

# CPS Magnet Status

Aug 25, 2023

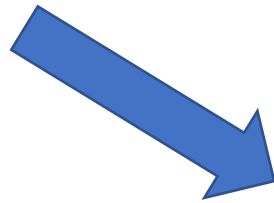
# Coil Fabrication - TOKIN

- Coils Wound, Insulated and Vacuum impregnated
- Discussion on quality of outer epoxy layers
- Dimensional checks made by vendor and passed
- Cooling channels flushed and cleaned
- Hi-potted - Passed
- Pressure and Flow tested
- Prepping for shipping

# ● Impregnation



After  
vacuum  
impregnation



Perform vacuum impregnation to allow resin to permeate the coil spaces.



# ●Taping



Smooth the surface.



Fill spaces by applying BT resin.



Wrap BT pre-preg tape around the surface.





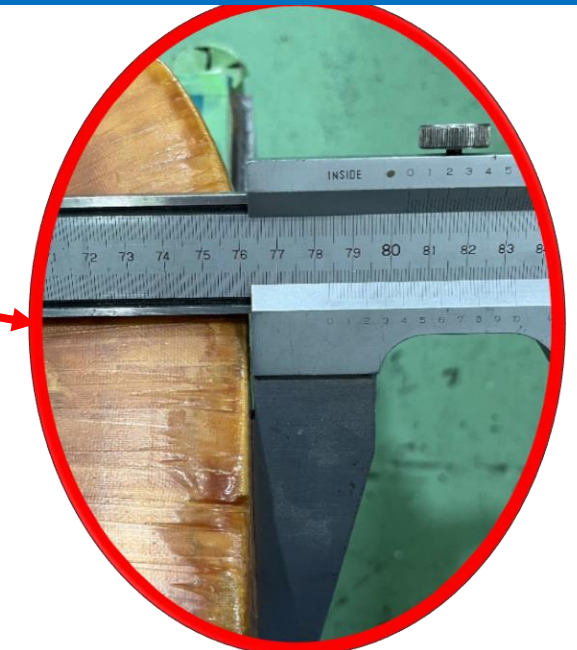
# ●Dimensional Measurements(4950-01)



**Overall view(4950-01)**



# ● Dimensional Measurements(4950-01)





# ● Dimensional Measurements(4950-02)



**Overall view(4950-02)**



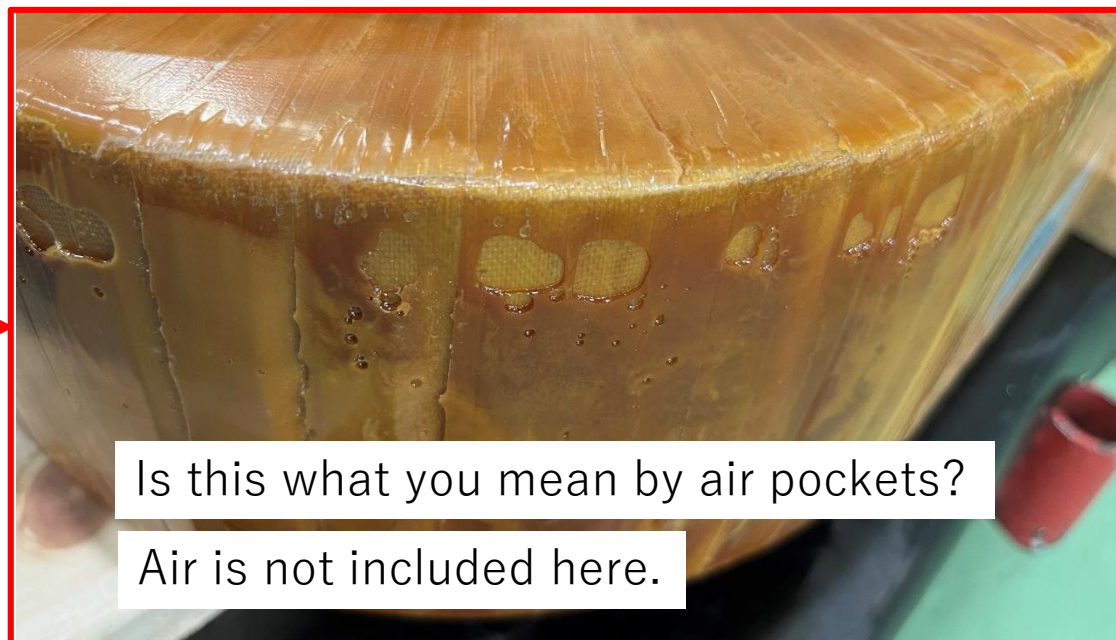
# ● Dimensional Measurements(4950-02)





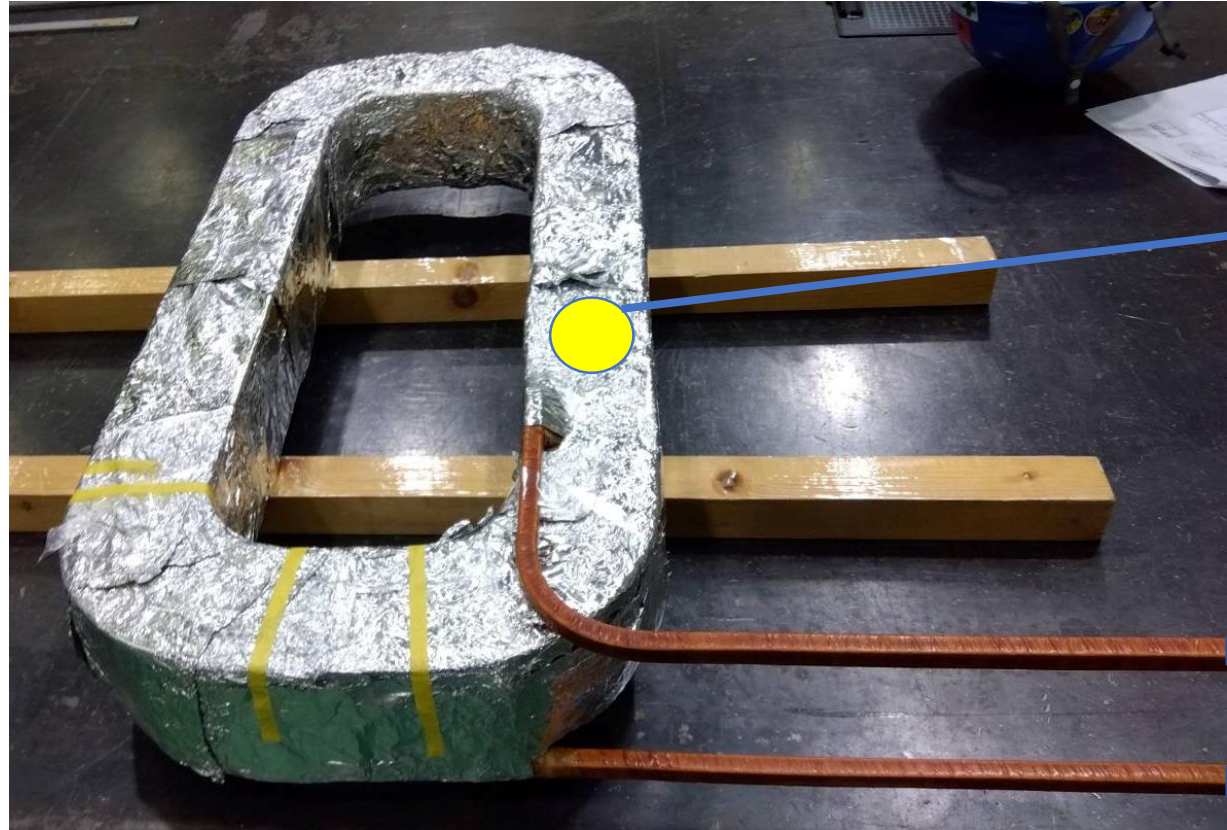








# ● AC Hipot test

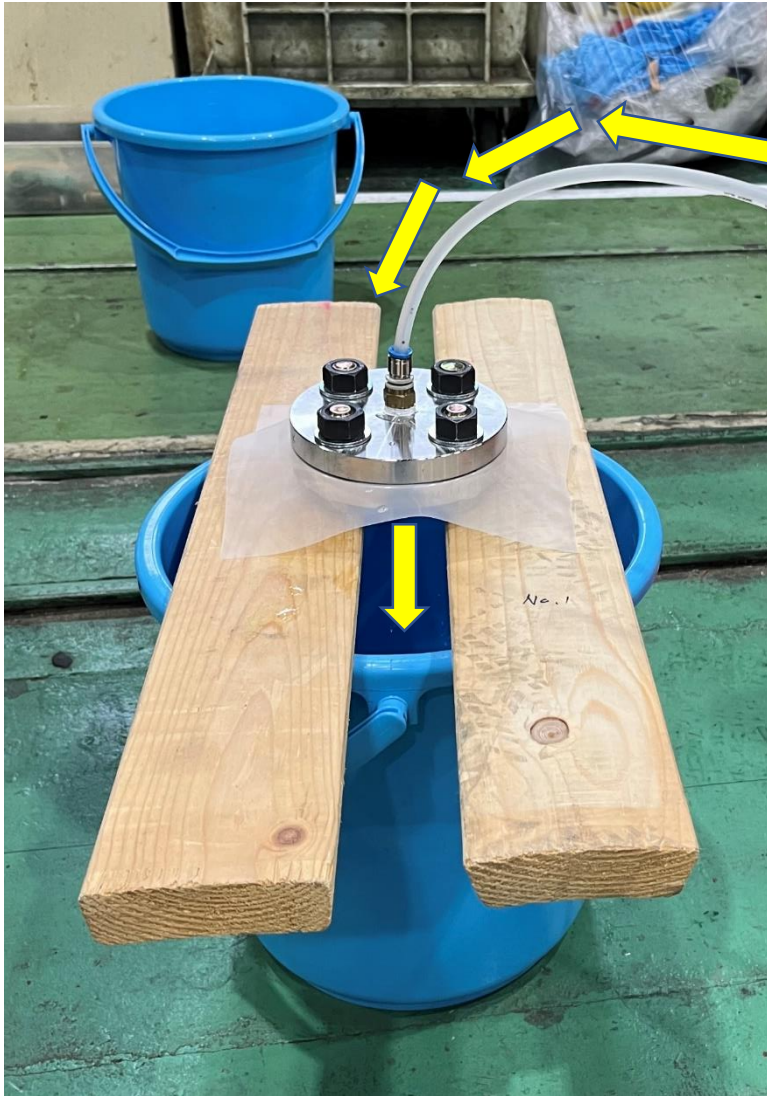


Apply 1.5kV AC  
1 minute





# ●Water circuit Test



Pass water from the hose to the filter.

141 $\mu$ m size filter

1 min  
0.3 MPa



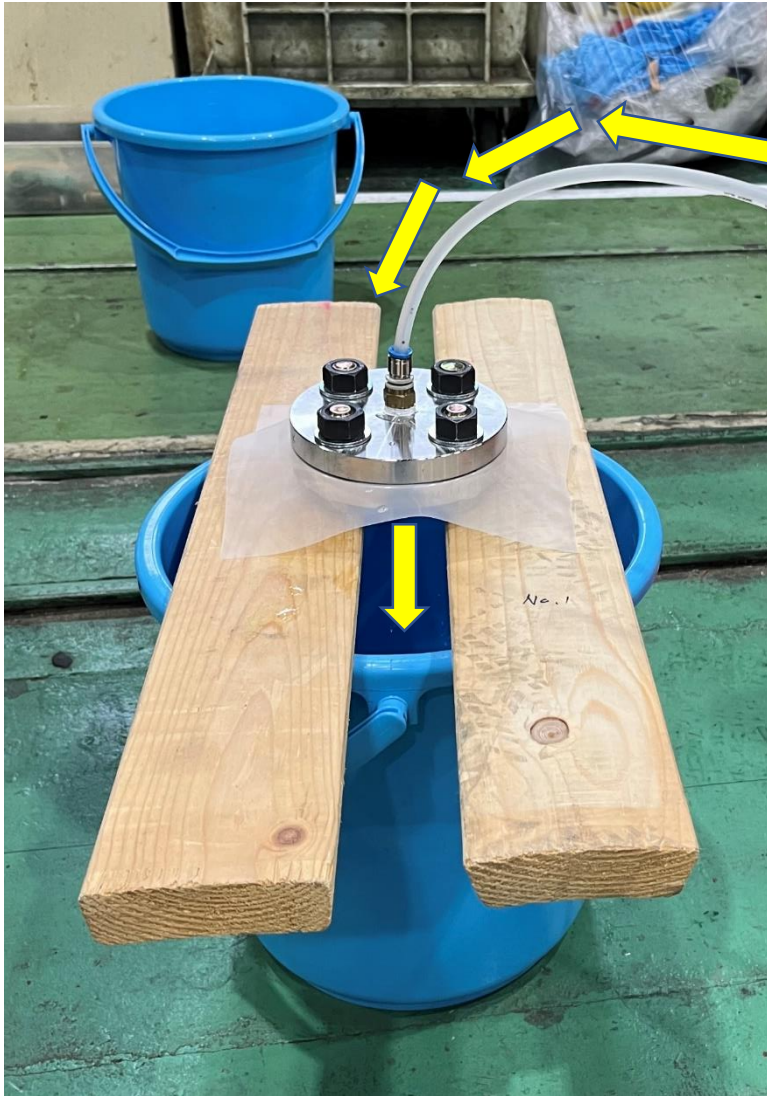
4950-01



Post-Watering



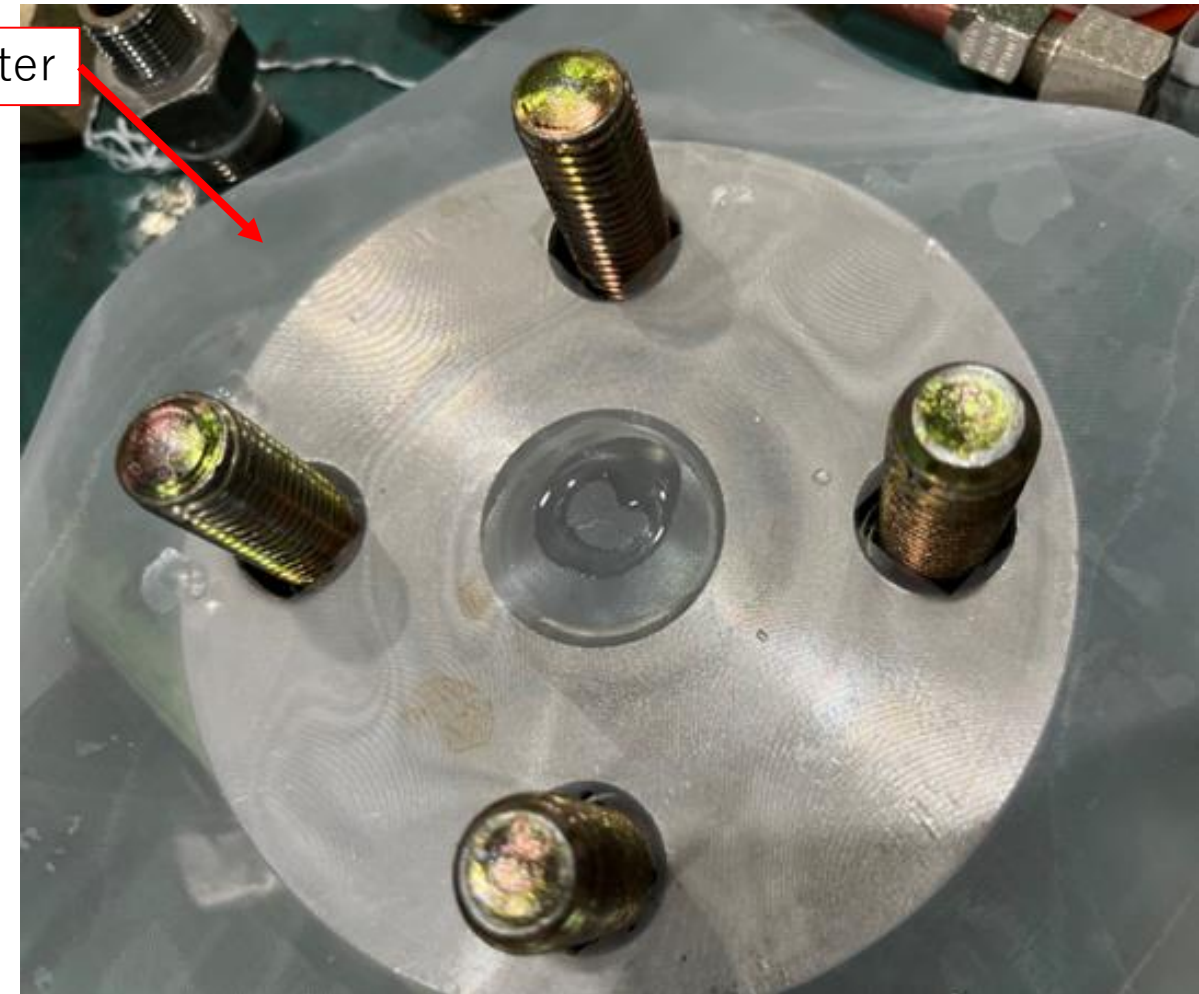
# ●Water circuit Test



Pass water from the hose to the filter.

141 $\mu$ m size filter

1 min  
0.3 MPa



Post-Watering



Molded with the plate

Resin seeps out



- The shape of the surface is maintained with a molded plate on the straight part.
- Since there is no molded plate in the curved part, the resin seeps out.



There is no problem with insulation performance because the resin has sufficiently permeated inside the coil.



# Pressure and Flow Test -1C

CPS COIL                      Flow/Pressuer Tests                      Fig-1 (4950- 1C)

Date: 7/19/2023

Water temperature: 27 °C

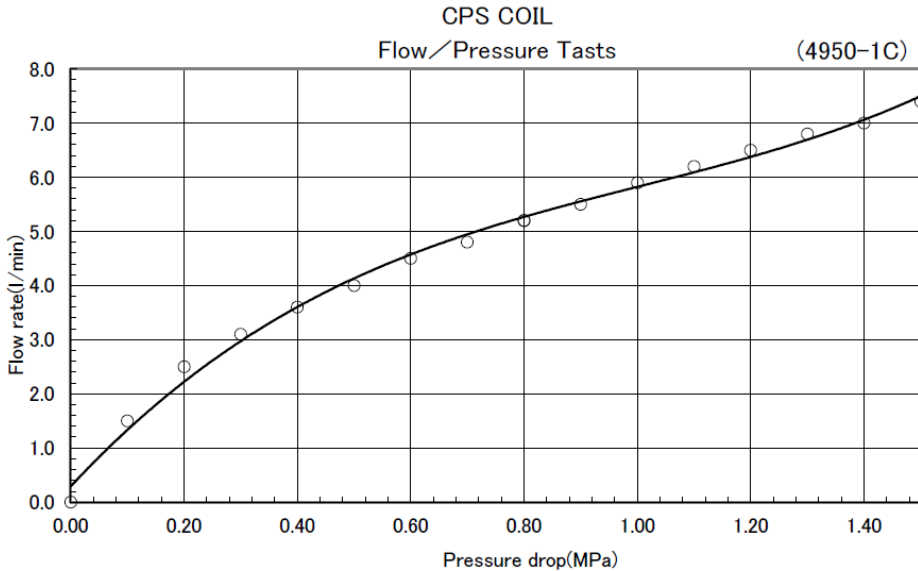
[illegible]

Fig - 1



# Pressure and Flow Test -2C

CPS COIL Flow/Pressuer Tests Fig-1 (4950- 2C)

Date: 7/19/2023

Water temperature: 27 °C

Pressure drop	IN	OUT	Flow rate		
[MPa]	[MPa]	[MPa]	[L/min]		
0.00	0.00	0.00	0.0		
0.10	0.10	0.00	1.5		
0.20	0.20	0.00	2.5		
0.30	0.30	0.00	3.2		
0.40	0.40	0.00	3.7		
0.50	0.50	0.00	4.1		
0.60	0.60	0.00	4.5		
0.70	0.70	0.00	4.9		
0.80	0.80	0.00	5.2		
0.90	0.90	0.00	5.5		
1.00	1.01	0.01	5.9		
1.10	1.11	0.01	6.2		
1.20	1.21	0.01	6.6		
1.30	1.31	0.01	6.9		
1.40	1.41	0.01	7.2		
1.50	1.51	0.01	7.5		
0.80	0.80	0.00	5.2		

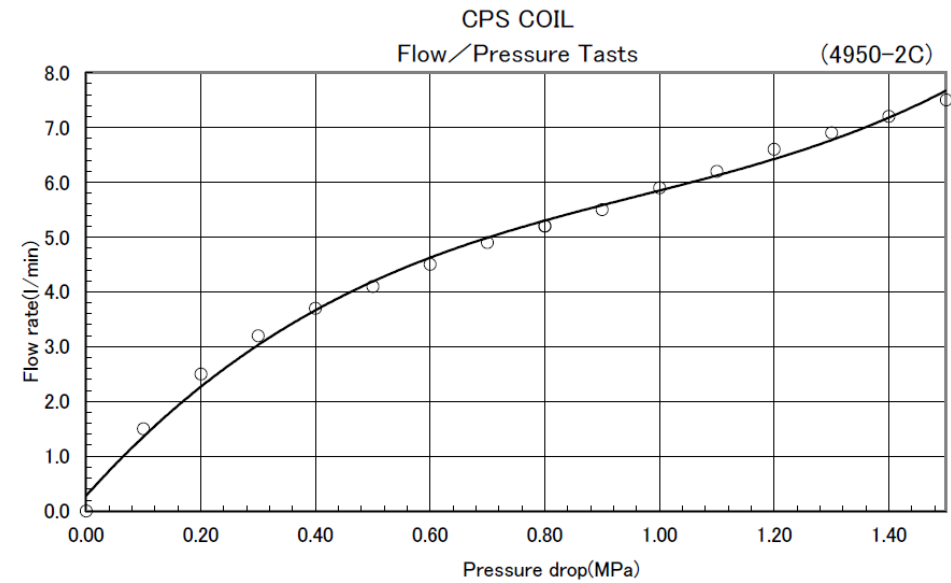
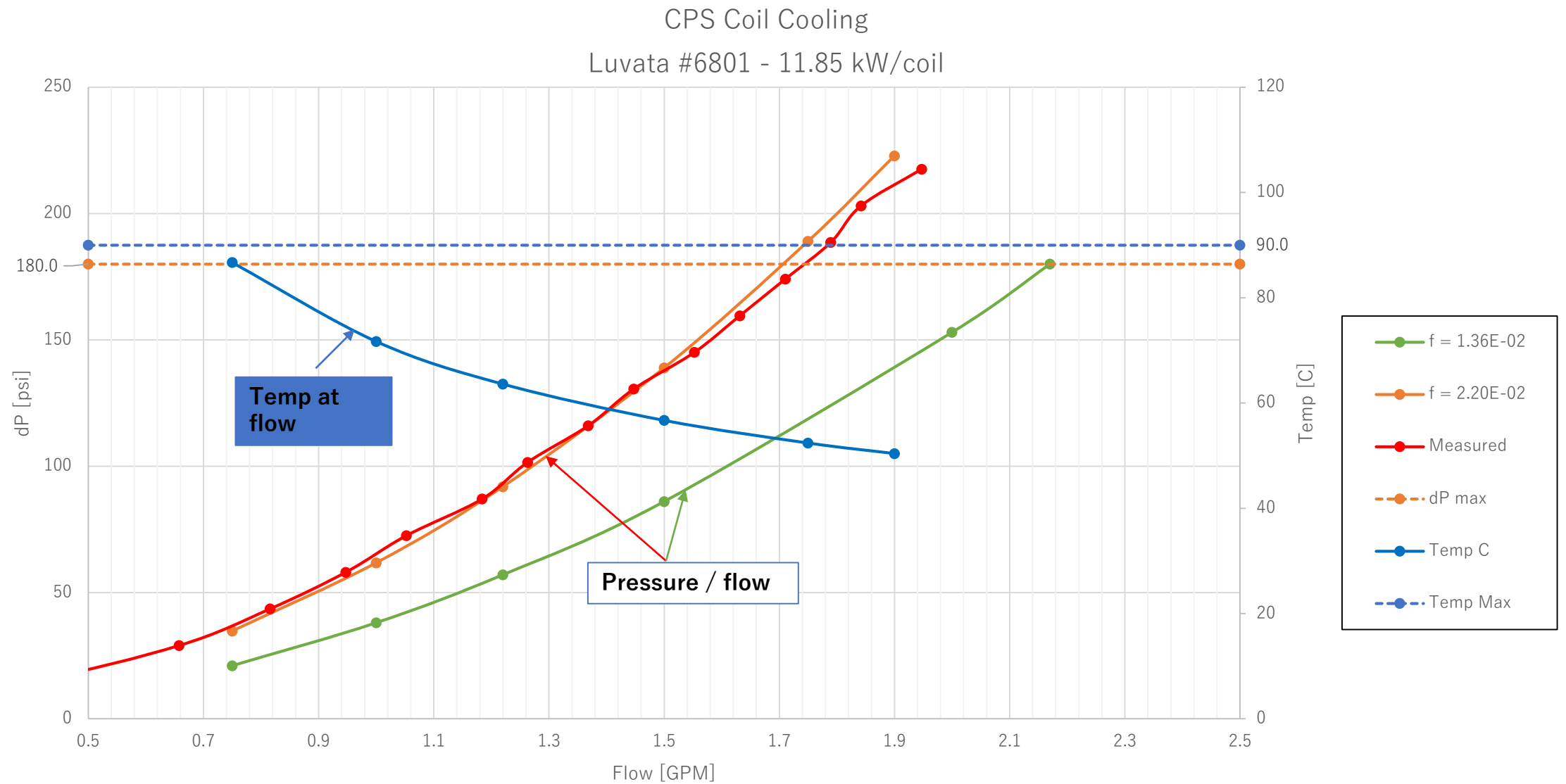


Fig - 1



# Calculations vs Measured





## Latest TOKIN Vendor report 8/23/2023

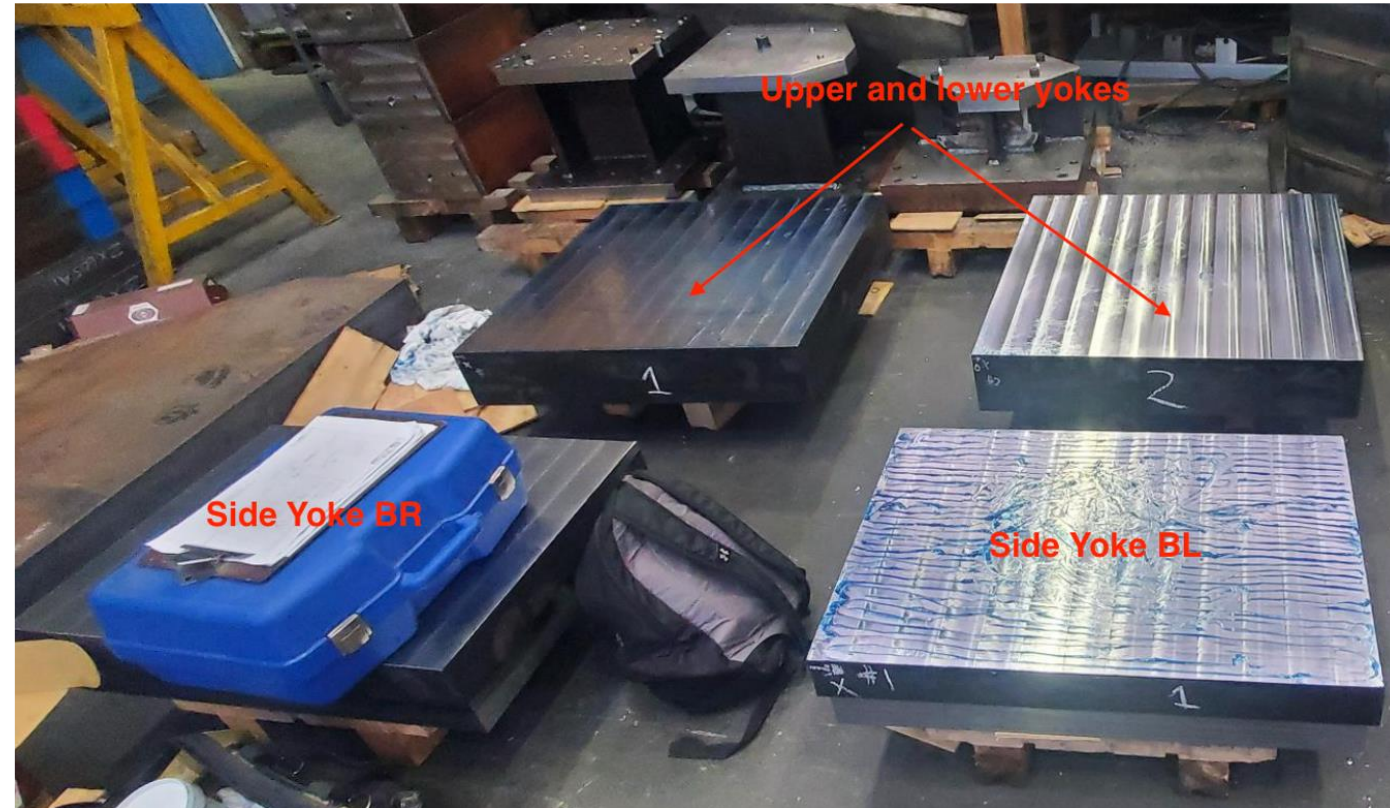
- Coils shipment is currently in preparation.
- Packing will be done on the day of shipment, so we will send you the photos later.
- The sales team will provide you with more details about the transportation.



# Magnet Pole and Yoke - Buckley

- Materials delivered to vendor
- Ultra sound testing done at 100% coverage- passed
- Yoke machining done. Assembly of pieces for precise doweling/pinning.
- Pole machine is in progress.
- Cooling plates slated for machining next.

# Ultra Sonic testing of Poles/Yoke passed 100 % scan area



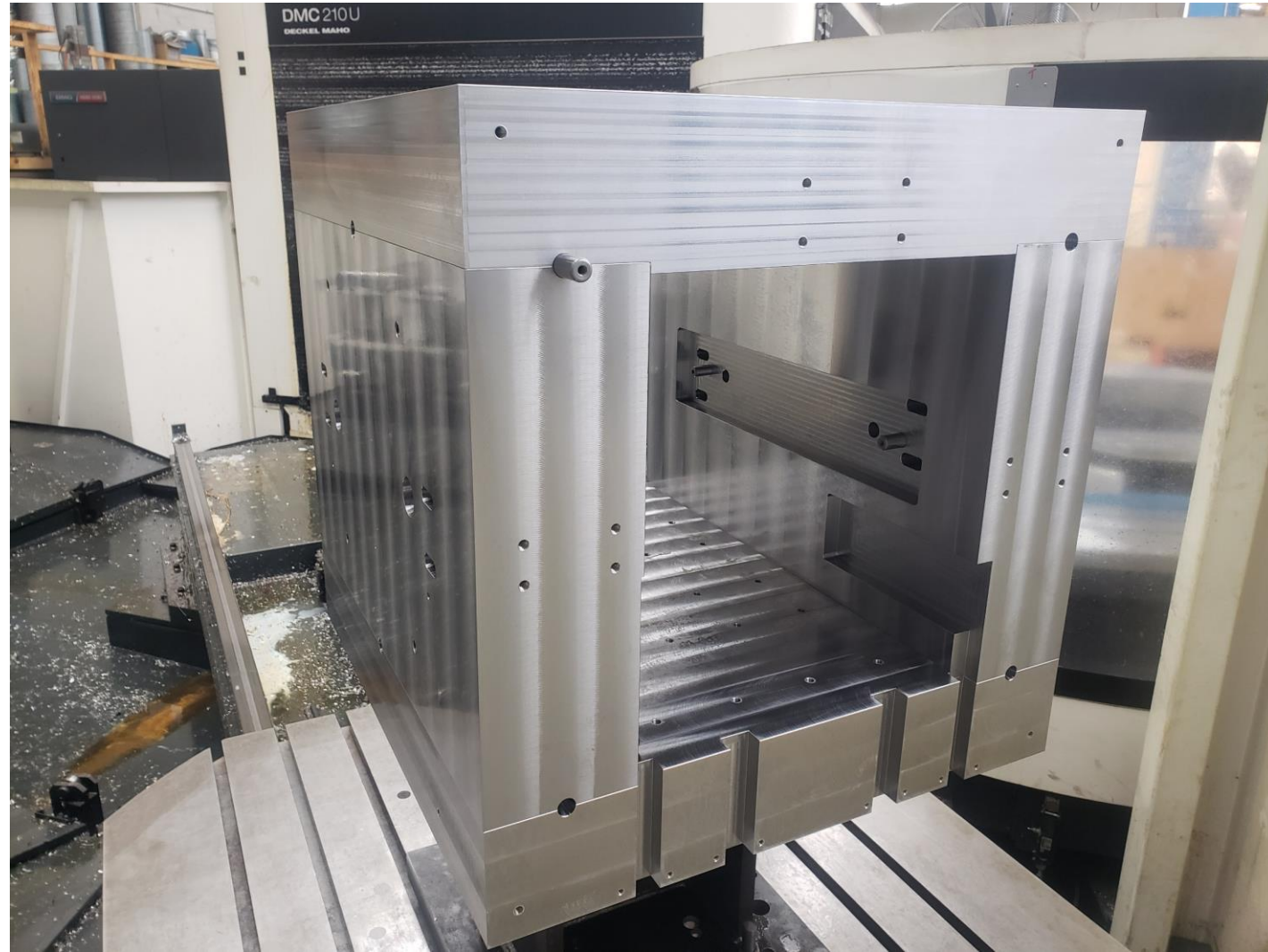


# CPS Pole/Yoke

Pole Machining



Yoke assembly and dowel pinning



# Latest Buckley Vendor Comments 8/24/2023

- The yoke is progressing well and is currently on the machine undergoing the scotch doweling operation, as per the pic attached. This will be followed by the necessary QA inspections.
- 
- The poles have been started and all going well these should be ready by the end of next week.
- The cooling plates are due up on the machines next week.
- 
- One outstanding detail is, we are yet to purchase the paint, and therefore welcome your feedback on the RAL colour information. Once the yoke is ready and QA have validated the requirements, this will be the next step in the manufacturing process.
- 
- One further question I have is whether you want us to ship the magnet complete? ie with the poles attached, or would you prefer these to be packed and shipped separate from the magnet yoke.
- Referencing the drawings, we note the pole assembly is for vendor use only, so at this stage we are assuming the poles can be shipped separate from the magnet, which is possibly safer.
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- I trust this update is as per your requirements.



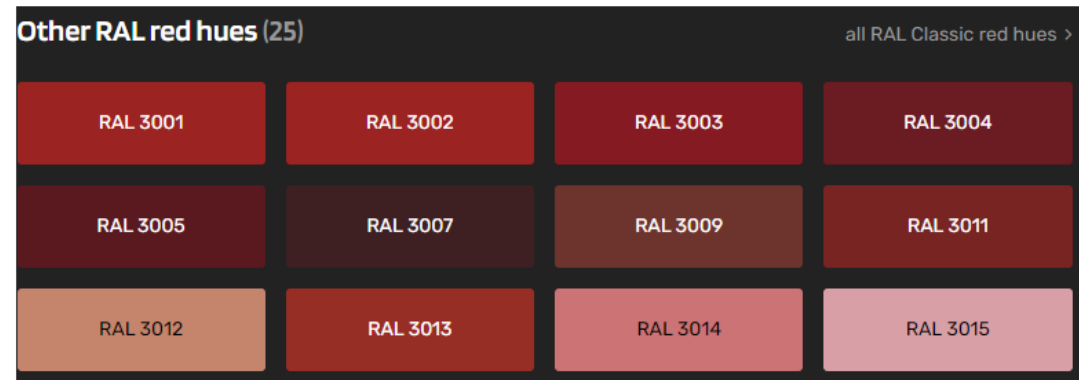
# CPS Yoke Paint

Sorry but we have one more question for you regarding this project and the paint to use.

We note the paint specified is - RUST-OLEUM FIRE HYDRANT RED 1210 PAINT, spec sheet is as attached.

This product is not locally available so we propose to use an equivalent PPG paint, BSL typically use RAL colors and in this instance we cannot find an equivalent color online, are you able to confirm the color / RAL code for the paint you want?

Below is the rust oleum paint swatch as well as some typical RAL red color codes for your reference.



We welcome your feedback on these paint details,