



The Oventrop Quality Management System is certified to DIN-EN-ISO 9001

## Radiator lockshield valves "Combi 4", "Combi 3" and "Combi 2"

### Tender specification:

Oventrop radiator lockshield valve "Combi 4" with proportional reproducible fine presetting for use in hot water central heating systems or for chilled water circuits. For presetting, isolating, filling and draining of the radiator. Made of bronze/brass, nickel plated, valve disc with EPDM O-ring seal.

Protection cap with additional sealing function.

Connection for service tool.

Suitable for threaded or solder pipes or compression fittings.

Measures according to DIN 3842.

Max. working temperature: 120 °C (for short periods up to 130 °C)

Max. working pressure: 10 bar

Oventrop radiator lockshield valve "Combi 3" with proportional fine presetting for use in hot water central heating systems or for chilled water circuits.

For presetting, isolating, filling and draining of the radiator.

Made of bronze/brass, nickel plated, valve disc with EPDM O-ring seal.

Protection cap with additional sealing function.

Connection for service tool.

Suitable for threaded or solder pipes or compression fittings.

Measures according to DIN 3842.

Max. working temperature: 120 °C (for short periods up to 130 °C)

Max. working pressure: 10 bar

Oventrop radiator lockshield valve "Combi 2" with proportional fine presetting for use in hot water central heating systems or for chilled water circuits.

For presetting and isolating of the radiator.

Made of brass, nickel plated, valve disc with EPDM O-ring seal.

Protection cap with additional sealing function.

Suitable for threaded and solder pipes or compression fittings.

Measures according to DIN 3842.

Max. working temperature: 120 °C (for short periods up to 130 °C)

Max. working pressure: 10 bar

### Function:

The Oventrop radiator lockshield valves "Combi 4, 3 and 2" are installed in the return pipe of the radiator. When installing "Combi 4 and 3" please ensure that the draining facility for draining the radiator is accessible. This will allow the removal of radiators without the necessity to drain the system.

To carry out the hydronic balancing within the heating system, a presetting can be made to alter the flow resistance.

Draining and filling of the radiator ("Combi 4 and 3" only) is carried out by means of the service tool with 1/2" hose connection.

### Application:

- Hot water central heating systems
- Chilled water circuits

"Combi 4" radiator lockshield valve with the following functions:

- Presetting with memory position
- Isolating
- Filling
- Draining

"Combi 3" radiator lockshield valve with the following functions:

- Presetting
- Isolating
- Filling
- Draining

"Combi 2" radiator lockshield valve with the following functions:

- Presetting
- Isolating

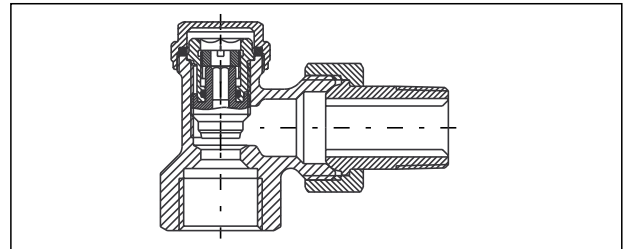
### Note:

When compression fittings are used, the Oventrop radiator lockshield valves can also be employed in installations with Oventrop composition pipe „Copipe“ (14 and 16 mm) as well as copper and precision steel pipes (10 - 22 mm). The models with 3/4" male thread may also be used for plastic pipes and the Oventrop composition pipe "Copipe".

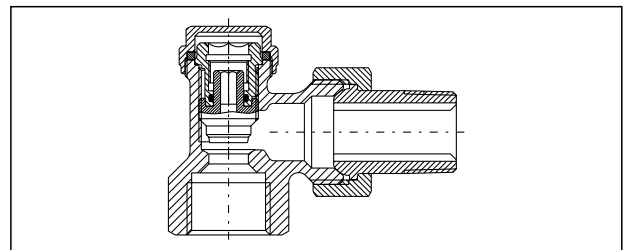


Radiator lockshield valve "Combi 4" with service tool

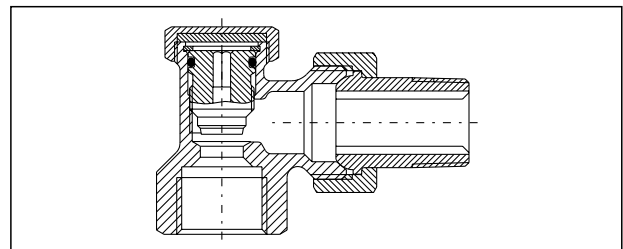
### Cut illustrations:



"Combi 4" angle pattern with female thread according to DIN 2999



"Combi 3" angle pattern with female thread according to DIN 2999



"Combi 2" angle pattern with female thread according to DIN 2999

## "Combi 4" / "Combi 3"

### 1 Presetting:

- 1.1 Remove protection cap.
- 1.2 Close the valve disc by turning a 4 mm spanner (1) clockwise (drawing 1).
- 1.3 Then preset the valve disc by turning the 4 mm spanner (1) anticlockwise according to the number of turns selected from the flow chart (drawing 2).
- 1.4 Finally, using a screwdriver, turn the lock nut clockwise until stop (drawing 3, only "Combi 4").

**Important:** In case of subsequent modification of the presetting, the lock nut should first be unscrewed by turning a screwdriver (drawing 3) slightly anticlockwise. Afterwards the presetting can be changed by means of the 4 mm spanner (1).

**Note:** The chosen presetting will not be changed by draining or isolating the radiator.

### 2 Isolating:

- 2.1 Remove protection cap.
- 2.2 Close the valve disc by turning a 4 mm spanner (1) clockwise (drawing 4).  
**Attention:** Do not twist the lock nut as otherwise the chosen presetting is no longer given when opening the valve (only "Combi 4").

### 3 Draining:

- 3.1 First close the thermostatic radiator valve in the flow pipe.
- 3.2 Isolate the "Combi 4/3" as described above (point 2).
- 3.3 Loosen the valve insert by turning a 10 mm spanner (1) anticlockwise (max. 1/4 thread) (drawing 5).  
**Attention:** The lock nut has to be screwed in sufficiently so that the 10 mm spanner can be inserted up to 4 mm at least.
- 3.4 Fit the service tool (2) to the "Combi 4/3" and connect a 1/2" hose (drawing 6).  
**Note:** Tighten the 19 mm compression nut closely (max. 10 Nm).
- 3.5 Open the vent screw at the radiator. Fit the 10 mm spanner (1) to the service tool (2) and drain the radiator by turning anticlockwise (drawing 6).

### 4 Filling:

#### by means of the service tool

- 4.1 If the radiator was just drained by means of the service tool (2), no modifications to the tool or the valve are required. The radiator can now be filled through the 1/2" hose (radiator now has to be bled).
- 4.2 With the filling operation completed, fit a 10 mm spanner (1) to the service tool (2) again and close the insert by turning clockwise (drawing 7).
- 4.3 Remove the service tool (2) and tighten insert by means of the 10 mm spanner (1) (max. 10 Nm) (drawing 8).

#### via the heating system

- 4.4 Close the valve by turning a 10 mm spanner (1) clockwise and tighten it (max. 10 Nm) (drawing 8).
- 4.5 Open the valve disc by turning a 4 mm spanner (1) anticlockwise until stop (drawing 2). Bleed radiator.
- 4.6 Replace protection cap.

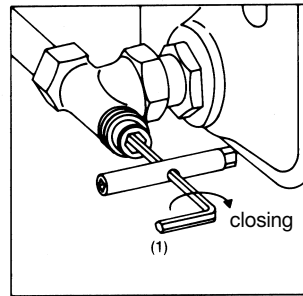
## "Combi 2"

### 1 Presetting:

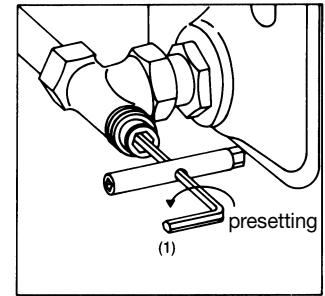
For presetting the "Combi 2" proceed as described above ("Combi 4", point 1).

### 2 Isolating:

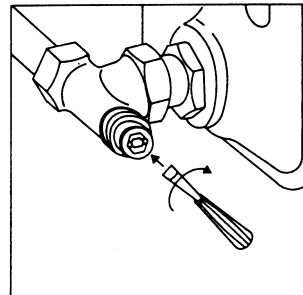
For isolating the "Combi 2" proceed as described above ("Combi 4", point 2)



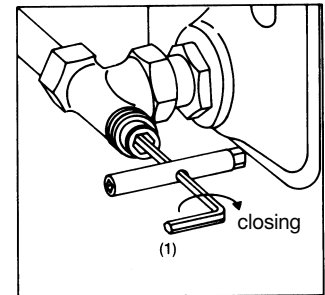
Drawing 1



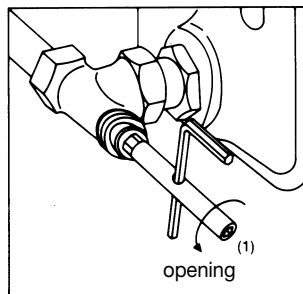
Drawing 2



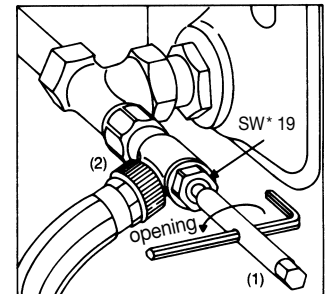
Drawing 3



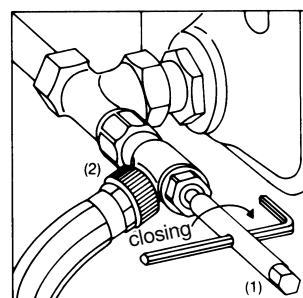
Drawing 4



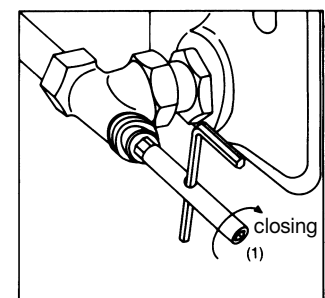
Drawing 5



Drawing 6

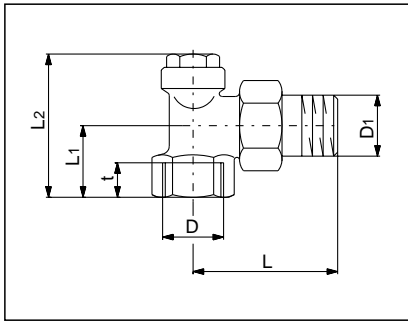


Drawing 7

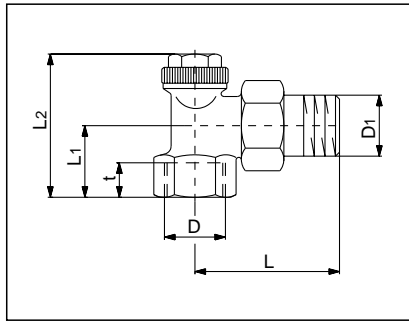


Drawing 8

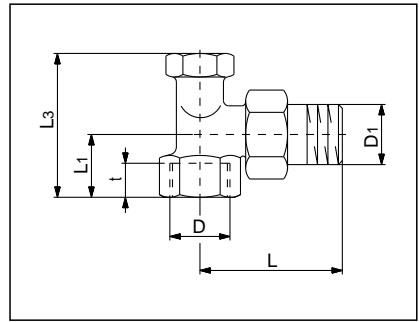
**"Combi 4"**



**"Combi 3"**



**"Combi 2"**



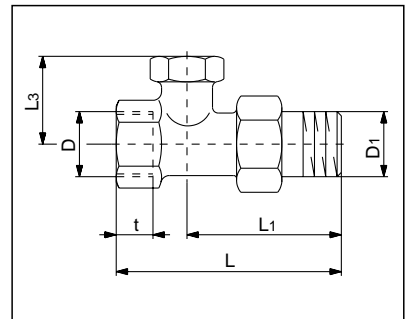
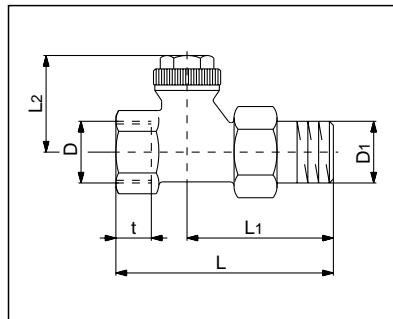
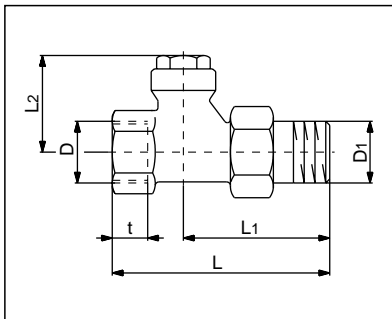
**Angle pattern with female thread**

DN	D	D <sub>1</sub>	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	t	"Combi 4" nickel plated	"Combi 3" nickel plated	"Combi 2" nickel plated
10	3/8"	3/8"	52	22	47.5	43.5	10.1	109 06 61	109 03 61	109 10 61
15	1/2"	1/2"	58	26	52	48	13.2	109 06 62	109 03 62	109 10 62
20	3/4"	3/4"	66	29	58	54	14.5	109 06 63	109 03 63	109 10 63

**Angle pattern with solder connection**

D	D <sub>1</sub>	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	t	"Combi 4" unplated	"Combi 2" unplated
12	3/8"	52	22	47.5	43.5	10	109 08 51	109 12 51
12	1/2"	54	22	47.5	43.5	10	109 08 52	109 12 52
14	1/2"	58	26	52	48	12	-	109 12 54
15	1/2"	58	26	-	48	12	109 08 53	109 12 53
16	1/2"	58	26	-	48	12	-	109 12 55

Note: The threads D and D<sub>1</sub> are according to DIN 2999.



**Straight pattern with female thread**

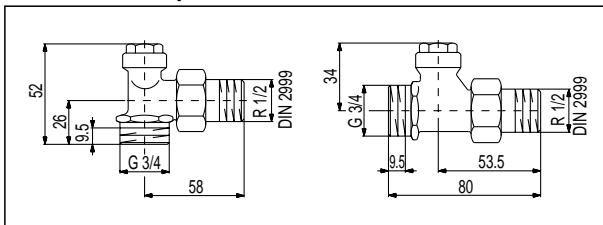
DN	D	D <sub>1</sub>	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	t	"Combi 4" nickel plated	"Combi 3" nickel plated	"Combi 2" nickel plated
10	3/8"	3/8"	75	51.5	34	30	10.1	109 07 61	109 04 61	109 11 61
15	1/2"	1/2"	80	53.5	34	30	13.2	109 07 62	109 04 62	109 11 62
20	3/4"	3/4"	91	62	34.5	30.5	14.5	109 07 63	109 04 63	109 11 63

**Straight pattern with solder connection**

D	D <sub>1</sub>	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	t	t <sub>1</sub>	SW*	"Combi 4" unplated	"Combi 2" unplated
12	3/8"	75	51.5	34	30	10	10	27	109 09 51	109 13 51
12	1/2"	77	53.5	34	30	10	9	27	109 09 52	109 13 52
14	1/2"	80	53.5	34	30	12	13	30	-	109 13 54
15	1/2"	80	53.5	-	30	12	13	30	109 09 53	109 13 53
16	1/2"	80	53.5	-	30	12	13	30	-	109 13 55

Note: The threads D and D<sub>1</sub> are according to DIN 2999.

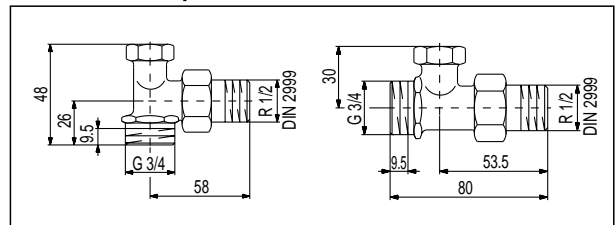
**"Combi 4" both ports male thread**



Item no. 109 06 72

Item no. 109 07 72

**"Combi 2" both ports male thread**



Item no. 109 10 72

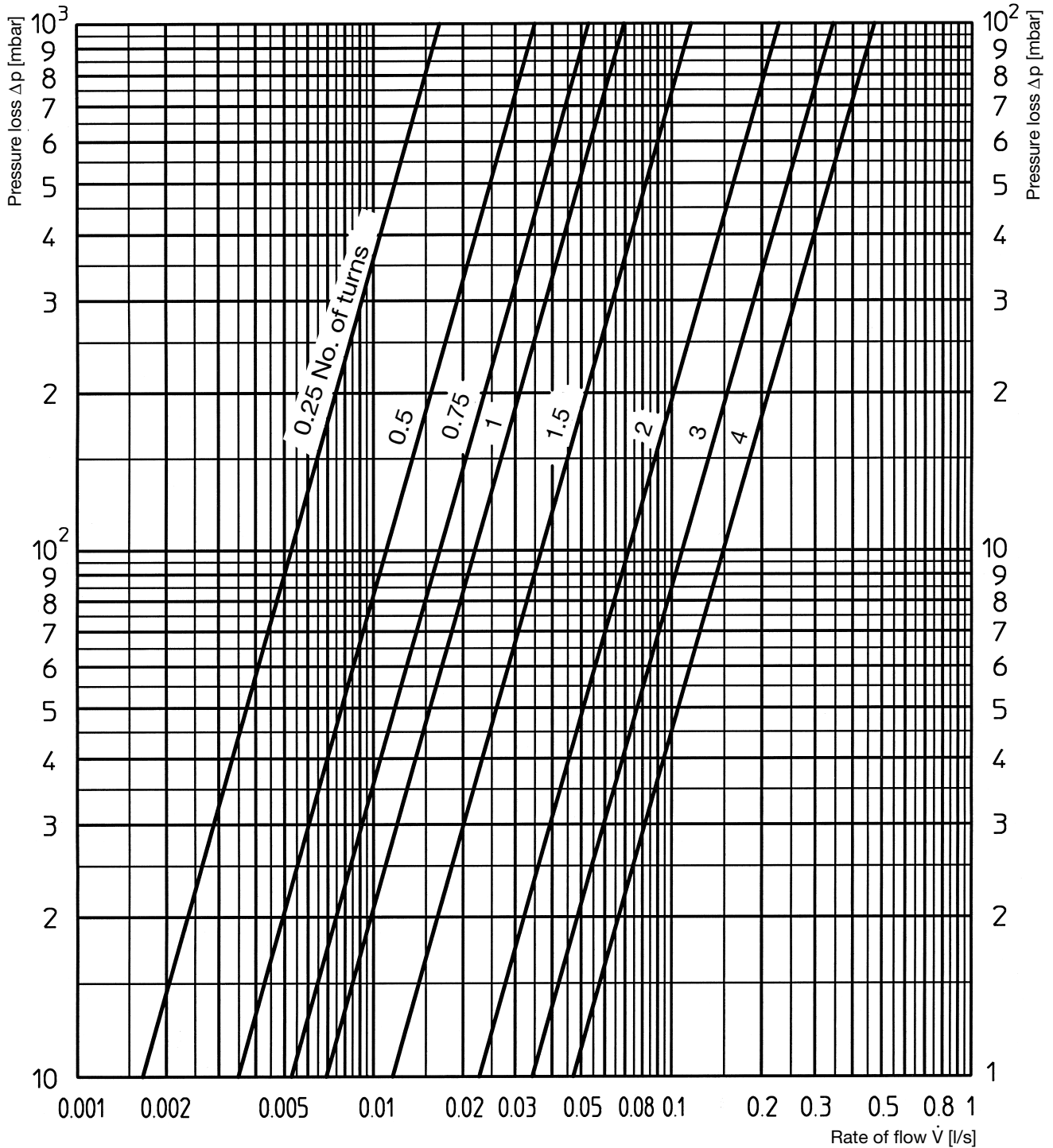
Item no. 109 11 72

Service tool for "Combi 4" and "Combi 3" item no. 109 05 51.

SW\* = spanner size

**Performance data:**

Presetting		0.25	0.5	0.75	1	1.5	2	3	4
$k_V$ value		0.060	0.126	0.190	0.250	0.420	0.819	1.236	1.700
Zeta-value	3/8"	10460	2370	1040	600	220	56	25	13
	1/2"	28070	6370	2780	1620	590	150	66	35
	3/4"	93250	21150	9300	5370	1900	500	220	116



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