

SEVEN



100-80

BRAND NAME
NOVA FLORIDA
HEATING ELEMENTS AND SYSTEMS

P 051 - 05

Aluminium alloy radiators



Seven radiators have an exceptional weight-to-output ratio and are extremely easy to handle, store and install. They also have the following features:

◆ Cutting-edge technology

From initial design to elements die-casting, from automated mechanical working to 100% final testing at 9 bar, from surface finishing and painting to packaging in heat-shrunk polythene film and cardboard boxes, the entire production process is guaranteed by a quality system in full compliance with ISO 9001:2000.

◆ Die cast aluminium alloy

Aluminium alloy is an excellent heat conductor and its composition is carefully monitored to ensure the highest standard. It is highly resistant to corrosion since aluminium passivates in water, forming an insoluble film of oxide on the inside surface of the radiator.

◆ High thermal efficiency

High thermal efficiency even in low temperature systems, low thermal inertia and energy saving.

These are the main features of Seven, the result of an exclusive design and low water content compared to the surface area.

It responds promptly to the controls and the heat is spread evenly by convection and radiation.

◆ Attractive design and easy maintenance

Seven comes in RAL 9010 white. The painting process integrates anaphoresis and electrostatic coating with a top layer of epoxy-polyester powders. Aesthetically speaking, it combines the advantages of a panel radiator with the versatility of a modular radiator. Routine maintenance and cleaning are extremely easy and reduced to a minimum thanks to the highly durable paintwork and excellent resistance to shock and abrasion.

Seven is a modular die-cast aluminium radiator available with centre distances 350 (only for /100 model), 500, 600, 700 and 800 mm; it features attractive design, improved functionality and top thermal efficiency. The individual elements are made of aluminium alloy that undergoes rigorous testing to ensure the highest quality and compliance with the standards on the composition of the material.

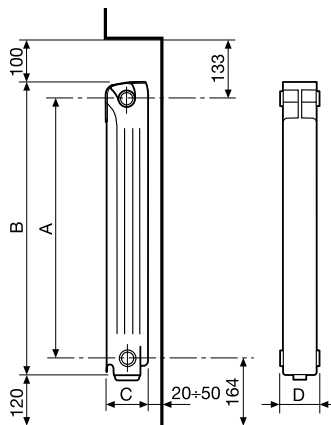
All production processes are fully automated: die casting, surface grinding, base welding, threading, spot-facing and final assembly using steel nipples. The series of elements are 100% tested at 9 bar and then painted. This involves a chemical and physical pre-treatment followed by a dual finishing process, application of a first coat of paint by anaphoresis and then electrostatic painting using epoxy-polyester powders to give the radiator its final colour – white RAL 9010.

Seven is now ready for the packaging process. Each radiator is covered in a film of heat-shrunk polythene, which is to be removed before radiator operation, and then packed in a sturdy cardboard box labeled with the full details about its content. Instrumental tests and visual inspections are carried out at all the stages of the process to ensure compliance with the quality system.

10 YEARS GUARANTEE

SEVEN models are guaranteed for manufacturing defects for 10 years from the date of installation, provided that the system is installed according to the rules of good workmanship, in compliance with current regulations, and use and maintenance instructions set out in this catalogue.

BRAND NAME
NOVA FLORIDA



100



Technical data

Model	Depth (C)	Height (B)	Centre distance (A)	Length (D)	Connection diameter	Water content	Weight	Thermal output $\Delta T 50K$	Exponent n	Coefficient K_m
	mm	mm	mm	mm	inches	litres/elem.	Kg/elem.	W/elem.		
350/100	96	428	350	80	G1	0.30	1.09	98.82	1.3078	0.5931
500/100	96	578	500	80	G1	0.40	1.42	130.53	1.3293	0.7198
600/100	96	677	600	80	G1	0.46	1.70	149.60	1.3335	0.8116
700/100	96	776	700	80	G1	0.53	1.86	166.82	1.3391	0.8855
800/100	96	877	800	80	G1	0.61	2.09	182.83	1.3479	0.9377

Maximum operating pressure: 600 kPa (6 bar)

Characteristic equation of the model: $\Delta T = K_m \Delta T^n$ - rif. EN 442-1

The thermal output values published, expressed at $\Delta T 50 K$, meet the European standards EN 442-2



Thermal output according to "UNI EN 442-2"

350/100

n° Elements	$\Delta T 60K$ W	$\Delta T 50K$ W	$\Delta T 40K$ W	$\Delta T 35K$ W	$\Delta T 30K$ W
1	125.43	98.82	73.81	61.98	50.67
2	250.86	197.64	147.62	123.96	101.33
3	376.29	296.46	221.43	185.95	152.00
4	501.72	395.28	295.23	247.93	202.66
5	627.15	494.10	369.04	309.91	253.33
6	752.57	592.92	442.85	371.89	303.99
7	878.00	691.74	516.66	433.87	354.66
8	1003.43	790.56	590.47	495.85	405.32
9	1128.86	889.38	664.28	557.84	455.99
10	1254.29	988.20	738.08	619.82	506.65

Standard assembly up to 14 elements.

500/100

n° Elements	$\Delta T 60K$ W	$\Delta T 50K$ W	$\Delta T 40K$ W	$\Delta T 35K$ W	$\Delta T 30K$ W
1	166.33	130.53	97.03	81.25	66.19
2	332.66	261.06	194.05	162.49	132.38
3	498.98	391.59	291.08	243.74	198.58
4	665.31	522.12	388.10	324.98	264.77
5	831.64	652.65	485.13	406.23	330.96
6	997.97	783.18	582.16	487.47	397.15
7	1164.30	913.71	679.18	568.72	463.35
8	1330.63	1044.24	776.21	649.96	529.54
9	1496.95	1174.77	873.23	731.21	595.73
10	1663.28	1305.30	970.26	812.45	661.92

Standard assembly up to 14 elements.

600/100

n° Elements	$\Delta T 60K$ W	$\Delta T 50K$ W	$\Delta T 40K$ W	$\Delta T 35K$ W	$\Delta T 30K$ W
1	190.77	149.60	111.10	92.98	75.70
2	381.55	299.20	222.19	185.95	151.40
3	572.32	448.80	333.29	278.93	227.10
4	763.10	598.40	444.39	371.90	302.80
5	953.87	748.00	555.48	464.88	378.50
6	1144.65	897.60	666.58	557.85	454.20
7	1335.42	1047.20	777.68	650.83	529.90
8	1526.19	1196.80	888.78	743.81	605.60
9	1716.97	1346.40	999.87	836.78	681.30
10	1907.74	1496.00	1110.97	929.76	757.00

Standard assembly up to 14 elements.

700/100

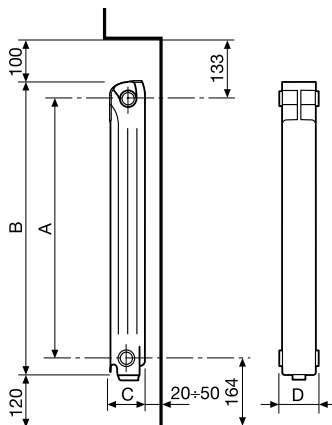
n° Elements	$\Delta T 60K$ W	$\Delta T 50K$ W	$\Delta T 40K$ W	$\Delta T 35K$ W	$\Delta T 30K$ W
1	212.95	166.82	123.73	103.47	84.17
2	425.90	333.64	247.46	206.94	168.35
3	638.85	500.46	371.19	310.41	252.52
4	851.80	667.28	494.92	413.88	336.69
5	1064.76	834.10	618.65	517.36	420.86
6	1277.71	1000.92	742.38	620.83	505.04
7	1490.66	1167.74	866.11	724.30	589.21
8	1703.61	1334.56	989.84	827.77	673.38
9	1916.56	1501.38	1113.57	931.24	757.55
10	2129.51	1668.20	1237.30	1034.71	841.73

Standard assembly up to 12 elements.

800/100

n° Elements	$\Delta T 60K$ W	$\Delta T 50K$ W	$\Delta T 40K$ W	$\Delta T 35K$ W	$\Delta T 30K$ W
1	233.76	182.83	135.34	113.05	91.84
2	467.53	365.66	270.68	226.09	183.67
3	701.29	548.49	406.02	339.14	275.51
4	935.05	731.32	541.36	452.18	367.35
5	1168.82	914.15	676.69	565.23	459.18
6	1402.58	1096.98	812.03	678.28	551.02
7	1636.34	1279.81	947.37	791.32	642.86
8	1870.10	1462.64	1082.71	904.37	734.70
9	2103.87	1645.47	1218.05	1017.41	826.53
10	2337.63	1828.30	1353.39	1130.46	918.37

Standard assembly up to 10 elements.



Technical data



Model	Depth (C)	Height (B)	Centre distance (A)	Length (D)	Connection diameter	Water content	Weight	Thermal output ΔT 50K	Exponent n	Coefficient K_m
	mm	mm	mm	mm	inches	litres/elem.	Kg/elem.	W/elem.		
500/80 3A	80	578	500	80	G1	0.36	1.30	113.46	1.3102	0.6743
600/80 3A	80	678	600	80	G1	0.40	1.45	128.98	1.3243	0.7254
700/80	80	777	700	80	G1	0.50	1.68	147.51	1.3394	0.7820
800/80	80	877	800	80	G1	0.53	1.85	161.62	1.3539	0.8096

Maximum operating pressure: 600 kPa (6 bar)

Characteristic equation of the model: $\Delta T = K_m \Delta T^n$ - rif. EN 442-1

The thermal output values published, expressed at ΔT 50 K, meet the European standards EN 442-2



Thermal output according to "UNI EN 442-2"

500/80 3A

n° Elements	ΔT 60K W	ΔT 50K W	ΔT 40K W	ΔT 35K W	ΔT 30K W
1	144.11	113.49	84.72	71.12	58.12
2	288.22	226.98	169.44	142.24	116.23
3	432.34	340.47	254.16	213.37	174.35
4	576.45	453.96	338.88	284.49	232.46
5	720.56	567.45	423.60	355.61	290.58
6	864.67	680.94	508.32	426.73	348.69
7	1008.79	794.43	593.04	497.86	406.81
8	1152.90	907.92	677.76	568.98	464.92
9	1297.01	1021.41	762.48	640.10	523.04
10	1441.12	1134.90	847.20	711.22	581.15

Standard assembly up to 14 elements.

600/80 3A

n° Elements	ΔT 60K W	ΔT 50K W	ΔT 40K W	ΔT 35K W	ΔT 30K W
1	164.19	128.97	95.97	80.42	65.57
2	328.38	257.94	191.95	160.84	131.14
3	492.57	386.91	287.92	241.25	196.71
4	656.76	515.88	383.89	321.67	262.27
5	820.95	644.85	479.87	402.09	327.84
6	985.14	773.82	575.84	482.51	393.41
7	1149.33	902.79	671.81	562.92	458.98
8	1313.53	1031.76	767.79	643.34	524.55
9	1477.72	1160.73	863.76	723.76	590.12
10	1641.91	1289.70	959.73	804.18	655.68

Standard assembly up to 14 elements.

Correction factors for SEVEN 100 and 80

Correction coefficients for ΔT other than 50K calculated for n= 1.33.

ΔT	Value	ΔT	Value	ΔT	Value	ΔT	Value
30	0.507	43	0.818	56	1.163	69	1.535
31	0.530	44	0.844	57	1.190	70	1.564
32	0.552	45	0.869	58	1.218	71	1.594
33	0.575	46	0.895	59	1.246	72	1.624
34	0.599	47	0.921	60	1.274	73	1.654
35	0.622	48	0.947	61	1.303	74	1.684
36	0.646	49	0.973	62	1.331	75	1.715
37	0.670	50	1.000	63	1.360	76	1.745
38	0.694	51	1.027	64	1.389	77	1.776
39	0.719	52	1.054	65	1.418	78	1.807
40	0.743	53	1.081	66	1.447	79	1.837
41	0.768	54	1.108	67	1.476	80	1.868
42	0.793	55	1.135	68	1.505		

700/80

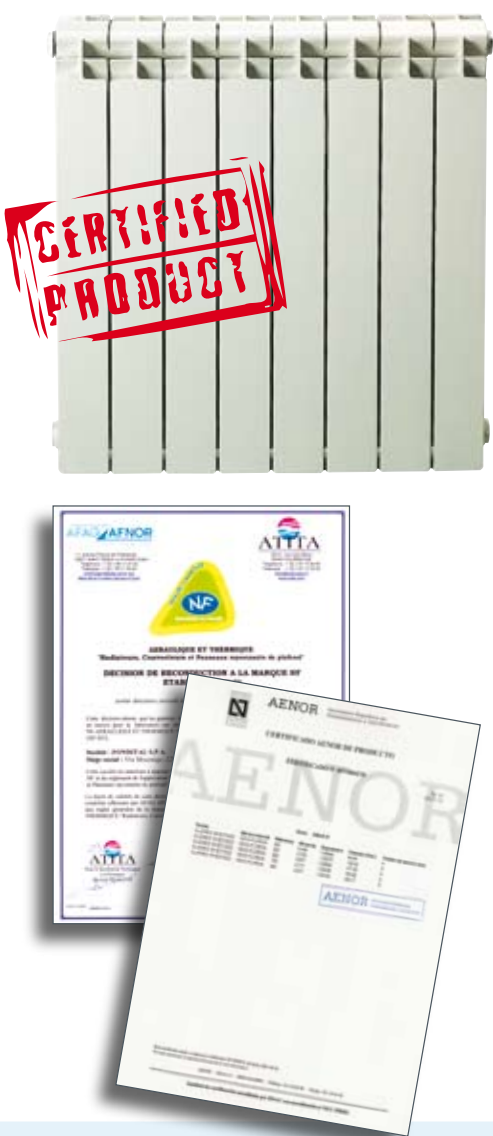
n° Elements	ΔT 60K W	ΔT 50K W	ΔT 40K W	ΔT 35K W	ΔT 30K W
1	188.30	147.50	109.39	91.48	74.41
2	376.60	295.00	218.79	182.96	148.83
3	564.90	442.50	328.18	274.43	223.24
4	753.19	590.00	437.91	365.91	297.65
5	941.49	737.50	546.97	457.39	372.06
6	1129.79	885.00	656.36	548.87	446.48
7	1318.09	1032.50	765.75	640.35	520.89
8	1506.39	1180.00	875.15	731.82	595.30
9	1694.69	1327.50	984.54	823.30	669.72
10	1882.99	1475.00	1039.93	914.78	744.13

Standard assembly up to 12 elements.

800/80

n° Elements	ΔT 60K W	ΔT 50K W	ΔT 40K W	ΔT 35K W	ΔT 30K W
1	206.84	161.60	119.46	99.71	80.92
2	413.69	323.20	238.93	199.41	161.85
3	620.53	484.80	358.39	299.12	242.77
4	827.38	646.40	477.85	398.82	323.70
5	1034.22	808.00	597.32	498.53	404.62
6	1241.07	969.60	716.78	598.23	485.55
7	1447.91	1131.20	836.24	697.94	566.47
8	1654.76	1292.80	955.71	797.64	647.40
9	1861.60	1454.40	1075.17	897.35	728.32
10	2068.45	1616.00	1194.63	997.06	809.25

Standard assembly up to 10 elements.





Marks of Quality



SEVEN radiators bear the most prestigious marks of quality on the market:

marks  and  guarantee the power rating declared in the documents.


Marks  and  are issued respectively by the independent, notifying certification bodies AFNOR and AENOR and are shown on every element and every pack that leaves our works.

The quality marks guarantee that the $\Delta T = 50$ K thermal output was measured in compliance with current standards by independent, accredited laboratories, thereby making simple quick comparison of the various products possible, resulting in competitiveness on the market that is transparent and true.

The NF and N quality marks certify that Seven radiators conform to current European standards (EN 442), as well as guaranteeing that manufacturing of the radiators is subject to an ISO 9001:2000 quality management system.

The bodies that control the marks carry out routine supervisory audits on each of the Manufacturer's production plants and ensure that conformity of the radiators to the certification requirements is maintained by taking sample products from the production line and from points of sale. The correctness of the data indicated provides both users and designers with a

guarantee in relation to reliability and the correctness of the heating system's heat outputs, when sized to meet the effective needs of the end user, avoiding any wastage or under-sizing. Unless reliable data that has been checked is available to them, professionals responsible for sizing system risk seeing their work compromised. Choosing products that bear the NF or N mark is a sign of professionalism. The mark introduced for our radiators as from 1/12/2004 relating to European Directive 89/106/EEC is a mark that manufacturers add of their own free will, and constitutes in-house certification of the product.

This  mark indicates that the product complies with the Community Directives but, unlike other voluntary quality marks, it is not subject to audit by independent bodies.

Dimensions and installation

RADIATOR DIMENSIONS

Current regulations must be complied with when calculating the thermal output of radiators for installation.

When determining the number of elements in a radiator, remember that the nominal thermal output refers to a ΔT – the difference between the average water temperature and the room temperature – of 50 K. Therefore, in order to save energy and improve environmental comfort, it is advisable to use for the system a design ΔT of less than 50 K, (e.g. 30 K \div 40 K) and decrease the water delivery temperature.

The thermal output value for the radiators for various values of ΔT is obtained, using the formula:

$$\Phi = K_m \times \Delta T^n$$

Example: To calculate the thermal output for a **SEVEN 97 500/100** radiator element, with the water temperature of: 60 °C at the intake and 44 °C at the outlet, and the ambient temperature at 20 °C.

$$\Delta T = (\text{intake water temp} + \text{outlet water temp}) / 2 - \text{ambient temp} =$$

$$(60 + 44) / 2 - 20 = 32 \text{ K.}$$

$$\Delta (32\text{K}) = K_m \times \Delta T^n = 0.7198 \times (32)^{1.3293} = 72.11 \text{ W}$$

A rough estimate of the thermal output value for various values of ΔT can also be obtained using the table of correction coefficients, calculated for a mean value of $n = 1.33$. In this case the error in determining the thermal output is within $\pm 3\%$.

Using the correction coefficients, the output required is obtained by multiplying the output value of $\Delta T = 50$ K by the coefficient that corresponds to the ΔT desired:

$$\Phi (32 \text{ K}) = 130.53 \text{ W} \times 0.552 = 72.05 \text{ W}$$

When determining the number of elements, remember that in installations in which the water enters and leaves from the bottom or with a single- or double-pipe valve, the thermal output may drop to 10-12 % and 20%, respectively, due to the particular water distribution inside the radiator. For radiators installed below shelves, in alcoves or – worse still – when using radiator covers – the thermal output may drop to 10-12%.

INSTRUCTIONS FOR INSTALLATION, USE AND SERVICE

When designing, installing, using and servicing central heating systems, please comply with all requirements and standards in force in the country of installation.

Please read the following recommendations carefully.

- the radiators can be used in hot water and vapour systems (maximum temperature 120°C);
- maximum working pressure is 6 bars (600 kPa);
- the radiators must be installed in such a way as to guarantee the following minimum distances: 12 cm from the floor; 2 \div 5 cm from the rear wall; 10 cm from alcoves or shelves;
- the rear wall must be sufficiently insulated in order to prevent heat loss;
- each radiator must be equipped with an air valve, if possible an automatic one (especially if the radiator is to be separated from the system);
- at a temperature of 25°C the system water's pH must be between 7 and 8 and it must not be metal corrosive; it should be therefore treated with pro-

ducts for multimetal systems - reference should also be made to standards in force in the country of installation. Only specific products, such as CILLIT HS 23 Combi or Sentinel X100, should therefore be used.

If the water in the system is shown to be corrosive, the guarantee will automatically be rendered void.

- the surfaces supporting the seals of the side elements are always painted; when assembling the sections threading and fitting the plugs, do not sandpaper or file them to avoid any water leaks.
- abrasive products must not be used to clean the radiator's surfaces;
- porous humidifiers such as earthenware must not be used;
- the radiator should not be cutoff from the system by closing the valve completely;
- if the radiator needs to be vented on a regular basis, this indicates that the system is not functioning properly and a **trusted technician, or the official importer's after-sales service, should therefore be contacted.**

Setting



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AZIENDA CON SISTEMA QUALITÀ
CERTIFICATO DA DNV
=UNI EN ISO 9001/2000=

