

Flow field simulation analysis

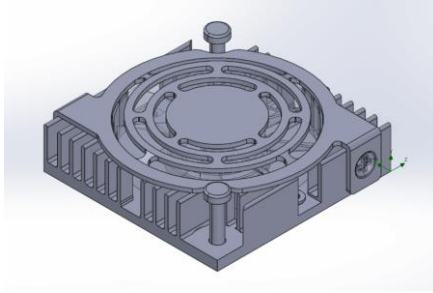
Heatsink-JSC00120

Side fluid_JDB04510

Axial fluid_JPY04008

Simulation parameters:

Part No:JSC00113



Fan type: JPY04008_(Axial fluid)

Fan Speed: 5000RPM

Heat load-size: 24x24x1 mm

Number of MESH:

Total cells, 351,811

Fluid cells, 278,822

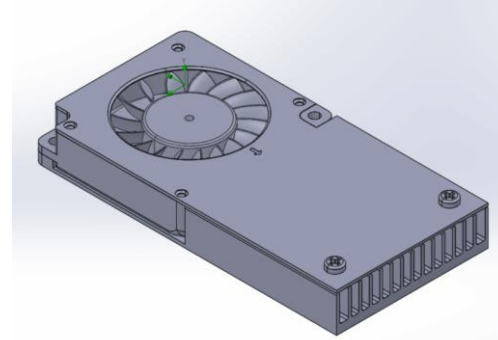
Solid cells, 72,989

Fluid cells contacting solids,75,881

Solid Materials:

Item	Type	Material
1	Fan	PBT
2	Fan guard	Aluminum
3	Heatsink	AL6061
4	Heat	Copper

Part No:JSC00120



Fan type: JDB04510_(Side fluid)

Fan Speed: 5800RPM

Heat load-size: 24x24x1 mm

Number of MESH:

Total cells, 300,311

Fluid cells, 211,130

Solid cells, 89,181

Fluid cells contacting solids, 80,333

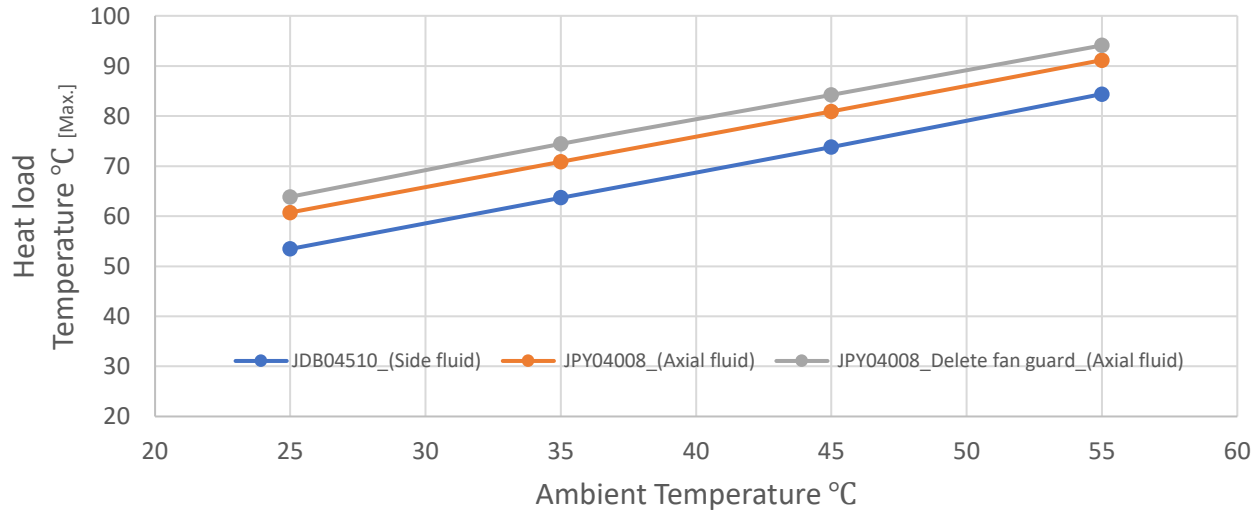
Solid Materials:

Item	Type	Material
1	Fan	PBT
2	Heatsink	AL6061
3	Heat	Copper
4	Cover	PBT

Simulation Data:

Heat load Power-15W

Heat load & Ambient Temperature



JPY04008_(Axial fluid)

Speed (RPM)	Power (W)	Temperature °C [Max.]			Temperature °C [Min.]	
		Fan	Heat load	Heatsink	Heat load	Heatsink
5000	15	25	60.73	60.71	57.85	50.9
5000	15	35	70.85	70.84	67.98	61.08
5000	15	45	80.91	80.89	78.05	71.13
5000	15	55	91.16	91.15	88.29	81.38

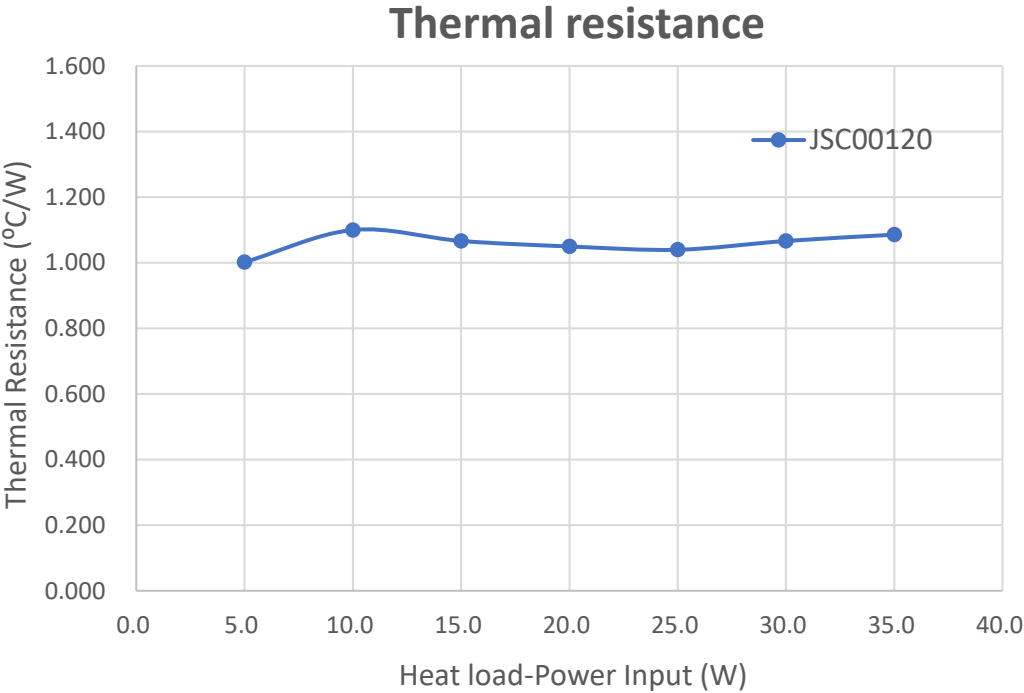
JDB04510_(Side fluid)

Speed (RPM)	Power (W)	Temperature °C [Max.]			Temperature °C [Min.]	
		Fan	Heat load	Heatsink	Heat load	Heatsink
5800	15	25	53.48	53.46	51.3	35.19
5800	15	35	63.68	63.68	45.25	45.25
5800	15	45	73.8	73.77	71.6	55.23
5800	15	55	84.38	84.36	82.08	65.22

JPY04008_Delete fan guard_(Axial fluid)

Speed (RPM)	Power (W)	Temperature °C [Max.]			Temperature °C [Min.]	
		Fan	Heat load	Heatsink	Heat load	Heatsink
5000	15	25	63.85	63.84	61.21	55.07
5000	15	35	74.43	74.42	71.78	65.7
5000	15	45	84.22	84.21	81.57	75.43
5000	15	55	94.12	94.11	91.46	85.29

Thermal resistance data:



Average Thermal Resistance:

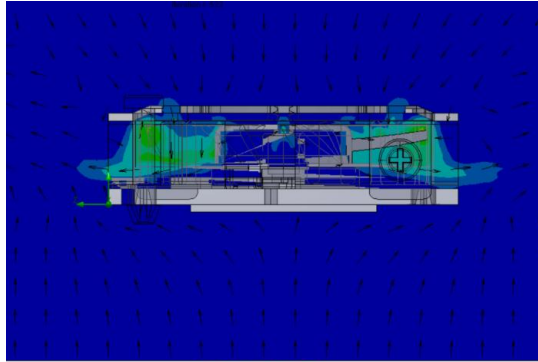
$$\Theta_{TH} = 1.059$$

Simulation result:

Heat load Power:15W
Ambient Temperature :25°C

Velocity [m/s]

JPY04008_(Axial fluid)

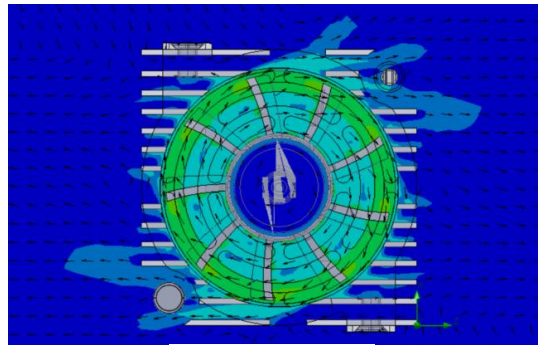
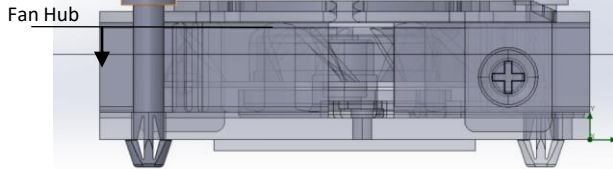


0 4,000 8,000 12,000 16,000

Velocity [m/s]

CutPlot 4: contours

Slice distance:2.5mm

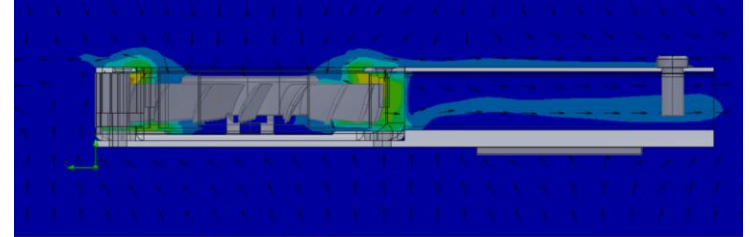


0 4,000 8,000 12,000 16,000

Velocity [m/s]

CutPlot 4: contours

JDB04510_(Side fluid)

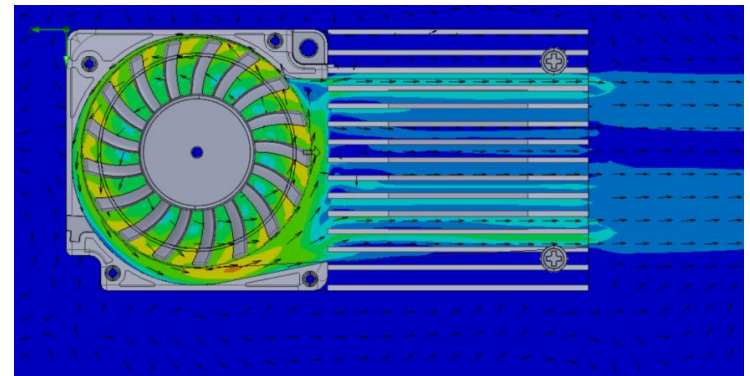
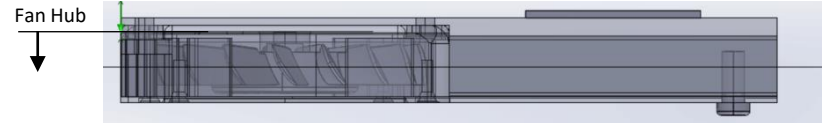


0 4,000 8,000 12,000 16,000

Velocity [m/s]

CutPlot 4: contours

Slice distance:3.5mm



0 4,000 8,000 12,000 16,000

Velocity [m/s]

CutPlot 4: contours

CutPlot 5: contours

Simulation result:

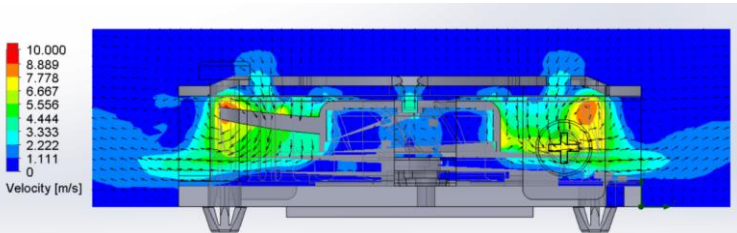
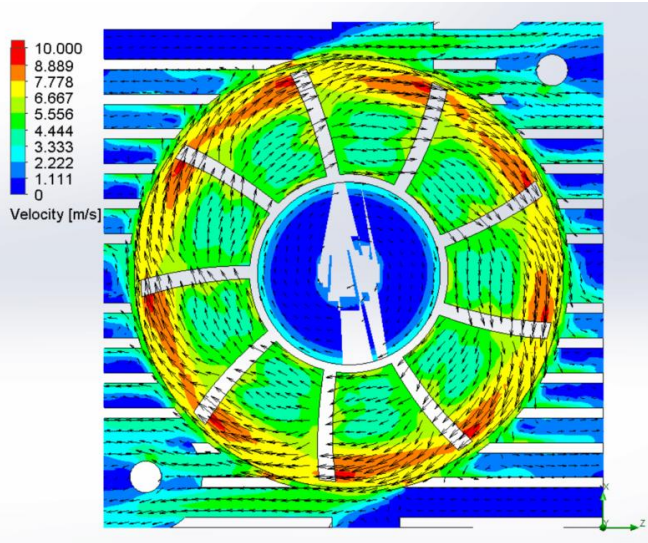
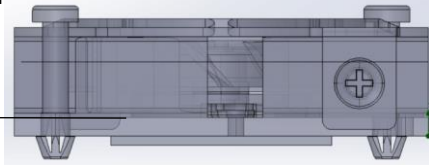
Heat load Power:15W
Ambient Temperature :25°C

Velocity [m/s]

JPY04008_(Axial fluid)

Slice distance:6.0mm

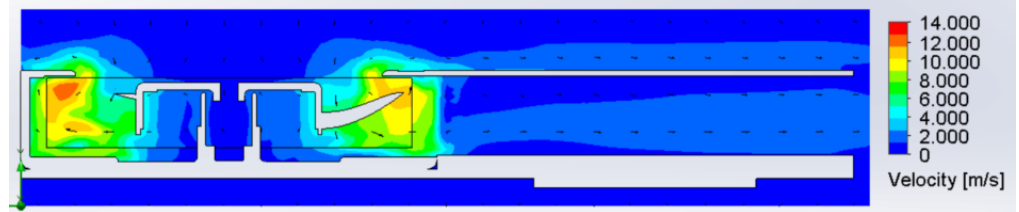
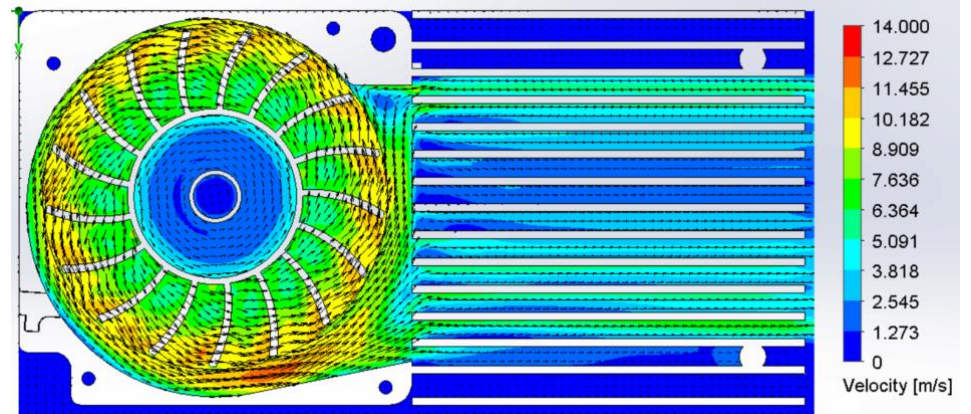
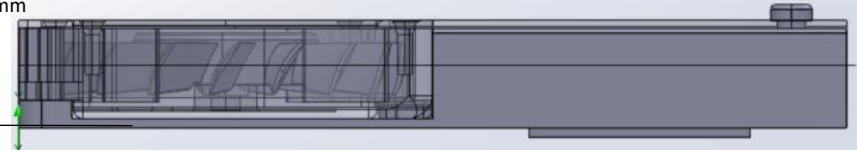
Fan Base



JDB04510_(Side fluid)

Slice distance:4.5mm

Fan Base



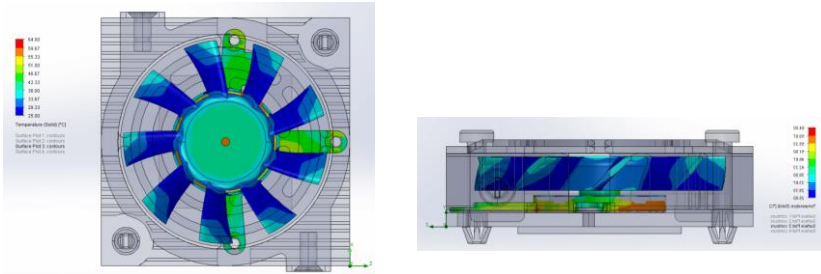
Simulation result:

Heat load Power:15W
Ambient Temperature :25°C

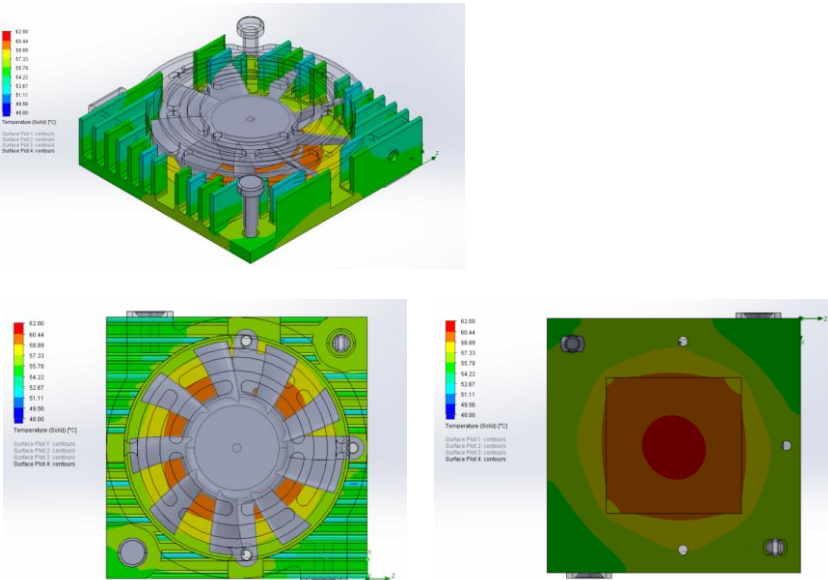
Solid Temperature °C

JPY04008_(Axial fluid)

FAN

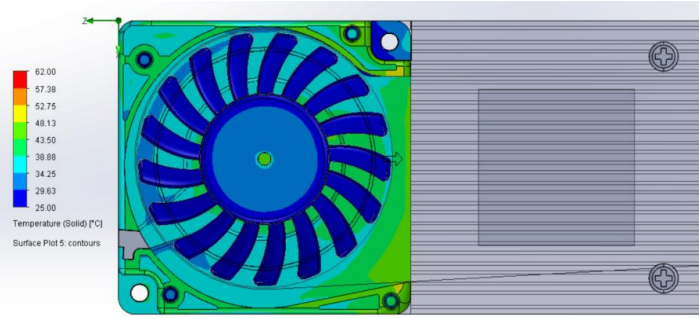


Heatsink

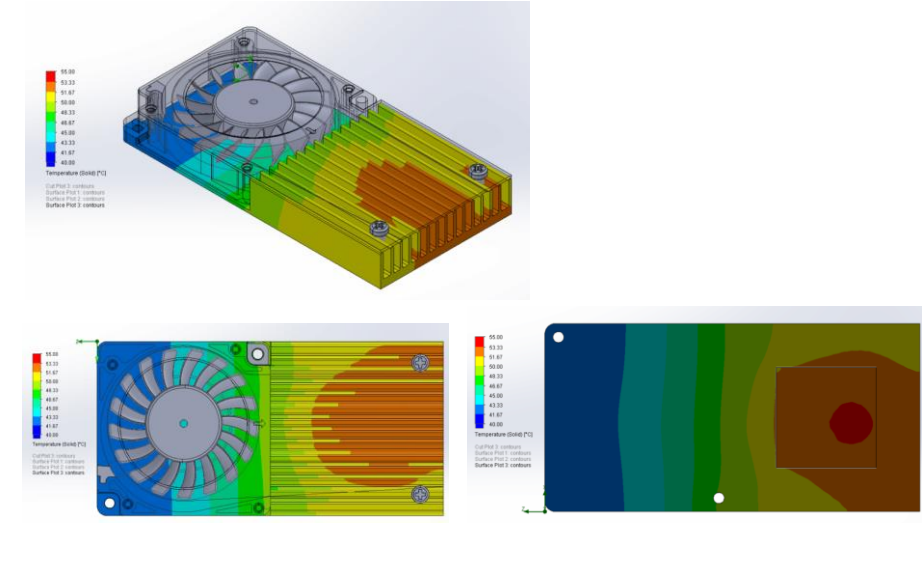


JDB04510_(Side fluid)

FAN



Heatsink



Simulation result:

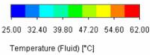
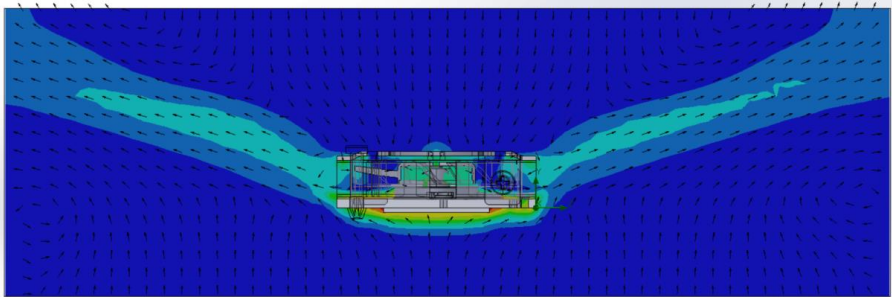
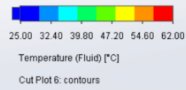
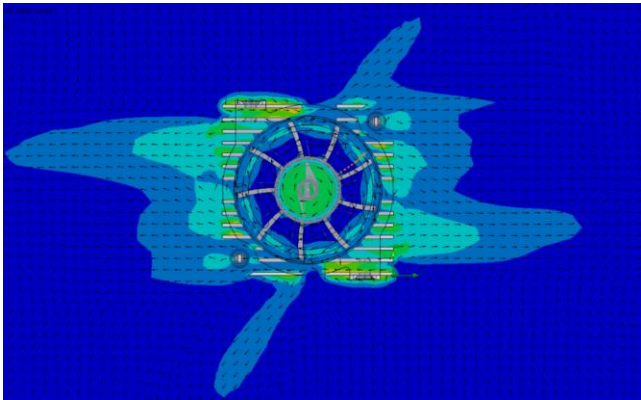
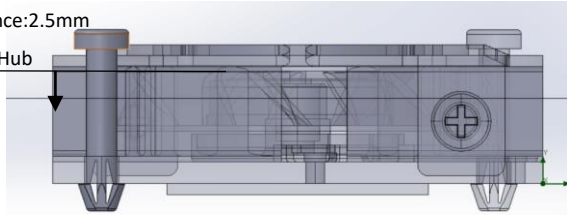
Heat load Power:15W
Ambient Temperature :25°C

Fluid Temperature °C

JPY04008_(Axial fluid)

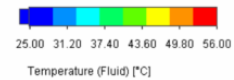
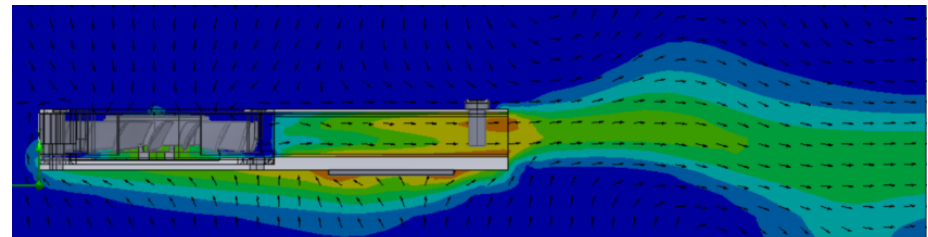
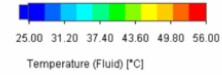
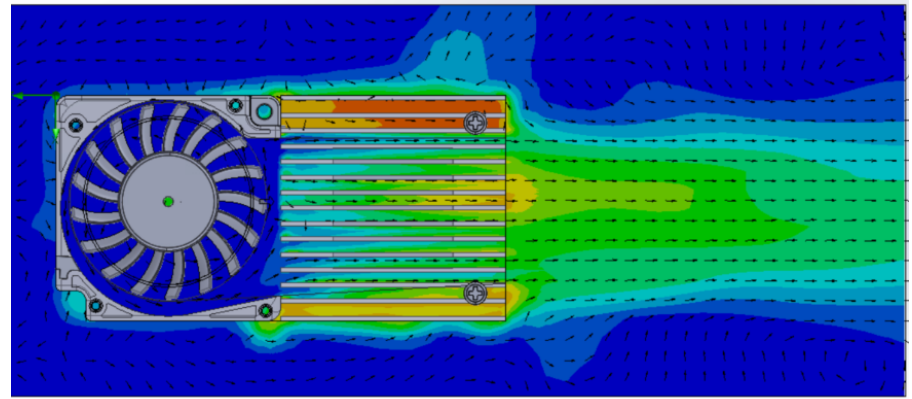
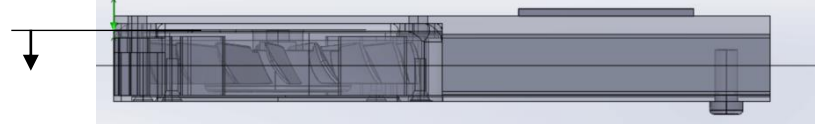
Slice distance:2.5mm

Fan Hub



JDB04510_(Side fluid)

Slice distance:3.5mm

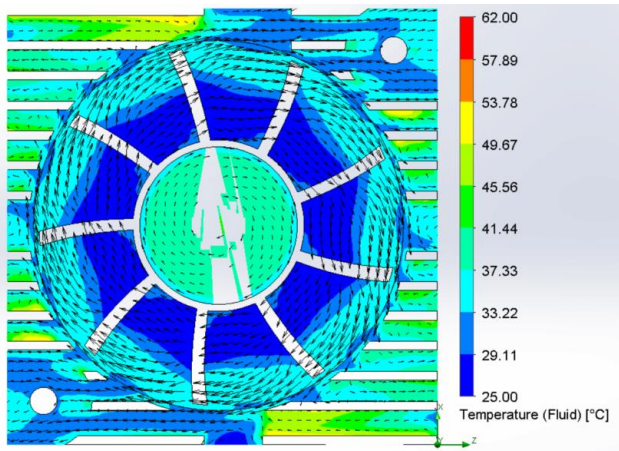


Simulation result:

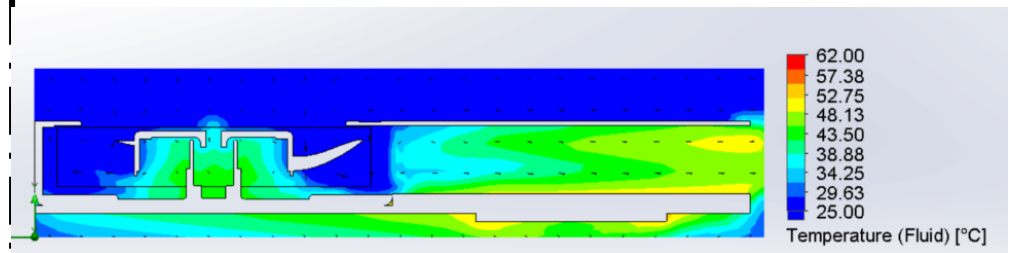
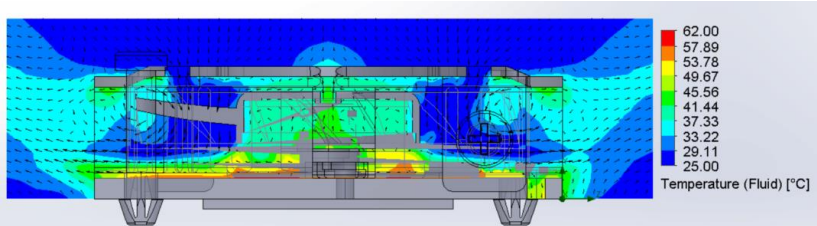
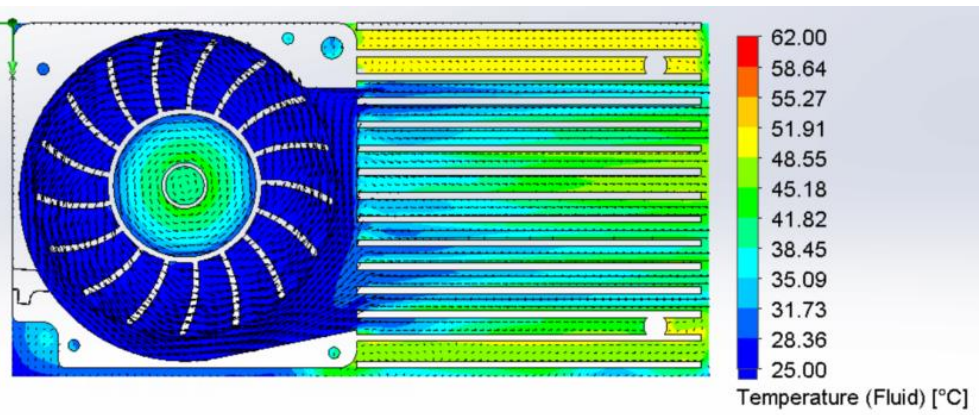
Heat load Power:15W
Ambient Temperature :25°C

Fluid Temperature °C

JPY04008_(Axial fluid)



JDB04510_(Side fluid)

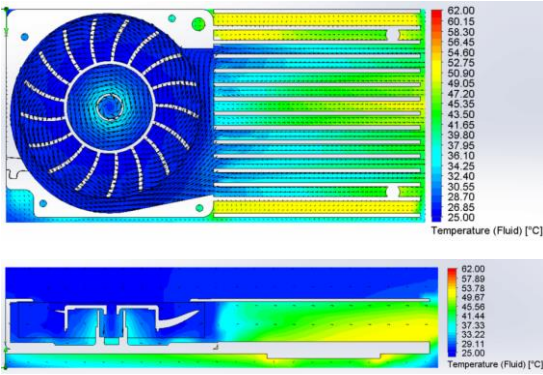


Simulation result:

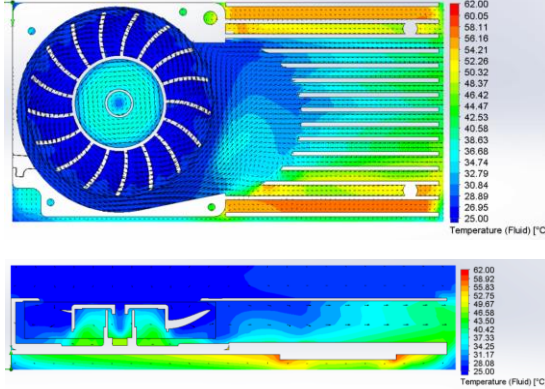
Heat load Power:15W
Ambient Temperature :25°C

Fluid Temperature °C

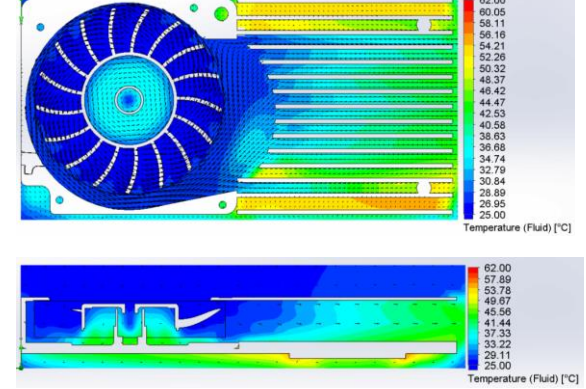
JDB04510_(Side fluid)



JDB04510_(Side fluid)_NEW1

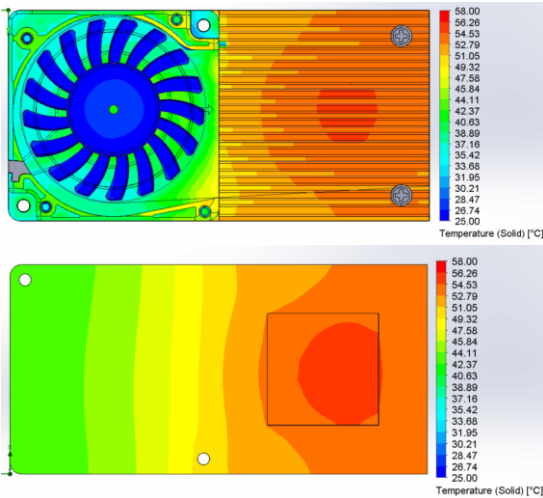


JDB04510_(Side fluid)_NEW2

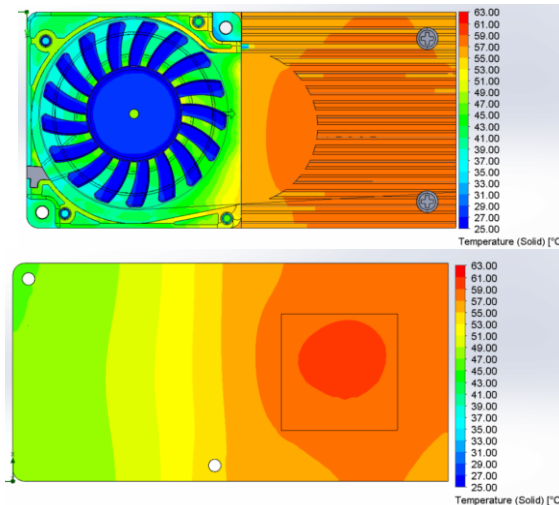


Solid Temperature °C

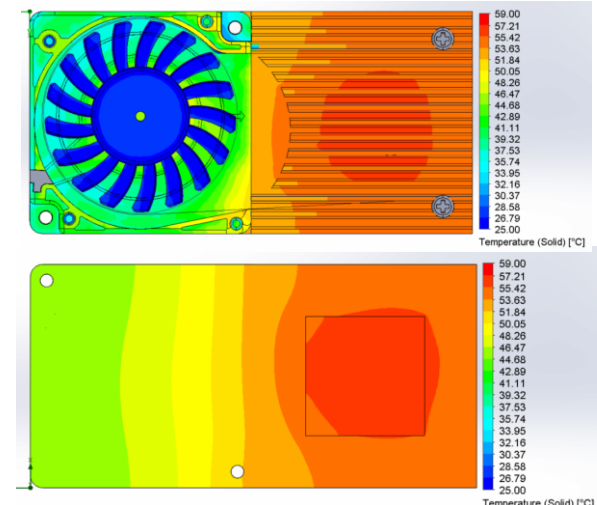
HEAT Temperature [Max.]
53.48 °C



HEAT Temperature [Max.]
59.25 °C



HEAT Temperature [Max.]
56.42 °C

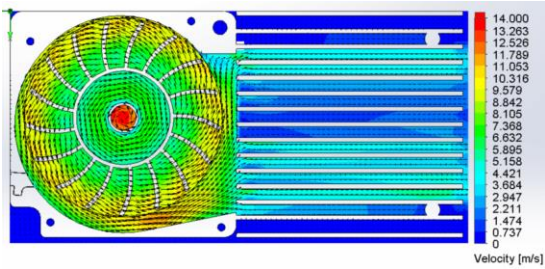


Simulation result:

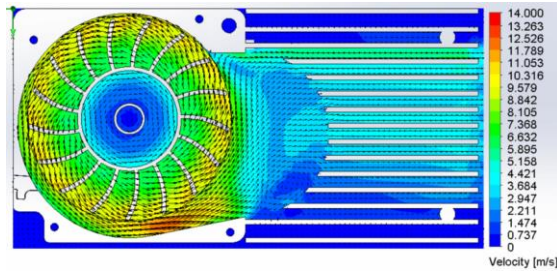
Heat load Power:15W
Ambient Temperature :25°C

Velocity [m/s]

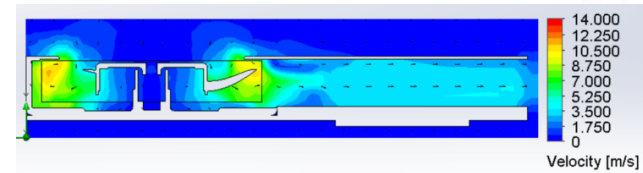
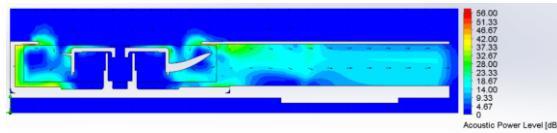
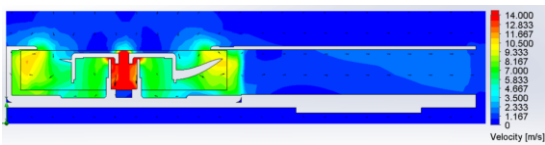
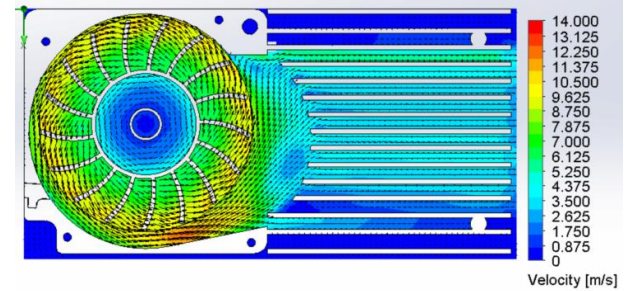
JDB04510_(Side fluid)



JDB04510_(Side fluid)_NEW1

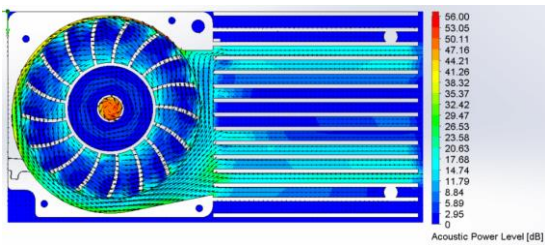


JDB04510_(Side fluid)_NEW2

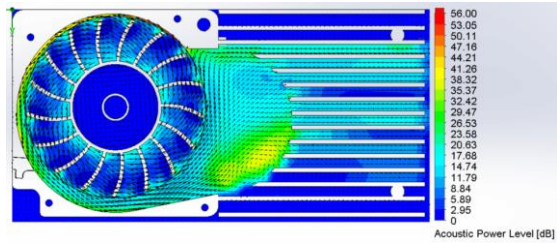


Acoustic Power Level [dB]

JDB04510_(Side fluid)



JDB04510_(Side fluid)_NEW1



JDB04510_(Side fluid)_NEW2

