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Erasmus+ Programme
of the European Union

Collection of materials for technical tasks solved within the project

FIT FOR CAREER

between 1 September 2019 and 30 June 2022 by



**Vyšší odborná škola, Obchodní akademie a Střední odborné
učiliště technické Chotěboř, the Czech Republic**



Profesionalna gimnazia „Ivan Hadzhienov“, Kazanlak, Bulgaria



Istituto Superiore „Enzo Ferrari“, Barcellona P.G., Italy



Colegio Salesiano Santísima Trinidad, Sevilla, Spain



The European Union is not responsible for the quality and the content of the material.



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Dear Sir or Madam,

We thank you for your interest in doing business with our school company. We are a group of students who are responsible for commercial correspondence in the project.

We have contacted Ms Ondráčková, the deputy Head Teacher, and students from secondary vocational technical school who study electrotechnics and mechanical engineering and asked them to familiarise us with the products which were designed by them and you are going to work on.

We are therefore placing an order for a crane DACON and a beacon and attach our official order and necessary documentation.

We are sending drawings of two products which you can choose from so that one product will be made by your company. Detailed drawings of the components will be sent later. We know that technical drawings for the beacon have some mistakes (the drawing were prepared by the students of electrotechnics not by students of mechanical engineering), we will correct them as soon as possible and send them later again.

We discussed terms of delivery with Ms Ondráčková and would like to underline that delivery by 14 April is essential.

We look forward to doing business with you.

Best regards,

Sales Department Manager of Chotěboř fictitious company



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Dear Sir or Madam,

We are sending you some corrected drawings of the beacon. We have found some mistakes in it.

We apologize for the mistakes.

Next week we will send you the missing technical drawings of the crane.

Best regards

Your business partners from the Czech Republic

Dear Sir or Madam,

We are sending you some corrected drawings of the crane. We have found some mistakes in it.

We apologize for the mistakes.

There are no drawings of the planetary gearbox included in the package attached. 3D models can be provided upon request. 3D printing is the technology that we used to produce the gearbox. We downloaded the model of the gearbox from the Internet.

Best regards

Your business partners from the Czech Republic



Industrial signal beacon

Our project for Erasmus 2022 is an industrial signal beacon. An industrial beacon is a device that signals either the progress of a process or, more commonly, a warning of a hazard or error. This beacon can be used for both purposes.

This industrial beacon is mainly made of aluminium. The metal parts can be made on a lathe and the plastic cover part is printed on a 3D printer.

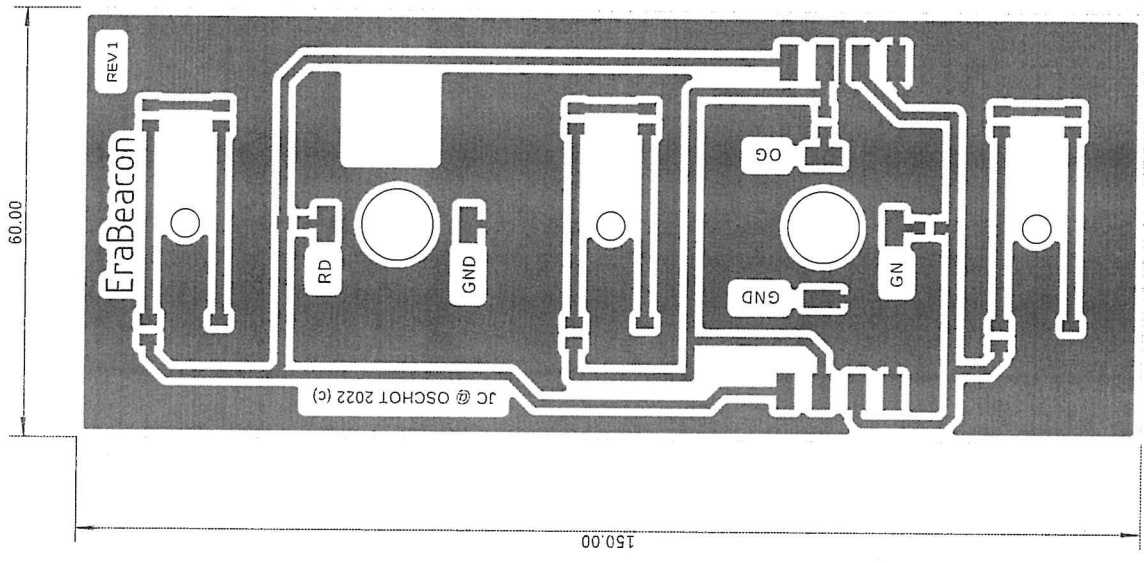
The beacon base is 80 mm in diameter and 30 mm high. A hole is drilled 20 mm from each axis of symmetry, which can be used to attach the beacon.

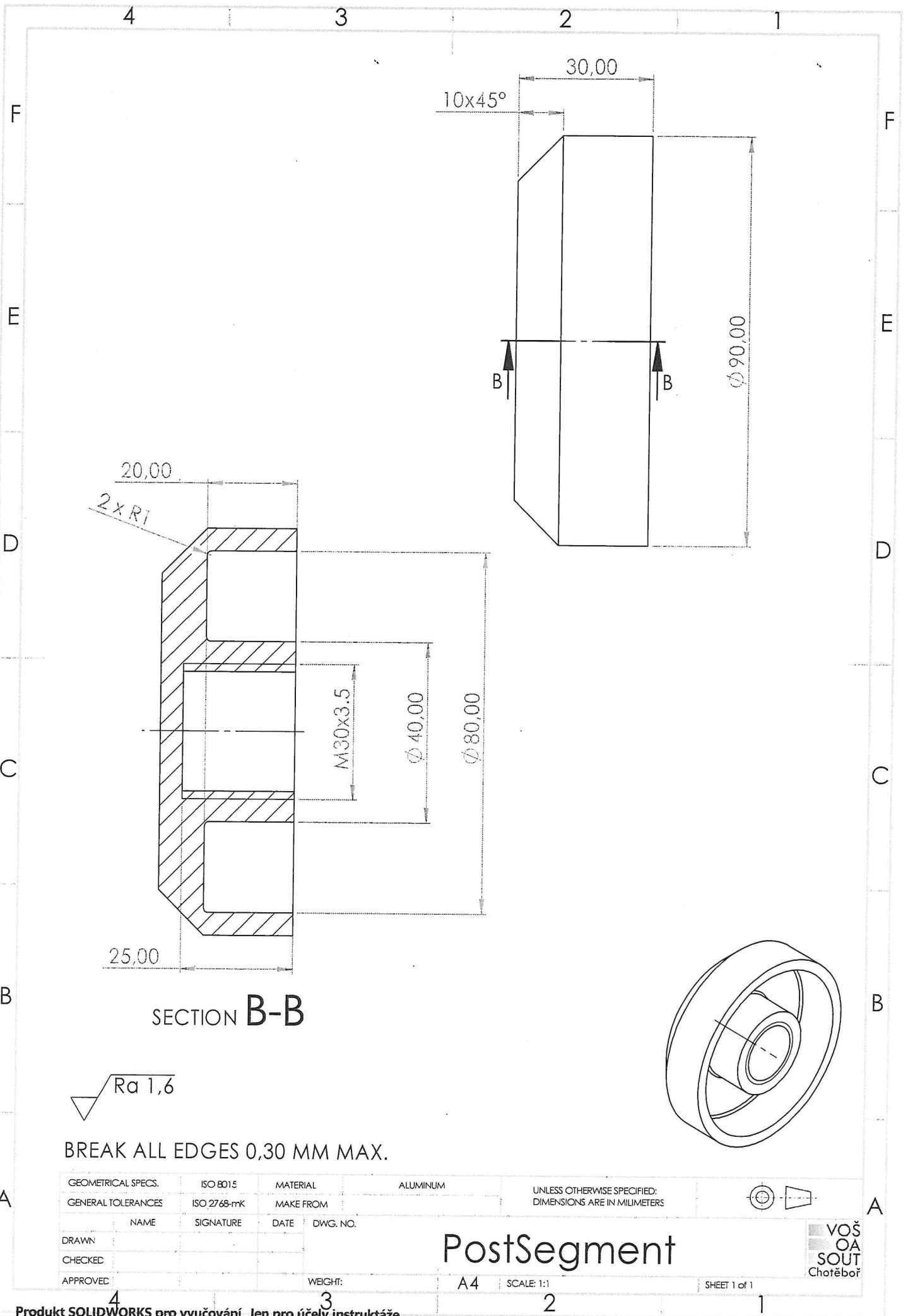
The workpiece in the shape of a "candlestick" (beacon presegment) is attached to the base. The narrower bottom rod that will be screwed into the base is 75 mm long followed by 25 mm long M27x1,5 thread. At the same time, a 25 mm long M27x1,5 thread is machined from the inside of the upper side. The top wider part, into which our transparent plastic cover will be placed, is 90 mm in diameter and 25 mm high.

Into the M27x1,5 thread from our beacon presegment we will insert the central mounting rod. The rod is 240 mm long with a diameter of 30 mm. The rod has an inner diameter of 20 mm. The M27x1,5 thread with a length of 20 mm is machined at both ends of the rod. From the top 30 mm and further on 60 mm holes are drilled for mounting the plates (spread after 120° each). 30 mm from the centre 2 holes with diameters of 10 mm are drilled for cabling.

The top hatch (beacon postsegment) is 90 mm in diameter and 30 mm high. The Central mounting rod is screwed into the centre. The printed LED cover is attached between the mounting plates.

The LEDs are mounted on the motherboard. SMT or THT method can be used. The number of LEDs is arbitrary. The control of the LEDs can be implemented as you wish (Arduino, Raspberry Pi, ...). The wires are routed through the central mounting rod.





SECTION B-B

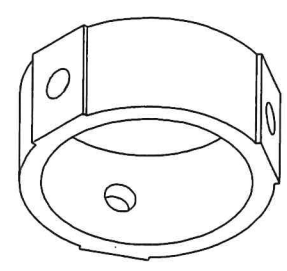
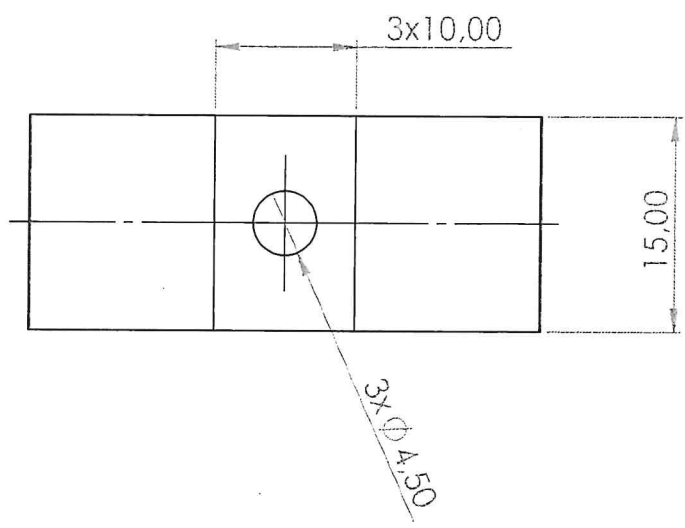
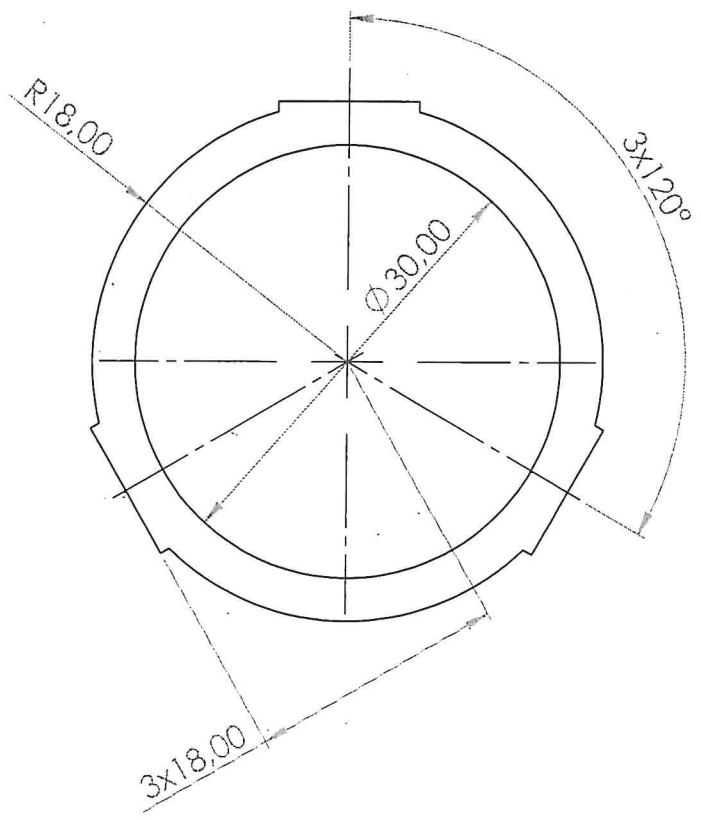
Ra 1,6

BREAK ALL EDGES 0,30 MM MAX.

GEOMETRICAL SPECS.	ISO 8015	MATERIAL	ALUMINUM	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS	
GENERAL TOLERANCES	ISO 2768-mK	MAKE FROM			
NAME	SIGNATURE	DATE	DWG. NO.		
DRAWN					
CHECKED					
APPROVED					

PostSegment

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$\sqrt{\text{Ra } 1,6}$

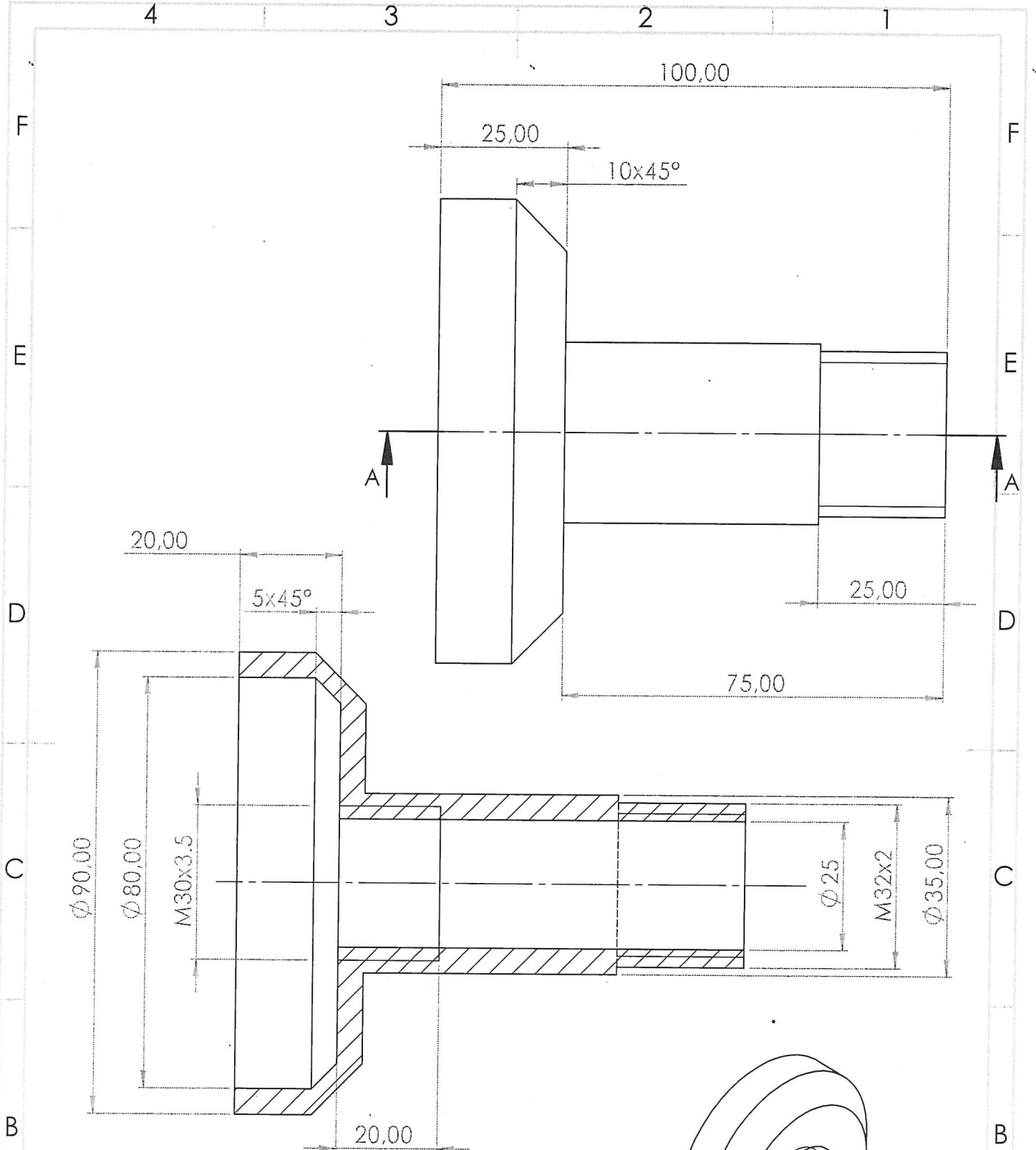
BREAK ALL EDGES 0,30 MM MAX.

GEOMETRICAL SPECS.	ISO 8015	MATERIAL	ALUMINUM	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS
GENERAL TOLERANCES	ISO 2768-mK	MAKE FROM		
	NAME	SIGNATURE	DATE	DWG. NO.
DRAWN				
CHECKED				
APPROVED				

PCB holder

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Chotěboř

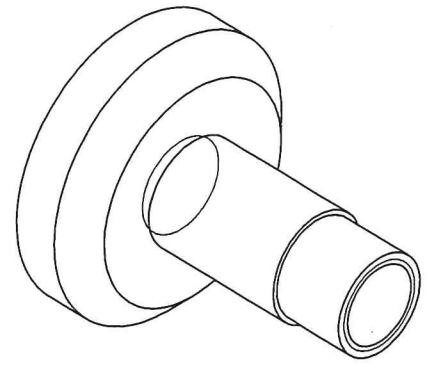
A4 SCALE: 2:1 SHEET 1 of 1



SECTION A-A

$\sqrt{Ra\ 1,6}$

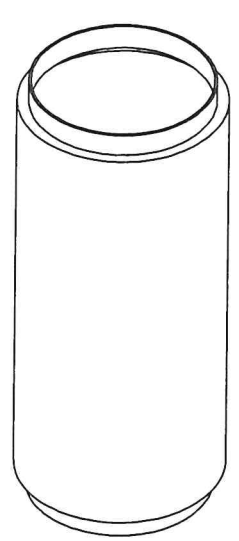
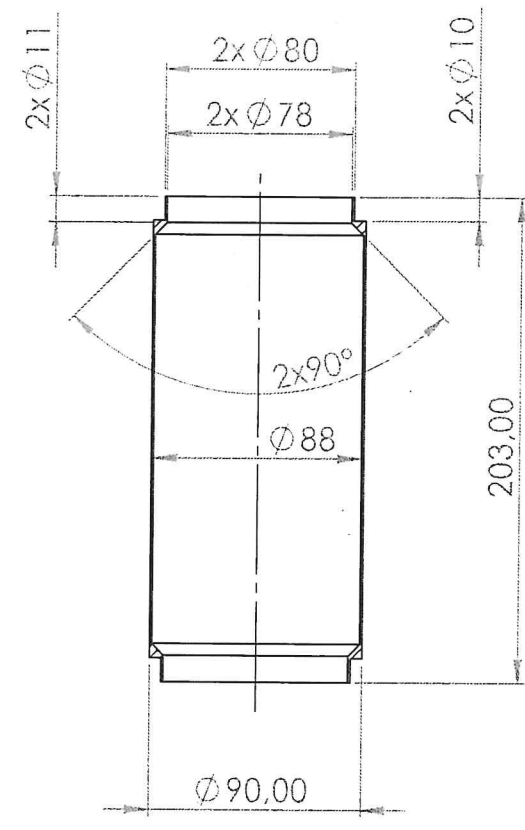
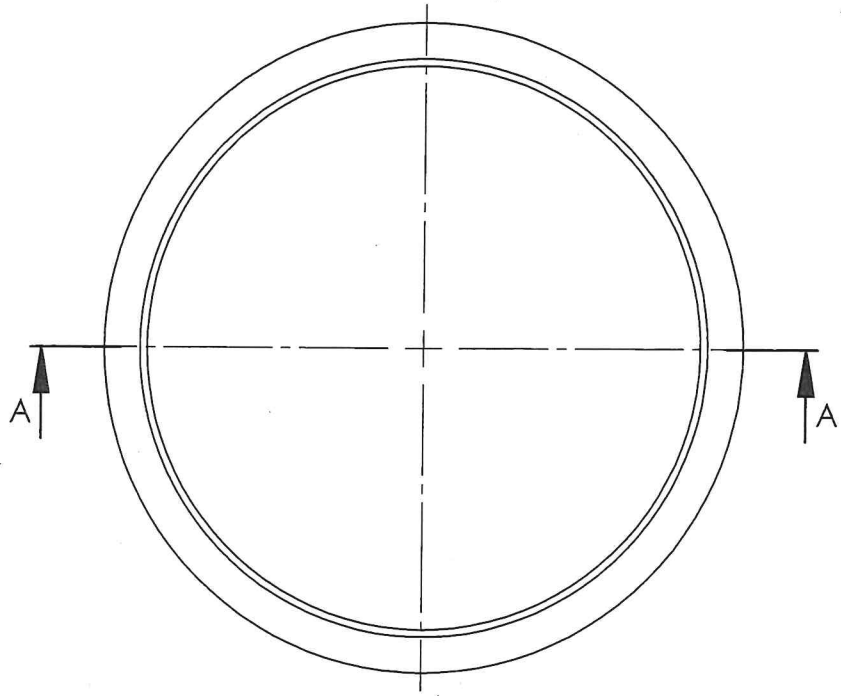
BREAK ALL EDGES 0,30 MM MAX.



GEOMETRICAL SPECS.	ISO 8015	MATERIAL	ALUMINUM	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS	
GENERAL TOLERANCES	ISO 2768-mK	MAKE FROM			
	NAME	SIGNATURE	DATE	DWG. NO.	
DRAWN					
CHECKED					
APPROVED					

PreSegment


VOŠ
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Chotěboř



$\sqrt{Ra\ 1,6}$

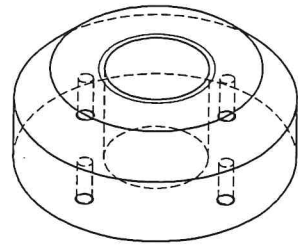
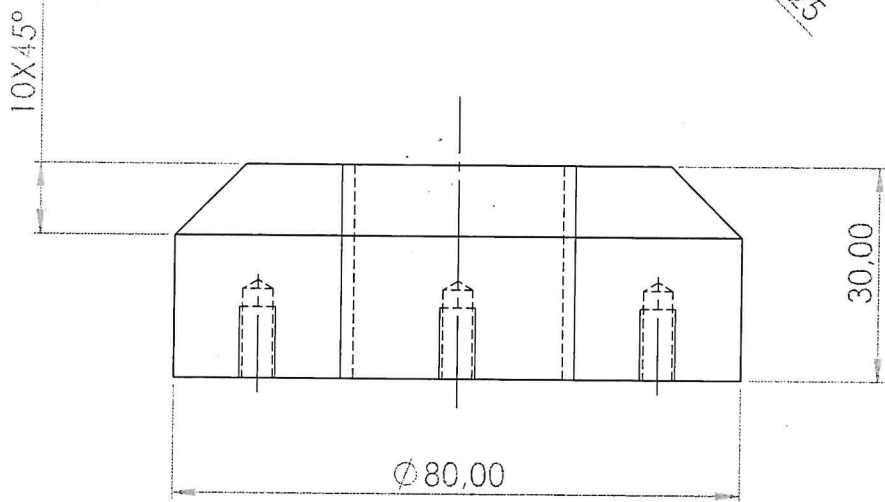
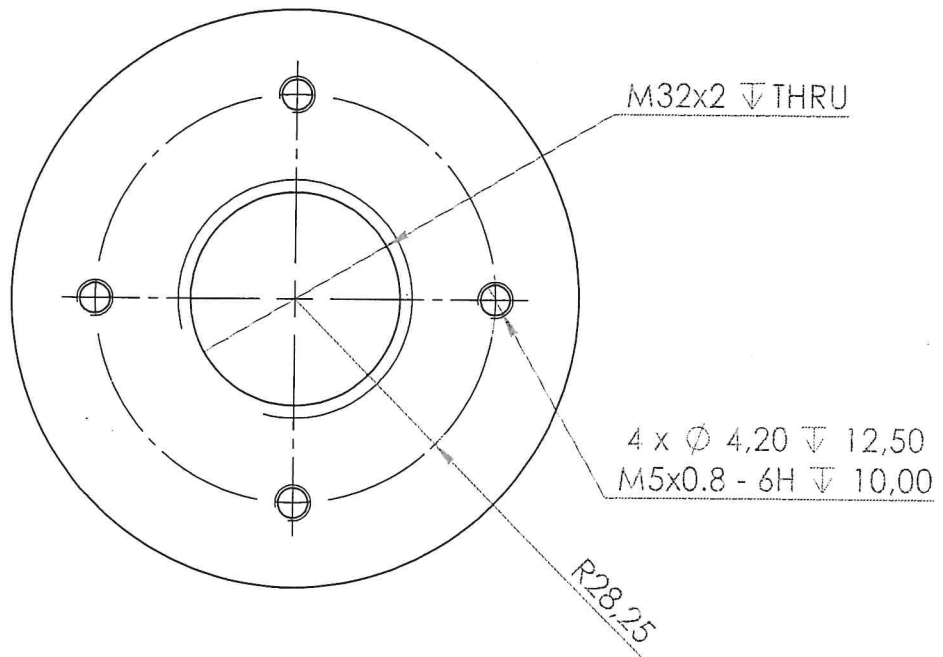
SECTION **A-A**
1 : 3

BREAK ALL EDGES 0,30 MM MAX.

GEOMETRICAL SPECS.	ISO 8015	MATERIAL	TRANSPARENT THERMOPLASTIC	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS	
GENERAL TOLERANCES	ISO 2768-mK	MAKE FROM			
NAME	SIGNATURE	DATE	DWG. NO.		
DRAWN					
CHECKED					
APPROVED					

Segment

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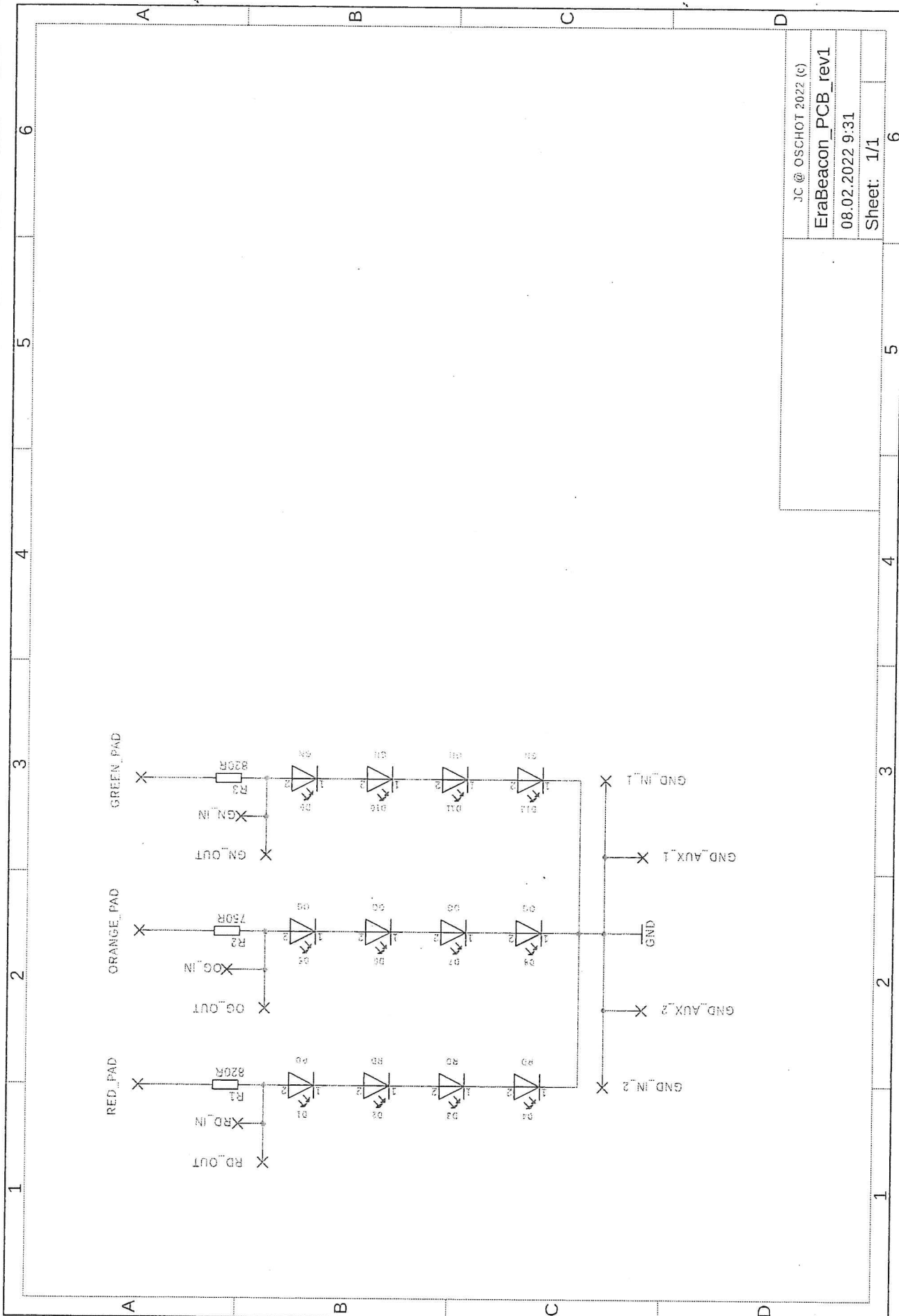
∇ Ra 1,6

BREAK ALL EDGES 0,30 MM MAX.

GEOMETRICAL SPECS.	ISO 8015	MATERIAL	ALUMINUM	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS
GENERAL TOLERANCES	ISO 2768-mK	MAKE FROM		
	NAME	SIGNATURE	DATE	DWG. NO.
DRAWN				
CHECKED				
APPROVED				

EraBeacon_BASE

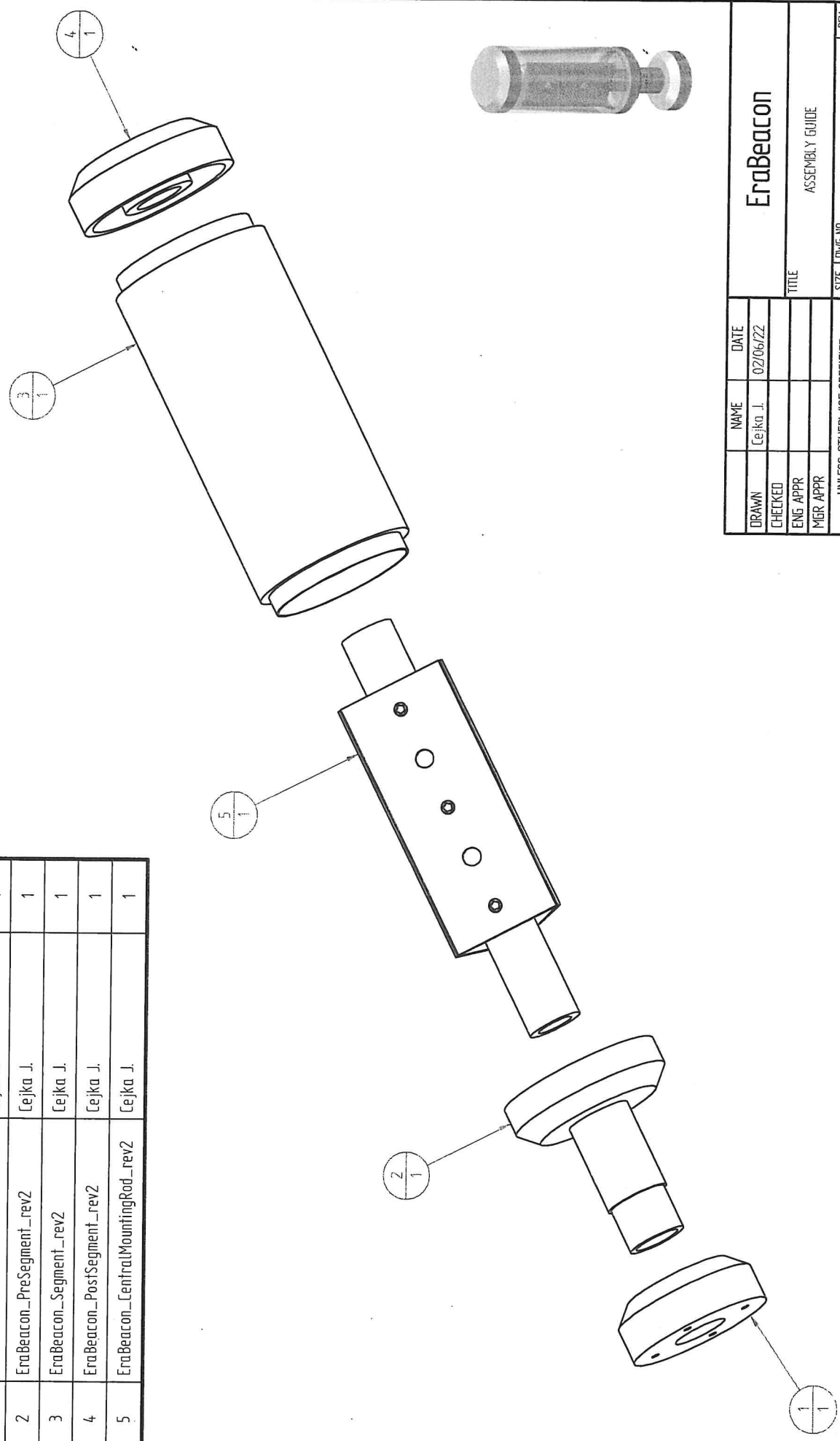
VOŠ
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SOUT
Chotěboř



JC @ OSCHOT 2022 (C)
EraBeacon_PCB_rev1
08.02.2022 9:31
Sheet: 1/1

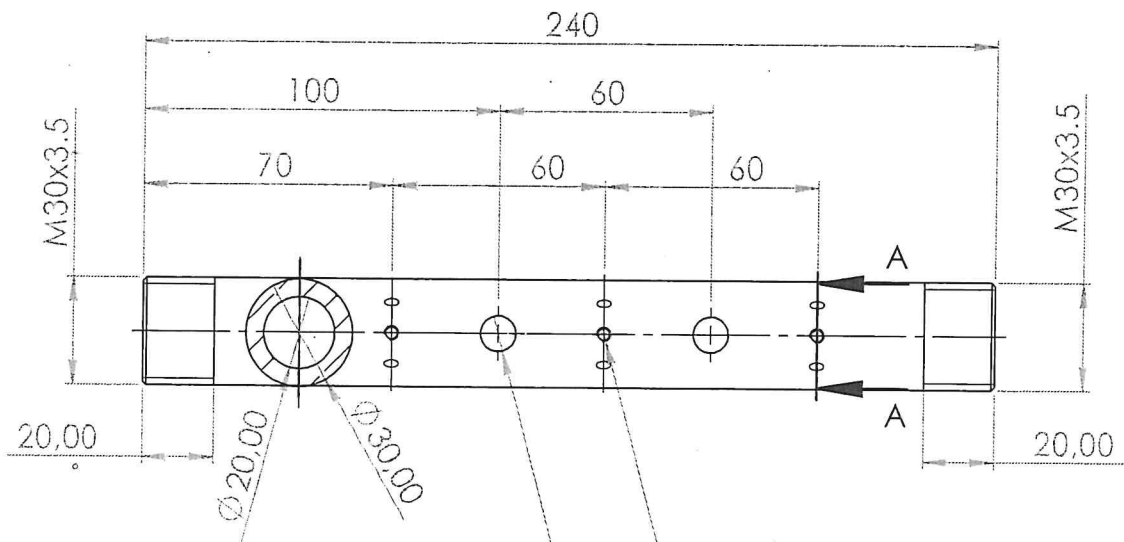
REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED

Item Number	File Name (no extension)	Author	Quantity
1	EraBeacon_Base_rev2	Cejka J.	1
2	EraBeacon_PreSegment_rev2	Cejka J.	1
3	EraBeacon_Segment_rev2	Cejka J.	1
4	EraBeacon_PostSegment_rev2	Cejka J.	1
5	EraBeacon_CentralMountingRod_rev2	Cejka J.	1



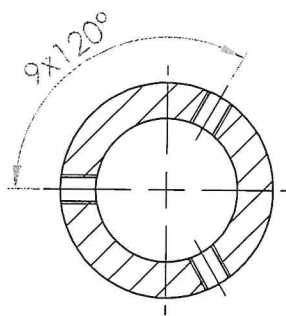
DRAWN		NAME	DATE
CHECKED	Cejka J.		02/06/22
ENG APPR			
MGR APPR			
TITLE		EraBeacon	
ASSEMBLY GUIDE		ASSEMBLY GUIDE	
SIZE	DWG NO	REV	
A3		2	
FILE NAME: EraBeacon.dwg		SCALE:	WEIGHT:
2 PL #XXX 3 PL #XXXX			SHEET 1 OF 1

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
ANGLES #XX°



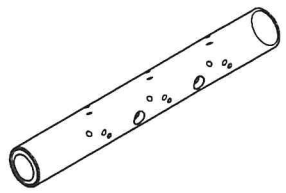
9 x \varnothing 3,30 ∇ THRU ONE WALL
 M4x0.7 - 6H ∇ THRU ONE WALL

2x \varnothing 10,00 ∇ THRU ONE WALL



SECTION **A-A**
 1:1

∇ Ra 1,6



BREAK ALL EDGES 0,30 MM MAX.

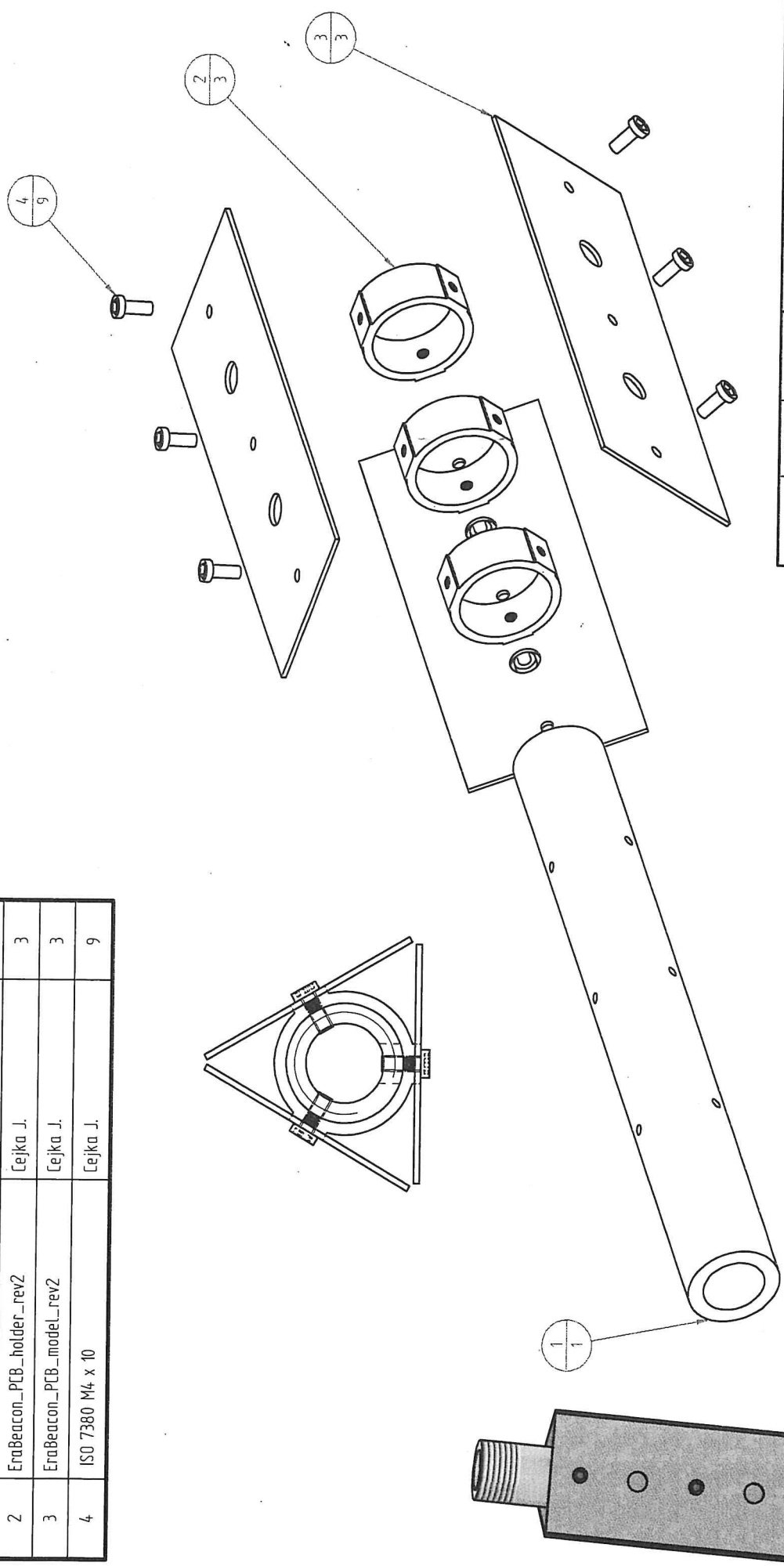
GEOMETRICAL SPECS.	ISO 8015	MATERIAL	ALUMINUM	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS	
GENERAL TOLERANCES	ISO 2768-mK	MAKE FROM			
	NAME	SIGNATURE	DATE	DWG. NO.	
DRAWN					
CHECKED					
APPROVED					

Central_Mounting_Rod

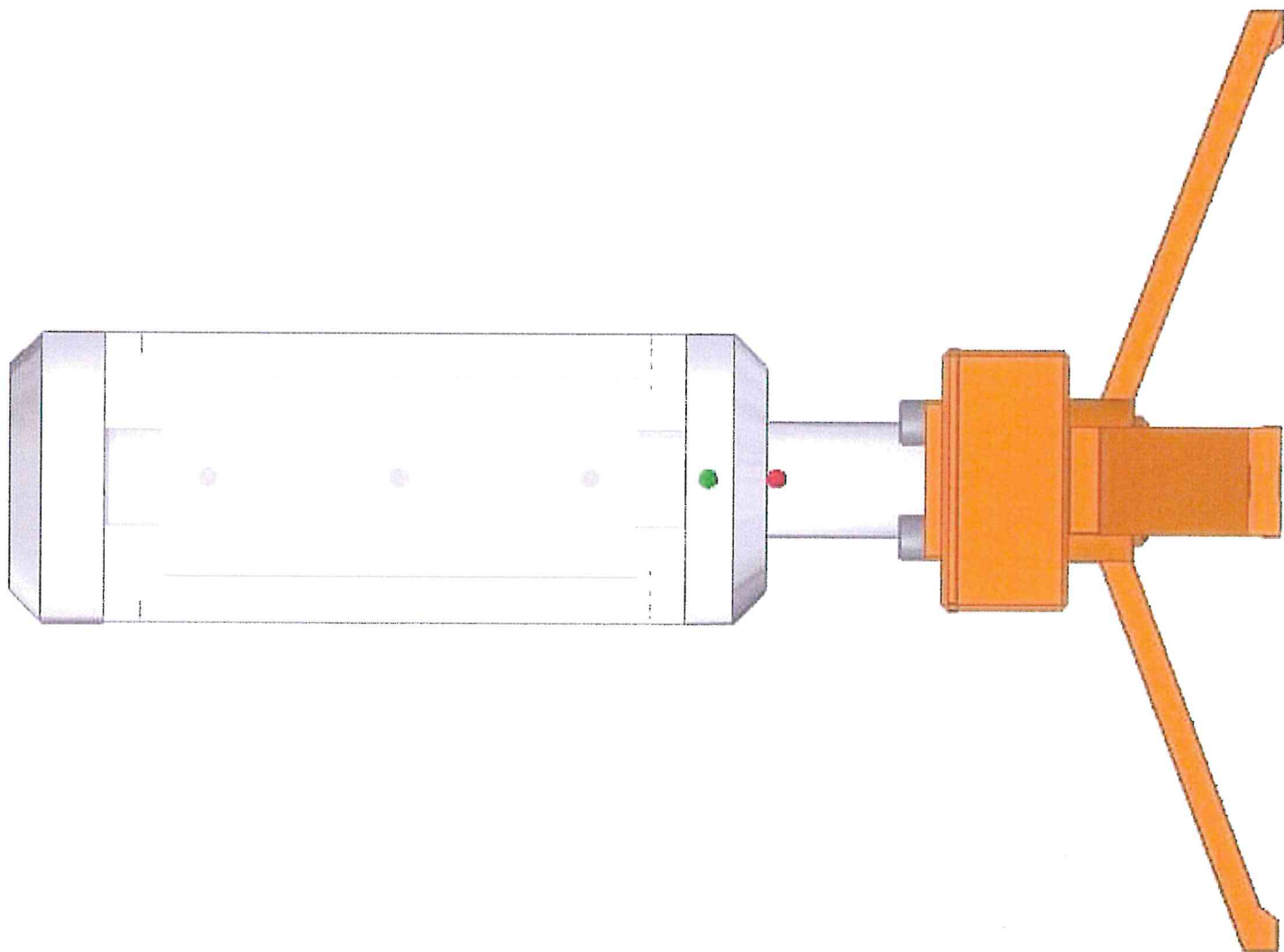
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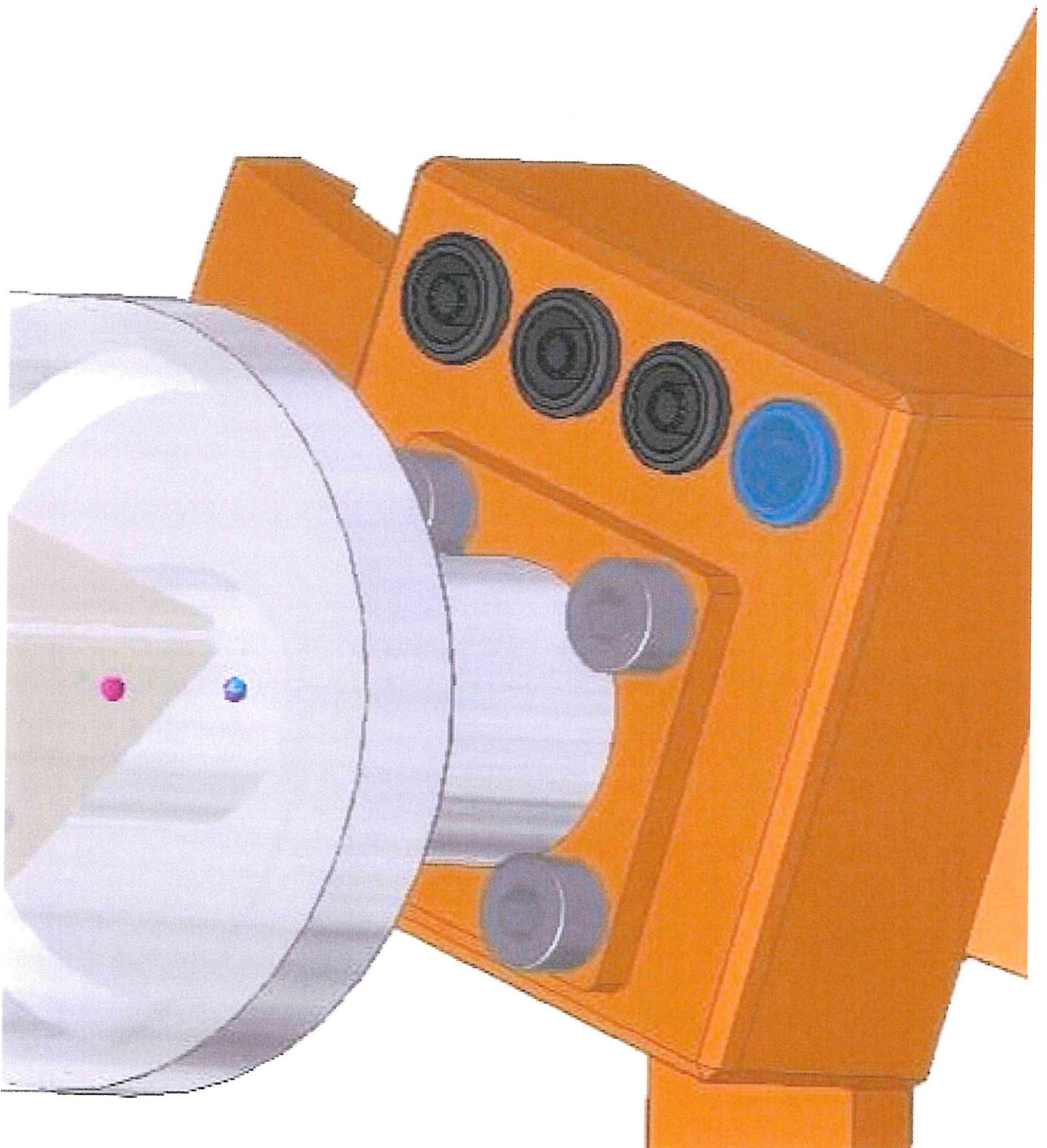
REVISION HISTORY		
REV	DESCRIPTION	DATE

Item Number	File Name (no extension)	Author	Quantity
1	EraBeacon_CentralMountingRod_rev2	Čejka J.	1
2	EraBeacon_PCB_holder_rev2	Čejka J.	3
3	EraBeacon_PCB_model_rev2	Čejka J.	3
4	ISO 7380 M4 x 10	Čejka J.	9



EraBeacon	
DRAWN	Čejka J.
CHECKED	
ENG APPR	
MGR APPR	
TITLE CENTRAL MOUNTING ROD assembly guide	
SIZE	DWG NO
A3	
REV	
	2
FILE NAME: EraBeacon_CentralMountingRod_rev2.dft	
SCALE:	WEIGHT:
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS ANGLES ±XX° 2 PL ±XXX 3 PL ±XXXX	
SHEET 1 OF 1	





0	0	0,59 g
1	0,6%	0,04 m
2	0,0%	0,11 g
3	0,0%	0,02 m
4	0,0%	0,07 g

30m
 22h18m

