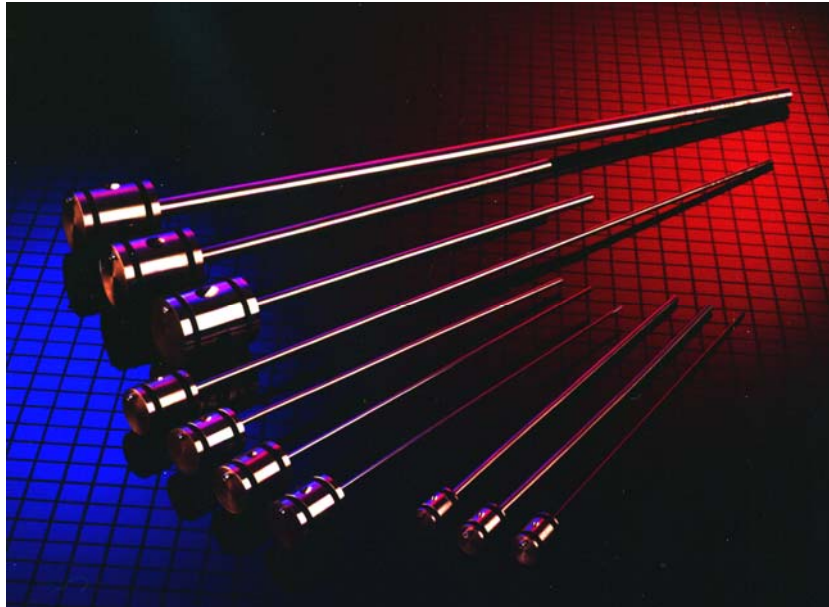
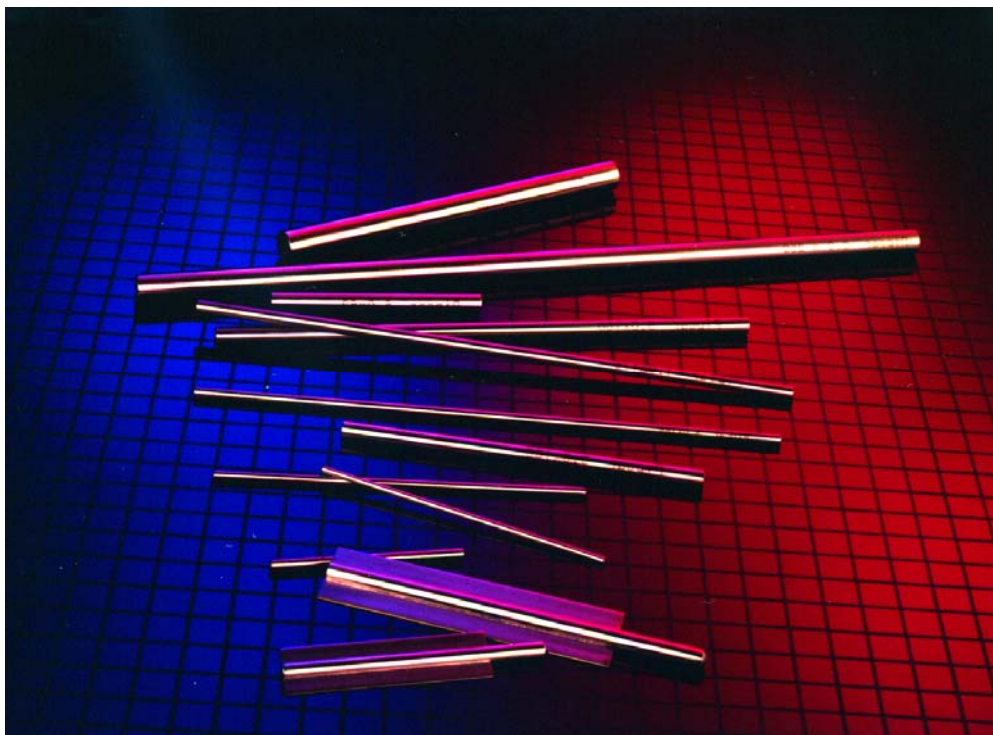


PIPCAR Ltd



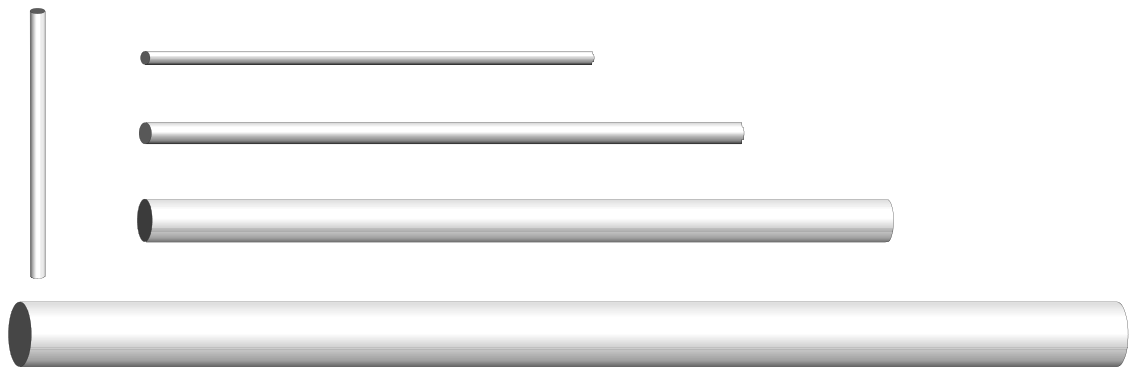
HEATING & COOLING PRODUCTS

For The Plastic Industry



CORE COOLING HEAT PIPES

For the Plastics Injection Moulding Industry



FEATURES

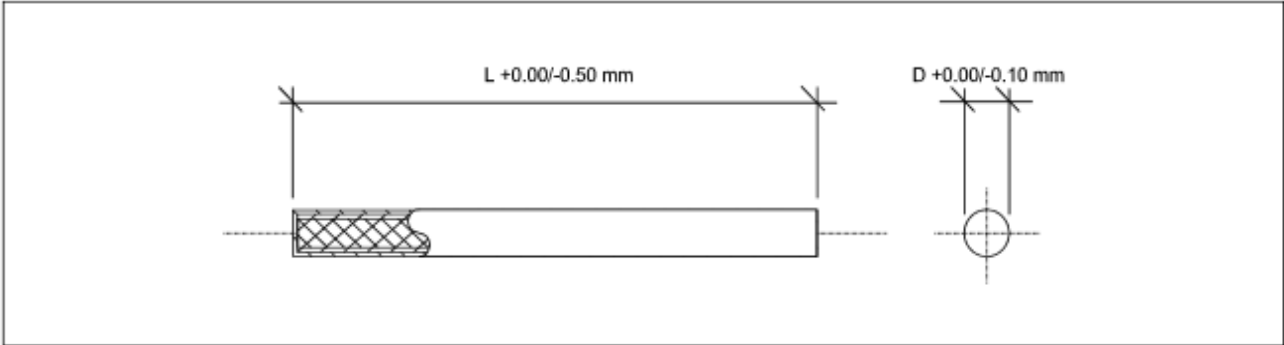
- Leading edge Heat Pipe technology
- Suitable for use with all polymers
- High cooling (heat transfer) capacity
- Lower cycle times
- Reduces sink marks
- Eliminates blocked cores
- Reduced tool maintenance
- Simplified, lower cost tool design
- Easier tool construction
- Wide choice of sizes

TEMPERATURE RANGE

Heat Pipe temperature range is +5 deg C to +250 deg C. N.B. This is the Heat Pipe temperature and **NOT** that of the polymer – they are suitable for use with all currently available polymers.

MATERIAL

High conductivity copper to BS2871 C106 (ISO-CU-DHP), electroless nickel-plated.



STANDARD SIZES

(Other diameters and lengths available on request).

D	L	Part Number
2.0	50	CP 2.0 x 50
	75	75
	100	100
	125	125
2.5	50	CP 2.5 x 50
	75	75
	100	100
	125	125
3.0	50	CP 3.0 x 50
	75	75
	100	100
	125	125
	150	150
	200	200
4.0	50	CP 4.0 x 50
	75	75
	100	100
	125	125
	150	150
	200	200

D	L	Part Number
5.0	50	CP 5.0 x 50
	75	75
	100	100
	125	125
	150	150
	200	200
6.0	250	250
	50	CP 6.0 x 50
	75	75
	100	100
	125	125
	150	150
8.0	200	200
	250	250
	100	CP 8.0 x 100
	125	125
	150	150
	200	200

D	L	Part Number
10.0	100	CP 10.0 x 100
	125	125
	150	150
	200	200
	250	250
	300	300
12.0	100	CP 12.0 x 100
	125	125
	150	150
	200	200
	250	250
16.0	300	300
	100	CP 16.0 x 100
	125	125
	150	150
	200	200
20.0	250	250
	300	300
	100	CP 20.0 x 100
	125	125
	150	150

INSTALLATION

The core should be drilled the nominal Heat Pipe diameter +0.10 mm – it is not necessary to ream the hole.

The Heat Pipe should be fitted into the core using our ThermoGrease to aid heat transfer into the Heat Pipe.

THERMAGREASE

High thermal conductivity metal oxide based paste in 5ml syringes

Imperial Heat Pipe Sizes

GENERAL

The PIPCAR Heat Pipe is the ideal way to cool cores. It ensures optimum molded component quality. It also maximizes productivity by minimizing both cycle times and tool down time resulting from blocked waterways. It simplifies tool design and construction thereby reducing costs. It is available in a wide range of standard sizes - see table 1. Non-standard sizes can also be readily supplied.

APPLICATION

Figure 1 shows a typical installation.

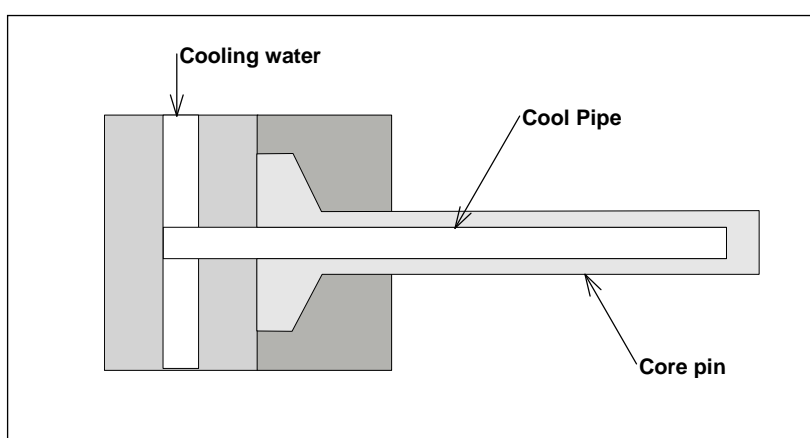
In general, the largest possible diameter Cool Pipe should be chosen that can be accommodated without unduly weakening the core. The core should be drilled out to the nominal Cool Pipe size plus 0.005". Our Therma-Grease should then be used during installation of the Cool Pipe to fill the radial gap and improve heat transfer.

We recommend that a minimum of 20% of the heated length should be in contact with the cooling water. Please note, however, that many applications using less than this recommended minimum have been successful.

Table 1.

	Length, inches.															
Dia. ins.	2	2-½	3	3-½	4	4-½	5	5-½	6	6-½	7	7-½	8	8-½	9	9-½
3/32																
1/8																
3/16																
7/32																
1/4																
5/16																
3/8																
7/16																
1/2																

Figure 1



TEMPERATURE RANGES

The standard range (STD) operates from +40°F to +480°F (Cool Pipe temperature) and is suitable for use with nearly all plastics.

The low temperature range (LT) operates between -40°F and +260°F (Cool Pipe temperature) and should only be used when cooling with chilled water below +40°F

MATERIALS

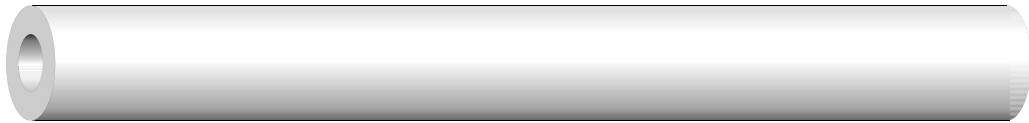
Both ranges are made from electroless nickel plated high conductivity copper to BS2871 C106 (ISO-CU-DHP). The standard range uses P1000 as its working fluid while the low temperature range uses P500L.

TOLERANCES

Diameter: +0.000"/-0.005".
Length: +0.00/-0.020"

ANNULAR CORE COOLING HEAT PIPES

For the Plastics Injection Moulding Industry



FEATURES

- Leading edge Heat Pipe technology
- Suitable for use with all polymers
- High cooling (heat transfer) capacity
- Allows central ejection of moulding
- Can be used to simplify cavity venting
- Lower cycle times
- Reduces sink marks
- Eliminates blocked cores
- Reduced tool maintenance
- Wide combination of inner/outer diameters

TEMPERATURE RANGE

Heat Pipe temperature range is +5 deg C to +250 deg C. N.B. This is the Heat Pipe temperature and **NOT** that of the polymer – they are suitable for use with all currently available polymers.

MATERIAL

High conductivity copper to BS2871 C106 (ISO-CU-DHP), electroless nickel-plated.

STANDARD SIZES

(Other diameters available on request).

D mm	d mm	Part Number
4.0	1.3	ACP 4.0 x 1.3 x length
5.0	1.3	ACP 5.0 x 1.3 x length
	1.8	x 1.8 x
6.0	1.3	ACP 6.0 x 1.3 x length
	1.8	x 1.8 x
	2.3	x 2.3 x
8.0	1.3	ACP 8.0 x 1.3 x length
	1.8	x 1.8 x
	2.3	x 2.3 x
	3.2	x 3.2 x
10.0	4.2	x 4.2 x
	1.3	ACP 10.0 x 1.3 x length
	1.8	x 1.8 x
	2.3	x 2.3 x
	3.2	x 3.2 x
	4.2	x 4.2 x
	5.2	x 5.2 x

D	L	Part Number
12.0	1.3	ACP 12.0 x 1.3 x length
	1.8	x 1.8 x
	2.3	x 2.3 x
	3.2	x 3.2 x
	4.2	x 4.2 x
	5.2	x 5.2 x
	7.2	x 7.2 x
	7.2	x 7.2 x
16.0	1.3	ACP 16.0 x 1.3 x length
	1.8	x 1.8 x
	2.3	x 2.3 x
	3.2	x 3.2 x
	4.2	x 4.2 x
	5.2	x 5.2 x
	7.2	x 7.2 x
	9.1	x 9.1 x

D	L	Part Number
20.0	1.3	ACP 20.0 x 1.3 x length
	1.8	x 1.8 x
	2.3	x 2.3 x
	3.2	x 3.2 x
	4.2	x 4.2 x
	5.2	x 5.2 x
	7.2	x 7.2 x
	9.1	x 9.1 x

INSTALLATION

The core should be drilled the nominal Heat Pipe diameter +0.10 mm – it is not necessary to ream the hole.

The Heat Pipe should be fitted into the core using our ThermoGrease to aid heat transfer into the Heat Pipe.

The inner bore must NOT be used as a bearing surface for any central ejector pin!

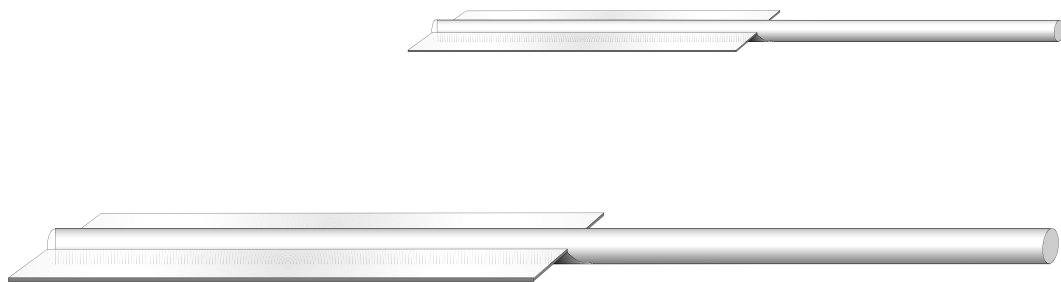
THERMAGREASE

High thermal conductivity metal oxide loaded silicon based paste in 5-ml syringes.

050530/ACP1

BAFFLED COOL PIPES (Heat Pipes)

For the Cooling of 'Stepped' Cores



FEATURES

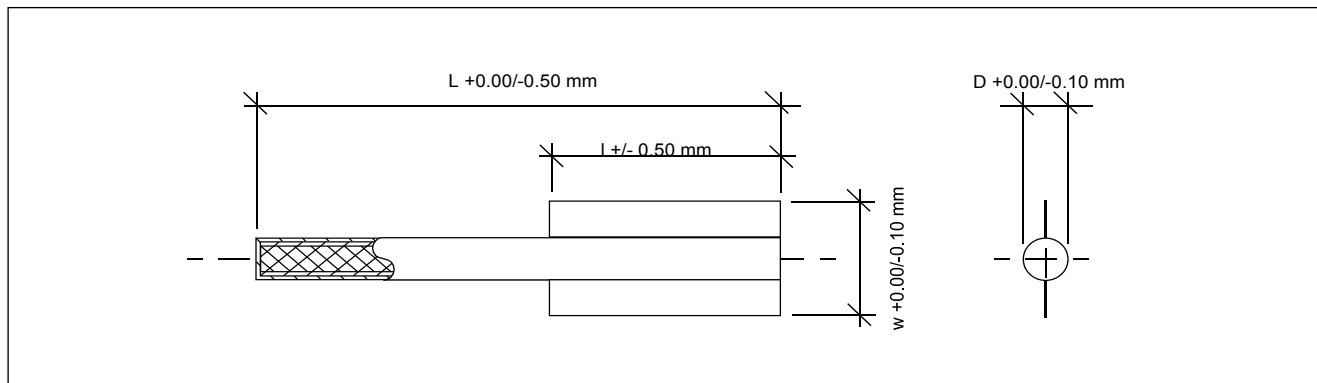
- Maximised cooling of stepped cores
- Leading edge Heat Pipe technology
- Baffle and Cool Pipe sized to suit your application
- Suitable for use with all polymers
- Lower cycle times
- Reduces sink marks
- Eliminates blocked cores
- Reduced tool maintenance
- Simplified, lower cost tool design
- Easier tool construction

GENERAL

The baffled Cool Pipe is the ideal way to cool a 'stepped' core. Heat Pipe technology is used to cool the smaller diameter core tip with the larger core diameter being subjected to conventional water cooling.

TEMPERATURE RANGE

The Baffled Heat Pipe temperature range is +5 deg C to +150 deg C. N.B. This is the Heat Pipe temperature and NOT that of the polymer – they are suitable for use with all currently available polymers.



SIZES

Select the best combination of Heat Pipe diameter (from our standard range) and length to suit the application.

Baffle lengths and widths are all 'bespoke' - simply determine the optimum baffle width and length for the specific tool.

INSTALLATION

The core should be drilled the nominal Heat Pipe diameter +0.10 mm – it is not necessary to ream the hole. The water cooled core section should be opened out to the baffle width +0.10mm and for a depth equal to the baffle length + 5.0 mm (minimum).

The Heat Pipe section should be fitted into the core using our ThermaGrease to aid heat transfer into the Heat Pipe.

ORDERING

CP Heat Pipe diameter x length/baffle width x length B. (CP D x L/w x l B) .

e.g. CP 6 x 200/10 x 95 B

MATERIAL

High conductivity copper to BS2871 C106 (ISO-CU-DHP), electroless nickel-plated.

THERMAGREASE

High thermal conductivity metal oxide loaded silicon based paste in 5 ml syringes.

050530/BCP1

LARGE HEAT PIPES

For the Plastics Industry



FEATURES

- Leading edge Heat Pipe technology
- Suitable for use with all polymers
- High heat transfer capacity
- Increased production rate
- Reduced production costs
- Reduced maintenance
- Wide choice of sizes
- Complex temperature functions available

TEMPERATURE RANGE

Normal Heat Pipe temperature range is +5 deg C to +250 deg C. N.B., this is the Heat Pipe temperature and **NOT** that of the polymer – they are suitable for use with all currently available polymers.

Complex temperature function Heat Pipes will operate over their specified temperature range.

INSTALLATION

The Heat Pipe housing for standard large Heat Pipes should be drilled the nominal Heat Pipe diameter +0.25 mm – it is not necessary to ream the hole. The Heat Pipe should be fitted using our ThermaGrease to aid heat transfer into the Heat Pipe.

STANDARD SIZES

Large Heat Pipes are available in the following diameters: 10mm, 12mm, 15mm, 22mm and 28mm. No standard lengths are offered - they are always made to the customer's specification.

SPECIAL FUNCTIONS

Standard Heat Pipes are substantially isothermal from end to end. These large Heat Pipes can also have the following special functions built in:

- i) Variable Conductance - the Heat Pipe will try to maintain a constant temperature at its hot (evaporator) end.
- ii) Two Phase - two distinct temperature zones along the length of the Heat Pipe.
- iii) Diode - the Heat Pipe will transfer heat in one direction only.

Instructions for the installation of special function Heat Pipes may, in part, depend upon the function. Full details will be given at the time of either the quotation or supply.

THERMAGREASE

High thermal conductivity metal oxide loaded silicon based paste in 5ml syringes

050530/LCP1

MATERIAL

High conductivity copper to BS2871 C106 (ISO-CU-DHP), electroless nickel-plated.

MINI CORE COOLING WATER FOUNTAINS

For the Plastics Injection Moulding Industry



FEATURES

- Industry standard 10 mm manifold diameter
- Wide choice of fountain (tube) diameters
- Suitable for use with all polymers
- Purpose designed for series water feed
- Optimised design for maximum coolant flow
- Coolant directed to the core tip
- May be used with (oil or water) heated tools
- Easier, lower cost tool design
- Reduced toolmaking (construction) cost

TEMPERATURE RANGE

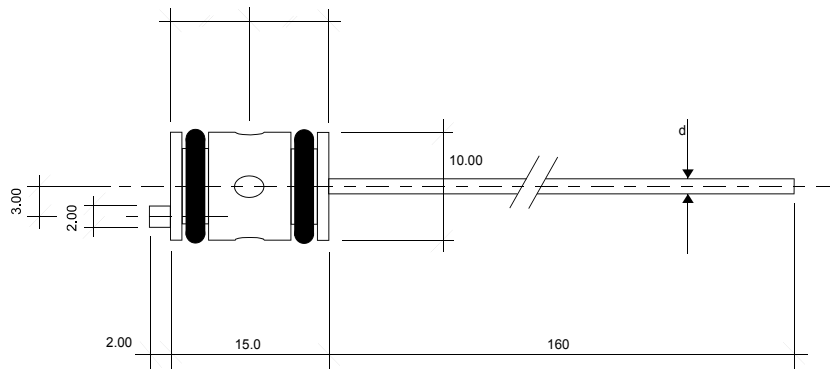
Pipcar mini water fountains are suitable for use between -40 deg C and +125 deg C although please note that the smaller diameter fountain tubes are not generally recommended for use with chilled water (below 10 deg C) because of the increased pressure drop penalty.

MATERIALS

Manifold/body; brass to BS2874 CZ131, electroless nickel plated.

Fountain tube, copper to BS2871 C106 (ISO-CU-DHP), electroless nickel plated.

O ring, medium nitrile.



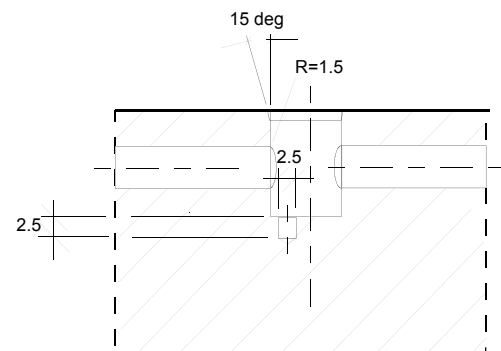
INSTALLATION

Select the appropriate fountain tube diameter for the core hole drilling diameter from the table below.

Machine the tool to accept the fountain manifold as shown.

Cut the fountain tube to the desired length.

Please note that the locating pin denotes the water inlet point. The correct water outlet will automatically be selected by the waterway drilling within the tool.



Core Hole Drilling, mm	Fountain Tube Diameter, mm	l, mm	Part Number
1.0 - 1.4	0.8	160	WF10/0.80 x 160
1.5 - 2.0	1.25	160	WF10/1.25 x 160
2.0 - 3.0	1.65	160	WF10/1.65 x 160
3.0 - 4.0	2.45	160	WF10/2.45 x 160
4.0 - 5.0	2.95	160	WF10/2.95 x 160

MIDI CORE COOLING WATER FOUNTAINS

For the Plastics Injection Moulding Industry

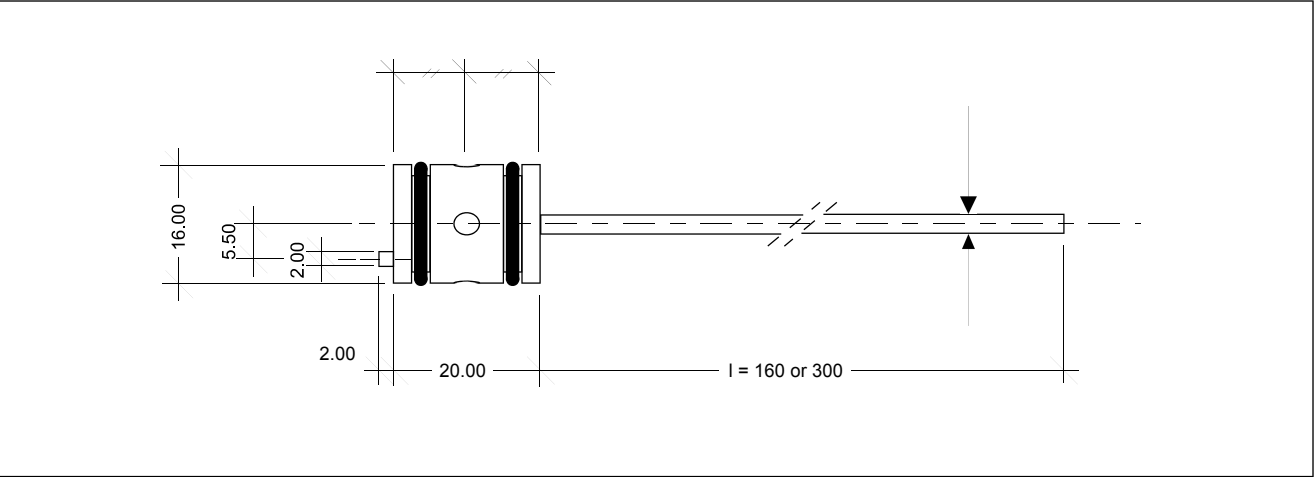


FEATURES

- Industry standard 16 mm manifold diameter
- Wide choice of fountain (tube) diameters
- Suitable for use with all polymers
- Purpose designed for series water feed
- Optimised design for maximum coolant flow
- Coolant directed to the core tip
- May be used with (oil or water) heated tools
- Easier, lower cost tool design
- Reduced toolmaking (construction) cost

TEMPERATURE RANGE

Pipcar water fountains are suitable for use between -40 deg C and +125 deg C although please note that the smaller diameter fountain tubes are not generally recommended for use with chilled water (below 10 deg C) because of the increased pressure drop penalty.



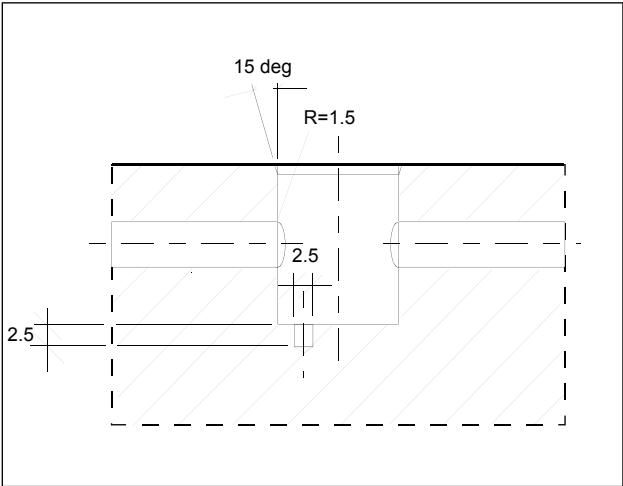
INSTALLATION

Select the appropriate fountain tube diameter for the core hole drilling diameter from the table below.

Machine the tool to accept the fountain manifold as shown.

Cut the fountain tube to the desired length.

Please note that the locating pin denotes the water inlet point. The correct water outlet will automatically be selected by the waterway drilling within the tool.



Core Hole Drilling, mm	Fountain Tube Diameter, mm	I, mm	Part Number
1.0 - 1.4	0.8	160	WF16/0.80 x 160
		300	x 300
1.5 - 2.0	1.25	160	WF16/1.25 x 160
		300	x 300
2.0 - 3.0	1.65	160	WF16/1.65 x 160
		300	x 300
3.0 - 4.0	2.45	160	WF16/2.45 x 160
		300	x 300
4.0 - 5.0	2.95	160	WF16/2.95 x 160
		300	x 300
	3.15	160	WF16/3.15 x 160
		300	x 300

MATERIALS

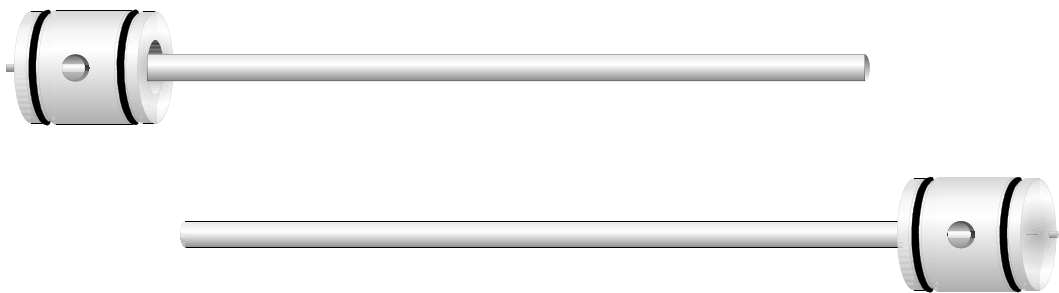
Manifold/body; brass to BS2874 CZ131, electroless nickel plated.

Fountain tube, copper to BS2871 C106 (ISO-CU-DHP), electroless nickel plated.

O ring, medium nitrile.

MAXI CORE COOLING WATER FOUNTAINS

For the Plastics Injection Moulding Industry



FEATURES

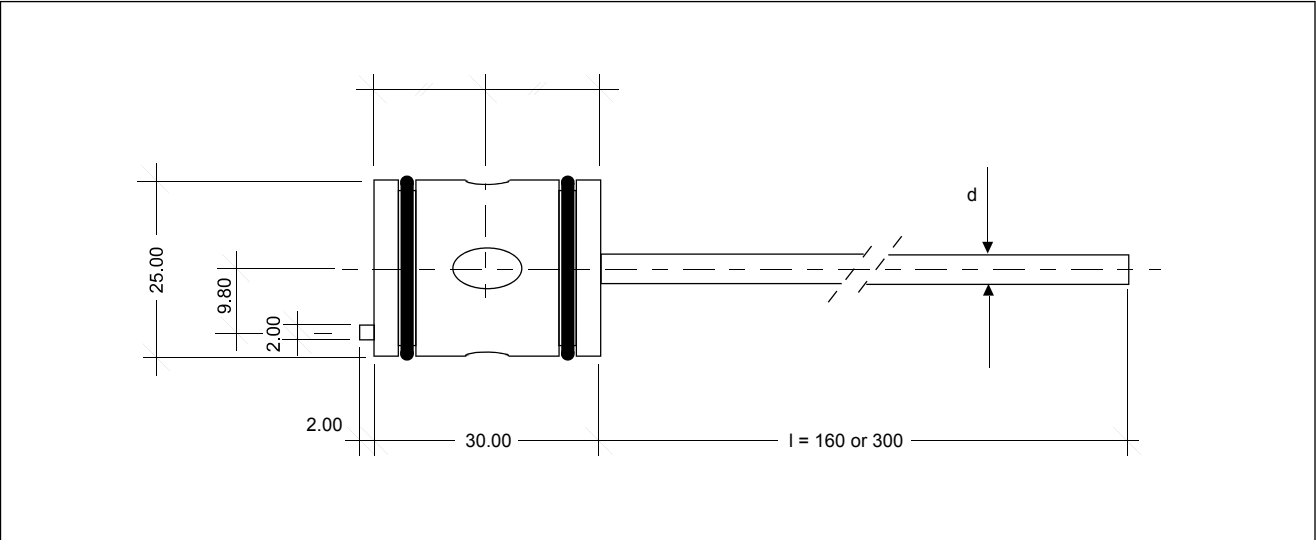
- Industry standard 25 mm manifold diameter
- Wide choice of fountain (tube) diameters
- Suitable for use with all polymers
- Purpose designed for series water feed
- Optimised design for maximum coolant flow
- Coolant directed to the core tip
- May be used with (oil or water) heated tools
- Easier, lower cost tool design
- Reduced toolmaking (construction) cost

TEMPERATURE RANGE

Pipcar water fountains are suitable for use between -40 deg C and +125 deg C. They may be used with water,oil and most of the specialist heat transfer fluids.

MATERIALS

Manifold/body; brass to BS2874 CZ131, electroless nickel plated.
Fountain tube, copper to BS2871 C106 (ISO-CU-DHP), electroless nickel plated.
O ring, medium nitrile.



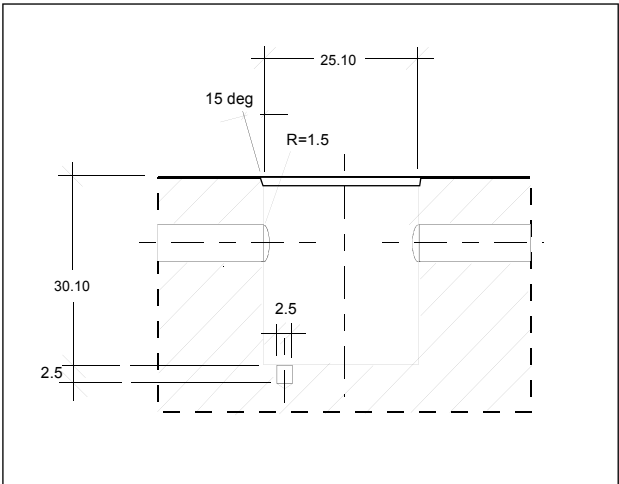
INSTALLATION

Select the appropriate fountain tube diameter for the core hole drilling diameter from the table below.

Machine the tool to accept the fountain manifold as shown.

Cut the fountain tube to the desired length.

Please note that the locating pin denotes the water inlet point. The correct water outlet will automatically be selected by the waterway drilling within the tool.



Core Hole Drilling, mm	Fountain Tube Diameter, mm	l, mm	Part Number
5.5 - 6.5	3.95	160	WF25/3.95 x 160
		300	x 300
6.5 - 8.0	4.95	160	WF25/4.95 x 160
		300	x 300
8.0 - 10.5	5.95	160	WF25/5.95 x 160
		300	x 300
10.5 - XXX	7.95	160	WF25/7.95 x 160
		300	x 300

10 mm PARALLEL WATER FOUNTAINS

For Core Cooling in the Plastics Injection Moulding Industry



FEATURES

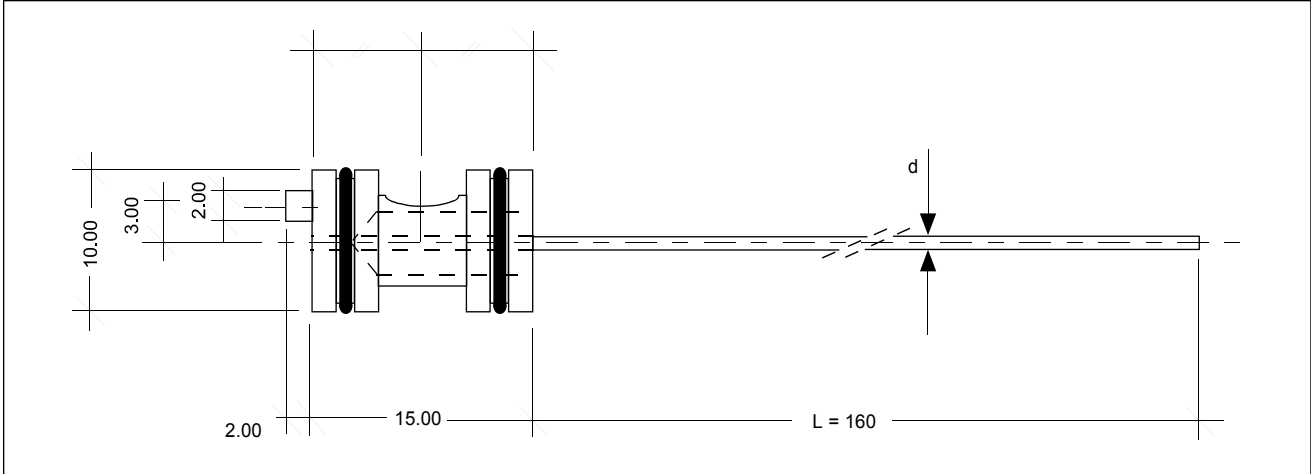
- Industry standard 10 mm manifold diameter
- Wide choice of fountain (tube) diameters
- Suitable for use with all polymers
- Purpose designed for parallel water feed
- Coolant directed to the core tip
- Optimised design for maximum coolant flow
- May be used with (oil or water) heated tools
- Easier, lower cost tool design
- Reduced tool making (construction) costs

TEMPERATURE RANGE

Pipcar water fountains are suitable for use between -40 deg C and +125 deg C. However, please note that the use of chilled water (below 10 deg C) will result in a large pressure drop.

MATERIALS

Manifold/body; brass to BS2874 CZ131, electroless nickel plated.
Fountain tube, copper to BS2871 C106 (ISO-CU-DHP), electroless nickel plated.
O ring, medium nitrile.



INSTALLATION

Select the appropriate fountain tube diameter for the core hole drilling diameter from the table.

Machine the tool to accept the fountain manifold.

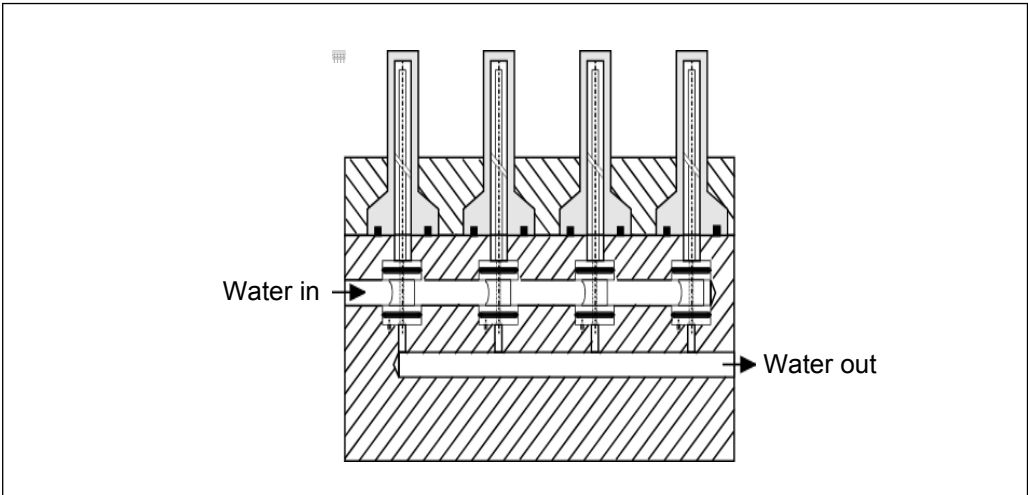
Cut the fountain tube to the desired length.

Please note that the locating pin denotes the water inlet point.

AVAILABLE SIZES

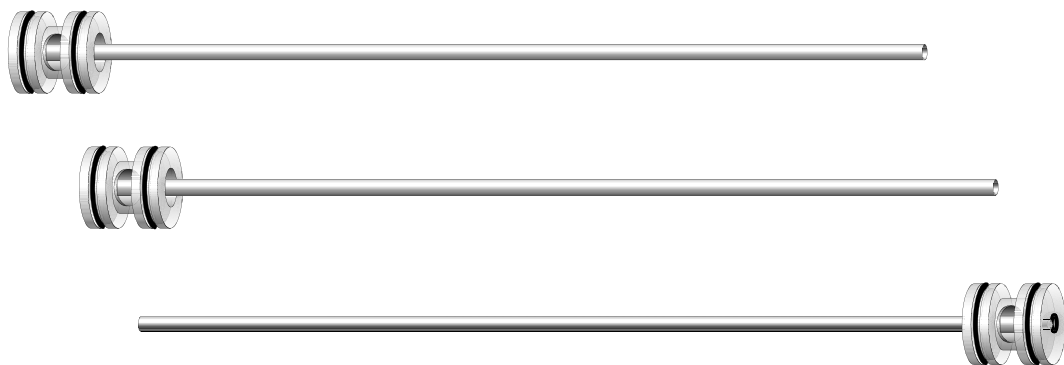
Core Hole Drilling, mm.	Fountain Tube Diameter, mm.	L, mm	Part Number
1.0 - 1.4	0.80	160	PWF 10/0.80x160
1.5 - 2.0	1.25	160	PWF 10/1.25x160
2.0 - 3.0	1.65	160	PWF 10/1.65x160
3.0 - 4.0	2.45	160	PWF 10/2.45x160
4.0 - 5.0	2.95	160	PWF 10/2.95x160

TYPICAL APPLICATION



16 mm PARALLEL WATER FOUNTAINS

For Core Cooling in the Plastics Injection Moulding Industry



FEATURES

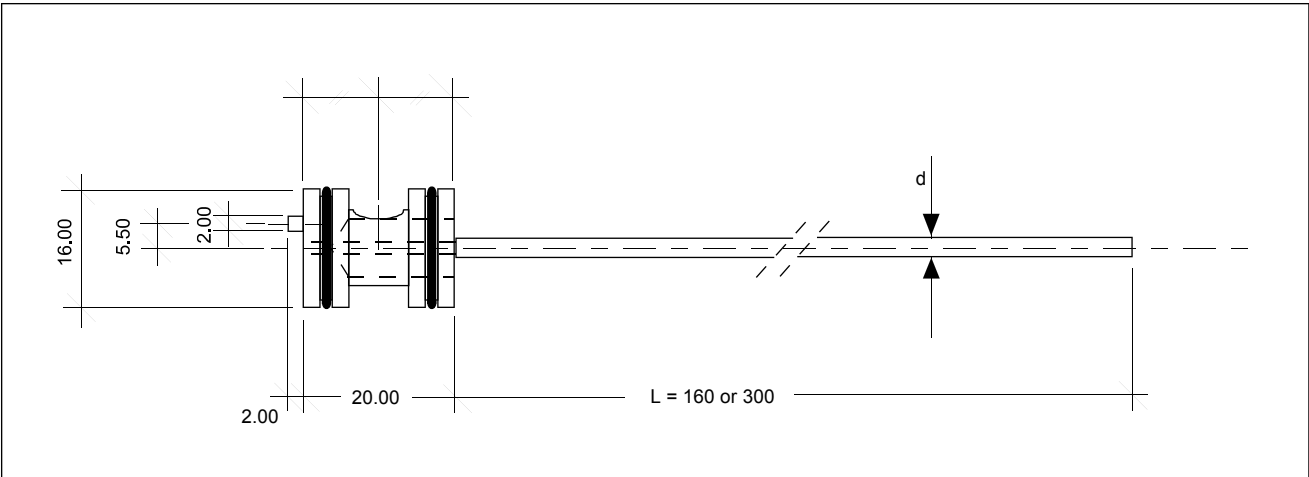
- Industry standard 16 mm manifold diameter
- Wide choice of fountain (tube) diameters
- Suitable for use with all polymers
- Purpose designed for parallel water feed
- Coolant directed to the core tip
- Optimised design for maximum coolant flow
- May be used with (oil or water) heated tools
- Easier, lower cost tool design
- Reduced tool making (construction) costs

TEMPERATURE RANGE

Pipcar water fountains are suitable for use between -40 deg C and +125 deg C. However, please note that the use of chilled water (below 10 deg C) will result in a large pressure drop.

MATERIALS

Manifold/body; brass to BS2874 CZ131, electroless nickel plated.
Fountain tube, copper to BS2871 C106 (ISO-CU-DHP), electroless nickel plated.
O ring, medium nitrile.



INSTALLATION

Select the appropriate fountain tube diameter for the core hole drilling diameter from the table.

Machine the tool to accept the fountain manifold.

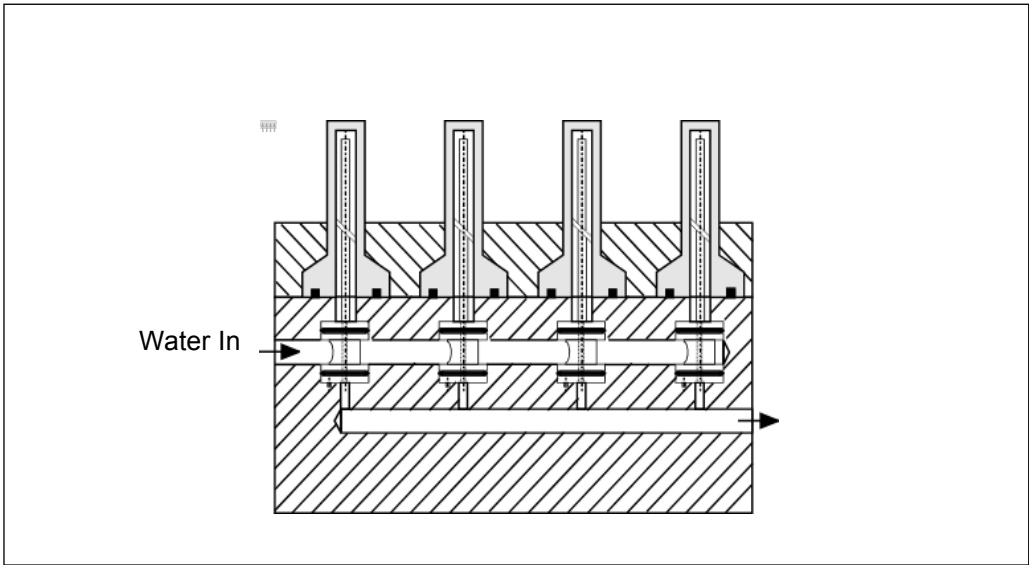
Cut the fountain tube to the desired length.

Please note that the locating pin denotes the water inlet point.

AVAILABLE SIZES

Core Hole Drilling, mm.	Fountain Tube Diameter, mm.	L, mm	Part Number
1.2 - 1.5	0.80	160	PWF 16/0.80 x 160
		300	PWF 16/0.80 x 300
1.6 - 2.0	1.25	160	PWF 16/1.25 x 160
		300	PWF 16/1.25 x 300
2.1 - 2.6	1.65	160	PWF 16/1.65 x 160
		300	PWF 16/1.65 x 300
2.7 - 3.0	2.00	160	PWF 16/2.00 x 160
		300	PWF 16/2.00 x 300
3.1 - 4.0	2.50	160	PWF 16/2.50 x 160
		300	PWF 16/2.50 x 160
4.0 - 5.0	3.00	160	PWF 16/3.00 x 160
		300	PWF 16/3.00 x 300

TYPICAL APPLICATION



25 mm PARALLEL WATER FOUNTAINS

For Core Cooling in the Plastics Injection Moulding Industry



FEATURES

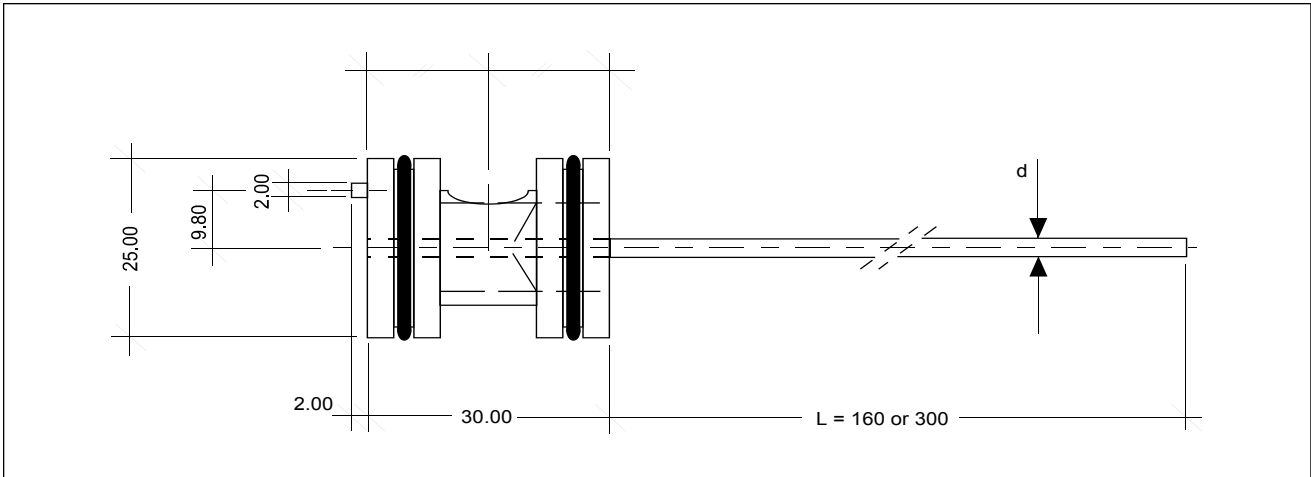
- Industry standard 25 mm manifold diameter
- Wide choice of fountain (tube) diameters
- Suitable for use with all polymers
- Purpose designed for parallel water feed
- Coolant directed to the core tip
- Optimised design for maximum coolant flow
- May be used with (oil or water) heated tools
- Easier, lower cost tool design
- Reduced tool making (construction) costs

TEMPERATURE RANGE

Pipcar water fountains are suitable for use between -40 deg C and +125 deg C. However, please note that the use of chilled water (below 10 deg C) will result in a large pressure drop.

MATERIALS

Manifold/body; brass to BS2874 CZ131, electroless nickel plated.
Fountain tube, copper to BS2871 C106 (ISO-CU-DHP), electroless nickel plated.
O ring, medium nitrile.



INSTALLATION

Select the appropriate fountain tube diameter for the core hole drilling diameter from the table.

Machine the tool to accept the fountain manifold.

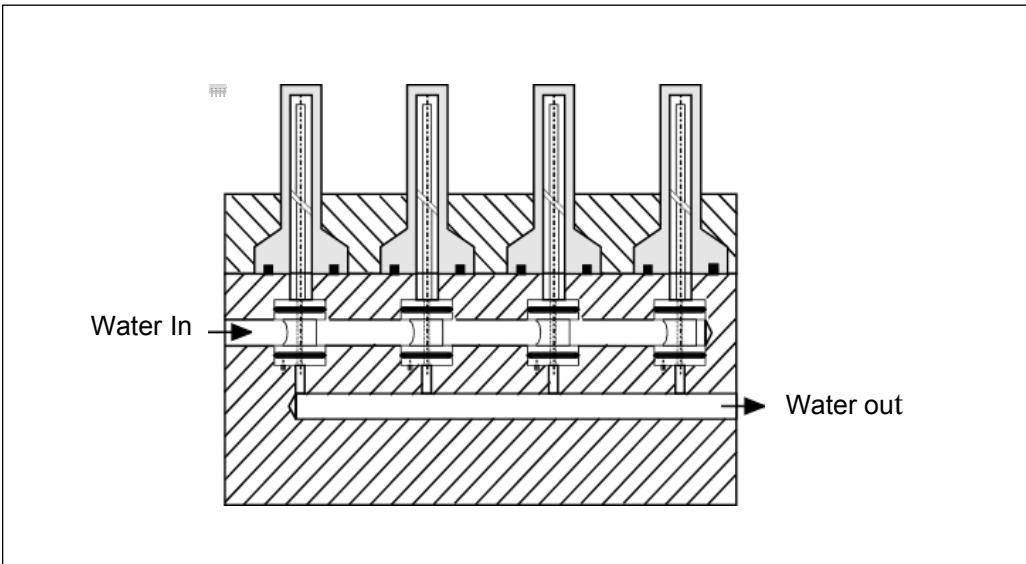
Cut the fountain tube to the desired length.

Please note that the locating pin denotes the water inlet point.

AVAILABLE SIZES

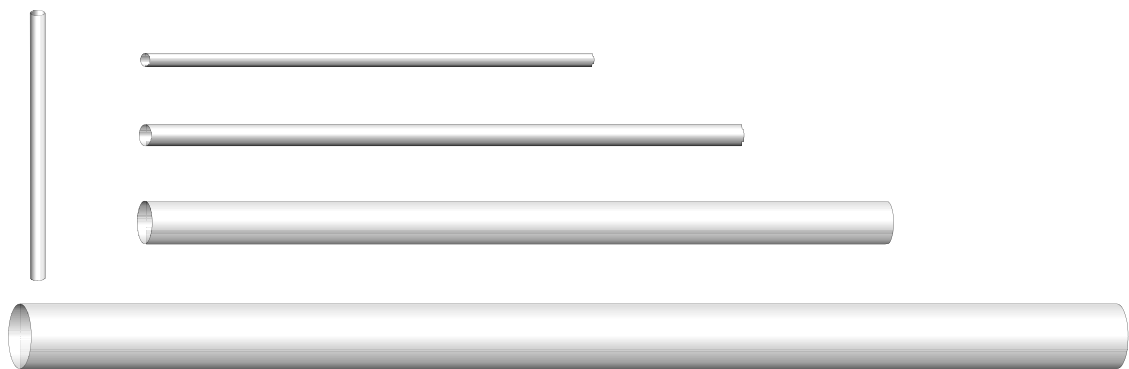
Core Hole Drilling, mm.	Fountain Tube Diameter, mm.	L, mm	Part Number
5.00 - 6.00	3.95	160	PWF 25/3.95x160
		300	PWF 25/3.95x300
6.00 - 7.00	4.95	160	PWF 25/4.95x160
		300	PWF 25/4.95x300
7.00 - 10.00	5.95	160	PWF 25/5.95x160
		300	PWF 25/5.95x300
10.00 - XXX	7.95	160	PWF 25/7.95x160
		300	PWF 25/7.95x300

TYPICAL APPLICATION



COOLING/HEATING TUBE

For general cooling applications in Plastics Injection Moulds



FEATURES

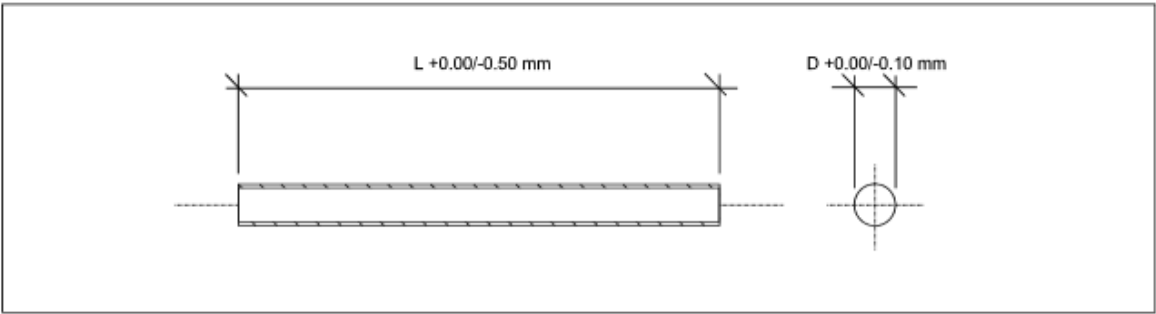
- Ideal for 'own design' cooling applications
- Close tolerance copper tube
- Thin wall section maximises flow section
- Electroless nickel plated finish
- Wide range of tube diameters
- Wide range of pre-cut tube lengths

GENERAL

Pipcar nickel plated copper tube is the ideal material for creating custom designed cooling (or heating) components or circuits. It can be used when standard components are unsuitable

MATERIAL

High conductivity copper to BS2871 C106 (ISO-CU-DHP), electroless nickel-plated.



D mm	L mm	Part Number
2.0 (ID = 1.4)	40	CT 2.0 x 40
	60	60
	80	80
	100	100
	125	125
	160	160
2.5 (ID = 1.9)	200	200
	40	40
	60	60
	80	80
	100	100
	125	125
3.0 (ID = 2.4)	160	160
	200	200
	250	250
	40	40
	60	60
	80	80
4.0 (ID = 3.3)	100	100
	125	125
	160	160
	200	200
	250	250
	315	315

D mm	L mm	Part Number
5.0 (ID = 4.3)	60	CT 5.0 x 60
	80	80
	100	100
	125	125
	160	160
	200	200
6.0 (ID = 5.3)	250	250
	315	315
	400	400
	60	CT 6.0 x 60
	80	80
	100	100
8.0 (ID = 7.2)	125	125
	160	160
	200	200
	250	250
	315	315
	400	400

D mm	L mm	Part Number
10.0 (ID = 9.1)	80	CT 10.0 x 80
	100	100
	125	125
	160	160
	200	200
	250	300
12.0 (ID = 11.1)	315	315
	400	400
	80	CT 12.0 x 80
	100	100
	125	125
	160	160
16.0 (ID = 14.0)	200	200
	250	250
	315	315
	400	400
	100	CT 16.0 x 100
	125	125
20.0 (ID = 19.0)	160	160
	200	200
	250	250
	315	315
	400	400