

OIL AND WATER BASED TEMPERATURE CONTROL EQUIPMENT
PRODUCTS, SOLUTIONS, SERVICE

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A GLOBAL PLAYER WITH GLOBAL RESPONSIBILITY

Robamat is a byword for high-end temperature control systems for die casting and injection moulding machinery. Nearly 30 years of experience, the quality of our products as well as the economical use of resources have made us one of the leading suppliers worldwide - responsibility we continue demonstrating every day.



ROBAMAT // QUALITY



PERSONAL TOUCH

The company was founded by Ing. Heinrich Rothbauer in 1979 and became a member of the Frech Group in 1998. Ever since that time, the company has been relying on the continuous technological development and improvement of our products, solutions, and services.

Robamat employees keep their minds on quality during every single manufacturing step. And that is why we can guarantee high standard.

"QUALITY FIRST!" IS OUR GUIDING PRINCIPLE

From manufacturing to installation, the Robamat team relies on sustainable quality assurance, thus making a substantial contribution to the overall successfulness of our customers. It goes without saying that certification according to ISO 9001 is a matter of course with us.

ALWAYS NEAR YOU

A network of branch offices and partners, now represented on five continents, ensures that Robamat customers receive only the best service - from sales to repair and spare parts services.

As a member of the Frech Group, we have access to a worldwide competence and customer service, a significant advantage our customer are able to enjoy in the course of day-to-day co-operation.

OIL-BASED TEMPERATURE CONTROL UNITS

Temperature control unit using oil as a heat carrier with a temperature range between 60° and 350° C (140° and 660° F).



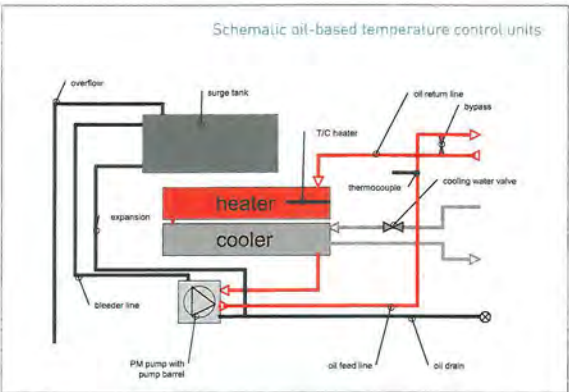
SINGLE-CIRCUIT SYSTEM							
types	🔥 kW	❄️ kW/150K	pump capacity	pump type / motor power	tank	dimensions	weight
321	7/10 kW	20 kW	7,5 Bar / 60 l/min	PM1 / 1,1 kW	15 l	850/330/940	120 kg
3201	7/10/20kW	20/40/60 kW	7,5 Bar / 60 l/min	PM1 / 1,1 kW	25 l	1050/385/1020	160 kg
4201	7/10/20kW	20/40/60 kW	7,5 Bar / 60 l/min	PM1 / 1,1 kW	25 l	1050/385/1021	160 kg
5201	7/10/20kW	20/40/60 kW	11 Bar / 80 l/min	PM3 / 2,8 kW	25 l	1050/385/1022	180 kg
5211	30/40 kW	20/40/60W	11 Bar / 80 l/min	PM3 / 2,8 kW	35 l	1050/500/1300	220 kg

DOUBLE-CIRCUIT SYSTEM							
3212	2 x 7/10/20kW	2 x 20/40/60 kW	7,5 Bar / 60 l/min	PM1 / 1,1 kW	35 l	1050/500/1300	270 kg
4212	2 x 7/10/20kW	2 x 20/40/60 kW	7,5 Bar / 60 l/min	PM1 / 1,1 kW	35 l	1050/500/1300	270 kg
5212	2 x 7/10/20kW	2 x 20/40/60 kW	11 Bar / 80 l/min	PM3 / 2,8 kW	35 l	1050/500/1300	300 kg
5222	2 x 30/40 kW	2 x 20/40/60 kW	11 Bar / 80 l/min	PM3 / 2,8 kW	35 l	1050/695/1300	380 kg

More powerful units with up to 100 kW max. available on request

SCHEMATIC / SYSTEM CIRCUIT / DESCRIPTION

These heating/cooling units by Robamat are electrically powered devices designed for a temperature range between 60° and 350° C (140° and 660° F). Thermal oil is used as a heat carrier medium, kept constantly in motion within a circuit by means of a peripheral pump. This closed oil circuit flows through the heating/cooling unit and through the e.g. die. Oil temperature is measured and controlled at both the feed and the return side.



Heating is controlled via relays or thyristors. Water is used for cooling and controlled by a separate valve. In this manner, cooling/heating is automatically optimized based on previous heating/cooling processes. The cold oil expansion tank is installed over the hot oil, therefore the hot oil has no contact with the ambient air at any point of the circuit.

HOUSING FRAME

Its compact and attractive design as well as a robust housing protects the unit from mechanical stresses. The interior of the units is fully accessible. Permanently mounted hoisting eyes as well as large wheels ensure easy unit relocation and allow swift and easy repair and maintenance work.

HEATER

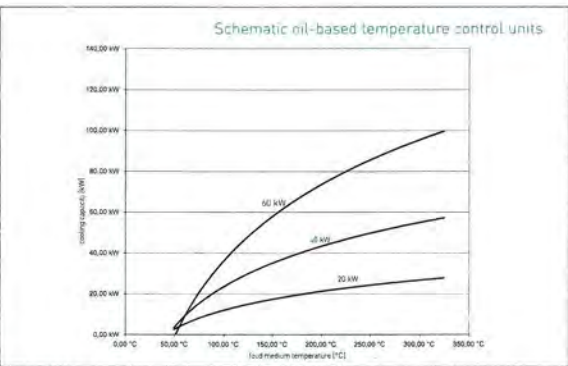
The patented system featuring heating rods cast in aluminium guarantees flawless operation. The forced oil conduction via a spiral controlling oil flow permit genuine monitoring of oil film temperature and allow easy replacement.

MANIFOLD FOR HEATER / COOLER

A modular design manifold and a heating/cooling performance which can be subsequently altered as well as ceramic fibre insulation for superior heat insulation are proof of Robamat's focus on top quality.

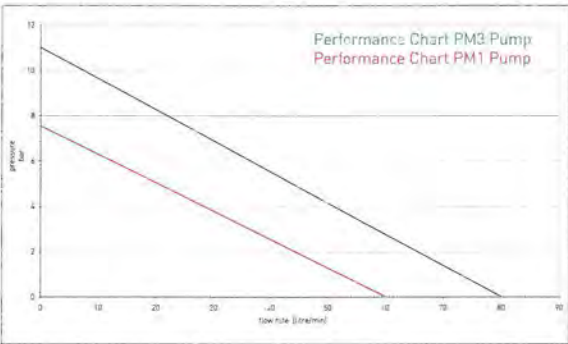
COOLER

The stainless steel pipe cast in aluminium can be easily cleaned and/or descaled; controlled water flow and the separately exchangeable cooler insert elements guarantee economical operation.



PUMP

Enclosed pump. Thanks to magnetic coupling, there are no rotating parts running through the pump housing, making the pump virtually leakage-free.



MICROPROCESSOR

The compact design of the EMV-tested microprocessor makes replacement an easy task. During this process, all data are saved on a separate memory stick. The use of the same microprocessor in both oil and water units provides additional flexibility.

WATER-BASED TEMPERATURE CONTROL UNITS

Temperature control unit using water as a heat carrier with a temperature range between 20° and 160° C (68° and 320° F).



DOUBLE-CIRCUIT SYSTEM						
types	🔥 kW	❄️ kW/150K	pump capacity	pump type/ motor power	dimensions	weight
221	4/6/9/12 kW	25 kW	6 Bar / 60l/min	PMW / 1 kW	880/330/800	95 kg
2201	4/6/9/12 kW	35 kW	6 Bar / 60l/min	PMW / 1 kW	800/330/945	110 kg

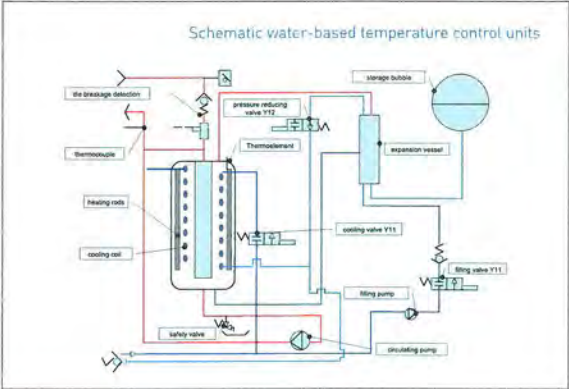
DOUBLE-CIRCUIT SYSTEM						
222	2 x 4/6/9/12 kW	2 x 35kW	6 Bar / 60l/min	PMW / 1 kW	880/500/800	150 kg
2212	2 x 4/6/9/12 kW	2 x 35kW	6 Bar / 60l/min	PMW / 1 kW	800/500/1135	170 kg
2212	2 x 12/18 kW	2 x 35/70 kW	11 Bar / 80 l/min	PM3W / 2,8 kW	800/500/1235	265 kg
2222	2 x 12/18/24 kW	3 x 35/70 kW	11 Bar / 80 l/min	PM3W / 2,8 kW	1050/695/1300	320 kg

More powerful units with up to 60 kW max. available on request

SCHEMATIC / SYSTEM CIRCUIT / DESCRIPTION

These heating/cooling units by Robamat are electrically powered devices designed for a temperature range between 20° and 160° C (68° and 320° F). Water is used as a heat carrier medium, kept constantly in motion within a circuit by means of a peripheral pump. This closed water circuit flows through the heating/cooling unit and through the e.g. die, with waterpressurized to prevent the water within the unit from evaporating. Water temperature is measured and controlled at both the feed and the return side. Heating is controlled via relays or thyristors.

These units use water for cooling, controlled by a separate valve. In this manner, cooling/heating is automatically regulated based on previous heating/cooling processes.



HOUSING FRAME

Its compact and attractive design as well as a robust housing protects the unit from mechanical stresses. The interior of the units is fully accessible. Permanently mounted hoisting eyes as well as large rollers ensure easy unit relocation and allow swift and easy repair and maintenance work.

HEATER

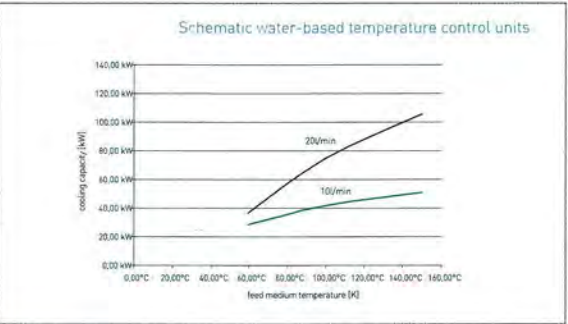
The separately screwed-in and replaceable stainless steel heating rods are water-resistant. Monitoring by means of thermocouples makes for safe and fault-free operation.

MANIFOLD FOR HEATER / COOLER

The manifold contains the heating/cooling unit; it can be easily opened and is therefore low on maintenance. Other benefits include simple cleaning and descaling as well as easy detection of steam accumulating within the system.

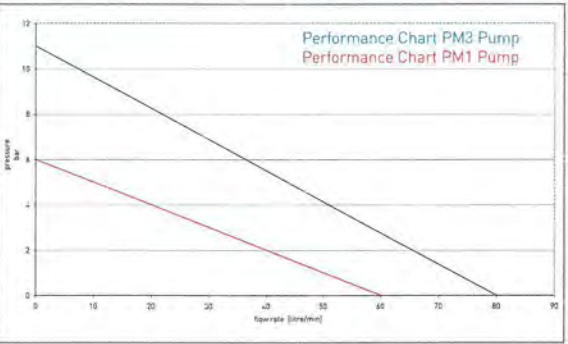
COOLER

The cooler with a large heat exchange surface area is freely suspended. In this manner, slight vibrations prevent the formation of limescale and guarantee constant and superior cooling performance.



PUMP

Enclosed pump. Thanks to magnetic coupling, there are no rotating parts running through the pump housing, making the pump virtually leakage-free.



MIKROPROCESSOR

The compact design of the EMV-tested microprocessor makes replacement an easy task. During this process, all data are saved on a separate memory stick. The use of the same microprocessor in both oil and water units provides additional flexibility.

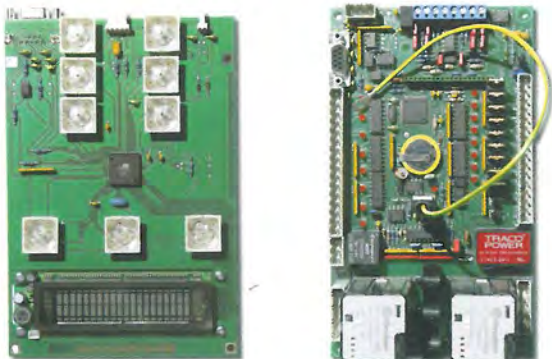
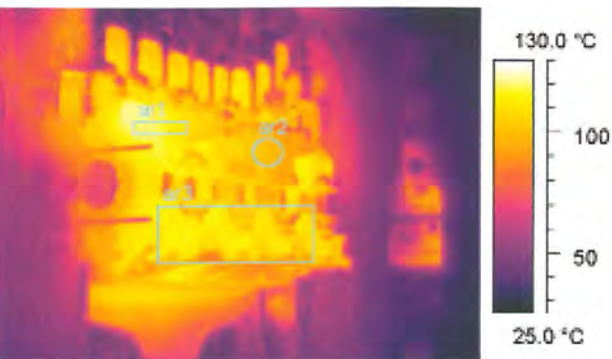
SERVICE - INFRARED THERMOGRAPHIC DIE ANALYSIS

For integrated and detailed die design, Robamat Automatisierungstechnik GmbH offers thermographic die analysis by way of an infrared camera. We use this camera for the visual mapping of correct temperature control values and/or the actual condition (benchmark) of a die and can supply you with this data, which can be saved for future use and analysis by means of an appropriate evaluation software program.

Such an analysis provides prompt and simple guidance when deciding whether to switch from conventional oil-based cooling to the more environmentally friendly water process, finding out to what extent existing temperature control may be optimized, detecting problem zones in a die, assessing how well the temperature control of a given core / sleeve is working, identifying zones with inferior temperature control, etc.

Please contact us if you are interested and require any further information:

service@robamat.com



MICROPROCESSOR

For our Robamat temperature control equipment, we currently use the new and improved next-generation $\mu P128$, based on the $\mu P103$ developed from scratch 8 years ago. This flexible software configuration permits tailor-made programming for each individual application. We are able to supply both custom-designed solutions required for special application as well as large-series standard solutions.

In addition to the familiar, established settings, both the re-designed processor and the revised software versions now boast the following novel and improved features:

- unit type display
- error log retrievable on the display - able to save up to 250 errors complete with date and time
- individual program items can be switched off, simplifying operation and preventing operation errors while the option to re-engage all features by pressing a single button remains flexible
- setup levels accessible via password

All temperature control units of the 22xx, 32xx, 42xx, and 52xx series can be upgraded with this new software and the re-designed processor by means of a software plug and/or a replacement processor.

YOUR WISHES - OUR CHALLENGE

Flexible final manufacturing as well as seasoned employees make Robamat a strong and competent partner, especially when it comes to custom-built machinery. Thanks to the modular design of the units, customer-specific adaptations can be realized with ease - technologically sophisticated, tried and tested over and over again.

DIE CLEANING EQUIPMENT FOR WATER UNITS

Die cleaning equipment is used for removing unwanted oil from moulds/dies which may lead to damaged heating/cooling units (heater, pump, valves, etc.). During this process, water is circulated through the die at a temperature of approx. 80°C (176° F), filtering out the oil via an oil separator.

Cleaning methods involving conventional pressure washers are unsuitable due to insufficient flow rates. This unit consists of stainless steel parts, featuring a powerful feed pump and an open circuit system and boasts a heating capacity of either 10kW or 20kW, ensuring efficient and thorough cleaning. Cleaning additives may be used provided that they are temperature-resistant



WATER SUCTION UNIT (LEAK-STOPP DEVICE)

This device forces water to flow through the mould/die in the 'opposite direction' by using suction instead of pressure as an operating principle. The pump system allows temperature control of dies with cracks measuring 28.2 mm² = hole diameters of 6 mm.

This unit can be used up to a temperature of 80°C (176° F). Its heating capacity of 6 kW, 9 kW, or 12 kW and its cooling capacity of 35 kW can be adapted to the particular task required. The Robamat leak-stopping device is especially suited for cracks which conventional equipment with leak-stopping properties is unable to plug.

EQUIPMENT USING AIR COOLERS

Both water-based (up to 80°C / 176° F) and oil-based (up to 120°C / 248° F) can be used for cooling without any connection to the water mains. With a cooling capacity of 12 kW max., this unit is suitable for equipment requiring only small cooling capacities. This device with a heating capacity of 10 or 20 kW respectively is able to perform the same function as oil-based or water-based units.



Flexibility and quality-oriented thinking allow us to adapt our solutions to your challenges.



UNIT WITH CORE BREAKAGE MONITORING AND/OR DIE CRACK DETECTION

Standard water-based units can be equipped with additional elements for monitoring possible core breakage. In case a core breakage occurs, a warning signal is sent to the die-casting machine, to halt the start of a new casting cycle. This function can be enhanced by installing a turbine which additionally stops the equipment.

The next higher configuration level of this unit features an additional high-temperature valve, switching to bypass operation in case of core breakage and allowing only a maximum of 0.5 l of system water to pass through to the die if core breakage occurs.

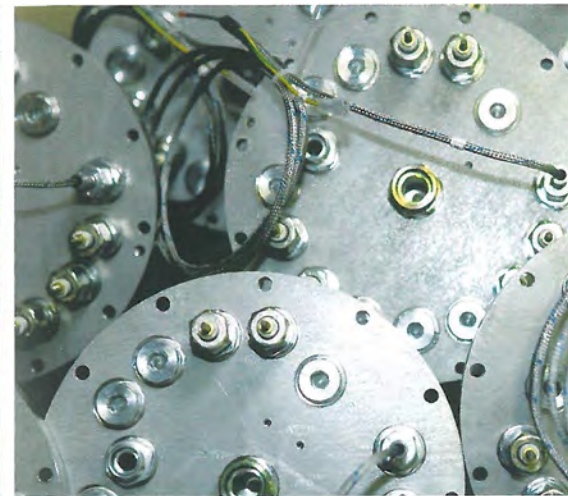
The highest configuration level involves die crack detection. The system circuit is periodically checked for integrity and tightness, allowing early

identification of even the smallest leaks. When leakage is detected, a warning signal is sent to the die-casting machine so that preventative measures can be taken already at an early juncture.

This configuration level ensures prime product quality and superior casting process safety.

EQUIPMENT WITHOUT CONTROLLER UNITS

Oil-based or water-based units can be manufactured without controller units using terminal strips. In this manner, the entire control system can be fed in from another machine and directly installed (example: extruder).



"Thanks to our total commitment, innovation and service orientation, we will continue to inspire enthusiasm for Robamat products in our customers".



Dipl. Ing. N Robert Obermair
CEO Robamat



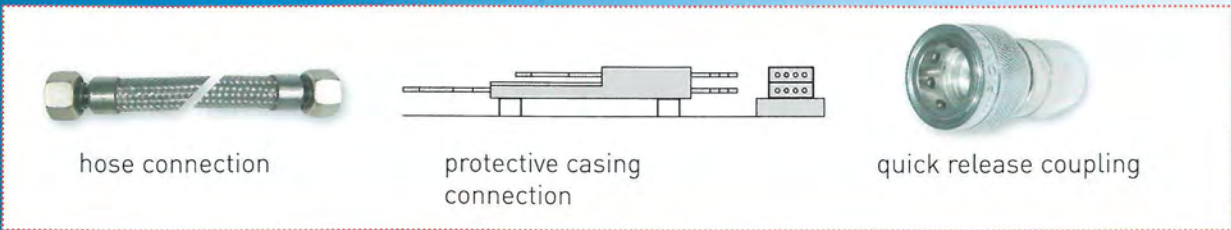
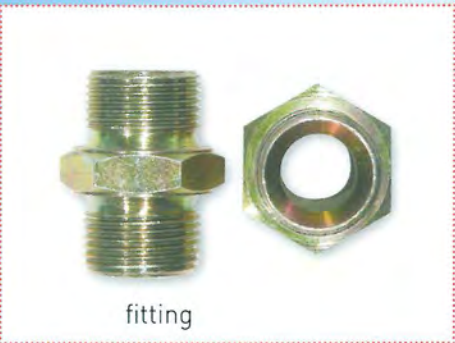
SERVICE: JUST IN TIME

Promptness and flexibility will also continue to be the touchstone for our success in the future. For Robamat, thinking globally and acting locally means supplying our customers with our products and service at their own location.

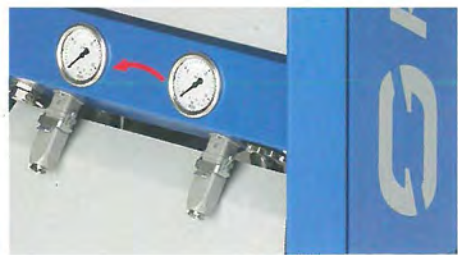
Furthermore, speed will also continue to increase in all process stages in the future, with development cycles typically becoming shorter and shorter.

As most of our own integrated processes have reached their ceilings of sophistication, interfaces with suppliers and partners present new opportunities for us. Our active partnership, worldwide availability of products, spare and wearing parts make Robamat a reliable supplier of heating and cooling systems.

service@robamat.com



You can download the complete list of accessories at www.robamat.com



MORE THAN ONE OPTION

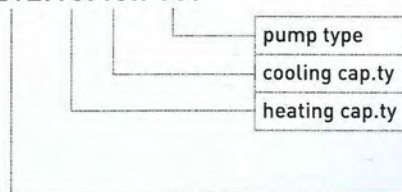
Options		Oil	Water
Order No.	Description		
GO.I10	Oil return system with el. Ventilation	X	
GO.I11	Front cover	X	X
GO.I12	Front cover	X	X
GO.I13	Mech. Oil level Indicator	X	
GO.I14	Blow-out device/cooler	X	X
GO.I15	External Starting (Cabinet) start – production – end – stop	X	X
GO.I16.R	Internal return-line sensor incl. FeCu Ni	X	X
GO.I16.E	External Sensor Fe-CuNi without Thermocouple	X	X
GO.I18.485	Interface RS485 without cable	X	X
GO.I18.232	Interface RS232 without cable	X	X
GO.I18.232 CL	Interface RS232CL without cable	X	X
GO.I18.DP	Interface Profibus DP without cable	X	X
GO.I19	Pause controller	X	X
GO.I20.R	Central fault indication, type: Lamp RED	X	X
GO.I20.G	Operation Indication, type Lamp: GREEN	X	X
GO.I20.Gelb	Fault Indication thermistor motor – Lamp YELLOW	X	X
GO.I21	Central fault indication, type: Horn	X	X
GO.I21 H	Central fault indication, type: Plug	X	X
GO.I22	Fluid level (min./min.-warning/max.) incl. central fault indication, type: lamp RED/WHITE	X	
GO.I22 Auto	Automatic Oil Filling (only if GO.I22 is installed)	X	
GO.I23	Fluid level (min./max.) incl. central fault indication, type: lamp RED/WHITE	X	
GO.I24	Fluid level (min./min warning) incl. central fault indication, type: lamp RED/WHITE	X	
GO.I25	Oil filler at front	X	
GO.I27	Oil Tank cover (self closing)	X	
GO.I28	Flow rate measurement: type: turbine radialturbine 8 – 80 l/min	X	X
GO.I29	El Cabinet Cooling Device Air / Water intern (only for double circuit Unit)	X	X
GO.I30	PC-Program, Windows based monitoring RS232 Converter / USB Connection	X	X
GO.I50	Profibus DP Box for RS485 connection	X	X

Temperature control unit types and corresponding machine ratings (approximate reference values)

COLD CHAMBER/ HOT CHAMBER	heating/cooling unit
HC 80 to – 125 to	1 to 2 x 221.12.25.PMW altern. 1 to 2 x 3201.10.40.PM1
HC 125 to – 250 to	1 to 2 x 3201.10.40.PM1 altern. 1 to 2 x 2201.12.35.PMW
HC / CC 250 to – 450 to	1 x 3212.10.20.PM1 altern. 1 x 2212.12.35.PMW
HC / CC 450 to – 720 to	1 x 3212.20.40.PM1 altern. 1 x 2212.12.35.PMW
CC 720 to – 1100 to	1 to 2 x 3212.20.40.PM1 altern. 1 to 2 x 2212.12.35.PM3W
CC 1100 to – 1600 to	2 to 3 x 5212.20.40.PM3 altern. 2 to 3 x 2212.12.35.PM3W
CC 1600 to – 2500 to	3 to 4 x 5212.20.40.PM3 altern. 3 to 4 x 2212.12.35.PM3W
CC 2500 to – 2800 to	4 to 6 x 5212.20.40.PM3 altern. 5 to 6 x 2212.12.35.PM3W
CC 2800 to – 3500 to	6 to 8 x 5212.20.40.PM3 altern. 6 to 8 x 2212.12.35.PM3W
CC 3500 to – 4200 to	8 to 12 x 5212.20.40.PM3 altern. 8 to 12 x 2212.12.35.PM3W

type identification code

3212.10.40.PM1



series 3xxx

oil: 3000, 4000, 5000

water: 2000

Series x2xx

Housing dimensions xx1x

0 = single-circuit unit

1 = double-circuit unit

2 = X-large double-circuit unit

circuits per unit xxx2

1 = single-circuit unit

2 = double-circuit unit