

Voltages

Additional order codes for other voltages or voltage codes (without "Z" supplement)

For some non-standard voltages at 50 or 60 Hz, order codes are specified. They are ordered by specifying the code digit **9** for voltage in the 11th position of the Order No. and the appropriate order code.

Special versions	Voltage code 11th position of Order No.	Additional identification code with order code and, if required, with plain text data	Motor type frame size														
			56	63	71	80	90	100	112	132	160	180	200	225	250	280	315 S/M
Self-ventilated motors in pole-changing version																	
			1LA7 (aluminum)						1LA5 (aluminum)								
Voltage at 60 Hz																	
220 V; 50 Hz output	9	L4A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
220 V; 60 Hz output	9	L4B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
380 V; 50 Hz output	9	L4C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
380 V; 60 Hz output	9	L4D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
440 V; 50 Hz output	9	L4G	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
440 V; 60 Hz output	9	L4E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
460 V; 50 Hz output	9	L4J	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
460 V; 60 Hz output	9	L4H	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
575 V; 50 Hz output	9	L4N	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
575 V; 60 Hz output	9	L4M	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Non-standard voltage and/or frequencies																	
Non-standard winding for voltages between 200 and 690 V (voltages outside this range are available on request) ¹⁾	9	L1Y •	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Non-standard winding for Y/Δ starting at low speed		L3Y •	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			1LG4 (cast-iron)														
Voltage at 60 Hz																	
220 V; 50 Hz output at 60 Hz	9	L4A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
220 V; 60 Hz output at 60 Hz	9	L4B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
380 V; 50 Hz output	9	L4C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
380 V; 60 Hz output	9	L4D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
440 V; 50 Hz output	9	L4G	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
440 V; 60 Hz output	9	L4E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
460 V; 50 Hz output	9	L4J	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
460 V; 60 Hz output	9	L4H	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
575 V; 50 Hz output	9	L4N	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
575 V; 60 Hz output	9	L4M	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Non-standard voltage and/or frequencies																	
Non-standard winding for voltages between 200 and 690 V (voltages outside this range are available on request) ¹⁾	9	L1Y •	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Special versions	Voltage code 11th position of Order No.	Additional identification code with order code and, if required, with plain text data	Motor type frame size												
			56	63	71	80	90	100	112	132	160	180	200	225	250

Forced-air cooled motors without external fan and fan cover

			1PP7 (aluminum)							1PP5 (aluminum)			
Voltage at 50 Hz													
220 VΔ/380 VY (440 VΔ at 60Hz) (210 ... 230 VΔ/360 ... 400 VY); 50 Hz output ²⁾	9	L1R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
230 VΔ (220 ... 240 VΔ); 50 Hz output ²⁾	9	L1E	○	○	○	○	○	○	○	○	○	○	○
380 VΔ/660 VY (440 VY at 60 Hz) (360 ... 400 VΔ/625 ... 695 VY); 50 Hz output ²⁾	9	L1L	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
415 VY (395 ... 435 VY); 50 Hz output ²⁾	9	L1C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
415 VΔ (395 ... 435 VΔ); 50 Hz output ²⁾	9	L1D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
400 VY (380 ... 420 VY); 50 Hz output ²⁾	9	L1A	○	○	○	○	○	○	○	○	○	○	○
400 VΔ (380 ... 420 VΔ); 50 Hz output ²⁾	9	L1B	○	○	○	○	○	○	○	○	○	○	○
400 VΔ (460 VΔ at 60 Hz) (380 ... 420 VΔ); 50 Hz output ²⁾	9	L1U	○	○	○	○	○	○	○	○	○	○	○
Voltage at 60 Hz													
220 VΔ/380 VY; 50 Hz output	9	L2A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
220 VΔ/380 VY; 60 Hz output	9	L2B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
380 VΔ/660 VY; 50 Hz output	9	L2C	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
380 VΔ/660 VY; 60 Hz output	9	L2D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
440 VY; 50 Hz output	9	L2Q	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
440 VY; 60 Hz output	9	L2W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
440 VΔ; 50 Hz output	9	L2R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
440 VΔ; 60 Hz output	9	L2X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
460 VY; 50 Hz output	9	L2S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
460 VY; 60 Hz output	9	L2E	○	○	○	○	○	○	○	○	○	○	○
460 VΔ; 50 Hz output	9	L2T	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
460 VΔ; 60 Hz output	9	L2F	○	○	○	○	○	○	○	○	○	○	○
575 VY; 50 Hz output	9	L2U	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
575 VY; 60 Hz output	9	L2L	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
575 VΔ; 50 Hz output	9	L2V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
575 VΔ; 60 Hz output	9	L2M	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Voltage changeover at 60 Hz													
230 VY/460 VY 60 Hz; 50 Hz output, 9 main terminals and electrical design to NEMA	9	L3E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
230 VY/460 VY 60 Hz; 60 Hz output, 9 main terminals and electrical design to NEMA	9	L3F	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
230 VΔ/460 VΔ 60 Hz; 50 Hz output, 12 main terminals and electrical design to NEMA	9	L3G	-	-	-	-	✓	✓	✓	✓	✓	✓	✓
230 VΔ/460 VΔ 60 Hz; 60 Hz output, 12 main terminals and electrical design to NEMA	9	L3H	-	-	-	-	✓	✓	✓	✓	✓	✓	✓
Non-standard voltage and/or frequencies													
Non-standard winding for voltages between 200 and 690 V (voltages outside this range are available on request) ¹⁾	9	L1Y •	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Special versions	Voltage code 11th position of Order No.	Additional identification code with order code and, if required, with plain text data	Motor type frame size																		
			56	63	71	80	90	100	112	132	160	180	200	225	250	280	315 S/M	315 L			
1PP4 (cast-iron)																					
Voltage at 50 Hz																					
220 VΔ/380 VY (210 ... 230 VΔ/360 ... 400 VY); 50 Hz output ²⁾	9	L1R													✓	✓	✓	✓	✓	✓	–
230 VΔ (220 ... 240 VΔ); 50 Hz output ²⁾	9	L1E													○	○	○	○	○	○	–
380 VΔ/660 VY (360 ... 400 VΔ/625 ... 695 VY); 50 Hz output ²⁾	9	L1L													✓	✓	✓	✓	✓	✓	✓
415 VY (395 ... 435 VY); 50 Hz output ²⁾	9	L1C													✓	✓	✓	✓	✓	✓	–
415 VΔ (395 ... 435 VΔ); 50 Hz output ²⁾	9	L1D													✓	✓	✓	✓	✓	✓	✓
400 VY (380 ... 420 VY); 50 Hz output ²⁾	9	L1A													○	○	○	○	○	○	–
400 VΔ (380 ... 420 VΔ); 50 Hz output ²⁾	9	L1B													○	○	○	○	○	○	○
400 VΔ (460 VΔ at 60Hz) (380 ... 420 VΔ); 50 Hz output ²⁾	9	L1U													○	○	○	○	○	○	○
Voltage at 60 Hz																					
220 VΔ/380 VY; 50 Hz output	9	L2A													✓	✓	✓	✓	✓	✓	–
220 VΔ/380 VY; 60 Hz output	9	L2B													✓	✓	✓	✓	✓	✓	–
380 VΔ/660 VY; 50 Hz output	9	L2C													✓	✓	✓	✓	✓	✓	✓
380 VΔ/660 VY; 60 Hz output	9	L2D													✓	✓	✓	✓	✓	✓	✓
440 VY; 50 Hz output	9	L2Q													✓	✓	✓	✓	✓	✓	–
440 VY; 60 Hz output	9	L2W													✓	✓	✓	✓	✓	✓	–
440 VΔ; 50 Hz output	9	L2R													✓	✓	✓	✓	✓	✓	✓
440 VΔ; 60 Hz output	9	L2X													✓	✓	✓	✓	✓	✓	✓
460 VY; 50 Hz output	9	L2S													✓	✓	✓	✓	✓	✓	–
460 VY; 60 Hz output	9	L2E													○	○	○	○	○	○	–
460 VΔ; 50 Hz output	9	L2T													✓	✓	✓	✓	✓	✓	✓
460 VΔ; 60 Hz output	9	L2F													○	○	○	○	○	○	○
575 VY; 50 Hz output	9	L2U													✓	✓	✓	✓	✓	✓	–
575 VY; 60 Hz output	9	L2L													✓	✓	✓	✓	✓	✓	–
575 VΔ; 50 Hz output	9	L2V													✓	✓	✓	✓	✓	✓	✓
575 VΔ; 60 Hz output	9	L2M													○	○	○	○	○	○	○
Non-standard voltage and/or frequencies																					
Non-standard winding for voltages between 200 and 690 V (voltages outside this range are available on request) ¹⁾	9	L1Y •													✓	✓	✓	✓	✓	✓	✓

○ Without additional charge

✓ With additional charge

– Not possible

• This order code only determines the price of the version – Additional plain text is required.

1) Plain text must be specified in the order: Voltage, frequency, circuit, required rated output in kW.

2) With order codes **L1A, L1B, L1C, L1D, L1E, L1L, L1R** and **L1U**, a rated voltage range is also specified on the rating plate.

Types of construction

Additional order codes for other types of construction or type of construction codes (without “-Z” supplement)

Order codes have been defined for some special types of construction. They are ordered by specifying the code digit **9** for the type of construction in the 12th position of the Order No. and the appropriate order code.

Special versions	Voltage code 12th position of Order No.	Additional identification code with order code and, if required, with plain text data	Motor type frame size															
			56	63	71	80	90	100	112	132	160	180	200	225	250	280	315 S/M	315 L
Self-ventilated motors in pole-changing version																		
Without flange																		
IM V5 with protective cover ¹⁾	9	M1F																
With flange (acc. to DIN EN 50347)																		
IM V3 ²⁾	9	M1G																
With standard flange																		
IM V18 with protective cover ¹⁾	9	M2A																
With special flange																		
IM V18 with protective cover ¹⁾	9	M2B																
IM B34	9	M2C																
1LA7 (aluminum)																		
1LA5 (aluminum)																		
1LG4 (cast-iron)																		
Without flange																		
IM V5 without protective cover ³⁾	9	M1D																○
IM V6 ³⁾	9	M1E																○
IM V5 with protective cover ¹⁾³⁾	9	M1F																✓
With flange (acc. to DIN EN 50347):																		
IM V3 ⁴⁾	9	M1G																✓
Motor type frame size																		
56 63 71 80 90 100 112 132 160 180 200 225 250 280 315 S/M 315 L																		
2-pole 4-/6-/8-pole																		
Forced-air cooled motors without external fan and fan cover																		
Without flange																		
IM V5 with protective cover ¹⁾	9	M1F																
With flange (acc. to DIN EN 50347)																		
IM V3 ²⁾	9	M1G																
With standard flange																		
IM V18 with protective cover ¹⁾	9	M2A																
With special flange																		
IM V18 with protective cover ¹⁾	9	M2B																
IM B34	9	M2C																
1PP7 (aluminum)																		
1PP5 (aluminum)																		
1PP4 (cast-iron)																		
Without flange																		
IM V5 without protective cover ³⁾	9	M1D																✓ ⁵⁾ ○
IM V6 ³⁾	9	M1E																✓ ⁵⁾ ○
IM V5 with protective cover ¹⁾³⁾	9	M1F																✓ ⁵⁾ ✓
With flange (acc. to DIN EN 50347)																		
IM V3 ⁴⁾	9	M1G																✓

- Without additional charge
- ✓ With additional charge
- Not possible

1) The “Second shaft extension” option, order code K16 is not possible.
 2) For frame sizes 180 M to 225 M, motors 1LA5/1PP5 can be supplied with two additional eyebolts; state Order No. suffix “Z” and order code **K32**.
 3) If motors of frame sizes 180 M to 315 L are mounted on the wall, it is recommended that the motor feet are supported.

4) Motors 1LG4 of frame sizes 225 S to 315 L are supplied with two screw-in eyebolts in accordance with IM B5, whereby one can be relocated in accordance with IM V1 or IM V3. It is important to note that stress must not be applied perpendicular to the ring plane.
 5) 60 Hz version is possible on request.

Special versions

Additional identification code -Z with order code and plain text if required

Motor type frame size

56 63 71 80 90 100 112 132 160 180 200 225 250 280 315

Self-ventilated motors in pole-changing version

		1LA7 (aluminum)						1LA5 (aluminum)	
Windings and insulation (continued)									
Increased air humidity/temperature with 30 to 60 g water per m ³ of air	C19	✓	✓	✓	✓	✓	✓	✓	✓
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 %	C22	✓	✓	✓	✓	✓	✓	✓	✓
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 %	C23	✓	✓	✓	✓	✓	✓	✓	✓
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 %	C24	✓	✓	✓	✓	✓	✓	✓	✓
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %	C25	✓	✓	✓	✓	✓	✓	✓	✓
Increased air humidity/temperature with 60 to 100 g water per m ³ of air	C26	✓	✓	✓	✓	✓	✓	✓	✓
Temperature class 155 (F), used acc. to 130 (B), with increased coolant temperature and/or site altitude	Y50 • and specified output, CT .. °C or SA m above sea level	✓	✓	✓	✓	✓	✓	✓	✓
Temperature class 155 (F), used acc. to 155 (F), other requirements	Y52 • and specify output, CT .. °C or SA m above sea level	✓	✓	✓	✓	✓	✓	✓	✓
Colors and paint finish									
Special finish in RAL 7030 stone gray		□	□	□	□	□	□	□	□
Special finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005	Y54 • and special finish RAL	✓	✓	✓	✓	✓	✓	✓	✓
Special finish in special RAL colors: For RAL colors, see "Special finish in special RAL colors" on Catalog D 81.1 part 0	Y51 • and special finish RAL	✓	✓	✓	✓	✓	✓	✓	✓
Sea air resistant special finish	M94	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.
Unpainted (only cast iron parts primed)	K23	○	○	○	○	○	○	○	○
Unpainted, only primed	K24	✓	✓	✓	✓	✓	✓	✓	✓

Special versions	Additional identification code -Z with order code and plain text if required	Motor type frame size												
		56	63	71	80	90	100	112	132	160	180	200	225	250

Self-ventilated motors in pole-changing version

		1LA7 (aluminum)						1LA5 (aluminum)		
Coolant temperature and site altitude										
Coolant temperature -40 to +40 °C	D03	✓	✓	✓	✓	✓	✓	✓	✓	✓
Coolant temperature -30 to +40 °C	D04	✓	✓	✓	✓	✓	✓	✓	✓	✓
Designs in accordance with standards and specifications										
CCC China Compulsory Certification ¹¹⁾	D01	✓	✓	✓	✓	-	-	-	-	-
Electrical according to NEMA MG1-12	D30	✓	✓	✓	✓	✓	✓	✓	✓	✓
Design according to VDE with "Recognition Mark" ¹²⁾	D31	✓	✓	✓	✓	✓	✓	✓	✓	✓
Canadian regulations (CSA) ¹³⁾	D40	✓	✓	✓	✓	✓	✓	✓	✓	✓
PSE Mark Japan ¹⁴⁾	D46	✓	✓	✓	✓	✓	-	-	-	-
Bearings and lubrication										
Measuring nipple for SPM shock pulse measurement for bearing inspection ¹⁵⁾	G50	-	-	✓	✓	✓	✓	✓	✓	✓
Bearing design for increased cantilever forces	K20	-	-	✓	✓	✓	✓	✓	✓	✓
Regreasing device ¹⁵⁾	K40	-	-	✓	✓	✓	✓	✓	✓	✓
Located bearing DE	K94	✓	✓	✓	✓	✓	✓	✓	✓	✓
Located bearing NDE	L04	✓	✓	✓	✓	✓	□	□	□	□
Balance and vibration quantity										
Vibration quantity A		□	□	□	□	□	□	□	□	□
Vibration quantity B	K02	✓	✓	✓	✓	✓	✓	✓	✓	✓
Full key balancing	L68	✓	✓	✓	✓	✓	✓	✓	✓	✓
Balancing without key	M37	✓	✓	✓	✓	✓	✓	✓	✓	✓
Shaft and rotor										
Concentricity of shaft extension, coaxiality and linear movement in accordance with DIN 42955 Tolerance R for flange-mounting motors ¹⁶⁾	K04	✓	✓	✓	✓	✓	✓	✓	✓	✓
Second standard shaft extension	K16	✓	✓	✓	✓	✓	✓	✓	✓	✓
Shaft extension with normal dimensions without featherkey way	K42	✓	✓	✓	✓	✓	✓	✓	✓	✓
Concentricity of shaft extension in accordance with DIN 42955 Tolerance R	L39	✓	✓	✓	✓	✓	✓	✓	✓	✓
Standard shaft made of non-rusting steel	M65	✓	✓	✓	✓	✓	✓	✓	✓	✓
Non-standard cylindrical shaft extension ¹⁷⁾	Y55 • and identification code	✓	✓	✓	✓	✓	✓	✓	✓	✓
Heating and ventilation										
Fan cover for textile industry	H17	✓	✓	✓	✓	✓	✓	✓	✓	✓
Metal external fan ¹⁸⁾	K35	✓	✓	✓	✓	✓	✓	✓	✓	✓
Anti-condensation heaters for 230 V	K45	✓	✓	✓	✓	✓	✓	✓	✓	✓
Anti-condensation heaters for 115 V	K46	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rating plate and extra rating plates										
Second lubricating plate, supplied loose	B06	-	-	✓	✓	✓	✓	✓	✓	✓
Second rating plate, loose	K31	✓	✓	✓	✓	✓	✓	✓	✓	✓
Extra rating plate or rating plate with deviating rating plate data	Y80 • and identification code	✓	✓	✓	✓	✓	✓	✓	✓	✓
Extra rating plate with identification code	Y82 • and identification code	✓	✓	✓	✓	✓	✓	✓	✓	✓
Additional information on rating plate and on package label (maximum of 20 characters)	Y84 • and identification code	✓	✓	✓	✓	✓	✓	✓	✓	✓

Special versions	Additional identification code -Z with order code and plain text if required	Motor type frame size												
		56	63	71	80	90	100	112	132	160	180	200	225	250

Self-ventilated motors in pole-changing version

		1LA7 (aluminum)						1LA5 (aluminum)	
Packaging, safety notes, documentation and test certificates									
Without safety and commissioning note. Customer's declaration of renouncement required.	B00	○	○	○	○	○	○	○	○
With one safety and startup guide per box pallet	B01	○	○	○	○	○	○	○	–
Acceptance test certificate 3.1 according to EN 10204	B02	✓	✓	✓	✓	✓	✓	✓	✓
Operating instructions German/English enclosed in print	B23	✓	✓	✓	✓	✓	✓	✓	✓
Type test with heat run for horizontal motors, with acceptance	F83	✓	✓	✓	✓	✓	✓	✓	✓
Wire-lattice pallet	L99	○	○	○	○	○	○	○	–
Connected in star for dispatch	M32	✓	✓	✓	✓	✓	✓	✓	✓
Connected in delta for dispatch	M33	✓	✓	✓	✓	✓	✓	✓	✓

- Standard version
- Without additional charge
- This order code only determines the price of the version – Additional plain text is required.
- . R. Possible on request
- ✓ With additional charge
- Not possible

- 1) Evaluation with appropriate tripping unit (see Catalog LV 1) is recommended. For pole-changing motors with separate windings, the number of temperature sensors must be doubled (order code **A11**, price of **A12** or order code **A12**, price available on request).
- 2) In combination with the PTC thermistor option or anti-condensation heating option, please inquire before ordering.
- 3) Cannot be used for motors in UL version (order code **D31**). Cannot be used for motors according to CSA approval (order code **D40**) for motor series 1LA5 frame size 180 to 200. The grease lifetime specified in Catalog D 81.1 part 0 "Introduction" refers to CT 40 °C. When the coolant temperature rises by 10 K, the grease lifetime or relubrication interval is halved.
- 4) A second shaft extension is not possible. Please inquire for mounted brakes. The order codes listed cannot be combined within the various technologies nor with each other within the same technology system. This applies for:
 - Modular technology
 - Basic versions of "Modular technology"
 - Combination of special versions "Special technology"
- 5) The standard brake supply voltage is 230 V AC, 50/60 Hz. Other brake supply voltages are possible with order codes **C00** and **C01**.
- 6) Converter mounting is possible for 230 VΔ/400 VY, please also specify Order No. of the MICROMASTER 411 according to Catalog DA 51.3.
- 7) Not possible in combination with rotary pulse encoder HOG 9 D 1024! (order code **H72**, **H79**) and / or brake 2LM8 (used for motors up to and including frame size 225, order code **G26**).
- 8) Not possible in combination with brake 2LM8 (used for motors up to and including frame size 225, order code **G26**).
- 9) Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE for IP55, IP56 and IP65 degrees of protection. If condensation drainage holes are required in motors of the IM B6, IM B7 or IM B8 type of construction (feet located on side or top), it is necessary to relocate the bearing plates at the drive end (DE) and non-drive end (NDE) so that the condensation drainage holes situated between the feet on delivery are underneath.
- 10) Not necessary when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover.
- 11) CCC certification is required for
 - 2-pole motors ≤2.2 kW
 - 4-pole motors ≤1.1 kW
 - 6-pole motors ≤0.75 kW
 - 8-pole motors ≤0.55 kW
- 12) Possible up to 600 V max. Order with voltage code **9** and order code for voltage and frequency. The rated voltage is indicated on the rating plate.
- 13) Order with voltage code **9** and order code for voltage and frequency. The rated voltage is indicated on the rating plate.
- 14) "Small power motors" with a rated output of up to 3 kW which are exported to Japan must bear the marking.
- 15) Not possible when brake is mounted.
- 16) Can be combined with deep-groove bearings of series 60.., 62.. and 63.. . Not possible with parallel roller bearings (e.g. bearings for increased cantilever forces, order code **K20**), brake or encoder mounting.
- 17) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the featherkey way must be specified in a sketch. It must be ensured that only featherkeys in accordance with DIN 6885, Form A are permitted to be used. The featherkey way is positioned centrally on the shaft extension. The length is defined by the manufacturer normatively. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The featherkeys are supplied in every case. For order codes **Y55** and **K16**:
 - Dimensions D and DA ≤ internal diameter of roller bearing (see dimension tables under "Dimensions")
 - Dimensions E and EA ≤2 x length E (normal) of the shaft extension
 For an explanation of the order codes, see Catalog D 81.1 part 0 "Introduction".
- 18) For 1LA5/6/7/9 motors and 1LG with metal external fan, converter-fed operation is permitted.

Options or order codes (supplement -Z is required)

Special versions	Additional identification code -Z with order code and plain text if required	Motor type frame size																							
		56	63	71	80	90	100	112	132	160	180	200	225	250	280	315									
Self-ventilated motors in pole-changing version																									
1LG4 (cast-iron)																									
Motor protection																									
Motor protection with PTC thermistors with 3 embedded temperature sensors for tripping ¹⁾	A11															✓	✓	✓	✓	✓	✓				
Motor protection with PTC thermistors with 6 embedded temperature sensors for tripping and alarm ¹⁾	A12															✓	✓	✓	✓	✓	✓				
Motor temperature detection with embedded temperature sensor KTY 84-130 ¹⁾	A23															✓	✓	✓	✓	✓	✓				
Motor temperature detection with embedded temperature sensors 2 x KTY 84-130 ¹⁾	A25															✓	✓	✓	✓	✓	✓				
Temperature detectors for tripping ¹⁾	A31															✓	✓	✓	✓	✓	✓				
Installation of 3 PT 100 resistance thermometers ¹⁾	A60															✓	✓	✓	✓	✓	✓				
Installation of 6 PT 100 resistance thermometers in stator winding ¹⁾	A61															✓	✓	✓	✓	✓	✓				
Installation of 2 PT 100 screw-in resistance thermometers (basic circuit) for rolling-contact bearings ¹⁾	A72															✓	✓ ²⁾	✓	✓	✓	✓				
Installation of 2 PT 100 screw-in resistance thermometers (3-wire circuit) for rolling-contact bearings ¹⁾	A78															✓	✓ ²⁾	✓	✓	✓	✓				
Installation of 2 PT 100 double screw-in resistance thermometers (3-wire circuit) for rolling-contact bearings ¹⁾	A80															✓	✓ ²⁾	✓	✓	✓	✓				
Motor connection and connection box																									
Two-part plate on connection box	K06															–	✓	✓	✓	✓	✓	✓			
Connection box on RHS	K09															✓	✓	✓	✓	✓	✓	✓			
Connection box on LHS	K10															✓	✓	✓	✓	✓	✓	✓			
Connection box on top, feet screwed on	K11															✓	✓	✓	✓	✓	✓	✓			
Connection box in cast-iron version	K15															✓	✓	✓	□	□	□				
One cable gland, metal	K54															✓	✓	✓	✓	✓	✓				
Cable gland, maximum configuration	K55															✓	✓	✓	✓	✓	✓				
Rotation of the connection box through 90°, entry from DE	K83															✓	✓	✓	✓	✓	✓				
Rotation of the connection box through 90°, entry from NDE	K84															✓	✓	✓	✓	✓	✓				
Rotation of connection box through 180°	K85															✓	✓	✓	✓	✓	✓				
Next larger connection box	L00															✓	✓	✓	✓	✓	✓				
Undrilled entry plate	L01															○	○	○	○	○	○				
External earthing	L13															□	□	□	□	□	□				
6 cables protruding, 1.5 m long ³⁾	L48															✓	✓	✓	○	R.	○	R.	○	R.	
6 cables protruding, 3 m long ³⁾	L49															✓	✓	✓	○	R.	○	R.	○	R.	
Protruding cable ends – right side ^{3) 4)}	L51															○	R.	○	R.	○	R.	○	R.	○	R.
Protruding cable ends – left side ^{3) 4)}	L52															○	R.	○	R.	○	R.	○	R.	○	R.
Auxiliary connection box 1XB3 020	L97															✓	✓	✓	✓	✓	✓				

Special versions	Additional identification code -Z with order code and plain text if required	Motor type frame size														
		56	63	71	80	90	100	112	132	160	180	200	225	250	280	315

Self-ventilated motors in pole-changing version

		1LG4 (cast-iron)														
Motor connection and connection box (continued)																
Stud terminal for cable connection, accessories pack (3 items)	M46	-	-	-	✓	✓	✓									
Saddle terminal for connection without cable lug, accessories pack (6 items)	M47	-	-	-	✓	✓	✓									
Windings and insulation																
Temperature class 155 (F), used acc. to 155 (F), with service factor (SF)	C11	✓	✓	✓	✓	✓	✓									
Temperature class 155 (F), used acc. to 155 (F), with increased output ⁵⁾	C12	✓	✓	✓	✓	✓	✓									
Temperature class 155 (F), used acc. to 155 (F), with increased coolant temperature	C13	✓	✓	✓	✓	✓	✓									
Temperature class 180 (H) at rated output and max. CT 60 °C ⁶⁾	C18	✓	✓	✓	✓	✓	✓									
Increased air humidity/temperature with 30 to 60 g water per m ³ of air	C19	✓	✓	✓	✓	✓	✓									
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 % ⁵⁾	C22	✓	✓	✓	✓	✓	✓									
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 % ⁵⁾	C23	✓	✓	✓	✓	✓	✓									
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 % ⁵⁾	C24	✓	✓	✓	✓	✓	✓									
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 % ⁵⁾	C25	✓	✓	✓	✓	✓	✓									
Increased air humidity/temperature with 60 to 100 g water per m ³ of air	C26	✓	✓	✓	✓	✓	✓									
Temperature class 155 (F), used acc. to 130 (B), with a higher coolant temperature and/or site altitude	Y50 • and specified output, CT .. °C or SA m above sea level	✓	✓	✓	✓	✓	✓									
Temperature class 155 (F), used acc. to 155 (F), other requirements	Y52 • and specify output, CT .. °C or SA m above sea level	✓	✓	✓	✓	✓	✓									
Colors and paint finish																
Standard finish in RAL 7030 stone gray		□	□	□	□	□	□									
Standard finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005	Y53 • and standard finish RAL	✓	✓	✓	✓	✓	✓									
Special finish in RAL 7030 stone gray	K26	✓	✓	✓	✓	✓	✓									

Special versions	Additional identification code -Z with order code and plain text if required	Motor type frame size															
		56	63	71	80	90	100	112	132	160	180	200	225	250	280	315	
Self-ventilated motors in pole-changing version																	
1LG4 (cast-iron)																	
Colors and paint finish (continued)																	
Special finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5007, 5009, 5010, 5012, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005	Y54 • and special finish RAL											✓	✓	✓	✓	✓	✓
Special finish in special RAL colors: For RAL colors, see "Special finish in special RAL colors" on Catalog D 81.1 part 0	Y51 • and special finish RAL											✓	✓	✓	✓	✓	✓
Offshore special finish	M91											✓	✓	✓	✓	✓	✓
Sea air resistant special finish	M94											O. R.					
Unpainted (only cast iron parts primed)	K23											○	○	○	○	○	○
Unpainted, only primed	K24											✓	✓	✓	✓	✓	✓
Modular technology – Basic versions ⁷⁾																	
Mounting of separately driven fan ⁸⁾	G17											✓	✓	✓	✓	✓	✓
Mounting of brake ^{8) 9)}	G26											✓	✓	✓	✓	✓	✓
Mounting of 1XP8 001-1 (HTL) rotary pulse encoder	H57											✓	✓	✓	✓	✓	✓
Mounting of 1XP8 001-2 (TTL) rotary pulse encoder	H58											✓	✓	✓	✓	✓	✓
Modular technology – Combinations of basic versions ⁷⁾																	
Mounting of separately driven fan and 1XP8 001-1 rotary pulse encoder	H61											✓	✓	✓	✓	✓	✓
Mounting of brake and 1XP8 001-1 rotary pulse encoder ⁹⁾	H62											✓	✓	✓	✓	✓	✓
Mounting of brake and separately driven fan ^{8) 9)}	H63											✓	✓	✓	✓	✓	✓
Mounting of brake, separately driven fan and 1XP8 001-1 rotary pulse encoder ⁹⁾	H64											✓	✓	✓	✓	✓	✓
Mounting of separately driven fan and 1XP8 001-2 rotary pulse encoder	H97											✓	✓	✓	✓	✓	✓
Mounting of brake and 1XP8 001-2 rotary pulse encoder	H98											✓	✓	✓	✓	✓	✓
Mounting of brake, separately driven fan and 1XP8 001-2 rotary pulse encoder ⁹⁾	H99											✓	✓	✓	✓	✓	✓
Modular technology – Additional versions																	
Brake supply voltage 24 V DC	C00											✓	✓	✓	✓	✓	✓
Brake supply voltage 400 V AC	C01											✓	✓	✓	✓	✓	✓
Mechanical manual release of the brake with operating lever	K82											✓	✓	✓	✓	✓	✓
Special technology ⁷⁾																	
Mounting of LL 861 900 220 rotary pulse encoder	H70											✓	✓	✓	✓	✓	✓
Mounting of HOG 9 D 1024 I rotary pulse encoder	H72											✓	✓	✓	✓	✓	✓
Mounting of HOG 10 D 1024 I rotary pulse encoder	H73											✓	✓	✓	✓	✓	✓
Prepared for mounting LL 861 900 220	H78											✓	✓	✓	✓	✓	✓
Prepared for mounting HOG 9 D 1024 I	H79											✓	✓	✓	✓	✓	✓
Prepared for mounting HOG 10 D 1024 I	H80											✓	✓	✓	✓	✓	✓

Special versions	Additional identification code -Z with order code and plain text if required	Motor type frame size												
		56	63	71	80	90	100	112	132	160	180	200	225	250

Self-ventilated motors in pole-changing version																
1LG4 (cast-iron)																
Mechanical design and degrees of protection																
Drive-end seal for flange-mounting motors with oil resistance to 0.1 bar (not possible for IM V3 type of construction)	K17															
IP65 degree of protection ¹⁰⁾	K50															
IP56 degree of protection (non-heavy-sea) ¹¹⁾	K52															
Condensation water holes ¹²⁾	L12															
Non-rusting screws (externally)	M27															
Earth brushes for converter-fed operation	M44														O. R.	O. R.
Mechanical protection for encoder ¹³⁾	M68															
Coolant temperature and site altitude																
Coolant temperature -50 to +40 °C	D02															
Coolant temperature -40 to +40 °C	D03															
Coolant temperature -30 to +40 °C	D04															
Designs in accordance with standards and specifications																
Electrical according to NEMA MG1-12	D30															
Design according to UL with "Recognition Mark" ¹⁴⁾	D31															
Canadian regulations (CSA) ¹⁵⁾	D40															
Bearings and lubrication																
Measuring nipple for SPM shock pulse measurement for bearing inspection	G50															
Bearing design for increased cantilever forces ¹⁶⁾	K20															
Special bearing for DE and NDE, bearing size 63	K36															
Regreasing device	K40															
Located bearing DE	K94															
Located bearing NDE	L04															
Insulated bearing cartridge	L27															
Balance and vibration quantity																
Vibration quantity A																
Vibration quantity B	K02															
Full key balancing	L68															
Balancing without key	M37															
Shaft and rotor																
Concentricity of shaft extension, coaxiality and linear movement in accordance with DIN 42955 Tolerance R for flange-mounting motors ¹⁷⁾	K04															
Second standard shaft extension	K16															
Shaft extension with standard dimensions without featherkey way	K42															
Concentricity of shaft extension in accordance with DIN 42955 Tolerance R	L39															
Non-standard cylindrical shaft extension ¹⁸⁾	Y55 • and identification code															

Special versions	Additional identification code -Z with order code and plain text if required	Motor type frame size												
		56	63	71	80	90	100	112	132	160	180	200	225	250

Self-ventilated motors in pole-changing version																					
															1LG4 (cast-iron)						
Heating and ventilation																					
Metal external fan ¹⁹⁾	K35															✓	✓	✓	✓	✓	✓
Anti-condensation heaters for 230 V	K45															✓	✓	✓	✓	✓	✓
Anti-condensation heaters for 115 V	K46															✓	✓	✓	✓	✓	✓
Sheet metal fan cover	L36															✓	✓	✓	✓	✓	✓
Separately driven fan with non-standard voltage and/or frequency	Y81 • and identification code															–	–	✓	✓	✓	✓
Rating plate and extra rating plates																					
Second lubricating plate, supplied loose	B06															✓	✓	✓	✓	✓	✓
Second rating plate, loose	K31															✓	✓	✓	✓	✓	✓
Extra rating plate or rating plate with deviating rating plate data	Y80 • and identification code															✓	✓	✓	✓	✓	✓
Extra rating plate with identification code	Y82 • and identification code															✓	✓	✓	✓	✓	✓
Additional information on rating plate and on package label (maximum of 20 characters)	Y84 • and identification code															✓	✓	✓	✓	✓	✓
Packaging, safety notes, documentation and test certificates																					
Acceptance test certificate 3.1 according to EN 10204	B02															✓	✓	✓	✓	✓	✓
Operating instructions German/English enclosed in print	B23															✓	✓	✓	✓	✓	✓
Type test with heat run for horizontal motors, with acceptance	F83															✓	✓	✓	✓	✓	✓
Connected in star for dispatch	M32															✓	✓	✓	✓	✓	✓
Connected in delta for dispatch	M33															✓	✓	□	□	□	□

- Standard version
- Without additional charge
- This order code only determines the price of the version – Additional plain text is required.
- R. Possible on request
- ✓ With additional charge
- Not possible

- 1) Evaluation with appropriate tripping unit (see Catalog LV 1) is recommended. For pole-changing motors with separate windings, the number of temperature sensors must be doubled (order code **A11**, price of **A12** or order code **A12**, price available on request).
- 2) PT 100 bearing monitoring only possible at drive end (DE).
- 3) In combination with the PTC thermistor option or anti-condensation heating option, please inquire before ordering.
- 4) Only possible in combination with order code **L44** to **L49** or length specification in plain text.
- 5) Only the 50 Hz data are specified on the rating plate.
- 6) Cannot be used for motors in UL version (order code **D31**) or CSA approval (order code **D40**). The grease lifetime specified in Catalog D 81.1 part 0 "Introduction" refers to CT 40 °C. When the coolant temperature rises by 10 K, the grease lifetime or relubrication interval is halved.
- 7) A second shaft extension is not possible. Please inquire for mounted brakes. The order codes listed cannot be combined within the various technologies nor with each other within the same technology system. This applies for:
 - Modular technology
 - Basic versions of "Modular technology"
 - Combination of special versions "Special technology"
- 8) For 1LG4/1LG6 motors, order codes **G17**, **G26** and **H63** frame size 225 and above can also be combined with all rotary pulse encoders in the "Special technology" range.
- 9) The standard brake supply voltage is 230 V AC, 50/60 Hz. Other brake supply voltages are possible with order codes **C00** and **C01**.
- 10) Not possible in combination with rotary pulse encoder HOG 9 D 1024I (order code **H72**, **H79**) and / or brake 2LM8 (used for motors up to and including frame size 225, order code **G26**).
- 11) Not possible in combination with brake 2LM8 (used for motors up to and including frame size 225, order code **G26**).
- 12) Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE (IP55, IP56, IP65). If condensation drainage holes are required in motors of the IM B6, IM B7 or IM B8 type of construction (feet located on side or top), it is necessary to relocate the bearing plates at the drive end (DE) and non-drive end (NDE) so that the condensation drainage holes situated between the feet on delivery are underneath.
- 13) Not necessary when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover.
- 14) Possible up to 600 V max. Order with voltage code **9** and order code for voltage and frequency. The rated voltage is indicated on the rating plate.
- 15) Order with voltage code **9** and order code for voltage and frequency. The rated voltage is indicated on the rating plate.
- 16) Bearings for increased cantilever forces at vibration quantity level B on request for 1LG4 motors. Not possible for 1LG4 motors in the combination "Concentricity of the shaft extension, coaxiality and linear movement in accordance with DIN 42955 Tolerance R for flange-mounting motors" – order code **K04**.
- 17) Can be combined with deep-groove bearings of series 60.., 62.. and 63.. . Not possible with parallel roller bearings (e.g. bearings for increased cantilever forces, order code **K20**).
- 18) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the featherkey way must be specified in a sketch. It must be ensured that only featherkeys in accordance with DIN 6885, Form A are permitted to be used. The featherkey way is positioned centrally on the shaft extension. The length is defined by the manufacturer normatively. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The featherkeys are supplied in every case. For order codes **Y55** and **K16**:
 - Dimensions D and DA ≤ internal diameter of roller bearing (see dimension tables under "Dimensions")
 - Dimensions E and EA ≤ 2 x length E (normal) of the shaft extension
 For an explanation of the order codes, see Catalog D 81.1 part 0 "Introduction".
- 19) For 1LA5/6/7/9 motors and 1LG with metal external fan, converter-fed operation is permitted.

Options or order codes (supplement -Z is required)

Special versions	Additional identification code -Z with order code and plain text if required	Motor type frame size														
		56	63	71	80	90	100	112	132	160	180	200	225	250	280	315
Forced-air cooled motors without external fan and fan cover																
			1PP7 (aluminum)								1PP5 (aluminum)					
Motor protection																
Motor protection with PTC thermostors with 3 embedded temperature sensors for tripping ¹⁾	A11		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Motor protection with PTC thermostors with 6 embedded temperature sensors for tripping and alarm ¹⁾	A12		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Motor temperature detection with embedded temperature sensor KTY 84-130 ¹⁾	A23		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Motor temperature detection with embedded temperature sensors 2 x KTY 84-130 ¹⁾	A25		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Temperature detectors for tripping ¹⁾	A31		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Installation of 3 PT 100 resistance thermometers ¹⁾	A60		–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓
Motor connection and connection box																
ECOFAST motor plug Han-Drive 10e for 230 VΔ/400 VY ²⁾	G55		✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–
ECOFAST motor plug EMC Han-Drive 10e for 230 VΔ/400 VY ³⁾	G56		✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–
Connection box on RHS	K09		–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Connection box on LHS	K10		–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
One cable gland, metal	K54		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rotation of the connection box through 90°, entry from DE	K83		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rotation of the connection box through 90°, entry from NDE	K84		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rotation of connection box through 180°	K85		✓	✓	✓	✓	✓	○	○	○	○	✓	✓	✓	✓	✓
Next larger connection box	L00		–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓
External earthing	L13		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3 cables protruding, 0.5 m long ⁴⁾	L44		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O. R.	O. R.	✓
3 cables protruding, 1.5 m long ⁴⁾	L45		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O. R.	O. R.	✓
6 cables protruding, 0.5 m long ⁴⁾	L47		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O. R.	O. R.	✓
6 cables protruding, 1.5 m long ⁴⁾	L48		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Connection box on NDE	M64		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Terminal strip for main and auxiliary terminals	M69		✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–	–
Windings and insulation																
Temperature class 155 (F), used acc. to 155 (F), with service factor (SF)	C11		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Temperature class 155 (F), used acc. to 155 (F), with increased output	C12		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Temperature class 155 (F), used acc. to 155 (F), with increased coolant temperature	C13		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Temperature class 180 (H) at rated output and max. CT 60 °C ⁵⁾	C18		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Special versions	Additional identification code -Z with order code and plain text if required	Motor type frame size														
		56	63	71	80	90	100	112	132	160	180	200	225	250	280	315
Forced-air cooled motors without external fan and fan cover																
			1PP7 (aluminum)										1PP5 (aluminum)			
Windings and insulation (continued)																
Increased air humidity/temperature with 30 to 60 g water per m ³ of air	C19		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 %	C22		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 %	C23		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 %	C24		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %	C25		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Increased air humidity/temperature with 60 to 100 g water per m ³ of air	C26		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Temperature class 155 (F), used acc. to 130 (B), with a higher coolant temperature and/or site altitude	Y50 • and specified output, CT .. °C or SA m above sea level		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Temperature class 155 (F), used acc. to 155 (F), other requirements	Y52 • and specified output, CT .. °C or SA m above sea level		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Colors and paint finish																
Special finish in RAL 7030 stone gray			□	□	□	□	□	□	□	□	□	□	□	□	□	□
Special finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5007, 5009, 5010, 5012, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005	Y54 • and special finish RAL		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Special finish in special RAL colors: For RAL colors, see "Special finish in special RAL colors" on Catalog D 81.1 part 0	Y51 • and special finish RAL		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sea air resistant special finish	M94		O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.
Unpainted (only cast iron parts primed)	K23		○	○	○	○	○	○	○	○	○	○	○	○	○	○
Unpainted, only primed	K24		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mechanical design and degrees of protection																
Drive-end seal for flange-mounting motors with oil resistance to 0.1 bar Not possible for IM V3 type of construction	K17		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
With two additional eyebolts for IM V1/IM V3	K32		-	-	-	-	-	-	-	-	-	-	-	✓	✓	✓
IP65 degree of protection	K50		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
IP56 degree of protection (non-heavy-sea)	K52		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Vibration-proof version	L03		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Condensation drainage holes ⁶⁾	L12		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Non-rusting screws (externally)	M27		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Special versions	Additional identification code -Z with order code and plain text if required	Motor type frame size														
		56	63	71	80	90	100	112	132	160	180	200	225	250	280	315
Forced-air cooled motors without external fan and fan cover																
			1PP7 (aluminum)										1PP5 (aluminum)			
Coolant temperature and site altitude																
Coolant temperature -40 to +40 °C	D03		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Coolant temperature -30 to +40 °C	D04		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Designs in accordance with standards and specifications																
Design according to UL with "Recognition Mark" ⁷⁾	D31		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Canadian regulations (CSA) ⁸⁾	D40		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PSE Mark Japan ⁹⁾	D46		✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	-	-
Bearings and lubrication																
Measuring nipple for SPM shock pulse measurement for bearing inspection	G50		-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bearing design for increased cantilever forces	K20		-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Regreasing device	K40		-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Located bearing DE	K94		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Located bearing NDE	L04		✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	-	-
Balance and vibration quantity																
Vibration quantity A			□	□	□	□	□	□	□	□	□	□	□	□	□	□
Vibration quantity B	K02		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Full key balancing	L68		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Balancing without key	M37		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Shaft and rotor																
Concentricity of shaft extension, coaxiality and linear movement in accordance with DIN 42955 Tolerance R for flange-mounting motors ¹⁰⁾	K04		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Second standard shaft extension	K16		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Shaft extension with standard dimensions without featherkey way	K42		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Concentricity of shaft extension in accordance with DIN 42955 Tolerance R	L39		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Standard shaft made of non-rusting steel	M65		-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Non-standard cylindrical shaft extension ¹¹⁾	Y55 • and identification code		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Heating and ventilation																
Anti-condensation heaters for 230 V	K45		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Anti-condensation heaters for 115 V	K46		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rating plate and extra rating plates																
Second lubricating plate, supplied loose	B06		-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Second rating plate, loose	K31		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Extra rating plate or rating plate with deviating rating plate data	Y80 • and identification code		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Extra rating plate with identification code	Y82 • and identification code		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Additional information on rating plate and on package label (maximum of 20 characters)	Y84 • and identification code		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Special versions	Additional identification code -Z with order code and plain text if required	Motor type frame size	56	63	71	80	90	100	112	132	160	180	200	225	250	280	315
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Forced-air cooled motors without external fan and fan cover

		1PP7 (aluminum)										1PP5 (aluminum)					
Packaging, safety notes, documentation and test certificates																	
Without safety and commissioning note. Customer's declaration of renouncement required.	B00	-	○	○	○	○	○	○	○	○	○	-	-				
With one safety and startup guide per box pallet	B01	-	○	○	○	○	○	○	○	○	○	-	-				
Acceptance test certificate 3.1 according to EN 10204	B02	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Operating instructions German/English enclosed in print	B23	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Type test with heat run for vertical motors, with acceptance	F83	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Wire-lattice pallet	L99	○	○	○	○	○	○	○	○	○	○	○	-				
Connected in star for dispatch	M32	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Connected in delta for dispatch	M33	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				

- Standard version
- Without additional charge
- This order code only determines the price of the version – Additional plain text is required.
- . R. Possible on request
- ✓ With additional charge
- Not possible

- 1) Evaluation with appropriate tripping unit (see Catalog LV 1) is recommended.
- 2) Only one sensor (temperature sensor or PTC thermistor) can be connected. Only possibilities are voltage code **1** with voltage of 230 VΔ/400 VY and special voltage with voltage code **9** and order code **L1U** (400 VΔ). The following order codes cannot be used in combination with the ECOFAST plugs, order code **G55: A12, C02, C18, D31, D40, G50, H15, H17, H62, H63, H64, H90, H91, H92, H93, H94, H95, H98, H99, K04, K15, K16, K34, K35, K40, K45, K46, K52, K54, K82, L03, L44, L45, L47, L48, L49, L51, L52.**
- 3) Not possible for pole-changing motors. Only one sensor (temperature sensor or PTC thermistor) can be connected. Only possibilities are voltage code **1** with voltage of 230 VΔ/400 VY and special voltage with voltage code **9** and order code **L1U** (400 VΔ). The following order codes cannot be used in combination with the ECOFAST plugs, order code **G56: A12, A23, A31, C00, C18, D31, D40, G50, H15, H17, H90, H91, H92, H93, H94, H95, K04, K15, K16, K34, K35, K40, K45, K46, K52, K54, K82, L03, L44, L45, L47, L48, L49, L51, L52.**
- 4) In combination with the PTC thermistor option or anti-condensation heating option, please inquire before ordering.
- 5) Cannot be used for motors in UL version (order code **D31**). Cannot be used for motors according to CSA approval (order code **D40**) for motor series 1PP7 frame size 180 to 200. The grease lifetime specified in Catalog D 81.1 part 0 "Introduction" refers to CT 40 °C. When the coolant temperature rises by 10 K, the grease lifetime or relubrication interval is halved.
- 6) Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE for IP55, IP56 and IP65 degrees of protection. If condensation drainage holes are required in motors of the IM B6, IM B7 or IM B8 type of construction (feet located on side or top), it is necessary to relocate the bearing plates at the drive end (DE) and non-drive end (NDE) so that the condensation drainage holes situated between the feet on delivery are underneath.
- 7) Possible up to 600 V max. The rated voltage is indicated on the rating plate without voltage range.
- 8) The rated voltage is indicated on the rating plate without voltage range.
- 9) "Small power motors" with a rated output of up to 3 kW which are exported to Japan must bear the marking.
- 10) Can be combined with deep-groove bearings of series 60.., 62.. and 63.. . Not possible with parallel roller bearings (e.g. bearings for increased cantilever forces, order code **K20**) brake or encoder mounting.
- 11) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the featherkey way must be specified in a sketch. It must be ensured that only featherkeys in accordance with DIN 6885, Form A are permitted to be used. The featherkey way is positioned centrally on the shaft extension. The length is defined by the manufacturer normatively. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The featherkeys are supplied in every case. For order codes **Y55** and **K16**:
 – Dimensions D and DA ≤ internal diameter of roller bearing (see dimension tables under "Dimensions")
 – Dimensions E and EA ≤ 2 x length E (normal) of the shaft extension
 For an explanation of the order codes, see Catalog D 81.1 part 0 "Introduction"

Options or order codes (supplement -Z is required)

Special versions	Additional identification code -Z with order code and plain text if required	Motor type frame size															
		56	63	71	80	90	100	112	132	160	180	200	225	250	280	315	
Forced-air cooled motors without external fan and fan cover																	
												1PP4 (cast-iron)					
Motor protection																	
Motor protection with PTC thermistors with 3 embedded temperature sensors for tripping ¹⁾	A11											✓	✓	✓	✓	✓	✓
Motor protection with PTC thermistors with 6 embedded temperature sensors for tripping and alarm ¹⁾	A12											✓	✓	✓	✓	✓	✓
Motor temperature detection with embedded temperature sensor KTY 84-130 ¹⁾	A23											✓	✓	✓	✓	✓	✓
Motor temperature detection with embedded temperature sensors 2 x KTY 84-130 ¹⁾	A25											✓	✓	✓	✓	✓	✓
Temperature detectors for tripping	A31											✓	✓	✓	✓	✓	✓
Installation of 3 PT 100 resistance thermometers ¹⁾	A60											✓	✓	✓	✓	✓	✓
Installation of 6 PT 100 resistance thermometers in stator winding ¹⁾	A61											✓	✓	✓	✓	✓	✓
Installation of 2 PT 100 screw-in resistance thermometers (basic circuit) for rolling-contact bearings ¹⁾	A72											✓	✓	✓	✓	✓	✓
Installation of 2 PT 100 screw-in resistance thermometers (3-wire circuit) for rolling-contact bearings ¹⁾	A78											✓	✓	✓	✓	✓	✓
Installation of 2 PT 100 double screw-in resistance thermometers (3-wire circuit) for rolling-contact bearings ¹⁾	A80											✓	✓	✓	✓	✓	✓
Motor connection and connection box																	
Two-part plate on connection box	K06											–	✓	✓	✓	✓	✓
Connection box on RHS	K09											✓	✓	✓	✓	✓	✓
Connection box on LHS	K10											✓	✓	✓	✓	✓	✓
Connection box on top, feet screwed on	K11											✓	✓	✓	✓	✓	✓
One cable gland, metal	K54											✓	✓	✓	✓	✓	✓
Cable gland, maximum configuration	K55											✓	✓	✓	✓	✓	✓
Rotation of the connection box through 90°, entry from DE	K83											✓	✓	✓	✓	✓	✓
Rotation of the connection box through 90°, entry from NDE	K84											✓	✓	✓	✓	✓	✓
Rotation of connection box through 180°	K85											✓	✓	✓	✓	✓	✓
Next larger connection box	L00											✓	✓	✓	✓	✓	✓
External earthing	L13											□	□	□	□	□	□
6 cables protruding, 1.5 m long ²⁾	L48											✓	✓	✓	O. R.	O. R.	O. R.
6 cables protruding, 3 m long ²⁾	L49											✓	✓	✓	O. R.	O. R.	O. R.
Protruding cable ends – right side ^{2) 3)}	L51											O. R.	O. R.	O. R.	O. R.	O. R.	O. R.
Protruding cable ends – left side ^{2) 3)}	L52											O. R.	O. R.	O. R.	O. R.	O. R.	O. R.
Auxiliary connection box 1XB3 020	L97											✓	✓	✓	✓	✓	✓
Stud terminal for cable connection, accessories pack (3 items)	M46											–	–	–	✓	✓	✓
Saddle terminal for connection without cable lug, accessories pack (6 items)	M47											–	–	–	✓	✓	✓

Special versions	Additional identification code -Z with order code and plain text if required	Motor type frame size														
		56	63	71	80	90	100	112	132	160	180	200	225	250	280	315
Forced-air cooled motors without external fan and fan cover																
Windings and insulation																
																1PP4 (cast-iron)
Temperature class 155 (F), used acc. to 155 (F), with service factor (SF)	C11															✓
Temperature class 155 (F), used acc. to 155 (F), with increased output 4)	C12															✓
Temperature class 155 (F), used acc. to 155 (F), with increased coolant temperature	C13															✓
Temperature class 180 (H) at rated output and max. CT 60 °C 5)	C18															✓
Increased air humidity/temperature with 30 to 60 g water per m ³ of air	C19															✓
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 %	C22															✓
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 %	C23															✓
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 %	C24															✓
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %	C25															✓
Increased air humidity/temperature with 60 to 100 g water per m ³ of air	C26															✓
Temperature class 155 (F), used acc. to 130 (B), with a higher coolant temperature and/or site altitude	Y50 • and specified output, CT .. °C or SA m above sea level															✓
Temperature class 155 (F), used acc. to 155 (F), other requirements	Y52 • and specified output, CT .. °C or SA m above sea level															✓
Colors and paint finish																
Standard finish in RAL 7030 stone gray																□
Standard finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005	Y53 • and standard finish RAL															✓
Special finish in RAL 7030 stone gray	K26															✓
Special finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005	Y54 • and special finish RAL															✓

Special versions	Additional identification code -Z with order code and plain text if required	Motor type frame size															
		56	63	71	80	90	100	112	132	160	180	200	225	250	280	315	
Forced-air cooled motors without external fan and fan cover																	
Colors and paint finish (continued)																	
Special finish in special RAL colors: For RAL colors, see "Special finish in special RAL colors" on Catalog D 81.1 part 0	Y51 • and special finish RAL											✓	✓	✓	✓	✓	✓
Offshore special finish	M91											✓	✓	✓	✓	✓	✓
Sea air resistant special finish	M94											O. R.	O. R.				
Unpainted (only cast iron parts primed)	K23											○	○	○	○	○	○
Unpainted, only primed	K24											✓	✓	✓	✓	✓	✓
Mechanical design and degrees of protection																	
Drive-end seal for flange-mounting motors with oil resistance to 0.1 bar (Not possible for type of construction IM V3) ⁶⁾	K17											✓	✓	✓	✓	✓	✓
IP65 degree of protection	K50											✓	✓	✓	✓	✓	✓
IP56 degree of protection (non-heavy-sea)	K52											✓	✓	✓	✓	✓	✓
Non-rusting screws (externally)	M27											✓	✓	✓	✓	✓	✓
Coolant temperature and site altitude																	
Coolant temperature -50 to +40 °C	D02											✓	✓	✓	✓	✓	✓
Coolant temperature -40 to +40 °C	D03											✓	✓	✓	✓	✓	✓
Coolant temperature -30 to +40 °C	D04											✓	✓	✓	✓	✓	✓
Designs in accordance with standards and specifications																	
Design according to UL with "Recognition Mark" ⁷⁾	D31											✓	✓	✓	✓	✓	✓
Canadian regulations (CSA) ⁸⁾	D40											✓	✓	✓	✓	✓	✓
Bearings and lubrication																	
Measuring nipple for SPM shock pulse measurement for bearing inspection	G50											✓	✓	✓	✓	✓	✓
Bearing design for increased cantilever forces ⁹⁾	K20											✓	✓	✓	✓	✓	✓
Special bearing for DE and NDE, bearing size 63	K36											✓	✓	✓	✓	✓ ¹⁰⁾	✓ ¹⁰⁾
Regreasing device	K40											✓	✓	✓	✓	-	-
Located bearing DE	K94											✓	✓	✓	✓	✓	✓
Located bearing NDE	L04											□	□	□	□	□	□
Insulated bearing cartridge	L27											-	-	✓	✓	✓	✓
Balance and vibration quantity																	
Vibration quantity A												□	□	□	□	□	□
Vibration quantity B	K02											✓	✓	✓	✓	✓	✓
Full key balancing	L68											✓	✓	✓	✓	✓	✓
Balancing without key	M37											✓	✓	✓	✓	✓	✓
Shaft and rotor																	
Concentricity of shaft extension, coaxiality and linear movement in accordance with DIN 42955 Tolerance R for flange-mounting motors ¹¹⁾	K04											✓	✓	✓	✓	✓	✓
Second standard shaft extension ¹²⁾	K16											✓	✓	✓	✓	✓	✓
Shaft extension with standard dimensions without featherkey way	K42											✓	✓	✓	✓	✓	✓
Concentricity of shaft extension in accordance with DIN 42955 Tolerance R	L39											✓	✓	✓	✓	✓	✓
Non-standard cylindrical shaft extension ¹³⁾	Y55 • and identification code											✓	✓	✓	✓	✓	✓

Special versions	Additional identification code -Z with order code and plain text if required	Motor type frame size												
		56	63	71	80	90	100	112	132	160	180	200	225	250

Forced-air cooled motors without external fan and fan cover

		1PP4 (cast-iron)															
Heating and ventilation																	
Anti-condensation heaters for 230 V	K45											✓	✓	✓	✓	✓	✓
Anti-condensation heaters for 115 V	K46											✓	✓	✓	✓	✓	✓
Rating plate and extra rating plates																	
Second lubricating plate, supplied loose	B06											✓	✓	✓	✓	✓	✓
Second rating plate, loose	K31											✓	✓	✓	✓	✓	✓
Extra rating plate or rating plate with deviating rating plate data	Y80 • and identification code											✓	✓	✓	✓	✓	✓
Extra rating plate with identification code	Y82 • and identification code											✓	✓	✓	✓	✓	✓
Additional information on rating plate and on package label (maximum of 20 characters)	Y84 • and identification code											✓	✓	✓	✓	✓	✓
Packaging, safety notes, documentation and test certificates																	
Acceptance test certificate 3.1 according to EN 10204	B02											✓	✓	✓	✓	✓	✓
Type test with heat run for vertical motors, with acceptance	F83											✓	✓	✓	✓	✓	✓
Connected in star for dispatch	M32											✓	✓	✓	✓	✓	✓
Connected in delta for dispatch	M33											✓	✓	□	□	□	□

- Standard version
- Without additional charge
- This order code only determines the price of the version – Additional plain text is required.
- R. Possible on request
- ✓ With additional charge
- Not possible

1) Evaluation with appropriate tripping unit (see Catalog LV 1) recommended.

2) In combination with the PTC thermistor option or anti-condensation heating option, please inquire before ordering.

3) Possible in combination with order code **L44** to **L49** or length specification in plain text.

4) Only the 50 Hz data are indicated on the rating plate.

5) Cannot be used for motors in UL version (order code **D31**). Cannot be used for motors according to CSA approval (order code **D40**) for motor series 1PP7 frame size 180 to 200. The grease lifetime specified in Catalog D 81.1 part 0 "Introduction" refers to CT 40 °C. When the coolant temperature rises by 10 K, the grease lifetime or relubrication interval is halved.

6) Not available for 2-pole motors.

7) Possible up to 600 V max. Order with voltage code **9** and order code for voltage and frequency. The rated voltage is indicated on the rating plate.

8) Order with voltage code **9** and order code for voltage and frequency. The rated voltage is indicated on the rating plate.

9) Not possible for 2-pole 1PP4 motors, frame size 315 L in vertical types of construction; bearings for increased cantilever forces at vibration quantity level B available on request for 1PP4 motors. Not possible for 1PP4 motors in the combination "Concentricity of the shaft extension, coaxiality and linear movement in accordance with DIN 42955 Tolerance R for flange-mounting motors" – order code **K04**.

10) Additional charge for 2-pole motors. With 4-pole to 8-pole motors, standard version.

11) Can be combined with deep-groove bearings of series 60.., 62.. and 63.. . Not possible with parallel roller bearings (e.g. bearings for increased cantilever forces, order code **K20**).

12) Possible for motors of frame size 315 and above in vertical types of construction or 2-pole for version with second shaft extension on request. Version with protective cover not possible.

13) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the featherkey way must be specified in a sketch. It must be ensured that only featherkeys in accordance with DIN 6885, Form A are permitted to be used. The featherkey way is positioned centrally on the shaft extension. The length is defined by the manufacturer normatively. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The featherkeys are supplied in every case. For order codes **Y55** and **K16**:
 – Dimensions D and DA ≤ internal diameter of roller bearing (see dimension tables under "Dimensions")
 – Dimensions E and EA ≤ 2 x length E (normal) of the shaft extension
 For an explanation of the order codes, see Catalog D 81.1 part 0 "Introduction".