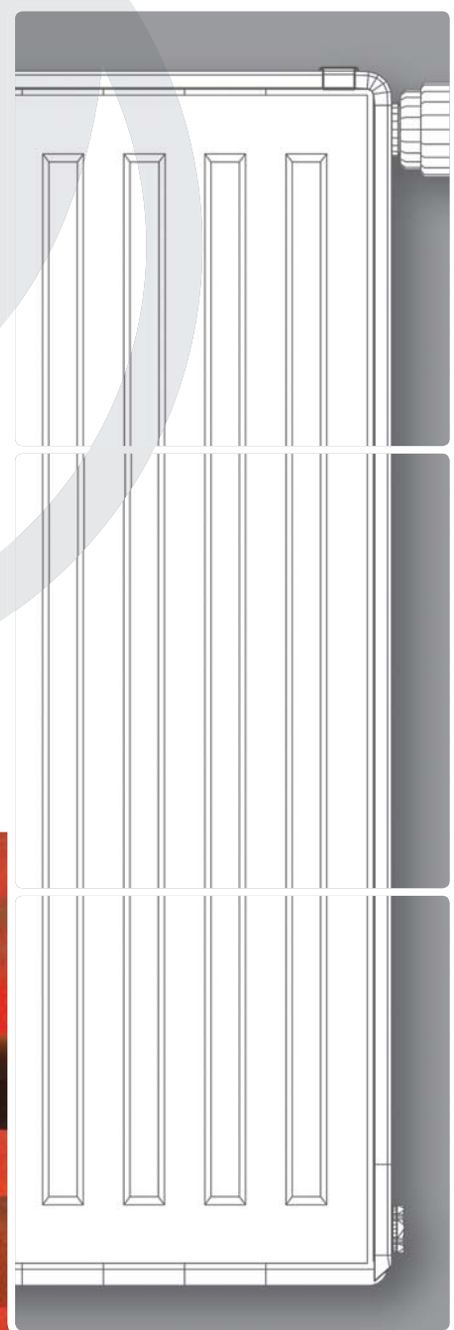
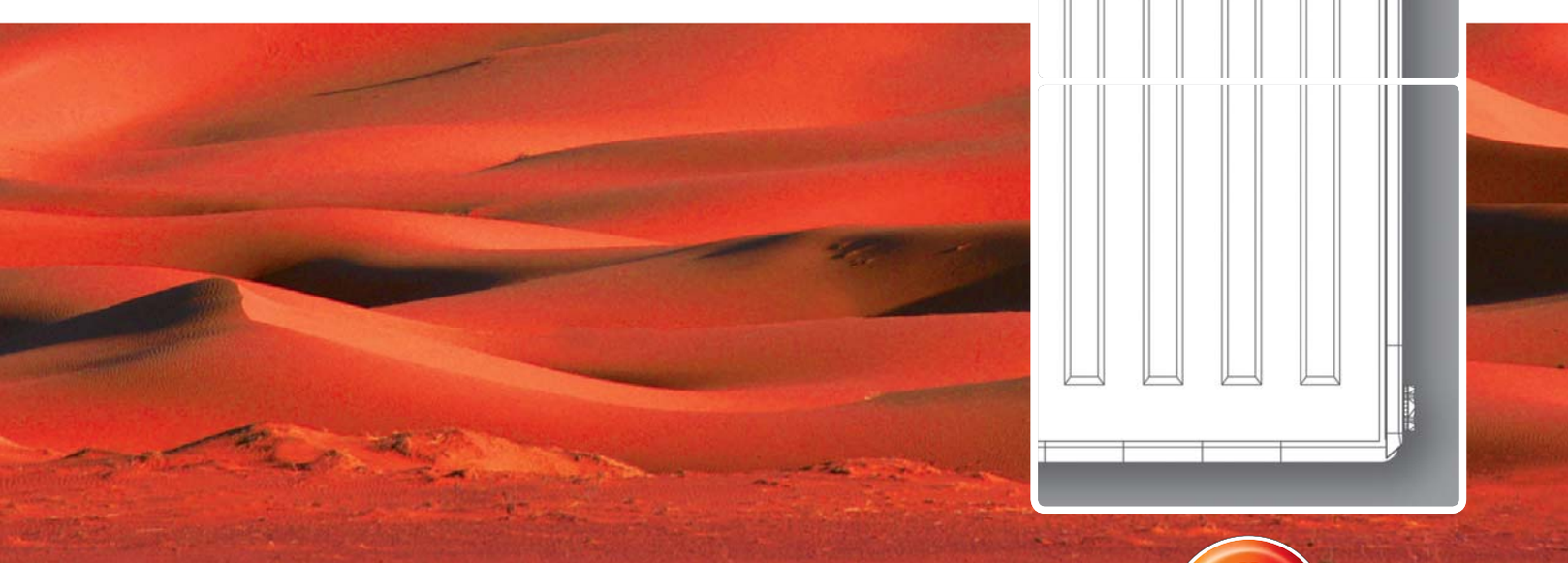
VOGEL&NOOT

FLAT
RADIATOR.

TECHNICAL INFORMATION 01/2010





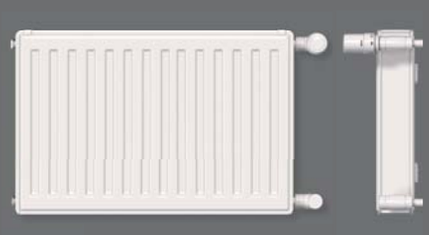
heatingthrough**innovation.**

ECO
RENEWABLE ENERGY COMPATIBLE

The VOGEL&NOOT brand

T6-
CENTRALLY CONNECTED RADIATOR

MULTI-FUNCTIONAL
VALVE RADIATOR



COMPACT
RADIATOR

T6-PLAN
CENTRALLY CONNECTED RADIATOR

TABLE OF CONTENT & OVERVIEW OF MODELS

heatingthroughinnovation.

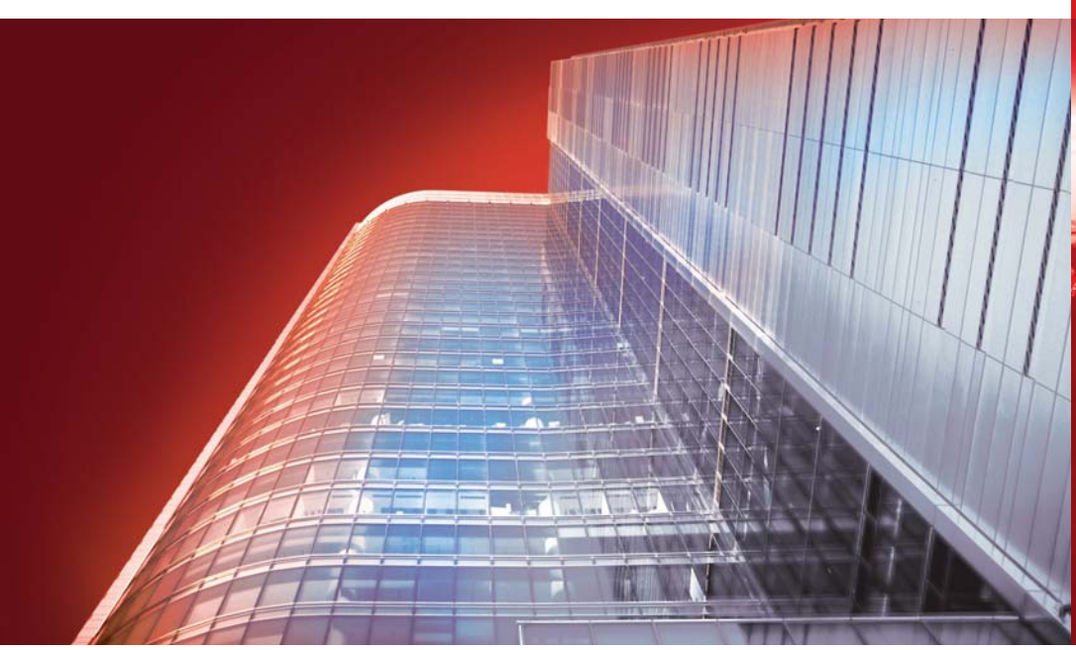
Technical information subject to change.

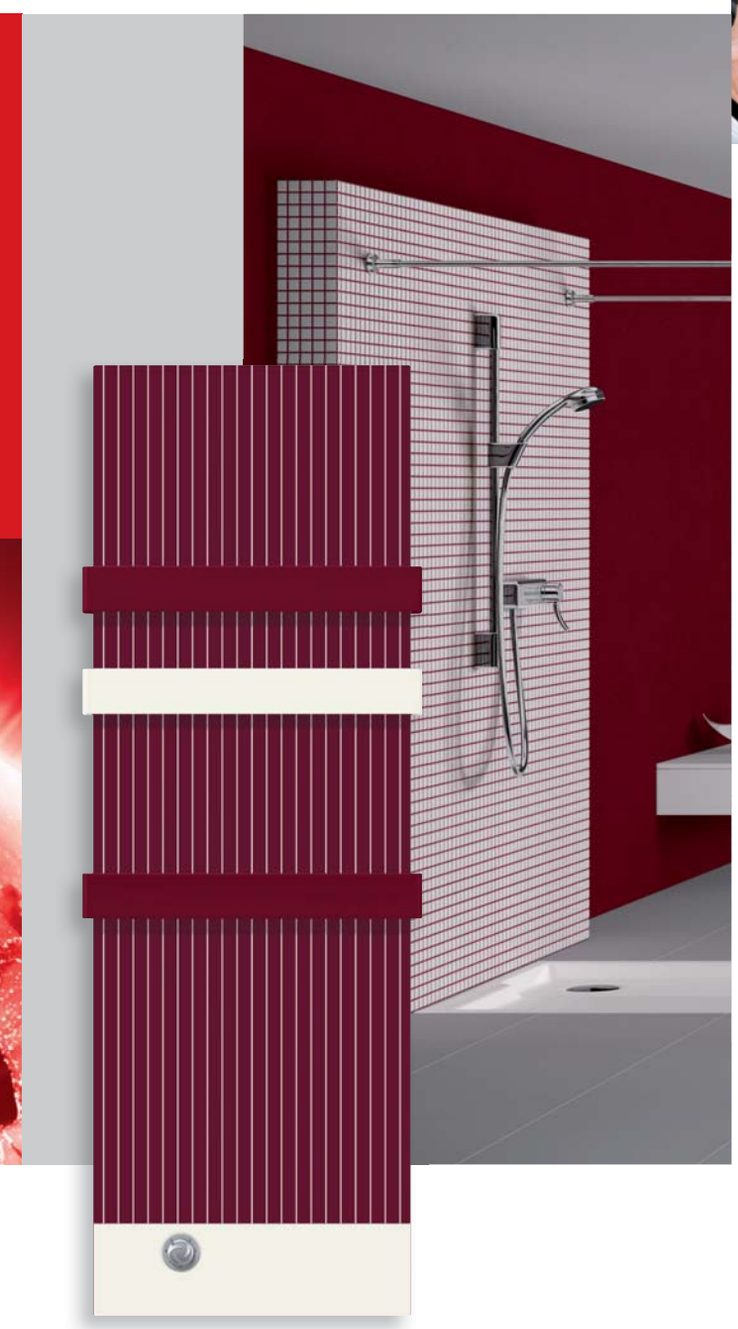
Leading the way in Europe

VOGEL&NOOT is Europe's leading technology partner. The company sets technical standards and its broad product portfolio encompasses the fields of radiators, underfloor hearting and chimneys.

As a result of constant innovation in the area of energy efficiency and unique design concepts, **VOGEL&NOOT** products are enthusiastically received by planners and heating engineers, as well as by the users of the rooms which are heated.

OUR CLAIM.





VOGEL&NOOT's principles

Maximum energy efficiency

As a leading innovator, **VOGEL&NOOT** offers forward-looking heat emission technology for thermal comfort coupled with climate protection.

Trendy heating design

As individually designed heating furniture, the multi-faceted design radiators from **VOGEL&NOOT** add points of interest to modern living areas with their unique surface concept.

Integral range & service

As a one-stop provider, **VOGEL&NOOT** not only guarantees a high-quality product range for optimal heat emission solutions, but also excellent advice and outstanding service.

heatingthrough**innovation.**

A STRONG BRAND.

Progress through innovation

Products such as the T6 centre-connection radiator, which has sold millions of units in Europe, the range of easy-to-install replacement radiators or the individually customised design radiators, as well as flexible underfloor heating systems, make **VOGEL&NOOT** your first choice.

For our customers, the **VOGEL&NOOT** brand is inextricably linked with outstanding technology. For many years, they have relied on our expertise in the areas of energy efficiency and design, as well as on the range of first-class services and benefits we offer.

The future with **VOGEL&NOOT** will bring, on the one hand, the most advanced radiators with the most energy-efficient technology and thermal comfort; on the other hand, trend-setting design concepts, which redefine living spaces.

Quality as a sign of maximum safety

The radiators manufactured by **VOGEL&NOOT** meet numerous internationally recognised quality standards and the manufacturing processes at all of the production sites have been ISO certified. Furthermore, the quality and performance data of **VOGEL&NOOT** panel radiators are constantly reviewed and confirmed by accredited European institutions. **VOGEL&NOOT** panel radiators have also been awarded the seal of approval of the German Committee for Terms and Conditions of Sale (RAL), which documents the special quality of the product compared with many other radiator manufacturers.

For architects, designers and builders, the RAL seal of approval for **VOGEL&NOOT** radiators symbolises the high quality of the product in the areas of processing and handling. These quality assessments, which are controlled by independent institutions, vouch for the enduring safety and long life of service of the product.

Our customers know that with each product, they can expect excellent properties in terms of the material, surface condition and durability. **VOGEL&NOOT** radiators thus exceed many requirements and outperform numerous standards (such as, for instance, the European Standard EN 442 or the CE marking).

A perfected manufacturing process guarantees the best performances with precise welding, reliable leak-testing and glossy surface treatment - safety combined with a fantastic visual appearance!

The symbol for optimum energy efficiency

The ECO seal of approval for **VOGEL&NOOT** panel radiators indicates their compatibility with all (renewable) energy sources and is therefore proof of their economically and ecologically efficient heat emission.

Reduction in energy costs

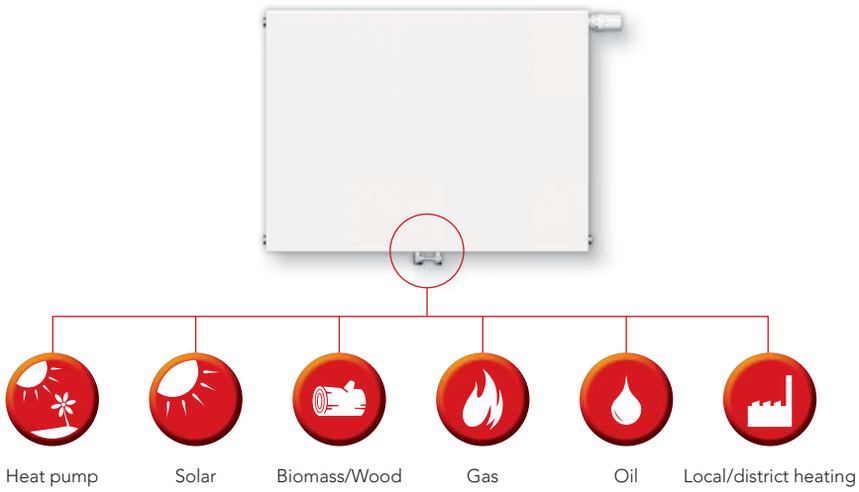
Test results from the renowned Pinkafield University of Applied Sciences show that, by replacing outdated sectional radiators with new **VOGEL&NOOT** panel radiators, an average potential saving of 15%* can be attained!

Co_2 reduction

Due to the broad compatibility with energy sources and the reduced energy consumption, **VOGEL&NOOT** panel radiators make a positive contribution to climate protection.

* On average, in comparison with old sectional radiators, test results according to Pinkafeld University of Applied Sciences

RESPONSIBILITY
FOR THE FUTURE.

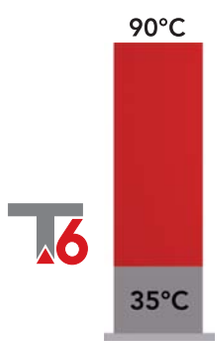


ECO = Renewable **E**nergy **CO**mpatible

Panel radiators cover a very wide range of flow temperatures, whereby compatibility with all energy sources is possible.

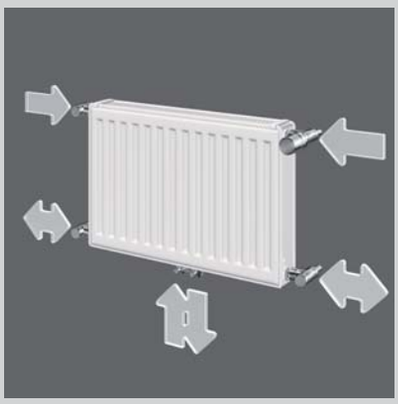
Compatibility & Energy efficiency

Prof. Michael Graf, Pinkafeld University of Applied Sciences: "It has been proven that with **VOGEL&NOOT** panel radiators, one can achieve a wide range of temperatures from 35 °C to 90 °C without a problem. They can also operate at very low flow temperatures and fulfil heating load and comfort criteria."

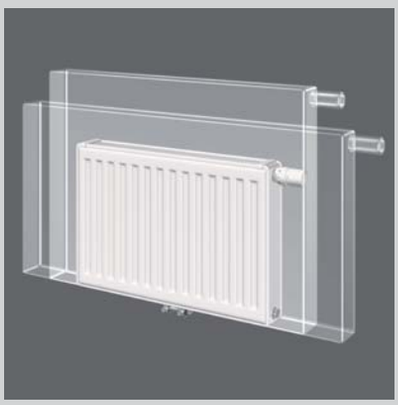


T6 Technology

DECISIVE ADVANTAGES WITH THE T6.



Connection advantage
Diagonal or in-line connection via a standardised connection position

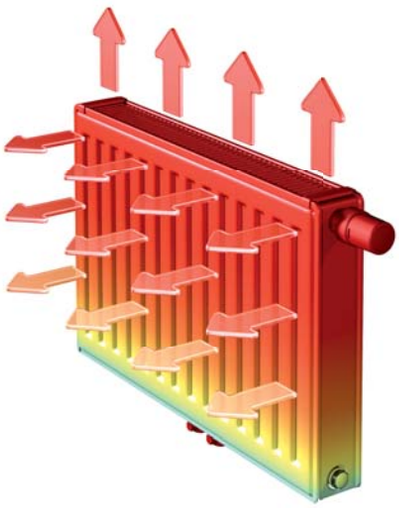


Selection advantage
Even if the pipework is laid in advance, the choice of radiator can be changed at any time

Positioning advantage
Flexible thermostat position as desired, thanks to patented pipe guides

The T6: revolution in radiators

Thanks to innovative centre-connection technology and optimum energy efficiency, the T6 sets the standard for room heating, comfort and ease of use - advantages that will win over any customer!



**High performance,
rapid room heating and even
heat distribution**

High performance

Prof. Michael Graf, Pinkafeld University of Applied Sciences: "We have created various replacement scenarios in which a radiator replacement is carried out. With **VOGEL&NOOT** panel radiators, an average saving of approximately 15% was recorded."

Rapid room heating

Thanks to innovative technology, the T6 achieves high heating performance. The special convector plate design of the T6 supplies rooms with evenly distributed warmth rapidly and reliably.

Optimum flexibility during planning and assembly

The pipework can be laid in advance without the radiator and the entire pipe installation can be flushed and leak-tested beforehand. After the construction and painting work is finished, the T6 can be fitted onto the wall and plumbed in. Thanks to the standardised distance from the wall, the T6 allows the selection of the radiator to be carried out after the pipes have been installed, or the radiator can even be changed at a later date.

Integrated valve technology with pre-set k_v value

VOGEL&NOOT T6 radiators are fitted in the factory with valve cores with pre-set k_v value, precisely adjusted to the heat output of the radiator. This permits an increase in the quality of regulation and the heating system can operate in an energy-efficient and hydraulically-balanced manner.

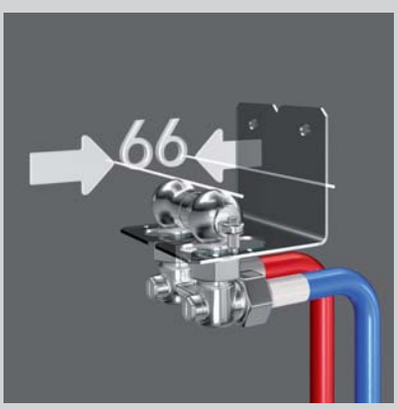
* On average, in comparison with old sectional radiators, test results according to Pinkafeld University of Applied Sciences

Installation advantage

Cost-effective, attractive and safe installation options without limitations

Distance advantage

Flexible choice of models with a standardised distance between the connection and the wall



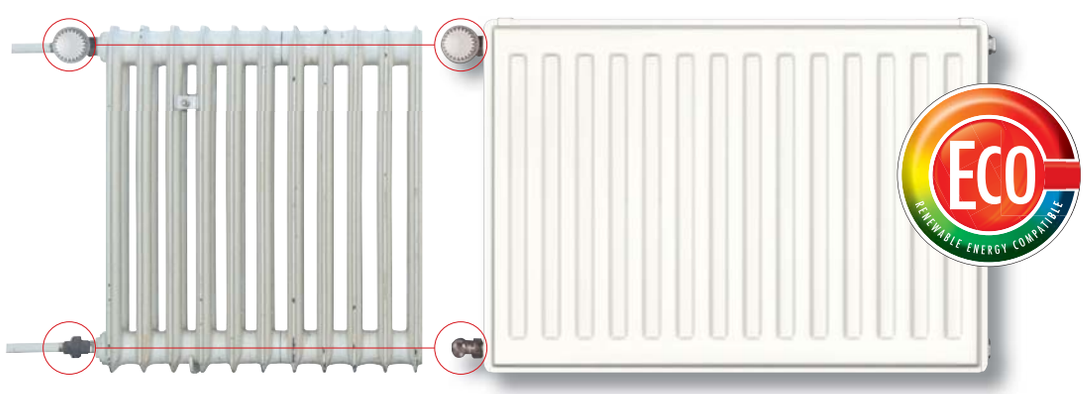
Assembly advantage

The pipework can be laid in advance without the radiator to allow undisturbed progress of work

Systematic renovation

VOGEL&NOOT replacement radiators are easy to install and the process creates very little mess. They immediately increase the efficiency of heat emission. **VOGEL&NOOT** replacement radiators are suitable for all of the existing connection sizes.

REPLACEMENT RADIATORS.



- Average energy saving of 15 %*
- The most important renovation measure besides replacing the boiler
- Tangible increase in living quality and quality of life

Well worth it!

Huge reductions in heating costs

By installing **VOGEL&NOOT** T6 centre-connection radiators or replacement radiators in place of outdated sectional radiators, you can save a great deal of money and also reduce CO_2 emissions. The average potential saving is approximately 15 %!

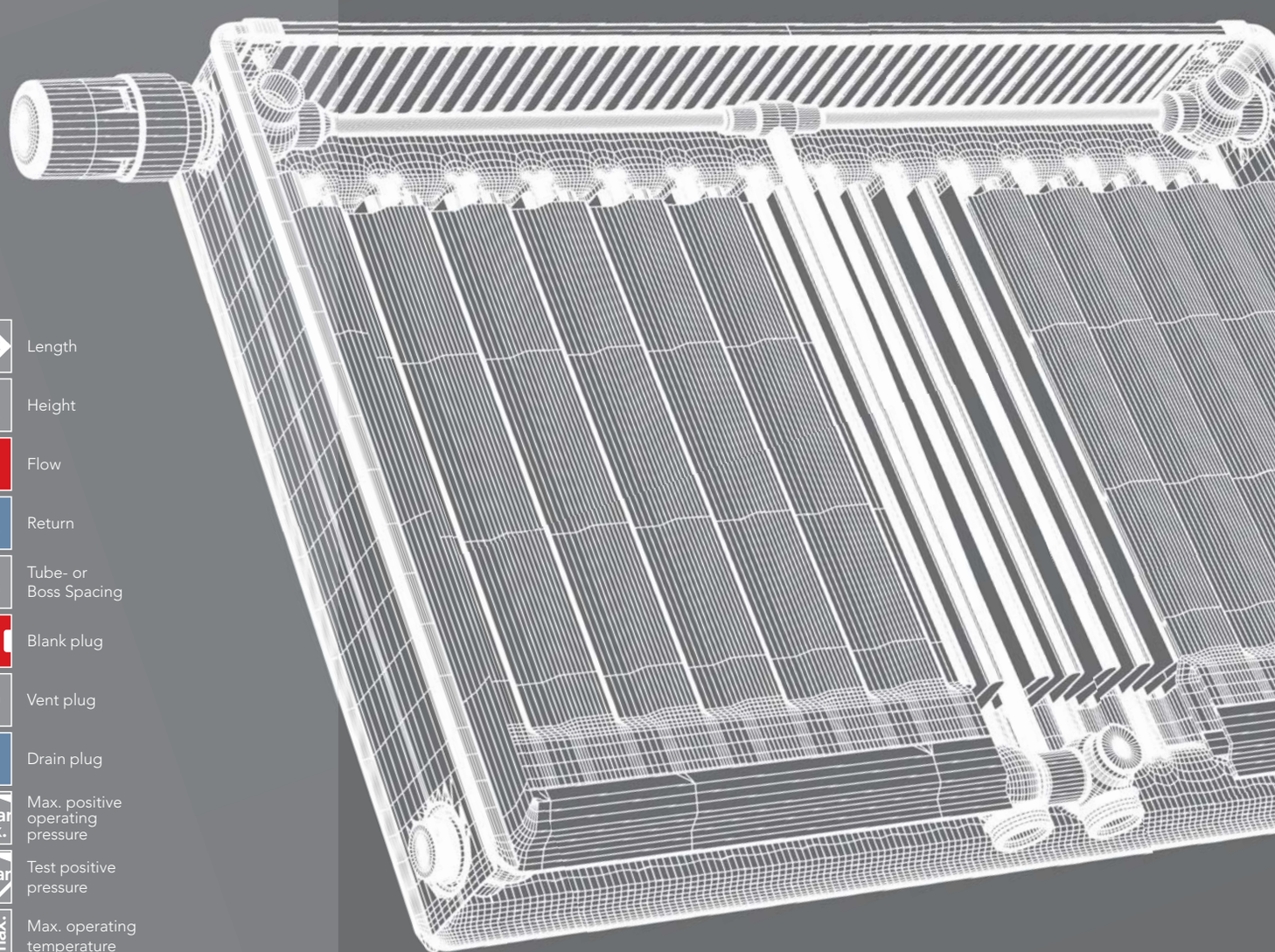
See the example below:

	Outdated sectional radiator	Replacement radiator
Standard building heating load	39,6 kW	39,6 kW
Standard building heating load	180 W/m²	180 W/m²
Specific heating load	80.366 kWh/a	80.366 kWh/a
Energy necessary to cover heating requirement	185.872 kWh/a	157.488 kWh/a
Annual oil requirement	18.587 litres	15.748 litres
Annual costs**	11.524 €	9.764 €
Possible annual cost saving with the T6		**1.760 €**
Saving after 10 years		**17.600 €**
Saving after 20 years		**35.200 €**

The comparison was made on the basis of an old building with an area of 190 m² to be heated (19 rooms, 26 radiators).

* On average, in comparison with old sectional radiators, test results according to Pinkafeld University of Applied Sciences
** According to the 2009 oil price index

TECHNICAL DATA



- Length
- Height
- Flow
- Return
- Tube- or Boss Spacing
- Blank plug
- Vent plug
- Drain plug
- Max. positive operating pressure
- Test positive pressure
- Max. operating temperature
- Connections

The pictograms given above will serve as a picture language to accompany you through this technical catalogue. They will help you recognise details and operational features at a glance.

T6-CENTRALLY CONNECTED RADIATOR

T6 Technology

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.

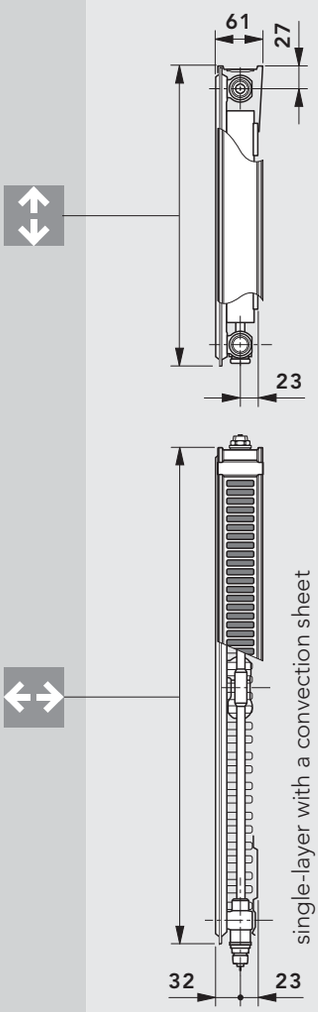
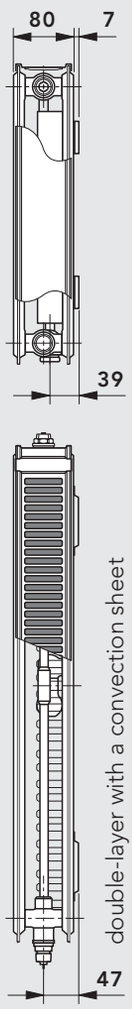
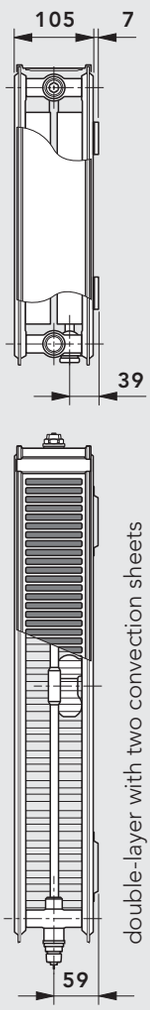
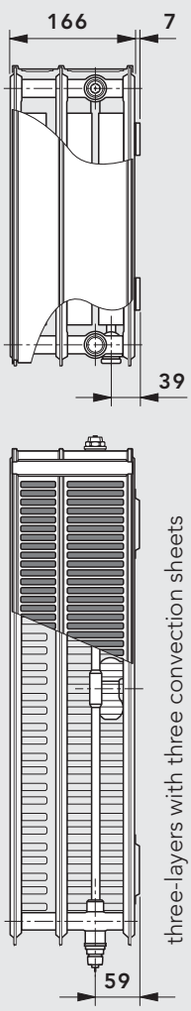
Material
T6-CENTRALLY CONNECTED RADIATORS are made of cold-rolled sheet steel, and in accordance with EN 442-1, with a stylish and robust fluting with ribs at 40 mm intervals.

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

Overview of models

Type	11 VM	21 VM-S	22 VM	33 VM
				

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																			

Profile radiator

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.

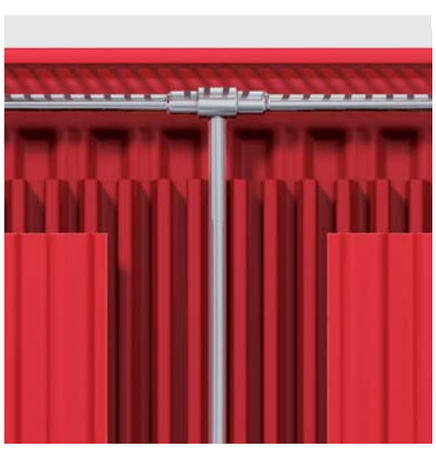
The following thermostat heads can be directly fitted at the radiator: „RA 2000" and „RAW" by Danfoss, „VK" by Heimeier, „D" by Herz, „thera DA" by MNG, as well as „UNI XD" by Oventrop. The radiator will be delivered with a protective cap.

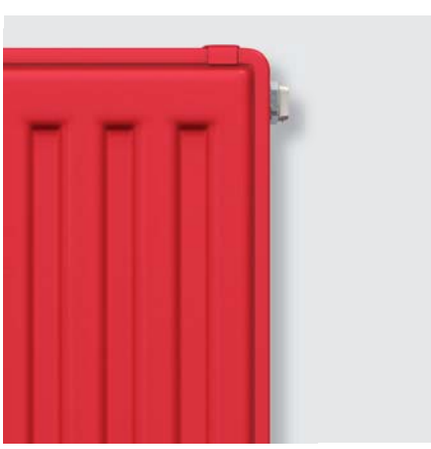
The operation parameters are specified with a positive operating pressure of 10 bar and an operating temperature of 110° C. With single-pipe installations, a cycle's maximum radiator power of about 10 kW at $\Delta T=T_1-T_2=20$ K (at T_1 = 90° C) has to be taken into account.

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.

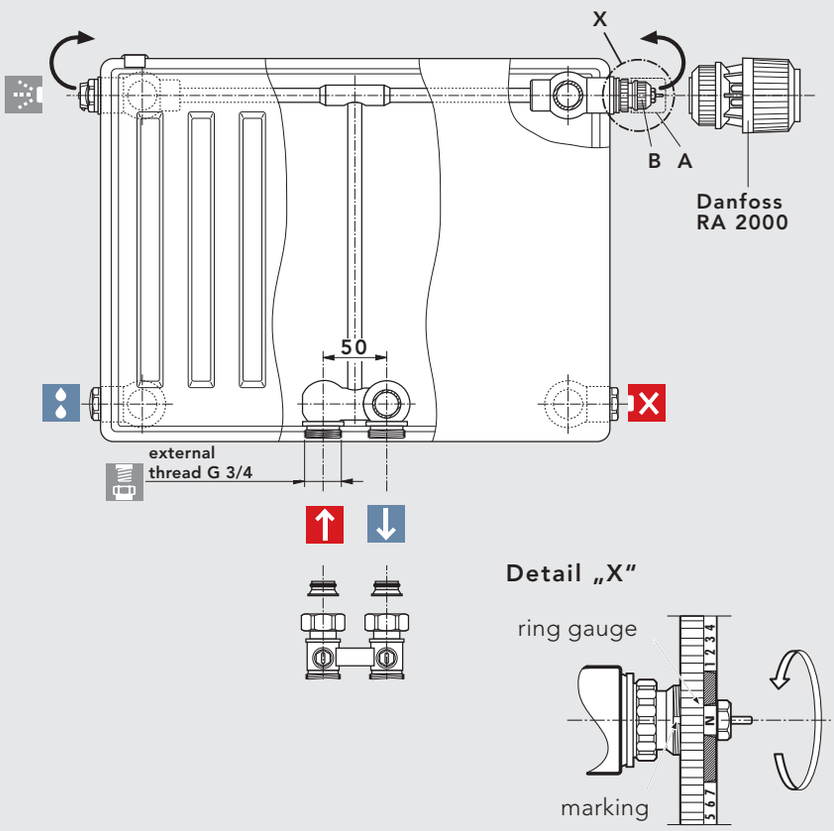
Our valve radiators' connections (external thread G 3/4") comply in construction and tolerance with the specifications, in accordance with DIN V 3838. If conically sealed drain cocks are used (single-pipe and double-pipe operation), where an adjustment of tolerance of distance to the centre is not possible,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





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 kv-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.**

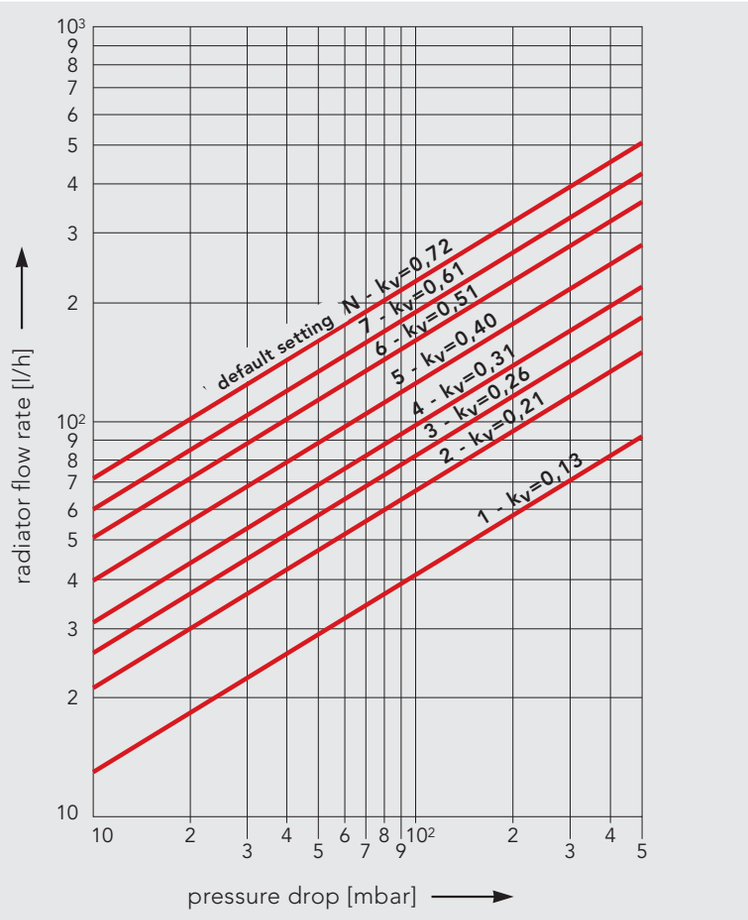
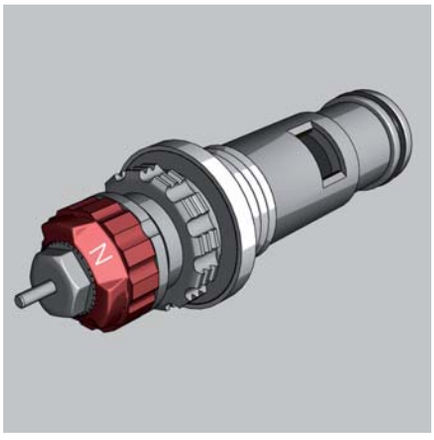


Chart 1
Pressure drop [mbar] – double-pipe operation with a proportional deviation of 2K.



k_v-value chart					
Pre-setting	1,1	3,9	5,2	6,5	N
k_V-value up to	0,13	0,30	0,42	0,56	0,72
Colour of the adjustment ring					

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

Hydraulic calibration

The hydraulic calibration of the heat emission system has two essential effects: saving on energy costs and CO_2 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 distribute 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_2 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.

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

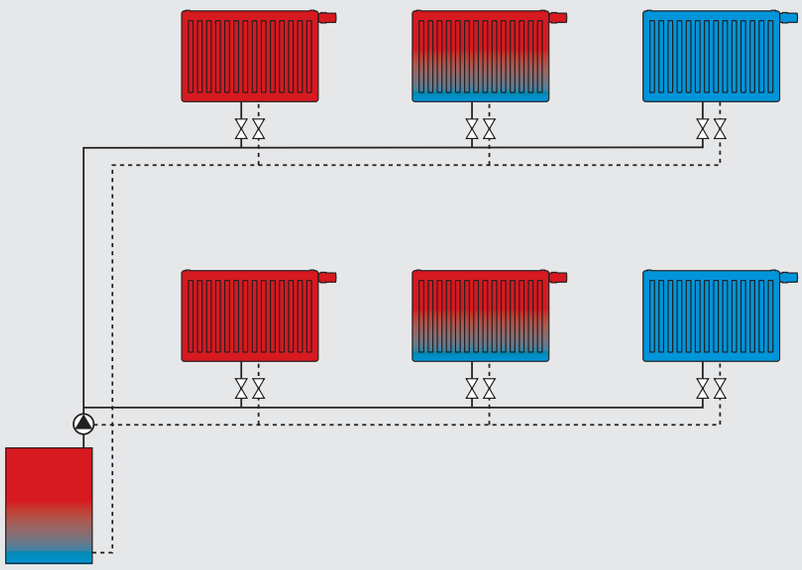
The advantages of factory-adjusted valve settings

- Optimal hydraulic calibration for buildings with operational areas up to 1,000m2
- 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

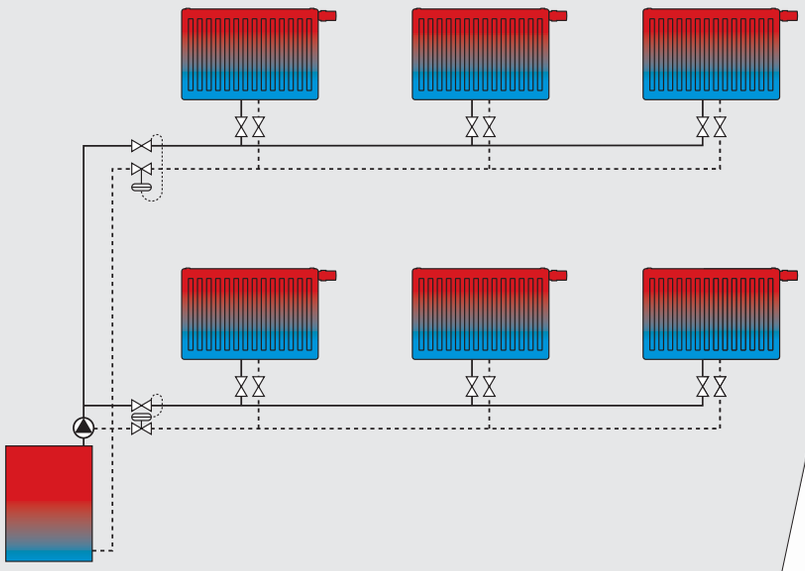
The advantages of hydraulic calibration

- Up to 6% energy saving
- CO_2 reduction
- Increased comfort
- Complies with Energy-Efficiency regulations

A system without hydraulic calibration



A system with hydraulic calibration



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Professur für Energiesystemtechnik und Wärmewirtschaft

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Vogel und Noot Straße 4
8661 Wartberg, Austria

Prof. Dr.-Ing. Clemens Felsmann

Gutachten

Dezember 2009

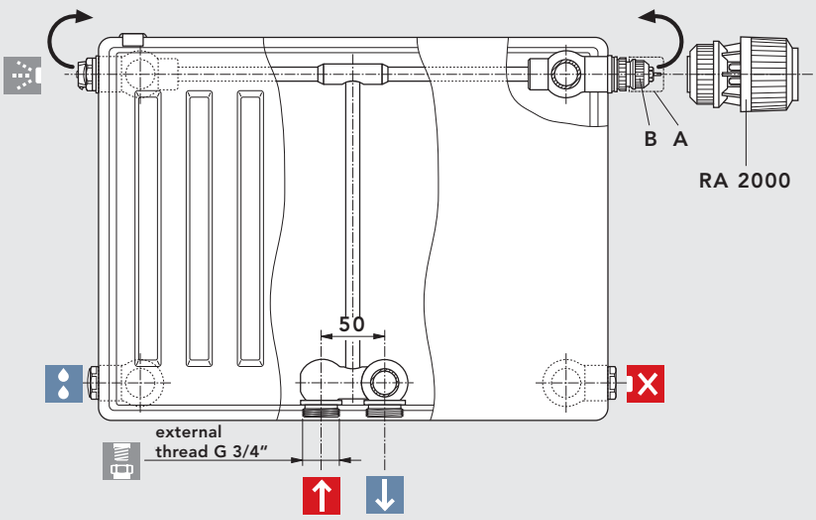
„Zur Wirksamkeit abgestufter Ventileinsätze für den hydraulischen Abgleich in Heizungsanlagen"

Das Unternehmen Rettig ICC stattet Vogel & Noot Heizkörper mit auf die Heizkörperleistung abgestimmten voreingestellten Ventileinsätzen aus. Im Ergebnis detaillierter Berechnungen zur Wirksamkeit der fünf Voreinstellungen für den hydraulischen Abgleich in Zweirohrheizungsanlagen wurde festgestellt:

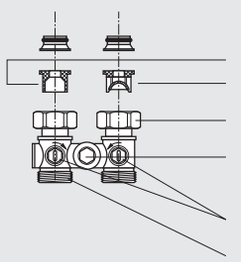
1. Die Ventileinsätze bewirken im Vergleich zu einem nicht abgeglichenen Netz eine deutliche Begrenzung sowohl der Durchflussmengen der einzelnen Heizkörper als auch des Gesamt-Massestromes. Bestehende Abweichungen der Massestromverteilung gegenüber einem rechnerisch ermittelten Auslegungszustand sind aufgrund der Betriebscharakteristik von Heizflächen für die Wärmeversorgung im Gebäude unkritisch.
2. Die voreingestellten Ventileinsätze sind gleichermaßen für Bestandsgebäude und Neubauten mit den entsprechenden unterschiedlichen Auslegungs-Systemtemperaturen geeignet.
3. Der Einsatz der gestuften Ventileinsätze ist einem hydraulisch abgeglichenen Heizungsnetz energetisch gleichwertig.
4. Die Ventileinsätze entsprechen einem statisch abgeglichenem System nach EN 15316-2-3 (2007) mit f_{hyd}=1,01, einem abgeglichenen System nach EN 15316-2-1 (2007) mit f_{hyd}=1 sowie einem hydraulisch abgeglichenen Heiznetz nach DIN V 18599-5 (2007) mit f_{hyd}=1.

Prof. Dr.-Ing. C. Felsmann

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



One pipe manifold



water supply element ①
return element ②
union nut
cover for throttle screw
ball valve
external thread 3/4''

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.**

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.

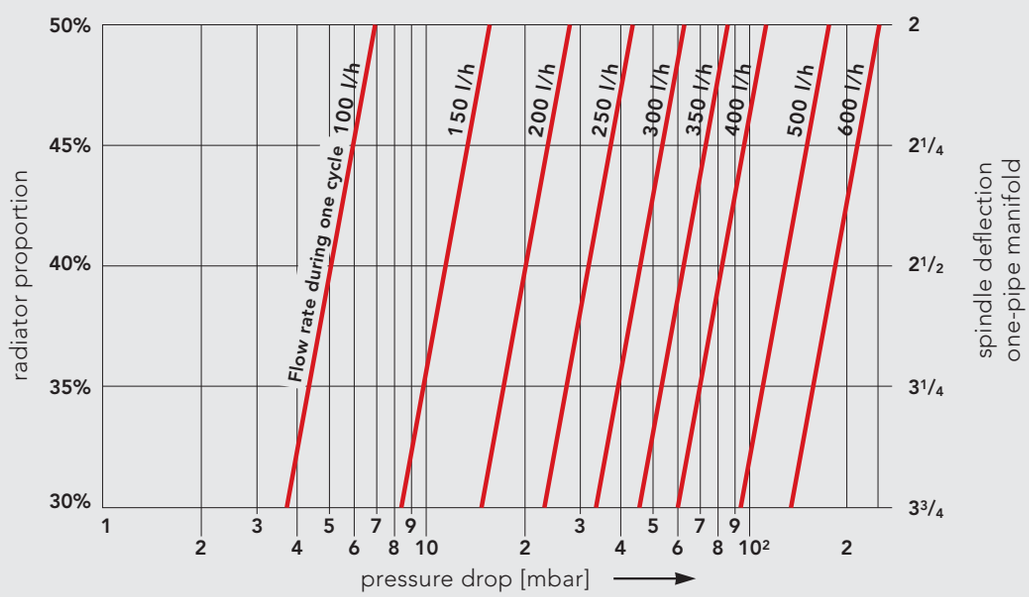


Chart 2
pressure drop [mbar] - single-pipe operation with a proportional deviation of 2K.

Default setting:

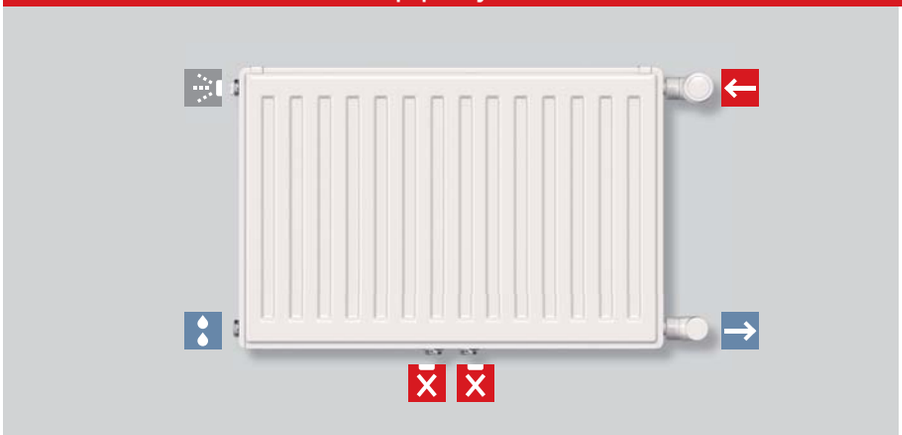
radiator proportion 30%: 3,75 revolutions *
radiator proportion 35%: 3,25 revolutions *
radiator proportion 40%: 2,50 revolutions *
radiator proportion 45%: 2,25 revolutions *
radiator proportion 50%: 2,00 revolutions *

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

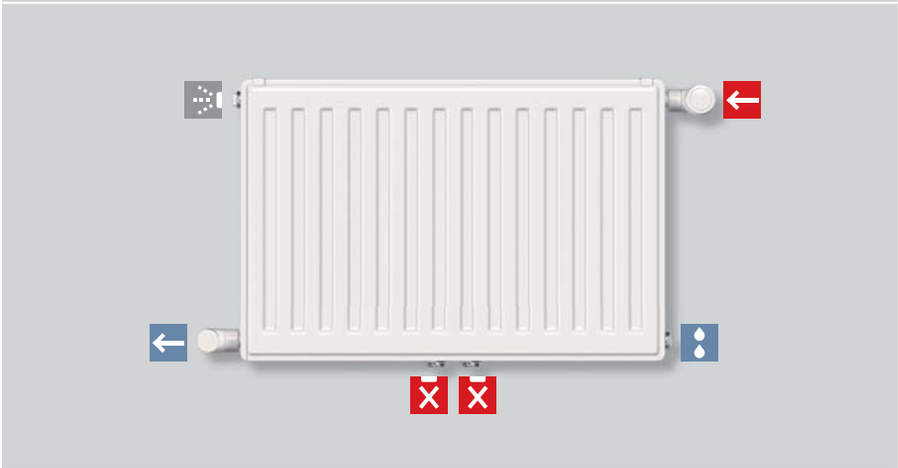
Of course it is also possible to change the pre-adjusted valve setting when the equipment is operating at pressure.

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

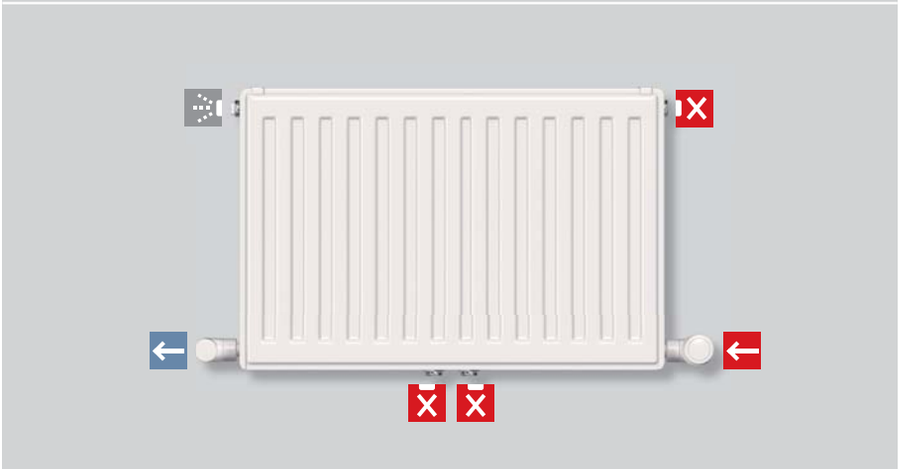
Connection modes - double-pipe system



A:
Single-sided connection



B:
Connection both sides



C:
Bottom connection

(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.

MULTI-FUNCTIONAL VALVE RADIATOR

Connections
4 x internal thread G 1/2
2 x G 3/4“

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 KV	0445
Type 21 KV-S	0447
Type 22 KV	0448
Type 33 KV	0449

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

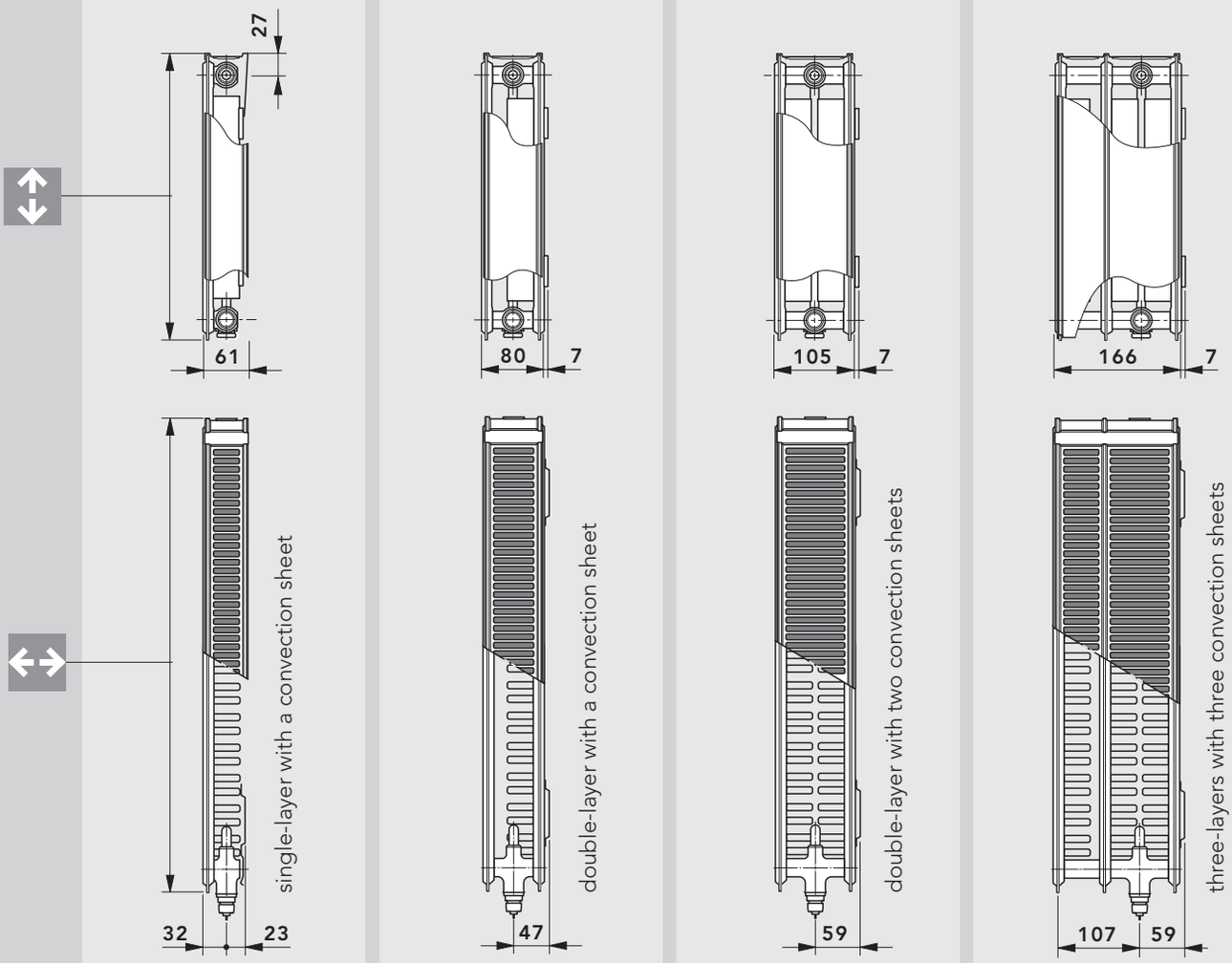
Material
MULTI-FUNCTIONAL VALVE RADIATORS are made of cold-rolled sheet steel, in accordance with EN 442-1, with a stylish and robust fluting, with ribs at 40 mm intervals.

Equipment
Each MULTI-FUNCTIONAL VALVE RADIATOR is equipped with an integrated 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, (brackets only when defined as such); type 11 only available with brackets. The drain plug and the pivotable vent plug, as well as the dummy plug are fitted with seals. All radiators 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

Overview of models



Type	11 KV					21 KV-S					22 KV					33 KV				
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 2000
Steps	any overall length starting with 400 mm available in steps of 200 mm, additionally 520, 720, 920, 1120 and 1320 mm																			

Description and delivery equipment

The MULTIFUNCTIONAL VALVE RADIATOR with its welded valve unit has been designed in a most trend-setting way: it can meet all requirements regarding connections.

This radiator will convince you not only because of its simple and fast installation but also because of its versatility and elegant appearance, as the valve unit is covered up by the heating panel.

What's more, through the optimal function of the whole radiator-valve unit, through the maximum heat output and, last but not least, through the motivation to install thermostat heads, saving heating energy becomes evident.

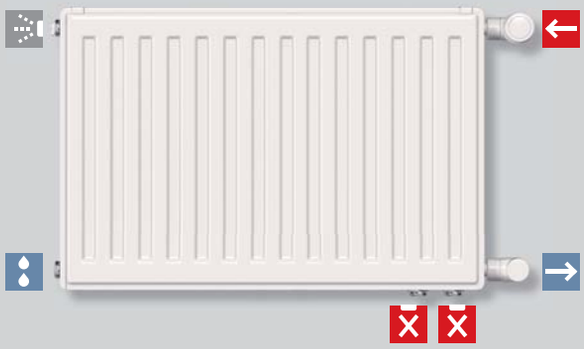
The MULTIFUNCTIONAL VALVE RADIATOR with its welded valve unit is suitable for double-pipe as well as for single-pipe installations, using a one-pipe manifold. Additionally to the connection possibility at the bottom, the sophisticated design also offers connection possibilities, known from compact radiators, such as single-sided or two-sided connections. **The radiator is delivered ready for double-pipe installation, 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 steplessly adjustable valve element is available on request.
By using universal supply and return connections with external thread 3/4", commercially available pipes made of copper, precision steel or plastic, can be connected, using the corresponding accessories and the commercially obtainable shut-off valve.
The decor-clips (standard make in standard colour 9016) offer many possibilities for design. They are available in many standard and sanitary-ware colours, as well as with metallic surfaces, i.e. gilded.

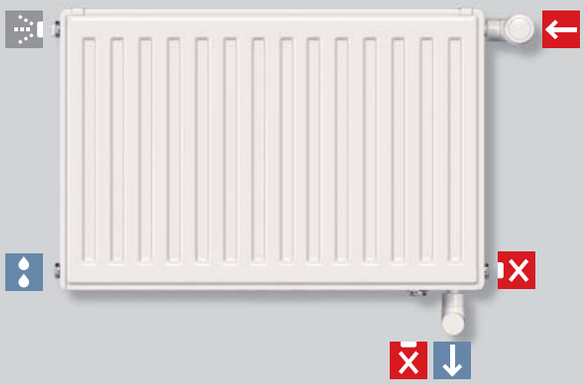
The following thermostat heads can be installed directly onto the radiator: „RA 2000" and „RAW" by Danfoss, „VK" by Heimeier, „theraDA" by MNG, as well as „UNI XD" by Oventrop. At delivery the radiator is equipped with a protective cap.

The operation parameters are specified as follows: positive operating pressure 10 bar, operating temperature 110° C. With single-pipe installations a maximum heat output of about 10 kW at $\Delta T=T_1-T_2=20$ K (at T_1 = 90 °C) per ring has to be taken into accout.

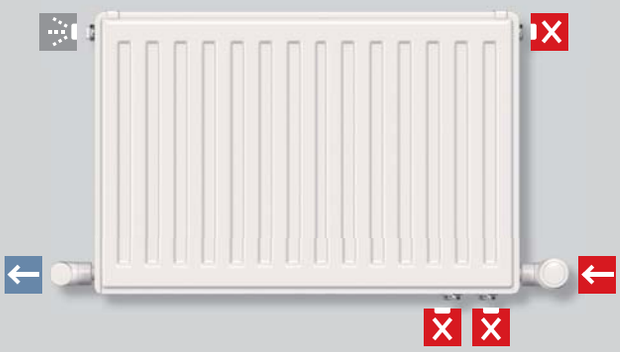
Connection modes - double-pipe system



A:
Single-sided connection



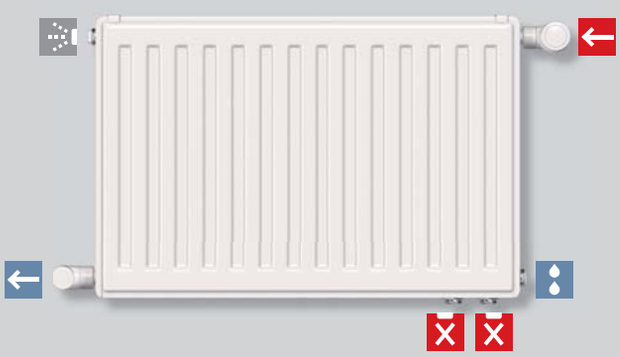
B:
Single-sided connection



C:
Bottom connection

(Warning: Lower performance)

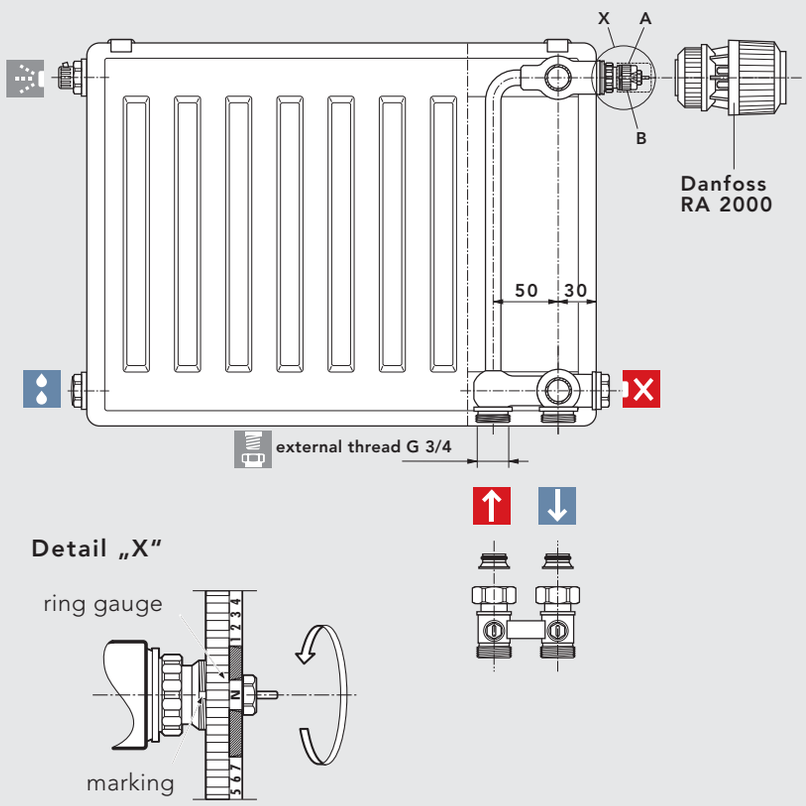
Possible for compact, valve and other radiator models!



D:
Connection both sides

Attention:
If the multifunctional valve radiator is used as compact radiator, the crew caps made of plastic have to be replaced by nickel-plated brass caps (accessory).
Order number: AZ0PL000C0002000

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.

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.**

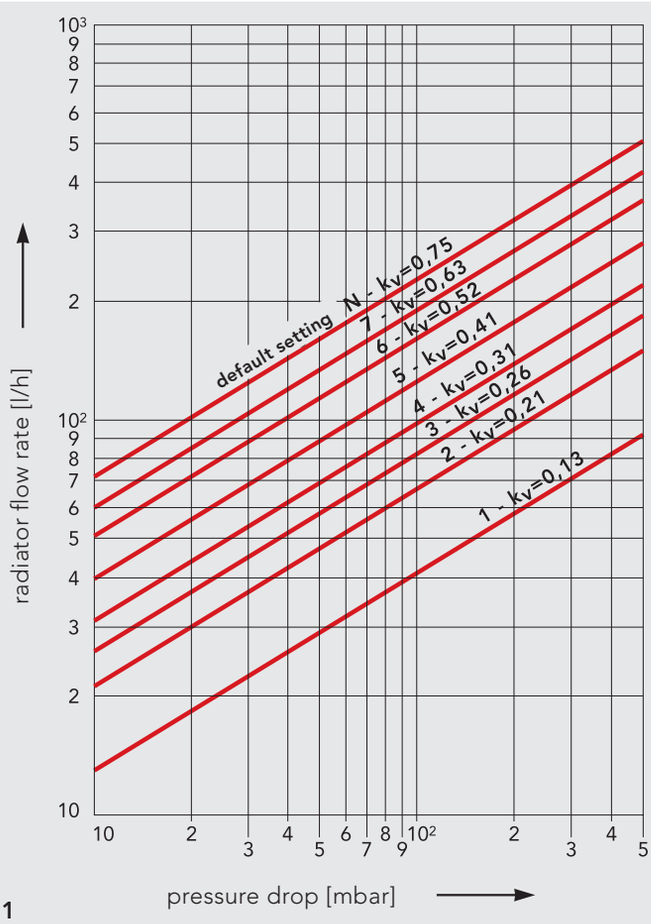
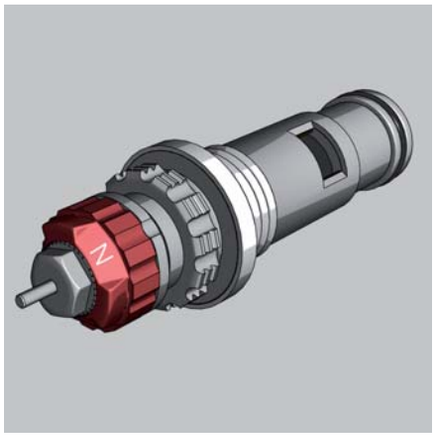


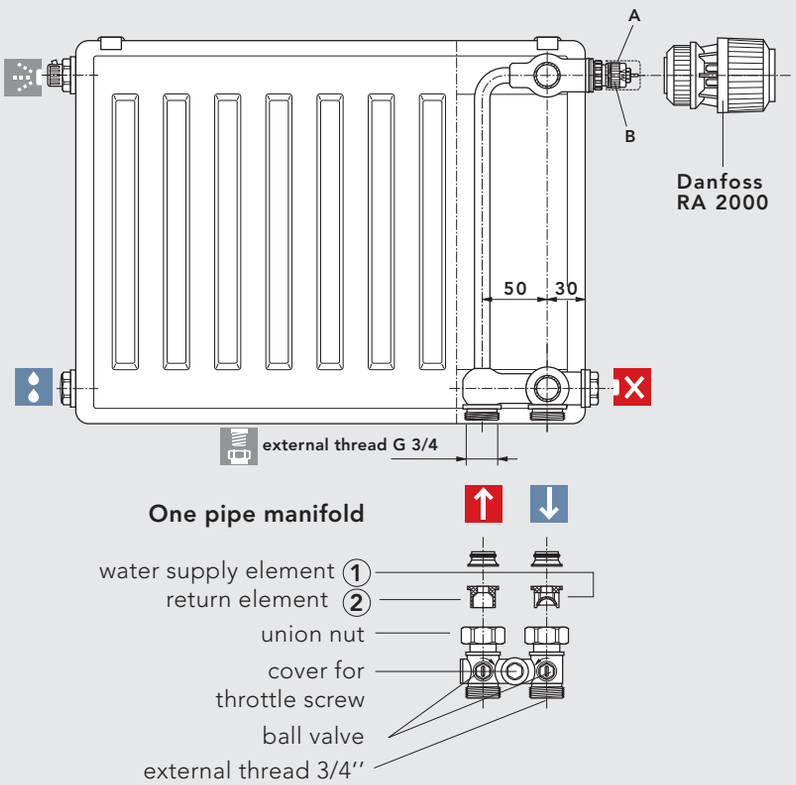
Chart 1
Pressure drop [mbar] – double-pipe operation with a proportional deviation of 2K.



k_v-value chart					
Pre-setting	1,1	3,9	5,2	6,5	N
k_v-value up to	0,13	0,30	0,43	0,58	0,75
Colour of the adjustment ring					

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

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.**

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.

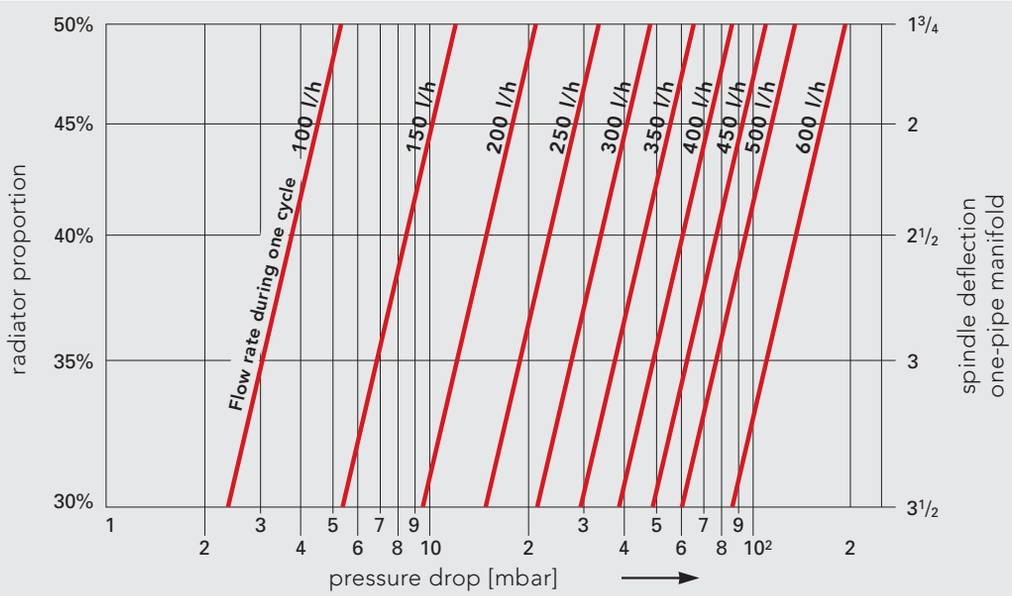


Chart 2
pressure drop [mbar] - single-pipe operation with a proportional deviation of 2K.

Default setting:

radiator proportion 30%: 3,50 revolutions *

radiator proportion 35%: 3,00 revolutions *

radiator proportion 40%: 2,50 revolutions *

radiator proportion 45%: 2,00 revolutions *

radiator proportion 50%: 1,75 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
$\Delta T = T_1 - T_2 = 20$ K (at $T_1 = 90$ °C).

COMPACT RADIATOR

Connections
4 x internal thread G 1/2

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 10	0443
Type 11 K	0445
Type 21 K-S	0447
Type 22 K	0448
Type 33 K	0449

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

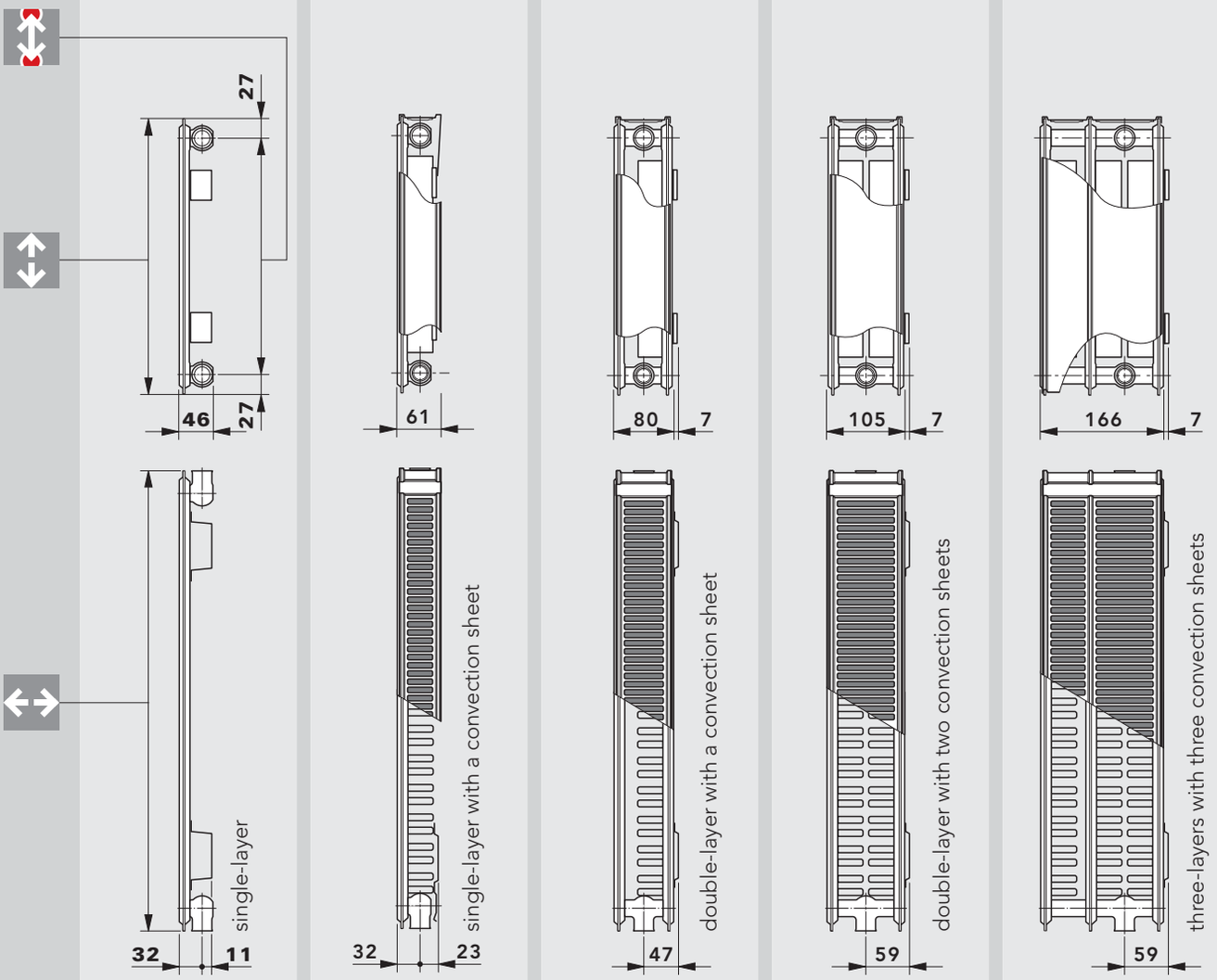
Material
COMPACT RADIATORS are made of cold-rolled sheet steel, and in accordance with EN 442-1, with a stylish and robust fluting, with ribs at 40 mm intervals.

Equipment
Each COMPACT RADIATOR is equipped with wall brackets that are welded onto the back. The radiator types 11 K, 21 K-S, 22 K and 33 K 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

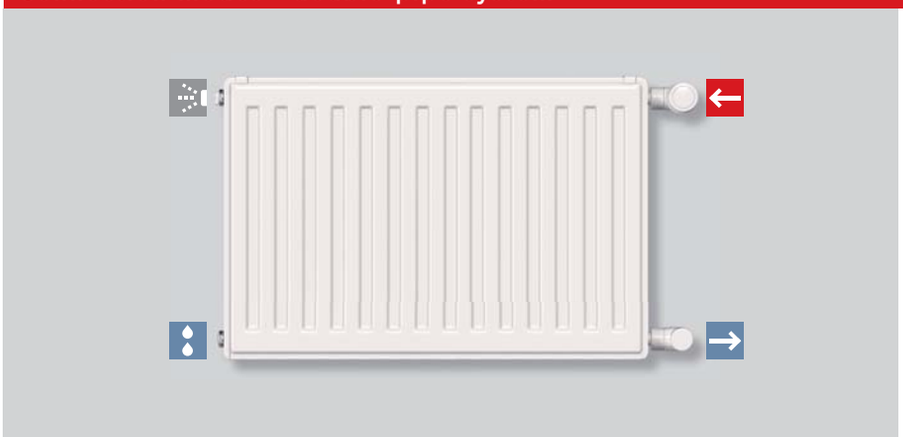
OVERVIEW OF MODELS



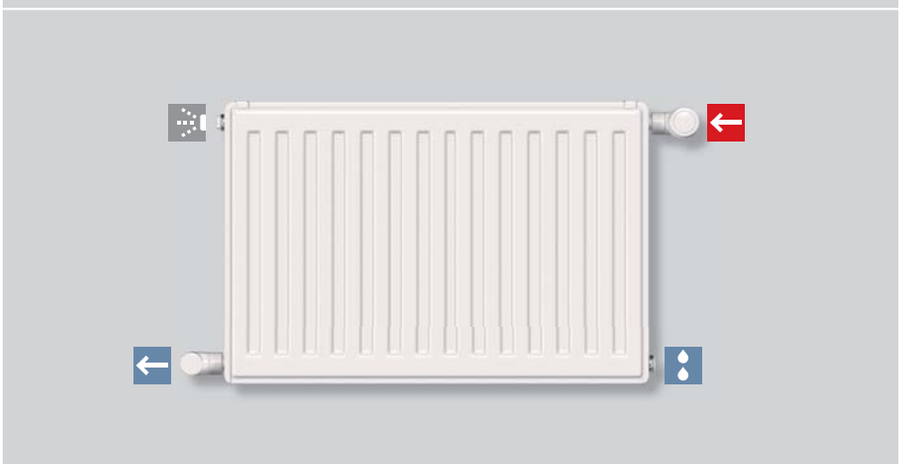
Type	10					11 K					21 K-S					22 K					33 K				
Height [mm]	300	400	500	600	900	300	400	500	600	900	300	400	500	600	900	300	400	500	600	900	300	400	500	600	900
Length [mm]	up to 1200		up to 2400	up to 2600	up to 1400	up to 2400		up to 2600		up to 2000	up to 2400		up to 3000		up to 2000	up to 3000			up to 2000		up to 3000		up to 2200		up to 2000
Steps	all overall length starting with 400 mm available in steps of 200 mm, additionally 520, 720, 920, 1120 and 1320 mm																								

Connection modes - double-pipe and single-pipe system

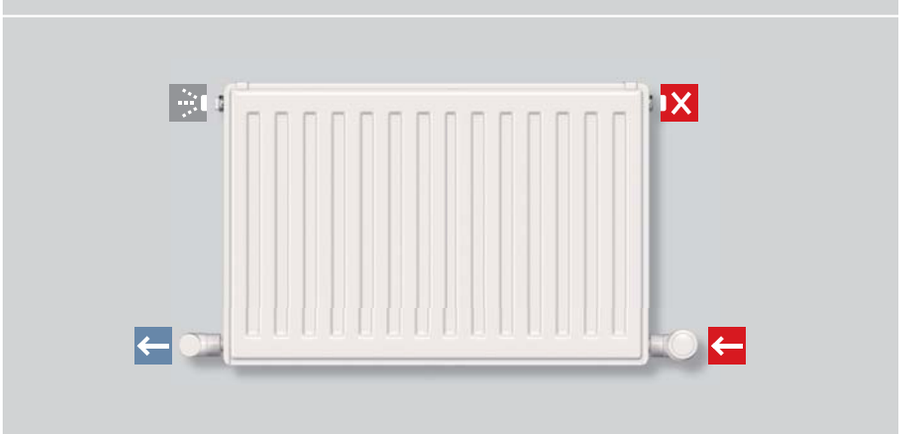
Connection modes - double-pipe system



A:
Single-sided connection



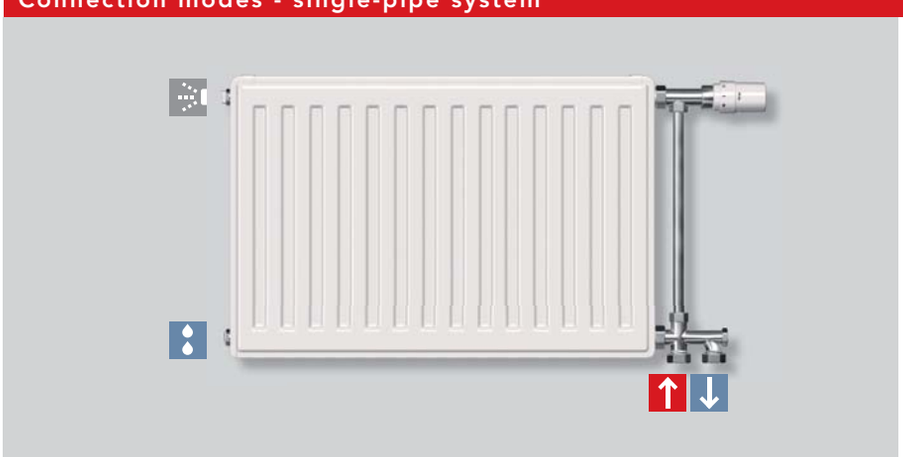
B:
Connection both sides



C:
Bottom connection

(Warning: Lower performance**)**

Connection modes - single-pipe system



COMPACT RADIATORS can easily be converted for a single-pipe connection, provided that four-way valves with a by-pass pipe are used.

Temperature pairing 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 performance data

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

Height [mm]: 300

Length [mm]	Power	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
520	Watt	228	374	555	725	1035
600	Watt	263	432	640	837	1194
720	Watt	316	518	769	1005	1433
800	Watt	351	576	854	1116	1592
920	Watt	404	662	982	1284	1830
1000	Watt	439	720	1067	1395	1990
1120	Watt	492	806	1195	1563	2228
1200	Watt	527	864	1281	1674	2388
1320	Watt		950	1409	1842	2626
1400	Watt		1008	1494	1953	2786
1600	Watt		1152	1708	2232	3183
1800	Watt		1296	1921	2511	3581
2000	Watt		1440	2135	2790	3979
2200	Watt		1584	2348	3069	4377
2400	Watt		1728	2562	3348	4775
2600	Watt				3627	5173
2800	Watt				3907	5571
3000	Watt				4186	5969
Radiatorexponent n		1,274	1,330	1,327	1,329	1,331

Height [mm]: 400

Length [mm]	Power	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	224	362	534	695	992
520	Watt	292	470	694	903	1289
600	Watt	337	543	801	1042	1488
720	Watt	404	651	961	1250	1785
800	Watt	449	723	1068	1389	1984
920	Watt	516	832	1229	1598	2281
1000	Watt	561	904	1335	1737	2479
1120	Watt	628	1013	1496	1945	2777
1200	Watt	673	1085	1602	2084	2975
1320	Watt		1194	1763	2292	3273
1400	Watt		1266	1870	2431	3471
1600	Watt		1447	2137	2778	3967
1800	Watt		1628	2404	3126	4463
2000	Watt		1809	2671	3473	4959
2200	Watt		1989	2938	3820	5455
2400	Watt		2170	3205	4168	
2600	Watt				4515	
2800	Watt				4862	
3000	Watt				5210	
Radiatorexponent n		1,283	1,342	1,334	1,353	1,357

Height [mm]: 500

Length [mm]	Power	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	271	430	625	787	1140
520	Watt	353	559	812	1023	1482
600	Watt	407	645	937	1181	1710
720	Watt	488	774	1124	1417	2052
800	Watt	543	859	1249	1574	2280
920	Watt	624	988	1437	1810	2622
1000	Watt	678	1074	1562	1968	2850
1120	Watt	760	1203	1749	2204	3192
1200	Watt	814	1289	1874	2361	3420
1320	Watt	895	1418	2061	2598	3762
1400	Watt	950	1504	2186	2755	3990
1600	Watt	1085	1719	2499	3149	4560
1800	Watt	1221	1934	2811	3542	5130
2000	Watt	1357	2149	3123	3936	5700
2200	Watt	1492	2363	3435	4329	6271
2400	Watt	1628	2578	3748	4723	
2600	Watt		2793	4060	5116	
2800	Watt			4372	5510	
3000	Watt			4685	5904	
Radiatorexponent n		1,292	1,330	1,323	1,334	1,351

Height [mm]: 600

Length [mm]	Power	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	317	478	689	875	1251
520	Watt	412	621	896	1138	1626
600	Watt	475	717	1034	1313	1877
720	Watt	570	860	1241	1576	2252
800	Watt	634	955	1379	1751	2502
920	Watt	729	1099	1585	2013	2878
1000	Watt	792	1194	1723	2188	3128
1120	Watt	887	1338	1930	2451	3503
1200	Watt	951	1433	2068	2626	3753
1320	Watt	1046	1577	2275	2889	4129
1400	Watt	1109	1672	2412	3064	4379
1600	Watt	1268	1911	2757	3501	5004
1800	Watt	1426	2150	3102	3939	5630
2000	Watt	1585	2389	3446	4377	6255
2200	Watt	1743	2628	3791	4814	6881
2400	Watt	1901	2866	4136	5252	
2600	Watt	2060	3105	4480	5690	
2800	Watt			4825	6127	
3000	Watt			5169	6565	
Radiatorexponent n		1,301	1,319	1,310	1,343	1,333

Height [mm]: 900

Length [mm]	Power	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	446	659	949	1173	1649
520	Watt	579	856	1233	1524	2144
600	Watt	668	988	1423	1759	2474
720	Watt	802	1186	1707	2111	2969
800	Watt	891	1318	1897	2345	3299
920	Watt	1025	1515	2182	2697	3793
1000	Watt	1114	1647	2371	2931	4123
1120	Watt	1247	1845	2656	3283	4618
1200	Watt	1337	1977	2846	3518	4948
1320	Watt	1470	2174	3130	3869	5443
1400	Watt		2306	3320	4104	5772
1600	Watt		2635	3794	4690	6597
1800	Watt		2965	4269	5276	7422
2000	Watt		3294	4743	5863	8246
2200	Watt					
2400	Watt					
2600	Watt					
2800	Watt					
3000	Watt					
Radiatorexponent n		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.

Temperature pairings 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 performance data

Radiator power data in watts, in accordance with **DIN EN 442** supply temperature **75** - return temperature **65** - room temperature **20° C**

Height [mm]		300					400					500					600					900				
Length [mm]	Type / Power	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	5347	1500	2254	3257	4111	5887					
2600	Watt				2847	4059				3528			2192	3190	4012	5793	1625	2441	3528	4454	6378					
2800	Watt				3066	4371				3800			2360	3436	4320	6238		2629	3800	4796	6868					
3000	Watt				3285	4683				4071			2529	3681	4629	6684		2817	4071	5139	7359					
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 performance data

Radiator power data in watts, in accordance with **DIN EN 442** supply temperature **70** - return temperature **55** - room temperature **20° C**

Height [mm]		300					400					500					600					900				
Length [mm]	Type / Power	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				2969	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.

Temperature pairings 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 performance data

Radiator power data in watts, in accordance with **DIN EN 442** supply temperature **55** - return temperature **45** - room temperature **20° C**

Height [mm]		300					400					500					600					900				
Length [mm]	Type / Power	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	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 performance data

Radiator power data in watts, in accordance with **DIN EN 442** supply temperature **45** - return temperature **40** - room temperature **20° C**

Height [mm]		300					400					500					600					900				
Length [mm]	Type / Power	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	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			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]		300				400				500				600				900			
Length [mm]	Type / weight	11 KV 11 VM	21KV-S 21VM-S	22 KV 22 VM	33 KV 33 VM	11 KV 11 VM	21KV-S 21VM-S	22 KV 22 VM	33 KV 33 VM	11 KV 11 VM	21KV-S 21VM-S	22 KV 22 VM	33 KV 33 VM	11 KV 11 VM	21KV-S 21VM-S	22 KV 22 VM	33 KV 33 VM	11 KV 11 VM	21KV-S 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

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]		300					400					500					600					900				
Length [mm]	Type / weight	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.

HYGIENE RADIATOR

HYGIENE COMPACT RADIATOR
Connections:
4 x G 1/2" I. G.

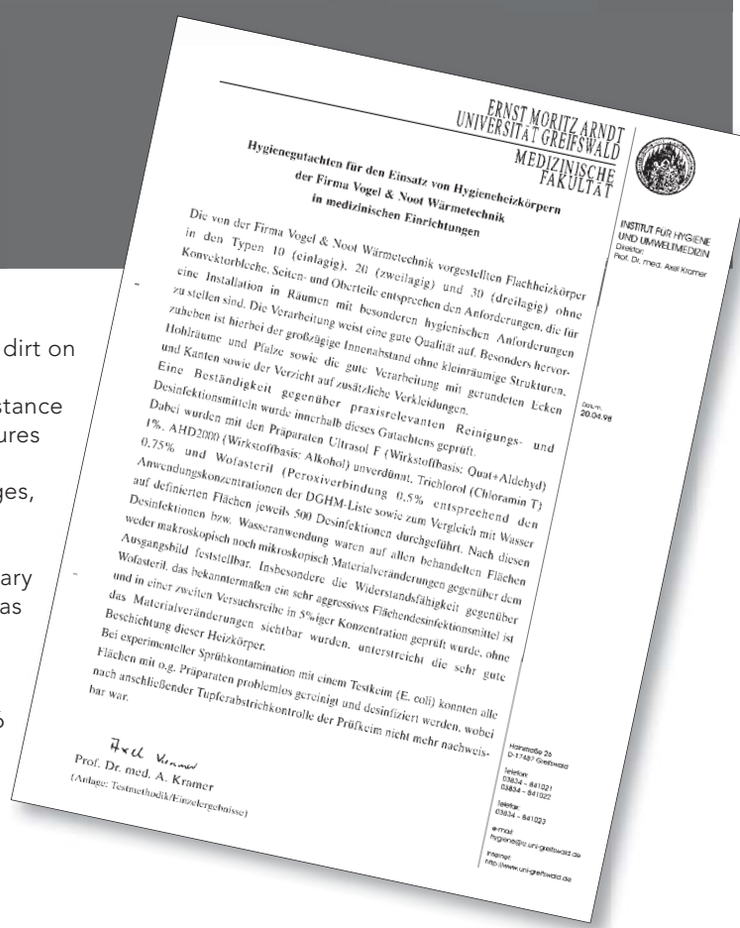
T6-HYGIENE CENTRE-CONNECTION RADIATOR
Connections:
4 x G 1/2" I. G. and
2 x G 3/4" A. G.
lower edge, in the centre

The proof of suitability for the installation of **HYGIENE COMPACT RADIATORS** and **T6 HYGIENE CENTRE-CONNECTION RADIATORS** in rooms with particular hygienic requirements is highlighted by the hygiene certificate issued by Ernst Moritz Arndt University of Greifswald.

The HYGIENE RADIATORS have been specially designed for use in hospitals and for installation in rooms subject to particular hygiene requirements.

Advantages:
- No collection of dust and dirt on covers or sides
- Large inner separation distance without small-scale structures
- Easy to clean
- Rounded corners and edges, finished to a high level

In order to offer the necessary alternatives for installation as well as complying with the hygiene requirements and guidelines, the hygiene radiators are available in T6 and compact designs.



ERNST MORITZ ARNDT
UNIVERSITÄT GREIFSWALD
MEDIZINISCHE FAKULTÄT

INSTITUT FÜR HYGIENE UND UMWELTMEDIZIN
Direktor:
Prof. Dr. med. Axel Kramer

Hygienegutachten für den Einsatz von Hygieneheizkörpern der Firma Vogel & Noot Wärmetechnik in medizinischen Einrichtungen

Datum: 20.04.98

Die von der Firma Vogel & Noot Wärmetechnik vorgestellten Flachheizkörper in den Typen 10 (einlagig), 20 (zweilagig) und 30 (dreilagig) ohne Konvektorbleche, Seiten- und Oberteile entsprechen den Anforderungen, die für eine Installation in Räumen mit besonderen hygienischen Anforderungen zu stellen sind. Die Verarbeitung weist eine gute Qualität auf. Besonders hervorzuheben ist hierbei der großzügige Innenabstand ohne kleinräumige Strukturen, Hohlräume und Pfalze sowie die gute Verarbeitung mit gerundeten Ecken und Kanten sowie der Verzicht auf zusätzliche Verkleidungen.

Eine Beständigkeit gegenüber praxisrelevanten Reinigungs- und Desinfektionsmitteln wurde innerhalb dieses Gutachtens geprüft.

Dabei wurden mit den Präparaten Ultrasol F (Wirkstoffbasis: Quat+Aldehyd) 1%, AHD2000 (Wirkstoffbasis: Alkohol) unverdünnt, Trichlorol (Chloramin T) 0,75% und Wofasteril (Peroxiverbindung 0,5% entsprechend den Anwendungskonzentrationen der DGHM-Liste sowie zum Vergleich mit Wasser auf definierten Flächen jeweils 500 Desinfektionen durchgeführt. Nach diesen Desinfektionen bzw. Wasseranwendung waren auf allen behandelten Flächen weder makroskopisch noch mikroskopisch Materialveränderungen gegenüber dem Ausgangsbild feststellbar. Insbesondere die Widerstandsfähigkeit gegenüber Wofasteril, das bekanntermaßen ein sehr aggressives Flächendesinfektionsmittel ist und in einer zweiten Versuchsreihe in 5%iger Konzentration geprüft wurde, ohne das Materialveränderungen sichtbar wurden, unterstreicht die sehr gute Beschichtung dieser Heizkörper.

Bei experimenteller Sprühkontamination mit einem Testkeim (E. coli) konnten alle Flächen mit o.g. Präparaten problemlos gereinigt und desinfiziert werden, wobei nach anschließender Tupferabstrichkontrolle der Prüfkeim nicht mehr nachweisbar war.

Prof. Dr. med. A. Kramer
(Anlage: Testmethodik/Einzelergebnisse)

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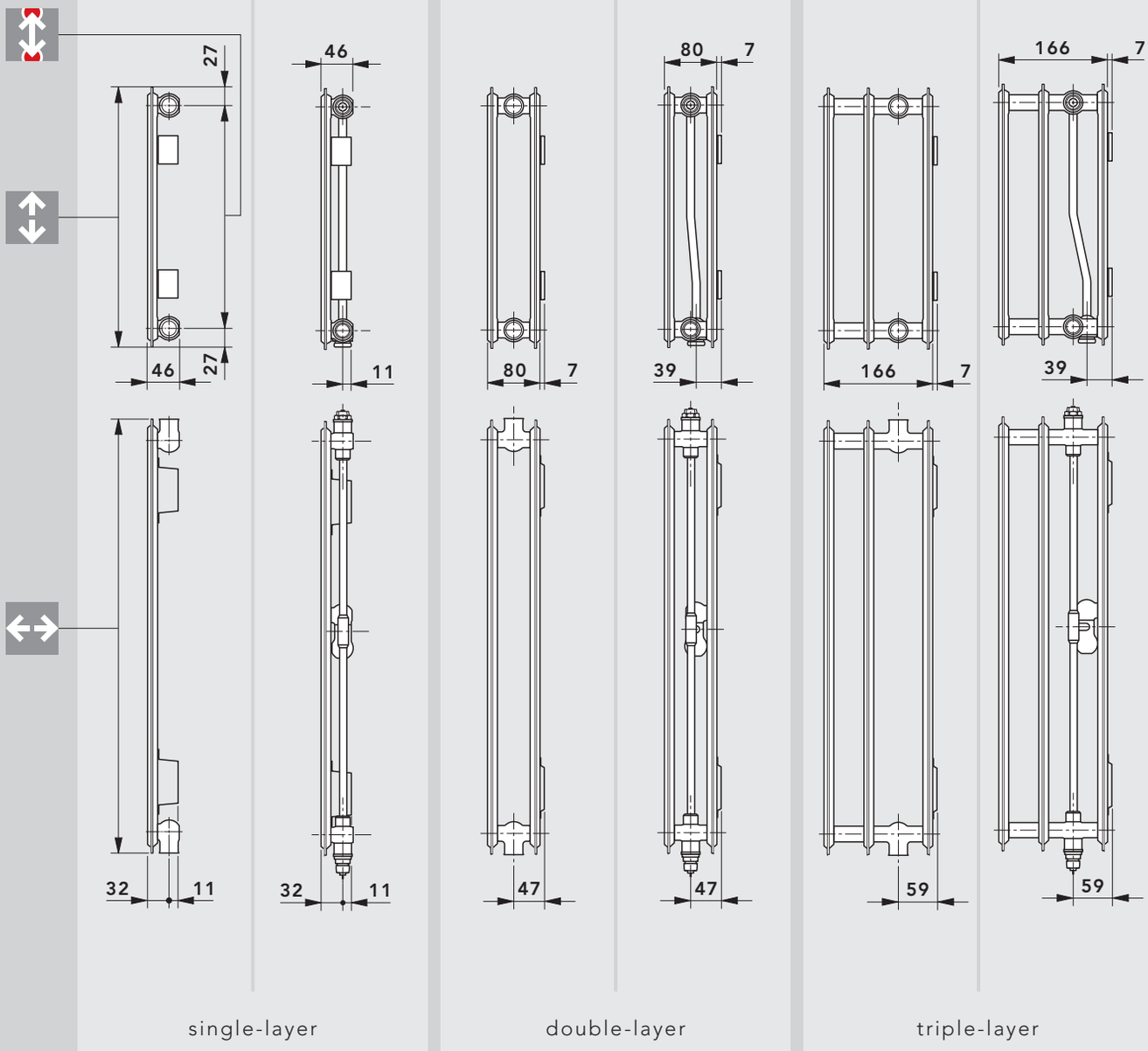
Overview of models



Type	10 / 10 VM					20 / 20 VM					30 / 30 VM				
Height [mm]	300	400	500	600	900	300	400	500	600	900	300	400	500	600	900
Length [mm]	up to 1200		up to 2400	up to 2600	up to 1400	up to 2400		up to 3000		up to 2000	up to 3000		up to 2200		up to 1800
Gradation	All overall lengths from 400 m in gradations of 200 mm; also 520, 720, 920, 1120 and 1320 mm														

Twin-pipe operation, single-pipe operation, types of connection

N.B.:
Please refer to the appropriate sections concerning the **T6 CENTRE-CONNECTION RADIATOR** on pages 17 - 21 for technical information on the connection settings.

90/70/20° C Output data in watts in accordance with **DIN EN 442** and/or **ÖNORM EN 442** Feed temperature **90** - return temperature **70** - room temperature **20 °C**

Height [mm]		300			400			500			600			900		
Length [mm]	Type / Output	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM
400	watts	176	298	432	224	376	541	271	452	645	317	524	747	446	729	1047
520	watts	228	387	561	292	489	703	353	587	839	412	681	971	579	948	1361
600	watts	263	447	647	337	565	811	407	677	968	475	786	1121	668	1094	1570
720	watts	316	536	777	404	678	973	488	813	1162	570	943	1345	802	1313	1884
800	watts	351	596	863	449	753	1082	543	903	1291	634	1048	1494	891	1459	2093
920	watts	404	685	993	516	866	1244	624	1039	1485	729	1205	1718	1025	1677	2407
1000	watts	439	745	1079	561	941	1352	678	1129	1614	792	1310	1868	1114	1823	2617
1120	watts	492	834	1208	628	1054	1514	760	1265	1807	887	1467	2092	1247	2042	2931
1200	watts	527	894	1295	673	1129	1622	814	1355	1936	951	1572	2241	1337	2188	3140
1320	watts		983	1424		1242	1785	895	1490	2130	1046	1729	2466	1470	2407	3454
1400	watts		1043	1510		1318	1893	950	1581	2259	1109	1834	2615	1559	2553	3663
1600	watts		1192	1726		1506	2163	1085	1807	2582	1268	2096	2989		2917	4187
1800	watts		1341	1942		1694	2434	1221	2032	2905	1426	2358	3362		3282	4710
2000	watts		1489	2158		1882	2704	1357	2258	3227	1585	2620	3736		3647	5233
2200	watts		1638	2373		2071	2974	1492	2484	3550	1743	2881	4109			
2400	watts		1787	2589		2259		1628	2710		1901	3143				
2600	watts			2805					2936		2060	3405				
2800	watts			3021					3162			3667				
3000	watts			3237					3387			3929				
Radiator exponent n		1,274	1,278	1,288	1,283	1,282	1,288	1,292	1,287	1,288	1,301	1,291	1,288	1,305	1,294	1,317
Model range			HYGIENE compact radiators and T6-HYGIENE centre-connection radiators													

The radiator models and dimensions that may be ordered are based on the production range set out in the price list.

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

75/65/20° C

Output data in watts in accordance with **DIN EN 442** and/or **ÖNORM EN 442** Feed temperature **75** - return temperature **65** - room temperature **20 °C**

Height [mm]		300			400			500			600			900		
Length [mm]	Type / Output	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM
400	watts	139	236	341	178	298	428	214	357	510	250	414	591	351	576	823
520	watts	181	307	444	231	387	556	279	464	664	325	538	768	457	749	1070
600	watts	209	354	512	266	447	641	322	536	766	375	621	886	527	864	1235
720	watts	251	425	614	320	536	770	386	643	919	450	745	1063	632	1037	1482
800	watts	278	472	682	355	596	855	429	714	1021	500	828	1182	702	1152	1646
920	watts	320	543	785	408	685	983	493	822	1174	575	952	1359	808	1325	1893
1000	watts	348	590	853	444	745	1069	536	893	1276	625	1035	1477	878	1440	2058
1120	watts	390	661	955	497	834	1197	600	1000	1429	700	1159	1654	983	1613	2305
1200	watts	418	708	1024	533	894	1283	643	1072	1531	750	1242	1772	1054	1728	2470
1320	watts		779	1126		983	1411	708	1179	1684	825	1366	1950	1159	1901	2717
1400	watts		826	1194		1043	1497	750	1250	1786	875	1449	2068	1229	2016	2881
1600	watts		944	1365		1192	1710	858	1429	2042	1000	1656	2363		2304	3293
1800	watts		1062	1535		1341	1924	965	1607	2297	1125	1863	2659		2592	3704
2000	watts		1180	1706		1490	2138	1072	1786	2552	1250	2070	2954		2880	4116
2200	watts		1298	1877		1639	2352	1179	1965	2807	1375	2277	3249			
2400	watts		1416	2047		1788		1286	2143		1500	2484				
2600	watts			2218					2322		1625	2691				
2800	watts			2388					2500			2898				
3000	watts			2559					2679			3105				
Radiator exponent n		1,274	1,278	1,288	1,283	1,282	1,288	1,292	1,287	1,288	1,301	1,291	1,288	1,305	1,294	1,317
Model range		HYGIENE compact radiators and T6-HYGIENE centre-connection radiators														

The radiator models and dimensions that may be ordered are based on the production range set out in the price list.

70/55/20° C

Output data in watts in accordance with **DIN EN 442** and/or **ÖNORM EN 442** Feed temperature **70** - return temperature **55** - room temperature **20 °C**

Height [mm]		300			400			500			600			900		
Length [mm]	Type / Output	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM
400	watts	113	192	277	144	242	347	174	290	414	202	336	479	284	467	665
520	watts	147	249	360	187	315	451	226	377	538	263	436	623	369	607	864
600	watts	170	288	415	216	363	520	261	435	621	304	503	719	426	700	997
720	watts	204	345	498	260	436	624	313	522	745	364	604	863	511	840	1196
800	watts	226	384	553	288	484	694	348	580	828	405	671	958	568	933	1329
920	watts	260	441	637	332	556	798	400	667	952	465	772	1102	653	1073	1529
1000	watts	283	479	692	360	605	867	434	724	1035	506	839	1198	710	1167	1661
1120	watts	317	537	775	404	677	971	487	811	1159	567	940	1342	795	1307	1861
1200	watts	339	575	830	433	726	1041	521	869	1242	607	1007	1438	852	1400	1994
1320	watts		633	913		798	1145	574	956	1366	668	1108	1581	938	1540	2193
1400	watts		671	969		847	1214	608	1014	1449	708	1175	1677	994	1634	2326
1600	watts		767	1107		968	1387	695	1159	1656	809	1342	1917		1867	2658
1800	watts		863	1245		1089	1561	782	1304	1863	911	1510	2157		2100	2991
2000	watts		959	1384		1210	1734	869	1449	2070	1012	1678	2396		2334	3323
2200	watts		1055	1522		1331	1908	956	1594	2277	1113	1846	2636			
2400	watts		1151	1660		1452		1043	1739		1214	2014				
2600	watts			1799					1884		1315	2182				
2800	watts			1937					2029			2349				
3000	watts			2076					2173			2517				
Radiator exponent n		1,274	1,278	1,288	1,283	1,282	1,288	1,292	1,287	1,288	1,301	1,291	1,288	1,305	1,294	1,317
Model range		HYGIENE compact radiators and T6-HYGIENE centre-connection radiators														

The radiator models and dimensions that may be ordered are based on the production range set out in the price list.

55/45/20° C

Output data in watts in accordance with **DIN EN 442** and/or **ÖNORM EN 442** Feed temperature **55** - return temperature **45** - room temperature **20 °C**

Height [mm]		300			400			500			600			900		
Length [mm]	Type / Output	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM
400	watts	73	123	177	92	155	221	111	185	264	129	214	306	180	297	420
520	watts	94	160	230	120	201	288	144	241	344	167	278	398	234	387	546
600	watts	109	184	265	138	232	332	166	278	397	193	321	459	271	446	630
720	watts	131	221	318	166	279	399	199	333	476	232	385	551	325	535	756
800	watts	145	246	353	184	310	443	222	370	529	257	428	612	361	595	840
920	watts	167	283	406	212	356	509	255	426	608	296	492	704	415	684	966
1000	watts	182	307	442	231	387	554	277	463	661	322	535	765	451	743	1050
1120	watts	203	344	495	258	433	620	310	518	740	360	599	857	505	833	1176
1200	watts	218	369	530	277	464	664	332	555	793	386	642	918	541	892	1260
1320	watts		406	583		511	731	366	611	872	425	706	1010	595	981	1386
1400	watts		430	618		542	775	388	648	925	450	749	1071	631	1041	1470
1600	watts		492	707		619	886	443	740	1057	515	856	1224		1189	1680
1800	watts		553	795		697	997	499	833	1190	579	963	1377		1338	1890
2000	watts		614	883		774	1107	554	926	1322	643	1070	1530		1487	2100
2200	watts		676	972		851	1218	610	1018	1454	708	1177	1683			
2400	watts		737	1060		929		665	1111		772	1284				
2600	watts			1148					1203		836	1391				
2800	watts			1237					1296			1498				
3000	watts			1325					1388			1605				
Radiator exponent n		1,274	1,278	1,288	1,283	1,282	1,288	1,292	1,287	1,288	1,301	1,291	1,288	1,305	1,294	1,317
Model range		HYGIENE compact radiators and T6-HYGIENE centre-connection radiators														

The radiator models and dimensions that may be ordered are based on the production range set out in the price list.

45/40/20° C

Output data in watts in accordance with **DIN EN 442** and/or **ÖNORM EN 442** Feed temperature **45** - return temperature **40** - room temperature **20 °C**

Height [mm]		300			400			500			600			900		
Length [mm]	Type / Output	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM	10 10 VM	20 20 VM	30 30 VM
400	watts	50	85	122	64	107	153	76	128	183	88	148	211	124	205	288
520	watts	65	111	159	83	139	199	99	166	237	115	192	275	161	266	374
600	watts	75	128	183	96	161	229	115	192	274	133	221	317	186	307	431
720	watts	91	153	220	115	193	275	138	230	329	159	266	380	223	369	518
800	watts	101	170	244	128	214	306	153	256	365	177	295	423	248	410	575
920	watts	116	196	281	147	246	352	176	294	420	204	340	486	285	471	661
1000	watts	126	213	305	159	268	382	191	320	456	221	369	528	310	512	719
1120	watts	141	238	342	179	300	428	214	358	511	248	413	592	347	574	805
1200	watts	151	255	366	191	321	459	229	384	548	265	443	634	372	615	863
1320	watts		281	402		353	504	252	422	602	292	487	697	409	676	949
1400	watts		298	427		375	535	267	447	639	310	517	740	434	717	1007
1600	watts		340	488		428	612	306	511	730	354	590	845		820	1150
1800	watts		383	549		482	688	344	575	821	398	664	951		922	1294
2000	watts		425	610		535	764	382	639	913	442	738	1056		1025	1438
2200	watts		468	671		589	841	420	703	1004	487	812	1162			
2400	watts		511	732		642		459	767		531	886				
2600	watts			793					831		575	960				
2800	watts			854					895			1033				
3000	watts			915					959			1107				
Radiator exponent n		1,274	1,278	1,288	1,283	1,282	1,288	1,292	1,287	1,288	1,301	1,291	1,288	1,305	1,294	1,317
Model range		HYGIENE compact radiators and T6-HYGIENE centre-connection radiators														

The radiator models and dimensions that may be ordered are based on the production range set out in the price list.

Weight

T6-HYGIENE

Weight in kg for T6-HYGIENE centre-connection radiators

Height [mm]		300			400			500			600			900		
Length [mm]	Type / Weight	10 VM	20 VM	30 VM	10 VM	20 VM	30 VM	10 VM	20 VM	30 VM	10 VM	20 VM	30 VM	10 VM	20 VM	30 VM
400	kg	4,05	6,30	9,16	4,78	7,76	11,35	5,53	9,24	13,54	6,25	10,66	15,64	8,60	15,24	22,45
520	kg	4,76	7,69	11,23	5,71	9,59	14,07	6,67	11,51	16,93	7,59	13,33	19,64	10,63	19,26	28,46
600	kg	5,23	8,62	12,62	6,33	10,80	15,88	7,43	13,02	19,17	8,49	15,12	22,30	11,99	21,95	32,48
720	kg	5,94	10,01	14,69	7,25	12,63	18,61	8,57	15,27	22,56	9,84	17,79	26,29	14,01	25,97	38,49
800	kg	6,41	10,94	16,07	7,87	13,85	20,43	9,33	16,79	24,80	10,74	19,57	28,95	15,38	28,65	42,50
920	kg	7,12	12,39	18,29	8,79	15,73	23,29	10,47	19,11	28,32	12,08	22,31	33,09	17,40	32,75	48,65
1000	kg	7,59	13,32	19,67	9,41	16,96	25,10	11,23	20,62	30,58	12,99	24,10	35,75	18,75	35,43	52,67
1120	kg	8,30	14,72	21,75	10,33	18,78	27,83	12,39	22,88	33,95	14,34	26,77	39,75	20,79	39,46	58,68
1200	kg	8,78	15,64	23,12	10,95	19,99	29,65	13,15	24,39	36,20	15,23	28,55	42,41	22,14	42,13	62,69
1320	kg		17,03	25,20		21,82	32,36	14,46	26,66	39,58	16,76	31,23	46,41	24,35	46,16	68,71
1400	kg		18,02	26,72		23,10	34,32	15,23	28,22	41,97	17,66	33,08	49,21	25,70	48,92	72,86
1600	kg		20,34	30,18		26,14	38,85	17,40	32,00	47,60	20,18	37,54	55,87		55,63	82,88
1800	kg		22,83	33,88		29,36	43,64	19,39	35,93	53,47	22,51	42,16	62,77		62,50	93,15
2000	kg		25,15	37,33		32,40	48,17	21,30	39,71	59,09	24,76	46,62	69,42		69,21	103,17
2200	kg		27,47	40,79		35,43	52,72	23,20	43,48	64,72	27,00	51,08	76,09			
2400	kg		29,79	44,25		38,48		25,11	47,24		29,25	55,55				
2600	kg			47,70					51,02		31,50	60,00				
2800	kg			51,16					54,78			64,46				
3000	kg			54,62					58,56			68,92				

Model range — T6-HYGIENE centre-connection radiators

The radiator models and dimensions that may be ordered are based on the production range set out in the price list.

HYGIENE COMPACT

Weights in kg for HYGIENE compact radiators

Height [mm]		300			400			500			600			900		
Length [mm]	Type / Weight	10	20	30	10	20	30	10	20	30	10	20	30	10	20	30
400	kg	3,29	5,55	8,41	4,01	6,99	10,57	4,73	8,45	12,75	5,42	9,83	14,82	7,70	14,34	21,56
520	kg	4,00	6,94	10,48	4,94	8,82	13,30	5,87	10,71	16,14	6,77	12,51	18,81	9,74	18,36	27,57
600	kg	4,48	7,87	11,87	5,55	10,03	15,11	6,64	12,23	18,38	7,67	14,29	21,48	11,09	21,05	31,58
720	kg	5,19	9,26	13,94	6,48	11,86	17,84	7,78	14,48	21,77	9,01	16,96	25,47	13,12	25,07	37,60
800	kg	5,66	10,18	15,32	7,09	13,07	19,66	8,54	15,99	24,01	9,91	18,75	28,13	14,48	27,76	41,61
920	kg	6,37	11,64	17,53	8,02	14,96	22,52	9,68	18,32	27,53	11,26	21,49	32,26	16,51	31,86	47,76
1000	kg	6,84	12,56	18,91	8,64	16,18	24,33	10,44	19,82	29,78	12,17	23,27	34,93	17,86	34,53	51,77
1120	kg	7,55	13,96	20,99	9,56	18,00	27,05	11,59	22,09	33,16	13,51	25,95	38,93	19,90	38,56	57,79
1200	kg	8,02	14,89	22,37	10,18	19,22	28,87	12,35	23,60	35,41	14,41	27,73	41,59	21,25	41,24	61,80
1320	kg		16,28	24,45		21,05	31,59	13,67	25,86	38,79	15,94	30,40	45,59	23,46	45,27	67,81
1400	kg		17,27	25,97		22,33	33,55	14,44	27,43	41,18	16,84	32,26	48,39	24,81	48,03	71,96
1600	kg		19,59	29,43		25,37	38,08	16,60	31,21	46,81	19,35	36,71	55,05		54,73	81,99
1800	kg		22,08	33,12		28,58	42,87	18,60	35,14	52,67	21,69	41,34	61,95		61,61	92,25
2000	kg		24,40	36,58		31,63	47,40	20,50	38,92	58,30	23,93	45,80	68,60		68,32	102,28
2200	kg		26,71	40,04		34,66	51,95	22,41	42,68	63,93	26,18	50,25	75,26			
2400	kg		29,04	43,50		37,70		24,32	46,45		28,43	54,72				
2600	kg			46,95					50,22		30,67	59,18				
2800	kg			50,41					53,99			63,64				
3000	kg			53,87					57,77			68,10				

Model range — HYGIENE compact radiators

The radiator models and dimensions that may be ordered are based on the production range set out in the price list.

UPGRADE RADIATOR

Profile radiator

Connections
4 x internal thread G 1/2

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 21 K-S	0447
Type 22 K	0448
Type 33 K	0449

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

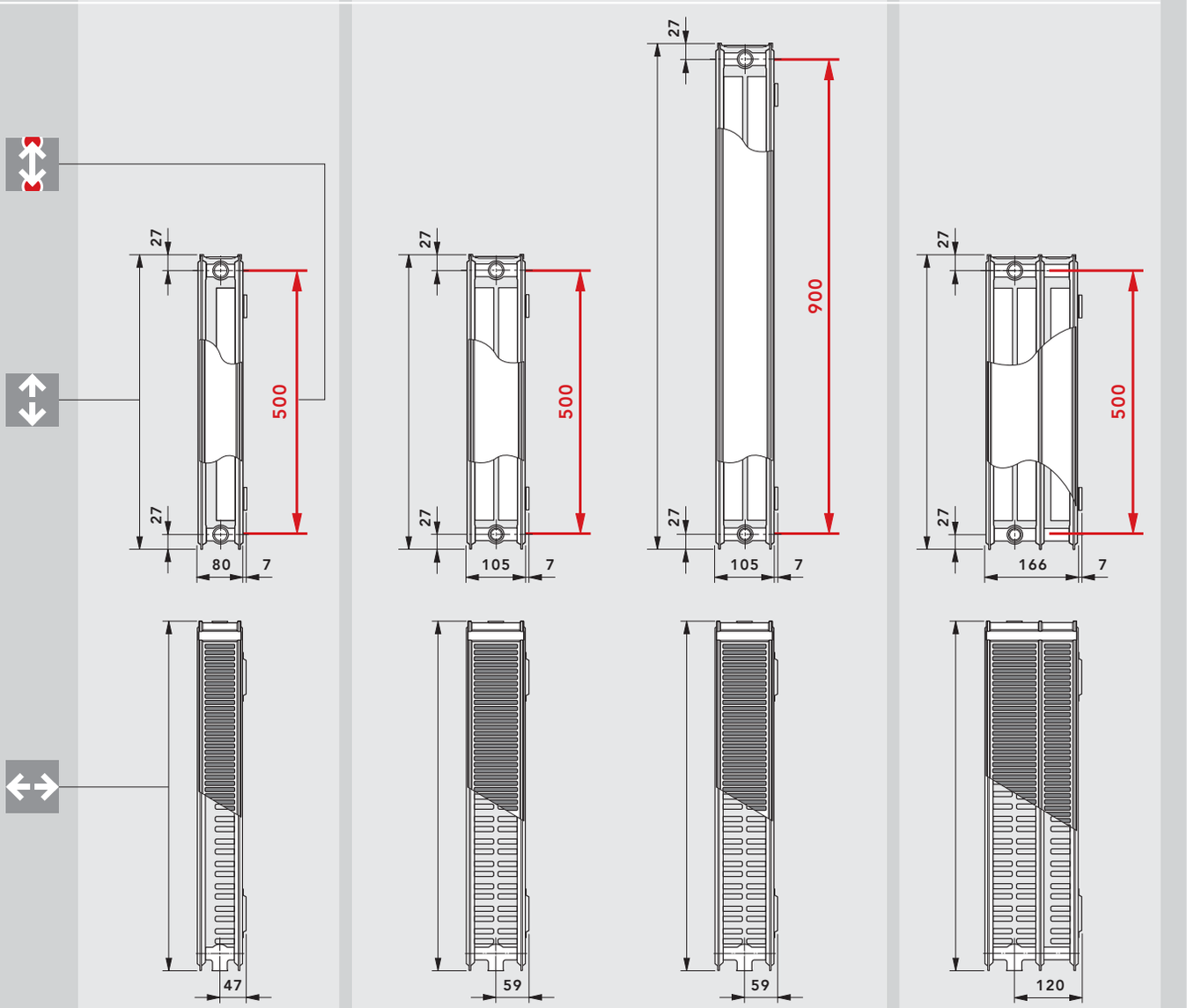
Material
UPGRADE RADIATORS upgrade radiators are made of cold-rolled sheet steel, in accordance with EN 442-1, with a stylish and robust fluting with ribs at 40 mm intervals.

Equipment
Each UPGRADE RADIATOR is equipped with wall brackets that are welded onto the back. The radiator types 21 K-S, 22 K and 33 K are equipped with a detachable top cover and two closed side panels. With every UPGRADE RADIATOR you get a fit-up aid, made of cardboard.

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

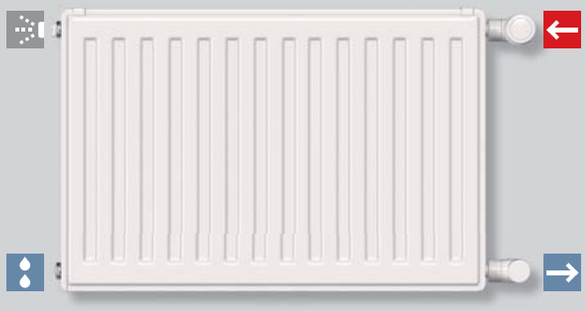
Overview of models



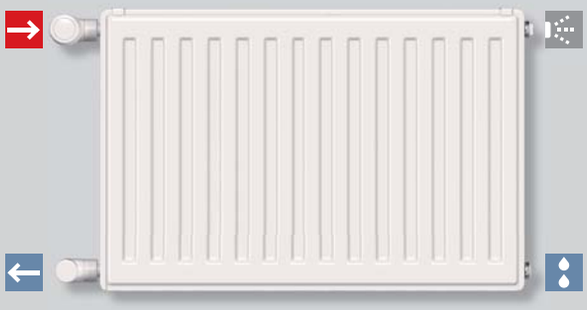
Type	21 K-S	22 K		33 K
Height [mm]	554	554	954	554
Length [mm]	600 up to 2000	600 up to 2000	400 up to 1600	600 up to 2000
Bossspacing [mm]	500	500	900	500
Steps	any overall length starting with 400 and 600 mm available in steps of 200 mm			

Connection modes - Double-pipe system

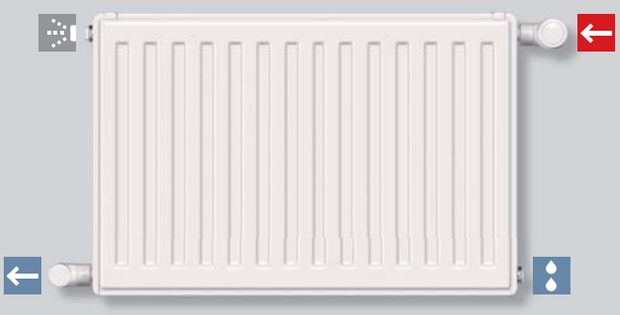
A: connection single-sided, on the right



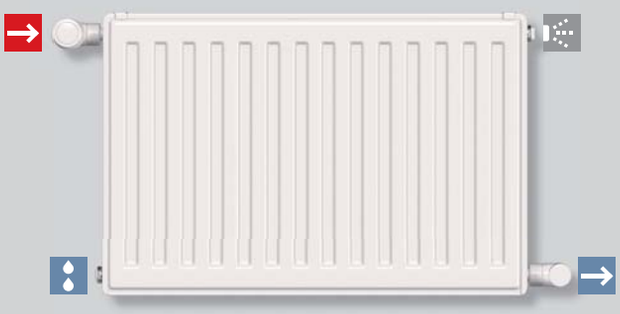
B: connection single-sided, on the left



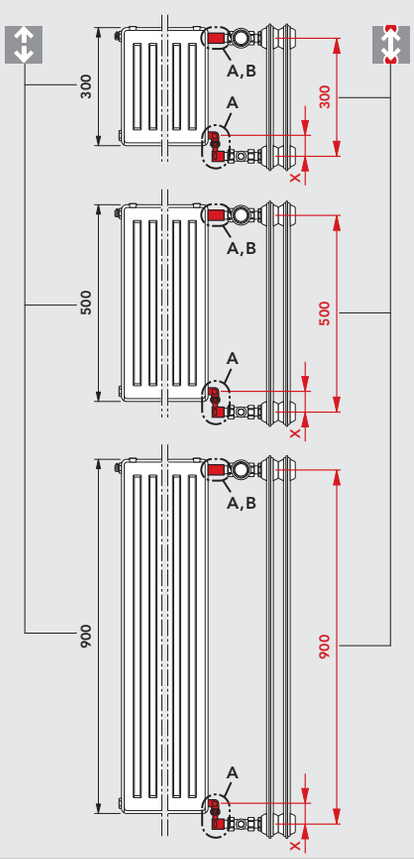
C: connection both-sides, on the right



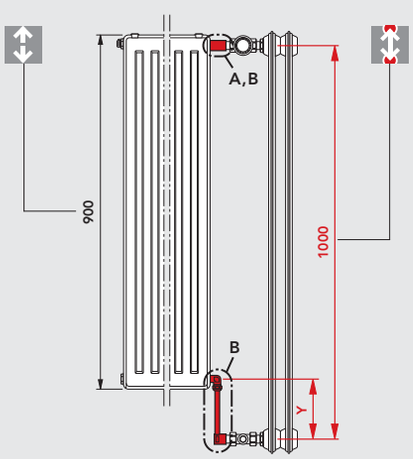
D: connection both-sides, on the left



Upgrade adapter - Examples of using upgrade adapters



Boss spacing 200, 300, 500, 600 and 900



Boss spacing 1000

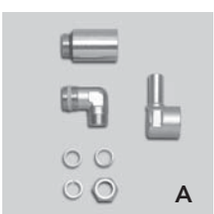
Non-standard distances are not at all a problem!

The upgrade adapter has been developed for non-standard boss spacing. Any distance problems are solved very easily by the use of this adapter.

Note:
The upgrade adapter comes with a fit-up aid, made of cardboard.

Upgrade adapter
to replace radiators with a boss spacing of 200, 300, 500, 600 or 900 mm.

Measure **X**:
From 45 mm up to 58 mm continuously adjustable.



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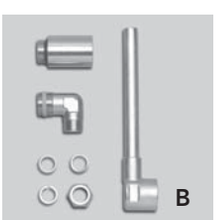
Upgrade adapter
to replace radiators with a boss spacing of 1000 mm.

Measure **Y**:
from 145 up to 158 mm continuously adjustable.



Artikel Nr.: AZ0MM100A0001000

By trimming the pipe by a maximum of 85 mm, the measure **Y** can be reduced (from 60 up to 73 mm).

Temperature pairings and weights

Weight in kg

Height [mm]		554			954
Length [mm]	Type	21 K-S	22 K	33 K	22 K
	Weight				
400	kg				20,91
600	kg	16,51	19,19	28,59	30,78
800	kg	21,63	25,22	37,61	40,65
1000	kg	26,82	31,34	46,77	50,60
1200	kg	31,94	37,36	55,79	60,47
1400	kg	37,13	43,48	64,95	70,42
1600	kg	42,25	49,51	73,98	
1800	kg	47,54	55,73	83,24	
2000	kg	52,67	61,76	92,26	

Type programme: UPGRADE 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.

Side panels and top cover of UPGRADE RADIATORS are taken into consideration in the performance data

Radiator power data in watts, in accordance with DIN EN 442

Temperature pairings		90/70/20° C*				75/65/20° C*				70/55/20° C*				55/45/20° C*				45/40/20° C*			
Height [mm]		554			954	554			954	554			954	554			954	554			954
Length [mm]	Type	21 K-S	22 K	33 K	22 K	21 K-S	22 K	33 K	22 K	21 K-S	22 K	33 K	22 K	21 K-S	22 K	33 K	22 K	21 K-S	22 K	33 K	22 K
	Power																				
400	Watt				1207				945				759				475				323
600	Watt	988	1245	1741	1811	777	976	1366	1417	627	785	1100	1139	396	493	692	713	271	336	472	484
800	Watt	1317	1660	2322	2415	1036	1301	1822	1890	836	1047	1467	1519	528	657	923	951	362	448	629	646
1000	Watt	1647	2075	2902	3018	1295	1626	2277	2362	1045	1309	1834	1898	660	822	1154	1188	452	559	787	807
1200	Watt	1976	2489	3483	3622	1554	1951	2732	2834	1254	1570	2201	2278	793	986	1384	1426	542	671	944	968
1400	Watt	2306	2904	4063	4226	1813	2276	3188	3307	1463	1832	2568	2658	925	1150	1615	1663	633	783	1101	1130
1600	Watt	2635	3319	4644		2072	2602	3643		1672	2094	2935		1057	1315	1846		723	895	1259	
1800	Watt	2964	3734	5224		2331	2927	4099		1881	2355	3301		1189	1479	2077		814	1007	1416	
2000	Watt	3294	4149	5805		2590	3252	4554		2091	2617	3668		1321	1643	2307		904	1119	1573	
Radiatorexponent n		1,318	1,336	1,331	1,345	1,318	1,336	1,331	1,345	1,318	1,336	1,331	1,345	1,318	1,336	1,331	1,345	1,318	1,336	1,331	1,345

Type programme: UPGRADE RADIATORS

* SUPPLY TEMPERATURE/RETURN TEMPERATURE/ROOM TEMPERATURE

The radiator models and dimensions that may be ordered are based on the production range set out in the price list.

VERTICAL RADIATOR

Connections
4 x G 1/2 I.G

Test positive pressure
13 bar

Max. positive operating pressure 10 bar

Max. operating temperature 110 °C

Material
VERTICAL RADIATORS are manufactured from cold-rolled sheet steel in line with EN 442-1 and have an elegant, stable profile with 40 mm beading.

Configuration
Each VERTICAL RADIATOR is equipped with suspension brackets welded onto the rear side. The 20 K radiator model is also supplied with two side grills.

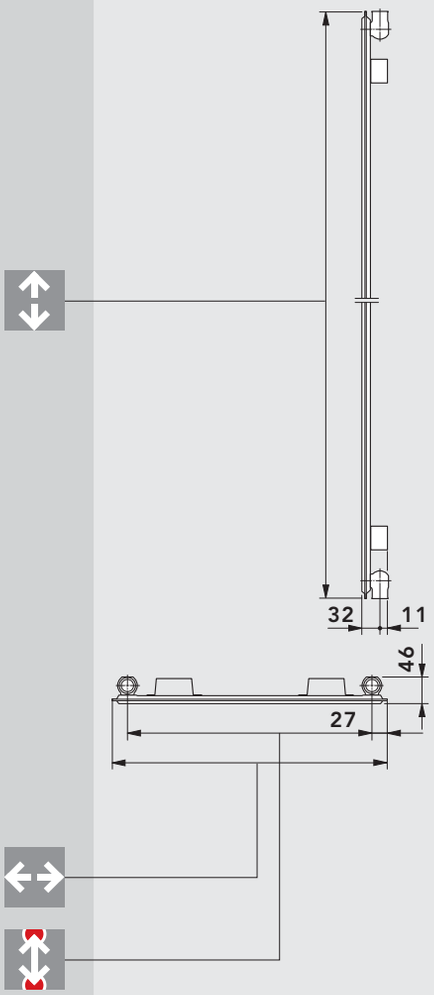
Coating
1. Primer in accordance with DIN 55900 part 1, fired at 190° C.
2. The top coat, in accordance with DIN 55900 part 2, in RAL 9016 (available in many RAL and sanitary colours on request, for a supplement), is applied electrostatically in a modern powder coating plant. The resistant coating, which is particularly important, is fired with the radiator at a temperature of 210° C.

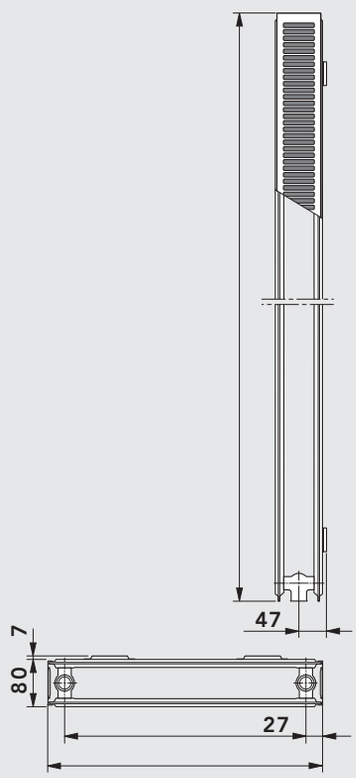
Packaging
1. Cardboard containers
2. Edge protection
3. Shrink wrap

Overview of models / illustration showing location for welding of suspended straps

Overview of models

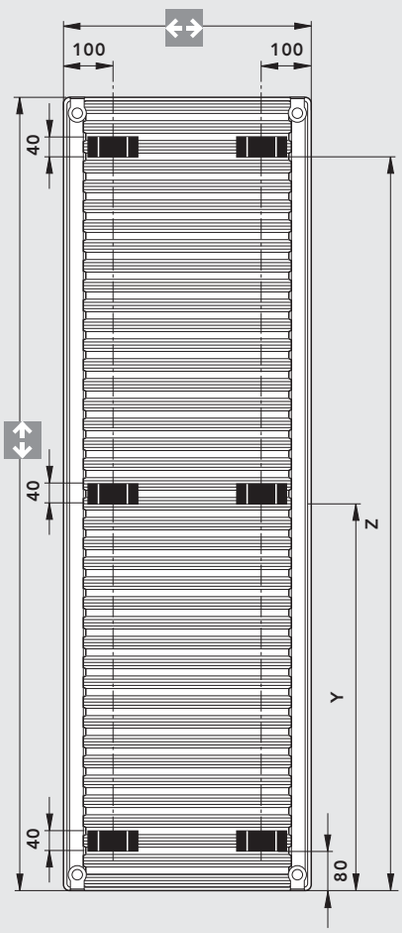
Type	10	20 K





Type	10					20 K				
Height [mm]	1800	2000	2200	2400	2600	1800	2000	2200	2400	2600
Length [mm]	500 und 600					500 und 600				
Hub spacing [mm]	446 und 546					446 und 546				
Gradation	All overall heights from 1800 mm in 200 m gradations									

Location of suspended straps



Dimension Y = $\frac{\text{Height}}{2}$ -20 mm

Dimension Z = Height -120 mm

Weights in kg for VERTICAL RADIATORS

Height [mm]		500		600	
Length [mm]	Type	10	20 K	10	20 K
	Weight				
1800	kg	18,60	36,31	21,69	42,77
2000	kg	20,50	40,22	23,93	47,39
2200	kg	22,41	44,11	26,18	52,01
2400	kg	24,32	48,01	28,43	56,64
2600	kg	26,22	51,91	30,67	61,26

Range of models: VERTICAL RADIATORS

The radiator models and dimensions that may be ordered are based on the production range set out in the price list.

The side grills (model 20 K) of the VERTICAL RADIATOR are taken into consideration in the output data

Output data in watts, in accordance with **DIN EN 442** and/or **ÖNORM EN 442**

Temperature matches		90/70/20° C*				75/65/20° C*				70/55/20° C*				55/45/20° C*				45/40/20° C*				Radiator exponent n	
Height [mm]		500		600		500		600		500		600		500		600		500		600			
Length [mm]	Type	10	20 K	10	20 K	10	20 K	10	20 K	10	20 K	10	20 K	10	20 K	10	20 K	10	20 K	10	20 K	10	20 K
	Output																						
1800	Watt	966	1601	1159	1921	751	1255	901	1506	599	1010	719	1212	370	634	444	761	248	432	298	518	1,385	1,336
2000	Watt	1083	1755	1299	2106	836	1373	1003	1648	663	1103	796	1324	404	690	485	828	269	468	322	562	1,421	1,347
2200	Watt	1201	1913	1441	2296	931	1492	1117	1790	741	1195	889	1434	455	743	546	892	304	502	365	602	1,400	1,365
2400	Watt	1333	2075	1600	2490	1037	1613	1244	1935	829	1288	995	1546	513	796	615	955	345	535	414	642	1,378	1,383
2600	Watt	1481	2241	1778	2689	1157	1735	1388	2082	927	1381	1113	1658	578	848	694	1017	391	566	469	679	1,358	1,403

Range of models: VERTICAL RADIATORS

* Flow temperature/return temperature/room temperature

The radiator models and dimensions that may be ordered are based on the production range set out in the price list.

T6-PLAN CENTRALLY CONNECTED RADIATOR

T6 Technology

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 PM	0680
Type 21 PM-S	0682
Type 22 PM	0683
Type 33 PM	0684

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

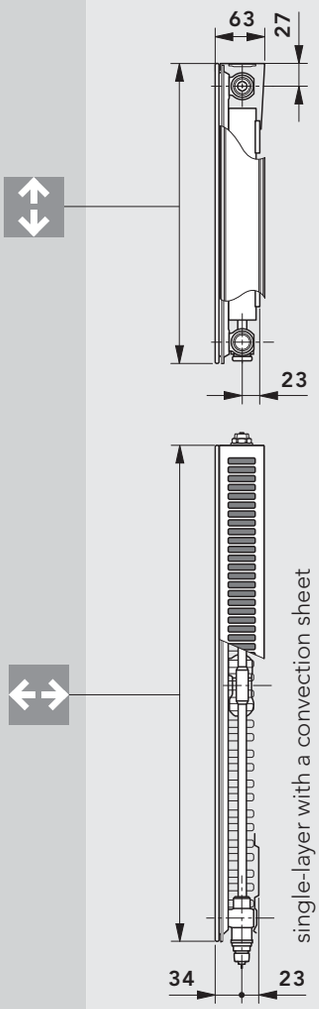
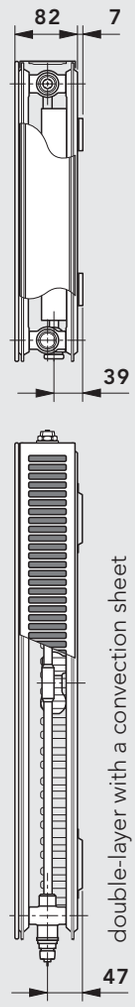
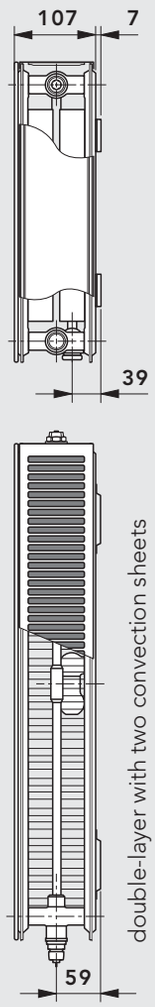
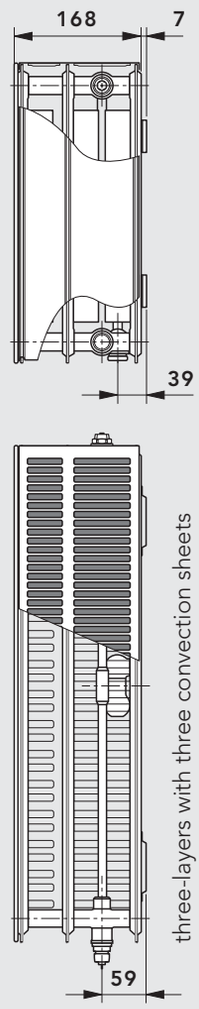
Material
T6-PLAN CENTRALLY CONNECTED RADIATORS are made of cold-rolled sheet steel, in accordance with EN 442-1, and a galvanised front panel (1mm thick).

Equipment
Each T6-PLAN 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

Overview of models

Type	11 PM	21 PM-S	22 PM	33 PM
				

Type	11 PM					21 PM-S					22 PM					33 PM				
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																			

Description and delivery equipment

The T6-PLAN Centrally connected radiator, with its welded-in set of T-shaped valves, sets new standards in the field of centre-connection technology. Beside its elegant appearance, the T6-PLAN Centrally connected radiator attracts attention because of its unique patented features, its all-purpose suitability and easy installation for the heating-installer, leaving aside a multitude of other striking advantages.
Consequently the T6-PLAN Centrally connected radiator truly serves to solve your problems.

To round off all the advantages mentioned above, the versatility of the T6-PLAN Centrally connected radiator regarding style and colouring offers a wide scope for design.

The T6-PLAN Centrally connected radiator radiator is - with its welded in set of T-shaped valves - suitable for double-pipe installations as well as single-pipe installations, using a one-pipe manifold.

Additionally to the central connection from the bottom, the sophisticated design makes possible other connections known from compact radiators, such as the single-sided and two-sided connection. **The radiator is delivered ready for double-pipe installation, 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 with a stepless - and therefore precise - 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 DT=T1-T2=20 K (at T1 = 90 °C) has to be taken into account.

Consequently the T6-PLAN Centrally connected radiator is revolutionary in the field of the new generation of centrally-connected radiator technology.

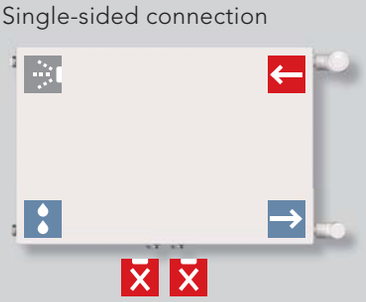
Thus the T6-PLAN Centrally connected radiator has to be regarded as groundbreaking for the new generation of centrally-connected radiators. With this type of radiator - with its ideal functioning of the whole radiator-valve unit, its superb heating output, combined with the motivation to install thermostat 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.

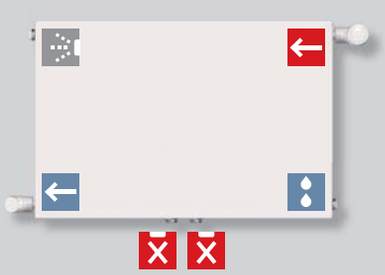
Therefore we recommend to use only flat sealed drain cocks, or drain cocks where an adjustment of tolerance of the distance to the centre is possible.

Connection modes - Double-pipe system

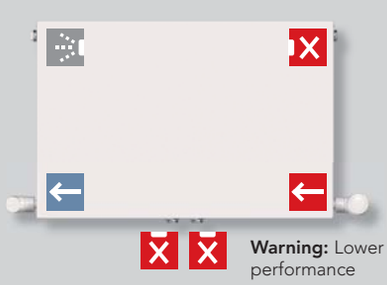
A: Single-sided connection



B: Connection both sides



C: Bottom connection



Caution: When using the T6-PLAN 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. Further information on double and single pipe operation you will find on page 17 - 18.

Temperature pairings 90/70/20° C and 75/65/20° C

90/70/20° C

Side panels and top cover of T6-PLAN Centrally connected radiators are taken into consideration in the performance data

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

Height [mm]		300				400				500				600				900			
Length [mm]	Type / Power	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM
400	Watt	270	399	544	796	336	503	681	994	398	595	774	1091	428	660	852	1233	611	901	1150	1612
520	Watt	352	518	707	1035	437	654	885	1293	518	773	1006	1419	556	858	1108	1603	794	1172	1495	2096
600	Watt	406	598	815	1194	504	755	1021	1492	598	892	1160	1637	642	990	1278	1850	916	1352	1725	2418
720	Watt	487	718	978	1433	605	906	1225	1790	717	1071	1392	1964	770	1188	1534	2220	1099	1622	2070	2902
800	Watt	541	798	1087	1592	672	1006	1362	1989	797	1190	1547	2182	856	1320	1704	2466	1222	1802	2300	3224
920	Watt	622	917	1250	1831	773	1157	1566	2287	916	1368	1779	2510	984	1518	1960	2836	1405	2073	2645	3708
1000	Watt	676	997	1359	1990	840	1258	1702	2486	996	1487	1934	2728	1070	1650	2130	3083	1527	2253	2875	4030
1120	Watt	757	1117	1522	2229	941	1409	1906	2784	1116	1665	2166	3055	1198	1848	2386	3453	1710	2523	3220	4514
1200	Watt	811	1196	1631	2388	1008	1510	2042	2983	1195	1784	2321	3274	1284	1980	2556	3700	1832	2704	3450	4836
1320	Watt	892	1316	1794	2627	1109	1661	2247	3282	1315	1963	2553	3601	1412	2178	2812	4070	2016	2974	3795	5320
1400	Watt	946	1396	1903	2786	1176	1761	2383	3480	1394	2082	2708	3819	1498	2310	2982	4316	2138	3154	4025	5642
1600	Watt	1082	1595	2174	3184	1344	2013	2723	3978	1594	2379	3094	4365	1712	2640	3408	4933	2443	3605	4600	6448
1800	Watt	1217	1795	2446	3582	1512	2264	3064	4475	1793	2677	3481	4910	1926	2970	3834	5549	2749	4055	5175	7254
2000	Watt	1352	1994	2718	3980	1680	2516	3404	4972	1992	2974	3868	5456	2140	3300	4260	6166	3054	4506	5750	
2200	Watt	1487	2193	2990	4378	1848	2768	3744	5469	2191	3271	4255	6002	2354	3630	4686	6783				
2400	Watt	1622	2393	3262	4776	2016	3019	4085		2390	3569	4642		2568	3960	5112					
2600	Watt			3533	5174			4425		2590	3866	5028		2782	4290	5538					
2800	Watt			3805	5572			4766			4164	5415			4620	5964					
3000	Watt			4077	5970			5106			4461	5802			4950	6390					
Radiatorexponent n		1,311	1,328	1,308	1,314	1,321	1,327	1,328	1,342	1,313	1,299	1,322	1,327	1,303	1,302	1,337	1,333	1,328	1,326	1,349	1,336

Type programme: T6-PLAN CENTRALLY CONNECTED 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.

75/65/20° C

Side panels and top cover of T6-PLAN Centrally connected radiators are taken into consideration in the performance data

Radiator power data in watts, in accordance with **DIN EN 442** supply temperature **75** - return temperature **65** - room temperature **20° C**

Height [mm]		300				400				500				600				900			
Length [mm]	Type / Power	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM
400	Watt	213	313	428	626	264	395	534	778	314	469	608	857	338	520	668	967	480	708	899	1264
520	Watt	277	407	557	814	343	514	695	1012	408	610	790	1114	439	677	868	1257	623	920	1169	1643
600	Watt	319	470	643	940	396	593	802	1168	470	704	912	1285	506	781	1001	1451	719	1061	1349	1895
720	Watt	383	564	771	1128	475	711	962	1401	564	845	1094	1542	608	937	1202	1741	863	1274	1619	2274
800	Watt	426	626	857	1253	528	790	1069	1557	627	938	1216	1714	675	1041	1335	1934	959	1415	1798	2527
920	Watt	489	720	985	1441	607	909	1229	1790	721	1079	1398	1971	776	1197	1535	2225	1103	1627	2068	2906
1000	Watt	532	783	1071	1566	660	988	1336	1946	784	1173	1520	2142	844	1301	1669	2418	1199	1769	2248	3159
1120	Watt	596	877	1200	1754	739	1107	1496	2180	878	1314	1702	2399	945	1457	1869	2708	1343	1981	2518	3538
1200	Watt	638	940	1285	1879	792	1186	1603	2335	941	1408	1824	2570	1013	1561	2003	2902	1439	2123	2698	3791
1320	Watt	702	1034	1414	2067	871	1304	1764	2569	1035	1548	2006	2827	1114	1717	2203	3192	1583	2335	2967	4170
1400	Watt	745	1096	1499	2192	924	1383	1870	2724	1098	1642	2128	2999	1182	1821	2337	3385	1679	2477	3147	4423
1600	Watt	851	1253	1714	2506	1056	1581	2138	3114	1254	1877	2432	3427	1350	2082	2670	3869	1918	2830	3597	5054
1800	Watt	958	1409	1928	2819	1188	1778	2405	3503	1411	2111	2736	3856	1519	2342	3004	4352	2158	3184	4046	5686
2000	Watt	1064	1566	2142	3132	1320	1976	2672	3892	1568	2346	3040	4284	1688	2602	3338	4836	2398	3538	4496	
2200	Watt	1170	1723	2356	3445	1452	2174	2939	4281	1725	2581	3344	4712	1857	2862	3672	5320				
2400	Watt	1277	1879	2570	3758	1584	2371	3206		1882	2815	3648		2026	3122	4006					
2600	Watt			2785	4072			3474		2038	3050	3952		2194	3383	4339					
2800	Watt			2999	4385			3741			3284	4256			3643	4673					
3000	Watt			3213	4698			4008			3519	4560			3903	5007					
Radiatorexponent n		1,311	1,328	1,308	1,314	1,321	1,327	1,328	1,342	1,313	1,299	1,322	1,327	1,303	1,302	1,337	1,333	1,328	1,326	1,349	1,336

Type programme: T6-PLAN CENTRALLY CONNECTED 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.

Temperature pairings 70/55/20° C and 55/45/20° C

70/55/20° C

Side panels and top cover of T6-PLAN Centrally connected radiators are taken into consideration in the performance data

Radiator power data in watts, in accordance with **DIN EN 442** supply temperature **70** - return temperature **55** - room temperature **20° C**

Height [mm]		300				400				500				600				900			
Length [mm]	Type / Power	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM
400	Watt	172	252	346	506	213	318	431	626	253	380	490	690	273	421	537	779	386	570	722	1017
520	Watt	224	328	450	658	277	414	560	814	329	494	638	898	355	548	698	1012	502	742	939	1322
600	Watt	258	379	520	759	319	478	646	939	380	570	736	1036	410	632	806	1168	580	856	1084	1525
720	Watt	310	454	624	911	383	573	775	1127	456	684	883	1243	492	758	967	1402	696	1027	1300	1830
800	Watt	344	505	693	1012	426	637	862	1252	506	760	981	1381	546	842	1074	1558	773	1141	1445	2034
920	Watt	396	581	797	1164	489	732	991	1440	582	874	1128	1588	628	969	1236	1791	889	1312	1662	2339
1000	Watt	430	631	866	1265	532	796	1077	1565	633	950	1226	1726	683	1053	1343	1947	966	1426	1806	2542
1120	Watt	482	707	970	1417	596	892	1206	1753	709	1064	1373	1933	765	1179	1504	2181	1082	1597	2023	2847
1200	Watt	516	757	1039	1518	638	955	1292	1878	760	1140	1471	2071	820	1264	1612	2336	1159	1711	2167	3050
1320	Watt	568	833	1143	1670	702	1051	1422	2066	836	1254	1618	2278	902	1390	1773	2570	1275	1882	2384	3355
1400	Watt	602	883	1212	1771	745	1114	1508	2191	886	1330	1716	2416	956	1474	1880	2726	1352	1996	2528	3559
1600	Watt	688	1010	1386	2024	851	1274	1723	2504	1013	1520	1962	2762	1093	1685	2149	3115	1546	2282	2890	4067
1800	Watt	774	1136	1559	2277	958	1433	1939	2817	1139	1710	2207	3107	1229	1895	2417	3505	1739	2567	3251	4576
2000	Watt	860	1262	1732	2530	1064	1592	2154	3130	1266	1900	2452	3452	1366	2106	2686	3894	1932	2852	3612	
2200	Watt	946	1388	1905	2783	1170	1751	2369	3443	1393	2090	2697	3797	1503	2317	2955	4283				
2400	Watt	1032	1514	2078	3036	1277	1910	2585		1519	2280	2942		1639	2527	3223					
2600	Watt			2252	3289			2800		1646	2470	3188		1776	2738	3492					
2800	Watt			2425	3542			3016			2660	3433			2948	3760					
3000	Watt			2598	3795			3231			2850	3678			3159	4029					
Radiatorexponent n		1,311	1,328	1,308	1,314	1,321	1,327	1,328	1,342	1,313	1,299	1,322	1,327	1,303	1,302	1,337	1,333	1,328	1,326	1,349	1,336

Type programme: T6-PLAN CENTRALLY CONNECTED 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.

55/45/20° C

Side panels and top cover of T6-PLAN Centrally connected radiators are taken into consideration in the performance data

Radiator power data in watts, in accordance with **DIN EN 442** supply temperature **55** - return temperature **45** - room temperature **20° C**

Height [mm]		300				400				500				600				900			
Length [mm]	Type / Power	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM
400	Watt	109	159	220	320	134	201	271	392	160	242	310	435	174	268	337	490	244	359	452	638
520	Watt	141	206	285	417	175	261	353	510	209	314	402	565	226	348	438	636	317	467	587	830
600	Watt	163	238	329	481	202	301	407	588	241	362	464	652	260	401	506	734	365	539	677	958
720	Watt	196	286	395	577	242	361	488	706	289	435	557	783	312	482	607	881	438	647	813	1149
800	Watt	218	318	439	641	269	402	542	784	321	483	619	870	347	535	674	979	487	718	903	1277
920	Watt	250	365	505	737	309	462	624	902	369	556	712	1000	399	615	776	1126	560	826	1039	1468
1000	Watt	272	397	549	801	336	502	678	980	401	604	774	1087	434	669	843	1224	609	898	1129	1596
1120	Watt	305	445	615	897	376	562	759	1098	449	676	867	1217	486	749	944	1371	682	1006	1264	1788
1200	Watt	326	476	659	961	403	602	814	1176	481	725	929	1304	521	803	1012	1469	731	1078	1355	1915
1320	Watt	359	524	725	1057	444	663	895	1294	529	797	1022	1435	573	883	1113	1616	804	1185	1490	2107
1400	Watt	381	556	769	1121	470	703	949	1372	561	846	1084	1522	608	937	1180	1714	853	1257	1581	2234
1600	Watt	435	635	878	1282	538	803	1085	1568	642	966	1238	1739	694	1070	1349	1958	974	1437	1806	2554
1800	Watt	490	715	988	1442	605	904	1220	1764	722	1087	1393	1957	781	1204	1517	2203	1096	1616	2032	2873
2000	Watt	544	794	1098	1602	672	1004	1356	1960	802	1208	1548	2174	868	1338	1686	2448	1218	1796	2258	
2200	Watt	598	873	1208	1762	739	1104	1492	2156	882	1329	1703	2391	955	1472	1855	2693				
2400	Watt	653	953	1318	1922	806	1205	1627		962	1450	1858		1042	1606	2023					
2600	Watt			1427	2083			1763		1043	1570	2012		1128	1739	2192					
2800	Watt			1537	2243			1898			1691	2167			1873	2360					
3000	Watt			1647	2403			2034			1812	2322			2007	2529					
Radiatorexponent n		1,311	1,328	1,308	1,314	1,321	1,327	1,328	1,342	1,313	1,299	1,322	1,327	1,303	1,302	1,337	1,333	1,328	1,326	1,349	1,336

Type programme: T6-PLAN CENTRALLY CONNECTED 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.

Temperature pairings 45/40/20° C and weights

45/40/20° C

Side panels and top cover of T6-PLAN Centrally connected radiators are taken into consideration in the performance data

Radiator power data in watts, in accordance with **DIN EN 442** supply temperature **45** - return temperature **40** - room temperature **20° C**

Height [mm]		300				400				500				600				900			
Length [mm]	Type / Power	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM
400	Watt	75	108	151	220	92	137	185	266	110	166	212	297	119	184	230	334	166	246	306	435
520	Watt	97	141	196	285	120	178	241	346	143	216	275	386	155	239	298	434	216	319	398	565
600	Watt	112	163	226	329	138	206	278	400	165	250	317	445	179	276	344	500	249	368	460	652
720	Watt	135	195	271	395	166	247	333	480	198	300	381	534	215	331	413	600	299	442	552	783
800	Watt	150	217	302	439	184	274	370	533	220	333	423	594	238	368	459	667	332	491	613	870
920	Watt	172	249	347	505	212	316	426	613	253	383	487	683	274	423	528	767	382	565	705	1000
1000	Watt	187	271	377	549	230	343	463	666	275	416	529	742	298	460	574	834	415	614	766	1087
1120	Watt	209	304	422	615	258	384	519	746	308	466	592	831	334	515	643	934	465	688	858	1217
1200	Watt	224	325	452	659	276	412	556	799	330	499	635	890	358	552	689	1001	498	737	919	1304
1320	Watt	247	358	498	725	304	453	611	879	363	549	698	979	393	607	758	1101	548	810	1011	1435
1400	Watt	262	379	528	769	322	480	648	932	385	582	741	1039	417	644	804	1168	581	860	1072	1522
1600	Watt	299	434	603	878	368	549	741	1066	440	666	846	1187	477	736	918	1334	664	982	1226	1739
1800	Watt	337	488	679	988	414	617	833	1199	495	749	952	1336	536	828	1033	1501	747	1105	1379	1957
2000	Watt	374	542	754	1098	460	686	926	1332	550	832	1058	1484	596	920	1148	1668	830	1228	1532	
2200	Watt	411	596	829	1208	506	755	1019	1465	605	915	1164	1632	656	1012	1263	1835				
2400	Watt	449	650	905	1318	552	823	1111		660	998	1270		715	1104	1378					
2600	Watt			980	1427			1204		715	1082	1375		775	1196	1492					
2800	Watt			1056	1537			1296			1165	1481			1288	1607					
3000	Watt			1131	1647			1389			1248	1587			1380	1722					
Radiatorexponent n		1,311	1,328	1,308	1,314	1,321	1,327	1,328	1,342	1,313	1,299	1,322	1,327	1,303	1,302	1,337	1,333	1,328	1,326	1,349	1,336

Type programme — T6-PLAN CENTRALLY CONNECTED 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-PLAN

Weight in kg of T6-PLAN CENTRALLY CONNECTED RADIATORs

Height [mm]		300				400				500				600				900			
Length [mm]	Type / Weight	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM	11 PM	21PM-S	22 PM	33 PM
400	kg	6,81	8,89	10,08	14,07	8,59	11,29	13,01	18,25	9,79	13,22	14,98	20,98	10,93	15,07	16,87	23,59	15,38	21,83	24,47	34,36
520	kg	8,28	11,01	12,56	17,62	10,58	14,14	16,40	23,10	12,10	16,61	18,92	26,60	13,56	18,99	21,33	29,94	19,31	27,72	31,20	43,93
600	kg	9,27	12,43	14,22	19,98	11,90	16,04	18,67	26,34	13,64	18,88	21,54	30,34	15,31	21,61	24,31	34,17	21,93	31,64	35,68	50,30
720	kg	10,75	14,55	16,71	23,53	13,88	18,89	22,06	31,20	15,95	22,28	25,49	35,96	17,93	25,53	28,77	40,52	25,86	37,53	42,40	59,87
800	kg	11,73	15,97	18,36	25,89	15,21	20,79	24,32	34,43	17,49	24,54	28,11	39,71	19,69	28,14	31,75	44,75	28,48	41,46	46,88	66,24
920	kg	13,20	18,16	20,93	29,57	17,19	23,70	27,80	39,42	19,80	28,00	32,14	45,46	22,31	32,12	36,30	51,23	32,40	47,41	53,69	75,94
1000	kg	14,19	19,57	22,59	31,94	18,51	25,60	30,06	42,66	21,34	30,27	34,77	49,21	24,06	34,74	39,28	55,47	35,03	51,34	58,17	82,32
1120	kg	15,66	21,69	25,07	35,49	20,50	28,45	33,46	47,52	23,66	33,66	38,71	54,83	26,69	38,66	43,74	61,81	38,95	57,23	64,90	91,89
1200	kg	16,65	23,11	26,73	37,85	21,82	30,35	35,72	50,75	25,20	35,93	41,33	58,57	28,44	41,27	46,72	66,04	41,57	61,16	69,38	98,27
1320	kg	18,37	25,23	29,21	41,40	24,11	33,20	39,11	55,61	27,81	39,32	45,27	64,19	31,37	45,19	51,18	72,39	45,81	67,04	76,10	107,83
1400	kg	19,36	26,71	30,95	43,90	25,43	35,17	41,46	58,98	29,35	41,65	47,99	68,07	33,12	47,87	54,24	76,76	48,43	71,04	80,67	114,34
1600	kg	21,82	30,25	35,09	49,81	28,74	39,92	47,12	67,08	33,20	47,32	54,56	77,44	37,50	54,40	61,68	87,34	54,97	80,85	91,87	130,29
1800	kg	24,28	33,96	39,42	55,96	32,05	44,84	52,97	75,41	37,06	53,15	61,32	87,04	41,88	61,10	69,31	98,15	61,52	90,84	103,27	146,47
2000	kg	26,74	37,50	43,56	61,87	35,35	49,59	58,62	83,50	40,91	58,81	67,88	96,41	46,26	67,64	76,75	108,73	68,07	100,65	114,47	
2200	kg	29,20	41,04	47,70	67,78	38,66	54,34	64,28	91,59	44,76	64,47	74,45	105,77	50,64	74,17	84,19	119,31				
2400	kg	32,16	44,58	51,84	73,69	42,58	59,09	69,93		49,22	70,13	81,02		55,62	80,70	91,63					
2600	kg			55,98	79,60			75,59		53,08	75,79	87,59		60,00	87,24	99,07					
2800	kg			60,12	85,51			81,25			81,45	94,16			93,77	106,51					
3000	kg			64,26	91,42			86,90			87,11	100,72			100,30	113,95					

Type programme — T6-PLAN CENTRALLY CONNECTED 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

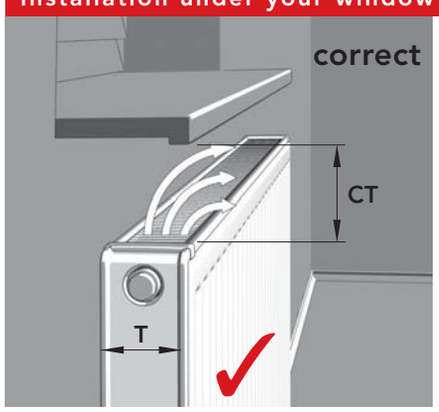
Flat radiators are triple-packed

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.

Installation of wrapped radiators, and run of a test heating up to t_1 40°C possible.

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

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

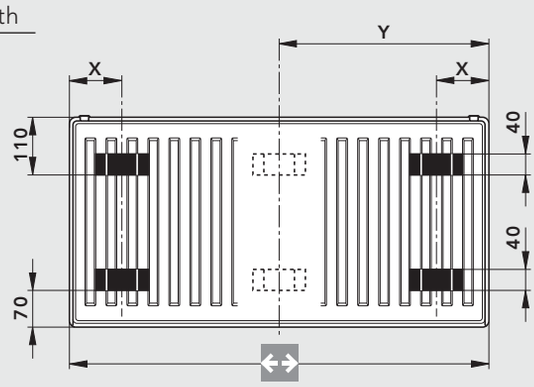
Overall height [mm]	300	400	500	554	600	900	954
Radiator type							
10, 11 K, 11 KV, 11 VM, 11 PM	2,0	2,6	3,3	-	3,7	5,1	-
21 K-S, 21 KV-S, 21 VM-S, 21 PM-S	3,9	5,0	6,1	6,7	7,1	10,2	-
22 K, 22 KV, 22 VM, 22 PM	3,9	5,0	6,1	6,7	7,1	10,2	11,3
33 K, 33 KV, 33 VM, 33 PM	6,0	7,6	9,4	10,2	10,8	15,6	-

Image of how the brackets are welded on flat radiator*

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

Measure Y = $\frac{\text{Overall length}}{2}$

for all radiators from an overall length of 1800 mm onwards.

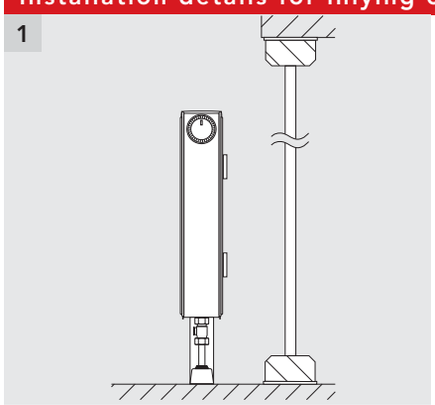


* VERTICAL RADIATORS excluded

PLAN RADIATED HEAT-REFLECTOR

Installation details for inlying consoles, for flat radiators with brackets

1



2

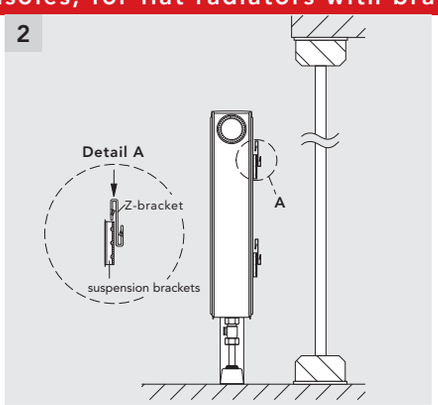
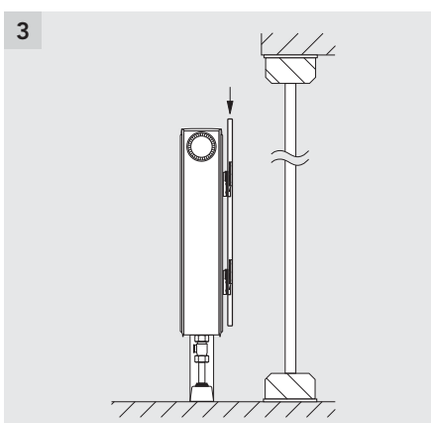


Image 1: Radiator with inlying stand consoles, in front of a transparent outside surface.

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.

3



4

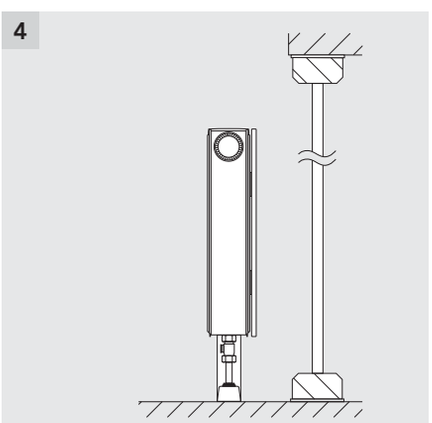


Image 3: Align PLAN RADIATED HEAT-REFLECTOR according to the radiator length; put it into position right over the Z-brackets and push it down.

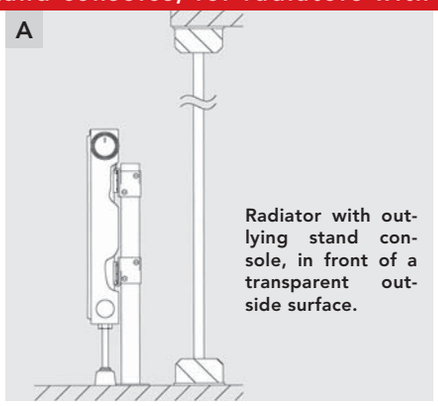
Image 4: Radiator with installed PLAN RADIATED HEAT-REFLECTOR.

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 **AZ0MS000F0001000** for fixation, including the necessary accessories for installing the PLAN RADIATED-HEAT REFLECTOR **(image B, detail A).**

A



Radiator with outlying stand console, in front of a transparent outside surface.

Symbol representations on radiators on 400 mm and more in length

B

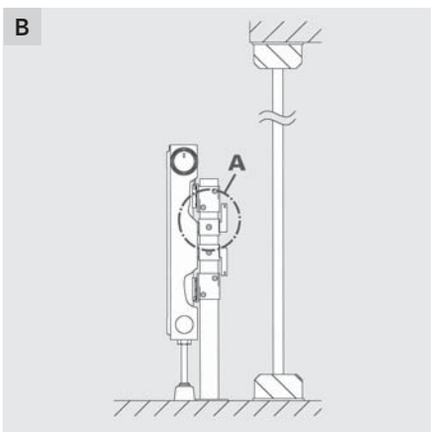
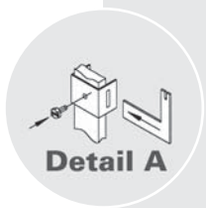


Image B:
Install U-shaped clamp (available as accessory) on the stand console, using the brackets.

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.



Symbol representations on all radiator heights

B

C

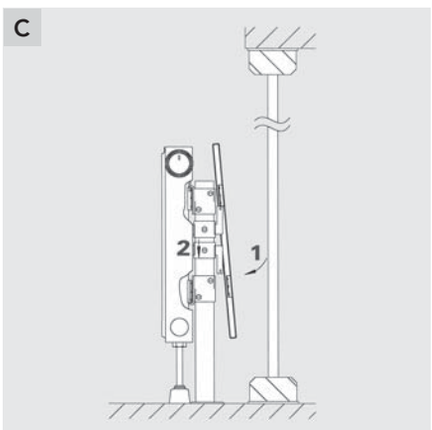
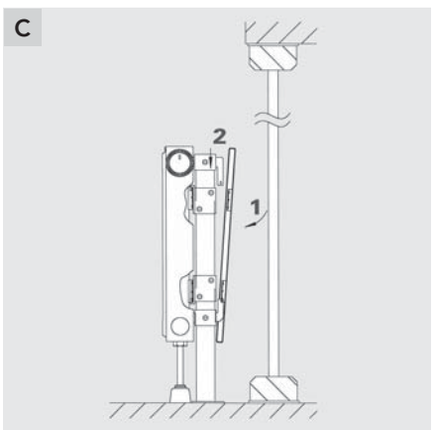


Image C:
Put the PLAN RADIATED HEAT-REFLECTOR into the fixing devices on top, aligning it up according to the radiator length. (Attention: The drill holes at the flat must face the ground). Make sure that the PLAN RADIATED HEAT-REFLECTOR is aligned in the height according to the top edge of the radiator.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

C



D

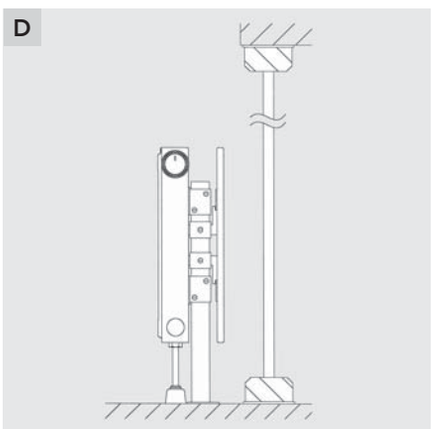
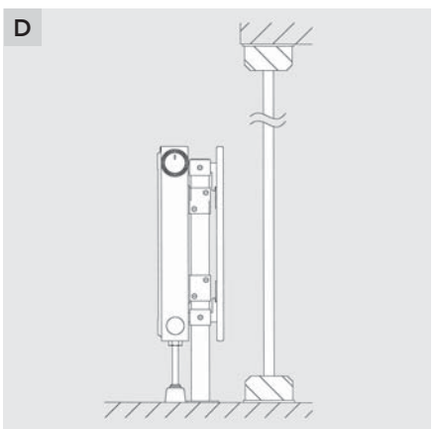
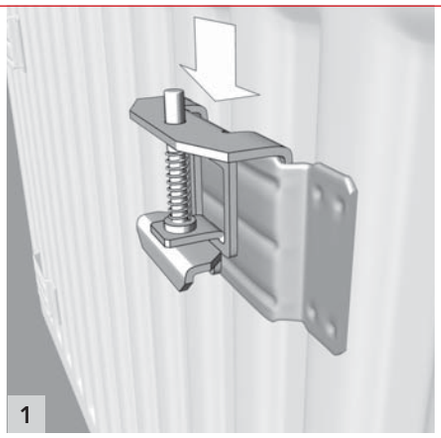


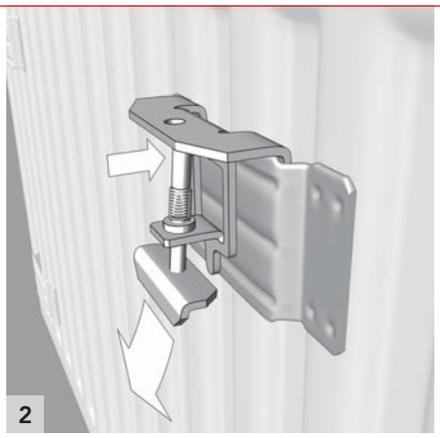
Image D:
Radiator with installed PLAN RADIATED HEAT REFLECTOR.

D



RAPID-INSTALLATION CONSOLE


1


2

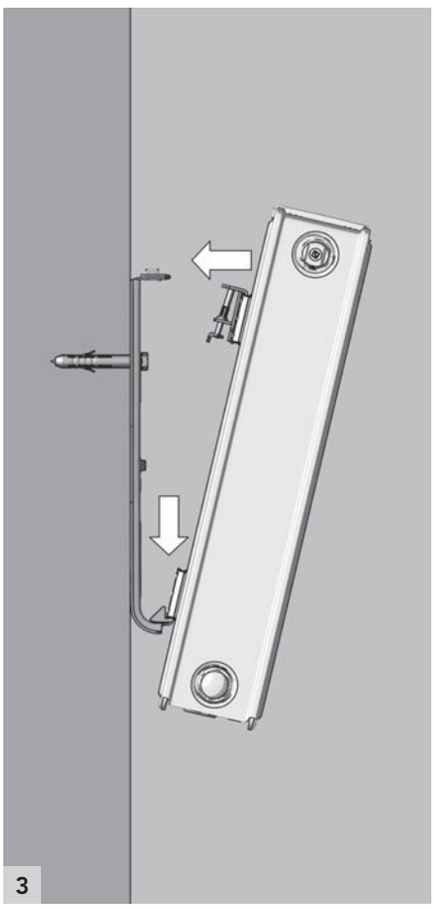
Snap-on device with integrated connection and displacement locking devices.

... the flexible RAPID-INSTALLATION CONSOLE, done by one man

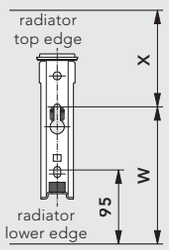
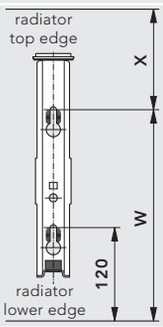
The RAPID-INSTALLATION CONSOLE (suitable for all radiators with wall brackets that are welded onto the back, except the UPGRADE RADIATORS and the VERTICAL RADIATORS) make possible a simple, fast and secure installation of the radiator, which is still wrapped. The console is suitable for all radiator types, no matter which overall height.

The fact that the RAPID INSTALLATION CONSOLE is equipped with integrated connection and displacement locking devices makes this product outstanding in terms of security. The installation of the T6-CENTRALLY CONNECTED RADIATORS and the T6-PLAN CENTRALLY CONNECTED RADIATORS with the RAPID INSTALLATION CONSOLES is even simpler by using the installation templates.

The RAPID-INSTALLATION SET consists of: 2 consoles with noise control, 2 snap-on devices, 2 mounting screws with dowels and snap rings


3

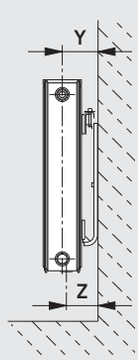
Drilling measurements for flat radiator

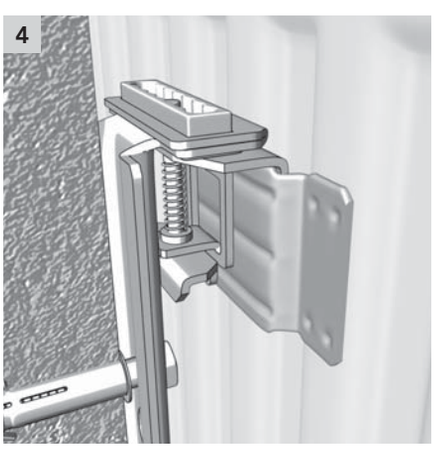
Wall rail for **OL 300**	Overall height [mm]	Measure **W** [mm]	Measure **X** [mm]	Wall rail for **OL 400 - 900**
	300	175	125	
	400	271		
	500	371	129	
	600	471		
	900	771		

The RAPID INSTALLATION CONSOLE complies(regarding the physical load) with the requirements of the TÜV Rheinland.

Connection - wall clearance

Radiator type	Overall height [mm]	Measure **Y** [mm]	Measure **Z** [mm] *
10	300 - 900	38	-
11 K, 11 KV, 11 VM, 11 PM	300 - 900	50	50 **
21 K-S, 21 KV-S, 21 VM-S, 21 PM-S	300 - 900	74	66
22 K, 22 KV, 22 VM, 22 PM	300 - 900	86	66
33 K, 33 KV, 33 VM, 33 PM	300 - 900	86	66

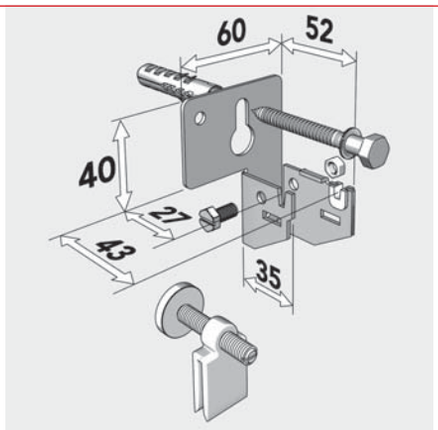



4

* Only applies to **T6-CENTRALLY CONNECTED RADIATORS**
** With a special angle-fishplate, a consistent wall distance of **66 mm** is possible also for type **11 VM.**

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).

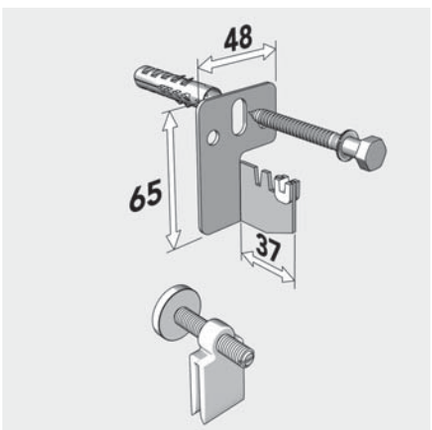
With 11 VM and 11 PM models, wall clearance can be adjusted for multi-layered T6 radiators, in cases where pre-assembly on the assembly bracket was multi-layered at the position.

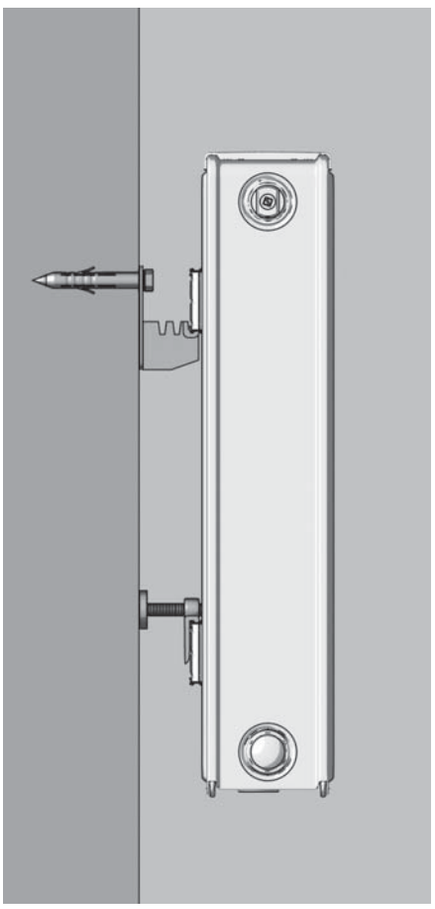
Wall clearance:
Between finished wall and T6 radiator mounting link = 27 mm to 43 mm

FASTENING SET ANGLE-FISHPLATE

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

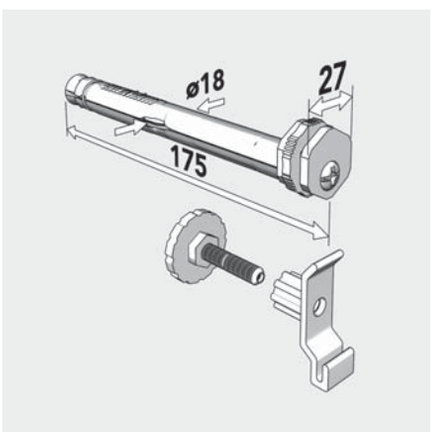
Wall clearance: between finished wall and radiator mounting link = 14, 24 to 34 mm





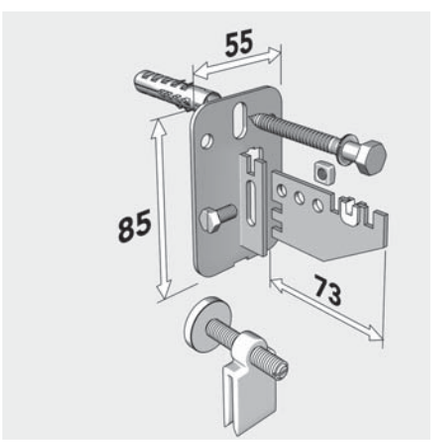
DRILL CONSOLE SET

length: 160 mm
consisting of:
2 drill consoles and
2 spacers



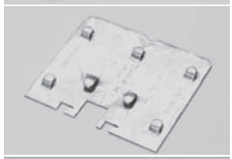
FASTENING SET FOR ALL-PURPOSE ANGLE-FISHPLATE

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

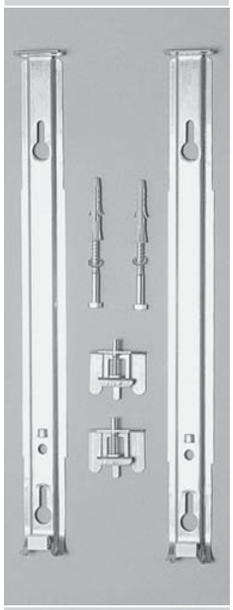
Installation template

Image	Order-number	Article description	COMPACT RADIATOR	T6-CENTRALLY CONNECTED RADIATOR	T6-PLAN CENTRALLY CONNECTED RADIATOR
	AZ0FT000B1001000	**Mounting bracket set external thread G 3/4" for installation on finished wall surfaces:** suitable for right-hand, left-hand and central connections, consisting of mounting bracket including connection bow, 2 hexagon head wood screws, 8 x 70-ST DIN 571 galvanised apiece, dowels 10 x 60, washers A 8, 4-ST DIN 125 galvanised, cap pieces G 1/2" - DIN ISO 228, adapter 1/2 - 3/4"		•	•
	AZ0FT000B0001000	**Mounting bracket set external thread G 3/4" for installation on unfinished wall surfaces:** consisting of mounting bracket including connection bow, 1 specially designed drill console, 2 cap pieces G 1/2" DIN ISO 228, apiece, adapter 1/2 - 3/4"		•	•
	AZ0MT00040001000	**Specially designed drill hole for mounting brackets for unfinished wall surfaces:** spare part		•	•
	AZ0MT000A0001000	**Adapter panel:** as a socket for the mounting rail; vertically for connection on the side or in the centre, in combination with the mounting bracket for unfinished wall surfaces.		•	•
	AZ0MT000C0001000	**Cap piece** G 1/2" DIN ISO 228 (spare part for mounting bracket set)		•	•
	AZ0MT000E3001000	**Flushing device:** without any small parts		•	•
	AZ0MT000E2001000	**Hollow hexagon wrench:** for flushing device		•	•
	AZ0MT000E1001000	**Setscrew:** for flushing device		•	•

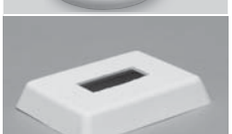
Installation template

Image	Order-number	Article description	COMPACT RADIATOR	T6-CENTRALLY CONNECTED RADIATOR	T6-PLAN CENTRALLY CONNECTED RADIATOR
	AZ0FT000R0001000	**Set of mounting rails**, hot-dip galvanised for centre connection consisting of: Horizontal mounting rail, overall length 400 – 2000 mm Vertical mounting rail, overall height 300 – 600 mm Vertical mounting rail, overall height 900 mm for Monclac, Vonomat and drill consoles		•	•
		Individual components in mounting rail set for centre connection, hot-dip galvanised			
	AZ0FT200R0H01000	Horizontal mounting rail, overall length 400 – 2000 mm		•	•
	AZ0FT060R0V01000	Vertical mounting rail, overall height 300 – 600 mm		•	•
	AZ0FT090R0V01000	Vertical mounting rail, overall height 900 mm		•	•
		**Individual components in mounting rail set** for centre connection, in conjunction with the special corner connecting plate **AZ0BU00012002000**			
	AZ0FT200R0H01000	Horizontal mounting rail, hot-dip galvanised overall length 400 – 2000 mm		•	•
	AZ0FT060R1V01000	Vertical mounting rail, yellow zinc plated overall height 300 – 600 mm		•	•
	AZ0FT090R1V01000	Vertical mounting rail, yellow zinc plated overall height 900 mm		•	•
	AZ0FT132R0H01000	**Riser assembly template** for VOGEL & NOOT T6 radiators overall length 400 – 1320 mm		•	•
	AZ0FT240R0H01000	**Extension spacer** overall length 1400 – 2400 mm for riser assembly template (Please note: packing unit 1 item)		•	•
	AZ0FT300R0H01000	**Extension spacer** overall length 1400 – 3000 mm for riser assembly template (Please note: packing unit 1 item)		•	•
	AZ0MT000M0001000	**Riser fastening clamp** (only in conjunction with our riser assembly template), necessary when more than 2 risers are required for each radiator (from overall length of 1800 mm) (Please note: packing unit 1 item)		•	•

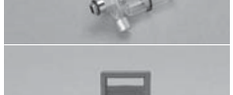
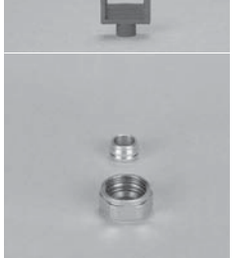
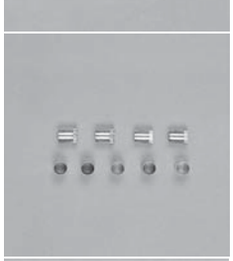
Wall fastening systems

Image	Order-number	Article description	COMPACT RADIATOR	T6-CENTRALLY CONNECTED RADIATOR	T6-PLAN CENTRALLY CONNECTED RADIATOR
		**Wall console:** consisting of 2 or 3* wall consoles (galvanised) with sound-absorbing filters and integrated connection and displacement locking device, 2 or 3* balancer holders, 2 or 3* serrated lock washers, screws and dowels, a shrink-wrapped assembly instruction.			
	AZ0BW030V0002000	wall console set 300 (set of 2)	•	•	•
	AZ0BW040V0002000	wall console set 400 (set of 2)	•	•	•
	AZ0BW050V0002000	wall console set 500 (set of 2)	•	•	•
	AZ0BW060V0002000	wall console set 600 (set of 2))	•	•	•
	AZ0BW090V0002000	wall console set 900 (set of 2) *set of 3: from OL 1800 mm onwards	•	•	•
	AZ0BW030V0003000	wall console set 300 (set of 3)	•	•	•
	AZ0BW040V0003000	wall console set 400 (set of 3)	•	•	•
	AZ0BW050V0003000	wall console set 500 (set of 3)	•	•	•
	AZ0BW060V0003000	wall console set 600 (set of 3)	•	•	•
	AZ0BW090V0003000	wall console set 900 (set of 3)	•	•	•
	AZ0BU00012002000	**Fastening set special angle-fishplate:** applicable for type and 11 PM to achieve a consistent wall clearance of 66 mm, for surface mounting, consisting of 2 angle-fishplates with sound-absorbing filter, 2 spacers, 2 hexagon head wood screws, and 2 dowels.		•	•
	AZ0BU00010002000	**Fastening set angle-fishplate:** for surface mounting, consisting of 2 angle-fishplates with sound-absorbing filter, 2 spacers, 2 hexagon head wood screws, and 2 dowels.	•	•	•
	AZ0BU00040002000	**Drill console set:** length: 160 mm, consisting of 2 drill consoles and 2 spacers	•	•	•
	AZ0BU00030002000	**Fastening set for all-purpose angle-fishplate:** (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.	•	•	•

Floor fastening systems

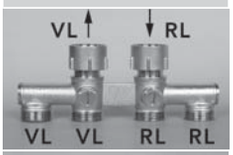
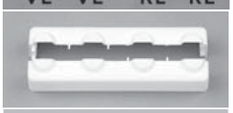
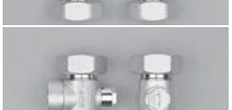
Image	Order-number	Article description	COMPACT RADIATOR	T6-CENTRALLY CONNECTED RADIATOR	T6-PLAN CENTRALLY CONNECTED RADIATOR
	AZ0BS000F0001000 AZ0BS000R0001000	**Stand console SK 20 (for finished floor):** **Stand console (for unfinished floor)** stand console for all single-layered and multilayered heating surfaces, with convector plate, for all heights up to 900 mm, soundproof, with integrated connection locking device.	• •	• •	• •
	AZ0MS000A0001000	**Extension adapter for SK20 unfinished floors** for special floor constructions Effective extension: 104 mm	•	•	•
	AZ0MS000C0001000	**Standpipe cladding:** for standpipe (subsequent installation possible)	•	•	•
	AZ0MS000C2001000	**covering surround ASK 11:** made of plastics	•	•	•
	AZ0MS000C1001000	**Covering surround made of plastic K14-2:** to cover up standpipe "35x15 mm"	•	•	•
	AZ0MS000F0001000	**Stand console SK 21:** stand console for all single-layered flat radiators, from an overall height of 900 mm onwards, and as fastening of outlying installation of stand console (for Plan radiated heat-reflector). The fastening set consists of 1 base plate and 2 clamps.	•	•	•
	AZ0MS000C5001000	**Cover for SK21 riser** suitable for retrofitting	•	•	•
	AZ0MS030P0001000 AZ0MS050P0001000 AZ0MS060P0001000 AZ0MS090P0001000	**Standpipe for installation in connection with stand console SK 21:** Overall height 300 Overall height 400 or 500 Overall height 600 Overall height 900	•	•	•
	AZ0BS000F1002000 AZ0BS000R1002000 AZ0BS000F2002000 AZ0BS000R2002000	**Riser set** (finished floor) **Riser set** (unfinished floor) for model 20 radiators, facing inwards **Riser set** (finished floor) **Riser set** (unfinished floor) for model 30 radiators, facing inwards	• • • •	• • • •	• • • •

For installation

Image	Order-number	Article description	COMPACT RADIATOR	T6-CENTRALLY CONNECTED RADIATOR	T6-PLAN CENTRALLY CONNECTED RADIATOR
	AZ0PL000C0002000	**Screw cap G 3/4** with 0-ring seal, nickel plated brass		•	•
	AZ0PL000B0001000	**Dummy plug G 1/2** with O-ring, nickel plated brass	•	•	•
	AZ0PL000V1001000	**Special vent plug G 1/2** pivotable, with O-ring, nickel plated brass		•	•
	AZ0PL000V0001000	**Vent plug G 1/2** pivotable, with O-ring, nickel plated brass	•		
	AZ0PL000R0001000	**Reducer G1/2 - G3/8** with O-ring, nickel plated brass	•	•	•
	AZ0PL000D0001000	**Drain plug G 1/2** (pressure tight), nickel plated brass with a cap made of plastic	•	•	•
	AZ0PL000D1001000	**Drain tube** suitable for drain plug Nr. FSW2020ZF	•	•	•
	AZ0MM000K0001000	**Drain device** made of plastic	•	•	•
	AZ0SC010C0002000 AZ0SC012C0002000 AZ0SC014C0002000 AZ0SC015C0002000 AZ0SC016C0002000 AZ0SC018C0002000	**Clamping screw** for Cu steel pipe - 10 mm for Cu steel pipe - 12 mm for Cu steel pipe - 14 mm for Cu steel pipe - 15 mm for Cu steel pipe - 16 mm for Cu steel pipe - 18 mm		• • • • • •	• • • • • •
	AZ0CB010C0002000 AZ0CB012C0002000 AZ0CB014C0002000 AZ0CB015C0002000 AZ0CB016C0002000 AZ0CB018C0002000	**Supporting collar** for Cu steel pipe - 10 mm for Cu steel pipe - 12 mm for Cu steel pipe - 14 mm for Cu steel pipe - 15 mm for Cu steel pipe - 16 mm for Cu steel pipe - 18 mm		• • • • • •	• • • • • •
	AZ0SC012P0002000 AZ0SC013P0002000 AZ0SC014P0002000 AZ0SC016P0002000 AZ0SC016P1002000 AZ0SC017P0002000 AZ0SC018P0002000 AZ0SC018P1002000 AZ0SC020P0002000 AZ0SC021P0002000 AZ0SC021P1002000	**Clamping screw** for plastic pipe 12x2 mm for plastic pipe 13x2,5 mm for plastic pipe 14x2 mm for plastic pipe 16x2 mm for plastic pipe 16x3 mm for plastic pipe 17x2 mm for plastic pipe 18x2 mm for plastic pipe 18x2,5 mm for plastic pipe 20x2 mm for plastic pipe 21x2 mm for plastic pipe 21x2,5 mm		• • • • • • • • • • •	• • • • • • • • • • •

Note: In double-pipe operation, valve radiators can also be connected by means of through shaped or angular shaped standard radiator bolting.

For installation

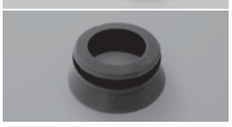
Image	Order-number	Article description	COMPACT RADIATOR	T6-CENTRALLY CONNECTED RADIATOR	T6-PLAN CENTRALLY CONNECTED RADIATOR
	AZ0FW00GG10010T0	**Four-way manifold,** with spacing 40-50-40 mm, nickel plated, (F...flow, R...return).		•	•
	AZ0MV000C0001000	**Ball valve cover** for 4-way connection		•	•
	FBROTHETWITE2GAR9016 FBROTHETWITE2GASCHRO	**TWINTEC control fittings – the intelligent connecting element between radiators and underfloor heating**  with cover in RAL 9016 traffic white with chrome cover		• •	• •
	FBROTHETWITECAA0	2 **adapter nipples** including 2 **flat gaskets** (in combination with TWINTEC control fittings)		•	•
	AZ0SB00GG00020T0	**Single ball valve,** internal thread G 3/4 . - external thread G 3/4 pressure tight), through-shaped, suitable for clip bolting.		•	•
	AZ0SB00GG00020A0	**Single ball valve,** internal thread G 3/4 . - external thread G 3/4 (pressure tight), angular-shaped, suitable for clip bolting.		•	•
	AZ0SB00VG00020T0	**Single ball valve,** internal thread G 3/4 - G 1/2 (pressure tight), through-shaped, suitable for 1/2" steel pipes.		•	•
	AZ0SB00VG00020A0	**Single ball valve,** internal thread G 3/4 - G 1/2 (pressure tight), angular shaped, suitable for 1/2" steel pipes.		•	•
	AZ0TP00GG00010T0	**Two-pipe cock piece,** internal thread G 3/4 - external thread G 3/4 (pressure tight), through-shaped, suitable for clip bolting.		•	•
	AZ0TP00GG00010A0	**Two-pipe cock piece,** internal thread G 3/4 - external thread G 3/4 (pressure tight), angular shaped,suitable for clip bolting.		•	•
	AZ0SP00GG00010T0	**Single-pipe manifold,** internal thread G 3/4 - external thread G 3/4 (pressure tight), through-shaped, suitable for clip bolting.		•	•
	AZ0SP00GG00010A0	**Single-pipe manifold,** internal thread G 3/4 - external thread G 3/4 (pressure tight), angular shaped, suitable for clip bolting.		•	•
	AZ0MV000C2001000 AZ0MV000C200100SCHRO	**Designer cover rosette** for twin-pipe valve block Shaped to fit corner, 50 mm centre distance white chrome		•	•
	AZ0MV000C2101000 AZ0MV000C210100SCHRO	**Designer cover rosette** for twin-pipe valve block Shaped to fit duct, 50 mm centre distance white chrome		•	•

Note**:** In double-pipe operation, valve radiators can also be connected by means of through-shaped or angular shaped standard radiator bolting.

Installation

Abbildung	Artikel-Nr.	Artikelbezeichnung	COMPACT RADIATOR	T6-CENTRALLY CONNECTED RADIATOR	T6-PLAN CENTRALLY CONNECTED RADIATOR
	AZ0CP00GG00010T0	**Cross piece,** internal thread G 3/4 - external thread G 3/4 possible to be closed, pipe distance 50 mm, suitable for inter-changed supply and return port.		•	•
	AZ1-D9VN-KRST001	**Cross piece,** internal thread G 3/4 - external thread G 3/4 angular shaped, possible to be closed, pipe distance 50 mm, suitable for inter-changed supply and return port.		•	•
	AZ0MV000E0001000	**Replacement adaptor** 1/2" I.G. + A.G. to balance out different radiator separation distances, extendable, average separation distance 35 - 70 mm		•	•
	AZ0MM100A0001000	**Upgrade adapter,** as replacement for radiators with a hub distance of 1000 mm; for range of adjustment, see page 37.	•	•	•
	AZ0MM090A0001000	**Upgrade adapter,** as replacement for radiators with a hub distance of 200, 300, 500 or 900 mm; for range of adjustment, see page 37.	•	•	•
	AZ0MV000A1002000	**Adapter piece** G 1/2 A.G. – G 3/4 A.G. (self-sealing) for direct connection of copper pipes, precision steel pipes and plastic pipes			
	AZ0MV000A0002000	**Adapter piece** G 1/2 A.G. – G 1/2 I.G. (self-sealing) for direct connection of ½" steel pipes			
	AZ0MV000C1001000	**Cover rosette** Two-part wall rosette for pipes with diameter from 10 – 22 mm white - pipe separation distance 50 mm		•	•
	AZ0MV000C1101000	**Flat cover rosette** Two-part wall rosette for pipes with diameter from 10 – 22 mm white - pipe separation distance 50 mm		•	•

For installation

Image	Order-number	Article description	COMPACT RADIATOR	T6-CENTRALLY CONNECTED RADIATOR	T6-PLAN CENTRALLY CONNECTED RADIATOR
	AZ0HE000H1001000	**Manual control port,** with default setting		•	•
	AZ1HE000T0001000	**Danfoss RAS-D thermostat head** RAL 9016 traffic white		•	•
	AZ1HE000T000100SCHRO	**Danfoss RAS-D thermostat head** Chrome		•	•
	AZ0MV000K0001000	**Plastic conical component** for flat-sealing shut-off screw joints in conjunction with Eurokonus G 3/4 A.G.		•	•

For valve radiators with k_v element

Image	Order-number	Article description	COMPACT RADIATOR	T6-CENTRALLY CONNECTED RADIATOR	T6-PLAN CENTRALLY CONNECTED RADIATOR
	AZ0VE00AD0001000 AZ0VE00AD1001000	**Valve elements - series 3 (fixing thread G 1/2)** Danfoss / type 013G0360 for standard volume flow Danfoss / type 013G0361 for small volume flow, (district heating - with a big difference between water supply and return temperature).		• •	• •

Plan radiated heat-reflectors

Image	Order-number	Article description	COMPACT RADIATOR	T6-CENTRALLY CONNECTED RADIATOR	T6-PLAN CENTRALLY CONNECTED RADIATOR
	AZ0MS000S0002000	**Installation accessories for Plan radiated heat-reflectors with outlying stand console** The parts for fixation are: 2 pieces of U-shaped stirrups and 2 pieces of right-angle brackets. Fixing accessory: U-shaped stirrup with mounting bolt Fixing accessory: right-angle bracket	•	•	•
	AZ0MS000S3004000	**Installation accessories for Plan radiated heat-reflector with inlying stand console** The parts for fixation are: 4 pieces of connections and 4 pieces of Z-brackets; only suitable for type 11, compact design**.**	•	•	•

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 performance data and the specification of the conversion factor, a slight performance variation from the calculated value is possible.

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

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

Φ_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 temperatur °C	return temperatur °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
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 Watt x 2,50 = 2500 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.

Φ = Radiator power [W]
Φ_S = Standard radiator power in accordance with EN 442 [W]
ΔT = Arithmetic radiator excess temperature [K]
ΔT_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.

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

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

Use our radiator power calculator on www.vogelundnoot.com

Item	Number	Descriptions

T6-CENTRALLY CONNECTED RADIATOR

Material & Surface
Made of cold-rolled sheet steel, in accordance with EN 442-1; , with a stylish and robust fluting with ribs at 40 mm intervals; undercoating in accordance with DIN 55900 part 1, stoved at 190° C; finished with electrostatic powder coating, in accordance with DIN 55900 part 2, in standard colour 9016; stoved at an object temperature of 210° C.

Equipment
Fitted with an integrated T-valve set; designed for double-pipe and single-pipe systems with a single-pipe manifold; factory-installed built-in valve with pre-set k_v-value adjusted to heat output; if needed, adjustable in the range 0.13 to 0.72. With single-pipe systems, the radiator proportion can be set from 30% to 50%. All models are fitted with a protective cap for the built-in valve, welded suspension brackets on the back, a removable top cover and two closed side panels, a drain plug, a pivoting special vent plug and a dummy plug, all of them sealed; the cover system complies with the former BAGUV regulations.

Assembly
Complete pre-installation fitting is possible using the fitting templates (external thread 3⁄4"); flush and hydrostatic test using the flush device (accessory); also suitable for connection as a compact radiator (one-sided or two-sided); standardised wall clearance for all multi-layer radiators (with a special angle-fishplate also for single-layer radiators); disassembling and assembling of the top cover by means of decor-clips. Verification of heat emission in accordance with EN 442; constant monitoring of production process in accordance with EN-ISO 9001; triple-packed (cardboard packaging, edge protection, shrink foil). Suitable for manual operation as well as thermostat operation. Connection possibilities for copper, steel, plastics or alloy pipes.

Connection
4 x internal thread G 1⁄2" and 2 x external thread G 3⁄4" , at bottom centre. Thermostatic valve (factory-sealed at top right) subsequently convertible to the left, without having to turn the radiator and without crossing supply and return.

MULTIFUNCTIONAL VALVE RADIATOR with brackets

Material & Surface
Made of cold-rolled sheet steel, in accordance with EN 442-1; a robust and stylish fluting with ribs at 40 mm intervals; undercoating in accordance with DIN 55900 part 1, stoved at 190° C; the finish is an electrostatic powder coating, in accordance with DIN 55900 part 2, in standard colour 9016; stoving at an object temperature of 210° C.

Equipment
Fitted with an integrated valve set; designed for double-pipe and single-pipe systems with a single-pipe manifold; factory-installed built-in valve with pre-set kv-value adjusted to heat output; if needed, adjustable in the range 0.13 to 0.75. With single-pipe systems, the radiator proportion can be set from 30% to 50%. All models are fitted with a protective cap for the built-in valve, welded suspension brackets on the back, a removable top cover and two closed side panels, a drain plug, a pivoting vent plug and a dummy plug, all of them sealed; the cover system complies with the former BAGUV regulations.

Assembly
Pre-installation fitting is possible, using the fitting template - 3/4" (accessory), disassembling and assembling of the top cover by means of decor-clips (in standard colour 9016); quality and performance verification in accordance with EN 442; permanent monitoring of production process in accordance with EN-ISO 9001; triple-packed (cardboard packaging, edge protection, shrink foil); suitable for manual or thermostatic control; connection of pipes made of copper, steel, plastic or alloy is possible.

Connection
4 x internal thread G 1/2" and 2 x external thread G 3/4" , bottom right (at special order at bottom left)

Type:	Wattage:
Overall height:	Number of items:
Overall length:	

Item	Number	Descriptions

COMPACT FLAT RADIATOR

Material & Surface
Made of cold-rolled sheet steel, in accordance with EN 442-1; a robust and stylish fluting, with ribs at 40 mm intervals; undercoating in accordance with DIN 55900 part 1, stoved at 190° C; finished with an electrostatic powder coating, in accordance with DIN 55900 part 2, in standard colour 9016; stoved at an object temperature of 210° C.

Equipment
Equipped with wall brackets that are welded onto the back, and with a detachable top cover and two closed side panels (types 11 K, 21 K-S, 22 K and 33 K); the covering is in accordance with the former BAGUV regulations.

Assembly
Disassembling and assembling of the top cover by means of decor-clips (in standard colour 9016); performance verification in accordance with EN 442; constant monitoring of production processes in accordance with EN-ISO 9001; triple-packed (cardboard packaging, edge protection, shrink foil).

Connection
4 x internal thread G 1/2"

HYGIENE COMPACT RADIATOR

Material & Surface
Made of cold-rolled sheet steel, in accordance with EN 442-1; a robust and stylish fluting, with ribs at 40 mm intervals; undercoating in accordance with DIN 55900 part 1, stoved at 190° C; finished with an electrostatic powder coating, in accordance with DIN 55900 part 2, in standard colour 9016; stoved at an object temperature of 210° C.

Equipment
Equipped with wall brackets that are welded onto the back, performance verification in accordance with EN 442; constant monitoring of production processes in accordance with EN-ISO 9001; triple-packed (cardboard packaging, edge protection, shrink foil).

Connection
4 x internal thread G 1/2"

T6-HYGIENE CENTRE-CONNECTION RADIATOR

Material & Surface
Made of cold-rolled sheet steel, in accordance with EN 442-1; , with a stylish and robust fluting with ribs at 40 mm intervals; undercoating in accordance with DIN 55900 part 1, stoved at 190° C; finished with electrostatic powder coating, in accordance with DIN 55900 part 2, in standard colour 9016; stoved at an object temperature of 210° C.

Equipment
Fitted with an integrated T-valve set; designed for double-pipe and single-pipe systems with a single-pipe manifold; factory-installed built-in valve with pre-set k_v-value adjusted to heat output; if needed, adjustable in the range 0.13 to 0.72. With single-pipe systems, the radiator proportion can be set from 30% to 50%. All models are fitted with a protective cap for the built-in valve, welded suspension brackets on the back, a drain plug, a pivoting special vent plug and a dummy plug, all of them sealed.

Assembly
Complete pre-installation fitting is possible using the fitting templates (external thread 3/4"); flush and hydrostatic test using the flush device (accessory); also suitable for connection as a compact radiator (one-sided or two-sided); standardised wall clearance for all multi-layer radiators (with a special angle-fishplate also for single-layer radiators). Verification of heat emission in accordance with EN 442; constant monitoring of production process in accordance with EN-ISO 9001; triple-packed (cardboard packaging, edge protection, shrink foil). Suitable for manual operation as well as thermostat operation. Connection possibilities for copper, steel, plastics or alloy pipes.

Connection
4 x internal thread G 1/2" and 2 x external thread G 3/4" , at bottom centre. Thermostatic valve (factory-sealed at top right) subsequently convertible to the left, without having to turn the radiator and without crossing supply and return.

Type:	Wattage:
Overall height:	Number of items:
Overall length:	

Item	Number	Descriptions

UPGRADE RADIATOR

Material & Surface
Made of cold-rolled sheet steel, in accordance with EN 442-1, with a stylish and robust fluting with ribs at 40 mm intervals; undercoating in accordance with DIN 55900 part 1, stoved at 190° C; finished with an electrostatic powder coating, in accordance with DIN 55900 part 2, in standard colour 9016; stoved at an object temperature of 210° C.

Equipment
Equipped with wall brackets that are welded onto the back, and with a detachable top cover and two closed side panels (for types 21 K-S, 22 K and 33 K); the covering complies with the former BAGUV regulations.

Assembly
Disassembling and assembling of the top cover by means of decor-clips (in standard colour 9016); verification of heat emission in accordance with EN 442; permanent monitoring of production process in accordance with EN-ISO 9001; a fit-up aid, made of cardboard, is added; triple-packed (cardboard packaging, edge protection, shrink foil).

Connection
4 x internal thread G 1⁄2"

VERTICAL RADIATOR

Material & Surface
Made of cold-rolled sheet steel, in accordance with EN 442-1, with a stylish and robust fluting with ribs at 40 mm intervals; undercoating in accordance with DIN 55900 part 1, stoved at 190° C; finished with an electrostatic powder coating, in accordance with DIN 55900 part 2, in standard colour 9016; stoved at an object temperature of 210° C.

Equipment
Equipped with wall brackets that are welded onto the back and two side grilles (20 K), performance verification in accordance with EN 442; constant monitoring of production processes in accordance with EN-ISO 9001; triple-packed (cardboard packaging, edge protection, shrink foil).

C**onnection**
4 x internal thread G 1⁄2"

T6-PLAN CENTRALLY CONNECTED RADIATOR

Material & Surface
Made of cold-rolled sheet steel, in accordance with EN 442-1; galvanised front panel (1mm thick); undercoating in accordance with DIN 55900 part 1, stoved at 190° C; fini-shed with electrostatic powder coating, in accordance with DIN 55900 part 2, in standard colour 9016; stoved at an object temperature of 210° C.

Equipment
Fitted with an integrated T-valve set; designed for double-pipe and single-pipe systems with a single-pipe manifold; factory-installed built-in valve with pre-set kv-value adjusted to heat output; if needed, adjustable in the range 0.13 to 0.72. With single-pipe systems, the radiator proportion can be set from 30% to 50%. All models are fitted with a protective cap for the built-in valve, welded suspension brackets on the back, a removable top cover and two closed side panels, a drain plug, a pivoting special vent plug and a dummy plug, all of them sealed; the cover system complies with the former BAGUV regulations.

Assembly
Complete pre-installation fitting is possible using the fitting templates (external thread 3/4"); flush and hydrostatic test using the flush device (accessory); also suitable for connection as a compact radiator (one-sided or two-sided); standardised wall clearance for all multi-layer radiators (with a special angle-fishplate also for single-layer radiators). Verification of heat emission in accordance with EN 442 ; constant monitoring of production process in accordance with EN-ISO 9001; triple-packed (cardboard packaging, edge protection, shrink foil); suitable for manual operation as well as thermostat operation. Connection possibilities for copper, steel, plastic or alloy pipes.

Connection
4 x internal thread G 1/2" and 2 x external thread G 3/4", at bottom centre. Thermostatic valve (factory-sealed at top right) subsequently convertible to the left, without having to turn the radiator and without crossing of supply and return

Type:	Wattage:
Overall height:	Number of items:
Overall length:	

SANITARY COLOURS.

Aegean S0083	Capri S0163	Greenwich S0100	Calypso S0095	Edelweiss S0085	Alba S0153	Pergamon S0091	Jasmine S0075	Natura S0094
Anemone S0084	Bahama beige S0087	Banana S0164	Flannel S0093	Manhattan S0088	Chincilla S0096	Magnolia S0077	Stella S0097	Sunset S0156
Crocus S0110	Key West S0101	Aloa S0092						

RAL COLOURS.

Beige RAL 1001	Golden yellow RAL 1004	Oyster white RAL 1013	Light ivory RAL 1015	Traffic yellow RAL 1023	Pastel yellow RAL 1034	Flame red RAL 3000	Ruby red RAL 3003	Wine red RAL 3005
Black red RAL 3007	Beige red RAL 3012	Raspberry red RAL 3027	Purple violet RAL 4007	Ultramarine blue RAL 5002	Sapphire blue RAL 5003	Signal blue RAL 5005	Steel blue RAL 5011	Pigeon blue RAL 5014
Distant blue RAL 5023	Pastel blue RAL 5024	Moss green RAL 6005	Pastel green RAL 6019	Mint green RAL 6029	Silver grey RAL 7001	Slate grey RAL 7015	Anthracite grey RAL 7016	Graphite grey RAL 7024
Stone grey RAL 7030	Light grey RAL 7035	Dusty grey RAL 7037	Window grey RAL 7040	Telegrey RAL 7047	Chocolate brown RAL 8017	Cream RAL 9001	Grey white RAL 9002	Pure white RAL 9010
Traffic white RAL 9016	Jet black RAL 9005	Traffic black RAL 9017	Cocoa RAL 050 40 20	Terracotta RAL 050 60 30	Cappuccino RAL 060 60 20			

METALLIC COLOURS.

Pearl night blue RAL 5026	Pearl opal green RAL 6036	Pearl light grey RAL 9022	Pearl beige RAL 1035	Pearl gold RAL 1036	Pearl orange RAL 2013	Grey aluminium RAL 9007	White aluminium RAL 9006	Stainless steel look S0112

Additional charge for colours (except RAL 9016)**:**
Standard colours: + 30%
Sanitary-ware colours: + 30%
Metallic colours: + 30%

The colours shown here are not binding. Chromatic aberrations are possible due to typographic reasons. Additional colours are available on request!

Technical information subject to change.

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