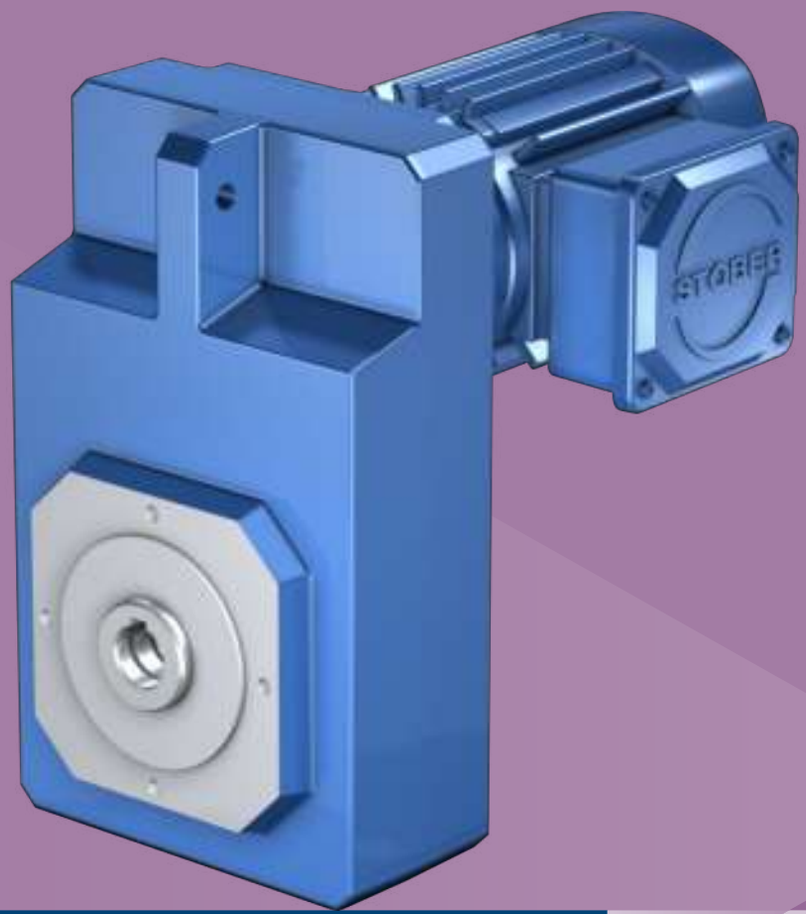


3 Offset helical geared motors F

3.1 Overview

Offset helical geared motors with large axial distances

Features

Power density	★☆☆☆☆
Backlash	★★★☆☆
Price category	€
Shaft load	★★★☆☆
Smooth operation	★★★☆☆
Torsional stiffness	★★☆☆☆
Mass moment of inertia	★★★★★
Helical gearing	✓
Maintenance-free	✓
FKM seal ring at the input	✓
Large axial distances, suitable for confined situations	✓

Key: ★☆☆☆☆ good | ★★★★★ excellent
€ Economy | €€€€€ Premium

Technical data

P_N	0.12 – 7.5 kW
i	4.3 – 440
M_{2N}	5.3 – 1342 Nm
η_{get}	≤ 97 %

3.2 Selection tables

The technical data specified in the selection tables applies to:

- Installation altitudes up to 1000 m above sea level
- Surrounding temperatures from 0 °C to 40 °C
- Drives with self-ventilated motors
- Weight specification for mounting position EL1, housing design G

Calculate the technical data for geared motors with low output speed at http://products.stoeber.de.

Asynchronous geared motors are ideal for operation on a drive controller (87 Hz). More information can be found in Chapter [▷ 6.6]

An explanation of the formula symbols can be found in the Chapter [▷ 14.1].

n_2 50 Hz [rpm]	S 50 Hz	n_2 87 Hz [rpm]	S 87 Hz	M_{2N} [Nm]	Type	m [kg]	i	i_{exakt}	J_1 [10^{-4}kgm²]
P_N (50 Hz) = 0,12 kW, P_N (87 Hz) = 0,21 kW									
9.8	1.1	17	1.1	114	F102_1400 D063K04	16.0	139.8	559/4	1.9
12	1.3	21	1.3	91	F102_1120 D063K04	16.0	111.9	2015/18	1.9
15	1.6	25	1.6	76	F102_0940 D063K04	16.0	93.63	7865/84	1.9
20	2.1	34	2.1	57	F102_0700 D063K04	16.0	70.06	1261/18	1.9
24	2.6	42	2.6	46	F102_0560 D063K04	16.0	55.97	2015/36	2.0
30	3.2	51	3.2	38	F102_0460 D063K04	16.0	46.43	325/7	2.0
39	3.3	68	3.3	29	F102_0350 D063K04	16.0	35.05	3575/102	2.0
49	3.3	84	3.3	23	F102_0280 D063K04	16.0	28.17	169/6	2.1
74	3.3	129	3.3	15	F102_0185 D063K04	16.0	18.46	1495/81	2.2
101	3.3	175	3.3	11	F102_0135 D063K04	16.0	13.59	231/17	2.1
125	3.3	217	3.3	8.9	F102_0110 D063K04	16.0	10.92	273/25	2.2
P_N (50 Hz) = 0,18 kW, P_N (87 Hz) = 0,31 kW									
3.7	0.91	6.4	0.91	442	F303_3670 D063M04	37.1	366.8	99029/270	2.5
4.9	1.2	8.5	1.2	332	F303_2760 D063M04	37.1	275.6	32242/117	2.5
6.1	0.90	11	0.90	268	F203_2220 D063M04	27.5	222.2	2444/11	2.5
6.1	1.5	11	1.5	266	F303_2210 D063M04	37.1	221.2	191149/864	2.5
7.4	1.8	13	1.8	223	F303_1850 D063M04	37.1	184.8	29939/162	2.5
7.4	1.1	13	1.1	222	F203_1840 D063M04	27.5	184.3	16215/88	2.5
12	0.88	21	0.88	137	F102_1120 D063M04	16.4	111.9	2015/18	2.4
15	1.0	25	1.0	114	F102_0940 D063M04	16.4	93.63	7865/84	2.4
14	1.6	25	1.6	115	F202_0940 D063M04	24.6	93.82	1032/11	2.5
19	1.4	34	1.4	86	F102_0700 D063M04	16.4	70.06	1261/18	2.4
24	1.8	42	1.8	68	F102_0560 D063M04	16.4	55.97	2015/36	2.5
29	2.1	51	2.1	57	F102_0460 D063M04	16.4	46.43	325/7	2.5
39	2.2	67	2.2	43	F102_0350 D063M04	16.4	35.05	3575/102	2.5
48	2.2	84	2.2	34	F102_0280 D063M04	16.4	28.17	169/6	2.6
74	2.2	128	2.2	23	F102_0185 D063M04	16.4	18.46	1495/81	2.7
100	2.2	173	2.2	17	F102_0135 D063M04	16.4	13.59	231/17	2.6
125	2.2	216	2.2	13	F102_0110 D063M04	16.4	10.92	273/25	2.7
190	2.2	329	2.2	8.7	F102_0072 D063M04	16.4	7.156	322/45	3.0
P_N (50 Hz) = 0,25 kW, P_N (87 Hz) = 0,43 kW									
3.2	0.97	5.5	0.97	723	F403_4400 D071K04	46.3	439.7	58045/132	4.1
3.8	1.2	6.6	1.2	601	F403_3660 D071K04	46.3	365.6	3290/9	4.1
5.0	0.88	8.7	0.88	453	F303_2760 D071K04	38.7	275.6	32242/117	4.1
5.0	1.6	8.7	1.6	451	F403_2740 D071K04	46.3	274.4	59267/216	4.1
6.3	1.1	11	1.1	364	F303_2210 D071K04	38.7	221.2	191149/864	4.1
6.3	1.9	11	1.9	360	F403_2190 D071K04	46.3	219.2	94705/432	4.1
7.5	1.3	13	1.3	304	F303_1850 D071K04	38.7	184.8	29939/162	4.1
7.5	2.3	13	2.3	302	F403_1840 D071K04	46.3	183.9	39715/216	4.1
9.8	1.0	17	1.0	235	F202_1410 D071K04	26.2	140.9	1550/11	4.0
9.8	1.7	17	1.7	235	F302_1410 D071K04	33.8	140.6	7595/54	4.1
12	1.3	21	1.3	188	F202_1130 D071K04	26.2	112.7	1240/11	4.1
15	1.5	26	1.5	157	F202_0940 D071K04	26.2	93.82	1032/11	4.1
20	1.0	34	1.0	117	F102_0700 D071K04	18.0	70.06	1261/18	4.0
20	2.1	34	2.1	117	F202_0700 D071K04	26.2	70.13	5400/77	4.1
25	1.3	43	1.3	93	F102_0560 D071K04	18.0	55.97	2015/36	4.1
29	3.1	51	3.1	78	F202_0470 D071K04	26.2	47.05	1035/22	4.2
30	1.5	52	1.5	77	F102_0460 D071K04	18.0	46.43	325/7	4.1
40	2.1	68	2.0	58	F102_0350 D071K04	18.0	35.05	3575/102	4.1
49	2.6	85	2.3	47	F102_0280 D071K04	18.0	28.17	169/6	4.2

n_2 50 Hz [rpm]	S 50 Hz	n_2 87 Hz [rpm]	S 87 Hz	M_{2N} [Nm]	Type	m [kg]	i	i_{exakt}	J_1 [10^{-4}kgm²]
P_N (50 Hz) = 0,25 kW, P_N (87 Hz) = 0,43 kW									
60	3.1	104	2.7	39	F102_0230 D071K04	18.0	23.08	3185/138	4.2
75	3.5	130	3.1	31	F102_0185 D071K04	18.0	18.46	1495/81	4.3
102	3.5	177	3.5	23	F102_0135 D071K04	18.0	13.59	231/17	4.2
127	3.5	220	3.5	18	F102_0110 D071K04	18.0	10.92	273/25	4.3
154	3.5	266	3.5	15	F202_0090 D071K04	26.2	9.006	3161/351	5.3
155	3.5	268	3.5	15	F102_0089 D071K04	18.0	8.948	1029/115	4.4
194	3.5	335	3.5	12	F102_0072 D071K04	18.0	7.156	322/45	4.6
321	3.5	557	3.5	7.2	F102_0043 D071K04	18.0	4.308	56/13	5.5
P_N (50 Hz) = 0,37 kW, P_N (87 Hz) = 0,64 kW									
5.0	1.0	8.6	1.0	677	F403_2740 D071L04	47.3	274.4	59267/216	5.1
6.2	1.3	11	1.3	541	F403_2190 D071L04	47.3	219.2	94705/432	5.1
7.4	0.88	13	0.88	456	F303_1850 D071L04	39.7	184.8	29939/162	5.1
7.5	1.5	13	1.5	454	F403_1840 D071L04	47.3	183.9	39715/216	5.1
9.7	1.1	17	1.1	352	F302_1410 D071L04	34.8	140.6	7595/54	5.1
12	0.85	21	0.85	282	F202_1130 D071L04	27.2	112.7	1240/11	5.1
15	1.0	25	1.0	235	F202_0940 D071L04	27.2	93.82	1032/11	5.1
20	1.4	34	1.4	176	F202_0700 D071L04	27.2	70.13	5400/77	5.1
24	0.86	42	0.86	140	F102_0560 D071L04	19.0	55.97	2015/36	5.1
29	2.0	50	2.0	118	F202_0470 D071L04	27.2	47.05	1035/22	5.2
30	1.0	51	1.0	116	F102_0460 D071L04	19.0	46.43	325/7	5.1
39	1.4	68	1.4	88	F102_0350 D071L04	19.0	35.05	3575/102	5.1
39	2.3	67	2.3	89	F202_0350 D071L04	27.2	35.46	390/11	5.4
49	1.7	84	1.6	70	F102_0280 D071L04	19.0	28.17	169/6	5.2
59	2.1	103	1.8	58	F102_0230 D071L04	19.0	23.08	3185/138	5.2
74	2.3	129	2.1	46	F102_0185 D071L04	19.0	18.46	1495/81	5.3
101	2.3	175	2.3	34	F102_0135 D071L04	19.0	13.59	231/17	5.2
125	2.3	217	2.3	27	F102_0110 D071L04	19.0	10.92	273/25	5.3
152	2.3	263	2.3	23	F202_0090 D071L04	27.2	9.006	3161/351	6.3
153	2.3	265	2.3	22	F102_0089 D071L04	19.0	8.948	1029/115	5.4
191	2.3	332	2.3	18	F102_0072 D071L04	19.0	7.156	322/45	5.6
318	2.3	551	2.3	11	F102_0043 D071L04	19.0	4.308	56/13	6.5
388	4.7	–	–	8.8	F102_0072 D071K02	17.9	7.156	322/45	3.1
645	4.7	–	–	5.3	F102_0043 D071K02	17.9	4.308	56/13	4.0
P_N (50 Hz) = 0,55 kW, P_N (87 Hz) = 0,95 kW									
3.9	0.85	6.7	0.85	1294	F603_3610 D080K04	77.4	360.9	3248/9	8.9
5.2	1.1	9.0	1.1	965	F603_2690 D080K04	77.4	269.3	1885/7	8.9
6.5	0.90	11	0.90	776	F403_2160 D080K04	50.1	216.4	11687/54	8.9
6.5	1.4	11	1.4	772	F603_2150 D080K04	77.4	215.4	1508/7	9.0
7.7	1.1	13	1.1	651	F403_1820 D080K04	50.1	181.5	4901/27	8.9
7.8	1.7	13	1.7	648	F603_1810 D080K04	77.4	180.6	8671/48	9.0
10	1.4	17	1.4	508	F402_1400 D080K04	45.9	139.8	559/4	8.8
12	0.97	21	0.97	410	F302_1130 D080K04	37.6	112.8	3724/33	8.8
15	1.2	26	1.2	341	F302_0940 D080K04	37.6	93.64	4214/45	8.9
15	2.1	26	2.1	339	F402_0930 D080K04	45.9	93.33	280/3	9.0
20	0.94	35	0.94	255	F202_0700 D080K04	30.0	70.13	5400/77	8.8
20	1.6	34	1.6	256	F302_0700 D080K04	37.6	70.36	2744/39	9.0
25	1.2	43	1.2	206	F202_0570 D080K04	30.0	56.73	624/11	8.9
25	1.9	43	1.9	205	F302_0560 D080K04	37.6	56.49	4067/72	9.1
25	3.2	43	3.2	204	F402_0560 D080K04	45.9	55.97	2015/36	9.3
30	1.4	52	1.4	171	F202_0470 D080K04	30.0	47.05	1035/22	8.9
30	2.3	51	2.3	172	F302_0470 D080K04	37.6	47.19	1274/27	9.2
40	0.94	69	0.92	127	F102_0350 D080K04	21.8	35.05	3575/102	8.8
39	1.9	68	1.8	129	F202_0350 D080K04	30.0	35.46	390/11	9.1
40	3.1	69	3.1	127	F302_0350 D080K04	37.6	35.03	7252/207	9.4
50	1.2	86	1.1	102	F102_0280 D080K04	21.8	28.17	169/6	8.9
50	2.3	86	2.1	102	F202_0280 D080K04	30.0	28.11	4020/143	9.2
61	1.4	105	1.2	84	F102_0230 D080K04	21.8	23.08	3185/138	8.9
60	2.8	103	2.4	85	F202_0230 D080K04	30.0	23.43	2320/99	9.4
76	1.7	131	1.4	67	F102_0185 D080K04	21.8	18.46	1495/81	9.0
75	3.2	130	2.8	68	F202_0185 D080K04	30.0	18.65	6360/341	9.6
103	2.0	178	1.7	49	F102_0135 D080K04	21.8	13.59	231/17	8.9
128	2.4	222	2.0	40	F102_0110 D080K04	21.8	10.92	273/25	9.0
155	3.2	269	3.2	33	F202_0090 D080K04	30.0	9.006	3161/351	10
156	2.7	271	2.3	33	F102_0089 D080K04	21.8	8.948	1029/115	9.1
196	3.1	339	2.7	26	F102_0072 D080K04	21.8	7.156	322/45	9.3

n_2 50 Hz [rpm]	S 50 Hz	n_2 87 Hz [rpm]	S 87 Hz	M_{2N} [Nm]	Type	m [kg]	i	i_{exakt}	J_1 [10^{-4}kgm²]
P_N (50 Hz) = 0,55 kW, P_N (87 Hz) = 0,95 kW									
217	3.2	375	2.8	24	F102_0065 D080K04	21.8	6.462	84/13	9.5
325	3.2	563	3.2	16	F102_0043 D080K04	21.8	4.308	56/13	10
388	3.2	–	–	13	F102_0072 D071L02	18.8	7.156	322/45	3.8
644	3.2	–	–	7.9	F102_0043 D071L02	18.8	4.308	56/13	4.7
P_N (50 Hz) = 0,75 kW, P_N (87 Hz) = 1,30 kW									
5.4	0.86	9.3	0.86	1287	F603_2690 IE3D080L04	83.8	269.3	1885/7	26
6.7	1.1	12	1.1	1030	F603_2150 IE3D080L04	83.8	215.4	1508/7	26
8.0	0.81	14	0.81	868	F403_1820 IE3D080L04	56.5	181.5	4901/27	26
8.0	1.3	14	1.3	863	F603_1810 IE3D080L04	83.8	180.6	8671/48	26
10	1.0	18	1.0	678	F402_1400 IE3D080L04	52.3	139.8	559/4	26
10	1.6	18	1.6	678	F602_1400 IE3D080L04	79.3	139.8	559/4	26
13	1.3	22	1.3	545	F402_1120 IE3D080L04	52.3	112.3	1235/11	26
13	2.0	22	2.0	544	F602_1120 IE3D080L04	79.3	112.2	9425/84	26
15	0.88	27	0.88	454	F302_0940 IE3D080L04	44.0	93.64	4214/45	26
15	1.5	27	1.5	453	F402_0930 IE3D080L04	52.3	93.33	280/3	26
15	2.4	27	2.4	453	F602_0930 IE3D080L04	79.3	93.33	280/3	27
21	1.2	36	1.2	341	F302_0700 IE3D080L04	44.0	70.36	2744/39	26
21	2.1	36	2.1	340	F402_0700 IE3D080L04	52.3	70.06	1261/18	26
25	0.87	44	0.87	275	F202_0570 IE3D080L04	36.4	56.73	624/11	26
26	1.5	44	1.5	274	F302_0560 IE3D080L04	44.0	56.49	4067/72	26
26	2.6	45	2.6	271	F402_0560 IE3D080L04	52.3	55.97	2015/36	27
31	1.1	53	1.1	228	F202_0470 IE3D080L04	36.4	47.05	1035/22	26
31	1.7	53	1.7	229	F302_0470 IE3D080L04	44.0	47.19	1274/27	26
31	3.1	53	3.1	228	F402_0470 IE3D080L04	52.3	46.94	845/18	27
41	1.4	71	1.4	172	F202_0350 IE3D080L04	36.4	35.46	390/11	26
41	2.4	71	2.3	170	F302_0350 IE3D080L04	44.0	35.03	7252/207	27
51	0.88	–	–	137	F102_0280 IE3D080L04	28.2	28.17	169/6	26
51	1.8	89	1.6	136	F202_0280 IE3D080L04	36.4	28.11	4020/143	27
51	2.9	89	2.6	137	F302_0280 IE3D080L04	44.0	28.23	6860/243	27
61	3.5	106	3.0	114	F302_0240 IE3D080L04	44.0	23.52	588/25	27
63	1.1	108	0.90	112	F102_0230 IE3D080L04	28.2	23.08	3185/138	26
62	2.1	107	1.8	114	F202_0230 IE3D080L04	36.4	23.43	2320/99	27
78	1.2	136	1.0	90	F102_0185 IE3D080L04	28.2	18.46	1495/81	26
77	2.5	134	2.1	90	F202_0185 IE3D080L04	36.4	18.65	6360/341	27
106	1.5	184	1.3	66	F102_0135 IE3D080L04	28.2	13.59	231/17	26
106	3.0	184	2.6	66	F202_0135 IE3D080L04	36.4	13.63	109/8	27
132	1.8	229	1.5	53	F102_0110 IE3D080L04	28.2	10.92	273/25	26
134	3.5	232	3.0	52	F202_0110 IE3D080L04	36.4	10.80	7303/676	27
160	4.0	278	3.4	44	F202_0090 IE3D080L04	36.4	9.006	3161/351	27
161	2.0	280	1.7	43	F102_0089 IE3D080L04	28.2	8.948	1029/115	26
202	2.3	350	2.0	35	F102_0072 IE3D080L04	28.2	7.156	322/45	27
224	2.5	387	2.1	31	F102_0065 IE3D080L04	28.2	6.462	84/13	27
309	4.8	535	4.8	23	F202_0047 IE3D080L04	36.4	4.680	2616/559	30
335	3.3	581	2.8	21	F102_0043 IE3D080L04	28.2	4.308	56/13	28
401	3.8	–	–	17	F102_0072 IE3D080K02	22.7	7.156	322/45	7.8
444	4.0	–	–	16	F102_0065 IE3D080K02	22.7	6.462	84/13	8.0
613	9.6	–	–	11	F202_0047 IE3D080K02	30.9	4.680	2616/559	11
666	5.3	–	–	10	F102_0043 IE3D080K02	22.7	4.308	56/13	8.7
P_N (50 Hz) = 1,10 kW, P_N (87 Hz) = 1,91 kW									
8.0	0.87	14	0.87	1261	F603_1810 IE3D090S04	89.3	180.6	8671/48	40
10	1.1	18	1.1	990	F602_1400 IE3D090S04	84.8	139.8	559/4	40
13	0.88	22	0.88	795	F402_1120 IE3D090S04	57.8	112.3	1235/11	40
13	1.4	22	1.4	795	F602_1120 IE3D090S04	84.8	112.2	9425/84	40
15	1.1	27	1.1	661	F402_0930 IE3D090S04	57.8	93.33	280/3	40
15	1.7	27	1.7	661	F602_0930 IE3D090S04	84.8	93.33	280/3	41
20	0.80	35	0.80	498	F302_0700 IE3D090S04	49.5	70.36	2744/39	40
21	1.4	36	1.4	496	F402_0700 IE3D090S04	57.8	70.06	1261/18	40
21	2.2	36	2.2	493	F602_0700 IE3D090S04	84.8	69.64	975/14	41
25	1.0	44	1.0	400	F302_0560 IE3D090S04	49.5	56.49	4067/72	40
26	1.8	45	1.8	396	F402_0560 IE3D090S04	57.8	55.97	2015/36	41
31	1.2	53	1.2	334	F302_0470 IE3D090S04	49.5	47.19	1274/27	40
31	2.1	53	2.1	332	F402_0470 IE3D090S04	57.8	46.94	845/18	41
41	0.96	70	0.93	251	F202_0350 IE3D090S04	41.9	35.46	390/11	40
41	1.6	71	1.6	248	F302_0350 IE3D090S04	49.5	35.03	7252/207	41
51	1.2	89	1.1	199	F202_0280 IE3D090S04	41.9	28.11	4020/143	41

n_2 50 Hz [rpm]	S 50 Hz	n_2 87 Hz [rpm]	S 87 Hz	M_{2N} [Nm]	Type	m [kg]	i	i_{exakt}	J_1 [10^{-4}kgm²]
P_N (50 Hz) = 1,10 kW, P_N (87 Hz) = 1,91 kW									
51	2.0	88	1.8	200	F302_0280 IE3D090S04	49.5	28.23	6860/243	41
61	2.4	106	2.0	167	F302_0240 IE3D090S04	49.5	23.52	588/25	41
61	1.4	106	1.2	166	F202_0230 IE3D090S04	41.9	23.43	2320/99	41
78	0.85	–	–	131	F102_0185 IE3D090S04	33.7	18.46	1495/81	40
77	1.7	134	1.4	132	F202_0185 IE3D090S04	41.9	18.65	6360/341	41
106	1.0	184	0.88	96	F102_0135 IE3D090S04	33.7	13.59	231/17	40
106	2.1	183	1.8	96	F202_0135 IE3D090S04	41.9	13.63	109/8	41
132	1.2	228	1.0	77	F102_0110 IE3D090S04	33.7	10.92	273/25	40
133	2.4	231	2.0	76	F202_0110 IE3D090S04	41.9	10.80	7303/676	41
160	2.7	277	2.3	64	F202_0090 IE3D090S04	41.9	9.006	3161/351	41
161	1.4	279	1.2	63	F102_0089 IE3D090S04	33.7	8.948	1029/115	40
201	1.6	349	1.4	51	F102_0072 IE3D090S04	33.7	7.156	322/45	41
201	3.2	348	2.7	51	F202_0072 IE3D090S04	41.9	7.167	5777/806	42
223	1.7	386	1.4	46	F102_0065 IE3D090S04	33.7	6.462	84/13	41
308	3.3	533	3.3	33	F202_0047 IE3D090S04	41.9	4.680	2616/559	44
334	2.2	579	1.9	31	F102_0043 IE3D090S04	33.7	4.308	56/13	42
401	2.5	–	–	26	F102_0072 IE3D080L02	26.2	7.156	322/45	14
444	2.7	–	–	23	F102_0065 IE3D080L02	26.2	6.462	84/13	14
613	6.5	–	–	17	F202_0047 IE3D080L02	34.4	4.680	2616/559	17
666	3.6	–	–	15	F102_0043 IE3D080L02	26.2	4.308	56/13	15
P_N (50 Hz) = 1,50 kW, P_N (87 Hz) = 2,60 kW									
10	0.82	18	0.82	1342	F602_1400 IE3D090L04	90.3	139.8	559/4	45
13	1.0	22	1.0	1077	F602_1120 IE3D090L04	90.3	112.2	9425/84	45
15	1.2	27	1.2	896	F602_0930 IE3D090L04	90.3	93.33	280/3	46
21	1.0	36	1.0	673	F402_0700 IE3D090L04	63.3	70.06	1261/18	45
21	1.6	36	1.6	669	F602_0700 IE3D090L04	90.3	69.64	975/14	46
26	1.3	45	1.3	537	F402_0560 IE3D090L04	63.3	55.97	2015/36	46
31	0.88	53	0.88	453	F302_0470 IE3D090L04	55.0	47.19	1274/27	45
31	1.6	53	1.6	451	F402_0470 IE3D090L04	63.3	46.94	845/18	46
41	1.2	71	1.1	336	F302_0350 IE3D090L04	55.0	35.03	7252/207	46
51	0.89	–	–	270	F202_0280 IE3D090L04	47.4	28.11	4020/143	46
51	1.5	89	1.3	271	F302_0280 IE3D090L04	55.0	28.23	6860/243	46
61	1.8	106	1.5	226	F302_0240 IE3D090L04	55.0	23.52	588/25	46
62	1.1	107	0.90	225	F202_0230 IE3D090L04	47.4	23.43	2320/99	46
77	1.2	134	1.0	179	F202_0185 IE3D090L04	47.4	18.65	6360/341	46
106	1.5	184	1.3	131	F202_0135 IE3D090L04	47.4	13.63	109/8	46
108	2.4	187	2.2	129	F302_0135 IE3D090L04	55.0	13.38	7696/575	46
132	0.89	–	–	105	F102_0110 IE3D090L04	39.2	10.92	273/25	45
134	1.8	232	1.5	104	F202_0110 IE3D090L04	47.4	10.80	7303/676	46
134	2.4	232	2.4	104	F302_0110 IE3D090L04	55.0	10.79	1456/135	47
160	2.0	278	1.7	86	F202_0090 IE3D090L04	47.4	9.006	3161/351	46
161	1.0	280	0.86	86	F102_0089 IE3D090L04	39.2	8.948	1029/115	45
202	1.2	350	1.0	69	F102_0072 IE3D090L04	39.2	7.156	322/45	46
202	2.4	349	2.0	69	F202_0072 IE3D090L04	47.4	7.167	5777/806	47
224	1.3	387	1.1	62	F102_0065 IE3D090L04	39.2	6.462	84/13	46
309	2.4	535	2.4	45	F202_0047 IE3D090L04	47.4	4.680	2616/559	49
335	1.7	581	1.4	41	F102_0043 IE3D090L04	39.2	4.308	56/13	47
405	1.9	–	–	34	F102_0072 IE3D090S02	30.2	7.156	322/45	18
405	3.8	–	–	34	F202_0072 IE3D090S02	38.4	7.167	5777/806	19
449	2.1	–	–	31	F102_0065 IE3D090S02	30.2	6.462	84/13	18
620	4.9	–	–	22	F202_0047 IE3D090S02	38.4	4.680	2616/559	21
673	2.7	–	–	20	F102_0043 IE3D090S02	30.2	4.308	56/13	19
P_N (50 Hz) = 2,20 kW, P_N (87 Hz) = 3,81 kW									
16	0.84	27	0.84	1304	F602_0930 IE3D100K04	98.3	93.33	280/3	91
21	1.1	36	1.1	973	F602_0700 IE3D100K04	98.3	69.64	975/14	91
26	0.90	45	0.90	782	F402_0560 IE3D100K04	71.3	55.97	2015/36	91
26	1.4	45	1.4	778	F602_0560 IE3D100K04	98.3	55.71	390/7	91
31	1.1	54	1.1	656	F402_0470 IE3D100K04	71.3	46.94	845/18	91
31	1.7	54	1.7	653	F602_0470 IE3D100K04	98.3	46.72	1495/32	92
42	0.82	–	–	489	F302_0350 IE3D100K04	63.0	35.03	7252/207	91
41	1.4	72	1.3	490	F402_0350 IE3D100K04	71.3	35.08	2210/63	91
41	2.2	72	2.2	492	F602_0350 IE3D100K04	98.3	35.21	845/24	93
52	1.0	89	0.91	394	F302_0280 IE3D100K04	63.0	28.23	6860/243	91
52	1.8	90	1.5	391	F402_0280 IE3D100K04	71.3	27.99	2015/72	92
52	2.8	90	2.5	391	F602_0280 IE3D100K04	98.3	27.99	2015/72	94

n_2 50 Hz [rpm]	S 50 Hz	n_2 87 Hz [rpm]	S 87 Hz	M_{2N} [Nm]	Type	m [kg]	i	i_{exakt}	J_1 [10^{-4}kgm²]
P_N (50 Hz) = 2,20 kW, P_N (87 Hz) = 3,81 kW									
62	1.2	107	1.0	329	F302_0240 IE3D100K04	63.0	23.52	588/25	91
63	2.0	109	1.7	324	F402_0230 IE3D100K04	71.3	23.21	325/14	92
78	1.4	134	1.2	262	F302_0190 IE3D100K04	63.0	18.77	4900/261	92
78	0.85	–	–	261	F202_0185 IE3D100K04	55.4	18.65	6360/341	91
78	2.4	135	2.0	260	F402_0185 IE3D100K04	71.3	18.62	3575/192	93
107	1.1	185	0.89	190	F202_0135 IE3D100K04	55.4	13.63	109/8	91
109	1.8	188	1.5	187	F302_0135 IE3D100K04	63.0	13.38	7696/575	91
107	2.9	186	2.4	190	F402_0135 IE3D100K04	71.3	13.57	5984/441	92
135	1.2	233	1.0	151	F202_0110 IE3D100K04	55.4	10.80	7303/676	91
135	2.0	234	1.7	151	F302_0110 IE3D100K04	63.0	10.79	1456/135	92
162	1.4	280	1.2	126	F202_0090 IE3D100K04	55.4	9.006	3161/351	91
162	2.3	280	1.9	126	F302_0090 IE3D100K04	63.0	8.986	5616/625	93
203	1.6	352	1.4	100	F202_0072 IE3D100K04	55.4	7.167	5777/806	92
203	2.7	351	2.3	100	F302_0072 IE3D100K04	63.0	7.172	208/29	94
254	3.1	441	2.6	80	F302_0057 IE3D100K04	63.0	5.720	143/25	96
262	1.9	454	1.6	78	F202_0056 IE3D100K04	55.4	5.552	5341/962	93
311	2.1	538	1.8	65	F202_0047 IE3D100K04	55.4	4.680	2616/559	94
313	3.6	543	3.0	65	F302_0046 IE3D100K04	63.0	4.644	4992/1075	98
320	2.2	–	–	64	F202_0090 IE3D090L02	42.9	9.006	3161/351	29
322	1.1	–	–	63	F102_0089 IE3D090L02	34.7	8.948	1029/115	28
402	1.3	–	–	51	F102_0072 IE3D090L02	34.7	7.156	322/45	28
402	2.6	–	–	51	F202_0072 IE3D090L02	42.9	7.167	5777/806	29
446	1.4	–	–	46	F102_0065 IE3D090L02	34.7	6.462	84/13	28
615	3.3	–	–	33	F202_0047 IE3D090L02	42.9	4.680	2616/559	32
669	1.8	–	–	31	F102_0043 IE3D090L02	34.7	4.308	56/13	29
P_N (50 Hz) = 3,00 kW, P_N (87 Hz) = 5,20 kW									
21	0.83	36	0.83	1331	F602_0700 IE3D100L04	107.3	69.64	975/14	111
26	1.0	45	1.0	1065	F602_0560 IE3D100L04	107.3	55.71	390/7	111
31	1.2	54	1.2	893	F602_0470 IE3D100L04	107.3	46.72	1495/32	112
41	1.0	72	0.95	670	F402_0350 IE3D100L04	80.3	35.08	2210/63	111
41	1.6	72	1.6	673	F602_0350 IE3D100L04	107.3	35.21	845/24	113
52	1.3	90	1.1	535	F402_0280 IE3D100L04	80.3	27.99	2015/72	112
52	2.1	90	1.8	535	F602_0280 IE3D100L04	107.3	27.99	2015/72	114
62	0.89	–	–	449	F302_0240 IE3D100L04	72.0	23.52	588/25	111
63	1.5	109	1.2	444	F402_0230 IE3D100L04	80.3	23.21	325/14	112
63	2.5	108	2.1	445	F602_0230 IE3D100L04	107.3	23.27	1885/81	115
78	1.0	134	0.87	359	F302_0190 IE3D100L04	72.0	18.77	4900/261	112
78	1.7	135	1.4	356	F402_0185 IE3D100L04	80.3	18.62	3575/192	113
109	1.3	188	1.1	256	F302_0135 IE3D100L04	72.0	13.38	7696/575	111
107	2.1	186	1.8	259	F402_0135 IE3D100L04	80.3	13.57	5984/441	112
135	0.90	–	–	206	F202_0110 IE3D100L04	64.4	10.80	7303/676	111
135	1.5	234	1.3	206	F302_0110 IE3D100L04	72.0	10.79	1456/135	112
134	2.5	233	2.1	207	F402_0110 IE3D100L04	80.3	10.83	682/63	113
162	1.0	280	0.85	172	F202_0090 IE3D100L04	64.4	9.006	3161/351	111
162	1.7	280	1.4	172	F302_0090 IE3D100L04	72.0	8.986	5616/625	113
162	2.8	281	2.3	172	F402_0090 IE3D100L04	80.3	8.980	440/49	115
203	1.2	352	0.99	137	F202_0072 IE3D100L04	64.4	7.167	5777/806	112
203	2.0	351	1.7	137	F302_0072 IE3D100L04	72.0	7.172	208/29	114
202	3.0	350	2.7	138	F402_0072 IE3D100L04	80.3	7.202	605/84	117
254	2.3	441	1.9	109	F302_0057 IE3D100L04	72.0	5.720	143/25	116
262	1.4	454	1.2	106	F202_0056 IE3D100L04	64.4	5.552	5341/962	113
311	1.6	538	1.3	89	F202_0047 IE3D100L04	64.4	4.680	2616/559	114
313	2.6	543	2.2	89	F302_0046 IE3D100L04	72.0	4.644	4992/1075	118
324	1.6	–	–	86	F202_0090 IE3D100L02	50.4	9.006	3161/351	46
325	2.7	–	–	85	F302_0090 IE3D100L02	58.0	8.986	5616/625	48
407	1.9	–	–	68	F202_0072 IE3D100L02	50.4	7.167	5777/806	47
407	3.2	–	–	68	F302_0072 IE3D100L02	58.0	7.172	208/29	49
510	3.7	–	–	54	F302_0057 IE3D100L02	58.0	5.720	143/25	51
526	2.3	–	–	53	F202_0056 IE3D100L02	50.4	5.552	5341/962	48
624	2.5	–	–	44	F202_0047 IE3D100L02	50.4	4.680	2616/559	49
629	4.2	–	–	44	F302_0046 IE3D100L02	58.0	4.644	4992/1075	53
P_N (50 Hz) = 4,00 kW, P_N (87 Hz) = 6,93 kW									
31	0.93	54	0.93	1187	F602_0470 IE3D112M04	118.3	46.72	1495/32	172
41	1.2	72	1.2	895	F602_0350 IE3D112M04	118.3	35.21	845/24	173
52	0.98	90	0.83	711	F402_0280 IE3D112M04	91.3	27.99	2015/72	172

n_2 50 Hz [rpm]	S 50 Hz	n_2 87 Hz [rpm]	S 87 Hz	M_{2N} [Nm]	Type	m [kg]	i	i_{exakt}	J_1 [10^{-4}kgm²]
P_N (50 Hz) = 4,00 kW, P_N (87 Hz) = 6,93 kW									
52	1.5	90	1.4	711	F602_0280 IE3D112M04	118.3	27.99	2015/72	174
63	1.1	109	0.94	590	F402_0230 IE3D112M04	91.3	23.21	325/14	172
63	1.9	109	1.6	591	F602_0230 IE3D112M04	118.3	23.27	1885/81	175
78	1.3	136	1.1	473	F402_0185 IE3D112M04	91.3	18.62	3575/192	173
109	0.97	189	0.82	340	F302_0135 IE3D112M04	83.0	13.38	7696/575	171
108	1.6	186	1.3	345	F402_0135 IE3D112M04	91.3	13.57	5984/441	172
107	2.1	186	2.1	346	F602_0135 IE3D112M04	118.3	13.61	871/64	175
135	1.1	234	0.95	274	F302_0110 IE3D112M04	83.0	10.79	1456/135	172
135	1.9	234	1.6	275	F402_0110 IE3D112M04	91.3	10.83	682/63	173
135	2.3	234	2.3	275	F602_0110 IE3D112M04	118.3	10.82	2077/192	178
162	1.3	281	1.1	228	F302_0090 IE3D112M04	83.0	8.986	5616/625	173
163	2.1	282	1.8	228	F402_0090 IE3D112M04	91.3	8.980	440/49	175
204	0.89	–	–	182	F202_0072 IE3D112M04	75.4	7.167	5777/806	172
204	1.5	353	1.2	182	F302_0072 IE3D112M04	83.0	7.172	208/29	174
203	2.3	351	2.0	183	F402_0072 IE3D112M04	91.3	7.202	605/84	177
255	1.7	442	1.4	145	F302_0057 IE3D112M04	83.0	5.720	143/25	176
263	1.1	455	0.88	141	F202_0056 IE3D112M04	75.4	5.552	5341/962	173
312	1.2	540	0.99	119	F202_0047 IE3D112M04	75.4	4.680	2616/559	174
314	2.0	545	1.7	118	F302_0046 IE3D112M04	83.0	4.644	4992/1075	178
324	1.2	–	–	114	F202_0090 IE3D112M02	57.4	9.006	3161/351	56
325	2.0	–	–	114	F302_0090 IE3D112M02	65.0	8.986	5616/625	58
407	1.4	–	–	91	F202_0072 IE3D112M02	57.4	7.167	5777/806	57
407	2.4	–	–	91	F302_0072 IE3D112M02	65.0	7.172	208/29	59
510	2.8	–	–	73	F302_0057 IE3D112M02	65.0	5.720	143/25	61
526	1.7	–	–	71	F202_0056 IE3D112M02	57.4	5.552	5341/962	58
624	1.9	–	–	59	F202_0047 IE3D112M02	57.4	4.680	2616/559	59
629	3.2	–	–	59	F302_0046 IE3D112M02	65.0	4.644	4992/1075	63
P_N (50 Hz) = 5,50 kW, P_N (87 Hz) = 9,53 kW									
42	0.92	73	0.88	1195	F602_0350 IE3D132S04	152.3	35.21	845/24	353
53	1.2	92	1.0	950	F602_0280 IE3D132S04	152.3	27.99	2015/72	354
64	0.83	–	–	788	F402_0230 IE3D132S04	125.3	23.21	325/14	352
64	1.4	110	1.2	790	F602_0230 IE3D132S04	152.3	23.27	1885/81	355
79	0.97	138	0.81	632	F402_0185 IE3D132S04	125.3	18.62	3575/192	353
80	1.6	138	1.4	629	F602_0185 IE3D132S04	152.3	18.52	3445/186	358
109	1.2	189	1.0	461	F402_0135 IE3D132S04	125.3	13.57	5984/441	352
109	2.0	188	1.7	462	F602_0135 IE3D132S04	152.3	13.61	871/64	355
137	1.4	237	1.2	368	F402_0110 IE3D132S04	125.3	10.83	682/63	353
137	2.3	237	1.9	367	F602_0110 IE3D132S04	152.3	10.82	2077/192	358
165	1.6	285	1.3	305	F402_0090 IE3D132S04	125.3	8.980	440/49	355
165	2.6	285	2.2	305	F602_0090 IE3D132S04	152.3	8.995	1943/216	361
205	1.8	356	1.5	245	F402_0072 IE3D132S04	125.3	7.202	605/84	357
207	3.1	358	2.6	243	F602_0072 IE3D132S04	152.3	7.159	3551/496	366
255	2.1	441	1.8	197	F402_0058 IE3D132S04	125.3	5.813	3784/651	360
261	3.6	–	–	193	F602_0057 IE3D132S04	152.3	5.673	1407/248	374
316	2.4	548	2.0	159	F402_0047 IE3D132S04	125.3	4.678	1408/301	365
326	4.1	–	–	154	F602_0045 IE3D132S04	152.3	4.546	1273/280	386
P_N (50 Hz) = 7,50 kW, P_N (87 Hz) = 12,99 kW									
53	0.83	–	–	1330	F602_0280 IE3D132M04	162.3	27.99	2015/72	434
63	0.99	110	0.83	1106	F602_0230 IE3D132M04	162.3	23.27	1885/81	435
80	1.2	138	0.97	880	F602_0185 IE3D132M04	162.3	18.52	3445/186	438
109	0.85	–	–	645	F402_0135 IE3D132M04	135.3	13.57	5984/441	432
108	1.4	188	1.2	647	F602_0135 IE3D132M04	162.3	13.61	871/64	435
136	0.99	236	0.83	515	F402_0110 IE3D132M04	135.3	10.83	682/63	433
136	1.7	236	1.4	514	F602_0110 IE3D132M04	162.3	10.82	2077/192	438
164	1.1	284	0.94	427	F402_0090 IE3D132M04	135.3	8.980	440/49	435
164	1.9	284	1.6	428	F602_0090 IE3D132M04	162.3	8.995	1943/216	441
205	1.3	355	1.1	342	F402_0072 IE3D132M04	135.3	7.202	605/84	437
206	2.2	357	1.8	340	F602_0072 IE3D132M04	162.3	7.159	3551/496	446
254	1.5	439	1.3	276	F402_0058 IE3D132M04	135.3	5.813	3784/651	440
260	2.5	–	–	270	F602_0057 IE3D132M04	162.3	5.673	1407/248	454
315	1.7	546	1.5	222	F402_0047 IE3D132M04	135.3	4.678	1408/301	445
324	3.0	–	–	216	F602_0045 IE3D132M04	162.3	4.546	1273/280	466

3.3 Dimensional drawings

In this chapter you can find the dimensions of the geared motors.

There is a dimensional drawing for every possible shaft/housing design, each with the tables for gear unit dimensions, motor dimensions and geared motor dimensions.

Dimensions can exceed the specifications of ISO 2768-mK due to casting tolerances or accumulation of individual tolerances.

We reserve the right to make dimensional changes due to ongoing technical development.

You can download CAD models of our standard drives at http://cad.stoeber.de.

Tolerances

Axis height in accordance with DIN 747	Tolerance
Up to 50 mm	-0.4 mm
Up to 250 mm	-0.5 mm
Up to 630 mm	-0.6 mm

Solid shaft	Tolerance
Shaft ∅ fit ≤ 50 mm	DIN 748-1, ISO k6
Shaft ∅ fit > 50 mm	DIN 748-1, ISO m6
Feather keys	DIN 6885-1, high form A

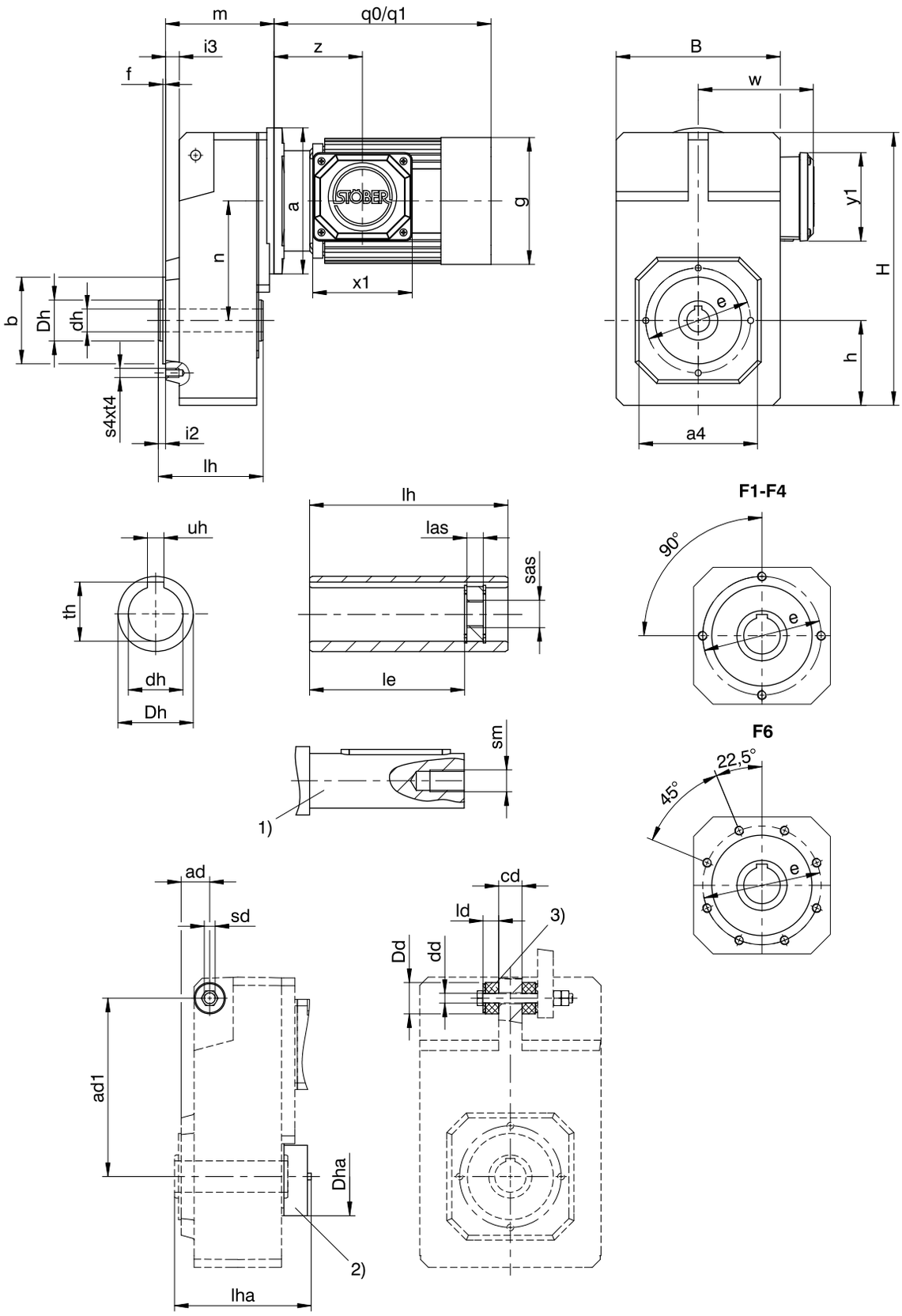
Hollow shaft	Tolerance
Hollow shaft hole fit	ISO H7

Flange	Pilot tolerance
Up to 300 mm	ISO j6
Starting at 350 mm	ISO h6

Centering holes in solid shafts in accordance with DIN 332-2, DR shape

Thread size	M4	M5	M6	M8	M10	M12	M16	M20	M24
Thread depth [mm]	10	12.5	16	19	22	28	36	42	50

3.3.1 A shaft design (hollow shaft), G housing design (pitch circle diameter)



q0	Applies to motors without brake.	q1	Applies to motors with brake.
1)	The length of the machine shaft must be at least 2.2 x ∅dh and the length of the feather key must be at least 2 x ∅dh.	2)	Cover (optional)
3)	Rubber buffer for torque arm (optional). Dimension ∅Dd = outer∅ of the rubber buffer when not tensioned.		

Dimensions of gear units

Type	□a4	ad	ad1	Øb	B	cd	Ødd	Ødh	ØDd	ØDh	ØDha	Øe	f	h	H	i2	i3	ld	le	lh	las	lha	s4	sd	sm	sas	t4	th	uh
F1	100	29.5	150	70_{j6}	145	20	$11^{+0,5}$	20^{H7}	30	35	70	85	2.5	74	238.0	6.5	12.5	15	73	95	12	112	M8	M10	M6	M8	13	22.8	6^{JS9}
F2	130	33.0	181	95_{j6}	180	22	$11^{+0,5}$	25^{H7}	30	45	82	115	3.0	93	299.0	8.0	15.0	15	92	115	12	130.5	M8	M10	M10	M12	13	28.3	8^{JS9}
F3	150	38.5	205	110_{j6}	206	30	$14^{+0,5}$	30^{H7}	37	50	88	130	3.5	106	335.5	8.5	16.5	20	103	130	12	155.5	M10	M12	M10	M12	16	33.3	8^{JS9}
F4	150	38.5	228	110_{j6}	230	30	$14^{+0,5}$	40^{H7}	37	55	100	130	3.5	116	370.0	8.5	16.5	20	114	145	12	174.5	M10	M12	M16	M20	16	43.3	12^{JS9}
F6	180	44.5	270	130_{j6}	265	35	$22^{+0,5}$	50^{H7}	60	70	115	165	3.5	137	433.0	10.5	20.5	30	143	180	12	192.5	M10	M20	M16	M20	16	53.8	14^{JS9}

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109.0	97.0	81.0
D063M04	109	179	231	115	109.0	97.0	81.0
D071K04	124	208	260	120	109.0	97.0	94.0
D071K02	124	208	260	120	109.0	97.0	94.0
D071L04	124	208	260	120	109.0	97.0	94.0
D071L02	124	208	260	120	109.0	97.0	94.0
D080K04	139	238	295	128	109.0	97.0	97.0

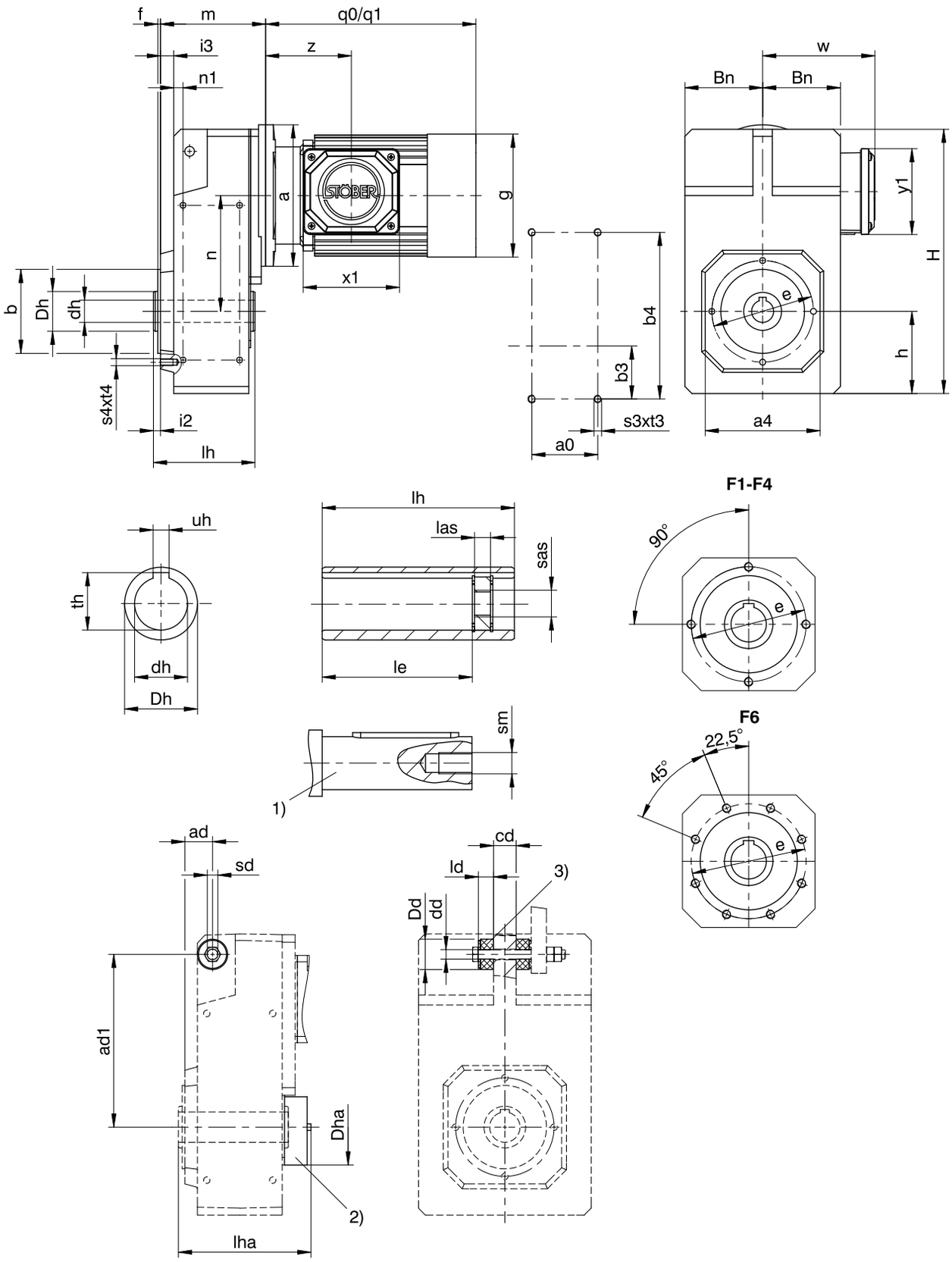
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	177	310	380	146	120.0	109.0	114.0
IE3D100K04	196	394	481	155	120.0	109.0	120.0
IE3D100L02	196	340	427	155	120.0	109.0	120.0
IE3D100L04	196	444	531	155	120.0	109.0	120.0
IE3D112M02	196	374	461	155	120.0	109.0	120.0
IE3D112M04	217	424	521	178	146.5	156.5	134.0
IE3D132S04	258	476	591	199	146.5	156.5	141.5
IE3D132M04	258	526	641	199	146.5	156.5	141.5

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
F102	∅140	97.5	102.0	∅140	97.5	102.0	∅160	101.5	102.0
F202	∅140	115.0	131.0	∅140	115.0	131.0	∅160	119.0	131.0
F203	∅140	152.0	131.0	–	–	–	–	–	–
F302	–	–	–	∅140	129.5	149.5	∅160	133.5	149.5
F303	∅140	166.5	149.5	∅140	166.5	149.5	–	–	–
F402	–	–	–	–	–	–	∅160	148.5	169.0
F403	–	–	–	∅140	181.5	169.0	∅160	191.5	132.0
F603	–	–	–	–	–	–	∅160	222.5	196.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
F102	∅160	101.5	102.0	∅160	101.5	102.0	–	–	–	–	–	–	–	–	–
F202	∅160	119.0	131.0	∅160	119.0	131.0	∅200	121.0	131.0	∅200	121.0	131.0	–	–	–
F302	∅160	133.5	149.5	∅160	133.5	149.5	∅200	135.5	149.5	∅200	135.5	149.5	–	–	–
F402	∅160	148.5	169.0	∅160	148.5	169.0	∅200	150.5	169.0	∅200	150.5	169.0	∅250	153.5	169.0
F403	∅160	191.5	132.0	–	–	–	–	–	–	–	–	–	–	–	–
F602	∅160	179.5	196.0	∅160	179.5	196.0	∅200	181.5	196.0	∅200	181.5	196.0	∅250	184.5	196.0
F603	∅160	222.5	196.0	∅160	222.5	196.0	–	–	–	–	–	–	–	–	–

3.3.2 A shaft design (hollow shaft), GN housing design (pitch circle diameter + side fastening)



q0	Applies to motors without brake.	q1	Applies to motors with brake.
1)	The length of the machine shaft must be at least 2.2 x ∅dh and the length of the feather key must be at least 2 x ∅dh.	2)	Cover (optional)
3)	Rubber buffer for torque arm (optional). Dimension ∅Dd = outer∅ of the rubber buffer when not tensioned.		

Dimensions of gear units

Type	a0	□a4	ad	ad1	Øb	b3	b4	Bn	cd	Ødd	Ødh	ØDd	ØDh	ØDha	Øe	f	h	H
F1	50	100	29.5	150	70_{j6}	40	140	71	20	$11^{+0,5}$	20^{H7}	30	35	70	85	2.5	74	238.0
F2	64	130	33.0	181	95_{j6}	55	175	88	22	$11^{+0,5}$	25^{H7}	30	45	82	115	3.0	93	299.0
F3	72	150	38.5	205	110_{j6}	60	200	102	30	$14^{+0,5}$	30^{H7}	37	50	88	130	3.5	106	335.5
F4	87	150	38.5	228	110_{j6}	70	220	114	30	$14^{+0,5}$	40^{H7}	37	55	100	130	3.5	116	370.0
F6	108	180	44.5	270	130_{j6}	85	270	131	35	$22^{+0,5}$	50^{H7}	60	70	115	165	3.5	137	433.0

Type	i2	i3	ld	le	lh	las	lha	n1	s3	s4	sd	sm	sas	t3	t4	th	uh
F1	6.5	12.5	15	73	95	12	112	10.0	M6	M8	M10	M6	M8	11	13	22.8	6^{JS9}
F2	8.0	15.0	15	92	115	12	130.5	10.5	M8	M8	M10	M10	M12	13	13	28.3	8^{JS9}
F3	8.5	16.5	20	103	130	12	155.5	12.5	M10	M10	M12	M10	M12	16	16	33.3	8^{JS9}
F4	8.5	16.5	20	114	145	12	174.5	12.5	M10	M10	M12	M16	M20	16	16	43.3	12^{JS9}
F6	10.5	20.5	30	143	180	12	192.5	15.5	M12	M10	M20	M16	M20	19	16	53.8	14^{JS9}

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109.0	97.0	81.0
D063M04	109	179	231	115	109.0	97.0	81.0
D071K04	124	208	260	120	109.0	97.0	94.0
D071K02	124	208	260	120	109.0	97.0	94.0
D071L04	124	208	260	120	109.0	97.0	94.0
D071L02	124	208	260	120	109.0	97.0	94.0
D080K04	139	238	295	128	109.0	97.0	97.0

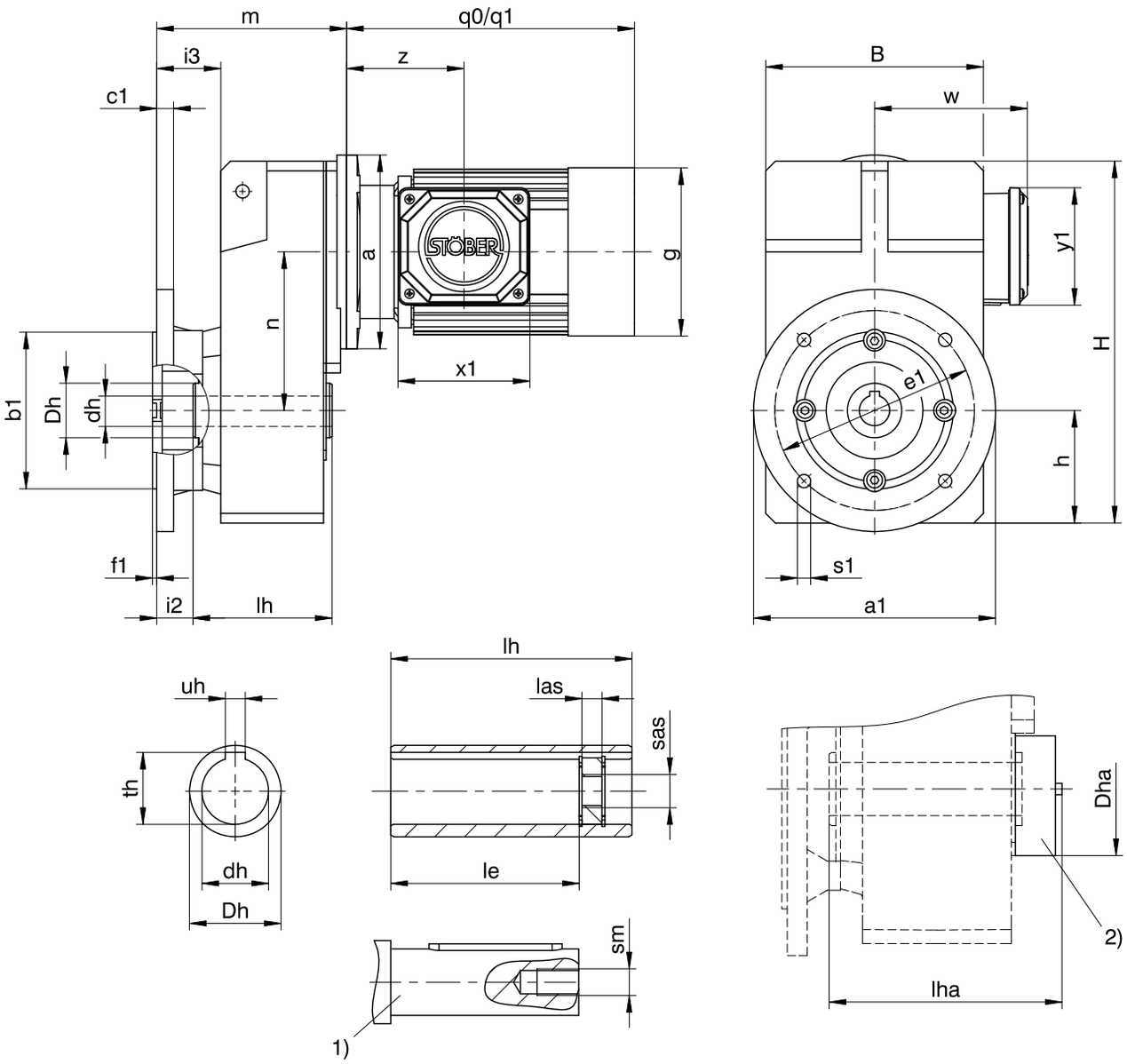
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	177	310	380	146	120.0	109.0	114.0
IE3D100K04	196	394	481	155	120.0	109.0	120.0
IE3D100L02	196	340	427	155	120.0	109.0	120.0
IE3D100L04	196	444	531	155	120.0	109.0	120.0
IE3D112M02	196	374	461	155	120.0	109.0	120.0
IE3D112M04	217	424	521	178	146.5	156.5	134.0
IE3D132S04	258	476	591	199	146.5	156.5	141.5
IE3D132M04	258	526	641	199	146.5	156.5	141.5

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
F102	∅140	97.5	102.0	∅140	97.5	102.0	∅160	101.5	102.0
F202	∅140	115.0	131.0	∅140	115.0	131.0	∅160	119.0	131.0
F203	∅140	152.0	131.0	–	–	–	–	–	–
F302	–	–	–	∅140	129.5	149.5	∅160	133.5	149.5
F303	∅140	166.5	149.5	∅140	166.5	149.5	–	–	–
F402	–	–	–	–	–	–	∅160	148.5	169.0
F403	–	–	–	∅140	181.5	169.0	∅160	191.5	132.0
F603	–	–	–	–	–	–	∅160	222.5	196.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
F102	∅160	101.5	102.0	∅160	101.5	102.0	–	–	–	–	–	–	–	–	–
F202	∅160	119.0	131.0	∅160	119.0	131.0	∅200	121.0	131.0	∅200	121.0	131.0	–	–	–
F302	∅160	133.5	149.5	∅160	133.5	149.5	∅200	135.5	149.5	∅200	135.5	149.5	–	–	–
F402	∅160	148.5	169.0	∅160	148.5	169.0	∅200	150.5	169.0	∅200	150.5	169.0	∅250	153.5	169.0
F403	∅160	191.5	132.0	–	–	–	–	–	–	–	–	–	–	–	–
F602	∅160	179.5	196.0	∅160	179.5	196.0	∅200	181.5	196.0	∅200	181.5	196.0	∅250	184.5	196.0
F603	∅160	222.5	196.0	∅160	222.5	196.0	–	–	–	–	–	–	–	–	–

3.3.3 A shaft design (hollow shaft), F housing design (round flange)



q0	Applies to motors without brake.	q1	Applies to motors with brake.
1)	The length of the machine shaft must be at least 2.2 x ∅dh and the length of the feather key must be at least 2 x ∅dh.	2)	Cover (optional)

Dimensions of gear units

Type	Øa1	Øb1	B	c1	Ødh	ØDh	ØDha	Øe1	f1	h	H	i2	i3	le	lh	las	lha	Øs1	sm	sas	th	uh
F1	160	110_{j6}	145	10	20^{H7}	35	70	130	3.5	74	238.0	25.5	44.5	73	95	12	112.0	9	M6	M8	22.8	6^{JS9}
F2	200	130_{j6}	180	14	25^{H7}	45	82	165	3.5	93	299.0	30.0	53.0	92	115	12	130.5	11	M10	M12	28.3	8^{JS9}
F3	250	180_{j6}	206	15	30^{H7}	50	88	215	4.0	106	335.5	31.5	56.5	103	130	12	155.5	14	M10	M12	33.3	8^{JS9}
F4	250	180_{j6}	230	15	40^{H7}	55	100	215	4.0	116	370.0	31.5	56.5	114	145	12	174.5	14	M16	M20	43.3	12^{JS9}
F6	300	230_{j6}	265	17	50^{H7}	70	115	265	4.0	137	433.0	29.5	60.5	143	180	12	192.5	14	M16	M20	53.8	14^{JS9}

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109.0	97.0	81.0
D063M04	109	179	231	115	109.0	97.0	81.0
D071K04	124	208	260	120	109.0	97.0	94.0
D071K02	124	208	260	120	109.0	97.0	94.0
D071L04	124	208	260	120	109.0	97.0	94.0
D071L02	124	208	260	120	109.0	97.0	94.0
D080K04	139	238	295	128	109.0	97.0	97.0

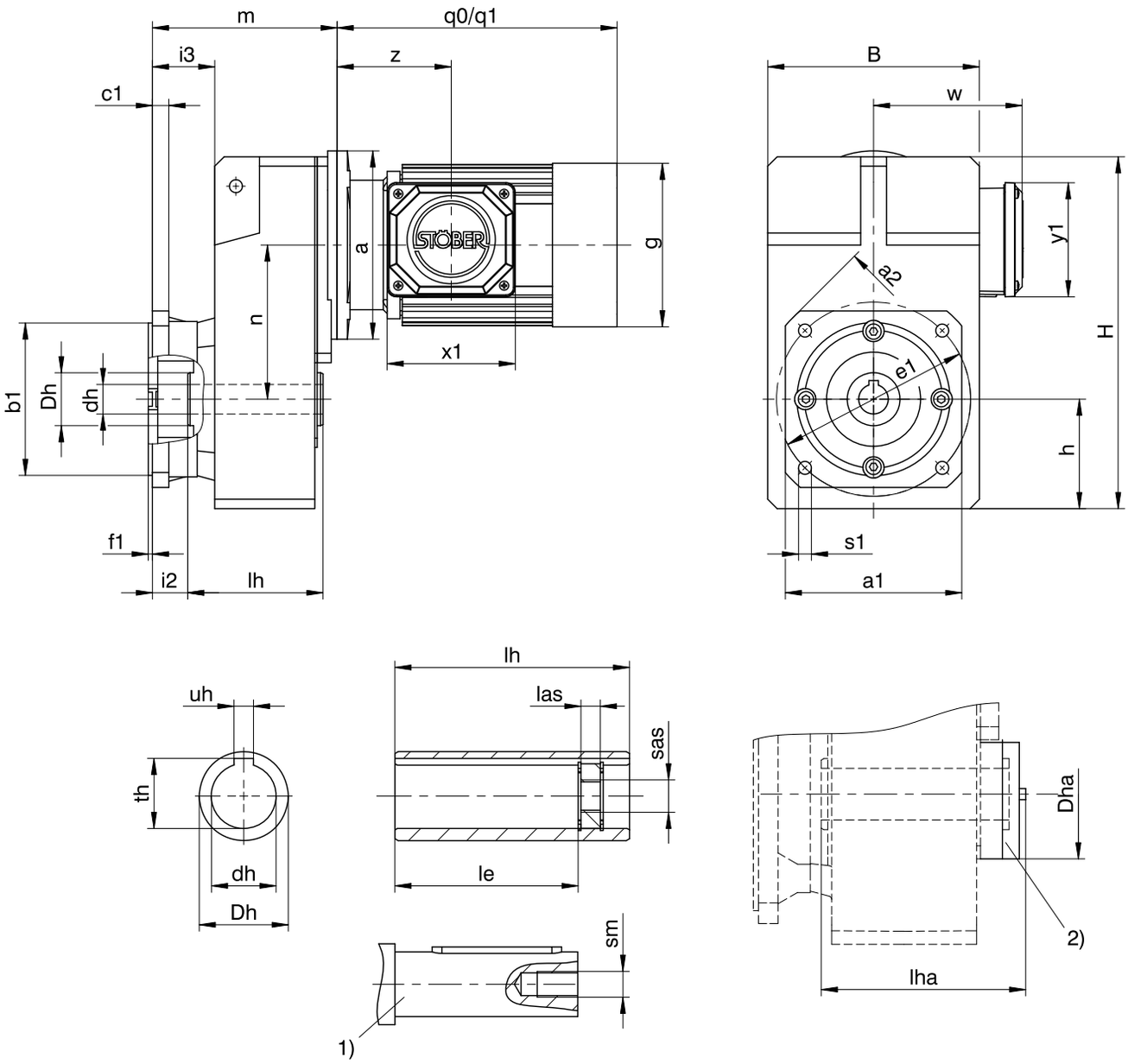
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	177	310	380	146	120.0	109.0	114.0
IE3D100K04	196	394	481	155	120.0	109.0	120.0
IE3D100L02	196	340	427	155	120.0	109.0	120.0
IE3D100L04	196	444	531	155	120.0	109.0	120.0
IE3D112M02	196	374	461	155	120.0	109.0	120.0
IE3D112M04	217	424	521	178	146.5	156.5	134.0
IE3D132S04	258	476	591	199	146.5	156.5	141.5
IE3D132M04	258	526	641	199	146.5	156.5	141.5

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
F102	∅140	129.5	102.0	∅140	129.5	102.0	∅160	133.5	102.0
F202	∅140	153.0	131.0	∅140	153.0	131.0	∅160	157.0	131.0
F203	∅140	190.0	131.0	–	–	–	–	–	–
F302	–	–	–	∅140	169.5	149.5	∅160	173.5	149.5
F303	∅140	206.5	149.5	∅140	206.5	149.5	–	–	–
F402	–	–	–	–	–	–	∅160	188.5	169.0
F403	–	–	–	∅140	221.5	169.0	∅160	231.5	132.0
F603	–	–	–	–	–	–	∅160	262.5	196.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
F102	∅160	133.5	102.0	∅160	133.5	102.0	–	–	–	–	–	–	–	–	–
F202	∅160	157.0	131.0	∅160	157.0	131.0	∅200	159.0	131.0	∅200	159.0	131.0	–	–	–
F302	∅160	173.5	149.5	∅160	173.5	149.5	∅200	175.5	149.5	∅200	175.5	149.5	–	–	–
F402	∅160	188.5	169.0	∅160	188.5	169.0	∅200	190.5	169.0	∅200	190.5	169.0	∅250	193.5	169.0
F403	∅160	231.5	132.0	–	–	–	–	–	–	–	–	–	–	–	–
F602	∅160	219.5	196.0	∅160	219.5	196.0	∅200	221.5	196.0	∅200	221.5	196.0	∅250	224.5	196.0
F603	∅160	262.5	196.0	∅160	262.5	196.0	–	–	–	–	–	–	–	–	–

3.3.4 A shaft design (hollow shaft), Q housing design (square flange)



q0	Applies to motors without brake.	q1	Applies to motors with brake.
1)	The length of the machine shaft must be at least 2.2 x ∅dh and the length of the feather key must be at least 2 x ∅dh.	2)	Cover (optional)

Dimensions of gear units

Type	□a1	□a2	Øb1	B	c1	Ødh	ØDh	ØDha	Øe1	f1	h	H	i2	i3	le	lh	las	lha	Øs1	sm	sas	th	uh
F1	125	160	110_{j6}	145	10	20^{H7}	35	70	130	3.5	74	238.0	25.5	44.5	73	95	12	112.0	9	M6	M8	22.8	6^{JS9}
F2	150	195	130_{j6}	180	14	25^{H7}	45	82	165	3.5	93	299.0	30.0	53.0	92	115	12	130.5	11	M10	M12	28.3	8^{JS9}
F3	200	260	180_{j6}	206	15	30^{H7}	50	88	215	4.0	106	335.5	31.5	56.5	103	130	12	155.5	14	M10	M12	33.3	8^{JS9}
F4	200	260	180_{j6}	230	15	40^{H7}	55	100	215	4.0	116	370.0	31.5	56.5	114	145	12	174.5	14	M16	M20	43.3	12^{JS9}
F6	250	325	230_{j6}	265	17	50^{H7}	70	115	265	4.0	137	433.0	29.5	60.5	143	180	12	192.5	14	M16	M20	53.8	14^{JS9}

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109.0	97.0	81.0
D063M04	109	179	231	115	109.0	97.0	81.0
D071K04	124	208	260	120	109.0	97.0	94.0
D071K02	124	208	260	120	109.0	97.0	94.0
D071L04	124	208	260	120	109.0	97.0	94.0
D071L02	124	208	260	120	109.0	97.0	94.0
D080K04	139	238	295	128	109.0	97.0	97.0

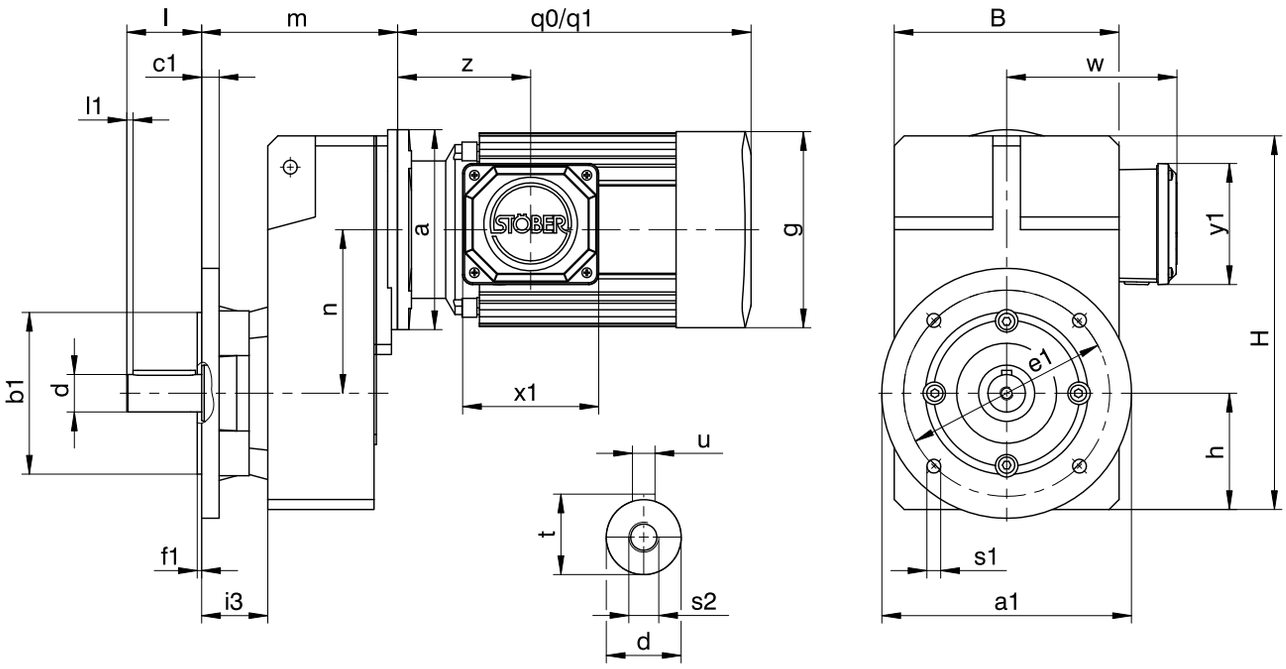
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	177	310	380	146	120.0	109.0	114.0
IE3D100K04	196	394	481	155	120.0	109.0	120.0
IE3D100L02	196	340	427	155	120.0	109.0	120.0
IE3D100L04	196	444	531	155	120.0	109.0	120.0
IE3D112M02	196	374	461	155	120.0	109.0	120.0
IE3D112M04	217	424	521	178	146.5	156.5	134.0
IE3D132S04	258	476	591	199	146.5	156.5	141.5
IE3D132M04	258	526	641	199	146.5	156.5	141.5

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
F102	∅140	129.5	102.0	∅140	129.5	102.0	∅160	133.5	102.0
F202	∅140	153.0	131.0	∅140	153.0	131.0	∅160	157.0	131.0
F203	∅140	190.0	131.0	–	–	–	–	–	–
F302	–	–	–	∅140	169.5	149.5	∅160	173.5	149.5
F303	∅140	206.5	149.5	∅140	206.5	149.5	–	–	–
F402	–	–	–	–	–	–	∅160	188.5	169.0
F403	–	–	–	∅140	221.5	169.0	∅160	231.5	132.0
F603	–	–	–	–	–	–	∅160	262.5	196.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
F102	∅160	133.5	102.0	∅160	133.5	102.0	–	–	–	–	–	–	–	–	–
F202	∅160	157.0	131.0	∅160	157.0	131.0	∅200	159.0	131.0	∅200	159.0	131.0	–	–	–
F302	∅160	173.5	149.5	∅160	173.5	149.5	∅200	175.5	149.5	∅200	175.5	149.5	–	–	–
F402	∅160	188.5	169.0	∅160	188.5	169.0	∅200	190.5	169.0	∅200	190.5	169.0	∅250	193.5	169.0
F403	∅160	231.5	132.0	–	–	–	–	–	–	–	–	–	–	–	–
F602	∅160	219.5	196.0	∅160	219.5	196.0	∅200	221.5	196.0	∅200	221.5	196.0	∅250	224.5	196.0
F603	∅160	262.5	196.0	∅160	262.5	196.0	–	–	–	–	–	–	–	–	–

3.3.5 V shaft design (solid shaft), F housing design (round flange)



q0 Applies to motors without brake. q1 Applies to motors with brake.

Dimensions of gear units

Type	Øa1	Øb1	B	c1	Ød	Øe1	f1	h	H	i3	l	l1	Øs1	s2	t	u
F1	160	110_{j6}	145	10	25_{k6}	130	3.5	74	238.0	44.5	50	5	9	M10	28.0	A8×7×40
F2	200	130_{j6}	180	14	30_{k6}	165	3.5	93	299.0	53.0	60	5	11	M10	33.0	A8×7×50
F3	250	180_{j6}	206	15	35_{k6}	215	4.0	106	335.5	56.5	70	5	14	M12	38.0	A10×8×60
F4	250	180_{j6}	230	15	40_{k6}	215	4.0	116	370.0	56.5	80	5	14	M16	43.0	A12×8×70
F6	300	230_{j6}	265	17	50_{k6}	265	4.0	137	433.0	60.5	100	5	14	M16	53.5	A14×9×90

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109.0	97.0	81.0
D063M04	109	179	231	115	109.0	97.0	81.0
D071K04	124	208	260	120	109.0	97.0	94.0
D071K02	124	208	260	120	109.0	97.0	94.0
D071L04	124	208	260	120	109.0	97.0	94.0
D071L02	124	208	260	120	109.0	97.0	94.0
D080K04	139	238	295	128	109.0	97.0	97.0

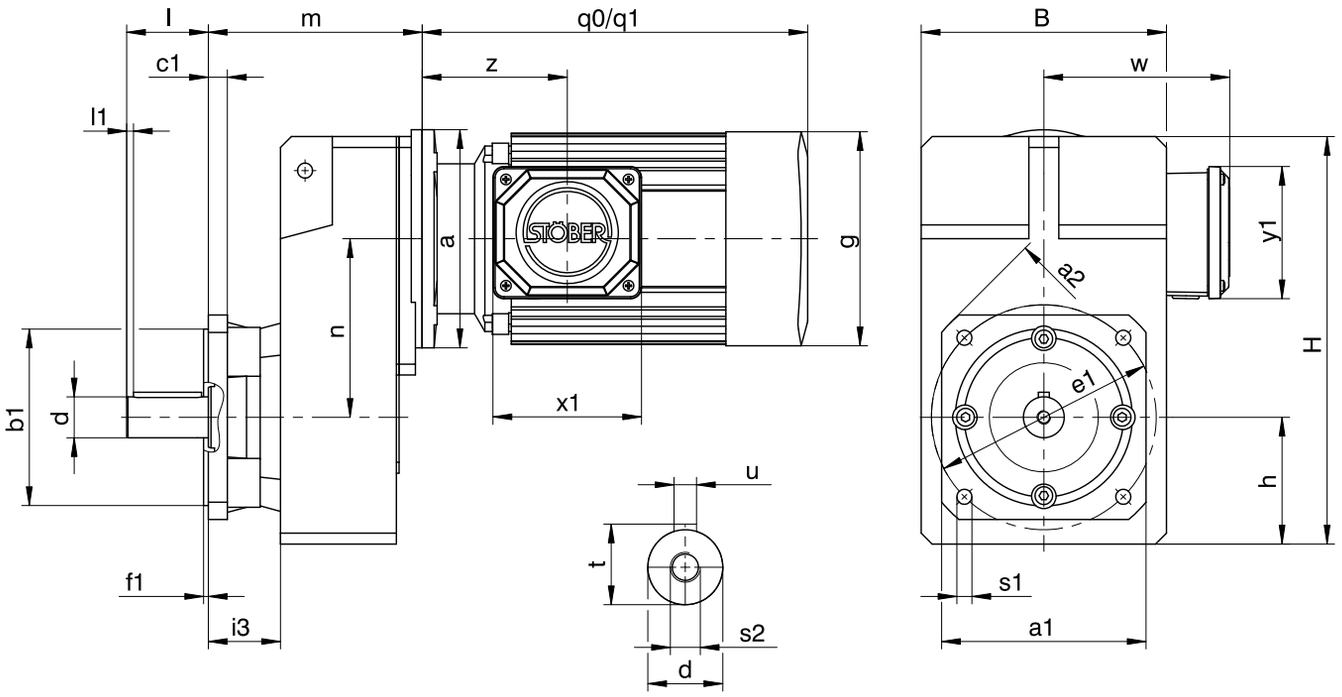
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	177	310	380	146	120.0	109.0	114.0
IE3D100K04	196	394	481	155	120.0	109.0	120.0
IE3D100L02	196	340	427	155	120.0	109.0	120.0
IE3D100L04	196	444	531	155	120.0	109.0	120.0
IE3D112M02	196	374	461	155	120.0	109.0	120.0
IE3D112M04	217	424	521	178	146.5	156.5	134.0
IE3D132S04	258	476	591	199	146.5	156.5	141.5
IE3D132M04	258	526	641	199	146.5	156.5	141.5

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
F102	∅140	129.5	102.0	∅140	129.5	102.0	∅160	133.5	102.0
F202	∅140	153.0	131.0	∅140	153.0	131.0	∅160	157.0	131.0
F203	∅140	190.0	131.0	–	–	–	–	–	–
F302	–	–	–	∅140	169.5	149.5	∅160	173.5	149.5
F303	∅140	206.5	149.5	∅140	206.5	149.5	–	–	–
F402	–	–	–	–	–	–	∅160	188.5	169.0
F403	–	–	–	∅140	221.5	169.0	∅160	231.5	132.0
F603	–	–	–	–	–	–	∅160	262.5	196.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
F102	∅160	133.5	102.0	∅160	133.5	102.0	–	–	–	–	–	–	–	–	–
F202	∅160	157.0	131.0	∅160	157.0	131.0	∅200	159.0	131.0	∅200	159.0	131.0	–	–	–
F302	∅160	173.5	149.5	∅160	173.5	149.5	∅200	175.5	149.5	∅200	175.5	149.5	–	–	–
F402	∅160	188.5	169.0	∅160	188.5	169.0	∅200	190.5	169.0	∅200	190.5	169.0	∅250	193.5	169.0
F403	∅160	231.5	132.0	–	–	–	–	–	–	–	–	–	–	–	–
F602	∅160	219.5	196.0	∅160	219.5	196.0	∅200	221.5	196.0	∅200	221.5	196.0	∅250	224.5	196.0
F603	∅160	262.5	196.0	∅160	262.5	196.0	–	–	–	–	–	–	–	–	–

3.3.6 V shaft design (solid shaft), Q housing design (square flange)



q0 Applies to motors without brake.

q1 Applies to motors with brake.

Dimensions of gear units

Type	□a1	□a2	Øb1	c1	B	Ød	Øe1	f1	h	H	i3	l	l1	Øs1	s2	t	u
F1	125	160	110_{j6}	10	145	25_{k6}	130	3.5	74	238.0	44.5	50	5	9	M10	28.0	A8×7×40
F2	150	195	130_{j6}	14	180	30_{k6}	165	3.5	93	299.0	53.0	60	5	11	M10	33.0	A8×7×50
F3	200	260	180_{j6}	15	206	35_{k6}	215	4.0	106	335.5	56.5	70	5	14	M12	38.0	A10×8×60
F4	200	260	180_{j6}	15	230	40_{k6}	215	4.0	116	370.0	56.5	80	5	14	M16	43.0	A12×8×70
F6	250	325	230_{j6}	17	265	50_{k6}	265	4.0	137	433.0	60.5	100	5	14	M16	53.5	A14×9×90

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109.0	97.0	81.0
D063M04	109	179	231	115	109.0	97.0	81.0
D071K04	124	208	260	120	109.0	97.0	94.0
D071K02	124	208	260	120	109.0	97.0	94.0
D071L04	124	208	260	120	109.0	97.0	94.0
D071L02	124	208	260	120	109.0	97.0	94.0
D080K04	139	238	295	128	109.0	97.0	97.0

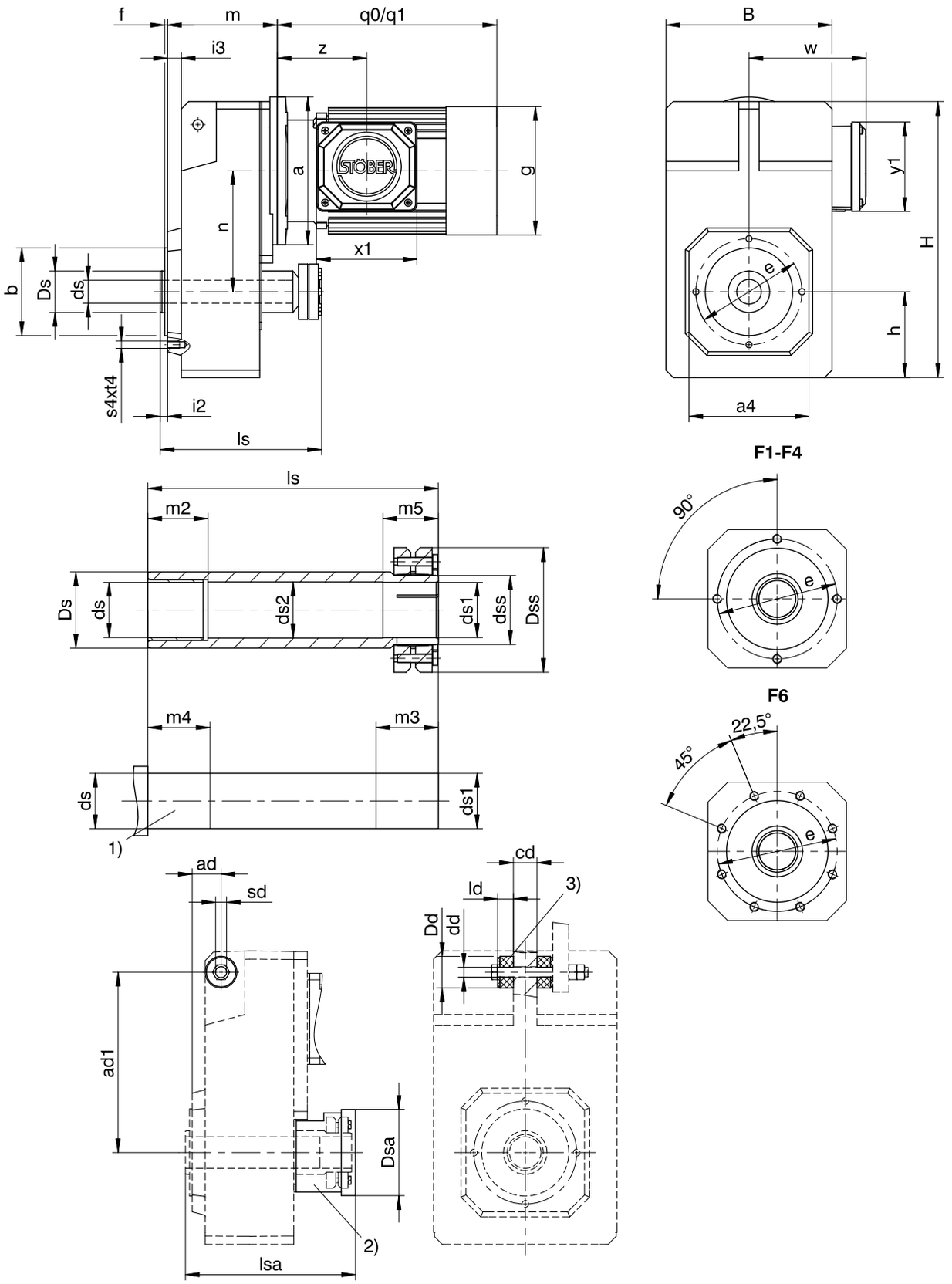
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	177	310	380	146	120.0	109.0	114.0
IE3D100K04	196	394	481	155	120.0	109.0	120.0
IE3D100L02	196	340	427	155	120.0	109.0	120.0
IE3D100L04	196	444	531	155	120.0	109.0	120.0
IE3D112M02	196	374	461	155	120.0	109.0	120.0
IE3D112M04	217	424	521	178	146.5	156.5	134.0
IE3D132S04	258	476	591	199	146.5	156.5	141.5
IE3D132M04	258	526	641	199	146.5	156.5	141.5

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
F102	∅140	129.5	102.0	∅140	129.5	102.0	∅160	133.5	102.0
F202	∅140	153.0	131.0	∅140	153.0	131.0	∅160	157.0	131.0
F203	∅140	190.0	131.0	–	–	–	–	–	–
F302	–	–	–	∅140	169.5	149.5	∅160	173.5	149.5
F303	∅140	206.5	149.5	∅140	206.5	149.5	–	–	–
F402	–	–	–	–	–	–	∅160	188.5	169.0
F403	–	–	–	∅140	221.5	169.0	∅160	231.5	132.0
F603	–	–	–	–	–	–	∅160	262.5	196.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
F102	∅160	133.5	102.0	∅160	133.5	102.0	–	–	–	–	–	–	–	–	–
F202	∅160	157.0	131.0	∅160	157.0	131.0	∅200	159.0	131.0	∅200	159.0	131.0	–	–	–
F302	∅160	173.5	149.5	∅160	173.5	149.5	∅200	175.5	149.5	∅200	175.5	149.5	–	–	–
F402	∅160	188.5	169.0	∅160	188.5	169.0	∅200	190.5	169.0	∅200	190.5	169.0	∅250	193.5	169.0
F403	∅160	231.5	132.0	–	–	–	–	–	–	–	–	–	–	–	–
F602	∅160	219.5	196.0	∅160	219.5	196.0	∅200	221.5	196.0	∅200	221.5	196.0	∅250	224.5	196.0
F603	∅160	262.5	196.0	∅160	262.5	196.0	–	–	–	–	–	–	–	–	–

3.3.7 S shaft design (hollow shaft with shrink disk), G housing design (pitch circle diameter)



q0	Applies to motors without brake.	q1	Applies to motors with brake.
1)	Machine shaft: The dimension ls must meet or exceed the specified value.	2)	Cover (optional)
3)	Rubber buffer for torque arm (optional). Dimension ∅Dd = outer∅ of the rubber buffer when not tensioned.		

Dimensions of gear units

Type	□a4	ad	ad1	Øb	B	cd	Ødd	Øds	Ødsl	Ødsl	Ødss	ØDd	ØDs	ØDsa	ØDss	Øe	f	h	H	i2	i3	ld	ls	lsa	m2	m3	m4	m5	s4	sd	t4
F1	100	29.5	150	70_{j6}	145	20	$11^{+0,5}$	20_{h9}	20_{h9}^{H7}	20.5	24	30	35	63	50	85	2.5	74	238.0	6.5	12.5	15	146	150	20	31	25	26	M8	M10	13
F2	130	33.0	181	95_{j6}	180	22	$11^{+0,5}$	25_{h9}	25_{h9}^{H7}	25.5	30	30	45	73	60	115	3.0	93	299.0	8.0	15.0	15	175	180	20	37	25	32	M8	M10	13
F3	150	38.5	205	110_{j6}	206	30	$14^{+0,5}$	30_{h9}	30_{h9}^{H7}	30.5	36	37	50	83	72	130	3.5	106	335.5	8.5	16.5	20	192	196	25	37	30	32	M10	M12	16
F4	150	38.5	228	110_{j6}	230	30	$14^{+0,5}$	40_{h9}	40_{h9}^{H7}	40.5	50	37	55	108	90	130	3.5	116	370.0	8.5	16.5	20	210	215	40	45	45	40	M10	M12	16
F6	180	44.5	270	130_{j6}	265	35	$22^{+0,5}$	50_{h9}	50_{h9}^{H7}	50.5	62	60	70	128	106	165	3.5	137	433.0	10.5	20.5	30	248	251	40	47	45	42	M10	M20	16

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109.0	97.0	81.0
D063M04	109	179	231	115	109.0	97.0	81.0
D071K04	124	208	260	120	109.0	97.0	94.0
D071K02	124	208	260	120	109.0	97.0	94.0
D071L04	124	208	260	120	109.0	97.0	94.0
D071L02	124	208	260	120	109.0	97.0	94.0
D080K04	139	238	295	128	109.0	97.0	97.0

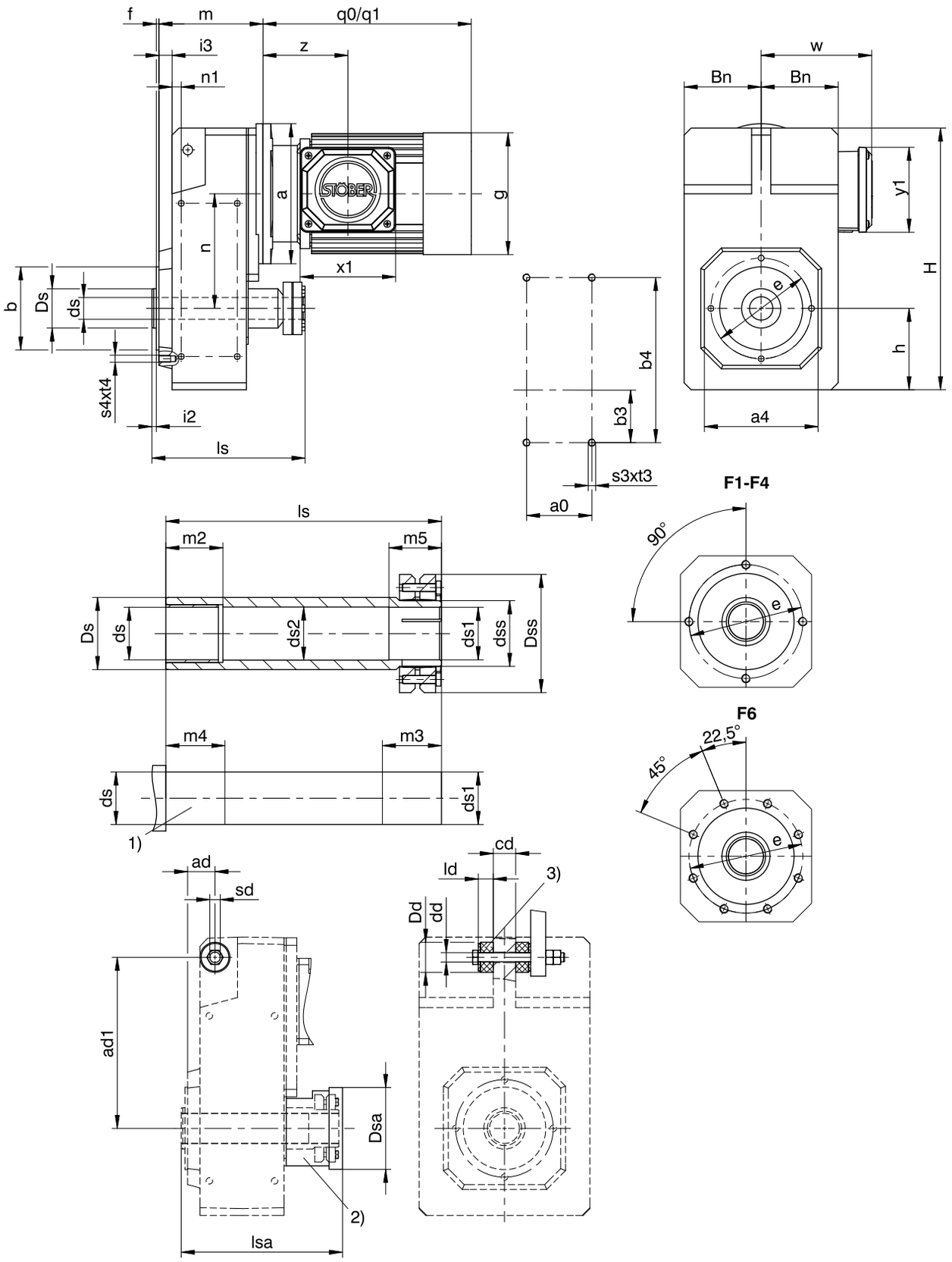
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	177	310	380	146	120.0	109.0	114.0
IE3D100K04	196	394	481	155	120.0	109.0	120.0
IE3D100L02	196	340	427	155	120.0	109.0	120.0
IE3D100L04	196	444	531	155	120.0	109.0	120.0
IE3D112M02	196	374	461	155	120.0	109.0	120.0
IE3D112M04	217	424	521	178	146.5	156.5	134.0
IE3D132S04	258	476	591	199	146.5	156.5	141.5
IE3D132M04	258	526	641	199	146.5	156.5	141.5

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
F102	∅140	97.5	102.0	∅140	97.5	102.0	∅160	101.5	102.0
F202	∅140	115.0	131.0	∅140	115.0	131.0	∅160	119.0	131.0
F203	∅140	152.0	131.0	–	–	–	–	–	–
F302	–	–	–	∅140	129.5	149.5	∅160	133.5	149.5
F303	∅140	166.5	149.5	∅140	166.5	149.5	–	–	–
F402	–	–	–	–	–	–	∅160	148.5	169.0
F403	–	–	–	∅140	181.5	169.0	∅160	191.5	132.0
F603	–	–	–	–	–	–	∅160	222.5	196.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
F102	∅160	101.5	102.0	∅160	101.5	102.0	–	–	–	–	–	–	–	–	–
F202	∅160	119.0	131.0	∅160	119.0	131.0	∅200	121.0	131.0	∅200	121.0	131.0	–	–	–
F302	∅160	133.5	149.5	∅160	133.5	149.5	∅200	135.5	149.5	∅200	135.5	149.5	–	–	–
F402	∅160	148.5	169.0	∅160	148.5	169.0	∅200	150.5	169.0	∅200	150.5	169.0	∅250	153.5	169.0
F403	∅160	191.5	132.0	–	–	–	–	–	–	–	–	–	–	–	–
F602	∅160	179.5	196.0	∅160	179.5	196.0	∅200	181.5	196.0	∅200	181.5	196.0	∅250	184.5	196.0
F603	∅160	222.5	196.0	∅160	222.5	196.0	–	–	–	–	–	–	–	–	–

3.3.8 S shaft design (hollow shaft with shrink disk), GN housing design (pitch circle diameter + side fastening)



q0	Applies to motors without brake.	q1	Applies to motors with brake.
1)	Machine shaft: The dimension ls must meet or exceed the specified value.	2)	Cover (optional)
3)	Rubber buffer for torque arm (optional). Dimension ∅Dd = outer∅ of the rubber buffer when not tensioned.		

Dimensions of gear units

Type	a0	□a4	ad	ad1	Øb	b3	b4	Bn	cd	Ødd	Ød$_s$	Ød$_{s1}$	Ød$_{s2}$	Ød$_{ss}$	ØDd	ØD$_s$	ØD$_{sa}$	ØD$_{ss}$
F1	50	100	29.5	150	70_{j6}	40	140	71	20	$11^{+0,5}$	20_{h9}	20_{h9}^{H7}	20.5	24	30	63	63	50
F2	64	130	33.0	181	95_{j6}	55	175	88	22	$11^{+0,5}$	25_{h9}	25_{h9}^{H7}	25.5	30	30	73	73	60
F3	72	150	38.5	205	110_{j6}	60	200	102	30	$14^{+0,5}$	30_{h9}	30_{h9}^{H7}	30.5	36	37	83	83	72
F4	87	150	38.5	228	110_{j6}	70	220	114	30	$14^{+0,5}$	40_{h9}	40_{h9}^{H7}	40.5	50	37	108	108	90
F6	108	180	44.5	270	130_{j6}	85	270	131	35	$22^{+0,5}$	50_{h9}	50_{h9}^{H7}	50.5	62	60	128	128	106

Type	Øe	f	h	H	i2	i3	ld	ls	lsa	n1	m2	m3	m4	m5	s3	s4	sd	t3	t4
F1	85	2.5	74	238.0	6.5	12.5	15	146	150	10	20	31	25	26	M6	M8	M10	11	13
F2	115	3.0	93	299.0	8.0	15.0	15	175	180	10.5	20	37	25	32	M8	M8	M10	13	13
F3	130	3.5	106	335.5	8.5	16.5	20	192	196	12.5	25	37	30	32	M10	M10	M12	16	16
F4	130	3.5	116	370.0	8.5	16.5	20	210	215	12.5	40	45	45	40	M10	M10	M12	16	16
F6	165	3.5	137	433.0	10.5	20.5	30	248	251	15.5	40	47	45	42	M12	M10	M20	19	16

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109.0	97.0	81.0
D063M04	109	179	231	115	109.0	97.0	81.0
D071K04	124	208	260	120	109.0	97.0	94.0
D071K02	124	208	260	120	109.0	97.0	94.0
D071L04	124	208	260	120	109.0	97.0	94.0
D071L02	124	208	260	120	109.0	97.0	94.0
D080K04	139	238	295	128	109.0	97.0	97.0

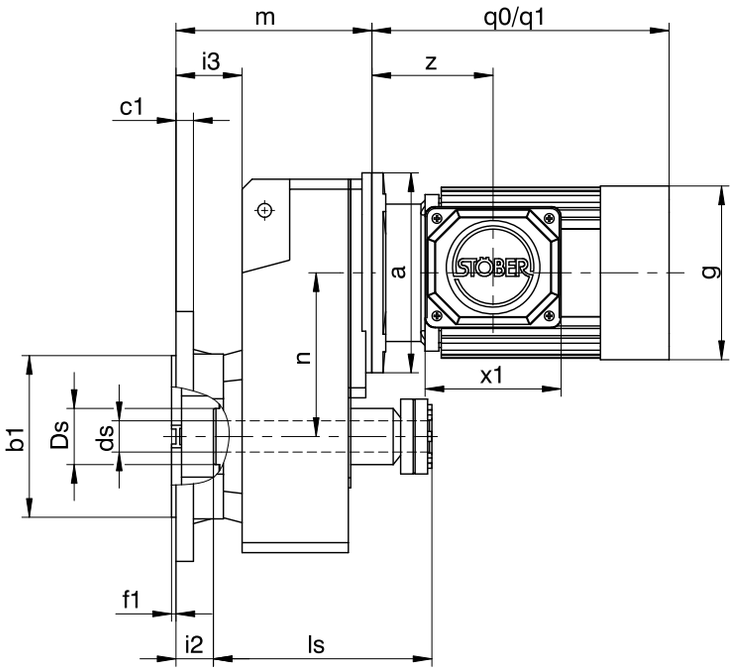
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	177	310	380	146	120.0	109.0	114.0
IE3D100K04	196	394	481	155	120.0	109.0	120.0
IE3D100L02	196	340	427	155	120.0	109.0	120.0
IE3D100L04	196	444	531	155	120.0	109.0	120.0
IE3D112M02	196	374	461	155	120.0	109.0	120.0
IE3D112M04	217	424	521	178	146.5	156.5	134.0
IE3D132S04	258	476	591	199	146.5	156.5	141.5
IE3D132M04	258	526	641	199	146.5	156.5	141.5

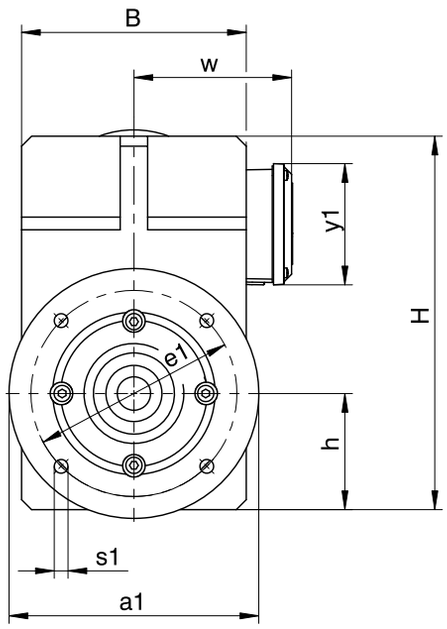
Dimensions of geared motors

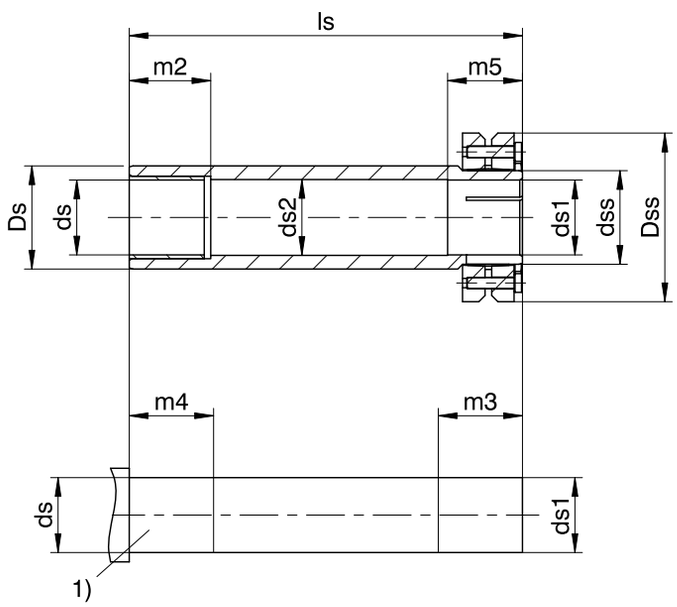
Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
F102	∅140	97.5	102.0	∅140	97.5	102.0	∅160	101.5	102.0
F202	∅140	115.0	131.0	∅140	115.0	131.0	∅160	119.0	131.0
F203	∅140	152.0	131.0	–	–	–	–	–	–
F302	–	–	–	∅140	129.5	149.5	∅160	133.5	149.5
F303	∅140	166.5	149.5	∅140	166.5	149.5	–	–	–
F402	–	–	–	–	–	–	∅160	148.5	169.0
F403	–	–	–	∅140	181.5	169.0	∅160	191.5	132.0
F603	–	–	–	–	–	–	∅160	222.5	196.0

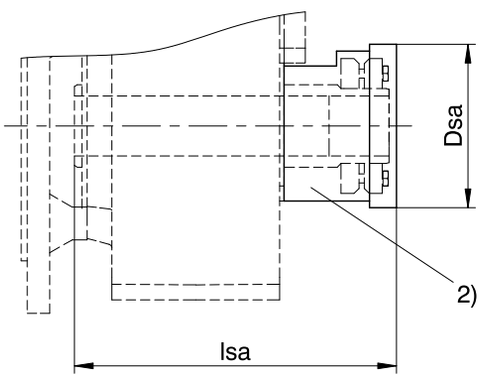
Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
F102	∅160	101.5	102.0	∅160	101.5	102.0	–	–	–	–	–	–	–	–	–
F202	∅160	119.0	131.0	∅160	119.0	131.0	∅200	121.0	131.0	∅200	121.0	131.0	–	–	–
F302	∅160	133.5	149.5	∅160	133.5	149.5	∅200	135.5	149.5	∅200	135.5	149.5	–	–	–
F402	∅160	148.5	169.0	∅160	148.5	169.0	∅200	150.5	169.0	∅200	150.5	169.0	∅250	153.5	169.0
F403	∅160	191.5	132.0	–	–	–	–	–	–	–	–	–	–	–	–
F602	∅160	179.5	196.0	∅160	179.5	196.0	∅200	181.5	196.0	∅200	181.5	196.0	∅250	184.5	196.0
F603	∅160	222.5	196.0	∅160	222.5	196.0	–	–	–	–	–	–	–	–	–

3.3.9 S shaft design (hollow shaft with shrink disk), F housing design (round flange)









q0	Applies to motors without brake.	q1	Applies to motors with brake.
1)	Machine shaft: The dimension ls must meet or exceed the specified value.	2)	Cover (optional)

Dimensions of gear units

Type	Øa1	Øb1	B	c1	Øds	Øds1	Øds2	Ødss	ØDs	ØDsa	ØDss	Øe1	f1	h	H	i2	i3	ls	lsa	m2	m3	m4	m5	Øs1
F1	160	110_{j6}	145	10	20_{h9}	20_{h9}^{H7}	20.5	24	35	63	50	130	3.5	74	238.0	25.5	44.5	146	150	20	31	25	26	9
F2	200	130_{j6}	180	14	25_{h9}	25_{h9}^{H7}	25.5	30	45	73	60	165	3.5	93	299.0	30.0	53.0	175	180	20	37	25	32	11
F3	250	180_{j6}	206	15	30_{h9}	30_{h9}^{H7}	30.5	36	50	83	72	215	4.0	106	335.5	31.5	56.5	192	196	25	37	30	32	14
F4	250	180_{j6}	230	15	40_{h9}	40_{h9}^{H7}	40.5	50	55	108	90	215	4.0	116	370.0	31.5	56.5	210	215	40	45	45	40	14
F6	300	230_{j6}	265	17	50_{h9}	50_{h9}^{H7}	50.5	62	70	128	106	265	4.0	137	433.0	29.5	60.5	248	251	40	47	45	42	14

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109.0	97.0	81.0
D063M04	109	179	231	115	109.0	97.0	81.0
D071K04	124	208	260	120	109.0	97.0	94.0
D071K02	124	208	260	120	109.0	97.0	94.0
D071L04	124	208	260	120	109.0	97.0	94.0
D071L02	124	208	260	120	109.0	97.0	94.0
D080K04	139	238	295	128	109.0	97.0	97.0

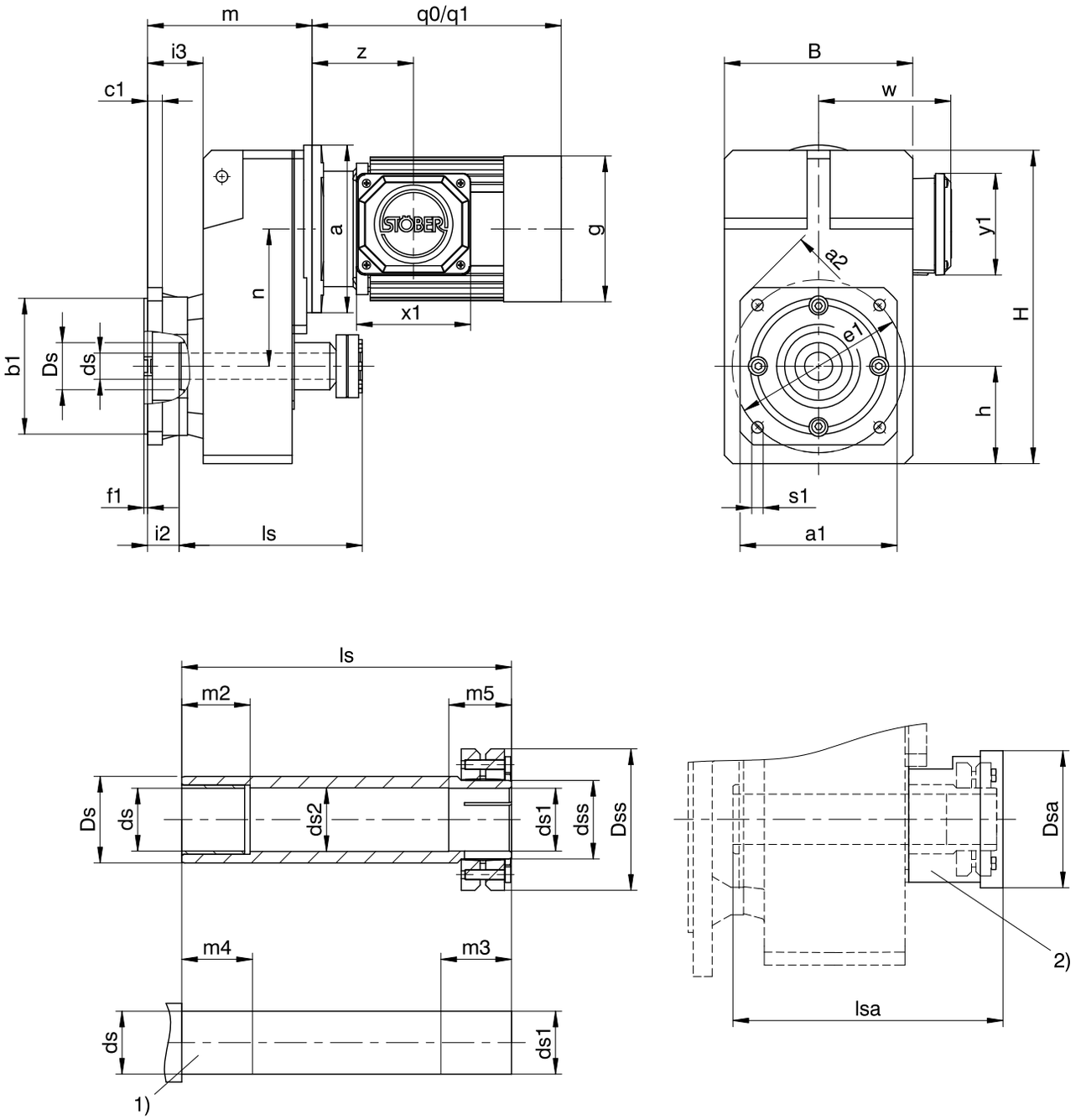
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	177	310	380	146	120.0	109.0	114.0
IE3D100K04	196	394	481	155	120.0	109.0	120.0
IE3D100L02	196	340	427	155	120.0	109.0	120.0
IE3D100L04	196	444	531	155	120.0	109.0	120.0
IE3D112M02	196	374	461	155	120.0	109.0	120.0
IE3D112M04	217	424	521	178	146.5	156.5	134.0
IE3D132S04	258	476	591	199	146.5	156.5	141.5
IE3D132M04	258	526	641	199	146.5	156.5	141.5

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
F102	∅140	129.5	102.0	∅140	129.5	102.0	∅160	133.5	102.0
F202	∅140	153.0	131.0	∅140	153.0	131.0	∅160	157.0	131.0
F203	∅140	190.0	131.0	–	–	–	–	–	–
F302	–	–	–	∅140	169.5	149.5	∅160	173.5	149.5
F303	∅140	206.5	149.5	∅140	206.5	149.5	–	–	–
F402	–	–	–	–	–	–	∅160	188.5	169.0
F403	–	–	–	∅140	221.5	169.0	∅160	231.5	132.0
F603	–	–	–	–	–	–	∅160	262.5	196.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
F102	∅160	133.5	102.0	∅160	133.5	102.0	–	–	–	–	–	–	–	–	–
F202	∅160	157.0	131.0	∅160	157.0	131.0	∅200	159.0	131.0	∅200	159.0	131.0	–	–	–
F302	∅160	173.5	149.5	∅160	173.5	149.5	∅200	175.5	149.5	∅200	175.5	149.5	–	–	–
F402	∅160	188.5	169.0	∅160	188.5	169.0	∅200	190.5	169.0	∅200	190.5	169.0	∅250	193.5	169.0
F403	∅160	231.5	132.0	–	–	–	–	–	–	–	–	–	–	–	–
F602	∅160	219.5	196.0	∅160	219.5	196.0	∅200	221.5	196.0	∅200	221.5	196.0	∅250	224.5	196.0
F603	∅160	262.5	196.0	∅160	262.5	196.0	–	–	–	–	–	–	–	–	–

3.3.10 S shaft design (hollow shaft with shrink disk), Q housing design (square flange)



q0	Applies to motors without brake.	q1	Applies to motors with brake.
1)	Machine shaft: The dimension ls must meet or exceed the specified value.	2)	Cover (optional)

Dimensions of gear units

Type	□a1	□a2	Øb1	B	c1	Ød	Ød1	Ød2	Ødss	ØDs	ØDsa	ØDss	Øe1	f1	h	H	i2	i3	ls	lsa	m2	m3	m4	m5	Øs1
F1	125	160	110_{j6}	145	10	20_{h9}	20_{h9}^{H7}	20.5	24	35	63	50	130	3.5	74	238.0	25.5	44.5	146	150	20	31	25	26	9
F2	150	195	130_{j6}	180	14	25_{h9}	25_{h9}^{H7}	25.5	30	45	73	60	165	3.5	93	299.0	30.0	53.0	175	180	20	37	25	32	11
F3	200	260	180_{j6}	206	15	30_{h9}	30_{h9}^{H7}	30.5	36	50	83	72	215	4.0	106	335.5	31.5	56.5	192	196	25	37	30	32	14
F4	200	260	180_{j6}	230	15	40_{h9}	40_{h9}^{H7}	40.5	50	55	108	90	215	4.0	116	370.0	31.5	56.5	210	215	40	45	45	40	14
F6	250	325	230_{j6}	265	17	50_{h9}	50_{h9}^{H7}	50.5	62	70	128	106	265	4.0	137	433.0	29.5	60.5	248	251	40	47	45	42	14

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109.0	97.0	81.0
D063M04	109	179	231	115	109.0	97.0	81.0
D071K04	124	208	260	120	109.0	97.0	94.0
D071K02	124	208	260	120	109.0	97.0	94.0
D071L04	124	208	260	120	109.0	97.0	94.0
D071L02	124	208	260	120	109.0	97.0	94.0
D080K04	139	238	295	128	109.0	97.0	97.0

Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	177	310	380	146	120.0	109.0	114.0
IE3D100K04	196	394	481	155	120.0	109.0	120.0
IE3D100L02	196	340	427	155	120.0	109.0	120.0
IE3D100L04	196	444	531	155	120.0	109.0	120.0
IE3D112M02	196	374	461	155	120.0	109.0	120.0
IE3D112M04	217	424	521	178	146.5	156.5	134.0
IE3D132S04	258	476	591	199	146.5	156.5	141.5
IE3D132M04	258	526	641	199	146.5	156.5	141.5

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
F102	∅140	129.5	102.0	∅140	129.5	102.0	∅160	133.5	102.0
F202	∅140	153.0	131.0	∅140	153.0	131.0	∅160	157.0	131.0
F203	∅140	190.0	131.0	–	–	–	–	–	–
F302	–	–	–	∅140	169.5	149.5	∅160	173.5	149.5
F303	∅140	206.5	149.5	∅140	206.5	149.5	–	–	–
F402	–	–	–	–	–	–	∅160	188.5	169.0
F403	–	–	–	∅140	221.5	169.0	∅160	231.5	132.0
F603	–	–	–	–	–	–	∅160	262.5	196.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
F102	∅160	133.5	102.0	∅160	133.5	102.0	–	–	–	–	–	–	–	–	–
F202	∅160	157.0	131.0	∅160	157.0	131.0	∅200	159.0	131.0	∅200	159.0	131.0	–	–	–
F302	∅160	173.5	149.5	∅160	173.5	149.5	∅200	175.5	149.5	∅200	175.5	149.5	–	–	–
F402	∅160	188.5	169.0	∅160	188.5	169.0	∅200	190.5	169.0	∅200	190.5	169.0	∅250	193.5	169.0
F403	∅160	231.5	132.0	–	–	–	–	–	–	–	–	–	–	–	–
F602	∅160	219.5	196.0	∅160	219.5	196.0	∅200	221.5	196.0	∅200	221.5	196.0	∅250	224.5	196.0
F603	∅160	262.5	196.0	∅160	262.5	196.0	–	–	–	–	–	–	–	–	–

3.4 Type designation

In this chapter, you can find an explanation of the type designation with the associated options.

Additional ordering information not included in the type designation can be found at the end of the chapter.

Sample code

F	2	0	2	A	G	0280	IE3D080L04

Explanation

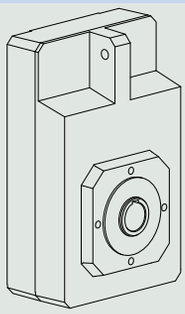
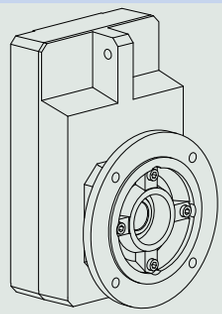
Code	Designation	Design
F	Type	Offset helical gear unit
2	Size	2 (example)
0	Generation	Generation 0
2	Stages	Two-stage
3		Three-stage
A	Shaft	Hollow shaft with keyway
S		Hollow shaft with shrink disk
V		Solid shaft
G	Housing	Pitch circle diameter
F		Round flange
Q		Square flange
GN		Pitch circle diameter + side fastening
0280	Transmission ratio (i x 10 rounded)	i = 28.11 (example)
IE3D080	Motor	IE3D asynchronous motor
L04		
D080K04		Asynchronous motor

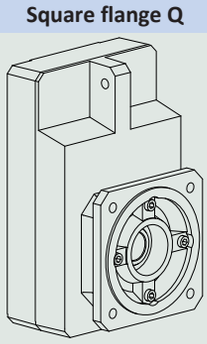
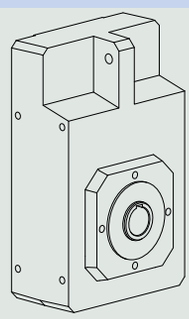
In order to complete the type designation, also specify:

- A detailed type designation of the motor, see the chapter [▶ 6.4]
- The mounting position, see Chapter [▶ 3.5.4]
- The position of the terminal box, see Chapter [▶ 3.5.6]

3.5 Product description

3.5.1 Housing design

Pitch circle diameter G	Round flange F
	

Square flange Q	Pitch circle diameter + side fastening GN
	

	G	F	Q	GN
F1	✓	✓	✓	✓
F2	✓	✓	✓	✓
F3	✓	✓	✓	✓
F4	✓	✓	✓	✓
F6	✓	✓	✓	✓

3.5.2 Combinatorial shaft/housing design

		Housing design			
Shaft design	**Code**	**G**	**F**	**Q**	**GN**
Hollow shaft with keyway	**A**	AG	AF	AQ	AGN
Hollow shaft with shrink disk	**S**	SG	SF	SQ	SGN
Solid shaft	**V**	–	VF	VQ	–

3.5.3 Installation conditions

Hollow shaft

The hollow shaft hole tolerance is ISO H7. The tolerance of the machine shaft must be ISO k6.

Take care to align the machine shaft with the gear unit hollow shaft when attaching the gear unit.

Maximum deviation ≤ 0.03 mm.

For simpler assembly and disassembly of the machine shaft, the hollow shafts are equipped with a spiral groove (as a grease deposit).

A hardened, threaded dismounting disk is included in the scope of delivery. You also have the option to order the hollow shaft without a dismounting disk.

Hollow shaft with shrink disk

The tolerance of the hollow shaft hole is ISO H7.

The machine shaft must be ISO h9.

Select a material for the machine shaft with a permitted surface pressure of $p \geq 325\ N/mm^2$.

Possible materials:

- C45E +QT
- 42CrMo4

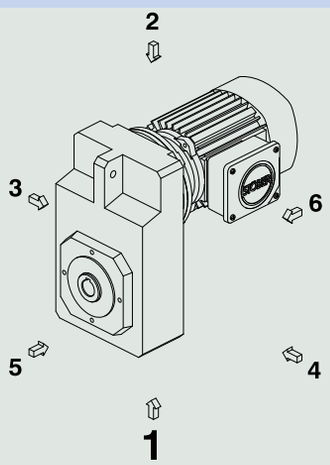
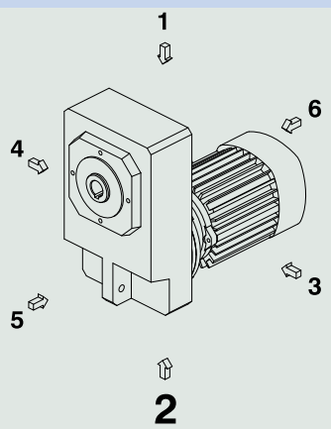
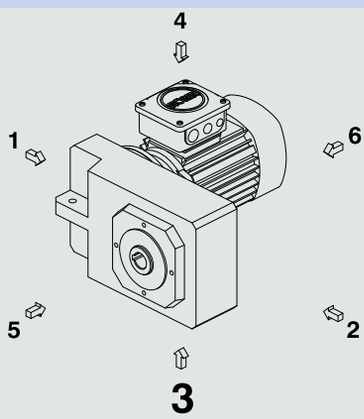
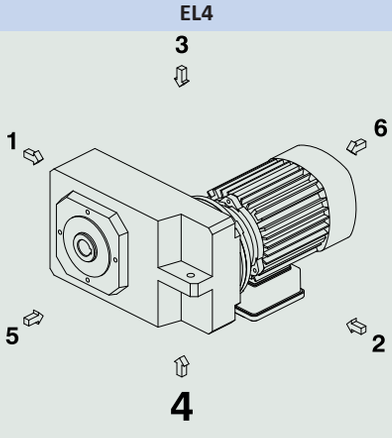
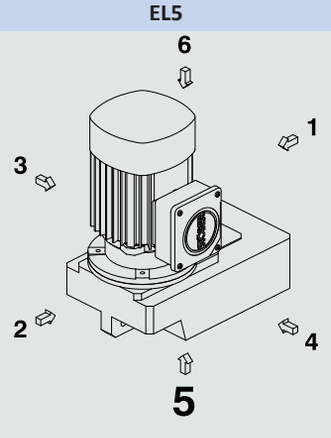
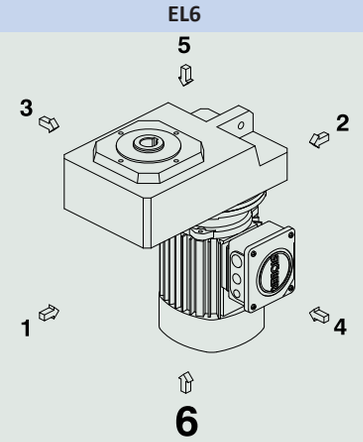
Attaching the gear unit on the machine side using the pitch circle diameter

The specified torques and forces only apply when attaching gear units at the machine side using screws of quality 10.9. In addition, the gear housing must be adjusted at the pilot (H7).

3.5.4 Mounting positions

The following table shows the standard mounting positions.

The numbers identify the gear unit sides. The mounting position is defined by the gear side facing downwards.

EL1	EL2	EL3
		
EL4	**EL5**	**EL6**
		

Since the lubricant filling volume of the gear unit depends on the mounting position, the mounting position must be specified when ordering.

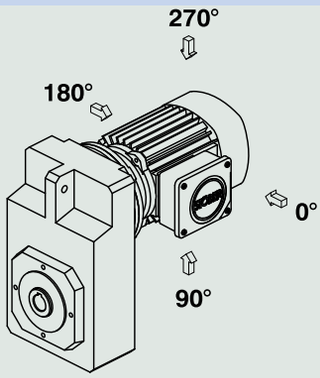
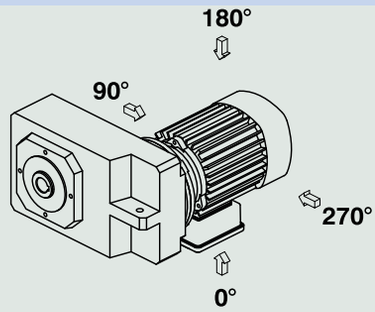
3.5.5 Lubricants

STOBER fills the gear units with the amount and type of lubricant specified on the nameplate. The filling volume and the structure of the gear units depend on the mounting position.

Only install the gear units in the intended mounting position! Reposition the gear units only after consulting STOBER. Otherwise, STOBER assumes no liability for the gear units.

Lubricant filling quantities for gear units, document ID 441871, can be found online at http://www.stoeber.de/en/download. Enter the ID of the documentation in the Search... field.

3.5.6 Position of the terminal box

Mounting position EL1	Mounting position EL4
Terminal box in the 0° position (standard)	Terminal box in the 0° position (standard)
	

Indicate variations for your geared motor in the purchase order.

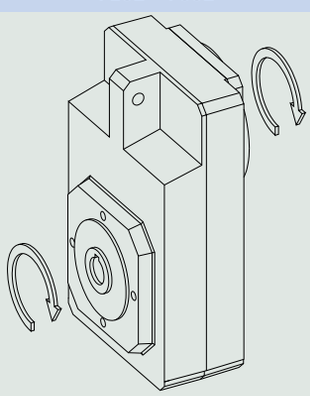
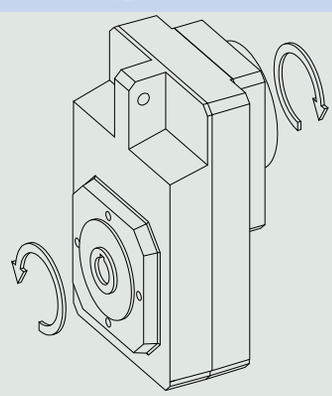
Note that the terminal box position rotates along with the geared motor if the geared motor rotates to another mounting position.

3.5.7 Other product features

Feature	Value
Max. permitted gear unit temperature (on the surface of the gear unit)	≤ 80 °C
Paint	RAL 7035 light gray Optional selection of various RAL colors.
(ATEX) Directive 2014/34/EU	You can get asynchronous motors for use in potentially explosive atmospheres on request.
Protection class	IP56

3.5.8 Direction of rotation

Solid shaft (V), hollow shaft with keyway (A), hollow shaft with shrink disk (S)

F102 – F602	F203 – F603
	
The input and output rotate in the same direction.	The input and output rotate in opposite directions.

The pictures show mounting position EL1.

3.6 Project configuration

Project your drives using the information in this chapter. In doing so, observe the limit conditions in this chapter to ensure a safe design.

An explanation of the formula symbols can be found in Chapter [▷ 14.1]

Determine the following for your application:

- The actual torque M_{2N*}
- The actual speed n_{2*}
- The operating mode operating factor fB_{op}
- The run-time operating factor fB_t
- The motor operating factor fB_{mot}
- The duty cycle ED in %

$$ED = \frac{t_{op}}{T} \cdot 100\%$$

For the S4 and S8 operating mode:

- The mass moment of inertia J_{2*}

$$J_{1*} = \frac{J_{2*}}{i^2}$$

Calculate the motor rating necessary for your application:

$$P_{N*} = \frac{M_{2N*} \cdot n_{2*} \cdot fB_{mot}}{9550}$$

Using the determined values and the calculated motor rating, select a suitable drive from the selection table.

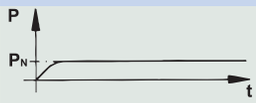
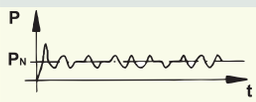
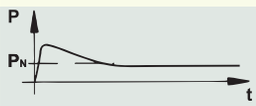
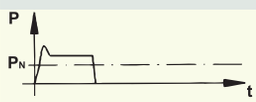
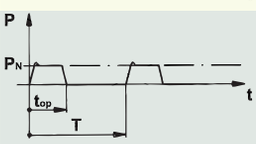
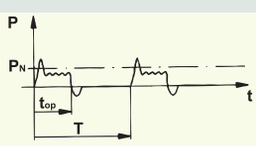
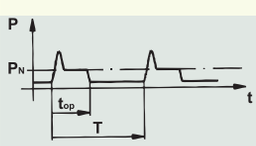
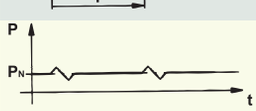
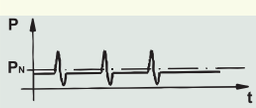
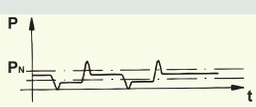
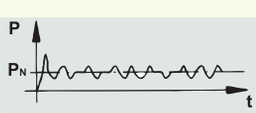
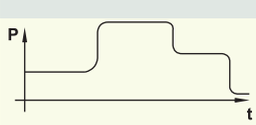
Then check the following conditions:

$$M_{2N*} \cdot fB_{op} \cdot fB_t < M_{2N} \cdot S$$

$$P_N* < P_N$$

Operating factors

Run time	fB_t
Daily run time ≤ 8 h	1.00
Daily run time ≤ 16 h	1.15
Daily run time ≤ 24 h	1.20

Operating mode	Characteristic output curve	ED	fB_{op}	fB_{mot}
S1 Continuous operation with soft start • Start time up to 30 s		100 %	1.00	1.00
S1 Continuous operation with normal start • Asynchronous motors with direct switch-on or dynamic loading • Start time up to 30 s		100 %	1.25	1.00
S1 Continuous operation with high-load start • Start time up to 30 s		100 %	1.25	1.25
S2 brief operation • Operating time t_{op} ≤ 3 minutes		≤ 30 %	0.75	0.75
S3 Periodic cyclic operation		≤ 25 %	0.70	0.70
• Cycle time T ≤ 10 minutes		≤ 40 %	1.00	1.00
• Cyclic operation with braking motor		≤ 60 %	1.25	1.25
• Low additional flywheel weights $J_{1*} < 0,5 \cdot J_1$				
S4 Periodic cyclic operation with the effect of the start-up process • Cycle time T ≤ 10 minutes • Cyclic operation with braking motor • Larger additional flywheel weights		40 %	$J_{1*} \le J_1$: 1.40 $J_{1*} \sim 3 \cdot J_1$: 1.60	1.40
S6 Uninterrupted periodic operation		100 %	1.25	1.00
S6 Uninterrupted periodic operation with short-term loading • Low speeds • Low additional flywheel weights $J_{1*} < 0,5 \cdot J_1$		100 %	1.40	1.00
S6 Uninterrupted periodic operation with impact loading • High speeds • Large additional flywheel weights		100 %	1.60	1.25
S8 Uninterrupted periodic operation • With load changes • With speed changes		100 %	$J_{1*} \le J_1$: 1.40 $J_{1*} \sim 3 \cdot J_1$: 1.60	$J_{1*} \le J_1$: 1.25 $J_{1*} \sim 3 \cdot J_1$: 1.40
S9 Non-periodic operation • With load changes • With speed changes		100 %	$J_{1*} \le J_1$: 1.40 $J_{1*} \sim 3 \cdot J_1$: 1.60	$J_{1*} \le J_1$: 1.25 $J_{1*} \sim 3 \cdot J_1$: 1.40
S10 Operation with individual constant loads		100 %	1.00	1.00

Tab. 1: Operating factors for operating modes S1 to S10

3.6.1 Permitted shaft loads for the output shaft

The values specified in the tables apply to the permitted shaft loads:

- For shaft dimensions in accordance with the catalog
- For output speeds $n_{2m*} \leq 20$ rpm ($F_{2axN} = F_{2ax20}$; $F_{2radN} = F_{2rad20}$; $M_{2kN} = M_{2k20}$)
- Only if radial forces on the gear unit are stabilized by its pilots for the pitch circle diameter and flange housing design

3.6.1.1 V shaft design

Permitted shaft loads for V shaft design (solid shaft)

Type	z_2 [mm]	F_{2ax20} [N]	F_{2rad20} [N]	M_{2k20} [Nm]
F1	35.0	1100	4200	260
F2	41.0	1400	5400	400
F3	43.0	1900	7500	600
F4	44.0	2350	9250	800
F6	44.0	3100	12500	1200

For other output speeds, download diagrams at http://products.stoeber.de.

The following applies to output speeds $n_{2m*} > 20$ rpm:

$$F_{2axN} = \frac{F_{2ax20}}{\sqrt[3]{\frac{n_{2m*}}{20\ \text{rpm}}}} \qquad F_{2radN} = \frac{F_{2rad20}}{\sqrt[3]{\frac{n_{2m*}}{20\ \text{rpm}}}} \qquad M_{2kN} = \frac{M_{2k20}}{\sqrt[3]{\frac{n_{2m*}}{20\ \text{rpm}}}}$$

The values for F_{2ax20}, F_{2rad20} and M_{2k20} can be found in the table "Permitted shaft loads" in this chapter.

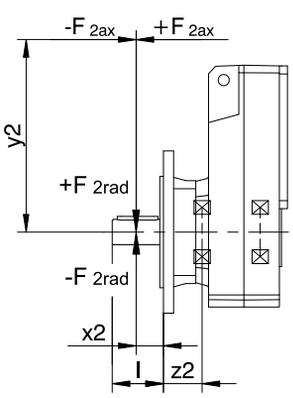


Fig. 1: Force application points for solid shaft

The specified values for F_{2rad20} are based on application of force at the middle of the output shaft: $x_2 = l/2$.

Shaft dimensions can be found in the "Dimensional drawings" chapter.

The following applies to other force application points:

$$M_{2k*} = \frac{2 \cdot F_{2ax*} \cdot y_2 + F_{2rad*} \cdot (x_2 + z_2)}{1000} \leq M_{2kN}$$

$$F_{2rad*} \leq F_{2radN}$$

$$F_{2ax*} \leq F_{2axN}$$

For applications with multiple axial and/or radial forces, you must add the forces as vectors.

In the event of EMERGENCY OFF operation (max. 1000 load changes), you can multiply the permitted forces and torques for F_{2ax20}, F_{2rad20} and M_{2k20} by a factor of two.

3.6.1.2 A and S shaft design

Permitted shaft loads for A shaft design (hollow shaft with keyway)

Type	z_2 [mm]	F_{2ax20} [N]	F_{2rad20} [N]	M_{2k20} [Nm]
F1	30.0	900	4200	175
F2	33.0	1200	5400	250
F3	33.0	1350	7500	375
F4	39.0	1900	9250	550
F6	45.0	2200	12500	800

Permitted shaft loads for S shaft design (hollow shaft with shrink disk)

Type	z_2 [mm]	F_{2ax20} [N]	F_{2rad20} [N]	M_{2k20} [Nm]
F1	30.0	900	4200	175
F2	33.0	1200	5400	250
F3	33.0	1350	7500	375
F4	39.0	1900	9250	550
F6	45.0	2200	12500	800

For other output speeds, download diagrams at http://products.stoeber.de.

The following applies to output speeds n_{2m*} > 20 rpm:

$$F_{2axN} = \frac{F_{2ax20}}{\sqrt[3]{\frac{n_{2m*}}{20\ \text{rpm}}}} \qquad F_{2radN} = \frac{F_{2rad20}}{\sqrt[3]{\frac{n_{2m*}}{20\ \text{rpm}}}} \qquad M_{2kN} = \frac{M_{2k20}}{\sqrt[3]{\frac{n_{2m*}}{20\ \text{rpm}}}}$$

The values for F_{2ax20}, F_{2rad20} and M_{2k20} can be found in the table "Permitted shaft loads" in this chapter.

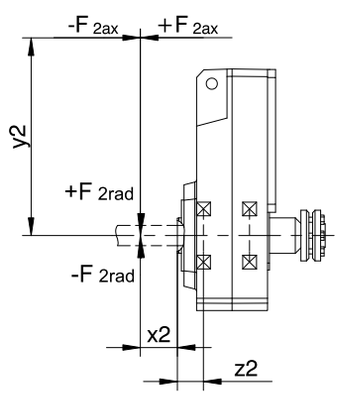


Fig. 2: Force application points for hollow shaft

You can determine the permitted radial forces from the permitted breakdown torque M_{2kN}. The actual radial forces may not exceed the permitted radial forces. The permitted radial forces are in relation to the end of the hollow shaft (x2 = 0).

$$M_{2k*} = \frac{2 \cdot F_{2ax*} \cdot y_2 + F_{2rad*} \cdot (x_2 + z_2)}{1000} \leq M_{2kN}$$

$$F_{2ax*} \leq F_{2axN}$$

For applications with multiple axial and/or radial forces, you must add the forces as vectors.

In the event of EMERGENCY OFF operation (max. 1000 load changes), you can multiply the permitted forces and torques for F_{2ax20}, F_{2rad20} and M_{2k20} by a factor of two.

3.6.2 Radial shaft seal rings

Leak-proofness

Our gear units are equipped with high-quality radial shaft seal rings and checked for leak-proofness. However, a leak cannot be fully ruled out over the length of use of a gear unit. If you use a gear unit with goods incompatible with the lubricant, you must take measures to prevent direct contact with the gear unit lubricant in case of a leak.

3.7 Additional documentation

Additional documentation related to the product can be found at http://www.stoeber.de/en/download

Enter the ID of the documentation in the Search... field.

Documentation	ID
Operating manual for C/F/K/S gear units and gear motors	443027_en
Lubricant filling quantities for gear units	441871