

Pleno Connect



Pressure control and water make-up system
Pressure maintenance monitoring devices

Pleno Connect

Pressure maintenance monitoring devices in accordance with EN 12828-4.7.4. Models of the Pleno Connect range ensure that the water reserve required for expansion vessels to operate at optimal efficiency is available at all times. If the level drops below the minimum, water is topped up automatically. The «fillsafe» function electronically monitors and controls water make-up and guarantees maximum system safety.



Key features

> Make-up water limitation

Automatic limitation of make-up water with the help of the PNEUMATEX BrainCube control unit.

> BrainCube control

Self-optimising with memory function (PI, PI 6, PI 9).

Technical description

Application:

Heating, solar and chilled water systems.
For systems according to EN 12828, EN 12976, ENV 12977, EN 12952, EN 12953.

Media:

Entry: potable water
Outflow(Consumer side): Non-aggressive and non-toxic system media.
Addition of antifreeze agent up to 50%.

Pressure:

Min. admissible pressure, PSmin: 0 bar
Max. admissible pressure, PS: see Articles

Temperature:

Max. admissible temperature, TS: 65 °C (PX, PIX), 30 °C (PI9, PI9F)
Min. admissible temperature, TSmin: 0 °C
Max. admissible ambient temperature, TA: 40 °C

Supply voltage:

1 x 230 V (± 10 %) / 50 Hz

Electrical connections:

Pleno PIX, PI9(F):
Onsite fuses according to power demand and local norms
4 potential free outputs (NO) for external alarm indication (230V max. 2A)
1 RS 485 In/Output
1 Ethernet RJ45 plug socket
1 USB Hub plug socket

Enclosure class:

Pleno PX: IP 65
Pleno PIX: IP 54
Pleno PI9(F): IP 54

Material:

Metal components with medium contact: carbon steel, cast iron, stainless steel, brass, and gunmetal.

Standard:

Pleno PIX, PI9(F):
Constructed according to LV-D. 2014/35/EU
EMC-D. 2014/30/EU
Pleno P BA4 R:
EN1717 (protection class 4)

Function, Equipment, Features

Control unit TecBox

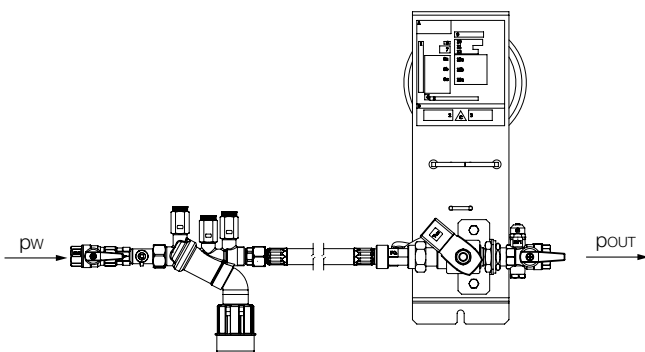
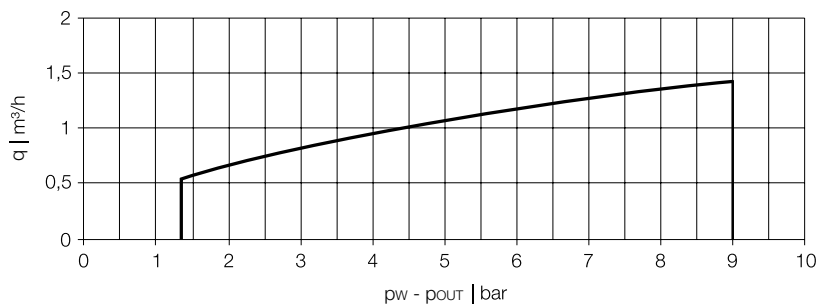
- BrainCube Connect control for an intelligent, fully automatic, safe system operation. Self-optimising with memory function.
- Resistive 3.5" TFT illuminated colour touch display. Web-based interface with remote control and live view. User-friendly, operation-orientated menu layout with slide and tap operation, step-by-step start up procedure guide and direct help in pop-up windows. Representation of all relevant parameters and operation status in plain text and/or graphical, multilingual.
- Standardised integrated connections (Ethernet, RS 485) to the IMI webserver and BMS (Modbus and PNEUMATEX protocol).
- Software updates and data logging possible via USB connection
- Data logging and system analysis, chronological message memory with prioritisation, remotely controllable with live view.

Water make-up

- **Fillsafe**: water-make up monitoring and control with integrated contact water flow meter and solenoid valve.
- PI9: With integrated break tank type AB5 for tap water protection in accordance with EN 1717. Connection for the AB5 break tank can be used alternatively for external fluid tanks.
- PI9F: With integrated break tank type AB5 for tap water protection in accordance with EN 1717.
- PX/PIX: Connection for optional Pleno P BA4R water make-up device for tap water protection in accordance with EN 1717.
- **Softsafe** monitoring and control for an optional refill water treatment device.

Diagrams

Approx. throughput q , Pleno P BA4R + Pleno PX/PIX



The requirements for pw must be taken into account for Statico and Compresso:

Pleno PX: Required fresh water pressure Compresso: $p_w \geq p_0$ (BrainCube) + 1,9 bar, $p_w \leq 10$ bar

Pleno PX/PIX: Required fresh water pressure Statico: $p_w \geq p_0$ (BrainCube) + 1,7 bar, $p_w \leq 10$ bar.

DNe/DNet standard values for connection pipes for Pleno

Length up to approx. 2 m	DNe	15	DNet	20
Length up to approx. 10 m	DNe	20	DNet	25
Length up to approx. 30 m	DNe	25	DNet	32

DNet: Pipe dimension for the connection of an optional external tank

Equipment

Connection pipes

Pleno with installation: see DNe in table DN/DNet
 Pleno with external tank: see DNet in table DN/DNet

Pleno Refill

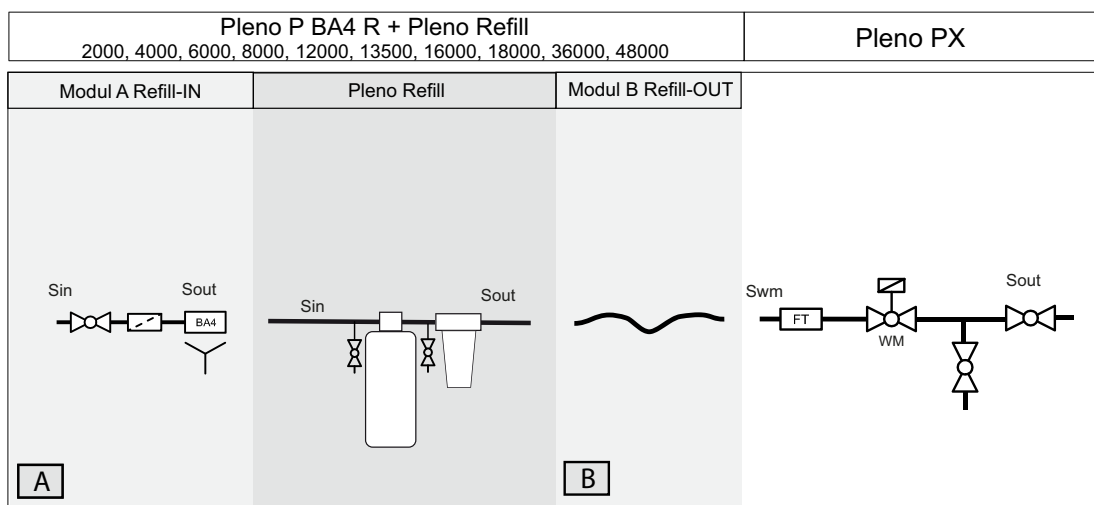
Water softening and demineralization modules in combination with Pleno Connect. Controlled via the BrainCube of the Pleno PI/PIX Connect.

Further accessories, product and selection details: Datasheet *Pleno Refill*.

Principle scheme

Pleno PX

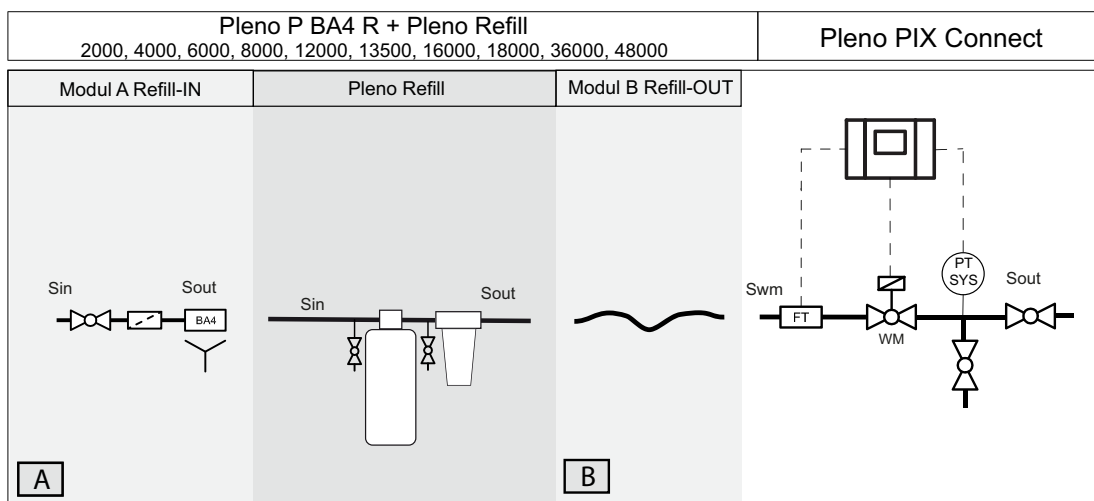
Grey area is optional



Pleno P BA4 R = Modul A + Modul B

Pleno PIX Connect

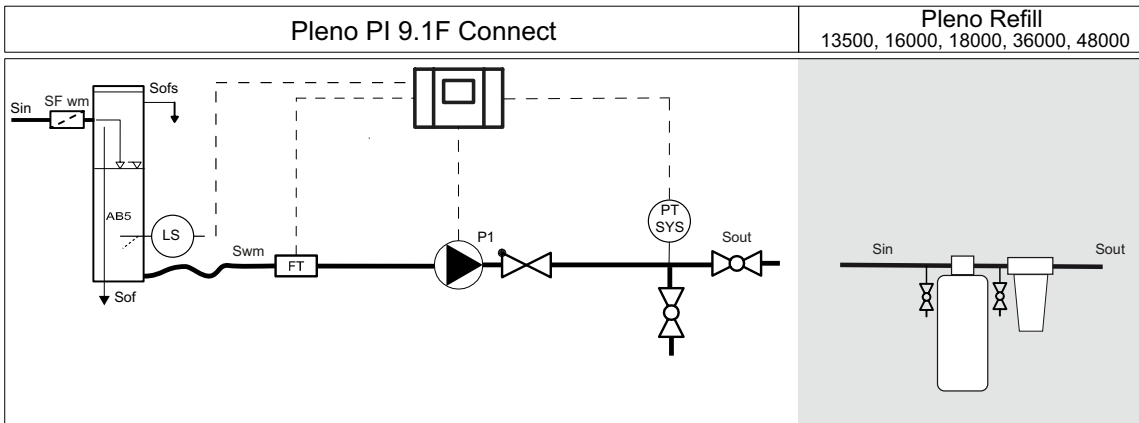
Grey area is optional



Pleno P BA4 R = Modul A + Modul B

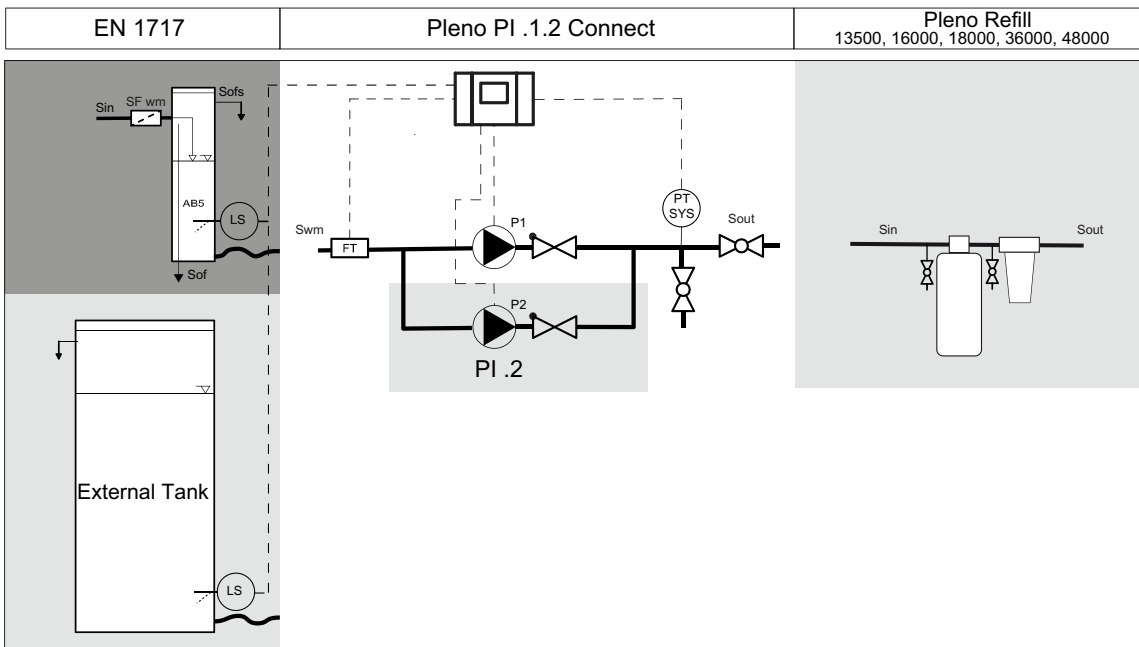
Pleno PI 9.1 F Connect

Grey area is optional



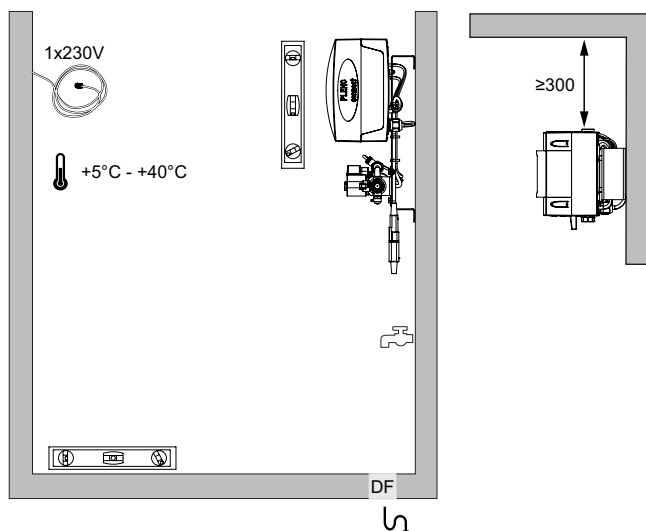
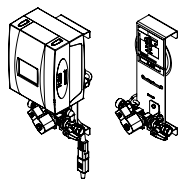
Pleno PI 9.1/PI 9.2 Connect

Dark grey area is standard, light grey is optional

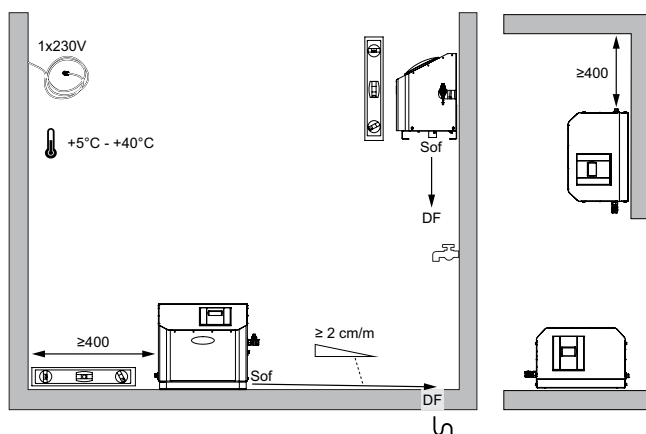
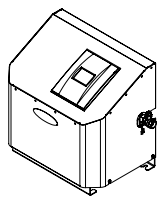


Installation

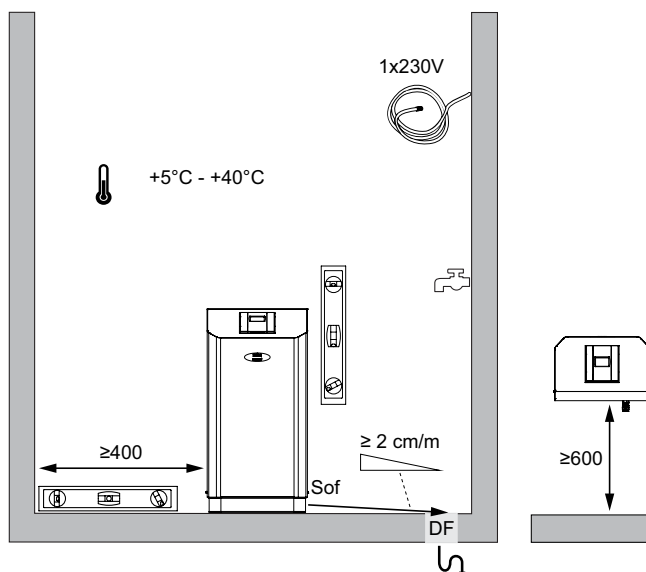
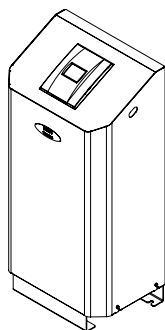
Pleno PIX / PX



PI 9.1 F



PI 9.1 / PI 9.2



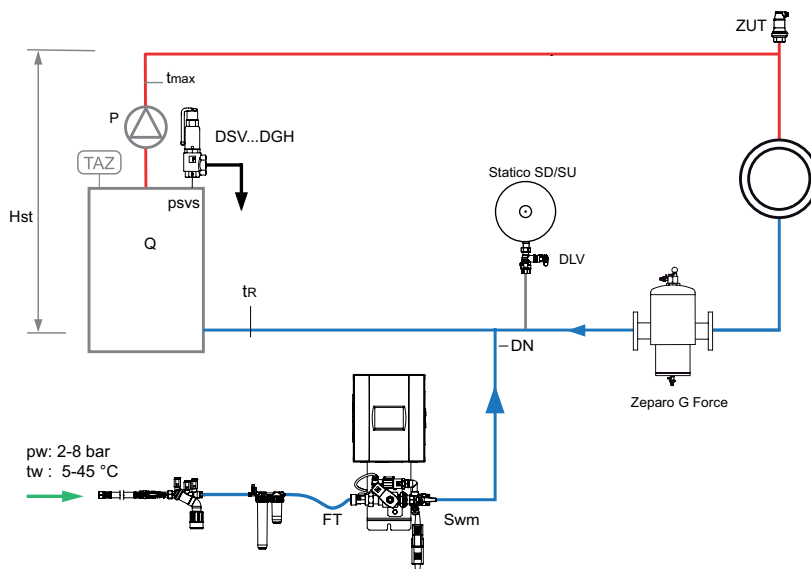
Application examples

Pleno PIX Connect with Statico pressurisation

TecBox with 1 solenoid valve, 1 electronic water meter, Pleno P BA4 R for water make-up following EN1717, and Pleno Refill water treatment unit for softening or demineralising the make-up water.

Example for heating systems

(May require changes to meet local legislation)

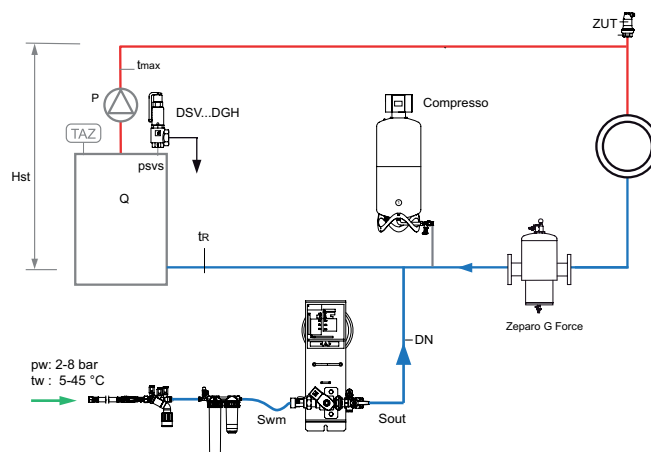


Pleno PX with Compresso pressurisation

Hydraulic unit with 1 solenoid valve, 1 electronic water meter, Pleno P BA4 R for water make-up following EN1717, and Pleno Refill water treatment unit for softening or demineralising the make-up water.

Example for heating systems

(May require changes to meet local legislation)



Zeparo G-Force for the central separation of sludge.

Zeparo ZUT for automatic venting during filling and during draining.

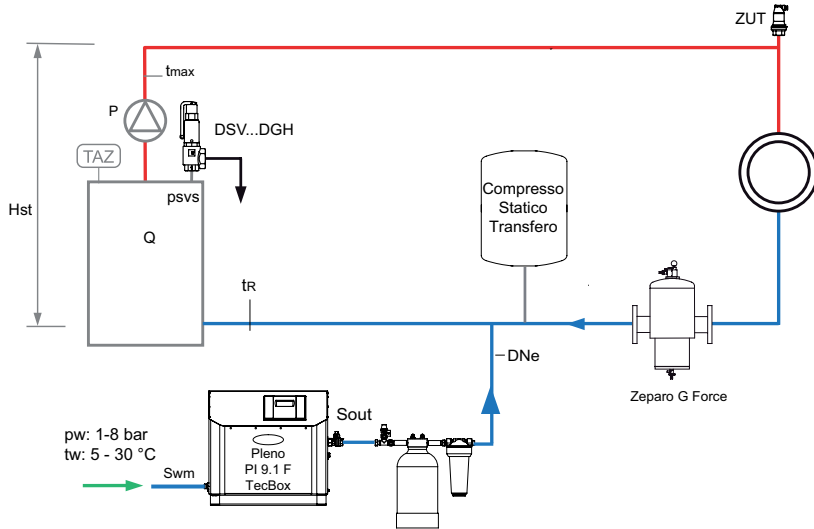
Further accessories, product and selection details, see: Datasheet *Pleno Connect, Zeparo and Accessories*.

Pleno PI 9.1 F Connect with integrated break tank

TecBox with 1 pump, 1 electronic water meter, 1 AB5 break tank for water make-up following EN1717, and Pleno Refill water treatment unit for softening or demineralising the make-up water.

Example for heating systems

(May require changes to meet local legislation)

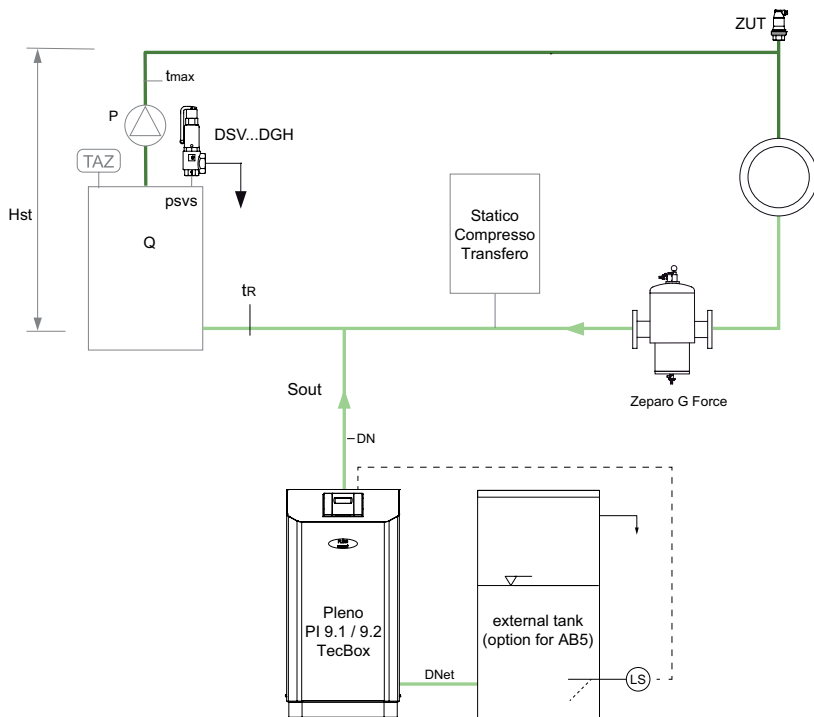


Pleno PI 9 Connect with external fluid tank

TecBox with 1 pump (PI9.1) or 2 pumps (PI9.2), 1 electronic water meter, and external fluid tank for antifreeze reserve.

Example for cooling systems

(May require changes to meet local legislation)

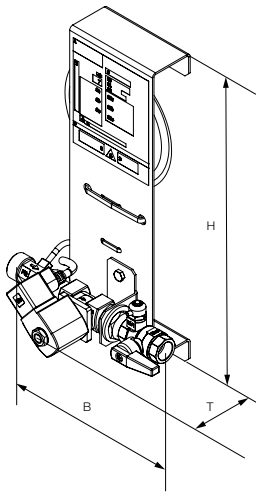


Zeparo G-Force for the central separation of sludge.

Zeparo ZUT for automatic venting during filling and during draining.

Further accessories, product and selection details, see: Datasheet *Pleno Connect*, *Zep+aro* and *Accessories*.

Control unit TecBox, Pleno PX



Pleno PX

Hydraulic unit for water make-up operation with Compresso Connect. Water make-up without pumps. 1 solenoid valve, 1 electronic water meter, connection for Pleno P BA4 R.

Connection in (Swm): G3/4.

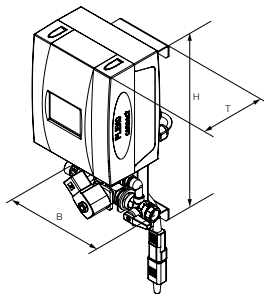
Connection out (Sout): G1/2.

Type	PS [bar]	B	H	T	m [kg]	Pel [kW]	Kvs	EAN	Article No
PX	10	198	356	150	1,5	0,02	1,4	7640161641792	301060-10011

T = Depth of the device

Pel = Electric load

Control unit TecBox, Pleno PIX Connect



Pleno PIX Connect

Control unit TecBox. Water make-up without pumps. 1 solenoid valve, 1 electronic water meter, connection for Pleno P BA4 R, BrainCube control.

Connection in (Swm): G3/4.

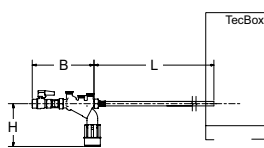
Connection out (Sout): G1/2.

Type	PS [bar]	B	H	T	m [kg]	Pel [kW]	Kvs	EAN	Article No
PIX	10	198	392	190	4,3	0,04	1,4	5901688829851	301060-20001

T = Depth of the device

Pel = Electric load

Water make-up protection module



Pleno P BA4 R

Hydraulic unit for water make-up operation with Vento/Transfero Connect, Pleno PX/PIX, Simply Compresso C 2.1-80 SWM, and in combination with Pleno Refill modules. Features a shut off valve, check valve, filter and a type BA backflow preventer (protection class 4) according to EN 1717.

Connection (Swm): G1/2

Type	PS [bar]	B	L	H	m [kg]	qwm [l/h]	EAN	Article No
BA4 R	10	210	1300	135	1,1	350 *	7640161630147	813 3310
						250 **		
						50 ***		
						q(pw-pout) ****		

qwm = make-up water flow

* maximum average value for make-up water degassing with Vento V/VI and Transfero TV/TVI

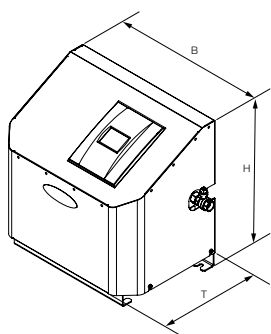
** maximum average value for make-up water degassing with Vento Compact

*** when using flow limiter for operation with low flow water treatment cartridges

**** for combination with Pleno PX/PIX see q(pw-pout) diagram in Pleno Connect datasheet

T = Depth of the device

Control unit TecBox, Pleno PI 9 F Connect



Pleno PI 9.1 F Connect

Control unit TecBox. Water make-up with pumps.
1 pump, 1 electronic water meter, integrated wall mounting bracket.
Integrated break tank type AB5.
Connection in (Swm): G1/2
Connection out (Sout): G3/4

Type	PS [bar]	B	H	T	m [kg]	Pel [kW]	SPL [dB(A)]	dpu [bar]	qwm [l/h]	EAN	Article No
PI 9.1 F	10	520	500	350	26,5	0,75	74	1-8	100-450 *)	5901688829868	301060-50002

T = Depth of the device

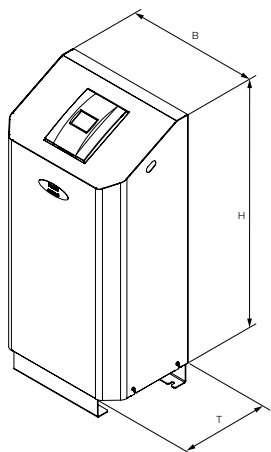
Pel = Electric load

dpu = Working pressure range

qwm = Water make-up flow

*) depending on pressure values at Swm and Sout

Control unit TecBox, Pleno PI 9 Connect



Pleno PI 9.1 Connect

Control unit TecBox. Water make-up with pumps.
1 pump, 1 electronic water meter. Floor standing.
Integrated break tank type AB5.
Connection in (Swm): G1/2
Connection out (Sout): G3/4

Type	PS [bar]	B	H	T	m [kg]	Pel [kW]	SPL [dB(A)]	dpu [bar]	qwm [l/h]	EAN	Article No
PI 9.1	10	520	1056	350	27,5	0,75	74	1-8	100-450 *)	5901688829875	301060-30003

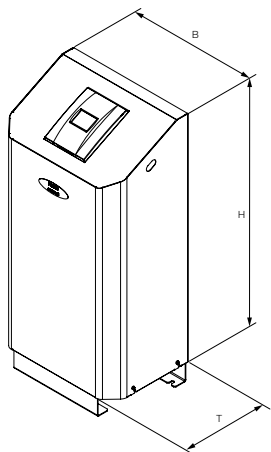
T = Depth of the device

Pel = Electric load

dpu = Working pressure range

qwm = Water make-up flow

*) depending on pressure values at Swm and Sout



Pleno PI 9.2 Connect

Control unit TecBox. Water make-up with pumps.
2 pumps (one for reserve), 1 electronic water meter. Floor standing.
Integrated break tank type AB5.
Connection in (Swm): G1/2
Connection out (Sout): G3/4

Type	PS [bar]	B	H	T	m [kg]	Pel [kW]	SPL [dB(A)]	dpu [bar]	qwm [l/h]	EAN	Article No
PI 9.2	10	520	1056	350	38	0,75	74	1-8	100-450 *)	5901688829882	301060-40002

T = Depth of the device

Pel = Electric load

dpu = Working pressure range

qwm = Water make-up flow

*) depending on pressure values at Swm and Sout

Pleno Refill 6000, 12000 / Pleno Refill Demin 2000, 4000

Pleno Refill

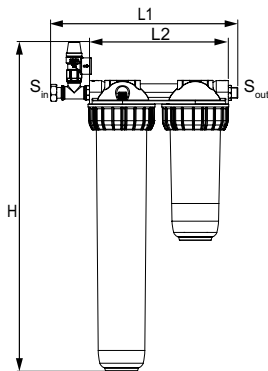
Hydraulic unit for water softening together with Vento/Transfero Connect TecBoxes. Filter with 25 µm mesh size to protect the hydronic system. Softening bottle filled with high grade resin.

Designed for plug&play mounting together with Transfero/Vento Connect.

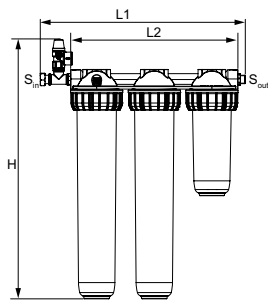
Units for all applications including Transfero Connect and Vento Connect with the use of a flow throttle that is included with each Transfero/Vento Connect.

Softening unit with wall mounting bracket and 25 µm filter

3/4" swivelling nut, 3/4" external thread suitable for flat gasket, with flow limiter.

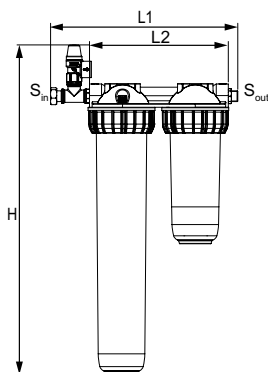


Type	Capacity l x °dH	S _{in}	S _{out}	H	L1	L2	m [kg]	EAN	Article No
Refill 6000 filter	6000	G3/4	G3/4	644	366	271	4,6	7640153570864	813 3010
Refill 12000 filter	12000	G3/4	G3/4	644	513	420	8,3	7640161631946	813 3011

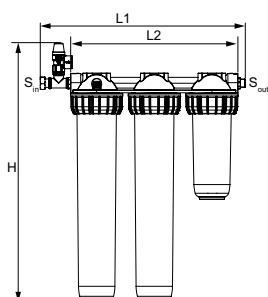


Demineralisation unit with wall mounting bracket and 25 µm filter

3/4" swivelling nut, 3/4" external thread suitable for flat gasket, with flow limiter. In compliance with SWKI-BT-102-1.



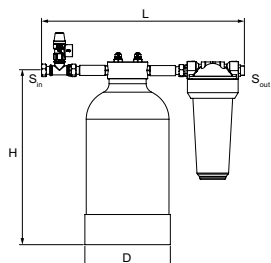
Type	Capacity l x °dH	S _{in}	S _{out}	H	L1	L2	m [kg]	EAN	Article No
Refill Demin 2000 filter	2000	G3/4	G3/4	644	366	271	4,6		813 3015
Refill Demin 4000 filter	4000	G3/4	G3/4	644	513	420	8,3		813 3016



Pleno Refill 16000, 36000, 48000 / Pleno Refill Demin 13500, 18000

Pleno Refill

Hydraulic unit for water softening together with Vento/Transfero Connect TecBoxes. Filter with 25 µm mesh size to protect the hydronic system. Softening bottle filled with high grade resin. Designed for plug&play mounting together with Transfero/Vento Connect.



Softening unit

3/4" swivelling nut, 3/4" external thread suitable for flat gasket.

Nominal pressure: PS 8

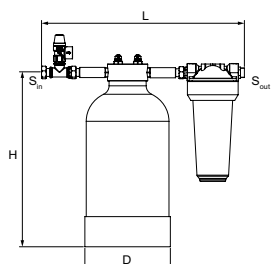
Max. working temperature: 45°C

Min. working temperature: > 4°C

Type	Capacity l x °dH	S _{in}	S _{out}	D	H	L	m [kg]	EAN	Article No
Refill 16000	16000	G3/4	G3/4	195	383	455	9,1	7640161630475	813 3210
Refill 36000	36000	G3/4	G3/4	220	466	455	13	7640161630482	813 3220
Refill 48000	48000	G3/4	G3/4	270	458	455	16,2	7640161630499	813 3230

Pleno Refill Demin

Hydraulic unit for water demineralisation together with Vento/Transfero Connect TecBoxes. Filter with 25 µm mesh size to protect the hydronic system. Desalination bottle filled with high grade resin.



Demineralisation unit

3/4" swivelling nut, 3/4" external thread suitable for flat gasket.

Nominal pressure: PS 8

Max. working temperature: 45°C

Min. working temperature: > 4°C

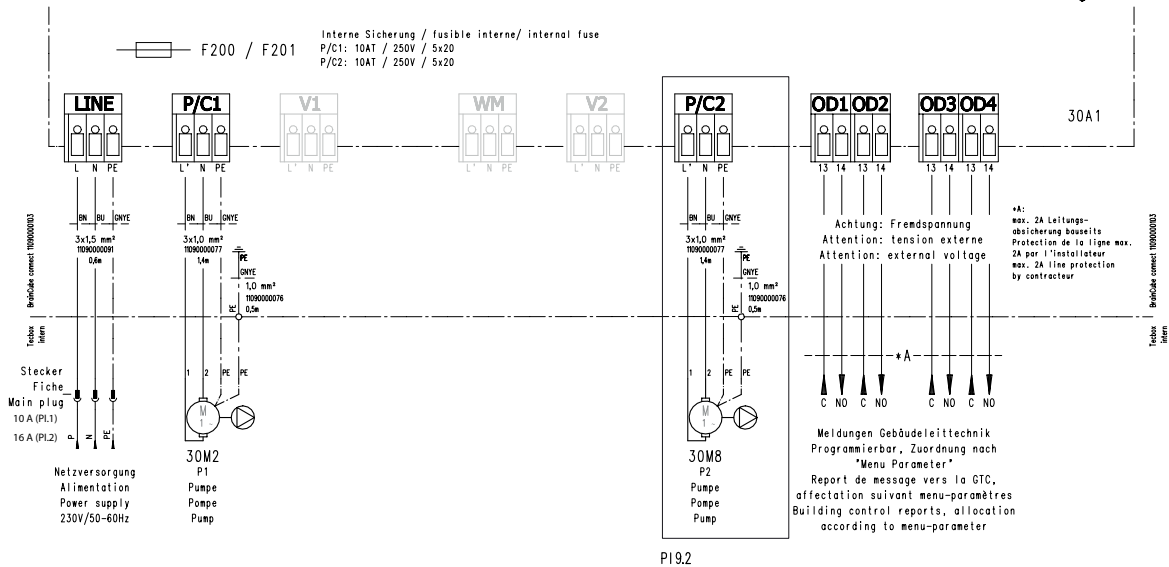
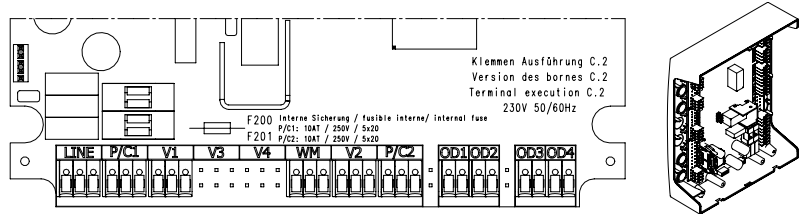
Type	Capacity l x °dH	S _{in}	S _{out}	D	H	L	m [kg]	EAN	Article No
Refill Demin 13500	13500	G3/4	G3/4	220	466	455	13	7640161630505	813 3260
Refill Demin 18000	18000	G3/4	G3/4	270	458	455	16,2	7640161630512	813 3270

Wiring diagrams

230 V / 50/60 Hz

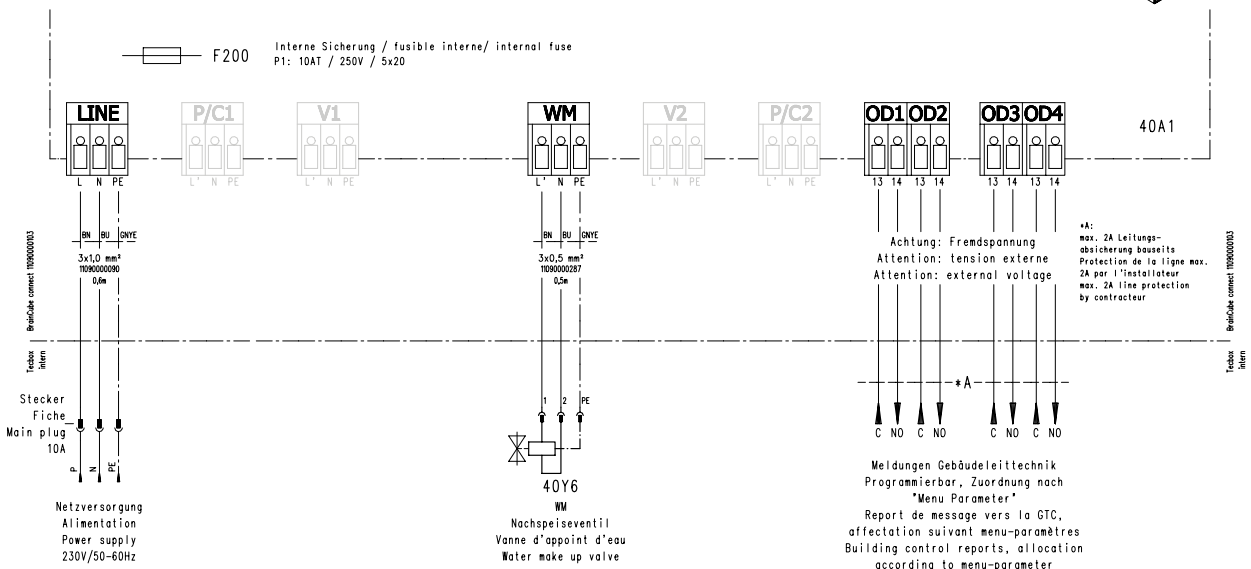
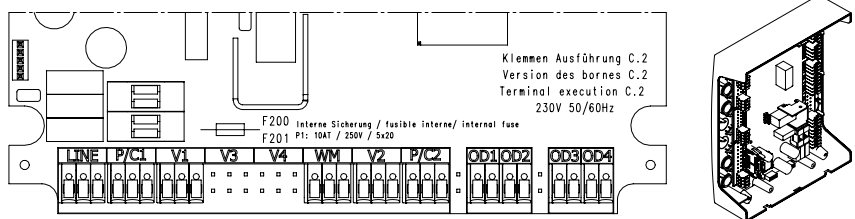
Power Supply Pleno PI 9.1 (F) / PI 9.2

P1 : Hauptpumpe / pompe principale / main pump
 P2 : Nebpumpe / pompe auxiliaire / booster pump
 V1 : Nicht belegt / non utilisé / not used
 WM : Nicht belegt / non utilisé / not used
 V2 : Nicht belegt / non utilisé / not used

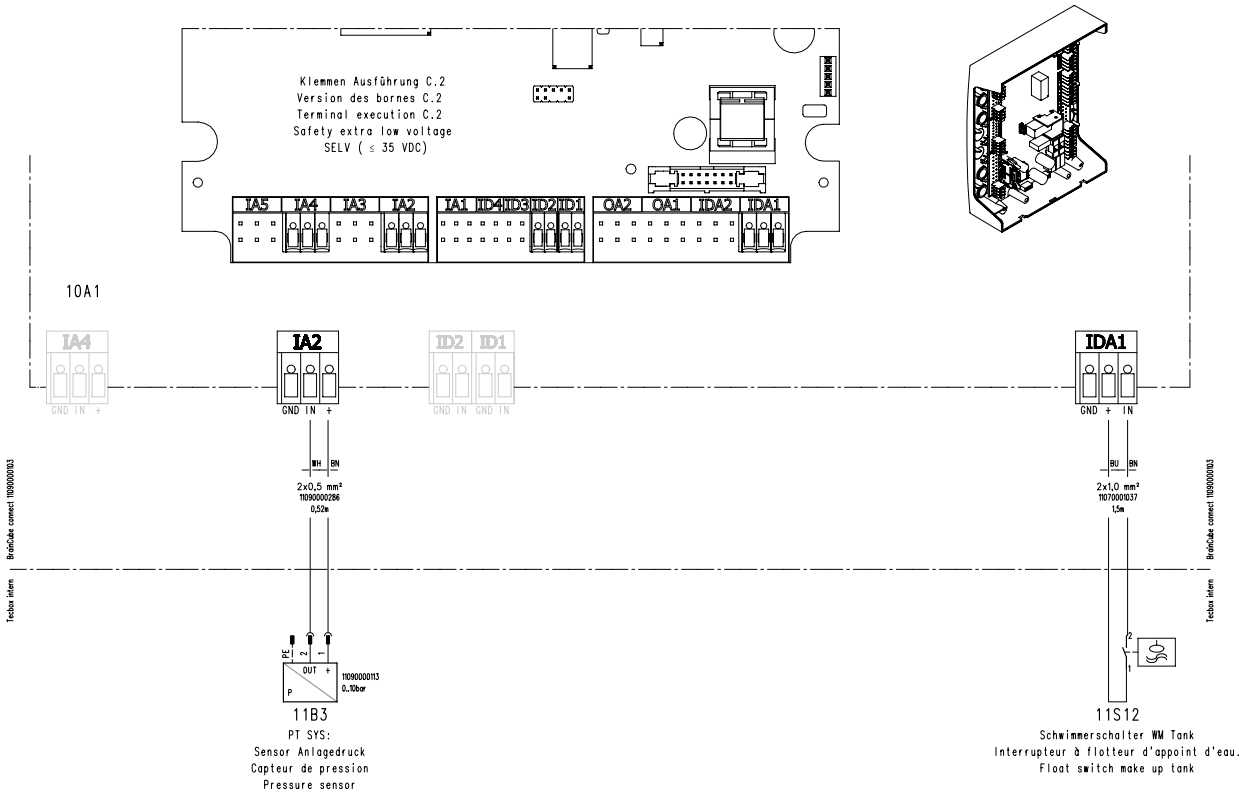


Power Supply Pleno PIX Connect

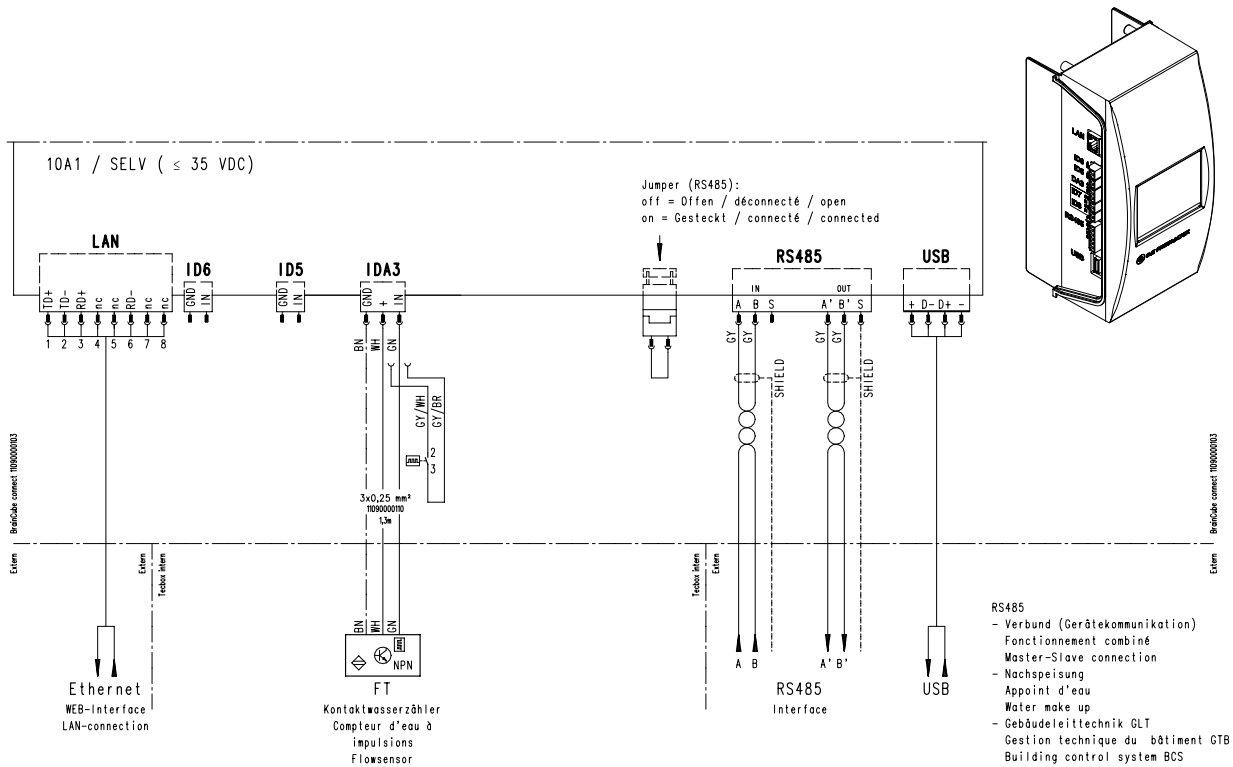
P1 : Hauptpumpe / pompe principale / main pump
 P2 : Nicht belegt / non utilisé / not used
 V1 : Nicht belegt / non utilisé / not used
 WM : Nicht belegt / non utilisé / not used
 V2 : Nicht belegt / non utilisé / not used



24 V



Safety Extra Low Voltage connections



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