Heating

Air conditioning/Cooling

Domestic hot water

06/2020

You know one, you know them all

More than pumps

Biral®

Biral – Swiss quality products with a tradition

Headquarters are located in Münsingen – Switzerland, with a production area of 9000 m² and subsidiaries in Germany and the Netherlands. In modern offices, dwellings and industrial premises, the demand for higher standards of comfort is rising steadily.

Biral has demonstrated solid success in the market for almost 100 years, it must be doing something right. Since it was founded in 1919, Biral has continued to develop its products in a spirit of innovation, both in technical and quality terms, and we are constantly reviewing our performance as a company. Our ongoing objective is to make the best pumps in the world. We are all wholeheartedly behind this aim.

In 1999 Biral invented the energy-saving pump with permanent magnet technology; Biral is today in a position to offer a wide range of applications with reliable, highly engineered, energy efficient pump solutions. This includes a range of intelligent, innovative pumps for all applications for heating, cooling and service water.

We are proud of the reputation we have gained for producing reliable circulators over many years. Today, this evolution continues from our old "medium, low and high speed pumps" to today's EuP compliant range of leading, energyefficient circulators – with permanent magnet technology and with features you would not expect from a circulator pump. The complete new Biral range of highly efficient circulator pumps exceeds the Ecodesign Directive (EuP Energy using Products).

What is the Ecodesign directive?

EuP Directive (Energy using Products) for circulator pumps and motors

Overview
In 2009, the European Parliament and Council passed a directive defining eco-design requirements for energy-related products (ErP). It places high demands on the efficiency levels of a wide range of products and its aim is to secure energy supply and reduce energy consumption across the European Union (EU). Those requirements came into force in 2013 and in January 2015 were tightened further. Among many other devices, these latest changes apply to water pumps and electric motors.

EEI and circulator pumps
The Energy Efficiency Index (EEI) indicates circulator efficiency and is marked on every circulator's rating plate.

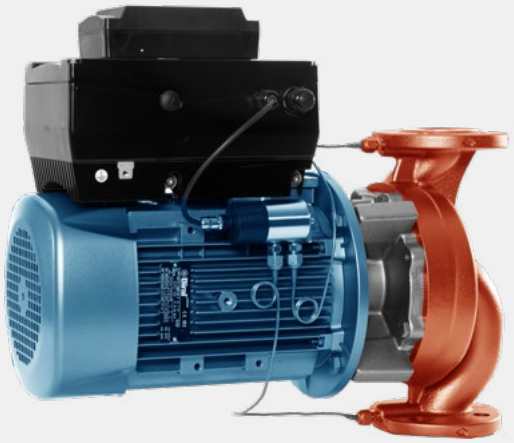
IE and electric motors
The International Electro technical Commission has defined four IE (International Efficiency) classes for induction motors. In levels of efficiency, these are IE1 (Standard Efficiency), IE2 (High Efficiency), IE3 (Premium Efficiency) and IE4 (Super Premium Efficiency).

MEI and water pumps
Eco-design requirements for rotodynamic water pumps are established through the Minimum Efficiency Index (MEI). The MEI is based on three points on the pump curve: the best efficiency point, part load and overload.

The EuP Timeline for IE (efficienza internazionale) and MEI (Minimum Efficiency Index)

2015
Since January 1st all electric motors from **7.5–375 kW** must either meet the **IE3** standard or the **IE2** standard equipped with a **VFD**

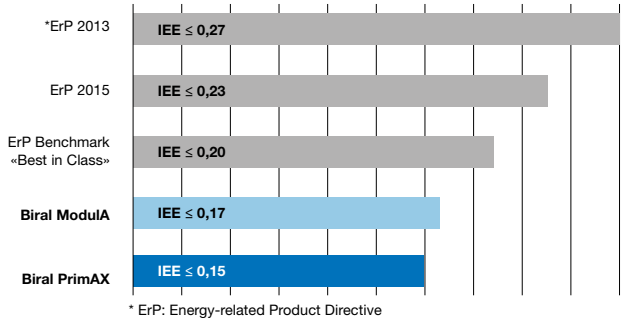
2017
From 2017, all electric motors from **0.75-375 kW** must either meet the **IE3** standard or the **IE2** standard equipped with a **VFD**



2015
All water pumps in the scope of this regulation must have an **MEI ≥ 0,10**

2017
From January 1st all water pumps in the scope of this regulation must have an **MEI ≥ 0,40**

EEI limits and the current position of Biral pumps



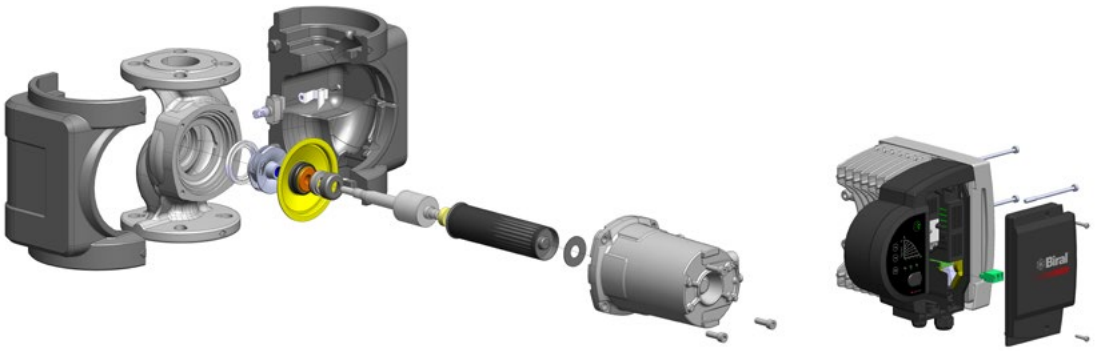
* ErP: Energy-related Product Directive

The new ECO Design label from Biral shows you at a glance that your pump is top of the class in energy efficiency.

A Biral product with the ECO Design label saves up to 90% of energy.

Biral ECO DESIGN EEI≤

An introduction to the energy efficiency requirements for electric motors (circulator pumps)



Old circulators … and new
To make a comparison with the world of motoring, a pump without speed control is like a car being driven at full speed with the driver reducing the speed by applying the brakes. Taking the same analogy using speed control, this is comparable to a driver controlling the speed of the car by using the accelerator.

Electronically controlled circulator pumps
With the introduction of pumps with integrated frequency converter, it became possible to operate the pump at different impeller speeds, which made it possible to realize other relations between flow and differential pressure than those given by a fixed speed pump. This offers the possibility of choosing relations between flow and differential pressure, which improves the conditions for the control valves, thus minimizing hydraulic losses and saving electrical energy. These relations are realized by pre-programmed control curves in the electronically controlled circulator pump.

The motor

Permanent magnet motors
The new generation of electronically controlled circulator pumps is based on a permanent magnet motor. This reduces losses in the motor and thereby results in a significant increase in efficiency. Figure 1 shows a rotor with permanent magnets. These types of circulator pumps are wet runners, which means that the rotor is running in the circulated fluid. The permanent magnets are encapsulated to protect them against the fluid.

The components and their interaction
Within the Biral range of controlled-speed pumps the circulator is integrated with a frequency converter, and software for speed control and in some types with a sensor as well. The sensor automatically identifies the variations in the flow and communicates this information to the frequency converter so it can regulate accordingly, to achieve the required head. This interaction is continuous and ensures the most energy-efficient operation.

Permanent magnet rotor for a new generation electronically controlled circulator pump.

Range Overview

Highly efficient circulator pumps for heating, cooling and domestic hot water

Standard heating circulators

Premium heating circulators

Standard and premium circulators for cooling and air-conditioning

Standard and premium circulators for domestic hot water

Inline pumps

Small circulators

Suitable for domestic and commercial heating systems

PrimAX

Premium circulator for heating

The new PrimAX is convincing due to the universal Biral operating philosophy of a high level of user-friendliness. It is operated with just a few operations on the clear and self-explanatory membrane keypad. The illuminated display of the PrimAX gives details at all times of the most important information for setting the pump, the operating status and the current pumped volume.

Performance

Head up to 7.5 m
Flow up to 4 m³/h
Power P1 up to 50 W
Power supply 1× 230 V
Liquid temperature: 2–110 °C

Energy saving

EEI ≤ 0.15 BEST IN CLASS
Uses up to 90 % LESS electrical power compared to standard constant speed pumps

AX RED

Standard circulator for heating

Biral AX RED variable speed domestic central heating circulating pump with high-efficiency motor. The integrated electronic inverter automatically speeds up and slows down the pump to match the demand in the system as radiator valves open or close. An intuitive and easy to use push-button interface allows you to control the pump, switching between 3 modes: constant pressure, constant speed and proportional pressure.

Performance

Head up to 6 m
Flow up to 3.5 m³/h
Power P1 up to 45 W
Power supply 1× 230 V
Liquid temperature: 15–110 °C

Energy saving

EEI ≤ 0.19
Uses up to 80 % LESS electrical power compared to standard constant speed pumps

Medium circulators

Suitable for commercial heating

Premium circulator for heating

This circulator delivers exceptional energy efficiency and is the perfect solution in a refurbishment situation where you need the option of communication with a building management system using either LONbus ModBUS or BACNet. The pump can also switch between 3 modes: constant pressure, constant speed and proportional pressure.

ModulA RED

Performance

Head up to 12 m
Flow up to 10 m³/h
Power P1 up to 187 W
Power supply 1× 230 V
Liquid temperature: 15–110 °C
Nominal diameter: DN 25-DN 32

Energy saving

EEI ≤ 0.18 BEST IN CLASS
Uses up to 90 % LESS electrical power compared to standard constant speed pumps

Standard circulator for heating

Reliable and efficient, the A pump is specifically designed for circulating water in heating systems. It is the perfect solution in a refurbishment situation where you need to either replace a Biral HX product or one of the smaller models from the original A series. The pump offers the capability of switching between 3 modes: constant pressure, constant speed and proportional pressure and 9 level settings plus an automatic night reduction mode.

A

Performance

Head up to 11 m
Flow up to 10 m³/h
Power P1 up to 174 W
Power supply 1× 230 V
Liquid temperature: 15–95/110 °C
Nominal diameter: DN 25-DN 32

Energy saving

EEI from ≤ 0.21
Uses up to 80 % LESS electrical power compared to standard constant speed pumps

Medium and large circulators

Suitable for commercial heating

Premium circulator for heating

Simple to operate – The ModulA range of energy efficient circulators are true pioneers, with an impressive EEI rating of ≤ 0.17, as well as a host of innovative features that includes a power limit function (volumetric flow limit) which can be activated directly on the pump. An intuitive and easy to use push-button interface allows you to control the pump, switching between 3 modes – constant pressure, constant speed and proportional pressure – and 10 level settings. Available as single and twin head pumps.

ModulA RED

DN 32F – DN 100

Performance

Head up to 18 m
Flow up to 75 m³/h
Power P1 up to 1563 W
Power supply 1× 230 V
Fluid temperature: 15–110 °C
Nominal diameter: DN 32F-DN100

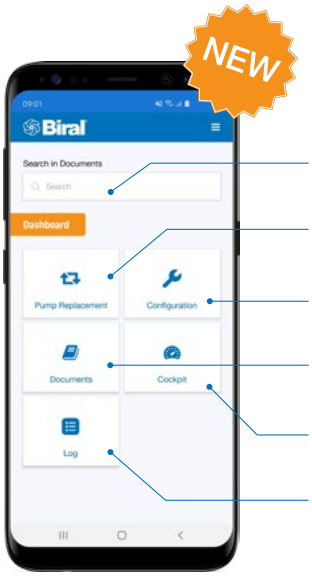
Energy saving

EEI ≤ 0.17 BEST IN CLASS
Uses up to 90 % LESS electrical power compared to standard constant speed pumps

Network communication

With the BIM Biral Interface Module your pump can be simply and intuitively integrated into any building control system for the requirements of today as well as the modifications of tomorrow. It gives access to modules compatible with Profibus, Modbus, and BACnet.

The Biral ONE app



The digital co-worker, which is operational at all times, connects you to Biral products and passes the right information onto you.

- Quick text search
- Pump replacement
- Configuration
- Document
- Cockpit
- Alarm Log

Biral ONE: download

ONE.

One App for all your Biral product needs.

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Small, medium and large domestic hot water circulators

A product line oriented to solutions for building technology, industry, and small-scale community applications. Your benefit: complete one-stop solutions with service care of the system over its entire life cycle, thanks to our competent service organisation.

Standard circulators for DHW

With its bronze body the AX BLUE with permanent magnet motor is designed for use in hot water recirculation systems. These pumps offer many benefits including energy efficiency, quiet operation and instant hot water in single and multi occupancy dwellings.

AX BLUE

Performance

Head up to 6 m
Flow up to 3.5 m³/h
Power supply 1× 230 V
Liquid temperature: 15–110 °C

Energy saving

EEI ≤ 0.19
Uses up to 80 % LESS electrical power compared to standard constant speed pumps

These reliable maintenance free pumps with bronze body have been specifically designed to operate to maximum efficiencies in hot-water service systems. 3 different modes of operation are available (constant pressure, constant speed and proportional pressure) and 5 level settings, all available from simple push button controls built into the pump motor.

AW

Performance

Head up to 11 m
Flow up to 10 m³/h
Power supply 1× 230 V
Liquid temperature: 15–95/110 °C

Energy saving

EEI ≤ 0.21
Uses up to 80 % LESS electrical power compared to standard constant speed pumps

Premium circulator for DHW

ModulA BLUE pumps for domestic hot water for high convenience, now with efficient permanent magnet technology as used for the heating circulating pumps. The ModulA BLUE has all the features you would expect from a hot water service circulation pump. It offers 3 different modes of operation, with proportional pressure control the pump will continuously find and adjust to its optimal setting.

ModulA BLUE

Performance

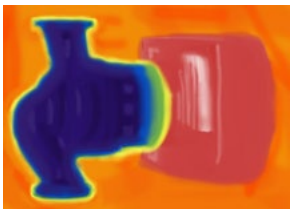
Head up to 18 m
Flow up to 30 m³/h
Power supply 1× 230 V
Liquid temperature: 15–85 °C

Energy saving

EEI ≤ 0.15 BEST IN CLASS
Uses up to 90 % LESS electrical power compared to standard constant speed pumps

Medium and large cold water circulators

Cold water circulators enable circulation of water for air-conditioning/refrigeration applications or water/glycol mixtures at low temperatures in a circular flow.



Standard circulator for cooliong and air-conditioning

A special dual-chamber system has been developed from sizes A 12 KW – A 16-2 KW / A 401 KW. This variant offers the optimum solution for heat pump manufacturers. An energy-efficient, safe and space-saving pump.

Dual-chamber system:

1) Cold chamber – fluid side
2) "Hot" chamber – electronics side
3) Decoupling the hot chamber from the media temperature by removing cold bridges
3) Interrupting the air circulation with an interim flange

With recessed installation of the controls, the formation of condensation in the electronics is no longer an issue. Manufacturers can now obtain an energy-efficient, safe and space-saving pump, which can even be used in heat pumps, thanks to the specially developed dual-chamber system.

A KW

Performance

Head up to 11 m
Flow up to 10 m³/h
Power supply 1× 230 V
Liquid temperature: –10–95/110 °C

Energy saving

EEI ≤ 0.21
Uses up to 80 % LESS electrical power compared to standard constant speed pumps

Premium circulator for cooling and air-conditioning

New highly efficient cold water pumps with recessed installation of electronics

The new ModulA GREEN has been developed for fluid temperatures up to –10°C. They combine the highest level of energy efficiency with the most up-to-date permanent magnet technology and excellent user-friendliness. Failure due to the formation of condensation in the electronics is no longer an issue with these Biral pumps, as the electronics can be installed in a recessed design, thereby eliminating major temperature fluctuations. Precise control characteristics can therefore be set via the integrated service panel. Adjustments can be made to the proportional and constant pressure as well as constant speed. ModulA GREEN pumps can be connected via modules to management building systems.

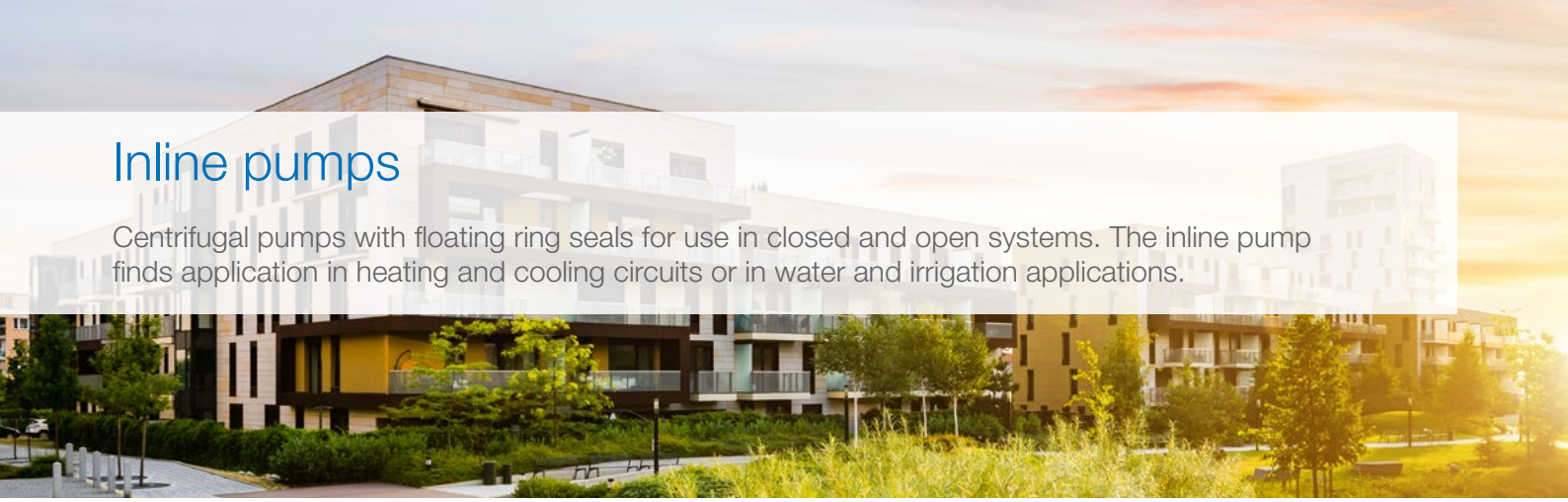
ModulA GREEN

Performance

Head up to 18 m
Flow up to 75 m³/h
Power supply 1× 230 V
Fluid temperature: –10–110 °C

Energy saving

EEI ≤ 0.17 BEST IN CLASS
Uses up to 90 % LESS electrical power compared to standard constant speed pumps



Inline pumps

Centrifugal pumps with floating ring seals for use in closed and open systems. The inline pump finds application in heating and cooling circuits or in water and irrigation applications.

Single-stage spiral housing pump

Suction and discharge branches are arranged in line for the same flange dimensions. The pump is available for horizontal or vertical installation. The inline pump finds application in heating and cooling circuits or in water supply and irrigation applications. Pumping liquid: Mixture up to a maximum of 50% Glycol (> 25% special mechanical seal). Cold water design with special coating resistant to condensed water.
The VariA pumps are low on energy consumption, boast excellent operational dependability and are extremely reliable.

VariA

Performance

Head up to 38 m
Flow up to 300 m³/h
Power supply 1× 230V / 3× 400 V
Motor 0,55–22,0 kW
Liquid temperatureo: –10–140 °C

Energy saving

MEI ≥ 0,40

Single-stage spiral housing pump with frequency converter

The stepless speed regulation ensures low-cost operation with variable pressures and water volumes. Suction and discharge branches are arranged in line for the same flange dimensions. The pump is available for horizontal or vertical installation. The inline pump finds application in heating and cooling circuits or in water supply and irrigation applications. Pumping liquid: Mixture up to a maximum of 50% Glycol (> 25% special mechanical seal). Cold water design with special coating resistant to condensed water.
VariA-E pumps are low on energy consumption, boast excellent operational dependability and are extremely reliable.

VariA-E

Performance

Head up to 38 m
Flow up to 300 m³/h
Power supply 1x230V / 3x400 V
Motor 0,55–22,0 kW
Liquid temperatureo: –10–140 °C

Energy saving

MEI ≥ 0,40

Documentation and support

We provide you with a selection of online tools for your daily activities.
Take advantage of our design tools to reach your goals quickly and easily.

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With the Biral PumpSelector you can quickly and easily find the pump that best suits the intended application.

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Biral ONE App

The Biral ONE app offers access to documents and information all about your pumps with just a single click.

Download on the App Store

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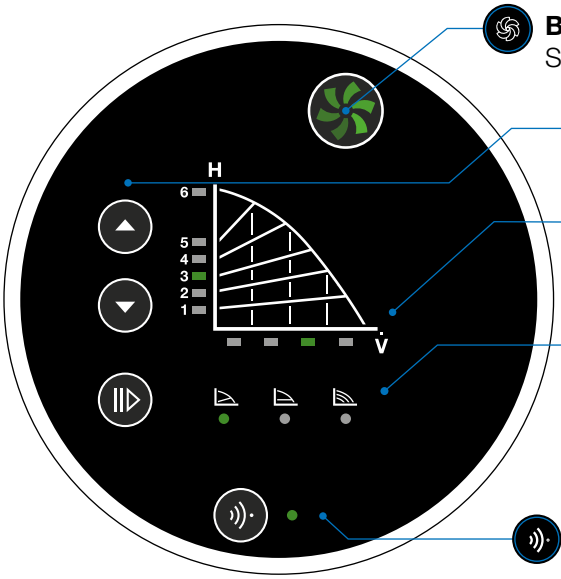
Biral operating philosophy

Due to the uniform Biral operating philosophy applied consistently across the full range from the smallest to the biggest pump we offer a high level of user-friendliness. All pumps can be operated with just a few operations on the clear and self-explanatory display.



Biral Impeller
Shows the status of the pump

Control characteristics
Adjustment of 10 stages

Flow rate indicator
The flow rate indicator shows the approximate flow rate and helps in starting up the pump.

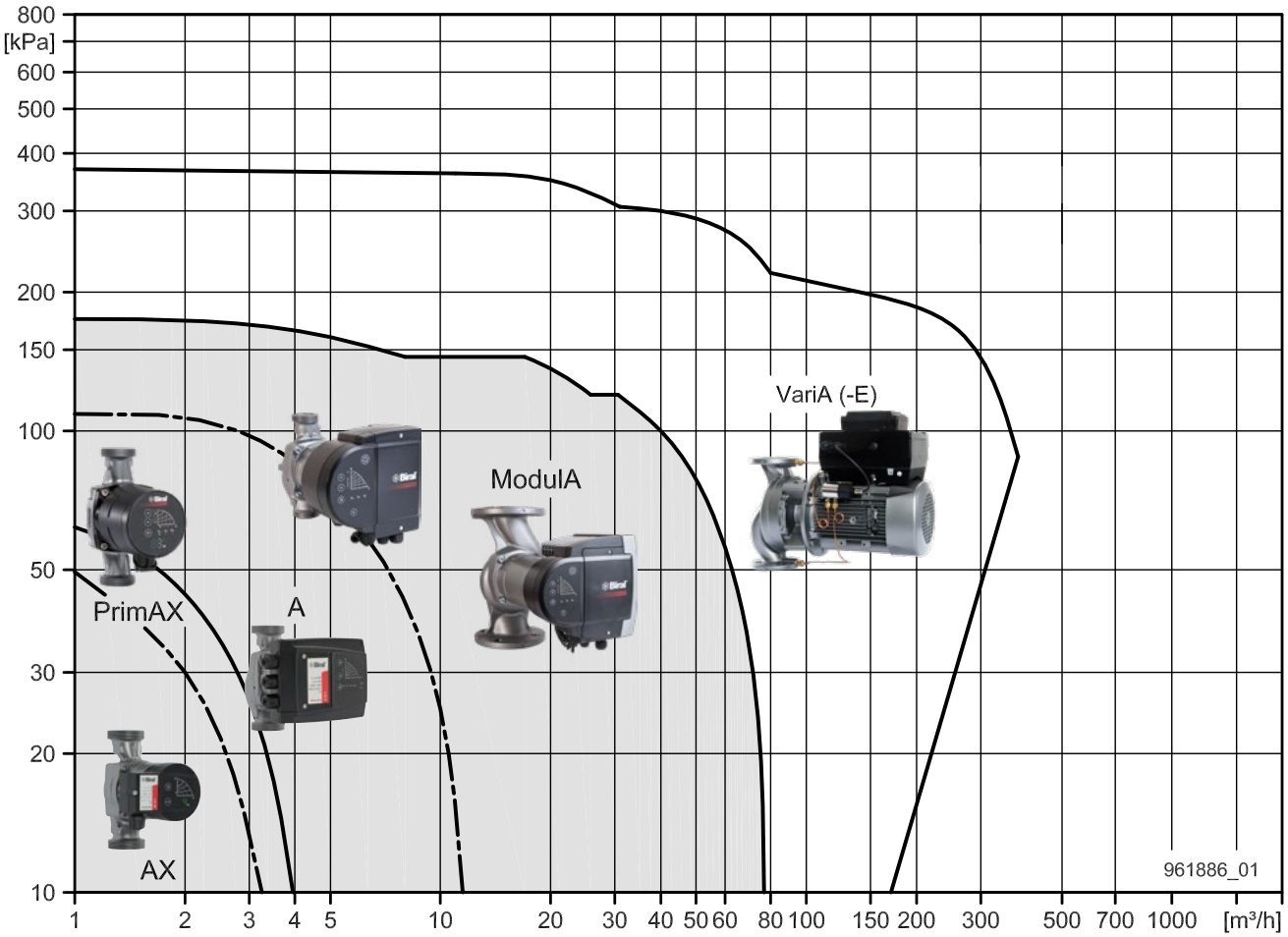
Control mode setting

- Proportional pressure (pp)
- Constant pressure (cp)
- Constant speed (cs)

Bluetooth Connect
For wireless communication between smartphone and pump → Biral ONE app

NEW

Curve characteristics



Comparative guide






Technical data	AX 10–13 DN 15/25/32	A 12–16 DN 25/32	A 401/A 500 DN 40/50	AD 14–15/ 401 DN 32/40	PrimAX RED DN 15/25/32	ModulA RED DN 25/32
Circulator pump, canned-rotor type	✓	✓	✓	✓	✓	✓
Permanent magnet technology	✓	✓	✓	✓	✓	✓
Flow rate max. m^3/h	4.5 m^3/h	11 m^3/h	11 m^3/h	11 m^3/h	5 m^3/h	12 m^3/h
Head max: m	6 m	11 m	11 m	11 m	7.5 m	12 m
Liquid temp.: °C	15–110 °C	15–95/110 °C	15–95/110 °C	15–95/110 °C	2–110 °C	15–110 °C
Max. system pressure: bar	10 bar	10 bar	10 bar	10 bar	10 bar	10 bar
Power P1 up to W	45 W	174 W	174 W	174 W	50 W	187 W
Power supply 1× 230V VAC 50/60 Hz	✓	✓	✓	✓	✓	✓
Type of protection(IEC 34-5):IP 49	✓	✓	✓	✓	✓	✓
Insulation class: F (155 °C)	✓	✓	✓	✓	✓	✓
Integrated motor protection	✓	✓	✓	✓	✓	✓
Application						
Heating systems	✓	✓	✓	✓	✓	✓
Domestic hot-water systems	–	–	–	–	–	–
Cooling and air-conditioning	–	–	–	–	✓	–
Ground-source heat pump system	–	–	–	–	–	–
Solar heating system	✓	✓	✓	✓	✓	✓
Function/features						
Energy efficency Index EEI	from ≤ 0.19	from ≤ 0.21	≤ 0.22	≤ 0.22	from ≤ 0.15	from ≤ 0.18
Proportional pressure	✓	✓	✓	✓	✓	✓
Constant Pressure	✓	✓	✓	✓	✓	✓
Constant speed	✓	✓	✓	✓	✓	✓
Activating / deactivating the control keys	–	–	–	–	✓	✓
Fault message or operating message (switchable)	–	✓	✓	✓	–	✓
External OFF or external ON	–	–	–	–	–	✓
Power limit (activatable)	–	–	–	–	–	–
Power Limiting (deactivatable)	–	✓	✓	✓	–	–
Flow indicator	–	✓	✓	✓	✓	✓
Automatic night reduction (activatable)	✓	✓	✓	✓	–	–
Termal insulation shell (incl. with shipping)	✓	✓	✓	–	✓	✓
Communication						
Biral interface module BIM A signal module	–	✓	✓	✓	–	–
Biral interface module BIM B control module	–	✓	✓	✓	–	–
Biral interface module BIM B3 control module	–	–	–	–	–	✓
BUS Module BIM Profibus	–	–	–	–	–	✓
BUS Module BIM MODBUS	–	–	–	–	–	✓
BUS Module BIM BACnet	–	–	–	–	–	✓
Bluetooth Connect	–	–	–	–	–	✓





ModulA RED DN 32 F–100	ModulA-D RED DN 32 F–100	A 12–A16 KW DN 25/32	A 401/500 KW DN 40/50	ModulA GREEN DN 32 F–100	AXW 10–13 DN 20/25	AW 15–16 DN 32	AW 401 DN 40	ModulA BLUE DN 25/32	ModulA BLUE DN 40
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
75 m^3/h	75 m^3/h	11 m^3/h	11 m^3/h	75 m^3/h	4.5 m^3/h	10 m^3/h	12.5 m^3/h		30 m^3/h
18 m	18 m	11 m	11 m	18	6 m	11 m	11 m	12 m	18 m
15–110 °C	15–110 °C	-10–95 °C	-10–95 °C	-10–110 °C	15–85 °C	15–85 °C	15–85 °C	15–85 °C	15–85 °C
6/16 bar	6/10/16 bar	10 bar	10 bar	6/16 bar	10 bar	10 bar	10 bar	10 bar	16 bar
1563 W	1563 W	174 W	174 W	1563	45 W	174 W	174 W	187 W	594 W
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
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✓	✓	–	–	–	–	–	–	–	–
from ≤ 0.17	from ≤ 0.17	from ≤ 0.21	≤ 0.22	≤ 0.17	–	–	–	–	–
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
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✓	✓	–	–	✓	–	–	–	✓	✓
✓	✓	–	–	✓	–	–	–	✓	✓

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