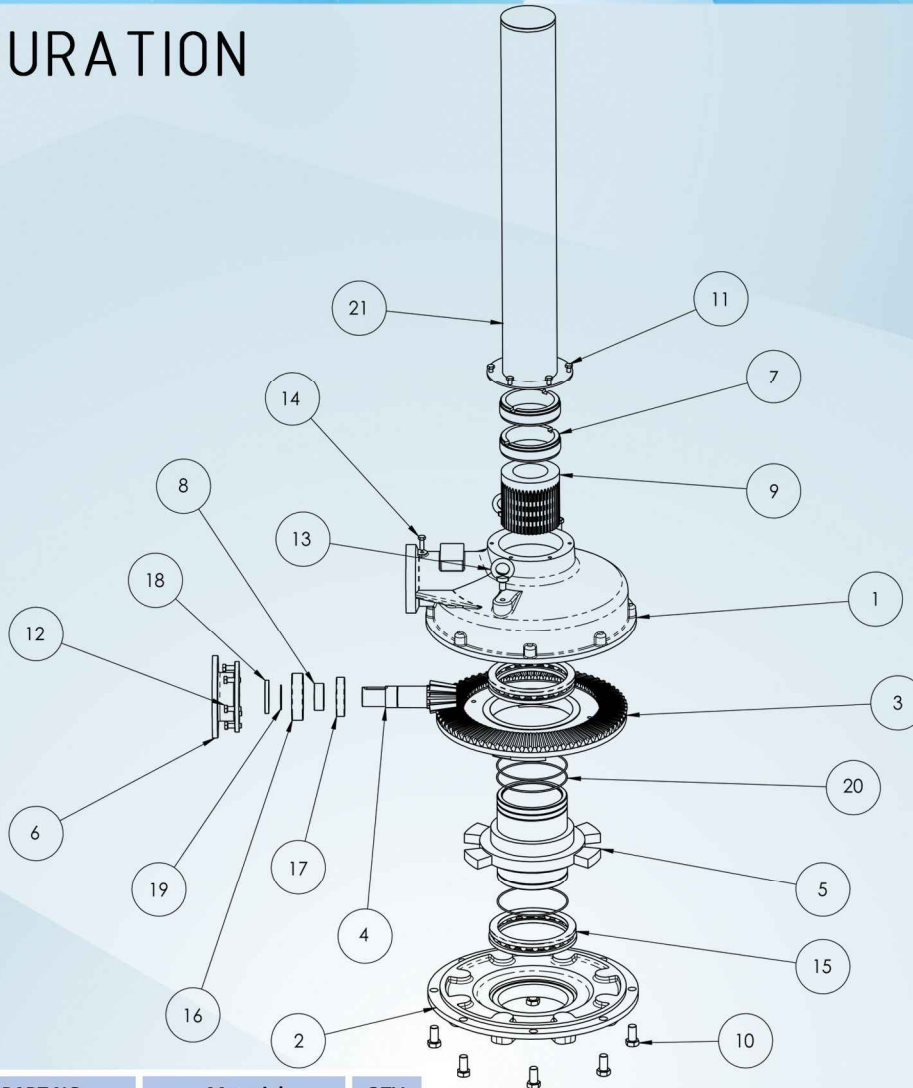
2-Gearbox ratio can be modified based on the customer requisition.

3-Handwheel position is according to the base

BEVEL GEARBOX



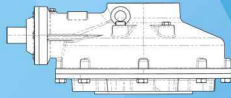
CONFIGURATION



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

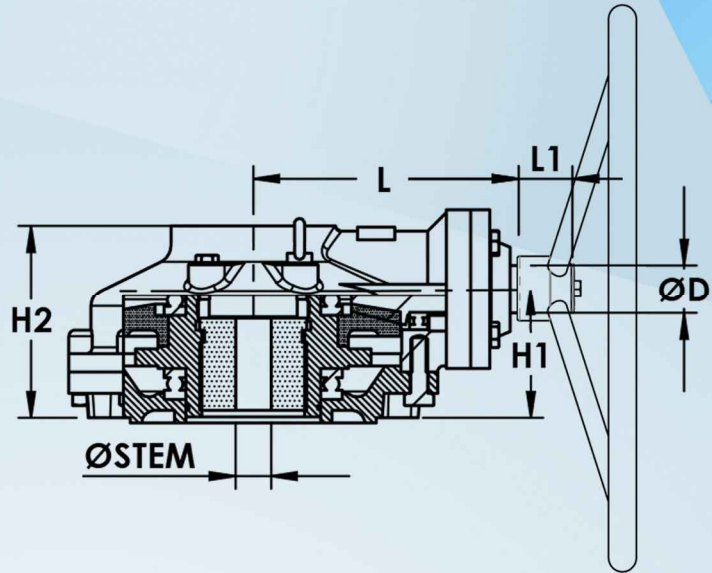
ITEM NO.	PART NO.	Material	QTY.
12	HEX.BOLT	8.8	7
13	EYE BOLT	Standard	2
14	GREASE FITTING	Standard	1
15	BEARING	Standard	1
16	BEARING	Standard	1
17	BEARING	Standard	1
18	SEAL	DIN 3760	1
19	CIRCLIP	Standard	1
20	O-RING	Standard	2
21	STEM PROTECTOR	ST37	1

BEVEL GEARBOX



DIMENSION

>>bevel



TB□H

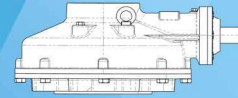
DIM	OUTPUT SPECIFICATION				EXTERNAL DIMENSIONS				INPUT SPECIFICATION ¹				WEIGHT (Kg)
	FLANGE SIZE (ISO 5211)	GEAR RATIO	MAX. OUTPUT TORQUE (N.m)	MAX STEM Ømm	H1	H2	L	L1	ØD	FLAT KEY	INPUT FLANGE (Optional)	HAND WHEEL	
TB12-H	F12	2.6:1	450	30	86	127	145	32	22	6*6	F10	TH30-09	14
TB14-H	F14	2.6:1	450	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

1-Input specification shall be specified by customer.

BEVEL GEARBOX

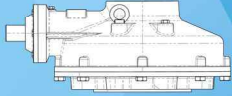


>>bevel+bevel



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

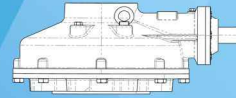


DIM	OUTPUT SPECIFICATIONS				INPUT SPECIFICATIONS ¹			
	FLANGE SIZE (ISO 5211)	GEAR RATIO*	MAX STEM Ømm	MAX. OUTPUT TORQUE (N.m)	ØSHAFT	FLAT KEY	INPUT FLANGE (Optional)	HAND WHEEL
TB25-PH	F25	25:1	70	2600	28	8*7	F10	TH40-09
TB30-PH	F30	26:1	75	5000	28	8*7	F14	TH40-09
TB35-PH	F35	32:1 - 38.4:1	90	9000	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.

BEVEL GEARBOX



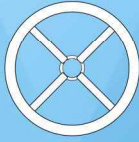
>>bevel+double
planetary



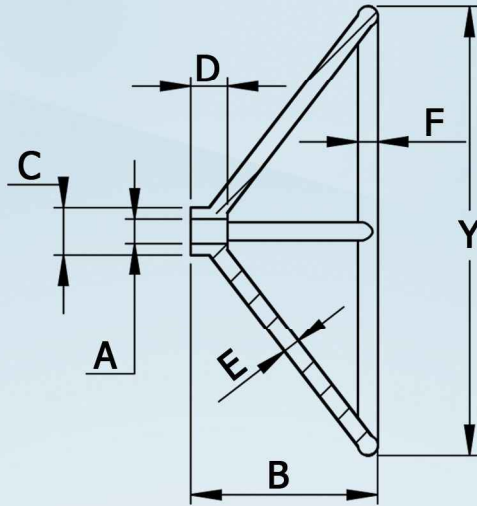
DIM	OUTPUT SPECIFICATION				INPUT SPECIFICATION ¹			
	FLANGE SIZE (ISO 5211)	GEAR RATIO*	MAX STEM Ømm	MAX. OUTPUT TORQUE (N.m)	ØSHAFT	FLAT KEY	INPUT FLANGE (Optional)	HAND WHEEL
MODEL								
TB40-2PH	F40	126:1	120	13000	28	8*7	F14	TH70-09
TB48-2PH	F48	131.4:1	150	24000	28	8*7	F14	TH70-09

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

1-Input specification shall be specified by customer.

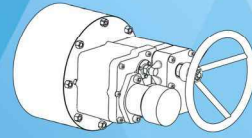


HANDWHEEL INFORMATION



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

POWER HANDWHEEL

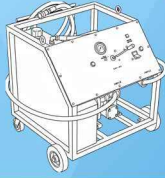


>> power handwheel
+ planetary gearbox



DIMENSION	INPUT TYPE	RATIO	MAX. OUTPUT TORQUE	HOLLOW SHAFT	FLAT KEY	OUTPUT FLANGE	HYDROMOTOR
TP-S-40-MH	Hydromotor+ Handwheel	12:1	4000	50 mm	14*9	F16	160 cc/rev
TP-SS-40-MH	Hydromotor+ Handwheel	36:1	4000	50 mm	14*9	F16	100 cc/rev





HYDRAULIC POWER UNIT

>>hydraulic power unit

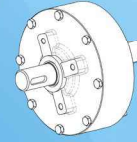


Performance Data				
max pressure			max flow rate	
80 bar			60 lit/min	
Part List				
NO.	Item	QTY	Specification	
			Type	Capacity
1	Petrol Engine	1	single cylinder, RATO r500, 4 stroke	19.5 hp / handle crank start
2	Hydraulic Pump	1	gear pump, MARZOCCHI, ALP2-D-30	21.1 cc/rev
3	Directional Valve	1	AKON 3/4 100 lit/min	3/4"
4	Pressure Gauge	1	250 Bar, stainless steel	
5	Coupling and Bell Housing	1	steel	-
6	Frame	1	steel	-
7	Oil Tank	1	steel	60 Lit
8	Control Panel Plate	1	stainless steel	-
9	Filter	1	25 μ _90lit/min_1"	25 micron_ 1"
10	Filter Breather	1	standard	2"
11	Drain Plug	1	-	1/2 "
12	Hydraulic Hoses	2	SAE 100 R2AT	4m - 330 bar
13	Quick Connections	1	carbon steel_ chrome coated	3/4" _ 350 bar

*The current model is designed to be matched with TAPCO PowerHandwheel.

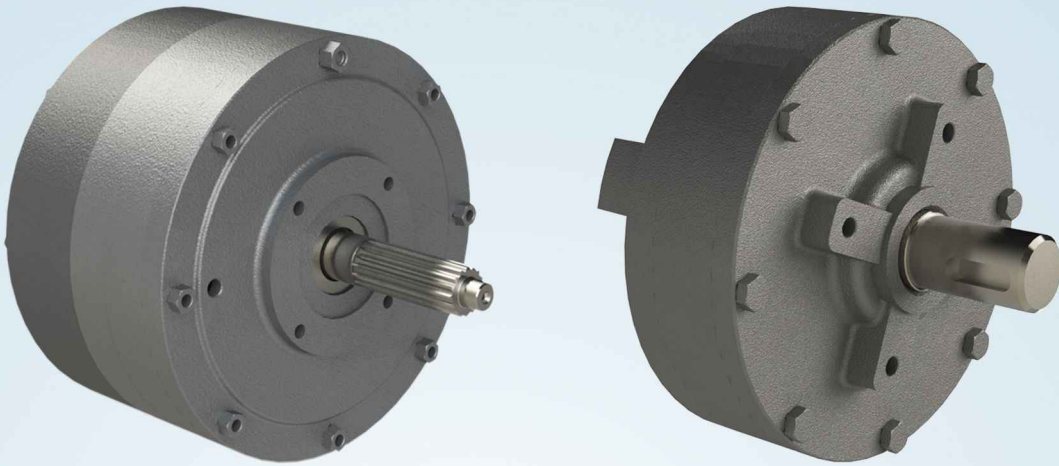
** New HPU can be designed based on customer's flow rate and pressure requisition.

PLANETARY GEARBOX



>> planetary gearbox

- ◆ Also used for ratio modification



DIM	OUTPUT SPECIFICATIONS			INPUT SPECIFICATIONS ²			
MODEL	RATIO ¹	MAX. OUTPUT TORQUE (N.m)	OUTPUT FLANGE	MAX INPUT TORQUE (N.m)	Ød	SHAFT KEY	INPUT FLANGE
TP_07_S	4:1	700	F12	175	22	6*6	F10
TP_10_S	3:1 - 5:1	1000	F12	330 - 200	28	8*7	F10
TP_30_S	5:1	3000	F14	600	28	8*7	F10
TP_40_S	3:1 - 6:1	4000	F16	1330 - 670	32	10*8	F10
TP_10_SS	9:1 - 15:1	1000	F12	110 - 65	28	8*7	F10
TP_30_SS	25:1	3000	F14	125	28	8*7	F10
TP_40_SS	18:1 - 36:1	4000	F16	445 - 220	32	10*8	F10

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

2-Input specification shall be specified by customer.



TAPCO

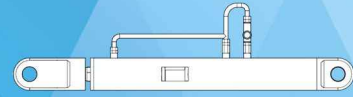
TAVAKOL POOYA ARAK co.

Features of TAPCO damper cylinder

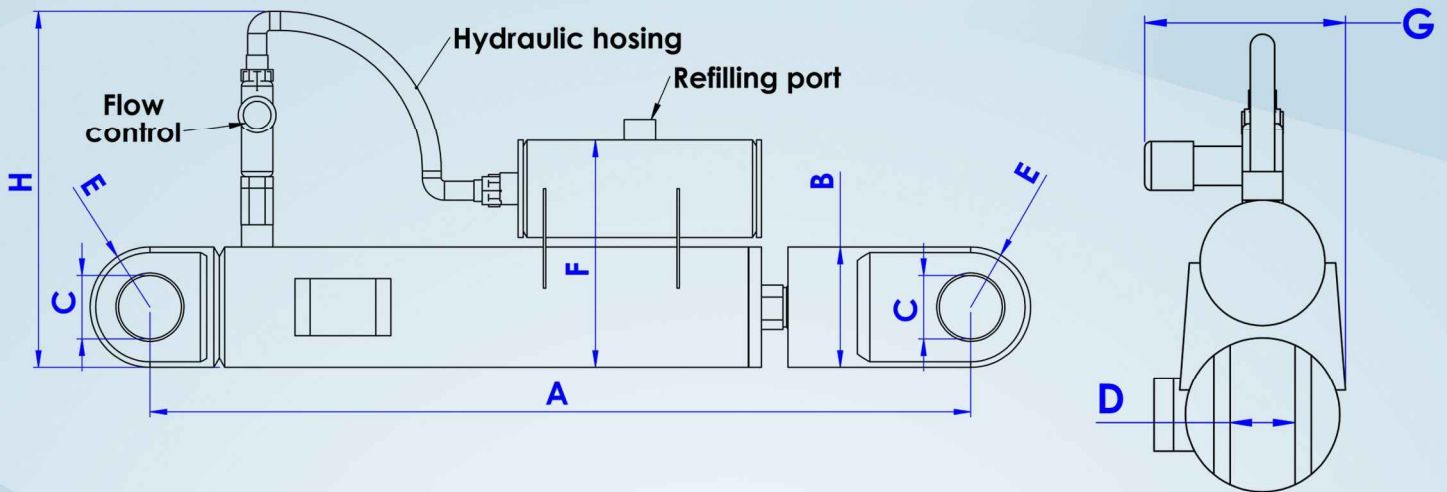
- Tapco damper cylinder are designed based on the customer requisition of force and stroke.
- Hydraulic fluid is chosen based on the ambient temperature of operation.
- Damping can be provided in either stretching or retraction phase.
- Damping can be provided in either one phase or two phases in acting course in order to achieve desired time of damping.
- Adjustable damping speed.
- All welding joints are TIG welded.
- All piston rods are hard-chrome-plated.
- Rod-eye can be manufactured according to customer requisition.



DAMPER CYLINDER



>> TD15 series

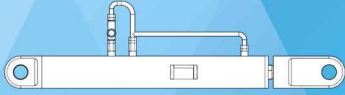


MODEL	FORCE CAPACITY	A		traveling distance	Accumulator type	num of damping phases	B	C	D	E	F	G	H
		Stretched	retracted										
TD15_GR_1P_210	15TON	801/0	591/0	210	Gravitational	1	95	+0.2	-0/1	R47.5	180	124	284
								50	40				
								+0.1	-0/2				
TD15_GR_1P_265	15TON	916/0	651/0	265	Gravitational	1	95	+0.2	-0/1	R47.5	180	124	284
								50	40				
								+0.1	-0/2				
TD15_SP_2P_210	15TON	801/0	591/0	210	Spring over piston	2	95	+0.2	-0/1	R47.5	180	124	284
								50	40				
								+0.1	-0/2				

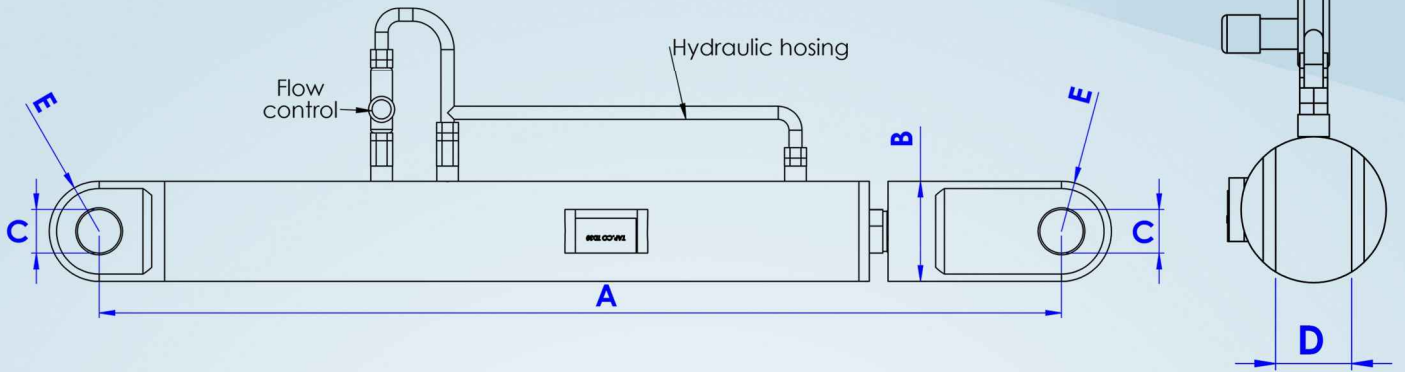
*Tapco damper cylinder are designed based on the customer requisition of force and stroke.



DAMPER CYLINDER



>> TD22&30 series

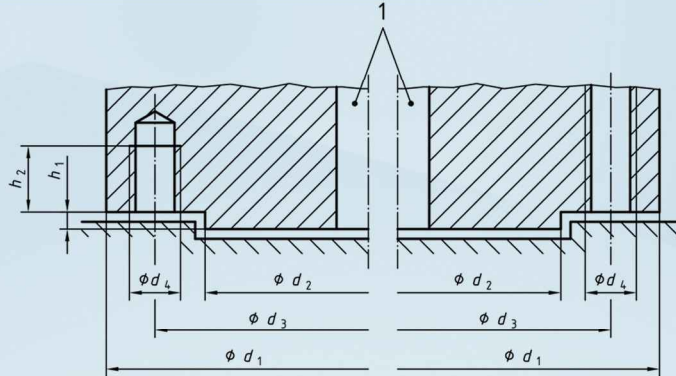


MODEL	FORCE CAPACITY	A		traveling distance	Accumulator type	num of damping phases	B	C	D	E
		Stretched	retracted							
TD22_SP_2P_406	22TON	1515/0	1109/0	406	Spring over piston	2	115	+0.2	-0/1	R57.5
								50	60	
								+0.1	-0/2	
TD30_SP_2P_	30TON	Base on the customer's request	Base on the customer's request	Base on the customer's request	Spring over piston	2	145	+0.2	-0/1	R72.5
								60	70	
								+0.1	-0/2	

*Tapco damper cylinder are designed based on the customer requisition of force and stroke.

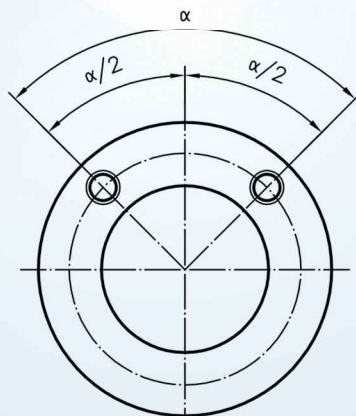


ISO 5211:Flange dimension



FLANGE 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

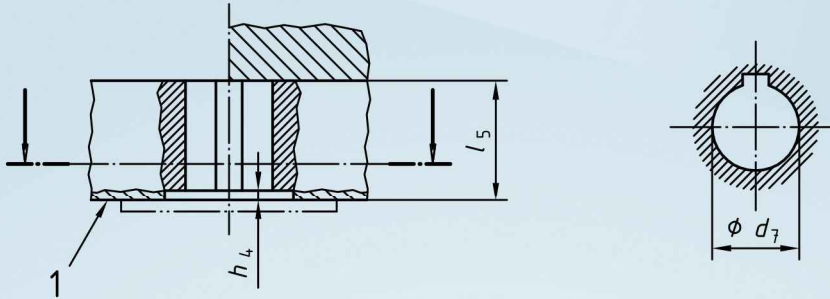


Figure 4 - Drive by key(s)

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	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 $(l_5 - h_4)$.

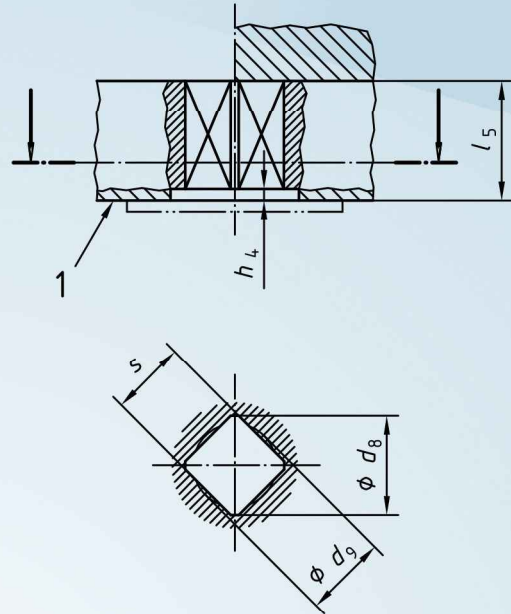
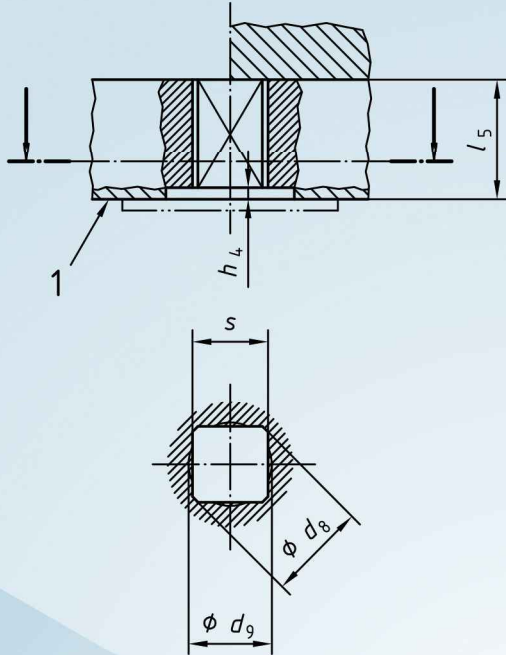
^e The maximum transmissible torques shall be determined by calculation.

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

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										
			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
$\varnothing d_8$ 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

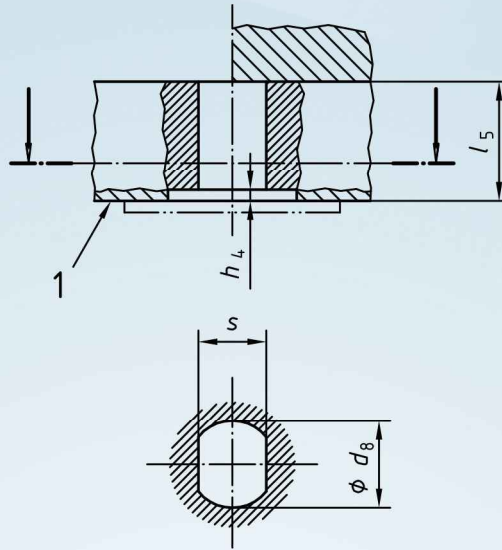
^b Indicates the preferred dimension

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

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

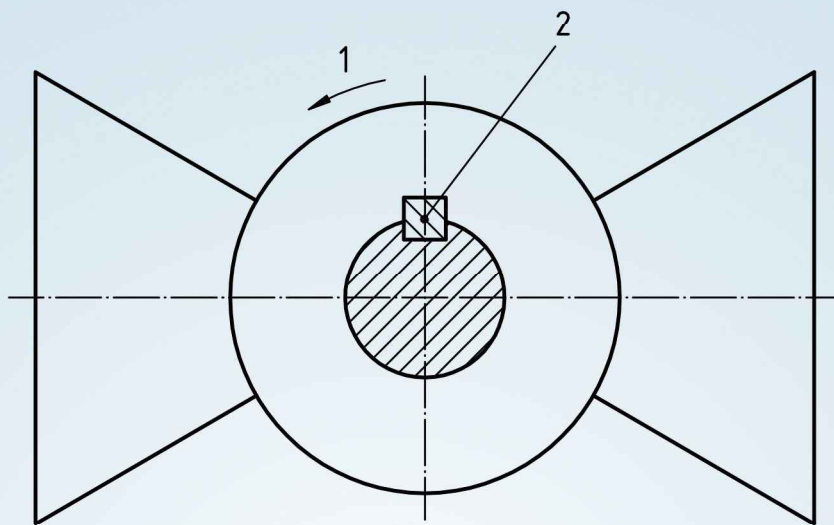
^c Maximum transmissible torques are based on a maximum allowable torsional stress of 280 MPa for the driven component.

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.

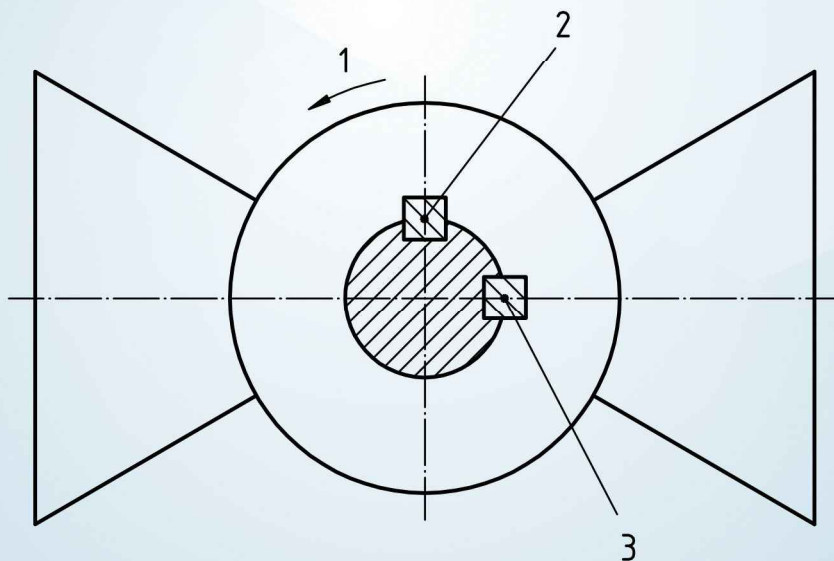
NOTE The standard closing direction is clockwise, as viewed from above the interface.



Key

- 1 Opening direction
- 2 Primary key

Figure 8 – Position of primary key on the driven component



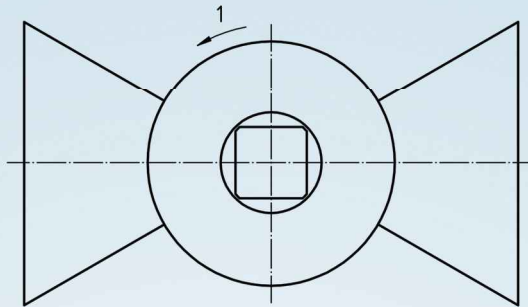
Key

- 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

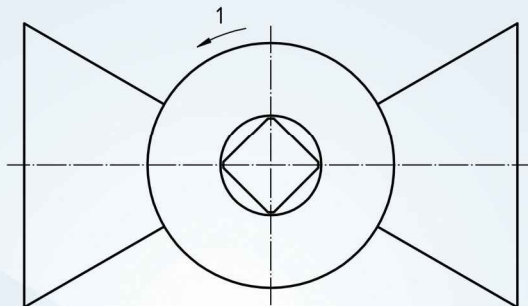
With the valve closed, the flat sides of the square head drive component shall be located as shown in Figures 10 or 11.



Key

1 Opening direction

Figure 10 – Position of parallel square head driven component



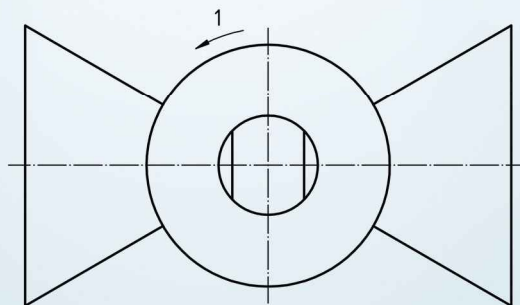
Key

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

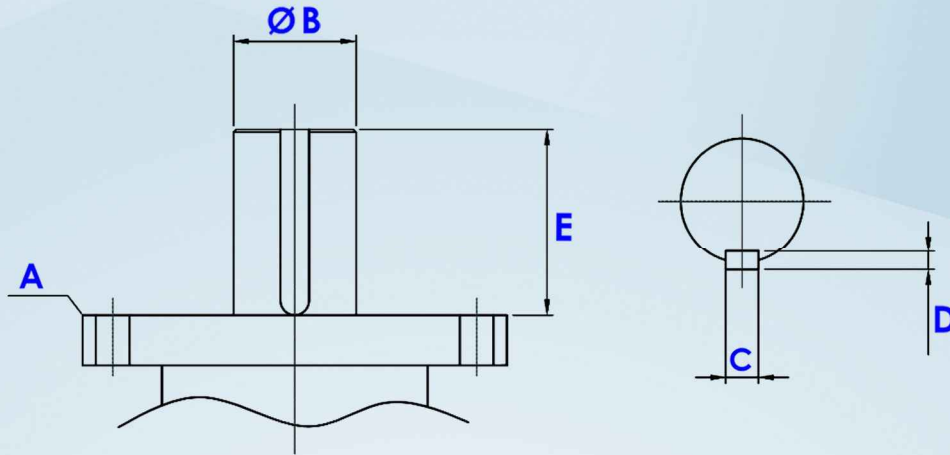
1 Opening direction

Figure 12 - Position of flat head driven component

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"	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	0.25	0.25	0.25	0.25	0.25	0.25	
	Tread Per Inch Single(S) or Double(D)	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	4 D	3 D	3 D	3 D	3 D	2 D
300#	Stem Thread	3/4"	3/4"	7/8"	1"	1-1/4"	1-1/2"	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"	2-7/8"	
	Pitch (in)	0.167	0.167	0.167	0.2	0.2	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
	Tread Per Inch Single(S) or Double(D)	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	2 D
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"	2-7/8"	
	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	0.25	0.25	0.25	0.25	0.25	0.25	
	Tread Per Inch Single(S) or Double(D)	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	2 D	2 D	2 D	2 D
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"	2-7/8"	
	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	0.25	0.25	0.25	0.25	0.25	0.25	
	Tread Per Inch Single(S) or Double(D)	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
1500#	Stem Thread	1"	1-1/4"	1-1/2"	1-3/8"	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"	
	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	0.25	0.25	0.25	0.25	0.25	0.25	
	Tread Per Inch Single(S) or Double(D)	5 S	5 S	5 S	4 S	4 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
2500#	Stem Thread	1"	1-1/4"	1-1/2"	1-3/8"	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"	
	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	0.25	0.25	0.25	0.25	0.25	0.25	
	Tread Per Inch Single(S) or Double(D)	5 S	5 S	5 S	4 S	4 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
	Torque(N.m)	164.4		281	559	1407	2913	5748	8332													

BALL VALVE SPECIFICATION



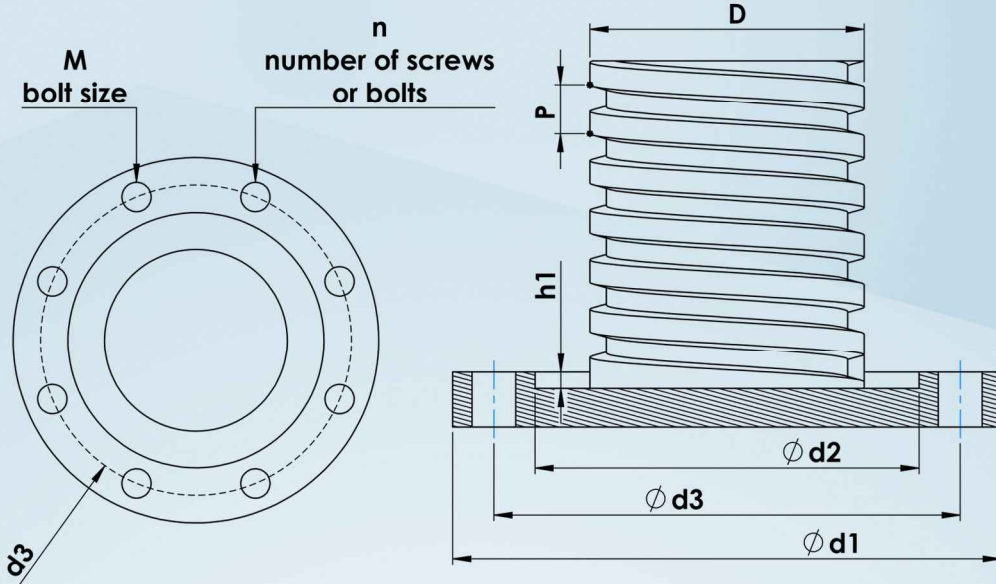
VALVE SIZE	TOQUE N.m	A(iso5211)	B mm	D*F*K	VALVE SIZE	TOQUE N.m	A(iso5211)	B mm	D*F*K
6"-150	500	F14	40	12*8*50	6"-300	1575	F14	40	12*8*50
8"-150	1550	F16	50	14*9*50	8"-300	2500	F16	50	14*9*50
10"-150	1650	F16	50	14*9*50	10"-300	2744	F25	60	18*11*70
12"-150	2350	F25	60	18*11*60	12"-300	4000	F25	70	20*12*60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

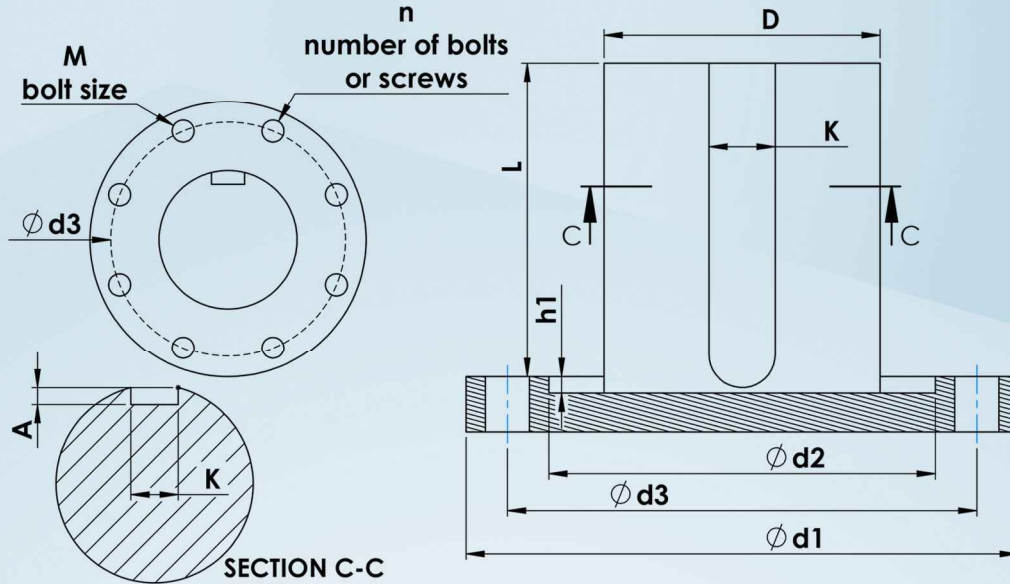
1- Valve's torques are calculated with 1.5 safety factor

GEARBOX SELECTION FORM



GATE & GLOBE VALVE GEARBOX SELECTION		CUSTOMER:		 گروه صنعتی توکل پویا TAVAKOL POOYA ARAK CO. TAPCO	
تاریخ		شماره تماس		شخص رابط	
قطر نافی_ $\phi d2$		قطر استم_ D		نوع شیر	
عمق نافی_ $\phi h1$		گام پیچ استم_ P		سایز شیر	
$\phi d3$		تعداد راه پیچ استم		کلاس شیر	
$\phi d1$		<input type="checkbox"/> عمود بر سطح زمین <input type="checkbox"/> موازی با سطح زمین		وضعیت هندویل	
سایز پیچ_ M		تعداد پیچ_ n		فلنج شیر	
ratio		نیروی عمودی		گشتاور مورد نیاز (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.tapcogearbox.com	
tapcogearbox		اینستاگرام		آدرس: اراک، شهرک صنعتی حاجی آباد، خیابان صنعت، خیابان رز، چهار راه اول	

GEARBOX SELECTION FORM



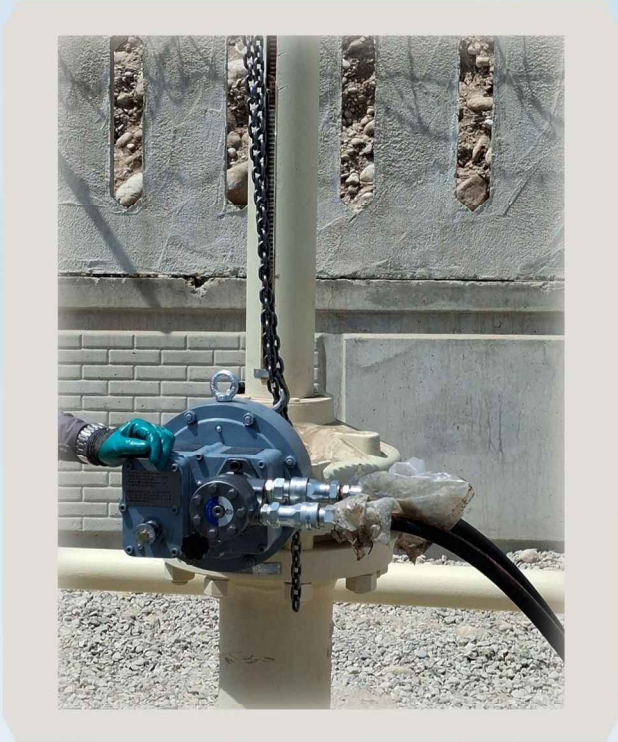
PLUG & BALL&BUTTERFLY VALVE GEARBOX SELECTION		CUSTOMER:			
تاریخ		شماره تماس		شخص رابط	
قطر نافی $\phi d2$		قطر استم D		نوع شیر	
عمق نافی $\phi h1$		خار $L * ارتفاع خار * K$		سایز شیر	
A		تعداد خار		کلاس شیر	
آیا هنگامی که شیر باز است خار در جهت جریان است؟					
$\phi d1$		<input type="checkbox"/> عمود بر سطح زمین		وضعیت هندویل	
$\phi d3$		<input type="checkbox"/> موازی با سطح زمین			
سایز پیچ M		تعداد پیچ n		فلنج شیر	
ratio				گشتاور مورد نیاز (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











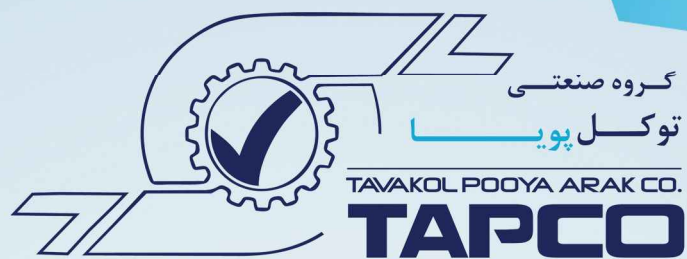
www.tapcogearbox.com



[@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 کارآموده، 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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