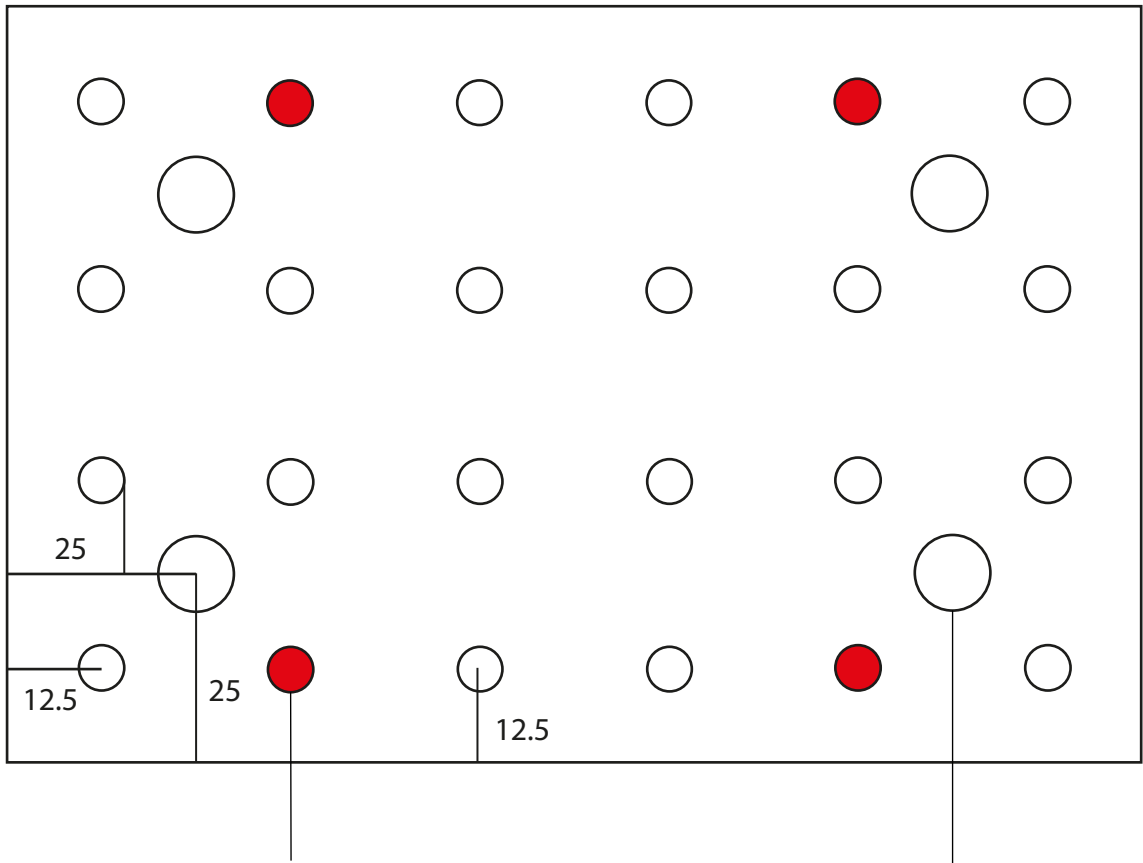


M6 breadboard

150

100

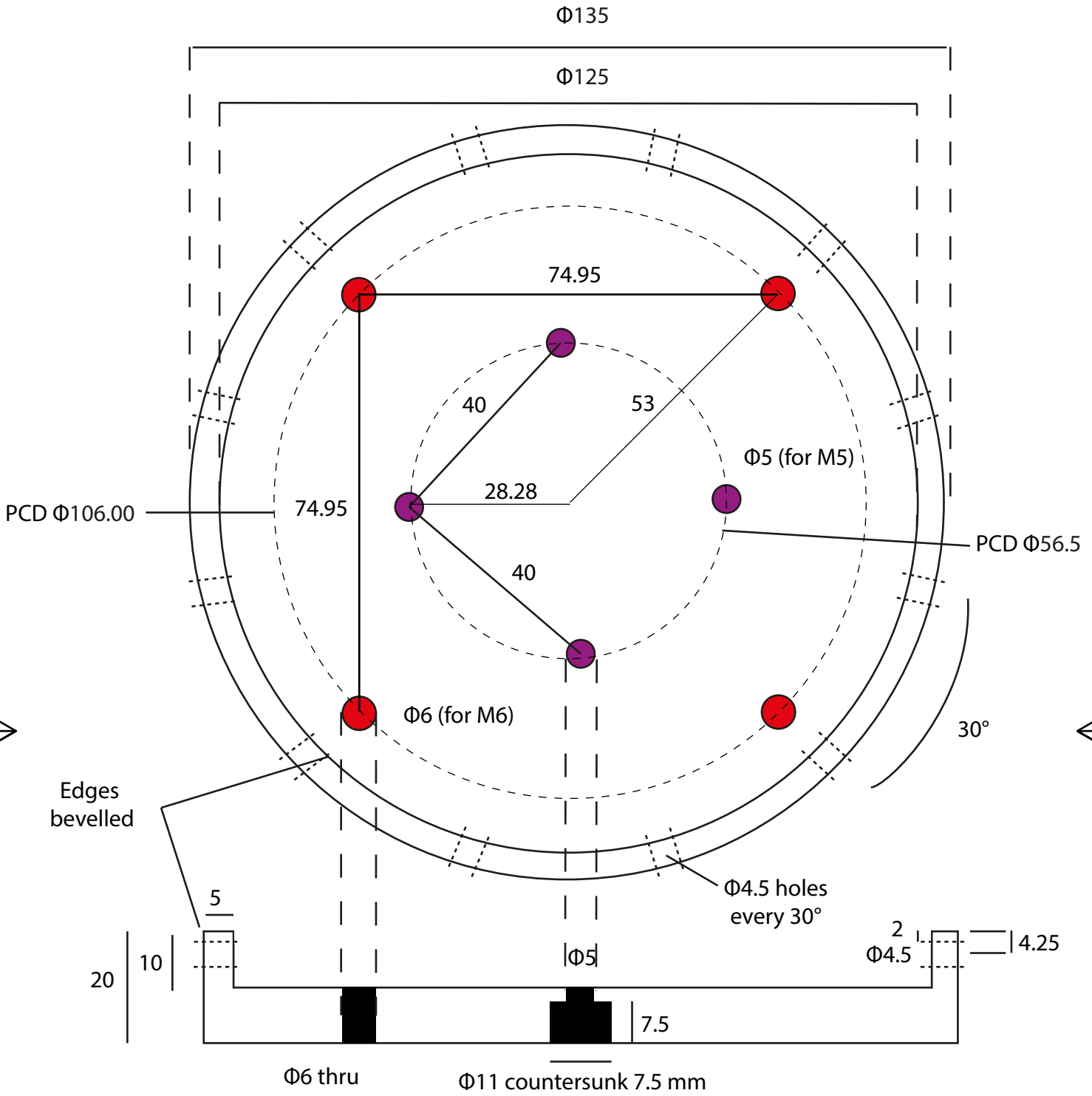


Holes used to fix the cell

M6 Clearance and countersunk

Unless otherwise specified dimensions are in millimetres

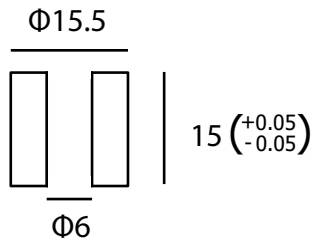
The information contained in this drawing is the sole property of The University Of Edinburgh. Any reproduction in part or whole without the written permission of The University Of Edinburgh is prohibited	REV	DESCRIPTION	THORLABS MB1015/M		NAME	DATE	
	Designed by D. Freitas & I. B. Butler		Draftsman D. Freitas		Heat treatment / Surface treatment	Format A4	
	Date 31/08/2022		Customer F. Fousseis			Scale 1 : 1	
	- ÷ XX	XX ÷ XXX	XXX ÷ XXXX	OVER XXXX	Material Anodised Aluminium	Weight	Quantity
	±0.1	±0.2	±0.5	±1	Part code	Edition 00	Job code
	The University Of Edinburgh School Of GeoSciences				Part name BREADBOARD		Sheet 1 / 1



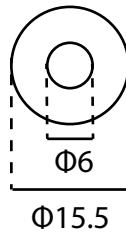
Unless otherwise specified dimensions are in millimetres

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	Designed by D. Freitas & I. B. Butler		Draftsman D. Freitas	Heat treatment / Surface treatment
	Date 31/08/2022		Customer F. Fusseis	Format A4
	- ÷ XX	XX ÷ XXX	XXX ÷ XXXX	OVER XXXX
	±0.1	±0.2	±0.5	±1
The University Of Edinburgh School Of GeoSciences		Material Aluminium 6000 series	Weight	Quantity
		Part code	Edition 00	Job code
BASEPLATE			Sheet 1 / 1	

A-A'

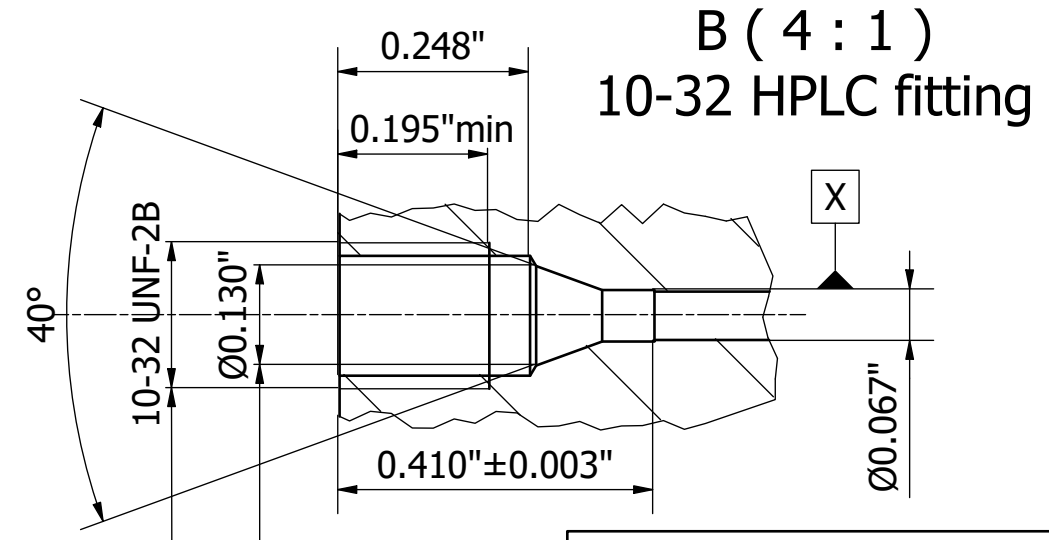
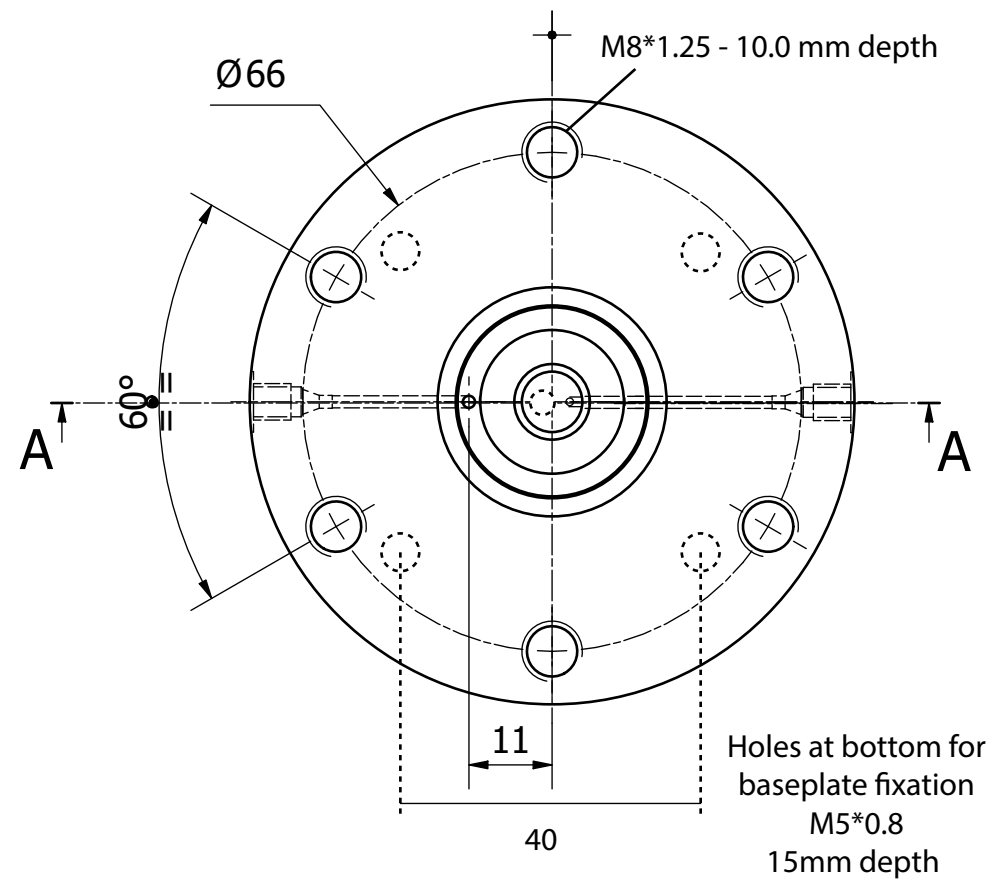
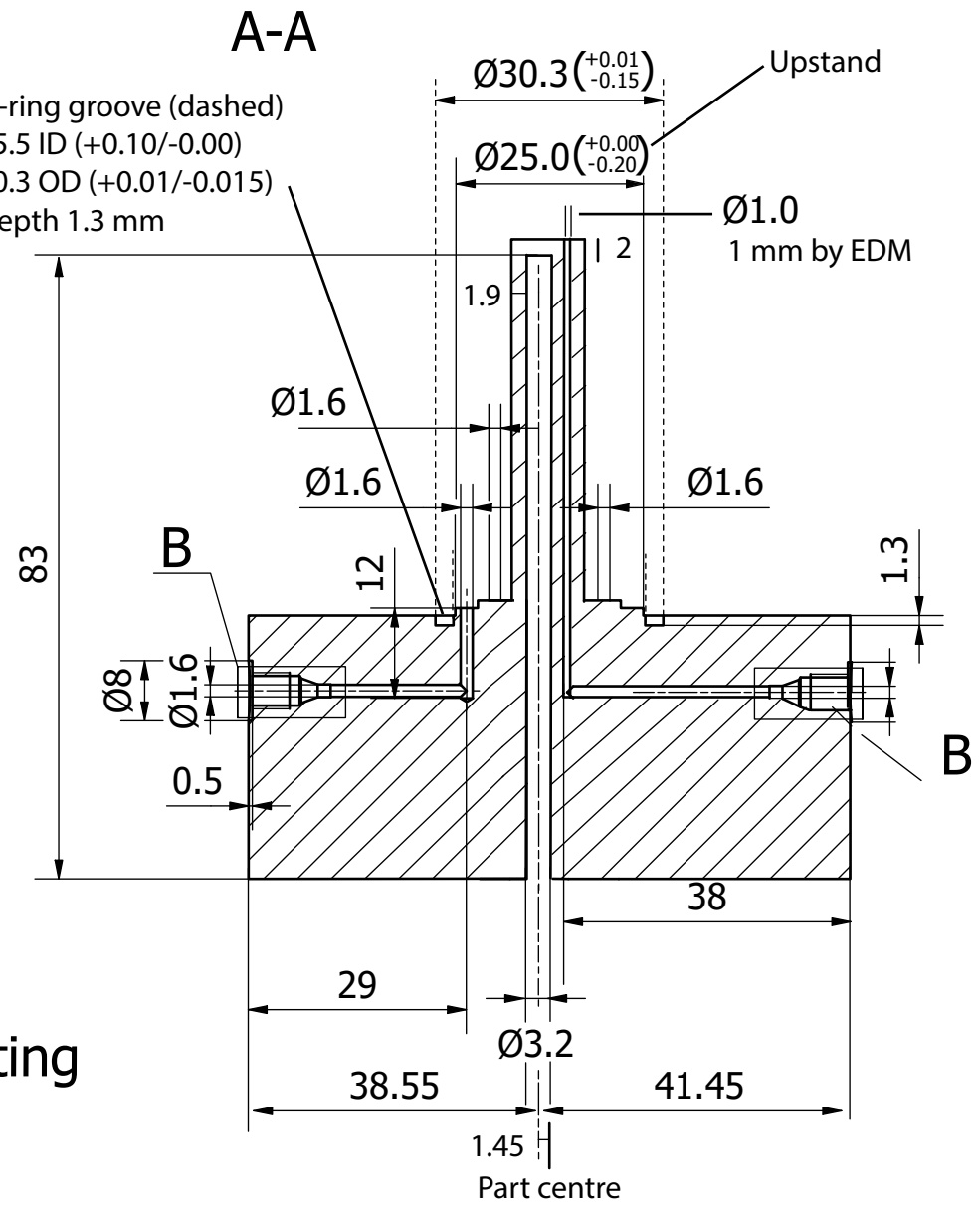
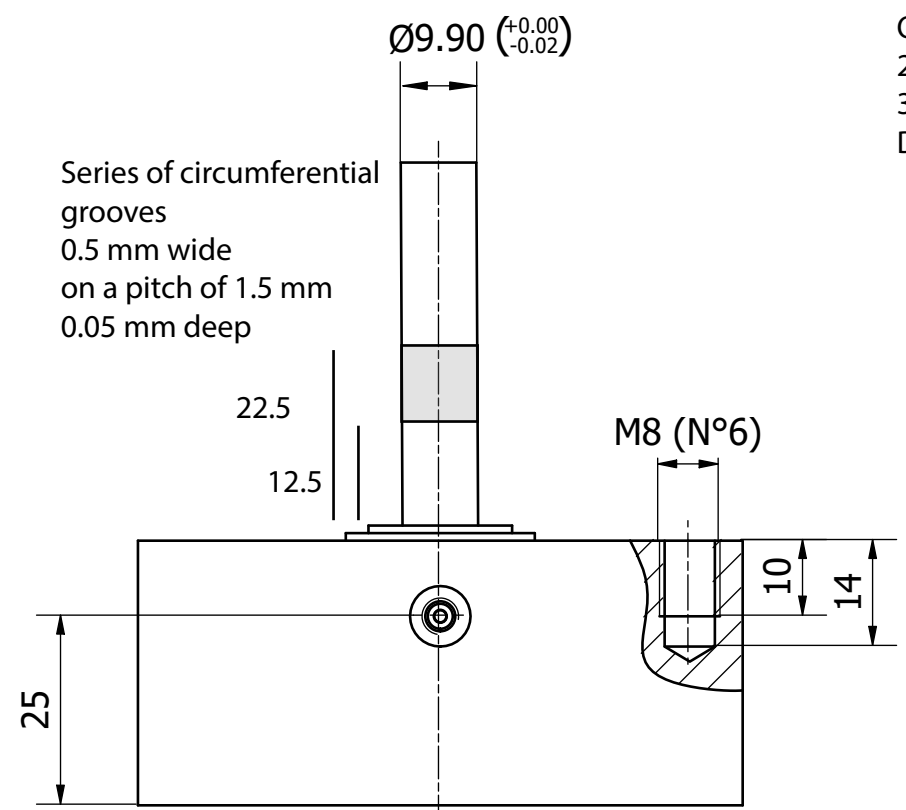
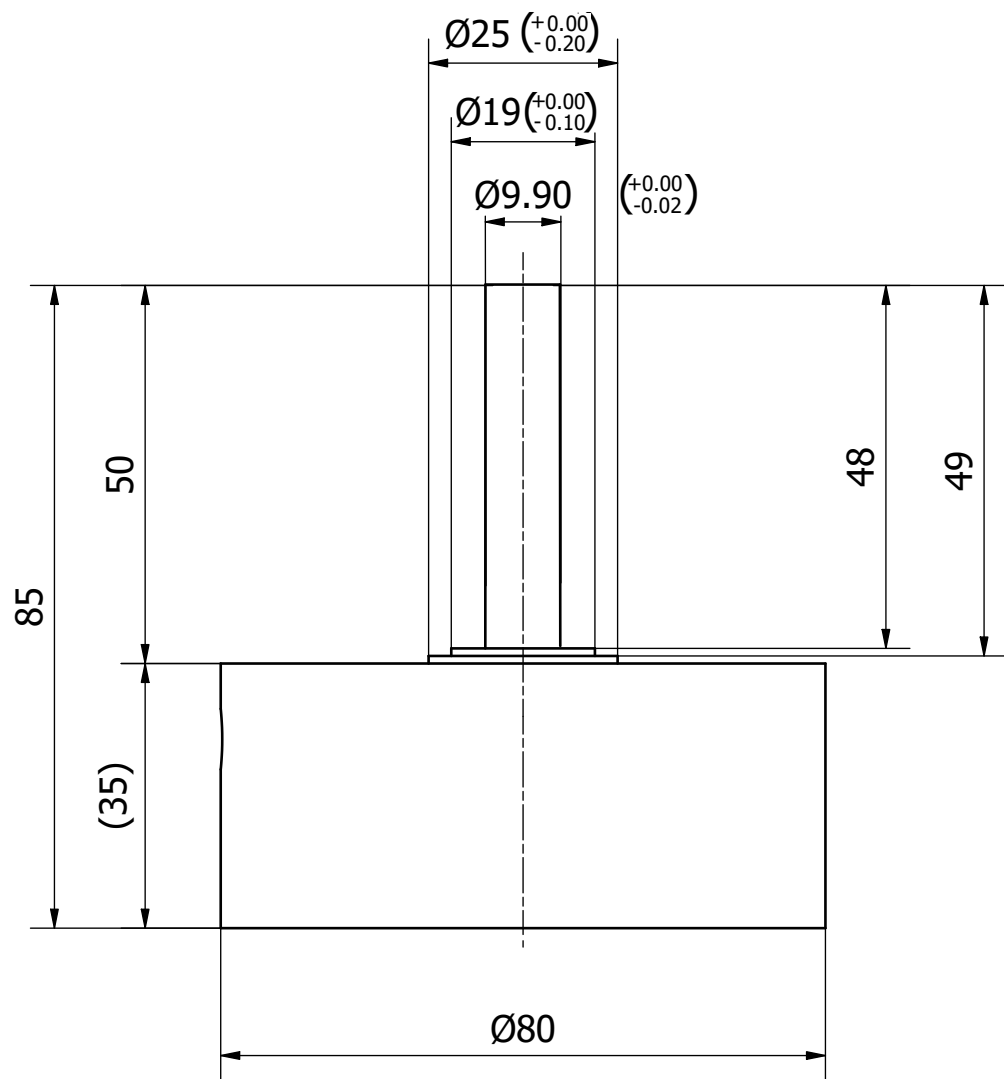


A-A'



Unless otherwise specified dimensions are in millimetres

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	REV				DESCRIPTION	NAME	DATE
	Designed by D. Freitas & I. B. Butler		Draftsman D. Freitas		Heat treatment / Surface treatment	Format A4	
	Date 31/08/2022		Customer F. Fousseis			Scale 1 : 1	
	- ÷ XX	XX ÷ XXX	XXX ÷ XXXX	OVER XXXX	Material PTFE	Weight kg	Quantity
	±0.1	±0.2	±0.5	±1	Part code	Edition 00	Job code
The University Of Edinburgh School Of GeoSciences				Part name PTFE SPACER		Sheet 1 / 1	



- Flow Chart
- 1) Turn down the external dimensions
 - 2) 3.2 mm hole and side HPLC ending in the upstand
 - 3) Spark erosion for 1 mm hole (external)
 - 4) Drill side HPLC port to merge with 1 mm EDM hole
 - 5) External grooves and polishing

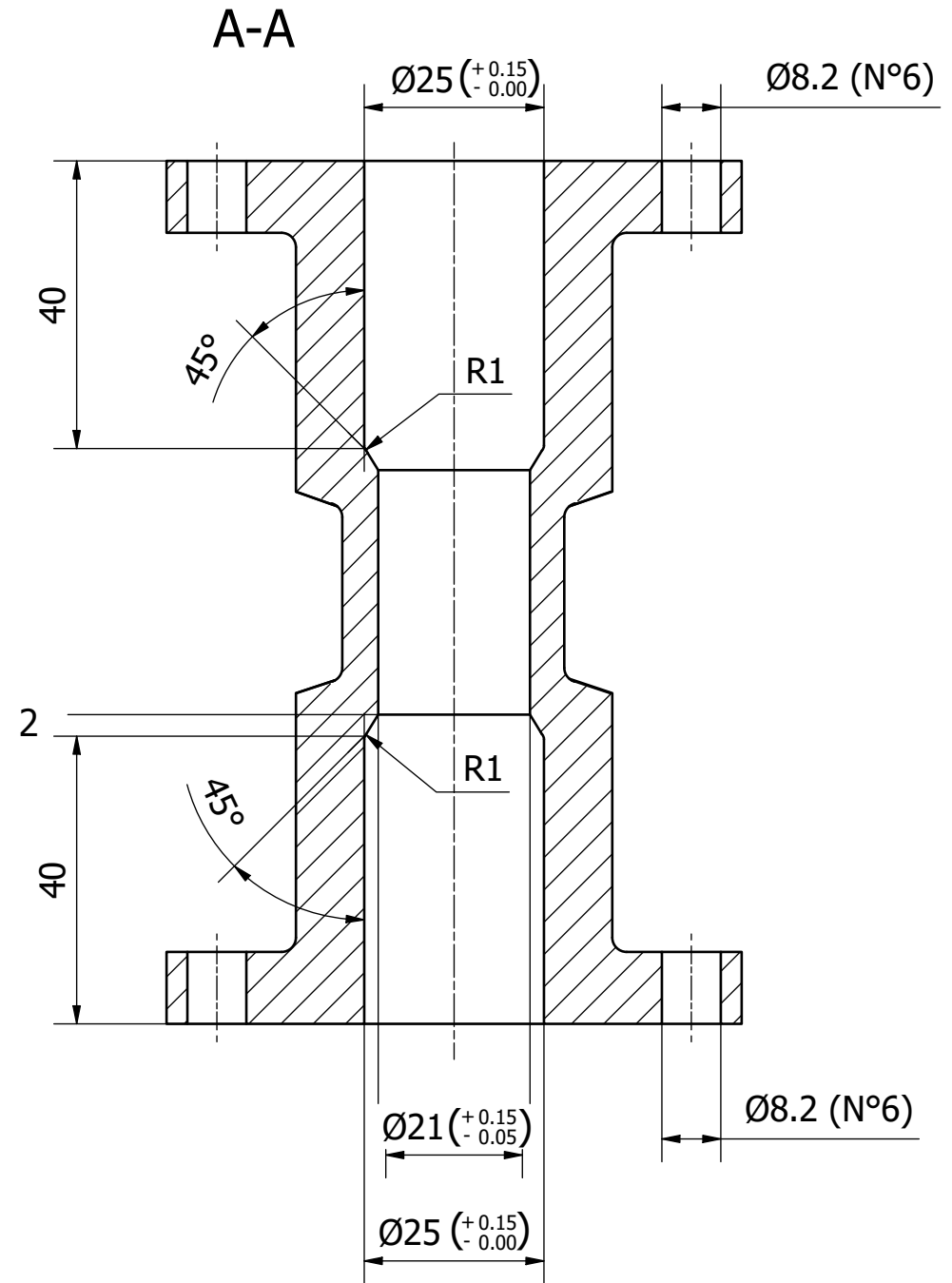
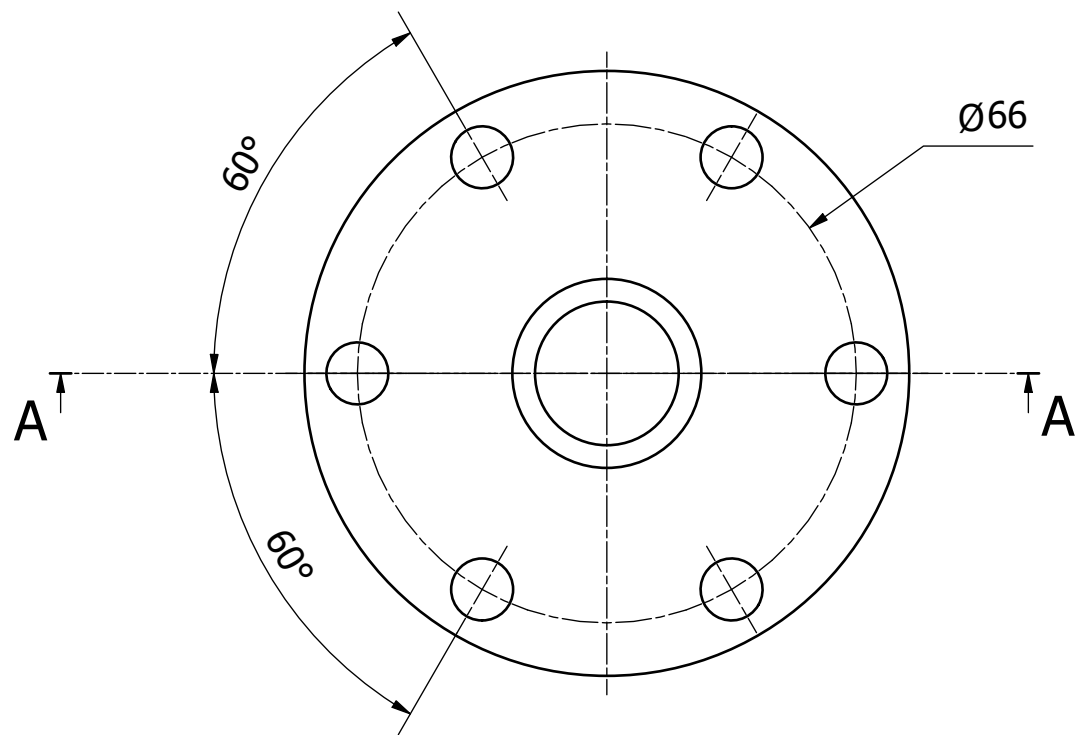
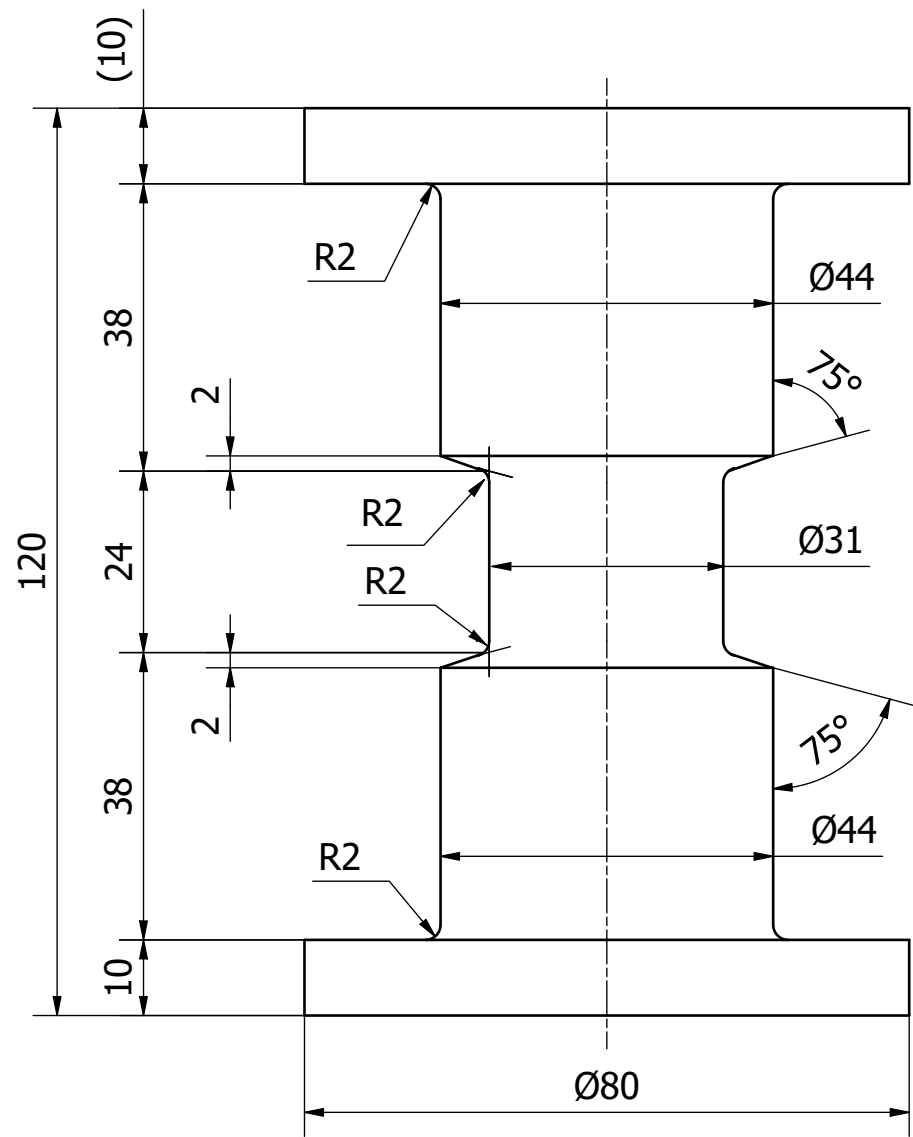
Unless otherwise specified dimensions are in millimetres

REV	DESCRIPTION	NAME	DATE
1	Designed by D. Freitas & I. B. Butler	Draftsman D. Freitas	Heat treatment / Surface treatment
2	Date 31/08/2022	Customer F. Füsseis	Format A3
3	- ± XX	XX ± XXX	Scale 1 : 1
4	±0.1	±0.2	Weight 0.793 kg
5	±0.5	±1	Quantity
6	Grade 5 Titanium	Part code WKSP00228	Edition 00
7	Grade 5 Titanium	Part name BOTTOM PISTON / PLATEN	Job code WKS19-045
8	Grade 5 Titanium	Sheet 1 / 1	

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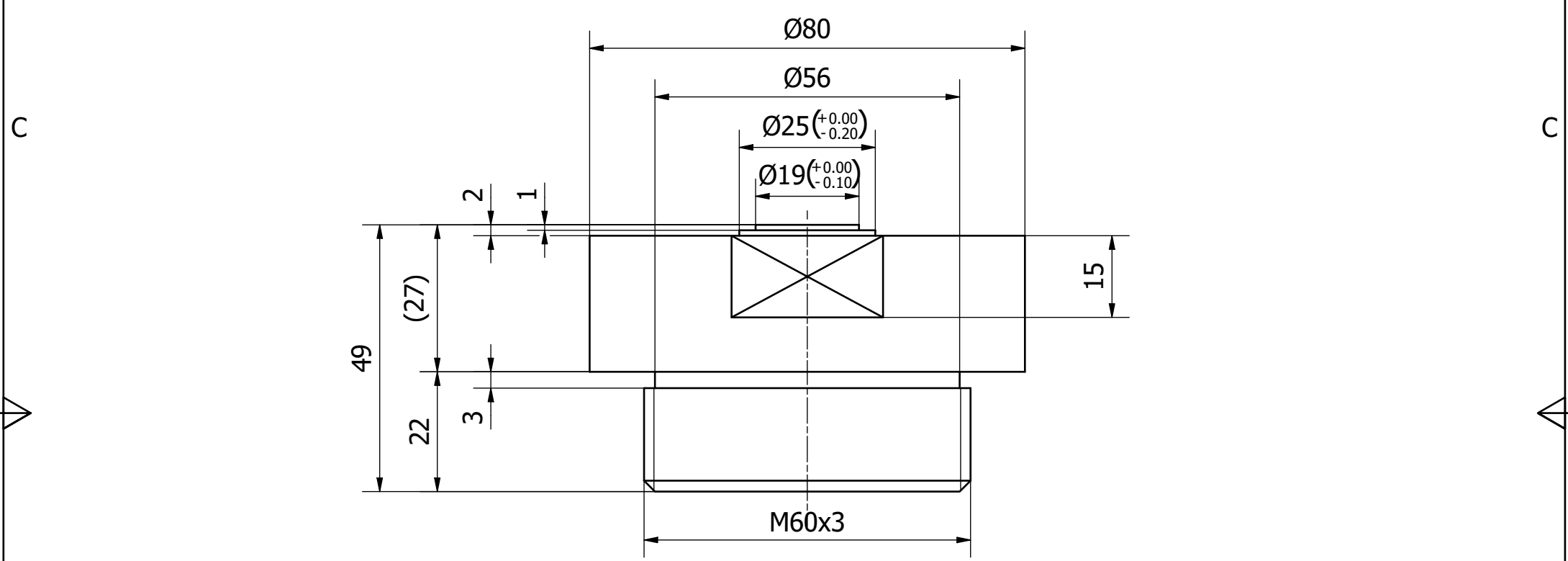
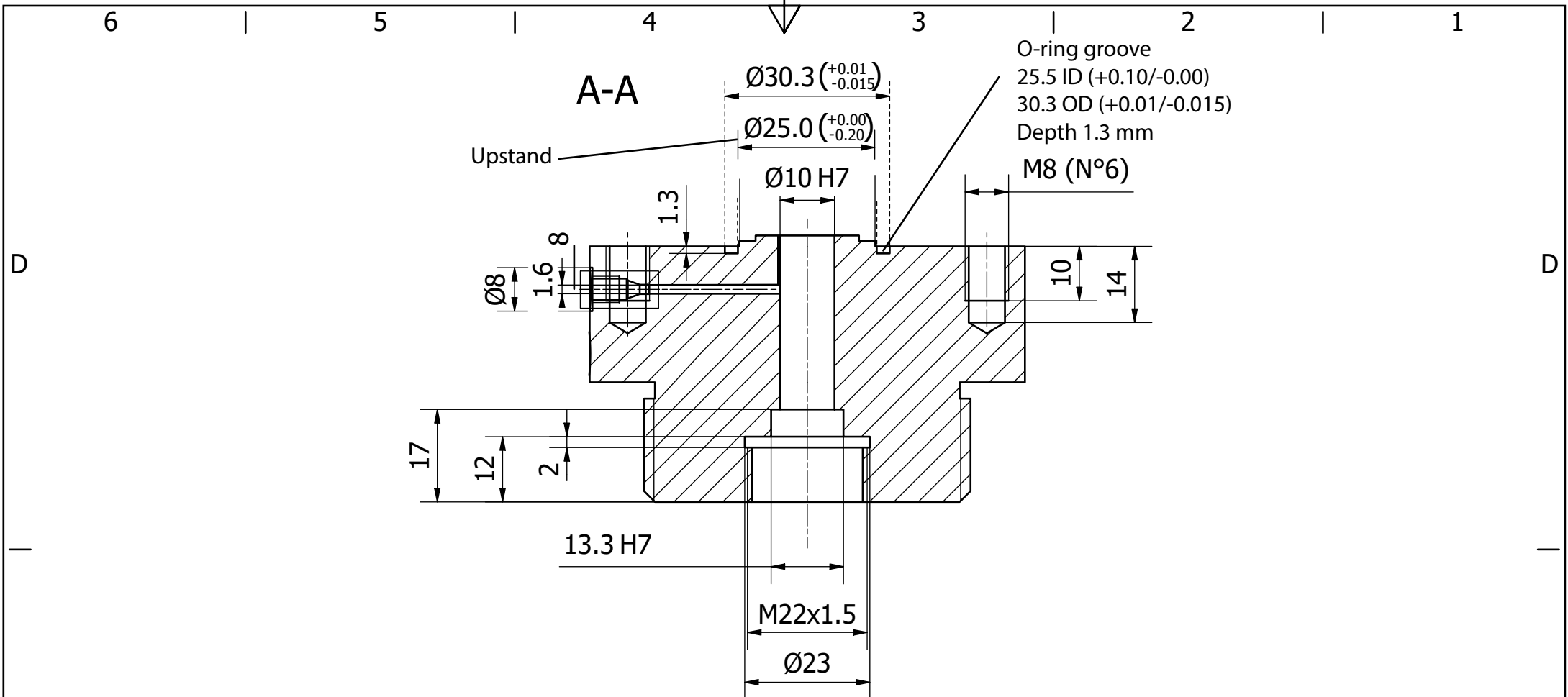


The University Of Edinburgh
School Of GeoSciences

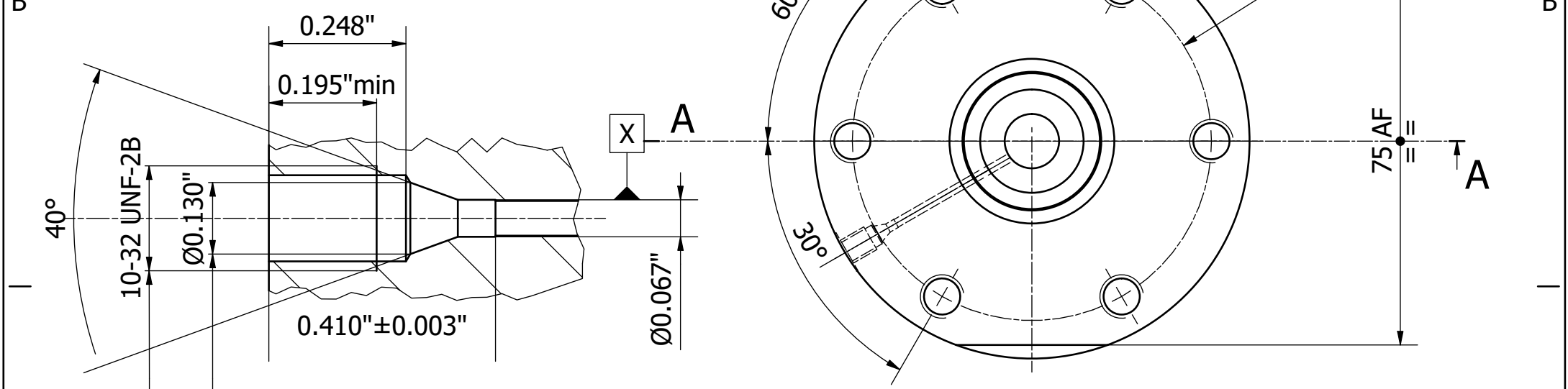


Unless otherwise specified dimensions are in millimetres

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	Designed by D. Freitas & I. B. Butler		Draftsman D. Freitas	Heat treatment / Surface treatment
	Date 31/08/2022		Customer F. Fusseis	Format A3
			Material Aluminium 7068	Scale 1 : 1
			Weight 0.467 kg	Quantity
		Part code WKSP00229	Edition 00	Job code
		Part name PRESSURE VESSEL		Sheet 1 / 1

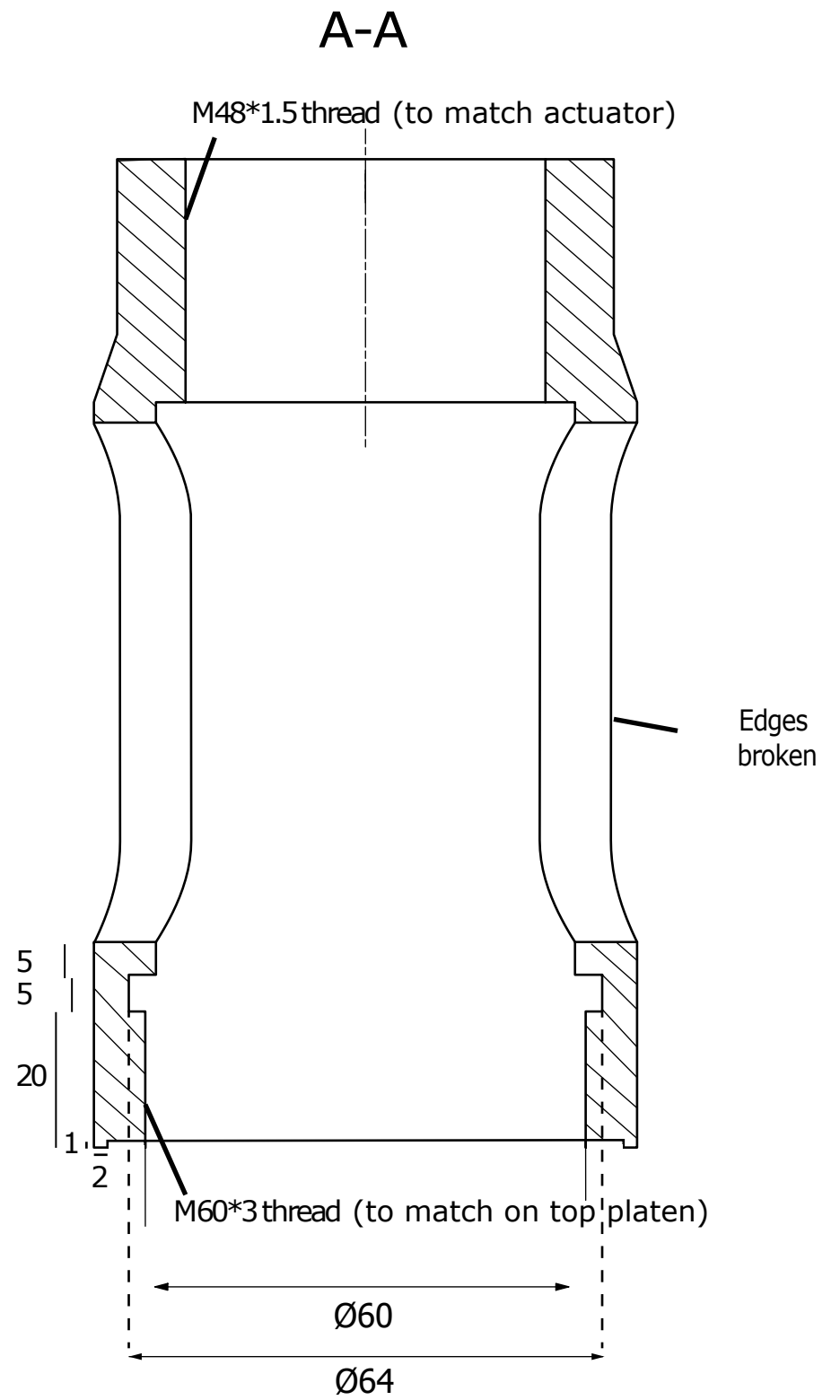
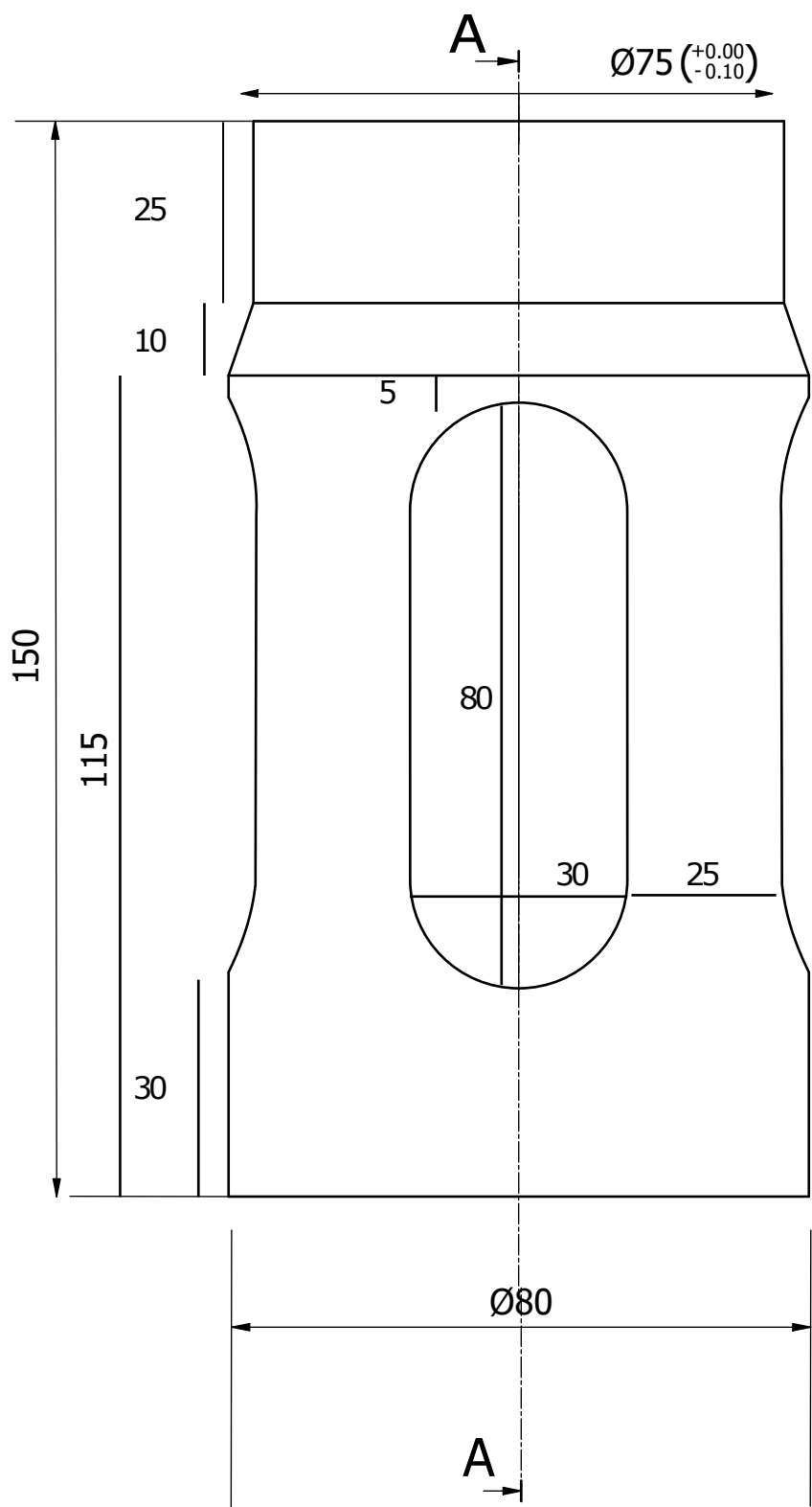


B (4 : 1)
10-32 HPLC fitting



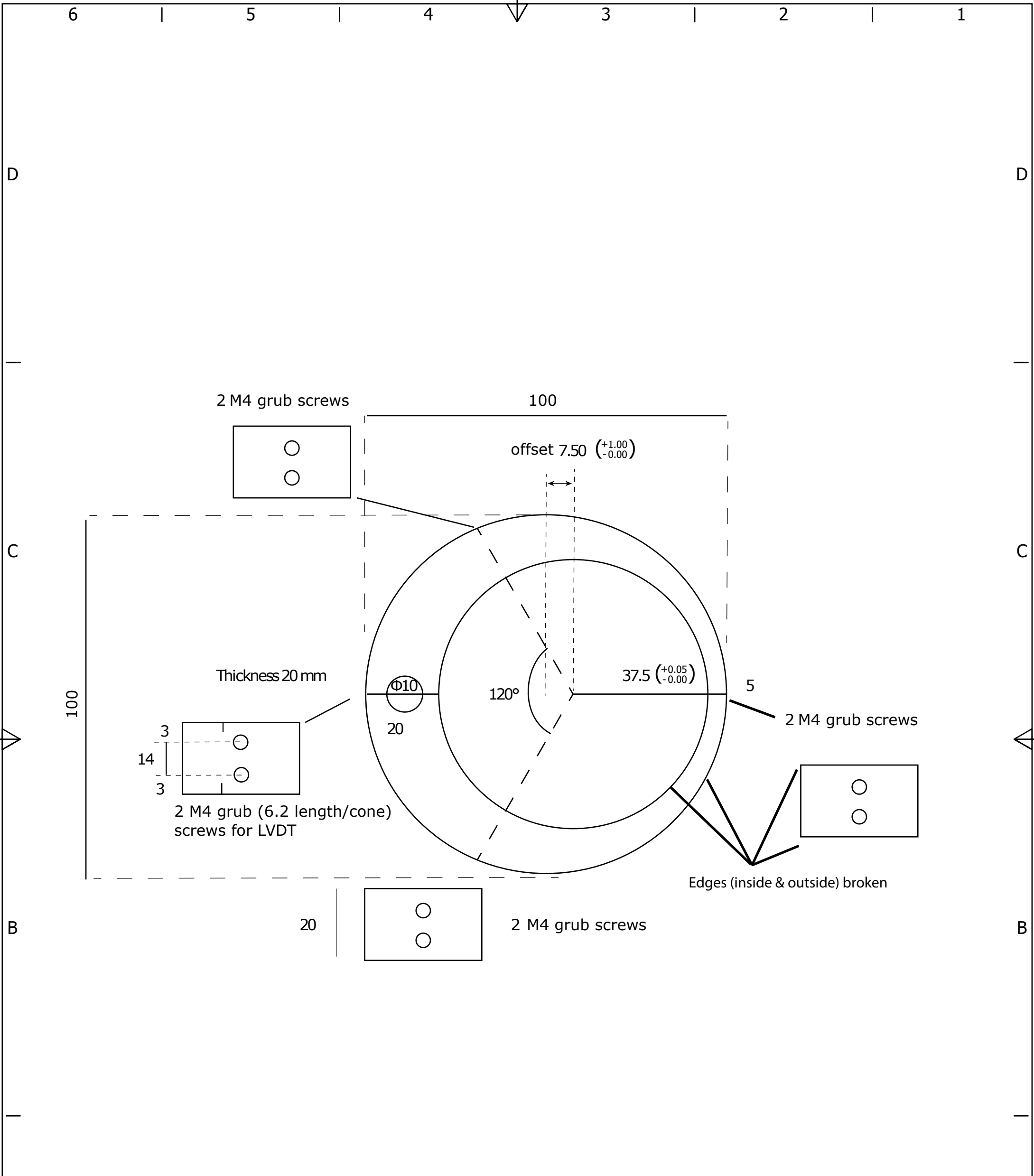
Unless otherwise specified dimensions are in millimetres

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	Designed by D. Freitas & I. B. Butler		Draftsman D. Freitas	Heat treatment / Surface treatment	
	Date 31/08/2022		Customer F. Fuisseis	Format A3	
	- ± XX	XX ± XXX	XXX ± XXXX	OVER XXXX	Scale 1 : 1
	±0.1	±0.2	±0.5	±1	Weight 0.790 kg
Material Grade 5 Titanium			Part code WKSP00232	Edition 00	
The University Of Edinburgh School Of GeoSciences				Job code	
Part name TOP PLATEN				Sheet 1 / 1	



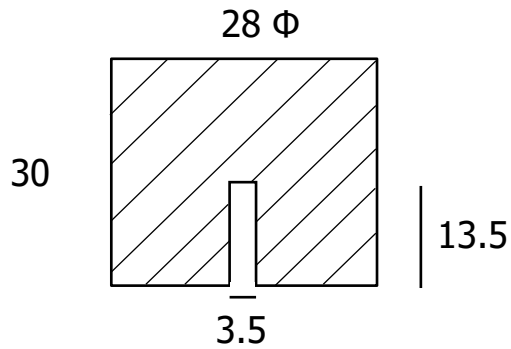
Unless otherwise specified dimensions are in millimetres

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	REV	DESCRIPTION	NAME	DATE		
		Designed by D. Freitas & I. B. Butler	Draftsman D. Freitas	Weight 3.069 kg	Job code	
		Date 31/08/2022	Customer F. Fuisseis	Quantity		
	The University Of Edinburgh School Of GeoSciences			Format A3	Scale 1 : 1	Sheet 1/1
Assembly name Actuator Carrier						
				Assembly code		

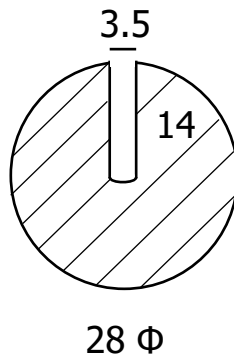


Unless otherwise specified dimensions are in millimetres

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	REV	DESCRIPTION	NAME	DATE		
		Designed by D. Freitas & I. B. Butler	Draftsman D. Freitas	Weight	Job code	
		Date 31/08/2022	Customer F. Fuisseis	Quantity		
	The University Of Edinburgh School Of GeoSciences			Format A3	Scale 1 : 1	Sheet 1/1
Assembly name LVDT ring						
				Assembly code		



Groove for heater's wires
Edges broken



Unless otherwise specified dimensions are in millimetres

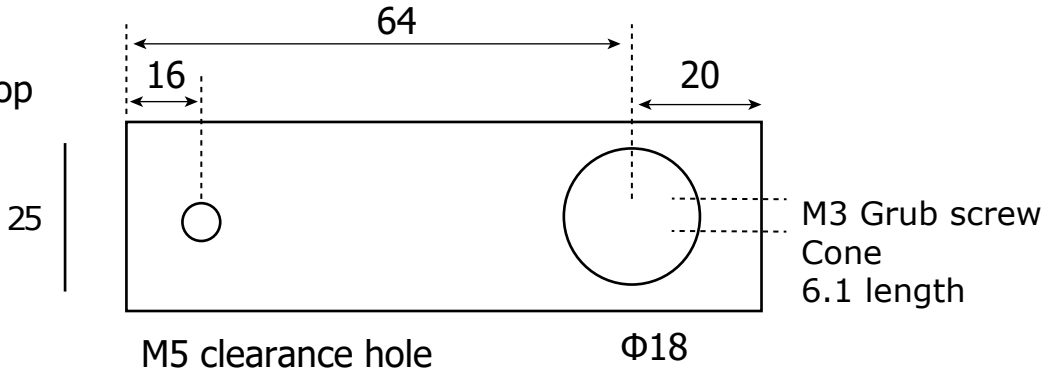
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	REV				DESCRIPTION	NAME	DATE
	Designed by D. Freitas & I. B. Butler		Draftsman D. Freitas		Heat treatment / Surface treatment	Format A4	
	Date 31/08/2022		Customer F. Fousseis			Scale 1 : 1	
	- ÷ XX	XX ÷ XXX	XXX ÷ XXXX	OVER XXXX	Material Stainless Steel	Weight kg	Quantity
	±0.1	±0.2	±0.5	±1	Part code WKSP00238	Edition 00	Job code
The University Of Edinburgh School Of GeoSciences				Part name SPACER		Sheet 1 / 1	

84



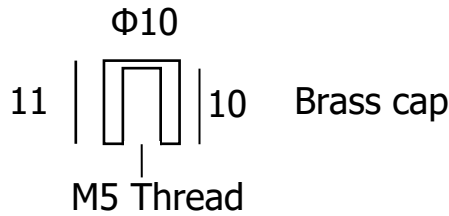
1/4" - 6.2 mm

View from top



M5 clearance hole

Φ18



Brass cap

M5 Thread

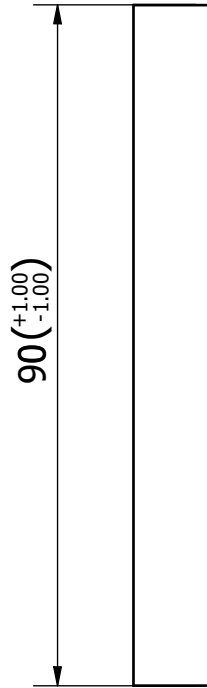
Unless otherwise specified dimensions are in millimetres

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	Designed by D. Freitas & I. B. Butler Date 31/08/2022		Draftsman D. Freitas Customer F. Fousseis	Heat treatment / Surface treatment Format A4 Scale 1: 1	
	- ÷ XX	XX ÷ XXX	XXX ÷ XXXX	OVER XXXX	Material
	±0.1	±0.2	±0.5	±1	Stainless Steel
	The University Of Edinburgh School Of GeoSciences			Part code	Edition
				00	
	Part name LVDT Tell-Tale				Sheet 1 / 1

Cut and clean the ends
They must be perfectly square

9.90 mm ID
10.36 mm OD

(As coming from supplier,
the pistons OD must be adapted
if Jacket's ID is different)



9.90 mm ID
10.36 mm OD



Inside surface polished with Diamond
powder suspensions up to 1/4 microns

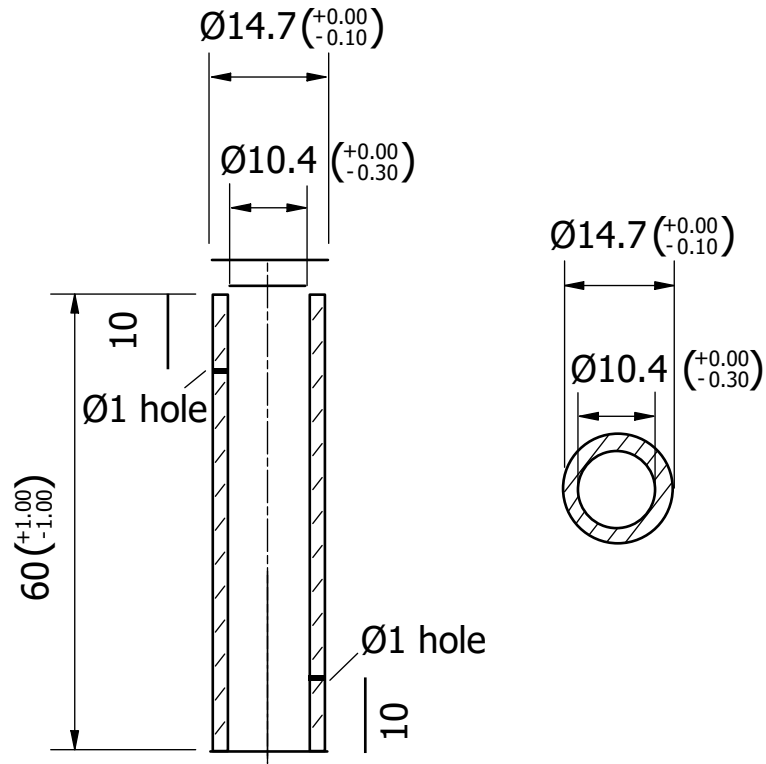
clean ends

Obtained from Goodfellow copper tubes
(Ref: CU00-TB-000145 Copper)

Unless otherwise specified dimensions are in millimetres							
REV	DESCRIPTION				NAME	DATE	
	Designed by D. Freitas & I. B. Butler	Draftsman D. Freitas		Heat treatment / Surface treatment	Format A4		
	Date 31/08/2022	Customer F. Fousseis			Scale 1 : 1		
	- ÷ XX	XX ÷ XXX	XXX ÷ XXXX	OVER XXXX	Material Copper	Weight	Quantity
	±0.1	±0.2	±0.5	±1			
The University Of Edinburgh School Of GeoSciences				Part code	Edition 00	Job code	
				Part name METAL JACKET			

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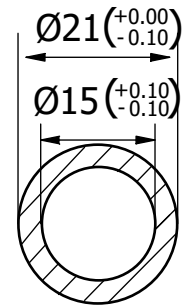
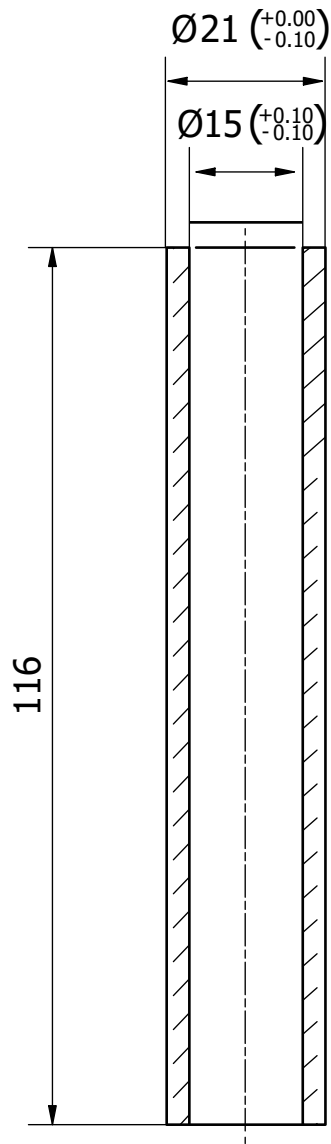
Graphite sleeve



+2 Manual shavers/hand reamers to adjust ID perfectly to the Copper Jacket

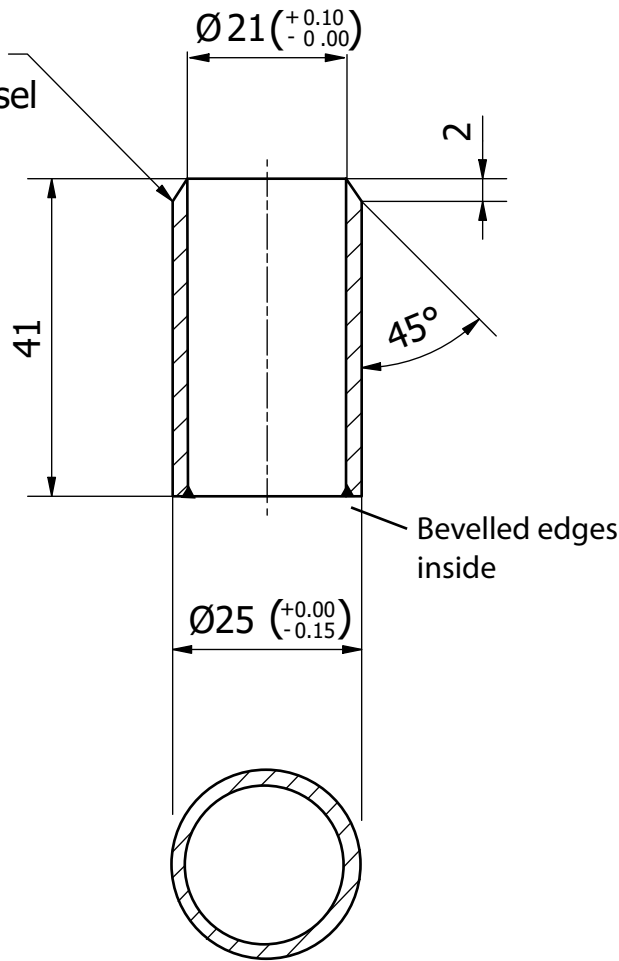
Unless otherwise specified dimensions are in millimetres							
REV	DESCRIPTION				NAME	DATE	
	Designed by D. Freitas & I. B. Butler	Draftsman D. Freitas		Heat treatment / Surface treatment	Format A4		
	Date 31/08/2022	Customer F. Fousseis			Scale 1 : 1		
- ÷ XX	XX ÷ XXX	XXX ÷ XXXX	OVER XXXX	Material Graphite 6507	Weight	Quantity	
±0.1	±0.2	±0.5	±1				
The University Of Edinburgh School Of GeoSciences				Part code	Edition 00	Job code	
				Part name GRAPHITE SLEEVE			

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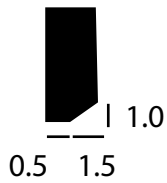


Unless otherwise specified dimensions are in millimetres								
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	Designed by D. Freitas & I. B. Butler		Draftsman D. Freitas		Heat treatment / Surface treatment	Format A4		
	Date 31/08/2022		Customer F. Füsseis			Scale 1 : 1		
	- ÷ XX	XX ÷ XXX	XXX ÷ XXXX	OVER XXXX	Material PEEK	Weight	Quantity	
	±0.1	±0.2	±0.5	±1				
	The University Of Edinburgh School Of GeoSciences				Part code WKSP00230	Edition 00	Job code	
Part name THERMAL INSULATION BAFFLE					Sheet 1 / 1			

Round the edge to fit
inside the Pressure Vessel



Zoom on
Bevelled edges

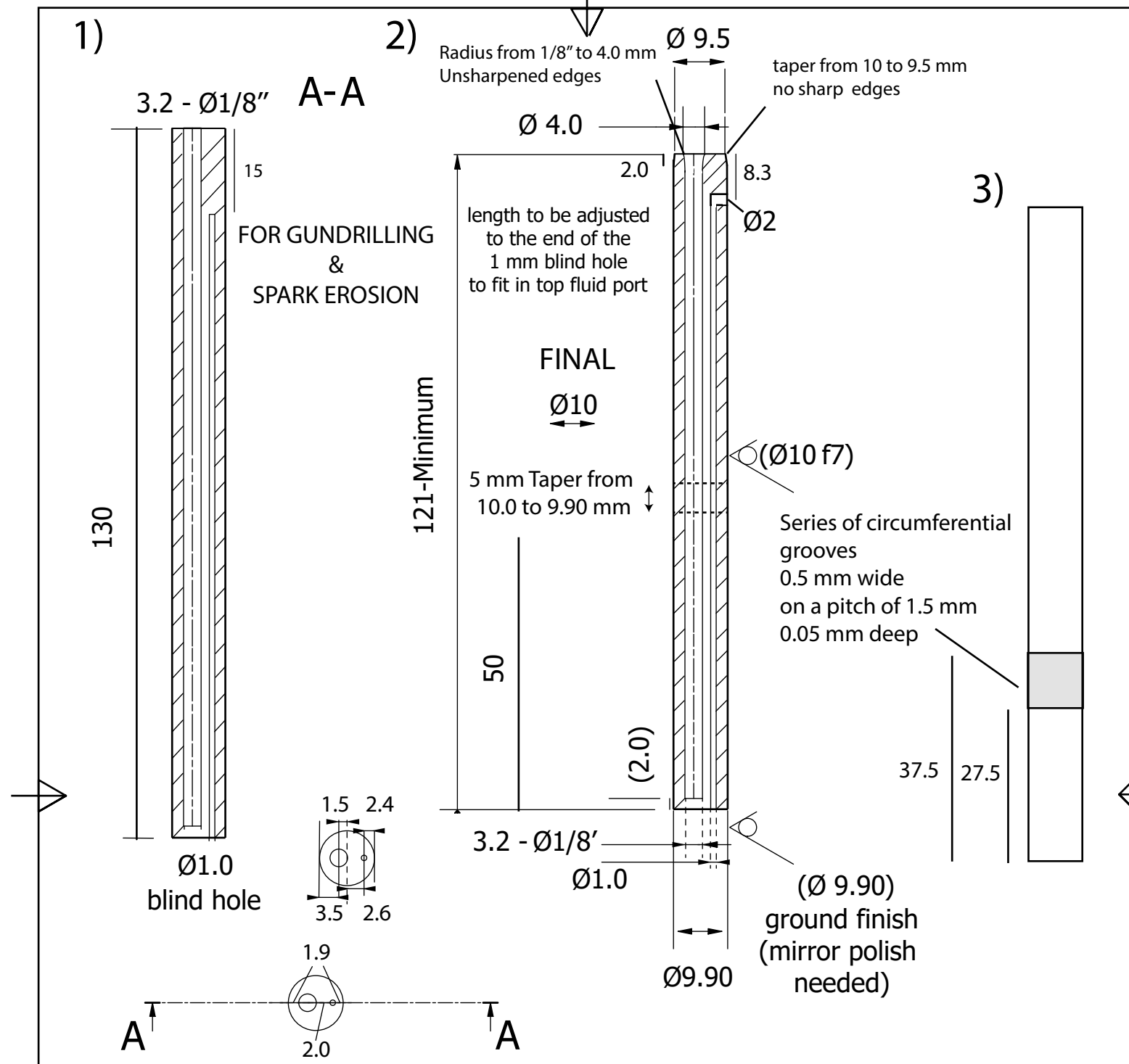


Unless otherwise specified dimensions are in millimetres

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	REV	DESCRIPTION				NAME		DATE
	Designed by D. Freitas & I. B. Butler		Draftsman D. Freitas		Heat treatment / Surface treatment		Format A4	
	Date 31/08/2022		Customer F. Fousseis				Scale 1 : 1	
	- ÷ XX	XX ÷ XXX	XXX ÷ XXXX	OVER XXXX	Material PEEK		Weight 0.011 kg	Quantity
	±0.1	±0.2	±0.5	±1				
	The University Of Edinburgh School Of GeoSciences				Part code WKSP00231		Edition 00	Job code
Part name EXTERNAL BAFFLE					Sheet 1 / 1			

Flow Chart

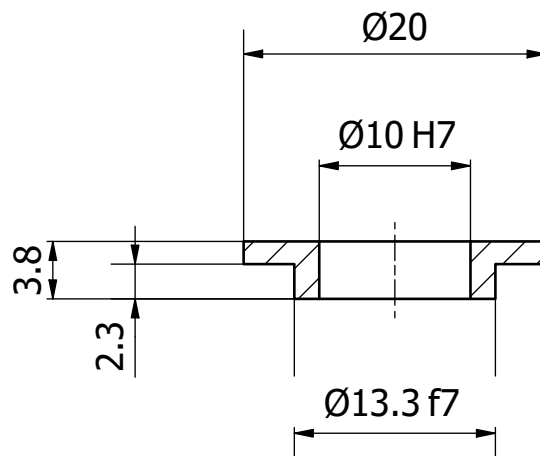
- 1) Taper 10 mm to 9.90 mm (1)
- 2) Cut the piston to length = 130 mm (1)
- 3) Gundrilling for 3.2 mm hole (external)
- 4) Spark erosion for 1 mm hole (external)
- 5) check where the 1 mm hole ends and drill 2 mm hole to connect on the side (2)
- 6) Adjust the length of the piston to have the 2 mm hole at about 8.3 mm from top (2)
- 7) Taper on the top end of the piston to 9.5 mm + broken edges (2)
- 8) Radius on the 3.2 mm hole + unsharpened edges (2)
- 9) Circumferential grooves (3)



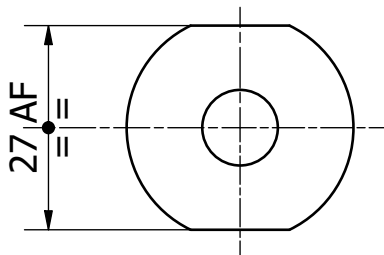
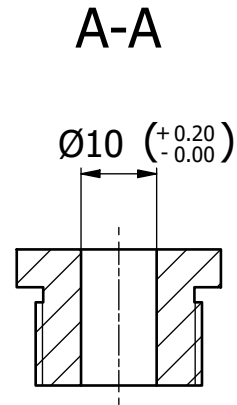
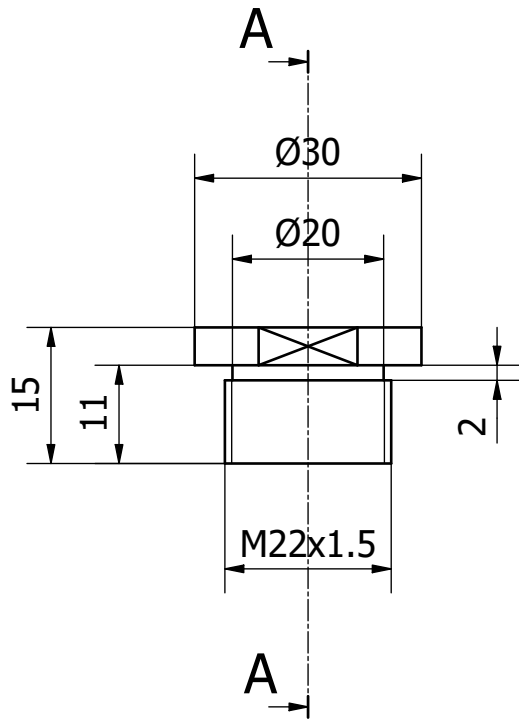
To be obtained from a Ø12 f7 centerless ground bar

Unless otherwise specified dimensions are in millimetres								
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	Designed by D. Freitas & I. B. Butler		Draftsman D. Freitas		Heat treatment / Surface treatment		Format A4	
	Date 31/08/2022		Customer F. Fousseis				Scale 1: 1	
	- ÷ XX	XX ÷ XXX	XXX ÷ XXXX	OVER XXXX	Material Grade 5 Titanium		Weight 0.065 kg	Quantity
	±0.1	±0.2	±0.5	±1	Part code WKSP00233		Edition 00	Job code
The University Of Edinburgh School Of GeoSciences				Part name TOP PISTON			Sheet 1 / 1	

Made to fit Top Platen
 each top platen has its own retainer

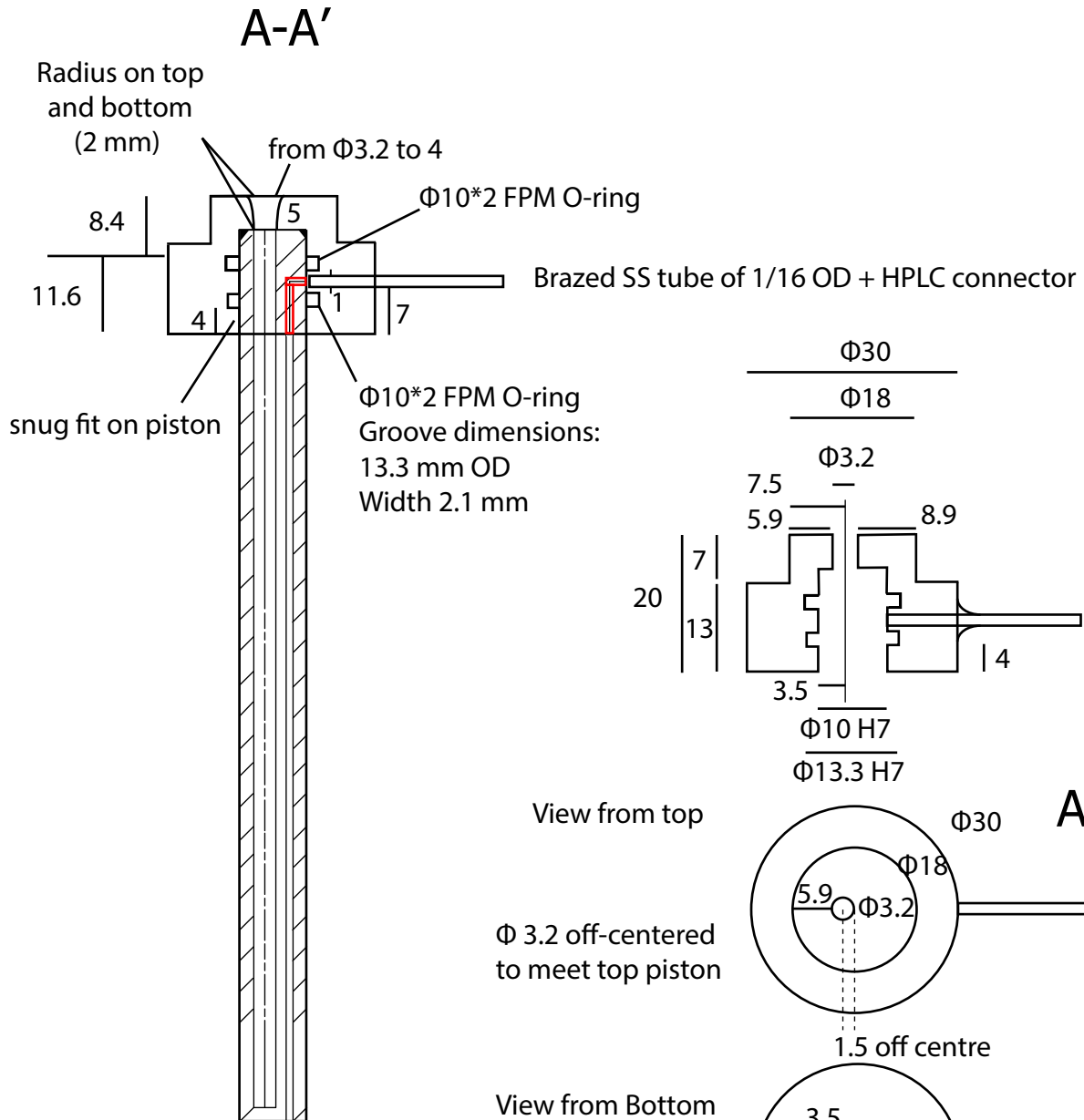


Unless otherwise specified dimensions are in millimetres							
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	Designed by D. Freitas & I. B. Butler		Draftsman D. Freitas		Heat treatment / Surface treatment	Format A4	
	Date 31/08/2022		Customer F. Füsseis			Scale 1 : 1	
	- ÷ XX	XX ÷ XXX	XXX ÷ XXXX	OVER XXXX	Material Phosphor Bronze	Weight 0.002 kg	Quantity
	±0.1	±0.2	±0.5	±1			
	The University Of Edinburgh School Of GeoSciences				Part code	Edition 00	Job code
Part name SEAL RETAINER					Sheet 1 / 1		



Unless otherwise specified dimensions are in millimetres								
REV	DESCRIPTION				NAME	DATE		
	Designed by D. Freitas & I. B. Butler	Draftsman D. Freitas		Heat treatment / Surface treatment	Format A4			
	Date 31/08/2022	Customer F. Fuisseis			Scale 1 : 1			
- ÷ XX	XX ÷ XXX	XXX ÷ XXXX	OVER XXXX	Material Grade 5 Titanium	Weight 0.031 kg	Quantity		
±0.1	±0.2	±0.5	±1	Part code WKSP00234	Edition 00	Job code		
The University Of Edinburgh School Of GeoSciences				Part name Seal retainer nut			Sheet 1 / 1	

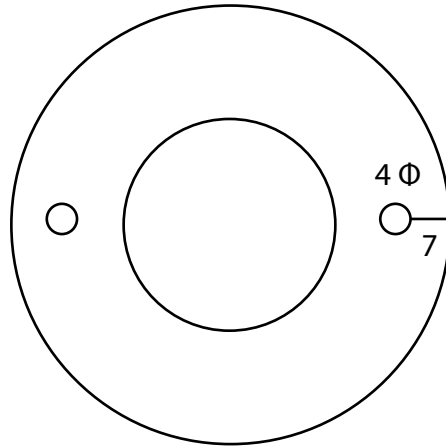
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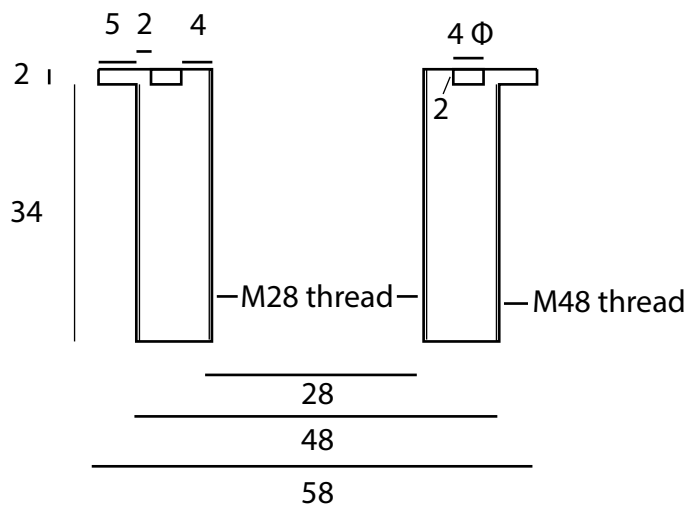
Unless otherwise specified dimensions are in millimetres

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	Designed by D. Freitas & I. B. Butler Date 31/08/2022		Draftsman D. Freitas Customer F. Fousseis	Heat treatment / Surface treatment Format A4 Scale 1: 1			
	- ÷ XX	XX ÷ XXX	XXX ÷ XXXX	OVER XXXX		Material Stainless steel	Weight 0.065 kg
	±0.1	±0.2	±0.5	±1	Material Stainless steel	Weight 0.065 kg	Quantity
					Part code	Edition 00	Job code
Part name Top fluid port					Sheet 1 / 1		


View from top



Pin holes (hole diameter can be adapted to suit any pin wrench)



Unless otherwise specified dimensions are in millimetres


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	Designed by D. Freitas & I. B. Butler		Draftsman D. Freitas	Heat treatment / Surface treatment	Format A4
	Date 31/08/2022		Customer F. Fousseis		Scale 1: 1
	- ÷ XX	XX ÷ XXX	XXX ÷ XXXX	OVER XXXX	Material Stainless steel
	±0.1	±0.2	±0.5	±1	Weight
	 The University Of Edinburgh School Of GeoSciences		Part code	Edition 00	Job code
			Part name Actuator adaptor	Sheet 1 / 1	

Ø9.89 (+0.00/-0.05)

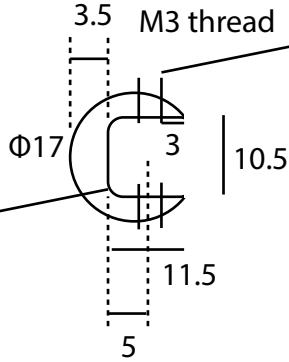
130

Slightly smaller than pistons
 Mirror polished
 Used to gage the jackets
 & assemble

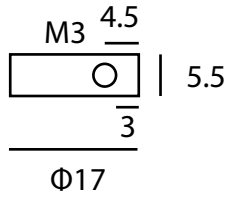
Unless otherwise specified dimensions are in millimetres

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	REV	DESCRIPTION			NAME	DATE	
	Designed by D. Freitas & I. B. Butler		Draftsman D. Freitas		Heat treatment / Surface treatment	Format A4	
	Date 31/08/2022		Customer F. Fousseis			Scale 1 : 1	
	- ÷ XX	XX ÷ XXX	XXX ÷ XXXX	OVER XXXX	Material Stainless Steel	Weight kg	Quantity
	±0.1	±0.2	±0.5	±1			
 The University Of Edinburgh School Of GeoSciences				Part code WKSP00235	Edition 00	Job code	
				Part name Piston Guide			Sheet 1 / 1

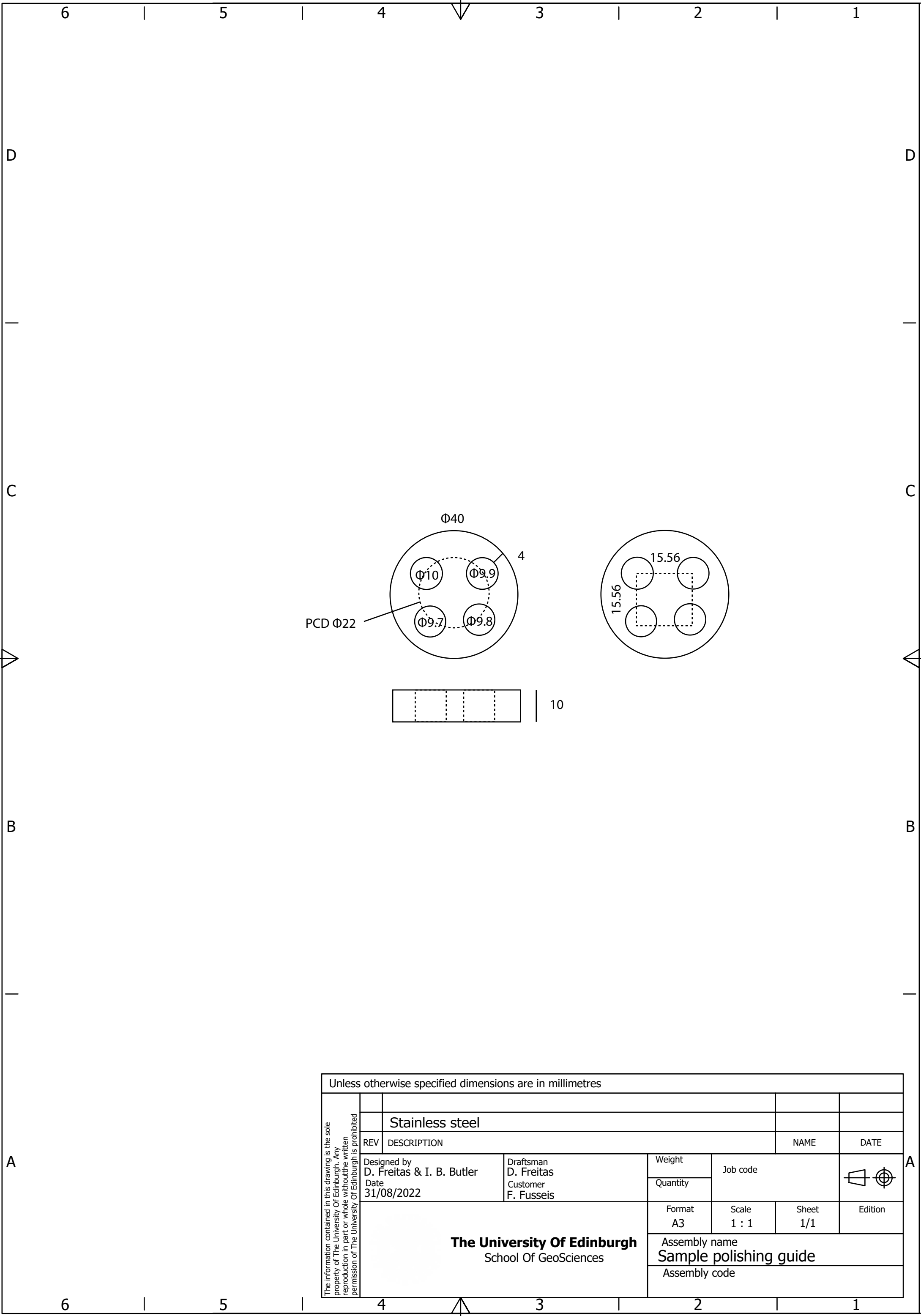
Edges broken
+ manual polish
Radius 3.0 (6.00 cutter)



M3 SS grub screws
Cone shape
6mm length
polished tip

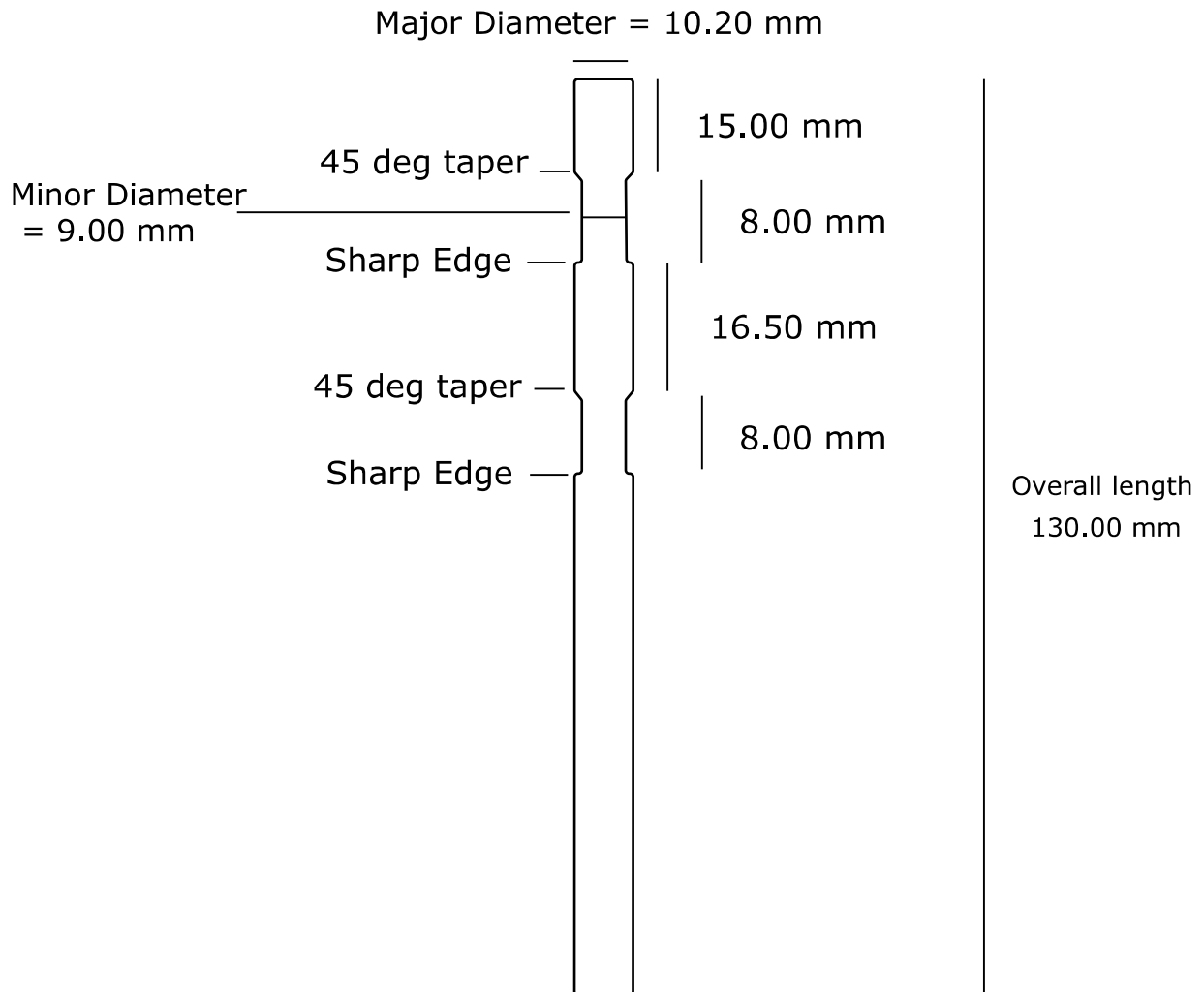


Unless otherwise specified dimensions are in millimetres							
REV	DESCRIPTION				NAME	DATE	
	Designed by D. Freitas & I. B. Butler	Draftsman D. Freitas		Heat treatment / Surface treatment	Format A4		
	Date 31/08/2022	Customer F. Fousseis			Scale 1 : 1		
	- ÷ XX	XX ÷ XXX	XXX ÷ XXXX	OVER XXXX	Material Stainless Steel	Weight 0.002 kg	Quantity
	±0.1	±0.2	±0.5	±1			
The University Of Edinburgh School Of GeoSciences					Part code WKSP00235	Edition 00	Job code
					Part name Ring Installer		



Unless otherwise specified dimensions are in millimetres

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	REV	DESCRIPTION	NAME	DATE		
		Designed by D. Freitas & I. B. Butler	Draftsman D. Freitas	Weight	Job code	
		Date 31/08/2022	Customer F. Fuisseis	Quantity		
	The University Of Edinburgh School Of GeoSciences			Format A3	Scale 1 : 1	Sheet 1/1
Assembly name Sample polishing guide						
				Assembly code		



Not to scale

Unless otherwise specified dimensions are in millimetres							
REV	DESCRIPTION				NAME	DATE	
	Designed by D. Freitas & I. B. Butler	Draftsman D. Freitas		Heat treatment / Surface treatment	Format A4		
	Date 27/07/2023	Customer F. Fousseis			Scale 1 : 1		
	- ÷ XX	XX ÷ XXX	XXX ÷ XXXX	OVER XXXX	Material Stainless steel	Weight	Quantity
	±0.1	±0.2	±0.5	±1			
The University Of Edinburgh School Of GeoSciences				Part code	Edition 00	Job code	
				Part name GRAPHITE SHAVER			

