

### General description

The DME Heat Transfer Rods are static devices with very high thermal conductivity (over a thousand times greater than copper rods). It allows an important transmission of thermal power with a very low temperature gradient (a few degrees only).

### Operation

DME Heat Transfer Rods work on the basis of latent heat with a difference of only about 10°C in temperature between each end. At the "hot" end of the tube, the liquid evaporates and absorbs energy. The resulting vapour moves to the "cold" end of the tube, where it condenses and releases energy. The liquid then flows back to the other end by gravity and capillary action. The latter occurs over a mesh inside the rod.

### DME Service

DME provides recommendations on the most efficient use of Heat Transfer Rods in injection moulding or diecasting applications. In most cases, an application analysis will determine the estimated cycle time.

### Application

Heat Transfer Rods are used in the following industries:

- Die casting
- Injection moulding for:
  - a) Cooling (moulds)
  - b) Pre-heating of material
  - c) Leveling of service temperatures

### Advantages

1. **Simplified mould construction**  
The DME Heat Transfer Rods are used in cores, core slides, cavities and other areas of a mould or die requiring cooling or controlled temperatures. In addition, the ability to locate Heat Transfer Rods in areas inaccessible to other cooling devices can further simplify the overall mould design.  
In most of the cases, the machining and construction time required for the mould is reduced, thus lowering mould making costs.
2. **Faster cycle times**  
The cooling lines, throughout the entire mould can be larger in diameter, permitting a higher cooling velocity. A larger volume of fluid flowing through the cooling lines results in a lower overall coolant temperature rise.  
The ability to transfer heat away from the otherwise inaccessible areas improves the overall cooling rate and reduces the cycle time.
3. **Improved product quality**  
The Heat Transfer Rod transfers heat to the coolant, air or mould components, it also dissipates heat evenly along its entire length. This isotherm action provides faster and more uniform cooling, thus eliminating hot spots which cause sink marks, pulling and spotting.
4. **Reduced maintenance costs**  
The increased waterline diameter, coolant velocity and heat capacity eliminate scale formation. Consequently, cooling system maintenance and overall operating costs are almost nil.
5. **Retrofit in existing moulds and dies**  
In addition to their many applications Heat Transfer Rods have been retrofitted as replacement parts for bubblers of baffles and provide heat



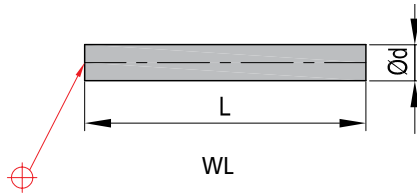
# Heat Transfer Rods

WL: 5° - 100°C

Code:

WL

Mould & Die Solutions



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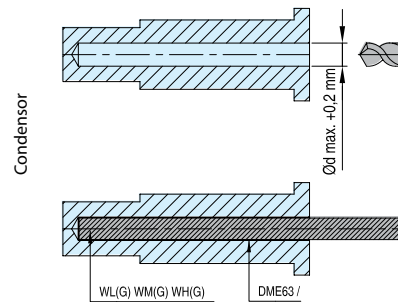
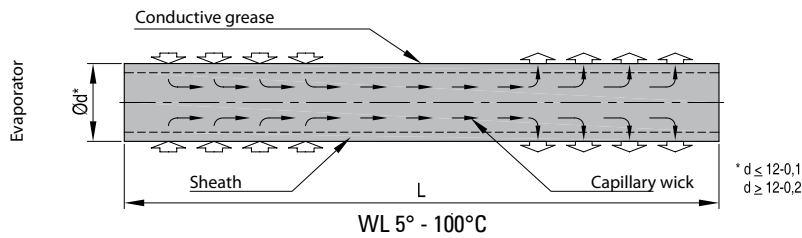
### Application

- Die casting
- Injection moulding: Cooling (moulds), Pre-heating of material, Leveling of service temperatures

### Benefits

- Simplified mould construction
- Faster cycle times
- Improved product quality
- Reduced maintenance costs
- Retrofit in existing moulds and dies

Installation instructions on p. 531



REF	d	L
WL250	2	50
WL265	2	65
WL280	2	80
WL290	2	90
WL2120	2	120
WL350	3	50
WL365	3	65
WL380	3	80
WL390	3	90
WL3120	3	120
WL450	4	50
WL465	4	65
WL480	4	80
WL490	4	90
WL4120	4	120
WL4160	4	160
WL4200	4	200
WL550	5	50
WL565	5	65
WL580	5	80
WL590	5	90
WL5120	5	120
WL5160	5	160
WL5200	5	200
WL650	6	50
WL665	6	65

REF	d	L
WL680	6	80
WL690	6	90
WL6120	6	120
WL6160	6	160
WL6200	6	200
WL6270	6	270
WL850	8	50
WL865	8	65
WL880	8	80
WL890	8	90
WL8120	8	120
WL8160	8	160
WL8200	8	200
WL8270	8	270
WL1050	10	50
WL1065	10	65
WL1080	10	80
WL1090	10	90
WL10120	10	120
WL10160	10	160
WL10200	10	200
WL10270	10	270
WL10320	10	320
WL1250	12	50
WL1265	12	65
WL1280	12	80

REF	d	L
WL1290	12	90
WL12120	12	120
WL12160	12	160
WL12200	12	200
WL12270	12	270
WL12320	12	320
WL1650	16	50
WL1665	16	65
WL1680	16	80
WL1690	16	90
WL16120	16	120
WL16160	16	160
WL16200	16	200
WL16270	16	270
WL16320	16	320
WL2050	20	50
WL2065	20	65
WL2080	20	80
WL2090	20	90
WL20120	20	120
WL20160	20	160
WL20200	20	200
WL20270	20	270
WL20320	20	320



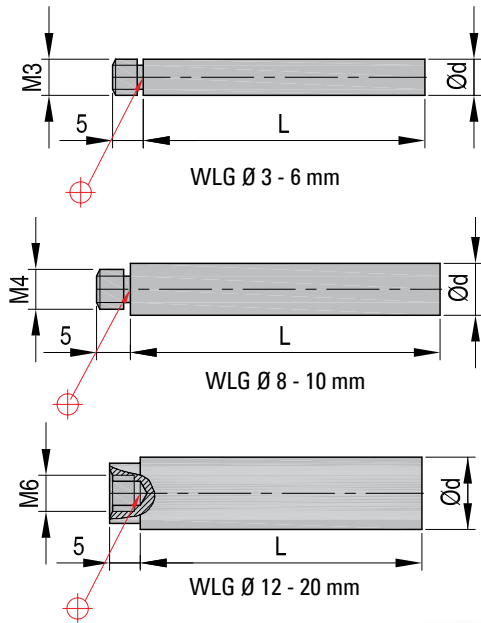
# Heat Transfer Rods

WLG: 5° - 100°C

Code:

WLG

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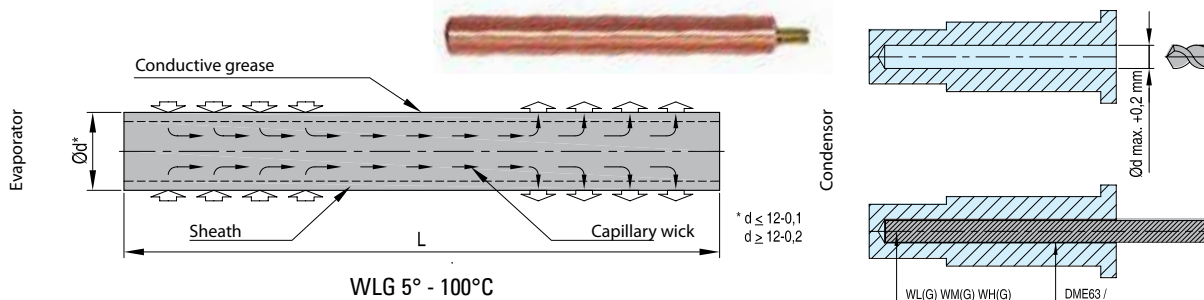
### Application

- Die casting
- Injection moulding: Cooling (moulds), Pre-heating of material, Leveling of service temperatures

### Benefits

- Simplified mould construction
- Faster cycle times
- Improved product quality
- Reduced maintenance costs
- Retrofit in existing moulds and dies

Installation instructions on p. 531



REF	d	L	Thread
WLG350	3	50	M3
WLG365	3	65	M3
WLG380	3	80	M3
WLG390	3	90	M3
WLG3120	3	120	M3
WLG450	4	50	M3
WLG465	4	65	M3
WLG480	4	80	M3
WLG490	4	90	M3
WLG4120	4	120	M3
WLG4160	4	160	M3
WLG4200	4	200	M3
WLG550	5	50	M3
WLG565	5	65	M3
WLG580	5	80	M3
WLG590	5	90	M3
WLG5120	5	120	M3
WLG5160	5	160	M3
WLG5200	5	200	M3
WLG650	6	50	M3
WLG665	6	65	M3

REF	d	L	Thread
WLG680	6	80	M3
WLG690	6	90	M3
WLG6120	6	120	M3
WLG6160	6	160	M3
WLG6200	6	200	M3
WLG6270	6	270	M3
WLG850	8	50	M4
WLG865	8	65	M4
WLG880	8	80	M4
WLG890	8	90	M4
WLG8120	8	120	M4
WLG8160	8	160	M4
WLG8200	8	200	M4
WLG8270	8	270	M4
WLG1050	10	50	M4
WLG1065	10	65	M4
WLG1080	10	80	M4
WLG1090	10	90	M4
WLG10120	10	120	M4
WLG10160	10	160	M4
WLG10200	10	200	M4
WLG10270	10	270	M4
WLG10320	10	320	M4
WLG1250*	12	50	M6
WLG1265*	12	65	M6
WLG1280*	12	80	M6

REF	d	L	Thread
WLG1290*	12	90	M6
WLG12120*	12	120	M6
WLG12160*	12	160	M6
WLG12200*	12	200	M6
WLG12270*	12	270	M6
WLG12320*	12	320	M6
WLG1650	16	50	M6
WLG1665	16	65	M6
WLG1680	16	80	M6
WLG1690	16	90	M6
WLG16120	16	120	M6
WLG16160	16	160	M6
WLG16200	16	200	M6
WLG16270	16	270	M6
WLG16320	16	320	M6
WLG2050	20	50	M6
WLG2065	20	65	M6
WLG2080	20	80	M6
WLG2090	20	90	M6
WLG20120	20	120	M6
WLG20160	20	160	M6
WLG20200	20	200	M6
WLG20270	20	270	M6
WLG20320	20	320	M6

\*these items have a female M6 thread, not a male thread



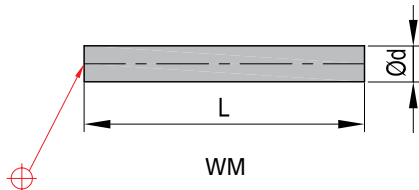
# Heat Transfer Rods

WM: 50° - 250°C

Code:

WM

Mould & Die Solutions



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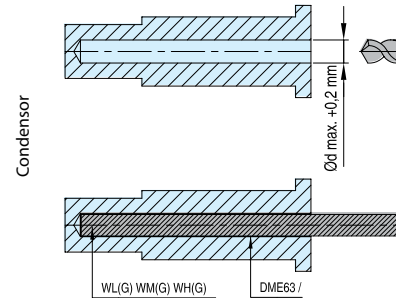
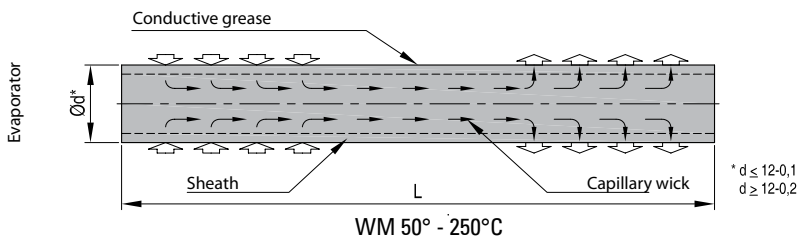
### Application

- Die casting
- Injection moulding: Cooling (moulds), Pre-heating of material, Leveling of service temperatures

### Benefits

- Simplified mould construction
- Faster cycle times
- Improved product quality
- Reduced maintenance costs
- Retrofit in existing moulds and dies

Installation instructions on p. 531



REF	d	L
WM250	2	50
WM265	2	65
WM280	2	80
WM290	2	90
WM2120	2	120
WM350	3	50
WM365	3	65
WM380	3	80
WM390	3	90
WM3120	3	120
WM450	4	50
WM465	4	65
WM480	4	80
WM490	4	90
WM4120	4	120
WM4160	4	160
WM4200	4	200
WM550	5	50
WM565	5	65
WM580	5	80
WM590	5	90
WM5120	5	120
WM5160	5	160
WM5200	5	200
WM650	6	50
WM665	6	65

REF	d	L
WM680	6	80
WM690	6	90
WM6120	6	120
WM6160	6	160
WM6200	6	200
WM6270	6	270
WM850	8	50
WM865	8	65
WM880	8	80
WM890	8	90
WM8120	8	120
WM8160	8	160
WM8200	8	200
WM8270	8	270
WM1050	10	50
WM1065	10	65
WM1080	10	80
WM1090	10	90
WM10120	10	120
WM10160	10	160
WM10200	10	200
WM10270	10	270
WM10320	10	320
WM1250	12	50
WM1265	12	65
WM1280	12	80

REF	d	L
WM1290	12	90
WM12120	12	120
WM12160	12	160
WM12200	12	200
WM12270	12	270
WM12320	12	320
WM1650	16	50
WM1665	16	65
WM1680	16	80
WM1690	16	90
WM16120	16	120
WM16160	16	160
WM16200	16	200
WM16270	16	270
WM16320	16	320
WM2050	20	50
WM2065	20	65
WM2080	20	80
WM2090	20	90
WM20120	20	120
WM20160	20	160
WM20200	20	200
WM20270	20	270
WM20320	20	320

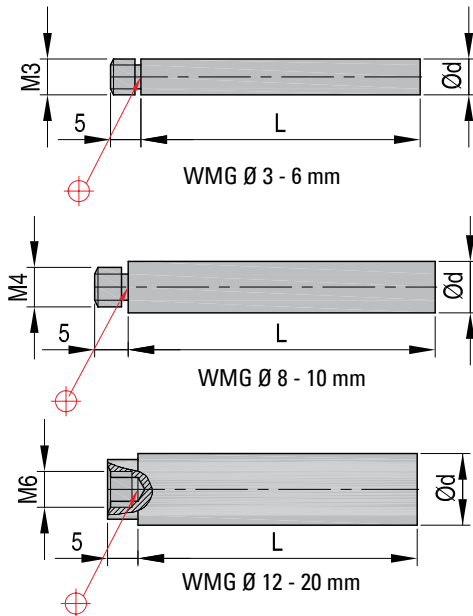


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Code:  
**WMG**

**Mould & Die Solutions**



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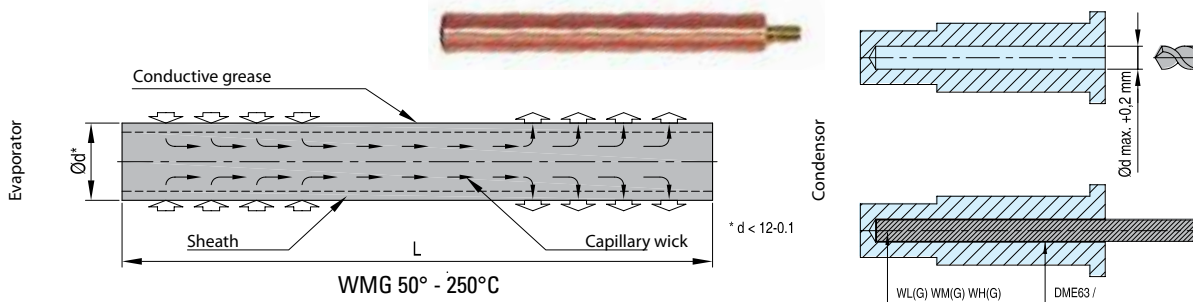
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REF	d	L	Thread
WMG350	3	50	M3
WMG365	3	65	M3
WMG380	3	80	M3
WMG390	3	90	M3
WMG3120	3	120	M3
WMG450	4	50	M3
WMG465	4	65	M3
WMG480	4	80	M3
WMG490	4	90	M3
WMG4120	4	120	M3
WMG4160	4	160	M3
WMG4200	4	200	M3
WMG550	5	50	M3
WMG565	5	65	M3
WMG580	5	80	M3
WMG590	5	90	M3
WMG5120	5	120	M3
WMG5160	5	160	M3
WMG5200	5	200	M3
WMG650	6	50	M3
WMG665	6	65	M3

REF	d	L	Thread
WMG680	6	80	M3
WMG690	6	90	M3
WMG6120	6	120	M3
WMG6160	6	160	M3
WMG6200	6	200	M3
WMG6270	6	270	M3
WMG850	8	50	M4
WMG865	8	65	M4
WMG880	8	80	M4
WMG890	8	90	M4
WMG8120	8	120	M4
WMG8160	8	160	M4
WMG8200	8	200	M4
WMG8270	8	270	M4
WMG1050	10	50	M4
WMG1065	10	65	M4
WMG1080	10	80	M4
WMG1090	10	90	M4
WMG10120	10	120	M4
WMG10160	10	160	M4
WMG10200	10	200	M4
WMG10270	10	270	M4
WMG10320	10	320	M4
WMG1250*	12	50	M6
WMG1265*	12	65	M6
WMG1280*	12	80	M6

REF	d	L	Thread
WMG1290*	12	90	M6
WMG12120*	12	120	M6
WMG12160*	12	160	M6
WMG12200*	12	200	M6
WMG12270*	12	270	M6
WMG12320*	12	320	M6
WMG1650	16	50	M6
WMG1665	16	65	M6
WMG1680	16	80	M6
WMG1690	16	90	M6
WMG16120	16	120	M6
WMG16160	16	160	M6
WMG16200	16	200	M6
WMG16270	16	270	M6
WMG16320	16	320	M6
WMG2050	20	50	M6
WMG2065	20	65	M6
WMG2080	20	80	M6
WMG2090	20	90	M6
WMG20120	20	120	M6
WMG20160	20	160	M6
WMG20200	20	200	M6
WMG20270	20	270	M6
WMG20320	20	320	M6

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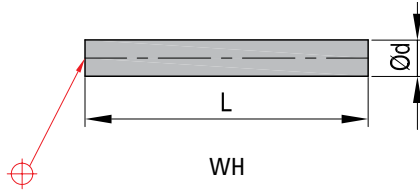
# Heat Transfer Rods

WH: 150° - 500°C

Code:

WH

Mould & Die Solutions



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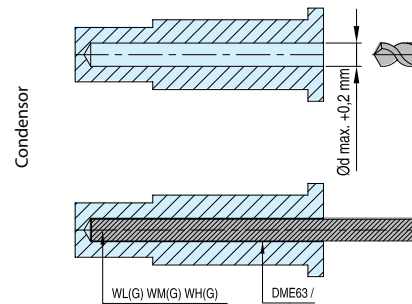
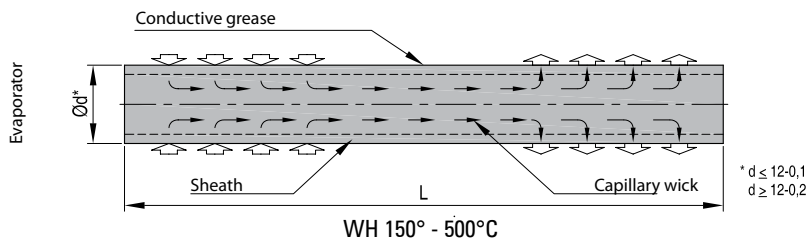
### Application

- Die casting
- Injection moulding: Cooling (moulds), Pre-heating of material, Leveling of service temperatures

### Benefits

- Simplified mould construction
- Faster cycle times
- Improved product quality
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- Retrofit in existing moulds and dies

Installation instructions on p. 531



REF	d	L
WH350	3	50
WH365	3	65
WH380	3	80
WH390	3	90
WH3120	3	120
WH450	4	50
WH465	4	65
WH480	4	80
WH490	4	90
WH4120	4	120
WH4160	4	160
WH4200	4	200
WH550	5	50
WH565	5	65
WH580	5	80
WH590	5	90
WH5120	5	120
WH5160	5	160
WH5200	5	200
WH650	6	50
WH665	6	65

REF	d	L
WH680	6	80
WH690	6	90
WH6120	6	120
WH6160	6	160
WH6200	6	200
WH6270	6	270
WH850	8	50
WH865	8	65
WH880	8	80
WH890	8	90
WH8120	8	120
WH8160	8	160
WH8200	8	200
WH8270	8	270
WH1050	10	50
WH1065	10	65
WH1080	10	80
WH1090	10	90
WH10120	10	120
WH10160	10	160
WH10200	10	200
WH10270	10	270
WH10320	10	320
WH1250	12	50
WH1265	12	65
WH1280	12	80

REF	d	L
WH1290	12	90
WH12120	12	120
WH12160	12	160
WH12200	12	200
WH12270	12	270
WH12320	12	320
WH1650	16	50
WH1665	16	65
WH1680	16	80
WH1690	16	90
WH16120	16	120
WH16160	16	160
WH16200	16	200
WH16270	16	270
WH16320	16	320
WH2050	20	50
WH2065	20	65
WH2080	20	80
WH2090	20	90
WH20120	20	120
WH20160	20	160
WH20200	20	200
WH20270	20	270
WH20320	20	320



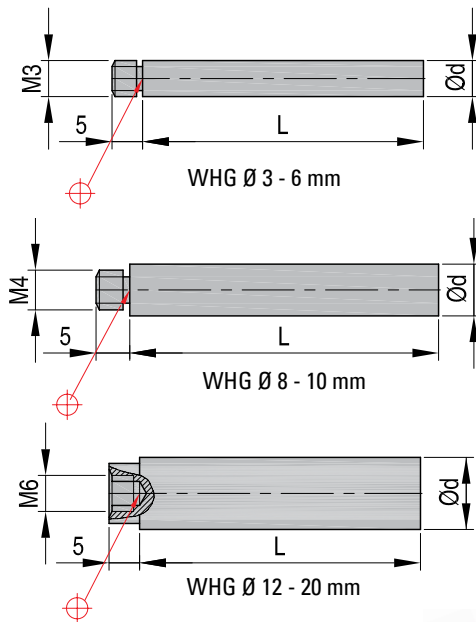
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Code:

WHG

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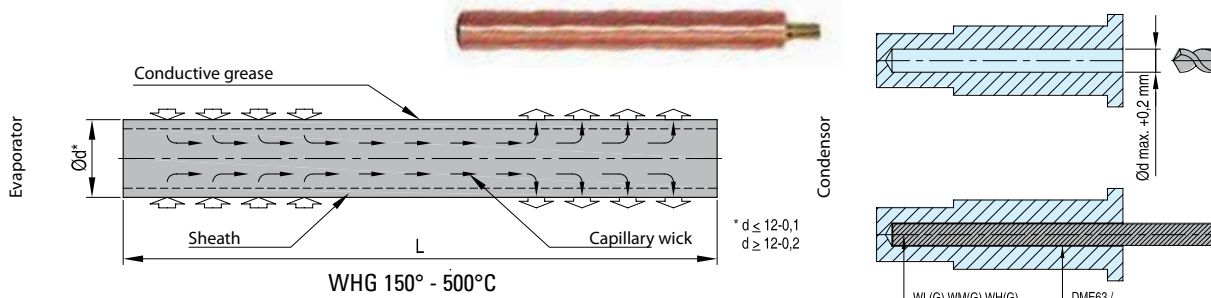
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REF	d	L	Thread
WHG350	3	50	M3
WHG365	3	65	M3
WHG380	3	80	M3
WHG390	3	90	M3
WHG3120	3	120	M3
WHG450	4	50	M3
WHG465	4	65	M3
WHG480	4	80	M3
WHG490	4	90	M3
WHG4120	4	120	M3
WHG4160	4	160	M3
WHG4200	4	200	M3
WHG550	5	50	M3
WHG565	5	65	M3
WHG580	5	80	M3
WHG590	5	90	M3
WHG5120	5	120	M3
WHG5160	5	160	M3
WHG5200	5	200	M3
WHG650	6	50	M3
WHG665	6	65	M3
WHG680	6	80	M3
WHG690	6	90	M3
WHG6120	6	120	M3
WHG6160	6	160	M3
WHG6200	6	200	M3

REF	d	L	Thread
WHG6270	6	270	M3
WHG850	8	50	M3
WHG865	8	65	M3
WHG880	8	80	M3
WHG890	8	90	M3
WHG8120	8	120	M3
WHG8160	8	160	M4
WHG8200	8	200	M4
WHG8270	8	270	M4
WHG1050	10	50	M4
WHG1065	10	65	M4
WHG1080	10	80	M4
WHG1090	10	90	M4
WHG10120	10	120	M4
WHG10160	10	160	M4
WHG10200	10	200	M4
WHG10270	10	270	M4
WHG10320	10	320	M4
WHG1250	12	50	M4
WHG1265	12	65	M4
WHG1280	12	80	M4
WHG1290	12	90	M4
WHG12120	12	120	M4
WHG12160	12	160	M6
WHG12200	12	200	M6
WHG12270	12	270	M6

REF	d	L	Thread
WHG12320	12	320	M6
WHG1650	16	50	M6
WHG1665	16	65	M6
WHG1680	16	80	M6
WHG1690	16	90	M6
WHG16120	16	120	M6
WHG16160	16	160	M6
WHG16200	16	200	M6
WHG16270	16	270	M6
WHG16320	16	320	M6
WHG2050	20	50	M6
WHG2065	20	65	M6
WHG2080	20	80	M6
WHG2090	20	90	M6
WHG20120	20	120	M6
WHG20160	20	160	M6
WHG20200	20	200	M6
WHG20270	20	270	M6
WHG20320	20	320	M6
WMG20120	20	120	M6
WMG20160	20	160	M6
WMG20200	20	200	M6
WMG20270	20	270	M6
WMG20320	20	320	M6



# Fluids for Heat Transfer Rods

Code:  
DME 63  
MS 110  
MS 120

Mould & Die Solutions

REF	Quantity
DME63	400 ml
MS110	450 gr
MS120	10 gr



## Working range

The DME Heat Transfer Rods contain heat exchange fluid specially selected for the temperature of operation. They are available in 3 Series providing high transfer efficiency over a given range of temperatures.

For low and medium temperatures, the WL Series covers the range from 5 to 100°C and the WM Series from 50°C to 250°C.

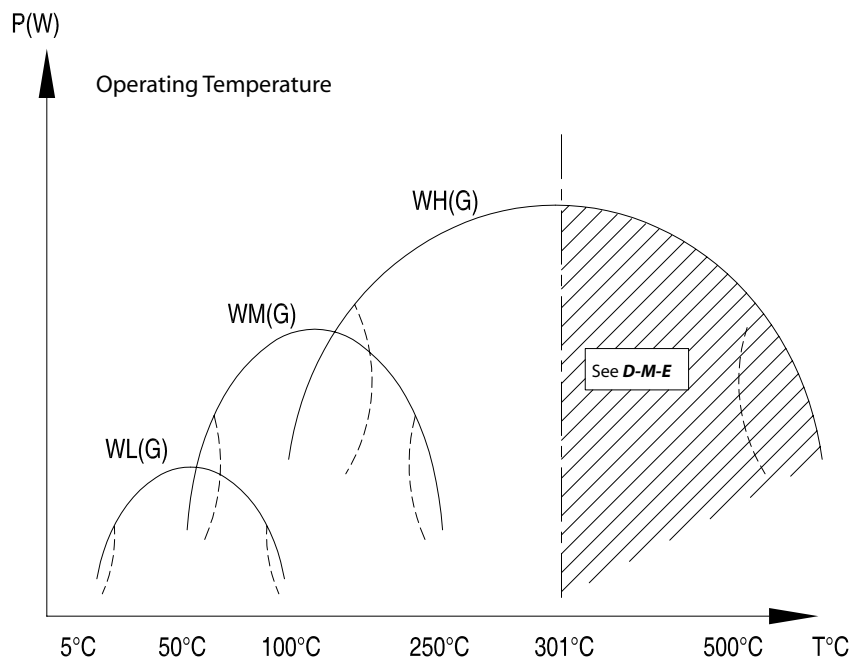
For high temperatures, the WH Series covers the range from 150°C to 500°C.

It is always recommended to choose the largest diameter and greatest length.

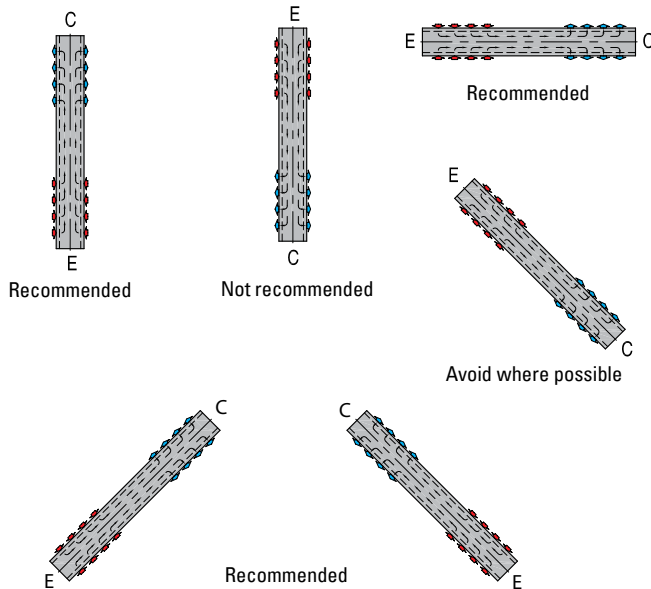
Graphs should not be used for determining energy values.

At each end of each curve, there is a critical zone in which the operation of the Heat Transfer Rod does not present the best guarantee of efficiency.

## Operating Temperatures for Heat Transfer Rods







With proper installation, the rod may last as long as the mould. Efficiency of the Heat Transfer Rods varies, according to their position, length and diameter. A correct working action of the rod is obtained by reducing the thermal resistances to a minimum by using a thermal bond of the DME Heat Transfer Paste 63.

As the fluid inside the rod circulates by gravity and capillarity, the best position for the rod is the vertical position (bottom: heat source + evaporation / top: cold section + condensation).

The less efficient position is the reserved position (bottom: cold section + condensation / top: heat source + evaporation).

- Drill a blind hole of 0,1 mm larger than the nominal diameter of the rod for diameters ranging from 2 to 10 mm and 0,2 mm for those larger than 12 mm.
- Make sure no chips remain into the drilled hole.
- Insert into the hole the DME Heat Transfer Paste 63 which will insure a thermal contact (thermal bond) between the rod and the steel mass of the mould.
- Push the rod into the hole, thus allowing the Heat Transfer Paste 63 to drive back along the hole wall.

C = condensator + cold section  
E = evaporator + heat source

#### Irregular shapes of the zone to be cooled

As a general rule, it is advisable to install a Heat Transfer Rod with maximum diameter and maximum length acceptable. When there is a narrow section into the zone to be cooled, where a small diameter should be necessary, it is better to install the rod farther away from the surface to be cooled in order to have a bigger diameter rather than to install a small diameter closer to the surface to be cooled.

Fig. I

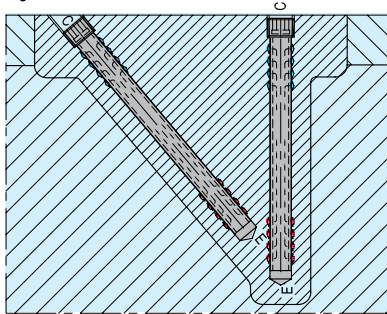
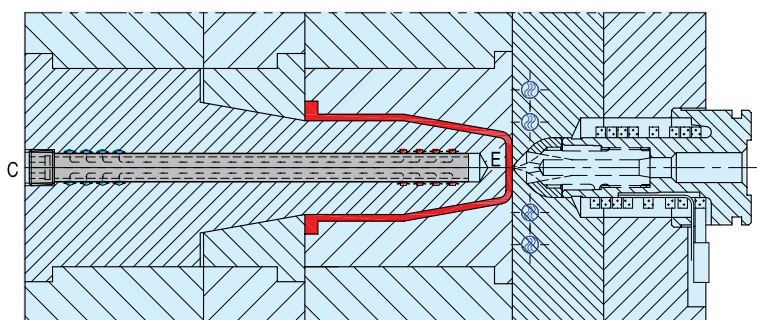


Fig. II



#### Examples

Inside a core:

1. All types: without cooling lines (thermal conduction into the cold part of the mould).
2. Heat Transfer Rod not in contact with the cooling fluid. The transfer is obtained by means of a cooling line circulating close to the end of the rod.
3. Cooling by means of air circulation. It is however preferable to allow the heat transfer by thermal conduction into the mould rather than by air circulation, the thermal exchanges being low in this latter case.

Fig. III

