

Examples and challenges at AMRC

# Pro-beam Innovation Club

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Thomas Dutilleul, Robert Widdison  
AMRC, The University of Sheffield, Rotherham, UK

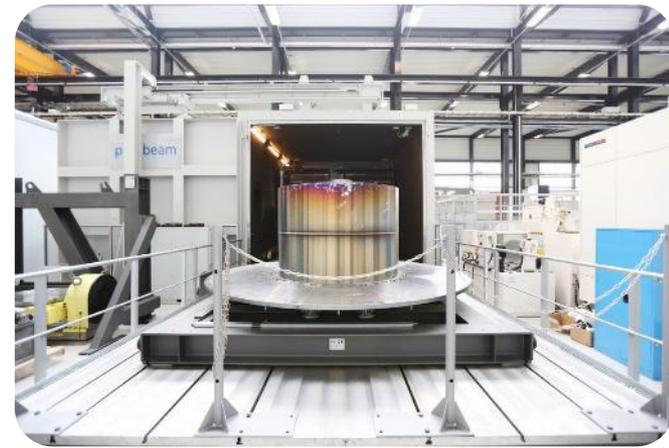
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# Nuclear AMRC capabilities

## Pro-beam K2000

	Pro-beam K2000
Chamber size	8.7 x 5.2 x 4.6 m <sup>3</sup>
Chamber volume	208 m <sup>3</sup>
Max Work piece size	6.4 x 4.0 x 3.2 m <sup>3</sup> at 100 tonne
Acceleration voltage	60 or 80 kV
Max beam power	30 or 40 kW
Wire feeder	2 off
Pump down time	45 min



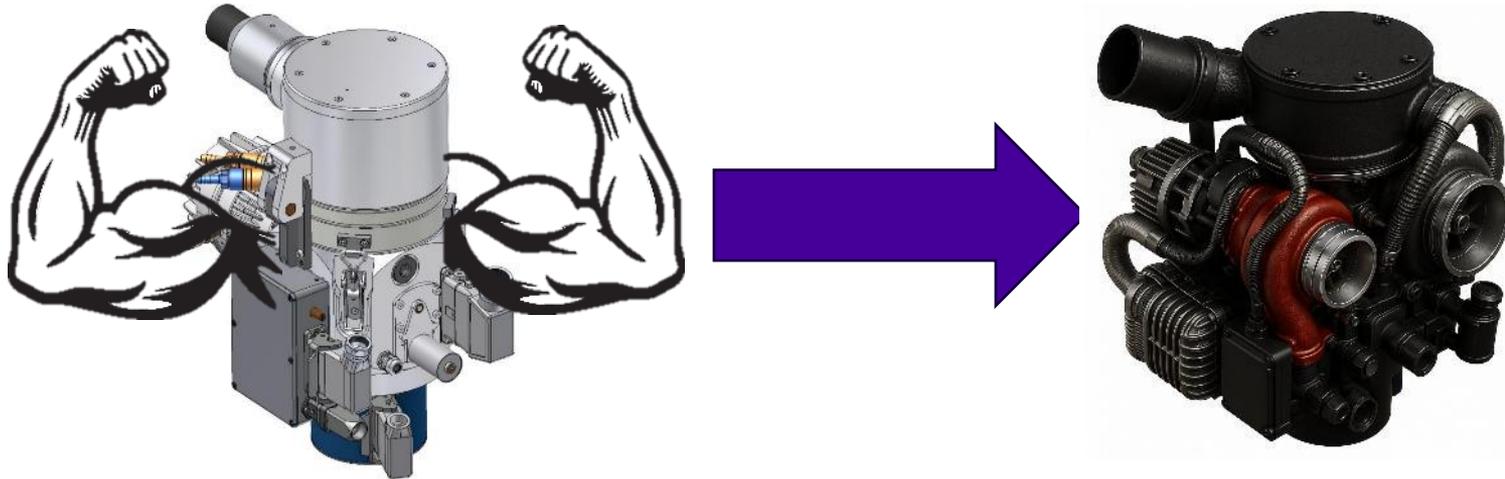
pro beam

# More power!

Working in England with CVE, we can see our lack of power is our main weakness.

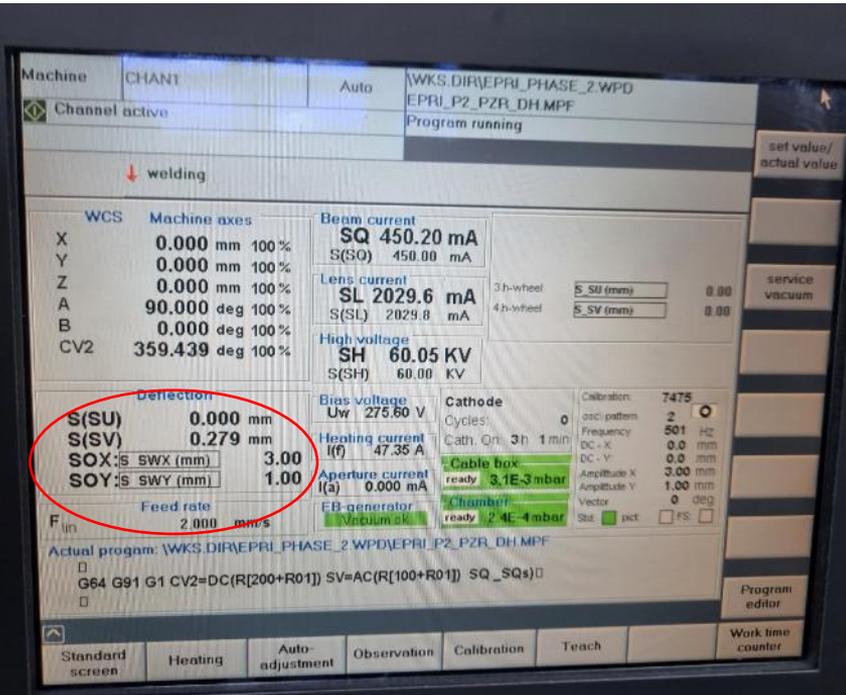
Local vacuum is attractive, but manipulation is more important.

What we want is keep mob-gun but better: EBG40-80 MobGen >>> EBG50-100 >>> EBG60-120



And yes, we will keep asking for it until you stop inviting us to the innovation club!

## Example/challenges: Miscellaneous



We see more and more situations where we need to change S\_FiG,S\_SWX, S\_SWY, S\_Freq at the same time.

We feel SOZ,SOW, would be a good addition to SOX, SOY.

Also Because this would cost a lot of axes, we would like 1 axes that can modify S\_FIG, S\_SWX, S\_SWY, S\_Freq. == S\_OSC(S\_FIG,S\_SWX,S\_SWY,S\_FREQ).

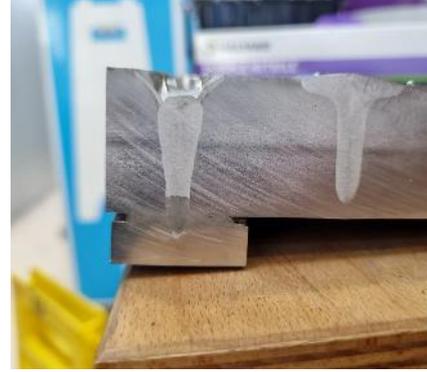
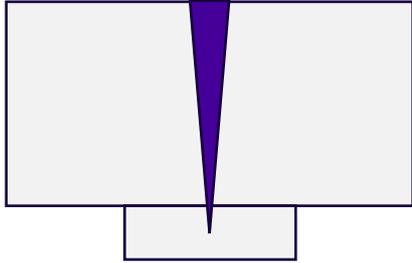
Similarly, when changing working distance, we want to change Kalwert and not S\_SWX,S\_SWY.

## Example: Welding for Kairos Power 2.5m OD 5m long RV 38 mm thick

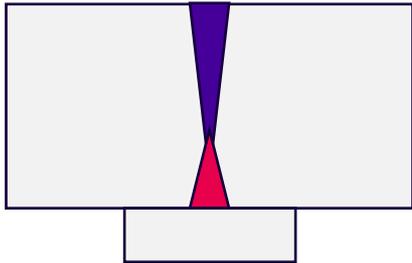


In this project, we started in the 2G/PC position.  
As the assemblies grew, we had to start working  
in the 1G/PA position.

# Challenge

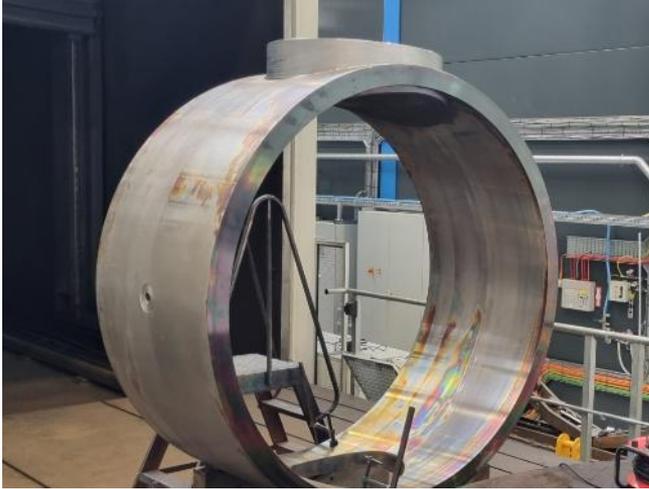


Welding in 1G/PA presents its risks. If the backing is not good enough, you get a nasty defect



Partial pen feels safer however this requires a second pass.... GTAW or EB?

# Nozzle application



During nozzle application, we had programming challenges:

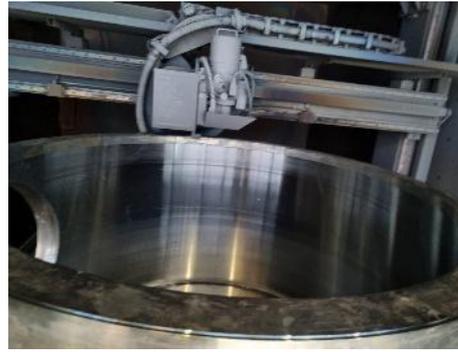
**Challenge:** a lot happen during welding. If there is too much/little power, changing SQ is dangerous as this impacts beam shape/quality and cancels out the programming steps.

Weld speed may be a better option but : We cannot change Speed during welding. Is there a solution?

Here we also limited in power (~80mm)

The use of backing bar also is considered a pain. Can we extend our gun to go inside for dual sided approach?

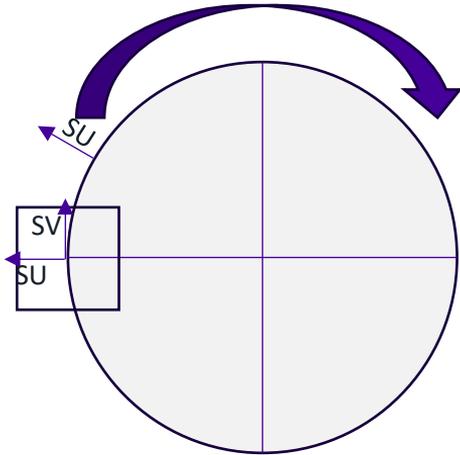
## More 1G/PA weld



In this weld, we made 80 mm from one side and 10 mm from the other side, 1.5m away !

## Challenge: Seam tracking

- More manual instructions, more cases study, seam tracker pro user training
- If single to double line. Need to keep changing (1 line, 2 line, left one...)
- In our nozzle challenge, during seam tracking, we need to work with SU and SV, could we rotate SV that follows the our rotation move





# Challenge



We are just too good and the machine is performing great !  
As such, we do not seem to get a breather.

When is our maintenance happening so we can rest ?!

Thank you

# Response

- Mobgun
- SOX SOY SOZ SOW
- Kalwert
- Internal gun for dual sided
- Manual speed control
- Seam tracking

# Thank you.

For further information please contact or visit:

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