



DANISH
TECHNOLOGICAL
INSTITUTE

INSTALLED RADIATOR THERMAL OUTPUT TOOL

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CONTENT

- Two ways to get installed radiator thermal output:
 - Heat allocator reports according to regulation
 - The installed radiator thermal output tool



HEAT COST ALLOCATOR REGULATION

- Energy Efficiency Directive (EED) - 2018/2002
- National regulation - BEK nr 546 af 28/05/2018 (Danish)



HEAT ALLOCATOR REGULATION

- Heat supplier (owner or administrator) **must ensure that the following information** about residential and business units covered by the settlement unit **can be made available at any time to heat consumers who request it:**
 1. Brand and type of the heat allocators used.
 2. Radiator brand and model.
 3. Radiator size when specifying length, height and depth.
 4. The thermal output of the radiators.
 5. The mounting point for the heat allocators used.



REPORT: INFORMATION TO FULFIL REQUEST

Ejendomsnummer	00000	Adresse
Afdelingsnummer	2015	
Lejlighedsnummer	9999	

Målnr.	Radiatorfabrikat & -model	Radiator-type	Dimensioner (længde x dybde x højde)	Ydelse (W)	Målerskala på måleren	Målerskala, ukorrigeret
5016842	Thor Riffel (1970-1984)	4	1600 mm x 82 mm x 860 mm	3741	267	267
5030921	Rio P (fra og med 2001)	4	800 mm x 159 mm x 655 mm	2689	187	187
5028695	Rio P (fra og med 2001)	4	800 mm x 159 mm x 655 mm	2689	187	187
5024892	Rio P (fra og med 2001)	4	1200 mm x 159 mm x 655 mm	4033	281	281
5028763	Thor Riffel (1970-1984)	4	1600 mm x 82 mm x 860 mm	3741	267	267
5028764	Thor Riffel (1970-1984)	4	1600 mm x 82 mm x 860 mm	3741	267	267
5024978	Henrad (til og med 2005)	4	1000 mm x 95 mm x 400 mm	1517	103	103



INSTALLED RADIATOR THERMAL OUTPUT TOOL

- **Aim:** To estimate the total heat emitter thermal output of a single dwelling or space when this is not available.
- **Tool:** Provides a simple calculation procedure based on dimensions and configurations of typical radiators.
- **Procedure:** The thermal output of the radiators are estimated one by one and room by room. If underfloor heating is available, this can also be dealt with. All thermal outputs are added up and defined according to optional dimensioning flow, return and room temperatures.
- **Background:** The algorithms are developed based on a large number of radiator catalogues and decades of experience from the DTI radiator laboratory.



RADIATOR TYPES AND DIMENSIONS



Panel radiator/convector



Panel radiator/convector with 3 panels and 2 pcs. of convector veillings



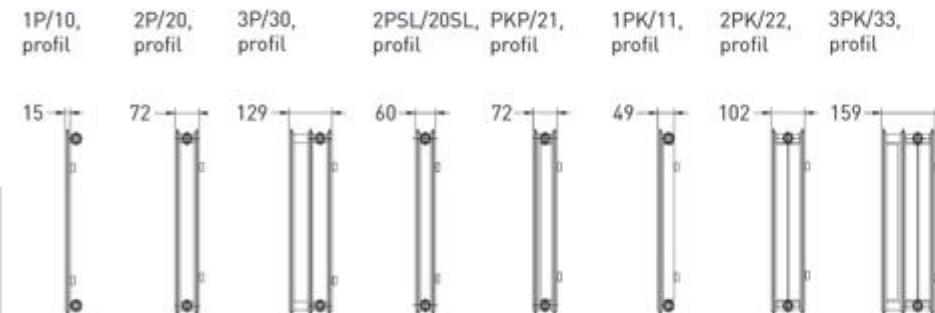
Convector veillings (2 pcs. Are shown here)

Panel radiator/convector

Planar radiator



Column radiator



INSTALLED RADIATOR THERMAL OUTPUT TOOL

Measuring the performance of radiators (heaters) and underfloor heating

Forward temperature °C
 Return temperature °C
 Room temperature °C

Room	Type	Panel radiator/convector				Planar radiator	
		Height cm	With/Length cm	Number of panels pieces	Convactor veiling pieces	Depth mm	Type plates
Living room	Convactor	14	340	3	4		
Bedroom	Column radiator	64,5					
Children's room	Panel radiator/convector	54,5	59	2	1		
Kitchen	Column radiator	37					
Bathroom	Underfloor heating						

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60 °C
40 °C
20 °C

Column radiator		Underfloor heating	Reference performance	Design performance
Column depth mm	Number of elements pieces	Area m ²	At 90/70/20 °C Watt	At middle temp. Watt
			3989	1559
100	20		1328	519
			1006	393
140	13		732	286
		6,0	300	300

	Reference	Design
	90/70/20	60/40/20
Total thermal output, Watt	7355	3057



TOOL VS REPORT

	Tool	Report	Deviation
	Watt	Watt	
Living room	3989	3672	7,9%
Bedroom	1328	1240	6,6%
Children's room	1006	979	2,7%
Kitchen	732	689	5,9%
Bathroom	300	-	



COMMENTS?

