

Selection and ordering data for drive converters and inverters - basic drive units

Nominal power rating ¹⁾	Selection data				Drive converters	Inverters	Total power loss at 5 kHz/ 10 kHz ³⁾	Dimensions W x H x D	Weight	Cooling air requirement
	Rated output current ³⁾ I _{Un}	Short-time current ²⁾ I _{max}	Rated DC link current I _{DCn}	Line current						
kW	A	A	A	A	Order No.	Order No.	kW	mm	kg	m³/s
Line supply voltage 3-ph. 380 V to 480 V AC and 510 V to 650 V DC										
Compact PLUS units										
0.55	1.5	4.5/2.4	-	1.7	x 6SE7011-5EP50 ^{5) 6)}		0.070	45 x 360 x 260	3.0	0.002
1.1	3.0	9.0/4.8	-	3.3	x 6SE7013-0EP50 ^{5) 6)}		0.104	67.5 x 360 x 260	3.7	0.009
1.5	5.0	15/8	-	5.5	x 6SE7015-0EP50 ^{5) 6)}		0.150	67.5 x 360 x 260	3.7	0.009
3	8.0	24/12.8	-	8.8	x 6SE7018-0EP50 ^{5) 6)}		0.216	90 x 360 x 260	4.1	0.018
4	10.0	30/16	-	9.7	x 6SE7021-0EP50 ^{5) 6)}		0.240	90 x 360 x 260	4.2	0.018
5.5	14	42/22.4	-	12.6	+ 6SE7021-4EP50 ^{4) 5) 6)}		0.270	135 x 360 x 260	11.1	0.042
7.5	20.5	61.5/32.8	-	16.7	+ 6SE7022-1EP50 ^{4) 5) 6)}		0.340	135 x 360 x 260	11.2	0.042
11	27	81/43.2	-	23.2	+ 6SE7022-7EP50 ^{4) 5) 6)}		0.470	180 x 360 x 260	15.3	0.061
15	34	102/54.4	-	31.7	+ 6SE7023-4EP50 ^{4) 5) 6)}		0.630	180 x 360 x 260	15.5	0.061
0.75	2.0	6.0/3.2	2.5	-		+ 6SE7012-0TP50 ^{4) 6)}	0.066	45 x 360 x 260	2.6	0.002
1.5	4.0	12/6.4	5.0	-		+ 6SE7014-0TP50 ^{4) 6)}	0.086	67.5 x 360 x 260	3.2	0.009
2.2	6.1	18.3/9.6	7.3	-		+ 6SE7016-0TP50 ^{4) 6)}	0.116	67.5 x 360 x 260	3.3	0.009
4	10.2	30.6/16.3	12.1	-		+ 6SE7021-0TP50 ^{4) 6)}	0.156	90 x 360 x 260	3.4	0.018
5.5	13.2	39.6/21.1	15.7	-		+ 6SE7021-3TP50 ^{4) 6)}	0.240	135 x 360 x 260	8.9	0.042
7.5	17.5	52.5/28	20.8	-		+ 6SE7021-8TP50 ^{4) 6)}	0.300	135 x 360 x 260	9.1	0.042
11	25.5	76.5/40.8	30.4	-		+ 6SE7022-6TP50 ^{4) 6)}	0.410	135 x 360 x 260	9.3	0.042
15	34	102/54.4	40.5	-		+ 6SE7023-4TP50 ^{4) 6)}	0.560	180 x 360 x 260	13.8	0.061
18.5	37.5	112.5/60	44.6	-		+ 6SE7023-8TP50 ^{4) 6)}	0.660	180 x 360 x 260	14.0	0.061
Compact units										
2.2	6.1	9.6	7.3	6.7	x 6SE7016-1EA51	o 6SE7016-1TA51	0.15	90 x 425 x 350	8.5	0.009
3	8.0	12.8	9.5	8.8	x 6SE7018-0EA51	o 6SE7018-0TA51	0.17	90 x 425 x 350	8.5	0.009
4	10.2	16.3	12.1	11.2	x 6SE7021-0EA51	o 6SE7021-0TA51	0.21	90 x 425 x 350	8.5	0.009
5.5	13.2	21.1	15.7	14.5	x 6SE7021-3EB51	o 6SE7021-3TB51	0.23	135 x 425 x 350	12.5	0.022
7.5	17.5	28	20.8	19.3	x 6SE7021-8EB51	o 6SE7021-8TB51	0.30	135 x 425 x 350	12.5	0.022
11	25.5	40.8	30.4	28.1	x 6SE7022-6EC51	o 6SE7022-6TC51	0.43	180 x 600 x 350	21	0.028
15	34	54.4	40.5	37.4	x 6SE7023-4EC51	o 6SE7023-4TC51	0.59	180 x 600 x 350	21	0.028
18.5	37.5	60	44.6	41.3	x 6SE7023-8ED51	o 6SE7023-8TD51	0.70	270 x 600 x 350	32	0.054
22	47	75.2	55.9	51.7	x 6SE7024-7ED51	o 6SE7024-7TD51	0.87	270 x 600 x 350	32	0.054
30	59	94.4	70.2	64.9	x 6SE7026-0ED51	o 6SE7026-0TD51	1.02	270 x 600 x 350	32	0.054
37	72	115.2	85.7	79.2	x 6SE7027-2ED51	o 6SE7027-2TD51	1.27	270 x 600 x 350	32	0.054
Chassis units										
45	92	147	110	101	+ 6SE7031-0EE50 ⁴⁾	+ 6SE7031-0TE50 ⁴⁾	1.38	270 x 1050 x 350	55	0.10
55	124	198	148	136	+ 6SE7031-2EF50 ⁴⁾	+ 6SE7031-2TF50 ⁴⁾	1.83	360 x 1050 x 350	65	0.14
75	155	248	184	171	+ 6SE7031-8EF50 ⁴⁾	+ 6SE7031-8TF50 ⁴⁾	2.43	360 x 1050 x 350	65	0.14
90	175	280	208	192	+ 6SE7032-1EG50 ⁴⁾	+ 6SE7032-1TG50 ⁴⁾	2.77	508 x 1450 x 450	155	0.31
110	218	345	254	238	+ 6SE7032-6EG50 ⁴⁾	+ 6SE7032-6TG50 ⁴⁾	3.45	508 x 1450 x 450	155	0.31
132	262	419	312	288	+ 6SE7033-2EG50 ⁴⁾	+ 6SE7033-2TG50 ⁴⁾	4.25	508 x 1450 x 450	165	0.41
160	308	493	367	339	+ 6SE7033-7EG50 ⁴⁾	+ 6SE7033-7TG50 ⁴⁾	5.30	508 x 1450 x 450	165	0.41
200	423	575			+ 6SE7035-1EK50 ⁴⁾			800 x 1750 x 551		
200	423	575				+ 6SE7035-1TJ50 ⁴⁾		800 x 1400 x 551		

o "SAFETY OFF" as standard

+ "SAFETY OFF" option possible. specify code **K80**

x "SAFETY OFF" not possible

1) Nominal power ratings for SIMOVERT MASTERDRIVES are only intended to help you select the components. The actual drive outputs depend on the motor and must be appropriately engineered.

2) 300% rated output current for 250 ms (for Compact PLUS units only) / 160% rated output current for 30 s; 136% for 200 kW units.

3) For Compact PLUS units 10 kHz. for Compact- and chassis units 5 kHz.

4) When ordering with the standard "SAFETY OFF" option. the Order No. must be supplemented with **-Z.** and code **K80** specified.

5) The braking chopper is integrated in the Compact PLUS drive converters. The appropriate brake resistor must be selected and externally mounted.

6) If DC busbars are required. then standard tinned 3 x 10 mm copper busbars should be used.

Selection and ordering data for rectifier units and rectifier-regenerative feedback units

Rated output 2)	Selection data					Rectifier unit	Total power loss	Dimensions W × H × D	Weight, approx.	Cooling air requirement
	Rectifier units									
	Rated DC link current I _{DC link n}	Basic DC link load current I _{DC link G}	DC link short-time current I _{DC link max.}	Max. DC link inverter current ³⁾	Input current ⁴⁾					
kW	A	A	A	A	A	Order No.	kW	mm	kg	m³/s
Line supply voltage, 3-ph. 380 V to 480 V AC										
Compact PLUS units										
15	41	41	123 / 65 ⁵⁾	80	36	6SE7024-1EP85-0AA0 ⁷⁾	0.13	90 x 360 x 260	4	0.018
50	120	120	360 / 192 ⁵⁾	⁶⁾	108	6SE7031-2EP85-0AA0 ⁷⁾	0.27	135 x 360 x 260	10	0.041
100	230	230	690 / 368 ⁵⁾	⁶⁾	207	6SE7032-3EP85-0AA0 ⁷⁾	0.60	180 x 360 x 260	14	0.053
Compact units										
15	41	37	56	45	36	6SE7024-1EB85-0AA0	0.12	135 x 425 x 350	12	0.022
37	86	78	117	95	75	6SE7028-6EC85-0AA0	0.26	180 x 600 x 350	18	0.028
Chassis units										
75	173	157	235	⁶⁾	151	6SE7031-7EE85-0AA0	0.62	270 x 1050 x 350	45	0.2
110	270	246	367	⁶⁾	235	6SE7032-7EE85-0AA0	0.86	270 x 1050 x 350	45	0.2
160	375	341	510	⁶⁾	327	6SE7033-8EE85-0AA0	1.07	270 x 1050 x 350	45	0.2
200	463	421	630	⁶⁾	404	6SE7034-6EE85-0AA0	1.32	270 x 1050 x 350	45	0.2
250	605	551	823	⁶⁾	528	6SE7036-1EE85-0AA0	1.67	270 x 1050 x 350	45	0.2

Rated output 1) 2)	Selection data					Rectifier-regenerative feedback unit	Total power loss	Dimensions W × H × D	Weight, approx.	Cooling air requirement
	Rectifier-regenerative feedback units									
	Rated DC link current I _{DC link n}	Basic DC link load current I _{DC link G}	DC link short-time current I _{DC link max.}		Input current ⁴⁾					
kW	A	A	A		A	Order No.	kW	mm	kg	m³/s
Line supply voltage 3-ph. 380 V to 480 V AC										
Compact units										
7.5	21	19	29		18	6SE7022-1EC85-1AA0	0.15	180 x 600 x 350	23	0.028
15	41	37	56		35	6SE7024-1EC85-1AA0	0.20	180 x 600 x 350	23	0.028
37	86	78	117		74	6SE7028-6EC85-1AA0	0.31	180 x 600 x 350	23	0.028
Chassis units										
75	173	157	235		149	6SE7031-7EE85-1AA0	0.69	270 x 1050 x 350	65	0.2
90	222	202	302		191	6SE7032-2EE85-1AA0	0.97	270 x 1050 x 350	65	0.2
132	310	282	422		267	6SE7033-1EE85-1AA0	1.07	270 x 1050 x 350	65	0.2
160	375	341	510		323	6SE7033-8EE85-1AA0	1.16	270 x 1050 x 350	65	0.2
200	463	421	630		398	6SE7034-6EE85-1AA0	1.43	270 x 1050 x 350	65	0.2
250	605	551	823		520	6SE7036-1EE85-1AA0	1.77	270 x 1050 x 350	65	0.2

1) Rated outputs are only used to help select the components. The drive outputs depend on the connected inverters, and must be appropriately engineered.

2) Equipment impedance: $Z = \frac{U_N}{\sqrt{3}I_{Un}}$

3) The connected inverters may not exceed the specified total DC link current.

4) The current data is based on a line supply inductance of **3 %** referred to the equipment impedance **Z**, i.e. the ratio of the fault level to the drive converter output **S** is **33 : 1** or **100 : 1**, if an additional 2% line reactor is used.

5) 3 x I_{DC link} for 250 ms (for Compact PLUS rectifier units only) / 1.6 x I_{DC link} for 30 s.

6) No restrictions, as the pre-charging is realized via the thyristor gating control.

7) The braking chopper is installed in the Compact PLUS rectifier unit. The appropriate brake resistor must be selected and externally mounted. The 24 V current requirement is approx. 0.5 A per rectifier unit.

Motor combinations, Compact PLUS (selection)

3-phase converter with 1FK6 AC servo motors												Converter data for input voltage 380 V to 480 V 3-phase AC	
Motor data for utilization to heat class F													
Rated speed	Motor	Rated power	Rated torque	Rated current	Torque constant	Static torque	Static current	Moment of inertia without brake	Weight without brake	Connector size for power cable	Overload capability ¹⁾	Rated output current	Converter
n_{rated} min ⁻¹	Order No.	P_{rated} kW	M_{rated} Nm	I_{rated} A	K_{Tn} Nm/A	M_0 Nm	I_0 A	$J \times 10^{-3}$ kgm ²	m kg		M_{max}/M_0 160%/300%	I_{Urated} A	Order No.
3000	1FK6042-6AF71-1..0	0.82	2.6	2.4	1.08	3.2	2.8	0.35	5.0	1	1.7/3.1	3.0	6SE7013-0EP50
	1FK6060-6AF71-1..0	1.26	4.0	3.1	1.29	6.0	4.5	0.86	9.0	1	1.8/3.1	5.0	6SE7015-0EP50
	1FK6063-6AF71-1..0	1.88	6.0	4.9	1.22	11.0	8.3	1.61	13.2	1	1.9/3.4	10.0	6SE7021-0EP50
	1FK6080-6AF71-1..0	2.14	6.8	5.3	1.28	8.0	6.0	1.61	12.5	1	2.1/3.0	8.0	6SE7018-0EP50
	1FK6083-6AF71-1..0	3.30	10.5	7.8	1.35	16.0	10.6	2.71	17.0	1	2.1/3.0	14.0	6SE7021-4EP50
	1FK6100-8AF71-1..0	3.77	12.0	9.0	1.33	18.0	12.8	5.72	21.0	1	1.7/2.9	14.0	6SE7021-4EP50
	1FK6101-8AF71-1..0	4.87	15.5	10.8	1.44	27.0	17.9	8.95	26.0	1.5	1.8/2.8	20.5	6SE7022-1EP50
	1FK6103-8AF71-1..0	5.18	16.5	11.6	1.42	36.0	23.8	12.15	30.0	1.5	1.8/2.8	27.0	6SE7022-7EP50
6000	1FK6032-6AK71-1..0	0.50	0.8	1.5	0.53	1.1	1.7	0.06	2.9	1	2.8/4.1	3.0	6SE7013-0EP50
	1FK6040-6AK71-1..0	0.50	0.8	1.7	0.47	1.6	2.8	0.19	3.7	1	1.7/3.2	3.0	6SE7013-0EP50

3-phase inverter with 1FK6 AC servo motors												Inverter data for input voltage 380 V to 480 V 3-phase AC	
Motor data for utilization to heat class F													
Rated speed	Motor	Rated power	Rated torque	Rated current	Torque constant	Static torque	Static current	Moment of inertia without brake	Weight without brake	Connector size for power cable	Overload capability ¹⁾	Rated output current	Inverter
n_{rated}		P_{rated}	M_{rated}	I_{rated}	K_{Tn}	M_0	I_0	$J \times 10^{-3}$	m		M_{max}/M_0	I_{Urated}	
min ⁻¹	Order No.	kW	Nm	A	Nm/A	Nm	A	kgm ²	kg		160%/300%	A	Order No.
3000	1FK6042-6AF71-1..0	0.82	2.6	2.4	1.08	3.2	2.8	0.35	5.0	1	2.2/3.2	4.0	6SE7014-0TP50
	1FK6060-6AF71-1..0	1.26	4.0	3.1	1.29	6.0	4.5	0.86	9.0	1	2.2/3.1	6.1	6SE7016-0TP50
	1FK6063-6AF71-1..0	1.88	6.0	4.9	1.22	11.0	8.3	1.61	13.2	1	2.0/3.4	10.2	6SE7021-0TP50
	1FK6080-6AF71-1..0	2.14	6.8	5.3	1.28	8.0	6.0	1.61	12.5	1	1.6/3.0	6.1	6SE7016-0TP50
	1FK6083-6AF71-1..0	3.30	10.5	7.8	1.35	16.0	10.6	2.71	17.0	1	1.9/3.0	13.2	6SE7021-3TP50
	1FK6100-8AF71-1..0	3.77	12.0	9.0	1.33	18.0	12.8	5.72	21.0	1	1.6/2.8	13.2	6SE7021-3TP50
	1FK6101-8AF71-1..0	4.87	15.5	10.8	1.44	27.0	17.9	8.95	26.0	1.5	1.5/2.6	17.5	6SE7021-8TP50
	1FK6103-8AF71-1..0	5.18	16.5	11.6	1.42	36.0	23.8	12.15	30.0	1.5	1.7/2.8	25.5	6SE7022-6TP50
6000	1FK6032-6AK71-1..0	0.50	0.8	1.5	0.53	1.1	1.7	0.06	2.9	1	1.9/3.4	2.0	6SE7012-0TP50
	1FK6040-6AK71-1..0	0.50	0.8	1.7	0.47	1.6	2.8	0.19	3.7	1	2.3/3.2	4.0	6SE7014-0TP50

1) M_{max}/M_0 : Maximum torque attainable with this motor converter combination restricted by the converter (max. 30 seconds for 160%; max. 0.25 seconds for 300%).