Heating

Air-conditioning / Refrigeration

Service water


## AX.. / A.. / ModulA..

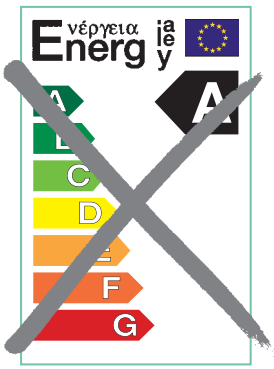
# Highly efficient mini-energy pumps

Biral ECO DESIGN

More than pumps

Biral

## Biral ECO design replaces energy label A




Since 1 January 2013, the old energy label will be replaced with classifications «A» to «G» from the new energy efficiency index (EEI).

Only the best of the circulation pumps currently classified under «A» will meet the new efficiency requirements.

Highly-efficient mini-energy circulation pumps from Biral are exceptionally energy-efficient and meet the requirements of the eco-design guidelines (EO regulation no. 641/2009) that have been informed since 1 January 2013.

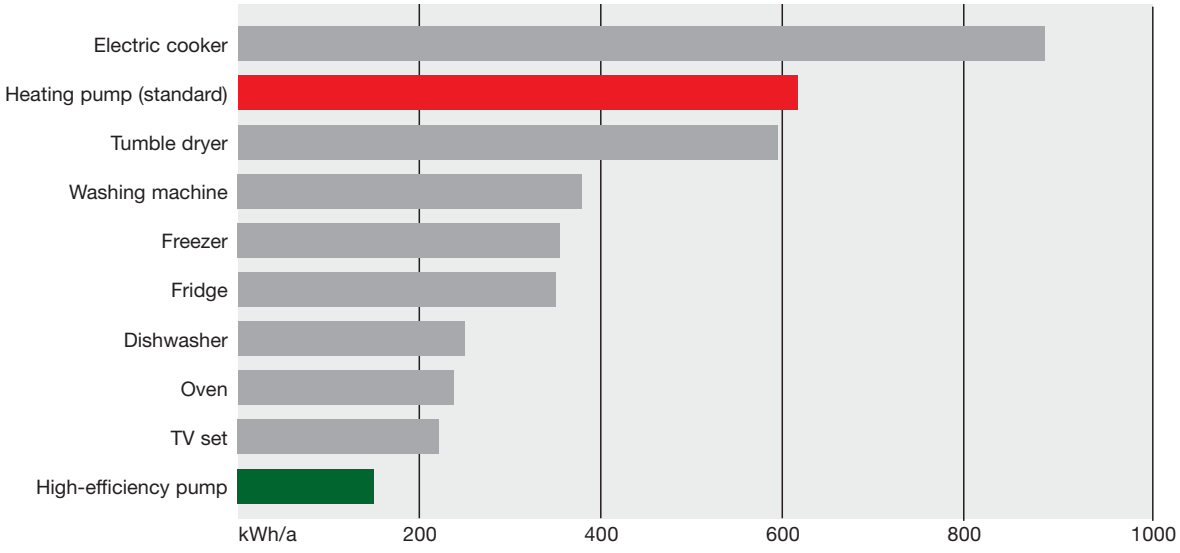
Reference value
for the most efficient circulation pumps:
EEI ≤0.20

Drinking water circulation pumps do not come under the eco-design guidelines. Nevertheless, there are already highly-efficient, energy-saving pumps for this, which Biral is introducing into the range.

## Highly efficient mini energy pumps are economical: Up to 80 per cent lower electricity consumption

New highly-efficient circulation pumps nowadays use up to 80 per cent less electricity than old inefficient models. As circulation pumps are in constant use, particularly during the cold season, the purchase price of a highly-efficient circulation pump pays for itself after just a few years. With a lifespan of around 15 years, it pays to change.

**Electricity use per year in a detached house**



## Introduction



## Heating circulation pumps

*«You enjoy your cosy warm home.
And the Mini-Energy pump from Biral allows the heating water to circulate. Silently and with maximum efficiency!»*



Heating

## Cold water circulation pumps

*«31 °C outside temperature. The air-conditioning in the office ensures a comfortable working atmosphere. And the Mini-Energy cold water pump from Biral plays its part. With maximum efficiency.»*



Air-conditioning/ Refrigeration

## Intelligent service water pumps

*«You turn on the shower as usual.
And the AXW-smart from Biral already knows.
Thanks to smart-technology!»*



Service water

## Service water pumps

*Seepark Hotel, Thoune.
«The man in suite 57 turns on the shower.
And Biral AXW is on the spot – with maximum efficiency.»*



Service water

# Biral – The innovator of highly-efficient permanent magnet technology

Wuppertaler Energie- und Umweltpreis 2000

promoted by the Wuppertal Institute for Climate, Environment, Energy Co.

## Biral mini-energy pumps since 2000

As long ago as November 2000, Biral won the Wuppertal energy and environment prize, in addition to the Swiss Prix Eta Plus. This was achieved with the heating circulating pump MC 10, the efficiency of which exceeded all previous values.

Biral was already a leader at that time with regard to efficiency and has gradually enhanced its superiority. In the meantime of course heating systems of all sizes can be fitted with pumps bearing the A-label for maximum energy efficiency: for the sake of the environment and for greater operating reliability to save energy costs.

## AXW smart – the intelligent Mini-Energy service water pump

The world innovation AXW smart was distinguished with the VSK award at the VSK trade-fair in Utrecht. The jury congratulated Biral on this new product. The self-taught pump ensures maximum comfort with massive energy savings. The smart technology learns your consumption habits and provides hot water at the right time.


## Biral – Pioneers in power-saving heating circulation pumps

The Product Test foundation tested nine heating pumps. The test criteria were energy-efficiency, handling and suitable design for recycling. The Biral pump is highly economical and received the distinction «very good»!

# 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 ECO-series provides significant energy savings. The new motor technology permits energy savings up to 80 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

**Recommendation for regulated circulating pumps**
Regulated circulating pumps continually adjust the flowrate along a pre-defined characteristic with changing pipe characteristics.

Nevertheless it is also worthwhile here to make a careful choice of the right pump size.

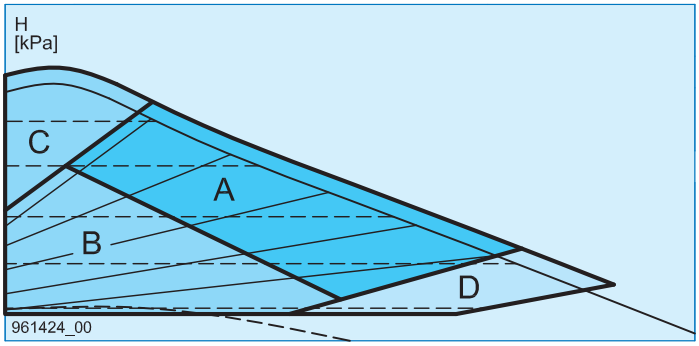



*Fig.: Choice of regulated pumps*

**A** = *Optimum control range*
– *Range with the best degree of overall effectiveness*

**B** = *Limited control range*
– *If possible select a smaller pump*

**C** = *Limited control range*
– *The pump works but has limited control*

**D** = *Outside the control range*
– *If possible avoid*

## 2. 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 static 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. 2).

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

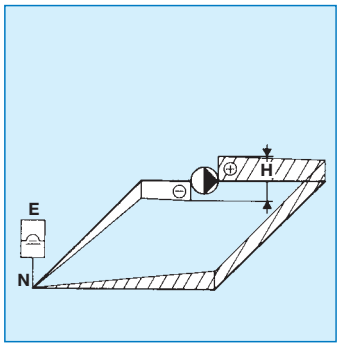



*Fig. 2: Pressure distribution*

⊕ = *Overpressure range*
⊖ = *Underpressure range*
*E* = *Expansion vessel*
*N* = *Neutral point*
*H* = *Delivery head of pump*

## 3. Requirements of medium

**Water treatment**
The guidelines of SWKI BT102-01 and VDI 2035 «Water treatment for heating, steam and air-conditioning systems» should be observed.

**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)

**Oxygen**
<0,1 mg/dm³

The systems must be thoroughly flushed before filling.

**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. 3.

**Example**
$H_{mixture}$ = 30 kPa
$Q_{mixture}$ = 7 m³/h

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

Factors according to fig. 4:
Fh = 1,26
Fq = 1,57
Conversion of required pump operating point for water heat transfer
$H_{water} = H_{mixture} \times Fh$
$= 30 \times 1,26 = 37,8$ kPa
$Q_{water} = Q_{mixture} \times Fq$
$= 7 \times 1,57 = 11$ m³/h

Circulating pump complying with operating point $Q_{water}/H_{water}$:
ModulA 40-10 220 GREEN

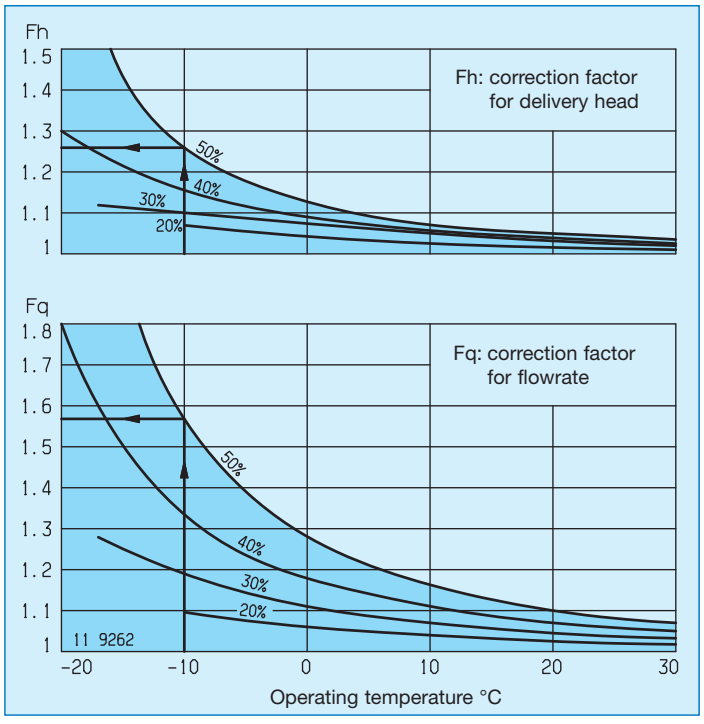



*Fig. 3: Correction factors for pump characteristic compared with water delivery*

## 4. Pipeline connection and pump installation

- Always fit pump between two shut-off devices
- Fit pump so that the motor shaft is horizontal, regardless of the position of the pump casing (fig. 4)
- The arrow on the pump casing shows the flow direction (fig. 5)
- 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.

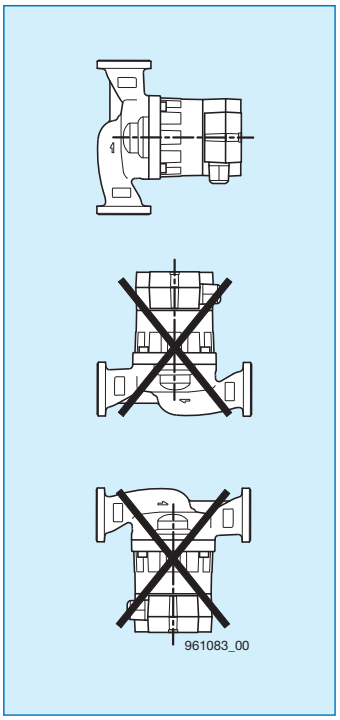



*Fig. 4: Fitting pump*

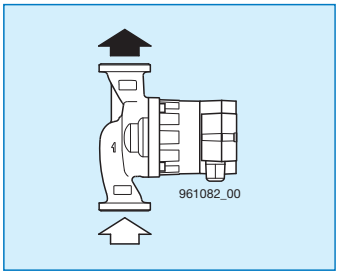



*Fig. 5: Flow direction*

## 5. Choice of control type

Regulated pumps can be operated in three different control types:

**Regulation with proportional operating pressure (PP)**
The internal regulation increases the differential pressure of the system with increasing flowrates. This desired regulation curve can be preset. This regulation is particularly suitable for the following systems:

- Two-pipe heating systems with thermostatic valves and
  - long pipe sections
  - valves with wide working range
  - high pressure losses
- Floor heating systems with thermostatic valves and high pressure losses
- Systems with primary circuit pumps with high pressure loss.

**Regulation with constant operating pressure (CP)**
The internal regulation keeps the differential pressure of the system constant if the flowrate changes. This pressure can be preset. This regulation is particularly suitable for the following systems:

- Two-pipe systems with thermostatic valves and
  - delivery head larger than 2 m
  - natural circulation (low pressure loss, large pipe dimensions)
- Floor heating systems with thermostatic valves
- Single-pipe heating systems with thermostatic valves and regulating valves
- Systems with primary circuit pumps with low pressure loss

**Regulation with constant speed (CS)**
With this form of regulation the internal pressure regulation is switched off. The speed of the pump can be adjusted to a constant value manually or by an external signal (auxiliary module 0–10 V). This form of regulation is particularly suitable for systems with constant pressure conditions (heat exchangers, boiler feed pumps, etc.) or for external system regulation.

## 6. Choice of regulation characteristic

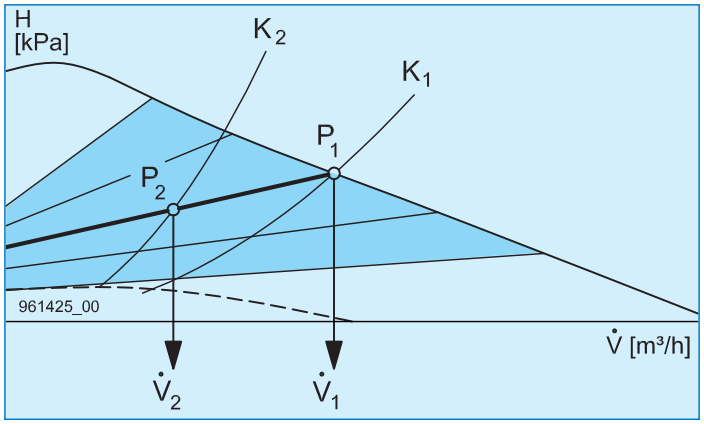



*Fig. 6: Continuous variation of pump speed in regulated pumps*

With changing pipeline resistance ($K_1$ ➜ $K_2$) regulated circulating pumps continuously adjust the flowrate along a pre-defined characteristic curve (fig. 6).
The required regulation characteristic can be set by means of the rotary switch or key A2 (fig. 7).

## 7. Operation of A pumps

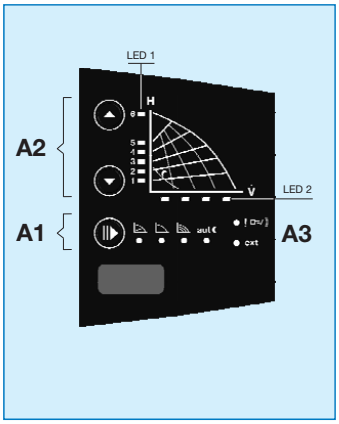



*Fig. 7: Setting regulation characteristic curves*

**Operation**
Regulated circulating pumps can be operated in three different regulation modes and in part have a so-called automatic minimum speed.

**A1** Form of regulation

**A2** Regulation characteristics 1…5
6 max. pump characteristic

**A3** Illuminated symbol for fault, ext. operation

Proportional pressure

Constant pressure

Constant speed

**Aut.** with and without automatic minimum speed

**LED 1:** Indication of regulation characteristic set

**LED 2:** Indication of current rate of flow V̇ (25 …100%)

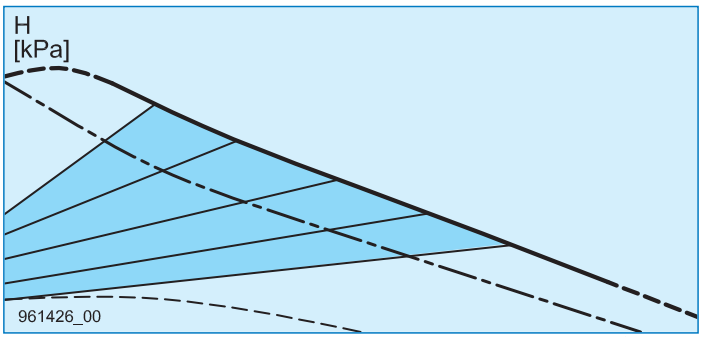



*Fig. 8: Power limiting for electrically regulated pumps*
*–·–·–·–· Power limiting*

**Service limit for A pumps**
All regulated circulating pumps are supplied with preset power limiting.
This characteristic curve is sufficient owing to the power reserve in the design.

The limiting also saves energy and flow noise is reduced owing to over-dimensioned pumps.
If full power is required, the pump can be changed over in the terminal box (see operating instructions).

## 8. Operation of ModulA

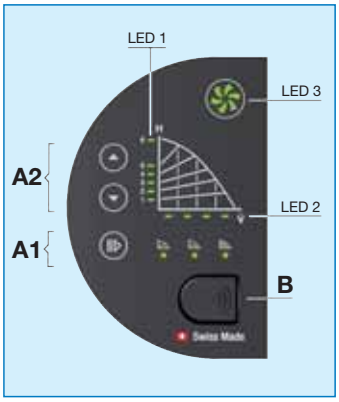



*Fig. 9*

**A1** Setting the control type

Proportional pressure

Constant pressure

Constant speed

**A2** Setting of the control characteristics 10 control characteristics (stage) can be set

**LED 1:** Display of control characteristics set (stage)

**LED 2:** Display of current $\dot{V}$ delivery amounts (25 … 100%)

**LED 3:** Biral Impeller displays the status of the pump

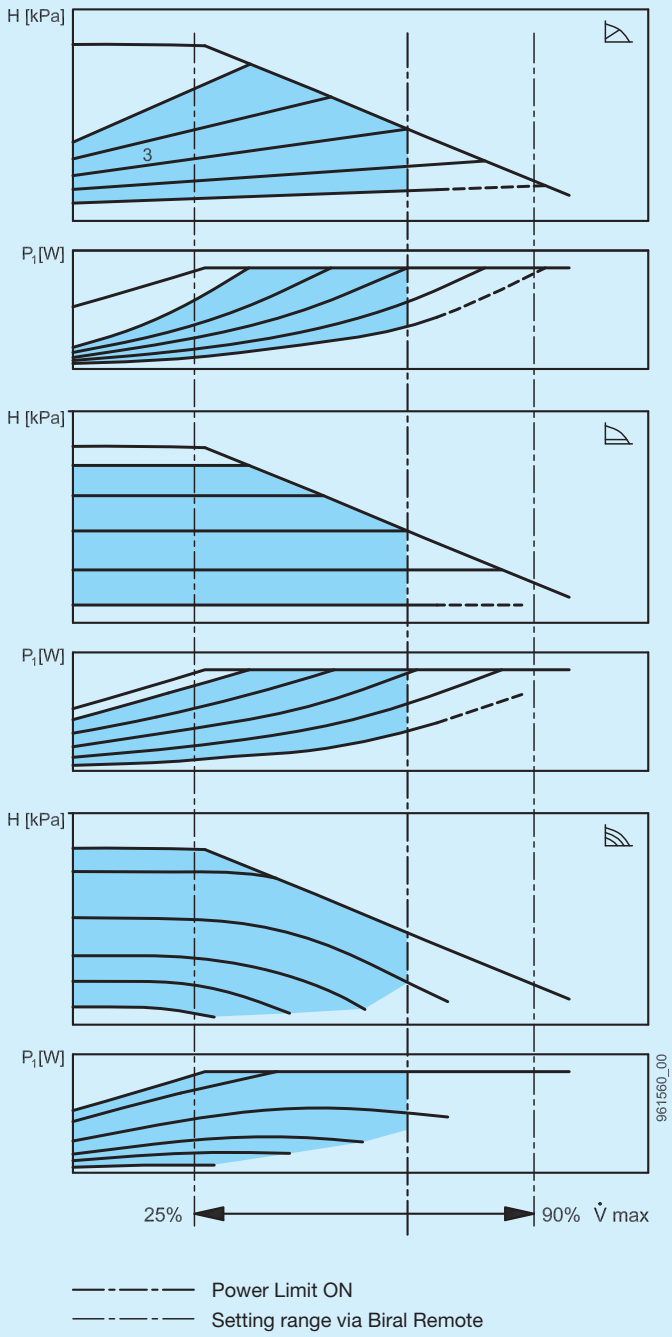
**B** Slot for remote adapter

## 9. Power limit for ModulA

The power limit (volume flow limit $\dot{V}$) can be activated in the pump.

The pre-set maximum volume flow $\dot{V}$ is at the end of control characteristic 3 (proportional pressure).

The volume flow limit $\dot{V}$ can be set from 25…90% via Biral Remote.



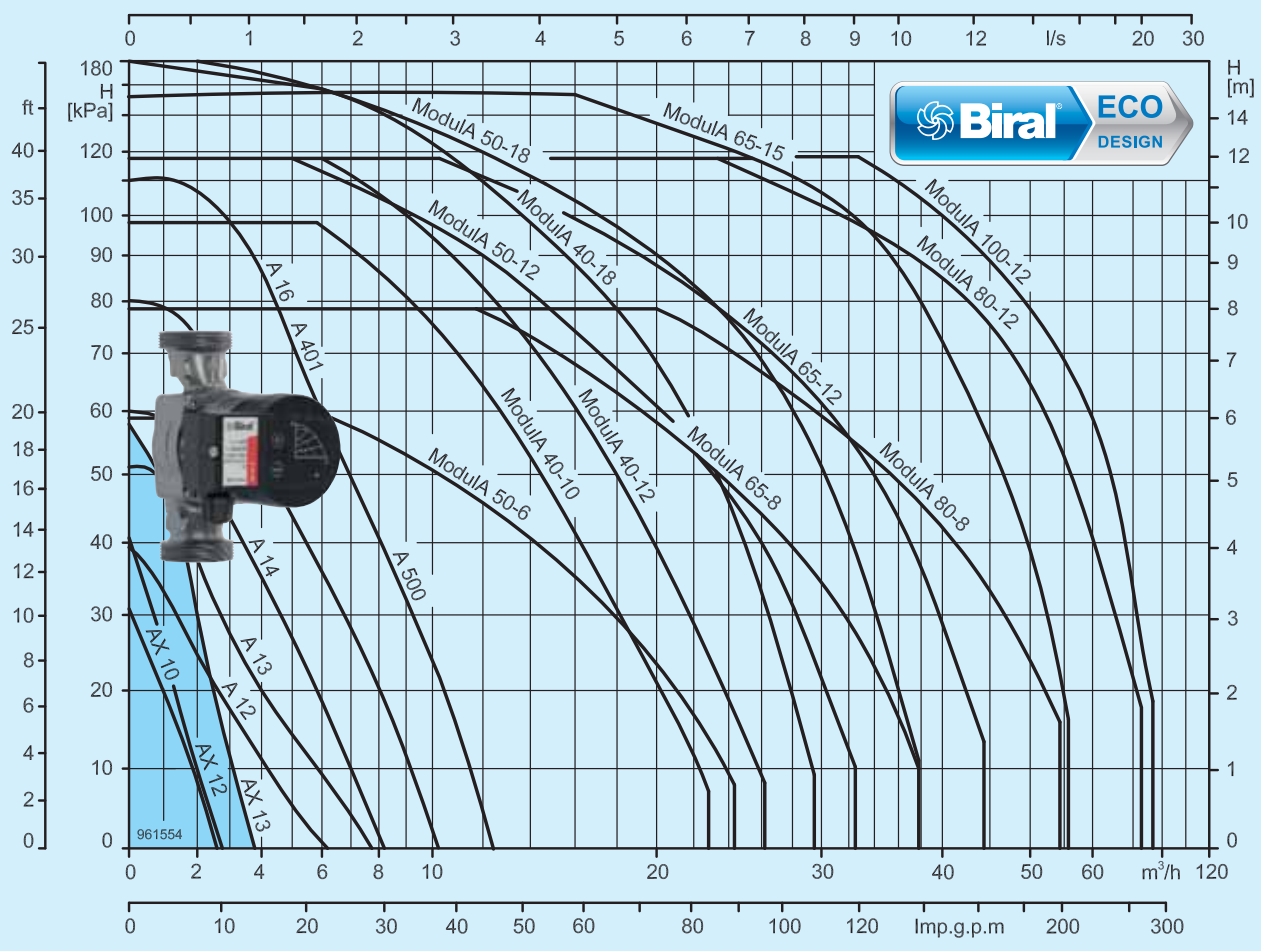



ModulA – the latest generation of top-class pumps, which can do exactly what you want – nothing more, nothing less.

# Heating circulation pumps
## AX 10 ... AX 13

Summary

| Type | Connection | Nominal width DN | Discharge head max. mWC | Installation length mm | Operating pressure max./bar | EEI-value |
|---|---|---|---|---|---|---|
| AX 10 | G 2” | 32 | 3 | 170 | 10 | ≤0.19 |
| AX 12 | G 2” | 32 | 4 | 170 | 10 | ≤0.21 |
| AX 13 | G 2” | 32 | 6 | 170 | 10 | ≤0.23 |
| | | | | | | |
| AX 10-1 | G 1½” | 25 | 3 | 180 | 10 | ≤0.19 |
| AX 12-1 | G 1½” | 25 | 4 | 180 | 10 | ≤0.21 |
| AX 13-1 | G 1½” | 25 | 6 | 180 | 10 | ≤0.23 |
| | | | | | | |
| AX 12-2 | G 2” | 32 | 4 | 180 | 10 | ≤0.21 |
| AX 13-2 | G 2” | 32 | 6 | 180 | 10 | ≤0.23 |
| | | | | | | |
| AX 12-3 | G 1½” | 25 | 4 | 130 | 10 | ≤0.21 |
| AX 13-3 | G 1½” | 25 | 6 | 130 | 10 | ≤0.23 |
| | | | | | | |
| AX 12-4 | G 1” | 15 | 4 | 130 | 10 | ≤0.21 |
| AX 13-4 | G 1” | 15 | 6 | 130 | 10 | ≤0.23 |



# AX 10, -1

| | | |
|---|---|---|
| **Installation length** | | **170/180 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | +15°C to +110°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 90°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.05 bar<br>0.30 bar<br>1.10 bar<br>±0.01 bar |
| Weight | | 2.3 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.05…0.18 A |
| | min | 0.05 A |
| Power | Regulation | 4…21 W |
| | min | 4 W |

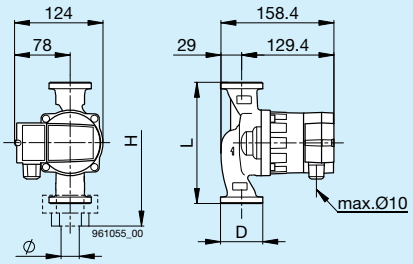
To avoid the formation of condensation the media temperature must always be higher than the ambient temperature.

| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 15 | 15 | 110 |
| 30 | 30 | 110 |
| 35 | 35 | 90 |
| 40 | 40 | 70 |

The pump is fitted with internal electric motor protection and requires no external motor protection.

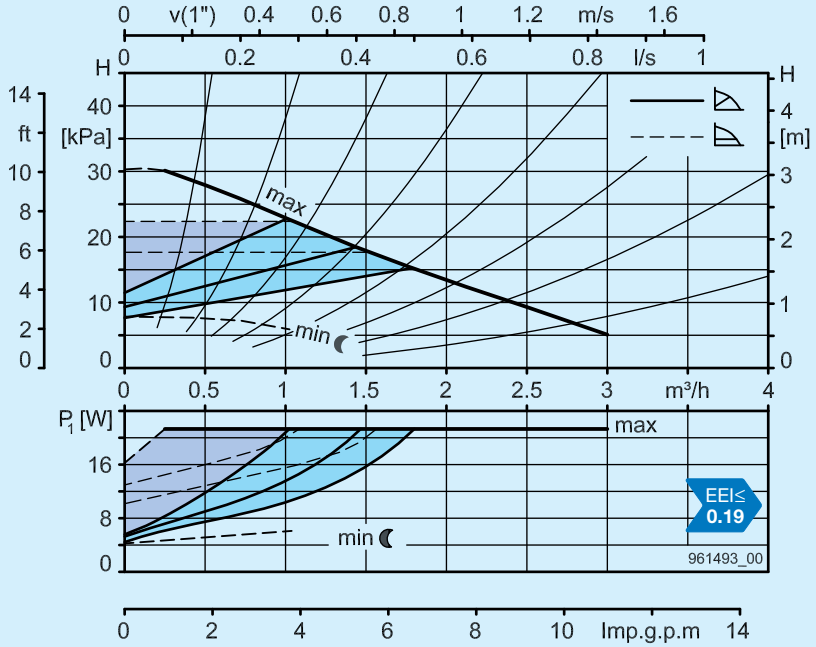
**Options:**
– Heat insulation shells

See page 74 for further details




**AX 10**
Ø= 1½",1¼",1",¾"
D = 2"
L = 170 mm
H = 235 mm

**AX 10-1**
Ø= 1",¾"
D = 1½"
L = 180 mm
H = 235 mm




# AX 12, -1, -2, -3, -4

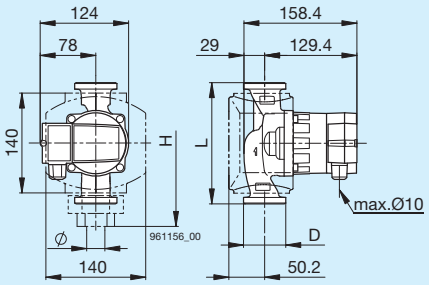
| | | |
|---|---|---|
| **Installation length** | | **130/170/180 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | +15°C to +110°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 90°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.05 bar<br>0.30 bar<br>1.10 bar<br>±0.01 bar |
| Weight | | 2.3 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.05…0.19 A |
| | min | 0.05 A |
| Power | Regulation | 5…22 W |
| | min | 5 W |

To avoid the formation of condensation the media temperature must always be higher than the ambient temperature.

| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 15 | 15 | 110 |
| 30 | 30 | 110 |
| 35 | 35 | 90 |
| 40 | 40 | 70 |

The pump is fitted with internal electric motor protection and requires no external motor protection.

The pumps AX 12,-1,-2 are fitted with a thermal insulation shell.



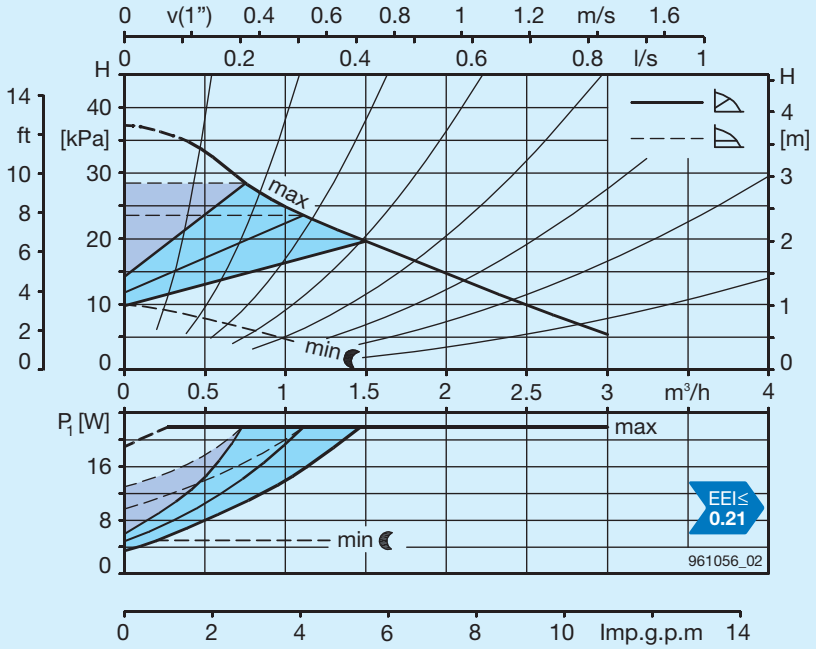

**AX 12**
Ø= 1½",1¼",1",¾"
D = 2"
L = 170 mm
H = 235 mm

**AX 12-1**
Ø= 1",¾"
D = 1½"
L = 180 mm
H = 235 mm

**AX 12-2**
Ø= 1½",1¼",1",¾"
D = 2"
L = 180 mm
H = 245 mm

**AX 12-3**
Ø= 1",¾"
D = 1½"
L = 130 mm
H = 185 mm

**AX 12-4**
Ø= ½"
D = 1"
L = 130 mm
H = 178 mm



# AX 13, -1, -2, -3, -4

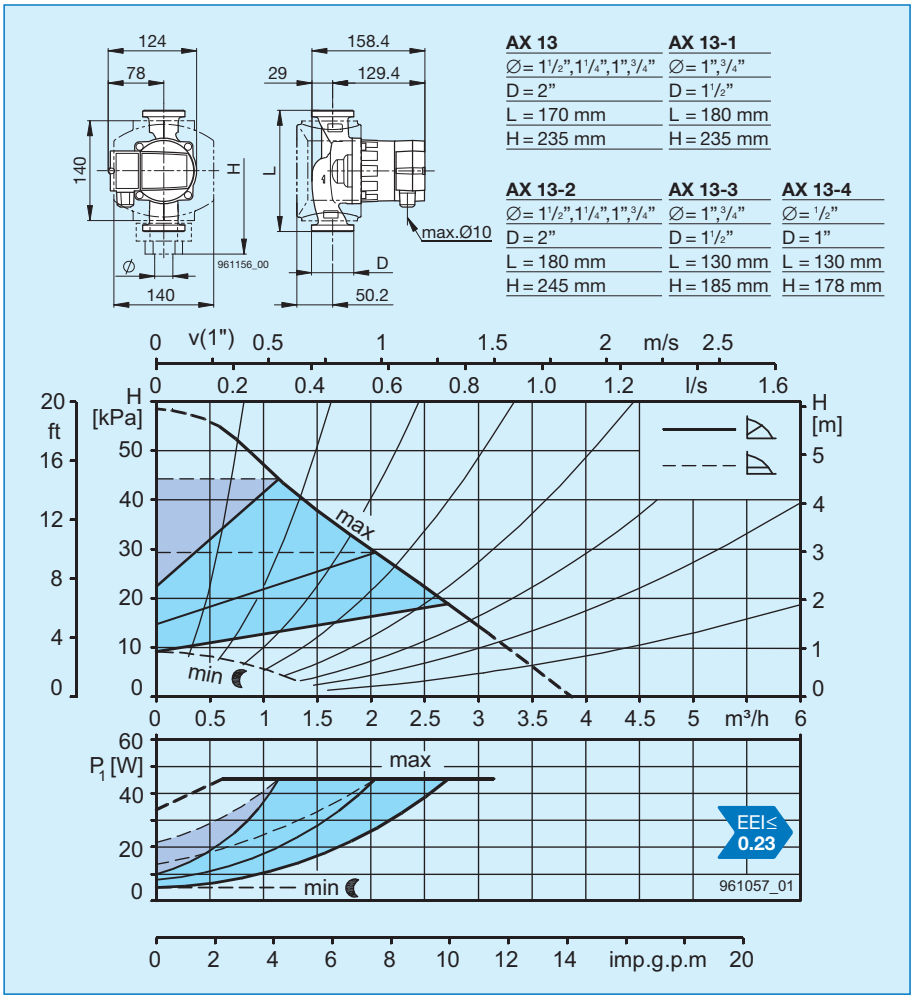
| | | |
|---|---|---|
| **Installation length** | | **130/170/180 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | +15°C to +110°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 90°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.05 bar<br>0.30 bar<br>1.10 bar<br>±0.01 bar |
| Weight | | 2.3 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.05…0.38 A |
| | min | 0.05 A |
| Power | Regulation | 5…45 W |
| | min | 5 W |

To avoid the formation of condensation the media temperature must always be higher than the ambient temperature.

| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 15 | 15 | 110 |
| 30 | 30 | 110 |
| 35 | 35 | 90 |
| 40 | 40 | 70 |

The pump is fitted with internal electric motor protection and requires no external motor protection.

The pumps AX 13,-1,-2 are fitted with a thermal insulation shell.

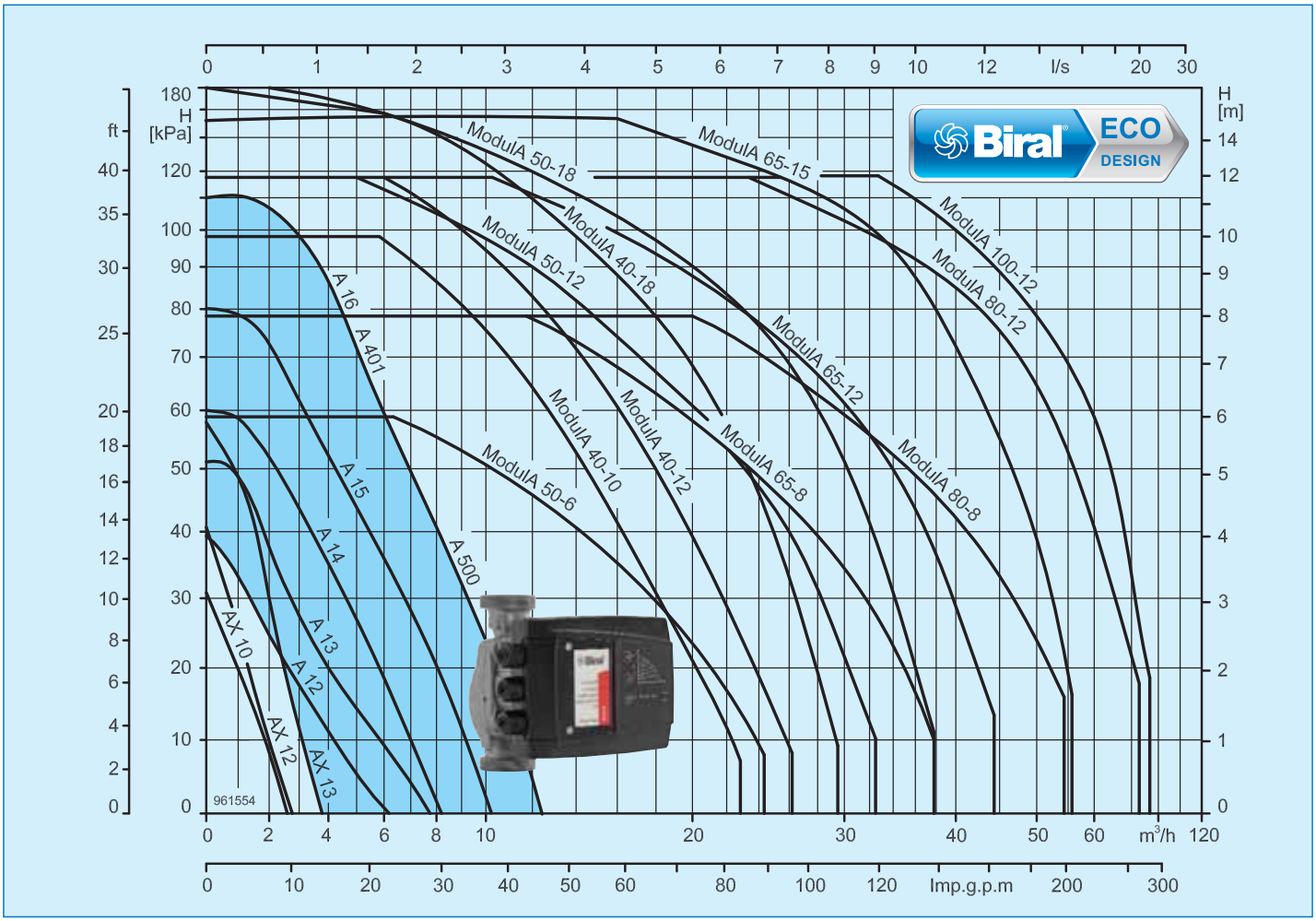


# Heating circulation pumps
## A 12 ... A 401, A 500

**Summary**



| | Type | Connection | Nominal width DN | Discharge head max. mWC | Installation length mm | Operating pressure max./bar | EEI-value |
|---|---|---|---|---|---|---|---|
|  | A 12 | G 2” | 32 | 4 | 170 | 10 | ≤0.21 |
| | A 13 | G 2” | 32 | 5 | 170 | 10 | ≤0.21 |
| | A 14 | G 2” | 32 | 6 | 170 | 10 | ≤0.22 |
| | A 15 | G 2” | 32 | 8 | 170 | 10 | ≤0.22 |
| | A 12-1 | G 1½” | 25 | 4 | 180 | 10 | ≤0.21 |
| | A 13-1 | G 1½” | 25 | 5 | 180 | 10 | ≤0.21 |
| | A 14-1 | G 1½” | 25 | 6 | 180 | 10 | ≤0.22 |
| | A 15-1 | G 1½” | 25 | 8 | 180 | 10 | ≤0.22 |
| | A 16-1 | G 1½” | 25 | 11 | 180 | 10 | ≤0.21 |
| | A 12-2 | G 2” | 32 | 4 | 180 | 10 | ≤0.21 |
| | A 13-2 | G 2” | 32 | 5 | 180 | 10 | ≤0.21 |
| | A 14-2 | G 2” | 32 | 6 | 180 | 10 | ≤0.22 |
| | A 15-2 | G 2” | 32 | 8 | 180 | 10 | ≤0.22 |
| | A 16-2 | G 2” | 32 | 11 | 180 | 10 | ≤0.21 |
|  | A 401 | PN 6/10 | 40 | 11 | 220 | 10 | ≤0.22 |
| | A 401-1 | PN 6/10 | 40 | 11 | 250 | 10 | ≤0.22 |
| | A 500 | PN 6/10 | 50 | 11 | 220 | 10 | ≤0.22 |



# A 12, -1, -2

| | | |
|---|---|---|
| **Installation length** | | **170/180 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | +15°C to +110°C [2] |
| Ambient temperature | | max. 40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.10 bar<br>0.55 bar<br>±0.01 bar |
| Weight | | 3.8 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.1…0.25 A |
| | min | 0.14 A |
| Power | Regulation | 8…33 W |
| | min | 8…19 W |

To avoid the formation of condensation the media temperature must always be higher than the ambient temperature.

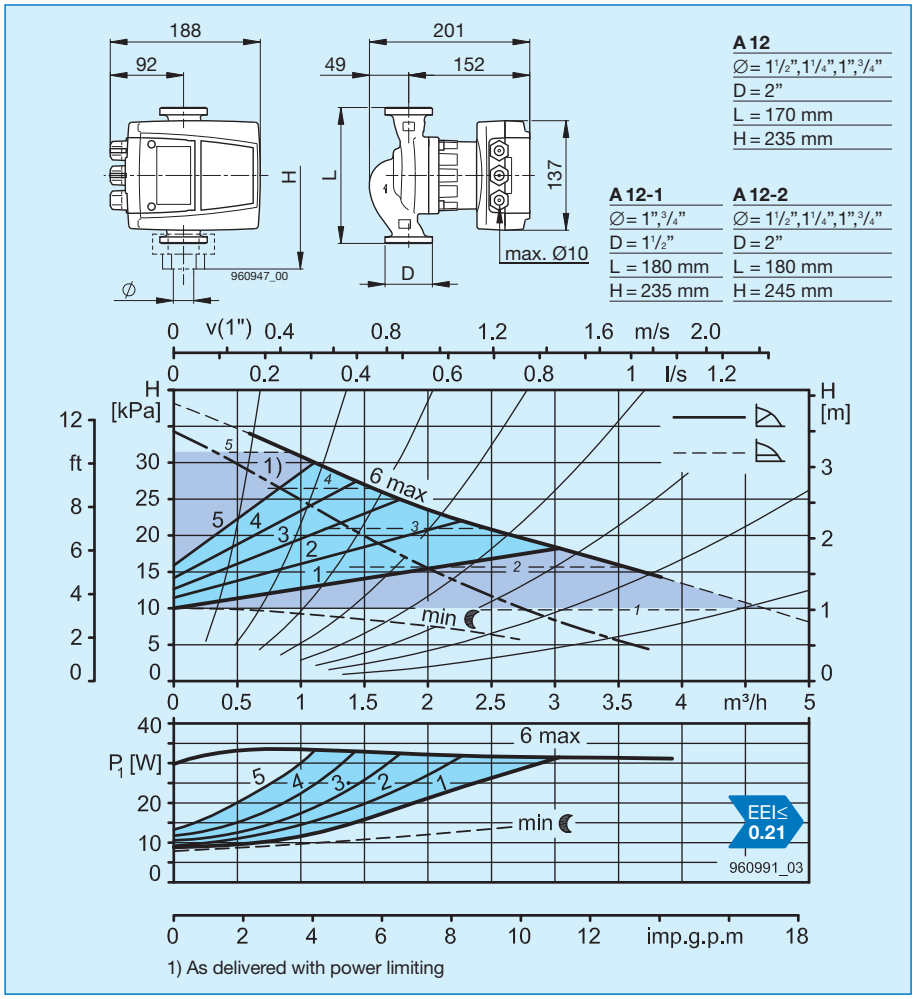
| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 15 | 15 | 95/110 [2] |
| 30 | 30 | 95/110 [2] |
| 35 | 35 | 90 |
| 40 | 40 | 70 |

[2] for short periods, approx. 30 min

The pump is fitted with internal electric motor protection and requires no external motor protection. The pump is provided with fault or operating message (switchable).

**Options:**
– Heat insulation shells
– BIM A signal module
– BIM B control module

See page 74 for further details




# A 13, -1, -2

| | | |
|---|---|---|
| **Installation length** | | **170/180 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | +15°C to +110°C [2] |
| Ambient temperature | | max. 40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.10 bar<br>0.55 bar<br>±0.01 bar |
| Weight | | 3.8 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.1…0.35 A |
| | min | 0.14 A |
| Power | Regulation | 8…50 W |
| | min | 8…19 W |

To avoid the formation of condensation the media temperature must always be higher than the ambient temperature.

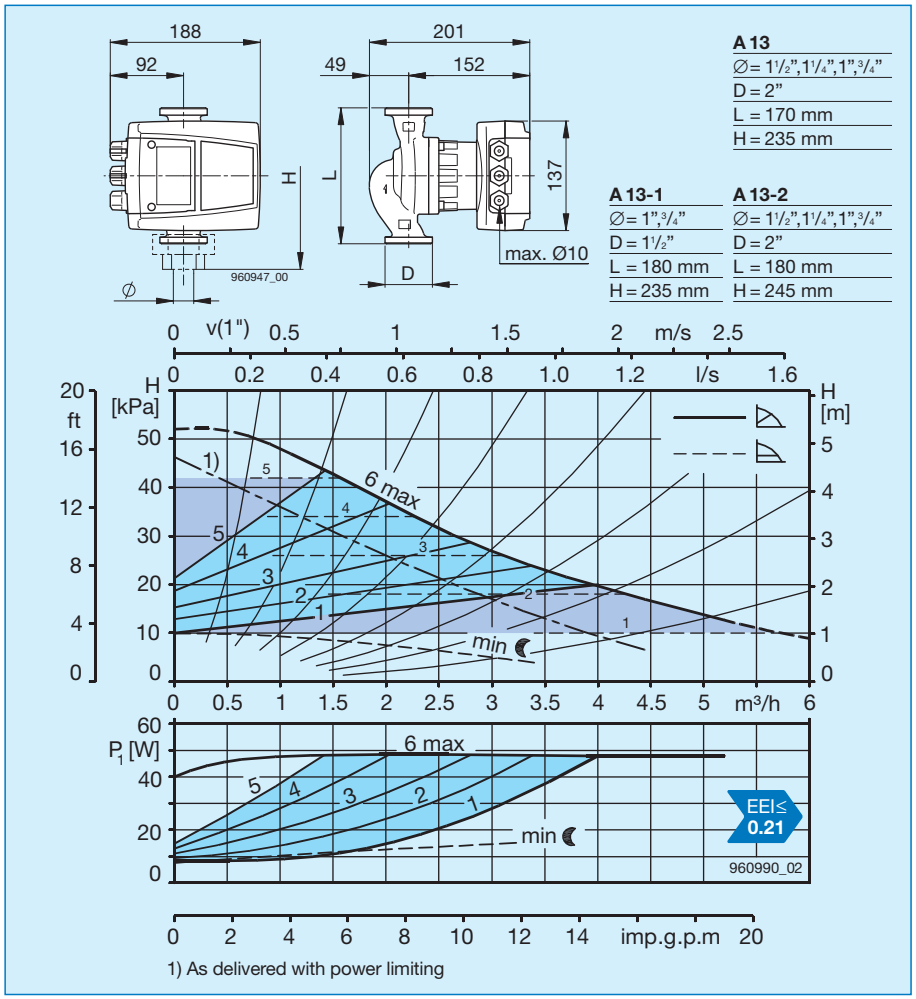
| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 15 | 15 | 95/110 [2] |
| 30 | 30 | 95/110 [2] |
| 35 | 35 | 90 |
| 40 | 40 | 70 |

[2] for short periods, approx. 30 min

The pump is fitted with internal electric motor protection and requires no external motor protection. The pump is provided with fault or operating message (switchable).

**Options:**
– Heat insulation shells
– BIM A signal module
– BIM B control module

See page 74 for further details



# A 14, -1, -2

| Installation length | | 170/180 mm |
|---|---|---|
| Operating pressure max. | | 10 bar |
| Media temperature | | +15°C to +110°C [2] |
| Ambient temperature | | max. 40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.10 bar<br>0.55 bar<br>±0.01 bar |
| Weight | | 3.8 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.1…0.5 A |
| | min | 0.14 A |
| Power | Regulation | 8…70 W |
| | min | 8…19 W |

To avoid the formation of condensation the media temperature must always be higher than the ambient temperature.

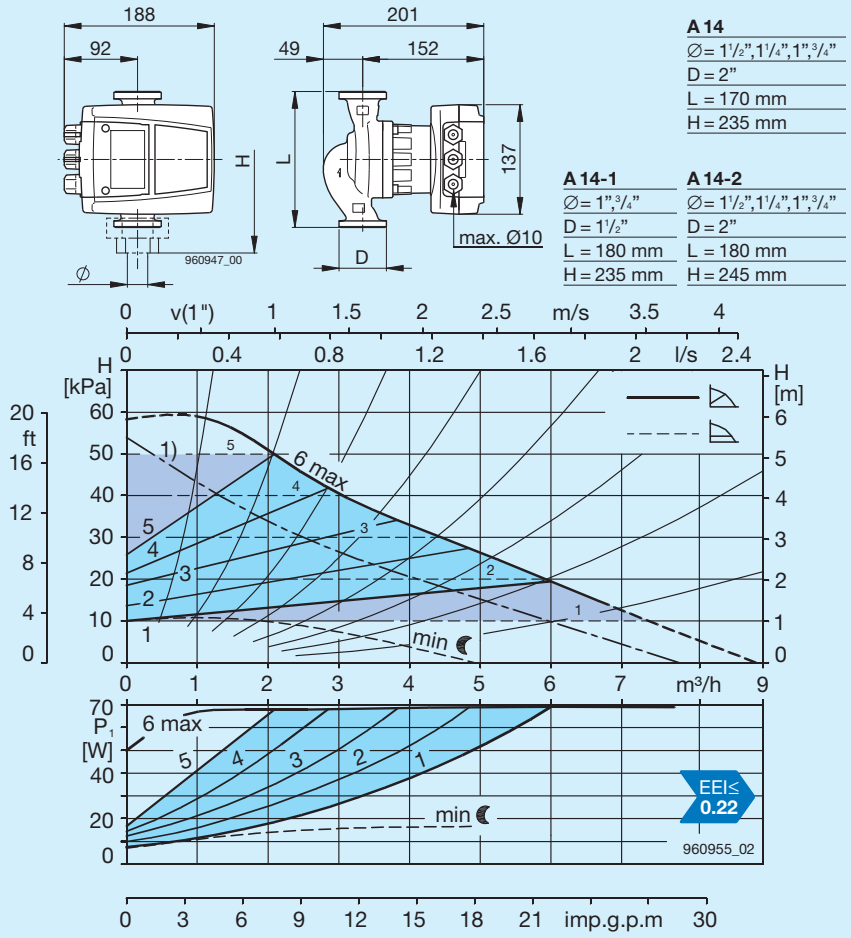
| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 15 | 15 | 95/110 [2] |
| 30 | 30 | 95/110 [2] |
| 35 | 35 | 90 |
| 40 | 40 | 70 |

[2] for short periods, approx. 30 min

The pump is fitted with internal electric motor protection and requires no external motor protection. The pump is provided with fault or operating message (switchable).

**Options:**
– Heat insulation shells
– BIM A signal module
– BIM B control module

See page 74 for further details




1) As delivered with power limiting

# A 15, -1, -2

| Installation length | | 170/180 mm |
|---|---|---|
| Operating pressure max. | | 10 bar |
| Media temperature | | +15°C to +110°C [2] |
| Ambient temperature | | max. 40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.10 bar<br>0.55 bar<br>±0.01 bar |
| Weight | | 3.8 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.1…0.8 A |
| | min | 0.14 A |
| Power | Regulation | 8…107 W |
| | min | 8…19 W |

To avoid the formation of condensation the media temperature must always be higher than the ambient temperature.

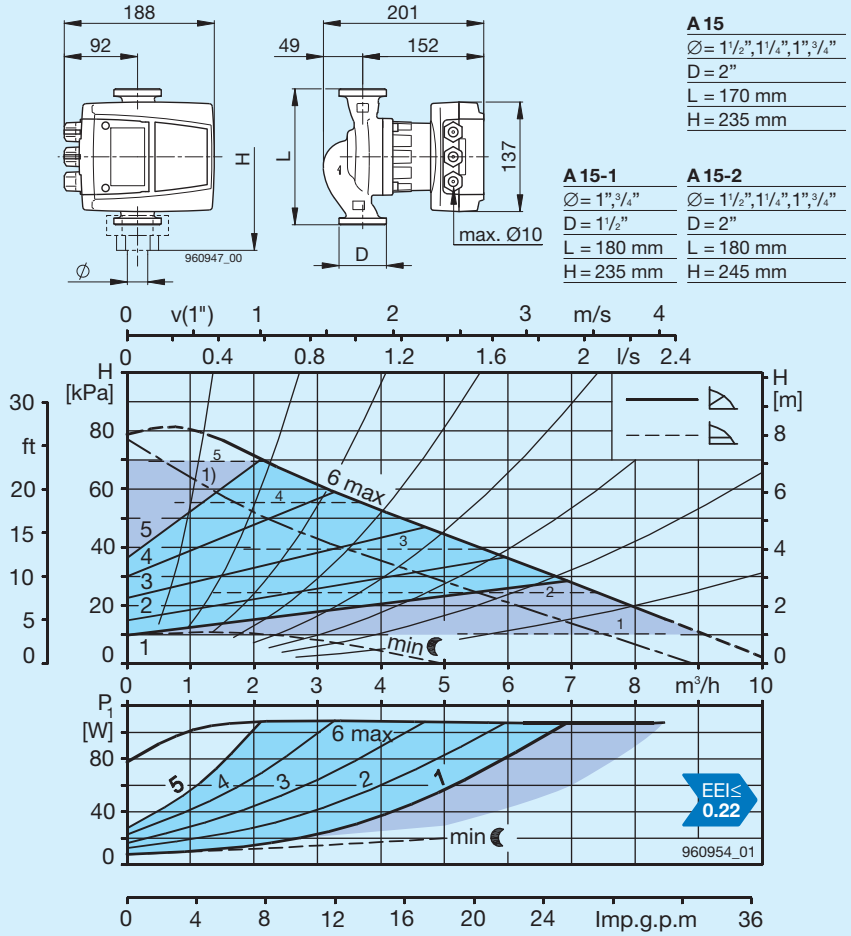
| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 15 | 15 | 95/110 [2] |
| 30 | 30 | 95/110 [2] |
| 35 | 35 | 90 |
| 40 | 40 | 70 |

[2] for short periods, approx. 30 min

The pump is fitted with internal electric motor protection and requires no external motor protection. The pump is provided with fault or operating message (switchable).

**Options:**
– Heat insulation shells
– BIM A signal module
– BIM B control module

See page 74 for further details




1) As delivered with power limiting

# A 16-1, A 16-2

| | | |
|---|---|---|
| **Installation length** | | **180 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | +15°C to +110°C [2] |
| Ambient temperature | | max. 40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.10 bar<br>0.55 bar<br>±0.01 bar |
| Weight | | 3.8 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.1…1.25 A |
| | min | 0.14 A |
| Power | Regulation | 8…174 W |
| | min | 8…19 W |

To avoid the formation of condensation the media temperature must always be higher than the ambient temperature.

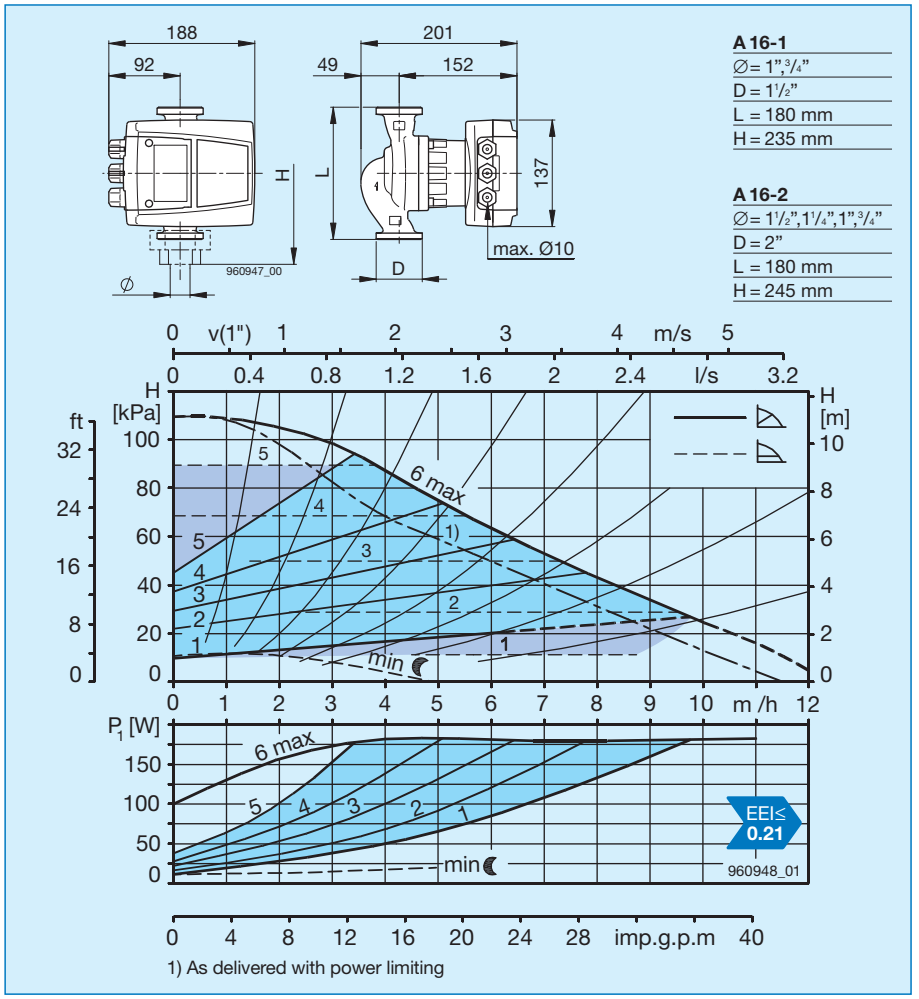
| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 15 | 15 | 95/110 [2] |
| 30 | 30 | 95/110 [2] |
| 35 | 35 | 90 |
| 40 | 40 | 70 |

[2] for short periods, approx. 30 min

The pump is fitted with internal electric motor protection and requires no external motor protection. The pump is provided with fault or operating message (switchable).

**Options:**
– Heat insulation shells
– BIM A signal module
– BIM B control module

See page 74 for further details




1) As delivered with power limiting

# A 401, A 401-1

| | | |
|---|---|---|
| **Installation length** | **A 401**<br>**A 401-1** | **220 mm**<br>**250 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | +15°C to +110°C [2] |
| Ambient temperature | | max. 40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.10 bar<br>0.55 bar<br>±0.01 bar |
| Weight | | 9 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.1…1.25 A |
| | min | 0.14 A |
| Power | Regulation | 8…174 W |
| | min | 8…19 W |

To avoid the formation of condensation the media temperature must always be higher than the ambient temperature.

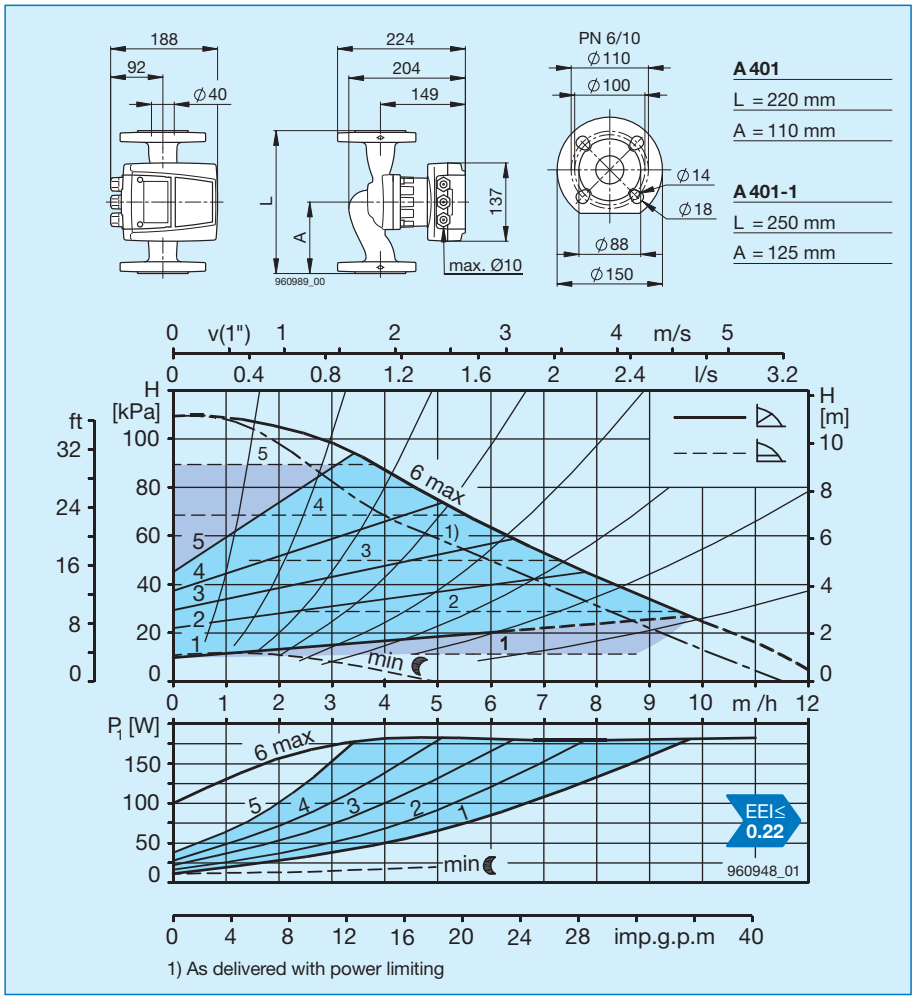
| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 15 | 15 | 95/110 [2] |
| 30 | 30 | 95/110 [2] |
| 35 | 35 | 90 |
| 40 | 40 | 70 |

[2] for short periods, approx. 30 min

The pump is fitted with internal electric motor protection and requires no external motor protection. The pump is provided with fault or operating message (switchable).

**Options:**
– Heat insulation shells
– BIM A signal module
– BIM B control module

See page 74 for further details




1) As delivered with power limiting

# A 500

| | | |
|---|---|---|
| **Installation length** | | **220 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | +15°C to +110°C [2] |
| Ambient temperature | | max. 40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.10 bar<br>0.55 bar<br>±0.01 bar |
| Weight | | 10.5 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.1…1.25 A |
| | min | 0.14 A |
| Power | Regulation | 8…174 W |
| | min | 8…19 W |

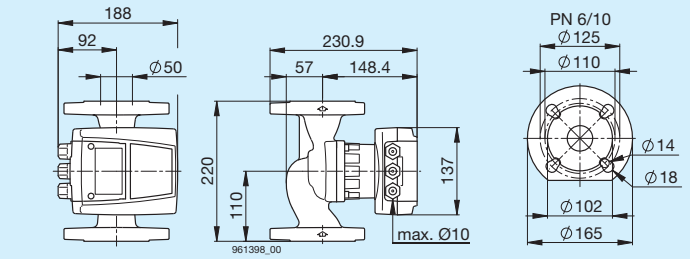
To avoid the formation of condensation the media temperature must always be higher than the ambient temperature.

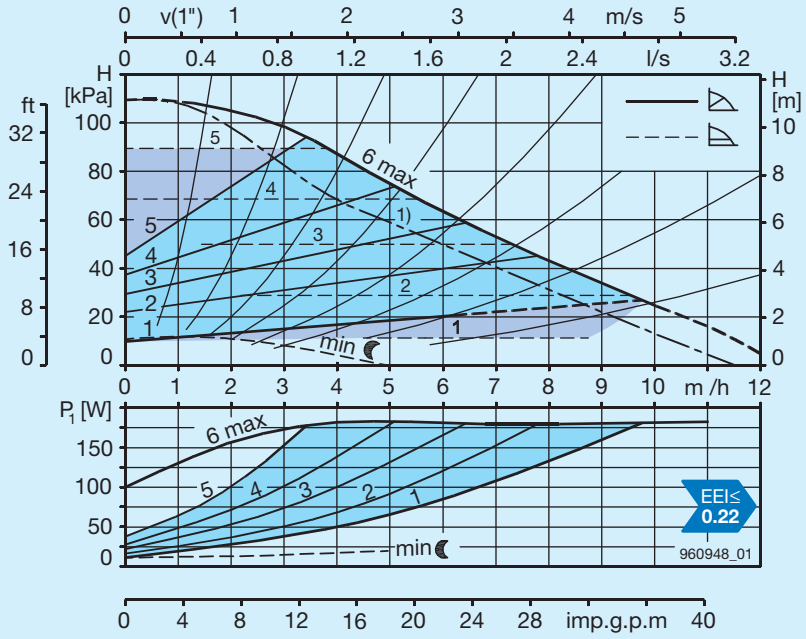
| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 15 | 15 | 95/110 [2] |
| 30 | 30 | 95/110 [2] |
| 35 | 35 | 90/110 [2] |
| 40 | 40 | 70/110 [2] |

The pump is fitted with internal electric motor protection and requires no external motor protection. The pump is provided with fault or operating message (switchable).

**Options:**
– Heat insulation shells
– BIM A signal module
– BIM B control module

See page 74 for further details



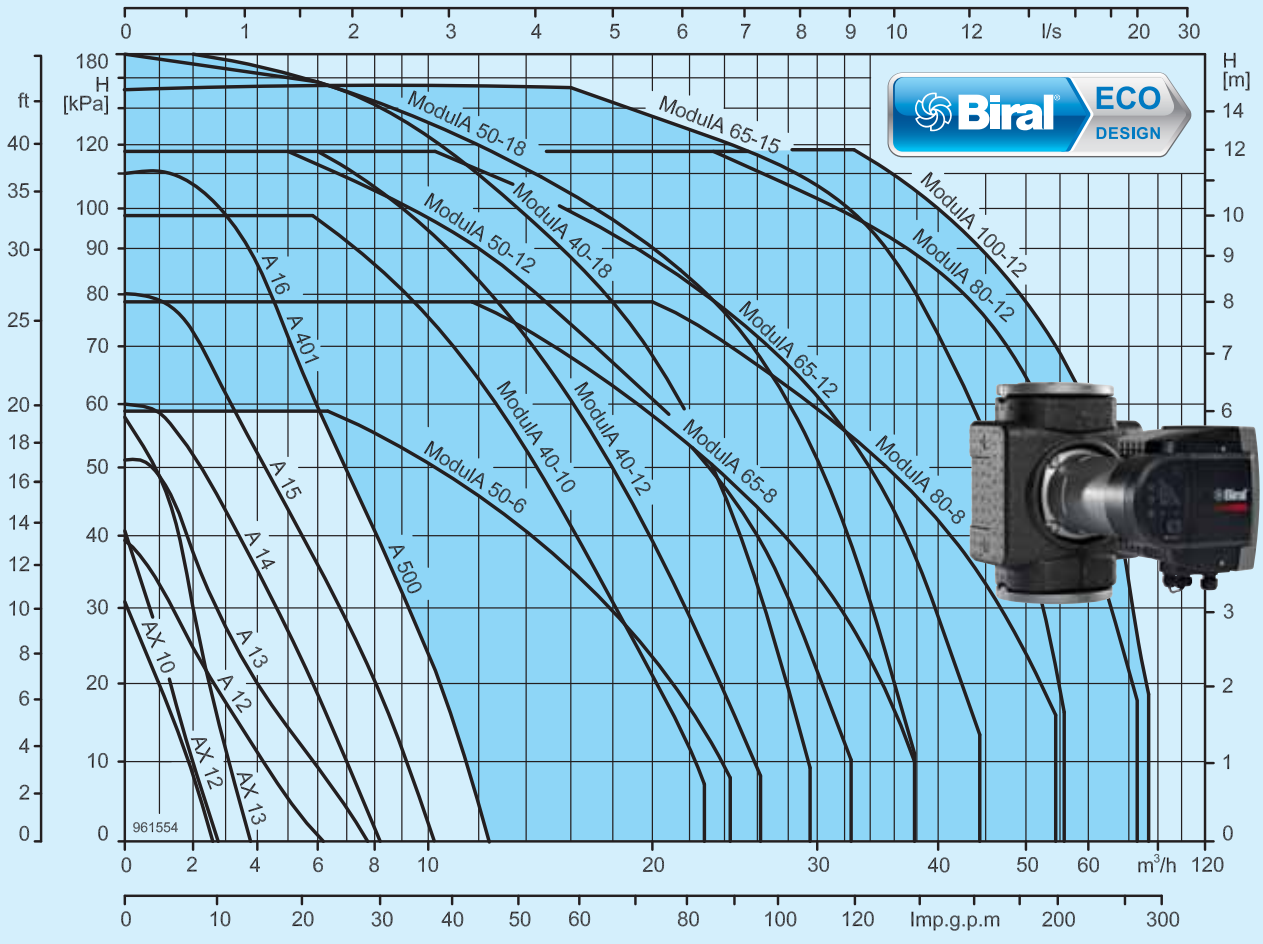

1) As delivered with power limiting

# Heating circulation pumps

## ModulA ... RED
## with flange connections

Summary

| Type | Connection | Nominal width DN | Discharge head max. mWC | Installation length mm | Operating pressure max./bar | EEI-value |
|---|---|---|---|---|---|---|
| ModulA 40-10 220 RED | PN 6-16 | 40 | 10 | 220 | 16 | ≤0.19 |
| ModulA 40-12 250 RED | PN 6-16 | 40 | 12 | 250 | 16 | ≤0.18 |
| ModulA 40-18 250 RED | PN 6-16 | 40 | 18 | 250 | 16 | ≤0.18 |
| | | | | | | |
| ModulA 50-6 240 RED | PN 6-16 | 50 | 6 | 240 | 16 | ≤0.19 |
| ModulA 50-12 270 RED | PN 6-16 | 50 | 12 | 270 | 16 | ≤0.18 |
| ModulA 50-18 270 RED | PN 6-16 | 50 | 18 | 270 | 16 | ≤0.17 |
| | | | | | | |
| ModulA 65-8 270 RED | PN 6-16 | 65 | 8 | 270 | 16 | ≤0.17 |
| ModulA 65-12 340 RED | PN 6-16 | 65 | 12 | 340 | 16 | ≤0.17 |
| ModulA 65-15 340 RED | PN 6-16 | 65 | 15 | 340 | 16 | ≤0.17 |
| | | | | | | |
| ModulA 80-8 360 RED | PN 6 | 80 | 8 | 360 | 6 | ≤0.17 |
| ModulA 80-8 360 RED | PN 10/16 | 80 | 8 | 360 | 16 | ≤0.17 |
| ModulA 80-12 360 RED | PN 6 | 80 | 12 | 360 | 6 | ≤0.17 |
| ModulA 80-12 360 RED | PN 10/16 | 80 | 12 | 360 | 16 | ≤0.17 |
| | | | | | | |
| ModulA 100-12 450 RED | PN 6 | 100 | 12 | 450 | 6 | ≤0.17 |
| ModulA 100-12 450 RED | PN 10/16 | 100 | 12 | 450 | 16 | ≤0.17 |



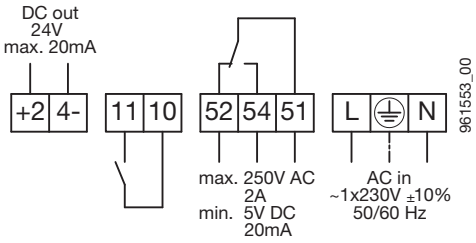
# ModulA 40-10 220 RED

| | |
|---|---|
| Diameter nominal | DN 40 |
| Discharge head H max. | 10 m |
| Installation length | 220 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | +15°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 16.3 kg |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 18-341 W |
| Rated current | 0.19-1.54 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

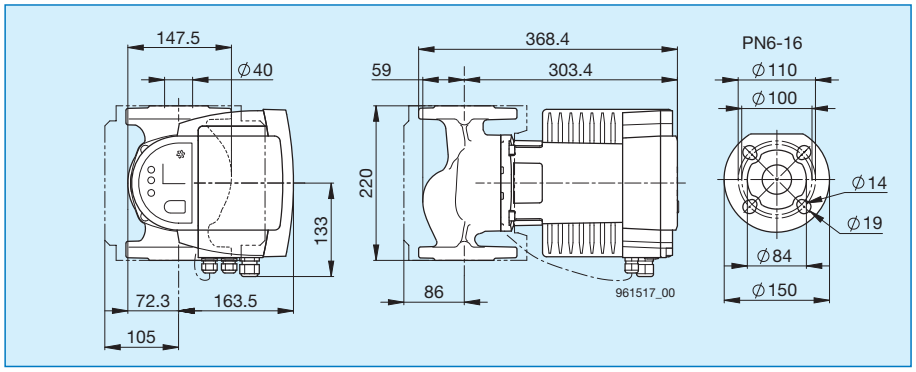
### Included in the scope of delivery

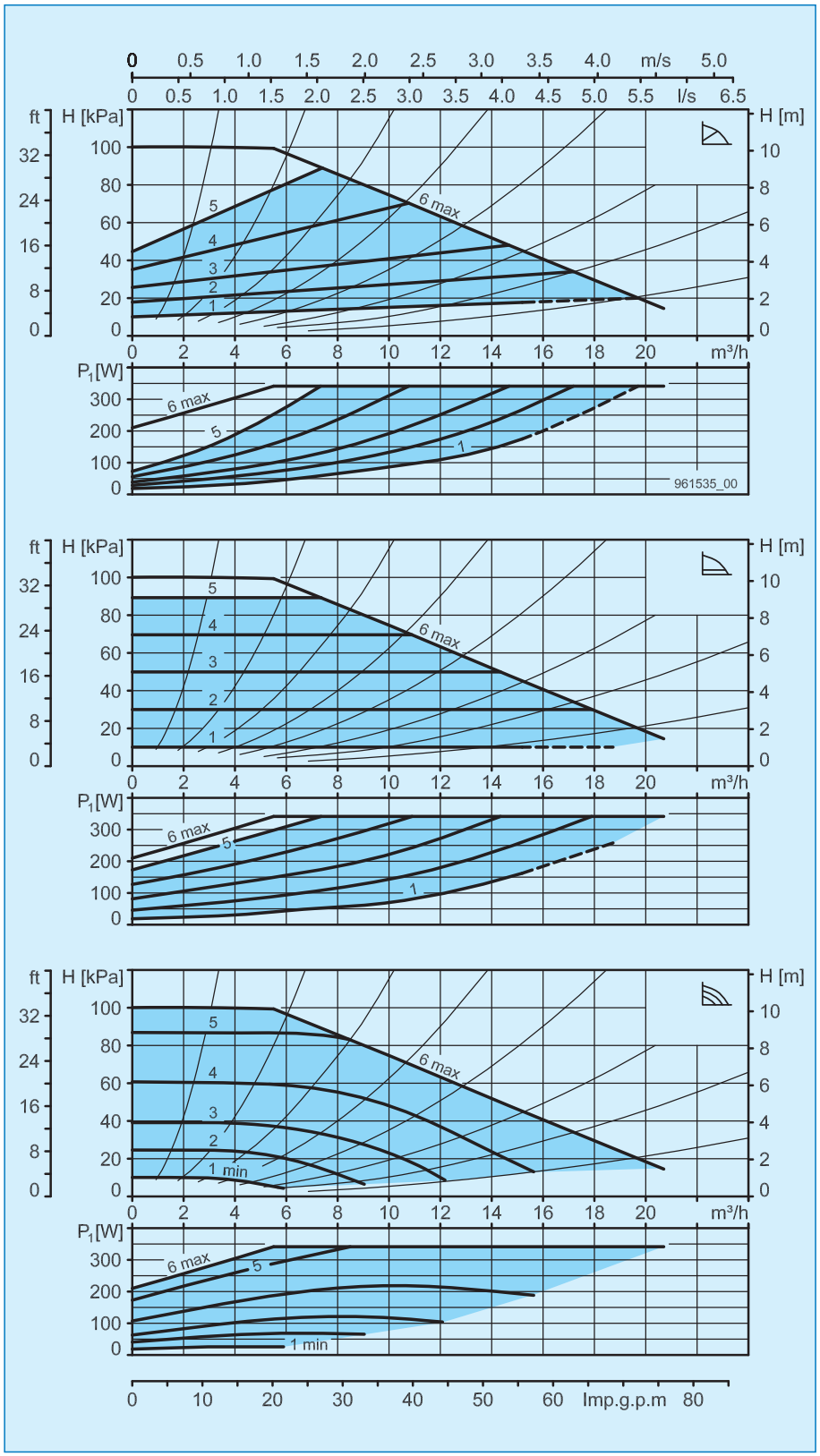
- Heat insulation shells
- Sealing set for flange PN 6

### Options

- BIM A2 signal module
- BIM B2 control module
- Set for recessed installation of electronics
- Biral Remote
- Sealing set for flanges PN 10/16

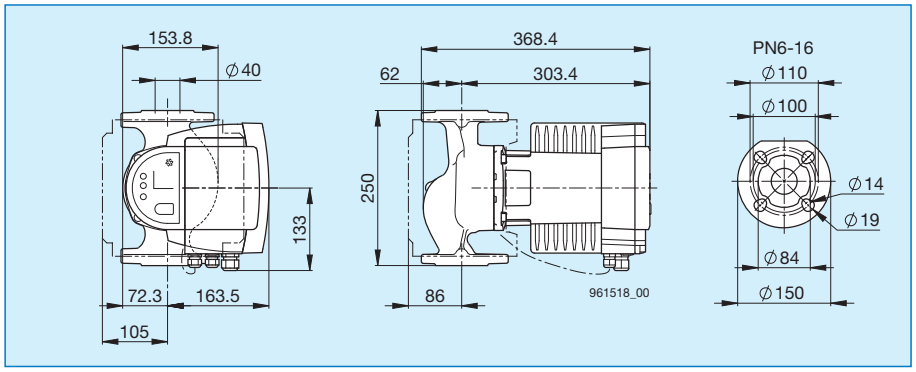
See page 74 for further details



# ModulA 40-12 250 RED

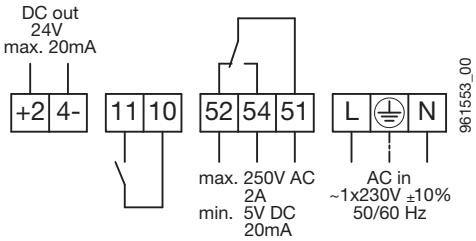
| | |
|---|---|
| Diameter nominal | DN 40 |
| Discharge head H max. | 12 m |
| Installation length | 250 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | +15°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 16.1 kg |




## Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 17-421 W |
| Rated current | 0.18-1.91 A |
| Motor protection | integrated |

## Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

## Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

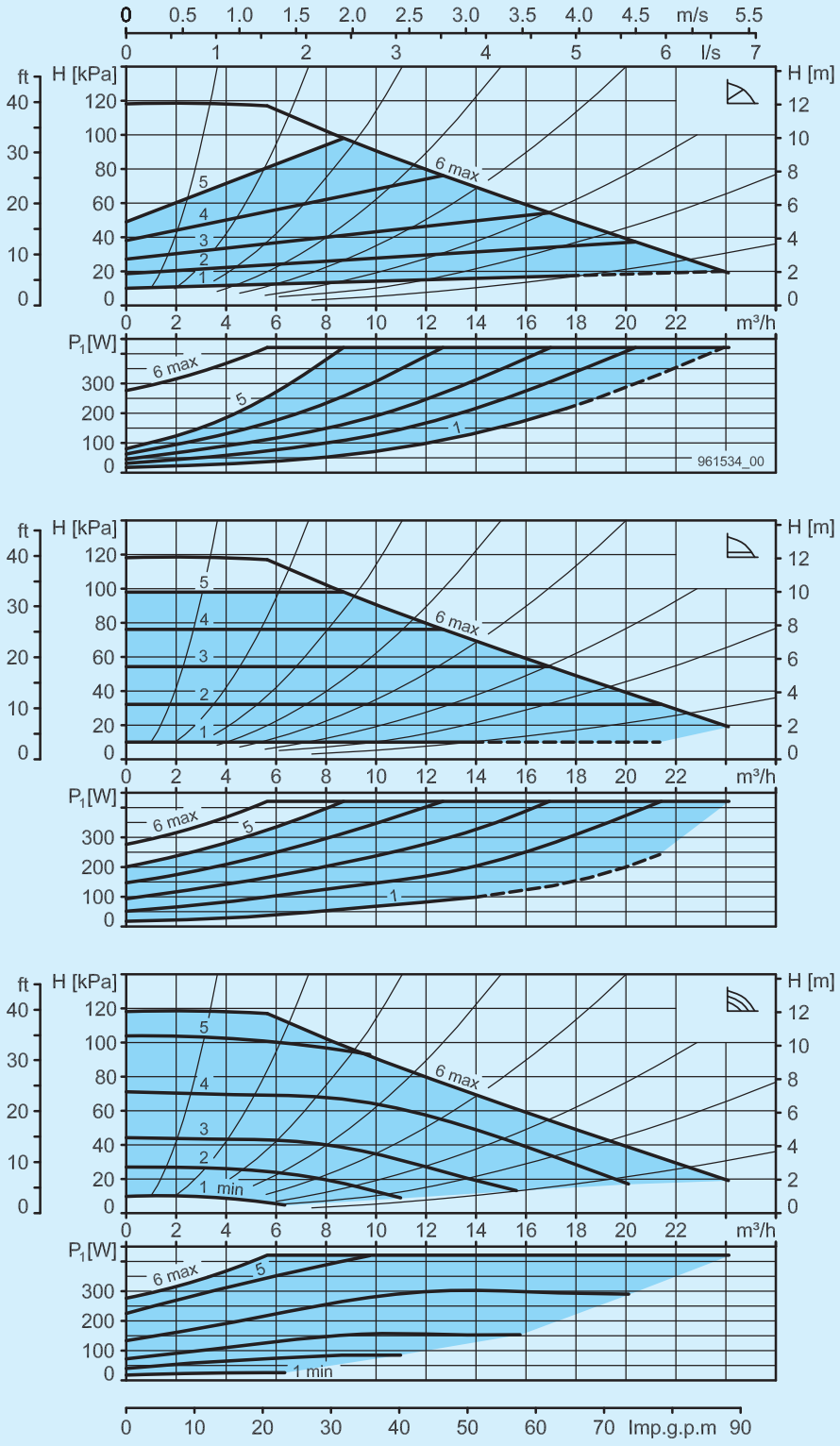
## Included in the scope of delivery

- Heat insulation shells
- Sealing set for flange PN 6

## Options

- BIM A2 signal module
- BIM B2 control module
- Set for recessed installation of electronics
- Biral Remote
- Sealing set for flanges PN 10/16

See page 74 for further details



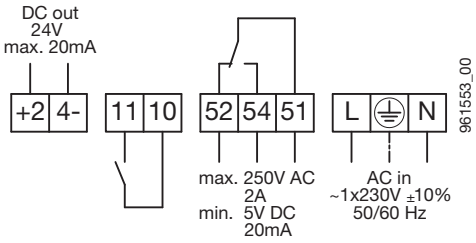
# ModulA 40-18 250 RED

| | |
|---|---|
| Diameter nominal | DN 40 |
| Discharge head H max. | 18 m |
| Installation length | 250 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | +15°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 16.1 kg |

## Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 16-594 W |
| Rated current | 0.18-2.63 A |
| Motor protection | integrated |

## Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

## Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

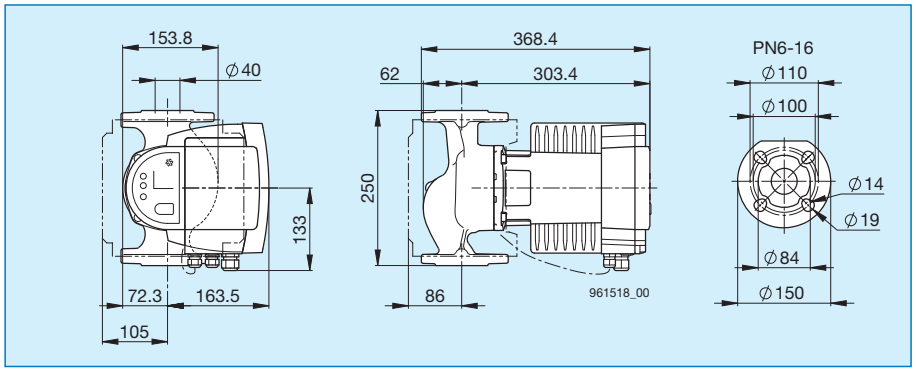
## Included in the scope of delivery

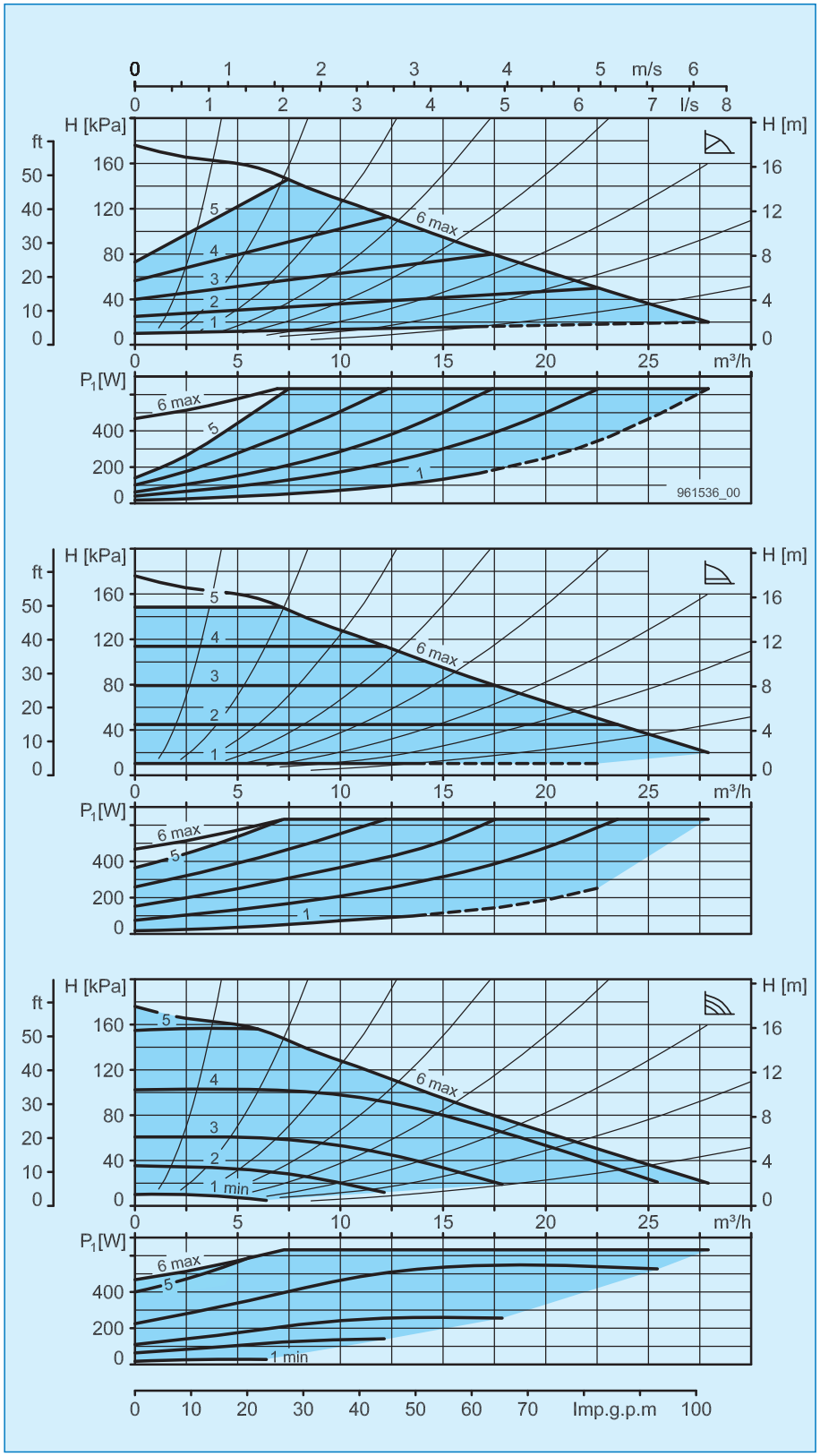
- Heat insulation shells
- Sealing set for flange PN 6

## Options

- BIM A2 signal module
- BIM B2 control module
- Set for recessed installation of electronics
- Biral Remote
- Sealing set for flanges PN 10/16

See page 74 for further details



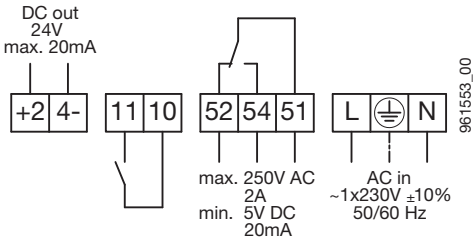
# ModulA 50-6 240 RED

| | |
|---|---|
| Diameter nominal | DN 50 |
| Discharge head H max. | 6 m |
| Installation length | 240 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | +15°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 17.6 kg |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 21 - 236 W |
| Rated current | 0.21 - 1.09 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

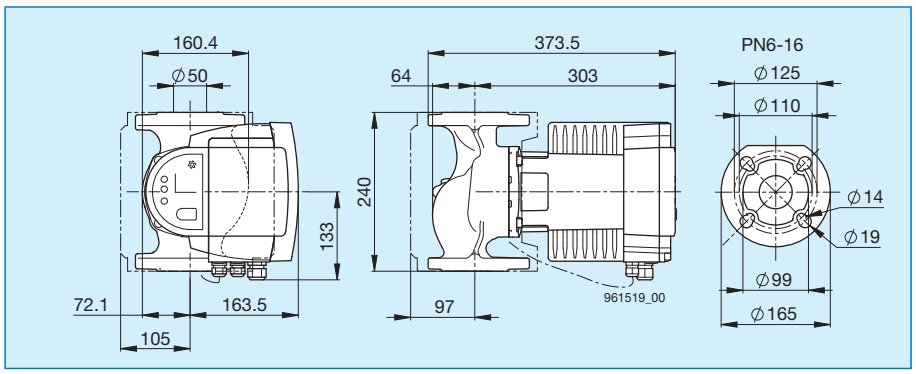
### Included in the scope of delivery

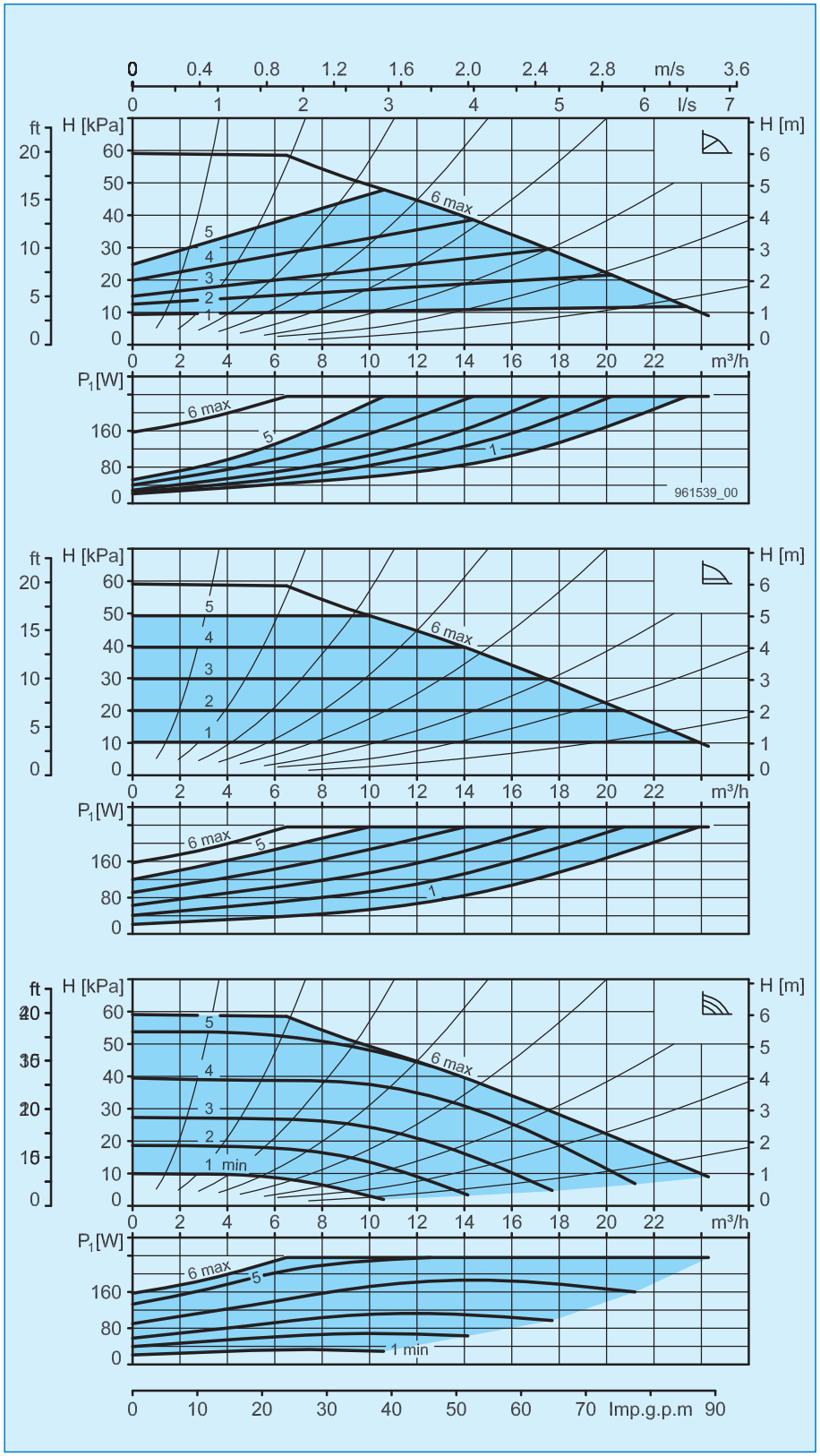
- Heat insulation shells
- Sealing set for flange PN 6

### Options

- BIM A2 signal module
- BIM B2 control module
- Set for recessed installation of electronics
- Biral Remote
- Sealing set for flanges PN 10/16

See page 74 for further details



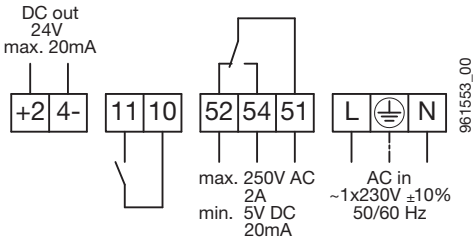
# ModulA 50-12 270 RED

| | |
|---|---|
| Diameter nominal | DN 50 |
| Discharge head H max. | 12 m |
| Installation length | 270 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | +15°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 18.1 kg |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 20-516 W |
| Rated current | 0.21-2.32 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

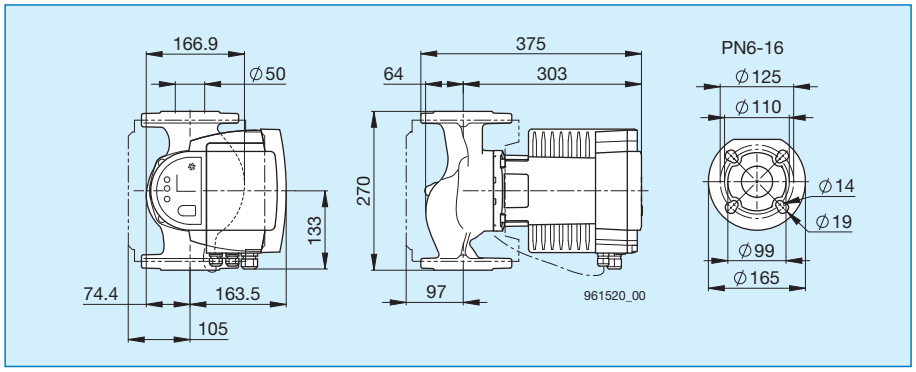
### Included in the scope of delivery

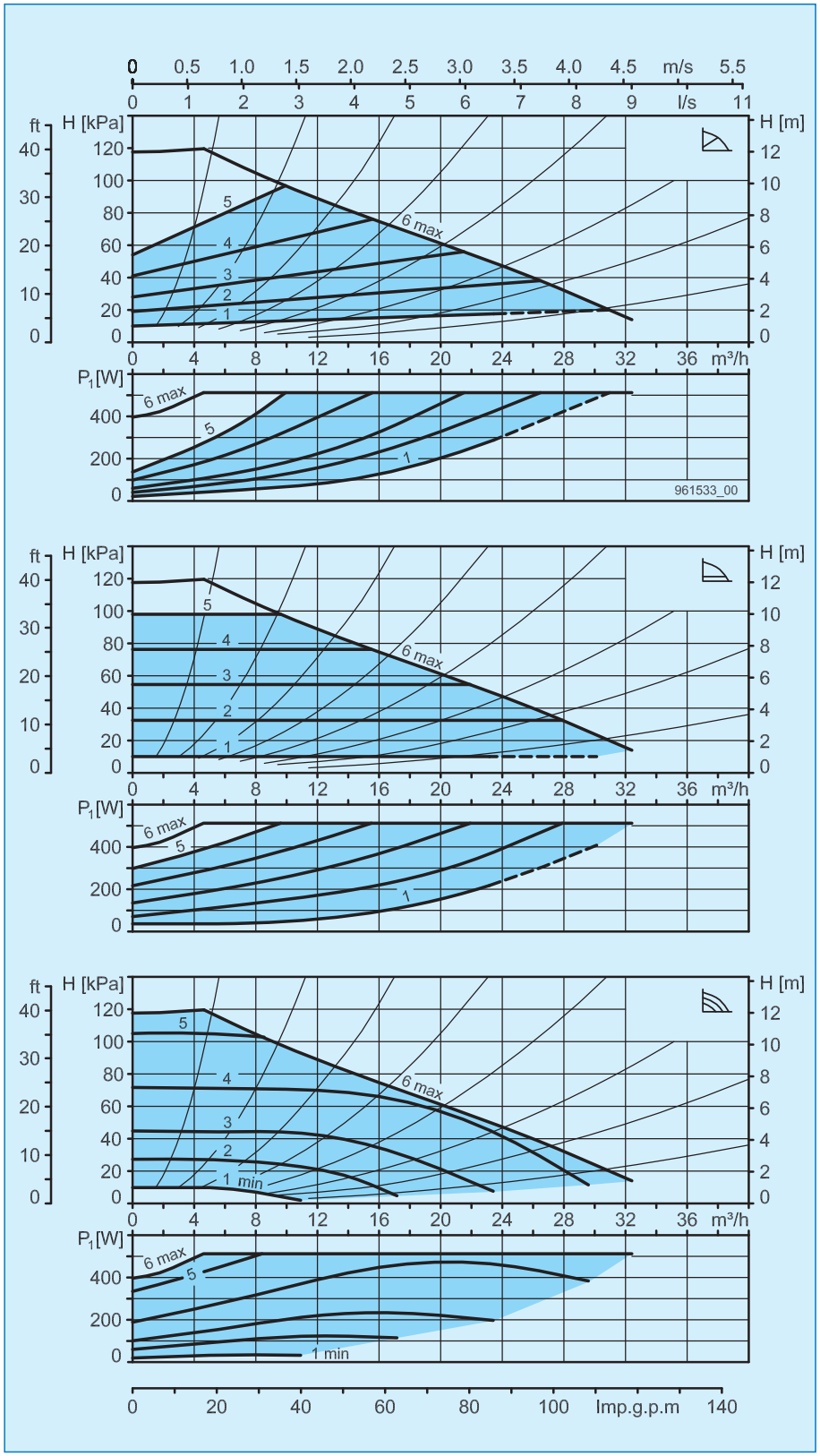
- Heat insulation shells
- Sealing set for flange PN 6

### Options

- BIM A2 signal module
- BIM B2 control module
- Set for recessed installation of electronics
- Biral Remote
- Sealing set for flanges PN 10/16

See page 74 for further details



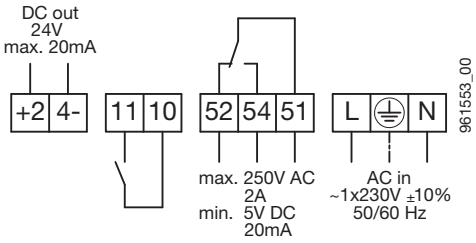
# ModulA 50-18 270 RED

| | |
|---|---|
| Diameter nominal | DN 50 |
| Discharge head H max. | 18 m |
| Installation length | 270 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | +15°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 18.8 kg |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 22 - 742 W |
| Rated current | 0.21 - 3.34 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

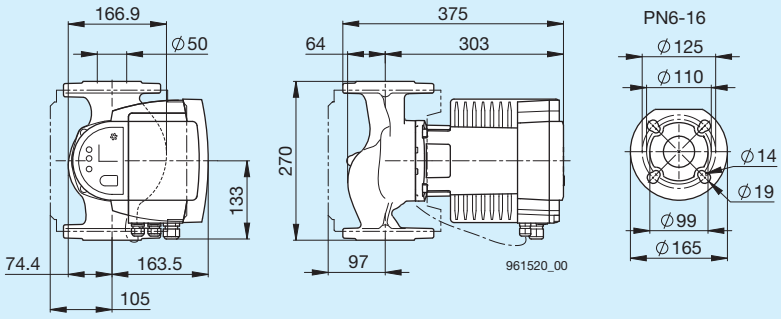
### Included in the scope of delivery

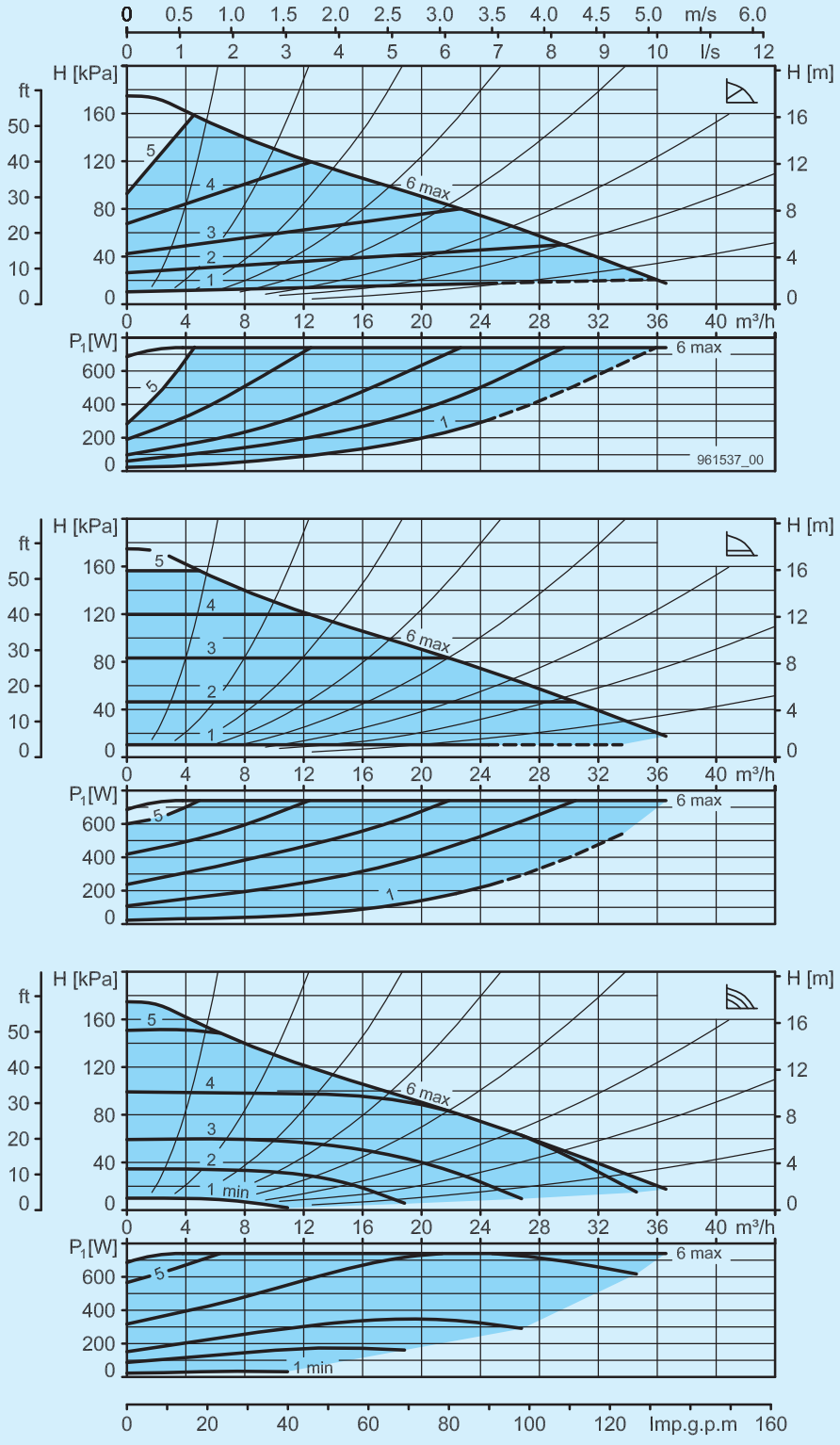
- Heat insulation shells
- Sealing set for flange PN 6

### Options

- BIM A2 signal module
- BIM B2 control module
- Set for recessed installation of electronics
- Biral Remote
- Sealing set for flanges PN 10/16

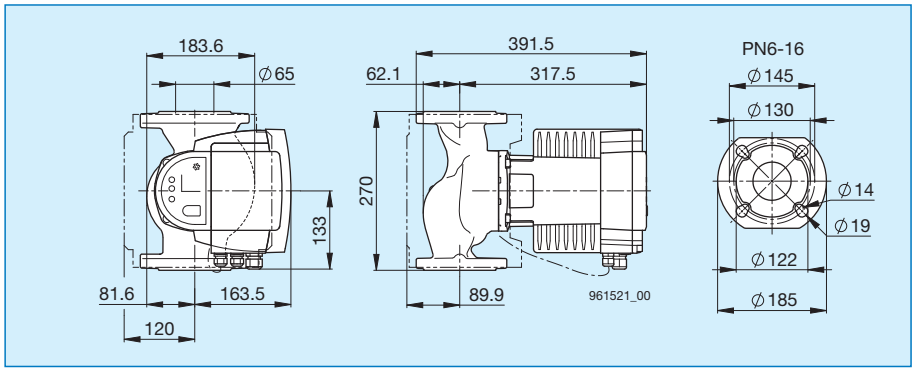
See page 74 for further details



# ModulA 65-8 270 RED

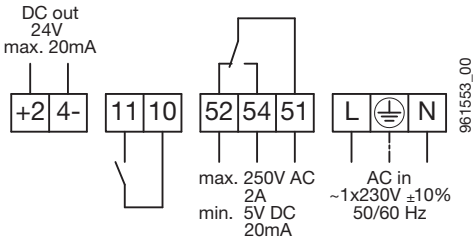
| | |
|---|---|
| Diameter nominal | DN 65 |
| Discharge head H max. | 8 m |
| Installation length | 270 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | +15°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 20.6 kg |




## Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 22 - 464 W |
| Rated current | 0.24 - 2.10 A |
| Motor protection | integrated |

## Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

## Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

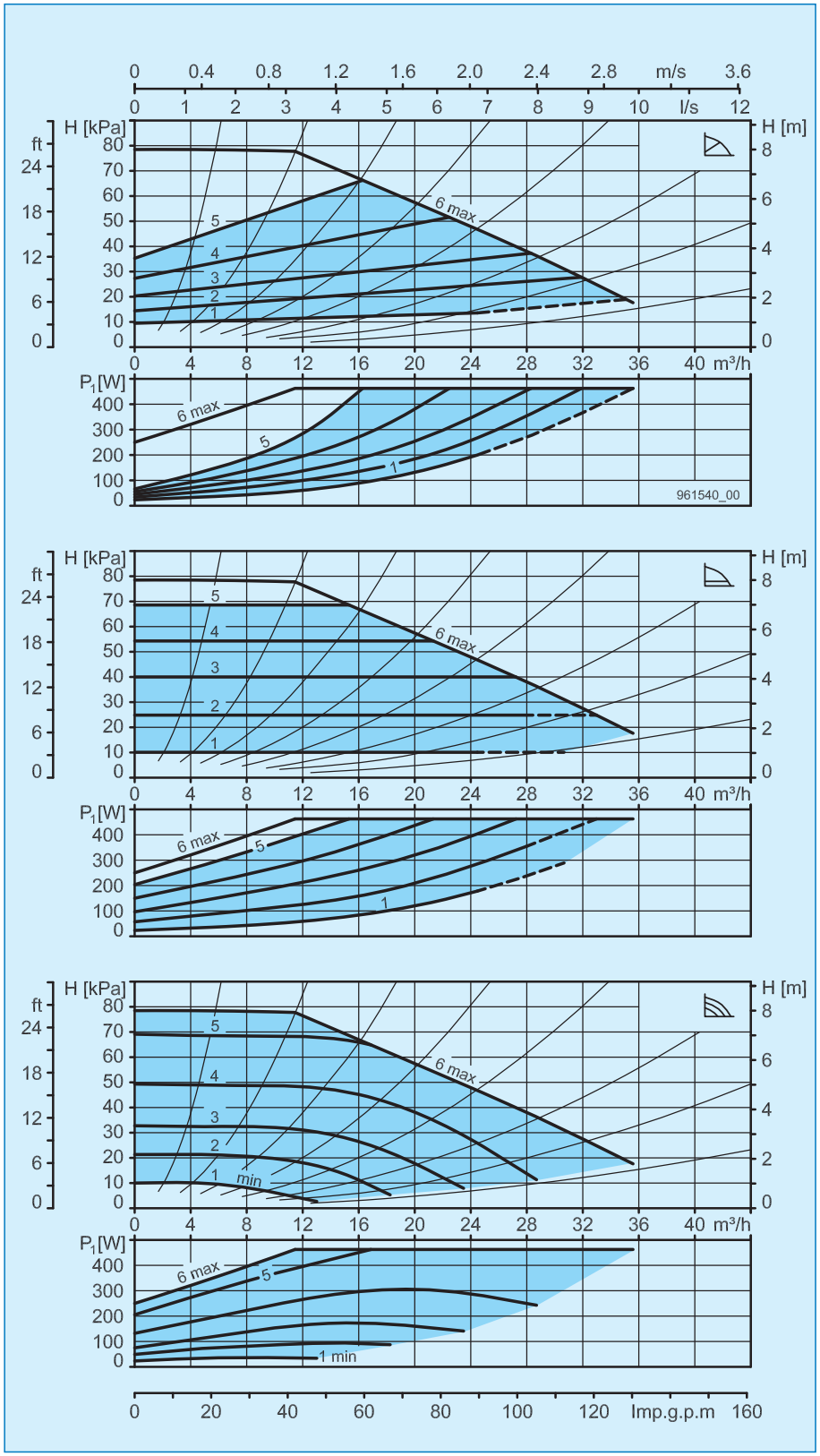
## Included in the scope of delivery

- Heat insulation shells
- Sealing set for flange PN 6

## Options

- BIM A2 signal module
- BIM B2 control module
- Set for recessed installation of electronics
- Biral Remote
- Sealing set for flanges PN 10/16

See page 74 for further details



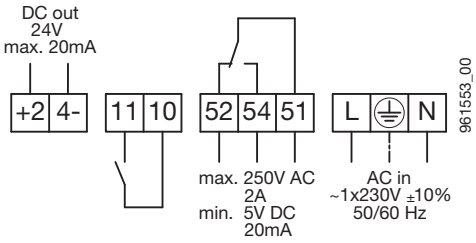
# ModulA 65-12 340 RED

| | |
|---|---|
| Diameter nominal | DN 65 |
| Discharge head H max. | 12 m |
| Installation length | 340 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | +15°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 21.5 kg |

## Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 21-736 W |
| Rated current | 0.22-3.32 A |
| Motor protection | integrated |

## Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

## Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

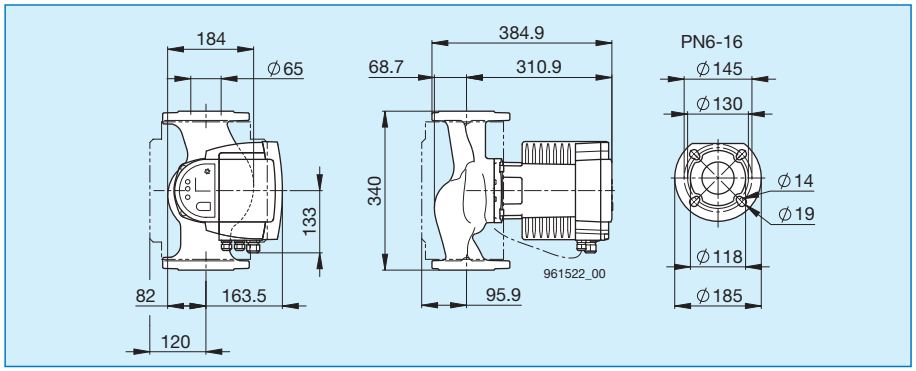
## Included in the scope of delivery

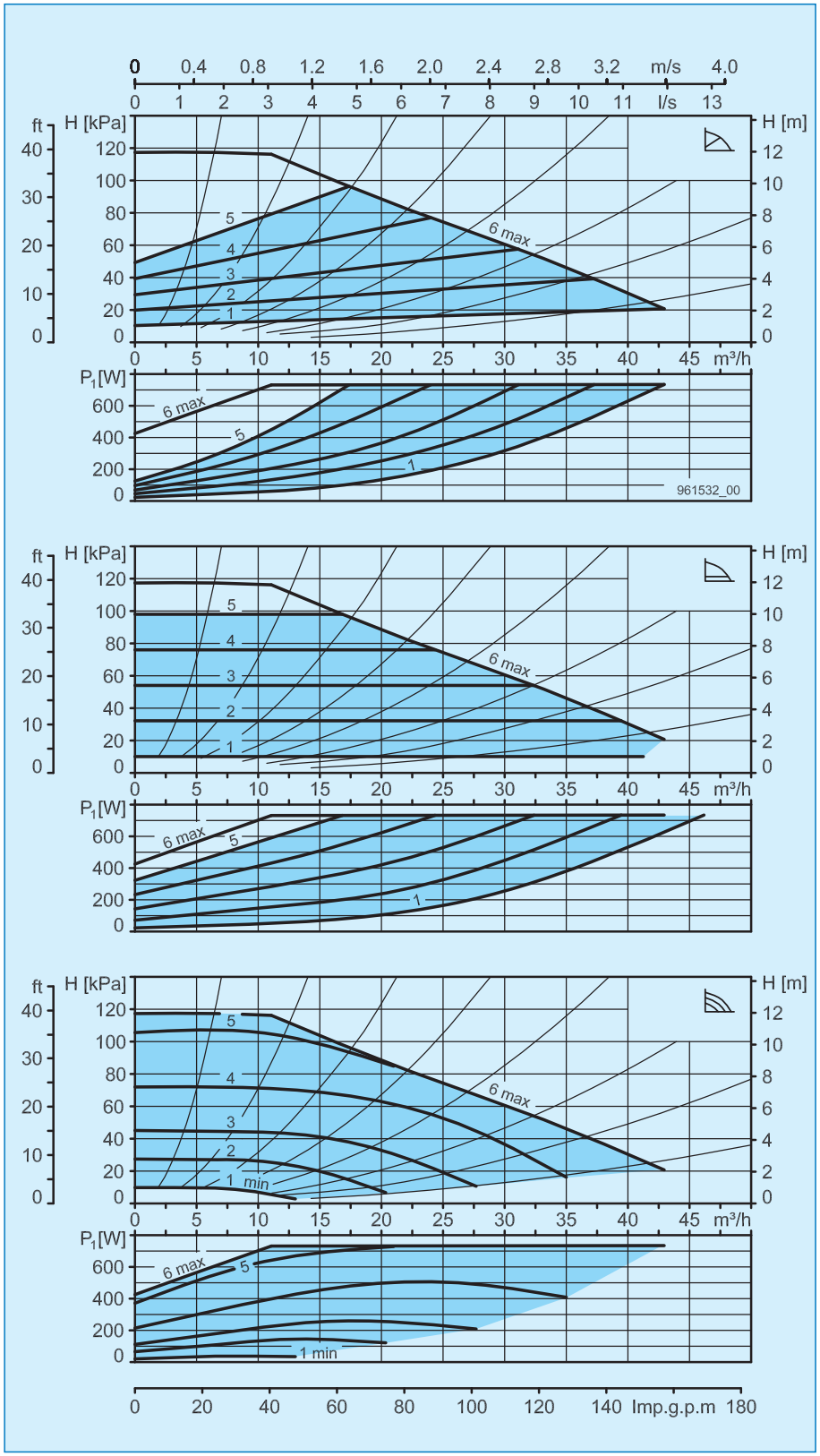
- Heat insulation shells
- Sealing set for flange PN 6

## Options

- BIM A2 signal module
- BIM B2 control module
- Set for recessed installation of electronics
- Biral Remote
- Sealing set for flanges PN 10/16

See page 74 for further details



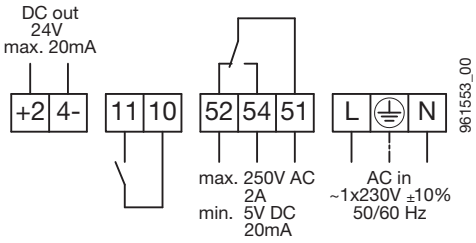
# ModulA 65-15 340 RED

| | |
|---|---|
| Diameter nominal | DN 65 |
| Discharge head H max. | 15 m |
| Installation length | 340 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | +15°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 24.0 kg |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 30-1254 W |
| Rated current | 0.28-5.68 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

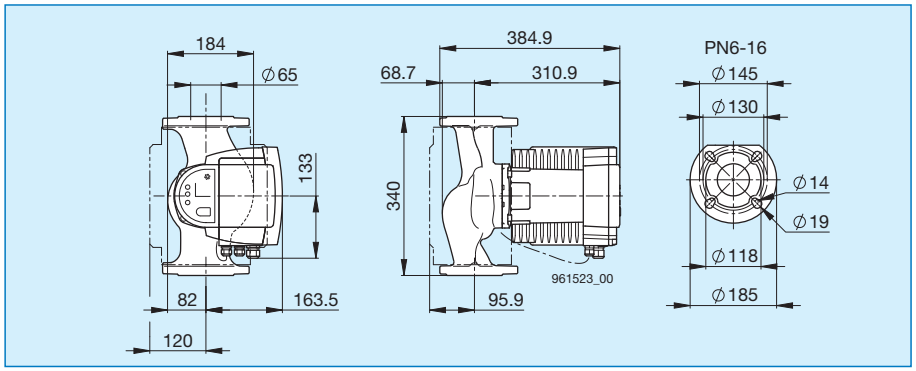
### Included in the scope of delivery

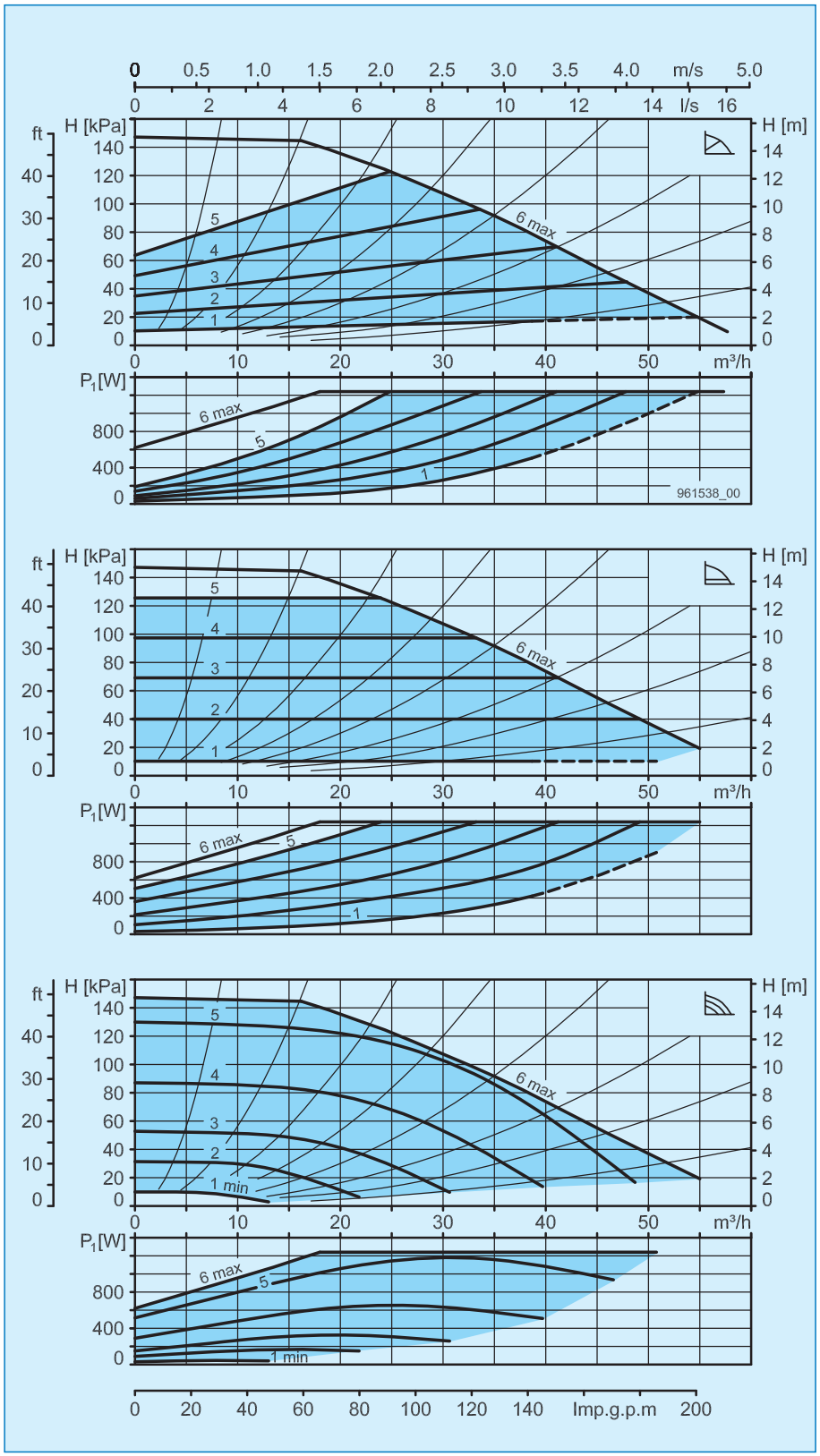
- Heat insulation shells
- Sealing set for flange PN 6

### Options

- BIM A2 signal module
- BIM B2 control module
- Set for recessed installation of electronics
- Biral Remote
- Sealing set for flanges PN 10/16

See page 74 for further details



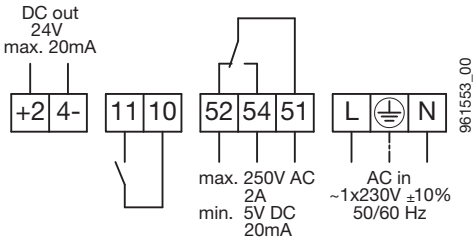
# ModulA 80-8 360 RED

| | | |
|---|---|---|
| Diameter nominal | DN 80 | |
| Discharge head H max. | 8 m | |
| Installation length | 360 mm | |
| Flange connection | PN 6 | PN 10/16 |
| Operating pressure max. | 6 bar | 16 bar |
| Media temperature | +15°C to +110°C | |
| Ambient temperature | 0°C to +40°C | |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar | |
| Weight | 29.1 kg | |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 29 - 704 W |
| Rated current | 0.29 - 3.08 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

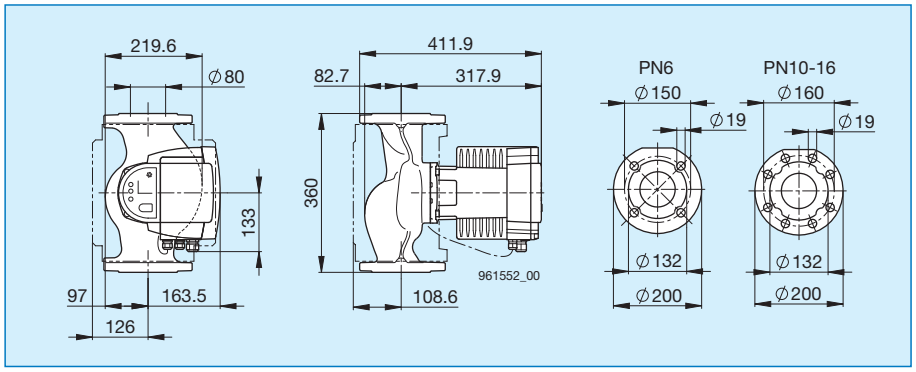
### Included in the scope of delivery

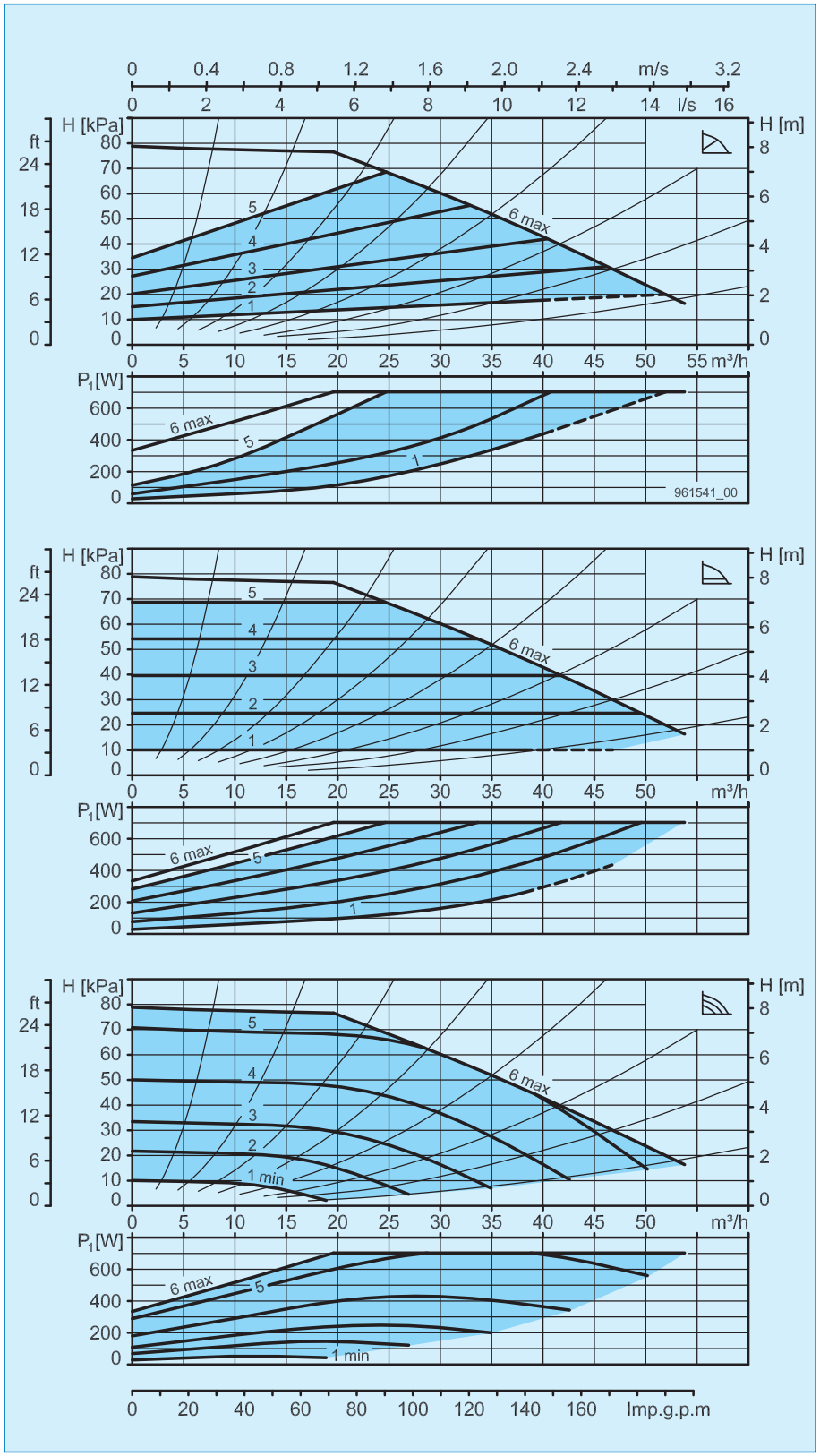
- Heat insulation shells
- Sealing set for flange PN 6 or PN 10/16

### Options

- BIM A2 signal module
- BIM B2 control module
- Set for recessed installation of electronics
- Biral Remote

See page 74 for further details



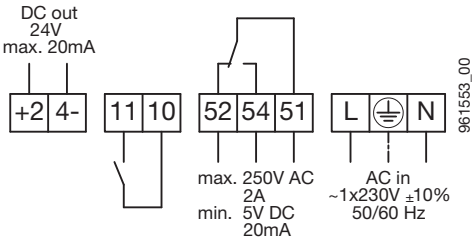
# ModulA 80-12 360 RED

| | | |
|---|---|---|
| Diameter nominal | DN 80 | |
| Discharge head H max. | 12 m | |
| Installation length | 360 mm | |
| Flange connection | PN 6 | PN 10/16 |
| Operating pressure max. | 6 bar | 16 bar |
| Media temperature | +15°C to +110°C | |
| Ambient temperature | 0°C to +40°C | |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar | |
| Weight | 29.1 kg | |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 35 - 1282 W |
| Rated current | 0.32 - 5.56 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

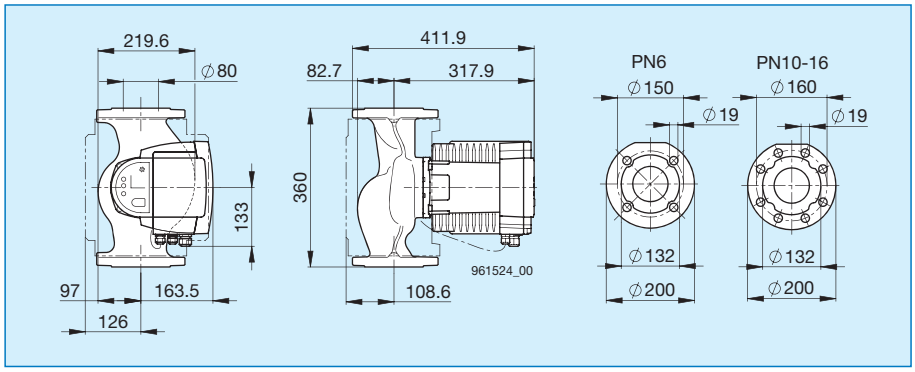
### Included in the scope of delivery

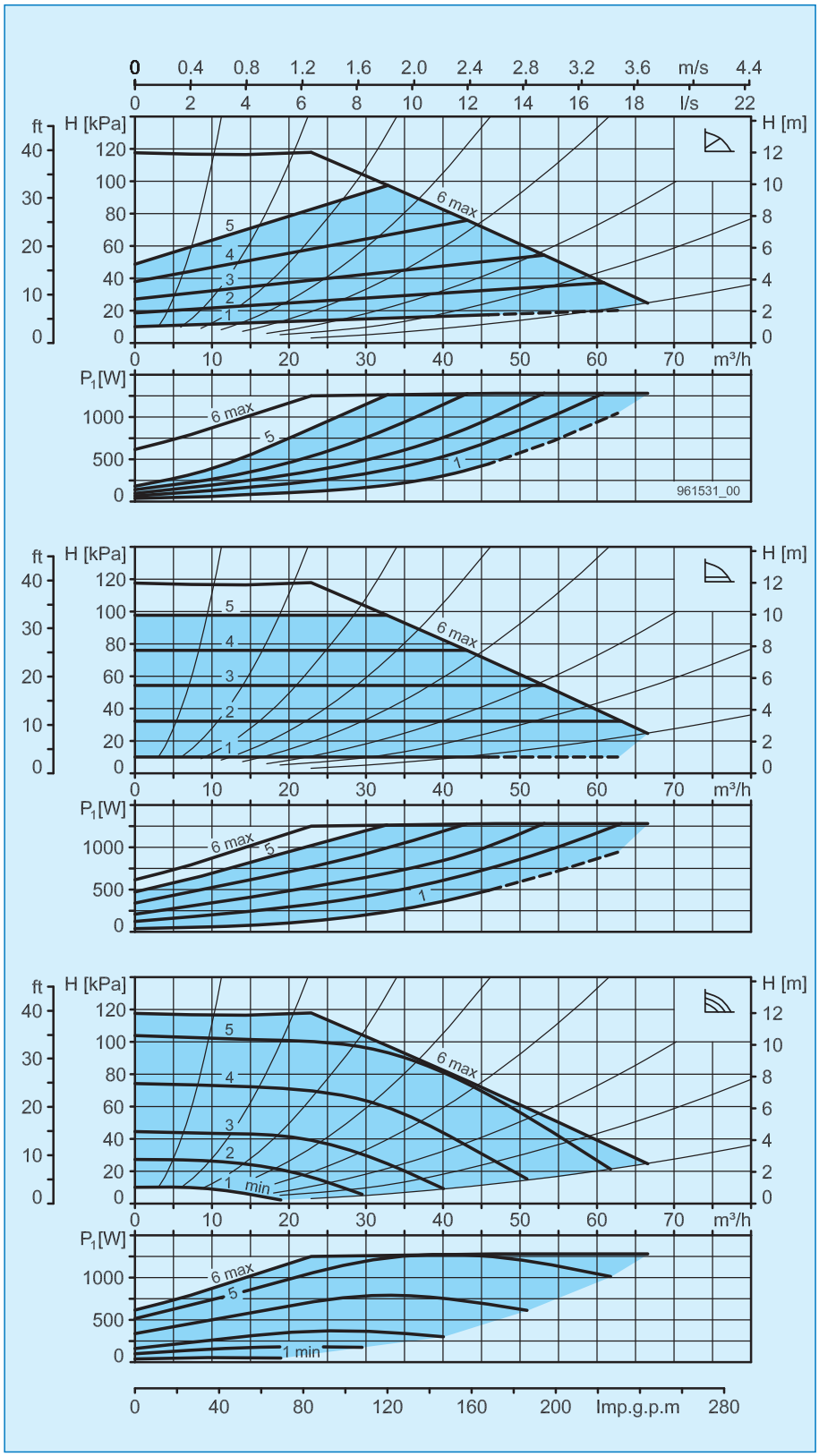
- Heat insulation shells
- Sealing set for flange PN 6 or PN 10/16

### Options

- BIM A2 signal module
- BIM B2 control module
- Set for recessed installation of electronics
- Biral Remote

See page 74 for further details



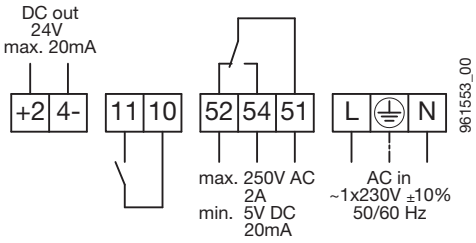
# ModulA 100-12 450 RED

| | | |
|---|---|---|
| Diameter nominal | DN 100 | |
| Discharge head H max. | 12 m | |
| Installation length | 450 mm | |
| Flange connection | PN 6 | PN 10/16 |
| Operating pressure max. | 6 bar | 16 bar |
| Media temperature | +15°C to +110°C | |
| Ambient temperature | 0°C to +40°C | |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar | |
| Weight | 34.0 kg | |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 35 - 1563 W |
| Rated current | 0.32 - 6.78 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

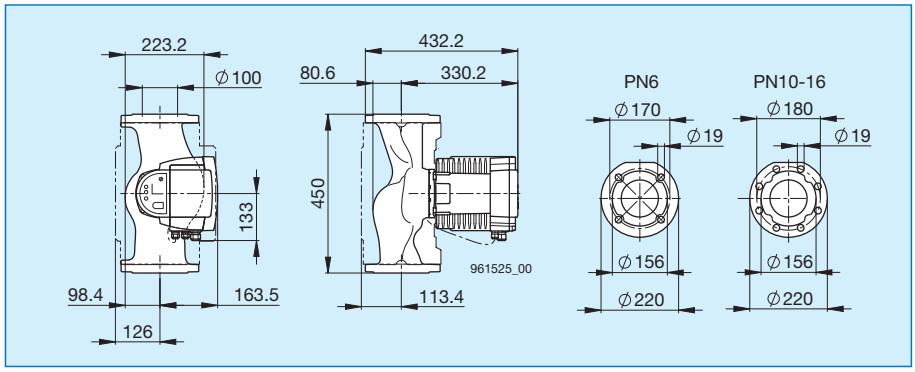
### Included in the scope of delivery

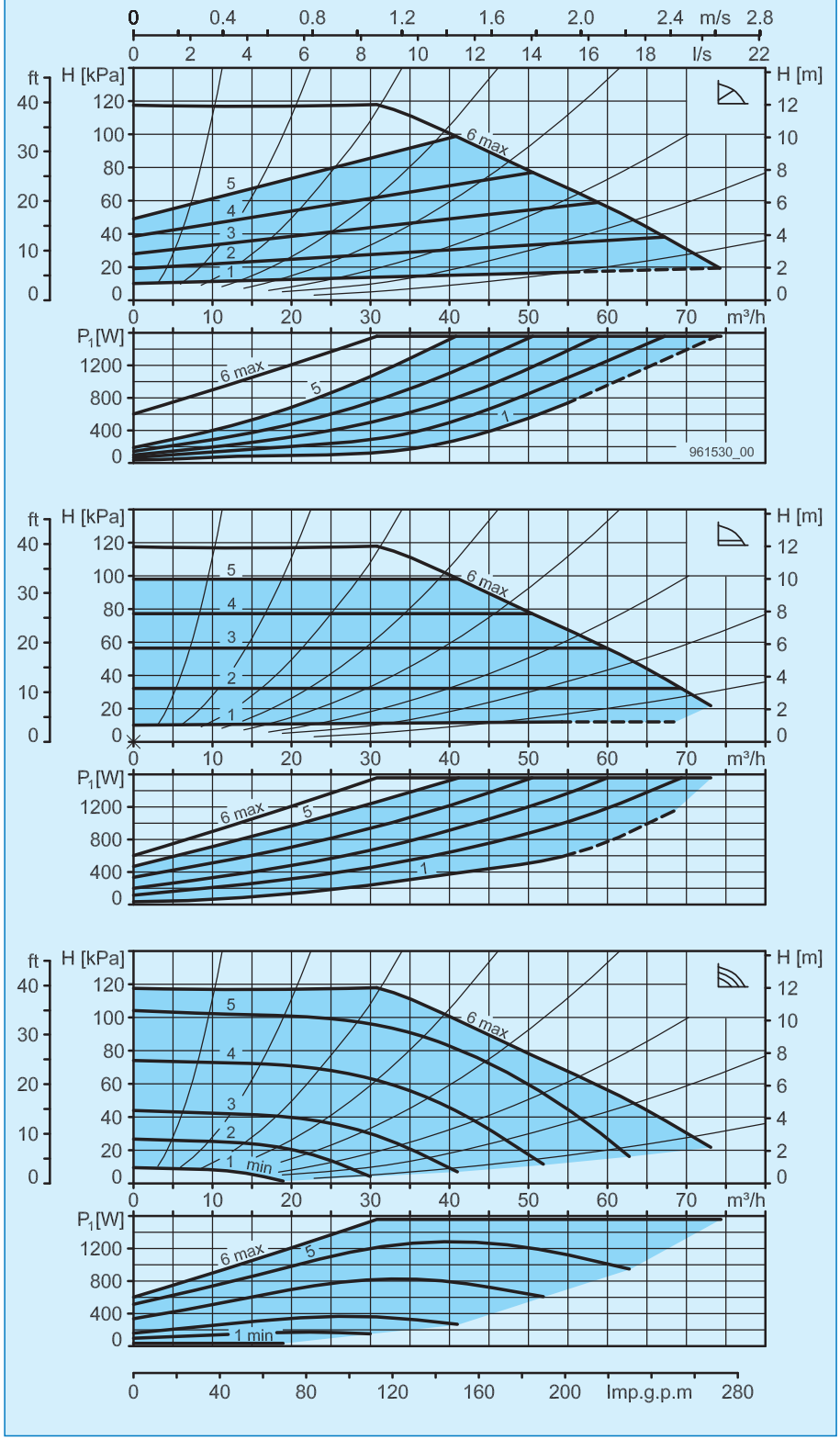
- Heat insulation shells
- Sealing set for flange PN 6 or PN 10/16

### Options

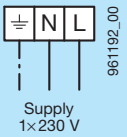
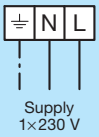
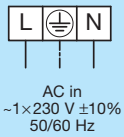
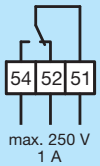
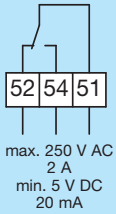
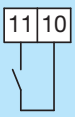
- BIM A2 signal module
- BIM B2 control module
- Set for recessed installation of electronics
- Biral Remote

See page 74 for further details



# Standard

| | AX 10, AX 12, AX 13<br>4…45 W | A 12…A 401, A 500<br>8…174 W | ModulA…RED<br>16…1563 W |
|---|---|---|---|
|  | | | |
| **Fault or operating message** (switchable) | – | ✔ | ✔ |
| **External OFF or external ON** (switchable) | – | – | ✔2) |
| **Power Limit** (activatable) | – | – | ✔ |
| **Power limiting** (can be deactivated) | – | ✔ | – |
| **Automatic night reduction** (activatable) | ✔ | ✔ | – |
| **Thermal insulation shells** | ✔1) | – | ✔ |
| **Connection diagram** **Pump**<br>**L** = Lead<br>**N** = Neutral line<br>⏚ = PE wire, protective conductor |  |  |  |
| **51-54** Fault or operating message (switchable) as closing contact: closes at fault/operation message<br>**51-52** Fault or operating message (switchable) as opening contact: opens at fault/operation message | |  |  |
| **10-11** External OFF or external ON (switchable) with closing contact | | |  |

1) The pumps AX 10, -1, AX 12-3, -4, AX 13-3, -4 are supplied without heat insulation shells.

2) We recommend switching ModulA pumps via contacts 10/11 (external OFF/ON).

# Options

**AX 10, AX 12, AX 13**
4…45 W

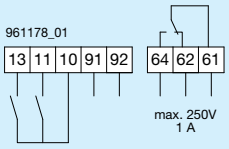
**A 12…A 401, A 500**
8…174 W

**ModulA…RED**
16…1563 W

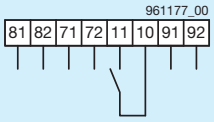
| | AX 10, AX 12, AX 13 | A 12…A 401, A 500 | ModulA…RED |
|---|---|---|---|
| **Biral interface module BIM A signal module**<br>– Operating or ready message<br>– External OFF<br>– External minimum speed<br>– Twin pump function | – | ✔ | – |
| **Biral interface module BIM B control module**<br>– External speed specification 0–10 V/0–20 mA<br>– PWM/multi-thermal interface<br>– External OFF<br>– Twin pump function | – | ✔ | – |
| **Biral interface module BIM A2 signal module**<br>– Operating or ready message<br>– External minimum speed<br>– Twin pump function | – | – | ✔ |
| **Biral interface module BIM B2 control module**<br>– External speed specification 0–10 V/0–20 mA<br>– External minimum speed<br>– Twin pump function | – | – | ✔ |
| **Thermal insulation shells** | AX 10, -1 | ✔ | – |
| **Set for recessed installation of electronics** | – | – | ✔ |

## Connection diagram

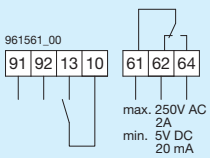
**BIM A signal module**
**10-11** External OFF with closed contact
**10-13** External minimum speed with closing contact
**61-64** Operating or ready message (switchable) as a closing contact: Closes at operating/ready message
**61-62** Operating or ready message (switchable) as opening contact: opens at operating/ready message
**91-92** Twin pump function



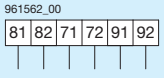

**BIM B control module**
**10-11** External OFF with closing contact
**81-82** Multi-thermal/PWM interface for external speed specification
**71-72** Analogue input 0…10 V or 0…20 mA for external speed specification
**91-92** Twin pump function




**BIM A2 signal module**
**10-13** External minimum speed with closing contact
**61-64** Operating or ready message (switchable) as a closing contact: closes at operating/ready message
**61-62** Operating or ready message (switchable) as opening contact: opens at operating/ready message
**91-92** Twin pump function



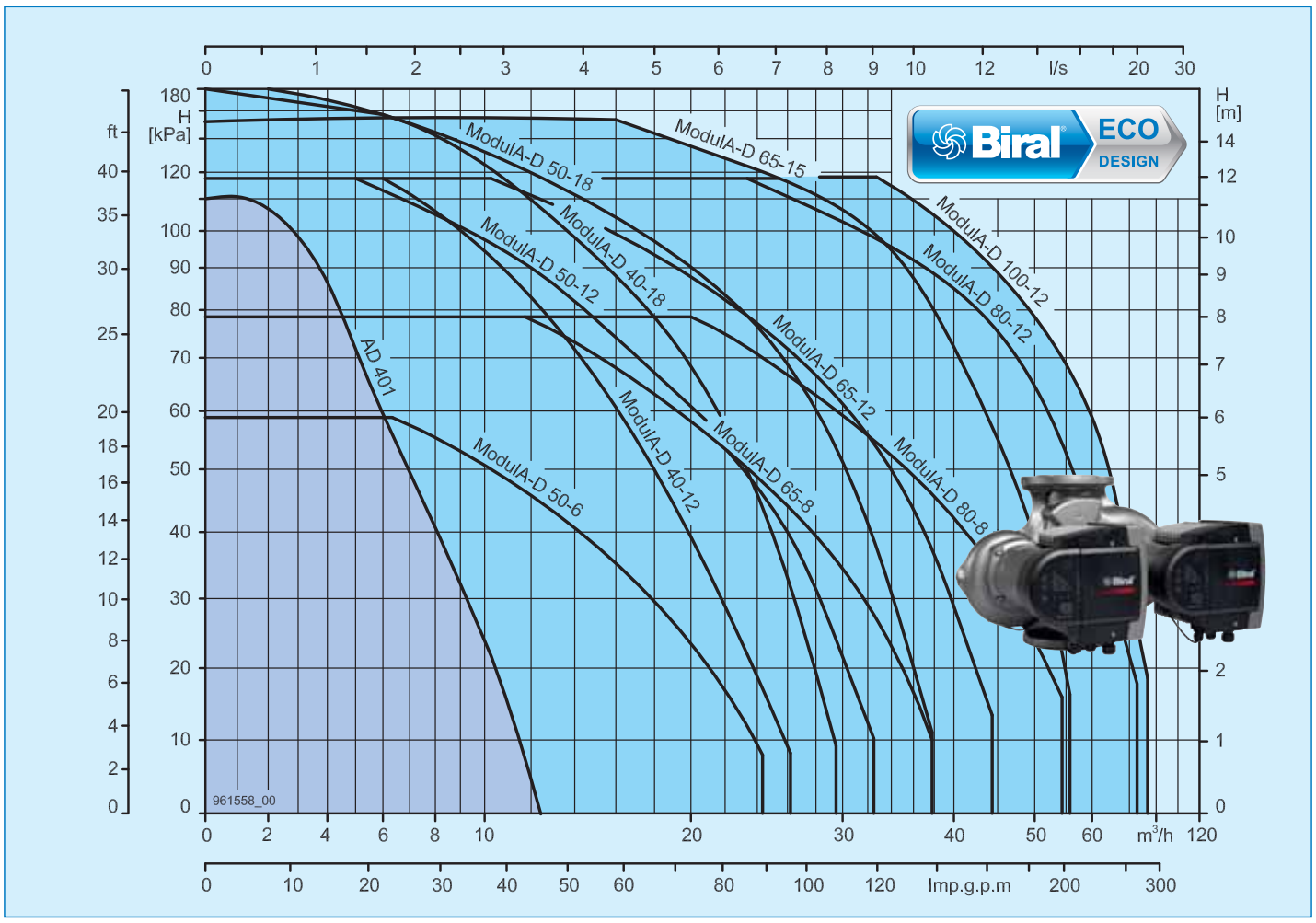

**BIM B2 control module**
**81-82** Multi-thermal /PWM interface for external speed specification
**71-72** Analogue input 0…10 V or 0…20 mA for external speed specification
**91-92** Twin pump function



# Twin pumps
## AD...
## ModulA-D... RED

Summary

| Type | Connection | Nominal width DN | Discharge head max. mWC | Installation length mm | Operating pressure max./bar | EEI-value |
|---|---|---|---|---|---|---|
| AD 401 | PN 6/10 | 40 | 11 | 220 | 10 | ≤0.22 |
| | | | | | | |
| ModulA-D 40-12 250 RED | PN 6-16 | 40 | 12 | 250 | 16 | ≤0.18 |
| ModulA-D 40-18 250 RED | PN 6-16 | 40 | 18 | 250 | 16 | ≤0.18 |
| | | | | | | |
| ModulA-D 50-6 240 RED | PN 6-16 | 50 | 6 | 240 | 16 | ≤0.19 |
| ModulA-D 50-12 270 RED | PN 6-16 | 50 | 12 | 270 | 16 | ≤0.18 |
| ModulA-D 50-18 270 RED | PN 6-16 | 50 | 18 | 270 | 16 | ≤0.17 |
| | | | | | | |
| ModulA-D 65-8 340 RED | PN 6-16 | 65 | 8 | 270 | 16 | ≤0.17 |
| ModulA-D 65-12 340 RED | PN 6-16 | 65 | 12 | 340 | 16 | ≤0.17 |
| ModulA-D 65-15 340 RED | PN 6-16 | 65 | 15 | 340 | 16 | ≤0.17 |
| | | | | | | |
| ModulA-D 80-8 360 RED | PN 6 | 80 | 8 | 360 | 6 | ≤0.17 |
| ModulA-D 80-8 360 RED | PN 10/16 | 80 | 8 | 360 | 16 | ≤0.17 |
| ModulA-D 80-12 360 RED | PN 6 | 80 | 12 | 360 | 6 | ≤0.17 |
| ModulA-D 80-12 360 RED | PN 10/16 | 80 | 12 | 360 | 16 | ≤0.17 |
| | | | | | | |
| ModulA-D 100-12 450 RED | PN 6 | 100 | 12 | 450 | 6 | ≤0.17 |
| ModulA-D 100-12 450 RED | PN 10/16 | 100 | 12 | 450 | 16 | ≤0.17 |



# AD 401

Characteristics, see single pump, A 401

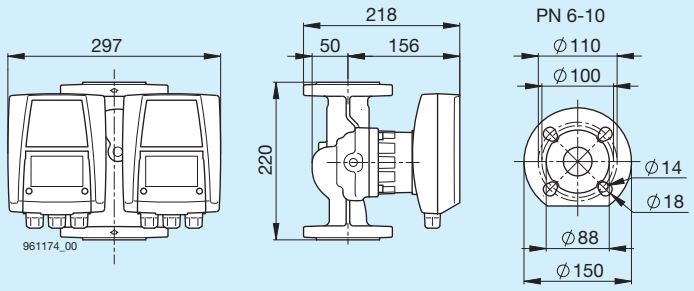
**Alternating operation (22h/22h)**
**or reserve operation (22h/2h)**
The pumps are designed for single operation in systems with increased safety requirements (pump 1 or pump 2). The switching of pumps occurs based on time or failure of a pump.
The BIM A signal module (2×) is required.

**Parallel operation with constant speed (cs)**
(pump 1 + pump 2) are only permitted with constant speed (cs), however, not with proportional pressure (pp) or constant pressure (cp).
In this type of operation, no Biral interface module is required.

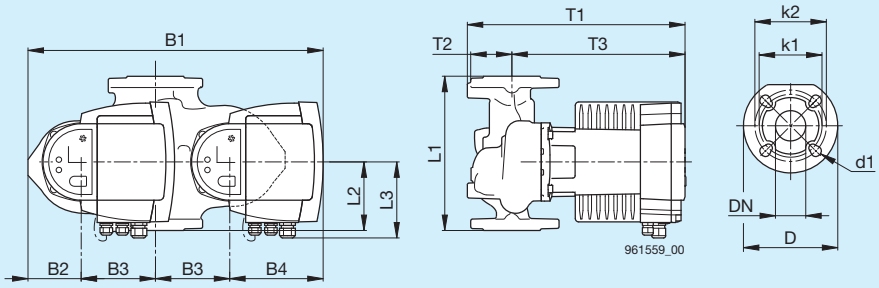
**Parallel operation**
**with external speed specification**
(0–10 V/0–20 mA/PWM) can be operated via the BIM B2 control module (2×).

**Options:**
– BIM A signal module (2×)
– BIM B control module (2×)

**AD 401**




**ModulA-D**




# ModulA-D … RED

Characteristics, see single pumps, module A…RED

| | |
|---|---|
| Required operating pressure at | 500 m a.s.l. |
| at 75°C water temperature | 0.90 bar |
| at 95°C water temperature | 1.20 bar |
| at 110°C water temperature | 1.50 bar |
| For every ±100 m altitude | ±0.01 bar |

**Alternating operation (22h/22h)**
**or reserve operation (22h/2h)**
The pumps are designed for single operation in systems with increased safety requirements (pump 1 or pump 2). The switching of pumps occurs based on time or failure of a pump.

**Parallel operation with constant speed (cs)**
(pump 1 + pump 2) only permitted with constant speed (cs), however, not with proportional pressure (pp) or constant pressure (cp).
In this type of operation no Biral interface module is required.

**Parallel operation**
**with external speed specification**
(0–10 V/0–20 mA/PWM) can be operated via the BIM B2 control module (2×).

**Included in the scope of delivery:**
– BIM A2 signal module (2×)
and a 2-wire, shielded connection cable.

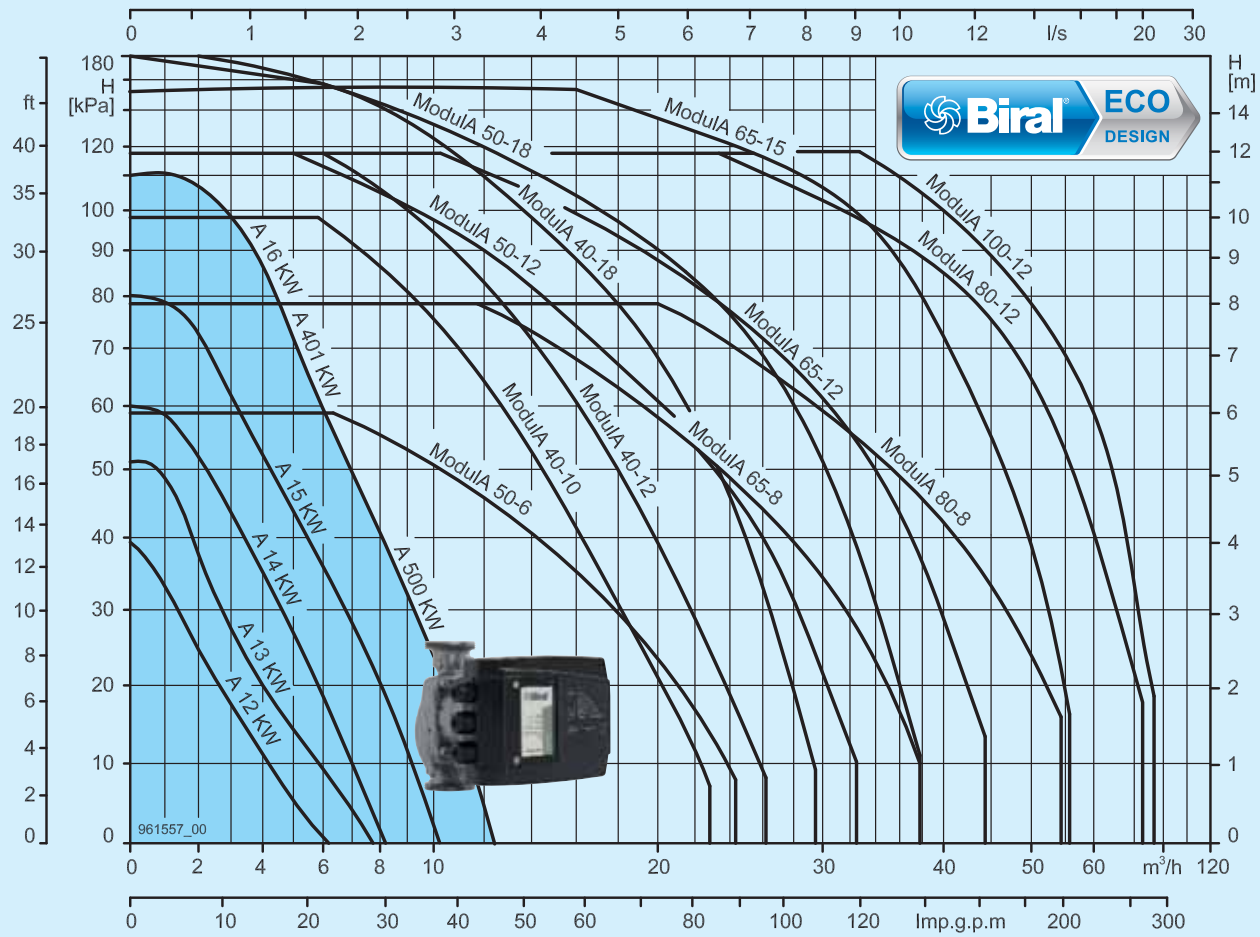
**Options:**
– BIM B2 control module (2×)

| | ModulA-D … RED | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 40-12 250<br>40-18 250 | 50-6 240 | 50-12 270<br>50-18 270 | 65-8 340<br>65-12 340 | 65-15 340 | 80-8 360<br>80-12 360 | 80-8 360<br>80-12 360 | 100-12 450 | 100-12 450 |
| | PN 6-16 | PN 6-16 | PN 6-16 | PN 6-16 | PN 6-16 | PN 6 | PN 10/16 | PN 6 | PN 10/16 |
| **DN** | 40 | 50 | 50 | 65 | 65 | 80 | 80 | 100 | 100 |
| **L1** | 250 | 240 | 270 | 340 | 340 | 360 | 360 | 450 | 450 |
| **B1** | 512 | 515 | 517 | 522 | 522 | 538 | 538 | 546 | 546 |
| **B2** | 88 | 91 | 93 | 98 | 98 | 114 | 114 | 122 | 122 |
| **B3** | 130 | 130 | 130 | 130 | 130 | 130 | 130 | 135 | 135 |
| **B4** | 164 | 164 | 164 | 164 | 164 | 164 | 164 | 164 | 164 |
| **D** | 150 | 165 | 165 | 185 | 185 | 200 | 200 | 220 | 220 |
| **k1 (PN 6)** | 100 | 110 | 110 | 130 | 130 | 150 | – | 170 | – |
| **k2 (PN 10/16)** | 110 | 125 | 125 | 145 | 145 | – | 160 | – | 180 |
| **d1** | 4×14/19 | 4×14/19 | 4×14/19 | 4×14/19 | 4×14/19 | 4×19 | 8×19 | 4×19 | 8×19 |
| **L2** | 115 | 125 | 120 | 140 | 140 | 160 | 160 | 190 | 190 |
| **L3** | 133 | 133 | 133 | 133 | 133 | 133 | 133 | 133 | 133 |
| **T1** | 376 | 383 | 381 | 391 | 391 | 418 | 418 | 436 | 436 |
| **T2** | 65 | 71 | 72 | 74 | 74 | 94 | 94 | 99 | 99 |
| **T3** | 304 | 303 | 303 | 311 | 311 | 318 | 318 | 330 | 330 |
| **Weight [kg]** | 32 | 35 | 36 | 42 | 48 | 58 | 58 | 68 | 68 |

# Cold water circulation pumps
## A 12 KW ... A 401 KW, A 500 KW

**Summary**

| | Type | Connection | Nominal width DN | Discharge head max. mWC | Installation length mm | Operating pressure max./bar | EEI-value |
|---|---|---|---|---|---|---|---|
|  | A 12 KW | G 2" | 32 | 4 | 170 | 10 | ≤0.21 |
| | A 13 KW | G 2" | 32 | 5 | 170 | 10 | ≤0.21 |
| | A 14 KW | G 2" | 32 | 6 | 170 | 10 | ≤0.22 |
| | A 15 KW | G 2" | 32 | 8 | 170 | 10 | ≤0.22 |
| | A 12-1 KW | G 1½" | 25 | 4 | 180 | 10 | ≤0.21 |
| | A 13-1 KW | G 1½" | 25 | 5 | 180 | 10 | ≤0.21 |
| | A 14-1 KW | G 1½" | 25 | 6 | 180 | 10 | ≤0.22 |
| | A 15-1 KW | G 1½" | 25 | 8 | 180 | 10 | ≤0.22 |
| | A 16-1 KW | G 1½" | 25 | 11 | 180 | 10 | ≤0.21 |
| | A 12-2 KW | G 2" | 32 | 4 | 180 | 10 | ≤0.21 |
| | A 13-2 KW | G 2" | 32 | 5 | 180 | 10 | ≤0.21 |
| | A 14-2 KW | G 2" | 32 | 6 | 180 | 10 | ≤0.22 |
| | A 15-2 KW | G 2" | 32 | 8 | 180 | 10 | ≤0.22 |
| | A 16-2 KW | G 2" | 32 | 11 | 180 | 10 | ≤0.21 |
|  | A 401 KW | PN 6/10 | 40 | 11 | 220 | 10 | ≤0.22 |
| | A 401-1 KW | PN 6/10 | 40 | 11 | 250 | 10 | ≤0.22 |
| | A 500 KW | PN 6/10 | 50 | 11 | 220 | 10 | ≤0.22 |



# A 12 KW, -1, -2

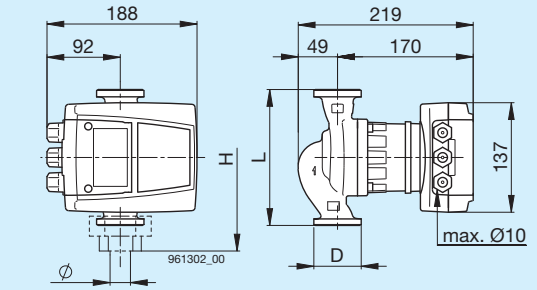
| | | |
|---|---|---|
| **Installation length** | | **170/180 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | –10°C to +95°C |
| Ambient temperature | | max. 40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.10 bar<br>0.55 bar<br>±0.01 bar |
| Weight | | 3.8 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.1…0.25 A |
| | min | 0.14 A |
| Power | Regulation | 8…33 W |
| | min | 8…19 W |

| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 30 | –10 | 95 |
| 35 | –10 | 90 |
| 40 | –10 | 70 |

The pump is suitable for cold water application.
The pump is fitted with internal electric motor protection and requires no external motor protection.
The pump is provided with fault or operating message (switchable).

**Options:**
– BIM A signal module
– BIM B control module

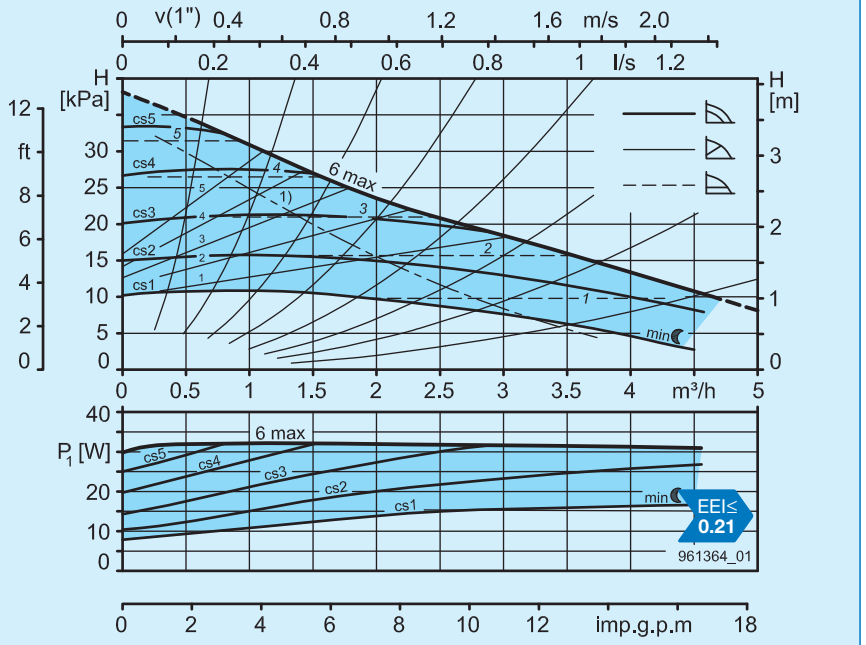
See page 74 for further details




**A12 KW**
Ø= 1½",1¼",1",¾"
D = 2"
L = 170 mm
H = 235 mm

**A12-1 KW**
Ø= 1",¾"
D = 1½"
L = 180 mm
H = 235 mm

**A12-2 KW**
Ø= 1½",1¼",1",¾"
D = 2"
L = 180 mm
H = 245 mm




1) As delivered with power limiting/Constant speed, 6

# A 13 KW, -1, -2

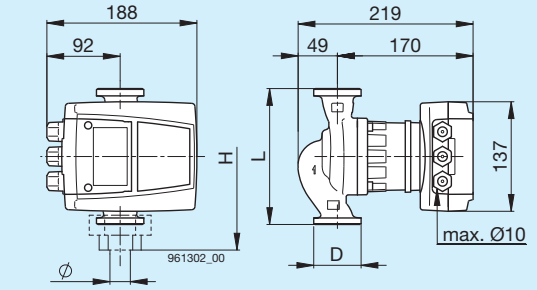
| | | |
|---|---|---|
| **Installation length** | | **170/180 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | –10°C to +95°C |
| Ambient temperature | | max. 40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.10 bar<br>0.55 bar<br>±0.01 bar |
| Weight | | 3.8 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.1…0.35 A |
| | min | 0.14 A |
| Power | Regulation | 8…50 W |
| | min | 8…19 W |

| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 30 | –10 | 95 |
| 35 | –10 | 90 |
| 40 | –10 | 70 |

The pump is suitable for cold water application.
The pump is fitted with internal electric motor protection and requires no external motor protection.
The pump is provided with fault or operating message (switchable).

**Options:**
– BIM A signal module
– BIM B control module

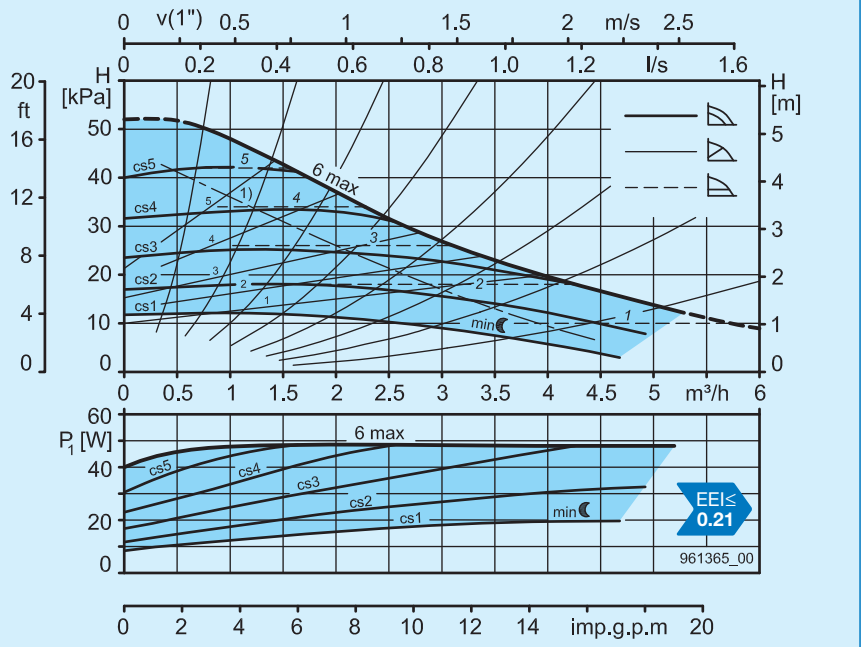
See page 74 for further details




**A13 KW**
Ø= 1½",1¼",1",¾"
D = 2"
L = 170 mm
H = 235 mm

**A13-1 KW**
Ø= 1",¾"
D = 1½"
L = 180 mm
H = 235 mm

**A13-2 KW**
Ø= 1½",1¼",1",¾"
D = 2"
L = 180 mm
H = 245 mm




1) As delivered with power limiting/Constant speed, 6

# A 14 KW, -1, -2

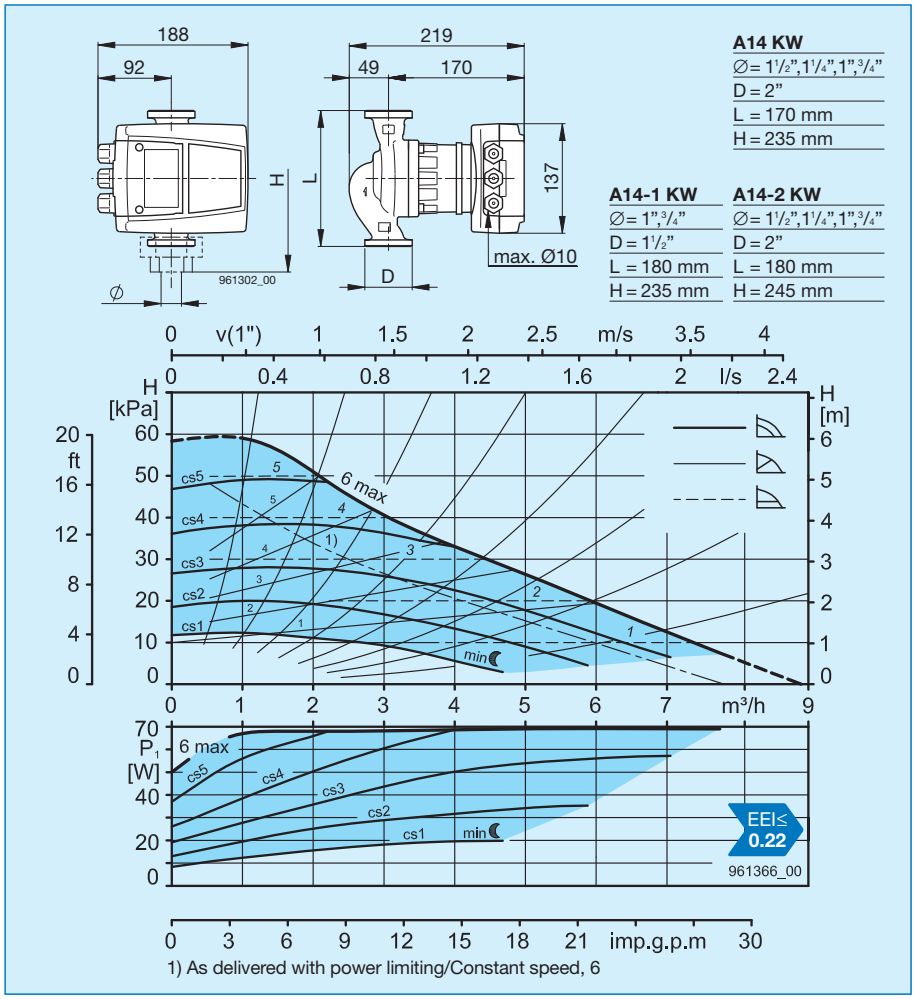
| | | |
|---|---|---|
| **Installation length** | | **170/180 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | –10°C to +95°C |
| Ambient temperature | | max. 40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.10 bar<br>0.55 bar<br>±0.01 bar |
| Weight | | 3.8 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.1…0.5 A |
| | min | 0.14 A |
| Power | Regulation | 8…70 W |
| | min | 8…19 W |

| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 30 | –10 | 95 |
| 35 | –10 | 90 |
| 40 | –10 | 70 |

The pump is suitable for cold water application.
The pump is fitted with internal electric motor protection and requires no external motor protection.
The pump is provided with fault or operating message (switchable).

**Options:**
– BIM A signal module
– BIM B control module

See page 74 for further details




1) As delivered with power limiting/Constant speed, 6

# A 15 KW, -1, -2

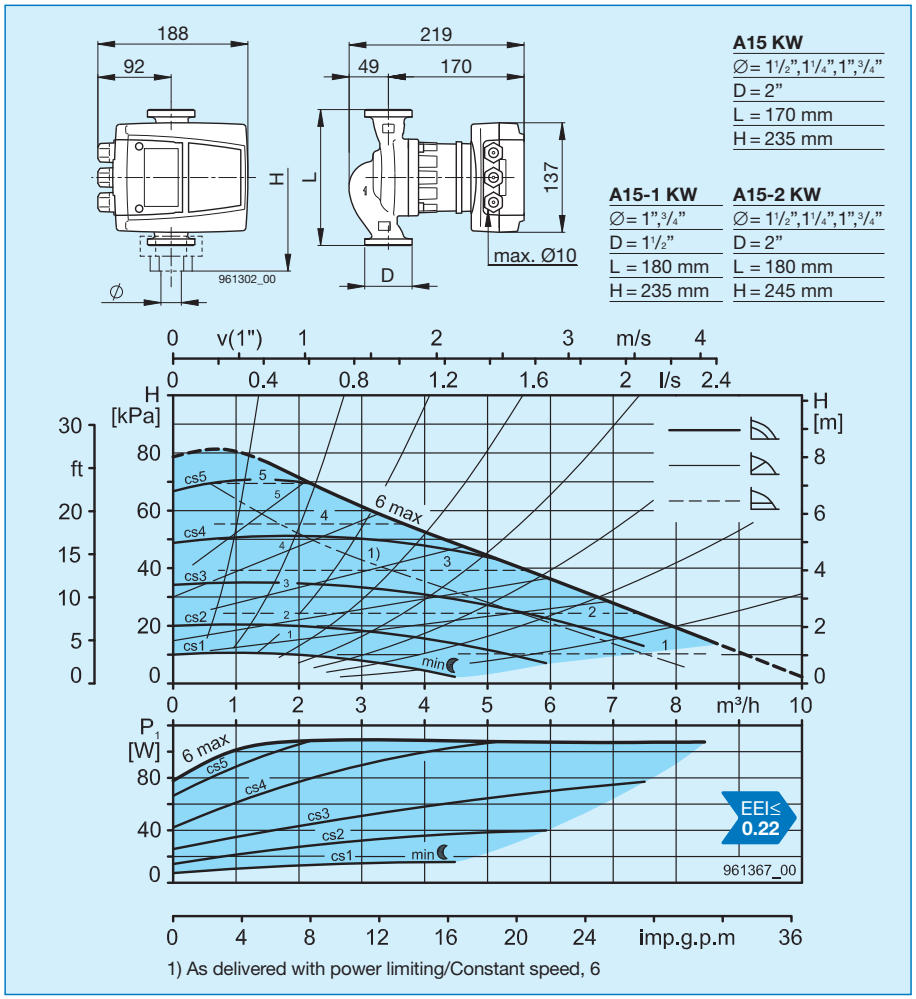
| | | |
|---|---|---|
| **Installation length** | | **170/180 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | –10°C to +95°C |
| Ambient temperature | | max. 40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.10 bar<br>0.55 bar<br>±0.01 bar |
| Weight | | 3.8 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.1…0.8 A |
| | min | 0.14 A |
| Power | Regulation | 8…107 W |
| | min | 8…19 W |

| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 30 | –10 | 95 |
| 35 | –10 | 90 |
| 40 | –10 | 70 |

The pump is suitable for cold water application.
The pump is fitted with internal electric motor protection and requires no external motor protection.
The pump is provided with fault or operating message (switchable).

**Options:**
– BIM A signal module
– BIM B control module

See page 74 for further details




1) As delivered with power limiting/Constant speed, 6

# A 16-1 KW, A 16-2 KW

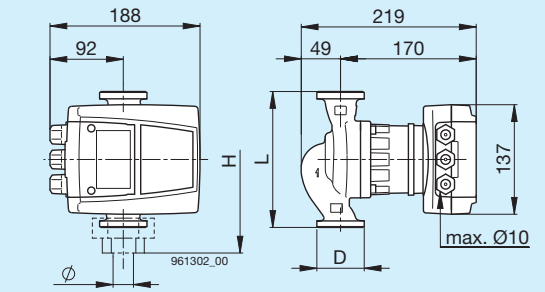
| | | |
|---|---|---|
| **Installation length** | | **180 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | –10°C to +95°C |
| Ambient temperature | | max. 40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.10 bar<br>0.55 bar<br>±0.01 bar |
| Weight | | 3,8 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.1…1.25 A |
| | min | 0.14 A |
| Power | Regulation | 8…174 W |
| | min | 8…19 W |

| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 30 | –10 | 95 |
| 35 | –10 | 90 |
| 40 | –10 | 70 |

The pump is suitable for cold water application.
The pump is fitted with internal electric motor protection and requires no external motor protection.
The pump is provided with fault or operating message (switchable).

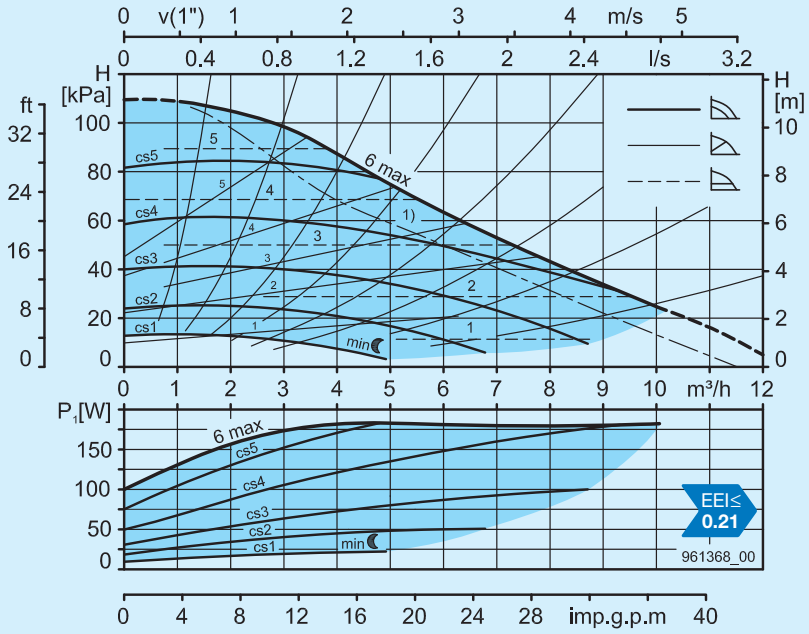
**Options:**
– BIM A signal module
– BIM B control module

See page 74 for further details




**A 16-1 KW**
Ø = 1",¾"
D = 1½"
L = 180 mm
H = 235 mm

**A 16-2 KW**
Ø = 1½",1¼",1",¾"
D = 2"
L = 180 mm
H = 245 mm




1) As delivered with power limiting/Constant speed, 6

# A 401 KW, A 401-1 KW

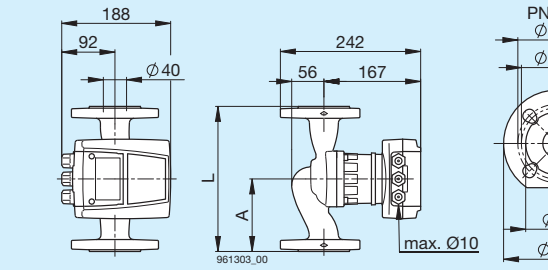
| | | |
|---|---|---|
| **Installation length** | **A 401 KW**<br>**A 401-1 KW** | **220 mm**<br>**250 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | –10°C to +95°C |
| Ambient temperature | | max. 40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.10 bar<br>0.55 bar<br>±0.01 bar |
| Weight | | 9 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.1…1.25 A |
| | min | 0.14 A |
| Power | Regulation | 8…174 W |
| | min | 8…19 W |

| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 30 | –10 | 95 |
| 35 | –10 | 90 |
| 40 | –10 | 70 |

The pump is suitable for cold water application.
The pump is fitted with internal electric motor protection and requires no external motor protection.
The pump is provided with fault or operating message (switchable).

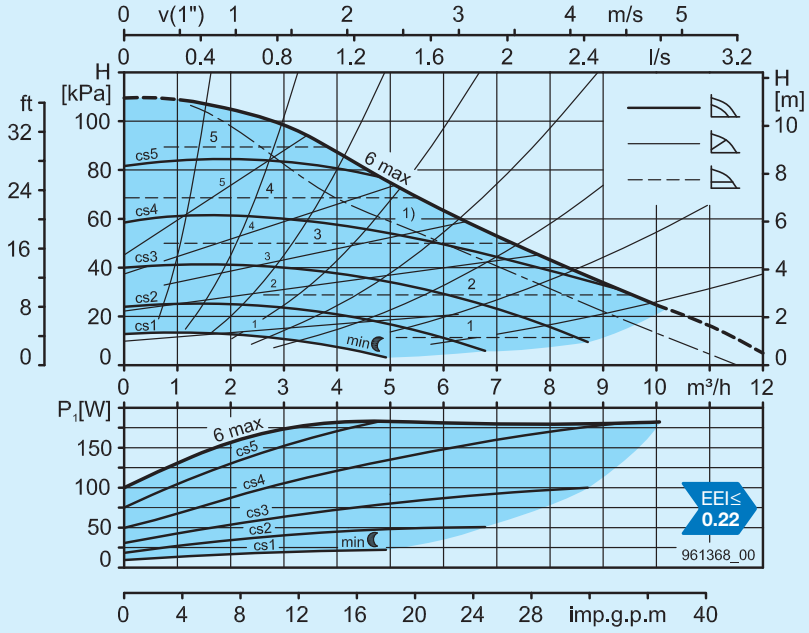
**Options:**
– BIM A signal module
– BIM B control module

See page 74 for further details




**A 401 KW**
L = 220 mm
A = 110 mm

**A 401-1 KW**
L = 250 mm
A = 125 mm




1) As delivered with power limiting/Constant speed, 6

# A 500 KW

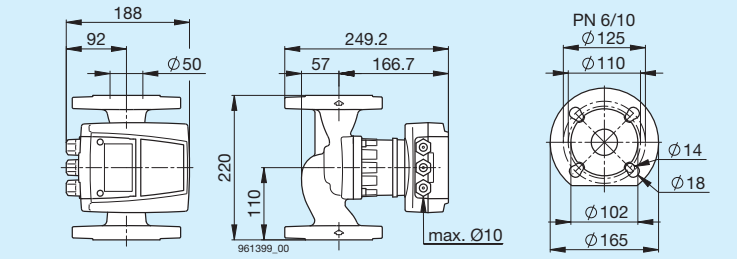
| | | |
|---|---|---|
| **Installation length** | | **220 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | –10°C to +95°C |
| Ambient temperature | | max. 40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.10 bar<br>0.55 bar<br>±0.01 bar |
| Weight | | 11 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.1…1.25 A |
| | min | 0.14 A |
| Power | Regulation | 8…174 W |
| | min | 8…19 W |

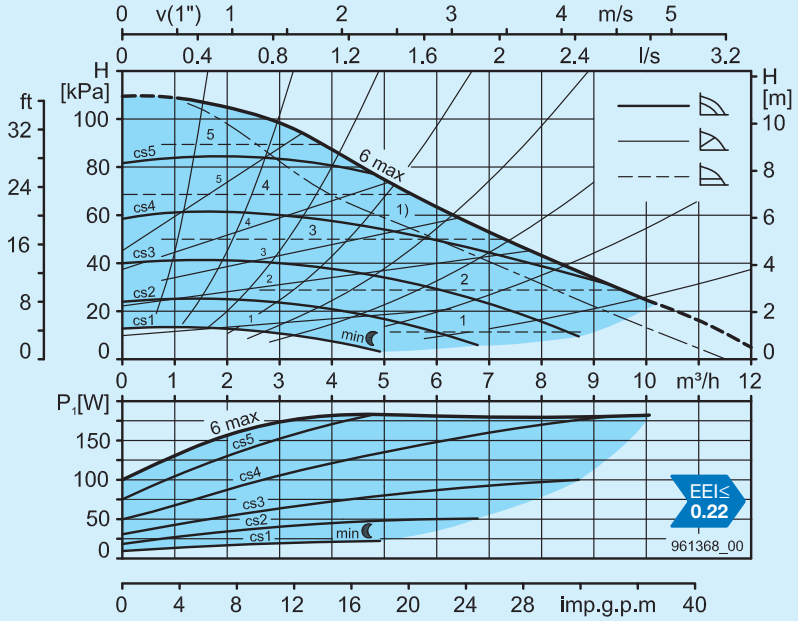
| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 30 | –10 | 95 |
| 35 | –10 | 90 |
| 40 | –10 | 70 |

The pump is suitable for cold water application.
The pump is fitted with internal electric motor protection and requires no external motor protection.
The pump is provided with fault or operating message (switchable).

**Options:**
– BIM A signal module
– BIM B control module

See page 74 for further details



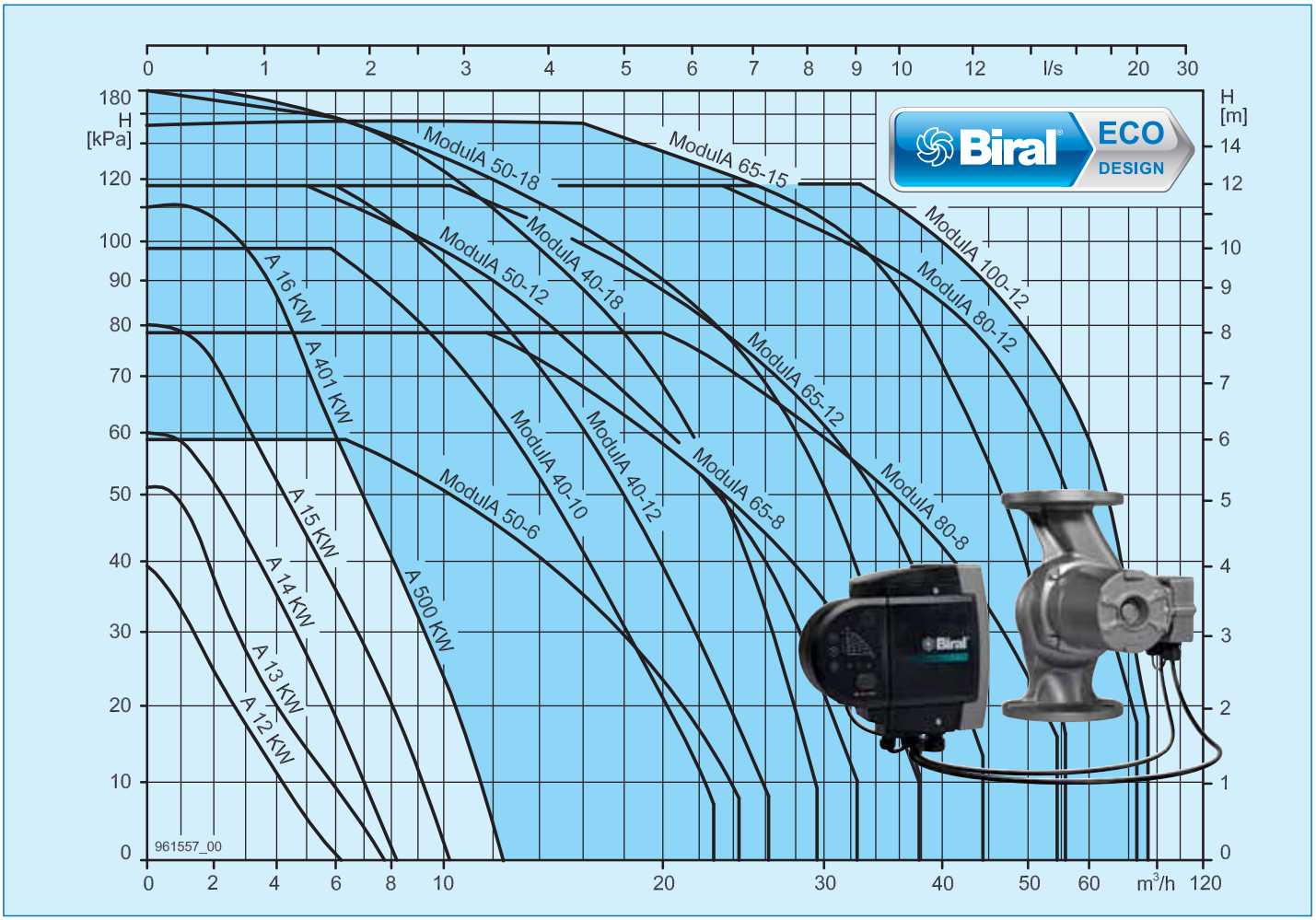

1) As delivered with power limiting/Constant speed, 6

# Cold water circulation pumps

## ModulA ... GREEN
## with flange connections

Summary

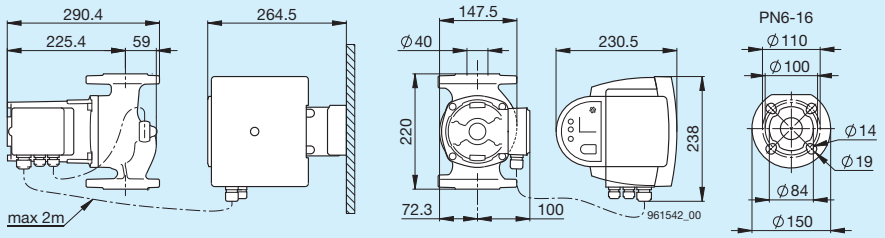
| Type | Connection | Nominal width DN | Discharge head max. mWC | Installation length mm | Operating pressure max./bar | EEI-value |
|---|---|---|---|---|---|---|
| ModulA 40-10 220 GREEN | PN 6-16 | 40 | 10 | 220 | 16 | ≤0.19 |
| ModulA 40-12 250 GREEN | PN 6-16 | 40 | 12 | 250 | 16 | ≤0.18 |
| ModulA 40-18 250 GREEN | PN 6-16 | 40 | 18 | 250 | 16 | ≤0.18 |
| | | | | | | |
| ModulA 50-6 240 GREEN | PN 6-16 | 50 | 6 | 240 | 16 | ≤0.19 |
| ModulA 50-12 270 GREEN | PN 6-16 | 50 | 12 | 270 | 16 | ≤0.18 |
| ModulA 50-18 270 GREEN | PN 6-16 | 50 | 18 | 270 | 16 | ≤0.17 |
| | | | | | | |
| ModulA 65-8 270 GREEN | PN 6-16 | 65 | 8 | 270 | 16 | ≤0.17 |
| ModulA 65-12 340 GREEN | PN 6-16 | 65 | 12 | 340 | 16 | ≤0.17 |
| ModulA 65-15 340 GREEN | PN 6-16 | 65 | 15 | 340 | 16 | ≤0.17 |
| | | | | | | |
| ModulA 80-8 360 GREEN | PN 6 | 80 | 8 | 360 | 6 | ≤0.17 |
| ModulA 80-8 360 GREEN | PN 10/16 | 80 | 8 | 360 | 16 | ≤0.17 |
| ModulA 80-12 360 GREEN | PN 6 | 80 | 12 | 360 | 6 | ≤0.17 |
| ModulA 80-12 360 GREEN | PN 10/16 | 80 | 12 | 360 | 16 | ≤0.17 |
| | | | | | | |
| ModulA 100-12 450 GREEN | PN 6 | 100 | 12 | 450 | 6 | ≤0.17 |
| ModulA 100-12 450 GREEN | PN 10/16 | 100 | 12 | 450 | 16 | ≤0.17 |




Air-conditioning/ Refrigeration

# ModulA 40-10 220 GREEN

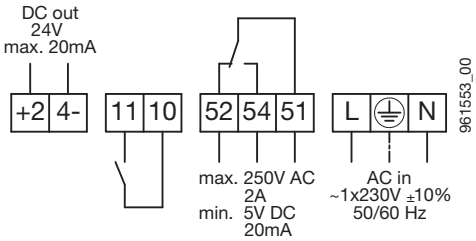
| | |
|---|---|
| Diameter nominal | DN 40 |
| Discharge head H max. | 10 m |
| Installation length | 220 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | –10°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 18.3 kg |




## Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 18-341 W |
| Rated current | 0.19-1.54 A |
| Motor protection | integrated |

## Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

## Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

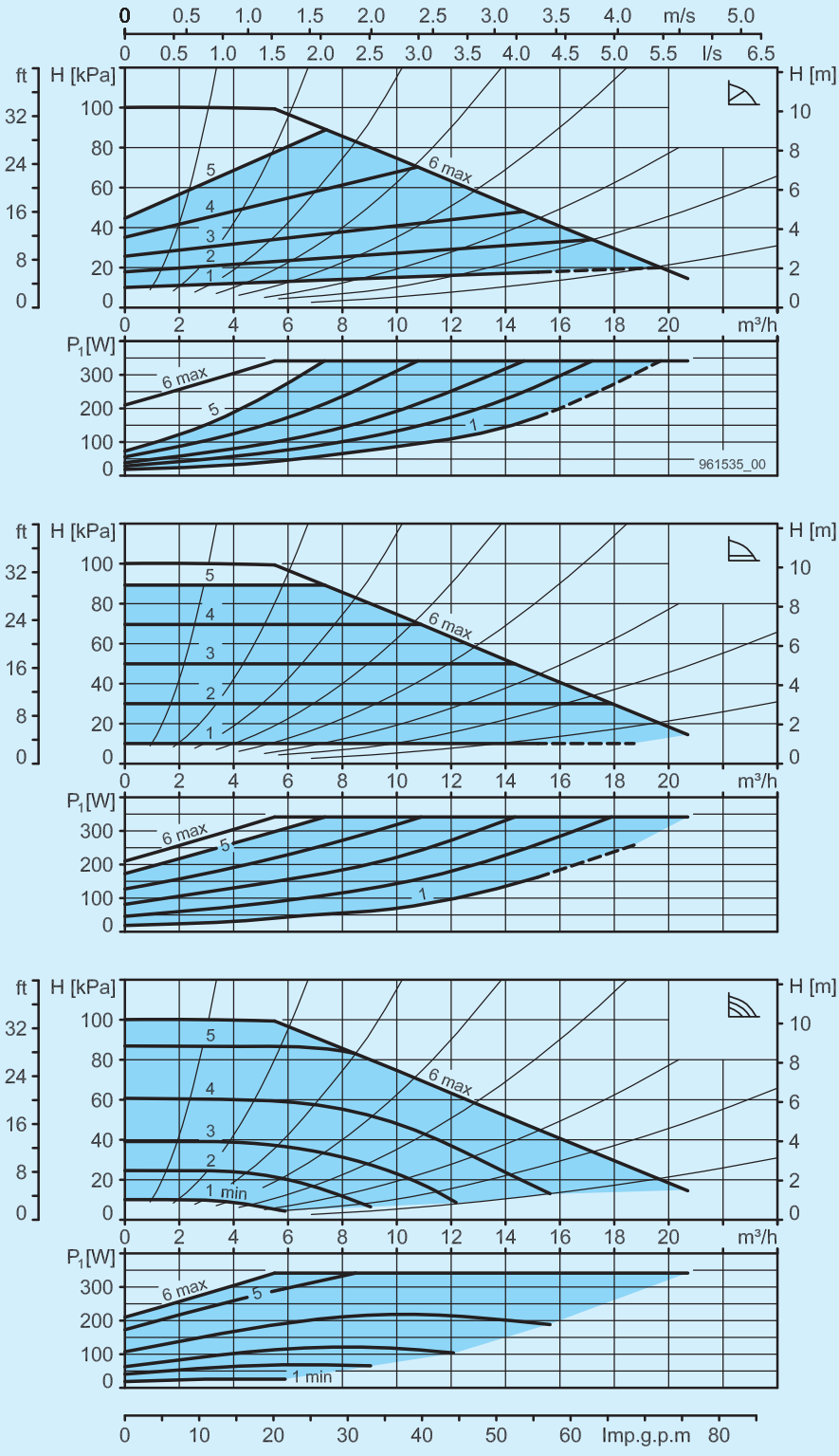
## Included in the scope of delivery

- Kit for recessed installation of electronics (pre-installed)
- Sealing set for flange PN 6

## Options

- BIM A2 signal module
- BIM B2 control module
- Biral Remote
- Sealing set for flanges PN 10/16

See page 74 for further details



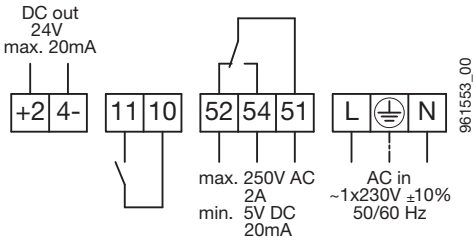
# ModulA 40-12 250 GREEN

| | |
|---|---|
| Diameter nominal | DN 40 |
| Discharge head H max. | 12 m |
| Installation length | 250 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | –10°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 18.1 kg |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 17-421 W |
| Rated current | 0.18-1.91 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

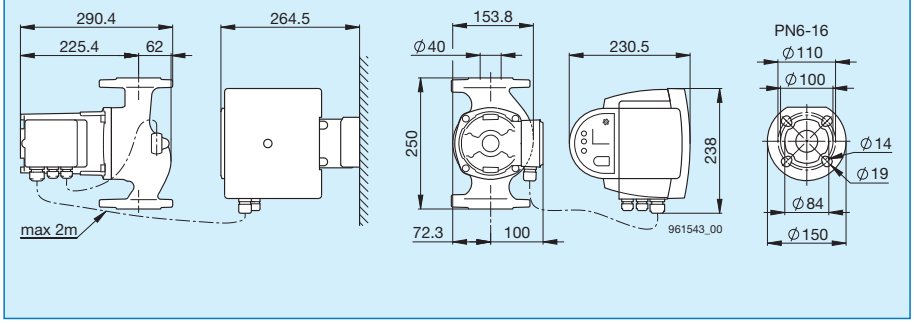
### Included in the scope of delivery

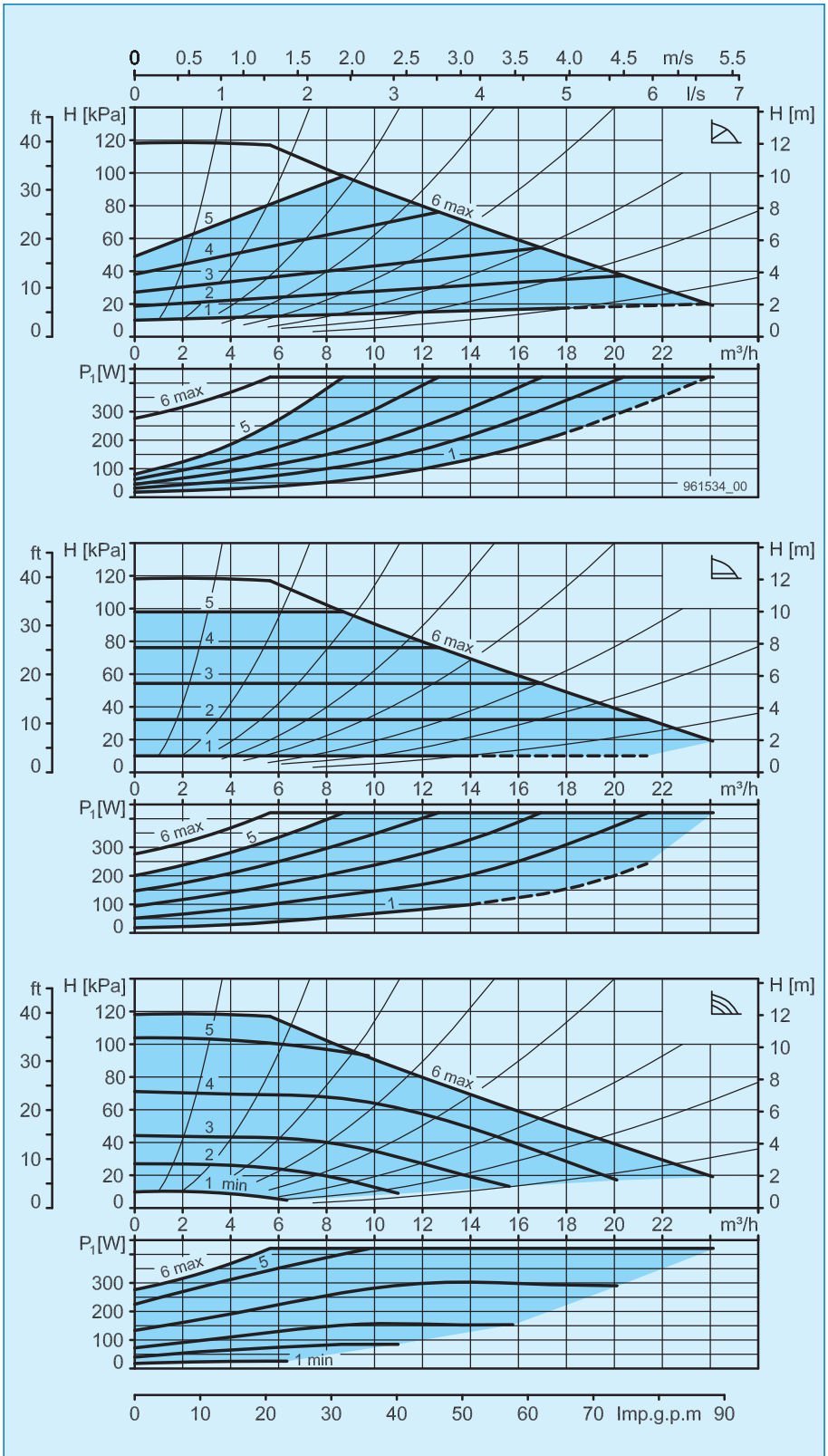
- Kit for recessed installation of electronics (pre-installed)
- Sealing set for flange PN 6

### Options

- BIM A2 signal module
- BIM B2 control module
- Biral Remote
- Sealing set for flanges PN 10/16

See page 74 for further details



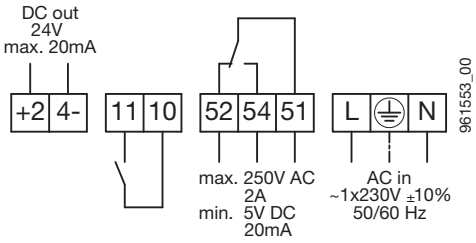
# ModulA 40-18 250 GREEN

| | |
|---|---|
| Diameter nominal | DN 40 |
| Discharge head H max. | 18 m |
| Installation length | 250 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | –10°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 18.1 kg |

## Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 16-594 W |
| Rated current | 0.18-2.63 A |
| Motor protection | integrated |

## Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

## Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

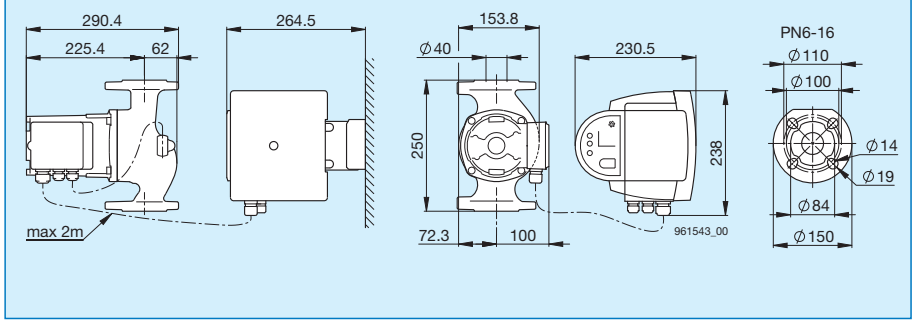
## Included in the scope of delivery

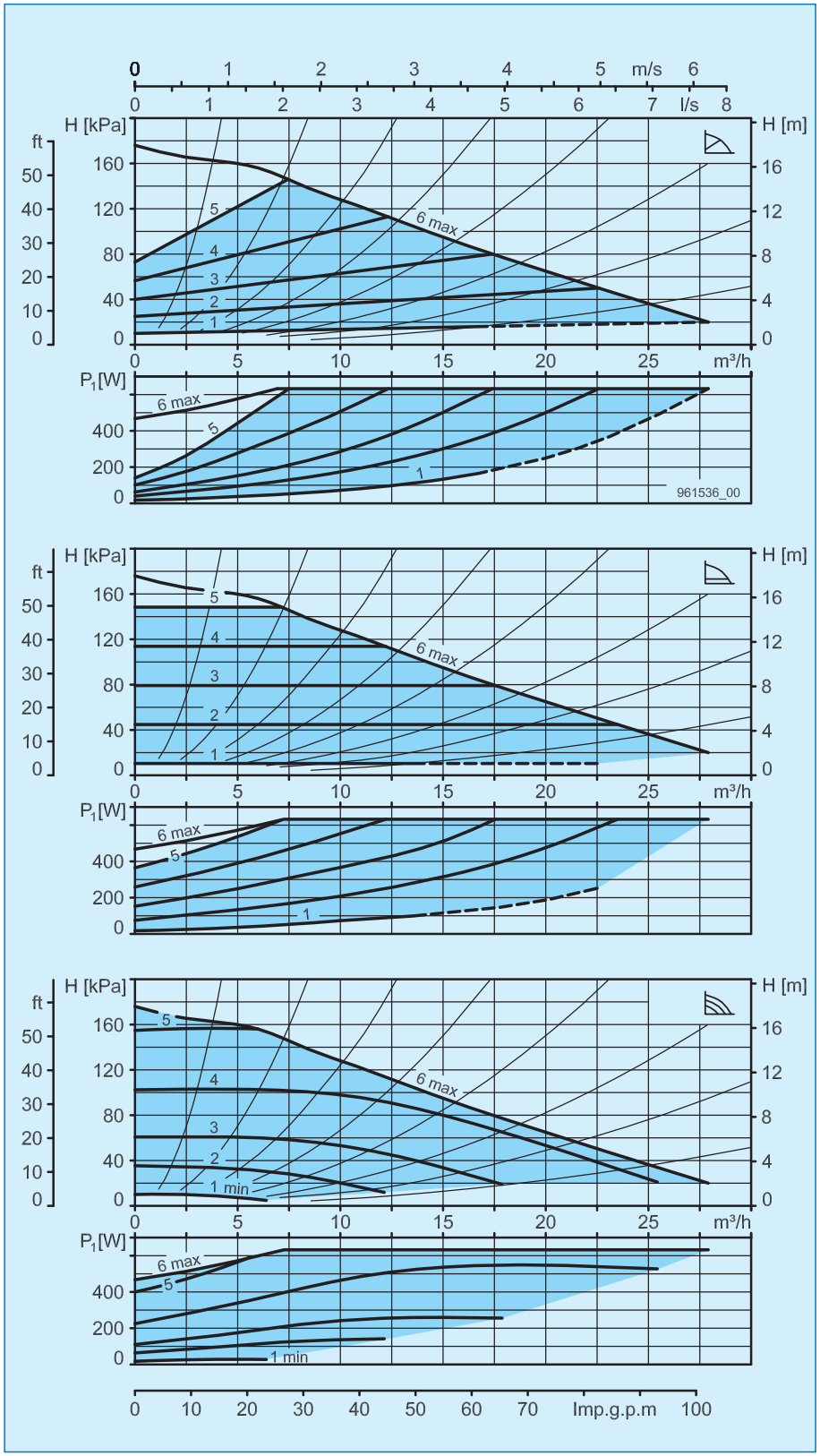
- Kit for recessed installation of electronics (pre-installed)
- Sealing set for flange PN 6

## Options

- BIM A2 signal module
- BIM B2 control module
- Biral Remote
- Sealing set for flanges PN 10/16

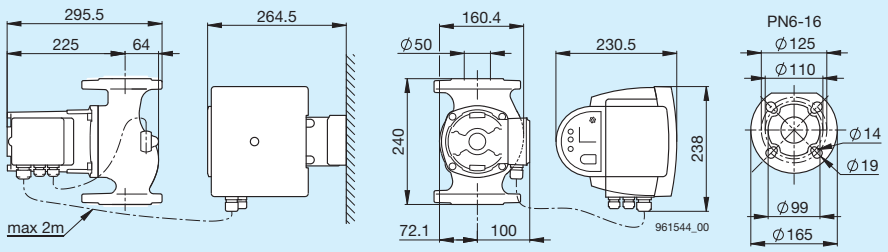
See page 74 for further details



# ModulA 50-6 240 GREEN

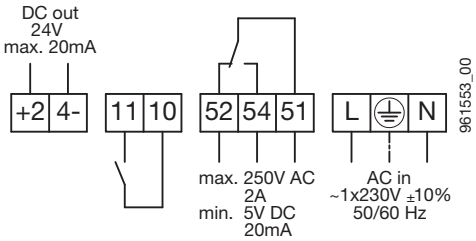
| | |
|---|---|
| Diameter nominal | DN 50 |
| Discharge head H max. | 6 m |
| Installation length | 240 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | –10°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 19.6 kg |




## Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 21 - 236 W |
| Rated current | 0.21 - 1.09 A |
| Motor protection | integrated |

## Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

## Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

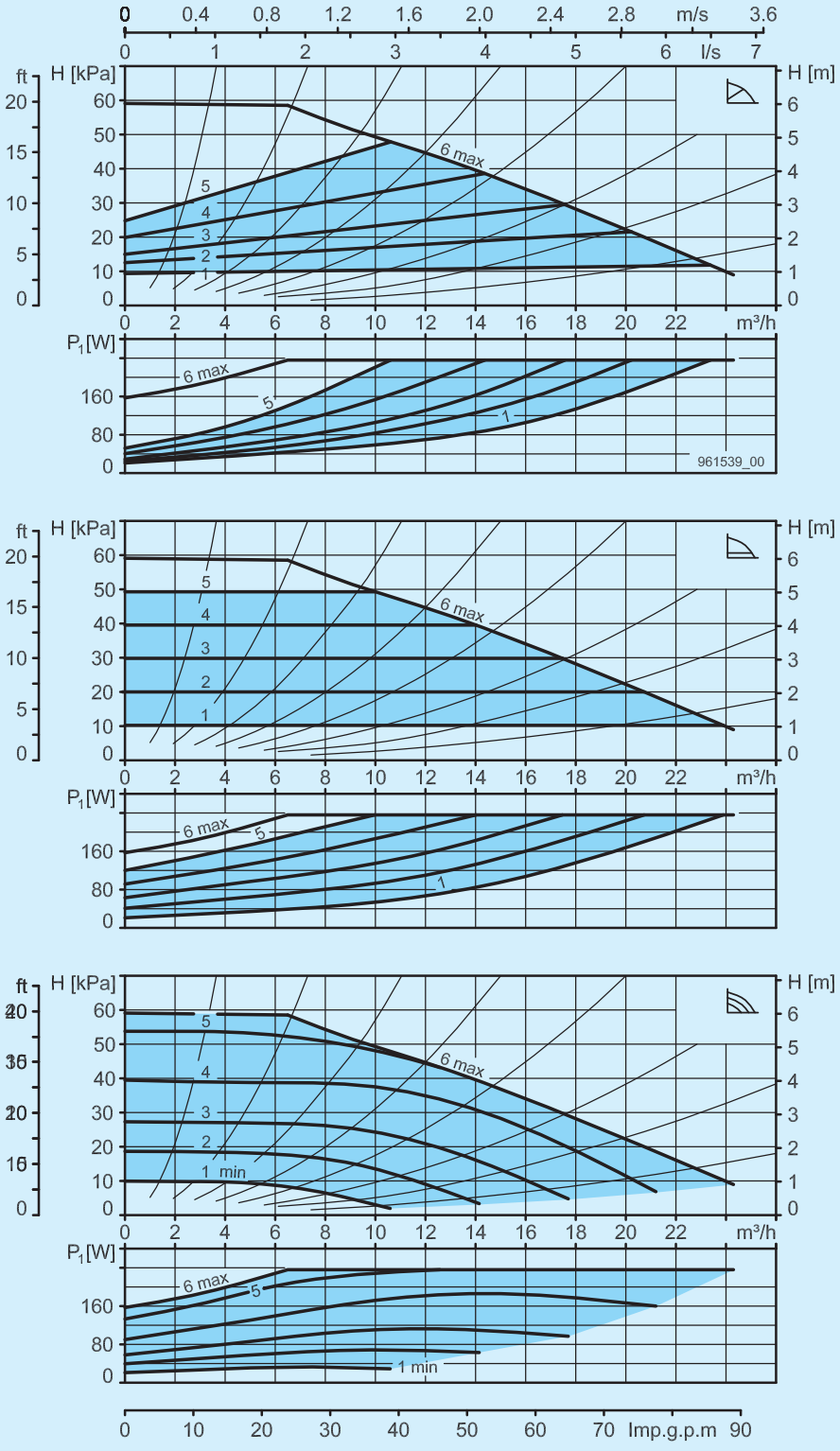
## Included in the scope of delivery

- Kit for recessed installation of electronics (pre-installed)
- Sealing set for flange PN 6

## Options

- BIM A2 signal module
- BIM B2 control module
- Biral Remote
- Sealing set for flanges PN 10/16

See page 74 for further details



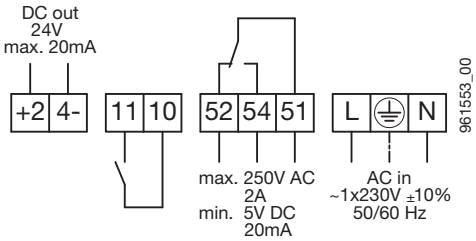
# ModulA 50-12 270 GREEN

| | |
|---|---|
| Diameter nominal | DN 50 |
| Discharge head H max. | 12 m |
| Installation length | 270 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | –10°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 20.1 kg |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 20-516 W |
| Rated current | 0.21-2.32 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

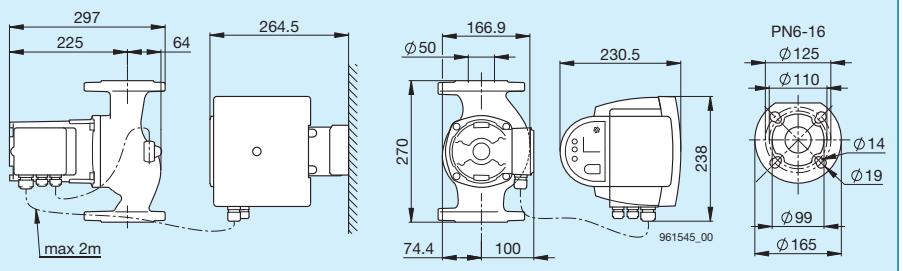
### Included in the scope of delivery

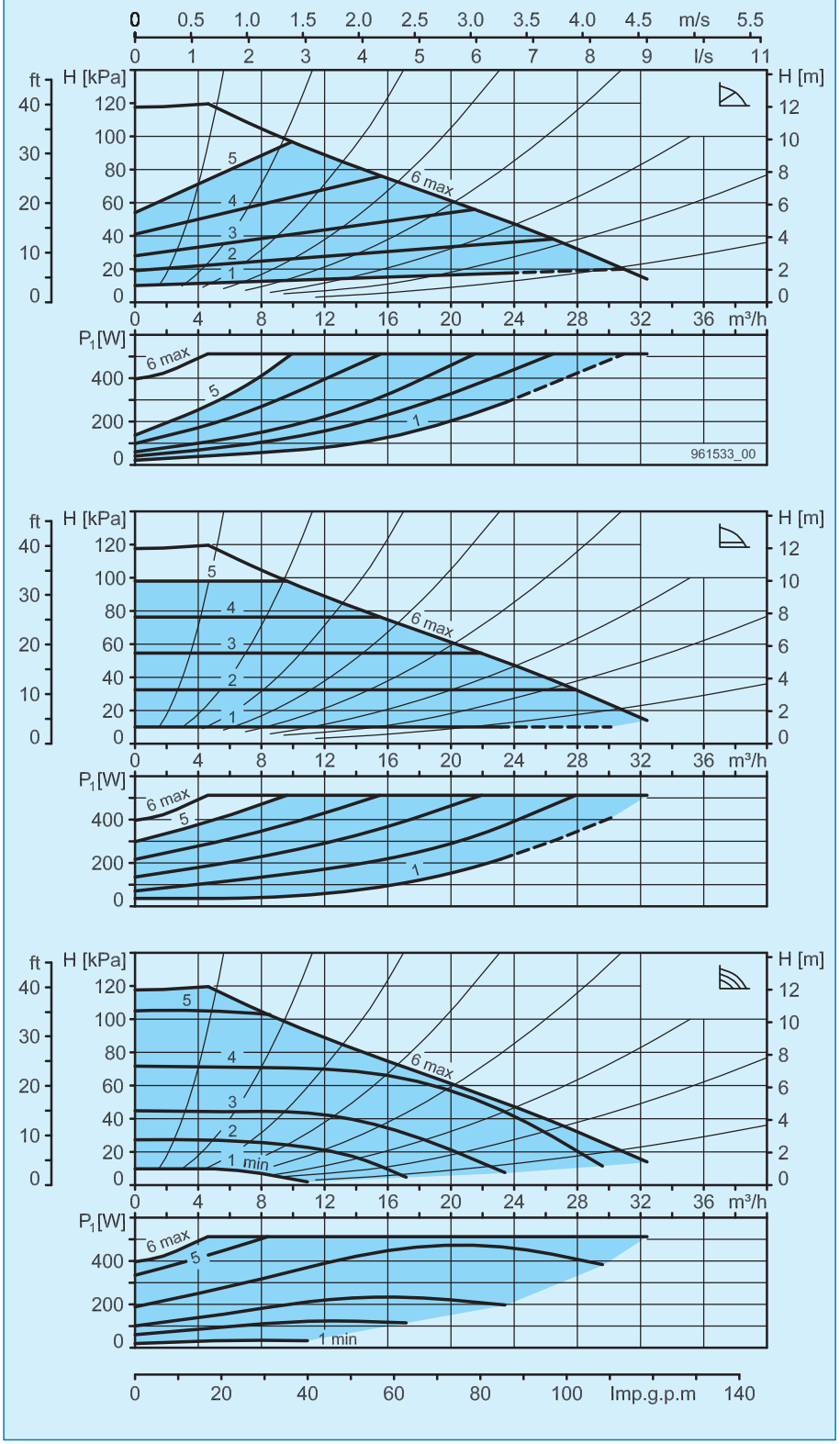
- Kit for recessed installation of electronics (pre-installed)
- Sealing set for flange PN 6

### Options

- BIM A2 signal module
- BIM B2 control module
- Biral Remote
- Sealing set for flanges PN 10/16

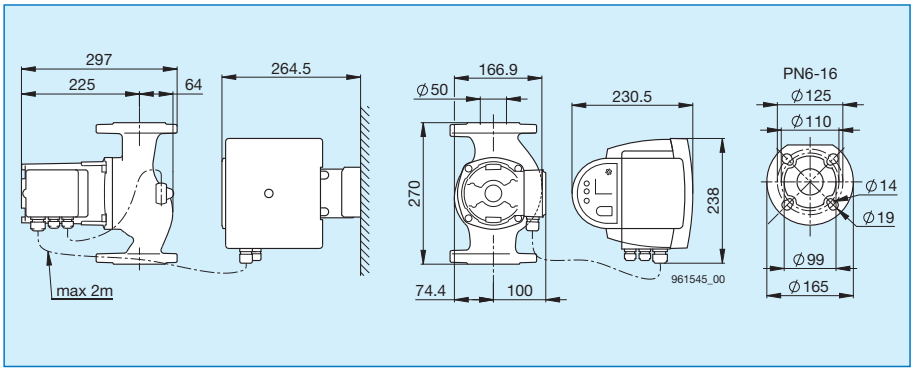
See page 74 for further details



# ModulA 50-18 270 GREEN

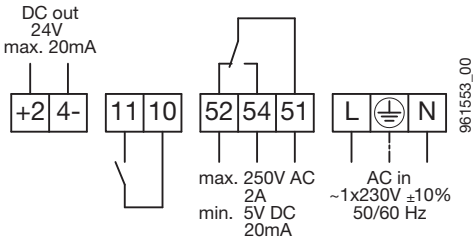
| | |
|---|---|
| Diameter nominal | DN 50 |
| Discharge head H max. | 18 m |
| Installation length | 270 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | –10°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 20.8 kg |




## Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 22 - 742 W |
| Rated current | 0.21 - 3.34 A |
| Motor protection | integrated |

## Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

## Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

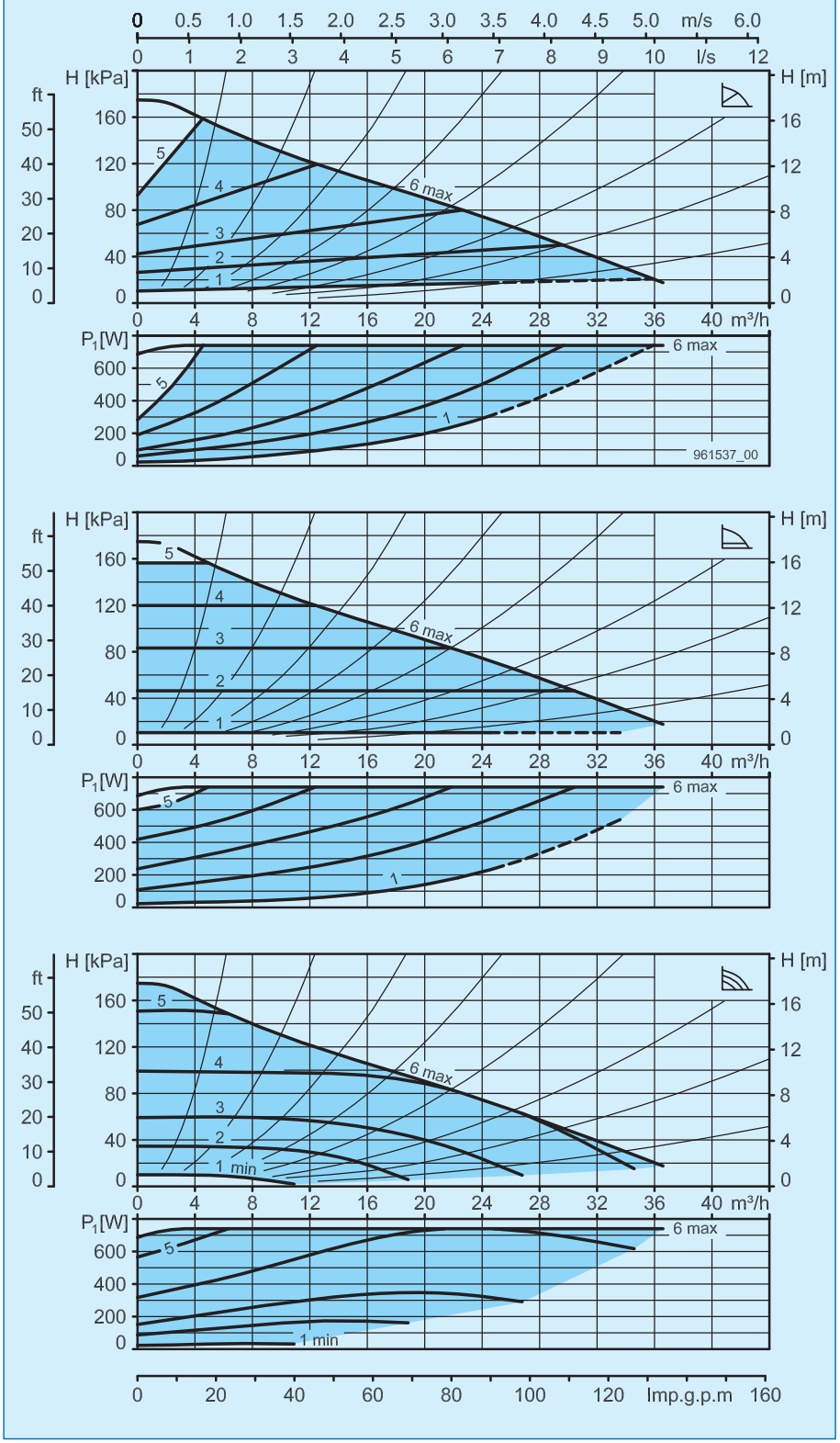
## Included in the scope of delivery

- Kit for recessed installation of electronics (pre-installed)
- Sealing set for flange PN 6

## Options

- BIM A2 signal module
- BIM B2 control module
- Biral Remote
- Sealing set for flanges PN 10/16

See page 74 for further details



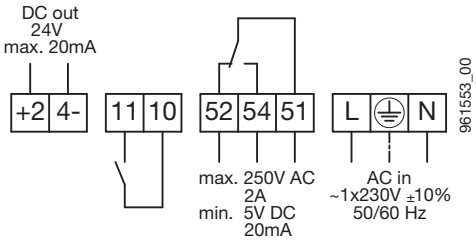
# ModulA 65-8 270 GREEN

| | |
|---|---|
| Diameter nominal | DN 65 |
| Discharge head H max. | 8 m |
| Installation length | 270 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | –10°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 22.6 kg |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 22-464 W |
| Rated current | 0.24-2.10 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

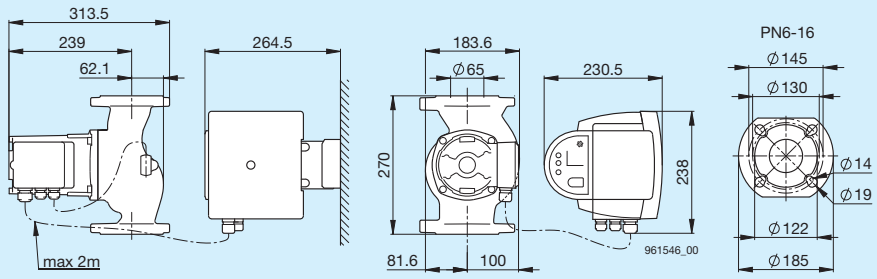
### Included in the scope of delivery

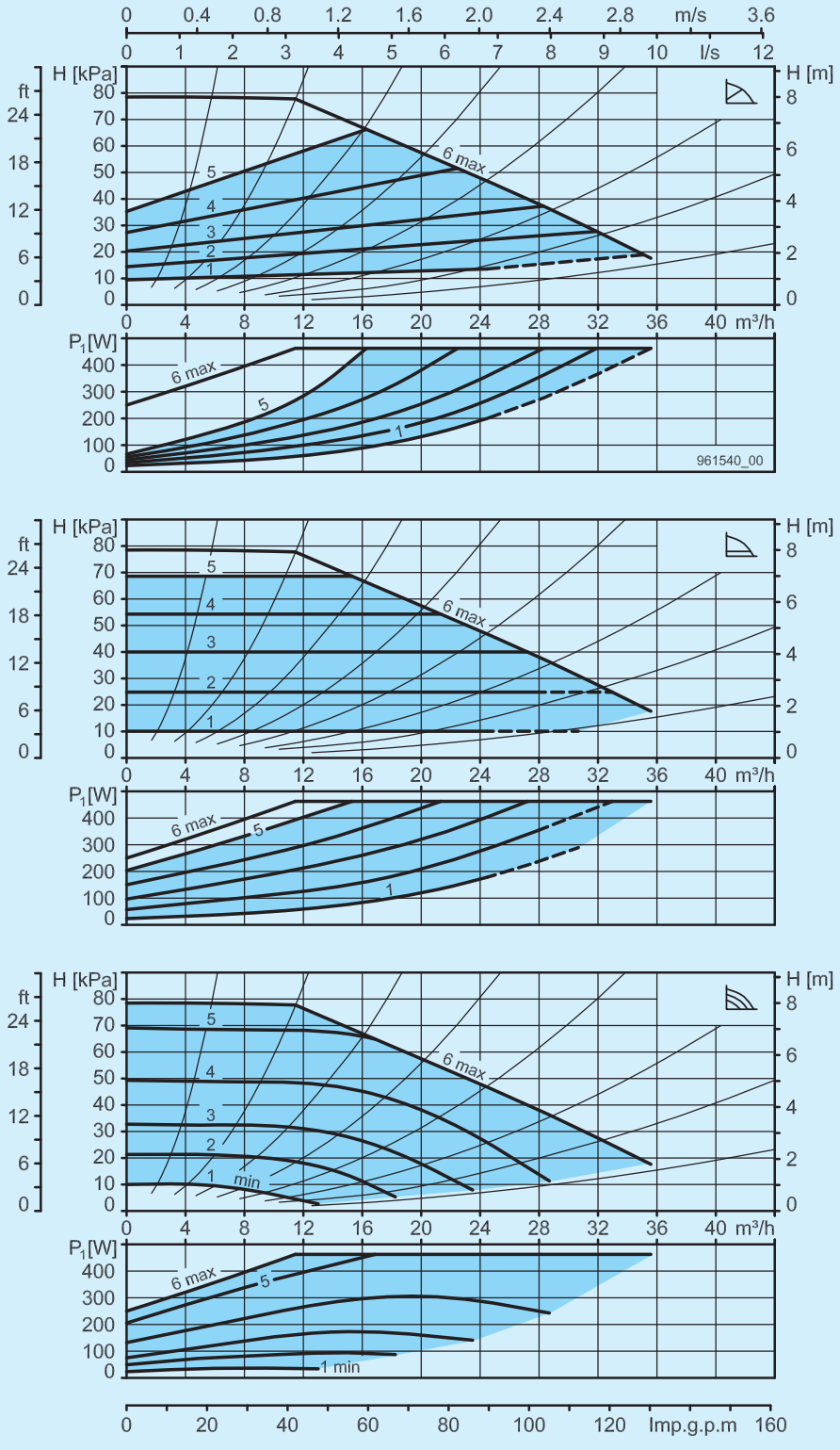
- Kit for recessed installation of electronics (pre-installed)
- Sealing set for flange PN 6

### Options

- BIM A2 signal module
- BIM B2 control module
- Biral Remote
- Sealing set for flanges PN 10/16

See page 74 for further details



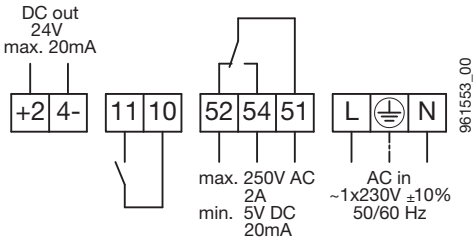
# ModulA 65-12 340 GREEN

| | |
|---|---|
| Diameter nominal | DN 65 |
| Discharge head H max. | 12 m |
| Installation length | 340 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | –10°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 23.5 kg |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 21-736 W |
| Rated current | 0.22-3.32 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

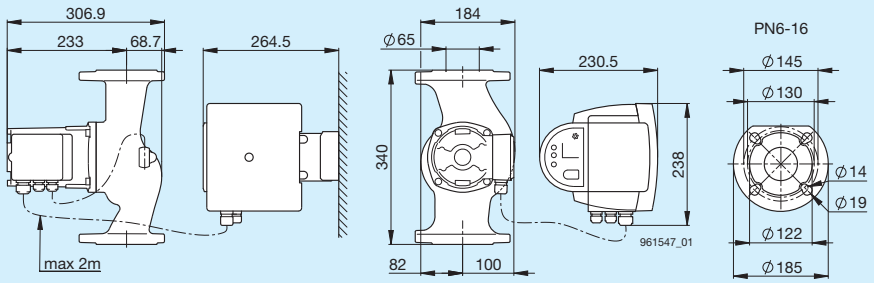
### Included in the scope of delivery

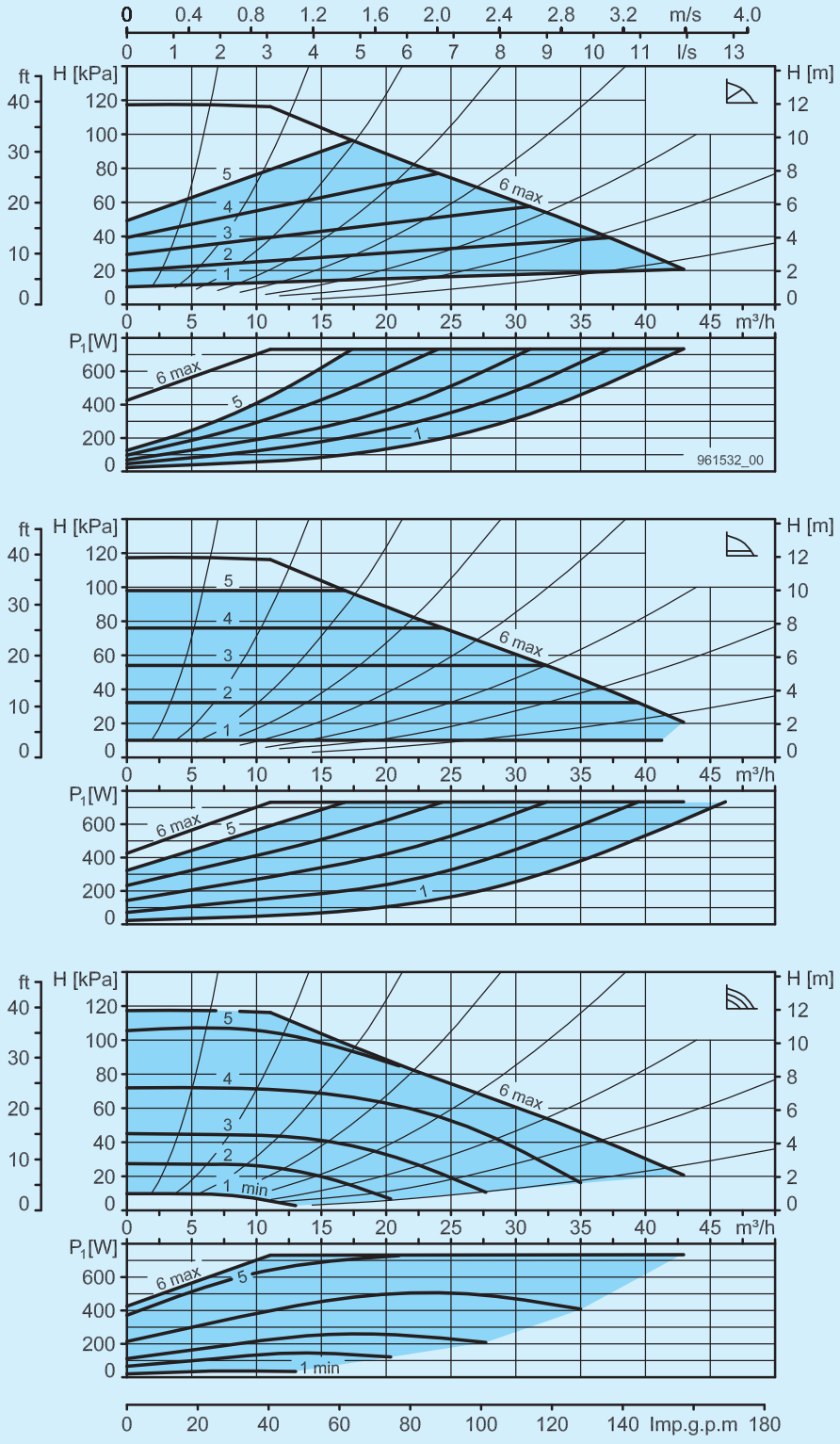
- Kit for recessed installation of electronics (pre-installed)
- Sealing set for flange PN 6

### Options

- BIM A2 signal module
- BIM B2 control module
- Biral Remote
- Sealing set for flanges PN 10/16

See page 74 for further details



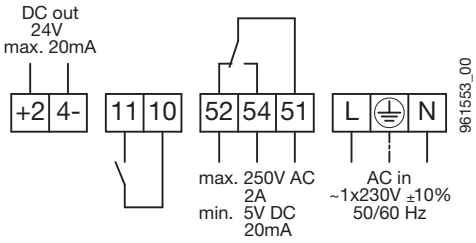
# ModulA 65-15 340 GREEN

| | |
|---|---|
| Diameter nominal | DN 65 |
| Discharge head H max. | 15 m |
| Installation length | 340 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | –10°C to +110°C |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar |
| Weight | 26.0 kg |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 30-1254 W |
| Rated current | 0.28-5.68 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

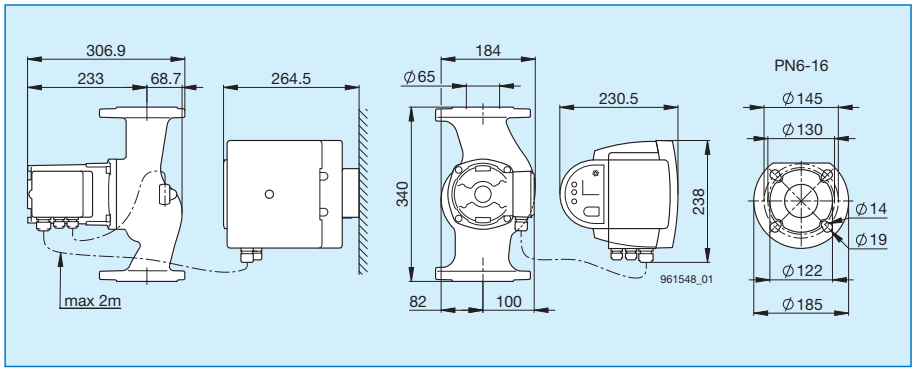
### Included in the scope of delivery

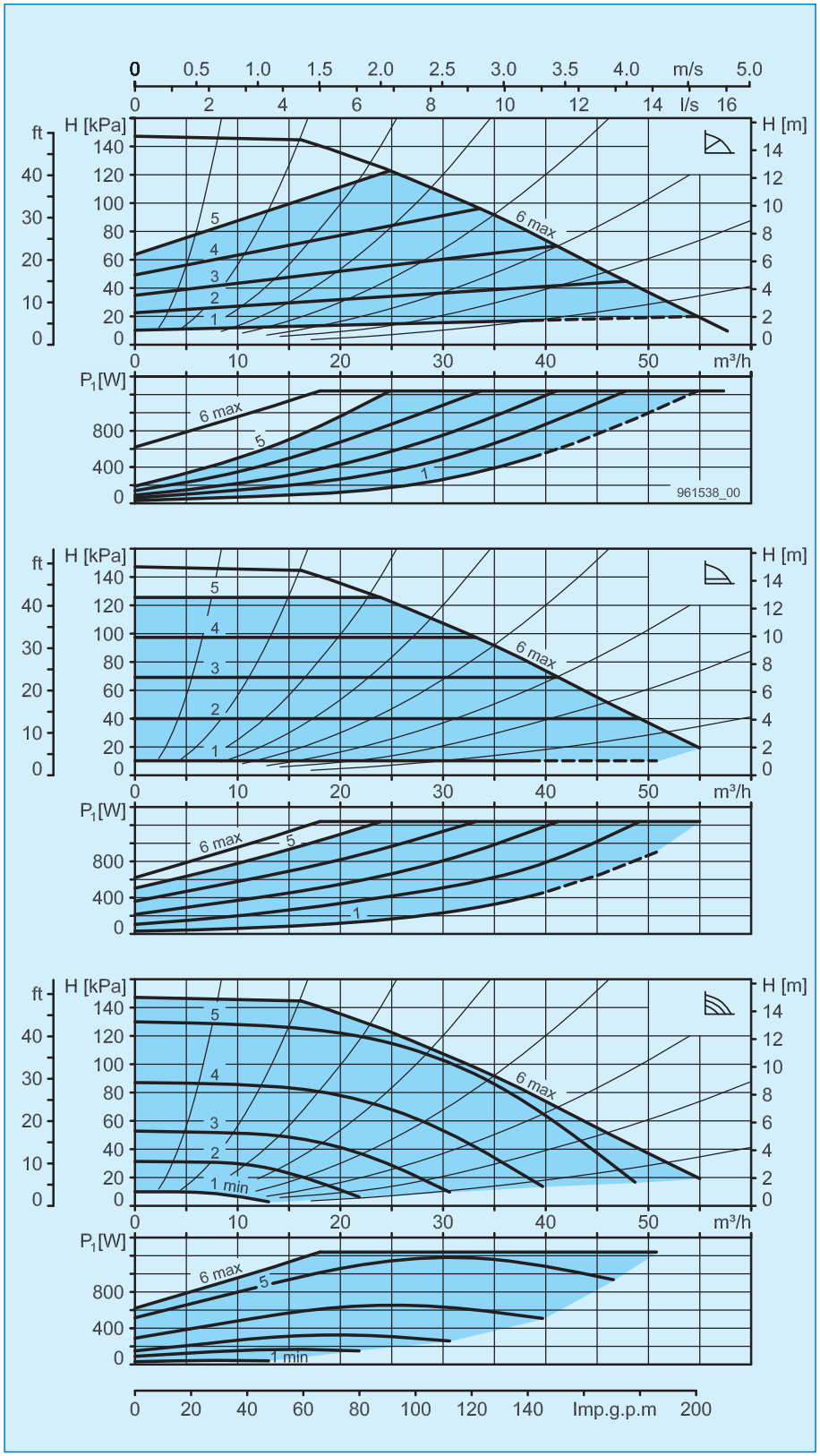
- Kit for recessed installation of electronics (pre-installed)
- Sealing set for flange PN 6

### Options

- BIM A2 signal module
- BIM B2 control module
- Biral Remote
- Sealing set for flanges PN 10/16

See page 74 for further details



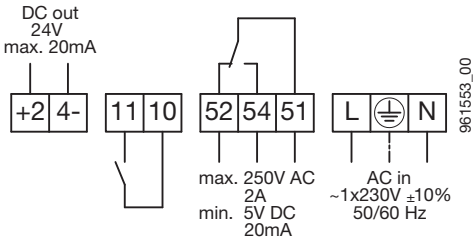
# ModulA 80-8 360 GREEN

| | | |
|---|---|---|
| Diameter nominal | DN 80 | |
| Discharge head H max. | 8 m | |
| Installation length | 360 mm | |
| Flange connection | PN 6 | PN 10/16 |
| Operating pressure max. | 6 bar | 16 bar |
| Media temperature | –10°C to +110°C | |
| Ambient temperature | 0°C to +40°C | |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar | |
| Weight | 31.1 kg | |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 29 - 704 W |
| Rated current | 0.29 - 3.08 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

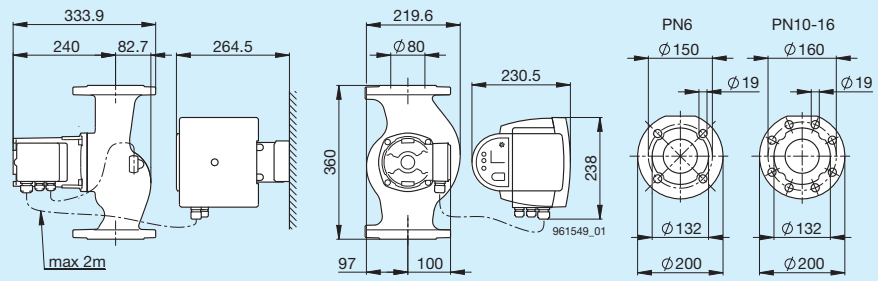
### Included in the scope of delivery

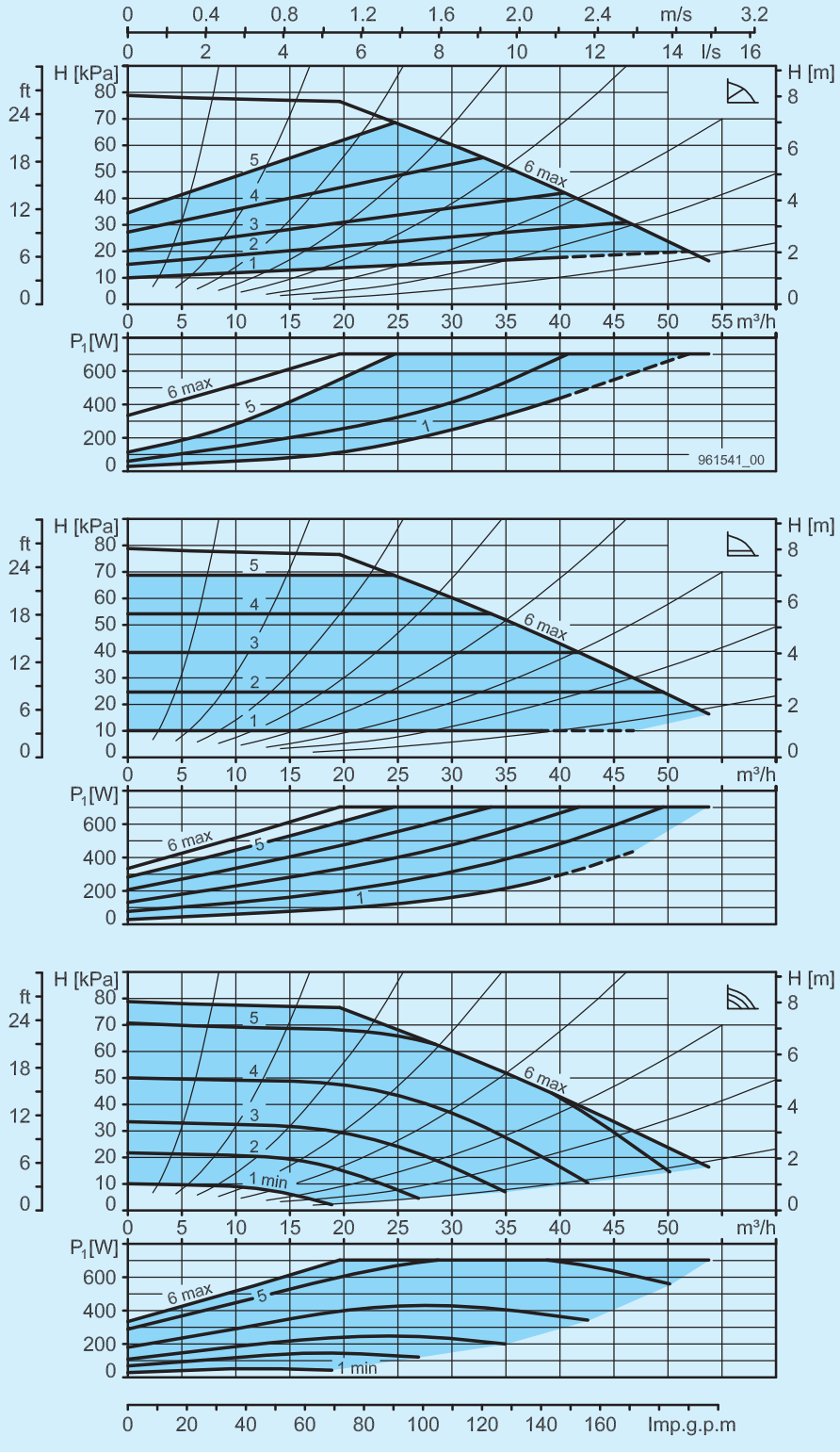
- Kit for recessed installation of electronics (pre-installed)
- Sealing set for flange PN 6 or PN 10/16

### Options

- BIM A2 signal module
- BIM B2 control module
- Biral Remote

See page 74 for further details



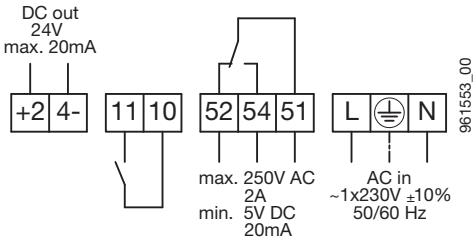
# ModulA 80-12 360 GREEN

| | | |
|---|---|---|
| Diameter nominal | DN 80 | |
| Discharge head H max. | 12 m | |
| Installation length | 360 mm | |
| Flange connection | PN 6 | PN 10/16 |
| Operating pressure max. | 6 bar | 16 bar |
| Media temperature | –10°C to +110°C | |
| Ambient temperature | 0°C to +40°C | |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar | |
| Weight | 31.1 kg | |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 35 - 1282 W |
| Rated current | 0.32 - 5.56 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

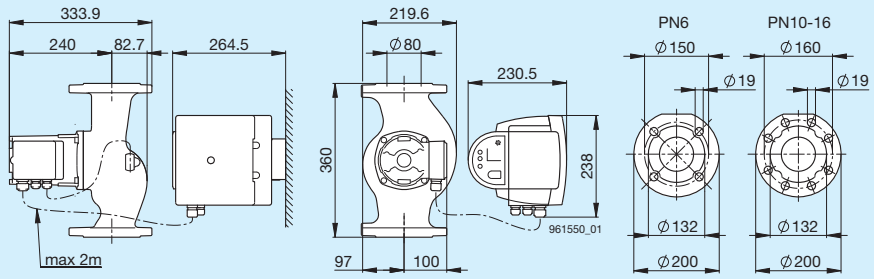
### Included in the scope of delivery

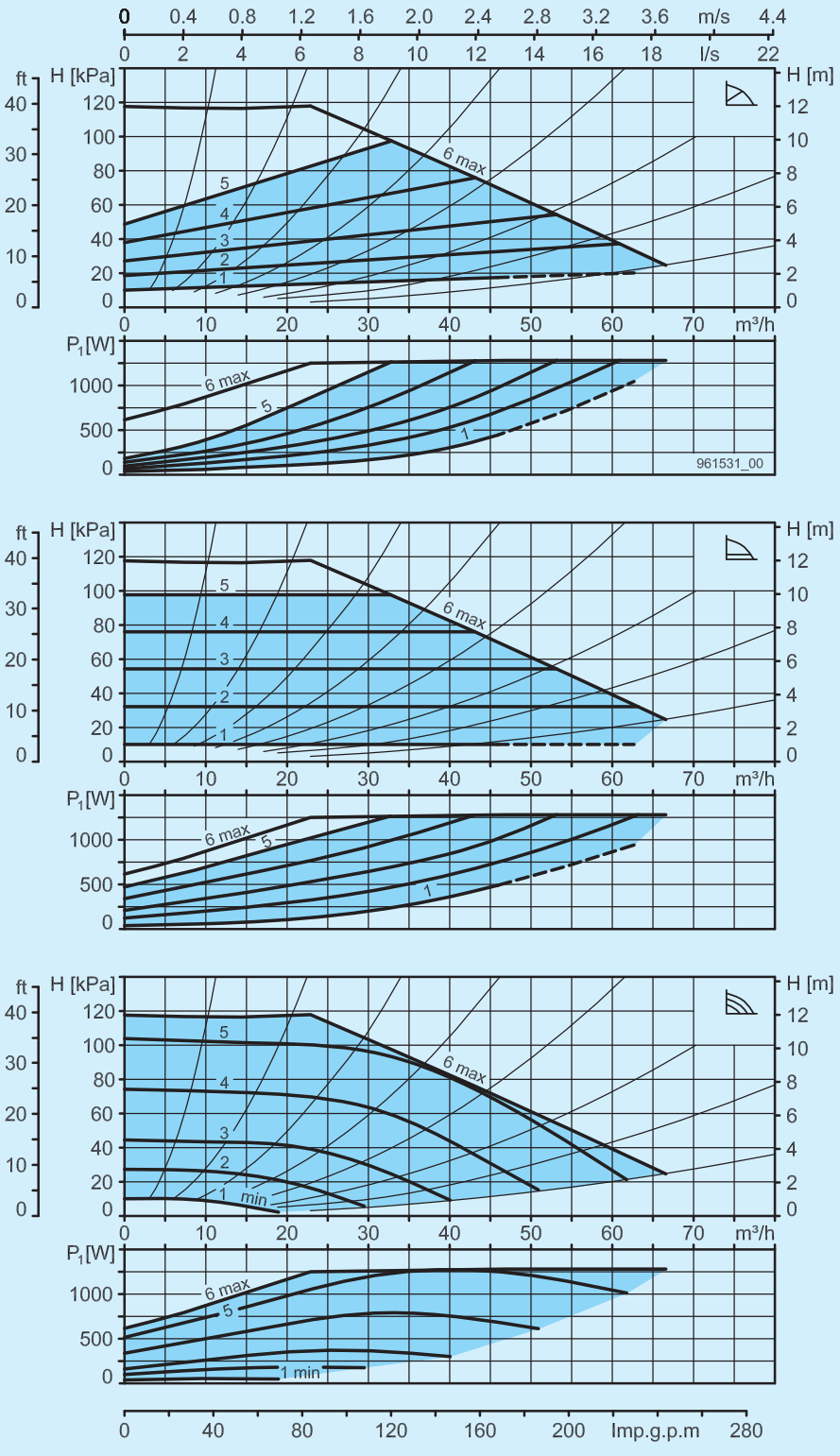
- Kit for recessed installation of electronics (pre-installed)
- Sealing set for flange PN 6 or PN 10/16

### Options

- BIM A2 signal module
- BIM B2 control module
- Biral Remote

See page 74 for further details



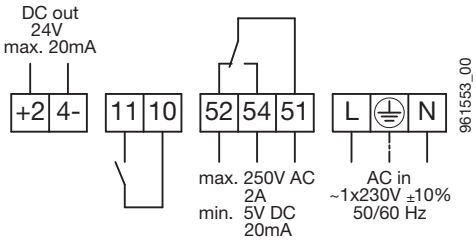
# ModulA 100-12 450 GREEN

| | | |
|---|---|---|
| Diameter nominal | DN 100 | |
| Discharge head H max. | 12 m | |
| Installation length | 450 mm | |
| Flange connection | PN 6 | PN 10/16 |
| Operating pressure max. | 6 bar | 16 bar |
| Media temperature | –10°C to +110°C | |
| Ambient temperature | 0°C to +40°C | |
| Required operating pressure at<br>at 75°C water temperature<br>at 95°C water temperature<br>at 110°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.35 bar<br>0.65 bar<br>±0.01 bar | |
| Weight | 36.0 kg | |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 35 - 1563 W |
| Rated current | 0.32 - 6.78 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

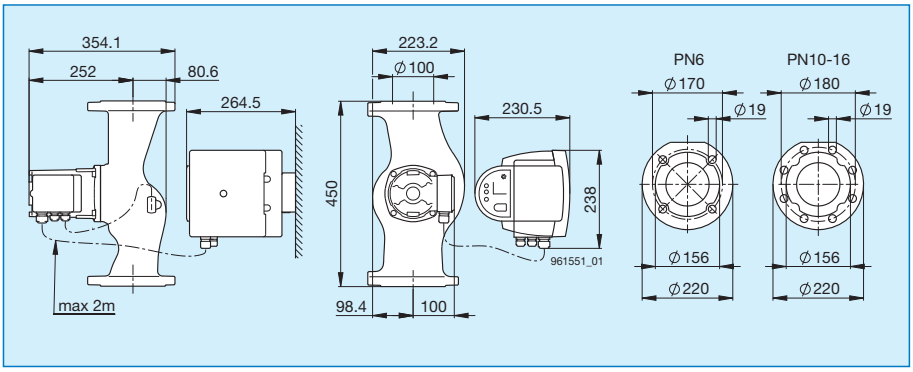
### Included in the scope of delivery

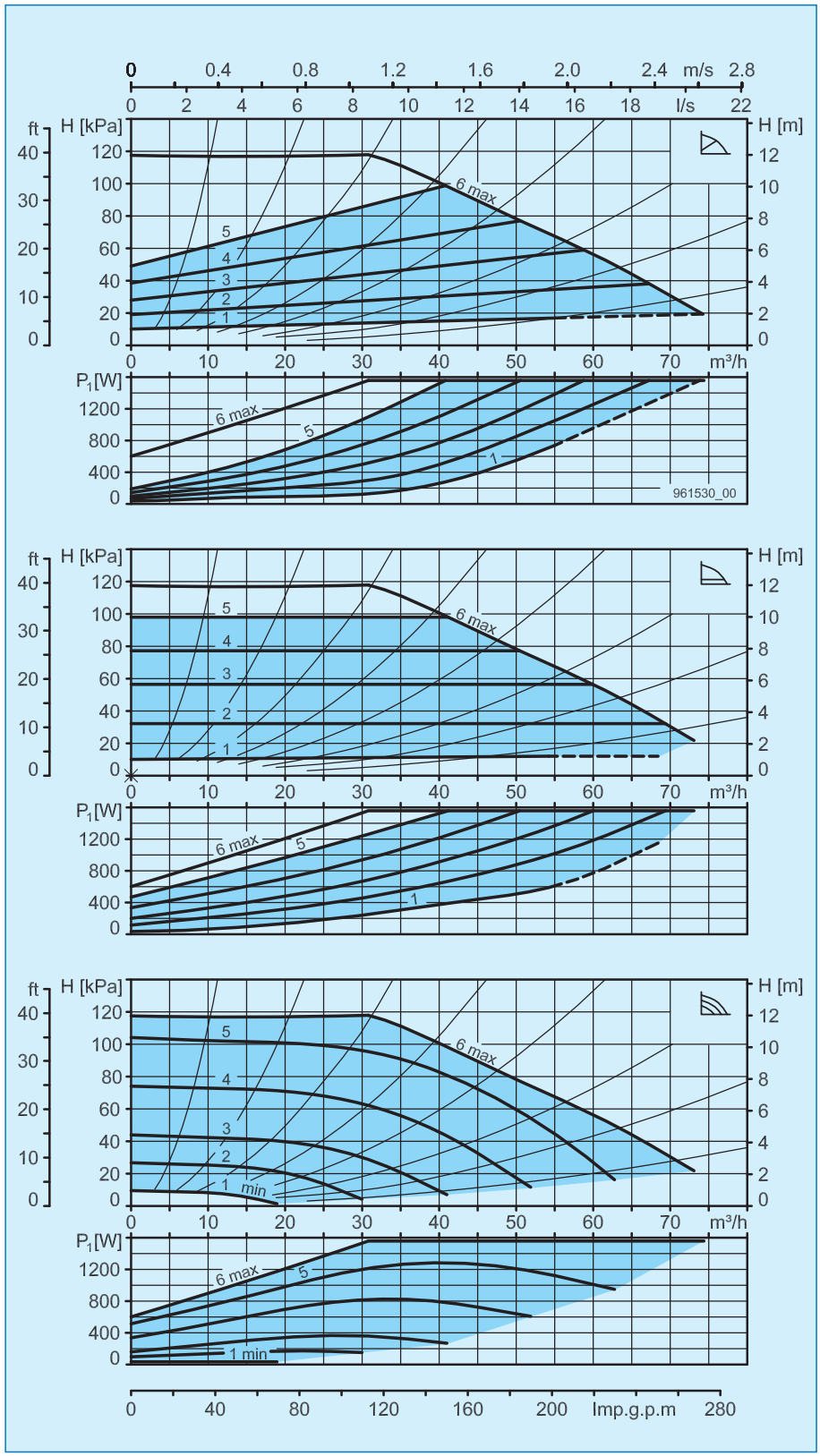
- Kit for recessed installation of electronics (pre-installed)
- Sealing set for flange PN 6 or PN 10/16

### Options

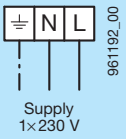
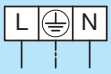
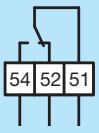
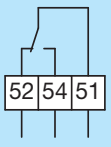
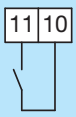
- BIM A2 signal module
- BIM B2 control module
- Biral Remote

See page 74 for further details



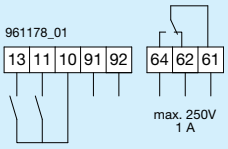
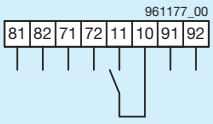
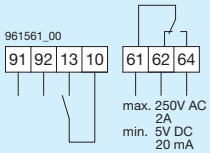
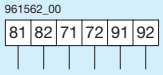



# Standard

| | | A12 KW…A401 KW<br>A500 KW<br>8…174 W | ModulA…GREEN<br>16…1563 W |
|---|---|---|---|
| |  | |  |
| | **Fault or operating message** (switchable) | ✔ | ✔ |
| | **External OFF or external ON** (switchable) | – | ✔3) |
| | **Power Limit** (activatable) | – | ✔ |
| | **Power limiting** (can be deactivated) | ✔ | – |
| | **Automatic night reduction** (activatable) | ✔ | – |
| | **Media temperature: up to –10 °C** | ✔ | ✔ |
| **Connection diagram** | **Pump**<br>**L** = Lead<br>**N** = Neutral line<br>⏚ = PE wire, protective conductor |  <br>Supply<br>1×230 V |  <br>AC in<br>~1×230 V ±10%<br>50/60 Hz |
| | **51-54** Fault or operating message (switchable) as closing contact: closes at fault/operation message<br>**51-52** Fault or operating message (switchable) as opening contact: opens at fault/operation message |  <br>max. 250 V<br>1 A |  <br>max. 250 V AC<br>2 A<br>min. 5 V DC<br>20 mA |
| | **10-11** External OFF or external ON (switchable) with closing contact | |  |

3) We recommend switching ModulA pumps via contacts 10/11 (external OFF/ON).

# Options

| | | A12 KW…A401 KW<br>A500 KW<br>8…174 W | ModulA…GREEN<br>16…1563 W |
|---|---|---|---|
| |  | |  |
| | **Biral interface module**<br>**BIM A signal module**<br>– Operating or ready message<br>– External OFF<br>– External minimum speed<br>– Twin pump function | ✔ | – |
| | **Biral interface module**<br>**BIM B control module**<br>– External speed specification<br>0–10 V/0–20 mA<br>– PWM/multi-thermal interface<br>– External OFF<br>– Twin pump function | ✔ | – |
| | **Biral interface module**<br>**BIM A2 signal module**<br>– Operating or ready message<br>– External minimum speed<br>– Twin pump function | – | ✔ |
| | **Biral interface module**<br>**BIM B2 control module**<br>– External speed specification<br>0–10 V/0–20 mA<br>– External minimum speed<br>– Twin pump function | – | ✔ |
| **Connection diagram** | **BIM A signal module**<br>**10-11** External OFF<br>with closed contact<br>**10-13** External minimum speed<br>with closing contact<br>**61-64** Operating or ready message<br>(switchable) as a closing contact:<br>Closes at operating/ready message<br>**61-62** Operating or ready message<br>(switchable) as opening contact:<br>opens at operating/ready message<br>**91-92** Twin pump function |  | |
| | **BIM B control module**<br>**10-11** External OFF<br>with closing contact<br>**81-82** Multi-thermal/PWM interface<br>for external speed specification<br>**71-72** Analogue input 0…10 V<br>or 0…20 mA<br>for external speed specification<br>**91-92** Twin pump function |  | |
| | **BIM A2 signal module**<br>**10-13** External minimum speed<br>with closing contact<br>**61-64** Operating or ready message<br>(switchable) as a closing contact:<br>closes at operating/ready message<br>**61-62** Operating or ready message<br>(switchable) as opening contact:<br>opens at operating/ready message<br>**91-92** Twin pump function | |  |
| | **BIM B2 control module**<br>**81-82** Multi-thermal /PWM interface<br>for external speed specification<br>**71-72** Analogue input 0…10 V<br>or 0…20 mA<br>for external speed specification<br>**91-92** Twin pump function | |  |

# Intelligent service water pumps

## AXW smart

**The smart technology recognises the consumption habits in the home and switches the pump on and off as required.**
**1×230 V**

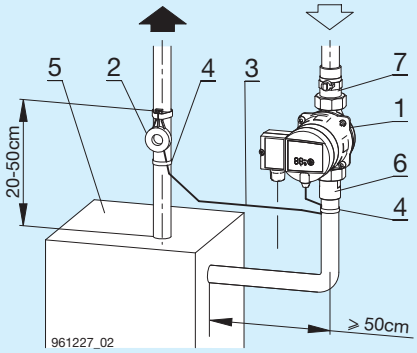
**Summary**

| Type | Connection | Nominal width DN | Discharge head max. mWC | Installation length mm | Operating pressure max. bar |
|---|---|---|---|---|---|
| AXW smart 10 | G 1¼" | 20 | 1 | 120 | 10 |
| AXW smart 12 | G 1¼" | 20 | 2 | 120 | 10 |
| AXW smart 13 | G 1¼" | 20 | 3 | 150 | 10 |
| AXW smart 14 | G 1¼" | 20 | 6 | 150 | 10 |

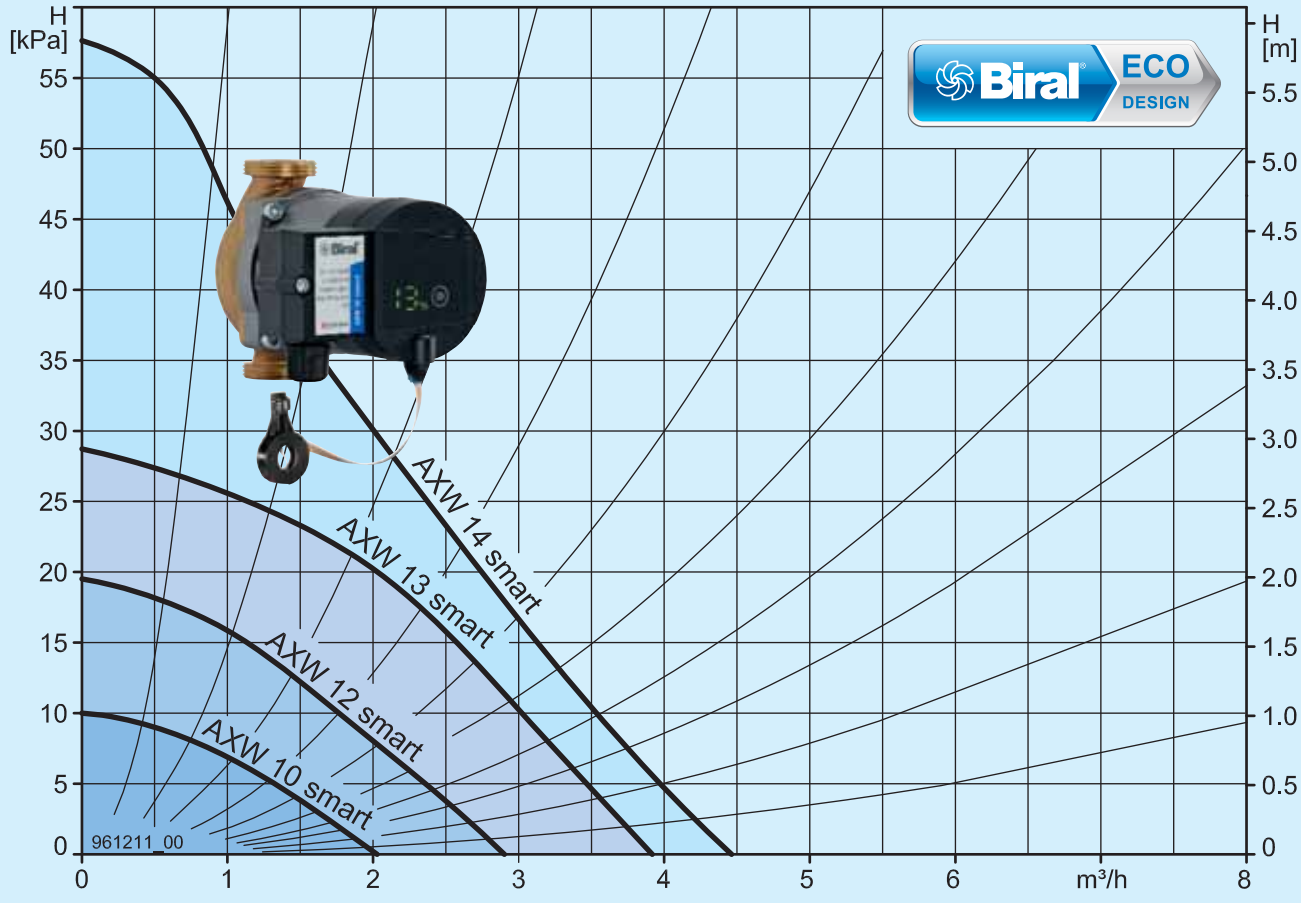
### Installation conditions

Optimum spacing of cable box with temperature sensor from hot water heater: 20 to 50 cm

Determine spacing from pump to fitting position of cable box with temperature sensor. Draw sensor cable from cable box with the required cable length. The length of the sensor cable is 2.5 m




1 Pump
2 Cable box with temperature sensor
3 Sensor cable (2.5 m)
4 Cable binders
5 Hot water heater
6 Return valve (Return flow valve)
7 Ball valve



## Standard

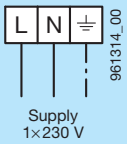

| | |
|---|---|
| **High-efficiency permanent magnet technology** | ✔ |
| **«Experiential» smart technology**<br>recognises and anticipates your consumption habits to make hot water available | ✔ |
| **Variable comfort setting**<br>from maximum energy saving to maximum comfort | ✔ |
| **Legionella protection** | ✔ |
| **Information via LED display** | ✔ |
| **Weekend and holiday recognition** | ✔ |
| **Shut-off set**<br>Non-return valve and ball valve | ✔ |
| **Types of control**<br>(Proportional pressure, contact pressure and constant speed) | – |
| **Fault or operating message**<br>(switchable) | – |
| **Power limiting**<br>(can be deactivated) | – |

### Electrical connection

**Pump**

**L** = Lead
**N** = Neutral line
⏚ = PE wire, protective conductor

**Note:**
Continuous voltage of 230 V required




## Options

| | |
|---|---|
| **Sensor cable**<br>(5 m) | ✔ |
| **Signal module** | – |
| **Control module** | – |
| **Thermal insulation shells** | – |

# AXW 10 smart

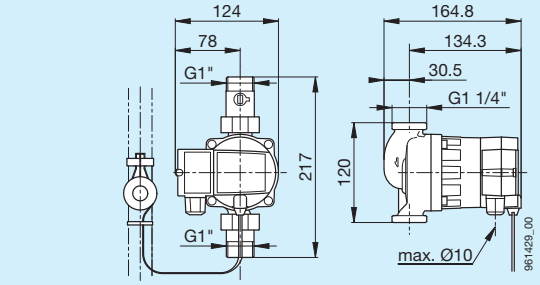
| Installation length | 120 mm |
|---|---|
| Operating pressure max. | 10 bar |
| Media temperature | +15°C to +65°C (for short periods max. 85 °C for thermal disinfection). |
| To avoid the formation of condensation the media temperature must always be higher than the ambient temperature. | |
| Ambient temperature | max. 40 °C |
| Water hardness | max. 35°fH (20°dH) |
| Required operating pressure at<br>at 65°C water temperature<br>at 85°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.05 bar<br>0.30 bar<br>±0.01 bar |
| Weight | 2.4 kg |
| Voltage | 1×230 V, 50 Hz |
| Current | 0.04…0.1 A |
| Power | 4.7…8.4 W |

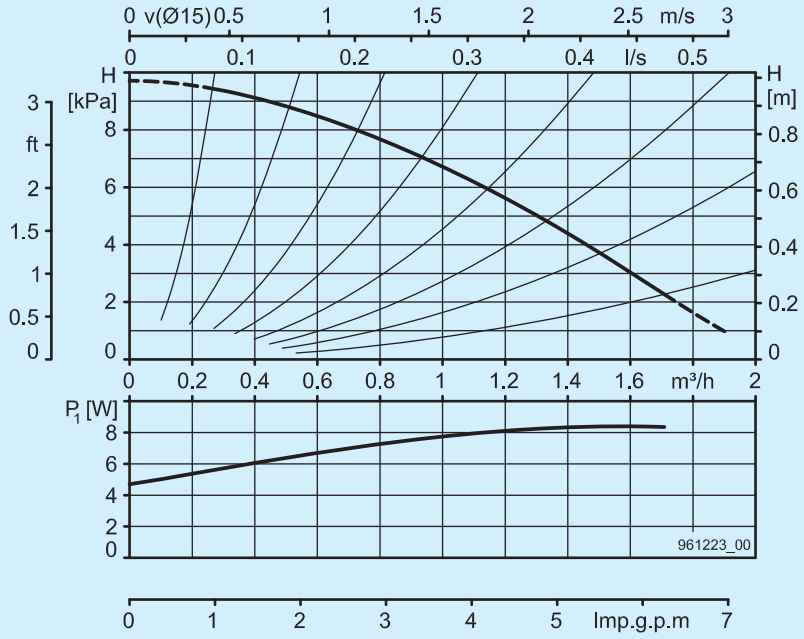
The pump is fitted with internal electric motor protection and requires no external motor protection. The pump always starts with a high torque.

**Pump housing: bronze**

**Included in the scope of delivery:**
– Shut-off set
(Non-return valve and ball valve)

See page 74 for further details




# AXW 12 smart

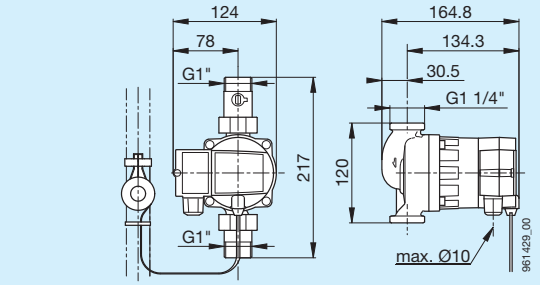
| Installation length | 120 mm |
|---|---|
| Operating pressure max. | 10 bar |
| Media temperature | +15°C to +65°C (for short periods max. 85 °C for thermal disinfection). |
| To avoid the formation of condensation the media temperature must always be higher than the ambient temperature. | |
| Ambient temperature | max. 40 °C |
| Water hardness | max. 35°fH (20°dH) |
| Required operating pressure at<br>at 65°C water temperature<br>at 85°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.05 bar<br>0.30 bar<br>±0.01 bar |
| Weight | 2.4 kg |
| Voltage | 1×230 V, 50 Hz |
| Current | 0.07…0.15 A |
| Power | 8.7…19 W |

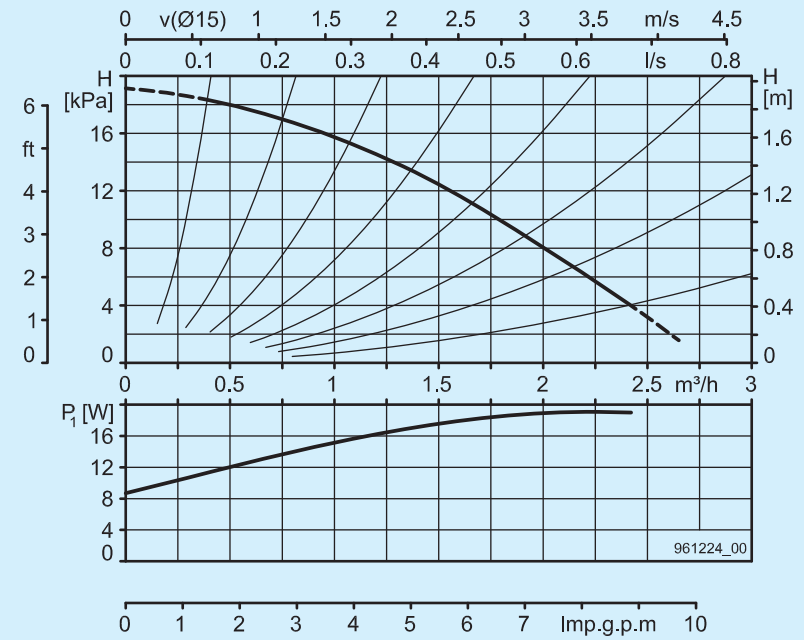
The pump is fitted with internal electric motor protection and requires no external motor protection. The pump always starts with a high torque.

**Pump housing: bronze**

**Included in the scope of delivery:**
– Shut-off set
(Non-return valve and ball valve)

See page 74 for further details



# AXW 13 smart

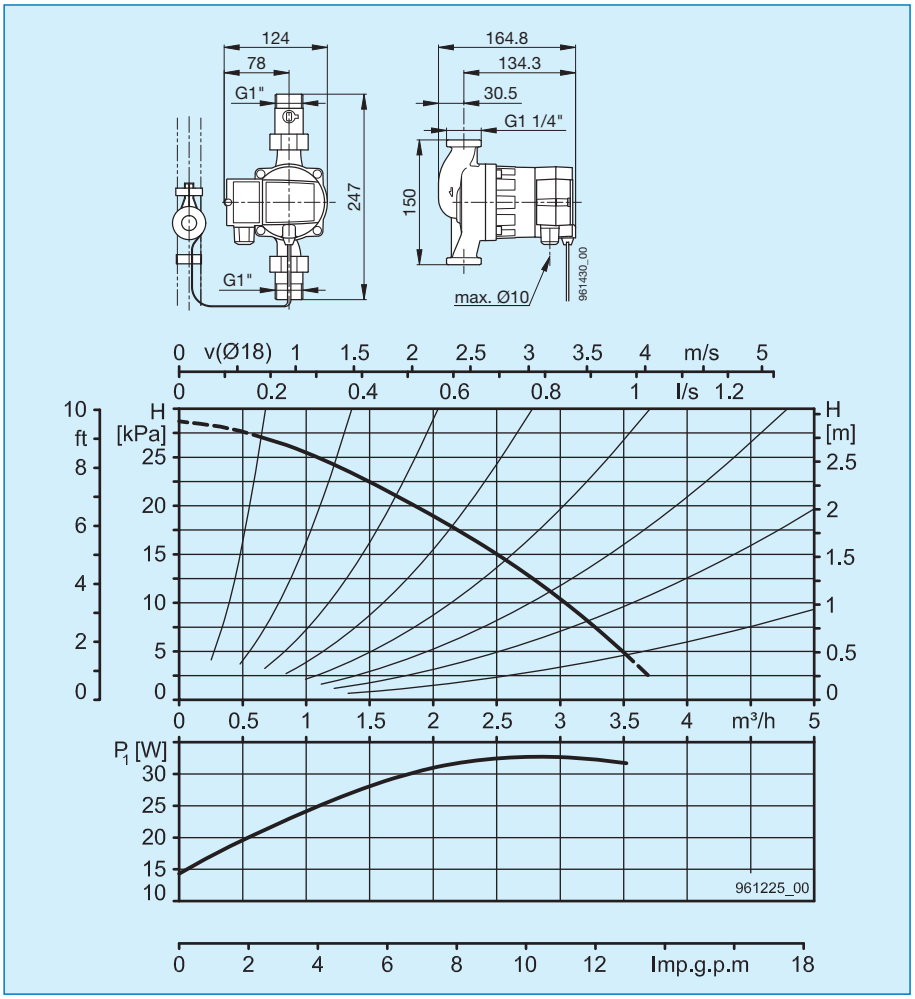
| **Installation length** | **150 mm** |
|---|---|
| Operating pressure max. | 10 bar |
| Media temperature | +15°C to +65°C (for short periods max. 85 °C for thermal disinfection). |
| To avoid the formation of condensation the media temperature must always be higher than the ambient temperature. | |
| Ambient temperature | max. 40 °C |
| Water hardness | max. 35°fH (20°dH) |
| Required operating pressure at<br>at 65°C water temperature<br>at 85°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.05 bar<br>0.30 bar<br>±0.01 bar |
| Weight | 2.6 kg |
| Voltage | 1×230 V, 50 Hz |
| Current | 0.12…0.3 A |
| Power | 14.3…32.7 W |

The pump is fitted with internal electric motor protection and requires no external motor protection. The pump always starts with a high torque.

**Pump housing: bronze**

**Included in the scope of delivery:**
– Shut-off set
(Non-return valve and ball valve)

See page 74 for further details




# AXW 14 smart

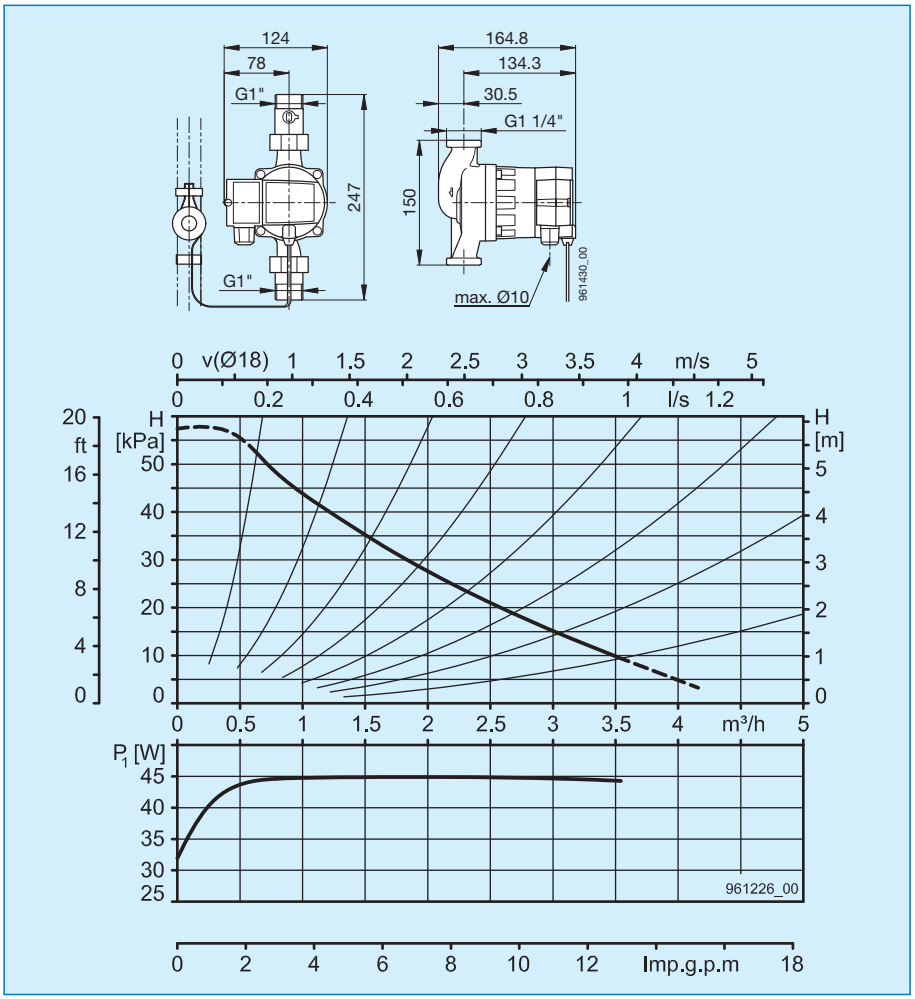
| **Installation length** | **150 mm** |
|---|---|
| Operating pressure max. | 10 bar |
| Media temperature | +15°C to +65°C (for short periods max. 85 °C for thermal disinfection). |
| To avoid the formation of condensation the media temperature must always be higher than the ambient temperature. | |
| Ambient temperature | max. 40 °C |
| Water hardness | max. 35°fH (20°dH) |
| Required operating pressure at<br>at 65°C water temperature<br>at 85°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.05 bar<br>0.30 bar<br>±0.01 bar |
| Weight | 2.6 kg |
| Voltage | 1×230 V, 50 Hz |
| Current | 0.28…0.38 A |
| Power | 32…45 W |

The pump is fitted with internal electric motor protection and requires no external motor protection. The pump always starts with a high torque.

**Pump housing: bronze**

**Included in the scope of delivery:**
– Shut-off set
(Non-return valve and ball valve)

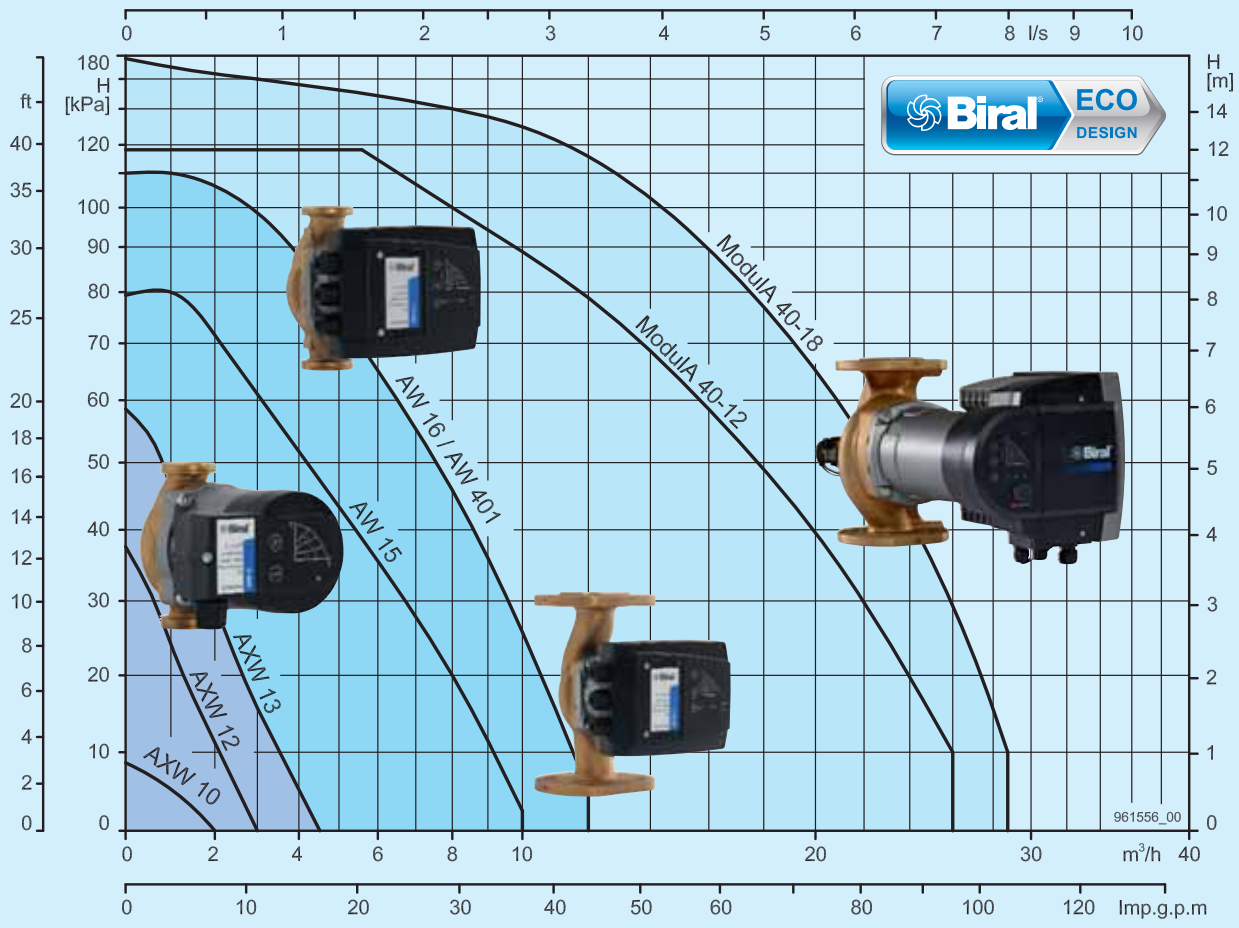
See page 74 for further details



# Service water pumps
## AXW / AW
## ModulA BLUE

**Summary**

| | Type | Connection | Nominal width DN | Discharge head max. mWC | Installation length mm | Operating pressure max./bar |
|---|---|---|---|---|---|---|
|  | AXW 10 | G 1¼" | 20 | 1 | 120 | 10 |
| | AXW 12 | G 1¼" | 20 | 4 | 120 | 10 |
| | AXW 13 | G 1¼" | 20 | 6 | 150 | 10 |
| | AXW 12-1 | G 1½" | 25 | 4 | 180 | 10 |
| | AXW 13-1 | G 1½" | 25 | 6 | 180 | 10 |
|  | AW 15-2 | G 2" | 32 | 8 | 180 | 10 |
| | AW 16-2 | G 2" | 32 | 11 | 180 | 10 |
|  | AW 401-1 | PN 6/10 | 40 | 11 | 250 | 10 |
|  | ModulA 40-12 250 BLUE | PN 6-16 | 40 | 12 | 250 | 16 |
| | ModulA 40-18 250 BLUE | PN 6-16 | 40 | 18 | 250 | 16 |



# AXW 10

| | | |
|---|---|---|
| **Installation length** | | **120 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | +15°C to +85°C |
| Permissible water hardness | | 65°C (max. 35°fH = 20°dH) |
| | | 85°C (max. 25°fH = 14°dH) |
| Required operating pressure at | | 500 m a.s.l. |
| at 75°C water temperature | | 0.05 bar |
| at 85°C water temperature | | 0.30 bar |
| For every ±100 m altitude | | ±0.01 bar |
| Weight | | 2.3 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.04…0.08 A |
| | min | 0.04 A |
| Power | Regulation | 4…7 W |
| | min | 4 W |

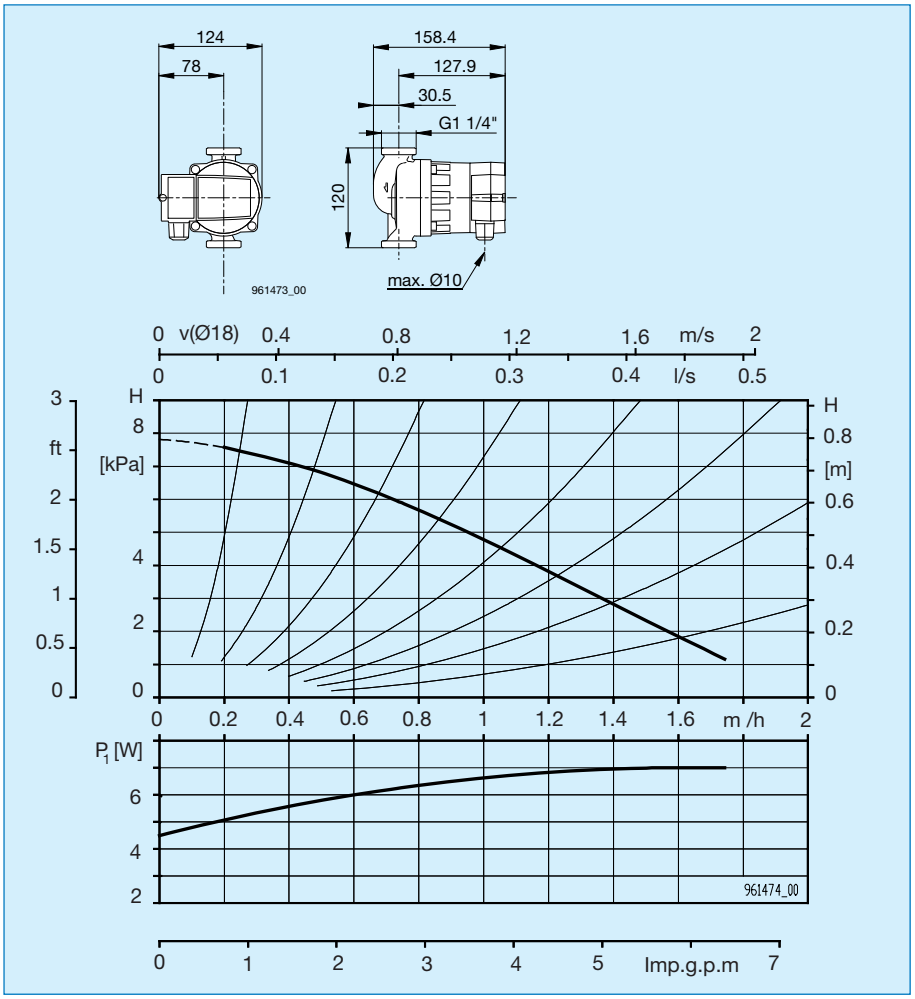
To avoid the formation of condensation the media temperature must always be higher than the ambient temperature.

| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 15 | 15 | 85 |
| 30 | 30 | 85 |
| 35 | 35 | 85 |
| 40 | 40 | 70 |

The pump is fitted with internal electric motor protection and requires no external motor protection.

**Pump housing: bronze**

**Optional:**
– Shut-off set




# AXW 12, AXW 12-1

| | | |
|---|---|---|
| **Installation length** | | **120/180 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | +15°C to +85°C |
| Permissible water hardness | | 65°C (max. 35°fH = 20°dH) |
| | | 85°C (max. 25°fH = 14°dH) |
| Required operating pressure at | | 500 m a.s.l. |
| at 75°C water temperature | | 0.05 bar |
| at 85°C water temperature | | 0.30 bar |
| For every ±100 m altitude | | ±0.01 bar |
| Weight | | 2.3 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.05…0.19 A |
| | min | 0.05 A |
| Power | Regulation | 5…22 W |
| | min | 5 W |

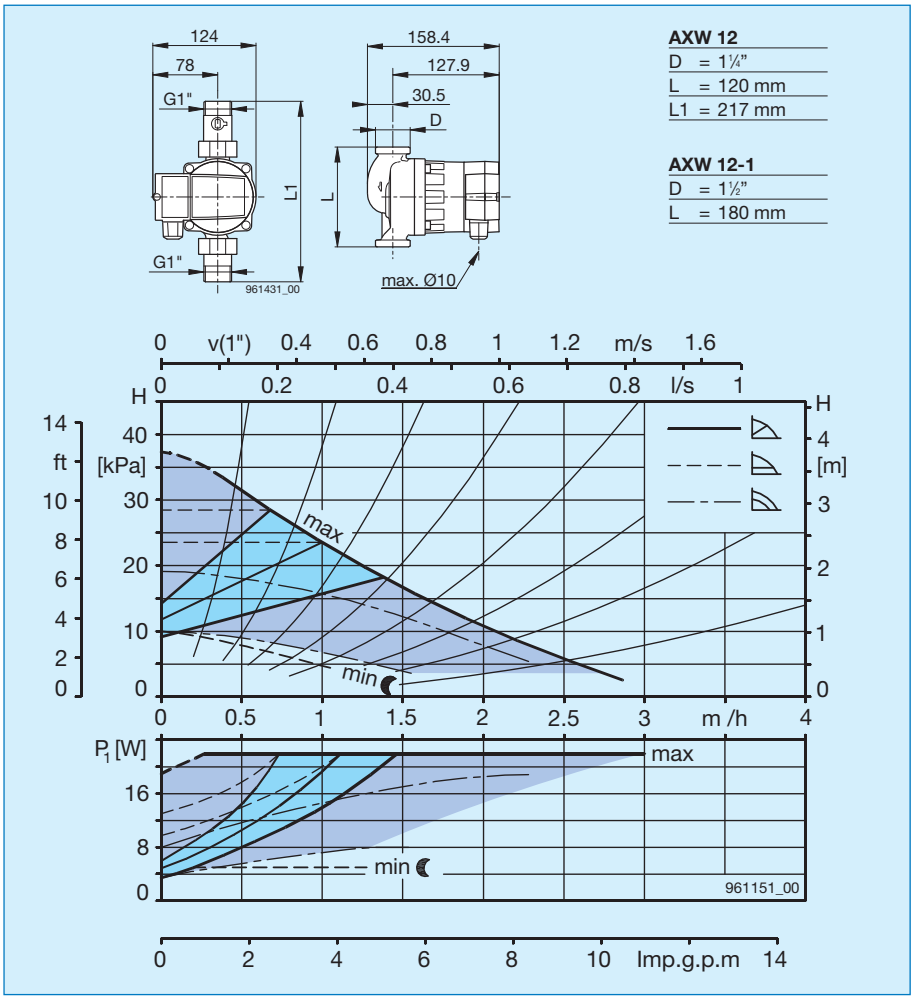
To avoid the formation of condensation the media temperature must always be higher than the ambient temperature.

| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 15 | 15 | 85 |
| 30 | 30 | 85 |
| 35 | 35 | 85 |
| 40 | 40 | 70 |

The pump is fitted with internal electric motor protection and requires no external motor protection.

**Pump housing: bronze**

**AXW 12:** incl. shut-off set
**AXW 12-1:** Shut-off set not available



# AXW 13, AXW 13-1

| | | |
|---|---|---|
| **Installation length** | | **150/180 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | +15°C to +85°C |
| Permissible water hardness | | 65°C (max. 35°fH = 20°dH) |
| | | 85°C (max. 25°fH = 14°dH) |
| Required operating pressure at<br>at 75°C water temperature<br>at 85°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.05 bar<br>0.30 bar<br>±0.01 bar |
| Weight | | 2.3 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.05…0.38 A |
| | min | 0.05 A |
| Power | Regulation | 5…45 W |
| | min | 5 W |

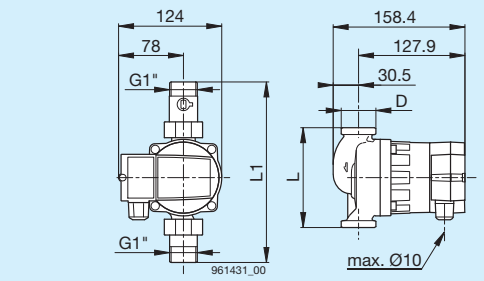
To avoid the formation of condensation the media temperature must always be higher than the ambient temperature.

| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 15 | 15 | 85 |
| 30 | 30 | 85 |
| 35 | 35 | 85 |
| 40 | 40 | 70 |

The pump is fitted with internal electric motor protection and requires no external motor protection.

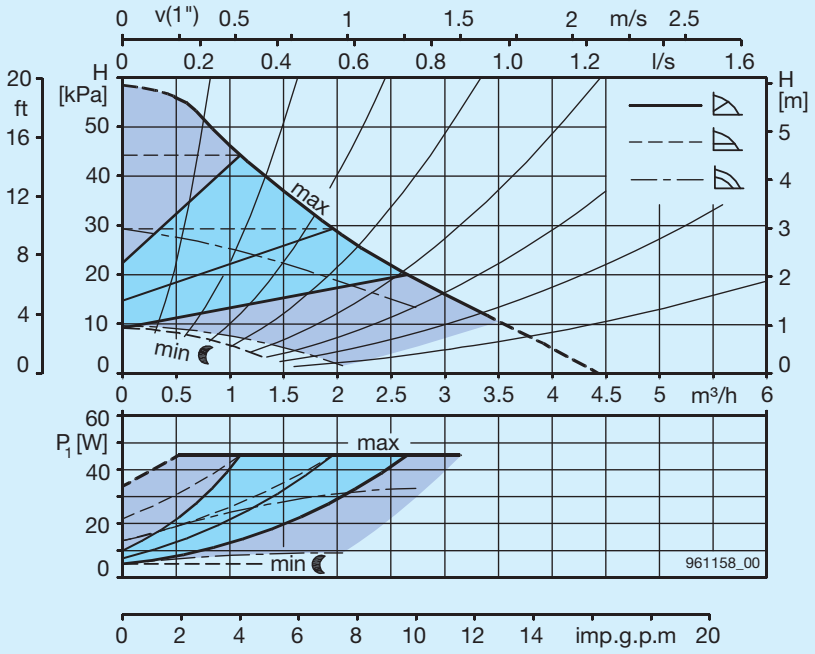
**Pump housing: bronze**

**AXW 13:** incl. shut-off set
**AXW 13-1:** Shut-off set not available




**AXW 13**
D = 1¼"
L = 150 mm
L1 = 247 mm

**AXW 13-1**
D = 1½"
L = 180 mm



# AW 15-2

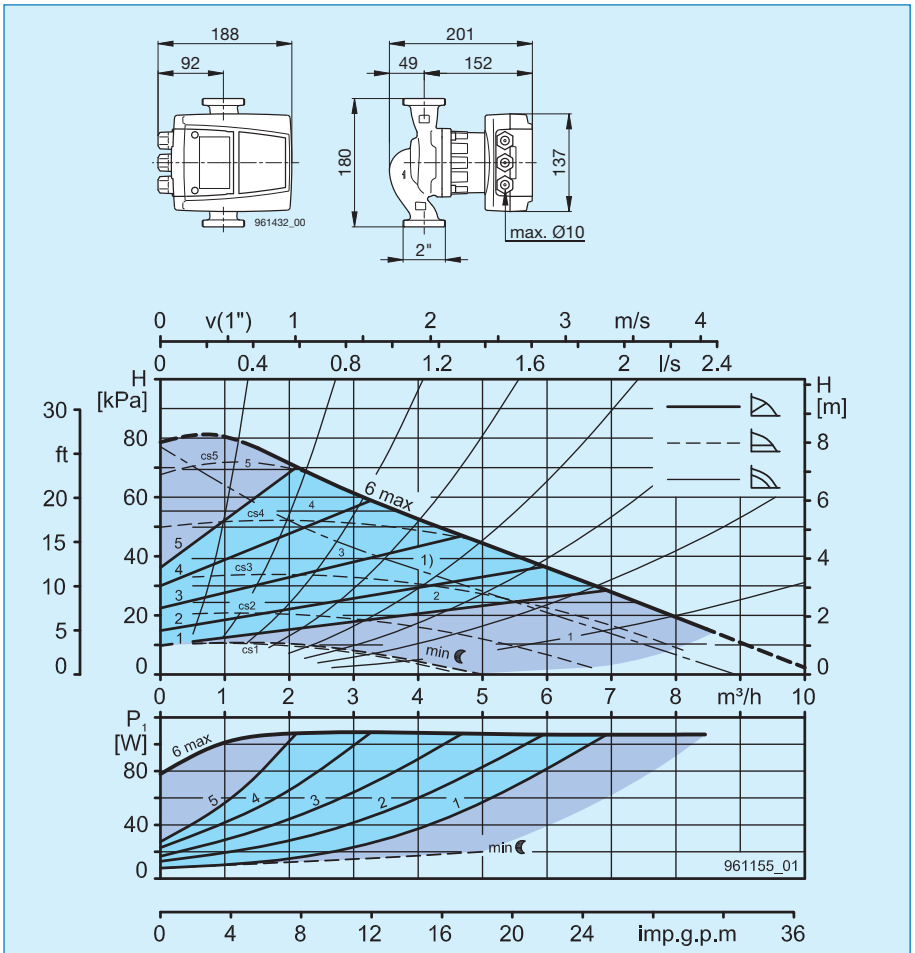
| | | |
|---|---|---|
| **Installation length** | | **180 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | +15°C to +85°C |
| Permissible water hardness | | 65°C (max. 35°fH = 20°dH) |
| | | 85°C (max. 25°fH = 14°dH) |
| Required operating pressure at<br>at 75°C water temperature<br>at 85°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.10 bar<br>0.55 bar<br>±0.01 bar |
| Weight | | 4.2 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.1…0.8 A |
| | min | 0.14 A |
| Power | Regulation | 8…107 W |
| | min | 8…19 W |

To avoid the formation of condensation the media temperature must always be higher than the ambient temperature.

| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 15 | 15 | 85 |
| 30 | 30 | 85 |
| 35 | 35 | 85 |
| 40 | 40 | 70 |

The pump is fitted with internal electric motor protection and requires no external motor protection. The pump is fitted with fault or ready indication (switchable).

**Pump housing: bronze**




1) As delivered with power limiting

# AW 16-2

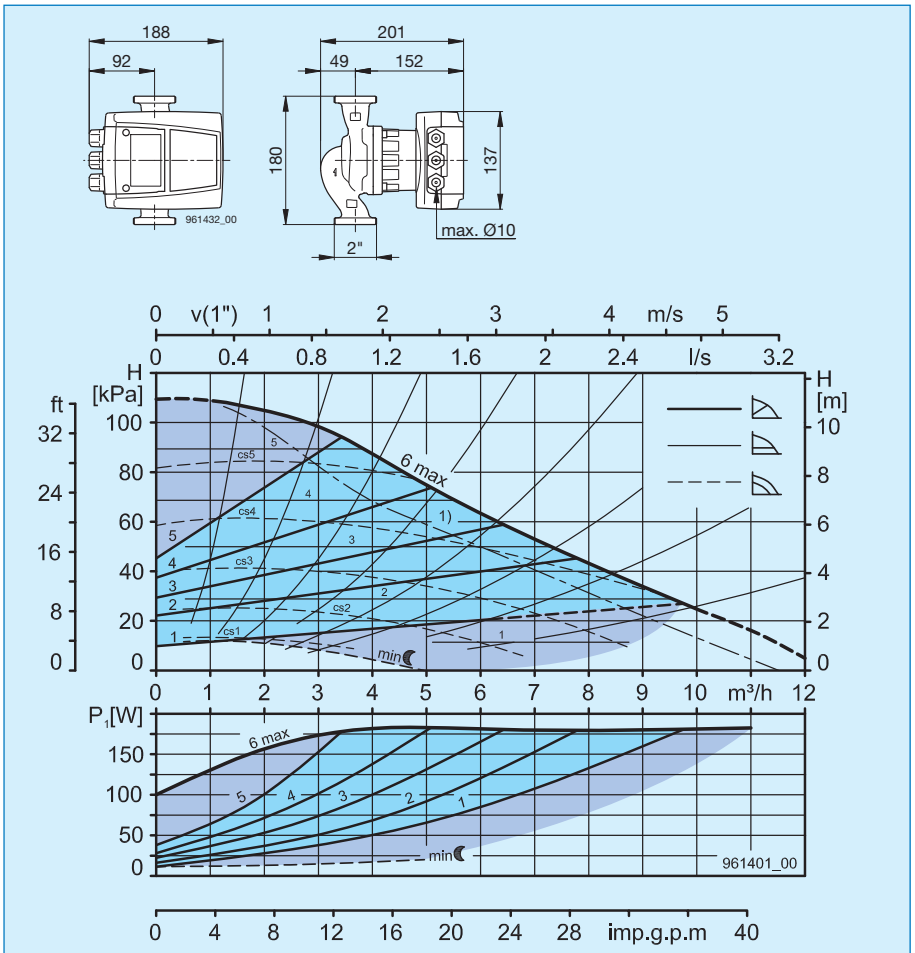
| | | |
|---|---|---|
| **Installation length** | | **180 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | +15°C to +85°C |
| Permissible water hardness | | 65°C (max. 35°fH = 20°dH) |
| | | 85°C (max. 25°fH = 14°dH) |
| Required operating pressure at<br>at 75°C water temperature<br>at 85°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.10 bar<br>0.55 bar<br>±0.01 bar |
| Weight | | 4.2 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.1…1.25 A |
| | min | 0.14 A |
| Power | Regulation | 8…174 W |
| | min | 8…19 W |

To avoid the formation of condensation the media temperature must always be higher than the ambient temperature.

| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 15 | 15 | 85 |
| 30 | 30 | 85 |
| 35 | 35 | 85 |
| 40 | 40 | 70 |

The pump is fitted with internal electric motor protection and requires no external motor protection. The pump is fitted with fault or ready indication (switchable).

**Pump housing: bronze**




1) As delivered with power limiting

# AW 401-1

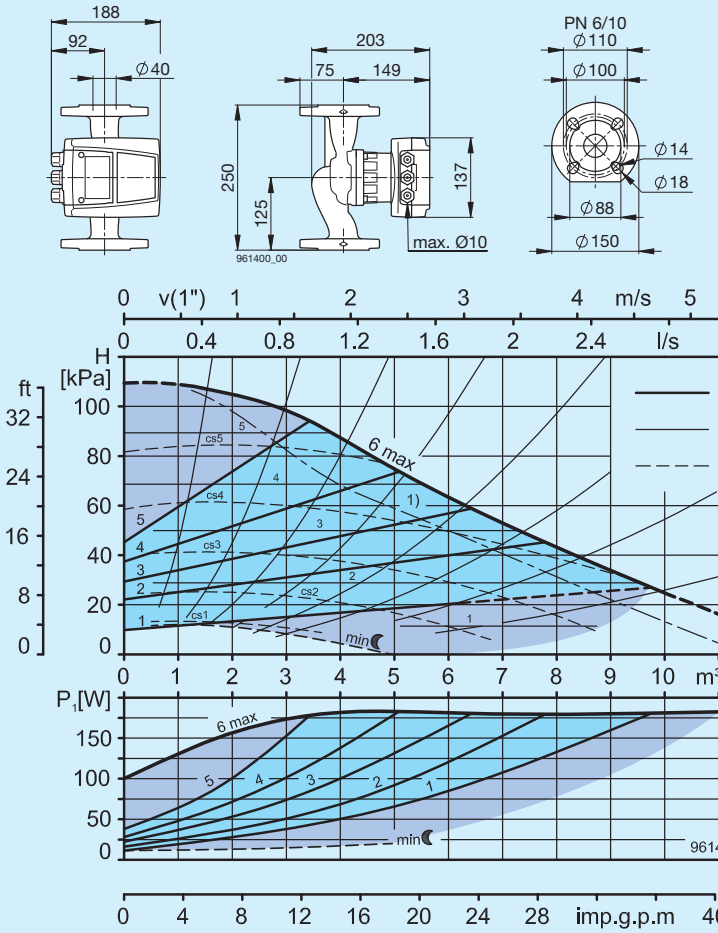
| | | |
|---|---|---|
| **Installation length** | | **250 mm** |
| Operating pressure max. | | 10 bar |
| Media temperature | | +15°C to +85°C |
| Permissible water hardness | | 65°C (max. 35°fH = 20°dH) |
| | | 85°C (max. 25°fH = 14°dH) |
| Required operating pressure at<br>at 75°C water temperature<br>at 85°C water temperature<br>For every ±100 m altitude | | 500 m a.s.l.<br>0.10 bar<br>0.55 bar<br>±0.01 bar |
| Weight | | 9 kg |
| Voltage | | 1×230 V, 50 Hz |
| Current | Regulation | 0.1…1.25 A |
| | min | 0.14 A |
| Power | Regulation | 8…174 W |
| | min | 8…19 W |

To avoid the formation of condensation the media temperature must always be higher than the ambient temperature.

| Ambient temp. | Media temperature | |
|---|---|---|
| °C | min. °C | max. °C |
| 15 | 15 | 85 |
| 30 | 30 | 85 |
| 35 | 35 | 85 |
| 40 | 40 | 70 |

The pump is fitted with internal electric motor protection and requires no external motor protection. The pump is fitted with fault or ready indication (switchable).

**Pump housing: bronze**




1) As delivered with power limiting

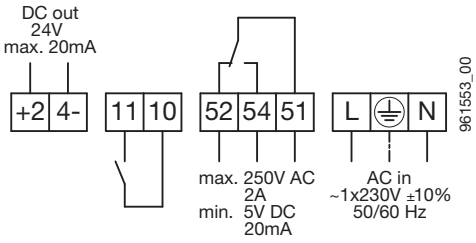
# ModulA 40-12 250 BLUE

| | |
|---|---|
| Diameter nominal | DN 40 |
| Discharge head H max. | 12 m |
| Installation length | 250 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | +15°C bis +85°C |
| | 65°C (max 35°dH =20°dH) |
| | 85°C (max 25°dH =14°dH) |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 85°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.25 bar<br>±0.01 bar |
| Weight | 18.1 kg |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 17-421 W |
| Rated current | 0.18-1.91 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

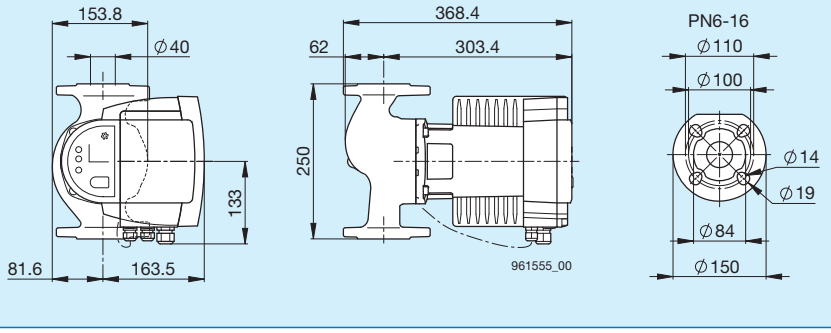
### Included in the scope of delivery

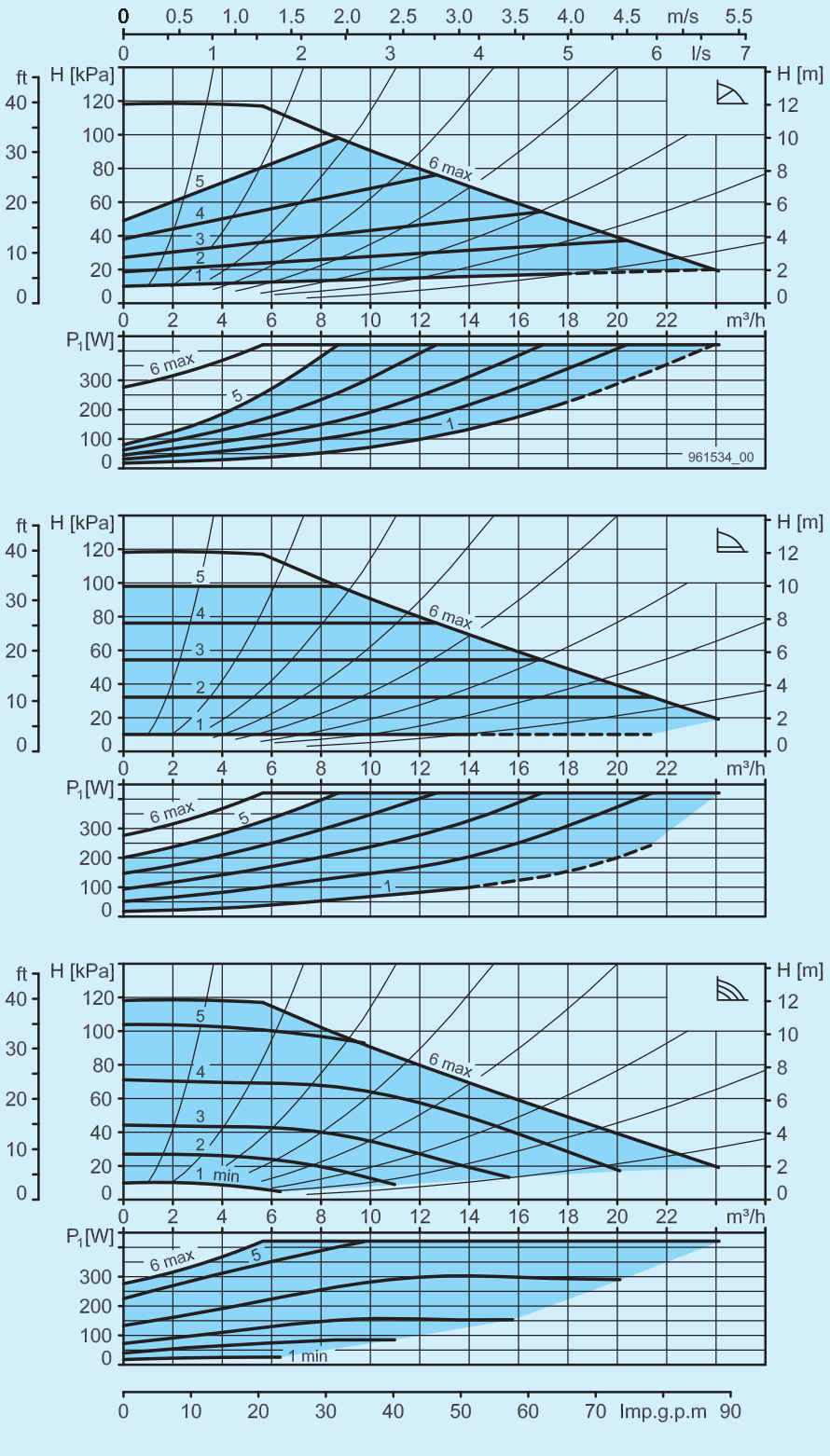
- Sealing set for flange PN 6

### Options

- BIM A2 signal module
- BIM B2 control module
- Set for recessed installation of electronics
- Biral Remote
- Sealing set for flanges PN 10/16

See page 74 for further details



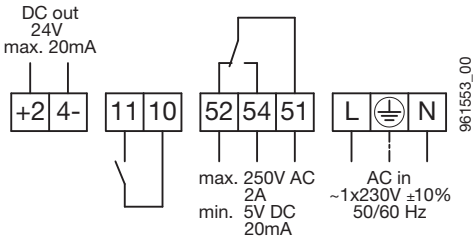
# ModulA 40-18 250 BLUE

| | |
|---|---|
| Diameter nominal | DN 40 |
| Discharge head H max. | 18 m |
| Installation length | 250 mm |
| Flange connection | PN 6-16 |
| Operating pressure max. | 16 bar |
| Media temperature | +15°C bis +85°C |
| | 65°C (max 35°dH =20°dH) |
| | 85°C (max 25°dH =14°dH) |
| Ambient temperature | 0°C to +40°C |
| Required operating pressure at<br>at 75°C water temperature<br>at 85°C water temperature<br>For every ±100 m altitude | 500 m a.s.l.<br>0.10 bar<br>0.25 bar<br>±0.01 bar |
| Weight | 18.1 kg |

### Electrical data

| | |
|---|---|
| Voltage | 1×230 V |
| Frequency | 50/60 Hz |
| Power $P_1$ | 16-594 W |
| Rated current | 0.18-2.63 A |
| Motor protection | integrated |

### Connection diagram




**+24-** 24 V DC out
**11, 10** External OFF or external ON
**52, 54, 51** Error or operating message
**L, PE, N** Power supply

### Switch

- Fault or operating message (switchable)
- External OFF or external ON (switchable)
- Power Limit (activatable)

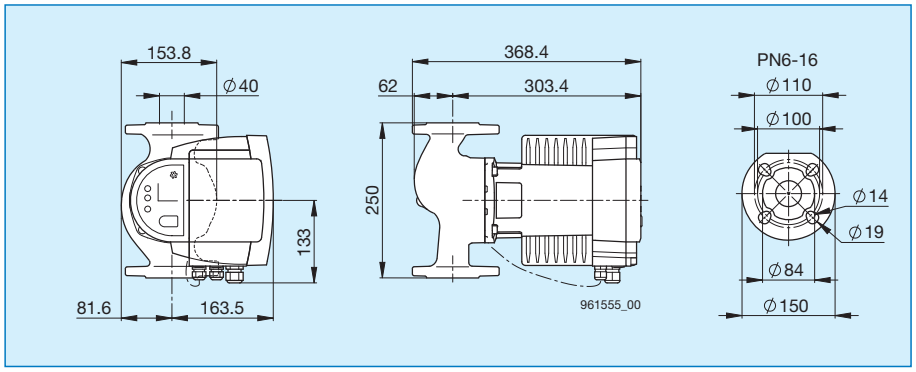
### Included in the scope of delivery

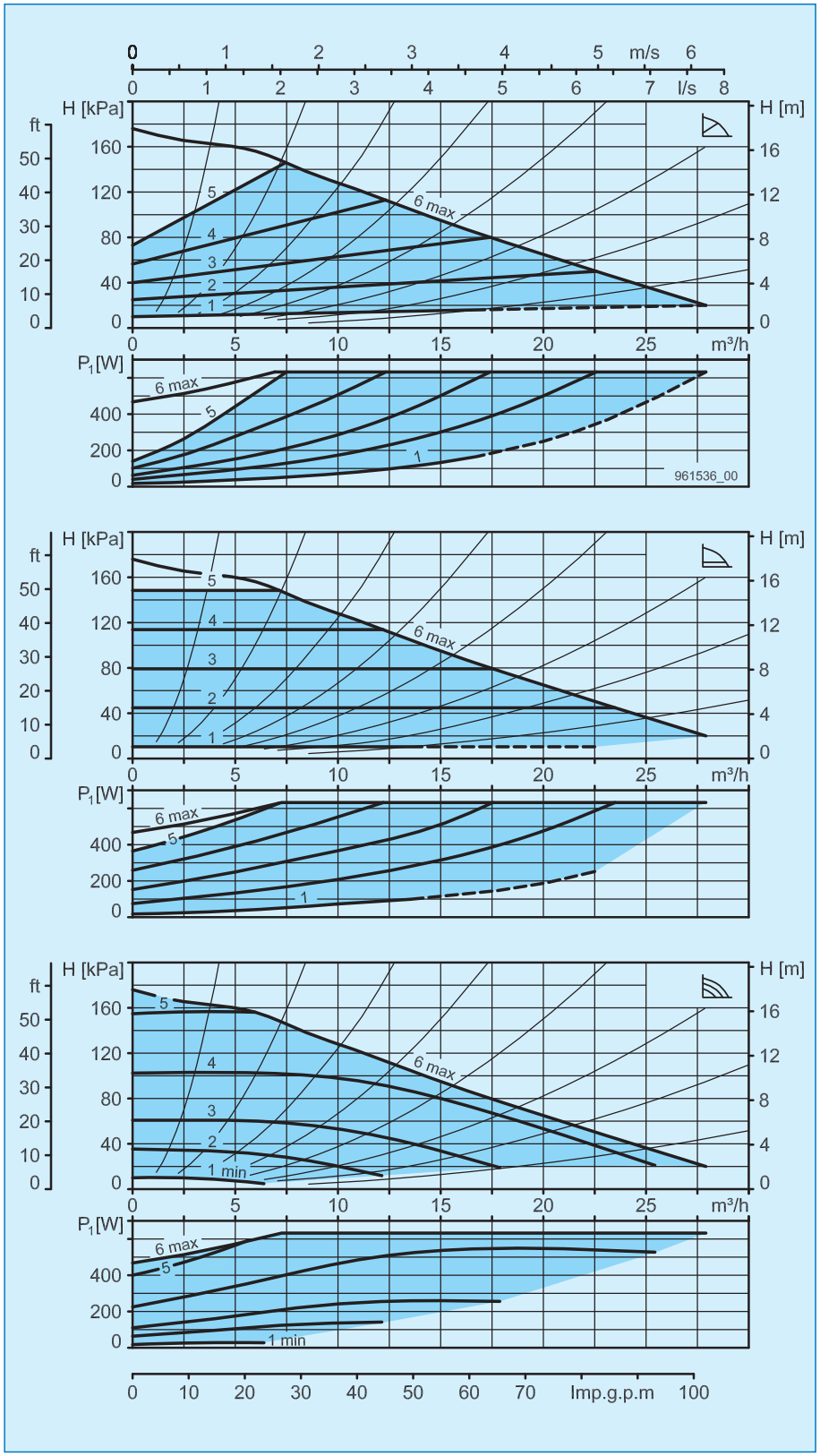
- Sealing set for flange PN 6

### Options

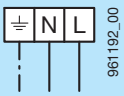
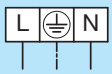
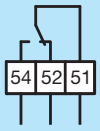
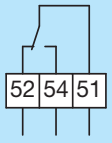
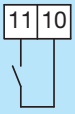
- BIM A2 signal module
- BIM B2 control module
- Set for recessed installation of electronics
- Biral Remote
- Sealing set for flanges PN 10/16

See page 74 for further details



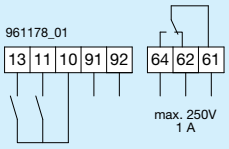
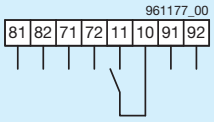
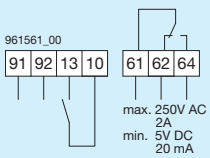
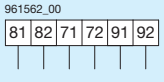



# Standard

| | AXW 10, AXW 12, AXW 13<br>4…45 W | AW 15…AW 401<br>8…174 W | ModulA…BLUE<br>16…594 W |
|---|---|---|---|
| |  |  |  |
| **Fault or operating message** (switchable) | – | ✔ | ✔ |
| **External OFF or external ON** (switchable) | – | – | ✔2) |
| **Power Limit** (activatable) | – | – | ✔ |
| **Power limiting** (can be deactivated) | – | ✔ | – |
| **Automatic night reduction** (activatable) | ✔ | ✔ | – |
| **Thermal insulation shells** | – | – | – |
| **Shut-off set**<br>Non-return valve and ball valve | only for the G 1¼" design | – | – |
| **Types of control**<br>(Proportional pressure, contact pressure and constant speed) | ✔<br>AXW 10 Constant speed | ✔ | ✔ |
| **Connection diagram** **Pump**<br>**L** = Lead<br>**N** = Neutral line<br>⏚ = PE wire, protective conductor |  <br>Supply<br>1×230 V |  <br>Supply<br>1×230 V |  <br>AC in<br>~1×230 V ±10%<br>50/60 Hz |
| **51-54** Fault or operating message (switchable) as closing contact: closes at fault/operation message<br>**51-52** Fault or operating message (switchable) as opening contact: opens at fault/operation message | |  <br>max. 250 V<br>1 A |  <br>max. 250 V AC<br>2 A<br>min. 5 V DC<br>20 mA |
| **10-11** External OFF or external ON (switchable) with closing contact | | |  |

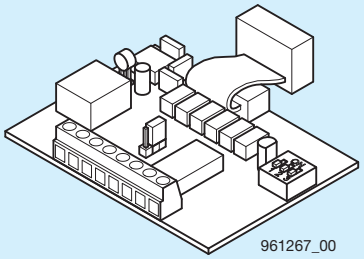
2) We recommend switching ModulA pumps via contacts 10/11 (external OFF/ON).

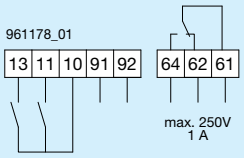
# Options

| | | AXW 10, AXW 12, AXW 13<br>4…45 W | AW 15…AW 401<br>8…174 W | ModulA…BLUE<br>16…594 W |
|---|---|---|---|---|
| | **Biral interface module**<br>**BIM A signal module**<br>– Operating or ready message<br>– External OFF<br>– External minimum speed<br>– Twin pump function | – | ✔ | – |
| | **Biral interface module**<br>**BIM B control module**<br>– External speed specification 0–10 V/0–20 mA<br>– PWM/multi-thermal interface<br>– External OFF<br>– Twin pump function | – | ✔ | – |
| | **Biral interface module**<br>**BIM A2 signal module**<br>– Operating or ready message<br>– External minimum speed<br>– Twin pump function | – | – | ✔ |
| | **Biral interface module**<br>**BIM B2 control module**<br>– External speed specification 0–10 V/0–20 mA<br>– External minimum speed<br>– Twin pump function | – | – | ✔ |
| | **Thermal insulation shells** | AXW 12-1, 13-1 | ✔ | ✔ |
| | **Kit for recessed installation of electronics** | – | – | ✔ |
| **Connection diagram** | **BIM A signal module**<br>**10-11** External OFF with closed contact<br>**10-13** External minimum speed with closing contact<br>**61-64** Operating or ready message (switchable) as a closing contact: Closes at operating/ready message<br>**61-62** Operating or ready message (switchable) as opening contact: opens at operating/ready message<br>**91-92** Twin pump function | |  | |
| | **BIM B control module**<br>**10-11** External OFF with closing contact<br>**81-82** Multi-thermal/PWM interface for external speed specification<br>**71-72** Analogue input 0…10 V or 0…20 mA for external speed specification<br>**91-92** Twin pump function | |  | |
| | **BIM A2 signal module**<br>**10-13** External minimum speed with closing contact<br>**61-64** Operating or ready message (switchable) as a closing contact: closes at operating/ready message<br>**61-62** Operating or ready message (switchable) as opening contact: opens at operating/ready message<br>**91-92** Twin pump function | | |  |
| | **BIM B2 control module**<br>**81-82** Multi-thermal /PWM interface for external speed specification<br>**71-72** Analogue input 0…10 V or 0…20 mA for external speed specification<br>**91-92** Twin pump function | | |  |

# Options

**Biral interface module**
**BIM A signal module**
**for A pumps**



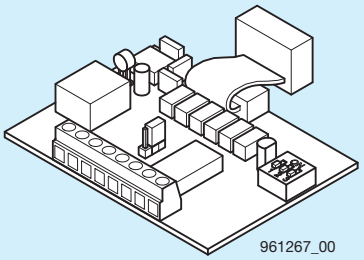

### BIM A

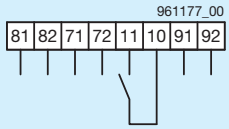
- Operating or ready message
- External OFF
- External minimum speed
- Twin pump function

Note:
Not possible in combination with control module

**Connection diagram**
**10-11** External OFF
with closed contact
**10-13** External minimum speed
with closing contact
**61-64** Operating or ready message
(switchable) as a closing contact:
Closes at operating/ready message
**61-62** Operating or ready message
(switchable) as opening contact:
opens at operating/ready signal
**91-92** Twin pump function

**Biral interface module**
**BIM B control module**
**for A pumps**



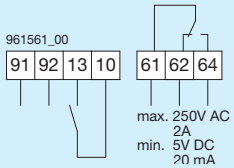

### BIM B

- External speed specification
  0–10 V/0–20 mA
- PWM/multi-thermal interface
- External OFF
- Twin pump function

Note:
Not possible in combination with signal module

**Connection diagram**
**10-11** External OFF
with closing contact
**81-82** Multi-thermal/PWM interface
for external speed specification
**71-72** Analogue input 0…10 V or 0…20 mA
for external speed specification
**91-92** Twin pump function

**Biral interface module**
**BIM A2 signal module**
**for ModulA**

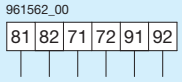

### BIM A2

- Operating or ready message
- External minimum speed
- Twin pump function

Note:
Not possible in combination with control module

**Connection diagram**
**10-13** External minimum speed
with closing contact
**61-64** Operating or ready message
(switchable) as a closing contact:
closes at operating/ready message
**61-62** Operating or ready message
(switchable) as opening contact:
opens at operating/ready message
**91-92** Twin pump function

**Biral interface module**
**BIM B2 control module**
**for modulA**


### BIM B2

- External speed specification
  0–10 V/0–20 mA
- External minimum speed
- Twin pump function

Note:
Not possible in combination with signal module

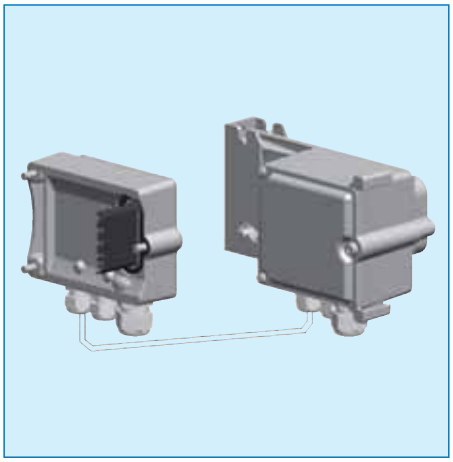
**Connection diagram**
**81-82** Multi-thermal /PWM interface
for external speed specification
**71-72** Analogue input 0…10 V or 0…20 mA
for external speed specification
**91-92** Twin pump function

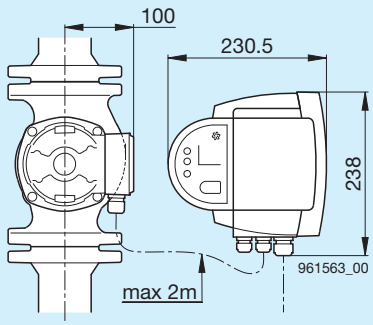
# Options

### Construction set for offset electronics installation for ModulA

Media temperature: up to 110 °C
Ambient temperature: max. 40 °C
Pump can be insulated
up to 100 °C medium temperature

Note:
If condensation forms (medium temperature lower than ambient temperature) it is recommended to use the cold water version (KW) with coating resistant to condensation.



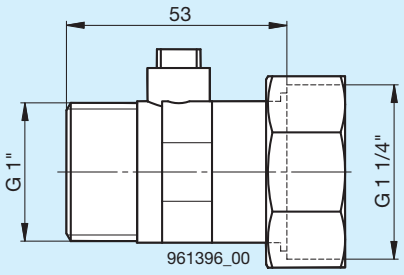



### Shut-off set for service water
(Non-return valve and ball valve)

The shut-off set is included as standard with the following pumps:
AXW 10 smart, AXW 12 smart
AXW 13 smart, AXW 14 smart AXW 12, AXW 13

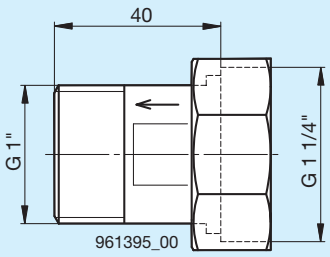
For AXW 12-1 and AXW 13-1 not available

**Ball valve**




Material: Brass

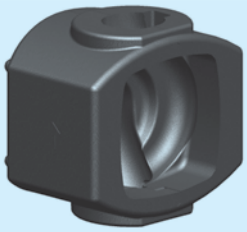
**Non-return valve**

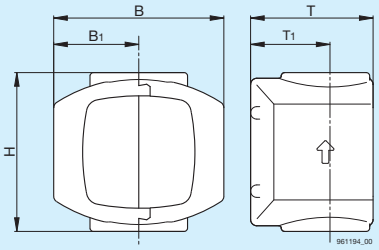



Material: Brass
Opening pressure: 20–35 mbar

### Thermal insulation shells

Fire protection class B2 to DIN 4102






| Pump type | Type | B | B1 | H | T | T1 |
|---|---|---|---|---|---|---|
| AX 10, AX 10-1, AX 12, AX 12-1, AX 12-2 | WD 1 [1] | 140 | 70 | 140 | 90 | 50 |
| AX 13, AX 13-1, AX 13-2 | | | | | | |
| AXW 12-1, AXW 13-1 | | | | | | |
| A 12, A 12-1, A 12-2 | WD 2 | 150 | 75 | 140 | 108 | 70 |
| A 13, A 13-1, A 13-2 | | | | | | |
| A 14, A 14-1, A 14-2 | | | | | | |
| A 15, A 15-1, A 15-2 | | | | | | |
| A 16-1, A 16-2 | | | | | | |
| AW 15-2, AW 16-2 | | | | | | |
| A 401, A 401-1, AW 401-1 | WD 3 | 150 | 75 | 178 | 140 | 78 |

[1] The AX 12, -1, -2 and AX 13, -1, -2 pump is supplied with thermal insulation WD 1

# Options

## Biral Remote for ModulA

Biral Remote enables configuration and analysis of ModulA.
Wireless communication is via a Wi-Fi connection ModulA, which is fitted with an interface for the Biral Remote adapter.


## Biral Remote app

### Status

- Operating data displays
- Readout and sending of data via e-mail

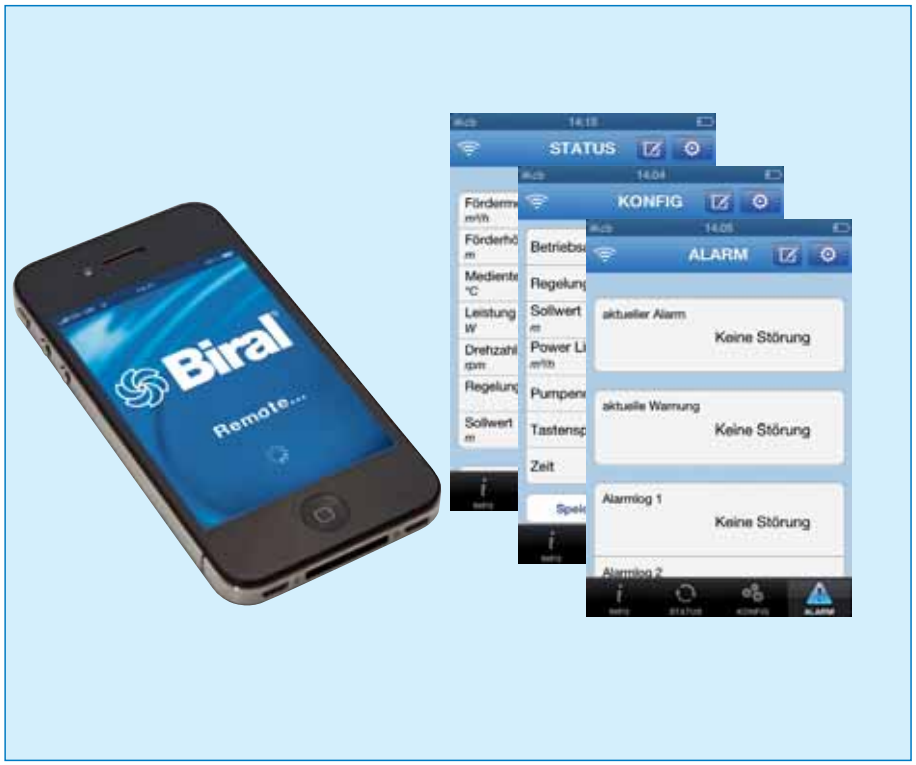
### Configuration

- Setting of control type
- Setting of Power Limit
- Setting a target value
- Give the pump a clear pump number (1 to 64), to recognise the pumps connected to the bus system

### Alarm

- Readout of alarm and warning messages

The Biral Remote app can be downloaded on iTunes and Play-Store free of charge. They only work with the relevant Biral Remote adapter (hardware).

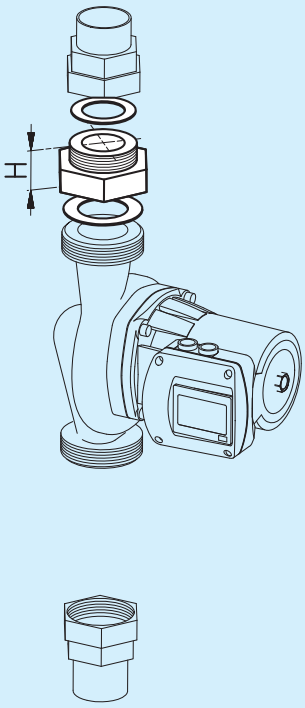



## Biral Remote adapter

The Biral Remote adapter is fitted with Wi-Fi and is required for wireless communication between the smartphone and pump.

# Options

### Intermediate piece



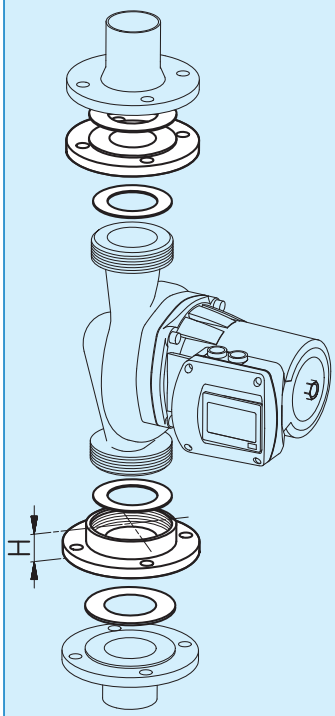

**Intermediate piece**

| Z | G | H | No. |
|---|---|---|---|
| 10 | 1¼″ / 1¼″ | 30 | 11 2912.0150 |
| 11 | 1¼″ / 2″ | 20 | 11 2491.0150 |
| 12 | 1½″ / 2″ | 20 | 11 3297.0150 |
| 13 | 2″ / 2″ | 10 | 11 1477.0150 |
| 14 | 2″ / 2″ | 15 | 11 2219.0150 |
| 15 | 2″ / 2″ | 20 | 11 1019.0150 |
| 16 | 2″ / 2″ | 34 | 11 1675.0150 |
| 17 | 2″ / 2″ | 40 | 11 1020.0150 |
| 21 | 2″ / 2¼″ | 20 | 11 1021.0150 |
| 81 | 1¼″ / 2″ | 40 | 11 4302.0162* |
| 82 | 1¼″ / 2″ | 60 | 11 4306.0162* |
| 83 | 1¼″ / 1½″ | 30 | 11 4358.0162* |
| 84 | 1¼″ / 2″ | 30 | 11 4359.0162* |
| 85 | 1¼″ / 1″ | 30 | 11 4357.0150 |

* brons

The adapter kit includes an intermediate piece and gaskets.

### Threaded flange (PN 6)




**Threaded flange (PN 6)**

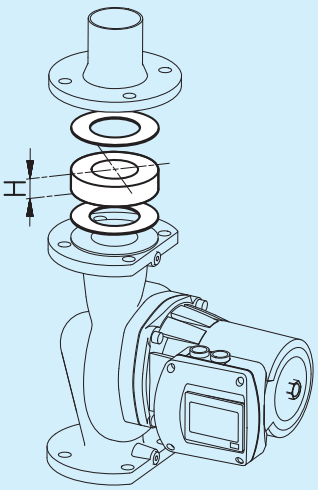
| Z | G/DN | H | No. |
|---|---|---|---|
| 25 | 2″ / 32 | 40 | 11 3819.0150 |
| 26 | 2″ / 32 | 16 | 11 3990.0150 |
| 28 | 2″ / 32 | 10 | 11 3873.0150 |
| 29 | 2″ / 40 | 30 | 11 3949.0150 |
| 30 | 2″ / 50 | 40 | 11 6044.0150 |

**Square screwed flange (PN 6)**

| | G/DN | H | No. |
|---|---|---|---|
| 70 | 2″ / 32 | 20 | 11 6045.0150 |

The adapter kit includes two flanges, gaskets and bolts.

### Intermediate piece

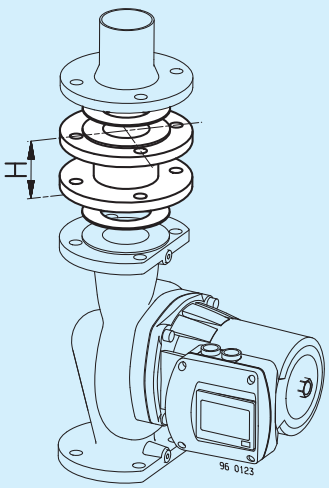



**Intermediate piece**

| Z | DN | H | No. |
|---|---|---|---|
| 32 | 40 | 10 | 11 3259.0150 |
| 33 | 40 | 20 | 11 1575.0150 |
| 34 | 40 | 30 | 11 1574.0150 |
| 35 | 40 | 40 | 11 1577.0150 |
| 36 | 40 | 50 | 11 2218.0150 |
| 41 | 50 | 10 | 11 2217.0150 |
| 47 | 50 | 20 | 11 3999.0150 |
| 42 | 50 | 30 | 11 0990.0150 |
| 43 | 50 | 50 | 11 2058.0150 |
| 56 | 65 | 10 | 11 4000.0150 |
| 50 | 65 | 30 | 11 0991.0150 |
| 51 | 65 | 40 | 11 2216.0150 |
| 59 | 80 | 10 | 11 0992.0150 |
| 60 | 80 | 30 | 11 1115.0150 |
| 65 | 100 | 20 | 11 2264.0150 |
| 66 | 100 | 50 | 11 1576.0150 |

The adapter kit includes an intermediate piece, gaskets and bolts.

### Intermediate flange (PN 6)



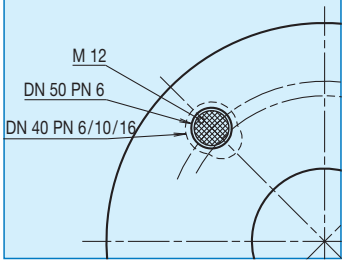

**Intermediate flange (PN 6)**

| Z | DN | H | No. |
|---|---|---|---|
| 37 | 40 | 73 | 11 1676.0150 |
| 44 | 50 | 65 | 11 2753.0150 |
| 45 | 50 | 85 | 11 1677.0150 |
| 46 | 50 | 135 | 11 1677.0250 |
| 52 | 65 | 70 | 11 2754.0150 |
| 53 | 65 | 85 | 11 1678.0150 |
| 54 | 65 | 125 | 11 2754.0250 |
| 55 | 65 | 155 | 11 1678.0250 |
| 61 | 80 | 80 | 11 2752.0150 |

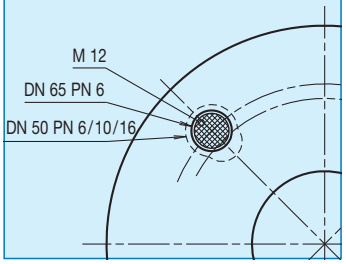
The adapter kit includes an intermediate flange, gaskets and bolts.

## Exchange of pump for differing nominal diameter

Existing pipeline DN 50, PN 6
Pump DN 40, PN 6/10/16




Existing pipeline DN 65, PN 6
Pump DN 50, PN 6/10/16



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