Ventil Compact Height 200 mm
1.10.2007

PURMO

General

The PURMO radiators are produced from high-quality material and components. The Ventil Compact radiator has a concealed pipework.

Excellent energy result

The modern radiators demand remarkable low water content to ensure controllable heat-up and high output. The small amount of water combined with the large convector plate radiates heat to an economical energy level.

Heating network

PURMO radiators are to be used on indirect or closed heating systems, where the free access of oxygen is prevented. A compact, well planned and constructed system saves energy and components making up the system. Draining in the system requires more fresh water, which result in rust on the inside of the steel surface. Due to this it is not advisable to empty the heating system for the summer. The water temperature should be between 0 to 110°C, the pH value between 7 and 9 and the maximum volume of oxygen 0,1 mg/kg.

Pressure endurance

The working pressure of PURMO radiators is 10 bar. It must not be exceeded when planning the heating system. In heating systems of high buildings one also has to remember the dynamic, additional pressure given by the pump device, beside the normal hydrostatic pressure. All PURMO radiators are test pressured in the production.

Mounting

Current directives and generally accepted practices must befollowed when the radiator is mounted. It is not recommended to remove the plastic cover until all the construction work is completed and the building is ready to handover. The wall material must always be checked out, before the brackets are mounted, so that a stable fitting can be reached considering the weight and use of the radiator. The PURMO Monclac bracket can be used on most wall types. The radiator can be mounted with a floor fixing bracket also.

Application environment

PURMO radiators are intended for heating normal rooms. In case they are mounted in wet situations, the mounting must always be on dry walls and not directly under a shower or similar item.

Guarantee

Each PURMO radiator is guaranteed for 10 years from the date of installation against defects caused by faulty materials or manufacture. We replace the defective product with a similiar or technically corresponding radiator.

The guarantee does not cover damages that are due to faulty storage and handling at delivery or installation, nor damages that are due to faulty use of the radiator, such as inside and outside rust, use of corrosive substances, too high pressure or damage due to freezing.

The guarantee does not cover incidental damages caused by the PURMO product, costs for change of product, production loss of the customer, unreceived profit or other indirect costs.

In case of a guarantee claim the buyer must contact the seller and present some kind of evidence of purchase of the product, for example, order confirmation, delivery note or identification number of the radiator. The defective product always has to be sent back to Rettig Värme Ab for inspection within one month from the day of complaint, if not otherwise agreed upon.

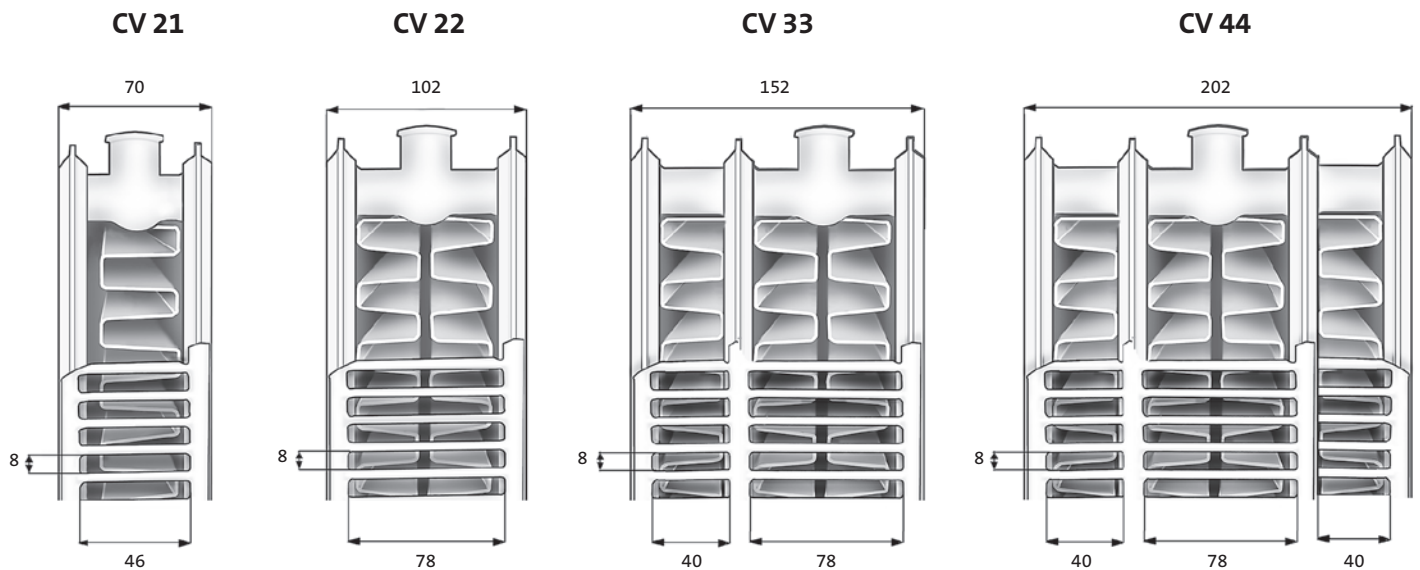**PURMO**

PURMO Ventil Compact – Height 200 mm

Technical data

Construction	EN 442-1
Material	Cold rolled steelplate EN 10130
Surface process	Surface process in five steps:
	• Alkalic degreased
	• Phosphated
	• Dipped in primer (electrical); KAT
	• Coated with polyester-epoxy resin powder
	• Stoved (about 200°C)
	The surface treatment process follows the standard DIN 55900.
Standard colour	White, RAL 9016
Working pressure	10 bar
Connections	6 x 1/2"
Certification	ISO 9001 and ISO 14001
Height	200 mm
Length	600–3 000 mm
Types	CV 21, CV 22, CV 33 and CV 44

PURMO Ventil Compact is delivered with a unique built in valve system. The radiator can be connected from either the side or the bottom. In this way the entire pipework is hidden.

Radiator types

CV 21	CV 22	CV 33	CV 44
70	102	152	202
8	8	8	8
46	78	40 78	40 78 40

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Connection

Bottom connection

The integrated valve system is welded onto the radiator during the manufacture process and is thereafter a fixed part of the radiator. All PURMO Ventil Compact radiators can be equipped with an built in valve insert and thermostatic sensor head. The valve inserts are for two types of sensor head connections: M30 x 1,5 adaptations and RA 2000 adaptation. The needed valve insert type (see pages 5– 6) should be stated in the order.
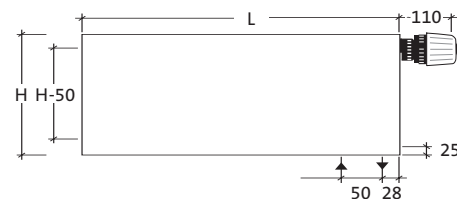
Thanks to the built in valve system, connection at the bottom is possible. Bottom right hand connection is standard, but left hand connection (type 33) is possible, if specified at time of order. Types 21, 22 and 44 are turnable.

Same end connection

Top-bottom same end connection requires external flow and return valves. The bottom connections are to be plugged.
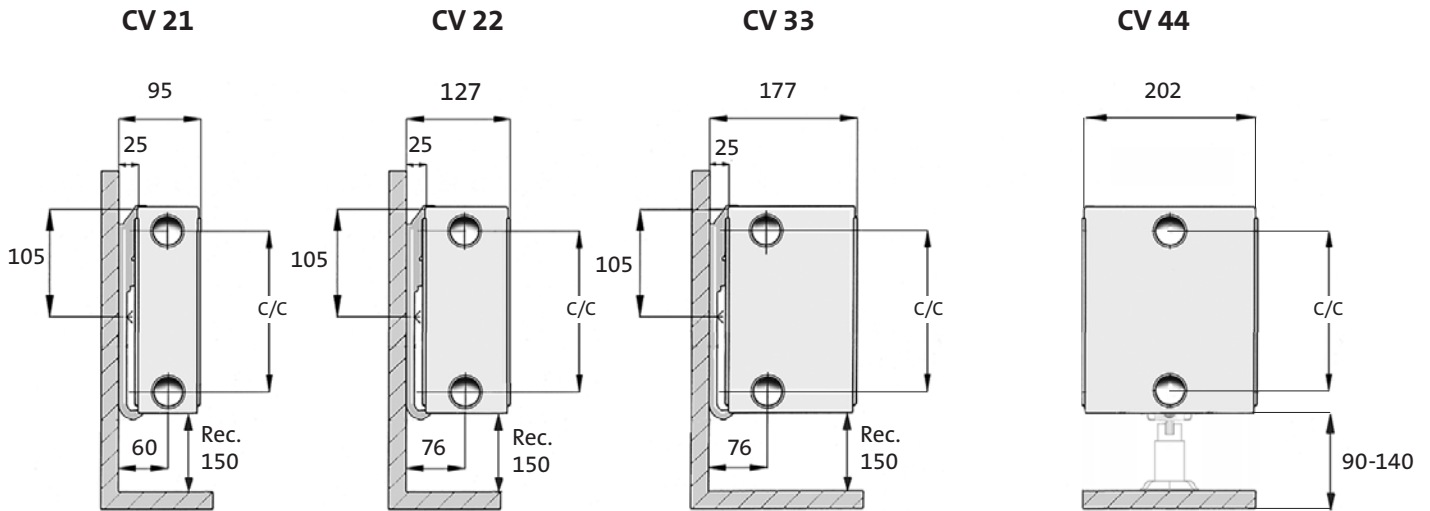
Opposite ends connection

Top-bottom opposite ends connection requires external flow and return valves. The bottom connections are to be plugged.

Note!
The radiator must be connected as above.
Faulty connections might cause a heat output decrease.

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Installation measures

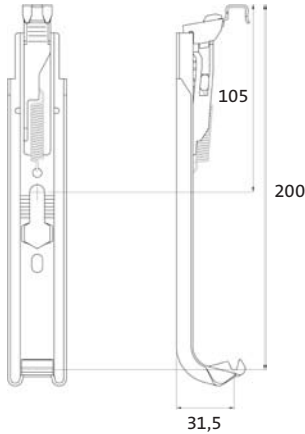| CV 21	CV 22	CV 33	CV 44

C/C = Radiator height minus 50 mm

For types 21, 22 and 33 wall- and floorbrackets can be used. For type 44 only floorbrackets.
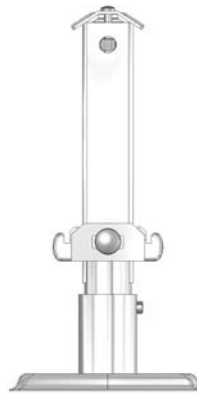
Brackets

Wallbracket

Type
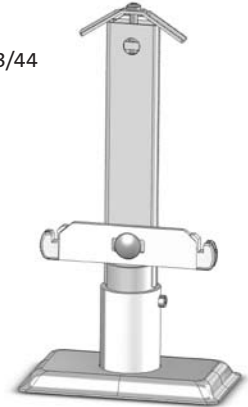21
22
33

Floorbracket

Type
21

Type
22/33/44

Valve inserts

PURMO M30

• 6 presettings
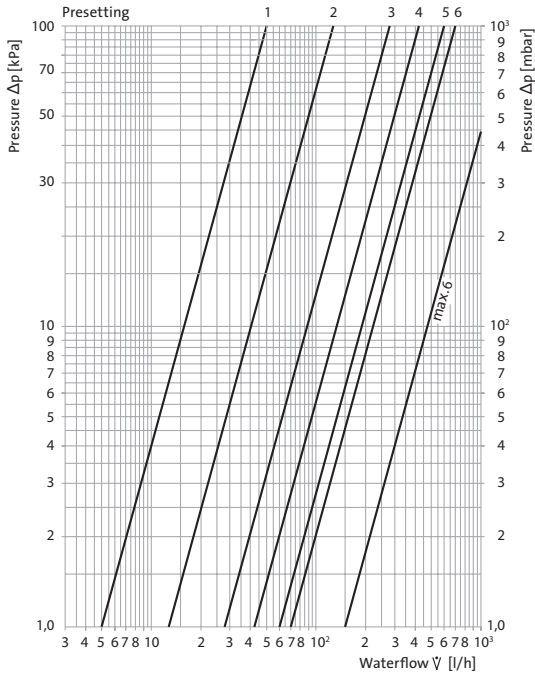• Suitable for M30 x 1,5
  fitted thermostats
  (MMA, Heimeier and TA).

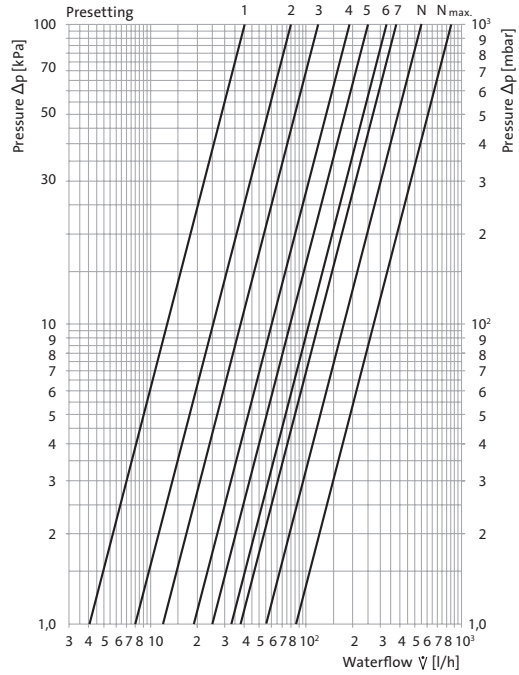## PURMO RO

• 8 presettings
• Suitable for Danfoss RA 2000.

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Pressure loss and presetting

PURMO M30

P-deviation			2K				max.
Presetting	1	2	3	4	5	6	6
kv	0,05	0,13	0,27	0,42	0,60	0,70	1,50

PURMO RO

P-deviation				2K					max.
Presetting	1	2	3	4	5	6	7	N	N
kv	0,04	0,08	0,12	0,19	0,25	0,33	0,38	0,56	0,86

For 1-pipe system use the highest presetting of the valve insert.

Heat output calculation model – DIN 4703-3

Heat output (W / m)

$$\phi = \phi_n \times (\Delta T / \Delta T_n)^n$$

in which

ϕ = output, W/m

ϕ_n = norm output, W/m – EN 442

when the logarithmic excess temperature

ΔT_n = 49,83 K

ΔT = logarithmic excess temperature, K

ΔT_n = norm excess temperature = 49,83 K

n = temperature exponent

The norm outputs ϕ_n and temperature exponents n can be found in the heat output tabels.

$$\Delta T = \frac{t_{in} - t_{out}}{\ln((t_{in} - t_{room}) / (t_{out} - t_{room}))}$$

in which

t_{in} = flow water,°C

t_{out} = return water,°C

t_{room} = room temperature,°C

The heat output values can be calculated with the output simulator on the website www.purmo.fi

Logarithmic excess temperature:

e.g.　$t_{in}/t_{out}/t_{room}$
　　　75/65/20 = 49,83 K
　　　70/40/20 = 32,74 K

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Height 200 mm	Radiator type	Length mm	Output W 70/40/20°C	Output W 45/35/20°C	Weight kg	Volume liter
CV 21 ϕ_n = 550 W/m n = 1,3009	CV 21	600	191	98	7,1	1,4
	CV 21	700	223	114	8,3	1,7
	CV 21	800	255	130	9,4	1,9
	CV 21	900	287	147	10,6	2,2
	CV 21	1 000	318	163	11,8	2,4
	CV 21	1 100	350	179	13,0	2,6
	CV 21	1 200	382	196	14,2	2,9
	CV 21	1 400	446	228	16,5	3,4
	CV 21	1 600	510	261	18,9	3,8
	CV 21	1 800	573	294	21,2	4,3
	CV 21	2 000	637	326	23,6	4,8
	CV 21	2 300	732	375	27,1	5,5
	CV 21	2 600	828	424	30,7	6,2
	CV 21	3 000	955	489	35,4	7,2
CV 22 ϕ_n = 689 W/m n = 1,3077	CV 22	600	239	122	7,7	1,5
	CV 22	700	278	142	9,0	1,8
	CV 22	800	318	162	10,2	2,0
	CV 22	900	358	183	11,5	2,3
	CV 22	1 000	398	203	12,8	2,5
	CV 22	1 100	438	223	14,1	2,8
	CV 22	1 200	477	244	15,4	3,0
	CV 22	1 400	557	284	17,9	3,5
	CV 22	1 600	636	325	20,5	4,0
	CV 22	1 800	716	365	23,0	4,5
	CV 22	2 000	796	406	25,6	5,0
	CV 22	2 300	915	467	29,4	5,8
	CV 22	2 600	1 034	528	33,3	6,5
	CV 22	3 000	1 193	609	38,4	7,5
CV 33 ϕ_n = 950 W/m n = 1,3038	CV 33	600	330	169	11,3	2,2
	CV 33	700	385	197	13,2	2,6
	CV 33	800	440	225	15,1	3,0
	CV 33	900	494	253	17,0	3,3
	CV 33	1 000	549	281	18,9	3,7
	CV 33	1 100	604	309	20,8	4,1
	CV 33	1 200	659	337	22,7	4,4
	CV 33	1 400	769	393	26,5	5,2
	CV 33	1 600	879	450	30,2	5,9
	CV 33	1 800	989	506	34,0	6,7
	CV 33	2 000	1 099	562	37,8	7,4
	CV 33	2 300	1 264	646	43,5	8,5
	CV 33	2 600	1 428	731	49,1	9,6
	CV 33	3 000	1 648	843	56,7	11,1
CV 44 ϕ_n = 1 253 W/m n = 1,2948	CV 44	600	436	224	13,7	2,9
	CV 44	700	509	262	16,0	3,4
	CV 44	800	582	299	18,3	3,9
	CV 44	900	655	336	20,6	4,4
	CV 44	1 000	727	374	22,9	4,9
	CV 44	1 100	800	411	25,2	5,4
	CV 44	1 200	873	448	27,5	5,9
	CV 44	1 400	1 018	523	32,1	6,9
	CV 44	1 600	1 164	598	36,6	7,8
	CV 44	1 800	1 309	673	41,2	8,8
	CV 44	2 000	1 455	747	45,8	9,8
	CV 44	2 300	1 673	860	52,7	11,3
	CV 44	2 600	1 891	972	59,5	12,7
	CV 44	3 000	2 182	1 121	68,7	14,7

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*Due to the continuous development of its product
range Rettig Värme Ab reserves the right to change its
products without prior notice.*

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Height 200 mm 10 – 2007