I-MAT

Features

- **Flexibility**
- I-MAT frequency converters are equipped with a software which provide different operating modes in order to cover a wide range of applications.
- **Reliable**
- The high efficiency heatsink with integrated fans cools the frequency converter independently from the motor, to provide a higher reliability of the system.
- **Safety**
- The design of the I-MAT frequency converters separates the signal terminal area from the power terminal area, allowing the user to safely work with the signal connections
- **Easy to use**
- The integrated control panel allows all parameters to be programmed directly on the frequency converter. Additionally, the control panel can be detached and remotely mounted using a connection cable.
- **Cascade control mode**
- The system flexibility allows, with an optional electronic card, to assemble more units making them communicate together. The system is capable of managing variable speed pumps (up to 6) and fixed speed pumps (up to 5).

Construction

The system features variable speed control driven by a frequency converter, designed for motor control in water supply applications and the production/ distribution of hot and cold water.
I-MAT is an integrated control system that, when applied to the motor, enables the management of a wide range of applications and operating modes.
Classification scheme IE2

Applications

Frequency converter for automatic pump control suitable for:
- water supply
- water transport and distribution
- production and distribution of hot/cold water
- water treatment

For protection of the pump:
– against dry running;
– against operation with closed connection ports.
- Against overcurrent of the motor
- Against overvoltage and undervoltage of the power supply
- Against unbalance or missing supply phases.

Operating conditions

Input voltage: 3~380V-10% ÷ 3~480V+5%
Output voltage: 0 ÷ 100% of the input voltage
Input frequency: 50-60 Hz
Output frequency: up to 70 Hz
Protection: IP55
Max Ambient Temperature: 50°C
Altitude: no higher than 1000 m, inside a closed environment.

Standard execution

(Standard execution)
The system consists of:
- Frequency converter.
- Removable control panel
- Power terminal board
- Signals terminal board
- Cable glands.

On request:
- Motor adapter for the motor mounting of the frequency converter
- Adapter for wall mounting
- Pressure and temperature transducer
- Main switch
- Line filter and output filter
- Modbus Kit
- Multi-pump board

Pump type

Type three-phase	Max. VFD output current	Typical motor power 400V
	(A)	(kW)
I-MAT 5,2 TT-A	5,2	0,55 ÷ 1,8
I-MAT 11,2 TT-B	11,2	2,2 ÷ 4
I-MAT 25,8 TT-C	25,8	5,5 ÷ 11
I-MAT 65,4 TT-D	65,4	15 ÷ 30 (37)*
I-MAT 119 TT-E	119	37 ÷ 55

* 2-pole 37 kW

Variable speed system driven by frequency converter

I-MAT

Operating modes

Constant pressure mode
The system keeps the pressure constant when the quantity of water requested by the user changes.The user can choose the operating pressure according his needs.

Proportional pressure modes
Proportional pressure reduces the pressure of the pump (and as a consequence, the operating frequency) proportionally with the water demand of the system.

Constant temperature mode
In this operating mode the system is used to keep the temperature at a constant value in a specified system point.

Constant flow mode
Constant flow mode grants that system change the speed of the pump in order to keep constant the flow which pass inside a flow meter.

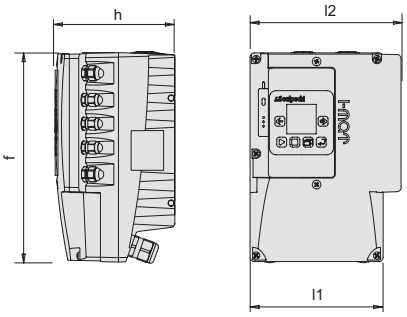
Fixed speed mode
In this operating mode the system work as a fixed speed pump. The speed of the pump could be set by the user between a range of speeds, or controlled by an external signal.

Night mode
The night mode is an optional mode which allows to reduce the speed of the pump if the temperature in the system decreases below a set value, this operating mode can be used with all operating modes over described.

Control Panel

I-MAT is equipped with a control panel that allows to carry out the set-up of the system and to monitor all system parameters.
The control panel is inside a IP55 enclosure which is possible to rotate and install in remote positions.
It is possible use the control panel in remote positions by means a cable with M12 connectors (standard cable).
The LCD custom display gives an easy overview of the system situation and of the operating parameters.
The icons on the top and below the display area explain in which way i-MAT is working and if there are some problems on the system.
The 2 scroll buttons are used to scroll the different operating parameters that i- MAT can show. At the same time you can use the 2 scroll buttons to move in the set up menu and to change the different options.
At the same time you can use the 2 scroll buttons to move in the set up menu and to change the different options.
The 4 set-up buttons are created to enter and to move on the set-up menus and to start and to stop the pump. The symbols help to understand the function of each button. With these 4 buttons and the 2 scroll buttons you can manage all the set-up and operating parameters without the use of another control panel or computers.The symbols help to make the function of each button clear.With these 4 buttons and the 2 scroll buttons you can manage all the set-up and operating parameters without the use of an other control panel or computer.

Dimensions and weights



Pump type	mm				kg
	h	f	l1	l2	
I-MAT 5,2 TT-A	165	263	170	190	5,8
I-MAT 11,2 TT-B	165	292	185	210	6,7
I-MAT 25,8 TT-C	207	336	255	281	13,5
I-MAT 65,4 TT-D	288	460	320	350	33
I-MAT 119 TT-E	336	700	424	455	59

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Features

1 Control Panel
The integrated control panel gives the customer the possibility to set all the parameters of the frequency converter.

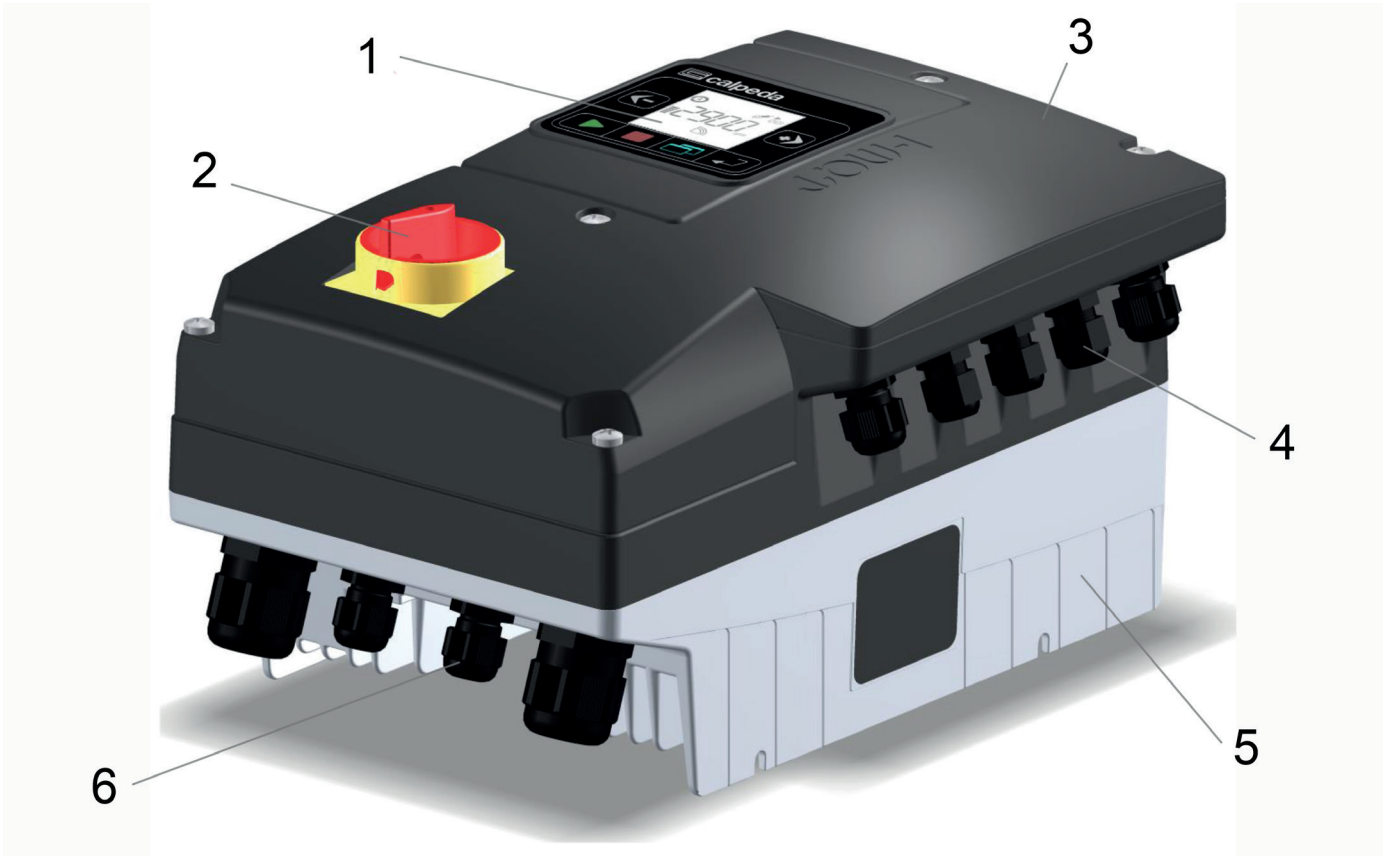
2 Main switch
The frequency converters have the possibility (optional) to install a main switch.

3 Optional modules
On the front side of the frequency converter are predisposed compartments for connecting the optional modules.

4 I/O connection area
The connection area for the input/outputs is separated from the power connection area, this solution allows to connect external.

5 Power connection area
The connection area is protected by a safety cover.

6 Heatsink
The high efficiency heat sink cooled by fans guarantees a high reliability. The side connection system allows an easy connection with the motors.



Examples of installations

One pump installation scheme

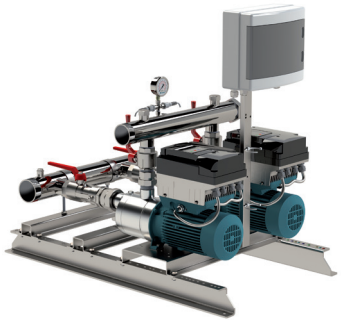
MXH EI

NM EI

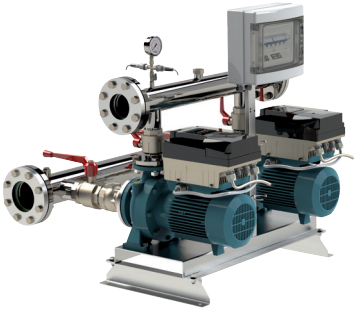
NR EI

MXV EI

Two pumps installation scheme



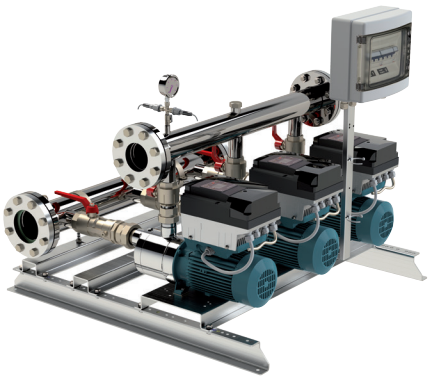
2 MXH



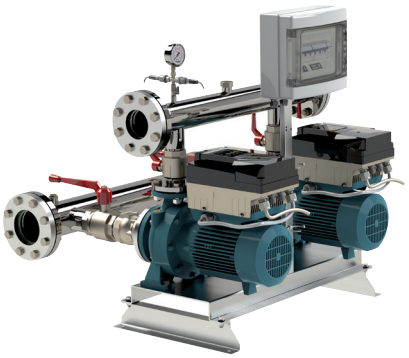
2 NM

2 MXV

Three pumps installation scheme



3 MXH



3 NM

3 MXV