ALARKO

# Circulation Pump
# Optima

ECO DESIGN
The First and Only Domestic Product in compliance with EU Ecodesign for Sustainable Products Regulation


## AT THE HEART OF THE SYSTEM

MADE IN TÜRKİYE MADE IN

CE TSE DVE

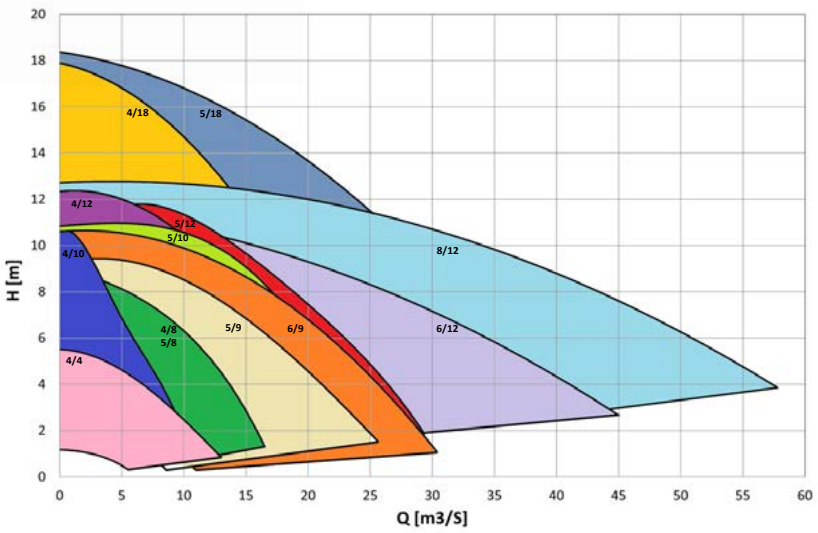
ErP READY
optima
LOW ENERGY CONSUMPTION
SAVE the NATURE


ECM technology

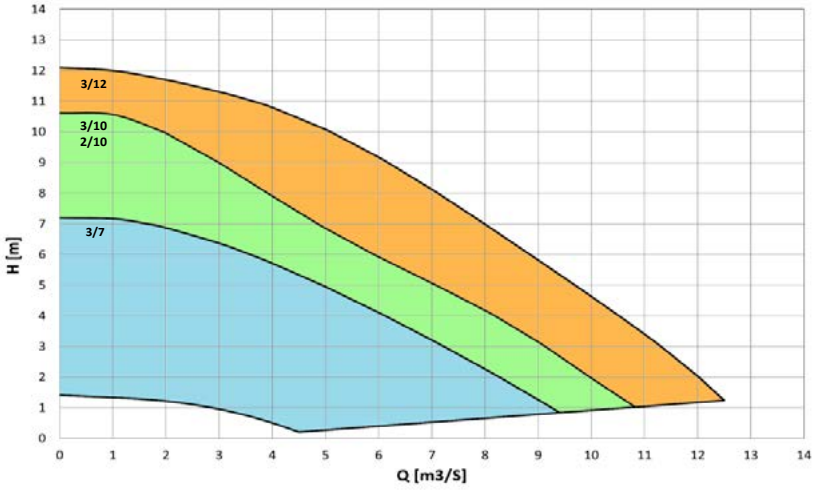
**Higher efficiency design and key benefits with ECM (Electro Commutated Motor) Technology:**

- No external sensors or controllers required.
- Prolonged motor lifetime with low motor temperatures.
- Prolonged motor lifetime due to lower stress on motor bearings.
- Lower vibration and noise levels.

## Alarko Optima General Election Chart - Flange




## Alarko Optima General Election Chart - Gear



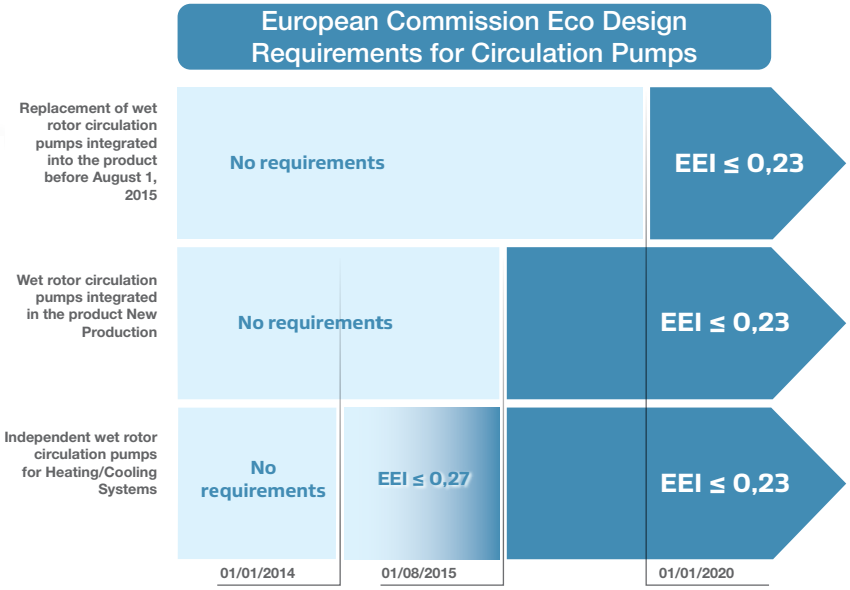

Alarko Optima provides integrated operation and high energy savings with its digital and analog communication modules and building automation systems.

# All Alarko circulation pumps meet the Eco Design requirements.

**EEI≤0,23**

**IDEAL PERFORMANCE**

Alarko Optima serves in three different operating modes with continuous ideal operating point unlike conventional single and three-speed pumps. In this way, high energy saving is possible.




# Alarko Optima provides high energy savings while improving the quality of life...

## SAFETY

Alarko Optima circulation pumps are documented by the tests carried out in accordance with all the following standards and regulations.

- Machinery Directive 2006/42/ EC
- Low Voltage Directive 2014/35/ EC
- EMC Directive 2004/108/EC
- Ecodesign Directive 2009/125/ EC
- TS EN 60335-1-51:2003 + A2:2012
- TS EN 16297-1:2012
- TS EN 16297-2:2012
- TS EN 60335-1:2012

## EASE OF INSTALLATION AND COMMISSIONING

Alarko Optima circulation pumps have terminal blocks and connection sockets which help commissioning of the pumps very quickly and easily. These specially designed connection sockets on the control box allow the pump to be connected safely and as soon as possible without contact with mains voltage and electronic systems.

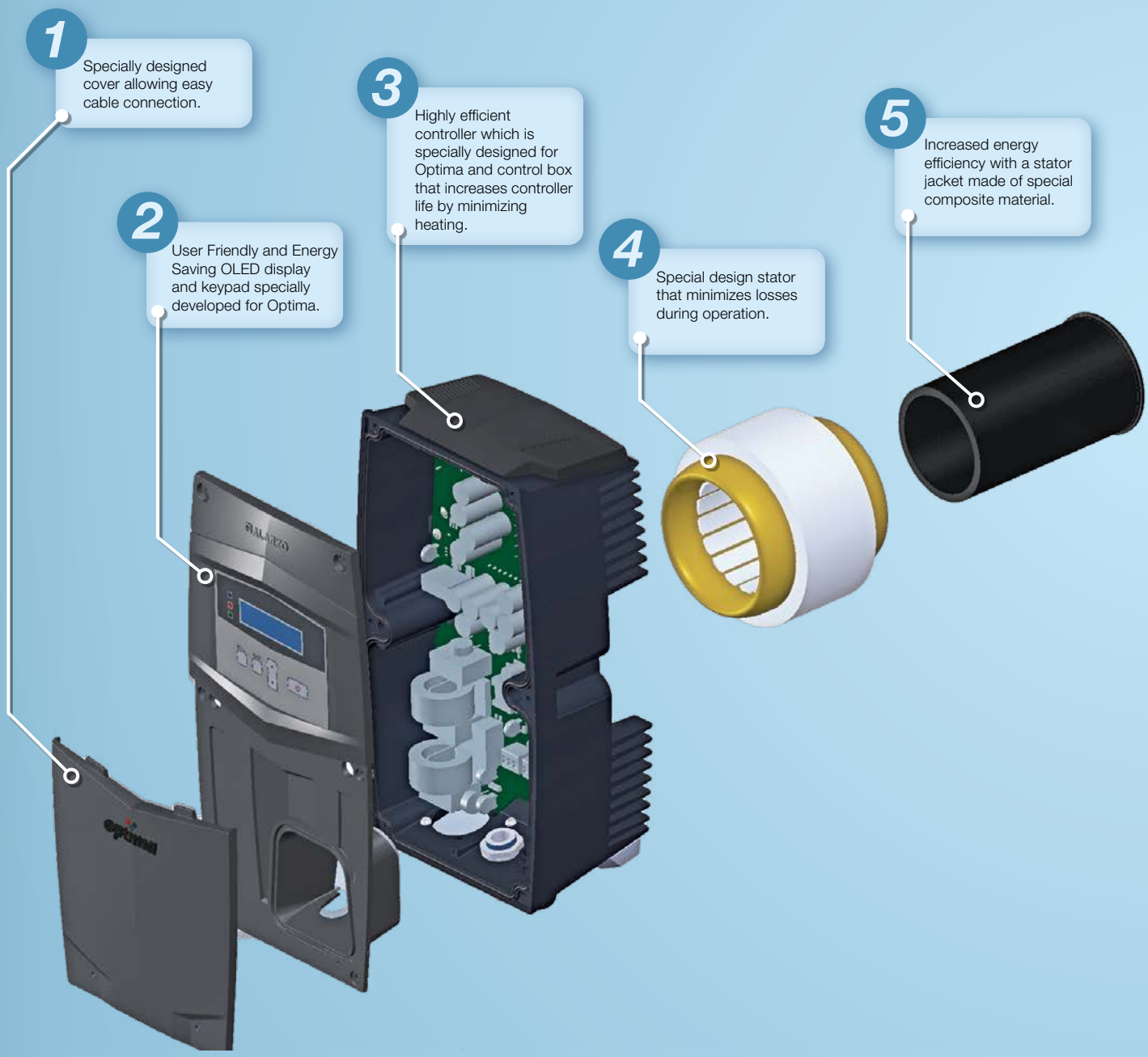

## USER FRIENDLY OLED DISPLAY

All controls and settings can be made with the help of 5 keys.

- OLED display with two lines.
- User friendly control and control system with Turkish software.
- English language support available as standard in the menu.
- “Service info” feature showing the code and content of the last 5 errors occurred.

# The perfect design is hidden in the details...

Optima circulation pumps, which are produced with the latest technological facilities and designed with care in every part, have passed all tests successfully.



**6** High-efficiency rotor with permanent magnet that maximizes motor efficiency.

**7** Maintenance-free long-lasting carbon bearings and dirt trap made of special stainless material which prevents contaminants in the fluid from entering into the motor.

**8** Specially designed PPO fans with high hydraulic efficiency.

**9** Specially designed pump casing for high hydraulic efficiency and silent operation.

**10** Polypropylene insulation jacket ensuring thermal insulation of the pump casing.

*Supplied as standard with the pump.*

## VDE Certificate

Circulation pumps have been tested and approved for electrical safety, electromagnetic compatibility (EMC) and endurance by German VDE, one of the largest technical and scientific Associations in Europe. This certification indicates that these products meet the high safety and quality standards.

**Why Is It Important?**

- Full compliance with IEC and EN standards.
- Electrical isolation and residual current safety.
- Passed rigorous quality and reliability tests.

With more than 60 years of Alarko Circulation Pump experience...

# ALARKO OPTIMA

## Preserve the nature...

Alarko aims at significantly improving the quality of life by adding innovative products to its product range, which are respectful to the environment and ensure significant energy savings in addition to better performance. The process of compliance with the European Union ECO Design regulations resulted in a real turning point for Alarko circulation pumps: Alarko Optima.


### Alarko Optima's
## Key Benefits

1. Optional digital and analog communication modules compatible with building automation systems.
2. Class A High Energy Saving.
3. Ideal Performance.
4. Reliability.
5. Ease of Installation and Commissioning.
6. Convenience of after-sales service and spare parts supply.
7. Electronically controlled
8. In accordance with Turkish SGM-2011/15 and EU EC 641/2009

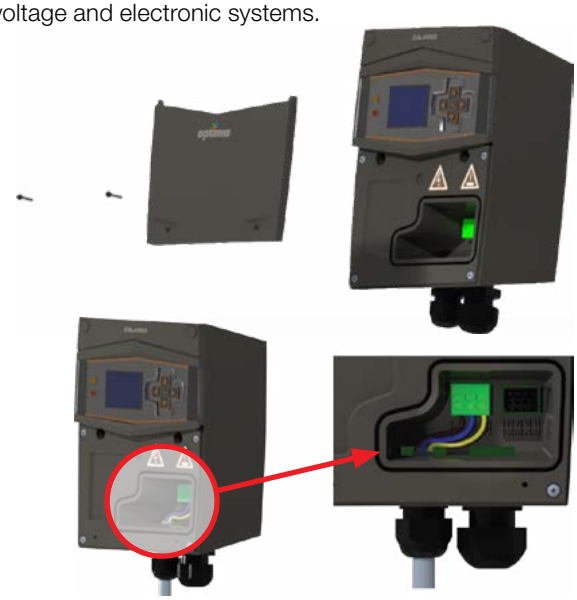
## SAFETY

Alarko Optima circulation pumps are documented by the tests carried out in accordance with all the following standards and regulations.

- Machinery Directive 2006/42/ EC
- Low Voltage Directive 2014/35/ EC
- EMC Directive 2004/108/EC
- Ecodesign Directive 2009/125/ EC
- TS EN 60335-1-51:2003 + A2:2012
- TS EN 16297-1:2012
- TS EN 16297-2:2012
- TS EN 60335-1:2012

## EASE OF INSTALLATION AND COMMISSIONING

Alarko Optima circulation pumps have terminal blocks and connection sockets which help commissioning of the pumps very quickly and easily. These specially designed connection sockets on the control box allow the pump to be connected safely and as soon as possible without contact with mains voltage and electronic systems.



## Multi Pump operation feature

**Multi-Pump: All Pumps Operate with Central Controller and Automatic Harmony** Multi-Pump function eliminates the complicated individual management issue in your multi-pump systems and turns them into a single smart system where all your pump work in harmony with each other.

Determine your master pump and let all the other pumps operate for the same goal under the master pump's leadership.

This network which can be created with 1 to 8 pumps has 3 different scenarios: **Master/Slave, Main/Standby, Pump Cycling.**

**With the Flexible Area of Use Suitable for Your Needs,** you can build your system according to various different scenarios.

You can create a high capacity system where all pumps would operate simultaneously with the **Master/Slave** mode.

**Main/Standby** mode constitutes a system which ensures a redundant pump wait in stand-by mode to provide continuity.

**Pump Cycling** mode enables all your pumps to operate in equal turns to ensure equal wear & tear and prolonged useful life.

Most importantly, all slave pumps within the system automatically adopt the operating mode and set point upon the command received from the main pump. The entire system can be managed from a single point without any further need for any setting and allows you to switch between the Modes at any time you want.

**Simple Installation and Extension;** Once the system is set up, the rest works automatically. The structure easily adapts itself when you need to change the master pump or add a new pump to the system. Multi-Pump function entirely eliminates all the complications and provides you a seamlessly working, efficient group of pumps.


ALARKO
3.5
OK
optima


# User Friendly
# GRAPHIC DISPLAY

All controls and settings can be made with the help of 5 keys.

- Graphic Display.
- User friendly control and control system with Turkish software.
- English language support available as standard in the menu.
- “Service info” feature showing the code and content of the last 5 errors occurred.

## Designed to meet all requirements.
## 3 different card options.

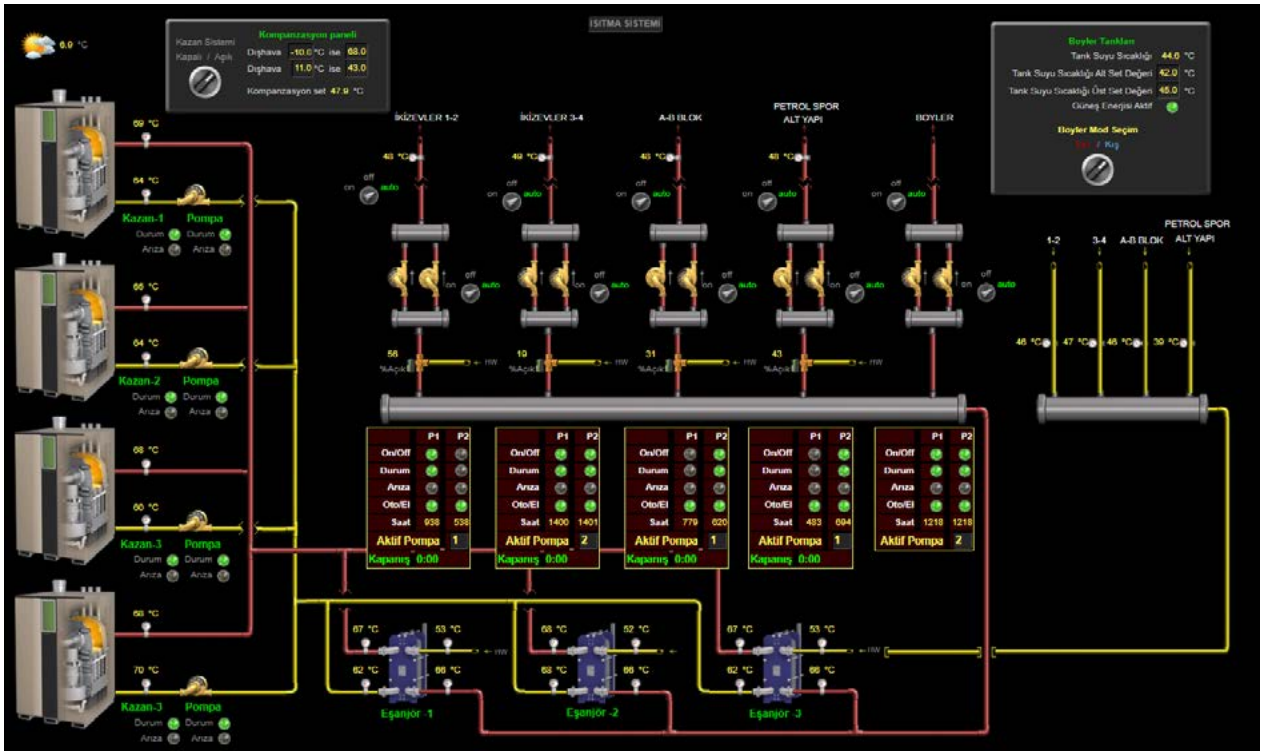
1) Communication Control Module (Modbus RTU / BACnet MS-TP/ Multi-Pump).

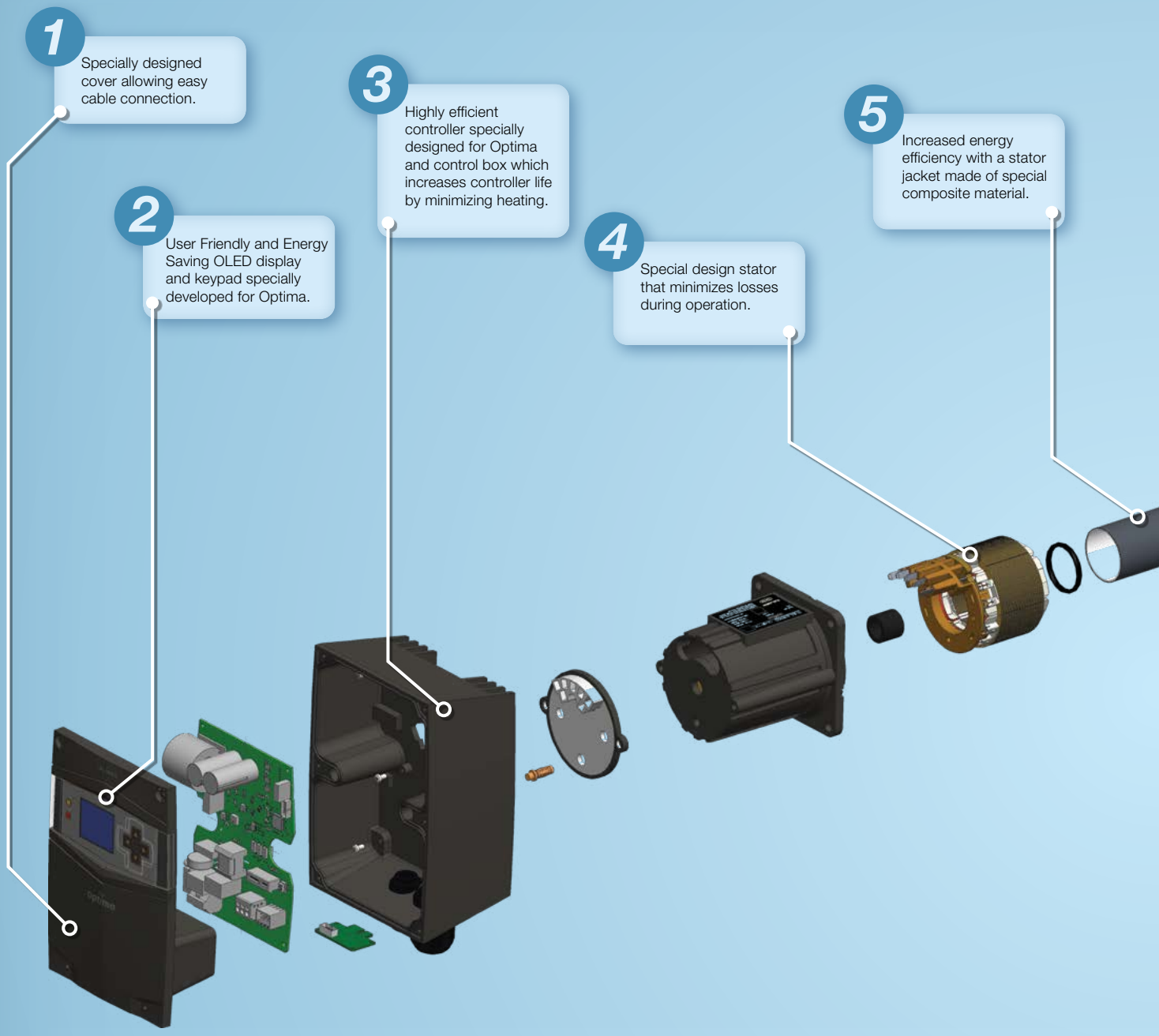
2) “Analog Control Module (with Relay).

3) Analog Control Module (without Relay).


ASHRAE BACnet™

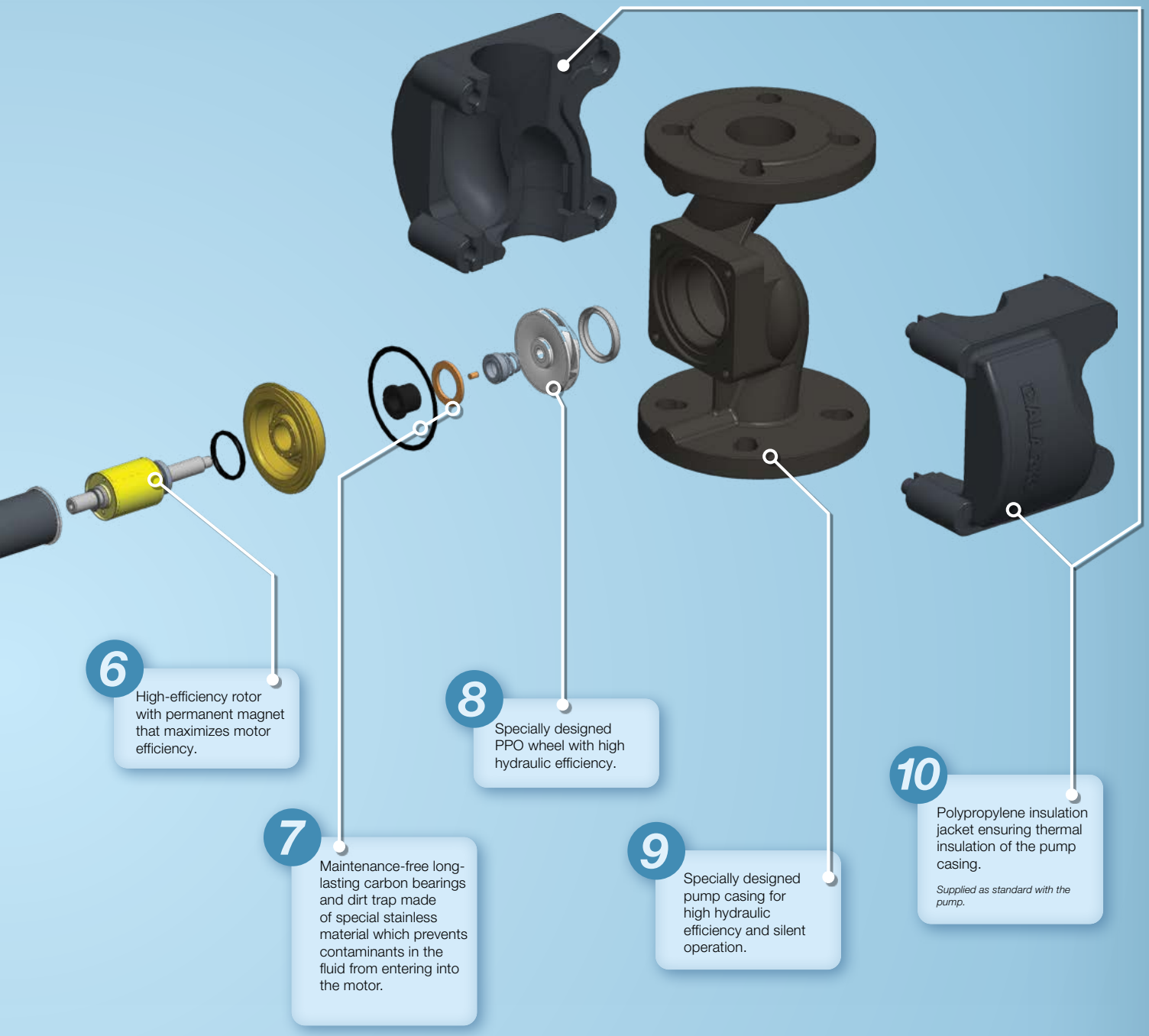
Modbus






# The perfect design is hidden in the details...

Optima circulation pumps, which are produced with the latest technological facilities and designed with care in every part, have passed all tests successfully.



**6** High-efficiency rotor with permanent magnet that maximizes motor efficiency.

**7** Maintenance-free long-lasting carbon bearings and dirt trap made of special stainless material which prevents contaminants in the fluid from entering into the motor.

**8** Specially designed PPO wheel with high hydraulic efficiency.

**9** Specially designed pump casing for high hydraulic efficiency and silent operation.

**10** Polypropylene insulation jacket ensuring thermal insulation of the pump casing.

*Supplied as standard with the pump.*

## Reliability at European Standards Level.

Our pumps offer maximum safety and quality due to VDE certificate. VDE certificate indicates that the awarded product has passed European tests and can reliable be used.

**Key Differences:**

- Quality according to European standards.
- Safe to use, low risk of failure.
- Quality certificate preferred for professional systems.

# OPTIMA BYS
# 2/10-180
# 3/10-180
# 3/10-180 Br*
# 4/10

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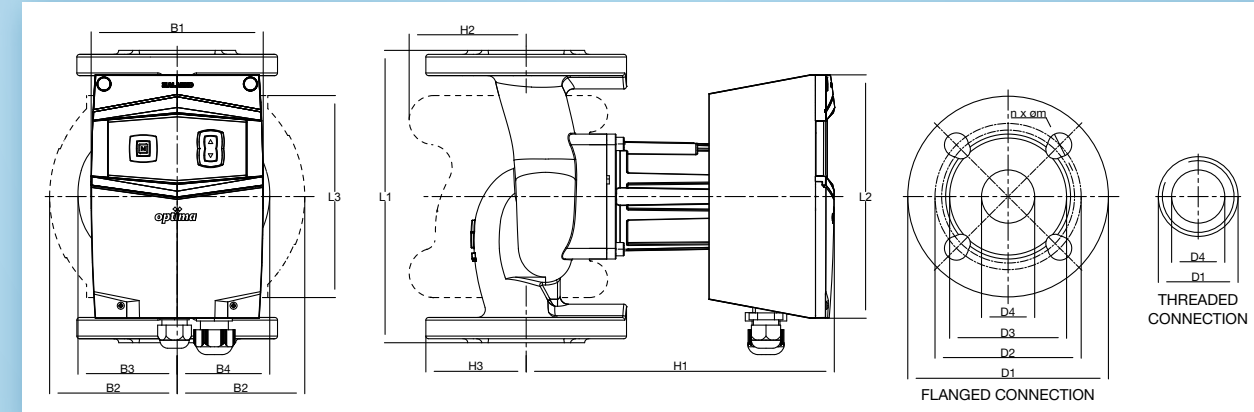
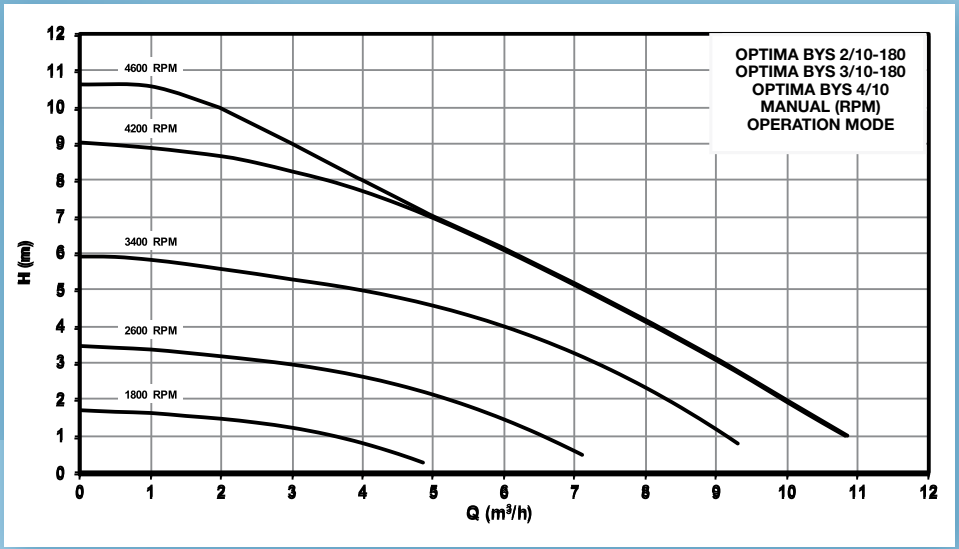
| | | |
|---|---|---|
| Maximum Pump Head [m] | According to pump type | |
| Maximum Flow Rate [m³/h] | According to pump type | |
| Engine Speed [rpm] | 1.800 – 4.600 | |
| Input Voltage and Frequency | 1~ 230 V AC ± 10%, 50 Hz, PE | |
| Nominal Current [A] | 1,4 | |
| Power Drawn [W] | 12 – 190 | |
| Energy Efficiency Index (EEI) | < 0.23 | |
| Insulation Class | F | |
| Protection Class | IP X4D | |
| Temperature Class | TF 110 | |
| Maximum System Pressure | 2/10-180 - 3/10-180 PN10 | 4/10 PN 6/10 (1) |
| Sound Pressure | < 56 dB | |
| Relative Humidity | < 90% | |

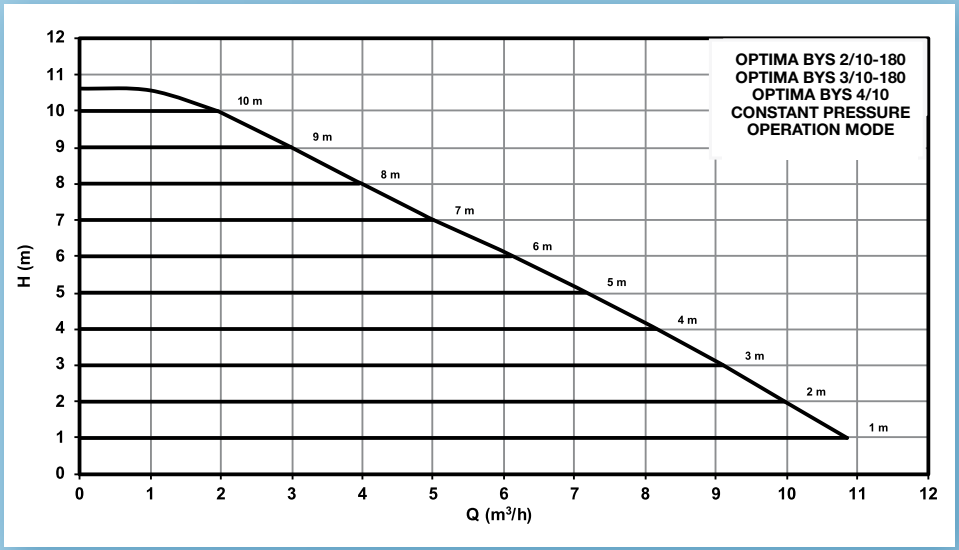
[1] The pump is suitable for use at both pressure values.

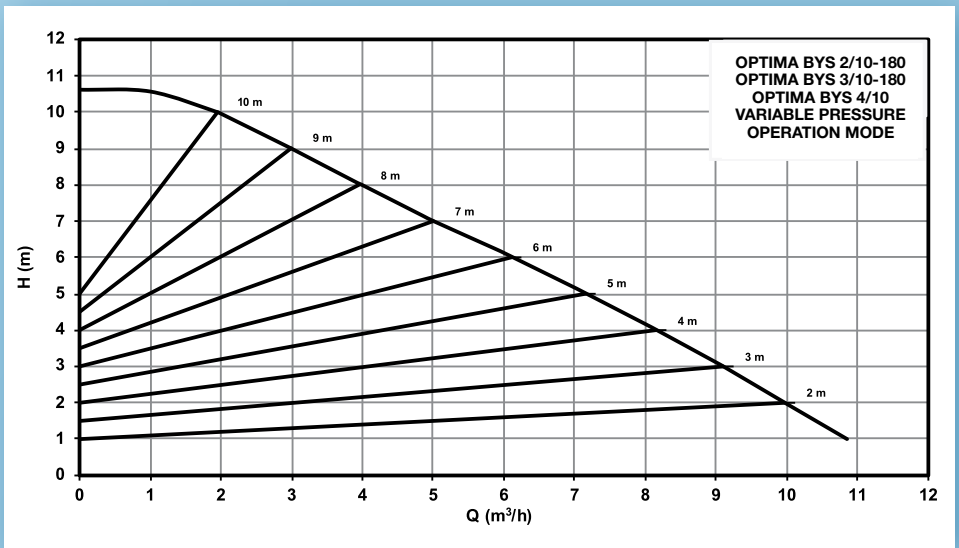



| | DIMENSIONS | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | D1 (mm) | D2 (mm) PN6 | D2 (mm) PN10 | D3 (mm) | D4 (mm) | n x Øm (mm) PN6 | n x Øm (mm) PN10 | B1 (mm) | B2 (mm) | B3 (mm) | B4 (mm) | L1 (mm) | L2 (mm) | L3 (mm) | H1 (mm) | H2 (mm) | H3 (mm) | Weight (kg) |
| OPTIMA BYS 2/10-180 | G1 1/2" | - | - | - | 25.0 | - | - | 129.5 | 82.5 | 65.3 | 55.7 | 180.0 | 183.0 | 152.0 | 232.6 | 77.5 | 23.9 | 6.2 |
| OPTIMA 3/10-180 | G2" | - | - | - | 30.0 | - | - | 129.5 | 82.5 | 65.3 | 55.7 | 180.0 | 183.0 | 152.0 | 232.6 | 77.5 | 29.8 | 6.2 |
| OPTIMA 3/10-180 Br | G2" | - | - | - | 30.0 | - | - | 129.5 | 82.5 | 65.3 | 55.7 | 180.0 | 183.0 | 152.0 | 232.6 | 77.5 | 29.8 | 6.2 |
| OPTIMA 4/10 | 151,0 | 100.0 | 110.0 | 88.0 | 40.0 | 4x14 | 4x18 | 129.5 | 81.0 | 65.3 | 55.7 | 220.0 | 183.0 | 152.0 | 232.6 | 77.9 | 75.5 | 10.5 |

* Type 3/10-180 Br does not have VDE certificate.


OPTIMA BYS 2/10-180
OPTIMA BYS 3/10-180
OPTIMA BYS 4/10
MANUAL (RPM)
OPERATION MODE
4600 RPM
4200 RPM
3400 RPM
2600 RPM
1800 RPM
H (m)
Q (m³/h)


OPTIMA BYS 2/10-180
OPTIMA BYS 3/10-180
OPTIMA BYS 4/10
CONSTANT PRESSURE
OPERATION MODE
10 m
9 m
8 m
7 m
6 m
5 m
4 m
3 m
2 m
1 m
H (m)
Q (m³/h)


OPTIMA BYS 2/10-180
OPTIMA BYS 3/10-180
OPTIMA BYS 4/10
VARIABLE PRESSURE
OPERATION MODE
10 m
9 m
8 m
7 m
6 m
5 m
4 m
3 m
2 m
H (m)
Q (m³/h)

# OPTIMA BYS
# 3/7-180
# 3/7-180 Br*



| | |
|---|---|
| Maximum Pump Head [m] | According to pump type |
| Maximum Flow Rate [m³/h] | According to pump type |
| Engine Speed [rpm] | 1.600 – 3.800 |
| Input Voltage and Frequency | 1~ 230 V AC ± 10%, 50 Hz, PE |
| Nominal Current [A] | 1 |
| Power Drawn [W] | 12 – 125 |
| Energy Efficiency Index (EEI) | < 0.23 |
| Insulation Class | F |
| Protection Class | IP X4D |
| Temperature Class | TF 110 |
| Maximum System Pressure | PN10 |
| Sound Pressure | < 56 dB |
| Relative Humidity | < 90% |

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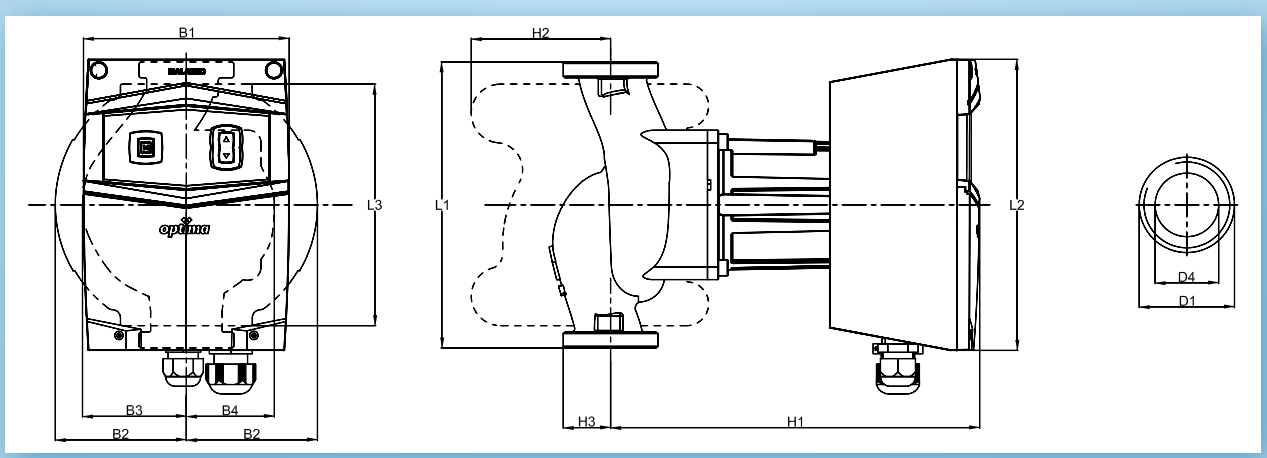
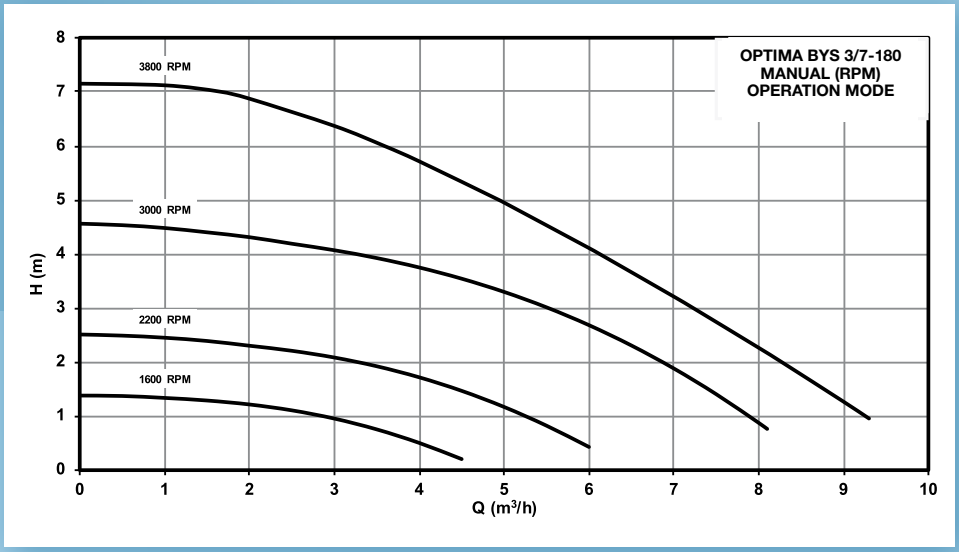
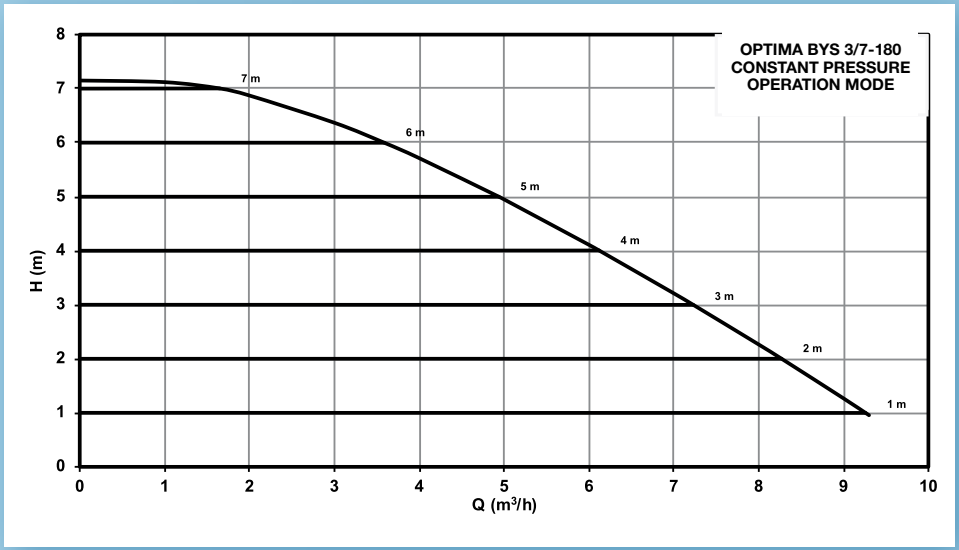
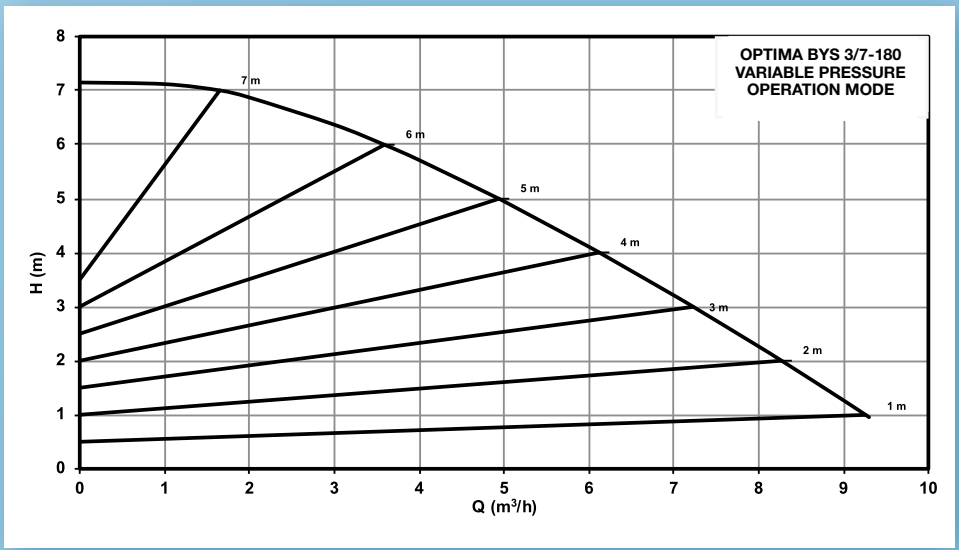



| | DIMENSIONS | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | D1 (mm) | D2 (mm) PN6 | D2 (mm) PN10 | D3 (mm) | D4 (mm) | n x Øm (mm) PN6 | n x Øm (mm) PN10 | B1 (mm) | B2 (mm) | B3 (mm) | B4 (mm) | L1 (mm) | L2 (mm) | L3 (mm) | H1 (mm) | H2 (mm) | H3 (mm) | Weight (kg) |
| OPTIMA BYS 3/7-180 | G2" | - | - | - | 30.0 | - | - | 129.5 | 82.5 | 65.3 | 55.7 | 180.0 | 183.0 | 152.0 | 232.6 | 77.5 | 29.8 | 6.2 |
| OPTIMA BYS 3/7-180 Br | G2" | - | - | - | 30.0 | - | - | 129.5 | 82.5 | 65.3 | 55.7 | 180.0 | 183.0 | 152.0 | 232.6 | 77.5 | 29.8 | 6.2 |

* Type 3/10-180 Br does not have VDE certificate.


OPTIMA BYS 3/7-180
MANUAL (RPM)
OPERATION MODE
3800 RPM
3000 RPM
2200 RPM
1600 RPM
H (m)
Q (m³/h)


OPTIMA BYS 3/7-180
CONSTANT PRESSURE
OPERATION MODE
7 m
6 m
5 m
4 m
3 m
2 m
1 m
H (m)
Q (m³/h)


OPTIMA BYS 3/7-180
VARIABLE PRESSURE
OPERATION MODE
7 m
6 m
5 m
4 m
3 m
2 m
1 m
H (m)
Q (m³/h)

# OPTIMA BYS
# 3/12-180
# 3/12-180 Br



| | |
|---|---|
| Maximum Pump Head [m] | According to pump type |
| Maximum Flow Rate [m³/h] | According to pump type |
| Engine Speed [rpm] | 1.800 – 4.900 |
| Input Voltage and Frequency | 1~ 230 V AC ± 10%, 50 Hz, PE |
| Nominal Current [A] | 1,34 |
| Power Drawn [W] | 16 – 300 |
| Energy Efficiency Index (EEI) | < 0.23 |
| Insulation Class | F |
| Protection Class | IP X4D |
| Temperature Class | TF 110 |
| Maximum System Pressure | PN10 |
| Sound Pressure | < 56 dB |
| Relative Humidity | < 90% |

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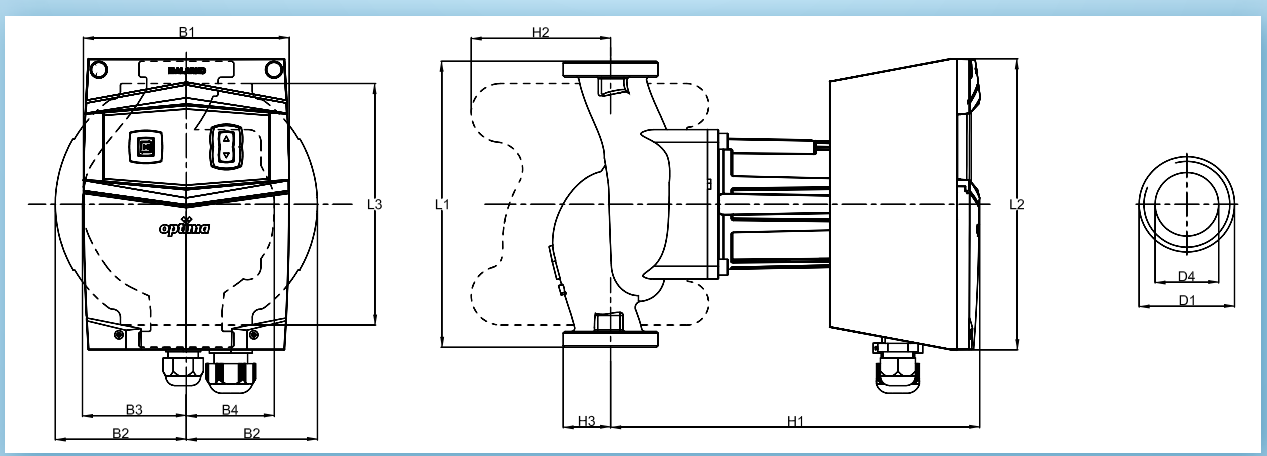
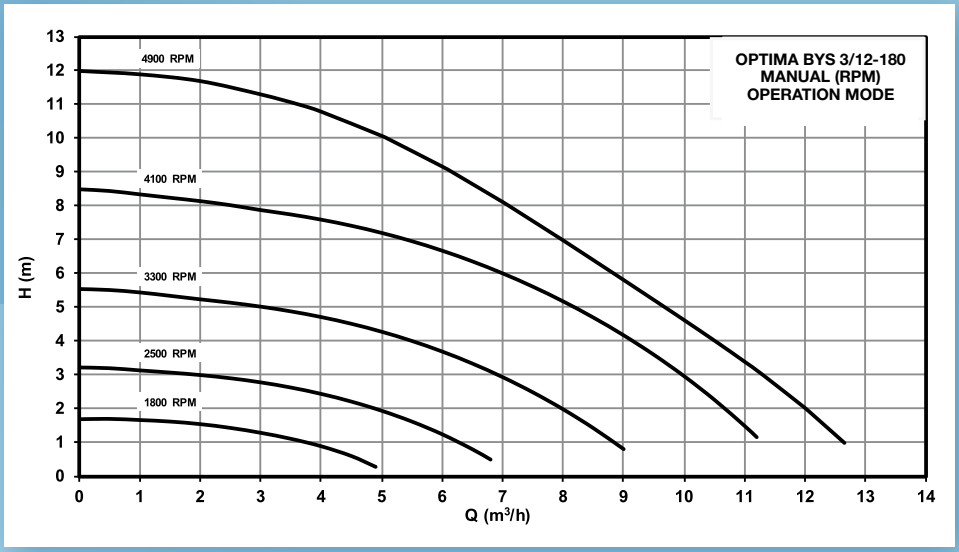
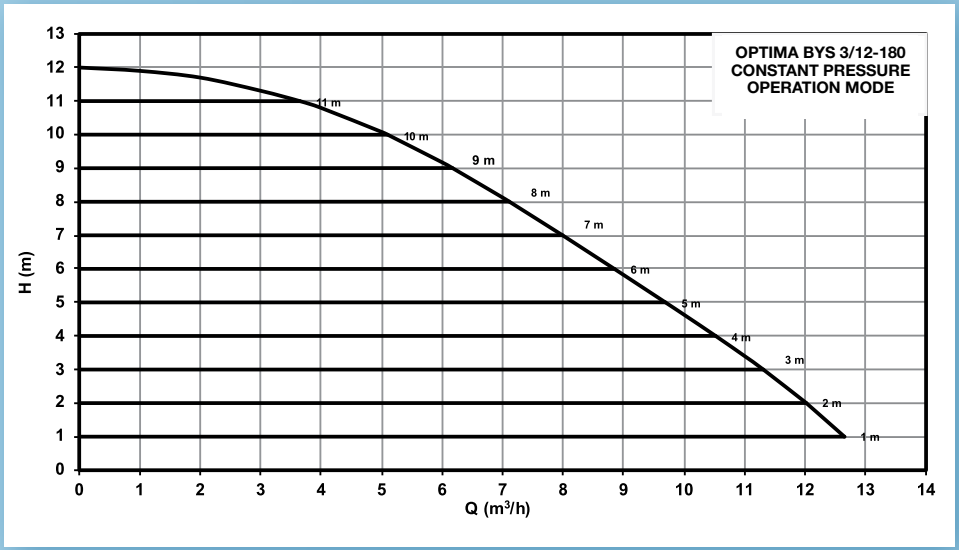
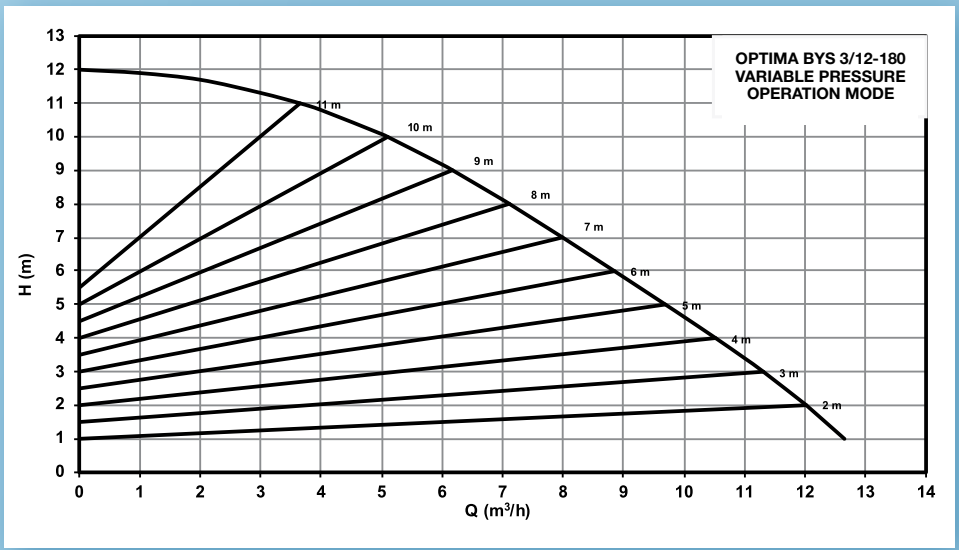



| | DIMENSIONS | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | D1 (mm) | D2 (mm) PN6 | D2 (mm) PN10 | D3 (mm) | D4 (mm) | n x Øm (mm) PN6 | n x Øm (mm) PN10 | B1 (mm) | B2 (mm) | B3 (mm) | B4 (mm) | L1 (mm) | L2 (mm) | L3 (mm) | H1 (mm) | H2 (mm) | H3 (mm) | Weight (kg) |
| OPTIMA BYS 3/12-180 | G2" | - | - | - | 30.0 | - | - | 129.5 | 82.5 | 65.3 | 55.7 | 180.0 | 183.0 | 152.0 | 233.0 | 77.5 | 29.8 | 6.5 |
| OPTIMA BYS 3/12-180 Br | G2" | - | - | - | 30.0 | - | - | 129.5 | 82.5 | 65.3 | 55.7 | 180.0 | 183.0 | 152.0 | 233.0 | 77.5 | 29.8 | 6.5 |


OPTIMA BYS 3/12-180
MANUAL (RPM)
OPERATION MODE
4900 RPM
4100 RPM
3300 RPM
2500 RPM
1800 RPM
H (m)
Q (m³/h)


OPTIMA BYS 3/12-180
CONSTANT PRESSURE
OPERATION MODE
11 m
10 m
9 m
8 m
7 m
6 m
5 m
4 m
3 m
2 m
1 m
H (m)
Q (m³/h)


OPTIMA BYS 3/12-180
VARIABLE PRESSURE
OPERATION MODE
11 m
10 m
9 m
8 m
7 m
6 m
5 m
4 m
3 m
2 m
H (m)
Q (m³/h)


# OPTIMA BYS 4/4

| | |
|---|---|
| Maximum Pump Head [m] | According to pump type |
| Maximum Flow Rate [m³/h] | According to pump type |
| Engine Speed [rpm] | 1.600 – 3.600 |
| Input Voltage and Frequency | 1~ 230 V AC ± 10%, 50 Hz, PE |
| Nominal Current [A] | 1 |
| Power Drawn [W] | 12 – 125 |
| Energy Efficiency Index (EEI) | < 0.23 |
| Insulation Class | F |
| Protection Class | IP X4D |
| Temperature Class | TF 110 |
| Maximum System Pressure | PN 6/10[1] |
| Sound Pressure | < 56 dB |
| Relative Humidity | < 90% |

[1] The pump is suitable for use at both pressure values.

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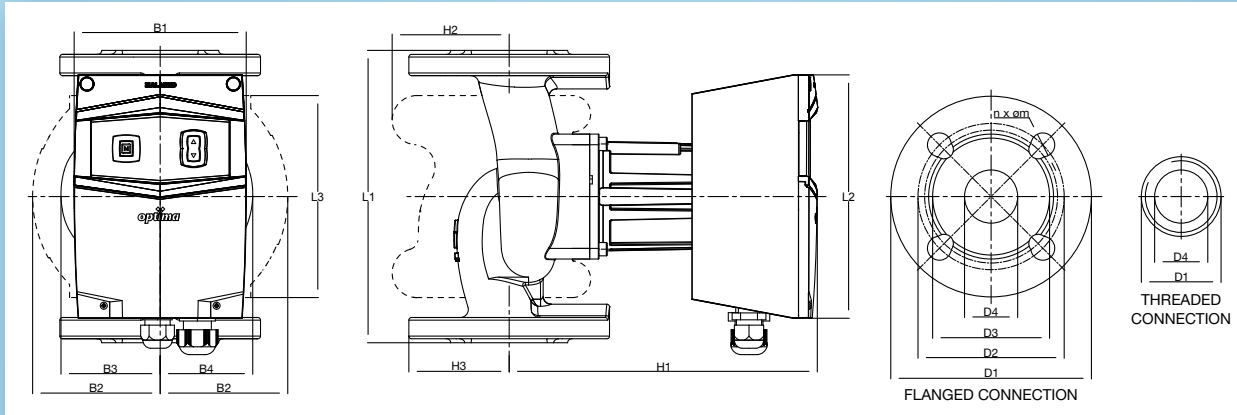
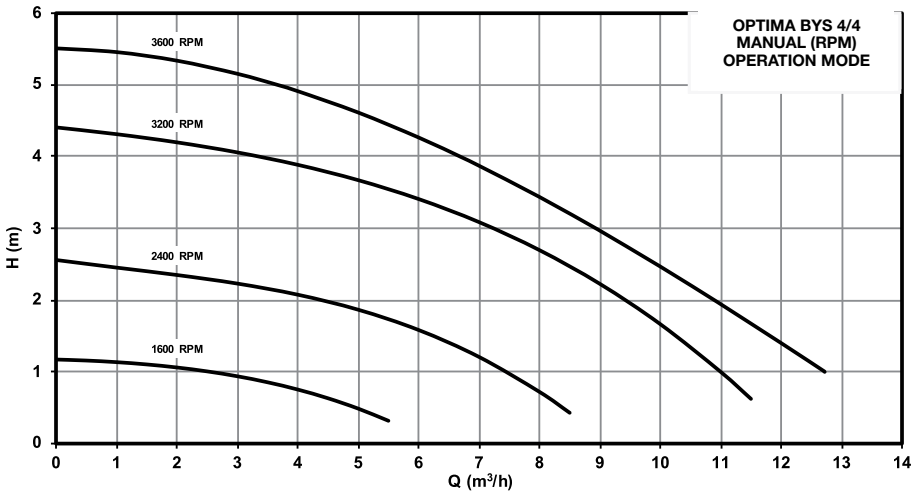
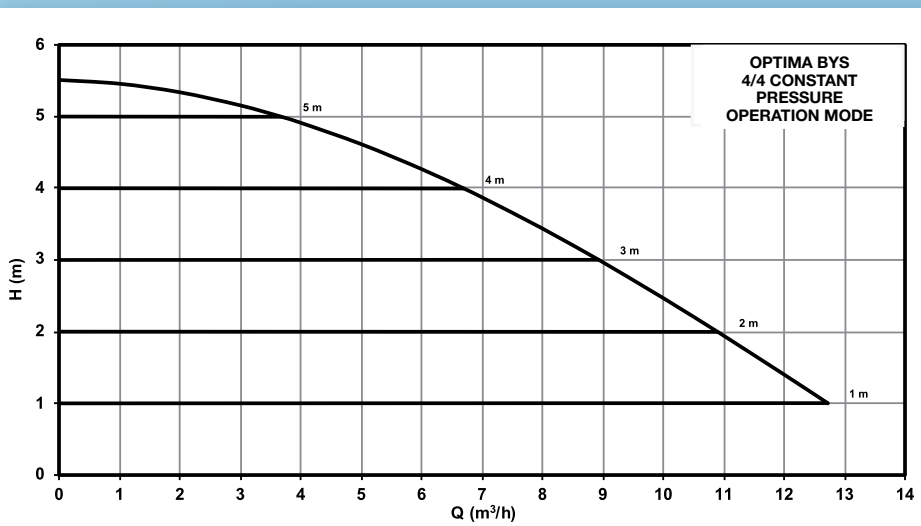
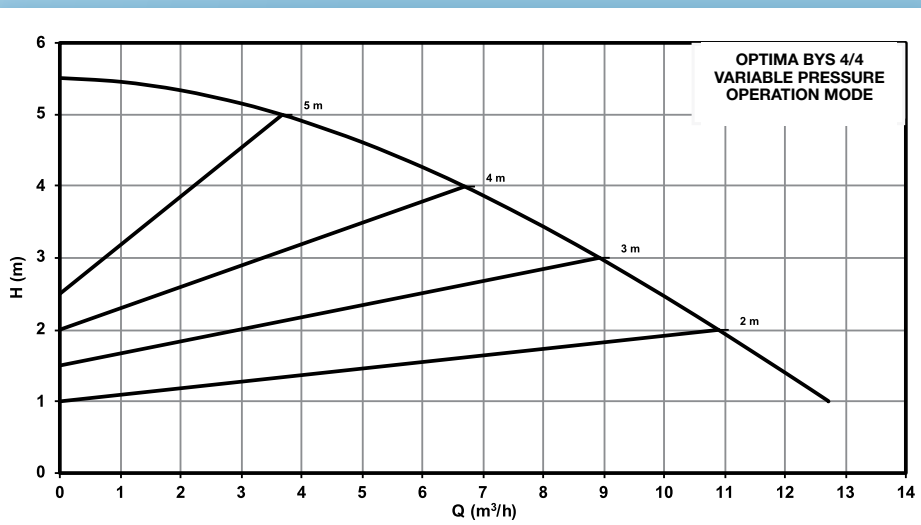
SAVE the NATURE




| | DIMENSIONS | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | D1 (mm) | D2 (mm) PN6 | D2 (mm) PN10 | D3 (mm) | D4 (mm) | n x Øm (mm) PN6 | n x Øm (mm) PN10 | B1 (mm) | B2 (mm) | B3 (mm) | B4 (mm) | L1 (mm) | L2 (mm) | L3 (mm) | H1 (mm) | H2 (mm) | H3 (mm) | Weight (kg) |
| OPTIMA BYS 4/4 | 151.0 | 100.0 | 110.0 | 88.0 | 40.0 | 4x14 | 4x18 | 129.5 | 96.0 | 69.7 | 57.5 | 220.0 | 183.0 | 152.0 | 232.3 | 88.0 | 75.5 | 12 |


OPTIMA BYS 4/4
MANUAL (RPM)
OPERATION MODE
3600 RPM
3200 RPM
2400 RPM
1600 RPM
H (m)
Q (m³/h)


OPTIMA BYS
4/4 CONSTANT
PRESSURE
OPERATION MODE
5 m
4 m
3 m
2 m
1 m
H (m)
Q (m³/h)


OPTIMA BYS 4/4
VARIABLE PRESSURE
OPERATION MODE
5 m
4 m
3 m
2 m
H (m)
Q (m³/h)


# OPTIMA 4/12

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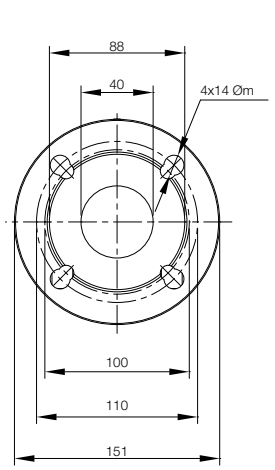
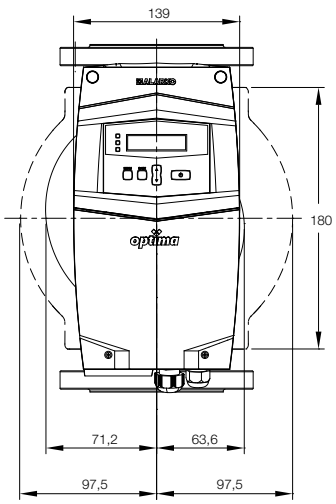
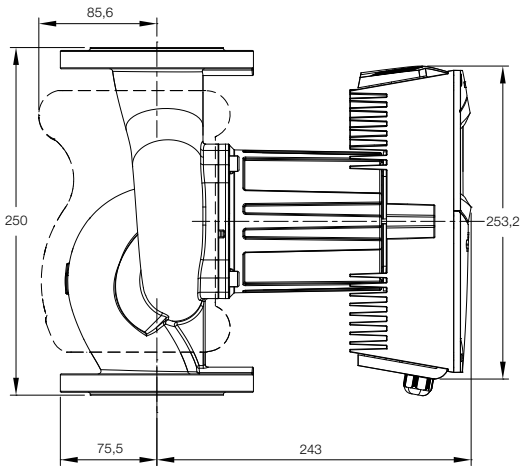
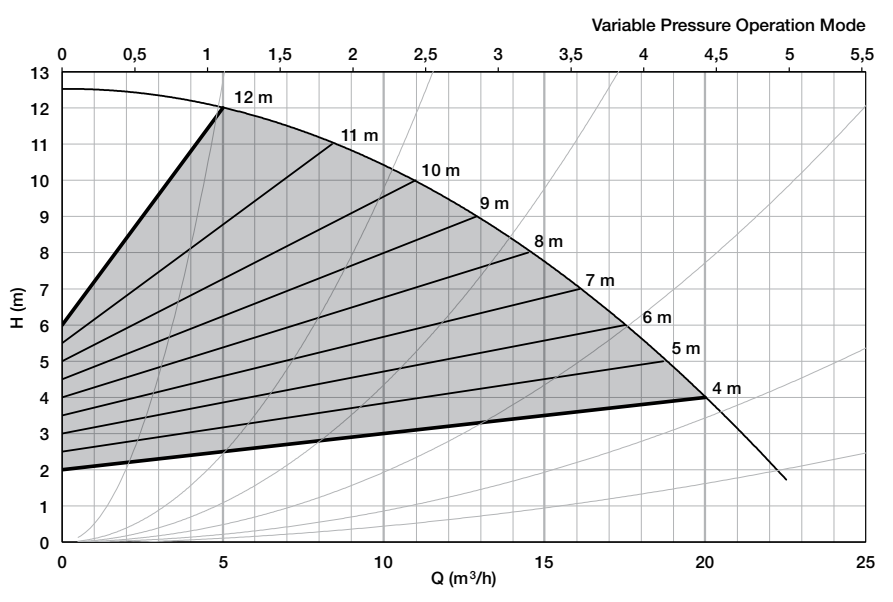
| | |
|---|---|
| Maximum Pump Head [m] | Pompa tipine göre |
| Maximum Flow Rate [m³/h] | Pompa tipine göre |
| Engine Speed [rpm] | 1.400 – 4.600 |
| Input Voltage and Frequency | 1~ 230 V AC ± 10%, 50 Hz, PE (ground protection) |
| Nominal Current [A] | 2.5 |
| Power Drawn [W] | 33 – 550 |
| Energy Efficiency Index (EEI) | < 0.23 |
| Insulation Class | F |
| Protection Class | IP 44 |
| Temperature Class | TF 110 |
| Maximum System Pressure | PN 6/10 [1] |
| Sound Pressure | < 56 dB (according to type) |
| Relative Humidity | < 90% |
| Weight | 14 kg |

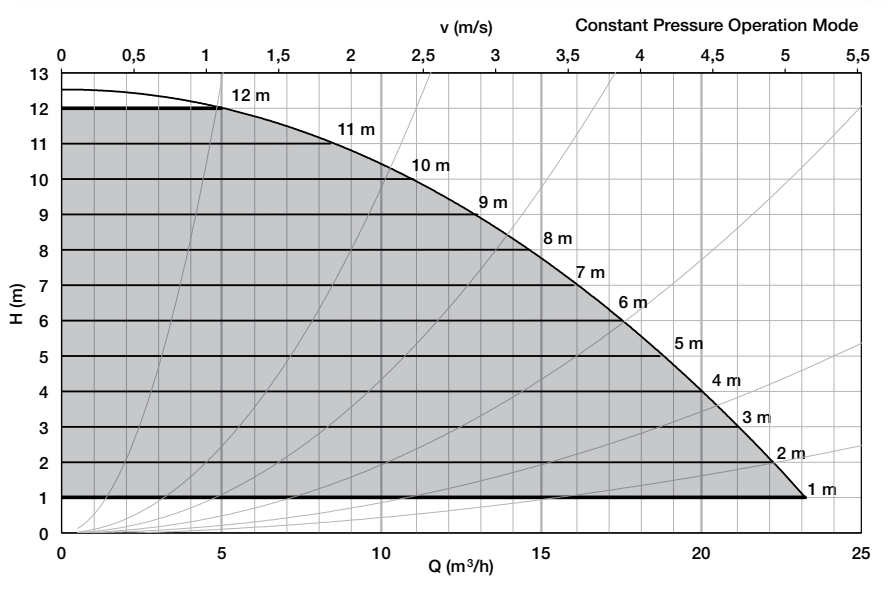
[1] The pump is suitable for use at both pressure values.

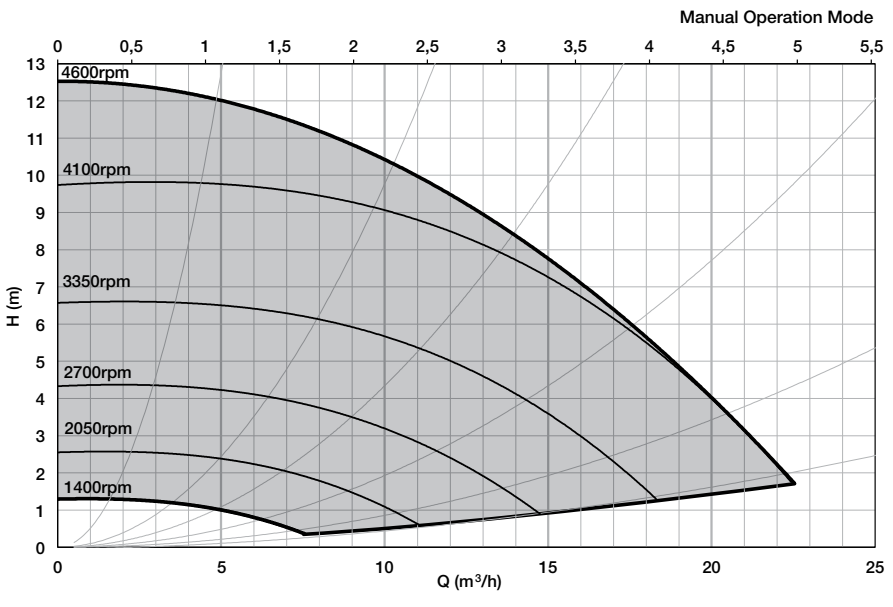



Variable Pressure Operation Mode
H (m)
Q (m³/h)
12 m
11 m
10 m
9 m
8 m
7 m
6 m
5 m
4 m


v (m/s)
Constant Pressure Operation Mode
H (m)
Q (m³/h)
12 m
11 m
10 m
9 m
8 m
7 m
6 m
5 m
4 m
3 m
2 m
1 m


Manual Operation Mode
H (m)
Q (m³/h)
4600rpm
4100rpm
3350rpm
2700rpm
2050rpm
1400rpm

OPTIMA 4/12


# OPTIMA BYS
# 4/8
# 5/8

| | |
|---|---|
| Maximum Pump Head [m] | According to pump type |
| Maximum Flow Rate [m³/h] | According to pump type |
| Engine Speed [rpm] | 1.800 – 4.600 |
| Input Voltage and Frequency | 1~ 230 V AC ± 10%, 50 Hz, PE |
| Nominal Current [A] | 1.35 |
| Power Drawn [W] | 15 – 300 |
| Energy Efficiency Index (EEI) | < 0.23 |
| Insulation Class | F |
| Protection Class | IP X4D |
| Temperature Class | TF 110 |
| Maximum System Pressure | PN 6/10[1] |
| Sound Pressure | < 56 dB |
| Relative Humidity | < 90% |

[1] The pump is suitable for use at both pressure values.

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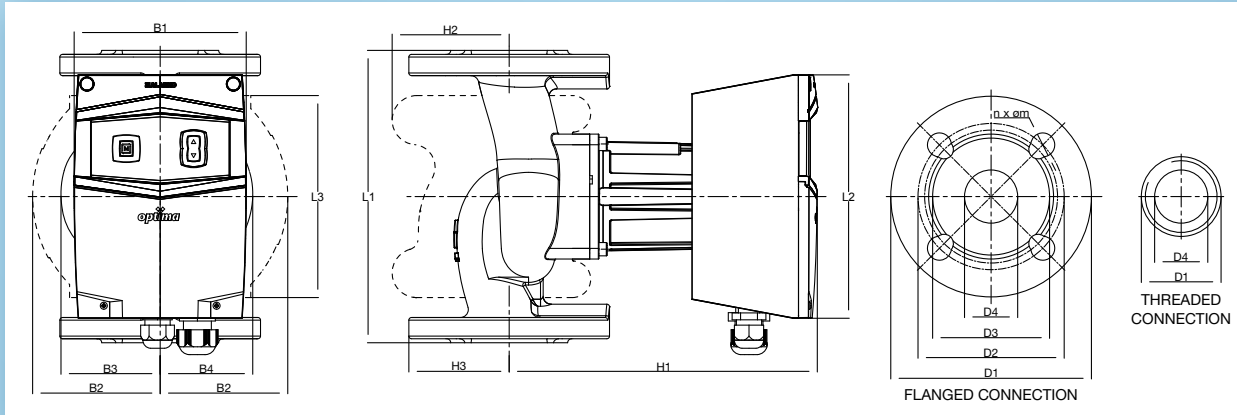
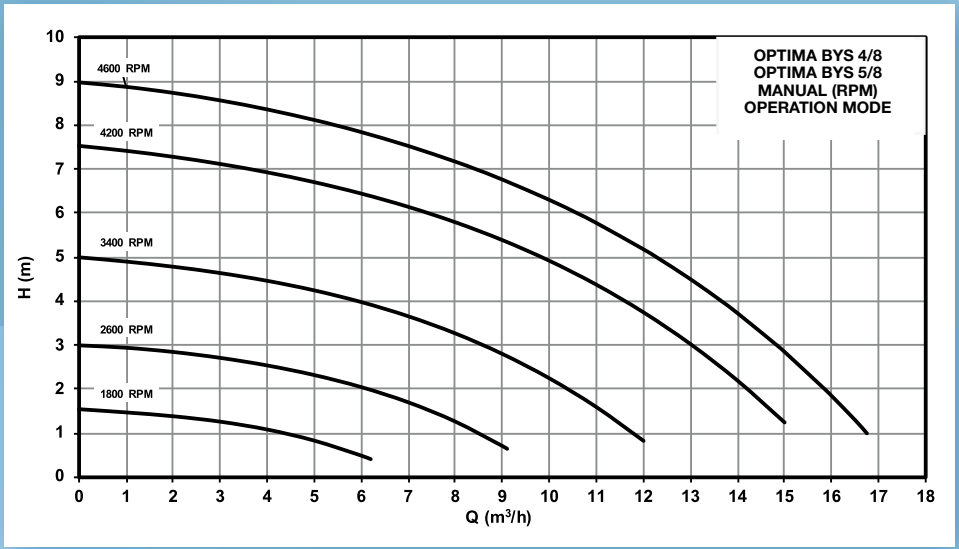
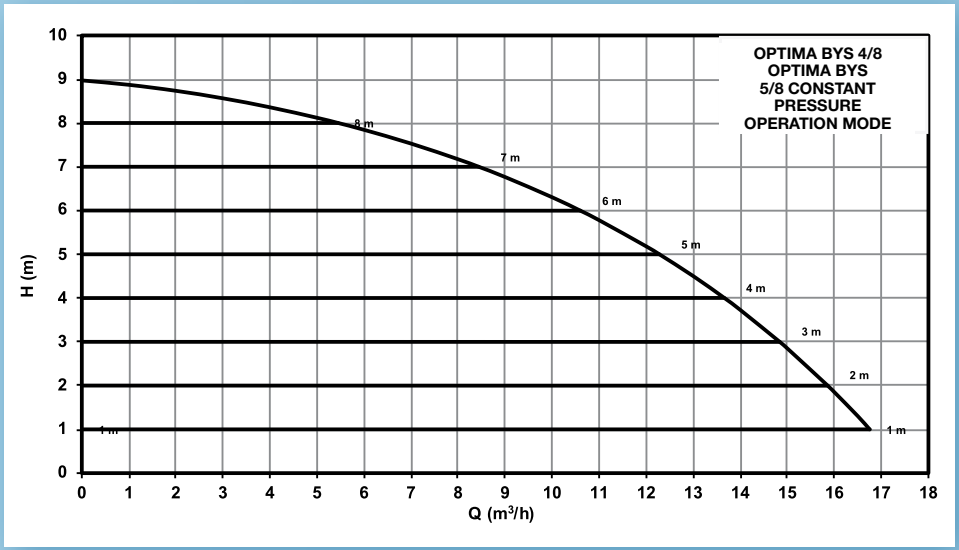
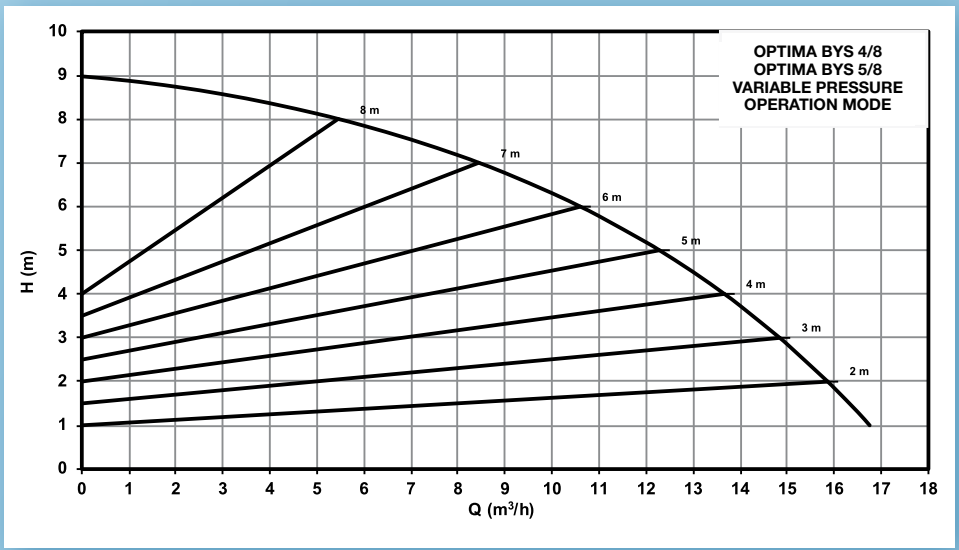



| | DIMENSIONS | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | D1 (mm) | D2 (mm) PN6 | D2 (mm) PN10 | D3 (mm) | D4 (mm) | n x Øm (mm) PN6 | n x Øm (mm) PN10 | B1 (mm) | B2 (mm) | B3 (mm) | B4 (mm) | L1 (mm) | L2 (mm) | L3 (mm) | H1 (mm) | H2 (mm) | H3 (mm) | Weight (kg) |
| OPTIMA BYS 4/8 | 151.0 | 100.0 | 110.0 | 88.0 | 40.0 | 4x14 | 4x18 | 129.5 | 96.0 | 69.7 | 57.5 | 220.0 | 183.0 | 152.0 | 232.0 | 88.0 | 75.5 | 12 |
| OPTIMA BYS 5/8 | 166.0 | 110.0 | 125.0 | 102.0 | 50.0 | 4x14 | 4x18 | 129.5 | 96.0 | 69.7 | 57.5 | 240.0 | 183.0 | 152.0 | 232.0 | 88.0 | 83.0 | 12 |


OPTIMA BYS 4/8
OPTIMA BYS 5/8
MANUAL (RPM)
OPERATION MODE
4600 RPM
4200 RPM
3400 RPM
2600 RPM
1800 RPM
H (m)
Q (m³/h)


OPTIMA BYS 4/8
OPTIMA BYS
5/8 CONSTANT
PRESSURE
OPERATION MODE
8 m
7 m
6 m
5 m
4 m
3 m
2 m
1 m
H (m)
Q (m³/h)


OPTIMA BYS 4/8
OPTIMA BYS 5/8
VARIABLE PRESSURE
OPERATION MODE
8 m
7 m
6 m
5 m
4 m
3 m
2 m
H (m)
Q (m³/h)


# OPTIMA 4/18

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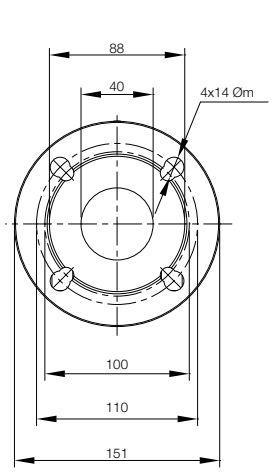
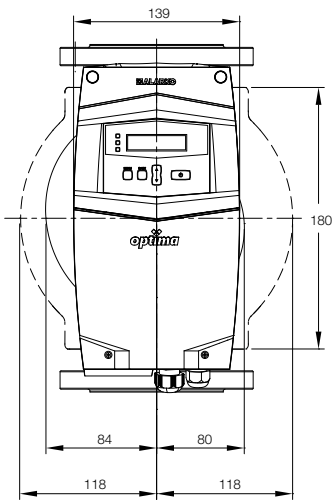
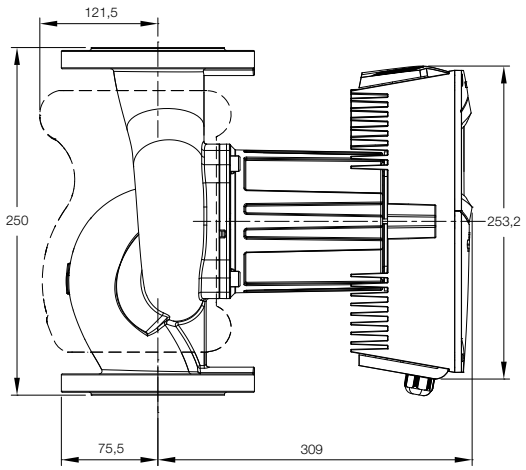
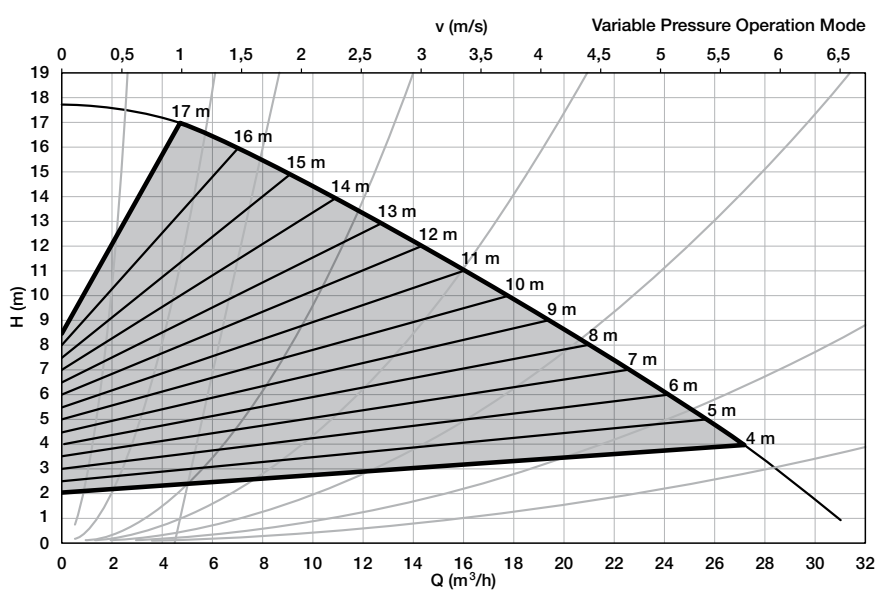
| | |
|---|---|
| Maximum Pump Head [m] | According to pump type |
| Maximum Flow Rate [m³/h] | According to pump type |
| Engine Speed [rpm] | 900 – 3.600 |
| Input Voltage and Frequency | 1~ 230 V AC ± 10%, 50 Hz, PE (ground protection) |
| Nominal Current [A] | 4 |
| Power Drawn [W] | 25 – 880 |
| Energy Efficiency Index (EEI) | < 0.23 |
| Insulation Class | F |
| Protection Class | IP 44 |
| Temperature Class | TF 110 |
| Maximum System Pressure | PN 6/10 [1] |
| Sound Pressure | < 56 dB (according to type) |
| Relative Humidity | < 90% |
| Weight | 21.2 kg |

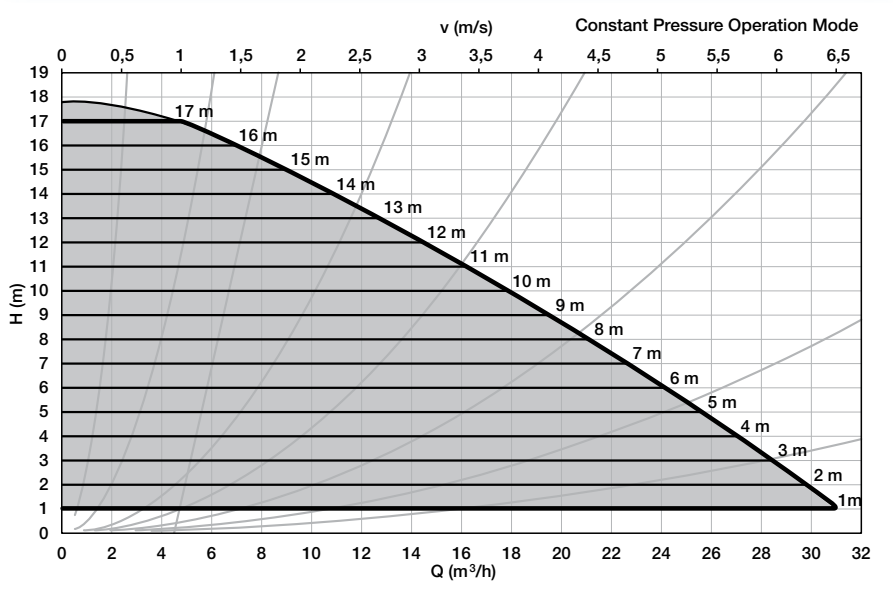
[1] The pump is suitable for use at both pressure values.

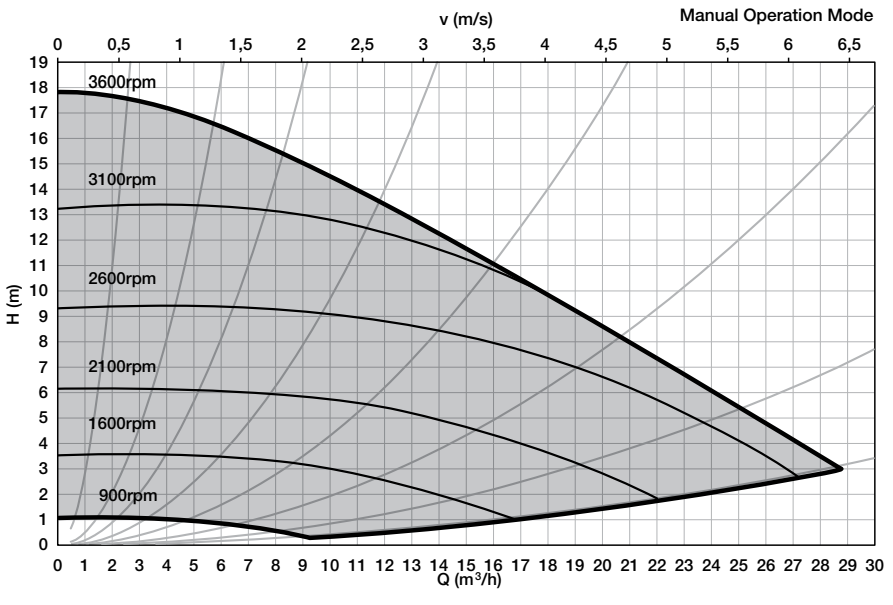



Variable Pressure Operation Mode
v (m/s)
0 0,5 1 1,5 2 2,5 3 3,5 4 4,5 5 5,5 6 6,5
H (m)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
17 m
16 m
15 m
14 m
13 m
12 m
11 m
10 m
9 m
8 m
7 m
6 m
5 m
4 m
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32
Q (m³/h)


Constant Pressure Operation Mode
v (m/s)
0 0,5 1 1,5 2 2,5 3 3,5 4 4,5 5 5,5 6 6,5
H (m)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
17 m
16 m
15 m
14 m
13 m
12 m
11 m
10 m
9 m
8 m
7 m
6 m
5 m
4 m
3 m
2 m
1m
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32
Q (m³/h)


Manual Operation Mode
v (m/s)
0 0,5 1 1,5 2 2,5 3 3,5 4 4,5 5 5,5 6 6,5
H (m)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
3600rpm
3100rpm
2600rpm
2100rpm
1600rpm
900rpm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Q (m³/h)

OPTIMA 4/18


# OPTIMA 5/9

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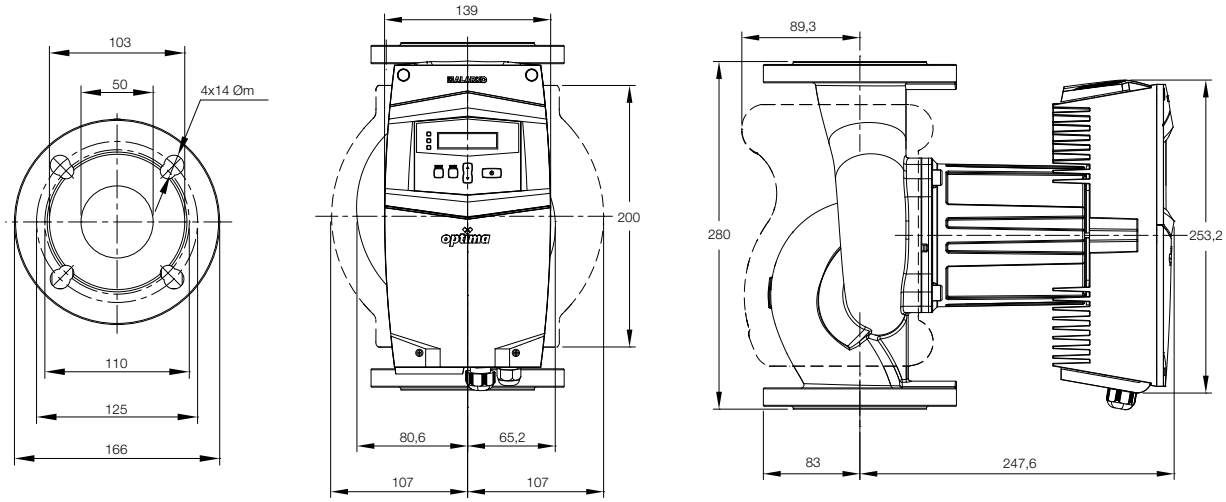
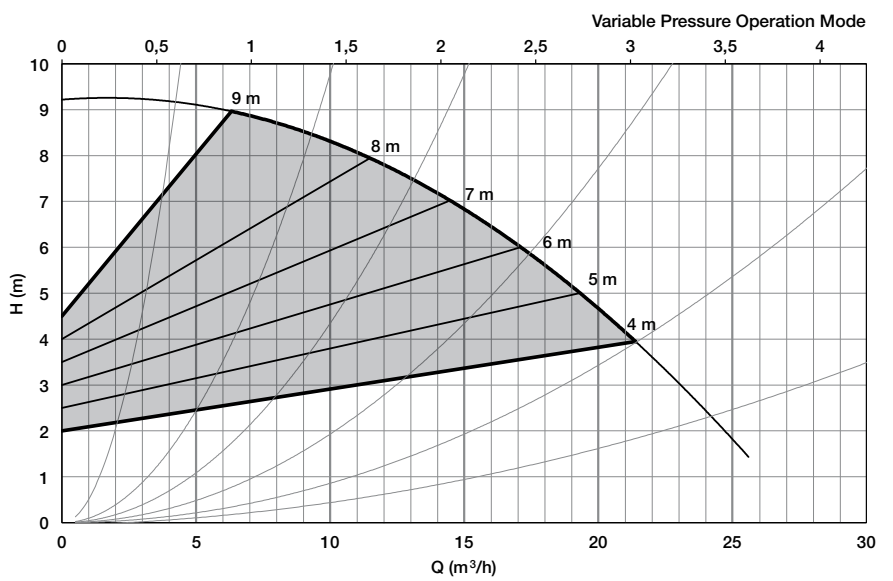
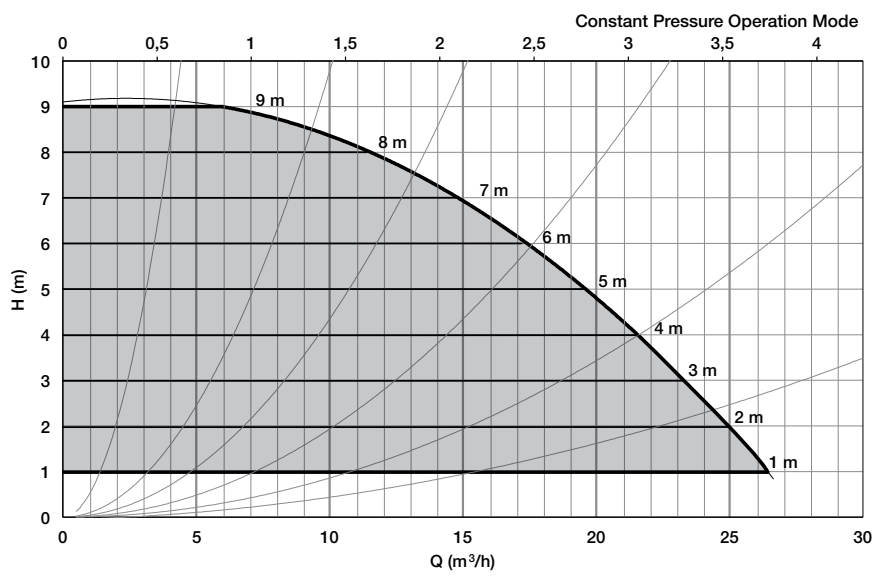
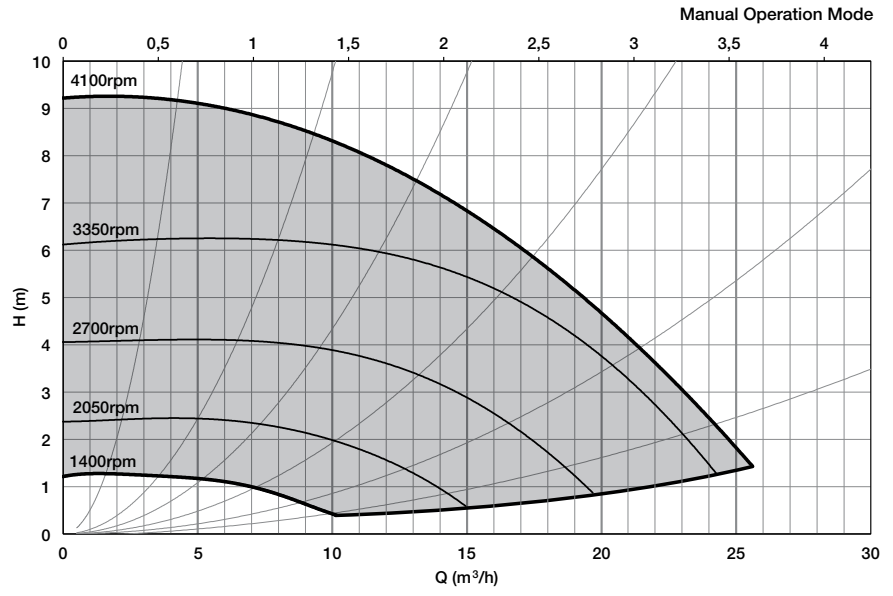
| | |
|---|---|
| Maximum Pump Head [m] | According to pump type |
| Maximum Flow Rate [m³/h] | According to pump type |
| Engine Speed [rpm] | 1.400 – 4.100 |
| Input Voltage and Frequency | 1~ 230 V AC ± 10%, 50 Hz, PE (ground protection) |
| Nominal Current [A] | 2.3 |
| Power Drawn [W] | 40 – 505 |
| Energy Efficiency Index (EEI) | < 0.23 |
| Insulation Class | F |
| Protection Class | IP 44 |
| Temperature Class | TF 110 |
| Maximum System Pressure | PN 6/10 (1) |
| Sound Pressure | < 56 dB (according to type) |
| Relative Humidity | < 90% |
| Weight | 15 kg |

¹ The pump is suitable for use at both pressure values.




Variable Pressure Operation Mode
H (m)
Q (m³/h)
9 m
8 m
7 m
6 m
5 m
4 m


Constant Pressure Operation Mode
H (m)
Q (m³/h)
9 m
8 m
7 m
6 m
5 m
4 m
3 m
2 m
1 m


Manual Operation Mode
H (m)
Q (m³/h)
4100rpm
3350rpm
2700rpm
2050rpm
1400rpm

OPTIMA 5/9


# OPTIMA 5/10

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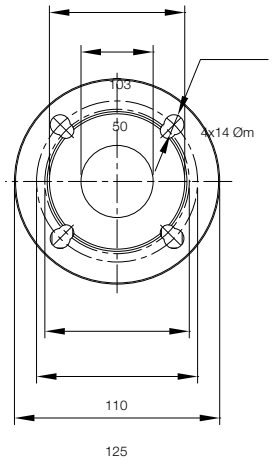
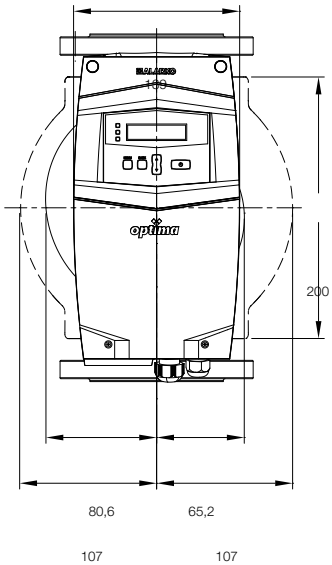
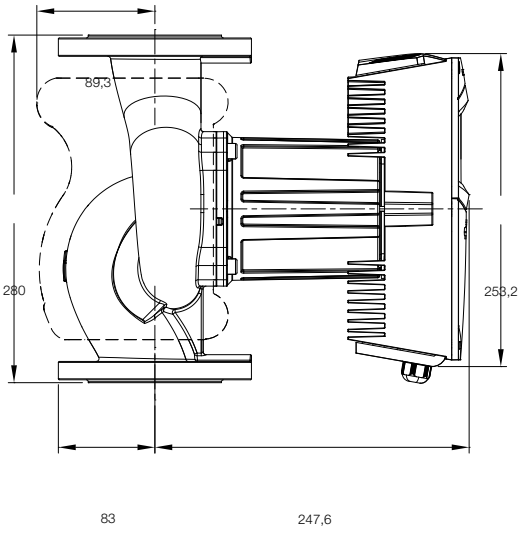
| | |
|---|---|
| Maximum Pump Head [m] | According to pump type |
| Maximum Flow Rate [m³/h] | According to pump type |
| Engine Speed [rpm] | 1.400 – 4.100 |
| Input Voltage and Frequency | 1~ 230 V AC ± 10%, 50 Hz, PE (ground protection) |
| Nominal Current [A] | 2.3 |
| Power Drawn [W] | 40 – 505 |
| Energy Efficiency Index (EEI) | < 0.23 |
| Insulation Class | F |
| Protection Class | IP 44 |
| Temperature Class | TF 110 |
| Maximum System Pressure | PN 6/10 [1] |
| Sound Pressure | < 56 dB (according to type) |
| Relative Humidity | < 90% |
| Weight | 15 kg |

[1] The pump is suitable for use at both pressure values.

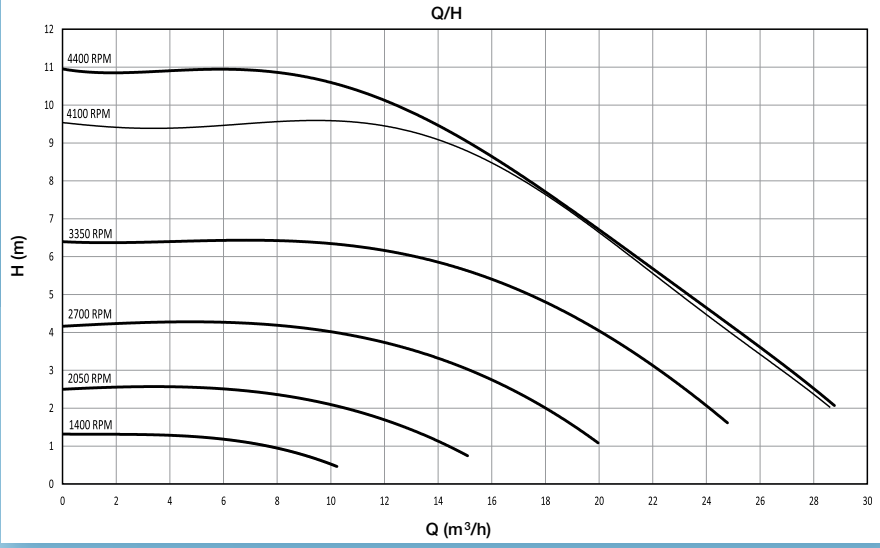


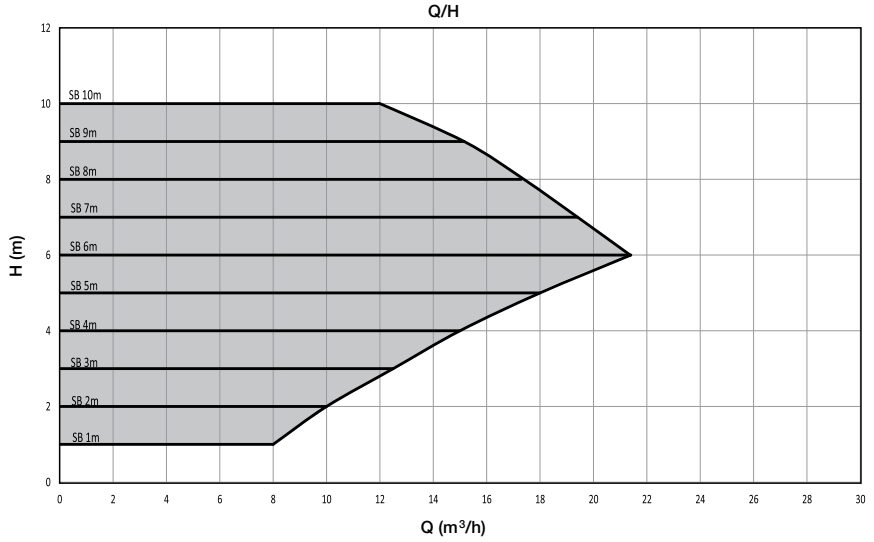




**DOES NOT HAVE VDE CERTIFICATE.**

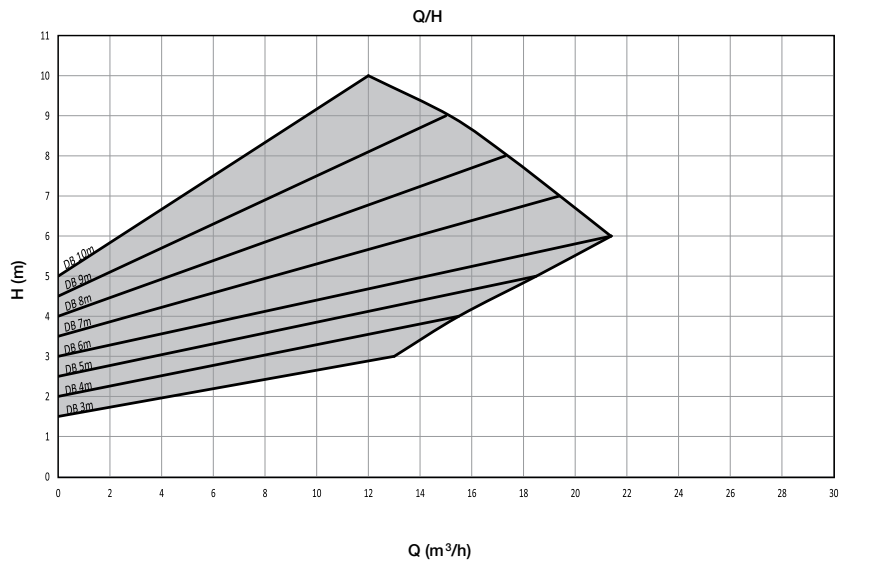
## Constant Speed Performance Curves




## Constant Pressure Performance Curves




## Variable Pressure Performance Curves




OPTIMA 5/10


# OPTIMA 5/12

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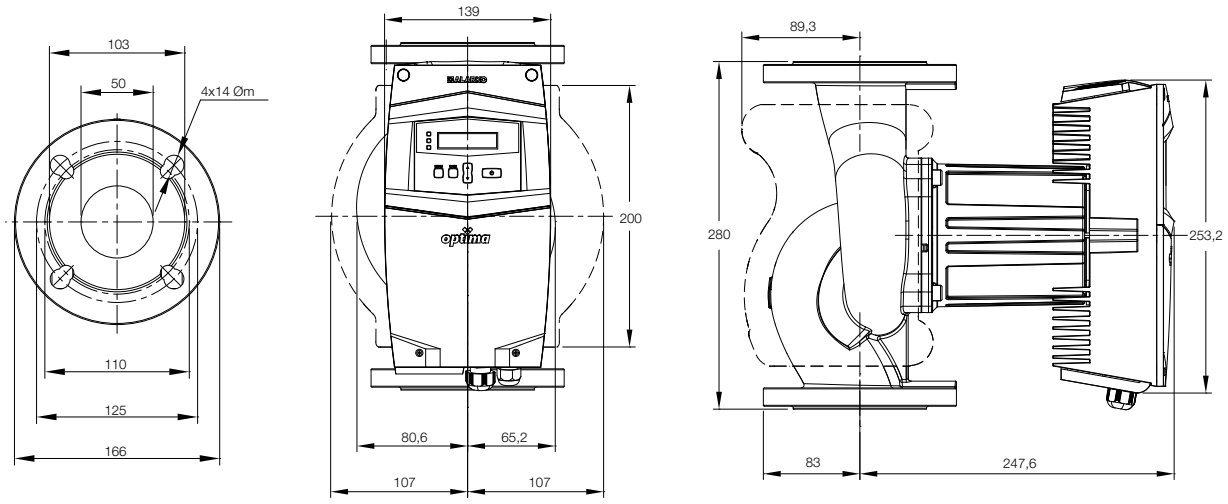
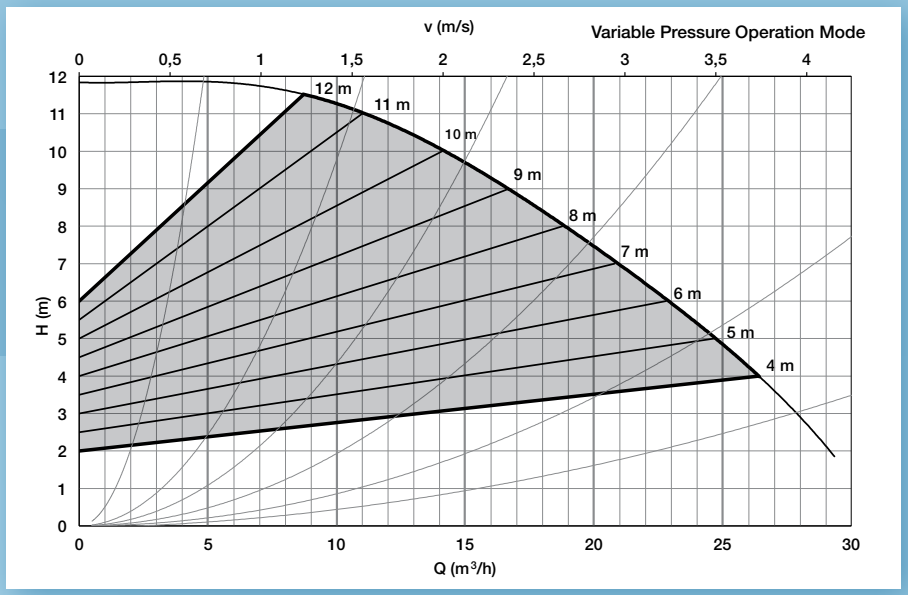
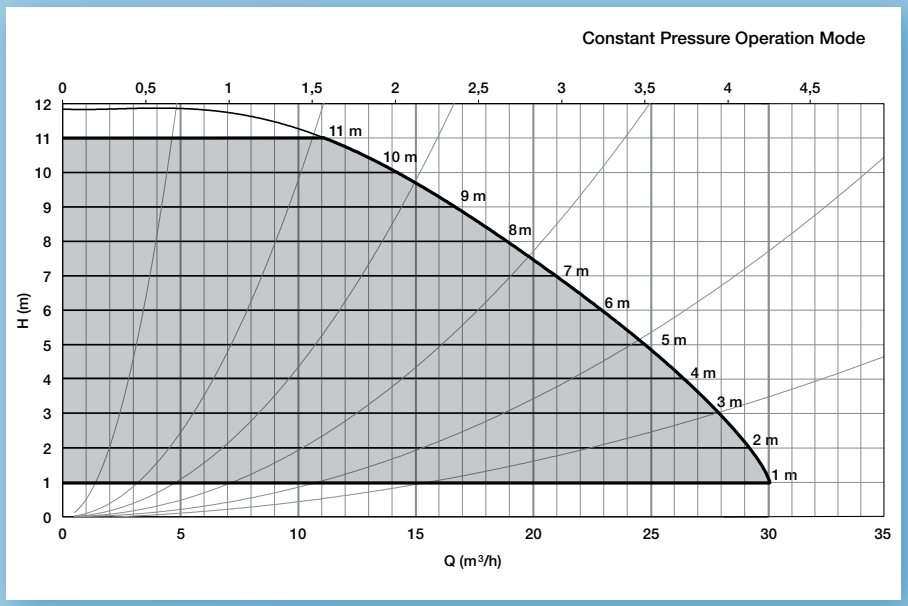
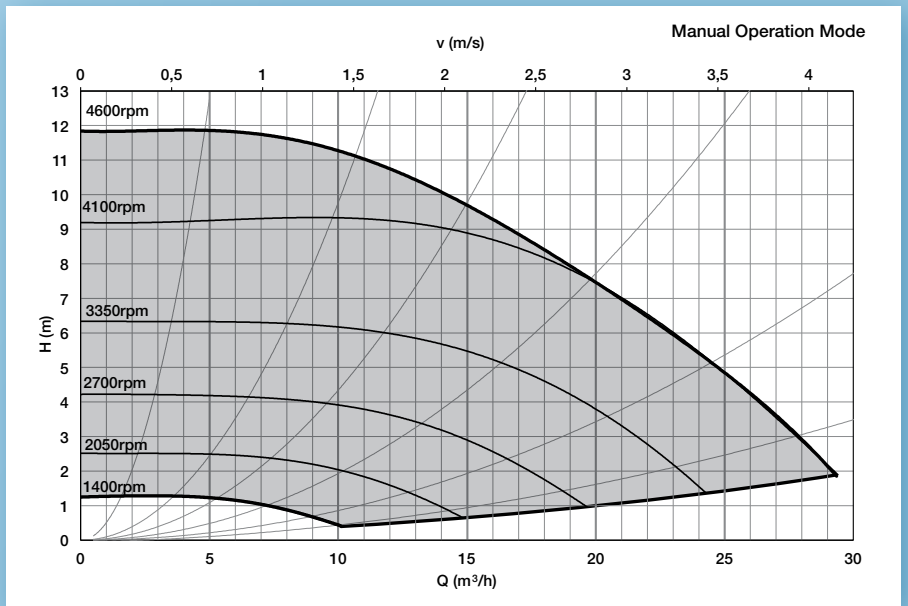
| | |
|---|---|
| Maximum Pump Head [m] | According to pump type |
| Maximum Flow Rate [m³/h] | According to pump type |
| Engine Speed [rpm] | 1.400 – 4.600 |
| Input Voltage and Frequency | 1~ 230 V AC ± 10%, 50 Hz, PE (ground protection) |
| Nominal Current [A] | 3.3 |
| Power Drawn [W] | 26 – 730 |
| Energy Efficiency Index (EEI) | < 0.23 |
| Insulation Class | F |
| Protection Class | IP 44 |
| Temperature Class | TF 110 |
| Maximum System Pressure | PN 6/10 [1] |
| Sound Pressure | < 56 dB (according to type) |
| Relative Humidity | < 90% |
| Weight | 15 kg |

[1] The pump is suitable for use at both pressure values.




Variable Pressure Operation Mode
v (m/s)
0 0,5 1 1,5 2 2,5 3 3,5 4
12 m
11 m
10 m
9 m
8 m
7 m
6 m
5 m
4 m
H (m)
0 1 2 3 4 5 6 7 8 9 10 11 12
0 5 10 15 20 25 30
Q (m³/h)


Constant Pressure Operation Mode
0 0,5 1 1,5 2 2,5 3 3,5 4 4,5
11 m
10 m
9 m
8m
7 m
6 m
5 m
4 m
3 m
2 m
1 m
H (m)
0 1 2 3 4 5 6 7 8 9 10 11 12
0 5 10 15 20 25 30 35
Q (m³/h)


Manual Operation Mode
v (m/s)
0 0,5 1 1,5 2 2,5 3 3,5 4
4600rpm
4100rpm
3350rpm
2700rpm
2050rpm
1400rpm
H (m)
0 1 2 3 4 5 6 7 8 9 10 11 12 13
0 5 10 15 20 25 30
Q (m³/h)

OPTIMA 5/12


# OPTIMA 5/18

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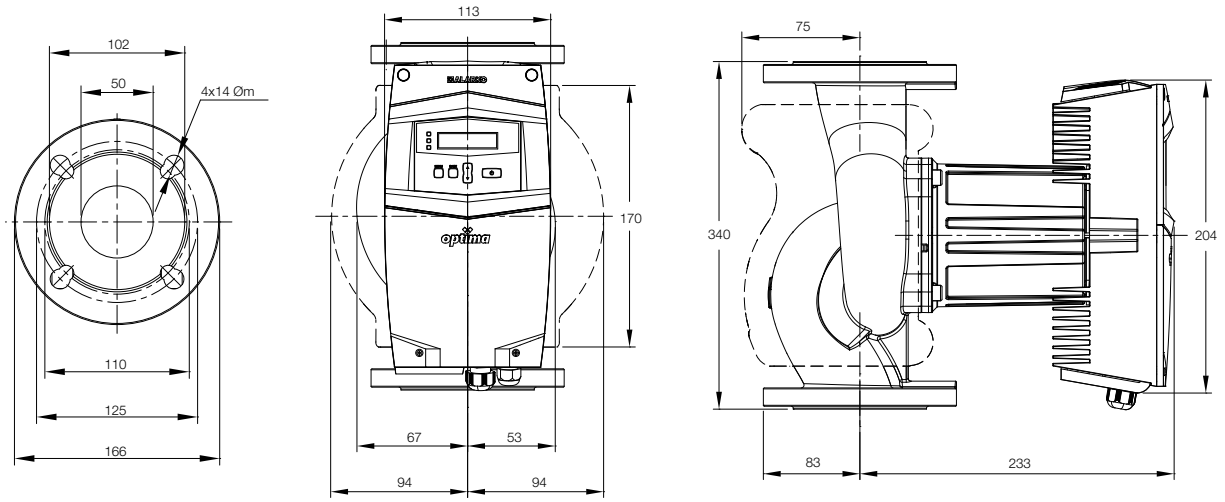
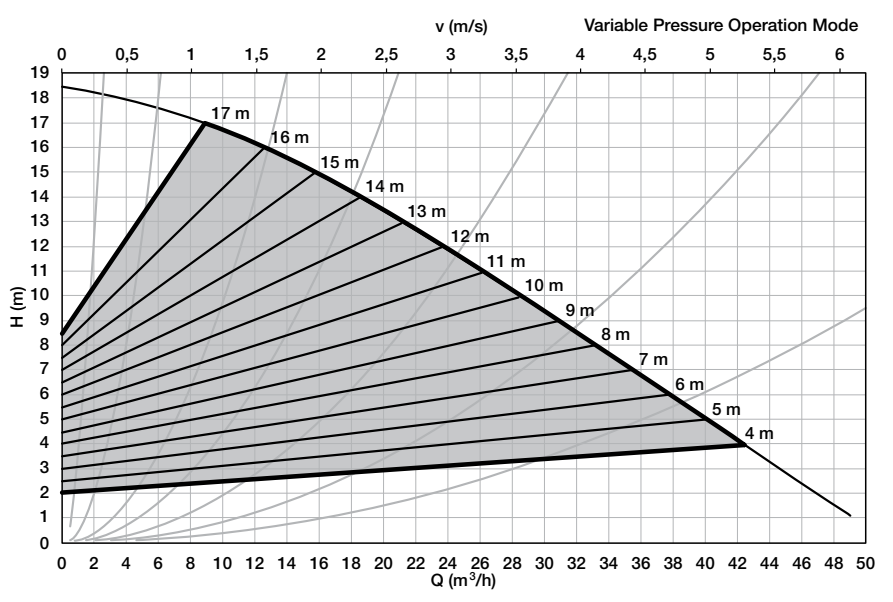
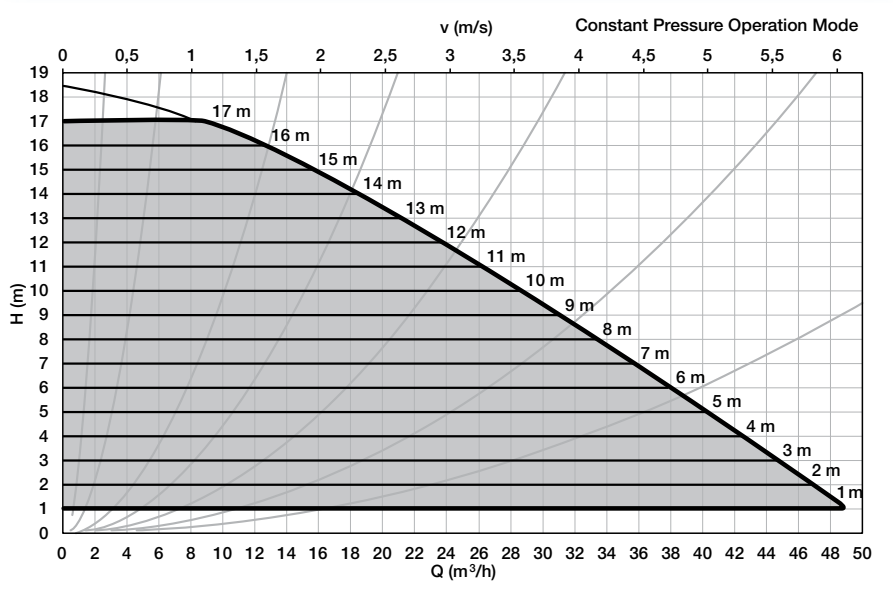
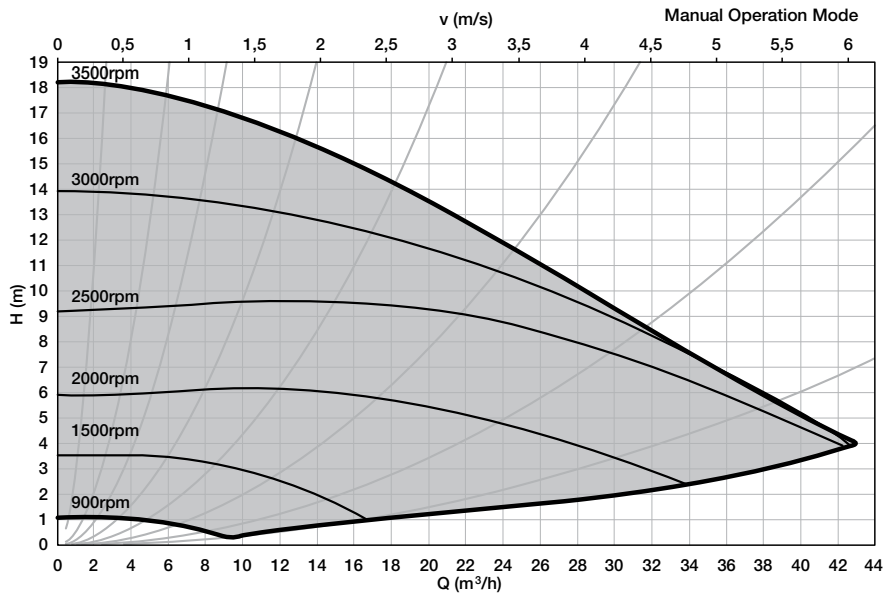
| | |
|---|---|
| Maximum Pump Head [m] | According to pump type |
| Maximum Flow Rate [m³/h] | According to pump type |
| Engine Speed [rpm] | 900 – 3.500 |
| Input Voltage and Frequency | 1~ 230 V AC ± 10%, 50 Hz, PE (ground protection) |
| Nominal Current [A] | 5.9 |
| Power Drawn [W] | 36 – 1310 |
| Energy Efficiency Index (EEI) | < 0.23 |
| Insulation Class | F |
| Protection Class | IP 44 |
| Temperature Class | TF 110 |
| Maximum System Pressure | PN 6/10 (1) |
| Sound Pressure | < 56 dB (according to type) |
| Relative Humidity | < 90% |
| Weight | 25.8 kg |

¹ The pump is suitable for use at both pressure values.




v (m/s)
Variable Pressure Operation Mode
H (m)
Q (m³/h)
17 m
16 m
15 m
14 m
13 m
12 m
11 m
10 m
9 m
8 m
7 m
6 m
5 m
4 m


v (m/s)
Constant Pressure Operation Mode
H (m)
Q (m³/h)
17 m
16 m
15 m
14 m
13 m
12 m
11 m
10 m
9 m
8 m
7 m
6 m
5 m
4 m
3 m
2 m
1 m


v (m/s)
Manual Operation Mode
H (m)
Q (m³/h)
3500rpm
3000rpm
2500rpm
2000rpm
1500rpm
900rpm

OPTIMA 5/18

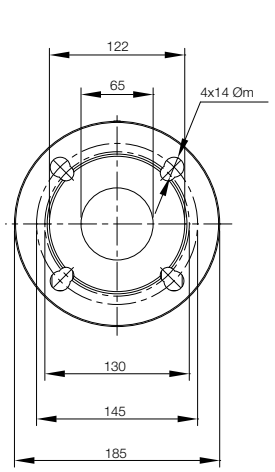

# OPTIMA 6/9

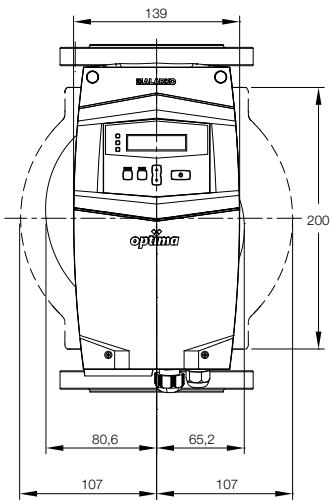
ErP READY

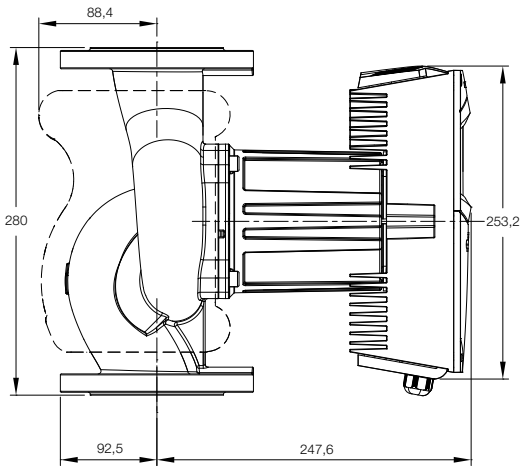
optima
LOW ENERGY CONSUMPTION
SAVE the NATURE

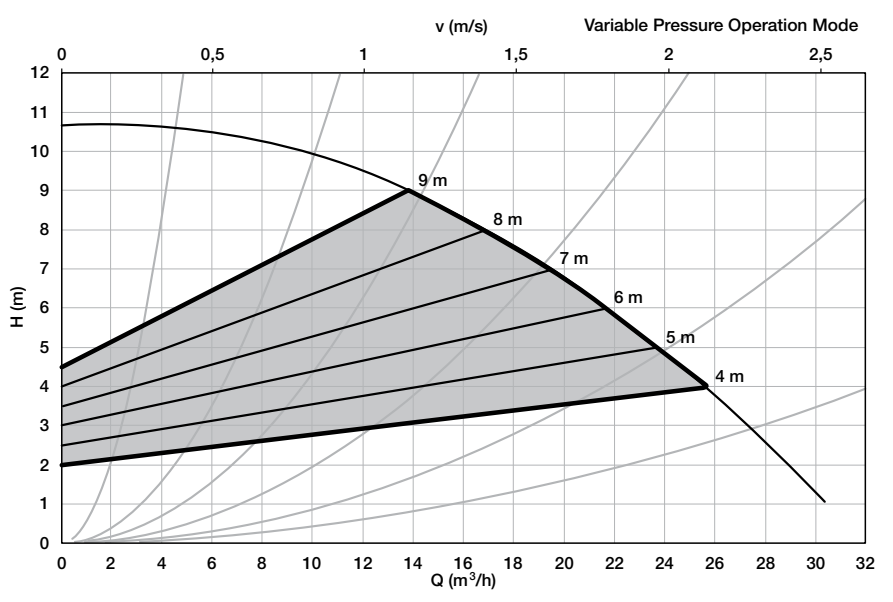
| | |
|---|---|
| Maximum Pump Head [m] | According to pump type |
| Maximum Flow Rate [m³/h] | According to pump type |
| Engine Speed [rpm] | 1.400 – 4.400 |
| Input Voltage and Frequency | 1~ 230 V AC ± 10%, 50 Hz, PE (ground protection) |
| Nominal Current [A] | 2.9 |
| Power Drawn [W] | 23 – 640 |
| Energy Efficiency Index (EEI) | < 0.23 |
| Insulation Class | F |
| Protection Class | IP 44 |
| Temperature Class | TF 110 |
| Maximum System Pressure | PN 6/10 (1) |
| Sound Pressure | < 56 dB (according to type) |
| Relative Humidity | < 90% |
| Weight | 16.8 kg |

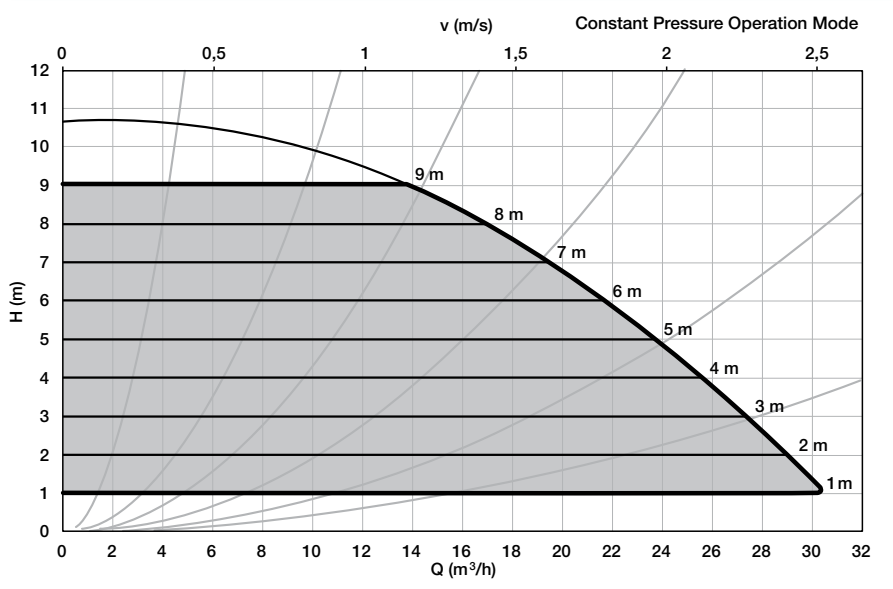
¹ The pump is suitable for use at both pressure values.

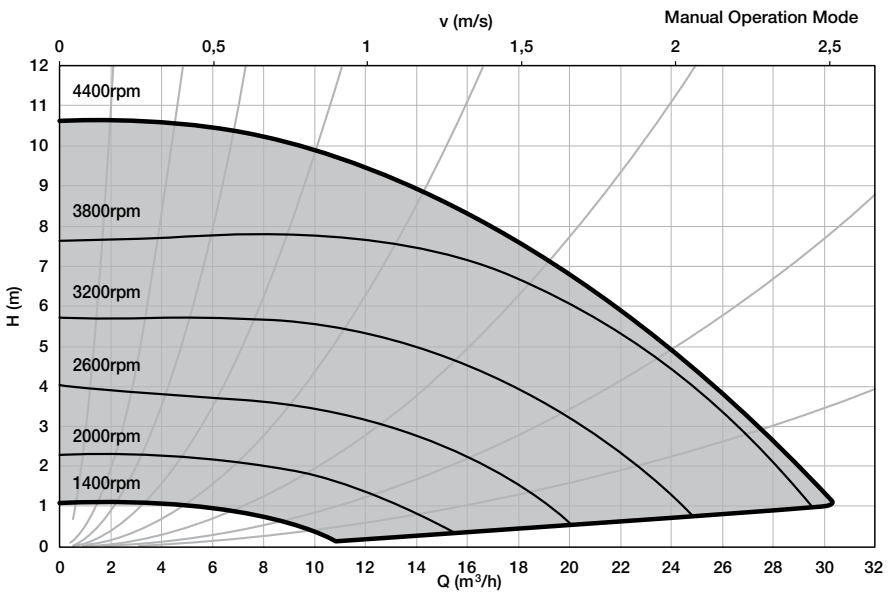



Variable Pressure Operation Mode
v (m/s)
0
0,5
1
1,5
2
2,5
H (m)
Q (m³/h)
9 m
8 m
7 m
6 m
5 m
4 m


Constant Pressure Operation Mode
v (m/s)
H (m)
Q (m³/h)
9 m
8 m
7 m
6 m
5 m
4 m
3 m
2 m
1 m


Manual Operation Mode
v (m/s)
H (m)
Q (m³/h)
4400rpm
3800rpm
3200rpm
2600rpm
2000rpm
1400rpm

OPTIMA 6/9


# OPTIMA 6/12

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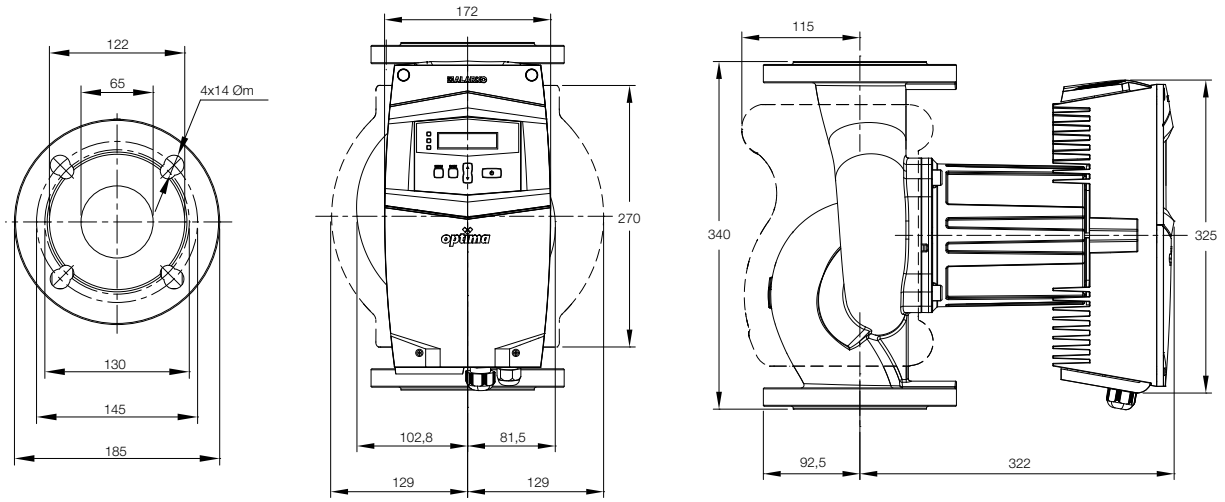
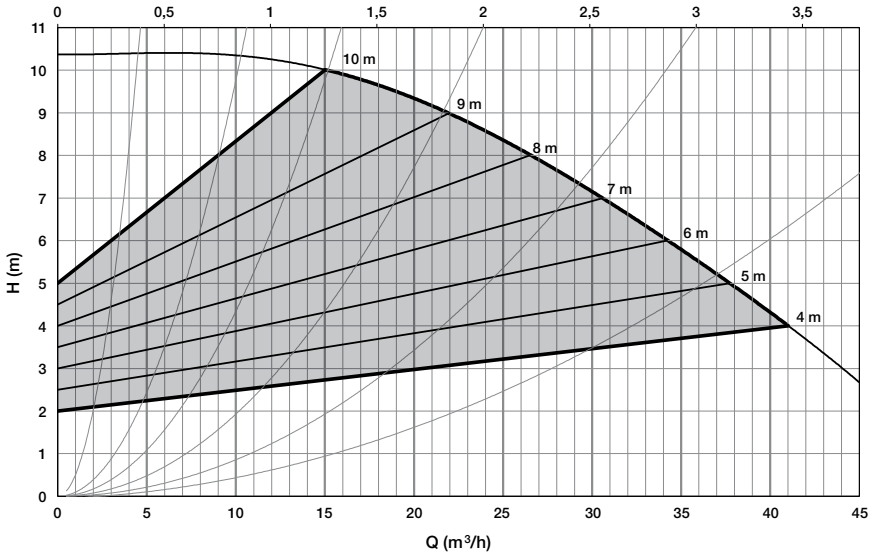
| | |
|---|---|
| Maximum Pump Head [m] | According to pump type |
| Maximum Flow Rate [m³/h] | According to pump type |
| Engine Speed [rpm] | 900 – 3.300 |
| Input Voltage and Frequency | 1~ 230 V AC ± 10%, 50 Hz, PE (ground protection) |
| Nominal Current [A] | 4.5 |
| Power Drawn [W] | 30 – 1000 |
| Energy Efficiency Index (EEI) | < 0.23 |
| Insulation Class | F |
| Protection Class | IP 44 |
| Temperature Class | TF 110 |
| Maximum System Pressure | PN 6/10 (1) |
| Sound Pressure | < 56 dB (according to type) |
| Relative Humidity | < 90% |
| Weight | 28 kg |

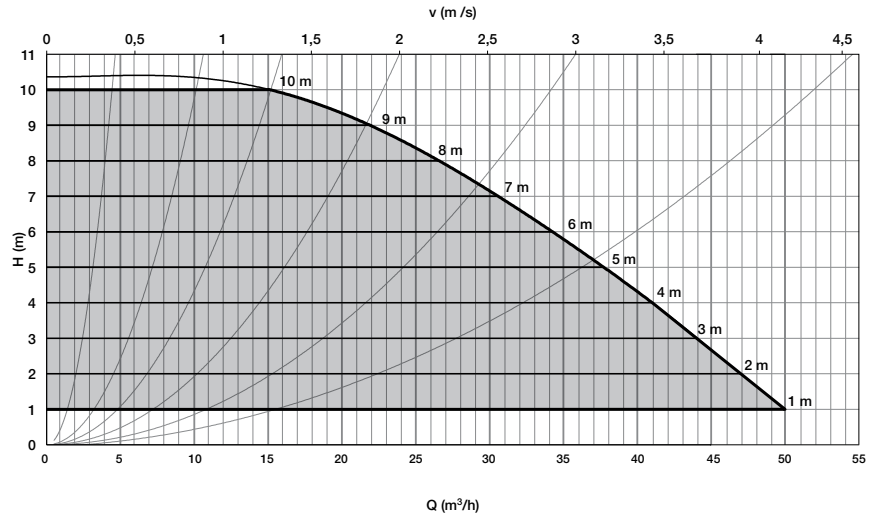
¹ The pump is suitable for use at both pressure values.



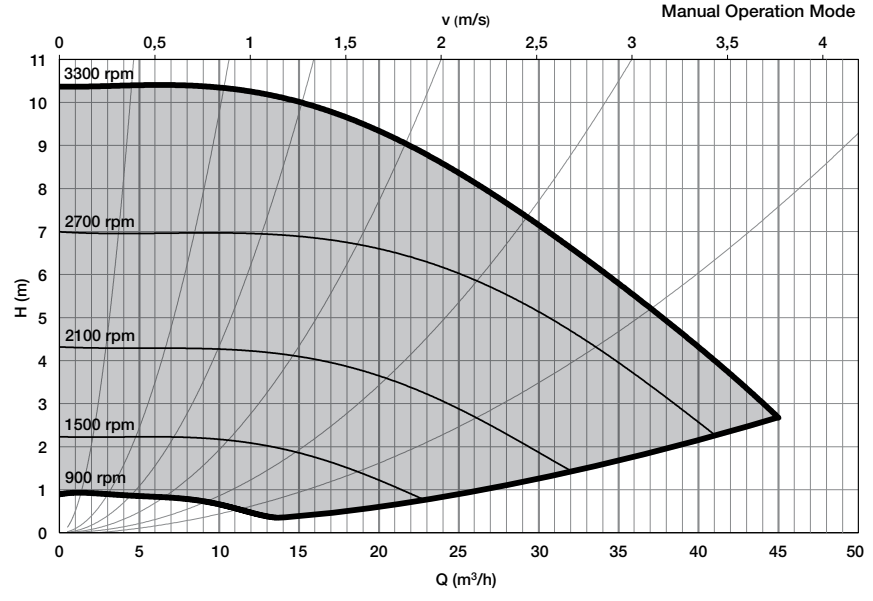
Variable Pressure Operation Mode




Constant Pressure Operation Mode




Manual Operation Mode




OPTIMA 6/12


# OPTIMA 8/12

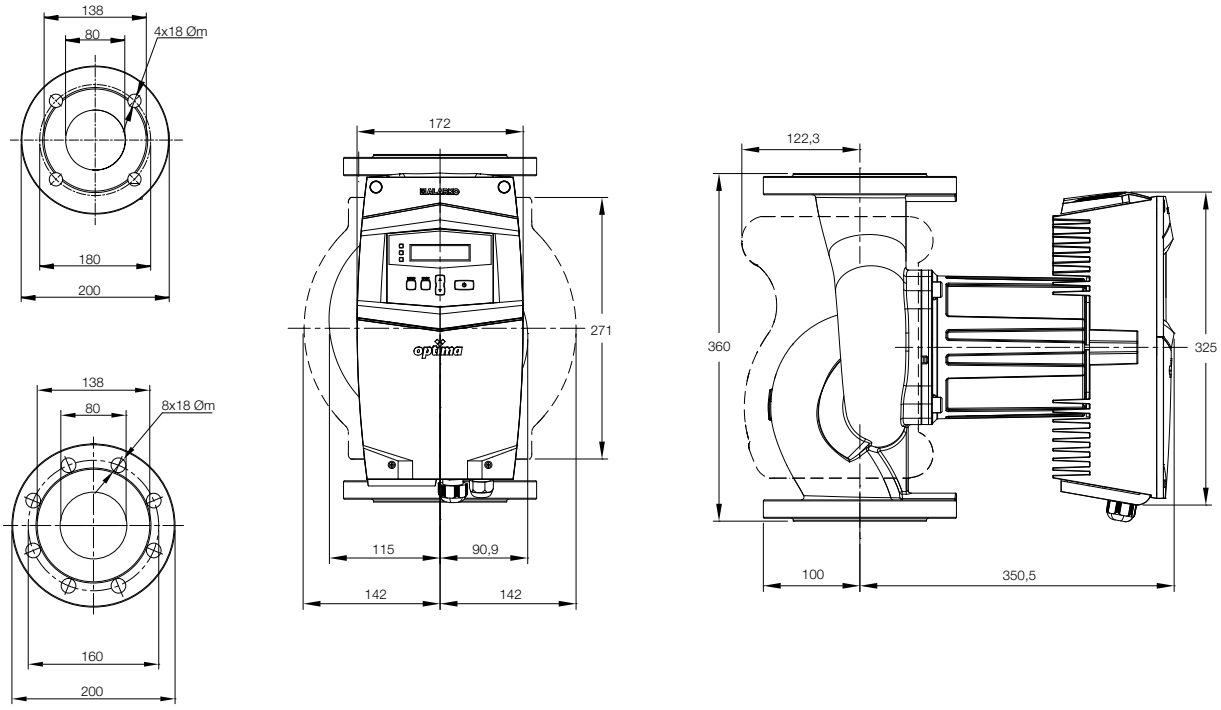
ErP READY

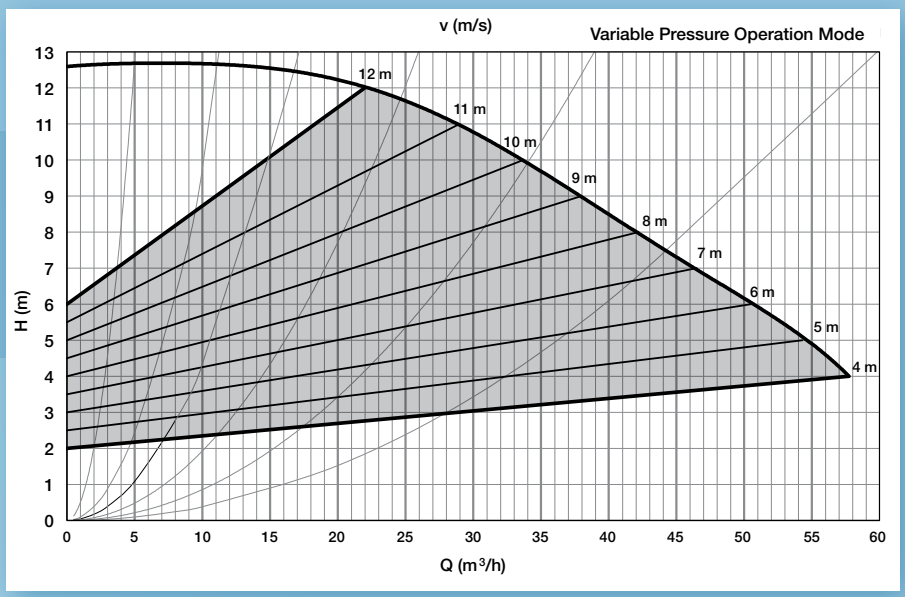
optima

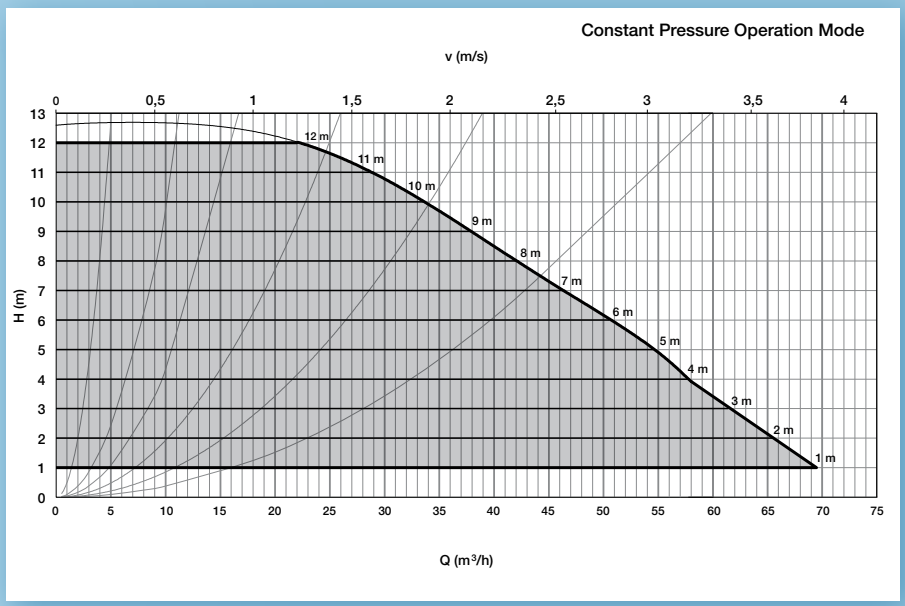
LOW ENERGY CONSUMPTION
SAVE the NATURE

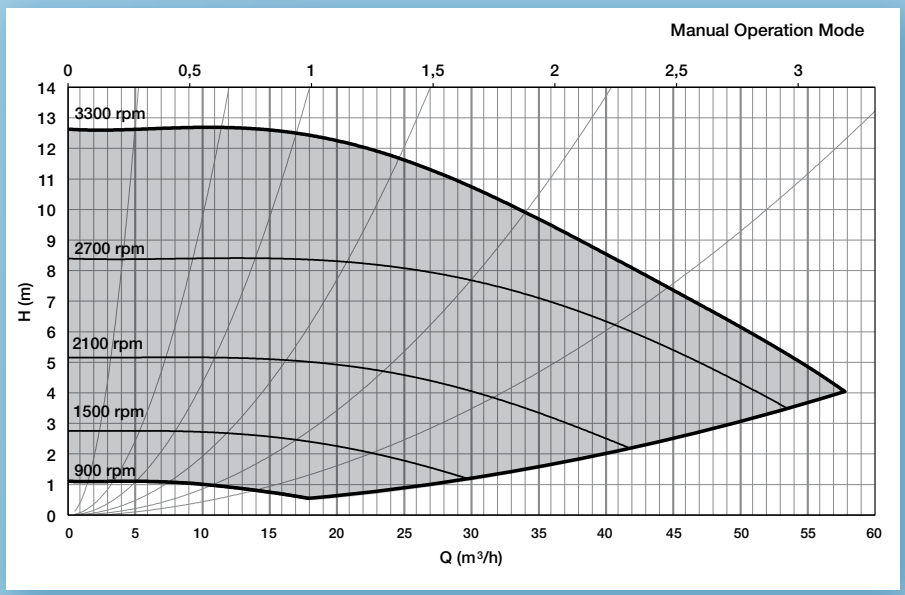
| | |
|---|---|
| Maximum Pump Head [m] | According to pump type |
| Maximum Flow Rate [m³/h] | According to pump type |
| Engine Speed [rpm] | 900 – 3.300 |
| Input Voltage and Frequency | 1~ 230 V AC ± 10%, 50 Hz, PE (ground protection) |
| Nominal Current [A] | 7 |
| Power Drawn [W] | 40 – 1.540 |
| Energy Efficiency Index (EEI) | < 0.23 |
| Insulation Class | F |
| Protection Class | IP 44 |
| Temperature Class | TF 110 |
| Maximum System Pressure | PN 6 or PN 10 [1] |
| Sound Pressure | < 56 dB (according to type) |
| Relative Humidity | < 90% |
| Weight | 31 kg |

[1] The pump is suitable for use at both pressure values.



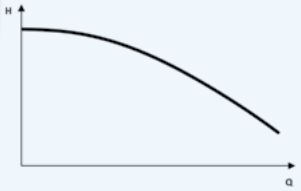
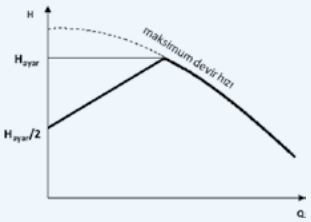
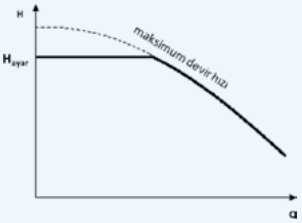

v (m/s)
Variable Pressure Operation Mode
H (m)
Q (m³/h)
12 m
11 m
10 m
9 m
8 m
7 m
6 m
5 m
4 m


Constant Pressure Operation Mode
v (m/s)
H (m)
Q (m³/h)
12 m
11 m
10 m
9 m
8 m
7 m
6 m
5 m
4 m
3 m
2 m
1 m


Manual Operation Mode
H (m)
Q (m³/h)
3300 rpm
2700 rpm
2100 rpm
1500 rpm
900 rpm

OPTIMA 8/12


## MODE SELECTION TABLE

| | Manual Pressure | Variable Pressure | Constant Pressure |
|---|---|---|---|
| |  |  |  |
| **Heating Systems with Two Pipes and Thermostatic Valves** | | • Total friction loss > 4mSS<br>• Too long circulation line<br>• High friction losses<br>• Usage of pressure compensating valve<br>• Branch valves with extremely low flow | • Total friction loss < 2mSS<br>• Short or large diameter circulation lines<br>• Low friction losses |
| **Single Pipe Heating Systems** | • Systems not using flow changer circuit elements (thermostatic radiator valve, two-way cut-off valve, etc.) | | • Systems using thermostatic valves<br>• Systems using thermostatic valve and pressure compensation valve |
| **Floor Heating Systems** | • Systems not using flow changer circuit elements (thermostatic radiator valve, two-way cut-off valve, etc.) | • High friction losses<br>• Usage of pressure compensating valve | • Systems using thermostatic valves |
| **Heating Systems Using Condensing Boiler** | | • Secondary circulation circuits<br>• High friction losses<br>• Usage of pressure compensating valve | • Primary circulation circuits<br>• Low pressure loss<br>• Natural circulation |
| **Systems with Unchanged Flow Rate and Internal System Resistance** | • DWH (Boiler) applications<br>• Plate exchanger storage tank applications<br>• In recirculation applications where pressure loss and flow rate changes are very low | • Primary circulation circuits<br>• Low pressure loss<br>• Natural circulation | • High friction losses<br>• Usage of pressure compensating valve |

## CABLE and FUSE TABLE

| | 5/8 | 4/10 | 4/8 | 4/4 | 3/12-180 | 3/10-180 | 3/7-180 | 2/10-180 |
|---|---|---|---|---|---|---|---|---|
| Cable | 3 x 1.5 mm² | | | | | | | |
| Fuse | 2A | | | | | | | |

2 YEARS GUARANTEE

**Note:** Manufacturer reserves the right to change any product specifications without notice.

ALARKO Carrier

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