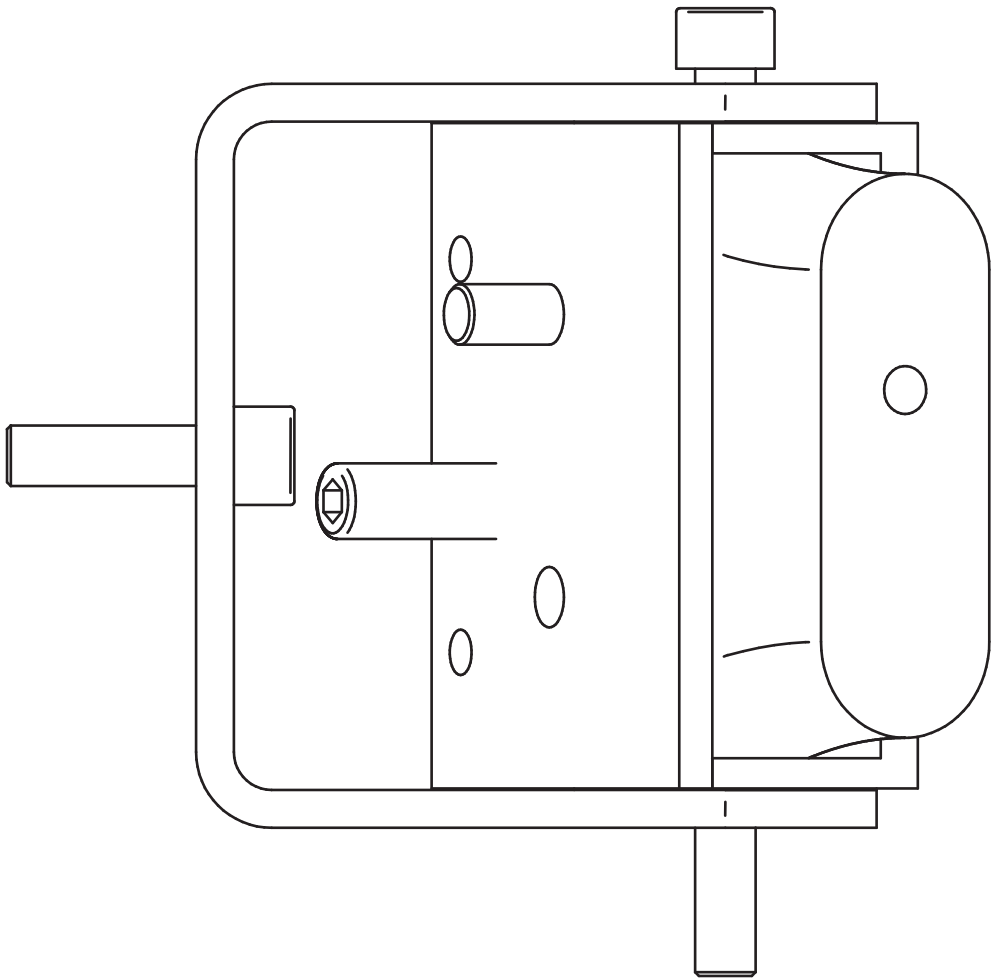
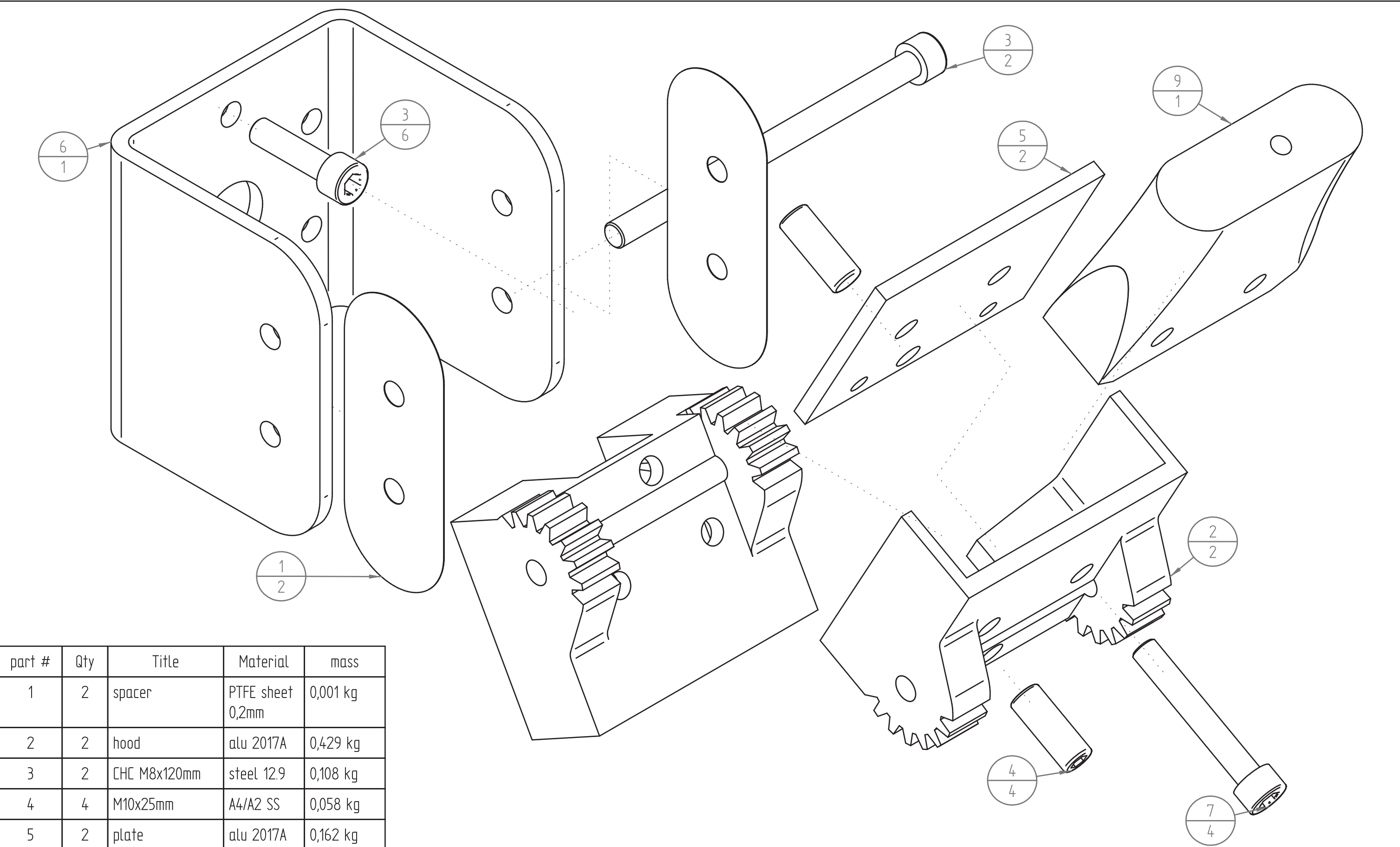


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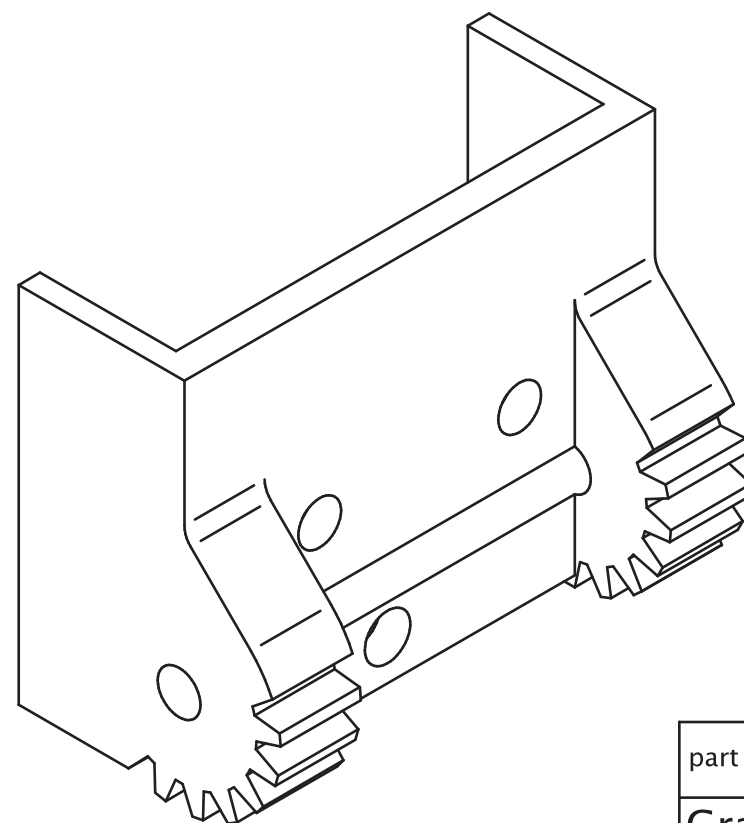
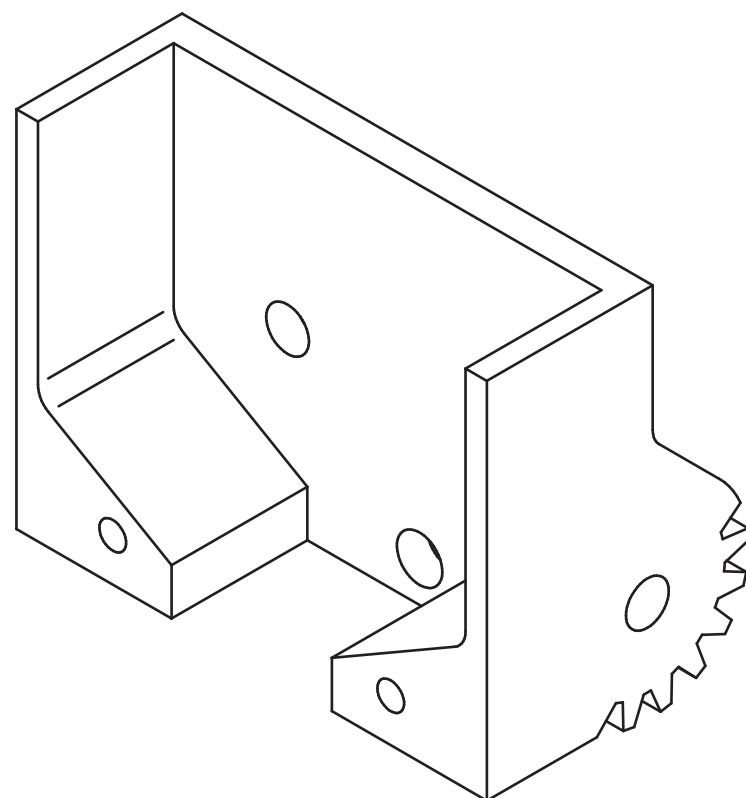
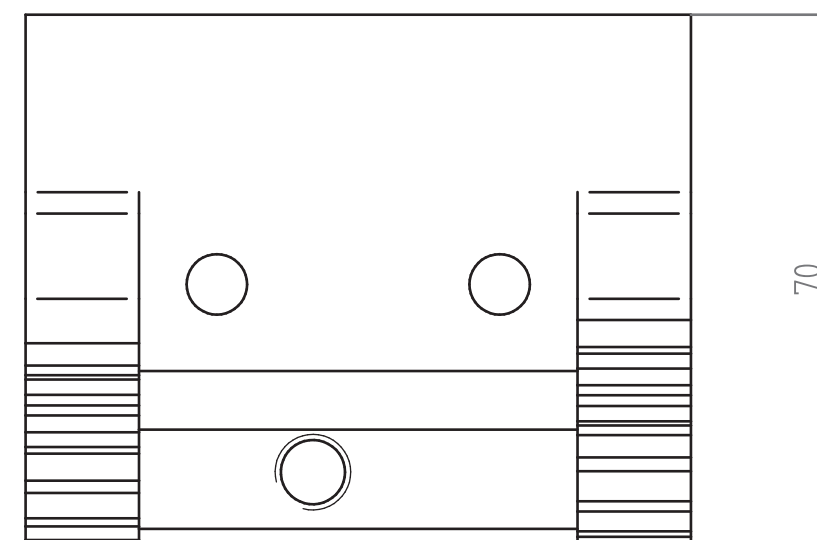
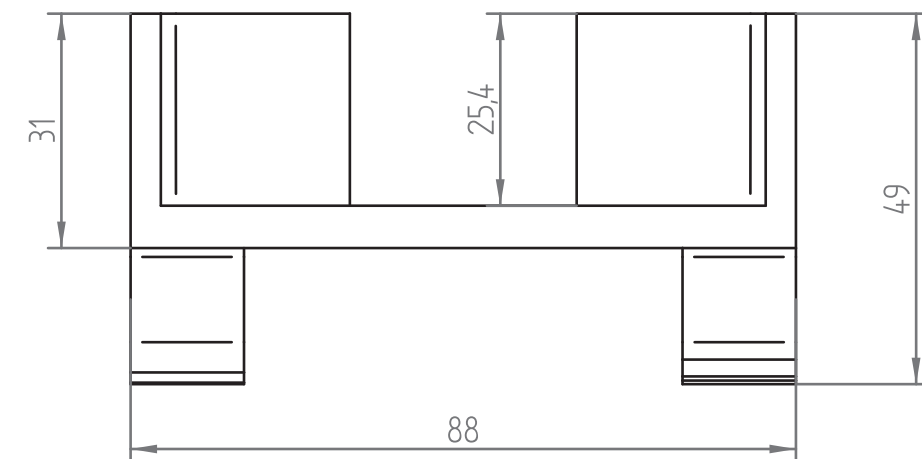
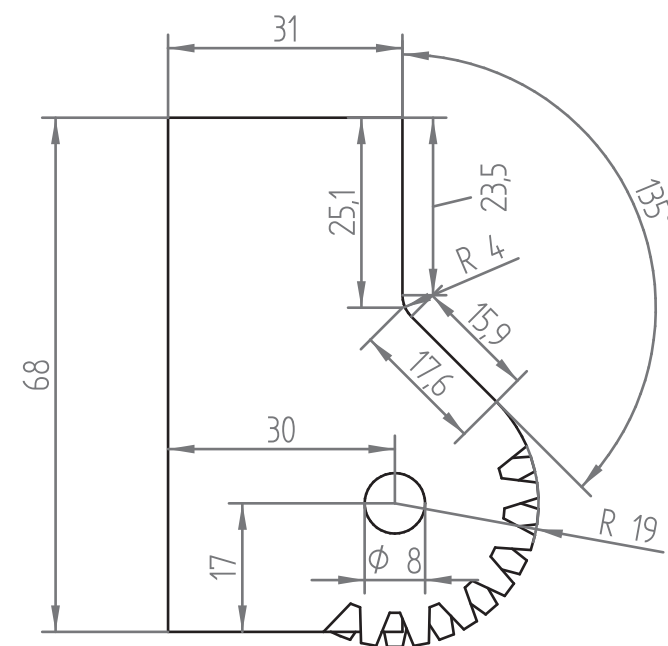
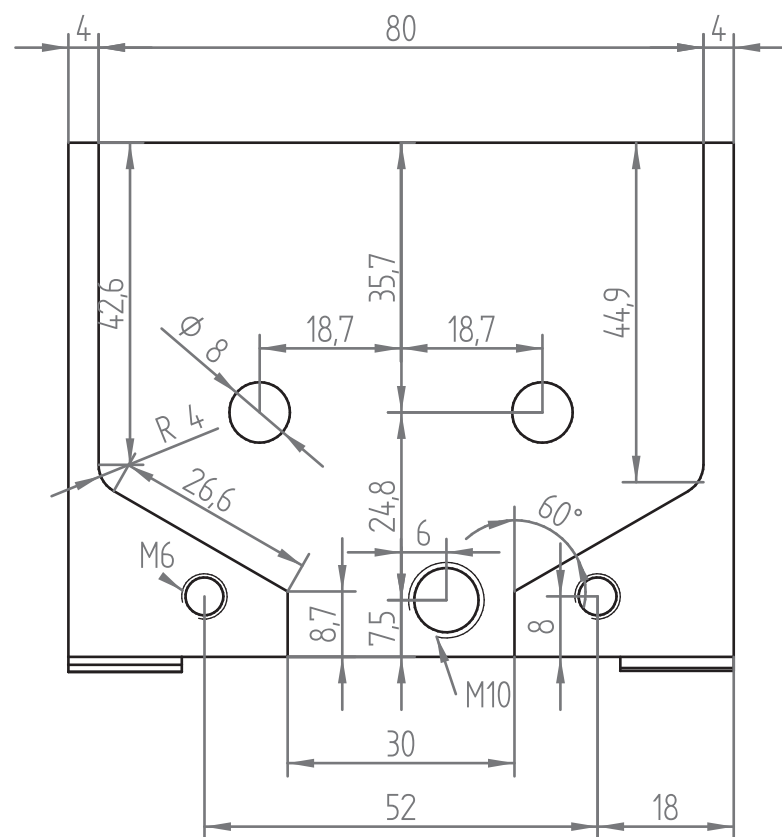
part #	page : 1 / 8	material :	date : July 2003
Graal Aéro 21, rue de la gare , 26410 Châtillon en Diois, France T. : +33 475 210 933 fax : +33 475 212 500 http://www.graal-aero.fr max.barel@graal-aero.fr		title: folding hub assembly for Ivoprop propeller blades	
		author : Max Barel	rev : 2.0



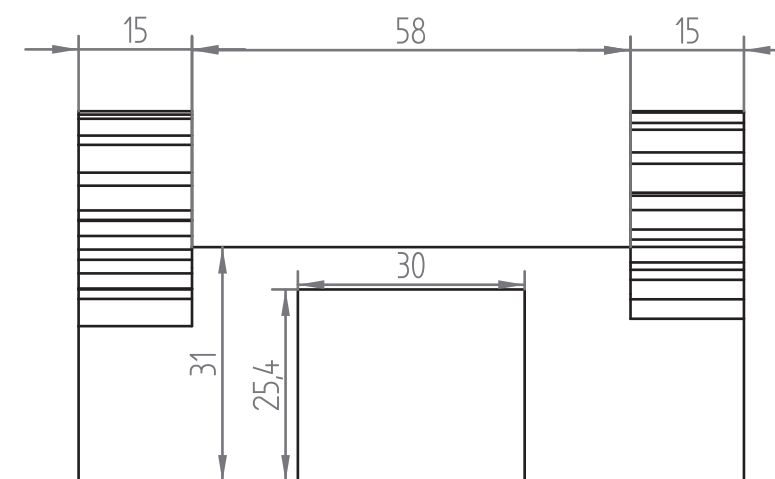
part #	Qty	Title	Material	mass
1	2	spacer	PTFE sheet 0,2mm	0,001 kg
2	2	hood	alu 2017A	0,429 kg
3	2	CHC M8x120mm	steel 12.9	0,108 kg
4	4	M10x25mm	A4/A2 SS	0,058 kg
5	2	plate	alu 2017A	0,162 kg
6	1	frame	alu 2017A	0,348 kg
7	4	CHC M8x50mm	steel 10.9	0,107 kg
8	1	blade tip		0,000 kg
9	6	CHC M8x30mm	steel 8.8	0,113 kg



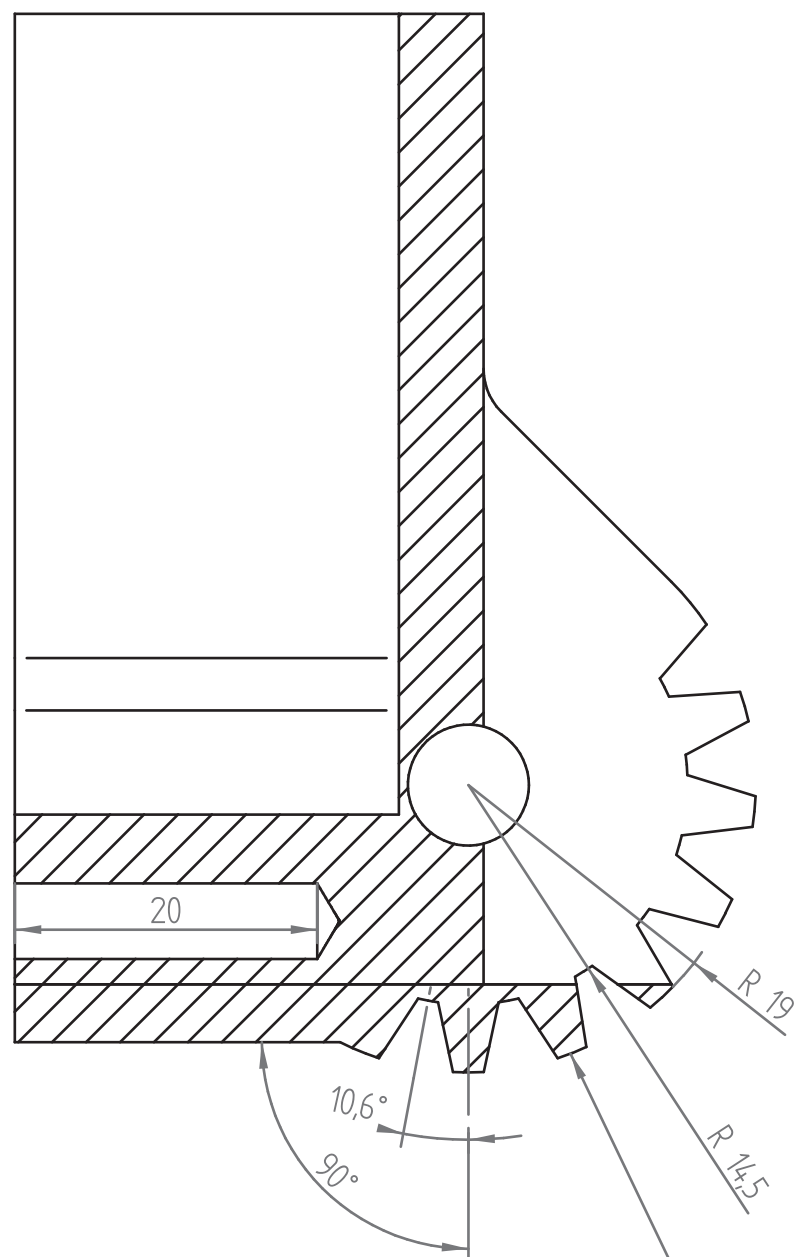
part #	page : 2 / 9	material :	date : July 2003
Graal Aéro 21, rue de la gare , 26410 Châtillon en Diois, France T. : +33 475 210 933 fax : +33 475 212 500 http://www.graal-aero.fr max.barel@graal-aero.fr		title: folding hub assembly for Ivoprop propeller blades (exploded view)	
author : Max Barel		rev : 2.0	



1:1



part # 2	page : 3 / 9	material : aluminium alloy 2017A	date : July 2003
Grael Aéro		title: blade hood	
21, rue de la gare , 26410 Châtillon en Diois, France		author : Max Barel	
T. : +33 475 210 933		rev : 2.0	
http://www.graal-aero.fr		max.barel@graal-aero.fr	

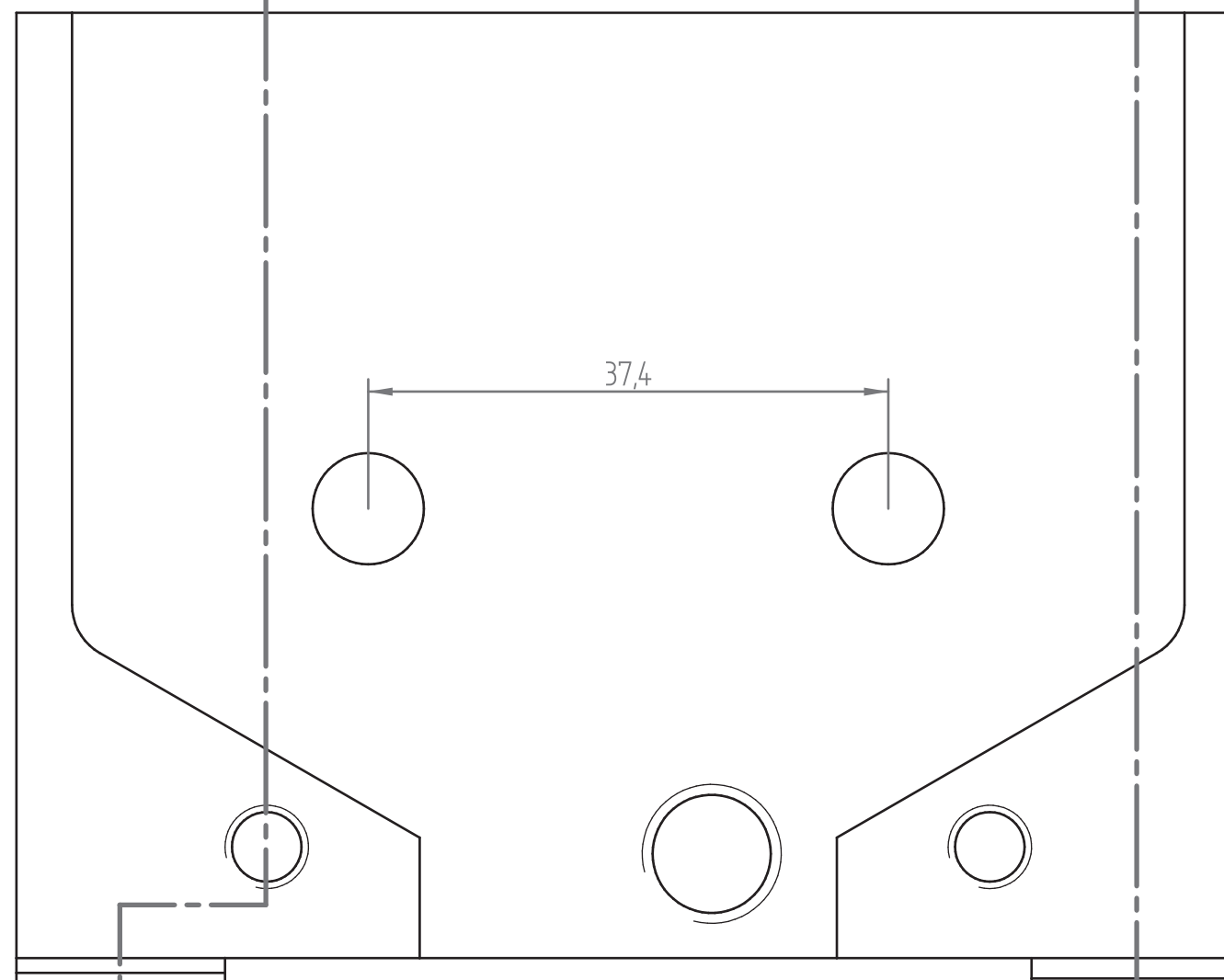


Coupe A-A

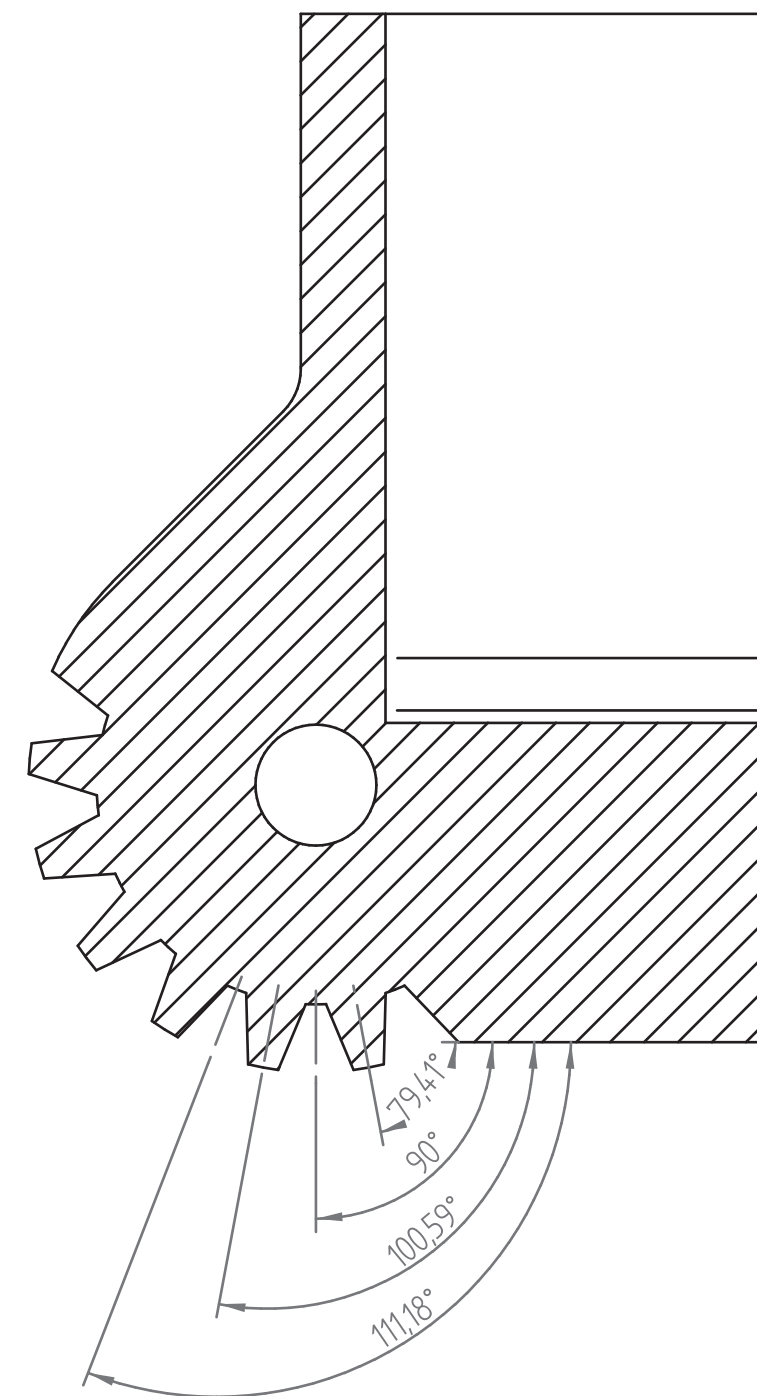
module 2
17 teeth / tour
6 reamed teeth / 7 trough

CAUTION :

This assembly is designed to use two identical hood parts. In order for these to match, the right and left gears should be staggered by half a teeth, as showed on this drawing. It is possible, if easier, to ream the two gears of the part in one tool pass. Then it is mandatory to make two different parts, one conforming to the left drawing, the other to the right drawing. Nevertheless, the planned design is more conservative, because it allows to make a third part for spare, in case something goes wrong in the machining process.



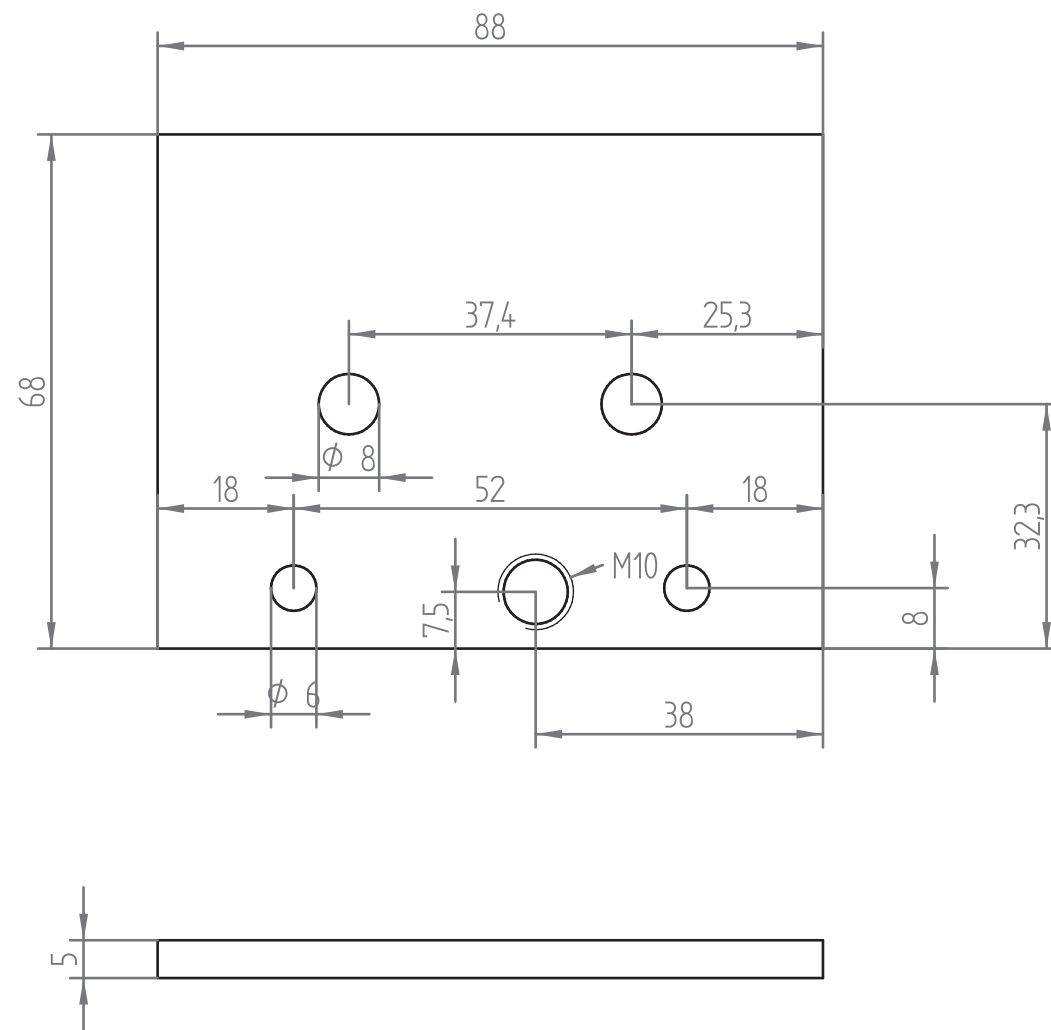
2:1



Coupe B-B

part #	page : 4 / 9	material : aluminium alloy 2017A	date : July 2003
Graul Aéro		title: blade hood (gear detail)	
21, rue de la gare , 26410 Châtillon en Diois, France		author : Max Barel	
T. : +33 475 210 933		rev : 2.0	
http://www.graal-aero.fr		max.barel@graal-aero.fr	

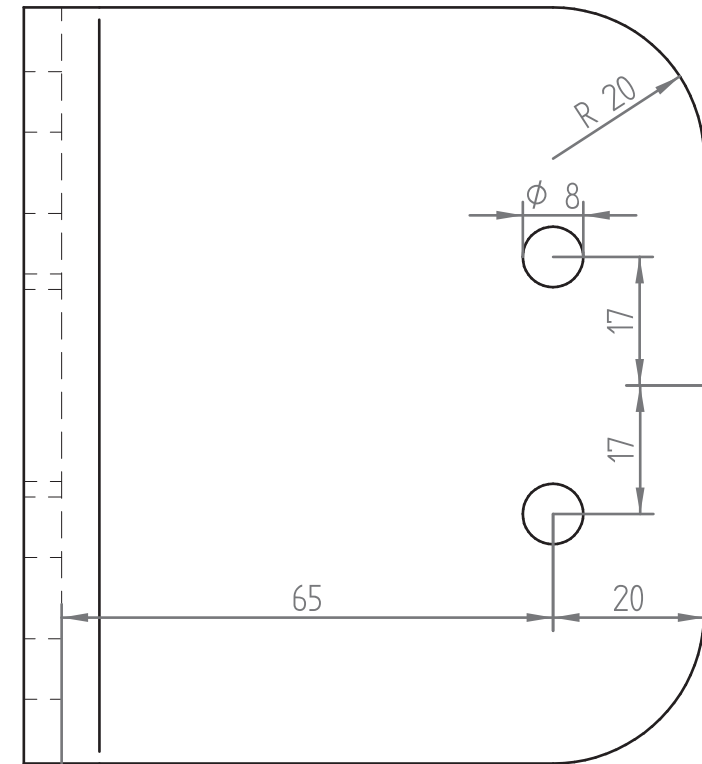
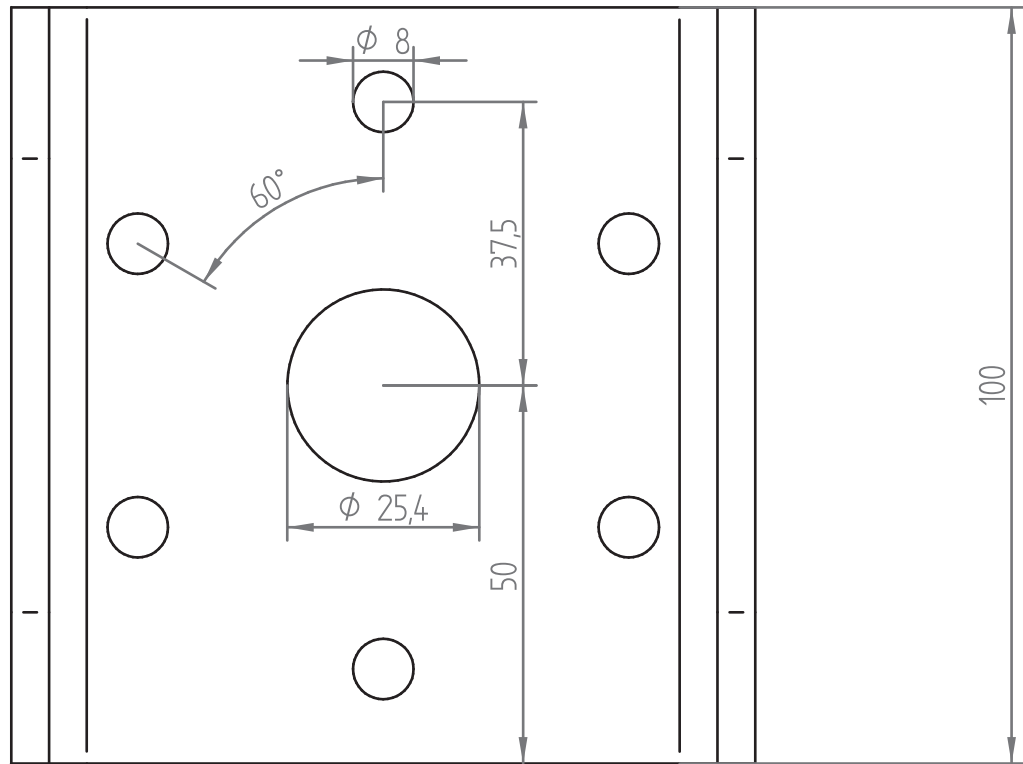




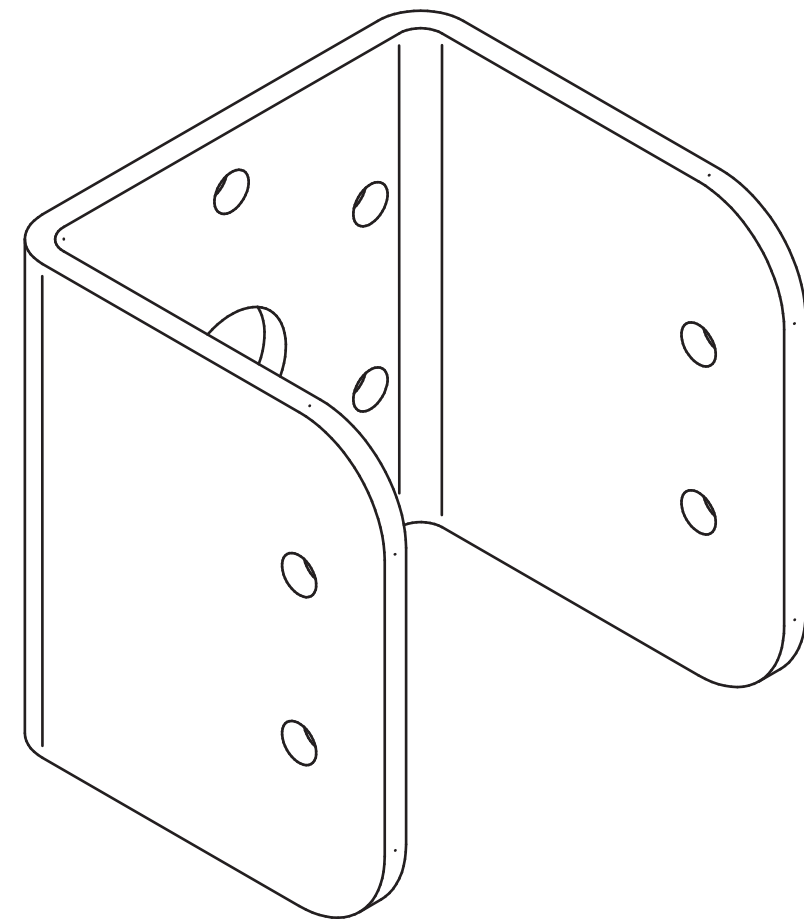
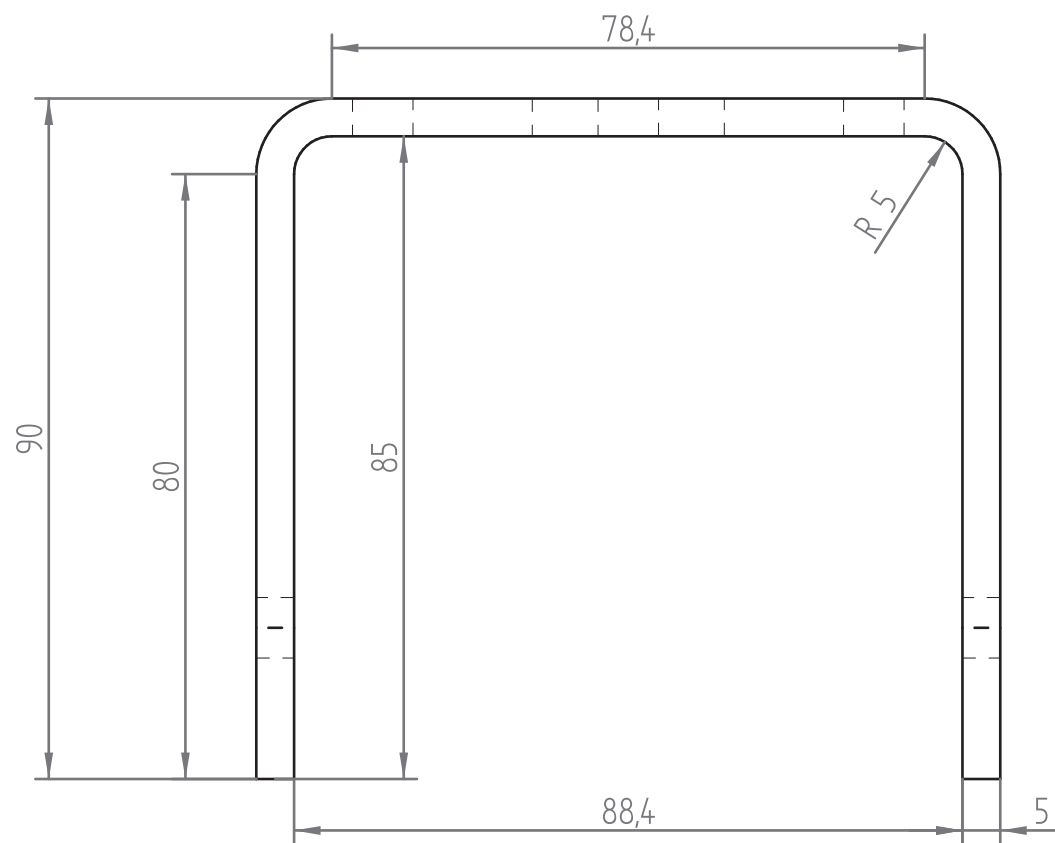
1:1

part # 5	page : 5 / 9	material : aluminium alloy 2017A	date : July 2003
Graal Aéro 21, rue de la gare , 26410 Châtillon en Diois, France T. : +33 475 210 933 fax : +33 475 212 500 http://www.graal-aero.fr max.barel@graal-aero.fr		title: closing plate	
		author : Max Barel	rev : 2.0



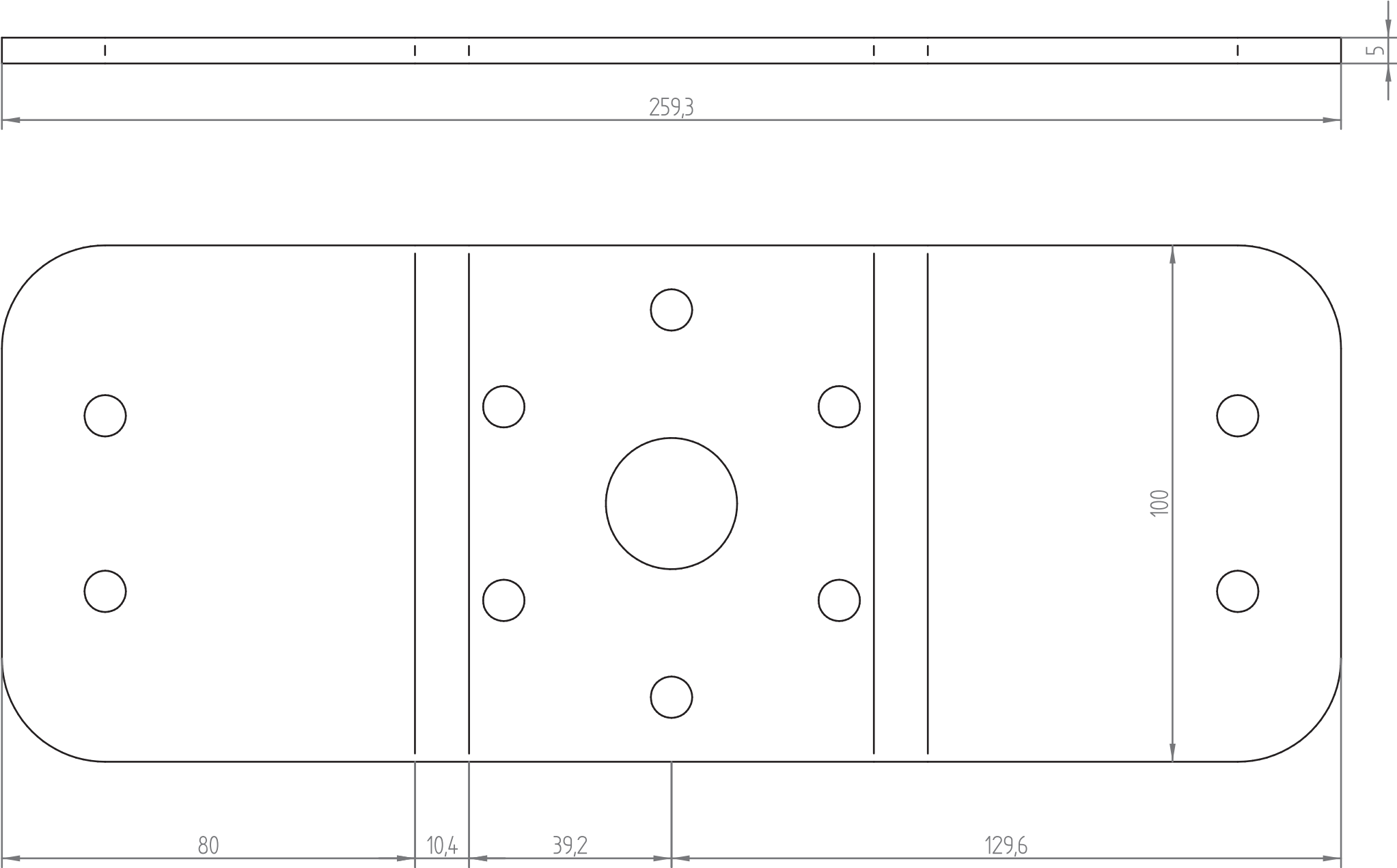


1:1

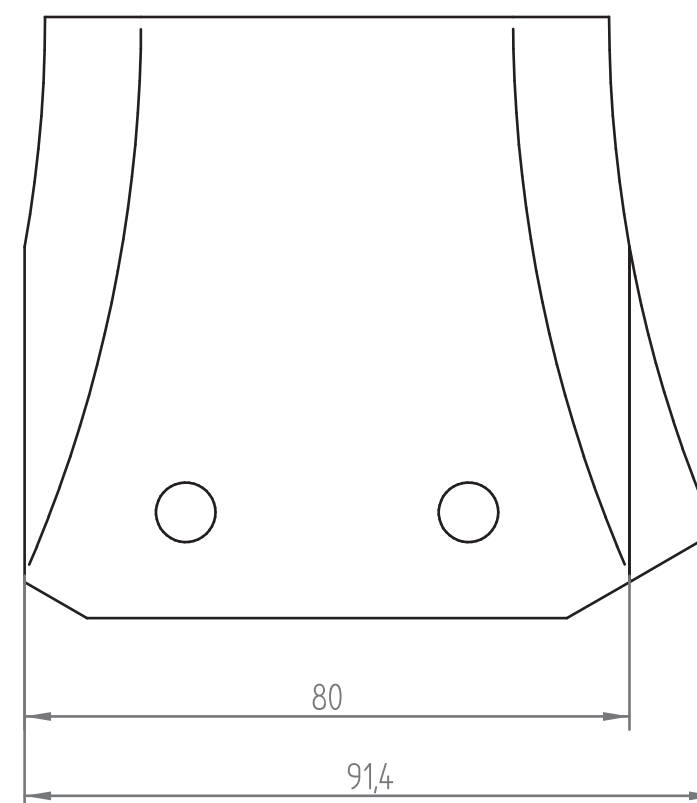
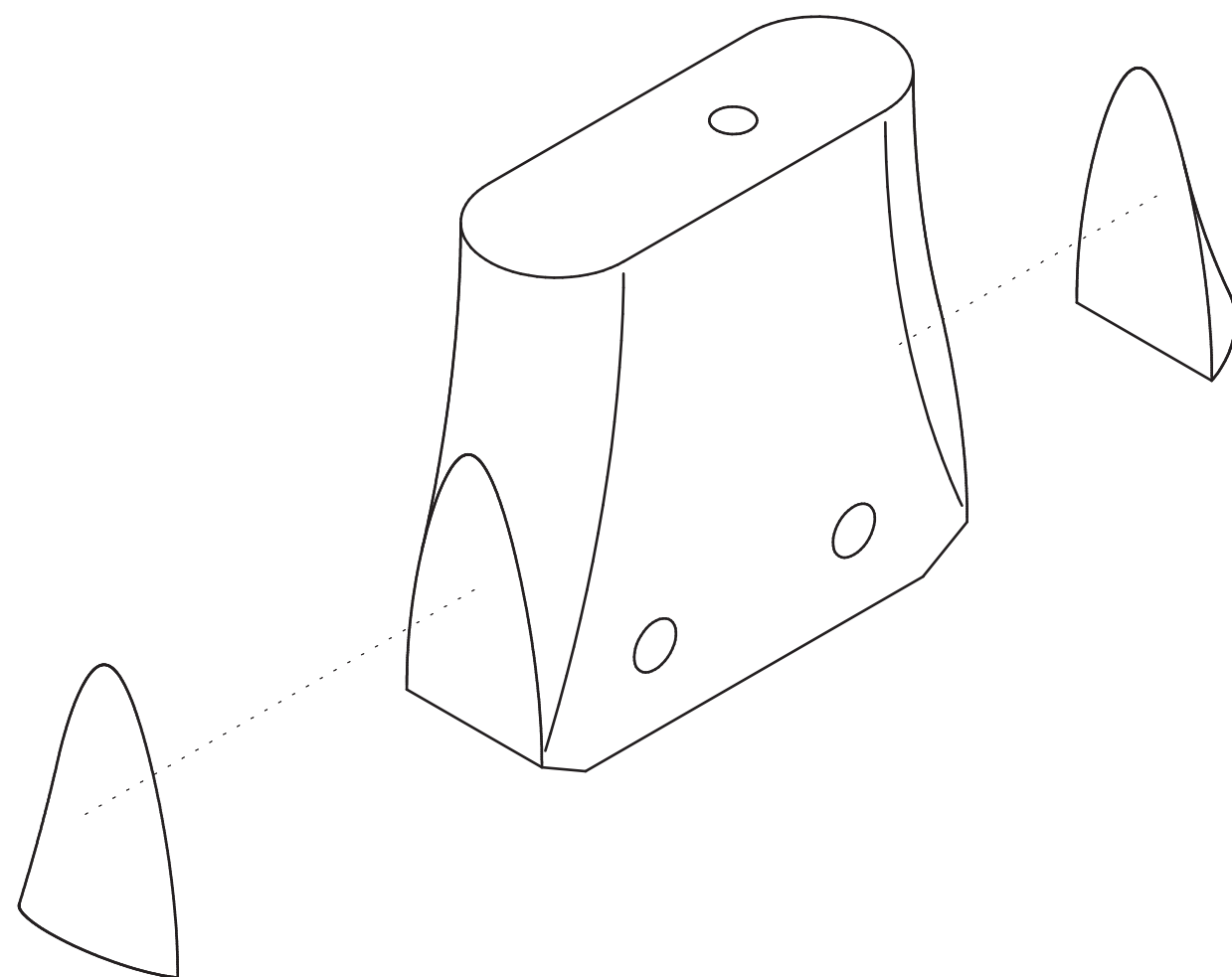


part # 6	page : 6 / 9	material : aluminium alloy 2017A	date : July 2003
Graag Aéro		title: frame	
21, rue de la gare , 26410 Châtillon en Diois, France		author : Max Barel	
T. : +33 475 210 933		rev : 2.0	
http://www.graal-aero.fr		max.barel@graal-aero.fr	





part # 6	page : 7 / 9	material : aluminium alloy 2017A	date : July 2003
Graal Aéro 21, rue de la gare , 26410 Châtillon en Diois, France T. : +33 475 210 933 fax : +33 475 212 500 http://www.graal-aero.fr max.barel@graal-aero.fr		title: frame (before bending)	
		author : Max Barel	rev : 2.0



CAUTION :

The blade should fit precisely in place. So it is important to carefully cut the end. The best way is to use a table saw with a longitudinal guide. To cut the first slice, at 91.4 mm, choose the side of the blade which better line up, parallel to the guide.

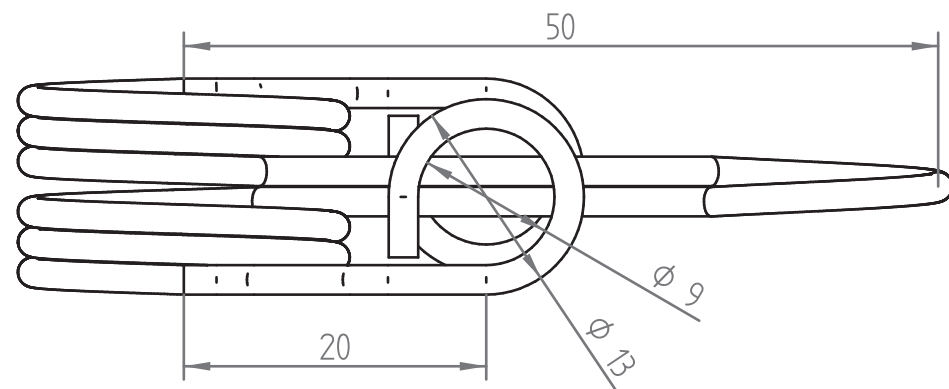
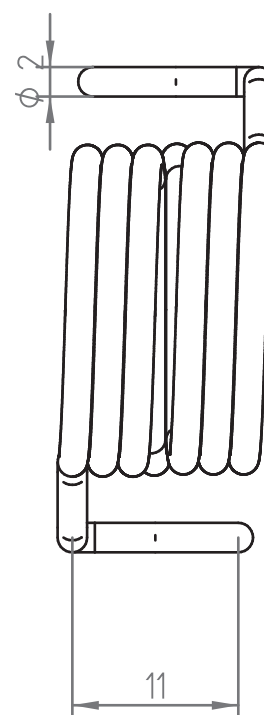
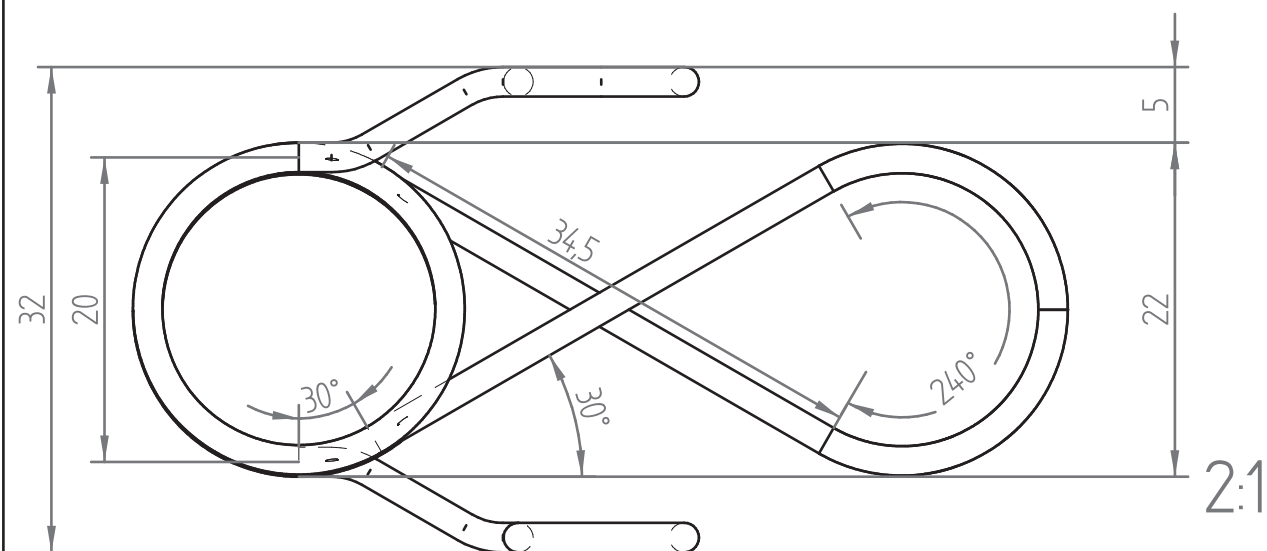
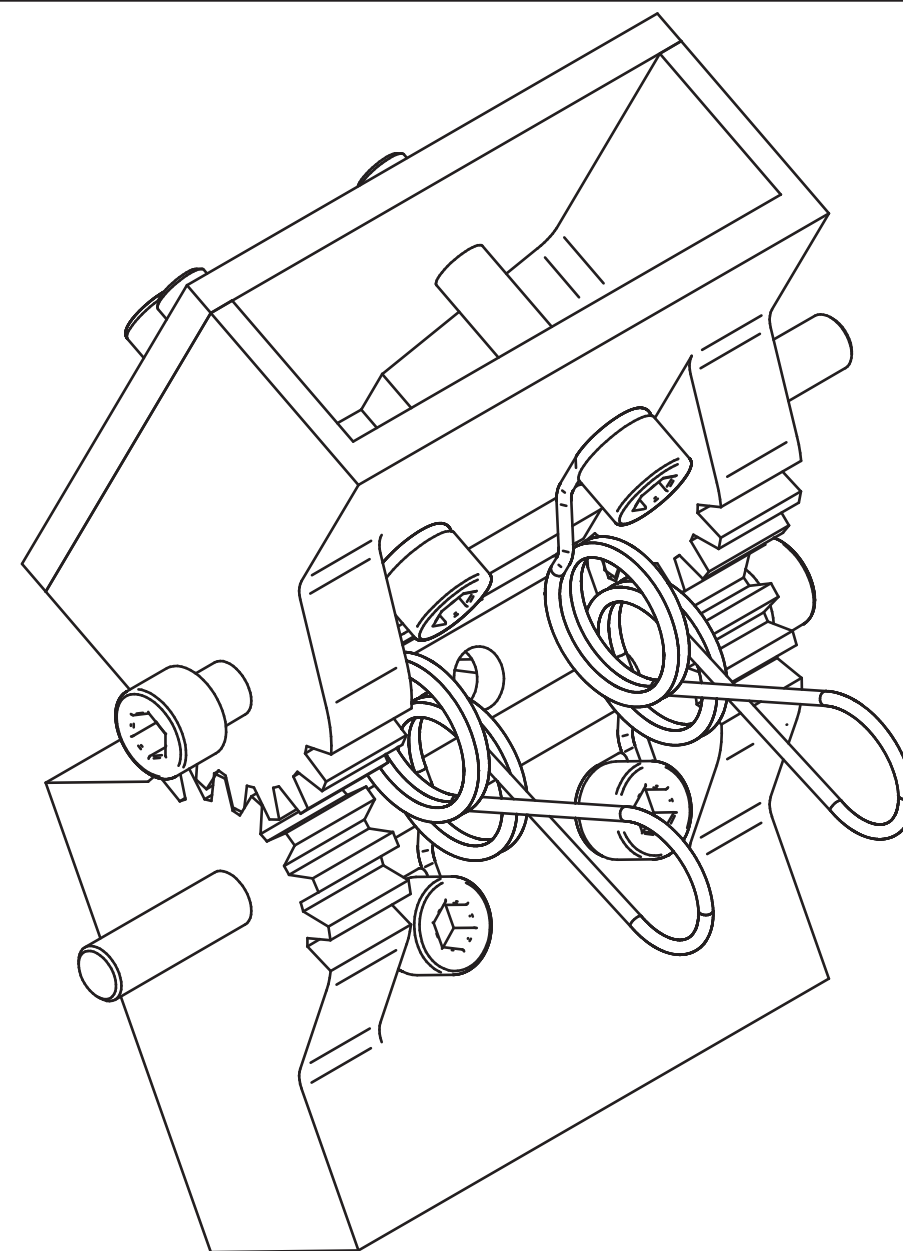
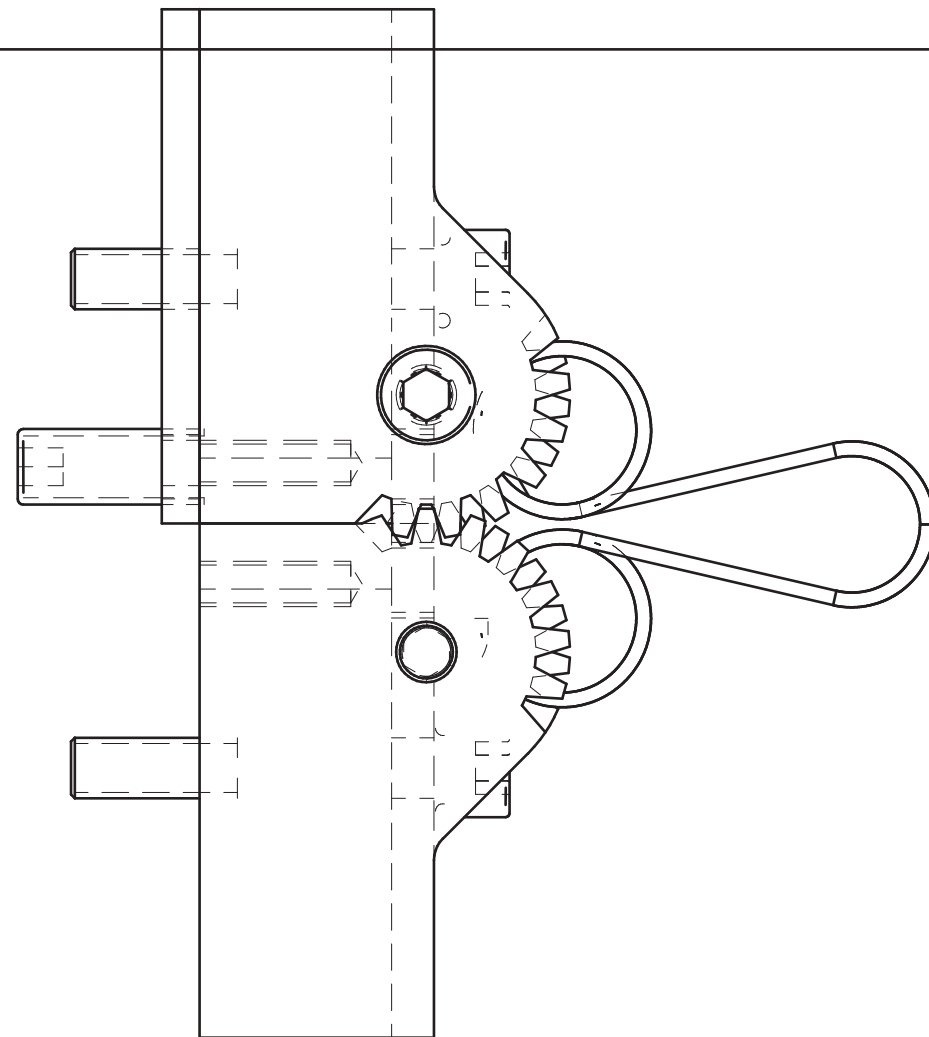
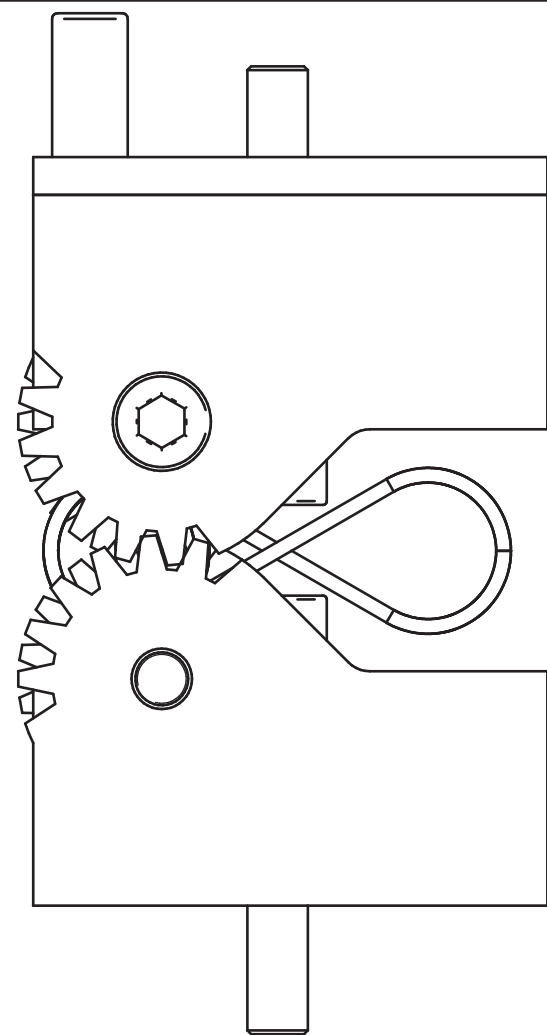
This cut has been approved by Ivoprop. Do not drill or cut otherwise. You can damage the blade internal reinforcement, which will lead the prop to brake.

When fitting the blade in the cap, clean up with solvent (acetone) and glue it with some good epoxy adhesive.

1:1



part # 9	page : / 9	material :	date : July 2003
Graul Aéro		title: blade end cutout	
21, rue de la gare , 26410 Châtillon en Diois, France		author : Max Barel	
T. : +33 475 210 933		rev : 2.0	
http://www.graal-aero.fr		max.barel@graal-aero.fr	



part # 10	page : 9 / 9	material : stainless steel	date : July 2003
Graal Aéro 21, rue de la gare , 26410 Châtillon en Diois, France T. : +33 475 210 933 fax : +33 475 212 500 http://www.graal-aero.fr max.barel@graal-aero.fr		title: optional folding springs author : Max Barel rev : 2.0	