KEMPER-KHS HYGENIC SYSTEM TECHICAL SPECIFICATION

1. KHS DYNAMIC FLOW SPLITTER

To avoid stagnation in cold water pipework (PWC), KHS Flow-Splitter - dynamic, according to the Venturi principle, including dynamic cartridge, flow and return branch for connection of outlets / plumbing units, wetted metal parts made from dezincification- free and corrosion-resistant gunmetal, resistant against aggressive water, KHS Flow-Splitter pass with female thread, plumbing unit feed pipe with female thread, plumbing unit return pipe with female thread, maintenance free, free from dead spots, including KHS stop valve, female threaded, maintenance-free EPDM spindle seal, valves with top-entry head part, EPDM gasket body and gunmetal ball, incl. insulation shells, valve(s) with DVGW approval, according to DVGW worksheet W 570, soundproofing certificate acc. DIN EN ISO 3822 class 1 up to DN 32, insulation shell building material class B1 according to DIN 4102, DIN EN13828, pressure rating PN 16, max. operating temperature 90 °C, thermal conductivity 0.035 W/mK.

2. KHS TEMPERATURE SENSOR PT 1000

To connect to the KHS control systems or for connection to the building management system (BMS), wetted metal parts made from dezincification-free and corrosion-resistant gunmetal, resistant against aggressive water, including 4-wire Pt 1000 temperature sensor, full bore, male union thread, free from dead spots, DIN EN 60751, pressure rating PN 16, min. operating temperature 0 °C, max. operating temperature 105 °C, length of connection cable 1 m, wire cross section 4 x 0.22 mm², diameter of the sensor 6 mm

3. KHS CONTROL PLUS FLOW SENSOR

Frequency output signal, for the accurate measurement of flow rates and temperatures in drinking water systems, wetted metal parts made from dezincification-free and corrosion-resistant gunmetal, resistant against aggressive water, sensor housing for low pressure loss, suitable for drinking water and water-glycol mixtures, up to 50% of measuring range: deviation < 1% of upper measurement range, from 50% of measuring range: deviation < 2% of measurement, for connection to the KHS control systems, male union thread, free from dead spots, with vortex flow sensor that includes a 2-wire Pt 1000, 5-pin M12x1 interface, readout and display of values via additional available KHS handheld measuring device, plastic parts with KTW- and W270 approval, pressure rating PN 10, for flow velocities of 0.2 m/s up to 2.5 m/s, min. operating temperature 0 °C, max. operating temperature 100 °C, protection class IP65, power supply 5 V DC, note: optional cable M12x1 required for connection to KHS control systems, DN 10 is recommended for use with flow limiter 2 l/min.

4. KHS MINI CONTROL SYSTEM MASTER 2.0

To control, log and monitor water exchange measures in PWC and PWH installations, decentralized control system for all KHS components, to control max. each one KHS quarter turn stop valve, KHS temperature sensor, KHS flow sensor and KHS overflow sensor, can be extended with max. 62 KHS SLAVE Control Systems via CAN bus cable (max. cable lenght 2000 m), USB interface for software update, log file transfer, data logging and up- or download of the configuration file, to control max. 60 KHS HS2® flushing boxes with single port that are connected via a KHS HS2® terminal box each, to control max. 30 KHS HS2® flushing boxes with double port that are connected via a KHS HS2® terminal box each, PC or network link through supplied adapter cable possible, acoustic and visual alarm signal during fault (can be switched off), alarm acknowledgement on unit and notification via email during malfunction possible, programming and read out via integrated web-browser, 16 operating modes programmable for temperature, time, flow rate, routine, and isolating times, data logging available, data logging capacity of 12 million lines for temperature, flow, consumption; log rate 1 s to 59 min, with manual mode for all actuators, for wall installation, logbook with 50 000 entries for flushing and system events, display with background light, max. ambient temperature 50 °C, protection class IP54, power supply 230 V AC, external input 230 V, switching capacity 230 V, 2 A, floating alarm relay, max. 230 V, 2 A, own consumption 7 W,

Note: can only be combined with actuated KHS quarter turn stop valves (PLUS), 230 Volt, please commission and maintain according to the operating instructions at the construction site or optionally order these

5. KHS MINI CONTROL SYSTEM SLAVE

To control, log and monitor water exchange measures in PWC and PWH installations, extension module for KHS MASTER Control System, expandable by 62 units in the CAN-bus in the MASTER/SLAVE system, to control max. each one KHS quarter turn stop valve, KHS temperature sensor, KHS flow sensor and KHS overflow sensor, operating modes: time, temperature and flow rate, settings will be adopted by KHS MASTER 2.0 via CAN bus cable, for wall installation, 16 operating modes programmable for temperature, time, and volume, max. ambient temperature 50 °C, protection class IP54, power supply 230 V AC, external input 230 V, switching capacity 230 V, 2 A, floating alarm relay, max. 230 V, 2 A, own consumption 3 W,

Note: can only be combined with actuated KHS quarter turn stop valves (PLUS), 230 Volt, please commission and maintain according to the operating instructions at the construction site or optionally order these

6. KHS QUARTER TURN STOP VALVE , (with 230 V actuator)

Electrical shut-off device, can be combined with flushing system, low pressure loss, wetted parts made of stainless steel and gunmetal, two position actuator with limit sensor and actuator cut-off, 90° rotatable, water hammer free operation, easy maintenance while installed, maintenance free gear, for connection to KHS Mini Control System, self-centering shaft adapter with flange for assembly on the valve, maintenance-free EPDM spindle seal, male union thread, removable head part TOP-ENTRY, with EPDM gasket body and stainless steel closing body, free from dead spots, DVGW approval, according to DVGW worksheet W 570, soundproofing certification according to DIN EN ISO 3822 class 2, DIN EN 13828, pressure rating PN 16, max. ambient temperature 55 °C, protection class IP54, power supply 230 V AC, elapsed time for actuated changeover 35 s, length of connection cable 1.2 m, wire cross section 3 x 0.75 mm²

7. KHS QUARTER TURN STOP VALVE PLUS, (with 230 V spring return actuator)

Electrical shut-off device, can be combined with flushing system, low pressure loss, wetted parts made of stainless steel and gunmetal, spring return actuator with electroless reset for controls with switched output, 90° rotatable, water hammer free operation, easy maintenance while installed, maintenance free gear, for connection to KHS Mini Control System, self-centering shaft adapter with flange for assembly on the valve, maintenance-free EPDM spindle seal, male union thread, removable head part TOP-ENTRY, with EPDM gasket body and stainless steel closing body, free from dead spots, DVGW approval, according to DVGW worksheet W 570, soundproofing certification according to DIN EN ISO 3822 class 2, DIN EN 13828, pressure rating PN 16, max. ambient temperature 55 °C, protection class IP54, power supply 230 V AC, elapsed time for actuated changeover 90 s, elapsed time for spring driven changeover 15 s, length of connection cable 1.2 m, wire cross section 2 x 0.75 mm²

8. *KHS FREE DRAIN WITH OVERFLOW SENSOR*

To protect against overflow due to drain block, wetted metal parts made from dezincification-free and corrosion-resistant gunmetal, resistant against aggressive water, easy maintenance while installed, for connection to KHS control systems, KHS timer set and leak detection systems, for use in combination with KHS quarter turn stop valves, female pipe thread, free drain according to EN1717 with integrated overflow sensor, overflow sensor as NCC in delivery status, can be changed to NOC when turned, for vertical installation, protection class IP68, switching capacity 230 V, 0,04 A, length of connection cable 1 m, wire cross section 2 x 0.25 mm²

9. ***MULTI-THERM AUTOMATIC DOUBLE REGULATING VALVE***

For hydraulic balancing of hot water return systems (PWH-C), supports thermal disinfection, wetted metal parts made from dezincification- free and corrosion-resistant gunmetal, resistant against aggressive water, isolating unit with temperature sensor pocket, PTFE seat gasket, thermostatic regulating unit, female pipe thread, with plugged Drain Port, free from dead spots, DVGW approval W 554, SVGW approval, WRAS approval, KIWA approval, WSD approval, plastic parts with KTW- and W270 approval, for systems according to DVGW worksheet W 551 / W 553 / DIN 1988-300, control range 50 °C to 65 °C, pressure rating PN 16, max. Operating temperature 90 °C

10. ETA-THERM AUTOMATIC DOUBLE REGULATING VALVE

For hydraulic balancing of hot water return branches with kv-min ≥ 0.05, for hydraulic balancing of hot water return systems (PWH-C), supports thermal disinfection, wetted metal parts made from dezincification-free and corrosion-resistant gunmetal, resistant against aggressive water, PTFE seat gasket, maintenance-free EPDM spindle seal, thermostatic regulating unit, female pipe thread, handle grip with purple identification plate, free from dead spots, with isolating, regulating and pre-setting function, DVGW approval W 554, ÖVGW approval, WSD approval, plastic parts with KTW- and W270 approval, for systems according to DVGW worksheet W 551 / W 553 / DIN 1988-300, DIN EN 1213, control range 62 °C to 64 °C, pressure rating PN 16, max. Operating temperature 90 °C

11. MULTI-FIX-PLUS DOUBLE REGULATING VALVE

For hydraulic balancing of hot water return systems (PWH-C), wetted metal parts made from dezincification-free and corrosion-resistant gunmetal, resistant against aggressive water, PTFE seat gasket, maintenance-free spindle gasket with self-lubricating EPDM lip gasket, female pipe thread, with plugged Drain Port, incl. thermometer, with pocket for temperature sensor Pt 1000, free from dead spots, keeps throttle pre-setting when vale is closed and opened, with indicator for pre-setting, DVGW approval pending, plastic parts with KTW- and W270 approval, for systems according to DVGW worksheet W 551 / W 553 / DIN 1988-300, DIN EN 1213, pressure rating PN 16, max. operating temperature 100 °C

12. KHS HS2®, HYGIENE-FLUSHING BOX (with flow sensor, double port)

To avoid stangnation acc. to standards and guidelines, operation via HS2®-App, double port for connection of e.g. PWC and PWH, consisting of: solenoid valve unit(s) with locking pin and flow restrictor, maintenance cut-off(s), coupling piece(s), power pack with output cable, length 5 m, control unit, building shell set, building protection, may be cut to size, cover panel made of brushed stainless steel, fixing material, 10 l/min flow (accessories for optional 4 or 15 l/min available) , for installation in dry- or prewall installation systems, compact installation / servicing dimensions, connection to KHS Mini Control-System possible, optional KHS temperature-sensor Pt 1000 available, time, temperature and volume based flushing possible , two operating modes programmable (e. g. for school and holiday periods), logbook with 3000 entries for flushing and system events, integrated overflow monitoring , BMS interface via digital i/o, male pipe thread, drain with integrated odour trap DN 50, with two integrated solenoid valves and mesh DN 15, with isolating function for maintenance, with DVGW approval W 540, SVGW approval, up to DN 32 sound protection certification according to DIN EN ISO 3822 class 1 (up to 15 l/min), pressure rating PN 10, max. operating temperature 70 °C, protection class IP45, power supply 230 V AC, operating voltage 12 V DC, power input 30 W

a. Accesories

i. KHS temperature sensor for KHS HS2

For temperature controlled operation of the KHS HS2® hygiene-flushing box, to be connected to KHS HS2® hygiene-flushing box , wetted metal parts made from dezincification-free and corrosion-resistant gunmetal, resistant against aggressive water, male union thread, free from dead spots, DIN EN 60751, pressure rating PN 16, max. operating temperature 105 °C, length of connection cable 5 m

ii. BMS connecting cable via digital IO for KHS HS2

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For connection of hygiene flushing box to KHS Logic Control System or to BMS via digital I/O, 5m connection cable

iv. CAN bus surface mounted connection set for KHS HS2

For connection to hygiene flushing box and KHS Mini Control System, for wall fastening, 5m connection cable

v. CAN bus flush mounted connection set for KHS HS2

For connection to hygiene flushing box and KHS Mini Control System, for concealed installation, 5m connection cable

vi. Hood for KHS HS2

To cover the KHS HS2® in the event of surface mounting, DC 01 fine sheet steel, powder-coated RAL 7035, Incl. fixing material

vii. KHS CONTROL-PLUS flow sensor

For optional flow measurement in the KHS HS2® hygiene-flushing box, wetted metal parts made from dezincification-free and corrosion-resistant gunmetal, resistant against aggressive water, for installation in KHS HS2® hygiene-flushing box, free from dead spots, plastic parts with KTW- and W270 approval, pressure rating PN 10, max. operating temperature 100 °C

viii. Service set (4, 10, 15 l/min) for KHS HS2

Pressure independent limitation of flow, plastic parts with KTW and W 270 certification, operating pressure PN 10, 4l/min, 10 l/min, 15l/min