



# **TEC** Worm Gear Units



## Section 2 TEC FCNDK Worm Gearbox



**FCNDK - MOTOR READY**



**FCNK - REDUCER**



**FCNDK - DOUBLE REDUCTION**



**FCNK - DOUBLE RED. REDUCER**



**FCNDK/FXA - HELICAL WORM**

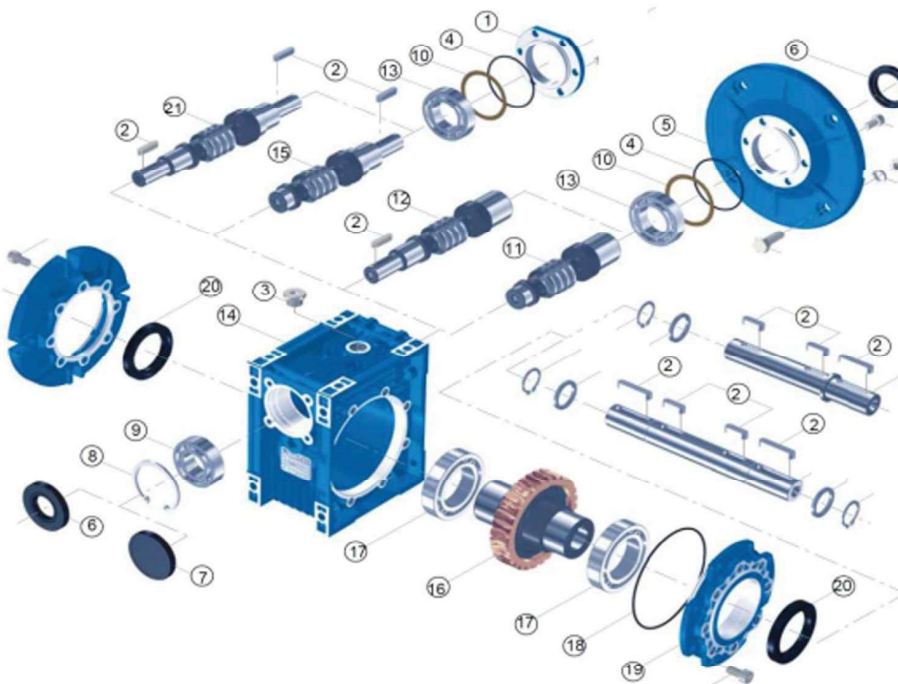


**FCNDK/MB.. - VARI-SPEED**



**Summary**

FCNDK series worm gear units have been designed based on the modular format system. All types of IEC motors can be fitted. More details of TEC motors can be found in our separate catalogue. The versatility of the design lends itself to all types of mounting. All sizes in this range, apart from size 150, are supplied filled with synthetic long-life oil grade ISO VG 320. Housings for sizes 25-90 are aluminium, sizes 110-150 are cast iron.



No.	Description
1	Input cover
2	Key
3	Filler plug-breather
4	O-ring (input)
5	Input flange
6	Oil seal
7	Oil seal RCA
8	Circlip
9	Bearing
10	Shim
11	Worm hollow input
12	Worm extended
13	Bearing
14	Housing
15	Worm solid input
16	Worm wheel
17	Bearing
18	O-ring (output)
19	Bearing cover
20	Oil seal
21	Worm d/extended

Mounting positions			
B3 	B8 	V5 	V6 
B6 	B7 		

Sizes 25-90 do not require breather plug. Sizes 110-150 supplied with breather.

Oil fill quantity in litres										
Mtg	25	30	40	50	63	75	90	110	130	150
B3								2.0	3.0	5.5
B6-7								1.7	2.8	5.0
B8	0.02	0.04	0.08	0.15	0.3	0.55	1.0	1.7	2.8	4.5
V5								2.0	3.0	5.5
V6								2.0	3.0	5.5





**Performance** (n1 with 4 pole 1400 rpm motor, sf = 1)

Size	Ratio	n2 (rpm)	kW	M2 (Nm)	Fr2 (N)	Motor input options			
						56B14			
FCNDK25	7.5	187	0.25	11	503				
	10	140	0.22	12	553				
	15	93	0.14	11	633				
	20	70	0.12	12	697				
	30	46	0.10	13	798				
	40	35	0.80	13	878				
	50	28	0.06	11	946				
FCNDK30	5	280	0.65	18	654	56B14	56B5	63B14	63B5
	7.5	187	0.41	18	683				
	10	140	0.32	18	752				
	15	93	0.23	18	861				
	20	70	0.18	18	948				
	25	56	0.18	20	1021				
	30	46	0.18	20	1085				
	40	35	0.11	18	1194				
	50	28	0.09	17	1286				
60	23	0.08	16	1367					
80	17	0.05	12	1504					
FCNDK40	5	280	1.10	34	1149	56B5	63B14	63B5	71B14-B5
	7.5	187	0.90	40	1315				
	10	140	0.69	40	1447				
	15	93	0.48	39	1657				
	20	70	0.37	39	1824				
	25	56	0.30	38	1964				
	30	46	0.31	44	2087				
	40	35	0.23	41	2298				
	50	28	0.18	37	2475				
	60	23	0.15	35	2630				
80	17	0.12	33	2895					
100	14	0.09	29	3118					
FCNDK50	5	280	2.00	62	1736	63B14-B5	71B14-B5	80B14	80B5
	7.5	187	1.60	71	1805				
	10	140	1.20	70	1987				
	15	93	0.88	73	2274				
	20	70	0.68	72	2503				
	25	56	0.54	69	2696				
	30	46	0.57	83	2865				
	40	35	0.42	77	3153				
	50	28	0.34	73	3397				
	60	23	0.28	68	3610				
80	17	0.22	64	3973					
100	14	0.16	52	4280					
FCNDK63	7.5	187	2.80	126	2359	71B14	71B5	80B14-B5	90B14-B5
	10	140	2.20	129	2597				
	15	93	1.60	134	2973				
	20	70	1.20	131	3272				
	25	56	1.00	131	3524				
	30	46	1.10	164	3745				
	40	35	0.76	143	4122				
	50	28	0.60	133	4440				
	60	23	0.51	130	4719				
	80	17	0.39	119	5193				
100	14	0.34	118	5595					

	Standard option
	Not possible
	Possible using shaft reducing sleeve



**Performance** (n1 with 4 pole 1400 rpm motor, sf = 1)

Size	Ratio	n2 (rpm)	kW	M2 (Nm)	Fr2 (N)	Motor input options			
						71B5	80B14-B5	90B14-B5	100B14-B5
FCNDK75	7.5	187	4.1	185	2785				
	10	140	3.2	190	3065				
	15	93	2.3	198	3509				
	20	70	1.9	210	3862				
	25	56	1.5	202	4160				
	30	46	1.5	233	4421				
	40	35	1.1	216	4865				
	50	28	0.9	206	5241				
	60	23	0.75	197	5569				
80	17	0.58	187	6130					
100	14	0.48	180	6603					
						80B14-B5	90B14-B5	100B14-B5	112B14-B5
FCNDK90	7.5	187	6.3	287	3081				
	10	140	5.1	306	3391				
	15	93	4.1	357	3882				
	20	70	3.1	361	4273				
	25	56	2.4	332	4603				
	30	46	2.6	415	4891				
	40	35	1.8	363	5383				
	50	28	1.4	339	5799				
	60	23	1.1	307	6163				
80	17	0.83	285	6783					
100	14	0.67	270	7306					
						90B14-B5	100B14-B5	112B14-B5	132B14-B5
FCNDK110	7.5	187	12.0	541	3893				
	10	140	9.8	586	4285				
	15	93	7.5	643	4905				
	20	70	5.6	631	5399				
	25	56	4.7	665	5816				
	30	46	4.5	710	6181				
	40	35	3.3	688	6803				
	50	28	2.6	647	7328				
	60	23	2.1	604	7787				
80	17	1.4	505	8571					
100	14	1.1	473	9232					
						90B5	100B14-B5	112B14-B5	132B14-B5
FCNDK130	7.5	187	16.1	735	5092				
	10	140	13.5	804	5605				
	15	93	10.3	900	6416				
	20	70	7.8	892	7062				
	25	56	6.5	910	7607				
	30	46	6.4	1020	8084				
	40	35	4.9	1030	8897				
	50	28	3.8	960	9584				
	60	23	3.1	880	10185				
80	17	2.3	825	11210					
100	14	1.7	725	12076					
						100B5	112B5	132B5	160B5
FCNDK150	7.5	187	25.8	1175	6962				
	10	140	20.2	1215	7663				
	15	93	13.9	1225	8771				
	20	70	11.1	1275	9654				
	25	56	8.4	1175	10400				
	30	46	7.1	1175	11051				
	40	35	7.3	1520	12163				
	50	28	5.4	1370	13103				
	60	23	4.2	1235	13924				
80	17	3.1	1130	15325					
100	14	2.3	980	16508					

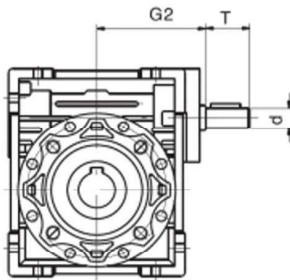
Standard option  
 Not possible  
 Possible using shaft reducing sleeve



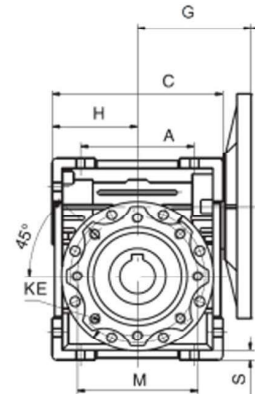
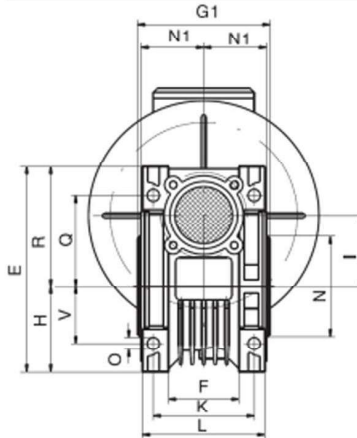


Installation - Dimensions

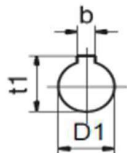
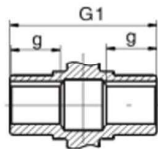
FCNK



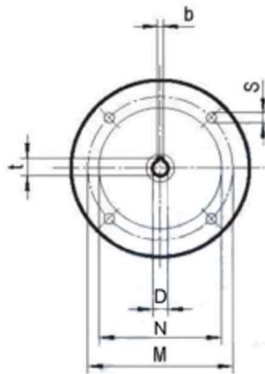
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Output Hub



Input Flange



Input Motor Flange Dimensions

Ref	D	P	M	N	b	s	t
56B14	9	80	65	50	3	5	10.4
56B5	9	120	100	80	3	7	10.4
63B14	11	90	75	60	4	9	12.8
63B5	11	140	115	95	4	9	12.8
71B14	14	105	85	70	5	7	16.3
71B5	14	160	130	110	5	9	16.3
80B14	19	120	100	80	6	7	21.8
80B5	19	200	165	130	6	11	21.8
90B14	24	140	115	95	8	9	27.3
90B5	24	200	165	130	8	11	27.3
100-112B14	28	160	130	110	8	9	31.3
100-112B5	28	250	215	180	8	13.5	31.3
132B14	38	200	165	130	10	11	41.3
132B5	38	300	265	230	10	13.5	41.3
160B5	42	350	300	250	12	17	45.3

Size	Dimensions																			
	A	C	D1*	E	F	G <sub>max</sub>	H	I	L	M	N(h8)	O	Q	R	S	T	V	K	G1	G2
25	45	70	11	83	22	45	35	25	45	55.0	45	6.0	35.5	48	5		22.5	34.0	50	
30	54	80	14	97	32	55	40	30	56	65	55	6.5	44	57	5.5	20	27	44	63	51
40	70	101	18	122	43	62	50	40	71	75	60	6.5	55	71.5	6.5	23	35	60	78	60
50	80	122	25	144	49	90	60	50	85	85	70	8.5	64	85	7	30	40	70	92	74
63	100	148	25	174	67	106	72	63	103	95	80	8.5	80	102	8	40	50	85	112	90
75	120	174	28	205	72	121	86	75	113	115	95	11	93	119	10	50	60	90	120	105
90	140	208	35	238	72	138	103	90	130	130	110	13	102	135	11	50	70	100	140	125
110	170	253	42	295		159	128	110	142	165	130	14	125	167	15	60	85	115	155	142
130	200	293	45	335		179	148	130	155	215	180	16	140	188	15	80	100	120	170	162
150	240	340	50	400		212	170	150	185	215	180	18	180	230	18	80	120	145	200	210

Size	g	N1	KE	d (j6)	b	t1	weight kg
25		22.5	6.5				0.7
30	20	29	M6x11(n4)	9	5	16.3	1.2
40	23	36.5	M6x8 (n4)	11	6	20.8	2.3
50	30	43.5	M8x10(n4)	14	8	28.3	3.5
63	40	53	M8x14(n8)	19	8	28.3	6.2
75	40	57	M8x14(n8)	24	8	31.3	9.0
90	45	67	M10x18(n8)	24	10	38.3	13.0
110	50	74	M10x18(n8)	28	12	45.3	35.0
130	60	81	M12x20(n8)	30	14	48.8	48.0
150	70	96	M12x21(n8)	35	14	53.8	84.0

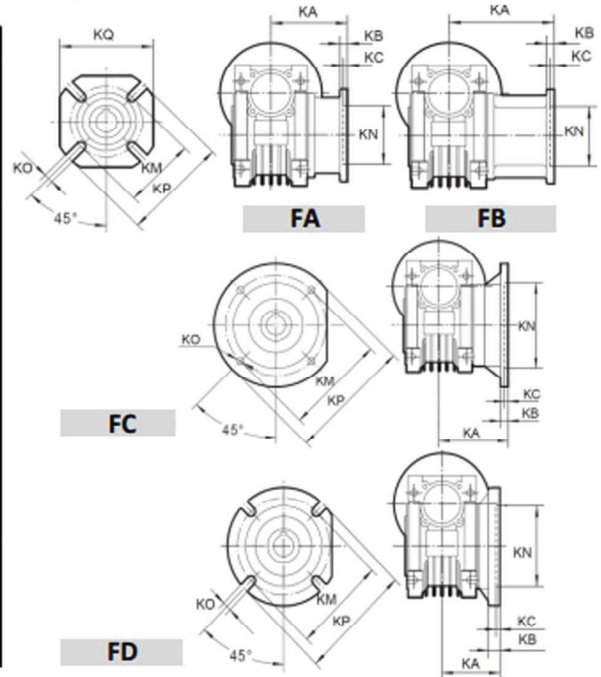
Size	D1 Bore options (H7)					
	D1	b	t1	D1	b	t1
40	19	6	21.8			
50	24	8	28.3			
63	28	8	31.3	30	8	33.3
75	30	8	33.3	35	10.0	38.3
90	38	10	41.2	40	12.0	43.3



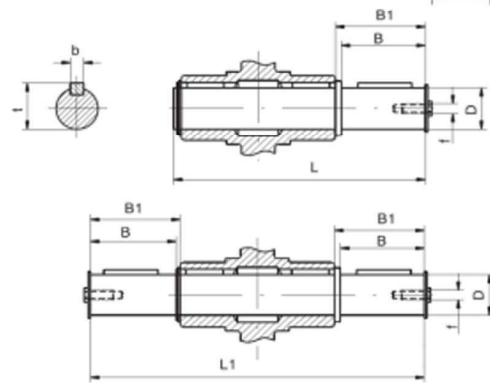


Accessories - Dimensions

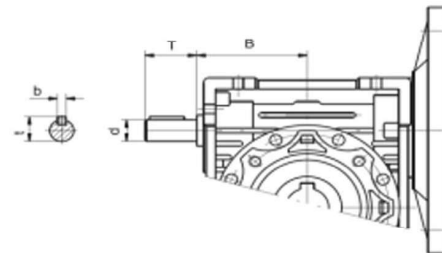
Output Flange Dimensions									
Size	Ref	KA	KP	KM	KN	KO	KB	KC	KO
FCNDK25	FA	45	75	55	40	70	6	2.5	6.5x4
FCNDK30	FA	55	80	68	50	70	6	4	6.5x4
FCNDK40	FA	67	110	75	60	95	7	4	9x4
	FB	97	110	75	60	95	7	4	9x4
	FC	80	140	115	95	126	9	5	9.5x4
	FD	58	120	100	80	110	12	5	9x4
FCNDK50	FA	90	125	90	70	110	9	5	11x4
	FB	120	125	90	70	110	9	5	11x4
	FC	89	160	130	110	146	10	5	9.5x4
	FD	72	140	115	95	130	14.5	5	11x4
FCNDK63	FA	82	180	150	115	142	10	6	11x4
	FB	112	180	150	115	142	10	6	11x4
	FC	98	200	165	130	180	10	5	11x4
	FD	107	200	165	130	180	10	5	11x4
FCNDK75	FA	111	200	165	130	170	13	6	14x4
	FB	90	160	130	110	160	13	6	11x4
FCNDK90	FA	111	210	175	152	200	13	6	14x4
	FB	122	250	215	180	230	18	6	14x4
	FC	110	200	165	130	200	17	6	11x4
FCNDK110	FA	139	270	220	170	250	15	6	14x4
	FD	151	210	175	152	200	13	6	14x4
FCNDK130	FA	152	320	255	180	290	15	6	16x8
FCNDK150	FA	155	320	255	180	290	15	7	16x8



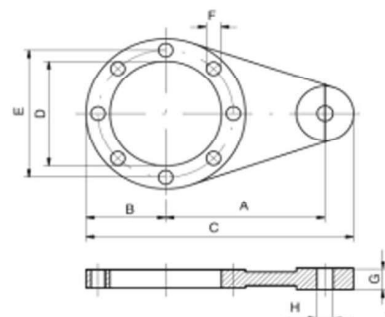
Single-Double Output Shaft								
Size	D(h6)	B	B1	L	L1	f	b	t
25	11	23	25.5	81	101		4	12.5
30	14	30	32.5	102	128	M6	5	16
40	18	40	43.0	128	164	M6	6	20.5
50	25	50	53.5	153	199	M10	8	28
63	25	50	53.5	173	219	M10	8	28
75	28	60	63.5	192	247	M10	8	31
90	35	80	84.0	234	308	M12	10	38
110	42	80	84.5	249	324	M16	12	45.0
130	45	80	85.0	265	340	M16	14	48.5
150	50	102	110	324	420	M20	14	53.5



Extended Worm Shafts					
Size	B	d(h6)	T	b	t
25	38	9	18	3	10.2
30	45	9	20	3	10.2
40	53	11	23	4	12.5
50	64	14	30	5	16
63	75	19	40	6	21.5
75	90	24	50	8	27
90	108	24	50	8	27
110	135	28	60	8	31
130	155	30	80	8	33
150	210	35	80	10	38



Torque Arms								
Size	A	B	C	D	E	F	G	H
25	70	33	118	45	55	7	14	8
30	85	38	138	54	65	7	14	8
40	100	44	162	60	75	7	14	10
50	100	50	168	70	85	9	14	10
63	150	55	223	80	95	9	14	10
75	200	70	300	95	115	9	25	20
90	200	80	310	110	130	11	25	20
110	250	100	385	130	165	11	30	25
130	250	125	410	180	215	14	30	25
150	250	125	410	180	215	14	30	25







**Section 2 TEC FCNDK Double Reduction Worm Gearbox**

**Performance** (n1 with 4 pole 1400 rpm motor, sf = 1)

Size	i	n2	KW1	M2	i1	i2
FCNDK25/40	300	4.7	0.06	59	10	30
	400	3.5	0.06	63	10	40
	500	2.8	0.04	57	20	25
	600	2.3	0.04	65	20	30
	750	1.9	0.04	60	30	25
	900	1.6	0.03	73	30	30
	1200	1.2	0.02	65	40	30
	1500	0.9	0.02	60	50	30
	1800	0.8	0.02	56	30	60
	2400	0.58	0.01	60	40	60
	3200	0.44	0.01	65	40	80
	4000	0.35	0.01	32	50	80
5000	0.28	0.01	28	50	100	

Size	i	n2	KW1	M2	i1	i2
FCNDK40/75	300	4.7	0.36	390	10	30
	400	3.5	0.27	360	10	40
	500	2.8	0.21	320	10	50
	600	2.3	0.19	390	20	30
	750	1.9	0.16	390	25	30
	900	1.6	0.14	390	30	30
	1200	1.2	0.11	360	40	30
	1500	0.9	0.10	390	50	30
	1800	0.8	0.09	360	60	30
	2400	0.58	0.07	360	60	40
	3000	0.47	0.05	320	60	50
	4000	0.35	0.04	250	80	50
5000	0.28	0.03	230	100	50	

Size	i	n2	KW1	M2	i1	i2
FCNDK30/40	300	4.7	0.08	73	10	30
	400	3.5	0.06	65	10	40
	500	2.8	0.04	61	20	25
	600	2.3	0.04	73	20	30
	750	1.9	0.04	73	25	30
	900	1.6	0.03	73	30	30
	1200	1.2	0.02	65	40	30
	1500	0.9	0.02	73	50	30
	1800	0.8	0.02	73	60	30
	2400	0.58	0.01	65	60	40
	3200	0.44	0.01	65	80	40
	4000	0.35	0.01	33	80	50
5000	0.28	0.01	29	100	50	

Size	i	n2	KW1	M2	i1	i2
FCNDK40/90	300	4.7	0.56	610	10	30
	400	3.5	0.43	610	10	40
	500	2.8	0.34	560	10	50
	600	2.3	0.30	610	20	30
	750	1.9	0.23	560	25	30
	900	1.6	0.19	505	30	30
	1200	1.2	0.17	610	40	30
	1500	0.9	0.14	560	50	30
	1800	0.8	0.11	505	60	30
	2400	0.58	0.11	610	60	40
	3000	0.47	0.08	560	60	50
	4000	0.35	0.08	460	80	50
5000	0.28	0.06	410	100	50	

Size	i	n2	KW1	M2	i1	i2
FCNDK30/50	300	4.7	0.15	145	10	30
	400	3.5	0.10	124	10	40
	500	2.8	0.09	120	10	50
	600	2.3	0.08	145	20	30
	750	1.9	0.07	145	25	30
	900	1.6	0.06	145	30	30
	1200	1.2	0.04	124	40	30
	1500	0.9	0.04	145	50	30
	1800	0.8	0.04	145	60	30
	2400	0.58	0.03	124	60	40
	3000	0.47	0.02	120	60	50
	4000	0.35	0.02	82	80	50
4800	0.29	0.02	82	80	60	

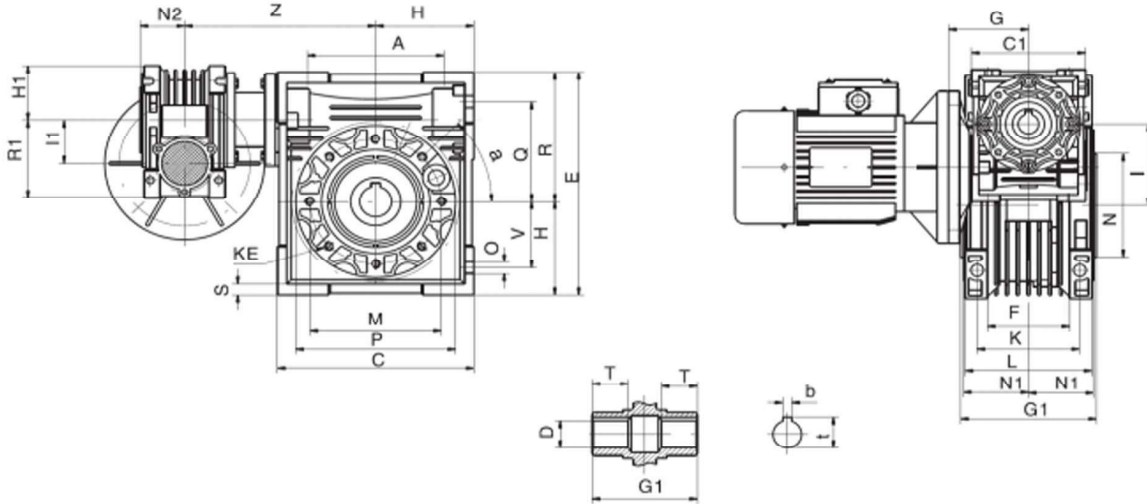
Size	i	n2	KW1	M2	i1	i2
FCNDK50/110	300	4.7	1.10	1265	10	30
	400	3.5	0.80	1185	10	40
	500	2.8	0.54	1100	10	50
	600	2.3	0.59	1185	20	30
	750	1.9	0.56	1265	25	30
	900	1.6	0.50	1265	30	30
	1200	1.2	0.38	1185	40	30
	1500	0.9	0.34	1265	50	30
	1800	0.8	0.31	1265	60	30
	2400	0.58	0.22	1185	60	40
	3000	0.47	0.18	1100	60	50
	4000	0.35	0.11	819	80	50
5000	0.28	0.09	746	100	50	

Size	i	n2	KW1	M2	i1	i2
FCNDK30/63	300	4.7	0.24	230	10	30
	400	3.5	0.19	230	10	40
	500	2.8	0.15	216	10	50
	600	2.3	0.13	230	20	30
	750	1.9	0.11	216	25	30
	900	1.6	0.09	198	30	30
	1200	1.2	0.08	230	40	30
	1500	0.9	0.06	216	50	30
	1800	0.8	0.05	198	60	30
	2400	0.58	0.05	230	60	40
	3000	0.47	0.04	216	60	50
	4000	0.35	0.03	172	80	50
5000	0.28	0.02	150	100	50	

Size	i	n2	KW1	M2	i1	i2
FCNDK63/130	300	4.7	1.48	1760	10	30
	400	3.5	1.09	1650	10	40
	500	2.8	0.86	1550	10	50
	600	2.3	0.76	1650	20	30
	750	1.9	0.66	1760	25	30
	900	1.6	0.58	1760	30	30
	1200	1.2	0.43	1650	40	30
	1500	0.9	0.39	1760	50	30
	1800	0.8	0.35	1760	60	30
	2400	0.58	0.25	1650	60	40
	3000	0.47	0.20	1550	60	50
	4000	0.35	0.15	1220	80	50
5000	0.28	0.11	1100	100	50	



Installation - dimensions



Size	25/30	25/40	30/40	30/50	30/63	40/75	40/90	50/110	63/130
A	54	70	70	80	100	120	140	170	200
a	0	45°	45°	45°	45°	45°	45°	45°	45°
b	5	6	6	8	8	8	10	12	14
C	80	100	100	120	144	172	206	252.5	292.5
C1	70	70	80	80	80	100	100	120	144
D (H8)	14	18	18	25	25	28	35	42	45
E	97	121.5	121.5	145	174	205	238	295	335
F	32	43	43	49	67	72	74		
G	45	45	55	55	55	70	70	80	95
G1	63	78	78	92	112	120	140	155	170
H	40	50	50	60	72	86	103	127.5	147.5
H1	35	35	40	40	40	50	50	60	72
I	30	40	40	50	63	75	90	110	130
I1	25	25	30	30	30	40	40	50	63
K	44	60	60	70	85	90	100	115	120
KE	M6x11 n.4	M6x8 n.4	M6x8 n.4	M8x10n.8	M8x14n.8	M8x14n.8	M10x18n.8	M10x18n.8	M12x12n.8
L	56	71	71	85	103	112	130	144	155
M	65	75	75	85	95	115	130	165	215
N (h8)	54	60	60	70	80	95	110	130	180
N1	29	36.5	36.5	43.5	53	57	67	74	81
N2	22.5	22.5	29	29	29	36.5	36.5	43.5	53
O	6.5	6.5	6.5	8.5	8.5	11	13	14	16
P	75	87	87	100	110	140	160	200	250
Q	44	55	55	64	80	93	102	125	140
R	57	71.5	71.5	84	102	119	135	167.5	187.5
R1	48	48	57	57	57	71.5	71.5	84	102
S	5.5	6.5	6.5	7	8	10	11	14	15
T	20	23	26	30	40	40	45	50	60
t	16.3	20.8	20.8	28.3	28.3	31.3	38.3	45.3	48.8
V	27	35	35	40	50	60	70	85	100
Z	100	115	122	132	145	167.5	184.5	226	245
Wt (Kg)	2.1	3.2	3.9	5	7.7	12	16	39.2	55