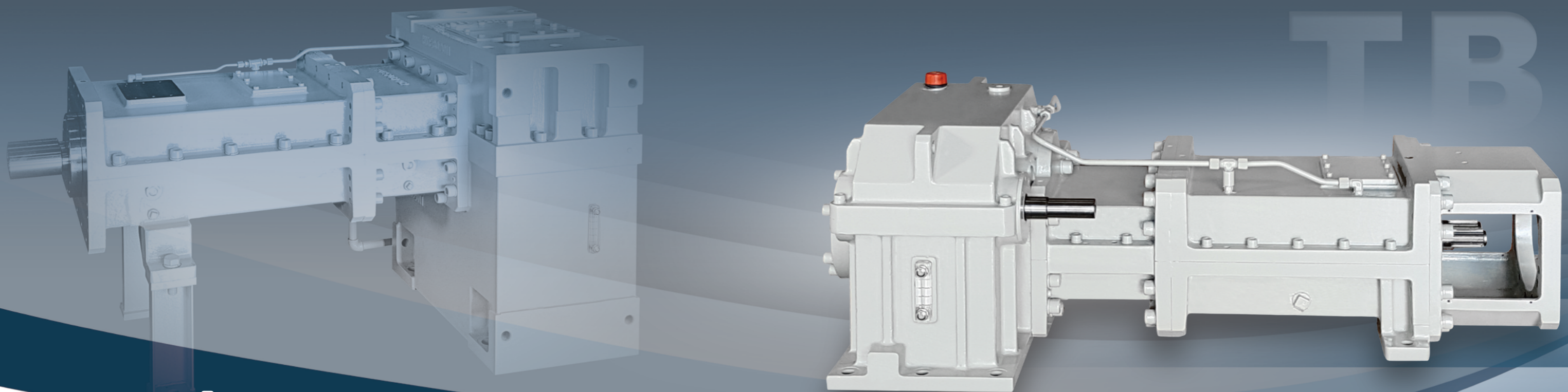




TWIN SCREW GEAR REDUCER FOR EXTRUDER



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Certificate No. 78Q10407

TIEN YI GEAR WORKS CO., LTD.

TY-TB(1)-16

TB Series

TWIN SCREW FOR EXTRUDERS

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TIEN YI

TB

Design & Technician Features:

- Both Co Rotating & Counter Rotating types of TB series Twin Screw Gear Reducer are composed by Input & Output elements. Especially for output side which installed by Thrust Bearing plus with flange which could suffer high pressure to absorb the axial pressure caused by the extruders.
- Following AGMA criterion to design gear elements which adopts low-carbon alloy steel bar materials(Normally, it is SCM420 or same level). The precision reaches AGMA 10 level after carburization heat treatment then treating gear surface grinding to make sure low noise 、 low abrasion and high efficiency during operation.
- Thrust Bearing adopts #294 Series Thrust Spherical Roller Bearings. In order to absorb the axial pressure from extruders, there are several sets of bearings equipped inside to compose thrust bearings function.

TB Series Torque Formula

RATED POWER: KW

TORQUE FORMULA $T_2 = \frac{9550 \times P_n(\text{KW})}{n_2} \times \eta$

KW=HPx0.746

For Example:

以 TB-26.2-32-COR $i=5$, $n_1=1500$, $n_2=300$,
 $P_n=15$ KW $SF=1.2$ (see P6)

$$T_2 = \frac{9550 \times P_n(\text{KW})}{n_2} \times \eta = \frac{9550 \times 15}{300} \times 1 = 477.5$$

Rate Power And Torque Data And Unit Table

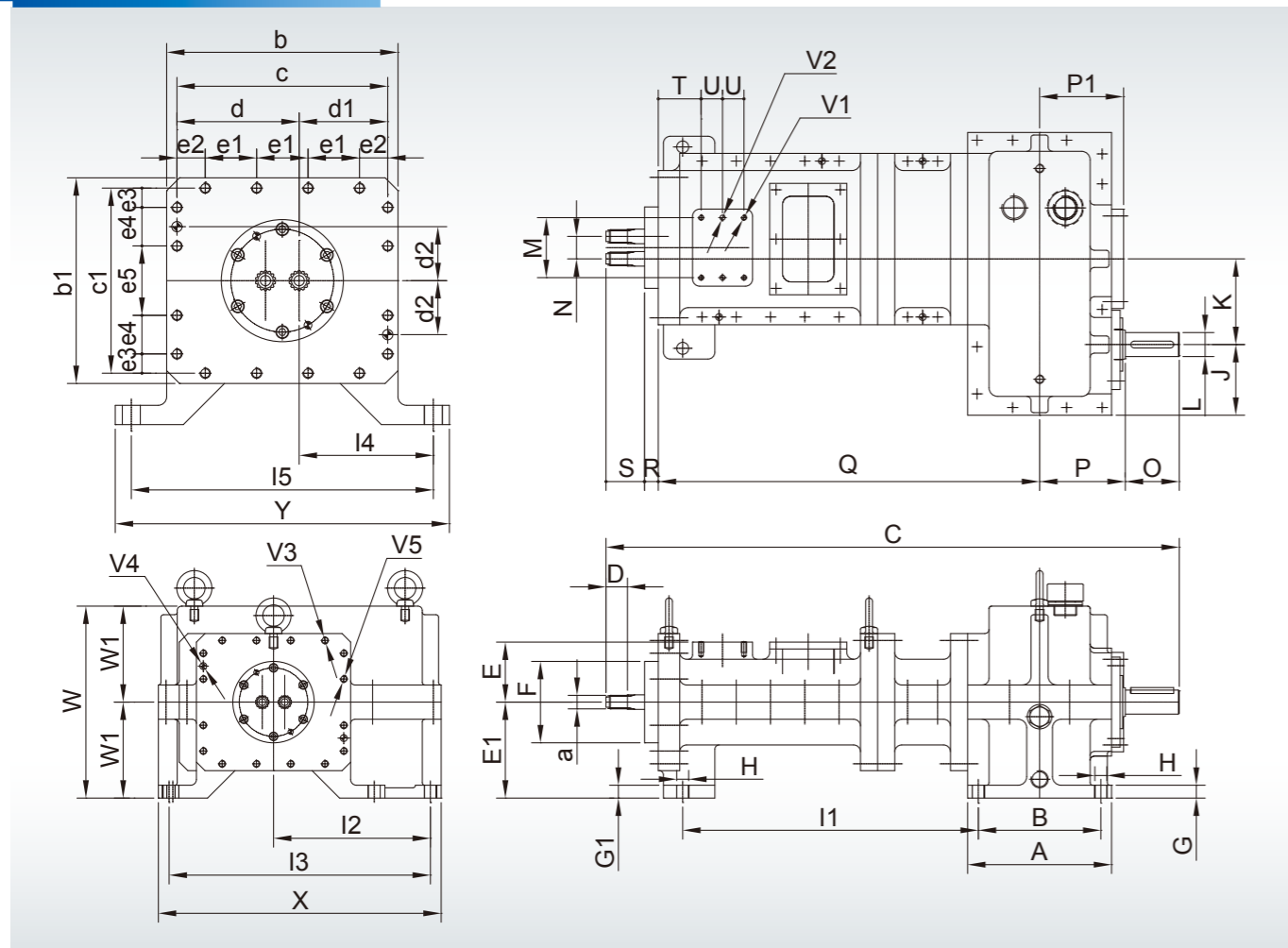
Sign	Unit	Name
SF		Safety factory
T1,T2	Nm	Rated Torque
n1,n2	min ⁻¹ RPM	Input Output rotation speed
Pn	KW or HP	Rated power
η		Efficiency

Remark:

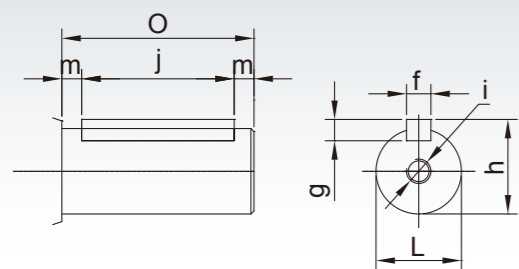
- To choose proper models please review datum on: P6 、 P9 、 P11 、 P13 table
- Above datum is based on SF=1 & SF=1.2, if follow AGMA STD, SF=1.2up is preferable. If there are other non-standard requirements, please contact with our RD technicians.

TB - COR Series | Horizontal CO Rotating Type

Outline Dimension

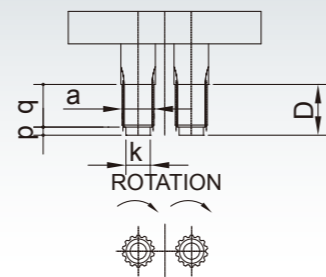


Input Shaft



MODE	O	m	j	L	f	g	h	i
TB-26.2-32-COR	63	6.5	50	28j6	8	7	31	M8
TB-35-42-COR	80	10	60	35j6	10	8	38	M10
TB-48-58-COR	100	10	80	45k6	14	9	48.5	M10
TB-58.5-70-COR	125	12.5	100	55m6	16	10	59	M12
TB-64-77-COR	125	12.5	100	55m6	16	10	59	M12
TB-76-92-COR	130	10	110	60m6	18	11	64	M12
TB-90-112-COR	180	10	160	80m6	22	14	85	M16
TB-110-130-COR	200	10	180	90m6	25	14	95	M16

Output Shaft



MODE	a (DIN5482)	D	k	p	q
TB-26.2-32-COR	17x14	25	12	4	21
TB-35-42-COR	22x19	30	18.5	5	25
TB-48-58-COR	32x28	39	26	5	34
TB-58.5-70-COR	40x36	48	34	6	42
TB-64-77-COR	48x44	56	42	6	50
TB-76-92-COR	60x55	58	53	8	50
TB-90-112-COR	62x57	70	56	8	62
TB-110-130-COR	78x72	90	70	10	80

MODE	A	B	C	D	E	E1 (H11)	F (f7)	a (DIN5482)	G	G1	H	I1	I2	I3	I4	I5	J	K	L	M	N	O
TB-26.2-32-COR	168	143	669	25	70	112	95	17x14	15	15	14	345	170	305	104.4	235	82.5	100	28j6	70	26.2	63
TB-35-42-COR	240	205	927.5	30	90	140	120	22x19	18	18	18	493	207.5	370	107.5	250	100	125	35j6	100	35	80
TB-48-58-COR	265	225	1155.5	39	110	160	150	32x28	27	20	20	643	265	482	146	340	125	160	45k6	120	48	100
TB-58.5-70-COR	350	300	1402	48	130	200	180	40x36	30	25	24	762	335	605	183.25	425	160	200	55m6	150	58.5	125
TB-64-77-COR	375	325	1499.5	56	160	225	200	48x44	32	25	26	802	380	680	203	470	180	225	55m6	160	64	125
TB-76-92-COR	415	365	1756.5	58	160	250	220	60x55	35	30	26	977	425	750	229	534	200	250	60m6	160	76	130
TB-90-112-COR	520	466	1933	70	170	280	260	62x57	30	35	28	984	477.5	870	235	560	225	280	80m6	170	90	180
TB-110-130-COR	450	360	2869	90	260	360	330	78x72	40	48	30	1609	555	1089	325	760	225	360	90m6	240	110	200

MODE	P	P1	Q	R	S	T	U	V1 (n8)	V2 (H7)	V3 (n8)	V4 (H7)	V5 (n8)	W	W1 (H11)	X	Y	b	b1	c	c1	d	d1	d2
TB-26.2-32-COR	100	98	445	16	45	50	25	M6	6	M8	8	M8	224	112	330	260	180	160	164	144	95.1	68.9	42
TB-35-42-COR	134	132.5	628.5	24	61	80	30	M6	6	M12	10	M12	280	140	405	280	225	200	203	178	119	84	54
TB-48-58-COR	165	164	795.5	28	67	120	39	M8	8	13	10	M12	320	160	522	380	300	250	278	228	163	115	67.5
TB-58.5-70-COR	210	208	952	30	85	120	48	M8	8	15	12	M14	400	200	655	480	370	320	340	280	199.25	140.75	82.5
TB-64-77-COR	230	229	1009.5	37	98	135	56	M10	10	17	16	M16	450	225	730	520	410	350	380	320	222	158	90
TB-76-92-COR	262	260.5	1209.5	28	127	140	58	M10	10	22	16	M20	500	250	800	584	460	380	420	340	248	172	97.5
TB-90-112-COR	296	295	1287	30	140	160	70	M10	10	22	16	M20	560	280	925	618	500	400	454	354	272	182	97.5
TB-110-130-COR	285	271	2054	48	282	180	90	M10	10	26	20	M24	720	360	1149	845	680	580	630	530	370	260	157.5

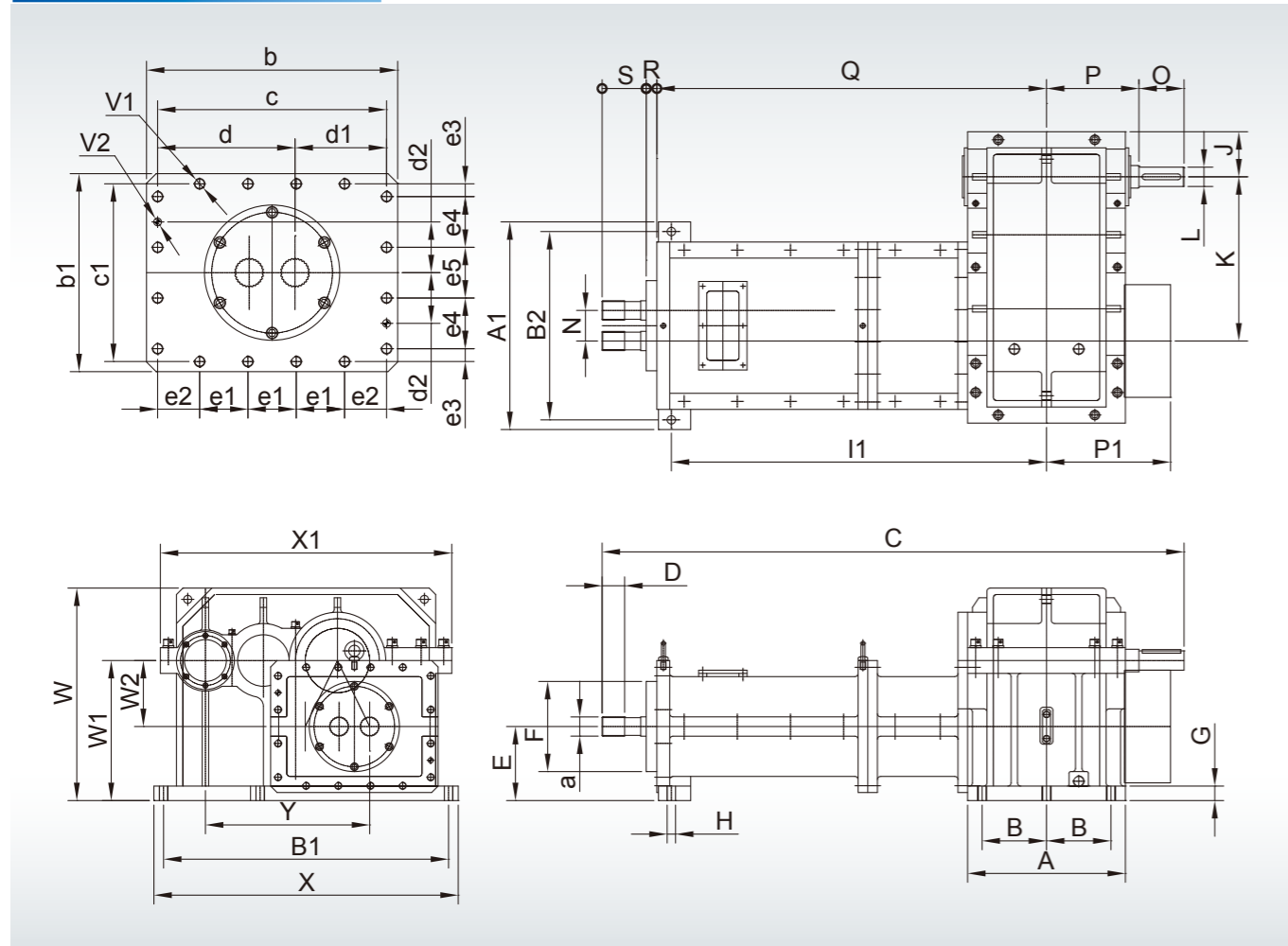
MODE	e1	e2	e3	e4	e5	Weight Kg	OIL CAPACITY Kg
TB-26.2-32-COR	40	22	15	30	54	83	5
TB-35-42-COR	50	26.5	17	36	72	214	12
TB-48-58-COR	65	41.5	24	45	90	373	18
TB-58.5-70-COR	90	35	30	55	110	675	33
TB-64-77-COR	100	40	40	60	120	906	48
TB-76-92-COR	110	45	40	65	130	1208	62
TB-90-112-COR	110	62	47	65	130	1857	99
TB-110-130-COR	175	52.5	55	105	210	4350	196

Rated Power & Torque Datum Table

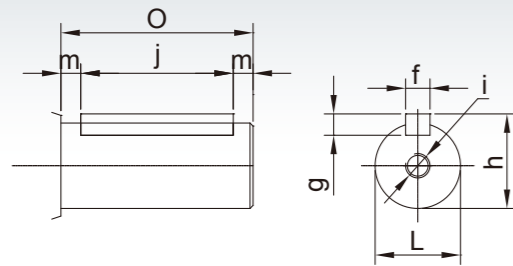
MODEL	RATIO i	INPUT RPM n1	OUTPUT RPM n2	NORMINAL Pn (KW)		SINGLE SCREW T1(Nm)		TOTAL T2(Nm)	
				SF=1	SF=1.2	SF=1	SF=1.2	SF=1	SF=1.2
TB-26.2-32-COR	5	1500	300	18	15	286	239	572	478
TB-35-42-COR	5	1500	300	30	25	477	398	954	796
TB-48-58-COR	5	1500	300	100	83	1585	1321	3170	2642
TB-58.5-70-COR	5	1500	300	198	165	3151	2626	6302	5252
TB-64-77-COR	5	1500	300	246	205	3915	3263	7830	6526
TB-76-92-COR	5	1500	300	380	317	6054	5045	12108	10090
TB-90-112-COR	5	1500	300	626	522	9970	8308	19940	16616
TB-110-130-COR	5	1500	300	1406	1172	22385	18654	44770	37308

TB - CNR Series | Horizontal Counter Rotating

Outline Dimension

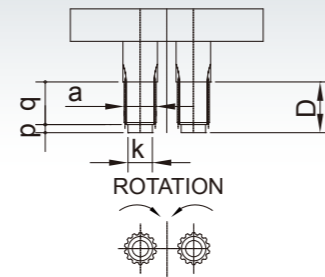


Input Shaft



MODE	O	m	j	L	f	g	h	i
TB-44-55-CNR	70	5	60	32j6	10	8	35	M8
TB-55-65-CNR	80	10	60	35j6	10	8	38	M10
TB-64-75-CNR	90	10	70	40k6	12	8	43	M10
TB-75-90-CNR	100	10	80	45k6	14	9	48.5	M10
TB-90-107-CNR	140	10	120	60m6	18	11	64	M12
TB-110-130-CNR	160	10	140	75m6	20	12	79.5	M16
TB-130-160-CNR	180	10	160	80m6	22	14	85	M16

Output Shaft



MODE	a (DIN5480)	D	k	p	q
TB-44-55-CNR	28x1.5x17	35.5	24	6.5	29
TB-55-65-CNR	40x1.5x25	50	34	6	44
TB-64-75-CNR	45x2x21	60	39	5	55
TB-75-90-CNR	55x3x17	60	48	8	52
TB-90-107-CNR	65x2.5x24	70	50	8	62
TB-110-130-CNR	75x2x36	80	70	6.5	73.5
TB-130-160-CNR	85x3x27	113	78	8	105

MODE	A	A1	B	B1	B2	C	D	E (H10)	F (f7)	a (DIN5480)	G	H	I1	J	K	L	N	O	P	P1	Q	R
TB-44-55-CNR	245	390	92.5	496	350	970.5	35.5	125	150	28x1.5x17	20	16	553	80	265	32j6	44	70	137.5	192.5	683	20
TB-55-65-CNR	300	470	120	595	430	1308	50	160	170	40x1.5x25	20	20	801	90	312	35j6	55	80	165	226	957	31
TB-64-75-CNR	340	500	135	672	465	1402	60	160	195	45x2x21	26	20	832	100	355.5	40k6	64	90	190	260	992	44
TB-75-90-CNR	380	560	150	760	520	1618	60	180	220	55x3x17	28	22	988	125.5	401	45k6	75	100	215	305.5	1163	30
TB-90-107-CNR	450	618	180	890	568	1850	70	220	260	65x2.5x24	35	26	1120	157.5	503.5	60m6	90	140	240	352	1320	57
TB-110-130-CNR	550	750	225	1090	685	2198	80	280	300	75x2x36	45	30	1290	180	627.5	75m6	110	160	325	425	1520	33
TB-130-160-CNR	730	900	265	1320	840	3075	113	320	380	85x3x27	50	32	1885	200	715	80m6	130	180	465	515	2160	68

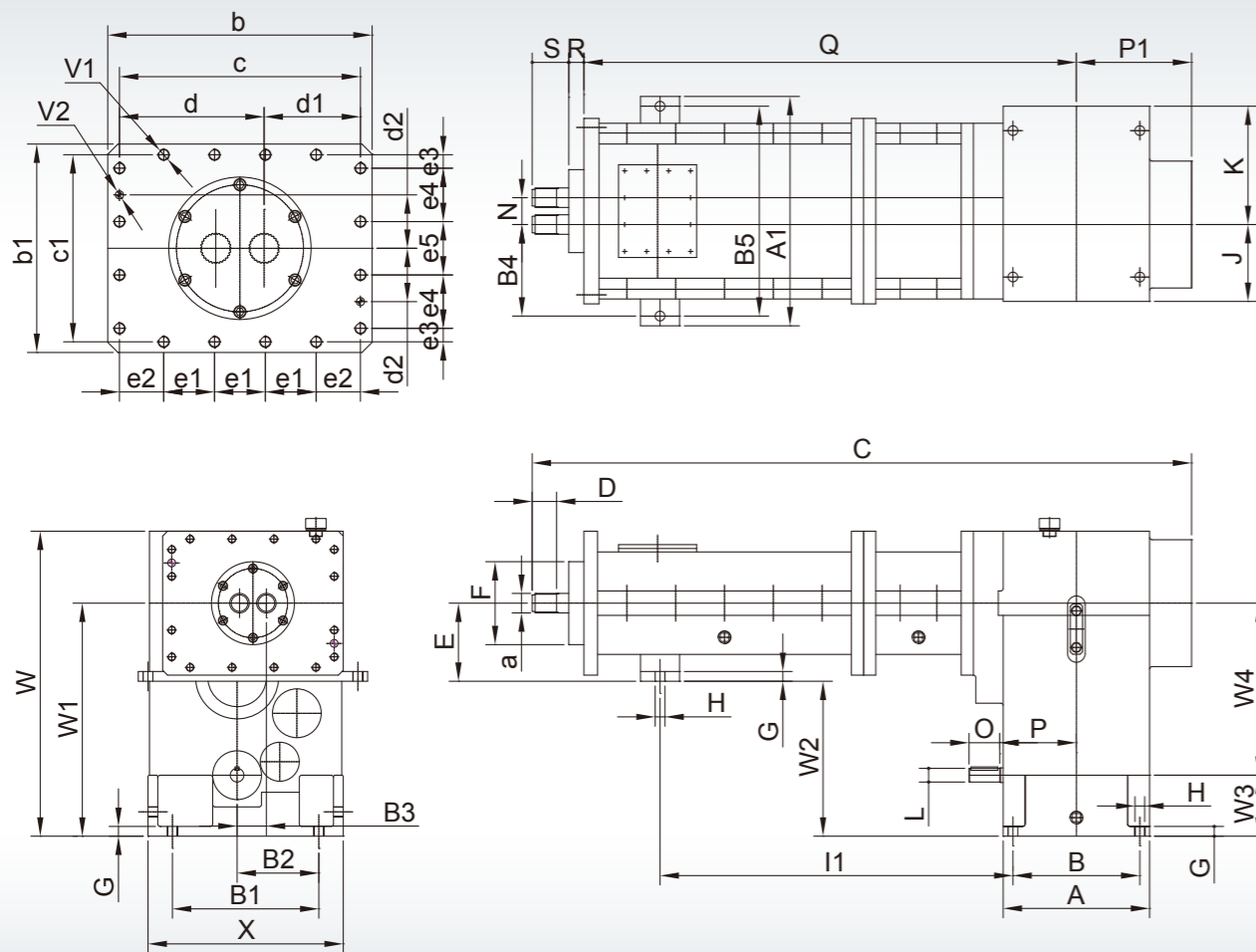
MODE	S	V1 (n8)	V2 (H7)	W	W1	W2	X	X1	Y	b	b1	c	c1	d	d1	d2	e1	e2	e3	e4	e5	WEIGHT Kg	OIL CAPACITY Kg
TB-44-55-CNR	60	M12	12	362	237	112	525	495	265	310	240	286	210	165	121	67.5	75	30.5	15	45	90	295	17
TB-55-65-CNR	75	M18	16	425	283.7	123.7	630	589	312	380	295	343	263	199	144	82.5	86	42.5	21.5	55	110	554	32
TB-64-75-CNR	86	M16	16	465	305	145	710	640	355.5	420	305	384	274	224	160	84	95	49.5	25	56	112	653	46
TB-75-90-CNR	110	M20	16	521	341	161	800	735	401	475	345	438	308	256.5	181.5	90	110	54	34	60	120	1005	57
TB-90-107-CNR	93	M22	16	641.5	416.5	196.5	940	910	503.5	500	400	454	354	272	182	97.5	110	62	47	65	130	1756	83
TB-110-130-CNR	160	M24	16	815	535	255	1155	1100	627.5	600	510	550	460	330	220	135	130	80	50	90	180	3110	152
TB-130-160-CNR	202	M30	20	930	610	290	1380	1220	715	740	620	680	560	405	275	165	160	100	60	110	220	5409	185

Rated Power & Torque Datum Table

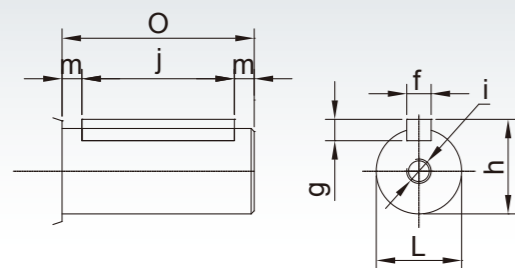
MODEL	RATIO i	INPUT RPM n1	OUTPUT RPM n2	NORMINAL Pn (KW)		SINGLE SCREW T1(Nm)		TOTAL T2(Nm)	
				SF=1	SF=1.2	SF=1	SF=1.2	SF=1	SF=1.2
TB-44-55-CNR	20	1000	50	13	11	1273	1061	2546	2122
TB-55-65-CNR	20	1000	50	36	30	3420	2850	6840	5700
TB-64-75-CNR	20	1000	50	54	45	5175	4313	10350	8626
TB-75-90-CNR	20	900	45	76.2	63.5	8100	6750	16200	13500
TB-90-107-CNR	20	900	45	122	102	12996	10830	25992	21660
TB-110-130-CNR	20	800	40	181	151	21647	18039	43294	36078
TB-130-160-CNR	20	800	40	331	276	39473	32894	78946	65788

TBV-CNR Series Vertical Counter Rotating

Outline Dimension

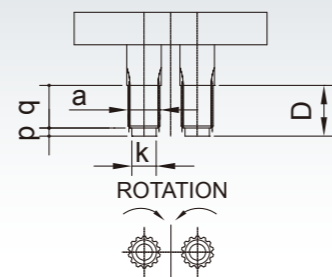


Input Shaft



MODE	O	m	j	L	f	g	h	i
TBV-55-65-CNR	63	4	55	28j6	8	7	31	M8
TBV-64-75-CNR	70	5	60	32j6	10	8	35	M8
TBV-75-90-CNR	80	10	60	35j6	10	8	38	M10
TBV-90-107-CNR	100	10	80	45k6	14	9	48.5	M10
TBV-110-130-CNR	112	11	90	50k6	14	9	53.5	M12
TBV-130-160-CNR	140	10	120	60m6	18	11	64	M12

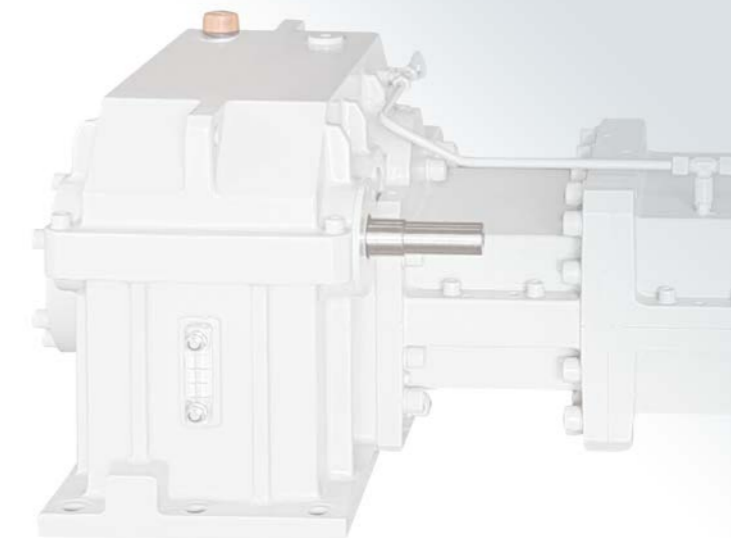
Output Shaft



MODE	a (DIN5480)	D	k	p	q
TBV-55-65-CNR	40x1.5x25	50	34	6	44
TBV-64-75-CNR	45x2x21	60	39	5	55
TBV-75-90-CNR	55x3x17	60	48	8	52
TBV-90-107-CNR	65x2x31	70	50	8	62
TBV-110-130-CNR	78x2x38	95	71	10	85
TBV-130-160-CNR	95x2x46	100	90	10	90

Outline Dimension

MODE	WEIGHT Kg	OIL CAPACITY Kg
TBV-55-65-CNR	593	35
TBV-64-75-CNR	764	47
TBV-75-90-CNR	1135	67
TBV-90-107-CNR	2056	98
TBV-110-130-CNR	3035	183
TBV-130-160-CNR	5044	348



MODE	A	A1	B	B1	B2	B3	B4	B5	C	D	E (H10)	F (f7)	a (DIN5480)	G	H	I1	J	K	L	N	O	P
TBV-55-65-CNR	300	470	260	300	167.5	60	187.5	430	1351	50	160	170	40x1.5x25	20	20	723	157.5	242.5	28j6	55	63	157
TBV-64-75-CNR	325	500	285	355	193.5	70.5	200.5	465	1427	60	160	195	45x2x21	21	20	742	178	287	32j6	64	70	176.5
TBV-75-90-CNR	360	560	315	400	221	81	222.5	520	1650.5	60	180	220	55x3x17	26	22	885.5	200	320	35j6	75	80	190
TBV-90-107-CNR	515	680	455	500	284	99.5	265	620	2132.5	70	210	270	65x2x31	33	32	1082.5	264.5	395.5	45k6	90	100	275
TBV-110-130-CNR	564	645	378	652	136	67.5	238.5	587	2158	95	230	300	78x2x38	35	32	1402	232.5	477.5	50k6	110	112	297
TBV-130-160-CNR	670	795	440	800	165	90	255	725	3068	100	260	380	95x2x46	50	38	1800	290	580	60m6	130	140	360

MODE	P1	Q	R	S	V1 (n8)	V2 (H7)	W	W1 (H10)	W2	W3 (H10)	W4	X	b	b1	c	c1	d	d1	d2	e1	e2	e3	e4	e5
TBV-55-65-CNR	236	1009	31	75	M18	16	617.5	477.5	317.5	125	352.5	400	380	295	343	263	199	144	82.5	86	42.5	21.5	55	110
TBV-64-75-CNR	252.5	1044.5	44	86	M16	16	695	542.5	382.5	140	402.5	465	420	305	384	274	224	160	84	95	49.5	25	56	112
TBV-75-90-CNR	292.5	1218	30	110	M20	16	770	597.5	417.5	160	437.5	520	475	345	438	308	256.5	181.5	90	110	54	34	60	120
TBV-90-107-CNR	417.5	1535	50	130	M24	20	948	723	513	180	543	660	600	390	554	344	322	232	105	150	52	32	70	140
TBV-110-130-CNR	447	1821	55	195	M24	20	1005	765	535	200	565	710	575	450	530	405	320	210	120	125	77.5	42.5	80	160
TBV-130-160-CNR	515	2295	68	190	M27	20	1185	885	625	225	660	870	710	520	650	460	390	260	135	160	85	50	90	180

Rated Power & Torque Datum Table

MODEL	RATIO i	INPUT RPM n1	OUTPUT RPM n2	NORMINAL Pn (KW)		SINGLE SCREW T1(Nm)		TOTAL T2(Nm)	
				SF=1	SF=1.2	SF=1	SF=1.2	SF=1	SF=1.2
TBV-55-65-CNR	25~50	1500	50	36	30	3420	2850	6840	5700
TBV-64-75-CNR	25~50	1500	50	54	45	5175	4313	10350	8626
TBV-75-90-CNR	25~50	1500	50	84	70	8100	6750	16200	13500
TBV-90-107-CNR	25~50	1500	50	151	126	14424	12020	28848	24040
TBV-110-130-CNR	25~50	1500	50	276	230	26400	22000	52800	44000
TBV-130-160-CNR	25~50	1500	50	456	380	43500	36250	87000	72500

Suggesting to use Forced type(see Fig.1) to cool down temperature and lubricate bearings & elements Efficiently to enhance its life cycle.

More over increasing life cycle of gear box as well. Please view below Viscosity Table of Lubrication

Viscosity Table of Lubrication

Low Speed Shaft		Temperature Scale		
		-10°C~+15°C	0°C~+30°C	10°C~+50°C
100RPM以上	ISO AGMA	VG68 2EP	VG150 4EP	VG220 5EP
100RPM以下	ISO AGMA	VG100 3EP	VG220 5EP	VG320 6EP

Note: ISO standard on viscosity at 40°C (mm²/s)

Lubrication Diagram

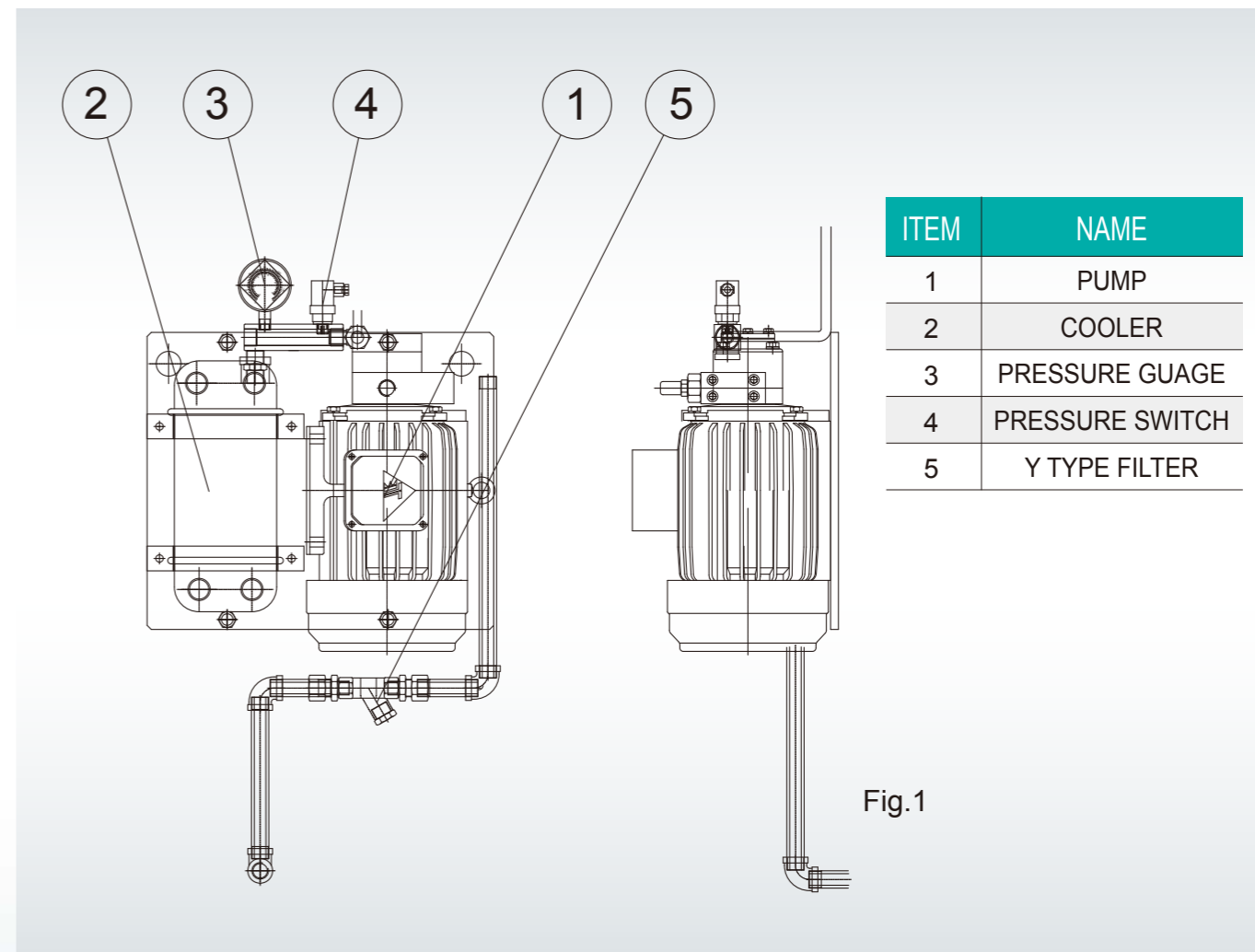


Fig.1

ITEM	NAME
1	PUMP
2	COOLER
3	PRESSURE GAUGE
4	PRESSURE SWITCH
5	Y TYPE FILTER

