



**SPIRAL**



**Finned tube  
radiators**

# ABOUT THE COMPANY



ISAN is a traditional supplier with more than 60 years of experience in providing its customers with bathroom outfitting, such as the ISAN MELODY radiators, radiating convectors and lamellar radiators ISAN EXACT, lamellar exchanger convectors ISAN ECOLITE, floor convectors ISAN TERMO, ISAN ATOL column radiators or ISAN SPIRAL finned tube radiators. Top modern technological procedures and progressive thinking of the Company's staff guarantee design and technical parameters of the best quality.

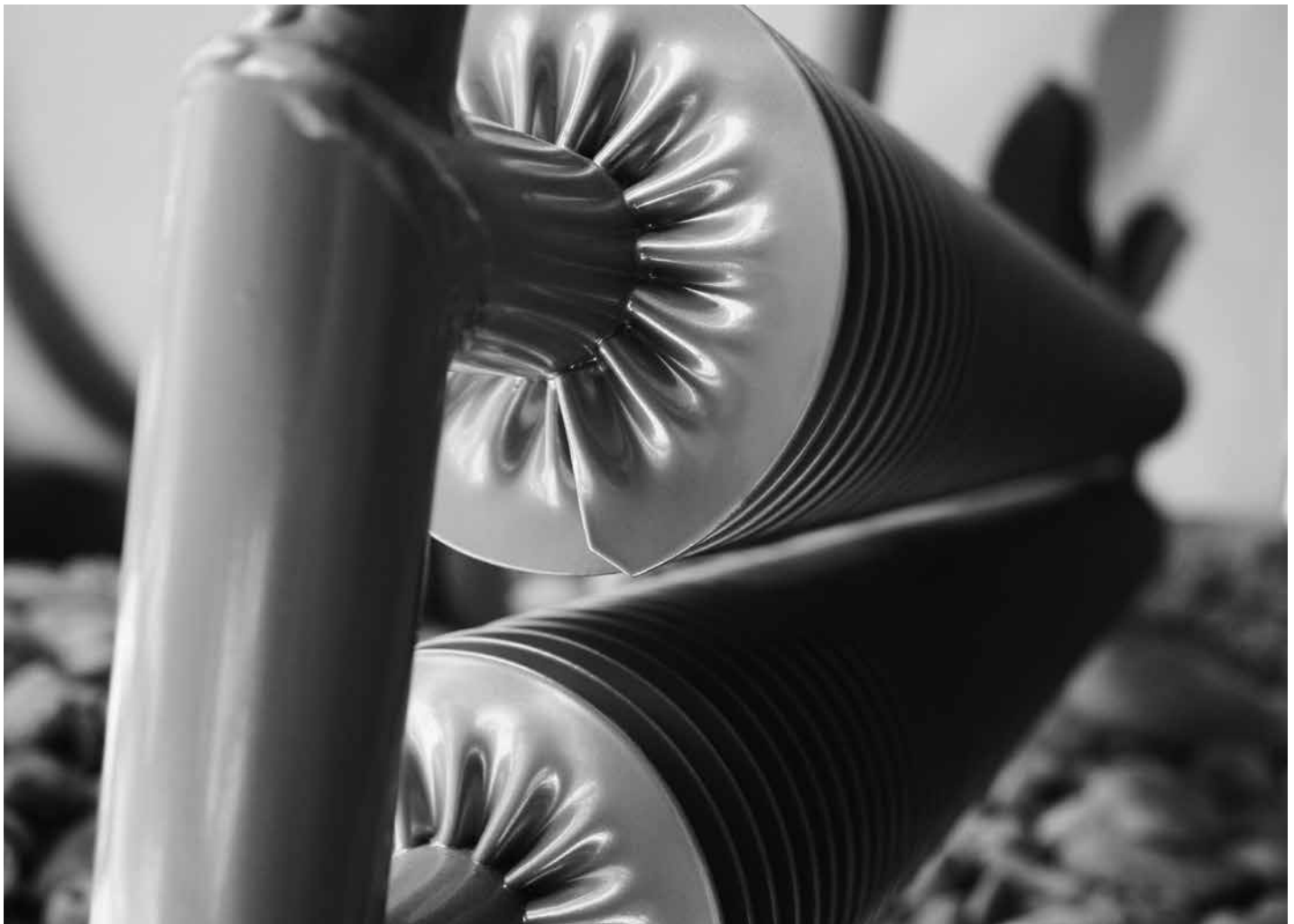
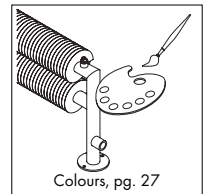
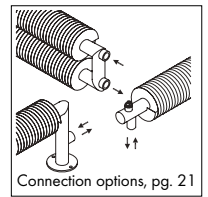
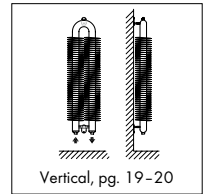
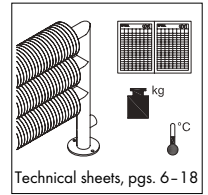
ISAN's policy is primarily focused to customer's satisfaction. Ecological processing with the greatest respect to environmental protection is taken for granted. The Company has introduced and maintains Quality Management System as per the ISO 9001:2016.

All the heating bodies comply with certification demands according to the actual rigorous legislative standards applicable in the supplied countries. Certification procedure for territory of the Czech Republic was performed by Strojírenský zkušební ústav (Engineering Testing Institute), Brno, a notified person ES1015.



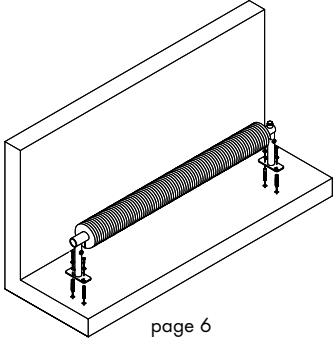
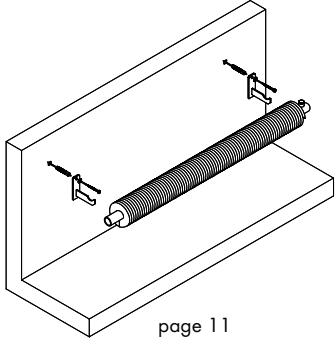
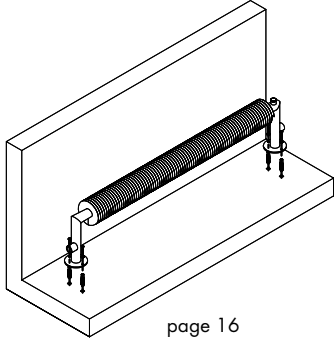
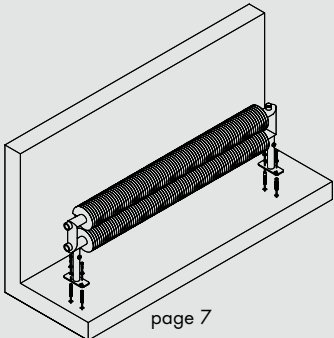
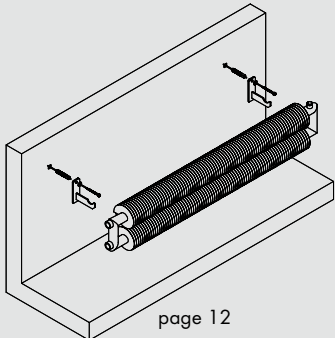
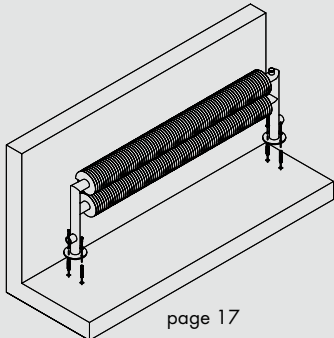
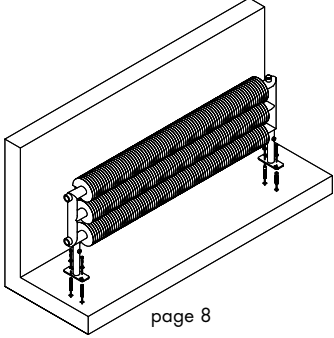
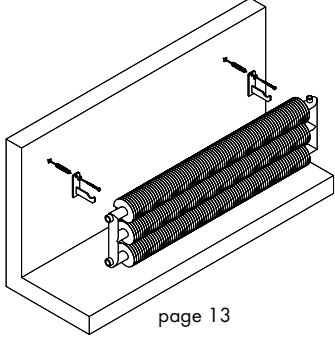
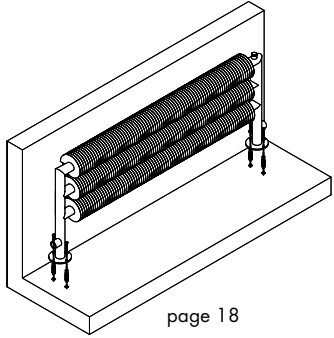
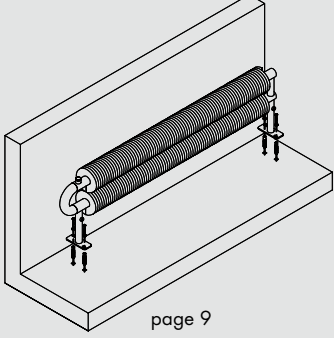
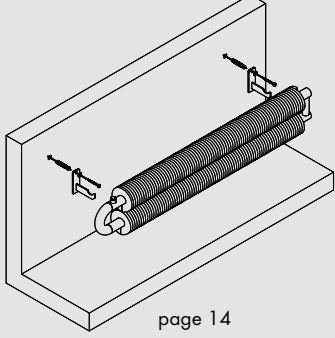
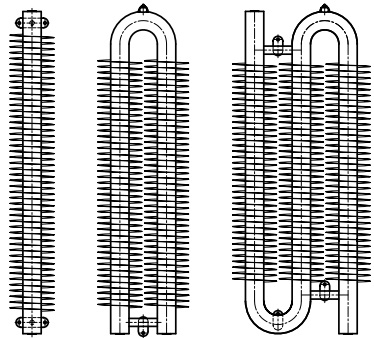
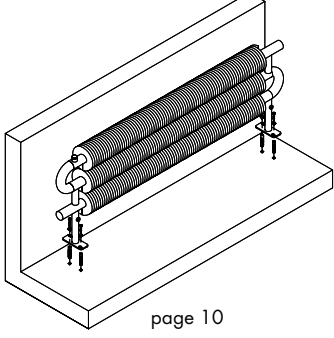
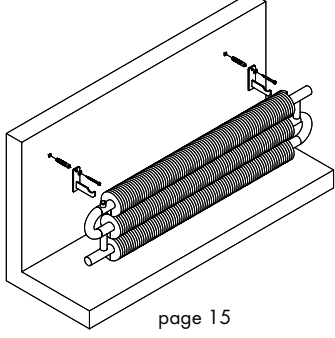


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# OVERVIEW OF THE TYPES OF SPIRAL RADIATORS



	FLOOR-MOUNTED VERSION (F)	WALL-MOUNTED VERSION (W)	SELF-STANDING VERSION (S)
RA1	 page 6	 page 11	 page 16
RAT2	 page 7	 page 12	 page 17
RAT3	 page 8	 page 13	 page 18
RAO2	 page 9	 page 14	<b>VERTICAL DESIGN (V)</b> Spiral radiators can also be installed vertically. On page 19 you will find possible variations.  page 19
RAO3	 page 10	 page 15	

# TABLE OF HEATING OUTPUTS



Note: Temperature exponent n=1,3

TYPE OF SPIRAL RADIATORS on the floor • on the wall • self-standing		TEMPERATURE GRADIENT [°C]	LENGTH [mm] / OUTPUT Q [W]								
			500	1000	1500	2000	2500	3000	4000	5000	6000
RA1	∅32×2,0×∅92 mm	90/70/20	203	501	799	1058	1318	1578	2095	2628	3161
		75/65/20	160	395	630	835	1040	1245	1653	2073	2494
		70/55/20	130	320	510	676	842	1008	1338	1679	2019
		55/45/20	82	203	324	430	535	641	851	1067	1284
	∅57×2,5×∅137 mm	90/70/20	266	559	911	1240	1568	1919	2612	3292	3906
		75/65/20	210	441	719	978	1237	1514	2061	2597	3082
		70/55/20	170	357	582	792	1001	1226	1668	2102	2495
		55/45/20	108	227	370	503	637	779	1061	1337	1586
	∅76×2,5×∅156 mm	90/70/20	294	587	939	1260	1636	2046	2721	3366	3991
		75/65/20	232	463	741	994	1291	1614	2147	2656	3149
		70/55/20	188	375	600	805	1045	1307	1738	2150	2549
		55/45/20	119	238	381	512	665	831	1105	1367	1621
RAT2	∅32×2,0×∅92 mm	90/70/20	361	887	1420	1882	2345	2769	3725	4672	5618
		75/65/20	285	700	1120	1485	1850	2185	2939	3686	4433
		70/55/20	231	567	907	1202	1498	1769	2379	2984	3589
		55/45/20	147	360	577	764	952	1125	1513	1897	2282
	∅57×2,5×∅137 mm	90/70/20	385	965	1527	2178	2769	3377	4586	5775	6848
		75/65/20	304	761	1205	1718	2185	2664	3618	4556	5403
		70/55/20	246	616	976	1391	1769	2157	2929	3688	4374
		55/45/20	156	392	620	884	1125	1371	1862	2345	2781
	∅76×2,5×∅156 mm	90/70/20	403	1003	1589	2235	2840	3422	4626	5846	6960
		75/65/20	318	791	1254	1763	2241	2700	3650	4612	5491
		70/55/20	257	640	1015	1427	1814	2186	2955	3734	4445
		55/45/20	164	407	645	908	1154	1390	1879	2374	2826
RAT3	∅32×2,0×∅92 mm	90/70/20	539	1331	2129	2820	3511	4151	5581	7001	8420
		75/65/20	425	1050	1680	2225	2770	3275	4404	5523	6643
		70/55/20	344	850	1360	1801	2242	2651	3565	4471	5378
		55/45/20	219	540	865	1145	1426	1686	2267	2843	3419
	∅57×2,5×∅137 mm	90/70/20	584	1483	2382	3318	4171	5133	6990	8841	10449
		75/65/20	461	1170	1879	2618	3291	4050	5515	6975	8244
		70/55/20	373	947	1521	2119	2664	3279	4465	5647	6674
		55/45/20	237	602	967	1348	1694	2085	2839	3590	4244
	∅76×2,5×∅156 mm	90/70/20	607	1503	2399	3351	4265	5185	7066	9023	10567
		75/65/20	479	1186	1893	2644	3365	4091	5575	7119	8337
		70/55/20	388	960	1532	2140	2724	3312	4513	5763	6749
		55/45/20	247	610	974	1361	1732	2106	2870	3665	4291
RAO2	∅32×2,0×∅92 mm	90/70/20	361	887	1420	1882	2345	2769	3725	4672	5618
		75/65/20	285	700	1120	1485	1850	2185	2939	3686	4433
		70/55/20	231	567	907	1202	1498	1769	2379	2984	3589
		55/45/20	147	360	577	764	952	1125	1513	1897	2282
	∅57×2,5×∅137 mm	90/70/20	385	965	1527	2178	2769	3377	4586	5775	6848
		75/65/20	304	761	1205	1718	2185	2664	3618	4556	5403
		70/55/20	246	616	976	1391	1769	2157	2929	3688	4374
		55/45/20	156	392	620	884	1125	1371	1862	2345	2781
	∅76×2,5×∅156 mm	90/70/20	403	1003	1589	2235	2840	3422	4626	5846	6960
		75/65/20	318	791	1254	1763	2241	2700	3650	4612	5491
		70/55/20	257	640	1015	1427	1814	2186	2955	3734	4445
		55/45/20	164	407	645	908	1154	1390	1879	2374	2826
RAO3	∅32×2,0×∅92 mm	90/70/20	539	1331	2129	2820	3511	4151	5581	7001	8420
		75/65/20	425	1050	1680	2225	2770	3275	4404	5523	6643
		70/55/20	344	850	1360	1801	2242	2651	3565	4471	5378
		55/45/20	219	540	865	1145	1426	1686	2267	2843	3419
	∅57×2,5×∅137 mm	90/70/20	584	1483	2382	3318	4171	5133	6990	8841	10449
		75/65/20	461	1170	1879	2618	3291	4050	5515	6975	8244
		70/55/20	373	947	1521	2119	2664	3279	4465	5647	6674
		55/45/20	237	602	967	1348	1694	2085	2839	3590	4244
	∅76×2,5×∅156 mm	90/70/20	607	1503	2399	3351	4265	5185	7066	9023	10567
		75/65/20	479	1186	1893	2644	3365	4091	5575	7119	8337
		70/55/20	388	960	1532	2140	2724	3312	4513	5763	6749
		55/45/20	247	610	974	1361	1732	2106	2870	3665	4291

HEATING OUTPUT IN DESIGN STAINLESS STEEL -35 %  
 HOT-DIP GALVANIZED -10 %  
 VERTICAL -30 %



## TECHNICAL INFORMATION

<b>Material</b>	Standard:	steel tubes with air valve G 3/8" $\varnothing 32 \times 2,0 \times \varnothing 92$ mm, lead of spiral 10 mm $\varnothing 57 \times 2,5 \times \varnothing 137$ mm, lead of spiral 18 mm $\varnothing 76 \times 2,5 \times \varnothing 156$ mm, lead of spiral 20 mm width of steel fins 0,8mm
	Stainless steel, Hot-dip galvanized:	per order, see page 21
<b>Connection threads</b>	inner G1/2"	
<b>Lengths</b>	500 mm - 6 000 mm (with step of 100 mm)	
<b>Operating conditions</b>	Hot water system:	forced circulation
	Max. operating temperature:	120 °C
	Operating overpressure:	1,0 MPa
	Test overpressure:	1,3 MPa
The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C.		
<b>Colour</b>	snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge)	
<b>Atypical design options</b>	Connection threads G3/4", G3/8", G1"	
	Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm	
	Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation.	

## TABLE OF DIMENSIONS

RA1-F	Dimensions [mm]												
	A	B	C	D	E	F	G	H	I	J	K	L	M
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	500-6000	192	32	92	10	A-100	50	25	-	-	-	-	≥60
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	500-6000	237	57	137	18	A-140	70	35	-	-	-	-	≥85
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	500-6000	256	76	156	20	A-140	70	35	-	-	-	-	≥95

Note:  $\varnothing 32 \times 2,0 \times \varnothing 92$  [mm] - diameter of tube × thickness × diameter of winding [mm]

## HEATING OUTPUTS

RA1-F	TEMPERATURE GRADIENT	LENGTH [mm] / OUTPUT Q [W]								
		500	1000	1500	2000	2500	3000	4000	5000	6000
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	90/70/20 °C	203	501	799	1058	1318	1578	2095	2628	3161
	75/65/20 °C	160	395	630	835	1040	1245	1653	2073	2494
	70/55/20 °C	130	320	510	676	842	1008	1338	1679	2019
	55/45/20 °C	82	203	324	430	535	641	851	1067	1284
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	90/70/20 °C	266	559	911	1240	1568	1919	2612	3292	3906
	75/65/20 °C	210	441	719	978	1237	1514	2061	2597	3082
	70/55/20 °C	170	357	582	792	1001	1226	1668	2102	2495
	55/45/20 °C	108	227	370	503	637	779	1061	1337	1586
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	90/70/20 °C	294	587	939	1260	1636	2046	2721	3366	3991
	75/65/20 °C	232	463	741	994	1291	1614	2147	2656	3149
	70/55/20 °C	188	375	600	805	1045	1307	1738	2150	2549
	55/45/20 °C	119	238	381	512	665	831	1105	1367	1621

Note: Temperature exponent n=1,3

Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

## VOLUME OF WATER AND WEIGHT

RA1-F	Length X [mm]	500	1000	1500	2000	2500	3000	4000	5000	6000
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	Weight [kg]	2,3	5	7,8	10,5	13,2	15,9	18,6	21,3	24
	Volume [l]	0,3	0,7	1	1,3	1,6	1,9	2,5	3,1	3,7
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	Weight [kg]	4,6	9,1	13,7	18,2	22,7	27,2	31,7	40,7	49,6
	Volume [l]	1,1	2,1	3,1	4,1	5,1	6,2	8,2	10,3	12,3
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	Weight [kg]	5,4	10,7	16,1	21,5	26,9	32,3	37,7	46,7	56,9
	Volume [l]	2	3,9	5,8	7,7	9,7	11,6	15,4	19,3	23,1

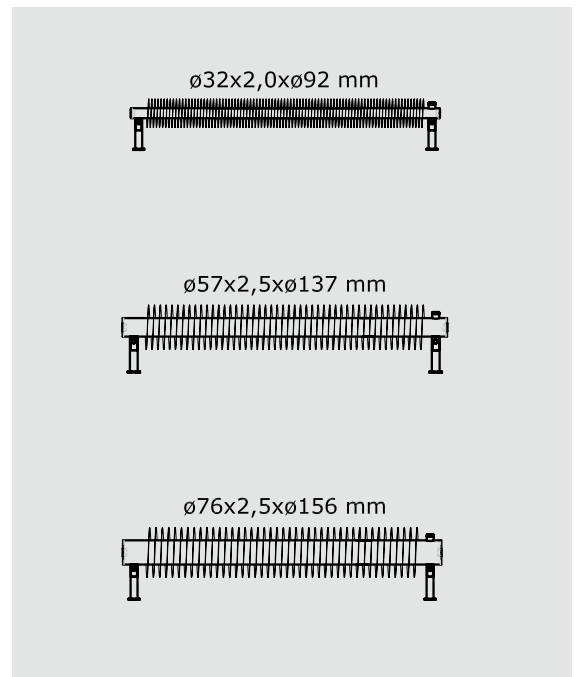
Note: Radiator weight without heating fluid

## CODE EXAMPLE

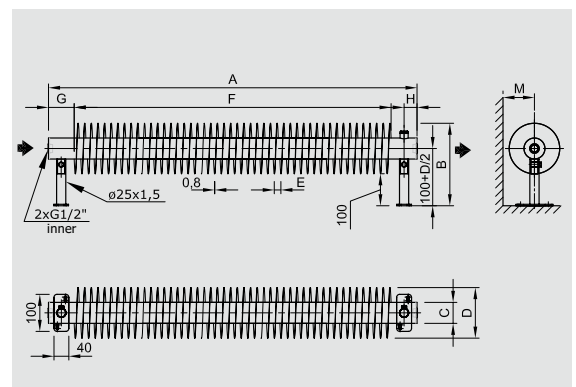
ZRA-1	57	137	100	F	01
SPIRAL type	$\varnothing$ tube [mm]	$\varnothing$ winding [mm]	length [cm]	on the floor	colour code

Ordering, see the page 25

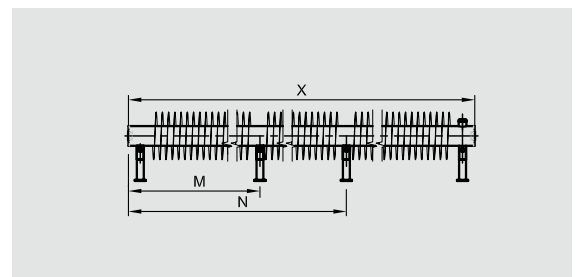
## BASIC TYPES



## SKETCH



## SUPPORTING ELEMENTS



### RA1-F ( $\varnothing 32$ mm)

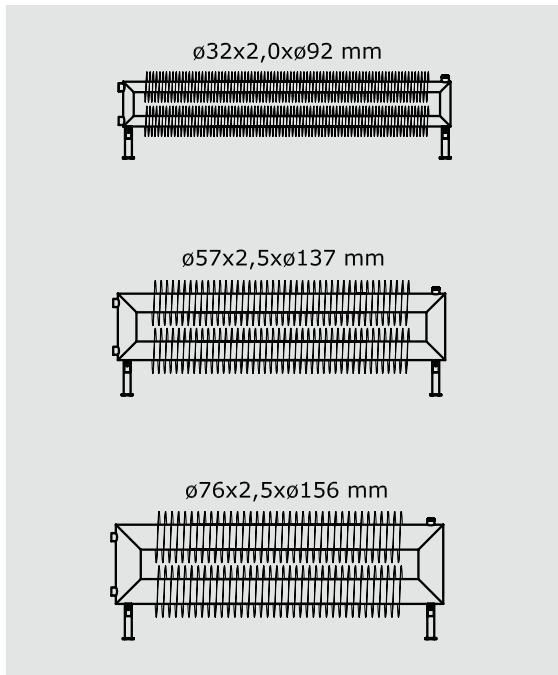
length of spiral X [mm]	M	N	Number of legs
500-2900	0	0	2 pcs
2901-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

### RA1-F ( $\varnothing 57$ mm a $\varnothing 76$ mm)

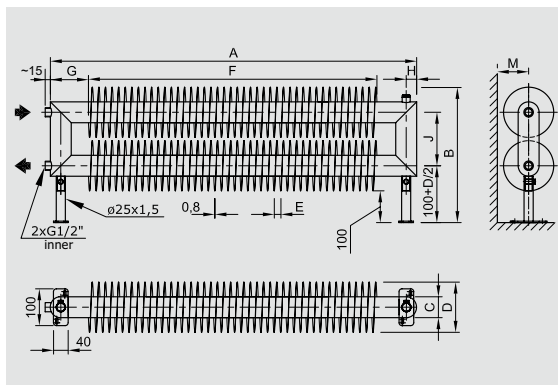
length of spiral X [mm]	M	N	Number of legs
500-3000	0	0	2 pcs
3001-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs



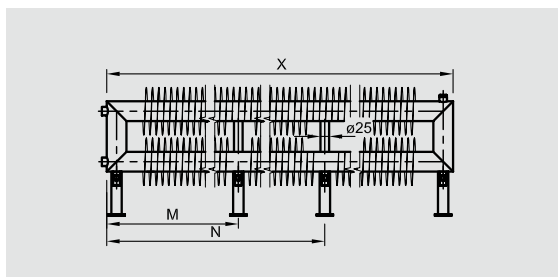
## BASIC TYPES



## SKETCH



## SUPPORTING ELEMENTS



### RAT2-F (ø 32 mm)

length of spiral X [mm]	M	N	Number of legs
500-2900	0	0	2 pcs
2901-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

### RAT2-F (ø 57 mm a ø 76 mm)

length of spiral X [mm]	M	N	Number of legs
500-3000	0	0	2 pcs
3001-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

## TECHNICAL INFORMATION

<b>Material</b>	Standard:	steel tubes with air-relief valve G 3/8" ø 32 × 2,0 × ø 92 mm, lead of spiral 10 mm ø 57 × 2,5 × ø 137 mm, lead of spiral 18 mm ø 76 × 2,5 × ø 156 mm, lead of spiral 20 mm width of steel fins 0,8mm
	Stainless steel, Hot-dip galvanized:	per order, see page 21
<b>Connection threads</b>	inner G1/2"	
<b>Lengths</b>	500 mm-6 000 mm (with step of 100 mm)	
<b>Operating conditions</b>	Hot water system:	forced circulation
	Max. operating temperature:	120 °C
	Operating overpressure:	1,0 MPa
	Test overpressure:	1,3 MPa
The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C.		
<b>Colour</b>	snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge)	
<b>Atypical design options</b>	Connection threads G3/4", G3/8", G1"	
	Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm	
	Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation.	

## TABLE OF DIMENSIONS

RAT2-F	Dimensions [mm]												
	A	B	C	D	E	F	G	H	I	J	K	L	M
ø 32 × 2,0 × ø 92 mm	500-6000	297	32	92	10	A-130	65	16	-	103	-	-	≥60
ø 57 × 2,5 × ø 137 mm	500-6000	383	57	137	18	A-220	110	28	-	146	-	-	≥85
ø 76 × 2,5 × ø 156 mm	500-6000	422	76	156	20	A-240	120	38	-	166	-	-	≥95

Note: ø 32×2,0×ø92 [mm] - diameter of tube × thickness × diameter of winding [mm]

## HEATING OUTPUTS

RAT2-F	TEMPERATURE GRADIENT	LENGTH [mm] / OUTPUT Q [W]								
		500	1000	1500	2000	2500	3000	4000	5000	6000
ø 32×2,0×ø 92 mm	90/70/20 °C	361	887	1420	1882	2345	2769	3725	4672	5618
	75/65/20 °C	285	700	1120	1485	1850	2185	2939	3686	4433
	70/55/20 °C	231	567	907	1202	1498	1769	2379	2984	3589
	55/45/20 °C	147	360	577	764	952	1125	1513	1897	2282
ø 57×2,5×ø 137 mm	90/70/20 °C	385	965	1527	2178	2769	3377	4586	5775	6848
	75/65/20 °C	304	761	1205	1718	2185	2664	3618	4556	5403
	70/55/20 °C	246	616	976	1391	1769	2157	2929	3688	4374
	55/45/20 °C	156	392	620	884	1125	1371	1862	2345	2781
ø 76×2,5×ø 156 mm	90/70/20 °C	403	1003	1589	2235	2840	3422	4626	5846	6960
	75/65/20 °C	318	791	1254	1763	2241	2700	3650	4612	5491
	70/55/20 °C	257	640	1015	1427	1814	2186	2955	3734	4445
	55/45/20 °C	164	407	645	908	1154	1390	1879	2374	2826

Note: Temperature exponent n=1,3

Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

## VOLUME OF WATER AND WEIGHT

RAT2-F	Length X [mm]	500	1000	1500	2000	2500	3000	4000	5000	6000
ø 32×2,0×ø 92 mm	Weight [kg]	4,9	10,5	15,9	21,3	26,9	32,5	43,7	54,9	66,1
	Volume [l]	0,7	1,4	2	2,6	3,2	3,8	5,1	6,3	7,5
ø 57×2,5×ø 137 mm	Weight [kg]	9,5	19,8	29,2	40,3	50,0	59,8	80,3	100,9	121,2
	Volume [l]	2,4	4,5	6,5	8,6	10,6	12,7	16,7	20,8	24,9
ø 76×2,5×ø 156 mm	Weight [kg]	11,5	22,9	34,3	45,6	56,9	68,2	90,8	113,4	136
	Volume [l]	4,6	8,4	12,3	16,1	20	23,8	31,5	39,2	46,9

Note: Radiator weight without heating fluid

## CODE EXAMPLE

ZRAT2	57	137	100	F	01
SPIRAL type	ø tube [mm]	ø winding [mm]	length [cm]	on the floor	colour code

Ordering, see the page 25



## TECHNICAL INFORMATION

<b>Material</b>	Standard:	steel tubes with air-relief valve G 3/8" $\varnothing 32 \times 2,0 \times \varnothing 92$ mm, lead of spiral 10 mm $\varnothing 57 \times 2,5 \times \varnothing 137$ mm, lead of spiral 18 mm $\varnothing 76 \times 2,5 \times \varnothing 156$ mm, lead of spiral 20 mm width of steel fins 0,8mm
	Stainless steel, Hot-dip galvanized:	per order, see page 21
<b>Connection threads</b>	inner G1/2"	
<b>Lengths</b>	500 mm - 6 000 mm (with step of 100 mm)	
<b>Operating conditions</b>	Hot water system:	forced circulation
	Max. operating temperature:	120 °C
	Operating overpressure:	1,0 MPa
	Test overpressure:	1,3 MPa
The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C.		
<b>Colour</b>	snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge)	
<b>Atypical design options</b>	Connection threads G3/4", G3/8", G1"	
	Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm	
	Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation.	

## TABLE OF DIMENSIONS

RAT3-F	Dimensions [mm]												
	A	B	C	D	E	F	G	H	I	J	K	L	M
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	500-6000	402	32	92	10	A-130	65	16	-	105	-	-	≥60
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	500-6000	529	57	137	18	A-220	110	28	-	146	-	-	≥85
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	500-6000	588	76	156	20	A-240	120	38	-	166	-	-	≥95

Note:  $\varnothing 32 \times 2,0 \times \varnothing 92$  [mm] - diameter of tube × thickness × diameter of winding [mm]

## HEATING OUTPUTS

RAT3-F	TEMPERATURE GRADIENT	LENGTH [mm] / OUTPUT Q [W]								
		500	1000	1500	2000	2500	3000	4000	5000	6000
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	90/70/20 °C	539	1331	2129	2820	3511	4151	5581	7001	8420
	75/65/20 °C	425	1050	1680	2225	2770	3275	4404	5523	6643
	70/55/20 °C	344	850	1360	1801	2242	2651	3565	4471	5378
	55/45/20 °C	219	540	865	1145	1426	1686	2267	2843	3419
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	90/70/20 °C	584	1483	2382	3318	4171	5133	6990	8841	10449
	75/65/20 °C	461	1170	1879	2618	3291	4050	5515	6975	8244
	70/55/20 °C	373	947	1521	2119	2664	3279	4465	5647	6674
	55/45/20 °C	237	602	967	1348	1694	2085	2839	3590	4244
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	90/70/20 °C	607	1503	2399	3351	4265	5185	7066	9023	10567
	75/65/20 °C	479	1186	1893	2644	3365	4091	5575	7119	8337
	70/55/20 °C	388	960	1532	2140	2724	3312	4513	5763	6749
	55/45/20 °C	247	610	974	1361	1732	2106	2870	3665	4291

Note: Temperature exponent  $n=1,3$   
Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

## VOLUME OF WATER AND WEIGHT

RAT3-F	Length X [mm]	500	1000	1500	2000	2500	3000	4000	5000	6000
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	Weight [kg]	7,2	15,5	23,7	31,8	39,9	48	65,8	83,6	101,4
	Volume [l]	1,1	2,1	3	3,9	4,8	5,8	7,6	9,5	11,3
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	Weight [kg]	14,9	28,9	44,9	66,8	75,8	90,8	120,9	150,9	180,9
	Volume [l]	3,7	6,8	9,9	13	16	19,1	25,2	31,3	37,5
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	Weight [kg]	19,2	36,9	53,5	70,5	87,6	104,8	135,8	170,7	205,5
	Volume [l]	7,2	13,0	18,8	24,5	30,3	36	47,6	59,2	70,7

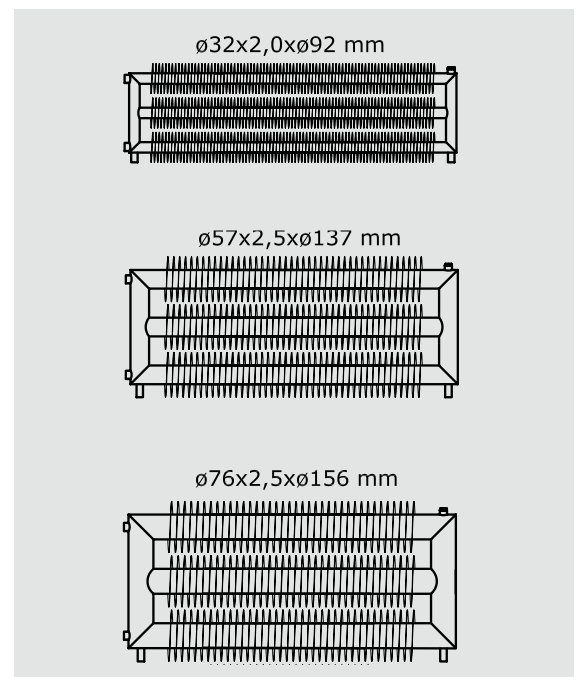
Note: Radiator weight without heating fluid

## CODE EXAMPLE

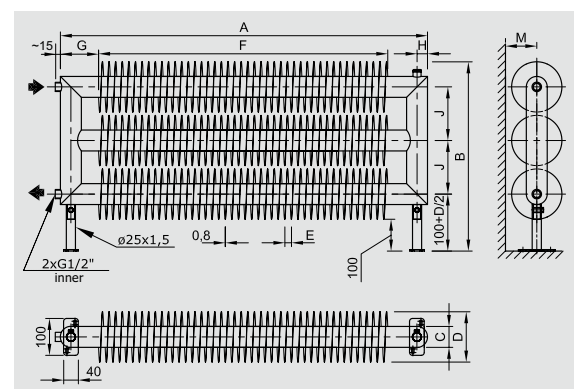
ZRAT3	57	137	100	F	01
SPIRAL type	$\varnothing$ tube [mm]	$\varnothing$ winding [mm]	length [cm]	on the floor	colour code

Ordering, see the page 25

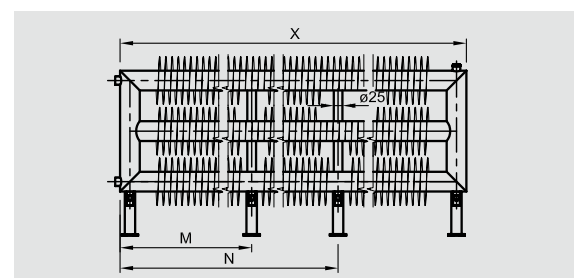
## BASIC TYPES



## SKETCH



## SUPPORTING ELEMENTS



### RAT3-F ( $\varnothing 32$ mm)

length of spiral X [mm]	M	N	Number of legs
500-2900	0	0	2 pcs
2901-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

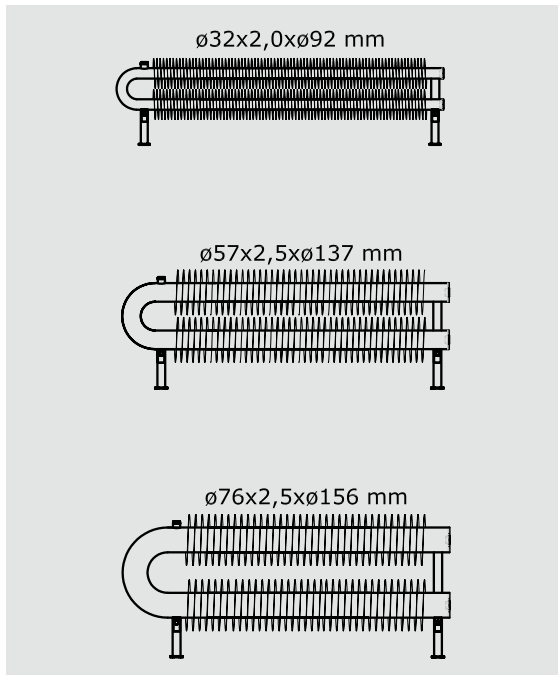
### RAT3-F ( $\varnothing 57$ mm a $\varnothing 76$ mm)

length of spiral X [mm]	M	N	Number of legs
500-3000	0	0	2 pcs
3001-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

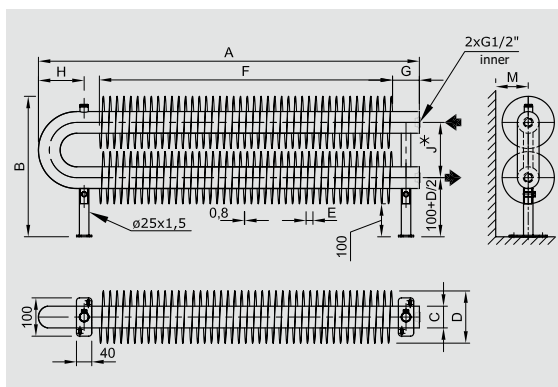




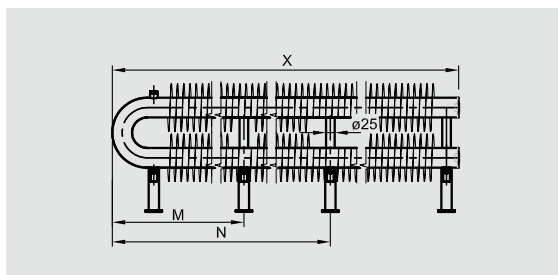
## BASIC TYPES



## SKETCH



## SUPPORTING ELEMENTS



### RAO2-F (Ø 32 mm)

length of spiral X [mm]	M	N	Number of legs
500-2900	0	0	2 pcs
2901-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

### RAO2-F (Ø 57 mm a Ø 76 mm)

length of spiral X [mm]	M	N	Number of legs
500-3000	0	0	2 pcs
3001-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

## TECHNICAL INFORMATION

<b>Material</b>	Standard:	steel tubes with air-relief valve G 3/8" Ø 32 × 2,0 × Ø 92 mm, lead of spiral 10 mm Ø 57 × 2,5 × Ø 137 mm, lead of spiral 18 mm Ø 76 × 2,5 × Ø 156 mm, lead of spiral 20 mm width of steel fins 0,8mm
	Stainless steel, Hot-dip galvanized:	per order, see page 21
<b>Connection threads</b>	inner G1/2"	
<b>Lengths</b>	500 mm-6 000 mm (with step of 100 mm)	
<b>Operating conditions</b>	Hot water system:	forced circulation
	Max. operating temperature:	120 °C
	Operating overpressure:	1,0 MPa
	Test overpressure:	1,3 MPa
The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C.		
<b>Colour</b>	snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge)	
<b>Atypical design options</b>	Connection threads G3/4", G3/8", G1"	
	Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm	
	Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation.	

## TABLE OF DIMENSIONS

RAO2-F	Dimensions [mm]												
	A	B	C	D	E	F	G	H	I	J	K	L	M
Ø 32 × 2,0 × Ø 92 mm	500-6000	287	32	92	10	A-160	50	85	-	95	-	-	≥60
Ø 57 × 2,5 × Ø 137 mm	500-6000	382	57	137	18	A-230	70	120	-	145 (175*)	-	-	≥85
Ø 76 × 2,5 × Ø 156 mm	500-6000	456	76	156	20	A-260	70	165	-	200 (195*)	-	-	≥95

Note: Ø 32 × 2,0 × Ø 92 [mm] - diameter of tube × thickness × diameter of winding [mm]  
\* Dimensions valid for stainless steel design

## HEATING OUTPUTS

RAO2-F	TEMPERATURE GRADIENT	LENGTH [mm] / OUTPUT Q [W]								
		500	1000	1500	2000	2500	3000	4000	5000	6000
Ø 32×2,0×Ø 92 mm	90/70/20 °C	361	887	1420	1882	2345	2769	3725	4672	5618
	75/65/20 °C	285	700	1120	1485	1850	2185	2939	3686	4433
	70/55/20 °C	231	567	907	1202	1498	1769	2379	2984	3589
	55/45/20 °C	147	360	577	764	952	1125	1513	1897	2282
Ø57×2,5×Ø137 mm	90/70/20 °C	385	965	1527	2178	2769	3377	4586	5775	6848
	75/65/20 °C	304	761	1205	1718	2185	2664	3618	4556	5403
	70/55/20 °C	246	616	976	1391	1769	2157	2929	3688	4374
	55/45/20 °C	156	392	620	884	1125	1371	1862	2345	2781
Ø76×2,5×Ø156 mm	90/70/20 °C	403	1003	1589	2235	2840	3422	4626	5846	6960
	75/65/20 °C	318	791	1254	1763	2241	2700	3650	4612	5491
	70/55/20 °C	257	640	1015	1427	1814	2186	2955	3734	4445
	55/45/20 °C	164	407	645	908	1154	1390	1879	2374	2826

Note: Temperature exponent n=1,3  
Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

## VOLUME OF WATER AND WEIGHT

RAO2-F	Length X [mm]	500	1000	1500	2000	2500	3000	4000	5000	6000
Ø 32×2,0×Ø 92 mm	Weight [kg]	4,7	10,2	15,6	21,1	27,2	32,8	44,1	55,2	66,3
	Volume [l]	0,6	1,3	1,9	2,5	3,1	3,71	4,9	6,2	7,4
Ø57×2,5×Ø137 mm	Weight [kg]	9,2	19,5	29,7	40,0	49,7	59,5	80,0	100,5	120,9
	Volume [l]	2,1	4,1	6,2	8,2	10,3	12,3	16,4	20,5	24,6
Ø76×2,5×Ø156 mm	Weight [kg]	11,3	22,6	33,8	45	56,4	67,9	88,5	113,4	135
	Volume [l]	4	7,8	11,7	15,5	19,4	23,2	30,9	38,6	46,3

Note: Radiator weight without heating fluid

## CODE EXAMPLE

ZRAO2	57	137	100	F	01
SPIRAL type	Ø tube [mm]	Ø winding [mm]	length [cm]	on the floor	colour code

Ordering, see the page 25



## TECHNICAL INFORMATION

<b>Material</b>	Standard:	steel tubes with air-relief valve G 3/8" $\varnothing 32 \times 2,0 \times \varnothing 92$ mm, lead of spiral 10 mm $\varnothing 57 \times 2,5 \times \varnothing 137$ mm, lead of spiral 18 mm $\varnothing 76 \times 2,5 \times \varnothing 156$ mm, lead of spiral 20 mm width of steel fins 0,8mm
	Stainless steel, Hot-dip galvanized:	per order, see page 21
<b>Connection threads</b>	inner G1/2"	
<b>Lengths</b>	500 mm - 6 000 mm (with step of 100 mm)	
<b>Operating conditions</b>	Hot water system:	forced circulation
	Max. operating temperature:	120 °C
	Operating overpressure:	1,0 MPa
	Test overpressure:	1,3 MPa
	The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C.	
<b>Colour</b>	snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge)	
<b>Atypical design options</b>	Connection threads G3/4", G3/8", G1"	
	Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm	
	Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation.	

## TABLE OF DIMENSIONS

RAO3-F	Dimensions [mm]												
	A	B	C	D	E	F	G	H	I	J	K	L	M
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	500-6000	382	32	92	10	A-220	110	85	-	95	-	-	≥60
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	500-6000	527	57	137	18	A-300	150	120	-	145 (175*)	-	-	≥85
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	500-6000	656	76	156	20	A-380	190	165	-	200 (195*)	-	-	≥95

Note:  $\varnothing 32 \times 2,0 \times \varnothing 92$  [mm] - diameter of tube × thickness × diameter of winding [mm]  
 \* Dimensions valid for stainless steel design

## HEATING OUTPUTS

RAO3-F	TEMPERATURE GRADIENT	LENGTH [mm] / OUTPUT Q [W]								
		500	1000	1500	2000	2500	3000	4000	5000	6000
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	90/70/20 °C	539	1331	2129	2820	3511	4151	5581	7001	8420
	75/65/20 °C	425	1050	1680	2225	2770	3275	4404	5523	6643
	70/55/20 °C	344	850	1360	1801	2242	2651	3565	4471	5378
	55/45/20 °C	219	540	865	1145	1426	1686	2267	2843	3419
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	90/70/20 °C	584	1483	2382	3318	4171	5133	6990	8841	10449
	75/65/20 °C	461	1170	1879	2618	3291	4050	5515	6975	8244
	70/55/20 °C	373	947	1521	2119	2664	3279	4465	5647	6674
	55/45/20 °C	237	602	967	1348	1694	2085	2839	3590	4244
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	90/70/20 °C	607	1503	2399	3351	4265	5185	7066	9023	10567
	75/65/20 °C	479	1186	1893	2644	3365	4091	5575	7119	8337
	70/55/20 °C	388	960	1532	2140	2724	3312	4513	5763	6749
	55/45/20 °C	247	610	974	1361	1732	2106	2870	3665	4291

Note: Temperature exponent  $n=1,3$   
 Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

## VOLUME OF WATER AND WEIGHT

RAO3-F	Length X [mm]	500	1000	1500	2000	2500	3000	4000	5000	6000
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	Weight [kg]	7	15,2	23,4	31,5	39,6	47,7	65,5	83,3	101,1
	Volume [l]	1,0	1,9	2,8	3,8	4,7	5,6	7,5	9,3	11,2
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	Weight [kg]	14,0	28,0	44,0	60,0	75,0	90,0	120,0	150,0	180,0
	Volume [l]	3,4	6,4	9,5	12,6	15,6	18,7	24,8	31,0	37,1
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	Weight [kg]	17,1	32,6	49,6	66,5	83,3	100,1	130,0	167	197,6
	Volume [l]	6,6	12,4	18,1	23,9	29,7	35,5	47,0	58,6	70,1

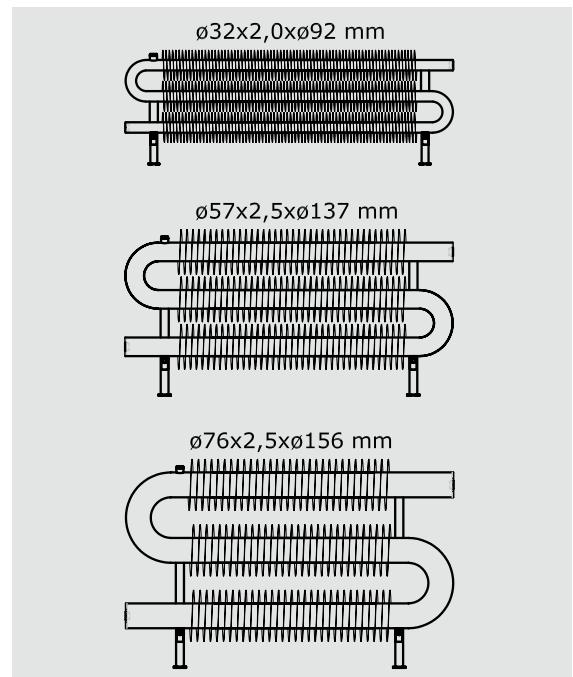
Note: Radiator weight without heating fluid

## CODE EXAMPLE

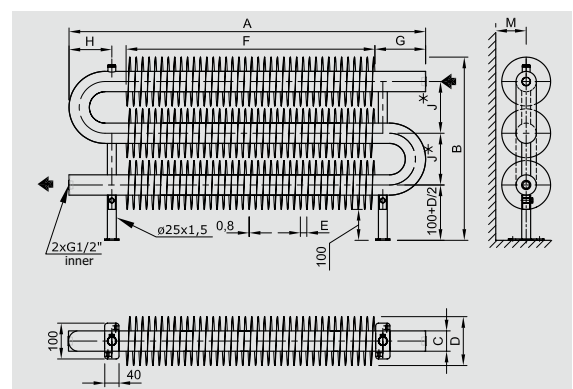
ZRAO3	57	137	100	F	01
SPIRAL type	$\varnothing$ tube [mm]	$\varnothing$ winding [mm]	length [cm]	on the floor	colour code

Ordering, see the page 25

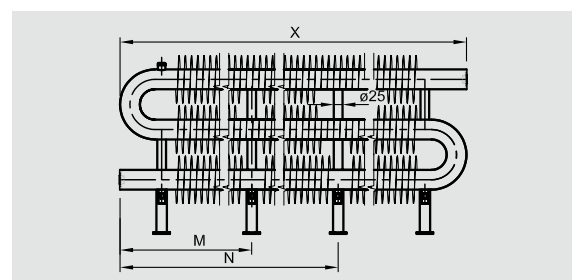
## BASIC TYPES



## SKETCH



## SUPPORTING ELEMENTS



### RAO3-F (ø 32 mm)

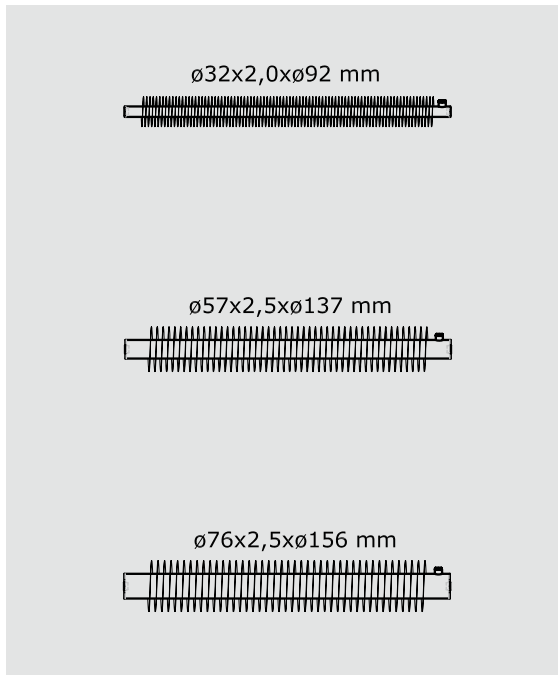
length of spiral X [mm]	M	N	Number of legs
500-2900	0	0	2 pcs
2901-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

### RAO3-F (ø 57 mm a ø 76 mm)

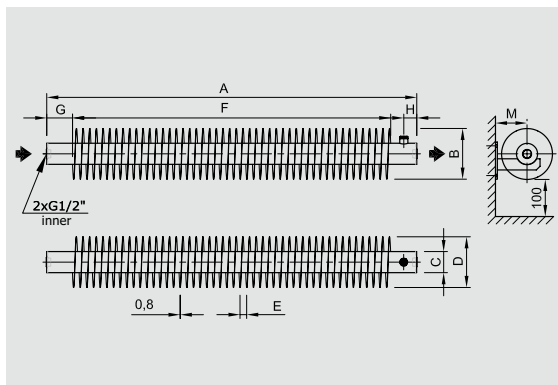
length of spiral X [mm]	M	N	Number of legs
500-3000	0	0	2 pcs
3001-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs



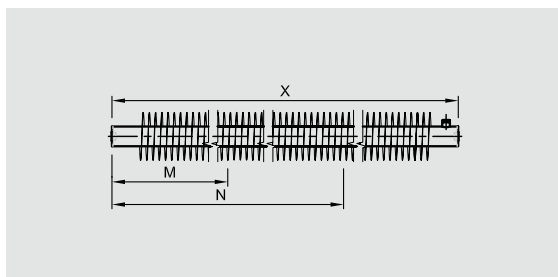
## BASIC TYPES



## SKETCH



## SUPPORTING ELEMENTS



### RA1-W (ø 32 mm)

length of spiral X [mm]	M	N	Number of consoles
500-2900	0	0	2 pcs
2901-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

### RA1-W (ø 57 mm a ø 76 mm)

length of spiral X [mm]	M	N	Number of consoles
500-3000	0	0	2 pcs
3001-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

## TECHNICAL INFORMATION

<b>Material</b>	Standard:	steel tubes with air-relief valve G 3/8" ø 32 × 2,0 × ø 92 mm, lead of spiral 10 mm ø 57 × 2,5 × ø 137 mm, lead of spiral 18 mm ø 76 × 2,5 × ø 156 mm, lead of spiral 20 mm width of steel fins 0,8mm
	Stainless steel, Hot-dip galvanized:	per order, see page 21
<b>Connection threads</b>	inner G1/2"	
<b>Lengths</b>	500 mm-6 000 mm (with step of 100 mm)	
<b>Operating conditions</b>	Hot water system:	forced circulation
	Max. operating temperature:	120 °C
	Operating overpressure:	1,0 MPa
	Test overpressure:	1,3 MPa
	The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C.	
<b>Colour</b>	snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge)	
<b>Atypical design options</b>	Connection threads G3/4", G3/8", G1"	
	Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm	
	Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation.	

## TABLE OF DIMENSIONS

RA1-W	Dimensions [mm]												
	A	B	C	D	E	F	G	H	I	J	K	L	M
ø 32 × 2,0 × ø 92 mm	500-6000	D	32	92	10	A-100	50	25	-	-	-	-	60
ø 57 × 2,5 × ø 137 mm	500-6000	D	57	137	18	A-140	70	35	-	-	-	-	85
ø 76 × 2,5 × ø 156 mm	500-6000	D	76	156	20	A-140	70	35	-	-	-	-	95

Note: ø 32 × 2,0 × ø 92 [mm] - diameter of tube × thickness × diameter of winding [mm]

## HEATING OUTPUTS

RA1-W	TEMPERATURE GRADIENT	LENGTH [mm] / OUTPUT Q [W]								
		500	1000	1500	2000	2500	3000	4000	5000	6000
ø 32×2,0×ø 92 mm	90/70/20 °C	203	501	799	1058	1318	1578	2095	2628	3161
	75/65/20 °C	160	395	630	835	1040	1245	1653	2073	2494
	70/55/20 °C	130	320	510	676	842	1008	1338	1679	2019
	55/45/20 °C	82	203	324	430	535	641	851	1067	1284
ø 57×2,5×ø 137 mm	90/70/20 °C	266	559	911	1240	1568	1919	2612	3292	3906
	75/65/20 °C	210	441	719	978	1237	1514	2061	2597	3082
	70/55/20 °C	170	357	582	792	1001	1226	1668	2102	2495
	55/45/20 °C	108	227	370	503	637	779	1061	1337	1586
ø 76×2,5×ø 156 mm	90/70/20 °C	294	587	939	1260	1636	2046	2721	3366	3991
	75/65/20 °C	232	463	741	994	1291	1614	2147	2656	3149
	70/55/20 °C	188	375	600	805	1045	1307	1738	2150	2549
	55/45/20 °C	119	238	381	512	665	831	1105	1367	1621

Note: Temperature exponent n=1,3

Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

## VOLUME OF WATER AND WEIGHT

RA1-W	Length X [mm]	500	1000	1500	2000	2500	3000	4000	5000	6000
ø 32×2,0×ø 92 mm	Weight [kg]	2,3	5	7,8	10,5	13,2	15,9	18,6	21,3	24
	Volume [l]	0,3	0,7	1	1,3	1,6	1,9	2,5	3,1	3,7
ø 57×2,5×ø 137 mm	Weight [kg]	4,6	9,1	13,7	18,2	22,7	27,2	31,7	40,7	49,6
	Volume [l]	1,1	2,1	3,1	4,1	5,1	6,2	8,2	10,3	12,3
ø 76×2,5×ø 156 mm	Weight [kg]	5,4	10,7	16,1	21,5	26,9	32,3	37,7	46,7	56,9
	Volume [l]	2	3,9	5,8	7,7	9,7	11,6	15,4	19,3	23,1

Note: Radiator weight without heating fluid

## CODE EXAMPLE

ZRA-1	57	137	100	W	01
SPIRAL type	ø tube [mm]	ø winding [mm]	length [cm]	on the wall	colour code

Ordering, see the page 25



## TECHNICAL INFORMATION

<b>Material</b>	Standard:	steel tubes with air-relief valve G 3/8" $\varnothing 32 \times 2,0 \times \varnothing 92$ mm, lead of spiral 10 mm $\varnothing 57 \times 2,5 \times \varnothing 137$ mm, lead of spiral 18 mm $\varnothing 76 \times 2,5 \times \varnothing 156$ mm, lead of spiral 20 mm width of steel fins 0,8mm
	Stainless steel, Hot-dip galvanized:	per order, see page 21
<b>Connection threads</b>	inner G1/2"	
<b>Lengths</b>	500 mm - 6 000 mm (with step of 100 mm)	
<b>Operating conditions</b>	Hot water system:	forced circulation
	Max. operating temperature:	120 °C
	Operating overpressure:	1,0 MPa
	Test overpressure:	1,3 MPa
	The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C.	
<b>Colour</b>	snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge)	
<b>Atypical design options</b>	Connection threads G3/4", G3/8", G1"	
	Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm	
	Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation.	

## TABLE OF DIMENSIONS

RAT2-W	Dimensions [mm]												
	A	B	C	D	E	F	G	H	I	J	K	L	M
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	500-6000	197	32	92	10	A-130	65	16	-	105	-	-	60
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	500-6000	283	57	137	18	A-220	110	28	-	146	-	-	85
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	500-6000	322	76	156	20	A-240	120	38	-	166	-	-	95

Note:  $\varnothing 32 \times 2,0 \times \varnothing 92$  [mm] - diameter of tube  $\times$  thickness  $\times$  diameter of winding [mm]

## HEATING OUTPUTS

RAT2-W	TEMPERATURE GRADIENT	LENGTH [mm] / OUTPUT Q [W]								
		500	1000	1500	2000	2500	3000	4000	5000	6000
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	90/70/20 °C	361	887	1420	1882	2345	2769	3725	4672	5618
	75/65/20 °C	285	700	1120	1485	1850	2185	2939	3686	4433
	70/55/20 °C	231	567	907	1202	1498	1769	2379	2984	3589
	55/45/20 °C	147	360	577	764	952	1125	1513	1897	2282
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	90/70/20 °C	385	965	1527	2178	2769	3377	4586	5775	6848
	75/65/20 °C	304	761	1205	1718	2185	2664	3618	4556	5403
	70/55/20 °C	246	616	976	1391	1769	2157	2929	3688	4374
	55/45/20 °C	156	392	620	884	1125	1371	1862	2345	2781
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	90/70/20 °C	403	1003	1589	2235	2840	3422	4626	5846	6960
	75/65/20 °C	318	791	1254	1763	2241	2700	3650	4612	5491
	70/55/20 °C	257	640	1015	1427	1814	2186	2955	3734	4445
	55/45/20 °C	164	407	645	908	1154	1390	1879	2374	2826

Note: Temperature exponent  $n=1,3$   
Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

## VOLUME OF WATER AND WEIGHT

RAT2-W	Length X [mm]	500	1000	1500	2000	2500	3000	4000	5000	6000
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	Weight [kg]	4,9	10,5	15,9	21,3	26,9	32,5	43,7	54,9	66,1
	Volume [l]	0,7	1,4	2	2,6	3,2	3,8	5,1	6,3	7,5
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	Weight [kg]	9,5	19,8	29,2	40,3	50,0	59,8	80,3	100,9	121,2
	Volume [l]	2,4	4,5	6,5	8,6	10,6	12,7	16,7	20,8	24,9
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	Weight [kg]	11,5	22,9	34,3	45,6	56,9	68,2	90,8	113,4	136
	Volume [l]	4,6	8,4	12,3	16,1	20	23,8	31,5	39,2	46,9

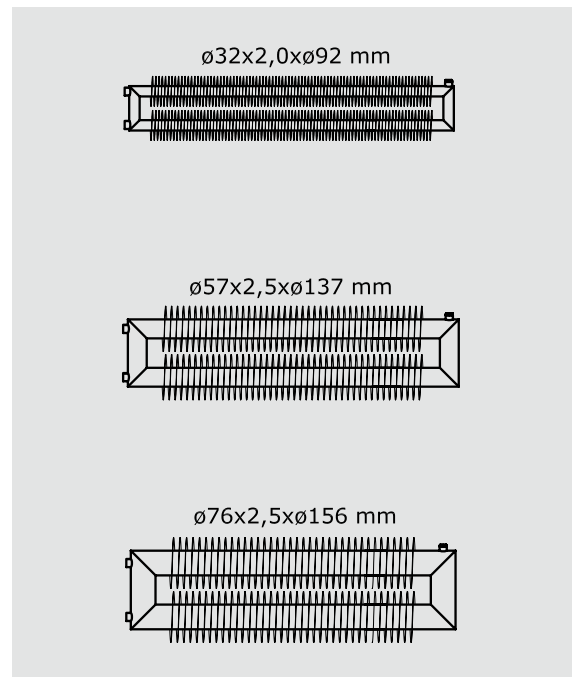
Note: Radiator weight without heating fluid

## CODE EXAMPLE

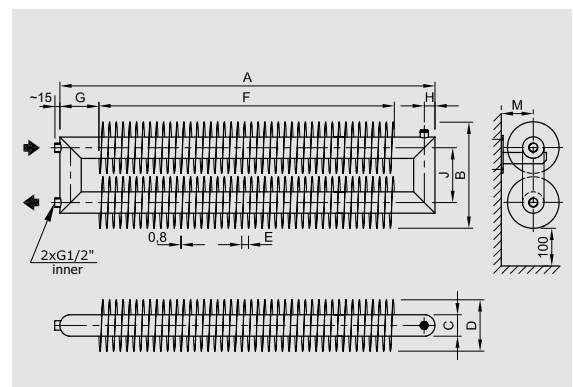
ZRAT2	57	137	100	W	01
SPIRAL type	$\varnothing$ tube [mm]	$\varnothing$ winding [mm]	length [cm]	on the wall	colour code

Ordering, see the page 25

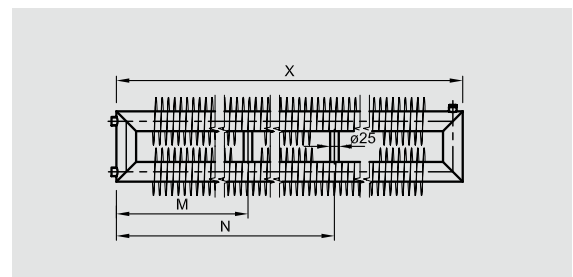
## BASIC TYPES



## SKETCH



## SUPPORTING ELEMENTS



### RAT2-W ( $\varnothing 32$ mm)

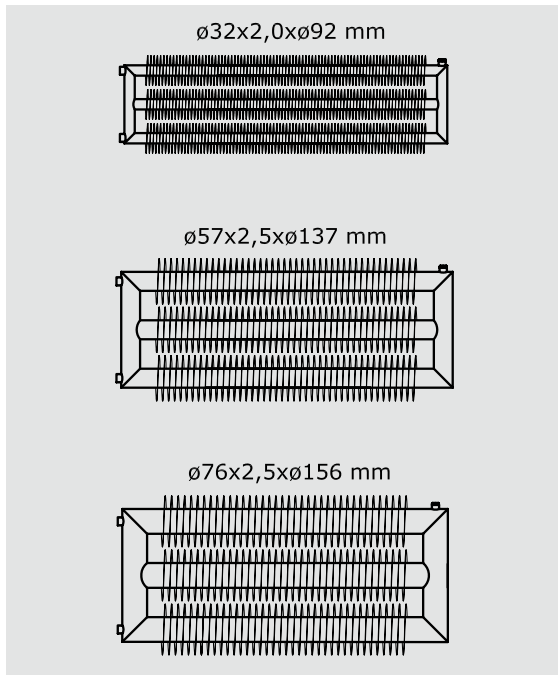
length of spiral X [mm]	M	N	Number of consoles
500-2900	0	0	2 pcs
2901-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

### RAT2-W ( $\varnothing 57$ mm a $\varnothing 76$ mm)

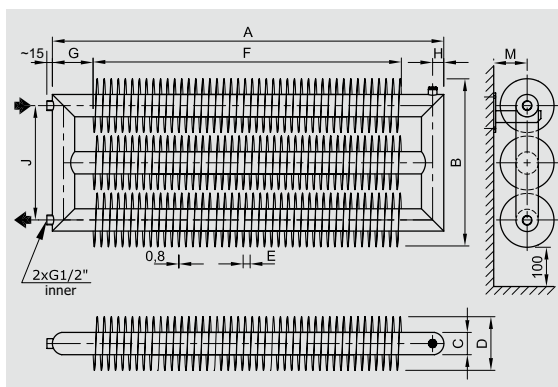
length of spiral X [mm]	M	N	Number of consoles
500-3000	0	0	2 pcs
3001-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs



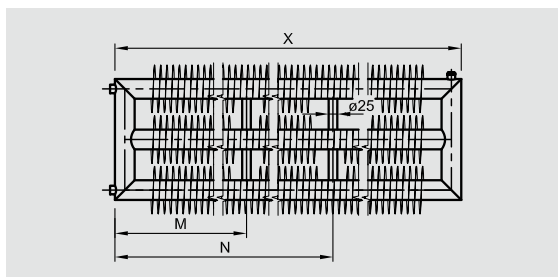
## BASIC TYPES



## SKETCH



## SUPPORTING ELEMENTS



### RAT3-W (ø 32 mm)

length of spiral X [mm]	M	N	Number of consoles
500-2900	0	0	2 pcs
2901-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

### RAT3-W (ø 57 mm a ø 76 mm)

length of spiral X [mm]	M	N	Number of consoles
500-3000	0	0	2 pcs
3001-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

## TECHNICAL INFORMATION

<b>Material</b>	Standard:	steel tubes with air-relief valve G 3/8" ø 32 × 2,0 × ø 92 mm, lead of spiral 10 mm ø 57 × 2,5 × ø 137 mm, lead of spiral 18 mm ø 76 × 2,5 × ø 156 mm, lead of spiral 20 mm width of steel fins 0,8mm
	Stainless steel, Hot-dip galvanized:	per order, see page 21
<b>Connection threads</b>	inner G1/2"	
<b>Lengths</b>	500 mm-6 000 mm (with step of 100 mm)	
<b>Operating conditions</b>	Hot water system:	forced circulation
	Max. operating temperature:	120 °C
	Operating overpressure:	1,0 MPa
	Test overpressure:	1,3 MPa
The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C.		
<b>Colour</b>	snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge)	
<b>Atypical design options</b>	Connection threads G3/4", G3/8", G1"	
	Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm	
	Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation.	

## TABLE OF DIMENSIONS

RAT3-W	Dimensions [mm]												
	A	B	C	D	E	F	G	H	I	J	K	L	M
ø 32 × 2,0 × ø 92 mm	500-6000	302	32	92	10	A-130	65	16	-	208	-	-	60
ø 57 × 2,5 × ø 137 mm	500-6000	429	57	137	18	A-220	110	28	-	292	-	-	85
ø 76 × 2,5 × ø 156 mm	500-6000	488	76	156	20	A-240	120	38	-	332	-	-	95

Note: ø 32 × 2,0 × ø 92 [mm] - diameter of tube × thickness × diameter of winding [mm]

## HEATING OUTPUTS

RAT3-W	TEMPERATURE GRADIENT	LENGTH [mm] / OUTPUT Q [W]								
		500	1000	1500	2000	2500	3000	4000	5000	6000
ø 32×2,0×ø 92 mm	90/70/20 °C	539	1331	2129	2820	3511	4151	5581	7001	8420
	75/65/20 °C	425	1050	1680	2225	2770	3275	4404	5523	6643
	70/55/20 °C	344	850	1360	1801	2242	2651	3565	4471	5378
	55/45/20 °C	219	540	865	1145	1426	1686	2267	2843	3419
ø 57×2,5×ø 137 mm	90/70/20 °C	584	1483	2382	3318	4171	5133	6990	8841	10449
	75/65/20 °C	461	1170	1879	2618	3291	4050	5515	6975	8244
	70/55/20 °C	373	947	1521	2119	2664	3279	4465	5647	6674
	55/45/20 °C	237	602	967	1348	1694	2085	2839	3590	4244
ø 76×2,5×ø 156 mm	90/70/20 °C	607	1503	2399	3351	4265	5185	7066	9023	10567
	75/65/20 °C	479	1186	1893	2644	3365	4091	5575	7119	8337
	70/55/20 °C	388	960	1532	2140	2724	3312	4513	5763	6749
	55/45/20 °C	247	610	974	1361	1732	2106	2870	3665	4291

Note: Temperature exponent n=1,3

Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

## VOLUME OF WATER AND WEIGHT

RAT3-W	Length X [mm]	500	1000	1500	2000	2500	3000	4000	5000	6000
ø 32×2,0×ø 92 mm	Weight [kg]	7,2	15,5	23,7	31,8	39,9	48	65,8	83,6	101,4
	Volume [l]	1,1	2,1	3	3,9	4,8	5,8	7,6	9,5	11,3
ø 57×2,5×ø 137 mm	Weight [kg]	14,9	28,9	44,9	66,8	75,8	90,8	120,9	150,9	180,9
	Volume [l]	3,7	6,8	9,9	13	16	19,1	25,2	31,3	37,5
ø 76×2,5×ø 156 mm	Weight [kg]	19,2	36,9	53,5	70,5	87,6	104,8	135,8	170,7	205,5
	Volume [l]	7,2	13,0	18,8	24,5	30,3	36	47,6	59,2	70,7

Note: Radiator weight without heating fluid

## CODE EXAMPLE

ZRAT3	57	137	100	W	01
SPIRAL type	ø tube [mm]	ø winding [mm]	length [cm]	on the wall	colour code

Ordering, see the page 25



## TECHNICAL INFORMATION

<b>Material</b>	Standard:	steel tubes with air-relief valve G 3/8" $\varnothing 32 \times 2,0 \times \varnothing 92$ mm, lead of spiral 10 mm $\varnothing 57 \times 2,5 \times \varnothing 137$ mm, lead of spiral 18 mm $\varnothing 76 \times 2,5 \times \varnothing 156$ mm, lead of spiral 20 mm width of steel fins 0,8mm
	Stainless steel, Hot-dip galvanized:	per order, see page 21
<b>Connection threads</b>	inner G1/2"	
<b>Lengths</b>	500 mm - 6 000 mm (with step of 100 mm)	
<b>Operating conditions</b>	Hot water system:	forced circulation
	Max. operating temperature:	120 °C
	Operating overpressure:	1,0 MPa
	Test overpressure:	1,3 MPa
The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C.		
<b>Colour</b>	snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge)	
<b>Atypical design options</b>	Connection threads G3/4", G3/8", G1"	
	Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm	
	Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation.	

## TABLE OF DIMENSIONS

RAO2-W	Dimensions [mm]												
	A	B	C	D	E	F	G	H	I	J	K	L	M
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	500-6000	187	32	92	10	A-160	50	85	-	95	-	-	60
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	500-6000	282	57	137	18	A-230	70	120	-	145 (175*)	-	-	85
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	500-6000	356	76	156	20	A-260	70	165	-	200 (195*)	-	-	95

Note:  $\varnothing 32 \times 2,0 \times \varnothing 92$  [mm] - diameter of tube  $\times$  thickness  $\times$  diameter of winding [mm]  
 \* Dimensions valid for stainless steel design

## HEATING OUTPUTS

RAO2-W	TEMPERATURE GRADIENT	LENGTH [mm] / OUTPUT Q [W]								
		500	1000	1500	2000	2500	3000	4000	5000	6000
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	90/70/20 °C	361	887	1420	1882	2345	2769	3725	4672	5618
	75/65/20 °C	285	700	1120	1485	1850	2185	2939	3686	4433
	70/55/20 °C	231	567	907	1202	1498	1769	2379	2984	3589
	55/45/20 °C	147	360	577	764	952	1125	1513	1897	2282
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	90/70/20 °C	385	965	1527	2178	2769	3377	4586	5775	6848
	75/65/20 °C	304	761	1205	1718	2185	2664	3618	4556	5403
	70/55/20 °C	246	616	976	1391	1769	2157	2929	3688	4374
	55/45/20 °C	156	392	620	884	1125	1371	1862	2345	2781
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	90/70/20 °C	403	1003	1589	2235	2840	3422	4626	5846	6960
	75/65/20 °C	318	791	1254	1763	2241	2700	3650	4612	5491
	70/55/20 °C	257	640	1015	1427	1814	2186	2955	3734	4445
	55/45/20 °C	164	407	645	908	1154	1390	1879	2374	2826

Note: Temperature exponent  $n=1,3$   
 Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

## VOLUME OF WATER AND WEIGHT

RAO2-W	Length X [mm]	500	1000	1500	2000	2500	3000	4000	5000	6000
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	Weight [kg]	4,7	10,2	15,6	21,1	27,2	32,8	44,1	55,2	66,3
	Volume [l]	0,63	1,25	1,86	2,5	3,1	3,71	4,9	6,2	7,4
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	Weight [kg]	9,2	19,5	29,7	40,0	49,7	59,5	80,0	100,5	120,9
	Volume [l]	2,1	4,1	6,2	8,2	10,3	12,3	16,4	20,5	24,6
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	Weight [kg]	11,3	22,6	33,8	45	56,4	67,9	88,5	113,4	135
	Volume [l]	4	7,8	11,7	15,5	19,4	23,2	30,9	38,6	46,3

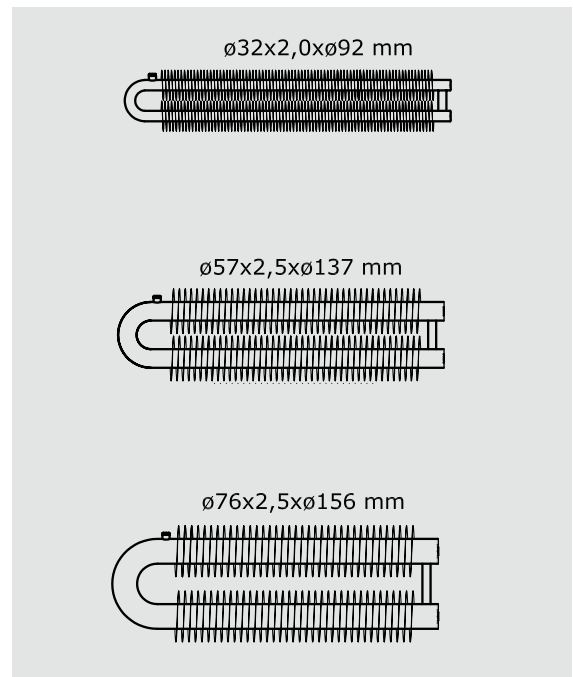
Note: Radiator weight without heating fluid

## CODE EXAMPLE

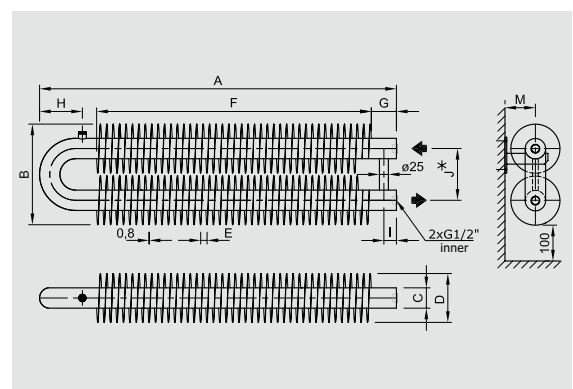
ZRAO2	57	137	100	W	01
SPIRAL type	$\varnothing$ tube [mm]	$\varnothing$ winding [mm]	length [cm]	on the wall	colour code

Ordering, see the page 25

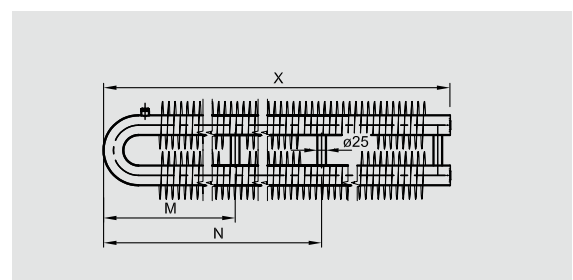
## BASIC TYPES



## SKETCH



## SUPPORTING ELEMENTS



### RAO2-W ( $\varnothing 32$ mm)

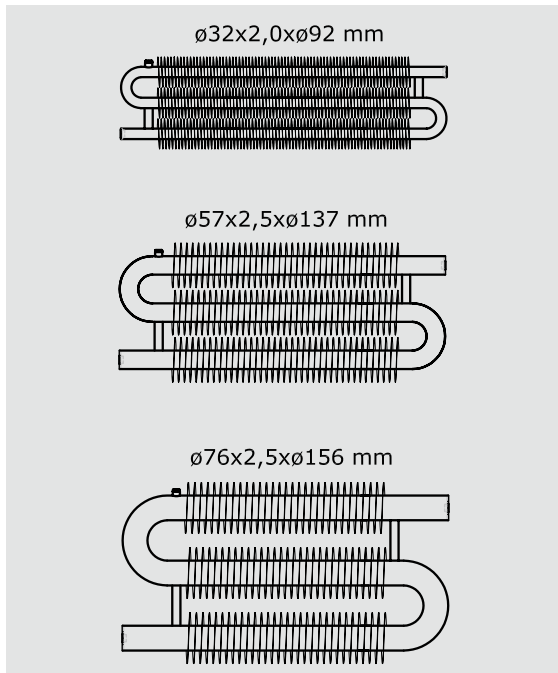
length of spiral X [mm]	M	N	Number of consoles
500-2900	0	0	2 pcs
2901-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

### RAO2-W ( $\varnothing 57$ mm a $\varnothing 76$ mm)

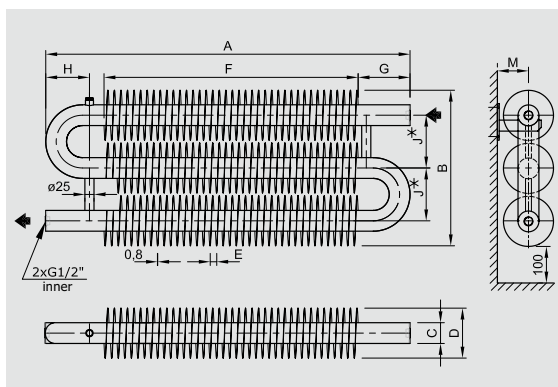
length of spiral X [mm]	M	N	Number of consoles
500-3000	0	0	2 pcs
3001-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs



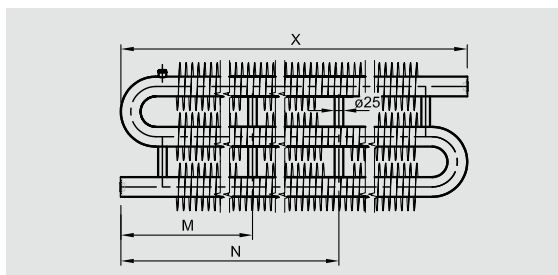
## BASIC TYPES



## SKETCH



## SUPPORTING ELEMENTS



### RAO3-W (ø 32 mm)

length of spiral X [mm]	M	N	Number of consoles
500-2900	0	0	2 pcs
2901-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

### RAO3-W (ø 57 mm a ø 76 mm)

length of spiral X [mm]	M	N	Number of consoles
500-3000	0	0	2 pcs
3001-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

## TECHNICAL INFORMATION

<b>Material</b>	Standard:	steel tubes with air-relief valve G 3/8" ø 32 × 2,0 × ø 92 mm, lead of spiral 10 mm ø 57 × 2,5 × ø 137 mm, lead of spiral 18 mm ø 76 × 2,5 × ø 156 mm, lead of spiral 20 mm width of steel fins 0,8mm
	Stainless steel, Hot-dip galvanized:	per order, see page 21
<b>Connection threads</b>	inner G1/2"	
<b>Lengths</b>	500 mm-6 000 mm (with step of 100 mm)	
<b>Operating conditions</b>	Hot water system:	forced circulation
	Max. operating temperature:	120 °C
	Operating overpressure:	1,0 MPa
	Test overpressure:	1,3 MPa
The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C.		
<b>Colour</b>	snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge)	
<b>Atypical design options</b>	Connection threads G3/4", G3/8", G1"	
	Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm	
	Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation.	

## TABLE OF DIMENSIONS

RAO3-W	Dimensions [mm]												
	A	B	C	D	E	F	G	H	I	J	K	L	M
ø 32 × 2,0 × ø 92 mm	500-6000	282	32	92	10	A-220	110	85	-	95	-	-	60
ø 57 × 2,5 × ø 137 mm	500-6000	427	57	137	18	A-300	150	120	-	145 (175*)	-	-	85
ø 76 × 2,5 × ø 156 mm	500-6000	556	76	156	20	A-380	190	165	-	200 (195*)	-	-	95

Note: ø 32 × 2,0 × ø 92 [mm] - diameter of tube × thickness × diameter of winding [mm]

\* Dimensions valid for stainless steel design

## HEATING OUTPUTS

RAO3-W	TEMPERATURE GRADIENT	LENGTH [mm] / OUTPUT Q [W]								
		500	1000	1500	2000	2500	3000	4000	5000	6000
ø 32×2,0×ø 92 mm	90/70/20 °C	539	1331	2129	2820	3511	4151	5581	7001	8420
	75/65/20 °C	425	1050	1680	2225	2770	3275	4404	5523	6643
	70/55/20 °C	344	850	1360	1801	2242	2651	3565	4471	5378
	55/45/20 °C	219	540	865	1145	1426	1686	2267	2843	3419
ø 57×2,5×ø 137 mm	90/70/20 °C	584	1483	2382	3318	4171	5133	6990	8841	10449
	75/65/20 °C	461	1170	1879	2618	3291	4050	5515	6975	8244
	70/55/20 °C	373	947	1521	2119	2664	3279	4465	5647	6674
	55/45/20 °C	237	602	967	1348	1694	2085	2839	3590	4244
ø 76×2,5×ø 156 mm	90/70/20 °C	607	1503	2399	3351	4265	5185	7066	9023	10567
	75/65/20 °C	479	1186	1893	2644	3365	4091	5575	7119	8337
	70/55/20 °C	388	960	1532	2140	2724	3312	4513	5763	6749
	55/45/20 °C	247	610	974	1361	1732	2106	2870	3665	4291

Note: Temperature exponent n=1,3

Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

## VOLUME OF WATER AND WEIGHT

RAO3-W	Length X [mm]	500	1000	1500	2000	2500	3000	4000	5000	6000
ø 32×2,0×ø 92 mm	Weight [kg]	7	15,2	23,4	31,5	39,6	47,7	65,5	83,3	101,1
	Volume [l]	1,0	1,9	2,8	3,8	4,7	5,6	7,5	9,3	11,2
ø 57×2,5×ø 137 mm	Weight [kg]	14,0	28,0	44,0	60,0	75,0	90,0	120,0	150,0	180,0
	Volume [l]	3,4	6,4	9,5	12,6	15,6	18,7	24,8	31,0	37,1
ø 76×2,5×ø 156 mm	Weight [kg]	17,1	32,6	49,6	66,5	83,8	100,1	130,0	167	197,6
	Volume [l]	6,6	12,4	18,1	23,9	29,7	35,5	47,0	58,6	70,1

Note: Radiator weight without heating fluid

## CODE EXAMPLE

ZRAO3	57	137	100	W	01
SPIRAL type	ø tube [mm]	ø winding [mm]	length [cm]	on the wall	colour code

Ordering, see the page 25



## TECHNICAL INFORMATION

<b>Material</b>	Standard:	steel tubes with air-relief valve G 3/8" $\varnothing 32 \times 2,0 \times \varnothing 92$ mm, lead of spiral 10 mm $\varnothing 57 \times 2,5 \times \varnothing 137$ mm, lead of spiral 18 mm $\varnothing 76 \times 2,5 \times \varnothing 156$ mm, lead of spiral 20 mm width of steel fins 0,8mm
	Stainless steel, Hot-dip galvanized:	per order, see page 21
<b>Connection threads</b>	inner G1/2"	
<b>Lengths</b>	500 mm - 6 000 mm (with step of 100 mm)	
<b>Operating conditions</b>	Hot water system:	forced circulation
	Max. operating temperature:	120 °C
	Operating overpressure:	1,0 MPa
	Test overpressure:	1,3 MPa
The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C.		
<b>Colour</b>	snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge)	
<b>Atypical design options</b>	Connection threads G3/4", G3/8", G1"	
	Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm	
	Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation.	

## TABLE OF DIMENSIONS

RA1-S	Dimensions [mm]												
	A	B	C	D	E	F	G	H	I	J	K	L	M
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	500-6000	192	32	92	10	A-130	65	16	146	-	76	56	≥60
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	500-6000	237	57	137	18	A-220	110	28	169	-	130	110	≥85
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	500-6000	256	76	156	20	A-240	120	38	178	-	130	110	≥95

Note:  $\varnothing 32 \times 2,0 \times \varnothing 92$  [mm] - diameter of tube × thickness × diameter of winding [mm]

## HEATING OUTPUTS

RA1-S	TEMPERATURE GRADIENT	LENGTH [mm] / OUTPUT Q [W]								
		500	1000	1500	2000	2500	3000	4000	5000	6000
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	90/70/20 °C	203	501	799	1058	1318	1578	2095	2628	3161
	75/65/20 °C	160	395	630	835	1040	1245	1653	2073	2494
	70/55/20 °C	130	320	510	676	842	1008	1338	1679	2019
	55/45/20 °C	82	203	324	430	535	641	851	1067	1284
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	90/70/20 °C	266	559	911	1240	1568	1919	2612	3292	3906
	75/65/20 °C	210	441	719	978	1237	1514	2061	2597	3082
	70/55/20 °C	170	357	582	792	1001	1226	1668	2102	2495
	55/45/20 °C	108	227	370	503	637	779	1061	1337	1586
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	90/70/20 °C	294	587	939	1260	1636	2046	2721	3366	3991
	75/65/20 °C	232	463	741	994	1291	1614	2147	2656	3149
	70/55/20 °C	188	375	600	805	1045	1307	1738	2150	2549
	55/45/20 °C	119	238	381	512	665	831	1105	1367	1621

Note: Temperature exponent  $n=1,3$   
Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

## VOLUME OF WATER AND WEIGHT

RA1-S	Length X [mm]	500	1000	1500	2000	2500	3000	4000	5000	6000
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	Weight [kg]	2,4	5,1	7,9	10,6	13,3	16	18,7	21,4	24,1
	Volume [l]	0,5	0,8	1,1	1,5	1,8	2,1	2,7	3,3	3,9
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	Weight [kg]	4,8	9,3	13,9	18,4	22,9	27,4	31,9	40,9	49,8
	Volume [l]	1,7	2,7	3,7	4,7	5,8	6,8	8,8	10,9	12,9
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	Weight [kg]	5,6	10,9	16,3	21,7	27,1	32,5	37,9	46,9	57,1
	Volume [l]	3,1	5,0	7	8,9	10,8	12,7	16,6	20,4	24,3

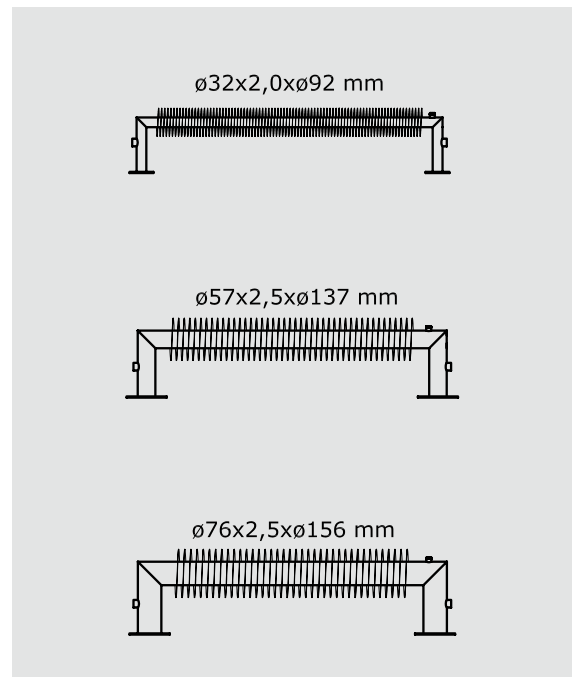
Note: Radiator weight without heating fluid

## CODE EXAMPLE

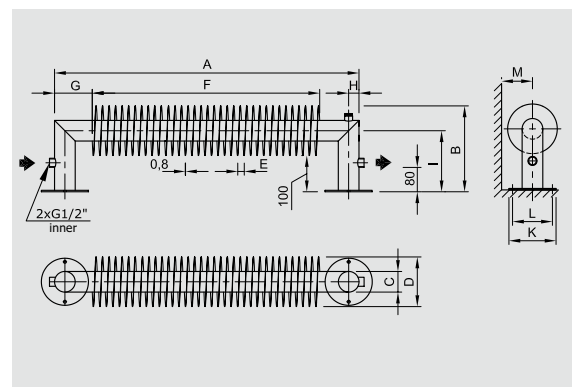
ZRA-1	57	137	100	S	01
SPIRAL type	$\varnothing$ tube [mm]	$\varnothing$ winding [mm]	length [cm]	self-standing	colour code

Ordering, see the page 25

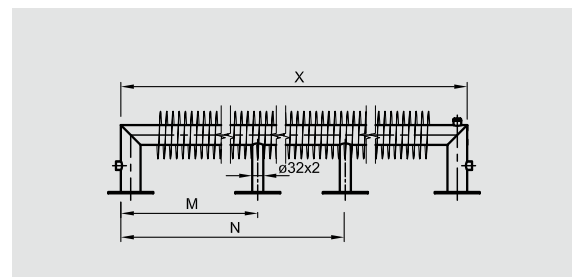
## BASIC TYPES



## SKETCH



## SUPPORTING ELEMENTS



### RA1-S ( $\varnothing 32$ mm)

length of spiral X [mm]	M	N	Number of legs
500-2900	0	0	2 pcs
2901-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

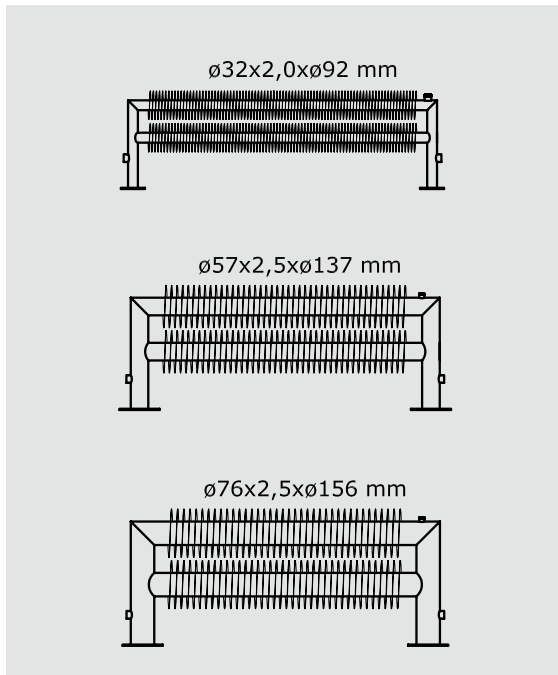
### RA1-S ( $\varnothing 57$ mm a $\varnothing 76$ mm)

length of spiral X [mm]	M	N	Number of legs
500-3000	0	0	2 pcs
3001-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

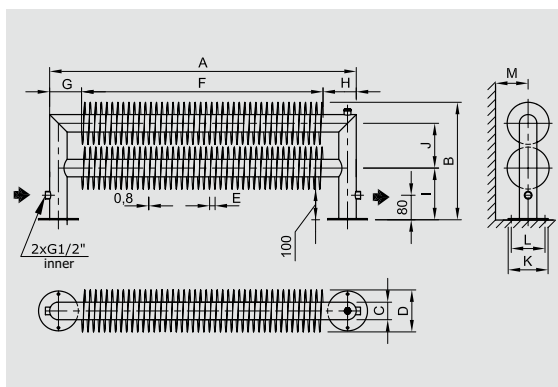




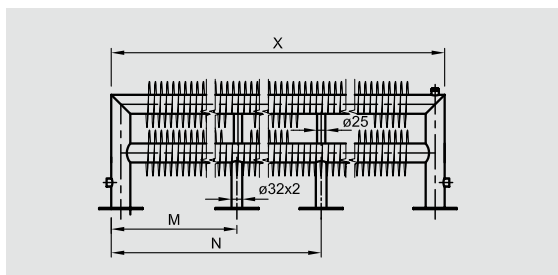
## BASIC TYPES



## SKETCH



## SUPPORTING ELEMENTS



### RAT2-S (ø 32 mm)

length of spiral X [mm]	M	N	Number of legs
500-2900	0	0	2 pcs
2901-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

### RAT2-S (ø 57 mm a ø 76 mm)

length of spiral X [mm]	M	N	Number of legs
500-3000	0	0	2 pcs
3001-4500	X/2	0	3 pcs
4501-6000	1/3 X	2/3 X	4 pcs

## TECHNICAL INFORMATION

<b>Material</b>	Standard:	steel tubes with air-relief valve G 3/8" ø 32 × 2,0 × ø 92 mm, lead of spiral 10 mm ø 57 × 2,5 × ø 137 mm, lead of spiral 18 mm ø 76 × 2,5 × ø 156 mm, lead of spiral 20 mm width of steel fins 0,8mm
	Stainless steel, Hot-dip galvanized:	per order, see page 21
<b>Connection threads</b>	inner G1/2"	
<b>Lengths</b>	500 mm-6 000 mm (with step of 100 mm)	
<b>Operating conditions</b>	Hot water system:	forced circulation
	Max. operating temperature:	120 °C
	Operating overpressure:	1,0 MPa
	Test overpressure:	1,3 MPa
The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C.		
<b>Colour</b>	snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge)	
<b>Atypical design options</b>	Connection threads G3/4", G3/8", G1"	
	Lead of spiral from 10-30 mm (12-30 mm) with step 2 mm	
	Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation.	

## TABLE OF DIMENSIONS

RAT2 - S	Dimensions [mm]												
	A	B	C	D	E	F	G	H	I	J	K	L	M
ø 32 × 2,0 × ø 92 mm	500-6000	297	32	92	10	A-130	65	16	146	105	76	56	≥60
ø 57 × 2,5 × ø 137 mm	500-6000	383	57	137	18	A-220	110	28	169	146	130	110	≥85
ø 76 × 2,5 × ø 156 mm	500-6000	422	76	156	20	A-240	120	38	178	166	130	110	≥95

Note: ø 32 × 2,0 × ø 92 [mm] - diameter of tube × thickness × diameter of winding [mm]

## HEATING OUTPUTS

RAT2-S	TEMPERATURE GRADIENT	LENGTH [mm] / OUTPUT Q [W]								
		500	1000	1500	2000	2500	3000	4000	5000	6000
ø 32×2,0×ø 92 mm	90/70/20 °C	361	887	1420	1882	2345	2769	3725	4672	5618
	75/65/20 °C	285	700	1120	1485	1850	2185	2939	3686	4433
	70/55/20 °C	231	567	907	1202	1498	1769	2379	2984	3589
	55/45/20 °C	147	360	577	764	952	1125	1513	1897	2282
ø 57×2,5×ø 137 mm	90/70/20 °C	385	965	1527	2178	2769	3377	4586	5775	6848
	75/65/20 °C	304	761	1205	1718	2185	2664	3618	4556	5403
	70/55/20 °C	246	616	976	1391	1769	2157	2929	3688	4374
	55/45/20 °C	156	392	620	884	1125	1371	1862	2345	2781
ø 76×2,5×ø 156 mm	90/70/20 °C	403	1003	1589	2235	2840	3422	4626	5846	6960
	75/65/20 °C	318	791	1254	1763	2241	2700	3650	4612	5491
	70/55/20 °C	257	640	1015	1427	1814	2186	2955	3734	4445
	55/45/20 °C	164	407	645	908	1154	1390	1879	2374	2826

Note: Temperature exponent n=1,3

Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

## VOLUME OF WATER AND WEIGHT

RAT2-S	Length X [mm]	500	1000	1500	2000	2500	3000	4000	5000	6000
ø 32×2,0×ø 92 mm	Weight [kg]	5	10,6	16	21,4	27,0	32,6	43,8	55	66,2
	Volume [l]	0,9	1,5	2,1	2,8	3,4	4	5,2	6,5	7,7
ø 57×2,5×ø 137 mm	Weight [kg]	9,7	20,0	30,1	40,5	50,2	60,0	80,5	101,1	121,4
	Volume [l]	3	5,1	7,1	9,1	11,2	13,2	17,3	21,4	25,5
ø 76×2,5×ø 156 mm	Weight [kg]	11,7	23,1	34,5	45,8	57,1	68,4	91,0	113,6	136,2
	Volume [l]	5,9	9,8	13,6	17,5	21,3	25,2	32,9	40,6	48,3

Note: Radiator weight without heating fluid

## CODE EXAMPLE

ZRAT2	57	137	100	S	01
SPIRAL type	ø tube [mm]	ø winding [mm]	length [cm]	self-standing	colour code

Ordering, see the page 25



## TECHNICAL INFORMATION

<b>Material</b>	Standard:	steel tubes with air-relief valve G 3/8" $\varnothing 32 \times 2,0 \times \varnothing 92$ mm, lead of spiral 10 mm $\varnothing 57 \times 2,5 \times \varnothing 137$ mm, lead of spiral 18 mm $\varnothing 76 \times 2,5 \times \varnothing 156$ mm, lead of spiral 20 mm width of steel fins 0,8mm
	Stainless steel, Hot-dip galvanized:	per order, see page 21
<b>Connection threads</b>	inner G1/2"	
<b>Lengths</b>	500 mm–6 000 mm (with step of 100 mm)	
<b>Operating conditions</b>	Hot water system:	forced circulation
	Max. operating temperature:	120 °C
	Operating overpressure:	1,0 MPa
	Test overpressure:	1,3 MPa
The radiator is designed for ambient temperature from 2 to 40 °C and relative humidity from 20 to 70 °C.		
<b>Colour</b>	snow white RAL 9016, white RAL 9010; colours based on the RAL colour card (extra charge)	
<b>Atypical design options</b>	Connection threads G3/4", G3/8", G1"	
	Lead of spiral from 10–30 mm (12–30 mm) with step 2 mm	
	Loose ends can also be used for gravity circulation. Everything based on the customer's approved technical documentation.	

## TABLE OF DIMENSIONS

RAT3-S	Dimensions [mm]												
	A	B	C	D	E	F	G	H	I	J	K	L	M
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	500–6000	396	32	92	10	A-130	65	16	146	105	76	56	≥60
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	500–6000	529	57	137	18	A-220	110	28	169	146	130	110	≥85
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	500–6000	588	76	156	20	A-240	120	38	178	166	130	110	≥95

Note:  $\varnothing 32 \times 2,0 \times \varnothing 92$  [mm] - diameter of tube × thickness × diameter of winding [mm]

## HEATING OUTPUTS

RAT3-S	TEMPERATURE GRADIENT	LENGTH [mm] / OUTPUT Q [W]								
		500	1000	1500	2000	2500	3000	4000	5000	6000
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	90/70/20 °C	539	1331	2129	2820	3511	4151	5581	7001	8420
	75/65/20 °C	425	1050	1680	2225	2770	3275	4404	5523	6643
	70/55/20 °C	344	850	1360	1801	2242	2651	3565	4471	5378
	55/45/20 °C	219	540	865	1145	1426	1686	2267	2843	3419
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	90/70/20 °C	584	1483	2382	3318	4171	5133	6990	8841	10449
	75/65/20 °C	461	1170	1879	2618	3291	4050	5515	6975	8244
	70/55/20 °C	373	947	1521	2119	2664	3279	4465	5647	6674
	55/45/20 °C	237	602	967	1348	1694	2085	2839	3590	4244
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	90/70/20 °C	607	1503	2399	3351	4265	5185	7066	9023	10567
	75/65/20 °C	479	1186	1893	2644	3365	4091	5575	7119	8337
	70/55/20 °C	388	960	1532	2140	2724	3312	4513	5763	6749
	55/45/20 °C	247	610	974	1361	1732	2106	2870	3665	4291

Note: Temperature exponent  $n=1,3$   
Hot-dip galvanized surface treatment reduces heating output by ~10 %, stainless steel by ~35 %.

## VOLUME OF WATER AND WEIGHT

RAT3-S	Length X [mm]	500	1000	1500	2000	2500	3000	4000	5000	6000
$\varnothing 32 \times 2,0 \times \varnothing 92$ mm	Weight [kg]	7,3	15,6	23,8	31,9	40,0	48,1	65,9	83,7	101,5
	Volume [l]	1,3	2,2	3,2	4,0	5,0	5,9	7,8	9,6	11,5
$\varnothing 57 \times 2,5 \times \varnothing 137$ mm	Weight [kg]	15,0	29,0	45,0	67,0	76,0	91,0	121,0	151,0	181,0
	Volume [l]	4,3	7,4	10,5	13,5	16,6	19,7	25,8	31,9	38,0
$\varnothing 76 \times 2,5 \times \varnothing 156$ mm	Weight [kg]	19,4	36,8	53,7	70,7	87,8	105,0	136,0	170,9	205,7
	Volume [l]	8,3	14,0	19,8	25,6	31,4	37,2	48,7	60,3	71,8

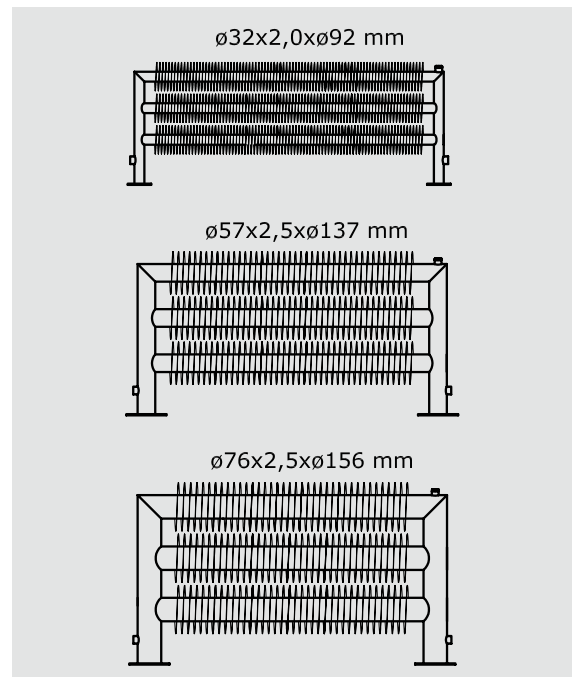
Note: Radiator weight without heating fluid

## CODE EXAMPLE

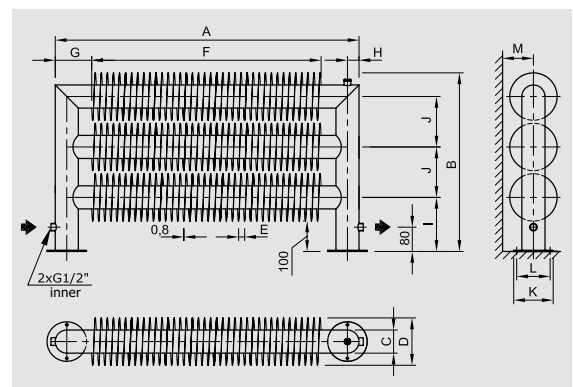
ZRAT3	57	137	100	S	01
SPIRAL type	$\varnothing$ tube [mm]	$\varnothing$ winding [mm]	length [cm]	self-standing	colour code

Ordering, see the page 25

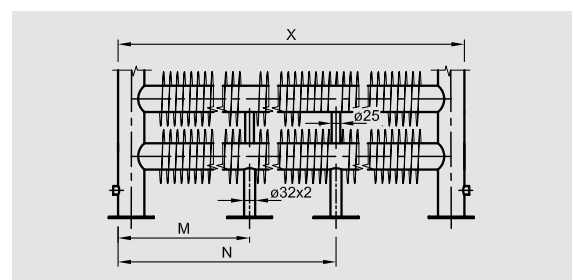
## BASIC TYPES



## SKETCH



## SUPPORTING ELEMENTS



### RAT3-S ( $\varnothing 32$ mm)

length of spiral X [mm]	M	N	Number of legs
500–2900	0	0	2 pcs
2901–4500	X/2	0	3 pcs
4501–6000	1/3 X	2/3 X	4 pcs

### RAT3-S ( $\varnothing 57$ mm a $\varnothing 76$ mm)

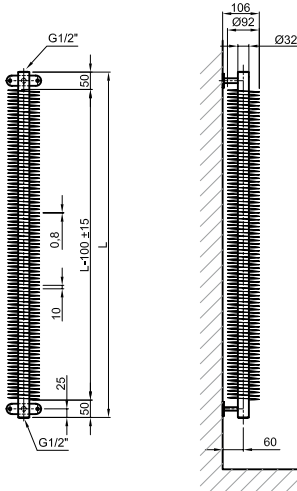
length of spiral X [mm]	M	N	Number of legs
500–3000	0	0	2 pcs
3001–4500	X/2	0	3 pcs
4501–6000	1/3 X	2/3 X	4 pcs



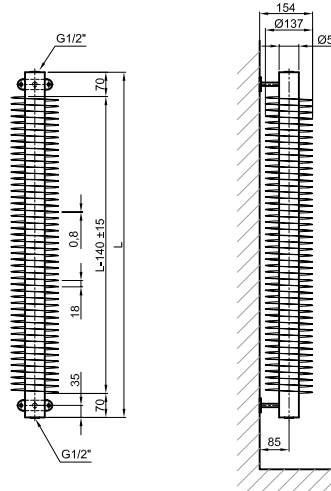
Spiral radiators can be ordered for installation on a wall in a vertical position, types RA, RAT, RAO

- length L = 500 - 2 500 mm
- heating output of the painted version = heating output of the horizontal Spiral -30 %
- heating output of the stainless steel version = heating output of the horizontal Spiral -55 %

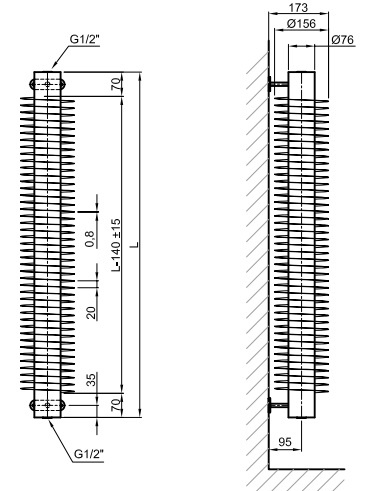
## RA1



RA1 32×2×92 VERTICAL

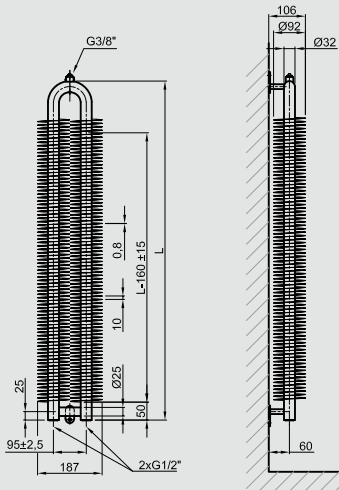


RA1 57×2,5×137 VERTICAL

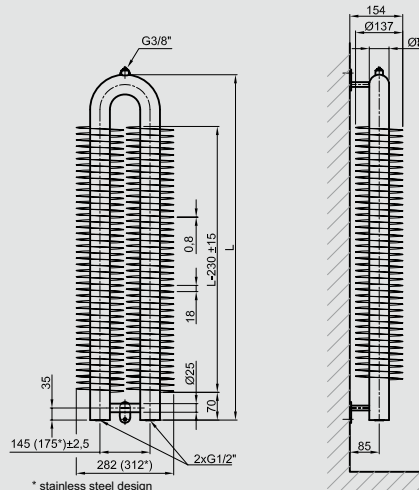


RA1 76×2,5×156 VERTICAL

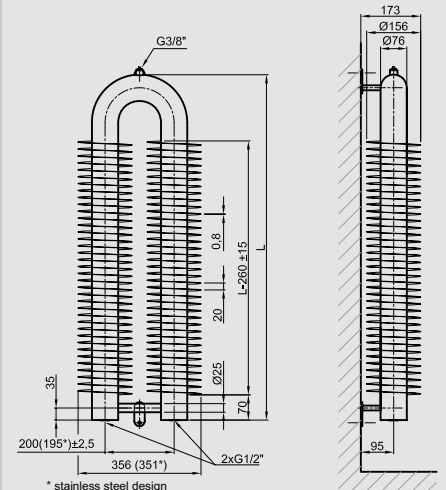
## RA02



RA02 32×2×92 VERTICAL

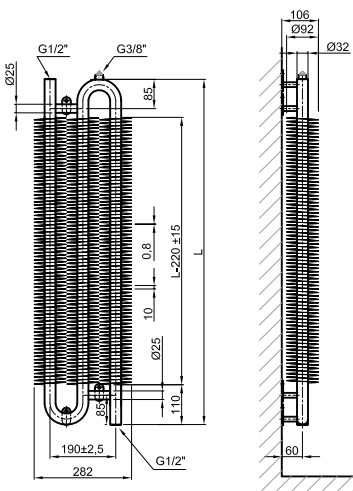


RA02 57×2,5×137 VERTICAL  
\* stainless steel design

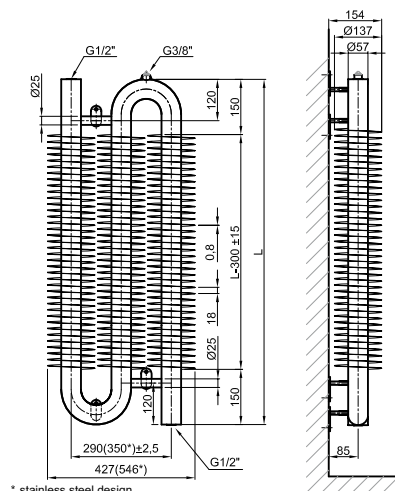


RA02 76×2,5×156 VERTICAL  
\* stainless steel design

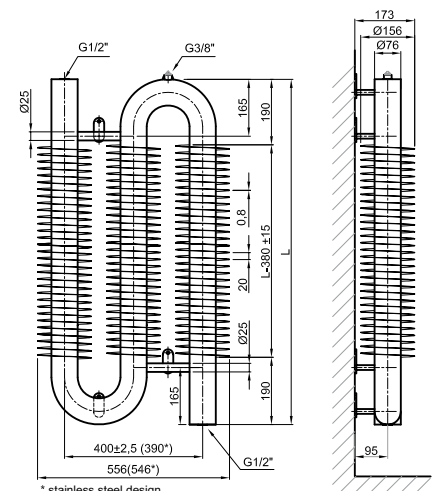
## RA03 RIGHT



RA03 32×2×92 VERTICAL RIGHT



RA03 57×2,5×137 VERTICAL RIGHT  
\* stainless steel design



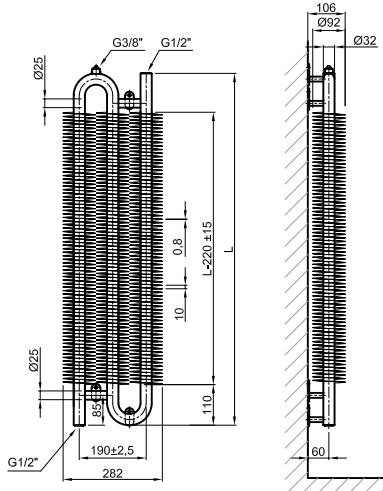
RA03 76×2,5×156 VERTICAL RIGHT  
\* stainless steel design



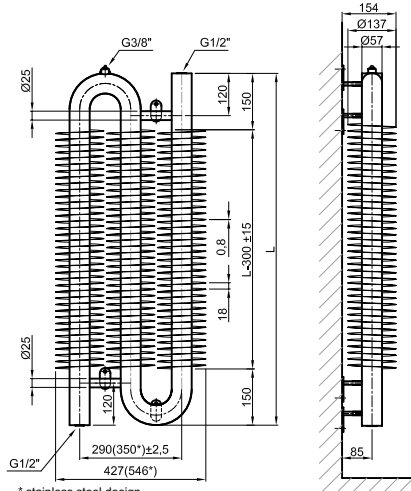
Spiral radiators can be ordered for installation on a wall in a vertical position, types RA, RAT, RAO

- length L = 500 - 2 500 mm
- heating output of the painted version = heating output of the horizontal Spiral - 30 %
- heating output of the stainless steel version = heating output of the horizontal Spiral - 55 %

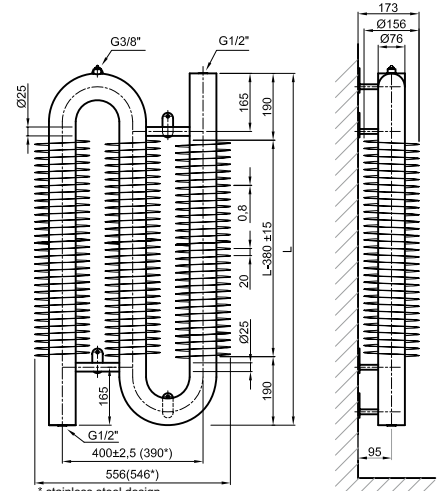
## RAO3 LEFT



RAO3 32×2×92 VERTICAL LEFT

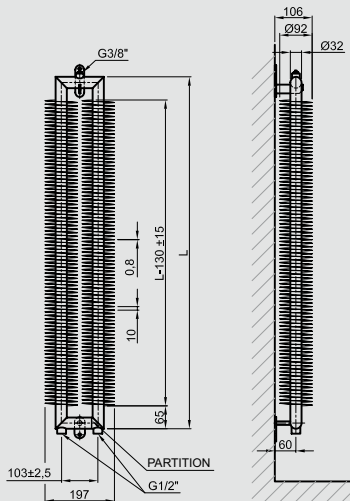


RAO3 57×2,5×137 VERTICAL LEFT

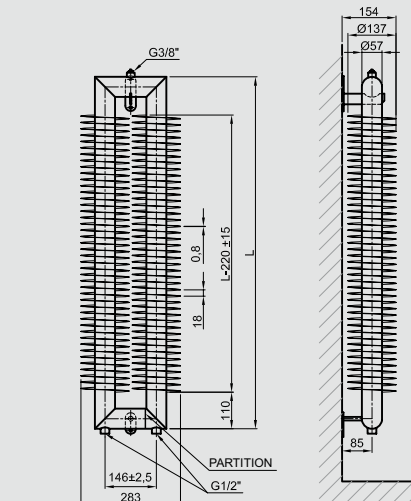


RAO3 76×2,5×156 VERTICAL LEFT

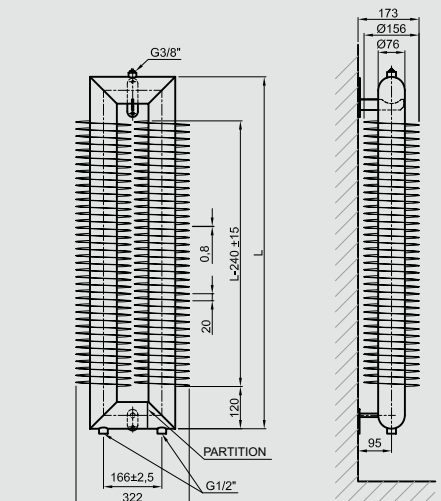
## RAT2



RAT2 32×2×92 VERTICAL

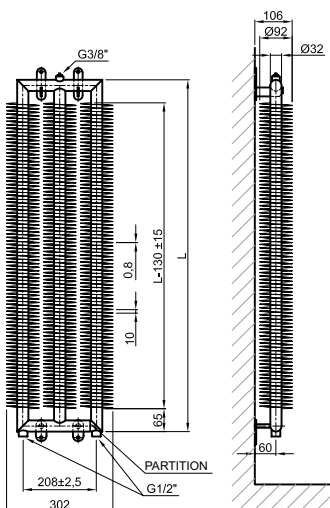


RAT2 57×2,5×137 VERTICAL

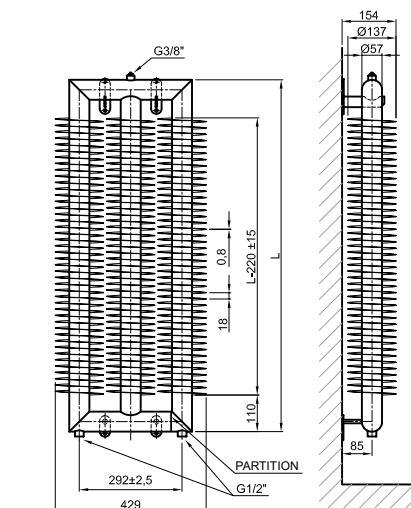


RAT2 76×2,5×156 VERTICAL

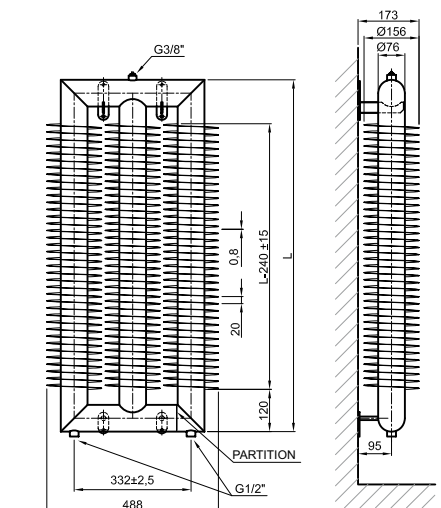
## RAT3



RAT3 32×2×92 VERTICAL



RAT3 57×2,5×137 VERTICAL



RAT3 76×2,5×156 VERTICAL

# SPIRAL | SMOOTH TUBES

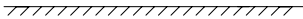
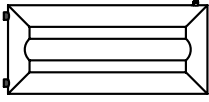


Other variation of SPIRAL radiators is a version without winding – smooth tubes. They are delivered in versions for floor, on wall and self-standing, the same as standard models. For the heating output of radiators made of smooth tubes consider the 20–25 % of the standard ribbed radiator.

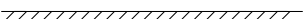
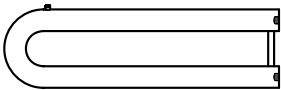
## EXAMPLES:

### WALL-MOUNTED VERSION

HRAT3

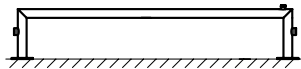


HRAO2



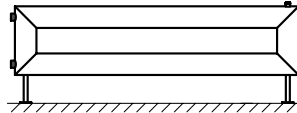
### SELF-STANDING VERSION

HRA1

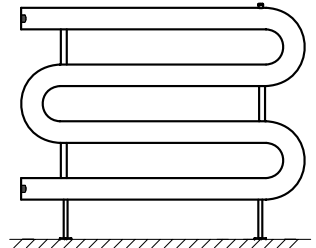


### FLOOR-MOUNTED VERSION

HRAT2



HRAO4



## CODE EXAMPLE

<b>HRAT2</b>	<b>57</b>	<b>-</b>	<b>100</b>	<b>F</b>	<b>01</b>
SPIRAL type	∅ tube [mm]	∅ winding [mm]	length [cm]	on the floor	colour

Atypical solutions are delivered only based on drawings; for specification of technical parameters and heating outputs please contact sales department of ISAN Radiatory s.r.o.  
Ordering, see the page 25



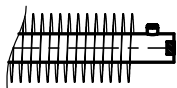
# CONNECTION OPTIONS FOR SPIRAL RADIATORS



## STANDARD WAYS OF CONNECTING SPIRAL RADIATORS

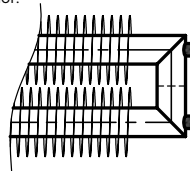
Standard connection S1, S2, S3 with no additional charge on top of the price of the radiator.

S1



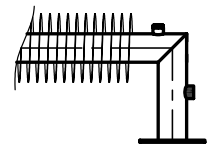
Standard connection for RA1 and RAO radiators.

S2



Standard connection for RAT radiators.

S3

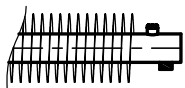


Standard connection for RA1 and RAT self-standing radiators.

## ATYPICAL WAYS OF CONNECTING SPIRAL RADIATORS - (ADDITIONAL CHARGE FOR CHANGE IN CONNECTION)

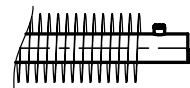
Atypical ways of connection can be combined with changes in the connection threads (G 3/8", G 1/2", G 3/4", G 1") after consultation with the sales department.

A1



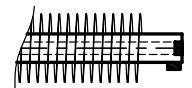
Atypical connection for RA1, RAT and RAO radiators.

A2



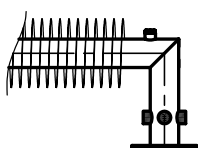
Atypical connection for RA1 and RAO radiators with a diameter of 57 and 76 mm.

A3



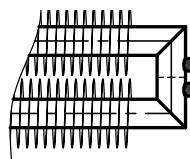
Atypical connection for RA1 radiators with a diameter of 57 and 76 mm.

A4



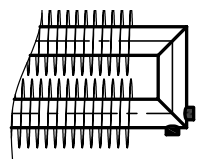
Atypical connection for self-standing RA1 and RAT radiators. Any movement of the connection must always be only by an angle of 90°.

A5



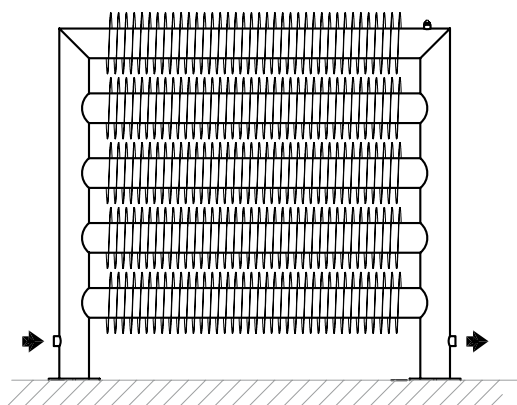
Atypical connection for RAT radiators. Min. pitch of the connection 50 mm.

A6

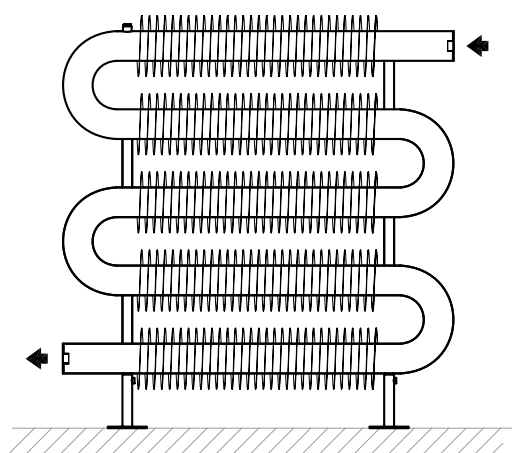


Atypical connection for RAT radiators.

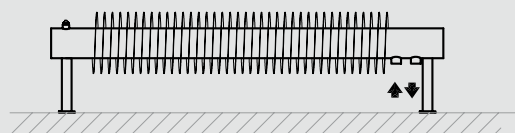
Should you be interested in special connections please contact the sales department of ISAN Radiatory s.r.o. for a specification of the technical parameters. Should it not be stated otherwise, the atypical connections are valid for all of the manufactured diameters 32, 57 and 76 mm.



RAT5 76/156 SELF-STANDING



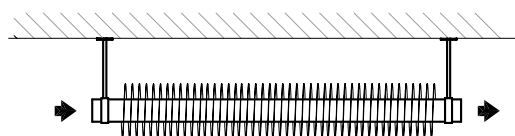
RAO5 57/137 ON THE FLOOR



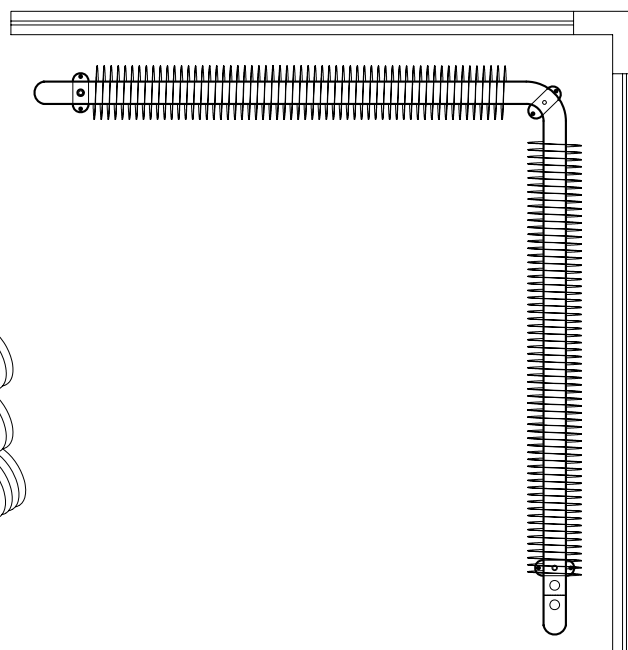
RAT2 76/156 TO THE FLOOR HORIZONTALLY



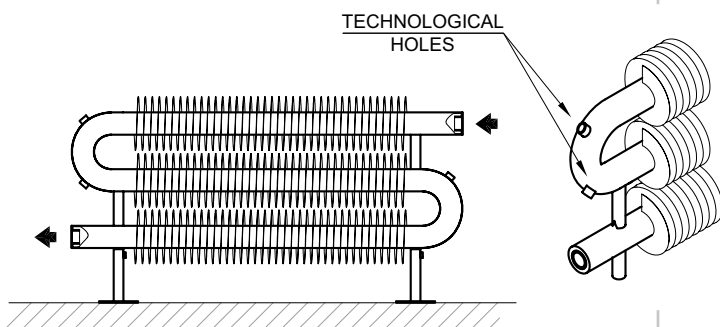
RAO2 32/92 TO THE WALL HORIZONTALLY



RA1 57/137 UNDER CEILING



RAO2 57/137 TO THE FLOOR - BROKEN LINE SHAPE



RAO3 57/137 ON THE FLOOR - GALVANIZED



## MODERN INTERIOR DESIGN ELEMENTS

Stainless steel radiators are designed for modern interiors, for premises with requirements for environmental resistance and durability. They are an important part of the room, a massive metal body with gently blasted finish and visible welds.

## WET ENVIRONMENT

Stainless steel coils are suitable for rooms with higher humidity and in the environment where the radiator comes into contact with the water and steam. The material is waterproof and in the long-term period retains the functional characteristics and appearance.

**Not suitable for aggressive environments** with an increased share of chlorine, salt water, etc.

## RESISTANCE

Excellent mechanical properties of stainless steel are a prerequisite for the resistance against abrasion, scratches and mechanical damage. Used stainless steel material also serves as a protection against corrosion. If the conditions for the operation of the body are complied with the life is almost unlimited.

## MATERIAL

The radiator body is made of stainless steel CSN 17240 (DIN 1.4301, AISI 304). The body surface is finely sanded.

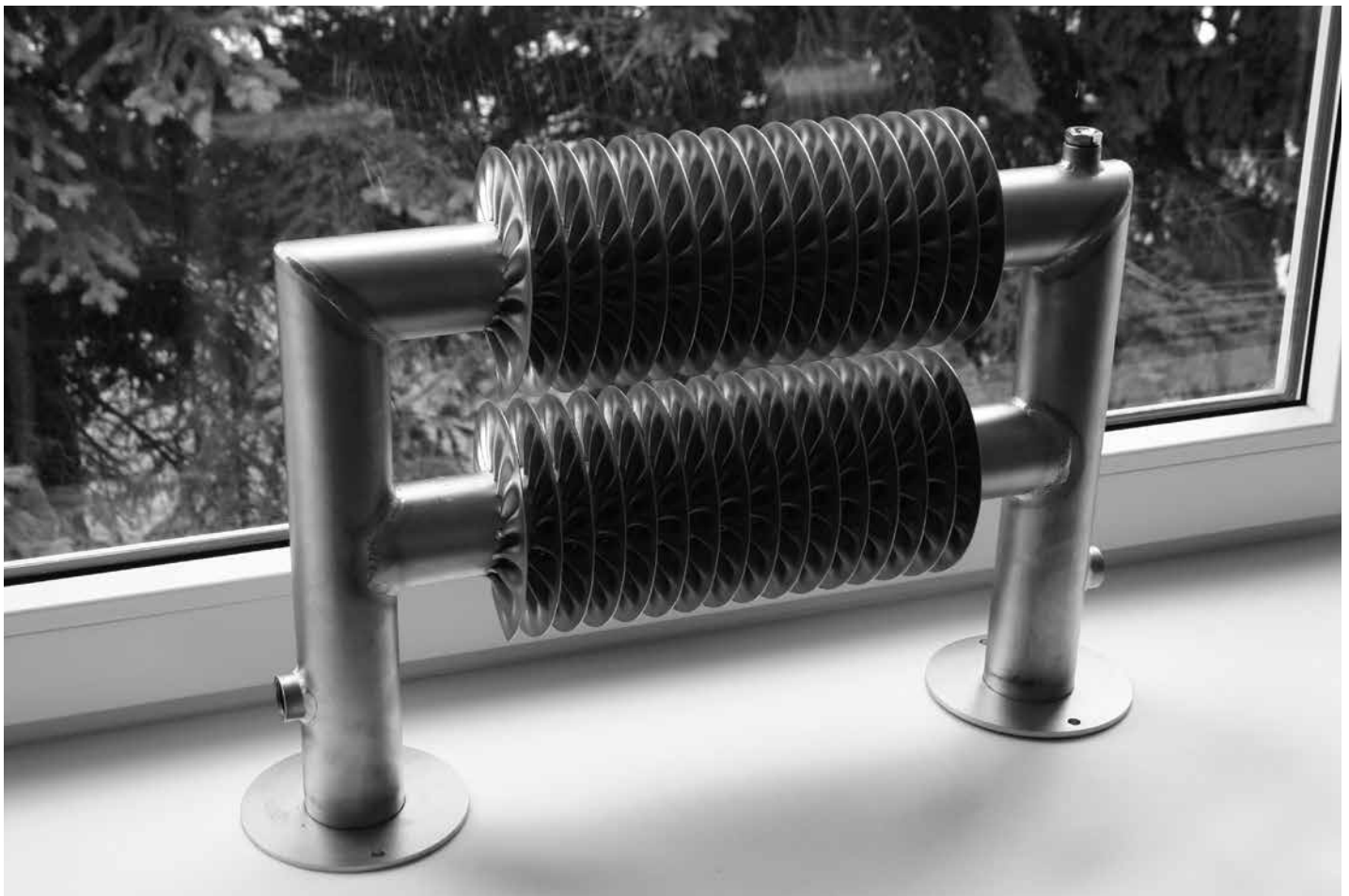
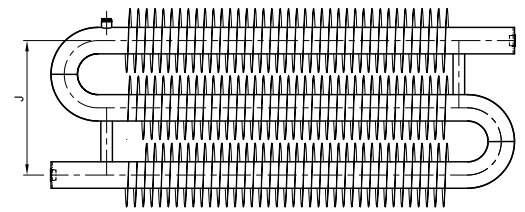
## HEATING OUTPUT

Consider the heating output of the Spiral stainless steel radiators 35% lower than with standard painted steel bodies.

## DESIGN

Types of radiators RAO2, RAO3 in the stainless steel design have a different pitch of "J" finned tubes compared to the standard design, see the table:

Distance J [mm] of types RAO2, RAO3		
Type of Spiral	PAINTED STEEL	STAINLESS STEEL
RAO2 Ø57 mm	145 mm	175 mm
RAO2 Ø76 mm	200 mm	195 mm
RAO3 Ø57 mm	290 mm	350 mm
RAO3 Ø76 mm	400 mm	390 mm





## THE RADIATOR IN THE AGGRAVATED ENVIRONMENT

The hot-dip galvanizing finish is suitable for environments with the difficult environmental conditions. By immersing in the zinc bath with the temperature of 450–470°C, the high quality zinc coating is applied to the steel body. This can long withstand the adverse effects of the surroundings and is resistant to mechanical wear.

The galvanized surface is characterized by the following properties:

- long life
- non-porous uniform surface
- high quality and uniform coating, even on the inside and hard to reach areas

This all while meeting the criteria of the environmental standards

## MOIST AND AGGRESSIVE ENVIRONMENTS

Galvanizing resists aggravated environmental conditions when used in areas where it is exposed to water, steam, frost, ammonia and other aggressive substances

- aggressive environment (farm buildings, piggeries, ...)
- open spaces (halls, stadiums ...)
- exposed premises (boiler rooms, manufacturing plants)

## RESISTANCE

Galvanized finish is resistant to mechanical damage. It is suitable for manufacturing plants, commercial buildings and wherever it is within the operation and handling possible that the body will be subjected to abrasion or impacts.

## HEATING OUTPUT

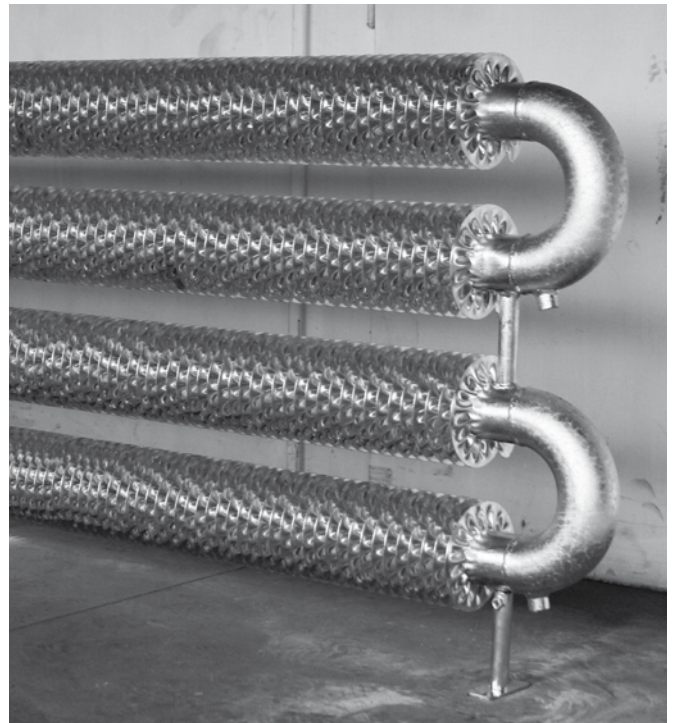
Consider the heating output of Spiral galvanized radiators being 10% lower than standard painted steel bodies.

## CONS – APPEARANCE AND DESIGN ADJUSTMENT

The technology of applying the zinc coating by dipping in hot metal bath entails several disadvantages. The surface is not completely smooth; it may contain surface roughness (meal). There may be burrs caused by sagging zinc along the perimeter. Structurally, it is necessary to provide the radiator with additional couplings (securing inlet, outlet and venting openings). The zinc layer is also inside the radiator.

The production itself is always preceded by drawing to be confirmed by the customer.

The final radiator is shipped roughly deburred whereas additional lugs are blinded and connecting threads are stretched.



## CONNECTING THREADS

Spiral Radiators with the galvanized coating are supplied with these connecting threads:

**G 3/4"** for Spiral  $\varnothing$  32×92

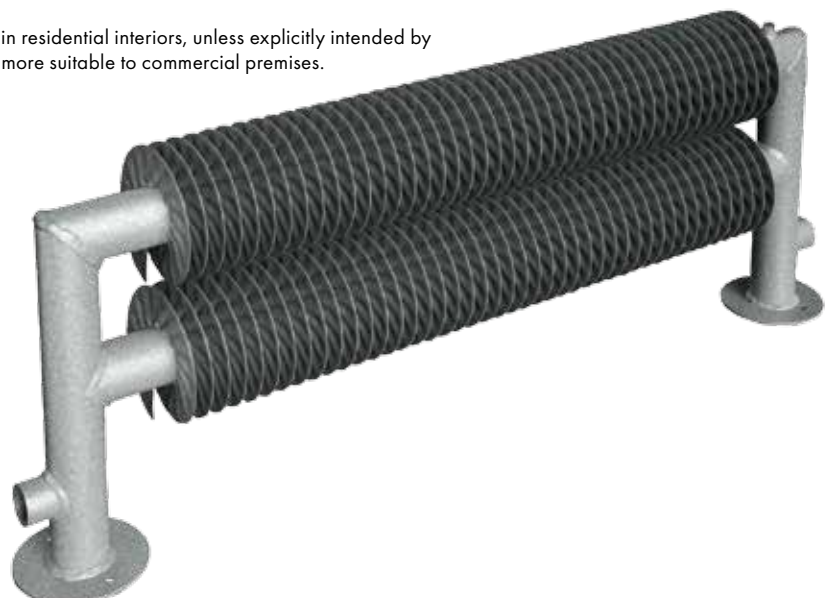
**G1"** for Spiral  $\varnothing$  57×137 and  $\varnothing$  76×156

Including galvanized reductions for thread G1/2"



## DESIGN

Spiral radiator with the hot-dip zinc is not primarily intended for use in residential interiors, unless explicitly intended by the architect, who accepts the surface roughness of the product. It is more suitable to commercial premises.





# ORDERING FORM



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>Z</b>	<b>R</b>	<b>A</b>	<b>T</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>9</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>W</b>	<b>0</b>	<b>1</b>
<b>TYPE OF SPIRAL</b>					<b>Diameter of tube [mm]</b>			<b>Diameter of winding [mm]</b>			<b>Length L [cm]</b>		<b>Mounting</b>	<b>Colour code</b>	

SPIRAL WITH WINDING RAT2 Ø32×2,0xØ92 mm, LENGTH 1000 mm, WALL-MOUNTED VERSION, SNOW-WHITE COLOUR RAL 9016.

## LEGEND

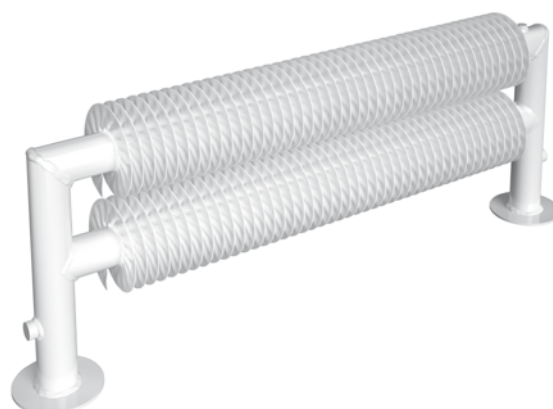
Position 1, 2, 3, 4, 5	TYPE OF SPIRAL RADIATOR	
ZRA-1 [HRA-1]	SPIRAL TYPE WITH WINDING RA1	[HRA1 - SPIRAL TYPE - SMOOTH TUBES RA1]
ZRAT2 [HRAT2]	SPIRAL TYPE WITH WINDING RAT2	[HRAT2 - SPIRAL TYPE - SMOOTH TUBES RAT2]
ZRAT3 [HRAT3]	SPIRAL TYPE WITH WINDING RAT3	[HRAT3 - SPIRAL TYPE - SMOOTH TUBES RAT3]
ZRAO2 [HRAO2]	SPIRAL TYPE WITH WINDING RAO2	[HRAO2 - SPIRAL TYPE - SMOOTH TUBES RAO2]
ZRAO3 [HRAO3]	SPIRAL TYPE WITH WINDING RAO3	[HRAO3 - SPIRAL TYPE - SMOOTH TUBES RAO3]

Position 6, 7, 8, 9, 10	DIAMETER OF TUBE AND WINDING	
32 092 [32 ---]	DIAMETER OF TUBE 32 mm WITH DIAMETER OF WINDING 92 mm	[SMOOTH TUBES WITH DIAMETER 32 mm]
57 137 [57 ---]	DIAMETER OF TUBE 57 mm WITH DIAMETER OF WINDING 137 mm	[SMOOTH TUBES WITH DIAMETER 57 mm]
76 156 [76 ---]	DIAMETER OF TUBE 76 mm WITH DIAMETER OF WINDING 156 mm	[SMOOTH TUBES WITH DIAMETER 76 mm]

Position 11, 12, 13	LENGTH OF RADIATOR L [cm]
050	LENGTH OF RADIATOR L = 500 mm
100	LENGTH OF RADIATOR L = 1000 mm
150	LENGTH OF RADIATOR L = 1500 mm
200	LENGTH OF RADIATOR L = 2000 mm
250	LENGTH OF RADIATOR L = 2500 mm
300	LENGTH OF RADIATOR L = 3000 mm
400	LENGTH OF RADIATOR L = 4000 mm
500	LENGTH OF RADIATOR L = 5000 mm
600	LENGTH OF RADIATOR L = 6000 mm
265	INTER-LENGTH L = 2650 mm

Position 14	MOUNTING
W	WALL-MOUNTED
F	FLOOR-MOUNTED
S	SELF-STANDING VERSION (CANNOT BE DONE FOR TYPE RAO)
V	VERTICAL DESIGN

Position 15, 16	COLOUR CODE
01	COLOUR RAL 9016
02	COLOUR RAL 9010
81	STAINLESS STEEL
90	HOT-DIP GALVANIZED
OTHER COLOURS CAN BE SELECTED BASED ON THE ORIENTATION COLOUR CARD, PAGE 27	





Radiators from the Spiral range are by default manufactured from finned tubes with a diameter of 32 mm and wall thickness of 2,0 mm or diameter of 57 mm and 76 mm with wall thicknesses of 2,5 mm. These radiators are intended for operation in all hot water systems which use heating (treated) water with a forced circulation only. After consultation with the manufacturer it is possible to use several types of radiators in gravitational systems or steam distribution systems. The maximum operating temperature of these radiators is 120 °C and the operational overpressure is 1 MPa. The connection is supplied with a G1/2" internal thread as standard. Radiators from the Spiral range are manufactured in basic types: wall-mounted, floor-mounted or self-standing.

## SURFACE TREATMENT

Surface treatment is carried out with a maximal regard to the environment. It renders the product hygienically safe and provides long-term corrosion and mechanical resistance. Baked-on powder epoxy-polyester paint is used for the surface treatment. Selection of color shades Ref. "Orientation colour card" with an additional charge based on the type of paint. Spiral radiators are also supplied in a stainless steel and hot-dip galvanized design.

## PACKAGING AND MOUNTING

Radiators from finned tubes are packed together with polystyrene filling into cardboard and then they are sealed with a shrink foil. The legs or consoles and air-outlet valves are included in the packing. Mounting set includes stated number of consoles / legs with mounting kit (screws, wall plugs, etc.).

## ADVANTAGES

A wide range of uses in residential and public buildings and for industrial purposes. Low prices and longer lifespan compared with classic radiators. Three possible types of mounting (wall, floor and self-standing versions), a wide range of colours and modifications based on the requirements of the customer.

## WARRANTEE PERIOD

The warrantee is related to failures and faults which come to light during the warrantee period due to manufacturing faults or defects in the materials used. The warrantee period for finned tube radiators is 5 years from the date of transferring the product to the purchaser.

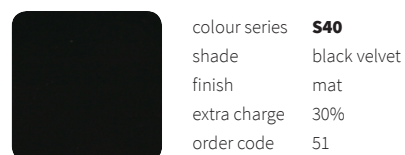
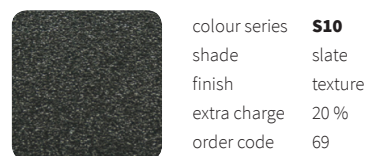
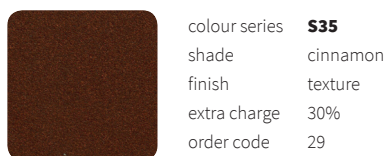
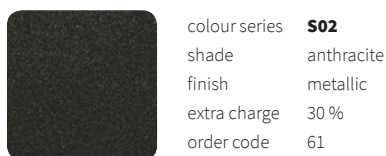
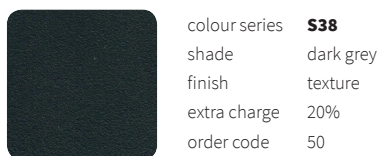
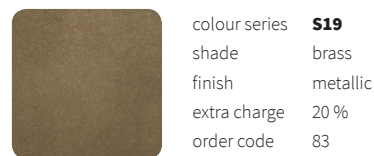
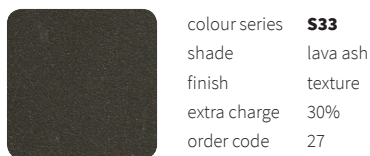
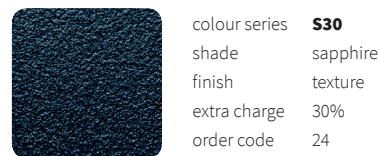
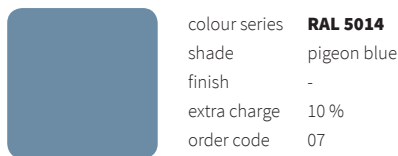
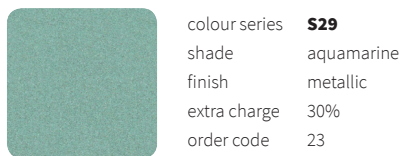
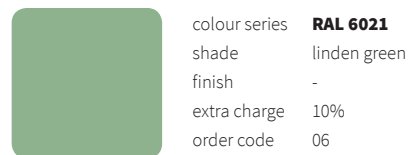
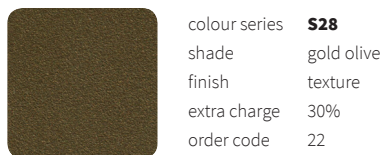
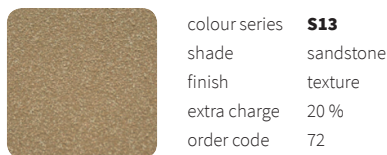
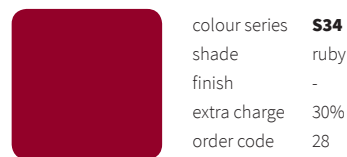
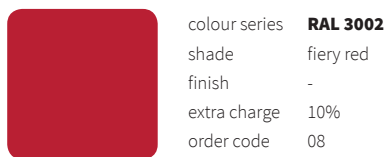
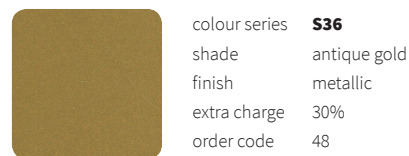
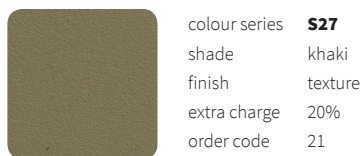
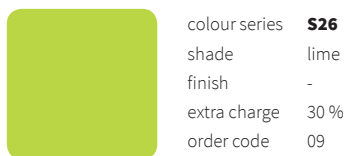
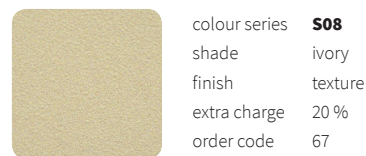
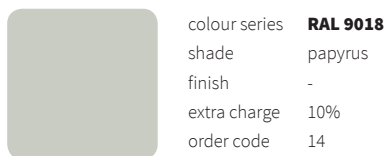
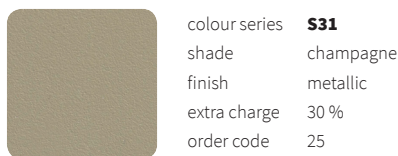
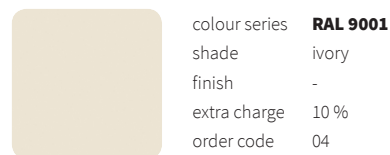
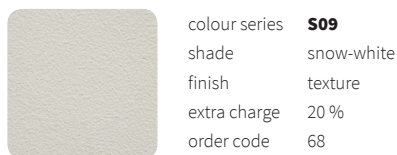
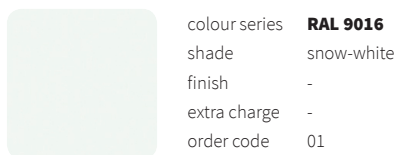
## WARRANTY CONDITIONS

Customer loses any claim for warranty service in case that the heating body was:

- installed in a building, facility or room with high humidity, such as public WC, car washing room, stable, cowshed, indoor swimming pool and the like;
- stored outdoor or under a temperature lower than -5 °C;
- damaged by inside corrosion due to unsuitable chemical composition of the heating medium, having caused a leaking;
- deformed due to inappropriate transport or exceeding of working pressure maximum;
- damaged mechanically or due to inappropriate handling by customer or carrier;
- damaged willingly or when defaults appeared due to a natural disaster or other impact;
- used and kept in operation in spite of the claimed default, whereas the usage of so faulty product has inflicted the state thereof in so far that the claimed default cannot be assessed accordingly;
- unprofessionally installed or when a modification has followed without prior seller's consent;
- used for other than the intended purpose, such as for drying of wet textiles directly on the convector body, which has lead to damage of the surface treatment;
- damaged by using of unsuitable cleaners, not recommended for the given radiator surface;
- purchased against a reduced price due to a default, the customer was noticed of.

Any warranty claim shall be refused, if the Warranty Certificate is not filled in, shows unauthorized changes or is not available. The warranty does not apply to unordinary wear and tear. If no default caused by the manufacturer is found out, the warranty conditions are taken as unfulfilled and costs connected with experts' travel shall be borne by customer. Products being the objects of claim and sent to manufacturer by postal service shall be possibly delivered in original packing or dully packed, to eliminate any further damage due to transportation. Damages caused by such transportation of a claimed product shall not be taken in consideration.



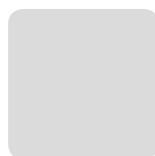


## Surface treatment



colour series **inox**  
order code 81

## Special treatment



colour series **S41**  
shade RAL 9016  
finish antibacterial\*  
extra charge 30 %  
order code 88



colour series **S20**  
shade transparent paint  
finish transparent paint  
extra charge 30 %  
order code 84

\*A silver-ion antibacterial finish provides protection against a wide range of bacteria and fungi.

The printed version of the colour chart is for reference only and does not correspond to the actual surface treatment shades.



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