Conversion table

Design radiator

Simplified procedures for standard and low-temperature (ST/LT)

The conversion factors in the table show the extent to which heat output varies under other operating conditions than those specified in the following standard-design data:

Supply temperature t_1 **75 °C**
Return temperature t_2 **65 °C**
Room temperature t_r **20 °C**

Because an average exponent of 1.3 has been used both for the calculation of performance data and for specifying the conversion factor, a slight variation in performance from the calculated values is possible.

The standard heating power Φ_S of a radiator to give the required heat output $\Phi_{HL,i}$ with the chosen operating conditions, is calculated according to the formula:

$$\Phi_S = \Phi_{HL,i} \times f$$

Φ_S = standard heating power, in accordance with EN 442
$\Phi_{HL,i}$ = required heat output, in accordance with EN 12831
f = conversion factor from the table

Example:
The required heat output for a room, from a 600 Watts base in accordance with EN 12831:

Variable data: t_1 65 °C
t_2 55 °C
t_r 22 °C

Factor **f** according to the table = **1,43**

supply temperature °C	return temperature °C	room air temperature °C						
		12	15	18	20	22	24	26
90	80	0,61	0,64	0,68	0,71	0,74	0,77	0,81
	70	0,67	0,72	0,76	0,80	0,83	0,87	0,91
80	70	0,74	0,79	0,84	0,88	0,93	0,97	1,03
	60	0,83	0,89	0,96	1,01	1,07	1,13	1,20
	50	0,96	1,04	1,13	1,20	1,28	1,37	1,47
75	**65**	0,82	0,88	0,95	**1,00**	1,05	1,12	1,18
	60	0,88	0,94	1,02	1,08	1,14	1,21	1,29
	55	0,94	1,01	1,10	1,17	1,24	1,32	1,42
70	65	0,87	0,94	1,01	1,07	1,13	1,19	1,27
	60	0,93	1,00	1,08	1,15	1,22	1,30	1,39
	55	0,99	1,08	1,17	1,25	1,33	1,42	1,53
	50	1,07	1,17	1,28	1,37	1,47	1,58	1,71
65	60	0,98	1,07	1,16	1,23	1,31	1,40	1,50
	55	1,05	1,15	1,26	1,34	1,43	1,54	1,66
	50	1,14	1,25	1,37	1,47	1,59	1,71	1,86
	45	1,24	1,37	1,52	1,64	1,78	1,94	2,13
60	55	1,13	1,23	1,36	1,45	1,56	1,68	1,82
	50	1,22	1,34	1,48	1,60	1,73	1,87	2,05
	45	1,33	1,47	1,65	1,78	1,94	2,13	2,36
	40	1,47	1,64	1,86	2,03	2,24	2,50	2,80
55	50	1,31	1,45	1,62	1,75	1,90	2,07	2,28
	45	1,43	1,60	1,80	1,96	2,15	2,37	2,64
	40	1,59	1,78	2,03	2,24	2,48	2,78	3,15
	35	1,78	2,03	2,36	2,64	2,99	3,43	4,02
50	45	1,56	1,75	1,98	2,17	2,40	2,67	3,00
	40	1,73	1,96	2,25	2,50	2,79	3,15	3,61
	35	1,94	2,24	2,63	2,96	3,38	3,92	4,64
	30	2,24	2,64	3,20	3,70	4,39	5,39	6,99
45	40	1,90	2,17	2,53	2,83	3,19	3,66	4,25
	35	2,15	2,50	2,96	3,37	3,89	4,58	5,52

$\Phi_S = \Phi_{HL,i} \times f$ = 600 Watts x 1,43 = 858 Watts

A radiator has to be installed that emits 858 Watts under normal (75/65/20) conditions.

Exact method for the performance calculation for standard and low-temperature (ST/LT)

Using the formula $\Phi = \Phi_S \left[\frac{\Delta T}{\Delta T_S}\right]^n$ any performance differing from the standard can be calculated.

Φ = Heating power [W]
Φ_S = Standard heating power in accordance with EN 442 [W]
ΔT = Arithmetic radiator excess temperature [K]
ΔT_S = Arithmetic radiator excess temperature 50 K, from a standard base of 75°C / 65°C / 20°C
n = Radiator exponent

Please note: if the condition $c = \frac{t_2 - t_r}{t_1 - t_r} < 0{,}7$ is met, the excess temperatures will be specified logarithmically.

$$\Delta T_{arithmetic} = \frac{t_1 + t_2}{2} - tr \qquad \Delta T_{logarithmic} = \frac{t_1 - t_2}{\ln \frac{t_1 - t_r}{t_2 - t_r}}$$

To use our radiator performance calculator, go to www.vogelundnoot.com

Connection modes

Two pipe operation / single pipe operation

Two pipe operation

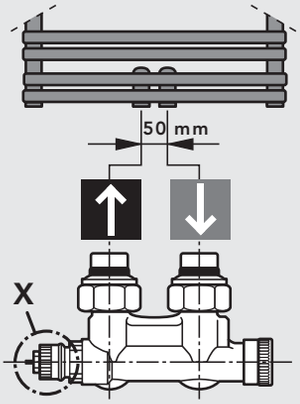


Fig. 1

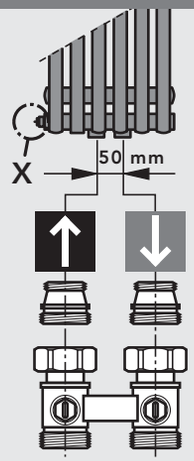
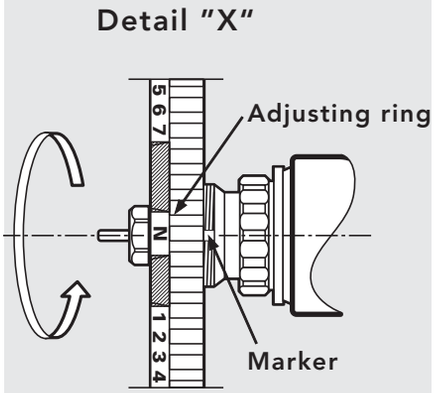


Fig. 2



Guideline values for presetting – basis: Supply temperature **70 °C** Return temperature **55 °C** Room temperature **20 °C**

Guide values for the Kv-value setting, at a proportional deviation of 2K for FULDA-VM, LOWA-VM, CAVALLY-VM, BAWA-VM, BAWA-T VM and OHIO VSM (Fig. 1):

K_V = 0,12 up to 450 W presetting **4**
K_V = 0,19 up to 700 W presetting **5**
K_V = 0,27 bis 1000 W presetting **6**
K_V = 0,33 up to 1200 W presetting **7**
K_V = 0,48 over 1200 W presetting **N**

Guide values for the K_V-value setting, at a proportional deviation of 2K for SEINE-V (Fig. 2):

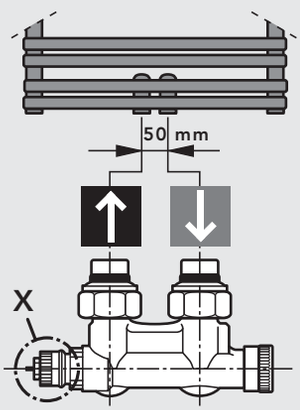
K_V = 0,13 up to 500 W presetting **1**
K_V = 0,21 over 500 W presetting **2**

Setting instructions

- Remove the protective cap and the sensor element.
- Lift the adjusting ring and turn it anticlockwise, as far as to the presetting required – the set value (1, 2, ...7, N) must be positioned in line with the marker.
- Presetting is possible in steps of 0.5 between 1 and 7. The „N"setting, cancels all presetting.

Note:
Settings in the hatched areas are to be avoided.
It is easy to set the precise value required without using any special tools.
The following thermostat heads can be directly fitted: **„RA 2000"**, or **„RAW"** from **Danfoss, „VK"** from **Heimeier**, **„D"** from **Herz**, **„thera DA"** from **MNG**, and **„UNI XD"** from **Oventrop**.

Single pipe operation



with FULDA-VM, LOWA-VM, CAVALLY-VM, BAWA-VM, BAWA-T VM and OHIO VSM

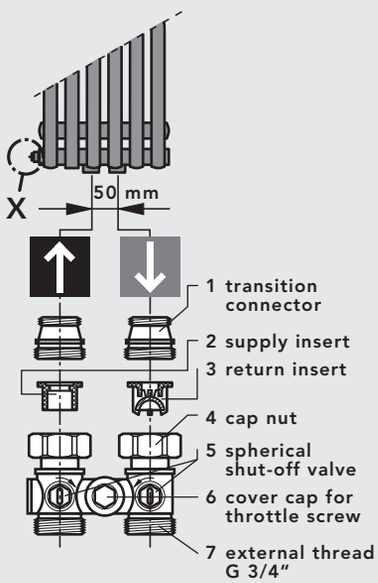
Accessories: connection set for single-pipe operation

Set value at a proportional deviation of 2K (guideline value): **radiator proportion 40% is the fixed setting**

The following thermostat heads can be directly fitted: **„RA 2000"**, or „**RAW"** from **Danfoss**, **„VK"** from **Heimeier**, **„D"** from **Herz**, **„thera DA"** from **MNG**, and **„UNI XD"** from **Oventrop**.

It is not necessary to preset the valve.

Single pipe operation for SEINE-V



Set value at a proportional deviation of 2K (guideline value):

radiator proportion 30 % - 3,50 rotations = RECOMMENDED SETTING
radiator proportion 35 % ..... 3,00 rotations
radiator proportion 40 % ..... 2,50 rotations
radiator proportion 45 % ..... 2,00 rotations
radiator proportion 50 % ..... 1,75 rotations

Note:
When installing the single-pipe manifold take care that the return insert 3 is fitted into the return, and the supply insert 2 into the supply. Before setting the radiator proportion remove the covering cap 6 from the single-pipe manifold; the bypass shaft located below it needs to be turned to the right as far as it will go.

The following thermostat heads can be directly fitted: **„RA 2000"**, or „**RAW"** from **Danfoss**, **„VK"** from **Heimeier**, **„D"** from **Herz**, **„thera DA"** from **MNG**, and **„UNI XD"** from **Oventrop**.

It is not necessary to preset the valve because it has been factory-adjusted to presetting N.

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