

Application lab report

Cutting of cardan shafts - heat treated steel



QATM-Preparation method

Objective:

The samples must be cut crosswise and longitudinal without any burning and with good surface quality. All cuts were made on the Qcut 250 A. Detailed parameters and pictures you will find in the following report.



Figure 1: Overview of the samples.

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Cutting

 Cutting			
Device	Cut-off disc	Anti-corrosion coolant	Clamping tool
Qcut 250 A	Typ A (92002599) FS-C 250A (95012527) FS-D250A (95012526) FS-E250A (95012525)	QATM Cool Cut (95004146)	Qtool 60 (Z2235200)
Cutting method			
Longitudinal Horizontal cut (X-axis)			
Parameters			
Feed speed	Pulse parameter	Cut-off disc rotational speed	
0,35 mm/s	Without pulse	3015 RPM	
Notes			
- Typ A: It was not possible to cut the sample. The cutting disk jumped on the sample surface. (See picture 2). - FS-C250A: no burning, surface quality see chart below - FS-D250A: no burning, surface quality see chart below - FS-E250A: no burning, surface quality see chart below - From our point of view, all surfaces are very suitable for further preparation. For the clamping we used a support block (see picture 3-5 and 15).			

Cut-off wheel	Ra μm	Rz μm	Rt μm
FS-C250A	1,0	8,8	11,9
FS-D250A	0,5	4,3	6,3
FS-E250A	0,6	4,1	6,6

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Figure 2: Failed cutting attempt with Type A.



Figure 3: Clamping cut 1.

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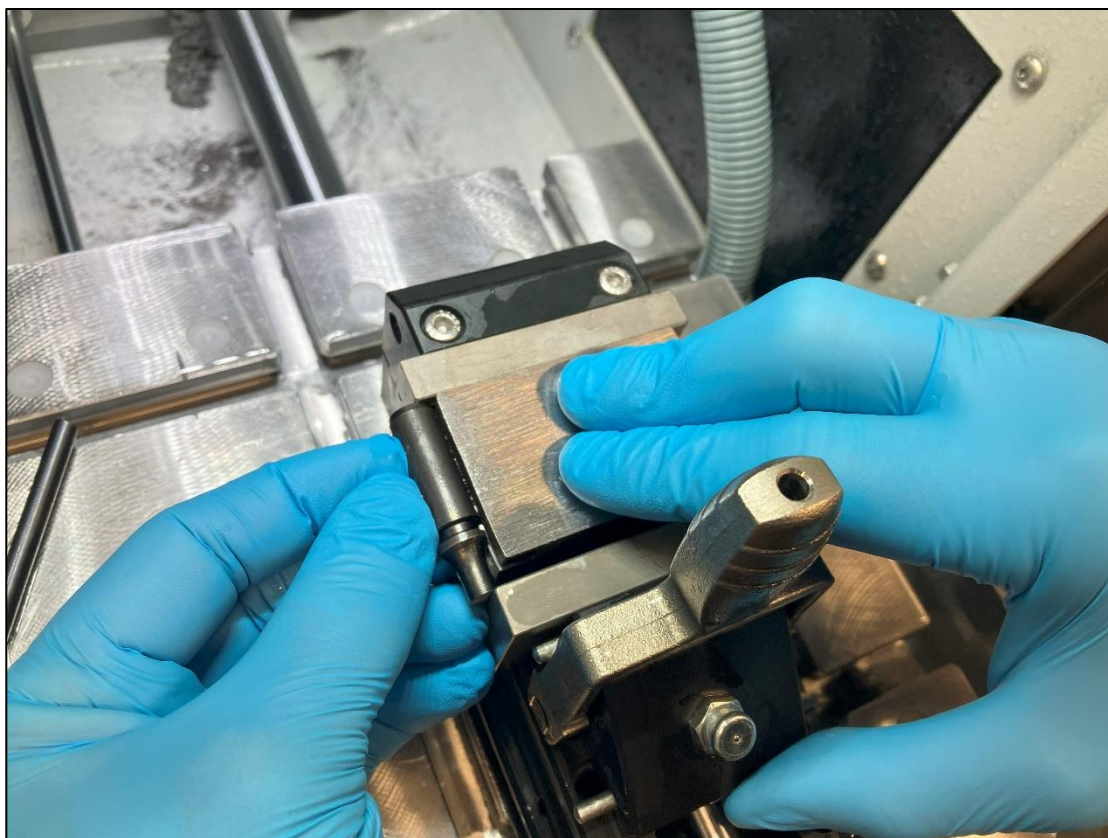


Figure 4: Clamping with support block.

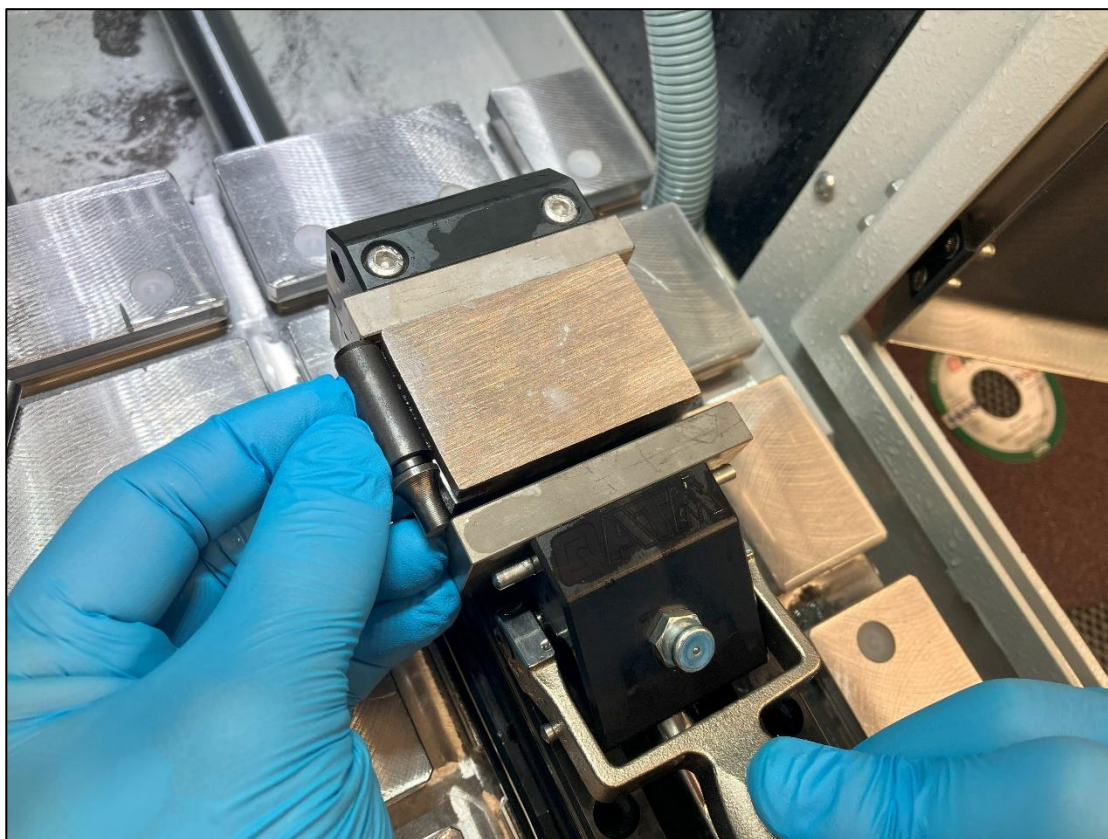


Figure 5: Clamping with support block.

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Figure 6: Clamping with support block.



Figure 7: Clamping with support block.

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Figure 8: Short part before cutting.



Figure 9: Short part before cutting.

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Figure 10: Short part after cutting.

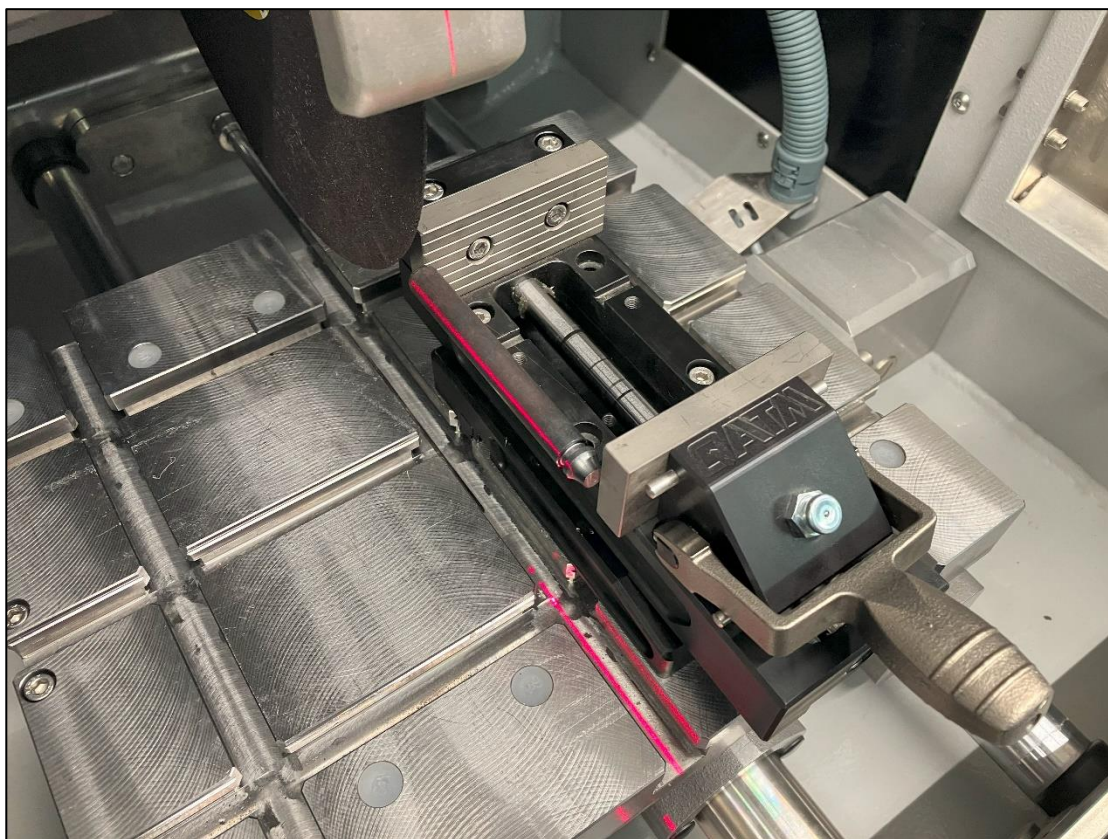


Figure 11: Long part before cutting.

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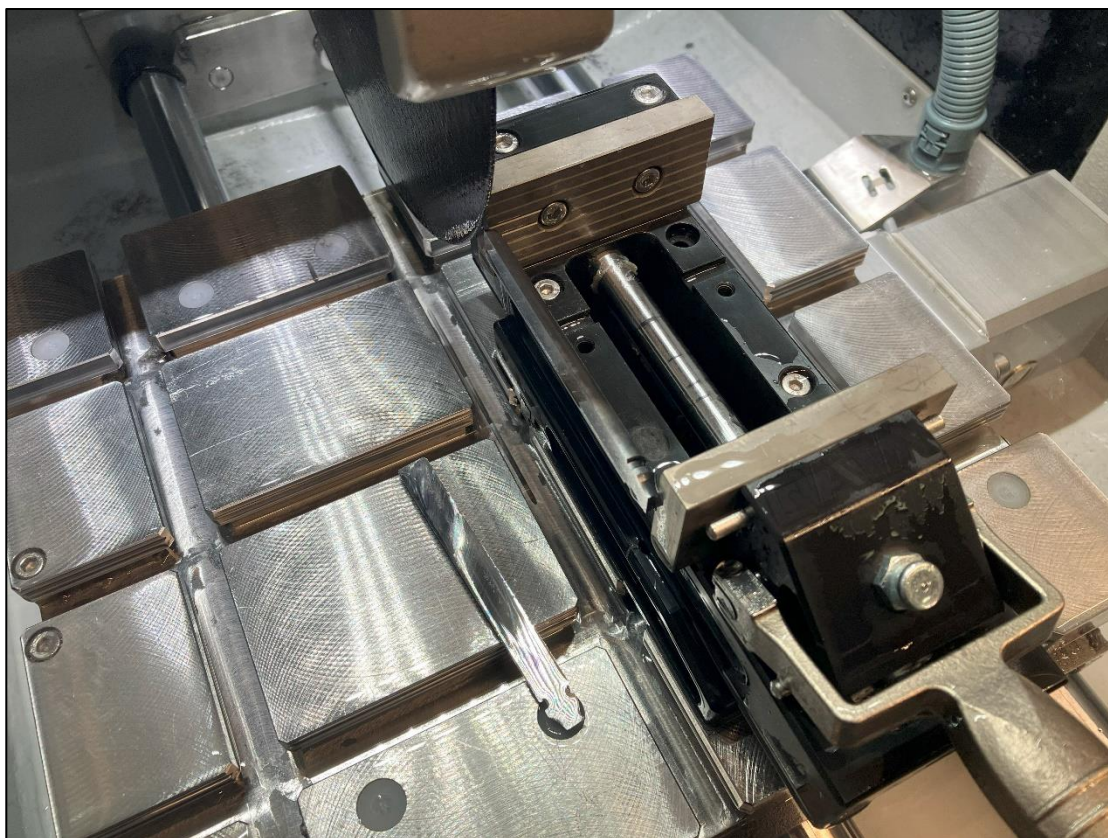


Figure 12: Long part after cutting.

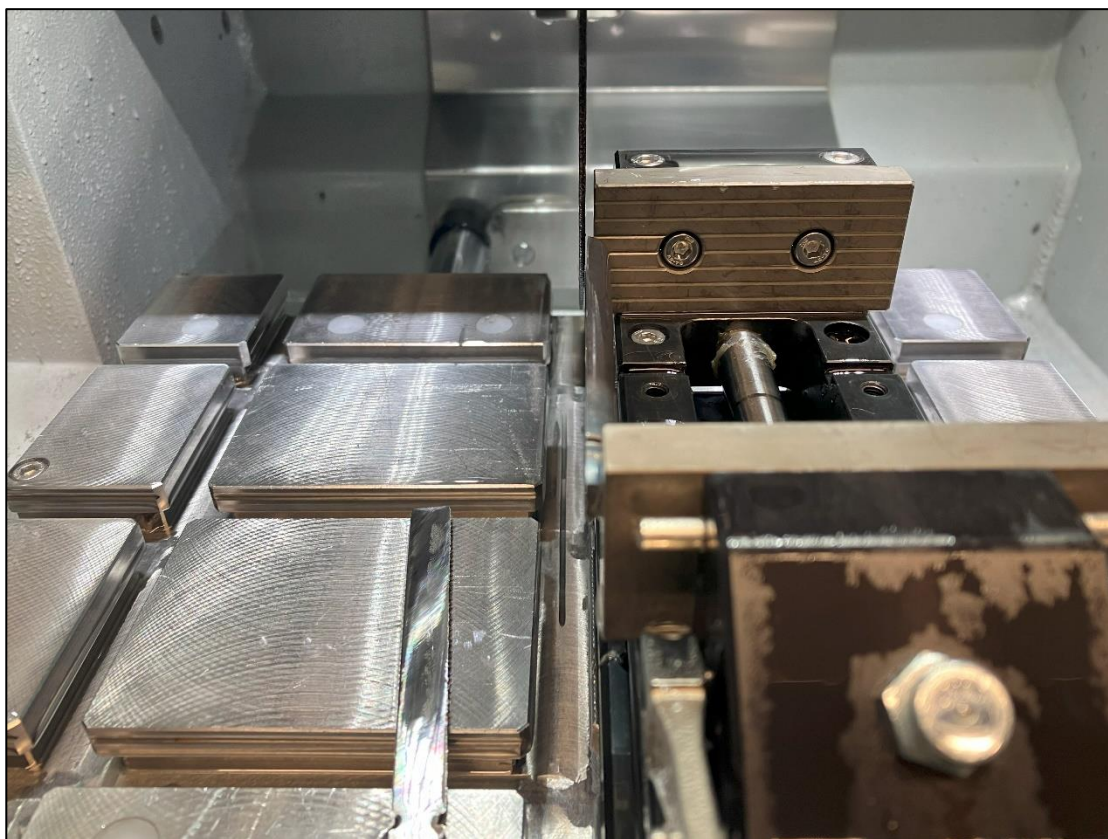


Figure 13: Long part after cutting.

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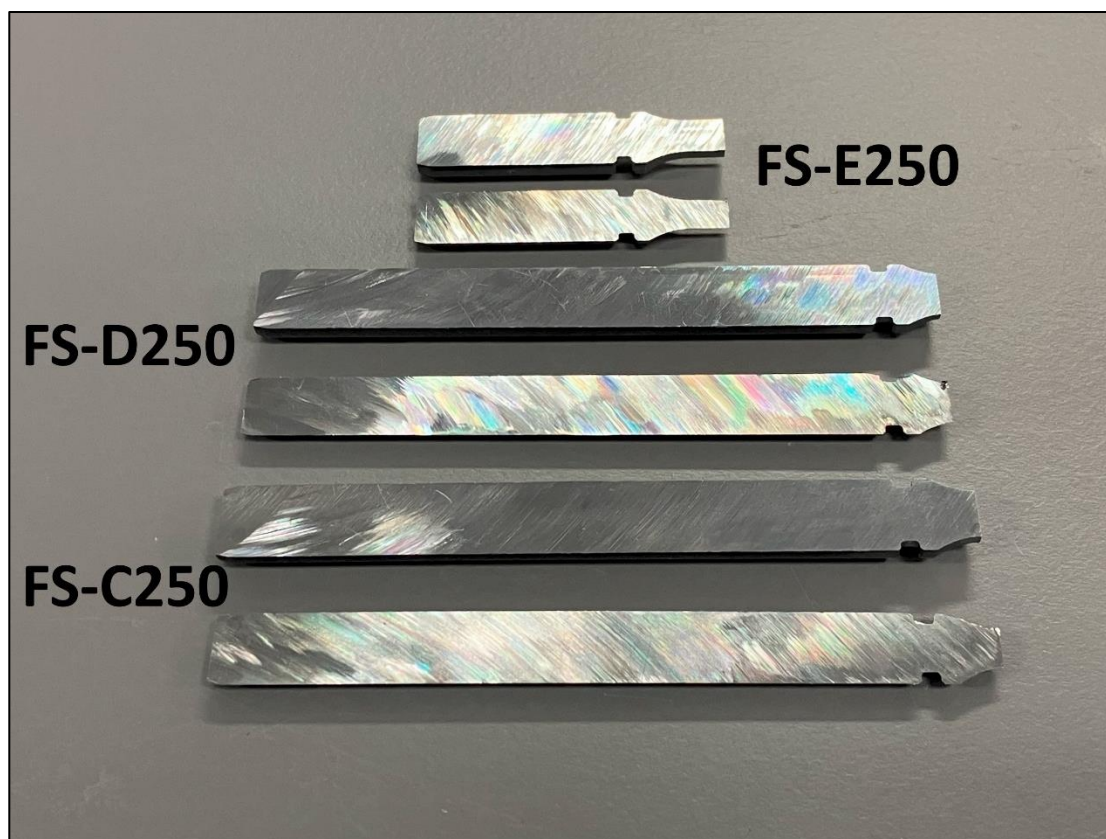


Figure 14: All parts after cutting.

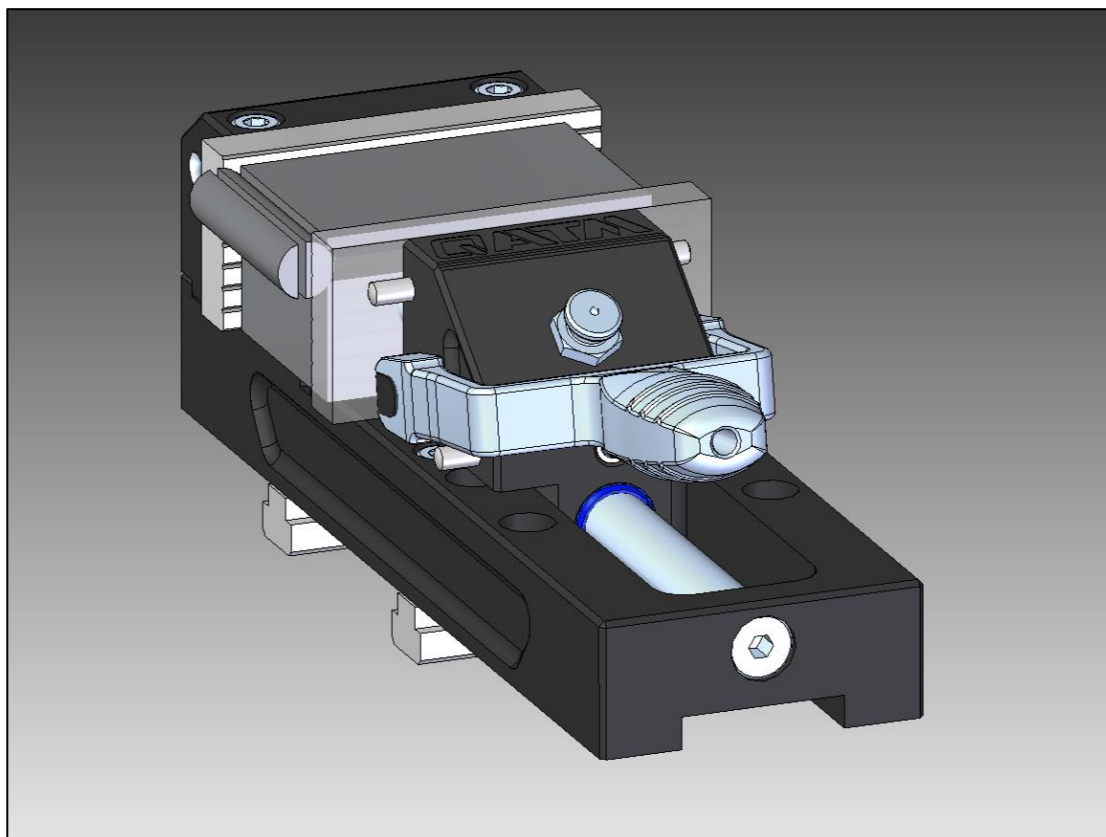


Figure 15: Drawing of the support block.

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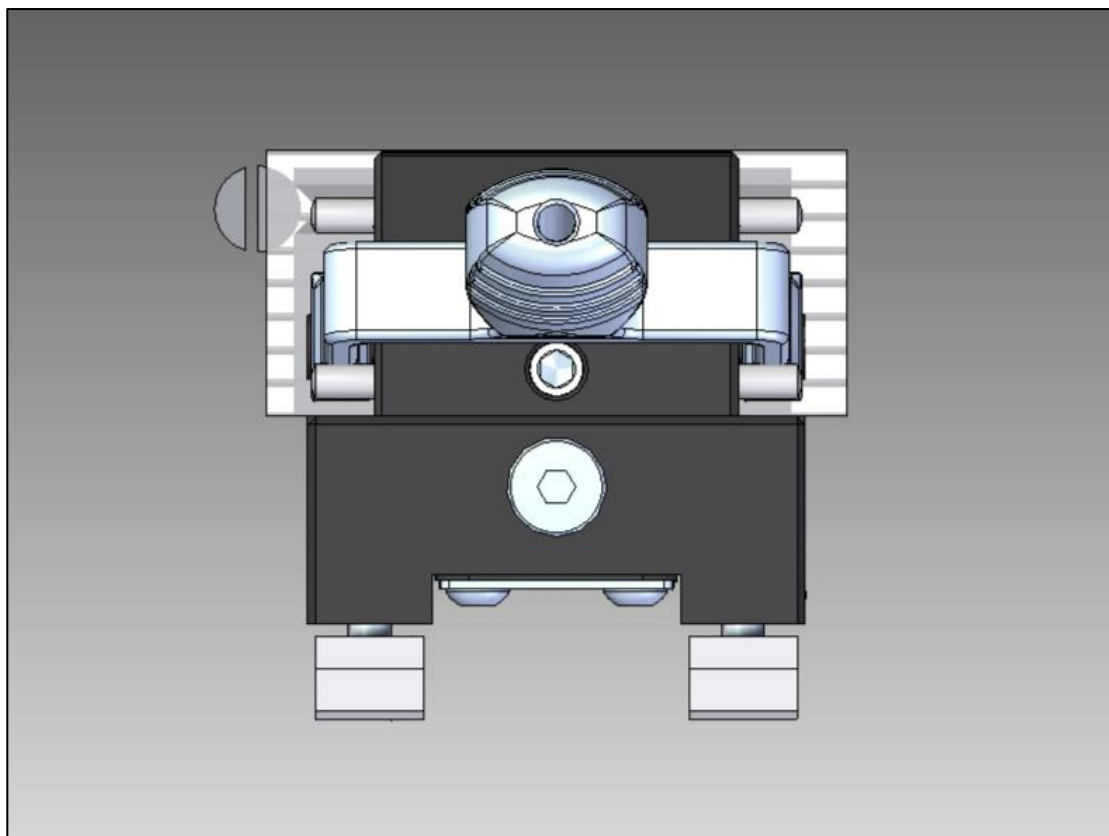


Figure 16: Drawing of the support block.