

MODUS

AISI 304 STAINLESS STEEL HEATING MANIFOLD

High-Capacity Technical Data Sheet | Rev. 01 | 29 August 2026

MODUS manifold assemblies are engineered as central flow-distribution and balancing units for closed-loop hydronic heating and cooling installations. The manifold header is specified in AISI 304 / EN 1.4301 (X5CrNi18-10) austenitic stainless steel, combining corrosion resistance, mechanical strength, formability and long-term dimensional stability for building-services applications.

DESIGN & PERFORMANCE DATA

Parameter	Technical specification
Header material	AISI 304 / EN 1.4301 / X5CrNi18-10 austenitic stainless steel
Nominal header connection	G 1" BSP parallel
Heating-loop outlets	G 3/4" Eurocone
Typical outlet spacing	50 mm
Number of circuits	2-12 ways (standard range)
Continuous working rating	6 bar at up to 80 °C
Maximum manifold pressure	10 bar at lower water temperatures; system design must respect the pressure/temperature envelope
Hydrostatic test pressure	10 bar at ≤30 °C, 24 h maximum recommended factory/site test condition
Maximum flow capacity	Design target up to 0.13 L/s (7.8 L/min) per circuit; up to 1.27 L/s total, subject to valve/flowmeter configuration
Flow control	Individual visual flowmeter and balancing function on supply header
Return control	Individual shut-off/control valve; actuator-ready configuration
Actuator interface	M30 × 1.5 mm (specified MODUS configuration)
Sealing material	EPDM water-contact seals / O-rings
Service medium	Treated heating/cooling water; glycol mixtures only after compatibility verification
Installation	Wall or manifold-cabinet mounting with rigid support brackets

AISI 304 / EN 1.4301 MATERIAL DATA

AISI 304 is the standard chromium-nickel austenitic stainless-steel grade. Its chromium-rich passive surface provides high corrosion resistance in normal building-service environments. The nickel content stabilizes the austenitic structure and contributes to ductility and fabrication performance. The material is non-hardenable by conventional heat treatment and is well suited to formed and welded manifold-header construction.

Property	AISI 304 / EN 1.4301
EN designation	X5CrNi18-10
UNS	S30400
Chromium (Cr)	17.5-19.5 %
Nickel (Ni)	8.0-10.5 %
Carbon (C)	≤ 0.07 %
0.2% proof / yield strength at 20 °C	≥ 190 MPa
Tensile strength at 20 °C	500-700 MPa
Elastic modulus	Approx. 200 GPa
Density	Approx. 7.9 g/cm³
Thermal conductivity at 20 °C	Approx. 15 W/m·K
Specific heat capacity	Approx. 500 J/kg·K

PIPE & SYSTEM COMPATIBILITY

The MODUS manifold is primarily intended for hydronic circuit distribution. Connection to different piping families is possible through a correctly engineered transition fitting, union, threaded adapter or Eurocone connector. The adapter must be selected according to pipe material, outside diameter, wall thickness, pressure class and temperature class; the manifold connection itself does not change the permissible operating limits of the connected pipe system.

Pipe system	Connection principle / application
PEX-A	Direct heating-loop connection with dimension-matched 3/4" Eurocone compression adapter
PE-RT Type II	3/4" Eurocone adapter matched to pipe OD and wall thickness

Pipe system	Connection principle / application
PEX-AL-PEX / multilayer	Dedicated multilayer Eurocone compression adapter with pipe support insert
PB / other approved polymer heating pipe	Compatible transition fitting or Eurocone adapter where permitted by the pipe-system manufacturer
PPR / PPR-C	Connection through an approved PPR threaded transition fitting / union adapter to the manifold main connection; not a direct Eurocone connection unless a certified adapter is used
PVC-U / uPVC	Connection through a pressure-rated PVC-U threaded/union transition adapter where temperature, pressure and fluid-service ratings permit. Not intended as a direct high-temperature UFH loop connection.

HYDRAULIC & INSTALLATION ENGINEERING

Each circuit should be hydraulically balanced to the calculated design flow. System pump selection must account for manifold, valve, adapter and circuit pressure losses. For installations containing corrosion products or particulate contamination, a system dirt separator/filter should be installed upstream to protect the flowmeters and regulating valves. As a high-quality design reference, REHAU specifies filtration of contaminants and a continuous operating condition of 6 bar at 80 °C for its HKV/HKV-D manifold family. MODUS adopts the same conservative continuous pressure/temperature design point for this specification.

Water quality: Use clean, treated closed-system heating water. Oxygen ingress, excessive chlorides, unsuitable chemical cleaners and incompatible antifreeze/inhibitor packages can affect stainless steel, brass components, seals and control devices. Chemical compatibility must be confirmed before commissioning.

PRESSURE / TEMPERATURE DESIGN NOTE

Pressure capability must always be evaluated together with temperature. The MODUS assembly is specified for 6 bar continuous operation at up to 80 °C. A 10 bar value is used as the maximum manifold pressure / hydrostatic test reference at lower water temperature and must not be interpreted as 10 bar continuous service at 80 °C. The permissible rating of the complete installation is always limited by the lowest-rated component, including pipe, transition fitting, flowmeter, valve, actuator interface and seal.

REFERENCE ENGINEERING BASIS

The design values used in this revision are benchmarked against established hydronic-manifold specifications: REHAU stainless-steel PRO-BALANCE data identifies DIN 1.430 / AISI 304 headers, 6 bar at approximately 82 °C, and 10 bar-class low-temperature/test conditions; REHAU HKV/HKV-D documentation specifies 6 bar continuous operation at 80 °C; other AISI 304 stainless-steel UFH manifolds commonly specify 10 bar static pressure and up to 90 °C. These references establish a technically conservative market benchmark; final MODUS production certification and factory pressure testing remain controlling.

MODUS | Professional Piping & Heating Systems

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Document No.: MODUS-MAN-SS304-TDS-EN | Revision 01