

SIMOTICS N-compact Non-Standard Motors

Motors specially designed for mains-fed operation

Self-ventilated motors with through-ventilation
Cast-iron series 1LL8

IE2

Selection and ordering data (continued)

| Operating values at rated output | | | | | | | | | | | | | | | | | Cast-iron series | | m _M | B ₃ | 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 | I _{rated} , 50 Hz, 690 V | T _{LR} /I _{ra} | I _{LR} /I _{ra} | T _B /I _{ra} | L _{ptA} , 50 Hz | L _{WA} , 50 Hz | 1LL8 – Specially designed for mains-fed operation | Order No. | | | | |
| kW | kW | FS | rpm | Nm | | % | % | % | | A | A | | | | dB(A) | dB(A) | | | | | | |
| • Cooling: Self-ventilated with through-ventilation (IC 01) • Mains-fed operation: A service factor (SF) of 1.05 is stamped onto all 1LL8 motors connected to the mains. • Insulation: Thermal class 155 (temperature class F), IP23 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⁾ | | | | | | | | | | | | | | | | | | | | | | |
| 315 | 345 | 315 | 2977 | 1010 | IE2 | 95.5 | 95.7 | 95.6 | 0.92 | 520 | 300 | 1.6 | 7.0 | 2.8 | 84 ²⁾ | 99 | 1LL8315-2AC | 1300 | 2.7 | 10 | | |
| 400 | 440 | 315 | 2977 | 1280 | – | 95.9 | 96.2 | 96.1 | 0.92 | 650 | 380 | 1.7 | 7.0 | 2.8 | 84 ²⁾ | 99 | 1LL8317-2AC | 1500 | 3.3 | 10 | | |
| 450 | 495 | 355 | 2981 | 1440 | – | 95.9 | 96.0 | 95.7 | 0.91 | 740 | 430 | 1.4 | 7.0 | 2.6 | 86 ²⁾ | 101 | 1LL8353-2AD | 1900 | 4.8 | 7 | | |
| 500 | 550 | 355 | 2982 | 1600 | – | 96.1 | 96.3 | 96.0 | 0.92 | 820 | 475 | 1.4 | 7.0 | 2.6 | 86 ²⁾ | 101 | 1LL8355-2AD | 2000 | 5.3 | 7 | | |
| 630 | 690 | 355 | 2982 | 2020 | – | 96.4 | 96.6 | 96.5 | 0.93 | 1020 | 590 | 1.6 | 7.0 | 2.6 | 86 ²⁾ | 101 | 1LL8357-2AD | 2200 | 6.4 | 7 | | |
| 710 | 780 | 400 | 2986 | 2270 | – | 96.5 | 96.6 | 96.3 | 0.91 | 1160 | 680 | 1.4 | 6.8 | 2.6 | 88 ²⁾ | 103 | 1LL8403-2AD | 2800 | 8.6 | 7 | | |
| 800 | 880 | 400 | 2986 | 2560 | – | 96.6 | 96.7 | 96.5 | 0.92 | 1300 | 750 | 1.5 | 7.0 | 2.6 | 88 ²⁾ | 103 | 1LL8405-2AD | 3000 | 9.6 | 7 | | |
| 900 | 990 | 400 | 2987 | 2880 | – | 96.8 | 96.9 | 96.7 | 0.92 | – | 850 | 1.5 | 7.0 | 2.7 | 88 ²⁾ | 103 | 1LL8407-2AD | 3200 | 11 | 7 | | |
| 1000 | 1100 | 450 | 2987 | 3200 | – | 96.8 | 96.7 | 96.3 | 0.93 | – | 930 | 0.9 | 7.0 | 2.9 | 90 ²⁾ | 105 | 1LL8453-2AE | 4000 | 19 | 5 | | |
| 1120 | 1230 | 450 | 2986 | 3580 | – | 96.8 | 96.9 | 96.6 | 0.94 | – | 1020 | 0.9 | 7.0 | 2.7 | 90 ²⁾ | 105 | 1LL8455-2AE | 4200 | 21 | 5 | | |
| 1250 | 1370 | 450 | 2984 | 4000 | – | 97.0 | 97.1 | 96.8 | 0.94 | – | 1140 | 0.9 | 7.0 | 2.6 | 90 ²⁾ | 105 | 1LL8457-2AE | 4400 | 23 | 5 | | |
| 4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz ¹⁾ | | | | | | | | | | | | | | | | | | | | | | |
| 315 | 360 | 315 | 1485 | 2030 | IE2 | 95.5 | 95.6 | 95.4 | 0.87 | 550 | 315 | 1.6 | 7.0 | 2.7 | 77 | 90 | 1LL8315-4AC | 1300 | 3.6 | 10 | | |
| 400 | 460 | 315 | 1485 | 2570 | – | 95.7 | 95.9 | 95.8 | 0.88 | 690 | 395 | 1.7 | 7.0 | 2.7 | 77 | 90 | 1LL8317-4AC | 1500 | 4.4 | 10 | | |
| 450 | 515 | 355 | 1487 | 2890 | – | 96.0 | 96.0 | 95.8 | 0.87 | 780 | 450 | 1.5 | 7.0 | 2.6 | 77 | 92 | 1LL8353-4AC | 1900 | 6.1 | 10 | | |
| 500 | 575 | 355 | 1488 | 3210 | – | 96.1 | 96.2 | 96.0 | 0.88 | 850 | 495 | 1.6 | 7.0 | 2.6 | 77 | 92 | 1LL8355-4AC | 2000 | 6.8 | 10 | | |
| 630 | 725 | 355 | 1490 | 4040 | – | 96.4 | 96.5 | 96.2 | 0.88 | 1080 | 620 | 1.6 | 7.0 | 2.7 | 77 | 92 | 1LL8357-4AC | 2200 | 8.5 | 10 | | |
| 710 | 815 | 400 | 1490 | 4550 | – | 96.4 | 96.5 | 96.3 | 0.88 | 1200 | 700 | 1.6 | 7.0 | 2.4 | 81 | 96 | 1LL8403-4AC | 2800 | 13 | 10 | | |
| 800 | 920 | 400 | 1490 | 5130 | – | 96.5 | 96.6 | 96.4 | 0.88 | 1360 | 790 | 1.7 | 7.0 | 2.5 | 81 | 96 | 1LL8405-4AC | 3000 | 14 | 10 | | |
| 900 | 1035 | 400 | 1492 | 5760 | – | 96.7 | 96.7 | 96.4 | 0.87 | – | 900 | 1.7 | 7.0 | 2.6 | 81 | 96 | 1LL8407-4AC | 3200 | 16 | 10 | | |
| 1000 | 1150 | 450 | 1492 | 6400 | – | 96.7 | 96.7 | 96.3 | 0.86 | – | 1000 | 1.5 | 7.0 | 2.8 | 84 | 99 | 1LL8453-4AD | 4000 | 23 | 7 | | |
| 1120 | 1280 | 450 | 1491 | 7170 | – | 96.7 | 96.7 | 96.5 | 0.89 | – | 1080 | 1.5 | 7.0 | 2.6 | 84 | 99 | 1LL8455-4AD | 4200 | 26 | 7 | | |
| 1250 | 1430 | 450 | 1490 | 8010 | – | 96.8 | 96.8 | 96.7 | 0.89 | – | 1220 | 1.5 | 7.0 | 2.5 | 84 | 99 | 1LL8457-4AD | 4400 | 28 | 7 | | |
| Voltagess | | No. of poles | | Motor type | | Version | | | | | | | | | | | | Order code(s) | | | | |
| 50 Hz | | 400 VΔ/690 VY | | 2, 4 | | 1LL8315 ... 405 | | Standard | | | | | | | | | | 6 – | | | | |
| | | 690 VΔ | | 2, 4 | | 1LL8407 ... 457 | | Standard | | | | | | | | | | 0 – | | | | |
| | | 500 VΔ | | 2, 4 | | 1LL8315 ... 457 | | Without additional charge | | | | | | | | | | 5 – | | | | |
| 60 Hz ¹⁾ | | 460 VΔ | | 2, 4 | | 1LL8315 ... 405 | | With additional charge | | 1LL8407 onwards, on request. | | | | | | | | 9 L2F | | | | |
| Further voltages ¹⁾ | | | | For additional charges, code numbers, order codes and descriptions, see supplements and special versions. | | | | | | | | | | | | | | 9 ... | | | | |
| For types of construction see suppl. | | | | Motor type | | Version | | | | | | | | | | | | Order code(s) | | | | |
| Without flange | | IM B3 | | 1LL8315 ... 457 ³⁾ | | Standard | | | | | | | | | | | | 0 – | | | | |
| With flange | | IM V1 without protective cover | | 1LL8315 ... 457 ⁴⁾ | | With additional charge | | | | | | | | | | | | 8 – | | | | |
| | | IM V1 with protective cover | | 1LL8315 ... 457 ⁴⁾ | | With additional charge | | The "Second shaft extension" option (K16) is not possible. | | | | | | | | | | 4 – | | | | |
| | | IM B35 | | 1LL8315 ... 457 ⁴⁾ | | With additional charge | | | | | | | | | | | | 6 – | | | | |
| Special versions | | | | | | | | | | | | | | | | | | Order code(s) | | | | |
| Options | | For additional charges, order codes and descriptions, see supplements 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 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | – | – | – | – | Yes | Yes | Yes | Yes | Yes | Yes | – | – | – | – | |
| 500 V | – | – | Yes | Yes | – | – | Yes | Yes | Yes | Yes | Yes | – | – | Yes | Yes | – | – | Yes | Yes | Yes | Yes | |
| 690 V | – | – | – | – | – | – | – | – | – | Yes | Yes | – | – | – | – | – | – | – | – | – | Yes | |
| Mechanical limit speed n _{max} in rpm | | | | | | | | | | | | | | | | | | | | | | |
| Standard | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3600 | 3000 | 3000 | 3000 | 3000 | 3000 | 2500 | 2500 | 2500 | 2200 | 2200 | 2200 | 2100 | 2100 | |
| IM V1 | – | – | 3100 | 3100 | 3100 | 3100 | 3100 | 3100 | – | – | – | 2600 | 2600 | 2200 | 2200 | 2200 | 1900 | 1900 | 1900 | 1800 | 1800 | |

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

2) The noise values for 2-pole 1LL8 motors are for guidance only.

3) Not for 1LL8453 to 457 2-pole, 60 Hz.

4) Not for 1LL8 2-pole, 60 Hz.

SIMOTICS N-compact Non-Standard Motors

Motors specially designed for mains-fed operation

IE2

Self-ventilated motors with through-ventilation
Cast-iron series 1LL8

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} , 4/4 | I _{rated} , 50 Hz, 400 V | I _{rated} , 50 Hz, 690 V | T _{LR} /T _{ra} -ted | I _{LR} /I _{ra} -ted | T _B /T _{ra} -ted | L _{pFA} , 50 Hz | L _{WA} , 50 Hz | 1LL8 – Specially designed for mains-fed operation | Order No. | | | |
| kW | kW | FS | rpm | Nm | | % | % | % | | A | A | | | | dB(A) | dB(A) | | | | | |
| • Cooling: Self-ventilated with through-ventilation (IC 01) • Mains-fed operation: A service factor (SF) of 1.05 is stamped onto all 1LL8 motors connected to the mains. • Insulation: Thermal class 155 (temperature class F), IP23 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⁾ | | | | | | | | | | | | | | | | | | | | | |
| 250 | 285 | 315 | 988 | 2420 | IE2 | 95.0 | 95.0 | 94.8 | 0.88 | 430 | 250 | 1.6 | 7.0 | 2.6 | 70 | 84 | 1LL8315-6AC | 1300 | 6.0 | 10 | |
| 315 | 360 | 315 | 988 | 3040 | IE2 | 95.2 | 95.2 | 95.1 | 0.89 | 540 | 310 | 1.7 | 7.0 | 2.6 | 70 | 84 | 1LL8317-6AC | 1500 | 7.3 | 10 | |
| 400 | 460 | 355 | 991 | 3850 | – | 95.6 | 95.8 | 95.9 | 0.88 | 690 | 400 | 1.7 | 7.0 | 2.5 | 73 | 88 | 1LL8355-6AC | 2000 | 13 | 10 | |
| 500 | 575 | 355 | 992 | 4820 | – | 95.9 | 96.2 | 96.1 | 0.88 | 860 | 495 | 1.8 | 7.0 | 2.6 | 73 | 88 | 1LL8357-6AC | 2200 | 16 | 10 | |
| 560 | 645 | 400 | 993 | 5390 | – | 96.1 | 96.1 | 95.8 | 0.86 | 980 | 570 | 1.8 | 7.0 | 2.6 | 76 | 91 | 1LL8403-6AC | 2800 | 21 | 10 | |
| 630 | 725 | 400 | 993 | 6060 | – | 96.2 | 96.4 | 96.3 | 0.87 | 1080 | 630 | 1.8 | 7.0 | 2.6 | 76 | 91 | 1LL8405-6AC | 3000 | 24 | 10 | |
| 710 | 815 | 400 | 993 | 6830 | – | 96.2 | 96.4 | 96.3 | 0.88 | 1220 | 700 | 1.8 | 7.0 | 2.5 | 76 | 91 | 1LL8407-6AC | 3200 | 27 | 10 | |
| 800 | 920 | 450 | 993 | 7700 | – | 96.3 | 96.5 | 96.4 | 0.86 | 1380 | 810 | 1.5 | 7.0 | 2.5 | 78 | 93 | 1LL8453-6AD | 4000 | 35 | 7 | |
| 900 | 1035 | 450 | 992 | 8660 | – | 96.3 | 96.6 | 96.6 | 0.87 | – | 900 | 1.5 | 7.0 | 2.4 | 78 | 93 | 1LL8455-6AD | 4200 | 39 | 7 | |
| 1000 | 1150 | 450 | 993 | 9620 | – | 96.4 | 96.7 | 96.7 | 0.88 | – | 990 | 1.5 | 7.0 | 2.5 | 78 | 93 | 1LL8457-6AD | 4500 | 44 | 7 | |
| 8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz ¹⁾ | | | | | | | | | | | | | | | | | | | | | |
| 200 | 230 | 315 | 738 | 2590 | – | 94.2 | 94.7 | 94.9 | 0.82 | 375 | 215 | 1.6 | 5.8 | 2.4 | 67 | 81 | 1LL8315-8AC | 1300 | 6.0 | 10 | |
| 250 | 285 | 315 | 738 | 3240 | – | 94.5 | 95.1 | 95.2 | 0.82 | 465 | 270 | 1.6 | 5.8 | 2.4 | 67 | 81 | 1LL8317-8AC | 1500 | 7.3 | 10 | |
| 315 | 360 | 355 | 740 | 4070 | – | 95.0 | 95.2 | 95.2 | 0.83 | 580 | 335 | 1.6 | 6.0 | 2.4 | 69 | 84 | 1LL8355-8AC | 2000 | 13 | 10 | |
| 400 | 460 | 355 | 740 | 5160 | – | 95.1 | 95.4 | 95.5 | 0.84 | 720 | 420 | 1.6 | 6.0 | 2.3 | 69 | 84 | 1LL8357-8AC | 2200 | 16 | 10 | |
| 450 | 515 | 400 | 741 | 5800 | – | 95.4 | 95.6 | 95.7 | 0.84 | 810 | 470 | 1.3 | 5.8 | 2.3 | 72 | 87 | 1LL8403-8AD | 2800 | 21 | 7 | |
| 500 | 575 | 400 | 741 | 6440 | – | 95.6 | 95.8 | 95.8 | 0.84 | 900 | 520 | 1.4 | 5.8 | 2.4 | 72 | 87 | 1LL8405-8AD | 3000 | 24 | 7 | |
| 560 | 645 | 400 | 742 | 7210 | – | 95.7 | 95.9 | 95.8 | 0.83 | 1020 | 590 | 1.4 | 6.0 | 2.4 | 72 | 87 | 1LL8407-8AD | 3200 | 27 | 7 | |
| 630 | 745 | 450 | 742 | 8100 | – | 95.8 | 96.0 | 96.0 | 0.82 | 1160 | 670 | 1.3 | 5.8 | 2.3 | 74 | 89 | 1LL8453-8AD | 4000 | 35 | 7 | |
| 710 | 815 | 450 | 743 | 9130 | – | 95.9 | 96.2 | 96.1 | 0.83 | 1280 | 750 | 1.3 | 5.8 | 2.3 | 74 | 89 | 1LL8455-8AD | 4200 | 39 | 7 | |
| 800 | 920 | 450 | 742 | 10300 | – | 96.0 | 96.0 | 95.9 | 0.83 | – | 840 | 1.3 | 5.8 | 2.3 | 74 | 89 | 1LL8457-8AD | 4500 | 44 | 7 | |
| Voltages | | No. of poles | | Motor type | | Version | | Order code(s) | | | | | | | | | | | | | |
| 50 Hz | 400 VΔ/690 VY | 6 | 1LL8315 ... 453 | Standard | | 6 | – | | | | | | | | | | | | | | |
| | | 8 | 1LL8315 ... 455 | Standard | | 6 | – | | | | | | | | | | | | | | |
| | 690 VA | 6 | 1LL8455 ... 457 | Standard | | 0 | – | | | | | | | | | | | | | | |
| | | 8 | 1LL8457 | Standard | | 0 | – | | | | | | | | | | | | | | |
| 60 Hz ¹⁾ | 460 VΔ | 6, 8 | 1LL8315 ... 457 | Without additional charge | | 5 | – | | | | | | | | | | | | | | |
| | | 6 | 1LL8315 ... 453 | With additional charge 1LL8455 onwards, on request. | | 9 | L2F | | | | | | | | | | | | | | |
| | 460 VΔ | 6 | 1LL8315 ... 453 | With additional charge For 1LL8457 on request. | | 9 | L2F | | | | | | | | | | | | | | |
| | | 8 | 1LL8315 ... 455 | With additional charge | | 9 | L2F | | | | | | | | | | | | | | |
| Further voltages ¹⁾ | | For additional charges, code numbers, order codes and descriptions, see supplements and special versions. | | | | | | | | | | 9 | ... | | | | | | | | |
| For types of construction see suppl. | | Motor type | | Version | | Order code(s) | | | | | | | | | | | | | | | |
| Without flange | IM B3 | 1LL8315 ... 457 | | Standard | | 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 | – | | | | | | | | | | | | | | |
| Special versions | | | | | | | | | | | | Order code(s) | | | | | | | | | |
| Options | | For additional charges, order codes and descriptions, see supplements and special versions. | | | | | | | | | | 1LL8 ... - ... | -Z ...+...+... | | | | | | | | |
| Motor type 1LL8 | | | | | | | | | | | | | | | | | | | | | |
| 315-6 317-6 355-6 357-6 403-6 405-6 407-6 453-6 455-6 457-6 315-8 317-8 355-8 357-8 403-8 407-8 453-8 455-8 457-8 | | | | | | | | | | | | | | | | | | | | | |
| Parallel feeders required | | | | | | | | | | | | | | | | | | | | | |
| 400 V | – | Yes | Yes | Yes | – | Yes | Yes | Yes | Yes | Yes | – | – | – | Yes | – | Yes | Yes | Yes | Yes | | |
| 500 V | – | – | – | Yes | – | – | – | Yes | Yes | Yes | – | – | – | – | – | – | – | Yes | Yes | | |
| 690 V | – | – | – | Yes | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | | |
| Mechanical limit speed n _{max} in rpm | | | | | | | | | | | | | | | | | | | | | |
| Standard | 2950 | 2950 | 2500 | 2500 | 2200 | 2200 | 2200 | 2100 | 2100 | 2100 | 2950 | 2950 | 2500 | 2500 | 2200 | 2200 | 2100 | 2100 | 2100 | | |
| IM V1 | 2600 | 2600 | 2200 | 2200 | 1900 | 1900 | 1900 | 1800 | 1800 | 1800 | 2600 | 2600 | 2200 | 2200 | 1900 | 1900 | 1800 | 1800 | 1800 | | |

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