



IE1

SIMOTICS SD 1PP Standard Motors

Motors with Standard Efficiency IE1

Forced-air cooled motors without external fan and fan cover – Cast-iron series 1PP4

Selection and ordering data

Operating values at rated output														Cast-iron series		$m_{IM\ B3}$	J	Torque class	
$P_{rated, 50\ Hz}$	$P_{rated, 60\ Hz}$	Frame size	$n_{rated, 50\ Hz}$	$T_{rated, 50\ Hz}$	IE class	$\eta_{rated, 50\ Hz, 4/4}$	$\eta_{rated, 50\ Hz, 3/4}$	$\eta_{rated, 50\ Hz, 2/4}$	$\cos\phi_{rated, 50\ Hz, 4/4}$	$I_{LR, 50\ Hz}$	$I_{LR, 50\ Hz}$	$I_B, 50\ Hz$	$L_{pFA, 50\ Hz}$	$L_{WA, 50\ Hz}$	1PP4 – IE1 version in accordance with IEC 60034-30 Order No.				kg
kW	kW	FS	rpm	Nm	%	%	%	%	A										
<ul style="list-style-type: none"> Cooling: Forced-air cooled without external fan and fan cover (IC 416) Efficiency: Standard Efficiency IE1, service factor (SF) 1.1 Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) 																			
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz ¹⁾																			
22	24.5	180 M	2945	71	IE1	90.5	90.9	90.9	0.86	41 ²⁾	2.5	6.4	3.4	–	–	1PP4183-2FA	140	0.068	16
30	33.5	200 L	2950	97	IE1	91.5	91.9	91.7	0.88	54 ²⁾	2.3	6.5	3.0	–	–	1PP4206-2FA	195	0.13	16
37	41.5	200 L	2955	120	IE1	91.9	92.4	92.1	0.89	65 ²⁾	2.5	7.2	3.3	–	–	1PP4207-2FA	215	0.15	16
45	51	225 M	2960	145	IE1	92.1	92.6	92.4	0.88	80 ²⁾	2.4	6.7	3.1	–	–	1PP4223-2FA	275	0.22	16
55	62	250 M	2970	177	IE1	92.8	93.2	92.9	0.88	97	2.1	6.7	3.1	–	–	1PP4253-2FB	360	0.40	13
75	84	280 S	2975	241	IE1	93.2	93.2	92.5	0.87	134 ²⁾	2.5	7.5	3.1	–	–	1PP4286-2FB	480	0.72	13
90	101	280 M	2975	289	IE1	93.4	93.7	93.4	0.89	156 ²⁾	2.6	7.2	3.1	–	–	1PP4283-2FB	520	0.83	13
110	123	315 S	2982	352	IE1	94.2	94.1	93.2	0.87	194 ²⁾	2.4	7.2	3.1	–	–	1PP4310-2FB	700	1.2	13
132	148	315 M	2982	423	IE1	94.2	94.2	93.9	0.90	225 ²⁾	2.4	6.9	3.0	–	–	1PP4313-2FB	755	1.4	13
160	180	315 L	2982	512	IE1	94.4	94.4	94.3	0.91	270 ³⁾	2.4	7.0	3.0	–	–	1PP4316-2FB	880	1.6	13
200	224	315 L	2982	641	IE1	94.5	94.5	94.5	0.92	330 ³⁾	2.3	6.7	2.9	–	–	1PP4317-2FB	995	2.1	13
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz ¹⁾																			
18.5	21.3	180 M	1465	121	IE1	89.6	90.2	89.9	0.84	35.5 ²⁾	2.4	6.7	3.1	–	–	1PP4183-4FA	135	0.099	16
22	25.3	180 L	1465	143	IE1	90.2	90.8	90.6	0.84	42 ²⁾	2.5	6.9	3.2	–	–	1PP4186-4FA	150	0.12	16
30	34.5	200 L	1465	196	IE1	91.0	91.5	91.2	0.85	56 ²⁾	2.5	6.7	3.4	–	–	1PP4207-4FA	195	0.19	16
37	42.5	225 S	1475	240	IE1	91.5	91.9	91.5	0.85	69 ²⁾	2.3	6.7	3.1	–	–	1PP4220-4FA	255	0.37	16
45	52	225 M	1475	291	IE1	91.9	92.5	92.2	0.86	82 ²⁾	2.6	7.2	3.2	–	–	1PP4223-4FA	290	0.45	16
55	63	250 M	1480	355	IE1	92.3	92.7	92.4	0.85	101	2.4	6.1	2.8	–	–	1PP4253-4FA	375	0.69	16
75	86	280 S	1485	482	IE1	93.0	93.1	92.3	0.85	137 ²⁾	2.5	7.1	3.0	–	–	1PP4280-4FA	515	1.2	16
90	104	280 M	1485	579	IE1	93.3	93.3	92.6	0.86	162 ²⁾	2.5	7.4	3.0	–	–	1PP4283-4FA	560	1.4	16
110	127	315 S	1488	706	IE1	93.6	93.7	93.3	0.85	199 ²⁾	2.5	6.4	2.8	–	–	1PP4310-4FA	710	1.9	16
132	152	315 M	1488	847	IE1	93.7	93.8	93.4	0.85	240 ²⁾	2.7	6.8	2.9	–	–	1PP4313-4FA	790	2.3	16
160	184	315 L	1486	1028	IE1	94.0	94.2	93.9	0.86	285 ³⁾	2.7	6.8	2.8	–	–	1PP4316-4FA	935	2.9	16
200	230	315 L	1486	1285	IE1	94.2	94.4	94.3	0.88	350 ³⁾	2.6	6.5	2.8	–	–	1PP4317-4FA	1040	3.5	16
Voltagess																			
50 Hz	230 V Δ /400 VY			60 Hz ¹⁾	460 VY			2, 4		1PP4183 ... 313			Standard			1		–	
50 Hz	400 V Δ /690 VY			60 Hz ¹⁾	460 V Δ			2, 4		1PP4183 ... 317			Standard			6		–	
50 Hz	500 VY							2, 4		1PP4183 ... 313			Without add. charge			3		–	
50 Hz	500 V Δ							2, 4		1PP4183 ... 317			Without add. charge			5		–	
Further voltagess ¹⁾ For additional charges, code numbers and descriptions, see supplements and special versions.																			
Types of construction																			
Without flange																			
				IM B3/6/7/8 ⁴⁾				2, 4		1PP4183 ... 317			Standard			0		–	
				IM V6 ⁴⁾				2, 4		1PP4183 ... 313			Standard			0		–	
								2		1PP4316 ... 317			With add. charge			9		M1E	
								4		1PP4316 ... 317			Without add. charge			9		M1E	
				IM V5 without protective cover ⁴⁾				2, 4		1PP4183 ... 313			Standard			0		–	
								2		1PP4316 ... 317			With add. charge			9		M1D	
								4		1PP4316 ... 317			Without add. charge			9		M1D	
With flange																			
				IM B5 ⁵⁾				2, 4		1PP4183 ... 317			With add. charge			1		–	
				IM V1 without protective cover ^{5) 6)}				2, 4		1PP4183 ... 313			With add. charge			1		–	
								2, 4		1PP4316 ... 317			With add. charge			8		–	
				IM V3 ⁵⁾				2, 4		1PP4183 ... 313			With add. charge			9		M1G	
				IM B35				2, 4		1PP4183 ... 317			With add. charge			6		–	
Further types of construction For additional charges, code numbers and descriptions, see supplements and special versions.																			
Special versions																			
Options For additional charges, code numbers and descriptions, see supplements and special versions. 1PP4 ... -Z ...+...+...+...																			

1) Operating values at rated output for 60 Hz are available on request.

2) For connection to 230 V, parallel feeders are necessary.

3) For connection to 400 V, parallel feeders are necessary.

4) If 1PP4 motors in types of construction with feet IM B6, IM B7, IM V6 or IM V5 without protective cover are fixed to the wall, it is recommended that the motor feet are supported.

5) 1PP4220 to 1PP4317 motors are supplied with two screw-in eyebolts conforming to IM B5, whereby one can be repositioned to conform to IM V1 or IM V3. It is important to note that stress must not be applied perpendicular to the ring plane.

6) 2-pole motors 1PP4316-... and 1PP4317-... (motor series 1PP4 frame size 315 L) in 60 Hz version available on request.

SIMOTICS SD 1PP Standard Motors

Motors with Standard Efficiency IE1

Forced-air cooled motors without external fan and fan cover – Cast-iron series 1PP4

IE1



Selection and ordering data (continued)

Operating values at rated output															Cast-iron series		m _{IM B3} J		Torque class		
P _{rated} , 50 Hz	P _{rated} , 60 Hz ¹⁾	Frame size	n _{rated} , 50 Hz	T _{rated} , 50 Hz	IE class	η _{rated} , 50 Hz, 4/4	η _{rated} , 50 Hz, 3/4	η _{rated} , 50 Hz, 2/4	cos φ _{rated} , 50 Hz, 4/4	I _{rated} , 50 Hz, 400 V	T _{LR} /I _{rated}	I _{LR} /I _{rated}	T _B /I _{rated}	L _{pFA} , 50 Hz	L _{WA} , 50 Hz	1PP4 – IE1 version in accordance with IEC 60034-30 Order No.	kg	kgm ²	CL		
kW	kW	FS	rpm	Nm		%	%	%		A											
• Cooling: Forced-air cooled without external fan and fan cover (IC 416)																					
• Efficiency: Standard Efficiency IE1, service factor (SF) 1.1																					
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																					
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz ¹⁾																					
15	18	180 L	965	148	IE1	87.8	88.2	88.5	0.83	29.5	2.3	5.3	2.5	-	-	1PP4186-6FA	145	0.18	16		
18.5	22	200 L	975	181	IE1	88.8	89.2	88.9	0.81	37	2.5	5.6	2.5	-	-	1PP4206-6FA	185	0.24	16		
22	26.5	200 L	975	216	IE1	89.3	90.1	89.1	0.81	44	2.6	5.7	2.5	-	-	1PP4207-6FA	195	0.29	16		
30	36	225 M	978	293	IE1	90.3	91.3	91.4	0.83	58 ²⁾	2.7	5.6	2.5	-	-	1PP4223-6FA	270	0.49	16		
37	44.5	250 M	980	361	IE1	91.0	91.7	91.6	0.83	71	2.7	6.0	2.3	-	-	1PP4253-6FA	355	0.76	16		
45	54	280 S	985	436	IE1	91.5	92.3	92.3	0.85	83	2.4	6.1	2.4	-	-	1PP4280-6FA	455	1.1	16		
55	66	280 M	985	533	IE1	92.0	92.7	92.8	0.86	100	2.5	6.3	2.5	-	-	1PP4283-6FA	490	1.4	16		
75	90	315 S	988	725	IE1	92.7	93.0	92.4	0.84	139	2.5	6.5	2.8	-	-	1PP4310-6FA	665	2.1	16		
90	108	315 M	988	870	IE1	93.0	93.4	93.0	0.84	166 ²⁾	2.6	6.8	2.9	-	-	1PP4313-6FA	730	2.5	16		
110	132	315 L	988	1063	IE1	93.4	93.7	93.6	0.86	197	2.5	6.8	2.9	-	-	1PP4316-6FA	870	3.2	16		
132	158	315 L	988	1276	IE1	93.6	93.8	93.6	0.86	235	3.1	7.3	3.0	-	-	1PP4317-6FA	960	4.0	16		
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz ¹⁾																					
11	13.2	180 L	725	145	-	85.7	86.5	86.3	0.73	25.5	1.7	4.2	2.1	-	-	1PP4186-8FB	145	0.17	13		
15	18	200 L	725	198	-	87.1	87.8	87.5	0.76	32.5	2.2	4.9	2.6	-	-	1PP4207-8FB	195	0.29	13		
18.5	22	225 S	730	242	-	88.1	89.0	88.8	0.78	39	2.3	5.5	2.7	-	-	1PP4220-8FB	260	0.48	13		
22	26.5	225 M	730	288	-	88.6	89.5	89.4	0.79	45.5	2.3	5.6	2.8	-	-	1PP4223-8FB	280	0.55	13		
30	36	250 M	730	393	-	89.8	90.4	90.5	0.81	59	2.3	5.5	2.6	-	-	1PP4253-8FB	370	0.84	13		
37	44.5	280 S	735	481	-	90.5	91.4	91.5	0.81	73	2.2	5.0	2.1	-	-	1PP4280-8FB	455	1.1	13		
45	54	280 M	735	585	-	91.1	91.9	91.9	0.81	88	2.2	5.1	2.1	-	-	1PP4283-8FB	495	1.4	13		
55	66	315 S	740	710	-	91.7	92.1	91.8	0.81	107	2.2	5.8	2.6	-	-	1PP4310-8FB	660	2.1	13		
75	90	315 M	738	971	-	92.4	93.1	92.9	0.83	141	2.2	5.7	2.6	-	-	1PP4313-8FB	725	2.5	13		
90	108	315 L	738	1165	-	92.6	93.3	93.3	0.83	169	2.2	5.8	2.7	-	-	1PP4316-8FB	845	3.1	13		
110	132	315 L	738	1423	-	93.1	93.6	93.3	0.83	205	2.4	6.1	2.8	-	-	1PP4317-8FB	1000	3.9	13		
Volts																					
50 Hz		230 VΔ/400 VY		60 Hz ¹⁾		460 VY		No. of poles		Motor type		Version				Order code(s)					
50 Hz		400 VΔ/690 VY		60 Hz ¹⁾		460 VΔ		6, 8		1PP4186 ... 313		Standard		1		-					
50 Hz		500 VY						6, 8		1PP4186 ... 313		Without add. charge		3		-					
50 Hz		500 VΔ						6, 8		1PP4186 ... 318		Without add. charge		5		-					
Further voltages ¹⁾		For additional charges, code numbers and descriptions, see supplements and special versions.																			
Further voltages ¹⁾		9 ...																			
Types of construction																					
								No. of poles		Motor type		Version				Order code(s)					
Without flange				IM B3/6/7/8 ⁴⁾				6, 8		1PP4186 ... 317		Standard		0		-					
				IM V6 ⁴⁾				6, 8		1PP4186 ... 313		Standard		0		-					
								6, 8		1PP4316 ... 317		Without add. charge		9		M1E					
				IM V5 without protective cover ⁴⁾				6, 8		1PP4186 ... 313		Standard		0		-					
								6, 8		1PP4316 ... 317		Without add. charge		9		M1D					
With flange				IM B5 ⁵⁾				6, 8		1PP4186 ... 317		With add. charge		1		-					
				IM V1 without protective cover ⁵⁾				6, 8		1PP4186 ... 313		With add. charge		1		-					
								6, 8		1PP4316 ... 317		With add. charge		8		-					
				IM V3 ⁵⁾				6, 8		1PP4186 ... 313		With add. charge		9		M1G					
				IM B35				6, 8		1PP4186 ... 317		With add. charge		6		-					
Further types of construction		For additional charges, code numbers and descriptions, see supplements and special versions.																			
Further types of construction		9 ...																			
Special versions																					
Options		For additional charges, code numbers and descriptions, see supplements and special versions.														1PP4 ...		-Z		...+...+...+...	

1) Operating values at rated output for 60 Hz are available on request.

2) For connection to 230 V, parallel feeders are necessary.

3) For connection to 400 V, parallel feeders are necessary.

4) If 1PP4 motors in types of construction with feet IM B6, IM B7, IM V6 or IM V5 without protective cover are fixed to the wall, it is recommended that the motor feet are supported.

5) 1PP4220 to 1PP4317 motors are supplied with two screw-in eyebolts conforming to IM B5, whereby one can be repositioned to conform to IM V1 or IM V3. It is important to note that stress must not be applied perpendicular to the ring plane.