Immersion Pumps HCT (High Chem)
sealless

1-6004-US

Centrifugal pumps of plastic for a wide variety of industrial fluids

Technical data

- Delivery rate
  Q_{max} = 120 l/min
- Delivery head
  H_{max} = 32 m
- Temperature range
  –100 °C to +150 °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 °C to +150 °C.
(Please note: the maximum permissible operating temperature drops with a rising number of pump stages.)

Models

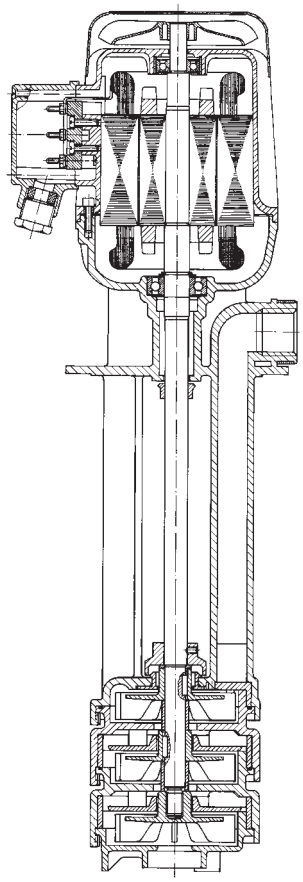
Models HCT..**H** and HCTE..**H** for 50 **or** 60 Hz operation;

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)	FPM
Splash ring (underneath flange)	FPM
Top splash ring (above pump chamber)	FPM
V-Ring (between fan and motor housing)	FPM

Electrical design

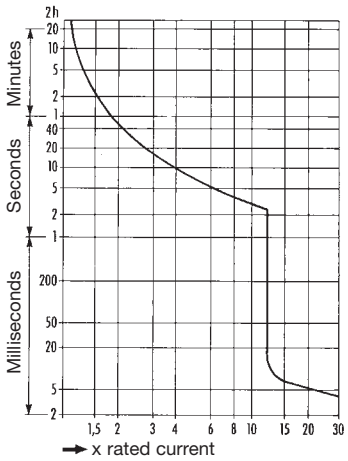
The drive motors have a sophisticated fail-safe winding that is baked instead of impregnated. They meet VDE regulations as well as European motor standards (DIN EN 60034-1/11.95) and the requirements underlying the CE mark.

Designs in conformity with non-European regulations, e.g. **C**anadian **S**tandards **A**ssociation (**CSA**), **U**nderwriters **L**aboratories 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) – material – cable entry (DIN 40430/2.71)	layout 1 high-impact plastic M16x1.5	layout 2, 3 or 4 light metal 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

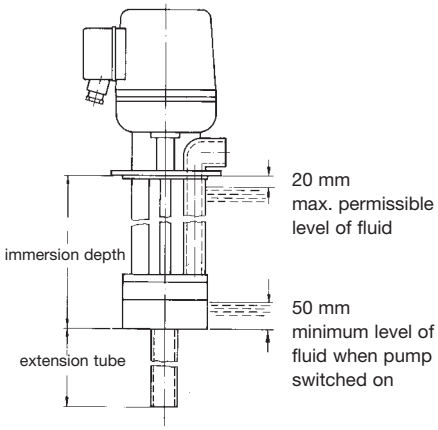
The unit is installed in a vertical position. The maximum permissible level of fluid is 20 mm beneath the mounting flange (cf. following drawings).

Dry running is not permitted.
The pump may, however, run dry (no fluid) for a brief period of time to check the direction of rotation prior to startup.

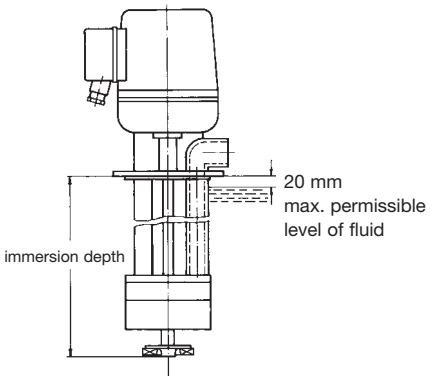
Operation against closed valve is possible.

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

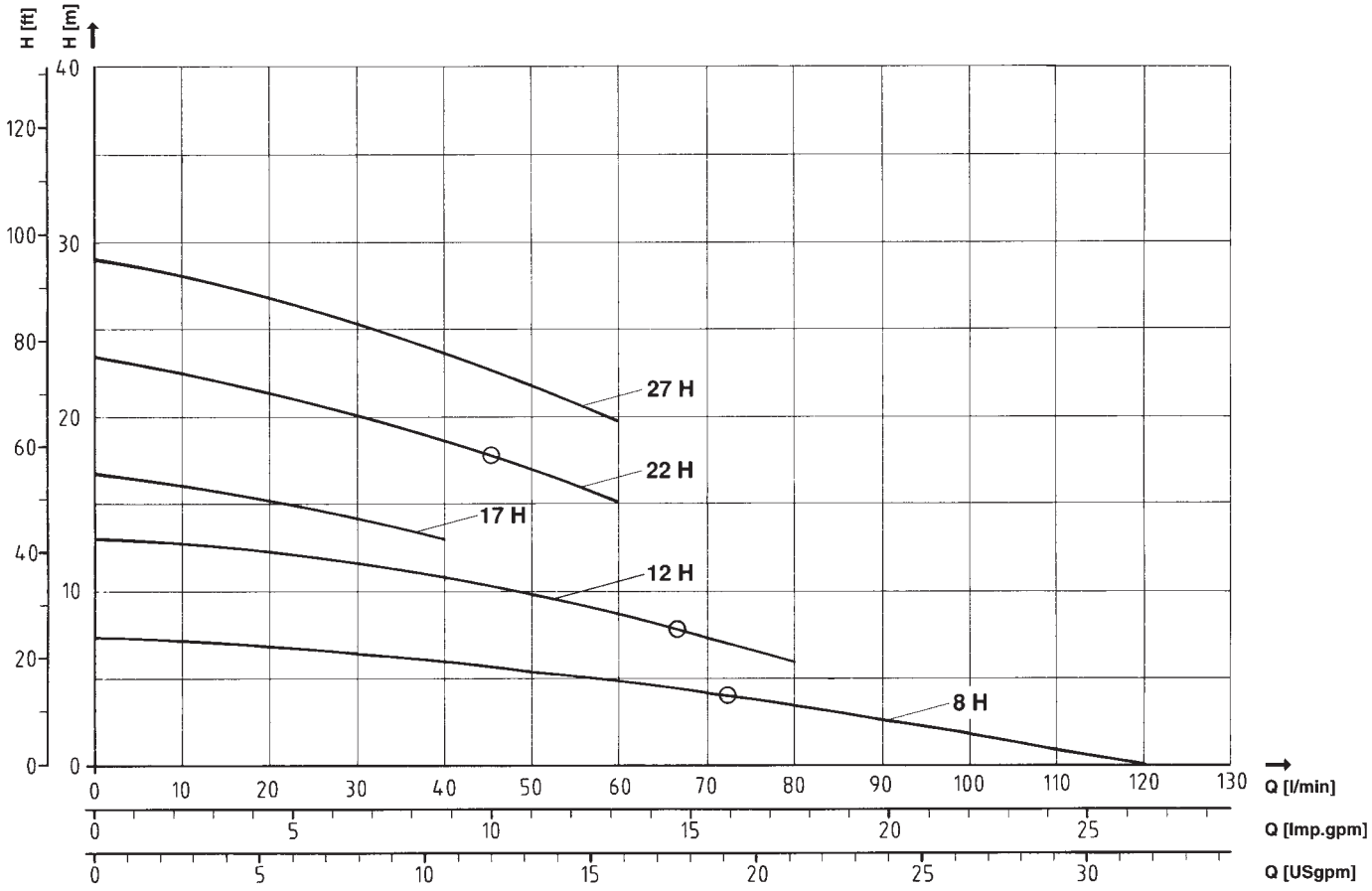
Model
Single-phase AC current
Size
H = 50 Hz
60 Hz (with impeller change)
K = 50/60 Hz
(without impeller change)
Immersion depth t

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 mm²/s at a density of 1 kg/dm³.

❍ Q_{max} in single-phase operation (operation above Q_{max} leads to overload of drive motor)

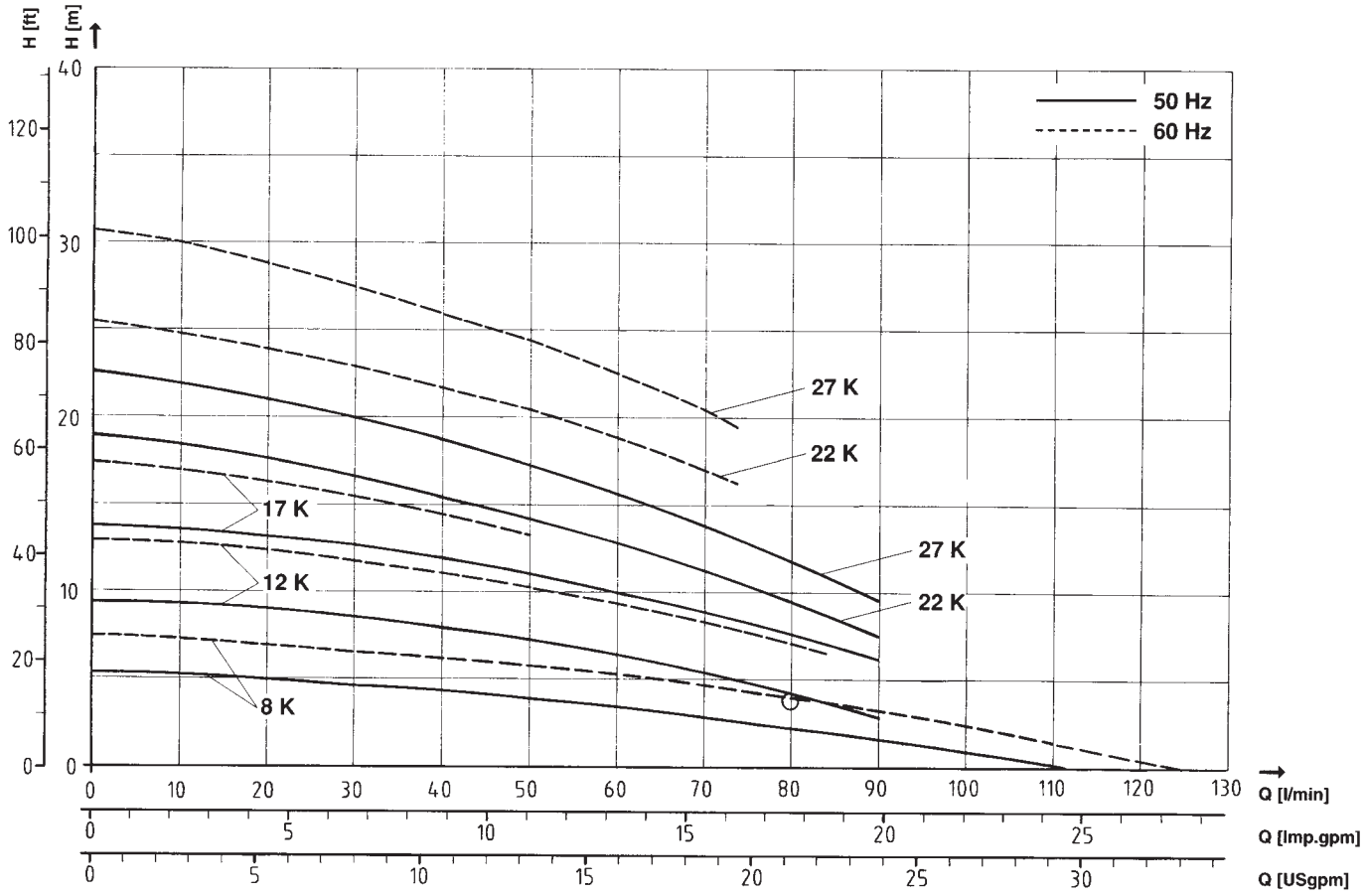
Electrical data													
Three-phase operation							Single-phase operation						
Model	Rated power [kW]	Rated voltage Δ/Y [V]	Rated frequency [Hz]	Rated current Δ/Y [A]	Rated speed [rpm]	Noise level *) [dB(A)]	Model	Rated power [kW]	Rated voltage ⊥ [V]	Rated frequency [Hz]	Rated current ⊥ [A]	Rated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

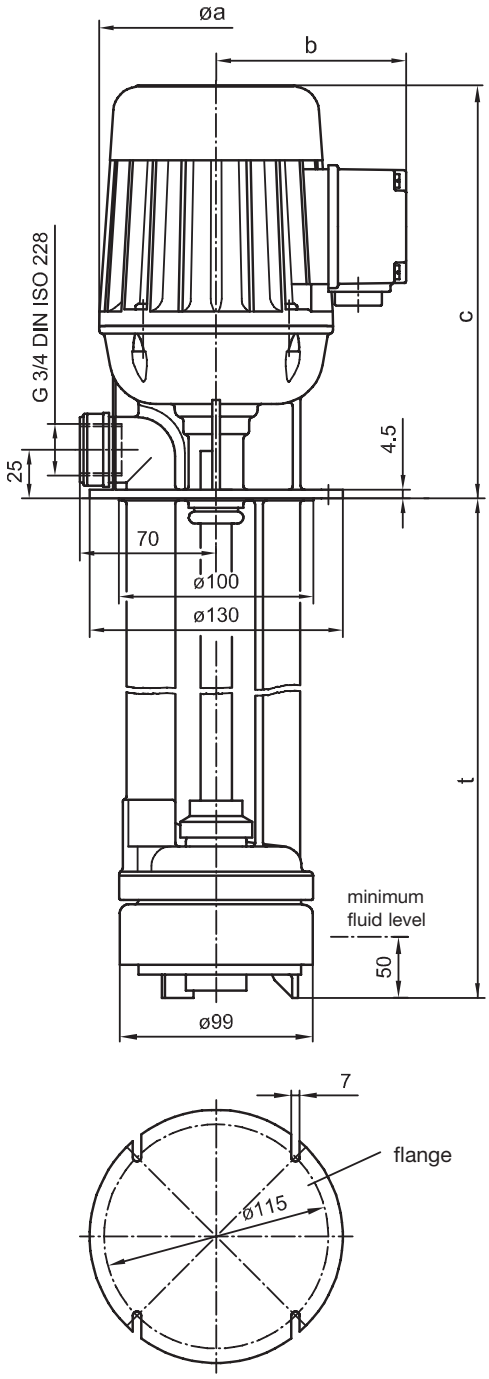


The data apply to fluids with a viscosity of 1 mm²/s at a density of 1 kg/dm³.

❍ Q_{max} in single-phase operation (operation above Q_{max} 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]
HCT8K 1-stage	0.18 0.25	230/400 255/440	50 60	0.86/0.5 0.99/0.57	2812 3350	45	**HCTE8K** 1-stage	0.18	230 250	50 60	1.36 1.1	2840 3486	6
HCT12K 2-stage	0.37	230/400 255/440	50 60	1.73/1 1.49/0.86	2667 3329	48	**HCTE12K** 2-stage	0.35	230 250	50 60	1.8 2	2700 3220	8 6
HCT17K 3-stage	0.37	230/400 255/440	50 60	1.73/1 1.49/0.86	2667 3329	48	**HCTE17K** 3-stage	1)	1)	1)	1)	1)	1)
HCT22K 4-stage	0.75	230/400 255/440	50 60	2.72/1.57 2.37/1.37	2753 3370	54	**HCTE22K** 4-stage	0.55 0.75	230 250	50 60	3.45 3.97	2855 3380	12
HCT27K 5-stage	0.75 0.9	230/400 255/440	50 60	3.46/2 3.46/2	2846 3403	54	**HCTE27K** 5-stage	1)	1)	1)	1)	1)	1)

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



Dimensions and Weights of Models H and K

Model	t [mm]	weight [kg]	ø a	b [1)]	c	ventilated motors
HCT(E)8 1-stage	90 120 140 170 220 270	4.6 5.2	120	98	216	X
HCT(E)12 2-stage	130 160 180 210 260 310	5.5 6	120	98	216	X
HCT(E)17 3-stage	170 200 220 250 300 350	5.7 6.2	120	98	216	X
HCT(E)22 4-stage	200 230 250 280 330	7 9	140	104	295	X
HCT(E)27 5-stage	240 270 290 320	7.8 9.5	140	104	295	X

[1)] 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.