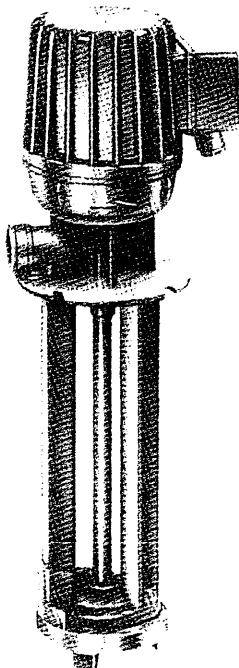


**Industrial**  
**Coolant and**  
**High Pressure**

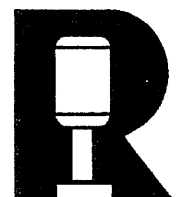
**Electric**

**Immersion**

**Pumps**



**Ruthman Pump & Engineering, Inc.**



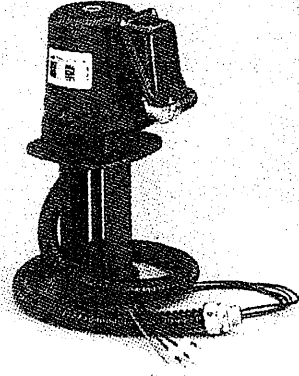
## SELF PRIMING COOLANT PUMP



Special safety device & protection

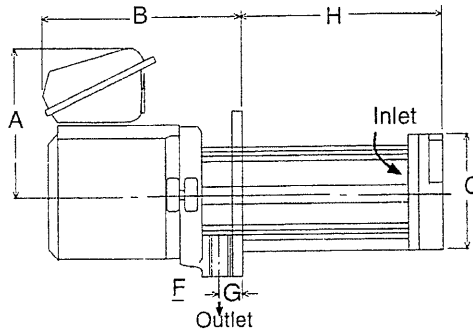
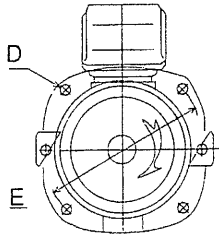


Special water sealing



The complete fittings (i.e. harness, wire.....etc.) are available for your choice

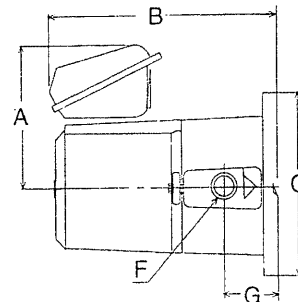
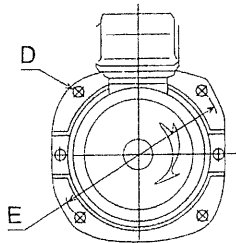
### COOLANT PUMP



### SPECIFICATION

MODEL	HP	A	B	C	D	E	F	G	H					FLOW RATE LITER		HEAD METER
														EMULSION	COOLING OIL	
VBV-18-100/180	1/8	110	150	90	7	128	3/8"	18	100	130	150	180		25	16	2
VBV-16-160	1/6	110	150	100	7	128	3/8", 1/2"	18	150					12	25	2
VBV-14-150/270	1/4	125	180	120	7	158	1/2"	24	150	180	200	240	270	60	45	2
VBV-12-180/250	1/2	135	225	135	9	170	3/4"	28	180	250				120	90	4
VBV-34-240/280	3/4	135	255	150	9	185	1"	28	240	280				185	140	4
VBV-10-240/280	1	135	275	150	9	135	1"	28	240	280				240	190	4

### SELF PRIMING COOLANT PUMP



### SPECIFICATION

MODEL	HP	A	B	C	D	E	F	G	FLOW RATE LITER		HEAD METER
									EMULSION	COOLING OIL	
VBH-18-D	1/8	110	180	140	7	140	3/8"	45	25	16	2
VBH-14-D	1/4	125	240	185	7	185	1/2"	65	60	45	2
VBH-12-D	1/2	135	280	195	9	215	3/4"	80	120	90	4
VBH-34-D	3/4	135	300	200	9	215	1"	80	185	140	4
VBH-10-D	1	135	300	200	9	215	1"	80	240	190	4

### Electric Immersion Pumps PRA/PRT/HCT DIN 5440 – Plastic

**Features:**

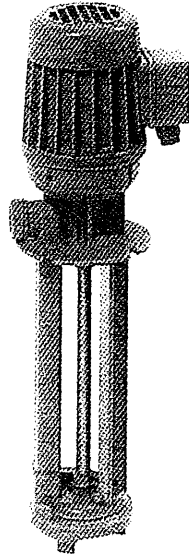
no seals  
common motor/pump shaft  
1 - 6 stage  
2- or 4-pole motor  
max. immersion  
depth 320 mm

**Materials:**

PRA/PRT: PP  
temperature max. +60° C  
HCT: LCP  
temperature max. +150° C

**Performance:**

flow rate:  
Q max. 120 l/min  
delivery head:  
H max. 32 m



### Electric Immersion Pumps PMK – Plastic

**Features:**

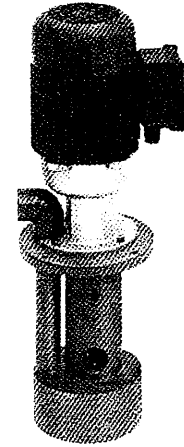
common motor/pump shaft  
single stage  
no seals  
2-pole motor  
can be run dry  
max. immersion  
depth 450 mm

**Materials:**

all parts in contact  
with the liquid are  
made of PVC or PP

**Performance:**

flow rate:  
Q max. 220 l/min  
delivery head:  
H max. 13 m



### Electric Immersion Pumps PK

**Features:**

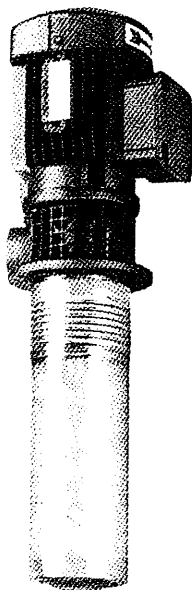
flange dimensions  
to DIN 5440  
mechanical seal  
shaft coupled to motor  
2- or 4-pole motor  
max. immersion depth  
up to 1060 mm

**Materials:**

SAN (LURAN)  
shaft: 1.4028  
pump casing: 1.4306

**Performance:**

flow rate:  
Q max. 300 l/min  
delivery head:  
H max. 210 m



### Electric Immersion Pumps PS/PSL

**Features:**

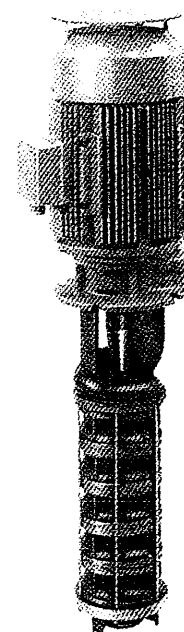
common motor/pump shaft  
1 - 8 stage  
2- or 4-pole motor  
max. immersion  
depth 740 mm  
all frame sizes have the  
same mounting and  
connection dimensions

**Materials:**

cast iron

**Performance:**

flow rate:  
Q max. 1250 l/min  
delivery head:  
H max. 125 m



### Electric Immersion Pumps PSH

**Features:**

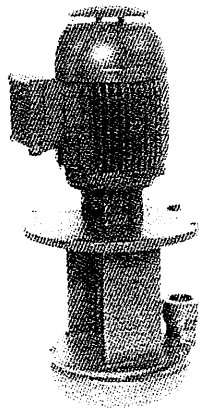
no seals  
common motor/pump shaft  
1 or 2 stage  
2- or 4-pole motor  
max. immersion  
depth 550 mm

**Materials:**

cast iron  
stainless steel

**Performance:**

flow rate:  
Q max. 800 l/min  
delivery head:  
H max. 55 m



### High Pressure Pumps PVS

**Features:**

positive displacement  
pump principle  
flange dimensions  
to DIN 5440  
pressure port  
with SAE flange  
immersion  
depth 550 mm

**Material:**

cast iron

**Performance:**

flow rate:  
Q max. 850 l/min  
delivery head:  
H max. 600 m (800 m)



### Gear Pumps PZ

**Features:**

shaft coupled to motor  
oil-proof  
sleeve bearings lubricated  
by pumped liquid  
2- or 4-pole motor

**Material:**

cast iron

**Performance:**

flow rate:  
Q max. 16 l/min  
delivery head:  
H max. 500 m



### Block Pumps PVB / PVBS

**Features:**

peripheral impellers  
shaft seals or  
mechanical seals

**Materials:**

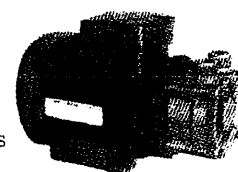
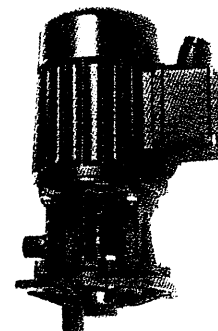
non-metallic materials  
(High-Tech plastics)  
metallic materials  
shafts: 1.4028 / 1.4122  
or other

**Performance:**

flow rate:  
Q max. 70 l/min  
delivery head:  
H max. 45 m

**Temperature ranges:**

- 60 °C to +150 °C  
(other temperature ranges  
on request)



### Electric Immersion Pumps EX

**Features:**

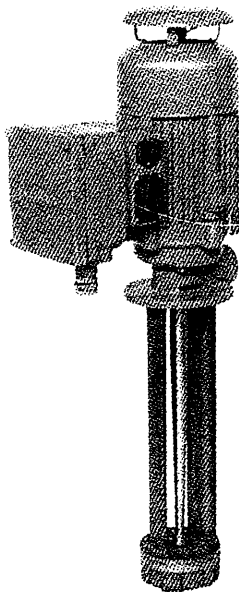
no seals  
common motor/pump shaft  
1 or 2 stage  
2- or 4-pole motor  
two versions available:  
EExe – increased safety  
EExd – flameproof enclosure  
available with  
pneumatic motor  
max. immersion  
depth 700 mm

**Materials:**

cast iron  
stainless steel  
plastic

**Performance:**

flow rate:  
Q max. 830 l/min  
delivery head:  
H max. 20 m



### Electric Immersion Pumps EX

**Features:**

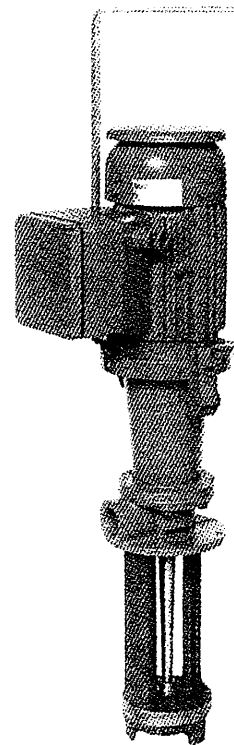
shaft coupled to motor  
detachable pump unit  
(snap-on)  
1 or 2 stage  
2- or 4-pole motor  
two versions available:  
EExe – increased safety  
EExd – flameproof enclosure  
available with  
pneumatic motor  
resistant to  
machine washing  
max. immersion  
depth 440 mm

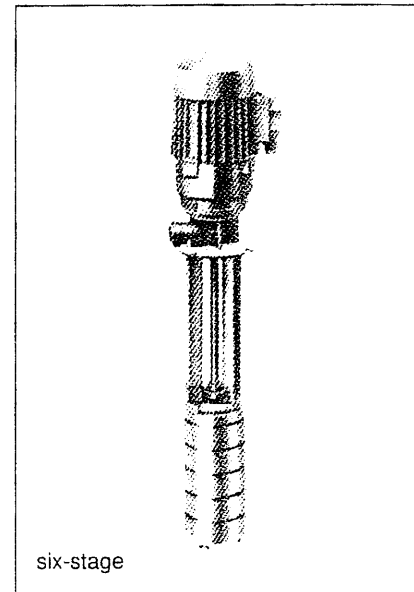
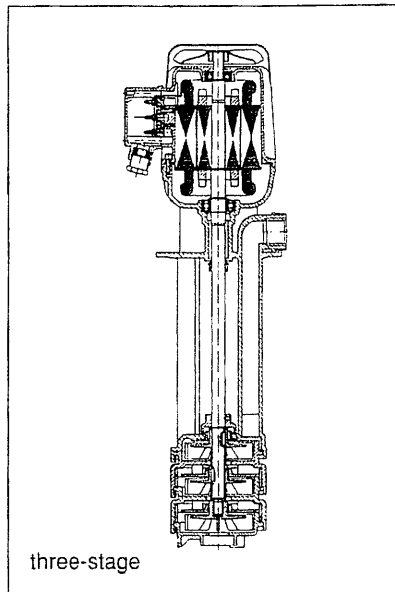
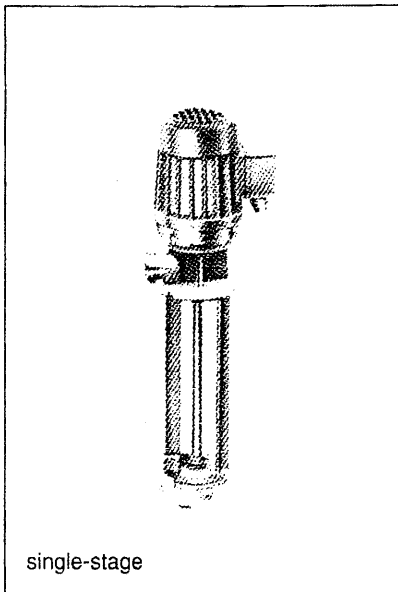
**Materials:**

cast iron  
stainless steel  
plastic

**Performance:**

flow rate:  
Q max. 290 l/min  
delivery head:  
H max. 20 m





### Applications:

- Cooling emulsions
- Water emulsions
- Oils
- Hot/cold water, with/without chemical additives
- Salt water
- Distilled water
- Deionized water
- Alkaline solutions and acids at appropriate concentrations and temperatures for the model
- Photography and developing solutions
- Miscellaneous fluids

### General Technical Information

- The sealless, single- and multi-stage electric immersion pumps have port dimensions conforming to **DIN 5440**.
- The pump components are made of plastic, chemically coupled PP (polypropylene) reinforced with fiber glass and are unusually rugged due to their non-polar structure based on paraffin hydrocarbons with a high molecular weight.
- We supply a **version for machine tools, model PRT**, and a **systems version, model PRA**.
- The respective impeller clearances in the pump chamber are 2 mm.
- The pumps can be operated on 50 Hz current or, **if the impeller is changed**, on 60 Hz current, models PRT.. H and PRA.. H.

Models PRT.. K and PRA.. K can be operated on 50 and 60 Hz current **without changing the impeller**.

- It is possible to pump not only clean fluids but also contaminated and viscous ones. The pumps can be operated with the valves against dead head.
- Fluid temperatures up to +60 °C; higher temperatures on request.

### Mechanical Design

#### Model PRT, design features

- Pump components of HOSTALEN, chemically coupled PP reinforced with fiber glass.
- Motor and pump shaft supported only by motor bearings.  
Material: high-strength special steel, Stressproof® / ETG.
- Permanently lubricated 2 Z ball bearings.

#### Model PRA, design features

- Pump components of HOSTALEN, chemically coupled PP reinforced with fiber glass.
- Motor and pump shaft supported only by motor bearings.  
Material: stainless steel, W-No. 1.4122; other materials on request.
- Permanently lubricated 2 RS ball bearings.
- Lower ball bearing fitted with radial Viton seal.
- Viton splash ring beneath flange.
- Viton splash ring on top in front of pump chamber.
- V-ring between fan and motor housing for fan-cooled motors.

### Electrical Design

The drive motors bear the CE sign and conform to the relevant VDE regulations, German and European standards as well as their associated requirements.

Versions conforming to U.S. standards or complying with special requirements are available on request.

All the motors have fail-safe windings in compliance with insulation class "F", the units being operated in accordance with insulation class "B". They can be operated at ambient temperatures up to +40 °C and relative humidities up to 92% (normal tropical climate – constant climate 23/83 and 40/92 as per DIN 50015).

Additional protection is recommended when, for example, very high relative humidities are encountered or when the ambient air contains aggressive dust and crystal particles.

The windings are designed for connection to a large number of mains voltages.

The standard models have windings intended for connection to 230v/460v, 60 Hz, 50 Hz voltage in compliance with DIN IEC 38/5.87 for rated operation (S1). The motors can, of course, be manufactured to run on all customary main power.

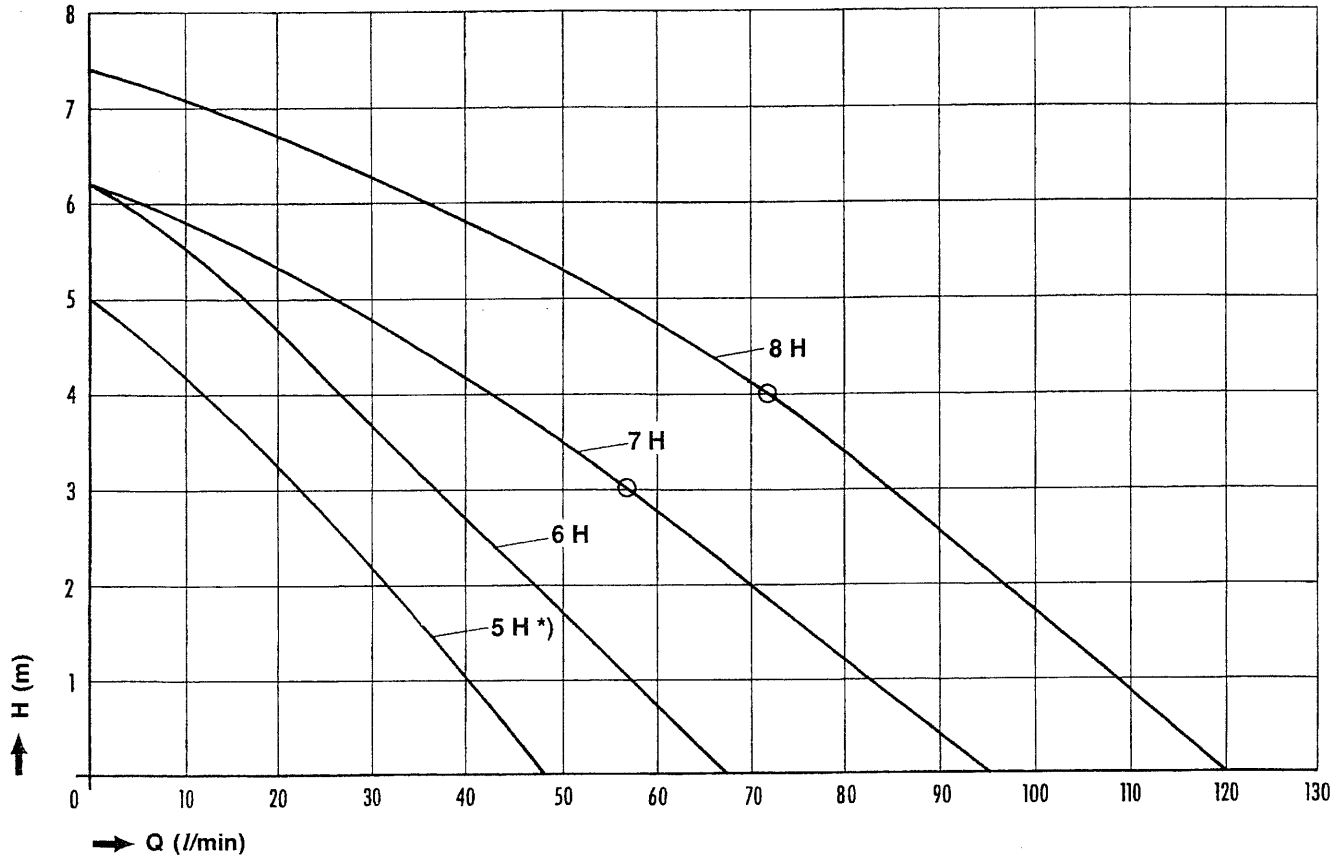
On request, we can supply the pumps with integrated, thermistor-type motor protection for 1-phase AC current.



Models PRT/PRA..H, single-stage, **with** impeller change

Parameters

50 Hz or 60 Hz depending on mains frequency



Data are for liquids with a viscosity of 1 mm<sup>2</sup>/s at a density of 1 kg/dm<sup>3</sup>

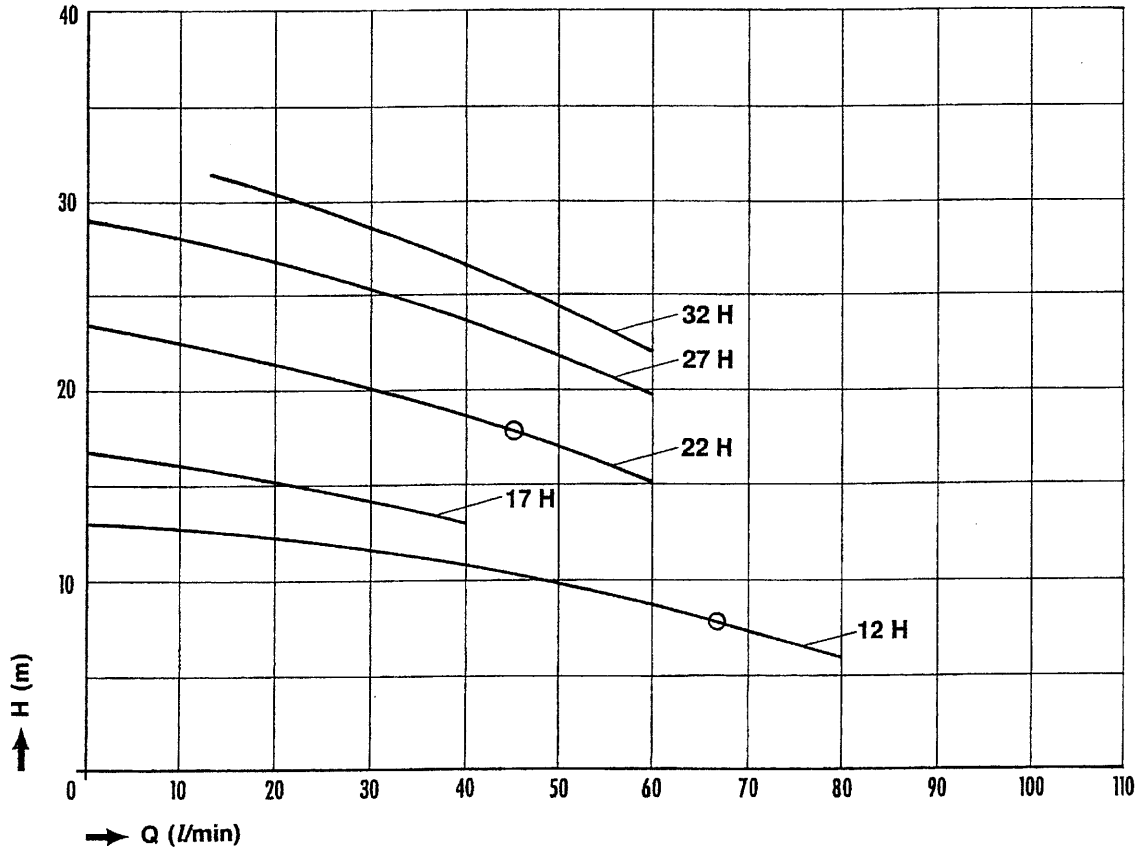
○ Q max. in single-phase operation

		Electrical data											
		Three-phase operation						Single-phase operation					
Type	Rated power kW	Rated voltage V	Rated frequency Hz	Rated current $\Delta / Y$ A	Rated speed rpm	Noise level dB (A)	Type	Rated power kW	Rated voltage V	Rated frequency Hz	Rated current $\perp$ A	Rated speed rpm	BC $\mu F$
PRT 5H 1-stage	0.12	230/400	50	0.71 / 0.41	2886	42	PRTE 5H 1-stage	1)	1)	1)	1)	1)	1)
	0.12	255/440	60	0.65 / 0.38	3494	42		1)	1)	1)	1)	1)	1)
PRT PRA 6H 1-stage	0.18	230/400	50	0.86 / 0.50	2812	44	PRTE PRAE 6H 1-stage	0.18	230	50	1.36	2840	6
	0.18	255/440	60	0.78 / 0.45	3437	44		0.18	250	60	1.10	3486	6
PRT PRA 7H 1-stage	0.18	230/400	50	0.86 / 0.50	2812	44	PRTE PRAE 7H 1-stage	0.18	230	50	1.36	2840	6
	0.25	255/440	60	0.99 / 0.57	3350	44		0.18	250	60	1.10	3486	6
PRT PRA 8H 1-stage	0.25	230/400	50	1.11 / 0.64	2701	45	PRTE PRAE 8H 1-stage	0.18	230	50	1.36	2840	6
	0.25	255/440	60	0.99 / 0.57	3350	45		0.18	250	60	1.10	3486	6

Models PRT/PRA..H, 2–6-stage, with impeller change

Parameters

50 Hz or 60 Hz depending on mains frequency



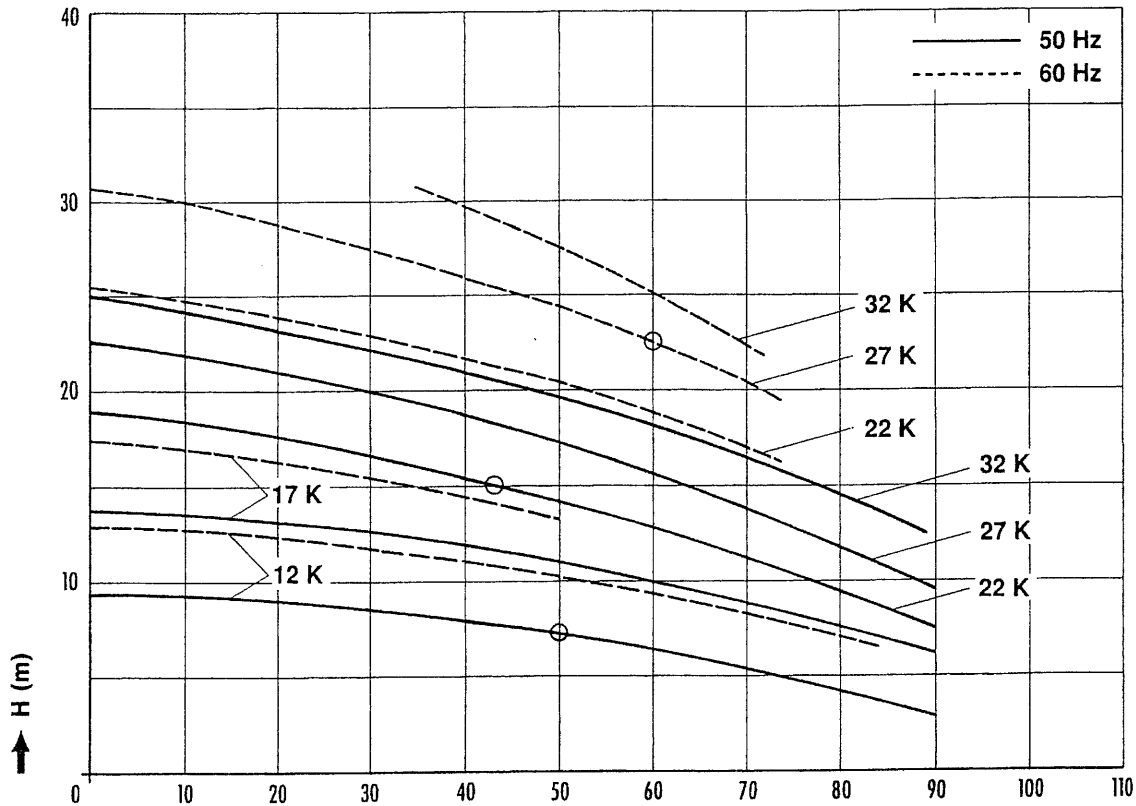
Data are for liquids with a viscosity of 1 mm<sup>2</sup>/s at a density of 1 kg/dm<sup>3</sup>

○ Q max. in single-phase operation

Electrical data													
Three-phase operation							Single-phase operation						
Type	Rated power kW	Rated voltage V	Rated frequency Hz	Rated current $\Delta / Y$ A	Rated speed rpm	Noise level dB (A)	Type	Rated power kW	Rated voltage V	Rated frequency Hz	Rated current L A	Rated speed rpm	BC $\mu F$
PRT 12H PRA 12H 2-stage	0.37	230/400	50	1.73 / 1.00	2667	48	PRTE 12H PRAE 12H 2-stage	0.35	230	50	1.80	2700	8
	0.37	255/440	60	1.49 / 0.86	3329	48		0.35	250	60	2.00	3220	6
PRT 17H PRA 17H 3-stage	0.37	230/400	50	1.73 / 1.00	2667	48	PRTE 17H PRAE 17H 3-stage	)	)	)	)	)	)
	0.37	255/440	60	1.49 / 0.86	3329	48		)	)	)	)	)	)
PRT 22H PRA 22H 4-stage	0.75	230/400	50	2.72 / 1.57	2753	54	PRTE 22H PRAE 22H 4-stage	0.55	230	50	3.45	2855	12
	0.75	255/440	60	2.37 / 1.37	3370	54		0.75	250	60	3.97	3380	12
PRT 27H PRA 27H 5-stage	0.75	230/400	50	3.46 / 2.00	2846	54	PRTE 27H PRAE 27H 5-stage	)	)	)	)	)	)
	0.90	255/440	60	3.46 / 2.00	3403	54		)	)	)	)	)	)
PRT 32H PRA 32H 6-stage	0.90	230/400	50	3.86 / 2.23	2807	54	PRTE 32H PRAE 32H 6-stage	)	)	)	)	)	)
	1.10	255/440	60	3.72 / 2.15	3323	54		)	)	)	)	)	)

) on request

Models PRT/PRA..K, 2–6-stage, **without** impeller change for  
Parameters 50 Hz and 60 Hz



Data are for liquids with a viscosity of 1 mm<sup>2</sup>/s at a density of 1 kg/dm<sup>3</sup>

○ Q max. in single-phase operation

		Electrical data											
		Three-phase operation						Single-phase operation					
Type	Rated power kW	Rated voltage V	Rated frequency Hz	Rated current $\Delta/Y$ A	Rated speed rpm	Noise level dB (A)	Type	Rated power kW	Rated voltage V	Rated frequency Hz	Rated current L A	Rated speed rpm	BC $\mu F$
PRT 12K PRA 2-stage	0.37	230/400	50	1.73 / 1.00	2667	48	PRTE 12K PRAE 2-stage	0.35	230	50	1.80	2700	8
	0.37	255/440	60	1.49 / 0.86	3329	48		0.35	250	60	2.00	3220	6
PRT 17K PRA 3-stage	0.37	230/400	50	1.73 / 1.00	2667	48	PRTE 17K PRAE 3-stage	)	)	)	)	)	)
	0.37	255/440	60	1.49 / 0.86	3329	48		)	)	)	)	)	)
PRT 22K PRA 4-stage	0.75	230/400	50	2.72 / 1.57	2753	54	PRTE 22K PRAE 4-stage	0.55	230	50	3.45	2855	12
	0.75	255/440	60	2.37 / 1.37	3370	54		0.75	250	60	3.97	3380	12
PRT 27K PRA 5-stage	0.75	230/400	50	3.46 / 2.00	2846	54	PRTE 27K PRAE 5-stage	)	)	)	)	)	)
	0.90	255/440	60	3.46 / 2.00	3403	54		)	)	)	)	)	)
PRT 32K PRA 6-stage	0.75	230/400	50	3.46 / 2.00	2846	54	PRTE 32K PRAE 6-stage	)	)	)	)	)	)
	1.10	255/440	60	3.72 / 2.15	3323	54		)	)	)	)	)	)

) on request

Our product range is based on over 85 years of experience in the manufacture of pumps. All our products are of the highest quality, are cost effective, and extremely reliable.

In addition to our standard range, we offer special pumps for specific applications. Let us know your requirements, and we will quote you for the type of pump and material best suited to your needs.

### Some applications for Gusher Pumps:

- CNC-, NC-machine tools
- Coolant supply, coolant treatment
- Oil treatment
- Degreasing systems
- Washing plants
- Filtration systems
- Refrigeration systems
- Temperature control units
- Eroding systems
- Paraffin systems
- Filling systems
- Galvanic equipment
- Chemical equipment
- Photographic equipment
- Surface coating
- Sewage treatment
- Industrial furnace construction
- Engine test stands
- Laboratory equipment
- Graphic machines
- Printing machines
- Dental equipment
- Air conditioning systems
- Liquefied gas systems
- Booster pump systems
- Recycling systems
- Overhead spraying systems
- Laser installations
- Boiler feed water systems

Performance data given is based on a density of  $1 \text{ kg/dm}^3$  and a viscosity of  $1 \text{ mm}^2/\text{s}$  (except in the case of the PVS High Pressure Pump, which is based on a viscosity of  $20 \text{ mm}^2/\text{s}$ ).

### Electric Immersion Pumps PMS – Coolant Pumps to DIN 5440

#### Features:

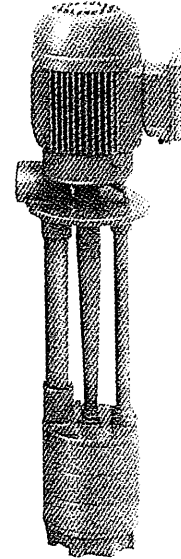
no seals  
common motor/pump shaft  
1 - 6 stage  
2- or 4-pole motor  
max. immersion  
depth 550 mm

#### Materials:

cast iron  
bronze  
stainless steel

#### Performance:

flow rate:  
Q max. 400 l/min  
delivery head:  
H max. 48 m



### Electric Immersion Pumps PV/PVP – High Pressure

#### Features:

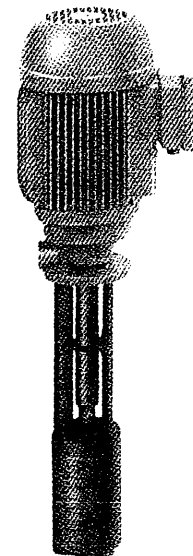
mounting dimensions  
to DIN 5440  
common motor/pump shaft  
1 - 6 stage  
peripheral impellers  
2- or 4-pole motor  
max. immersion  
depth 470 mm

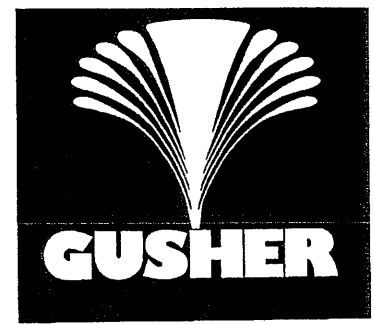
#### Materials:

cast iron  
bronze  
stainless steel

#### Performance:

flow rate:  
Q max. 100 l/min  
delivery head:  
H max. 150 m



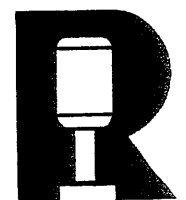


# Gusher Pumps

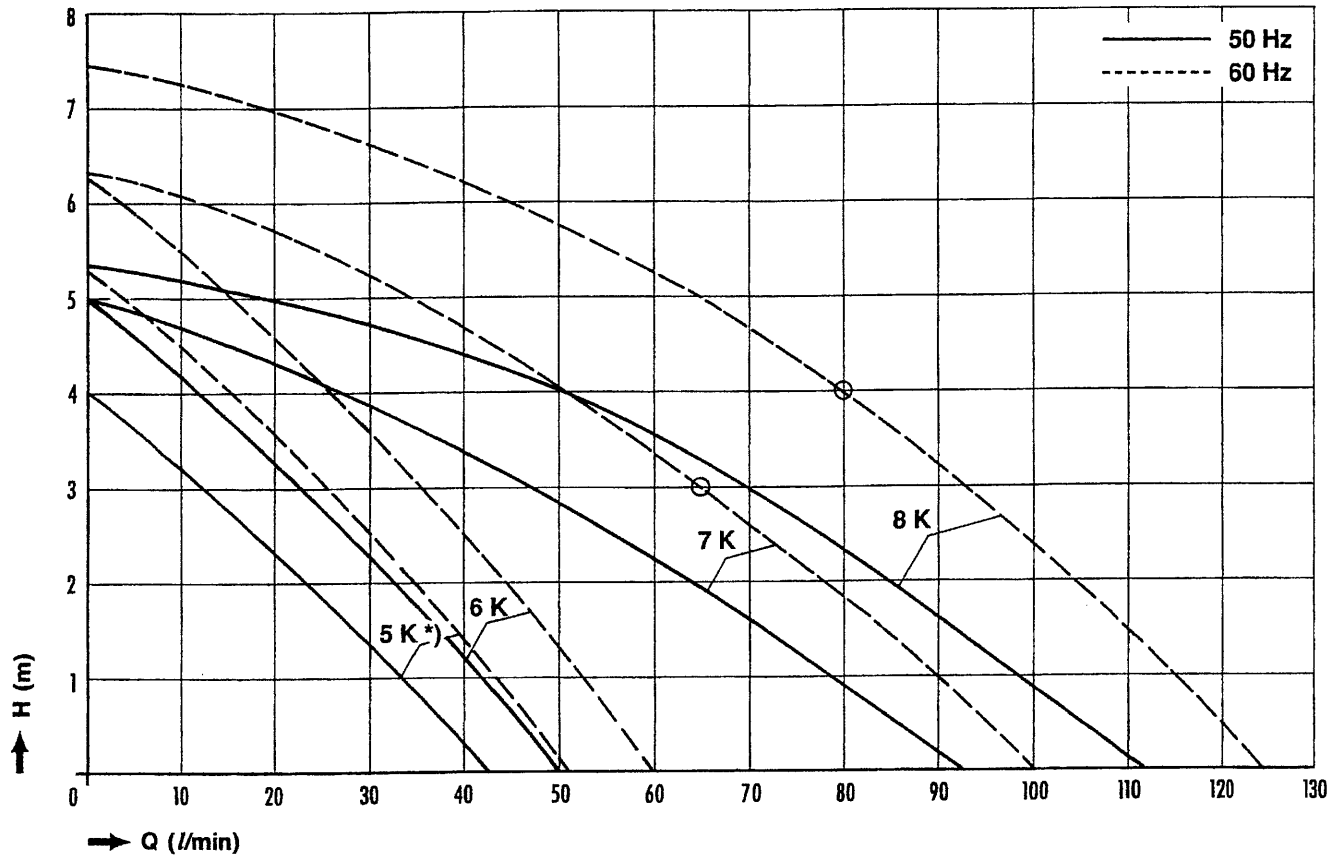
## Self Priming Coolant Pump



We offer a comprehensive range of coolant pumps;  
low cost, high performance, more reliable.

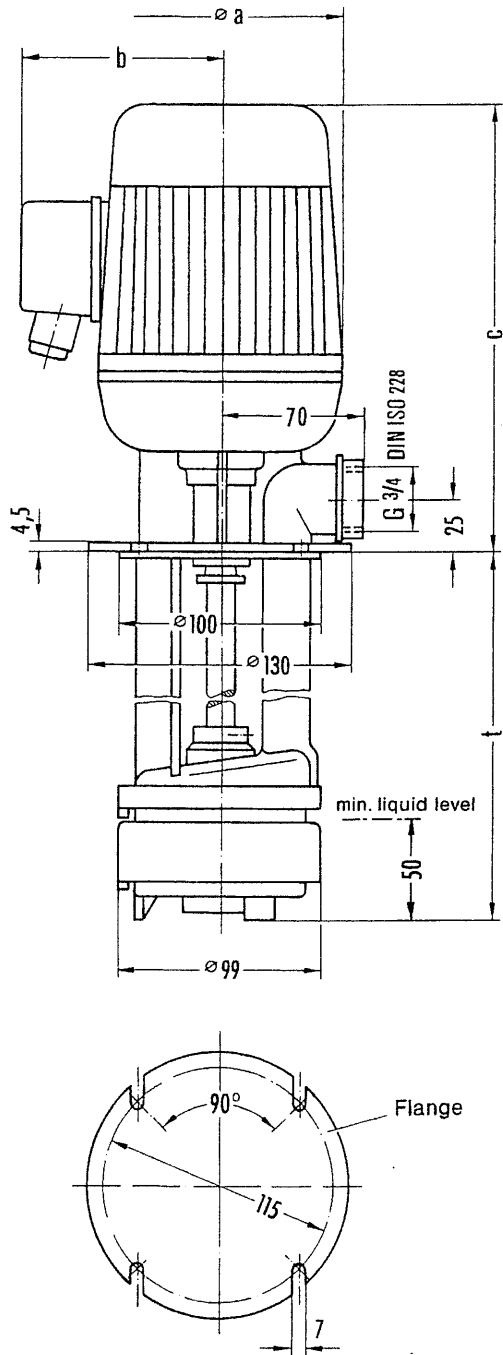


### Models PRT/PRA..K, single-stage, **without** impeller change for Parameters 50 Hz and 60 Hz



Data are for liquids with a viscosity of 1 mm<sup>2</sup>/s at a density of 1 kg/dm<sup>3</sup>  
 ○ Q max. in single-phase operation

Electrical data													
Three-phase operation							Single-phase operation						
Type	Rated power kW	Rated voltage V	Rated frequency Hz	Rated current $\Delta / Y$ A	Rated speed rpm	Noise level dB (A)	Type	Rated power kW	Rated voltage V	Rated frequency Hz	Rated current A	Rated speed rpm	BC $\mu F$
PRT 5K 1-stage	0.12	230/400	50	0.71 / 0.41	2886	42	PRTE 5K 1-stage	)	)	)	)	)	)
	0.12	255/440	60	0.65 / 0.38	3494	42		)	)	)	)	)	)
PRT PRA 6K 1-stage	0.12	230/400	50	0.71 / 0.41	2886	44	PRTE PRAE 6K 1-stage	0.12	230	50	1.12	2897	6
	0.18	255/440	60	0.78 / 0.45	3437	44		0.18	250	60	1.10	3486	6
PRT PRA 7K 1-stage	0.18	230/400	50	0.86 / 0.50	2812	44	PRTE PRAE 7K 1-stage	0.18	230	50	1.36	2840	6
	0.25	255/440	60	0.99 / 0.57	3350	44		0.18	250	60	1.10	3486	6
PRT PRA 8K 1-stage	0.18	230/400	50	0.86 / 0.50	2812	45	PRTE PRAE 8K 1-stage	0.18	230	50	1.36	2840	6
	0.25	255/440	60	0.99 / 0.57	3350	45		0.18	250	60	1.10	3486	6



### Dimensions and weights for H and K Models

Type	t mm	Weight (kg)	$\varnothing a$	b *)	c	fan- cooled motors
PRT (E) 5 1-stage	90	3.0   4.0	120	98	190	-
	120					
	140					
	170					
	220					
PRT (E) 6; 7; 8 1-stage	90	3.6   4.2	120	98	216	X
	120					
	140					
	170					
	220					
PRT (E) 12 PRA (E) 12 2-stage	130	4.5   5.0	120	98	216	X
	160					
	180					
	210					
	260					
PRT (E) 17 PRA (E) 17 3-stage	170	4.7   5.2	120	98	216	X
	200					
	220					
	250					
	300					
PRT (E) 22 PRA (E) 22 4-stage	200	6.0   8.0	140	104	295	X
	230					
	250					
	280					
	330					
PRT (E) 27 PRA (E) 27 5-stage	240	6.8   8.5	140	104	295	X
	270					
	290					
	320					
PRT (E) 32 PRA (E) 32 6-stage	270	7.4   8.8	140	104	295	X
	300					
	320					

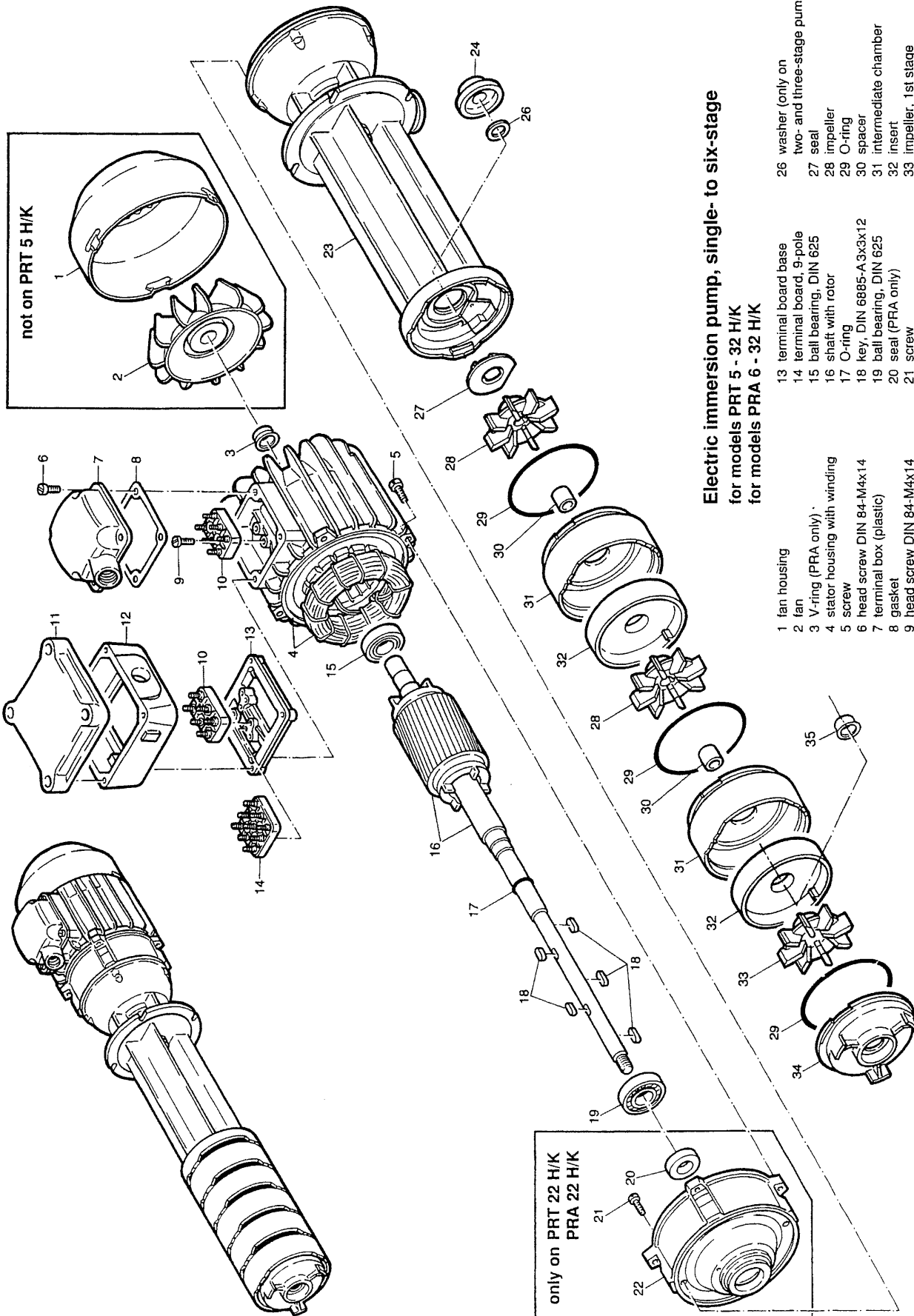
\*) For models conforming to CSA and US requirements or for models with free ends of thermistor-type protection system in terminal box: +20 mm.

The fan-cooled motors on standard models have no protective covers. If such a cover is required by law or safety regulations it can be supplied at additional cost. Dimension "C" is then increased by approx. 25 mm.

**Please note:**

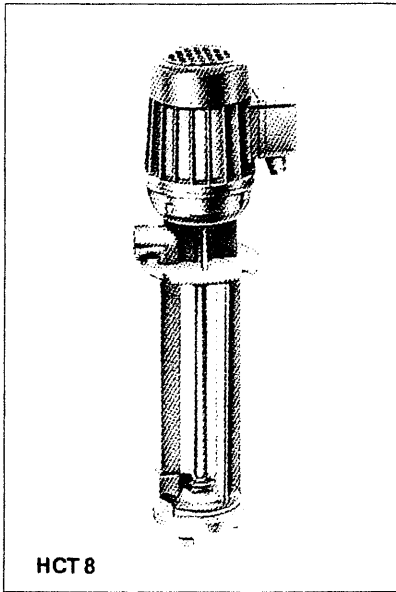
All equipment may only be installed and/or mounted by qualified personnel. Care is to be taken that safety regulations as valid are observed.

Design, dimensions and weight subject to change.

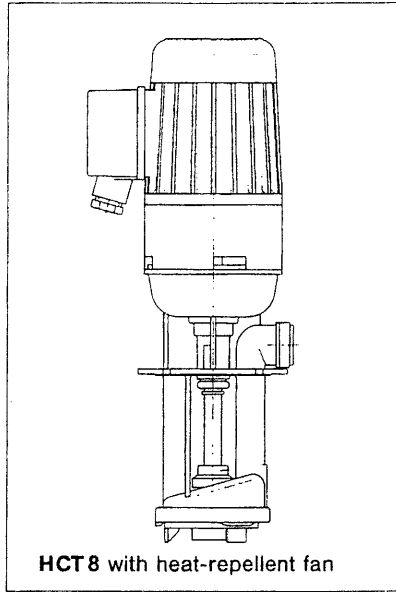


**Electric immersion pump, single- to six-stage  
for models PRT 5 - 32 H/K  
for models PRA 6 - 32 H/K**

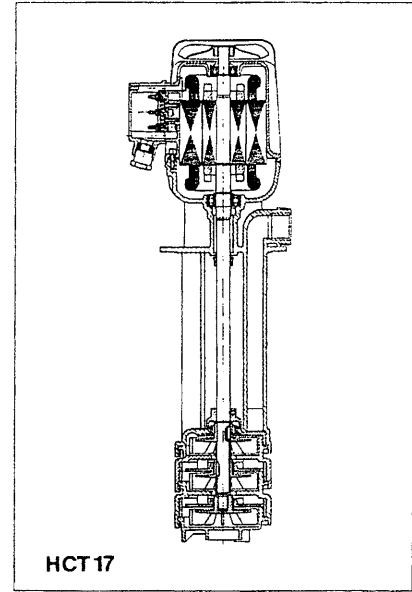
- |                                     |                           |  |
|-------------------------------------|---------------------------|--|
| 1 fan housing                       | 13 terminal board base    | 26 washer (only on two- and three-stage pumps) |
| 2 fan                               | 14 terminal board, 9-pole | 27 seal  |
| 3 V-ring (PRA only)                 | 15 ball bearing, DIN 625  | 28 impeller                                    |
| 4 stator housing with winding       | 16 shaft with rotor       | 29 O-ring                                      |
| 5 screw                             | 17 O-ring                 | 30 spacer                                      |
| 6 head screw DIN 84-M4x14           | 18 key, DIN 6885-A3x12    | 31 intermediate chamber                        |
| 7 terminal box (plastic)            | 19 ball bearing, DIN 625  | 32 insert                                      |
| 8 gasket                            | 20 seal (PRA only)        | 33 impeller, 1st stage                         |
| 9 head screw DIN 84-M4x14           | 21 screw                  | 34 pump bottom                                 |
| 10 terminal board, 6-pole           | 22 bearing end shield     | 35 sleeve (only on four- to six-stage pumps)   |
| 11 terminal box cover (light alloy) | 23 pump support           |  |
| 12 terminal box (light alloy)       | 24 top splash ring        |  |



HCT 8



HCT 8 with heat-repellent fan



HCT 17

### Applications:

For medium temperatures from -100°C to +150°C.

Plants, machines and equipment used, for example, to pump, move and transport the following liquids e.g.:

- Cooling brine, Freon 12, 22
- Thermal oils
- Deionized water
- Varying concentrations of acids
- Chemicals, especially solvents
- Cleaners
- Mineral acids and lyes at high temperature
- Fuels
- Liquid foodstuffs

### General Technical Information

The new HCT model of single- and multi-stage sealless electric immersion pumps with mounting dimensions to DIN 5440 is an alternative to stainless steel pumps.

The standard model has no seals.

Special models for special duty requirements are available at extra cost.

- The pump components are made of LCP, a thermotropic liquid-crystalline polymer with high thermal stability that is processed while molten.

This non-metallic material is resistant to gamma rays. It is impervious to gases and water vapor and is highly resistant to hydrolysis.

- The respective impeller clearances in the pump chamber are 2 mm.
- The HCT pump with optimized volumetric output is intended for 50 Hz operation. Model HCT..H can be used

for 60 Hz operation if the impeller is changed.

Model HCT..K can be used for both 50 and 60 Hz operation **without changing the impeller**.

- These pumps can be used to deliver not only clean fluids but also contaminated and viscous ones.

The pumps can be operated against dead head.

### Mechanical Design

#### Design features

- Pump components of LCP
- Pump shaft of stainless steel, 1.4571, special materials on request
- Special permanently lubricated ball bearings
- Special seals to meet special duty requirements.

### Electrical Design

The drive motors bear the CE sign and conform to the relevant VDE regulations, German and European standards as well as their associated requirements.

Versions conforming to U.S. standards or complying with special requirements are available on request.

All the motors have fail-safe windings in compliance with insulation class "F", the units being operated in accordance with insulation class "B". They can be operated at ambient temperatures up to +40°C and relative humidities up to 92% (normal tropical climate - constant climate 23/83 and 40/92 as per DIN 50015).

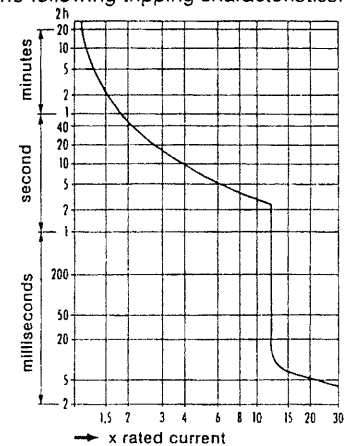
Additional protection is recommended when, for example, very high relative humidities are

encountered or when the ambient air contains aggressive dust and crystal particles.

The windings are designed for connection to a large number of main voltages.

The standard models have windings intended for connection to 230v/460v, 60 Hz, 50 Hz voltage in compliance with DIN IEC 38/5.87 for rated operation (S1). The motors can, of course, be manufactured to run on all customary main power.

Chart specifies a motor circuit-breaker with the following tripping characteristics.



### Type of enclosure

The drive motors are designed to conform to IP 54 as per DIN EN 60 034-5 / 4.88.

### Terminal box

Standard version: plastic  
Special version: light metal

The terminal box of the standard model is located opposite the discharge port, position 1, DIN 5440. The position of the cable entry can be adjusted to the existing connection layout by turning the terminal box.

The terminal boxes have threads conforming to DIN 40 430/2.71 on the cable entries to accommodate screwed glands for cables and leads as per DIN 46 320-1/9.85.

The cable entries are closed with a dummy plug at the factory prior to delivery.

For reasons of safety, use only plastic compression glands on plastic terminal boxes.

### Noise emissions

The noise emitted by our pumps is determined with measurements of the total sound pressure level using weighting curve A of a sound level meter as per DIN EN 60 034-9/5.96 and is expressed in dB(A).

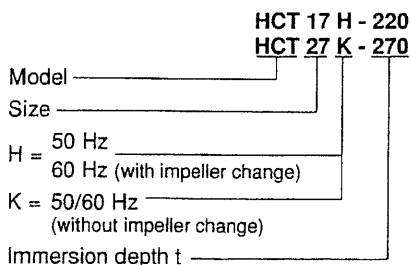
### Paint

The motors are provided with a coat of two-component paint, RAL 1013.

Special paint for severe climatic conditions or for operation in chemically aggressive ambient air is available at extra cost.

The pump components are beige.

### Order example



The following must be indicated as well:

- installed loads
- desired operating temperature  
(The maximum permissible temperature decreases with the number of pump stages.)

### Installation and Assembly

The pump is installed vertically so that the highest level of fluid is at least 20 mm beneath the pump flange when the pump is off and all the fluid has returned to the reservoir. The delivery line should have the same diameter as the threaded port of the pump to keep tube resistance low at full delivery.

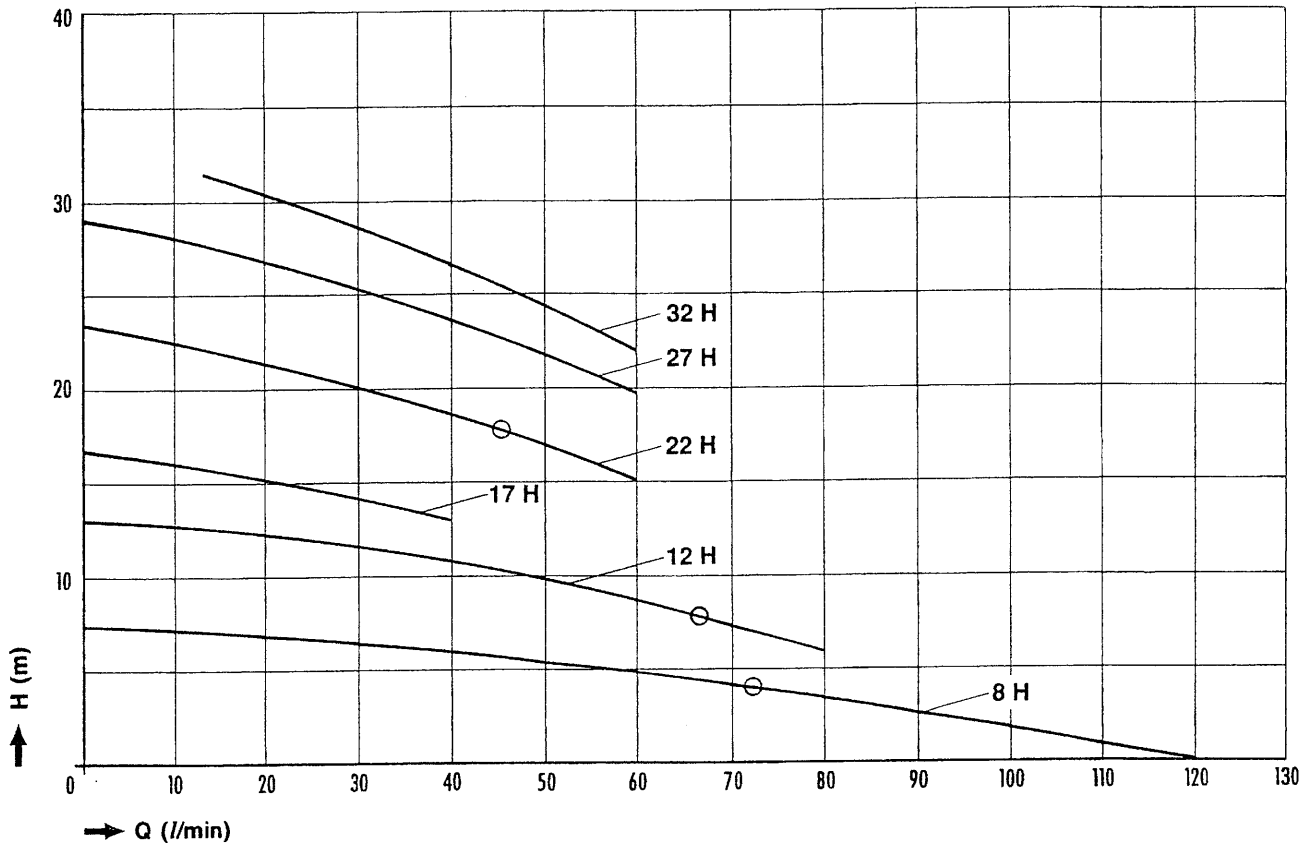
#### Please note:

Variable-speed pumps with freely selectable microelectronic control of the drive motors are available for special applications.

Model HCT..H, 1–6-stage, with impeller change

Parameters

50 Hz or 60 Hz depending on mains frequency

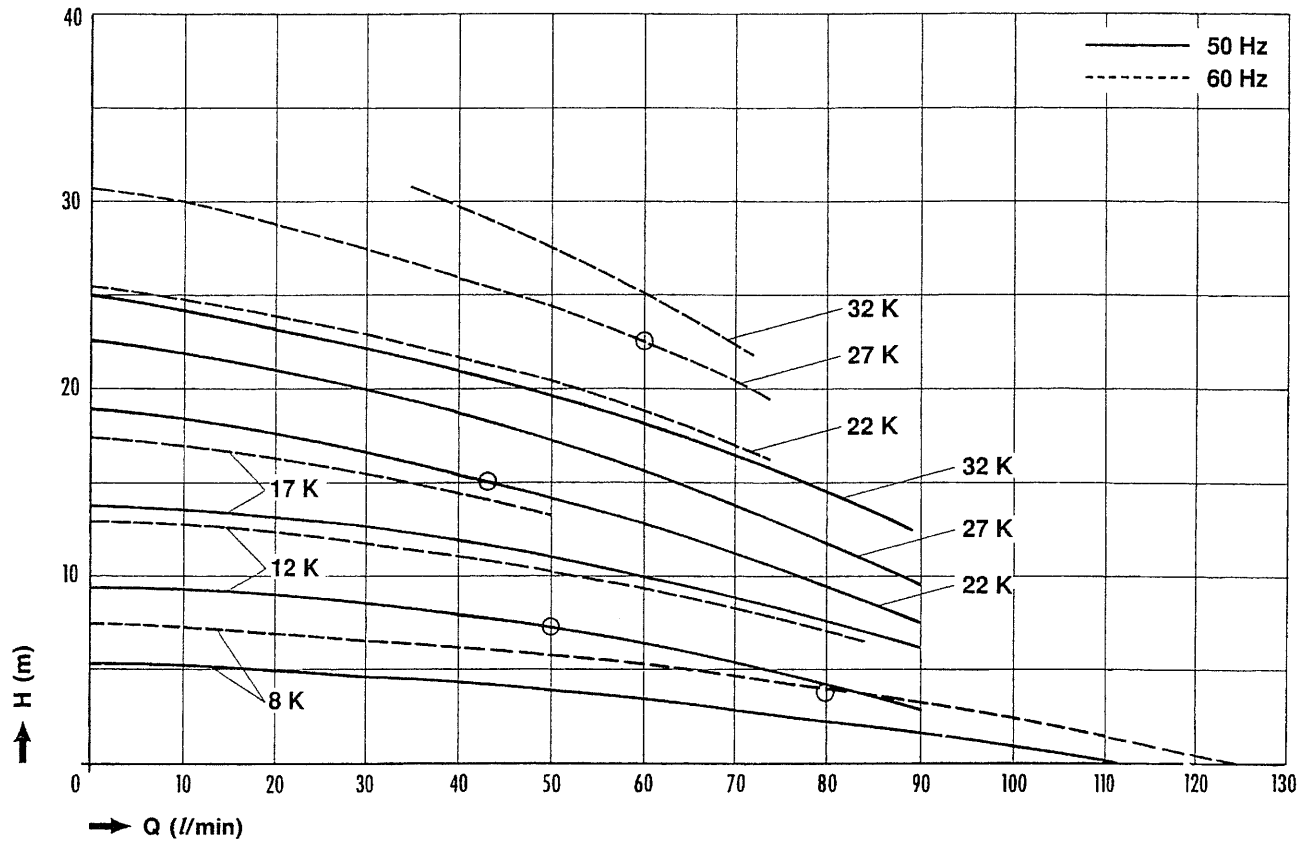


Data are for liquids with a viscosity of 1 mm<sup>2</sup>/s at a density of 1 kg/dm<sup>3</sup>

○ Q max. in single-phase operation

Electrical data													
Three-phase operation							Single-phase operation						
Type	Rated power kW	Rated voltage V	Rated frequency Hz	Rated current $\Delta / Y$ A	Rated speed rpm	Noise level dB (A)	Type	Rated power kW	Rated voltage V	Rated frequency Hz	Rated current $\perp$ A	Rated speed rpm	BC $\mu F$
HCT 8H 1-stage	0.25	230/400	50	1.11 / 0.64	2701	45	HCTE 8H 1-stage	0.18	230	50	1.36	2840	6
	0.25	255/440	60	0.99 / 0.57	3350	45		0.18	250	60	1.10	3486	6
HCT 12H 2-stage	0.37	230/400	50	1.73 / 1.00	2667	48	HCTE 12H 2-stage	0.35	230	50	1.80	2700	8
	0.37	255/440	60	1.49 / 0.86	3329	48		0.35	250	60	2.00	3220	6
HCT 17H 3-stage	0.37	230/400	50	1.73 / 1.00	2667	48	HCTE 17H 3-stage	)	)	)	)	)	)
	0.37	255/440	60	1.49 / 0.86	3329	48		)	)	)	)	)	)
HCT 22H 4-stage	0.75	230/400	50	2.72 / 1.57	2753	54	HCTE 22H 4-stage	0.55	230	50	3.45	2855	12
	0.75	255/440	60	2.37 / 1.37	3370	54		0.75	250	60	3.97	3380	12
HCT 27H 5-stage	0.75	230/400	50	3.46 / 2.00	2846	54	HCTE 27H 5-stage	)	)	)	)	)	)
	0.90	255/440	60	3.46 / 2.00	3403	54		)	)	)	)	)	)
HCT 32H 6-stage	0.90	230/400	50	3.86 / 2.23	2807	54	HCTE 32H 6-stage	)	)	)	)	)	)
	1.10	255/440	60	3.72 / 2.15	3323	54		)	)	)	)	)	)

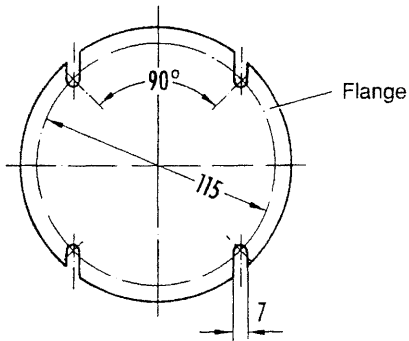
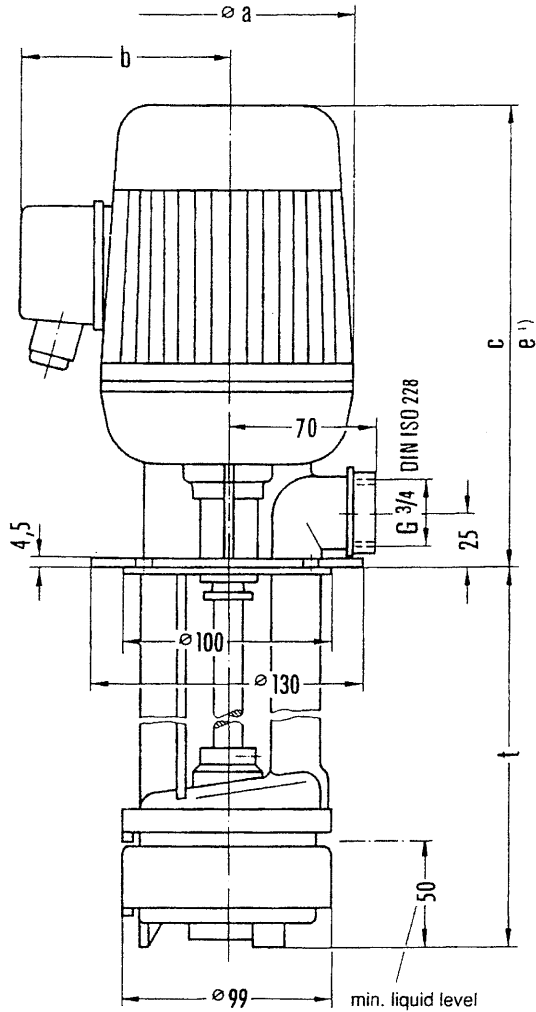
Model HCT..K, 1–6-stage, **without** impeller change for  
Parameters 50 Hz and 60 Hz



Data are for liquids with a viscosity of 1 mm<sup>2</sup>/s at a density of 1 kg/dm<sup>3</sup>  
○ Q max. in single-phase operation

Type	Three-phase operation						Single-phase operation						
	Rated power kW	Rated voltage V	Rated frequency Hz	Rated current $\Delta / Y$ A	Rated speed rpm	Noise level dB (A)	Type	Rated power kW	Rated voltage V	Rated frequency Hz	Rated current $\perp$ A	Rated speed rpm	BC $\mu F$
HCT 8K 1-stage	0.18	230/400	50	0.86 / 0.50	2812	45	HCTE 8K 1-stage	0.18	230	50	1.36	2840	6
	0.25	255/440	60	0.99 / 0.57	3350	45		0.18	250	60	1.10	3486	6
HCT 12K 2-stage	0.37	230/400	50	1.73 / 1.00	2667	48	HCTE 12K 2-stage	0.35	230	50	1.80	2700	8
	0.37	255/440	60	1.49 / 0.86	3329	48		0.35	250	60	2.00	3220	6
HCT 17K 3-stage	0.37	230/400	50	1.73 / 1.00	2667	48	HCTE 17K 3-stage	)	)	)	)	)	)
	0.37	255/440	60	1.49 / 0.86	3329	48		)	)	)	)	)	)
HCT 22K 4-stage	0.75	230/400	50	2.72 / 1.57	2753	54	HCTE 22K 4-stage	0.55	230	50	3.45	2855	12
	0.75	255/440	60	2.37 / 1.37	3370	54		0.75	250	60	3.97	3380	12
HCT 27K 5-stage	0.75	230/400	50	3.46 / 2.00	2846	54	HCTE 27K 5-stage	)	)	)	)	)	)
	0.90	255/440	60	3.46 / 2.00	3403	54		)	)	)	)	)	)
HCT 32K 6-stage	0.75	230/400	50	3.46 / 2.00	2846	54	HCTE 32K 6-stage	)	)	)	)	)	)
	1.10	255/440	60	3.72 / 2.15	3323	54		)	)	)	)	)	)

) on request



The fan-cooled motors on standard models have no protective covers. If such a cover is required by law or safety regulations, it can be supplied at additional cost. Dimension "c" is then increased by approx. 25 mm.

**Please note:**

All equipment may only be installed and/or mounted by qualified personnel. Care is to be taken that safety regulations as valid are observed.

### Dimensions and weights for H and K Models

Type	t mm	Weight (kg)	$\phi a$	$b^{2)}$	c	$e^{1)}$	fan-cooled motors
HCT (E) 8 1-stage	90	4.6	120	98	216	276	X
	120						
	140						
	170						
	220						
HCT (E) 12 2-stage	270	5.2	120	98	216	276	X
	130						
	160						
	180						
	210						
HCT (E) 17 3-stage	260	6.0	120	98	216	276	X
	310						
	170						
	200						
	220						
HCT (E) 22 4-stage	250	5.7	120	98	216	276	X
	300						
	350						
	170						
	200						
HCT (E) 27 5-stage	230	7.0	140	104	295	355	X
	280						
	330						
	240						
	270						
HCT (E) 32 6-stage	290	7.8	140	104	295	355	X
	320						
	9.5						
HCT (E) 32 6-stage	270	8.4	140	104	295	355	X
	300						
HCT (E) 32 6-stage	320	9.8	140	104	295	355	X

1) Dimension "e" for model with heat-repellent fan

2) For models conforming to CSA and US requirements or for models with free ends of thermistor-type protection system in terminal box: +20 mm.