KODSAN

HEAT INTERFACE UNITS

INDEX

HEAT INTERFACE UNITS

KODSAN

About Us

Kodsan is the first and largest enamel covered hot water storage tank manufacturer in Turkey. It was founded in 1984 in order to provide solutions for challenging hot water system projects as well as to make life easier. Functioning in a closed area of 20.000 m² with more than 150 experienced employees, Kodsan manufactures enamel/ non-enamel covered water heaters, flat stations and installment protection equipments. Additionally, with its extensive technical service network, Kodsan provides service for energy consumption management and heat meter inspection which enables the company to reach an entire circle of clients in the heating sector.

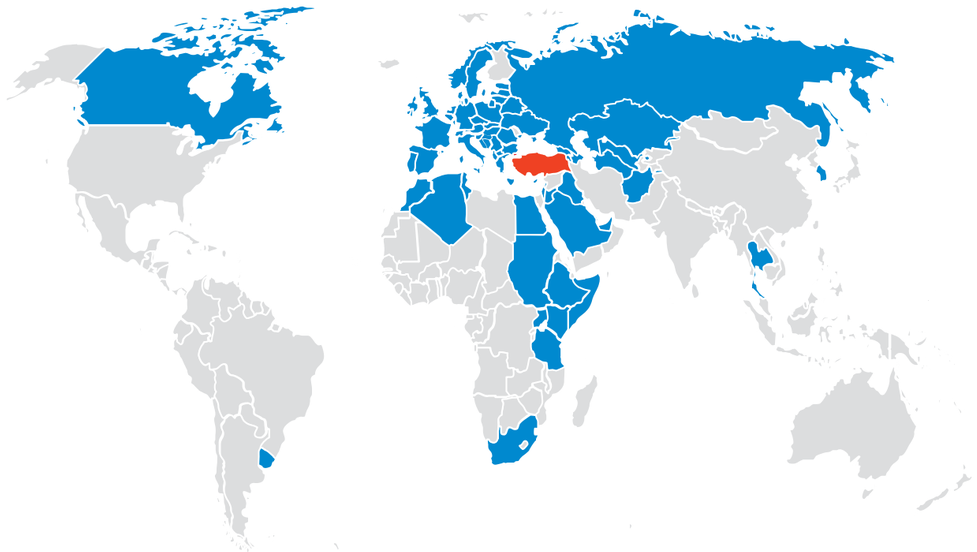
Kodsan began to its export operations in 2000, and became one of Turkey's leading brands at the hot water sector with its 300.000 actively working products and making their services reach more than 50 countries.

Kodsan builds close relationships with its customers and associates, and prioritizes their satisfaction under a principle of combining high production capacity with punctual delivery.

Adopting the rule that constant improvement is the only way to reach permanent success, Kodsan aims to deliver their services to the whole world and become one of the top five manufacturers in Europe for short-term plans.

Main Export Countries

Germany, Azerbaijan, United Arab Emirates, Denmark, France, Republic of South Africa, South Korea, Holland, Iraq, England, Spain, Israel, Sweden, Italy, Canada, Qatar, Kenya, Norway, Portugal, Uruguay, Russia, Saudi Arabia, Thailand, Greece



Production Process

With its' design and environmentally-conscious insulation, Kodsan hot water tanks are innovative and easily adjustable to customer needs. The enamel that Kodsan uses does not include any heavy metals like boron or silicon and conforms the European health and environment regulations as well as the Rosh, Reach and Nickel Free criteria. Additionally, the enamel holds the WRAS certificate which is accredited to products that contact potable water.

The storage life of hot water in tanks is maximized by the cathodic protection that is provided with magnesium anode manufactured using chemical components in accordance to European standards.

Quality Assurance

Kodsan Quality Assurance System is identified with high quality and zero error.

Regarding the basis of the manufacturing stage, instead of identifying and separating errors on finished products, the optimized process controls and avoids any defects during the manufacturing stage.

The Kodsan Quality Assurance team focuses on eliminating all potential errors during the production process by applying process control tests that are following the most recent technology at Kodsan Laboratories.

Kodsan Quality Assurance system is structured in accordance with the ISO 9001 standards. Products are designed in accordance with TS 736 and TS EN 13445-3 standards, are tested in accordance with TS EN 12897 standard, enameled in accordance with the DIN4753-3 standards and are insulated according to

TS EN 12897 standards. The energy labelling according to the eco design necessities are being applied as it is stated in ERP EU No: 814/2013 regulations. Additionally, all Kodsan products hold the documents and certificates of the CE, TSE, TSEK, Solarkeymak, GOST Exemption letter, EAC Eurasia Customs Declaration following the 2014/68/EU Pressured Equipment Directive. Material selection is carried out according to ASME, DIN, EN standards.

Tests That Are Being Held at KODSAN Labs

Product Performance Tests

- Life Longevity Test
- Heat Loss tests in accordance with the 814/2013 ErP regulations.
- Actual Capacity Test
- Counter Pressure Test

Process Control Tests

- Enamel
  - Impact/ Adhesion Strength Test
  - Citric Acid Resistance Test
  - Boiling Water and Steam Resistance Test
- Electrostatic Powder Paint
  - Impact/ Adhesion Test
  - Scratch test (Crosscut Experiment)
  - Bending Test
- Polyurethane
  - Bulk Density
  - Molded Density
- Surface Cleaning
  - PH
  - Concentration
  - Temperature
  - Conductivity
  - Iron and protective oil Saturation

Exterior Laboratory Tests

Polyurethane

- Determination of size stability at certain temperature and humidity conditions
- Determination of thermal resistance

Electrostatic Dust Paint

- Corrosion Tests – Salt Spray Experiments on Artificial Atmosphere
  - o Evaluation of bubbling degree
  - o Evaluation of corrosion rate
  - o Assessment of separation and corrosion levels in scratched environment

Tips For Quality And Longevity

- Hot benched sheet metal with low carbon steel that is compatible with enameling and cold forming must be used.
- The enamel thickness is in between 200-500um.
- During the serpentine production, a low carbon pipe which is durable for maximum test pressure must be used.
- During the production, water based polyurethane that is eco-friendly and HCFC-free is being used.
- At the polyurethane insulation, 42+- 2 kg/m3 density is homogeneously distributed by the heated molds for the top and bottom sections.
- Standard UV and corrosion resistance are provided with the 5µ foundation and Polyester painting that is 25+/-5 µ in thickness.

KODFLAT 711 HEAT INTERFACE UNIT INDIRECT DOMESTIC HOT WATER

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KODFLAT711 series Heat Interface Units is the most compact solution, operating with district heating systems that require high static pressures and thermal medium temperatures.

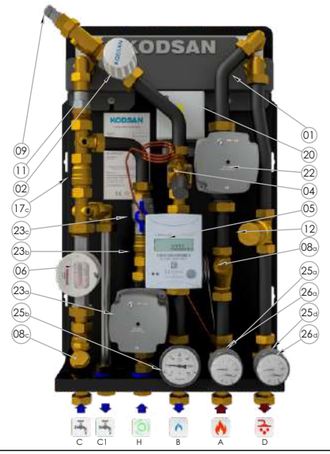
The primary and secondary circuits are completely separate; no mixing and contamination are allowed.

KODFLAT711 is useful when designing or redesigning the domestic hot water systems of apartment buildings under renovation, as well as facilitating any maintenance required in the individual dwellings.

Heating System :	Two pipe flow
Mounting :	Wall-mounted
Dimensions :	G x D x Y (mm) (***)
Casing :	Painted metal sheet
Plate Heat Exchanger :	Stainless steel, copper brazed
Pipework :	Stainless steel pipe with brass fittings
Insulation :	ERF, EPF
All External Connections :	¾" coupling

Primary Circuit	
Nominal Heat Capacity(*) :	7,3-72,9 kW
Min.- Max. Flow Rate :	96-1086 l/h
Min.- Max. Flow Temperature :	50-90 °C
Nominal Pressure :	PN10 (*****)
Min. Required Differential Pressure :	35 kPa (****)
Secondary Circuit	
Max. Flow Rate :	1800 l/h
Nominal DHW Temperature :	50 °C
Nominal Pressure :	PN10

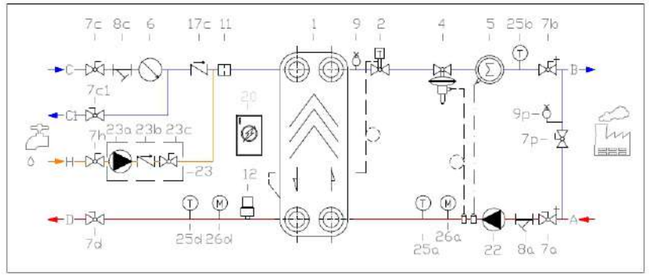
KODFLAT711 Characteristic Components(**)



01. Plate Heat Exchanger (DHW)
02. Two-way Modulating Valve
04. Differential Pressure Regulating Valve
05. Heat Meter
06. Cold Water Flow Meter
07. Ball valve
08. Strainer
09. Air Vent
11. Flow Limiter
12. Water- Hammer Arrestor
17. Non-return Valve
20. Cable Terminal Box
22. Circulating Pump
23. Re-circulating Pump Kit
25. Temperature Gauge
26. Pressure Gauge

A. District Heating Flow
B. District Heating Return
C. Cold Water Mains
C1. Domestic Cold Water
D. Domestic Hot Water (DHW)
H. Re-circulating Flow

KODFLAT711 Hydraulic Diagram (**)



(*) kW output and DHW flow rates depend on system's parameters.
(**) Material list consist of all characteristic components used and alterations are possible.
(***) Dimensions will be alter depend on used components and connection preferences.
(****) Heat meter and inter-floor differential pressure regulating valve pressure losses not included.
(*****) PN16 avaliable on enquiry.

KODFLAT 712 HEAT INTERFACE UNIT DIRECT SPACE HEATING

KODSAN

KODFLAT712 series Heat Interface Units is the most compact solution, operating with district heating systems that require medium static pressures and temperatures.

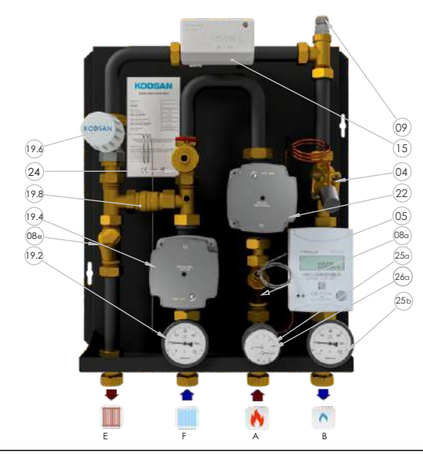
The primary and secondary circuits are connected to each other.

KODFLAT712 is useful when designing or redesigning the heating systems of apartment buildings under renovation, as well as facilitating any maintenance required in the individual dwellings.

Heating System :	Two pipe flow
Mounting :	Wall-mounted
Dimensions :	G x D x Y (mm) (***)
Casing :	Painted metal sheet
Plate Heat Exchanger :	Stainless steel, copper brazed
Pipework :	Stainless steel pipe with brass fittings
Insulation :	ERF, EPF
All External Connections :	¾" coupling

Nominal Heat Capacity(*) :	Underfloor: 15 kW Radiator: 26 kW
District Heating Flow Rate :	900 l/h
Nominal Water Temperature :	70 °C
Min.-Max. Flow Temperature :	50-90 °C
Nominal Pressure :	PN10 (*****)
Min. Required Differential Pressure :	65 kPa (****)

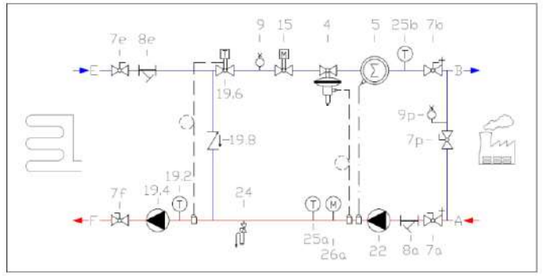
KODFLAT712 Characteristic Components(**)



04. Differential Pressure Regulating Valve
05. Heat Meter
07. Ball valve
08. Strainer
09. Air Vent
15. Zone Control Valve
19-2. Temperature Gauge
19-4.Circulating Pump
19-6. Two-way Modulating Valve
19-8. Non-return Valve
22. Circulating Pump
24. Drain Cock
25. Temperature Gauge
26. Pressure Gauge

A. District Heating Flow
B. District Heating Return
E. Space Heating Flow
F. Space Heating Return

KODFLAT712 Hydraulic Diagram (**)



(*) kW output and DHW flow rates depend on system's parameters.
(**) Material list consist of all characteristic components used and alterations are possible.
(***) Dimensions will be alter depend on used components and connection preferences.
(****) Heat meter and inter-floor differential pressure regulating valve pressure losses not included.
(*****) PN16 avaliable on enquiry.

KODFLAT 713 HEAT INTERFACE UNIT INDIRECT SPACE HEATING

KODSAN

KODFLAT713 series Heat Interface Units is the most compact solution, operating with district heating systems that require high static pressures and temperatures.

The primary and secondary circuits are completely separate; no mixing and contamination are allowed.

KODFLAT713 is useful when designing or redesigning the heating systems of apartment buildings under renovation, as well as facilitating any maintenance required in the individual dwellings.

Heating System :	Two pipe flow
Mounting :	Wall-mounted
Dimensions :	G x D x Y (mm) (***)
Casing :	Painted metal sheet
Plate Heat Exchanger :	Stainless steel, copper brazed
Pipework :	Stainless steel pipe with brass fittings
Insulation :	ERF, EPF
All External Connections :	¾" coupling

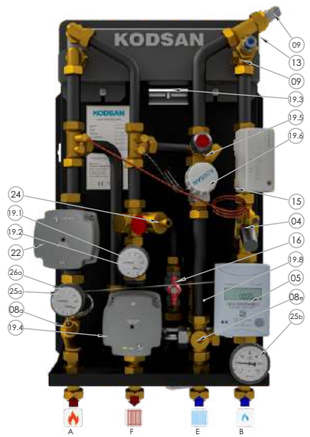
Primary Circuit

Nominal Heat Capacity(*) :	Underfloor Heating: 15 kW
	Radiator: 26 kW
Max. Flow Rate :	850 l/h
Min.- Max. Flow Temperature :	50-90 °C
Nominal Pressure :	PN10 (*****)
Min. Required Differential Pressure :	40 kPa (****)

Secondary Circuit

Max Flow Rate :	1300 l/h
Max. Flow Temperature :	70°C
Nominal Pressure :	PN10
Max. Differential Pressure :	65 kPa

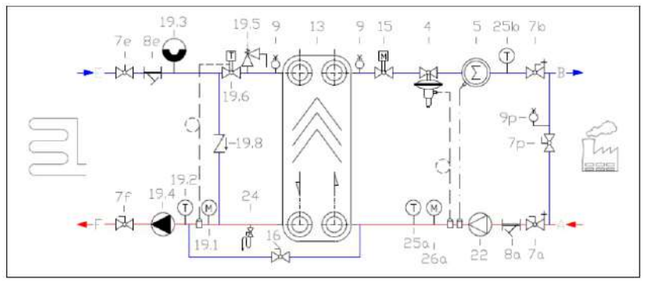
KODFLAT713 Characteristic Components(**)



04. Differential Pressure Regulating Valve
05. Heat Meter
07. Ball Valve
08. Strainer
09. Air Vent
13. Plate Heat Exchanger (Space Heating)
15. Zone Control Valve
16. Ball Valve
19-1. Pressure Gauge
19-2. Temperature Gauge
19-3. Expansion Vessel
19-4. Circulating Pump
19-5. Safety Relief Valve
19-6. Two-way Modulating Valve
19-8. Non-return Valve
20. Cable Terminal Box
22. Circulating Pump
24. Drain Cock
25. Temperature Gauge
26. Pressure Gauge

A. District Heating Flow
B. District Heating Return
E. Space Heating Flow
F. Space Heating Return

KODFLAT713 Hydraulic Diagram (**)



(*) kW output and DHW flow rates depend on system's parameters.
(**) Material list consist of all characteristic components used and alterations are possible.
(***) Dimensions will be alter depend on used components and connection preferences.
(****) Heat meter and inter-floor differential pressure regulating valve pressure losses not included.
(*****) PN16 avaliable on enquiry.

KODFLAT 721S HEAT INTERFACE UNIT INDIRECT DOMESTIC HOT WATER & DIRECT SPACE HEATING

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KODFLAT721S series Heat Interface Units is the most compact solution, operating with district heating systems that require medium static pressures and temperatures.The primary and DHW secondary circuits are completely separate; no mixing and contamination are allowed.

The space heating secondary circuit is directly connected to the primary circuit.

KODFLAT721S is useful when designing or redesigning the heating and domestic hot water systems of apartment buildings under renovation, as well as facilitating any maintenance required in the individual dwellings.

Heating System :	Two pipe flow
Mounting :	Wall-mounted
Dimensions :	355 x 420 x 165 (mm)
Casing :	Painted metal sheet
Plate Heat Exchanger :	Stainless steel, copper brazed
Pipework :	Stainless steel pipe with brass fittings
Insulation :	ERF, EPF
All External Connections :	¾" coupling

Primary Circuit

Nominal Heat Capacity(*) :	Domestic Hot Water: 7,3-72,9 kW
	Underfloor Heating: 15 kW
	Radiator: 26 kW
Min.- Max. Flow Rate :	96-1086 l/h
Min.- Max. Flow Temperature :	50-90°C
Nominal Pressure :	PN10
Min. Required Differential Pressure :	35 kPa (**)

Secondary Circuit

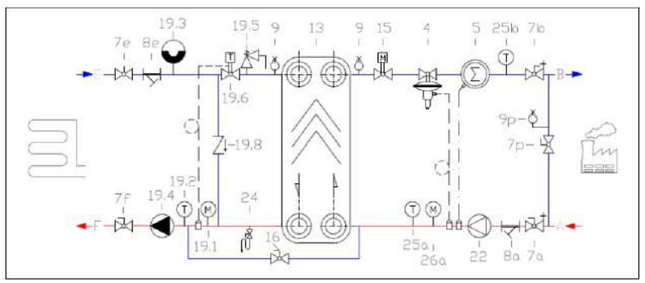
Max Flow Rate :	1800 l/h
DHW Circuit Temperature :	10/60 °C
Space Heating Circuit Temperature :	50/70 °C
Nominal Pressure :	PN10

KODFLAT721S Characteristic Components

01. Plate Heat Exchanger (DHW)
02. Two-way Modulating Valve
03. Differential Pressure Regulating Valve
05. Heat Meter
08. Strainer
09. Air Vent
25. Temperature Gauge

A. District Heating Flow
B. District Heating Return
C. Cold Water Mains
D. Domestic Hot Water (DHW)
E. Space Heating Flow
F. Space Heating Return

KODFLAT721S Hydraulic Diagram



(*) kW output and DHW flow rates depend on system's parameters.
(**) Heat meter and inter-floor differential pressure regulating valve pressure losses not included.

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KODFLAT 721

HEAT INTERFACE UNIT
INDIRECT DOMESTIC HOT WATER & DIRECT SPACE HEATING

KODFLAT721 series Heat Interface Units is the most compact solution, operating with district heating systems that require medium static pressures and temperatures.

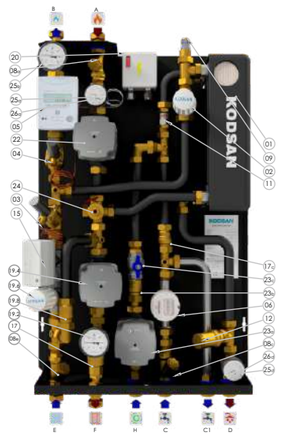
The primary and DHW secondary circuits are completely separate; no mixing and contamination are allowed. The space heating secondary circuit is directly connected to the primary circuit.

KODFLAT721 is useful when designing or redesigning the heating and domestic hot water systems of apartment buildings under renovation, as well as facilitating any maintenance required in the individual dwellings.

Heating System :	Two pipe flow
Mounting :	Wall-mounted
Dimensions :	G x D x Y (mm) (***)
Casing :	Painted metal sheet
Plate Heat Exchanger :	Stainless steel, copper brazed
Pipework :	Stainless steel pipe with brass fittings
Insulation :	ERF, EPF
All External Connections :	¾" coupling

Primary Circuit	
Nominal Heat Capacity(*) :	Domestic Hot Water: 7,3-72,9 kW Underfloor Heating: 15 kW Radiator: 26 kW
Min- Max Flow Rate :	96-1086 l/h
Min- Max Flow Temperature :	50-90°C
Nominal Pressure :	PN10 (*****)
Min. Required Differential Pressure :	35 kPa (****)
Secondary Circuit	
Max Flow Rate :	1800 l/h
DHW Circuit Temperature :	10/60 °C
Space Heating Circuit Temperature :	50/70 °C
Nominal Pressure :	PN10

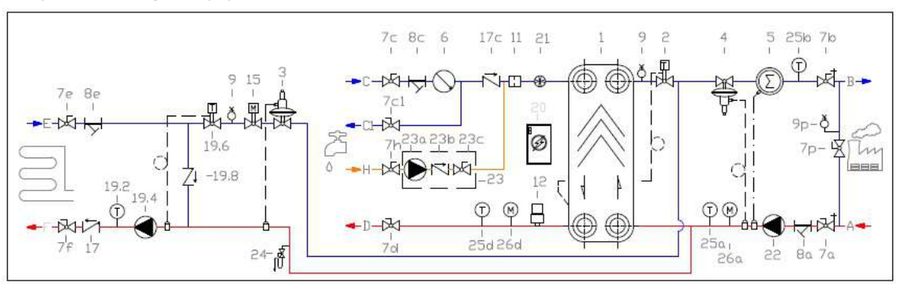
KODFLAT721 Characteristic Components(**)



01. Plate Heat Exchanger (DHW)
02. Two-way Modulating Valve
03. Differential Pressure Regulating Valve
04. Differential Pressure Regulating Valve
05. Heat Meter
06. Cold Water Flow Meter
07. Ball Valve
08. Strainer
09. Air Vent
11. Flow Limiter
12. Water Hammer Arrestor
15. Zone Control Valve
17. Non-return Valve
19-2. Temperature Gauge
19-4. Circulating Pump
19-6. Two-way Modulating Valve
19-8. Non-return Valve
20. Cable Terminal Box
21. Flow Sensor
22. Circulating Pump
23. Re-circulating Pump Kit
24. Drain Cock
25. Temperature Gauge
26. Pressure Gauge

A. District Heating Flow
B. District Heating Return
C. Cold Water Mains
C1. Domestic Cold Water
D. Domestic Hot Water (DHW)
E. Space Heating Flow
F. Space Heating Return
H. Re-circulating Flow

KODFLAT721 Hydraulic Diagram (**)



(*) kW output and DHW flow rates depend on system's parameters.
(**) Material list consist of all characteristic components used and alterations are possible.
(***) Dimensions will be alter depend on used components and connection preferences.
(****) Heat meter and inter-floor differential pressure regulating valve pressure losses not included.
(*****) PN16 avaliable on enquiry.

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KODFLAT 722

HEAT INTERFACE UNIT
INDIRECT DOMESTIC HOT WATER & INDIRECT SPACE HEATING

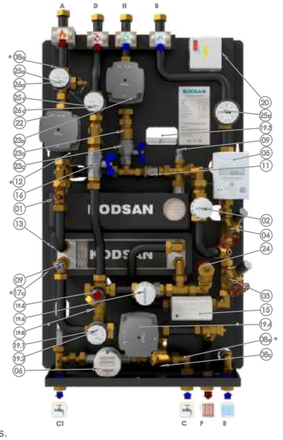
KODFLAT722 series Heat Interface Units is the most compact solution, operating with district heating systems that require high static pressures and thermal medium temperatures.

The primary and secondary circuits are completely separate; no mixing and contamination are allowed. KODFLAT722 is useful when designing or redesigning the heating and domestic hot water systems of apartment buildings under renovation, as well as facilitating any maintenance required in the individual dwellings.

Heating System :	Two pipe flow
Mounting :	Wall-mounted
Dimensions :	G x D x Y (mm) (***)
Casing :	Painted metal sheet
Plate Heat Exchanger :	Stainless steel, copper brazed
Pipework :	Stainless steel pipe with brass fittings
Insulation :	ERF, EPF
All External Connections :	¾" coupling

Primary Circuit	
Nominal Heat Capacity(*) :	Domestic Hot Water: 7,3-72,9 kW Underfloor Heating: 15 kW Radiator: 26 kW
Min.- Max. Flow Rate :	96-1086 l/h
Min.- Max. Flow Temperature :	50-90°C
Nominal Pressure :	PN10 (*****)
Min. Required Differential Pressure :	35 kPa (****)
Secondary Circuit	
Max Flow Rate :	1800 l/h
DHW Circuit Temperature :	10/60 °C
Space Heating Circuit Temperature :	50/70 °C
Nominal Pressure :	PN10

KODFLAT722 Characteristic Components(**)

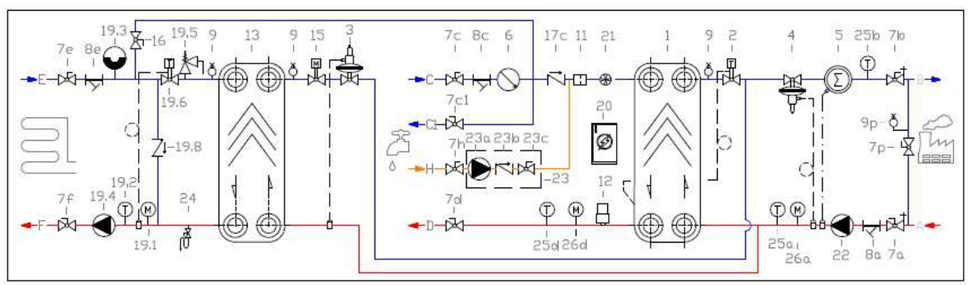


(*) : Not visible components.

01. Plate Heat Exchanger (DHW)
02. Two-way Modulating Valve
03. Differential Pressure Regulating Valve
04. Differential Pressure Regulating Valve
05. Heat Meter
06. Cold Water Flow Meter
07. Ball Valve
08. Strainer
09. Air Vent
11. Flow Limiter
12. Water Hammer Arrestor
13. Plate Heat Exchanger (Space Heating)
15. Zone Control Valve
16. Ball Valve
17. Non-return Valve
19-1. Pressure Gauge
19-2. Temperature Gauge
19-3. Expansion Vessel
19-4. Circulating Pump
19-5. Safety Relief Valve
19-6. Two-way Modulating Valve
19-8. Non-return Valve
20. Cable Terminal Box
21. Flow Sensor
22. Circulating pump
23. Re-circulating Pump Kit
24. Drain Cock
25. Temperature Gauge
26. Pressure Gauge

A. District Heating Flow
B. District Heating Return
C. Cold Water Mains
C1. Domestic Cold Water
D. Domestic Hot Water (DHW)
E. Space Heating Flow
F. Space Heating Return
H. Re-circulating Flow

KODFLAT722 Hydraulic Diagram (**)



((*) kW output and DHW flow rates depend on system's parameters.
(**) Material list consist of all characteristic components used and alterations are possible.
(***) Dimensions will be alter depend on used components and connection preferences.
(****) Heat meter and inter-floor differential pressure regulating valve pressure losses not included.
(*****) PN16 avaliable on enquiry..

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