

# SIMOTICS N-compact Non-Standard Motors

## Motors specially designed for converter-fed operation

Self-ventilated motors with through-ventilation

Cast-iron series 1LL8 with special insulation for > 500 to 690 V

### Selection and ordering data

P <sub>rated</sub> , 50 Hz	P <sub>rated</sub> , 60 Hz 1)	Frame size	Operating values at rated output with sinusoidal infeed									Cast-iron series 1LL8 – with special insulation	m <sub>IM</sub> B3	J	Torque class
			n <sub>rated</sub> , 50 Hz	T <sub>rated</sub> , 50 Hz	η <sub>rated</sub> , 50 Hz, 4/4	cos φ <sub>rated</sub> , 50 Hz, 4/4	I <sub>rated</sub> , 50 Hz, 690 V	T <sub>B</sub> / I <sub>rated</sub>	L <sub>p</sub> fA, 50Hz, tolerance +3 dB(A)	L <sub>WA</sub> , 50Hz, tolerance +3 dB(A)	Order No.				
kW	kW	FS	rpm	Nm	%		A		dB(A)	dB(A)					
• Cooling: Self-ventilated with through-ventilation (IC 01) • Converter-fed operation: Specially for operation on SINAMICS or SIMOVERT MASTERDRIVES with special insulation for voltages of > 500 to 690 V • Insulation: Thermal class 155 (temperature class F), IP23 degree of protection, utilization in accordance with thermal class 155 (temperature class F)															
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz <sup>1)</sup>															
300	330	315	2977	962	95.3	0.91	290	2.9	84 <sup>2)</sup>	99	1LL8315-2PM	1300	2.7	10	
380	415	315	2977	1219	95.8	0.91	365	2.9	84 <sup>2)</sup>	99	1LL8317-2PM	1500	3.3	10	
435	475	355	2982	1393	95.7	0.90	420	2.7	86 <sup>2)</sup>	101	1LL8353-2PM	1900	4.8	7	
485	530	355	2982	1553	96.0	0.90	470	2.7	86 <sup>2)</sup>	101	1LL8355-2PM	2000	5.3	7	
610	670	355	2983	1953	96.3	0.91	580	2.7	86 <sup>2)</sup>	101	1LL8357-2PM	2200	6.4	7	
690	755	400	2986	2207	96.4	0.91	660	2.7	88 <sup>2)</sup>	103	1LL8403-2PM	2800	8.6	7	
770	845	400	2986	2463	96.4	0.91	730	2.7	88 <sup>2)</sup>	103	1LL8405-2PM	3000	9.6	7	
860	945	400	2988	2749	96.7	0.92	810	2.8	88 <sup>2)</sup>	103	1LL8407-2PM	3200	11	7	
965	1060	450	2988	3084	96.7	0.92	910	3.0	90 <sup>2)</sup>	105	1LL8453-2PM	4000	19	5	
1085	1190	450	2987	3469	96.7	0.92	1020	2.8	90 <sup>2)</sup>	105	1LL8455-2PM	4200	21	5	
1210	1330	450	2985	3871	96.9	0.93	1120	2.7	90 <sup>2)</sup>	105	1LL8457-2PM	4400	23	5	
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz <sup>1)</sup>															
295	340	315	1485	1897	95.2	0.86	300	2.9	77	90	1LL8315-4PM	1300	3.6	10	
365	420	315	1487	2344	95.6	0.87	365	3.0	77	90	1LL8317-4PM	1500	4.4	10	
430	495	355	1489	2758	95.8	0.86	435	2.7	77	92	1LL8353-4PM	1900	6.1	10	
480	550	355	1489	3079	96.0	0.87	480	2.7	77	92	1LL8355-4PM	2000	6.8	10	
600	690	355	1490	3846	96.3	0.86	600	2.8	77	92	1LL8357-4PM	2200	8.5	10	
690	790	400	1491	4420	96.2	0.87	690	2.5	81	96	1LL8403-4PM	2800	13	10	
780	895	400	1491	4996	96.4	0.88	770	2.6	81	96	1LL8405-4PM	3000	14	10	
870	1000	400	1493	5565	96.6	0.85	880	2.7	81	96	1LL8407-4PM	3200	16	10	
980	1125	450	1493	6269	96.6	0.85	1000	2.9	84	99	1LL8453-4PM	4000	23	7	
1095	1255	450	1492	7009	96.6	0.88	1060	2.7	84	99	1LL8455-4PM	4200	26	7	
1225	1405	450	1491	7846	96.7	0.88	1200	2.6	84	99	1LL8457-4PM	4400	28	7	

Voltages	No. of poles	Motor type	Version	Order code(s)
50 Hz 400 VΔ/690 VY	6	1LL8315 ... 453	Standard	8
690 VΔ	6	1LL8455 ... 457	Standard	7
Further voltages <sup>1)</sup>	For add. charges, code numbers, order codes and descriptions, see suppl. and special versions.			9
For types of construction see suppl.				Order code(s)
Without flange	IM B3	1LL8315 ... 457 <sup>3)</sup>	Standard	0
With flange	IM V1 without protective cover	1LL8315 ... 457 <sup>4)</sup>	With additional charge	8
	IM V1 with protective cover	1LL8315 ... 457 <sup>4)</sup>	With additional charge	4
	IM B35	1LL8315 ... 457 <sup>4)</sup>	With additional charge	6

Special versions	Order code(s)
Options	For add. charges, order codes and descriptions, see suppl. and special versions. 1LL8...-Z ...

Motor type 1LL8																					
315-2	317-2	353-2	355-2	357-2	403-2	405-2	407-2	453-2	455-2	457-2	315-4	317-4	353-4	355-4	357-4	403-4	405-4	407-4	453-4	455-4	457-4

Parallel feeders required																					
400 V	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
500 V	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
690 V	-	-	-	-	-	-	-	Yes	Yes	Yes	-	-	-	-	-	-	-	-	Yes	Yes	Yes

Mechanical limit speed n <sub>max</sub> in rpm																					
Standard	3600	3600	3600	3600	3600	3600	3600	3000	3000	3000	3000	3000	2500	2500	2500	2200	2200	2200	2100	2100	2100
IM V1	-	-	3100	3100	3100	3100	3100	-	-	-	2600	2600	2200	2200	2200	1900	1900	1900	1800	1800	1800

Mechanical limit frequency f <sub>max</sub> in Hz																					
Standard	60	60	60	60	60	60	60	50	50	50	100	100	83	83	83	73	73	73	70	70	70
IM V1	-	-	52	52	52	52	52	-	-	-	87	87	73	73	73	63	63	63	60	60	60

<sup>1)</sup> Voltages for 60 Hz can be ordered with voltage code 9 and the appropriate order code.

<sup>2)</sup> The noise values for 2-pole 1LL8 motors are for guidance only.

<sup>3)</sup> Not for 1LL8453 to 1LL8457 2-pole, 60 Hz.

<sup>4)</sup> Not for 1LL8353 to 457 2-pole, 60 Hz.

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Cast-iron series 1LL8 with special insulation for > 500 to 690 V

### Selection and ordering data (continued)

Operating values at rated output with sinusoidal infeed												Cast-iron series		$m_{IM\ B3}$	$J$	Torque class					
$P_{rated, 50\ Hz}$	$P_{rated, 60\ Hz}^1)$	Frame size	$n_{rated, 50\ Hz}$	$T_{rated, 50\ Hz}$	$\eta_{rated, 50\ Hz, 4/4}$	$\cos\phi_{rated, 50\ Hz, 4/4}$	$I_{rated, 50\ Hz, 690\ V}$	$T_B/I_{rated}$	$L_{p/A, 50Hz, tolerance +3\ dB(A)}$	$L_{WA, 50Hz, tolerance +3\ dB(A)}$	1LL8 – with special insulation	Order No.	kg				kgm <sup>2</sup>	CL			
kW	kW	FS	rpm	Nm	%	%	A		dB(A)	dB(A)											
<ul style="list-style-type: none"> <li>• Cooling: Self-ventilated with through-ventilation (IC 01)</li> <li>• Converter-fed operation: Specially for operation on SINAMICS or SIMOVERT MASTERDRIVES with special insulation for voltages of &gt; 500 to 690 V</li> <li>• Insulation: Thermal class 155 (temperature class F), IP23 degree of protection, utilization in accordance with thermal class 155 (temperature class F)</li> </ul>																					
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz <sup>1)</sup>																					
235	270	315	990	2267	94.5	0.87	240	2.8	70	84	1LL8315-6PM	1300	6.0	10							
295	335	315	990	2846	94.8	0.87	300	2.8	70	84	1LL8317-6PM	1500	7.3	10							
380	435	355	992	3658	95.1	0.87	380	2.6	73	88	1LL8355-6PM	2000	13	10							
475	545	355	993	4568	95.8	0.87	480	2.7	73	88	1LL8357-6PM	2200	16	10							
540	620	400	993	5193	95.9	0.86	550	2.7	76	91	1LL8403-6PM	2800	21	10							
610	700	400	994	5861	96.0	0.87	610	2.7	76	91	1LL8405-6PM	3000	24	10							
690	790	400	993	6636	96.1	0.87	690	2.6	76	91	1LL8407-6PM	3200	27	10							
780	895	450	993	7502	96.2	0.87	780	2.6	78	93	1LL8453-6PM	4000	35	7							
870	1000	450	993	8367	96.3	0.87	870	2.5	78	93	1LL8455-6PM	4200	39	7							
975	1120	450	993	9377	96.3	0.88	960	2.6	78	93	1LL8457-6PM	4500	44	7							
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz <sup>1)</sup>																					
180	205	315	738	2329	93.6	0.81	198	2.7	67	81	1LL8315-8PM	1300	6.0	10							
225	255	315	740	2904	94.3	0.80	250	2.7	67	81	1LL8317-8PM	1500	7.3	10							
285	325	355	741	3673	94.6	0.81	310	2.7	69	84	1LL8355-8PM	2000	13	10							
365	415	355	741	4704	94.9	0.83	385	2.5	69	84	1LL8357-8PM	2200	16	10							
420	480	400	741	5413	95.0	0.83	445	2.5	72	87	1LL8403-8PM	2800	21	7							
465	530	400	742	5985	95.5	0.83	490	2.6	72	87	1LL8405-8PM	3000	24	7							
525	600	400	742	6757	95.5	0.82	560	2.6	72	87	1LL8407-8PM	3200	27	7							
610	700	450	742	7851	95.4	0.82	660	2.4	74	89	1LL8453-8PM	4000	35	7							
690	790	450	742	8881	95.5	0.82	730	2.4	74	89	1LL8455-8PM	4200	39	7							
760	870	450	742	9782	95.5	0.83	800	2.4	74	89	1LL8457-8PM	4500	44	7							
<b>Voltages</b>		No. of poles		Motor type		Version										Order code(s)					
50 Hz	400 VΔ/690 VY	6		1LL8315 ... 453	<b>Standard</b>										8	–					
		8		1LL8315 ... 457	<b>Standard</b>										8	–					
	690 VΔ	6		1LL8455 ... 457	<b>Standard</b>										7	–					
Further voltages <sup>1)</sup>		For add. charges, code numbers, order codes and descriptions, see suppl. and special versions.														9	...				
<b>For types of construction</b>		see suppl.		Motor type		Version										Order code(s)					
Without flange	IM B3			1LL8315 ... 457	<b>Standard</b>										0	–					
With flange	IM V1 without protective cover			1LL8315 ... 457	With additional charge										8	–					
	IM V1 with protective cover			1LL8315 ... 457	With additional charge		The "Second shaft extension" option (K16) is not possible.										4	–			
	IM B35			1LL8315 ... 457	With additional charge										6	–					
<b>Special versions</b>																Order code(s)					
Options		For add. charges, order codes and descriptions, see suppl. and special versions.														1LL8 ... -Z ...+...+...+...					
Motor type 1LL8																					
		315-6	317-6	355-6	357-6	403-6	405-6	407-6	453-6	455-6	457-6	315-8	317-8	355-8	357-8	403-8	405-8	407-8	453-8	455-8	457-8
<b>Parallel feeders required</b>																					
400 V	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
500 V	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
690 V	–	–	–	–	–	–	–	–	–	Yes	–	–	–	–	–	–	–	–	–	–	–
<b>Mechanical limit speed <math>n_{max}</math> in rpm</b>																					
Standard	2950	2950	2500	2500	2200	2200	2200	2100	2100	2100	2950	2950	2500	2500	2200	2200	2200	2100	2100	2100	2100
IM V1	2600	2600	2200	2200	1900	1900	1900	1800	1800	1800	2600	2600	2200	2200	1900	1900	1900	1800	1800	1800	1800
<b>Mechanical limit frequency <math>f_{max}</math> in Hz</b>																					
Standard	147	147	125	125	110	110	110	105	105	105	196	196	166	166	146	146	146	140	140	140	140
IM V1	130	130	110	110	95	95	95	90	90	90	173	173	146	146	126	126	126	120	120	120	120

<sup>1)</sup> Voltages for 60 Hz can be ordered with voltage code 9 and the appropriate order code.