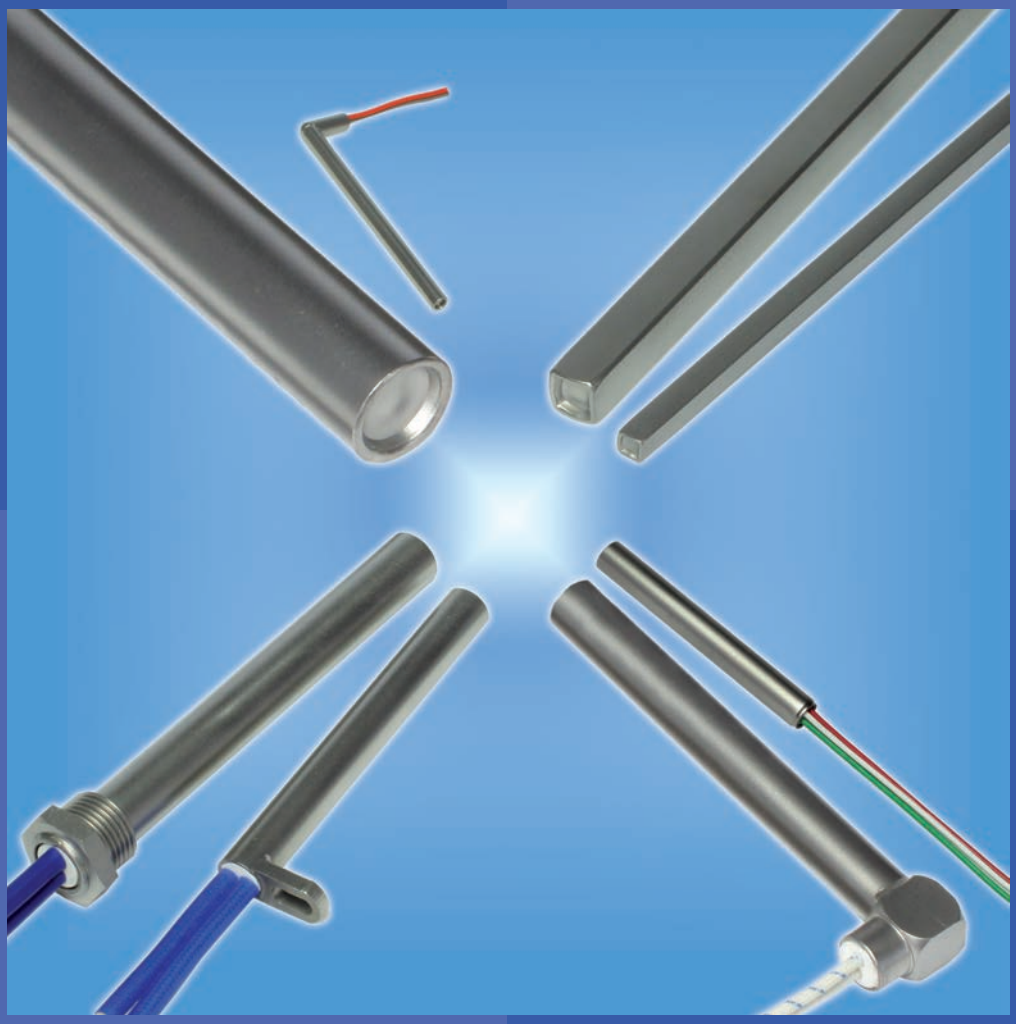
Cartouches Chauffantes

Cartridge Heaters



electric heaters

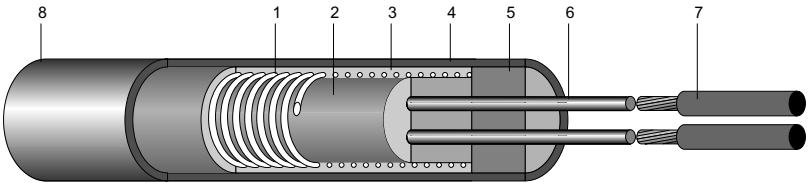
euroheat

hot runner heaters

CARTOUCHES CHAUFFANTES HAUTE CHARGE
HI-DENSITY CARTRIDGE HEATERS

Grâce à une technologie de pointe, les CARTOUCHES CHAUFFANTES EUROHEAT se situent parmi les éléments chauffants de grande puissance qui possèdent la meilleure fiabilité et les meilleures performances dans tous les domaines où ils sont utilisés. Le soin apporté au choix des matières premières, la sophistication progressive de la technique de fabrication et des essais très stricts nous permettent d'arriver à des produit utilisables dans les conditions de travail très sévères. Une bonne installation permet de révéler en totalité toutes les performances des CARTOUCHES CHAUFFANTES EUROHEAT; en raison de la grande importance de l'échange thermique entre la surface de la cartouche et de la masse à chauffer, la cartouche doit s'adapter parfaitement dans l'orifice.

1 Fil de résistance en nickel-chrome 80/20
2 Noyau en oxyde de magnesium
3 Isolation en magnésie granulaire compactée
4 Glaine en acier inox
5 Terminal en céramique
6 Conducteurs en nickel
7 Fils en nickel isolés en fibre de verre-silicone
8 Bouchon de fond en acier inox soudé



1 Nickel-chrome 80/20 resistance wire
2 High purity magnesium oxide core
3 High purity compacted magnesium oxide
4 Stainless steel sheath
5 Ceramic end cap
6 Solid nickel conductors
7 Fiberglass-silicone insulated nickel leadwires
8 Tig welded bottom disc

The most advanced constructive technology places the EUROHEAT CARTRIDGE heaters among the high wattage electric heaters that assure the best, with respect to durability and performance, in all those sectors that need them; the great care in selecting raw materials, the progressive refinement of the production technique and strict tests, let us reach products that can be used in very heavy working conditions. The high performance achieved by EUROHEAT CARTRIDGE heaters can be completely used by a correct installation, the great importance of the thermic interchange between the surface of the heater and the mass to be heated make it necessary that the cartridge fits perfectly in the hole.

SPÉCIFICATIONS DE CONSTRUCTION ET TOLERANCES:

Puissance	+ 5%	- 10%
Résistance	+ 10%	- 5%
Isolation (à froid 500 Vcc)	> 5	MΩ
Dispersion (Courant de fuite à froid à 254V)	< 0,5	mA
Température maximale d'exercice admise sur la gaine	750	°C
Tolerance sur la longueur	± 2	%

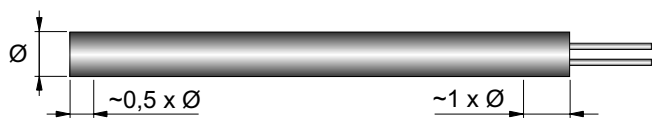
Ø mm	4*	5*	6,5	8	10	12,5	16	20	25*	32*
Ø in			1/4"		3/8"	1/2"	5/8"	3/4"	1"*	1"1/4*
Rigidité (V) diélectrique	800	800	1000	1250	1500	1500	1500	1500	1500	1500
Max V	240	240	240	240	240	240	400	400	400	400
Max A	2	2,5	4	5	8	14	18	22	25	25

CONSTRUCTIVE SPECIFICATIONS AND TOLERANCES:

Wattage	*+ 5%*	*- 10%*
Resistance	*+ 10%*	*- 5%*
Insulation (cold 500 Vdc)	*> 5*	MΩ
Leakage current (cold at 254V)	*< 0,5*	*mA*
Maximum working temperature allowed on sheath	*750*	*°C*
Length tolerance	*± 2*	*%*

Ø mm	4*	5*	6,5	8	10	12,5	16	20	25*	32*
Ø in			1/4"		3/8"	1/2"	5/8"	3/4"	1"*	1"1/4*
Dielectric strength (V)	800	800	1000	1250	1500	1500	1500	1500	1500	1500
Max V	240	240	240	240	240	240	400	400	400	400
Max A	2	2,5	4	5	8	14	18	22	25	25

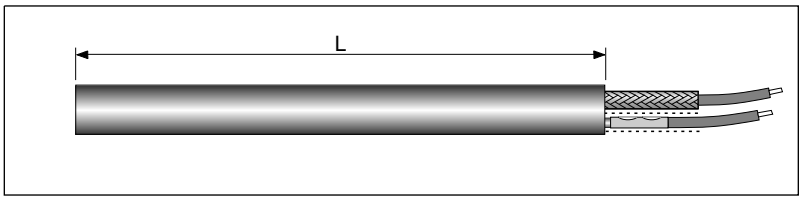
Zones froides aux extrémités : *Unheated end sections :*



* Production sur demande
* *Manufactured upon request*

Ø	4	5	25 -1"	32 -1"¼
Lmin	30	30	150	300
Lmax	80	130	1500	2000

CARTOUCHES CHAUFFANTES HAUTE CHARGE
HI-DENSITY CARTRIDGE HEATERS



Les cartouches Ø 6,5 et 8 mm sont réalisées avec fils en nickel isolés en fibre de verre/silicone longueur 250mm, connectées en interne
Pour diamètres =>10mm, voir p. 11.

Both Ø heaters 6,5 and 8 mm are provided with 250mm long leads, fiberglass-silicone insulated nickel, internally connected.
For diameters =>10mm, see pag. 11.

COTES METRIQUES - *METRIC SIZES*

Ø mm	L mm	W 230V	W cm²	CODE *CODE*
6,5 - 0,02 - 0,04	40	80	15	10.065.040.0080
		100	18	10.065.040.0100
		125	22	10.065.040.0125
		160	28	10.065.040.0160
		200	36	10.065.040.0200
	50	125	16	10.065.050.0125
		160	21	10.065.050.0160
		200	26	10.065.050.0200
		250	32	10.065.050.0250
		315	42	10.065.050.0315
	60	125	13	10.065.060.0125
		160	17	10.065.060.0160
		200	21	10.065.060.0200
		250	26	10.065.060.0250
		315	33	10.065.060.0315
	80	160	12	10.065.080.0160
		200	15	10.065.080.0200
		250	19	10.065.080.0250
		315	24	10.065.080.0315
	100	200	12	10.065.100.0200
		250	15	10.065.100.0250
		315	18	10.065.100.0315
		400	24	10.065.100.0400
	130	250	11	10.065.130.0250
		315	13	10.065.130.0315
		400	17	10.065.130.0400
		500	22	10.065.130.0500
	160	250	9	10.065.160.0250
		315	11	10.065.160.0315
		400	14	10.065.160.0400
		500	18	10.065.160.0500
8 - 0,03 - 0,05	40	125	18	10.080.040.0125
		160	23	10.080.040.0160
		200	30	10.080.040.0200
	50	125	14	10.080.050.0125
		160	18	10.080.050.0160
		200	22	10.080.050.0200
		250	28	10.080.050.0250
	60	160	14	10.080.060.0160
		200	17	10.080.060.0200
		250	22	10.080.060.0250
		315	27	10.080.060.0315
	80	200	12	10.080.080.0200
		250	15	10.080.080.0250
		315	19	10.080.080.0315
		400	24	10.080.080.0400
	100	200	9	10.080.100.0200
		250	12	10.080.100.0250
		315	14	10.080.100.0315
		400	18	10.080.100.0400
	130	250	9	10.080.130.0250
		315	11	10.080.130.0315
		400	14	10.080.130.0400
		500	18	10.080.130.0500
	160	250	7	10.080.160.0250
		315	9	10.080.160.0315
		400	11	10.080.160.0400
		500	14	10.080.160.0500
10 - 0,03 - 0,06	40	125	16	10.100.040.0125
		160	20	10.100.040.0160
		200	25	10.100.040.0200
		250	32	10.100.040.0250
		315	39	10.100.040.0315

Ø mm	L mm	W 230V	W cm²	CODE *CODE*
10 - 0,03 - 0,06	50	160	15	10.100.050.0160
		200	18	10.100.050.0200
		250	23	10.100.050.0250
		315	28	10.100.050.0315
		400	36	10.100.050.0400
		500	46	10.100.050.0500
	60	160	12	10.100.060.0160
		200	15	10.100.060.0200
		250	18	10.100.060.0250
		315	23	10.100.060.0315
		400	30	10.100.060.0400
		500	37	10.100.060.0500
	80	200	10	10.100.080.0200
		250	13	10.100.080.0250
		315	16	10.100.080.0315
		400	20	10.100.080.0400
		500	26	10.100.080.0500
		630	32	10.100.080.0630
	100	250	10	10.100.100.0250
		315	12	10.100.100.0315
		400	16	10.100.100.0400
		500	20	10.100.100.0500
		630	25	10.100.100.0630
		800	31	10.100.100.0800
	130	250	7	10.100.130.0250
		315	9	10.100.130.0315
		400	12	10.100.130.0400
		500	14	10.100.130.0500
		630	18	10.100.130.0630
		800	23	10.100.130.0800
	160	315	7	10.100.160.0315
		400	9	10.100.160.0400
		500	11	10.100.160.0500
		630	14	10.100.160.0630
		800	18	10.100.160.0800
		1000	22	10.100.160.1000
	200	400	7	10.100.200.0400
		500	9	10.100.200.0500
		630	11	10.100.200.0630
		800	14	10.100.200.0800
		1000	18	10.100.200.1000
12,5 - 0,04 - 0,07	40	160	16	10.125.040.0160
		200	20	10.125.040.0200
		250	25	10.125.040.0250
		315	32	10.125.040.0315
	50	160	11	10.125.050.0160
		200	14	10.125.050.0200
		250	18	10.125.050.0250
		315	22	10.125.050.0315
		400	28	10.125.050.0400
	60	200	11	10.125.060.0200
		250	14	10.125.060.0250
		315	18	10.125.060.0315
		400	22	10.125.060.0400
		500	28	10.125.060.0500
	80	200	8	10.125.080.0200
		250	10	10.125.080.0250
		315	13	10.125.080.0315
		400	16	10.125.080.0400
		500	20	10.125.080.0500
		630	25	10.125.080.0630
	100	315	10	10.125.100.0315
		400	12	10.125.100.0400

Ø mm	L mm	W 230V	W cm²	CODE *CODE*
12,5 - 0,04 - 0,07	100	500	15	10.125.100.0500
		630	19	10.125.100.0630
		800	24	10.125.100.0800
		1000	30	10.125.100.1000
	130	315	7	10.125.130.0315
		400	9	10.125.130.0400
		500	11	10.125.130.0500
		630	14	10.125.130.0630
		800	18	10.125.130.0800
		1000	22	10.125.130.1000
	160	400	7	10.125.160.0400
		500	9	10.125.160.0500
		630	11	10.125.160.0630
		800	14	10.125.160.0800
		1000	18	10.125.160.1000
		1250	22	10.125.160.1250
	200	500	7	10.125.200.0500
		630	9	10.125.200.0630
		800	11	10.125.200.0800
		1000	14	10.125.200.1000
		1250	17	10.125.200.1250
		1600	22	10.125.200.1600
	250	630	7	10.125.250.0630
		800	9	10.125.250.0800
		1000	11	10.125.250.1000
		1250	13	10.125.250.1250
		1600	18	10.125.250.1600
		2000	22	10.125.250.2000
	300	630	6	10.125.300.0630
		800	7	10.125.300.0800
		1000	9	10.125.300.1000
		1250	11	10.125.300.1250
		1600	15	10.125.300.1600
		2000	18	10.125.300.2000
16 - 0,05 - 0,08	50	200	12	10.160.050.0200
		250	15	10.160.050.0250
		315	19	10.160.050.0315
		400	24	10.160.050.0400
	60	200	9	10.160.060.0200
		250	11	10.160.060.0250
		315	14	10.160.060.0315
		400	18	10.160.060.0400
		500	22	10.160.060.0500
	80	250	8	10.160.080.0250
		315	10	10.160.080.0315
		400	13	10.160.080.0400
		500	16	10.160.080.0500
		630	20	10.160.080.0630
		800	26	10.160.080.0800
	100	315	8	10.160.100.0315
		400	10	10.160.100.0400
		500	12	10.160.100.0500
		630	15	10.160.100.0630
		800	20	10.160.100.0800
		1000	24	10.160.100.1000
	130	400	7	10.160.130.0400
		500	9	10.160.130.0500
		630	11	10.160.130.0630
		800	14	10.160.130.0800
		1000	18	10.160.130.1000
		1250	22	10.160.130.1250
	160	500	7	10.160.160.0500
		630	9	10.160.130.0630

CARTOUCHES CHAUFFANTES HAUTE CHARGE
HI-DENSITY CARTRIDGE HEATERS

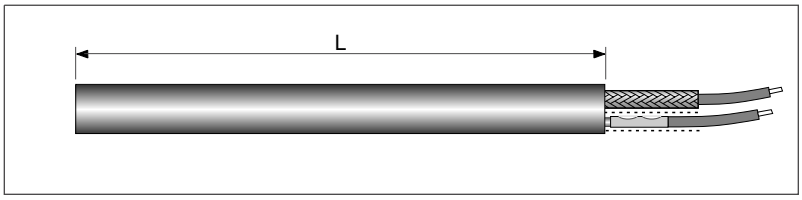
COTES METRIQUES - *METRIC SIZES*

Ø mm	L mm	W 230V	W cm²	CODICE *CODE*
16 - 0,05 - 0,08	160	800	11	10.160.160.0800
		1000	14	10.160.160.1000
		1250	18	10.160.160.1250
		1600	22	10.160.160.1600
	200	630	7	10.160.200.0630
		800	9	10.160.200.0800
		1000	11	10.160.200.1000
		1250	14	10.160.200.1250
		1600	18	10.160.200.1600
		2000	22	10.160.200.2000
	250	630	5	10.160.250.0630
		800	7	10.160.250.0800
		1000	9	10.160.250.1000
		1250	11	10.160.250.1250
		1600	14	10.160.250.1600
		2000	18	10.160.250.2000
	300	800	6	10.160.300.0800
		1000	7	10.160.300.1000
		1250	9	10.160.300.1250
		1600	11	10.160.300.1600
		2000	14	10.160.300.2000
		2500	18	10.160.300.2500
	350	800	5	10.160.350.0800
		1000	6	10.160.350.1000
		1250	8	10.160.350.1250
		1600	10	10.160.350.1600

Ø mm	L mm	W 230V	W cm²	CODICE *CODE*
16 - 0,05 - 0,08	350	2000	12	10.160.350.2000
		2500	16	10.160.350.2500
	400	800	4	10.160.400.0800
		1000	5	10.160.400.1000
		1250	6	10.160.400.1250
		1600	8	10.160.400.1600
		2000	10	10.160.400.2000
		2500	13	10.160.400.2500
20 - 0,06 - 0,10	80	400	11	10.200.080.0400
		500	14	10.200.080.0500
		630	17	10.200.080.0630
	100	400	8	10.200.100.0400
		500	10	10.200.100.0500
		630	13	10.200.100.0630
	130	500	7	10.200.130.0500
		630	9	10.200.130.0630
		800	12	10.200.130.0800
		1000	15	10.200.130.1000
	160	630	7	10.200.160.0630
		800	9	10.200.160.0800
		1000	11	10.200.160.1000
		1250	14	10.200.160.1250
	200	800	7	10.200.200.0800
		1000	9	10.200.200.1000
		1250	11	10.200.200.1250
		1600	14	10.200.200.1600

Ø mm	L mm	W 230V	W cm²	CODICE *CODE*
20 - 0,06 - 0,10	250	1000	7	10.200.250.1000
		1250	9	10.200.250.1250
		1600	11	10.200.250.1600
		2000	14	10.200.250.2000
	300	1000	6	10.200.300.1000
		1250	7	10.200.300.1250
		1600	9	10.200.300.1600
		2000	11	10.200.300.2000
	350	1250	6	10.200.350.1250
		1600	8	10.200.350.1600
		2000	10	10.200.350.2000
		2500	12	10.200.350.2500
	400	1250	5	10.200.400.1250
		1600	7	10.200.400.1600
		2000	9	10.200.400.2000
		2500	11	10.200.400.2500
	450	1600	6	10.200.450.1600
		2000	7	10.200.450.2000
		2500	9	10.200.450.2500
		3200	12	10.200.450.3200
	500	1600	5	10.200.500.1600
		2000	6	10.200.500.2000
		2500	8	10.200.500.2500
		3200	11	10.200.500.3200

CARTOUCHES CHAUFFANTES HAUTE CHARGE
HI-DENSITY CARTRIDGE HEATERS



Les cartouches Ø 1/4" sont réalisées avec fils en nickel isolés en fibre de verre/silicone longueur 250mm, connectées en interne. Pour diamètres =>3/8", voir p. 11.

The 1/4" Ø heaters are provided with 250mm long leads, fiberglass-silicone insulated nickel, internally connected. For diameters =>3/8", see pag. 11.

COTES EN POUCHES - *BRITISH SIZES*

Ø	L	W 230V	W cm²	CODE *CODE*
1/4" 6,35 mm - 0,02 - 0,04	1" 25,4 mm	100	38	10.063.025.0100
		160	53	10.063.025.0160
	1"1/4 31,8 mm	100	25	10.063.031.0100
		125	31	10.063.031.0125
		160	40	10.063.031.0160
		200	50	10.063.031.0200
	1"1/2 38,1 mm	80	15	10.063.038.0080
		100	18	10.063.038.0100
		125	23	10.063.038.0125
		160	29	10.063.038.0160
		200	36	10.063.038.0200
	2" 50,8 mm	125	17	10.063.050.0125
		160	21	10.063.050.0160
		200	27	10.063.050.0200
		250	33	10.063.050.0250
		315	42	10.063.050.0315
	2"1/2 63,5 mm	125	13	10.063.063.0125
		160	16	10.063.063.0160
		200	20	10.063.063.0200
		250	25	10.063.063.0250
		315	32	10.063.063.0315
	3" 76,2 mm	160	13	10.063.076.0160
		200	16	10.063.076.0200
		250	20	10.063.076.0250
		315	25	10.063.076.0315
	3"1/2 88,9 mm	160	11	10.063.088.0160
		200	13	10.063.088.0200

Ø	L	W 230V	W cm²	CODE *CODE*
1/4" 6,35 mm - 0,02 - 0,04	3"1/2 88,9 mm	250	17	10.063.088.0250
		315	21	10.063.088.0315
	4" 101,6 mm	200	11	10.063.101.0200
		250	14	10.063.101.0250
		315	18	10.063.101.0315
		400	23	10.063.101.0400
	5" 127 mm	250	11	10.063.127.0250
		315	14	10.063.127.0315
		400	18	10.063.127.0400
		500	23	10.063.127.0500
	6" 152,4 mm	250	9	10.063.152.0250
		315	12	10.063.152.0315
		400	15	10.063.152.0400
		500	18	10.063.152.0500
3/8" 9,52 mm - 0,03 - 0,06	1" 25,4 mm	125	28	10.095.025.0125
		200	44	10.095.025.0200
	1"1/4 31,8 mm	125	21	10.095.031.0125
		200	33	10.095.031.0200
	1"1/2 38,1 mm	125	17	10.095.038.0125
		160	21	10.095.038.0160
		200	27	10.095.038.0200
		250	33	10.095.038.0250
		315	42	10.095.038.0315
	1"3/4 44,5 mm	125	13	10.095.044.0125
		160	17	10.095.044.0160
		200	21	10.095.044.0200

Ø	L	W 230V	W cm²	CODE *CODE*
3/8" 9,52mm - 0,03 - 0,06	1"3/4 44,5 mm	250	26	10.095.044.0250
		315	33	10.095.044.0315
	2" 50,8 mm	160	15	10.095.050.0160
		200	19	10.095.050.0200
		250	24	10.095.050.0250
		315	30	10.095.050.0315
		400	38	10.095.050.0400
	2"1/2 63,5 mm	160	11	10.095.063.0160
		200	14	10.095.063.0200
		250	17	10.095.063.0250
		315	22	10.095.063.0315
		400	28	10.095.063.0400
		500	34	10.095.063.0500
	3" 76,2 mm	200	11	10.095.076.0200
		250	14	10.095.076.0250
		315	18	10.095.076.0315
		400	22	10.095.076.0400
		500	28	10.095.076.0500
		630	45	10.095.076.0630
	3"1/2 88,9 mm	200	9	10.095.088.0200
		250	11	10.095.088.0250
		315	14	10.095.088.0315
		400	18	10.095.088.0400
		500	23	10.095.088.0500
		630	29	10.095.088.0630

COTES EN POUCHES - *BRITISH SIZES*

Ø	L	W 230V	W cm²	CODE *CODE*
3/8" 9,52 mm - 0,03 - 0,06	4" 101,6 mm	250	10	10.095.101.0250
		315	12	10.095.101.0315
		400	16	10.095.101.0400
		500	20	10.095.101.0500
		630	25	10.095.101.0630
		800	32	10.095.101.0800
	5" 127 mm	250	7	10.095.127.0250
		315	9	10.095.127.0315
		400	12	10.095.127.0400
		500	15	10.095.127.0500
		630	18	10.095.127.0630
		800	24	10.095.127.0800
	6" 152,4 mm	315	8	10.095.152.0315
		400	10	10.095.152.0400
		500	12	10.095.152.0500
		630	15	10.095.152.0630
		800	20	10.095.152.0800
		1000	24	10.095.152.1000
	7" 177,8 mm	400	8	10.095.177.0400
		500	10	10.095.177.0500
		630	13	10.095.177.0630
		800	16	10.095.177.0800
		1000	21	10.095.177.1000
	8" 203,2 mm	400	7	10.095.203.0400
		500	9	10.095.203.0500
		630	11	10.095.203.0630
		800	18	10.095.203.0800
		1000	23	10.095.203.0800
1/2" 12,7 mm - 0,04 - 0,07	1"1/2 38,1 mm	160	18	10.127.038.0160
		200	22	10.127.038.0200
		250	28	10.127.038.0250
		315	35	10.127.038.0315
	2" 50,8 mm	160	11	10.127.050.0160
		200	14	10.127.050.0200
		250	18	10.127.050.0250
		315	22	10.127.050.0315
		400	28	10.127.050.0400
	2"1/2 63,5 mm	200	10	10.127.063.0200
		250	13	10.127.063.0250
		315	16	10.127.063.0315
		400	20	10.127.063.0400
		500	26	10.127.063.0500
	3" 76,2 mm	250	10	10.127.076.0250
		315	13	10.127.076.0315
		400	16	10.127.076.0400
		500	20	10.127.076.0500
		630	26	10.127.076.0630
		800	33	10.127.076.0800
	3"1/2 88,9 mm	250	9	10.127.088.0250
		315	11	10.127.088.0315
		400	14	10.127.088.0400
		500	18	10.127.088.0500
		630	22	10.127.088.0630
		800	28	10.127.088.0800
	4" 101,6 mm	315	9	10.127.101.0315
		400	12	10.127.101.0400
		500	15	10.127.101.0500
		630	18	10.127.101.0630
		800	24	10.127.101.0800
		1000	36	10.127.101.1000
	5" 127 mm	315	7	10.127.127.0315
		400	9	10.127.127.0400
		500	11	10.127.127.0500
		630	14	10.127.127.0630
		800	18	10.127.127.0800
		1000	23	10.127.127.1000
	6" 152,4 mm	400	7	10.127.152.0400
		500	9	10.127.152.0500
		630	12	10.127.152.0630
		800	15	10.127.152.0800

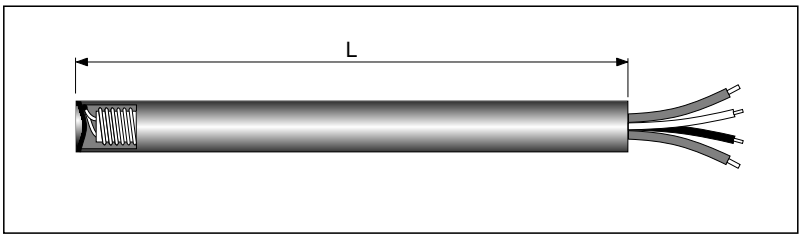
Ø	L	W 230V	W cm²	CODE *CODE*
1/2" 12,7 mm - 0,04 - 0,07	6" 152,4 mm	1000	18	10.127.152.1000
		1250	23	10.127.152.1250
	7" 177,8 mm	400	6	10.127.177.0400
		500	8	10.127.177.0500
		630	10	10.127.177.0630
		800	12	10.127.177.0800
		1000	16	10.127.177.1000
	8" 203,2 mm	500	7	10.127.203.0500
		630	8	10.127.203.0630
		800	11	10.127.203.0800
		1000	14	10.127.203.1000
		1250	17	10.127.203.1250
		1600	22	10.127.203.1600
	9" 228,6 mm	500	6	10.127.228.0500
		630	8	10.127.228.0630
		800	10	10.127.228.0800
		1000	12	10.127.228.1000
		1250	15	10.127.228.1250
		1600	19	10.127.228.1600
	10" 254 mm	630	7	10.127.254.0630
		800	9	10.127.254.0800
		1000	11	10.127.254.1000
		1250	13	10.127.254.1250
		1600	17	10.127.254.1600
		2000	21	10.127.254.2000
	12" 304,8 mm	630	6	10.127.304.0630
		800	7	10.127.304.0800
		1000	9	10.127.304.1000
		1250	11	10.127.304.1250
		1600	14	10.127.304.1600
		2000	18	10.127.304.2000
5/8" 15,87 mm - 0,05 - 0,08	2" 50,8 mm	200	11	10.158.050.0200
		250	14	10.158.050.0250
		315	18	10.158.050.0315
		400	23	10.158.050.0400
	2"1/2 63,5 mm	200	8	10.158.063.0200
		250	10	10.158.063.0250
		315	13	10.158.063.0315
		400	16	10.158.063.0400
		500	20	10.158.063.0500
	3" 76,2 mm	250	8	10.158.076.0250
		315	11	10.158.076.0315
		400	13	10.158.076.0400
		500	17	10.158.076.0500
		630	21	10.158.076.0630
		800	26	10.158.076.0800
	4" 101,6 mm	315	8	10.158.101.0315
		400	10	10.158.101.0400
		500	12	10.158.101.0500
		630	15	10.158.101.0630
		800	20	10.158.101.0800
		1000	24	10.158.101.1000
	5" 127 mm	400	7	10.158.127.0400
		500	8	10.158.127.0500
		630	10	10.158.127.0630
		800	14	10.158.127.0800
		1000	17	10.158.127.1000
		1250	21	10.158.127.1250
	6" 152,4 mm	500	7	10.158.152.0500
		630	9	10.158.152.0630
		800	12	10.158.152.0800
		1000	15	10.158.152.1000
		1250	19	10.158.152.1250
		1600	24	10.158.152.1600
	7" 177,8 mm	500	6	10.158.177.0500
		630	8	10.158.177.0630
		800	10	10.158.177.0800
		1000	13	10.158.177.1000
		1250	16	10.158.177.1250
		1600	20	10.158.177.1600

Ø	L	W 230V	W cm²	CODE *CODE*
5/8" 15,87 mm - 0,05 - 0,08	8" 203,2 mm	630	7	10.158.203.0630
		800	9	10.158.203.0800
		1000	11	10.158.203.1000
		1250	14	10.158.203.1250
		1600	18	10.158.203.1600
		2000	22	10.158.203.2000
	10" 254 mm	630	5	10.158.254.0630
		800	7	10.158.254.0800
		1000	9	10.158.254.1000
		1250	11	10.158.254.1250
		1600	14	10.158.254.1600
		2000	17	10.158.254.2000
	12" 304,8 mm	800	6	10.158.304.0800
		1000	7	10.158.304.1000
		1250	9	10.158.304.1250
		1600	11	10.158.304.1600
		2000	14	10.158.304.2000
		2500	17	10.158.304.2500
	14" 355,6 mm	800	5	10.158.355.0800
		1000	6	10.158.355.1000
		1250	7	10.158.355.1250
		1600	9	10.158.355.1600
		2000	12	10.158.355.2000
		2500	15	10.158.355.2500
	16" 406,4 mm	1000	5	10.158.406.1000
		1250	6	10.158.406.1250
		1600	8	10.158.406.1600
		2000	10	10.158.406.2000
		2500	12	10.158.406.2500
3/4" 19,05 mm - 0,06 - 0,10	3" 76,2 mm	400	11	10.190.076.0400
		500	14	10.190.076.0500
		630	18	10.190.076.0630
	4" 101,6 mm	400	8	10.190.101.0400
		500	10	10.190.101.0500
		630	13	10.190.101.0630
	5" 127 mm	500	7	10.190.127.0500
		630	9	10.190.127.0630
		800	11	10.190.127.0800
		1000	14	10.190.127.1000
	6" 152,4 mm	630	8	10.190.152.0630
		800	10	10.190.152.0800
		1000	13	10.190.152.1000
		1250	16	10.190.152.1250
	8" 203,2 mm	800	7	10.190.203.0800
		1000	9	10.190.203.1000
		1250	11	10.190.203.1250
		1600	15	10.190.203.1600
	10" 254 mm	1000	7	10.190.254.1000
		1250	9	10.190.254.1250
		1600	11	10.190.254.1600
		2000	14	10.190.254.2000
	12" 304,8 mm	1000	6	10.190.304.1000
		1250	7	10.190.304.1250
		1600	9	10.190.304.1600
		2000	12	10.190.304.2000
	14" 355,6 mm	1250	6	10.190.355.1250
		1600	8	10.190.355.1600
		2000	10	10.190.355.2000
		2500	13	10.190.355.2500
	16" 406,4 mm	1250	5	10.190.406.1250
		1600	7	10.190.406.1600
		2000	9	10.190.406.2000
		2500	11	10.190.406.2500
	18" 457,2 mm	1600	6	10.190.457.1600
		2000	8	10.190.457.2000
		2500	10	10.190.457.2500
		3200	12	10.190.457.3200
	20" 508 mm	1600	6	10.190.508.1600
		2000	7	10.190.508.2000
		2500	9	10.190.508.2500
		3200	11	10.190.508.3200

CARTOUCHES CHAUFFANTES HAUTE CHARGE AVEC THERMOCOUPLE
HI-DENSITY CARTRIDGE HEATERS WITH BUILT-IN THERMOCOUPLE

Livraison standard avec fils d'alimentation en nickel isolés en fibre de verre-silicone, et fils thermocouple isolés en PTFE longueur 1000 mm, la connexion est à l'intérieur (sortie flexible).

Standard supply 1000 mm long fiberglass-silicone insulated nickel leads, and PTFE thermocouple insulated leads, both internally connected.

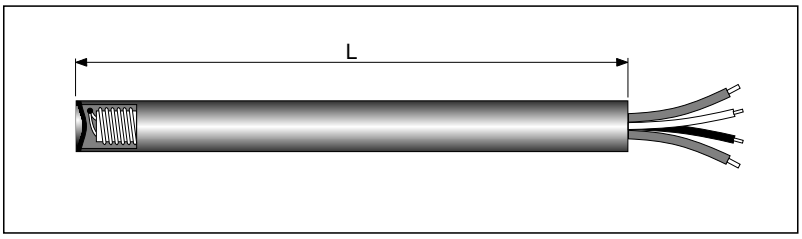


Type TC1 - *TC1 Type*

Standard

Le point chaud du Thermocouple est positionné en contact de la gaine et du bouchon de fond; il assure une réponse rapide aux variations de température.

Thermocouple hot junction is in contact to sheath and bottom disc; it will provide good temperature readings with quick response.

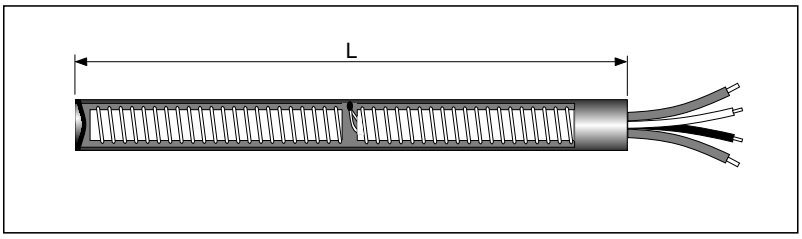


Type TC2 - *TC2 Type*

Sur Demande - *Upon request*

Le point chaud du Thermocouple est isolé et positionné en proximité de la gaine et du bouchon de fond; la réponse aux variations de température est plus lente que dans le type TC1.

Thermocouple hot junction is insulated and located in proximity of bottom disc; slower response than TC1 type.

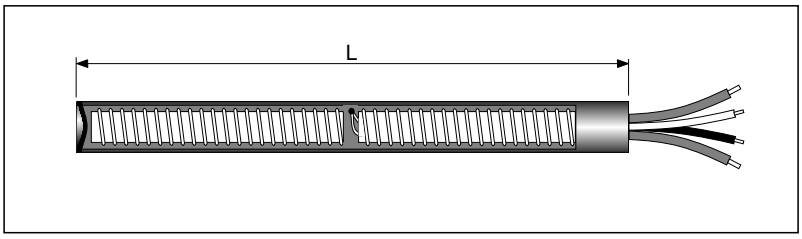


Type TC3 - *TC3 Type*

Sur Demande - *Upon request* L min. 80mm

Le point chaud du Thermocouple est positionné au centre de la cartouche et en contact avec la gaine. Il assure une réponse rapide aux variations de température.

Thermocouple hot junction is located at the middle of the lenght and in contact to the sheath; it will provide good temperature readings with quick response.



TypeTC4 - *TC4 Type*

Sur Demande - *Upon request* L min. 50mm

Le point chaud du Thermocouple est isolé et positionné au centre de la cartouche, à proximité de la gaine; la réponse aux variations de température est plus lente que dans le type TC3.

Thermocouple hot junction is insulated and located at the middle of the length in proximity of the sheath; slower response than TC3 type.

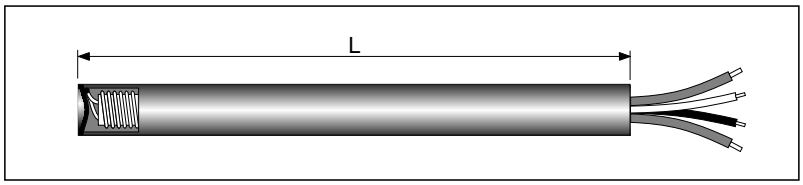
TOUTES LES CARTOUCHES HAUTE CHARGE PEUVENT ETRE CONSTRUITES AVEC THERMOCOUPLE INCORPORE' TYPE 'J' O 'K'.

ALL HI-DENSITY CARTRIDGE HEATERS CAN BE MANUFACTURED WITH BUILT-IN 'J' OR 'K' THERMOCOUPLE.

THERMOCOUPLE DIN			TEMPÉRATURE D'APPLICATION
TYPE	POLE POSITIF	POLE NEGATIF	
J	FER (+) ROUGE	COSTANTAN (-) BLEU	JUSQU'À 500°C
K	CHROMEL (+) ROUGE	ALUMEL (-) VERT	JUSQU'À 750°C

THERMOCOUPLE DIN			*TEMPERATURE APPLICATION*
TYPE	*POLE POSITIVE*	*POLE NEGATIVE*	
J	*IRON (+) RED*	*COSTANTAN (-) BLUE*	*UP TO 500°C*
K	*CHROMEL (+) RED*	*ALUMEL (-) GREEN*	*UP TO 750°C*

CARTOUCHES CHAUFFANTES HAUTE CHARGE AVEC THERMOCOUPLE 'J'
HI-DENSITY CARTRIDGE HEATERS WITH BUILT-IN 'J' THERMOCOUPLE



Type TC1 - *TC1 Type*

Livraison standard avec fils en nickel isolés en fibre de verre-silicone et fils du thermocouple isolés en PTFE, longueur 1000 mm, la connexion est à l'intérieur.

Standard supply 1000 mm long fiberglass-silicone insulated nickel leads, and PTFE thermocouple insulated leads, both internally connected.

COTES METRIQUES - *METRIC SIZES*

Ø mm.	L mm.	W 230V	W cm²	CODE *CODE*
6,5 -0,02 -0,04	40	125	22	11.065.040.0125
		160	28	11.065.040.0160
		200	36	11.065.040.0200
	50	125	16	11.065.050.0125
		160	21	11.065.050.0160
		200	26	11.065.050.0200
	60	160	17	11.065.060.0160
		200	21	11.065.060.0200
		250	26	11.065.060.0250
	80	200	15	11.065.080.0200
		250	19	11.065.080.0250
		315	24	11.065.080.0315
	100	250	15	11.065.100.0250
		315	18	11.065.100.0315
		400	24	11.065.100.0400
	130	315	13	11.065.130.0315
		400	17	11.065.130.0400
		500	22	11.065.130.0500
	160	315	11	11.065.160.0315
		400	14	11.065.160.0400
		500	18	11.065.160.0500
8 -0,03 -0,05	40	160	23	11.080.040.0160
		200	30	11.080.040.0200
	50	160	18	11.080.050.0160
		250	28	11.080.050.0250
	60	200	17	11.080.060.0200
		315	27	11.080.060.0315

Ø mm.	L mm.	W 230V	W cm²	CODE *CODE*
8 -0,03 -0,05	80	250	15	11.080.080.0250
		315	19	11.080.080.0315
		400	24	11.080.080.0400
	100	250	12	11.080.100.0250
		400	18	11.080.100.0400
	130	315	11	11.080.130.0315
		500	18	11.080.130.0500
	160	315	9	11.080.160.0315
		500	14	11.080.160.0500
10 -0,03 -0,06	40	160	20	11.100.040.0160
		200	25	11.100.040.0200
		250	32	11.100.040.0250
	50	200	18	11.100.050.0200
		250	23	11.100.050.0250
		315	28	11.100.050.0315
	60	200	15	11.100.060.0200
		250	18	11.100.060.0250
		315	23	11.100.060.0315
	80	250	13	11.100.080.0250
		315	16	11.100.080.0315
		400	20	11.100.080.0400
	100	315	12	11.100.100.0315
		400	16	11.100.100.0400
		500	20	11.100.100.0500
	130	315	9	11.100.130.0315
		400	12	11.100.130.0400
		500	14	11.100.130.0500

Ø mm.	L mm.	W 230V	W cm²	CODE *CODE*
10 -0,03 -0,06	160	400	9	11.100.160.0400
		500	11	11.100.160.0500
		630	14	11.100.160.0630
	200	500	9	11.100.200.0500
		800	14	11.100.200.0800
12,5 -0,04 -0,07	40	200	20	11.125.040.0200
		250	25	11.125.040.0250
	50	200	14	11.125.050.0200
		315	22	11.125.050.0315
		400	28	11.125.050.0400
	60	250	14	11.125.060.0250
		400	22	11.125.060.0400
	80	250	10	11.125.080.0250
		400	16	11.125.080.0400
	100	400	12	11.125.100.0400
		630	19	11.125.100.0630
	130	400	9	11.125.130.0400
		630	14	11.125.130.0630
	160	500	9	11.125.160.0500
		800	14	11.125.160.0800
	200	630	9	11.125.200.0630
		1000	14	11.125.200.1000
	250	800	9	11.125.250.0800
		1250	13	11.125.250.1250
	300	1000	9	11.125.300.1000
		1600	15	11.125.300.1600

COTES EN POUCHES - *BRITISH SIZES*

Ø	L	W 230V	W cm²	CODE *CODE*
1/4" 6,35 mm -0,02 -0,04	1" 25,4 mm	160	53	11.063.025.0160
	1"1/4 31,8 mm	125	31	11.063.031.0125
		160	40	11.063.031.0160
		200	50	11.063.031.0200
	1"1/2 38,1 mm	125	23	11.063.038.0125
		160	29	11.063.038.0160
		200	36	11.063.038.0200
	1"3/4 44,5 mm	125	19	11.063.044.0125
		160	25	11.063.044.0160
		200	31	11.063.044.0200
	2" 50,8 mm	160	21	11.063.050.0160
		200	27	11.063.050.0200
		250	33	11.063.050.0250
	2"1/2 63,5 mm	200	20	11.063.063.0200
		250	25	11.063.063.0250
		315	32	11.063.063.0315
	3" 76,2 mm	200	16	11.063.076.0200
		250	20	11.063.076.0250
		315	25	11.063.076.0315
	3"1/2 88,9 mm	200	13	11.063.088.0200
		250	17	11.063.088.0250
		315	21	11.063.088.0315
	4" 101,6 mm	250	14	11.063.101.0250
		315	18	11.063.101.0315
		400	23	11.063.101.0400
	5" 127 mm	315	14	11.063.127.0315
		400	18	11.063.127.0400
		500	23	11.063.127.0500
	6" 152,4 mm	315	12	11.063.152.0315
		400	15	11.063.152.0400
		500	18	11.063.152.0500

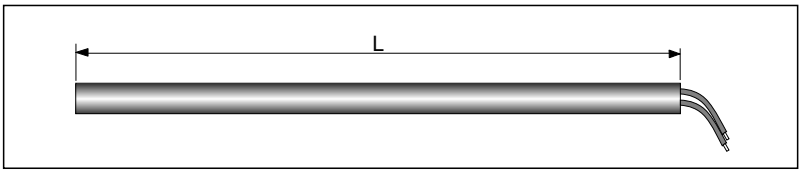
Ø	L	W 230V	W cm²	CODE *CODE*
3/8" 9,52 mm -0,03 -0,06	1" 25,4 mm	200	44	11.095.025.0200
	1"1/4 31,8 mm	160	26	11.095.031.0160
		200	33	11.095.031.0200
	1"1/2 38,1 mm	160	21	11.095.038.0160
		200	27	11.095.038.0200
		250	33	11.095.038.0250
	1"3/4 44,5 mm	160	17	11.095.044.0160
		200	21	11.095.044.0200
		250	26	11.095.044.0250
		315	33	11.095.044.0315
	2" 50,8 mm	200	19	11.095.050.0200
		250	24	11.095.050.0250
		315	30	11.095.050.0315
	2"1/2 63,5 mm	200	14	11.095.063.0200
		250	17	11.095.063.0250
		315	22	11.095.063.0315
		400	28	11.095.063.0400
	3" 76,2 mm	250	14	11.095.076.0250
		315	18	11.095.076.0315
		400	22	11.095.076.0400
		500	28	11.095.076.0500
	3"1/2 88,9 mm	250	11	11.095.088.0250
		315	14	11.095.088.0315
		400	18	11.095.088.0400
		500	23	11.095.088.0500
	4" 101,6 mm	315	12	11.095.101.0315
		400	16	11.095.101.0400
		500	20	11.095.101.0500
	5" 127 mm	400	12	11.095.127.0400
		500	15	11.095.127.0500
	6" 152,4 mm	400	10	11.095.152.0400
		500	12	11.095.152.0500
		630	15	11.095.152.0630

Ø	L	W 230V	W cm²	CODE *CODE*
3/8" 9,52 mm -0,03 -0,06	7" 177,8 mm	500	10	11.095.177.0500
		800	16	11.095.177.0800
	8" 203,2 mm	500	9	11.095.203.0500
		800	14	11.095.203.0800
1/2" 12,7 mm -0,04 -0,07	1"1/2 38,1 mm	200	22	11.127.038.0200
		250	28	11.127.038.0250
	2" 50,8 mm	200	14	11.127.050.0200
		315	22	11.127.050.0315
	2"1/2 63,5 mm	250	13	11.127.063.0250
		400	20	11.127.063.0400
	3" 76,2 mm	250	10	11.127.076.0250
		400	16	11.127.076.0400
	3"1/2 88,9 mm	315	11	11.127.088.0315
		400	14	11.127.088.0400
		500	18	11.127.088.0500
	4" 101,6 mm	400	12	11.127.101.0400
		500	15	11.127.101.0500
		630	18	11.127.101.0630
	5" 127 mm	400	9	11.127.127.0400
		630	14	11.127.127.0630
		800	18	11.127.127.0800
	6" 152,4 mm	500	9	11.127.152.0500
		800	15	11.127.152.0800
	7" 177,8 mm	500	8	11.127.177.0500
		800	12	11.127.177.0800
	8" 203,2 mm	630	8	11.127.203.0630
		1000	14	11.127.203.1000
	9" 228,6 mm	630	8	11.127.228.0630
		1000	12	11.127.228.1000
	10" 254 mm	800	9	11.127.254.0800
		1250	13	11.127.254.1250
		1600	17	11.127.254.1600
	12" 304,8 mm	1000	9	11.127.304.1000
		1600	14	11.127.304.1600

MICRO CARTOUCHES CHAUFFANTES HAUTE CHARGE Ø4
MICRO HI-DENSITY CARTRIDGE HEATERS Ø4

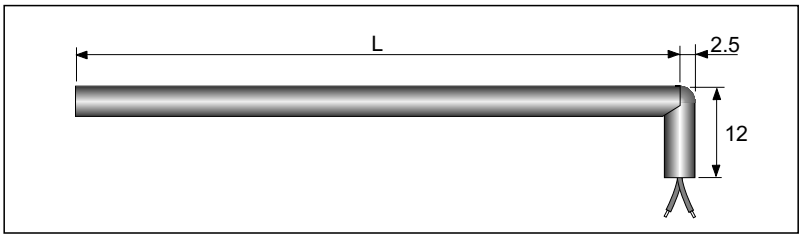
Les micro cartouches chauffantes **Micro4** sont une incarnation de la micro technologie, avec des performances très élevées pour la densité de puissance à 230V. Ces dernières ont fait l'objet d'implantations avec succès équipant des microbuses pour l'injection des matières plastiques notamment sur le secteur de l'emballage sur lequel les systèmes d'injection ont besoin de haute puissance dans des très petits volumes.

*Microcartidge heaters **Micro4** are a condensate of micromechanic, technologie to generate very high performances (wattage density at 230V). Main application are micronozzles for plastic injection and in mini-packaging machines, and of course, all applications where high power in extremely small volume is required.*



SORTIE SOUPLE
Les cartouches Ø 4 sont réalisées avec fils en nickel isolés en PTFE longueur 250mm, connectées en interne.

FLEXIBLE EXIT
The 4 Ø heaters are provided with 250mm long leads, PTFE insulated nickel, internally connected.



SORTIE FILS 90°
Les cartouches Ø 4 sont réalisées avec fils en nickel isolés en PTFE ou en fibre de verre-silicone longueur 250mm, connectées en interne.

LEADWIRES EXIT 90°
The 4 Ø heaters are provided with 250mm long leads, PTFE or fiberglass-silicone insulated nickel, internally connected.

COTES METRIQUES - *METRIC SIZES*

Ø mm	L mm	W 230V	W cm²	CODE *CODE*
4 -0,02 -0,04	30	50	20	10.040.030.0050
		75	30	10.040.030.0075
	35	60	19	10.040.035.0060
		90	29	10.040.035.0090
	40	70	19	10.040.040.0070
		105	28	10.040.040.0105

LIVRÉ SUR DEMANDE - *MANUFACTURED UPON REQUEST*

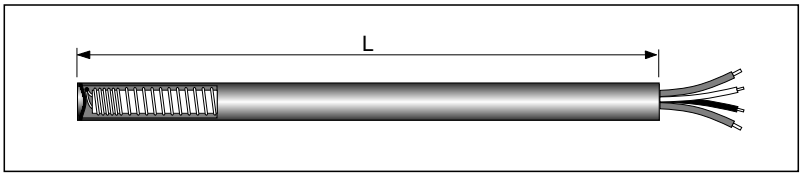
Ø mm	L mm	W 230V	W cm²	CODE *CODE*
4 -0,02 -0,04	45	80	18	10.040.045.0080
		120	27	10.040.045.0120
	50	90	18	10.040.050.0090
		135	27	10.040.050.0135
	55	100	18	10.040.055.0100
		150	27	10.040.055.0150

Ø mm	L mm	W 230V	W cm²	CODE *CODE*
4 -0,02 -0,04	60	110	18	10.040.060.0110
		165	26	10.040.060.0165
	70	130	17	10.040.070.0130
		195	26	10.040.070.0195
	80	150	17	10.040.080.0150
		225	26	10.040.080.0225

CARTOUCHES CHAUFFANTES HAUTE CHARGE Ø5 AVEC OU SANS THERMOCOUPLE INCORPORÉ
HI-DENSITY CARTRIDGE HEATERS Ø5 WITH OR WITHOUT THERMOCOUPLE BUILT INSIDE

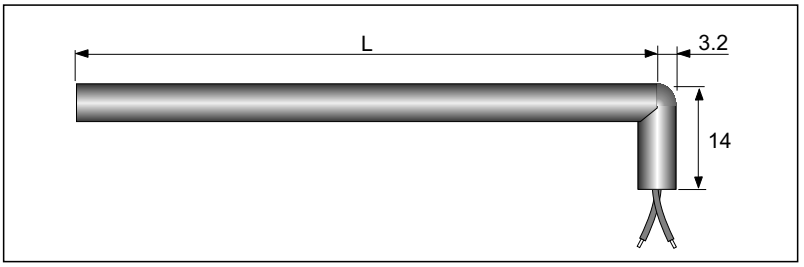
Les micro cartouches chauffantes **Micro5** sont état de l'art des cartouches avec thermocouple incorporé à 230V. Fiabilité et une durabilité maximales sont garanties si une installation correcte est réalisée. Constructible avec une densité de puissance variable, les **Micro5** sont irremplaçables pour les micro-buses dans l'injection des thermoplastiques où il n'est pas possible d'installer un thermocouple externe à la résistance.

*Microcartidge heaters **Micro5** are the state of the art of cartridges with built in thermocouple at 230V. Reliability and lifetime are guaranteed if they are correctly installed. The **Micro5** can be manufactured with distributed wattage density and they are the unique solution in plastic injection micronozzles where a separate thermocouple is not applicable.*



Type TC1 - SORTIE SOUPLE
Les cartouches Ø 5 sont réalisées avec fils en nickel isolés en fibre de verre-silicone et fils du thermocouple isolés en PTFE, longueur 1000 mm; la connexion est à l'interieur.

TC1 Type - FLEXIBLE EXIT
The 5 Ø heaters are provided with 1000mm long fiberglass-silicone insulated nickel leads, and PTFE thermocouple insulated leads, both internally connected.



SORTIE FILS 90°
Les cartouches Ø 5 sont réalisées avec fils en nickel isolés en PTFE ou en fibre de verre-silicone longueur 250mm, connectées en interne.

LEADWIRES EXIT 90°
The 5 Ø heaters are provided with 250mm long leads, fiberglass-silicone or PTFE insulated nickel, internally connected.

COTES METRIQUES - *METRIC SIZES*

Ø mm	L mm	W 230V	W cm²	CODE *CODE*
5 -0,02 -0,04	30	100	42	11.050.030.0100
		125	53	11.050.030.0125
	40	100	26	11.050.040.0100
		160	41	11.050.040.0160
	50	100	18	11.050.050.0100

LIVRÉ SUR DEMANDE - *MANUFACTURED UPON REQUEST*

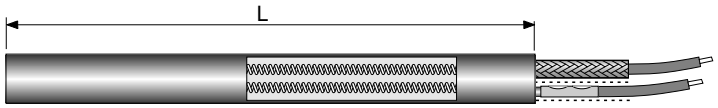
Ø mm	L mm	W 230V	W cm²	CODE *CODE*
5 -0,02 -0,04	50	160	29	11.050.050.0160
	60	125	18	11.050.060.0125
		200	28	11.050.060.0200
	80	125	12	11.050.080.0125
		200	20	11.050.080.0200

Ø mm	L mm	W 230V	W cm²	CODE *CODE*
5 -0,02 -0,04	100	160	12	11.050.100.0160
		250	19	11.050.100.0250
	130	200	11	11.050.130.0200
		315	18	11.050.130.0315

CARTOUCHES CHAUFFANTES MOYENNE CHARGE
MEDIUM-DENSITY CARTRIDGE HEATERS

Les cartouches chauffantes moyenne charge sont realisées avec une ou plusieurs spirales de fil de résistance en nickel-chrome 80/20, plongées dans une masse d'oxyde de magnésium compacté. Indiquées pour conditions de travail moins lourdes par rapport aux cartouches chauffantes haute charge (température de travail jusqu'à 500°C).

Medium density cartridge heaters are manufactured with one or more nickel-chrome 80/20 resistive wire spirals, in compacted MgO mass. Suitable for heating applications not requiring high watt density (working temperatures up to 500°C).



Les éléments chauffants sont livrés avec les fils en nickel isolés en PTFE ou en fibre de verre-silicone longueur 250mm, sertis extérieurement.

The heaters are provided with 250mm long leads, fiberglass-silicone or PTFE insulated nickel, externally connected.

Ø	**6,5** -0,02 **1/4"** -0.08	**8** -0,03 -0,10	**10** -0,03 **3/8"** -0,12	**12,5** -0,04 **1/2"** -0,14	**16** -0,05 **5/8"** -0,16	**20** -0,06 **3/4"** -0,20
L. min. mm	160	160	200	300	400	500
L. max. mm	1000	1000	1400	1800	2000	2000
Rigidité (*Dielectric*) V	1000	1250	1500	1500	1500	1500
Ampere max.	4	5	7	10	14	18
Watt max / cm²	15	15	15	14	14	13
Volt max	240	240	240	240	400	400
Watt max (V240)	900	1000	1400	2000	3400	4500
Watt max (V400)	-	-	-	-	5000	7000

DONNÉES TECHNIQUES POUR LE DIMENSIONNEMENT
TECHNICAL DATA FOR DESIGN

SPÉCIFICATIONS DE CONSTRUCTION ET TOLERANCES:

Puissance	*+ 10% - 10%*	
Résistance	*+ 10% - 10%*	
Isolation (à froid 254 Vcc)	*> 5*	MΩ
Dispersion (Courant de fuite a froid)	*< 0,5*	*mA*
Température maximale d'exercice admise sur la gaine	*500*	*°C*
Tolerance sur la longueur	*± 2*	*%*

CONSTRUCTIVE SPECIFICATIONS AND TOLERANCES:

Wattage	*+ 10% - 10%*	
Resistance	*+ 10% - 10%*	
Insulation (cold 500 Vdc)	*> 5*	MΩ
Leakage current (cold at 254V)	*< 0,5*	*mA*
Maximum working temperature allowed on sheath	*500*	*°C*
Length tolerance	*± 2*	*%*

CARTOUCHES CHAUFFANTES UNIPOLAIRES
GROUNDED CARTRIDGE HEATERS

Les cartouches chauffantes unipolaires sont réalisées avec une spirale de fil de résistance en nickel-chrome 80/20, ayant une extrémité reliée au fil d'alimentation et l'autre extrémité au bouchon de fond, et plongée dans une masse d'oxyde de magnésium compactée.

Grounded cartridge heaters are manufactured with one spiral of nickel-chrome 80/20 resistive wire, connected to the lead and the bottom disck, in compacted MgO mass.

Les éléments chauffants sont livrés avec les fils en nickel isolés en fibre de verre-silicone longueur 500mm.

The heaters are provided with 500mm long leads, fiberglass-silicone insulated nickel.

COTES METRIQUES - *METRIC SIZES*

Ø mm	L mm	W 24V	W cm²	CODE *CODE*
4,5 -0,02 -0,04	40	60	15	40.045.040.0060
		100	25	40.045.040.0100
	50	60	11	40.045.050.0060
		100	18	40.045.050.0100
	60	80	11	40.045.060.0080

Ø mm	L mm	W 24V	W cm²	CODE *CODE*
4,5 -0,02 -0,04	60	125	17	40.045.060.0125
	70	80	10	40.045.070.0080
		125	15	40.045.070.0125
	80	100	11	40.045.080.0100
		160	17	40.045.080.0160

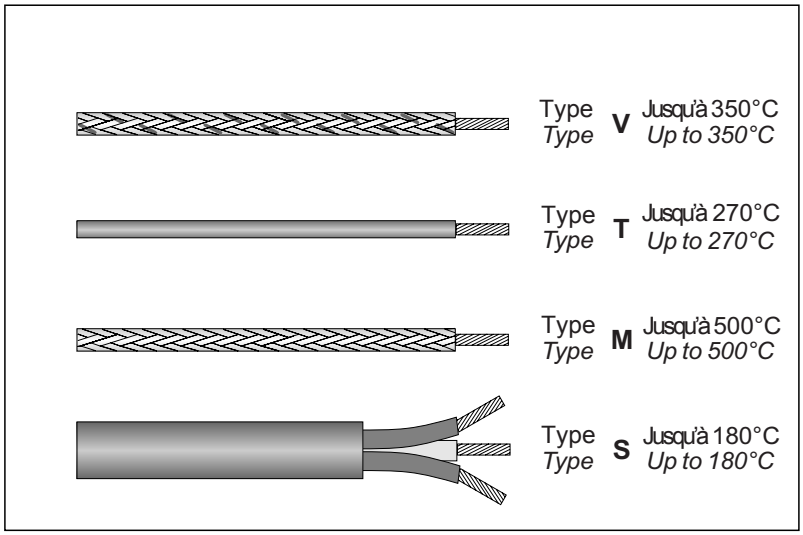
Ø mm	L mm	W 24V	W cm²	CODE *CODE*
4,5 -0,02 -0,04	100	100	8	40.045.100.0100
		160	13	40.045.100.0160
	130	125	7	40.045.130.0125
		200	12	40.045.130.0200

DIAMÈTRES SUPÉRIEURS ET/OU TERMINALS TARAUDÉS SUR DEMANDE.

LARGER DIAMETERS AND/OR THREADED TERMINAL UPON REQUEST.

TENSION MINIMUM 6V, MAXIMUM 48V.

MINIMUM VOLTAGE 6V, MAXIMUM 48V.



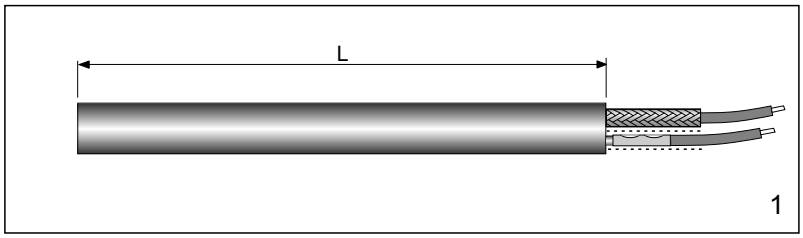
FILS STANDARDS
STANDARD LEADS

Conducteur en Ni isolé avec fibre de verre-silicone.
Fiberglass-silicone insulated Ni conductor.

Conducteur en Ni isolé avec PTFE.
PTFE insulated Ni conductor.

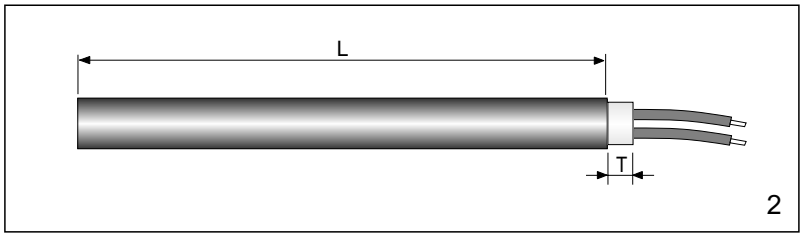
Conducteur en Ni isolé avec fibre de verre-mica.
Fiberglass-mica insulated Ni conductor.

Conducteur bi-tripolaire en Cu isolé avec silicone.
Silicone bi-tripolar cable insulated Cu conductor.



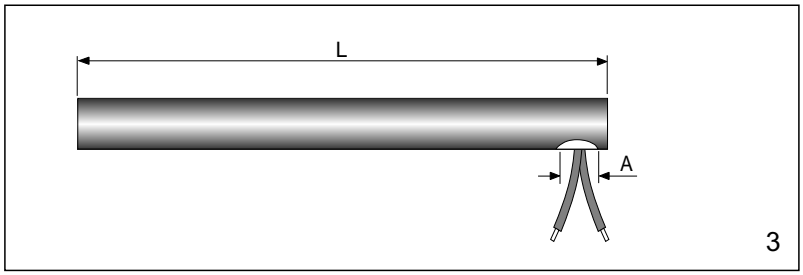
FILS SERTIS EXTÉRIEUREMENT
LEADSWIRES EXTERNALLY CONNECTED

Ø	3/8"- 10 - 12.5 - 1/2"- 5/8"- 16 - 3/4"- 20



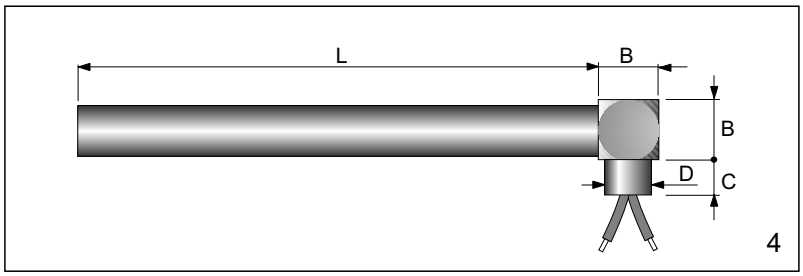
SORTIE SOUPLE
FLEXIBLE EXIT

Ø	3/8" - 10	12.5 - 1/2"	5/8" - 16	3/4" - 20
T ~	5	6	7	8



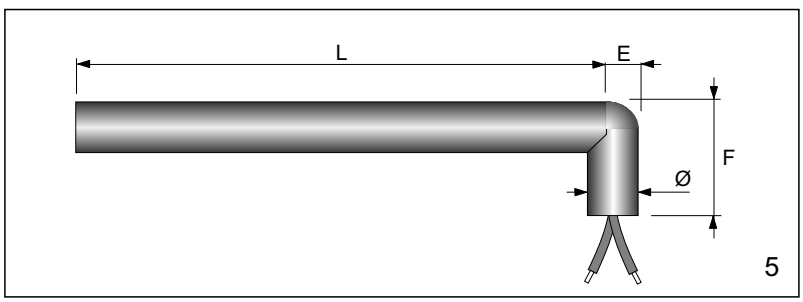
SORTIE FILS 90° Type A
LEADWIRES EXIT 90° Type

Ø	6.5 1/4"	8	10 3/8"	12.5 1/2"	16 5/8"	20 3/4"
A	5	5.5	6.5	9.5	12	14



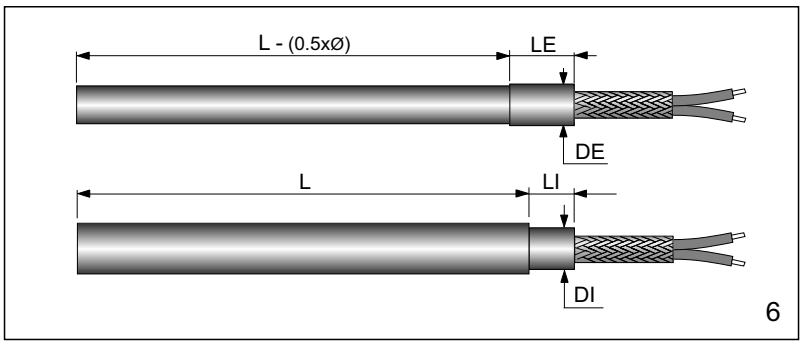
SORTIE FILS 90° Type B
LEADWIRES EXIT 90° Type

Ø	6.5 1/4"	8	10 3/8"	12.5 1/2"	16 5/8"	20 3/4"
B	8	10	12	14	18	22
C	6	7	7	8	10	10
D	8	10	10	12.5	16	16



SORTIE FILS 90° Type C
LEADWIRES EXIT 90° Type

Ø	6.5 1/4"	8	10 3/8"	12.5 1/2"	16 5/8"	20 3/4"
E	4.2	5.2	6.5	8	10.5	13
F	16	18	22	26	30	36



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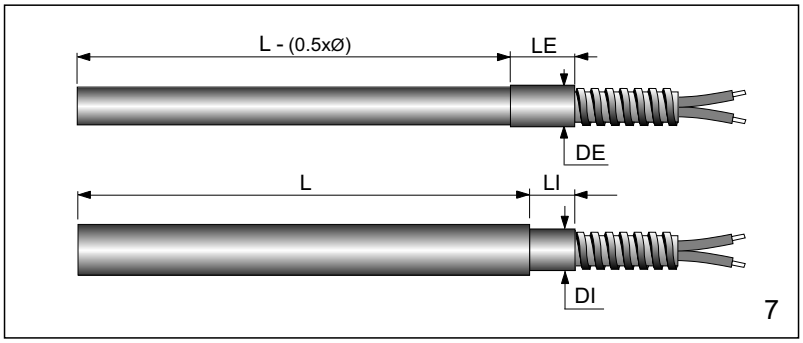

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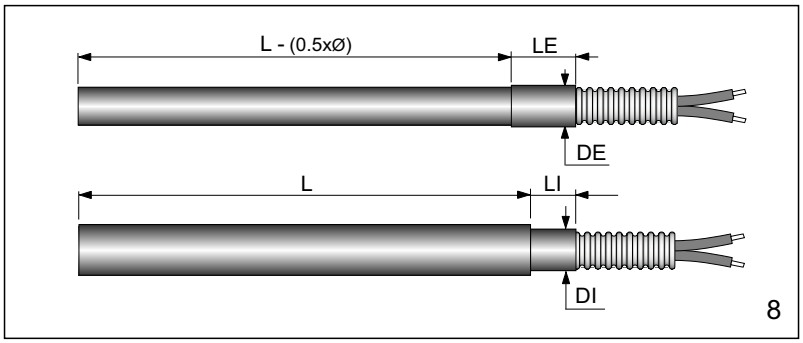

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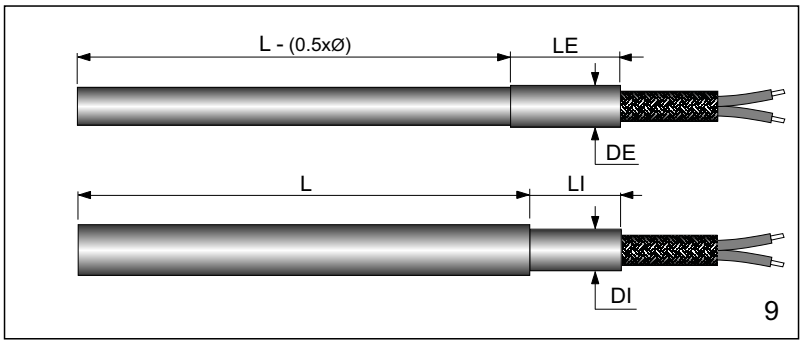

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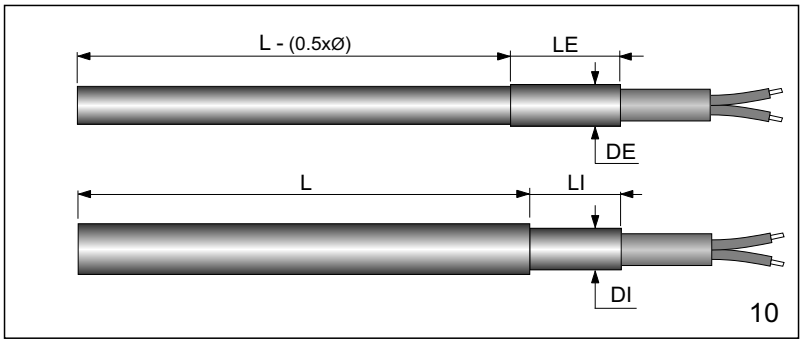

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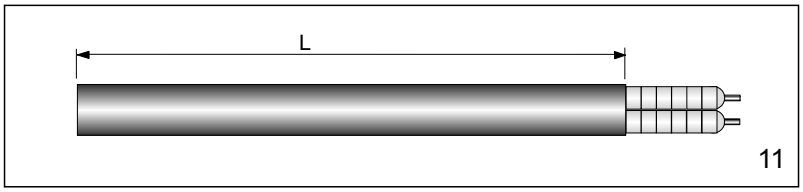


11

GAINE EN FIBRE DE VERRE - SILICONE
FIBERGLASS - SILICONE HOSE

Boîte de connexion - *Connection tube*							
Ø	6.5 1/4"	8	10 3/8"	12.5 1/2"	16 5/8"	3/4"	20
DE	--	--	11	--	--	--	--
LE	--	--	15	--	--	--	--
DI	--	--	--	10.5	14	17	18
LI	--	--	--	12	16	20	20

GAINE MÉTALLIQUE GALVANISÉE
METAL GALVANIZED CONDUIT

Boîte de connexion - *Connection tube*							
Ø	6.5 1/4"	8	10 3/8"	12.5 1/2"	16 5/8"	3/4"	20
DE	7.5	9.2	11	14 *	--	--	--
LE	10	12	15	16 *	--	--	--
DI	--	--	--	10.5	14	17	18
LI	--	--	--	12	16	20	20

* Pour fils Hi Temp. ou Amp. >10 - *For Leads Hi Temp. or Amp. >10*

GAINE MÉTALLIQUE ÉTANCHE
WATERTIGHT STAINLESS STEEL CONDUIT

Boîte de connexion - *Connection tube*							
Ø	6.5 1/4"	8	10 3/8"	12.5 1/2"	16 5/8"	3/4"	20
DE	--	--	11	14	--	--	--
LE	--	--	15	16	--	--	--
DI	--	--	--	--	14	17	18
LI	--	--	--	--	16	20	20

GAINE EN ACIER TRESSÉE
BRAIDED STEEL HOSE

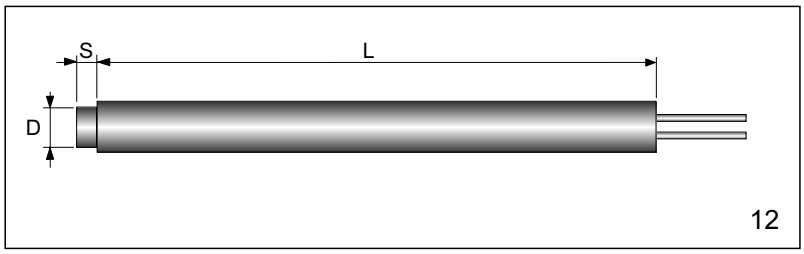
Boîte de connexion - *Connection tube*							
Ø	6.5 1/4"	8	10 3/8"	12.5 1/2"	16 5/8"	3/4"	20
DE	7.5	9.2	11	14	--	--	--
LE	30	30	35	35	--	--	--
DI	--	--	--	--	14	17	18
LI	--	--	--	--	35	40	40

CÂBLE EN SILICONE
SILICONE CABLE

Boîte de connexion - *Connection tube*							
Ø	6.5 1/4"	8	10 3/8"	12.5 1/2"	16 5/8"	3/4"	20
DE	7.5	9.2	11	14	--	--	--
LE	30	30	35	35	--	--	--
DI	--	--	--	10.5	14	17	18
LI	--	--	--	30	35	40	40

PERLES EN CÉRAMIQUE
CERAMIC BEADS

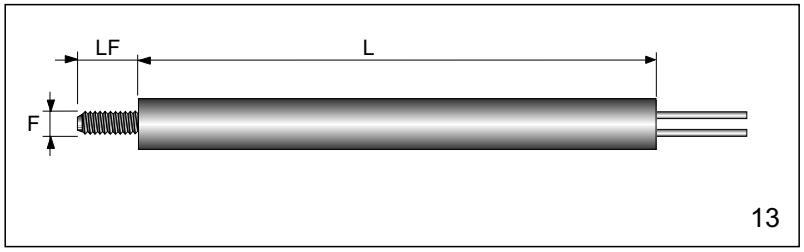
Ø	3/8"- 10 - 12.5 - 1/2"- 5/8"- 16 - 3/4"- 20



BOUTON D'EXTRACTION
EXTRACTION NIB

Sur demande
Upon request

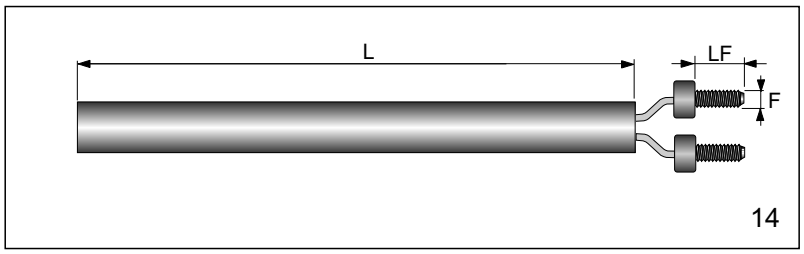
Ø	6.5 1/4"	8	10 3/8"	12.5 1/2"	16 5/8"	20 3/4"
D	--	--	7.5	9	12	16
S	--	--	4	5	6	8



TIGE FILETÉE
THREADED PIN

Sur demande
Upon request

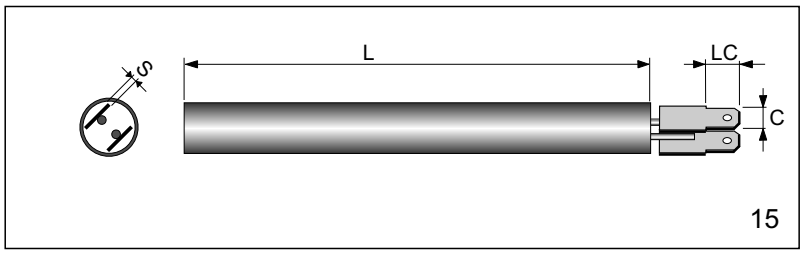
Ø	6.5 1/4"	8	10 3/8"	12.5 1/2"	16 5/8"	20 3/4"
F	M3	M3	M4	M5	M6	M8
LF	15	15	15	20	20	20



VIS EN ACIER INOX
STAINLESS STEEL SCREW

Sur demande
Upon request

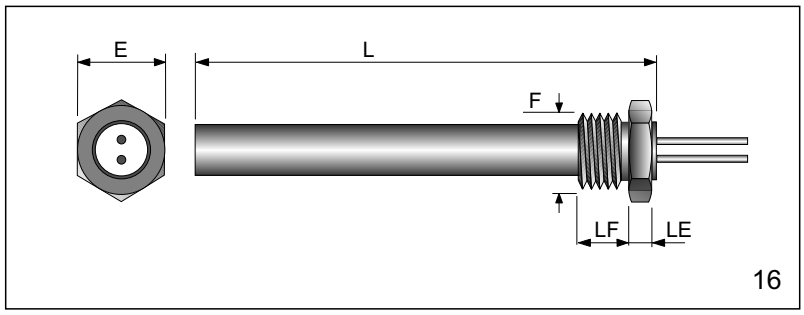
Ø	6.5 1/4"	8	10 3/8"	12.5 1/2"	16 5/8"	20 3/4"
F	--	--	--	M3	M4	M4
LF	--	--	--	8	10	10



FASTON EN ACIER INOX
STAINLESS STEEL FASTON

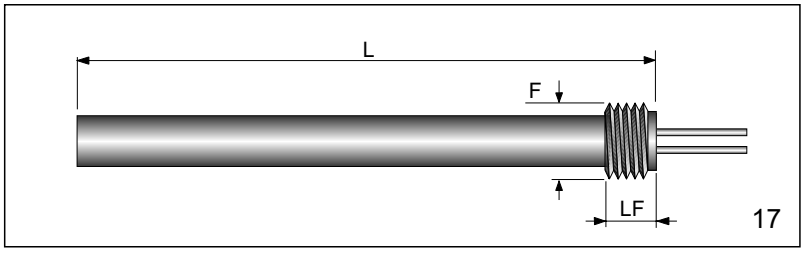
Sur demande
Upon request

Ø	6.5 1/4"	8	10 3/8"	12.5 1/2"	16 5/8"	20 3/4"
C	--	--	--	6.3	6.3	6.3
LC	--	--	--	8	8	8
S	--	--	--	0.8	0.8	0.8



DOUILLE FILETÉE AVEC TÊTE HEXAGONALE EN ACIER INOX
STAINLESS STEEL BUSHING WITH HEXAGON HEAD

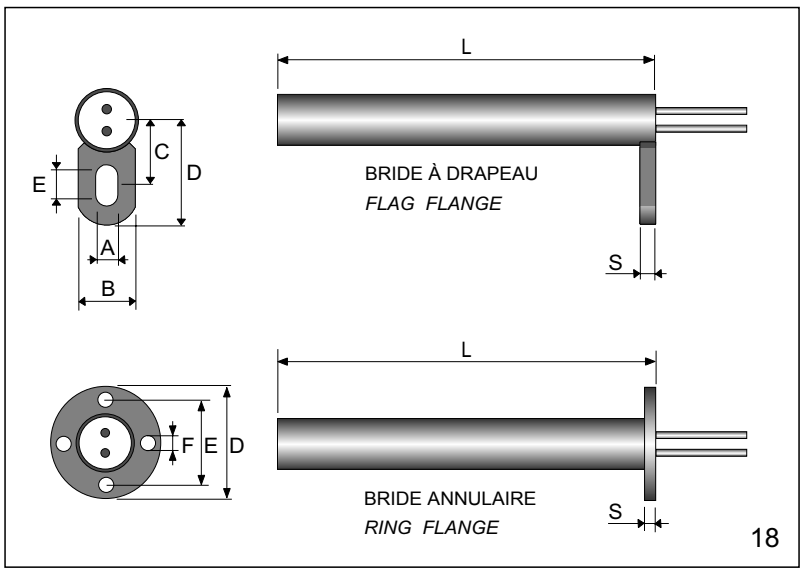
Ø	6.5	8	10	12.5	16	20
F	M10x1	M12x1.5	M14x1.5	M16x1.5	M20x1.5	M27x1.5
Ø	1/4"	--	3/8"	1/2"	5/8"	3/4"
F	1/8" Gas	--	1/4" Gas	3/8" Gas	1/2" Gas	3/4" Gas
LF	7	9	9	10.5	13	13.5
E	12	14	17	19	24	30
LE	3.5	4	4	4.5	5	6.5



COLLIER FILETÉ EN ACIER INOX
STAINLESS STEEL THREADED COLLAR

Ø	6.5	8	10	12.5	16	20
F	M10x1	M12x1.5	M14x1.5	M16x1.5	M20x1.5	M27x1.5
Ø	1/4"	--	3/8"	1/2"	5/8"	3/4"
F	1/8" Gas	--	1/4" Gas	3/8" Gas	1/2" Gas	3/4" Gas
LF	7	9	9	10.5	13	13.5

ÉQUIPEMENTS
FITTINGS

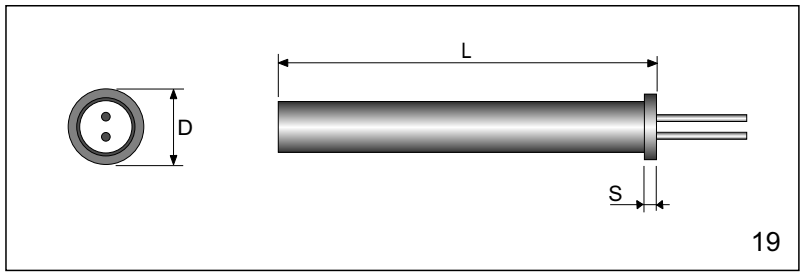


18

PATTE DE FIXATION EN ACIER INOX
STAINLESS STEEL FIXING FLANGE

Ø	6.5 1/4"	8	10 3/8"	12.5 1/2"	16 5/8"	20 3/4"
A	3.2	3.5	3.5	4.5	5.5	6.5
B	6	7	9	10	13	15
C	8.5	9.5	10.5	13.5	16.5	19.5
D	13	14.5	16.5	20.5	25.5	29.5
E	3	3	3	4	5	6
S	1.2	1.2	1.5	1.5	2	2

Ø	6.5 1/4"	8	10 3/8"	12.5 1/2"	16 5/8"	20 3/4"
D	20	20	25	25	33	33
E	14	14	19	19	27	27
F	3.2	3.2	3.2	3.2	3.2	3.2
S	1.2	1.2	1.5	1.5	2	2



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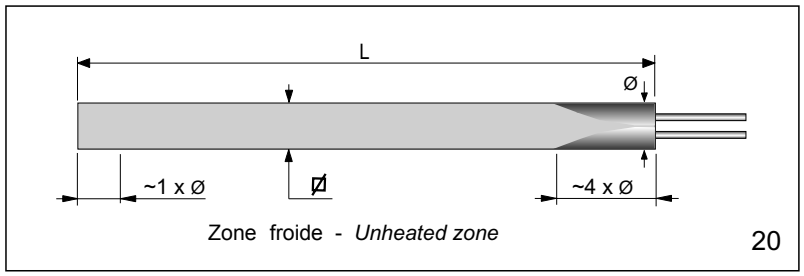
BAGUE DE BUTÉE EN ACIER INOX
STAINLESS STEEL STOP RING

Ø	6.5 1/4"	8	10 3/8"	12.5 1/2"	16 5/8"	20 3/4"
D	10	12	15	17.5	22	26
S	1.2	1.2	1.5	1.5	2	2

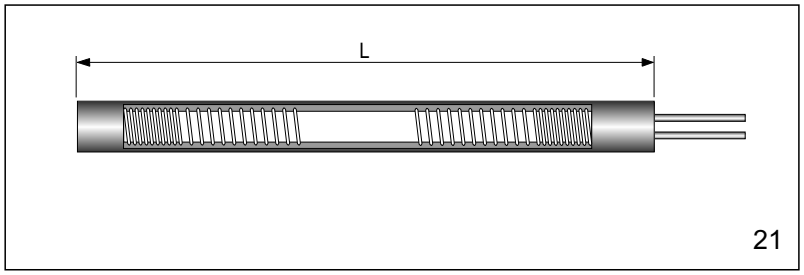
EXÉCUTIONS SPÉCIALES SUR DEMANDE
SPECIAL EXECUTION UPON REQUEST



20

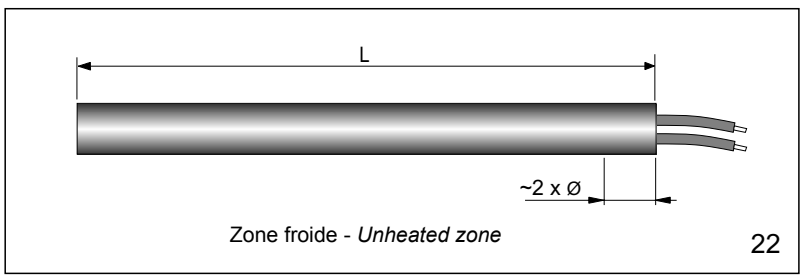
SECTION CARRÉE
EN ACIER INOX OU NICKEL
SQUARE CROSS-SECTION
EITHER STAINLESS STEEL OR NICKEL

Ø	4.5 $^{\pm 0.1}$	6 $^{\pm 0.1}$	8 $^{\pm 0.1}$	10 $^{\pm 0.15}$	6x12 $^{\pm 0.15}$
Ø	4.5 $^{\pm 0.1}$	6 $^{\pm 0.1}$	8 $^{\pm 0.1}$	10 $^{\pm 0.15}$	10 $^{\pm 0.15}$



21

DISTRIBUTION D'ÉNERGIE ET DES ZONES
NEUTRES SELON LES EXIGENCES
POWER DISTRIBUTION AND UNHEATED
ZONES ACCORDING TO REQUEST



22

CONNEXION FILS À L'INTÉRIEUR
(INCORPORÉE)
Longueur maximum 1000 mm
INTERNAL LEADWIRES CONNECTION
(INTEGRALS)
Max length 1000mm

Ø	3/8"- 10 - 12.5 - 1/2"- 5/8"- 16 - 3/4"- 20

DONNÉES TECHNIQUES DE CALCUL
ENGINEERING AND TECHNICAL DATA

W (Watt) $= VI = I^2R = \frac{V^2}{R}$	**V** (Volt) $= IR = \frac{W}{I} = \sqrt{WR}$	**R** (Ohm) $= \frac{V}{I} = \frac{W}{I^2} = \frac{V^2}{W}$	**I** (Ampere) $= \frac{V}{R} = \sqrt{\frac{W}{R}} = \frac{W}{V}$

DÉTERMINATION DE LA PUISSANCE DEMANDÉE - *DETERMINING REQUIRED WATTAGE*

$$KW = \frac{Kg. \times Cs. \times \Delta T}{864 \times tm}$$

Kg = Poids du matériel en Kg.
Cs = Chaleur spécifique du matériel
ΔT = Différence entre température initiale et température à joindre en °C
tm = Temps en heures pour atteindre la température
864 = Rapport de transformation entre KCal et KW

Kg = Materials weight in kilos.
Cs = Specific heat
ΔT = Amount difference in temperature between the required and the starting temperature in degrees °C
tm = Time in hours to reach the operating temperature
864 = Trasformation rapport from KCal to KW

Compenser les pertes thermiques en augmentant la puissance de:

- 30 / 40 % pour des petites masses sans isolement
- 10 / 20 % pour des petites masses avec isolement
- 15 / 25 % pour des grandes masses sans isolement
- 5 / 10 % pour des grandes masses avec isolement
- 20 / 30 % pour des bains non isolés
- 10 / 20 % pour des bains isolés

Replace heat losses increasing the wattage of:

- *30 / 40 % for little uninsulated mass*
- *10 / 20 % for little insulated mass*
- *15 / 25 % for big uninsulated mass*
- *5 / 10 % for big insulated mass*
- *20 / 30 % for uninsulated baths*
- *10 / 20 % for insulated baths*

CHANGEMENT DE LA PUISSANCE SELON LE CHANGEMENT DE LA TENSION
WATTAGE CHANGE WITH VOLTAGE CHANGE

Watt qu'on obtient en modifiant la tension V1 en la tension V2

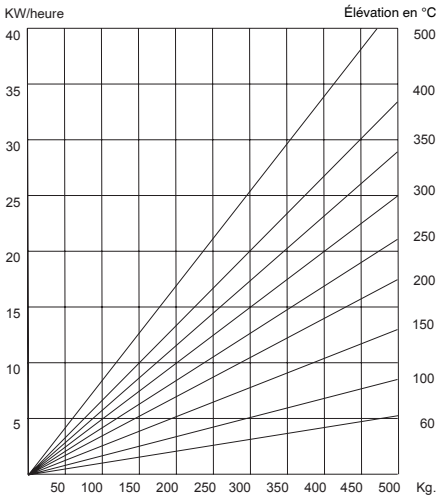
Watts obtained when nominal voltage V1 changes to voltage V2

$$W_2 = W_1 \times \left(\frac{V_2}{V_1}\right)^2$$

Tension V2 que l'on doit donner pour obtenir la puissance desirée W2

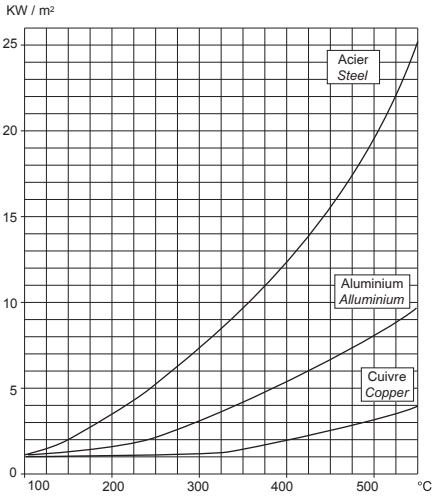
Voltage V2 to be used to obtain new wattage W2

$$V_2 = V_1 \times \sqrt{\frac{W_2}{W_1}}$$



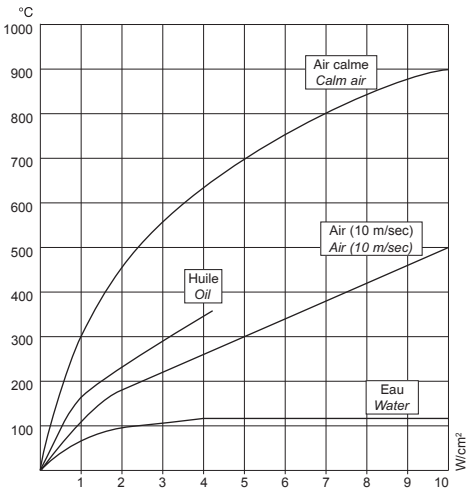
Puissance demandée pour élever la température de l'acier (inclus le 25% pour compenser les pertes)

Power required to rise temperature of mild steel (includes 25% to compensate for heat losses)



Perte de chaleur pour surfaces métalliques non isolées (en air calme)

Heat losses from uninsulated metal surfaces (in calm air)



Température de la gaine des résistances tubulaires selon les différentes densités en W/cm²

Sheath temperature tubular heaters at various W/cm² densities

PROPRIÉTÉ DE QUELQUES MATÉRIAUX - *PROPERTIES OF VARIOUS MATERIALS*

MATERIELS	*MATERIALS*	POIDS SPÉCIFIQUE (Kg/dm³)	CHALEUR SPÉCIFIQUE (KCal/Kg °C)	CONDUCTIVITÉ THERMIQUE "K" (Kcal/m °C)	TEMP. DE FUSION (°C)	MATERIELS	*MATERIALS*	POIDS SPÉCIFIQUE (Kg/dm³)	CHALEUR SPÉCIFIQUE (KCal/Kg °C)	CONDUCTIVITÉ THERMIQUE "K" (Kcal/m °C)	TEMP. DE FUSION (°C)
Acier	*Steel*	7,86	0,122	57,00	1515	Or	*Gold*	19,32	0,032	251,00	1062
Acier inox 304	*Stainless steel 304*	7,91	0,120	13,02	1398	Laiton	*Brass-yellow*	8,47	0,096	103,00	932
Acier inox 430	*Stainless steel 430*	7,61	0,110	19,22	1454	Paraffine	*Paraffin*	0,88	0,690	0,20	56
Eau	*Water*	1,00	1,000	1,36	0	Plombe liquide	*Lead liquid*	10,71	0,037	13,39	
Aluminium	*Alluminium*	2,71	0,240	190,00	643	Plombe solide	*Lead solid*	11,34	0,032	29,76	326
Argent	*Silver*	10,49	0,057	359,00	960	Platine	*Platinum*	21,45	0,035	59,52	1773
Asphalte	*Asphalt*	2,10	0,400	0,65		Cuivre	*Copper*	8,91	0,095	332,00	1082
Ciment armé	*Cement board*	1,94	0,250	0,64		Resines phénoliques	*Phenolic*	1,27	0,400	0,07-0,14	
Fonte	*Iron, cast*	7,20	0,120	42,90	1176	Alliage (Sn-Pb 50%)	*Solder (Sn-Pb 50%)*	8,92	0,051	38,44	182
Inconel 600	*Inconel 600*	8,41	0,126	12,77	1371	Etain liquide	*Tin liquid*	7,00	0,065	27,03	
Incoloy 800	*Incoloy 800*	8,00	0,130	9,92	1371	Etain solide	*Tin solid*	7,27	0,052	56,42	232
Magnesium	*Magnesium*	1,74	0,270	137,00	650	Stéatite	*Steatite*	2,60	0,200	2,17-2,85	
MgO (Compacté)	*MgO (Compacted)*	3,10	0,209	2,48		Tantale	*Tantalium*	16,60	0,035	46,50	2996
Mica	*Mica*	2,82	0,210	0,37		Teflon	*Teflon*	2,15	0,250	0,21	
Molybdéne	*Molybdenum*	10,21	0,071	121,00	2621	Titane	*Titanium*	4,53	0,130	13,88	1668
Monel 400	*Monel 400*	8,82	0,110	18,72	1315	Tungsténe	*Tungsten*	19,30	0,040	140,00	3410
Briquetage	*Brickwork*	2,10	0,220	0,37-0,62		Zinc	*Zinc*	7,14	0,096	91,76	419
Nickel 200	*Nickel 200*	8,88	0,120	64,48	1435	Zirconium	*Zirconium*	6,47	0,067	17,98	1843
Ni Cr 80/20	*Nichrome 80/20*	8,35	0,110	12,89	1398	Soufre	*Sulfur*	2,07	0,175	0,23	119

Cartouches Chauffantes

Cartridge Heaters

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED **ISO 9001**

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