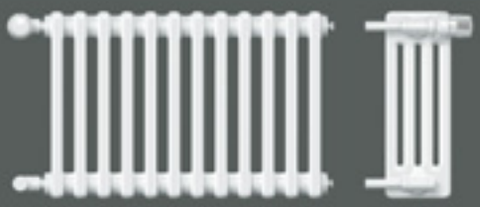
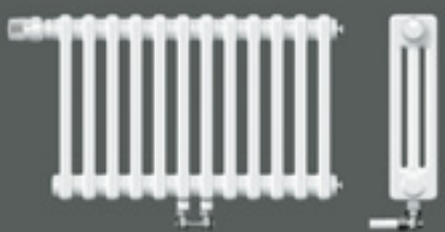
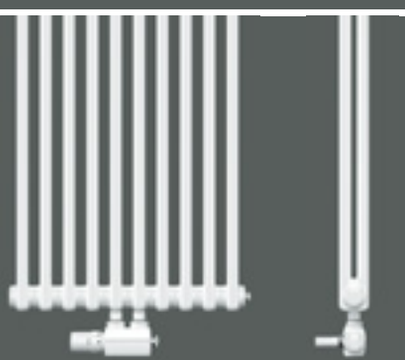
Contents



LASERLINE Standard



LASERLINE Centrally connected valve



LASERLINE Twin

LASERLINE Architecture Heated bar tables

LASERLINE Architecture Heated benches

LASERLINE STANDARD

Overall heights 155 - 3000 mm
Any height between 300 and 3000 mm is available to the nearest millimetre at the customer's request.

Overall length 200 - 2500 mm
Scope of delivery in a single block by model up to a max. overall length of 2100 mm is possible, otherwise supplied in block parts including plugs, nipples and gaskets.

Overall depth
2-column: 63 mm
3-column: 101 mm
4-column: 139 mm
5-column: 177 mm
6-column: 215 mm

Connections
4 x 1/2" internal thread (front)
also suitable for the boss spacings of older DIN-compliant steel or cast iron radiators
Further possible connections: 3/8", 3/4" and 1"

Max. operating pressure
10 Heated bar tables

Max. operating temperature 110 °C

Guarantee statements are available to download at **www.vogelundnoot.com/download**

Design Column radiators made from precision-engineered steel pipes and fully laser-welded head pieces connected to completed radiators or blocks.
Pipes and head pieces flattened on the external sides to increase the heat output. No protruding welding burrs either inside or outside. The boss spacing is the overall height minus 65 mm. Connections for the supply, return, vent plug and drain are located on the front. The surfaces have been pre-treated and subject to electrophoretic immersion coating and cured powder coating.

Packaging
Environmentally friendly transport packaging with side protection (enclosing cardboard packaging), and shrink-wrapped.

Safety
Construction in line with work safety requirements in accordance with the guidelines of the statutory accident insurer (GUV). Tested and registered in accordance with European standard EN 442 Reg. No. 6R0900. Complies with the old BAGUV guidelines. Awarded a hygiene certificate.

Technical data
Boss size: 1", element length: 50 mm

Attention!
The manufacturer's length tolerance is 0 to + 1%. Please take this into account during pre-assembly!

Note:
In the case of LaserLine Column radiators that are composed of blocks and are to be connected by means of nipples, the overall length increases by 30 mm (15 mm for each of the screw plugs!)

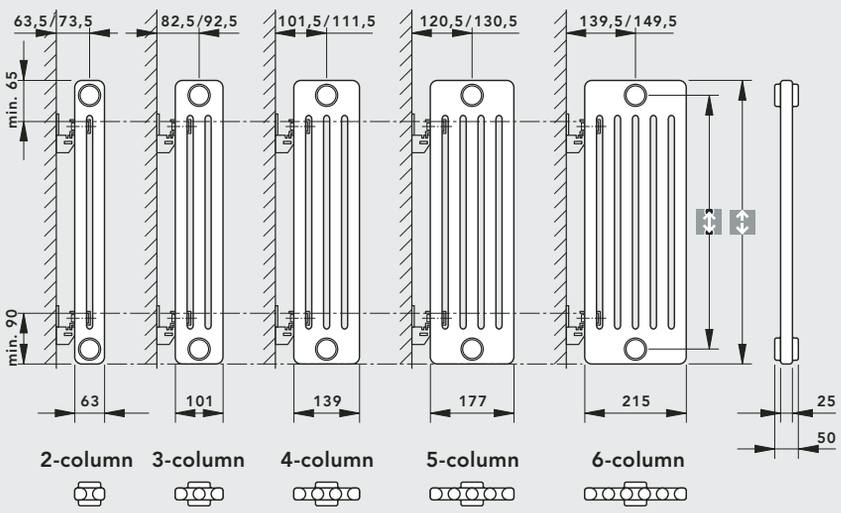
Fixing and scope of delivery
Delivery without fixings and connection materials (see Accessories)

Coating
In accordance with DIN 55 900, with electrophoretic immersion coating and cured powder coating in RAL 9016 Traffic White, other RAL colours and bathroom suite colours are available upon request.

LASERLINE STANDARD

Models overview, dimensions and block lengths

Models overview



Note:
The entire Laserline series is manufactured without clip brackets as standard. The delivery does not include fixings, or vent plugs or dummy plugs.

Boss spacing:
Overall height – 65 mm

Model	Overall height [mm]	Max. elements per block	Nipples supplied by manufacturer max. elements
2-column	155 - 800	42	60
	801 - 1000	42	48
	1001 - 2400	19	-
	2401 - 3000	16	-
3-column	155 - 800	42	60
	801 - 1000	42	48
	1001 - 2400	19	-
	2401 - 3000	16	-
4-column	155 - 800	42	60
	801 - 1000	32	48
	1001 - 1850	19	-
	1851 - 2000	18	19
	2001 - 2200	16	19
	2201 - 2500	14	16
	2501 - 2800	12	16
	2801 - 3000	11	16
5-column	155 - 665	42	60
	666 - 750	37	53
	751 - 800	32	48
	801 - 1000	26	40
	1001 - 1400	19	-
	1401 - 1500	18	19
	1501 - 1600	17	19
	1601 - 1800	16	19
	1801 - 2000	14	19

Model	Overall height [mm]	Max. elements per block	Nipples supplied by manufacturer max. elements
5-column	2001 - 2200	12	18
	2201 - 2500	11	16
	2501 - 2800	10	14
	2801 - 3000	9	13
6-column	155 - 500	42	60
	501 - 600	35	52
	601 - 665	32	48
	666 - 750	28	42
	751 - 800	26	42
	801 - 900	24	36
	901 - 1000	22	33
	1001 - 1200	19	-
	1201 - 1400	16	19
	1401 - 1500	15	19
	1501 - 1600	14	19
	1601 - 1800	13	19
	1801 - 1900	12	18
	1901 - 2000	11	17
	2001 - 2100	11	16
	2101 - 2300	10	15
	2301 - 2500	9	14
	2501 - 2600	9	13
	2601 - 2800	8	12
	2801 - 3000	8	11

Standard heights [mm]	Boss spacing [mm]
155	90
300	235
350	285
365	300
400	335
415	350
450	385
500	435
550	485
565	500
600	535
665	600
750	685
900	835
965	900
1000	935
1065	1000
1100	1035
1200	1135
1500	1435
1800	1735
2000	1935
2200	2135
2500	2435
2800	2735
3000	2935

Connection types – double pipe system

A: Single-sided connection

B: Connection **on both sides**

C: Connection **on top**

Connection type – single pipe system

Excess temperatures ΔT

The table values have been calculated by arithmetic or logarithms and have been rounded up or down in line with practical considerations. It is therefore usually not necessary to make calculations yourself.

Supply temperature t_1 °C	Room air temperature t_r °C	Return temperature t_2 °C						
		70	65	60	55	50	45	40
		ΔT						
90	15	65	62	59	56	53	50	46
	18	62	59	56	53	50	46	43
	20	60	57	54	51	48	44	40
	22	58	55	52	49	46	42	38
	24	56	53	50	47	43	40	36
85	15	63	60	57	54	51	48	44
	18	60	57	54	51	48	44	41
	20	58	55	52	49	46	42	39
	22	56	53	50	47	44	40	36
	24	54	51	48	45	41	38	34
80	15	60	58	55	52	49	46	42
	18	57	55	52	49	46	42	39
	20	55	53	50	47	44	40	37
	22	53	51	48	45	42	38	35
	24	51	49	46	43	39	36	32
75	15	58	55	53	50	47	44	40
	18	55	52	50	47	44	41	37
	20	53	50	48	45	42	38	35
	22	51	48	46	43	40	36	33
	24	49	46	44	41	37	34	30
70	15	-	53	50	48	45	42	38
	18	-	50	47	45	42	39	35
	20	-	48	45	43	40	36	33
	22	-	46	43	40	37	34	31
	24	-	44	41	38	35	32	29
65	15	-	-	48	45	43	40	36
	18	-	-	45	42	39	36	33
	20	-	-	43	40	37	34	31
	22	-	-	41	38	35	32	29
	24	-	-	39	36	33	30	27
60	15	-	-	-	43	40	37	34
	18	-	-	-	40	37	34	31
	20	-	-	-	38	35	32	29
	22	-	-	-	36	33	30	27
	24	-	-	-	34	31	28	25
55	15	-	-	-	-	38	35	32
	18	-	-	-	-	35	32	29
	20	-	-	-	-	33	30	27
	22	-	-	-	-	31	28	25
	24	-	-	-	-	29	26	23
50	15	-	-	-	-	-	33	30
	18	-	-	-	-	-	30	27
	20	-	-	-	-	-	28	25
	22	-	-	-	-	-	26	23
	24	-	-	-	-	-	24	21

Conversion factor U_f

Conversion factor U_f to determine the heat output for ΔT other than 50 K

ΔT K	U_f	ΔT K	U_f
65	1,408	43	0,821
64	1,380	42	0,796
63	1,352	41	0,771
62	1,324	40	0,747
61	1,296	39	0,723
60	1,268	38	0,699
59	1,241	37	0,675
58	1,213	36	0,651
57	1,186	35	0,627
56	1,159	34	0,604
55	1,132	33	0,581
54	1,105	32	0,558
53	1,079	31	0,535
52	1,052	30	0,513
51	1,026	29	0,491
50	1,000	28	0,469
49	0,974	27	0,447
48	0,948	26	0,426
47	0,922	25	0,404
46	0,897	24	0,383
45	0,871	23	0,363
44	0,846	22	0,342
43	0,821	21	0,322
44	0,796		

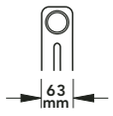
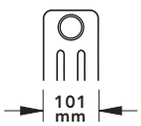
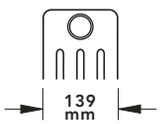
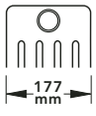
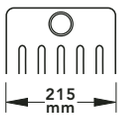
The standard heat output
In accordance with DIN EN 442, this relates to t_1 = 75 °C, t2 = 65 °C, tr = 20 °C
Excess temperature ΔT = 50 K.
In order to determine other ΔT, a conversion factor is used as shown above.

Example
VOGEL&NOOT Laserline tube radiator, model 6050, 10 elements

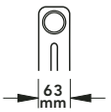
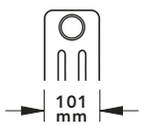
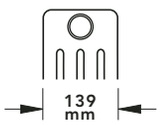
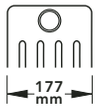
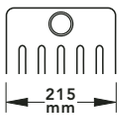
Standard heat output at ΔT = 50 K: 103.76 Watts/element x 10 elements = 1037.6 Watts.
Supply of 70 °C, return of 55 °C, room temperature 18 °C gives ΔT = 45 K (see table on the left).

Conversion factor U_f = 0.871 (see table above).
Actual heat output: 1037.6 x 0.871 = 903.75 Watts

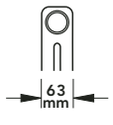
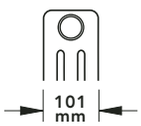
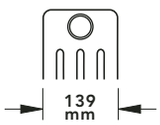
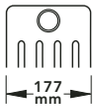
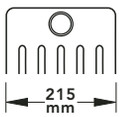
Standard heat output (Watts) at 75/65/20 °C in accordance with EN 442, DIN registration number 6R0900

Attention: the 155 mm-height radiator cannot be mounted using the radiator mounts!		2-columns 	3-columns 	4-columns 	5-columns 	6-columns 
Increments		All lengths from 200 to 2500 mm in increments of 50 mm, the element width is 50 mm.				
Overall height **155** mm	**Model**	**2016**	**3016**	**4016**	**5016**	**6016**
	Output/element in Watts	12,66	17,51	22,83	28,71	34,80
Boss spacing **90 mm**	Water capacity/element in litres	0,27	0,39	0,51	0,63	0,75
	Weight when empty/ element in kg	0,30	0,45	0,61	0,76	0,93
Overall height **300** mm	**Model**	**2030**	**3030**	**4030**	**5030**	**6030**
	Output/element in Watts	25,24	35,40	45,56	55,98	66,39
Boss spacing **235 mm**	Water capacity/element in litres	0,40	0,57	0,75	0,93	1,11
	Weight when empty/ element in kg	0,52	0,78	1,05	1,30	1,57
Overall height **350** mm	**Model**	**2035**	**3035**	**4035**	**5035**	**6035**
	Output/element in Watts	28,96	40,50	52,04	63,99	75,93
Boss spacing **285 mm**	Water capacity/element in litres	0,44	0,64	0,84	1,03	1,23
	Weight when empty/ element in kg	0,60	0,89	1,20	1,49	1,86
Overall height **365** mm	**Model**		**3037**	**4037**	**5037**	**6037**
	Output/element in Watts		42,01	53,96	66,36	78,76
Boss spacing **300 mm**	Water capacity/element in litres		0,66	0,86	1,06	1,27
	Weight when empty/ element in kg		0,91	1,22	1,54	1,86
Overall height **400** mm	**Model**	**2040**	**3040**	**4040**	**5040**	**6040**
	Output/element in Watts	32,63	45,52	58,40	71,87	85,33
Boss spacing **335 mm**	Water capacity/element in litres	0,49	0,70	0,92	1,14	1,35
	Weight when empty/ element in kg	0,68	1,00	1,35	1,67	2,02
Overall height **415** mm	**Model**		**3042**	**4042**		**6042**
	Output/element in Watts		47,01	60,29		88,12
Boss spacing **350 mm**	Water capacity/element in litres		0,72	0,95		1,39
	Weight when empty/ element in kg		1,03	1,37		2,08
Overall height **450** mm	**Model**	**2045**	**3045**	**4045**	**5045**	**6045**
	Output/element in Watts	36,26	50,47	64,68	79,64	94,60
Boss spacing **385 mm**	Water capacity/element in litres	0,53	0,76	1,01	1,24	1,48
	Weight when empty/ element in kg	0,75	1,12	1,49	1,86	2,24
Overall height **500** mm	**Model**	**2050**	**3050**	**4050**	**5050**	**6050**
	Output/element in Watts	39,87	55,38	70,88	87,32	103,76
Boss spacing **435 mm**	Water capacity/element in litres	0,57	0,83	1,09	1,34	1,60
	Weight when empty/ element in kg	0,83	1,23	1,64	2,04	2,46
Overall height **550** mm	**Model**	**2055**	**3055**	**4055**	**5055**	**6055**
	Output/element in Watts	43,46	60,25	77,03	94,93	112,83
Boss spacing **485 mm**	Water capacity/element in litres	0,62	0,89	1,17	1,45	1,73
	Weight when empty/ element in kg	0,91	1,34	1,79	2,23	2,68

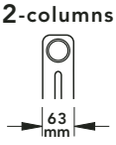
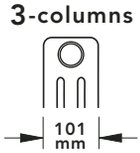
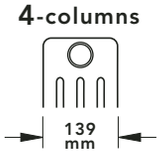
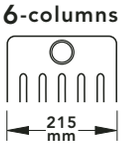
Standard heat output (Watts) at 75/65/20 °C in accordance with EN 442, DIN registration number 6R0900

		2-columns 	3-columns 	4-columns 	5-columns 	6-columns 
Increments		All lengths from 200 to 2500 mm in increments of 50 mm, the element width is 50 mm.				
Overall height 565 mm	**Model**	**2057**	**3057**	**4057**	**5057**	**6057**
	Output/element in Watts	44,53	61,70	78,86	97,20	115,54
Boss spacing 500 mm	Water capacity/element in litres	0,63	0,91	1,20	1,48	1,76
	Weight when empty/ element in kg	0,93	1,38	1,84	2,29	2,75
Overall height 600 mm	**Model**	**2060**	**3060**	**4060**	**5060**	**6060**
	Output/element in Watts	47,02	65,07	83,12	102,48	121,83
Boss spacing 535 mm	Water capacity/element in litres	0,66	0,96	1,26	1,55	1,85
	Weight when empty/ element in kg	0,98	1,46	1,94	2,42	2,91
Overall height 665 mm	**Model**	**2067**	**3067**	**4067**	**5067**	**6067**
	Output/element in Watts	51,64	71,31	90,97	112,20	133,42
Boss spacing 600 mm	Water capacity/element in litres	0,72	1,04	1,37	1,69	2,01
	Weight when empty/ element in kg	1,08	1,60	2,14	2,66	3,20
Overall height 750 mm	**Model**	**2075**	**3075**	**4075**	**5075**	**6075**
	Output/element in Watts	57,65	79,40	101,15	124,80	148,45
Boss spacing 685 mm	Water capacity/element in litres	0,80	1,15	1,51	1,86	2,22
	Weight when empty/ element in kg	1,21	1,79	2,39	2,97	3,58
Overall height 900 mm	**Model**	**2090**	**3090**	**4090**	**5090**	**6090**
	Output/element in Watts	68,22	93,57	118,92	146,79	174,65
Boss spacing 835 mm	Water capacity/element in litres	0,93	1,34	1,76	2,17	2,59
	Weight when empty/ element in kg	1,44	2,13	2,84	3,53	4,24
Overall height 965 mm	**Model**	**2097**	**3097**	**4097**		**6097**
	Output/element in Watts	72,80	99,69	126,57		185,91
Boss spacing 900 mm	Water capacity/element in litres	0,99	1,42	1,87		2,75
	Weight when empty/ element in kg	1,54	2,28	3,04		4,53
Overall height 1000 mm	**Model**	**2100**	**3100**	**4100**	**5100**	**6100**
	Output/element in Watts	75,26	102,97	130,67	161,31	191,95
Boss spacing 935 mm	Water capacity/element in litres	1,02	1,47	1,93	2,38	2,84
	Weight when empty/ element in kg	1,59	2,36	3,14	3,91	4,69
Overall height 1065 mm	**Model**	**2107**	**3107**	**4107**	**5107**	**6107**
	Output/element in Watts	72,71	109,07	138,29	170,72	203,15
Boss spacing 1000 mm	Water capacity/element in litres	1,04	1,55	2,04	2,52	3,00
	Weight when empty/ element in kg	1,76	2,46	3,24	4,15	4,98
Overall height 1100 mm	**Model**	**2110**	**3110**	**4110**	**5110**	**6110**
	Output/element in Watts	82,30	112,34	142,38	175,77	209,16
Boss spacing 1035 mm	Water capacity/element in litres	1,11	1,60	2,10	2,59	3,10
	Weight when empty/ element in kg	1,75	2,59	3,44	4,28	5,14

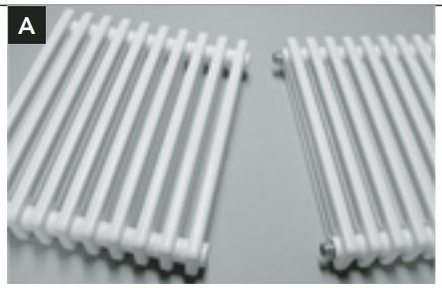
Standard heat output (Watts) at 75/65/20 °C in accordance with EN 442, DIN registration number 6R0900

		2-columns 	3-columns 	4-columns 	5-columns 	6-columns 
Increments		All lengths from 200 to 2500 mm in increments of 50 mm, the element width is 50 mm.				
Overall height 1200 mm	**Model**	**2120**	**3120**	**4120**	**5120**	**6120**
	Output/element in Watts	89,35	121,70	154,04	190,17	226,29
Boss spacing 1135 mm	Water capacity/element in litres	1,19	1,73	2,27	2,80	3,33
	Weight when empty/ element in kg	1,90	2,81	3,74	4,65	5,58
Overall height 1500 mm	**Model**	**2150**	**3150**	**4150**	**5150**	**6150**
	Output/element in Watts	110,64	149,80	188,95	233,18	277,41
Boss spacing 1435 mm	Water capacity/element in litres	1,46	2,11	2,77	3,42	4,08
	Weight when empty/ element in kg	2,36	3,49	4,64	5,77	6,92
Overall height 1800 mm	**Model**	**2180**	**3180**	**4180**	**5180**	**6180**
	Output/element in Watts	132,23	178,08	223,92	276,14	328,35
Boss spacing 1735 mm	Water capacity/element in litres	1,72	2,49	3,27	4,04	4,82
	Weight when empty/ element in kg	2,82	4,17	5,53	6,88	8,25
Overall height 2000 mm	**Model**	**2200**	**3200**	**4200**	**5200**	**6200**
	Output/element in Watts	146,83	197,10	247,36	304,85	362,34
Boss spacing 1935 mm	Water capacity/element in litres	1,90	2,75	3,61	4,46	5,31
	Weight when empty/ element in kg	3,12	4,62	6,13	7,63	9,15

Standard heat output (Watts) at 75/65/20 °C in accordance with EN 442, DIN registration number 6R0900

		2-columns 	3-columns 	4-columns 	5-columns 	6-columns 
Increments		All lengths from 200 to 1250 mm in increments of 50 mm, the element width is 50 mm.				
Overall height 2200 mm	**Model**	**2220**	**3220**	**4220**	**5220**	**6220**
	Output/element in Watts	161,63	216,28	270,93	333,68	396,42
Boss spacing 2135 mm	Water capacity/element in litres	2,08	3,01	3,94	4,87	5,81
	Weight when empty/ element in kg	3,43	5,07	6,73	8,38	10,04
Overall height 2500 mm	**Model**	**2250**	**3250**	**4250**	**5250**	**6250**
	Output/element in Watts	184,23	245,44	306,30	377,21	447,78
Boss spacing 2435 mm	Water capacity/element in litres	2,34	3,39	4,45	5,50	6,55
	Weight when empty/ element in kg	3,89	5,75	7,63	9,49	11,37
Overall height 2800 mm	**Model**	**2280**	**3280**	**4280**	**5280**	**6280**
	Output/element in Watts	207,36	275,09	342,82	421,18	499,53
Boss spacing 2735 mm	Water capacity/element in litres	2,61	3,78	4,95	6,12	7,29
	Weight when empty/ element in kg	4,34	6,43	8,53	10,61	12,71
Overall height 3000 mm	**Model**	**2300**	**3300**	**4300**	**5300**	**6300**
	Output/element in Watts	223,10	295,18	367,25	450,78	534,30
Boss spacing 2935 mm	Water capacity/element in litres	2,79	4,03	5,29	6,53	7,79
	Weight when empty/ element in kg	4,65	6,88	9,12	11,35	13,60

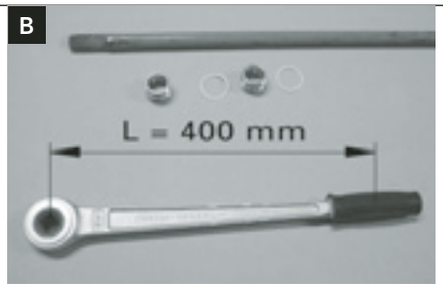
A



Lay both block parts on an even surface.

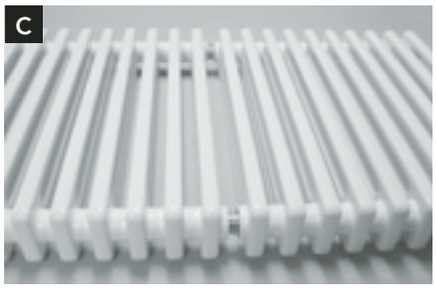
Carefully remove any colour residue and dirt from the ports. Only use original **VOGEL&NOOT *LaserLine*** nipples and gaskets.
Turn both nipples (approx. one pitch of a screw thread) into the ports of a block; ensure the corresponding nipple is used for the left-handed/right-handed thread. The left thread is marked! (The thread surround is knurled).
Push one gasket onto each nipple.

B



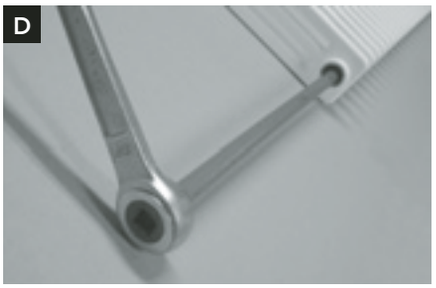
Nipple turning keys are available in lengths of 0.75 m, 1 m, 1.50 m and 2.20 m. Ratchet with 400 mm lever arm.

C



Fit the second block onto the nipples.

D

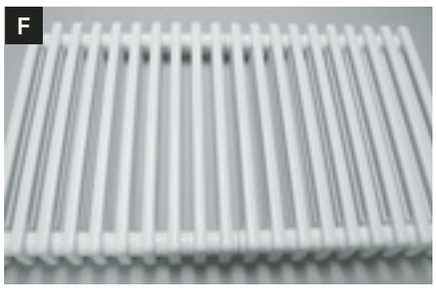


Guide the nipple turning key through a port of the last block that was fixed up to the nipple. The square drive of the nipple turning key is provided for the purpose of using the ratchet.

E

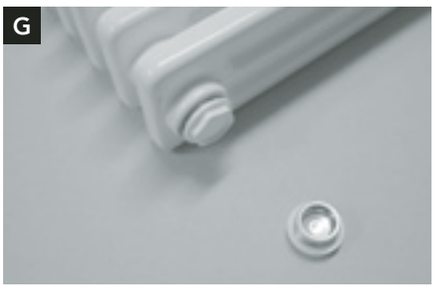
Use the nipple turning key to tighten both nipples alternately. The torque should be 90 +/- 10 Nm. Nipples only tightened on one side will cause leaks!

F



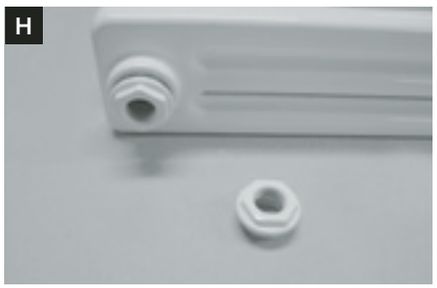
Using the 400 mm-long ratchet with a weight force (on the handle) of 22.5 kg, this will bring about a fastening torque of 90 Nm.

G



Remember that the dummy plug will add 15 mm to the length of the radiator.

H

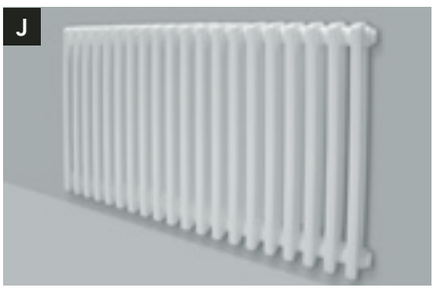


Remember that the screw plugs with plug gaskets will also add 15 mm to the length of the radiator.

I

Use the plastic key in order to prevent damage to the plugs.

J



Tube radiator ready for connection.

Attention!
The manufacturer's length tolerance is 0 to +1%. Please take this into account in the pre-assembly!

Note:
In the case of **VOGEL&NOOT *LaserLine*** Column radiators that are composed of blocks and are to be connected by means of nipples, the overall length increases by 30 mm (15 mm for each of the screw plugs!).

Block lengths

In order to facilitate the dispatch and transport of **VOGEL&NOOT Laserline** steel Column radiators to and around the construction site, **VOGEL&NOOT Laserline** radiators in larger lengths are supplied in individual element blocks according to model and overall height.

Nipple instructions

VOGEL&NOOT Laserline steel Column radiators supplied in block parts are fixed together on the construction site and connected to one another by nipples. Only the original **VOGEL&NOOT** gaskets supplied with the items are to be used to seal off the nipple ports and the screw plugs at the construction site. Thread paste or similar sealant is not permitted.

The bosses of the individual element blocks and the nipples feature a 1" right-handed thread and a 1" left-handed thread. Two studs are arranged opposite one another on the inside of the nipple, against which the flanges of the nipple turning key will catch during assembly.
In order to ensure the sound sealing of the nipple ports and screw plugs, it is necessary to adhere to the following instructions carefully:

- Lay the block parts horizontally on an even, level surface. In order to protect the coating from damage, cardboard or similar material should be laid underneath.
- Carefully remove any colour residue and dirt from the sites to be sealed and the surfaces of the bosses.
- Only use original **VOGEL&NOOT** Laserline nipples and **VOGEL&NOOT** 1.5 mm gaskets (EPDM, white). Thread paste or similar sealant is not permitted.
- Turn both nipples approximately one pitch of a screw thread into the ports/bosses of a block, ensuring the corresponding one is used for the right-handed/left-handed thread (the surrounds of the left threads are knurled).
- Place a gasket onto each nipple along the central axis so that it is radially aligned.
- Fit the next block part onto the nipple.
- Guide the nipple turning key through a port of the block that was fitted last up to the nipple. The square drive of the nipple turning key is provided for the purpose of using the ratchet. The depth of insertion can already be measured beforehand and marked on the nipple turning key. Only fault-free nipple tools may be used.
- Use the nipple turning key and the ratchet to tighten both nipples alternately and tighten the block parts equally together in this way. Unequal degrees of tightening will result in leaks.

The torque should be 90 +/- 10 Nm 1). The nipples and screw plugs must never be tightened with excessive force! Nipples only tightened on one side will cause leaks!

Installation of the screw plugs

The **VOGEL&NOOT Laserline** steel radiators are sealed after the nipples to the end elements by screw plugs and connected, for the purpose of the supply and return connection, by means of the pipelines. Screw plugs with right-handed and left-handed threads and gaskets are supplied with the radiator blocks.

Attention:
The screw plug length (approx. 15 mm per plug) is to be added to the radiator length.

- Only the original **VOGEL&NOOT** screw plugs and **VOGEL&NOOT** 2.6 mm gaskets (EPDM, white) supplied with the radiator blocks are to be used. Thread paste or similar sealant is not permitted.
- Mating surfaces and threads are to be checked to ensure they appear undamaged and clean.
- Fit the gaskets onto the screw plugs.
- Screw on the plugs by hand, ensuring the correct one is used for the right-handed and left-handed threads. Before fitting the plug collar, the gasket must once more be aligned radially, so that the entire profile seals effectively and the gasket does not become misshapen.
- Screw plugs should only be tightened using a suitable tool (ring spanner or open-jawed spanner). The torque should be 90 +/- 10 Nm 1). The use of a pipe wrench or similar is not permitted.
- The 1" pipe thread of the element blocks is not suitable for direct fitting onto pipes; in order to ensure proper sealing, the screw plugs (with a 1" adapter if necessary– see Accessories) and the supplied gaskets must always be used.

Mounting a long radiator

VOGEL&NOOT Laserline steel radiators of larger overall lengths must be lifted upright and positioned onto the wall brackets by at least two people. In order to prevent bowing of the radiators, suitable auxiliary fittings (Heated bar tabless, shelves, tubing etc.) should be used if necessary. The required number of brackets (load-bearing points) must be taken into consideration.

Exchange of element blocks

When changing element blocks, the original **VOGEL&NOOT** nipples, screw plugs and gaskets must be used. The aforementioned directions must be followed.

[1] Example

The fastening torque should be 90 Nm. If using the 400 mm ratchet and weight force (on the handle) of 22.5 kg, this will bring about a fastening torque of 90 Nm.

LASERLINE STANDARD

Radiator exponents "n"

2-column (per radiator element)

Model	Overall height [mm]	Radiator exponent n
2016	155	**1,21**
2030	300	**1,22**
2035	350	**1,23**
-	-	**-**
2040	400	**1,23**
-	-	**-**
2045	450	**1,23**
2050	500	**1,24**
2055	550	**1,24**
2057	565	**1,24**
2060	600	**1,24**
2067	665	**1,25**
2075	750	**1,25**
2090	900	**1,26**
2097	965	**1,27**
2100	1000	**1,27**
-	-	**-**
2110	1100	**1,28**
2120	1200	**1,28**
2150	1500	**1,30**
2180	1800	**1,32**
2200	2000	**1,33**
2220	2200	**1,34**
2250	2500	**1,34**
2280	2800	**1,34**
2300	3000	**1,30**

3-column (per radiator element)

Model	Overall height [mm]	Radiator exponent n
3016	155	**1,22**
3030	300	**1,23**
3035	350	**1,23**
3037	365	**1,23**
3040	400	**1,24**
3042	415	**1,24**
3045	450	**1,24**
3050	500	**1,25**
3055	550	**1,26**
3057	565	**1,26**
3060	600	**1,26**
3067	665	**1,27**
3075	750	**1,28**
3090	900	**1,29**
3097	965	**1,29**
3100	1000	**1,30**
3107	1065	**1,30**
3110	1100	**1,30**
3120	1200	**1,31**
3150	1500	**1,33**
3180	1800	**1,34**
3200	2000	**1,34**
3220	2200	**1,34**
3250	2500	**1,34**
3280	2800	**1,33**
3300	3000	**1,32**

4-column (per radiator element)

Model	Overall height [mm]	Radiator exponent n
4016	155	**1,22**
4030	300	**1,23**
4035	350	**1,24**
4037	365	**1,24**
4040	400	**1,25**
4042	415	**1,25**
4045	450	**1,26**
4050	500	**1,26**
4055	550	**1,27**
4057	565	**1,27**
4060	600	**1,28**
4067	665	**1,29**
4075	750	**1,30**
4090	900	**1,31**
4097	965	**1,32**
4100	1000	**1,32**
4107	1065	**1,33**
4110	1100	**1,33**
4120	1200	**1,34**
4150	1500	**1,35**
4180	1800	**1,35**
4200	2000	**1,35**
4220	2200	**1,35**
4250	2500	**1,34**
4280	2800	**1,30**
4300	3000	**1,32**

5-column (per radiator element)

Model	Overall height [mm]	Radiator exponent n
5016	155	**1,24**
5030	300	**1,24**
5035	350	**1,25**
5037	365	**1,25**
5040	400	**1,26**
-	-	**-**
5045	450	**1,26**
5050	500	**1,27**
5055	550	**1,28**
5057	565	**1,28**
5060	600	**1,28**
5067	665	**1,29**
5075	750	**1,30**
5090	900	**1,31**
-	-	**-**
5100	1000	**1,32**
5107	1065	**1,33**
5110	1100	**1,33**
5120	1200	**1,34**
5150	1500	**1,35**
5180	1800	**1,35**
5200	2000	**1,35**
5220	2200	**1,34**
5250	2500	**1,33**
5280	2800	**1,31**
5300	3000	**1,30**

6-column (per radiator element)

Model	Overall height [mm]	Radiator exponent n
6016	155	**1,24**
6030	300	**1,25**
6035	350	**1,26**
6037	365	**1,26**
6040	400	**1,26**
6042	415	**1,27**
6045	450	**1,27**
6050	500	**1,28**
6055	550	**1,28**
6057	565	**1,28**
6060	600	**1,29**
6067	665	**1,29**
6075	750	**1,30**
6090	900	**1,31**
6097	965	**1,32**
6100	1000	**1,32**
6107	1065	**1,32**
6110	1100	**1,33**
6120	1200	**1,33**
6150	1500	**1,34**
6180	1800	**1,35**
6200	2000	**1,34**
6220	2200	**1,34**
6250	2500	**1,32**
6280	2800	**1,30**
6300	3000	**1,28**

LASERLINE CENTRALLY CONNECTED VALVE

Overall heights 155 - 3000 mm
Any height between 300 and 3000 mm is available to the nearest millimetre at the customer's request.

Overall lengths
200 - max. 1500 mm

Overall depth
2-column: 63 mm
3-column: 101 mm
4-column: 139 mm
5-column: 177 mm
6-column: 215 mm

Connections
4 x 1/2" internal thread front right and left, 2 x 1/2" internal thread at the bottom centrall, distance of 50 mm with integrated thermostatic valve at the top

Max. operating pressure
10 Heated bar tables

Max. operating temperature 110 °C

- **Laser-welded – no visible welding seams**
- **Highest-precision manufacturing**
- **Highly conducive to cleanliness**
- **Central connection technology**

Guarantee statements are available to download at **www.vogelundnoot.com/download**

Design Column radiators made from precision-engineered steel pipes and fully laser-welded head pieces connected to completed radiators. Only an even number of elements is possible
Pipes and head pieces flattened on the exterior to increase the heat output. No protruding welding burrs either inside or outside. With built-in presettable control valve.

Packaging
Environmentally friendly transport packaging with side protection (enclosing cardboard packaging), and shrink-wrapped.

Safety
Construction in line with work safety requirements in accordance with the guidelines of the statutory accident insurer (GUV). Tested and registered in accordance with European standard EN 442 Reg. No. 6R0900. Complies with the old BAGUV guidelines. Awarded a hygiene certificate.

Technical data
Boss size: 1", element length: 50 mm

Attention!
The manufacturer's length tolerance is 0 to + 1%. Please take this into account during pre-assembly!

Note:
The Laserline centrally connected valve radiator consists of one block (according to supply range) and cannot be joined by nipples.

Fixing
See Accessories (not included in scope of delivery)

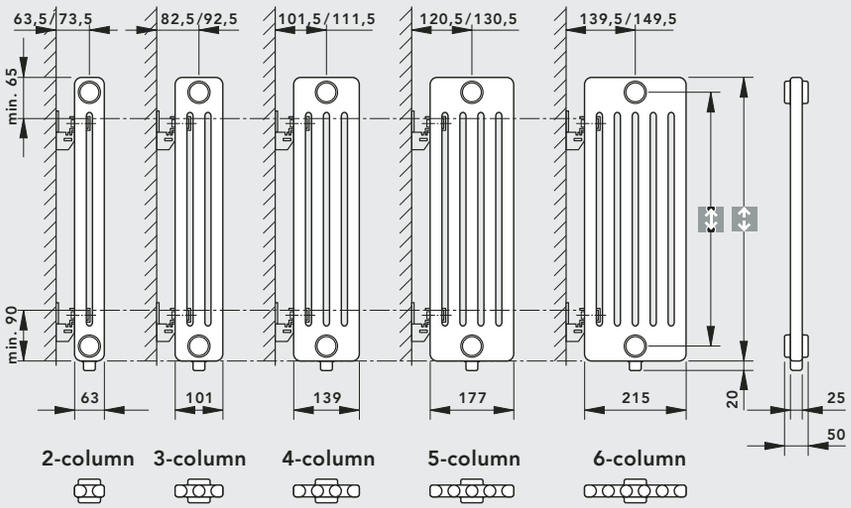
Scope of delivery
Includes thermostatic valve suitable for thermostatic heads with port thread M 30 x 1.5 mm; air vent and 2 x drain plugs G 1/2".

Coating
In accordance with DIN 55900, with electrophoretic immersion coating and cured powder coating in RAL 9016 Traffic White, other RAL colours and bathroom suite colours are available upon request.

LASERLINE CENTRALLY CONNECTED VALVE

Models overview, radiator dimensions

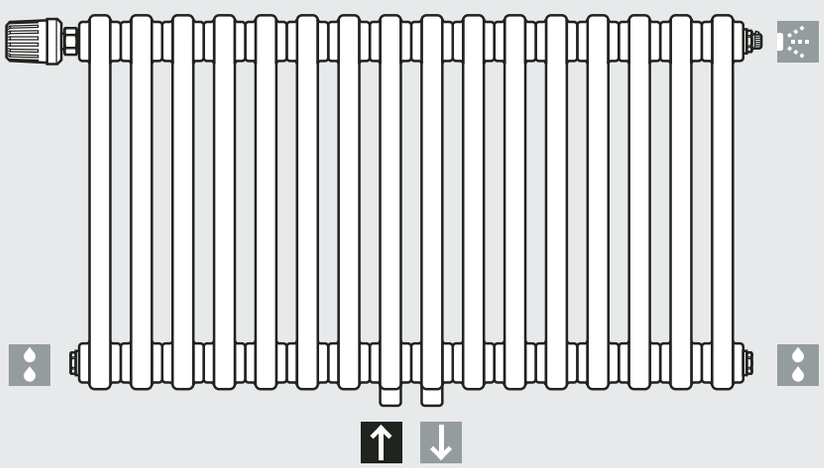
Models overview



Note:
The entire Laserline centrally connected valve series is manufactured without clip brackets. The delivery does not include fixings, but does include the necessary plugs and thermostatic valve!

Overall height – 65 mm

Connection



Attention: The supply must always be connected on the side with the valve.

Max. number of elements per block

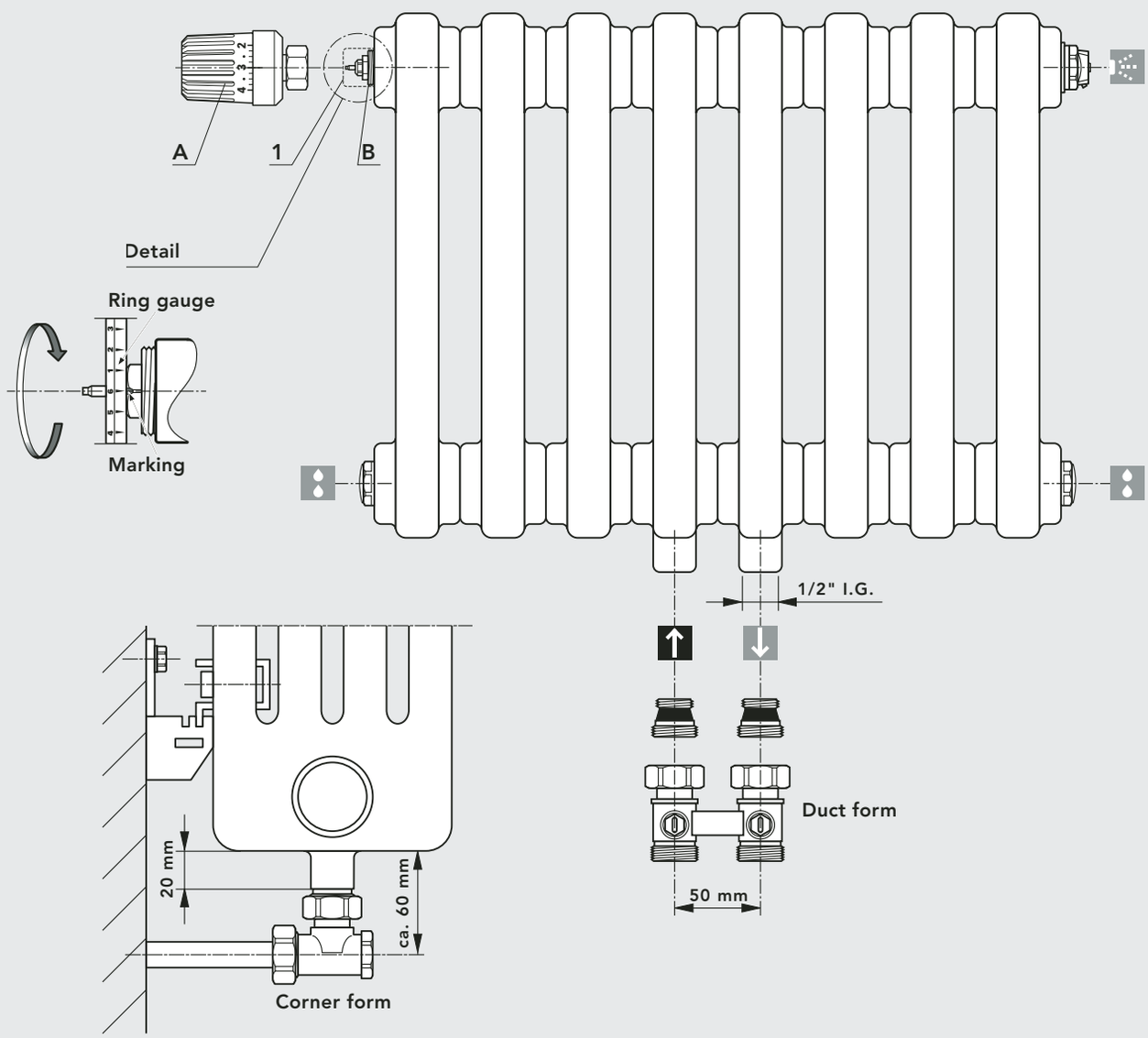
Model	Overall height [mm]	Max. no. of elements per block
2-column	155 - 1000	30
	1001 - 2400	18
	2401 - 3000	16
3-column	155 - 1000	30
	1001 - 2400	18
	2401 - 3000	16
4-column	155 - 1000	30
	1001 - 2000	18
	2001 - 2200	16
	2201 - 2500	14
	2501 - 2800	12
	2801 - 3000	10
5-column	155 - 800	30
	801 - 1000	26
	1001 - 1500	18
	1501 - 1800	16
	1801 - 2000	14
	2001 - 2200	12
	2201 - 2800	10
	2801 - 3000	8
6-column	155 - 665	30
	666 - 750	28
	751 - 800	26
	801 - 900	24
	901 - 1000	22
	1001 - 1200	18
	1201 - 1400	16
	1401 - 1600	14
	1601 - 1900	12
	1901 - 2300	10
	2301 - 3000	8

Central connection of valve is only possible with an even number of elements! No specially-produced lengths are possible (maximum number of elements!)

Double pipe operation

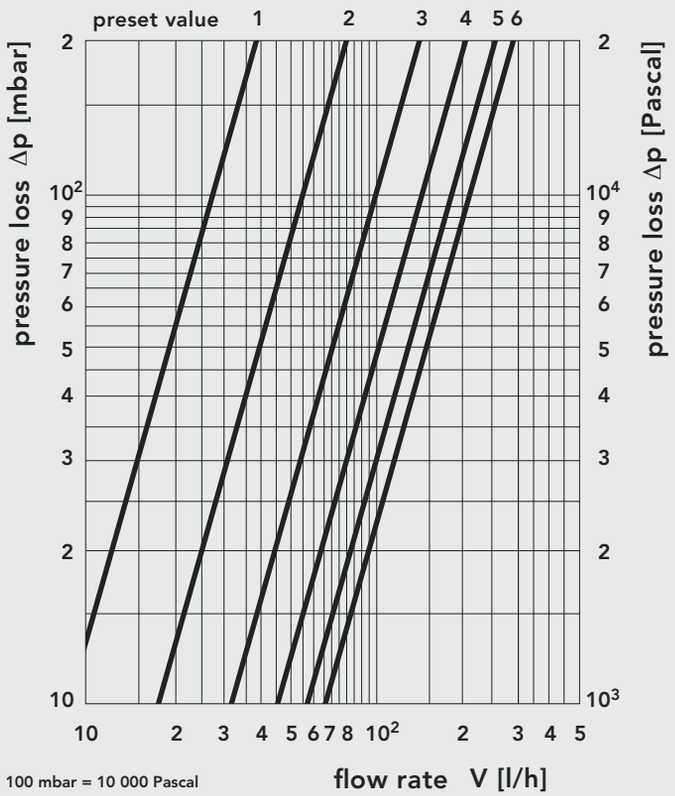
The desired setting values can be set easily and accurately without the need for special tools (see diagram below).
The radiator is supplied with the protective cap already fitted. After removing the protective cap (item 1) the thermostatic heads (item A not in the scope of delivery) with M 30 x 1.5 mm port threads of the brands Heimeier, Honeywell-MNG and Oventrop, or special thermostatic heads "RAW-K" made by Danfoss and the Herz "H" thermostatic head can be fitted directly onto the built in valve (item B) .

Setting notes:
- Remove the protective cap or thermostatic head
- Turn the ring gauge anti-clockwise to the desired setting – the desired setting value (1 6) must be positioned above the marking
- The pre-set value can be selected in increments of 1 and 6
- The valve is set to the pre-set value 6 by the manufacturer



Attention: the supply must always be connected on the side with the valve

Flow rate at 2 K P-deviation



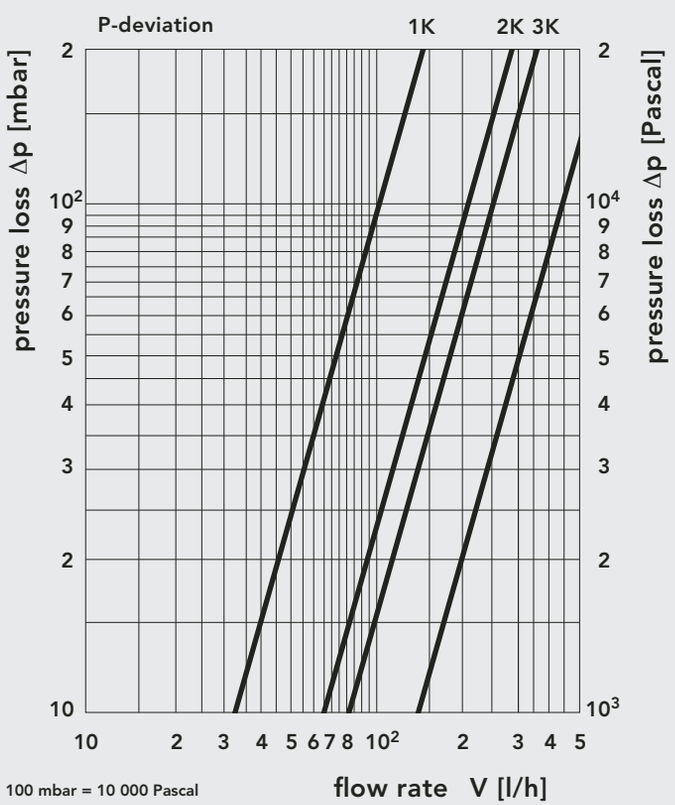
VE*	1	2	3	4	5	6
k_v	0,047	0,126	0,269	0,417	0,6	0,7

* VE = preset value

The presettable control valve is built in by the manufacturer and is delivered with the thermostatic valve.
Port thread M 30 x 1.5 mm.

The available models and heat outputs are in line with the tables on the next pages. The thermostatic valve is located in the upper boss of the radiator on the front left.

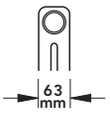
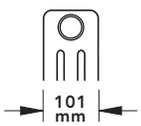
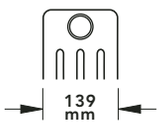
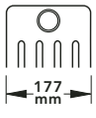
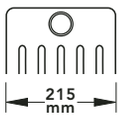
Flow rate at preset value 6



LASERLINE-VM

Output tables

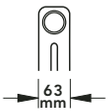
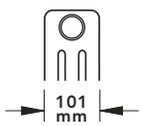
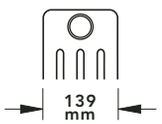
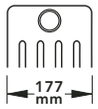
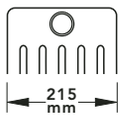
Standard heat output (Watts) at 75/65/20 °C in accordance with EN 442, DIN registration number 6R0900

Attention: the height 155 mm cannot be mounted using the radiator mounts!		2-columns 	3-columns 	4-columns 	5-columns 	6-columns 
Increments		All lengths from 200 to 1500 mm in increments of 100 mm, the element width is 50 mm.				
Overall height 155 mm	**Model**	**2016**	**3016**	**4016**	**5016**	**6016**
	Output/element in Watts	12,66	17,51	22,83	28,71	34,80
Boss spacing 90 mm	Water capacity/element in litres	0,27	0,39	0,51	0,63	0,75
	Weight when empty/ element in kg	0,30	0,45	0,61	0,76	0,93
Overall height 300 mm	**Model**	**2030**	**3030**	**4030**	**5030**	**6030**
	Output/element in Watts	25,24	35,40	45,56	55,98	66,39
Boss spacing 235 mm	Water capacity/element in litres	0,40	0,57	0,75	0,93	1,11
	Weight when empty/ element in kg	0,52	0,78	1,05	1,30	1,57
Overall height 350 mm	**Model**	**2035**	**3035**	**4035**	**5035**	**6035**
	Output/element in Watts	28,96	40,50	52,04	63,99	75,93
Boss spacing 285 mm	Water capacity/element in litres	0,44	0,64	0,84	1,03	1,23
	Weight when empty/ element in kg	0,60	0,89	1,20	1,49	1,86
Overall height 365 mm	**Model**		**3037**	**4037**	**5037**	**6037**
	Output/element in Watts		42,01	53,96	66,36	78,76
Boss spacing 300 mm	Water capacity/element in litres		0,66	0,86	1,06	1,27
	Weight when empty/ element in kg		0,91	1,22	1,54	1,86
Overall height 400 mm	**Model**	**2040**	**3040**	**4040**	**5040**	**6040**
	Output/element in Watts	32,63	45,52	58,40	71,87	85,33
Boss spacing 335 mm	Water capacity/element in litres	0,49	0,70	0,92	1,14	1,35
	Weight when empty/ element in kg	0,68	1,00	1,35	1,67	2,02
Overall height 450 mm	**Model**	**2045**	**3045**	**4045**	**5045**	**6045**
	Output/element in Watts	36,26	50,47	64,68	79,64	94,60
Boss spacing 385 mm	Water capacity/element in litres	0,53	0,76	1,01	1,24	1,48
	Weight when empty/ element in kg	0,75	1,12	1,49	1,86	2,24
Overall height 500 mm	**Model**	**2050**	**3050**	**4050**	**5050**	**6050**
	Output/element in Watts	39,87	55,38	70,88	87,32	103,76
Boss spacing 435 mm	Water capacity/element in litres	0,57	0,83	1,09	1,34	1,60
	Weight when empty/ element in kg	0,83	1,23	1,64	2,04	2,46
Overall height 550 mm	**Model**	**2055**	**3055**	**4055**	**5055**	**6055**
	Output/element in Watts	43,46	60,25	77,03	94,93	112,83
Boss spacing 485 mm	Water capacity/element in litres	0,62	0,89	1,17	1,45	1,73
	Weight when empty/ element in kg	0,91	1,34	1,79	2,23	2,68
Overall height 600 mm	**Model**	**2060**	**3060**	**4060**	**5060**	**6060**
	Output/element in Watts	47,02	65,07	83,12	102,48	121,83
Boss spacing 535 mm	Water capacity/element in litres	0,66	0,96	1,26	1,55	1,85
	Weight when empty/ element in kg	0,98	1,46	1,94	2,42	2,91

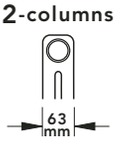
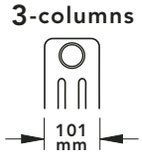
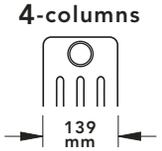
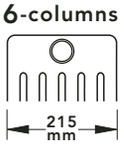
LASERLINE CENTRALLY CONNECTED VALVE

Output tables

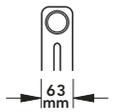
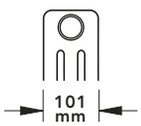
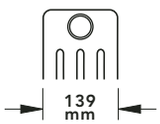
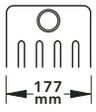
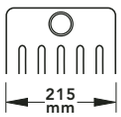
Standard heat output (Watts) at 75/65/20 °C in accordance with EN 442, DIN registration number 6R0900

		2-columns	3-columns	4-columns	5-columns	6-columns
						
Increments		All lengths from 200 to 1500 mm in increments of 100 mm, the element width is 50 mm.				
Overall height 665 mm	**Model**	**2067**	**3067**	**4067**	**5067**	**6067**
	Output/element in Watts	51,64	71,31	90,97	112,20	133,42
Boss spacing 600 mm	Water capacity/element in litres	0,72	1,04	1,37	1,69	2,01
	Weight when empty/ element in kg	1,08	1,60	2,14	2,66	3,20
Overall height 750 mm	**Model**	**2075**	**3075**	**4075**	**5075**	**6075**
	Output/element in Watts	57,65	79,40	101,15	124,80	148,45
Boss spacing 685 mm	Water capacity/element in litres	0,80	1,15	1,51	1,86	2,22
	Weight when empty/ element in kg	1,21	1,79	2,39	2,97	3,58
Overall height 900 mm	**Model**	**2090**	**3090**	**4090**	**5090**	**6090**
	Output/element in Watts	68,22	93,57	118,92	146,79	174,65
Boss spacing 835 mm	Water capacity/element in litres	0,93	1,34	1,76	2,17	2,59
	Weight when empty/ element in kg	1,44	2,13	2,84	3,53	4,24
Overall height 1000 mm	**Model**	**2100**	**3100**	**4100**	**5100**	**6100**
	Output/element in Watts	75,26	102,97	130,67	161,31	191,95
Boss spacing 935 mm	Water capacity/element in litres	1,02	1,47	1,93	2,38	2,84
	Weight when empty/ element in kg	1,59	2,36	3,14	3,91	4,69

Standard heat output (Watts) at 75/65/20 °C in accordance with EN 442, DIN registration number 6R0900

		2-columns	3-columns	4-columns	5-columns	6-columns
						
Increments		All lengths from 200 to 1000 mm in increments of 100 mm, the element width is 50 mm.				
Overall height 1065 mm	**Model**		**3107**	**4107**	**5107**	**6107**
	Output/element in Watts		109,07	138,29	170,72	203,15
Boss spacing 1000 mm	Water capacity/element in litres		1,55	2,04	2,52	3,00
	Weight when empty/ element in kg		2,46	3,24	4,15	4,98
Overall height 1100 mm	**Model**	**2110**	**3110**	**4110**	**5110**	**6110**
	Output/element in Watts	82,30	112,34	142,38	175,77	209,16
Boss spacing 1035 mm	Water capacity/element in litres	1,11	1,60	2,10	2,59	3,10
	Weight when empty/ element in kg	1,75	2,59	3,44	4,28	5,14
Overall height 1200 mm	**Model**	**2120**	**3120**	**4120**	**5120**	**6120**
	Output/element in Watts	89,35	121,70	154,04	190,17	226,29
Boss spacing 1135 mm	Water capacity/element in litres	1,19	1,73	2,27	2,80	3,33
	Weight when empty/ element in kg	1,90	2,81	3,74	4,65	5,58

Output tables

Standard heat output (Watts) at 75/65/20 °C in accordance with EN 442, DIN registration number 6R0900						
		2-columns 	3-columns 	4-columns 	5-columns 	6-columns 
Increments	All lengths from 200 to 1000 mm in increments of 100 mm, the element width is 50 mm.					
Overall height 1500 mm	**Model**	**2150**	**3150**	**4150**	**5150**	**6150**
	Output/element in Watts	110,64	149,80	188,95	233,18	277,41
Boss spacing 1435 mm	Water capacity/element in litres	1,46	2,11	2,77	3,42	4,08
	Weight when empty/ element in kg	2,36	3,49	4,64	5,77	6,92
Overall height 1800 mm	**Model**	**2180**	**3180**	**4180**	**5180**	**6180**
	Output/element in Watts	132,23	178,08	223,92	276,14	328,35
Boss spacing 1735 mm	Water capacity/element in litres	1,72	2,49	3,27	4,04	4,82
	Weight when empty/ element in kg	2,82	4,17	5,53	6,88	8,25
Overall height 2000 mm	**Model**	**2200**	**3200**	**4200**	**5200**	**6200**
	Output/element in Watts	146,83	197,10	247,36	304,85	362,34
Boss spacing 1935 mm	Water capacity/element in litres	1,90	2,75	3,61	4,46	5,31
	Weight when empty/ element in kg	3,12	4,62	6,13	7,63	9,15
Overall height 2200 mm	**Model**	**2220**	**3220**	**4220**	**5220**	**6220**
	Output/element in Watts	161,63	216,28	270,93	333,68	396,42
Boss spacing 2135 mm	Water capacity/element in litres	2,08	3,01	3,94	4,87	5,81
	Weight when empty/ element in kg	3,43	5,07	6,73	8,38	10,04
Overall height 2500 mm	**Model**	**2250**	**3250**	**4250**	**5250**	**6250**
	Output/element in Watts	184,23	245,44	306,30	377,21	447,78
Boss spacing 2435 mm	Water capacity/element in litres	2,34	3,39	4,45	5,50	6,55
	Weight when empty/ element in kg	3,89	5,75	7,63	9,49	11,37
Overall height 2800 mm	**Model**	**2280**	**3280**	**4280**	**5280**	**6280**
	Output/element in Watts	207,36	275,09	342,82	421,18	499,53
Boss spacing 2735 mm	Water capacity/element in litres	2,61	3,78	4,95	6,12	7,29
	Weight when empty/ element in kg	4,34	6,43	8,53	10,61	12,71
Overall height 3000 mm	**Model**	**2300**	**3300**	**4300**	**5300**	**6300**
	Output/element in Watts	223,10	295,18	367,25	450,78	534,30
Boss spacing 2935 mm	Water capacity/element in litres	2,79	4,03	5,29	6,53	7,79
	Weight when empty/ element in kg	4,65	6,88	9,12	11,35	13,60

LASERLINE TWIN

Overall heights
1000, 1200, 1500 and 1800 mm

Overall length
500 mm (10 elements)
600 mm (12 elements)

Overall depth
2-column: 63 mm

Connections
2x 1/2" internal thread at the bottom in the centre, spacing of 50 mm, Air vent on the top right at the side G 1/2"
Possible connections
1 x 1/2" internal thread bottom right for electric heating elements

Max. operating pressure
10 Heated bar tables

Max. operating temperature
110 °C

Guarantee statements are available to download at **www.vogelundnoot.com/download**

- **Laser-welded – no visible welding seams**
- **Highest-precision manufacturing**
- **Highly conducive to cleanliness**
- **With fixings and towel rail**

Design Column radiators are fully laser-welded. Pipes and head pieces are flattened on the exterior to increase the heat output.

Fixing
Clip brackets welded on at the back

Scope of delivery
Delivery complete with mounting brackets, wall brackets, fixing screws and anchor bolts; includes height-adjustable towel rail in matching radiator colour with chrome-plated holders.

Coating
In accordance with DIN 55 900, with electrophoretic immersion coating and cured powder coating in RAL 9016 Traffic White, other RAL colours and bathroom suite colours are available upon request.

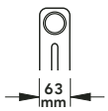
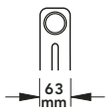
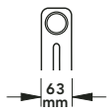
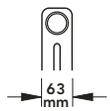
Safety
Construction in line with work safety requirements in accordance with the guidelines of the statutory accident insurer (GUV).

Packaging
Environmentally friendly transport packaging with side protection (enclosing cardboard packaging), and shrink-wrapped.

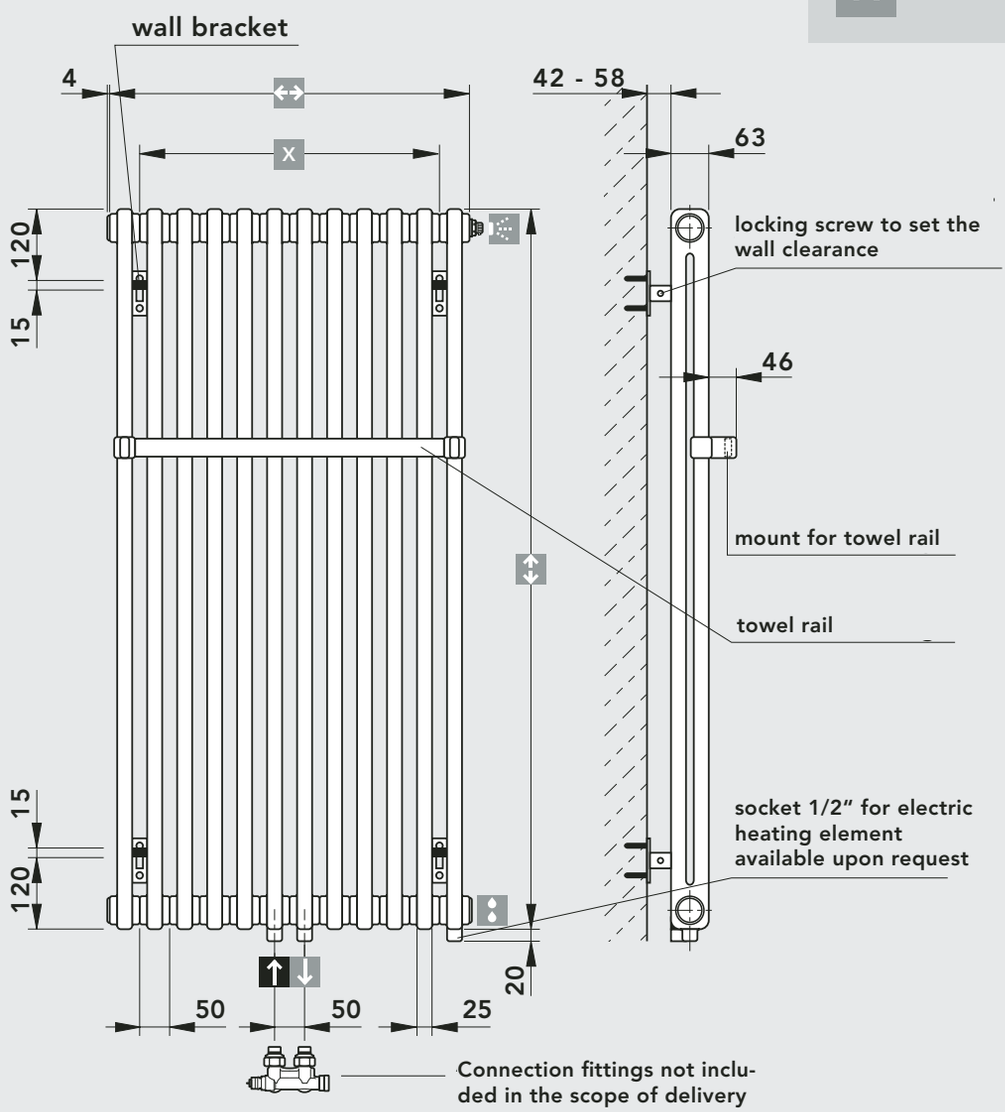
Connections
The VOGEL&NOOT Laserline Twin tube radiator is centrally connected via 2 G 1/2" ports on the bottom. The supply port on the radiator is always located on the left, while the return port is on the right. The distance between the ports is 50 mm. If requested, an additional 1/2" port can be added in production to the last element for the purpose of connecting an electric heating element, which is available in the accessories range. This enables the Laserline Twin to also be used when the heating system is switched off.

Attention! The manufacturer's length tolerance is 0 to + 1%. Please take this into account during pre-assembly!

Overview of models, outputs and special designs

* Standard heat output in accordance with EN 442 in Watts, DIN registration number 6R0900						
Overall height [mm]			1000	1200	1500	1800
			2-columns 	2-columns 	2-columns 	2-columns 
Model			2100	2120	2150	2180
Elements	Overall length [mm]					
10	500	Watt 75/65/20° *	753	893	1106	1322
		Water capacity in litres	10,20	11,90	14,60	17,20
		Weight when empty in kg	15,90	19,00	23,60	28,20
		Radiator exponent n	1,27	1,28	1,30	1,32
12	600	Watt 75/65/20° *	904	1072	1328	1587
		Water capacity in litres	12,20	14,30	17,50	20,60
		Weight when empty in kg	19,10	22,80	28,30	33,80
		Radiator exponent n	1,27	1,28	1,30	1,32

Technical data



The accessories (valve closure fitting and cover cap) can be found in the price list on page 180.

LASERLINE Architecture Heated bar tables

Overall heights
940 (750) mm or
1090 (900) mm
(radiator heights shown in brackets)

Overall length
720 (700) mm, 920 (900) mm oder 1120 (1100) mm
(radiator lengths shown in brackets)

Overall depth
Version with 4 columns 224 mm
Version with 5 columns 262 mm

Connections
Supply 1/2" internal thread bottom left, return 1/2" internal thread bottom right;
With built-in presettable thermostatic valve, thermostatic head port thread M 30 x 1.5 mm top left, vent plug top right G 1/2"

Max. Operating pressure
10 Heated bar tables

Max. Operating temperature
110 °C

Guarantee statements are available to download at **www.vogelundnoot.com/download**

- **Laser-welded – no visible welding seams**
- **Highest-precision manufacturing**
- **Highly conducive to cleanliness**
- **Unique design options**

Design Column radiators in Heated bar tables counter-style, fully laser-welded. Pipes and head pieces are flattened on the exterior to increase the heat output, boss spacing 1". Element length is 50 mm, with design set.

Fixing
Design set for easy, durable installation and to conceal the ports, with option for the overlay to be affixed at the time of installation.

Scope of delivery
Delivery complete with bracket, design set, with thermostatic head (Oventrop Uni LH) without overlay.

Coating
In accordance with DIN 55 900, with electrophoretic immersion coating and cured powder coating in RAL 9016 Traffic White, other RAL colours and bathroom suite colours are available upon request.

Safety
Construction in line with work safety requirements in accordance with the guidelines of the statutory accident insurer (GUV).

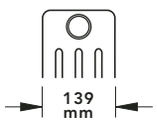
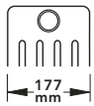
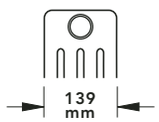
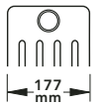
Packaging
Environmentally friendly transport packaging with side protection (enclosing cardboard packaging), and shrink-wrapped.

Attention!
The manufacturer's length tolerance is 0 to + 1%. Please take this into account during pre-assembly!

LASERLINE Architecture Heated bar tables

Overview of models, outputs and overlay

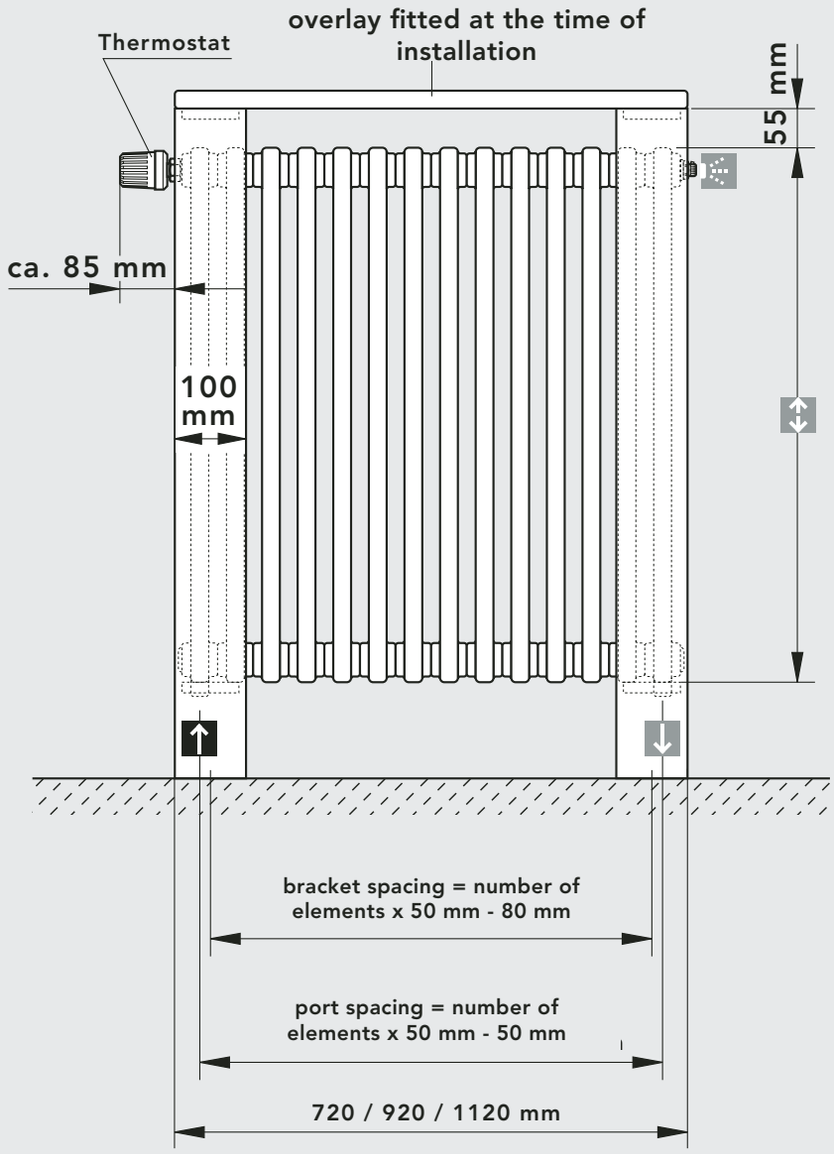
Technical data

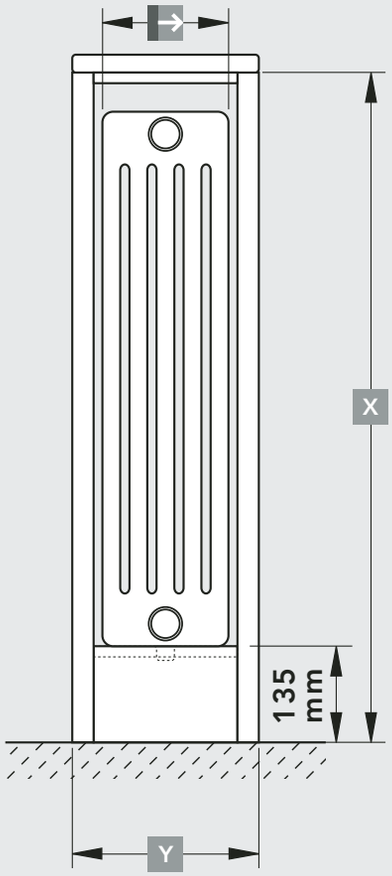
Overall height of Heated bar tables structure [mm]			940		1090	
Radiator height [mm]			750		900	
Overall depth of Heated bar tables structure [mm]			224	262	224	262
Radiator depth			4-columns 	5-columns 	4-columns 	5-columns 
Model			4075	5075	4090	5090
Elements	Overall length [mm]					
14	720 (700)*	Watt 75/65/20° **	1417	1747	1665	2055
		Water capacity in litres	21,2	26,1	24,7	30,4
		Weight when empty in kg	50	58	58	68
		Radiator exponent n	1,30	1,30	1,31	1,31
18	920 (900)*	Watt 75/65/20° **	1822	2246	2140	2642
		Water capacity in litres	27,2	33,5	31,7	39,1
		Weight when empty in kg	59	70	69	82
		Radiator exponent n	1,30	1,30	1,31	1,31
22	1120 (1100)*	Watt 75/65/20° **	2226	2746	2616	3230
		Water capacity in litres	33,3	41,0	38,8	47,8
		Weight when empty in kg	69	82	81	97
		Radiator exponent n	1,30	1,30	1,31	1,31

* Overall height of radiator
** Standard heat output in accordance with EN 442 in Watts DIN registration number 6R0900

Overlay (beech plywood) for Heated bar tables counter	dimensions of overlay	for model	Item no.	weight in kg
	1150 x 350 x 35	4075 and 4090 in OL 700 mm	AZ13DZ8340901400	~9
	1350 x 350 x 35	4075 and 4090 in OL 900 mm	AZ13DZ8340901800	~10
	1550 x 350 x 35	4075 and 4090 in OL 1100 mm	AZ13DZ8340902200	~11
	1150 x 400 x 35	5075 and 5090 in OL 700 mm	AZ13DZ8350901400	~10
	1350 x 400 x 35	5075 and 5090 in OL 900 mm	AZ13DZ8350901800	~11
	1550 x 400 x 35	5075 and 5090 in OL 1100 mm	AZ13DZ8350902200	~12

Technical data





X	Overall radiator height + 190 mm
Y	Overall radiator depth + 85 mm

LASERLINE Architecture HEATED BENCHES

Overall heights
422 mm (4 Elements),
472 mm (5 Elements),
522 mm (6 Elements),
572 mm (7 Elements)

Overall length
1850 to 3150 mm

Overall depth
370 mm

Connections
Supply 1/2" internal thread bottom left, return 1/2" internal thread bottom right; With built-in presettable thermostatic valve, thermostatic head port thread M 30 x 1.5 mm bottom left, vent plug top right G 1/2"

Max. Operating pressure
10 Heated bar tables

Max. Operating temperature
110 °C

Guarantee statements are available to download at **www.vogelundnoot.com/download**

- **Laser-welded – no visible welding seams**
- **Highest-precision manufacturing**
- **Highly conducive to cleanliness**
- **Unique design options**

Design Column radiators in Heated benches style, fully laser-welded. Pipes and head pieces are flattened on the exterior to increase the heat output, boss spacing 1".
Element length is 50 mm, with 4 to 7 stacked elements.

Fixing
Design set for easy, durable installation and to conceal the ports, with option for the overlay to be affixed at the time of installation.

Scope of delivery
Delivery complete with bracket and design set, with thermostatic head (Oventrop Uni LH) without overlay.

Coating
In accordance with DIN 55 900, with electrophoretic immersion coating and cured powder coating in RAL 9016 Traffic White, other RAL colours and bathroom suite colours are available upon request.

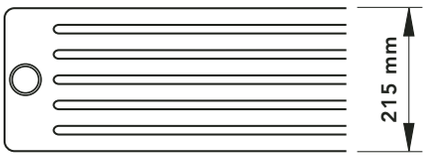
Safety
Construction in line with work safety requirements in accordance with the guidelines of the statutory accident insurer (GUV).

Packaging
Environmentally friendly transport packaging with side protection (enclosing cardboard packaging), and shrink-wrapped.

Attention!
The manufacturer's length tolerance is 0 to + 1%. Please take this into account during pre-assembly!

Overview of models, outputs and overlay

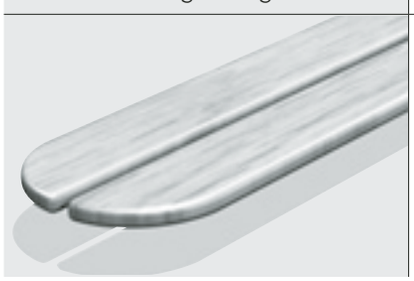
Technical data

Overall length of Heated benches structure [mm]			1850	2150	2350	2850	3150
Radiator length [mm]			1500	1800	2000	2500	2800
Overall depth of Heated benches structure [mm]			370				
Radiator depth			6-columns 				
Model			6150	6180	6200	6250	6280
Elements	Overall height [mm]						
4	422 (200)*	Watt 75/65/20° **	1411	1696	1886	2362	2648
		Water capacity in litres	16,4	19,3	21,3	26,2	29,2
		Weight when empty in kg	37,5	42,8	46,4	55,3	64,2
		Radiator exponent n	1,32	1,31	1,31	1,30	1,29
5	472 (250)*	Watt 75/65/20° **	1742	2097	2334	2929	3287
		Water capacity in litres	20,4	24,1	26,6	32,8	36,5
		Weight when empty in kg	45,2	51,9	56,4	67,5	78,6
		Radiator exponent n	1,28	1,28	1,28	1,29	1,29
6	522 (300)*	Watt 75/65/20° **	1934	2337	2606	3285	3695
		Water capacity in litres	24,5	29,0	31,9	39,3	43,8
		Weight when empty in kg	52,9	60,9	66,3	79,6	93
		Radiator exponent n	1,29	1,28	1,28	1,28	1,28
7	572 (350)*	Watt 75/65/20° **	2204	2670	2982	3770	4247
		Water capacity in litres	28,6	33,8	37,2	45,9	51,1
		Weight when empty in kg	60,6	70,0	76,3	91,8	107,4
		Radiator exponent n	1,29	1,29	1,30	1,31	1,32

* Overall radiator height
** Standard heat output in accordance with EN 442 in Watts DIN registration number 6R0900

Heated benches overlay

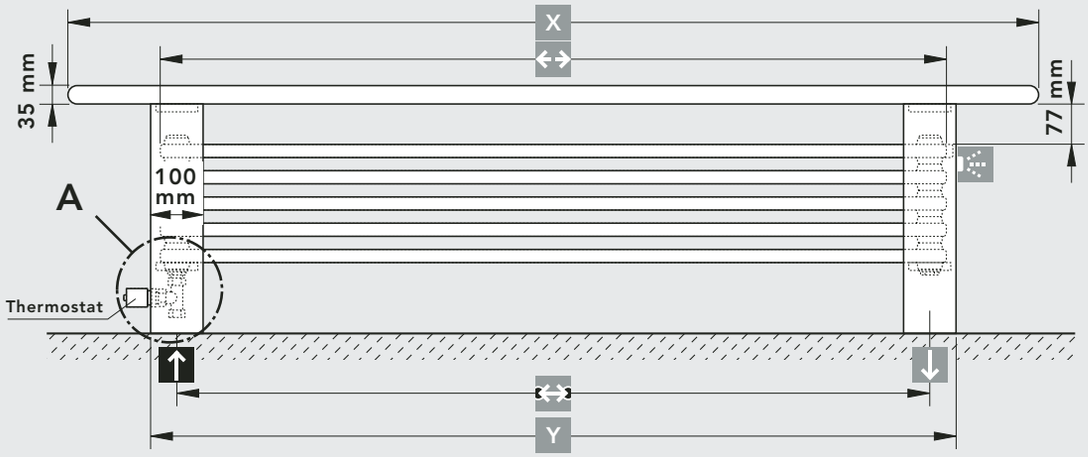
Item no.	AZ13DZ8361500000	AZ13DZ8361800000	AZ13DZ8362000000	AZ13DZ8362500000	AZ13DZ8362800000
Weight in kg	~23	~26	~29	~34	~38

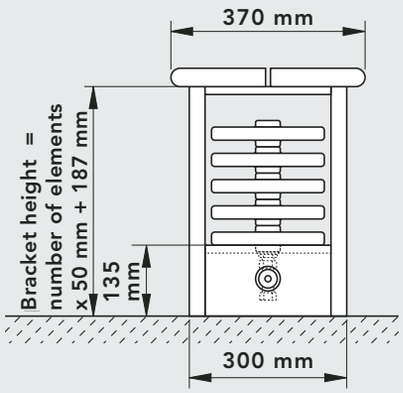


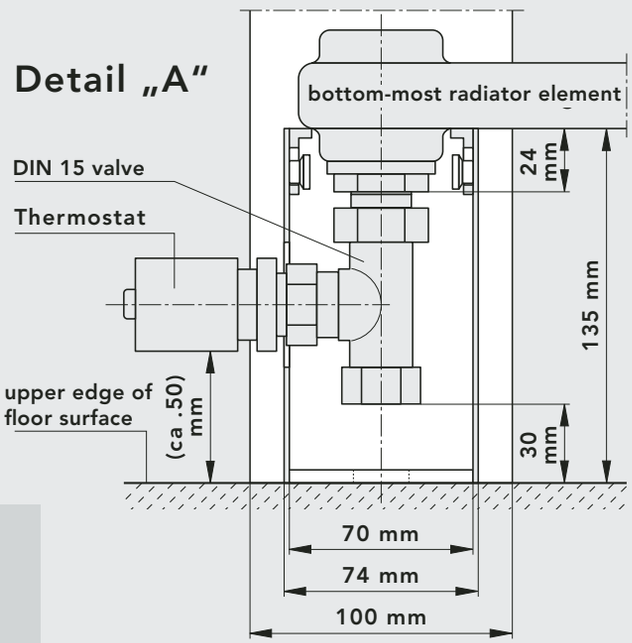
Heated benches overlay (beech plywood)

- Made from bonded beechwood (plywood) approx. 35 mm thick
- Rounded on all sides, in two parts, in four parts for lengths exceeding 2850 m
- Surface of the beech veneered with colour-less Desmophen/Desmodur coating, semi-gloss, twice-coated, splash-proof
- Prepared for easy mounting onto the Architecture mounting bracket, required fixing materials are supplied

Technical data







Boss spacing:
Overall radiator length - 65 mm

X Overall radiator length + 350 mm

Y **Bracket length:**
Overall radiator length + 35 mm

Attention: A third bracket must be used in the middle for radiators exceeding 2000 mm in length!

Accessories

Fixing

The standard delivery of Laserline Column radiators does not include any fixings. These are to be selected depending on use from the range of accessories and are to be ordered separately. However, connection sets with angle brackets and connection sets with drilled brackets are available as standard fixtures. These sets each include the appropriate number of brackets, radiator mounts, the necessary screws and anchor bolt (suitability to be checked by the customer!) and an instruction sheet*. When installing, it is recommended that the upper radiator brackets are mounted immediately below the upper boss.

In addition, the accessories range includes drilled tension brackets, floor brackets and wall brackets in various designs and sizes for fixing in conjunction with radiator mounts. A special adjustable wall bracket makes it possible to set a very wide range of wall clearances.

The Laserline tube radiator is also available in a special design with welded-on clip brackets.

It is essential to note in each case the number of fixing points that are required (see next pages). A fixing point is understood to be any load-bearing fixture (spacing brackets and clamping holders are not fixing points). A fixing point above (recommended position directly underneath the boss) and a fixing point underneath (Fig. 1) in each case form a vertical fixture axis.

The load-bearing capacity and stability of the walls must be checked as to whether they can support the intended load in each case. Clip brackets are not supplied with the standard design of the Laserline tube radiator.

Both floor brackets and circular floor brackets are available for free-standing installation of the Laserline Column radiators. The floor brackets also offer the option to fit a height-adjustable window Heated benches support. Both brackets can be used for radiator lengths of up to 1000 mm. A SINGLE floor bracket/circular floor bracket is recommended per fixture axis. In the case of extraordinary loads, it is recommended that the wall bracket for use in public areas should be used (e.g. in schools).

**Attention: the radiator with the overall height of 155 mm can only be mounted with circular floor brackets or with wall brackets WK 155.*

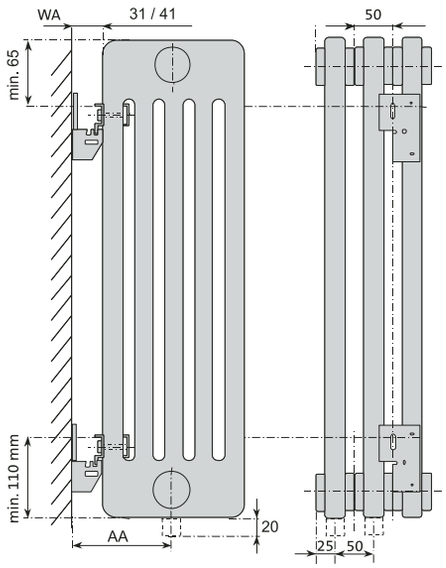
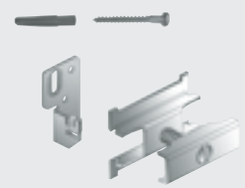
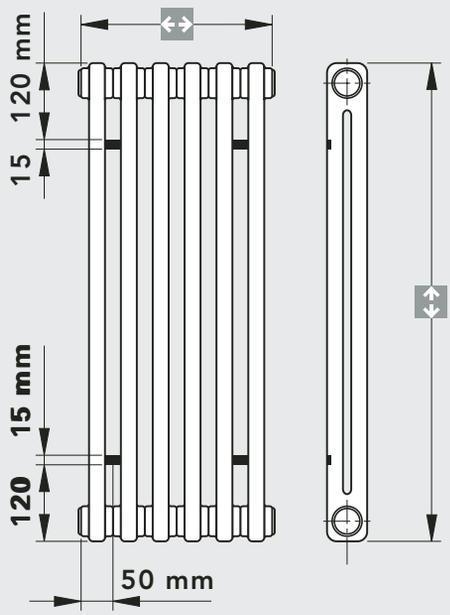


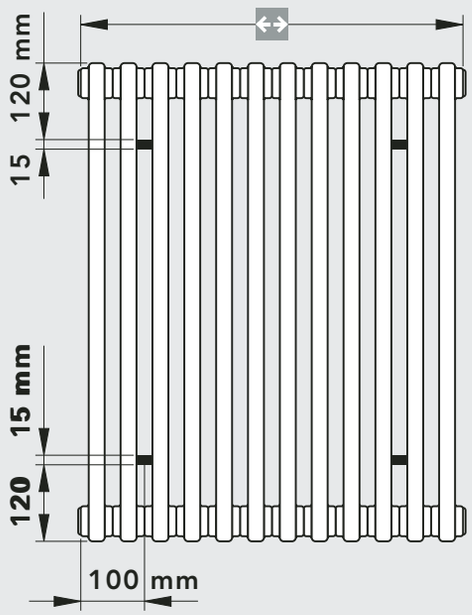
Fig. 1 *Fixing and connection dimensions for connection set with angled bracket. The 4-part set includes 4 x the items shown below right, while the 6-part set includes 6 x these items.*

		Angled bracket set	
Model	Overall depth	wall clearance WA	connection clearance AA
2-column	63	31 / 41	63,5 / 73,5
3-column	101	31 / 41	82,5 / 92,5
4-column	139	31 / 41	101,5 / 111,5
5-column	177	31 / 41	120,5 / 130,5
6-column	215	31 / 41	139,5 / 149,5





Arrangement of mounting clip brackets from outside for 4-6 elements



Arrangement of mounting clip brackets from outside for 7-20 elements

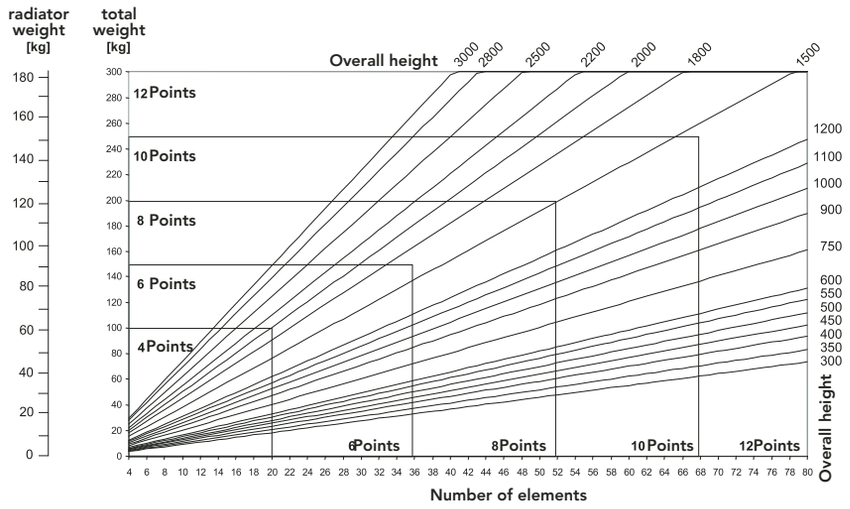
Overall length:
n x 50 mm

Accessories

2-column:

Maximum block lengths and required fixing points

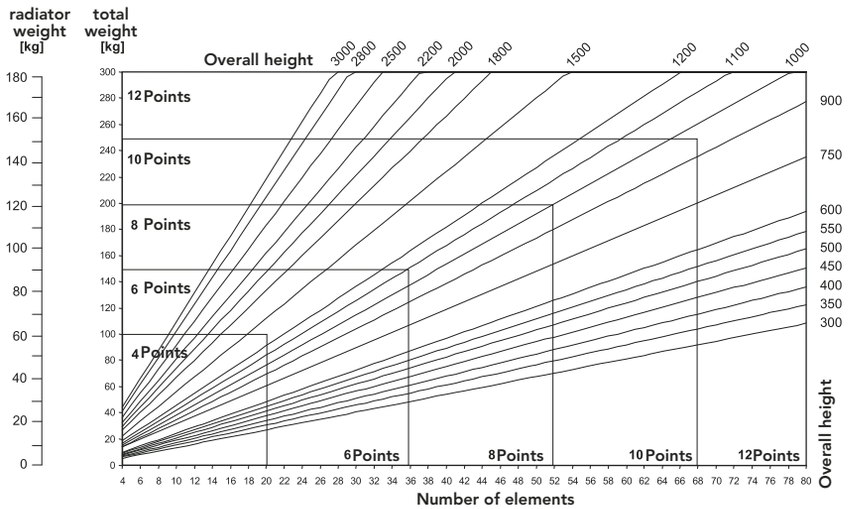
Overall height [mm]	Max. elements per block
up to 1000	40
up to 3000	19



3-column:

Maximum block lengths and required fixing points

Overall height [mm]	Max. elements per block
up to 1000	40
up to 2200	19
up to 3000	14



4-column:

Maximum block lengths and required fixing points

Overall height [mm]	Max. elements per block
up to 750	40
up to 1000	30
up to 1500	19
up to 2200	14
up to 3000	10

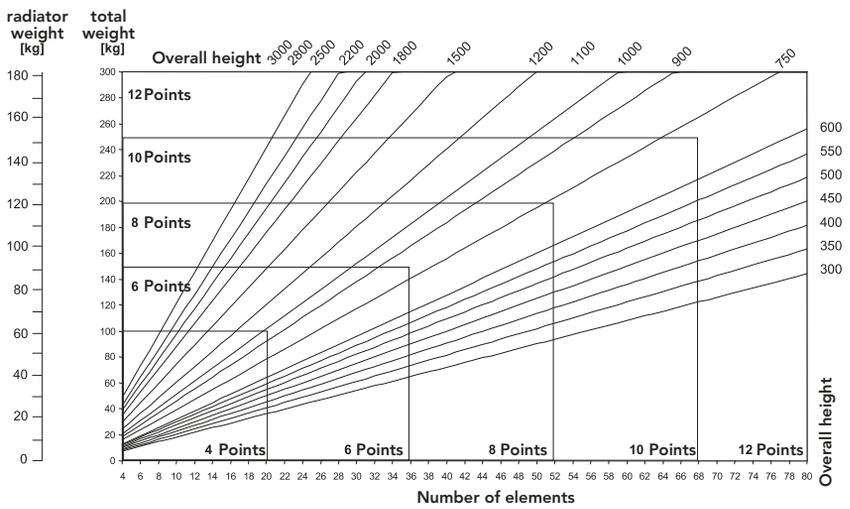


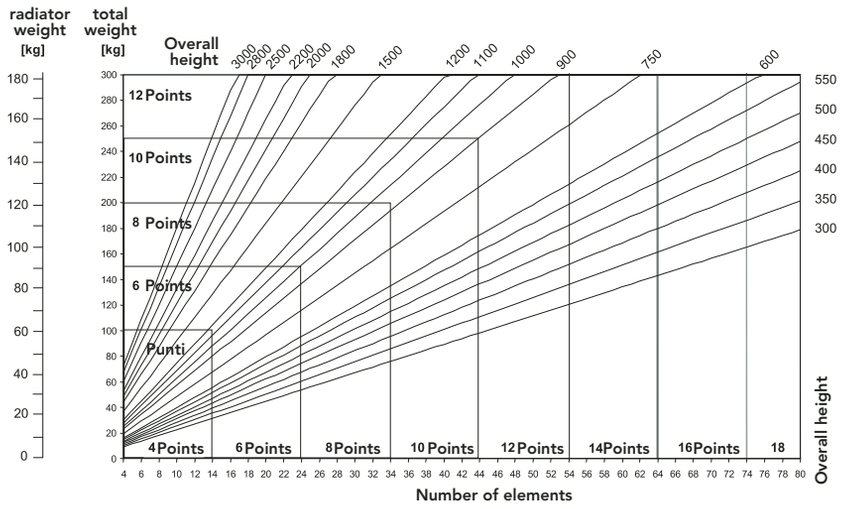
Fig. 2 *Determining the necessary fixing points for the 2-, 3- and 4-Column radiators. A fixing point above (recommended position directly underneath the boss) and a fixing point at the bottom in each case (Fig. 1) form a vertical fixture axis.*

Accessories

5-column:

Maximum block lengths and required fixing points

Overall height [mm]	Max. elements per block
up to 600	40
up to 665	35
up to 750	30
up to 1000	25
up to 1200	19
up to 1500	15
up to 2500	10
up to 3000	8



6-column:

Maximum block lengths and required fixing points

Overall height [mm]	Max. elements per block
up to 500	40
up to 600	35
up to 665	30
up to 750	25
up to 1000	20
up to 1200	15
up to 1500	13
up to 2000	10
up to 2500	8
up to 3000	7

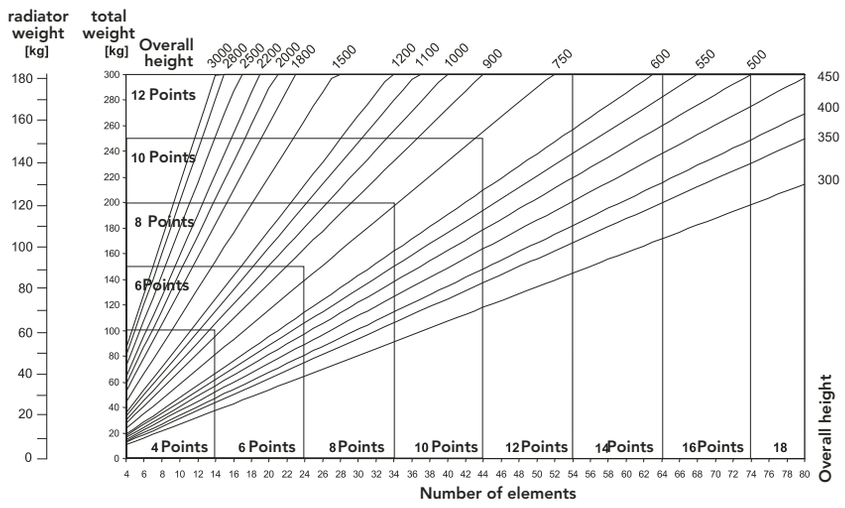


Abb. 3 *Determining the necessary fixing points for the 5- and 6-Column radiators. A fixing point above (recommended position directly underneath the boss) and a fixing point at the bottom in each case (Fig. 1) form a vertical fixture axis.*

Note:
A SINGLE floor bracket/circular floor bracket is recommended per fixture axis.
The radiator with the overall height of 155 mm can only be mounted with circular floor brackets or with wall brackets WK 155.