

## T6-CENTRALLY CONNECTED RADIATOR.



### Connections

4 x internal thread G 1/2 and  
2 x external thread G 3/4  
bottom centre



### Test positive pressure

13 bar



### Max. positive operating pressure

10 bar



### Max. operating temperature

110 °C



### Heat emission

The specification was verified in accordance with DIN EN 442 at The Technical University, Stuttgart (Registration at WSP-Cert Product Certification Centre, Stuttgart), under the numbers:

Type 11 VM	0445
Type 21 VM-S	0447
Type 22 VM	0448
Type 33VM	0449

and in accordance with OENORM (Austrian standard) EN 442 at the Technological Commercial Museum, Vienna.

### Material

T6-CENTRALLY CONNECTED RADIATORS are made of cold-rolled sheet

steel, and in accordance with EN 442-1, with a stylish and robust fluting with ribs at 40 mm intervals.

### Equipment

Each T6-CENTRAL CONNECTION RADIATOR is equipped with an integrated T-valve set, and suitable for double-pipe and single-pipe systems with a single-pipe manifold; it comes with a fitted valve top with a pre-set  $k_v$ -value, a protective cap and welded suspension brackets on the back. The drain plug and the pivoting special vent plug, as well as the dummy plug are fitted with seals. All types of radiator are equipped with a detachable top cover and two closed side panels.

### Paint coating



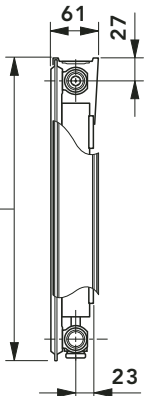
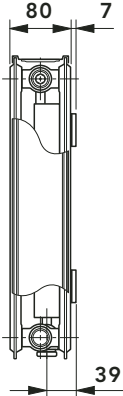
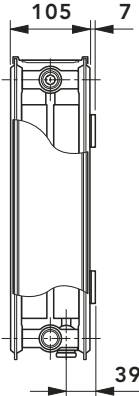
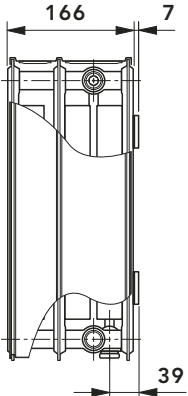
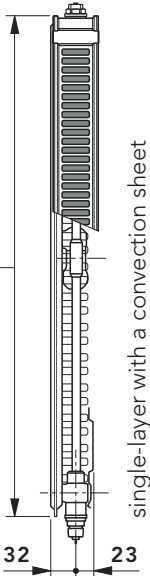
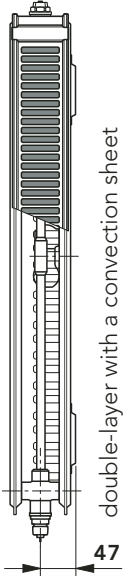
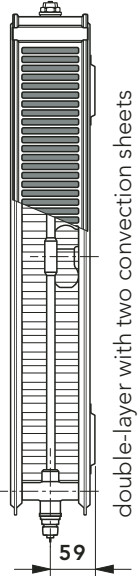
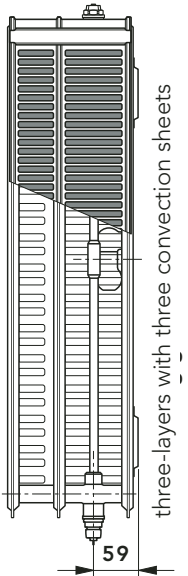


1. Undercoating in accordance with DIN 55900 part 1, stoved at 190° C.
2. Finish in accordance with DIN 55900 part 2, in standard colour 9016 (on request available in many standard colours and sanitary-ware colours at an extra charge), applied electrostatically in a modern powder coating facility. This especially resistant coating is stoved at an object temperature of 210° C.

### Packaging

1. Cardboard packaging
2. Edge protection
3. Shrink foil

# 20 T6-CENTRALLY CONNECTED RADIATOR

Overview of models

Overview of models																				
Type	11 VM					21 VM-S					22 VM					33 VM				
  																				
	 <p>single-layer with a convection sheet</p>					 <p>double-layer with a convection sheet</p>					 <p>double-layer with two convection sheets</p>					 <p>three-layers with three convection sheets</p>				
Type	11 VM					21 VM-S					22 VM					33 VM				
Height  [mm]	300	400	500	600	900	300	400	500	600	900	300	400	500	600	900	300	400	500	600	900
Length  [mm]	up to 2400		up to 2600		up to 2000	up to 2400		up to 3000		up to 2000	up to 3000			up to 2000		up to 3000	up to 2200		up to 1800	
Steps	all overall length starting with 400 mm available in steps of 200 mm, additionally 520, 720, 920, 1120 and 1320 mm																			



Guarantee statements are available to download at [www.vogelundnoot.com/download](http://www.vogelundnoot.com/download)

## Description and delivery equipment

The T6-CENTRALLY CONNECTED RADIATOR, with its welded-in set of T-shaped valves, sets new standards in the field of centre-connection technology. Besides its elegant appearance, the T6-CENTRALLY CONNECTED RADIATOR grabs the attention because of its unique patented features. It is suitable for all purposes and easy for the heating engineer to install. It also has many other striking advantages, as listed below:

### T6-CENTRALLY CONNECTED COMPLETE RADIATORS -

wall bracket fastenings make this a flexible solution

### VARIABLE CONNECTIONS -

the built-in valve and its thermostat head can be switched from the right to the left-hand side – with no need to turn the radiator and without crossing over the supply and return.

### VARIABLE TYPES -

with all multi-layered radiators the distance between the connection and the wall is standardised (this also applies to all single-layered radiators, if a special angle fish-plate is used).

### VARIABLE SIZES -

you are free to choose the overall radiator length and height at any time, and even subsequently change your mind.

### PERFECT PRE-ASSEMBLY -

fitting pre-installation piping and system testing are possible even without having the radiators there.

Consequently T6-CENTRALLY CONNECTED RADIATOR truly serves to solve your problems. To round off all the advantages mentioned before, the versatility of the T6-CENTRALLY CONNECTED RADIATOR regarding style and colouring offers a wide scope for design. By using the removable, unique and colourful decor-clips you can give individuality, also subsequently.

The T6-CENTRALLY CONNECTED RADIATOR is - with its welded in set of T-shaped valves - suitable for double-pipe installations as well as single-pipe installations, using a single-pipe manifold.

Additionally to the central connection from the bottom, the sophisticated design makes possible other connections used at compact radiators, such as the single-sided and two-sided connection. **Radiators are delivered ready for double-pipe installation and with a factory-adjusted  $k_v$ -setting, appropriate to the radiator output.**

For district heating installations with a big difference between water supply and return temperature, a valve unit that allows a precise and stepless adjustment is available on request.

By using universal supply and return connections, commercially available pipes (external thread 3/4") made of copper, steel, plastic or alloy, can be connected; the corresponding accessories and the commercially obtainable shut-off valve have to be used.

The following thermostat heads can be directly fitted at the radiator: „RA 2000“ and „RAW“ by Danfoss, „VK“ by Heimeier, „D“ by Herz, „thera DA“ by MNG, as well as „UNI XD“ by Oventrop. The radiator will be delivered with a protective cap.

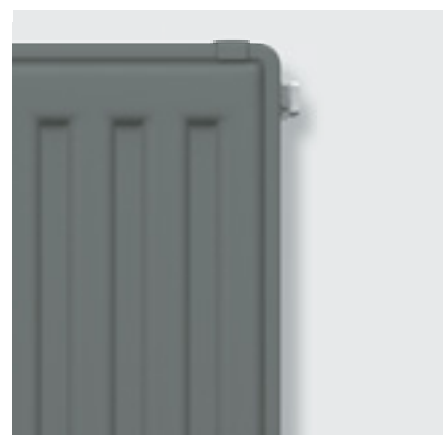
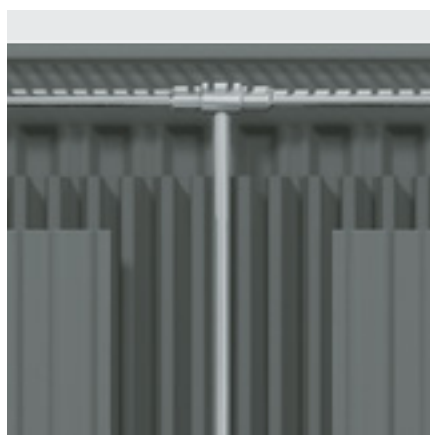
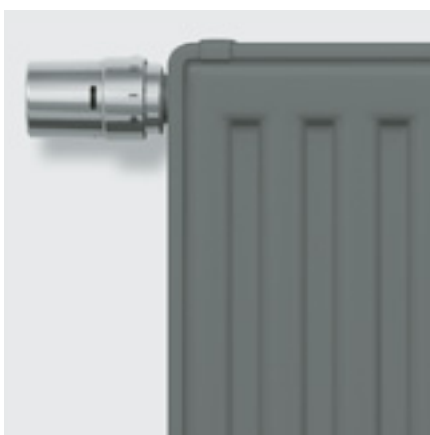
The operation parameters are specified with a positive operating pressure of 10 bar and an operating temperature of 110° C. With single-pipe installations, a cycle's maximum radiator power of about 10 kW at  $\Delta T=T_1-T_2=20$  K (at  $T_1 = 90^\circ$  C) has to be taken into account.

Thus the T6-CENTRALLY CONNECTED RADIATOR has to be regarded as revolutionary for the new generation of centrally-connected radiators. With this type of radiator - with its ideal functioning of the whole radiator-valve unit, its superb heating output, compared with the motivation to install thermostat heads, saving heating energy becomes evident.

Our valve radiators' connections (external thread G 3/4") comply in construction and tolerance with the specifications, in accordance with DIN V 3838. If conically sealed drain cocks are used (single-pipe and double-pipe operation), where an adjustment of tolerance of distance to the centre is not possible, we must repudiate liability for any damage connected to this.

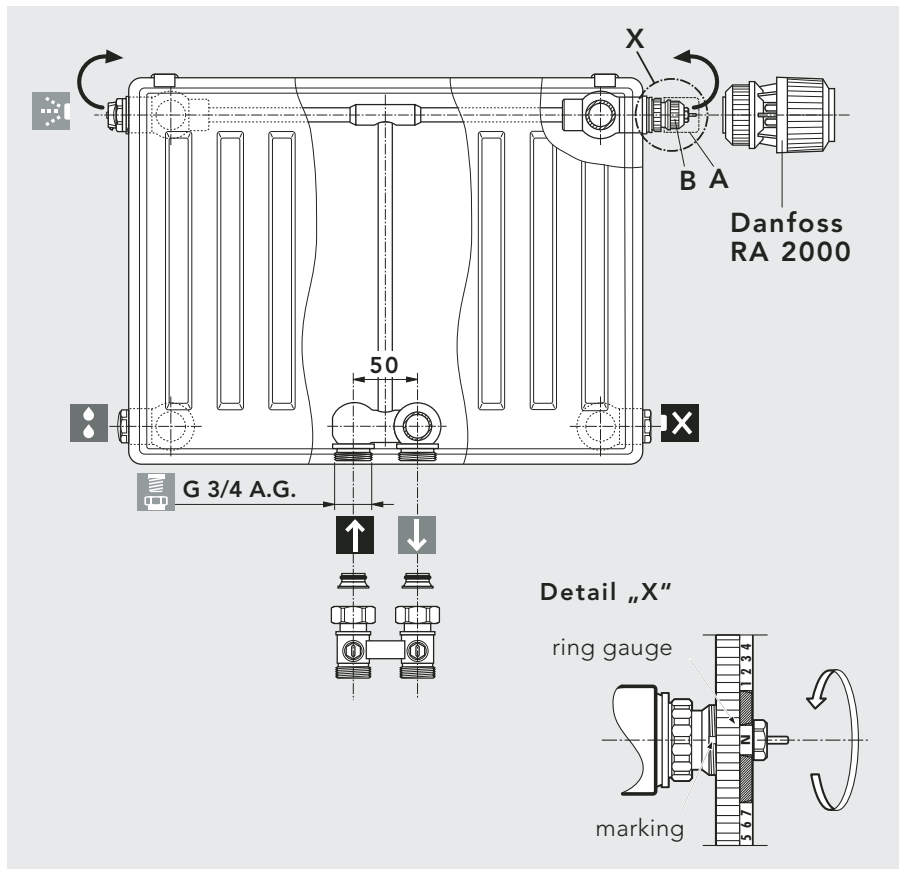
**Therefore we recommend to use only flat sealed drain cocks, or drain cocks where an adjustment of tolerance of the distance to the centre is possible.**

T6-CENTRALLY  
CONNECTED  
RADIATOR



## 22 T6 AND T6-HYGIENE CENTRALLY CONNECTED RADIATOR

Double-pipe operation - Adjustment tips for built-in valve



### Setting instructions:

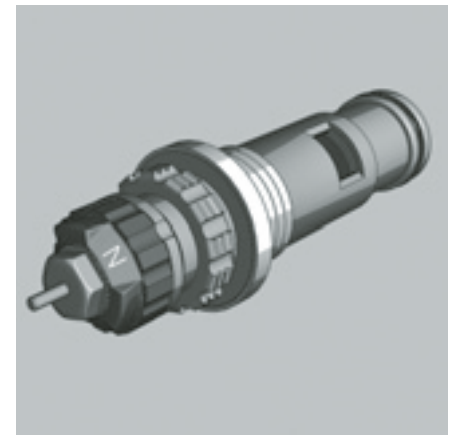
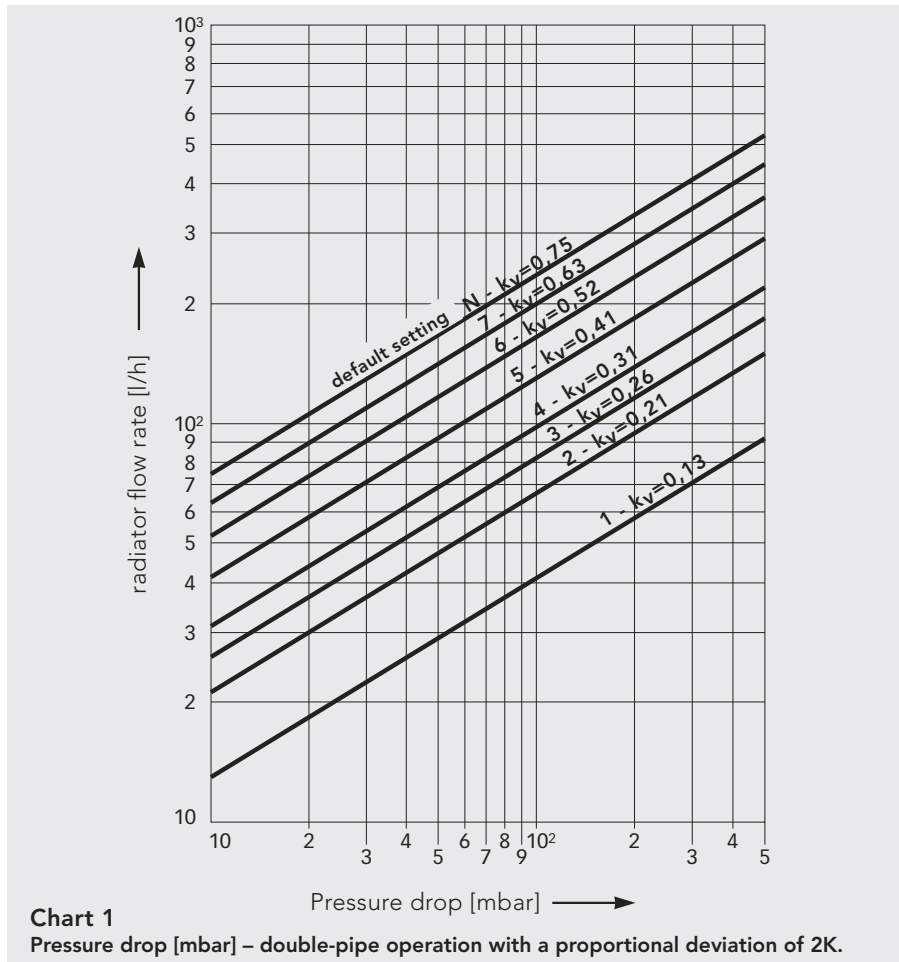
VOGEL&NOOT valve radiators are factory-fitted for double-pipe installations. Each individual radiator is fitted with a pre-adjusted valve insert, appropriate to the radiator output. The pre-set  $k_v$ -value is also marked in colour on the front surface.

### Please note:

Should customised adjustments be required, the pre-set  $k_v$ -values can be altered as needed.

Swapping the right-hand side built-in valve to the left-hand side is no problem at all at any time.

Radiator are delivered with protective caps. After removing the protective cap (pos. A) the following thermostat heads can be fitted directly to the built-in valve (pos. B): "RA 2000", "RAW" by Danfoss, "VK" by Heimeier, "D" by Herz, "thera DA" by MNG and "UNI XD" by Oventrop.



### $k_v$ -value chart

Pre-setting	1,1	3,9	5,2	6,5	N
kv-value up to	0,13	0,30	0,42	0,56	0,72
Colour of the adjustment ring	white	black	green	blue	red

Of course it is also possible to change the pre-adjusted valve setting when the equipment is operating at pressure.

Valve pre-adjustment

## Hydraulic calibration

The hydraulic calibration of the heat emission system has two essential effects: saving on energy costs and CO<sub>2</sub> reduction. It ensures that all radiators receive the required flow rate of heating water. This is the only way that optimal heat output performance be achieved, guaranteeing thermal comfort, with economical and ecologically responsible operation.

Any radiator requires a specific flow rate of heating water, according to its position in the distribution system. The circulation pump serves to distri-

bute heat in all rooms equally and in accordance with the required ambient temperature. Yet, in most systems the warm heating water flows back along the line of least resistance, which is usually through the radiator located next to the circulation pump.

This means that the radiators furthest from the circulation pump are inadequately supplied with heating water, whereas the nearest are oversupplied! Very often the reason why rooms are inadequately heated or overheated is attributed to either an under-size pump

or heating sources that are too weak. However, larger pumps, high supply temperatures and heating controls make the negative effects worse: lack of comfort and high energy costs, as well as higher CO<sub>2</sub> emissions and more noise.

The only effective remedy for this is hydraulic calibration, with the appropriate  $k_v$ -value, pre-adjusted by the factory. This makes the resistance of all the radiators in the distribution system similar, and they get an optimal rate of heating water flow.

T6-CENTRALLY  
CONNECTED  
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## Factory pre-adjustment

VOGEL&NOOT valve radiators are already factory-fitted with pre-set and adjustable valve inserts, appropriate to the heat output. The valve inserts fitted as standard allow for 8 main  $k_v$ -value settings and 7 intermediate settings. The factory-adjusted  $k_v$ -value settings include 5 of 15 possible settings, and are calculated for standard heating systems with a pressure difference of 100 mbar.

## Advantages of the valve inserts in VOGEL&NOOT valve radiators

### Continuously opening and infinitely variable control apron

- Finer adjustment
- Reliable operation
- More easily cleaned valve inserts

### Colour-coded valves

- Set  $k_v$ -value immediately visible

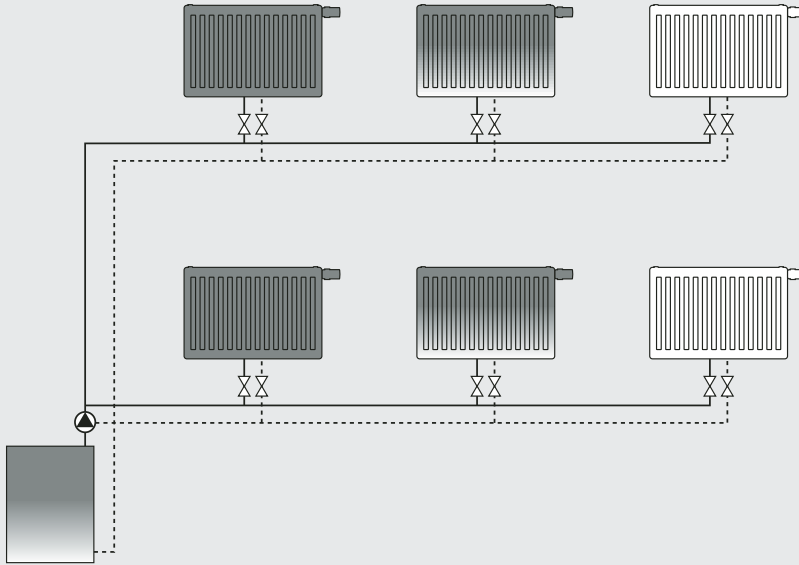
### The advantages of factory-adjusted valve settings

- Optimal hydraulic calibration for buildings with operational areas up to 1,000m<sup>2</sup>
- Better energy evaluation of buildings (DIN EN 18599)
- Credits for the Energy Passport
- Saves time and costs for heating planners, installers and plumbers
- Up to 6% energy saving, after hydraulic calibration
- Up to 20% less energy needed for circulation pump

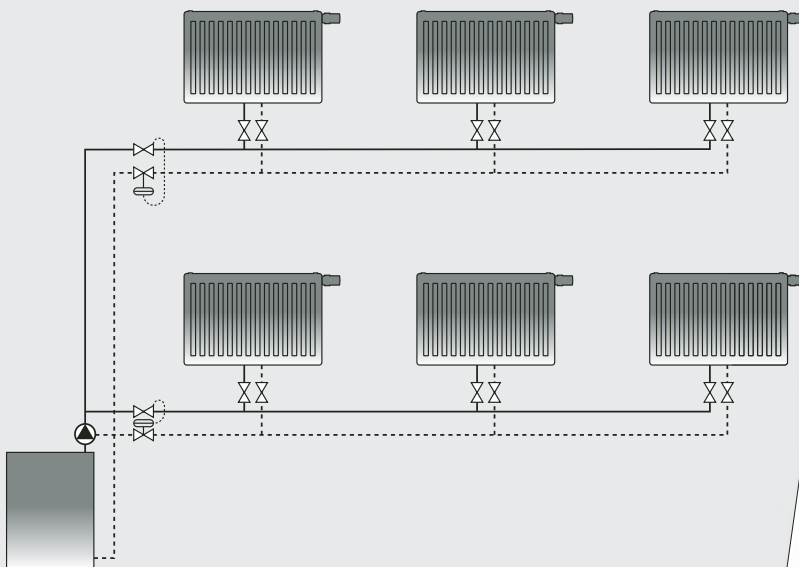
The advantages of hydraulic calibration

- Up to 6% energy saving
- CO<sub>2</sub> reduction
- Increased comfort
- Complies with Energy-Efficiency regulations

A system without hydraulic calibration



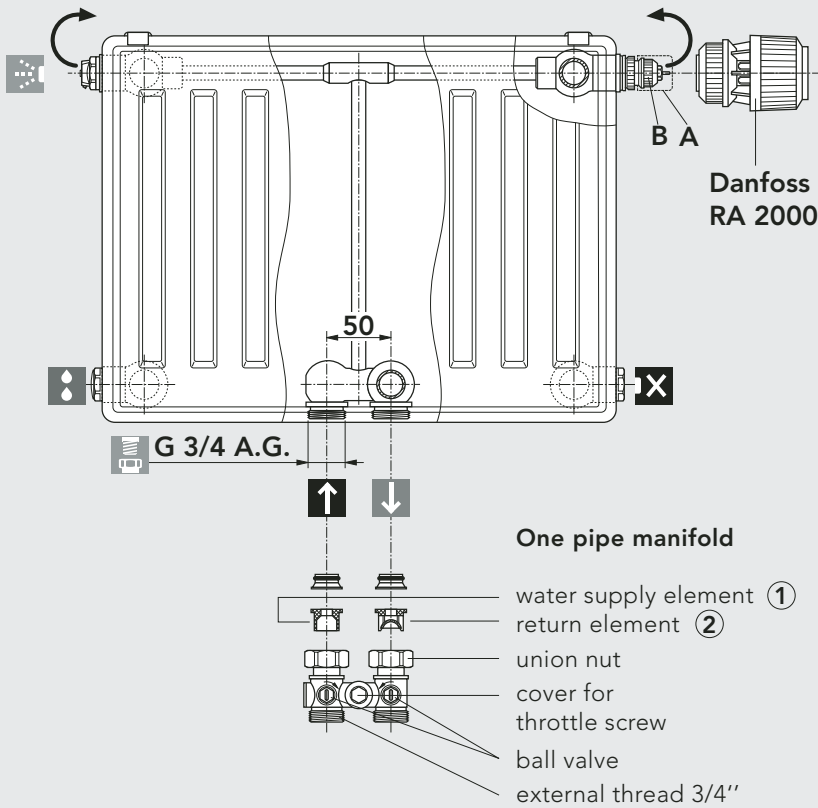
A system with hydraulic calibration





Single-pipe operation - Factory-adjusted built-in valve

## Single-pipe operation - Factory-adjusted built-in valve



In single-pipe operation, setting the built-in valve on N.

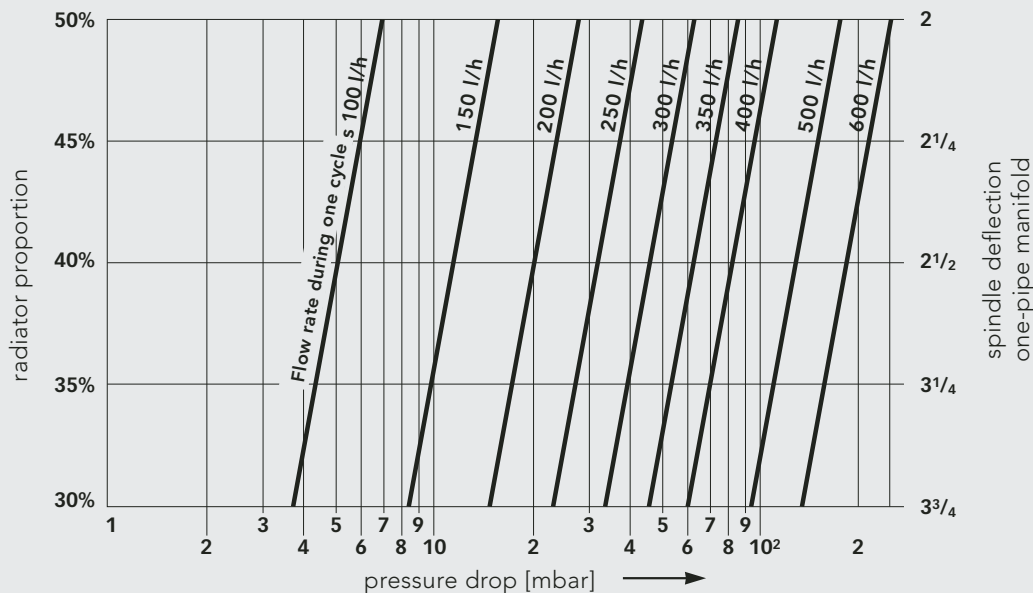
The radiator will be delivered with a protective cap. After removing the protective cap (item A) the following thermostat heads can be installed directly onto the built-in valve (item B): „RA 2000“ and „RAW“ by Danfoss, „VK“ by Heimeier, „theraDA“ by MNG, as well as „UNI XD“ by Oventrop.

Panel radiators

**Caution:**

During the installation take care that the return element ② has been installed at the water return, and the supply element ① at the water supply.

Changing the built-in valve from the right- to the left-hand side can easily be done at any time.



**Chart 2**  
pressure drop [mbar] - single-pipe operation with a proportional deviation of 2K.

**Default setting:**

- radiator proportion 30%: 3,75 revolutions \*
- radiator proportion 35%: 3,25 revolutions \*
- radiator proportion 40%: 2,50 revolutions \*
- radiator proportion 45%: 2,25 revolutions \*
- radiator proportion 50%: 2,00 revolutions \*

\*...when starting, turn the bypass spindle of the one-pipe manifold **to the right** as far as it will go.

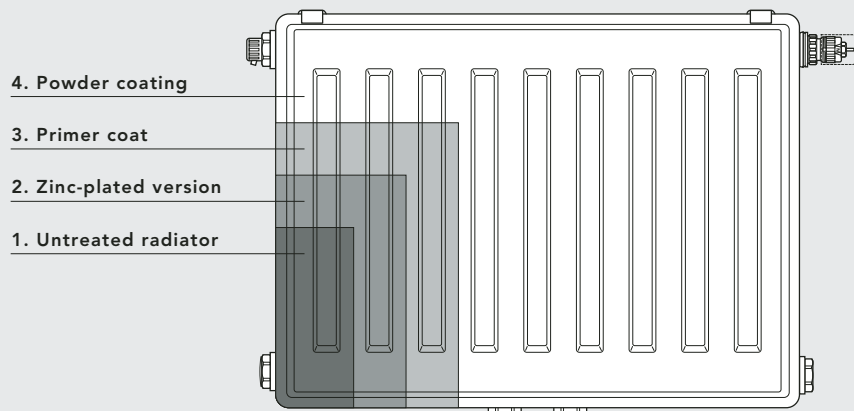
Of course it is also possible to change the pre-adjusted valve setting when the equipment is operating at pressure.

Please take into account the maximum power per cycle (regarding single-pipe installations) of about 10 kW  
 $\Delta T = T_1 - T_2 = 20 \text{ K}$  (at  $T_1 = 90 \text{ }^\circ\text{C}$ ).

## 26 T6-CENTRALLY CONNECTED RADIATOR

Zinc-plated version / Connection modes - double-pipe system

### Zinc-plated version - COMPACT RADIATORS and T6 CENTRAL CONNECTION RADIATORS



In areas of use that require higher corrosion protection, in rooms with aggressive surroundings and/or humid atmosphere (such as in indoor-swimming pools, saunas, public toilets, &c) we recommend using a zinc-plated version of our COMPACT RADIATORS and T6 CENTRAL CONNECTION RADIATORS. These radiators are galvanised, before

the primer coat and powder coating is applied.

Prior to ordering radiators for these areas of use you should get information about the planned location for installing the radiator and in accordance to this, define its limits of use.

**With zinc-plated radiators attention should be paid to special ordering and delivery instructions:**

- All models of the series COMPACT RADIATORS and T6 CENTRAL CONNECTION RADIATORS are available
- Production is available only by special request.
- Radiators that have already been manufactured and delivered cannot be returned.
- The delivery period for this radiator is 4 - 6 weeks.
- The production is carried out for an additional charge to the currently recommended retail price.
- Our general warranty conditions apply.

### Connection modes - double-pipe system

#### A: Single-sided connection



#### B: Connection both sides



#### C: Connection on top **Warning: Lower performance**



#### Caution:

When using the T6-CENTRALLY CONNECTED RADIATOR as a **compact radiator**, the 3/4" screwing caps made of plastic have to be replaced by nickel-plated brass caps (accessory). Available under the item number: AZ0PL000C0002000. Additionally the plastic part of the special vent plug has to be removed.



Outputs - temperature group 90/70/20° C



90/70/20° C

Side panels and top cover of COMPACT-, T6- and MULTI-FUNCTIONAL VALVE RADIATORS are taken into consideration in the heat outputs

Radiator power data in watts, in accordance with DIN EN 442 supply temperature 90 - return temperature 70 - room temperature 20° C

↕ Height [mm]	↔ Length [mm]	300					400					500					600					900				
		10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM
400	Watt	176	288	427	558	796	224	362	534	695	992	271	430	625	787	1140	317	478	689	875	1251	446	659	949	1173	1649
520	Watt	228	374	555	725	1035	292	470	694	903	1289	353	559	812	1023	1482	412	621	896	1138	1626	579	856	1233	1524	2144
600	Watt	263	432	640	837	1194	337	543	801	1042	1488	407	645	937	1181	1710	475	717	1034	1313	1877	668	988	1423	1759	2474
720	Watt	316	518	769	1005	1433	404	651	961	1250	1785	488	774	1124	1417	2052	570	860	1241	1576	2252	802	1186	1707	2111	2969
800	Watt	351	576	854	1116	1592	449	723	1068	1389	1984	543	859	1249	1574	2280	634	955	1379	1751	2502	891	1318	1897	2345	3299
920	Watt	404	662	982	1284	1830	516	832	1229	1598	2281	624	988	1437	1810	2622	729	1099	1585	2013	2878	1025	1515	2182	2697	3793
1000	Watt	439	720	1067	1395	1990	561	904	1335	1737	2479	678	1074	1562	1968	2850	792	1194	1723	2188	3128	1114	1647	2371	2931	4123
1120	Watt	492	806	1195	1563	2228	628	1013	1496	1945	2777	760	1203	1749	2204	3192	887	1338	1930	2451	3503	1247	1845	2656	3283	4618
1200	Watt	527	864	1281	1674	2388	673	1085	1602	2084	2975	814	1289	1874	2361	3420	951	1433	2068	2626	3753	1337	1977	2846	3518	4948
1320	Watt		950	1409	1842	2626		1194	1763	2292	3273	895	1418	2061	2598	3762	1046	1577	2275	2889	4129	1470	2174	3130	3869	5443
1400	Watt		1008	1494	1953	2786		1266	1870	2431	3471	950	1504	2186	2755	3990	1109	1672	2412	3064	4379	1559	2306	3320	4104	5772
1600	Watt		1152	1708	2232	3183		1447	2137	2778	3967	1085	1719	2499	3149	4560	1268	1911	2757	3501	5004		2635	3794	4690	6597
1800	Watt		1296	1921	2511	3581		1628	2404	3126	4463	1221	1934	2811	3542	5130	1426	2150	3102	3939	5630		2965	4269	5276	7422
2000	Watt		1440	2135	2790	3979		1809	2671	3473	4959	1357	2149	3123	3936	5700	1585	2389	3446	4377	6255		3294	4743	5863	8246
2200	Watt		1584	2348	3069	4377		1989	2938	3820	5455	1492	2363	3435	4329	6271	1743	2628	3791	4814	6881					
2400	Watt		1728	2562	3348	4775		2170	3205	4168		1628	2578	3748	4723		1901	2866	4136	5252						
2600	Watt				3627	5173				4515			2793	4060	5116		2060	3105	4480	5690						
2800	Watt				3907	5571				4862				4372	5510				4825	6127						
3000	Watt				4186	5969				5210				4685	5904				5169	6565						
Radiatorexponent n		1,274	1,330	1,327	1,329	1,331	1,283	1,342	1,334	1,353	1,357	1,292	1,330	1,323	1,334	1,351	1,301	1,319	1,310	1,343	1,333	1,305	1,332	1,321	1,340	1,354
Type programme		COMPACT Radiator					T6-Centrally connected radiator and MULTI-FUNCTIONAL VALVE Radiator																			

The availability of any type of radiator, as well as range of sizes, is in accordance with the production programme, as stated in the price list.

# T6-RADIATOR / MULTI-FUNCTIONAL RADIATOR / COMPACT RADIATOR

Outputs - temperature group 75/65/20° C and 70/55/20° C

75/65/20° C		Side panels and top cover of COMPACT, T6- and MULTI-FUNCTIONAL VALVE RADIATORS are taken into consideration in the heat outputs																								
		Radiator power data in watts, in accordance with DIN EN 442 supply temperature 75 - return temperature 65 - room temperature 20° C																								
Height [mm]	Type	300					400					500					600					900				
		10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM
400	Watt	139	226	335	438	624	178	283	419	543	774	214	337	491	617	891	250	376	543	685	981	351	517	746	918	1288
520	Watt	181	294	436	569	812	231	368	544	706	1007	279	438	638	802	1159	325	488	706	891	1276	457	672	969	1194	1675
600	Watt	209	339	503	657	937	266	425	628	814	1162	322	506	736	926	1337	375	563	814	1028	1472	527	775	1118	1378	1933
720	Watt	251	407	603	788	1124	320	510	754	977	1394	386	607	883	1111	1604	450	676	977	1233	1766	632	930	1342	1653	2319
800	Watt	278	452	670	876	1249	355	566	838	1086	1549	429	674	982	1234	1782	500	751	1086	1370	1962	702	1034	1491	1837	2577
920	Watt	320	520	771	1007	1436	408	651	963	1248	1781	493	776	1129	1420	2050	575	864	1248	1576	2257	808	1189	1715	2112	2963
1000	Watt	348	565	838	1095	1561	444	708	1047	1357	1936	536	843	1227	1543	2228	625	939	1357	1713	2453	878	1292	1864	2296	3221
1120	Watt	390	633	939	1226	1748	497	793	1173	1520	2168	600	944	1374	1728	2495	700	1052	1520	1919	2747	983	1447	2088	2572	3608
1200	Watt	418	678	1006	1314	1873	533	850	1256	1628	2323	643	1012	1472	1852	2674	750	1127	1628	2056	2944	1054	1550	2237	2755	3865
1320	Watt		746	1106	1445	2061		935	1382	1791	2556	708	1113	1620	2037	2941	825	1239	1791	2261	3238	1159	1705	2460	3031	4252
1400	Watt		791	1173	1533	2185		991	1466	1900	2710	750	1180	1718	2160	3119	875	1315	1900	2398	3434	1229	1809	2610	3214	4509
1600	Watt		904	1341	1752	2498		1133	1675	2171	3098	858	1349	1963	2469	3565	1000	1502	2171	2741	3925		2067	2982	3674	5154
1800	Watt		1017	1508	1971	2810		1274	1885	2443	3485	965	1517	2209	2777	4010	1125	1690	2443	3083	4415		2326	3355	4133	5798
2000	Watt		1130	1676	2190	3122		1416	2094	2714	3872	1072	1686	2454	3086	4456	1250	1878	2714	3426	4906		2584	3728	4592	6442
2200	Watt		1243	1844	2409	3434		1558	2303	2985	4259	1179	1855	2699	3395	4902	1375	2066	2985	3769	5397					
2400	Watt		1356	2011	2628	3746		1699	2513	3257		1286	2023	2945	3703		1500	2254	3257	4111						
2600	Watt				2847	4059				3528		2192	3190	4012		1625	2441	3528	4454							
2800	Watt				3066	4371				3800			3436	4320				3800	4796							
3000	Watt				3285	4683				4071			3681	4629				4071	5139							
Radiatorexponent n		1,274	1,330	1,327	1,329	1,331	1,283	1,342	1,334	1,353	1,357	1,292	1,330	1,323	1,334	1,351	1,301	1,319	1,310	1,343	1,333	1,305	1,332	1,321	1,340	1,354
Type programme		COMPACT Radiator										T6-Centrally connected radiator and MULTI-FUNCTIONAL VALVE Radiator														

The availability of any type of radiator, as well as range of sizes, is in accordance with the production programme, as stated in the price list.

70/55/20° C		Side panels and top cover of COMPACT, T6- and MULTI-FUNCTIONAL VALVE RADIATORS are taken into consideration in the heat outputs																								
		Radiator power data in watts, in accordance with DIN EN 442 supply temperature 70 - return temperature 55 - room temperature 20° C																								
Height [mm]	Type	300					400					500					600					900				
		10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM
400	Watt	113	182	270	353	503	144	228	337	436	621	174	272	396	497	716	202	303	439	551	790	284	416	602	739	1034
520	Watt	147	237	351	459	654	187	296	438	566	807	226	353	515	646	930	263	394	570	716	1027	369	541	782	960	1344
600	Watt	170	273	405	529	754	216	342	506	654	932	261	407	594	745	1073	304	455	658	826	1185	426	624	902	1108	1551
720	Watt	204	328	486	635	905	260	410	607	784	1118	313	489	713	894	1288	364	546	790	991	1422	511	749	1083	1330	1861
800	Watt	226	364	540	706	1006	288	455	674	871	1242	348	543	792	994	1431	405	606	877	1102	1580	568	832	1203	1477	2068
920	Watt	260	419	621	812	1157	332	524	775	1002	1429	400	625	911	1143	1646	465	697	1009	1267	1817	653	957	1384	1699	2378
1000	Watt	283	455	675	882	1257	360	569	843	1089	1553	434	679	990	1242	1789	506	758	1097	1377	1975	710	1041	1504	1847	2585
1120	Watt	317	510	756	988	1408	404	638	944	1220	1739	487	761	1108	1391	2003	567	849	1228	1542	2212	795	1165	1684	2068	2895
1200	Watt	340	546	811	1059	1509	433	683	1011	1307	1863	521	815	1188	1491	2147	607	909	1316	1652	2370	852	1249	1805	2216	3102
1320	Watt		601	892	1165	1660		751	1113	1438	2050	574	896	1306	1640	2361	668	1000	1448	1818	2607	938	1374	1985	2438	3412
1400	Watt		637	946	1235	1760		797	1180	1525	2174	608	951	1386	1739	2504	708	1061	1535	1928	2765	994	1457	2106	2585	3618
1600	Watt		728	1081	1412	2012		911	1349	1743	2485	695	1087	1584	1988	2862	809	1212	1755	2203	3160		1665	2406	2955	4135
1800	Watt		819	1216	1588	2263		1025	1517	1961	2795	782	1222	1781	2236	3220	911	1364	1974	2479	3555		1873	2707	3324	4652
2000	Watt		910	1351	1765	2515		1139	1686	2178	3106	869	1358	1979	2485	3578	1012	1516	2193	2754	3951		2081	3008	3693	5169
2200	Watt		1001	1486	1941	2766		1252	1854	2396	3416	956	1494	2177	2733	3935	1113	1667	2413	3030	4346					
2400	Watt		1092	1621	2118	3018		1366	2023	2614		1043	1630	2375	2981		1214	1819	2632	3305						
2600	Watt				2294	3269				2832		1766	2573	3230		1315	1970	2852	3580							
2800	Watt				2470	3521				3050			2771	3478				3071	3856							
3000	Watt				2647	3772				3268				3727				3290	4131							
Radiatorexponent n		1,274	1,330	1,327	1,329	1,331	1,283	1,342	1,334	1,353	1,357	1,292	1,330	1,323	1,334	1,351	1,301	1,319	1,310	1,343	1,333	1,305	1,332	1,321	1,340	1,354
Type programme		COMPACT Radiator										T6-Centrally connected radiator and MULTI-FUNCTIONAL VALVE Radiator														

The availability of any type of radiator, as well as range of sizes, is in accordance with the production programme, as stated in the price list.

Outputs - temperature group 55/45/20° C and 45/40/20° C

55/45/20° C		Side panels and top cover of COMPACT-, T6- and MULTI-FUNCTIONAL VALVE RADIATORS are taken into consideration in the heat outputs																									
		Radiator power data in watts, in accordance with DIN EN 442 supply temperature 55 - return temperature 45 - room temperature 20° C																									
Height [mm]	Type	300					400					500					600					900					
		10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	
Length [mm]	Power																										
400	Watt	73	115	170	222	316	92	143	212	272	387	111	171	250	312	447	129	191	278	345	497	180	262	380	463	645	
520	Watt	95	149	221	289	411	120	185	275	354	503	144	222	325	406	581	167	249	361	449	646	234	340	494	602	839	
600	Watt	109	172	255	333	475	138	214	318	408	581	166	256	375	468	670	193	287	417	518	745	271	393	570	695	968	
720	Watt	131	206	306	400	570	166	257	381	490	697	199	308	450	562	805	232	345	500	621	894	325	471	684	834	1161	
800	Watt	146	229	340	444	633	184	285	424	544	774	222	342	500	624	894	257	383	556	690	993	361	523	760	926	1290	
920	Watt	167	264	391	511	728	212	328	487	626	890	255	393	574	718	1028	296	440	639	794	1142	415	602	873	1065	1484	
1000	Watt	182	286	425	555	791	231	357	530	680	968	277	427	624	781	1117	322	479	695	863	1242	451	654	949	1158	1613	
1120	Watt	204	321	477	622	886	258	400	593	762	1084	310	479	699	874	1252	360	536	778	966	1391	505	733	1063	1297	1806	
1200	Watt	218	344	511	667	949	277	428	635	816	1161	332	513	749	937	1341	386	574	834	1035	1490	541	785	1139	1390	1935	
1320	Watt		378	562	733	1044		471	699	898	1278	366	564	824	1030	1475	425	632	917	1139	1639	595	864	1253	1529	2129	
1400	Watt		401	596	778	1107		499	741	952	1355	388	598	874	1093	1564	450	670	973	1208	1738	631	916	1329	1621	2258	
1600	Watt		458	681	889	1266		571	847	1088	1549	443	684	999	1249	1788	515	766	1112	1380	1987		1047	1519	1853	2580	
1800	Watt		516	766	1000	1424		642	953	1224	1742	499	769	1124	1405	2011	579	861	1251	1553	2235		1178	1709	2085	2903	
2000	Watt		573	851	1111	1582		713	1059	1360	1936	554	855	1249	1561	2235	643	957	1390	1725	2483		1309	1899	2316	3225	
2200	Watt		630	936	1222	1740		785	1165	1496	2129	610	940	1374	1717	2458	708	1053	1529	1898	2732						
2400	Watt		687	1021	1333	1898		856	1271	1632		665	1026	1499	1873		772	1149	1668	2070							
2600	Watt				1444	2057				1768			1111	1623	2030		836	1244	1807	2243							
2800	Watt				1555	2215				1904				1748	2186				1946	2415							
3000	Watt				1666	2373				2040				1873	2342				2085	2588							
Radiatorexponent n		1,274	1,330	1,327	1,329	1,331	1,283	1,342	1,334	1,353	1,357	1,292	1,330	1,323	1,334	1,351	1,301	1,319	1,310	1,343	1,333	1,305	1,332	1,321	1,340	1,354	
Type programme		COMPACT Radiator										T6-Centrally connected radiator and MULTI-FUNCTIONAL VALVE Radiator															

The availability of any type of radiator, as well as range of sizes, is in accordance with the production programme, as stated in the price list.

45/40/20° C		Side panels and top cover of COMPACT-, T6- and MULTI-FUNCTIONAL VALVE RADIATORS are taken into consideration in the heat outputs																									
		Radiator power data in watts, in accordance with DIN EN 442 supply temperature 45 - return temperature 40 - room temperature 20° C																									
Height [mm]	Type	300					400					500					600					900					
		10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	10	11 K 11 KV 11 VM	21 K-S 21 KV-S 21 VM-S	22 K 22 KV 22 VM	33 K 33 KV 33 VM	
Length [mm]	Power																										
400	Watt	50	78	116	152	216	64	97	144	184	262	76	117	171	213	303	88	131	191	234	339	124	178	260	315	437	
520	Watt	66	102	151	197	280	83	126	188	240	341	99	152	222	277	394	115	170	248	305	440	161	232	338	410	568	
600	Watt	76	117	174	227	324	96	145	216	276	393	115	175	256	319	455	133	196	286	352	508	186	268	390	473	655	
720	Watt	91	141	209	273	388	115	175	260	332	472	138	210	307	383	545	159	236	343	422	609	223	321	467	567	786	
800	Watt	101	156	232	303	432	128	194	289	369	524	153	233	341	425	606	177	262	381	469	677	248	357	519	630	874	
920	Watt	116	180	267	349	496	147	223	332	424	603	176	268	393	489	697	204	301	439	539	779	285	410	597	725	1005	
1000	Watt	126	195	290	379	539	159	242	361	461	655	191	291	427	532	758	221	327	477	586	846	310	446	649	788	1092	
1120	Watt	141	219	325	424	604	179	272	404	516	734	214	326	478	596	849	248	367	534	656	948	347	500	727	882	1223	
1200	Watt	151	234	349	455	647	191	291	433	553	786	229	350	512	638	909	265	393	572	703	1016	372	535	779	945	1311	
1320	Watt		258	383	500	712		320	476	608	865	252	385	563	702	1000	292	432	629	774	1117	409	589	857	1040	1442	
1400	Watt		274	407	531	755		339	505	645	917	267	408	598	745	1061	310	458	667	821	1185	434	625	909	1103	1529	
1600	Watt		313	465	606	863		388	577	737	1048	306	466	683	851	1212	354	524	763	938	1354		714	1039	1260	1748	
1800	Watt		352	523	682	971		436	649	829	1179	344	525	768	957	1364	398	589	858	1055	1523		803	1169	1418	1966	
2000	Watt		391	581	758	1079		485	722	922	1310	382	583	854	1064	1515	442	655	953	1172	1693		892	1299	1575	2184	
2200	Watt		430	639	834	1187		533	794	1014	1441	420	641	939	1170	1667	487	720	1049	1289	1862						
2400	Watt		469	697	910	1295		582	866	1106		459	700	1024	1276		531	786	1144	1407							
2600	Watt				985	1402				1198			758	1110	1383		575	851	1239	1524							
2800	Watt				1061	1510				1290				1195	1489				1335	1641							
3000	Watt				1137	1618				1382				1280	1595				1430	1758							
Radiatorexponent n		1,274	1,330	1,327	1,329	1,331	1,283	1,342	1,334	1,353	1,357	1,292	1,330	1,323	1,334	1,351	1,301	1,319	1,310	1,343	1,333	1,305	1,332	1,321	1,340	1,354	
Type programme		COMPACT Radiator										T6-Centrally connected radiator and MULTI-FUNCTIONAL VALVE Radiator															

The availability of any type of radiator, as well as range of sizes, is in accordance with the production programme, as stated in the price list.

Weights

T6 / MULTI-FUNCTIONAL			Weight in kg of T6-CENTRALLY connected and MULTI-FUNCTIONAL VALVE RADIATORS																			
↕ Height [mm]	↔ Type weight	300				400				500				600				900				
		11 KV 11 VM	21KV-5 21VM-S	22 KV 22 VM	33 KV 33 VM	11 KV 11 VM	21KV-5 21VM-S	22 KV 22 VM	33 KV 33 VM	11 KV 11 VM	21KV-5 21VM-S	22 KV 22 VM	33 KV 33 VM	11 KV 11 VM	21KV-5 21VM-S	22 KV 22 VM	33 KV 33 VM	11 KV 11 VM	21KV-5 21VM-S	22 KV 22 VM	33 KV 33 VM	
400	kg	5,67	7,75	8,94	12,93	7,08	9,78	11,50	16,74	7,91	11,34	13,10	19,10	8,69	12,83	14,63	21,35	12,03	18,48	21,13	31,01	
520	kg	6,80	9,53	11,08	16,13	8,62	12,18	14,44	21,14	9,66	14,18	16,48	24,16	10,64	16,08	18,42	27,03	14,96	23,37	26,85	39,58	
600	kg	7,56	10,72	12,51	18,27	9,64	13,78	16,41	24,08	10,83	16,07	18,73	27,53	11,95	18,25	20,95	30,81	16,92	26,63	30,67	45,29	
720	kg	8,69	12,50	14,65	21,48	11,17	16,18	19,35	28,48	12,58	18,90	22,11	32,59	13,90	21,49	24,74	36,49	19,85	31,52	36,39	53,86	
800	kg	9,45	13,69	16,08	23,61	12,20	17,78	21,31	31,42	13,75	20,79	24,37	35,96	15,21	23,66	27,27	40,27	21,80	34,78	40,20	59,57	
920	kg	10,58	15,54	18,31	26,95	13,73	20,24	24,34	35,96	15,50	23,70	27,83	41,16	17,16	26,98	31,15	46,08	24,73	39,74	46,01	68,27	
1000	kg	11,34	16,72	19,74	29,09	14,75	21,84	26,30	38,90	16,66	25,59	30,09	44,53	18,47	29,14	33,68	49,87	26,68	43,00	49,83	73,98	
1120	kg	12,48	18,51	21,88	32,30	16,28	24,24	29,24	43,30	18,42	28,42	33,47	49,59	20,43	32,39	37,47	55,54	29,61	47,89	55,55	82,55	
1200	kg	13,23	19,69	23,31	34,44	17,31	25,84	31,21	46,24	19,58	30,32	35,72	52,96	21,73	34,56	40,00	59,33	31,56	51,15	59,37	88,26	
1320	kg	14,62	21,48	25,45	37,64	19,14	28,24	34,15	50,64	21,64	33,15	39,10	58,02	23,99	37,81	43,80	65,01	34,80	56,03	65,09	96,82	
1400	kg	15,37	22,73	26,97	39,91	20,17	29,90	36,20	53,72	22,81	35,11	41,44	61,53	25,30	40,04	46,41	68,93	36,75	59,36	68,99	102,67	
1600	kg	17,26	25,70	30,54	45,26	22,72	33,90	41,10	61,06	25,72	39,83	47,07	69,96	28,56	45,46	52,74	78,39	41,63	67,51	78,53	116,94	
1800	kg	19,16	28,84	34,30	50,84	25,28	38,07	46,20	68,64	28,64	44,73	52,90	78,63	31,82	51,04	59,25	88,09	46,51	75,83	88,26	131,46	
2000	kg	21,05	31,81	37,87	56,18	27,84	42,07	51,10	75,98	31,56	49,46	58,53	87,06	35,08	56,46	65,57	97,55	51,40	83,98	97,80		
2200	kg	22,94	34,78	41,44	61,52	30,39	46,07	56,01	83,32	34,48	54,19	64,17	95,49	38,34	61,87	71,89	107,01					
2400	kg	25,33	37,75	45,02	66,87	33,56	50,06	60,91		38,01	58,91	69,80		42,21	67,29	78,22						
2600	kg			48,59	72,21			65,82		40,93	63,64	75,43		45,47	72,70	84,54						
2800	kg			52,16	77,55			70,72			68,37	81,07			78,12	90,86						
3000	kg			55,73	82,89			75,63			73,09	86,70			83,54	97,18						
Type programme		T6-CENTRALLY CONNECTED RADIATOR and MULTI-FUNCTIONAL VALVE RADIATOR																				

Panel radiators

The availability of any type of radiator, as well as range of sizes, is in accordance with the production programme, as stated in the price list.

COMPACT			Weight in kg of COMPACT RADIATORS																							
↕ Height [mm]	↔ Type weight	300					400					500					600					900				
		10	11 K	21 K-S	22 K	33 K	10	11 K	21 K-S	22 K	33 K	10	11 K	21 K-S	22 K	33 K	10	11 K	21 K-S	22 K	33 K	10	11 K	21 K-S	22 K	33 K
400	kg	3,29	4,91	6,99	8,18	12,17	4,01	6,31	9,01	10,73	15,97	4,73	7,12	10,55	12,31	18,31	5,42	7,86	12,01	13,80	20,53	7,71	11,14	17,59	20,23	30,12
520	kg	4,00	6,05	8,78	10,33	15,38	4,93	7,84	11,41	13,67	20,37	5,88	8,87	13,38	15,69	23,37	6,77	9,82	15,26	17,60	26,20	9,74	14,07	22,48	25,96	38,69
600	kg	4,47	6,81	9,96	11,76	17,52	5,55	8,87	13,01	15,63	23,31	6,64	10,03	15,28	17,94	26,74	7,67	11,12	17,42	20,13	29,99	11,09	16,02	25,74	29,77	44,40
720	kg	5,18	7,94	11,75	13,90	20,72	6,47	10,40	15,40	18,58	27,71	7,78	11,79	18,11	21,32	31,80	9,02	13,08	20,67	23,92	35,66	13,12	18,95	30,63	35,50	52,96
800	kg	5,66	8,70	12,93	15,33	22,86	7,09	11,42	17,00	20,54	30,65	8,54	12,95	20,00	23,57	35,17	9,91	14,39	22,84	26,45	39,45	14,48	20,91	33,89	39,31	58,67
920	kg	6,37	9,83	14,78	17,56	26,20	8,02	12,96	19,47	23,57	35,19	9,68	14,70	22,90	27,04	40,36	11,26	16,34	26,15	30,33	45,26	16,51	23,83	38,84	45,12	67,37
1000	kg	6,84	10,59	15,97	18,99	28,34	8,63	13,98	21,07	25,53	38,13	10,45	15,87	24,79	29,29	43,74	12,16	17,65	28,32	32,86	49,05	17,86	25,79	42,10	48,94	73,09
1120	kg	7,55	11,72	17,75	21,13	31,54	9,56	15,51	23,47	28,47	42,53	11,59	17,62	27,63	32,67	48,79	13,51	19,60	31,57	36,65	54,72	19,89	28,72	46,99	54,66	81,65
1200	kg	8,02	12,48	18,94	22,56	33,68	10,18	16,53	25,07	30,43	45,47	12,35	18,79	29,52	34,93	52,17	14,41	20,91	33,74	39,18	58,51	21,25	30,67	50,25	58,48	87,36
1320	kg		13,86	20,72	24,70	36,89		18,37	27,47	33,38	49,87	13,67	20,85	32,36	38,31	57,22	15,94	23,17	36,98	42,97	64,18	23,46	33,90	55,14	64,20	95,93
1400	kg		14,62	21,98	26,21	39,16		19,39	29,13	35,42	52,94	14,43	22,01	34,31	40,65	60,73	16,83	24,47	39,22	45,59	68,11	24,81	35,86	58,47	68,10	101,77
1600	kg		16,51	24,95	29,79	44,50		21,95	33,13	40,33	60,29	16,60	24,93	39,04	46,28	69,16	19,35	27,73	44,63	51,91	77,57		40,74	66,62	77,64	116,05
1800	kg		18,40	28,09	33,55	50,08		24,51	37,30	45,43	67,87	18,60	27,85	43,94	52,11	77,84	21,69	30,99	50,22	58,43	87,27		45,62	74,94	87,37	130,57
2000	kg		20,30	31,06	37,12	55,43		27,06	41,30	50,33	75,21	20,51	30,77	48,67	57,74	86,27	23,93	34,26	55,63	64,75	96,73		50,50	83,09	96,91	144,84
2200	kg		22,19	34,03	40,69	60,77		29,62	45,29	55,24	82,55	22,41	33,68	53,39	63,37	94,70	26,18	37,52	61,05	71,07	106,19					
2400	kg		24,58	37,00	44,26	66,11		32,78	49,29	60,14		24,31	37,21	58,12	69,01		28,43	41,39	66,47	77,39						
2600	kg			47,83	71,45					65,05			40,13	62,85	74,64		30,68	44,65	71,88	83,71						
2800	kg			51,41	76,80					69,95				67,57	80,28				77,30	90,04						
3000	kg			54,98	82,14					74,86				72,30	85,91				82,71	96,36						
Type programme		COMPACT RADIATOR																								

The availability of any type of radiator, as well as range of sizes, is in accordance with the production programme, as stated in the price list.

**GENERAL TECHNICAL INFORMATION**

Flat radiators are triple-packed

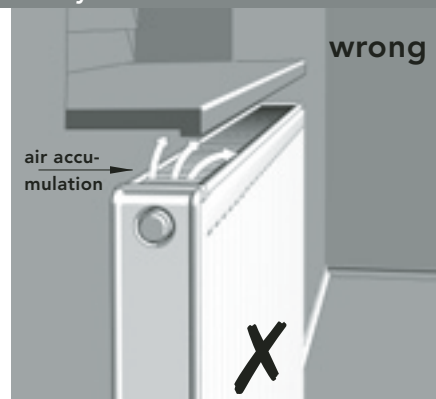
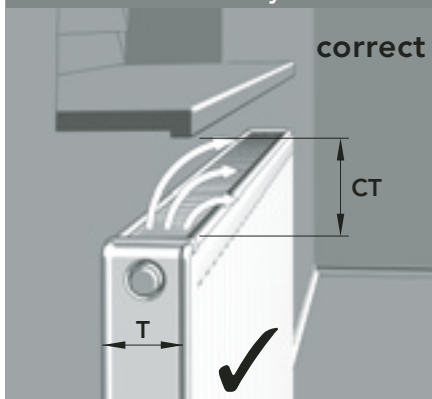
The packaging is done such that it does not need to be removed during the installation and the connection. The packaging will not be removed until the flat's occupation. That will keep the product pristine, right through to the hand over.

1. Cardboard packaging
2. Edge protection
3. Shrink foil

**Installation of wrapped radiators, and run of a test heating up to t<sub>1</sub> 40°C possible.**

Panel radiators

**Installation under your window and in your alcove**



Optimum performance can only be guaranteed, if the air circulation is not restricted. This means that above and below the radiator there must be enough clearance. The clearance above the radiator is usually calculated according to the formula: **radiator width + 10 %**.

**Clearance top CT = W x 1,1**

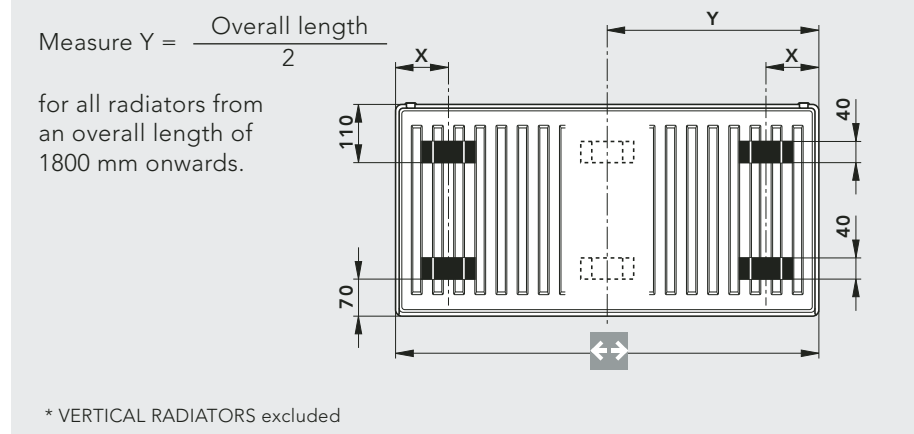
In case this value cannot be maintained, because of constructional constraints, performance will be lower.

**Water volume in litre/m of flat radiator**

Overall height [mm]	300	400	500	554	600	900	954
Radiator type							
10, 10 VM, 10 PM, 11 K, 11 VM, 11 PM	2,0	2,6	3,3	-	3,7	5,1	-
20, 20 K, 20 VM, 20 PM	3,9	5,0	6,1	-	7,1	10,2	-
21 K-S, 21 VM-S, 21 PM-S	3,9	5,0	6,1	6,7	7,1	10,2	11,3
22 K, 22 VM, 22 PM	3,9	5,0	6,1	6,7	7,1	10,2	11,3
30, 30 PM	6,0	7,6	9,4	-	10,8	15,6	-
33 K, 33 VM, 33 PM	6,0	7,6	9,4	10,2	10,8	15,6	16,5

**Image of how the brackets are welded on flat radiator\***

Radiator type	Measure X [mm]
10, 10 VM, 10 PM	100
11 K, 11 VM, 11 PM	93
20, 20 VM, 20 PM	100
21 K-S, 21 VM-S, 21 PM-S	100
22 K, 22 VM, 22 PM	100
30, 30 VM, 30 PM, 33 K, 33 VM, 33 PM	100



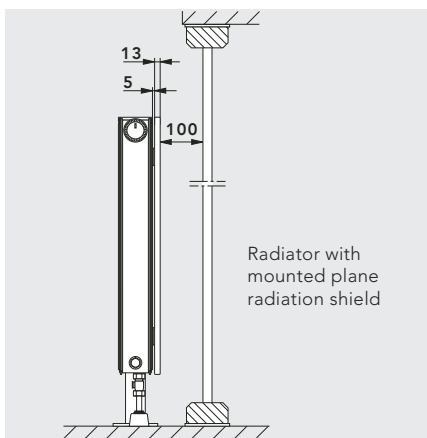
## PLAN RADIATED HEAT-REFLECTOR

Installing the radiator (with brackets) in front of windows increases heat loss, due to the radiation across the glass surface. Thanks to the plane radiation shield it is possible to minimise heat loss.

### The new plane radiation shield

- represents a successful solution also in terms of appearance because of the radiation shield's consistent cover and short distance to the radiator;

- it is also a perfect match with the plane heating surfaces;
- due to convection between radiator and plane radiation shield it feeds back into the room the majority of thermal heat, which would otherwise be lost;
- installation is dead easy, without the need of any additional special tools.



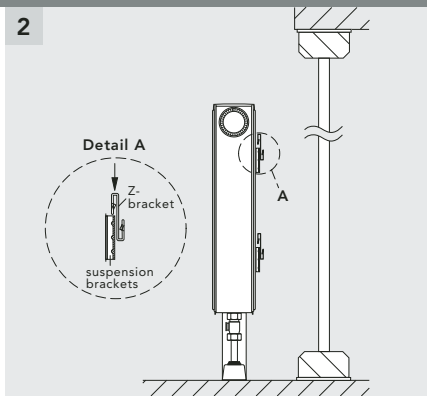
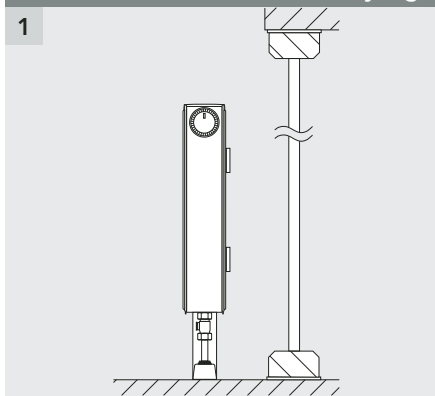
**Depth of plane radiation shield:** 13 mm

**clear width:** 5 mm

between cover grid and plane radiation shield. Minimum clearance of 100 mm between window surface and plane radiation shield.

The minimum clearance between window surface and plane radiation shield (100mm) complies with the recommendations of leading window surface manufacturers.

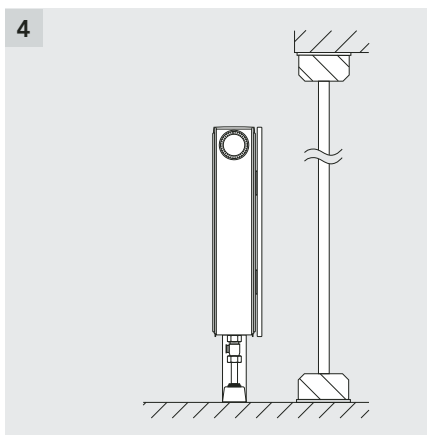
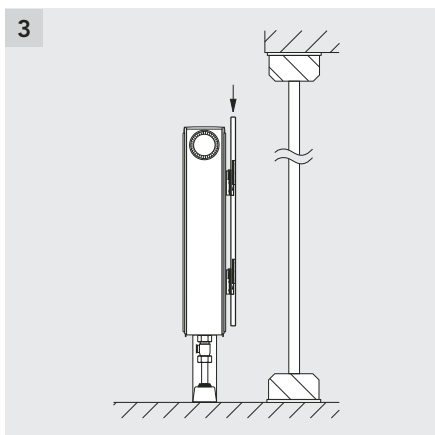
### Installation details for inlying consoles, for flat radiators with brackets



**Image 1:** Radiator with inlying stand consoles, in front of a transparent outside surface.

**Image 2:** Install the Z-bracket (included in the delivery equipment) on the **four suspension brackets**.

**Note:** If the length of the radiator is 2000, 2400 or 2800 mm, the Z-brackets must be installed as much as possible in the middle.



**Image 3:** Align PLAN RADIATED HEAT-REFLECTOR according to the radiator length; put it into position right over the Z-brackets and push it down.

**Image 4:** Radiator with installed PLAN RADIATED HEAT-REFLECTOR.

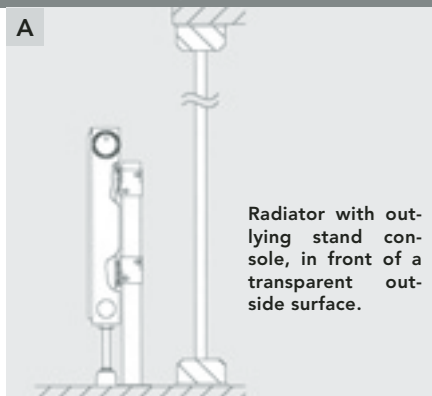
**Note:** Due to production reasons there are drill holes at the flat that must face the ground during the installation.



Installation details for outlying stand consoles, for radiators with brackets

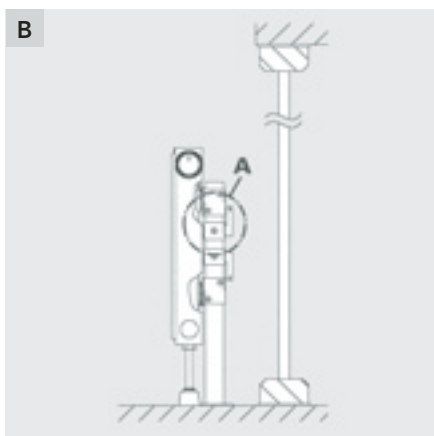
For installing the outlying stand consoles only use - independently from the type of heating surface - mounting brackets with the order number **AZOMS000F0001000** for fixation, including the necessary accessories for installing the PLAN RADIATED-HEAT REFLECTOR (image B, detail A).

Symbol representations on radiators on 400 mm and more in length



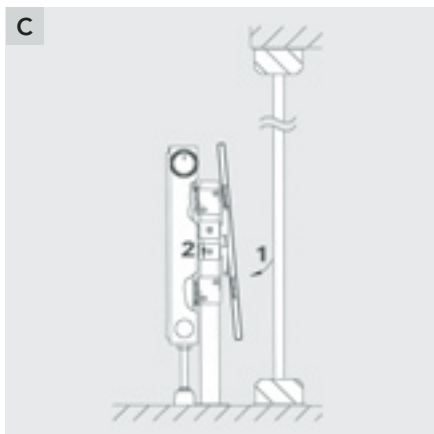
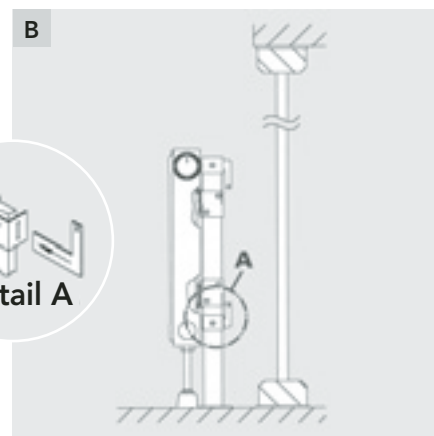
Symbol representations on all radiator heights

Panel radiators

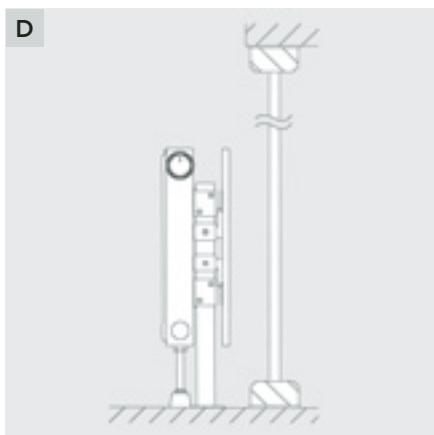
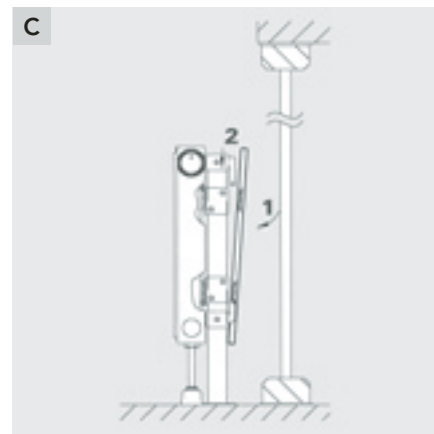


**Image B:** Install U-shaped clamp (available as accessory) on the stand console, using the brackets.

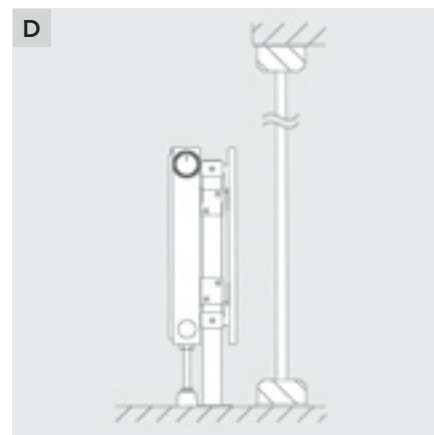
**Note:** From a radiator length of 1800 mm onwards, also the fixing devices on top have to be installed centrally on the stand console brackets.



**Image C:** Put the PLAN RADIATED HEAT-REFLECTOR into the fixing devices on top, aligning it up according to the radiator length. (Attention: The drill holes at the flat must face the ground). Make sure that the PLAN RADIATED HEAT-REFLECTOR is aligned in the height according to the top edge of the radiator. Then install the PLAN RADIATED HEAT-REFLECTOR above the suspension brackets using the fixing devices at the bottom.



**Image D:** Radiator with installed PLAN RADIATED HEAT REFLECTOR.





... the flexible Monclac console

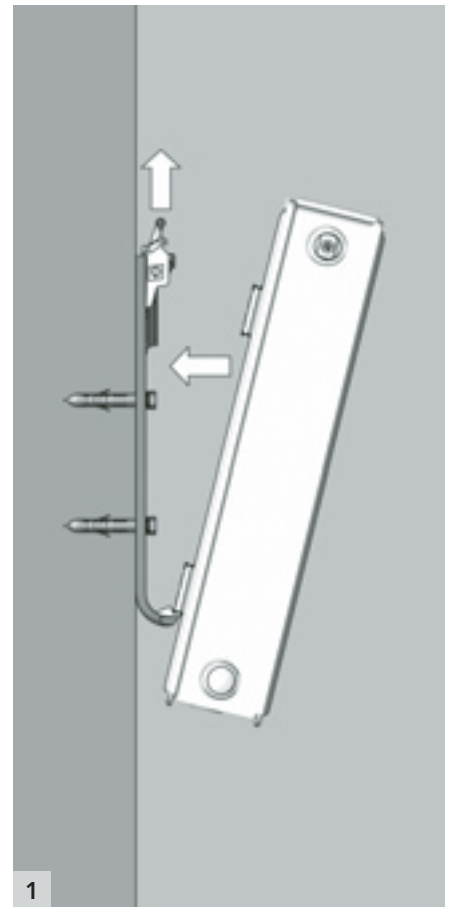
The MONCLAC CONSOLE (suitable for all heating surfaces with welded-on brackets, except Replacement and vertical radiators) allows an easy, rapid and robust installation of the radiator still in the packaging. It can generally be used for radiator models with the respective overall height.

The fact that the Monclac console is equipped with an integrated lifting and shift protection represents a cutting-edge advantage in terms of safety.

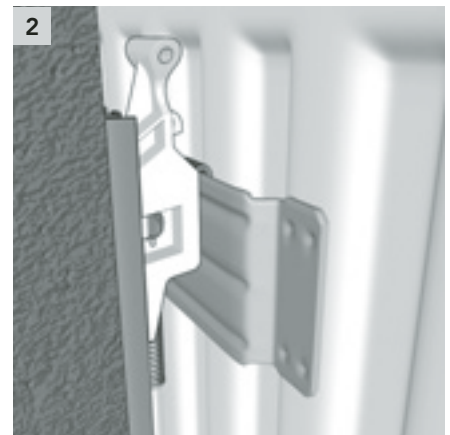
The Monclac console consists of: 2 Monclac consoles (zinc-plated), with sound insulation inserts and integrated lifting and shift protection, screws and dowels, installation instructions in PE shrink foil. Wall clearance: between finished wall surface and radiator bracket: 27mm.

Drilling dimensions for panel radiators				
Height [mm]	Value V [mm]	Value W [mm]	Value X [mm]	wall rail for BH 300 - 900
300	-	135	165	
400	139	235		
500		335		
600		435		
900		735		

The Monclac bracket is consistent with TÜV-Rheinland's requirements (in terms of force loads).



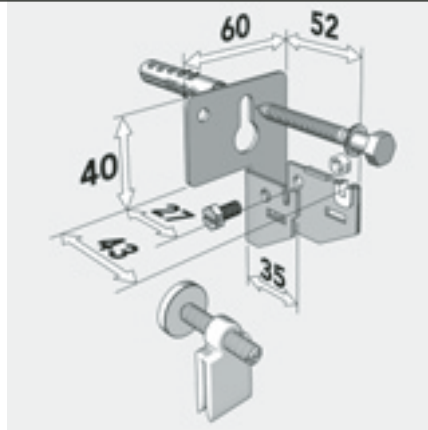
Connection to wall clearances				
Radiator models	Height [mm]	Value Y [mm]	Value Z [mm] *	
10, 10 VM, 10 PM	300 - 900	38	-	
11 K, 11 VM, 11 PM	300 - 900	50	50 **	
20, 20 K, 20 VM, 20 PM	300 - 900	74	66	
21 K-S, 21 VM-S, 21 PM-S	300 - 900	74	66	
22 K, 22 VM, 22 PM	300 - 900	86	66	
30, 30 VM, 33 K, 33 VM, 33 PM, 30PM	300 - 900	86	66	



\* This only applies to the T6 CENTRAL CONNECTION RADIATOR  
 \*\* when using a special angle bracket, a consistent clearance of 66mm between connection and wall is also possible for the 11VM model.

### FASTENING SET SPECIAL ANGLE-FISHPLATE

For surface mounting, consisting of:  
 2 angle-fishplates with sound-absorbing filter  
 2 spacers  
 2 hexagon head wood screws and 2 dowels.



Specially designed for pinpoint pre-assembly, in conjunction with profiles (item no: AZ0FT200R0H01000, AZ0FT060R1V01000, AZ0FT090R1V01000).

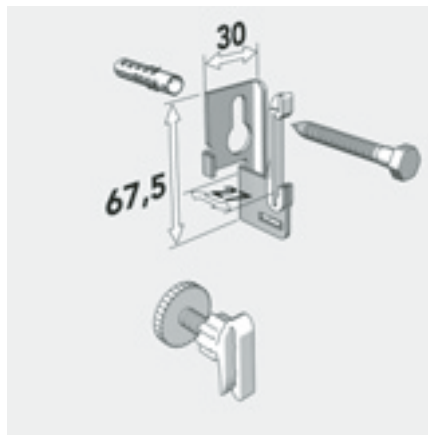
With 11 VM and 11 PM models, wall clearance can be adjusted for multi-layered T6 radiators, in cases where pre-assembly on the assembly bracket was multi-layered at the position.

*Wall clearance:*  
 Between finished wall and T6 radiator mounting link = 27 mm to 43 mm

Panel radiators

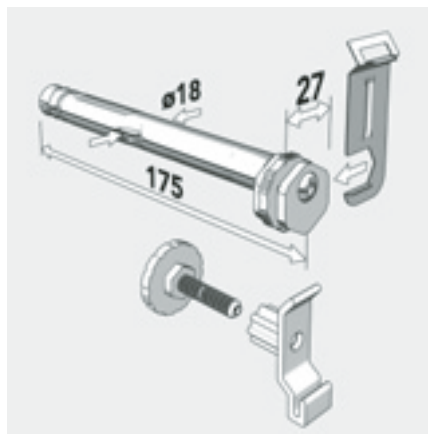
### ANGLE BRACKET WITH SHIFT PROTECTION FASTENING SET

Suitable for surface mounting, each consisting of:  
 two angle brackets, noise insulation inserts with integrated lifting protection, hexagonal wood screws and dowels.  
 Wall clearance: between the finished wall surface and radiator's bracket: 27mm



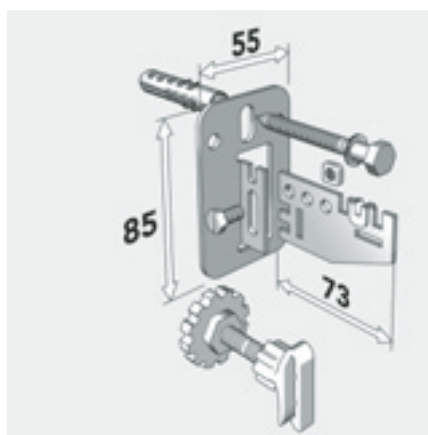
### DRILLED CONSOLE SET WITH LIFTING PROTECTION FASTENING SET FOR ALL-PURPOSE ANGLE-FISHPLATE

Length: 160mm, consisting of:  
 2 drilled consoles,  
 2 distance holders and  
 2 lifting protections

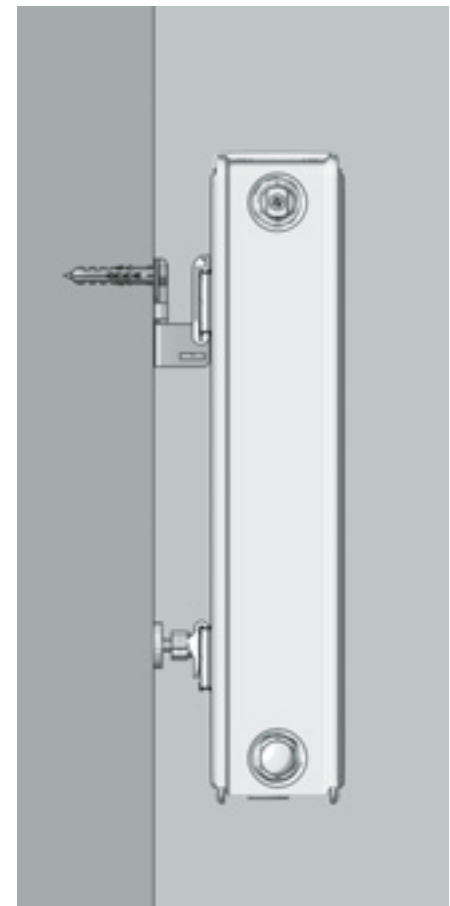


### FASTENING SET FOR ALL-PURPOSE ANGLE-FISHPLATE

For finished as well as unfinished wall surfaces, consisting of:  
 2 adjustable angle-fishplates with sound-absorbing filter  
 2 hexagon head wood screws with dowels and 2 spacers.



*Wall clearance:*  
 Between finished wall and radiator mounting link = 11, 20, 30, 46, 56 and 66 mm



## T6 MOUNTING ON FINISHED WALL SURFACES

### T6 MOUNTING ON FINISHED WALL SURFACES

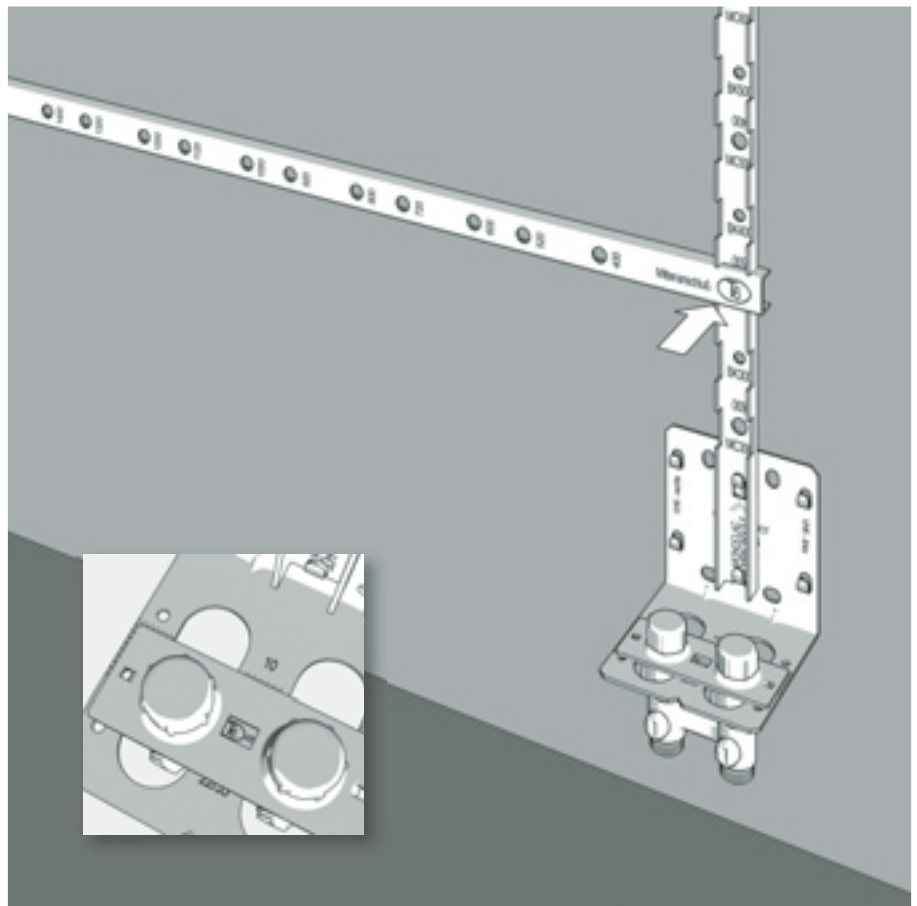
By using the 3/4" external thread mounting template it is possible to install all the heating pipes without the radiator, and the whole pipe system can be pressure-tested as well. The radiators will be delivered only after completion of the building work.

Fitting of the horizontal mounting rail for positioning the first Monclac consoles / drilled consoles / special angle brackets fastening. Side-inverted fitting of the horizontal mounting rail for positioning the second Monclac consoles / drilled consoles / special angle brackets fastening

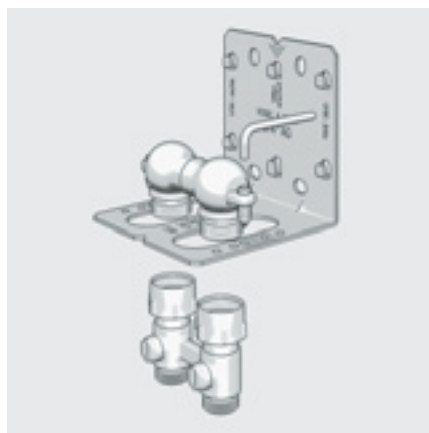
It makes possible very precise pre-mounting of the Monclac console / drilled console / special angle bracket when using a moulding set.

The 3/4" external thread mounting template consists of a mounting bracket set and a moulding set. The 3/4" external thread mounting template consists of:

- 1 mounting bracket incl. connection bracket
- 2 dowels
- 2 screws
- 2 washers
- 2 caps - 1/2" internal thread
- 2 1/2" - 3/4" adapters



When using the flush elbow together with the 3/4" external thread mounting template the system can be flushed and tested without the radiators.



Attaching the vertical mounting rail. With radiators, with an overall length of 1800 mm and more, central mounting drill hole is marked. With the special angle bracket AZ0BU00012002000 the vertical mounting rails AZ0FT060R1V01000 are to be used for overall heights of 300 - 600mm, as well as AZ0FT090R1V01000 for overall height of 900mm. The window in the connection bracket serves to check if the correct overall depth has been selected.

## T6 INSTALLATION ON AN UNFINISHED WALL SURFACES

Apart from the advantages of a complete installation. Of the heating pipes without the radiators, and the possibility to pressure-test the piping system, the 3/4" external thread mounting template has been designed for mounting on unfinished wall surfaces, especially for unplastered brick walls. The compact design and unique fastening system using a special drilled console ensure that also the wall behind the mounting bracket can be plastered.

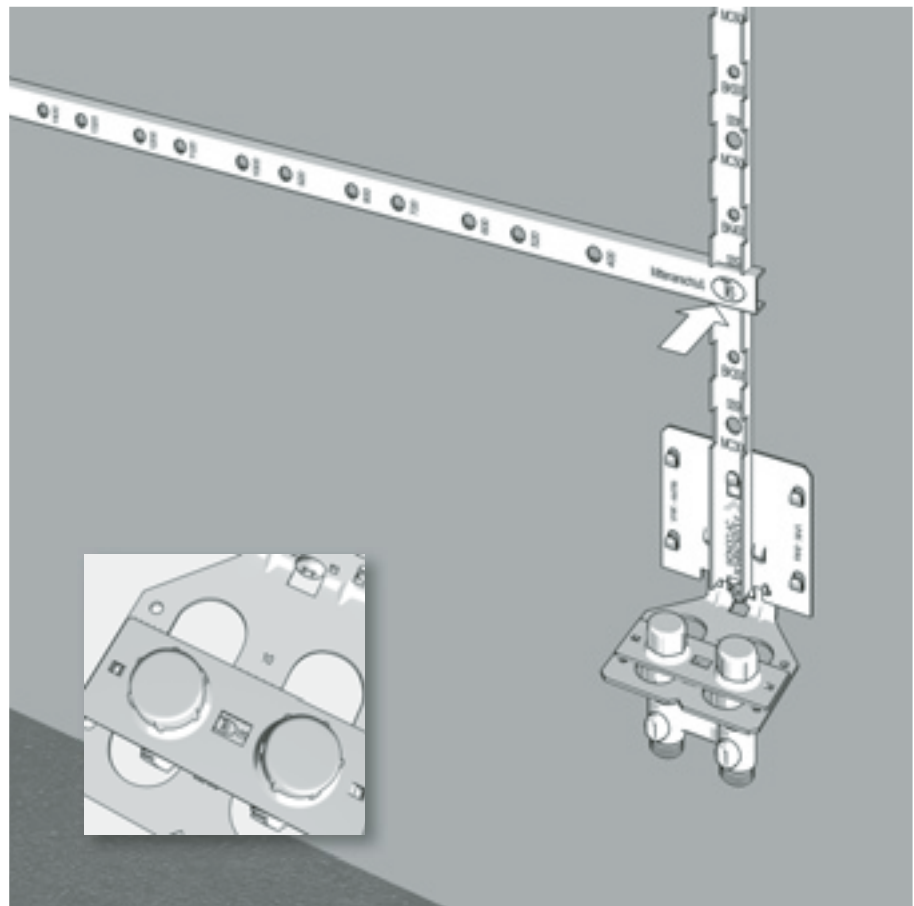
After the plastering attach the horizontal mounting rail for positioning the first Monclac consoles / drilled consoles / special angle brackets fastening. Side-inverted fitting of the horizontal mounting rail for positioning the second Monclac consoles / drilled consoles / special angle brackets.

Panel radiators

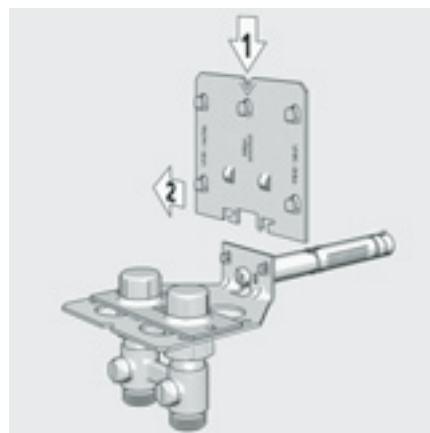
It makes possible very precise pre-mounting of the Monclac console / drilled console / special angle bracket when using a moulding set.

The 3/4" external thread mounting template for mounting on unfinished wall surfaces consists of a mounting bracket for mounting on unfinished wall surfaces and a moulding set. The 3/4" external thread mounting template for mounting on unfinished wall surfaces consists of:

- 1 mounting bracket  
Incl. connection bracket
- 1 special drilled console
- 2 caps - G 1/2" DIN ISO 228
- 2 1/2" - 3/4" adapters  
DIN ISO 228
- 2 1/2" - 3/4" Adapter



By using the adapter plate you can also enjoy all advantages of the moulding set. Attaching the adapter plate to the mounting bracket for the mounting on unfinished wall surfaces only requires a few simple hand movements. For flushing and testing the system without radiators, you can of course use the flush elbow in connection with the 3/4" external thread mounting template for the mounting on unfinished wall surfaces.



Attaching the vertical mounting rail. With radiators, with an overall length of 1800 mm and more, the central mounting drill hole is marked. With the special angle bracket AZ0BU00012002000 the vertical mounting rails AZ0FT060R1V01000 are to be used for overall heights of 300 - 600mm, as well as AZ0FT090R1V01000 for overall height of 900mm. The window in the connection bracket serves to check if the correct overall depth has been selected.

Transfer Table - Simplified procedure for the domain of standard and low-temperature (ST/LT)

The conversion factors in the table state to which extent the heat emission has to be altered under other operating conditions, compared to 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 for both the calculation of the heat outputs and the specification of the conversion factor, a slight performance variation from the calculated value is possible.

The standard heat emission  $\Phi_s$  of a radiator covering the required heat  $\Phi_{HL,i}$  at the chosen operating conditions, is calculated according to the formula:

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

- $\Phi_s$  = standard heat emission, in accordance with EN 442
- $\Phi_{HL,i}$  = required heat, in accordance with EN 12831
- $f$  = conversion factor from the table

**Example:**

The required heat of a room is 1000 W, in accordance with EN 12831.

Design data:  $t_1$  50 °C  
 $t_2$  40 °C  
 $t_r$  20 °C

Factor  $f$  according to the table = **2,50**

supply temperature °C	return temperature °C	room 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
	40	1,33	1,47	1,65	1,78	1,94	2,13	2,36
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

$$\Phi_s = \Phi_{HL,i} \times f = 1000 \text{ Watt} \times 2,50 = 2500 \text{ Watt}$$

**A radiator has to be installed that emits 2500 W under the standard- design (75/65/20).**

Exact method for the performance calculation

Using the formula  $\Phi = \Phi_s \left[ \frac{\Delta T}{\Delta T_s} \right]^n$

any performance differing from the standard can be calculated.

- $\Phi$  = Radiator power [W]
- $\Phi_s$  = Standard radiator power in accordance with EN 442 [W]
- $\Delta T$  = Arithmetic radiator excess temperature [K]
- $\Delta T_s$  = Arithmetic radiator excess temperature 50 K, at a standard state 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.

$$\Delta T_{\text{arithmetic}} = \frac{t_1 + t_2}{2} - t_r$$

$$\Delta T_{\text{logarithmic}} = \frac{t_1 - t_2}{\ln \frac{t_1 - t_r}{t_2 - t_r}}$$

Use our radiator power calculator on [www.vogelundnoot.com](http://www.vogelundnoot.com)