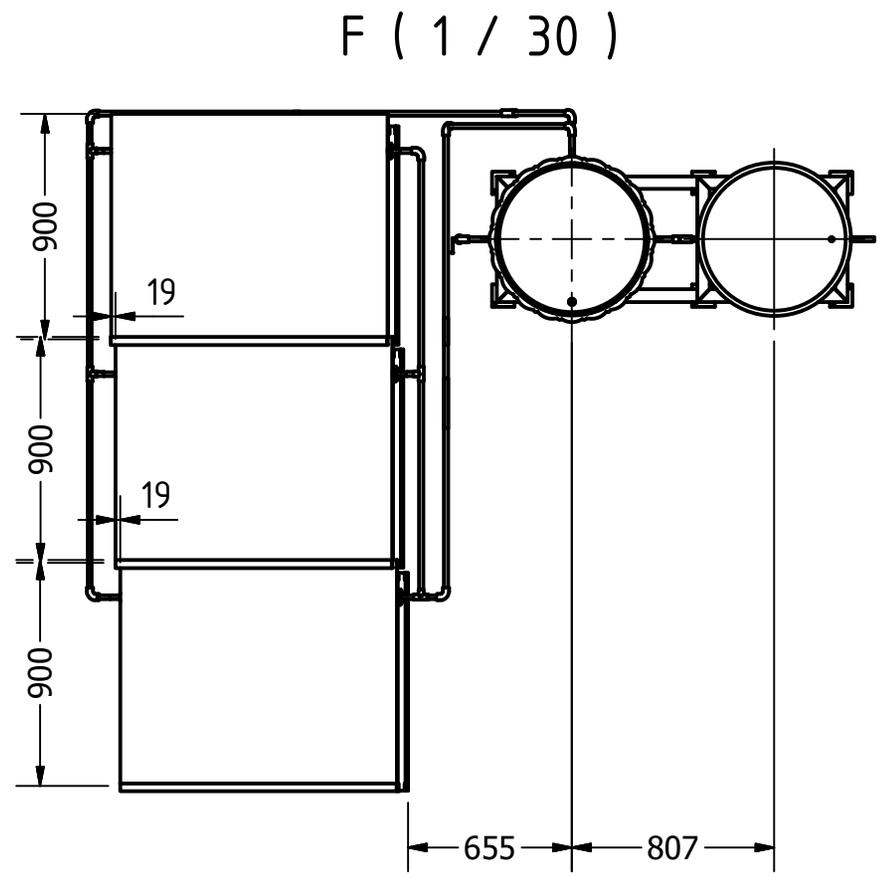
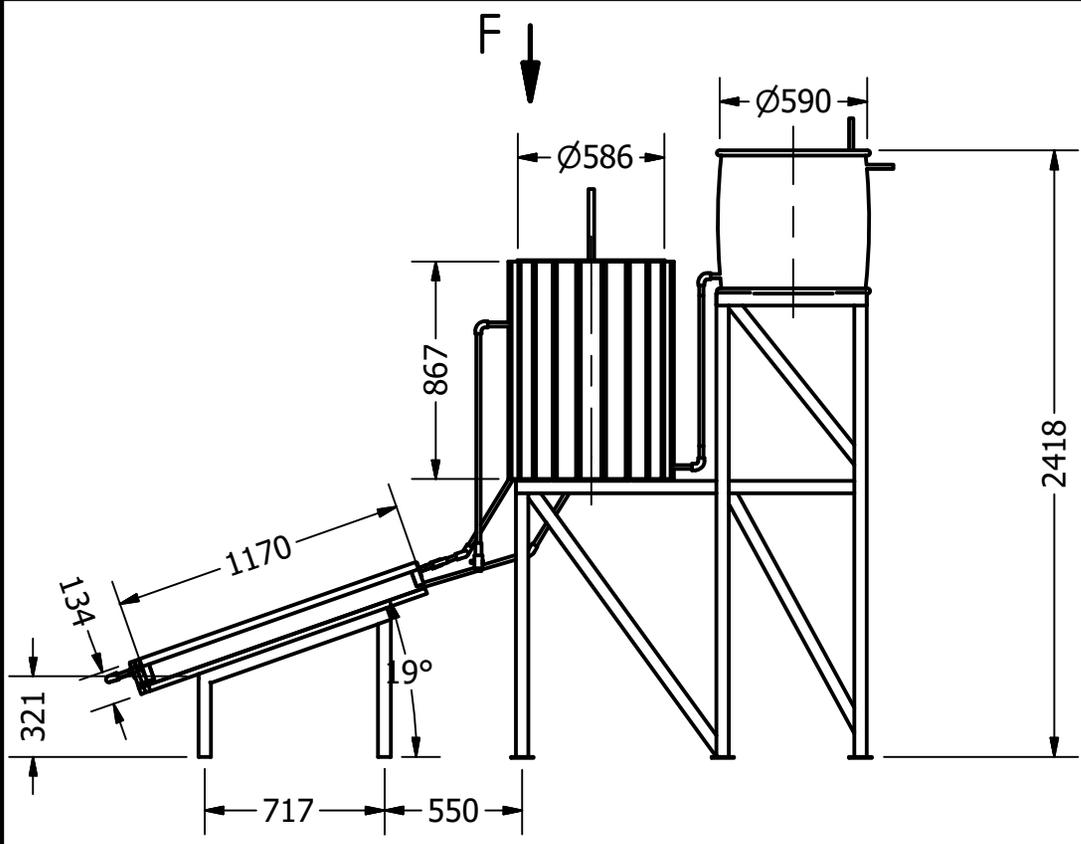
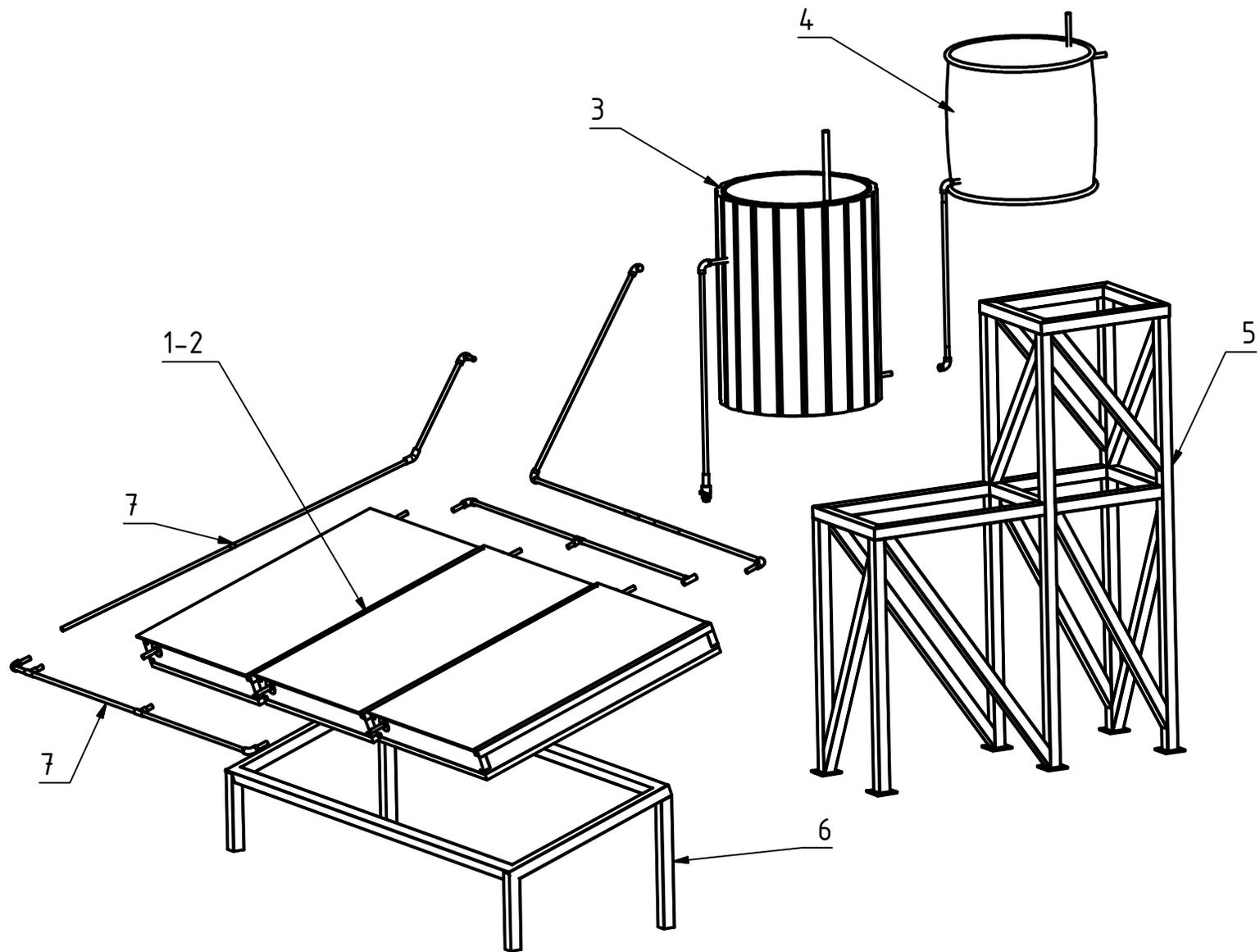


PROJECT		CREATED BY	APPROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
zigzag-solar-water-heater		A1	ASSEMBLY		
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	oseg_zswh_zigzag-solar-water-heater.iam	1.1	
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
			1:20	1 /54	4/3/2021



F (1 / 30)

PROJECT		CREATED BY		APPROVED BY							
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA		D. JAEGER							
PART NAME		PART CODE		DOCUMENT TYPE		MATERIAL					
zigzag-solar-water-heater		A1		ASSEMBLY							
DEVELOPED BY		REDESIGNED BY		LICENCE		FILE NAME		VERSION		QUANTITY	
 WOT-UNIVERSITY OF TWENTE		 OPEN SOURCE ECOLOGY GERMANY		CC-BY-SA		oseg_zswh_zigzag-solar-water-heater.iam		1.1			
						SCALE		SHEET		DATE	
				1:30		2 / 54		4/3/2021			



PROJECT		CREATED BY		APROVED BY	
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA		D. JAEGER	
PART NAME		PART CODE		DOCUMENT TYPE	
zigzag-solar-water-heater		A2		ASSEMBLY	
DEVELOPED BY		REDESIGNED BY		LICENCE	
 WOT-UNIVERSITY OF TWENTE		 OPEN SOURCE ECOLOGY GERMANY		CC-BY-SA	
		FILE NAME		VERSION	
		oseg_zswh_zigzag-solar-water-heater.iam		1.1	
		SCALE		SHEET	
		1:25		3 /54	
				DATE	
				4/3/2021	

PART LIST

POS	POS.OLD	QTY	PART NAME	FILE NAME	PART TYPE	SPECS	SHT
A1			zigzag solar water heater	oseg_zswh_A1_zigzag-solar-water-heater.iam			1-2
A2			zigzag solar water heater				3
B			Part list	oseg_zswh_B_parts-list.			4-7
C1			Technical notes			General notes	8
C2			Technical notes			Hydraulic scheme	9
1.0	2.1	3	The Absorber	oseg_zswh_Absorber.iam			10-12
1.1	2.1.1	3	1/2" galvanised pipe	oseg_zswh_zig-zag-1/2"-galvanised-pipe.ipt	Production	galv. iron	13
1.2	2.1.4	3	galvanised sheet	oseg_zswh_galvanised-sheet.ipt	Production	One 1.22*2.44 sheet	14
1.3		16	saddles	oseg_zswh_saddles.ipt	Production	0.5 mm, galv. sheet	15
1.4		64	rivets 9,4 x 18	9,4 x 18 x 0,3 - SV 34.ipt	Standard	rivets 9,4 x 18 expand	
2.0	2.2	3	collector-box	oseg_zswh_collector-box.iam			16-17
2.1		6	sides planks	oseg_zswh_sides-planks.ipt	Production	pine wood or similar	18
2.2		6	front planks	oseg_zswh_front-planks.ipt	Production	pine wood or similar	19
2.3		6	supporting laths	oseg_zswh_supporting-laths.ipt	Production	pine wood or similar	20
2.4		3	bottom plank	oseg_zswh_bottom-plank.ipt	Production	pine wood or similar	21
2.5		3	insulating material	oseg_zswh_insulating-material.ipt	Production	See Tech notes	22
2.6		3	cover glass	oseg_zswh_cover-glass.ipt	Production	4 mm glass	23
2.7		8	rubber strip	oseg_zswh_rubber-strip.ipt	Production	rubber	24

PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
		B1	PART LIST		
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA		1.1	
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
				4 /54	4/3/2021

PART LIST

POS	POS.OLD	QTY	PART NAME	FILE NAME	PART TYPE	SPECS	SHT
2.8		3	angle section	oseg_zsw_h_angle-section.ipt	Production	Angle section aluminum 25x25x3; L: 1180	25
3.0	3	1	insulated storage tank	oseg_zsw_h_insulated-storage-tank.iam			26
3.1		1	storage tank	oseg_zsw_h_storage-tank.ipt	Standard	200-litre drum 867 height * 584 diam	28
3.2		4	galvanised pipe 1/2"	oseg_zsw_h_galvanised pipe 1/2"x150.ipt	Production	galv. iron	29
3.3		2	galvanised pipe 3/4"	oseg_zsw_h_galvanised pipe 3/4"x300.ipt	Production	galv. iron	30
3.4		1	insulating material	oseg_zsw_h_insulating-material.ipt	Production	see notes	31
4.0	4		the buffer tank	oseg_zsw_h_the-buffer-tank.iam			32
4.1		1	buffet tank	oseg_zsw_h_buffer-tank.ipt	Standard	half 200-litre drum 433 height * 584 diam	33
4.2		3	galvanised pipe 1/2"	oseg_zsw_h_galvanised-pipe-1/2"x1 50.ipt	Production	galv. iron	34
4.3		1	floating gauge	oseg_zsw_h_floating-gauge.ipt	Standard	Tank float valve, 15 gpm, 60 psi, 1/2" NPT	
5.0		1	foundation storage tank	oseg_zsw_h_foundation-structure.iam			35-36
5.1		4	steel-pipe 50x50x500	oseg_zsw_h_steel-pipe 50x50x500.ipt	Production	steel A36	37

PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
		B2	PART LIST		
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA		1.1	
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
				5 /54	4/3/2021

PART LIST

POS	POS.OLD	QTY	PART NAME	FILE NAME	PART TYPE	SPECS	SHT
5.2		2	steel-pipe 50x50x600	oseg_zsw_h_steel-pipe 50x50x600.ipt	Production	steel A36	38
5.3		2	steel-pipe 50x50x800	oseg_zsw_h_steel-pipe 50x50x800.ipt	Production	steel A36	39
5.4		2	steel-pipe 50x50x1050	oseg_zsw_h_steel-pipe 50x50x1050.ipt	Production	steel A36	40
5.5		4	steel-pipe 50x50x1800	oseg_zsw_h_steel-pipe 50x50x1800.ipt	Production	steel A36	41
5.6		6	rectangular flancher	oseg_zsw_h_rectangular-flancher.ipt	Production	steel C45	42
5.7		2	steel-pipe 50x50x1067	DIN (50 x 50 x 2.5) 00000020.ipt	Production	steel A36	43
5.8		2	steel-pipe 50x50x784	DIN (50 x 50 x 2.5) 00000028.ipt	Production	steel A36	44
5.9		2	steel-pipe 50x50x400	DIN (50 x 50 x 2.5) 00000022.ipt	Production	steel A36	45
5.10		2	steel-pipe 50x50x810	DIN (50 x 50 x 2.5) 00000025.ipt	Production	steel A36	46
5.11		2	steel-pipe 50x50x1081	DIN (50 x 50 x 2.5) 00000019.ipt	Production	steel A36	47
5.12		2	steel-pipe 50x50x1290	DIN (50 x 50 x 2.5) 00000016.ipt	Production	steel A36	48
5.13		2	steel-pipe 50x50x500	DIN (50 x 50 x 2.5) 00000023.ipt	Production	steel A36	49
6.0		1	base collector	oseg_zsw_h_base-collector.iam		inclination depends on the region	50
6.1		2	steel-pipe 50x50x330	oseg_zsw_h_steel-pipe 50x50x330.ipt	Production	steel A36	51
6.2		2	steel-pipe 50x50x600	oseg_zsw_h_steel-pipe 50x50x600.ipt	Production	steel A36	52
6.3		2	steel-pipe 50x50x800	oseg_zsw_h_steel-pipe 50x50x800.ipt	Production	steel A36	53
6.4		2	steel-pipe 50x50x2300	oseg_zsw_h_steel-pipe 50x50x2300.ipt	Production	steel A36	54

PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
		B3	PART LIST		
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
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WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
				6 /54	4/3/2021

PART LIST

POS	POS.OLD	QTY	PART NAME	FILE NAME	PART TYPE	SPECS	SHT
7.0			pipe fitting and accesories				
7.1		6	galvanised pipe 1/2" x 450	oseg_zswg_galvanised-pipe-1/2"x450.ipt	Standard	galv. iron	
7.2		3	galvanised pipe 1/2" x 600	oseg_zswg_galvanised-pipe-1/2"x600.ipt	Standard	galv. iron	
7.3		2	galvanised pipe 1/2" x 830	oseg_zswg_galvanised-pipe-1/2"x830.ipt	Standard	galv. iron	
7.4		10	galvanised elbow 1/2"-90°	oseg_zswg_galvanised-elbow-1/2"-90.ipt	Standard	galv. iron	
7.5		4	galvanised tee 1/2"-90°	oseg_zswg_galvanised-tee-1/2"-90.ipt	Standard	galv. iron	

PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
		B4	PART LIST		
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA		1.1	
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
				7 /54	4/3/2021

TECHNICAL NOTES

NOTES	CONTENT
General notes	
Metal structure treatment	<p>Iron structures should be painted to prevent rust and improve equipment life.</p> <ul style="list-style-type: none"> - Remove loose rust with a wire brush, sandpaper or chemical rust remover. - If applicable, sand areas where paint is chipping until surface is smooth. - Remove dust or oil with a degreaser or denatured alcohol. - Prime surface to protect against rust and corrosion. <p>Inside the absorber: After the paint or primer, paint the topside with two layers of dull blackboard paint.</p>
Foundations fixing	<ul style="list-style-type: none"> - The ground must be stable and have a low water table. - The structure must be fixed on firm concrete soil or on poured footings with steel reinforcement. - The anchorage can be bolted with expansive ramplugs or welded.
Wood treatment	<ul style="list-style-type: none"> - The wood must be treated with pesticides and kiln-dried to ensure adequate humidity. - Wood sealer should be applied for later use.
Insulation material	<p>For thermal insulation material, the following can be used, among others:</p> <ul style="list-style-type: none"> - polystyrene, - fiberglass, - empty bags of fibre with sawdust, - Coconut-fibre. <p>With good radiation and thermal insulation, the system can produce water between 40 and 70 °C.</p>
Tube bending	<ul style="list-style-type: none"> - A wooden frame is needed to support the iron parts of the pipe bending set. - Bend gradually without forcing the set. - The horizontal pieces of the pipe should be slightly inclined upwards to avoid airlocks. - Use a water pump plier to prevent that the pipe slips away during the bending activity. - After bending the pipe, it will spring back. To keep the right angle in between the bends, you have to measure 12 cm. (in the middle).

PROJECT		CREATED BY	APPROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
		C1	TECH NOTES		
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
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WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
				8 /54	4/3/2021

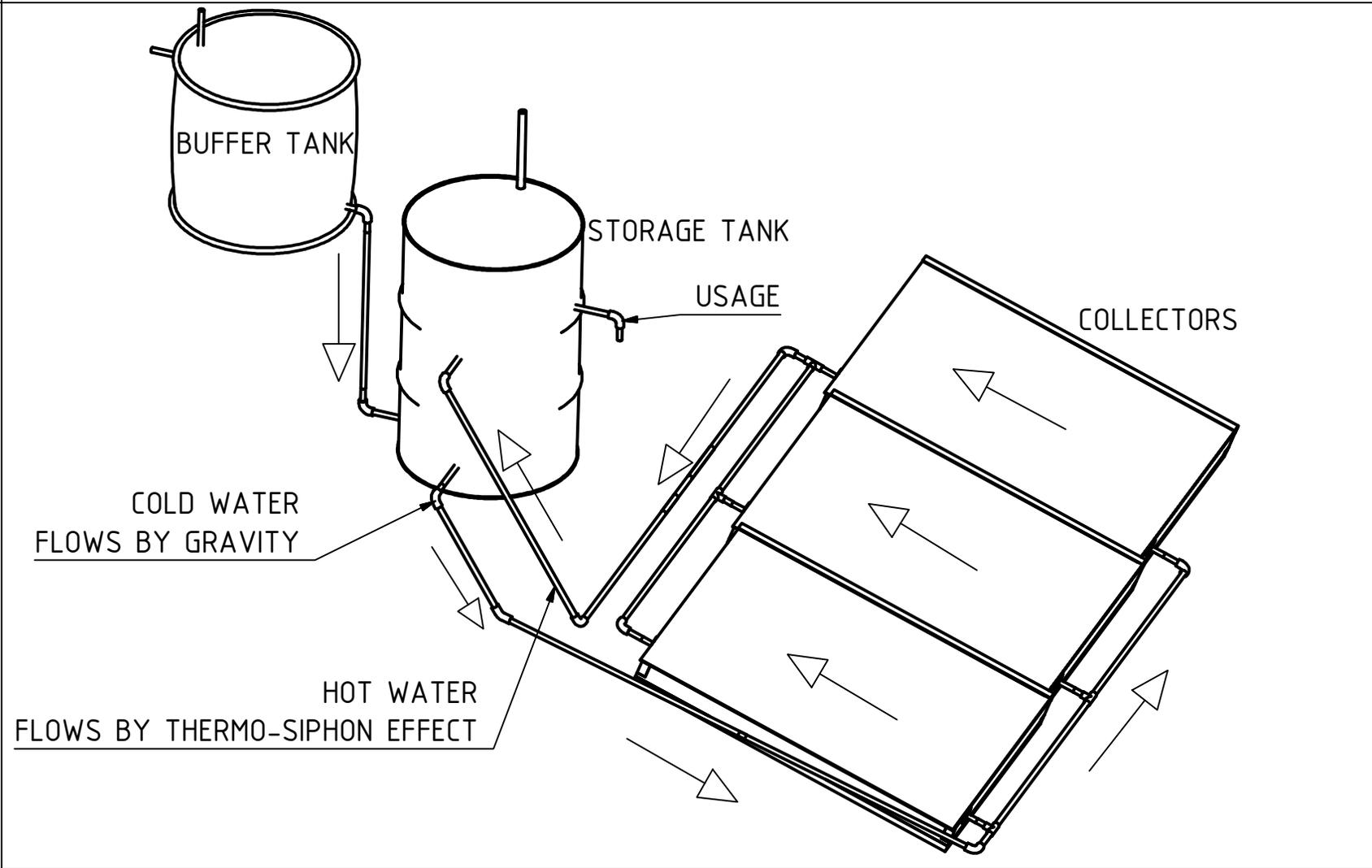
TECHNICAL NOTES

NOTES

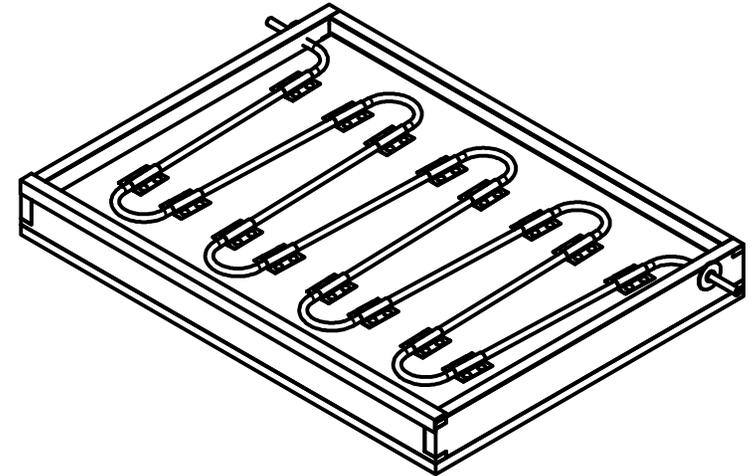
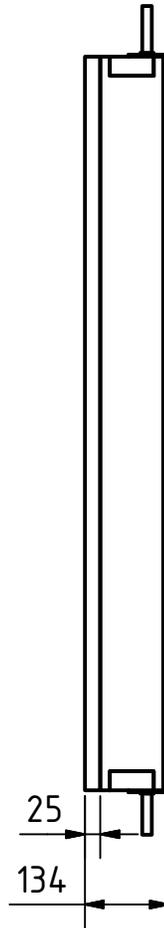
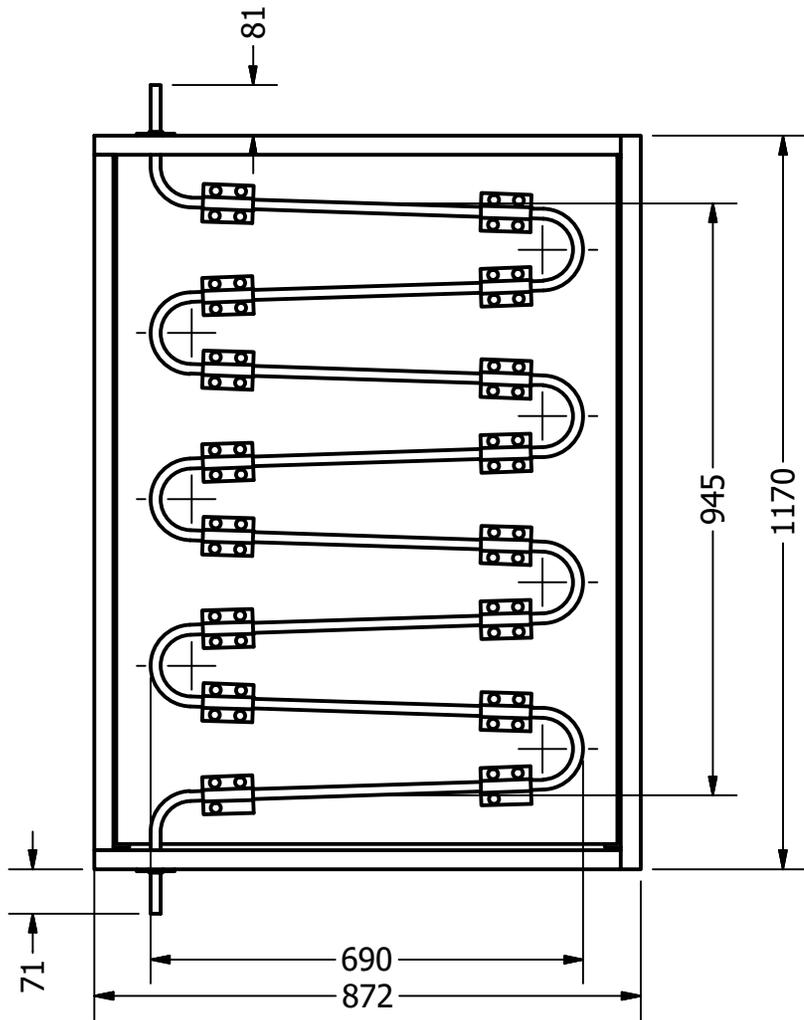
CONTENT

HYDRAULIC SCHEME

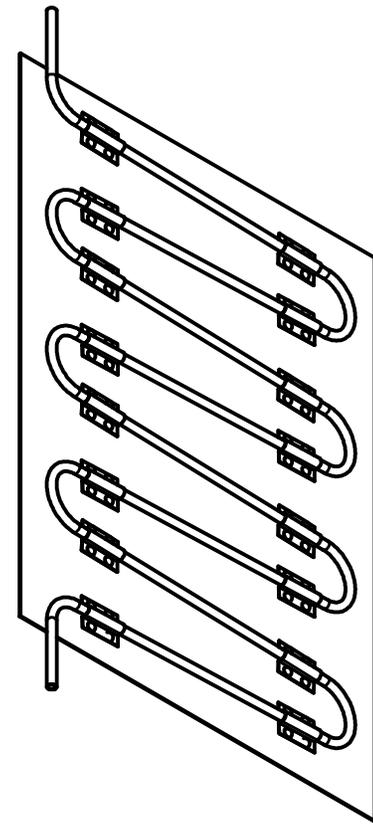
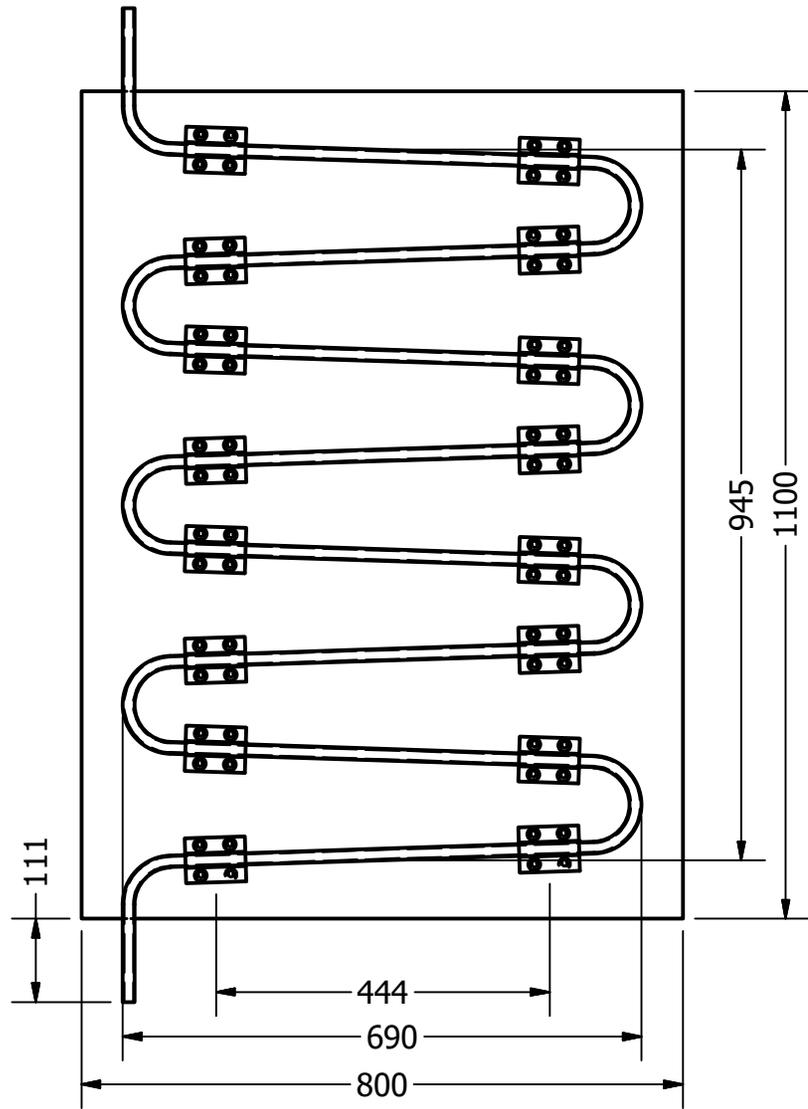
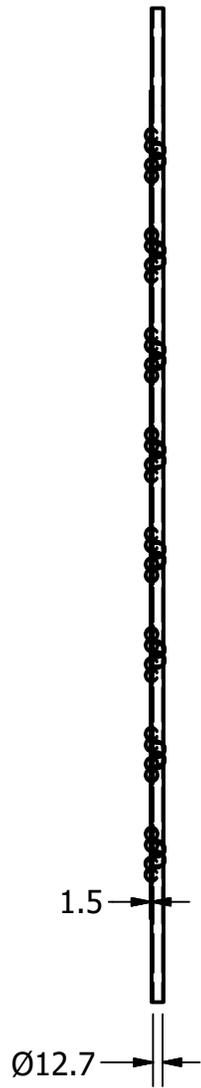
BASIC HYDRAULIC SCHEME WITH FLOW DIRECTIONS



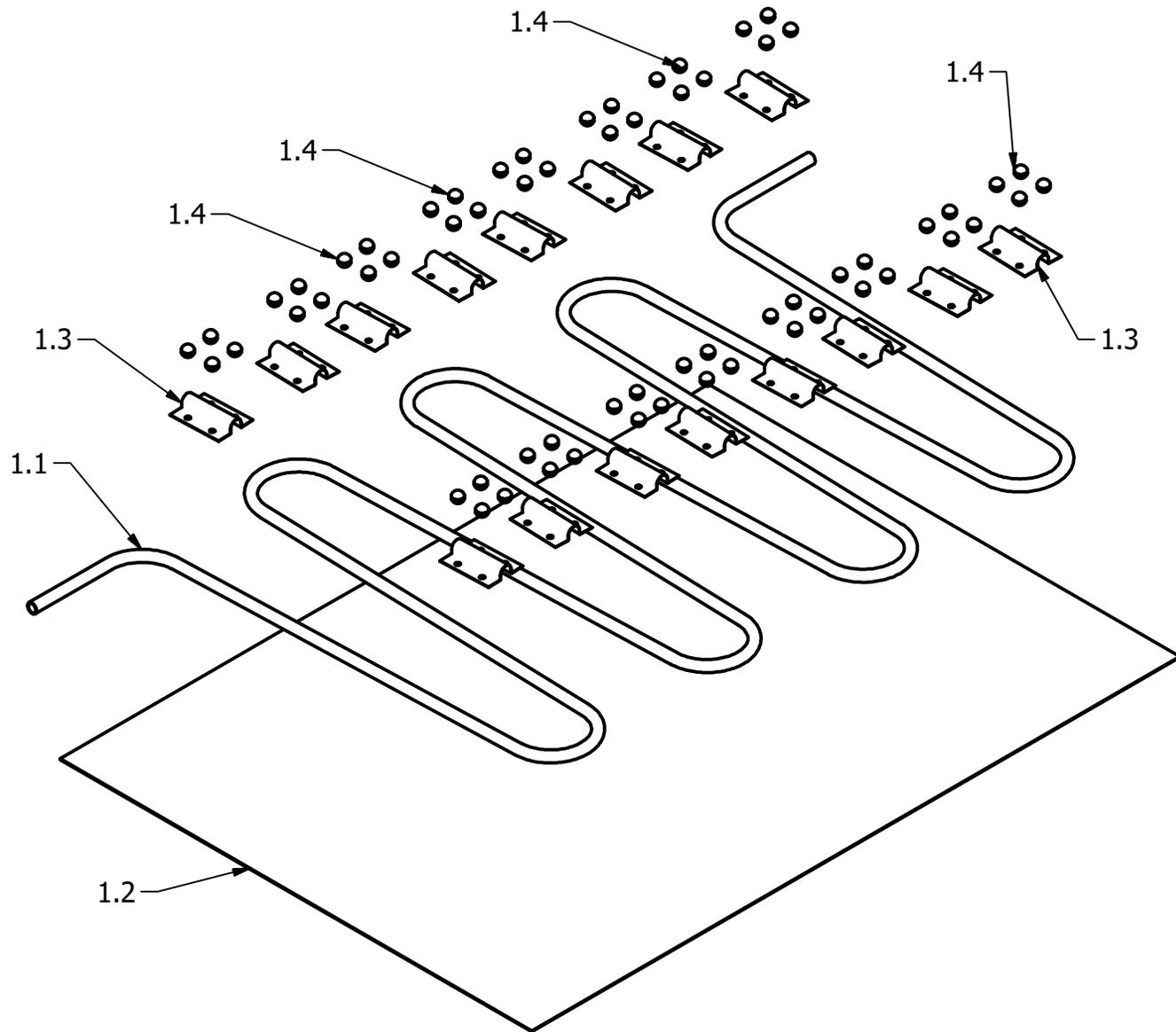
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ZIGZAG SOLAR WATER HEATER		D. MOSQUERA		D. JAEGER	
PART NAME		PART CODE		DOCUMENT TYPE	
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				9 / 54	
				DATE	
				4/3/2021	



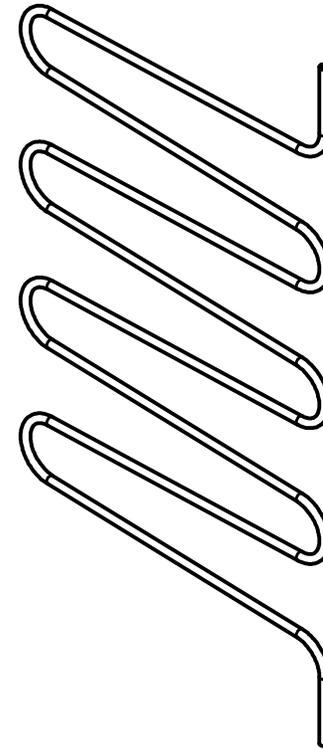
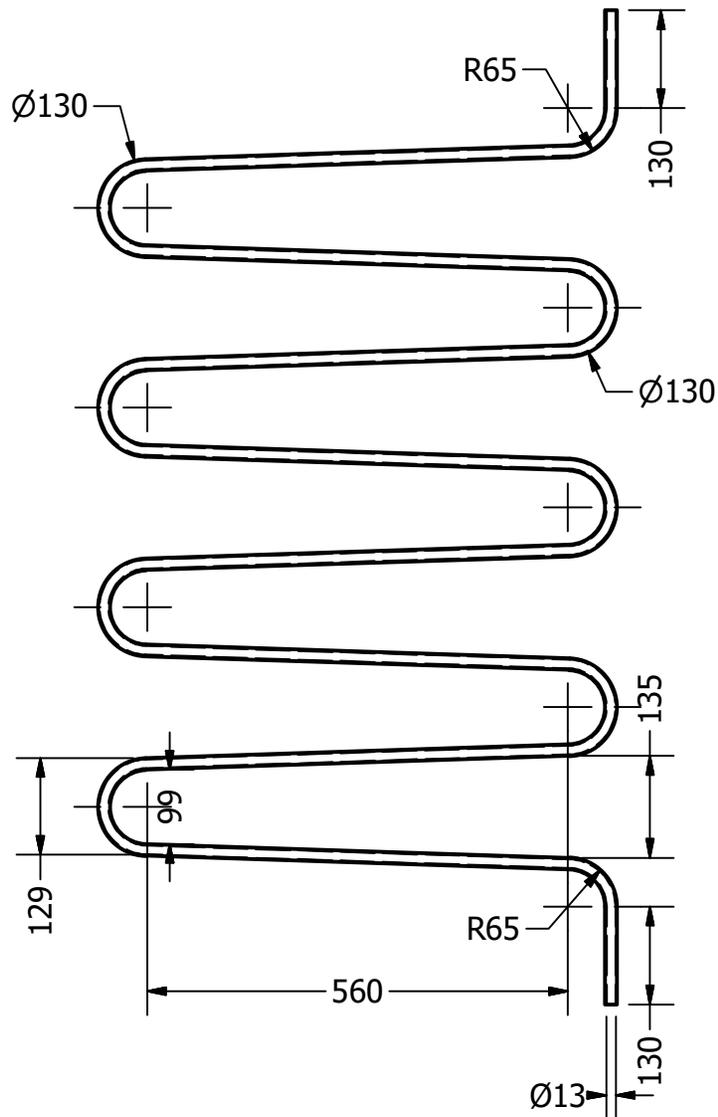
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ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
absorber-collector		1-2	ASSEMBLY		
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	oseg_zswh_absorber-collector.iam	1.1	1
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
			1:12	10 /54	4/3/2021



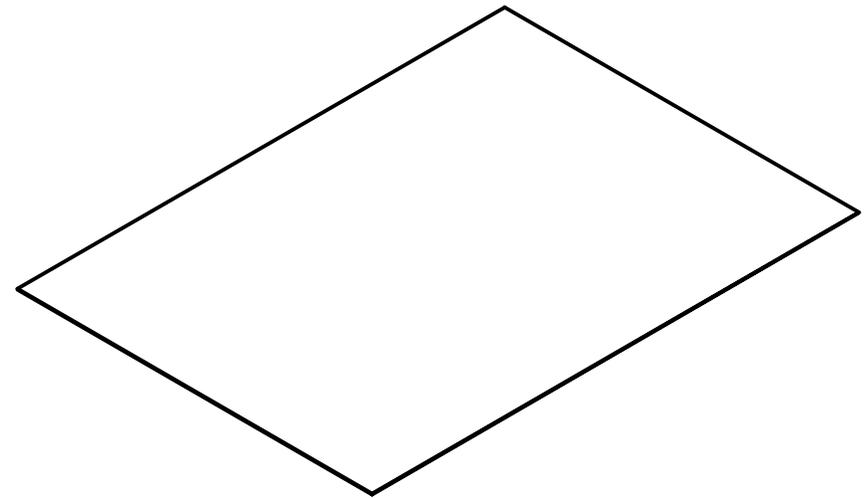
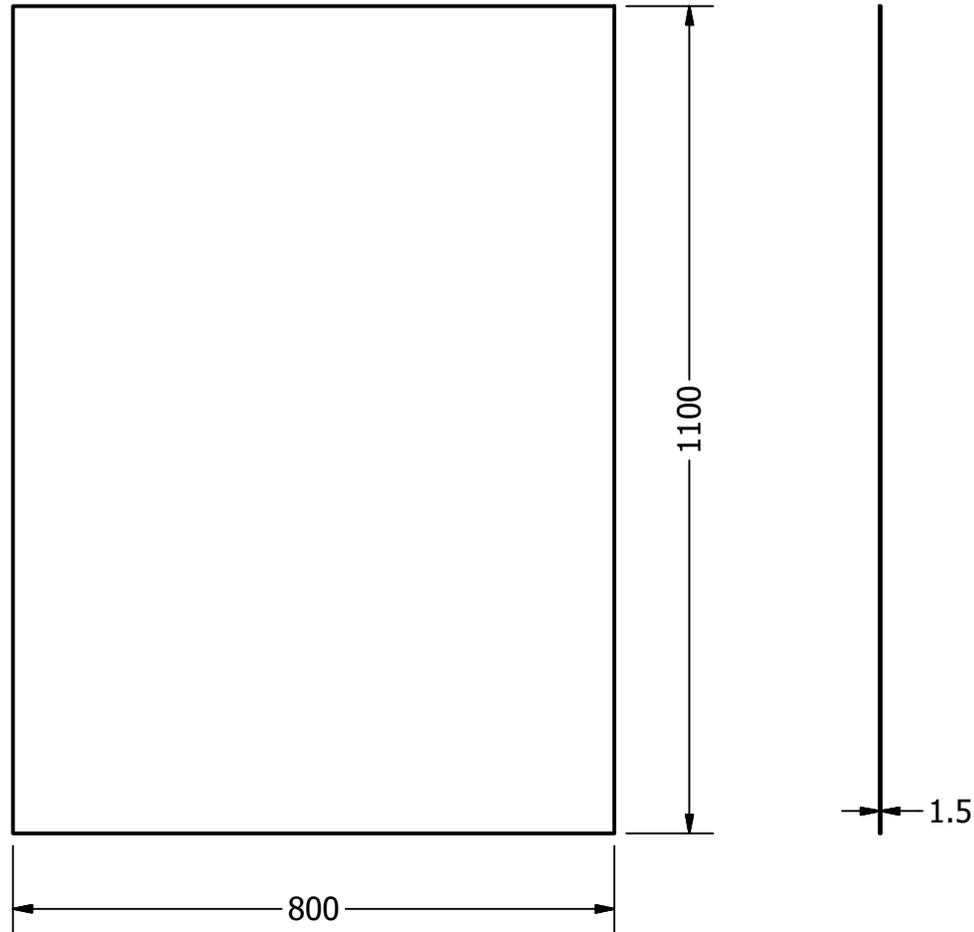
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ZIGZAG SOLAR WATER HEATER		D. MOSQUERA		D. JAEGER	
PART NAME		PART CODE		DOCUMENT TYPE	
Absorber		1.0		ASSEMBLY	
DEVELOPED BY		REDESIGNED BY		LICENCE	
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				oseg_zswH_Absorber.iam	
				VERSION	
				1.1	
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				11 /54	
				DATE	
				4/3/2021	



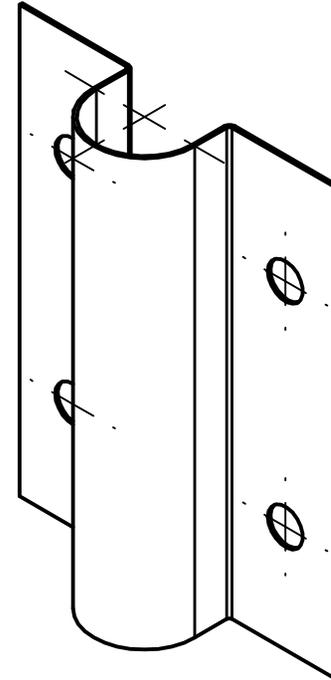
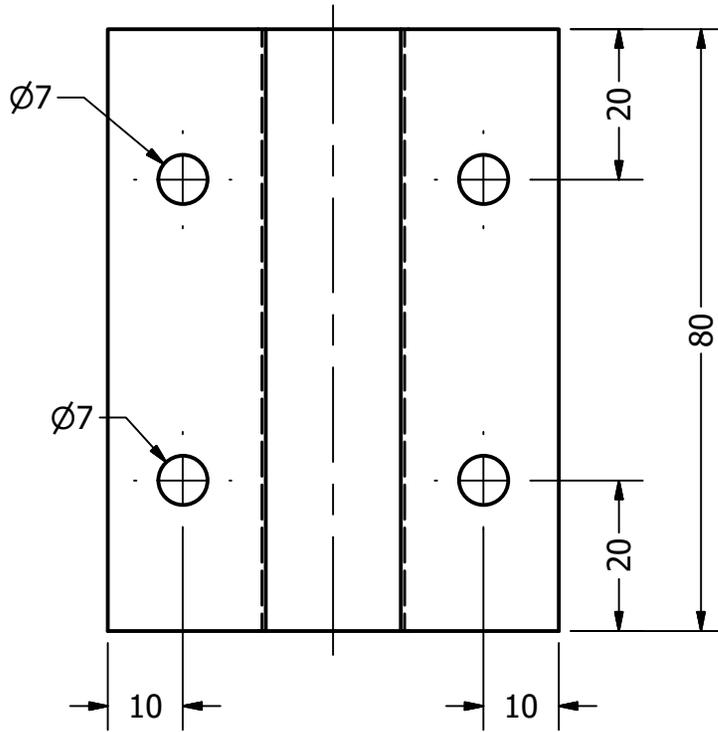
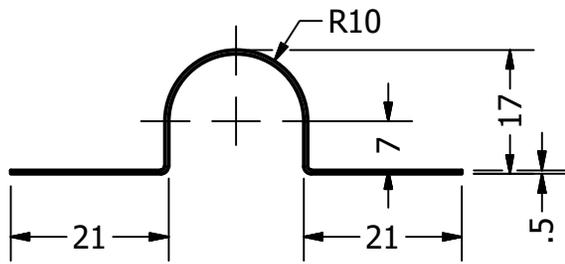
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ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
Absorber		1.0	ASSEMBLY		
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			1:8	12 /54	4/3/2021



PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
zig-zag-1-2plg-galvanised-pipe		1.1	PART	GALV. IRON	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
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				SCALE	SHEET
			1:8	13 /54	4/3/2021

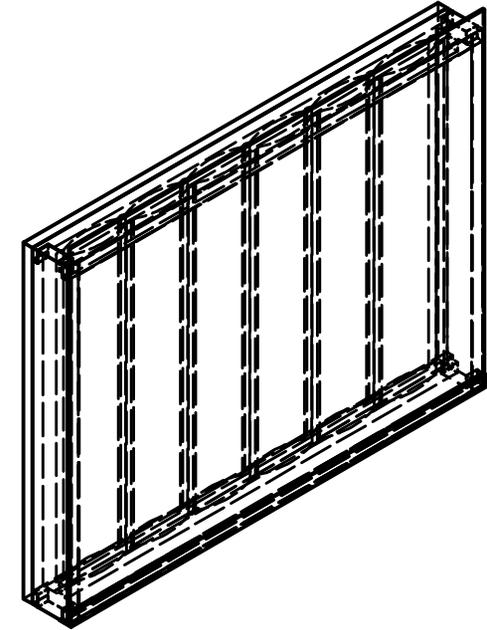
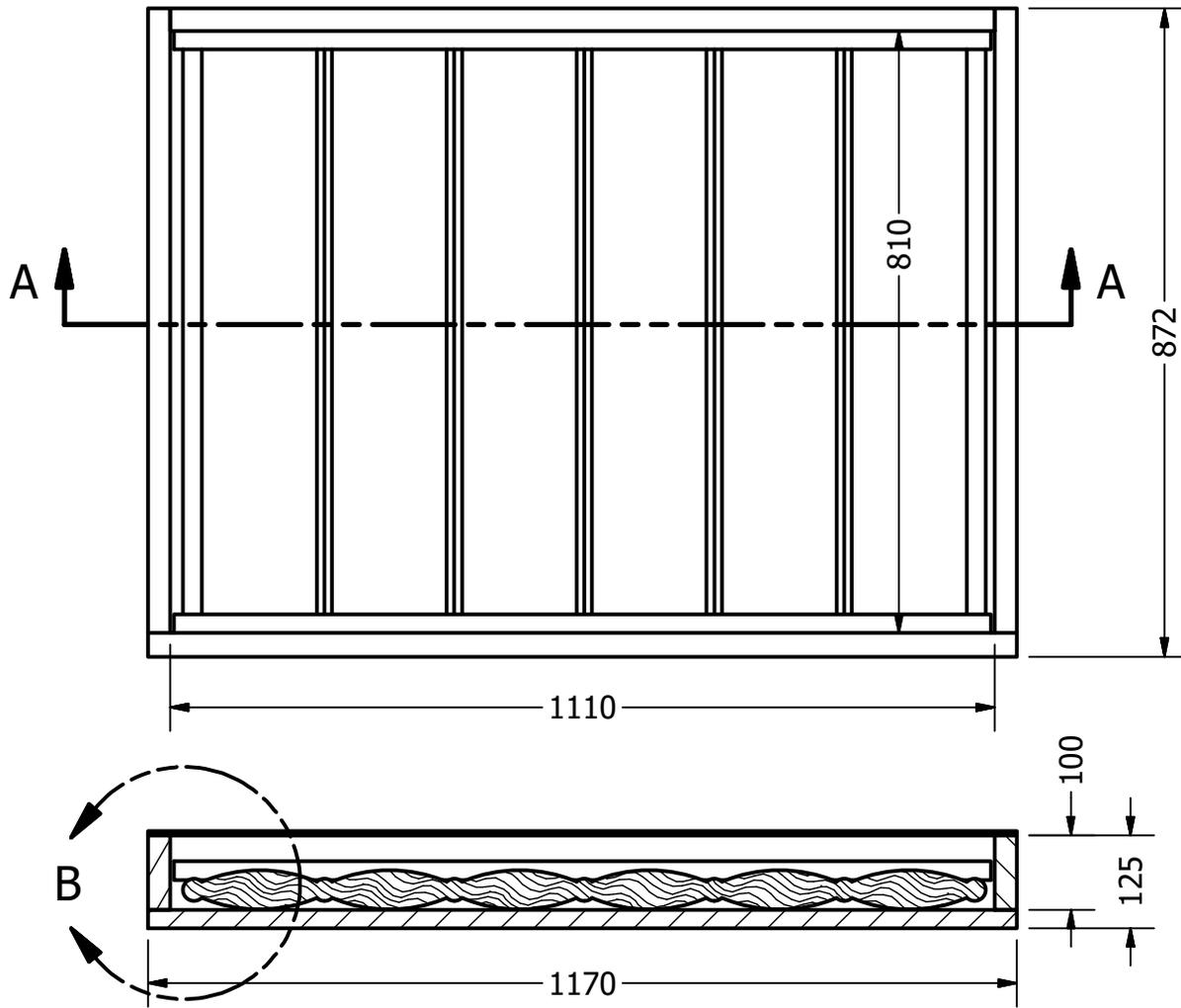


PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
galvanised-sheet		1.2	PART	GALV STEEL	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	oseg_zsw_h_galvanised-sheet.ipt	1.1	3
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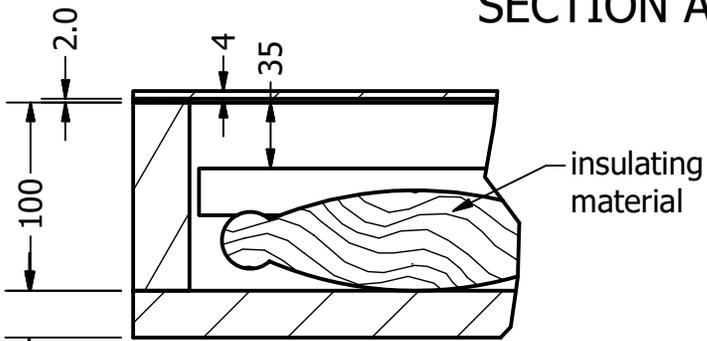


NOTE: Long. = 90.0

PROJECT		CREATED BY	APPROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
saddles		1.3	PART		
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
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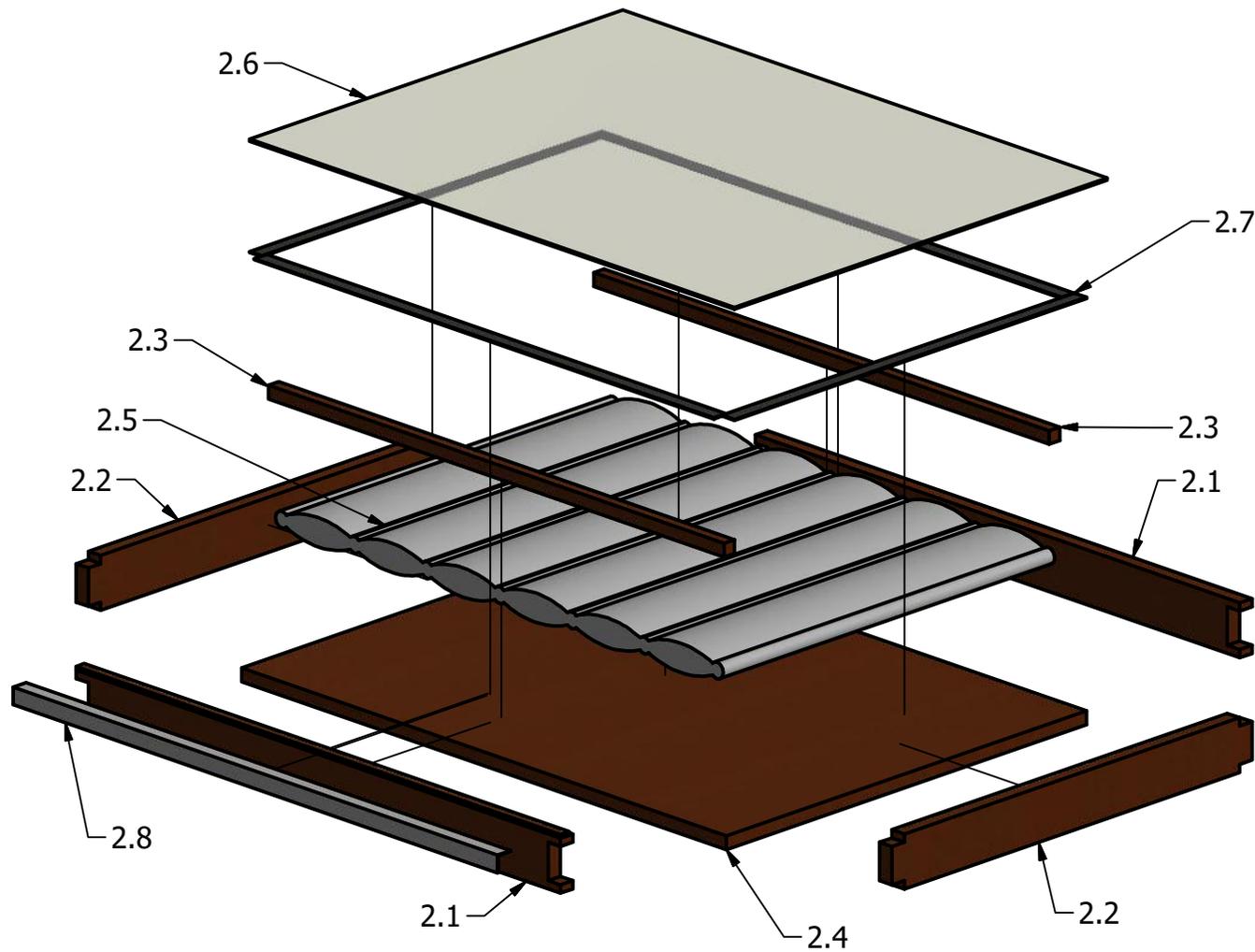


SECTION A-A



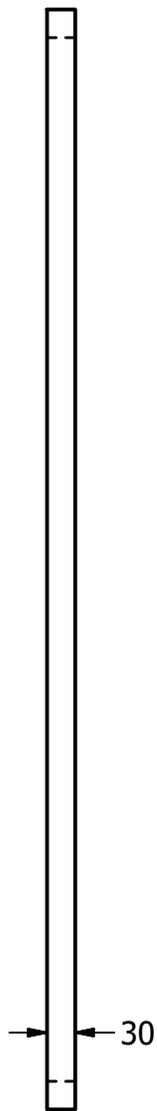
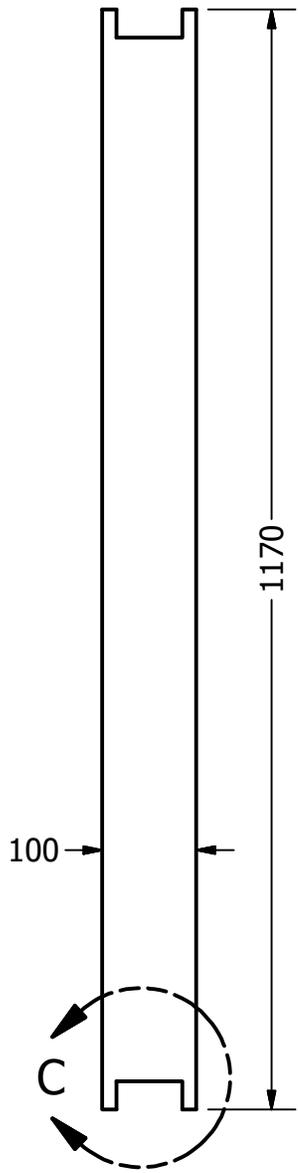
DETAIL B

PROJECT		CREATED BY		APPROVED BY	
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA		D. JAEGER	
PART NAME		PART CODE		DOCUMENT TYPE	
collector-box		2.0		ASSEMBLY	
DEVELOPED BY		REDESIGNED BY		LICENCE	
 WOT-UNIVERSITY OF TWENTE		 OPEN SOURCE ECOLOGY GERMANY		FILE NAME	
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		16 /54		3	
		DATE			
				4/3/2021	

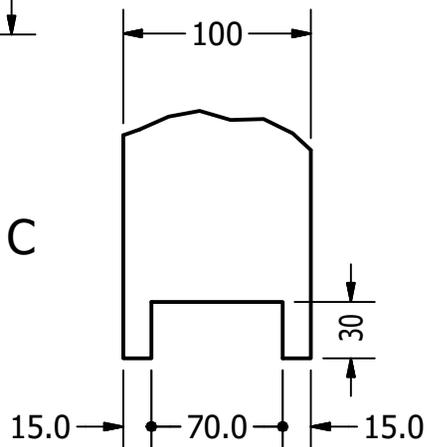


Zigzag Solar Water Heater
collector box

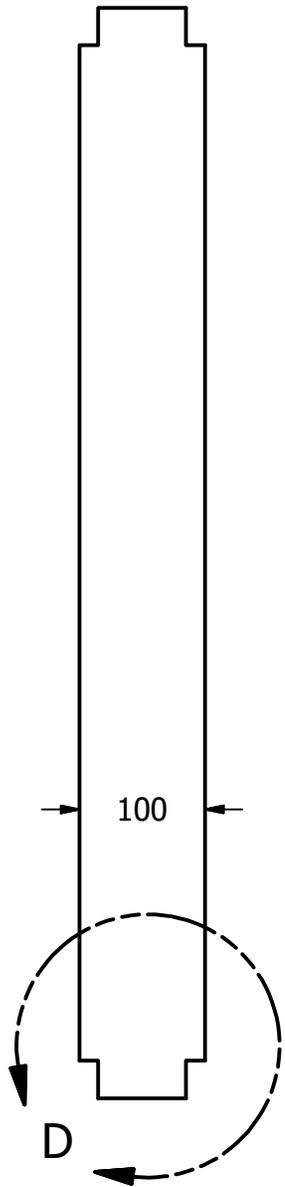
PROJECT		CREATED BY		APPROVED BY	
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA		D. JAEGER	
PART NAME		PART CODE		DOCUMENT TYPE	
collector-box		2.0		ASSEMBLY	
DEVELOPED BY		REDESIGNED BY		LICENCE	
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				DATE	
				4/3/2021	



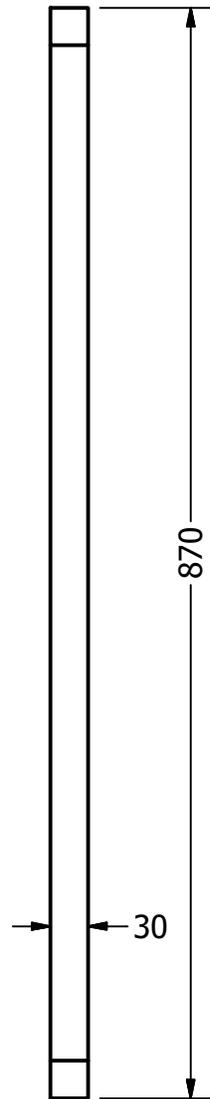
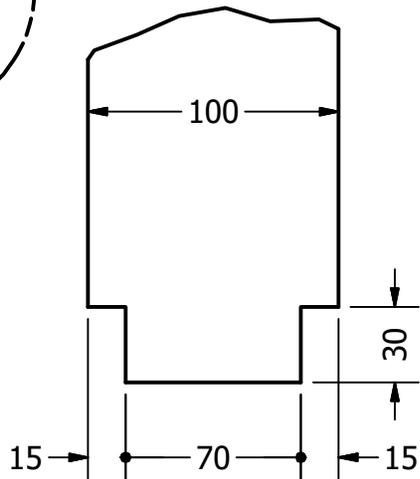
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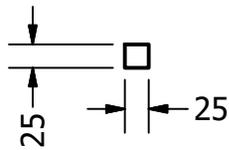
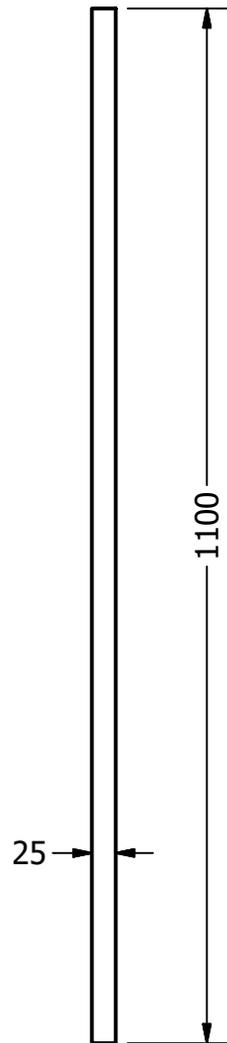
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ZIGZAG SOLAR WATER HEATER		D. MOSQUERA		D. JAEGER	
PART NAME		PART CODE		DOCUMENT TYPE	
sides-planks		2.1		PART	
DEVELOPED BY		REDESIGNED BY		LICENCE	
 WOT-UNIVERSITY OF TWENTE		 OPEN SOURCE ECOLOGY GERMANY		FILE NAME	
		CC-BY-SA		oseg_zsw_h_sides-planks.ipt	
		SCALE		VERSION	
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				18 /54	
				DATE	
				4/3/2021	



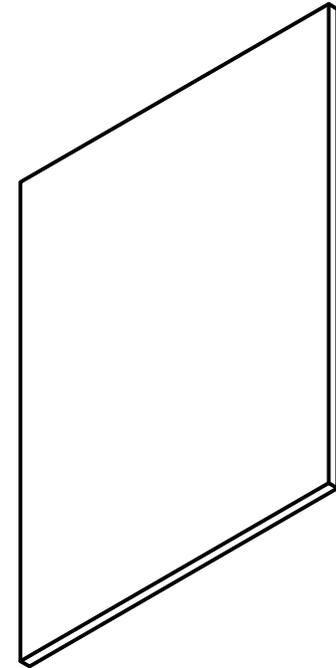
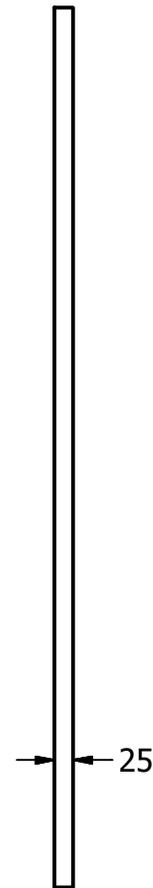
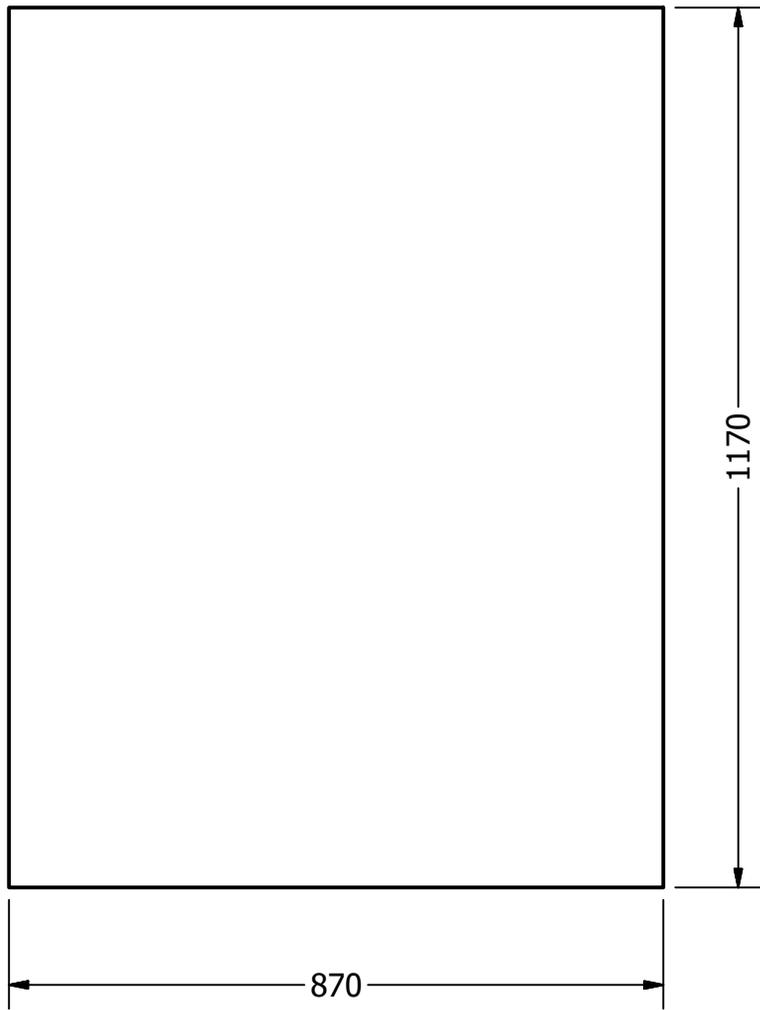
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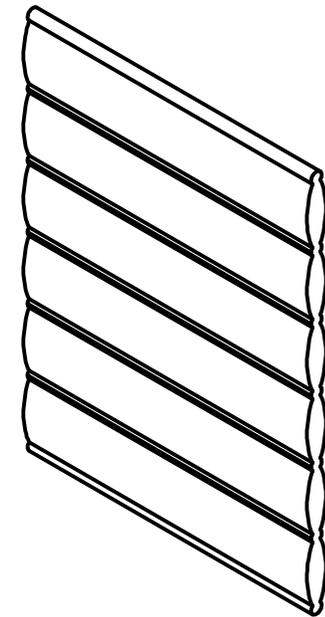
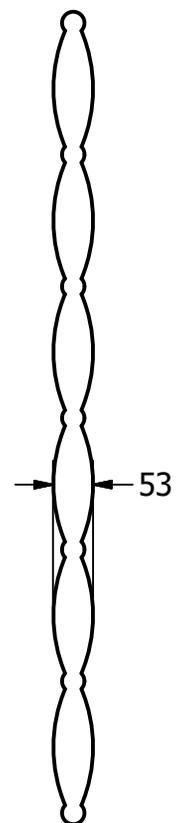
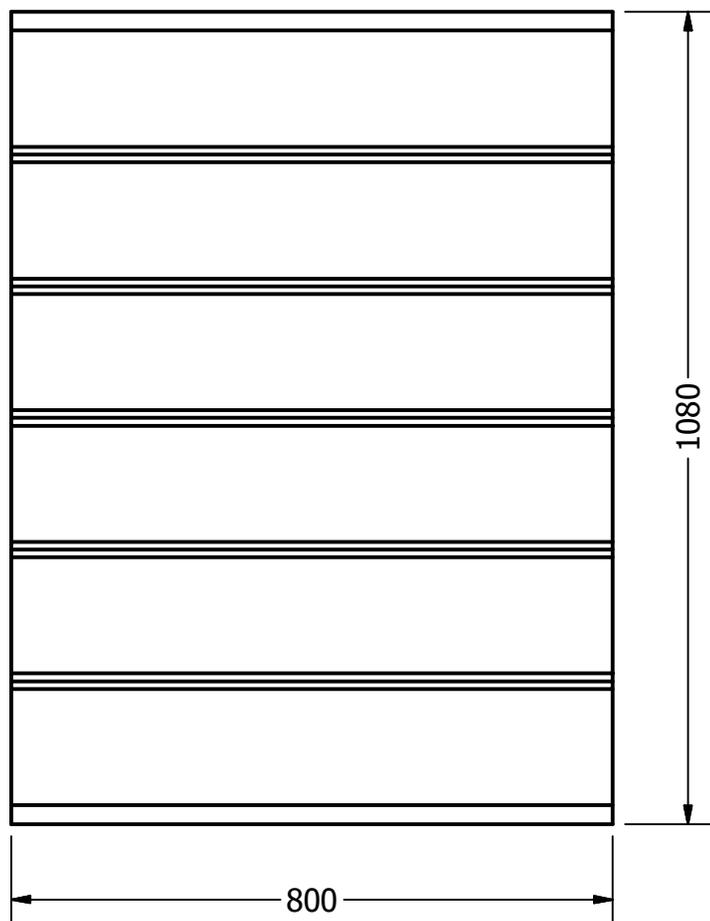
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ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
oseg_zswh_front-planks		2.2	PART	PINE WOOD OR SMLR	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	oseg_zswh_front-planks.ipt	1.1	6
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
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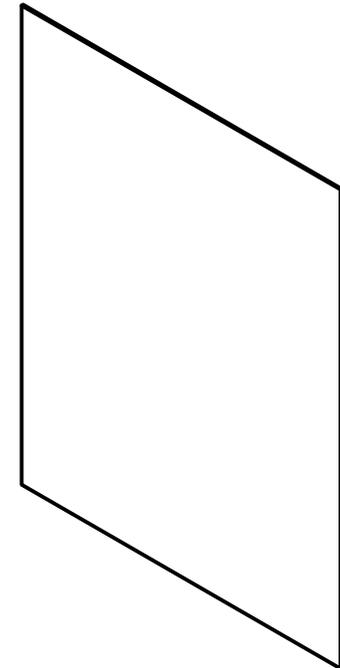
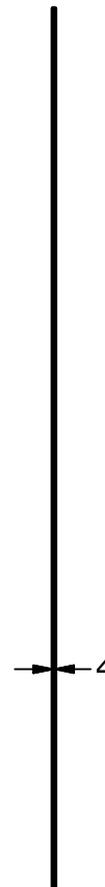
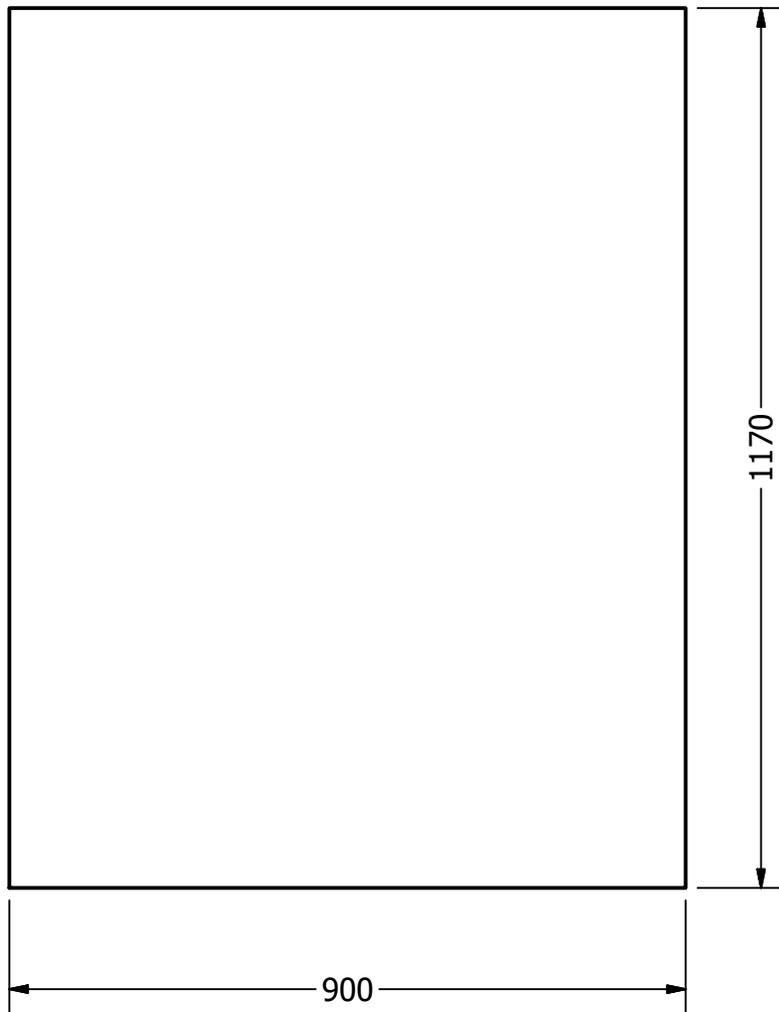
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ZIGZAG SOLAR WATER HEATER		D. MOSQUERA		D. JAEGER	
PART NAME		PART CODE		DOCUMENT TYPE	
supporting-laths		2.3		PART	
DEVELOPED BY		REDESIGNED BY		MATERIAL	
 WOT-UNIVERSITY OF TWENTE		 OPEN SOURCE ECOLOGY GERMANY		PINE WOOD OR SMLR	
LICENCE		FILE NAME		VERSION	
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				6	
				DATE	
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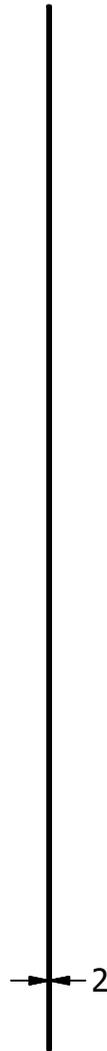
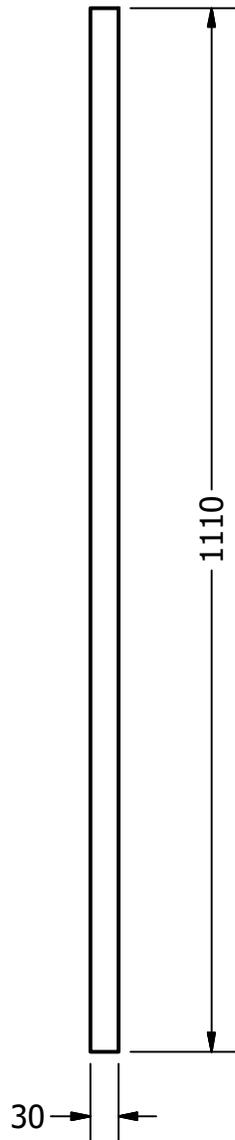
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ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
bottom-plank		2.4	PART	PINE WOOD OR SMLR	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	oseg_zswh_bottom-plank.ipt	1.1	3
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
			1:10	21 /54	4/3/2021



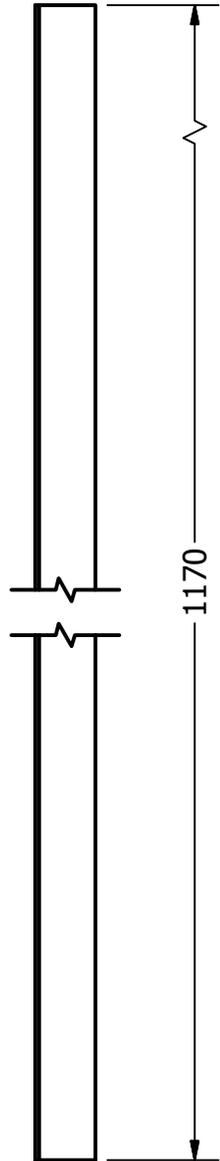
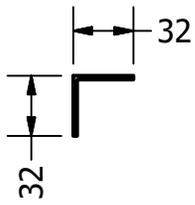
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ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
oseg_zsw_h_insulating-material		2.5	PART	SEE TECH. NOTES	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	oseg_zsw_h_insulating-material.ipt	1.1	3
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
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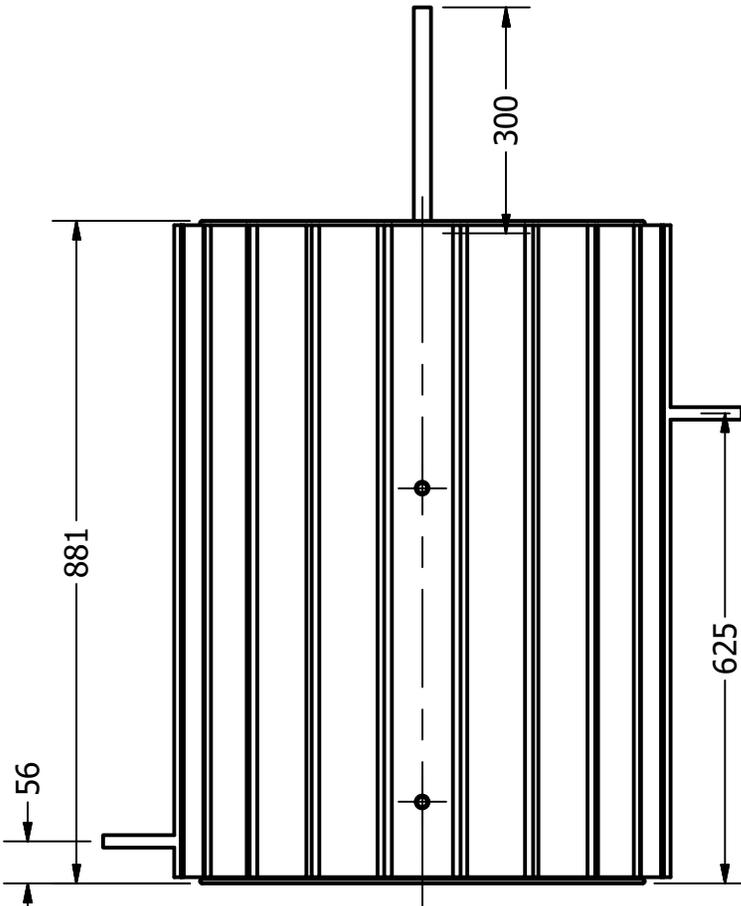
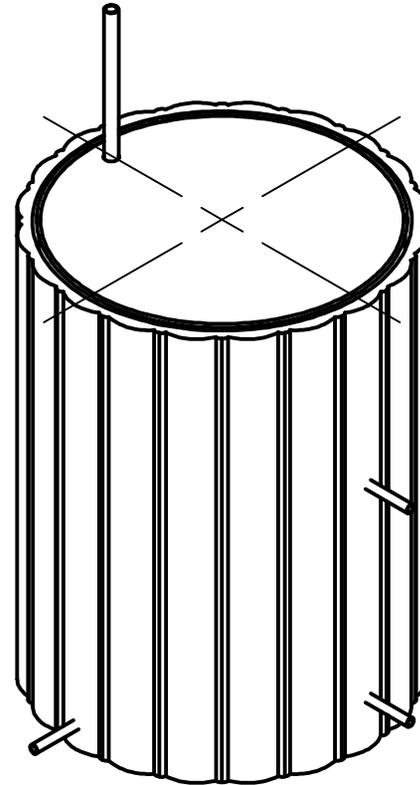
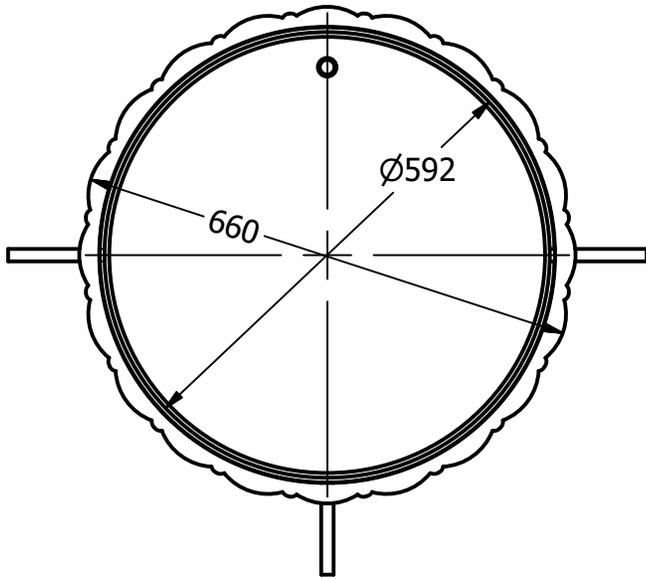
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ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
cover-glass		2.6	PART	4 mm GLASS	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	oseg_zswh_cover-glass.ipt	1.1	3
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
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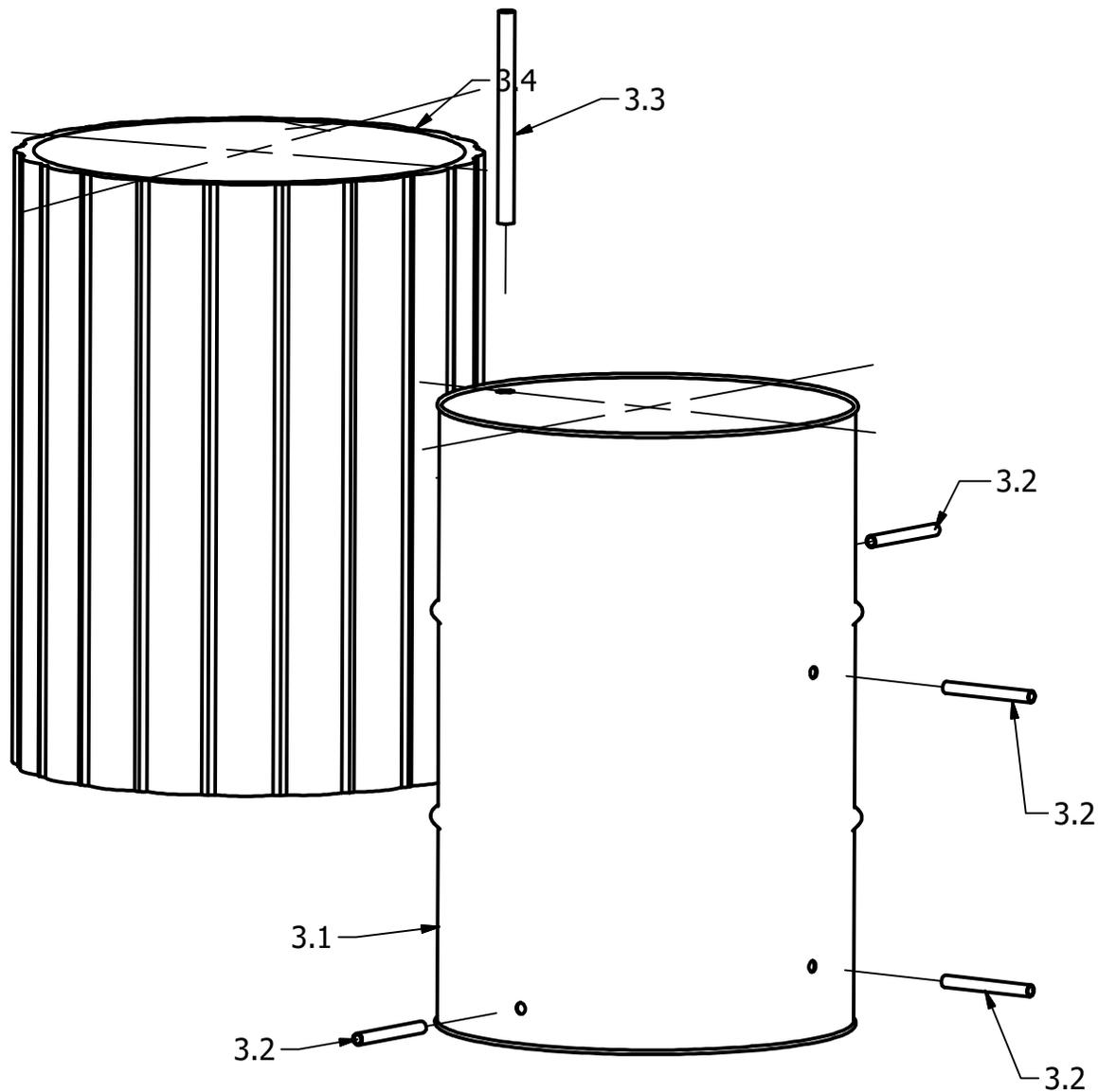
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ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
rubber-strip		2.7	PART	RUBBER	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	oseg_zsw_h_rubber-strip.ipt	1.1	12
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
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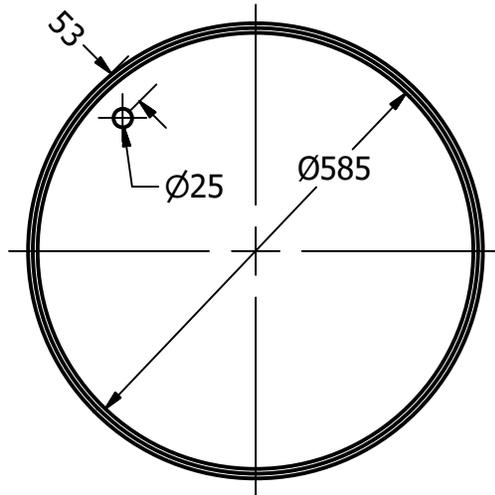
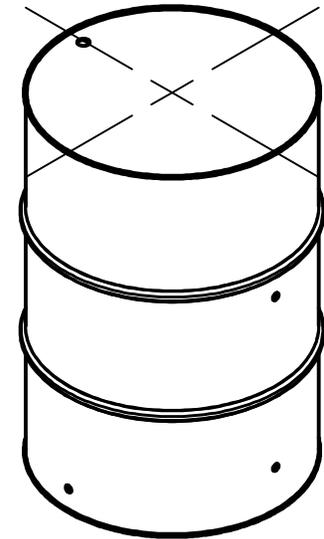
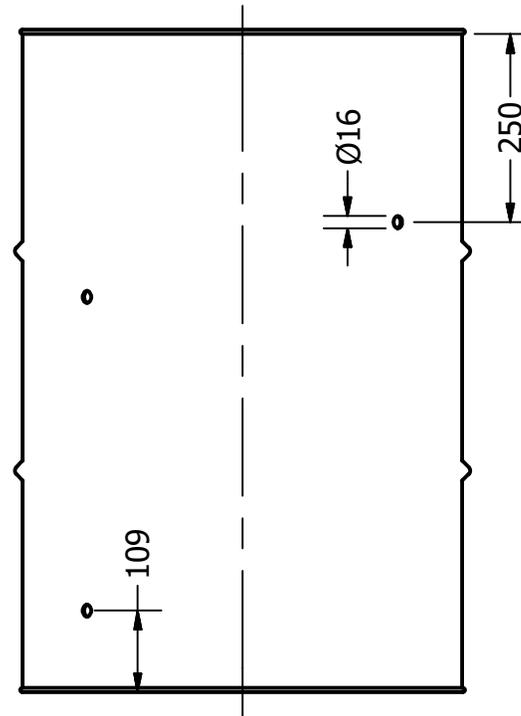
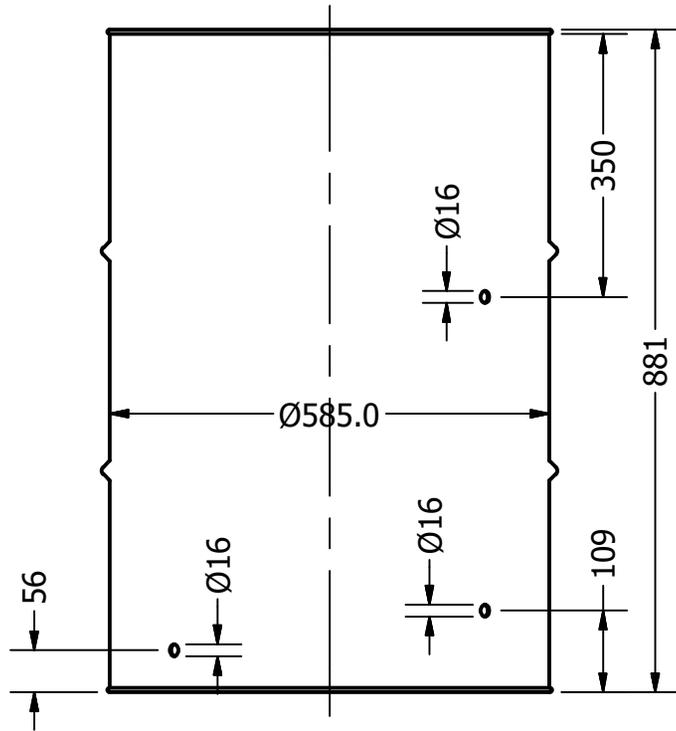
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ZIGZAG SOLAR WATER HEATER		D. MOSQUERA		D. JAEGER	
PART NAME		PART CODE		DOCUMENT TYPE	
angle-section		2.8		PART	
DEVELOPED BY		REDESIGNED BY		LICENCE	
				CC-BY-SA	
WOT-UNIVERSITY OF TWENTE		OPEN SOURCE ECOLOGY GERMANY		FILE NAME	
				oseg_zsw_h_angle-section.ipt	
				VERSION	
				1.1	
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				25 /54	
				DATE	
				4/3/2021	



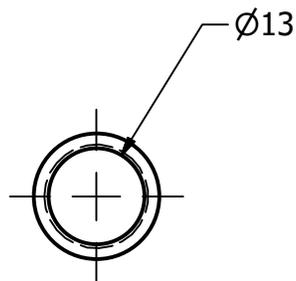
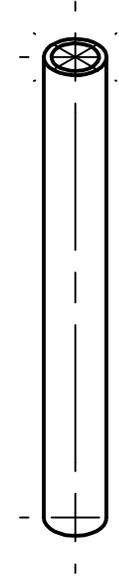
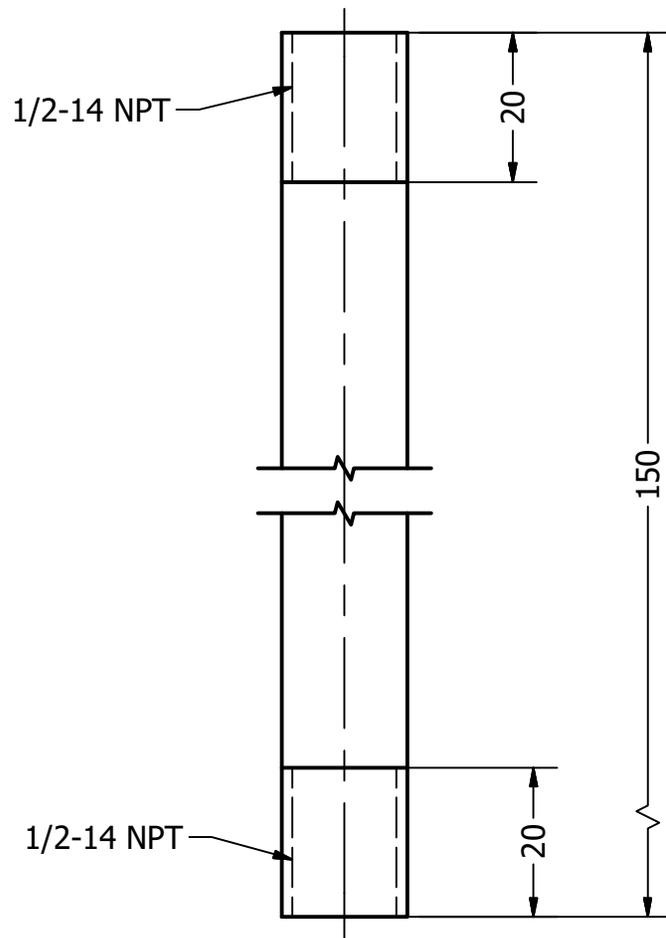
PROJECT		CREATED BY		APPROVED BY	
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA		D. JAEGER	
PART NAME		PART CODE		DOCUMENT TYPE	
insulated-storage-tank		3.0		ASSEMBLY	
DEVELOPED BY		REDESIGNED BY		LICENCE	
 WOT-UNIVERSITY OF TWENTE		 OPEN SOURCE ECOLOGY GERMANY		CC-BY-SA	
		FILE NAME		VERSION	
		oseg_zswh_insulated-storage-tank.iam		1.1	
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		1:10		26 /54	
				QUANTITY	
				1	
				DATE	
				4/3/2021	



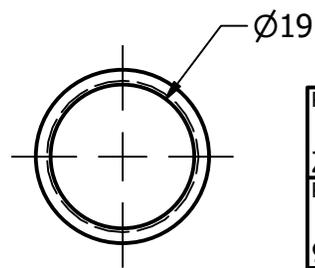
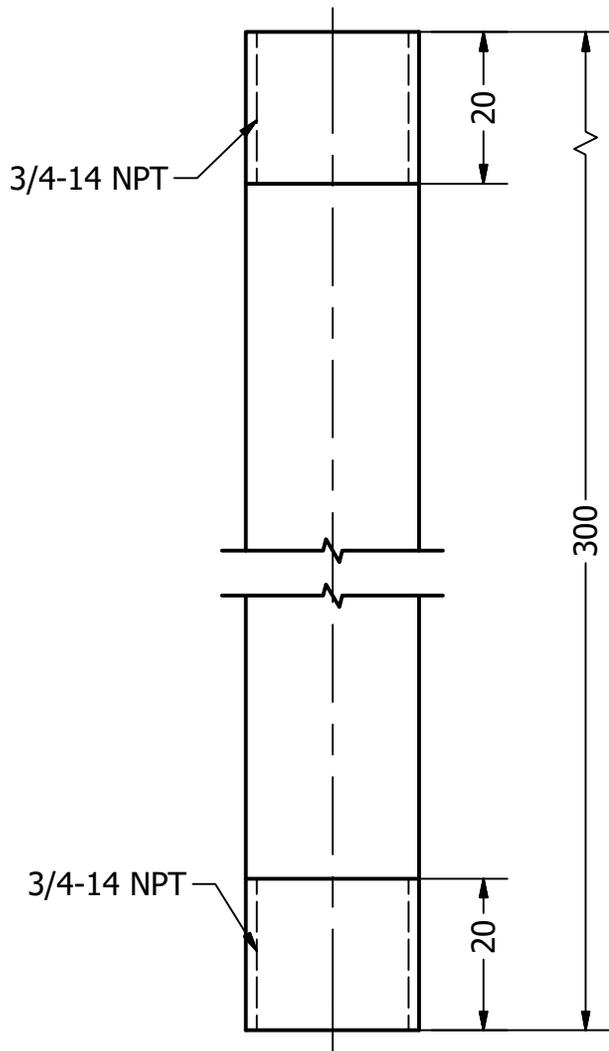
PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
insulated-storage-tank		3.0	ASSEMBLY		
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	oseg_zswh_insulated-storage-tank.iam	1.1	1
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
			1:10	27 /54	4/3/2021



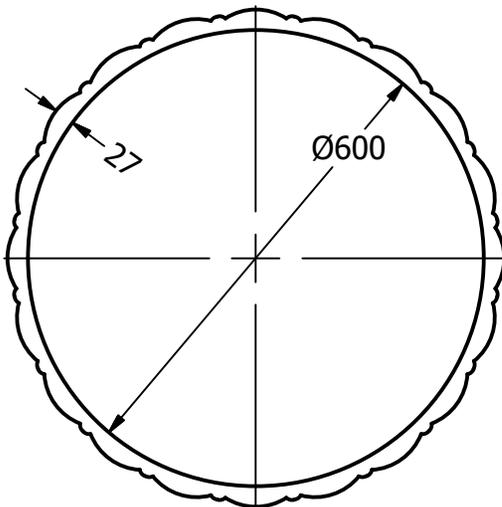
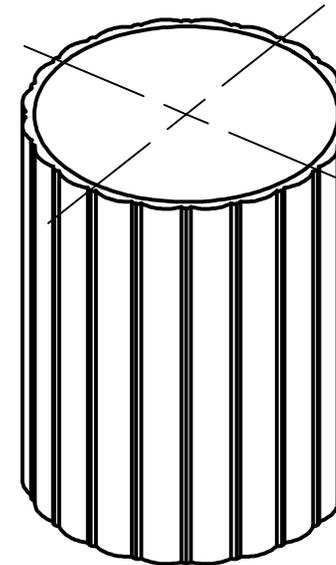
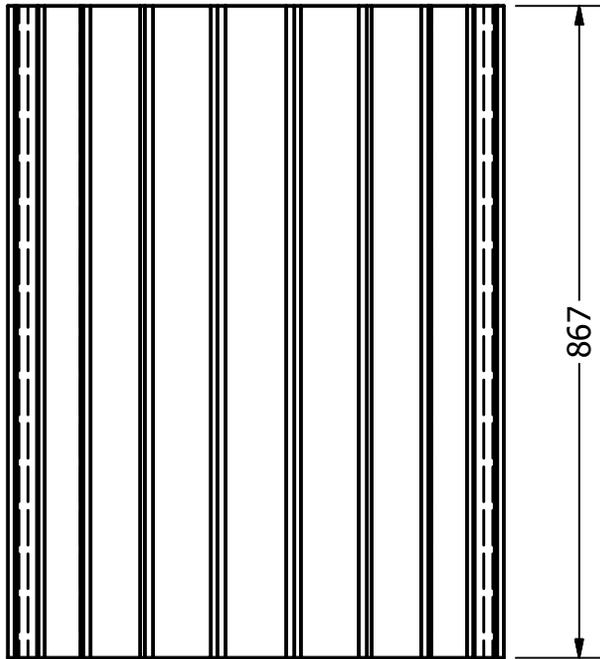
PROJECT		CREATED BY		APPROVED BY	
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA		D. JAEGER	
PART NAME		PART CODE		DOCUMENT TYPE	
Barril Estandar		3.1		PART	
DEVELOPED BY		REDESIGNED BY		LICENCE	
				CC-BY-SA	
WOT-UNIVERSITY OF TWENTE		OPEN SOURCE ECOLOGY GERMANY		FILE NAME	
				oseg_zswh_storage-tank.ipt	
				VERSION	
				1.1	
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				28 /54	
				DATE	
				4/3/2021	



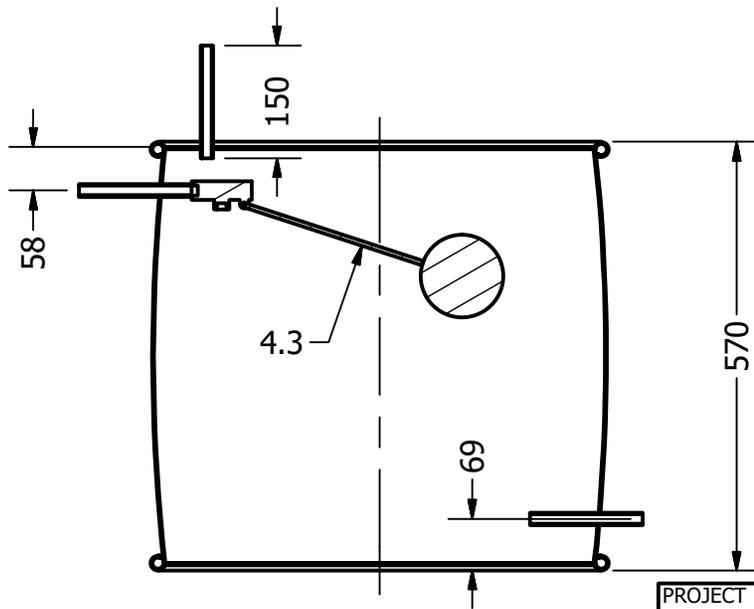
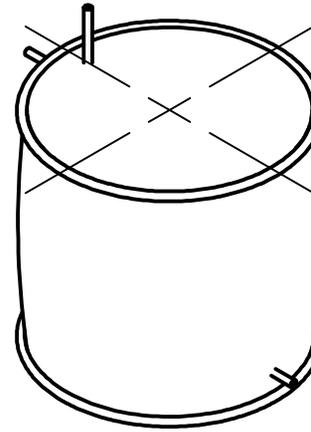
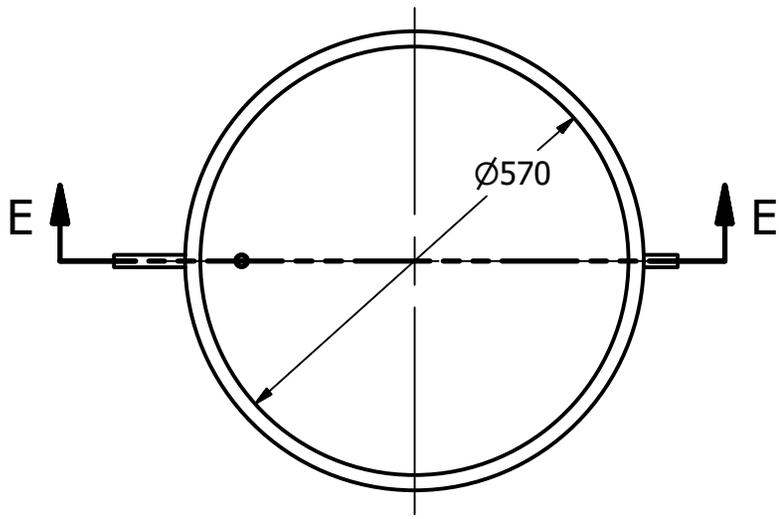
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ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
galvanised-pipe-1-2plgx150		3.2	PART	GALV. IRON	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
 WOT-UNIVERSITY OF TWENTE	 OPEN SOURCE ECOLOGY GERMANY	CC-BY-SA	oseg_zswh_galvanised-pipe-1-2plgx150.ipt	1.1	4
				SCALE	SHEET
			1:1	29 /54	4/3/2021



PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
galvanised-pipe-3-4plgx300		3.3	PART	GALV. IRON	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
 WOT-UNIVERSITY OF TWENTE	 OPEN SOURCE ECOLOGY GERMANY	CC-BY-SA	oseg_zswh_galvanised-pipe-3-4plgx300.ipt	1.1	1
				SCALE	SHEET
			1:1	30 /54	4/3/2021

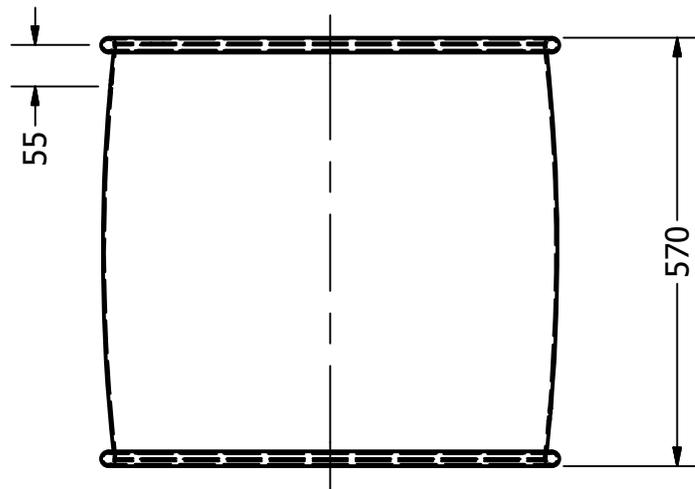
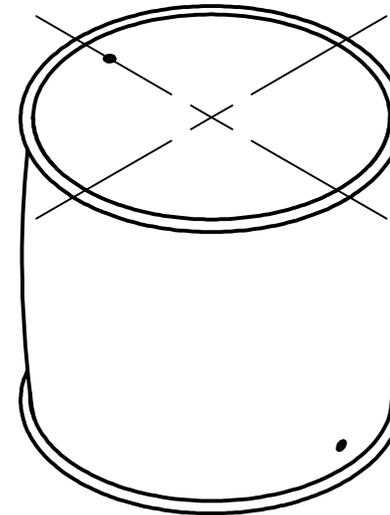
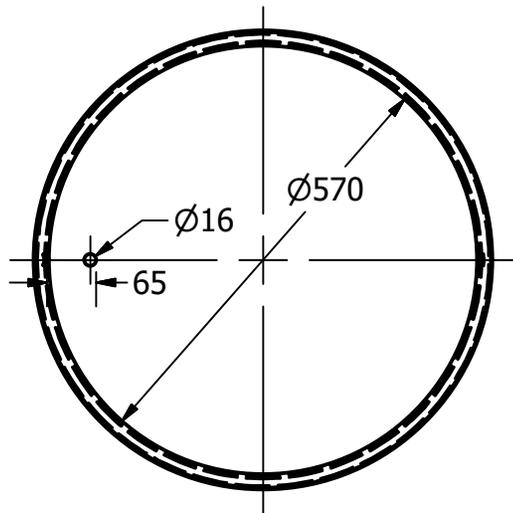


PROJECT		CREATED BY		APPROVED BY	
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA		D. JAEGER	
PART NAME		PART CODE		DOCUMENT TYPE	
insulating-material2		3.4		PART	
DEVELOPED BY		REDESIGNED BY		LICENCE	
 WOT-UNIVERSITY OF TWENTE		 OPEN SOURCE ECOLOGY GERMANY		CC-BY-SA	
		FILE NAME		VERSION	
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		SCALE		SHEET	
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				DATE	
				4/3/2021	
				SEE NOTES	

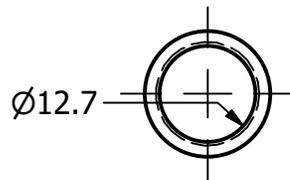
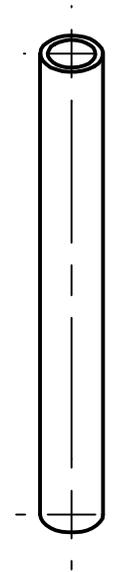
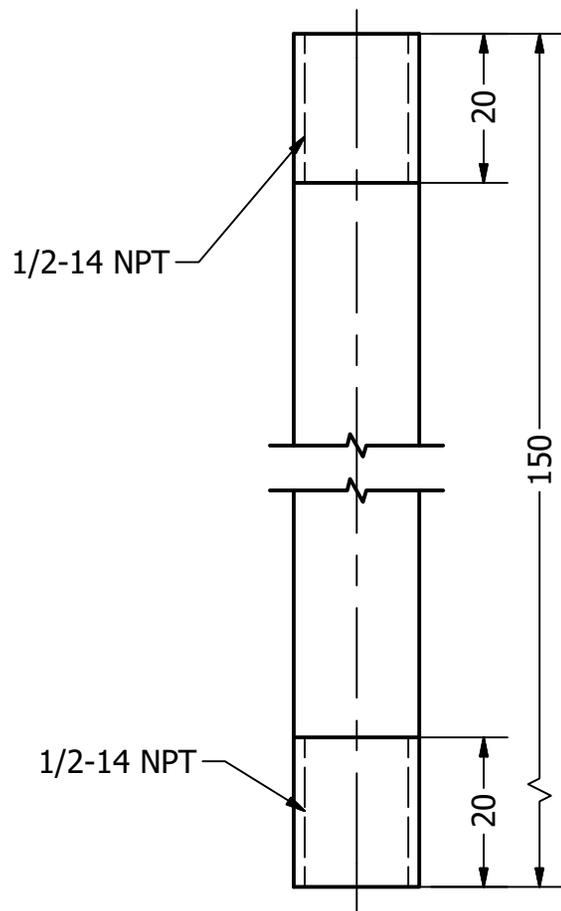


SECTION E-E

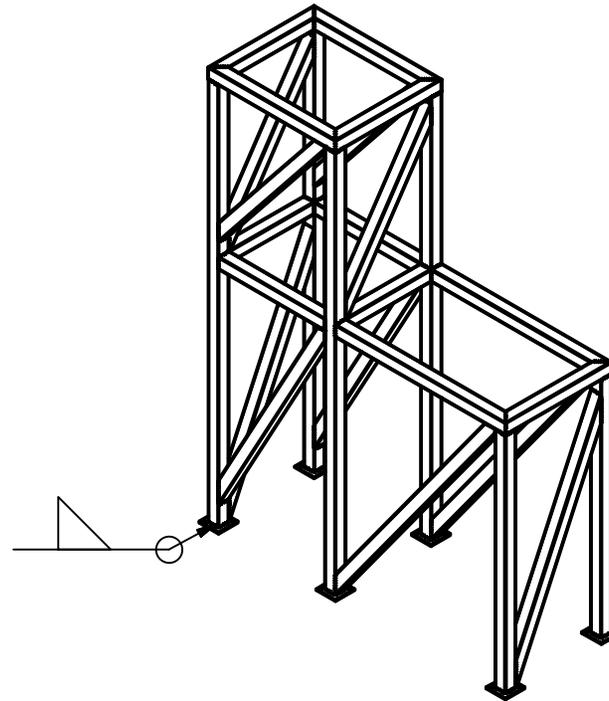
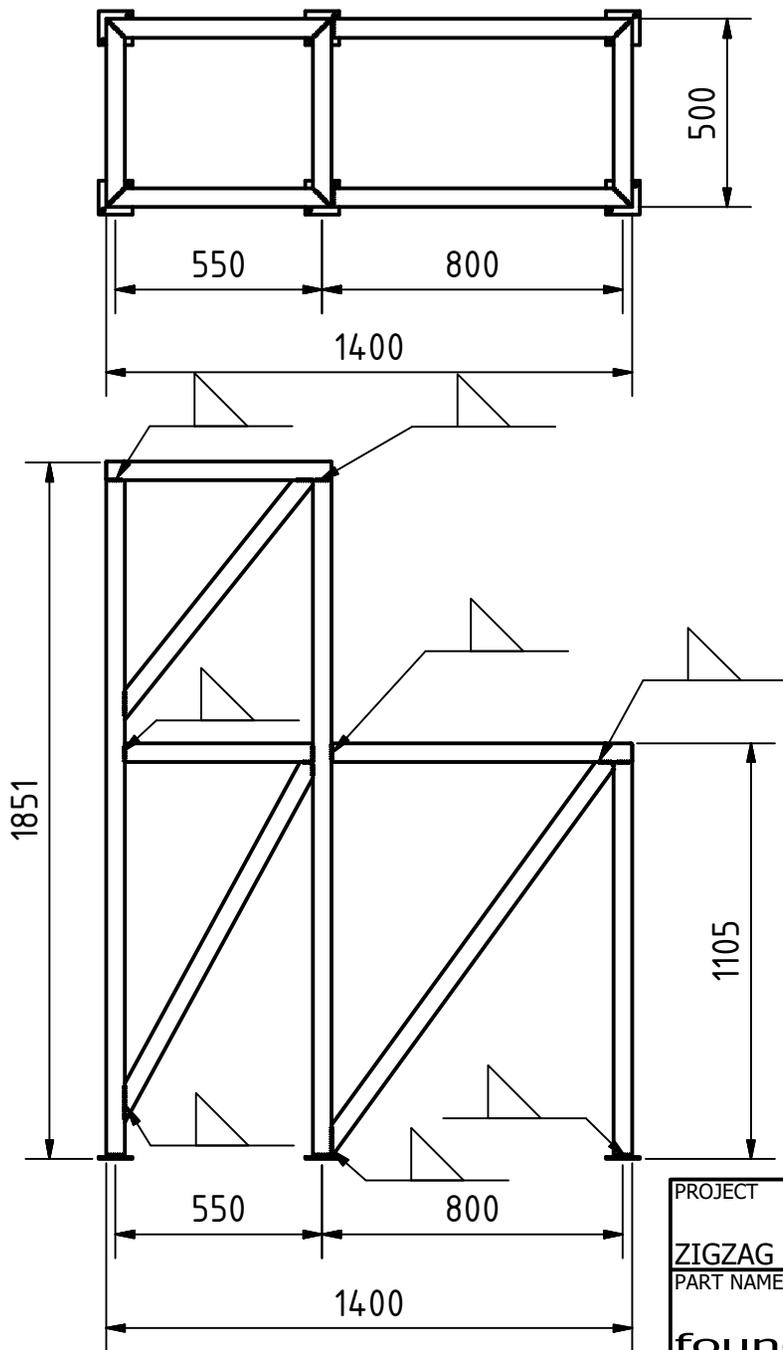
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ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
the-buffer-tank		4.0	ASSEMBLY		
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	oseg_zsw_h_the-buffer-tank.iam	1.1	1
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
			1:10	32 /54	4/3/2021



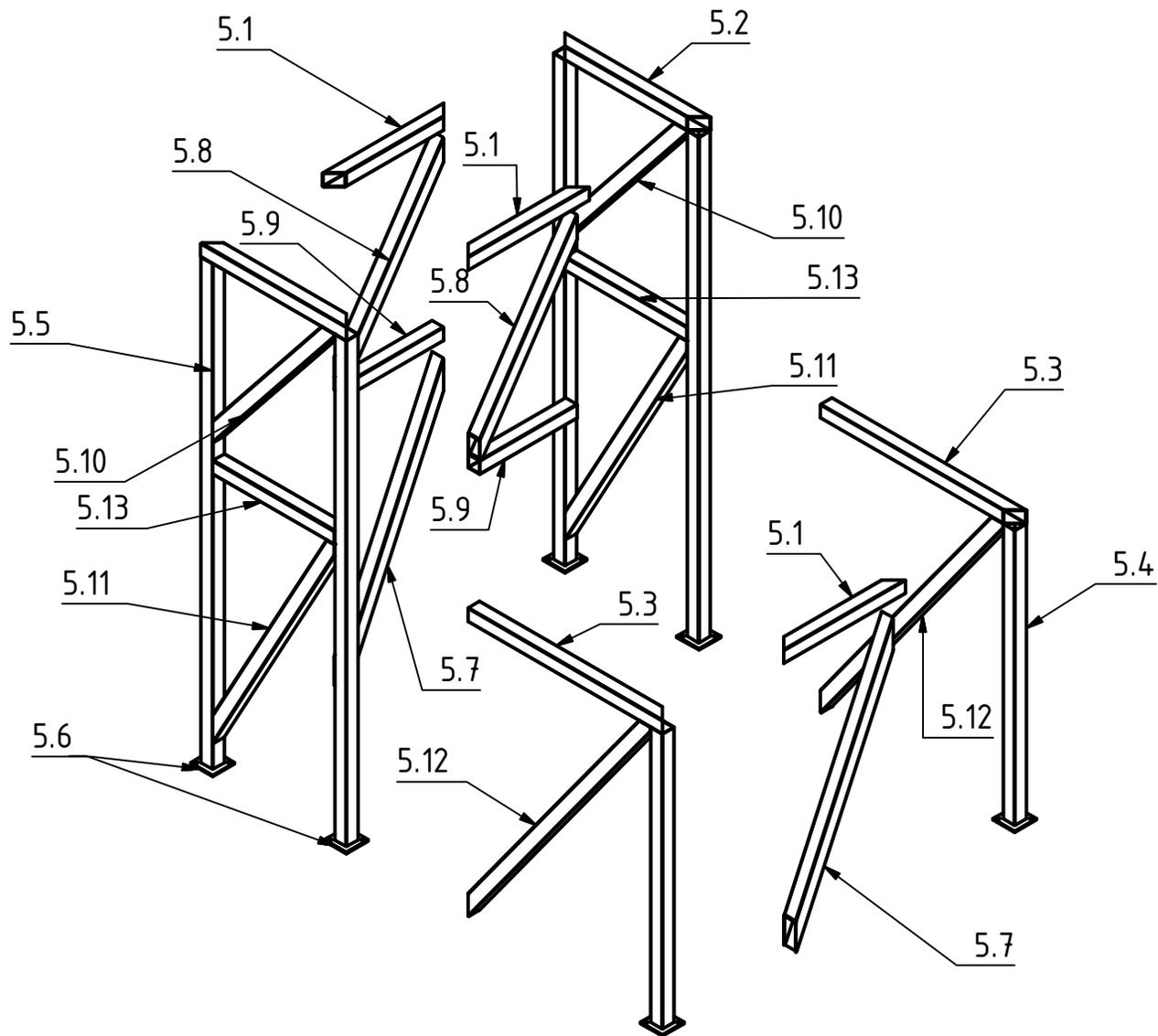
PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
buffer-tank		4.1	PART	ROLLED STEEL	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
 WOT-UNIVERSITY OF TWENTE	 OPEN SOURCE ECOLOGY GERMANY	CC-BY-SA	oseg_zswh_buffer-tank.ipt	1.1	1
				SCALE	SHEET
			1:10	33 /54	4/3/2021



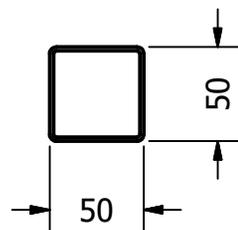
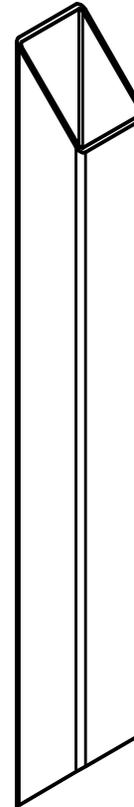
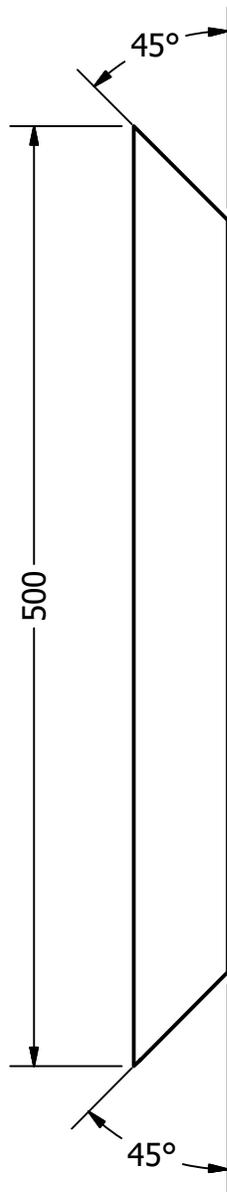
PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
galvanised-pipe-1-2plgx150		4.2	PART	GALV. IRON	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
 WOT-UNIVERSITY OF TWENTE	 OPEN SOURCE ECOLOGY GERMANY	CC-BY-SA	oseg_zsw_h_galvanised-pipe-1-2plgx150.ipt	1.1	4
				SCALE	SHEET
			1:1	34 /54	4/3/2021



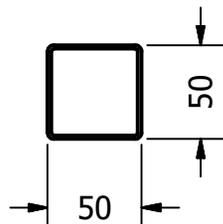
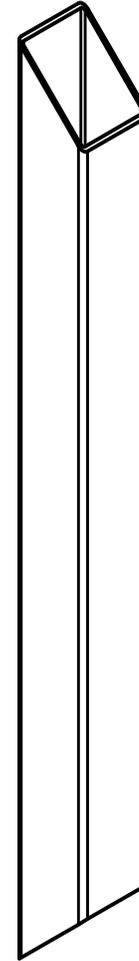
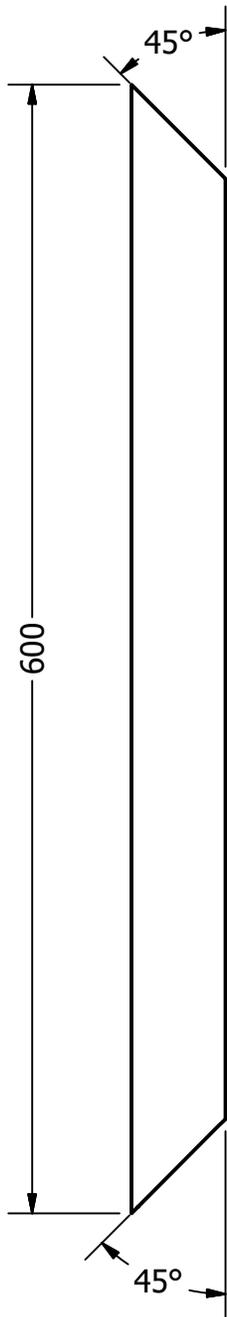
PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
foundation-structure1		5.0	ASSEMBLY	STEEL A36	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
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WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
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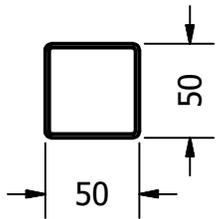
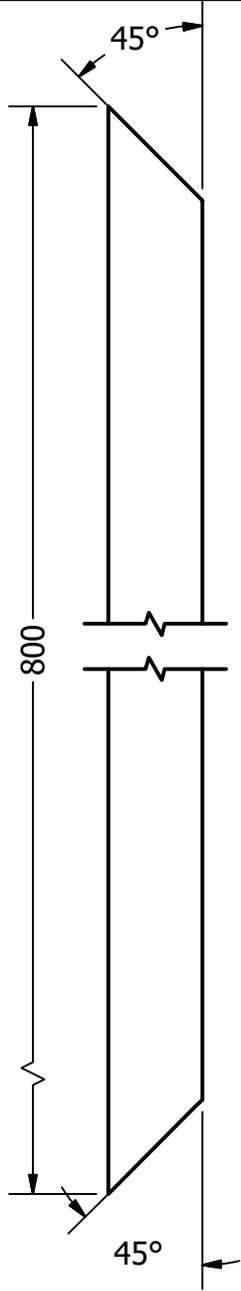
PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
foundation-structure1		5.0	ASSEMBLY	STEEL A36	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
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WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
			1:16	36 /54	4/3/2021



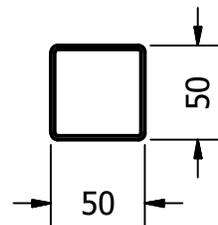
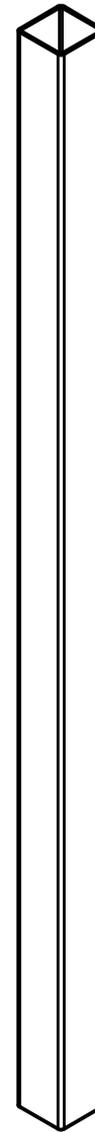
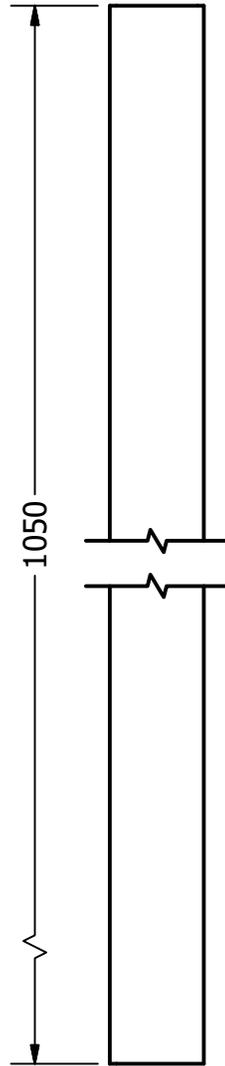
PROJECT		CREATED BY		APPROVED BY	
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA		D. JAEGER	
PART NAME		PART CODE		DOCUMENT TYPE	
Steel pipe 50*50*500		5.1		PART	
DEVELOPED BY		REDESIGNED BY		LICENCE	
 WOT-UNIVERSITY OF TWENTE		 OPEN SOURCE ECOLOGY GERMANY		CC-BY-SA	
		FILE NAME		VERSION	
		oseg_zsw_h_steel-pipe 50x50x500.ipt		1.1	
		SCALE		SHEET	
		1:4		37 /54	
				QUANTITY	
				4	
				DATE	
				4/3/2021	
				MATERIAL	
				STEEL A36	



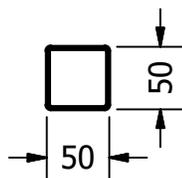
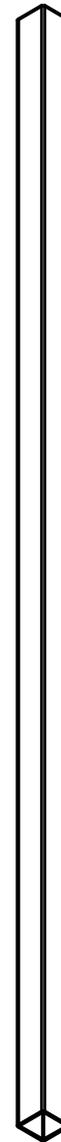
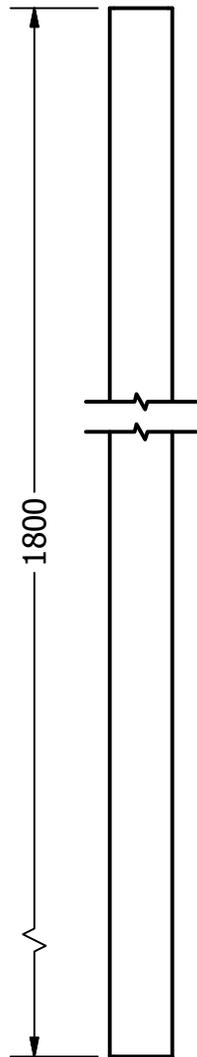
PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
steel-pipe 50*50*600		5.2	PART	STEEL A36	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	oseg_zsw_h_steel-pipe 50x50x600.ipt	1.1	4
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
			1:4	38 /54	4/3/2021



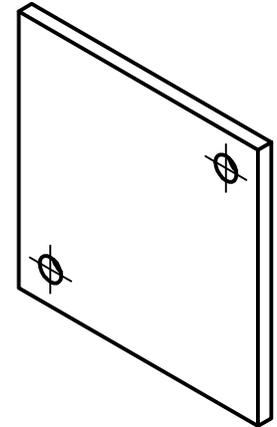
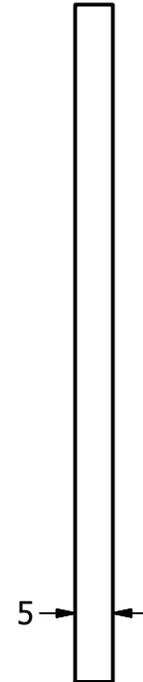
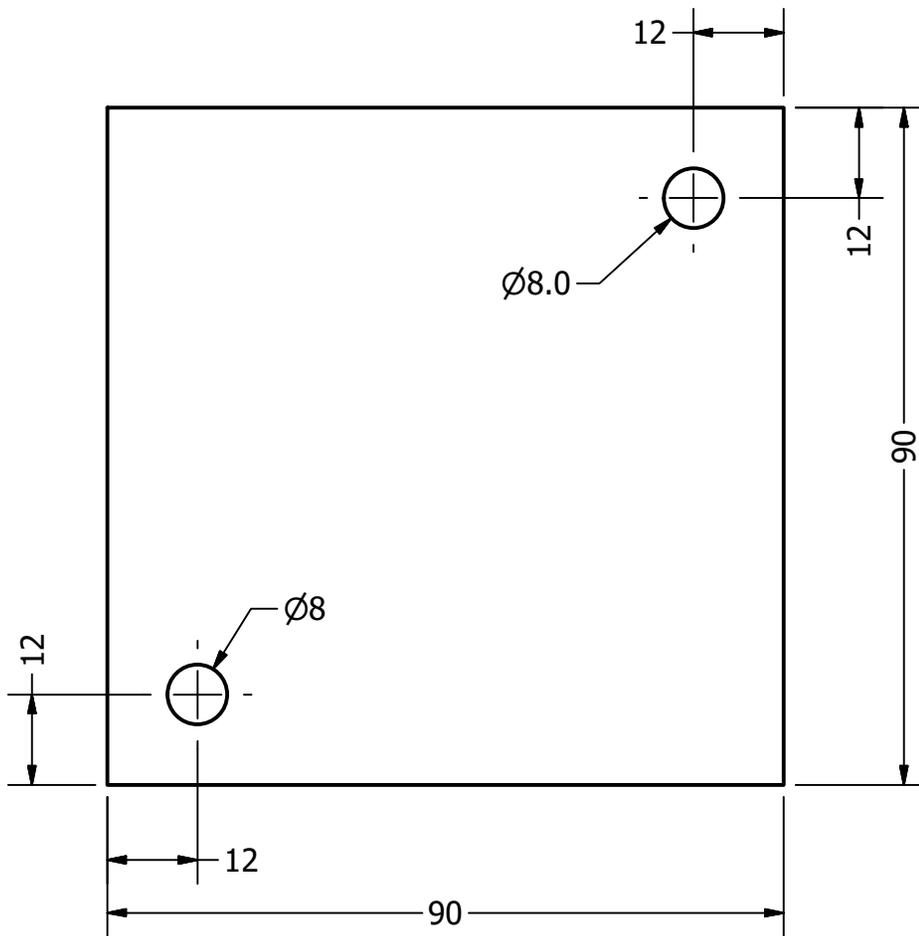
PROJECT		CREATED BY		APPROVED BY	
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA		D. JAEGER	
PART NAME		PART CODE	DOCUMENT TYPE		MATERIAL
steel-pipe 50*50*800		5.3	PART		STEEL A36
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME		VERSION
 WOT-UNIVERSITY OF TWENTE	 OPEN SOURCE ECOLOGY GERMANY	CC-BY-SA	oseg_zswh_steel-pipe 50x50x800.ipt		1.1
			SCALE	SHEET	QUANTITY
			1:4	39 /54	4
				DATE	4/3/2021



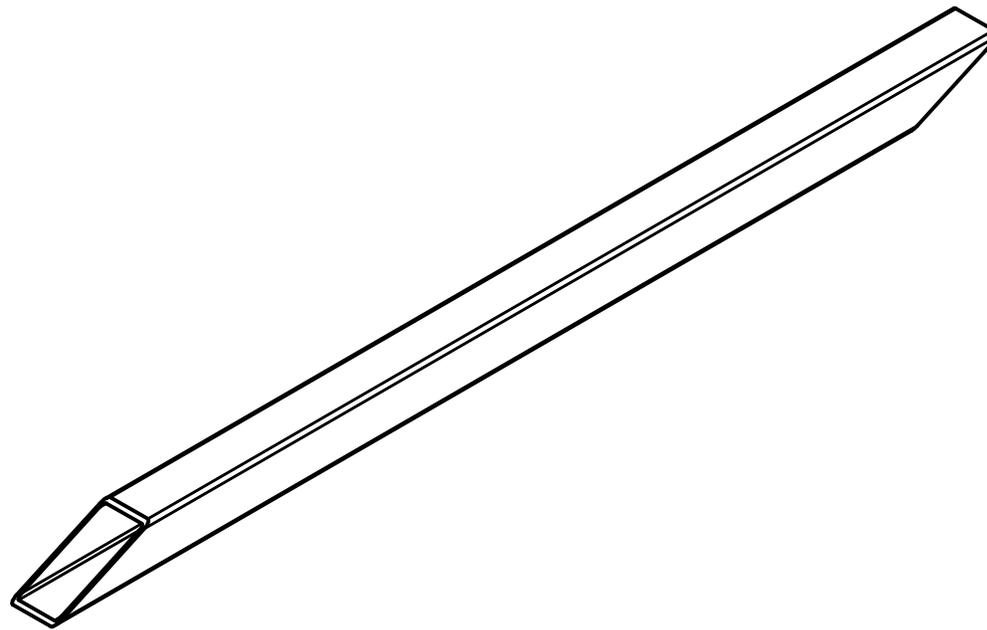
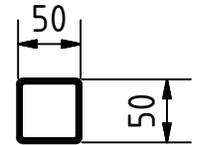
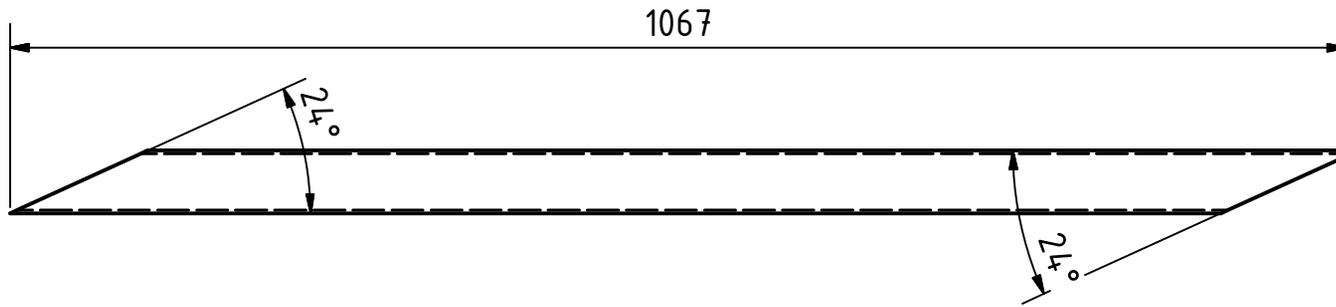
PROJECT		CREATED BY	APPROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
steel-pipe 50*50*1050		5.4	PART	STEEL A36	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	oseg_zswh_steel-pipe 50x50x1050.ipt	1.1	4
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
			1:4	40 /54	4/3/2021



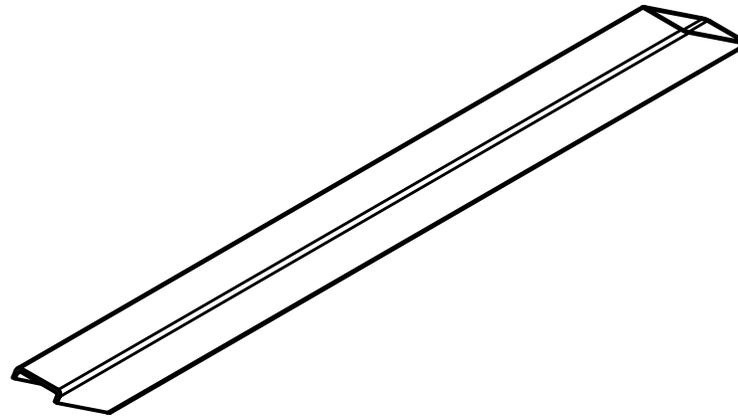
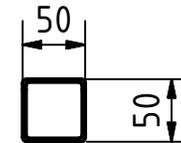
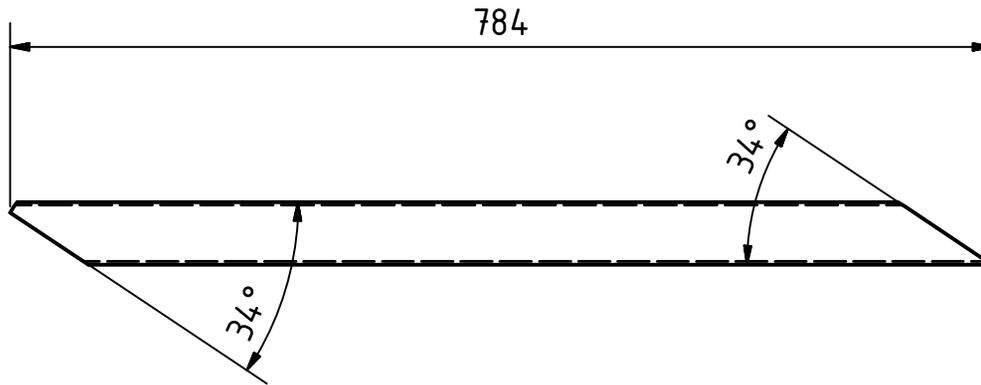
PROJECT		CREATED BY		APPROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA		D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE		MATERIAL	
steel-pipe 50*50*1800		5.5	PART		STEEL A36	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME		VERSION	QUANTITY
 WOT-UNIVERSITY OF TWENTE	 OPEN SOURCE ECOLOGY GERMANY	CC-BY-SA	oseg_zsw_h_steel-pipe 50x50x1800.ipt		1.1	4
			SCALE	SHEET	DATE	
			1:6	41 /54	4/3/2021	



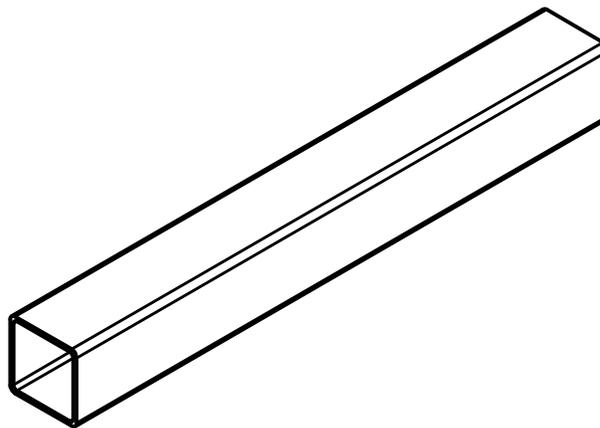
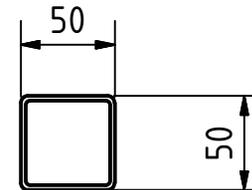
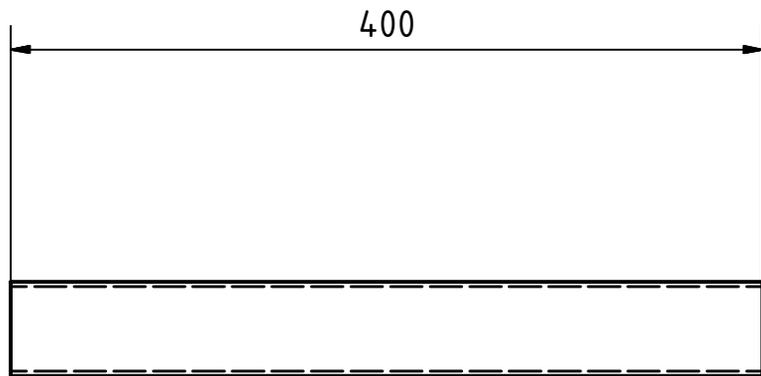
PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
rectangular-flancher		5.6	PART	STEEL C45	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	oseg_zswh_rectangular-flancher.ipt	1.1	4
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
			1:1	42 /54	4/3/2021



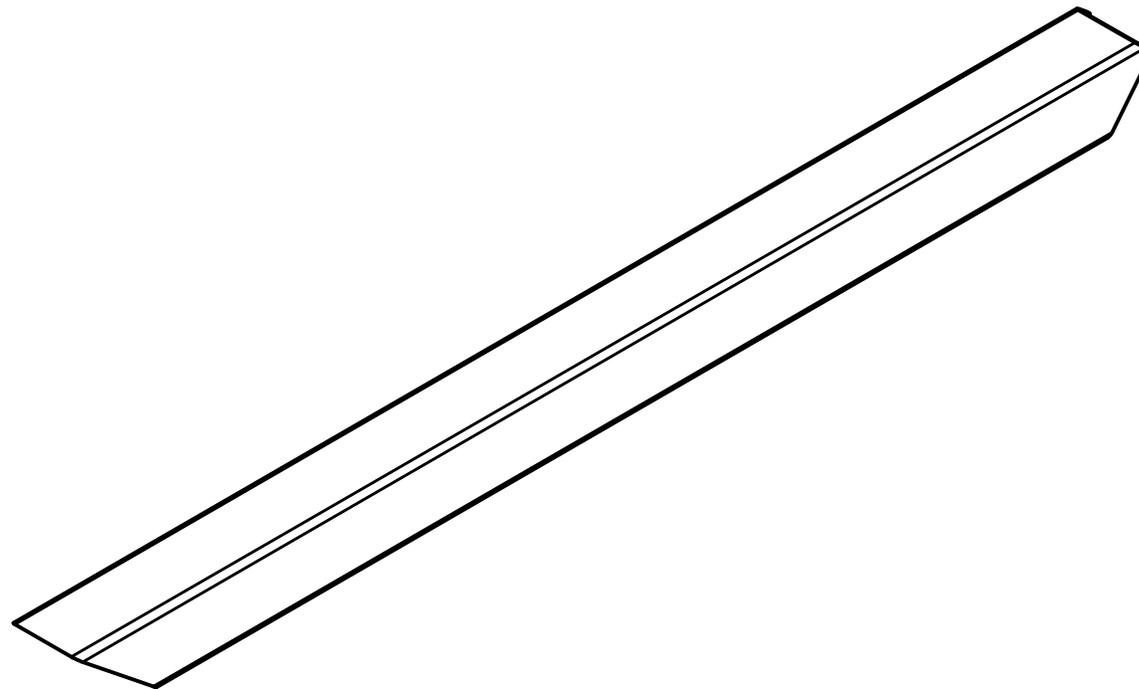
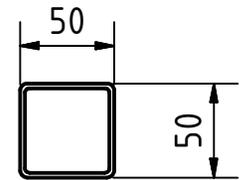
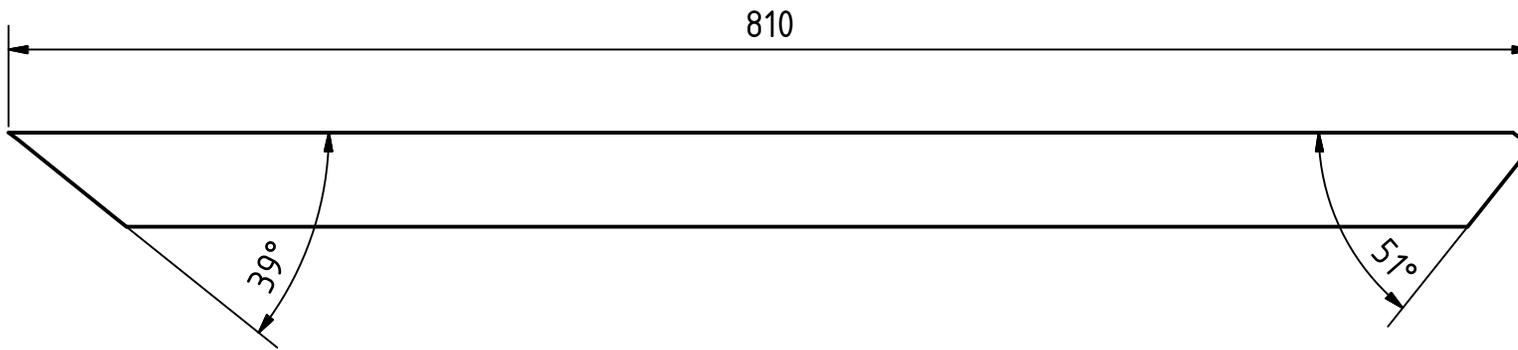
PROJECT		CREATED BY	APPROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
steel pipe 50 x 50 x 1067		5.7	PART	STEEL A36	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
 WOT-UNIVERSITY OF TWENTE	 OPEN SOURCE ECOLOGY GERMANY	CC-BY-SA	DIN (50 x 50 x 2.5) 00000020.ipt	1.1	2
				SCALE	SHEET
			1:6	43 /54	4/3/2021



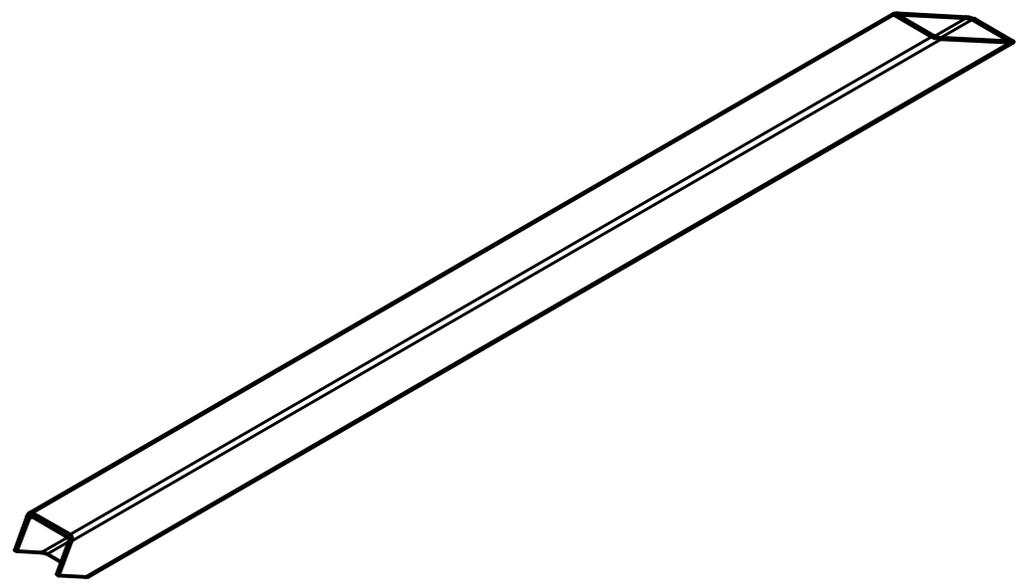
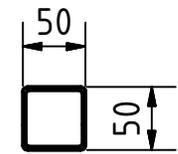
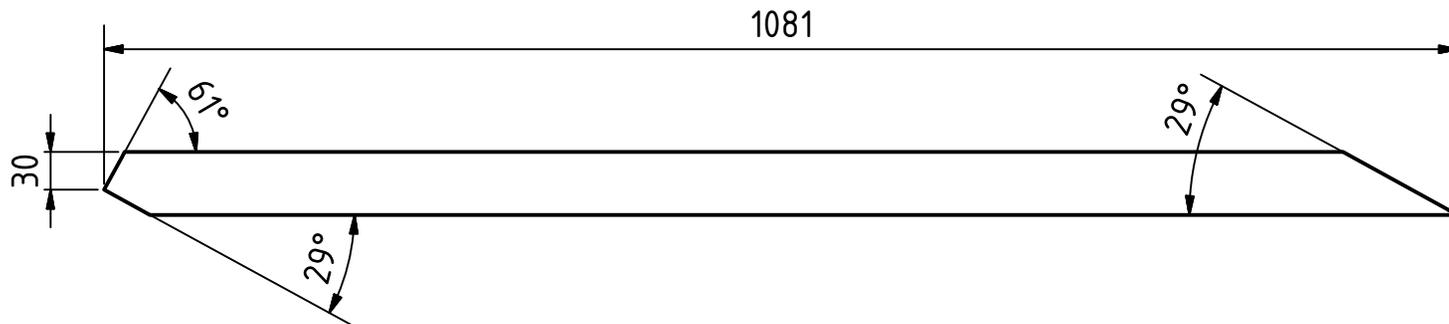
PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
steel pipe 50 x 50 x 784		5.8	PART	STEEL A36	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
 WOT-UNIVERSITY OF TWENTE	 OPEN SOURCE ECOLOGY GERMANY	CC-BY-SA	DIN (50 x 50 x 2.5) 00000028.ipt	1.1	2
				SCALE	SHEET
			1:6	44 /54	4/3/2021



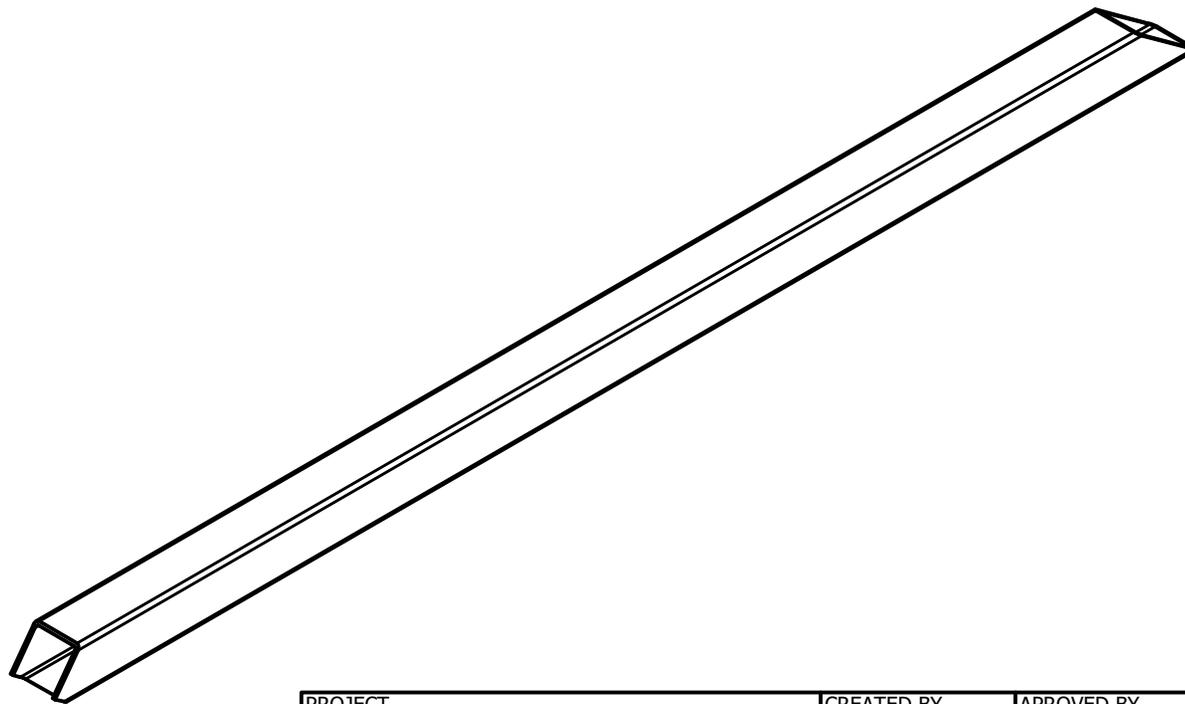
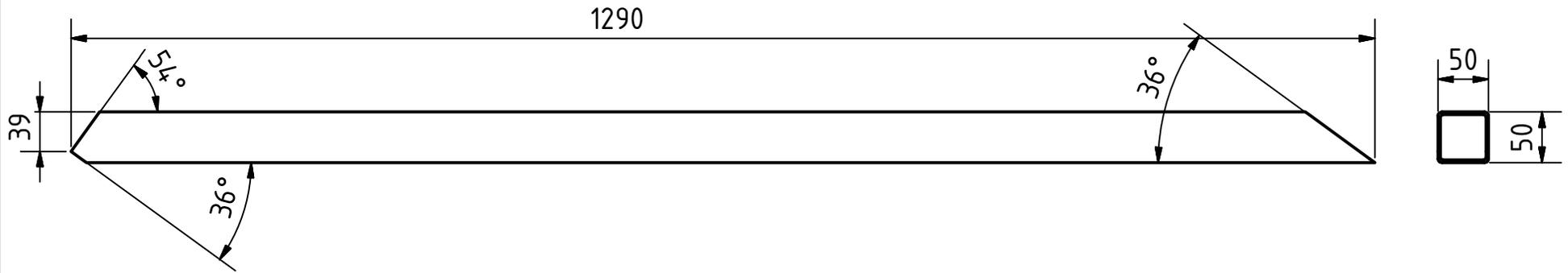
PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
steel pipe 50 x 50 x 400		5.9	PART	STEEL A36	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
 WOT-UNIVERSITY OF TWENTE	 OPEN SOURCE ECOLOGY GERMANY	CC-BY-SA	DIN (50 x 50 x 2.5) 00000022.ipt	1.1	2
				SCALE	SHEET
			1:4	45 /54	4/3/2021



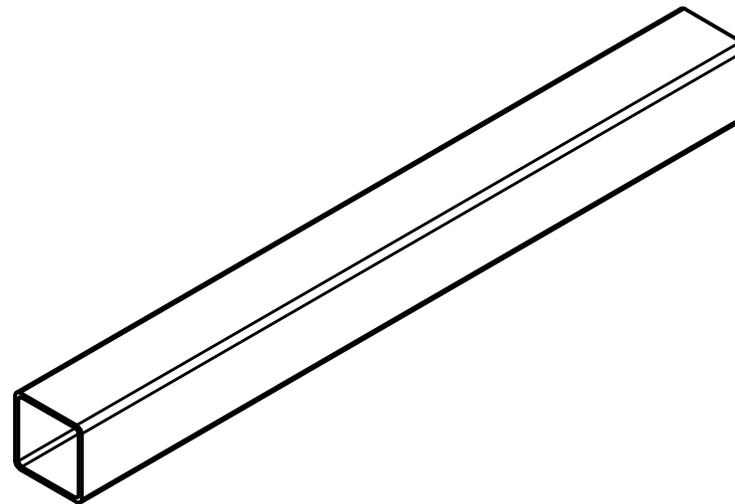
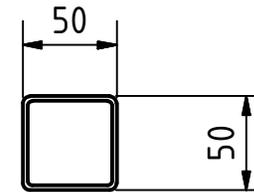
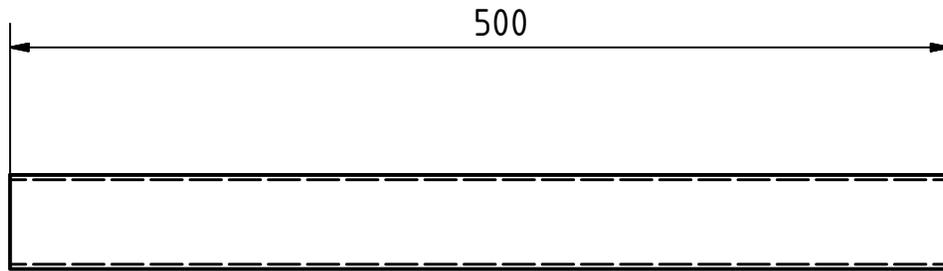
PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
steel pipe 50 x 50 x 810		5.10	PART	STEEL A36	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
 WOT-UNIVERSITY OF TWENTE	 OPEN SOURCE ECOLOGY GERMANY	CC-BY-SA	DIN (50 x 50 x 2.5) 00000025.ipt	1.1	2
				SCALE	SHEET
			1:4	46 /54	4/3/2021



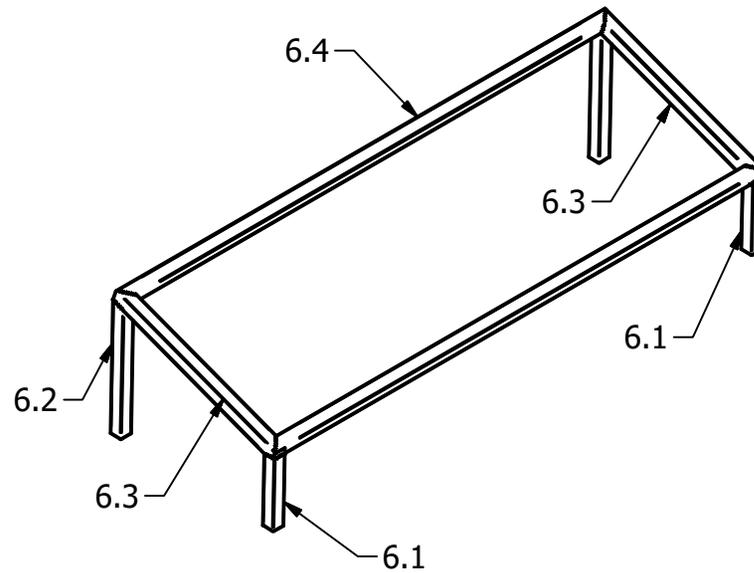
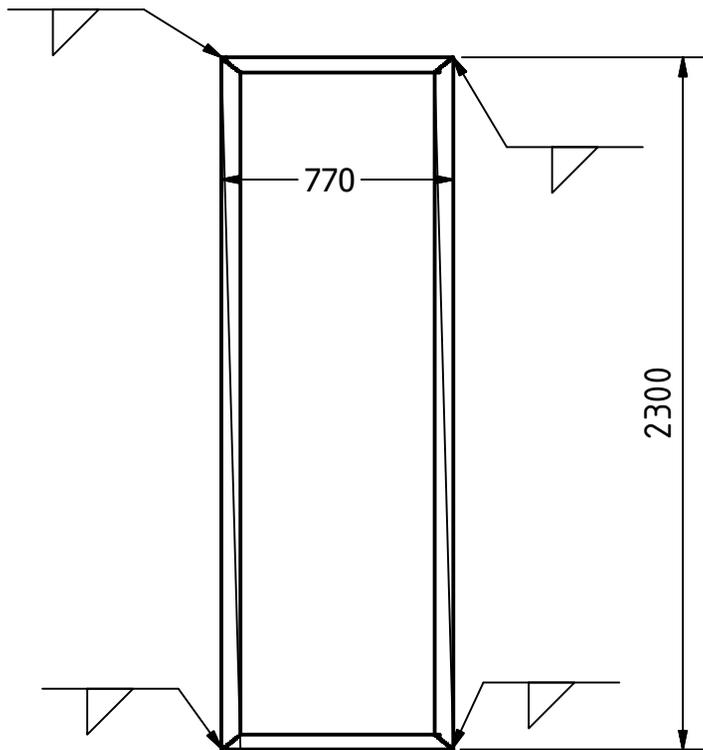
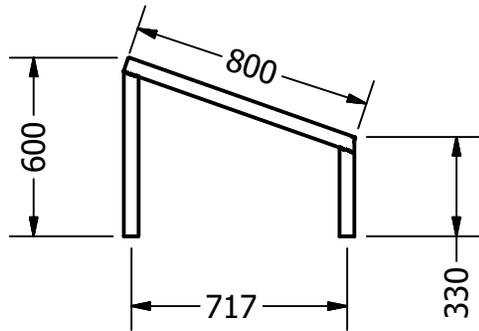
PROJECT		CREATED BY		APPROVED BY	
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA		D. JAEGER	
PART NAME		PART CODE	DOCUMENT TYPE		MATERIAL
steel pipe 50 x 50 x 1081		5.11	PART		STEEL A36
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME		VERSION
		CC-BY-SA	DIN (50 x 50 x 2.5) 00000019.ipt		1.1
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
			1:6	47 /54	4/3/2021



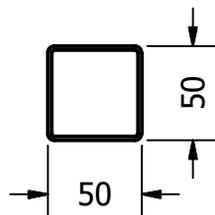
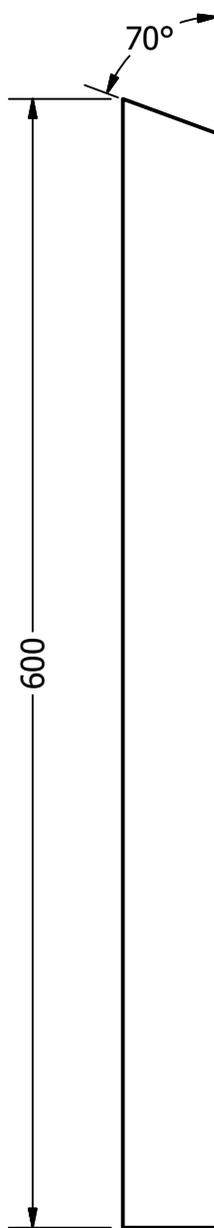
PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
steel pipe 50 x 50 x 2.5 - 1290		5.12	PART	STEEL A36	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	DIN (50 x 50 x 2.5) 00000016.ipt	1.1	2
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
			1:6	48 /54	4/3/2021



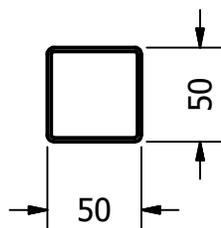
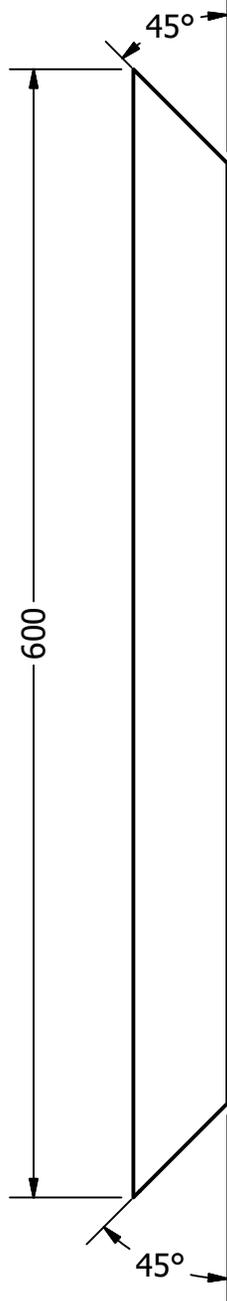
PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
steel pipe 50 x 50 x 500		5.13	PART	STEEL A36	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
 WOT-UNIVERSITY OF TWENTE	 OPEN SOURCE ECOLOGY GERMANY	CC-BY-SA	DIN (50 x 50 x 2.5) 00000023.ipt	1.1	2
				SCALE	SHEET
			1:4	49 /54	4/3/2021



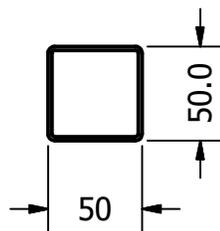
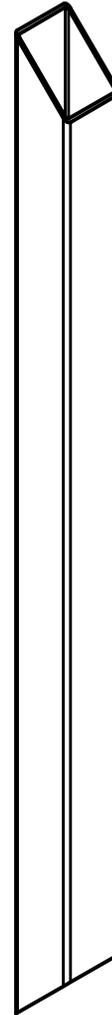
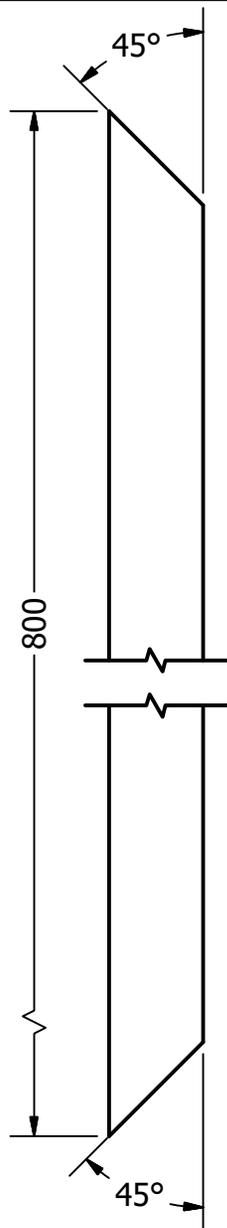
PROJECT		CREATED BY	APPROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
base-tank-colletor		6.0	ASSEMBLY	STEEL A36	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	oseg_zswh_base-colletor.ipt	1.1	1
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
			1:25	50 /54	4/3/2021



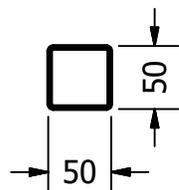
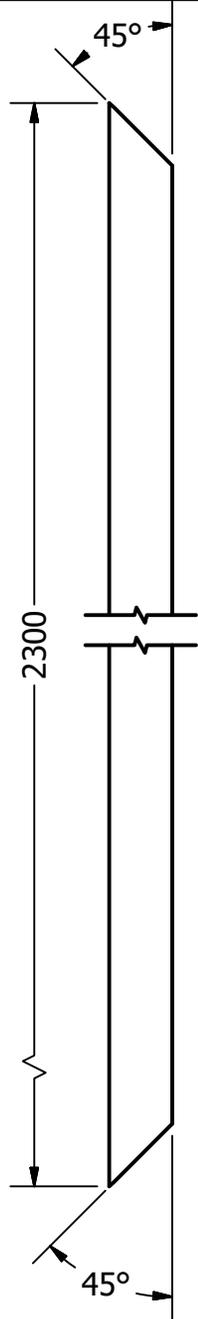
PROJECT		CREATED BY		APPROVED BY	
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA		D. JAEGER	
PART NAME		PART CODE		DOCUMENT TYPE	
steel-pipe 50x50x330		6.1		PART	
DEVELOPED BY		REDESIGNED BY		LICENCE	
 WOT-UNIVERSITY OF TWENTE		 OPEN SOURCE ECOLOGY GERMANY		CC-BY-SA	
		FILE NAME		VERSION	
		oseg_zsw_h_steel-pipe 50x50x330.ipt		1.1	
		SCALE		SHEET	
		1:4		51 /54	
				QUANTITY	
				4	
				DATE	
				4/3/2021	



PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
steel-pipe 50*50*600		6.2	PART	STEEL A36	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	oseg_zsw_h_steel-pipe 50x50x600.ipt	1.1	4
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
			1:4	52 /54	4/3/2021



PROJECT		CREATED BY	APROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
steel-pipe 50*50*800		6.3	PART	STEEL A36	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	oseg_zsw_h_steel-pipe 50x50x800.ipt	1.1	4
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
			1:4	53 /54	4/3/2021



PROJECT		CREATED BY	APPROVED BY		
ZIGZAG SOLAR WATER HEATER		D. MOSQUERA	D. JAEGER		
PART NAME		PART CODE	DOCUMENT TYPE	MATERIAL	
steel-pipe 50x50x2300		6.4	PART	STEEL A36	
DEVELOPED BY	REDESIGNED BY	LICENCE	FILE NAME	VERSION	QUANTITY
		CC-BY-SA	oseg_zswh_steel-pipe 50x50x2300.ipt	1.1	4
WOT-UNIVERSITY OF TWENTE			SCALE	SHEET	DATE
			1:6	54 /54	4/3/2021