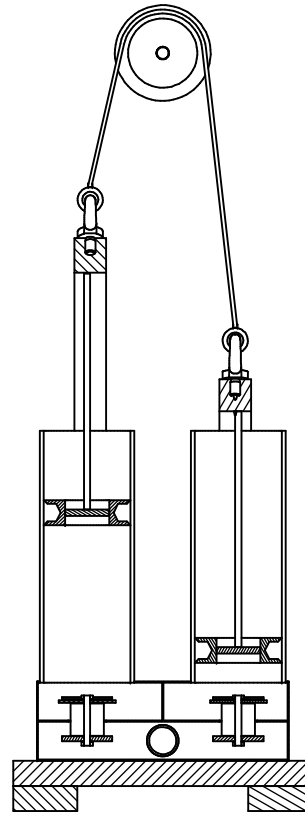
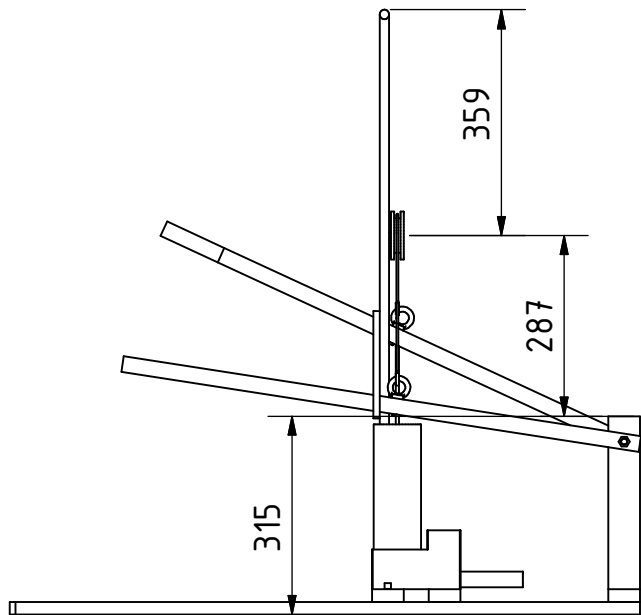
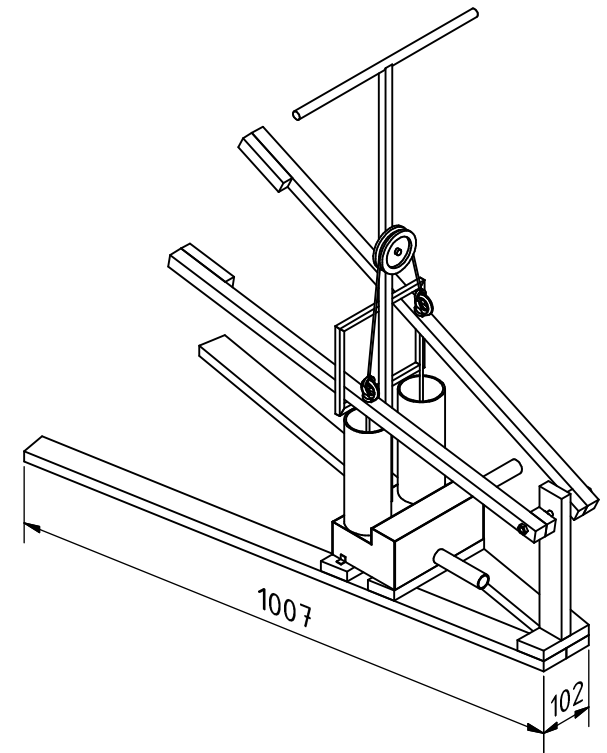
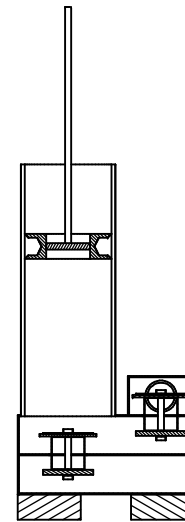


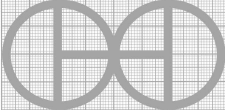
A-A (1 : 6)

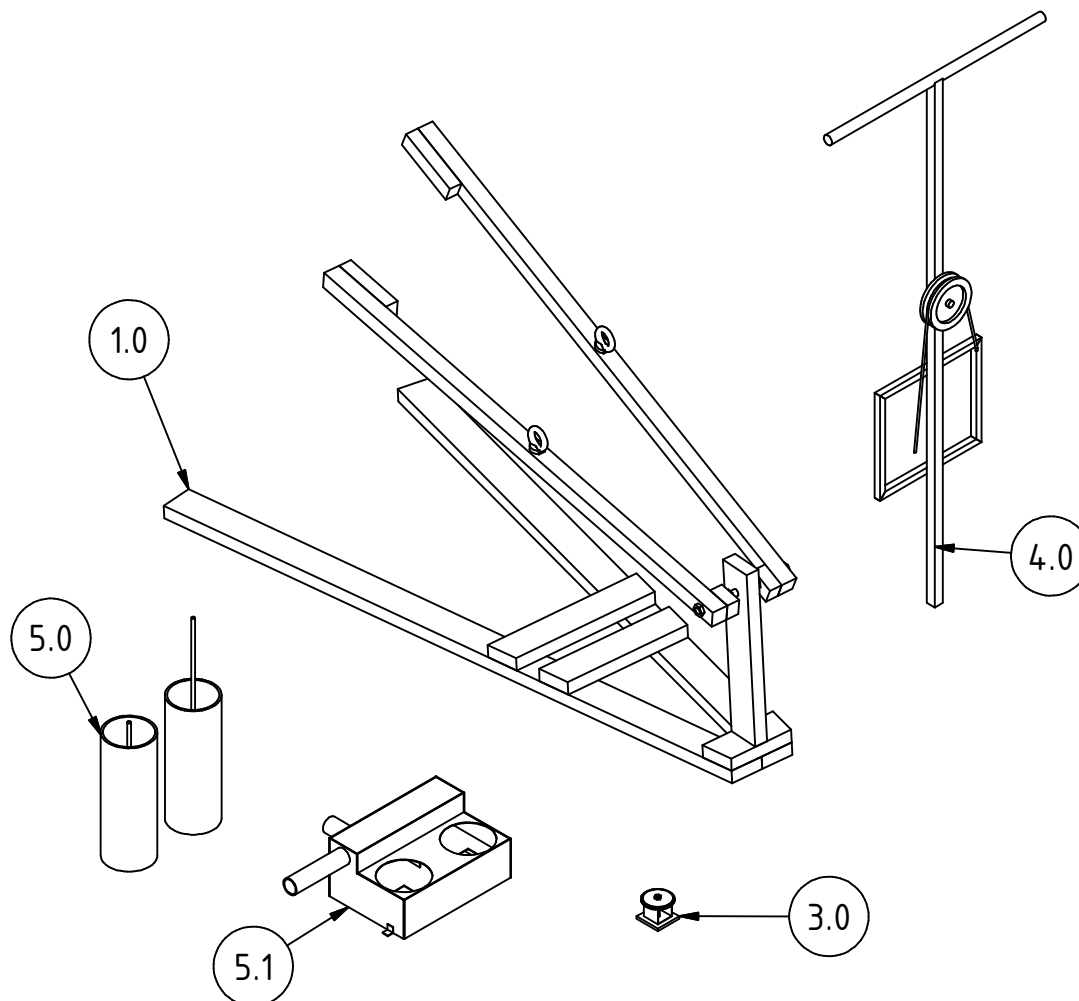


B-B (1 : 6)

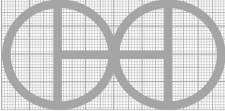


Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
3d views	Threadle pump.iam			A1
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Assembly		
University of Warwick, DTU OHO e.V.		LICENCE	SCALE	SHEET
		CC-BY-SA 4.0	1:12	1 /29

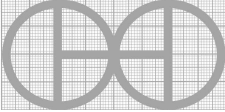


Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME	POS		
Exploded 3d view	Threadle pump.ipn	A2		
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Assembly		1
University of Warwick, DTU	OHO e.V.	LICENCE	SCALE	SHEET
		CC-BY-SA 4.0	1:10	2 /29

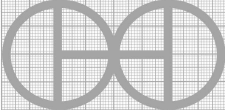
Parts list

POS	QTY	PART NAME	FILE NAME	PART TYPE	SPECIFICATIONS	SHEET
A1	-	3d views	Threadle pump.iam	-	-	1
A2	-	Exploded 3d view	Threadle pump.ipn	-	-	2
B1	-	Parts list	uwd_tp_threadle_pump.csv	-	-	3-4
C1	-	Technical notes	-	-	-	5
1.0	-	Frame	Frame.ipn	-	-	6
1.1	2	Woodem base	Woodem base.ipt	Production	Hardwood 20mm	7
1.2	1	Union rail A	Union rail A.ipt	Production	Hardwood 20mm	8
1.3	1	Union rail B	Union rail B.ipt	Production	Hardwood 20mm	9
1.4	1	Union rail C	Union rail C.ipt	Production	Hardwood 20mm	10
1.5	1	Pivot	Pivot.ipt	Production	Hardwood 20mm	11
1.6	2	Threadle	Threadle.ipt	Production	Hardwood 25mm	12
1.7	2	Threadle spacer	-	Production	Hardwood 20x25x100mm	-
1.8	2	Pivot spacer	Pivot spacer.ipt	Production	Hardwood 20mm	13
1.9	1	Shaft pivot	-	Production	Steel C45 hardened bar 10x150mm	-
1.10	4	Nut pivot	-	Standard	DIN 985 nut M-10	-
1.11	2	Bolt	-	Standard	Bolt PN-92/M-82472 M8	-
1.12	2	Nut	-	Standard	DIN 985 nut M-8	-
1.13	18	Nails	-	buy	Steel nails 35x1.8mm	-
2.0	-	Valve body	Valve body.ipn	-	-	14
2.1	1	Sheet A	-	Production	Steel C45 sheet 198x138x0.75mm	-
2.2	1	Sheet B	Sheet B.ipt	Production	Steel C45 sheet 0.75mm	15
2.3	1	Sheet C	Sheet C.ipt	Production	Steel C45 sheet 0.75mm	16
2.4	1	Sheet D	Sheet D.ipt	Production	Steel C45 sheet 0.75mm	17
2.5	1	Sheet E	Sheet E.ipt	Production	Steel C45 sheet 0.75mm	18
2.6	1	Sheet F	Sheet F.ipt	Production	Steel C45 sheet 0.75mm	19
2.7	1	Sheet G	-	Production	Steel C45 sheet 200x63x0.75mm	-
2.8	1	Sheet H	-	Production	Steel C45 sheet 200x31x0.75mm	-
2.9	1	Sheet I	-	Production	Steel C45 sheet 198x50x0.75mm	-
2.10	1	Sheet J	-	Production	Steel C45 sheet 69x30x0.75mm	-
2.11	2	Tube	-	Production	PVC weldable pipe schedule 40, 33x100mm	-

PROJECT		CREATED BY		APPROVED BY		DATE		VERSION	
Threadle pump		J. Zeron		A. Morillo		03/09/2021		1.0	
PART NAME			FILE NAME					POS	
Parts list			uwd_tp_threadle_pump.csv					B1	
DEVELOPED BY			REDESIGNED BY		DOC. TYPE		MATERIAL		QUANTITY
					Parts list				
University of Warwick, DTU			OHO e.V.		LICENCE		SCALE		SHEET
					CC-BY-SA 4.0				3 /29

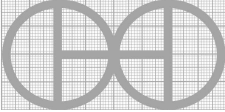
Parts list

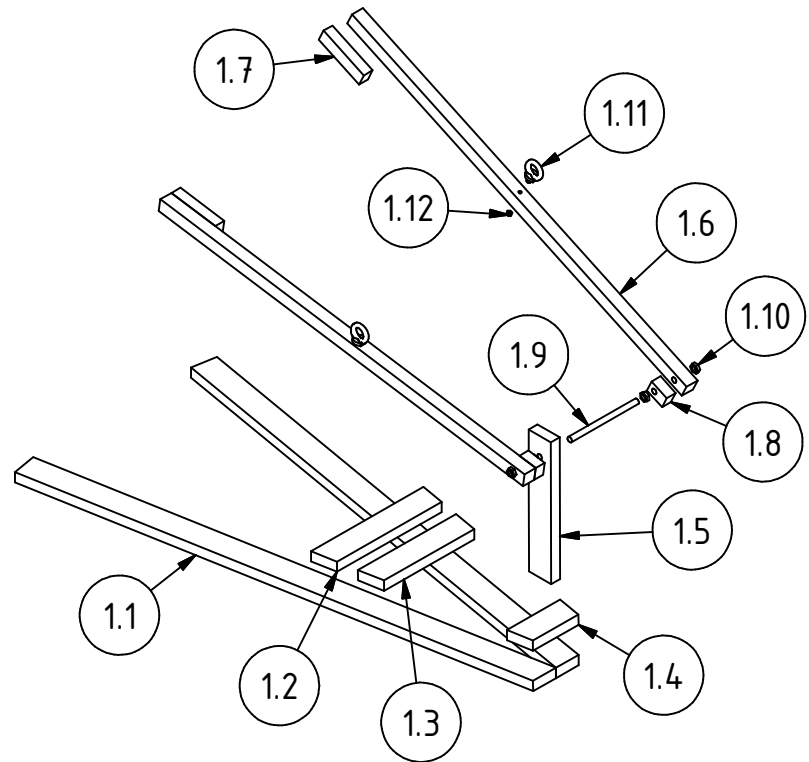
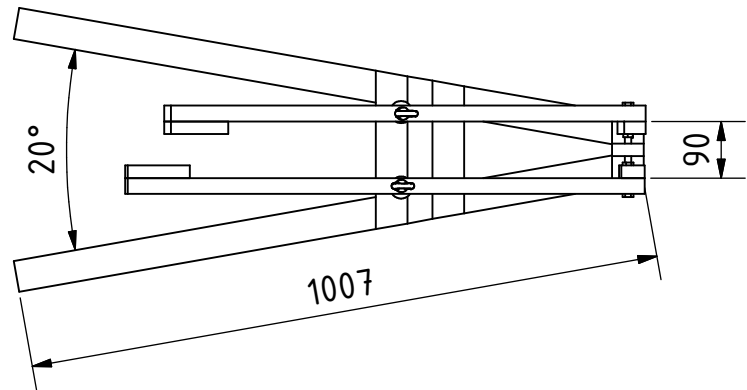
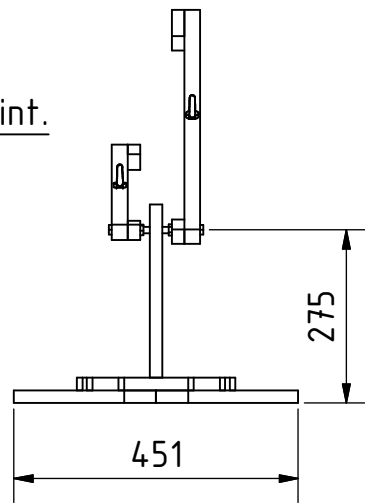
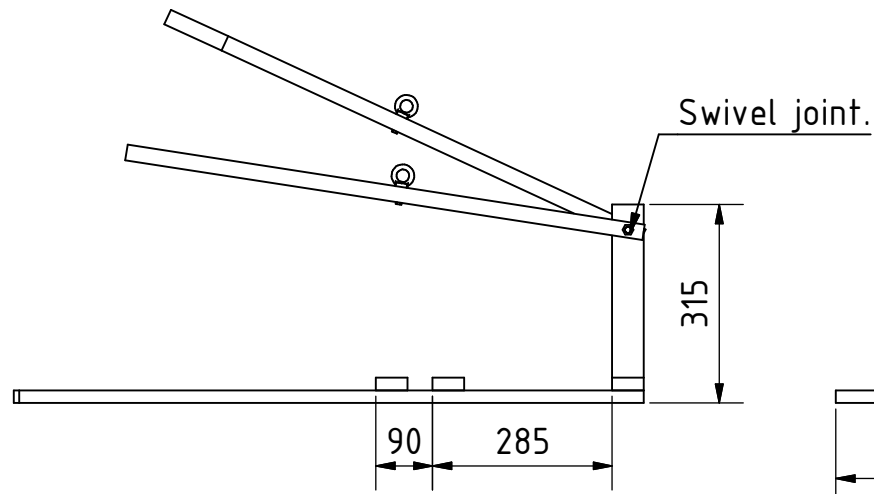
POS	QTY	PART NAME	FILE NAME	PART TYPE	SPECIFICATIONS	SHEET
3.0	-	Valve	Valve.ipn	-	-	20
3.1	4	Threaded rod	-	Standard	DIN 913 5x40m completely threaded bolt	-
3.2	4	Stiff rubber	Stiff rubber.ipt	Production	Rubber	21
3.3	4	Guide spacer	Guide spacer.ipt	Production	EN 10219:1997Steel A36 HSS square tube 30x30mm	22
3.4	4	Rubber Seal	Rubber Seal.ipt	Production	Rubber	23
3.5	4	Steel disc	Steel disc.ipt	Production	Steel C45 sheet 0.75mm	24
3.6	4	Washer	-	Standard	DIN 433 normal washer M-5	-
3.7	8	Nut valve	-	Standard	DIN 985 nut M-5	-
4.0	-	Handle	Handle.ipn	-	-	25
4.1	1	Tube handle	Tube handle.ipt	Production	Steel A36 square bar 15x15mm	26
4.2	1	Bar handle	-	Production	Steel A36 bar D15x400mm	-
4.3	2	Frame A	Frame A.ipt	Production	Steel A36 square bar 10x10mm	27
4.4	2	Frame B	Frame B.ipt	Production	Steel A36 square bar 10x10mm	28
4.5	1	Shaft pulley	-	Production	Steel C45 hardened bar D10x25mm	-
4.6	1	Groove pulley	-	Buy	Bore single groove 20mm section, 76mm	-
4.7	1	Threadle rope	-	Buy	Nylon rope 12mm, long. 1000mm	-
5.0	-	Cylinder	Cylinder.ipn	-	-	29
5.1	2	Tube	-	Production	PVC weldable pipe schedule 40, 73x250mm	-
5.2	2	Cup seal	-	Buy	Rubber cup seal, brightex, 07AAFCEB2762E1ZX	-
5.3	2	Adapter	-	Production	Steel C45 circular sheet D33x5mm	-
5.4	2	Shaft cylinder	-	Production	Steel C45 bar D10x180mm	-

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Parts list	uwd_tp_threadle_pump.csv			B1
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Parts list		
University of Warwick, DTU OHO e.V.		LICENCE	SCALE	SHEET
		CC-BY-SA 4.0		4 /29

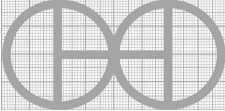
TECHNICAL NOTES

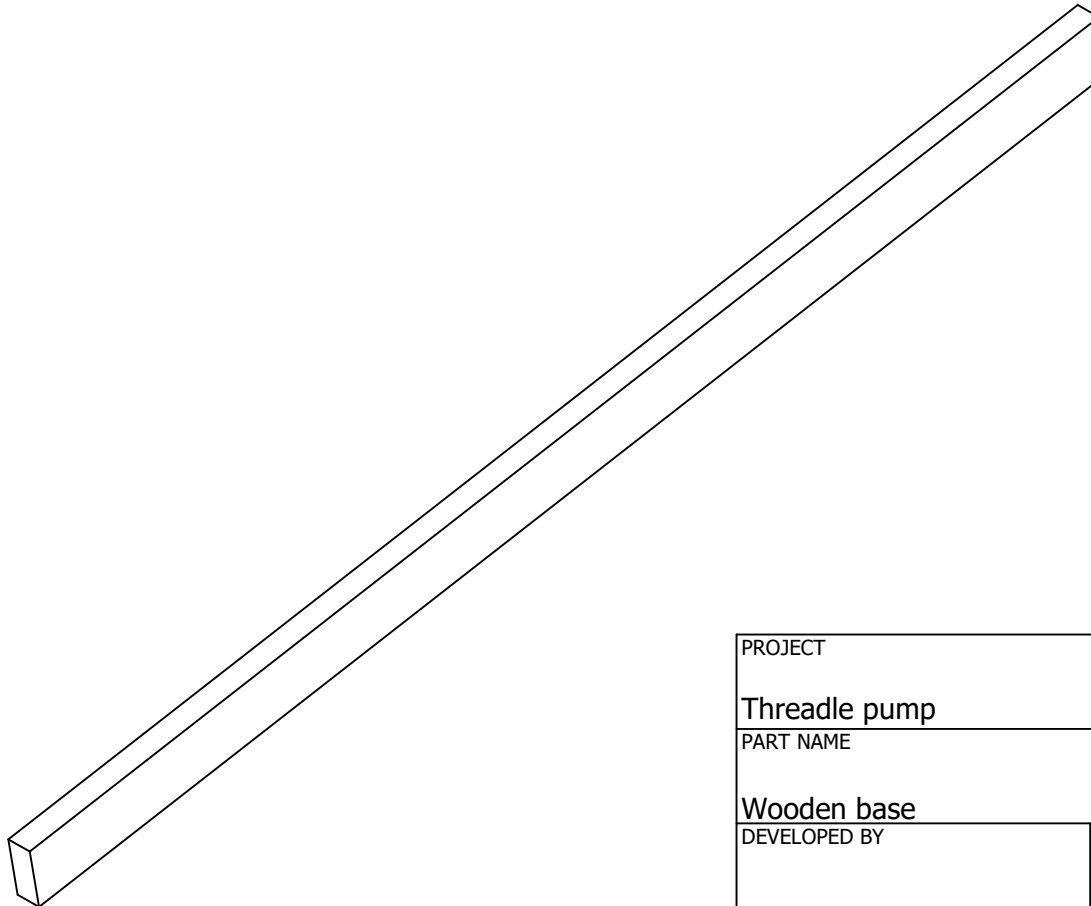
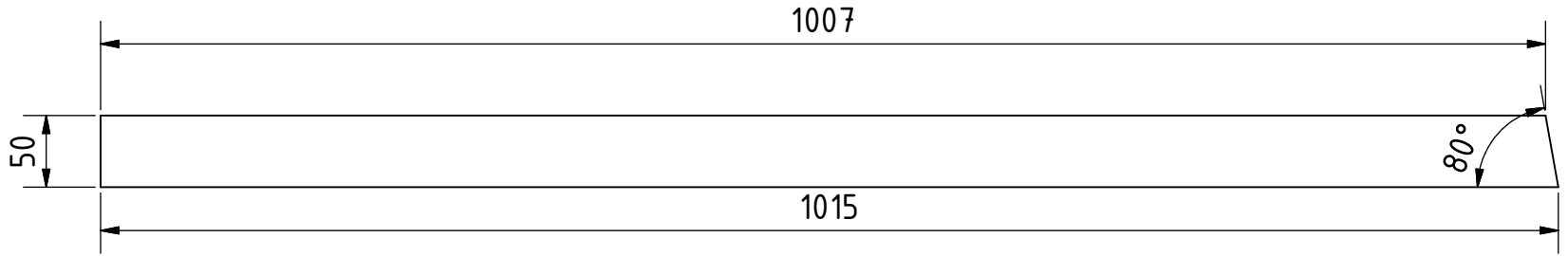
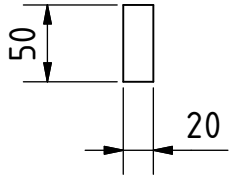
NOTES	CONTENT
GENERAL NOTES	
Notes	- Using a treadle pump to lift water to a height of 5 metres it is possible for a farmer to irrigate approximately 0.25 hectares of land. The pump can be used for long periods of time because of good ergonomic design. The cost of construction is low and the pump can provide an appropriate technology for smallholders with little capital to spend on irrigation.

PROJECT Threadle pump	CREATED BY J. Zeron	APPROVED BY A. Morillo	DATE 03/09/2021	VERSION 1.0
PART NAME Technical notes	FILE NAME			POS C1
DEVELOPED BY University of Warwick, DTU	REDESIGNED BY  OHO e.V.	DOC. TYPE Technical notes	MATERIAL	QUANTITY
LICENCE CC-BY-SA 4.0		SCALE	SHEET 5 /29	

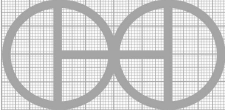


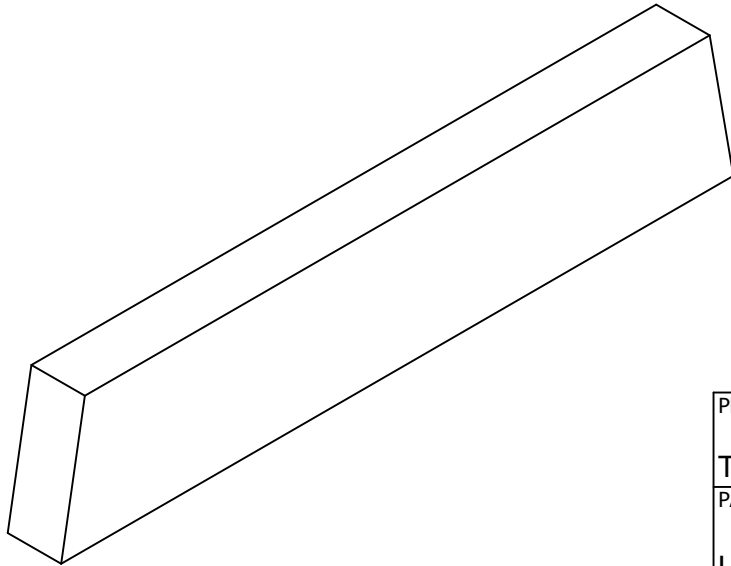
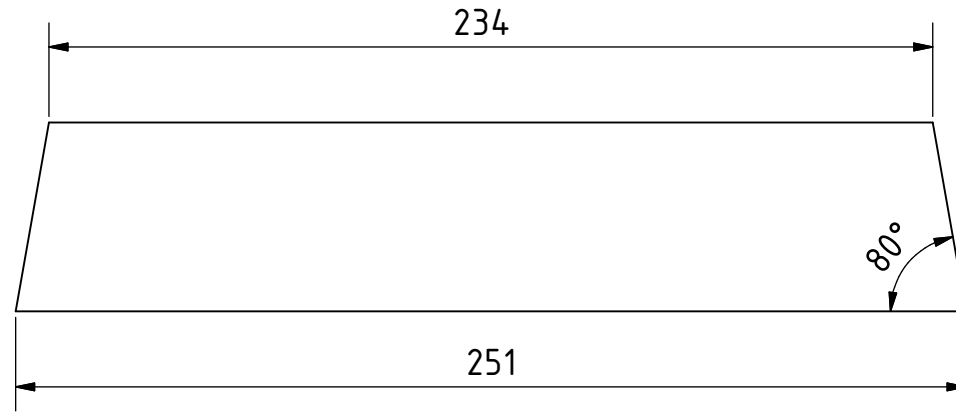
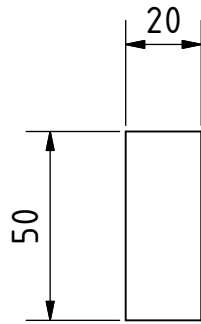
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Frame	Frame.ipn			1.0
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Assembly		
University of Warwick, DTU	OHO e.V.	LICENCE	SCALE	SHEET
		CC-BY-SA 4.0	1:12	6 /29

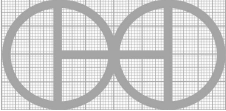


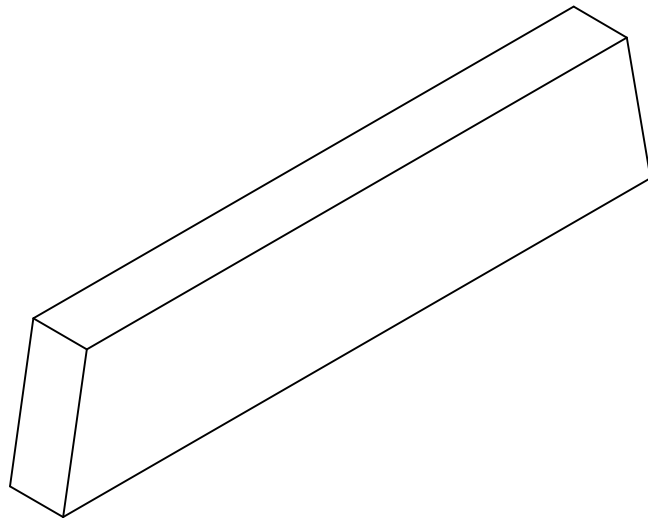
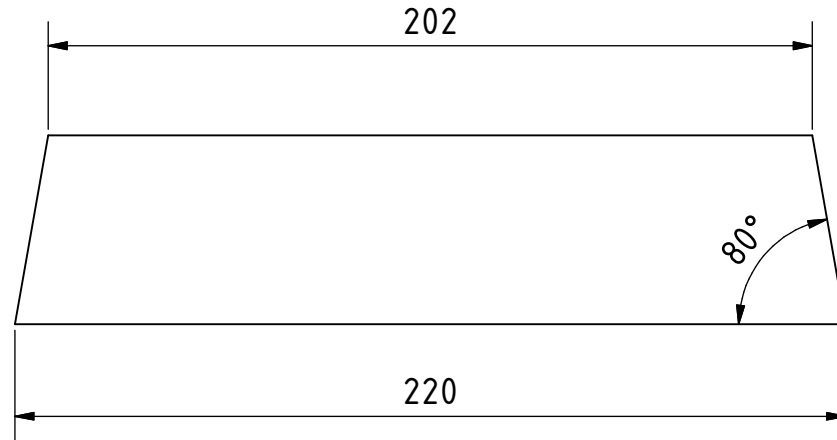
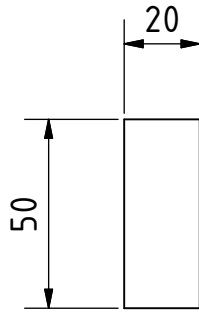
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Wooden base	Wooden base.ipt			1.1
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Hardwood	2
		LICENCE	SCALE	SHEET
University of Warwick, DTUOHO e.V.		CC-BY-SA 4.0	1:5	7 /29

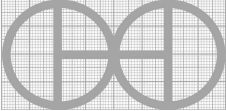


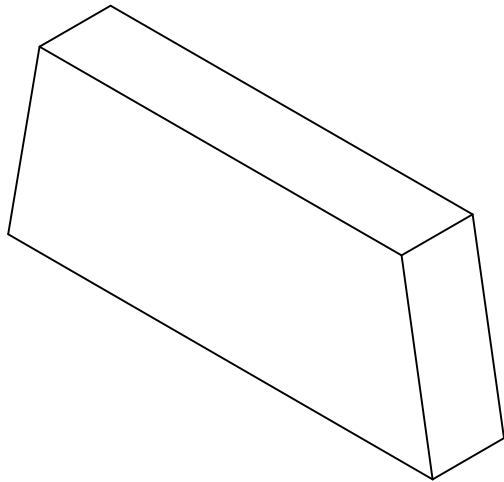
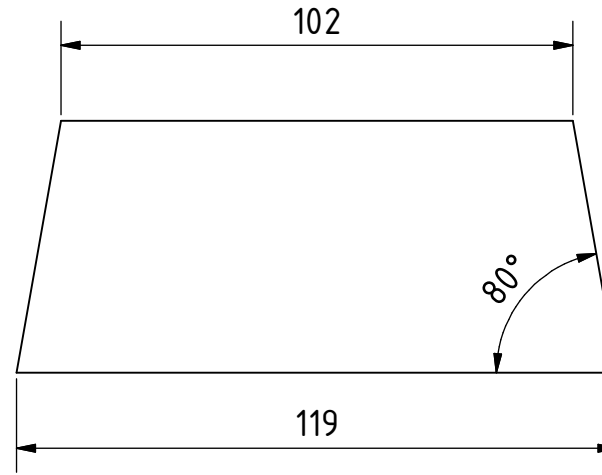
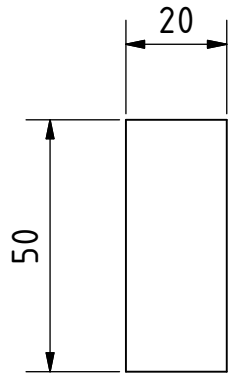
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Union rail A	Union rail A.ipt			1.2
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Hardwood	1
University of Warwick, DTU	OHO e.V.	LICENCE	SCALE	SHEET
		CC-BY-SA 4.0	1:10	8 /29

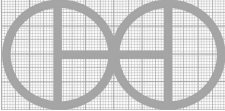


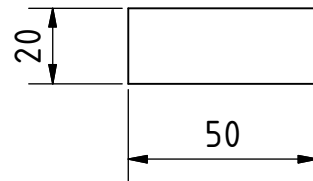
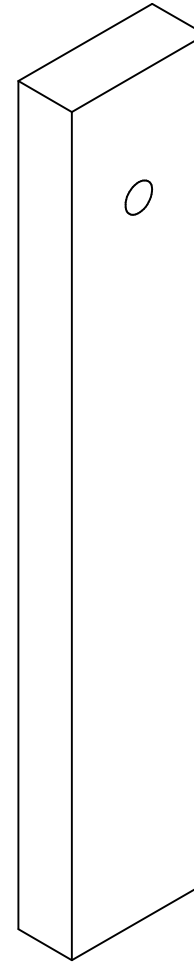
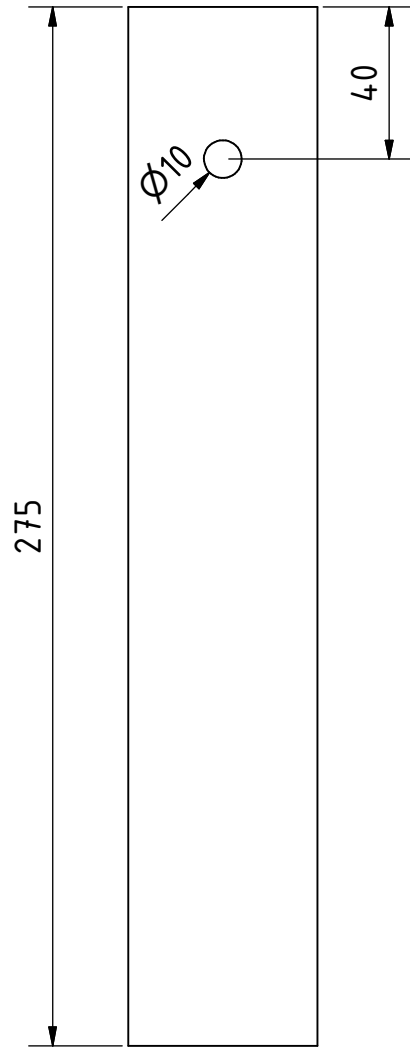
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Union rail B	Union rail B.ipt			1.3
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Hardwood	1
University of Warwick, DTU OHO e.V.		LICENCE	SCALE	SHEET
		CC-BY-SA 4.0	1:2	9 /29

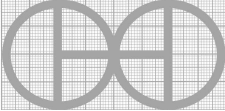


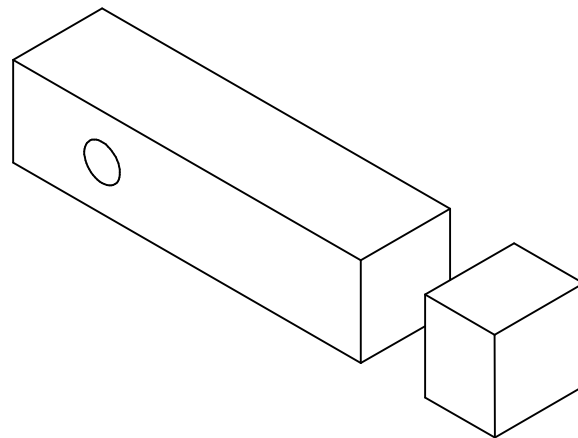
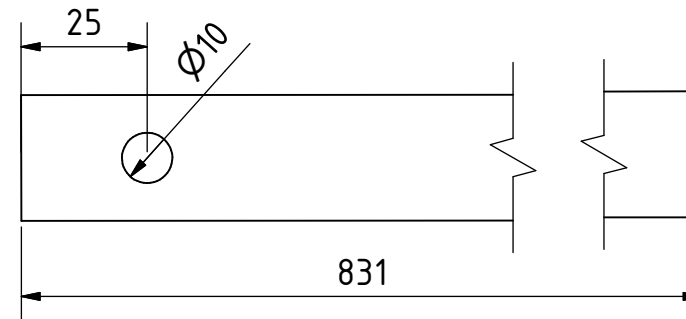
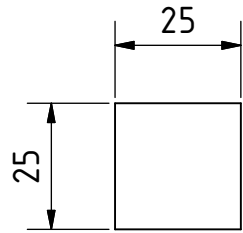
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Union rail C	Union rail C.ipt			1.4
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Hardwood	1
University of Warwick, DTU OHO e.V.		LICENCE	SCALE	SHEET
		CC-BY-SA 4.0	1:1.5	10 /29

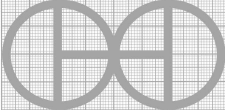


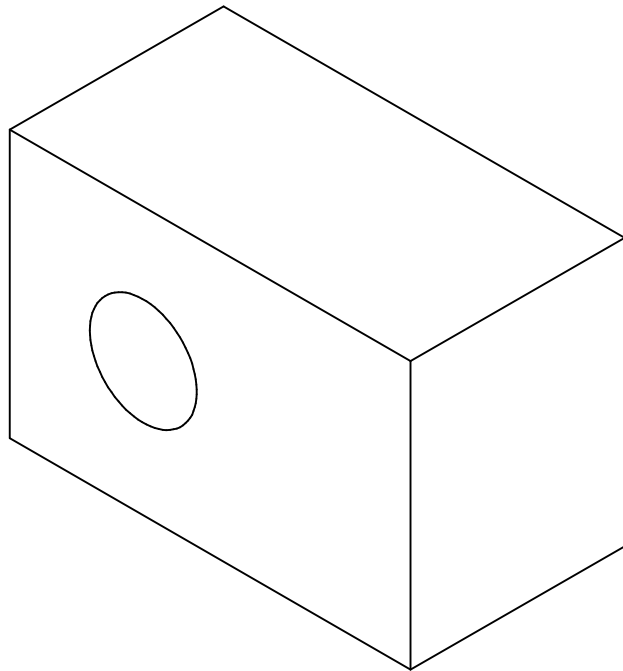
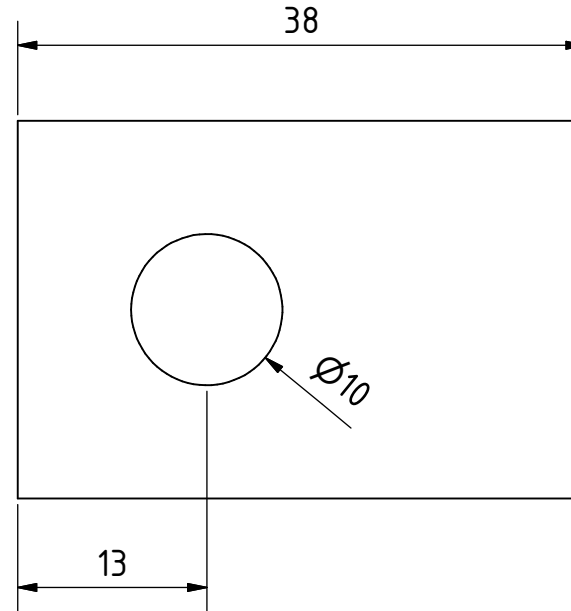
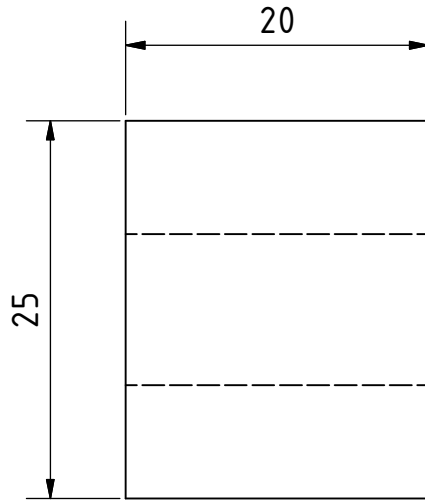
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Pivot	Pivot.ipt			1.5
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Hardwood	1
		LICENCE	SCALE	SHEET
University of Warwick, DTU	OHO e.V.	CC-BY-SA 4.0	1:2	11 /29

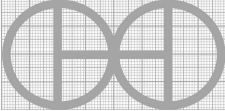


Note: All units in mm.

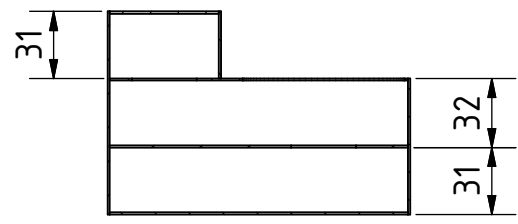
PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Threadle	Threadle.ipt			1.6
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Hardwood	2
		LICENCE	SCALE	SHEET
University of Warwick, DTUOHO e.V.		CC-BY-SA 4.0	1:1.5	12 /29



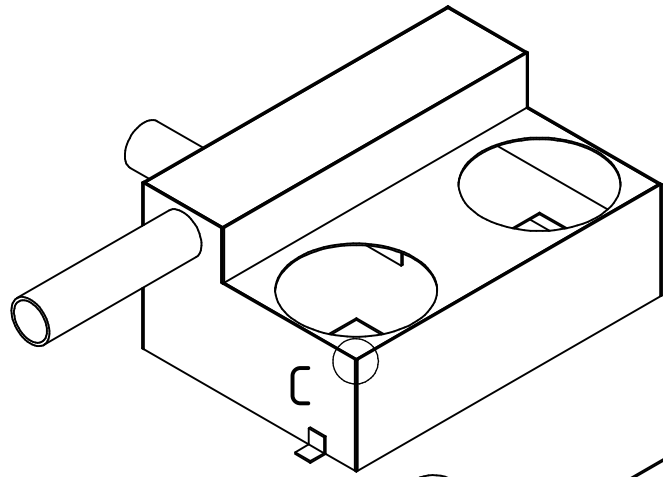
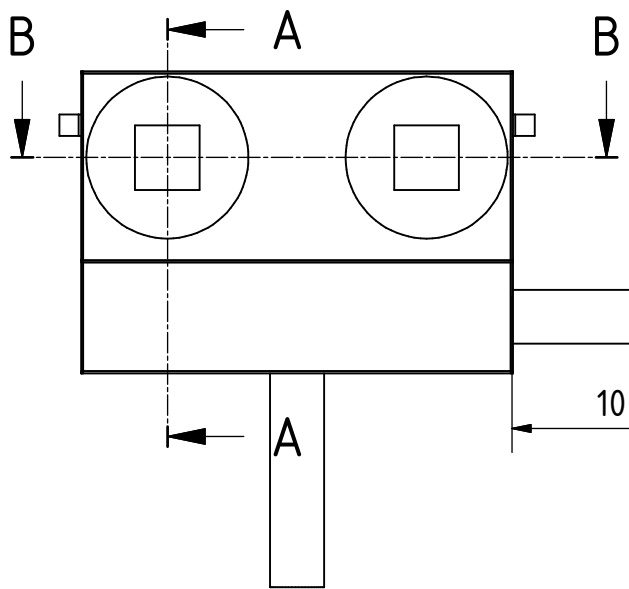
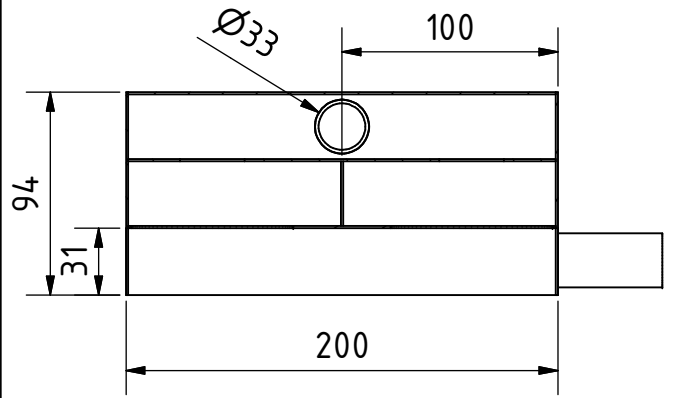
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Pivot spacer	Pivot spacer.ipt			1.8
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Hardwood	1
		LICENCE	SCALE	SHEET
University of Warwick, DTU OHO e.V.		CC-BY-SA 4.0	1:0.5	13 /29

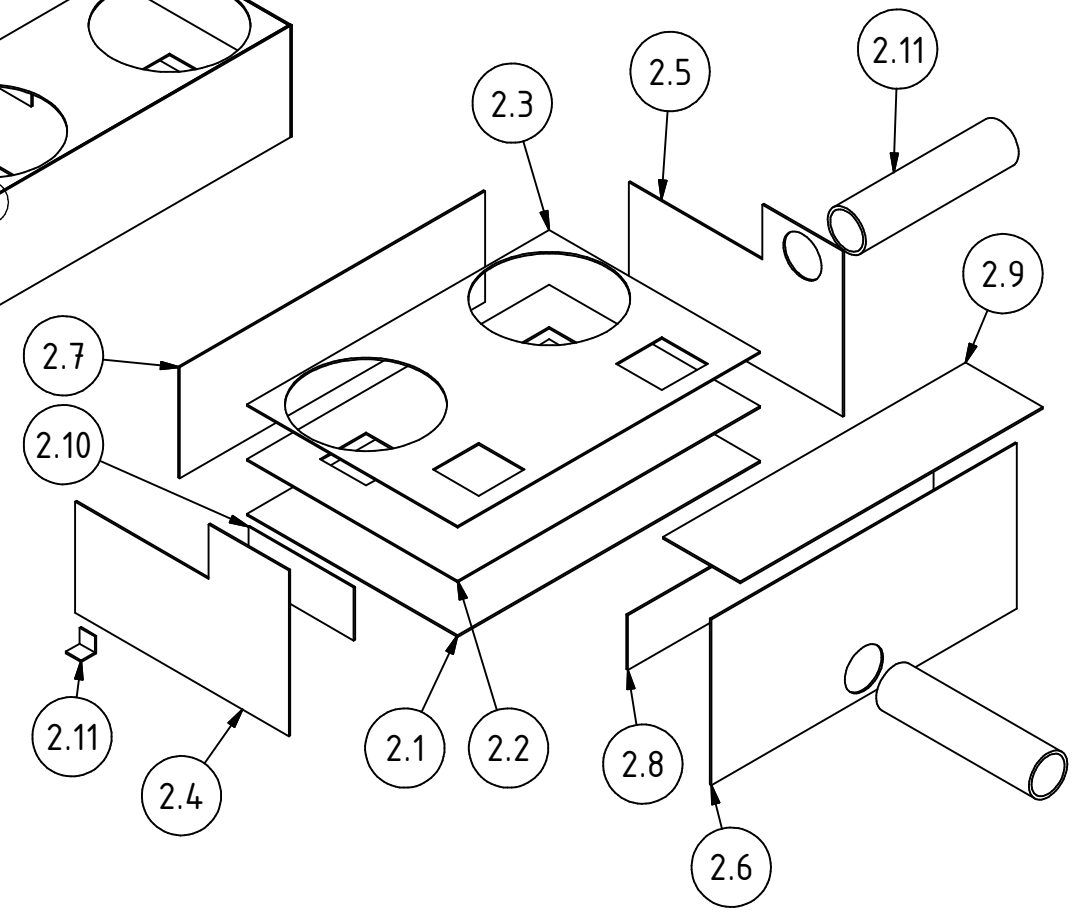
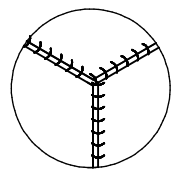
A-A



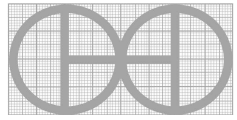
B-B

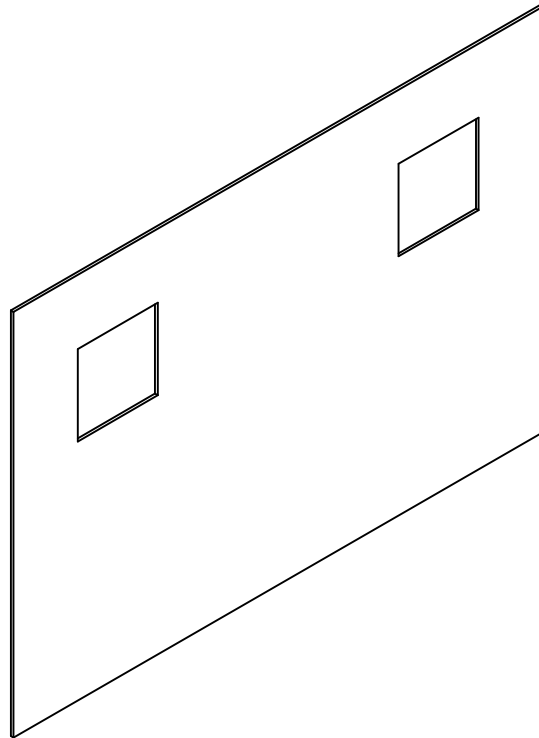


C (1 : 1)

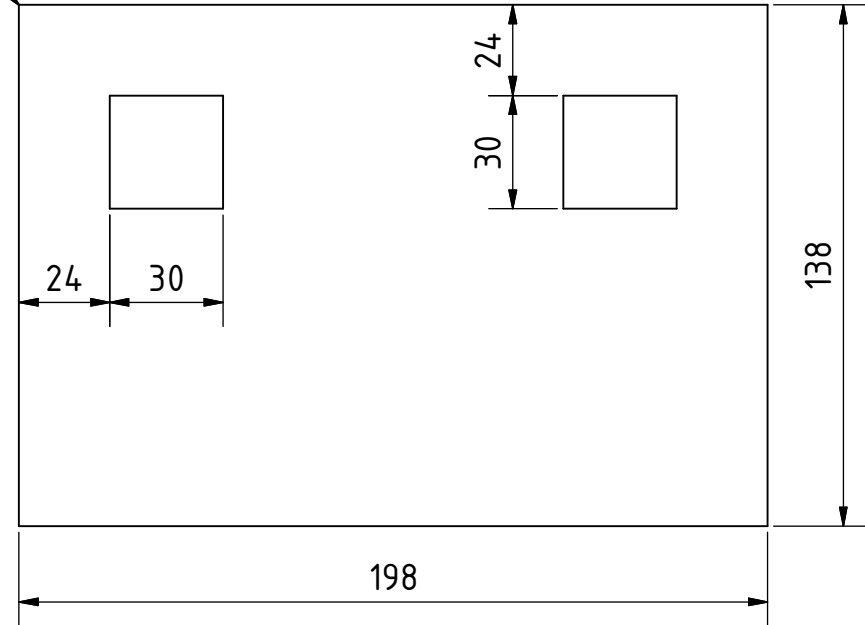


Note: All units in mm.

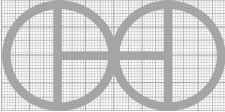
PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME	POS		
Valve body	Valve body.ipn	2.0		
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Assembly		1
University of Warwick, DTU OHO e.V.		LICENCE	SCALE	SHEET
		CC-BY-SA 4.0	1:3.5	14 /29

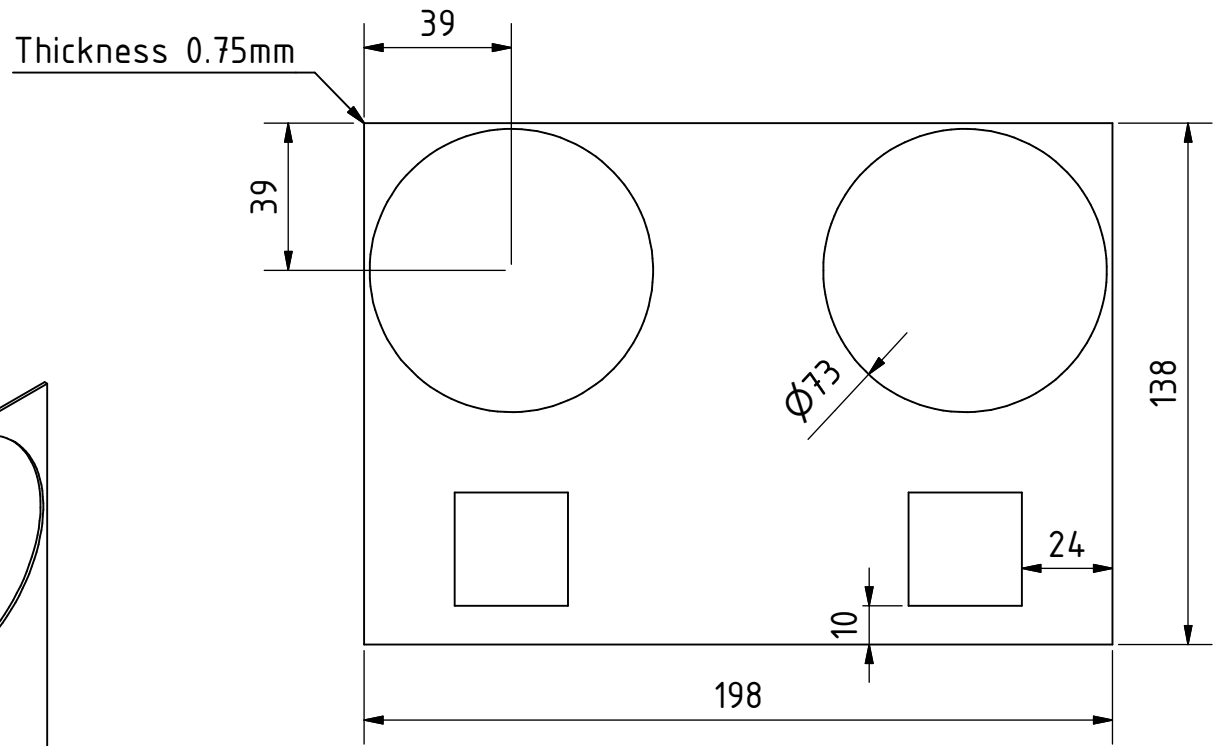
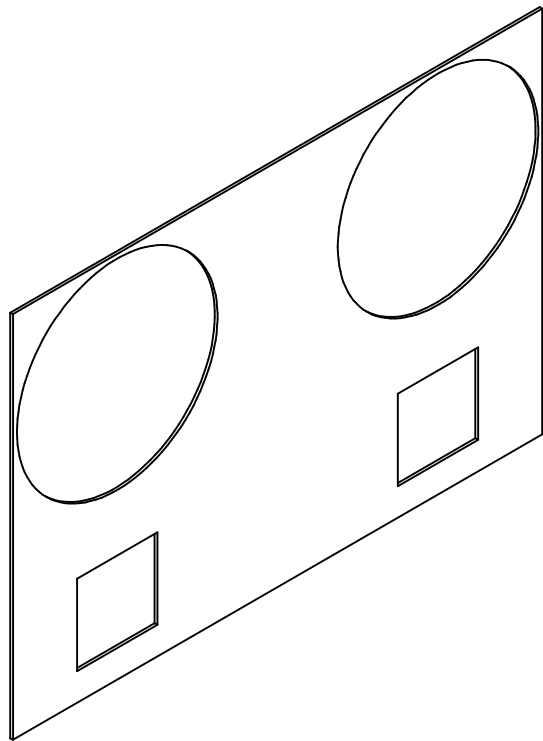


Thickness 0.75mm

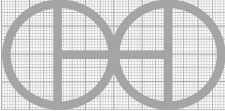


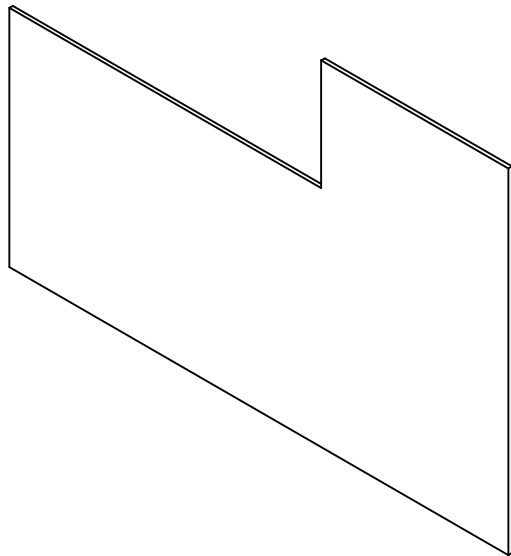
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Sheet B	Sheet B.ipt			2.2
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Steel C45	1
		LICENCE	SCALE	SHEET
University of Warwick, DTU	OHO e.V.	CC-BY-SA 4.0	1:2	15 /29

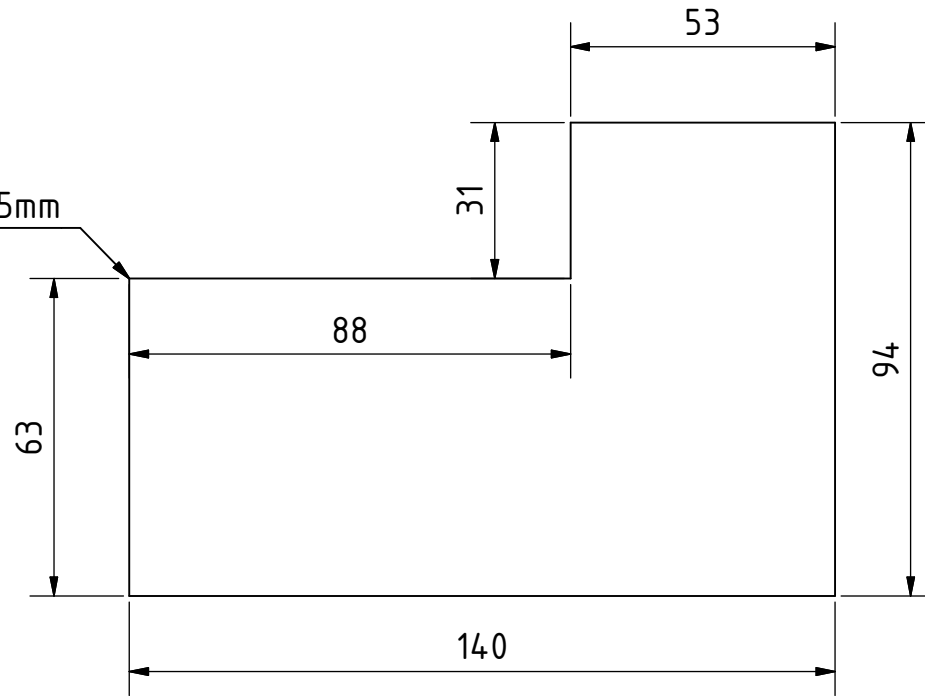


Note: All units in mm.

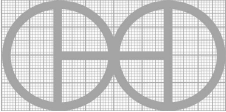
PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Sheet C	Sheet C.ipt			2.3
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Steel C45	1
		LICENCE	SCALE	SHEET
University of Warwick, DTU OHO e.V.		CC-BY-SA 4.0	1:2	16 /29

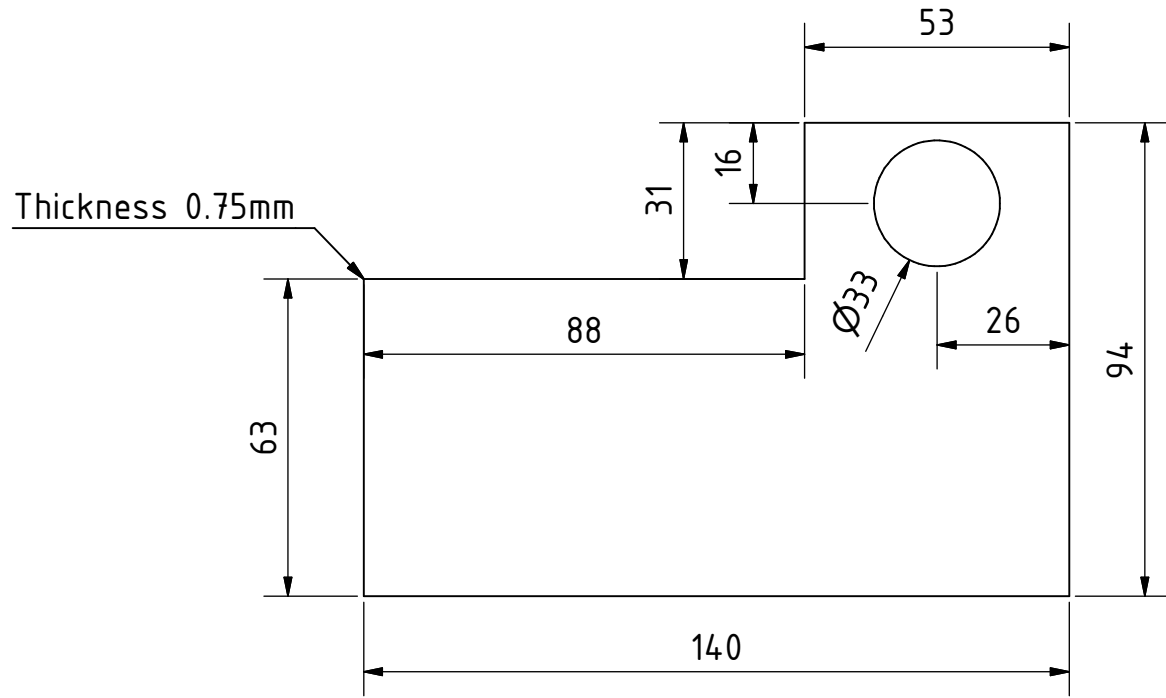
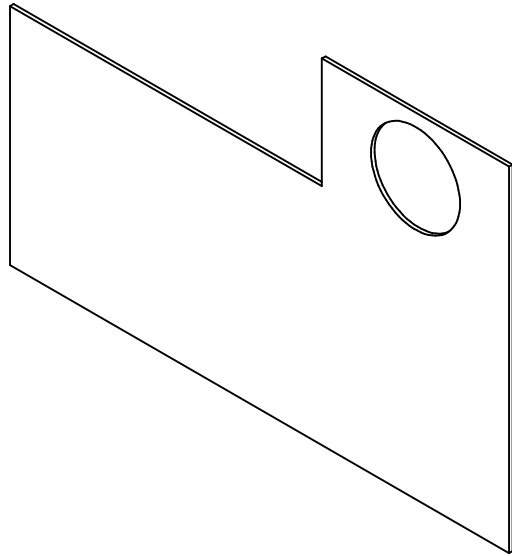


Thickness 0.75mm

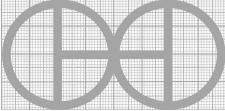


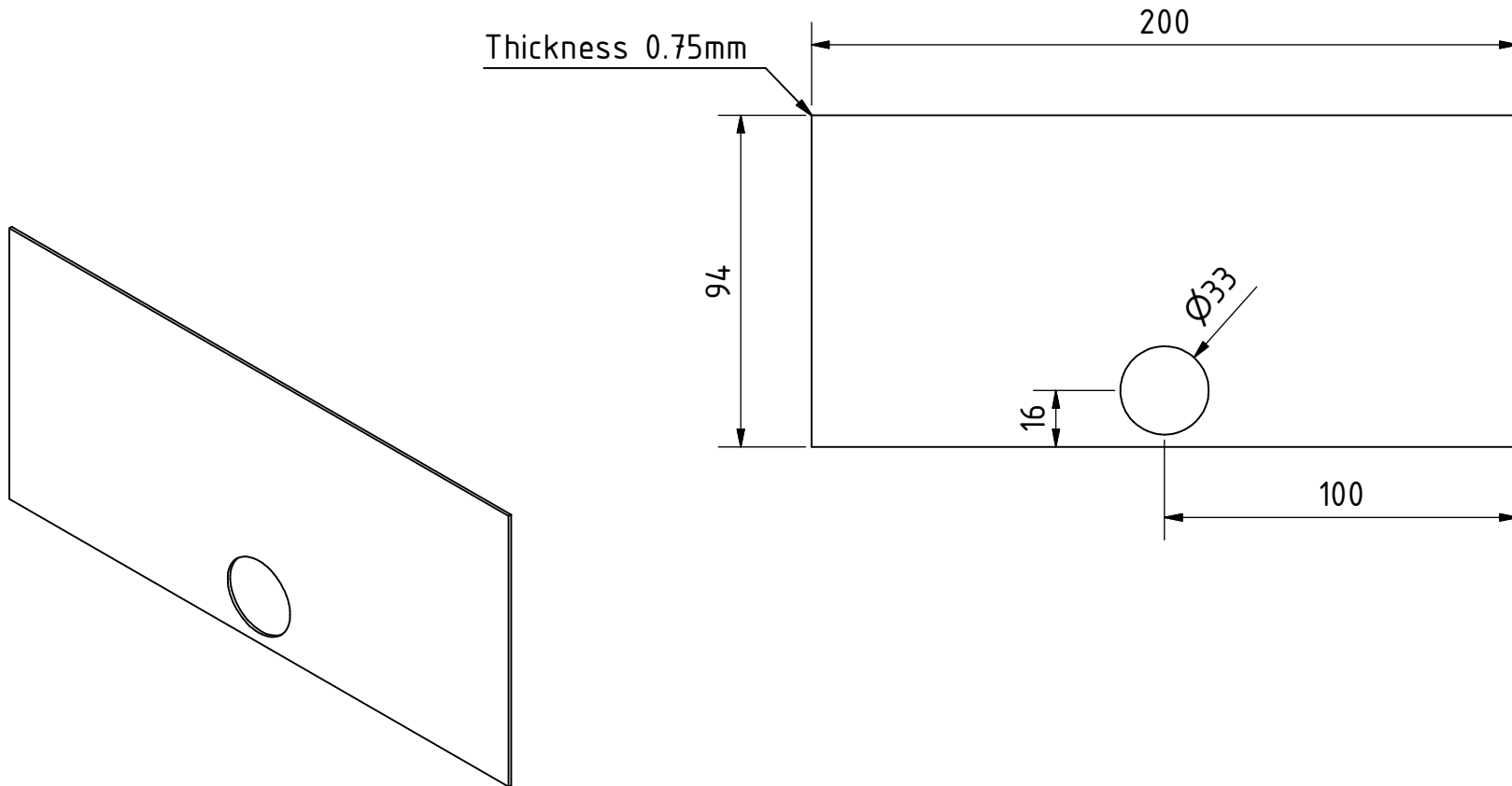
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Sheet E	Sheet E.ipt			2.4
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Steel C45	1
		LICENCE	SCALE	SHEET
University of Warwick, DTU	OHO e.V.	CC-BY-SA 4.0	1:1.5	17 /29

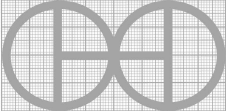


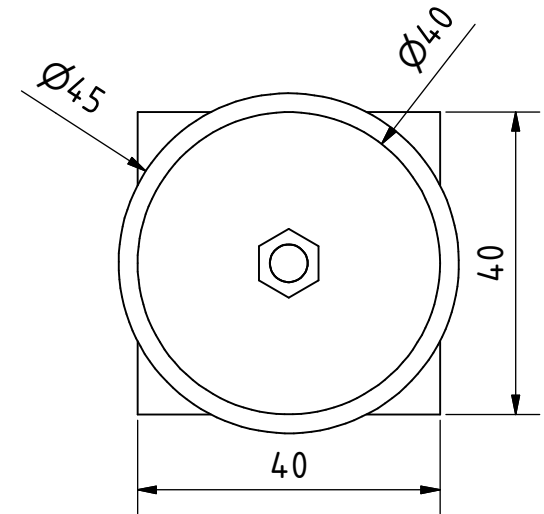
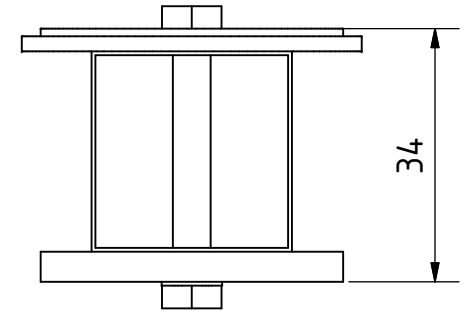
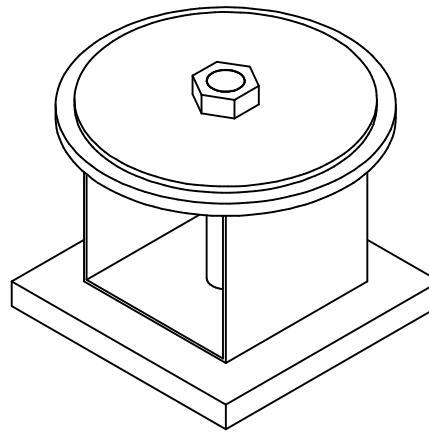
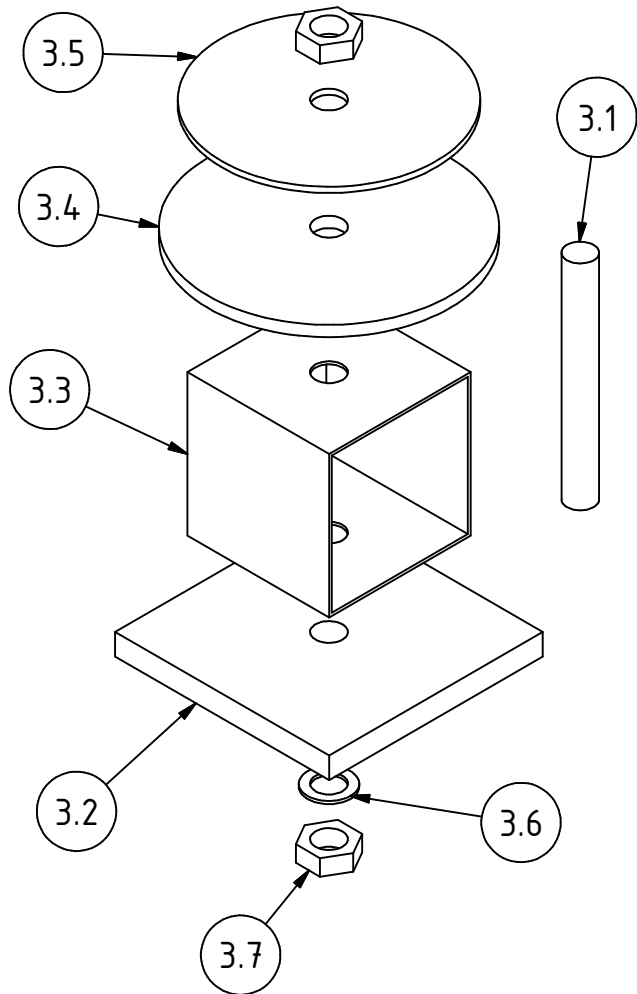
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Sheet F	Sheet F.ipt			2.5
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Steel C45	1
		LICENCE	SCALE	SHEET
University of Warwick, DTU OHO e.V.		CC-BY-SA 4.0	1:1.5	18 /29

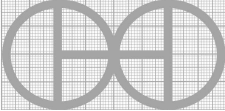


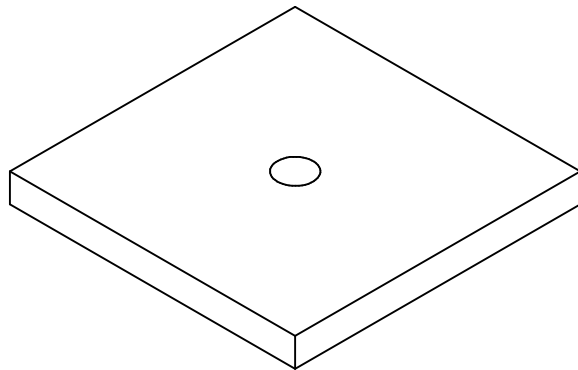
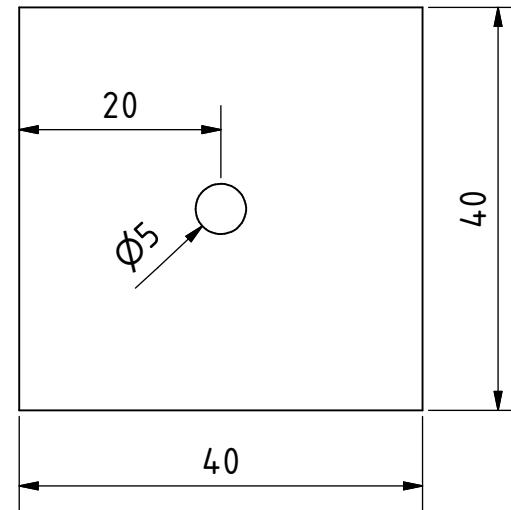
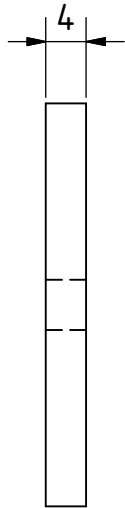
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Sheet G	Sheet G.ipt			2.6
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Steel C45	1
		LICENCE	SCALE	SHEET
University of Warwick, DTU	OHO e.V.	CC-BY-SA 4.0	1:2	19 /29

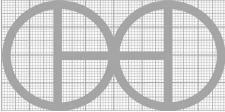


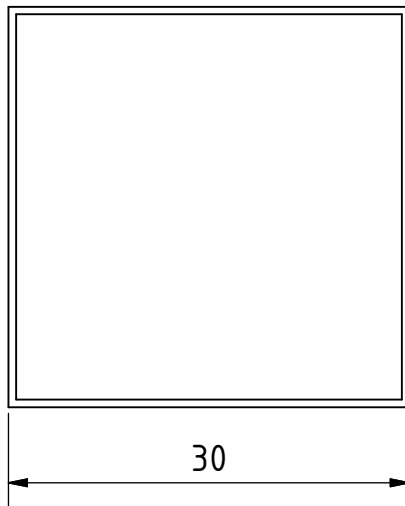
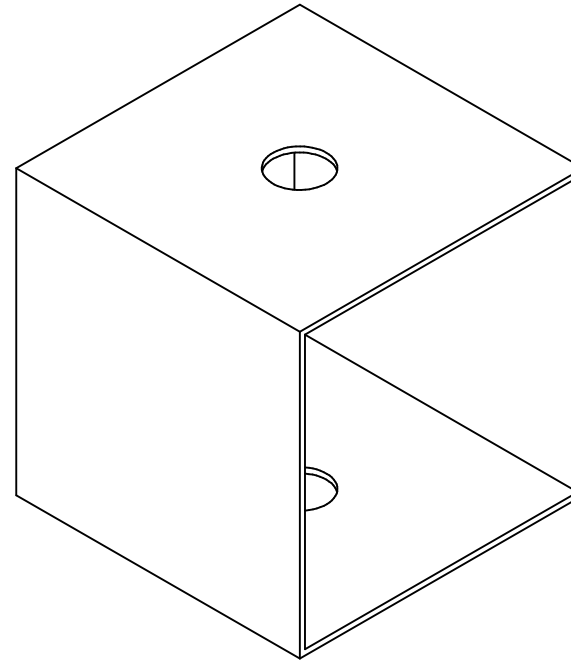
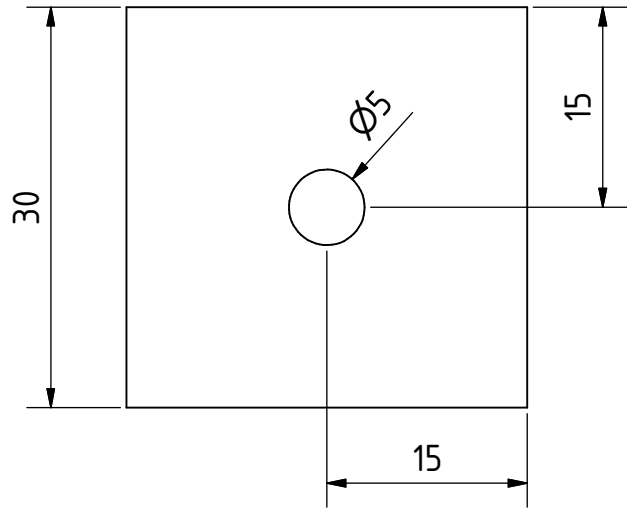
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Valve	Valve.ipn			3.0
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Assembly		4
		LICENCE	SCALE	SHEET
University of Warwick, DTU	OHO e.V.	CC-BY-SA 4.0	1:1	20 /29

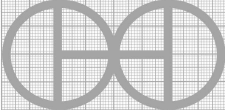


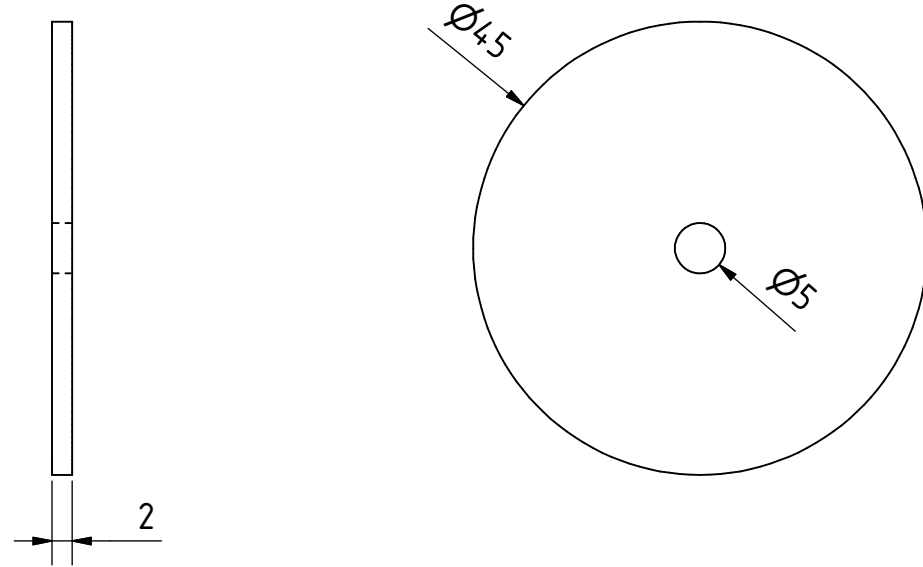
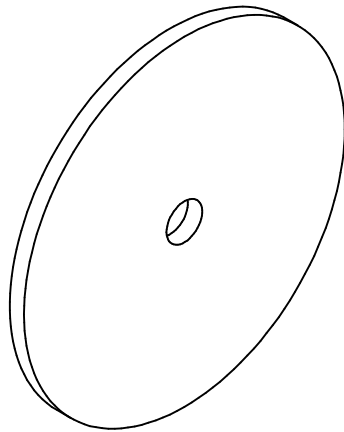
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Stiff rubber	Stiff rubber.ipt			3.2
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Rubber	4
		LICENCE	SCALE	SHEET
University of Warwick, DTU	OHO e.V.	CC-BY-SA 4.0	1:0.75	21 /29

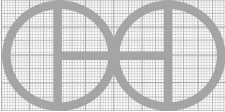


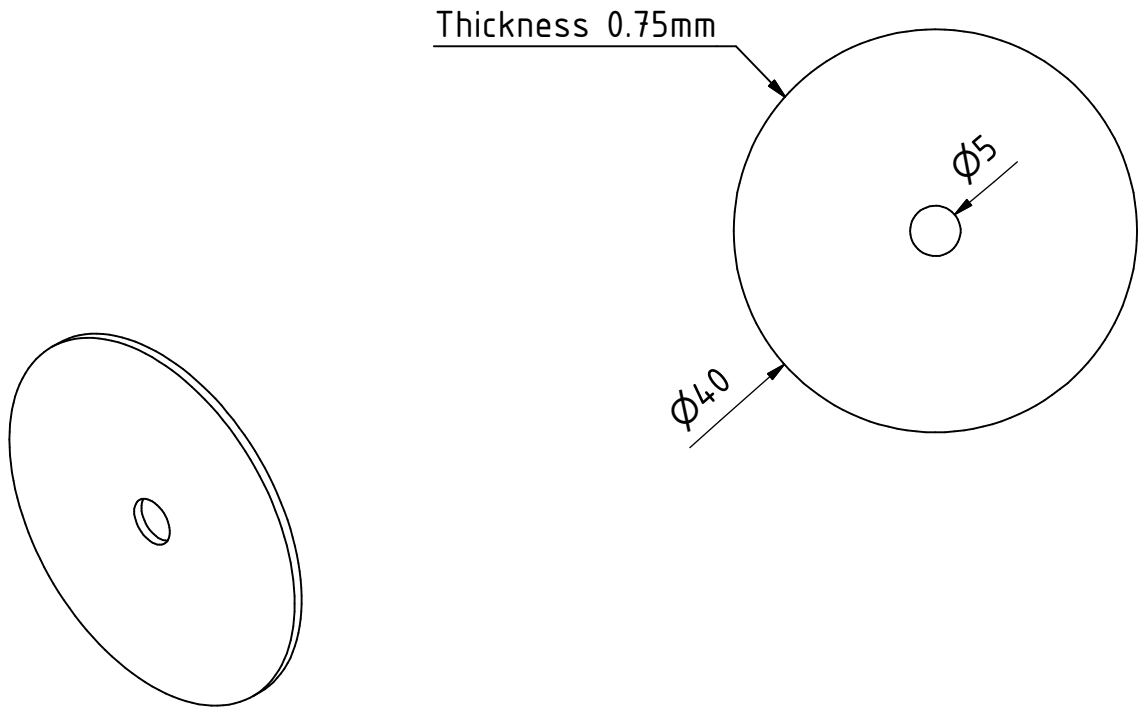
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Guide spacer	Guide spacer.ipt			3.3
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Steel A36	4
		LICENCE	SCALE	SHEET
University of Warwick, DTU	OHO e.V.	CC-BY-SA 4.0	1:0.5	22 /29

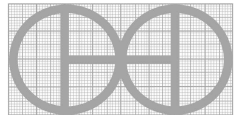


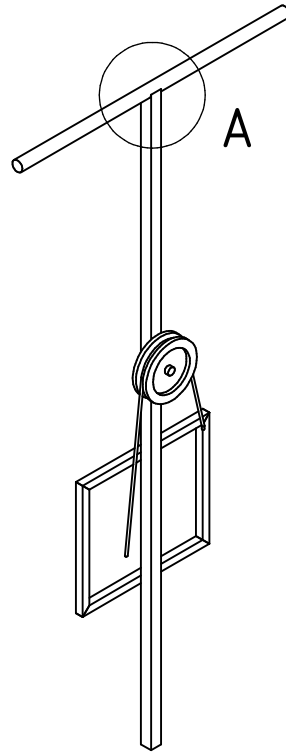
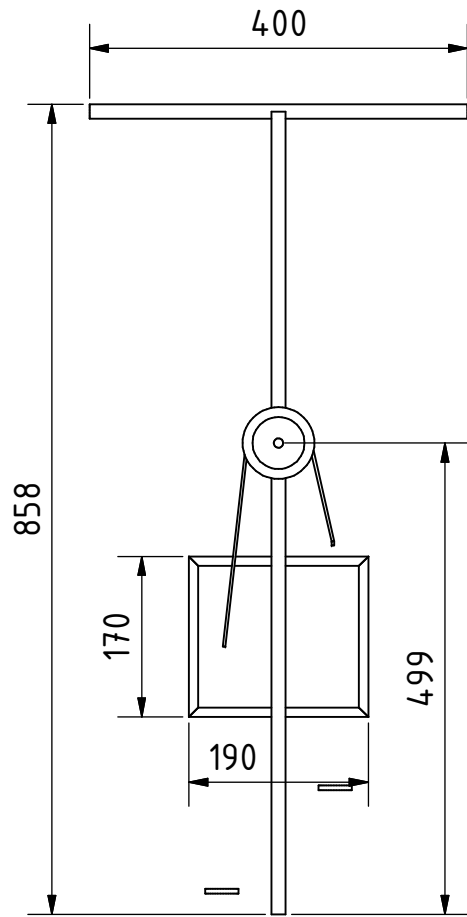
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Rubber seal	Rubber seal.ipt			3.4
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Rubber	4
University of Warwick, DTU	OHO e.V.	LICENCE	SCALE	SHEET
		CC-BY-SA 4.0	1:0.75	23 /29

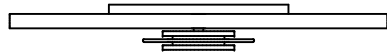
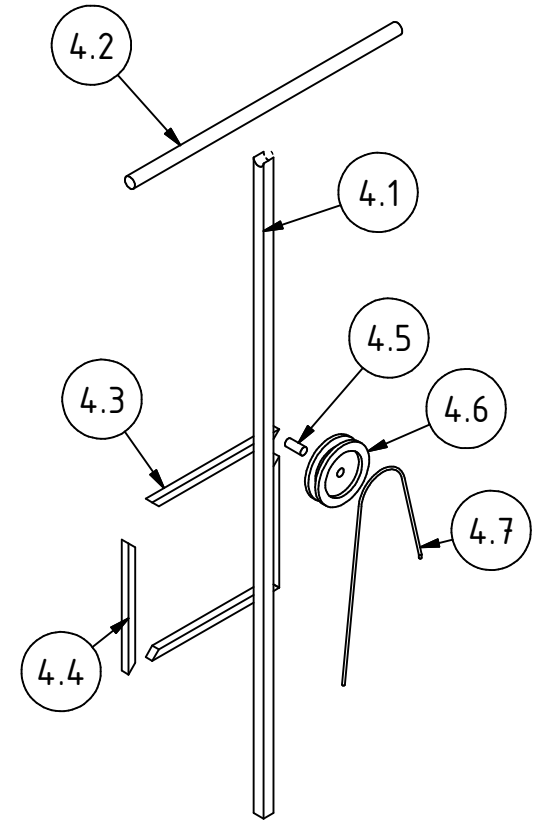
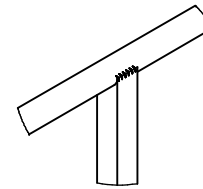


Note: All units in mm.

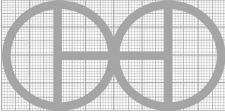
PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Steel disc	Steel disc.ipt			3.5
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Steel C45	4
		LICENCE	SCALE	SHEET
University of Warwick, DTU OHO e.V.		CC-BY-SA 4.0	1:0.75	24 /29

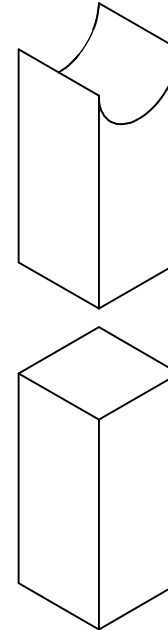
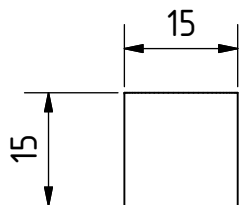
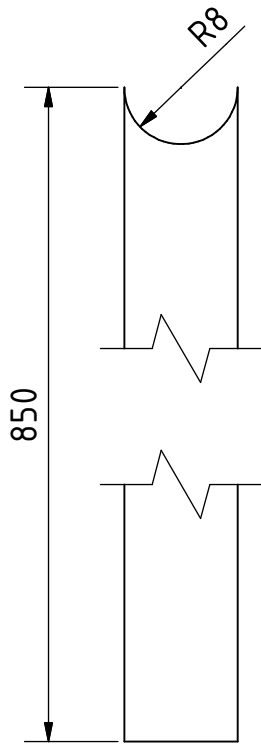


A (1 : 4)

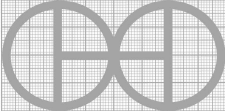


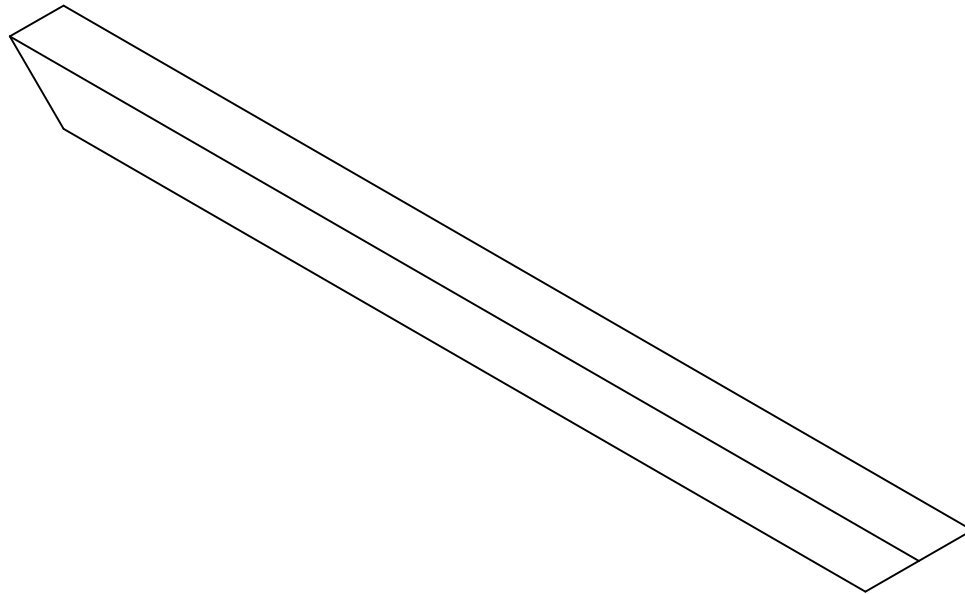
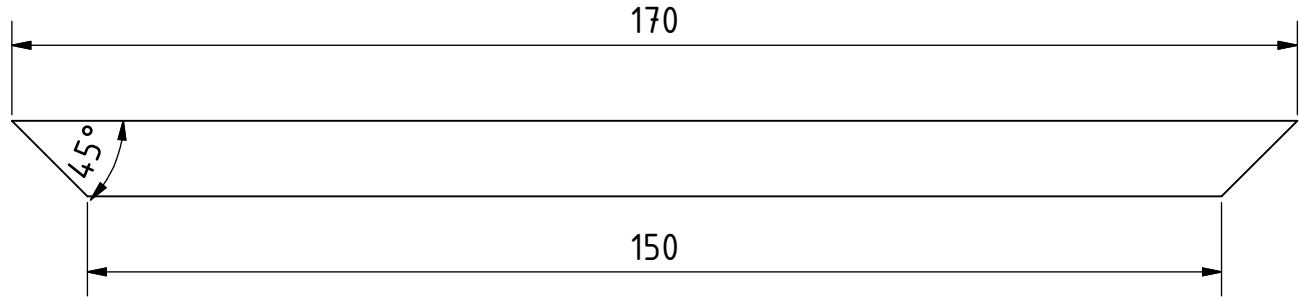
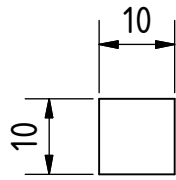
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Handle	Handle.ipn			4.0
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Assembly		1
University of Warwick, DTU	OHO e.V.	LICENCE	SCALE	SHEET
		CC-BY-SA 4.0	1:8	25 /29

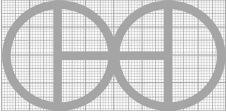


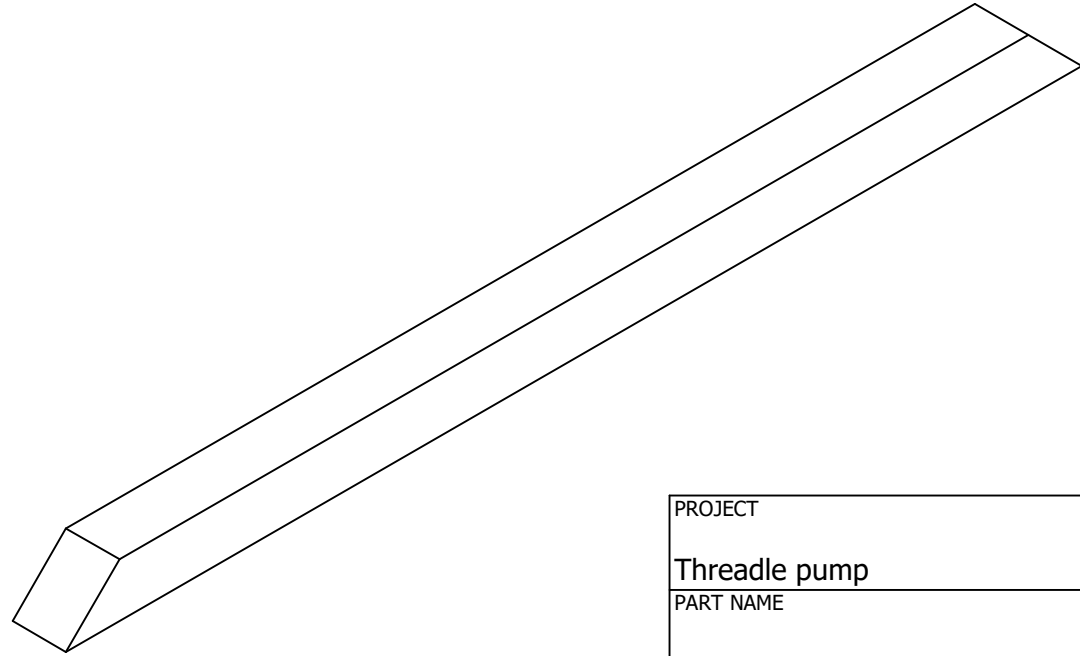
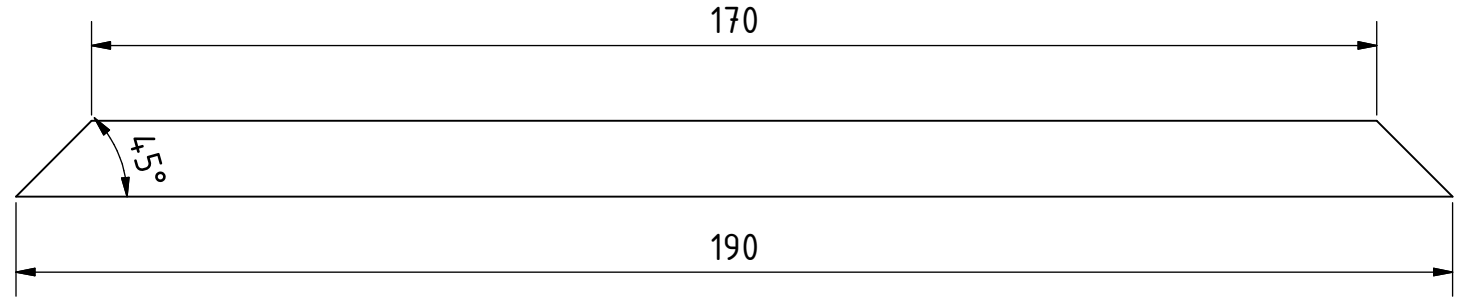
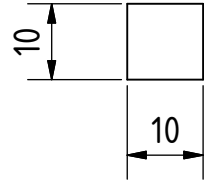
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Bar handle	Bar handle.ipt			4.1
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Steel A36	1
University of Warwick, DTU	OHO e.V.	LICENCE	SCALE	SHEET
		CC-BY-SA 4.0	1:1	26 /29

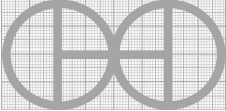


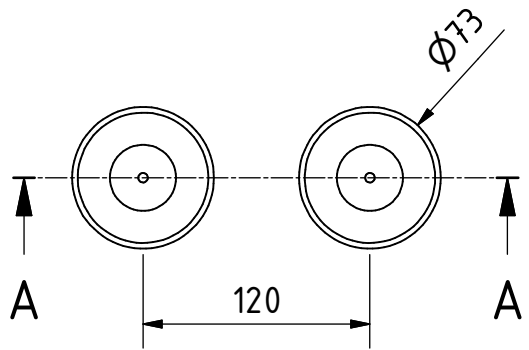
Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Frame A	Frame A.ipt			4.3
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Steel A36	2
University of Warwick, DTU	OHO e.V.	LICENCE	SCALE	SHEET
		CC-BY-SA 4.0	1:1	27 /29

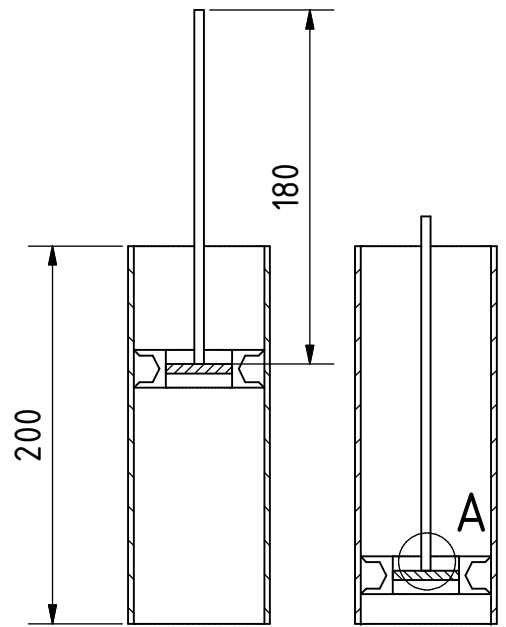


Note: All units in mm.

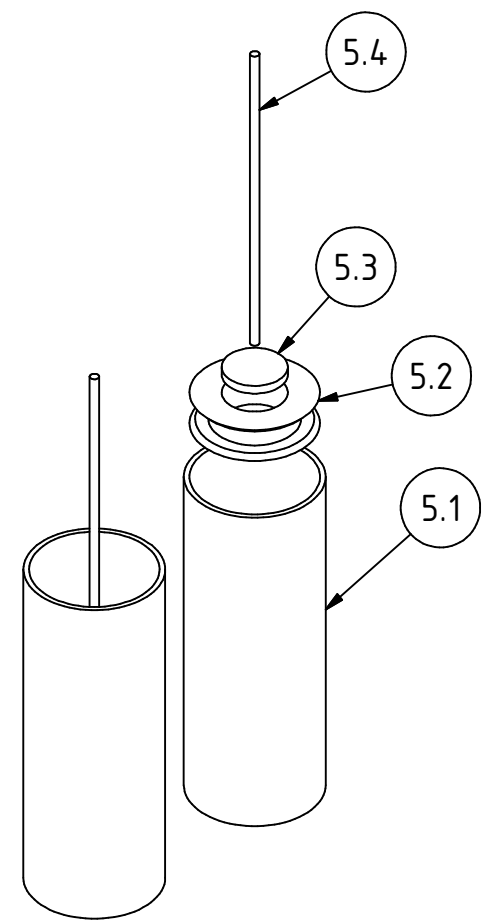
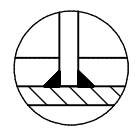
PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Frame B	Frame B.ipt			4.4
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Part	Steel A36	2
		LICENCE	SCALE	SHEET
University of Warwick, DTU OHO e.V.		CC-BY-SA 4.0	1:1	28 /29



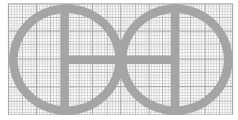
A-A



A (1 : 2)



Note: All units in mm.

PROJECT	CREATED BY	APPROVED BY	DATE	VERSION
Threadle pump	J. Zeron	A. Morillo	03/09/2021	1.0
PART NAME	FILE NAME			POS
Cylinder	Cylinder.ipn			5.0
DEVELOPED BY	REDESIGNED BY	DOC. TYPE	MATERIAL	QUANTITY
		Assembly		1
University of Warwick, DTU	OHO e.V.	LICENCE	SCALE	SHEET
		CC-BY-SA 4.0	1:4	29 /29