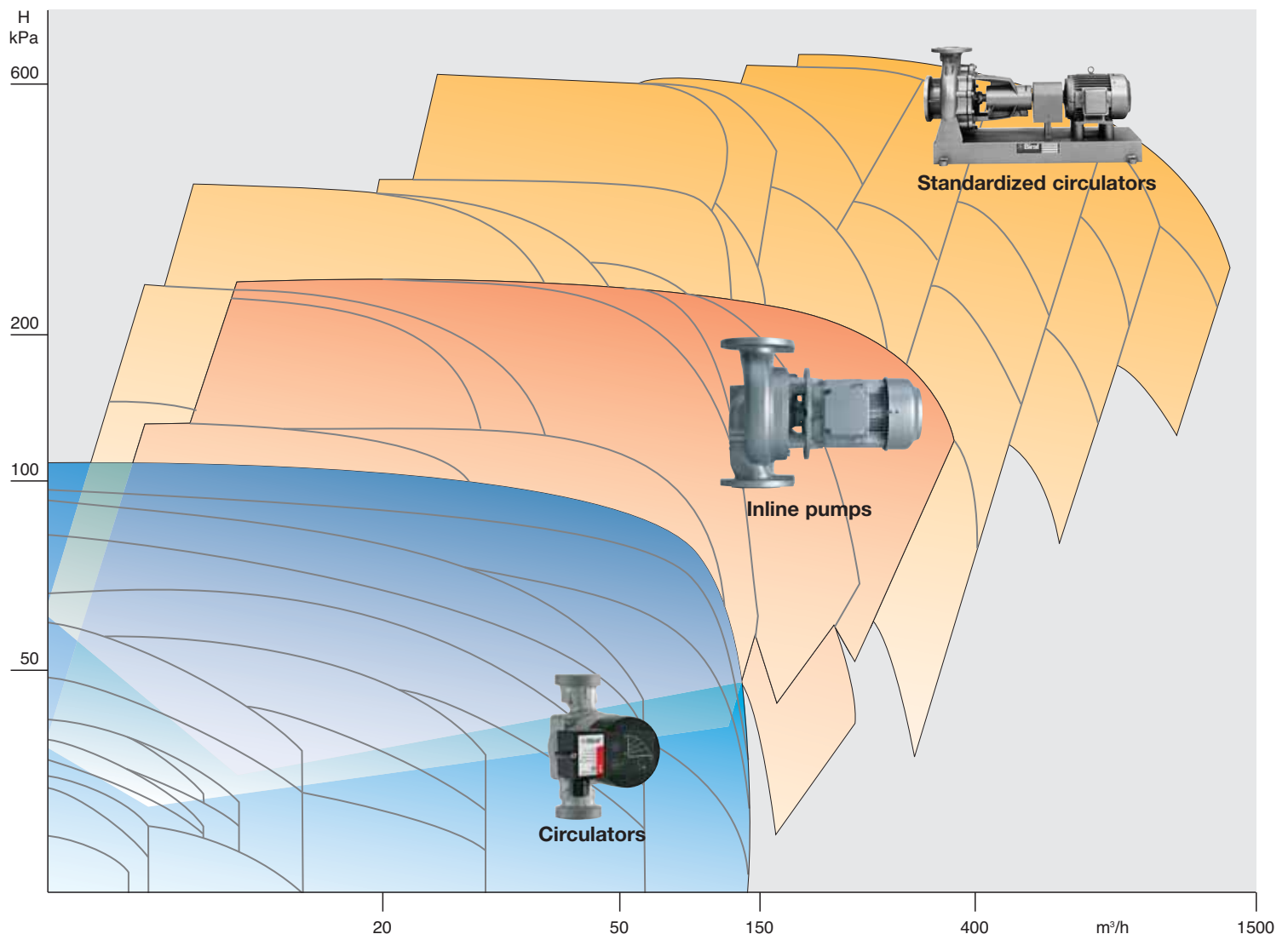


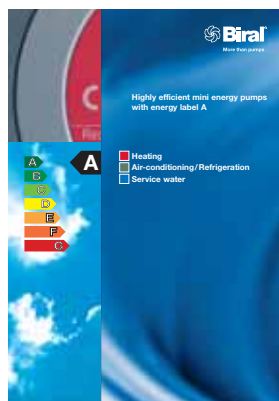
**Circulators for heating
and air-conditioning**



Can you think of a range of pumps offering you more in precision and convenience for your various projects?



Anyone planning heating, ventilation and air-conditioning systems of any size to meet stipulated requirements and with the aim of achieving maximum efficiency, will find no better partner than Biral for the pump technology. Biral has an unsurpassedly wide range in the canned rotor and mechanical seal sector, recognized proverbial Swiss precision and the perfect planning documents which the specialist needs in practice. So why make compromises at the next invitation for tenders? We will be pleased to send you a complete range of information and advice you on all individual questions you may have.

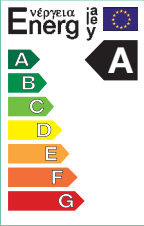
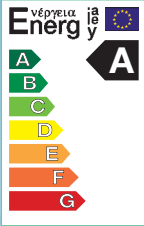
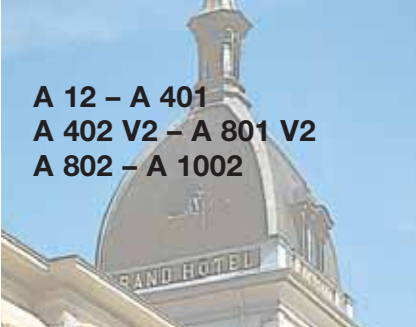


Request brochures
«Highly efficient mini energy pumps with energy label A», «Biral inline pumps», «Biral standard centrifugal pumps» and the pump selection programme.

Circulators	MX/M MD		Medium-speed circulators, 1× 230 V Twin pumps	Page 8	MX/M/MD
	LX/L		Low-speed circulators with 2 speeds 3× 400 V, 1× 230 V, 3× 230 V	Page 14	LX/L
	LXD/LD		Twin pumps Low-speed circulators with 2 speeds 3× 400 V, 1× 230 V, 3× 230 V	Page 30	LXD/LD
	HX		High-speed circulators with 2 speeds for industrial heating and air-conditioning 3× 400 V, 1× 230 V, 3× 230 V	Page 44	HX
	HXD		Twin pumps High-speed circulators with 2 speeds 3× 400 V, 1× 230 V, 3× 230 V	Page 50	HXD
Solar pumps	SX		Unregulated solar pump 1× 230 V	Page 56	SX
Pumps for hot water supplies	WX/W		Mini-energy industrial water pumps 1× 230 V	Page 60	WX/W
Control devices	BC		Control devices	Page 69	BC

The right pump at the right place

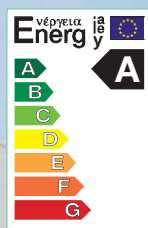
It is a fundamental Biral principle to offer exactly the right pump to suit every application.

Field of application	1- or 2-family home	Multiple dwelling Hospital Hotel Administration
	 Mini-Energy pumps	 Mini-Energy pumps
Radiator and floor heating – Single pumps	 AX 12 – 13	 A 12 – A 401 A 402 V2 – A 801 V2 A 802 – A 1002
– Twin pumps		 AD 401 AD 402 V2 – AD 652 V2 AD 802
Air-conditioning/cooling applications Geothermal Heat pump	 A 12 KW – A 401 KW	 A 402 V2 KW – A 801 V2 KW A 802 KW – A 1002 KW
Service water circulation	 AXW 12 – 13 AXW 10 – 14 smart	 AXW 13 AW 15 – AW 401 AW 402 V2 AXW 13 smart, 14 smart

Industry
Commercial premises
Office buildings

Standard pumps

Mini-Energy
pumps



Standard pumps

M 14 – 15
LX 325 – L 1004

A 12 – A 401
A 402 V2 – A 801 V2
A 802 – A 1002

HX 301 – 802

MD 14 – 15
LXD 325 – LD 1004

AD 401
AD 402 V2 – AD 652 V2
AD 802

HXD 301 – 802

M 14 – 15
LX 325 – L 1004

A 402 V2 KW – A 801 V2 KW
A 802 KW – A 1002 KW

HX 301 – 802

WX 13 – 14
W 313 – 315
W 401 – 403

AXW 13
AW 15 – AW 401
AW 402 V2
AXW 13 smart, 14 smart

WX 13 – 14
W 313 – 315
W 401 – 403

Quality features of Biral heating circulating pumps

Three main demands are made of our circulating pump:

- **silent operation**
- **years of reliable use**
- **low energy consumption**

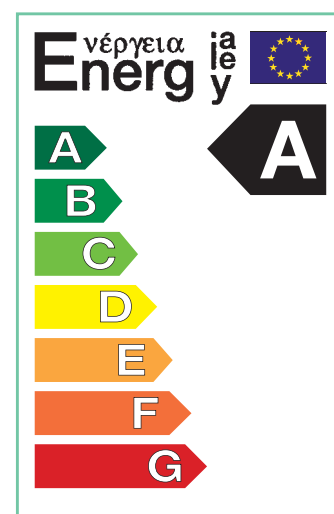
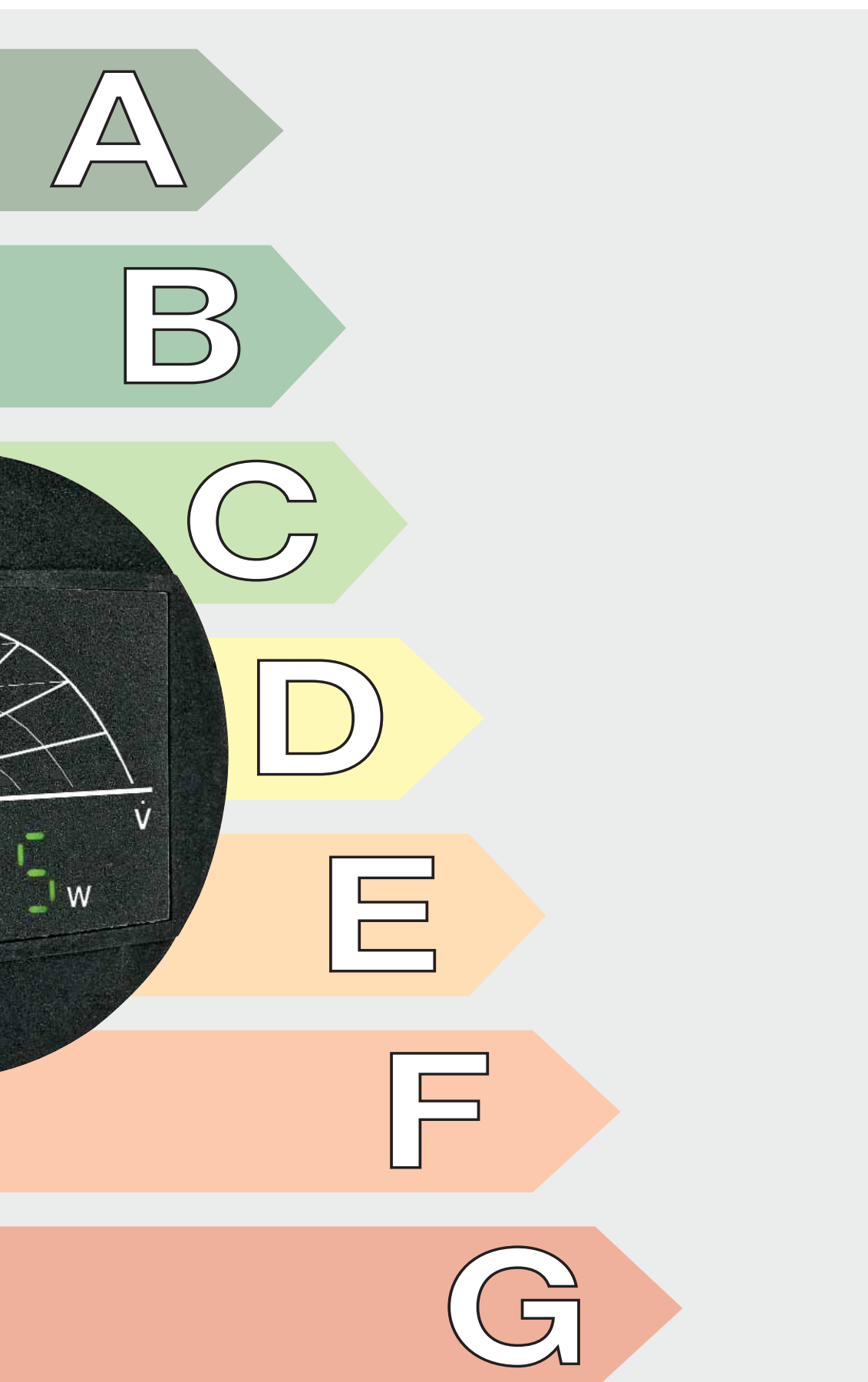
In order to satisfy these requirements in an increasingly better manner, Biral pumps have been continuously further developed for decades.

Manufacture takes place in a modern plant in Münsingen using the best and fully-proven materials.

All circulating pumps are based on fully-proven mechanical components optimised over many years:

- **The indestructible precision sliding bearings** ensure silent operation and largely determine the long service life of the pump
- **The high temperature resistance** of the winding ensures a long service life. It permits use with high temperature media.
- **The ingenious water supply** to the rotor space ensures immediate lubrication of the bearings and even makes venting unnecessary when commissioning small pumps.





The new A-series provides significant energy savings. The new motor technology permits energy savings up to 60 percent!

- **Automatic pressure regulation** with variable rate of flow ensures a further saving
- **User-friendly operation** permits simple adjustment to the required operating conditions
- **The «watts indicator»** shows the end user the current power consumption directly on the pump
- **Various auxiliary modules** permit integration of the pump in domestic control systems

Notes for project planning and installation

1. Selection of circulating pump

The precondition for correct selection is a calculated system operating point (flowrate, pressure loss). The calculations often include safety margins and rounding-up of values. Biral therefore always recommends selection of the next smallest pump.

The effective operating point for a system lies at the intersection of the calculated pipeline characteristic curve and the throttle curve for the circulating pump selected (pump characteristic). In order to ensure lubrication of the bearings at all times, a minimum flowrate of 0.2 - 1 m³/h must be maintained for pumps with a power consumption > 200 W.

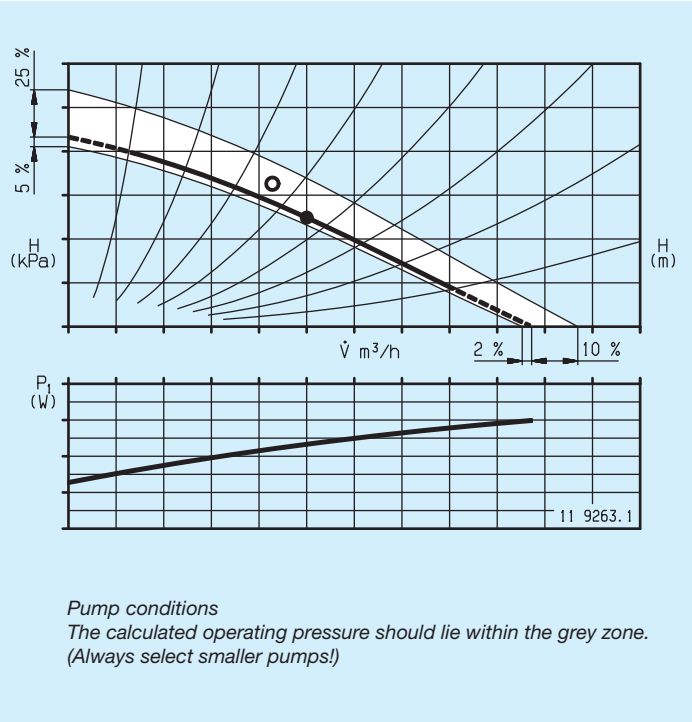


Fig. 1: Choice of smaller pump.

- Recommended range with best efficiency
- - - - Possible range
- Calculated operating point
- P_i (W) Electrical power consumed by pump

2. Requirements of medium

Water treatment

The guidelines of SWKI 97-1 and VDI 2035 «Water treatment for heating, steam and air-conditioning systems» should be observed.

Oxygen

<0,1 mg/dm³

The systems must be thoroughly flushed before filling.

Overall hardness

7 to 14 °fH (4-8 °dH)

pH value

8.3 to 9.5 (8.3 to max. 9 for systems with aluminium or non-ferrous metal components)

Anti-frost mixture

Water/glycol mixture with up to 50% glycol is permitted. From 10% glycol proportion the delivery data of the pumps must be corrected according to fig. 2.

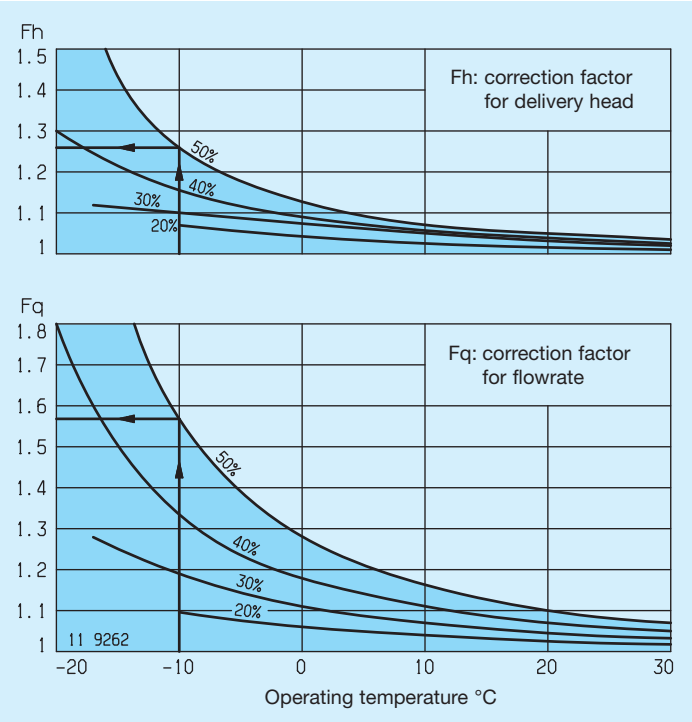


Fig. 2:
Correction factors for pump characteristic compared with water delivery

Example

$H_{\text{mixture}} = 30 \text{ kPa}$
 $Q_{\text{mixture}} = 7 \text{ m}^3/\text{h}$

Medium:
 50% glycol mixture
 at -10 °C operating temperature

Conversion of required pump operating point for water heat transfer

$H_{\text{water}} = H \times F_h$
 $= 30 \times 1,26 = 37,8 \text{ kPa}$

$Q_{\text{water}} = Q \times F_q$
 $= 7 \times 1,57 = 11 \text{ m}^3/\text{h}$

Factors according to fig. 2:
 $F_h = 1,26$
 $F_q = 1,57$

Circulating pump complying with operating point Q/H_{water} : Biral LX 504, speed II.

3. Required operating pressure at circulating pump

If the operating pressure is too low, adequate lubrication of the pump sliding bearings (water lubrication) is not ensured and therefore their service life is reduced. The values specified should therefore be observed without fail.

The required operating pressure depends on the type of pump, the maximum temperature of the medium and the atmospheric pressure. If the position of the expansion vessel is not ideal, the operating pressure at the pump inlet when operating the pump can be reduced further (see fig. 3).

This can lead to penetration of air and inadequate bearing lubrication. In this case the static operating pressure must be raised accordingly.

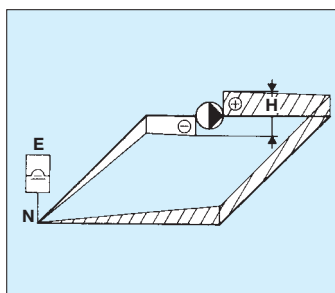


Fig. 3: Pressure distribution.
 ⊕ = Overpressure range
 ⊖ = Underpressure range
 E = Expansion vessel
 N = Neutral point
 H = Delivery head of pump

4. Pipeline connection and pump installation

- Always fit pump between two shut-off devices (fig. 5)
- Fit pump so that the motor shaft is horizontal, regardless of the position of the pump casing (fig. 4)
- Fit pump in pipeline free from stress
- When the pump is fitted do not work too closely with a welding flame
- The fitting of heating pumps on the inlet side reduces the danger of contamination. They should preferably be fitted on the return side if the temperature of the medium is very high.

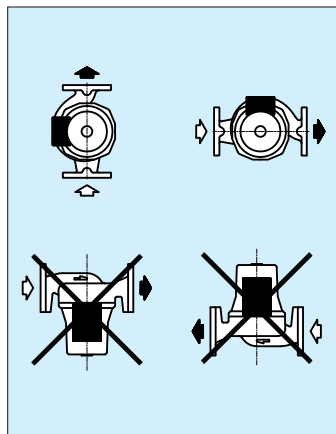


Fig. 4: Fitting pump

5. Electrical connection

Connection diagrams are shown for the corresponding type series.

Biral pumps of series L, LX, HX and W are provided with a so-called Polycrom motor, which has three different plugs for conversion to various types of voltage and operation (3×400 V, 1×230 V, external step-switching).

The pumps are supplied with type A plug (3×400 V). For a mains voltage of 1×230 V a set of accessories is available, consisting of operating capacitor and type B plug.

Motor protection

Circulating pumps with low electrical power and all electronically controlled circulating pumps are short-circuit-proof and require no external motor protection. Types LX 325 to L 1004, in addition to HX 301 to HX 802 and W 401 to W 403 require motor protection. Winding protection contacts (WSK, Klixon) are fitted in the motor winding of these motors.

The contact opens if a winding temperature of 180 °C (class H) is exceeded. It is recommended to use the Biral control unit BS 752 or BS 712 W4 (see section on control units). A thermal motor protection (motor protection switch) only offers protection for one speed stage. If the speed stage is changed, the thermal motor protection must therefore be adapted accordingly.

Circulating pumps may only be connected directly to permanently installed electrical lines. An isolating device for all poles with a contact opening of at least 3 mm must be fitted before the motor. The electrical connection should be looped to simplify later exchange (fig. 5). Sounds from mains instruction signals can be avoided by fitting a blocking filter. Local regulations should be observed. The electrical connection must be made heat resistant for water temperatures >100 °C.

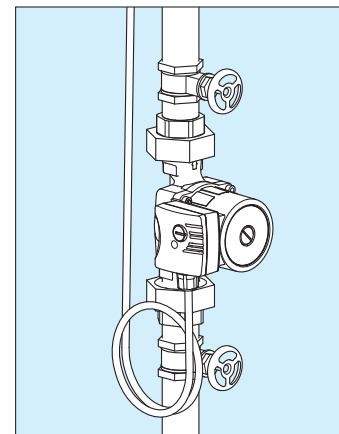


Fig. 5: Looped electrical connection

Pre-fusing:
 max. 16 A slow-acting
 Conductor cross-section:
 max. 2.5 mm²
 Inrush current:
 max. 3-times rated current.
 The regulations of the local power supply company must be observed.
 Protection class:
 IP 44 to DIN 40050.

Heating circulators

Models:

MX/M/MD

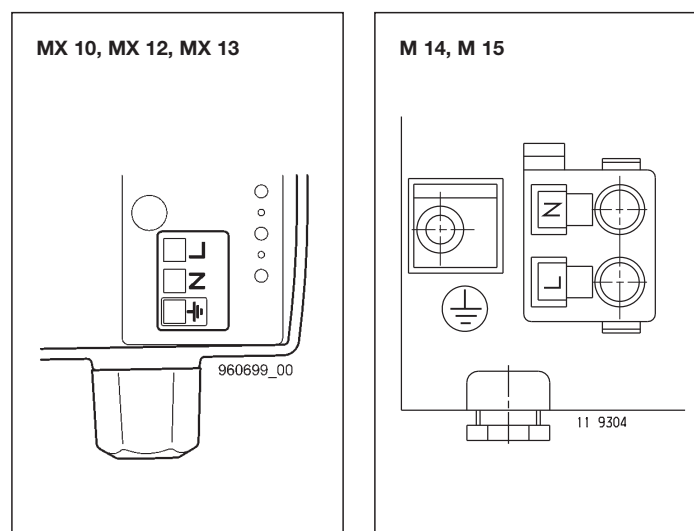
Medium-speed pumps

1 × 230 V

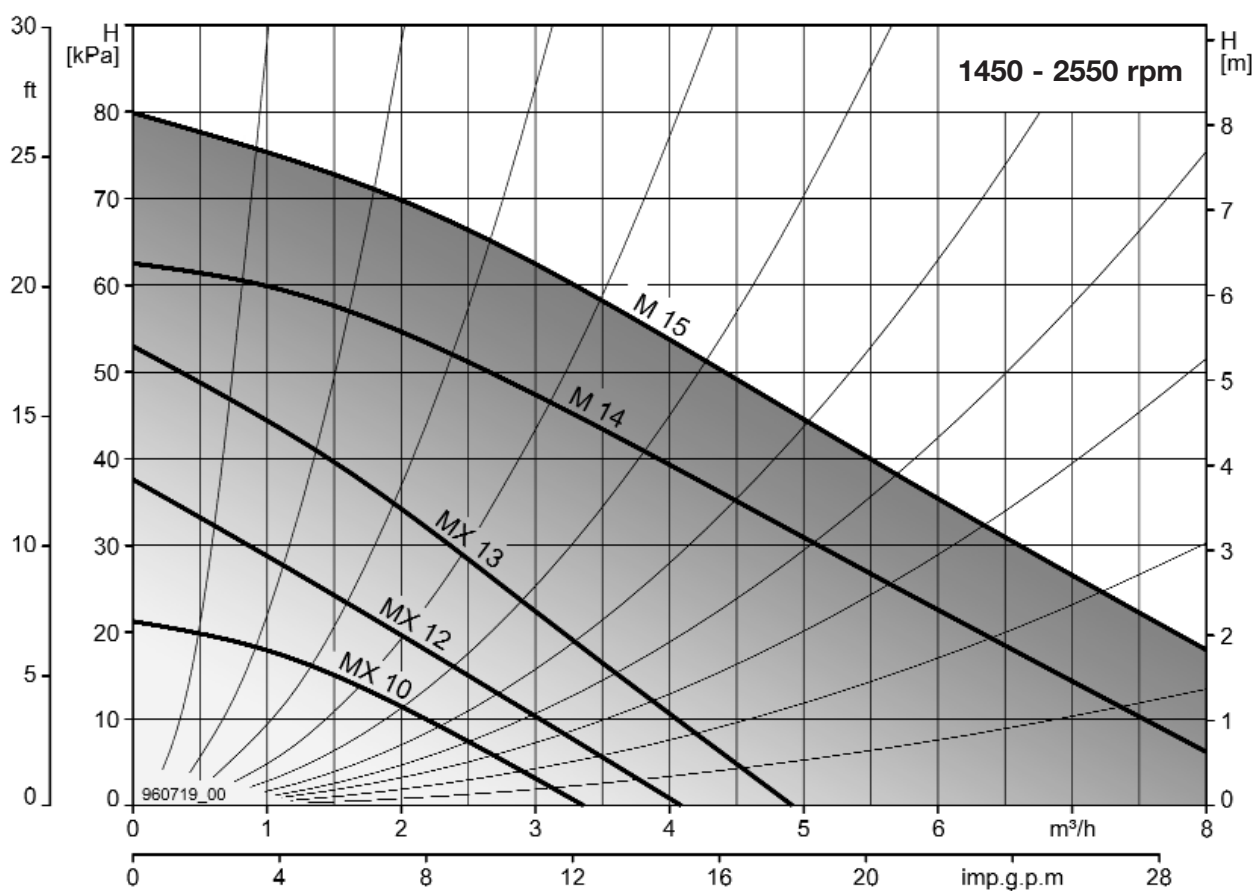
List of models

● Standard design	Installation dimensions	Type	PN 10	Label
	2"×170 mm	MX 10, MX 12	●	B
		MX 13	●	C
		M 14, M 15	●	D
	1½"×180 mm	MX 10-1, MX 12-1	●	B
		MX 13-1	●	C
		M 14-1, M 15-1	●	D
	2"×180 mm	MX 10-2, MX 12-2	●	B
		MX 13-2	●	C
		M 14-2, M 15-2	●	D
	1½"×130 mm	MX 10-3, MX 12-3	●	B
		MX 13-3	●	C
	1"×130 mm	MX 10-4, MX 12-4	●	B
		MX 13-4	●	C
		MD 14, MD 15	●	D

Electrical connection



The control device
suitable for the pump:
see page 69



MX 10, -1, -2, -3, -4

Installation length	130/170/180 mm
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +110°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	2.8 kg

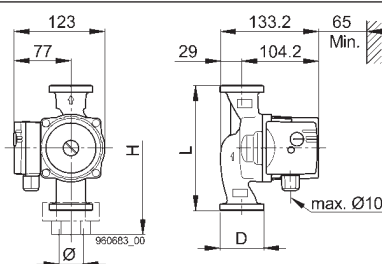
Voltage	1×230 V, 50 Hz
Speed	II 2300 rpm I 1900 rpm
Current	II 0.16 A I 0.13 A
Power	II 30...37 W I 23...29 W

Capacitor built in 1.5 µF, 400 V

The motor is short-circuit proof and requires no overload protection.

Control devices

For further information see page 69



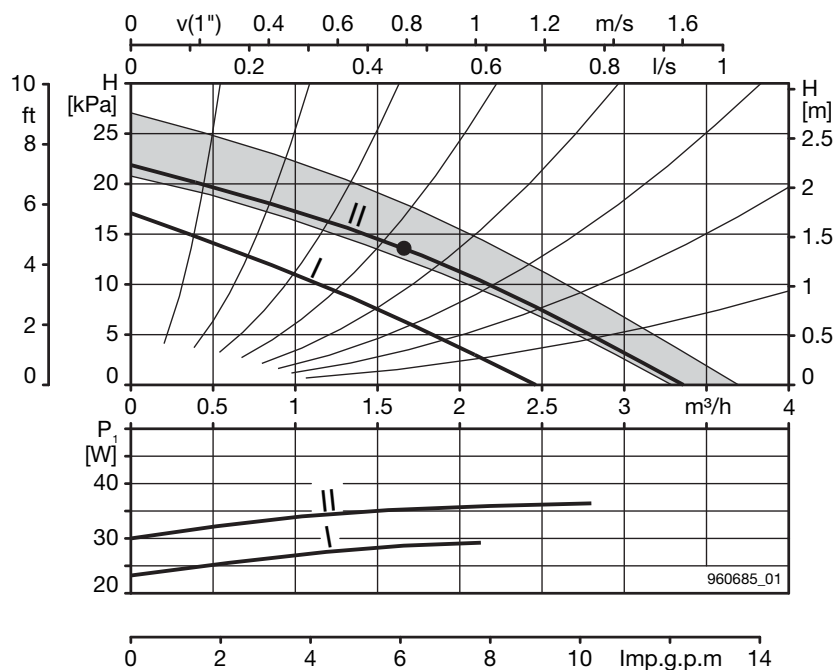
MX 10
 $\varnothing = 1\frac{1}{2}"$, $1\frac{1}{4}"$, $1"$, $\frac{3}{4}"$
 $D = 2"$
 $L = 170$ mm
 $H = 235$ mm

MX 10-1
 $\varnothing = 1"$, $\frac{3}{4}"$
 $D = 1\frac{1}{2}"$
 $L = 180$ mm
 $H = 235$ mm

MX 10-2
 $\varnothing = 1\frac{1}{2}"$, $1\frac{1}{4}"$, $1"$, $\frac{3}{4}"$
 $D = 2"$
 $L = 180$ mm
 $H = 245$ mm

MX 10-3
 $\varnothing = 1"$, $\frac{3}{4}"$
 $D = 1\frac{1}{2}"$
 $L = 130$ mm
 $H = 185$ mm

MX 10-4
 $\varnothing = \frac{1}{2}"$
 $D = 1"$
 $L = 130$ mm
 $H = 178$ mm



MX 12, -1, -2, -3, -4

Installation length	130/170/180 mm
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +110°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	2.8 kg

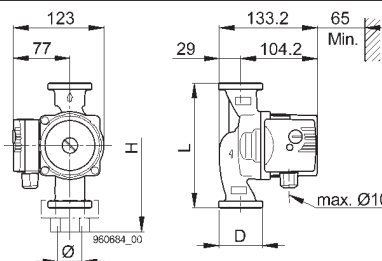
Voltage	1×230 V, 50 Hz
Speed	III 2100 rpm II 1800 rpm I 1400 rpm
Current	III 0.21 A II 0.17 A I 0.14 A
Leistung	III 42...50 W II 34...41 W I 26...31 W

Capacitor built in 1.5 µF, 400 V

The motor is short-circuit proof and requires no overload protection.

Control devices

For further information see page 69



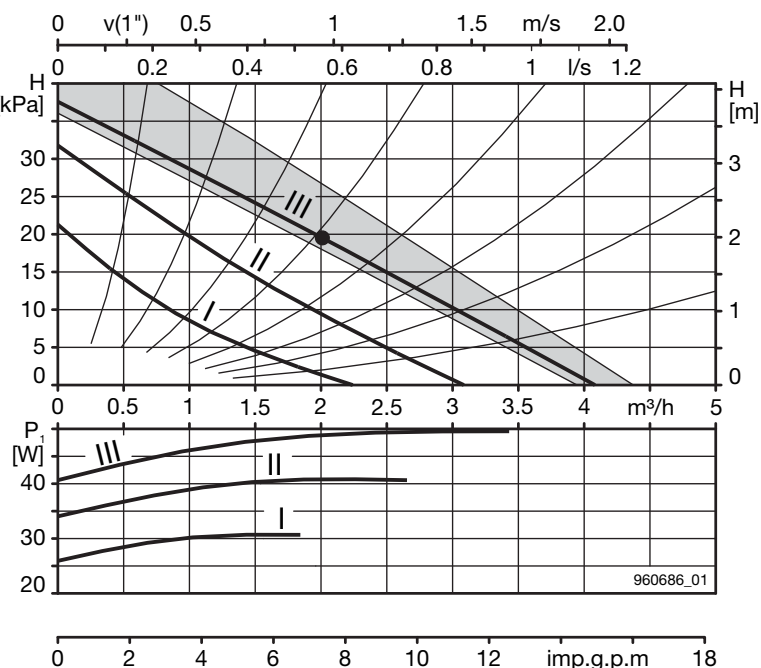
MX 12
 $\varnothing = 1\frac{1}{2}"$, $1\frac{1}{4}"$, $1"$, $\frac{3}{4}"$
 $D = 2"$
 $L = 170$ mm
 $H = 235$ mm

MX 12-1
 $\varnothing = 1"$, $\frac{3}{4}"$
 $D = 1\frac{1}{2}"$
 $L = 180$ mm
 $H = 235$ mm

MX 12-2
 $\varnothing = 1\frac{1}{2}"$, $1\frac{1}{4}"$, $1"$, $\frac{3}{4}"$
 $D = 2"$
 $L = 180$ mm
 $H = 245$ mm

MX 12-3
 $\varnothing = 1"$, $\frac{3}{4}"$
 $D = 1\frac{1}{2}"$
 $L = 130$ mm
 $H = 185$ mm

MX 12-4
 $\varnothing = \frac{1}{2}"$
 $D = 1"$
 $L = 130$ mm
 $H = 178$ mm



MX 13, -1, -2, -3, -4

Installation length	130/170/180 mm
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +110°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	3 kg

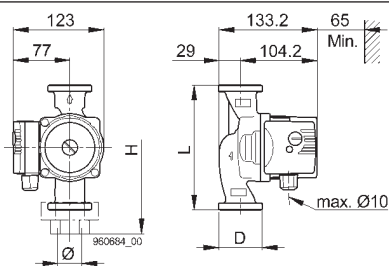
Voltage	1×230 V, 50 Hz
Speed	III 2300 rpm II 1800 rpm I 1200 rpm
Current	III 0.46 A II 0.36 A I 0.23 A
Power	III 68...96 W II 52...71 W I 37...44 W

Capacitor built in 2 µF, 400 V

The motor is short-circuit proof and requires no overload protection.

Control devices

For further information see page 69



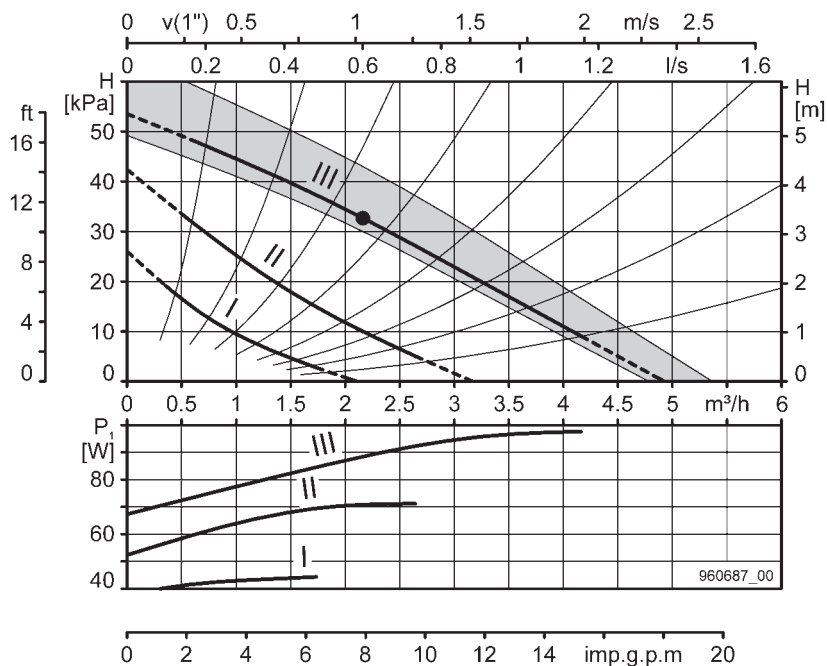
MX 13
 $\varnothing = 1\frac{1}{2}"$, $1\frac{1}{4}"$, $1"$, $\frac{3}{4}"$
 $D = 2"$
 $L = 170$ mm
 $H = 235$ mm

MX 13-1
 $\varnothing = 1"$, $\frac{3}{4}"$
 $D = 1\frac{1}{2}"$
 $L = 180$ mm
 $H = 235$ mm

MX 13-2
 $\varnothing = 1\frac{1}{2}"$, $1\frac{1}{4}"$, $1"$, $\frac{3}{4}"$
 $D = 2"$
 $L = 180$ mm
 $H = 245$ mm

MX 13-3
 $\varnothing = 1"$, $\frac{3}{4}"$
 $D = 1\frac{1}{2}"$
 $L = 130$ mm
 $H = 185$ mm

MX 13-4
 $\varnothing = \frac{1}{2}"$
 $D = 1"$
 $L = 130$ mm
 $H = 178$ mm



M 14, -1, -2

Installation length	170/180 mm
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +110°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	4.5 kg

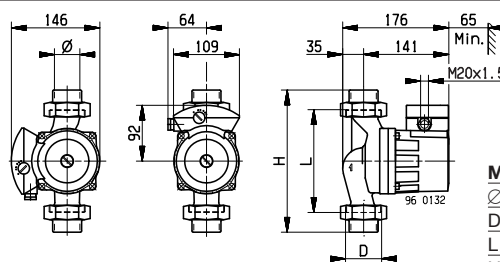
Voltage	1×230 V, 50 Hz
Speed	III 2550 rpm II 2350 rpm I 1700 rpm
Current	III 0.95 A II 0.85 A I 0.6 A
Power	III 95...215 W II 85...185 W I 75...120 W

Capacitor built in 3 µF, 400 V

The motor is short-circuit proof and requires no overload protection.

Control devices

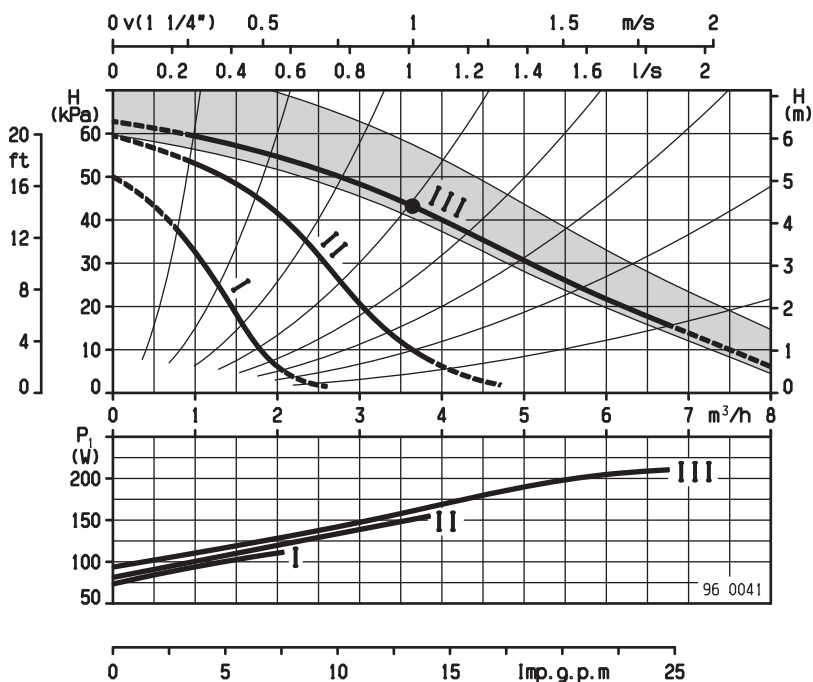
For further information see page 69



M 14
 $\varnothing = 1\frac{1}{2}"$, $1\frac{1}{4}"$, $1"$, $\frac{3}{4}"$
 D = 2"
 L = 170 mm
 H = 235 mm

M 14-1
 $\varnothing = 1"$, $\frac{3}{4}"$
 D = $1\frac{1}{2}"$
 L = 180 mm
 H = 235 mm

M 14-2
 $\varnothing = 1\frac{1}{2}"$, $1\frac{1}{4}"$, $1"$, $\frac{3}{4}"$
 D = 2"
 L = 180 mm
 H = 245 mm



M 15, -1, -2

Installation length	170/180 mm
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +110°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	4.5 kg

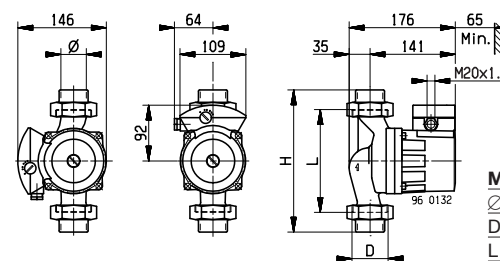
Voltage	1×230 V, 50 Hz
Speed	III 2500 rpm II 2300 rpm I 1450 rpm
Current	III 1.1 A II 0.9 A I 0.6 A
Power	III 140...250 W II 105...195 W I 90...125 W

Capacitor built in 5 µF, 400 V

The motor is short-circuit proof and requires no overload protection.

Control devices

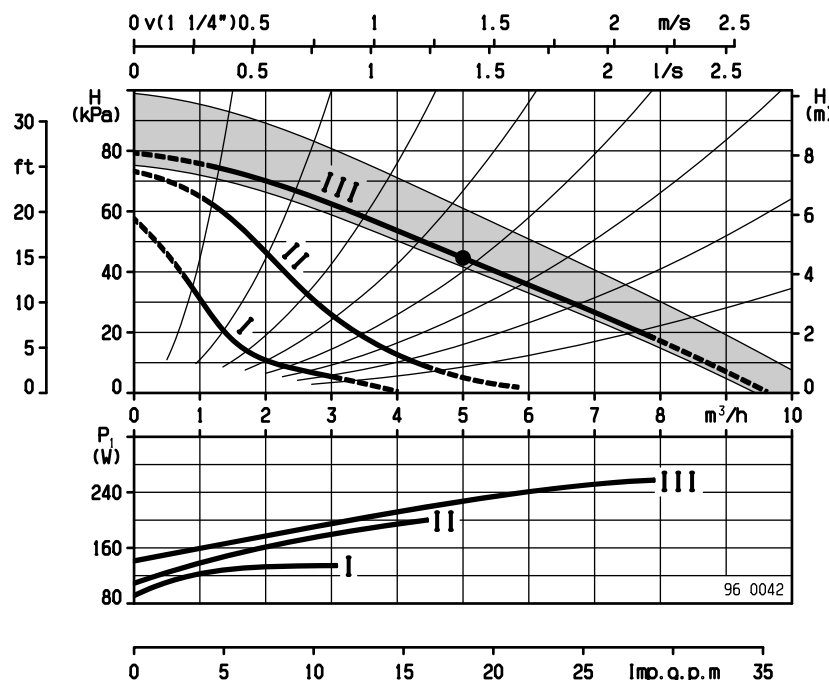
For further information see page 69



M 15
 $\varnothing = 1\frac{1}{2}"$, $1\frac{1}{4}"$, $1"$, $\frac{3}{4}"$
 D = 2"
 L = 170 mm
 H = 235 mm

M 15-1
 $\varnothing = 1"$, $\frac{3}{4}"$
 D = $1\frac{1}{2}"$
 L = 180 mm
 H = 235 mm

M 15-2
 $\varnothing = 1\frac{1}{2}"$, $1\frac{1}{4}"$, $1"$, $\frac{3}{4}"$
 D = 2"
 L = 180 mm
 H = 245 mm



MD 14-2

Installation length	180 mm
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +110°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	8.5 kg

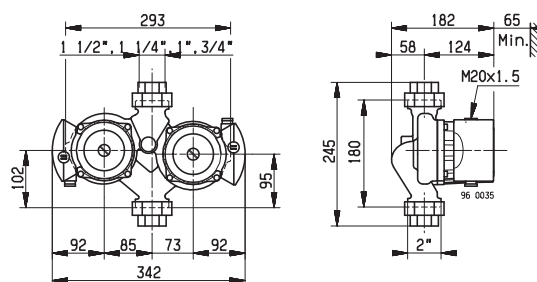
Voltage	1×230 V, 50 Hz
Speed	III 2550 rpm II 2350 rpm I 1700 rpm
Current	III 0.95 A II 0.85 A I 0.6 A
Power	III 95...215 W II 85...185 W I 75...120 W

Capacitor built in 3 µF, 400 V

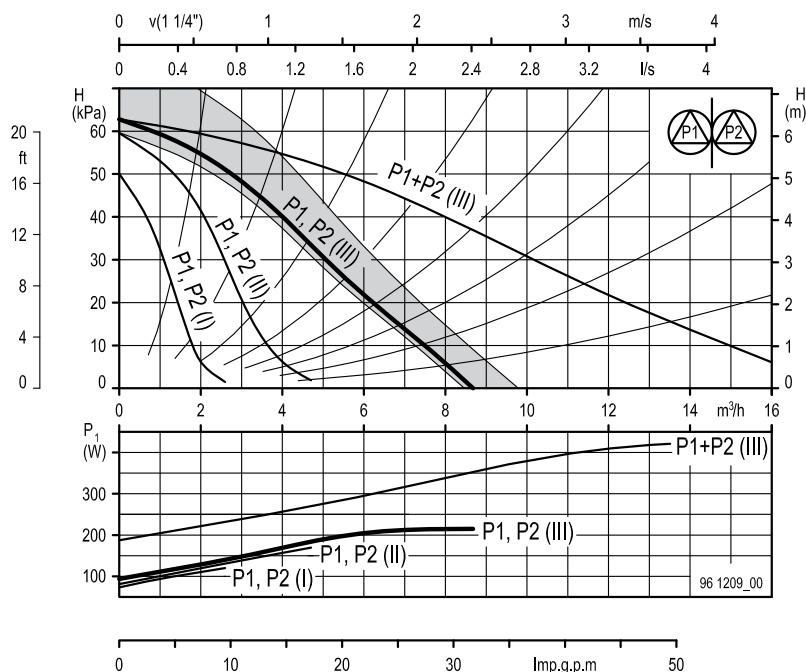
The motor is short-circuit proof and requires no overload protection.

Control devices

For further information see page 69



Characteristic curves
pump P1 or P2
as M 14



MD 15-2

Installation length	180 mm
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +110°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	8.5 kg

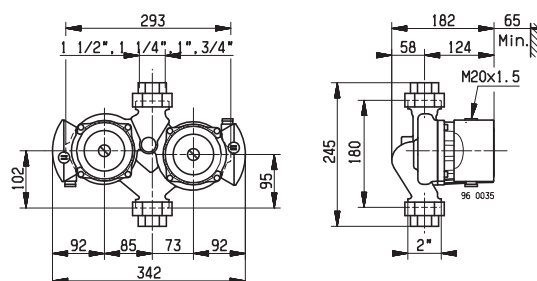
Voltage	1×230 V, 50 Hz
Speed	III 2500 rpm II 2300 rpm I 1450 rpm
Current	III 1.1 A II 0.9 A I 0.6 A
Power	III 140...250 W II 105...195 W I 90...125 W

Capacitor built in 5 µF, 400 V

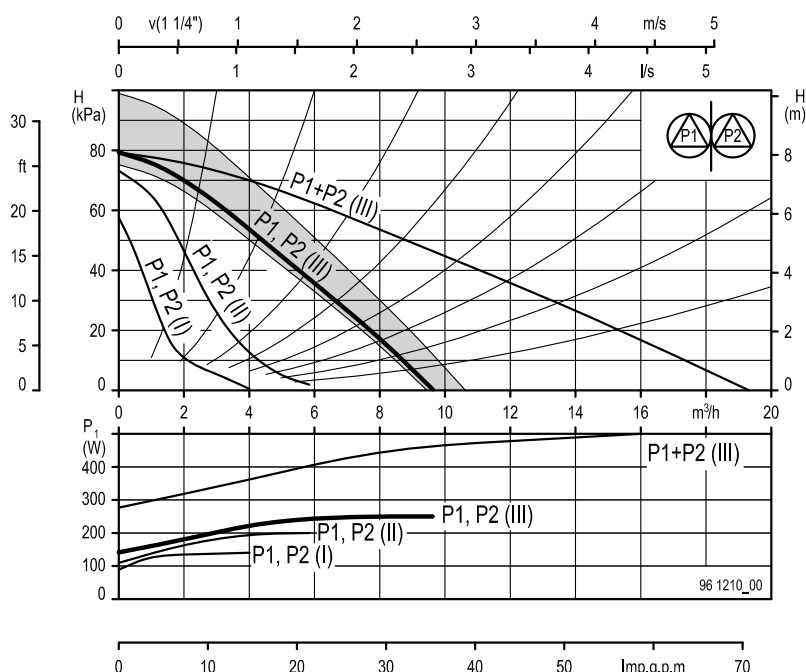
The motor is short-circuit proof and requires no overload protection.

Control devices

For further information see page 69



Characteristic curves
pump P1 or P2
as M 15



Heating circulators

Models:

LX/L

Low-speed pumps with 2 speeds

3×400 V

1×230 V

3×230 V

List of models

● Standard design

○ Special design

Observe regulations:

e. g. DIN 2401:

GG cast iron 120 °C = 10 bar

> 120 °C = 8 bar

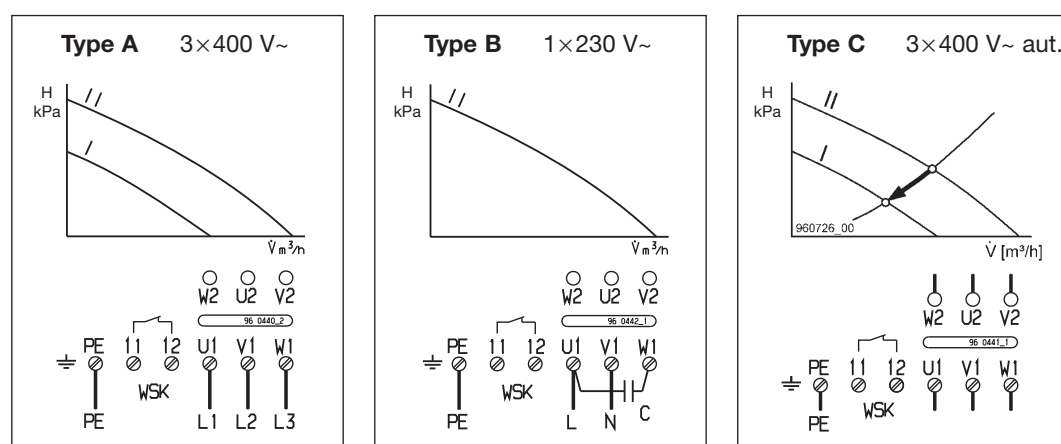
Further standards:

e. g. DIN 4752

DN	Installation dimensions	Type	PN6	PN10	PN6-16	PN16	Label
32	2"×180 mm	LX 321-2 3~, LX 321-2 1~		●			C
		LX 322-2 3~, LX 322-2 1~		●			C
		LX 323-2 3~, LX 323-2 1~		●			D
	2"×190 mm	LX 321 3~, LX 321 1~		●			C
		LX 322 3~, LX 322 1~		●			C
		LX 323 3~, LX 323 1~		●			D
40	Ø 40×220 mm	LX 401, LX 402			●		C, D
	Ø 40×250 mm	LX 403			●		D
50	Ø 50×220 mm	LX 502			●		C
	Ø 50×270 mm	LX 503, LX 504			●		C
65	Ø 65×270 mm	LX 652			●		D
	Ø 65×300 mm	LX 653			●		D
	Ø 65×340 mm	LX 654, LX 655			●		D
80	Ø 80×370 mm	LX 802, LX 803	●			○	D
	Ø 80×400 mm	L 804, L 805	●			○	D
100	Ø 100×450 mm	L 1001, L 1002	●			○	D
		L 1003, L 1004	●			○	D

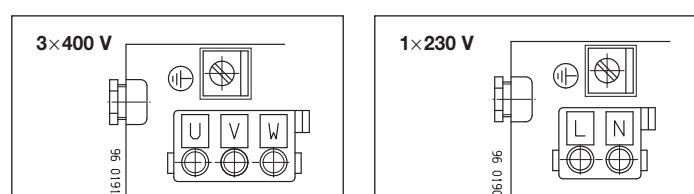
Electrical connection

for pumps with Polycrom motor
from LX 325



Electrical connection

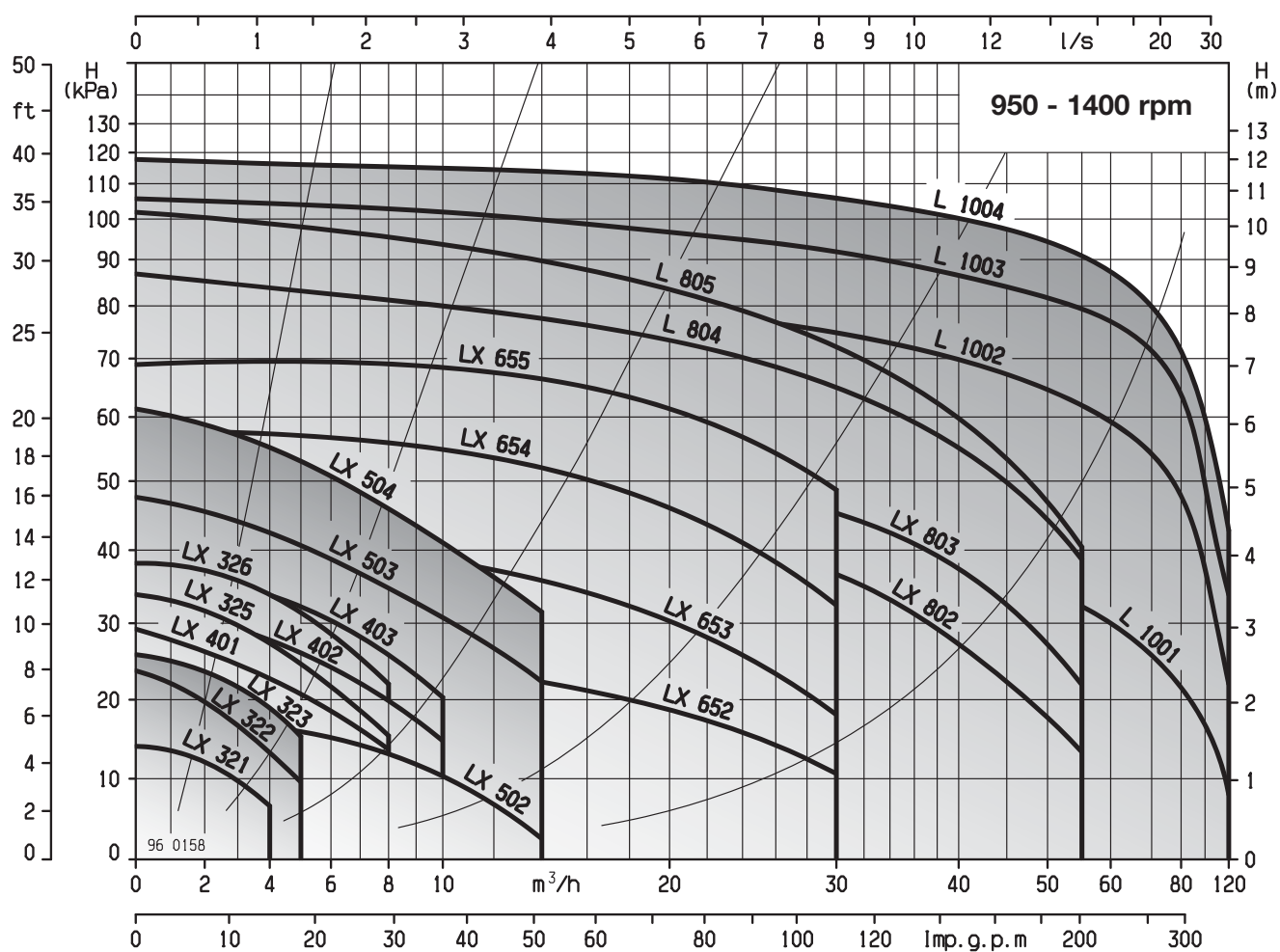
for pumps LX 321 ... 323



The control device
suitable for the pump:
see page 69



LX/L



LX 321, -2 3×400 V

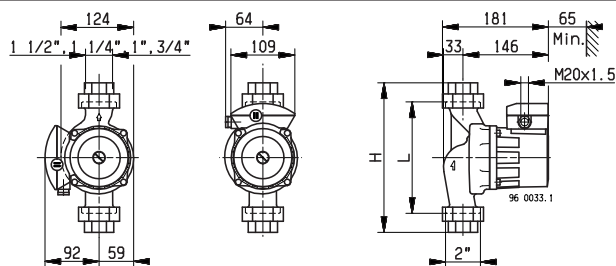
Installation length	LX 321 3~ 190 mm LX 321-2 3~ 180 mm
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +110°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.5 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	4.5 kg

Voltage	3×400 V, 50 Hz
Speed	II 1400 rpm I 1250 rpm
Current	II 0.16 A I 0.06 A
Power	II 45...59 W I 16...31 W

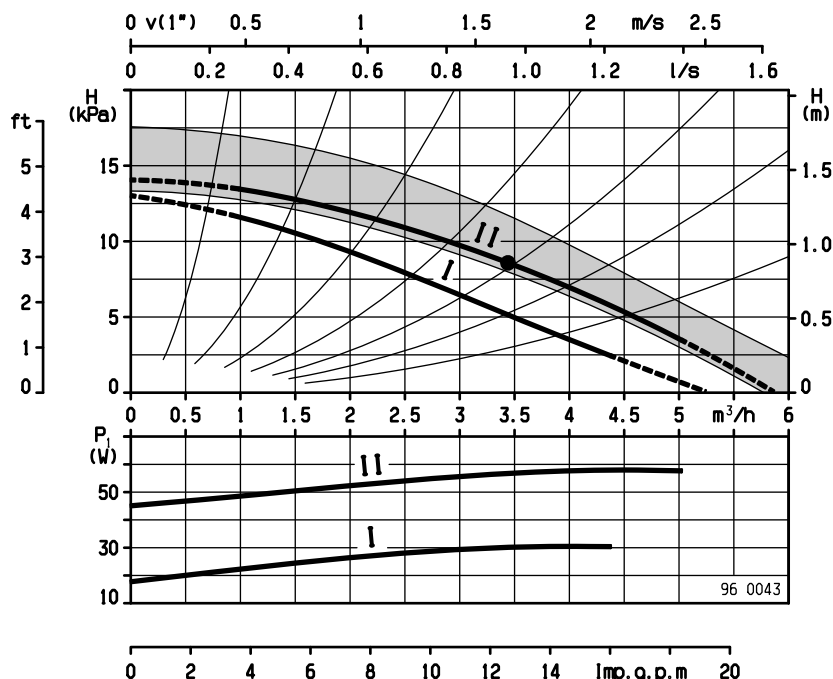
The motor is short-circuit proof and requires no overload protection.

Control devices

For further information see page 69



LX 321 3~
L = 190 mm
H = 255 mm
LX 321-2 3~
L = 180 mm
H = 245 mm



LX 321, -2 1×230 V

Installation length	LX 321 1~ 190 mm LX 321-2 1~ 180 mm
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +110°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.5 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	4.5 kg

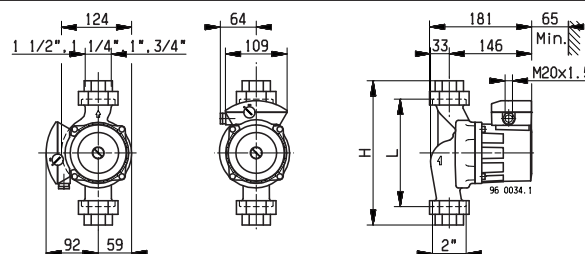
Voltage	1×230 V, 50 Hz
Speed	II 1350 rpm I 1230 rpm
Current	II 0.22 A I 0.18 A
Power	II 37...50 W I 22...37 W

Capacitor built in 1.5 µF, 400 V

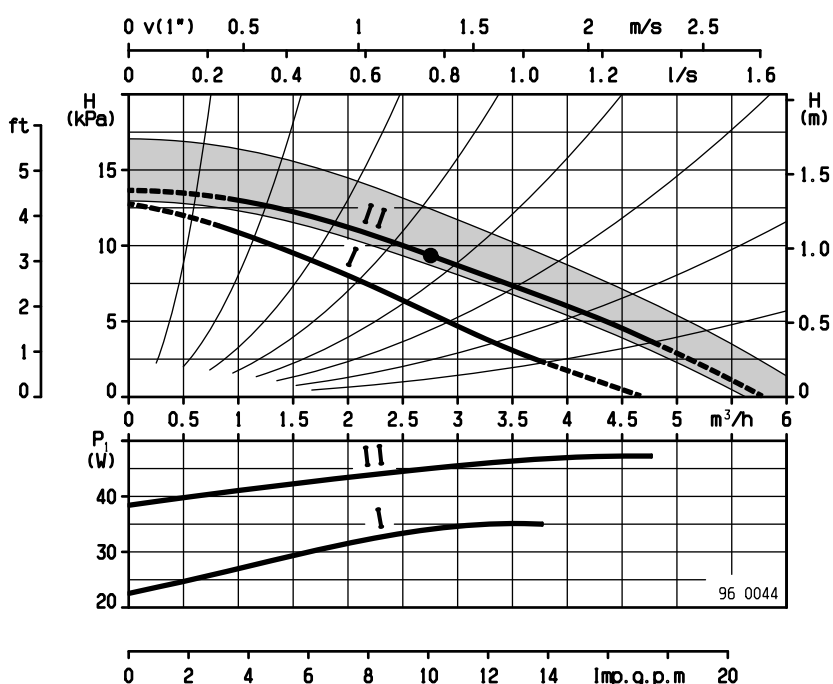
The motor is short-circuit proof and requires no overload protection.

Control devices

For further information see page 69



LX 321 1~
L = 190 mm
H = 255 mm
LX 321-2 1~
L = 180 mm
H = 245 mm



LX 323, -2 3×400 V

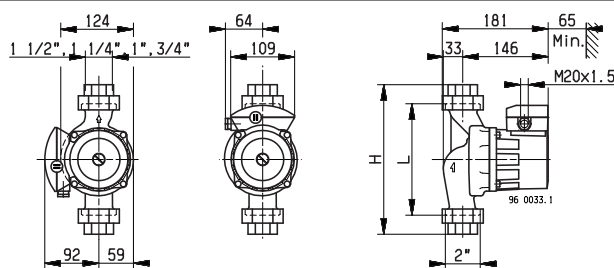
Installation length	LX 323 3~	190 mm
	LX 323-2 3~	180 mm
Permissible operating pressure	10 bar	
Permissible operating temp.	-20°C to +110°C	
Required operating pressure at	500 m a.s.l.	
at 75°C water temperature	0.5 bar	
at 90°C water temperature	+0.35 bar	
at 110°C water temperature	+1.1 bar	
For every ±100 m altitude	±0.01 bar	
Weight	4.5 kg	

Voltage	3×400 V, 50 Hz	
Speed	II	1380 rpm
	I	1220 rpm
Current	II	0.32 A
	I	0.12 A
Power	II	80...114 W
	I	31... 62 W

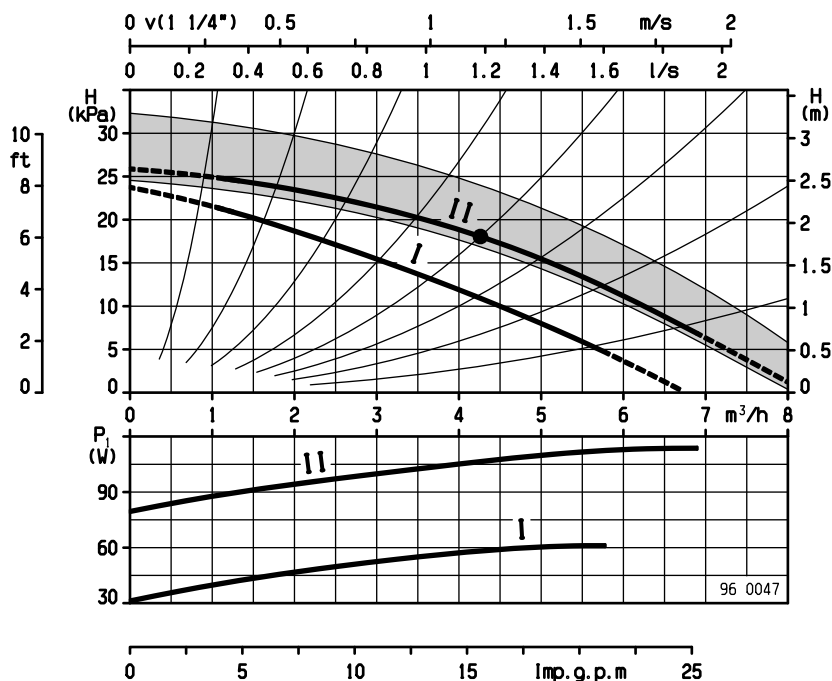
The motor is short-circuit proof and requires no overload protection.

Control devices

For further information see page 69



LX 323 3~
L = 190 mm
H = 255 mm
LX 323-2 3~
L = 180 mm
H = 245 mm



LX 323, -2 1×230 V

Installation length	LX 323 1~	190 mm
	LX 323-2 1~	180 mm
Permissible operating pressure	10 bar	
Permissible operating temp.	-20°C to +110°C	
Required operating pressure at	500 m a.s.l.	
at 75°C water temperature	0.5 bar	
at 90°C water temperature	+0.35 bar	
at 110°C water temperature	+1.1 bar	
For every ±100 m altitude	±0.01 bar	
Weight	4.5 kg	

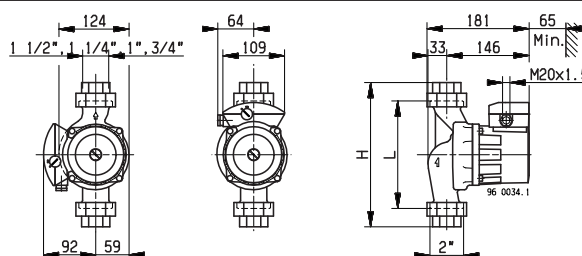
Voltage	1×230 V, 50 Hz	
Speed	II	1380 rpm
	I	1080 rpm
Current	II	0.65 A
	I	0.37 A
Power	II	137...145 W
	I	52... 80 W

Capacitor built in 5 µF, 400 V

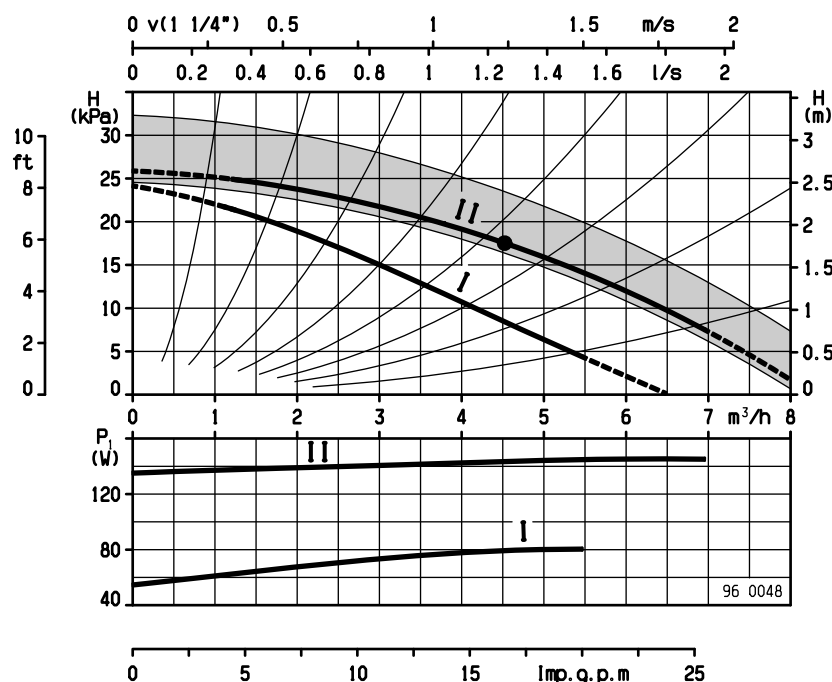
The motor is short-circuit proof and requires no overload protection.

Control devices

For further information see page 69



LX 323 1~
L = 190 mm
H = 255 mm
LX 323-2 1~
L = 180 mm
H = 245 mm



LX 325

Installation length	190 mm
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	11.3 kg

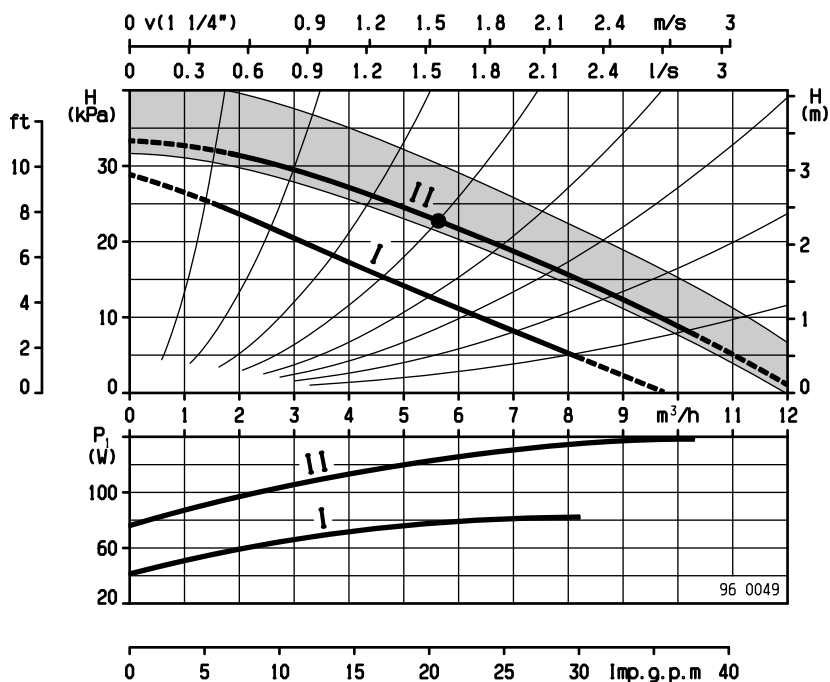
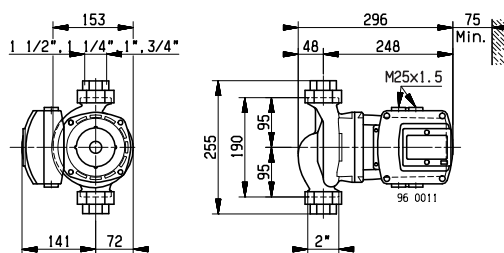
Speed	II 1350 rpm
	I 1050 rpm
Power	II 75...140 W
	I 40... 85 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	0.4 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	0.9 A	Operating capacitor 6 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	0.8 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LX 326

Installation length	190 mm
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	11.3 kg

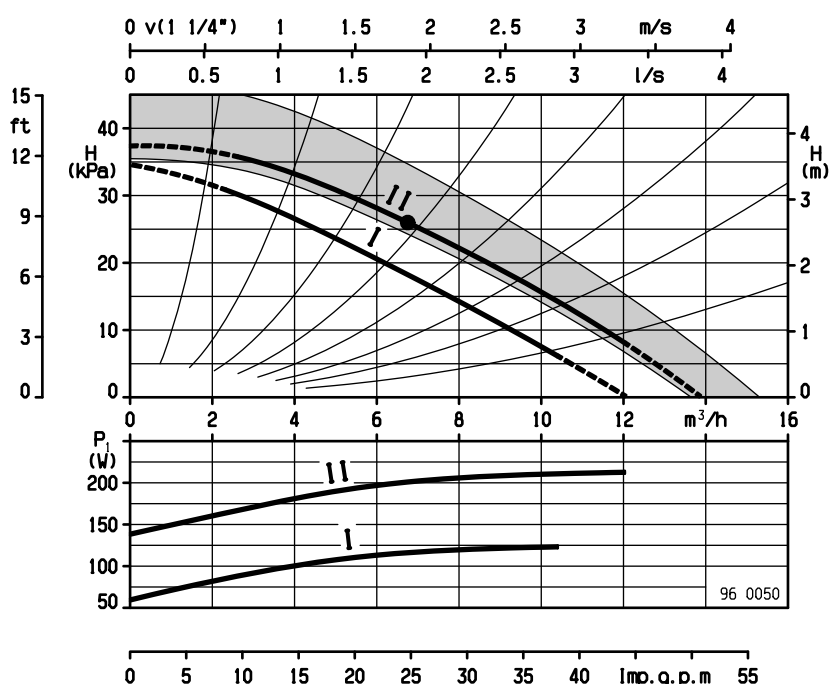
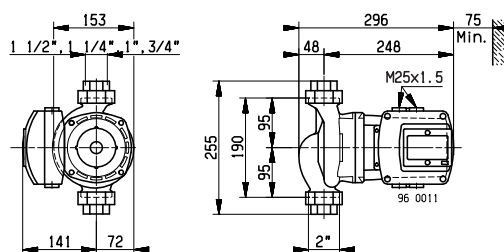
Speed	II 1400 rpm
	I 1200 rpm
Power	II 140...220 W
	I 60...120 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	0.8 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	1.7 A	Operating capacitor 12 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	1.7 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LX 401

Installation length	220 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	14.5 kg

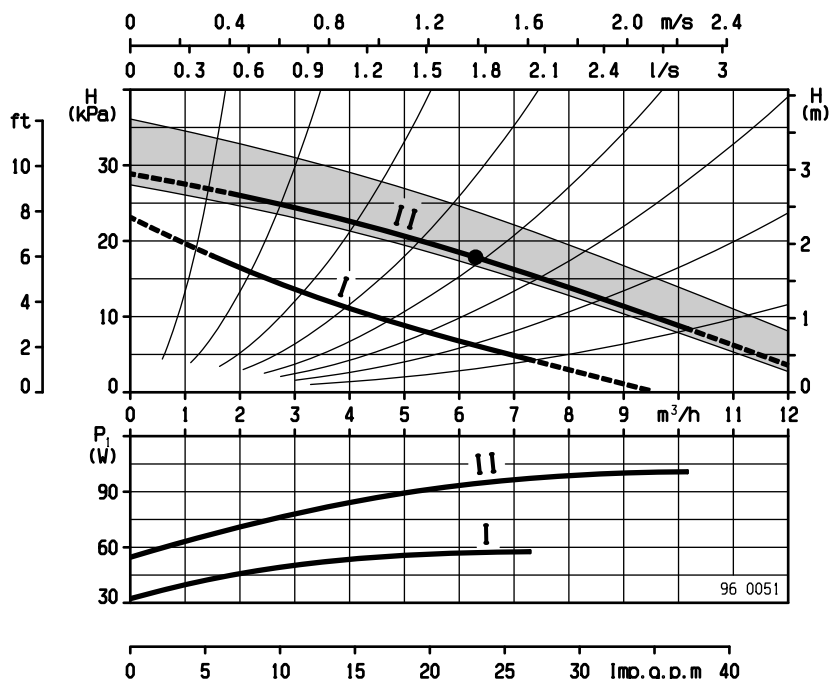
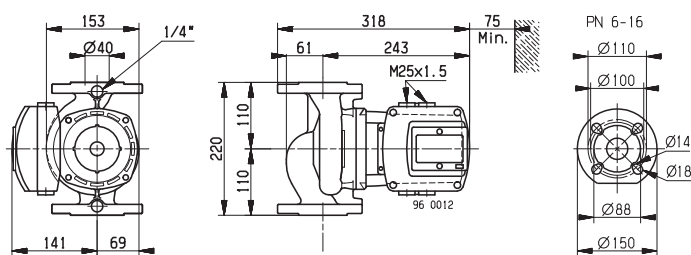
Speed	II 1250 rpm
	I 1000 rpm
Power	II 55...105 W
	I 33... 60 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	0.3 A 0.2 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	0.7 A	Operating capacitor 4 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	0.55 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LX 402

Installation length	220 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	14.5 kg

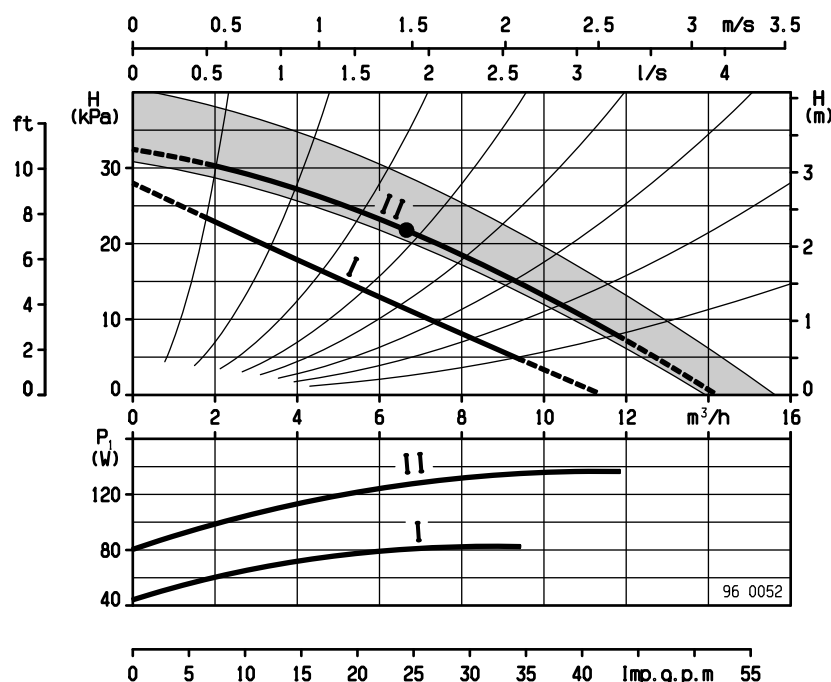
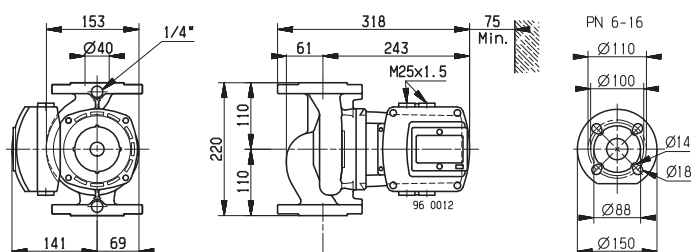
Speed	II 1350 rpm
	I 1050 rpm
Power	II 85...140 W
	I 45... 85 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	0.4 A 0.2 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	0.9 A	Operating capacitor 6 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	0.8 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LX 403

Installation length	250 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	14.5 kg

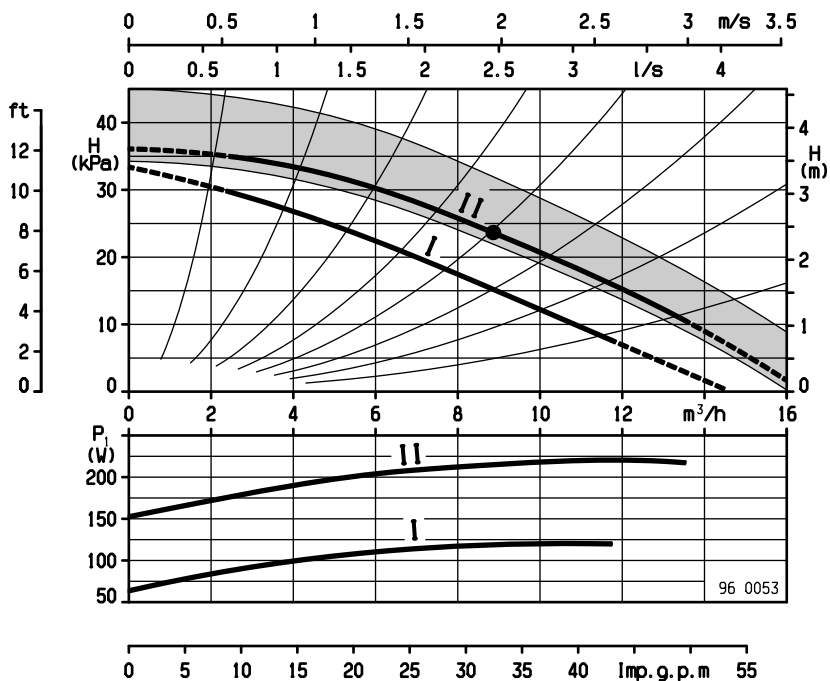
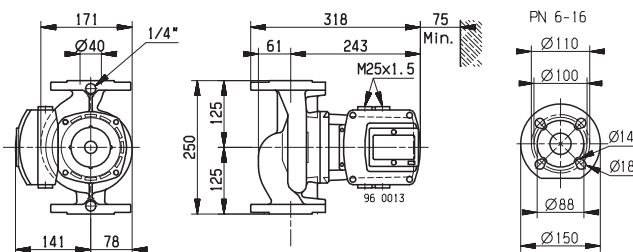
Speed	II 1400 rpm
	I 1180 rpm
Power	II 160...235 W
	I 60...120 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	0.8 A 0.3 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	1.7 A	Operating capacitor 12 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	1.7 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LX/L

LX 502

Installation length	220 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	16 kg

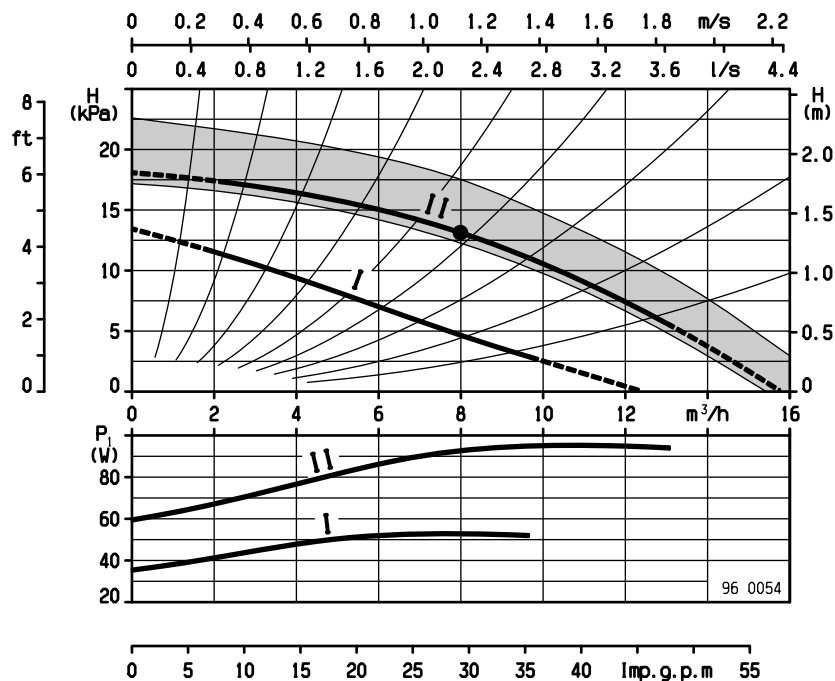
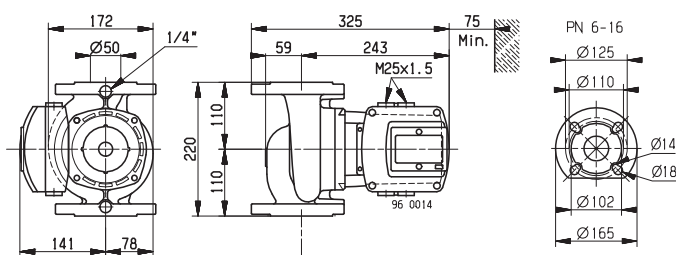
Speed	II 1250 rpm
	I 950 rpm
Power	II 60...95 W
	I 35...55 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	0.2 A 0.1 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	0.55 A	Operating capacitor 4 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	0.5 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LX 503

Installation length	270 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.2 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	19.5 kg

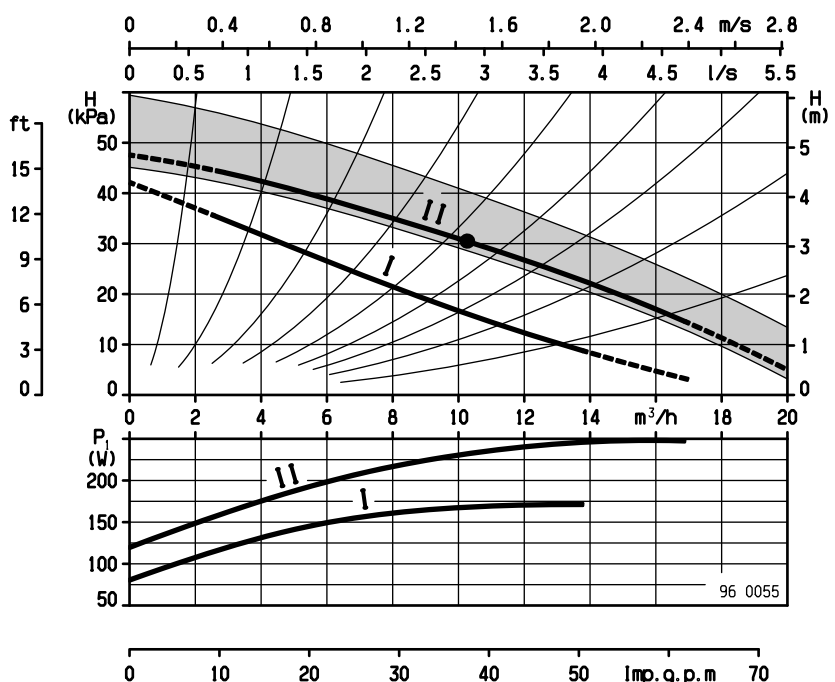
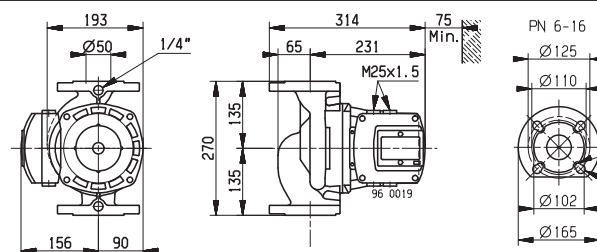
Speed	II 1350 rpm
	I 1000 rpm
Power	II 120...250 W
	I 80...170 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	0.6 A 0.3 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	1.6 A	Operating capacitor 10 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	1.2 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LX 504

Installation length	270 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.2 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	19.5 kg

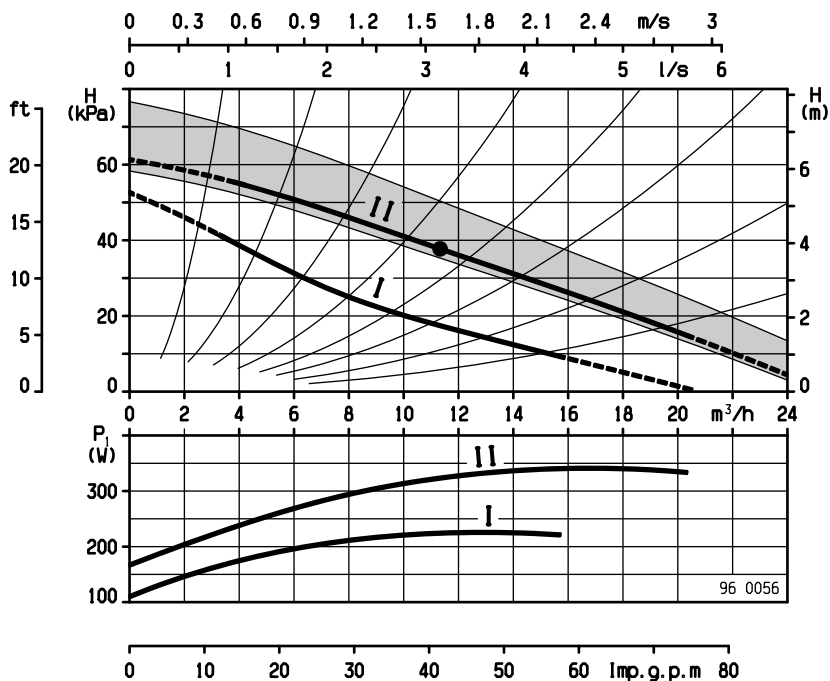
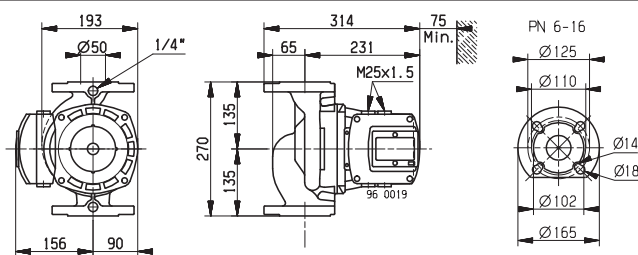
Speed	II 1350 rpm
	I 1000 rpm
Power	II 160...350 W
	I 110...230 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	0.7 A 0.4 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	1.9 A	Operating capacitor 15 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	1.5 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LX 652

Installation length	270 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.5 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	19.5 kg

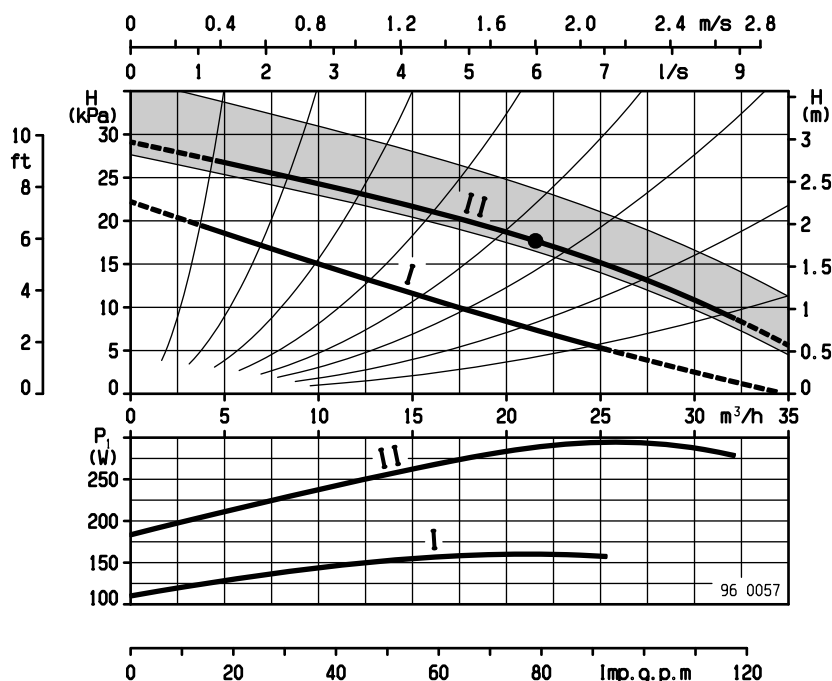
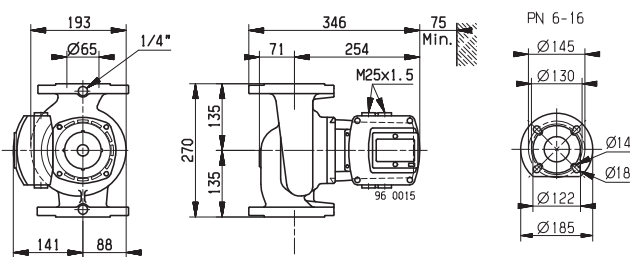
Speed	II 1280 rpm
	I 1000 rpm
Power	II 180...290 W
	I 110...165 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	0.7 A 0.35 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	1.75 A	Operating capacitor 14 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	1.6 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LX 653

Installation length	300 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.6 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	23.5 kg

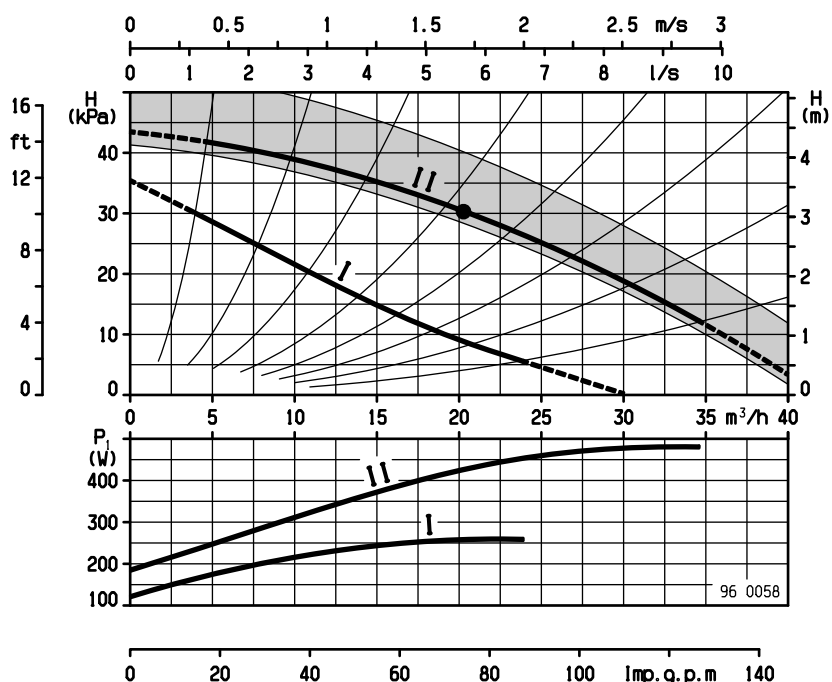
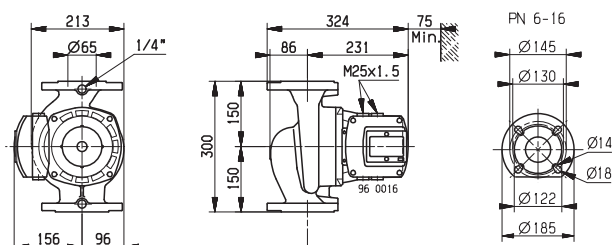
Speed	II 1250 rpm
	I 900 rpm
Power	II 180...490 W
	I 125...255 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	0.9 A 0.55 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	2.5 A	Operating capacitor 20 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	2 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LX 654

Installation length	340 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.6 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	26 kg

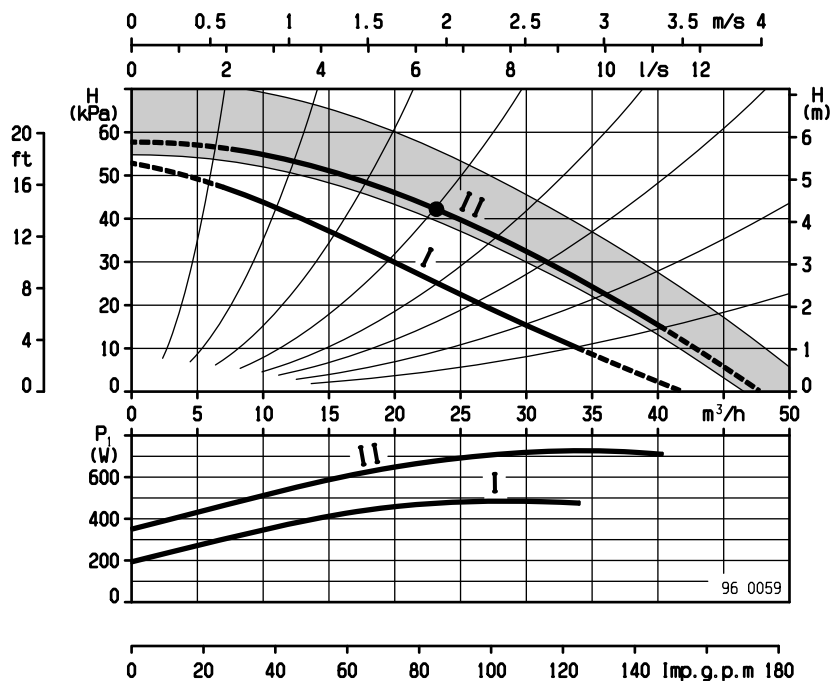
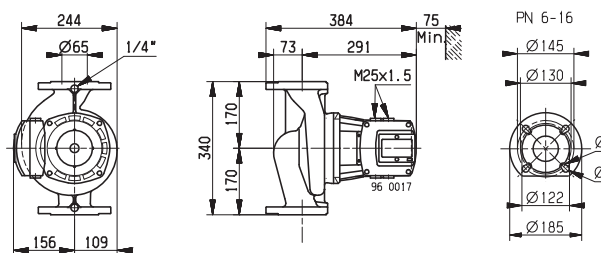
Speed	II 1390 rpm
	I 1145 rpm
Power	II 330...721 W
	I 190...500 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	1.7 A 0.9 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	4.4 A	Operating capacitor 30 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	3.8 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LX 655

Installation length	340 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.6 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	29.5 kg

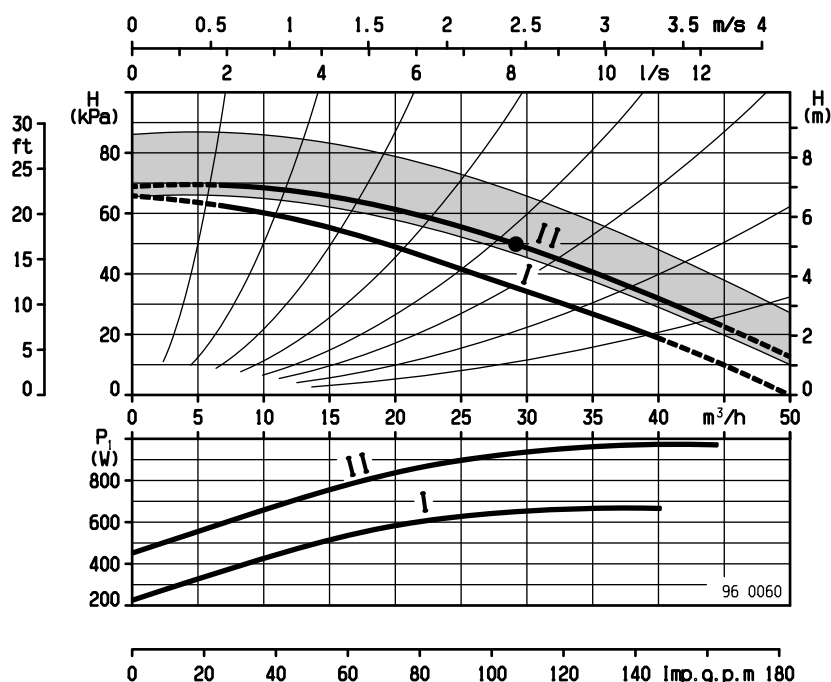
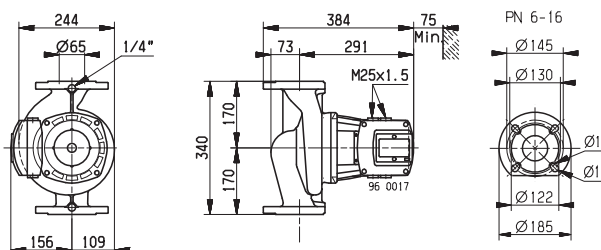
Speed	II 1420 rpm
	I 1280 rpm
Power	II 440...980 W
	I 230...685 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	2.75 A 1.3 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	7.4 A	Operating capacitor 50 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	6.8 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LX 802

Installation length	370 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.6 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	31 kg

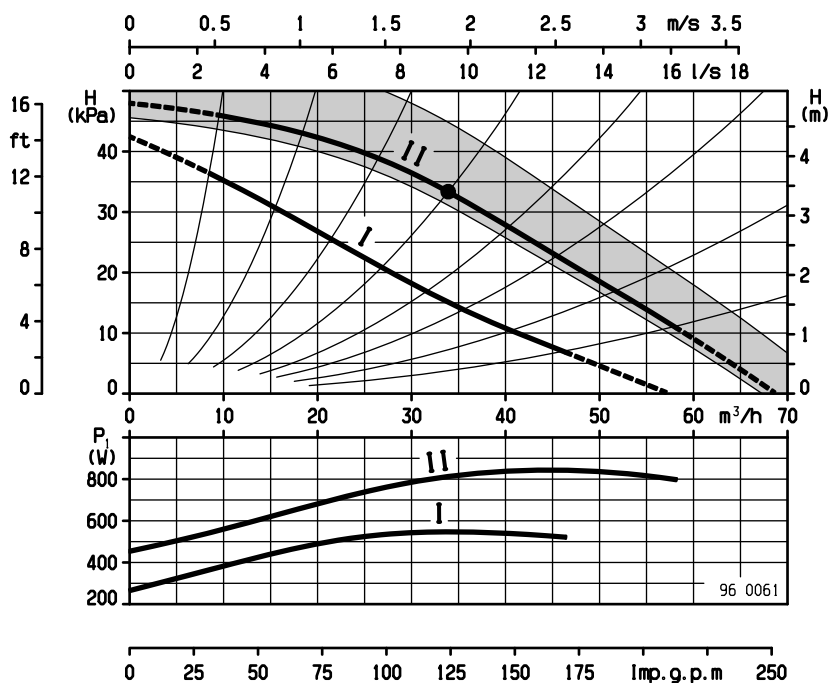
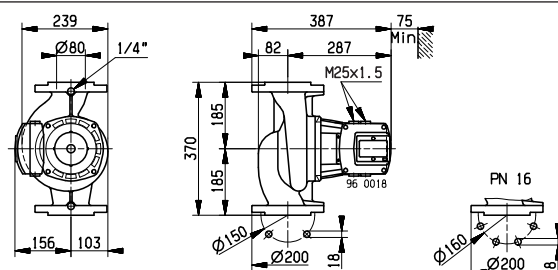
Speed	II 1350 rpm
	I 1250 rpm
Power	II 440...845 W
	I 260...560 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	1.8 A	Power I+II pluggable
	I	0.95 A	
Plug type B: 1×230 V, 50 Hz	II	4.7 A	Operating capacitor 30 µF, 280 V connect power II only
	I		
Plug type B: 3×230 V, 50 Hz	II	4 A	Connect power II only
	I		

Motor protection required

Control devices

For further information see page 69



LX 803

Installation length	370 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.6 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	31 kg

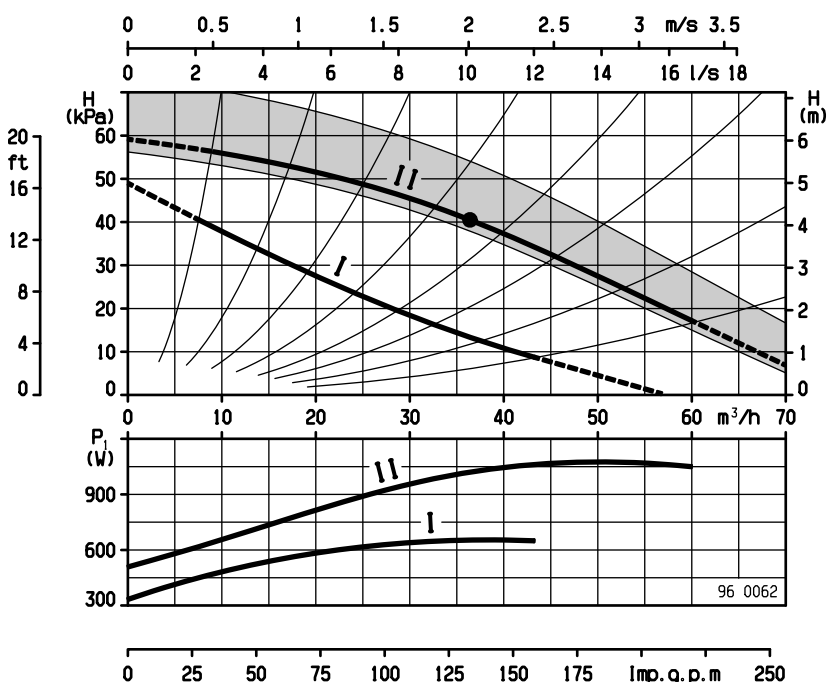
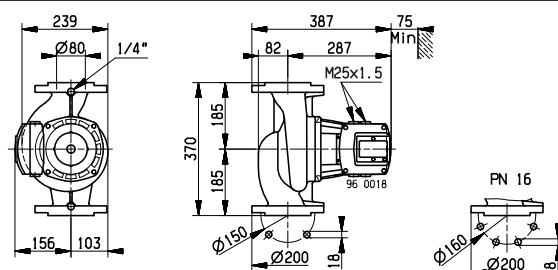
Speed	II 1300 rpm
	I 1200 rpm
Power	II 500...1100 W
	I 330... 665 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	2.1 A	Power I+II pluggable
	I	1.1 A	
Plug type B: 1×230 V, 50 Hz	II	5.3 A	Operating capacitor 50 µF, 280 V connect power II only
	I		
Plug type B: 3×230 V, 50 Hz	II	4.4 A	Connect power II only
	I		

Motor protection required

Control devices

For further information see page 69



L 804

Installation length	400 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	1.0 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	41 kg

Speed	II 1400 rpm
	I 1050 rpm
Power	II 950...1600 W
	I 680...1000 W

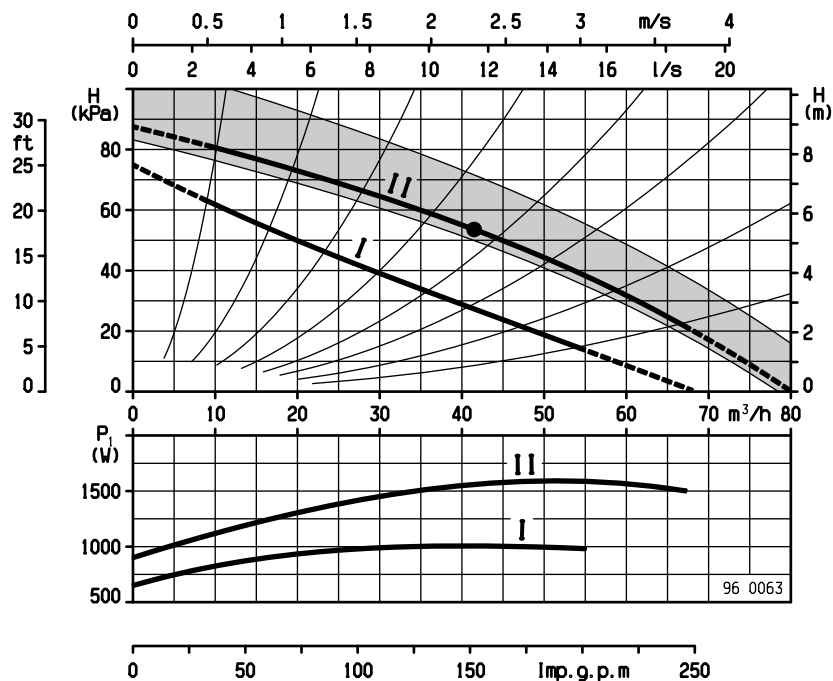
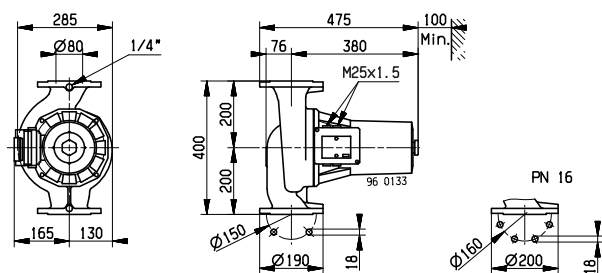
	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	4.5 A	Power I+II pluggable
	I	2.7 A	
Plug type B: 1×230 V, 50 Hz	II	9.5 A	Operating capacitor 100 µF, 280 V connect power II only
	I		
Plug type B: 3×230 V, 50 Hz	II	8.4 A	Connect power II only

Motor protection required

Only available with terminal box in position 1 or 3.

Control devices

For further information see page 69



L 805

Installation length	400 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	1.0 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	46 kg

Speed	II 1400 rpm
	I 1050 rpm
Power	II 1050...1750 W
	I 780...1250 W

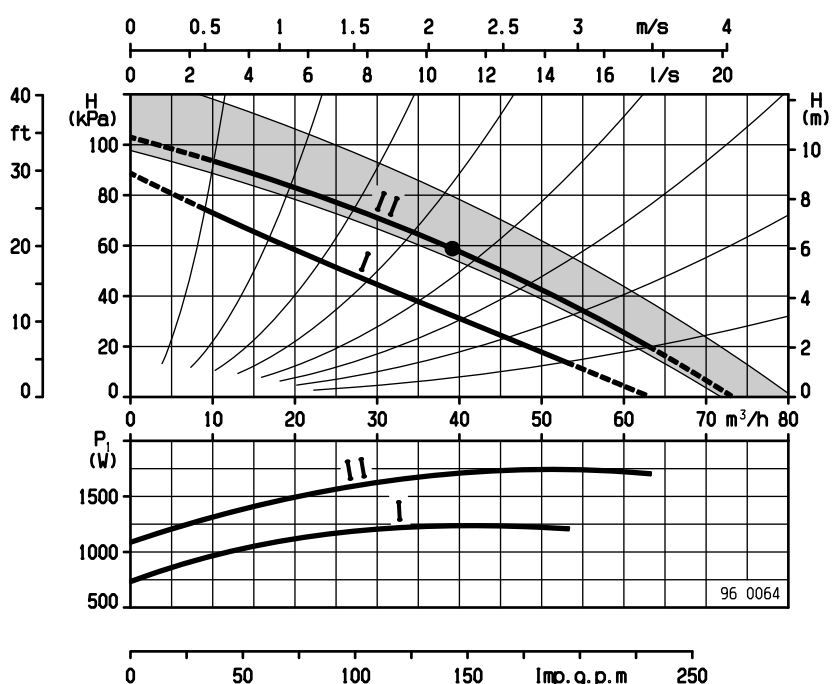
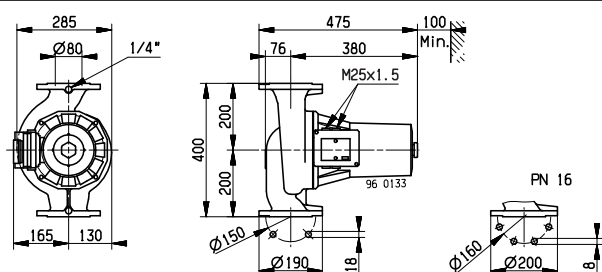
	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	5 A	Power I+II pluggable
	I	3 A	
Plug type B: 1×230 V, 50 Hz	II	11 A	Operating capacitor 100 µF, 280 V connect power II only
	I		
Plug type B: 3×230 V, 50 Hz	II	9.3 A	Connect power II only

Motor protection required

Only available with terminal box in position 1 or 3.

Control devices

For further information see page 69



L 1001

Installation length	450 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	1.0 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	54 kg

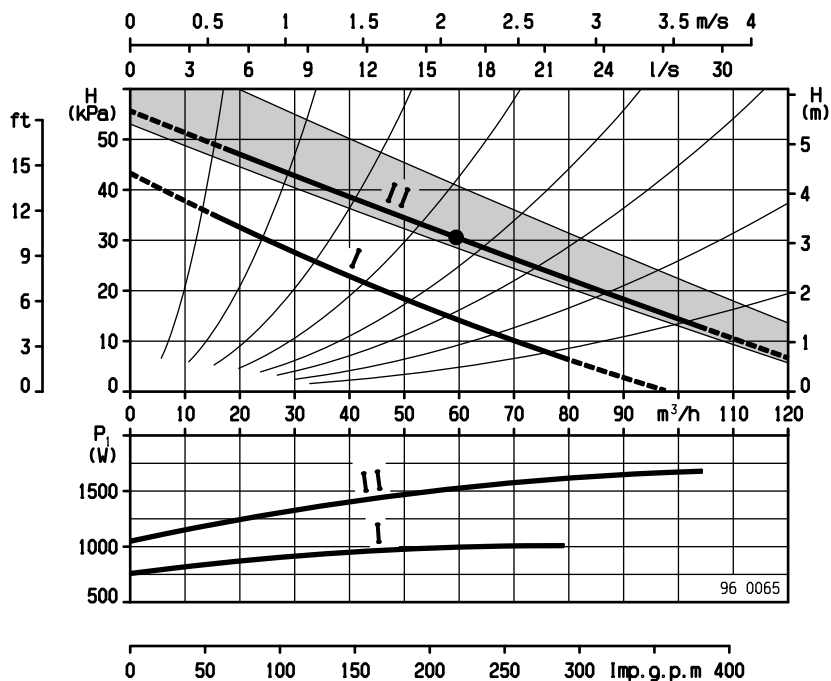
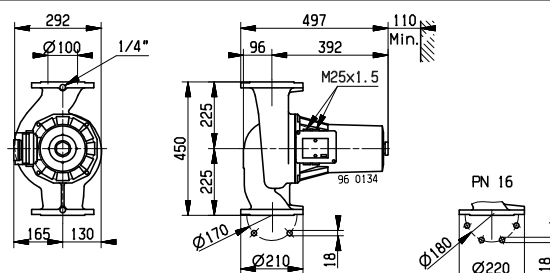
Speed	II 1400 rpm
	I 1050 rpm
Power	II 1100...1650 W
	I 780...1000 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	4.5 A	Power I+II pluggable
	I	2.7 A	
Plug type B: 3×230 V, 50 Hz	II	8.4 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



L 1002

Installation length	450 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	1.75 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	65 kg

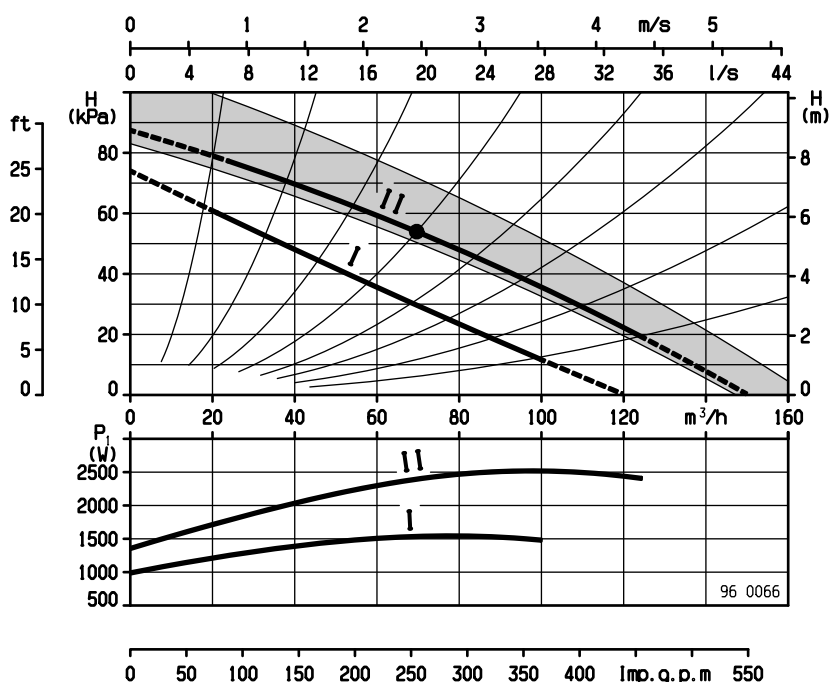
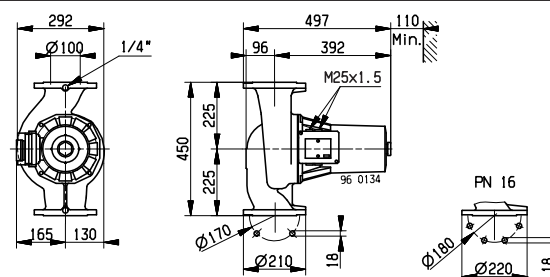
Speed	II 1400 rpm
	I 1050 rpm
Power	II 1380...2500 W
	I 1010...1500 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	6.5 A	Power I+II pluggable
	I	4 A	
Plug type B: 3×230 V, 50 Hz	II	12 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



L 1003

Installation length	450 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	1.75 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	65 kg

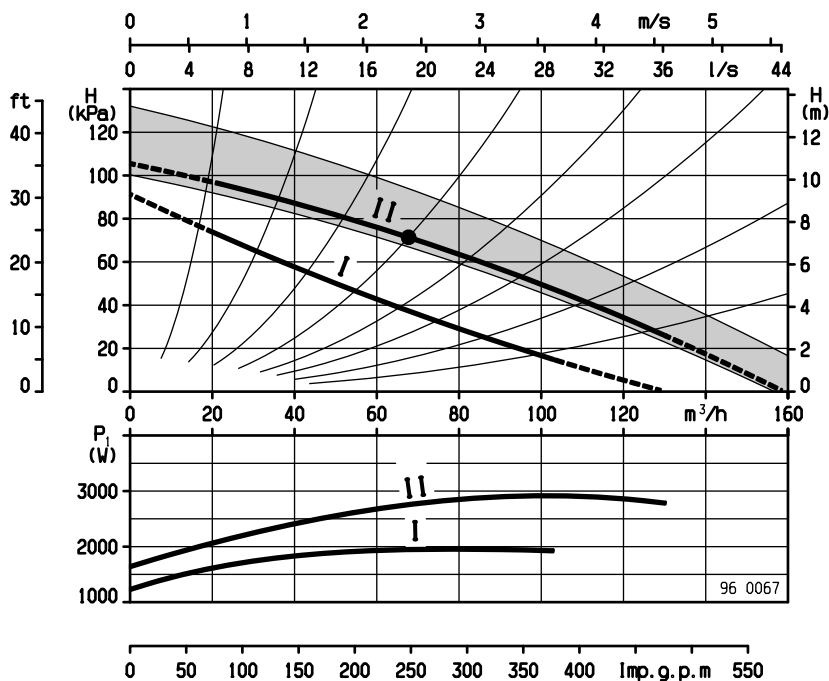
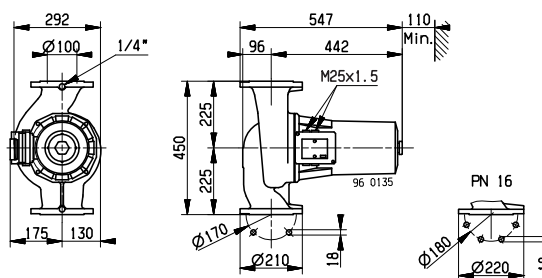
Speed	II 1400 rpm
	I 1050 rpm
Power	II 1630...2800 W
	I 1250...1850 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	9 A	Power I+II pluggable
	I	6 A	
Plug type B: 3×230 V, 50 Hz	II	17 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



L 1004

Installation length	450 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	1.75 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	65 kg

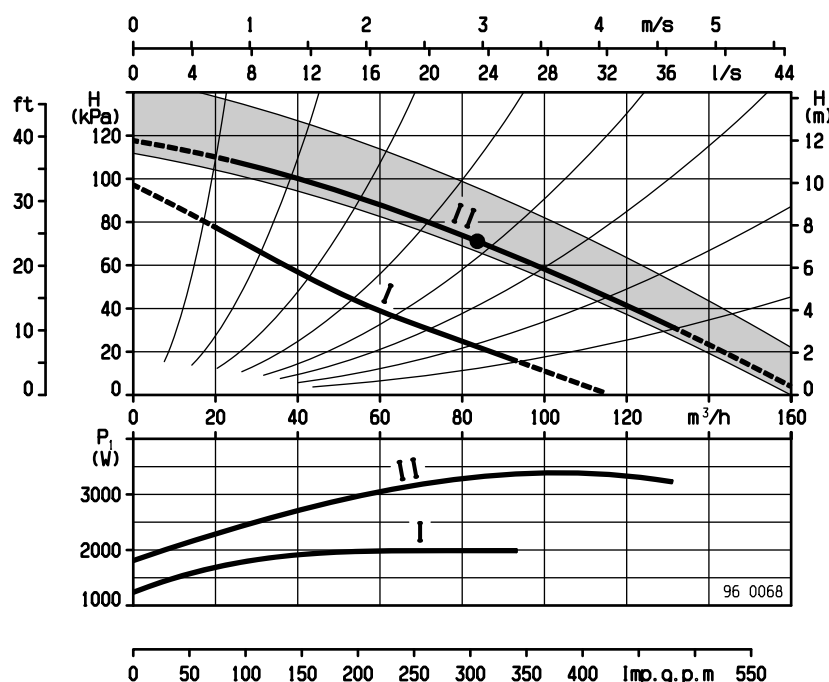
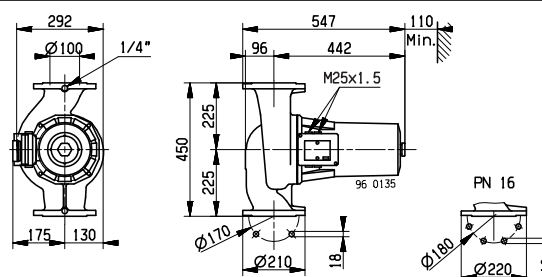
Speed	II 1400 rpm
	I 1050 rpm
Power	II 1840...3300 W
	I 1410...2000 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	9 A	Power I+II pluggable
	I	6 A	
Plug type B: 3×230 V, 50 Hz	II	17 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



Heating circulators Twin pumps

Models:

LXD/LD

Low-speed pumps with 2 speeds

3×400 V

1×230 V

3×230 V

List of models

- Standard design
- Special design

Observe regulations:

e. g. DIN 2401:

GG cast iron 120°C = 10 bar

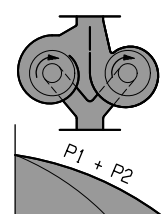
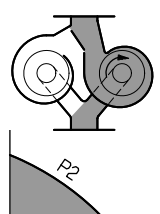
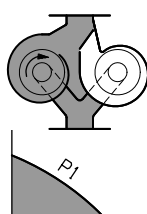
> 120°C = 8 bar

Further standards:

e. g. DIN 4752

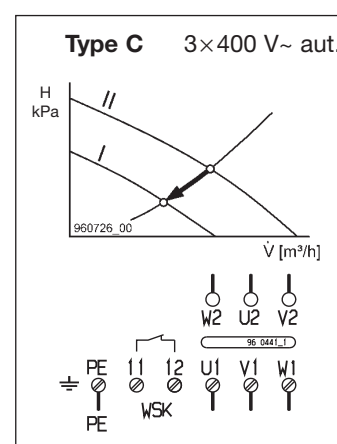
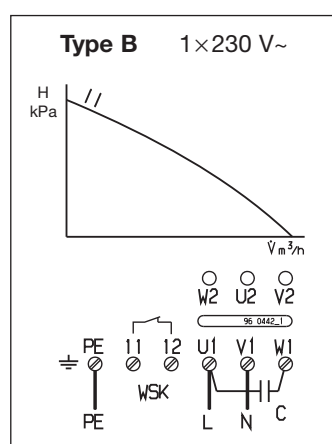
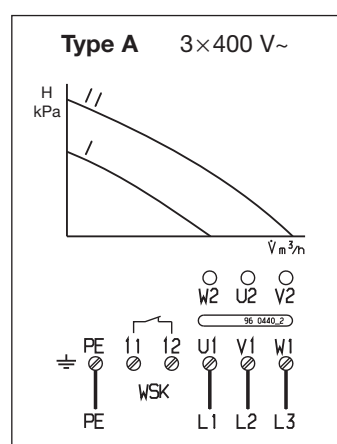
DN	Installation dimensions	Type	PN6	PN10	PN6-16	PN16	Label
32	2"×190 mm	LXD 321 3~, LXD 321 1~		●			C
		LXD 322 3~, LXD 322 1~		●			C
		LXD 323 3~, LXD 323 1~		●			D
40	Ø 40×220 mm	LXD 401, LXD 402			●		C, D
	Ø 40×250 mm	LXD 403			●		D
50	Ø 50×270 mm	LXD 503, LXD 504			●		C
65	Ø 65×300 mm	LXD 653			●		D
	Ø 65×340 mm	LXD 654, LXD 655			●		D
80	Ø 80×370 mm	LXD 802, LXD 803	●			○	D
	Ø 80×400 mm	LD 804, LD 805	●			○	D
100	Ø 100×450 mm	LD 1001, LD 1002	●			○	D
		LD 1003, LD 1004	●			○	D

Functional description



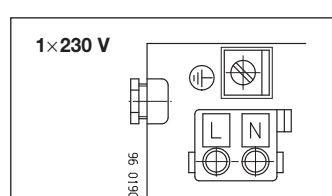
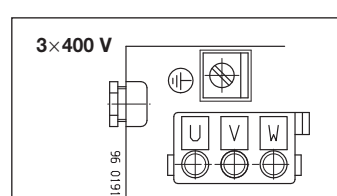
Electrical connection

for pumps with Polycrom motor
from LXD 401

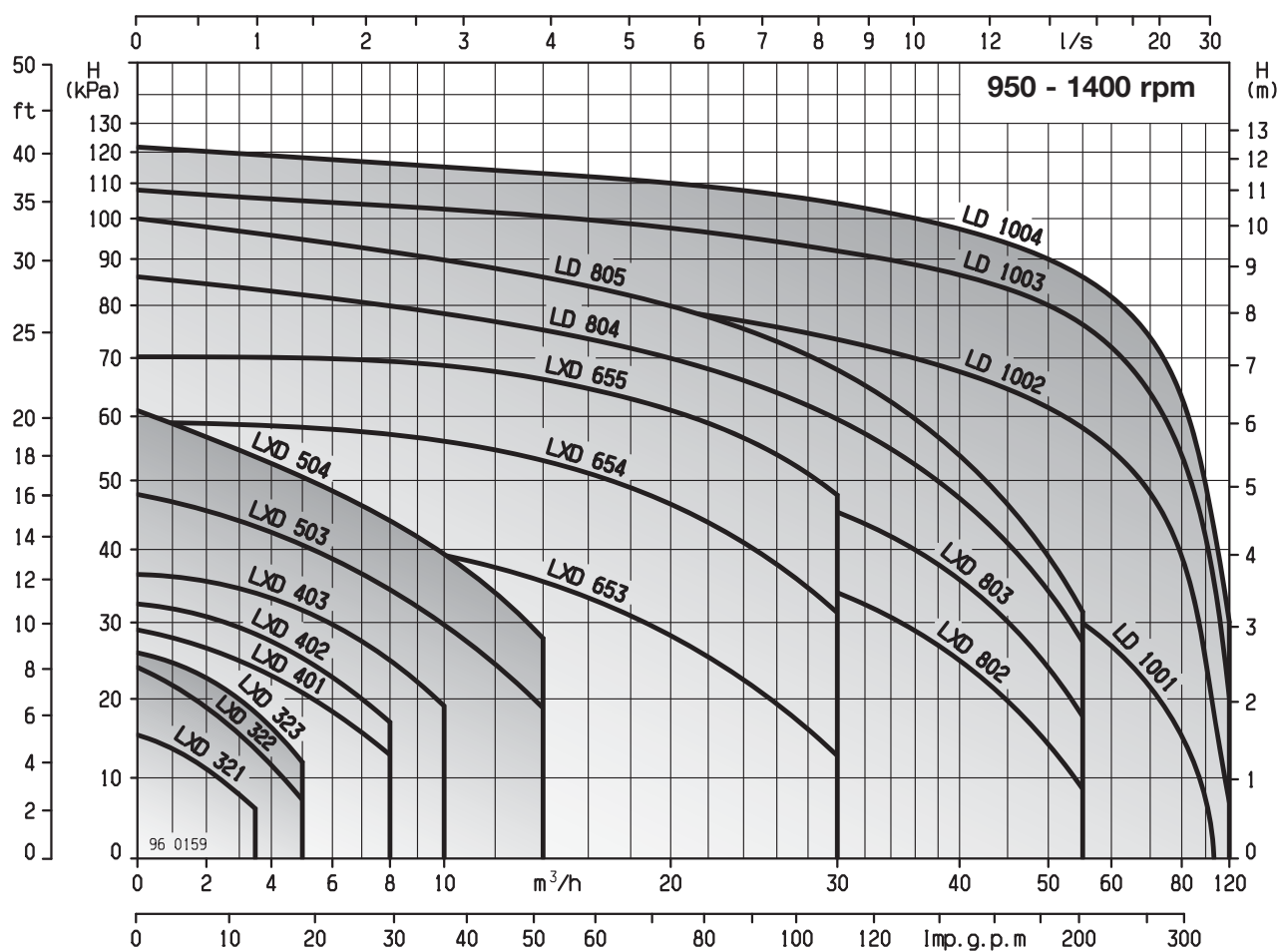


Electrical connection

for pumps LXD 321...323



The control device
suitable for the pump:
see page 69



LXD 321 3×400 V

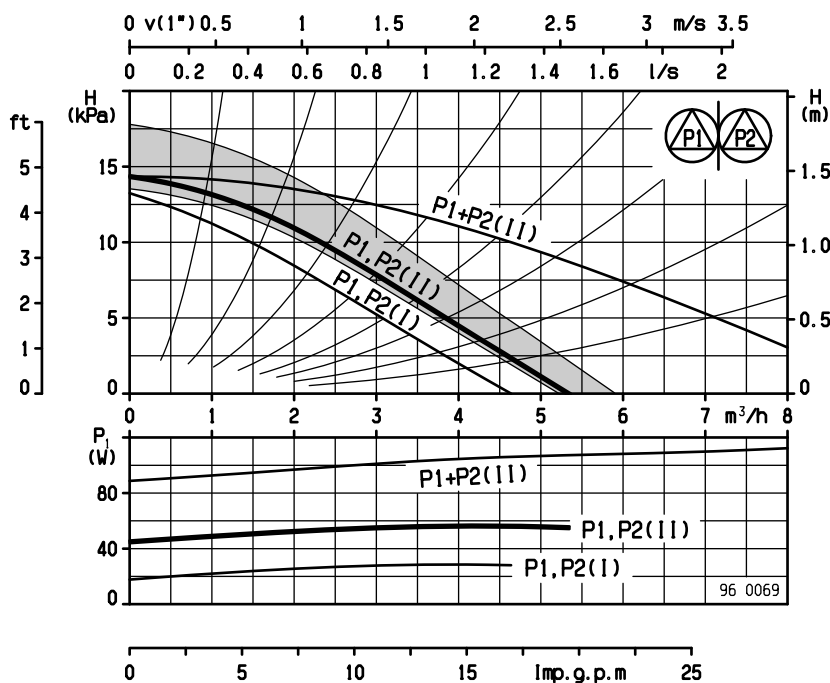
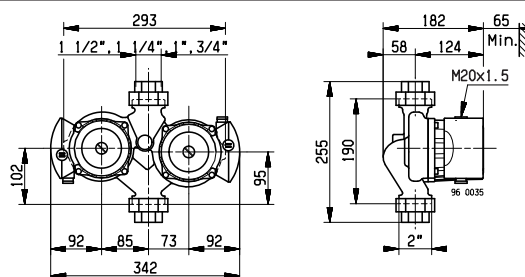
Installation length	190 mm
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +110°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.5 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	11.5 kg

Voltage	3×400 V, 50 Hz
Speed	II 1400 rpm I 1250 rpm
Current	II 0.16 A I 0.06 A
Power	II 45...59 W I 16...31 W

The motor is short-circuit proof and requires no overload protection.

Control devices

For further information see page 69



LXD 321 1×230 V

Installation length	190 mm
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +110°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.5 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	11.5 kg

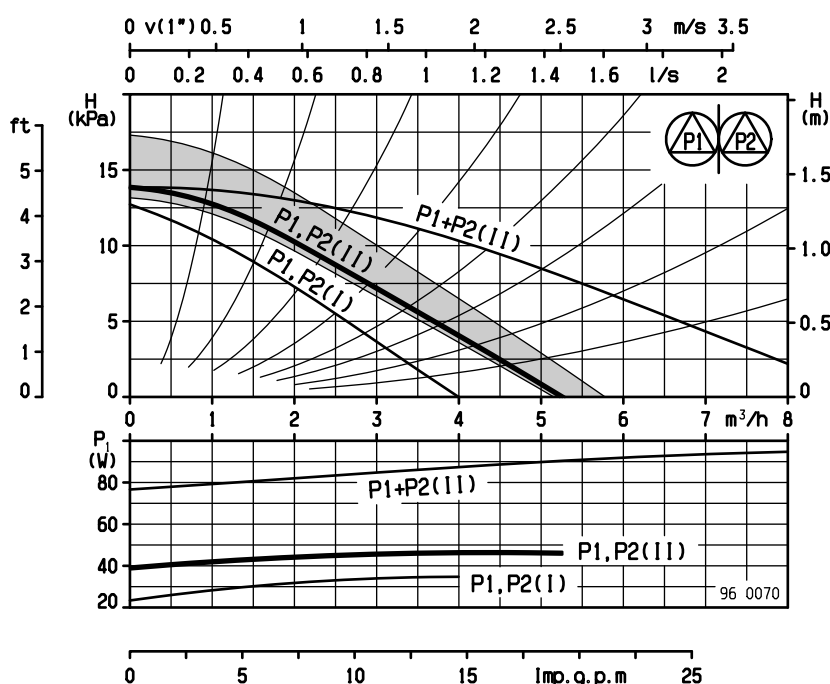
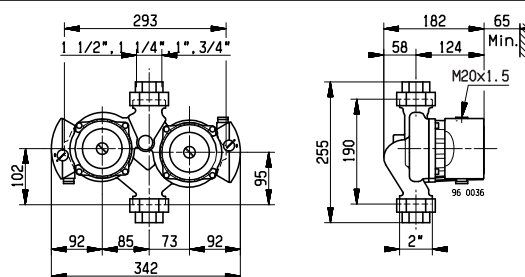
Voltage	1×230 V, 50 Hz
Speed	II 1350 rpm I 1230 rpm
Current	II 0.22 A I 0.18 A
Power	II 37...50 W I 22...37 W

Capacitor built in 1.5 µF, 400 V

The motor is short-circuit proof and requires no overload protection.

Control devices

For further information see page 69



LXD 322 3×400 V

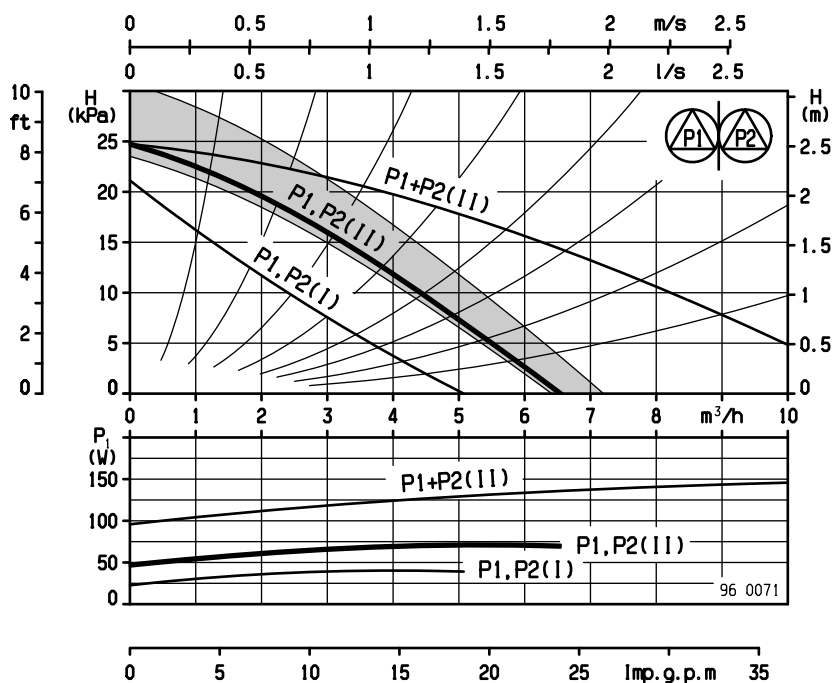
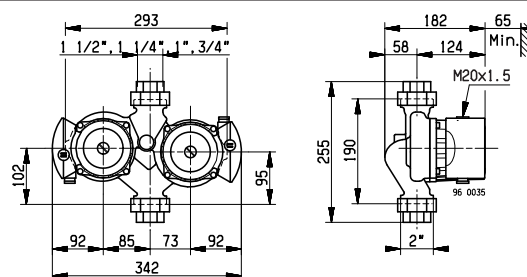
Installation length	190 mm
Permissible operating pressure	10 bar
Permissible operating temp.	−20°C to +110°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.5 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	11.5 kg

Voltage	3×400 V, 50 Hz
Speed	II 1340 rpm I 1090 rpm
Current	II 0.17 A I 0.07 A
Power	II 50...76 W I 23...40 W

The motor is short-circuit proof and requires no overload protection.

Control devices

For further information see page 69



LXD 322 1×230 V

Installation length	190 mm
Permissible operating pressure	10 bar
Permissible operating temp.	−20°C to +110°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.5 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	11.5 kg

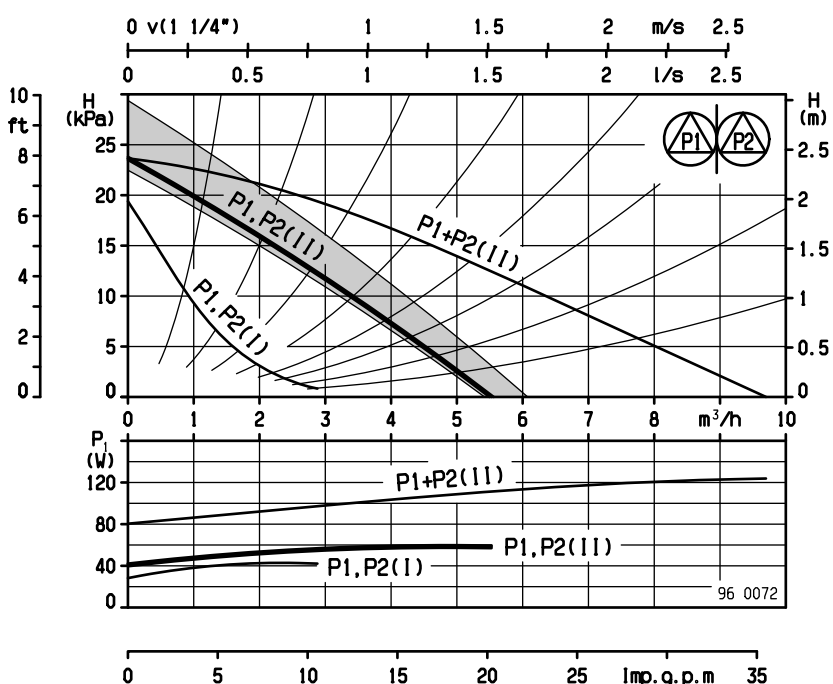
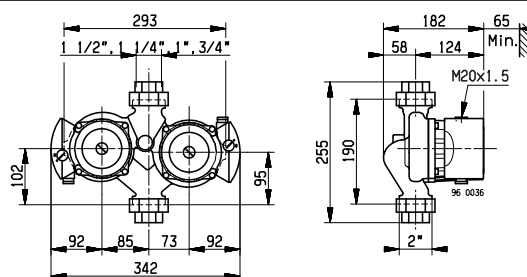
Voltage	1×230 V, 50 Hz
Speed	II 1250 rpm I 1080 rpm
Current	II 0.3 A I 0.2 A
Power	II 47...64 W I 28...43 W

Capacitor built in 2.2 µF, 400 V

The motor is short-circuit proof and requires no overload protection.

Control devices

For further information see page 69



LXD 323 3×400 V

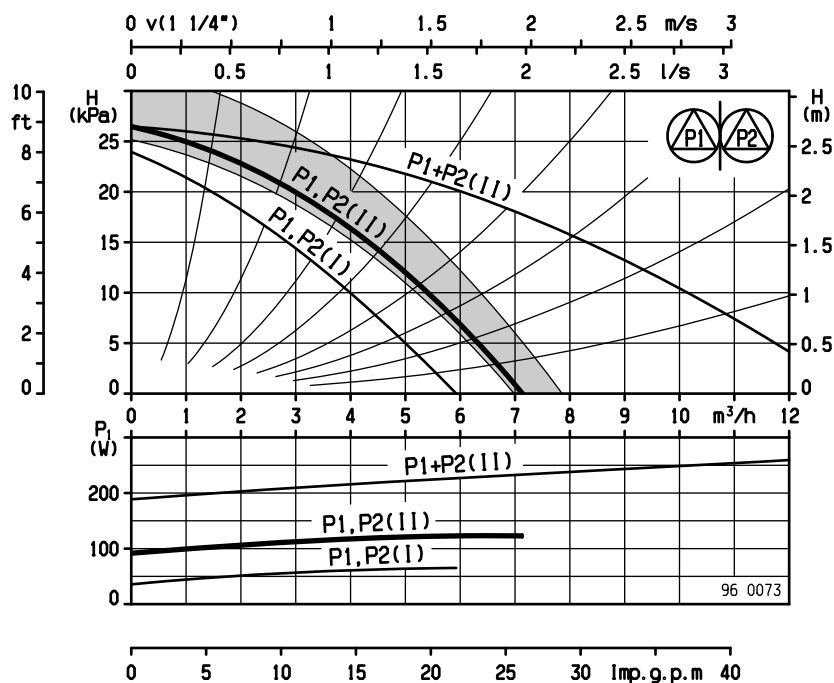
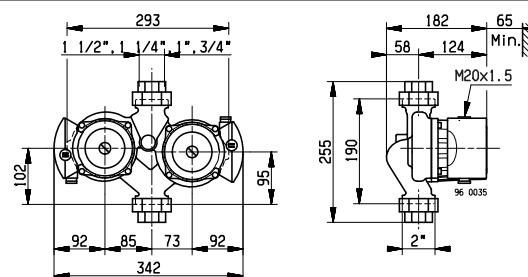
Installation length	190 mm
Permissible operating pressure	10 bar
Permissible operating temp.	−20°C to +110°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.5 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	11.5 kg

Voltage	3×400 V, 50 Hz
Speed	II 1380 rpm I 1220 rpm
Current	II 0.28 A I 0.12 A
Power	II 80...114 W I 31... 62 W

The motor is short-circuit proof and requires no overload protection.

Control devices

For further information see page 69



LXD 323 1×230 V

Installation length	190 mm
Permissible operating pressure	10 bar
Permissible operating temp.	−20°C to +110°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.5 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	11.5 kg

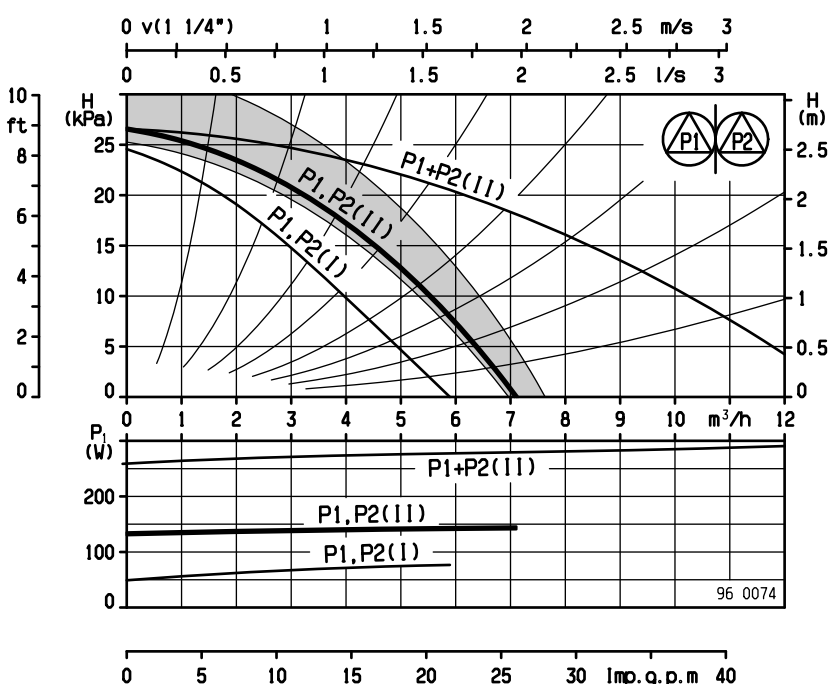
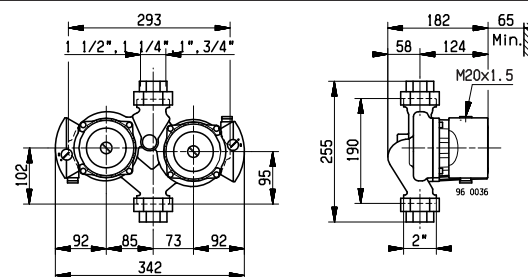
Voltage	1×230 V, 50 Hz
Speed	II 1380 rpm I 1080 rpm
Current	II 0.65 A I 0.37 A
Power	II 137...145 W I 52... 80 W

Capacitor built in 5 µF, 400 V

The motor is short-circuit proof and requires no overload protection.

Control devices

For further information see page 69



LXD 401

Installation length	220 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at at 75°C water temperature	500 m a.s.l. 0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	25 kg

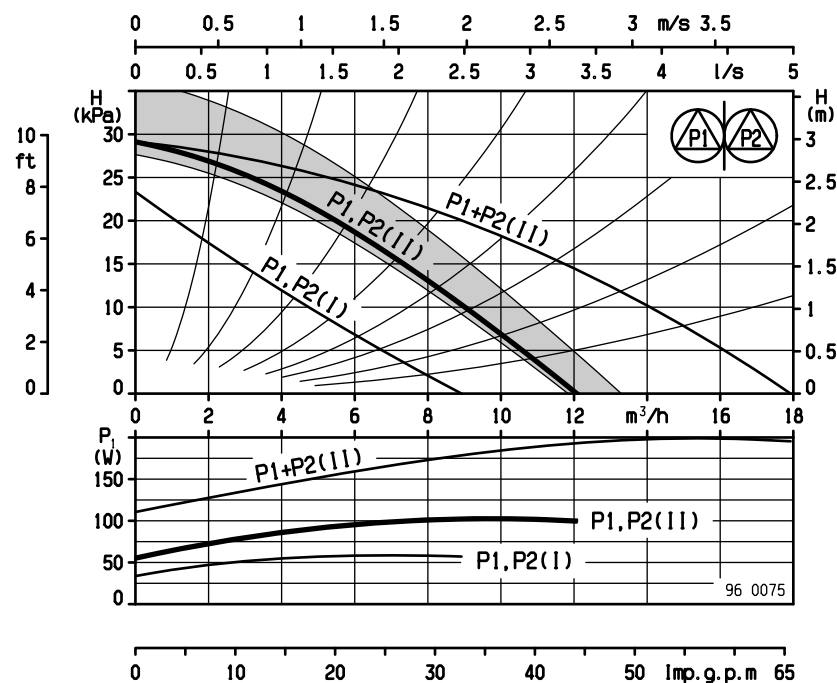
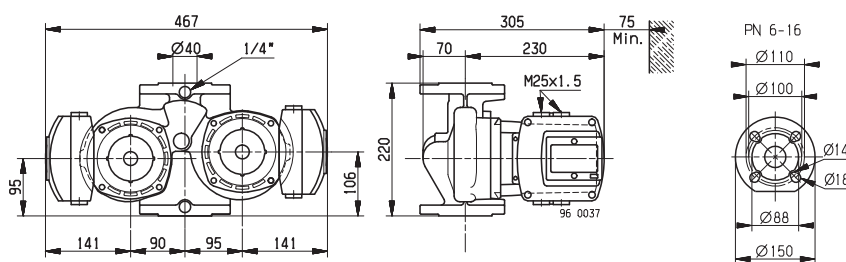
Speed	II	1250 rpm
	I	1000 rpm
Power	II	55...105 W
	I	33... 60 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	0.3 A 0.2 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	0.7 A	Operating capacitor 4 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	0.55 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LXD 402

Installation length	220 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at at 75°C water temperature	500 m a.s.l. 0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	25 kg

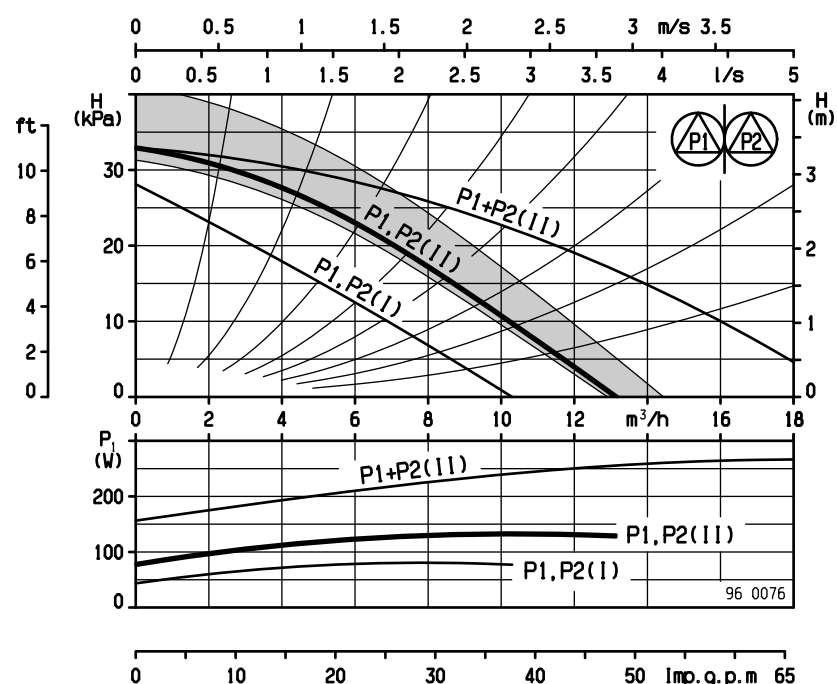
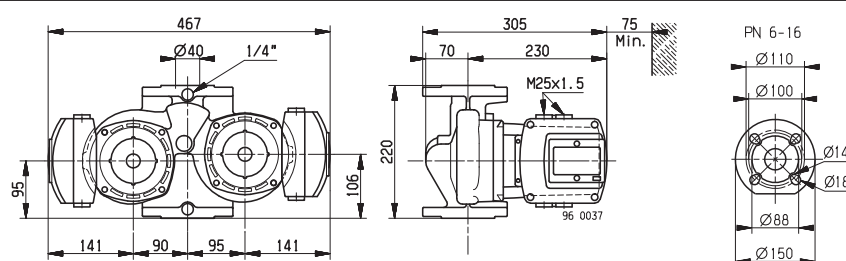
Speed	II	1350 rpm
	I	1050 rpm
Power	II	85...140 W
	I	45... 85 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	0.4 A 0.2 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	0.9 A	Operating capacitor 6 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	0.8 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LXD 403

Installation length	250 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ± 100 m altitude	± 0.01 bar
Weight	28 kg

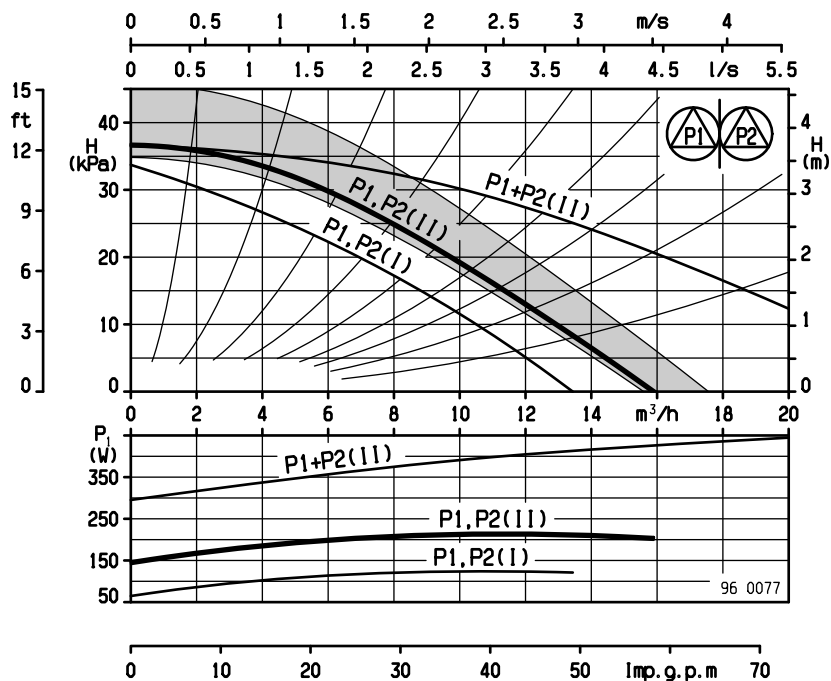
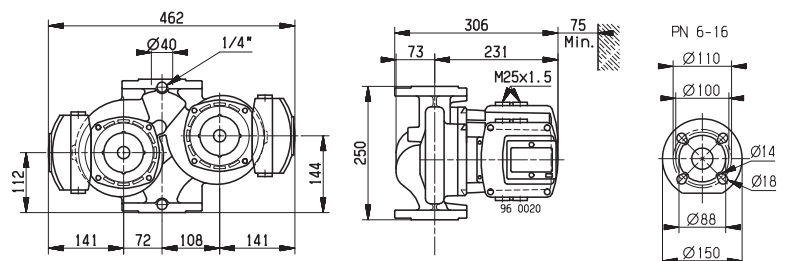
Speed	II 1400 rpm
	I 1180 rpm
Power	II 160...235 W
	I 60...120 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	0.8 A	Power I+II pluggable
	I	0.3 A	
Plug type B: 1×230 V, 50 Hz	II	1.7 A	Operating capacitor 12 μ F, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	1.7 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LXD 503

Installation length	270 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.2 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	38 kg

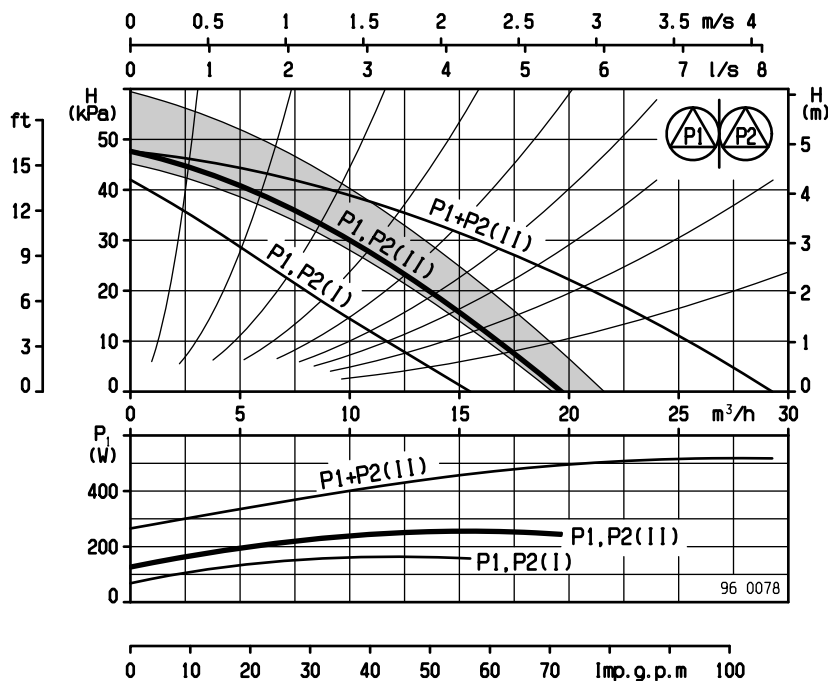
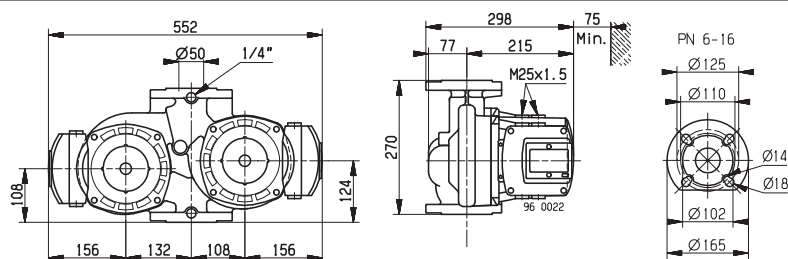
Speed	II 1350 rpm
	I 1000 rpm
Power	II 120...250 W
	I 80...170 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	0.6 A 0.3 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	1.6 A	Operating capacitor 10 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	1.2 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LXD 504

Installation length	270 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.2 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	38 kg

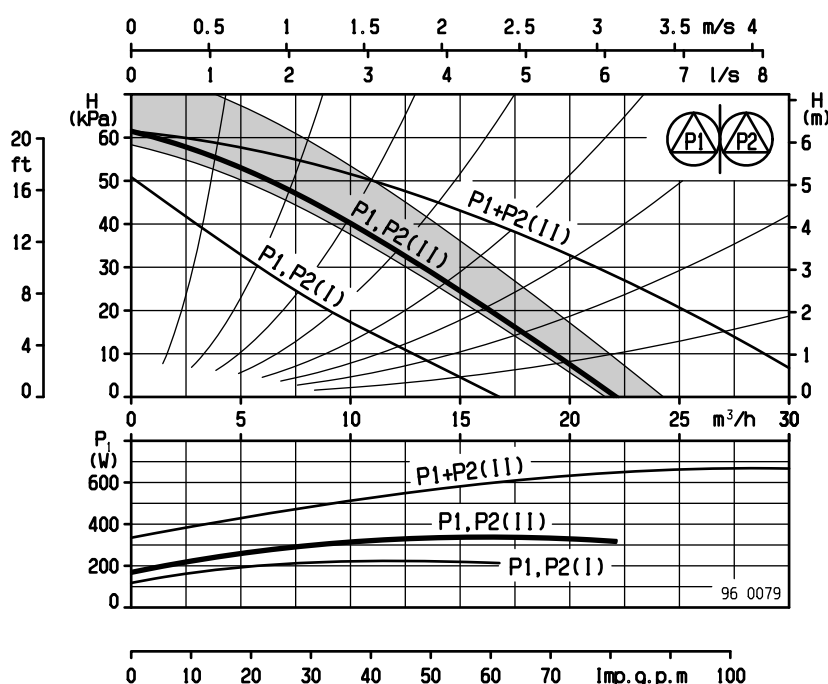
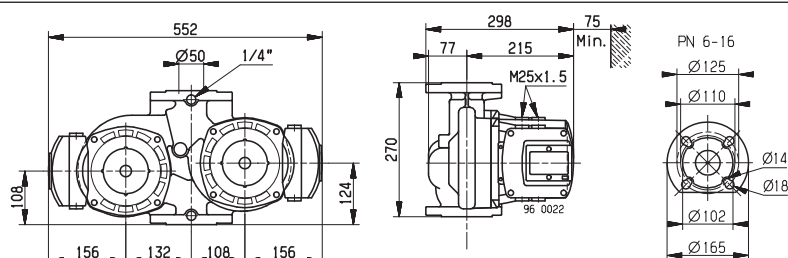
Speed	II 1350 rpm
	I 1000 rpm
Power	II 160...350 W
	I 110...230 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	0.7 A 0.4 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	1.9 A	Operating capacitor 15 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	1.5 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LXD 653

Installation length	300 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.6 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	43 kg

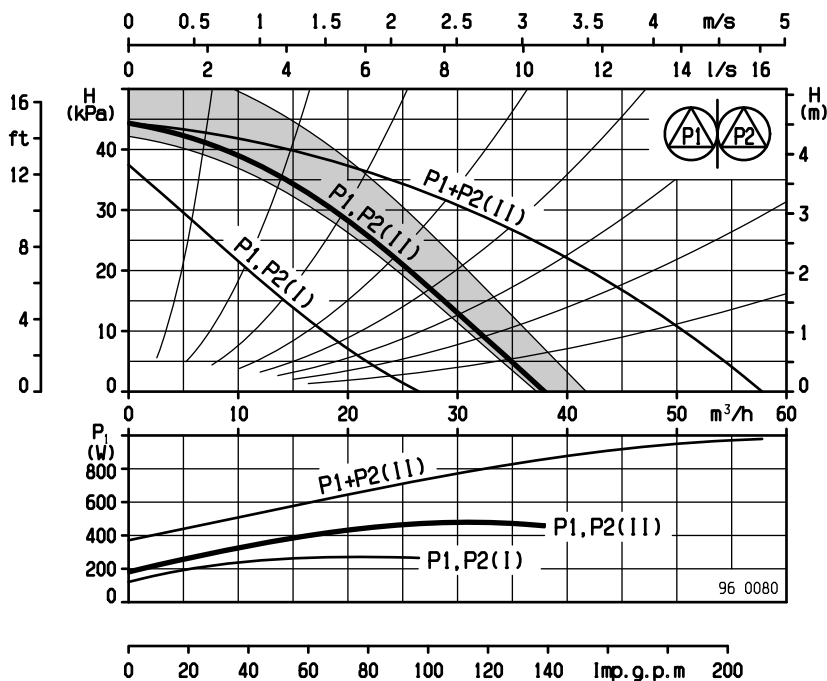
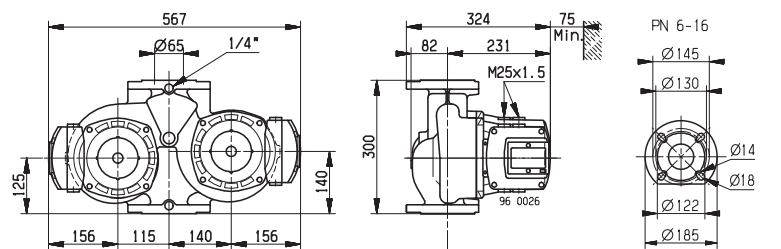
Speed	II 1250 rpm
	I 900 rpm
Power	II 180...490 W
	I 125...255 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	0.9 A 0.55 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	2.5 A	Operating capacitor 20 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	2 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LXD 654

Installation length	340 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.6 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	51 kg

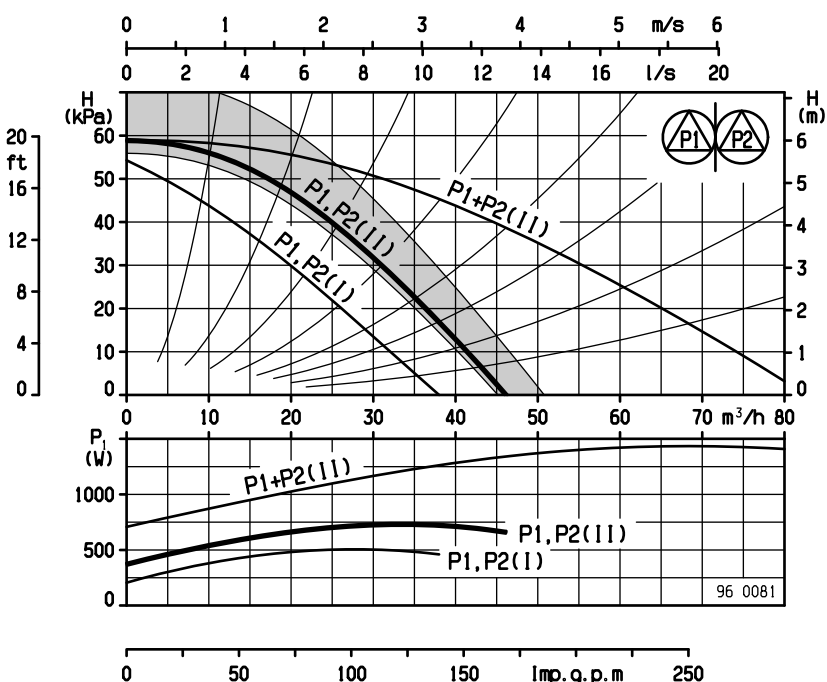
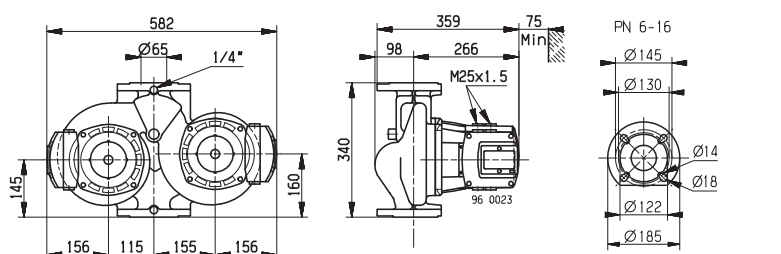
Speed	II 1390 rpm
	I 1145 rpm
Power	II 330...721 W
	I 190...500 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	1.7 A 0.9 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	4.4 A	Operating capacitor 30 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	3.8 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LXD 655

Installation length	340 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	0.6 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	56 kg

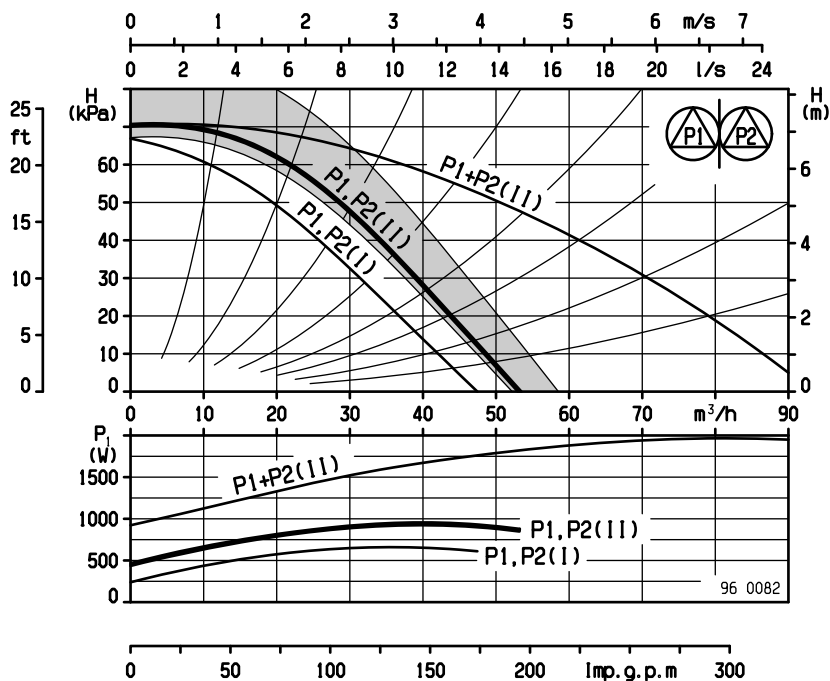
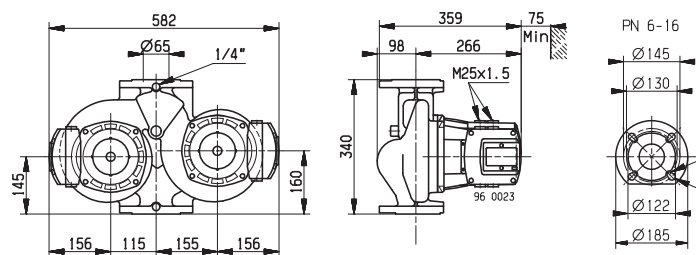
Speed	II 1420 rpm
	I 1280 rpm
Power	II 440...980 W
	I 230...685 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	2.75 A 1.3 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	7.4 A	Operating capacitor 50 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	6.8 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LXD 802

Installation length	370 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.6 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	58 kg

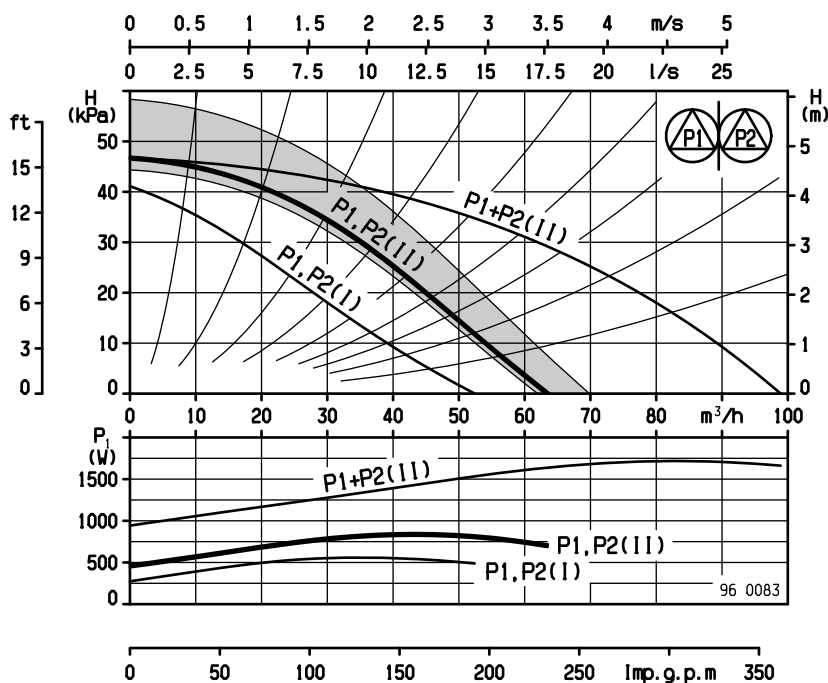
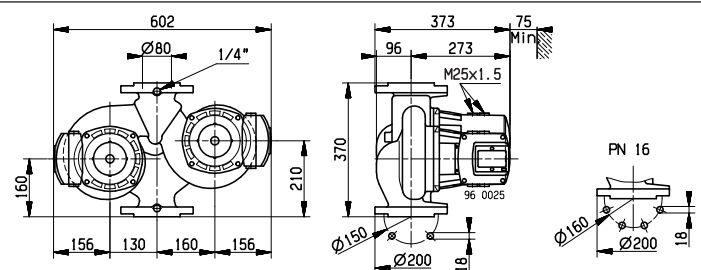
Speed	II 1350 rpm
	I 1250 rpm
Power	II 440...845 W
	I 260...560 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	1.8 A	Power I+II pluggable
	I	0.95 A	
Plug type B: 1×230 V, 50 Hz	II	4.7 A	Operating capacitor 30 µF, 280 V connect power II only
	I		
Plug type B: 3×230 V, 50 Hz	II	4 A	Connect power II only
	I		

Motor protection required

Control devices

For further information see page 69



LXD 803

Installation length	370 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.6 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	58 kg

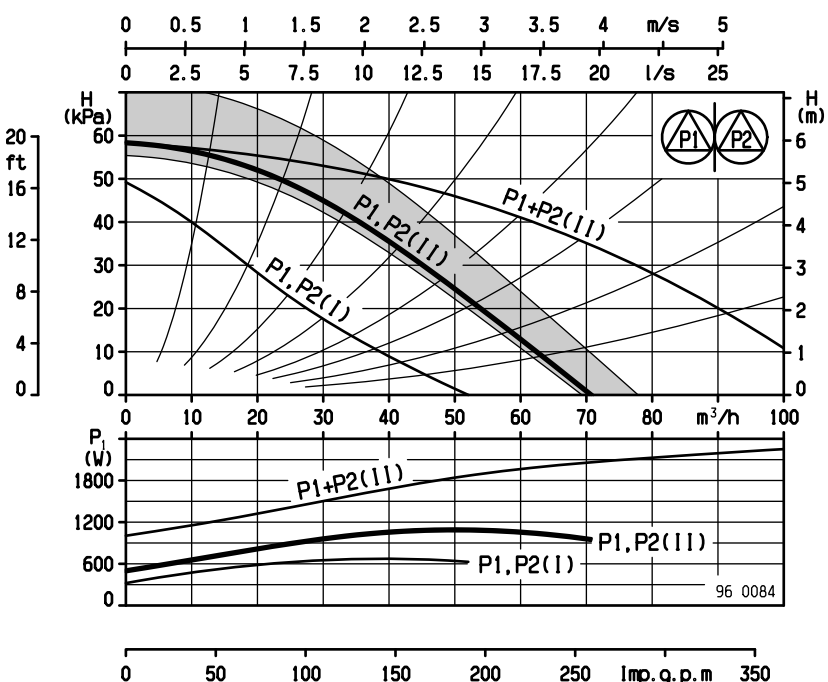
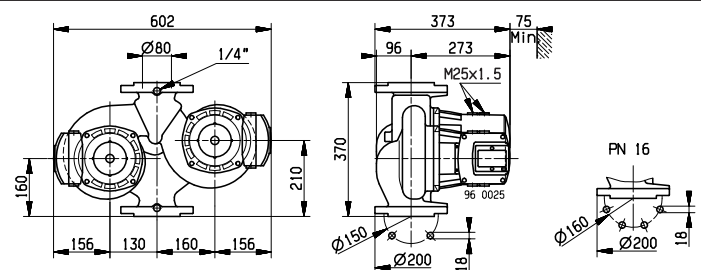
Speed	II 1300 rpm
	I 1200 rpm
Power	II 500...1100 W
	I 330... 665 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	2.1 A	Power I+II pluggable
	I	1.1 A	
Plug type B: 1×230 V, 50 Hz	II	5.3 A	Operating capacitor 50 µF, 280 V connect power II only
	I		
Plug type B: 3×230 V, 50 Hz	II	4.4 A	Connect power II only
	I		

Motor protection required

Control devices

For further information see page 69



LD 804

Installation length	400 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	1.0 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	74 kg

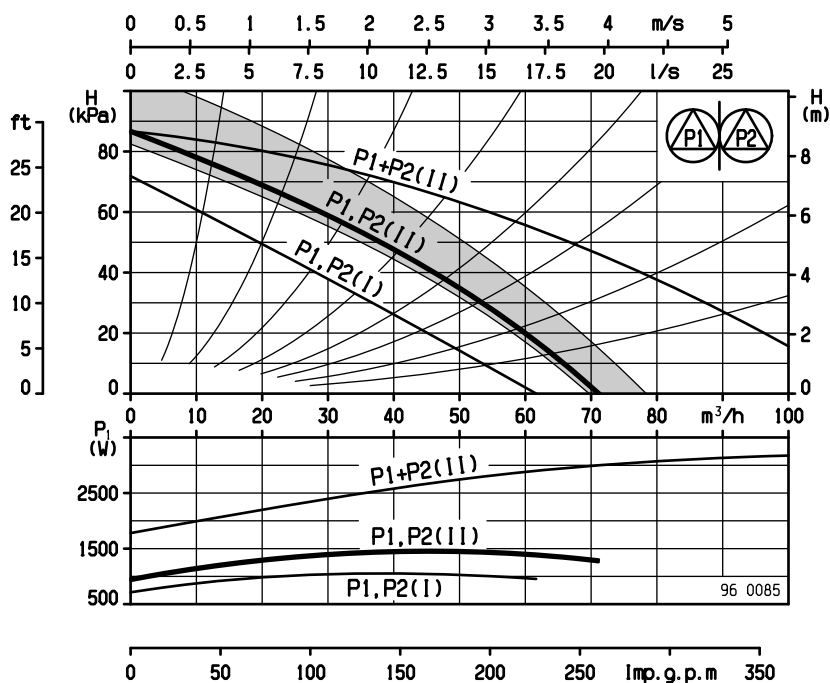
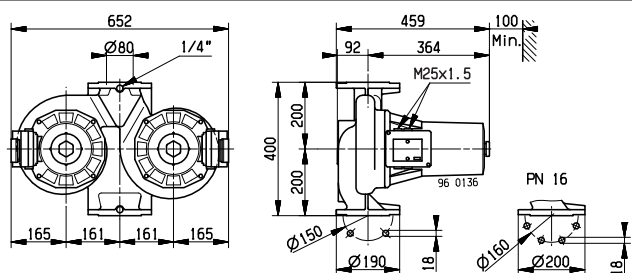
Speed	II 1400 rpm
	I 1050 rpm
Power	II 950...1600 W
	I 680...1000 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	4.5 A	Power I+II pluggable
	I	2.7 A	
Plug type B: 1×230 V, 50 Hz	II	9.5 A	Operating capacitor 100 µF, 280 V connect power II only
	I		
Plug type B: 3×230 V, 50 Hz	II	8.4 A	Connect power II only
	I		

Motor protection required

Control devices

For further information see page 69



LD 805

Installation length	400 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	1.0 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	87 kg

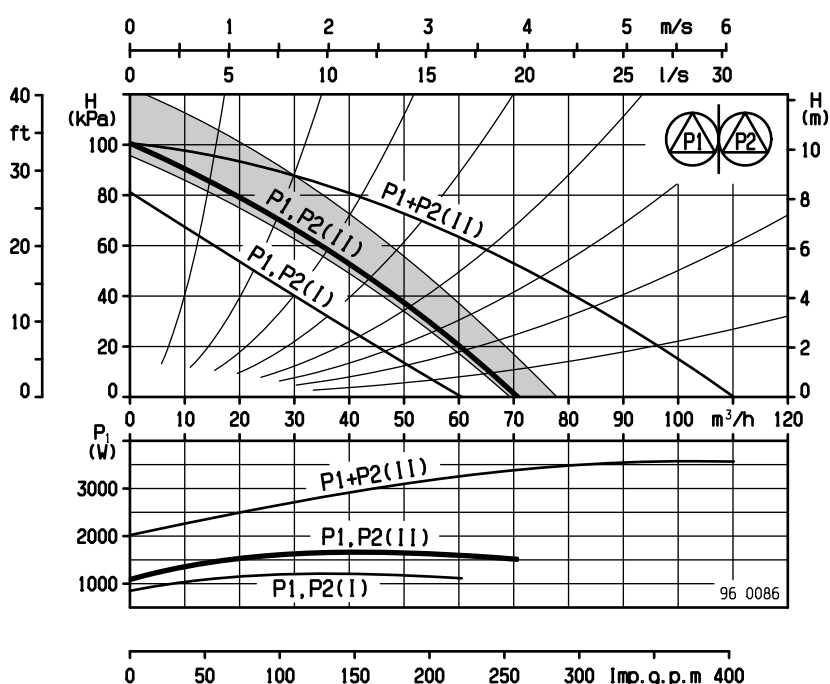
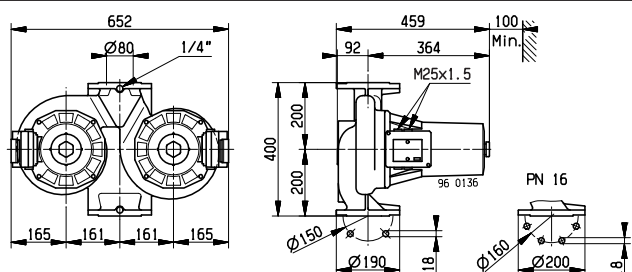
Speed	II 1400 rpm
	I 1050 rpm
Power	II 1050...1750 W
	I 780...1250 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	5 A	Power I+II pluggable
	I	3 A	
Plug type B: 1×230 V, 50 Hz	II	11 A	Operating capacitor 100 µF, 280 V connect power II only
	I		
Plug type B: 3×230 V, 50 Hz	II	9.3 A	Connect power II only
	I		

Motor protection required

Control devices

For further information see page 69



LD 1001

Installation length	450 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	1.0 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	96 kg

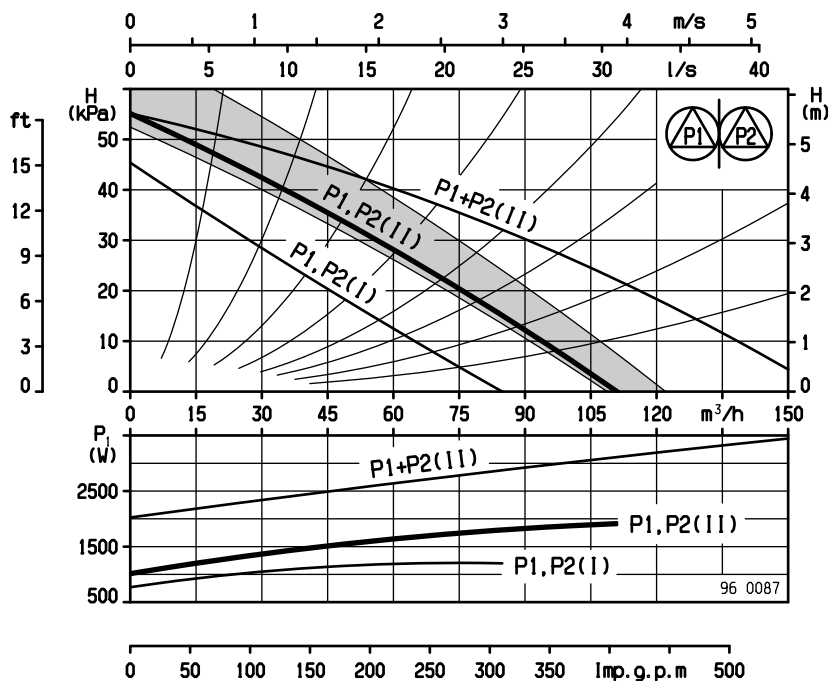
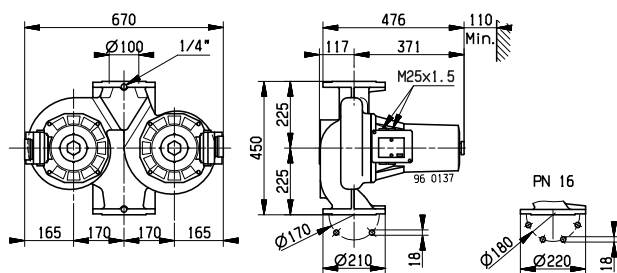
Speed	II 1400 rpm
	I 1050 rpm
Power	II 1000...1900 W
	I 780...1200 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	4.5 A	Power I+II pluggable
	I	2.7 A	
Plug type B: 3×230 V, 50 Hz	II	8.4 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LD 1002

Installation length	450 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	1.75 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	100 kg

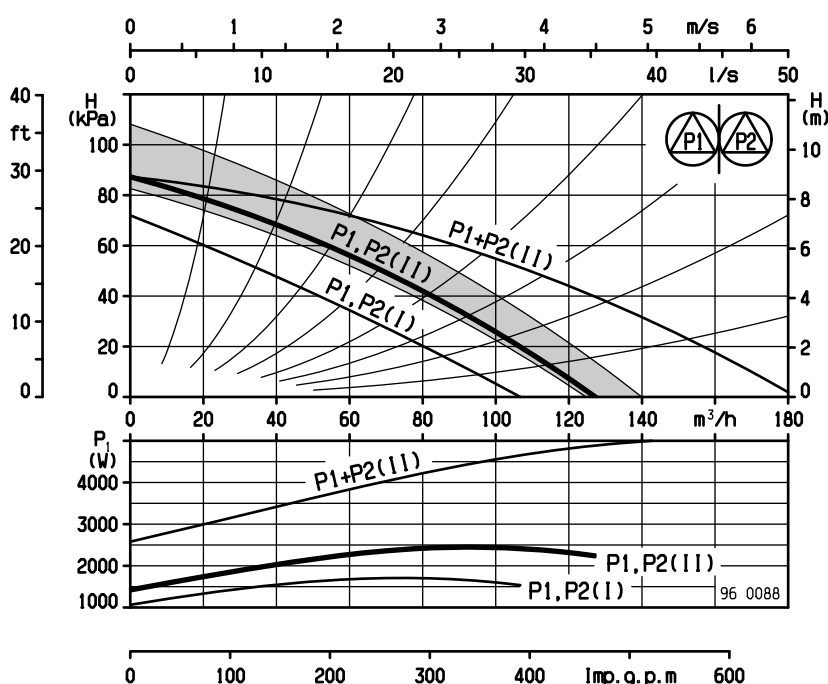
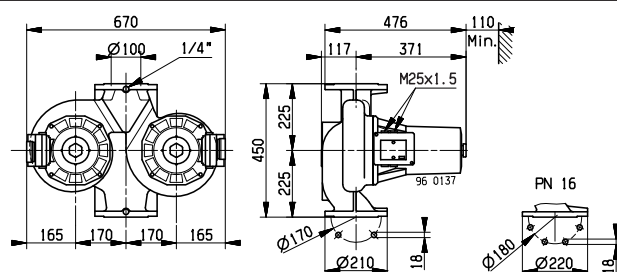
Speed	II 1400 rpm
	I 1050 rpm
Power	II 1380...2500 W
	I 1010...1600 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	6.5 A	Power I+II pluggable
	I	4 A	
Plug type B: 3×230 V, 50 Hz	II	12 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LD 1003

Installation length	450 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at at 75°C water temperature	500 m a.s.l. 1.75 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	128 kg

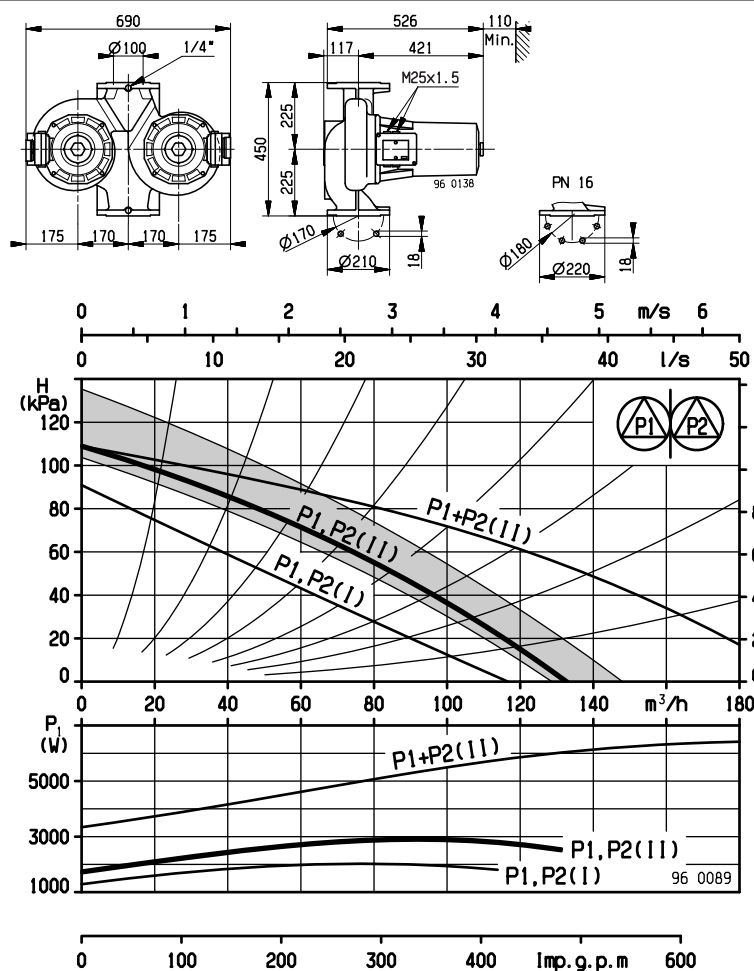
Speed	II	1400 rpm
	I	1050 rpm
Power	II	1630...3000 W
	I	1250...2000 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	9 A 6 A	Power I+II pluggable
Plug type B: 3×230 V, 50 Hz	II	17 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



LD 1004

Installation length	450 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at at 75°C water temperature	500 m a.s.l. 1.75 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	128 kg

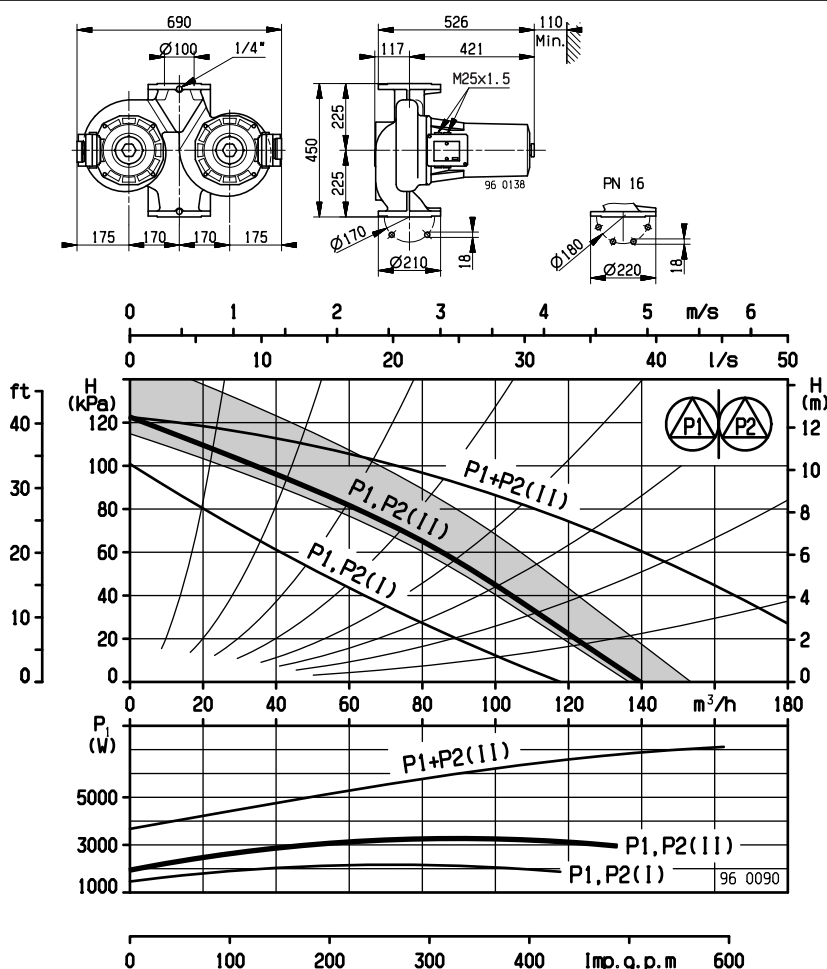
Speed	II	1400 rpm
	I	1050 rpm
Power	II	1840...3300 W
	I	1410...2000 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	9 A 6 A	Power I+II pluggable
Plug type B: 3×230 V, 50 Hz	II	17 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



Heating circulators

Models:

HX

High-speed pumps
with 2 speeds
for industrial heating
and air conditioning systems

3×400 V

1×230 V

3×230 V

List of models

● Standard design

○ Special design

Observe regulations:

e. g. DIN 2401:

GG cast iron 120°C = 10 bar

> 120°C = 8 bar

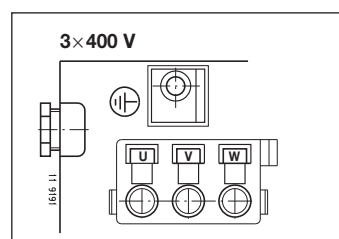
Further standards:

e. g. DIN 4752

DN	Installation dimensions	Type	PN6	PN10	PN6-16	PN 16	Label
32	2"×190 mm	HX 301, HX 302		●			D
		HX 322		●			C
	1½"×180 mm	HX 301-1, HX 302-1		●			D
		HX 322-1		●			C
	2"×180 mm	HX 301-2, HX 302-2		●			D
		HX 322-2		●			D
40	Ø 40×220 mm	HX 402			●		D
	Ø 40×250 mm	HX 402-1			●		D
50	Ø 50×270 mm	HX 501, HX 502			●		D, C
	Ø 50×280 mm	HX 501-1, HX 502-1			●		D, C
65	Ø 65×340 mm	HX 652			●		C
80	Ø 80×360 mm	HX 802	●			○	C

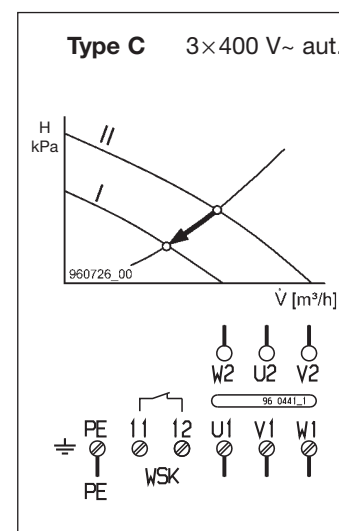
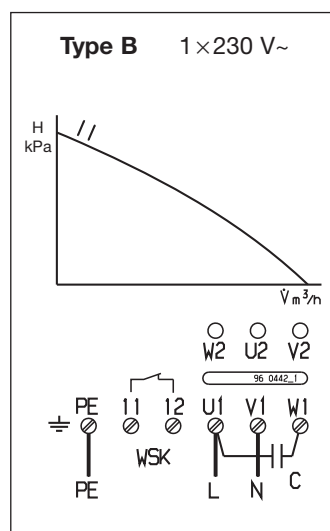
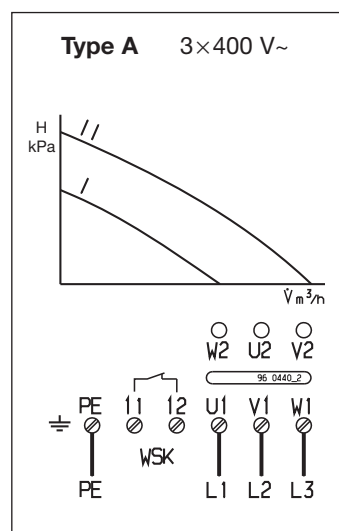
Electrical connection

for pumps HX 301, HX 302



Electrical connection

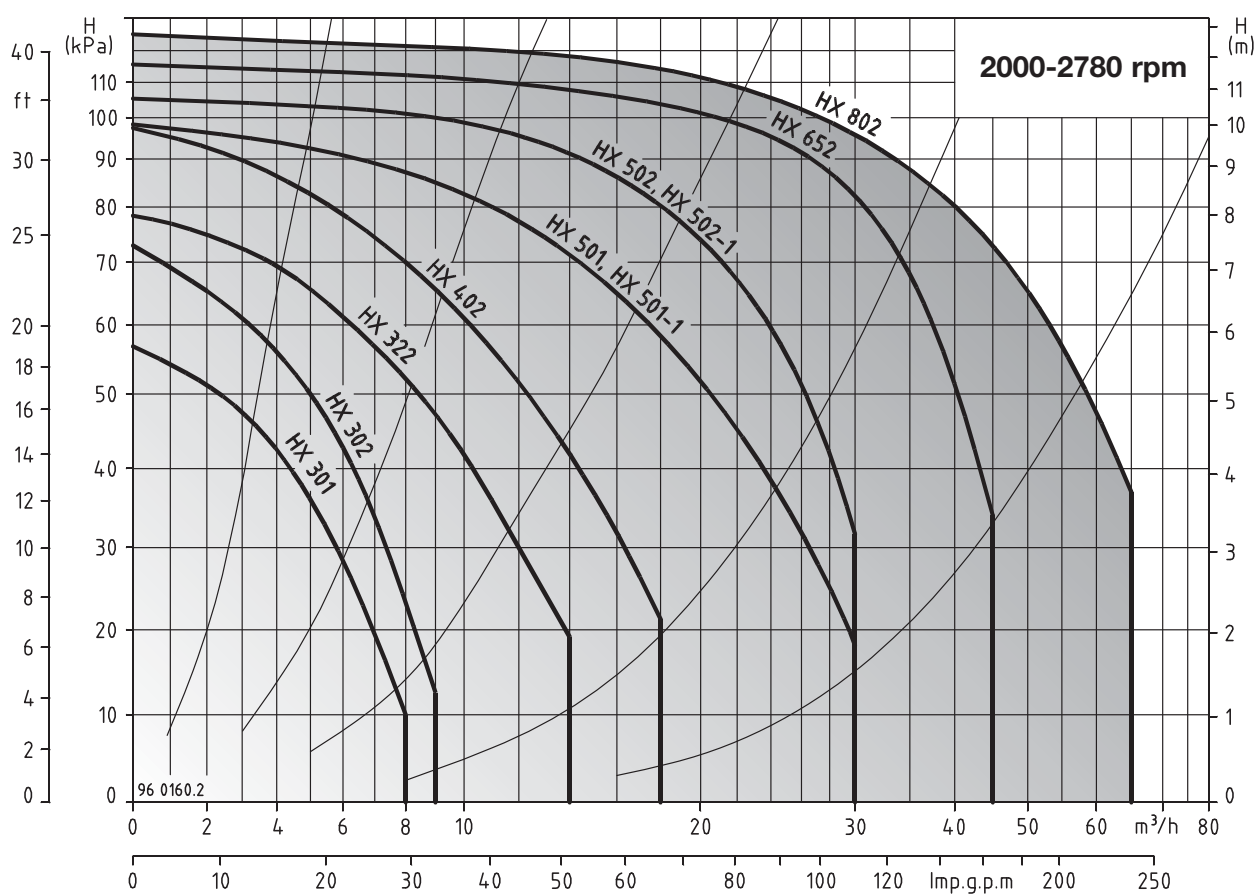
for pumps with Polycom motor
HX 322... HX 802



The control device
suitable for the pump:
see page 69



HX



HX 301, -1, -2 3×400 V

Installation length	HX 301 190 mm*
	HX 301-1, -2 180 mm
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +110°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.3 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	4.5 kg

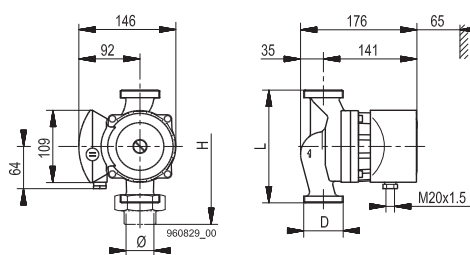
Voltage	3×400 V, 50 Hz
Speed	II 2700 rpm
	I 2300 rpm
Current	II 0.42 A
	I 0.23 A
Power	II 105 ... 210 W
	I 60 ... 135 W

Motor protection required

* Installation length 2"×190 mm:
2×180 mm intermedia piece 10 mm incl.

Control devices

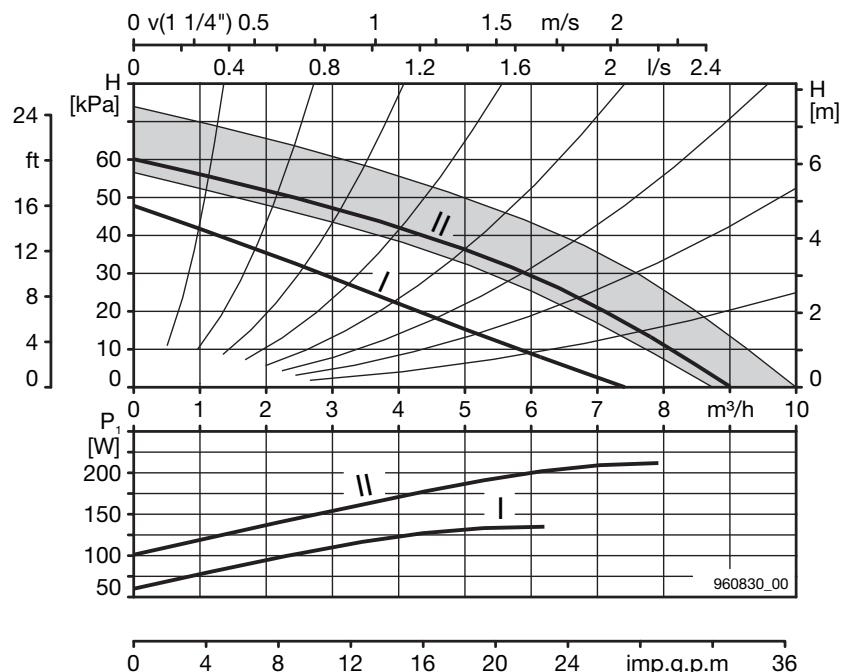
For further information see page 69



HX 301
 $\varnothing = 1\frac{1}{2}"$, $1\frac{1}{4}"$, $1\frac{3}{4}"$
 $D = 2"$
 $L = 190 \text{ mm}^*$
 $H = 255 \text{ mm}$

HX 301-1
 $\varnothing = 1\frac{3}{4}"$
 $D = 1\frac{1}{2}"$
 $L = 180 \text{ mm}$
 $H = 235 \text{ mm}$

HX 301-2
 $\varnothing = 1\frac{1}{2}"$, $1\frac{1}{4}"$, $1\frac{3}{4}"$
 $D = 2"$
 $L = 180 \text{ mm}$
 $H = 245 \text{ mm}$



HX 302, -1, -2 3×400 V

Installation length	HX 302 190 mm*
	HX 302-1, -2 180 mm
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +110°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.3 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	4.5 kg

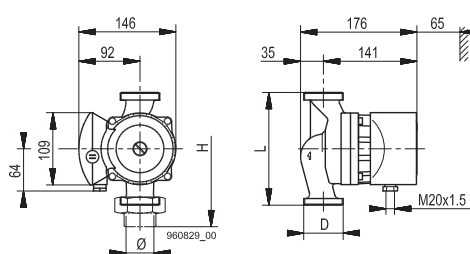
Voltage	3×400 V, 50 Hz
Speed	II 2750 rpm
	I 2400 rpm
Current	II 0.55 A
	I 0.33 A
Power	II 140 ... 285 W
	I 80 ... 180 W

Motor protection required

* Installation length 2"×190 mm:
2×180 mm intermedia piece 10 mm incl.

Control devices

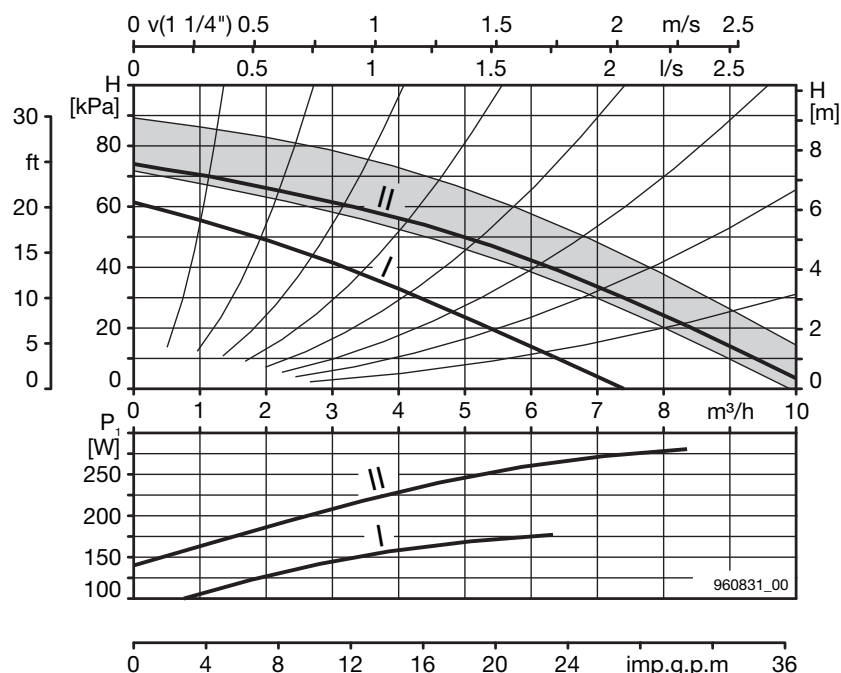
For further information see page 69



HX 302
 $\varnothing = 1\frac{1}{2}"$, $1\frac{1}{4}"$, $1\frac{3}{4}"$
 $D = 2"$
 $L = 190 \text{ mm}^*$
 $H = 255 \text{ mm}$

HX 302-1
 $\varnothing = 1\frac{3}{4}"$
 $D = 1\frac{1}{2}"$
 $L = 180 \text{ mm}$
 $H = 235 \text{ mm}$

HX 302-2
 $\varnothing = 1\frac{1}{2}"$, $1\frac{1}{4}"$, $1\frac{3}{4}"$
 $D = 2"$
 $L = 180 \text{ mm}$
 $H = 245 \text{ mm}$



HX 322, HX 322-2

Installation length	HX 322 HX 322-2	190 mm 180 mm
Permissible operating pressure	10 bar	
Permissible operating temp.	-20°C to +140°C	
Required operating pressure at	500 m a.s.l.	
at 75°C water temperature	0.3 bar	
at 90°C water temperature	+0.35 bar	
at 110°C water temperature	+1.1 bar	
at 140°C water temperature	+3.3 bar	
For every ±100 m altitude	±0.01 bar	
Weight	10 kg	

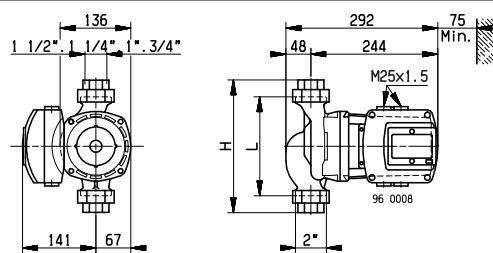
Speed	II 2680 rpm I 2200 rpm
Power	II 180...330 W I 130...225 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	0.6 A 0.4 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	1.9 A	Operating capacitor 8 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	1.3 A	Connect power II only

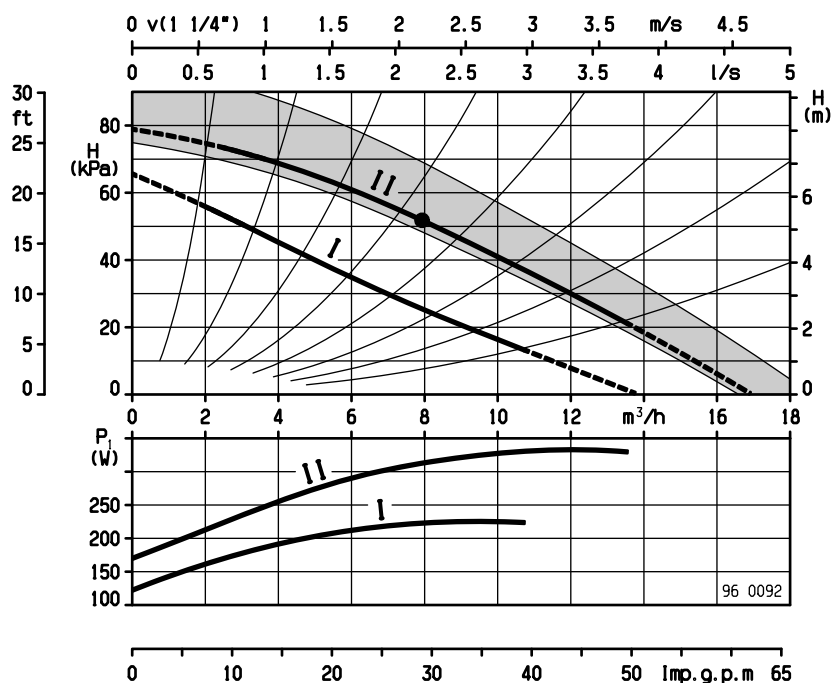
Motor protection required

Control devices

For further information see page 69



HX 322
L = 190 mm
H = 255 mm
HX 322-2
L = 180 mm
H = 245 mm



HX 402, HX 402-1

Installation length	HX 402 HX 402-1	220 mm 250 mm
Permissible operating pressure	6 - 16 bar	
Permissible operating temp.	-20°C to +140°C	
Required operating pressure at	500 m a.s.l.	
at 75°C water temperature	0.4 bar	
at 90°C water temperature	+0.35 bar	
at 110°C water temperature	+1.1 bar	
at 140°C water temperature	+3.3 bar	
For every ±100 m altitude	±0.01 bar	
Weight	14.5 kg	

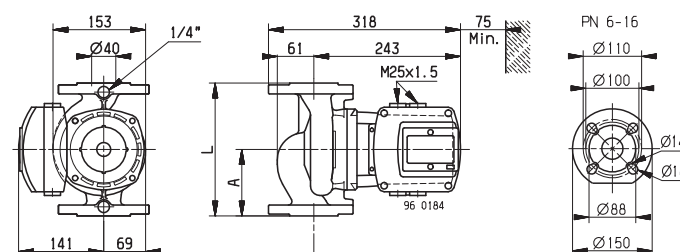
Speed	II 2550 rpm I 2000 rpm
Power	II 220...460 W I 160...285 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	0.8 A 0.5 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	2.5 A	Operating capacitor 14 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	1.65 A	Connect power II only

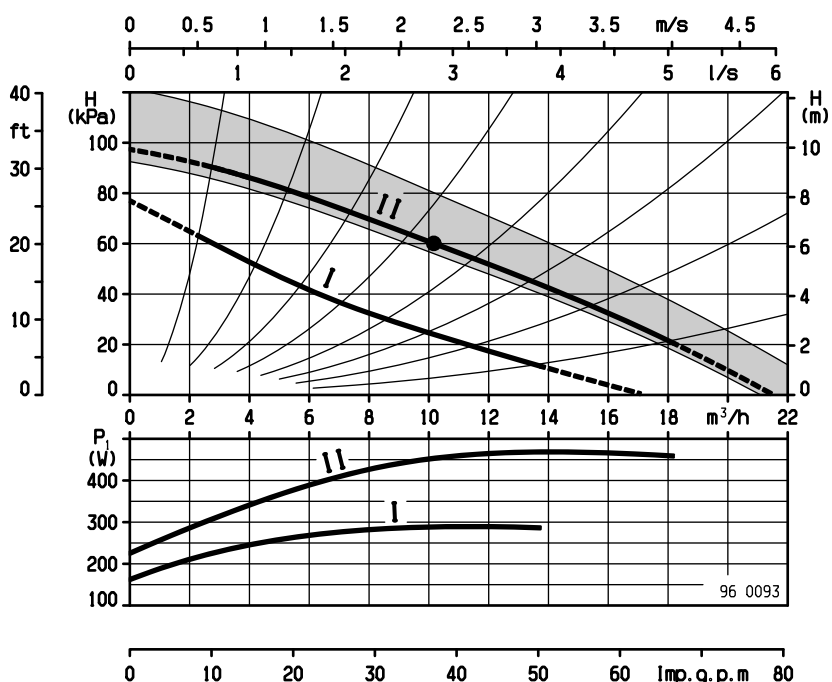
Motor protection required

Control devices

For further information see page 69



HX 402
L = 220 mm
A = 110 mm
HX 402-1
L = 250 mm
A = 125 mm



HX 501, HX 501-1

Installation length	HX 501 HX 501-1	270 mm 280 mm
Permissible operating pressure	6 - 16 bar	
Permissible operating temp.	-20°C to +140°C	
Required operating pressure at	500 m a.s.l.	
at 75°C water temperature	0.5 bar	
at 90°C water temperature	+0.35 bar	
at 110°C water temperature	+1.1 bar	
at 140°C water temperature	+3.3 bar	
For every ±100 m altitude	±0.01 bar	
Weight	20 kg	

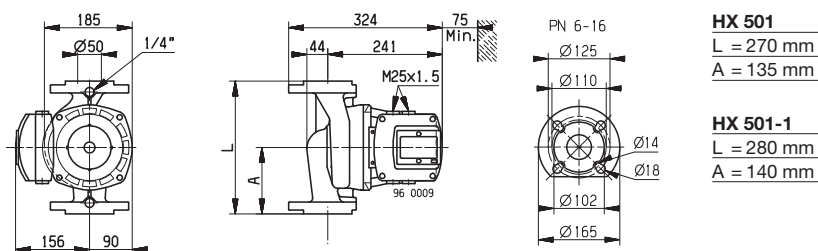
Speed	II 2520 rpm I 1700 rpm
Power	II 370...820 W I 280...465 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	1.5 A 0.9 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	4.5 A	Operating capacitor 40 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	2.6 A	Connect power II only

Motor protection required

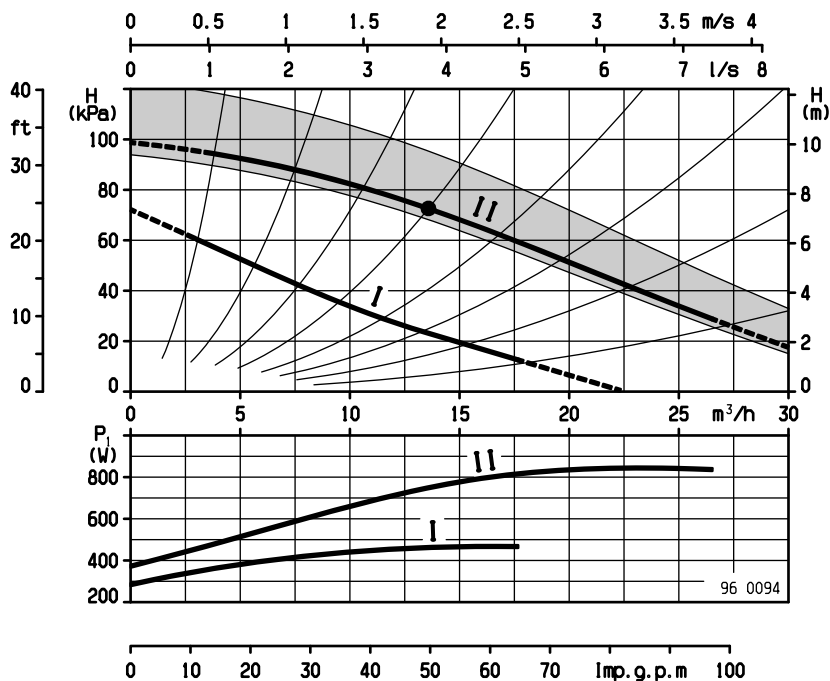
Control devices

For further information see page 69



HX 501
L = 270 mm
A = 135 mm

HX 501-1
L = 280 mm
A = 140 mm



HX 502, HX 502-1

Installation length	HX 502 HX 502-1	270 mm 280 mm
Permissible operating pressure	6 - 16 bar	
Permissible operating temp.	-20°C to +140°C	
Required operating pressure at	500 m a.s.l.	
at 75°C water temperature	0.5 bar	
at 90°C water temperature	+0.35 bar	
at 110°C water temperature	+1.1 bar	
at 140°C water temperature	+3.3 bar	
For every ±100 m altitude	±0.01 bar	
Weight	20 kg	

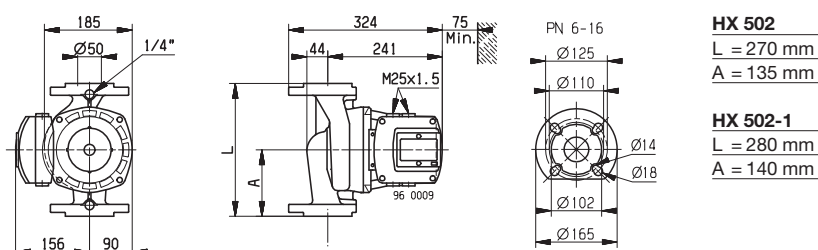
Speed	II 2780 rpm I 2340 rpm
Power	II 485...1020 W I 365... 760 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	1.8 A 1.2 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	5.3 A	Operating capacitor 30 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	3.8 A	Connect power II only

Motor protection required

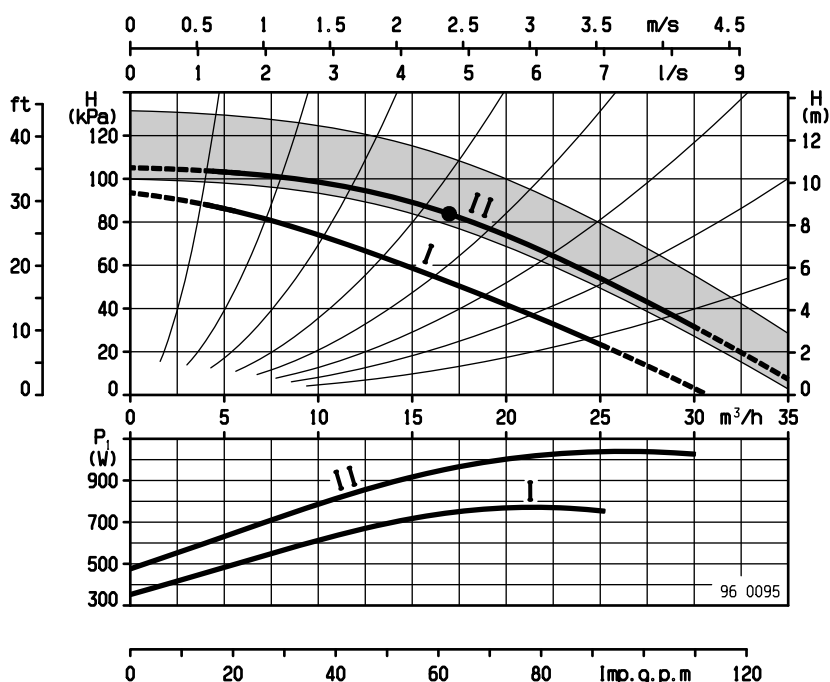
Control devices

For further information see page 69



HX 502
L = 270 mm
A = 135 mm

HX 502-1
L = 280 mm
A = 140 mm



HX 652

Installation length	340 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	1.0 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	26 kg

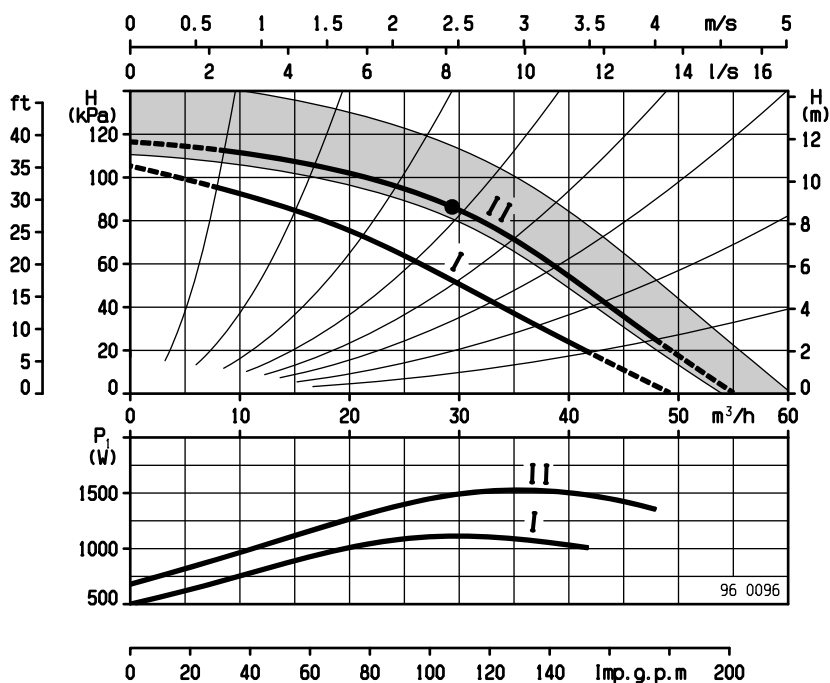
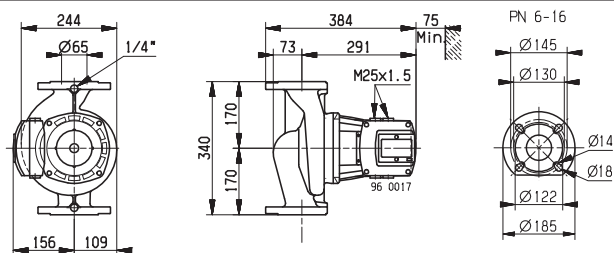
Speed	II 2780 rpm
	I 2350 rpm
Power	II 640...1550 W
	I 500...1150 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	2.7 A 1.9 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	8.2 A	Operating capacitor 35 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	5.4 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



HX 802

Installation length	360 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	1.6 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	34.5 kg

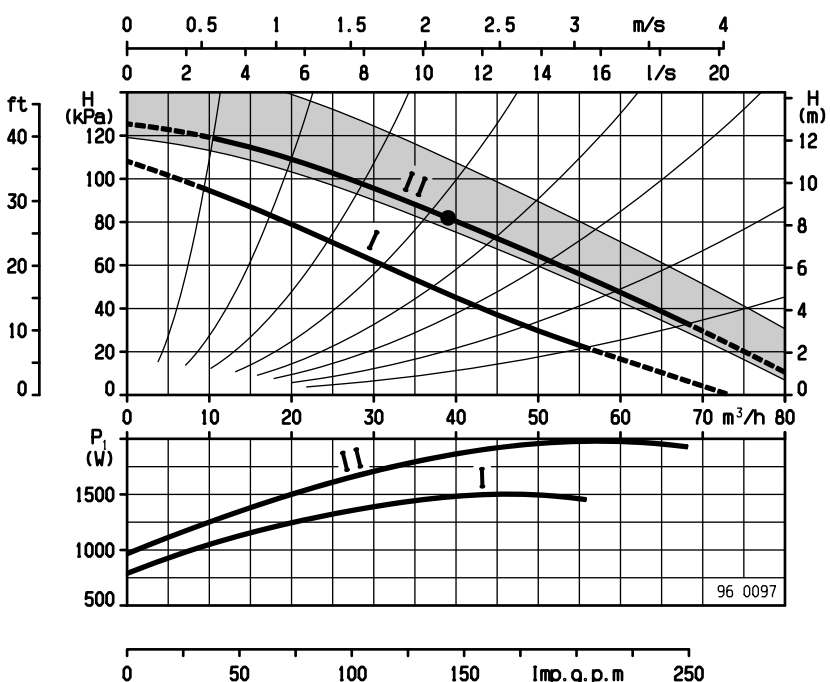
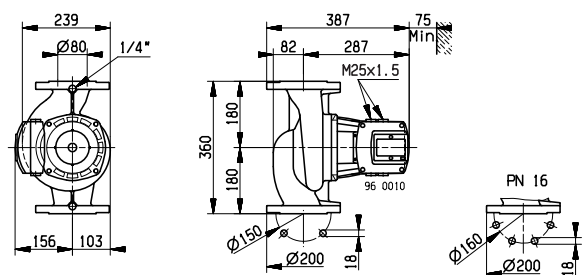
Speed	II 2740 rpm
	I 2290 rpm
Power	II 980...2000 W
	I 780...1500 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	3.4 A 2.4 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	12.8 A	Operating capacitor 25 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	6.6 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



Heating circulators Twin pumps

Models:

HXD

High-speed pumps
with 2 speeds
for industrial heating
and air conditioning systems

3×400 V

1×230 V

3×230 V

List of models

- Standard design
- Special design

Observe regulations:

e. g. DIN 2401:

GG cast iron 120°C = 10 bar

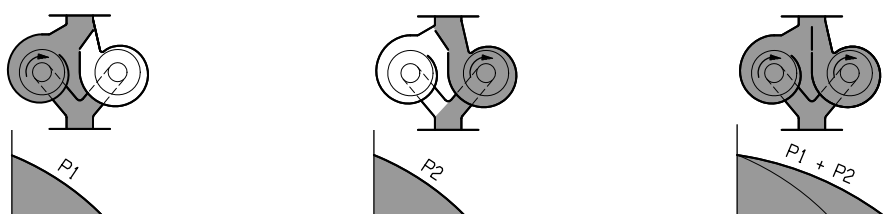
> 120°C = 8 bar

Further standards:

e. g. DIN 4752

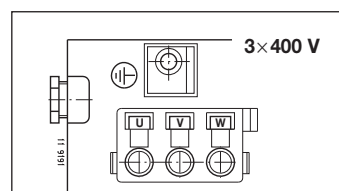
DN	Installation dimensions	Type	PN6	PN10	PN6-16	PN16	Label
32	2"×180/190* mm	HXD 301, HXD 302		●			D
	* Installation length 190 mm: 2"×180 mm incl. threaded piece 10 mm						
40	Ø 40×250 mm	HXD 402-1			●		D
50	Ø 50×280 mm	HXD 501-1, HXD 502-1			●		D, C
65	Ø 65×340 mm	HXD 652			●		C
80	Ø 80×360 mm	HXD 802	●			○	C

Functional description



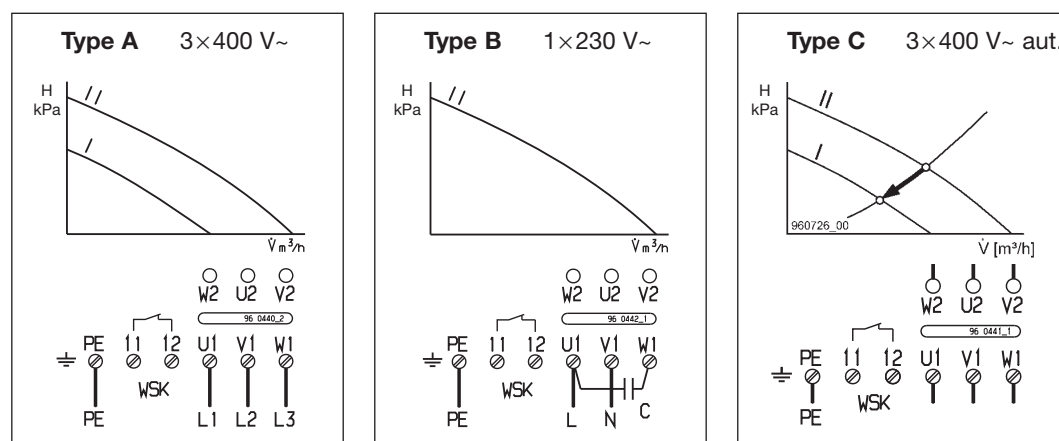
Electrical connection

for pumps HXD 301, HXD 302

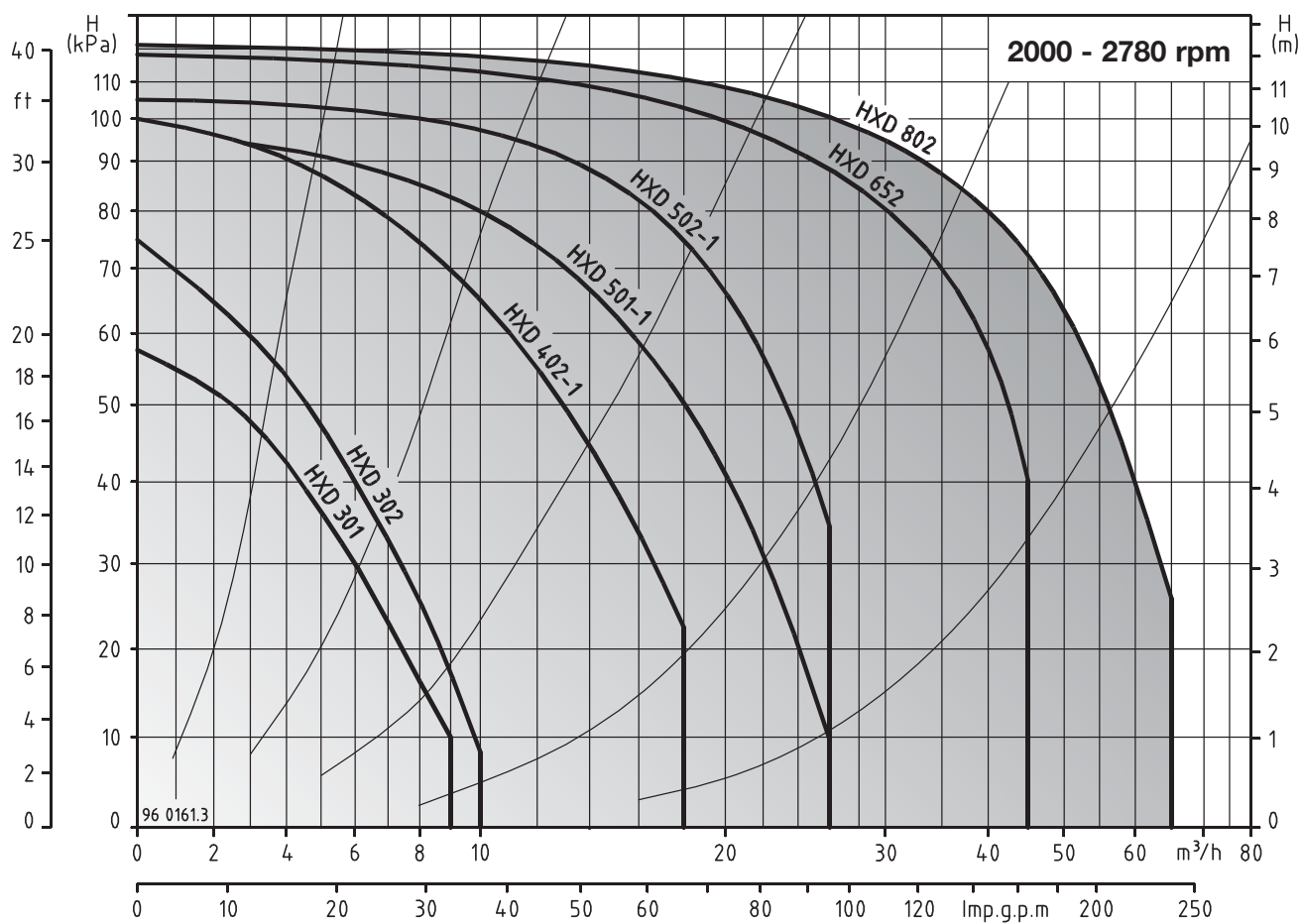


Electrical connection

for pumps with Polycom motor
HXD 322 ... HXD 802



The control device
suitable for the pump:
see page 69



HXD 301 3×400 V

Installation length HXD 301	180/190 mm*
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +110°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	11.5 kg

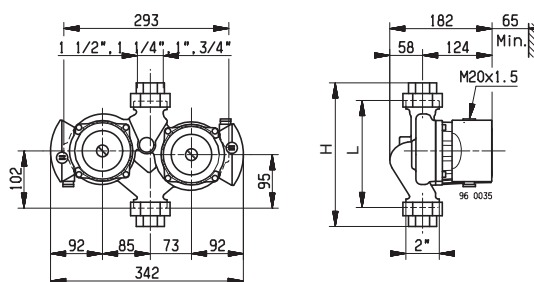
Voltage	3×400 V, 50 Hz
Speed	II 2700 rpm I 2300 rpm
Current	II 0.42 A I 0.23 A
Power	II 105 ... 210 W I 60 ... 135 W

Motor protection required

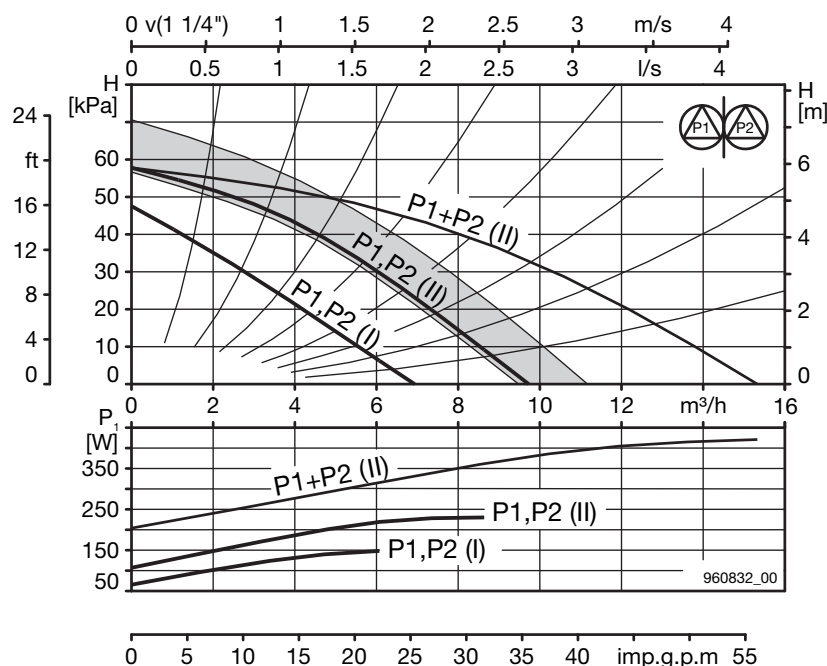
* Installation length 2"×190 mm:
2×180 mm intermedia piece 10 mm incl.

Control devices

For further information see page 69



HXD 301
L = 180/190 mm*
H = 245/255 mm



HXD 302 3×400 V

Installation length HXD 302	180/190 mm*
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +110°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.1 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
For every ±100 m altitude	±0.01 bar
Weight	11.5 kg

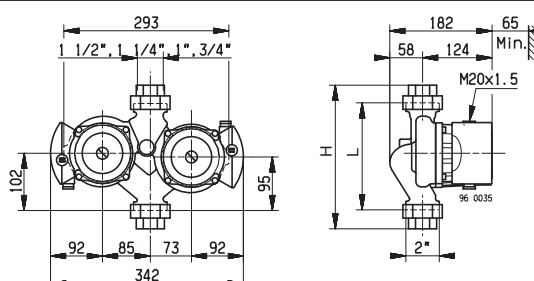
Voltage	3×400 V, 50 Hz
Speed	II 2750 rpm I 2400 rpm
Current	II 0.55 A I 0.33 A
Power	II 140 ... 285 W I 80 ... 180 W

Motor protection required

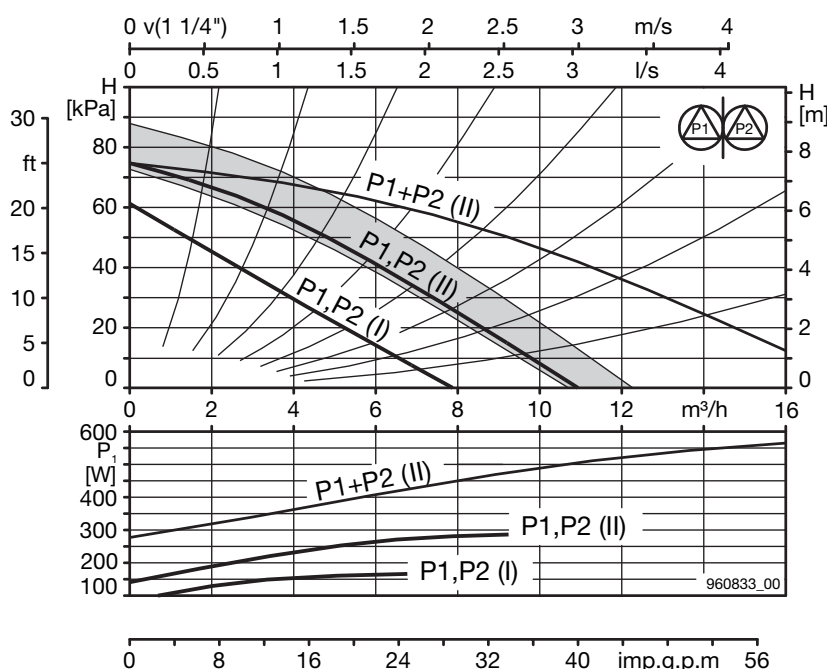
* Installation length 2"×190 mm:
2×180 mm intermedia piece 10 mm incl.

Control devices

For further information see page 69



HXD 302
L = 180/190 mm*
H = 245/255 mm



HXD 402-1

Installation length	250 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.4 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ± 100 m altitude	± 0.01 bar
Weight	29 kg

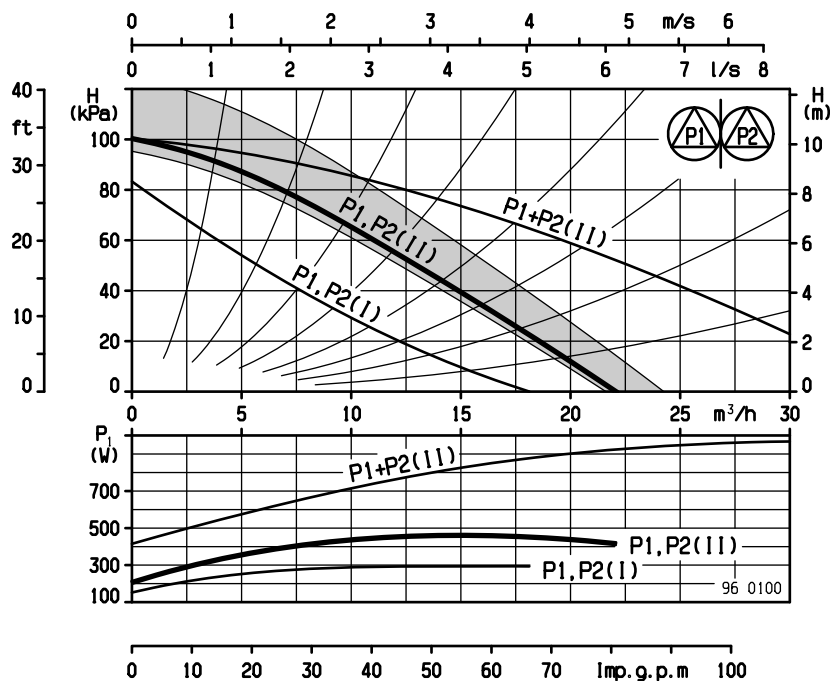
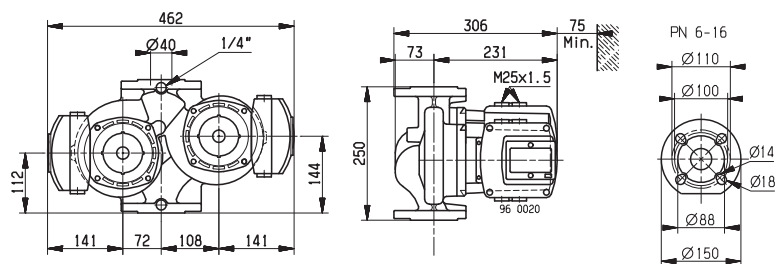
Speed	II 2550 rpm
	I 2000 rpm
Power	II 220...460 W
	I 160...285 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	0.8 A 0.5 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	2.5 A	Operating capacitor 14 μ F, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	1.65 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



HXD 501-1

Installation length	280 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.5 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	40 kg

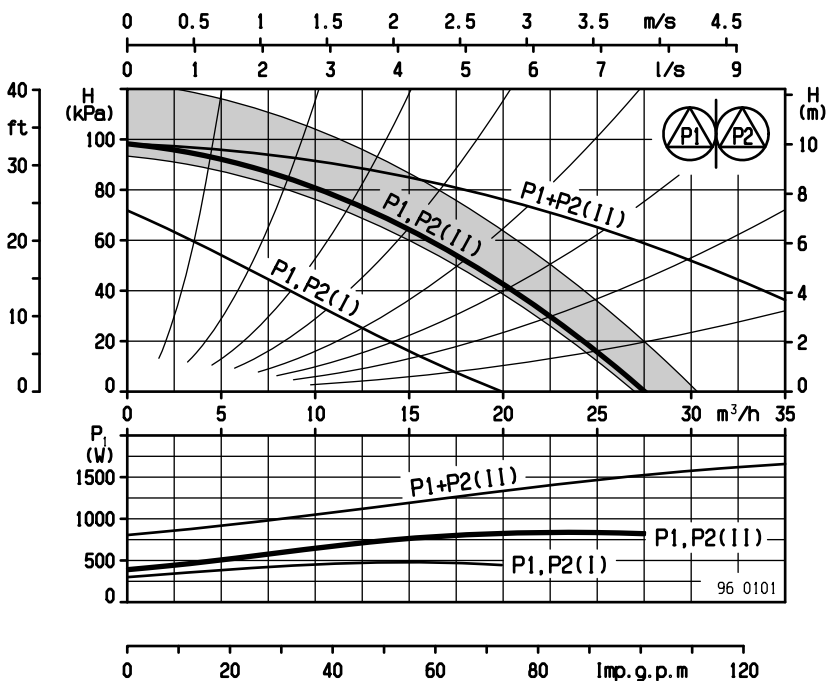
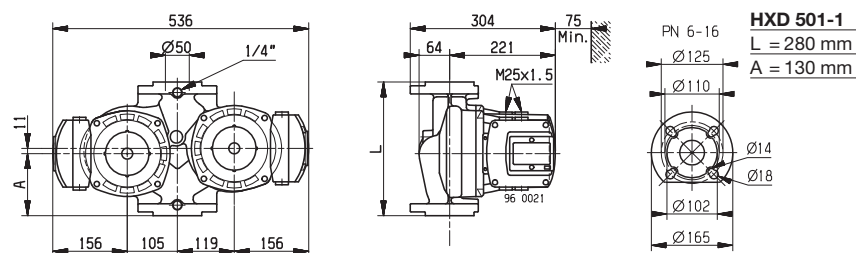
Speed	II 2520 rpm
	I 1700 rpm
Power	II 370...820 W
	I 280...465 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	1.5 A 0.9 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	4.5 A	Operating capacitor 40 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	2.6 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



HXD 502-1

Installation length	280 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.5 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	40 kg

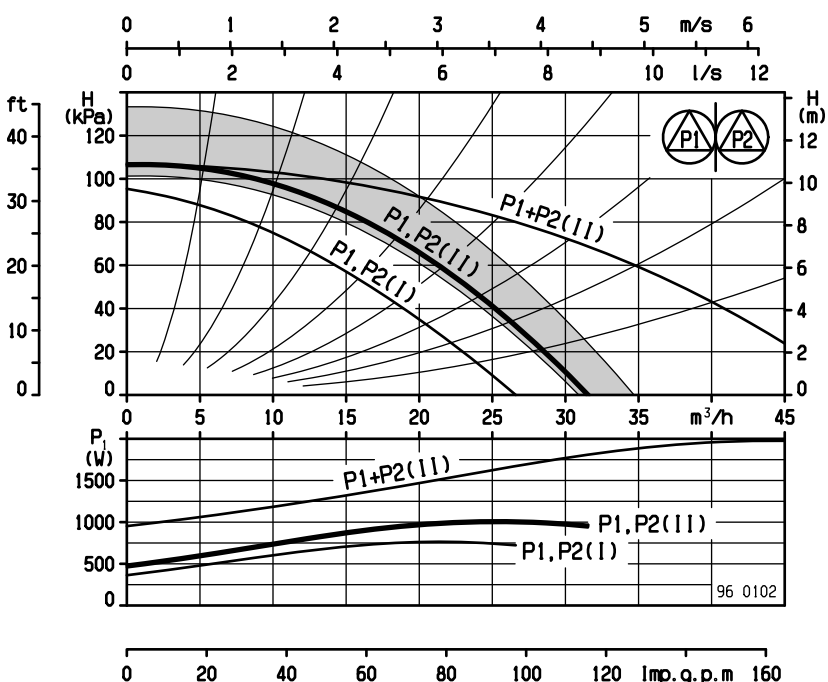
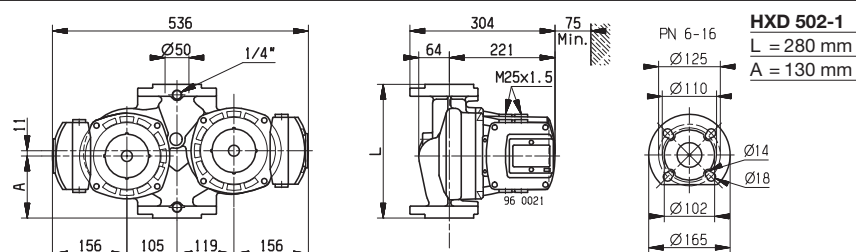
Speed	II 2780 rpm
	I 2340 rpm
Power	II 485...1020 W
	I 365... 760 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	1.8 A 1.2 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	5.3 A	Operating capacitor 30 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	3.8 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



HXD 652

Installation length	340 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	1.0 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	51 kg

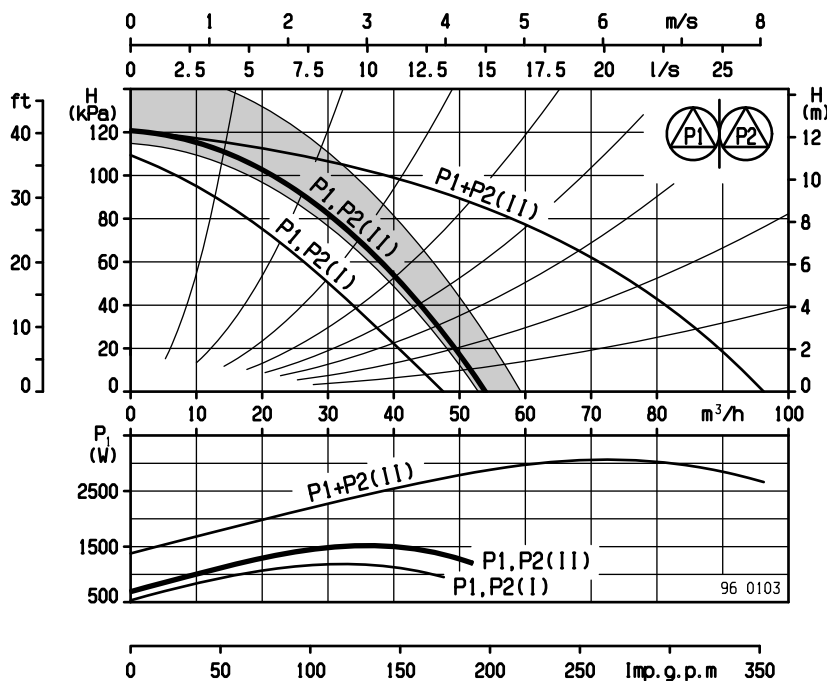
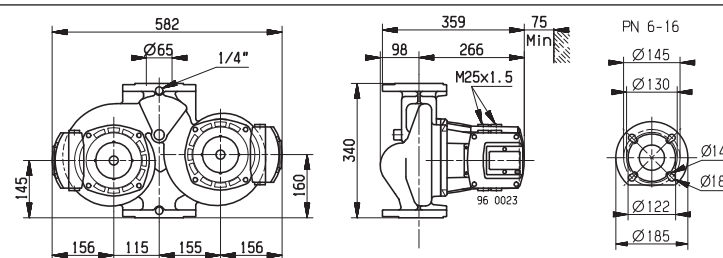
Speed	II 2780 rpm
	I 2350 rpm
Power	II 640...1550 W
	I 500...1150 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	2.7 A 1.9 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	8.2 A	Operating capacitor 35 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	5.4 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



HXD 802

Installation length	360 mm
Permissible operating pressure	6 bar
Special design	16 bar
Permissible operating temp.	-20°C to +140°C
Required operating pressure at 500 m a.s.l.	
at 75°C water temperature	1.6 bar
at 90°C water temperature	+0.35 bar
at 110°C water temperature	+1.1 bar
at 140°C water temperature	+3.3 bar
For every ±100 m altitude	±0.01 bar
Weight	63 kg

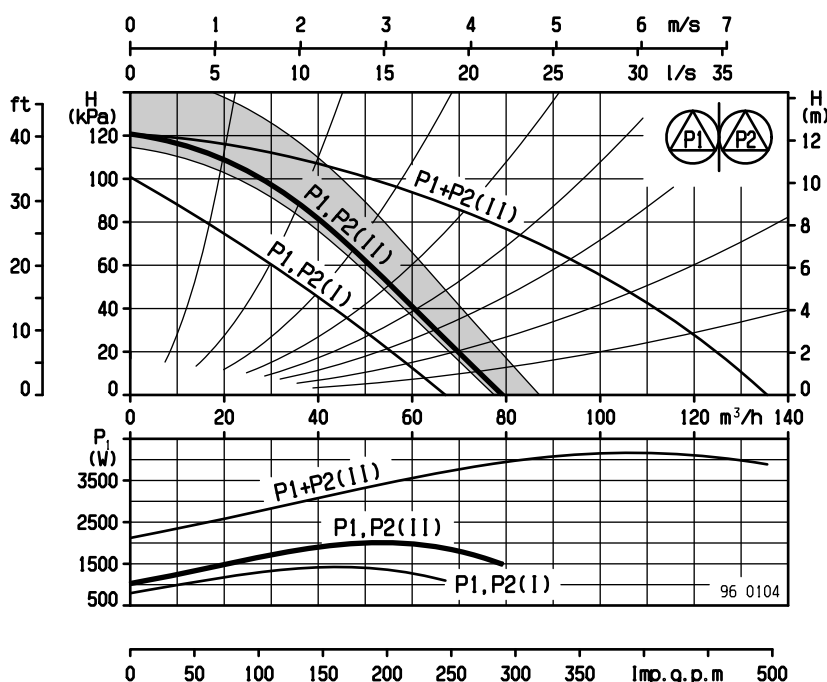
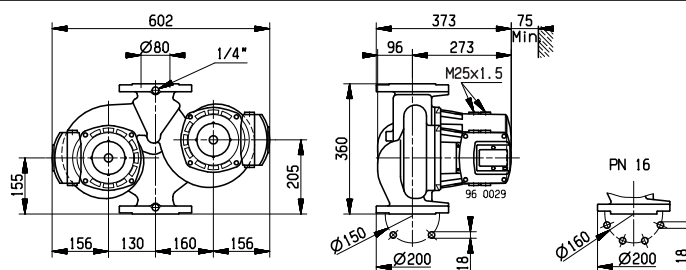
Speed	II 2740 rpm
	I 2290 rpm
Power	II 980...2000 W
	I 780...1500 W

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II I	3.4 A 2.4 A	Power I+II pluggable
Plug type B: 1×230 V, 50 Hz	II	12.8 A	Operating capacitor 25 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	6.6 A	Connect power II only

Motor protection required

Control devices

For further information see page 69



Solar pumps

Models:

SX

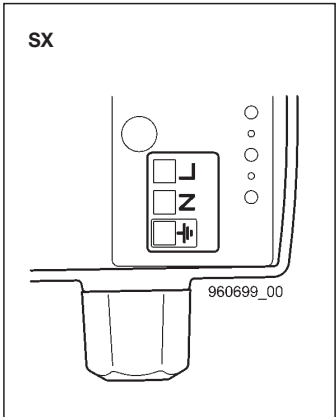
1 × 230 V

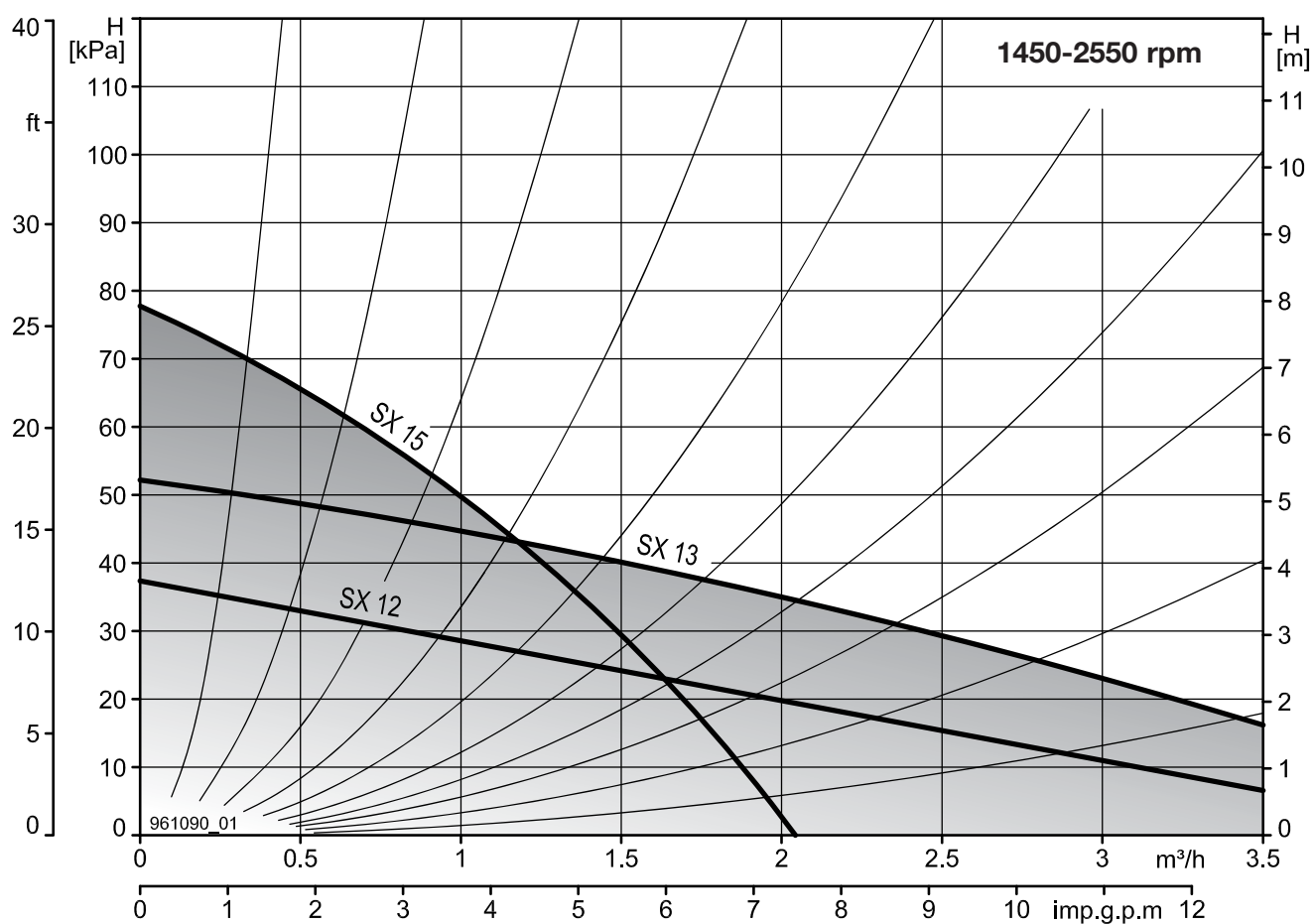
List of models

- Standard design
- Special design

DN	Installation dimensions	Type	PN 10
	1½"×180 mm	SX 12-1, SX 13-1	●
	1"×130 mm	SX 12-4, SX 13-4	●
	1"×130 mm	SX 15-4	●

Electrical connection

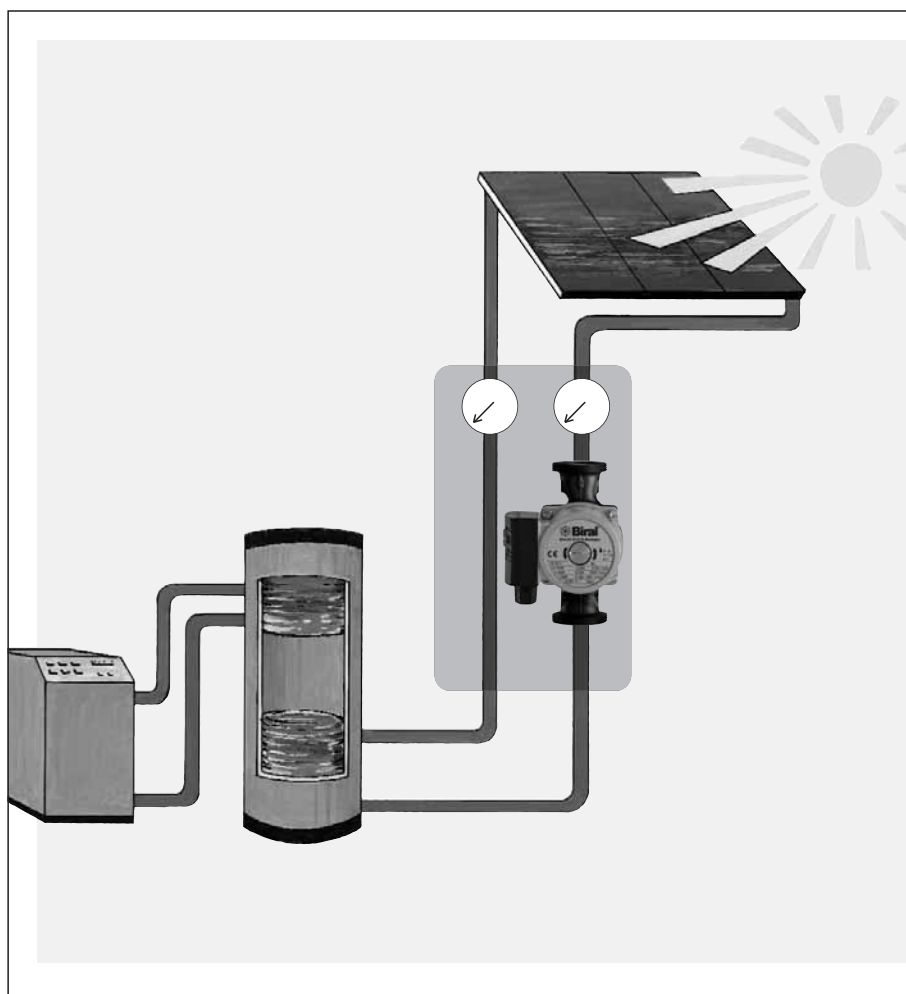




Biral – the pump manufacturer for solar installations

Solar pumps

- Biral solar pumps for thermal solar installations
- Suitable for water/glycol mixtures
- Maintenance-free and low noise asynchronous motor
- Heat resistant and robust
- Corrosion protection by cataphoretic coated pump casing



SX 12-1, 12-4

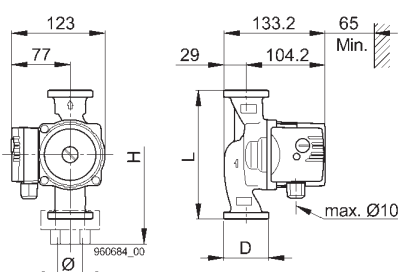
Installation length	130/180 mm
Permissible operating pressure	10 bar
Permissible operating temp.	–20°C to +110/140°C ¹⁾
Required operating pressure at at 75°C water temperature	500 m a.s.l. 0.1 bar
at 90°C water temperature	0.45 bar
at 110°C water temperature	1.20 bar
For every ±100 m altitude	±0.01 bar
Weight	2,8 kg

Speed	III	2100 rpm
	II	1800 rpm
	I	1400 rpm
Current	III	0.21 A
	II	0.17 A
	I	0.14 A
Power	III	42–50 W
	II	34–41 W
	I	26–31 W

Capacitor built in 1.5 µF, 400 V

¹⁾ for short periods, ca. 30 min

The motor is short-circuit proof and requires no overload protection.

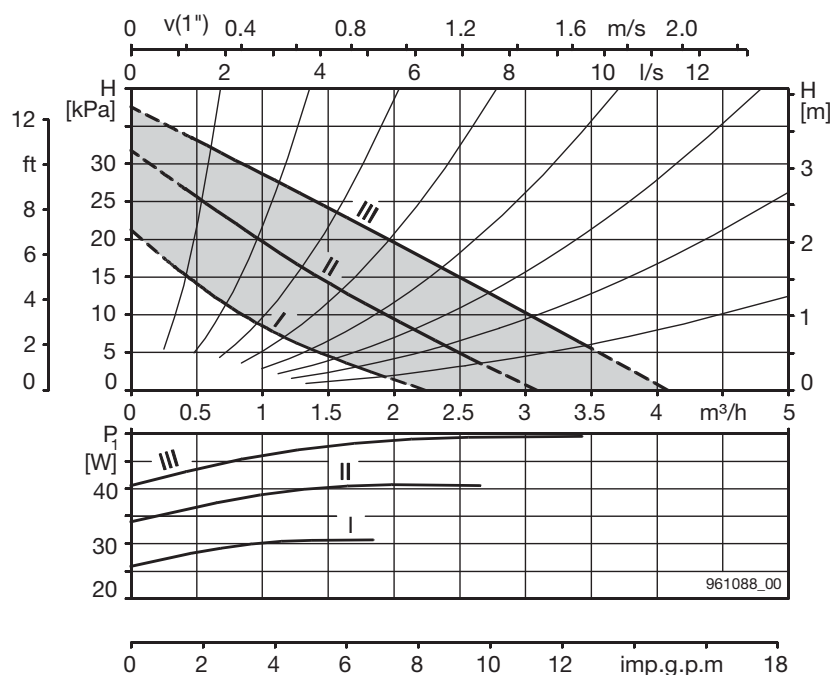


SX 12-1

Ø	1" 3/4"
D	1 1/2"
L	180 mm
H	235 mm

SX 12-4

Ø	1 1/2"
D	1"
L	130 mm
H	178 mm



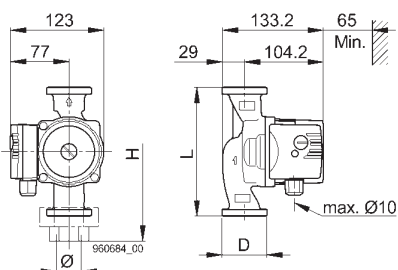
SX 13-1, 13-4

Installation length	130/180 mm
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +110/140°C ¹⁾
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.1 bar
at 90°C water temperature	0.45 bar
at 110°C water temperature	1.20 bar
For every ±100 m altitude	±0.01 bar
Weight	2,8 kg
Voltage	1×230 V, 50 Hz
Speed	III 2300 rpm II 1800 rpm I 1200 rpm
Current	III 0.46 A II 0.36 A I 0.23 A
Power	III 68–96 W II 52–71 W I 37–44 W

Capacitor built in 2 µF, 400 V

¹⁾ for short periods, ca. 30 min

The motor is short-circuit proof and requires no overload protection.

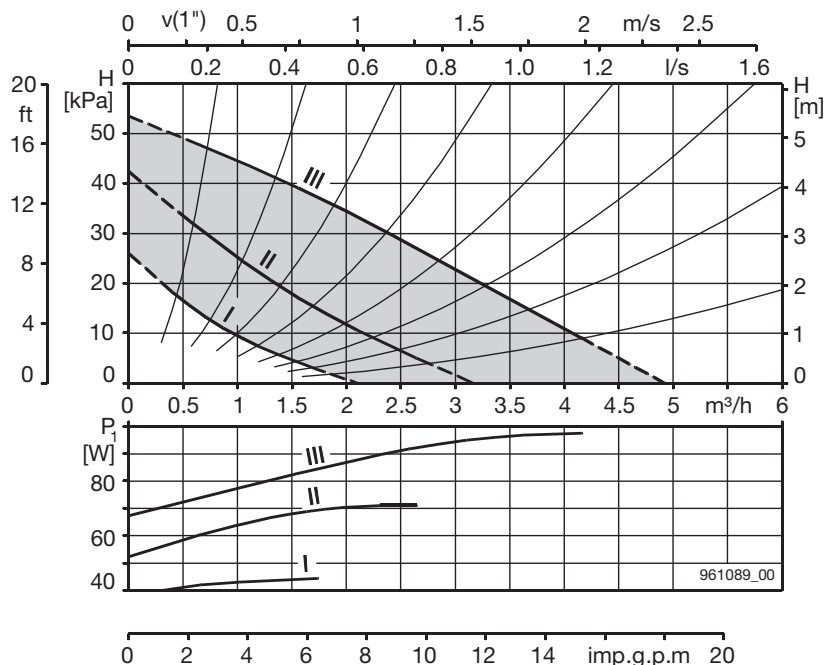


SX 13-1

Ø = 1", 3/4"
D = 1 1/2"
L = 180 mm
H = 235 mm

SX 13-4

Ø = 1/2"
D = 1"
L = 130 mm
H = 178 mm



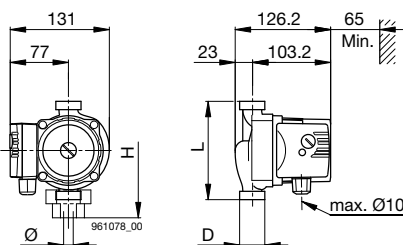
SX 15-4

Installation length	130 mm
Permissible operating pressure	10 bar
Permissible operating temp.	-20°C to +95/110°C ¹⁾
Required operating pressure at	500 m a.s.l.
at 75°C water temperature	0.10 bar
at 90°C water temperature	0.45 bar
at 110°C water temperature	1.20 bar
For every ±100 m altitude	±0.01 bar
Weight	2,8 kg
Voltage	1×230 V, 50 Hz
Current	III 0.52 A II 0.40 A
Power	III 83–114 W II 52–79 W

Capacitor built in 2.5 µF, 400 V

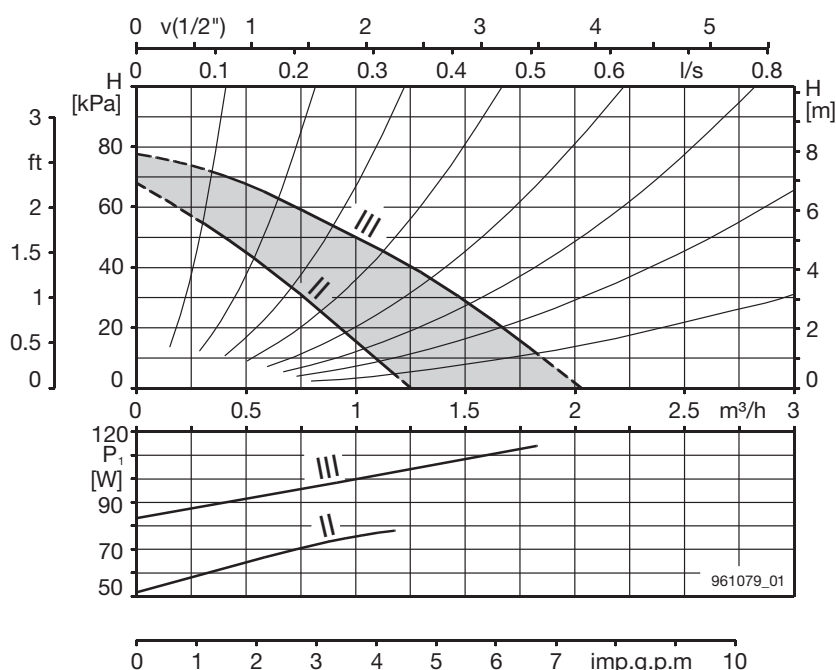
¹⁾ for short periods, ca. 30 min

The motor is short-circuit proof and requires no overload protection.



SX 15-4

Ø = 1/2"
D = 1"
L = 130 mm
H = 178 mm



Circulators for domestic hot water supply

Models:

WX/W

Pumps for hot water supplies

1×230 V

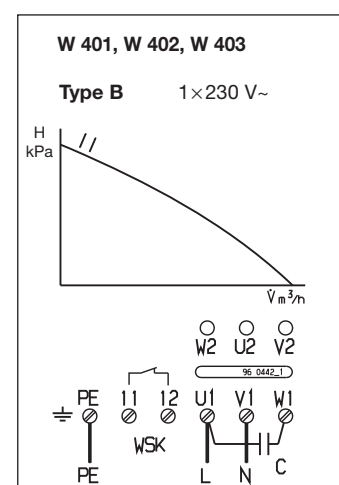
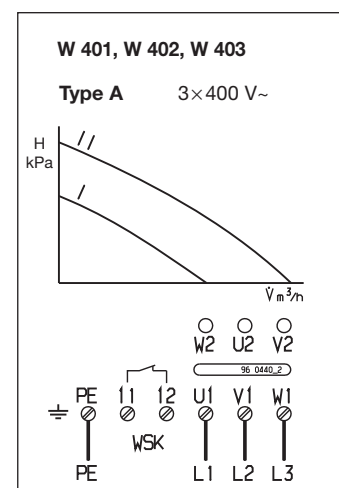
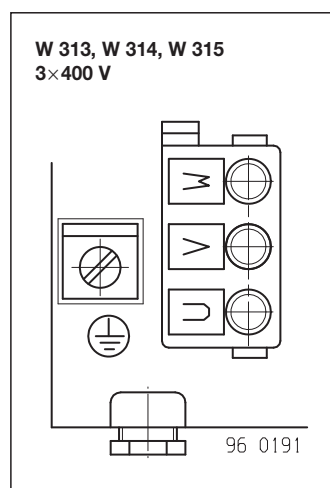
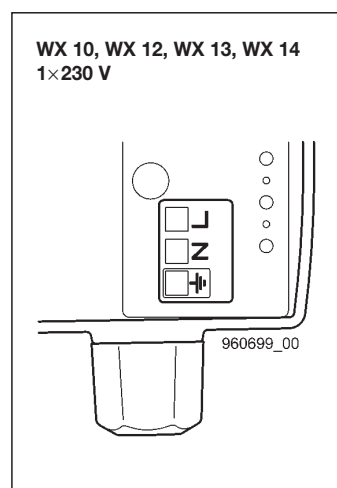
3×400 V

List of models

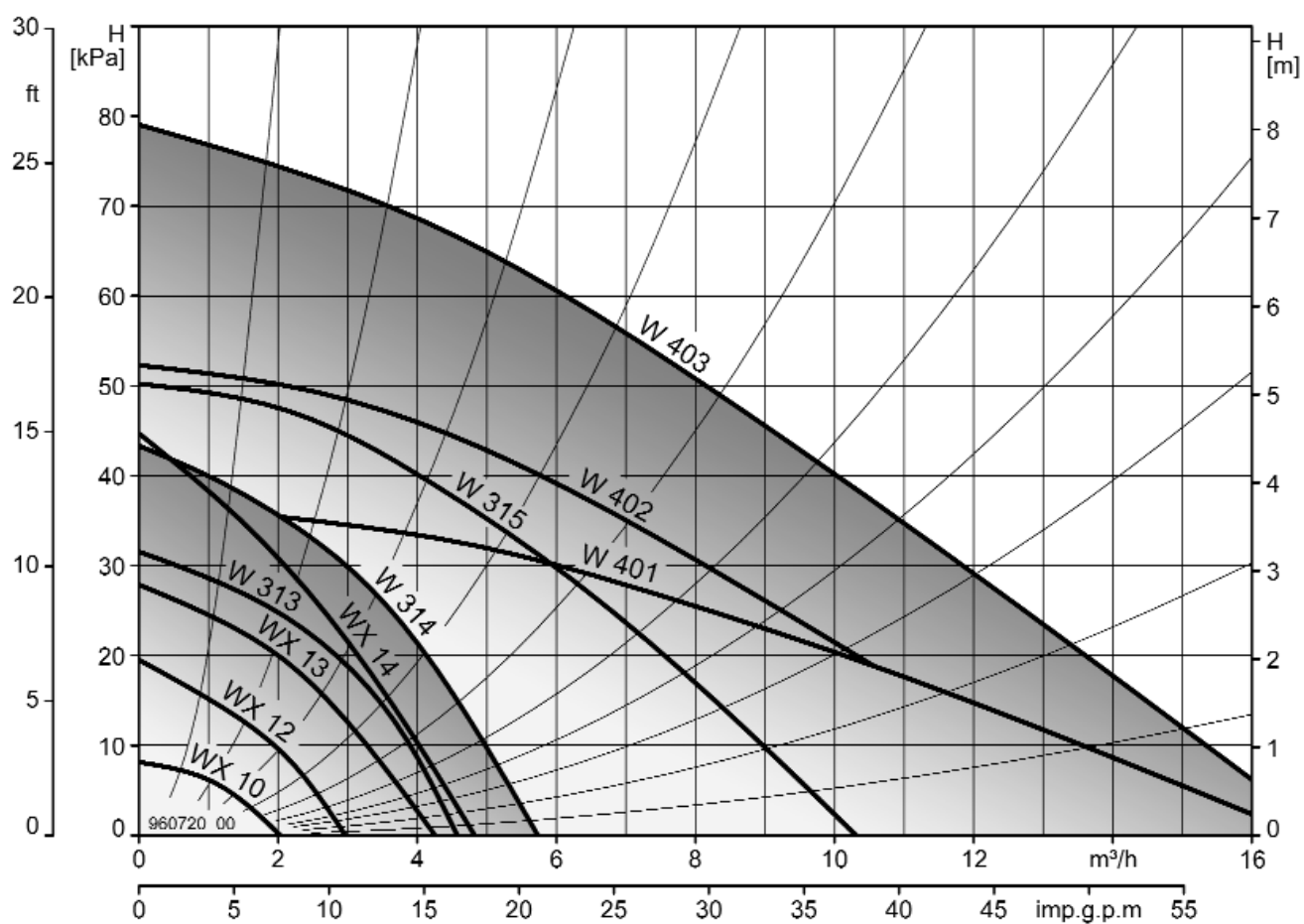
- Standard design
- Special design

DN	Installation dimensions	Type	PN10	PN6-16
25	1 1/4"×120 mm	WX 10, WX 12	●	
	1 1/4"×150 mm	WX 13, W 313	●	
		WX 14, W 314	●	
32	2"×180 mm	W 315	●	
40	Ø 40×250 mm	W 401, W 402, W 403		●

Electrical connection



The control device suitable for the pump: see page 69



WX 10 1×230 V

Installation length	120 mm
Permissible operating pressure	10 bar
Permissible operating temp.	65°C (max. 22°FH = 12°dH) 95°C (max. 14°FH = 8°dH)
Required operating pressure at at 65°C water temperature at 95°C water temperature	500 m a.s.l. 0.4 bar +0.6 bar
Weight	2.4 kg

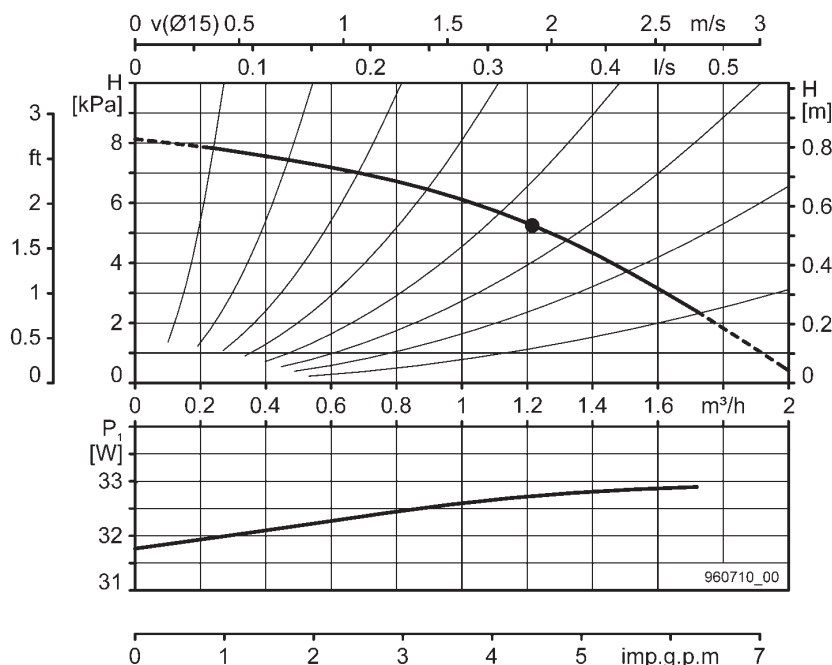
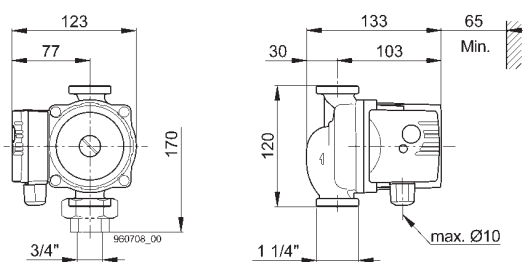
Voltage	1×230 V, 50 Hz
Speed	2600 rpm
Current	0.19 A
Power	31...33 W
Capacitor built in	2 µF, 400 V

The motor is short-circuit proof and requires no overload protection.

Pump housing: bronze

Control devices

For further information see page 69



WX 12 1×230 V

Installation length	120 mm
Permissible operating pressure	10 bar
Permissible operating temp.	65°C (max. 22°FH = 12°dH) 95°C (max. 14°FH = 8°dH)
Required operating pressure at at 65°C water temperature at 95°C water temperature	500 m a.s.l. 0.4 bar +0.6 bar
Weight	2.4 kg

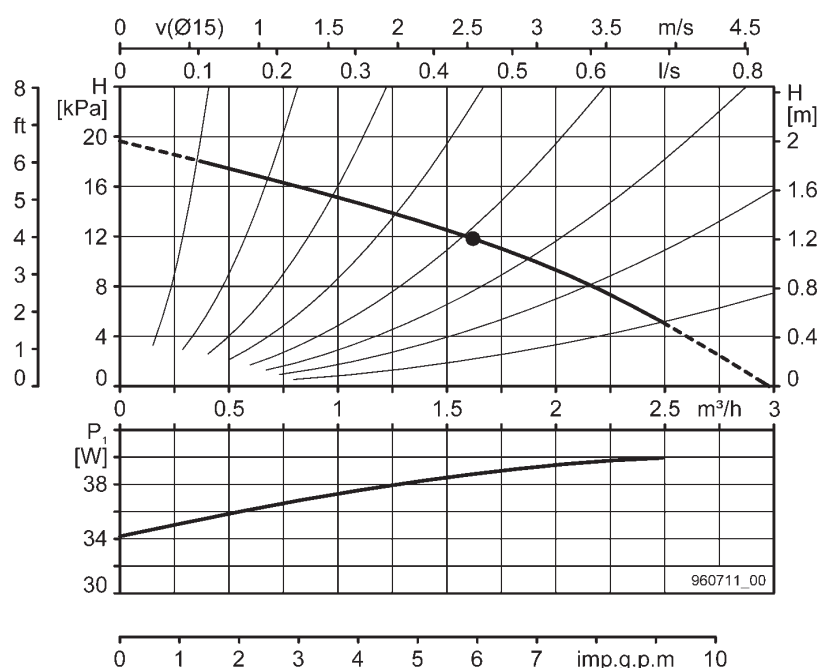
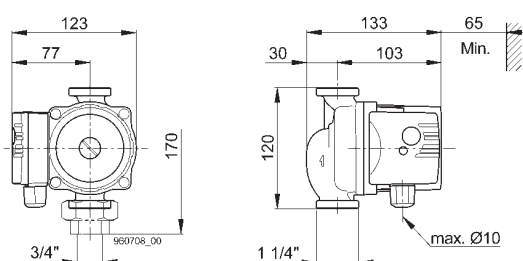
Voltage	1×230 V, 50 Hz
Speed	2200 rpm
Current	0.21 A
Power	34...40 W
Capacitor built in	2 µF, 400 V

The motor is short-circuit proof and requires no overload protection.

Pump housing: bronze

Control devices

For further information see page 69



WX 13 1×230 V

Installation length	150 mm
Permissible operating pressure	10 bar
Permissible operating temp.	65°C (max. 22°FH = 12°dH) 95°C (max. 14°FH = 8°dH)
Required operating pressure at at 65°C water temperature at 95°C water temperature	500 m a.s.l. 0.4 bar +0.6 bar
Weight	2.6 kg

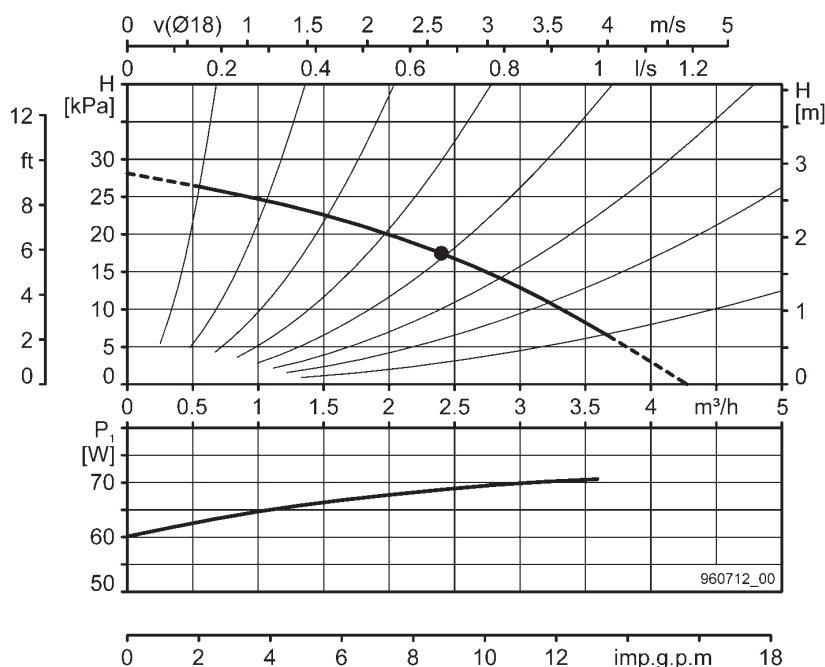
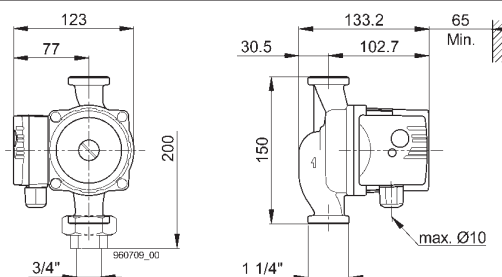
Voltage	1×230 V, 50 Hz
Speed	2600 rpm
Current	0.35 A
Power	60...70 W
Capacitor built in	2 µF, 400 V

The motor is short-circuit proof and requires no overload protection.

Pump housing: bronze

Control devices

For further information see page 69



W 313 3×400 V

Installation length	150 mm
Permissible operating pressure	10 bar
Permissible operating temp.	65°C (max. 22°FH = 12°dH) 95°C (max. 14°FH = 8°dH)
Required operating pressure at at 65°C water temperature at 95°C water temperature	500 m a.s.l. 0.4 bar +0.6 bar
Weight	4 kg

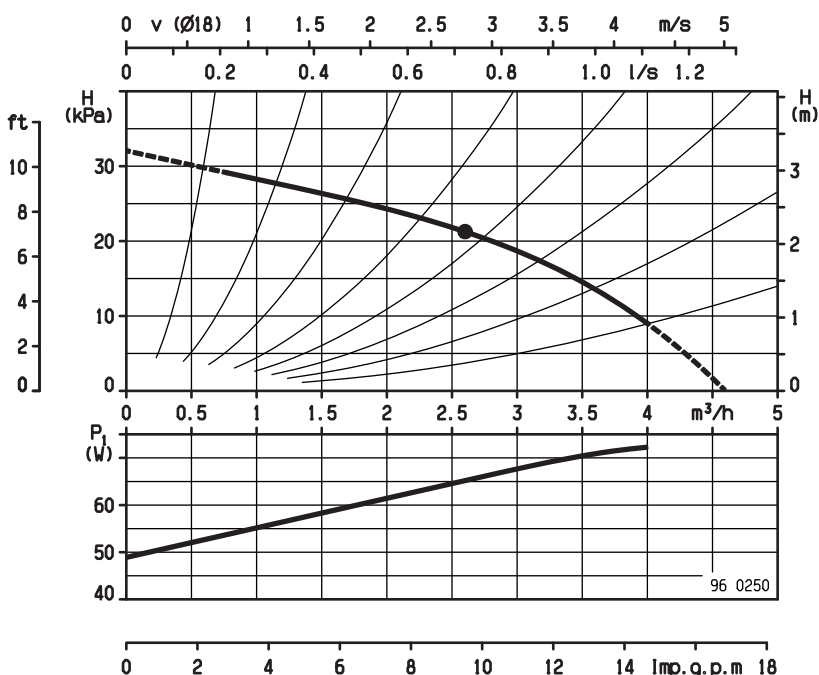
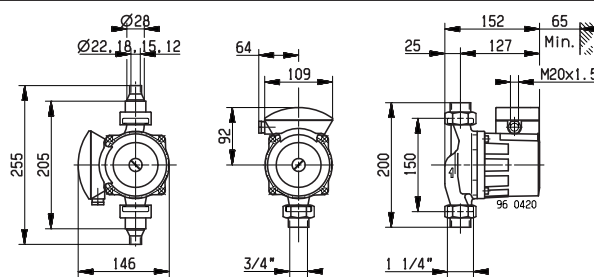
Voltage	3×400 V, 50 Hz
Speed	2450 rpm
Current	0.13 A
Power	50...70 W

The motor is short-circuit proof and requires no overload protection.

Pump housing: bronze

Control devices

For further information see page 69



WX 14 1×230 V

Installation length	150 mm
Permissible operating pressure	10 bar
Permissible operating temp.	65°C (max. 22°FH = 12°dH) 95°C (max. 14°FH = 8°dH)
Required operating pressure at at 65°C water temperature at 95°C water temperature	500 m a.s.l. 0.4 bar +0.6 bar
Weight	2.6 kg

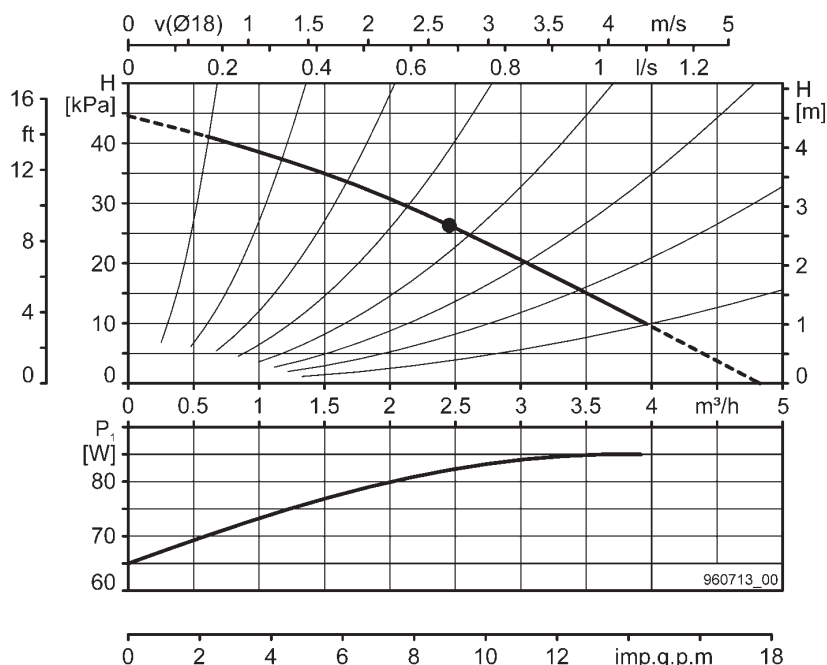
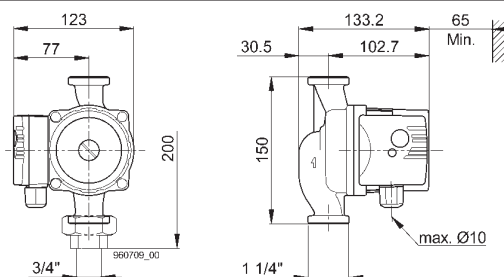
Voltage	1×230 V, 50 Hz
Speed	2400 rpm
Current	0.42 A
Power	65...85 W
Capacitor built in	2 µF, 400 V

The motor is short-circuit proof and requires no overload protection.

Pump housing: bronze

Control devices

For further information see page 69



W 314 3×400 V

Installation length	150 mm
Permissible operating pressure	10 bar
Permissible operating temp.	65°C (max. 22°FH = 12°dH) 95°C (max. 14°FH = 8°dH)
Required operating pressure at at 65°C water temperature at 95°C water temperature	500 m a.s.l. 0.4 bar +0.6 bar
Weight	4 kg

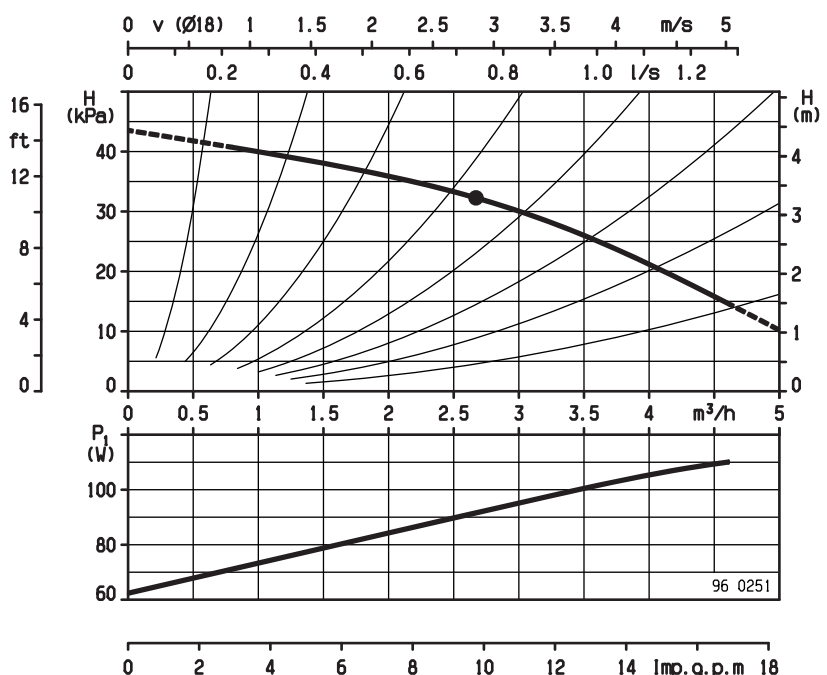
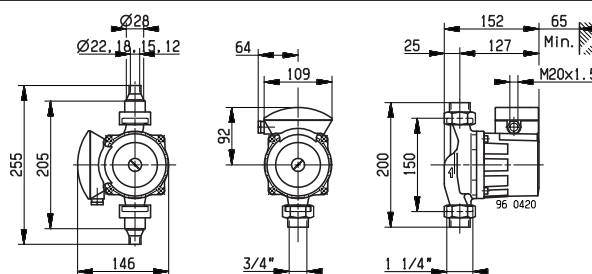
Voltage	3×400 V, 50 Hz
Speed	2450 rpm
Current	0.19 A
Power	60...110 W

The motor is short-circuit proof and requires no overload protection.

Pump housing: bronze

Control devices

For further information see page 69



W 315

3×400 V

Installation length	180 mm
Permissible operating pressure	10 bar
Permissible operating temp.	65°C (max. 22°FH = 12°dH) 95°C (max. 14°FH = 8°dH)
Required operating pressure at at 65°C water temperature at 95°C water temperature	500 m a.s.l. 0.4 bar +0.6 bar
Weight	4.5 kg

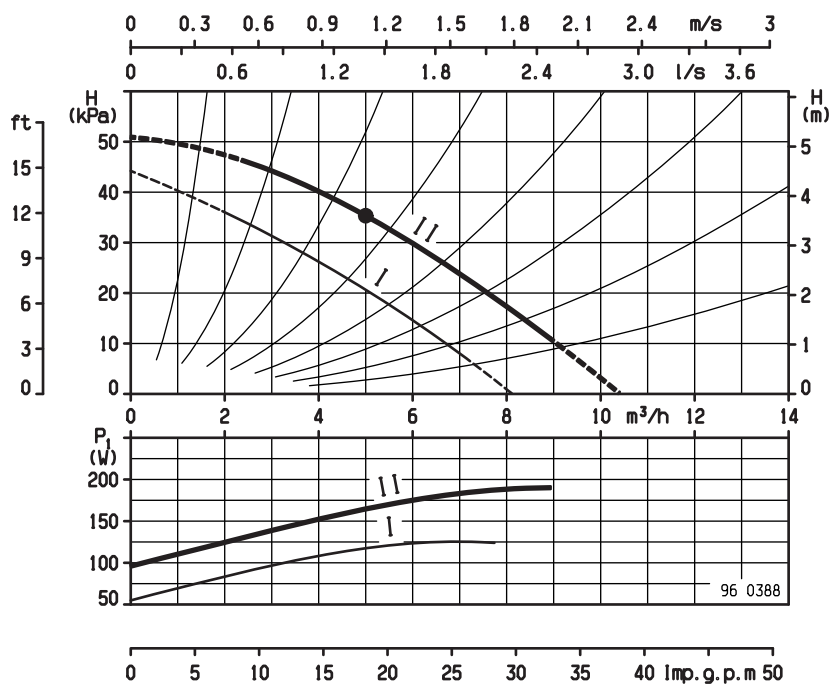
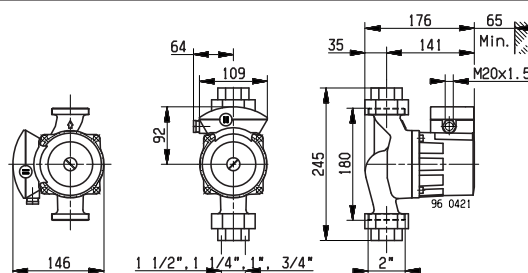
Voltage	3×400 V, 50 Hz
Speed	II 2550 rpm I 2250 rpm
Current	II 0.38 A I 0.21 A
Power	II 95...190 W I 55...130 W

The motor is short-circuit proof and requires no overload protection.

Pump housing: bronze

Control devices

For further information see page 69



W 401

Installation length	250 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	65°C (max. 22°F) 95°C (max. 14°F)
Required operating pressure at at 65°C water temperature at 95°C water temperature	500 m a.s.l. 0.4 bar +0.6 bar
Weight	14.5 kg
Speed	II 1400 rpm I 1180 rpm
Power	II 160...235 W I 60...120 W

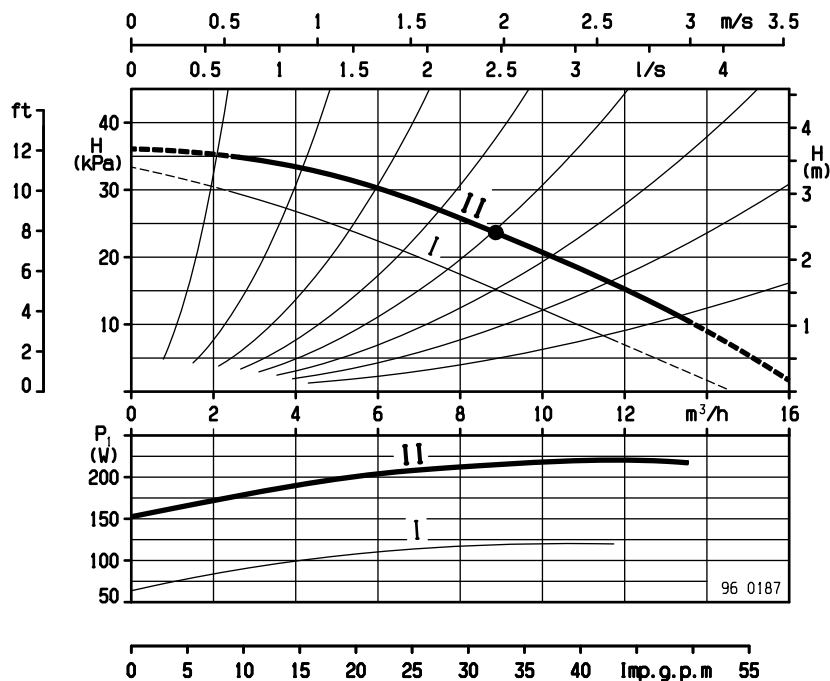
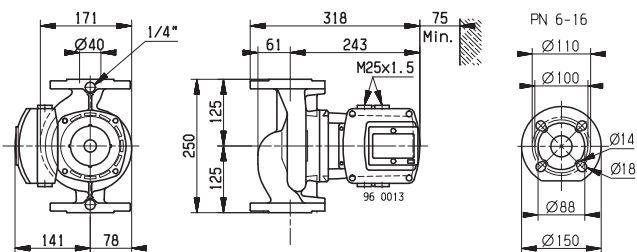
	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	0.8 A	Connect power II only
	I	0.3 A	
Plug type B: 1×230 V, 50 Hz	II	1.7 A	Operating capacitor 12 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	1.7 A	Connect power II only

Motor protection required

Special design: Bronze

Control devices

For further information see page 69



W 402

Installation length	250 mm
Permissible operating temp.	65°C (max. 22°F) 95°C (max. 14°F)
Required operating pressure at at 65°C water temperature at 95°C water temperature	500 m a.s.l. 0.4 bar +0.6 bar
Weight	14.5 kg
Speed	II 2780 rpm I 2450 rpm
Power	II 135...225 W I 95...165 W

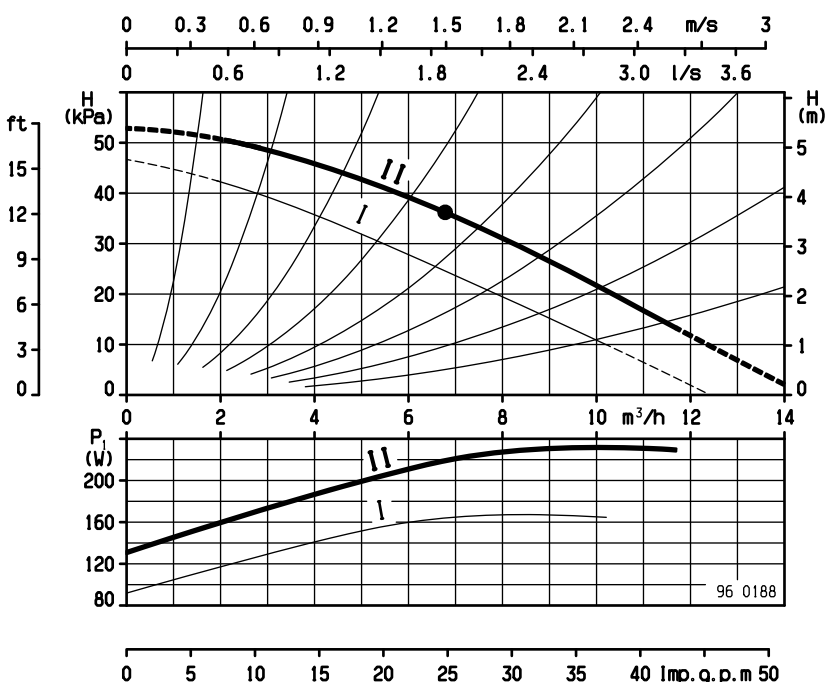
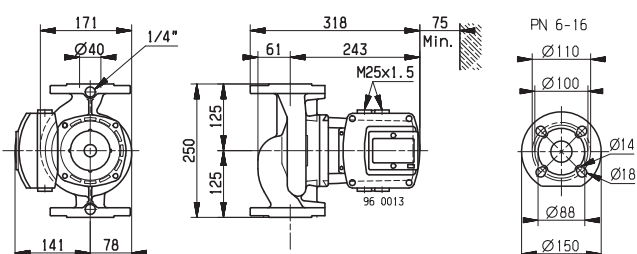
Motor protection required

	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	0.5 A	Connect power II only
	I	0.3 A	
Plug type B: 1×230 V, 50 Hz	II	1.35 A	Operating capacitor 8 µF, 280 V connect power II only
Plug type B: 3×230 V, 50 Hz	II	1 A	Connect power II only

Special design: Bronze

Control devices

For further information see page 69



W 403

Installation length	250 mm
Permissible operating pressure	6 - 16 bar
Permissible operating temp.	65°C (max. 22°FH) 95°C (max. 14°FH)
Required operating pressure at at 65°C water temperature at 95°C water temperature	500 m a.s.l. 0.4 bar +0.6 bar
Weight	14.5 kg

Speed	II 2680 rpm I 2200 rpm
Power	II 180...330 W I 130...225 W

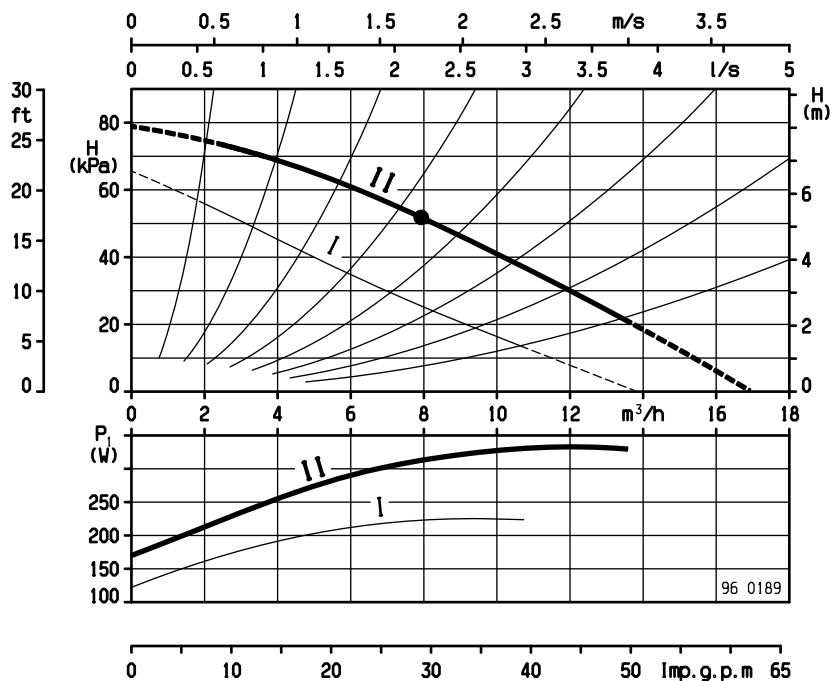
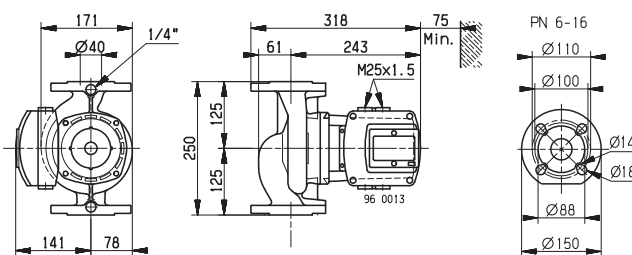
	Level	Current	Remarks
Plug type A: 3×400 V, 50 Hz	II	0.6 A	Connect power II only
	I	0.4 A	
Plug type B: 1×230 V, 50 Hz	II	1.9 A	Operating capacitor 8 µF, 280 V connect power II only
	I	1.3 A	
Plug type B: 3×230 V, 50 Hz	II	1.3 A	Connect power II only

Motor protection required

Special design: Bronze

Control devices

For further information see page 69



Control devices
to optimise a successful
range of pumps

Series:

BC

Control devices
for single and twin pumps

Motor protection is necessary
for reliable operation
of 2-stage pumps
(above $P1 = 120 \text{ W}$).
The pumps are protected
at both speeds with the
BC 712 W4 (wall-mounted)
or the BC 752 (fitted in
switch cabinet).

Control unit BC 753 is
provided to report pump
faults in types LX 321,
322, 323, 3-phase.

With **twin pumps** it is
necessary to switch on the
spare pump periodically
to prevent «sticking».

The BC 710 is suitable
for switching pumps
ON/OFF at certain times.
Specially 1-phase service
water pumps.



Type	Control function
BC 710	ON/OFF switch
BC 712 W4	Motor protection
BC 752	Motor protection module
BC 753	Overload detection module

Control devices

Selection table for single pumps

		Motor protection	⌚ ON/OFF
	MX 10, MX 12, MX 13 M 14, M 15	– –	BC 710
	LX 321 3~...LX 323 3~ LX 321 1~...LX 323 1~	BC 753 for DDC install. –	BC 710 + contactor ¹⁾ by client
	LX 325...LX 803 L 804...L 1004	BC 712 W4, BC 752 BC 712 W4, BC 752	BC 710 + BC 712 W4
	HX 301...HX 302	Thermal motor protection (by client)	BC 710 + contactor ¹⁾
	HX 322...HX 802	BC 712 W4, BC 752	BC 710 + BC 712 W4

Selection table for twin pumps

		Motor protection	Pump change-over switch
	LXD 321...LXD 323 3~ LXD 321...LXD 323 1~ HXD 301...HXD 302	BC 753 (2×) for DDC install. – Thermal motor protection (by client)	by client
	LXD 401...LXD 803 LD 804...LD 1004	BC 712 W4 (2×), BC 752 (2×) BC 712 W4 (2×), BC 752 (2×)	by client
	HXD 402-1...HXD 802	BC 712 W4 (2×) + BC 752 (2×)	by client

Selection table for service water pumps

		Motor protection	⌚ ON/OFF
	WX 10, WX 12 WX 13, WX 14	– –	BC 710
	W 313, W 314, W 315	–	BC 710 + contactor ¹⁾
	W 401, W 402, W 403	BC 712 W4 ¹⁾ BC 752 ¹⁾	BC 710 + BC 712 W4

¹⁾ for 3-phase pumps

²⁾ On/off over 10, 11

⌚ automatic
time-dependent

BC 710:

On/Off switch

Control equipment for automatic, time-dependent ON/OFF switching of pumps



Switching functions

- Manual ON/OFF switch (I/O)
- Automatic, time-dependent ON/OFF control (⌚). Minimum switching intervals 15 minutes.

Dimensions:
(W, H, D) 80×152×65 mm
Connection:
1×230 V, 50 Hz
Contact rating:
max. 6 A
Protection type:
IP 31 according to
DIN 40050

Suitable for pump types

BC 710 for pumps with short-circuit proof motor:
Supply 1×230 V:
MX 10, MX 12, MX 13, M 14, M 15,
LX 321 1~, LX 322 1~, LX 323 1~,
WX 10, WX 12, WX 13, WX 14

LX 321 3~, LX 322 3~, LX 323 3~,
HX 301, HX 302
W 313, W 314, W 315
+ motor protection not included

BC 710 for pumps with motor protection:
Supply 3×400 V:
BS 710 + BS 712 W4/BS 752:
L 804...L 1004,
LX 325...LX 803,
HX 322...HX 802
W 401, W 402, W 403 (3×400 V)
Supply 1×230 V (plug B)

BC 712 W4:

Motor protection

Motor protection for pumps 3×400 V and winding protection contact



Switching functions

- Manual ON/OFF switch
- Built-in motor protection

Speed is selected manually by a plug on the pump.

Caution:

The pump must be switched off before changing the position of the plug.

Additional switching facilities

- Connection for external ON/OFF switching (such as BC 710)

Dimensions:
(W, H, D) 105×170×82 mm
Connection:
3×400 V, 50 Hz
Contact rating:
max. 4,0 kW
Protection type:
IP 31 nach DIN 40050

Suitable for pump types

3×400 V only
LX 325...LX 803
L 804...L 1004
HX 322...HX 802
W 401...W 403

Twin pumps

LXD 401...LXD 803
LD 804...LD 1004
HXD 402-1...HXD 802

BC 752:

Motor protection module

Motor protection module for pumps with three-phase motors and winding protection contact (controls only).

DIN standard module for control cabinet fitting.



Switching functions

- Switches pump off in the event of thermal overload.
- Indication of alarms.
- Potentialfree contact to indicate run and alarm status of the pump.
- Suitable for central control technology.

Dimensions:
(W, H, D) 45×75×105
Connection:
1×230 V, 50 Hz
Contact rating:
max. 3 A
Protection type:
IP 20 according to DIN 40050

Suitable for pump types

3×400 V only
LX 325...LX 803
L 804...L 1004
HX 322...HX 802
W 401...W 403

Twin pumps

LXD 401...LXD 803
LD 804...LD 1004
HXD 321...HXD 802

BC 753-...:

Overload detection module

Overload detection module for pumps with short-circuit proof motors (controls only).

DIN standard module for control cabinet fitting

Accessoires:
Timer



Switching functions

- Indication of overload in the short-circuit proof circulating pump with a potentialfree contact, recommendable for plants with central control technology.

Dimensions:
(W, H, D) 45×75×105
Connection:
1×230 V, 50 Hz
Contact rating:
1 A
Protection type:
IP 20 according to DIN 40050

Suitable for pump types

LX 321...LX 323, 3×400 V only

State type of pump when ordering:
BS 753-1X: LX 321
BS 753-2X: LX 322
BS 753-3X: LX 323



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