

## *Centrifugal pumps of plastic for a wide variety of industrial fluids*

### Technical data

- Delivery rate  
 $Q_{\max} = 120 \text{ l/min}$
- Delivery head  
 $H_{\max} = 32 \text{ m}$
- Temperature range  
 $-100 \text{ °C to } +100 \text{ °C}$

### Product features

- Centrifugal pump,  
1- to 5-stage models
- Open impellers
- Port dimensions  
to DIN EN 12157
- Immersion depths  
of up to 350 mm
- Operation on 50 Hz and 60 Hz  
without impeller change
- Three-phase or single-phase motor



## Main applications

- Chemical applications
- Degreasing facilities
- Freon, Frigen systems
- Electroplating equipment
- Impregnators
- Industrial furnaces
- Cooling systems
- Surface-coating equipment
- Paraffin plants
- Tempering equipment
- Washing/cleaning installations
- etc.

## Fluids delivered

- Cooling brines
- Thermal oils
- Deionized water
- Lyes and acids in various concentrations
- Chemicals, especially organic solvents
- Detergents and cleansers
- etc.

Temperature range:  $-100\text{ }^{\circ}\text{C}$  to  $+100\text{ }^{\circ}\text{C}$ .

(Please note: the maximum permissible operating temperature drops with a rising number of pump stages.)

## Models

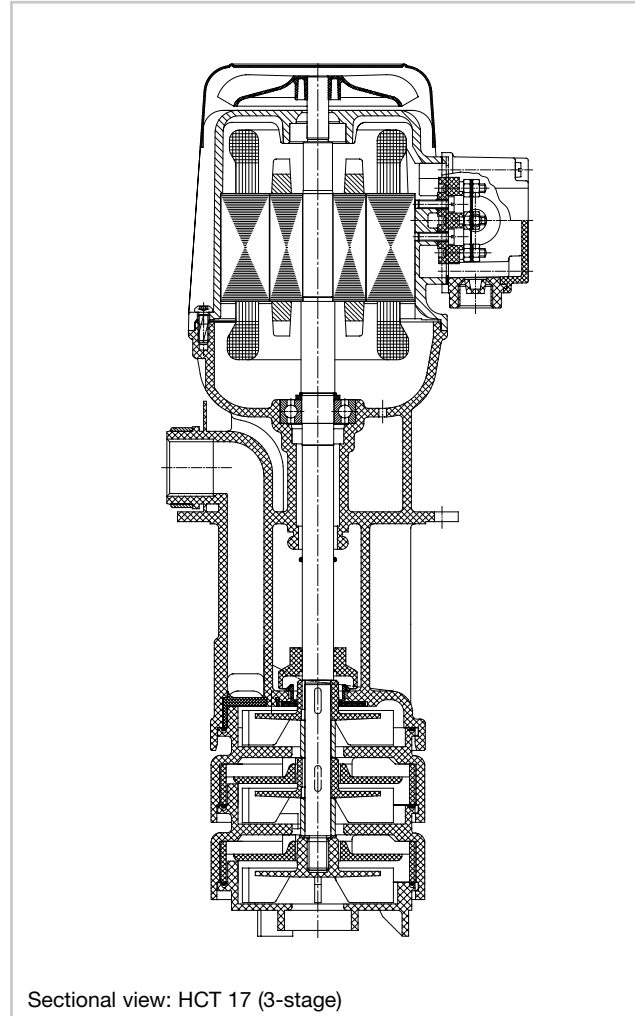
Models HCT..**H** and HCTE..**H** for 50 or 60 Hz operation;  
models HCT..**K** and HCTE..**K** for 50 and 60 Hz operation  
(without impeller change).

HCT..**H** and HCT..**K** = three-phase operation;

HCTE..**H** and HCTE..**K** = single-phase operation.

## Design features

- sealless  
(Special models available at extra price to meet special operational requirements.)
- free-floating pump shaft, supported only by motor bearings
- open impellers
- 1- to 5-stage models
- installation and port dimensions to DIN EN 12157
- immersion depths of up to 350 mm



Sectional view: HCT 17 (3-stage)

## Mechanical design

Component	Material
Motor housing	Aluminum
Pump union	LCP
Pump bottom	LCP
Intermediate chamber	LCP
Impeller	LCP
Shaft	Stainless steel 1.4571
Antifriction bearings	Radial deep-groove ball bearings with seal (RS), with special grease
Shaft packing (underneath lower ball bearing)	FKM (FPM)
Splash ring (underneath flange)	FKM (FPM)
Top splash ring (above pump chamber)	FKM (FPM)
V-Ring (between fan and motor housing)	FKM (FPM)

**Electrical design**

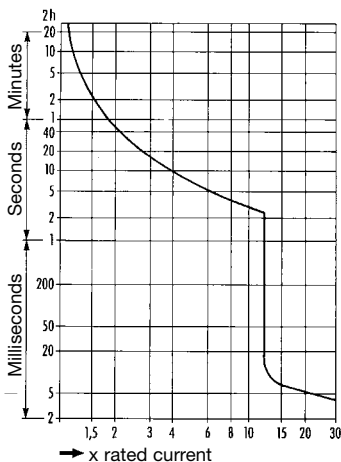
The drive motors have a sophisticated fail-safe winding that is baked instead of impregnated. They meet VDE regulations as well as European motor standards (DIN EN 60034-1/11.95) and the requirements underlying the CE mark.

Designs in conformity with non-European regulations, e.g. Canadian Standards Association (CSA), Underwriters Laboratories INC. (UL) or special requirements, e.g. the USA or Japan, are possible. Moreover, we also produce models for special operating conditions (e.g. exposure to humidity or dust).

The regular models have motor windings designed for continuous operation and connection to a mains voltage of 230/400 V ±10%, 50 Hz in accordance with IEC 38/5.87. On request the motors can be customized to all common mains values.

	Standard	Options
Degree of protection (DIN EN 60034-5/4.88)	IP 54	IP 55
Insulation class	F,B	
Ambient temperature (DIN EN 60034-1/11.95)	max. 40 °C	50 °C and higher
Relative humidity (DIN 50015)	max. 92 %	95 % and higher
Site altitude (DIN EN 60034-1/11.95)	< 1000 m above sea level	on request
Electrical parameters	230/400 V, 50 Hz 255/440 V, 60 Hz	on request
Mains operation	three-phase	single-phase AC
Number of poles	2 poles	4 poles; multiple-speed
Terminal box		
- layout (DIN EN 12157)	layout 1	layout 2, 3 or 4
- material	high-impact plastic	light metal
- cable entry (DIN 40430/2.71)	M16x1.5	M25x1.5
Protective surface coating	synthetic-resin lacquer color: RAL 1013 (pearl white)	Special finish on request.
Special protection		Motor protection (thermistors in the winding/PTC); fan cowl with canopy.
Used with converter		on request

Tested Safety (GS) regulations specify a motor circuit breaker conforming to the following tripping characteristic.



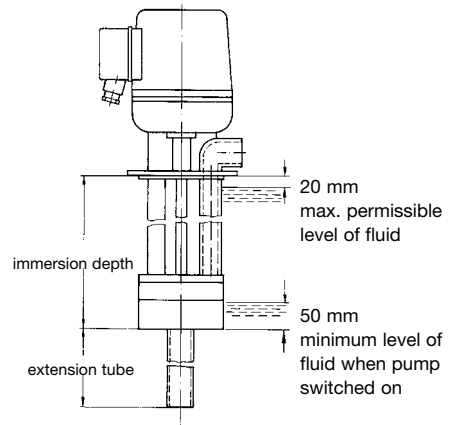
**Installation and operation**

The unit is installed in a vertical position. The maximum permissible level of fluid is 20 mm beneath the mounting flange (cf. following drawings).

Dry running is not permitted. Before startup, fill the pump with fluid for pumping. There is only limited support for short-term operation without such fluid during the feeding operation. Operation against closed valve is possible.

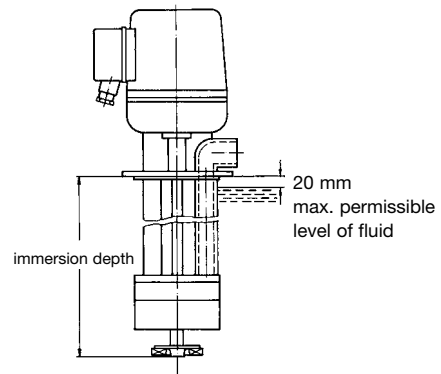
Direction of rotation: to the left (counterclockwise) as viewed from above looking down on the ventilation side of the motor.

**Options**



**Model with extension tube**

if immersion depth deviates from standard.



**Model with agitator blades**

for fluids with fast sedimentation characteristics. (Please note: higher power required)

**Order Example**

**HCT 17 H-220**  
**HCT E 17 K-270**

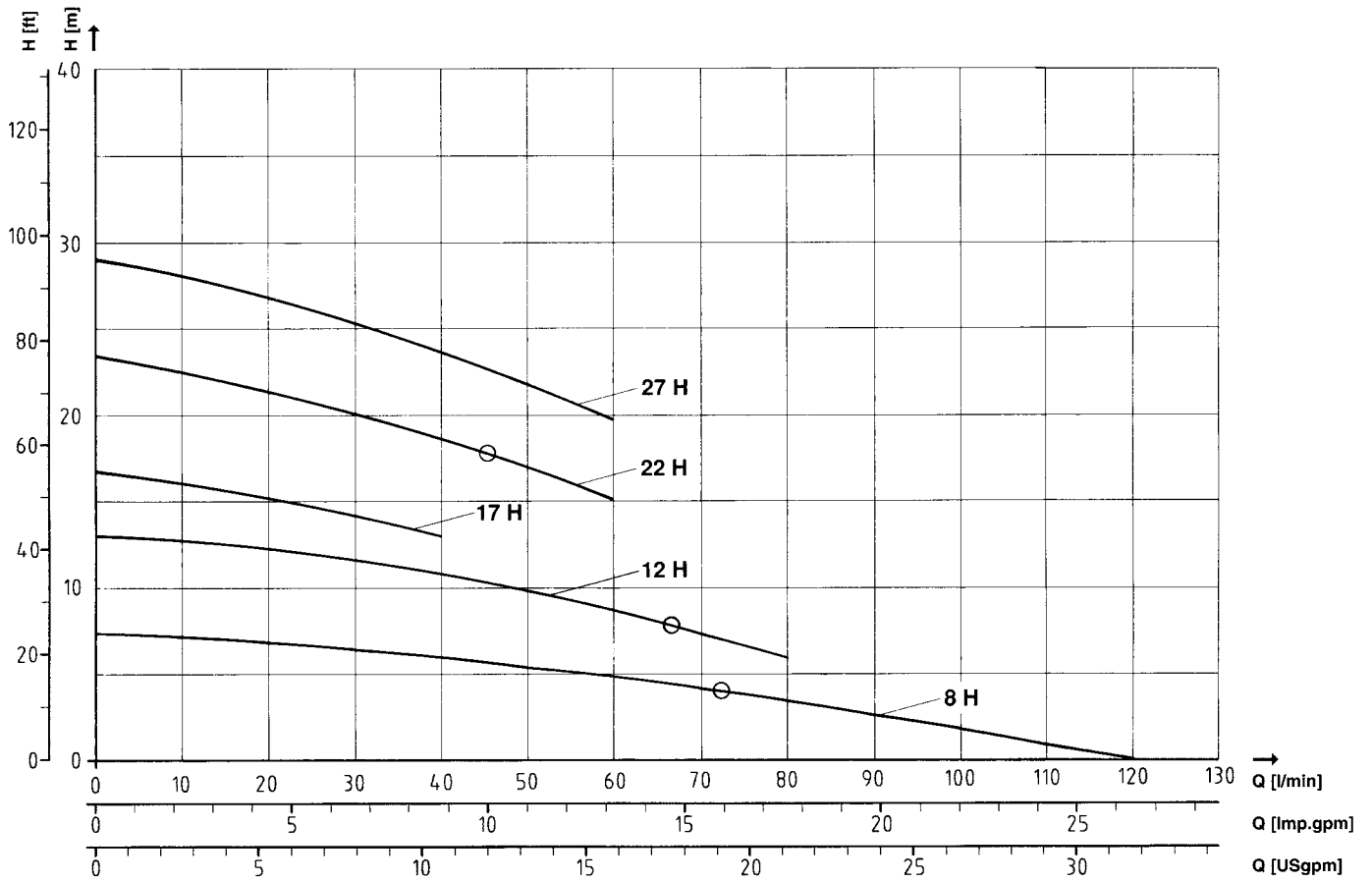
Model \_\_\_\_\_  
 Single-phase AC current \_\_\_\_\_  
 Size \_\_\_\_\_  
 H = 50 Hz \_\_\_\_\_  
     60 Hz (with impeller change) \_\_\_\_\_  
 K = 50/60 Hz \_\_\_\_\_  
     (without impeller change) \_\_\_\_\_  
 Immersion depth t \_\_\_\_\_

Please indicate electrical parameters, e.g. 230/400 V, 50 Hz.

When ordering spare parts, always indicate the 10-place serial number (see motor rating plate).

Model HCT..H, 1- to 5-stage, for 50 or 60 Hz (with impeller change)

Characteristics



The data apply to fluids with a viscosity of ~1 mm<sup>2</sup>/s at a density of ~1 kg/dm<sup>3</sup>.

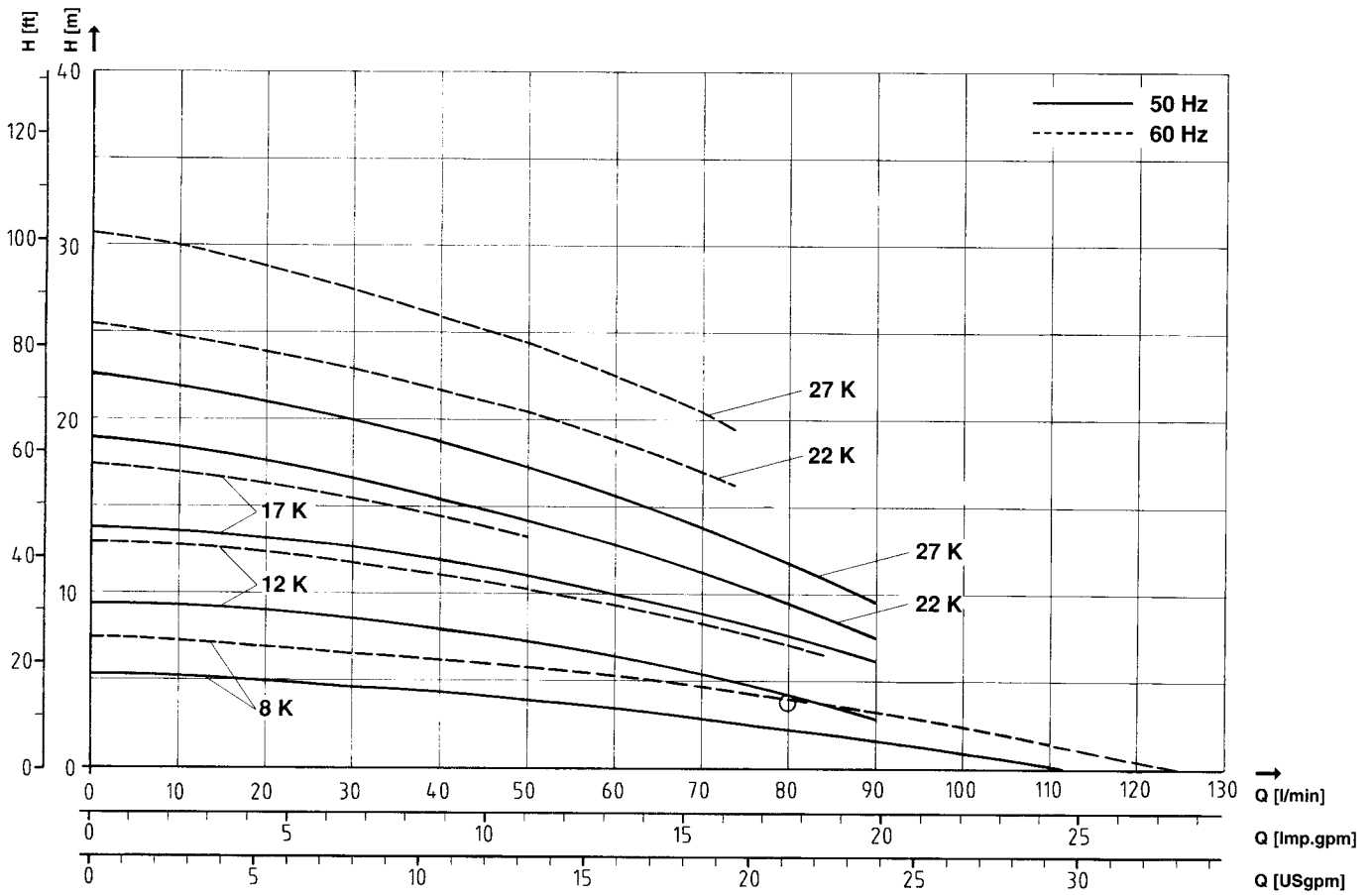
○ Q<sub>max</sub> in single-phase operation (operation above Q<sub>max</sub> leads to overload of drive motor)

		Electrical data											
		Three-phase operation					Single-phase operation						
Model	Rated power [kW]	Rated voltage Δ/Y [V]	Rated frequency [Hz]	Rated current Δ/Y [A]	Rated speed [rpm]	Noise level *) [dB(A)]	Model	Rated power [kW]	Rated voltage ⊥ [V]	Rated frequency [Hz]	Rated current ⊥ [A]	Rated speed [rpm]	BC [μF]
<b>HCT8H</b> 1-stage	0.25	230/400 255/440	50 60	1.11/0.64 0.99/0.57	2701 3350	45	<b>HCTE8H</b> 1-stage	0.18	230 250	50 60	1.36 1.1	2840 3486	6
<b>HCT12H</b> 2-stage	0.37	230/400 255/440	50 60	1.73/1 1.49/0.86	2667 3329	48	<b>HCTE12H</b> 2-stage	0.35	230 250	50 60	1.8 2	2700 3220	8 6
<b>HCT17H</b> 3-stage	0.37	230/400 255/440	50 60	1.73/1 1.49/0.86	2667 3329	48	<b>HCTE17H</b> 3-stage	1) 1)	1) 1)	1) 1)	1) 1)	1) 1)	1) 1)
<b>HCT22H</b> 4-stage	0.75	230/400 255/440	50 60	2.72/1.57 2.37/1.37	2753 3370	54	<b>HCTE22H</b> 4-stage	0.55 0.75	230 250	50 60	3.45 3.97	2855 3380	12 12
<b>HCT27H</b> 5-stage	0.75 0.9	230/400 255/440	50 60	3.46/2 3.46/2	2846 3403	54	<b>HCTE27H</b> 5-stage	1) 1)	1) 1)	1) 1)	1) 1)	1) 1)	1) 1)

1) on request  
\*) to DIN EN 60034-9/5.96

Model HCT..K, 1- to 5-stage, for 50 and 60 Hz (without impeller change )

Characteristics



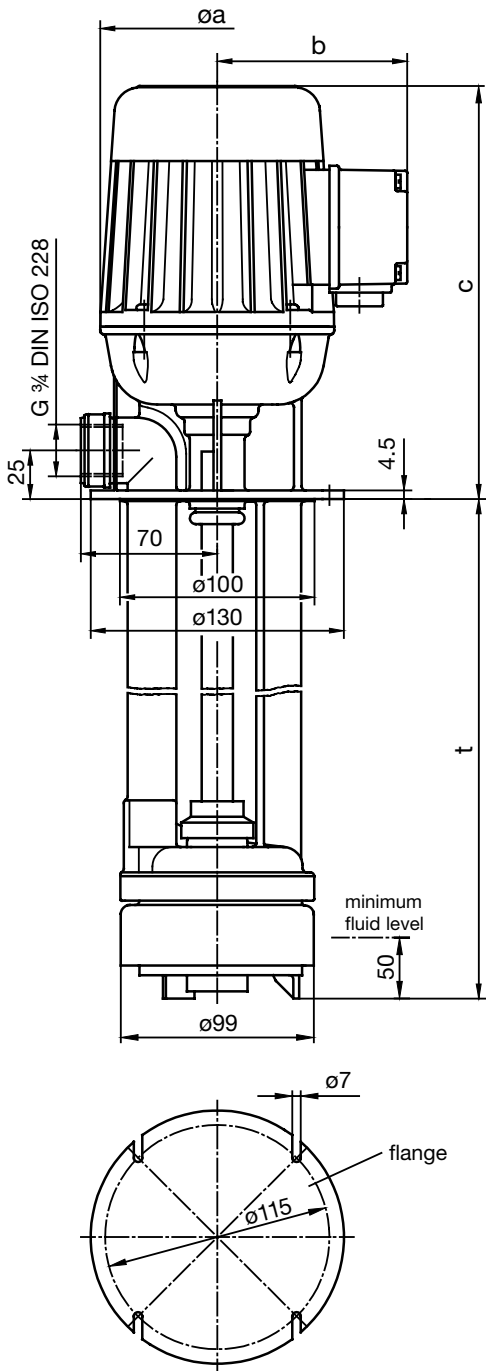
The data apply to fluids with a viscosity of ~1 mm<sup>2</sup>/s at a density of ~1 kg/dm<sup>3</sup>.

○ Q<sub>max</sub> in single-phase operation (operation above Q<sub>max</sub> leads to overload of drive motor)

		Electrical data											
		Three-phase operation					Single-phase operation						
Model	Rated power [kW]	Rated voltage Δ/Y [V]	Rated frequency [Hz]	Rated current Δ/Y [A]	Rated speed [rpm]	Noise level *) [dB(A)]	Model	Rated power [kW]	Rated voltage ⊥ [V]	Rated frequency [Hz]	Rated current ⊥ [A]	Rated speed [rpm]	BC [μF]
<b>HCT8K</b> 1-stage	0.18	230/400	50	0.86/0.5	2812	45	<b>HCTE8K</b> 1-stage	0.18	230	50	1.36	2840	6
	0.25	255/440	60	0.99/0.57	3350			0.18	250	60	1.1	3486	
<b>HCT12K</b> 2-stage	0.37	230/400	50	1.73/1	2667	48	<b>HCTE12K</b> 2-stage	0.35	230	50	1.8	2700	8
		255/440	60	1.49/0.86	3329			0.35	250	60	2	3220	
<b>HCT17K</b> 3-stage	0.37	230/400	50	1.73/1	2667	48	<b>HCTE17K</b> 3-stage	1)	1)	1)	1)	1)	1)
		255/440	60	1.49/0.86	3329			1)	1)	1)	1)	1)	1)
<b>HCT22K</b> 4-stage	0.75	230/400	50	2.72/1.57	2753	54	<b>HCTE22K</b> 4-stage	0.55	230	50	3.45	2855	12
		255/440	60	2.37/1.37	3370			0.75	250	60	3.97	3380	
<b>HCT27K</b> 5-stage	0.75 0.9	230/400	50	3.46/2	2846	54	<b>HCTE27K</b> 5-stage	1)	1)	1)	1)	1)	1)
		255/440	60	3.46/2	3403			1)	1)	1)	1)	1)	1)

1) on request

\*) to DIN EN 60034-9/5.96



Model	t [mm]	weight [kg]	ø a	b <sup>1)</sup>	c	ventilated motors
HCT(E)8 1-stage	90	4.6	120	98	216	X
	120					
	140					
	170					
	220					
	270					
HCT(E)12 2-stage	130	5.5	120	98	216	X
	160					
	180					
	210					
	260					
	310					
HCT(E)17 3-stage	170	5.7	120	98	216	X
	200					
	220					
	250					
	300					
	350					
HCT(E)22 4-stage	200	7	140	104	295	X
	230					
	250					
	280					
	330					
	330					
HCT(E)27 5-stage	240	7.8	140	104	295	X
	270					
	290					
	320					
	320					
	320					

<sup>1)</sup> For models conforming to CSA and US requirements or for models with free ends of thermistor-type protection system in terminal box: +20 mm

Standard ventilated motors come without a canopy.  
 If necessary – observe the respective safety regulations and laws applying to machinery guards –, the motors can be supplied with a canopy at extra charge.  
 Dimension “c” is then increased by about 25 mm.

**Please note:**

**All equipment may only be installed and/or assembled by qualified personnel. Observe existing safety regulations. To avoid errors please consult our operating instructions.**

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**+49 (0)30 72002-261**  
by fax for the right pump

**Sender** company, city, person to contact

Date:

**Operating area:**

**Quantity:**

**Working point**

Delivery head [m]:

Delivery rate [l/min]:

**Delivery medium**

Type:

Temperature range [°C]:

Density [kg/dm³]:

Viscosity at operating temperature [mm²/s]:

pH value:

Chemical analysis (separate page if necessary):

Solids content [ppm]:

Grain size [µm]:

Special characteristics:

**Immersion depth** [mm]:

**Material specifications/recommendations** (if no delivery medium chem. specified)

Housing:

Impeller:

Shaft:

Seals:

Accessories:

**Electrical parameters**

Europe  Δ/Y 230/400 V, 50 Hz  ⊥ 230 V, 50 Hz  Δ 400 V, 50 Hz

USA  Δ/Y 265/460 V, 60 Hz  YY/Y 230/460 V, 60 Hz (option)

Japan  Δ 200 V, 50 Hz  Δ 200-220 V, 60 Hz

Other  Δ/Y 230/400 V, 50/60 Hz

Additional electrical parameters:

Insulation class: F.B

Type of enclosure IEC 34: IP 55

Ambient temperature [°C] (if >40 °C):

**Options**

Motor protection (thermistor in winding/PTC):

Fan cowl, with canopy:

Industrial connectors (DESINA):

Frequency converter operation:

**Special operating conditions:**

**Additional information:**

**We would like to have brochures on:**

Centrifugal pumps of high-tech plastic

Centrifugal pumps of metal

Centrifugal pumps: PX modular system

Screw pumps: LMP

Flameproof centrifugal pumps

Block pumps

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