

PRODUCT DATA SHEET (ver.02/12.2017)



1. Name

Surface heating manifolds from brass or stainless steel

2. Product overview and intended use

Capricorn manifolds are designed for distributing the heating / cooling medium to individual loops of the system.

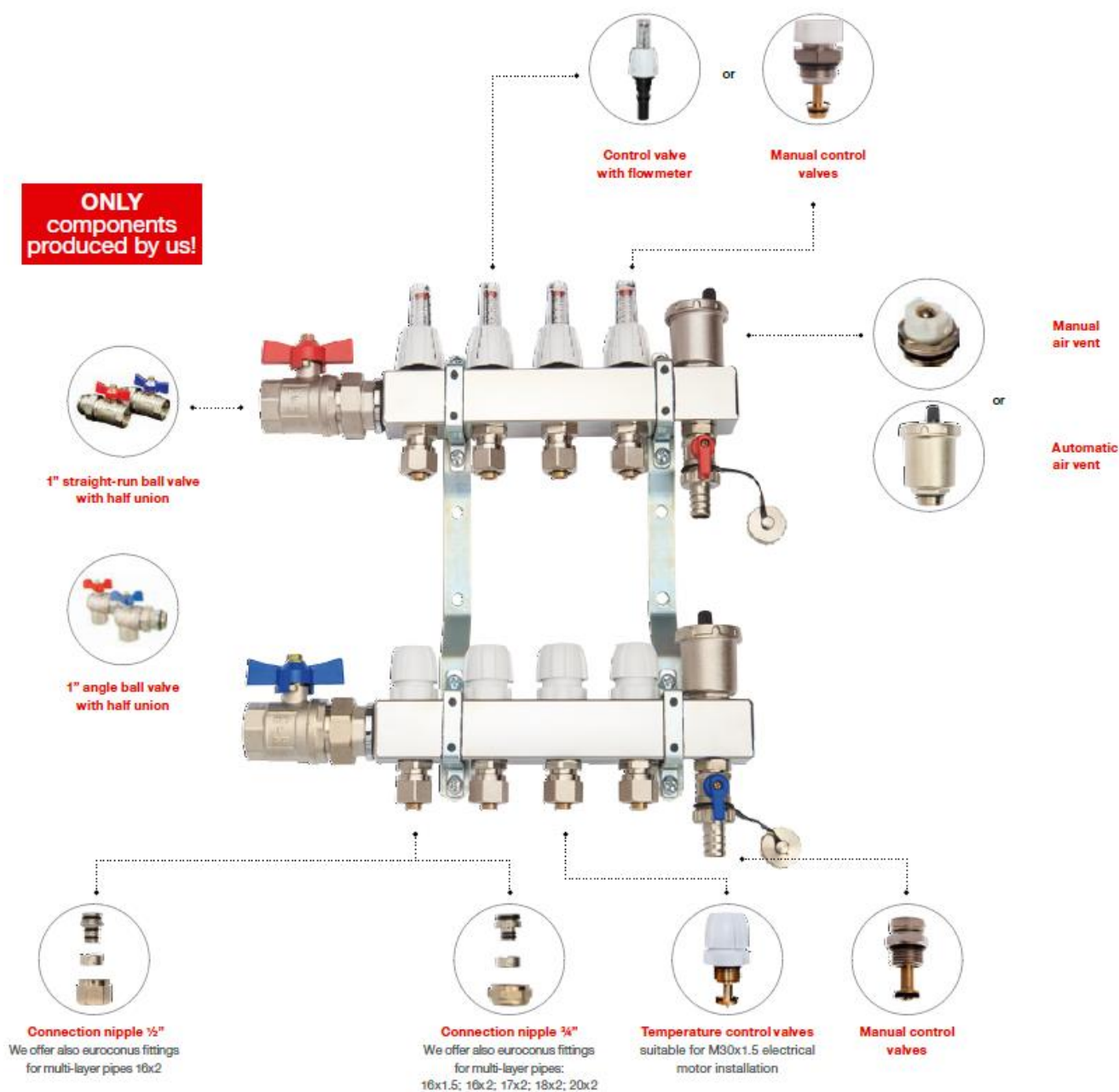
The role of manifolds in the underfloor heating system is:

- to distribute of the heating medium to heating circuits
- to ensure correct parameters of underfloor heating system operation (independently feeding each heating circuit)
- to enable independent control of performance and temperature for any room with underfloor heating
- to parallelly connect the specified number of coils with individual hydraulic and thermal control
- to enable connection of mix-pump group to achieve in the manifold the temperature appropriate for underfloor heating

In surface heating system, the manifold is fed with water with a maximum temperature of 70°C. The feeding must be connected to the top manifold piping marked with red colour, and the return to the piping marked with blue.

3. Design

Depending on the version, the surface heating manifolds sold by Capricorn are equipped with basic installation elements enabling connection to any heat source system. Any surface heating system can also be used (this version will be called manifolds). Or, they have complete installation equipment recommended by Capricorn (later called manifolds equipped with components for manifolds).



4. Principle of operation

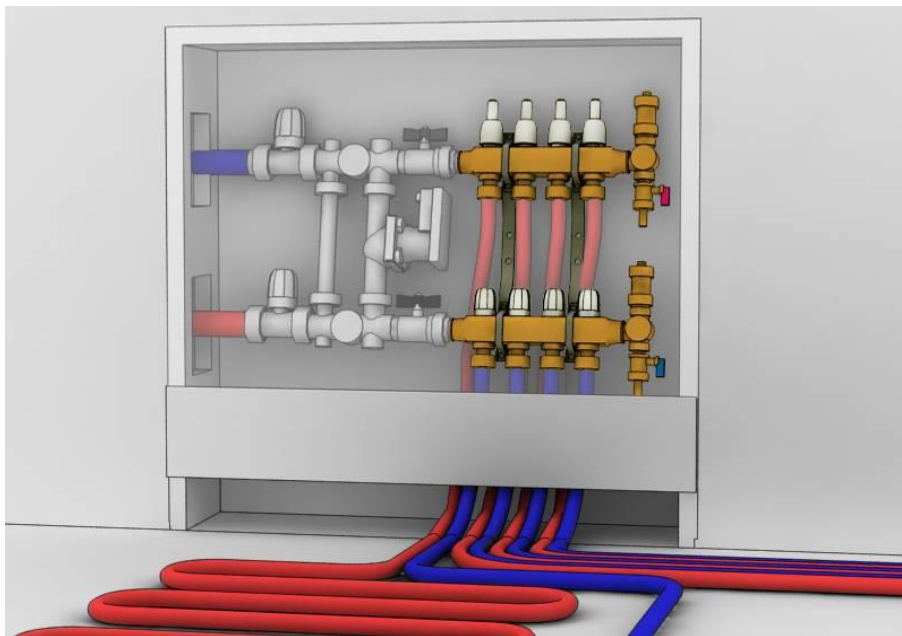
Top pipe is used to connect feed from heat source and connect pipes feeding surface heating circuits, which are connected to 3/4" nipples with Eurokonus fittings for multilayer pipes or other pipes, depending on the system used.

Bottom pipe is used to connect the return to the heat source and connect return pipes of the surface heating heater, with 3/4" Eurokonus fittings for multilayer pipes or other pipes, depending on the system used.

The return is controlled with the aid of temperature control valves (option to equip with an actuator) or manual valves, depending on the manifold type. The feed is controlled with the aid of valves with flowmeter or manual valves (Nimbus) intended for control of the surface heating system.

Temperature control valves installed on the return pipe are suitable for installation of M30x1.5 electric actuators with stroke of min. 3.5 mm, which allow to connect the installation to automatic room temperature control systems.

5. Examples of installation



6. Types of manifolds

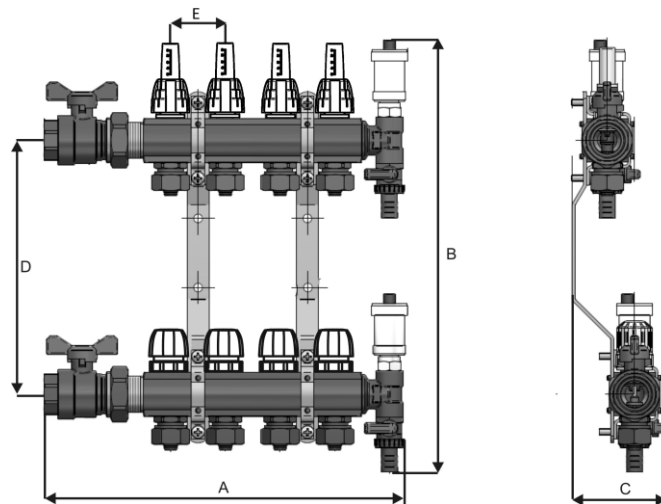
	VALVES			ACCESSORIES									
	<i>lockshields with flow meter</i>	<i>thermoregulating valves M30x1,5</i>	<i>manual lockshields</i>	<i>automatic air-vent valves</i>	<i>manual air-vent valves</i>	<i>drain valves</i>	<i>ball valves 1"</i>	<i>tees</i>	<i>thermometers</i>	<i>euroconus adapters 16x2/ 1/2"</i>	<i>euroconus adapters 16x2/ 3/4"</i>	<i>3/4" connection nipples</i>	<i>mounting brackets</i>
Premium 11	✓	✓	-	✓	-	✓	✓	-	-	✓	-	-	✓
Premium 1	✓	✓	-	✓	-	✓	✓	✓	-	-	✓	-	✓
Premium 2	✓	✓	-	✓	-	✓	✓	✓	-	-	-	✓	✓
Premium 3	✓	✓	-	✓	-	✓	✓	✓	✓	-	✓	-	✓
Optimum 11	✓	✓	-	✓	-	✓	-	-	-	✓	-	-	✓
Optimum 1	✓	✓	-	-	-	-	-	-	-	-	-	✓	✓
Optimum 2	✓	✓	✓	-	-	-	-	-	-	-	-	✓	✓
Optimum 3	-	-	✓	-	-	-	-	-	-	-	-	✓	✓
Standard 2	-	-	✓	-	✓	✓	✓	✓	-	-	✓	-	✓
Standard 3	-	✓	✓	✓	-	✓	✓	✓	-	-	✓	-	✓

7. Codes

Model	Manifold							
	Brass				Stainless steal			
	Manifold circuits	Code	Manifold circuits	Code	Manifold circuits	Code	Manifold circuits	Code
PREMIUM 11	2	9-3650-002-91-22-13BT	8	9-3650-008-91-22-13BT	2	9-3950-002-91-24-12BT	8	9-3950-008-91-24-12BT
	3	9-3650-003-91-22-13BT	9	9-3650-009-91-22-13BT	3	9-3950-003-91-24-12BT	9	9-3950-009-91-24-12BT
	4	9-3650-004-91-22-13BT	10	9-3650-010-91-22-13BT	4	9-3950-004-91-24-12BT	10	9-3950-010-91-24-12BT
	5	9-3650-005-91-22-13BT	11	9-3650-011-91-22-13BT	5	9-3950-005-91-24-12BT	11	9-3950-011-91-24-12BT
	6	9-3650-006-91-22-13BT	12	9-3650-012-91-22-13BT	6	9-3950-006-91-24-12BT	12	9-3950-012-91-24-12BT
	7	9-3650-007-91-22-13BT			7	9-3950-007-91-24-12BT		
PREMIUM 1	2	9-3650-002-91-22-13	8	9-3650-008-91-22-13	2	9-3950-002-91-24-12	8	9-3950-008-91-24-12
	3	9-3650-003-91-22-13	9	9-3650-009-91-22-13	3	9-3950-003-91-24-12	9	9-3950-009-91-24-12
	4	9-3650-004-91-22-13	10	9-3650-010-91-22-13	4	9-3950-004-91-24-12	10	9-3950-010-91-24-12
	5	9-3650-005-91-22-13	11	9-3650-011-91-22-13	5	9-3950-005-91-24-12	11	9-3950-011-91-24-12
	6	9-3650-006-91-22-13	12	9-3650-012-91-22-13	6	9-3950-006-91-24-12	12	9-3950-012-91-24-12
	7	9-3650-007-91-22-13			7	9-3950-007-91-24-12		
PREMIUM 2	2	9-3650-002-92-22-13	8	9-3650-008-92-22-13	2	9-3950-002-92-24-12	8	9-3950-008-92-24-12
	3	9-3650-003-92-22-13	9	9-3650-009-92-22-13	3	9-3950-003-92-24-12	9	9-3950-009-92-24-12
	4	9-3650-004-92-22-13	10	9-3650-010-92-22-13	4	9-3950-004-92-24-12	10	9-3950-010-92-24-12
	5	9-3650-005-92-22-13	11	9-3650-011-92-22-13	5	9-3950-005-92-24-12	11	9-3950-011-92-24-12
	6	9-3650-006-92-22-13	12	9-3650-012-92-22-13	6	9-3950-006-92-24-12	12	9-3950-012-92-24-12
	7	9-3650-007-92-22-13			7	9-3950-007-92-24-12		
PREMIUM 3	2	9-3650-002-97-22-13	8	9-3650-008-97-22-13	2	9-3950-002-97-24-12	8	9-3950-008-97-24-12
	3	9-3650-003-97-22-13	9	9-3650-009-97-22-13	3	9-3950-003-97-24-12	9	9-3950-009-97-24-12
	4	9-3650-004-97-22-13	10	9-3650-010-97-22-13	4	9-3950-004-97-24-12	10	9-3950-010-97-24-12
	5	9-3650-005-97-22-13	11	9-3650-011-97-22-13	5	9-3950-005-97-24-12	11	9-3950-011-97-24-12
	6	9-3650-006-97-22-13	12	9-3650-012-97-22-13	6	9-3950-006-97-24-12	12	9-3950-012-97-24-12
	7	9-3650-007-97-22-13			7	9-3950-007-97-24-12		
OPTIMUM 11	2	9-3655-002-93-22-13BT	8	9-3655-008-93-22-13BT	2	9-3955-002-93-24-12BT	8	9-3955-008-93-24-12BT
	3	9-3655-003-93-22-13BT	9	9-3655-009-93-22-13BT	3	9-3955-003-93-24-12BT	9	9-3955-009-93-24-12BT
	4	9-3655-004-93-22-13BT	10	9-3655-010-93-22-13BT	4	9-3955-004-93-24-12BT	10	9-3955-010-93-24-12BT
	5	9-3655-005-93-22-13BT	11	9-3655-011-93-22-13BT	5	9-3955-005-93-24-12BT	11	9-3955-011-93-24-12BT
	6	9-3655-006-93-22-13BT	12	9-3655-012-93-22-13BT	6	9-3955-006-93-24-12BT	12	9-3955-012-93-24-12BT
	7	9-3655-007-93-22-13BT			7	9-3955-007-93-24-12BT		
OPTIMUM 1	2	9-3655-002-92-22-13	8	9-3655-008-92-22-13	2	9-3955-002-92-24-12	8	9-3955-008-92-24-12
	3	9-3655-003-92-22-13	9	9-3655-009-92-22-13	3	9-3955-003-92-24-12	9	9-3955-009-92-24-12
	4	9-3655-004-92-22-13	10	9-3655-010-92-22-13	4	9-3955-004-92-24-12	10	9-3955-010-92-24-12
	5	9-3655-005-92-22-13	11	9-3655-011-92-22-13	5	9-3955-005-92-24-12	11	9-3955-011-92-24-12
	6	9-3655-006-92-22-13	12	9-3655-012-92-22-13	6	9-3955-006-92-24-12	12	9-3955-012-92-24-12
	7	9-3655-007-92-22-13			7	9-3955-007-92-24-12		
OPTIMUM 2	2	9-3655-002-81-22-13	8	9-3655-008-81-22-13	2	9-3955-002-81-24-12	8	9-3955-008-81-24-12
	3	9-3655-003-81-22-13	9	9-3655-009-81-22-13	3	9-3955-003-81-24-12	9	9-3955-009-81-24-12
	4	9-3655-004-81-22-13	10	9-3655-010-81-22-13	4	9-3955-004-81-24-12	10	9-3955-010-81-24-12
	5	9-3655-005-81-22-13	11	9-3655-011-81-22-13	5	9-3955-005-81-24-12	11	9-3955-011-81-24-12
	6	9-3655-006-81-22-13	12	9-3655-012-81-22-13	6	9-3955-006-81-24-12	12	9-3955-012-81-24-12
	7	9-3655-007-81-22-13			7	9-3955-007-81-24-12		
OPTIMUM 3	2	9-3655-002-82-22-13	8	9-3655-008-82-22-13	2	9-3955-002-82-24-12	8	9-3955-008-82-24-12
	3	9-3655-003-82-22-13	9	9-3655-009-82-22-13	3	9-3955-003-82-24-12	9	9-3955-009-82-24-12
	4	9-3655-004-82-22-13	10	9-3655-010-82-22-13	4	9-3955-004-82-24-12	10	9-3955-010-82-24-12
	5	9-3655-005-82-22-13	11	9-3655-011-82-22-13	5	9-3955-005-82-24-12	11	9-3955-011-82-24-12
	6	9-3655-006-82-22-13	12	9-3655-012-82-22-13	6	9-3955-006-82-24-12	12	9-3955-012-82-24-12

	7	9-3655-007-82-22-13			7	9-3955-007-82-24-12		
STANDARD 2	2	9-3650-002-82-22-13	8	9-3650-008-82-22-13	2	9-3950-002-82-24-12	8	9-3950-008-82-24-12
	3	9-3650-003-82-22-13	9	9-3650-009-82-22-13	3	9-3950-003-82-24-12	9	9-3950-009-82-24-12
	4	9-3650-004-82-22-13	10	9-3650-010-82-22-13	4	9-3950-004-82-24-12	10	9-3950-010-82-24-12
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	5	9-3650-005-83-22-13	11	9-3650-011-83-22-13	5	9-3950-005-83-24-12	11	9-3950-011-83-24-12
	6	9-3650-006-83-22-13	12	9-3650-012-83-22-13	6	9-3950-006-83-24-12	12	9-3950-012-83-24-12
	7	9-3650-007-83-22-13			7	9-3950-007-83-24-12		

8. Dimensions



Model	Brass manifold						Stainless steel manifold					
	Manifold circuits	Dimensions [mm]					Manifold circuits	Dimensions [mm]				
		A	B	C	D	E		A	B	C	D	E
PREMIUM 11 PREMIUM 1 PREMIUM 2 PREMIUM 3 STANDARD 2 STANDARD 3	2	235	400	87	235	50	2	230	400	87	235	50
	3	285					3	280				
	4	335					4	330				
	5	385					5	380				
	6	435					6	430				
	7	485					7	480				
	8	535					8	530				
	9	585					9	580				
	10	635					10	630				
	11	685					11	680				
	12	735					12	730				
OPTIMUM 11	2	155	400	91	235	50	2	150	400	91	235	50
	3	205					3	200				
	4	255					4	250				
	5	305					5	300				
	6	355					6	350				
	7	405					7	400				
	8	455					8	450				
	9	505					9	500				
	10	555					10	550				

OPTIMUM 1 OPTIMUM 2 OPTIMUM 3	11	605	355	91	235	50	11	600	355	91	235	50
	12	655					12	650				
	2	105					2	110				
	3	155					3	150				
	4	205					4	200				
	5	255					5	250				
	6	305					6	300				
	7	355					7	350				
	8	405					8	400				
	9	455					9	450				
	10	505					10	500				
	11	555					11	550				
	12	605					12	600				

*+/- 5 mm

9. Technical parameters and materials

Capricorn surface heating manifold has been specially designed for use in surface heating systems. It is characterized by the following operating parameters:

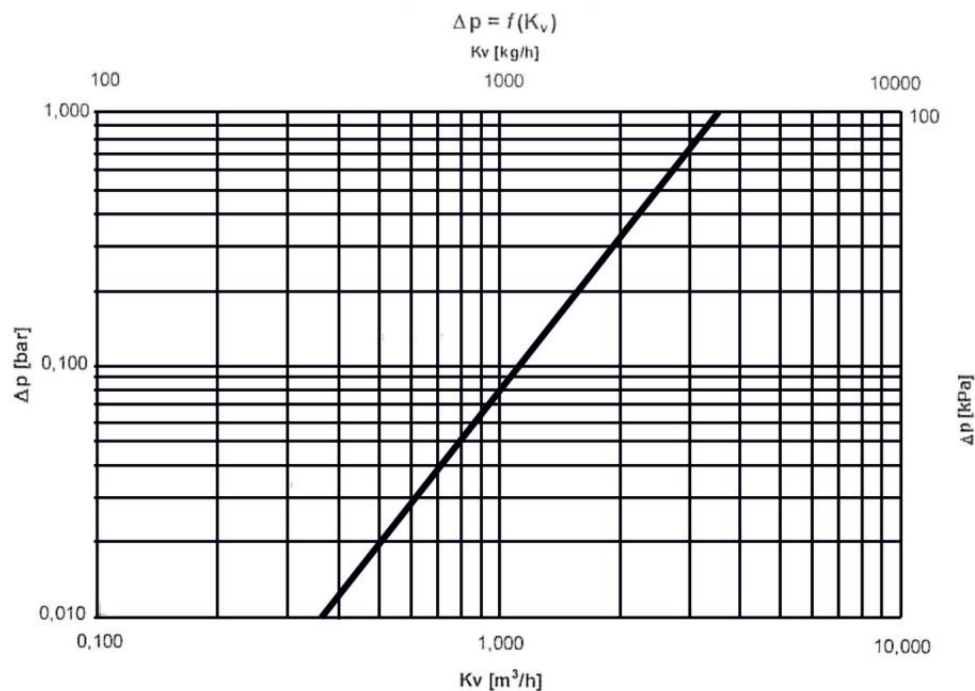
Stainless steel AISI 304 / 1.4301

Brass MO 58

- Maximum temperature 70°C
- Maximum pressure of 6 bar
- Heating medium: water
- Flow-rate coefficient:
 - For brass manifolds: $5,91 \pm 0,01 \text{ m}^3/\text{h}$
 - For stainless steel manifolds $6,01 \pm 0,01 \text{ m}^3/\text{h}$

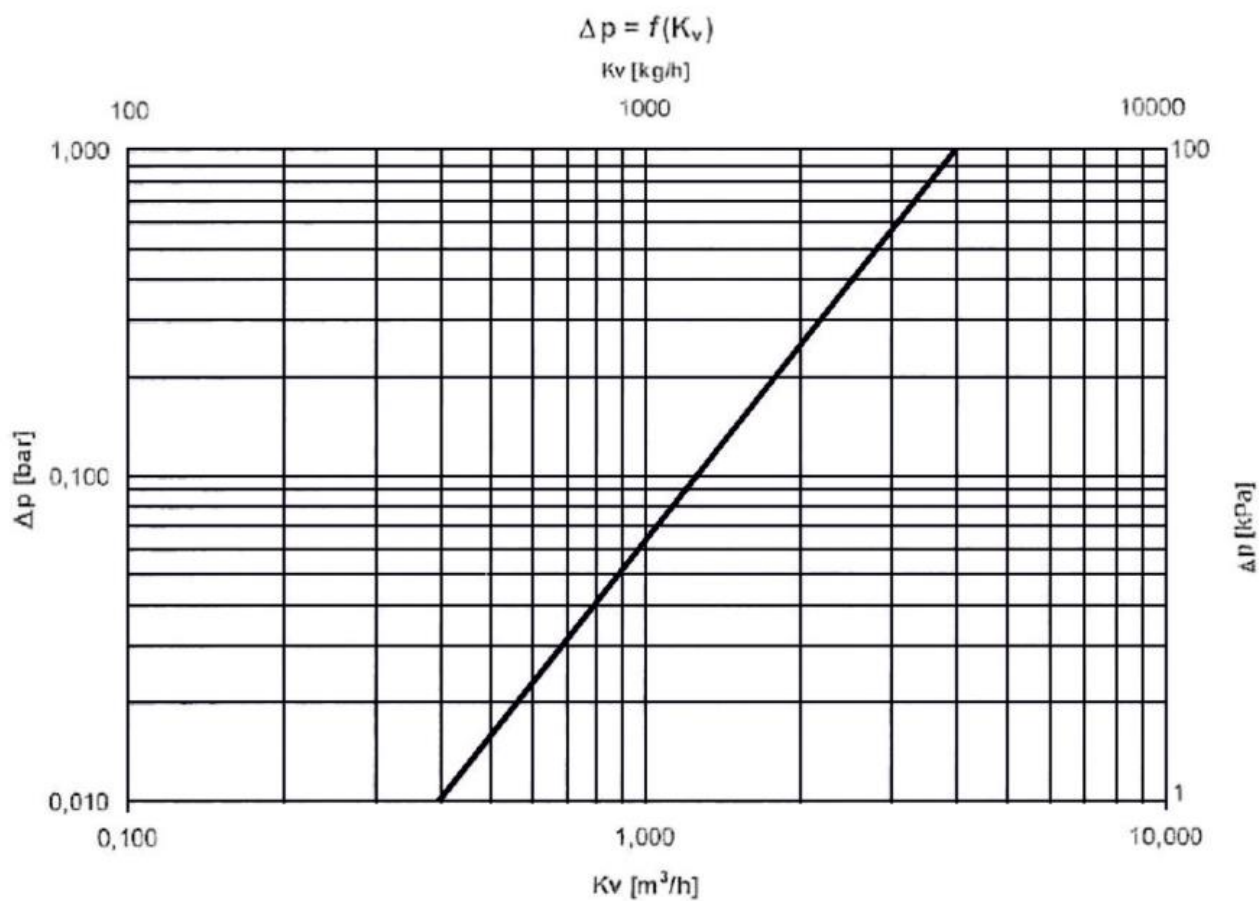
The performance of valves on brass manifolds

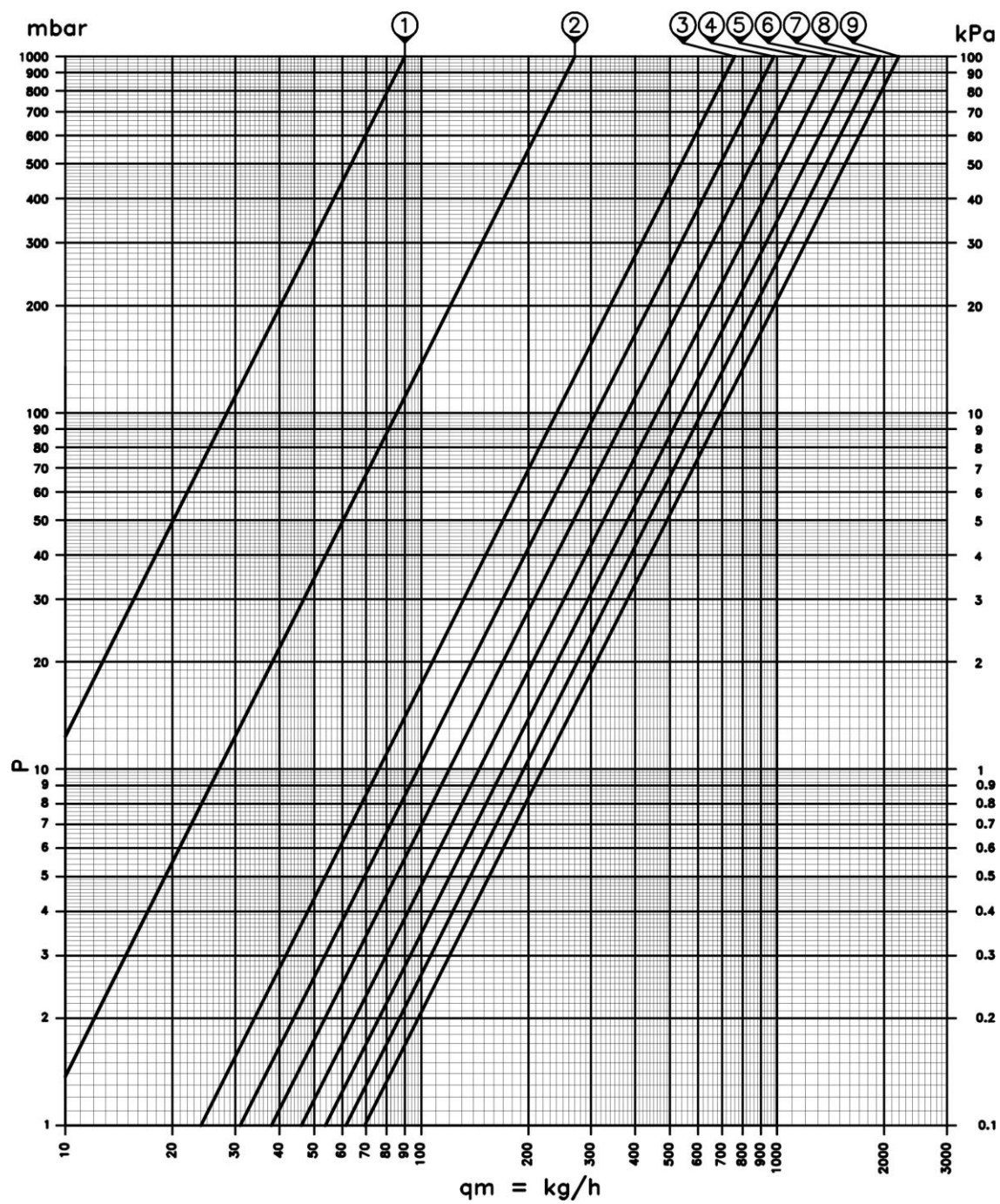
Temperature control valve:



Performance of valves on stainless steel manifolds

Temperature control valve:





Manual lockshields:

Position	Turns	Kvs	Position	Turns	Kvs
1	0,5	0,09	6	3	1,46
2	1	0,27	7	3,5	1,7
3	1,5	0,76	8	4	1,93
4	2	0,95	9	4,5	2,19
5	2,5	1,2			

10. Logistic data

Model	Sections	Box dimensions [mm]	Quantity [pcs.]
OPTIMUM	2 - 6	330x95x180	1
	7 - 8	430x95x180	1
	9 - 10	530x95x180	1
	11 - 12	665x95x180	1
PREMIUM STANDARD	2 - 4	397x122x185	1
	5 - 6	490x110x185	1
	7 - 8	590x110x185	1
	9 - 10	690x110x185	1
	11 - 12	790x110x185	1

11. Packaging



12. Declaration of conformity

- Technical Approval AT-15-8084/2014
- Declaration of Conformity nr 03/2017 dated 02.01.2017



13. Advantages

- The manifold distributes the heating medium to the required number of heating circuits, providing uniform temperature distribution in rooms,
- Materials used for manufacturing Capricorn manifolds and their components guarantee excellent durability, performance and resistance to corrosion,
- Capricorn manifolds make it possible to operate with most heat sources, including heat pumps and condensation boilers,
- The manifold ensures proper operating parameters for each heating circuit of the surface heating system,
- It enables independent feed and individual performance and temperature control for each surface-heated room,
- It enables connection of mix-pump group to achieve in the mixed systems the temperature appropriate for surface heating,
- A wide range of accessories for Capricorn manifolds provides a solution optimally adapted for the needs of investment,
- Reliability and ease of mounting in the cabinet as well as silent operation of the manifold due to durable and noise damping brackets.

14. Warranty and responsibilities

During the installation it is required to observe OHS rules included in building regulations and norms. Capricorn S.A. More information about warranty and extent of liability on www.capricorn.pl/en

15. Manufacturer

Capricorn S.A.

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