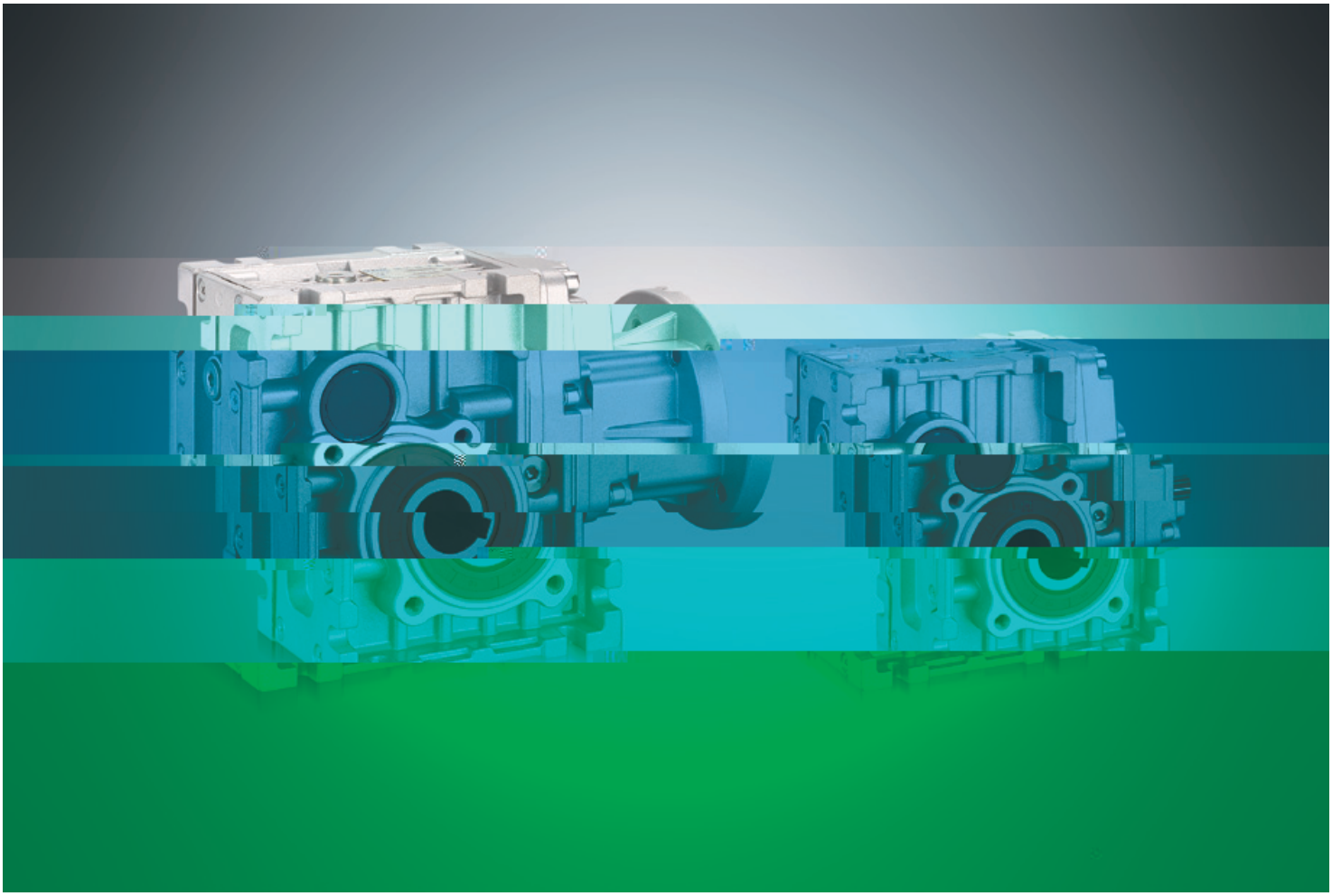


TKM

TKM Series Helical-Hypoid Gear Units

DECELERATOR & MOTORS

我们为您的决策铺平道路

我们愿与您一同找出合适的解决方案

我们承担应该负有的责任

GPG MOTOR

TKM

Basic Structure

Summarize

Model Illuminate

Relevant Parameter

Possible Geometrical Combinations

Performance Parameter

TKM… TKM…Performance Parameter

TKM…HS TKM…HS Performance Parameter

Outline Dimension Sheet

TKM… TKM…Outline Dimension

TKM…HS TKM…HS Outline Dimension

Accessories

Installation Positions Diagram

Installation

Lubricants

Types of Lubrication

Lubricant Fill Quantity

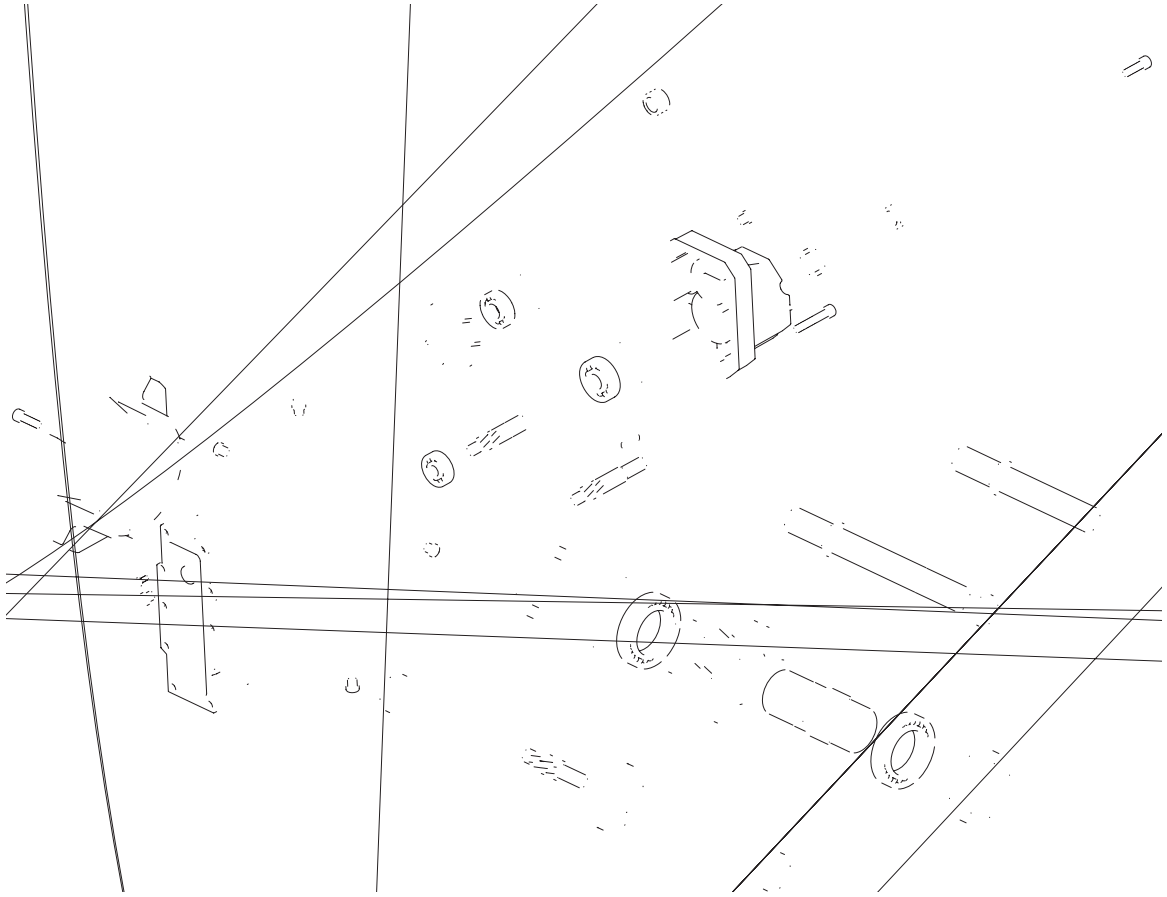
Maintenance

/ Storage/Notice For Order

Malfunctions

Addendum

1. Basic Structure



No.	Parts
1	/ Pinion
2	/ Gear
3	/ Pinon shaft
4	/ Gear
5	/ Pinon shaft
6	/ Gear
7	/ Hollow shaft
8	/ Closing cap
9	/ Oil seal
10	/ Intput flange
11	/ Bearing
12	/ Hole-circlip
13	/ Inner hex screw
14	/ Intput shaft
15	/ Spacer
16	/ Key
17	/ Breather valve
18	/ Gearcase
19	/ Stifte
20	/ Bearing
21	/ Bearing
22	/ Bearing
23	/ Housing gasket
24	/ Bearing

No.	Parts
25	/ Key
26	/ Oil seal
27	/ Inner hex screw
28	/ Bearing
30	/ Bearing
31	/ 3 stage gearcase
32	/ Hole-circlip
33	/ Hole-circlip
34	/ Rubber boot
35	/ Bearing
36	/ Key
37	/ Bearing
39	/ Shaft-circlip
40	/ Output flage
41	/ Inner hex screw
42	/ Key
44	/ Oil plug
47	/ Oil seal
48	/ Shaft-circlip
49	/ Gasket
50	/ Key
51	/ Key
52	/ Double output shaft
53	/ Single output shaft

No.	Parts
56	/ Hole-circlip
65	/ Gearcase cover
66	/ Hexagon sunk screw
67	/ Rubber gasket
74	/ Shaft-circlip
86	/ Closing cap
88	/ Washer
118	/ Oil seal
201	/ Shim ring
202	/ Shim ring
203	/ Shim ring
204	/ Shim ring
206	/ Shim ring
207	/ Shim ring
208	/ Shim ring
209	/ Shim ring
210	/ Shim ring
212	/ Shim ring
213	/ Shim ring
215	/ Shim ring
216	/ Shim ring
217	/ Shim ring
218	/ Shim ring

2. Sumarize

2.1 Products characteristics

TKM

-
-
-
-
-
-
- TKM TKM050 NMRV050
  NMRV
-

TKM 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:

- Driven by hypoid gear, has big ratios.
- Large in output torque, high efficiency, energy saving and environmental protection.
- Made of high-quality aluminum alloy, light in weight and non rusting.
- Smooth in running and low in noise, can work long time in dreadful conditions.
- Good-looking in appearance, durable in service life and small in volume.
- Suitable for all round installation, wide application and easy of use.
- The mounting dimension of TKM series are compatible a part of TNRV050 dimensions, are different from TKM050 with TNRV series worm gear unit.
- Modules and multi

4. Relevant Parameter

4.1 Power (P)

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

$P_{1n} \geq P_1 \cdot fs$ [kW]

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

TKM 2 η
94% 3 η 92%
The efficiency of TKM 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

1400r/min
M_2
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 M_2 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)

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

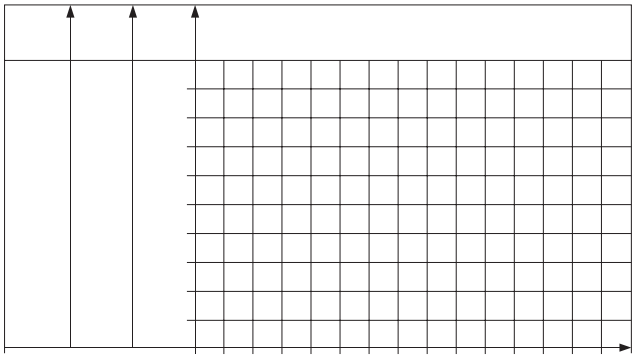
$M_{2n} \geq M_2 \cdot fs$ [Nm]

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

4.5 Service Factor (fs)

fs
Z
The effect of the driven machine on the gear unit is ta ken into account to a sufficient level of accuracy using the service factor fs. 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.



(fs) Z(/)#
Fig: Service factor (fs) Start up frequency Z (1/h)#

Z

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

A. fa ≤ 0.2
B. fa ≤ 3
C. fa ≤ 10
A. Uniform, permitted mass acceleration factor fa ≤ 0.2
B. Moderate shock load, permitted mass acceleration factor fa ≤ 3
C. Heavy shock load, permitted mass acceleration factor fa ≤ 10

-
-
-

Load 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, fertilize 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, tumbing 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 monent of inertia on the motor end (kgm^2)

fa>10

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

fs fs

2.5(B) 14 / (16 /) 200 fs =1.48

fs ≥ 1.48

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

Example:

Mass acceleration factor 2.5 (load classification B), 14 hours/day operating time (read off at 16h/d) and 200 cycles/hour result in a service factor fs = 1.48. choose the service factor fs ≥ 1.48 according to the parameter sheet.

4.6 Overhung loads and axial forces

fz :

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

$$Fr = \frac{M \cdot 2000 \cdot fz}{d_0} [N]$$

Fr [N] Resulting radial load [N]

M [Nm] Torque on the shafts [Nm]

do [mm]

Mean diameter of the mounted transmission element in [mm]

fz Transmission element factor

L_{10h} (ISO281)

L_{na}

x F_{XL}( )

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).

According to bearing service life:

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

F_{r1}, F_{r2} = (x=L/2)[N]

X = [mm]

a, b, = [mm]

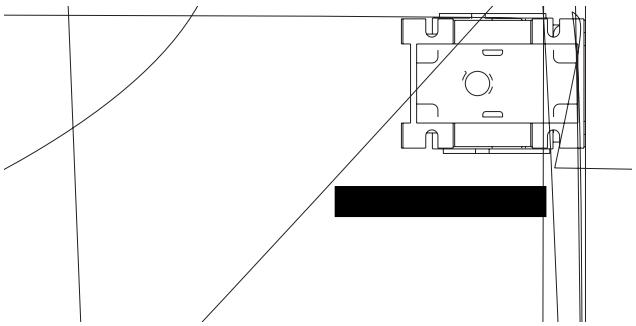
F_{r1}, F_{r2} = Permitted overhung load (x=L/2) for foot-mounted gear units according to he selection tables in [N]

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

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

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 fz:

Transmission element	Transmission element factor Fz	Comments
Gears	1.15	<17 <17 teeth
Chain sprockets	1.25	<20 <20 teeth
Chain sprockets	1.40	<13 <13 teeth
V 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



6. Gear Unit Selection Tables

6.1 Possible Geometrical Combinations

TKM050.... n_1=1400r/min **130Nm**

Gear Unit	i Nominal	i Actual	n_2 [r/min]	M_{2max} [Nm]	F_{r2} [N]	63B5	71B5 71B14	80B5 80B14	90B5 90B14
3 /3 Stage									
TKM050C	300	283.14	4.8	110	4100				
TKM050C	250	239.8	5.8	130	4100				
TKM050C	200	196.7	7	130	4100				
TKM050C	150	144	9.6	130	4000				
TKM050C	120	118	12	130	3770				
TKM050C	100	99.2	14	130	3560				
TKM050C	75	73.2	19	130	3220				
TKM050C	60	67.22	23	120	3030				
TKM050C	50	51.4	27	110	2860				
2 /2 Stage									
TKM050B	60	57.67	24	110	2960				
TKM050B	50	48.85	29	130	2790				
TKM050B	40	40.08	35	130	2610				
TKM050B	30	29.33	48	130	2350				
TKM050B	25	24.06	59	130	2200				
TKM050B	20	20.20	70	130	2080				
TKM050B	15	14.92	94	130	1880				
TKM050B	12.5	12.47	113	130	1770				
TKM050B	10	10.47	134	130	1670				
TKM050B	7.5	7.73	182	100	1510				

TKM063.... n_1=1400r/min **200Nm**

Gear Unit	i Nominal	i Actual	n_2 [r/min]	M_{2max} [Nm]	F_{r2} [N]	63B5	71B5 71B14	80B5 80B14	90B5 90B14
3 /3 Stage									
TKM063C	300	289	4.7	170	4800				
TKM063C	250	230	5.8	200	4800				
TKM063C	200	200	7.2	200	4800				
TKM063C	150	157	9.3	200	4650				
TKM063C	125	124.9	12	200	4330				
TKM063C	100	97.7	14	200	4070				
TKM063C	75	71.5	20	160	3650				
TKM063C	60	64.7	23	140	3480				
TKM063C	50	50.65	27	120	3270				
2 /2 Stage									
TKM063B	60	63.83	24	170	3430				
TKM063B	50	50.28	29	200	3190				
TKM063B	40	40.15	36	200	2940				
TKM063B	30	31.42	47	200	2720				
TKM063B	25	24.98	58	200	2530				
TKM063B	20	19.5	70	200	2380				
TKM063B	15	14.3	96	190	2130				
TKM063B	12.5	12.94	111	165	2030				
TKM063B	10	10.13	134	135	1910				
TKM063B	7.5	7.41	185	100	1710				

6.2 TKM .... Performance Paramater

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs		

TKM .... **Performance Paramater**

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs			

TKM .... **Performance Paramater**

TKM .... **Performance Paramater**

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs			Page
0.18	4.5	353	200	200.66	8300	1.4	TKM090C	71B5	31
	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	144	3200	1.1	TKM050C	63B5	28
	23.3	94	120	118	2990	1.4			
	27.7	79	100	99.2	2820	1.6			
	38	59	75	73.2	2550	2.2			
	45	49	60	61.22	2400	2.5			
	53	41	50	51.40	2270	2.7			
	48	47	60	57.67	2350	2.4	TKM050B	63B5	28
	57	39	50	48.85	2220	3.3			
	70	32	40	40.08	2070	4.0			
	18.8	117	75	73.2	3220	1.1	TKM050C	71B5/B14	28
	22.5	98	60	61.22	3030	1.2			
	26.7	82	50	51.40	2860	1.3			
	24	94	60	57.67	2960	1.2	TKM050B	71B5/B14	28
	28.7	78	50	48.85	2790	1.7			
	35	64	40	40.08	2610	2.0			
	48	47	30	29.33	2350	2.8			
	58	39	25	24.06	2200	3.4			
	69	32	20	20.20	2080	4.0			
	94	24	15	14.92	1880	5.4			
	18.4	122	50	48.85	3240	1.1	TKM050B	71B5/B14	28
	22.4	100	40	40.08	3030	1.3			
	31	73	30	29.33	2780	1.8			
	37	60	25	24.06	2550	2.2			
	45	50	20	20.20	2410	2.6			
	60	37	15	14.92	2180	3.5			
	72	31	13	12.47	2050	4.2			
	86	26	10	10.47	1930	5.0			
	116	19	8	7.73	1750	5.2			
	11.5	191	250	239.8	4330	1.0	TKM063C	63B5	29
	14.3	154	200	196.7	4030	1.3			
	18.5	119	150	144	3690	1.7			
	22.9	96	120	118	3440	2.1			
	27.6	79	100	99.2	3230	2.5			
	38	58	75	73.2	2900	2.8			
	44	50	60	61.22	2760	2.8			
	55	41	50	51.40	2590	2.9			
	11.5	192	120	118	4330	1.0	TKM063C	71B5/B14	29
	13.8	159	100	99.2	4070	1.3			
	19.1	115	75	73.2	3650	1.4			

TKM .... **Performance Paramater**

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs			

TKM .... **Performance Paramater**

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs			Page
0.25	14	156	100	99.22	7000	3.2	TKM090C	71B5	31
	18.6	118	75	75.45	6390	4.2			
	4.5	490	200	200.66	8300	1.0	TKM090C	71B5	31
	6.0	369	150	151.26	8300	1.4			
	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	TKM090B	71B5	31
	18.7	120	50	48.18	6370	4.2			
0.37	23.3	140	120	118	2990	0.9	TKM050C	71B5/B14	28
	27.7	117	100	99.2	2820	1.1			
	38	87	75	73.2	2550	1.5			
	45	72	60	61.22	2400	1.7			
	53	61	50	51.40	2270	1.8			
	48	69	60	57.67	2350	1.6	TKM050B	71B5/B14	28
	57	58	50	48.85	2220	2.2			
	70	48	40	40.08	2070	2.7			
	95	35	30	29.33	1870	3.7			
	28.7	116	50	48.85	2790	1.1	TKM050B	71B5/B14	28
	35	95	40	40.08	2610	1.4			
	48	70	30	29.33	2350	1.9			
	58	57	25	24.06	2200	2.3			
	69	48	20	20.20	2080	2.7			
	94	35	15	14.92	1880	3.7			
	112	30	13	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	TKM050B	80B5/B14	28
	37	89	25	24.06	2550	1.5			
	45	75	20	20.20	2410	1.7			
	60	55	15	14.92	2180	2.4			
	72	46	13	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	200	4030	0.8	TKM063C	71B5/B14	29
	18.5	176	150	157	3690	1.1			
	22.9	142	125	124.9	3440	1.4			
	27.6	118	100	99.7	3230	1.7			
	38	85	75	71.5	2900	1.9			
	44	74	60	64.7	2760	1.9			
	53	61	50	50.65					

TKM .... **Performance Paramater**

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs			Page
	71	47	40	40.15	2350	4.3	TKM063B	71B5/B14	29
	13.8	235	100	97.7	4070	0.9	TKM063C	71B5/B14	29
	19.1	170	75	71.5	3650	0.9			
	22.1	147	60	64.7	3480	1.0			
	26.7	122	50	50.65	3270	1.0			
	23.1	144	60	63.83	3430	1.2	TKM063B	71B5/B14	29
	28.7	116	50	50.28	3190	1.7			
	36	93	40	40.15	2970	2.1			
	46	72	30	31.42	2720	2.8			
	57	58	25	24.98	2530	3.4			
	69	48	20	19.5	2380	4.2			
	18.5	180	50	50.28	3690	1.1	TKM063B	80B5/B14	29
	22.9	145	40	40.15	3440	1.4			
	29.7	112	30	31.42	3150	1.8			
	37	90	25	24.98	2930	22			
	44	75	20	19.5	2760	27			
	61	54	15	14.3	2470	3.5			
	71	47	12.5	12.94	2360	3.5			
	86	39	10	10.13	2210	3.5			
	118	28	7.5	7.41	1990	3.6			
	9.4	345	300	291.3	6320	1.0	TKM075C	71B5	30
	11.6	280	250	254	5890	1.3			
0.37	14.0	233	200	194.5	5540	1.5			
	18.5	176	150	148.5	5040	2.0			
	22.2	146	125	127	4750	2.4			
	28.2	115	100	97.5	4380	3.0			
	37	88	75	76	4000	4.0			
	9.3	351	150	148.5	6500	1.0	TKM075C	71B5	30
	11.1	292	125	127	5980	1.2			
	14.1	230	100	97.5	5520	1.5			
	18.6	175	75	76	5040	2.0			
	22.4	145	60	60	4730	2.4			
	28.5	114	50	47	4370	3.1			
	23.6	141	60	57	4660	2.5	TKM075B	71B5	30
	29.1	114	50	49.76	4340	3.1			
	35	95	40	38	4080	3.7			
	9.1	358	100	97.5	6400	1.0	TKM075C	80B5/B14	30
	11.9	273	75	76	5840	1.3			
	14.4	225	60	60	5480	1.6			
	18.3	178	50	47	5060	2.0			
	15.1	219	60	57	5390	1.6	TKM075B	80B5/B14	30
	18.7	178	50	49.76	5030	2.0			
	22.4	148	40	38	4730	2.4			
	29.8	112	30	29.6	4310	3.1			
	36	93	25	25.78	4050	3.8			

TKM .... **Performance Paramater**

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs			Page
0.37	9.5	343	300	295.18	7990	1.3	TKM090C	71B5	31
	11.6	280	250	240.89	7470	1.8			
	14	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	TKM090C	71B5	31
	7	466	200	200.66	8300	1.1			
	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	TKM090B	71B5	31
	29.1	114	50	48.18	5500	4.4			
	6.0	546	150	151.20	8300	0.9	TKM090C	80B5/B14	31
	7.1	455	125	125.95	8300	1.1			
	9.1	358	100	99.22	8110	1.4			
	11.9	273							

TKM .... **Performance Paramater**

TKM .... **Performance Paramater**

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs			

TKM .... **Performance Paramater**

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs			

TKM .... **Performance Paramater**

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs			

TKM .... **Performance Paramater**

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs			Page
	134	101	10	10.47	1670	1.3	TKM050B	90B5/B14	28
	181	74	7.5	7.73	1510	1.3			
	57	234	50	50.28	2530	0.9	TKM063B	90B5/B14	29
	71	189	40	40.15	2350	1.1			
	92	146	30	31.42	2160	1.1			
	115	118	25	24.98	2010	1.7			
	138	97	20	19.5	1890	2.1			
	191	71	15	14.3	1690	2.7			
	221	61	12.5	12.94	1610	2.7			
	267	50	10	10.13	1510	2.7			
	368	37	7.5	7.41	1360	2.7			
	57	235	25	24.98	2630	0.9	TKM063B	90B5/B14	29
	69	195	20	19.5	2380	1.0			
	95	141	15	14.3	2130	1.3			
	110	122	12.5	12.94	2030	1.4			
	133	101	10	10.13	1910	1.3			
	184	73	7.5	7.41	1710	1.4			
	37	355	75	71.5	4000	1.0	TKM063C	90B5/B14	29
	45	294	60	64.7	3750	1.2			
	57	231	50	50.65	3470	1.5			
	47	286	60	57	3690	1.2	TKM075B	90B5/B14	30
	58	232	50	49.76	3440	1.5			
1.5	70	193	40	38	3240	1.8			
	93	145	30	29.6	2950	2.4			
	111	121	25	25.78	2770	2.9			
	141	95	20	19.09	2650	3.7			
	35	386	40	38	4080	0.9	TKM075B	90B5/B14	30
	46	291	30	29.6	3720	1.2			
	56	242	25	25.78	3500	1.4			
	71	191	20	19.09	3230	1.8			
	93	145	15	14.87	2950	2.4			
	112	120	12.5	11.8	2770	2.9			
	142	95	10	9.21	2550	3.7			
	187	72	7.5	8	2330	3.9			
	28.2	467	100	99.22	5550	1.1	TKM090C	90B5/B14	31
	37	355	75	75.45	5070	1.4			
	45	294	60	62.43	4760	1.5			
	57	231	50	49.18	4390	1.5			
	47	284	60	59.04	4670	1.6	TKM090B	90B5/B14	31
	58	232	50	48.18	4360	2.2			
	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	TKM090B	90B5/B14	31
	35	386	40	40.13	5170	1.3			

TKM .... **Performance Paramater**

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs			Page
1.5	46	291	30	30.24	4710	1.7	TKM090B	90B5/B14	31
	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			
2.2	139	143	20	20.20	1650	0.9	TKM050B	95B5/B14	28
	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	31.42	2160	0.9	TKM063B	90B5/B14	29
	115	172	25	24.98	2010	1.2			
	138	143	20	19.5	1890	1.4			
	191	103	15	14.3	1690	1.8			
	221	89	12.5	12.94	1610	1.8			
	267	74	10	10.13	1510	1.8			
	368	54	7.5	7.41	1360	1.9			
	58	340	50	49.76	3440	1.0	TKM075B	90B5/B14	30
	70	283	40	38	3240	1.5			
	93	213	30	29.6	2950	1.6			
	111	178	25	25.78	2770	2.0			
	141	140	20	19.09	2560	2.5			
	186	106	15	14.87	2340	3.3			
	224	88	12.5	11.8	2190	4.0			
	56	355	25	25.78	3500	1.0	TKM075B	100B5/B14	30
	71	280	20	19.09	3230	1.3			
	93	213	15	14.87	2950	1.6			
	112	176	12.5	11.8	2770	2.0			

TKM .... **Performance Paramater**

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i Nominal	i Actual	F_{r2} [N]	fs			Page
2.2	35	566	40	40.13	5170	0.9	TKM090B	100B5/B14	31
	46	427	30	30.24	4710	1.2			
	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	TKM090B	112B5/B14	31
	45	435	20	19.84	4740	1.1			
	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			
3.0	70	386	40	38	3240	0.9	TKM075B	100B5/B14	30
	93	291	30	29.6	2950	1.2			
	111	242	25	25.78	2770	1.4			
	141	191	20	19.09	2560	1.8			
	186	145	15	14.87	2340	2.4			
	224	120	12.5	11.8	2190	2.9			
	285	95	10	9.21	2030	3.7			
	374	72	7.5	8	1850	3.9			
	93	290	15	14.87	2950	1.2	TKM075B	100B5/B14	30
	112	240	12.5	11.8	2770	1.5			
	142	189	10	9.21	2550	1.8			
	187	144	7.5	8	2330	1.9			
	47	568	60	59.04	4670	0.8	TKM090B	100B5/B14	31
	58	463	50	48.48	4360	1.1			
	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	TKM090B	100B5/B14	31
	71	382	20	19.84	4090	1.3			
	93	290	15	15.09	3730	1.7			
	112	240	12.5	12.49	3510	1.8			
	142	189	10	9.84	3240	1.9			
	187	144	7.5	7.48	2950	1.9			
4.0	111	323	25	25.78	2770	1.1	TKM075B	112B5/B14	30
	141	254	20	19.09	2560	1.4			
	186	194	15	14.87	2340	1.8			

6.3 TKM ...HS Performance Paramater

M_{2max} [Nm]	n_2 [r/min]	i Nominal	i Actual	P_{1n} [kW]	F_{r2} [N]	F_{r1} [N]		

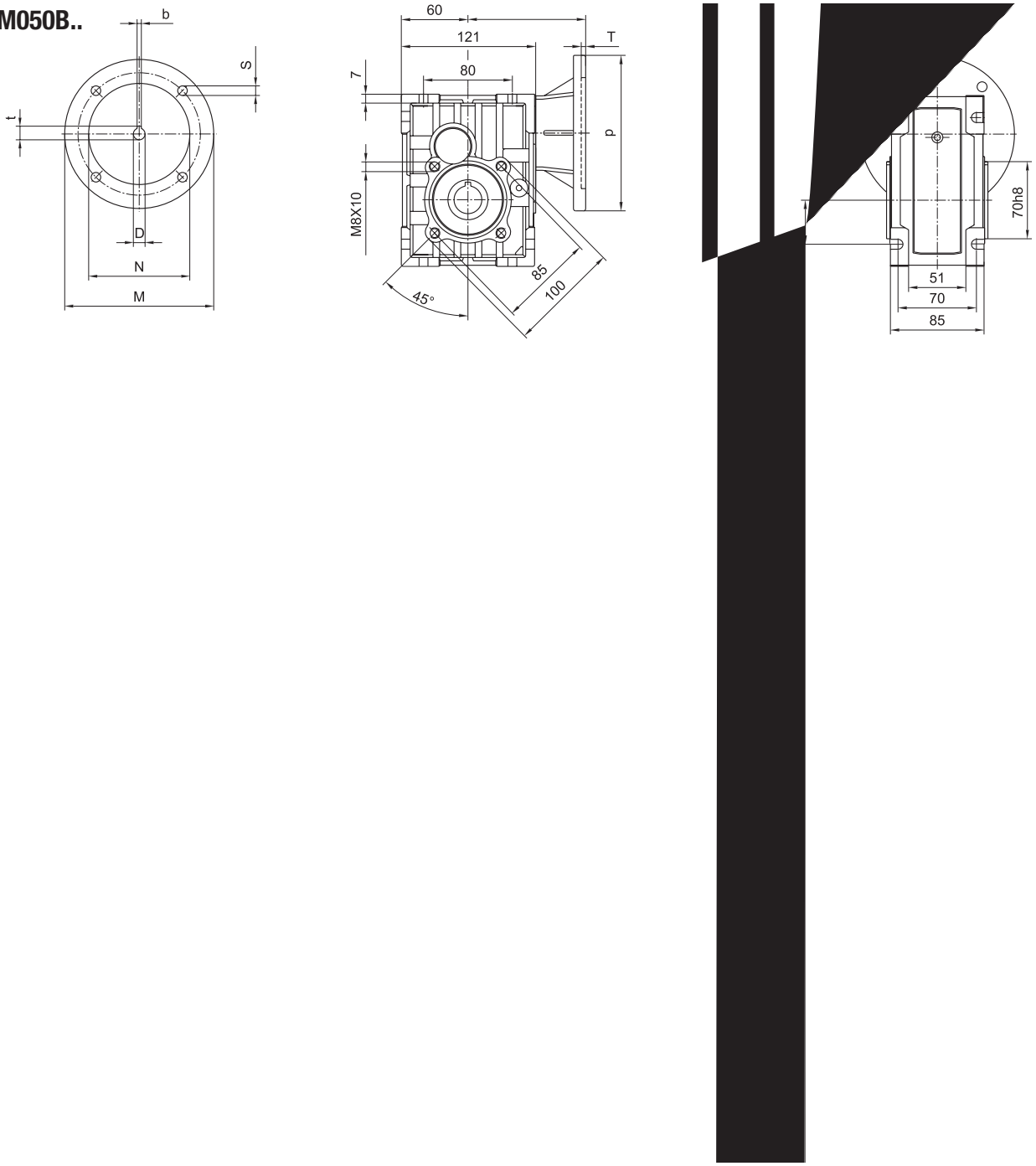
TKM ...HS Performance Paramater

M_{2max} [Nm]	n_2 [r/min]	i Nominal	i Actual	P_{1n} [kW]	F_{r2} [N]	F_{r1} [N]		Page
350	22	60	60	0.89	4730	560	TKM075C..HS	32
350	28	50	47	1.10	4370	560		
350	24	60	57	0.92	4660	860	TKM075B..HS	32
350	29	50	49.76	1.1	4340	860		
350	35	40	38	1.4	4080	860		
350	46	30	29.6	1.8	3720	860		
350	56	25	25.78	2.2	3500	860		
350	71	20	19.09	2.8	3230	860		
350	93	15	14.87	3.6	2950	860		
350	112	13	11.8	4.4	2770	860		
350	142	10	9.21	5.5	2550	860		
280	187	7.5	8	5.8	2330	860		
480	4.7	300	295.18	0.25	8300	560	TKM090C..HS	32
500	5.8	250	240.89	0.33	8300	560		
500	7	200	200.66	0.40	8300	560		
500	9	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	75.5	1.1	6390	560		
450	22	60	62.4	1.1	6000	560		
350	28	50	49.18	1.1	5540	560		
460	24	60	1.2	1.2	5890	1260	TKM090B..HS	32
500	29	50	1.6	1.6	5500	1260		
500	35	40	1.9	1.9	5170	1260		
500	46	30	2.6	2.6	4710	1260		
500	56	25	3.1	3.1	4430	1260		
500	71	20	3.9	3.9	4090	1260		
500	93	15	5.2	5.2	3730	1260		
460	112	13	5.7	5.7	3510	1260		
360	142	10	5.7	5.7	3240	1260		
280	187	7.5	5.8	5.8	2950	1260		

7. Outline Dimension Sheet

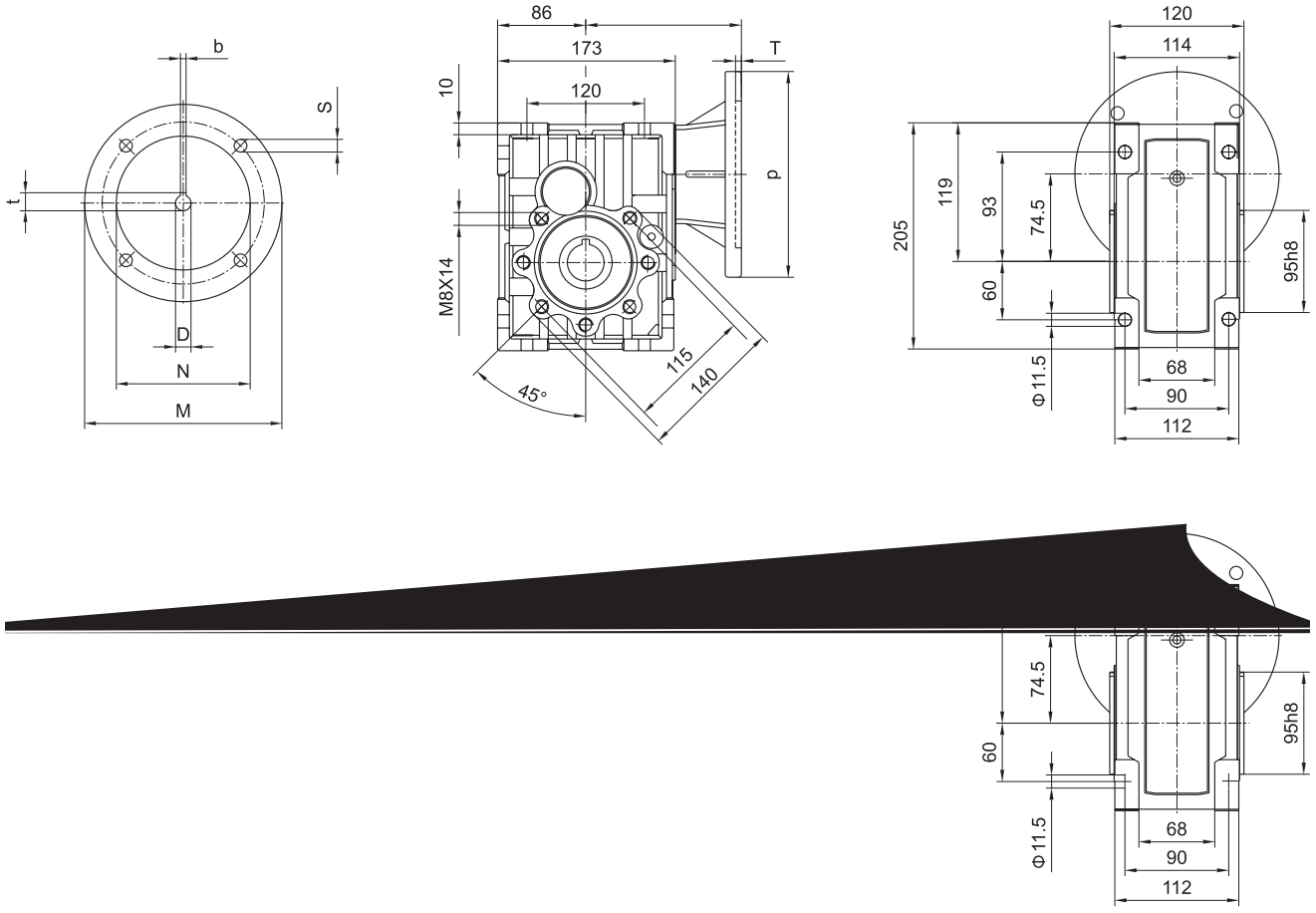
7.1 TKM .... Outline Dimension

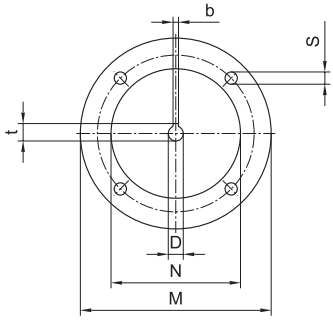
TKM050B..

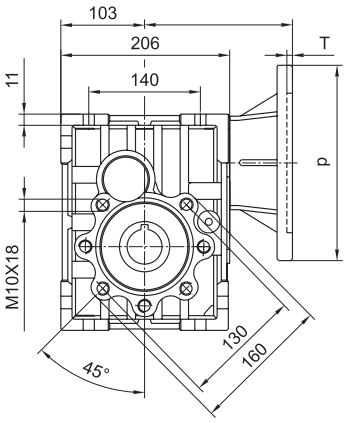


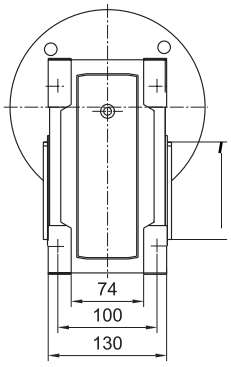
IEC	D(E8)	b	t	p	M	N	S	T	L1	L2	D1(H8)	b1	t1
63B5	11	4	12.8	140	115	95	9	4	106	140	20*	6*	22.8*
71B5	14	5	16.3	160	130	110	9	4	113	147	24*	8*	27.3*
71B14	14	5	16.3	105	85	70	7	4	113	147	25	8	28.3
80B5	19	6	21.8	200	165	130	11	4	133	167	*		
80B14	19	6	21.8	120	100	80	7	4	133	167	* Only on request		
90B14	24	8	27.3	140	115	95	9	4	133	167			

( ) ≈ 4.2kg, Weight (without motor) ≈ 4.2kg


b
S
t
D
N
M
86
173
T
120
10
p
M8X14
115
140
45°
120
114
205
119
93
74.5
60
95h8
Φ11.5
68
90
112
74.5
60
95h8
Φ11.5
68
90
112


b
s
t
D
N
M


103
206
T
140
11
p
M10X18
130
160
45°


74
100
130

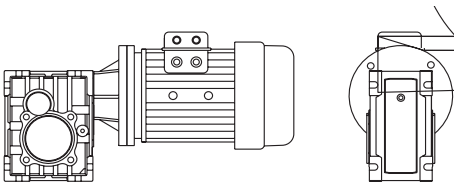
Item	B	D2j6	G2	G3	a	b2	f2	t2
TKM050B	23	11	65	60	57			

f	b1	t1
M10	8	28
M10	8	28
M10	8	31
M12	10	38

G	KG	KH	R
14	38.5	10	18
14	49	10	18
25	47.5	20	30
25	57.5	20	30

Installation Positions Diagram

1 TKM .... **Mounting Positions**

B3	B6	V5	V6
			
B8	B7		

9.2 Position Diagram For Output Flange

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

9.3 Position Diagram For Single Output Shaft

SS1	SS2

9.4 Position of Motor Terminal Box

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

10. Installation

10.1 Note Recommendations

:

-
-
-
-
- 4-6

-
-
-
-
-
-
- -5 40

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

- Check the correct direction of rotation of the reduction unit output shaft before fitting the unit to the machine.
- 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.
- The mounting on the machine must be stable to avoid any vibration.
- Whenever possible, protect the reduction unit against solar radiation and bad weather.
- 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.
- Painting must definitely not go over rubber parts and the holes on the breather plugs, if any.
- When connect with hollow or solid shaft, please grease the joint to avoid lock or oxidation.
- Check the correct level of the lubricant through the indicator, if there is one.
- Starting must take place gradually, without immediately applying the maximum load.
- Supporting unit is required when using various of reducer matched with motor directly and the weight of motor is a little bigger than common.
- Ensure the motor cools correctly by assuring good passage of air from the fan side.
- In the case of ambient temperatures < -5 or > +40 call the Techical Service.

10.2 Critical Applications

-
-
-
-
- -5 40
-
-
-
-
-

fs=1

The perfomance 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/of 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 follwing applications by calling our technical service:

- As a speed increasing.
- Applications with especially nigh inertia.
- Use in services that could be hazardous for people if the reduction unit fails.
- Applications with high dynamic strain on the case of the reduction unit.
- In places with To under -5°C or over 40°C.
- Use in chemically aggressive environments.
- Use in a salty environment.
- Use in radioactive environments.
- Use in environments pressures other than atmospheric pressure.
- 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

11.2 Lubrication Fill Quantity

(B3 B6 B7.....)

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.. **Lubrication Fill Quantity**

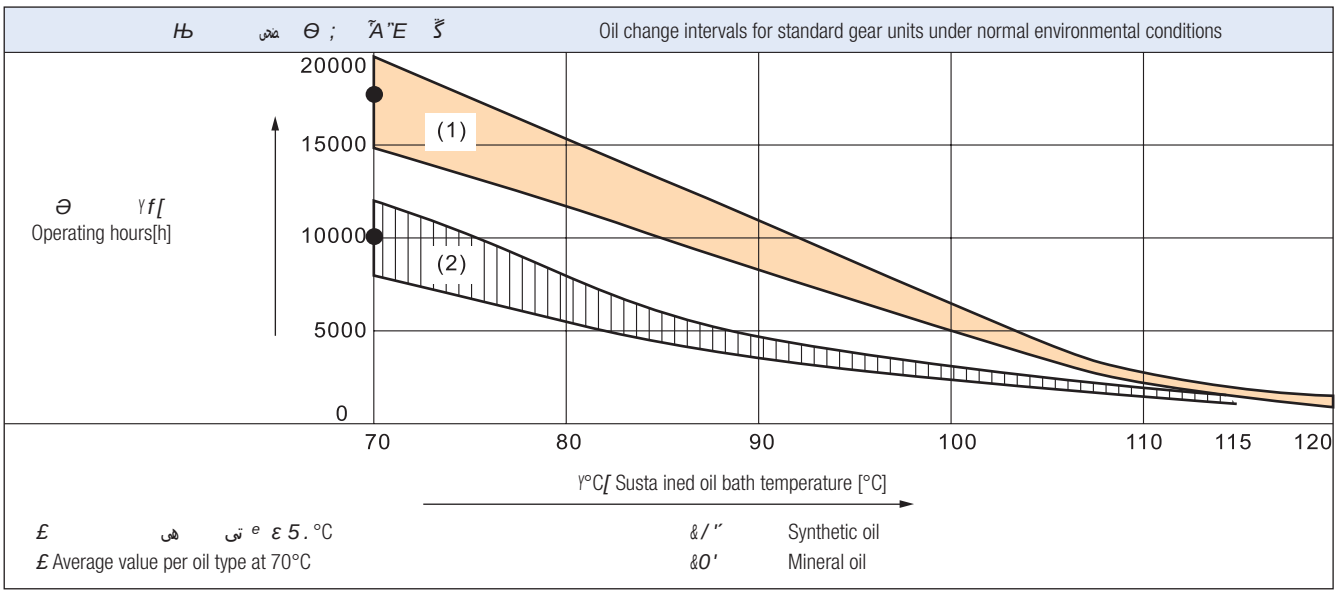
Gear Units	Fill quantity in liters(/L)					
	B3	B6	B7	B8	V5	V6
TKM050B	0.22	0.20*	0.13*	0.15	0.25	0.14
TKM050C	0.07	0.04	0.04	0.05	0.08	0.09
TKM063B	0.42	0.35*	0.24*	0.22	0.46	0.25
TKM063C	0.07	0.04	0.04	0.05	0.08	0.09
TKM075B	0.70	0.58*	0.42*	0.42	0.75	0.45
TKM075C	0.13	0.09	0.09	0.09	0.15	0.17
TKM090B	1.21	0.95*	0.72*	0.67	1.30	0.74
TKM090C	0.13	0.09	0.09	0.09	0.15	0.17

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

- 300
- 3000 IEC
-
-
-

- 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.
- Every 3000 working time, at least every 6months, you have to check the oil and oil level, the seals visually for leakage. For IEC imput gear units, the elastomer should be tested or replaced if necessary.
- 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.
- Depending on the operating conditions, change the oil seals on output shaft.
- 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.



£ Average value per oil type at 70°C

13. Storage

-
-
-
-
- Under roof, protected against rain and snow, no shock loads.
- Underlay the block and other material between the ground and equipment.
- 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.
- 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:

- The model mark of the gear units (type, ratio power and mounting position).
- Generally the gear units paint in silver.
- Quantity ordered.
- Other special requirements.
- Company, contact and telephone.

15. Gear Unit Malfunctions

Problem	Possible cause	Remedy
Unusual, regular running noise	A. / B. A. Meshing/grinding noise: Bearing damage. B. Knocking noise: Irregularity in the gearing	A. B. 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
1) • • • • • Oil leaking 1) • From the gear cover plate • From the motor flange • From the motor oil seal • From the gear unit flange • From the output end oil sea	A. B. C. A. Rubber seal on the gear cover plate leaking B. Seal defective C. Gear unit not vented	A. B. C. “ ” 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 "MountingPositions")
Oil leaking from breaking valve	A. B. C. / A. Too much oil B. Drive operated in incorrect mounting position C. Frequent cold starts (oil foams) and/or high oillevel	A. “ ” B. “ ” 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) 24 /

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

16. (Charge Characteristic Chart (for reference)

(Charge Characteristic Chart (for reference)

Metal Roller Machine	
** Sheet rolling mill	C
** Trimming shears	B
Pipe welder	C
( )Soldering machine(belt material and wire rod)	B
Wire drawbench	B
Metal Processing Machine Tools	
Power shaft	A
** Forging maehine	C
Drop hammer	C
Machine tool and necessary	A
Machine tool and main driving equipment	B
Metal facing machine	C
Plate-leveling machine tool	C
Backing-out punch	C
Press machine tool	C
Cutting machine	B
Sheet bending machine tool	B
Petroleum Processing Machinery	
** Pump of oil pipe line	B
Rotary drilling equipment	C
Papering Machine	
** Glazing press	C
** Multilayer paper board machine	C
** Drying cylinder	C
** Glazing cylinder	C
** Masher	C
** Mashing and breaking machine	C
** Suction roll	C
** Wet paper roller machine	C
** Water absording roller machine	C
Welon machine	C
Pumps	
Centrifugal pump (thin liquid)	A
Centrifugal pump (half liquid)	B
Displacement pump	C
Plunger pump	C
Force pump	C

Plastic Equipments	
** Glazing press	B
** Ejecting press	B
** Spiral extruding machine	B
** Mixing machine	B
Rubber Equipment	
** Glazing press	B
** Ejecting press	C
** Mixing stir machine	B
Kneading machine	B
** Roller machine	C
Stone Porcelain Clay Processing Equipments	
Ball crusher	B
** Ejecting press and breaker	C
Breaker	C
Brick press	C
** Beating crusher	C
** Converter	C
** Cylinder mill	C
Textile Machinery	
Feeding machine	B
Loom machine	B
Dyeing machine	B
Purified drum	B
Welon machine	B
Water Treatment Equipments	
** Air blast	B
Screw pump	B
Wood Processing Machine Tool	
Barker	C
Facing machine	B
Saw bench	C
Wood processing machine tool	A

A- B- C- ** - 24

Note: A-Uniform load; B-Moderate shock load; C-Heavy shock load; ** - for 24hour system.

DECELERATOR & MOTORS

© 2017