

5

Helical worm geared motors

S

5.1 Overview

Compact helical-geared right-angle geared motors

Features

- Power density ★★★★★
- Backlash ★★★★★
- Price category €
- Shaft load ★★★★★
- Smooth operation ★★★★★
- Torsional stiffness ★★★★★
- Mass moment of inertia ★★★★★
- Helical gearing ✓
- FKM seal ring at the input ✓

Key: ★★★★★ good | ★★★★★ excellent

€ Economy | €€€€€ Premium

Technical data

P_N	0.12 – 5.5 kW
i	6 – 682
M_{2N}	8.3 – 989 Nm
η_{get}	≤ 91 %

5.2 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 kgm ²]
P_N (50 Hz) = 0,12 kW, P_N (87 Hz) = 0,21 kW									
2.5	0.86	4.3	0.86	350	S203_5460 D063K04	25.5	546.4	4371/8	1.9
3.8	0.85	–	–	183	S102_3610 D063K04	15.1	361.2	1806/5	1.9
4.7	1.0	8.2	0.93	148	S102_2890 D063K04	15.1	289.3	868/3	1.9
5.7	1.2	9.8	1.0	125	S102_2420 D063K04	15.1	242.0	242/1	1.9
7.9	1.2	14	1.2	112	S102_1740 D063K04	15.1	174.2	3483/20	1.9
8.8	0.92	15	0.81	83	S002_1550 D063K04	11.2	154.9	2324/15	1.9
9.8	1.8	17	1.6	90	S102_1400 D063K04	15.1	139.5	279/2	1.9
11	1.1	20	0.95	66	S002_1210 D063K04	11.2	121.3	364/3	1.9
12	2.0	20	1.9	76	S102_1170 D063K04	15.1	116.7	3267/28	1.9
14	1.2	24	1.1	65	S002_1000 D063K04	11.2	100.3	702/7	1.9
16	2.4	27	2.3	57	S102_0870 D063K04	15.1	87.30	873/10	1.9
18	1.5	32	1.3	48	S002_0750 D063K04	11.2	74.70	747/10	1.9
20	2.8	34	2.6	46	S102_0700 D063K04	15.1	69.75	279/4	2.0
23	1.8	41	1.5	38	S002_0590 D063K04	11.2	58.50	117/2	1.9
24	3.2	41	2.9	38	S102_0580 D063K04	15.1	57.86	405/7	2.0
28	2.0	49	1.7	32	S002_0480 D063K04	11.2	48.21	675/14	2.0
37	2.3	64	2.0	25	S002_0370 D063K04	11.2	37.32	1269/34	2.0
39	2.4	68	2.4	25	S102_0350 D063K04	15.1	34.92	873/25	1.9
46	2.7	80	2.3	20	S002_0300 D063K04	11.2	29.70	297/10	2.0
49	2.8	85	2.9	20	S102_0280 D063K04	15.1	27.90	279/10	2.0
59	3.0	101	3.0	17	S002_0230 D063K04	11.2	23.40	117/5	2.0
71	3.3	123	3.3	14	S002_0195 D063K04	11.2	19.29	135/7	2.0
92	3.3	159	3.4	11	S002_0150 D063K04	11.2	14.93	1269/85	2.0
P_N (50 Hz) = 0,18 kW, P_N (87 Hz) = 0,31 kW									
2.5	0.98	4.3	0.98	532	S303_5480 D063M04	37.1	548.0	24111/44	2.5
3.0	1.2	5.2	1.2	442	S303_4550 D063M04	37.1	454.7	18189/40	2.5
4.0	1.7	6.9	1.7	333	S303_3420 D063M04	37.1	341.7	8883/26	2.5
4.0	0.92	6.9	0.92	328	S203_3400 D063M04	25.9	339.9	19035/56	2.5
4.9	1.1	8.6	1.1	266	S203_2750 D063M04	25.9	275.0	5499/20	2.5
5.0	2.0	8.6	2.0	268	S303_2740 D063M04	37.1	274.3	35109/128	2.5
5.9	2.1	10	2.1	225	S303_2290 D063M04	37.1	229.1	1833/8	2.5
6.0	1.4	10	1.4	221	S203_2280 D063M04	25.9	228.0	29187/128	2.5
7.8	0.80	14	0.81	168	S102_1740 D063M04	15.5	174.2	3483/20	2.4
7.9	1.8	14	1.7	167	S203_1720 D063M04	25.9	171.8	5499/32	2.5
8.0	2.1	14	2.1	168	S303_1700 D063M04	37.1	170.1	15651/92	2.5
9.7	1.2	17	1.1	135	S102_1400 D063M04	15.5	139.5	279/2	2.4
9.9	2.1	17	2.1	136	S303_1370 D063M04	37.1	137.1	1645/12	2.5
10	2.1	17	2.0	133	S203_1360 D063M04	25.9	136.3	28341/208	2.5
12	1.4	20	1.3	114	S102_1170 D063M04	15.5	116.7	3267/28	2.4
12	1.6	20	1.6	116	S202_1160 D063M04	23.0	116.1	1161/10	2.5
14	0.81	–	–	97	S002_1000 D063M04	11.6	100.3	702/7	2.4
16	1.6	27	1.5	86	S102_0870 D063M04	15.5	87.30	873/10	2.4
18	1.0	32	0.87	73	S002_0750 D063M04	11.6	74.70	747/10	2.4
19	1.9	34	1.7	69	S102_0700 D063M04	15.5	69.75	279/4	2.5
23	1.2	40	1.0	57	S002_0590 D063M04	11.6	58.50	117/2	2.4
24	2.2	41	1.9	57	S102_0580 D063M04	15.5	57.86	405/7	2.5
28	1.3	49	1.1	47	S002_0480 D063M04	11.6	48.21	675/14	2.5
31	2.2	54	2.3	44	S102_0440 D063M04	15.5	43.68	1485/34	2.5
36	1.6	63	1.3	37	S002_0370 D063M04	11.6	37.32	1269/34	2.5
39	1.6	67	1.6	38	S102_0350 D063M04	15.5	34.92	873/25	2.4

5.2 Selection tables 5 S helical worm geared motors

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 kgm ²]
P_N (50 Hz) = 0,18 kW, P_N (87 Hz) = 0,31 kW									
46	1.8	79	1.6	30	S002_0300 D063M04	11.6	29.70	297/10	2.5
49	1.9	84	1.9	31	S102_0280 D063M04	15.5	27.90	279/10	2.5
58	2.0	101	2.0	26	S002_0230 D063M04	11.6	23.40	117/5	2.5
59	2.2	102	2.2	26	S102_0230 D063M04	15.5	23.14	162/7	2.5
71	2.2	122	2.2	21	S002_0195 D063M04	11.6	19.29	135/7	2.5
78	2.2	135	2.3	19	S102_0175 D063M04	15.5	17.47	297/17	2.6
91	2.2	158	2.3	16	S002_0150 D063M04	11.6	14.93	1269/85	2.5
97	2.2	168	2.3	16	S102_0140 D063M04	15.5	14.04	351/25	2.6
114	2.2	198	2.3	13	S002_0120 D063M04	11.6	11.88	297/25	2.6
148	2.2	256	2.3	10	S102_0092 D063M04	15.5	9.200	46/5	2.8
184	2.2	318	2.3	8.3	S002_0074 D063M04	11.6	7.400	37/5	2.7
P_N (50 Hz) = 0,25 kW, P_N (87 Hz) = 0,43 kW									
2.0	0.81	3.5	0.81	910	S403_6820 D071K04	47.2	682.1	54567/80	4.1
2.5	1.1	4.4	1.1	732	S403_5480 D071K04	47.2	548.0	24111/44	4.1
3.0	1.3	5.3	1.3	610	S403_4560 D071K04	47.2	455.5	5922/13	4.1
3.0	0.91	5.3	0.91	604	S303_4550 D071K04	38.7	454.7	18189/40	4.1
4.1	1.2	7.0	1.2	455	S303_3420 D071K04	38.7	341.7	8883/26	4.1
4.1	1.7	7.0	1.7	459	S403_3420 D071K04	47.2	341.9	13677/40	4.1
5.0	0.83	8.7	0.83	363	S203_2750 D071K04	27.5	275.0	5499/20	4.1
5.0	1.5	8.7	1.5	367	S303_2740 D071K04	38.7	274.3	35109/128	4.1
5.1	2.2	8.8	2.2	368	S403_2730 D071K04	47.2	273.2	4371/16	4.1
6.0	1.8	10	1.8	307	S303_2290 D071K04	38.7	229.1	1833/8	4.1
6.0	2.6	10	2.6	310	S403_2290 D071K04	47.2	229.1	1833/8	4.1
6.1	0.99	11	0.99	302	S203_2280 D071K04	27.5	228.0	29187/128	4.1
7.9	1.1	14	1.1	236	S202_1740 D071K04	24.6	174.4	1395/8	4.0
7.9	1.8	14	1.8	239	S302_1740 D071K04	33.8	174.4	1395/8	4.1
8.1	1.3	14	1.2	229	S203_1720 D071K04	27.5	171.8	5499/32	4.1
8.1	2.4	14	2.3	229	S303_1700 D071K04	38.7	170.1	15651/92	4.1
9.9	0.86	-	-	185	S102_1400 D071K04	17.1	139.5	279/2	4.0
9.9	1.6	17	1.4	189	S202_1400 D071K04	24.6	139.5	279/2	4.1
10	2.9	18	2.7	186	S303_1370 D071K04	38.7	137.1	1645/12	4.1
10	1.6	18	1.5	182	S203_1360 D071K04	27.5	136.3	28341/208	4.1
12	1.0	21	0.91	155	S102_1170 D071K04	17.1	116.7	3267/28	4.0
12	1.8	21	1.6	158	S202_1160 D071K04	24.6	116.1	1161/10	4.1
16	1.3	27	1.1	117	S102_0870 D071K04	17.1	87.30	873/10	4.0
16	2.3	28	1.9	119	S202_0870 D071K04	24.6	86.79	1215/14	4.1
20	1.5	34	1.3	94	S102_0700 D071K04	17.1	69.75	279/4	4.1
24	0.87	-	-	78	S002_0590 D071K04	13.2	58.50	117/2	4.0
24	1.7	41	1.4	78	S102_0580 D071K04	17.1	57.86	405/7	4.1
24	2.9	41	2.4	81	S202_0580 D071K04	24.6	58.22	1863/32	4.2
29	0.98	50	0.82	65	S002_0480 D071K04	13.2	48.21	675/14	4.1
32	2.0	55	1.7	60	S102_0440 D071K04	17.1	43.68	1485/34	4.1
32	3.4	55	2.9	62	S202_0440 D071K04	24.6	43.88	351/8	4.3
37	1.1	64	0.97	51	S002_0370 D071K04	13.2	37.32	1269/34	4.1
40	2.3	69	2.1	52	S102_0350 D071K04	17.1	34.92	873/25	4.0
47	1.3	81	1.1	41	S002_0300 D071K04	13.2	29.70	297/10	4.1
50	2.9	86	2.4	42	S102_0280 D071K04	17.1	27.90	279/10	4.1
59	1.7	103	1.5	35	S002_0230 D071K04	13.2	23.40	117/5	4.1
60	3.3	104	2.5	35	S102_0230 D071K04	17.1	23.14	162/7	4.1
72	2.0	124	1.6	29	S002_0195 D071K04	13.2	19.29	135/7	4.1
79	3.5	137	2.7	26	S102_0175 D071K04	17.1	17.47	297/17	4.2
93	2.3	161	1.9	23	S002_0150 D071K04	13.2	14.93	1269/85	4.1
99	3.5	171	2.9	21	S102_0140 D071K04	17.1	14.04	351/25	4.2
117	2.6	202	2.1	18	S002_0120 D071K04	13.2	11.88	297/25	4.2
120	3.5	209	3.1	18	S102_0115 D071K04	17.1	11.50	1323/115	4.3
144	2.9	249	2.5	15	S002_0096 D071K04	13.2	9.626	1107/115	4.2
151	3.5	261	3.3	14	S102_0092 D071K04	17.1	9.200	46/5	4.4
187	3.4	324	3.1	11	S002_0074 D071K04	13.2	7.400	37/5	4.3
231	3.5	400	3.5	9.3	S002_0060 D071K04	13.2	6.000	6/1	4.4
P_N (50 Hz) = 0,37 kW, P_N (87 Hz) = 0,64 kW									
3.0	0.87	5.2	0.87	915	S403_4560 D071L04	48.2	455.5	5922/13	5.1
4.0	0.81	6.9	0.81	683	S303_3420 D071L04	39.7	341.7	8883/26	5.1
4.0	1.2	6.9	1.2	689	S403_3420 D071L04	48.2	341.9	13677/40	5.1
5.0	1.0	8.7	1.0	550	S303_2740 D071L04	39.7	274.3	35109/128	5.1
5.0	1.4	8.7	1.4	552	S403_2730 D071L04	48.2	273.2	4371/16	5.1

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 kgm ²]
P_N (50 Hz) = 0,37 kW, P_N (87 Hz) = 0,64 kW									
6.0	1.2	10	1.2	461	S303_2290 D071L04	39.7	229.1	1833/8	5.1
6.0	1.7	10	1.7	465	S403_2290 D071L04	48.2	229.1	1833/8	5.1
7.9	1.2	14	1.2	358	S302_1740 D071L04	34.8	174.4	1395/8	5.1
8.0	0.88	14	0.83	343	S203_1720 D071L04	28.5	171.8	5499/32	5.1
8.1	1.6	14	1.5	344	S303_1700 D071L04	39.7	170.1	15651/92	5.1
9.8	1.0	17	0.96	284	S202_1400 D071L04	25.6	139.5	279/2	5.1
10	2.0	17	1.8	278	S303_1370 D071L04	39.7	137.1	1645/12	5.1
10	1.1	17	0.99	273	S203_1160 D071L04	28.5	136.3	28341/208	5.1
12	1.2	20	1.1	237	S202_1160 D071L04	25.6	116.1	1161/10	5.1
16	0.84	–	–	175	S102_0870 D071L04	18.1	87.30	873/10	5.0
16	1.5	27	1.3	179	S202_0870 D071L04	25.6	86.79	1215/14	5.1
20	0.99	34	0.84	141	S102_0700 D071L04	18.1	69.75	279/4	5.1
24	1.1	41	0.95	118	S102_0580 D071L04	18.1	57.86	405/7	5.1
24	2.0	41	1.6	121	S202_0580 D071L04	25.6	58.22	1863/32	5.2
31	1.3	54	1.1	90	S102_0440 D071L04	18.1	43.68	1485/34	5.1
31	2.3	54	1.9	92	S202_0440 D071L04	25.6	43.88	351/8	5.3
39	1.5	68	1.4	78	S102_0350 D071L04	18.1	34.92	873/25	5.0
39	2.0	68	2.0	78	S202_0350 D071L04	25.6	34.71	243/7	5.1
46	0.87	–	–	61	S002_0300 D071L04	14.2	29.70	297/10	5.1
49	1.9	85	1.6	63	S102_0280 D071L04	18.1	27.90	279/10	5.1
59	1.2	101	0.98	52	S002_0230 D071L04	14.2	23.40	117/5	5.1
59	2.2	103	1.7	52	S102_0230 D071L04	18.1	23.14	162/7	5.1
71	1.3	123	1.1	43	S002_0195 D071L04	14.2	19.29	135/7	5.1
78	2.3	136	1.8	40	S102_0175 D071L04	18.1	17.47	297/17	5.2
92	1.5	159	1.3	34	S002_0150 D071L04	14.2	14.93	1269/85	5.1
98	2.3	169	2.0	32	S102_0140 D071L04	18.1	14.04	351/25	5.2
115	1.7	200	1.4	27	S002_0120 D071L04	14.2	11.88	297/25	5.2
119	2.3	206	2.1	26	S102_0115 D071L04	18.1	11.50	1323/115	5.3
142	1.9	247	1.7	22	S002_0096 D071L04	14.2	9.626	1107/115	5.2
149	2.3	258	2.2	21	S102_0092 D071L04	18.1	9.200	46/5	5.4
185	2.3	321	2.1	17	S002_0074 D071L04	14.2	7.400	37/5	5.3
228	2.3	395	2.4	14	S002_0060 D071L04	14.2	6.000	6/1	5.4
234	2.7	–	–	14	S002_0120 D071K02	13.1	11.88	297/25	2.7
242	3.7	–	–	13	S102_0115 D071K02	17.0	11.50	1323/115	2.8
289	3.3	–	–	11	S002_0096 D071K02	13.1	9.626	1107/115	2.7
302	3.9	–	–	11	S102_0092 D071K02	17.0	9.200	46/5	2.9
P_N (50 Hz) = 0,55 kW, P_N (87 Hz) = 0,95 kW									
4.1	0.81	7.2	0.81	989	S403_3380 D080K04	51.0	337.6	8439/25	8.9
5.2	1.0	9.0	1.0	793	S403_2700 D080K04	51.0	269.7	2697/10	8.9
6.2	0.83	11	0.83	661	S303_2260 D080K04	42.5	226.2	1131/5	8.9
6.2	1.2	11	1.2	667	S403_2260 D080K04	51.0	226.2	1131/5	8.9
8.0	1.4	14	1.5	524	S402_1740 D080K04	46.8	174.2	3483/20	8.8
8.3	1.6	14	1.5	501	S403_1690 D080K04	51.0	169.0	5916/35	8.9
8.3	1.1	14	1.1	494	S303_1680 D080K04	42.5	167.9	19314/115	8.9
10	1.3	17	1.2	419	S302_1400 D080K04	37.6	139.9	1539/11	8.8
10	1.4	18	1.2	400	S303_1350 D080K04	42.5	135.3	406/3	8.9
10	2.0	18	1.8	402	S403_1350 D080K04	51.0	134.9	2697/20	9.0
12	0.84	–	–	345	S202_1160 D080K04	28.4	116.1	1161/10	8.8
12	1.5	21	1.4	349	S302_1160 D080K04	37.6	116.1	1161/10	8.9
12	2.2	21	2.0	353	S402_1160 D080K04	46.8	116.3	1512/13	9.0
16	1.0	28	0.88	260	S202_0870 D080K04	28.4	86.79	1215/14	8.8
16	1.9	28	1.6	265	S302_0870 D080K04	37.6	87.23	1134/13	9.0
20	1.2	35	0.98	211	S202_0700 D080K04	28.4	70.20	351/5	8.9
20	2.2	35	1.8	214	S302_0700 D080K04	37.6	70.03	2241/32	9.1
24	2.5	41	2.1	180	S302_0590 D080K04	37.6	58.50	117/2	9.2
24	1.3	42	1.1	176	S202_0580 D080K04	28.4	58.22	1863/32	8.9
32	0.91	–	–	130	S102_0440 D080K04	20.9	43.68	1485/34	8.8
32	1.6	55	1.3	134	S202_0440 D080K04	28.4	43.88	351/8	9.0
32	2.9	56	2.4	135	S302_0430 D080K04	37.6	43.44	999/23	9.4
40	1.0	69	0.98	114	S102_0350 D080K04	20.9	34.92	873/25	8.7
40	2.1	70	1.8	113	S202_0350 D080K04	28.4	34.71	243/7	8.8
50	1.3	87	1.1	91	S102_0280 D080K04	20.9	27.90	279/10	8.8
50	2.4	86	2.1	92	S202_0280 D080K04	28.4	28.08	702/25	8.9
60	1.5	105	1.2	76	S102_0230 D080K04	20.9	23.14	162/7	8.8
60	2.8	104	2.2	77	S202_0230 D080K04	28.4	23.29	1863/80	9.0

5.2 Selection tables 5 S helical worm geared motors

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 kgm ²]
P_N (50 Hz) = 0,55 kW, P_N (87 Hz) = 0,95 kW									
73	0.90	–	–	63	S002_0195 D080K04	17.0	19.29	135/7	8.8
80	1.7	139	1.3	58	S102_0175 D080K04	20.9	17.47	297/17	8.9
80	3.2	138	2.4	58	S202_0175 D080K04	28.4	17.55	351/20	9.1
94	1.0	162	0.85	49	S002_0150 D080K04	17.0	14.93	1269/85	8.8
100	1.9	173	1.3	47	S102_0140 D080K04	20.9	14.04	351/25	8.9
101	3.2	174	2.6	46	S202_0140 D080K04	28.4	13.92	1809/130	9.3
118	1.2	204	0.98	39	S002_0120 D080K04	17.0	11.88	297/25	8.9
122	2.0	211	1.4	38	S102_0115 D080K04	20.9	11.50	1323/115	9.0
121	3.2	209	2.7	39	S202_0115 D080K04	28.4	11.60	58/5	9.5
145	1.3	252	1.1	32	S002_0096 D080K04	17.0	9.626	1107/115	8.9
152	2.1	264	1.5	31	S102_0092 D080K04	20.9	9.200	46/5	9.1
189	1.6	328	1.4	25	S002_0074 D080K04	17.0	7.400	37/5	9.0
233	1.8	404	1.6	20	S002_0060 D080K04	17.0	6.000	6/1	9.1
234	1.8	–	–	20	S002_0120 D071L02	14.0	11.88	297/25	3.4
241	2.5	–	–	20	S102_0115 D071L02	17.9	11.50	1323/115	3.5
288	2.2	–	–	16	S002_0096 D071L02	14.0	9.626	1107/115	3.4
302	2.6	–	–	16	S102_0092 D071L02	17.9	9.200	46/5	3.6
P_N (50 Hz) = 0,75 kW, P_N (87 Hz) = 1,30 kW									
6.4	0.90	11	0.90	890	S403_2260 IE3D080L04	57.4	226.2	1131/5	26
8.3	1.1	14	1.1	699	S402_1740 IE3D080L04	53.2	174.2	3483/20	26
8.5	1.2	15	1.2	669	S403_1690 IE3D080L04	57.4	169.0	5916/35	26
8.6	0.84	–	–	659	S303_1680 IE3D080L04	48.9	167.9	19314/115	26
10	0.97	18	0.89	559	S302_1400 IE3D080L04	44.0	139.9	1539/11	26
10	1.4	18	1.3	565	S402_1400 IE3D080L04	53.2	139.9	1539/11	26
11	1.0	18	0.93	533	S303_1350 IE3D080L04	48.9	135.3	406/3	26
11	1.5	19	1.4	536	S403_1350 IE3D080L04	57.4	134.9	2697/20	26
12	1.1	22	1.0	466	S302_1160 IE3D080L04	44.0	116.1	1161/10	26
12	1.7	22	1.5	471	S402_1160 IE3D080L04	53.2	116.3	1512/13	26
17	1.4	29	1.2	353	S302_0870 IE3D080L04	44.0	87.23	1134/13	26
17	2.1	29	1.8	357	S402_0870 IE3D080L04	53.2	87.30	873/10	26
21	0.90	–	–	282	S202_0700 IE3D080L04	34.8	70.20	351/5	26
21	1.7	36	1.4	285	S302_0700 IE3D080L04	44.0	70.03	2241/32	26
21	2.5	36	2.0	287	S402_0700 IE3D080L04	53.2	69.75	279/4	27
25	1.9	43	1.5	240	S302_0590 IE3D080L04	44.0	58.50	117/2	26
25	2.7	43	2.2	242	S402_0590 IE3D080L04	53.2	58.50	117/2	27
25	1.0	43	0.82	235	S202_0580 IE3D080L04	34.8	58.22	1863/32	26
33	1.2	57	0.96	179	S202_0440 IE3D080L04	34.8	43.88	351/8	26
33	2.2	58	1.8	180	S302_0430 IE3D080L04	44.0	43.44	999/23	27
42	1.6	72	1.4	151	S202_0350 IE3D080L04	34.8	34.71	243/7	26
41	2.8	72	2.5	153	S302_0350 IE3D080L04	44.0	34.89	2268/65	26
52	1.0	90	0.80	122	S102_0280 IE3D080L04	27.3	27.90	279/10	26
51	1.8	89	1.5	123	S202_0280 IE3D080L04	34.8	28.08	702/25	26
52	3.4	89	2.8	124	S302_0280 IE3D080L04	44.0	28.01	2241/80	26
62	1.1	108	0.85	101	S102_0230 IE3D080L04	27.3	23.14	162/7	26
62	2.1	107	1.6	102	S202_0230 IE3D080L04	34.8	23.29	1863/80	26
83	1.3	143	0.92	77	S102_0175 IE3D080L04	27.3	17.47	297/17	26
82	2.4	143	1.8	78	S202_0175 IE3D080L04	34.8	17.55	351/20	26
103	1.4	178	0.97	62	S102_0140 IE3D080L04	27.3	14.04	351/25	26
104	2.7	180	1.9	62	S202_0140 IE3D080L04	34.8	13.92	1809/130	27
126	1.5	218	1.0	51	S102_0115 IE3D080L04	27.3	11.50	1323/115	26
125	2.8	216	2.0	52	S202_0115 IE3D080L04	34.8	11.60	58/5	27
157	1.6	272	1.1	41	S102_0092 IE3D080L04	27.3	9.200	46/5	26
157	3.0	271	2.1	42	S202_0092 IE3D080L04	34.8	9.232	1431/155	27
164	1.6	–	–	39	S102_0175 IE3D080K02	21.8	17.47	297/17	7.4
164	3.2	–	–	40	S202_0175 IE3D080K02	29.3	17.55	351/20	7.6
204	1.7	–	–	32	S102_0140 IE3D080K02	21.8	14.04	351/25	7.4
206	3.4	–	–	32	S202_0140 IE3D080K02	29.3	13.92	1809/130	7.8
249	1.8	–	–	26	S102_0115 IE3D080K02	21.8	11.50	1323/115	7.5
312	1.9	–	–	21	S102_0092 IE3D080K02	21.8	9.200	46/5	7.6
P_N (50 Hz) = 1,10 kW, P_N (87 Hz) = 1,91 kW									
8.5	0.82	–	–	977	S403_1690 IE3D090S04	62.9	169.0	5916/35	40
10	0.97	18	0.90	824	S402_1400 IE3D090S04	58.7	139.9	1539/11	40
11	1.0	18	0.94	783	S403_1350 IE3D090S04	62.9	134.9	2697/20	40
12	1.1	21	1.0	688	S402_1160 IE3D090S04	58.7	116.3	1512/13	40
17	0.98	29	0.83	515	S302_0870 IE3D090S04	49.5	87.23	1134/13	40

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 kgm ²]
P_N (50 Hz) = 1,10 kW, P_N (87 Hz) = 1,91 kW									
16	1.4	29	1.2	521	S402_0870 IE3D090S04	58.7	87.30	873/10	40
21	1.1	36	0.94	417	S302_0700 IE3D090S04	49.5	70.03	2241/32	40
21	1.7	36	1.4	419	S402_0700 IE3D090S04	58.7	69.75	279/4	41
25	1.3	43	1.0	350	S302_0590 IE3D090S04	49.5	58.50	117/2	40
25	1.9	43	1.5	353	S402_0590 IE3D090S04	58.7	58.50	117/2	41
33	1.5	57	1.2	263	S302_0430 IE3D090S04	49.5	43.44	999/23	41
41	1.1	72	0.93	221	S202_0350 IE3D090S04	40.3	34.71	243/7	40
41	1.9	71	1.7	224	S302_0350 IE3D090S04	49.5	34.89	2268/65	40
41	2.6	71	2.6	224	S402_0350 IE3D090S04	58.7	34.92	873/25	41
51	1.3	89	1.0	179	S202_0280 IE3D090S04	40.3	28.08	702/25	40
51	2.3	89	1.9	180	S302_0280 IE3D090S04	49.5	28.01	2241/80	40
62	1.4	107	1.1	149	S202_0230 IE3D090S04	40.3	23.29	1863/80	40
62	2.6	107	2.0	151	S302_0230 IE3D090S04	49.5	23.40	117/5	41
82	0.89	–	–	112	S102_0175 IE3D090S04	32.8	17.47	297/17	40
82	1.7	142	1.2	113	S202_0175 IE3D090S04	40.3	17.55	351/20	40
83	3.1	144	2.0	113	S302_0175 IE3D090S04	49.5	17.37	1998/115	41
103	0.96	–	–	91	S102_0140 IE3D090S04	32.8	14.04	351/25	40
103	1.8	179	1.3	90	S202_0140 IE3D090S04	40.3	13.92	1809/130	41
103	3.2	178	1.9	92	S302_0140 IE3D090S04	49.5	14.00	14/1	41
125	1.0	–	–	75	S102_0115 IE3D090S04	32.8	11.50	1323/115	40
124	1.9	215	1.4	76	S202_0115 IE3D090S04	40.3	11.60	58/5	41
123	3.2	214	1.9	77	S302_0115 IE3D090S04	49.5	11.66	1458/125	42
157	1.1	–	–	60	S102_0092 IE3D090S04	32.8	9.200	46/5	40
156	2.1	270	1.5	61	S202_0092 IE3D090S04	40.3	9.232	1431/155	41
164	1.1	–	–	58	S102_0175 IE3D080L02	25.3	17.47	297/17	13
164	2.1	–	–	58	S202_0175 IE3D080L02	32.8	17.55	351/20	14
204	1.2	–	–	47	S102_0140 IE3D080L02	25.3	14.04	351/25	13
206	2.3	–	–	47	S202_0140 IE3D080L02	32.8	13.92	1809/130	14
249	1.2	–	–	39	S102_0115 IE3D080L02	25.3	11.50	1323/115	13
312	1.3	–	–	31	S102_0092 IE3D080L02	25.3	9.200	46/5	14
P_N (50 Hz) = 1,50 kW, P_N (87 Hz) = 2,60 kW									
12	0.85	–	–	933	S402_1160 IE3D090L04	64.2	116.3	1512/13	45
17	1.1	29	0.90	706	S402_0870 IE3D090L04	64.2	87.30	873/10	45
21	0.84	–	–	565	S302_0700 IE3D090L04	55.0	70.03	2241/32	45
21	1.2	36	1.0	568	S402_0700 IE3D090L04	64.2	69.75	279/4	46
25	0.94	–	–	475	S302_0590 IE3D090L04	55.0	58.50	117/2	45
25	1.4	43	1.1	479	S402_0590 IE3D090L04	64.2	58.50	117/2	46
33	1.1	58	0.90	356	S302_0430 IE3D090L04	55.0	43.44	999/23	46
41	1.4	72	1.3	303	S302_0350 IE3D090L04	55.0	34.89	2268/65	45
41	1.9	72	1.9	304	S402_0350 IE3D090L04	64.2	34.92	873/25	46
51	0.93	–	–	243	S202_0280 IE3D090L04	45.8	28.08	702/25	45
52	1.7	89	1.4	245	S302_0280 IE3D090L04	55.0	28.01	2241/80	45
52	2.2	90	2.1	244	S402_0280 IE3D090L04	64.2	27.90	279/10	46
62	1.1	107	0.82	202	S202_0230 IE3D090L04	45.8	23.29	1863/80	45
62	1.9	107	1.5	205	S302_0230 IE3D090L04	55.0	23.40	117/5	46
62	2.4	107	2.2	206	S402_0230 IE3D090L04	64.2	23.40	117/5	46
82	1.2	143	0.89	154	S202_0175 IE3D090L04	45.8	17.55	351/20	45
83	2.3	144	1.4	153	S302_0175 IE3D090L04	55.0	17.37	1998/115	46
104	1.4	180	0.95	122	S202_0140 IE3D090L04	45.8	13.92	1809/130	46
103	2.4	179	1.4	124	S302_0140 IE3D090L04	55.0	14.00	14/1	46
125	1.4	216	1.0	103	S202_0115 IE3D090L04	45.8	11.60	58/5	46
124	2.4	215	1.4	104	S302_0115 IE3D090L04	55.0	11.66	1458/125	47
157	1.5	271	1.1	82	S202_0092 IE3D090L04	45.8	9.232	1431/155	46
166	0.83	–	–	77	S102_0175 IE3D090S02	29.3	17.47	297/17	17
165	1.6	–	–	77	S202_0175 IE3D090S02	36.8	17.55	351/20	17
167	2.5	–	–	77	S302_0175 IE3D090S02	46.0	17.37	1998/115	18
207	0.88	–	–	62	S102_0140 IE3D090S02	29.3	14.04	351/25	17
208	1.7	–	–	62	S202_0140 IE3D090S02	36.8	13.92	1809/130	18
207	2.4	–	–	63	S302_0140 IE3D090S02	46.0	14.00	14/1	18
252	0.92	–	–	51	S102_0115 IE3D090S02	29.3	11.50	1323/115	17
315	0.98	–	–	41	S102_0092 IE3D090S02	29.3	9.200	46/5	17
P_N (50 Hz) = 2,20 kW, P_N (87 Hz) = 3,81 kW									
21	0.85	–	–	827	S402_0700 IE3D100K04	72.2	69.75	279/4	91
25	0.95	–	–	697	S402_0590 IE3D100K04	72.2	58.50	117/2	91
33	1.1	58	0.90	527	S402_0440 IE3D100K04	72.2	43.71	306/7	91

5.2 Selection tables 5 S helical worm geared motors

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 kgm ²]
P_N (50 Hz) = 2,20 kW, P_N (87 Hz) = 3,81 kW									
42	1.4	72	1.3	442	S402_0350 IE3D100K04	72.2	34.92	873/25	91
52	1.2	90	0.96	356	S302_0280 IE3D100K04	63.0	28.01	2241/80	90
52	1.8	90	1.5	355	S402_0280 IE3D100K04	72.2	27.90	279/10	91
62	1.3	108	0.99	298	S302_0230 IE3D100K04	63.0	23.40	117/5	91
62	2.0	108	1.5	299	S402_0230 IE3D100K04	72.2	23.40	117/5	91
83	0.85	–	–	223	S202_0175 IE3D100K04	53.8	17.55	351/20	90
84	1.6	145	0.98	223	S302_0175 IE3D100K04	63.0	17.37	1998/115	91
83	2.4	144	1.5	225	S402_0175 IE3D100K04	72.2	17.49	612/35	92
105	0.93	–	–	178	S202_0140 IE3D100K04	53.8	13.92	1809/130	91
104	1.6	180	0.98	181	S302_0140 IE3D100K04	63.0	14.00	14/1	91
104	2.5	181	1.5	181	S402_0140 IE3D100K04	72.2	13.95	279/20	92
125	0.98	–	–	149	S202_0115 IE3D100K04	53.8	11.60	58/5	91
125	1.6	216	0.97	151	S302_0115 IE3D100K04	63.0	11.66	1458/125	92
126	2.5	–	–	151	S402_0115 IE3D100K04	72.2	11.57	81/7	93
156	1.6	271	0.97	122	S302_0093 IE3D100K04	63.0	9.310	270/29	93
157	2.6	–	–	122	S402_0093 IE3D100K04	72.2	9.281	297/32	95
158	1.0	–	–	120	S202_0092 IE3D100K04	53.8	9.232	1431/155	91
164	1.1	–	–	115	S202_0175 IE3D090L02	41.3	17.55	351/20	28
166	1.7	–	–	115	S302_0175 IE3D090L02	50.5	17.37	1998/115	28
207	1.2	–	–	92	S202_0140 IE3D090L02	41.3	13.92	1809/130	28
206	1.7	–	–	93	S302_0140 IE3D090L02	50.5	14.00	14/1	29
P_N (50 Hz) = 3,00 kW, P_N (87 Hz) = 5,20 kW									
33	0.81	–	–	720	S402_0440 IE3D100L04	81.2	43.71	306/7	111
42	1.0	72	0.95	605	S402_0350 IE3D100L04	81.2	34.92	873/25	111
52	0.86	–	–	487	S302_0280 IE3D100L04	72.0	28.01	2241/80	110
52	1.3	90	1.1	486	S402_0280 IE3D100L04	81.2	27.90	279/10	111
62	0.97	–	–	408	S302_0230 IE3D100L04	72.0	23.40	117/5	111
62	1.5	108	1.1	409	S402_0230 IE3D100L04	81.2	23.40	117/5	111
84	1.1	–	–	305	S302_0175 IE3D100L04	72.0	17.37	1998/115	111
83	1.7	144	1.1	308	S402_0175 IE3D100L04	81.2	17.49	612/35	112
104	1.2	–	–	247	S302_0140 IE3D100L04	72.0	14.00	14/1	111
104	1.8	181	1.1	247	S402_0140 IE3D100L04	81.2	13.95	279/20	112
125	1.2	–	–	207	S302_0115 IE3D100L04	72.0	11.66	1458/125	112
126	1.8	–	–	206	S402_0115 IE3D100L04	81.2	11.57	81/7	113
156	1.2	–	–	166	S302_0093 IE3D100L04	72.0	9.310	270/29	113
157	1.9	–	–	166	S402_0093 IE3D100L04	81.2	9.281	297/32	115
168	1.2	–	–	155	S302_0175 IE3D100L02	58.0	17.37	1998/115	46
210	0.85	–	–	124	S202_0140 IE3D100L02	48.8	13.92	1809/130	46
209	1.2	–	–	125	S302_0140 IE3D100L02	58.0	14.00	14/1	46
P_N (50 Hz) = 4,00 kW, P_N (87 Hz) = 6,93 kW									
52	0.98	–	–	646	S402_0280 IE3D112M04	92.2	27.90	279/10	171
62	1.1	108	0.83	544	S402_0230 IE3D112M04	92.2	23.40	117/5	171
84	0.86	–	–	406	S302_0175 IE3D112M04	83.0	17.37	1998/115	171
83	1.3	145	0.84	410	S402_0175 IE3D112M04	92.2	17.49	612/35	172
104	0.90	–	–	329	S302_0140 IE3D112M04	83.0	14.00	14/1	171
105	1.4	181	0.85	329	S402_0140 IE3D112M04	92.2	13.95	279/20	172
125	0.90	–	–	275	S302_0115 IE3D112M04	83.0	11.66	1458/125	172
126	1.4	–	–	274	S402_0115 IE3D112M04	92.2	11.57	81/7	173
157	0.89	–	–	221	S302_0093 IE3D112M04	83.0	9.310	270/29	173
157	1.4	–	–	221	S402_0093 IE3D112M04	92.2	9.281	297/32	175
168	0.92	–	–	207	S302_0175 IE3D112M02	65.0	17.37	1998/115	56
209	0.91	–	–	168	S302_0140 IE3D112M02	65.0	14.00	14/1	56
P_N (50 Hz) = 5,50 kW, P_N (87 Hz) = 9,53 kW									
63	0.83	–	–	728	S402_0230 IE3D132S04	126.2	23.40	117/5	351
85	0.97	–	–	548	S402_0175 IE3D132S04	126.2	17.49	612/35	352
106	1.0	–	–	440	S402_0140 IE3D132S04	126.2	13.95	279/20	352
128	1.0	–	–	367	S402_0115 IE3D132S04	126.2	11.57	81/7	353
159	1.0	–	–	296	S402_0093 IE3D132S04	126.2	9.281	297/32	355

5.3 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 \varnothing fit \leq 50 mm	DIN 748-1, ISO k6
Shaft \varnothing fit $>$ 50 mm	DIN 748-1, ISO m6
Feather keys	DIN 6885-1, high form A

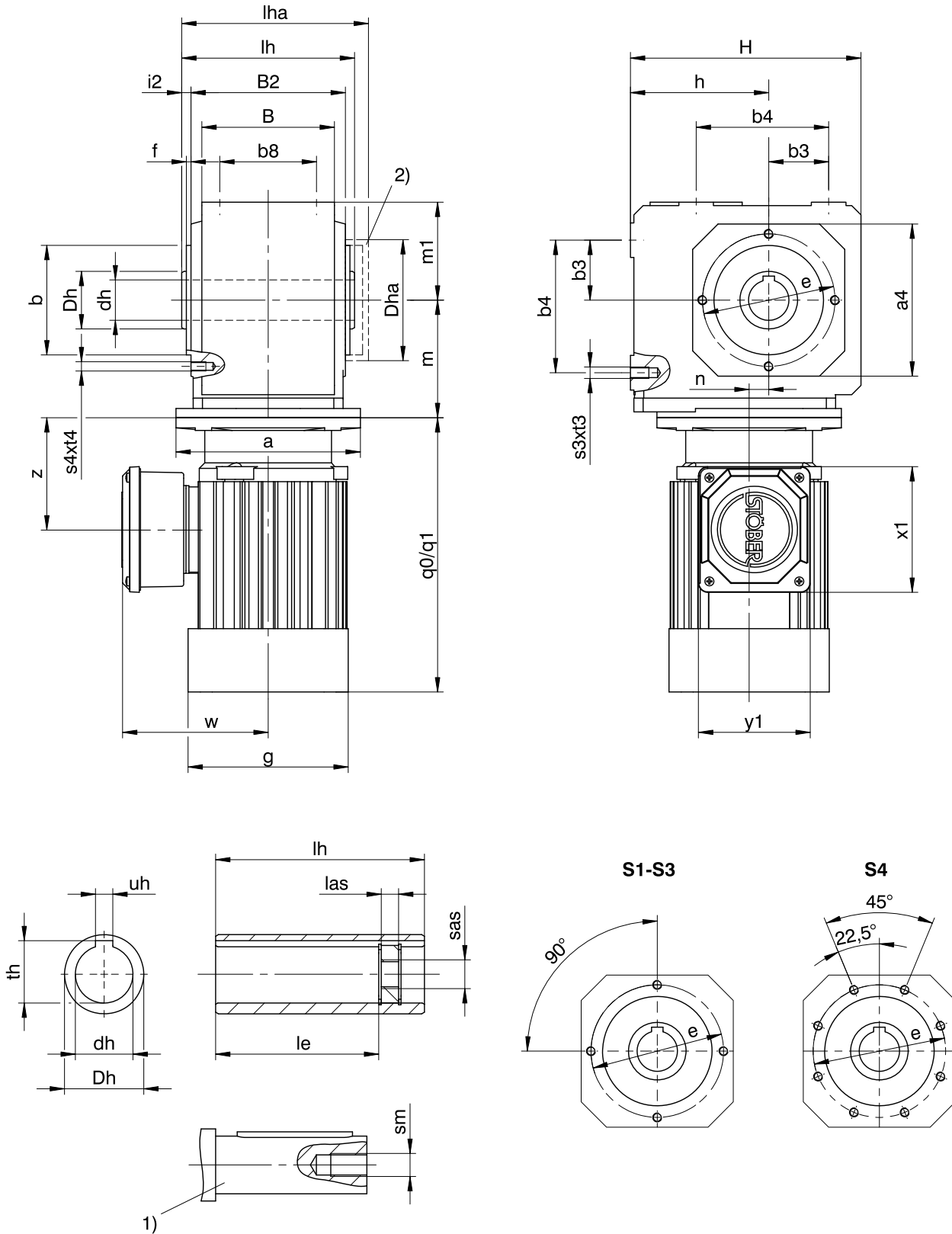
Hollow shaft	Tolerance
Hollow shaft hole fit	ISO H7
Feather keys	DIN 6885-1, high form S1/K1 \varnothing 30: DIN 6885-3, low form

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

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



q_0 Applies to motors without brake.

q_1 Applies to motors with brake.

1) The length of the machine shaft must be at least $2.2 \times \varnothing d_h$ and the length of the feather key must be at least $2 \times \varnothing d_h$.

2) Cover (optional)

Dimensions of gear units

Type	a4	Øb	b3	b4	b8	B	B2	Ødh	ØDh	□Dha	Øe	f	h	H	i2	le	lh	las	lha	m1	s3	s4	sm	sas	t3	t4	th	uh
S1	□105	75 _{h6}	40	90	70	90	106	20 ^{H7}	40	105	90	3.0	100	167	7.0	98.0	120	12	127.0	70	M8	M8	M6	M8	13	13	22.8	6 ^{JS9}
S1	□105	75 _{h6}	40	90	70	90	106	25 ^{H7}	40	105	90	3.0	100	167	7.0	98.0	120	12	127.0	70	M8	M8	M10	M12	13	13	28.3	8 ^{JS9}
S1	□105	75 _{h6}	40	90	70	90	106	30 ^{H7}	40	105	90	3.0	100	167	7.0	93.5	120	12	127.0	70	M8	M8	M10	M12	13	13	32	8 ^{JS9}
S2	□132	95 _{h6}	52	115	90	115	134	30 ^{H7}	50	132	115	4.0	120	200	8.0	123.5	150	12	157.0	85	M10	M8	M10	M12	16	13	33.3	8 ^{JS9}
S2	□132	95 _{h6}	52	115	90	115	134	35 ^{H7}	50	132	115	4.0	120	200	8.0	119.0	150	12	157.0	85	M10	M8	M12	M16	16	13	38.3	10 ^{JS9}
S3	□152	110 _{h6}	52	130	105	130	153	40 ^{H7}	55	152	130	3.5	140	233	7.5	136.5	168	12	177.5	100	M10	M10	M16	M20	16	16	43.3	12 ^{JS9}
S4	□145	110 _{h6}	67	155	120	148	173	50 ^{H7}	65	145	130	3.5	160	263	8.5	153.0	190	12	198.5	110	M12	M10	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	97	81
D063M04	109	179	231	115	109	97	81
D071K04	124	208	260	120	109	97	94
D071K02	124	208	260	120	109	97	94
D071L04	124	208	260	120	109	97	94
D071L02	124	208	260	120	109	97	94
D080K04	139	238	295	128	109	97	97

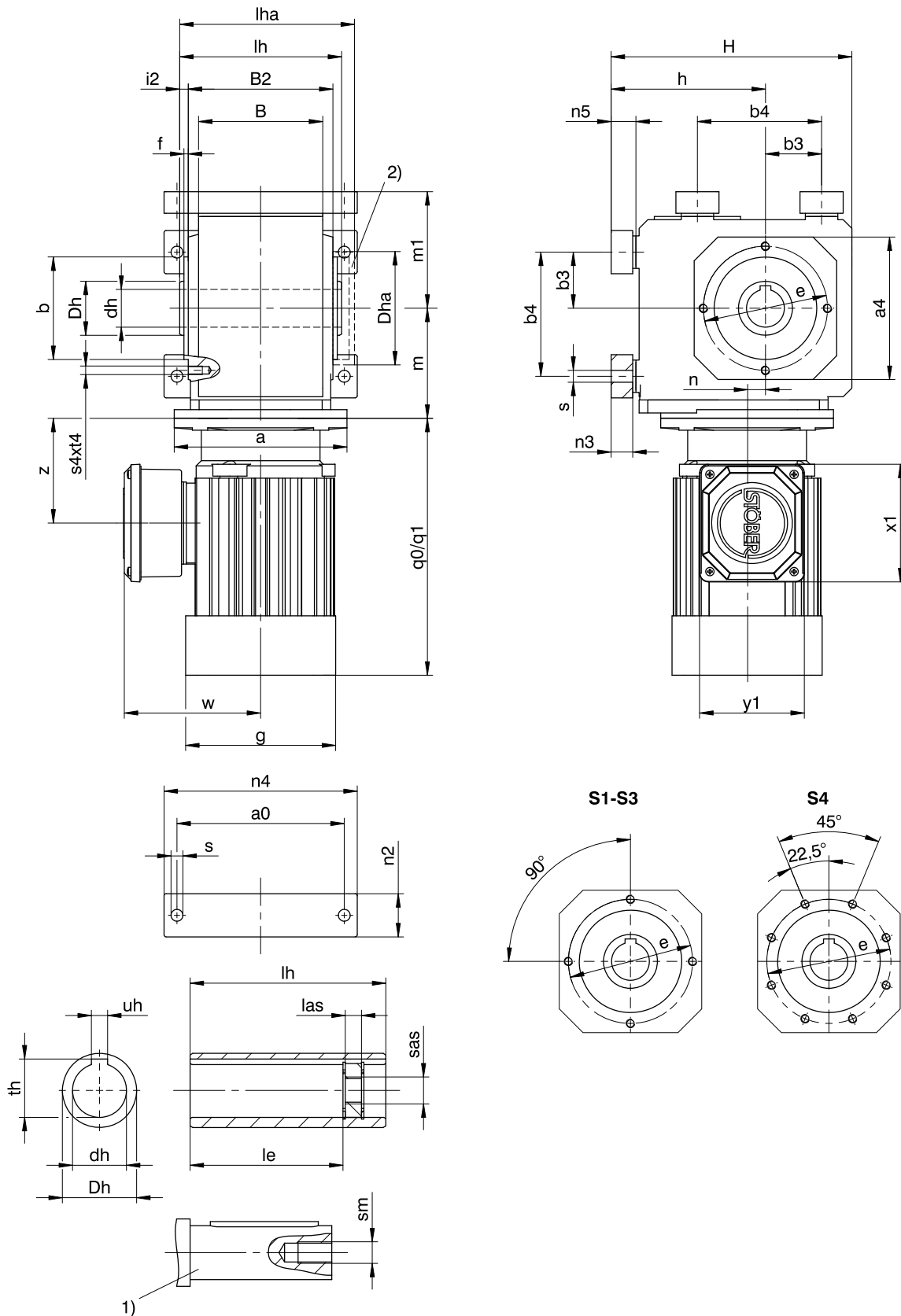
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	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

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
S102	Ø140	83	14.0	Ø140	83	14.0	Ø160	87	14.0
S202	Ø140	98	17.0	Ø140	98	17.0	Ø140	98	17.0
S203	Ø140	135	17.0	Ø140	135	17.0	–	–	–
S302	–	–	–	Ø140	113	25.5	Ø140	113	25.5
S303	Ø140	150	25.5	Ø140	150	25.5	Ø160	160	62.0
S402	–	–	–	–	–	–	Ø160	129	30.0
S403	–	–	–	Ø140	162	30.0	Ø160	172	67.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
S102	Ø160	87	14.0	Ø160	87	14.0	–	–	–	–	–	–	–	–	–
S202	Ø160	102	17.0	Ø160	102	17.0	Ø200	104	17.0	–	–	–	–	–	–
S302	Ø160	117	25.5	Ø160	117	25.5	Ø200	119	25.5	Ø200	119	25.5	–	–	–
S303	Ø160	160	62.0	–	–	–	–	–	–	–	–	–	–	–	–
S402	Ø160	129	30.0	Ø160	129	30.0	Ø200	131	30.0	Ø200	131	30.0	Ø250	134	30.0
S403	Ø160	172	67.0	Ø160	172	67.0	–	–	–	–	–	–	–	–	–

5.3.2 A shaft design (hollow shaft), NG housing design (base + pitch circle diameter)



q_0 Applies to motors without brake.

q_1 Applies to motors with brake.

1) The length of the machine shaft must be at least $2.2 \times \varnothing d_h$ and the length of the feather key must be at least $2 \times \varnothing d_h$.

2) Cover (optional)

Dimensions of gear units

Type	a0	a4	Øb	b3	b4	B	B2	Ødh	ØDh	□Dha	Øe	f	h	H	i2	le	lh	las	lha	m1	n2	n3	n4	n5	Øs	s4	sm	sas	t4	th	uh
S0	75	Ø85	75 ₆	40	80	92	94	20 ^{H7}	40	102	90	3.0	80	143	7.0	86.0	108	12	113.0	72	22	9	92	9	6.6	M6	M6	M8	13	22.8	6 ^{JS9}
S0	75	Ø85	75 ₆	40	80	92	94	25 ^{H7}	40	102	90	3.0	80	143	7.0	86.0	108	12	113.0	72	22	9	92	9	6.6	M6	M10	M12	13	28.3	8 ^{JS9}
S1	115	□105	75 ₆	40	90	90	106	20 ^{H7}	40	105	90	3.0	115	182	7.0	98.0	120	12	127.0	85	30	13	140	15	9.0	M8	M6	M8	13	22.8	6 ^{JS9}
S1	115	□105	75 ₆	40	90	90	106	25 ^{H7}	40	105	90	3.0	115	182	7.0	98.0	120	12	127.0	85	30	13	140	15	9.0	M8	M10	M12	13	28.3	8 ^{JS9}
S1	115	□105	75 ₆	40	90	90	106	30 ^{H7}	40	105	90	3.0	115	182	7.0	93.5	120	12	127.0	85	30	13	140	15	9.0	M8	M10	M12	13	32	8 ^{JS9}
S2	155	□132	95 ₆	52	115	115	134	30 ^{H7}	50	132	115	4.0	143	223	8.0	123.5	150	12	157.0	108	40	20	185	23	11.0	M8	M10	M12	13	33.3	8 ^{JS9}
S2	155	□132	95 ₆	52	115	115	134	35 ^{H7}	50	132	115	4.0	143	223	8.0	119.0	150	12	157.0	108	40	20	185	23	11.0	M8	M12	M16	13	38.3	10 ^{JS9}
S3	170	□152	110 ₆	52	130	130	153	40 ^{H7}	55	152	130	3.5	163	256	7.5	136.5	168	12	177.5	123	45	20	200	23	11.0	M10	M16	M20	16	43.3	12 ^{JS9}
S4	200	□145	110 ₆	67	155	148	173	50 ^{H7}	65	145	130	3.5	185	288	8.5	153.0	190	12	198.5	135	50	22	230	25	14.0	M10	M16	M20	16	53.8	14 ^{JS9}

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109	97	81
D063M04	109	179	231	115	109	97	81
D071K04	124	208	260	120	109	97	94
D071K02	124	208	260	120	109	97	94
D071L04	124	208	260	120	109	97	94
D071L02	124	208	260	120	109	97	94
D080K04	139	238	295	128	109	97	97

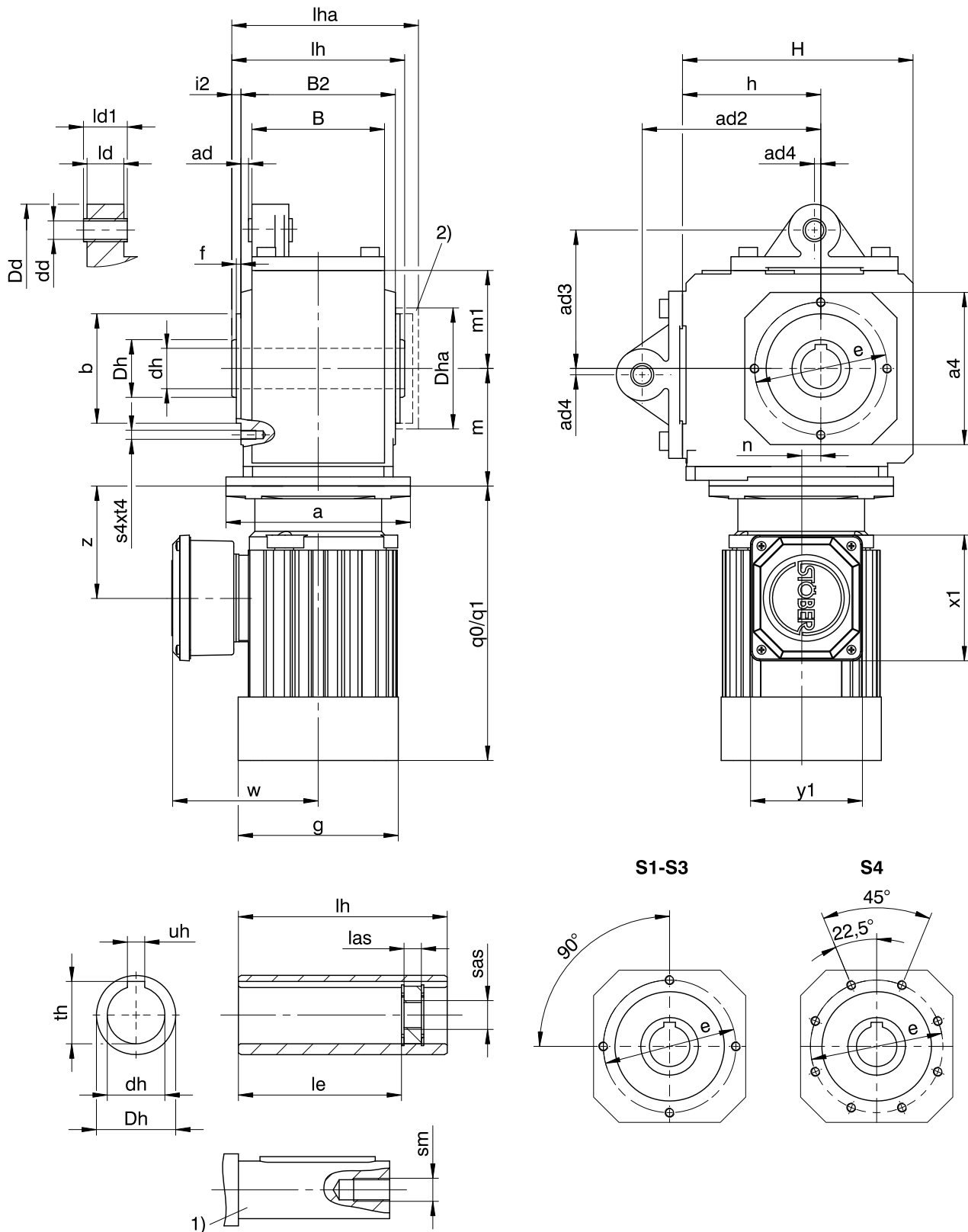
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	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

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
S002	Ø140	70	8.5	Ø140	70	8.5	Ø140	70	8.5
S102	Ø140	83	14.0	Ø140	83	14.0	Ø140	83	14.0
S202	Ø140	98	17.0	Ø140	98	17.0	Ø160	102	17.0
S203	Ø140	135	17.0	Ø140	135	17.0	-	-	-
S302	-	-	-	Ø140	113	25.5	Ø160	117	25.5
S303	Ø140	150	25.5	Ø140	150	25.5	Ø160	160	62.0
S402	-	-	-	-	-	-	Ø160	129	30.0
S403	-	-	-	Ø140	162	30.0	Ø160	172	67.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
S102	Ø160	87	14.0	Ø160	87	14.0	-	-	-	-	-	-	-	-	-
S202	Ø160	102	17.0	Ø160	102	17.0	Ø200	104	17.0	-	-	-	-	-	-
S302	Ø160	117	25.5	Ø160	117	25.5	Ø200	119	25.5	Ø200	119	25.5	-	-	-
S303	Ø160	160	62.0	-	-	-	-	-	-	-	-	-	-	-	-
S402	Ø160	129	30.0	Ø160	129	30.0	Ø200	131	30.0	Ø200	131	30.0	Ø250	134	30.0
S403	Ø160	172	67.0	Ø160	172	67.0	-	-	-	-	-	-	-	-	-

5.3.3 A shaft design (hollow shaft), GD housing design (pitch circle diameter + torque arm)



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 $\varnothing d_h$ and the length of the feather key must be at least 2 x $\varnothing d_h$.

2) Cover (optional)

Dimensions of gear units

Type	a4	ad	ad2	ad3	ad4	Øb	B	B2	Ødd	Ødh	ØDd	ØDh	□Dha	Øe	f	h	H	i2	ld	ld1	le	lh	las	lha	m1	s4	sm	sas	t4	th	uh
S1	□105	6.0	130	100	5.0	75 ₆	90	106	12 ^{H9}	20 ^{H7}	43	40	105	90	3.0	100	167	7.0	24	28	98.0	120	12	127.0	70	M8	M6	M8	13	22.8	6 ^{JS9}
S1	□105	6.0	130	100	5.0	75 ₆	90	106	12 ^{H9}	25 ^{H7}	43	40	105	90	3.0	100	167	7.0	24	28	98.0	120	12	127.0	70	M8	M10	M12	13	28.3	8 ^{JS9}
S1	□105	6.0	130	100	5.0	75 ₆	90	106	12 ^{H9}	30 ^{H7}	43	40	105	90	3.0	100	167	7.0	24	28	93.5	120	12	127.0	70	M8	M10	M12	13	32	8 ^{JS9}
S2	□132	6.5	155	120	5.5	95 ₆	115	134	16 ^{H9}	30 ^{H7}	45	50	132	115	4.0	120	200	8.0	32	38	123.5	150	12	157.0	85	M8	M10	M12	13	33.3	8 ^{JS9}
S2	□132	6.5	155	120	5.5	95 ₆	115	134	16 ^{H9}	35 ^{H7}	45	50	132	115	4.0	120	200	8.0	32	38	119.0	150	12	157.0	85	M8	M12	M16	13	38.3	10 ^{JS9}
S3	□152	5.0	185	145	13.0	110 ₆	130	153	16 ^{H9}	40 ^{H7}	45	55	152	130	3.5	140	233	7.5	32	38	136.5	168	12	177.5	100	M10	M16	M20	16	43.3	12 ^{JS9}
S4	□145	9.5	220	170	10.5	110 ₆	148	173	20 ^{H9}	50 ^{H7}	55	65	145	130	3.5	160	263	8.5	40	46	153.0	190	12	198.5	110	M10	M16	M20	16	53.8	14 ^{JS9}

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109	97	81
D063M04	109	179	231	115	109	97	81
D071K04	124	208	260	120	109	97	94
D071K02	124	208	260	120	109	97	94
D071L04	124	208	260	120	109	97	94
D071L02	124	208	260	120	109	97	94
D080K04	139	238	295	128	109	97	97

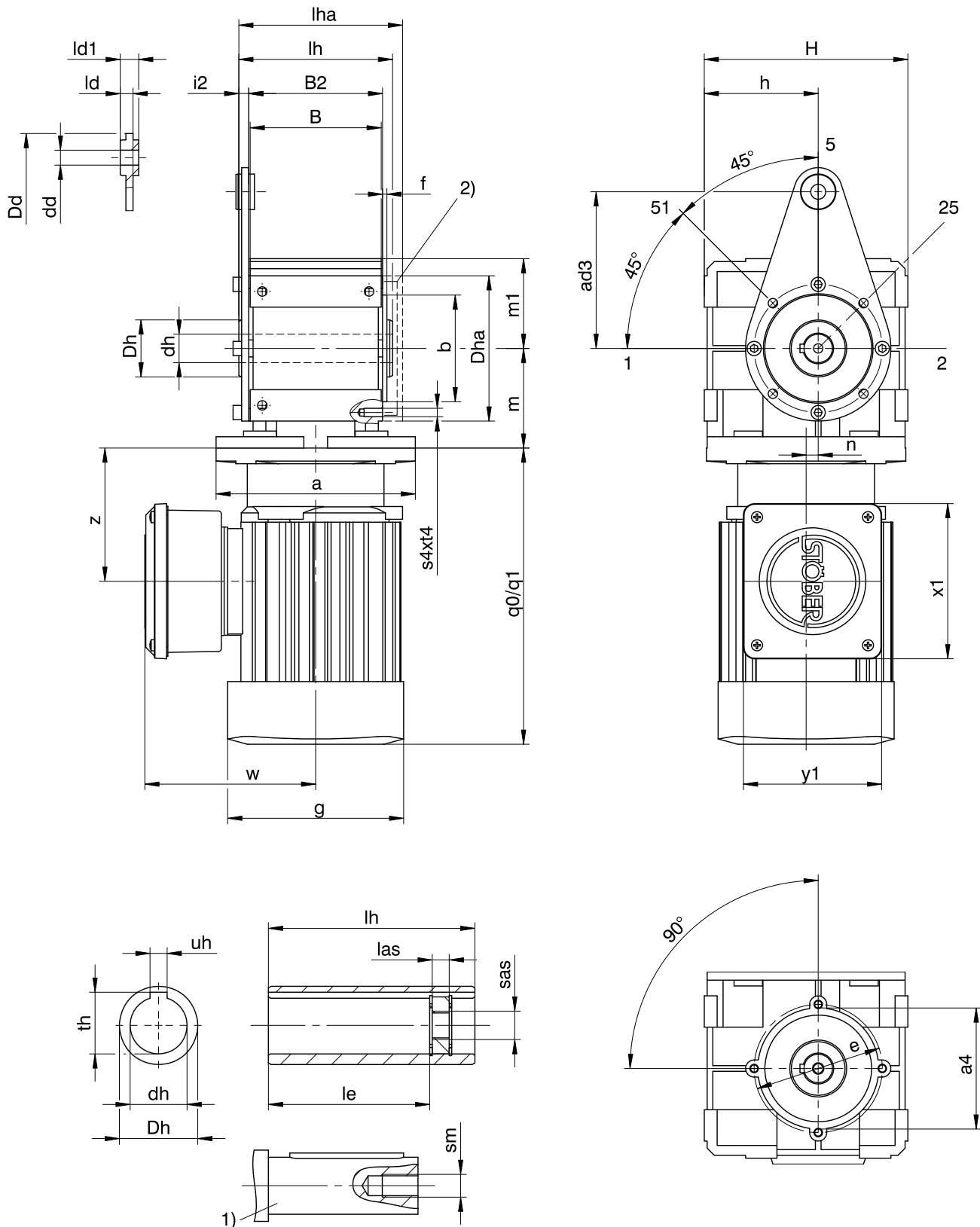
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	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

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
S102	Ø140	83	14.0	Ø140	83	14.0	Ø160	87	14.0
S202	Ø140	98	17.0	Ø140	98	17.0	Ø140	98	17.0
S203	Ø140	135	17.0	Ø140	135	17.0	-	-	-
S302	-	-	-	Ø140	113	25.5	Ø140	113	25.5
S303	Ø140	150	25.5	Ø140	150	25.5	Ø160	160	62.0
S402	-	-	-	-	-	-	Ø160	129	30.0
S403	-	-	-	Ø140	162	30.0	Ø160	172	67.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
S102	Ø160	87	14.0	Ø160	87	14.0	-	-	-	-	-	-	-	-	-
S202	Ø160	102	17.0	Ø160	102	17.0	Ø200	104	17.0	-	-	-	-	-	-
S302	Ø160	117	25.5	Ø160	117	25.5	Ø200	119	25.5	Ø200	119	25.5	-	-	-
S303	Ø160	160	62.0	-	-	-	-	-	-	-	-	-	-	-	-
S402	Ø160	129	30.0	Ø160	129	30.0	Ø200	131	30.0	Ø200	131	30.0	Ø250	134	30.0
S403	Ø160	172	67.0	Ø160	172	67.0	-	-	-	-	-	-	-	-	-

5.3.4 A shaft design (hollow shaft), NGD housing design (foot + pitch circle diameter + torque arm)



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 $\varnothing d_h$ and the length of the feather key must be at least 2 x $\varnothing d_h$.

2) Cover (optional)

Dimensions of gear units

Type	a4	ad3	Øb	B	B2	Ødd	Ødh	ØDd	ØDh	□Dha	Øe	f	h	H	i2	ld	ld1	le	lh	las	lha	m1	s4	sm	sas	t4	th	uh
S0	Ø85	110	75 ₆	92	94	10.5	20 ^{H7}	25	40	102	90	3	80	143	7	5	13	86	108	12	117	63	M6	M6	M8	13	22.8	6 ^{h9}
S0	Ø85	110	75 ₆	92	94	10.5	25 ^{H7}	25	40	102	90	3	80	143	7	5	13	86	108	12	117	63	M6	M10	M12	13	28.3	8 ^{h9}

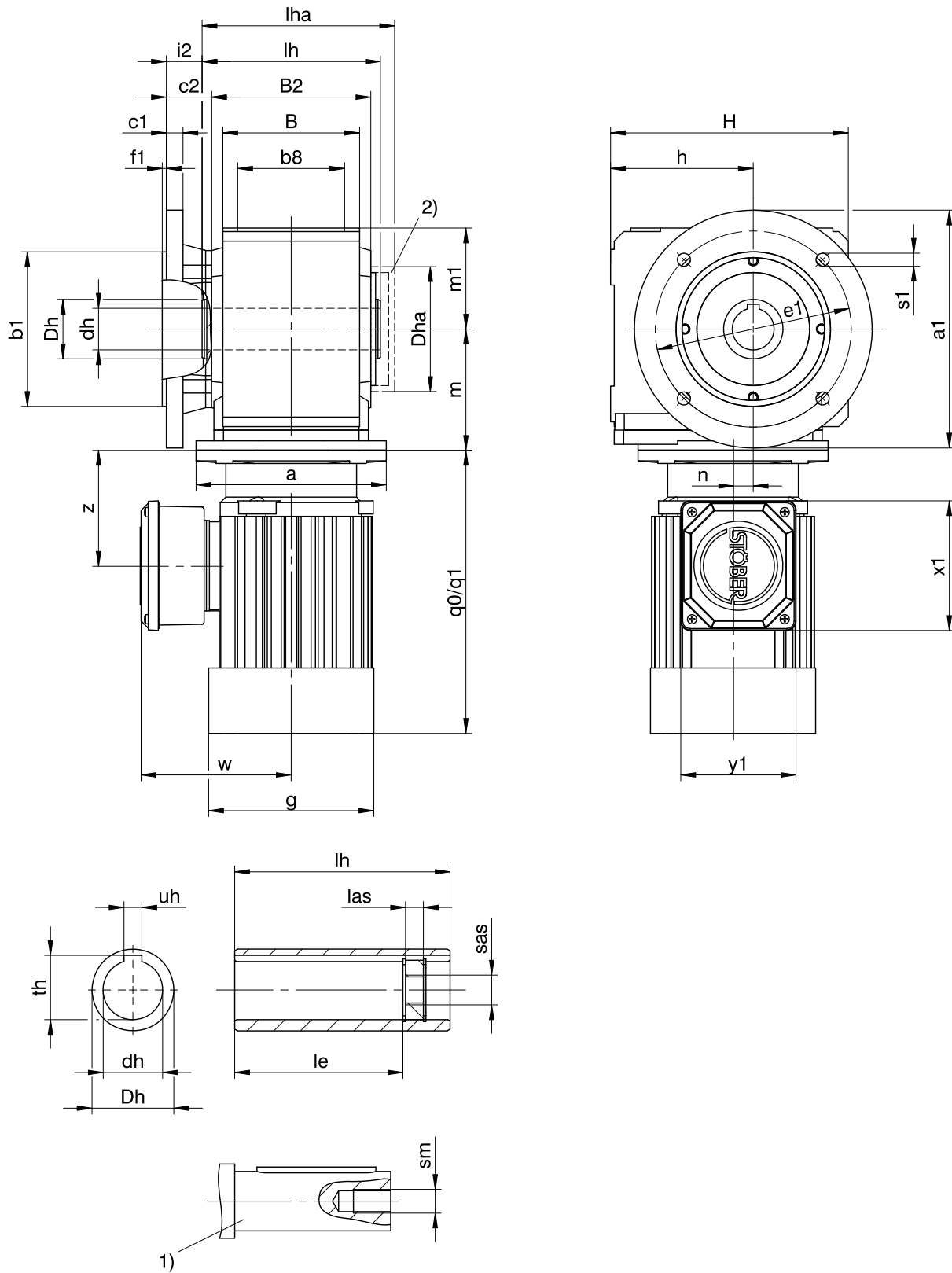
Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109	97	81
D063M04	109	179	231	115	109	97	81
D071K04	124	208	260	120	109	97	94
D071K02	124	208	260	120	109	97	94
D071L04	124	208	260	120	109	97	94
D071L02	124	208	260	120	109	97	94
D080K04	139	238	295	128	109	97	97

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
S002	Ø140	70	8.5	Ø140	70	8.5	Ø140	70	8.5

5.3.5 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 $2.2 \times \varnothing dh$ and the length of the feather key must be at least $2 \times \varnothing dh$.

2) Cover (optional)

Dimensions of gear units

Type	Øa1	Øb1	b8	B	B2	c1	c2	Ødh	ØDh	□Dha	Øe1	f1	h	H	i2	le	lh	las	lha	m1	Øs1	sm	sas	th	uh
S1	160	110 _{js}	70	90	106	10	32.0	20 ^{H7}	40	105	130	3.5	100	167	25.0	98.0	120	12	127.0	70	9	M6	M8	22.8	6 ^{JS9}
S1	160	110 _{js}	70	90	106	10	32.0	25 ^{H7}	40	105	130	3.5	100	167	25.0	98.0	120	12	127.0	70	9	M10	M12	28.3	8 ^{JS9}
S1	160	110 _{js}	70	90	106	10	32.0	30 ^{H7}	40	105	130	3.5	100	167	25.0	93.5	120	12	127.0	70	9	M10	M12	32.0	8 ^{JS9}
S2	200	130 _{js}	90	115	134	14	38.0	30 ^{H7}	50	132	165	3.5	120	200	30.0	123.5	150	12	157.0	85	11	M10	M12	33.3	8 ^{JS9}
S2	200	130 _{js}	90	115	134	14	38.0	35 ^{H7}	50	132	165	3.5	120	200	30.0	119.0	150	12	157.0	85	11	M12	M16	38.3	10 ^{JS9}
S3	250	180 _{js}	105	130	153	15	40.0	40 ^{H7}	55	152	215	4.0	140	233	32.5	136.5	168	12	177.5	100	14	M16	M20	43.3	12 ^{JS9}
S4	250	180 _{js}	120	148	173	15	39.5	50 ^{H7}	65	145	215	4.0	160	263	31.0	153.0	190	12	198.5	110	14	M16	M20	53.8	14 ^{JS9}

Dimensions of additional round flanges

Type	Øa1	Øb1	c1	Øe1	f1	Øs1
S1	140	95 _{js}	10	115	3.0	9.0
S2	160	110 _{js}	14	130	3.5	9.0

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109	97	81
D063M04	109	179	231	115	109	97	81
D071K04	124	208	260	120	109	97	94
D071K02	124	208	260	120	109	97	94
D071L04	124	208	260	120	109	97	94
D071L02	124	208	260	120	109	97	94
D080K04	139	238	295	128	109	97	97

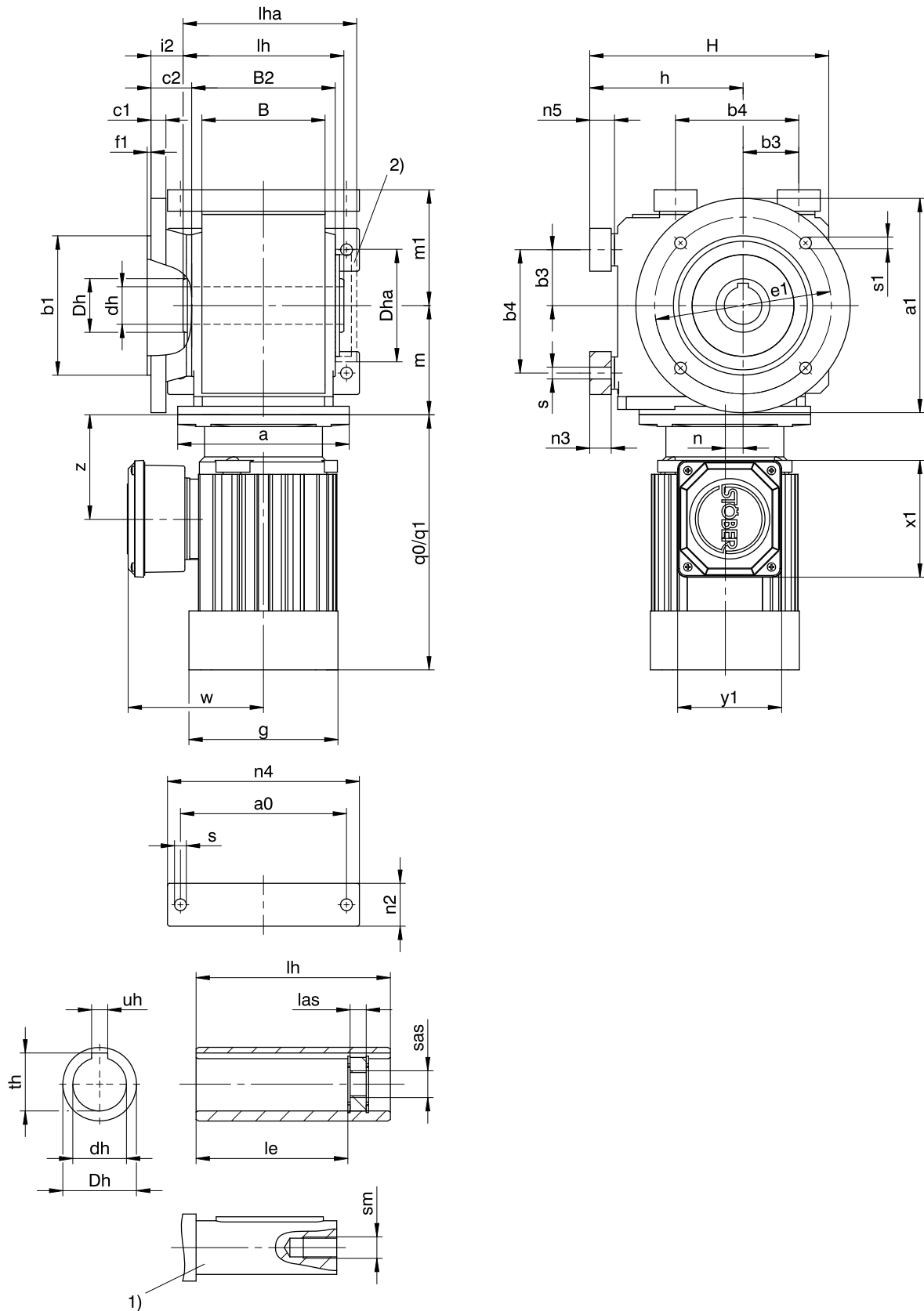
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	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

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
S102	Ø140	83	14.0	Ø140	83	14.0	Ø160	87	14.0
S202	Ø140	98	17.0	Ø140	98	17.0	Ø140	98	17.0
S203	Ø140	135	17.0	Ø140	135	17.0	–	–	–
S302	–	–	–	Ø140	113	25.5	Ø140	113	25.5
S303	Ø140	150	25.5	Ø140	150	25.5	Ø160	160	62.0
S402	–	–	–	–	–	–	Ø160	129	30.0
S403	–	–	–	Ø140	162	30.0	Ø160	172	67.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
S102	Ø160	87	14.0	Ø160	87	14.0	–	–	–	–	–	–	–	–	–
S202	Ø160	102	17.0	Ø160	102	17.0	Ø200	104	17.0	–	–	–	–	–	–
S302	Ø160	117	25.5	Ø160	117	25.5	Ø200	119	25.5	Ø200	119	25.5	–	–	–
S303	Ø160	160	62.0	–	–	–	–	–	–	–	–	–	–	–	–
S402	Ø160	129	30.0	Ø160	129	30.0	Ø200	131	30.0	Ø200	131	30.0	Ø250	134	30.0
S403	Ø160	172	67.0	Ø160	172	67.0	–	–	–	–	–	–	–	–	–

5.3.6 A shaft design (hollow shaft), NF housing design (base + 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 $\varnothing dh$ and the length of the feather key must be at least 2 x $\varnothing dh$. | 2) | Cover (optional) |

Dimensions of gear units

Type	a0	Øa1	Øb1	b3	b4	B	B2	c1	c2	Ødh	ØDh	□Dha	Øe1	f1	h	H	i2	le	lh	las	lha	m1	n2	n3	n4	n5	Øs	Øs1	sm	sas	th	uh
S0	75	120	80 _{f6}	40	80	92	94	9	28.0	20 ^{H7}	40	102	100	3.0	80	143	21.0	86.0	108	12	113.0	72	22	9	92	9	6.6	6.6	M6	M8	22.8	6 ^{JS9}
S0	75	120	80 _{f6}	40	80	92	94	9	28.0	25 ^{H7}	40	102	100	3.0	80	143	21.0	86.0	108	12	113.0	72	22	9	92	9	6.6	6.6	M10	M12	28.3	8 ^{JS9}
S1	115	160	110 _{f6}	40	90	90	106	10	32.0	20 ^{H7}	40	105	130	3.5	115	182	25.0	98.0	120	12	127.0	85	30	13	140	15	9.0	9.0	M6	M8	22.8	6 ^{JS9}
S1	115	160	110 _{f6}	40	90	90	106	10	32.0	25 ^{H7}	40	105	130	3.5	115	182	25.0	98.0	120	12	127.0	85	30	13	140	15	9.0	9.0	M10	M12	28.3	8 ^{JS9}
S1	115	160	110 _{f6}	40	90	90	106	10	32.0	30 ^{H7}	40	105	130	3.5	115	182	25.0	93.5	120	12	127.0	85	30	13	140	15	9.0	9.0	M10	M12	32.0	8 ^{JS9}
S2	155	200	130 _{f6}	52	115	115	134	14	38.0	30 ^{H7}	50	132	165	3.5	143	223	30.0	123.5	150	12	157.0	108	40	20	185	23	11.0	11.0	M10	M12	33.3	8 ^{JS9}
S2	155	200	130 _{f6}	52	115	115	134	14	38.0	35 ^{H7}	50	132	165	3.5	143	223	30.0	119.0	150	12	157.0	108	40	20	185	23	11.0	11.0	M12	M16	38.3	10 ^{JS9}
S3	170	250	180 _{f6}	52	130	130	153	15	40.0	40 ^{H7}	55	152	215	4.0	163	256	32.5	136.5	168	12	177.5	123	45	20	200	23	11.0	14.0	M16	M20	43.3	12 ^{JS9}
S4	200	250	180 _{f6}	67	155	148	173	15	39.5	50 ^{H7}	65	145	215	4.0	185	288	31.0	153.0	190	12	198.5	135	50	22	230	25	14.0	14.0	M16	M20	53.8	14 ^{JS9}

Dimensions of additional round flanges

Type	Øa1	Øb1	c1	Øe1	f1	Øs1
S0	160	110 _{f6}	10	130	3.5	9.0
S1	140	95 _{f6}	10	115	3.0	9.0
S2	160	110 _{f6}	14	130	3.5	9.0

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109	97	81
D063M04	109	179	231	115	109	97	81
D071K04	124	208	260	120	109	97	94
D071K02	124	208	260	120	109	97	94
D071L04	124	208	260	120	109	97	94
D071L02	124	208	260	120	109	97	94
D080K04	139	238	295	128	109	97	97

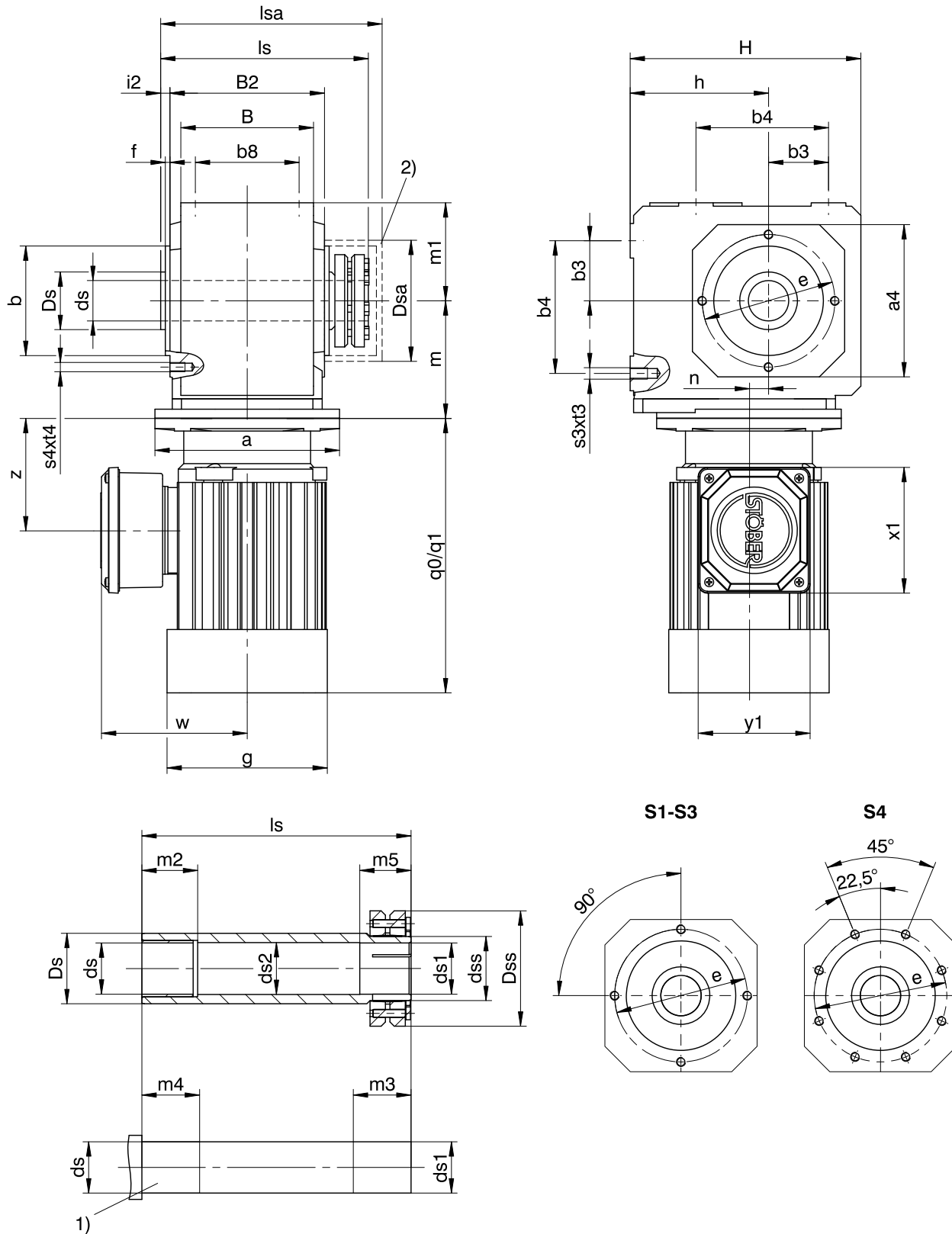
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	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

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
S002	Ø140	70	8.5	Ø140	70	8.5	Ø140	70	8.5
S102	Ø140	83	14.0	Ø140	83	14.0	Ø140	83	14.0
S202	Ø140	98	17.0	Ø140	98	17.0	Ø160	102	17.0
S203	Ø140	135	17.0	Ø140	135	17.0	-	-	-
S302	-	-	-	Ø140	113	25.5	Ø160	117	25.5
S303	Ø140	150	25.5	Ø140	150	25.5	Ø160	160	62.0
S402	-	-	-	-	-	-	Ø160	129	30.0
S403	-	-	-	Ø140	162	30.0	Ø160	172	67.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
S102	Ø160	87	14.0	Ø160	87	14.0	-	-	-	-	-	-	-	-	-
S202	Ø160	102	17.0	Ø160	102	17.0	Ø200	104	17.0	-	-	-	-	-	-
S302	Ø160	117	25.5	Ø160	117	25.5	Ø200	119	25.5	Ø200	119	25.5	-	-	-
S303	Ø160	160	62.0	-	-	-	-	-	-	-	-	-	-	-	-
S402	Ø160	129	30.0	Ø160	129	30.0	Ø200	131	30.0	Ø200	131	30.0	Ø250	134	30.0
S403	Ø160	172	67.0	Ø160	172	67.0	-	-	-	-	-	-	-	-	-

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



q_0 Applies to motors without brake.

q_1 Applies to motors with brake.

1) Machine shaft: The dimension l_s must meet or exceed the specified value.

2) Cover (optional)

Dimensions of gear units

Type	a4	∅b	b3	b4	b8	B	B2	∅ds	∅ds1	∅ds2	∅dss	∅Ds	∅Dsa	∅Dss	∅e	f	h	H	i2	ls	lsa	m1	m2	m3	m4	m5	s3	s4	t3	t4
S1	□105	75 _{js}	40	90	70	90	106	25 _{h9}	25 _{h9} ^{H7}	25.5	30	40	80	60	90	3.0	100	167	7.0	149	163	70	20	34	25	29	M8	M8	13	13
S2	□132	95 _{js}	52	115	90	115	134	35 _{h9}	35 _{h9} ^{H7}	35.5	44	50	101	80	115	4.0	120	200	8.0	180	195	85	30	37	35	32	M10	M8	16	13
S3	□152	110 _{js}	52	130	105	130	153	40 _{h9}	40 _{h9} ^{H7}	40.5	50	55	114	88	130	3.5	140	233	7.5	200	222	100	40	39	45	34	M10	M10	16	16
S4	□145	110 _{js}	67	155	120	148	173	50 _{h9}	50 _{h9} ^{H7}	50.5	62	65	116	106	130	3.5	160	263	8.5	227	243	110	40	44	45	39	M12	M10	19	16

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109	97	81
D063M04	109	179	231	115	109	97	81
D071K04	124	208	260	120	109	97	94
D071K02	124	208	260	120	109	97	94
D071L04	124	208	260	120	109	97	94
D071L02	124	208	260	120	109	97	94
D080K04	139	238	295	128	109	97	97

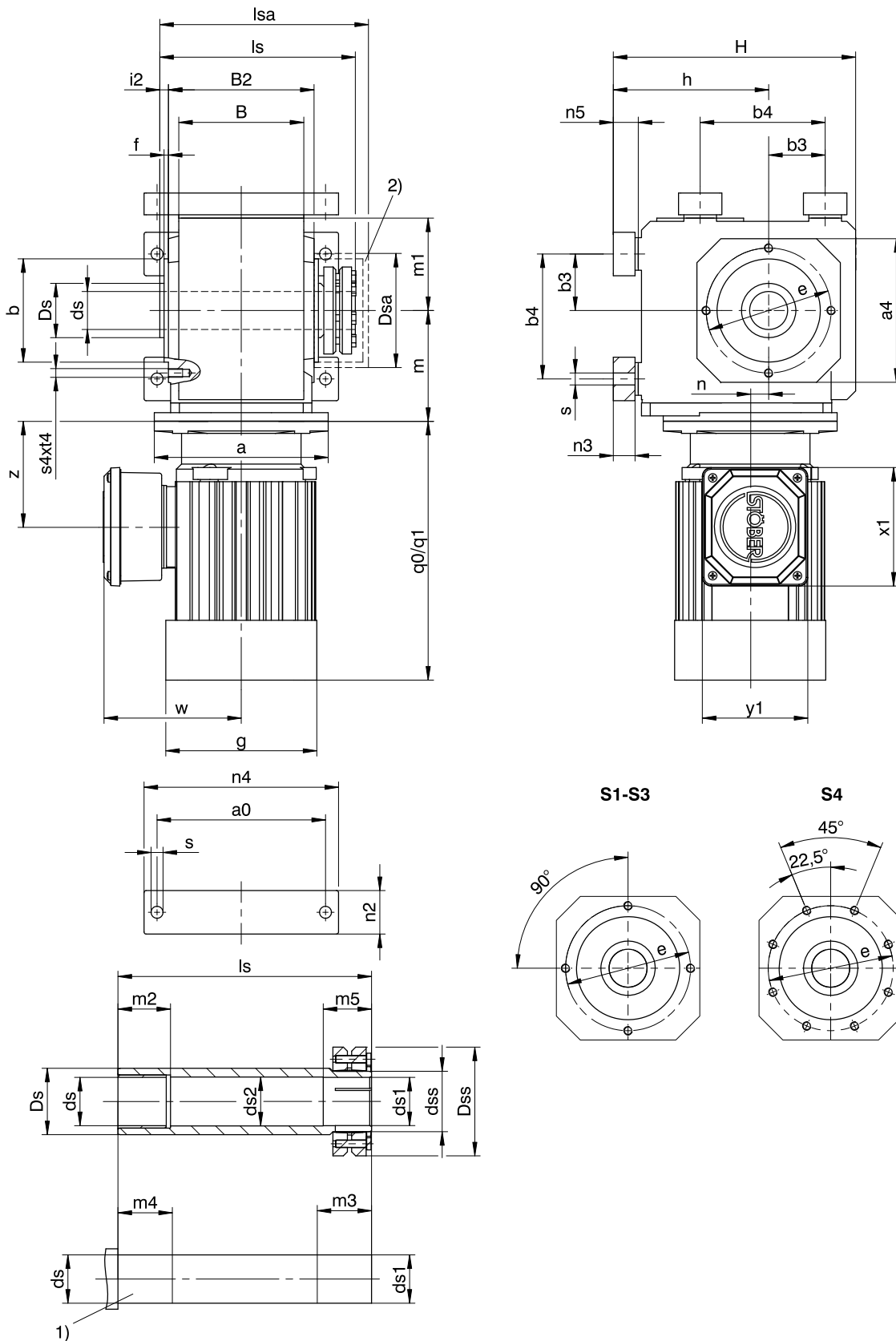
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	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

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
S102	∅140	83	14.0	∅140	83	14.0	∅160	87	14.0
S202	∅140	98	17.0	∅140	98	17.0	∅140	98	17.0
S203	∅140	135	17.0	∅140	135	17.0	–	–	–
S302	–	–	–	∅140	113	25.5	∅140	113	25.5
S303	∅140	150	25.5	∅140	150	25.5	∅160	160	62.0
S402	–	–	–	–	–	–	∅160	129	30.0
S403	–	–	–	∅140	162	30.0	∅160	172	67.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
S102	∅160	87	14.0	∅160	87	14.0	–	–	–	–	–	–	–	–	–
S202	∅160	102	17.0	∅160	102	17.0	∅200	104	17.0	–	–	–	–	–	–
S302	∅160	117	25.5	∅160	117	25.5	∅200	119	25.5	∅200	119	25.5	–	–	–
S303	∅160	160	62.0	–	–	–	–	–	–	–	–	–	–	–	–
S402	∅160	129	30.0	∅160	129	30.0	∅200	131	30.0	∅200	131	30.0	∅250	134	30.0
S403	∅160	172	67.0	∅160	172	67.0	–	–	–	–	–	–	–	–	–

5.3.8 S shaft design (hollow shaft with shrink disk), NG housing design (base + pitch circle diameter)



q_0 Applies to motors without brake.

q_1 Applies to motors with brake.

1) Machine shaft: The dimension l_s must meet or exceed the specified value.

2) Cover (optional)

Dimensions of gear units

Type	a0	a4	∅b	b3	b4	B	B2	∅ds	∅ds1	∅ds2	∅dss	∅Ds	∅Dsa	∅Dss	∅e	f	h	H	i2	ls	lsa	m1	m2	m3	m4	m5	n2	n3	n4	n5	∅s	s4	t4
S0	75	∅85	75 _β	40	80	92	94	20 _{hg}	20 _{hg} ^{H7}	20.5	24	40	80	50	90	3.0	80	143	7.0	136	151	72	20	33	25	28	22	9	92	9	6.6	M6	13
S0	75	∅85	75 _β	40	80	92	94	25 _{hg}	25 _{hg} ^{H7}	25.5	30	40	80	60	90	3.0	80	143	7.0	136	151	72	20	34	25	29	22	9	92	9	6.6	M6	13
S1	115	□105	75 _β	40	90	90	106	25 _{hg}	25 _{hg} ^{H7}	25.5	30	40	80	60	90	3.0	115	182	7.0	149	163	85	20	34	25	29	30	13	140	15	9.0	M8	13
S2	155	□132	95 _β	52	115	115	134	35 _{hg}	35 _{hg} ^{H7}	35.5	44	50	101	80	115	4.0	143	223	8.0	180	195	108	30	37	35	32	40	20	185	23	11.0	M8	13
S3	170	□152	110 _β	52	130	130	153	40 _{hg}	40 _{hg} ^{H7}	40.5	50	55	114	88	130	3.5	163	256	7.5	200	222	123	40	39	45	34	45	20	200	23	11.0	M10	16
S4	200	□145	110 _β	67	155	148	173	50 _{hg}	50 _{hg} ^{H7}	50.5	62	65	116	106	130	3.5	185	288	8.5	227	243	135	40	44	45	39	50	22	230	25	14.0	M10	16

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109	97	81
D063M04	109	179	231	115	109	97	81
D071K04	124	208	260	120	109	97	94
D071K02	124	208	260	120	109	97	94
D071L04	124	208	260	120	109	97	94
D071L02	124	208	260	120	109	97	94
D080K04	139	238	295	128	109	97	97

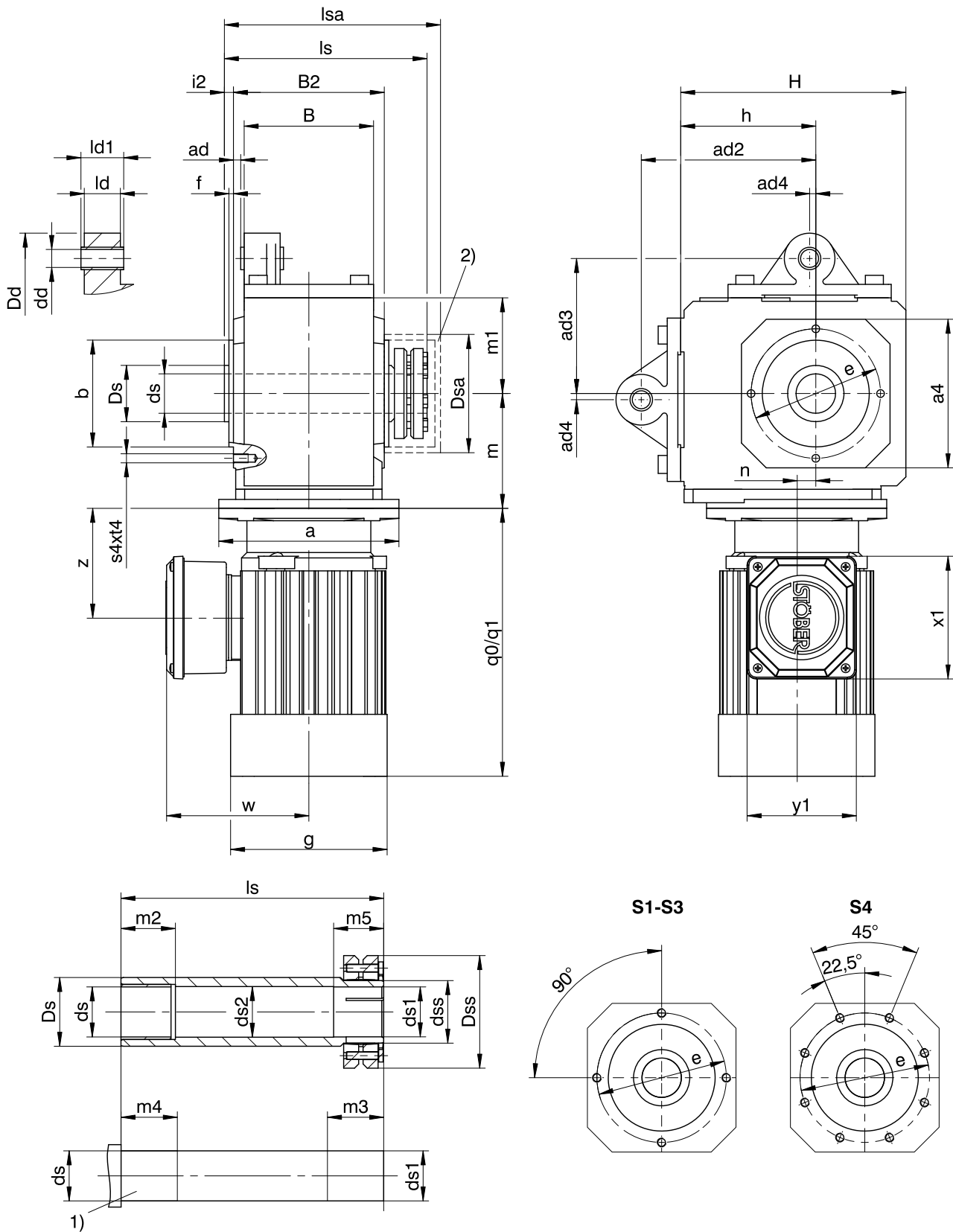
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	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

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
S002	∅140	70	8.5	∅140	70	8.5	∅140	70	8.5
S102	∅140	83	14.0	∅140	83	14.0	∅140	83	14.0
S202	∅140	98	17.0	∅140	98	17.0	∅160	102	17.0
S203	∅140	135	17.0	∅140	135	17.0	-	-	-
S302	-	-	-	∅140	113	25.5	∅160	117	25.5
S303	∅140	150	25.5	∅140	150	25.5	∅160	160	62.0
S402	-	-	-	-	-	-	∅160	129	30.0
S403	-	-	-	∅140	162	30.0	∅160	172	67.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
S102	∅160	87	14.0	∅160	87	14.0	-	-	-	-	-	-	-	-	-
S202	∅160	102	17.0	∅160	102	17.0	∅200	104	17.0	-	-	-	-	-	-
S302	∅160	117	25.5	∅160	117	25.5	∅200	119	25.5	∅200	119	25.5	-	-	-
S303	∅160	160	62.0	-	-	-	-	-	-	-	-	-	-	-	-
S402	∅160	129	30.0	∅160	129	30.0	∅200	131	30.0	∅200	131	30.0	∅250	134	30.0
S403	∅160	172	67.0	∅160	172	67.0	-	-	-	-	-	-	-	-	-

5.3.9 S shaft design (hollow shaft with shrink disk), GD housing design (pitch circle diameter + torque arm)



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	a4	ad	ad2	ad3	ad4	Øb	B	B2	Ødd	ØDd	Øds	Øds1	Øds2	Ødss	ØDs
S1	□105	6.0	130	100	5.0	75 _{j6}	90	106	12.0 ^{H9}	43	25 _{h9}	25 _{h9} ^{H7}	25.5	30	40
S2	□132	6.5	155	120	5.5	95 _{j6}	115	134	16.0 ^{H9}	45	35 _{h9}	35 _{h9} ^{H7}	35.5	44	50
S3	□152	5.0	185	145	13.0	110 _{j6}	130	153	16.0 ^{H9}	45	40 _{h9}	40 _{h9} ^{H7}	40.5	50	55
S4	□145	9.5	220	170	10.5	110 _{j6}	148	173	20.0 ^{H9}	55	50 _{h9}	50 _{h9} ^{H7}	50.5	62	65

Type	ØDsa	ØDss	Øe	f	h	H	i2	ld	ld1	ls	lsa	m1	m2	m3	m4	m5	s4	t4
S1	80	60	90	3.0	100	167	7.0	24	28	149	163	70	20	34	25	29	M8	13
S2	101	80	115	4.0	120	200	8.0	32	38	180	195	85	30	37	35	32	M8	13
S3	114	88	130	3.5	140	233	7.5	32	38	200	222	100	40	39	45	34	M10	16
S4	116	106	130	3.5	160	263	8.5	40	46	227	243	110	40	44	45	39	M10	16

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109	97	81
D063M04	109	179	231	115	109	97	81
D071K04	124	208	260	120	109	97	94
D071K02	124	208	260	120	109	97	94
D071L04	124	208	260	120	109	97	94
D071L02	124	208	260	120	109	97	94
D080K04	139	238	295	128	109	97	97

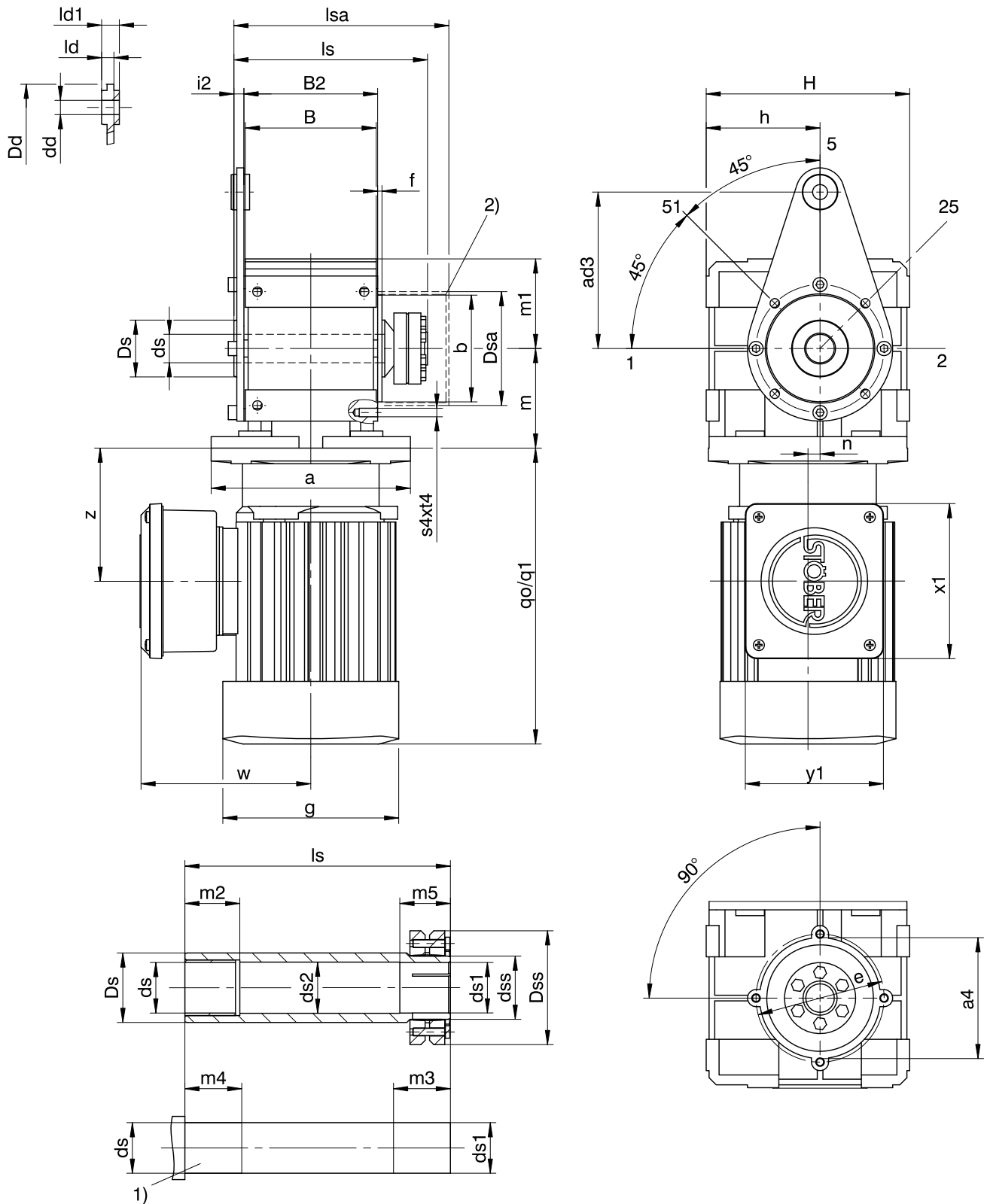
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	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

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
S102	Ø140	83	14.0	Ø140	83	14.0	Ø160	87	14.0
S202	Ø140	98	17.0	Ø140	98	17.0	Ø140	98	17.0
S203	Ø140	135	17.0	Ø140	135	17.0	-	-	-
S302	-	-	-	Ø140	113	25.5	Ø140	113	25.5
S303	Ø140	150	25.5	Ø140	150	25.5	Ø160	160	62.0
S402	-	-	-	-	-	-	Ø160	129	30.0
S403	-	-	-	Ø140	162	30.0	Ø160	172	67.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
S102	Ø160	87	14.0	Ø160	87	14.0	-	-	-	-	-	-	-	-	-
S202	Ø160	102	17.0	Ø160	102	17.0	Ø200	104	17.0	-	-	-	-	-	-
S302	Ø160	117	25.5	Ø160	117	25.5	Ø200	119	25.5	Ø200	119	25.5	-	-	-
S303	Ø160	160	62.0	-	-	-	-	-	-	-	-	-	-	-	-
S402	Ø160	129	30.0	Ø160	129	30.0	Ø200	131	30.0	Ø200	131	30.0	Ø250	134	30.0
S403	Ø160	172	67.0	Ø160	172	67.0	-	-	-	-	-	-	-	-	-

5.3.10 S shaft design (hollow shaft with shrink disk), NGD housing design (foot + pitch circle diameter + torque arm)



q0 Applies to motors without brake.

q1 Applies to motors with brake.

1) Machine shaft: The dimension l_s must meet or exceed the specified value.

2) Cover (optional)

Dimensions of gear units

Type	a4	ad2	ad3	Øb	B	B2	Ødd	Øds	Øds1	Øds2	Ødss	ØDd	ØDs	ØDsa	ØDss	Øe	f	h	H	i2	ld	ld1	ls	lsa	m1	m2	m3	m4	m5	s4	t4
S0	Ø85	127	110	75 _{j6}	92	94	10.5	20 _{m9}	20 _{h9} ^{H7}	20.5	24	25	40	80	50	90	3	80	143	7	5	13	136	151	63	20	33	25	28	M6	13
S0	Ø85	127	110	75 _{j6}	92	94	10.5	25 _{m9}	25 _{h9} ^{H7}	25.5	30	25	40	80	60	90	3	80	143	7	5	13	136	151	63	20	34	25	29	M6	13

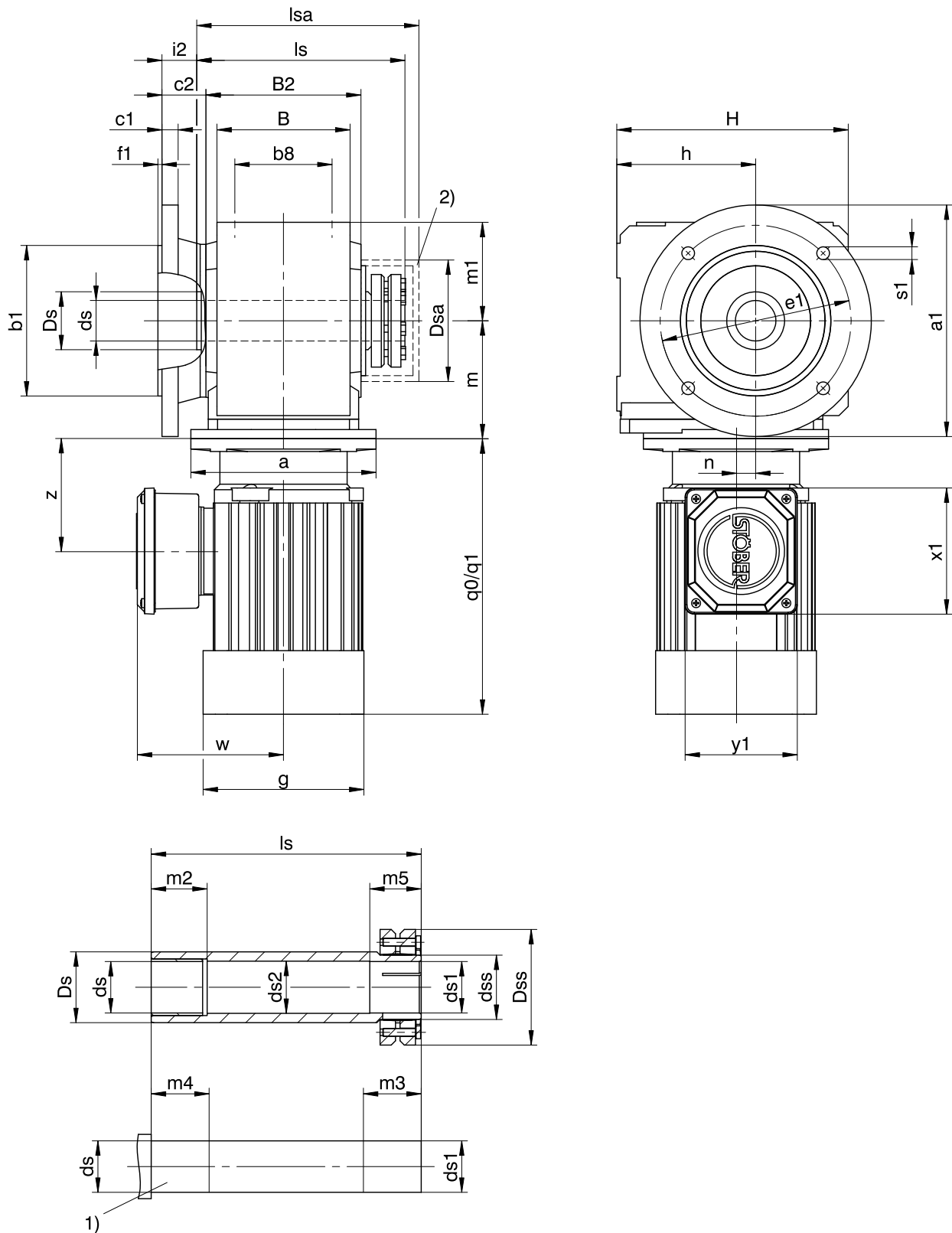
Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109	97	81
D063M04	109	179	231	115	109	97	81
D071K04	124	208	260	120	109	97	94
D071K02	124	208	260	120	109	97	94
D071L04	124	208	260	120	109	97	94
D071L02	124	208	260	120	109	97	94
D080K04	139	238	295	128	109	97	97

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
S002	Ø140	70	8.5	Ø140	70	8.5	Ø140	70	8.5

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



q_0 Applies to motors without brake.

q_1 Applies to motors with brake.

1) Machine shaft: The dimension l_s must meet or exceed the specified value.

2) Cover (optional)

Dimensions of gear units

Type	Øa1	Øb1	b8	B	B2	c1	c2	Øds	Øds1	Øds2	Ødss	ØDs	ØDsa	ØDss	Øe1	f1	h	H	i2	ls	lsa	m1	m2	m3	m4	m5	Øs1
S1	160	110 _{f6}	70	90	106	10	32.0	25 _{h9}	25 _{h9} ^{H7}	25.5	30	40	80	60	130	3.5	100	167	25.0	149	163	70	20	34	25	29	9.0
S2	200	130 _{f6}	90	115	134	14	38.0	35 _{h9}	35 _{h9} ^{H7}	35.5	44	50	101	80	165	3.5	120	200	30.0	180	195	85	30	37	35	32	11.0
S3	250	180 _{f6}	105	130	153	15	40.0	40 _{h9}	40 _{h9} ^{H7}	40.5	50	55	114	88	215	4.0	140	233	32.5	200	222	100	40	39	45	34	14.0
S4	250	180 _{f6}	120	148	173	15	39.5	50 _{h9}	50 _{h9} ^{H7}	50.5	62	65	116	106	215	4.0	160	263	31.0	227	243	110	40	44	45	39	14.0

Dimensions of additional round flanges

Type	Øa1	Øb1	c1	Øe1	f1	Øs1
S1	140	95 _{f6}	10	115	3.0	9.0
S2	160	110 _{f6}	14	130	3.5	9.0

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109	97	81
D063M04	109	179	231	115	109	97	81
D071K04	124	208	260	120	109	97	94
D071K02	124	208	260	120	109	97	94
D071L04	124	208	260	120	109	97	94
D071L02	124	208	260	120	109	97	94
D080K04	139	238	295	128	109	97	97

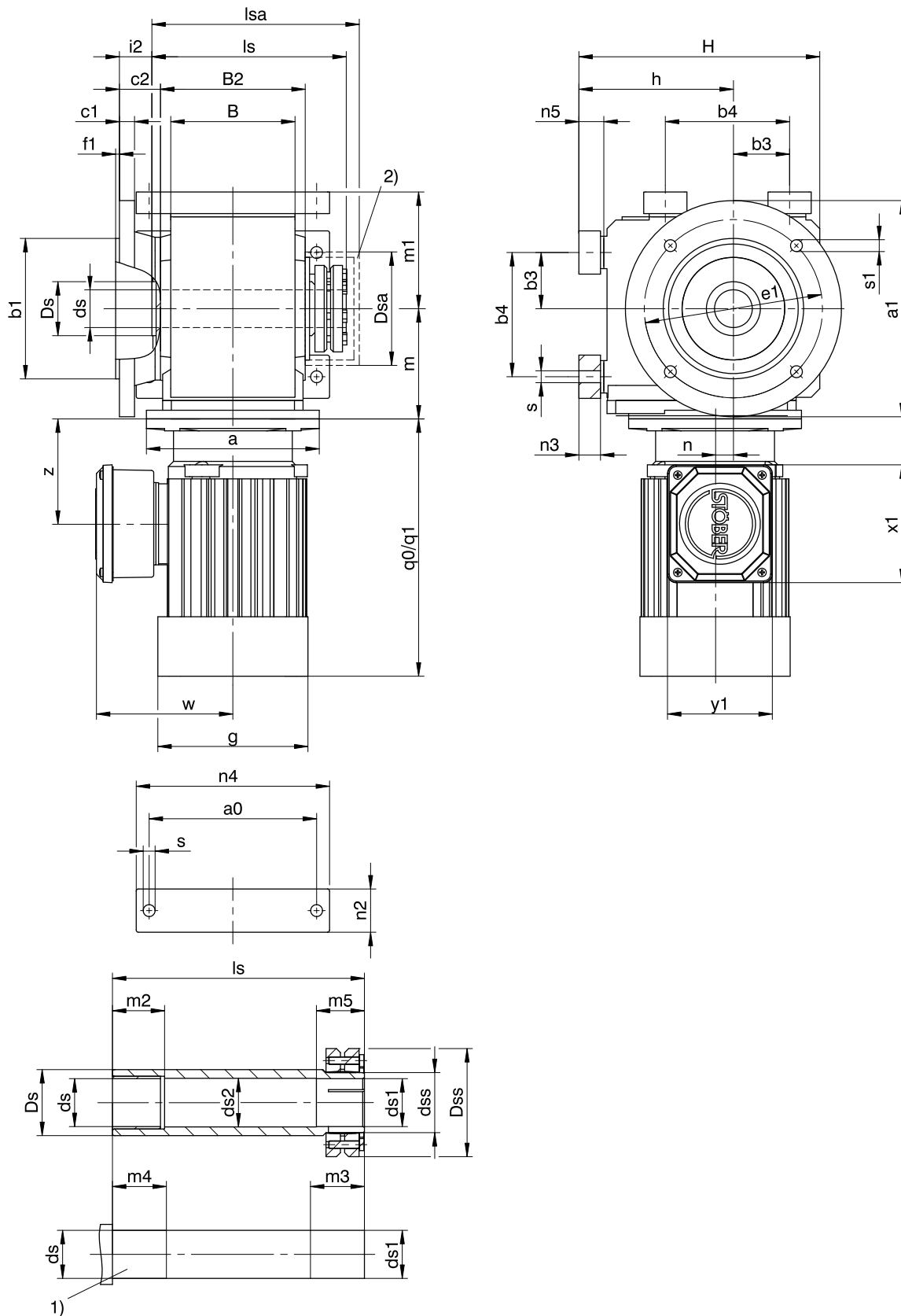
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	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

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
S102	Ø140	83	14.0	Ø140	83	14.0	Ø160	87	14.0
S202	Ø140	98	17.0	Ø140	98	17.0	Ø140	98	17.0
S203	Ø140	135	17.0	Ø140	135	17.0	-	-	-
S302	-	-	-	Ø140	113	25.5	Ø140	113	25.5
S303	Ø140	150	25.5	Ø140	150	25.5	Ø160	160	62.0
S402	-	-	-	-	-	-	Ø160	129	30.0
S403	-	-	-	Ø140	162	30.0	Ø160	172	67.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
S102	Ø160	87	14.0	Ø160	87	14.0	-	-	-	-	-	-	-	-	-
S202	Ø160	102	17.0	Ø160	102	17.0	Ø200	104	17.0	-	-	-	-	-	-
S302	Ø160	117	25.5	Ø160	117	25.5	Ø200	119	25.5	Ø200	119	25.5	-	-	-
S303	Ø160	160	62.0	-	-	-	-	-	-	-	-	-	-	-	-
S402	Ø160	129	30.0	Ø160	129	30.0	Ø200	131	30.0	Ø200	131	30.0	Ø250	134	30.0
S403	Ø160	172	67.0	Ø160	172	67.0	-	-	-	-	-	-	-	-	-

5.3.12 S shaft design (hollow shaft with shrink disk), NF housing design (base + round flange)



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

Dimensions of gear units

Type	a0	Øa1	Øb1	b3	b4	B	B2	c1	c2	Øds	Øds1	Øds2	Ødss	ØDs	ØDsa	ØDss
S0	75	120	80 _f	40	80	92	94	9	28.0	20 _{H9}	20 _{H9} ^{H7}	20.5	24	40	80	50
S0	75	120	80 _f	40	80	92	94	9	28.0	25 _{H9}	25 _{H9} ^{H7}	25.5	30	40	80	60
S1	115	160	110 _f	40	90	90	106	10	32.0	25 _{H9}	25 _{H9} ^{H7}	25.5	30	40	80	60
S2	155	200	130 _f	52	115	115	134	14	38.0	35 _{H9}	35 _{H9} ^{H7}	35.5	44	50	101	80
S3	170	250	180 _f	52	130	130	153	15	40.0	40 _{H9}	40 _{H9} ^{H7}	40.5	50	55	114	88
S4	200	250	180 _f	67	155	148	173	15	39.5	50 _{H9}	50 _{H9} ^{H7}	50.5	62	65	116	106

Type	Øe1	f1	h	H	i2	ls	lsa	m1	m2	m3	m4	m5	n2	n3	n4	n5	Øs	Øs1
S0	100	3.0	80	143	21.0	136	151	72	20	33	25	28	22	9	92	9	6.6	6.6
S0	100	3.0	80	143	21.0	136	151	72	20	34	25	29	22	9	92	9	6.6	6.6
S1	130	3.5	115	182	25.0	149	163	85	20	34	25	29	30	13	140	15	9.0	9.0
S2	165	3.5	143	223	30.0	180	195	108	30	37	35	32	40	20	185	23	11.0	11.0
S3	215	4.0	163	256	32.5	200	222	123	40	39	45	34	45	20	200	23	11.0	14.0
S4	215	4.0	185	288	31.0	227	243	135	40	44	45	39	50	22	230	25	14.0	14.0

Dimensions of additional round flanges

Type	Øa1	Øb1	c1	Øe1	f1	Øs1
S0	160	110 _f	10	130	3.5	9.0
S1	140	95 _f	10	115	3.0	9.0
S2	160	110 _f	14	130	3.5	9.0

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109	97	81
D063M04	109	179	231	115	109	97	81
D071K04	124	208	260	120	109	97	94
D071K02	124	208	260	120	109	97	94
D071L04	124	208	260	120	109	97	94
D071L02	124	208	260	120	109	97	94
D080K04	139	238	295	128	109	97	97

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

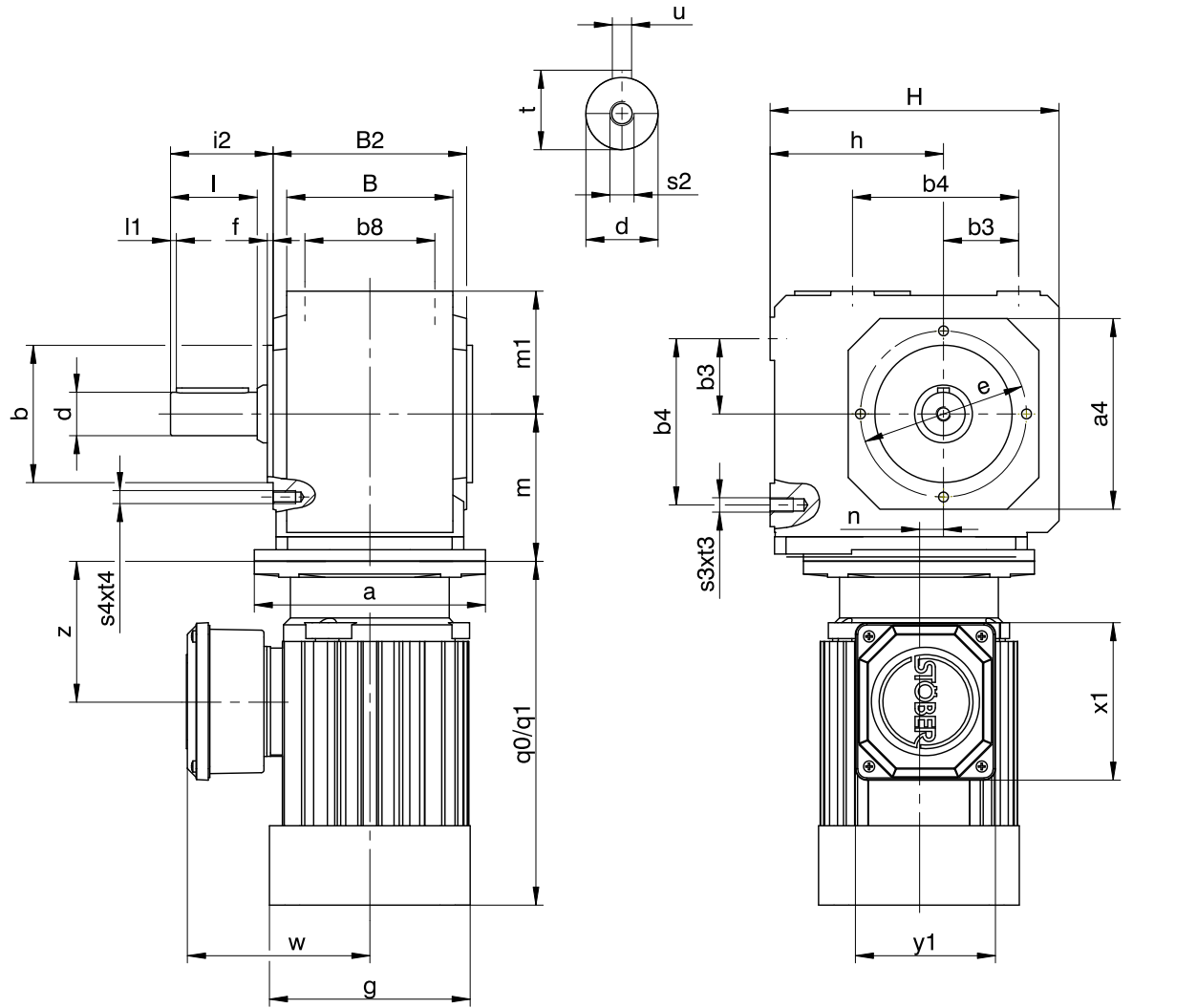
The dimensions a, m and n can be found on the next page.

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
S002	∅140	70	8.5	∅140	70	8.5	∅140	70	8.5
S102	∅140	83	14.0	∅140	83	14.0	∅140	83	14.0
S202	∅140	98	17.0	∅140	98	17.0	∅160	102	17.0
S203	∅140	135	17.0	∅140	135	17.0	-	-	-
S302	-	-	-	∅140	113	25.5	∅160	117	25.5
S303	∅140	150	25.5	∅140	150	25.5	∅160	160	62.0
S402	-	-	-	-	-	-	∅160	129	30.0
S403	-	-	-	∅140	162	30.0	∅160	172	67.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
S102	∅160	87	14.0	∅160	87	14.0	-	-	-	-	-	-	-	-	-
S202	∅160	102	17.0	∅160	102	17.0	∅200	104	17.0	-	-	-	-	-	-
S302	∅160	117	25.5	∅160	117	25.5	∅200	119	25.5	∅200	119	25.5	-	-	-
S303	∅160	160	62.0	-	-	-	-	-	-	-	-	-	-	-	-
S402	∅160	129	30.0	∅160	129	30.0	∅200	131	30.0	∅200	131	30.0	∅250	134	30.0
S403	∅160	172	67.0	∅160	172	67.0	-	-	-	-	-	-	-	-	-

5.3.13 A shaft design (solid shaft), G housing design (pitch circle diameter)



q0 Applies to motors without brake.
 – Solid shaft on both sides available.

q1 Applies to motors with brake.

Dimensions of gear units

Type	a4	∅b	b3	b4	b8	B	B2	∅d	∅e	f	h	H	i2	l	l1	m1	s2	s3	s4	t	t3	t4	u
S1	□105	75 _{h6}	40	90	70	90	106	25 _{h6}	90	3.0	100	167	62.0	50	4	70	M10	M8	M8	28.0	13	13	A8×7×40
S2	□132	95 _{h6}	52	115	90	115	134	30 _{h6}	115	4.0	120	200	71.0	60	4	85	M10	M10	M8	33.0	16	13	A8×7×50
S3	□152	110 _{h6}	52	130	105	130	153	40 _{h6}	130	3.5	140	233	93.5	80	4	100	M16	M10	M10	43.0	16	16	A12×8×70
S4	□145	110 _{h6}	67	155	120	148	173	45 _{h6}	130	3.5	160	263	103.5	90	4	110	M16	M12	M10	48.5	19	16	A14×9×80

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109	97	81
D063M04	109	179	231	115	109	97	81
D071K04	124	208	260	120	109	97	94
D071K02	124	208	260	120	109	97	94
D071L04	124	208	260	120	109	97	94
D071L02	124	208	260	120	109	97	94
D080K04	139	238	295	128	109	97	97

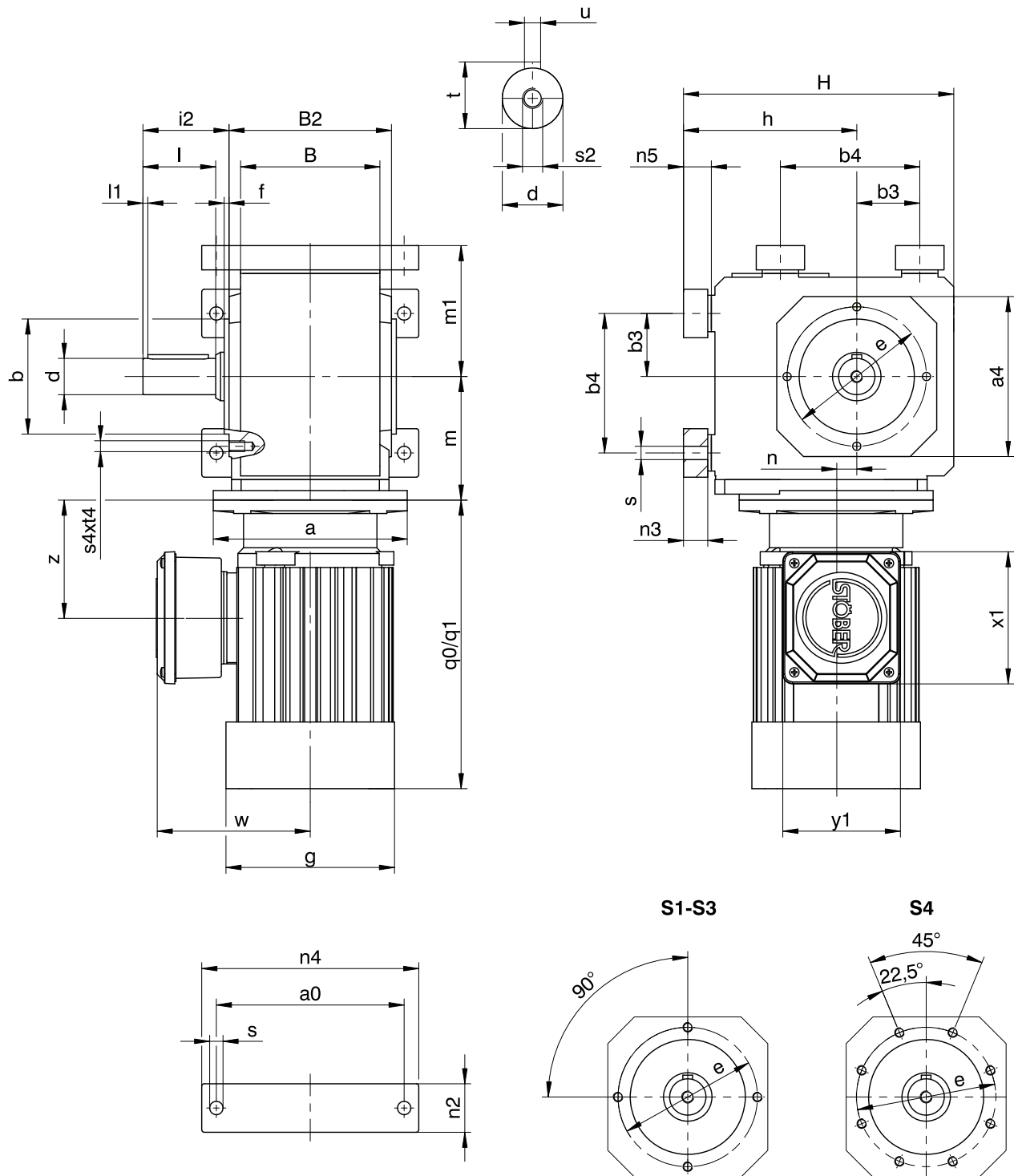
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	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

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
S102	∅140	83	14.0	∅140	83	14.0	∅160	87	14.0
S202	∅140	98	17.0	∅140	98	17.0	∅140	98	17.0
S203	∅140	135	17.0	∅140	135	17.0	–	–	–
S302	–	–	–	∅140	113	25.5	∅140	113	25.5
S303	∅140	150	25.5	∅140	150	25.5	∅160	160	62.0
S402	–	–	–	–	–	–	∅160	129	30.0
S403	–	–	–	∅140	162	30.0	∅160	172	67.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
S102	∅160	87	14.0	∅160	87	14.0	–	–	–	–	–	–	–	–	–
S202	∅160	102	17.0	∅160	102	17.0	∅200	104	17.0	–	–	–	–	–	–
S302	∅160	117	25.5	∅160	117	25.5	∅200	119	25.5	∅200	119	25.5	–	–	–
S303	∅160	160	62.0	–	–	–	–	–	–	–	–	–	–	–	–
S402	∅160	129	30.0	∅160	129	30.0	∅200	131	30.0	∅200	131	30.0	∅250	134	30.0
S403	∅160	172	67.0	∅160	172	67.0	–	–	–	–	–	–	–	–	–

5.3.14 V shaft design (solid shaft), NG housing design (base + pitch circle diameter)



q0 Applies to motors without brake.

- Solid shaft on both sides available.

q1 Applies to motors with brake.

Dimensions of gear units

Type	a0	a4	Øb	b3	b4	B	B2	Ød	Øe	f	h	H	i2	l	l1	m1	n2	n3	n4	n5	Øs	s2	s4	t	t4	u
S0	75	Ø85	75 ₆	40	80	92	94	20 ₆	90	3.0	80	143	53.0	40	3	72	22	9	92	9	6.6	M6	M6	22.5	13	A6×6×32
S1	115	□105	75 ₆	40	90	90	106	25 ₆	90	3.0	115	182	62.0	50	4	85	30	13	140	15	9.0	M10	M8	28.0	13	A8×7×40
S2	155	□132	95 ₆	52	115	115	134	30 ₆	115	4.0	143	223	71.0	60	4	108	40	20	185	23	11.0	M10	M8	33.0	13	A8×7×50
S3	170	□152	110 ₆	52	130	130	153	40 ₆	130	3.5	163	256	93.5	80	4	123	45	20	200	23	11.0	M16	M10	43.0	16	A12×8×70
S4	200	□145	110 ₆	67	155	148	173	45 ₆	130	3.5	185	288	103.5	90	4	135	50	22	230	25	14.0	M16	M10	48.5	16	A14×9×80

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109	97	81
D063M04	109	179	231	115	109	97	81
D071K04	124	208	260	120	109	97	94
D071K02	124	208	260	120	109	97	94
D071L04	124	208	260	120	109	97	94
D071L02	124	208	260	120	109	97	94
D080K04	139	238	295	128	109	97	97

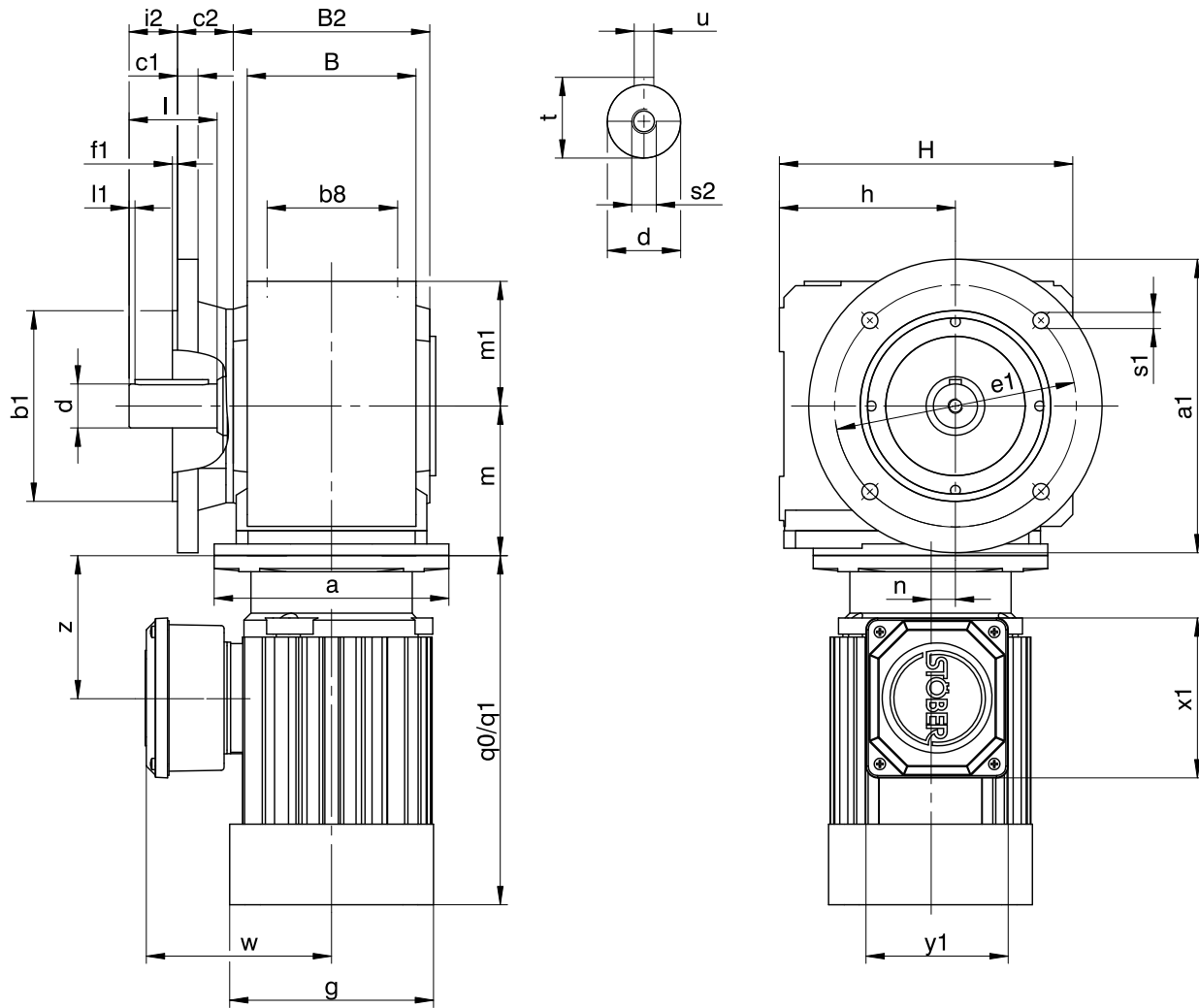
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	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

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
S002	∅140	70	8.5	∅140	70	8.5	∅140	70	8.5
S102	∅140	83	14.0	∅140	83	14.0	∅140	83	14.0
S202	∅140	98	17.0	∅140	98	17.0	∅160	102	17.0
S203	∅140	135	17.0	∅140	135	17.0	-	-	-
S302	-	-	-	∅140	113	25.5	∅160	117	25.5
S303	∅140	150	25.5	∅140	150	25.5	∅160	160	62.0
S402	-	-	-	-	-	-	∅160	129	30.0
S403	-	-	-	∅140	162	30.0	∅160	172	67.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
S102	∅160	87	14.0	∅160	87	14.0	-	-	-	-	-	-	-	-	-
S202	∅160	102	17.0	∅160	102	17.0	∅200	104	17.0	-	-	-	-	-	-
S302	∅160	117	25.5	∅160	117	25.5	∅200	119	25.5	∅200	119	25.5	-	-	-
S303	∅160	160	62.0	-	-	-	-	-	-	-	-	-	-	-	-
S402	∅160	129	30.0	∅160	129	30.0	∅200	131	30.0	∅200	131	30.0	∅250	134	30.0
S403	∅160	172	67.0	∅160	172	67.0	-	-	-	-	-	-	-	-	-

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



q0 Applies to motors without brake.
 - Solid shaft on both sides available.

q1 Applies to motors with brake.

Dimensions of gear units

Type	Øa1	Øb1	b8	B	B2	c1	c2	Ød	Øe1	f1	h	H	i2	l	l1	m1	Øs1	s2	t	u
S1	160	110 _{f6}	70	90	106	10	32.0	25 _{h6}	130	3.5	100	167	30.0	50	4	70	9.0	M10	28.0	A8×7×40
S2	200	130 _{f6}	90	115	134	14	38.0	30 _{h6}	165	3.5	120	200	33.0	60	4	85	11.0	M10	33.0	A8×7×50
S3	250	180 _{f6}	105	130	153	15	40.0	40 _{h6}	215	4.0	140	233	53.5	80	4	100	14.0	M16	43.0	A12×8×70
S4	250	180 _{f6}	120	148	173	15	39.5	45 _{h6}	215	4.0	160	263	64.0	90	4	110	14.0	M16	48.5	A14×9×80

Dimensions of additional round flanges

Type	Øa1	Øb1	c1	Øe1	f1	Øs1
S1	140	95 _{f6}	10	115	3.0	9.0
S2	160	110 _{f6}	14	130	3.5	9.0

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109	97	81
D063M04	109	179	231	115	109	97	81
D071K04	124	208	260	120	109	97	94
D071K02	124	208	260	120	109	97	94
D071L04	124	208	260	120	109	97	94
D071L02	124	208	260	120	109	97	94
D080K04	139	238	295	128	109	97	97

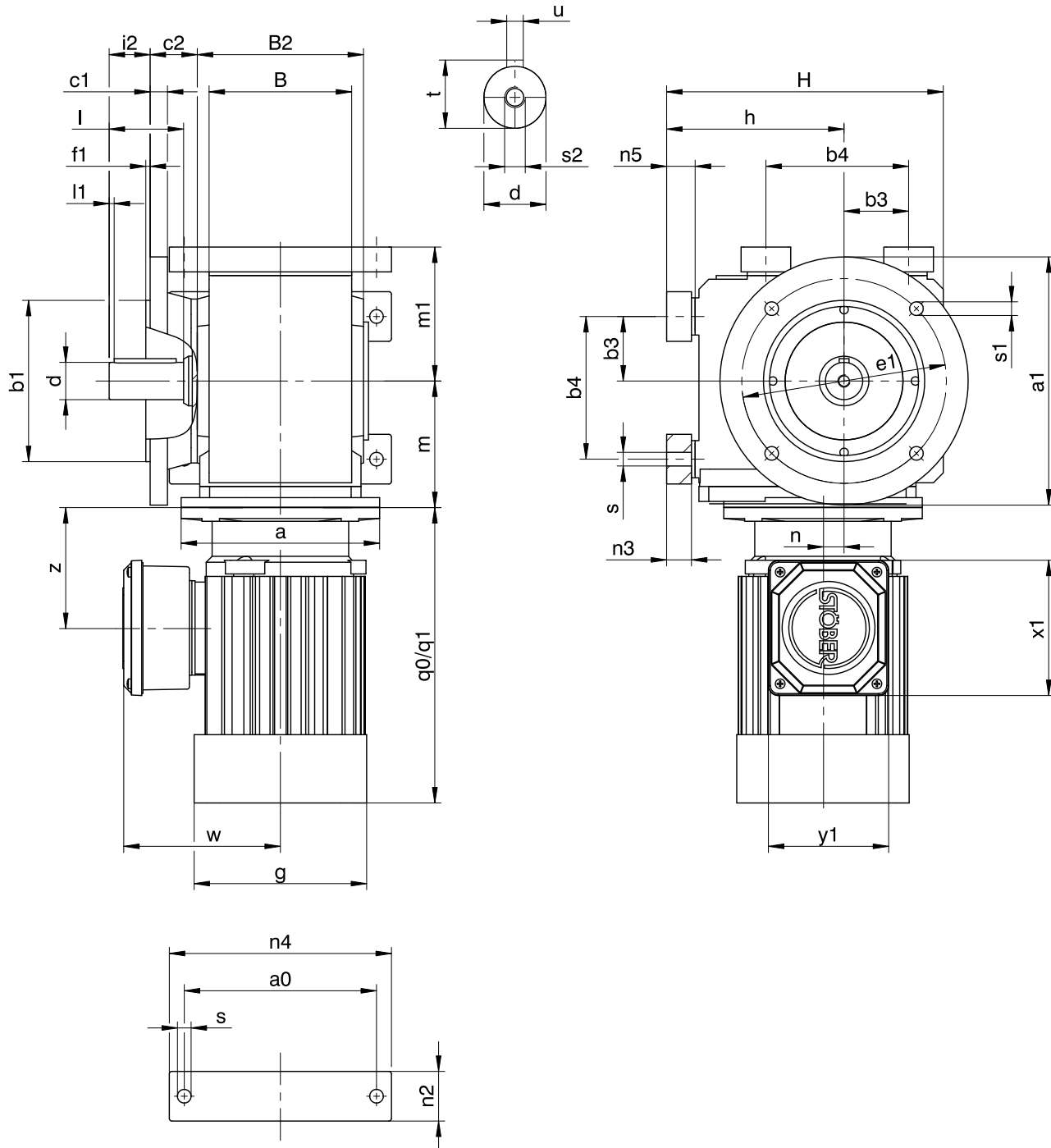
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	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

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
S102	∅140	83	14.0	∅140	83	14.0	∅160	87	14.0
S202	∅140	98	17.0	∅140	98	17.0	∅140	98	17.0
S203	∅140	135	17.0	∅140	135	17.0	–	–	–
S302	–	–	–	∅140	113	25.5	∅140	113	25.5
S303	∅140	150	25.5	∅140	150	25.5	∅160	160	62.0
S402	–	–	–	–	–	–	∅160	129	30.0
S403	–	–	–	∅140	162	30.0	∅160	172	67.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
S102	∅160	87	14.0	∅160	87	14.0	–	–	–	–	–	–	–	–	–
S202	∅160	102	17.0	∅160	102	17.0	∅200	104	17.0	–	–	–	–	–	–
S302	∅160	117	25.5	∅160	117	25.5	∅200	119	25.5	∅200	119	25.5	–	–	–
S303	∅160	160	62.0	–	–	–	–	–	–	–	–	–	–	–	–
S402	∅160	129	30.0	∅160	129	30.0	∅200	131	30.0	∅200	131	30.0	∅250	134	30.0
S403	∅160	172	67.0	∅160	172	67.0	–	–	–	–	–	–	–	–	–

5.3.16 V shaft design (solid shaft), NF housing design (base + round flange)



q0 Applies to motors without brake.

q1 Applies to motors with brake.

- Solid shaft on both sides available.

Dimensions of gear units

Type	a0	Øa1	Øb1	b3	b4	B	B2	c1	c2	Ød	Øe1	f1	h	H	i2	l	l1	m1	n2	n3	n4	n5	Øs	Øs1	s2	t	u
S0	75	120	80 _{f6}	40	80	92	94	9	28.0	20 _{k6}	100	3.0	80	143	40.0	40	3	72	22	9	92	9	6.6	6.6	M6	22.5	A6×6×32
S1	115	160	110 _{f6}	40	90	90	106	10	32.0	25 _{k6}	130	3.5	115	182	30.0	50	4	85	30	13	140	15	9.0	9.0	M10	28.0	A8×7×40
S2	155	200	130 _{f6}	52	115	115	134	14	38.0	30 _{k6}	165	3.5	143	223	33.0	60	4	108	40	20	185	23	11.0	11.0	M10	33.0	A8×7×50
S3	170	250	180 _{f6}	52	130	130	153	15	40.0	40 _{k6}	215	4.0	163	256	53.5	80	4	123	45	20	200	23	11.0	14.0	M16	43.0	A12×8×70
S4	200	250	180 _{f6}	67	155	148	173	15	39.5	45 _{k6}	215	4.0	185	288	64.0	90	4	135	50	22	230	25	14.0	14.0	M16	48.5	A14×9×80

Dimensions of additional round flanges

Type	Øa1	Øb1	c1	Øe1	f1	Øs1
S0	160	110 _{f6}	10	130	3.5	9.0
S1	140	95 _{f6}	10	115	3.0	9.0
S2	160	110 _{f6}	14	130	3.5	9.0

Dimensions of motors

Type	□g	q0	q1	w	x1	y1	z
D063K04	109	179	231	115	109	97	81
D063M04	109	179	231	115	109	97	81
D071K04	124	208	260	120	109	97	94
D071K02	124	208	260	120	109	97	94
D071L04	124	208	260	120	109	97	94
D071L02	124	208	260	120	109	97	94
D080K04	139	238	295	128	109	97	97

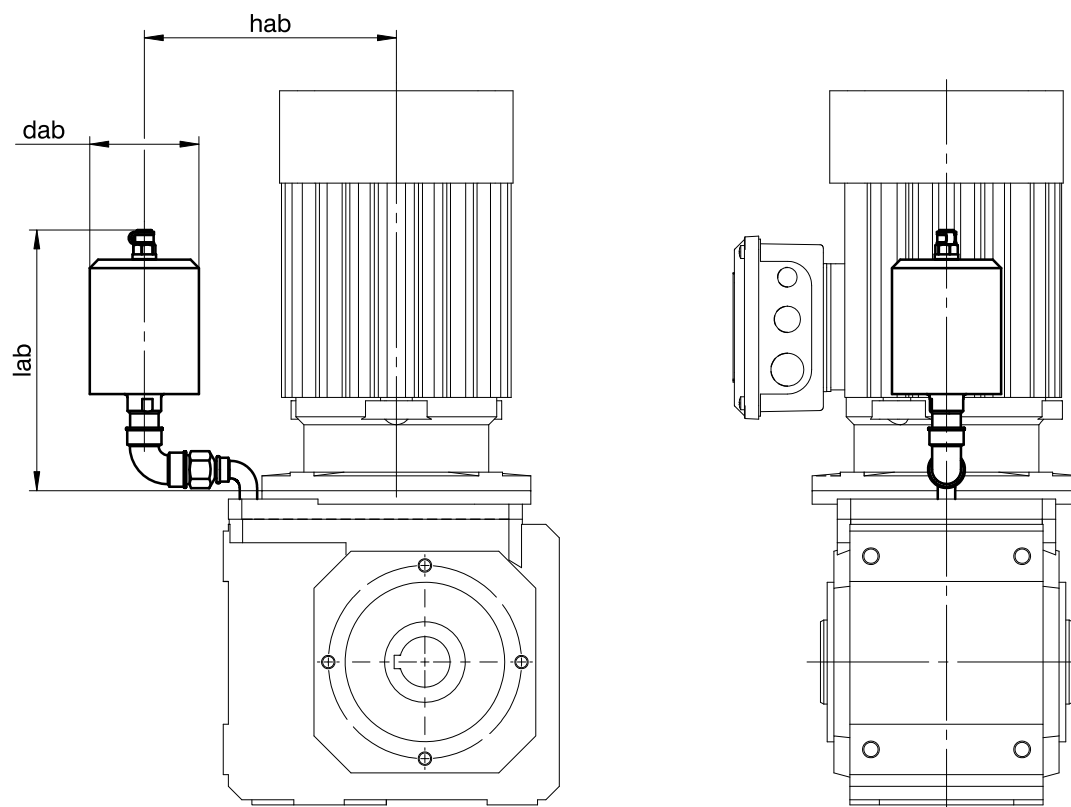
Type	□g	q0	q1	w	x1	y1	z
IE3D080K02	139	238	295	128	109.0	97.0	97.0
IE3D080L04	157	283	351	137	109.0	97.0	107.0
IE3D080L02	157	261	329	137	109.0	97.0	107.0
IE3D090S04	177	310	380	146	120.0	109.0	114.0
IE3D090S02	157	283	351	137	120.0	109.0	107.0
IE3D090L04	177	340	410	146	120.0	109.0	114.0
IE3D090L02	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

Dimensions of geared motors

Type	D063			D071			D080		
	a	m	n	a	m	n	a	m	n
S002	∅140	70	8.5	∅140	70	8.5	∅140	70	8.5
S102	∅140	83	14.0	∅140	83	14.0	∅140	83	14.0
S202	∅140	98	17.0	∅140	98	17.0	∅160	102	17.0
S203	∅140	135	17.0	∅140	135	17.0	-	-	-
S302	-	-	-	∅140	113	25.5	∅160	117	25.5
S303	∅140	150	25.5	∅140	150	25.5	∅160	160	62.0
S402	-	-	-	-	-	-	∅160	129	30.0
S403	-	-	-	∅140	162	30.0	∅160	172	67.0

Type	IE3D080			IE3D090			IE3D100			IE3D112			IE3D132		
	a	m	n	a	m	n	a	m	n	a	m	n	a	m	n
S102	∅160	87	14.0	∅160	87	14.0	-	-	-	-	-	-	-	-	-
S202	∅160	102	17.0	∅160	102	17.0	∅200	104	17.0	-	-	-	-	-	-
S302	∅160	117	25.5	∅160	117	25.5	∅200	119	25.5	∅200	119	25.5	-	-	-
S303	∅160	160	62.0	-	-	-	-	-	-	-	-	-	-	-	-
S402	∅160	129	30.0	∅160	129	30.0	∅200	131	30.0	∅200	131	30.0	∅250	134	30.0
S403	∅160	172	67.0	∅160	172	67.0	-	-	-	-	-	-	-	-	-

5.3.17 Oil expansion tank



Dimensions

Type	D071			D080			IE3D080			IE3D090			IE3D100			IE3D112		
	dab	hab	lab	dab	hab	lab	dab	hab	lab	dab	hab	lab	dab	hab	lab	dab	hab	lab
S202	-	-	-	65	150.0	155.0	65	150.0	155.0	65	150.0	155.0	65	150.0	155.0	-	-	-
S302	65	97.5	138.0	65	97.5	138.0	65	145.0	162.0	65	145.0	162.0	65	145.0	162.0	65	145.0	162.0
S402	-	-	-	65	134.0	162.5	65	134.0	162.5	65	134.0	162.5	65	160.5	162.5	65	160.5	162.5

More information can be found in Chapter [5.6.3](#)

5.4 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

S	3	0	3	A	G	1680	IE3D080L04
---	---	---	---	---	---	------	------------

Explanation

Code	Designation	Design
S	Type	Helical worm gear unit
3	Size	3 (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
NG		Foot + pitch circle diameter
NF		Foot + round flange
GD		Pitch circle diameter + torque arm
NGD		Foot + pitch circle diameter + torque arm
1680	Transmission ratio (i x 10 rounded)	i = 167.9 (example)
IE3D080	Motor	IE3D asynchronous motor
L04		
D080K04		Asynchronous motor

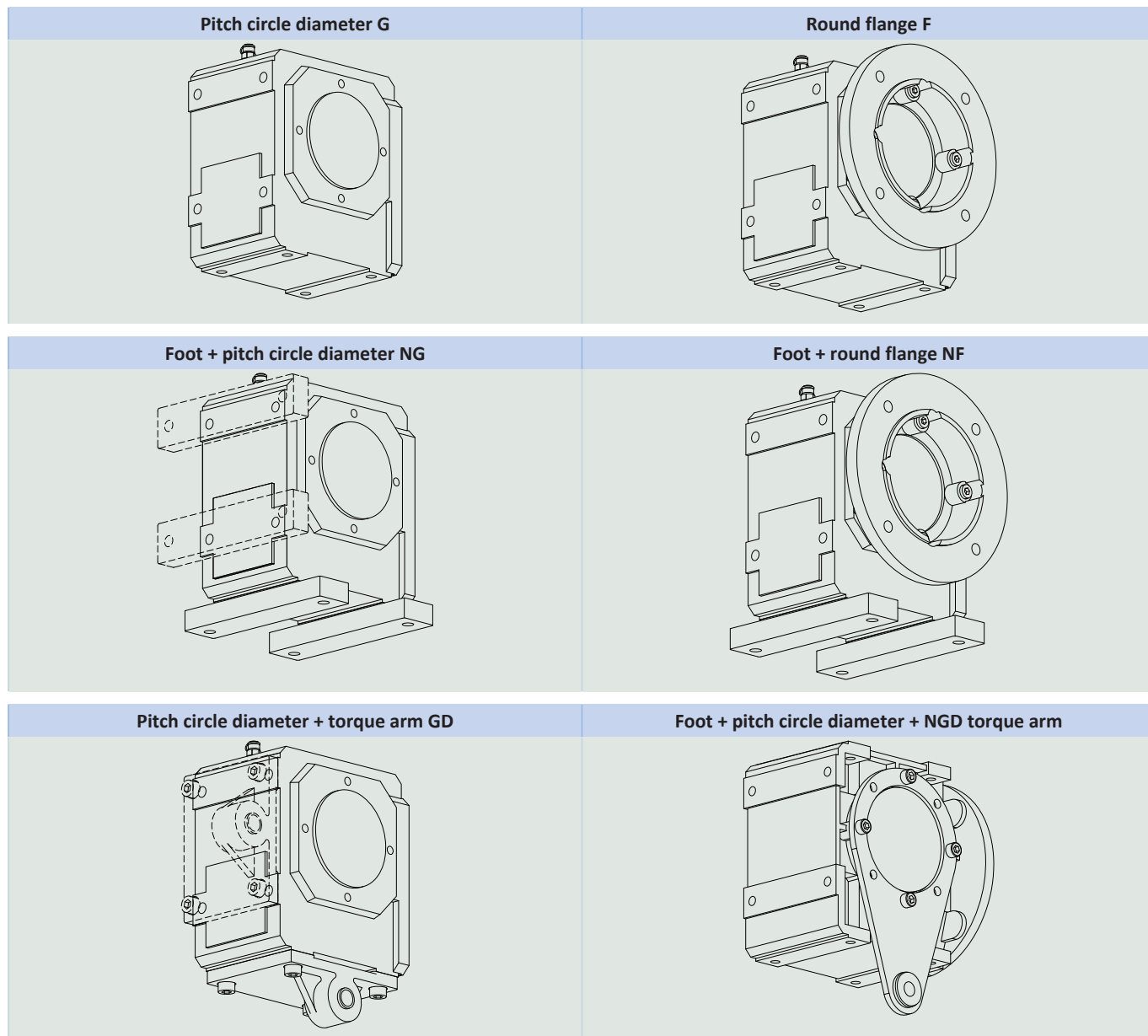
In order to complete the type designation, also specify:

- A detailed type designation of the motor, see the chapter [▶ 6.4](#)
- The mounting position, see Chapter [▶ 5.5.4](#)
- Attachment of solid shaft: gear unit side 3 or 4; solid shaft on both sides
- Attachment of hollow shaft with keyway: insertion side 3 or 4
- Attachment of hollow shaft with shrink disk: shrink disk on gear unit side 3 or 4
- Attachment of baseboards: gear unit side 1 or 5
- Attachment of flange: gear unit side 3 or 4
- Pitch circle diameter: gear unit side 3 or 4
- Attachment of torque arm: torque arm:
 - S0: torque arm on gear unit side 3 or 4, eye on gear unit side 1, 2, 5, 25, 51
 - S1 – S4: torque arm on gear unit side 1 or 5, eye on gear unit side 3 or 4
- For the position of the terminal box, see the chapter [▶ 5.5.6](#)
- Oil expansion tank (recommended for gear units in mounting position EL5), see the chapter [▶ 5.6.3](#)
- Standard or reinforced output bearing

An explanation of the gear unit sides can be found in the chapter [▶ 5.5.4](#).

5.5 Product description

5.5.1 Housing design



	G	F	NG	NF	GD	NGD
S0	-	-	✓	✓	-	✓
S1	✓	✓	✓	✓	✓	-
S2	✓	✓	✓	✓	✓	-
S3	✓	✓	✓	✓	✓	-
S4	✓	✓	✓	✓	✓	-

5.5.2 Combinatorial shaft/housing design

Shaft design	Housing design						
	Code	G	F	NG	NF	GD	NGD
Hollow shaft with keyway	A	AG	AF	ANG	ANF	AGD	ANGD
Hollow shaft with shrink disk	S	SG	SF	SNG	SNF	SGD	SNGD
Solid shaft	V	VG	VF	VNG	VNF	–	–

5.5.3 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/mm².

Possible materials:

- C45E +QT
- 42CrMo4

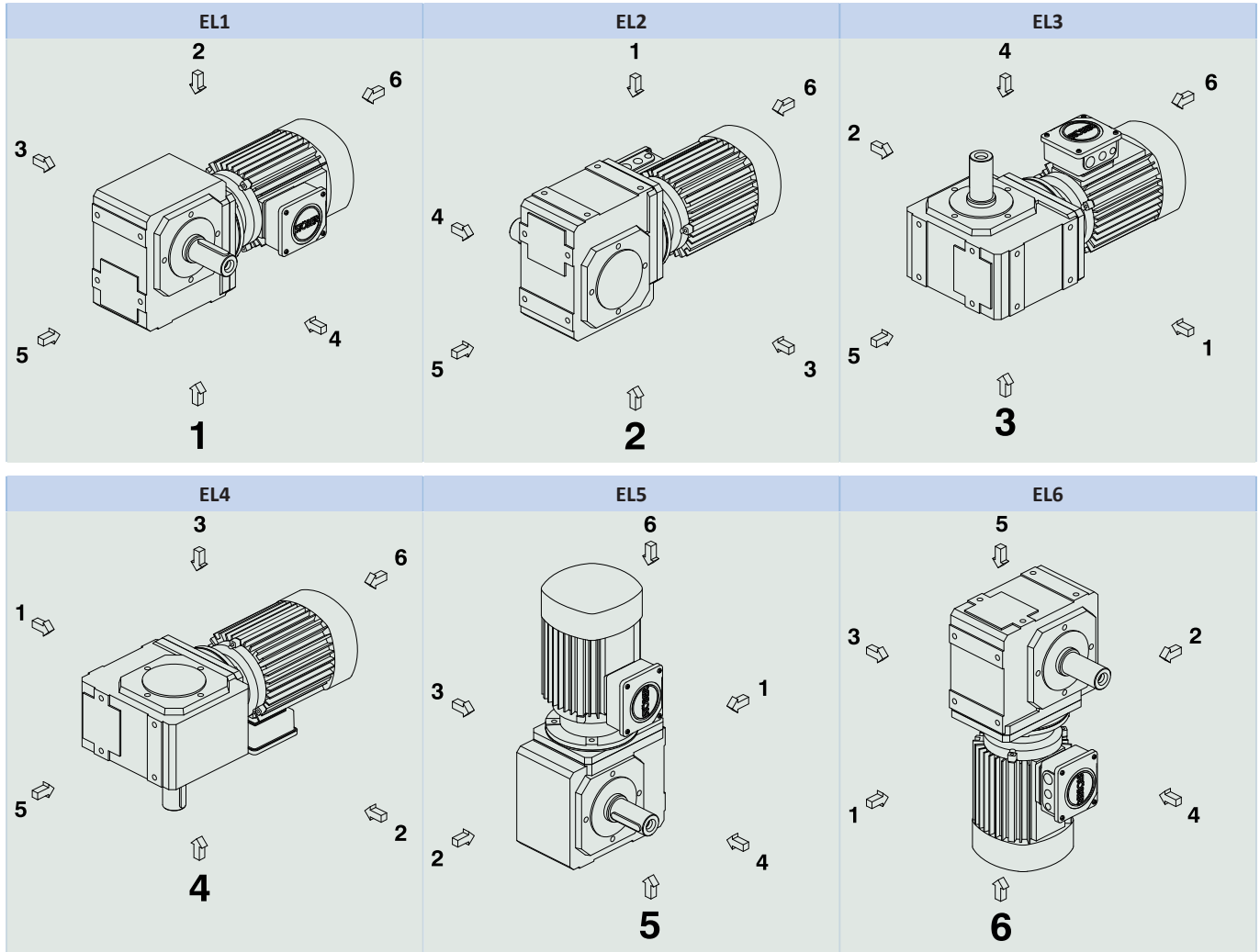
Attaching the gear unit on the machine side using the pitch circle diameter

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).

5.5.4 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.



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

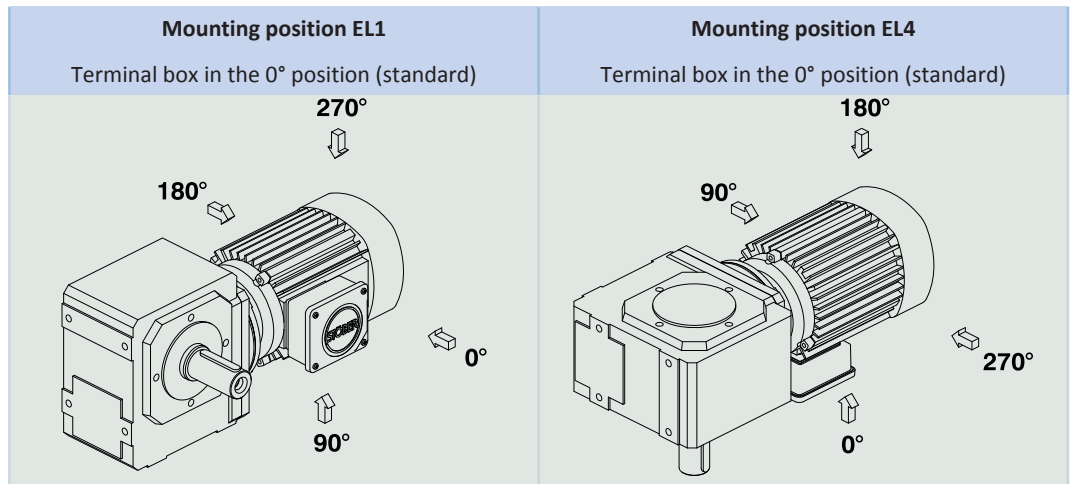
5.5.5 Lubricants

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.stober.de/en/download>. Enter the ID of the documentation in the Search... field.

5.5.6 Position of the terminal box



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.

5.5.7 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

5.5.8 Maintenance

The instructions for maintenance can be found in the operating manual, ID 443027_en, at <http://www.stoebler.de/en/download>. Enter the ID of the documentation in the Search... field.

5.5.9 Direction of rotation

Solid shaft (V), solid shaft on both sides (V), hollow shaft with keyway (A)

Type	Output side 4	Output side 3
S002 – S402		
S203 – S403		

The specified directions of rotation also apply to gear units with hollow shaft (A) if the insertion side of the machine shaft corresponds to the side of the solid shaft that is shown.

The pictures show mounting position EL1.

Hollow shaft with shrink disk (S)

Type	Output side 4	Output side 3
S002 – S402		
S203 – S403		

The pictures show mounting position EL1.

5.6 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 <ul style="list-style-type: none"> Start time up to 30 s 		100 %	1.00	1.00
S1 Continuous operation with normal start <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Start time up to 30 s 		100 %	1.25	1.25
S2 brief operation <ul style="list-style-type: none"> Operating time $t_{op} \leq 3$ minutes 		≤ 30 %	0.75	0.75
S3 Periodic cyclic operation <ul style="list-style-type: none"> Cycle time $T \leq 10$ minutes Cyclic operation with braking motor Low additional flywheel weights $J_{1*} < 0,5 \cdot J_1$ 		≤ 25 %	0.70	0.70
		≤ 40 %	1.00	1.00
		≤ 60 %	1.25	1.25
S4 Periodic cyclic operation with the effect of the start-up process <ul style="list-style-type: none"> Cycle time $T \leq 10$ minutes Cyclic operation with braking motor Larger additional flywheel weights 		40 %	$J_{1*} \leq J_1: 1.40$ $J_{1*} \sim 3 \cdot J_1: 1.60$	1.40
S6 Uninterrupted periodic operation	100 %	1.25	1.00	
S6 Uninterrupted periodic operation with short-term loading <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> High speeds Large additional flywheel weights 		100 %	1.60	1.25
S8 Uninterrupted periodic operation <ul style="list-style-type: none"> With load changes With speed changes 		100 %	$J_{1*} \leq J_1: 1.40$ $J_{1*} \sim 3 \cdot J_1: 1.60$	$J_{1*} \leq J_1: 1.25$ $J_{1*} \sim 3 \cdot J_1: 1.40$
		100 %	$J_{1*} \leq J_1: 1.40$ $J_{1*} \sim 3 \cdot J_1: 1.60$	$J_{1*} \leq J_1: 1.25$ $J_{1*} \sim 3 \cdot J_1: 1.40$
S9 Non-periodic operation <ul style="list-style-type: none"> With load changes With speed changes 		100 %	$J_{1*} \leq J_1: 1.40$ $J_{1*} \sim 3 \cdot J_1: 1.60$	$J_{1*} \leq J_1: 1.25$ $J_{1*} \sim 3 \cdot J_1: 1.40$
S10 Operation with individual constant loads	100 %	1.00	1.00	

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

5.6.1 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

5.6.1.1 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]
S0	31.0	1050	3500	180
S1	37.0	1650	5000	350
S2	38.0	2400	7000	550
S3	46.0	3000	10000	900
S4	47.0	3900	13000	1200

Reduced values apply in the case of a V shaft design (solid shaft) in conjunction with an NF housing design (foot + round flange):

Type	z_2 [mm]	F_{2ax20} [N]	F_{2rad20} [N]	M_{2k20} [Nm]
S0	46.0	1050	2700	180

For the V solid shaft design on both sides, the values for F_{2rad20} and M_{2k20} must be multiplied by a factor of 0.7.

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

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

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

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

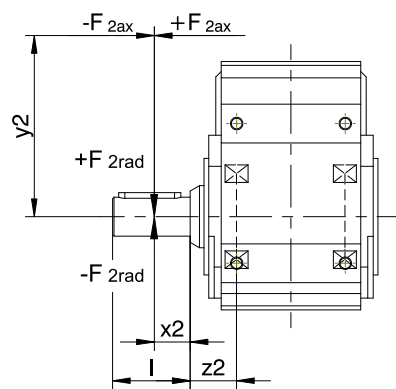


Fig. 1: Force application points for solid shaft

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.

5.6.1.2 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]
S0	25.0	1050	3500	150
S1	32.0	1650	5000	200
S2	35.0	1700	7000	350
S3	39.0	2100	10000	600
S4	40.0	2800	13000	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]
S0	25.0	1050	3500	150
S1	32.0	1650	5000	200
S2	35.0	1700	7000	350
S3	39.0	2100	10000	600
S4	40.0	2800	13000	800

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

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

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

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

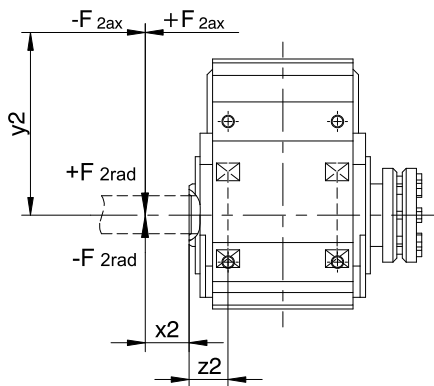


Fig. 2: Force application points for hollow shaft

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 ($x_2 = 0$).

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

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

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.

5.6.2 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.

5.6.3 Oil expansion tank

The gear units have a higher fill level in mounting position EL5. The oil expansion tank prevents oil from escaping out of the gear unit.

Notes

- We recommend using an oil expansion tank in mounting position EL5 (additional cost) for fast running gear units with an input speed $n_1 > 1750$ rpm and gear ratios $i < 20$.
- It is not possible to use an oil expansion tank if the plug connector is at 90°!
- The oil expansion tank can only be used with certain sizes; see the chapter [▶ 5.3.17]

5.7 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