

## Electrical Features

### CE Motors acc. to EN 60034-1

Grade of protection	IP55
Type of insulation	F
Number of poles	2
Efficiencies	EN 60034-30, IE2 ≥ 0.16 HP (0.12 kW) / IE3 ≥ 0.64 HP (0.48 kW)*

\* Motors without fans, such as those installed in TB16-100 or FT35, are excluded.

60 Hz	230 V $\Upsilon\Upsilon$ 460 V $\Upsilon$	460 V $\Upsilon$	460 V $\Delta$
up to 8.4 HP (6.3 kW)	Standard	●	●
9.2 – 20.1 HP (6.9 – 15 kW)	Standard	–	●
25 HP and higher (22 kW)	–	–	Standard

In accordance with DIN EN 60034-1, **Zone A**, and permanent operation, the voltage tolerance is  $\pm 5\%$  and the frequency tolerance is  $\pm 2\%$ .

Available as a special design, e.g.:

	200 V	200 V 220 V	200 V – 220 V 400 V	380 V	400 V	415 V	440 V	480 V	500 V	575 V	200 V $\Upsilon\Upsilon$ 400 V $\Upsilon$	230 V $\Upsilon\Upsilon$ 460 V $\Upsilon$
50 Hz	●	–	–	●	●	●	–	–	●	–	●	–
60 Hz	–	●	●	●	●	–	●	●	–	●	–	●

● available – not available

Other voltages upon request.

Pole changing motors are nonstandard motors.

For operation at 60 Hz, as well as the choice of the corresponding motor winding, the manufacturer will also adapt the hydraulics, e. g. with smaller impellers or dummy stages.

For special demands, versions for use with a standardized voltage 50 Hz and 60 Hz (Transformer usage) are possible after consulting with the company, For example: 3 x 400 V,  $\pm 5\%$ , 50 – 60 Hz.

### Motors 8 HP (6 kW) and larger

Motors wired for  $\Delta$  (Delta) connection.

The motor design allows  $\Upsilon/\Delta$ -starting, if required.

Screw-spindle pumps used for  $\Upsilon/\Delta$ -starting must be started without pressure.

Soft-starting devices can be used as an alternative to  $\Upsilon/\Delta$ -starting.

### Motor cycle time

Motors less 4 HP (3 kW) ►  
up to 200 times per hour.

Motors from 4 HP (3 kW) to 5.4 HP (4 kW) ►  
up to 40 times per hour.

Motors from 6.7 HP (5 kW) to 12.1 HP (9 kW) ►  
up to 20 times per hour.

Motors 14.7 HP (11 kW) and larger ►  
up to 15 times per hour.

Higher on/off cycling frequencies are available upon request.

## Electrical Features

### International Regulations, Brinkmann motors



Approved by UL with „UL Recognized Component Mark“ for USA acc. to UL 1004-1 and for Canada acc. to CSA C22.2 No. 100-14 (UL-File E233349)



Brinkmann motors ranging from 2.3 kW (3.1 HP) to 13 kW (17.4 HP), 50 Hz, are available with the China Energy Label GB18613-2020, Grade 3 upon request.



CC311B

Compliance Certification number CC311B according to 10 C.F.R. §431 (NEMA PREMIUM EFFICIENCY)

Brinkmann Motors up to 20.1 HP (15 kW), 60 Hz, and up to max. 600 V are available with UL Recognized Component Mark approval as special designs.

Brinkmann motors ranging from 1 HP (0.86 kW) to 20.1 HP (15 kW, 60 Hz), are available with NEMA PREMIUM MG 1 upon request.

Brinkmann Motors Options		50 Hz					60 Hz								
		200 V	380 V	400 V	415 V	500 V	200 V 220 V	380 V	400V	440 V	460 V	230 V 460 V	480 V	230 V 480 V	575 V 600 V
UL/CSA		-	-	-	-	-	•	•	•	•	•	•	•	•	•
CEL (Grade 3) ≥ 2.3 kW		•	•	•	•	•	-	-	-	-	-	-	-	-	-
NEMA PREMIUM MG 1 ≥ 1 HP (≥ 0.86 kW)	Y 1 – 8.4 HP (0.86 – 6.3 kW)	-	-	-	-	-	•	•	•	•	•	•	•	•	•
	Δ 4.6 – 20.1 HP (3.45 – 15 kW)	-	-	-	-	-	-	•	•	•	•	-	•	-	•
	YY/Y 1 – 20.1 HP (0.86 – 15 kW)	-	-	-	-	-	-	-	○	-	-	•	-	•	-

• available – not available ○ upon request Additional country-specific approvals upon request.

### International Regulations, Standard motors

Upon request. Depending on actual motor rating and sizing (Power / Motor efficiency class) deviations in pump and motor configurations are possible. An overview of pumps built with standard motors can be found on our website.

### Current / Rated current

The current ( $I_{\text{catalog}}$ ) stated at the name plates is used for the sizing of electronic components.

Motor ≤ 0.16 HP (≤ 0.12 kW) / 50 Hz:  $I_{\text{max}} = I_{\text{catalog}}$   $I_N = I_{\text{name plate}}$   
 Motor 0.23 HP – 0.43 HP (0.17 kW – 0.32 kW):  $I_{\text{max}} = \text{please see table}$   
 Motor ≥ 0.64 HP (≥ 0.48 kW):  $I_{\text{max}} = 1.05 \times I_{\text{catalog}}$

Power	$I_{\text{max}}$ @400 V, 50 Hz	$I_{\text{max}}$ @460 V, 60 Hz
0.23/0.26 HP (0.17/0.195 kW)	$I_{\text{max}} = 1.2 \times I_N$	$I_{\text{max}} = 1.08 \times I_N$
0.30/0.34 HP (0.22/0.255 kW)	$I_{\text{max}} = 1.14 \times I_N$	$I_{\text{max}} = 1.08 \times I_N$
0.43/0.49 HP (0.32/0.365 kW)	$I_{\text{max}} = 1.24 \times I_N$	$I_{\text{max}} = 1.1 \times I_N$

Special voltages upon request.

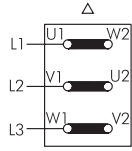
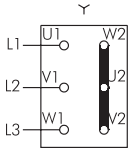
For extended voltage ranges we mention only the highest current value in our data sheets.

## Electrical Features

### Circuits

Y (Star Connection)  
up to 8.4 HP  
(6.3 kW)

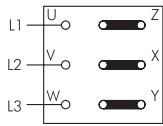
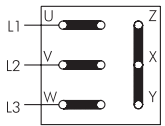
Δ (Delta Connection)  
10 HP (7.5 kW)  
and larger



Y 440 V – 480 V  
60 Hz

Δ 440 V – 480 V  
60 Hz

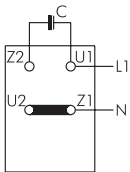
Voltage changing 1 : 2 Y / Y / Y  
230 V / 460 V, 60 Hz



YY  
Low Voltage

Y  
High Voltage

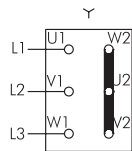
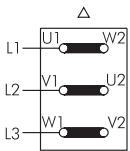
Connection to single-phase  
e. g. 1 x 110 V, 60 Hz:



Voltage changing Δ / Y  
e. g. 220 V – 240 V / 380 V – 420 V, 50 Hz

Δ (Delta Connection)

Y (Star Connection)



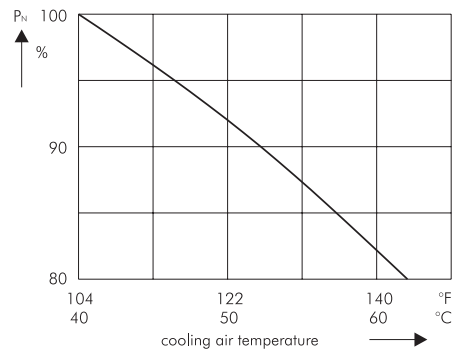
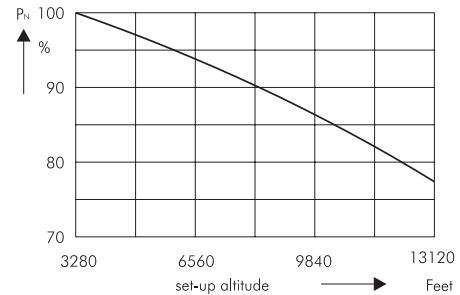
Δ 220 V – 240 V,  
50 Hz

Y 380 V – 420 V,  
50 Hz

### Set-up altitude and coolant temperature

The specified power ratings ( $P_N$ ) and operating values for the motors apply to operating mode S 1 according to EN 60034-1 (continuous operation) at a frequency of 60 Hz, rated voltage, a cooling air temperature (KT) of max. 104 °F (40 °C) and a set-up altitude of up to 3280 ft (1000 m) above sea level. The motors can also be used at a cooling air temperature above 104 °F (40 °C) up to max. 140 °F (60 °C) or set-up altitude above 3280 ft (1000 m) above sea level. In such cases the power rating must be reduced according to the diagrams, or an appropriately larger motor version or higher heat class has to be selected. However, a deviation from the specified data is necessary when the cooling air temperature is reduced according to table simultaneously at set-up altitudes higher than 3280 ft (1000 m) above sea level.

Set-up altitude feet	Maximum cooling air temperature for heat class F °F / °C
0 up to 3280	104 / 40
3280 up to 6560	86 / 30
6560 up to 9840	66 / 19
9540 up to 13120	48 / 9

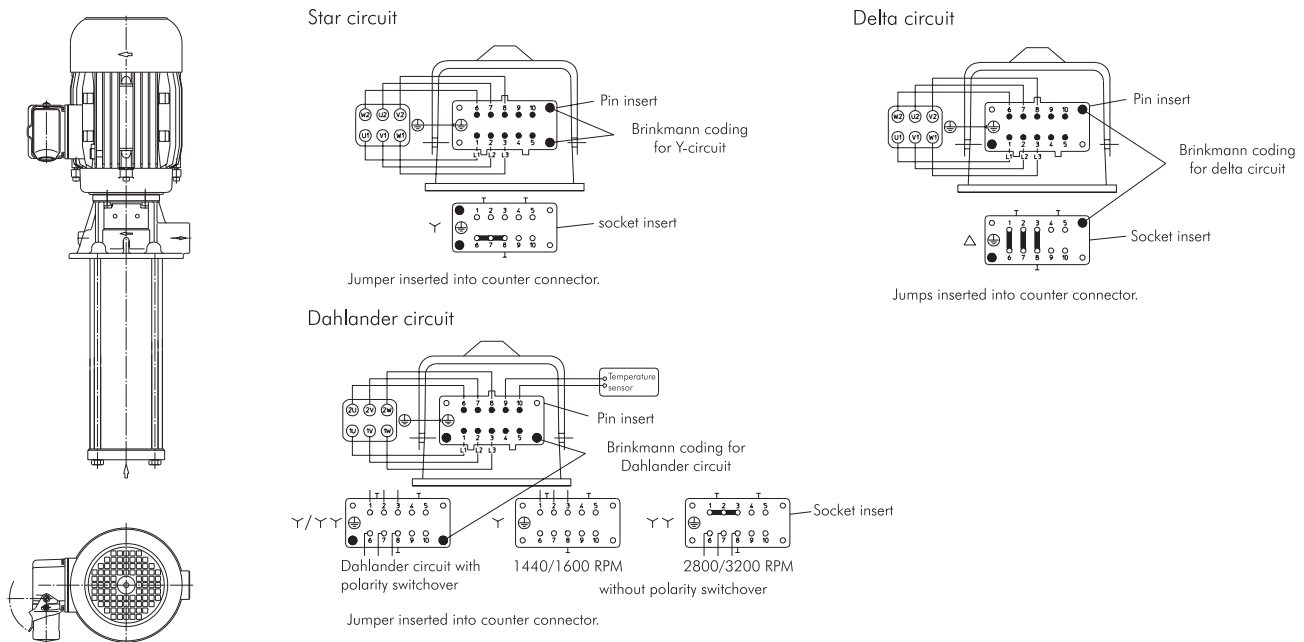


### Noise Levels

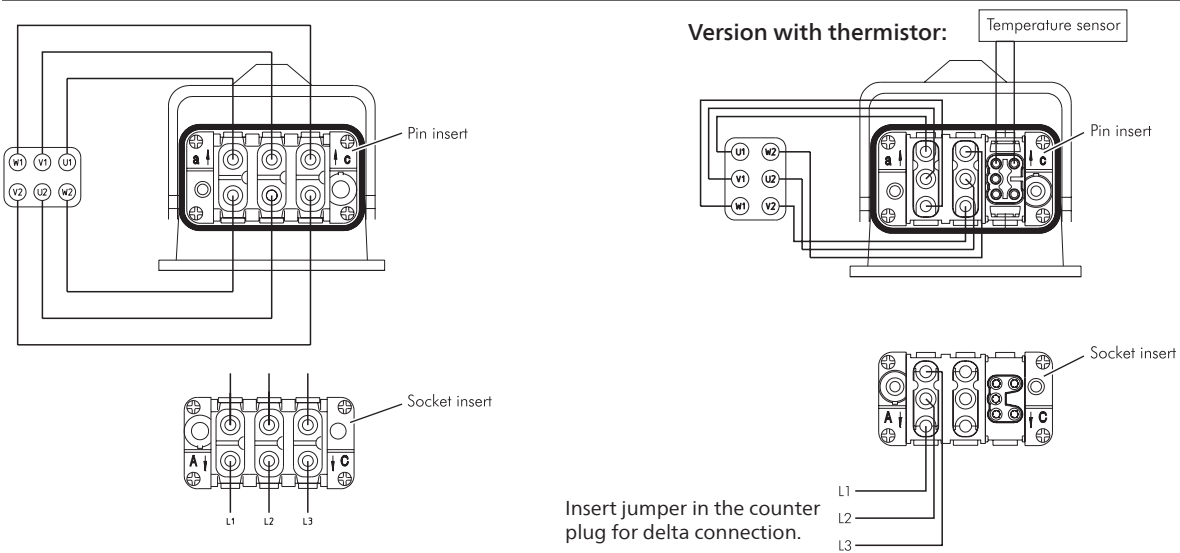
The noise levels stated in the catalog are motor noise levels valid for 60 Hz operation and rated power. The tolerance is +3 dBA. For reduced noise levels special axial motor fan blades are available upon request.

## Electrical Features

### Pin assignment for HAN 10-pin connector for pumps with motors up to 7.4 HP (5.5 kW)



### Assignment for HAN modular plug connector for pumps with motors from 8 HP to 17.4 HP (6 kW to 13 kW)



### Positions for motor connection plug – View onto terminal board

