

# Heat Pipe

## ■ MELCO Heat Pipe Standard Lineup

Single-bore

Bore	Single*1				
Cross Section Figure*2					
Mass (g/m)*3	217 to 271	209 to 265	385	277	54
Performance*4	172 W-m @ 60°C	100 W-m @ 60°C	140 W-m @ 60°C	140 W-m @ 60°C	9 W-m @ 100°C
Proof Pressure	9.5 MPa	15.7 MPa	15.7 MPa	8.2 MPa	15.7 MPa
Burst Pressure	> 11.7 MPa	> 20.9 MPa	> 20.9 MPa	> 16.5 MPa	> 20.9 MPa

Double-bore

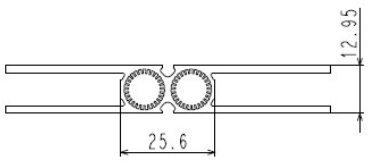
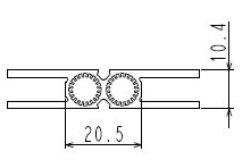
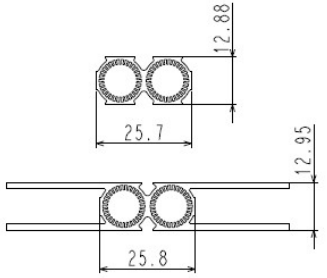
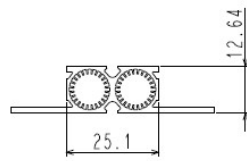
Bore	Dual			
Cross Section Figure*2				
Mass (g/m)*3	422	389 to 437	494	349 to 382
Performance*4	112 to 124 W-m @ 60°C	101 to 129 W-m @ 60°C	260 W-m @ 60°C	150 W-m @ 60°C
Proof Pressure	15.7 to 18.5 MPa	15.7 MPa	14.5 MPa	15.7 MPa
Burst Pressure	> 25 MPa	> 25 MPa	> 17.4 MPa	> 20.9 MPa

- Notes
- \*1: Dual bore extrusion can be supplied.
  - \*2: Flanges can be formed if required.
  - \*3: Nominal mass including working fluid (ammonia) but excluding the end caps, fill tubes and flanges
  - \*4: Nominal on-orbit performance per bore

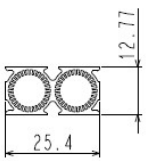
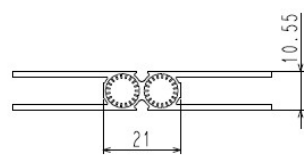
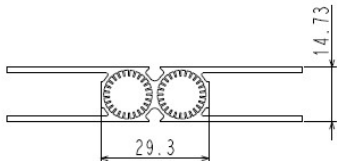
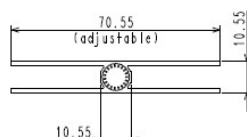
# Heat Pipe

## ■ MELCO Heat Pipe Standard Lineup

Double-bore

Bore	Dual			
Cross Section Figure <sup>*2</sup>				
Mass (g/m) <sup>*3</sup>	421	276	309 to 381	360
Performance <sup>*4</sup>	110 W-m @ 60°C	54 W-m @ 70°C	129 W-m @ 60°C	149 W-m @ 60°C
Proof Pressure	15.7 MPa	15.7 MPa	13.1 MPa	15.7 MPa
Burst Pressure	> 20.9 MPa	> 20.9 MPa	> 15.7 MPa	> 20.9 MPa

Double-bore

Bore	Dual			Single
Cross Section Figure <sup>*2</sup>				
Mass (g/m) <sup>*3</sup>	338	245	455	137
Performance <sup>*4</sup>	128 W-m @ 60°C	114 W-m @ 60°C	277 W-m @ 60°C	114 W-m @ 60°C
Proof Pressure	13.1 MPa	13.1 MPa	13.1 MPa	13.1 MPa
Burst Pressure	> 15.7 MPa	> 15.7 MPa	> 15.7 MPa	> 15.7 MPa

Notes \*2: Flanges can be formed if required.

\*3: Nominal mass including working fluid (ammonia) but excluding the end caps, fill tubes and flanges

\*4: Nominal on-orbit performance per bore

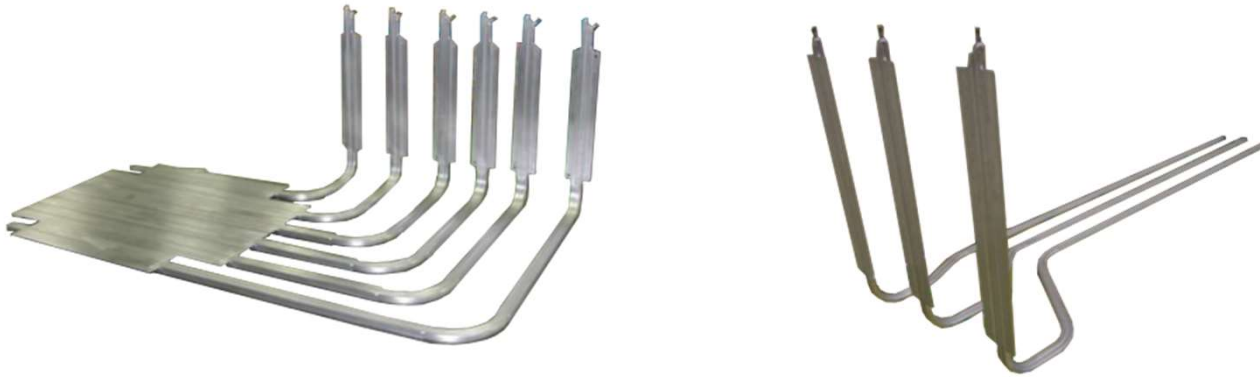
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## Heat Pipe

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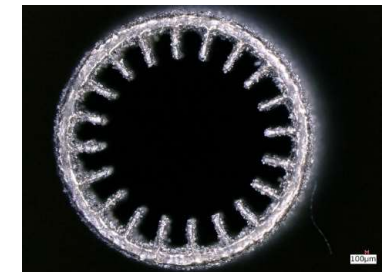
### ■ 3-D Bent Heat Pipe

- MELCO precision bending techniques for 3-D heat pipes
- Flexible combination of in-plane and out-of-plane bending per customer requirements
- Available for both single and double bore heat pipes
- Launched successfully on several JAXA communication and observation mission satellites



### ■ 3-D Printed Heat Pipe

- 3D-Printed heat pipes under development
- Intended for use of thermal control inside the heat generating components
- BBM model of groove structure design has been built for assessment and will be qualified by 2025.



**3D-Printed Heat Pipe  
Cross Section  
(external diameter: 6mm)**