



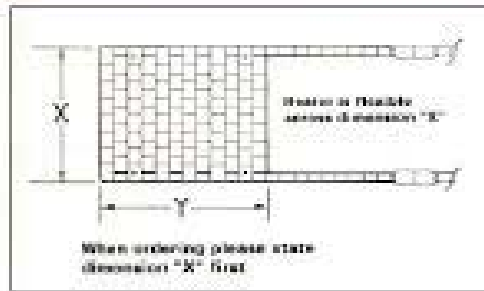
Електролукс Electrolux Bitola

FLEXIBILNI KERAMICKI EL.GREJACI

Flexible Ceramic Pad Heater Information Table



Flexible Ceramic Pad Heater #30504



Electrolux

60V Flexible Ceramic Heaters

Stock No.	X		Y		Volt	kW
	In	mm	In	mm		
30000	3	76	28.5	724	60	2.7
30001	4	102	21	533	60	2.7
30002	6	152	14.5	368	60	2.7
30003	8	203	10.5	267	60	2.7
30004	10	254	9	229	60	2.7
30005	12	305	7.25	184	60	2.7
30006	15	381	5.75	146	60	2.7
30007	18	457	5	127	60	2.7
30008	21	533	4	102	60	2.7
30009	26	660	3.25	83	60	2.7
30010	50	1270	1.75	44	60	2.7

80V Flexible Ceramic Heaters

Stock No.	X		Y		Volt	kW
	In	mm	In	mm		
30400	1	25	118	2597	80	3.8
30500	3	76	39	931	80	3.8
30501	4	102	29	737	80	3.8
30502	6	152	19.75	501	80	3.8
30503	8	203	14.5	368	80	3.8
30504	10	254	12.25	288	80	3.8
30506	12	305	9.75	248	80	3.8
30508	15	381	8	203	80	3.8
30507	18	457	6.5	165	80	3.8
30509	21	533	5.75	145	80	3.8
30508	36	915	3.25	85	80	3.8
30510	70	1778	1.75	44	80	3.8
Special	24	610	6	125	80	3.8

DISCOUNTS AVAILABLE IF PURCHASED IN BULK

220V / 240V Flexible Ceramic Heaters

Stock No.	X		Y		Volt	kW
	In	mm	In	mm		
30800	13	330	24	610	220	9.9
30801	13	330	26	660	240	10.8

30V Flexible Ceramic Heaters

Stock No.	X		Y		Volt	kW
	In	mm	In	mm		
35012	3.25	83	10	254	30	1.4
35013	24	610	1.75	45	30	1.4

NOTE: When used above 1850 degrees F* these elements lose some of their flexibility and must be handled carefully for continuous use.

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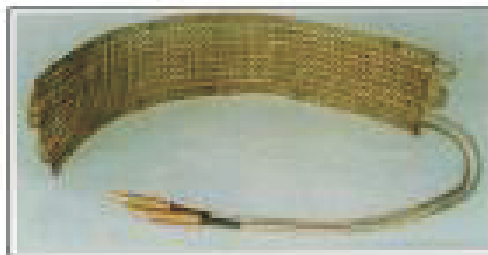
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FLEXIBILNI KERAMICKI EL.GREJACI

Braided and Loomed Braided Heaters



The construction of Mannings braided heaters gives them a unique flexibility that makes them particularly effective where tee pieces, valves or any non-uniform shape or small diameter form part of a heat treatment operation. Capable of providing temperatures up to 2000 degrees F, the heater is lightweight and easy to handle and has many pre and postweld heat treatment applications.

The standard nickel chromium element wire has a ceramic yarn insulator with a braided nickel chrome wire outer cover. Durable, with a realistic working life expectancy, the heater is designed to be used as either a single or multiple heater for large areas. They can be laced together to form a heater rig. Termination tail are fitted camlock style connectors.

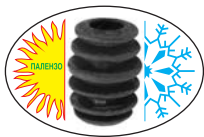
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Loomed / Rope Braided Heaters

Stock No.	Loomed (or) Rope	Width		Width		Volt	kW	Amps
		In	mm	In	mm			
35020	Rope	n/a	n/a	n/a	n/a	20	0.9	42
35040	Rope	n/a	n/a	n/a	n/a	40	1.8	42
35060	Rope	n/a	n/a	n/a	n/a	60	2.7	45
35080	Rope	n/a	n/a	n/a	n/a	80	3.6	45
35120	Loomed	4	102	6	153	20	0.9	42
35140	Loomed	5	127	9	229	40	1.8	45
35160	Loomed	7	178	12	305	60	2.7	45
35180	Loomed	9	229	17	432	80	3.6	45
35190	Loomed	6	153	24	610	80	3.6	45
35191	Loomed	4	102	29	737	80	3.6	45

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Guide for the use of Flexible Ceramic Pad Heating Elements

Procedure for the post weld heat treatment of pipe joints between horizontal pipes of equal thickness

Elements to be arranged about the weld seam so that there is a minimum heated band of 7 times the wall thickness. Overlapping of the elements is unavoidable in some instances, but it is recommended that only 80% of power be applied to these heaters. Gaps between elements are also unavoidable in some instances, but should not exceed the wall thickness or 1" whichever is lesser.

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FCP Heater Size

Outside Diameter of Pipe up to:	8 x 14.5 Ref. 30503 (80 Volt)	10 x 12.25 Ref. 30504 (80 Volt)	12 x 9.75 Ref. 30505 (80 Volt)	Minimum of Control Zones
2.5"	1			1
3"		1		1
4"			1	1
5"	2			1
6"		2		1
8"			2	1
10"		3		1
12"			3	1
Pipes above 12" diameter require at least 2 control zones (Top to bottom control - to compensate for heat rise)				
Pipes above 24" may require 3 or more control zones				
14"		2+2		2
16"			2+2	2
18"		3+3		2
20"		3+3		2
24"			3+3	2
30"		3+3+3		3
36"			3+3+3	3

USE AS A GUIDE ONLY

For further information on the practical use of FCP Elements - Please call your nearest Mannings Location and speak to a representative.

All heaters are 45 amps

Spares for on-site repairs are available for all size heaters

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Finger Elements

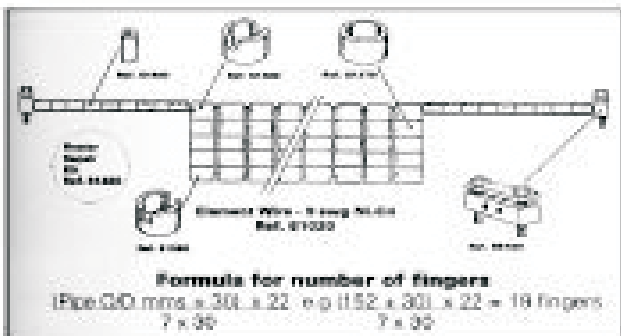
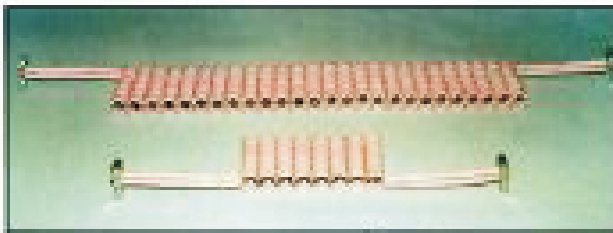
The Mannings finger elements are well established pre and postweld heaters, suitable to be powered from AC/DC welding machines. Ruggedly constructed, the heaters require minimal maintenance and are capable of withstanding considerable on-site mistreatment.

The element consists of two solid drawn 7awg nickel chrome element wires threaded through sintered alumina beads providing electrical insulation combined with a high heat transfer capability.

Standard element maximum working temperature is 2000 degrees F, each finger being rated at 120 amps at 1.3 volts. For heat treatment of stainless steel, special solid drawn Kanthal wire is required to give maximum operating of 2300 degrees F. Steel connectors are used for end terminations.

In the event of accidental damage the element can be repaired on-site, or returned to Mannings for repair and test.

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NOTE: (**) Refers to finger quantities

Outside Diameter of Pipe

Finger Qty's Per Element	Min		Max		Nom Pipe Size
	in	mm	in	mm	
04	0.6	15	0.6	20	
05	0.6	20	1.3	30	
06	1.3	30	1.4	35	
07	1.4	35	1.6	40	
08	1.6	40	2.0	50	
09	2.0	50	2.4	60	
10	2.4	60	2.8	70	
11	2.8	70	3.3	80	
12	3.3	80	3.6	90	#
13	3.6	90	4.0	100	
14	4.0	100	4.4	110	
15	4.4	110	4.8	120	#
16	4.8	120	5.3	130	
17	5.3	130	5.6	140	
18	5.6	140	6.0	150	
19	6.0	150	6.4	160	
20	6.4	160	6.8	170	#
21	6.8	170	7.2	180	
22	7.2	180	7.6	190	
23	7.6	190	8.0	204	
24	8.0	204	8.4	214	
25	8.4	214	8.8	224	
26	8.8	224	9.2	234	#
27	9.2	234	9.6	244	
28	9.6	244	10.0	254	
29	10.0	254	10.4	264	
30	10.4	264	10.8	274	
31	10.8	274	11.2	284	10"
32	11.2	284	11.6	294	
33	11.6	294	12.0	304	
34	12.0	304	12.4	314	
35	12.4	314	12.8	326	
36	12.8	326	13.2	336	12"
37	13.2	336	13.6	346	
38	13.6	346	14.0	356	
39	14.0	356	14.4	366	14"
40	14.4	366	14.8	376	
41	14.8	376	15.2	386	
42	15.2	386	15.6	396	
43	15.6	396	16.0	406	
44	16.0	406	16.4	416	
45	16.4	416	16.8	426	16"

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Heating Elements

Ceramic Pad Heaters

Flexible Ceramic Pad Heating Elements

Conscious of the need to meet the demands of advancing thermal technology, Mannings ongoing pursuit in Research and Development keeps them abreast in heat treatment procedures. Mannings knowledge and experience gained from world wide contracts in a array of industries, more than qualifies our designers and engineers to solve any heat treatment problem that requires accurate assessment with a satisfactory solution.

Manufactured from high grade materials the Mannings ceramic pad heaters have a working temperature capability of 2000 degrees F and can be powered from Mannings heat treatment machines or welding machines.



The multi-strand nickel chrome element wire used in the pad heaters is electrically insulated by interlocking sintered alumina beads providing a flexible high heat transfer capacity mat, complete with twist-lock camlocks.

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FYI: Flexible Ceramic Pad Heaters

- A) All flexible heaters utilize 80/20 nickel chrome wire for maximum heater life
- B) Standard amperage draw is 45 Amps each
- C) Heater description table:

NOTE: All 80 Volt heaters can be run at:	Volts	Square Inches	Rated (KW)
70V @ 2.75KW	80	120	3.6
60V @ 2.00KW	70	105	3.15
	60	90	2.7
	40	60	1.8
	30	45	1.4
	20	30	0.9

Used Heater Repair:

Heaters may be returned to Mannings for refurbishing.

Why buy new if you can rebuild!

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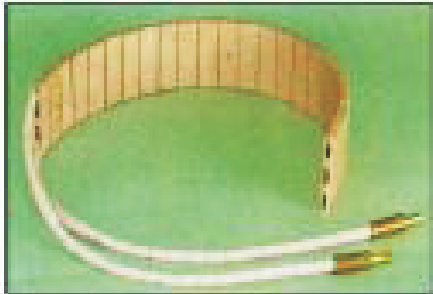
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Tank Track Heaters



The heaters have been developed from the ceramic insulated preheater series. The 75mm full width rectangular insulator replacing its smaller counterpart, reducing maintenance costs and extending working life.

Stock No.	Width		Length		Volts	KW	Amps
	In	mm	In	mm			
30700	3	75	26.5	670	60	2.7	45
30710	3	75	26.5	925	80	3.6	45

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Tank Track Insulated Preheaters



(Both Tank and FCP Shown)

The heater element construction is identical to the tank track heater series 30700 with the addition of a ceramic fiber mat 6lb density -3/4 inch thick, encased in stainless steel mesh and protected by a stainless steel backing plate.

Stock No.	Width		Length		Volts	KW	Amps
	In	mm	In	mm			
30700	3	75	26.5	670	60	2.7	45
30710	3	75	26.5	925	80	3.6	45

These Tank heaters can be magnetically attached to the work piece for fast application by the addition of 2 magnet assemblies (Stock No. 66001). See ancillary equipment, Section G for more details.

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Insulated Preheaters (Ceramic Mat)

Identical in construction to the ceramic pad heater, it has in addition ceramic fiber insulation encased in stainless steel mesh and protected by a stainless steel backing plate. Particularly suitable for preheating pipe work, welded fabrications and vessels having either longitudinal or circumferential seams, this robust and reliable heater can:

- Operate from a welding machine or heat treatment transformer unit
- Give protection to the Insulators from weld spatter
- Can be magnetically attached to the work piece for fast application by the addition of two magnet assemblies

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Insulated Ceramic Preheaters

Stock No.	Width		Length		Volt	kW	Element Spare Stock No.
	In	mm	In	mm			
31000	4	102	30	762	80	2.7	30000
31001	28	711	4.25	108	80	2.7	30000
31002	5	127	23.5	597	80	2.7	30001
31050	4	102	40	1016	80	3.6	30500
31051	37	940	4.25	108	80	3.6	30500
31052	5	127	30	762	80	3.6	30501

Clamp-On Heaters

Tailored for specific pipe diameters, the clamp-on heater is quick and easy to place in position and remove, making it extremely economical to use where frequent applications to and removal from the work piece is required in a high productivity workshop. The construction of the heating element is identical to the ceramic pad heater; sintered alumina beads providing electrical insulation and high quality ceramic fiber insulation encased in stainless steel wire mesh, protected by a stainless steel preformed backing plate providing the thermal insulation.

Camlock Style self locking connectors are used on the termination tails. The clamp-on heater offers high production potential with minimum operational costs, clearly making this heater indispensable in a pipe work production workshop.

Please Provide "**EXACT**" pipe dimensions when ordering.



Clamp-on Preheat Stock No. (34000)

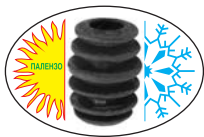
Clamp-on Postheat Stock No. (34500)

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Channel Heaters

Designed to pre and postweld heat treat large fabrications and vessels, channel heaters are usually positioned within the workpiece creating a temporary furnace installation with a radiant / convective heat source capable of protracted or short heat treatment periods. Portable and easy to handle, they are suitable for a variety of applications, as they have a long on-site working life.

Working temperatures of up to 1500 degrees F, but higher temperatures can be achieved using Kanthal wire as an alternative element material. Steel connector blocks or camlock connectors are used for tail terminations.

Channel Heaters

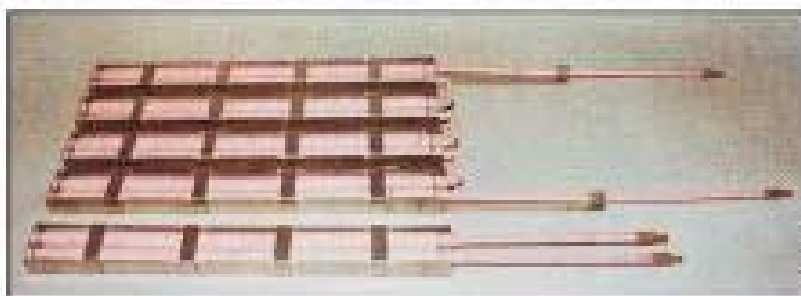
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Stock No.	Elements / Banks	Width		Length		Volt	KW	Amps
		In	mm	In	mm			
33000	4	14	360	27	685	240/415	13.2	55
33001	4	14	360	27	685	220/380	12.1	55
33002	4	14	360	27	685	254/440	14.0	55
33003	4	14	360	28	711	60	12.5	220
33034	4	14	360	32	813	277	15.0	55
33080	2	7	180	32	813	138	7.6	55
33015	Mini 4	14	360	15	405	138	7.6	55
33016	4	14	360	36	915	80	17.6	220
33050	Single	2.75	70	27	685	60	3.3	55
33051	Single	2.75	70	27	685	55	3.0	55
33052	Single	2.75	70	27	685	63.5	3.5	55
33059	Single	2.75	70	37	685	80	4.4	55

33060

Hot zone made for channel elements and furnace zone complete with block connectors

Extension leads: (33060) Please order by length required.



240V 4 Bank and 80V single channel Heater

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