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PLUMBING EQUIPMENTS 80 131.11 KHA STEEL AIR SEPARATOR R2830 LINE DEAERATOR 131.13 KTT STEEL DIRT SEPARATOR **R2829** SELF-CLEANING DIRT SEPARATOR 131.15 KMTT STEEL MAGNETIC DIRT SEPARATOR 131.17 KPH STEEL AIR&DIRT SEPARATOR R2831 COMBINED SELF-CLEANING DIRT SEPARATOR & DEAERATOR 131.18 KMPH STEEL MAGNETIC AIR&DIRT SEPARATOR 131.19 KDT STEEL HYDRAULIC SEPARATOR 131.20 KPD STEEL MULTIFUNCTION HYDRAULIC SEPARATOR 131.21 KJT DOSING POT R2319 MULTIFUNCTION MAGNETIC DIRT SEPARATOR FILTER 30 R3070 MAGNETIC SUPER COMPACT SYSTEM FILTER 131.23 KVF-M MANUALLY CONTROLLED BERNOULLI FILTER 131.23 KVF-A AUTOMATICALLY CONTROLLED BERNOULLI FILTER R3286 NT1 ACID CONDENSATION NEUTRALISING FILTER R3287 - 3288 PAIR OF HOSE CONNECTION FITTINGS R126 SELF-CLEANING WATER FILTER R304 MAGNETIC ANTI-SCALE DEVICE B651 PUMP KIT 41 **R87** "RINOX" COMPANSATED PISTON PRESSURE REDUCING VALVE R1139 "RIS" COMPANSATED PISTON PRESSURE REDUSING VALVE R37 DEGASSER - VASA R37 DEGASSER - VASASETTE R2828 MINILUFT AIR VENT R2836 MEGALUFT HP AIR VENT R3153 AUTOMATIC ADJUSTABLE FILLING UNIT R39 AUTOMATIC ADJUSTABLE FILLING UNIT 48 R46 AUTOMATIC ADJUSTABLE FILLING UNIT R811 SAFETY RELIEF VALVE R2809 SAFETY RELIEF VALVE R351 SAFETY RELIEF VALVE R605 SAFETY RELIEF VALVE R2201 T&P COMBINED SAFETY VALVE R47 SAFETY RELIEF VALVE R3072 WATER HAMMER ARRESTOR R860 NON-RETURN VALVE **B671** REGULATING GROUP WITH THERMOSTATIC MIXING VALVE **B621** THERMOSTATIC MIXING VALVE **B622** THERMAL SOLAR SYSTEMS THERMOSTATIC MIXING VALVE R3616 SIMPLE SINGLE-ZONE MANIFOLD (RETURN) R3201 MANIFOLDS WITH LOCKSHIELD VALVES R3201 MANIFOLDS WITH FLOWMETER 59 R3215 AIR & WATER AUTOMATIC DISCHARGE TERMINAL 60 **R3216** AIR & WATER MANUAL DISCHARGE TERMINAL 60 R3217 BY-PASS GROUP WITH ROTATABLE ELBOW FITTINGS 60 R2028 COMPACT BRASS MANIFOLD KIT R1410 COMPACT POLYMER MANIFOLD KIT MANIFOLD SPARE PARTS

R51 "RINOX" COMPANSATED DIAPHRAGM PRESSURE REDUCING VALVE R2848 "RINOXPLUS M" DIAPHRAGM OPERATED PRESSURE REDUCING VALVE



Our Vision

In the light of the principles of honesty and trust, to provide human and environment-oriented products and services, to enlarge the business opportunities it has developed, and to be one of the top 5 companies in the world in the industry.

Our Mission

With its expert and dynamic team, innovative spirit and strong business partners, spreading our quality to the World, to create added value and difference by enlarging the business models.

Saudi Arabia, South Korea, Spain, Sweden, Thailand, United Arab Emirates, United Kingdom, Uruguay

Main Export Countries

About Us

Kodsan entered the heating industry with solid fuel boiler production when Mehmet Namık Kodaman founded the company in 1984, Ankara. It has become a leading company with its innovations, success, and peopleoriented business strategies. It has grown, developed, and renewed considerably with the strength of over 35 years of experience.

As Turkey's first and largest enamel coated water heater manufacturer, Kodsan increases its recognition in early 2000, in Turkey and surrounding countries. Kodsan manufactures enamel/ non-enamel covered water heaters, heat interface units, automatic pump controlled expansion systems, separators and filters, installment protection equipments.

Additionally, with its extensive technical service network. Kodsan provides service for energy consumption management and heat meter inspection.

Our Achievements

Kodsan shines out with its advanced technology, high efficiency products and flexible production capability which can quickly adapt to the customer demands. However among these specialities, Kodsan prioritizes human health as well as the environment. Following this principle, all production processes and products are appropriate to the Europe Environment and Human Health Regulations(Reach and Rosh). For example;

Milestones









Azerbaijan, Canada, Denmark, France, Germany, Greece, Holland, Iraq, Israel, Italy, Kenya, Norway, Portugal, Qatar, Republic of South Africa, Russia,

- · WRAS certification for the used enamel as well as for all the materials and products that contacts the drinkable water.

- · Kodsan manufactures specially designed products that avoid bacteria growth such as legionella which causes the legionnaire disease
- · Kodsan is one of the limited companies that has a waste water treatment facility.
- · Raw material which does not include heavy metals and with low carbon footprint are being used during production
- · Maximum sensitivity shown for recycling through all production processes.





Kodsan separators are insulated with closed cell foam EPP (Expanded Polypropylene), which offers unique specifications such as thermal insulation, superior energy absorption, multiple impact resistance, resistance to water and chemicals, extremely high strength compared to its weight and being 100% recyclable.



Bernoulli's Principle explains the relationship between the velocity and pressure of fluids. According to this principle, for a non-viscous flow, there is an inverse proportion between the velocity of the fluid particles in motion and the pressure created by the fluid.

The flushing sequence is triggered by a differential pressure sensor before flow reduction caused by any blockage that occurs in the filter.

The drain valve opens and larger particles are flushed out in the pre-flushing process.

During the flushing process, a specially shaped rotational "V" sheet metal placed into the filter increases the flow velocity by

SMART FILTERING

rotating without contacting the filter.

As the flow velocity increases locally around the "V" shaped sheet metal, the static pressure is reduced in accordance with the Bernoulli Principle and the flow direction is reversed, thus the stuck particles on the filter surface are released.

The released particles are discharged through the flushing valve.

131.11 KHA STEEL AIR SEPARATOR



Manufactured in accordance with 2014/68/EU Pressure Equipment Directive and EN 13445-3 standards.

Maximum Operating Temperature	: 110 °C
Maximum Operating Pressure	: 1000 kPa (10 bar)
Connection Sizes / Pressure Class	
Flanged Connection	: DN50-DN150 / PN
Welded Connection	: 60,3 mm-168,3 mi
	(Please contact for
Filter Material	: Stainless steel

Outer Surface Protection Paint

- DN50-DN150 / PN16 60,3 mm-168,3 mm Please contact for products between DN200- DN600)
- : Stainless steel : Electrostatic Powder Paint

В

The amount of air which can remain dissolved in a water solution is a function of pressure and temperature.

Air bubbles;

- · Adhering to the heat transfer surfaces reduce thermal conductivity and lead to efficiency loss.
- · Can cause corrosion in the heating systems and installation pipes.
- Cause cavitation in the pumps and installations.
- · Cause failures in the pumps and other elements.
- May cause disturbing noises in the installation pumps and especially in the radiators.

SPECIFICATIONS / USAGE AREAS

Steel Air Separator separates and releases the micro-bubbles from the water out the heating system due to specially designed stainless steel, thus avoiding heat transfer problems during in installation and in the system. It also provides an efficient work of the system.

- The product can be used with all types of heating and cooling systems.
- The air at the top of unit is released out of tank with the help of and automatic air relief valve.
- Percentage of glycol in the heating system is maximum 50%

Scaling

Installation Diagram



Installation diagram given above is just a template. Installation must be done according to update standards and directives

131.11 FLANGED STEEL AIR SEPARATOR

TYPE	1	Ą	B (mm)	C*	D (mm)	E (mm)	F (inch)	Weight (kg)	Kv (m³/h)	Volume (lt)	Flow Rate (m ³ /h)
131.11.16.1	DN 50	2"	420	Special Thread	158	503	1"	12	75	7	8 - 12
131.11.17.1	DN 65	21/2"	420	Special Thread	158	503	1"	13	150	7	10 - 22
131.11.18.1	DN 80	3"	500	Special Thread	172	579	1"	20	180	15	18 - 30
131.11.19.1	DN 100	4"	504	Special Thread	172	579	1"	22	280	15	28 - 48
131.11.20.1	DN 125	5"	635	Special Thread	245	748	1"	37	450	45	45 - 71
131.11.21.1	DN 150	6"	635	Special Thread	245	748	1"	41	720	45	67 - 105

 $\begin{array}{l} Kv=Q\ /\ \sqrt{\Delta}P\\ Q=Water flow rate (m^3\ /\ h) \quad \Delta P=Pressure loss on the product (bar)\\ ^*: Connection C has special design with Ø50 whitworth thread. \end{array}$

131.11 WELDED STEEL AIR SEPARATOR

TYPE	ŀ	4	B (mm)	C*	D (mm)	E (mm)	F (inch)	Weight (kg)	Kv (m³/h)	Volume (It)	Flow Rate (m ³ /h)
131.11.16.2	DN50	60,3	330	Special Thread	158	503	1"	8	75	7	8 - 12
131.11.17.2	DN65	76,1	330	Special Thread	158	503	1"	8	150	7	10 - 22
131.11.18.2	DN80	88,9	400	Special Thread	172	579	1"	11	180	15	18 - 30
131.11.19.2	DN100	114,3	400	Special Thread	172	579	1"	12	280	15	28 - 48
131.11.20.2	DN125	139,7	525	Special Thread	245	748	1"	24	450	45	45 - 71
131.11.21.2	DN150	168,3	525	Special Thread	245	748	1"	24	720	45	67 - 105

 $Kv = Q / \sqrt{\Delta P}$ Q = Water flow rate (m³ / h) ΔP = Pressure loss on the product (bar) *: Connection C has special design with Ø50 whitworth thread.



R2830 LINE DEAERATOR

Installation Diagram







Installation diagram given above is just a template. Installation must be done according to update standards and directives

Body
Seals
Float
Cartridge
Spring
Connection Size
Threaded Connection

:	Brass CW 617N UNI EN 12165
:	EPDM and NBR
:	Float and lever in polypropylene
:	Stainless steel, AISI 302
:	Stainless steel, AISI 302
	G 1/4"-G 2"

: G ½"-G 2" : F UNI EN ISO 228

Water + Glycol 30%

: 1000 kPa (10 bar)

: 1000 kPa (10 bar)

TECHNICAL CHARACTERISTICS Fluids

Maximum Operating Temperature Maximum Operating Pressure Maximum Discharge Pressure

In-line deaerators are devices suitable for eliminating micro-bubbles from systems. They are essentially made up of two parts:

: Water

: 110 °C

- ACTIVE: The area where microbubbles are formed as a result of strong turbulence and swirling "motion.

Microbubbles blend together becoming bubbles.

- PASSIVE: Float-operated air vent valve to eliminate air bubbles.

Deaerators operate systems with air-depleted water, therefore able to absorb the air bubbles

nestled in the system critical areas.

By removing air from the system, unnecessary breakdowns and malfunctions can be reduced, helping to:

- Increase heating and cooling efficiency

- Reduce the formation of corrosion in all points of the system

- Reduce extraordinary maintenance work

- Reduce the effects causing system noise

- Lower the cost of system management

CAUTION:

To be always installed in a vertical position (on horizontal pipes), with the air discharge device facing upwards.



Product Code	Connection Size	A (mm)	ØB (mm)	C (mm)	D (mm)	E (mm)	Kv (m³/h)	Flow Rate (m ³ /h)
R28300400	1/2"	100	79	37,5	165,5	203	7,40	0,79
R28300500	3⁄4"	105	79	37,5	165,5	203	12,66	1,37
R28300600	1"	110	79	37,5	165,5	203	20,44	2,12
R28300700	11⁄4"	115	79	37,5	165,5	203	28,14	3,49
R28300800	11⁄2"	120	88	47	171,5	218,5	44,45	5,44
R28300900	2"	125	88	47	171,5	218,5	65,58	8,50



131.13 KTT STEEL DIRT SEPARATOR



Manufactured in accordance with 2014/68/EU Pressure Equipment Directive and EN 13445-3 standards.

Maximum Operating Temperature
Maximum Operating Pressure
Connection Sizes / Pressure Class
Flanged Connection
Welded Connection

Filter Material Outer Surface Protection Paint

- : 110 °C : 1000 kPa (10 bar)
- : DN50-DN150 / PN16
- : 60,3 mm-168,3 mm
- (Please contact for products between DN200- DN600) : Stainless steel
- : Electrostatic Powder Paint

Scaling



Installation Diagram



Installation diagram given above is just a template. Installation must be done according to update standards and directives

131.13 FLANGED STEEL DIRT SEPARATOR

TYPE	ļ	Ą	B (mm)	C (inch)	D (mm)	E (mm)	F (inch)	Weight (kg)	Kv (m³/h)	Volume (It)	Flow Rate (m ³ /h)
131.13.16.1	DN 50	2"	420	3⁄4"	322	480	1"	13	75	7	8-12
131.13.17.1	DN 65	21/2"	420	3⁄4"	322	480	1"	15	150	7	10-22
131.13.18.1	DN 80	3"	500	3⁄4"	384	556	1"	19	180	15	18-30
131.13.19.1	DN 100	4"	504	3⁄4"	384	556	1"	22	280	15	28-48
131.13.20.1	DN 125	5"	635	3⁄4"	480	725	1"	37	450	45	45-71
131.13.21.1	DN 150	6"	635	3⁄4"	480	725	1"	40	720	45	67-105

Kv = Q / √∆P

Q = Water flow rate (m³ / h) ΔP = Pressure loss on the product (bar)

131.13 WELDED STEEL DIRT SEPARATOR

TYPE	/	A	B (mm)	C (inch)	D (mm)	E (mm)	F (inch)	Weight (kg)	Kv (m³/h)	Volume (It)	Flow Rate (m ³ /h)
131.13.16.2	DN 50	60,3	330	3⁄4"	322	480	1"	8	75	7	8-12
131.13.17.2	DN 65	76,1	330	3⁄4"	322	480	1"	8	150	7	10-22
131.13.18.2	DN 80	88,9	400	3⁄4"	384	556	1"	11	180	15	18-30
131.13.19.2	DN 100	114,3	400	3⁄4"	384	556	1"	12	280	15	28-48
131.13.20.2	DN 125	139,7	525	3⁄4"	480	725	1"	24	450	45	45-71
131.13.21.2	DN 150	168,3	525	3⁄4"	480	725	1"	24	720	45	67-105

 $Kv = Q / \sqrt{\Delta P}$ Q = Water flow rate (m³ / h) ΔP = Pressure loss on the product (bar)

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SPECIFICATIONS / USAGE AREAS • Since the cleaning and maintenance of the classical type of dirt separators cannot be made easily by the user, they generally become out of function by time. With the help of ball

valve on the bottom of the Steel Dirt Separator, cleaning can be done very easily.

The impurities mainly sand and rust particles circulating within the system cause efficiency loss, failures in heating and cooling systems, clogging the pumps and control

- · Specially designed stainless steel mesh filters are present.
- Percentage of glycol in the heating system is maximum 50%
- Accumulated impurity volume is much bigger according to classical dirt separators. Needed periodic cleaning is much more less.

valves.



R2829 SELF-CLEANING DIRT SEPARATOR



Installation Diagram



Body Seals Cartridge **Connection Size** Threaded Connection : Brass CW 617N UNI EN 12165 : EPDM and NBR : Stainless steel, AISI 302 : G ½"-G 2" : F UNI EN ISO 228

TECHNICAL CHARACTERISTICS Fluids

Fiulus	. Waler
	Water + Glycol 30%
Maximum Operating Temperature	: 110 °C
Maximum Operating Pressure	: 1000 kPa (10 bar)

Self-cleaning dirt separator series is used to remove the dirt inside the fluids circulating in heating and cooling systems. The continuous, constant action of these devices helps to eliminate impurities inside the system as well as to ensuring a more efficient operation thereof, reducing failures and malfunctions, with consequent advantages for the user in terms of:

• Wator

- Energy consumption reduction
- Maintenance work reduction
- System management cost reduction

Unlike traditional filters, dirt separators feature reduced head losses, the ability to separate and remove much smaller particles, and a lower frequency of filtering mesh cleaning operations, besides being self-cleaning (just open the purge valve to remove accumulated dirt, even with the system running).

CAUTION:

In order to function properly, the dirt separator must be installed in a vertical position (on horizontal pipes), with the impurity drain valve facing downwards.



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Product Code	Connection Size	A (mm)	ØB (mm)	C (mm)	D (mm)	E (mm)	Kv (m³/h)	Flow Rate (m ³ /h)
R28290400	1/2"	100	79	37,5	194	231,5	7,40	0,79
R28290500	3⁄4"	105	79	37,5	194	231,5	12,66	1,37
R28290600	1"	110	79	37,5	194	231,5	20,44	2,12
R28290700	11⁄4"	115	79	37,5	194	231,5	28,14	3,49
R28290800	11⁄2"	120	88	47	201	248	44,45	5,44
R28290900	2"	125	88	47	201	248	65,58	8,50



131.15 KMTT STEEL MAGNETIC DIRT SEPARATOR



Manufactured in accordance with 2014/68/EU Pressure Equipment Directive and EN 13445-3 standards.

Maximum Operating Temperature
Maximum Operating Pressure
Connection Sizes / Pressure Class
Flanged Connection
Welded Connection

Filter Material Outer Surface Protection Paint

- : 110 °C : 1000 kPa (10 bar)
- : DN50-DN150 / PN16
- : 60,3 mm-168,3 mm
- (Please contact for products between DN200-DN250) : Stainless steel
- : Electrostatic Powder Paint

SPECIFICATIONS / USAGE AREAS

- Since the cleaning and maintenance of the classical type of dirt separators cannot be made easily by the user, they generally become out of function by time. With the help of ball valve on the bottom of the Steel Magnetic Dirt Separator, cleaning can be done very easily.
- · Specially designed stainless steel mesh filters are present.
- Percentage of glycol in the heating system is maximum 50%
- Accumulated impurity volume is much bigger according to classical dirt separators. Needed periodic cleaning is much more less.
- The water flow rate is low at the bottom where the super strong magnet is located. Therefore, it can catch even the smallest parts.
- When the discharge valve is opened, the magnet is removed and accumulated parts under the body are taken out. In order for the magnet to be removed easily, the Steel Magnetic Dirt Seperator must be mounted at least 30 cm above the ground.



Scaling



Installation Diagram



Installation diagram given above is just a template. Installation must be done according to update standards and directives

131.15 FLANGED STEEL MAGNETIC DIRT SEPARATOR

TYPE	1	A	B (mm)	C (inch)	D (mm)	E (mm)	F (inch)	Weight (kg)	Kv (m³/h)	Volume (It)	Flow Rate (m ³ /h)
131.15.16.1	DN 50	2"	420	3⁄4"	322	480	1"	13	75	7	8-12
131.15.17.1	DN 65	21/2"	420	3⁄4"	322	480	1"	15	150	7	10-22
131.15.18.1	DN 80	3"	500	3⁄4"	384	556	1"	19	180	15	18-30
131.15.19.1	DN 100	4"	504	3⁄4"	384	556	1"	22	280	15	28-48
131.15.20.1	DN 125	5"	635	3⁄4"	480	725	1"	37	450	45	45-71
131.15.21.1	DN 150	6"	635	3⁄4"	480	725	1"	40	720	45	67-105

Kv = Q / √∆P

Q = Water flow rate (m³ / h) ΔP = Pressure loss on the product (bar)

131.15 WELDED STEEL MAGNETIC DIRT SEPARATOR

TYPE	/	4	B (mm)	C (inch)	D (mm)	E (mm)	F (inch)	Weight (kg)	Kv (m³/h)	Volume (lt)	Flow Rate (m ³ /h)
131.15.16.2	DN 50	60,3	330	3⁄4"	322	480	1"	8	75	7	8-12
131.15.17.2	DN 65	76,1	330	3⁄4"	322	480	1"	8	150	7	10-22
131.15.18.2	DN 80	88,9	400	3⁄4"	384	556	1"	11	180	15	18-30
131.15.19.2	DN 100	114,3	400	3⁄4"	384	556	1"	12	280	15	28-48
131.15.20.2	DN 125	139,7	525	3⁄4"	480	725	1"	24	450	45	45-71
131.15.21.2	DN 150	168,3	525	3⁄4"	480	725	1"	24	720	45	67-105

 $Kv = Q / \sqrt{\Delta P}$ Q = Water flow rate (m³ / h) ΔP = Pressure loss on the product (bar)



131.17 KPH STEEL AIR& DIRT SEPARATOR



Manufactured in accordance with 2014/68/EU Pressure Equipment Directive and EN 13445-3 standards.

Maximum Operating Temperature
Maximum Operating Pressure
Connection Sizes / Pressure Class
Flanged Connection
Welded Connection

- Filter Material Outer Surface Protection Paint
- : 1000 kPa (10 bar) : DN50-DN150 / PN16

: 110 °C

- : 60,3 mm-168,3 mm
- (Please contact for products between DN200- DN600) : Stainless steel
- : Electrostatic Powder Paint

SPECIFICATIONS / USAGE AREAS

- Steel Air& Dirt Separator product offers a solution by combining two functions in one product. Due to the dual function it is cost and installation space efficient.
- If there are some limitations to install air and dirt separator separately the Steel Air& Dirt Separator series will be the ideal solution.
- The efficient and continuous separation of air and impurities circulating in the heating system considerably increases the efficiency and service life of the whole system.
- · Simultaneously performs air seperator and dirt separator in the same unit. It automatically evacuates the air. Through its large reservoir, the cleaning period for sediment is long. Optional automatic residue discharge system can be applied.
- Percentage of glycol in the heating system is maximum 50%.



Scaling



Installation Diagram



Installation diagram given above is just a template. Installation must be done according to update standards and directives

131.17 FLANGED STEEL AIR & DIRT SEPARATOR

TYPE	1	4	B (mm)	C*	D (mm)	E (mm)	F (inch)	Weight (kg)	Kv (m³/h)	Volume (It)	Flow Rate (m ³ /h)
131.17.16.1	DN 50	2"	420	Special Thread	268	578	1"	13	75	9	8 - 12
131.17.17.1	DN 65	21/2"	420	Special Thread	268	578	1"	14	150	9	10 - 22
131.17.18.1	DN 80	3"	500	Special Thread	293	683	1"	22	180	18	18 - 30
131.17.19.1	DN 100	4"	504	Special Thread	293	683	1"	25	280	18	28 - 48
131.17.20.1	DN 125	5"	635	Special Thread	403	903	1"	46	450	57	45 - 71
131.17.21.1	DN 150	6"	635	Special Thread	403	903	1"	47	720	57	67 - 105

 $Kv = Q / \sqrt{\Delta P}$

 $\Delta = 0$ and $\Delta = 0$.

131.17 WELDED STEEL AIR & DIRT SEPARATOR

TYPE	I	4	B (mm)	C*	D (mm)	E (mm)	F (inch)	Weight (kg)	Kv (m³/h)	Volume (lt)	Flow Rate (m ³ /h)
131.17.16.2	DN50	60,3	330	Special Thread	268	578	1"	8	75	9	8 - 12
131.17.17.2	DN65	76,1	330	Special Thread	268	578	1"	8	150	9	10 - 22
131.17.18.2	DN80	88,9	400	Special Thread	293	683	1"	11	180	18	18 - 30
131.17.19.2	DN100	114,3	400	Special Thread	293	683	1"	12	280	18	28 - 48
131.17.20.2	DN125	139,7	525	Special Thread	403	903	1"	24	450	57	45 - 71
131.17.21.2	DN150	168,3	525	Special Thread	403	903	1"	24	720	57	67 - 105

 $Kv = Q / \sqrt{\Delta P}$ Q = Water flow rate (m³ / h) ΔP = Pressure loss on the product (bar) *: Connection C has special design with Ø50 whitworth thread.





R2831 COMBINED SELF-CLEANING DIRT SEPARATOR & DEAERATOR





Body	: Brass CW 617N UNI EN 12165
Seals	: EPDM and NBR
Float	: Float and lever in polypropylene
Cartridge	: Stainless steel, AISI 302
Spring	: Stainless steel, AISI 302
Connection Size	: G ½"- G 1¼"
Threaded Connection	: F UNI EN ISO 228

TECHNICAL CHARACTERISTICS Fluids

Fluids	: Water
	Water + Glycol 30%
Maximum Operating Temperature	: 110 °C
Maximum Operating Pressure	: 1000 kPa (10 bar)
Maximum Discharge Pressure	: 1000 kPa (10 bar)

R2831 series combine the functions of common dirt separators and deaerators in a single solution. They can be used in heating and cooling systems. They are used to remove air and impurities from hydraulic circuits.

In addition, by removing dirt and air from the system, unnecessary breakdowns and malfunctions can be reduced, helping to:

- Increase heating and cooling efficiency
- Reduce the formation of corrosion in all points of the system
- Reduce extraordinary maintenance work
- Reduce the effects causing system noise
- Lower the cost of system management

Merging two different components into one solution has allowed us to significantly reduce overall dimensions with respect to conventionally assembling two different products: dirt separator + deaerator.

CAUTIONS:

In order to function properly, the dirt separator / deaerator must be installed in a vertical position (on horizontal pipes), with the impurity drain valve facing downwards.

Scaling



Product Code	Connection Size	A (mm)	ØB (mm)	C (mm)	D (mm)	E (mm)	Kv (m³/h)	Flow Rate (m ³ /h)
R28310400	1/2"	100	79	136,5	194	330,5	7,40	0,79
R28310500	3⁄4"	105	79	136,5	194	330,5	12,66	1,37
R28310600	1"	110	79	136,5	194	330,5	20,44	2,12
R28310700	11⁄4"	115	79	136,5	194	330,5	28,14	3,49



131.18 KMPH STEEL MAGNETIC AIR& DIRT SEPARATOR

Installation Diagram



Manufactured in accordance with 2014/68/EU Pressure Equipment Directive and EN 13445-3 standards.

Maximum Operating Temperature
Maximum Operating Pressure
Connection Sizes / Pressure Class
Flanged Connection
Welded Connection

Filter Material Outer Surface Protection Paint

- : 110 °C : 1000 kPa (10 bar)
- : DN50-DN150 / PN16
- : 60,3 mm-168,3 mm
- (Please contact for products between DN200-DN250) : Stainless steel
- : Electrostatic Powder Paint

SPECIFICATIONS / USAGE AREAS

- Since the cleaning and maintenance of the classical type of dirt separators cannot be made easily by the user, they generally become out of function by time. With the help of ball valve on the bottom of the Steel Magnetic Dirt Separator, cleaning can be done very easily.
- · Specially designed stainless steel mesh filters are present.
- Percentage of glycol in the heating system is maximum 50%
- Accumulated impurity volume is much bigger according to classical dirt separators. Needed periodic cleaning is much more less.
- The water flow rate is low at the bottom where the super strong magnet is located. Therefore, it can catch even the smallest parts.
- When the discharge valve is opened, the magnet is removed and accumulated parts under the body are taken out. In order for the magnet to be removed easily, the Steel Magnetic Dirt Seperator must be mounted at least 30 cm above the ground.



Scaling





Installation diagram given above is just a template. Installation must be done according to update standards and directives

131.18 FLANGED STEEL MAGNETIC AIR&DIRT SEPARATOR

TYPE	/	4	B (mm)	C*	D (mm)	E (mm)	F (inch)	Weight (kg)	Kv (m³/h)	Volume (lt)	Flow Rate (m ³ /h)
131.18.16.1	DN 50	2"	420	Special Thread	268	578	1"	13	75	9	8 - 12
131.18.17.1	DN 65	21/2"	420	Special Thread	268	578	1"	14	150	9	10 - 22
131.18.18.1	DN 80	3"	500	Special Thread	293	683	1"	22	180	18	18 - 30
131.18.19.1	DN 100	4"	504	Special Thread	293	683	1"	25	280	18	28 - 48
131.18.20.1	DN 125	5"	635	Special Thread	403	903	1"	46	450	57	45 - 71
131.18.21.1	DN 150	6"	635	Special Thread	403	903	1"	47	720	57	67 - 105

Kv = Q / √∆P

 $\Delta = 0$ and $\Delta = 0$.

131.18 WELDED STEEL MAGNETIC AIR&DIRT SEPARATOR

TYPE	1	4	B (mm)	C*	D (mm)	E (mm)	F (inch)	Weight (kg)	Kv (m³/h)	Volume (lt)	Flow Rate (m ³ /h)
131.18.16.2	DN50	60,3	330	Special Thread	268	578	1"	8	75	9	8 - 12
131.18.17.2	DN65	76,1	330	Special Thread	268	578	1"	8	150	9	10 - 22
131.18.18.2	DN80	88,9	400	Special Thread	293	683	1"	11	180	18	18 - 30
131.18.19.2	DN100	114,3	400	Special Thread	293	683	1"	12	280	18	28 - 48
131.18.20.2	DN125	139,7	525	Special Thread	403	903	1"	24	450	57	45 - 71
131.18.21.2	DN150	168,3	525	Special Thread	403	903	1"	24	720	57	67 - 105

 $Kv = Q / \sqrt{\Delta P}$ Q = Water flow rate (m³ / h) ΔP = Pressure loss on the product (bar) *: Connection C has special design with Ø50 whitworth thread



131.19 KDT STEEL HYDRAULIC SEPARATOR



Manufactured in accordance with 2014/68/EU Pressure Equipment Directive and EN 13445-3 standards.

Maximum Operating Temperature	: 110 °C
Maximum Operating Pressure	: 1000 kPa (10 bar)
Connection Sizes / Pressure Class	
Flanged Connection	: DN50-DN150 / PN16
Welded Connection	: 60,3 mm-168,3 mm
	(Please contact for products between DN200- DN600)
Filter Material	: Perforated Turbulator
Outer Surface Protection Paint	: Electrostatic Powder Paint

The Steel Hydraulic Separator is a device which makes the primary and secondary circuits connected to it independently. It can be used in hot or chilled water systems. The Steel Hydraulic Separators are supplied with air vent to permit automatic discharge of the air in the circuit and a drain valve for removing any impurities accumulated in the bottom of the unit. The hydraulic separator should be sized according to the maximum flow rate value of the primary or secondary circuit, whichever is the greatest.

SPECIFICATIONS / USAGE AREAS

- · In systems where primary and secondary hydraulic circuits should be separated hydraulically from each other.
- When circulation capacity needs are different in primary and secondary circuits
- In systems where more than one energy sources (cascade system) are used
- · In systems where several pumps and heating circuits are present
- In systems where pressure balancing is needed
- · In systems where energy supply and/or energy demand are not constant
- Percentage of glycol in the heating system is maximum 50%.

Scaling

Installation Diagram



131.19 FLANGED STEEL HYDRAULIC SEPARATOR

TYPE	ŀ	4	B (mm)	C (inch)	D (mm)	E (mm)	F (inch)	G (mm)	H (inch)	Weight (kg)	Kv (m³/h)	Volume (It)	Flow Rate (m ³ /h)
131.19.16.1	DN 50	2"	450	3⁄4"	265	795	1"	330	1/2"	24	76	14	5-15
131.19.17.1	DN 65	21/2"	450	3⁄4"	265	795	1"	330	1/2"	27	125	14	10-22
131.19.18.1	DN 80	3"	470	3⁄4"	285	940	1"	450	1/2"	37	172	28	15-30
131.19.19.1	DN 100	4"	470	3⁄4"	285	940	1"	450	1/2"	40	304	28	25-60
131.19.20.1	DN 125	5"	635	3⁄4"	300	1160	1"	560	1/2"	65	451	78	35-83
131.19.21.1	DN 150	6"	635	3⁄4"	300	1160	1"	560	1⁄2"	75	663	78	55-125

Kv = Q / √∆P

Q = Water flow rate (m³ / h) ΔP = Pressure loss on the product (bar)

131.19 WELDED STEEL HYDRAULIC SEPARATOR

TYPE	ŀ	Ą	B (mm)	C (inch)	D (mm)	E (mm)	F (inch)	G (mm)	H (inch)	Weight (kg)	Kv (m³/h)	Volume (lt)	Flow Rate (m ³ /h)
131.19.16.2	DN 50	60,3	360	3⁄4"	265	795	1"	330	1/2"	14	76	14	5-15
131.19.17.2	DN 65	76,1	360	3⁄4"	265	795	1"	330	1/2"	15	125	14	10-22
131.19.18.2	DN 80	88,9	370	3⁄4"	285	940	1"	450	1/2"	21	172	28	15-30
131.19.19.2	DN 100	114,3	370	3⁄4"	285	940	1"	450	1/2"	22	304	28	25-60
131.19.20.2	DN 125	139,7	580	3⁄4"	300	1160	1"	560	1/2"	40	451	78	35-83
131.19.21.2	DN 150	168,3	580	3⁄4"	300	1160	1"	560	1/2"	45	663	78	55-125

 $Kv = Q / \sqrt{\Delta P}$ Q = Water flow rate (m³ / h) ΔP = Pressure loss on the product (bar)



131.20 KPD STEEL MULTIFUNCTION HYDRAULIC SEPARATOR



Manufactured in accordance with 2014/68/EU Pressure Equipment Directive and EN 13445-3 standards.

Maximum Operating Temperature	: 110 °C
Maximum Operating Pressure	: 1000 kPa (10 bar)
Connection Sizes / Pressure Class	
Flanged Connection	: DN50-DN150 / PN16
Welded Connection	: 60,3 mm-168,3 mm
	(Please contact for products between DN200- DN600)
Filter Material	: Stainless steel
Outer Surface Protection Paint	: Electrostatic Powder Paint

Steel Multifunction Hydraulic Separator provides the benefits of the Steel Hydraulic Separator in the system, as well as automatic air releasing, impurity and dirt separation functions.

Steel Multifunction Hydraulic Separator perform triple functions. Air, dirt separation and hydraulic balancing together in one unit which is highly cost and space effective. Usage of a Steel Multifunction Hydraulic Separator solves hydraulic imbalance problems.

SPECIFICATIONS / USAGE AREAS

- · Steel Multifunction Hydraulic Separator units prevent overloading of boilers or pumps.
- · Automation systems will control the heating circuit more effective
- Percentage of glycol in the heating system is maximum 50%



Scaling

Installation Diagram



Installation diagram given above is just a template. Installation must be done according to update standards and directives

131.20 FLANGED STEEL MULTIFUNCTION HYDRAULIC SEPARATOR

TYPE	ŀ	4	B (mm)	C*	D (mm)	E (mm)	F (inch)	G (mm)	H (inch)	Weight (kg)	Kv (m³/h)	Volume (It)	Flow Rate (m ³ /h)
131.20.16.1	DN 50	2"	450	Special Thread	265	818	1"	330	1/2"	24	75	14	8-12
131.20.17.1	DN 65	21⁄2"	450	Special Thread	265	818	1"	330	1/2"	27	150	14	10-22
131.20.18.1	DN 80	3"	470	Special Thread	285	963	1"	450	1/2"	37	180	28	18-30
131.20.19.1	DN 100	4"	470	Special Thread	285	963	1"	450	1/2"	40	280	28	28-48
131.20.20.1	DN 125	5"	635	Special Thread	300	1183	1"	560	1/2"	65	450	78	45-71
131.20.21.1	DN 150	6"	635	Special Thread	300	1183	1"	560	1/2"	75	720	78	67-105

 $Kv = Q / \sqrt{\Delta P}$

 $\Delta = 0$ and $\Delta = 0$.

131.20 WELDED STEEL MULTIFUNCTION HYDRAULIC SEPARATOR

TYPE	ŀ	Ą	B (mm)	C*	D (mm)	E (mm)	F (inch)	G (mm)	H (inch)	Weight (kg)	Kv (m³/h)	Volume (lt)	Flow Rate (m ³ /h)
131.20.16.2	DN 50	60,3	360	Special Thread	265	818	1"	330	1⁄2"	14	75	14	8-12
131.20.17.2	DN 65	76,1	360	Special Thread	265	818	1"	330	1/2"	15	150	14	10-22
131.20.18.2	DN 80	88,9	370	Special Thread	285	963	1"	450	1⁄2"	21	180	28	18-30
131.20.19.2	DN 100	114,3	370	Special Thread	285	963	1"	450	1/2"	22	280	28	28-48
131.20.20.2	DN 125	139,7	580	Special Thread	300	1183	1"	560	1⁄2"	40	450	78	45-71
131.20.21.2	DN 150	168,3	580	Special Thread	300	1183	1"	560	1⁄2"	45	720	78	67-105

 $Kv = Q / \sqrt{\Delta P}$ Q = Water flow rate (m³ / h) ΔP = Pressure loss on the product (bar) : Connection C has special design with Ø50 whitworth thread.



131.21 KJT DOSING POT

Installation Diagram



Conform to the requirements of Pressure Equipment Directive 2014/68/EU and are designed and manufactured according to Sound Engineering Practice (S.E.P).

Vessel	: Carbon Steel
Tundish	: Carbon Steel
Flow/Return Valve	: Brass (plated)
Drain Valve	: Brass (plated)
Maximum Operating Temperature	: 100 °C
Maximum Operating Pressure	: 1000 kPa (10 bar)

Dosing Pots are designed to provide the means of introducing chemical solutions such as corrosion inhibitors into closed heating and chilled water systems.

The specific size of the dosing pot in a system is not critical as the pot can be filled multiple times to obtain the correct concentration. The benefit of using a smaller unit, is that it is easier to physically handle and also allows for more accurate dosing. However, since chilled water systems generally require higher concentrations of dosing chemical, usually glycol, to be dosed into the system a larger dosing pot may be required. For concentration levels always consult the manufacturer.

CAUTION

To prevent scalding safe practice must be observed when venting or draining hot water at pressure.

SPECIFICATIONS / USAGE AREAS

- Dosing pots provide safe and controlled chemical introduction into sealed heating and cooling water systems.
- Dose chemicals without interrupting system operation.
- · Supplied fully assembled for ease of installation and facilitate simple, regular on-going maintenance of your heating or chilled water system.





Installation diagram given above is just a template. Installation must be done according to update standards and directives

Product Code	Code	Unit	131.21.03	131.21.06	131.21.11	131.21.15	131.21.20	131.21.25
Capacity	V	lt	3,5	6	11	15	20	25
Vessel Diameter	ØD ₁	mm	168,3	168,3	219,1	219,1	219,1	273
Vessel Height	h1	mm	190	315	320	445	590	495
Height Between Flow/Return Valves	h2	mm	295	420	425	550	695	600
Height	Н	mm	755	880	885	1010	1155	1060
Air Vent Valve Assebly Connections	N1	inch	1/2"	1/2"	1/2"	1/2"	1/2"	1⁄2"
Filling Valve Connection	N2	inch	1"	1"	1"	1"	1"	1"
Return Valve Connection	N3	inch	1"	1"	1"	1"	1"	1"
Flow Valve Connection	N4	inch	1"	1"	1"	1"	1"	1"
Drain Valve Connection	N5	inch	1"	1"	1"	1"	1"	1"
Bracket Width Dimension	а	mm	185	215	265	265	265	320
Bracket Height Dimension	b	mm	90	205	210	335	480	405
Dry Weight	W	kg	11,5	14	20	24	28	32



R2319 MULTIFUNCTION MAGNETIC DIRT SEPARATOR FILTER

R3070 magnetic super compact system filter



Diverter Body
Cartridge Body
Locking Ring
Filter Cap
Filter Cartridge
Hydraulic Seals
Magnet
Connection Size
Threaded Connections

TECHNICAL CHARACTERISTICS Fluids

Maximum Operating Pressure Temperature Range Noise Induced : Polyamid PA66+ %30 FV : Stainless steel, AISI 304 : EPDM PEROX

- : Neodymium REN35 B = 11000 Gauss
- :G ¾"-G 1¼"
- : FF UNI EN ISO 226

: Water

Water + Glycol : 400 kPa (4 bar)

 $: 0 \circ C \le T \le 90 \circ C$

20 dB(A).

: The noise induced by R2319 in the piping is 0 dB(A). As specified in EN 13443 regulation, R2319 belongs to the I group, as well as all other products having noise levels <



Cartridge Body Filter Cap Filter Cartridge Hydraulic Seals Magnet Ball Valve Body Swivel Fitting Connection Size Threaded Conne

TECHNICAL CH

Maximum Opera Temperature Ran Degree of Filtrat Noise Induced

Product Code	Connection Size	Threaded Connections	Kv (m³/h)
R23190550	3⁄4"	FF UNI-EN-ISO 228 with ball valves	6,81
R23190650	1"	FF UNI-EN-ISO 228 with ball valves	7,51
R23190750	1 1/4"	FF UNI-EN-ISO 228 with ball valves	7,51

Product Code	Connection Size	Threaded Connections	Kv (m³/h)		
D 20700500	3/"	M UNI EN ISO 228 (Ball Valve Connection)	5,49 (Angle Connection)		
N30700300		F UNI EN ISO 228 (Swivel Connection)	5,37 (Straight Connection)		

DESCRIPTION

R3070 represents the best solution to solve plant problems due to particle pollution, especially sand and rust that are formed due to corrosion and scale during the normal operation of a system.

OPERATING PRINCIPLE

Through its effective and constant action, the magnetic filter collects all the impurities present in the system, preventing them from circulating within it, thus avoiding wear and damage of the rest of the components making up the system, circulators and heat exchangers in particular. R3070 performs as continuous protective action on the water heater.

USE

It is advised to install R3070 on the return circuit, at the inlet of the boiler, in order to protect it from any impurities in the system, especially during the start-up phase. Thanks to its compact dimensions, it can be installed under the boiler, in systems for domestic use, where installation spaces are very limited and there is no room for a traditional dirt separator.

Multipurpose polymer magnetic dirt separator represents the best solution to solve plant problems due to particle presence, especially rust and sand
that are formed due to corrosion and scale during the normal operation of a system.

Through its effective and constant action, the magnetic filter collects all the impurities present in the system, preventing them from circulating within it, thus avoiding wear and damage of the rest of the components making up the system, circulators and heat exchangers in particular.

It performs as continuous protective action on the boiler.

It is advised to install multipurpose polymer magnetic dirt separator on the return circuit, at the inlet of the boiler, in order to protect it from any impurities in the system, especially during the start-up phase.

It is important to follow the direction indicated by the arrow on the body to ensure the maximum efficiency of the filtering action. The jointed part allows installation on vertical, horizontal and diagonal piping. Thanks to its jointed seal and to the presence of an opening cap, it is suitable to easily add chemicals for the treatment of the system.



	: Polyamid PA66+ %30 FV : Polyamid PA66+ %30 FV : Stainless Steel, AISI 304 : EPDM PEROX
	: Neodymium REN35 B = 11000 Gauss : Brass : Brass
•	: G ³ / ₄ "
ections	: M UNI EN ISO 228 (Ball Valve Connection) F UNI EN ISO 228 (Swivel Connection)
ARACTERISTICS	
	: Water Water + Glycol 30%
ating Pressure	: 300 kPa (3 bar)
nge	: 0 °C ≤ T ≤90 °C
ion	: 800 μm
	: The noise induced by R3070 in the piping is 0 dB(A). As specified in EN 13443 regulation, R3070 belongs to the I group, as well as all other products having noise levels < 20 dB(A).

131.23 KVF-M MANUALLY CONTROLLED BERNOULLI FILTER

Installation Diagram



Temperature Range	: 4 °C ≤ T ≤90 °C
Minimum Filter Upstream Pressure	: 100 kPa (1 bar, 10 mSS)
Pressure Loss	: 0,1 - 0,2 bar
Maximum Allowed Pressure Differences between Inlet and Outlet	: 1 bar

Connection Sizes/ Pressure Classes

Flanged Connection	: DN50-DN200 / PN10-PN16
Threaded Connection	: DN25-DN50 / PN10-PN16 (Please contact for products between DN250- DN400)
Filter Material	: Perforated Turbulator
Degree of Filtration	: >200 µm
Outer Surface Protection Paint	: Electrostatic Powder Paint
Supply Voltage	: 220 V AC





Installation diagram given above is just a template. Installation must be done according to update standards and directives

131.23 FLANGED MANUALLY CONTROLLED BERNOULLI FILTER

TYPE	G1	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G2 (inch)	K (mm)	Kv (m³/h)	Flow Rate (m ³ /h)
131.23.16.1	DN50	300	455	160	155	335	510	3⁄4"	220	64	16-32
131.23.17.1	DN65	305	470	180	200	380	540	1"	250	110	30-55
131.23.18.1	DN80	370	555	200	230	430	625	11⁄4"	285	160	40-80
131.23.19.1	DN100	380	610	230	265	495	685	1½"	340	270	65-135
131.23.20.1	DN150	550	845	270	405	675	930	2"	395	560	135-280
131.23.21.1	DN200	710	1070	300	420	720	1175	3"	445	1020	255-510

 $\begin{array}{l} Kv=Q\;/\; \sqrt{\Delta P}\\ Q=Water flow rate (m^3 / h) \quad \Delta P= \mbox{Pressure loss on the product (bar)}\\ ^*: \mbox{Connection C has special design with $\ensuremath{\varnothing}$50 whitworth thread.} \end{array}$

131.23 THREADED MANUALLY CONTROLLED BERNOULLI FILTER

TYPE	G1	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G2 (inch)	K (mm)	Kv (m³/h)	Flow Rate (m ³ /h)
131.23.14.2	DN25	175	290	110	145	255	340	1/2"	185	16	3-8
131.23.15.2	DN40	235	385	110	165	275	425	3⁄4"	200	39	8-20
131.23.16.2	DN50	275	425	130	185	315	485	3⁄4"	220	64	16-32

*: Connection C has special design with Ø50 whitworth thread.

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131.23 KVF-A AUTOMATICALLY CONTROLLED BERNOULLI FILTER

Installation Diagram



Temperature Range	: 4 °C ≤ T ≤90 °C
Minimum Filter Upstream Pressure	: 100 kPa (1 bar, 10 mSS)
Pressure Loss	: 0,1 - 0,2 bar
Maximum Allowed Pressure Differences between Inlet and Outlet	: 1 bar

Connection Sizes/ Pressure Classes

Flanged Connection	: DN50-DN200 / PN10-PN16 (Please contact for products between DN250- DN400)
Filter Material	: Perforated Turbulator
Degree of Filtration	: >200 µm
Outer Surface Protection Paint	: Electrostatic Powder Paint
Supply Voltage	: 220 V AC







131.23 FLANGED AUTOMATICLY CONTROLLED BERNOULLI FILTER

TYPE	G1	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G2 (inch)	K (mm)	Kv (m³/h)	Flow Rate (m ³ /h)
131.23.16.0	DN50	300	455	160	175	335	770	3⁄4"	220	64	16-32
131.23.17.0	DN65	305	470	180	210	390	825	1"	250	110	30-55
131.23.18.0	DN80	370	555	200	230	430	910	11⁄4"	285	160	40-80
131.23.19.0	DN100	380	610	230	280	510	670	11⁄2"	340	270	65-135
131.23.20.0	DN150	550	845	270	295	565	1320	2"	395	560	135-280
131.23.21.0	DN200	710	1070	300	420	720	1565	3"	445	1020	255-510

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R3286 NT1 ACID CONDENSATION NEUTRALISING FILTER

R126 SELF-CLEANING WATER FILTER



Body Caps and Hose Fastening Collar Neutralising Mesh Door Neutralising Load Hydraulic Seals **Connection Size**

: Transparent PA Polyamide cartridge : PA Polyamide : Polymer : Stainless steel, AISI 304 : CaCO³ (calcium carbonate) : EPDM PEROX : G ¾" x DN 20

NT1 Acid Condensation Neutralising Filter Kit inclusive of; Acid condensation neutralising filter Fastening collar Pair of DN20 elbow hose connection fittings 2 neutralising loads of calcium carbonate (CaCO³)

WARNING

It is recommended replacing the residual load annually, at the end or beginning of the season, after the filter has been cleaned. Use original parts exclusively . (Product Code: R32900000)

R3287-3288 PAIR OF HOSE CONNECTION FITTINGS





Fittings Connection Size	: PA Poliamid : G ¾" x DN 16 G ¾" x DN 20	
Product Code	Connection Size (A)	Connection Size (B)
R32870516	3/4"	DN16
R32870520	3⁄4"	DN20
R32880516	3⁄4"	DN16
R32880520	3/4"	DN20



Body Nut Filter Seals (Elostomers) **Connection Size Threaded Connections**

Fluids Maximum Opera Maximum Opera Standard Degree **Optional Filtratio** Pressure Gauge Scale



Product Code	Connection Size	Threaded Connections	Kv [m³/h]
R1260410	1/2"	FF UNI EN ISO 228	3,10
R1260510	3/4"	FF UNI EN ISO 228	5,80
R1260610	1"	FF UNI EN ISO 228	8,55
R1260710	11⁄4"	FF UNI EN ISO 228	14,85
R1260810	11⁄2"	FF UNI EN ISO 228	24,40
R1260910	2"	FF UNI EN ISO 228	26,10
R1261010	21/2"	FF UNI EN ISO 228	107,80
R1261110	3"	FF UNI EN ISO 228	120,20
R1261310	4"	FF UNI EN ISO 228	129,00



: Nickel plated brass CW 617N UNI EN 12165
: Nickel plated brass CW 617N UNI EN 12165
: Stainless steel, AISI 304
: Nitrile
: G ½"- G 4"

- : FF UNI EN ISO 228

TECHNICAL CHARACTERISTICS

	: Water
ating Temperature	: 100 °C
ating Pressure	: 1600 kPa (16 bar)
e of Filtration	: 100µm
on	: 100µm, 300µm, 800µm
Scale	: 0-16 bar

R304 MAGNETIC ANTI-SCALE DEVICE

B651 PUMP KIT



Body
Magnet Container
Magnet
Seals
Connection Size
Threaded Connections

: Nickel plated brass CW 617N UNI EN 12165 : Food-grade plastic polymer : Sintered Rings, Ferrite-Strontium mix : NBR : G ½"- G 4" : MM UNI EN ISO 228 for 1/2"-2" FF UNI EN ISO 228 for 21/2"-4"

TECHNICAL CHARACTERISTICS

Fluids	: Water
Maximum Operating Temperature	: 80 °C
Maximum Operating Pressure	: 1600 kPa
Magnetic Field	: 700 Gaus
Coercive Field	: 2800-320
Energy Product	: 2,4- 3,0 N
Residual Induction	: 2300-370
Equivalent treatment Capacity	: 30°F every
Maximum Reference Speed of the Fluid	: 2,0 m/sec

a (16 bar) ss (average weighted value) 00 Oersted I Gauss-Oersted 00 Gauss y 0,10 sec. of performance in the magnetic field

Product Code	Connection Size	Threaded Connections	Kv [m³/h]
R3040400	1/2"	MM UNI EN ISO 228	10,20
R3040500	3/4"	MM UNI EN ISO 228	14,80
R3040600	1"	MM UNI EN ISO 228	26,00
R3040700	11⁄4"	MM UNI EN ISO 228	30,40
R3040800	11⁄2"	MM UNI EN ISO 228	63,00
R3040900	2"	MM UNI EN ISO 228	74,00
R3041000	21/2"	FF UNI EN ISO 228	125,00
R3041100	3"	FF UNI EN ISO 228	160,00
R3041300	4"	FF UNI EN ISO 228	252,00



Preassembled pump group for direct distribution or circulation. Allows the circulation of the thermal fluid, coming from the primary circuit, without performing any thermal regulation. It is used when the same flow temperature of the primary circuit is requested by the user in heating and air-conditioning systems. The group is composed of a pump, flow/return shut-off valves, shut-off valve at the pump inlet, flow/return temperature gauges, anti-thermosiphon check valve, thermal insulation. In this group, the differential by-pass can be installed only externally. The group is reversible (flow line can be exchanged with the return line).

Body	: Brass CW 617N UNI EN 12165
Seals	: PTFE, EPDM, Viton
Insulation	: EPP
Connection Size	: See table below.
Threaded Connections	: M ISO 228-1 F EN 10226-1

Product Code	Pump Connection	Connection Size	Threaded Connections	Pump
651.12	DN20	1"M - (1"M+¾"F)	M ISO 228-1 F EN 10226-1	Grundfos UPM3 AUTO L 15-70 (DN20)
651.13	DN25	11⁄2"M- 1"F	M ISO 228-1 F EN 10226-1	Grundfos UPM3 AUTO L 25-70 (DN25)
651.14	DN32	2"M- 1¼"F	M ISO 228-1 F EN 10226-1	Grundfos UPM3 AUTO L 32-70 (DN32)





TECHNICAL CHARACTERISTICS Fluids

Maximum Operating Temperature : 90 °C Maximum Operating Pressure Temperature Gauge Pump

- : Water, Water + Glycol Solutions 30%
- : 10 bar
- : 0-120 °C
- : Grundfos UPM3 AUTO L 15-70 Grundfos UPM3 AUTO L 25-70 Grundfos UPM3 AUTO L 32-70

R51 "RINOX" COMPANSATED DIAPHRAGM PRESSURE REDUCING VALVE

R2848 "RINOXPLUS M" DIAPHRAGM OPERATED PRESSURE REDUCING VALVE



Body
Sealing Seat
Metal Internal Components
Rod
Diaphragm
Seals
Plastic Components
Pressure Gauge Connection
Connection Size
Threaded Connections

Nickel plated brass CW 617N UNI EN 12165
 Stainless steel, AISI 303
 Brass CW 614N UNI EN 12164
 Brass CW 614N UNI EN 12164
 NBR Nitril Elastomer
 NBR Nitril Elastomer
 Nylon 6 with 30% fibreglass
 anection
 G 1/2" - G 4"

TECHNICAL CHARACTERISTICS

Fluids
Maximum Operating Temperature
Nominal Pressure
Maximum Upstream Pressure

Adjustable Downstream Pressure Factory Presetting : G ¹/₄ " : G ¹/₄" -G 4" : FF UNI EN ISO 228 : Water : 80 °C : PN 40 : 2500 kPa (25 bar) 1600 kPa (16 bar) (in accordance with NF)

: 300 kPa (3 bar) (Only models with *)

: See table below.



Body Metal Internal Corr Internal Cartridge Filter Rod Seals External Plastic C Pressure Gauge C Connection Size Threaded Connect

TECHNICAL CHA Fluids Maximum Operati Nominal Pressure Maximum Upstrea

Adjustable Downst Factory Presetting

Product Code	Connection Size	Threaded Connections	P _{max} Upstream (bar)	P _{adj} Downstream (bar)	P _{presetting} (bar)		
R28480400	1⁄2"	FF UNI EN ISO 228					
R28480500	3⁄4"	FF UNI EN ISO 228	25				
R28480600	1"	FF UNI EN ISO 228	(cold water40°C) 16 (hot water 80°C)	0,8 - 7	3		
R28480700	11⁄4"	FF UNI EN ISO 228					
R28480800	1½"	FF UNI EN ISO 228					
R28480900	2"	FF UNI EN ISO 228					

Product Code	Connection Size	Threaded Connections	P _{max} Upstream (bar)	P _{adj} Downstream (bar)	P _{presetting} (bar)	
R510495	1/2"	FF UNI EN ISO 228				
R510595	3⁄4"	FF UNI EN ISO 228				
R510695	1"	FF UNI EN ISO 228		6 10		
R510795	11⁄4"	FF UNI EN ISO 228		6 - 10	-	
R510895	11⁄2"	FF UNI EN ISO 228				
R510995	2"	FF UNI EN ISO 228				
R510470*	1/2"	FF UNI EN ISO 228	25	0,8 - 5,5	3	
R510570*	3⁄4"	FF UNI EN ISO 228	in accordance with			
R510670*	1"	FF UNI EN ISO 228				
R510770	11⁄4"	FF UNI EN ISO 228	standard NF)]			
R510870	1½"	FF UNI EN ISO 228				
R510970	2"	FF UNI EN ISO 228		0.9.7		
R511070	21⁄2"	FF UNI EN ISO 228		0,0 - 7	-	
R511170	3"	FF UNI EN ISO 228				
R511370	4"	FF UNI EN ISO 228				

Models with * , default presetting pressure is 3 bar.

Models with *, adjustable downstream pressure might be set 0,8-7 bar on request.



	: DZR Brass (CR) CW602N
mponents	: DZR Brass (CR) CW602N
	: POM
	: Stainless steel, AISI 302
	: DZR Brass (CR) CW602N
	: Elastomer
components	: Nylon 6 with 30% fibreglass
Connection	: G ¼" F
	: G ½" -G 2"
tions	: FF UNI EN ISO 228
RACTERISTICS	
	: Water
ing Temperature	: 80 °C
•	: PN 25 (cold water 40°C) / PN 16 (hot water 80°C)
am Pressure	: 2500 kPa (25 bar) (cold water 40°C)
	1600 kPa (16 bar) (hot water 80°C)
stream Pressure	: 80-700 kPa (0,8- 7 bar)
g	: 300 kPa (3 bar)

R87 "RINOX" COMPANSATED PISTON PRESSURE REDUCING VALVE

R1139 "RIS" COMPANSATED PISTON PRESSURE REDUSING VALVE



Body
Sealing Seat
Metal Internal Components
Rod
Seals
Plastic Components
Pressure Gauge Connection
Connection Size
Threaded Connections

Nickel plated brass CW 617N UNI EN 12165
Stainless steel, AISI 303
Brass CW 614N UNI EN 12164
Brass CW 614N UNI EN 12164
NBR Nitril Elastomer
Nylon 6 with 30% fibreglass
G ¼" F
G ½" -G 2"
FF UNI EN ISO 228

TECHNICAL CHARACTERISTICS

Fluids
Maximum Operating Temperature
Nominal Pressure
Maximum Upstream Pressure
Adjustable Downstream Pressure

: Water : 80 °C : PN 25 : 2500 kPa (25 bar) : 50-700 kPa (0,5-7 bar)







Metal Internal Cor Rod Seals Plastic Componer

Pressure Gauge C Connection Size Threaded Connection

TECHNICAL CHAI Fluids Maximum Operati Nominal Pressure Maximum Upstrea Adjustable/ Fixed Factory Presetting



Product Code	Connection Size	Threaded Connections	P _{max} Upstream (bar)	P _{adj} Downstream (bar)	P _{presetting} (bar)
R11390400*	1⁄2"	FF UNI EN ISO 228	(with	16 (with inlet pressure of 8 bar) 3 (f. educibusion)	
R11390500*	3⁄4"	FF UNI EN ISO 228			
R11390440	1/2"	FF UNI EN ISO 228			0
R11390540	3⁄4"	FF UNI EN ISO 228			3
R11390490	1⁄2"	FF UNI EN ISO 228			
R11390590	3⁄4"	FF UNI EN ISO 228		(lixed calibration)	

Models only with * have pressure gauge connection.



	: Nickel plated brass CW 617N UNI EN 12165
	Brass CW 617N UNI EN 12165
nponents	: Brass CW 614N UNI EN 12164
	: Brass CW 614N UNI EN 12164
	: EPDM PEROX / NBR Nitril Elastomer
nts	: Nylon 6 with 30% fibreglass
	PA66 with 30% fibreglass
connection	: G ¼" F (for only R11390X00 code version)
	: G ½" -G ¾"
tions	: FF UNI EN ISO 228
RACTERISTICS	
	: Water
ng Temperature	: 80 °C
	: PN 16
am Pressure	: 16 bar
Dournotroom Drooouro	· Saa tabla balaw

Downstream Pressure	: See table below.
1	: 300 kPa (3 bar) (Only models with *)

R37 DEGASSER - VASA

R2828 MINILUFT AIR VENT



Body
Float
Spring
Seals (Elastomers)
Surface Finish
Connection Size
Threaded Connection
TECHNICAL CHARACTER
Fluids

- : Nickel-plated brass CW 617N UNI EN 12165 : Lever type made of polypropylene resin
- : Stainless steel, AISI 302
- : EPDM PEROX and NBR
- : Nikel-plated satin finish : G ½"- G 1"
- : M UNI EN ISO 228

RISTICS

Fluids	: Water Water
Maximum Operating Temperature	: 100 °C
Maximum Operating Pressure	: 600 kF
Maximum Discharge Pressure	: 250 kF

er + Glycol 30% °C kPa (6 bar) kPa (2,5 bar)

Product Code	Connection Size	Threaded Connection	Discharge Pressure
R370460	1/2"	E UNI EN ISO 228	2,5 bar
R370560	3/4"	E UNI EN ISO 228	2,5 bar
R370660	1"	E UNI EN ISO 228	2,5 bar



Body/ Cap Float Spring Seals (Elostomer Connection Size Threaded Conne

TECHNICAL CH Fluids

Maximum Opera Maximum Opera Maximum Discharg

Product Co

R2828040

R37 DEGASSER - VASASETTE



Cover	
Float	
Spring	
Seals (Elastomers)	
Surface Finish	
Connection Size	
Threaded Connection	

TECHNICAL CHAR Fluids

			V
Maximum	Operating Temperature	:	1
Maximum	Operating Pressure	:	6
Maximum	Discharge Pressure	:	3
Maximum	Pressure Withstood	:	1

: Lever type made of polypropylene resin
: Stainless steel, AISI 302

: Nickel-plated brass CW 617N UNI EN 12165

- : EPDM PEROX and NBR
- : Nikel-plated satin finish
- : G ¾" x G ½"
- : FF UNI EN ISO 228

ACTERISTICS	
	: Water
	Water + Glycol
g Temperature	: 100 °C

ating Pressure	: 600 kPa (6 ba
harge Pressure	: 300 kPa (3 ba
sure Withstood	: 1000 kPa (10

:	Water
	Water + Glycol 30%
:	: 100 °C
:	: 600 kPa (6 bar)
:	: 300 kPa (3 bar)
:	: 1000 kPa (10 bar)

Product Code	Connection Size	Threaded Connection	Discharge Pressure
R370570	3⁄4" x 1⁄2"	FF UNI EN ISO 228	3 bar



Body/ Cap Float Spring Seals (Elostome Connection Size Threaded Conne

TECHNICAL CH Fluids

Maximum Opera Maximum Opera Maximum Disch

Product Co

R2836040

44



	: Brass CW 617N UNI EN 12165
	: Float and lever in polypropylene
	: Stainless steel, AISI 302
rs)	: EPDM PEROX and NBR
1	: G ½"
ection	: M UNI EN ISO 228
ARACTERISTICS	
	: Water
	Water + Glycol 30%
ating Temperature	: 115 °C
ating Pressure	: 1000 kPa (10 bar)
arge Pressure	: 600 kPa (6 bar)

de	Connection Size	Threaded Connection	Discharge Pressure
)0	1/2"	M UNI EN ISO 228	6 bar

R2836 MEGALUFT HP AIR VENT

	: Brass CW 617N UNI EN 12165
	- Stainlass staal AISI 302
arc)	• EDDM DEDOX and NRD
-15)	
9	: G /2
ection	: M UNI EN ISO 228
IARACTERISTICS	
	: Water
	Water + Glycol 30%
ating Temperature	: 115 °C
ating Pressure	: 1000 kPa (10 bar)
narge Pressure	: 1000 kPa (10 bar)

de	Connection Size	Threaded Connection	Discharge Pressure
0	1/2"	M UNI EN ISO 228	10 bar

R3153 AUTOMATIC ADJUSTABLE FILLING UNIT

R39 automatic adjustable filling unit





Body	: Nickel plated brass CW 617N	TECHNICAL CHARACTERISTICS		Body	: Nickel plated brass CW 61
	UNI EN 12165	Fluids	: Water		UNI EN 12165
Metal Internal Components	: Brass CW 614N UNI EN 12164	Maximum Operating Temperature	: 80 °C	Metal Internal Components	: Brass CW 614N UNI EN 12
Plastic External Components	: Nylon 6 with 30% fibreglass	Nominal Pressure	: PN 16	Plastic External Components	: Nylon 6 with 30% fibreglas
Seals	: NBR	Maximum Upstream Pressure	: 1600 kPa (16 bar)	Seals	: NBR
Sealing Seat	: Stainless steel	Adjustable Downstream Pressure	: 50-400 kPa (0,5-4 bar)	Sealing Seat	: Stainless steel
Pressure Gauge Connection	: G ¼" F	Pressure Gauge	: 0-4 bar	Pressure Gauge Connection	: G ¼" F
Connection Size	: G ½"	Degree of Filtration	: 500 µm	Connection Size	: G ½", G ¾"
Threaded Connections	Input : M UNI EN ISO 228			Threaded Connections	Input : M UNI EN ISO 228
	Output : F UNI EN ISO 228				Output : F UNI EN ISO 228

Product Code	Connection Size	Threaded Connections	P _{max} Upstream (bar)	P _{adj} Downstream (bar)	P _{Pre-calibration} (bar)
R31530400	1/2"	Input: M UNI EN ISO 228 Output: F UNI EN ISO 228	16	0,5 - 4	-

Product Code	Connection Size	Threaded Connections	P _{max} Upstream (bar)	P _{adj} Downstream (bar)	P _{Pre-calibration} (bar)
R390400	1⁄2"	Input: M UNI EN ISO 228 Output: F UNI EN ISO 228	16	0,5 - 4	-
R390500	3⁄4"	Input: M UNI EN ISO 228 Output: F UNI EN ISO 228	16	0,5 - 4	-



plated brass CW 617N	TECHNICAL CHARACTERISTICS	
N 12165	Fluids	: Water
CW 614N UNI EN 12164	Maximum Operating Temperature	: 80 °C
6 with 30% fibreglass	Nominal Pressure	: PN 16
	Maximum Upstream Pressure	: 1600 kPa (16 bar)
ess steel	Adjustable Downstream Pressure	: 50-400 kPa (0,5-4 bar)
F	Pressure Gauge	: 0-4 bar
G ¾"	Degree of Filtration	: 500 µm
: M UNI EN ISO 228		

R46 automatic adjustable filling unit

R811 SAFETY RELIEF VALVE



	T	T
	IMII	
È	111	5,
	ht.	3

Body	: Nickel plated brass CW 617N	TECHNICAL CHARACTERISTICS	
	UNI EN 12165	Fluids	: Water
Metal Internal Components	: Brass CW 614N UNI EN 12164	Maximum Operating Temperature	: 80 °C
Plastic External Components	: Nylon 6 with 30% fibreglass	Nominal Pressure	: PN 25
Seals	: NBR	Maximum Upstream Pressure	: 2500 kPa (25 bar)
Sealing Seat	: Stainless steel	Adjustable Downstream Pressure	: 80-550 kPa (0,8-5,5 bar)
Pressure Gauge Connection	: G ¼" F	Pressure Gauge	: 0-10 bar
Connection Size	: G ½"	Degree of Filtration	: 800 µm
Threaded Connections	: FF UNI EN ISO 228		

Product Code	Connection Size	Threaded Connections	P _{max} Upstream (bar)	P _{adj} Downstream (bar)	P _{Pre-calibration} (bar)
R460400	1⁄2"	FF UNI EN ISO 228	25	0,8 - 5,5	-

Body
Spring
Diaphragm
Obturator Seals
Connection Size
Threaded Connections

:Brass CW 614N UNI EN 12164
:Stainless steel, AISI 302
:Elastomer
:Elastomer
:G ½"x G ¾"- G 1¼"x G 1½"
:FF UNI EN ISO 228

Product Code	Connection Size	Threaded Connections Calibration, P _{set} (bar)		Max. Power (kW)	
R8111430	1⁄2" x 3⁄4"	FF UNI EN ISO 228	2,50	50	
R8111440	1/2" x 3/4"	1/2" x 3/4" FF UNI EN ISO 228 3,00		50	
R8111530	3⁄4" x 1"	FF UNI EN ISO 228	2,50	100	
R8111540	3⁄4" x 1"	FF UNI EN ISO 228	3,00	100	
R8111630	1" x 1¼"	FF UNI EN ISO 228	3,00	000	
R8111640	1" x 1¼"	FF UNI EN ISO 228	3,10	200	
R8111730	1¼" x 1½"	FF UNI EN ISO 228	3,20	050	
R8111740	11⁄4" x 11⁄2"	FF UNI EN ISO 228	3,30	350	



TECHNICAL CHARACTERISTICS	
Fluids	:Water, air
Maximum Operating Temperature	:120 °C
Maximum Allowable Pressure	:PS 12
Calibration Pressure	:250 kPa (2,5 bar) ≤ Pset ≤330 kPa (3,30 bar)
Discharge Overpressure	:+ %10
Closing Differential	: - %20

R2809 SAFETY RELIEF VALVE

R351 SAFETY RELIEF VALVE

Body
Spring
Diaphragm
Obturator Seals
Connection Size
Threaded Connections

TECHNICAL CHARACTERISTICS

Fluids	:Wa
Maximum Operating Temperature	: 100
Maximum Allowable Pressure	:PS
Calibration Pressure	: 400
Discharge Overpressure	:+ %
Closing Differential	:-%

: Water, air
: 100 °C
: PS 12
: 400 kPa (4 bar) ≤ Pset ≤100 kPa (10 bar)
: + %10
: - %20

: Brass CW 614N UNI EN 12164

: G ½"x G ¾"- G 1¼"x G 1½"

: FF UNI EN ISO 228

: Stainless steel, AISI 302

: Elastomer

: Elastomer

Body Spring Diaph Obtur Conne Thread

TECH Fluids Tempe Maxin Calibr Backp Discha Closin

Orifis Net Se Maxin

Product Code	Connection Size	Threaded Connections	Calibration, P _{set} (bar)	Max. Power (kW)
R28090460	1/2" x 3/4"	FF UNI EN ISO 228	4,00	
R28090490	1/2" x 3/4"	FF UNI EN ISO 228	6,00	
R28090481	1/2" x 3/4"	FF UNI EN ISO 228	8,00	
R28090411	1⁄2" x ¾"	FF UNI EN ISO 228	10,00	
R28090560	3⁄4" x 1"	FF UNI EN ISO 228	4,00	
R28090590	3⁄4" x 1"	FF UNI EN ISO 228	6,00	450
R28090581	3⁄4" x 1"	FF UNI EN ISO 228	8,00	150
R28090511	3⁄4" x 1"	FF UNI EN ISO 228	UNI EN ISO 228 10,00	
R28090660	1" x 1¼"	FF UNI EN ISO 228	4,00	
R28090690	1" x 1¼"	FF UNI EN ISO 228	6,00	050
R28090681	1" x 1¼"	FF UNI EN ISO 228	8,00	250
R28090611	1" x 1¼"	FF UNI EN ISO 228	10,00	
R28090760	1¼" x 1½"	FF UNI EN ISO 228	4,00	
R28090790	1¼" x 1½"	FF UNI EN ISO 228	6,00	050
R28090781	1¼" x 1½"	FF UNI EN ISO 228	8,00	350
R28090711	1¼" x 1½"	FF UNI EN ISO 228	10,00	

Product Code	Connection Size	Product Code	Connection Size	Threaded Connections	Calibration, P _{set} (bar)	Max. Power (kW)
R3510410		R3510510	34″ x 34″	FF UNI EN ISO 228	1,50	48
R3510420		R3510520		FF UNI EN ISO 228	2,00	55
R3510430		R3510530		FF UNI EN ISO 228	2,50	68
R3510440		R3510540		FF UNI EN ISO 228	3,00	75
R3510450	1/2" × 1/2"	R3510550		FF UNI EN ISO 228	3,50	83
R3510460		R3510560		FF UNI EN ISO 228	4,00	96
R3510470		R3510570		FF UNI EN ISO 228	4,50	103
R3510480		R3510580		FF UNI EN ISO 228	5,00	109
R3510490		R3510590		FF UNI EN ISO 228	6,00	128
R3510471		R3510571		FF UNI EN ISO 228	7,00	148
R3510481		R3510581		FF UNI EN ISO 228	8,00	166
R3510411		R3510511		FF UNI EN ISO 228	10,00	181

	: Brass CW 614N UNI EN 12164
9	: Stainless steel, AISI 302
ragm	: Elastomer
ator Seals	: Elastomer
ection Size	: G ½"x G ¾"- G 1¼"x G 1½"
ded Connections	: FF UNI EN ISO 228
NICAL CHARACTERISTICS	
5	: Water, air
erature Range	: +5 °C ≤ T ≤120 °C
num Allowable Pressure	: PS 12
ation Pressure	: 150 kPa (1,5 bar) ≤ Pset ≤1000 kPa (10 bar)
pressure	: Atmospheric
arge Overpressure	: + %10
ng Differential	: - %20
Diameter	: DN=15 mm
ection	: A=1,76 cm ²
num Power	: 48 kW ≤ P ≤181 kW

R605 SAFETY RELIEF VALVE

R2201 T&P COMBINED SAFETY VALVE

Body
Spring
Diaphragm
Obturator Seals
Connection Size
Threaded Connections

TECHNICAL CHARACTERISTICS Fluids **Temperature Range** Maximum Allowable Pressure **Calibration Pressure** Backpressure Discharge Overpressure **Closing Differential**

Orifis Diameter Net Section Discharge Coefficient Maximum Power

: Brass CW 614N UNI EN 12164 : Galvanized steel : Elastomer : Elastomer : G ½"x G ¾"- G 1¼"x G 1½" : FF UNI EN ISO 228

: Water, air : +5 °C ≤ T ≤110 °C : PS 12 : 600 kPa (6 bar) : Atmospheric : + %10 : - %20

: 15 mm≤ DN ≤32 mm : 1,76 cm² ≤ A ≤8,03 cm² : 0,50 ≤ K ≤0,75 : 217 kW ≤ P ≤824kW

Bod Spri Diap Obtu Pipe Con Thre

TECI Fluic Calib Max Calil

Product Code	Connection Size	Threaded Connections	Orifice Diameter [DN(mm)]	Prob Length (inch)	Calibration, P _{set} (bar)	Max. Power (kW)
R22010410	½" x Ø15	M UNI EN ISO 228	45	4"	- 10,00	10
R22011410	½" x Ø15	M UNI EN ISO 228	15	8"		

R47 SAFETY RELIEF VALVE

	Body
	Float (
	Spring
	Diaphi
	Seals
Control Control	Conne
	Thread
	TECHI
Artizm	Fluids
	Maxim
	Maxim
	Maxim

Product Code	Connection Size	Threaded Connections	Max. Power (kW)
R470610	1"	F UNI EN ISO 228	76

Product Code	Connection Size	Threaded Connections	Orifice Dia. [DN(mm)]	Net Section (cm ²)	Discharge Coefficient	Flow Rate (kg/sa)	Calibration, P _{set} (bar)	Max. Power (kW)
R6050490	1⁄2" x 3⁄4"	FF UNI EN ISO 228	15	1,76	0,60	374		217
R6050590	3⁄4" x 1"	FF UNI EN ISO 228	20	3,14	0,65	720	6,00	418
R6050690	1" x 1¼"	FF UNI EN ISO 228	25	4,90	0,75	1298		754
R6050790	1¼" x 1½"	FF UNI EN ISO 228	32	8,03	0,50	1418		824

ly	: Brass CW 614N UNI EN 12164
ing	: Stainless steel, AISI 302
ohragm	: Elastomer
urator Seals	: Elastomer
e End Connection	: Copper
nection Size	: G ½"x Ø15
eaded Connections	: M UNI EN ISO 228
CHNICAL CHARACTERISTICS	
ds	: Water
bration Temperature	: 90+2 °C
kimum Allowable Pressure	: PS 12
bration Pressure	: 1000 kPa (10 bar)

Orifis Diameter

Maximum Power

- : DN=15 mm
- : 10 kW

- oat (Air Vent)
- pring (Air Vent) iaphragm (Safety Valve)
- onnection Size readed Connections
- ECHNICAL CHARACTERISTICS uids
- laximum Operating Temperature
- aximum Operating Pressure
- laximum Withstand Pressure
- Maximum Power
- Pressure Gauge
- **Opening Overpressure**

- : Brass CW 614N UNI EN 12164
- : Float and lever in polypropylene
- : Stainless steel, AISI 302
- : Elastomer
- : Elastomer
- :G1"
- : F UNI EN ISO 228
- : Water
- Water + Glycol 30%
- : 90 °C
- : 600 kPa (6 bar)
- : 1000 kPa (10 bar)
- : 76 kW
- : 0-6 bar
- : 300 kPa (3 bar)

R3072 WATER HAMMER ARRESTOR

Body	: Brass CW 614N UNI EN 12164
Spring	: Stainless steel
Piston	: POM Polymer
Hydraulic Seals	: EPDM PEROX
Connection Size	: G ½"
Threaded Connection	: M UNI EN ISO 228
TECHNICAL CHARACTERISTICS	
Fluids	: Water
Maximum Operating Temperature	: 90 °C
Maximum Operating Pressure	: 1000 kPa (10 bar)
Operating Start Pressure	: 300 kPa (3 bar)

Product Code	Connection Size	Threaded Connection	Operating Start Pressure
R30720400	1/2"	M UNI EN ISO 228	3 bar

Instrumen

Fittings fo Body Seals Pump Temperatu Connectio Threaded

TECHNIC Fluid

Maximum Factory Se Accuracy Maximum Flow Coef Temperatu

R860 NON-RETURN VALVE

Ring Spring Seals **Connection Size Treaded Connection** TECHNICAL CHARACTERISTICS Fluid **Temperature Range** Maximum Operating Pressure Minimum Opening Pressure

Body

: Brass DIN 17660 : Brass DIN 17660 : Stainless steel, AISI 302 : Elastomer : G ½" - G 2" : FF UNI EN ISO 228

: Water, air : 0 °C \leq Tmax \leq 90 °C (Water) $-20 \degree C \leq Tmax \leq 110 \degree C$ (Air) : 25 bar /16 bar : 4 kPa (0,04 bar)

Threaded Connection Pmax (bar) Kv (m³/h) Product Code **Connection Size** R8600402 1⁄2" FF UNI EN ISO 228 25 3,11 3⁄4" R8600502 FF UNI EN ISO 228 25 6,39 R8600602 1" FF UNI EN ISO 228 25 10,11 R8600702 11⁄4" FF UNI EN ISO 228 16 16.67 R8600802 11⁄2" FF UNI EN ISO 228 16 24,62 2" R8600902 FF UNI EN ISO 228 16 38,84

Pre-assembled pump group for fixed point regulation and circulation of mixed fluid. Allows the circulation of the thermal fluid, coming from the primary circuit, by keeping the temperature at a pre-set value (fixed point) through the help of a mixing valve with thermostatic element. It is used in heating systems in general and radiant panel systems. The group is composed of a pump, thermostatic mixing valve, flow temperature gauge, manual air vent, fittings for secondary distribution manifolds. The group can be installed with the secondary distribution manifolds on the right or the left.

t Holder Fitting	: Brass CW 617N EN 12165
r Secondary Manifold	
	: Brass CW 617N EN 12165
	: EPDM
	: UPM3 AUTO L 25-70 130
ure Adjustment Range	: 30-60°C
on Size	: Rp ¾"- G 1"
Connections	: M ISO 228-1
AL CHARACTERISTICS	
	: Water,
	Water + Glycol Solutions 30%
Operating Temperature	: 90°C
etting Temperature	: 45°C
	: ±2 °C
Operating Pressure	: 10 bar
fficient, Kv _s	: 3,5 m³/h
ure Gauge	: 0-80 °C

B622 THERMAL SOLAR SYSTEMS THERMOSTATIC MIXING VALVE

621.1 | V07 M25 0BB

This series of valves can be equipped with nuts and tailpieces with or without built-in check valve.

Body	: Brass CW 617N UNI EN 12165
Flow Regulator	: PSU
Seals	: EPDM
Handle	: ABS
Temperature Adjustment Range	: 35- 60 °C
Reference Operating Conditions	: T _{hot} = 65 °C
	T _{cold} = 15 °C
	P _{hot&cold} = 3 bar
Connection Size	: G 1"
Threaded Connections	: MM ISO 228-1

: Domestic Water,
Water + Glycol Solutions 30%
: 95 °C
: 44 °C
: ±2 °C
: 10 bar
: 5 bar
: 4 bar
: 2,5 m³/h

621.2 | V17 M32 0AA

This series of valves can be equipped with union fittings with or without built-in check valve or built-in check valve and filter. If they need to be connected directly to a pump, versions with running nut on the central port are available (art. P09).

Body Seals Handle Temperature Adjustment Range Reference Operating Conditions	: Brass CW 617N UNI EN 12165 : EPDM : ABS : 30 - 65 °C : T _{hot} = 70 °C T _{cold} = 15 °C P _{botilinola} = 3 bar
Connection Size	: G 1¼"
Threaded Connections	: MM ISO 228-1
Fluid	: Domestic Water,
	Water for thermal systems
	Water + Glycol Solutions 30%
Maximum Operating Temperature	: 90 °C
Factory Setting Temperature	: 40 °C
Accuracy	: ±2 °C
Maximum Structural Pressure	: 10 bar
Maximum Operating Pressure	: 5 bar
Maximum Allowed Pressure Loss	: 2 bar
Flow Coefficient, Kv	: 3,5 m³/h

Product Code	Connection Size	Threaded Connection	Kv (m³/h)
621.1	1"	MM ISO 228-1	2,5
621.2	11⁄4"	MM ISO 228-1	3,5

Dedu		Eluid	· Detable Water
Боау	: Brass GW 602IN UNI EIN 12165	Fluid	: Polable Waler,
Seals	: EPDM		Water for thermal systems
Handle	: ABS		Water + Glycol Solutions 30%
Temperature Adjustment Range	: 30-65 °C	Maximum Operating Temperature	: 110 °C
Reference Operating Conditions	: Thot= 70 °C	Factory Setting Temperature	: 40 °C
	Tcold= 15 °C	Accuracy	: ±2 °C
	Phot&cold= 3 bar	Maximum Operating Pressure	: 10 bar
		Maximum Allowed Pressure Loss	: 2 bar
Connection Size	: G ¾", G 1"	Flow Coefficient, Kv _s	: 2,3 m ³ /h
Threaded Connections	: EE ISO 228-1	Maximum Difference between Inlet Press.	: 4 bar

Thermostatic mixing valves are devices with mixed water coming from the central port and are used to adjust the water temperature. They are normally used in domestic water systems or in heating systems served by a thermal solar system through forced or natural circulation. Their function is to maintain constant the temperature of the mixed water sent to users even if hot and cold water inlet temperatures or pressures vary. This series of valves can be equipped with nuts and tailpieces with or without built-in check valve or built-in check valve and filter.

R3616 SIMPLE SINGLE-ZONE MANIFOLD (RETURN)

R3201 MANIFOLDS WITH LOCKSHIELD VALVES

Body	: Nickel plated brass CW 617N UNI EN 12165
Valve Seals	: EPDM PEROX
Hand Wheels and Caps	: ABS
Junction Connections	: Standard RBM (W24.5 x 19F)
Connection Size	: G1"
Line Connections	: MF 1" UNI-EN-ISO 228

TECHNICAL CHARACTERISTICS	
Fluid	: Water
	Water + Glycol %50*
Temperature Range	: 0 °C ≤ T ≤100 °C
Maximum Operating Pressure	: 1000 kPa (10 bar)
Differential Pressure ∆Pmax	: 100 kPa (1 bar)

*: Make sure that the antifreeze fluid or glycol used is not aggressive for the O-rings, flow meters and construction materials of the manifold **: Available thermal insulation shell accessory cod. 3673X002

Product Code	Connection Size	Threaded Connection	Number of Ways
R36160600	1"	MF UNI-EN-ISO 228	1
R36170600	1"	MF UNI-EN-ISO 228	2
R36180600	1"	MF UNI-EN-ISO 228	3
R36190600	1"	MF UNI-EN-ISO 228	4
R36200600	1"	MF UNI-EN-ISO 228	5

Body Valve Seals Hand Wheels and Caps Junction Connections **Connection Size** Line Connections

TECHNICAL CHARACTERISTICS Fluid

Temperature Range Maximum Operating Pressure

materials of the manifold

Connection Size	Threaded Connection	Number of Ways
1"	MF UNI-EN-ISO 228	1
1"	MF UNI-EN-ISO 228	2
1 "	MF UNI-EN-ISO 228	3
1"	MF UNI-EN-ISO 228	4
1"	MF UNI-EN-ISO 228	5
	Connection Size 1" 1" 1" 1" 1" 1" 1"	Connection Size Threaded Connection 1" MF UNI-EN-ISO 228 1" MF UNI-EN-ISO 228

R3201 MANIFOLDS WITH FLOWMETER

Body Valve Seals Hand Wheels and Caps Junction Connections **Connection Size** Line Connections

TECHNICAL CHARACTERISTICS Fluid

Temperature Range Maximum Operating Pressure Differential Pressure $\Delta Pmax$ Flow Meter Flow Meter Accuracy

materials of the manifold

Product Code	Connection Size	Threaded Connection	Number of Ways
R32010600	1"	MF UNI-EN-ISO 228	1
R32020600	1"	MF UNI-EN-ISO 228	2
R32030600	1"	MF UNI-EN-ISO 228	3
R32040600	1"	MF UNI-EN-ISO 228	4
R32050600	1"	MF UNI-EN-ISO 228	5

Product Code	Connection Size	Threaded Connection	Number of Ways
R32010600	1"	MF UNI-EN-ISO 228	1
R32020600	1"	MF UNI-EN-ISO 228	2
R32030600	1"	MF UNI-EN-ISO 228	3
R32040600	1"	MF UNI-EN-ISO 228	4
R32050600	1"	MF UNI-EN-ISO 228	5

: Water Water + Glycol %50* : +5 °C ≤ T ≤100 °C

: MF UNI-EN-ISO 228

: Elastomer

: ABS

: G1"

: 1000 kPa (10 bar)

*: Make sure that the antifreeze fluid or glycol used is not aggressive for the O-rings, flow meters and construction

: Standard RBM (W24.5 x 19F)

: Nickel plated brass CW 617N UNI EN 12165

**: Available thermal insulation shell accessory cod. 3673X002

Modular manifold with several ways complete with micrometric Lockshield valves and graduated hand-wheel.

: G1" : MF UNI-EN-ISO 228

: Water

: EPDM

: ABS

: 1000 kPa (10 bar)

Water + Glycol %50* : +5 °C ≤ T ≤80 °C

- : 100 kPa (1 bar) : 1-4 l/min
- :±10%

*: Make sure that the antifreeze fluid or glycol used is not aggressive for the O-rings, flow meters and construction

: Standard RBM (W24.5 x 19F)

: Nickel plated brass CW 617N UNI EN 12165

**: Available thermal insulation shell accessory cod. 3673X002

Modular manifold with several ways complete with micrometric Lockshield valves and graduated hand-wheel.

R3215 AIR & WATER AUTOMATIC DISCHARGE TERMINAL

R2028 COMPACT BRASS MANIFOLD KIT

• .

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Standard installation on the delivery line of modular brass manifold kits.		
Pressure Gauge Holder Connection	: G 1/8"	
Connection Size	: G1"	
Pressure Gauge	: 0-16 bar	

Product Code	Connection Size	Pressure Gauge Connection Size
R32150650	1"	1/8"

R3216 air & water manual discharge terminal

Standard installation on return line of mo	odular brass manifold kits.
Pressure Gauge Holder Connection	: G 1/8"
Connection Size	: G1"
Pressure Gauge	: 0-16 bar

Product Code	Connection Size	Pressure Gauge Connection Size
R32160650	1"	1/8"

R3217 BY-PASS GROUP WITH ROTATABLE ELBOW FITTINGS

ľ.		
1		

It consists of (loose pieces):	
Automatic air vent,	
By-pass adjustment group,	
Fittings and connection pipe.	
Pressure Gauge Holder Connection	: G 1⁄8"
Connection Size	: G1"
Pressure Gauge	: 0-10 bar

Product Code	Connection Size	Pressure Gauge Connection Size
R32170600	1"	1/8"

2.4	
Î 🔔	• 1 x 1" air &
	n° 1 manual
	Body
	Valve Seals
	Hand Wheels an
Ť.	Junction Connec
	Connection Size
	Line Connection

TECHNICAL CH Fluid

Temperature Rar

Maximum Opera **Differential Press**

Flow Meter Flow Meter Accu

Product Code	Connection Size	Threaded Connection	Number of Ways
R20280610	1"	F UNI-EN-ISO 228	2+2
R20290610	1"	F UNI-EN-ISO 228	3+3
R20300610	1"	F UNI-EN-ISO 228	4+4
R20310610	1"	F UNI-EN-ISO 228	5+5
R20320610	1"	F UNI-EN-ISO 228	6+6
R20330610	1"	F UNI-EN-ISO 228	7+7
R20340610	1"	F UNI-EN-ISO 228	8+8
R20350610	1"	F UNI-EN-ISO 228	9+9
R20360610	1"	F UNI-EN-ISO 228	10+10
R20370610	1"	F UNI-EN-ISO 228	11+11
R20380610	1 "	F UNI-EN-ISO 228	12+12
R20381310	1"	F UNI-EN-ISO 228	13+13
R20381410	1"	F UNI-EN-ISO 228	14+14

KODSAN

Each kit contains:

function;

- n° 1 multi-way manifold unit complete with flow meters with lockshield and flow indicator
 - nº 1 multi-way manifold unit complete with valves with thermostatic option with hand wheel; 1 pair of plastic brackets for fixing manifolds;
 - n° 2 thermometers 0÷80 °C;
 - n° 2 union fittings;
 - 1 x 1" air & water automatic discharge terminal unit;
 - n° 1 manual 1" air & water discharge terminal unit.

	: Nickel plated brass CW 617N UNI EN 12165
	: Elastomer
d Caps	: ABS
ctions	: Euroconus (G ¾" UNI EN ISO 228)
	: G1"
s	: F UNI-EN-ISO 228
ARACTERISTICS	
	: Water
	Water + Glycol %50*
nge	: +5 $^\circ\text{C} \leq T \leq 100 \ ^\circ\text{C}$ (Manifold kit with Lockshield valves)
	+5 $^\circ\text{C}$ \leq T \leq 80 $^\circ\text{C}$ (Manifold kit with flow-meters)
ting Pressure	: 1000 kPa (10 bar)
sure ∆Pmax	: 100 kPa (1 bar)
	(only for solo manifolds with a thermostatic option)
	: 1-4 l/min
iracy	: ±10%
the entifyees fluid or all	and used is not addressive for the O rings. flow motors

*: Make sure that the antifreeze fluid or glycol used is not aggressive for the O-rings, flow meters and construction materials of the manifold.

R1410 COMPACT POLYMER MANIFOLD KIT

Manifold Spare Parts

Each kit contains:

- n° 1 multi-way manifold unit complete with flow meters with lockshield and flow indicator function;
- n° 1 multi-way manifold unit complete with valves with thermostatic option with hand wheel;
- 1 pair of plastic brackets for fixing manifolds;
- n° 2 thermometers 0÷80 °C; •
- n° 2 union fittings;
- 1 x 1" air / water automatic discharge terminal unit; •
- n° 1 manual 1" air / water discharge terminal unit.

Body

Valve Seals
Hand Wheels and Caps
Junction Connections
Connection Size
Line Connections

: Polymer (Pa66 + 30% FV) with Brass inserts on the
threaded parts
: Elastomer
: ABS
: Euroconus (G ¾" UNI EN ISO 228)
: G1"
: F UNI-EN-ISO 228

TECHNICAL CHARACTERISTICS Fluid

Fluid	: Water
	Water + Glycol %50*
Temperature Range	: +5 °C \leq T \leq 100 °C (Manifold kit with Lockshield valves)
	+5 °C \leq T \leq 80 °C (Manifold kit with flow-meters)
Maximum Operating Pressure	: 800 kPa (8 bar)
Maximum Circuit Test Pressure	: 1000 kPa (10 bar)
Differential Pressure ∆Pmax	: 100 kPa (1 bar)
Flow Meter	: 1-4 l/min
Flow Meter Accuracy	: ±10%
*: Make sure that the antifreeze fluid or alv	collused is not aggressive for the O rings. flow motors

LRbm

Manifolds.

Product Code : R32480600

manifolds.

Product Code

Connection Size

Threaded Conne

Maximum Opera

Maximum Opera

R306 Thermo-electrically Controlled Servo Motor with Auxiliary Microswitch (4 wires)

Thermo-electrically controlled servo motor for valve with thermostatic option, complete with valve body clamping ring nut and electric power cable.

Normally closed valve position when power missing.

Product Code Power Supply

Consumption Frequency Protection Rating Temperature Ran Stroke Switch Contact F

*: Make sure that the antifreeze fluid or glycol used is not aggressive for the O-rings, flow meter	er
and construction materials of the manifold	

Product Code	Connection Size	Threaded Connection	Number of Ways
R14100640	1"	F UNI-EN-ISO 228	2+2
R14110640	1"	F UNI-EN-ISO 228	3+3
R14120640	1"	F UNI-EN-ISO 228	4+4
R14130640	1"	F UNI-EN-ISO 228	5+5
R14140640	1"	F UNI-EN-ISO 228	6+6
R14150640	1"	F UNI-EN-ISO 228	7+7
R14160640	1"	F UNI-EN-ISO 228	8+8
R14170640	1"	F UNI-EN-ISO 228	9+9
R14180640	1"	F UNI-EN-ISO 228	10+10
R14190640	1"	F UNI-EN-ISO 228	11+11
R14200640	1"	F UNI-EN-ISO 228	12+12
R14201340	1"	F UNI-EN-ISO 228	13+13
R14201440	1"	F UNI-EN-ISO 228	14+14

R3248 Pair of Steel Brackets

Pair of steel brackets with collar for the aligned fixing of the series 3201 - 3202 Brass Modular

Provided as standard in 3202 series modular brass manifolds kits.

R3597 Compression Fitting

Compression fitting for polyethylene pipes, specifically designed for 3201 - 3202 - 3616 series

	: R35971600
:	: 16x2 Size: Outside Ø x pipe thickness
ection	: Standard RBM threaded F connection.
ating Temperature	: 95 °C
ating Pressure	: 1000 kPa (10 bar)

	: R3060002, R3060012, R3060042, R3060052
	: 230 V (R3060002-R3060042)
	24 V (R3060012-R3060052)
	: 2,5 W
	: 50 Hz-60 Hz
g	: IP54
nge	: -5 °C ≤ T ≤ 50 °C
	: 4 mm
Rating	: (0.5A) 1 A (if any)

Manifold Spare Parts

R58 Fitting for Pipe Connection to Manifold

Heavy serie three-pieces straight fitting for pipe connection to manifold.

Suitable for gas, air, hot and cold drinking water, hydrocarbons, solar systems.

: R580500

: FKM

: G ¾"(R580500)

G 1" (R580600)

: MF UNI EN ISO 228

Product Code
Body

O-ring Seals

Connection Size

R580600 : Nickel plated brass CW 617N UNI EN 12165

Threaded Connection

Maximum Operating Temperature : 180 °C Maximum Operating Pressure : 1000 kPa (10 bar)

Product Code

Body Ball Seals **Connection Size**

Threaded Conne

Fluid Temperature Ran Nominal Pressure

R221 Ball Discharge Cock

Ball discharge cock, with hose connection and rotating cap.

Product Code	: R2210400
Connection Size	: G ½"
Threaded Connection	: M UNI EN ISO 228

Product Code

Connection Size

R2960 Full Bore Ball Valve

Butterfly handle operated, full bore ball valve.

	:	R29600570 R29600670 R29600770
	:	Nickel plated brass CW 617N UNI EN 12165
	:	Thick chrome plated brass
	:	PTFE
	:	G ¾" (R29600570) G 1" (R29600670) G 1¼" (R29600770)
ection	:	MF ISO 7 (UNI EN 10226)
	:	Water, water+glycol.
nge (without steam)	:	$-20 \text{ °C} \le T \le +120 \text{ °C}$
e	:	PN 40 (R29600570- R29600670) PN 30 (R29600770)

R945 Repair Kit / Circuits Junction

Material needed to repair an inadvertently damaged circuit.

One pack includes No. 1 quick coupling sleeve fitting with reinforced core suitable for the joining of two pipe ends section Ø 8x1.

- : R9450800
- : Ø8 x1

Filter Spare Parts

R3289 NT1 Acid Condensation Neutralising Filter Insulation

Thermal insulation made up from expanded polyethylene half-bearings with external antiscratch coating.

Half-bearings fixed with velcro already applied.

Product Code	:	R32890000
Fire Behaviour Class	:	1
Density	:	33 kg/m ³
Size	:	3⁄4"
Temperature Range	:	-40 °C ≤ T ≤+90 °C

R3290 Neutralising Load of Calcium Carbonate

Neutralising load of calcium carbonate (CaCO³).

Product Code : R32900000

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R1171 Self-Cleaning Filter Cartridge

Product Code	Connection Size	Mesh (µm)
R1171023	3⁄8"- 1⁄2"	100
R1172023	3/4"	100
R1173023	1"	100
R1200023	11⁄4"	100
R1204023	11⁄2"- 2"	100
R1215023	21⁄2"- 3"- 4"	100
R1171013	3/8"- 1/2"	300
R1172013	3/4"	300
R1173013	1"	300
R1200013	11⁄4"	300
R1204013	11⁄2"- 2"	300
R1215013	21⁄2"- 3"- 4"	300
R1171003	3/8"- 1/2"	800
R1172003	3/4"	800
R1173003	1"	800
R1200003	11⁄4"	800
R1204003	11⁄2"- 2"	800
R1215003	21⁄2"- 3"- 4"	800

R8519 Cartridge for MG1 Magnetic Sludge Remover Filter

Product Code	Connection Size	Mesh (µm)
R8519015	3/4"	800

IMPORTANT NOTES

- We highly recommend to follow instructions specified at the user and installation guide attached to your product in order to secure of using it in safe and efficient.
- · Safety Valve, expansion tank and, if required, pressure reducer valve should be used with our products (water heaters and storage tanks).
- · KODSAN reserves the right to change the product specifications, technical information and installation diagrams without any notifications.

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• You may contact Kodsan for more details about your product.

SYMBOLS						
		X	H			
	Two-Way Motorized Valve	Bypass Valve	Pump			
		X				
	Three-Way Modulating Motorized Valve	Drain Valve	Twin-Head Pum			
	\mathbb{A}/\mathbb{A}	¥				
	Two Way Thermostatic Valve	Shut Off Valve	Heat Meter			
	\$2/₩	Γ ,	\bigcirc			
	Three Way Thermostatic Valve	Strainer	Cold Water Flow Meter			
	⊢ <u>×</u>	Z	M			
	Filling Valve	Check Valve	Pressure Gauge			
	Ř		Ţ			
	Ball Valve	Pressure Release Valve	Thermometer			
		THC I	_ −			
	Thermostatic Outlet Ball Valve	Safety Thermostat	Air Relief Cock			

