

Direct drives

Torque motors for SINAMICS S120

1FW3 complete torque motors Water cooling

Selection and ordering data

Rated speed	Shaft height	Rated power	Rated torque	Rated current	Rated voltage	Rated frequency	Operating speed, max. ¹⁾	Speed, max. ²⁾	1FW3 complete torque motors Water cooling
n_{rated}	SH	P_{rated} at $\Delta T=100\text{ K}$	M_{rated} at $\Delta T=100\text{ K}$	I_{rated} at $\Delta T=100\text{ K}$	U_{rated}	f_{rated}	$n_{\text{max, Inv}}$	n_{max}	Order No.
rpm		kW (HP)	Nm (lb _r -ft)	A	V	Hz	rpm	rpm	
Line voltage 400 V 3 AC Smart Line Module/Basic Line Module									
140	200	4.4 (5.90)	300 (221)	13	351	32.7	380	1000	1FW3201-1■E■2-■AA0
		7.3 (9.79)	500 (369)	21	329	32.7	380	1000	1FW3202-1■E■2-■AA0
		11.0 (14.8)	750 (553)	31	335	32.7	370	1000	1FW3203-1■E■2-■AA0
		14.7 (19.7)	1000 (738)	40	330	32.7	360	1000	1FW3204-1■E■2-■AA0
		22.0 (29.5)	1500 (1106)	65	311	32.7	390	1000	1FW3206-1■E■2-■AA0
		29.3 (1475)	2000 (1475)	84	316	32.7	380	1000	1FW3208-1■E■2-■AA0
	280	36.7 (49.2)	2500 (1844)	82	367	23.3	290	1000	1FW3281-2■E■3-■AA0
		51.3 (68.8)	3500 (2582)	115	365	23.3	290	1000	1FW3283-2■E■3-■AA0
		73.3 (98.3)	5000 (3688)	160	368	23.3	290	1000	1FW3285-2■E■3-■AA0
		102.6 (138)	7000 (5163)	230	359	23.3	290	1000	1FW3287-2■E■3-■AA0
220	280	56.0 (75.1)	2450 (1807)	126	352	36.7	460	1000	1FW3281-2■G■3-■AA0
		79.5 (107)	3450 (2545)	176	352	36.7	460	1000	1FW3283-2■G■3-■AA0
		114.0 (153)	4950 (3651)	244	362	36.7	440	1000	1FW3285-2■G■3-■AA0
		160.1 (215)	6950 (5126)	355	350	36.7	460	1000	1FW3287-2■G■3-■AA0
270	150	2.8 (3.75)	100 (73.8)	8	369	31.5	630	1700	1FW3150-1■H■2-■AA0
		5.7 (7.64)	200 (148)	14	368	31.5	630	1700	1FW3152-1■H■2-■AA0
		8.5 (11.4)	300 (221)	20.5	368	31.5	610	1700	1FW3154-1■H■2-■AA0
		11.3 (15.2)	400 (295)	28	358	31.5	630	1700	1FW3155-1■H■2-■AA0
		14.1 (18.9)	500 (369)	34	366	31.5	610	1700	1FW3156-1■H■2-■AA0
	200	8.5 (11.4)	300 (221)	23	341	63.0	680	1000	1FW3201-1■H■2-■AA0
		14.1 (18.9)	500 (369)	37	330	63.0	670	1000	1FW3202-1■H■2-■AA0
		21.2 (28.4)	750 (553)	59	311	63.0	710	1000	1FW3203-1■H■2-■AA0
		28.3 (38.0)	1000 (738)	74	321	63.0	670	1000	1FW3204-1■H■2-■AA0
		42.4 (56.9)	1500 (1106)	118	317	63.0	700	1000	1FW3206-1■H■2-■AA0
350	280	56.5 (75.8)	2000 (1475)	153	313	63.0	690	1000	1FW3208-1■H■2-■AA0
		88.0 (118)	2400 (1770)	192	345	58.3	720	1000	1FW3281-3■J■3-■AA0
		122.8 (165)	3350 (2471)	279	330	58.3	750	1000	1FW3283-3■J■3-■AA0
		174.1 (233)	4750 (3504)	380	341	58.3	720	1000	1FW3285-3■J■3-■AA0
		243.7 (327)	6650 (4905)	508	357	58.3	690	1000	1FW3287-3■J■3-■AA0

For versions, see Order No.
supplement and options.

Further rated speeds on request.

Direct drives

Torque motors for SINAMICS S120

1FW3 complete torque motors
Water cooling

Motor type (repeated)	Static torque M_0 at $\Delta T=100\text{ K}$ Nm (lb _f -ft)	Static current I_0 at $\Delta T=100\text{ K}$ A	Efficiency ³⁾ η	Moment of inertia J kgm ² (lb _f -in-s ²)	Weight, approx. m kg (lb)	Terminal box Type	SINAMICS S120 Motor Module	
							Rated output current ⁴⁾ I_{rated}	For additional versions and components see chapter SINAMICS S120 drive system
							A	Order No.
1FW3201-1.E.2-....	315 (232)	13	0.91	0.22 (1.95)	127 (280)	gk230	18	6SL312-1TE21-8AA3
1FW3202-1.E.2-....	525 (387)	22	0.93	0.36 (3.19)	156 (344)	gk230	30	6SL312-1TE23-0AA3
1FW3203-1.E.2-....	790 (583)	32	0.94	0.49 (4.34)	182 (401)	gk230	45	6SL312-1TE24-5AA3
1FW3204-1.E.2-....	1050 (774)	42	0.94	0.70 (6.20)	223 (492)	gk230	45	6SL312-1TE24-5AA3
1FW3206-1.E.2-....	1575 (1162)	68	0.94	0.97 (8.59)	279 (615)	gk420	85	6SL312-1TE28-5AA3
1FW3208-1.E.2-....	2100 (1549)	88	0.94	1.31 (11.6)	348 (767)	gk420	85	6SL312-1TE28-5AA3
1FW3281-2.E.3-....	2550 (1881)	84	0.94	3.78 (33.5)	600 (1323)	1XB7700	85	6SL312-1TE28-5AA3
1FW3283-2.E.3-....	3550 (2618)	116	0.95	4.64 (41.1)	690 (1521)	1XB7700	132	6SL312-1TE31-3AA3
1FW3285-2.E.3-....	5100 (3782)	163	0.95	5.98 (52.9)	860 (1896)	1XB7700	200	6SL312-1TE32-0AA3
1FW3287-2.E.3-....	7150 (5274)	234	0.96	7.81 (69.1)	1030 (2271)	1XB7700	260	6SL3320-1TE32-6AA3
1FW3281-2.G.3-....	2550 (1881)	131	0.95	3.78 (33.5)	600 (1323)	1XB7700	132	6SL312-1TE31-3AA3
1FW3283-2.G.3-....	3550 (2618)	181	0.96	4.64 (41.1)	690 (1521)	1XB7700	200	6SL312-1TE32-0AA3
1FW3285-2.G.3-....	5100 (3782)	251	0.96	5.98 (52.9)	860 (1896)	1XB7700	260	6SL3320-1TE32-6AA3
1FW3287-2.G.3-....	7150 (5274)	365	0.96	7.81 (69.1)	1030 (2271)	1XB7700	380	6SL3320-1TE33-8AA3
1FW3150-1.H.2-....	105 (77.4)	7.3	0.89	0.12 (1.06)	87 (192)	gk230	9	6SL312-1TE21-0AA3
1FW3152-1.H.2-....	210 (155)	15	0.92	0.16 (1.42)	108 (238)	gk230	18	6SL312-1TE21-8AA3
1FW3154-1.H.2-....	315 (232)	21.5	0.93	0.20 (1.77)	129 (284)	gk230	30	6SL312-1TE23-0AA3
1FW3155-1.H.2-....	420 (310)	29	0.94	0.24 (2.12)	150 (331)	gk230	30	6SL312-1TE23-0AA3
1FW3156-1.H.2-....	525 (387)	35	0.94	0.28 (2.48)	171 (377)	gk230	45	6SL312-1TE24-5AA3
1FW3201-1.H.2-....	315 (232)	24	0.92	0.22 (1.95)	127 (280)	gk230	30	6SL312-1TE23-0AA3
1FW3202-1.H.2-....	525 (387)	39	0.94	0.36 (3.19)	156 (344)	gk230	45	6SL312-1TE24-5AA3
1FW3203-1.H.2-....	790 (583)	62	0.95	0.49 (4.34)	182 (401)	gk420	60	6SL312-1TE26-0AA3
1FW3204-1.H.2-....	1050 (774)	77	0.95	0.70 (6.20)	223 (492)	gk420	85	6SL312-1TE28-5AA3
1FW3206-1.H.2-....	1575 (1162)	121	0.95	0.97 (8.59)	279 (615)	gk630	132	6SL312-1TE31-3AA3
1FW3208-1.H.2-....	2100 (1549)	160	0.94	1.31 (11.6)	348 (767)	gk630	200	6SL312-1TE32-0AA3
1FW3281-3.J.3-....	2500 (1844)	200	0.96	3.78 (33.5)	600 (1323)	1XB7700	200	6SL312-1TE32-0AA3
1FW3283-3.J.3-....	3500 (2582)	292	0.96	4.64 (41.1)	690 (1521)	1XB7700	310	6SL3320-1TE33-1AA3
1FW3285-3.J.3-....	5000 (3688)	400	0.96	5.98 (52.9)	860 (1896)	1XB7700	380	6SL3320-1TE33-8AA3
1FW3287-3.J.3-....	7000 (5163)	534	0.97	7.81 (69.1)	1030 (2271)	1XB7712	618 ⁵⁾	6SL3320-1TE37-5AA3

Format:	
Booksized	1
Chassis	3
Cooling:	
Internal air cooling	0
External air cooling	1
Motor Module:	
Single Motor Module	1

1) Maximum permissible operating speed based on the induced voltage in the motor and the voltage strength of the converter (without protective circuit).

2) Maximum speed which must not be exceeded.

3) Optimum efficiency in continuous duty.

4) Compliance with the rated pulse frequencies is essential; the rated motor data is valid for 4 kHz or 2 kHz.

5) The rated output current of the Motor Module is lower than the rated motor current at 2 kHz.

Direct drives

Torque motors for SINAMICS S120

1FW3 complete torque motors Water cooling

Selection and ordering data

Rated speed	Shaft height	Rated power	Rated torque	Rated current	Rated voltage	Rated frequency	Operating speed, max. ¹⁾	Speed, max. ²⁾	1FW3 complete torque motors Water cooling
n_{rated}	SH	P_{rated} at $\Delta T=100\text{ K}$	M_{rated} at $\Delta T=100\text{ K}$	I_{rated} at $\Delta T=100\text{ K}$	U_{rated}	f_{rated}	$n_{\text{max, Inv}}$	n_{max}	Order No.
rpm		kW (HP)	Nm (lb _r -ft)	A	V	Hz	rpm	rpm	
Line voltage 400 V 3 AC Smart Line Module/Basic Line Module									
450	150	4.7 (6.30)	100 (73.8)	12	370	52.5	960	1700	1FW3150-1■L■2-■AA0
		9.4 (12.6)	200 (148)	22	370	52.5	960	1700	1FW3152-1■L■2-■AA0
		14.1 (18.9)	300 (221)	32	370	52.5	950	1700	1FW3154-1■L■2-■AA0
		18.8 (25.2)	400 (295)	43	370	52.5	960	1700	1FW3155-1■L■2-■AA0
		23.6 (31.6)	500 (369)	53	370	52.5	950	1700	1FW3156-1■L■2-■AA0
	200	4.4 (5.90)	300 (221)	13	351	32.7	380	1000	1FW3201-1■E■2-■AA0
		7.3 (9.79)	500 (369)	21	329	32.7	380	1000	1FW3202-1■E■2-■AA0
		11.0 (14.8)	750 (553)	31	335	32.7	370	1000	1FW3203-1■E■2-■AA0
		14.7 (19.7)	1000 (738)	40	330	32.7	360	1000	1FW3204-1■E■2-■AA0
520	280	22.0 (29.5)	1500 (1106)	65	311	32.7	390	1000	1FW3206-1■E■2-■AA0
		29.3 (39.3)	2000 (1475)	84	316	32.7	380	1000	1FW3208-1■E■2-■AA0
		122.5 (164)	2250 (1660)	262	339	86.7	1050	1000	1FW3281-3■M■3-■AA0
		171.5 (230)	3150 (2323)	362	345	86.7	1030	1000	1FW3283-3■M■3-■AA0
		247.8 (332)	4550 (3356)	484	369	86.7	960	1000	1FW3285-3■M■3-■AA0
670	150	337.6 (453)	6200 (4573)	713	341	86.7	1030	1000	1FW3287-3■M■3-■AA0
		7.0 (9.39)	100 (73.8)	18	369	78.2	1470	1700	1FW3150-1■P■2-■AA0
		14.0 (18.8)	200 (148)	32.5	370	78.2	1450	1700	1FW3152-1■P■2-■AA0
		21.0 (28.2)	300 (221)	47.5	370	78.2	1420	1700	1FW3154-1■P■2-■AA0
		28.1 (37.7)	400 (295)	64	360	78.2	1450	1700	1FW3155-1■P■2-■AA0
35.1 (47.1)	500 (369)	76	370	78.2	1380	1700	1FW3156-1■P■2-■AA0		

For versions, see Order No. supplement and options.

Further rated speeds on request.

Direct drives

Torque motors for SINAMICS S120

1FW3 complete torque motors
Water cooling

Motor type (repeated)	Static torque M_0 at $\Delta T=100\text{ K}$ Nm (lb _f -ft)	Static current I_0 at $\Delta T=100\text{ K}$ A	Efficiency ³⁾ η	Moment of inertia J kgm ² (lb _f -in-s ²)	Weight, approx. m kg (lb)	Terminal box Type	SINAMICS S120 Motor Module	
							Rated output current ⁴⁾ I_{rated} A	For additional versions and components see chapter SINAMICS S120 drive system Order No.
1FW3150-1.L.2-....	105 (77.4)	11.5	0.90	0.12 (1.06)	87 (192)	gk230	18	6SL312-1TE21-8AA3
1FW3152-1.L.2-....	210 (155)	22.5	0.92	0.16 (1.42)	108 (238)	gk230	30	6SL312-1TE23-0AA3
1FW3154-1.L.2-....	315 (232)	33	0.93	0.20 (1.77)	129 (284)	gk230	45	6SL312-1TE24-5AA3
1FW3155-1.L.2-....	420 (310)	45	0.94	0.24 (2.12)	150 (331)	gk230	45	6SL312-1TE24-5AA3
1FW3156-1.L.2-....	525 (387)	55	0.94	0.28 (2.48)	171 (377)	gk420	60	6SL312-1TE26-0AA3
1FW3201-1.E.2-....	315 (232)	13	0.91	0.22 (1.95)	127 (280)	gk230	18	6SL312-1TE21-8AA3
1FW3202-1.E.2-....	525 (387)	22	0.93	0.36 (3.19)	156 (344)	gk230	30	6SL312-1TE23-0AA3
1FW3203-1.E.2-....	790 (583)	32	0.94	0.49 (4.34)	182 (401)	gk230	45	6SL312-1TE24-5AA3
1FW3204-1.E.2-....	1050 (774)	42	0.94	0.70 (6.20)	223 (492)	gk230	45	6SL312-1TE24-5AA3
1FW3206-1.E.2-....	1575 (1162)	68	0.94	0.97 (8.59)	279 (615)	gk420	85	6SL312-1TE28-5AA3
1FW3208-1.E.2-....	2100 (1549)	88	0.94	1.31 (11.6)	348 (767)	gk420	85	6SL312-1TE28-5AA3
1FW3281-3.M.3-....	2500 (1844)	291	0.96	3.78 (33.5)	600 (1323)	1XB7700	310	6SL3320-1TE33-1AA3
1FW3283-3.M.3-....	3500 (2582)	402	0.96	4.64 (41.1)	690 (1521)	1XB7700	380	6SL3320-1TE33-8AA3
1FW3285-3.M.3-....	5000 (3688)	532	0.97	5.98 (52.9)	860 (1896)	1XB7712	490	6SL3320-1TE35-0AA3
1FW3287-3.M.3-....	6850 (5053)	787	0.97	7.81 (69.1)	1030 (2271)	1XB7712	734 ⁵⁾	6SL3320-1TE38-4AA3
1FW3150-1.P.2-....	105 (77.4)	17.5	0.90	0.12 (1.06)	87 (192)	gk230	18	6SL312-1TE21-8AA3
1FW3152-1.P.2-....	210 (155)	33.5	0.93	0.16 (1.42)	108 (238)	gk230	45	6SL312-1TE24-5AA3
1FW3154-1.P.2-....	315 (232)	49	0.93	0.20 (1.77)	129 (284)	gk230	60	6SL312-1TE26-0AA3
1FW3155-1.P.2-....	420 (310)	67	0.94	0.24 (2.12)	150 (331)	gk420	85	6SL312-1TE28-5AA3
1FW3156-1.P.2-....	525 (387)	80	0.94	0.28 (2.48)	171 (377)	gk420	85	6SL312-1TE28-5AA3

Format:	
Booksize	1
Chassis	3
Cooling:	
Internal air cooling	0
External air cooling	1
Motor Module:	
Single Motor Module	1

- 1) Maximum permissible operating speed based on the induced voltage in the motor and the voltage strength of the converter (without protective circuit).
- 2) Maximum speed which must not be exceeded.
- 3) Optimum efficiency in continuous duty.
- 4) Compliance with the rated pulse frequencies is essential; the rated motor data is valid for 4 kHz or 2 kHz.
- 5) The rated output current of the Motor Module is lower than the rated motor current at 2 kHz.

Direct drives

Torque motors for SINAMICS S120

1FW3 complete torque motors Water cooling

Selection and ordering data

Rated speed	Shaft height	Rated power	Rated torque	Rated current	Rated voltage	Rated frequency	Operating speed, max. ¹⁾	Speed, max. ²⁾	1FW3 complete torque motors Water cooling	
n_{rated}	SH	P_{rated} at $\Delta T=100\text{ K}$	M_{rated} at $\Delta T=100\text{ K}$	I_{rated} at $\Delta T=100\text{ K}$	U_{rated}	f_{rated}	$n_{\text{max, Inv}}$	n_{max}	Order No.	
rpm		kW (HP)	Nm (lb _r -ft)	A	V	Hz	rpm	rpm		
Line voltage 400 V 3 AC Active Line Module										
150	200	4.7 (6.30)	300 (221)	13	373	35	380	1000	1FW3201-1E2-AA0	
		7.9 (10.6)	500 (369)	21	350	35	380	1000	1FW3202-1E2-AA0	
		11.8 (15.8)	750 (553)	31	357	35	370	1000	1FW3203-1E2-AA0	
		15.7 (21.1)	1000 (738)	40	351	35	360	1000	1FW3204-1E2-AA0	
		23.6 (31.7)	1500 (1106)	65	331	35	390	1000	1FW3206-1E2-AA0	
		31.4 (42.1)	2000 (1475)	84	337	35	380	1000	1FW3208-1E2-AA0	
280	280	39.3 (52.7)	2500 (1844)	82	390	25	290	1000	1FW3281-2E3-AA0	
		55.0 (73.8)	3500 (2582)	115	388	25	290	1000	1FW3283-2E3-AA0	
		78.5 (105)	5000 (3688)	160	391	25	290	1000	1FW3285-2E3-AA0	
		110.0 (148)	7000 (5163)	230	382	25	290	1000	1FW3287-2E3-AA0	
250	280	64.1 (86.0)	2450 (1807)	126	396	41.7	460	1000	1FW3281-2G3-AA0	
		90.3 (121)	3450 (2545)	176	397	41.7	460	1000	1FW3283-2G3-AA0	
		129.6 (174)	4950 (3651)	244	408	41.7	440	1000	1FW3285-2G3-AA0	
		180.6 (242)	6900 (5089)	352	393	41.7	460	1000	1FW3287-2G3-AA0	
300	150	3.1 (4.16)	100 (73.8)	8	403	35	630	1700	1FW3150-1H2-AA0	
		6.3 (8.45)	200 (148)	14	404	35	630	1700	1FW3152-1H2-AA0	
		9.4 (12.6)	300 (221)	20.5	405	35	610	1700	1FW3154-1H2-AA0	
		12.6 (16.9)	400 (295)	28	395	35	630	1700	1FW3155-1H2-AA0	
		15.7 (21.1)	500 (369)	34	403	35	610	1700	1FW3156-1H2-AA0	
	200	200	9.4 (12.6)	300 (221)	23	377	70	680	1000	1FW3201-1H2-AA0
			15.7 (21.1)	500 (369)	37	365	70	670	1000	1FW3202-1H2-AA0
			23.6 (31.6)	750 (553)	59	343	70	710	1000	1FW3203-1H2-AA0
			31.4 (42.1)	1000 (738)	74	355	70	670	1000	1FW3204-1H2-AA0
			47.1 (63.2)	1500 (1106)	118	351	70	700	1000	1FW3206-1H2-AA0
62.8 (84.2)	2000 (1475)	153	346	70	690	1000	1FW3208-1H2-AA0			
400	280	98.0 (131)	2350 (1733)	188	389	66.7	720	1000	1FW3281-3J3-AA0	
		138.2 (185)	3300 (2434)	275	373	66.7	750	1000	1FW3283-3J3-AA0	
		196.9 (264)	4700 (3467)	376	386	66.7	720	1000	1FW3285-3J3-AA0	
		276.5 (371)	6600 (4868)	504	405	66.7	690	1000	1FW3287-3J3-AA0	

For versions, see Order No.
supplement and options.

Further rated speeds on request.

Direct drives

Torque motors for SINAMICS S120

1FW3 complete torque motors
Water cooling

Motor type (repeated)	Static torque M_0 at $\Delta T=100\text{ K}$ Nm (lb _f -ft)	Static current I_0 at $\Delta T=100\text{ K}$ A	Efficiency ³⁾ η	Moment of inertia J kgm ² (lb _f -in-s ²)	Weight, approx. m kg (lb)	Terminal box Type	SINAMICS S120 Motor Module	
							Rated output current ⁴⁾ I_{rated} A	For additional versions and components see chapter SINAMICS S120 drive system Order No.
1FW3201-1.E.2-....	315 (232)	13	0.91	0.22 (1.95)	127 (280)	gk230	18	6SL312-1TE21-8AA3
1FW3202-1.E.2-....	525 (387)	22	0.93	0.36 (3.19)	156 (344)	gk230	30	6SL312-1TE23-0AA3
1FW3203-1.E.2-....	790 (583)	32	0.94	0.49 (4.34)	182 (401)	gk230	45	6SL312-1TE24-5AA3
1FW3204-1.E.2-....	1050 (774)	42	0.94	0.70 (6.20)	223 (492)	gk230	45	6SL312-1TE24-5AA3
1FW3206-1.E.2-....	1575 (1162)	68	0.94	0.97 (8.59)	279 (615)	gk420	85	6SL312-1TE28-5AA3
1FW3208-1.E.2-....	2100 (1549)	88	0.94	1.31 (11.6)	348 (767)	gk420	85	6SL312-1TE28-5AA3
1FW3281-2.E.3-....	2550 (1881)	84	0.94	3.78 (33.5)	600 (1323)	1XB7700	85	6SL312-1TE28-5AA3
1FW3283-2.E.3-....	3550 (2618)	116	0.95	4.64 (41.1)	690 (1521)	1XB7700	132	6SL312-1TE31-3AA3
1FW3285-2.E.3-....	5100 (3782)	163	0.95	5.98 (52.9)	860 (1896)	1XB7700	200	6SL312-1TE32-0AA3
1FW3287-2.E.3-....	7150 (5274)	234	0.96	7.81 (69.1)	1030 (2271)	1XB7700	260	6SL3320-1TE32-6AA3
1FW3281-2.G.3-....	2550 (1881)	131	0.95	3.78 (33.5)	600 (1323)	1XB7700	132	6SL312-1TE31-3AA3
1FW3283-2.G.3-....	3550 (2618)	181	0.96	4.64 (41.1)	690 (1521)	1XB7700	200	6SL312-1TE32-0AA3
1FW3285-2.G.3-....	5100 (3782)	251	0.96	5.98 (52.9)	860 (1896)	1XB7700	260	6SL3320-1TE32-6AA3
1FW3287-2.G.3-....	7150 (5274)	365	0.96	7.81 (69.1)	1030 (2271)	1XB7700	380	6SL3320-1TE33-8AA3
1FW3150-1.H.2-....	105 (77.4)	7.3	0.89	0.12 (1.06)	87 (192)	gk230	9	6SL312-1TE21-0AA3
1FW3152-1.H.2-....	210 (155)	15	0.92	0.16 (1.42)	108 (238)	gk230	18	6SL312-1TE21-8AA3
1FW3154-1.H.2-....	315 (232)	21.5	0.93	0.20 (1.77)	129 (284)	gk230	30	6SL312-1TE23-0AA3
1FW3155-1.H.2-....	420 (310)	29	0.94	0.24 (2.12)	150 (331)	gk230	30	6SL312-1TE23-0AA3
1FW3156-1.H.2-....	525 (387)	35	0.94	0.28 (2.48)	171 (377)	gk230	45	6SL312-1TE24-5AA3
1FW3201-1.H.2-....	315 (232)	24	0.92	0.22 (1.95)	127 (280)	gk230	30	6SL312-1TE23-0AA3
1FW3202-1.H.2-....	525 (387)	39	0.94	0.36 (3.19)	156 (344)	gk230	45	6SL312-1TE24-5AA3
1FW3203-1.H.2-....	790 (583)	62	0.95	0.49 (4.34)	182 (401)	gk420	60	6SL312-1TE26-0AA3
1FW3204-1.H.2-....	1050 (774)	77	0.95	0.70 (6.20)	223 (492)	gk420	85	6SL312-1TE28-5AA3
1FW3206-1.H.2-....	1575 (1162)	121	0.95	0.97 (8.59)	279 (615)	gk630	132	6SL312-1TE31-3AA3
1FW3208-1.H.2-....	2100 (1549)	160	0.94	1.31 (11.6)	348 (767)	gk630	200	6SL312-1TE32-0AA3
1FW3281-3.J.3-....	2500 (1844)	200	0.96	3.78 (33.5)	600 (1323)	1XB7700	200	6SL312-1TE32-0AA3
1FW3283-3.J.3-....	3500 (2582)	292	0.96	4.64 (41.1)	690 (1521)	1XB7700	310	6SL3320-1TE33-1AA3
1FW3285-3.J.3-....	5000 (3688)	400	0.96	5.98 (52.9)	860 (1896)	1XB7700	380	6SL3320-1TE33-8AA3
1FW3287-3.J.3-....	7000 (5163)	534	0.97	7.81 (69.1)	1030 (2271)	1XB7712	618 ⁵⁾	6SL3320-1TE37-5AA3

Format:	
Booksized	1
Chassis	3
Cooling:	
Internal air cooling	0
External air cooling	1
Motor Module:	
Single Motor Module	1

1) Maximum permissible operating speed based on the induced voltage in the motor and the voltage strength of the converter (without protective circuit).

2) Maximum speed which must not be exceeded.

3) Optimum efficiency in continuous duty.

4) Compliance with the rated pulse frequencies is essential; the rated motor data is valid for 4 kHz or 2 kHz.

5) The rated output current of the Motor Module is lower than the rated motor current at 2 kHz.

Direct drives

Torque motors for SINAMICS S120

1FW3 complete torque motors Water cooling

Selection and ordering data

Rated speed	Shaft height	Rated power	Rated torque	Rated current	Rated voltage	Rated frequency	Operating speed, max. ¹⁾	Speed, max. ²⁾	1FW3 complete torque motors Water cooling
n_{rated}	SH	P_{rated} at $\Delta T=100\text{ K}$	M_{rated} at $\Delta T=100\text{ K}$	I_{rated} at $\Delta T=100\text{ K}$	U_{rated}	f_{rated}	$n_{\text{max, Inv}}$	n_{max}	
rpm		kW (HP)	Nm (lb _r -ft)	A	V	Hz	rpm	rpm	Order No.
Line voltage 400 V 3 AC Active Line Module									
500	150	5.2 (6.97)	100 (73.8)	12	413	58.3	960	1700	1FW3150-1 L 2- AA0
		10.5 (14.1)	200 (148)	22	415	58.3	960	1700	1FW3152-1 L 2- AA0
		15.7 (21.1)	300 (221)	32	415	58.3	950	1700	1FW3154-1 L 2- AA0
		20.9 (28.0)	400 (295)	43	412	58.3	960	1700	1FW3155-1 L 2- AA0
		26.2 (35.1)	500 (369)	53	415	58.3	950	1700	1FW3156-1 L 2- AA0
	200	4.7 (6.30)	300 (221)	13	373	35.0	380	1000	1FW3201-1 E 2- AA0
		7.9 (10.6)	500 (369)	21	350	35.0	380	1000	1FW3202-1 E 2- AA0
		11.8 (15.8)	750 (553)	31	357	35.0	370	1000	1FW3203-1 E 2- AA0
		15.7 (21.1)	1000 (738)	40	351	35.0	360	1000	1FW3204-1 E 2- AA0
		23.6 (31.6)	1500 (1106)	65	331	35.0	390	1000	1FW3206-1 E 2- AA0
		31.4 (42.1)	2000 (1475)	84	337	35.0	380	1000	1FW3208-1 E 2- AA0
600	280	138.2 (185)	2200 (1623)	256	387	100.0	1050	1000	1FW3281-3 M 3- AA0
		194.5 (261)	3100 (2287)	357	394	100.0	1030	1000	1FW3283-3 M 3- AA0
		276.5 (371)	4400 (3245)	469	415	100.0	960	1000	1FW3285-3 M 3- AA0
		380.1 (510)	6050 (4462)	696	389	100.0	1030	1000	1FW3287-3 M 3- AA0
750	150	7.9 (10.6)	100 (73.8)	18	410	87.5	1470	1700	1FW3150-1 P 2- AA0
		15.7 (31.1)	200 (148)	32.5	415	87.5	1450	1700	1FW3152-1 P 2- AA0
		23.6 (31.6)	300 (221)	47.5	412	87.5	1420	1700	1FW3154-1 P 2- AA0
		31.4 (42.1)	400 (295)	64	401	87.5	1450	1700	1FW3155-1 P 2- AA0
		39.3 (52.7)	500 (369)	76	415	87.5	1380	1700	1FW3156-1 P 2- AA0

For versions, see Order No. supplement and options.

Further rated speeds on request.

Direct drives

Torque motors for SINAMICS S120

1FW3 complete torque motors
Water cooling

Motor type (repeated)	Static torque M_0 at $\Delta T=100\text{ K}$ Nm (lb _r -ft)	Static current I_0 at $\Delta T=100\text{ K}$ A	Efficiency ³⁾ η	Moment of inertia J kgm ² (lb _r -in-s ²)	Weight, approx. m kg (lb)	Terminal box Type	SINAMICS S120 Motor Module	
							Rated output current ⁴⁾ I_{rated} A	For additional versions and components see chapter SINAMICS S120 drive system Order No.
1FW3150-1.L.2-....	105 (77.4)	11.5	0.90	0.12 (1.06)	87 (192)	gk230	18	6SL312-1TE21-8AA3
1FW3152-1.L.2-....	210 (155)	22.5	0.92	0.16 (1.42)	108 (238)	gk230	30	6SL312-1TE23-0AA3
1FW3154-1.L.2-....	315 (232)	33	0.93	0.20 (1.77)	129 (284)	gk230	45	6SL312-1TE24-5AA3
1FW3155-1.L.2-....	420 (310)	45	0.94	0.24 (2.12)	150 (331)	gk230	45	6SL312-1TE24-5AA3
1FW3156-1.L.2-....	525 (387)	55	0.94	0.28 (2.48)	171 (377)	gk420	60	6SL312-1TE26-0AA3
1FW3201-1.E.2-....	315 (232)	13	0.91	0.22 (1.95)	127 (280)	gk230	18	6SL312-1TE21-8AA3
1FW3202-1.E.2-....	525 (387)	22	0.93	0.36 (3.19)	156 (344)	gk230	30	6SL312-1TE23-0AA3
1FW3203-1.E.2-....	790 (583)	32	0.94	0.49 (4.34)	182 (401)	gk230	45	6SL312-1TE24-5AA3
1FW3204-1.E.2-....	1050 (774)	42	0.94	0.70 (6.20)	223 (492)	gk230	45	6SL312-1TE24-5AA3
1FW3206-1.E.2-....	1575 (1162)	68	0.94	0.97 (8.59)	279 (615)	gk420	85	6SL312-1TE28-5AA3
1FW3208-1.E.2-....	2100 (1549)	88	0.94	1.31 (11.6)	348 (767)	gk420	85	6SL312-1TE28-5AA3
1FW3281-3.M.3-....	2500 (1844)	291	0.96	3.78 (33.5)	600 (1323)	1XB7700	260	6SL3320-1TE32-6AA3
1FW3283-3.M.3-....	3500 (2582)	402	0.96	4.64 (41.1)	690 (1521)	1XB7700	380	6SL3320-1TE33-8AA3
1FW3285-3.M.3-....	5000 (3688)	532	0.97	5.98 (52.9)	860 (1896)	1XB7712	490	6SL3320-1TE35-0AA3
1FW3287-3.M.3-....	6850 (5053)	787	0.97	7.81 (69.1)	1030 (2271)	1XB7712	734 ⁵⁾	6SL3320-1TE38-4AA3
1FW3150-1.P.2-....	105 (77.4)	17.5	0.90	0.12 (1.06)	87 (192)	gk230	30	6SL312-1TE23-0AA3
1FW3152-1.P.2-....	210 (155)	33.5	0.93	0.16 (1.42)	108 (238)	gk230	45	6SL312-1TE24-5AA3
1FW3154-1.P.2-....	315 (232)	49	0.93	0.20 (1.77)	129 (284)	gk230	60	6SL312-1TE26-0AA3
1FW3155-1.P.2-....	420 (310)	67	0.94	0.24 (2.12)	150 (331)	gk420	85	6SL312-1TE28-5AA3
1FW3156-1.P.2-....	525 (387)	80	0.94	0.28 (2.48)	171 (377)	gk420	85	6SL312-1TE28-5AA3

Format:	
Booksize	1
Chassis	3
Cooling:	
Internal air cooling	0
External air cooling	1
Motor Module:	
Single Motor Module	1

1) Maximum permissible operating speed based on the induced voltage in the motor and the voltage strength of the converter (without protective circuit).

2) Maximum speed which must not be exceeded.

3) Optimum efficiency in continuous duty.

4) Compliance with the rated pulse frequencies is essential; the rated motor data is valid for 4 kHz or 2 kHz.

5) The rated output current of the Motor Module is lower than the rated motor current at 2 kHz.

Direct drives

Torque motors for SINAMICS S120

1FW3 complete torque motors Water cooling

Selection and ordering data

Rated speed	Shaft height	Rated power	Rated torque	Rated current	Rated voltage	Rated frequency	Operating speed, max. ¹⁾	Speed, max. ²⁾	1FW3 complete torque motors Water cooling
n_{rated}	SH	P_{rated} at $\Delta T=100\text{ K}$	M_{rated} at $\Delta T=100\text{ K}$	I_{rated} at $\Delta T=100\text{ K}$	U_{rated}	f_{rated}	$n_{\text{max, Inv}}$	n_{max}	
rpm		kW (HP)	Nm (lb _r -ft)	A	V	Hz	rpm	rpm	Order No.
Line voltage 480 V 3 AC Smart Line Module/Basic Line Module/Active Line Module									
160	200	5.0 (6.71)	300 (221)	13	395	37.3	380	1000	1FW3201-1E2-AA0
		8.4 (11.3)	500 (369)	21	371	37.3	380	1000	1FW3202-1E2-AA0
		12.6 (16.9)	750 (553)	31	378	37.3	370	1000	1FW3203-1E2-AA0
		16.8 (22.5)	1000 (738)	40	372	37.3	360	1000	1FW3204-1E2-AA0
		25.1 (33.7)	1500 (1106)	65	351	37.3	390	1000	1FW3206-1E2-AA0
		33.5 (44.9)	2000 (1475)	84	357	37.3	380	1000	1FW3208-1E2-AA0
		41.9 (56.2)	2500 (1844)	82	413	26.7	290	1000	1FW3281-2E3-AA0
160	280	58.6 (78.6)	3500 (2582)	115	411	26.7	290	1000	1FW3283-2E3-AA0
		83.8 (112)	5000 (3688)	160	415	26.7	290	1000	1FW3285-2E3-AA0
		117.3 (157)	7000 (5163)	230	405	26.7	290	1000	1FW3287-2E3-AA0
		69.3 (92.9)	2450 (1807)	126	426	45.0	460	1000	1FW3281-2G3-AA0
160	280	96.1 (129)	3400 (2508)	173	424	45.0	460	1000	1FW3283-2G3-AA0
		138.5 (186)	4900 (3614)	241	437	45.0	440	1000	1FW3285-2G3-AA0
		195.1 (262)	6900 (5089)	352	423	45.0	460	1000	1FW3287-2G3-AA0
		330	150	3.5 (4.69)	100 (73.8)	8	437	38.5	630
6.9 (9.25)	200 (148)			14	441	38.5	630	1700	1FW3152-1H2-AA0
10.4 (13.9)	300 (221)			20.5	442	38.5	610	1700	1FW3154-1H2-AA0
13.8 (18.5)	400 (295)			28	431	38.5	630	1700	1FW3155-1H2-AA0
17.3 (23.2)	500 (369)			34	440	38.5	610	1700	1FW3156-1H2-AA0
330	200	10.4 (13.9)	300 (221)	23	412	77.0	680	1000	1FW3201-1H2-AA0
		17.3 (23.2)	500 (369)	37	399	77.0	670	1000	1FW3202-1H2-AA0
		25.9 (34.7)	750 (553)	59	376	77.0	710	1000	1FW3203-1H2-AA0
		34.6 (46.4)	1000 (738)	74	388	77.0	670	1000	1FW3204-1H2-AA0
		51.8 (69.5)	1500 (1106)	118	384	77.0	700	1000	1FW3206-1H2-AA0
		69.1 (92.7)	2000 (1475)	153	379	77.0	690	1000	1FW3208-1H2-AA0

For versions, see Order No.
supplement and options.

Further rated speeds on request.

Direct drives

Torque motors for SINAMICS S120

1FW3 complete torque motors
Water cooling

Motor type (repeated)	Static torque M_0 at $\Delta T=100\text{ K}$ Nm (lb _r -ft)	Static current I_0 at $\Delta T=100\text{ K}$ A	Efficiency ³⁾ η	Moment of inertia J kgm ² (lb _r -in-s ²)	Weight, approx. m kg (lb)	Terminal box Type	SINAMICS S120 Motor Module	
							Rated output current ⁴⁾ I_{rated} A	For additional versions and components see chapter SINAMICS S120 drive system Order No.
1FW3201-1.E.2-....	315 (232)	13	0.91	0.22 (1.95)	127 (280)	gk230	30	6SL312-1TE23-0AA3
1FW3202-1.E.2-....	525 (387)	22	0.93	0.36 (3.19)	156 (344)	gk230	30	6SL312-1TE23-0AA3
1FW3203-1.E.2-....	790 (583)	32	0.94	0.49 (4.34)	182 (401)	gk230	45	6SL312-1TE24-5AA3
1FW3204-1.E.2-....	1050 (774)	42	0.94	0.70 (6.20)	223 (492)	gk230	45	6SL312-1TE24-5AA3
1FW3206-1.E.2-....	1575 (1162)	68	0.94	0.97 (8.59)	279 (615)	gk420	85	6SL312-1TE28-5AA3
1FW3208-1.E.2-....	2100 (1549)	88	0.94	1.31 (11.6)	348 (767)	gk420	85	6SL312-1TE28-5AA3
1FW3281-2.E.3-....	2550 (1881)	84	0.94	3.78 (33.5)	600 (1323)	1XB7700	85	6SL312-1TE28-5AA3
1FW3283-2.E.3-....	3550 (2618)	116	0.95	4.64 (41.1)	690 (1521)	1XB7700	132	6SL312-1TE31-3AA3
1FW3285-2.E.3-....	5100 (3782)	163	0.95	5.98 (52.9)	860 (1896)	1XB7700	200	6SL312-1TE32-0AA3
1FW3287-2.E.3-....	7150 (5274)	234	0.96	7.81 (69.1)	1030 (2271)	1XB7700	260	6SL3320-1TE32-6AA3
1FW3281-2.G.3-....	2550 (1881)	131	0.95	3.78 (33.5)	600 (1323)	1XB7700	132	6SL312-1TE31-3AA3
1FW3283-2.G.3-....	3550 (2618)	181	0.96	4.64 (41.1)	690 (1521)	1XB7700	200	6SL312-1TE32-0AA3
1FW3285-2.G.3-....	5100 (3782)	251	0.96	5.98 (52.9)	860 (1896)	1XB7700	260	6SL3320-1TE32-6AA3
1FW3287-2.G.3-....	7150 (5274)	365	0.96	7.81 (69.1)	1030 (2271)	1XB7700	380	6SL3320-1TE33-8AA3
1FW3150-1.H.2-....	105 (77.4)	7.3	0.89	0.12 (1.06)	87 (192)	gk230	9	6SL312-1TE21-0AA3
1FW3152-1.H.2-....	210 (155)	15	0.92	0.16 (1.42)	108 (238)	gk230	18	6SL312-1TE21-8AA3
1FW3154-1.H.2-....	315 (232)	21.5	0.93	0.20 (1.77)	129 (284)	gk230	30	6SL312-1TE23-0AA3
1FW3155-1.H.2-....	420 (310)	29	0.94	0.24 (2.12)	150 (331)	gk230	30	6SL312-1TE23-0AA3
1FW3156-1.H.2-....	525 (387)	35	0.94	0.28 (2.48)	171 (377)	gk230	45	6SL312-1TE24-5AA3
1FW3201-1.H.2-....	315 (232)	24	0.92	0.22 (1.95)	127 (280)	gk230	30	6SL312-1TE23-0AA3
1FW3202-1.H.2-....	525 (387)	39	0.94	0.36 (3.19)	156 (344)	gk230	45	6SL312-1TE24-5AA3
1FW3203-1.H.2-....	790 (583)	62	0.95	0.49 (4.34)	182 (401)	gk420	60	6SL312-1TE26-0AA3
1FW3204-1.H.2-....	1050 (774)	77	0.95	0.70 (6.20)	223 (492)	gk420	85	6SL312-1TE28-5AA3
1FW3206-1.H.2-....	1575 (1162)	121	0.95	0.97 (8.59)	279 (615)	gk630	132	6SL312-1TE31-3AA3
1FW3208-1.H.2-....	2100 (1549)	160	0.94	1.31 (11.6)	348 (767)	gk630	200	6SL312-1TE32-0AA3

Format:	
Booksize	1
Chassis	3
Cooling:	
Internal air cooling	0
External air cooling	1
Motor Module:	
Single Motor Module	1

- 1) Maximum permissible operating speed based on the induced voltage in the motor and the voltage strength of the converter (without protective circuit).
 2) Maximum speed which must not be exceeded.
 3) Optimum efficiency in continuous duty.
 4) Compliance with the rated pulse frequencies is essential; the rated motor data is valid for 4 kHz or 2 kHz.

Direct drives

Torque motors for SINAMICS S120

1FW3 complete torque motors Water cooling

Selection and ordering data

Rated speed	Shaft height	Rated power	Rated torque	Rated current	Rated voltage	Rated frequency	Operating speed, max. ¹⁾	Speed, max. ²⁾	1FW3 complete torque motors Water cooling
n_{rated}	SH	P_{rated} at $\Delta T=100\text{ K}$	M_{rated} at $\Delta T=100\text{ K}$	I_{rated} at $\Delta T=100\text{ K}$	U_{rated}	f_{rated}	$n_{\text{max, Inv}}$	n_{max}	
rpm		kW (HP)	Nm (lb _r -ft)	A	V	Hz	rpm	rpm	Order No.
Line voltage 480 V 3 AC Smart Line Module/Basic Line Module/Active Line Module									
430	280	105.8 (142)	2350 (1733)	188	417	71.7	720	1000	1FW3281-3 J 3-AA0
		146.3 (196)	3250 (2397)	271	398	71.7	750	1000	1FW3283-3 J 3-AA0
		209.4 (281)	4650 (3430)	372	412	71.7	720	1000	1FW3285-3 J 3-AA0
		294.9 (395)	6550 (4831)	500	433	71.7	690	1000	1FW3287-3 J 3-AA0
550	150	5.8 (7.78)	100 (73.8)	12	448	64.2	960	1700	1FW3150-1 L 2-AA0
		11.5 (15.4)	200 (148)	22	448	64.2	960	1700	1FW3152-1 L 2-AA0
		17.3 (23.2)	300 (221)	32	448	64.2	950	1700	1FW3154-1 L 2-AA0
		23.0 (30.8)	400 (295)	43	448	64.2	960	1700	1FW3155-1 L 2-AA0
		28.8 (38.6)	500 (369)	53	448	64.2	950	1700	1FW3156-1 L 2-AA0
	200	5.0 (6.71)	300 (221)	13	395	37.3	380	1000	1FW3201-1 E 2-AA0
		8.4 (11.3)	500 (369)	21	371	37.3	380	1000	1FW3202-1 E 2-AA0
		12.6 (16.9)	750 (553)	31	378	37.3	370	1000	1FW3203-1 E 2-AA0
		16.8 (22.5)	1000 (738)	40	372	37.3	360	1000	1FW3204-1 E 2-AA0
		25.1 (33.7)	1500 (1106)	65	351	37.3	390	1000	1FW3206-1 E 2-AA0
		33.5 (44.9)	2000 (1475)	84	357	37.3	380	1000	1FW3208-1 E 2-AA0
		650	280	146.3 (196)	2150 (1586)	250	415	108.3	1050
204.2 (274)	3000 (2213)			345	421	108.3	1030	1000	1FW3283-3 M 3-AA0
292.7 (393)	4300 (3172)			457	448	108.3	960	1000	1FW3285-3 M 3-AA0
401.6 (539)	5900 (4352)			678	418	108.3	1030	1000	1FW3287-3 M 3-AA0
810	150	8.5 (11.4)	100 (73.8)	18	441	94.5	1470	1700	1FW3150-1 P 2-AA0
		17 (22.8)	200 (148)	32.5	448	94.5	1450	1700	1FW3152-1 P 2-AA0
		25.4 (34.1)	300 (221)	47.5	444	94.5	1420	1700	1FW3154-1 P 2-AA0
		33.9 (45.5)	400 (295)	64	432	94.5	1450	1700	1FW3155-1 P 2-AA0
		42.4 (56.9)	500 (369)	76	448	94.5	1380	1700	1FW3156-1 P 2-AA0

For versions, see Order No.
supplement and options.

Further rated speeds on request.

Direct drives

Torque motors for SINAMICS S120

1FW3 complete torque motors
Water cooling

Motor type (repeated)	Static torque M_0 at $\Delta T=100\text{ K}$ Nm (lb _r -ft)	Static current I_0 at $\Delta T=100\text{ K}$ A	Efficiency ³⁾ η	Moment of inertia J kgm ² (lb _r -in-s ²)	Weight, approx. m kg (lb)	Terminal box Type	SINAMICS S120 Motor Module	
							Rated output current ⁴⁾ I_{rated} A	For additional versions and components see chapter SINAMICS S120 drive system Order No.
1FW3281-3.J.3-....	2500 (1844)	200	0.96	3.78 (33.5)	600 (1323)	1XB7700	200	6SL312-1TE32-0AA3
1FW3283-3.J.3-....	3500 (2582)	292	0.96	4.64 (41.1)	690 (1521)	1XB7700	310	6SL3320-1TE33-1AA3
1FW3285-3.J.3-....	5000 (3688)	400	0.96	5.98 (52.9)	860 (1896)	1XB7700	380	6SL3320-1TE33-8AA3
1FW3287-3.J.3-....	7000 (5163)	534	0.97	7.81 (69.1)	1030 (2271)	1XB7712	502 ⁵⁾	6SL3320-1TE36-1AA3
1FW3150-1.L.2-....	105 (77.4)	11.5	0.90	0.12 (1.06)	87 (192)	gk230	18	6SL312-1TE21-8AA3
1FW3152-1.L.2-....	210 (155)	22.5	0.92	0.16 (1.42)	108 (238)	gk230	30	6SL312-1TE23-0AA3
1FW3154-1.L.2-....	315 (232)	33	0.93	0.20 (1.77)	129 (284)	gk230	45	6SL312-1TE24-5AA3
1FW3155-1.L.2-....	420 (310)	45	0.94	0.24 (2.12)	150 (331)	gk230	45	6SL312-1TE24-5AA3
1FW3156-1.L.2-....	525 (387)	55	0.94	0.28 (2.48)	171 (377)	gk420	60	6SL312-1TE26-0AA3
1FW3201-1.E.2-....	315 (232)	13	0.91	0.22 (1.95)	127 (280)	gk230	18	6SL312-1TE21-8AA3
1FW3202-1.E.2-....	525 (387)	22	0.93	0.36 (3.19)	156 (344)	gk230	30	6SL312-1TE23-0AA3
1FW3203-1.E.2-....	790 (583)	32	0.94	0.49 (4.34)	182 (401)	gk230	45	6SL312-1TE24-5AA3
1FW3204-1.E.2-....	1050 (774)	42	0.94	0.70 (6.20)	223 (492)	gk230	45	6SL312-1TE24-5AA3
1FW3206-1.E.2-....	1575 (1162)	68	0.94	0.97 (8.59)	279 (615)	gk420	85	6SL312-1TE28-5AA3
1FW3208-1.E.2-....	2100 (1549)	88	0.94	1.31 (11.6)	348 (767)	gk420	85	6SL312-1TE28-5AA3
1FW3281-3.M.3-....	2500 (1844)	291	0.96	3.78 (33.5)	600 (1323)	1XB7700	260	6SL3320-1TE32-6AA3
1FW3283-3.M.3-....	3500 (2582)	402	0.96	4.64 (41.1)	690 (1521)	1XB7700	380	6SL3320-1TE33-8AA3
1FW3285-3.M.3-....	5000 (3688)	532	0.97	5.98 (52.9)	860 (1896)	1XB7712	490	6SL3320-1TE35-0AA3
1FW3287-3.M.3-....	6850 (5053)	787	0.97	7.81 (69.1)	1030 (2271)	1XB7712	734 ⁵⁾	6SL3320-1TE38-4AA3
1FW3150-1.P.2-....	105 (77.4)	17.5	0.90	0.12 (1.06)	87 (192)	gk230	30	6SL312-1TE23-0AA3
1FW3152-1.P.2-....	210 (155)	33.5	0.93	0.16 (1.42)	108 (238)	gk230	45	6SL312-1TE24-5AA3
1FW3154-1.P.2-....	315 (232)	49	0.93	0.20 (1.77)	129 (284)	gk230	60	6SL312-1TE26-0AA3
1FW3155-1.P.2-....	420 (310)	67	0.94	0.24 (2.12)	150 (331)	gk420	85	6SL312-1TE28-5AA3
1FW3156-1.P.2-....	525 (387)	80	0.94	0.28 (2.48)	171 (377)	gk420	85	6SL312-1TE28-5AA3

Format:	
Booksize	1
Chassis	3
Cooling:	
Internal air cooling	0
External air cooling	1
Motor Module:	
Single Motor Module	1

1) Maximum permissible operating speed based on the induced voltage in the motor and the voltage strength of the converter (without protective circuit).

2) Maximum speed which must not be exceeded.

3) Optimum efficiency in continuous duty.

4) Compliance with the rated pulse frequencies is essential; the rated motor data is valid for 4 kHz or 2 kHz.

5) The rated output current of the Motor Module is lower than the rated motor current at 2 kHz.

Direct drives

Torque motors for SINAMICS S120

1FW3 complete torque motors Water cooling

Order No. supplement

Data position of the Order No.	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	Z	
Shaft height 150	1	F	W	3	1	5	.	-	1	■	.	■	2	-	■	A	A	0	-	Z	
Shaft height 200	1	F	W	3	2	0	.	-	1	■	.	■	2	-	■	A	A	0	-	Z	
Shaft height 280	1	F	W	3	2	8	.	-	.	■	.	■	3	-	■	A	A	0	-	Z	
Construction length¹⁾										.											
High Torque (1FW315/1FW320)										1											
High Torque (1FW328)										2											
High Speed (1FW328)										3											
Encoder systems for motors without DRIVE-CLiQ interface										Mounting											
Without encoder										Coaxial mounted		W	6								
Incremental encoder sin/cos 1 V _{pp} 2048 S/R with C and D tracks (encoder IC2048S/R)										Belt-mounted		A	7								
Absolute encoder 2048 S/R, 4096 revolutions, multi-turn (encoder AM2048S/R)										Coaxial mounted		E	6								
Absolute encoder 2048 S/R, 4096 revolutions, multi-turn (encoder AM2048S/R)										Belt-mounted		E	7								
Absolute encoder 2048 S/R (encoder AS2048S/R)										Coaxial mounted		N	6								
Resolver, multi-pole (number of pole pairs corresponds to number of pole pairs of the motor)										Belt-mounted		S	7								
Encoder systems for motors with DRIVE-CLiQ interface										Mounting											
Incremental encoder 22 bit (resolution 4194304, internal 2048 S/R) + commutating position 11 bit (encoder IC22DQ)										Belt-mounted		D	7								
Absolute encoder 22 bit (resolution 4194304, internal 2048 S/R) + 12 bit multi-turn (traversing range 4096 revolutions) (encoder AM22DQ)										Coaxial mounted		F	6								
Absolute encoder 22 bit (resolution 4194304, internal 2048 S/R) + 12 bit multi-turn (traversing range 4096 revolutions) (encoder AM22DQ)										Belt-mounted		F	7								
Absolute encoder, 22 bit (resolution 4194304, internal 2048 S/R) (encoder AS22DQ)										Coaxial mounted		P	6								
Resolver 15 bit (resolution 32768, internal, multi-pole) (resolver R15DQ)										Belt-mounted		U	7								
Rated speeds at 380 to 480 V 3 AC (winding design)																					
140 rpm/150 rpm/160 rpm										E											
220 rpm/250 rpm/270 rpm										G											
270 rpm/300 rpm/330 rpm										H											
350 rpm/400 rpm/430 rpm										J											
450 rpm/500 rpm/550 rpm										L											
520 rpm/600 rpm/650 rpm										M											
670 rpm/750 rpm/810 rpm										P											
Type of construction																					
IM B14 for 1FW315/1FW320										2											
IM B35 for 1FW328										3											
Power connection (view of DE)										Cable outlet											
Terminal box top										Transverse right					5						
Terminal box top										Transverse left					6						
Terminal box top										NDE					7						
Terminal box top										DE					8						
Special version (order codes are required for options)																				-	Z

¹⁾ Not selectable. Determined by the choice of rated power.