

**STANDARD HEATPIPE**  
VERSION 2020/1



**HEATPIPE**  
**SOLUTIONS**



# HEATPIPE ADEO

Standard applications are the entry point of ADEO to the heat-pipe market. We support the following applications:

## STANDARD / SIMPLE Heatpipe

Selling heatpipes without any processing, support, nor testing is not the goal of ADEO. If you have inquiries in OEM quantities please contact us. We support requirements for machine- and control-units industry, medical industry, white goods and at "C" & "D" classified parts in the automotive industry



## POINT-to-POINT Heatpipe

One or several heatpipes connection from hotspots to cooling areas. Normally the heatpipe defines the basic shape of the cooling system. For cooler systems the ADEO\_lowtemp heatpipe can also be used in combination with TE (peltier) moduls. Hotspots on an assembled circuit board can be connected to a cooling section (heat sink) for efficient heat transfer. The heatpipe can also incorporate fins for fan cooling. We do design support, tools, fixture, production, marking and testing at ADEO



## FAN-Cooler Heatpipe

Very common are all kind of fan cooled heatpipe systems. ADEO is open to all kind of custom-made designs. The market shows to our customer a very wide range of design freedom. We support this market trends with adding plastic molds (air guide) or die-cast parts (ruggedized application) and/or steel punched parts.



## ADEO-Standard

ST = Standard, sintered version, optimized for electronic equipment, working point +45°C.

On request:

LT = Low Temp, sintered version, not freezing until -15°C , high efficient

HT = High Temp, sintered version, optimized for mold industrie, working point +125°C

# HEATPIPE

## General Information

Since heatpipes were introduced in the market some decades ago, there have been a large variety production technologies for heatpipes. In the last years flexibility in geometry became a major requirement, which gave the market lead to the sinter technology. ADEO is producing sintered heatpipes almost exclusively for water filled heatpipes.

**Groove** (channel) heatpipe  
mostly used in heatkicker (high power), vertical use, cheap.

**Mesh** (metall or fiber) heatpipe  
mostly used for other fluids than water.

**Sintered** (granulate) heatpipe  
or ADEO the standard heatpipe, free geometry, adjustable, flat shape possible, bendable.

Groove



Mesh



Sintered



# HEATPIPE

## General Information

### DESIGN RULES:

It might be necessary to bend the heatpipe in order to get around object or to flatten some of its area for better heat transfer. Here is what should be kept in mind in order not to lose to much of its efficiency.

**Bending of heatpipes** Each bend leads to a small derating, therefore best is to avoid any bending at all. Use following minimum bending radius as design rule. Keep bending whenever possible in 2D Design (cost factor).

**Flat heatpipe sections** Flat heatpipes are subject to some derating, please take the following scale as indication.

**Performance of liquids** There are several fillers (fluids) available, nevertheless water has the best performance – and is the standard filler for industrial applications.

Heatpipe filter (fluids)		
working temp in °C	fluid/ medium	pipe material
-200 to +80	Fluid nitrogen	Stainless steel
-70 to +60	Ammoniac	Al, stainless steel
-45 to +120	Methanol	CU, stainless steel
-5 to +300	Water (with additive)	Copper
+190 to +550	Mercury	Stainless steel
+400 to +800	Potassium	Stainless steel
+500 to +900	Natrium	Stainless steel

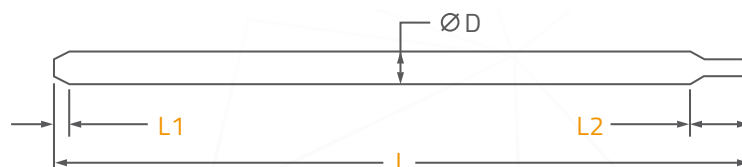
Bending radius / design guide		
Material	Diameter in mm	Bending radius (neutral line)
CU	3	9
CU	4	12
CU	5	20
CU	6	24
CU	8	40
CU	10	50
CU	>30, ...	not possible

Round or Flat: Qmax on 200 mm length		
Flatness	DIA 6 mm	DIA 8 mm
0.8	5 Watt	mesh
1.0	8 Watt	mesh
1.5	10 Watt	sintered
2.8	25 Watt	-
3.2	30 Watt	45 Watt
3.5	40 Watt	50 Watt
4.0	45 Watt	55 Watt
5.0	-	65 Watt
DIA 6	60 Watt	-
DIA 8	-	100 Watt

# ADEO 2mm HEATPIPE



Dia in mm	Length in mm	Sintered Heatpipe	Model	Part No.
2	40	yes	round-straight	SHP2-040-RS/ST PN10790
2	60	yes	round-straight	SHP2-060-RS/ST PN10893
2	80	yes	round-straight	SHP2-080-RS/ST 10894
2	100	yes	round-straight	SHP2-100-RS/ST PN10895
2	100	yes	round-straight	SHP2-100-RS/HAT PN10896



Diameter	2mm	4mm	6mm	8mm	10mm
Length (L)	50-100 mm	60-250 mm	60-100mm	100-400mm	100-600mm
Length (L1)	1-2mm	1-3mm	3-5mm	4-7mm	5-8mm
Length (L2)	6-8mm	7-9mm	9-11mm	11-13mm	13-15mm



requesting other length, please use the nomenclature.

S	HP	---	-	---	-	RS	/	ST
Technology		Diameter		Length (mm)*		Model		Temp. Range
S - Sintered		2 mm		min: 040 mm max: 600mm		RS - round/straight CD - customized FS - falterd/straight		ST - standard HT - high temp LT - low temp
M - Mesh		4 mm						
		6 mm						
GF - Flassfiber		8 mm						
		10 mm						

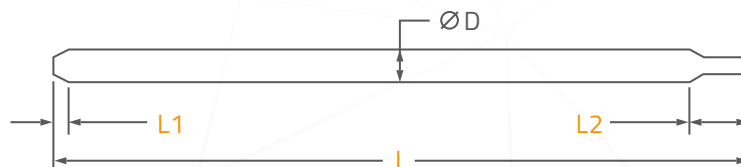
Qmax: (W) by 50° C      dia 2 ~ 10 W, dia 4 ~ 20 W, dia 6 ~ 40 W, dia 8 ~ 60 W, dia 10 ~ 80 W

\*max. length is depending of diameter/please note the production tolerance of +/- 2-5 mm in length (depending of diameter!)

# ADEO 4mm HEATPIPE



Dia in mm	Length in mm	Sintered Heatpipe	Model	Part No.
4	70	yes	round-straight	SHP4-070-RS/ST PN10754
4	100	yes	round-straight	SHP4-100-RS/ST PN10755
4	150	yes	round-straight	SHP4-150-RS/ST PN10756
4	200	yes	round-straight	SHP4-200-RS/ST PN10757
4	250	yes	round-straight	SHP4-250-RS/ST PN10758



Diameter	2mm	4mm	6mm	8mm	10mm
Length (L)	50-100 mm	60-250 mm	60-100mm	100-400mm	100-600mm
Length (L1)	1-2mm	1-3mm	3-5mm	4-7mm	5-8mm
Length (L2)	6-8mm	7-9mm	9-11 mm	11-13mm	13-15mm



requesting other length, please use the nomenclature.

S	HP	---	-	---	-	RS	/	ST
Technology		Diameter		Length (mm)*		Model		Temp. Range
S - Sintered M - Mesh GF - Glassfiber		2 mm 4 mm 6 mm 8 mm 10 mm		min: 040 mm max: 600mm		RS - round/straight CD - customized FS - falterd/straight		ST - standard HT - high temp LT - low temp

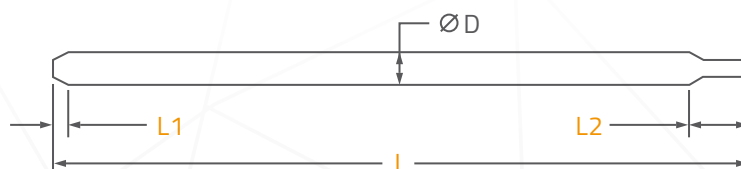
Qmax: (W) by 50° C      dia 2 ~ 10 W, dia 4 ~ 20 W, dia 6 ~ 40 W, dia 8 ~ 60 W, dia 10 ~ 80 W

\*max. length is depending of diameter/please note the production tolerance of +/- 2-5 mm in length (depending of diameter!)

# ADEO 6mm HEATPIPE



Dia in mm	Length in mm	Sintered Heatpipe	Model	Part No.
6	100	yes	round-straight	SHP6-100-RS/ST PN10759
6	150	yes	round-straight	SHP6-150-RS/ST PN10760
6	200	yes	round-straight	SHP6-200-RS/ST PN10761
6	250	yes	round-straight	SHP6-250-RS/ST PN10762
6	300	yes	round-straight	SHP6-300-RS/ST PN10763
6	350	yes	round-straight	SHP6-350-RS/ST PN10764
6	400	yes	round-straight	SHP6-400-RS/ST PN10765
6	100	yes	round-straight	SHP6-100-RS/HAT PN10897
6	200	yes	round-straight	SHP6-200-RS/HAT PN10898



Diameter	2mm	4mm	6mm	8mm	10mm
Length (L)	50-100 mm	60-250 mm	60-100mm	100-400mm	100-600mm
Length (L1)	1-2mm	1-3mm	3-5mm	4-7mm	5-8mm
Length (L2)	6-8mm	7-9mm	9-11mm	11-13mm	13-15mm



requesting other length, please use the nomenclature.

S	HP	---	-	---	-	RS	/	ST
Technology		Diameter		Length (mm)*		Model		Temp. Range
S - Sintered		2 mm		min: 040 mm max: 600mm		RS - round/straight CD - customized FS - falterd/straight		ST - standard HT - high temp LT - low temp
M - Mesh		4 mm						
		6 mm						
GF - Flassfiber		8 mm						
		10 mm						

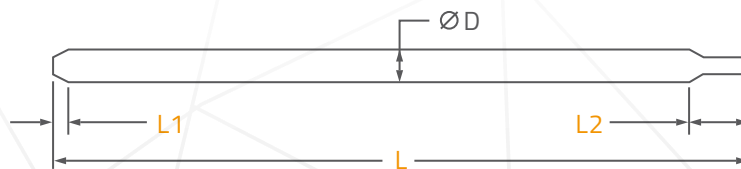
Qmax: (W) by 50° C      dia 2 ~ 10 W, dia 4 ~ 20 W, dia 6 ~ 40 W, dia 8 ~ 60 W, dia 10 ~ 80 W

\*max. length is depending of diameter/please note the production tolerance of +/- 2-5 mm in length (depending of diameter!)

# ADEO 8mm HEATPIPE



Dia in mm	Length in mm	Sintered Heatpipe	Model	Part No.
8	100	yes	round-straight	SHP8-100-RS/ST PN10766
8	150	yes	round-straight	SHP8-150-RS/ST PN10767
8	200	yes	round-straight	SHP8-200-RS/ST PN10768
8	250	yes	round-straight	SHP8-250-RS/ST PN10769
8	300	yes	round-straight	SHP8-300-RS/ST PN10770
8	350	yes	round-straight	SHP8-350-RS/ST PN10771
8	400	yes	round-straight	SHP8-400-RS/ST PN10772
8	100	yes	round-straight	SHP8-100-RS/HT PN10933
8	200	yes	round-straight	SHP8-200-RS/HT PN10934



Diameter	2mm	4mm	6mm	8mm	10mm
Length (L)	50-100 mm	60-250 mm	60-100mm	100-400mm	100-600mm
Length (L1)	1-2mm	1-3mm	3-5mm	4-7mm	5-8mm
Length (L2)	6-8mm	7-9mm	9-11mm	11-13mm	13-15mm



requesting other length, please use the nomenclature.

S	HP	---	-	---	-	RS	/	ST
Technology		Diameter		Length (mm)*		Model		Temp. Range
S - Sintered		2 mm		min: 040 mm max: 600mm		RS - round/straight CD - customized FS - falterd/straight		ST - standard HT - high temp LT - low temp
M - Mesh		4 mm						
		6 mm						
GF - Flassfiber		8 mm						
		10 mm						

Qmax: (W) by 50° C      dia 2 ~ 10 W,   dia 4 ~ 20 W,   dia 6 ~ 40 W,   dia 8 ~ 60 W,   dia 10 ~ 80 W

\*max. length is depending of diameter/please note the production tolerance of +/- 2-5 mm in length (depending of diameter!)



# ADEO 10mm HEATPIPE



Dia in mm	Length in mm	Sintered Heatpipe	Model	Part No.
10	100	yes	round-straight	SHP10-100-RS/ST PN10773
10	150	yes	round-straight	SHP10-150-RS/ST PN10774
10	200	yes	round-straight	SHP10-200-RS/ST PN10775
10	250	yes	round-straight	SHP10-250-RS/ST PN10776
10	300	yes	round-straight	SHP10-300-RS/ST PN10777
10	350	yes	round-straight	SHP10-350-RS/ST PN10778
10	400	yes	round-straight	SHP10-400-RS/ST PN10779
10	500	yes	round-straight	SHP10-500-RS/ST PN10780



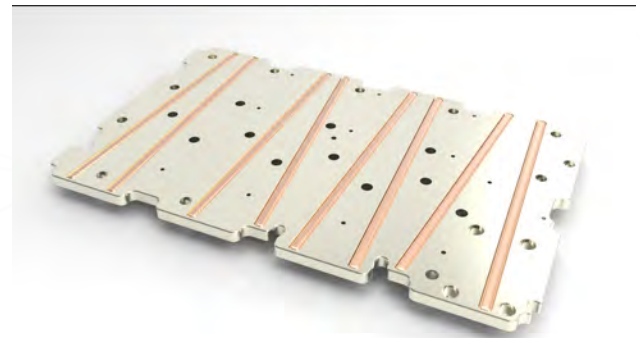
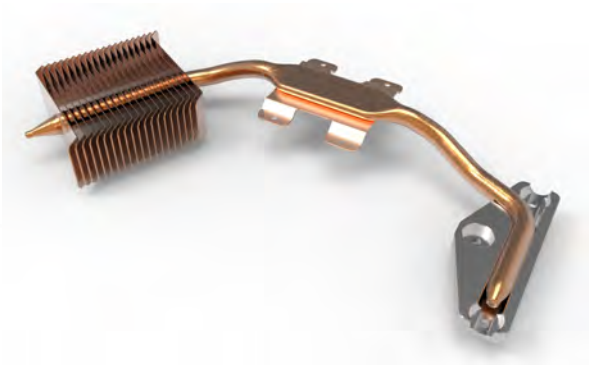
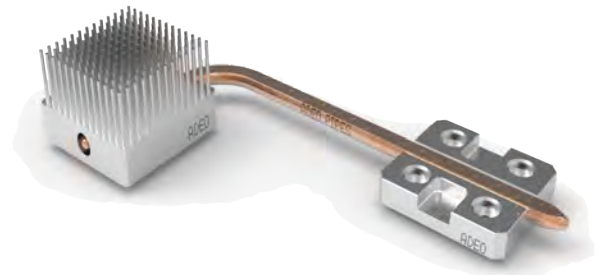
requesting other length, please use the nomenclature.

S	HP	---	-	---	-	RS	/	ST
Technology		Diameter		Length (mm)*		Model		Temp. Range
S - Sintered M - Mesh GF - Flassfiber		2 mm 4 mm 6 mm 8 mm 10 mm		min: 040 mm max: 600mm		RS - round/straight CD - customized FS - falterd/straight		ST - standard HT - high temp LT - low temp

Q<sub>max</sub>: (W) by 50° C      dia 2 ~ 10 W,   dia 4 ~ 20 W,   dia 6 ~ 40 W,   dia 8 ~ 60 W,   dia 10 ~ 80 W

\*max. length is depending of diameter/please note the production tolerance of +/- 2-5 mm in length (depending of diameter!)

# ADEO CUSTOMIZED HEATPIPE



Selling heatpipes without any processing, support, or testing is not the goal of ADEO. If you have inquiries please contact us. We support requirements for machine- and control-units industry, medical industry, white goods and at "C" & "D" classified parts in the automotive industry.

We can support you with design work in Solid Edge, NX or Creo native data. Although preferred is any kind of industrial 3D data (stp, step, igs and others)

# YOUR DESIGN



For requesting of specific application and working ranges, please use the nomenclature. This is only a small overview of possibilities:

-	HP	---	-	---	-	-	/	XT
Technology		Diameter		Length (mm)*		Model		Temp. Range
S - Sintered M - Mesh GF - Flassfiber		2 mm 4 mm 6 mm 8 mm 10 mm		min: 040 mm max: 600mm		RS - round/straight CD - customized FS - falterd/straight		XT - Customized
		0		other Dia, up to 70 mm		0		- Flat - Bent - Assembly - .....

\* max. length is depending of diameter / please note the production tolerance of +/- 2-5 mm in length (depending of diameter!)

## DRAWINGS:



### ▶▶ SPECIFY GRAVITY

Power: .....

Temp. Range: .....

Surface Treatment: .....

### ▶▶ SPECIFY POWER INPUT

Special Remarks: .....

.....

.....

# ADEO HEATPIPE



DISTRIBUTOR: