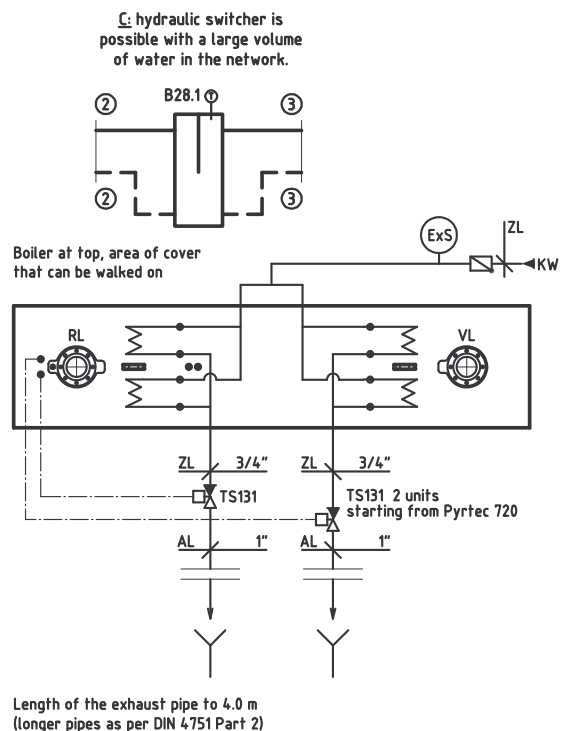


a) Note:



- To reliably prevent boiler corrosion caused by condensation of exhaust gases, the boiler return flow temperature must not under any circumstances be below 65°C. A boiler circuit pump with a modulating valve should be provided according to the diagram for this purpose. The boiler circuit should be designed such that the temperature difference between the forward flow and the return flow is equal to or less than 15°C.

**b) Safety-relevant equipment included in the scope of performance provided by the installing heating engineer**

|       |   |
|-------|---|
| M 20  | Boiler pump   |
| Y 20  | Boiler mixer  |
| TS131 | Thermal run-off safety valve R ¾", homologated component; special-purpose design for opening temperature 100°C, (safety heat exchanger built into boiler), from Pyrtec-720 2 safety heat exchangers in parallel are required as well as 2 thermal run-off safety valves. These are not required for open systems, but we advise installing these. |
| KW    | Cold water inlet, min. 2.5 bar, max. 3.5 bar  |
| WMS   | Water level control device, homologated component; required in Germany starting from systems over 350 kW, Installation recommendation: WMS with magnetic transmission of the float movement to a switch unit  |
| EL    | Air separator (recommendation: absorption-type degasser)  |
| ExO   | Expansion tank open, at the highest point in the system, heat insulated; for heating system   |
| ExS   | Expansion tank closed; with design certification; for safety heat exchanger, max. 4.0 litres, 10 bar  |
| DAZ   | Pressure indication device (pressure gauge)   |
| TAZ   | Temperature indication device (thermometer)   |

**c) Boiler circuit with open expansion, accumulator circuit if necessary, design recommendation**

| Model KPT- | Boiler circuit (VL, RL, BP) | Thermal run-off safety valve TS-131 (quantity) | Water through-put required at 2.5 bar | Accumulator volume <sup>2)</sup> | Supply line ZL | Drain pipe AL <sup>1)</sup> | Safety forward flow (SVL) | Safety return flow (SRL) <sup>1)</sup> |
|------------|-----------------------------|--|---------------------------------------|----------------------------------|----------------|-----------------------------|---------------------------|--|
| 530        | NW 100                      | 1  | 2224 l/h                              | 4300 l                           | R ¾"           | R 1"                        | NW 50                     | NW 40                                  |
| 720        | NW 100                      | 2  | 3020 l/h                              | 5800 l                           | R ¾"           | R 1"                        | NW 50                     | NW 40                                  |
| 950        | NW 125                      | 2  | 3986 l/h                              | 7600 l                           | R ¾"           | R 1"                        | NW 65                     | NW 50                                  |
| 1250       | NW 125                      | 2  | 5246 l/h                              | 10000 l                          | R ¾"           | R 1"                        | NW 65                     | NW 50                                  |

<sup>1)</sup> Length of the exhaust pipe up to 4.0 m (for longer lines, see DIN 4751 Part 2)

<sup>2)</sup> On request, we will be glad to provide a project-based offer on the accumulator(s).

**d) Equipment recommendation from KÖB's delivery programme**

- Note: The equipment below will only be supplied via the installing heating engineer.

| Model KPT- | Designation: | Description:                                    | Item no:          | See Spec Sheet: |
|------------|--------------|---|-------------------|-----------------|
|            |              | Accumulator in the form of a hydraulic switcher | <b>WD-...</b>     | 4700            |
|            | TS 131       | Thermal run-off safety valve, 100°C             | <b>K-TS-131</b>   | 4500            |
| 530        | M 20         | Grundfos pump UPS 65-60 F, 400 V <sup>1)</sup>  | <b>ZPS-656-4</b>  | 4600            |
| 720        | M 20         | Grundfos pump UPS 80-60 F, 400 V <sup>1)</sup>  | <b>ZPS-806-4</b>  | 4600            |
| 950        | M 20         | Grundfos pump UPS 80-120 F, 400 V <sup>1)</sup> | <b>ZPS-8012-4</b> | 4600            |
| 1250       | M 20         | Grundfos pump TP 100-60 F, 400 V <sup>1)</sup>  | <b>ZPS-1060-4</b> | 4600            |
| 530        | Y 20         | Motor-three way tap, VBF 21.100/SQL33           | <b>ZH-3-100</b>   | 4600            |
| 720        | Y 20         | Motor-three way tap, VBF 21.100/SQL33           | <b>ZH-3-100</b>   | 4600            |
| 950        | Y 20         | Motor-three way tap, VBF 21.125/SQL33           | <b>ZH-3-125</b>   | 4600            |
| 1250       | Y 20         | Motor-three way tap, VBF 21.125/SQL33           | <b>ZH-3-125</b>   | 4600            |

<sup>1)</sup> For Δt 15K as per illustration

Any additional resistors (heat meters, slide valve) require redesigning of the boiler pump!