

SPIRFLEX

- Spiral Nozzle Heaters -

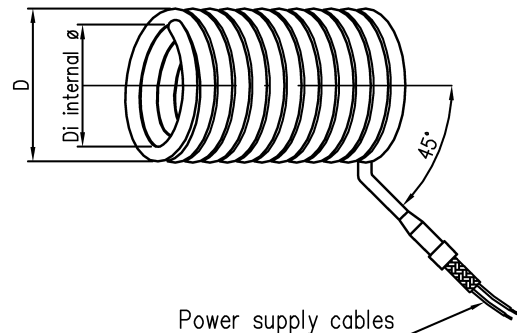
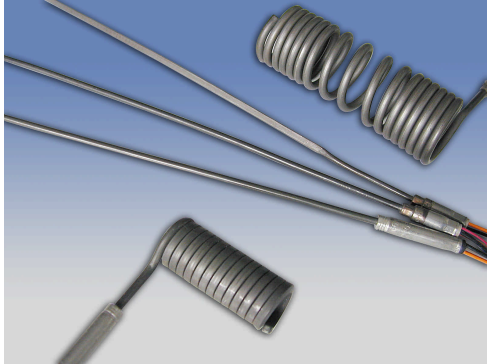


Figure 1

GENERAL CHARACTERISTICS

SPIRFLEX heaters represent the ideal solution when nozzles characterised by a very small diameter need to be heated. They are also suited in all the applications where the specific power or the operating temperatures are very high. These heaters, in fact, can provide a heating power as high as 8 W/cm^2 and can reach operating temperatures up to 600°C . They can heat nozzles starting from a minimum diameter of 6 mm (8 mm with 24 and 25 series). These heaters need a minimum clearance to be installed: the difference between the heater external diameter (D) and the spiral internal diameter (D_i) is always in the range 6 to 8 mm.

APPLICATIONS

These heaters are employed in all the plastic moulding machines where the operational temperature does not exceed 600°C . They are particularly useful whenever a limited clearance is available between nozzle and mould (e.g. in hot-chamber moulds).

TECHNICAL DATA

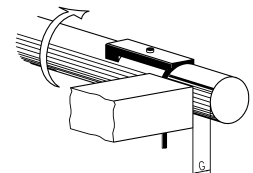
1. **RESISTIVE WINDING** made of Nickel/Chrome 80/20
2. **ELECTRICAL INSULATION** made of compressed mineral oxide
3. **EXTERNAL SHEATH** made of INCOLOY 800
4. **TERMINAL EDGE** welded, water-tight, with about 6 mm neutral section
5. **POWER SUPPLY** via bipolar cables suitable for high temperatures. The cables internal conductors are in pure nickel, the internal insulation is in fibreglass-Teflon and the external protection is a stainless steel sheath. The cable section is 0.75 mm^2 , its standard length is 1000 mm and the standard inclination (see Figure 1) is 45° . The cables are blocked by means of a bush that is seamed onto the heater sheath thus providing adequate sealing in case some plastic material leaks from the nozzle. The neutral section is made by a couple of nickel-chrome wires that are welded to the power supply cables
6. **SPECIFIC POWER** up to 8 W/cm^2 .
7. **OPERATING TEMPERATURE** up to 600°C
8. **THERMOCOUPLE (optional)** J-type, embedded in the heater, placed 5 mm before the terminal edge and electrically connected by two compensated cables, PTFE insulated, characterised by a section of 0.5 mm^2
9. **DIELECTRIC RIGIDITY** capable to insure a dispersion current below 0.5 mA when 1250V are applied between the heating circuit and the sheath (results relevant to straight element). The same value is guaranteed between heating circuit and thermocouple with test voltage 600V.

INSTALLATION

When installing, please make sure that the heater internal surface perfectly adheres to the nozzle.

ROLLING

To roll SPIRFLEX heaters please use a chuck and operate as shown in the sketch aside. Chuck diameter G shall be $< \Phi_{\text{nozzle}}$ to compensate the residual elasticity of the heater after rolling.



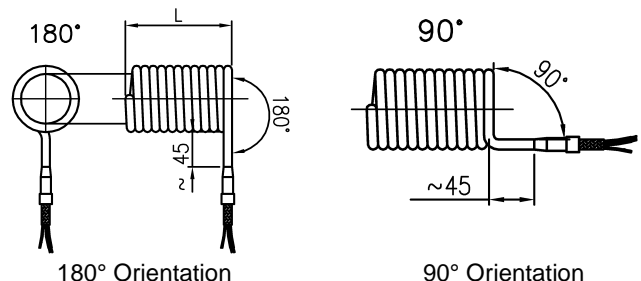
STANDARD DIMENSIONS

SPIRFLEX heaters are manufactured in standard dimensions as detailed in the tables below. They are available on stock: to order them simply specify the code.

SPECIAL CONSTRUCTIONS

When required, non-standard SPIRFLEX heaters can be manufactured. In particular it is possible to:

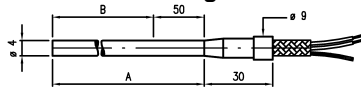
- Manufacture heaters with a length up to 3000 mm (series 24 and 25) or 1200 mm (other series)
- Provide power supply cables with a length that is different from the standard (1000 mm) or oriented differently from the standard (see figure below for the alternatives)



- Provide heaters with heating power or power supply voltage that are different from those specified in tables below as long as the following conditions are respected:
 - Supply Voltage in the range $24 \div 250 \text{ V}$
 - Current below 5A (series 24 and 25) or 4A (other series)
 - Maximum Power: $60 \text{ W}/100 \text{ mm}$
 - Minimum power at 220 V: $180 \text{ W}/300 \text{ mm}$

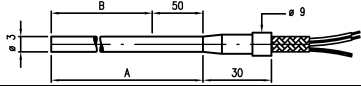
If non standard power supply and/or voltage constructions are requested, our technical department shall check the feasibility.

SERIES 24 – 25: Straight Elements Φ 4 mm



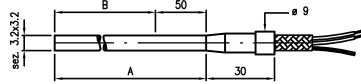
Code (no thermocouple)	Code (with thermocouple)	Power at 230V (W)	B (mm)	A (mm)
2404000200	2504000200	200	250	300
2405500315	2505500315	315	400	450
2407500400	2507500400	400	600	650
2409500500	2509500500	500	800	850
2411500630	2511500630	630	1000	1050
2413500750	2513500750	750	1200	1250
2416501000	2516501000	1000	1500	1550

SERIES 36 – 37: Straight Elements Φ 3 mm



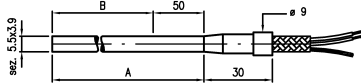
Code (no thermocouple)	Code (with thermocouple)	Power at 230V (W)	B (mm)	A (mm)
3604000180	3704000180	180	300	350
3605500250	3705500250	250	450	500
3606500315	3706500315	315	550	600
3608000400	3708000400	400	700	750

SERIES 38 – 39: Straight Elements square sect. 3.2 mm



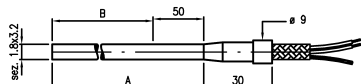
Code (no thermocouple)	Code (with thermocouple)	Power at 230V (W)	B (mm)	A (mm)
3804000180	3904000180	180	300	350
3805500250	3905500250	250	450	500
3806500315	3906500315	315	550	600
3808000400	3908000400	400	700	750

SERIES 47 : Straight Elements rect. sect. 5.5 x 3.9 mm



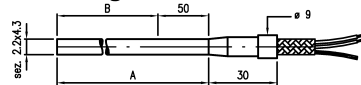
Code (no thermocouple)	Code (with thermocouple)	Power at 230V (W)	B (mm)	A (mm)
4704000315	not available	315	300	350
4705500500	not available	500	450	500
4708000800	not available	800	700	750
4710001000	not available	1000	900	950
4714501500	not available	1500	1350	1400
4719002000	not available	2000	1800	1850

SERIES 51 : Straight Elements rect. sect. 1.8 x 3.2 mm



Code (no thermocouple)	Code (with thermocouple)	Power at 230V (W)	B (mm)	A (mm)
5104000180	not available	180	300	350
5105500250	not available	250	450	500
5106500315	not available	315	550	600
5108000400	not available	400	700	750

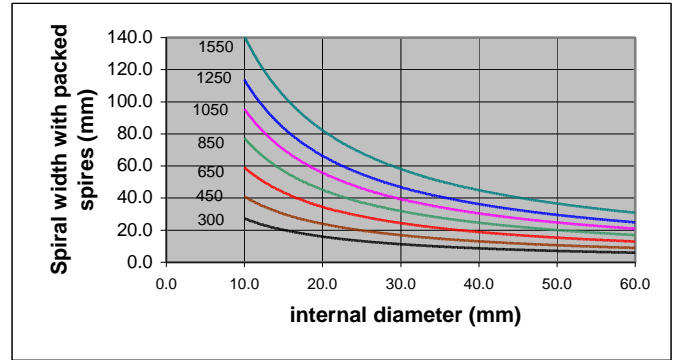
SERIES 48-49 : Straight Elements rect. sect. 2.2 x 4.3 mm



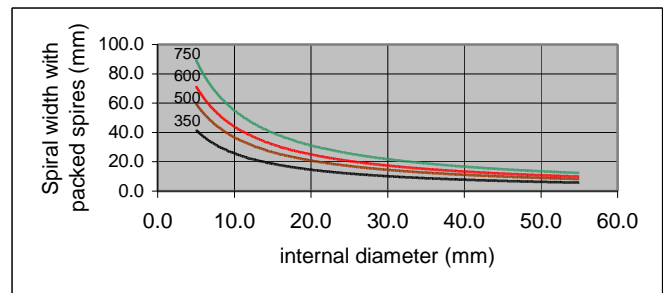
Code (no thermocouple)	Code (with thermocouple)	Power at 230V (W)	B (mm)	A (mm)
4804000180	4904000180	180	300	350
4805500250	4905500250	250	450	500
4806500315	4906500315	315	550	600
4808000400	4908000400	400	700	750
4809000500	4909000500	500	800	850
4811000630	4911000630	630	1000	1050
4813000750	4913000750	750	1200	1250

Spiral length (packed spires) as a function of the internal diameter Di and of the straight heater length A

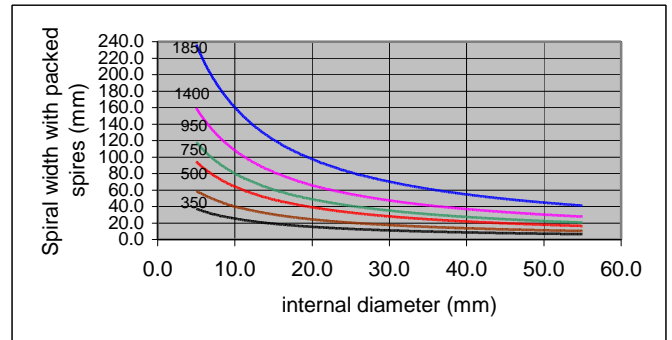
Elements Φ 4 mm



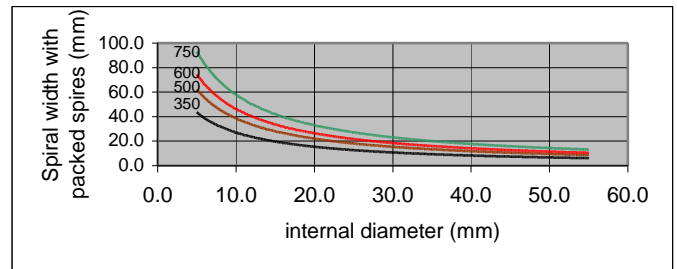
Elements Φ 3 mm and sect. 3.2x3.2 mm



Elements sect. 5.5 x 3.9 mm



Elements sect. 1.8 x 3.2 mm



Elements sect. 2.2 x 4.3 mm

