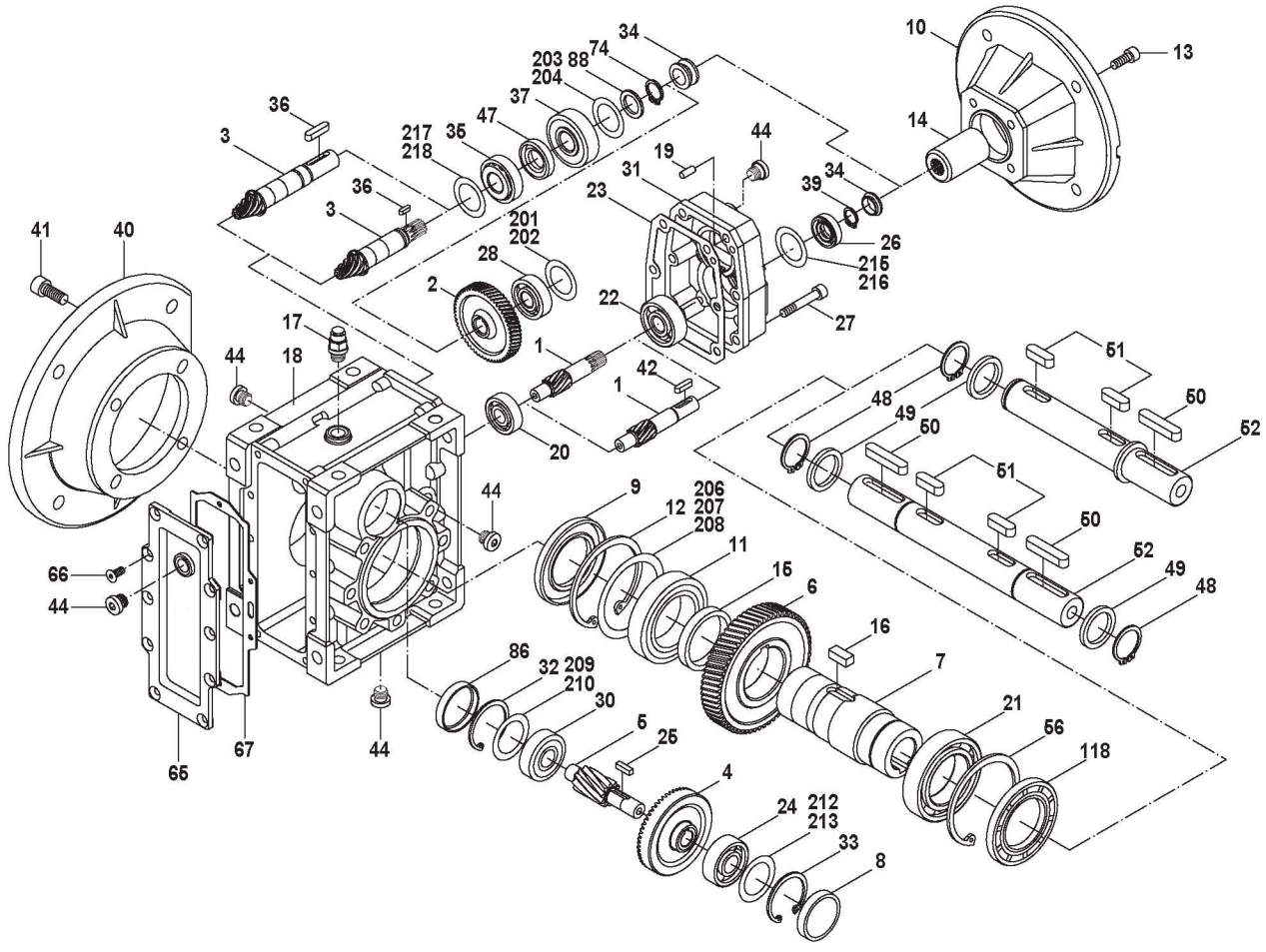
1.1 Basic structure



1	Pinion	**25**	Key	**56**	Hole-circlip
2	Gear	**26**	Oil seal	**65**	Gearcase cover
3	Pinion shaft	**27**	Inner hex screw	**66**	Hexagon sunk screw
4	Gear	**28**	Bearing	**67**	Rubber gasket
5	Pinion shaft	**30**	Bearing	**74**	Shaft-circlip
6	Gear	**31**	3 stage gearcase	**86**	Closing cap
7	Hollow shaft	**32**	Hole-circlip	**88**	Washer
8	Closing cap	**33**	Hole-circlip	**118**	Oil seal
9	Oil seal	**34**	Rubber boot	**201**	Shim ring
10	Intput flange	**35**	Bearing	**202**	Shim ring
11	Bearing	**36**	Key	**203**	Shim ring
12	Hole-circlip	**37**	Bearing	**204**	Shim ring
13	Inner hex screw	**39**	Shaft-circlip	**206**	Shim ring
14	Intput shaft	**40**	Output flage	**207**	Shim ring
15	Spacer	**41**	Inner hex screw	**208**	Shim ring
16	Key	**42**	Key	**209**	Shim ring
17	Breather valve	**44**	Oil plug	**210**	Shim ring
18	Gearcase	**47**	Oil seal	**212**	Shim ring
19	Stifte	**48**	Shaft-circlip	**213**	Shim ring
20	Bearing	**49**	Gasket	**215**	Shim ring
21	Bearing	**50**	Key	**216**	Shim ring
22	Bearing	**51**	Key	**217**	Shim ring
23	Housing gasket	**52**	Double output shaft	**218**	Shim ring
24	Bearing	**53**	Single output shaft		

2. SUMMARIZE

2.1 Products characteristics

TKM、**TKB** series helical-hypoid gear units is a new-generation of product developed by our company . with a compromise of advanced technology both at home and abroad, its main features are as follows:

1. Driven by hypois gear,has big ratios.
2. Large in output torque,high efficiency,ene-rgy saving and environmental protection.
3. Made of high-quqlity aluminum alloy, light in weight and nonrusting.
4. Smooth in running and low in noise, can work long time in dreadful conditions.
5. Good-looking in appearance, durable in service life and small in volume.
6. Suitable for all round installation,wide application and easy of use.
7. The mounting dimension of **TKM** series are compatible with **UMRV** series worm gear unit(A part of **UMRV050** dimensions are different from **TKM28**).
8. The mounting dimension of **TKB** series are compatible with **W** series worm gear unit.
9. Modulaw and multistructure can meet the demands of various conditions .

2.2 Main materials

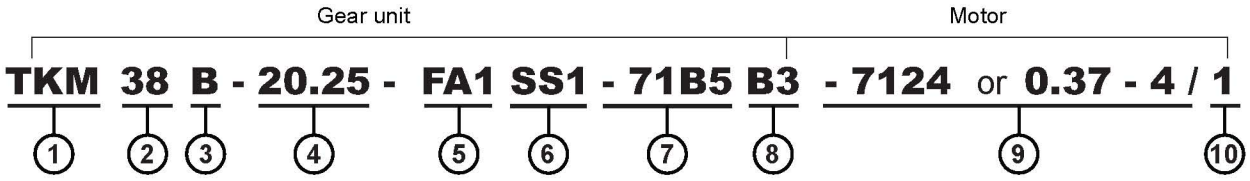
1. Housing: die-cast aluminum alloy (frame size: 28 to 58); .
2. gear wheel: 20CrMnTiH1, carbonize & quencher heat treatment make the hardness of gear's surface up to 56~62 HRC，retain carburization layer's thickness between 0.3 and 0.5mm after precise grinding.

2.3 Surface painting

Aluminum alloy housing：

1. Shot blasting and special antiseptic treatment on the aluminum alloy surface.
2. After phosphating,spray the paint RAL9022 in silver white.

3. MODEL ILLUMINATE



No	Comments
1	Code for gear units series：**TKM、TKB**
2	Specification code of gear units 28、38、48、58
3	1).**B**：Means 2 stages 2).**C**：Means 3 stages
4	Speed ratio of reducer i
5	1). No mark means without output flange 2). **FA,FB,FC,FD,FE(1/2)**: output Flange and position
6	1). No mark means hole output 2). **SS(1/2)**: Single output shaft and position 3). **DS**: Double output shaft
7	1). Input flange code(63B5、71B5、71B14……) 2). **HS**：means shaft input
8	Installation position code
9	1). No mark means without motor 2). Model motos (poles of power)
10	Position diagram for motor terminal box default position 1 not to write out is ok

When ordering, you should show whether the reducers are equipped with motors, otherwise reducers aren't supplied with motors.

Example： **TKM48B - 15.09 - FA1 - 71B5 - 7124**

4. RELEVANT PARAMETER

4.1 Power P

$$P_1 = \frac{P_2}{\eta} \text{ [kW]}$$

$$P_{1n} \geqslant P_1 \cdot f_s \text{ [kW]}$$

P_1	Input power
P_2	Output power
P_{1n}	Rated power driving motor
f_s	Service factor
η	Transmission efficiency

The efficiency of **TKM**、**TKB** gear units varies with the number of gear stages, between 94 % (2-stage)，92 % (3-stage).

4.2 Rotation speed n

n_1	Gear units input speed
n_2	Gear units output speed

If driven by the external gearing,1400r/min or lower rotation speed is suggested so as to optimize the working conditions and prolong the service life. Higher input rotation speed is permitted, but in this situation, the rated torque **M2** will be reduced.

4.3 Transmission ratio i

$$i = \frac{n_1}{n_2}$$

Usually transmission ratio is decimal fraction with 2 radix point tagged in selection tables.

4.4 Torque M

$$M_2 = \frac{9550 \cdot P_1 \cdot \eta}{n_2} \text{ [Nm]}$$

$$M_{2n} \geqslant M_2 \cdot f_s \text{ [Nm]}$$

M_2	Output torque
M_{2n}	Selected output torque
P_1	Input power
η	Transmission efficiency
f_S	Service factor

4.5 Service factor f_S

The effect of the driven machine on the gear unit is taken into account to a sufficient level of accuracy using the service factor f_S. The service factor is determined according to the daily operating time and the starting frequency **Z**.

Three load classifications are considered depending on the mass acceleration factor. You can read off the service factor applicable to your application in following Figure. The service factor selected using this diagram must be less than or equal to the service factor as given in the performance parameter table.

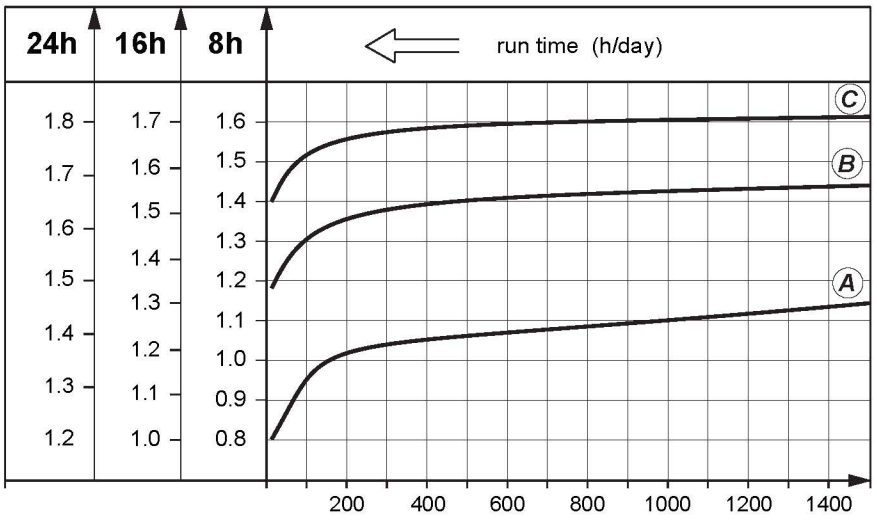


Fig: Service factor (f_S) start up frequency Z (1/h) #

starting frequency Z: The cycles include all starting and braking procedures as well as change overs from low to high speed.

4.5.1 load classifications

Ⓐ Uniform, permitted mass acceleration factor **fa**≤0.2

Ⓑ Moderate shock load, permitted mass acceleration factor **fa**≤3

Ⓒ Heavy shock load, permitted mass acceleration factor **fa**≤10

oad classifications：

Screw feeders for light materials, fans, assembly lines, conveyor belts for light materials, small mixers, lifts, cleaning machines, fillers, control machines.

Winding devices, woodworking machine feeders, goods lifts, balancers,threading machines, medium mixers, conveyor belts for heavy materials, winches, sliding doors, fertilizer scrapers, packing machines, concrete mixers, crane mechanisms, milling cutters, folding machines, gear pumps.

Mixers for heavy materials, shears, presses, centrifuges, rotating supports, winches and lifts for heavy materials, grinding lathes, stone mills, bucket elevators, drilling machines, hammer mills, cam presses, folding machines, turntables, tumbling barrels, vibrators, shredders.

4.5.2 Mass acceleration factor

The mass acceleration factor is calculated as follows:

$$f_a = \frac{J_c}{J_m}$$

f_a Mass acceleration factor

J_c All external mass moments of inertia (kgm^2)

J_m Mass moment of inertia on the motor end (kgm^2)

If mass acceleration factors **fa**＞10, please call our Technical Service.

To keep the service-life of gear units, the use factor f_S selected from the catalogue must be equal or slightly higher than the calculated use factor f_S.

Example:

Mass acceleration factor 2.5 (load classification Ⓑ), 14 hours/day operating time (read off at 16 h/d) and 200 cycles/hour result in a service factor f_S =1.48.

choose the service factor f_S = 1.48 according to the parameter sheet .

4.6 Overhung loads and axial forces

When determining the resulting radial loads, the type of transmission elements, mounted on the shaft end must be considered. Various transmission elements are corresponding with following transmission element factors f_z:

Transmission element	Transmission element factor F_Z	Comments
Gears	1.15	＜ 17 teeth
Chain sprockets	1.25	＜ 20 teeth
	1.40	＜ 13 teeth
Narrow V-belt pulleys	1.75	Influence of the tensile force
Flat belt pulleys	2.50	Influence of the tensile force
Toothed belt pulleys	2.50	Influence of the tensile force

The overhung loads exerted on the motor or gear shaft is then calculated as follows:

$$F_r = \frac{M \cdot 2000 \cdot f_z}{d_0} \text{ [N]}$$

F_r Resulting radial load [N]

M Torque on the shaft [Nm]

d_0 Mean diameter of the mounted transmission element in [mm]

f_z Transmission element factor

The basis for determining the permitted radial loads is the computation of the rated service life L_{10h} of the bearings (according to **ISO281**). For special operating conditions, the permitted radial loads can be determined with regard to the modified service life L_{na}.

The permitted radial loads given in the selection tables must be calculated using the following formula in the event of force application not in the center of the shaft end. The smaller of the two values F_{xL} (according to bearing service life)

F_{xL} according to bearing service life:

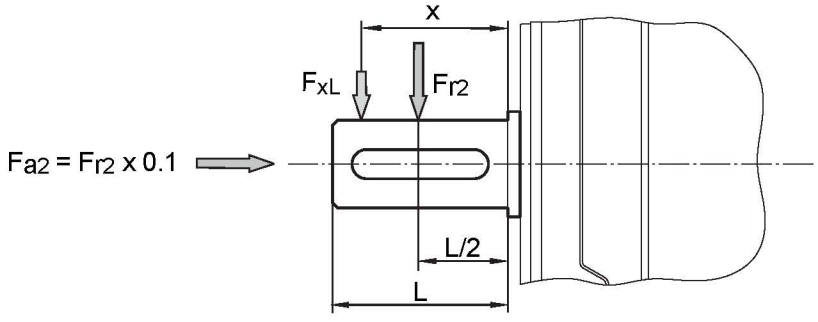
$$F_{xL} = F_{r(1,2)} \cdot \frac{a}{b + x} \text{ [N]} \qquad F_{xL} = F_{r(1,2)} \cdot \frac{a}{b + x} \text{ [N]}$$

F_{r1}, F_{r2} = Permitted overhung load (x = L/2) for foot-mounted gear units according to he selection tables in [N]

x = Distance from the shaft shoulder to the force application point in [mm]

a, b = Gear unit constant for overhung load conversion [mm]

Output shafts radial loads



F_{a2} = Output axial loads

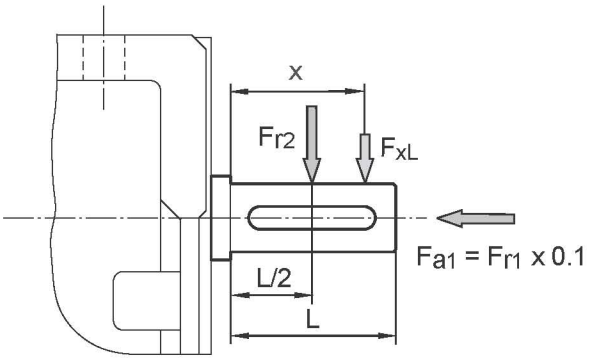
TKM Gear unit constantsfor overhung load conversion:

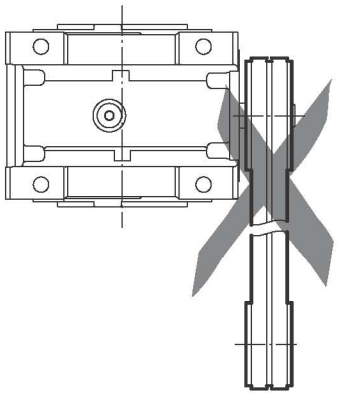
	TKM28B	TKM28C	TKM38B	TKM38C	TKM48B	TKM48C	TKM58B	TKM58C
a	104	104	118	118	131	131	159	159
b	78	78	93	93	101	101	119	119

TKB Gear unit constantsfor overhung load conversion:

			TKB38B	TKB38C	TKB48B	TKB48C	TKB58B	TKB58C
a			128	128	135	135	148.5	148.5
b			98	98	105	105	118.5	118.5

Input shafts radial loads





Input structure
Narrow V-belg pulleys
Flat belg pulleys
Toothed belg pulleys

F_{a1} = Intput axial loads

It is forbidden to use the input on the right chart (including 3 stage input).

TKM / TKB Gear unit constantsfor overhung load conversion：

	TKM28B	TKM28C	TKM38B TKB38B	TKM38C TKB38C	TKM48B TKB48B	TKM48C TKB48C	TKM58B TKB58B	TKM58C TKB58C
a	51.5	56	58	56	73	70	81	70
b	40	44.5	43	44.5	53	55	61	55

4.7 Selection tables comments

	Combination with the motor in the header row **is possible**
	Combination with the motor in the header row **is not possible**
*	Finite gear unit reduction ratio;
P_{1n}	Rated power driving motor **[kW]**;
n_2	Output speed **[r/min]**;
M_{2n}	Output torque **[Nm]**;
$M_{2\,max}$	Max. permissible output torque **[Nm]**
F_{r2}	Permissible overhung load output side **[N]**
i	Gear unit nominal ratio;
i_a	Gear unit actual ratio;
f_s	Service factor;
	Gear unit type;
	Motor type;
Page	Dimension sheet page no;

5 SELECTION EXAMPLE

5.1 Gear motor

Example: Required power 0.25kW on driven machine, work for 8 h/day, moderate shock load, start up frequency 100(1/h), n_2=35r/min, **B3** mounted, So:

Check the service factor table at page 7 ,choose f_S=1.3

$$i = \frac{n_1}{n_2} = \frac{1400}{35} = 40$$

$$P_{1n} \geqslant P_1 \cdot f_s = \frac{P_2}{\eta} \cdot f_s = \frac{0.25}{0.94} \times 1.3 = 0.345 \text{ [kW]}$$

Choose type:

TKM28B - 40.09 - 71B5 - 7124 - B3

5.2 Gear units

Example: Recluired torquc 200Nrn on driven machine, work 8 h/day, uniform load, start up frequency 400(1/h), **FA1** mounted, n_1=900 r/min,

n_2=2.5 r/min, so the only selection is 3 stage after checked the table:

Check the service factor table at page 7 ,choose f_S=1.05

$$i = \frac{n_1}{n_2} = \frac{900}{6} = 150$$

$$M_{2n} \geq M_2 \cdot f_s = 200 \times 1.05 = 210 \text{ [Nm]}$$

$$P_{1n} \geqslant P_1 \cdot f_s = \frac{M_2 \cdot n_1}{9550 \cdot \eta \cdot i} \cdot f_s = \frac{210 \times 900}{9550 \times 0.92 \times 150} \times 1.05 = 0.151 \text{ [kW]}$$

Choose type:

TKM48C-151.20-FA1

6. GEAR UNIT SELECTION TABLES

6.1 Possible geometrical combinations

TKM28.. n_1=1400 r/min — 130Nm

Gear units		i Nominal	i Actual	n_2 [r/min]	M_{2n} [Nm]	F_{r2} [N]	63B5	71B5 71B14	80B5 80B14	90B5 90B14
3 Stage										
TKM28C		300	291.79	4.8	110	4100				
TKM28C		250	244.29	5.8	130	4100				
TKM28C		200	200.44	7.0	130	4100				
TKM28C		150	146.67	9.6	130	4000				
TKM28C		125	120.34	12	130	3770				
TKM28C		100	101.04	14	130	3560				
TKM28C		75	74.62	19	130	3220				
TKM28C		60	62.36	23	120	3030				
TKM28C		50	52.36	27	110	2860				
2 Stage										
TKM28B		60	58.36	24	110	2960				
TKM28B		50	48.86	29	130	2790				
TKM28B		40	40.09	35	130	2610				
TKM28B		30	29.33	48	130	2350				
TKM28B		25	24.07	59	130	2200				
TKM28B		20	20.21	70	130	2080				
TKM28B		15	14.92	94	130	1880				
TKM28B		12.5	12.47	113	130	1770				
TKM28B		10	10.47	134	130	1670				
TKM28B		7.5	7.73	182	100	1510				

TKM38..,TKB38.. n_1=1400 r/min — 200Nm

Gear units		i Nominal	i Actual	n_2 [r/min]	M_{2n} [Nm]	F_{r2} [N]	63B5	71B5 71B14	80B5 80B14	90B5 90B14
3 Stage										
TKM38C	TKB38C	300	302.50	4.7	170	4800				
TKM38C	TKB38C	250	243.57	5.8	200	4800				
TKM38C	TKB38C	200	196.43	7.2	200	4800				
TKM38C	TKB38C	150	151.56	9.3	200	4650				
TKM38C	TKB38C	125	122.22	12	200	4330				
TKM38C	TKB38C	100	101.27	14	200	4070				
TKM38C	TKB38C	75	73.33	20	160	3650				
TKM38C	TKB38C	60	63.33	23	140	3480				
TKM38C	TKB38C	50	52.48	27	120	3270				
2 Stage										
TKM38B	TKB38B	60	60.50	24	170	3430				
TKM38B	TKB38B	50	48.71	29	200	3190				
TKM38B	TKB38B	40	39.29	36	200	2970				
TKM38B	TKB38B	30	30.31	47	200	2720				
TKM38B	TKB38B	25	24.44	58	200	2530				
TKM38B	TKB38B	20	20.25	70	200	2380				
TKM38B	TKB38B	15	14.67	96	190	2130				
TKM38B	TKB38B	12.5	12.67	111	165	2030				
TKM38B	TKB38B	10	10.50	134	135	1910				
TKM38B	TKB38B	7.5	7.60	185	100	1710				

TKM48..,TKB48.. n_1=1400 r/min — 350Nm

Gear units		i Nominal	i Actual	n_2 [r/min]	M_{2n} [Nm]	F_{r2} [N]	63B5	71B5 71B14	80B5 80B14	90B5 90B14	100B5 100B14	112B5 112B14
3 Stage												
TKM48C	TKB48C	300	297.21	4.8	350	6500						
TKM48C	TKB48C	250	240.89	5.9	350	6500						
TKM48C	TKB48C	200	200.66	7.0	350	6500						
TKM48C	TKB48C	150	151.20	9.3	350	6500						
TKM48C	TKB48C	125	125.95	12	350	5980						
TKM48C	TKB48C	100	99.22	15	350	5520						
TKM48C	TKB48C	75	75.45	19	350	5040						
TKM48C	TKB48C	60	62.43	23	350	4730						
TKM48C	TKB48C	50	49.18	29	350	4370						
2 Stage												
TKM48B	TKB48B	60	59.44	24	350	4660						
TKM48B	TKB48B	50	48.18	30	350	4340						
TKM48B	TKB48B	40	40.13	35	350	4080						
TKM48B	TKB48B	30	30.24	47	350	3720						
TKM48B	TKB48B	25	25.19	56	350	3500						
TKM48B	TKB48B	20	19.84	71	350	3230						
TKM48B	TKB48B	15	15.09	93	350	2950						
TKM48B	TKB48B	12.5	12.49	113	350	2770						
TKM48B	TKB48B	10	9.84	143	350	2550						
TKM48B	TKB48B	7.5	7.48	188	280	2330						

TKM58..,TKB58.. n_1=1400 r/min — 500Nm

Gear units		i Nominal	i Actual	n_2 [r/min]	M_{2n} [Nm]	F_{r2} [N]	63B5	71B5 71B14	80B5 80B14	90B5 90B14	100B5 100B14	112B5 112B14
3 Stage												
TKM58C	TKB58C	300	295.18	4.8	460	8300						
TKM58C	TKB58C	250	240.89	5.9	500	8300						
TKM58C	TKB58C	200	200.66	7.0	500	8300						
TKM58C	TKB58C	150	151.20	9.3	500	8050						
TKM58C	TKB58C	125	125.95	12	500	7580						
TKM58C	TKB58C	100	99.22	15	500	7000						
TKM58C	TKB58C	75	75.45	19	500	6390						
TKM58C	TKB58C	60	62.43	23	450	6000						
TKM58C	TKB58C	50	49.18	29	350	5540						
2 Stage												
TKM58B	TKB58B	60	59.04	24	460	5890						
TKM58B	TKB58B	50	48.18	30	500	5500						
TKM58B	TKB58B	40	40.13	35	500	5170						
TKM58B	TKB58B	30	30.24	47	500	4710						
TKM58B	TKB58B	25	25.19	56	500	4430						
TKM58B	TKB58B	20	19.84	71	500	4090						
TKM58B	TKB58B	15	15.09	93	500	3730						
TKM58B	TKB58B	12.5	12.49	113	460	3510						
TKM58B	TKB58B	10	9.84	143	360	3240						
TKM58B	TKB58B	7.5	7.48	188	280	2950						

6.2 TKM.. / TKB..(IEC).. Performance parameter

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs			Page
0.12	5.7	184	**250**	244.29	4100	0.7	**TKM28C** **63B5**	**6314**	31
	7.0	151	**200**	200.44	4100	0.9			
	9.5	110	**150**	146.67	4000	1.2			
	11.6	91	**125**	120.34	3770	1.4			
	13.9	76	**100**	101.04	3560	1.7			
	18.8	56	**75**	74.62	3220	2.3			
	22.5	47	**60**	62.36	3030	2.6			
	26.7	39	**50**	52.36	2860	2.8			
	24.0	45	**60**	58.36	2960	2.4	**TKM28B** **63B5**	**6314**	30
	28.7	38	**50**	48.86	2790	3.5			
	35	31	**40**	40.09	2610	4.2			
	48	23	**30**	29.33	2350	5.8			
	58	18.5	**25**	24.07	2200	7.0			
	69	15.6	**20**	20.21	2080	8.4			
	94	11.5	**15**	14.92	1880	11.3			
	112	9.6	**12.5**	12.47	1770	13.5			
	134	8.1	**10**	10.47	1670	16.1			
	181	5.9	**7.5**	7.73	1510	16.8			
	5.7	183	**250**	243.57	4800	1.1	**TKM38C** **63B5**	**6314**	33
	7.1	148	**200**	196.43	4800	1.4	**TKB38C** **63B5**	**6314**	39
	9.2	114	**150**	151.56	4650	1.8			
	11.5	92	**125**	122.22	4330	2.2			
	13.8	76	**100**	101.27	4070	2.6			
	19.1	55	**75**	73.33	3650	2.9			
	22.1	48	**60**	63.33	3480	2.9			
	26.7	40	**50**	52.48	3270	3.0			
	23.1	47	**60**	60.50	3430	3.7	**TKM38B** **63B5**	**6314**	32
	28.7	37	**50**	48.71	3190	5.3	**TKB38B** **63B5**	**6314**	38
	36	30	**40**	39.29	2970	6.6			
	46	23	**30**	30.31	2720	8.6			
	4.7	224	**300**	297.21	6500	1.6	**TKM48C** **63B5**	**6314**	35
	5.8	181	**250**	240.89	6500	1.9	**TKB48C** **63B5**	**6314**	41
	7.0	151	**200**	200.66	6500	2.3			
	9.3	114	**150**	151.20	6500	3.1			
	11.1	95	**125**	125.95	5980	3.7			
	4.7	222	**300**	295.18	8300	2.1	**TKM58C** **63B5**	**6314**	37
	5.8	181	**250**	240.89	8300	2.8	**TKB58C** **63B5**	**6314**	43
	7.0	151	**200**	200.66	8300	3.3			
	9	114	**150**	151.20	8050	4.4			
0.18	9.6	165	**300**	291.79	4000	0.7	**TKM28C** **63B5**	**6312**	31
	11.5	138	**250**	244.29	3790	0.9			
	14.0	113	**200**	200.44	3550	1.1			
	19.1	83	**150**	146.67	3200	1.6			
	23.3	68	**125**	120.34	2990	1.9			
	27.7	57	**100**	101.04	2820	2.3			
	38	42	**75**	74.62	2550	3.1			
	45	35	**60**	62.36	2400	3.4			
	53	30	**50**	52.36	2270	3.7			
	48	34	**60**	58.36	2350	3.3	**TKM28B** **63B5**	**6312**	30
	57	28	**50**	48.86	2220	4.6			
	70	23	**40**	40.09	2070	5.6			
	95	16.9	**30**	29.33	1870	7.7			
	116	13.9	**25**	24.07	1750	9.4			

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs				Page
0.18	11.6	136	**125**	120.34	3770	1.0	**TKM28C**	**63B5**	**6324**	31
	13.9	114	**100**	101.04	3560	1.1				
	18.8	84	**75**	74.62	3220	1.5				
	22.5	70	**60**	62.36	3030	1.7				
	26.7	59	**50**	52.36	2860	1.9				
	24.0	67	**60**	58.36	2960	1.6	**TKM28B**	**63B5**	**6324**	30
	28.7	56	**50**	48.86	2790	2.3				
	35	46	**40**	40.09	2610	2.8				
	48	34	**30**	29.33	2350	3.8				
	58	28	**25**	24.07	2200	4.7				
	69	23	**20**	20.21	2080	5.6				
	94	17.2	**15**	14.92	1880	7.5				
	112	14.4	**12.5**	12.47	1770	9.0				
	134	12.1	**10**	10.47	1670	10.8				
	181	8.9	**7.5**	7.73	1510	11.2				
	12.1	131	**75**	74.62	3730	1.0	**TKM28C**	**71B5/B14**	**7116**	31
	14.4	110	**60**	62.36	3510	1.1				
	17.2	92	**50**	52.36	3310	1.2				
	15.4	105	**60**	58.36	3430	1.0	**TKM28B**	**71B5/B14**	**7116**	30
	18.4	88	**50**	48.86	3240	1.5				
	22.4	72	**40**	40.09	3030	1.8				
	31	53	**30**	29.33	2730	2.5				
	37	43	**25**	24.07	2550	3.0				
	45	36	**20**	20.21	2410	3.6				
	60	27	**15**	14.92	2180	4.9				
	72	22	**12.5**	12.47	2050	5.8				
	9.3	171	**300**	302.50	4650	1.0	**TKM38C**	**63B5**	**6312**	33
	11.5	138	**250**	243.57	4330	1.5	**TKB38C**	**63B5**	**6312**	39
	14.3	111	**200**	196.43	4030	1.8				
	18.5	86	**150**	151.56	3690	2.3				
	22.9	69	**125**	122.22	3440	2.9				
	27.6	57	**100**	101.27	3230	3.5				
	38	41	**75**	73.33	2900	3.9				
	44	36	**60**	63.33	2760	3.9				
	53	30	**50**	52.48	2590	4.0				
	7.1	222	**200**	196.43	4800	0.9	**TKM38C**	**63B5**	**6324**	33
	9.2	171	**150**	151.56	4650	1.2	**TKB38C**	**63B5**	**6324**	39
	11.5	138	**125**	122.22	4330	1.4				
	13.8	114	**100**	101.27	4070	1.7				
	19.1	83	**75**	73.33	3650	1.9				
	22.1	72	**60**	63.33	3480	2.0				
	26.7	59	**50**	52.48	3270	2.0				
	23.1	70	**60**	60.50	3430	2.4	**TKM38B**	**63B5**	**6324**	32
	28.7	56	**50**	48.71	3190	3.6	**TKB38B**	**63B5**	**6324**	38
	36	45	**40**	39.29	2970	4.4				
	7.4	215	**125**	122.22	4800	0.9	**TKM38C**	**71B5/B14**	**7116**	33
	8.9	178	**100**	101.27	4720	1.1	**TKB38C**	**71B5/B14**	**7116**	39
	12.3	129	**75**	73.33	4230	1.2				
	14.2	111	**60**	63.33	4030	1.3				
	17.1	92	**50**	52.48	3790	1.3				
	14.9	109	**60**	60.50	3970	1.6	**TKM38B**	**71B5/B14**	**7116**	32
	18.5	87	**50**	48.71	3690	2.3	**TKB38B**	**71B5/B14**	**7116**	38
	22.9	71	**40**	39.29	3440	2.8				
	29.7	54	**30**	30.31	3150	3.7				
	9.4	168	**300**	297.21	6320	2.1	**TKM48C**	**63B5**	**6312**	35
	11.6	136	**250**	240.89	5890	2.6	**TKB48C**	**63B5**	**6312**	41
	14.0	113	**200**	200.66	5540	3.1				
	18.5	85	**150**	151.20	5040	4.1				

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs				Page
0.18	4.7	336	**300**	297.21	6500	1.0	**TKM48C**	**63B5**	**6324**	35
	5.8	272	**250**	240.89	6500	1.3	**TKB48C**	**63B5**	**6324**	41
	7.0	227	**200**	200.66	6500	1.5				
	9.3	171	**150**	151.20	6500	2.0				
	11.1	142	**125**	125.95	5980	2.5				
	14.1	112	**100**	99.22	5520	3.1				
	18.6	85	**75**	75.45	5040	4.1				
	4.5	353	**200**	200.66	6500	1.0	**TKM48C**	**71B5/B14**	**7116**	35
	6.0	266	**150**	151.20	6500	1.3	**TKB48C**	**71B5/B14**	**7116**	41
	7.1	221	**125**	125.95	6500	1.6				
	9.1	174	**100**	99.22	6400	2.0				
	11.9	133	**75**	75.45	5840	2.6				
	14.4	110	**60**	62.43	5480	3.2				
	18.3	86	**50**	49.18	5060	4.1				
	15.1	107	**60**	59.44	5390	3.3	**TKM48B**	**71B5/B14**	**7116**	34
	18.7	87	**50**	48.18	5030	4.0	**TKB48B**	**71B5/B14**	**7116**	40
	9.5	167	**300**	295.18	7990	2.8	**TKM58C**	**63B5**	**6312**	37
	11.6	136	**250**	240.89	7470	3.7	**TKB58C**	**63B5**	**6312**	43
	4.7	333	**300**	295.18	8300	1.4	**TKM58C**	**63B5**	**6324**	37
	5.8	272	**250**	240.89	8300	1.8	**TKB58C**	**63B5**	**6324**	43
	7.0	227	**200**	200.66	8300	2.2				
	9.3	171	**150**	151.20	8050	2.9				
	11.1	142	**125**	125.95	7580	3.5				
	3.7	423	**250**	240.89	8300	1.2	**TKM58C**	**71B5/B14**	**7116**	37
	4.5	353	**200**	200.66	8300	1.4	**TKB58C**	**71B5/B14**	**7116**	43
	6.0	266	**150**	151.20	8300	1.9				
	7.1	221	**125**	125.95	8300	2.3				
	9.1	174	**100**	99.22	8110	2.9				
	11.9	133	**75**	75.45	7400	3.8				
	14.4	110	**60**	62.43	6950	4.1				
0.25	19.1	115	**150**	146.67	3200	1.1	**TKM28C**	**63B5**	**6322**	31
	23.3	94	**125**	120.34	2990	1.4				
	27.7	79	**100**	101.04	2820	1.6				
	38	59	**75**	74.62	2550	2.2				
	45	49	**60**	62.36	2400	2.5				
	53	41	**50**	52.36	2270	2.7				
	48	47	**60**	58.36	2350	2.4	**TKM28B**	**63B5**	**6322**	30
	57	39	**50**	48.86	2220	3.3				
	70	32	**40**	40.09	2070	4.0				
	18.8	117	**75**	74.62	3220	1.1	**TKM28C**	**71B5/B14**	**7114**	31
	22.5	98	**60**	62.36	3030	1.2				
	26.7	82	**50**	52.36	2860	1.3				
	24.0	94	**60**	58.36	2960	1.2	**TKM28B**	**71B5/B14**	**7114**	30
	28.7	78	**50**	48.86	2790	1.7				
	35	64	**40**	40.09	2610	2.0				
	48	47	**30**	29.33	2350	2.8				
	58	39	**25**	24.07	2200	3.4				
	69	32	**20**	20.21	2080	4.0				
	94	24	**15**	14.92	1880	5.4				
	18.4	122	**50**	48.86	3240	1.1	**TKM28B**	**71B5/B14**	**7126**	30
	22.4	100	**40**	40.09	3030	1.3				
	31	73	**30**	29.33	2730	1.8				
	37	60	**25**	24.07	2550	2.2				
	45	50	**20**	20.21	2410	2.6				
	60	37	**15**	14.92	2180	3.5				
	72	31	**12.5**	12.47	2050	4.2				
	86	26	**10**	10.47	1930	5.0				
	116	19	**7.5**	7.73	1750	5.2				

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs				Page
0.25	11.5	191	**250**	243.57	4330	1.0	**TKM38C**	**63B5**	**6322**	33
	14.3	154	**200**	196.43	4030	1.3	**TKB38C**	**63B5**	**6322**	39
	18.5	119	**150**	151.56	3690	1.7				
	22.9	96	**125**	122.22	3440	2.1				
	27.6	79	**100**	101.27	3230	2.5				
	38	58	**75**	73.33	2900	2.8				
	44	50	**60**	63.33	2760	2.8				
	53	41	**50**	52.48	2590	2.9				
	11.5	192	**125**	122.22	4330	1.0	**TKM38C**	**71B5/B14**	**7114**	33
	13.8	159	**100**	101.27	4070	1.3	**TKB38C**	**71B5/B14**	**7114**	39
	19.1	115	**75**	73.33	3650	1.4				
	22.1	99	**60**	63.33	3480	1.4				
	26.7	82	**50**	52.48	3270	1.5				
	23.1	97	**60**	60.50	3430	1.8	**TKM38B**	**71B5/B14**	**7114**	32
	28.7	78	**50**	48.71	3190	2.6	**TKB38B**	**71B5/B14**	**7114**	38
	36	63	**40**	39.29	2970	3.2				
	46	49	**30**	30.31	2720	4.1				
	12.3	179	**75**	73.33	4230	0.9	**TKM38C**	**71B5/B14**	**7126**	33
	14.2	155	**60**	63.33	4030	0.9	**TKB38C**	**71B5/B14**	**7126**	39
	17.1	128	**50**	52.48	3790	0.9				
	14.9	151	**60**	60.50	3970	1.1	**TKM38B**	**71B5/B14**	**7126**	32
	18.5	121	**50**	48.71	3690	1.6	**TKB38B**	**71B5/B14**	**7126**	38
	22.9	98	**40**	39.29	3440	2.0				
	29.7	76	**30**	30.31	3150	2.6				
	37	61	**25**	24.44	2930	3.3				
	44	50	**20**	20.25	2760	4.0				
	9.4	233	**300**	297.21	6320	1.5	**TKM48C**	**63B5**	**6322**	35
	11.6	189	**250**	240.89	5890	1.9	**TKB48C**	**63B5**	**6322**	41
	14.0	157	**200**	200.66	5540	2.2				
	18.5	119	**150**	151.20	5040	3.0				
	22.2	99	**125**	125.95	4750	3.5				
	5.8	378	**250**	240.89	6500	0.9	**TKM48C**	**71B5/B14**	**7114**	35
	7.0	315	**200**	200.66	6500	1.1	**TKB48C**	**71B5/B14**	**7114**	41
	9.3	237	**150**	151.20	6500	1.5				
	11.1	198	**125**	125.95	5980	1.8				
	14.1	156	**100**	99.22	5520	2.2				
	18.6	118	**75**	75.45	5040	3.0				
	22.4	98	**60**	62.43	4730	3.6				
	6.0	369	**150**	151.20	6500	0.9	**TKM48C**	**71B5/B14**	**7126**	35
	7.1	307	**125**	125.95	6500	1.1	**TKB48C**	**71B5/B14**	**7126**	41
	9.1	242	**100**	99.22	6400	1.4				
	11.9	184	**75**	75.45	5840	1.9				
	14.4	152	**60**	62.43	5480	2.3				
	18.3	120	**50**	49.18	5060	2.9				
	15.1	148	**60**	59.44	5390	2.4	**TKM48B**	**71B5/B14**	**7126**	34
	18.7	120	**50**	48.18	5030	2.9	**TKB48B**	**71B5/B14**	**7126**	40
	22.4	100	**40**	40.13	4730	3.5				
	9.5	232	**300**	295.18	7990	2.0	**TKM58C**	**63B5**	**6322**	37
	11.6	189	**250**	240.89	7470	2.6	**TKB58C**	**63B5**	**6322**	43
	14.0	157	**200**	200.66	7030	3.2				
	18.5	119	**150**	151.20	6390	4.2				
	4.7	463	**300**	295.18	8300	1.0	**TKM58C**	**71B5/B14**	**7114**	37
	5.8	378	**250**	240.89	8300	1.3	**TKB58C**	**71B5/B14**	**7114**	43
	7.0	315	**200**	200.66	8300	1.6				
	9.3	237	**150**	151.20	8050	2.1				
	11.1	198	**125**	125.95	7580	2.5				
	14.1	156	**100**	99.22	7000	3.2				
	18.6	118	**75**	75.45	6390	4.2				

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs				Page
0.25	4.5	490	**200**	200.66	8300	1.0	**TKM58C**	**71B5/B14**	**7126**	37
	6.0	369	**150**	151.20	8300	1.4	**TKB58C**	**71B5/B14**	**7126**	43
	7.1	307	**125**	125.95	8300	1.6				
	9.1	242	**100**	99.22	8110	2.1				
	11.9	184	**75**	75.45	7400	2.7				
	14.4	152	**60**	62.43	6950	3.0				
	18.3	120	**50**	49.18	6420	2.9				
	15.2	147	**60**	59.04	6820	3.1	**TKM58B**	**71B5/B14**	**7126**	36
	18.7	120	**50**	48.18	6370	4.2	**TKB58B**	**71B5/B14**	**7126**	42
0.37	23.3	140	**125**	120.34	2990	0.9	**TKM28C**	**71B5/B14**	**7112**	31
	27.7	117	**100**	101.04	2820	1.1				
	38	87	**75**	74.62	2550	1.5				
	45	72	**60**	62.36	2400	1.7				
	53	61	**50**	52.36	2270	1.8				
	48	69	**60**	58.36	2350	1.6	**TKM28B**	**71B5/B14**	**7112**	30
	57	58	**50**	48.86	2220	2.2				
	70	48	**40**	40.09	2070	2.7				
	95	35	**30**	29.33	1870	3.7				
	28.7	116	**50**	48.86	2790	1.1	**TKM28B**	**71B5/B14**	**7124**	30
	35	95	**40**	40.09	2610	1.4				
	48	70	**30**	29.33	2350	1.9				
	58	57	**25**	24.07	2200	2.3				
	69	48	**20**	20.21	2080	2.7				
	94	35	**15**	14.92	1880	3.7				
	112	30	**12.5**	12.47	1770	4.4				
	134	25	**10**	10.47	1670	5.2				
	181	18	**7.5**	7.73	1510	5.5				
	31	108	**30**	29.33	2730	1.2	**TKM28B**	**80B5/B14**	**8016**	30
	37	89	**25**	24.07	2550	1.5				
	45	75	**20**	20.21	2410	1.7				
	60	55	**15**	14.92	2180	2.4				
	72	46	**12.5**	12.47	2050	2.8				
	86	39	**10**	10.47	1930	3.4				
	116	29	**7.5**	7.73	1750	3.5				
	14.3	228	**200**	196.43	4030	0.9	**TKM38C**	**71B5/B14**	**7112**	33
	18.5	176	**150**	151.56	3690	1.1	**TKB38C**	**71B5/B14**	**7112**	39
	22.9	142	**125**	122.22	3440	1.4				
	27.6	118	**100**	101.27	3230	1.7				
	38	85	**75**	73.33	2900	1.9				
	44	74	**60**	63.33	2760	1.9				
	53	61	**50**	52.48	2590	2.0				
	46	72	**60**	60.50	2720	2.4	**TKM38B**	**71B5/B14**	**7112**	32
	57	58	**50**	48.71	2530	3.5	**TKB38B**	**71B5/B14**	**7112**	38
	71	47	**40**	39.29	2350	4.3				
	13.8	235	**100**	101.27	4070	0.9	**TKM38C**	**71B5/B14**	**7124**	33
	19.1	170	**75**	73.33	3650	0.9	**TKB38C**	**71B5/B14**	**7124**	39
	22.1	147	**60**	63.33	3480	1.0				
	26.7	122	**50**	52.48	3270	1.0				
	23.1	144	**60**	60.50	3430	1.2	**TKM38B**	**71B5/B14**	**7124**	32
	28.7	116	**50**	48.71	3190	1.7	**TKB38B**	**71B5/B14**	**7124**	38
	36	93	**40**	39.29	2970	2.1				
	46	72	**30**	30.31	2720	2.8				
	57	58	**25**	24.44	2530	3.4				
	69	48	**20**	20.25	2380	4.2				
	18.5	180	**50**	48.71	3690	1.1	**TKM38B**	**80B5/B14**	**8016**	32
	22.9	145	**40**	39.29	3440	1.4	**TKB38B**	**80B5/B14**	**8016**	38
	29.7	112	**30**	30.31	3150	1.8				

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs				Page
0.37	37	90	**25**	24.44	2930	2.2	**TKM38B**	**80B5/B14**	**8016**	32
	44	75	**20**	20.25	2760	2.7	**TKB38B**	**80B5/B14**	**8016**	38
	61	54	**15**	14.67	2470	3.5				
	71	47	**12.5**	12.67	2360	3.5				
	86	39	**10**	10.50	2210	3.5				
	118	28	**7.5**	7.60	1990	3.6				
	9.4	345	**300**	297.21	6320	1.0	**TKM48C**	**71B5/B14**	**7112**	35
	11.6	280	**250**	240.89	5890	1.3	**TKB48C**	**71B5/B14**	**7112**	41
	14.0	233	**200**	200.66	5540	1.5				
	18.5	176	**150**	151.20	5040	2.0				
	22.2	146	**125**	125.95	4750	2.4				
	28.2	115	**100**	99.22	4380	3.0				
	37	88	**75**	75.45	4000	4.0				
	9.3	351	**150**	151.20	6500	1.0	**TKM48C**	**71B5/B14**	**7124**	35
	11.1	292	**125**	125.95	5980	1.2	**TKB48C**	**71B5/B14**	**7124**	41
	14.1	230	**100**	99.22	5520	1.5				
	18.6	175	**75**	75.45	5040	2.0				
	22.4	145	**60**	62.43	4730	2.4				
	28.5	114	**50**	49.18	4370	3.1				
	23.6	141	**60**	59.44	4660	2.5	**TKM48B**	**71B5/B14**	**7124**	34
	29.1	114	**50**	48.18	4340	3.1	**TKB48B**	**71B5/B14**	**7124**	40
	35	95	**40**	40.13	4080	3.7				
	9.1	358	**100**	99.22	6400	1.0	**TKM48C**	**80B5/B14**	**8016**	35
	11.9	273	**75**	75.45	5840	1.3	**TKB48C**	**80B5/B14**	**8016**	41
	14.4	225	**60**	62.43	5480	1.6				
	18.3	178	**50**	49.18	5060	2.0				
	15.1	219	**60**	59.44	5390	1.6	**TKM48B**	**80B5/B14**	**8016**	34
	18.7	178	**50**	48.18	5030	2.0	**TKB48B**	**80B5/B14**	**8016**	40
	22.4	148	**40**	40.13	4730	2.4				
	29.8	112	**30**	30.24	4310	3.1				
	36	93	**25**	25.19	4050	3.8				
	9.5	343	**300**	295.18	7990	1.3	**TKM58C**	**71B5/B14**	**7112**	37
	11.6	280	**250**	240.89	7470	1.8	**TKB58C**	**71B5/B14**	**7112**	43
	14.0	233	**200**	200.66	7030	2.1				
	18.5	176	**150**	151.20	6390	2.8				
	22.2	146	**125**	125.95	6010	3.4				
	5.8	559	**250**	240.89	8300	0.9	**TKM58C**	**71B5/B14**	**7124**	37
	7.0	466	**200**	200.66	8300	1.1	**TKB58C**	**71B5/B14**	**7124**	43
	9.3	351	**150**	151.20	8050	1.4				
	11.1	292	**125**	125.95	7580	1.7				
	14.1	230	**100**	99.22	7000	2.2				
	18.6	175	**75**	75.45	6390	2.9				
	22.4	145	**60**	62.43	6000	3.1				
	28.5	114	**50**	49.18	5540	3.1				
	23.7	140	**60**	59.04	5890	3.3	**TKM58B**	**71B5/B14**	**7124**	36
	29.1	114	**50**	48.18	5500	4.4	**TKB58B**	**71B5/B14**	**7124**	42
	6.0	546	**150**	151.20	8300	0.9	**TKM58C**	**80B5/B14**	**8016**	37
	7.1	455	**125**	125.95	8300	1.1	**TKB58C**	**80B5/B14**	**8016**	43
	9.1	358	**100**	99.22	8110	1.4				
	11.9	273	**75**	75.45	7400	1.8				
	14.4	225	**60**	62.43	6950	2.0				
	18.3	178	**50**	49.18	6420	2.0				
	15.2	218	**60**	59.04	6820	2.1	**TKM58B**	**80B5/B14**	**8016**	36
	18.7	178	**50**	48.18	6370	2.8	**TKB58B**	**80B5/B14**	**8016**	42
	22.4	148	**40**	40.13	6000	3.4				
0.55	38	129	**75**	74.62	2550	1.0	**TKM28C**	**71B5/B14**	**7122**	31
	45	108	**60**	62.36	2400	1.1				
	53	90	**50**	52.36	2270	1.2				

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs				Page
0.55	48	103	**60**	58.36	2350	1.1	**TKM28B**	**71B5/B14**	**7122**	30
	57	86	**50**	48.86	2220	1.5				
	70	71	**40**	40.09	2070	1.8				
	95	52	**30**	29.33	1870	2.5				
	116	42	**25**	24.07	1750	3.1				
	139	36	**20**	20.21	1650	3.6				
	35	141	**40**	40.09	2610	0.9	**TKM28B**	**80B5/B14**	**8014**	30
	48	103	**30**	29.33	2350	1.3				
	58	85	**25**	24.07	2200	1.5				
	69	71	**20**	20.21	2080	1.8				
	94	53	**15**	14.92	1880	2.5				
	112	44	**12.5**	12.47	1770	3.0				
	134	37	**10**	10.47	1670	3.5				
	181	27	**7.5**	7.73	1510	3.7				
	37	132	**25**	24.07	2550	1.0	**TKM28B**	**80B5/B14**	**8026**	30
	45	111	**20**	20.21	2410	1.2				
	60	82	**15**	14.92	2180	1.6				
	72	68	**12.5**	12.47	2050	1.9				
	86	57	**10**	10.47	1930	2.3				
	116	42	**7.5**	7.73	1750	2.4				
	22.9	211	**125**	122.22	3440	0.9	**TKM38C**	**71B5/B14**	**7122**	33
	27.6	175	**100**	101.27	3230	1.1	**TKB38C**	**71B5/B14**	**7122**	39
	38	127	**75**	73.33	2900	1.3				
	44	109	**60**	63.33	2760	1.3				
	53	91	**50**	52.48	2590	1.3				
	46	107	**60**	60.50	2720	1.6	**TKM38B**	**71B5/B14**	**7122**	32
	57	86	**50**	48.71	2530	2.3	**TKB38B**	**71B5/B14**	**7122**	38
	71	69	**40**	39.29	2350	2.9				
	92	53	**30**	30.31	2160	3.7				
	28.7	172	**50**	48.71	3190	1.2	**TKM38B**	**80B5/B14**	**8014**	32
	36	139	**40**	39.29	2970	1.4	**TKB38B**	**80B5/B14**	**8014**	38
	46	107	**30**	30.31	2720	1.9				
	57	86	**25**	24.44	2530	2.3				
	69	71	**20**	20.25	2380	2.8				
	95	52	**15**	14.67	2130	3.7				
	110	45	**12.5**	12.67	2030	3.7				
	133	37	**10**	10.50	1910	3.6				
	184	27	**7.5**	7.60	1710	3.7				
	22.9	216	**40**	39.29	3440	0.9	**TKM38B**	**80B5/B14**	**8026**	32
	29.7	166	**30**	30.31	3150	1.2	**TKB38B**	**80B5/B14**	**8026**	38
	37	134	**25**	24.44	2930	1.5				
	44	111	**20**	20.25	2760	1.8				
	61	80	**15**	14.67	2470	2.4				
	71	70	**12.5**	12.67	2360	2.4				
	86	58	**10**	10.50	2210	2.3				
	118	42	**7.5**	7.60	1990	2.4				
	14.0	346	**200**	200.66	5540	1.0	**TKM48C**	**71B5/B14**	**7122**	35
	18.5	261	**150**	151.20	5040	1.3	**TKB48C**	**71B5/B14**	**7122**	41
	22.2	217	**125**	125.95	4750	1.6				
	28.2	171	**100**	99.22	4380	2.0				
	37	130	**75**	75.45	4000	2.7				
	45	108	**60**	62.43	3750	3.2				
	57	85	**50**	49.18	3470	4.1				
	47	105	**60**	59.44	3690	3.3	**TKM48B**	**71B5/B14**	**7122**	34
	58	85	**50**	48.18	3440	4.1	**TKB48B**	**71B5/B14**	**7122**	40
	14.1	342	**100**	99.22	5520	1.0	**TKM48C**	**80B5/B14**	**8014**	35
	18.6	260	**75**	75.45	5040	1.3	**TKB48C**	**80B5/B14**	**8014**	41

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs				Page
0.55	22.4	215	**60**	62.43	4730	1.6	**TKM48C**	**80B5/B14**	**8014**	35
	28.5	170	**50**	49.18	4370	2.1	**TKB48C**	**80B5/B14**	**8014**	41
	23.6	210	**60**	59.44	4660	1.7	**TKM48B**	**80B5/B14**	**8014**	34
	29.1	170	**50**	48.18	4340	2.1	**TKB48B**	**80B5/B14**	**8014**	40
	35	142	**40**	40.13	4080	2.5				
	46	107	**30**	30.24	3720	3.3				
	56	89	**25**	25.19	3500	3.9				
	14.4	335	**60**	62.43	5480	1.0	**TKM48C**	**80B5/B14**	**8026**	35
	18.3	264	**50**	49.18	5060	1.3	**TKB48C**	**80B5/B14**	**8026**	41
	15.1	326	**60**	59.44	5390	1.1	**TKM48B**	**80B5/B14**	**8026**	34
	18.7	264	**50**	48.18	5030	1.3	**TKB48B**	**80B5/B14**	**8026**	40
	22.4	220	**40**	40.13	4730	1.6				
	29.8	166	**30**	30.24	4310	2.1				
	36	138	**25**	25.19	4050	2.5				
	45	109	**20**	19.84	3740	3.2				
	60	83	**15**	15.09	3410	4.2				
	9.5	509	**300**	295.18	7990	0.9	**TKM58C**	**71B5/B14**	**7122**	37
	11.6	416	**250**	240.89	7470	1.2	**TKB58C**	**71B5/B14**	**7122**	43
	14.0	346	**200**	200.66	7030	1.4				
	18.5	261	**150**	151.20	6390	1.9				
	22.2	217	**125**	125.95	6010	2.3				
	28.2	171	**100**	99.22	5550	2.9				
	37	130	**75**	75.45	5070	3.8				
	45	108	**60**	62.43	4760	4.2				
	57	85	**50**	49.18	4390	4.1				
	9.3	522	**150**	151.20	8050	1.0	**TKM58C**	**80B5/B14**	**8014**	37
	11.1	435	**125**	125.95	7580	1.2	**TKB58C**	**80B5/B14**	**8014**	43
	14.1	342	**100**	99.22	7000	1.5				
	18.6	260	**75**	75.45	6390	1.9				
	22.4	215	**60**	62.43	6000	2.1				
	28.5	170	**50**	49.18	5540	2.1				
	23.7	208	**60**	59.04	5890	2.2	**TKM58B**	**80B5/B14**	**8014**	36
	29.1	170	**50**	48.18	5500	2.9	**TKB58B**	**80B5/B14**	**8014**	42
	35	142	**40**	40.13	5170	3.5				
	9.1	533	**100**	99.22	8110	0.9	**TKM58C**	**80B5/B14**	**8026**	37
	11.9	405	**75**	75.45	7400	1.2	**TKB58C**	**80B5/B14**	**8026**	43
	14.4	335	**60**	62.43	6950	1.3				
	18.3	264	**50**	49.18	6420	1.3				
	15.2	324	**60**	59.04	6820	1.4	**TKM58B**	**80B5/B14**	**8026**	36
	18.7	264	**50**	48.18	6370	1.9	**TKB58B**	**80B5/B14**	**8026**	42
	22.4	220	**40**	40.13	6000	2.3				
	29.8	166	**30**	30.24	5460	3.0				
	36	138	**25**	25.19	5130	3.6				
0.75	57	117	**50**	48.86	2220	1.1	**TKM28B**	**80B5/B14**	**8012**	30
	70	96	**40**	40.09	2070	1.3				
	95	71	**30**	29.33	1870	1.8				
	116	58	**25**	24.07	1750	2.2				
	139	49	**20**	20.21	1650	2.7				
	188	36	**15**	14.92	1490	3.6				
	48	141	**30**	29.33	2350	0.9	**TKM28B**	**80B5/B14**	**8024**	30
	58	116	**25**	24.07	2200	1.1				
	69	97	**20**	20.21	2080	1.3				
	94	72	**15**	14.92	1880	1.8				
	112	60	**12.5**	12.47	1770	2.2				
	134	50	**10**	10.47	1670	2.6				
	181	37	**7.5**	7.73	1510	2.7				

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs			Page
0.75	60	112	**15**	14.92	2180	1.2	**TKM28B**	**90B5/B14**	**90S6**	30
	72	93	**12.5**	12.47	2050	1.4				
	86	78	**10**	10.47	1930	1.7				
	116	58	**7.5**	7.73	1750	1.7				
	38	173	**75**	73.33	2900	0.9	**TKM38C**	**80B5/B14**	**8012**	33
	44	149	**60**	63.33	2760	0.9	**TKB38C**	**80B5/B14**	**8012**	39
	53	124	**50**	52.48	2590	1.0				
	46	145	**60**	60.50	2720	1.2	**TKM38B**	**80B5/B14**	**8012**	32
	57	117	**50**	48.71	2530	1.7	**TKB38B**	**80B5/B14**	**8012**	38
	71	94	**40**	39.29	2350	2.1				
	92	73	**30**	30.31	2160	2.7				
	115	59	**25**	24.44	2010	3.4				
	138	49	**20**	20.25	1890	4.1				
	28.7	234	**50**	48.71	3190	0.9	**TKM38B**	**80B5/B14**	**8024**	32
	36	189	**40**	39.29	2970	1.1	**TKB38B**	**80B5/B14**	**8024**	38
	46	146	**30**	30.31	2720	1.4				
	57	118	**25**	24.44	2530	1.7				
	69	97	**20**	20.25	2380	2.1				
	95	71	**15**	14.67	2130	2.7				
	110	61	**12.5**	12.67	2030	2.7				
	133	50	**10**	10.50	1910	2.7				
	184	37	**7.5**	7.60	1710	2.7				
	37	183	**25**	24.44	2930	1.1	**TKM38B**	**90B5/B14**	**90S6**	32
	44	151	**20**	20.25	2760	1.3	**TKB38B**	**90B5/B14**	**90S6**	38
	61	110	**15**	14.67	2470	1.7				
	71	95	**12.5**	12.67	2360	1.7				
	86	79	**10**	10.50	2210	1.7				
	118	57	**7.5**	7.60	1990	1.8				
	18.5	356	**150**	151.20	5040	1.0	**TKM48C**	**80B5/B14**	**8012**	35
	22.2	296	**125**	125.95	4750	1.2	**TKB48C**	**80B5/B14**	**8012**	41
	28.2	234	**100**	99.22	4380	1.5				
	37	178	**75**	75.45	4000	2.0				
	45	147	**60**	62.43	3750	2.4				
	57	116	**50**	49.18	3470	3.0				
	47	143	**60**	59.44	3690	2.4	**TKM48B**	**80B5/B14**	**8012**	34
	58	116	**50**	48.18	3440	3.0	**TKB48B**	**80B5/B14**	**8012**	40
	70	96	**40**	40.13	3240	3.6				
	18.6	355	**75**	75.45	5040	1.0	**TKM48C**	**80B5/B14**	**8024**	35
	22.4	294	**60**	62.43	4730	1.2	**TKB48C**	**80B5/B14**	**8024**	41
	28.5	231	**50**	49.18	4370	1.5				
	23.6	286	**60**	59.44	4660	1.2	**TKM48B**	**80B5/B14**	**8024**	34
	29.1	232	**50**	48.18	4340	1.5	**TKB48B**	**80B5/B14**	**8024**	40
	35	193	**40**	40.13	4080	1.8				
	46	145	**30**	30.24	3720	2.4				
	56	121	**25**	25.19	3500	2.9				
	71	95	**20**	19.84	3230	3.7				
	18.7	360	**50**	48.18	5030	1.0	**TKM48B**	**90B5/B14**	**90S6**	34
	22.4	300	**40**	40.13	4730	1.2	**TKB48B**	**90B5/B14**	**90S6**	40
	29.8	226	**30**	30.24	4310	1.5				
	36	188	**25**	25.19	4050	1.9				
	45	148	**20**	19.84	3740	2.4				
	60	113	**15**	15.09	3410	3.1				
	72	93	**12.5**	12.49	3210	3.7				
	11.6	567	**250**	240.89	7470	0.9	**TKM58C**	**80B5/B14**	**8012**	37
	14.0	472	**200**	200.66	7030	1.1	**TKB58C**	**80B5/B14**	**8012**	43
	18.5	356	**150**	151.20	6390	1.4				
	22.2	296	**125**	125.95	6010	1.7				

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs			Page
0.75	28.2	234	**100**	99.22	5550	2.1	**TKM58C**	**80B5/B14**	**8012**	37
	37	178	**75**	75.45	5070	2.8	**TKB58C**	**80B5/B14**	**8012**	43
	45	147	**60**	62.43	4760	3.1				
	57	116	**50**	49.18	4390	3.0				
	14.1	467	**100**	99.22	7000	1.1	**TKM58C**	**80B5/B14**	**8024**	37
	18.6	355	**75**	75.45	6390	1.4	**TKB58C**	**80B5/B14**	**8024**	43
	22.4	294	**60**	62.43	6000	1.5				
	28.5	231	**50**	49.18	5540	1.5				
	23.7	284	**60**	59.04	5890	1.6	**TKM58B**	**80B5/B14**	**8024**	36
	29.1	232	**50**	48.18	5500	2.2	**TKB58B**	**80B5/B14**	**8024**	42
	35	193	**40**	40.13	5170	2.6				
	46	145	**30**	30.24	4710	3.4				
	56	121	**25**	25.19	4430	4.1				
	11.9	552	**75**	75.45	7400	0.9	**TKM58C**	**90B5/B14**	**90S6**	37
	14.4	457	**60**	62.43	6950	1.0	**TKB58C**	**90B5/B14**	**90S6**	43
	18.3	360	**50**	49.18	6420	1.0				
	15.2	442	**60**	59.04	6820	1.0	**TKM58B**	**90B5/B14**	**90S6**	36
	18.7	360	**50**	48.18	6370	1.4	**TKB58B**	**90B5/B14**	**90S6**	42
	22.4	300	**40**	40.13	6000	1.7				
	29.8	226	**30**	30.24	5460	2.2				
	36	188	**25**	25.19	5130	2.7				
	45	148	**20**	19.84	4740	3.4				
	60	113	**15**	15.09	4330	4.4				
1.1	70	141	**40**	40.09	2070	0.9	**TKM28B**	**80B5/B14**	**8022**	30
	95	103	**30**	29.33	1870	1.3				
	116	85	**25**	24.07	1750	1.5				
	139	71	**20**	20.21	1650	1.8				
	188	53	**15**	14.92	1490	2.5				
	225	44	**12.5**	12.47	1400	3.0				
	267	37	**10**	10.47	1320	3.5				
	362	27	**7.5**	7.73	1200	3.7				
	69	143	**20**	20.21	2080	0.9	**TKM28B**	**90B5/B14**	**90S4**	30
	94	105	**15**	14.92	1880	1.2				
	112	88	**12.5**	12.47	1770	1.5				
	134	74	**10**	10.47	1670	1.8				
	181	55	**7.5**	7.73	1510	1.8				
	72	137	**12.5**	12.47	2050	1.0	**TKM28B**	**90B5/B14**	**90L6**	30
	86	115	**10**	10.47	1930	1.1				
	116	85	**7.5**	7.73	1750	1.2				
	57	172	**50**	48.71	2530	1.2	**TKM38B**	**80B5/B14**	**8022**	32
	71	139	**40**	39.29	2350	1.4	**TKB38B**	**80B5/B14**	**8022**	38
	92	107	**30**	30.31	2160	1.9				
	115	86	**25**	24.44	2010	2.3				
	138	71	**20**	20.25	1890	2.8				
	191	52	**15**	14.67	1690	3.7				
	221	45	**12.5**	12.67	1610	3.7				
	267	37	**10**	10.50	1510	3.6				
	368	27	**7.5**	7.60	1360	3.7				
	46	214	**30**	30.31	2720	0.9	**TKM38B**	**90B5/B14**	**90S4**	32
	57	172	**25**	24.44	2530	1.2	**TKB38B**	**90B5/B14**	**90S4**	38
	69	143	**20**	20.25	2380	1.4				
	95	103	**15**	14.67	2130	1.8				
	110	89	**12.5**	12.67	2030	1.8				
	133	74	**10**	10.50	1910	1.8				
	184	54	**7.5**	7.60	1710	1.9				
	44	222	**20**	20.25	2760	0.9	**TKM38B**	**90B5/B14**	**90L6**	32
	61	161	**15**	14.67	2470	1.2	**TKB38B**	**90B5/B14**	**90L6**	38

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs				Page
1.1	71	139	**12.5**	12.67	2360	1.2	**TKM38B**	**90B5/B14**	**90L6**	32
	86	115	**10**	10.50	2210	1.2	**TKB38B**	**90B5/B14**	**90L6**	38
	118	83	**7.5**	7.60	1990	1.2				
	28.2	342	**100**	99.22	4380	1.0	**TKM48C**	**80B5/B14**	**8022**	35
	37	260	**75**	75.45	4000	1.3	**TKB48C**	**80B5/B14**	**8022**	41
	45	215	**60**	62.43	3750	1.6				
	57	170	**50**	49.18	3470	2.1				
	47	210	**60**	59.44	3690	1.7	**TKM48B**	**80B5/B14**	**8022**	34
	58	170	**50**	48.18	3440	2.1	**TKB48B**	**80B5/B14**	**8022**	40
	70	142	**40**	40.13	3240	2.5				
	93	107	**30**	30.24	2950	3.3				
	111	89	**25**	25.19	2770	3.9				
	29.1	340	**50**	48.18	4340	1.0	**TKM48B**	**90B5/B14**	**90S4**	34
	35	283	**40**	40.13	4080	1.2	**TKB48B**	**90B5/B14**	**90S4**	40
	46	213	**30**	30.24	3720	1.6				
	56	178	**25**	25.19	3500	2.0				
	71	140	**20**	19.84	3230	2.5				
	93	106	**15**	15.09	2950	3.3				
	112	88	**12.5**	12.49	2770	4.0				
	29.8	332	**30**	30.24	4310	1.1	**TKM48B**	**90B5/B14**	**90L6**	34
	36	276	**25**	25.19	4050	1.3	**TKB48B**	**90B5/B14**	**90L6**	40
	45	218	**20**	19.84	3740	1.6				
	60	166	**15**	15.09	3410	2.1				
	72	137	**12.5**	12.49	3210	2.6				
	91	108	**10**	9.84	2960	3.2				
	120	82	**7.5**	7.48	2700	3.4				
	18.5	522	**150**	151.20	6390	1.0	**TKM58C**	**80B5/B14**	**8022**	37
	22.2	435	**125**	125.95	6010	1.2	**TKB58C**	**80B5/B14**	**8022**	43
	28.2	342	**100**	99.22	5550	1.5				
	37	260	**75**	75.45	5070	1.9				
	45	215	**60**	62.43	4760	2.1				
	57	170	**50**	49.18	4390	2.1				
	47	208	**60**	59.04	4670	2.2	**TKM58B**	**80B5/B14**	**8022**	36
	58	170	**50**	48.18	4360	2.9	**TKB58B**	**80B5/B14**	**8022**	42
	70	142	**40**	40.13	4110	3.5				
	18.6	521	**75**	75.45	6390	1.0	**TKM58C**	**90B5/B14**	**90S4**	37
	22.4	431	**60**	62.43	6000	1.0	**TKB58C**	**90B5/B14**	**90S4**	43
	28.5	340	**50**	49.18	5540	1.0				
	23.7	416	**60**	59.04	5890	1.1	**TKM58B**	**90B5/B14**	**90S4**	36
	29.1	340	**50**	48.18	5500	1.5	**TKB58B**	**90B5/B14**	**90S4**	42
	35	283	**40**	40.13	5170	1.8				
	46	213	**30**	30.24	4710	2.3				
	56	178	**25**	25.19	4430	2.8				
	71	140	**20**	19.84	4090	3.6				
	18.7	529	**50**	48.18	6370	0.9	**TKM58B**	**90B5/B14**	**90L6**	36
	22.4	440	**40**	40.13	6000	1.1	**TKB58B**	**90B5/B14**	**90L6**	42
	29.8	332	**30**	30.24	5460	1.5				
	36	276	**25**	25.19	5130	1.8				
	45	218	**20**	19.84	4740	2.3				
	60	166	**15**	15.09	4330	3.0				
	72	137	**12.5**	12.49	4060	3.4				
	91	108	**10**	9.84	3750	3.3				
	120	82	**7.5**	7.48	3420	3.4				
1.5	116	116	**25**	24.07	1750	1.1	**TKM28B**	**90B5/B14**	**90S2**	30
	139	97	**20**	20.21	1650	1.3				
	188	72	**15**	14.92	1490	1.8				
	225	60	**12.5**	12.47	1400	2.2				

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs			Page
1.5	267	50	**10**	10.47	1320	2.6	**TKM28B**	**90B5/B14**	**90S2**	30
	362	37	**7.5**	7.73	1200	2.7				
	94	144	**15**	14.92	1880	0.9	**TKM28B**	**90B5/B14**	**90L4**	30
	112	120	**12.5**	12.47	1770	1.1				
	134	101	**10**	10.47	1670	1.3				
	181	74	**7.5**	7.73	1510	1.3				
	57	234	**50**	48.71	2530	0.9	**TKM38B**	**90B5/B14**	**90S2**	32
	71	189	**40**	39.29	2350	1.1	**TKB38B**	**90B5/B14**	**90S2**	38
	92	146	**30**	30.31	2160	1.4				
	115	118	**25**	24.44	2010	1.7				
	138	97	**20**	20.25	1890	2.1				
	191	71	**15**	14.67	1690	2.7				
	221	61	**12.5**	12.67	1610	2.7				
	267	50	**10**	10.50	1510	2.7				
	368	37	**7.5**	7.60	1360	2.7				
	57	235	**25**	24.44	2530	0.9	**TKM38B**	**90B5/B14**	**90L4**	32
	69	195	**20**	20.25	2380	1.0	**TKB38B**	**90B5/B14**	**90L4**	38
	95	141	**15**	14.67	2130	1.3				
	110	122	**12.5**	12.67	2030	1.4				
	133	101	**10**	10.50	1910	1.3				
	184	73	**7.5**	7.60	1710	1.4				
	37	355	**75**	75.45	4000	1.0	**TKM48C**	**90B5/B14**	**90S2**	35
	45	294	**60**	62.43	3750	1.2	**TKB48C**	**90B5/B14**	**90S2**	41
	57	231	**50**	49.18	3470	1.5				
	47	286	**60**	59.44	3690	1.2	**TKM48B**	**90B5/B14**	**90S2**	34
	58	232	**50**	48.18	3440	1.5	**TKB48B**	**90B5/B14**	**90S2**	40
	70	193	**40**	40.13	3240	1.8				
	93	145	**30**	30.24	2950	2.4				
	111	121	**25**	25.19	2770	2.9				
	141	95	**20**	19.84	2560	3.7				
	35	386	**40**	40.13	4080	0.9	**TKM48B**	**90B5/B14**	**90L4**	34
	46	291	**30**	30.24	3720	1.2	**TKB48B**	**90B5/B14**	**90L4**	40
	56	242	**25**	25.19	3500	1.4				
	71	191	**20**	19.84	3230	1.8				
	93	145	**15**	15.09	2950	2.4				
	112	120	**12.5**	12.49	2770	2.9				
	142	95	**10**	9.84	2550	3.7				
	187	72	**7.5**	7.48	2330	3.9				
	28.2	467	**100**	99.22	5550	1.1	**TKM58C**	**90B5/B14**	**90S2**	37
	37	355	**75**	75.45	5070	1.4	**TKB58C**	**90B5/B14**	**90S2**	43
	45	294	**60**	62.43	4760	1.5				
	57	231	**50**	49.18	4390	1.5				
	47	284	**60**	59.04	4670	1.6	**TKM58B**	**90B5/B14**	**90S2**	36
	58	232	**50**	48.18	4360	2.2	**TKB58B**	**90B5/B14**	**90S2**	42
	70	193	**40**	40.13	4110	2.6				
	93	145	**30**	30.24	3740	3.4				
	111	121	**25**	25.19	3520	4.1				
	29.1	463	**50**	48.18	5500	1.1	**TKM58B**	**90B5/B14**	**90L4**	36
	35	386	**40**	40.13	5170	1.3	**TKB58B**	**90B5/B14**	**90L4**	42
	46	291	**30**	30.24	4710	1.7				
	56	242	**25**	25.19	4430	2.1				
	71	191	**20**	19.84	4090	2.6				
	93	145	**15**	15.09	3730	3.4				
	112	120	**12.5**	12.49	3510	3.8				
	142	95	**10**	9.84	3240	3.8				
	187	72	**7.5**	7.48	2950	3.9				

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs				Page
2.2	139	143	**20**	20.21	1650	0.9	**TKM28B**	**90B5/B14**	**90L2**	30
	188	105	**15**	14.92	1490	1.2				
	225	88	**12.5**	12.47	1400	1.5				
	267	74	**10**	10.47	1320	1.8				
	362	55	**7.5**	7.73	1200	1.8				
	92	214	**30**	30.31	2160	0.9	**TKM38B**	**90B5/B14**	**90L2**	32
	115	172	**25**	24.44	2010	1.2	**TKB38B**	**90B5/B14**	**90L2**	38
	138	143	**20**	20.25	1890	1.4				
	191	103	**15**	14.67	1690	1.8				
	221	89	**12.5**	12.67	1610	1.8				
	267	74	**10**	10.50	1510	1.8				
	368	54	**7.5**	7.60	1360	1.9				
	58	340	**50**	48.18	3440	1.0	**TKM48B**	**90B5/B14**	**90L2**	34
	70	283	**40**	40.13	3240	1.2	**TKB48B**	**90B5/B14**	**90L2**	40
	93	213	**30**	30.24	2950	1.6				
	111	178	**25**	25.19	2770	2.0				
	141	140	**20**	19.84	2560	2.5				
	186	106	**15**	15.09	2340	3.3				
	224	88	**12.5**	12.49	2190	4.0				
	56	355	**25**	25.19	3500	1.0	**TKM48B**	**100B5/B14**	**100LA4**	34
	71	280	**20**	19.84	3230	1.3	**TKB48B**	**100B5/B14**	**100LA4**	40
	93	213	**15**	15.09	2950	1.6				
	112	176	**12.5**	12.49	2770	2.0				
	142	139	**10**	9.84	2550	2.5				
	187	106	**7.5**	7.48	2330	2.7				
	60	331	**15**	15.09	3410	1.1	**TKM48B**	**112B5/B14**	**112M6**	34
	72	274	**12.5**	12.49	3210	1.3	**TKB48B**	**112B5/B14**	**112M6**	40
	91	216	**10**	9.84	2960	1.6				
	120	164	**7.5**	7.48	2700	1.7				
	37	521	**75**	75.45	5070	1.0	**TKM58C**	**90B5/B14**	**90L2**	37
	45	431	**60**	62.43	4760	1.0	**TKB58C**	**90B5/B14**	**90L2**	43
	57	340	**50**	49.18	4390	1.0				
	47	416	**60**	59.04	4670	1.1	**TKM58B**	**90B5/B14**	**90L2**	36
	58	340	**50**	48.18	4360	1.5	**TKB58B**	**90B5/B14**	**90L2**	42
	70	283	**40**	40.13	4110	1.8				
	93	213	**30**	30.24	3740	2.3				
	111	178	**25**	25.19	3520	2.8				
	141	140	**20**	19.84	3250	3.6				
	35	566	**40**	40.13	5170	0.9	**TKM58B**	**100B5/B14**	**100LA4**	36
	46	427	**30**	30.24	4710	1.2	**TKB58B**	**100B5/B14**	**100LA4**	42
	56	355	**25**	25.19	4430	1.4				
	71	280	**20**	19.84	4090	1.8				
	93	213	**15**	15.09	3730	2.3				
	112	176	**12.5**	12.49	3510	2.6				
	142	139	**10**	9.84	3240	2.6				
	187	106	**7.5**	7.48	2950	2.7				
	36	553	**25**	25.19	5130	0.9	**TKM58B**	**112B5/B14**	**112M6**	36
	45	435	**20**	19.84	4740	1.1	**TKB58B**	**112B5/B14**	**112M6**	42
	60	331	**15**	15.09	4330	1.5				
	72	274	**12.5**	12.49	4060	1.7				
	91	216	**10**	9.84	3750	1.7				
	120	164	**7.5**	7.48	3420	1.7				
3	70	386	**40**	40.13	3240	0.9	**TKM48B**	**100B5/B14**	**100L2**	34
	93	291	**30**	30.24	2950	1.2	**TKB48B**	**100B5/B14**	**100L2**	40
	111	242	**25**	25.19	2770	1.4				
	141	191	**20**	19.84	2560	1.8				

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs				Page
3	186	145	**15**	15.09	2340	2.4	**TKM48B**	**100B5/B14**	**100L2**	34
	224	120	**12.5**	12.49	2190	2.9	**TKB48B**	**100B5/B14**	**100L2**	40
	285	95	**10**	9.84	2030	3.7				
	374	72	**7.5**	7.48	1850	3.9				
	93	290	**15**	15.09	2950	1.2	**TKM48B**	**100B5/B14**	**100LB4**	34
	112	240	**12.5**	12.49	2770	1.5	**TKB48B**	**100B5/B14**	**100LB4**	40
	142	189	**10**	9.84	2550	1.8				
	187	144	**7.5**	7.48	2330	1.9				
	47	568	**60**	59.04	4670	0.8	**TKM58B**	**100B5/B14**	**100L2**	36
	58	463	**50**	48.18	4360	1.1	**TKB58B**	**100B5/B14**	**100L2**	42
	70	386	**40**	40.13	4110	1.3				
	93	291	**30**	30.24	3740	1.7				
	111	242	**25**	25.19	3520	2.1				
	141	191	**20**	19.84	3250	2.6				
	186	145	**15**	15.09	2960	3.4				
	224	120	**12.5**	12.49	2780	3.8				
	285	95	**10**	9.84	2570	3.8				
	374	72	**7.5**	7.48	2340	3.9				
	56	485	**25**	25.19	4430	1.0	**TKM58B**	**100B5/B14**	**100LB4**	36
	71	382	**20**	19.84	4090	1.3	**TKB58B**	**100B5/B14**	**100LB4**	42
	93	290	**15**	15.09	3730	1.7				
	112	240	**12.5**	12.49	3510	1.9				
	142	189	**10**	9.84	3240	1.9				
	187	144	**7.5**	7.48	2950	1.9				
4	111	323	**25**	25.19	2770	1.1	**TKM48B**	**112B5/B14**	**112M2**	34
	141	254	**20**	19.84	2560	1.4	**TKB48B**	**112B5/B14**	**112M2**	40
	186	194	**15**	15.09	2340	1.8				
	224	160	**12.5**	12.49	2190	2.2				
	285	126	**10**	9.84	2030	2.8				
	374	96	**7.5**	7.48	1850	2.9				
	112	320	**12.5**	12.49	2770	1.1	**TKM48B**	**112B5/B14**	**112M4**	34
	142	252	**10**	9.84	2550	1.4	**TKB48B**	**112B5/B14**	**112M4**	40
	187	192	**7.5**	7.48	2330	1.5				
	70	515	**40**	40.13	4110	1.0	**TKM58B**	**112B5/B14**	**112M2**	36
	93	388	**30**	30.24	3740	1.3	**TKB58B**	**112B5/B14**	**112M2**	42
	111	323	**25**	25.19	3520	1.5				
	141	254	**20**	19.84	3250	2.0				
	186	194	**15**	15.09	2960	2.6				
	224	160	**12.5**	12.49	2780	2.9				
	285	126	**10**	9.84	2570	2.9				
	374	96	**7.5**	7.48	2340	2.9				
	71	509	**20**	19.84	4090	1.0	**TKM58B**	**112B5/B14**	**112M4**	36
	93	387	**15**	15.09	3730	1.3	**TKB58B**	**112B5/B14**	**112M4**	42
	112	320	**12.5**	12.49	3510	1.4				
	142	252	**10**	9.84	3240	1.4				
	187	192	**7.5**	7.48	2950	1.5				

6.3 TKM / TKB.. HS Performance parameter

n_1=1400r/min

$M_{2\,max}$ [Nm]	n_2 [r/min]	i Nominal	i Actual	P_{1n} [kW]	Fr_2 [N]	Fr_1 [N]		Page
110	4.8	300	291.79	0.06	4100	400	**TKM28C..HS**	44
130	5.7	250	244.29	0.08	4100	400		
130	7	200	200.44	0.10	4100	400		
130	10	150	146.67	0.14	4000	400		
130	12	125	120.34	0.17	3770	400		
130	14	100	101.04	0.21	3560	400		
130	19	75	74.62	0.28	3220	400		
120	22	60	62.36	0.31	3030	400		
110	27	50	52.36	0.33	2860	400		
110	24	60	58.36	0.29	2960	400	**TKM28B..HS**	44
130	29	50	48.86	0.41	2790	400		
130	35	40	40.09	0.51	2610	400		
130	48	30	29.33	0.69	2350	400		
130	58	25	24.07	0.84	2200	400		
130	69	20	20.21	1.0	2080	400		
130	94	15	14.92	1.4	1880	400		
130	112	12.5	12.47	1.6	1770	400		
130	134	10	10.47	1.9	1670	400		
100	181	7.5	7.73	2.0	1510	400		
170	4.6	300	302.50	0.09	4800	400	**TKM38C..HS**	44
200	5.7	250	243.57	0.13	4800	400	**TKB38C..HS**	44
200	7.1	200	196.43	0.16	4800	400		
200	9.2	150	151.56	0.21	4650	400		
200	11	125	122.22	0.26	4330	400		
200	14	100	101.27	0.31	4070	400		
160	19	75	73.33	0.35	3650	400		
140	22	60	63.33	0.35	3480	400		
120	27	50	52.48	0.36	3270	400		
170	23	60	60.50	0.44	3430	530	**TKM38B..HS**	44
200	29	50	48.71	0.64	3190	530	**TKB38B..HS**	44
200	36	40	39.29	0.79	2970	530		
200	46	30	30.31	1.0	2720	530		
200	57	25	24.44	1.3	2530	530		
200	69	20	20.25	1.5	2380	530		
190	95	15	14.67	2.0	2130	530		
165	110	12.5	12.67	2.0	2030	530		
135	133	10	10.50	2.0	1910	530		
100	184	7.5	7.60	2.05	1710	530		
350	4.7	300	297.21	0.19	6500	560	**TKM48C..HS**	44
350	5.8	250	240.89	0.23	6500	560	**TKB48C..HS**	44
350	7	200	200.66	0.28	6500	560		
350	9.3	150	151.20	0.37	6500	560		
350	11	125	125.95	0.44	5980	560		
350	14	100	99.22	0.56	5520	560		
350	19	75	75.45	0.74	5040	560		
350	22	60	62.43	0.89	4730	560		
350	28	50	49.18	1.1	4370	560		
350	24	60	59.44	0.92	4660	860	**TKM48B..HS**	44
350	29	50	48.18	1.1	4340	860	**TKB48B..HS**	44
350	35	40	40.13	1.4	4080	860		
350	46	30	30.24	1.8	3720	860		
350	56	25	25.19	2.2	3500	860		

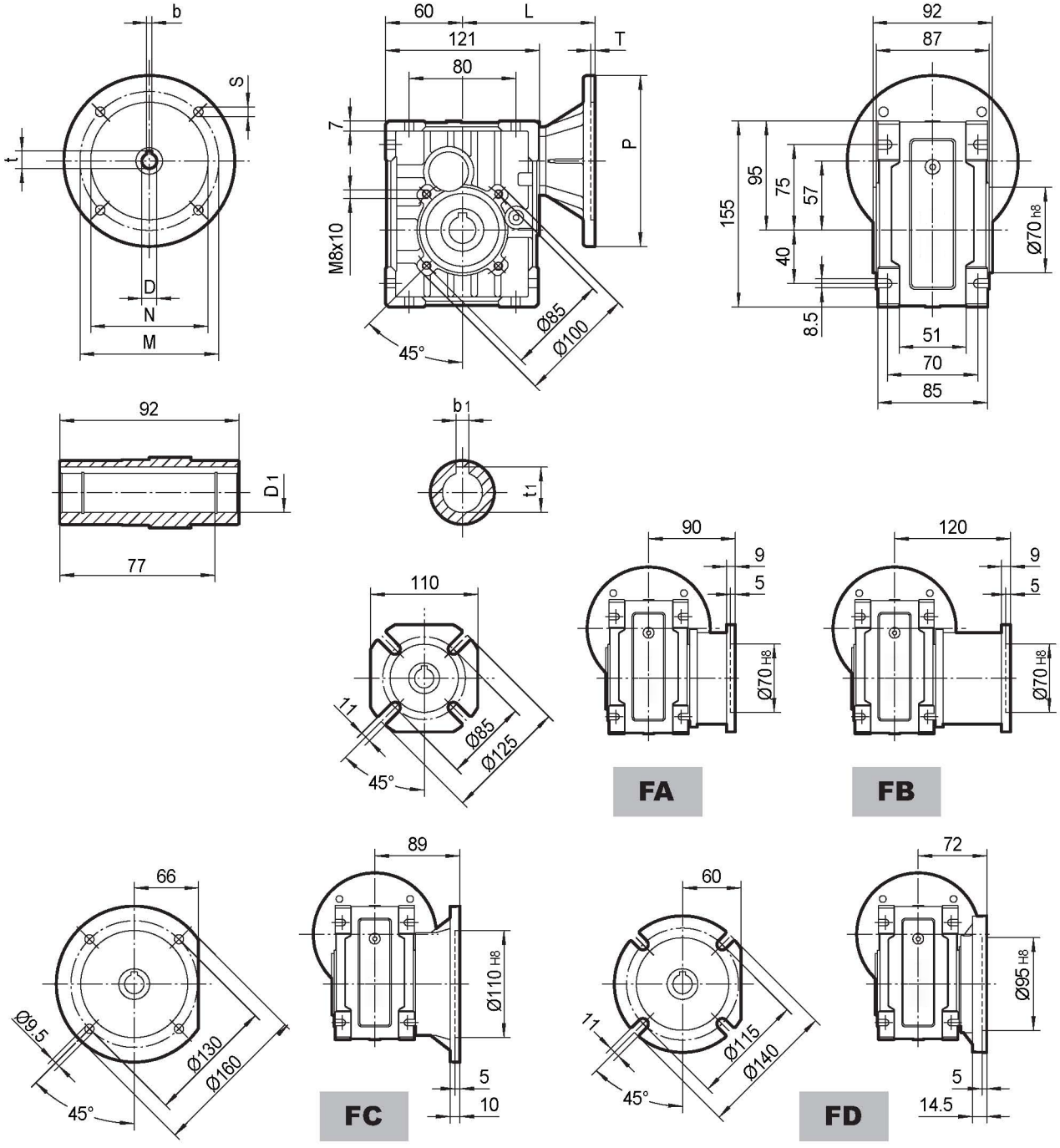
n_1=1400r/min

$M_{2\,max}$ [Nm]	n_2 [r/min]	i Nominal	i Actual	P_{1n} [kW]	Fr_2 [N]	Fr_1 [N]		Page
350	71	20	19.84	2.8	3230	860	**TKM48B..HS**	44
350	93	15	15.09	3.6	2950	860	**TKB48B..HS**	44
350	112	12.5	12.49	4.4	2770	860		
350	142	10	9.84	5.5	2550	860		
280	187	7.5	7.48	5.8	2330	860		
460	4.7	300	295.18	0.25	8300	560	**TKM58C..HS**	44
500	5.8	250	240.89	0.33	8300	560	**TKB58C..HS**	44
500	7	200	200.66	0.40	8300	560		
500	9.3	150	151.20	0.53	8050	560		
500	11	125	125.95	0.63	7580	560		
500	14	100	99.22	0.80	7000	560		
500	19	75	75.45	1.1	6390	560		
450	22	60	62.43	1.1	6000	560		
350	28	50	49.18	1.1	5540	560		
460	24	60	59.04	1.2	5890	1260	**TKM58B..HS**	44
500	29	50	48.18	1.6	5500	1260	**TKB58B..HS**	44
500	35	40	40.13	1.9	5170	1260		
500	46	30	30.24	2.6	4710	1260		
500	56	25	25.19	3.1	4430	1260		
500	71	20	19.84	3.9	4090	1260		
500	93	15	15.09	5.2	3730	1260		
460	112	12.5	12.49	5.7	3510	1260		
360	142	10	9.84	5.7	3240	1260		
280	187	7.5	7.48	5.8	2950	1260		

7. OUTLINE DIMENSION SHEET

7.1 TKM.. Outline Dimension

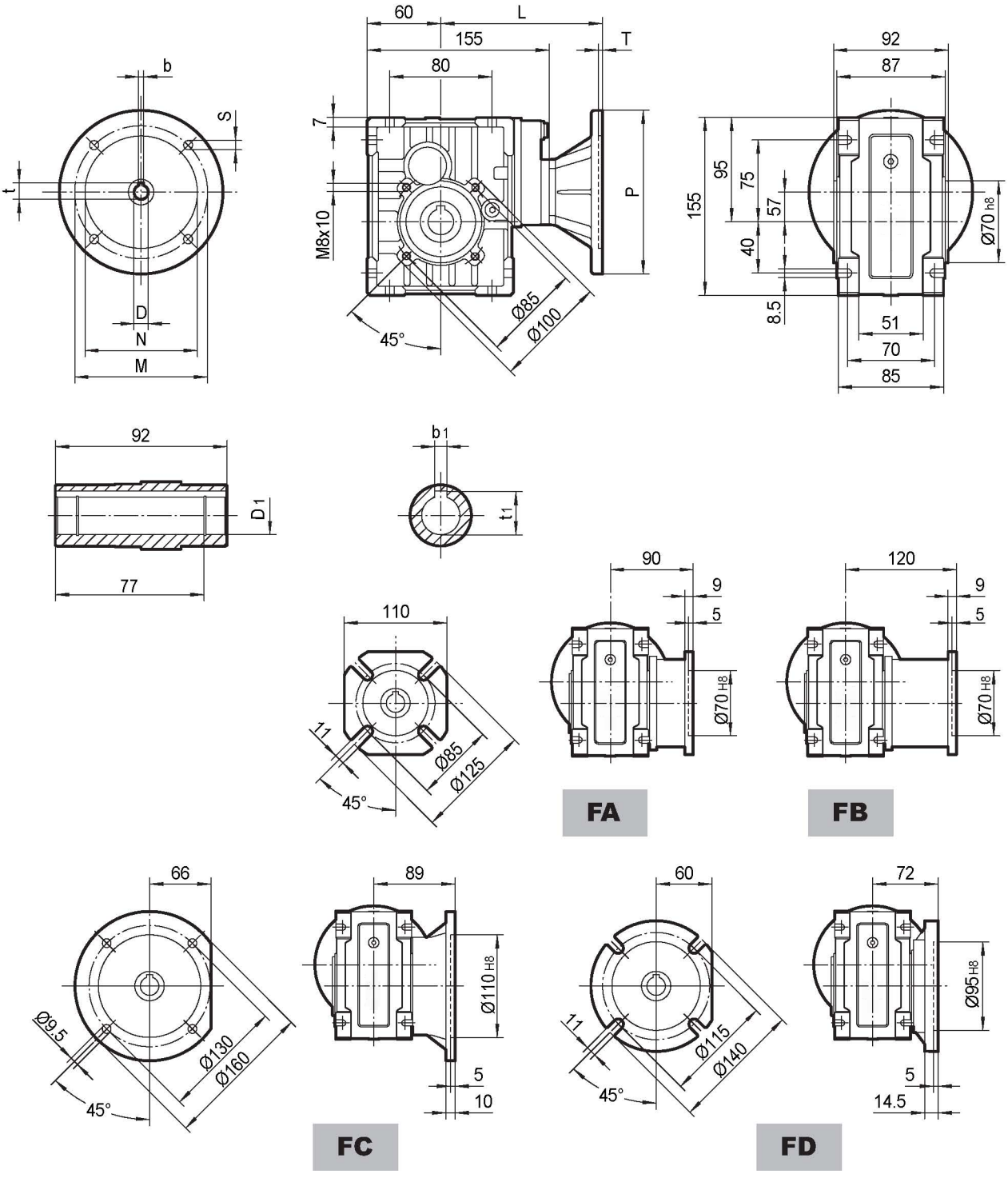
TKM28B..



IEC	DE8	b	t	P	M	N	S	T	L	D1 H8	b1	t1
63B5	11	4	12.8	140	115	95	9	4	106	20 *	6 *	22.8 *
71B5	14	5	16.3	160	130	110	9	4	113	24 *	8 *	27.3 *
71B14	14	5	16.3	105	85	70	7	4	113	25	8	28.3
80B5	19	6	21.8	200	165	130	11	4	133	* Only on request		
80B14	19	6	21.8	120	100	80	7	4	133			
90B14	24	8	27.3	140	115	95	9	4	133			

Weight without motor
≈ 4.2 kg

TKM28C..

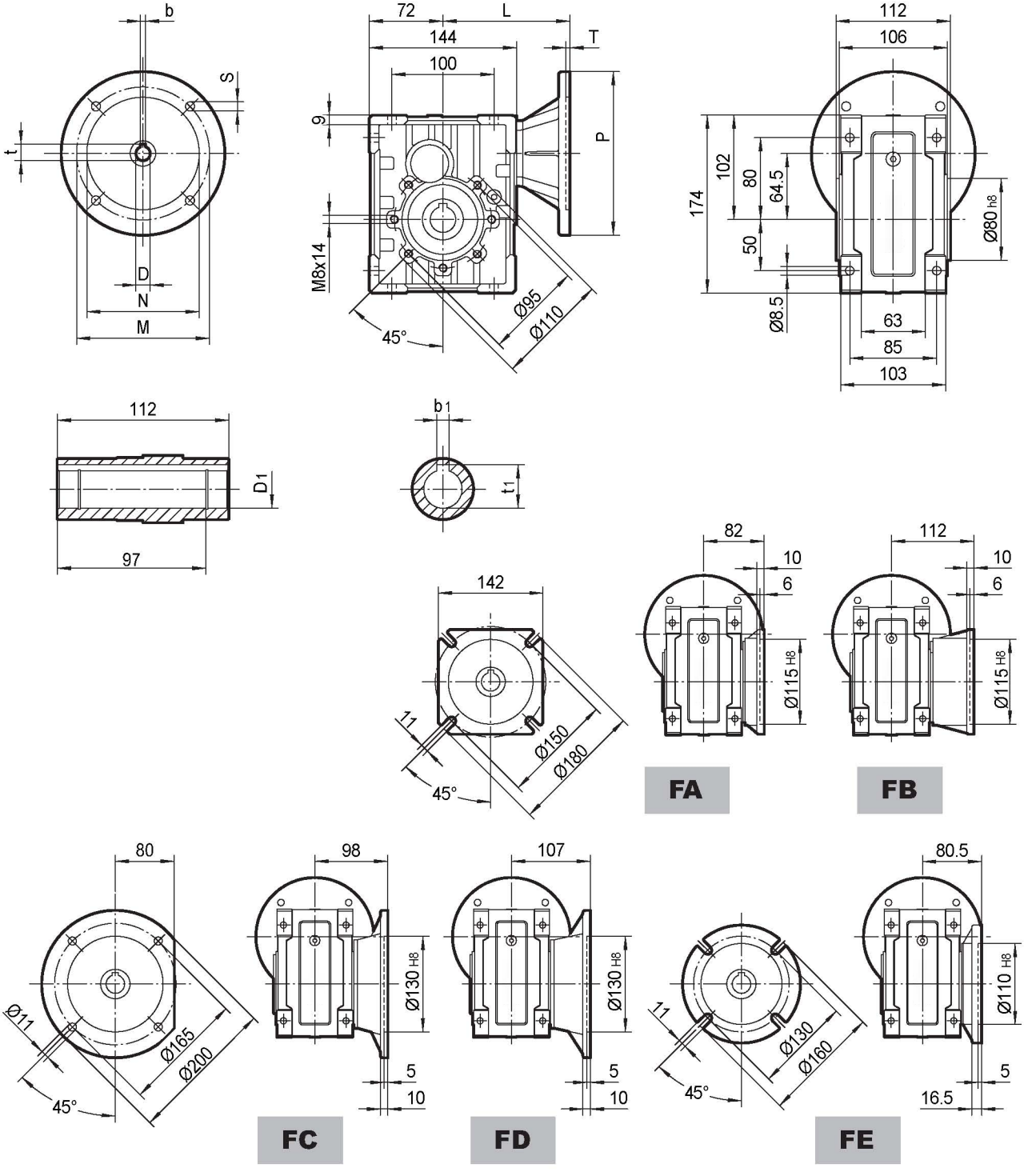


IEC	D_{E8}	b	t	P	M	N	S	T	L	$D_{1\ H8}$	b_1	t_1
63B5	11	4	12.8	140	115	95	9	4	140	20*	6*	22.8*
71B5	14	5	16.3	160	130	110	9	4	147	24*	8*	27.3*
71B14	14	5	16.3	105	85	70	7	4	147	25	8	28.3
80B5	19	6	21.8	200	165	130	11	4	167	* Only on request		
80B14	19	6	21.8	120	100	80	7	4	167			
90B14	24	8	27.3	140	115	95	9	4	167			

Weight without motor

≈ 5 kg

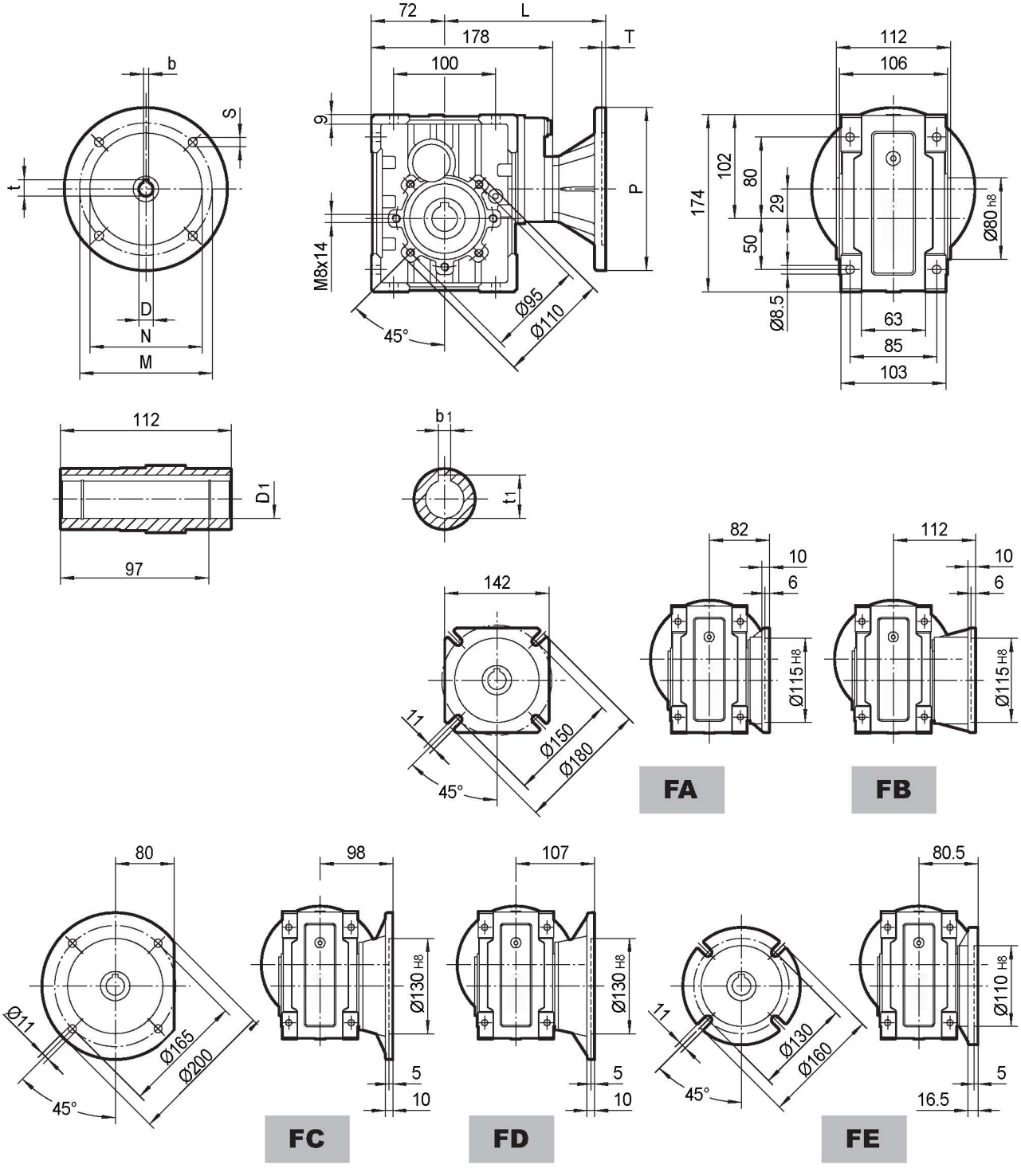
TKM38B..



IEC	D_{E8}	b	t	P	M	N	S	T	L	$D_{1\ H8}$	b_1	t_1
71B5	14	5	16.3	160	130	110	9	4	124	25	8	28.3
71B14	14	5	16.3	105	85	70	7	4	124	28*	8*	31.3*
80B5	19	6	21.8	200	165	130	11	4	144	30*	8*	33.3*
80B14	19	6	21.8	120	100	80	7	4	144	* Only on request		
90B5	24	8	27.3	200	165	130	11	4	144			
90B14	24	8	27.3	140	115	95	9	4	144			

Weight without motor
≈ 6.0 kg

TKM38C..

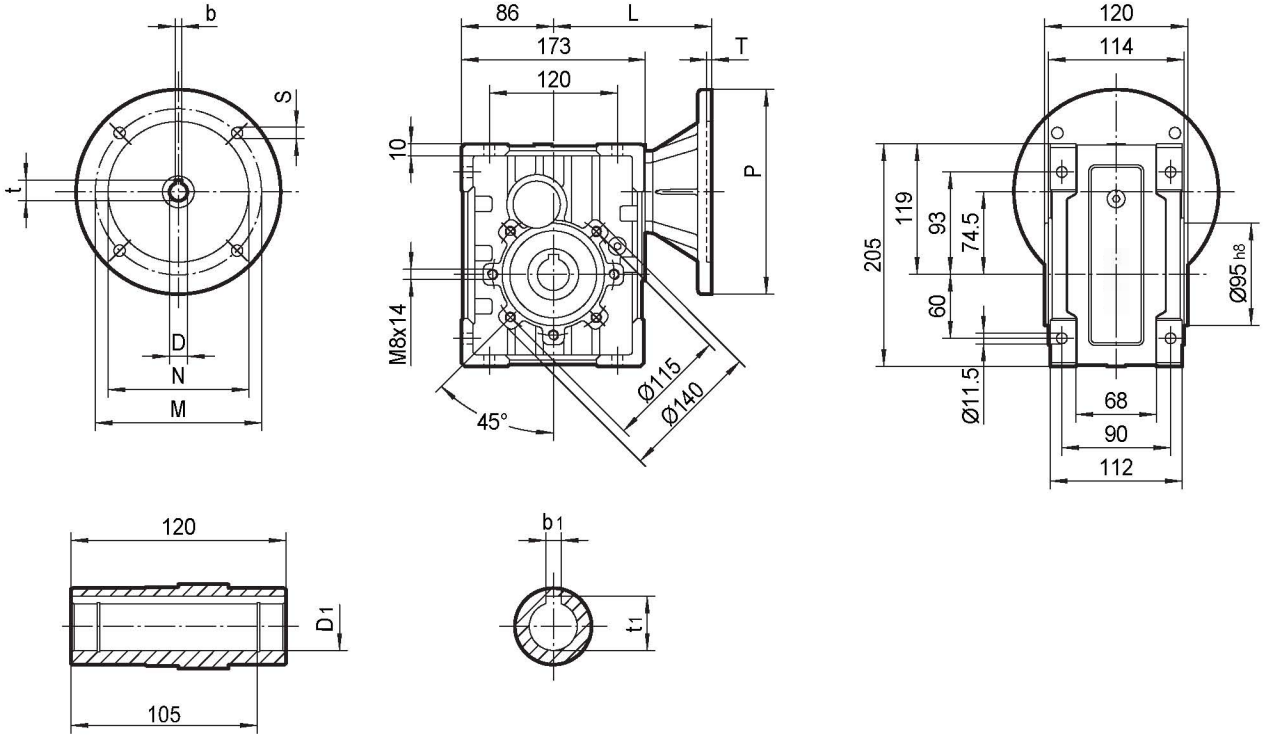


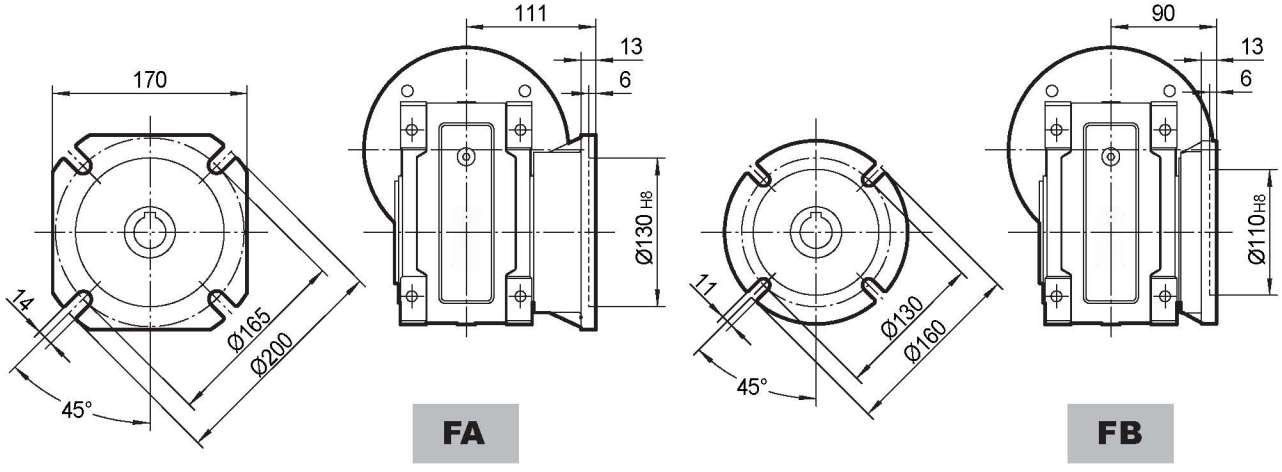
IEC	D E8	b	t	P	M	N	S	T	L	D1 H8	b1	t1
71B5	14	5	16.3	160	130	110	9	4	158	25	8	28.3
71B14	14	5	16.3	105	85	70	7	4	158	28*	8*	31.3*
80B5	19	6	21.8	200	165	130	11	4	178	30*	8*	33.3*
80B14	19	6	21.8	120	100	80	7	4	178	* Only on request		
90B5	24	8	27.3	200	165	130	11	4	178			
90B14	24	8	27.3	140	115	95	9	4	178			

Weight without motor

≈ 6.8 kg

TKM48B..

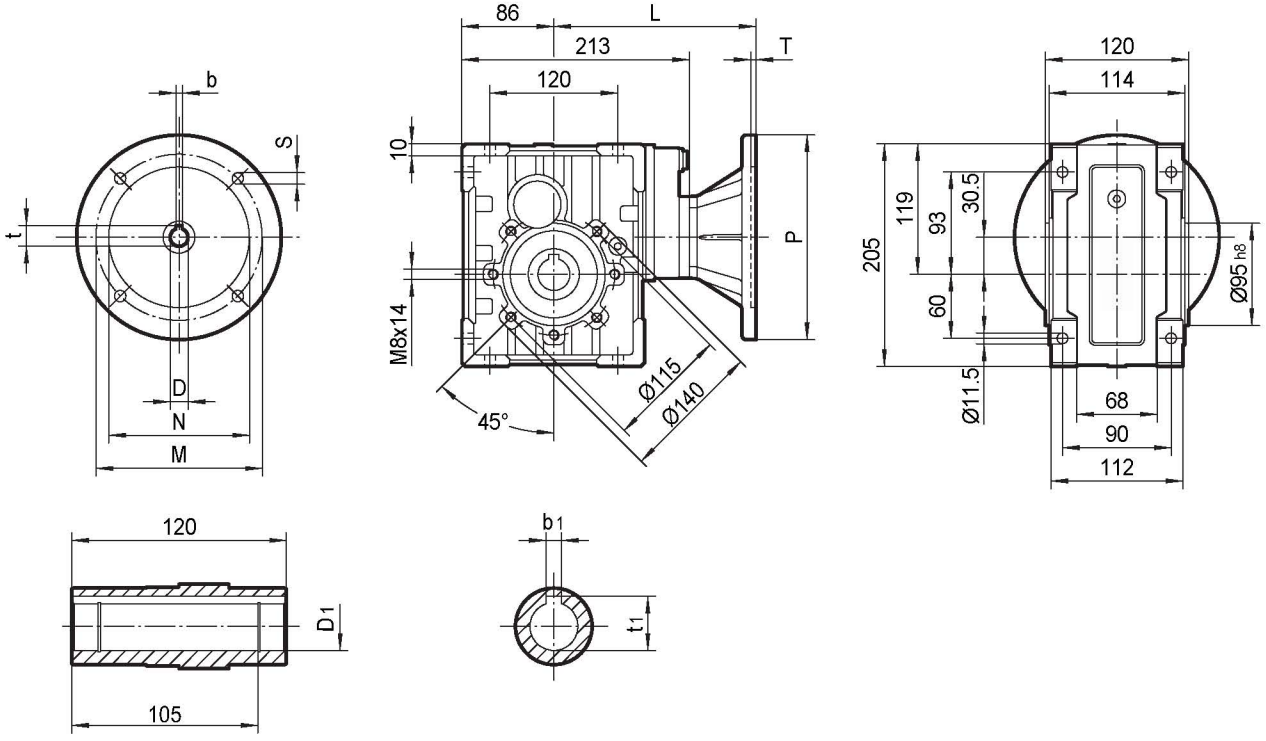


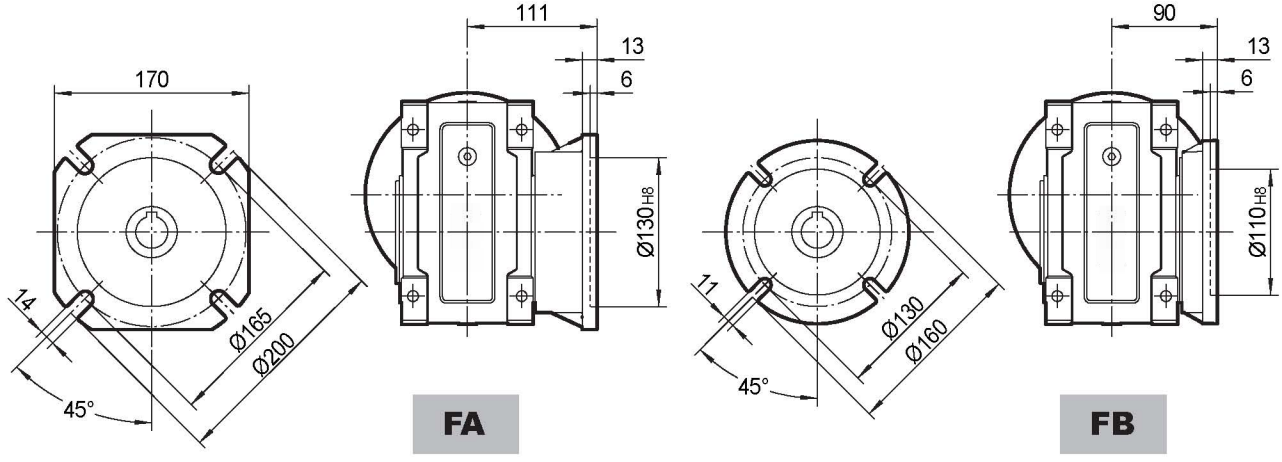


IEC	D E8	b	t	P	M	N	S	T	L	D1 H8	b1	t1
63B5	11	4	12.8	140	115	95	9	4	139	28	8	31.3
71B5	14	5	16.3	160	130	110	9	4	146	30*	8*	33.3*
80B5	19	6	21.8	200	165	130	11	4	166	35*	10*	38.3*
80B14	19	6	21.8	120	100	80	7	4	166	* Only on request		
90B5	24	8	27.3	200	165	130	11	4	166			
90B14	24	8	27.3	140	115	95	9	4	166			
100/112B5	28	8	31.3	250	215	180	13.5	4.5	176			
100/112B14	28	8	31.3	160	130	110	9	4.5	176			

Weight without motor
≈ 9.2 kg

TKM48C..



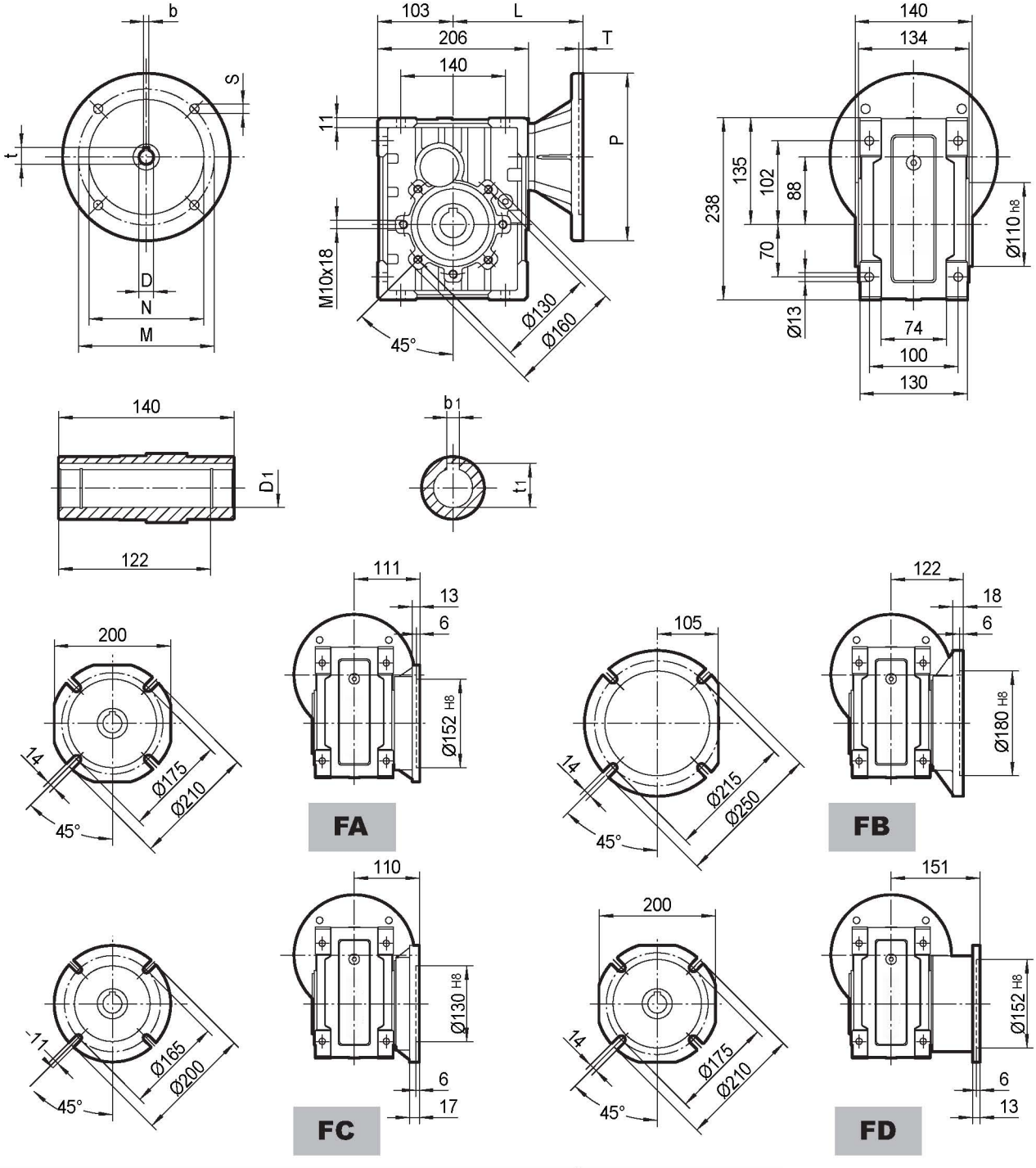


IEC	D E8	b	t	P	M	N	S	T	L	D1 H8	b1	t1
63B5	11	4	12.8	140	115	95	9	4	179	28	8	31.3
71B5	14	5	16.3	160	130	110	9	4	186	30*	8*	33.3*
80B5	19	6	21.8	200	165	130	11	4	206	35*	10*	38.3*
80B14	19	6	21.8	120	100	80	7	4	206	* Only on request		
90B5	24	8	27.3	200	165	130	11	4	206			
90B14	24	8	27.3	140	115	95	9	4	206			
100/112B5	28	8	31.3	250	215	180	13.5	4.5	216			
100/112B14	28	8	31.3	160	130	110	9	4.5	216			

Weight without motor

≈ 10.8 kg

TKM58B..

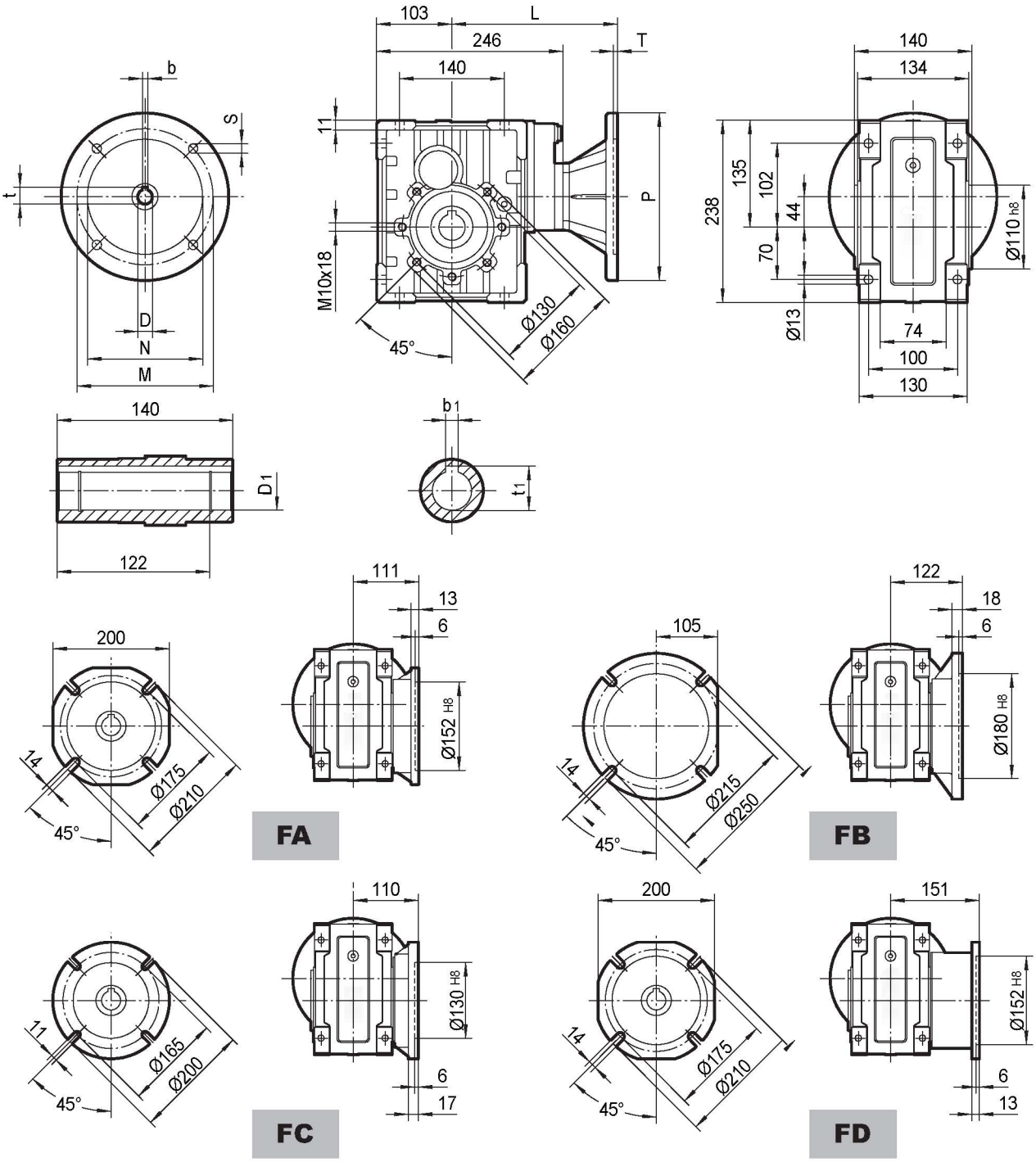


IEC	D_{E8}	b	t	P	M	N	S	T	L	$D_{1\ H8}$	b_1	t_1
63B5	11	4	12.8	140	115	95	9	4	155	35	10	38.3
71B5	14	5	16.3	160	130	110	9	4	162	38*	10*	41.3*
80B5	19	6	21.8	200	165	130	11	4	182	40*	10*	43.3*
80B14	19	6	21.8	120	100	80	7	4	182	* Only on request		
90B5	24	8	27.3	200	165	130	11	4	182			
90B14	24	8	27.3	140	115	95	9	4	182			
100/112B5	28	8	31.3	250	215	180	13.5	4.5	192			
100/112B14	28	8	31.3	160	130	110	9	4.5	192			

Weight without motor

≈ 13.3 kg

TKM58C..



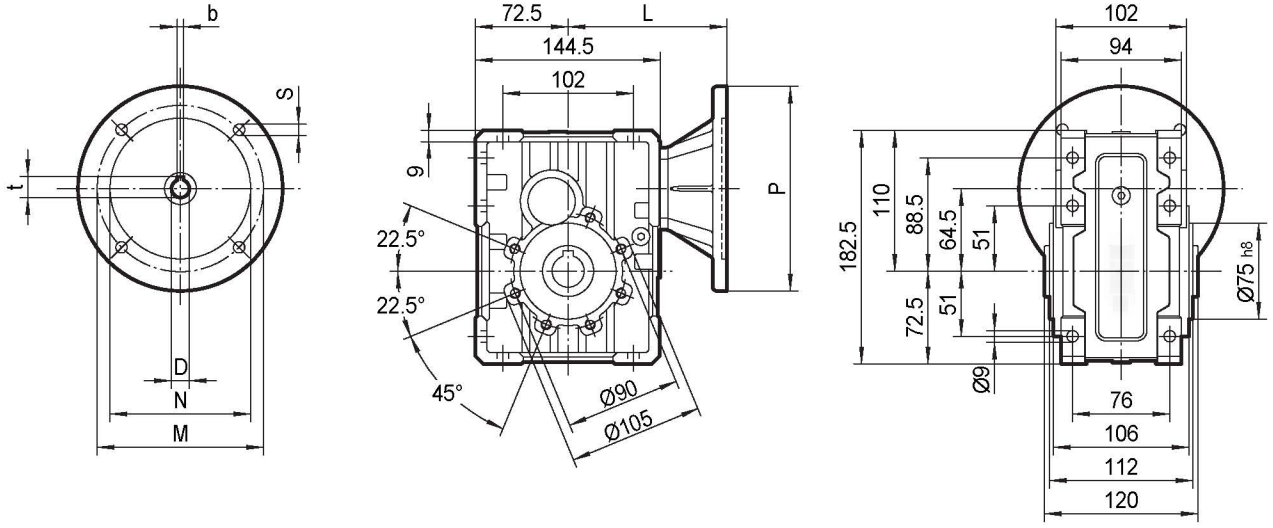
IEC	D_{E8}	b	t	P	M	N	S	T	L	$D_{1\ H8}$	b_1	t_1
63B5	11	4	12.8	140	115	95	9	4	195	35	10	38.3
71B5	14	5	16.3	160	130	110	9	4	202	38*	10*	41.3*
80B5	19	6	21.8	200	165	130	11	4	222	40*	10*	43.3*
80B14	19	6	21.8	120	100	80	7	4	222	* Only on request		
90B5	24	8	27.3	200	165	130	11	4	222			
90B14	24	8	27.3	140	115	95	9	4	222			
100/112B5	28	8	31.3	250	215	180	13.5	4.5	232			
100/112B14	28	8	31.3	160	130	110	9	4.5	232			

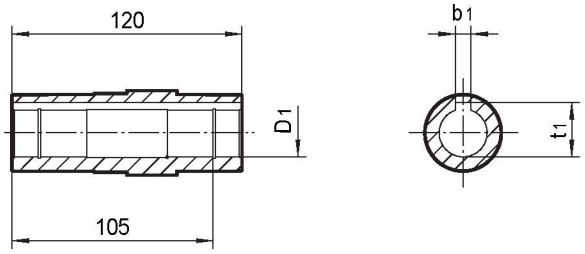
Weight without motor

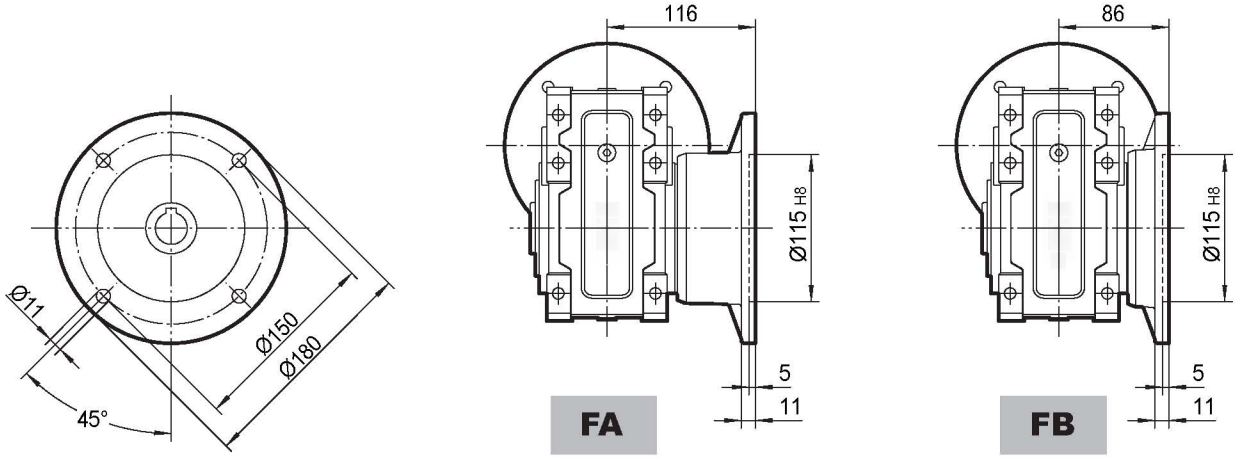
≈ 14.8 kg

7.2 TKB.. Outline Dimension

TKB38B..



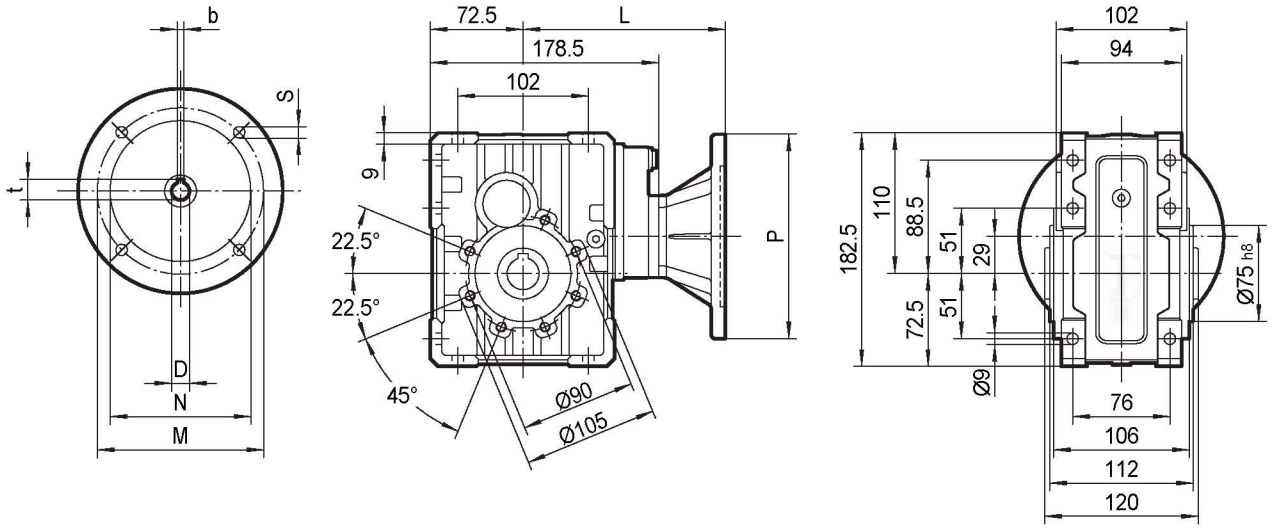


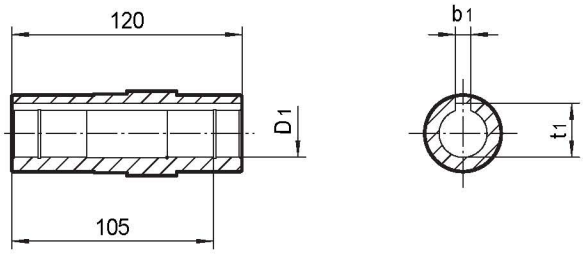


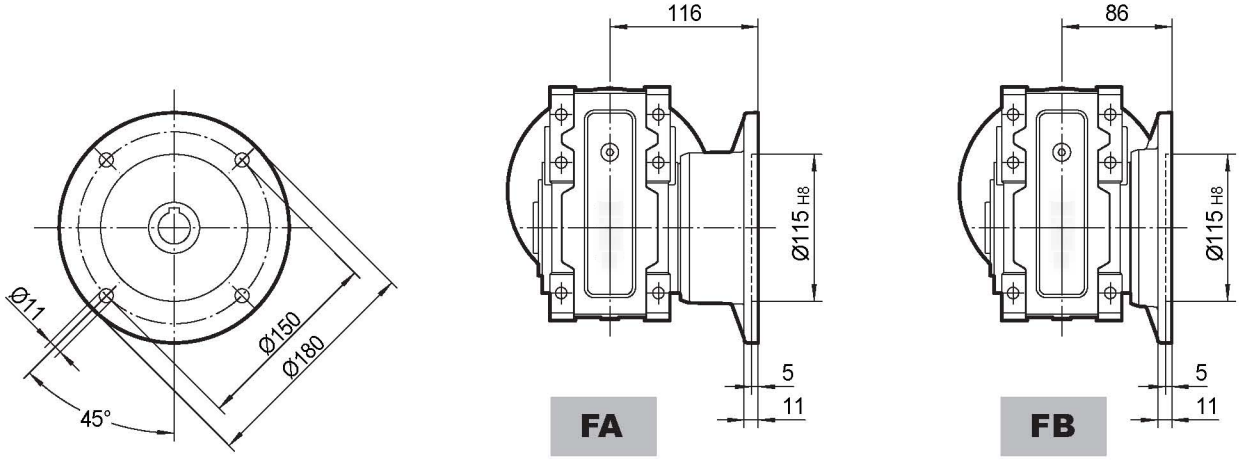
IEC	D_{E8}	b	t	P	M	N	S	T	L	$D_{1\ H8}$	b_1	t_1
71B5	14	5	16.3	160	130	110	9	4	124	25	8	28.3
71B14	14	5	16.3	105	85	70	7	4	124	28*	8*	31.3*
80B5	19	6	21.8	200	165	130	11	4	144	30*	8*	33.3*
80B14	19	6	21.8	120	100	80	7	4	144	* Only on request		
90B5	24	8	27.3	200	165	130	11	4	144			
90B14	24	8	27.3	140	115	95	9	4	144			

Weight without motor
≈ 6.0 kg

TKB38C..



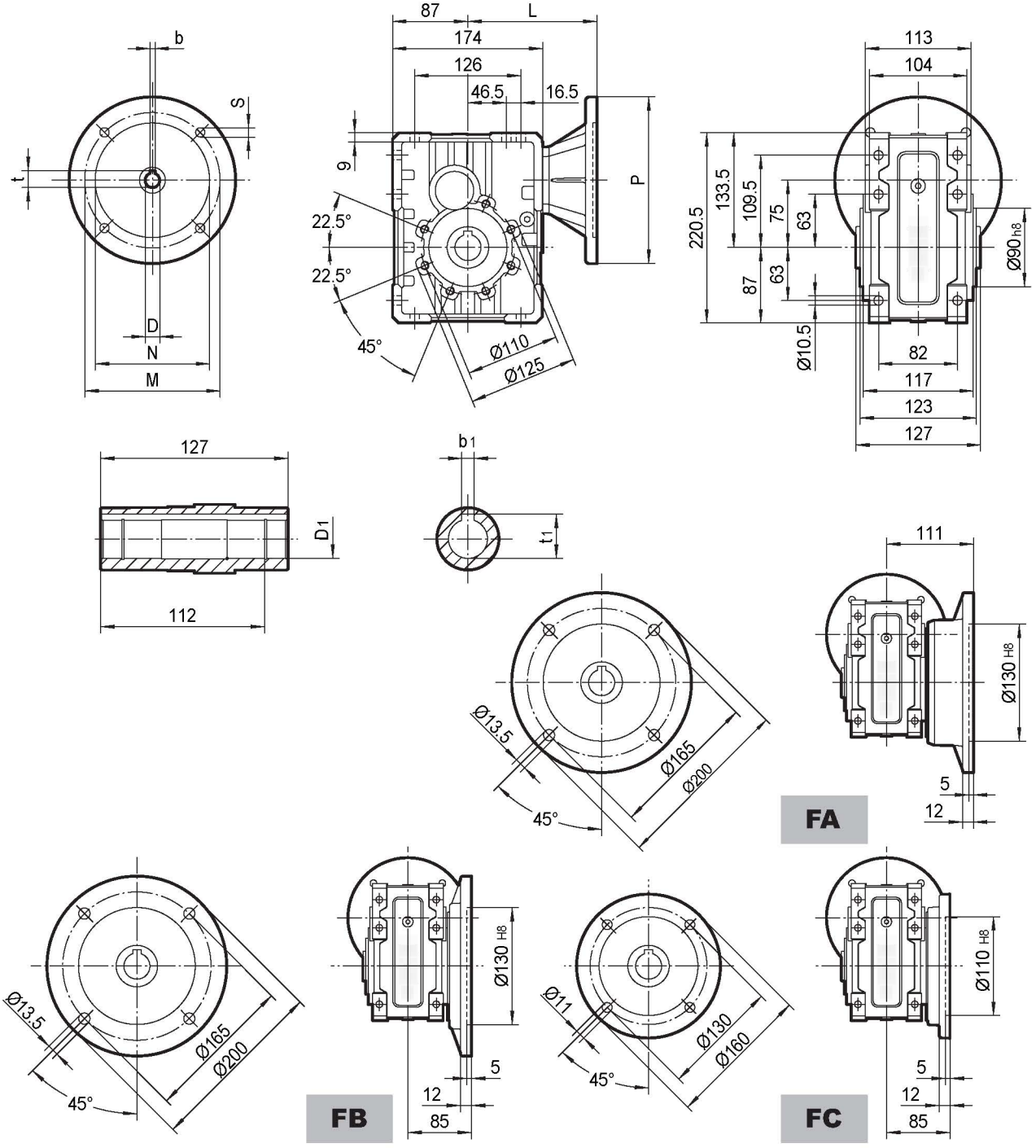




IEC	D_{E8}	b	t	P	M	N	S	T	L	$D_{1\ H8}$	b_1	t_1
71B5	14	5	16.3	160	130	110	9	4	158	25	8	28.3
71B14	14	5	16.3	105	85	70	7	4	158	28*	8*	31.3*
80B5	19	6	21.8	200	165	130	11	4	178	30*	8*	33.3*
80B14	19	6	21.8	120	100	80	7	4	178	* Only on request		
90B5	24	8	27.3	200	165	130	11	4	178			
90B14	24	8	27.3	140	115	95	9	4	178			

Weight without motor
≈ 6.8 kg

TKB48B..

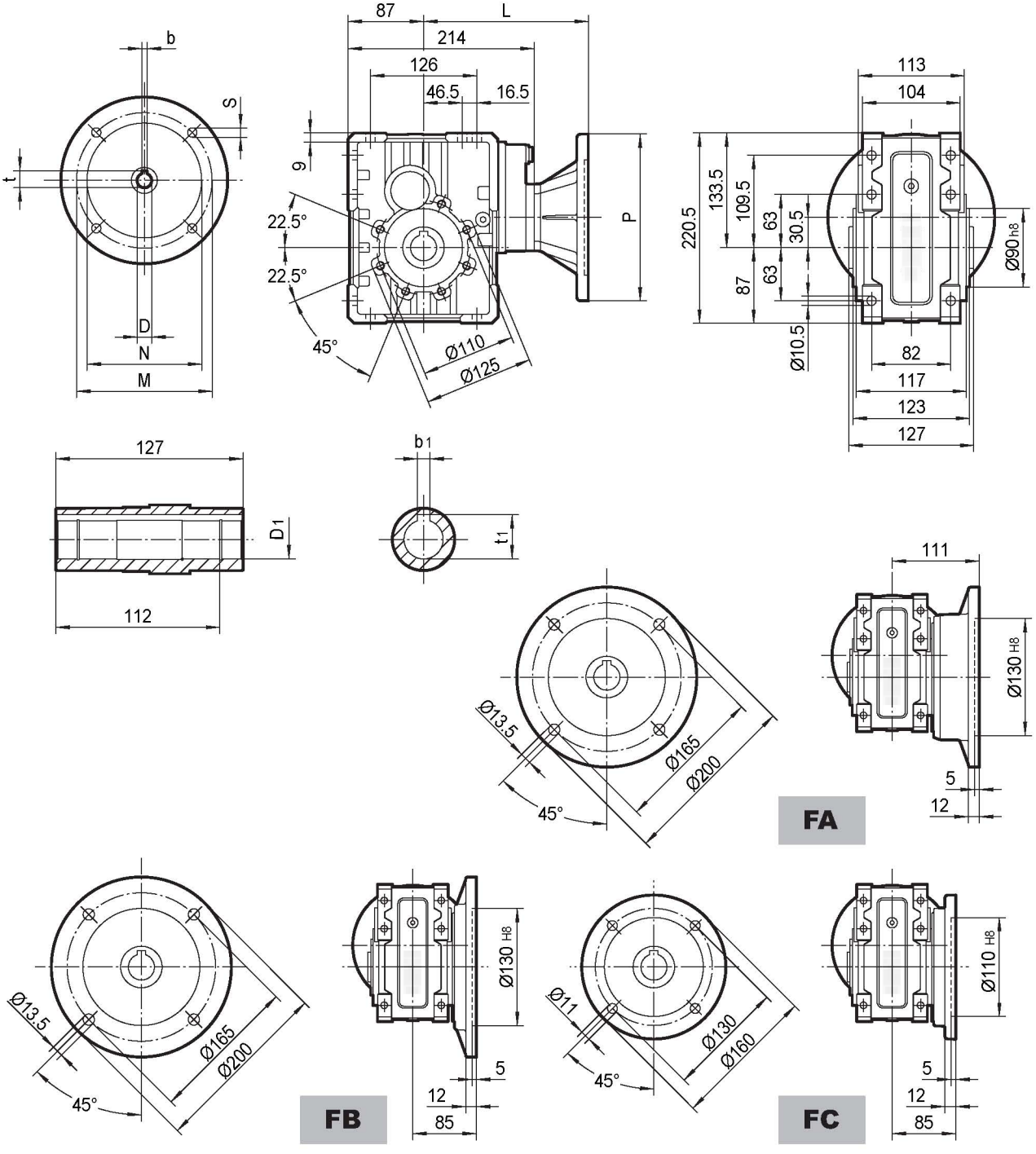


IEC	D_{E8}	b	t	P	M	N	S	T	L	$D_{1\ H8}$	b_1	t_1
63B5	11	4	12.8	140	115	95	9	4	139	28	8	31.3
71B5	14	5	16.3	160	130	110	9	4	146	30*	8*	33.3*
80B5	19	6	21.8	200	165	130	11	4	166	35*	10*	38.3*
80B14	19	6	21.8	120	100	80	7	4	166	* Only on request		
90B5	24	8	27.3	200	165	130	11	4	166			
90B14	24	8	27.3	140	115	95	9	4	166			
100/112B5	28	8	31.3	250	215	180	13.5	4.5	176			
100/112B14	28	8	31.3	160	130	110	9	4.5	176			

Weight without motor

≈ 9.5 kg

TKB48C..

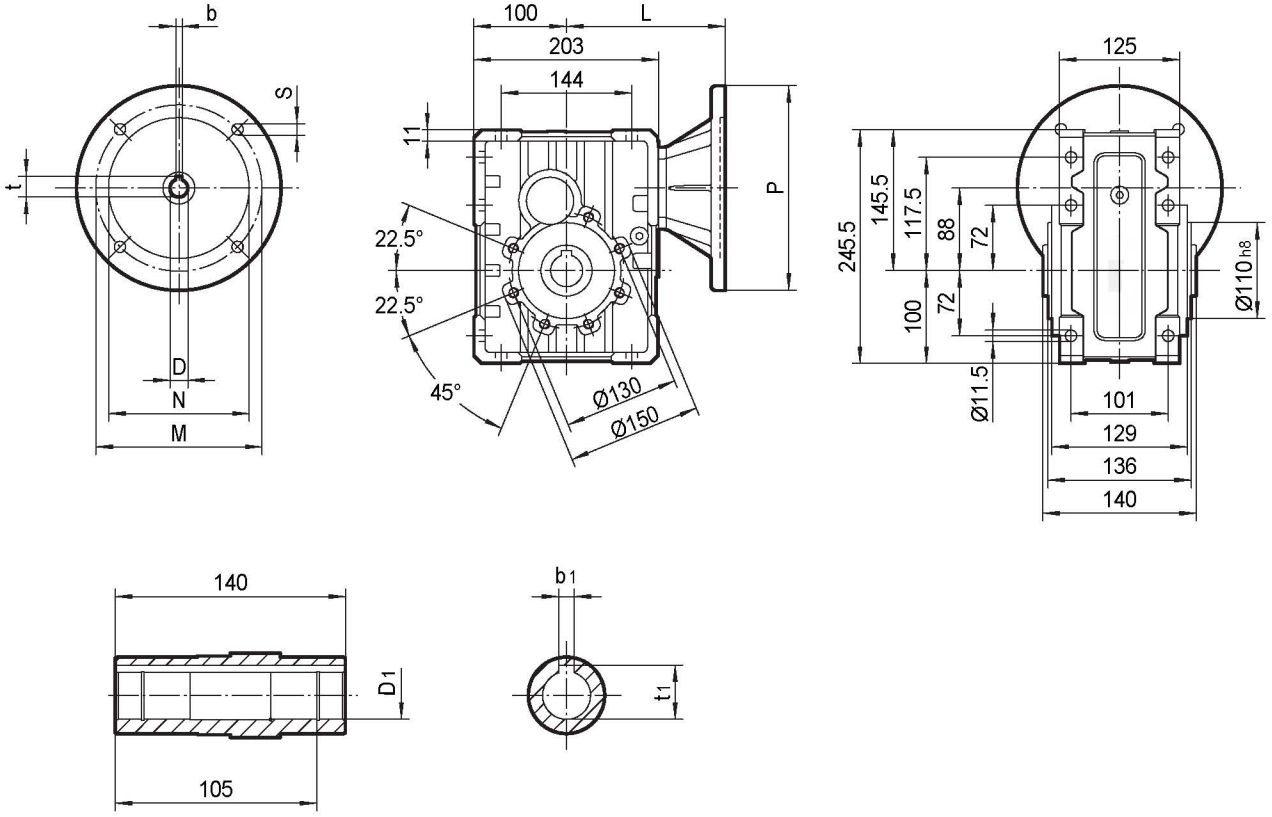


IEC	D_{E8}	b	t	P	M	N	S	T	L	$D_{1\ H8}$	b_1	t_1
63B5	11	4	12.8	140	115	95	9	4	179	28	8	31.3
71B5	14	5	16.3	160	130	110	9	4	186	30*	8*	33.3*
80B5	19	6	21.8	200	165	130	11	4	206	35*	10*	38.3*
80B14	19	6	21.8	120	100	80	7	4	206	* Only on request		
90B5	24	8	27.3	200	165	130	11	4	206			
90B14	24	8	27.3	140	115	95	9	4	206			
100/112B5	28	8	31.3	250	215	180	13.5	4.5	216			
100/112B14	28	8	31.3	160	130	110	9	4.5	216			

Weight without motor

≈ 10.8 kg

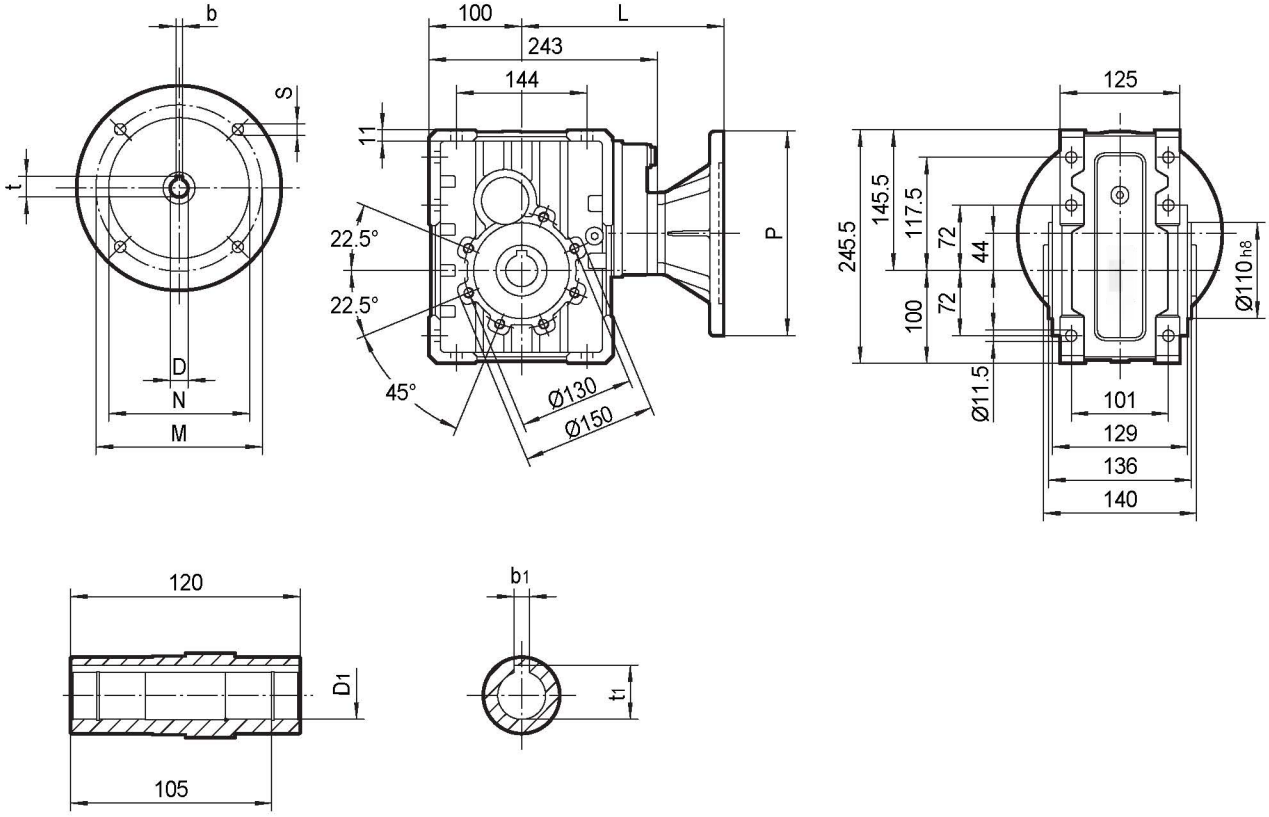
TKB58B..

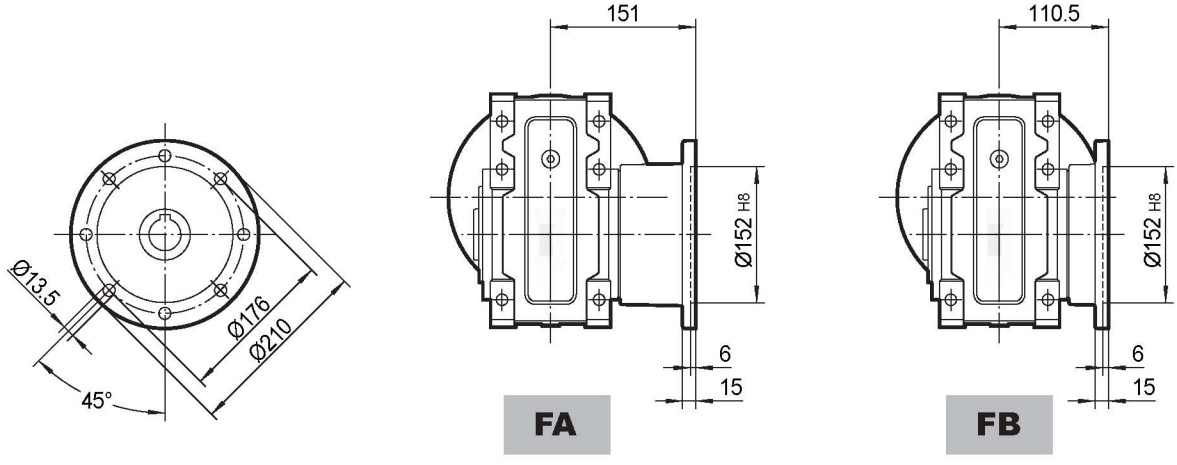


IEC	D_{E8}	b	t	P	M	N	S	T	L	$D_{1\ H8}$	b_1	t_1
63B5	11	4	12.8	140	115	95	9	4	155	35	10	38.3
71B5	14	5	16.3	160	130	110	9	4	162	38*	10*	41.3*
80B5	19	6	21.8	200	165	130	11	4	182	40*	10*	43.3*
80B14	19	6	21.8	120	100	80	7	4	182	* Only on request		
90B5	24	8	27.3	200	165	130	11	4	182			
90B14	24	8	27.3	140	115	95	9	4	182			
100/112B5	28	8	31.3	250	215	180	13.5	4.5	192			
100/112B14	28	8	31.3	160	130	110	9	4.5	192			

Weight without motor
≈ 13.5 kg

TKB58C..





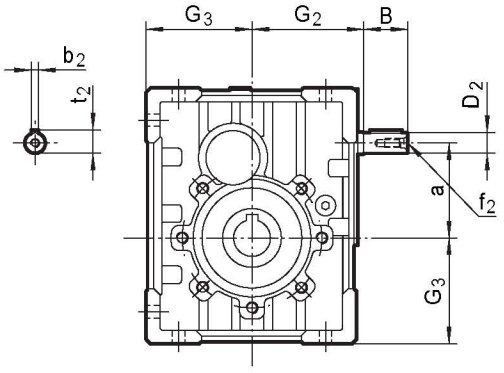
IEC	D E8	b	t	P	M	N	S	T	L	D1 H8	b1	t1
63B5	11	4	12.8	140	115	95	9	4	195	35	10	38.3
71B5	14	5	16.3	160	130	110	9	4	202	38*	10*	41.3*
80B5	19	6	21.8	200	165	130	11	4	222	40*	10*	43.3*
80B14	19	6	21.8	120	100	80	7	4	222	* Only on request		
90B5	24	8	27.3	200	165	130	11	4	222			
90B14	24	8	27.3	140	115	95	9	4	222			
100/112B5	28	8	31.3	250	215	180	13.5	4.5	232			
100/112B14	28	8	31.3	160	130	110	9	4.5	232			

Weight without motor

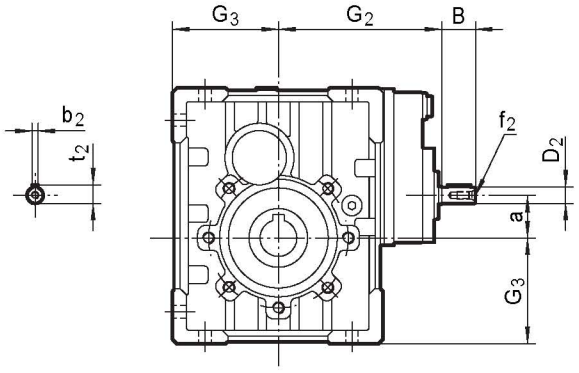
≈ 14.8 kg

7.3 TKM..HS Outline Dimension

TKM..B..HS



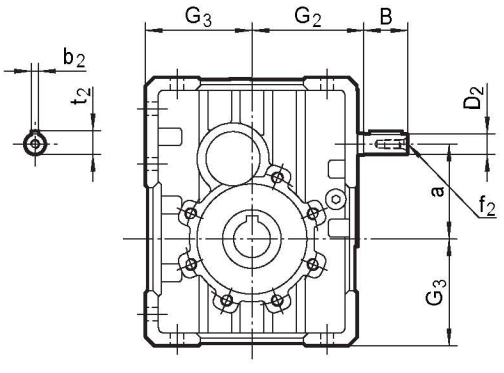
TKM..C..HS



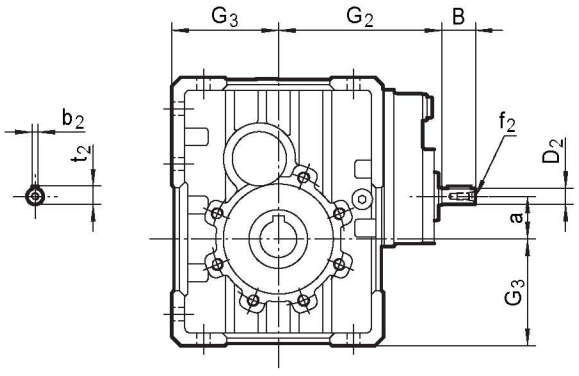
	B	$D_{2\,j6}$	G_2	G_3	a	b_2	f_2	t_2
TKM28B	23	11	65	60	57	4	-	12.5
TKM28C	23	11	100	60	21.5	4	-	12.5
TKM38B	30	14	76	72	64.5	5	M6	16
TKM38C	23	11	111	72	29	4	-	12.5
TKM48B	40	16	91	86	74.5	5	M6	18
TKM48C	30	14	132	86	30.5	5	M6	16
TKM58B	40	19	107	103	88	6	M6	21.5
TKM58C	30	14	148	103	44	5	M6	16

7.4 TKB..HS Outline Dimension

TKB..B..HS



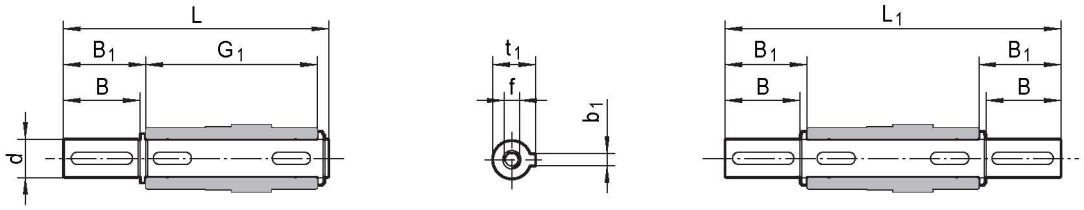
TKB..C..HS



	B	$D_{2\,j6}$	G_2	G_3	a	b_2	f_2	t_2
TKB38B	30	14	76	72.5	64.5	5	M6	16
TKB38C	23	11	111	72.5	29	4	-	12.5
TKB48B	40	16	91	87	74.5	5	M6	18
TKB48C	30	14	132	87	30.5	5	M6	16
TKB58B	40	19	107	100	88	6	M6	21.5
TKB58C	30	14	148	100	44	5	M6	16

8. ACCESSORIES OUTLINE DIMENSION SHEET

8.1 Output Shafts



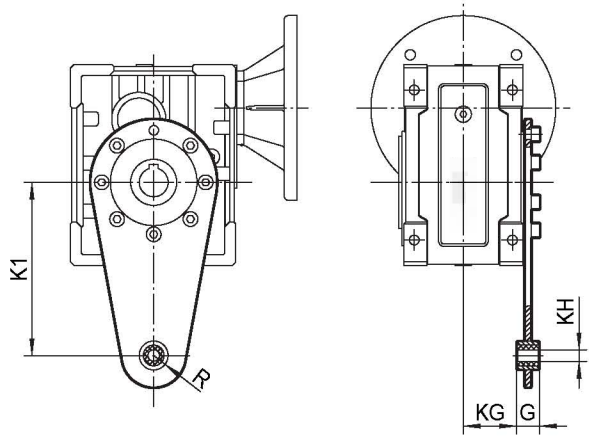
SS **DS**

	d_{h6}	B	B_1	G_1	L	L_1	f	b_1	t_1
TKM28	25	50	53.5	92	153	199	M10	8	28
TKM38	25	50	53.5	112	173	219	M10	8	28
TKM48	28	60	63.5	120	192	247	M10	8	31
TKM58	35	80	84.5	140	234	309	M12	10	38
TKB38	25	60	65	120	192	246.4	M8	8	28
TKB48_d 28	28	60	65	127	199	255	M8	8	31
TKB48_d 30	30	60	65	127	199	255	M10	8	33
TKB58	35	60	65	140	214	268	M12	10	38

* Only on request

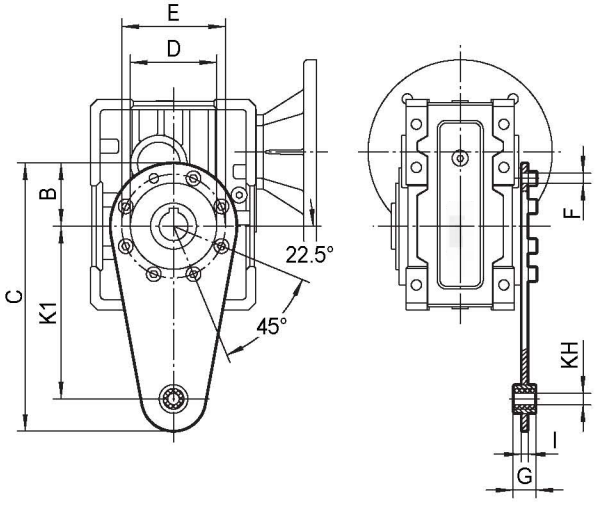
8.2 Torque Arm

8.2.1 TKM.. Torque Arm



	K1	G	KG	KH	R
TKM28	100	14	38.5	10	18
TKM38	150	14	49	10	18
TKM48	200	25	47.5	20	30
TKM58	200	25	57.5	20	30

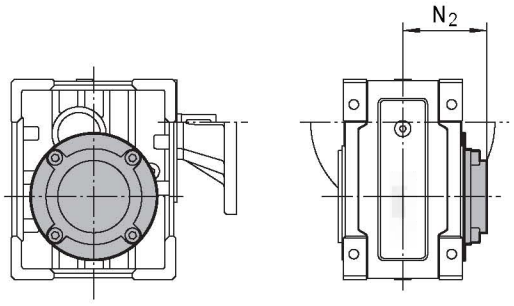
8.2.2 TKB.. Torque Arm



	K1	B	C	D	E	F	G	KH	I
TKB38	150	55	233	75	90	9	20	10	6
TKB48	200	63	300	90	110	9	25	20	6
TKB58	200	80	318	110	130	11	25	20	6

8.3 Cover

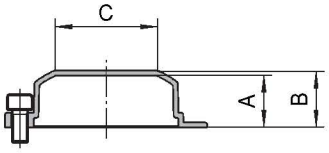
8.3.1 TKM.. Cover



	N2
TKM28	63
TKM38	73
TKM48	79
TKM58	94

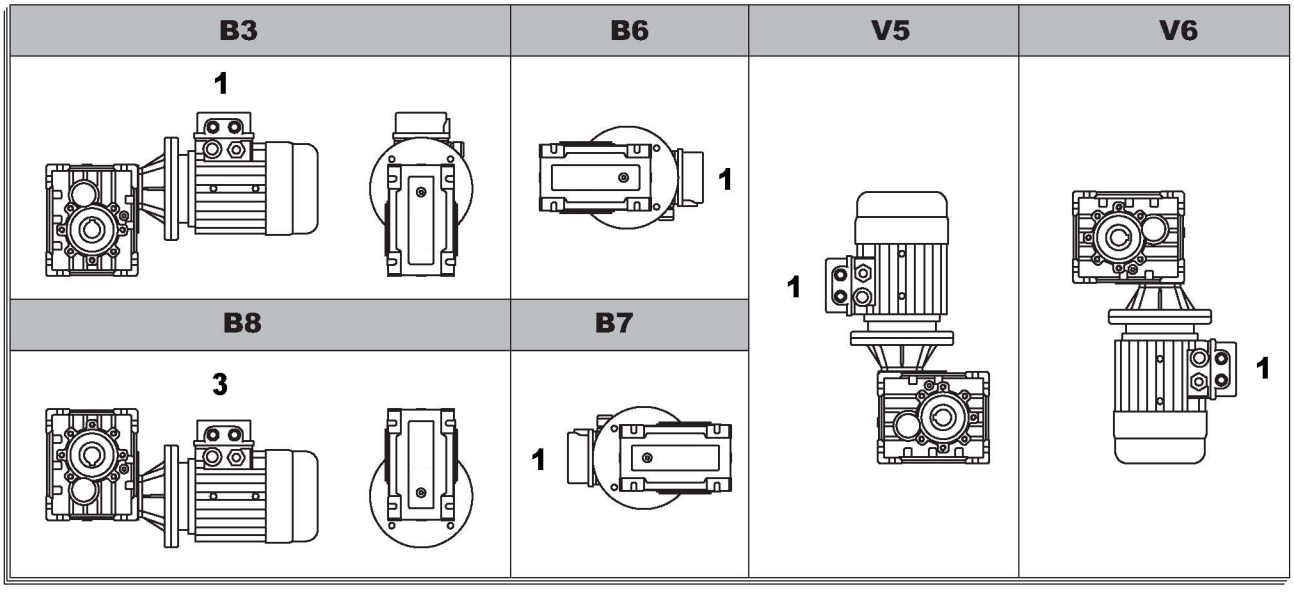
8.3.2 TKB.. Cover

	A	B	C
TKB38	26.5	29	Φ35
TKB48	24.5	27	Φ54
TKB58	26.5	29	Φ71

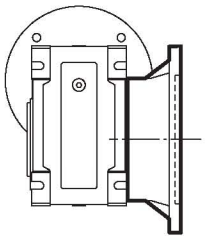
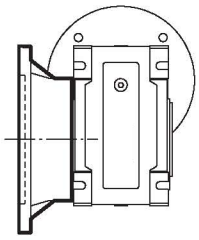


9. INSTALLATION POSITIONS DIAGRAM

9.1 TKM.. OR TKB.. Mounting Positions

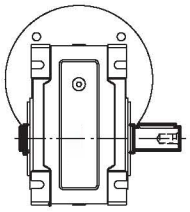
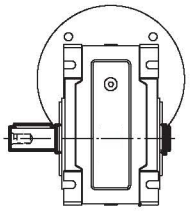


9.2 Position diagram for output flange

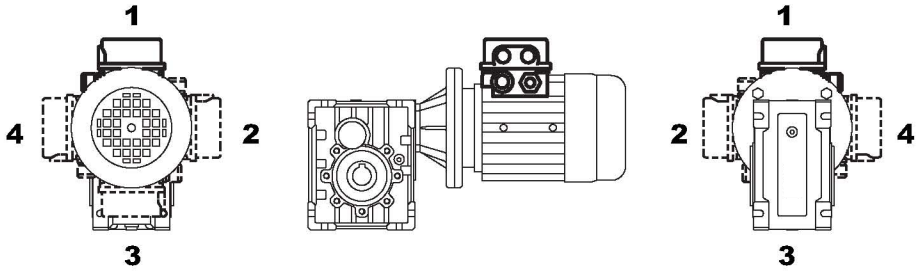
FA1,FB1,FC1,FD1,FE1	FA2,FB2,FC2,FD2,FE2
	

Unless specified otherwise, the reduction unit is supplied with the flange in pos. **F..1** referred to position B3.

9.3 Position diagram for single output shaft

SS1	SS2
	

9.4 Position of terminal box



In the case of specific requirements, when ordering, specify the position of the terminal box as shown in the diagram.

10. INSTALLATION

10.1 Note recommendations

To install the reduction unit it is necessary to note the following recommendations:

1. Check the correct direction of rotation of the reduction unit output shaft before fitting the unit to the machine.

2. Before mount with the prime mover and device, please check the reducer's every axial diameter, aperture,key and key slot, to be sure their dimensions are not deviation, and avoid assembling too tight or too loose, unless it will influence the reducer's performance.

3. The mounting on the machine must be stable to avoid any vibration.

4. Whenever possible, protect the reduction unit against solar radiation and bad weather.

5. In the case of particularly lengthy periods of storage (4-6 months), if the oil seal is not immersed in the lubricant inside the unit, it is recommended to change it since the rubber could stick to the shaft or may even have lost the elasticity it needs to function properly.

6. Painting must definitely not go over rubber parts and the holes on the breather plugs, if any.

7. When connect with hollow or solid shaft,please grease the joint to avoid lock or oxidation.

8. Check the correct level of the lubricant through the indicator, if there is one.

9. Starting must take place gradually, without immediately applying the maximum load.

10. Supporting unit is required when using various of reducer matched with motor directiy and the wsight of motor is a little bigger than common.

11. Ensure the motor cools correctly by assuring good passage of air from the fan side.

12. In the case of ambient temperatures < -5°C or > +40°C call the Technical Service.

10.2 Critical applications

The performance given in the catalogue correspond to mounting position B3 or similar, when the first stage is not entirely immersed in oil. For other mounting positions and/or particular input speeds, refer to the tables that highlight different critical situations for each size of reduction unit. It is also necessary to take due consideration of and carefully assess the following applications by calling our Technical Service:

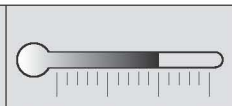
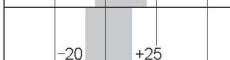
1. As a speed increasing.
2. Applications with especially high inertia.
3. Use in services that could be hazardous for people if the reduction unit fails.
4. Applications with high dynamic strain on the case of the reduction unit.
5. In places with T° under -5°C or over 40°C.
6. Use in chemically aggressive environments.
7. Use in a salty environment.
8. Use in radioactive environments.
9. Use in environments pressures other than atmospheric pressure.
10. Mounting positions not envisaged in the catalogue.

Avoid applications where even partial immersion of the reduction unit is required.

The maximum torque that the gear reducer can support must not exceed two times the nominal torque (fs =1) stated in the performance tables. Intended for momentary overloads due to starting at full load, braking, shocks or other causes, particularly those that are dynamic.

11. LUBRICATION

11.1 Types of lubrication

	 ℃ -50 0 +50 +100	ISO	SHELL	MOBIL	BP	lubrication type
TKM.. TKB..	 Standard −10 +40	VG 220	Shell Omala 220	Mobilgear 630	BP Energol GR-XP 220	Mineral oil
	 −20 +25	VG 150 VG 100	Shell Omala 100	Mobilgear 627	BP Energol GR-XP 100	
	 −30 +10	VG 68-46 VG 32	Shell Tellus T 32	Mobil D.T.E. 13M		
	 −40 −20	VG 22 VG 15	Shell Tellus T 15	Mobil D.T.E. 11M	BP Energol HLP-HM 15	
	 −40 +80	VG 220	Shell Omala HD 220	Mobil SHC 630		Synthetic oil
	 −40 +40	VG 150		Mobil SHC 629		
	 −40 +10	VG 32		Mobil SHC 624		

11.2 Lubricant fill quantity

The specified fill quantities are recommended values. The precise values vary depending on the number of stages and gear ratio. When filling, it is essential to check the oil level plug since it indicates the precise oil capacity. The following tables show guide values for lubricant fill quantities in relation to the mounting position （B3、B6、B7……)

TKM.. Lubricant fill quantity

Gear units	Fill quantity in liters (L)					
	B3	B6	B7	B8	V5	V6
TKM28B	0.28	0.18	0.18	0.18	0.30	0.18
TKM28C	0.10	0.10	0.10	0.10	0.10	0.10
TKM38B	0.51	0.30	0.25	0.25	0.55	0.30
TKM38C	0.10	0.10	0.10	0.10	0.10	0.10
TKM48B	0.80	0.47	0.42	0.42	0.85	0.52
TKM48C	0.20	0.20	0.20	0.20	0.20	0.20
TKM58B	1.35	0.80	0.68	0.68	1.45	0.85
TKM58C	0.20	0.20	0.20	0.20	0.20	0.20

TKB.. Lubricant fill quantity

Gear units	Fill quantity in liters (L)					
	B3	B6	B7	B8	V5	V6
TKB38B	0.50	0.30	0.25	0.30 *	0.56	0.30
TKB38C	0.10	0.10	0.10	0.10	0.10	0.10
TKB48B	0.76	0.50	0.42	0.48	0.90	0.50
TKB48C	0.17	0.17	0.17	0.17	0.17	0.17
TKB58B	1.32	0.78	0.67	0.75 *	1.35	0.78
TKB58C	0.20	0.20	0.20	0.20	0.20	0.20

*：It means the lubricant can't be added according to the oil level line plug,but also higher the plug the fill quantity sa shown in the table

12. MAINTENANCE

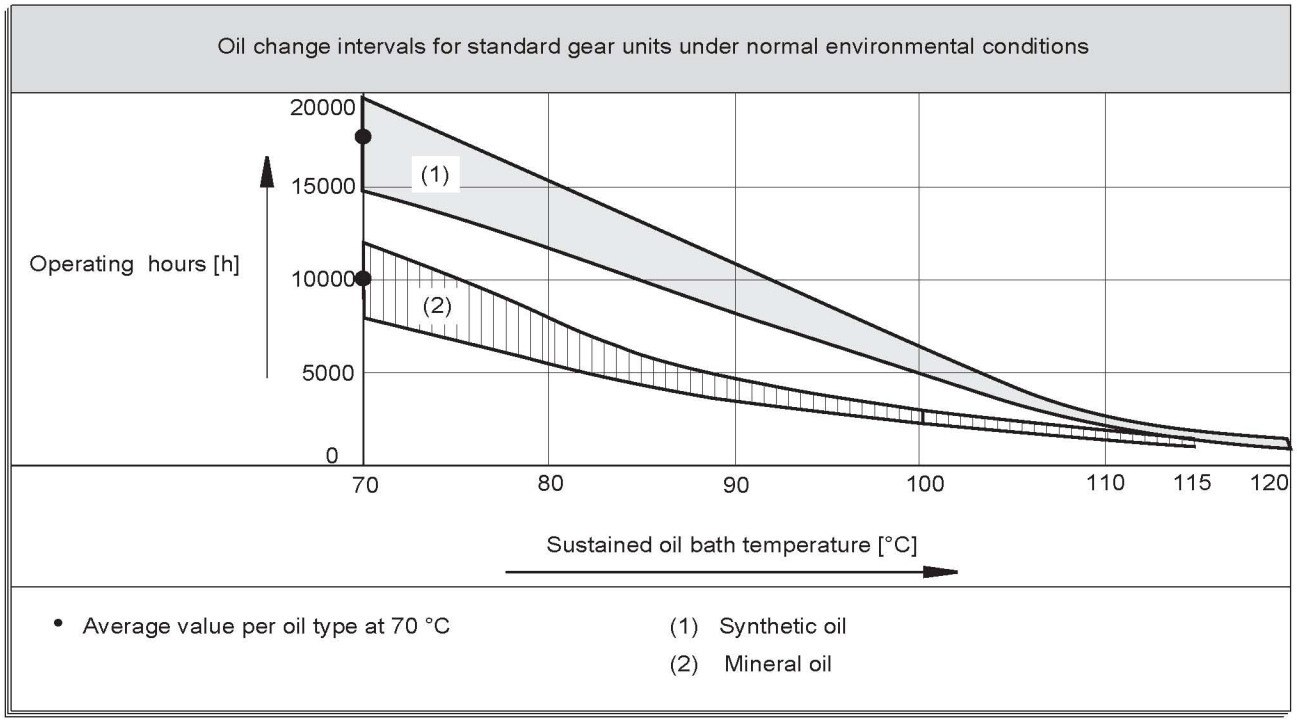
1). For gear units, first oil change should be after about 300 hours (run-in period). The right lotion is required to clean the gear units with care. Never mix the synthetic oil and mineral oil together.

2). Every 3000 working time, at least every 6 months, you have to check the oil and oil level, the seals visually for leakage. For IEC input gear units, the elastomer should be tested or replaced if necessary.

3). Depending on the operating conditions (see chart below), every 3 years at the latest for inspection is needed. Then change the mineral oil and replace the bearing grease.

4). Depending on the operating conditions, change the oil seals on output shaft.

5). Once the malfunctions appear, stop disassembling the parts, and firstly please contact the customer service (the information about specification, delivery date, series number, time used, name of machine, machine manufacturer, malfunction problems is required) , then take the reasonable measures.



13. STORAGE

1). Under roof, protected against rain and snow, no shock loads.

2). Underlay the block and other material between the ground and equipment.

3). The opened but not used gear units should be added with the anti-corrosive oil on its surface, and then return to the packing containers timely.

4). Two years or more given regular inspections. Check for cleanliness and mechanical damage as part of the inspection,Check corrosion protection.

14. NOTICE FOR ORDER

Please offer the following information when place the orders:

1). the model mark of the gear units(type, ratio, power and mounting position).

2). generally the gear units paint in silver.

3). quantity ordered.

4). other special requirements.

5). company, contact and telephone.

15. GEAR UNIT MALFUNCTIONS

Problem	Possible cause	Remedy
Unusual, regular running noise	A. Meshing/grinding noise: Bearing damage. B. Knocking noise: Irregularity in the gearing	A. Check the oil, change bearings B. Contact customer service
Unusual, irregular running noise	Foreign bodies in the oil	• Check the oil • Stop the drive, contact customer service
Oil leaking1) • From the gear cover plate • From the motor flange • From the motor oil seal • From the gear unit flange • From the output end oil seal	A. Rubber seal on the gear cover plate leaking B. Seal defective C. Gear unit not vented	A. Tighten the bolts on the gear cover plate and observe the gear unit. Oil still leaking:Contact customer service B. Contact customer service C. Vent the gear unit (see "Mounting Positions")
Oil leaking from breaking valve	A. Too much oil B. Drive operated in incorrect mounting position C. Frequent cold starts(oil foams) and/or high oillevel	A. Correct the oil level (see Sec. "Inspection and Maintenance") B. Mount the breather valve correctly (see Sec."Mounting Positions")and correct the oil level(see"Lubricants")
Output shaft does not turn although the motor is running or the input shaft is rotated	Connection between shaft and hub in gear unit interrupted	Send in the gear unit/gearmotor for repair

1) Short-term oil/grease leakage at the oil seal is possible in the run-in phase (24 hours running time).