



ÉCOLE
CENTRALE LYON

CAR #81

MISCELLANEOUS, FINISH & ASSEMBLY

University

Ecole Centrale de Lyon

System

Miscellaneous, Finish & Assembly

Assembly

Firewall

P/N Base

MS A0100

Suffix

AA

Details

The assembly of the Firewall

Back to BOM

Car #

81

Asm Cost

\$ 107,88

Qty

1

FileLink1

FileLink2

FileLink3

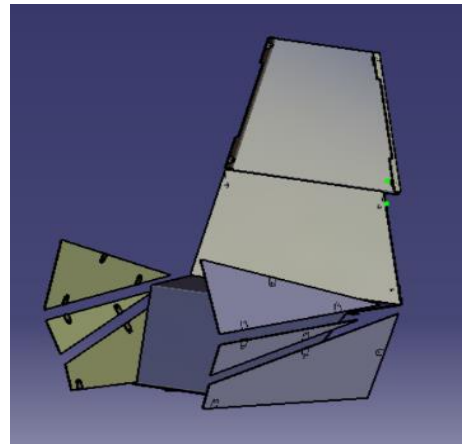
Extended Cost

\$ 107,88

ItemOrder	Part	Part Cost	Quantity	Sub Total
10	Firewall Up	\$ 8,03	1	\$ 8,03
20	Firewall Middle	\$ 6,47	1	\$ 6,47
30	Firewall Bottom	\$ 9,43	1	\$ 9,43
40	Firewall Upper Side	\$ 2,86	2	\$ 5,72
50	Firewall Middle Side	\$ 2,02	2	\$ 4,04
60	Firewall Lower Side	\$ 3,58	2	\$ 7,16
70	Firewall Up Bracket	\$ 0,62	4	\$ 2,47
80	Firewall Middle, Bottom and Sides Bracket	\$ 0,38	24	\$ 9,10
			Sub Total	\$ 52,41

ItemOrder	Material	Use	UnitCost	Size1	Unit1	Size2	Unit2	Area Name	Area	Length	Density	Quantity	Sub Total
10	Paint	Painting the Firewall Up Brackets	\$ 10,00	4,09E-03	m^2							4,09E-03	\$ 0,04
20	Paint	Painting the Firewall Middle, Bottom and Sides Brackets	\$ 10,00	0,0245	m^2							0,0245	\$ 0,25
30	Tape	Aluminum tape	\$ -	5,00	m							5	\$ -
												Sub Total	\$ 0,29

ItemOrder	Process	Use	UnitCost	Unit	Quantity	Multiplier	Mult. Val.	Sub Total
10	Weld	Welding the Firewall Up Brackets on the chassis	\$ 0,15	cm	16			\$ 2,40
20	Weld	Welding the Firewall Middle, Bottom and Sides Brackets on the chassis	\$ 0,15	cm	96			\$ 14,40
30	Aerosol Apply	Painting the Firewall Up Brackets	\$ 5,25	m^2	4,09E-03			\$ 0,02
40	Aerosol Apply	Painting the Firewall Middle, Bottom and Sides Brackets	\$ 5,25	m^2	0,0245			\$ 0,13
50	Assemble, 1 kg, Loose	Positioning the Firewall Middle Plate on the Brackets	\$ 0,06	unit	1			\$ 0,06
60	Ratchet <= 6.35 mm	Fixing the Firewall Middle Plate to the Brackets	\$ 0,50	unit	4			\$ 2,00
70	Reaction Tool <= 25.4 mm	Fixing the Firewall Middle Plate to the Brackets	\$ 0,25	unit	4			\$ 1,00
80	Assemble, 1 kg, Loose	Positioning the Firewall Upper Plate on the Brackets	\$ 0,06	unit	1			\$ 0,06
90	Ratchet <= 6.35 mm	Fixing the Firewall Upper Plate to the Brackets	\$ 0,50	unit	4			\$ 2,00
100	Reaction Tool <= 25.4 mm	Fixing the Firewall Upper Plate to the Brackets	\$ 0,25	unit	4			\$ 1,00
110	Assemble, 3 kg, Loose	Positioning the Firewall Bottom Plate on the Brackets	\$ 0,19	unit	1			\$ 0,19
120	Ratchet <= 6.35 mm	Fixing the Firewall Bottom Plate to the Brackets	\$ 0,50	unit	4			\$ 2,00
130	Reaction Tool <= 25.4 mm	Fixing the Firewall Bottom Plate to the Brackets	\$ 0,25	unit	4			\$ 1,00
140	Assemble, 1 kg, Loose	Positioning the Firewall Upper left Side Plate on the Brackets	\$ 0,06	unit	1			\$ 0,06
150	Ratchet <= 6.35 mm	Fixing the Firewall Upper left Side Plate to the Brackets	\$ 0,50	unit	3			\$ 1,50
160	Reaction Tool <= 25.4 mm	Fixing the Firewall Upper left Side Plate to the Brackets	\$ 0,25	unit	3			\$ 0,75
170	Assemble, 1 kg, Loose	Positioning the Firewall Middle left Side Plate on the Brackets	\$ 0,06	unit	1			\$ 0,06
180	Ratchet <= 6.35 mm	Fixing the Firewall Middle left Side Plate to the Brackets	\$ 0,50	unit	2			\$ 1,00
190	Reaction Tool <= 25.4 mm	Fixing the Firewall Middle left Side Plate to the Brackets	\$ 0,25	unit	2			\$ 0,50
200	Assemble, 1 kg, Loose	Positioning the Firewall Lower left Side Plate on the Brackets	\$ 0,06	unit	1			\$ 0,06
210	Ratchet <= 6.35 mm	Fixing the Firewall Lower left Side Plate to the Brackets	\$ 0,50	unit	3			\$ 1,50
220	Reaction Tool <= 25.4 mm	Fixing the Firewall Lower left Side Plate to the Brackets	\$ 0,25	unit	3			\$ 0,75
230	Assemble, 1 kg, Loose	Positioning the Firewall Upper right Side Plate on the Brackets	\$ 0,06	unit	1			\$ 0,06
240	Ratchet <= 6.35 mm	Fixing the Firewall Upper right Side Plate to the Brackets	\$ 0,50	unit	3			\$ 1,50
250	Reaction Tool <= 25.4 mm	Fixing the Firewall Upper right Side Plate to the Brackets	\$ 0,25	unit	3			\$ 0,75
260	Assemble, 1 kg, Loose	Positioning the Firewall Middle right Side Plate on the Brackets	\$ 0,06	unit	1			\$ 0,06
270	Ratchet <= 6.35 mm	Fixing the Firewall Middle right Side Plate to the Brackets	\$ 0,50	unit	2			\$ 1,00
280	Reaction Tool <= 25.4 mm	Fixing the Firewall Middle right Side Plate to the Brackets	\$ 0,25	unit	2			\$ 0,50
290	Assemble, 1 kg, Loose	Positioning the Firewall Lower right Side Plate on the Brackets	\$ 0,06	unit	1			\$ 0,06
300	Ratchet <= 6.35 mm	Fixing the Firewall Lower right Side Plate to the Brackets	\$ 0,50	unit	3			\$ 1,50
310	Reaction Tool <= 25.4 mm	Fixing the Firewall Lower right Side Plate to the Brackets	\$ 0,25	unit	3			\$ 0,75
320	Tape	Sealing with aluminium tape	\$ 0,80	m	5			\$ 4,00
							Sub Total	\$ 42,62



ItemOrder	Fastener	Use	UnitCost	Size1	Unit1	Size2	Unit2	Quantity	Sub Total
10	Bolt, Grade 8.8 (SAE 5)	Fixing the Plates to the Brackets	\$ 0,07	6	mm	30	mm	28	\$ 1,83
20	Washer, Grade 8.8 (SAE 5)	Fixing the Plates to the Brackets	\$ 0,01					56	\$ 0,56
30	Nut, Grade 8.8 (SAE 5)	Fixing the Plates to the Brackets	\$ 0,03	6	mm			28	\$ 0,84
								Sub Total	\$ 3,23

ItemOrder	Tooling	Use	UnitCost	Unit	Quantity	PVF	FractionIncluded	Sub Total
10	Welds - Welding Fixture	Mounts welded to the chassis	\$ 500,00	point	56	3000	1	\$ 9,33
Sub Total								\$ 9,33

University

Ecole Centrale de Lyon

System

Miscellaneous, Finish & Assembly

Assembly

Firewall

Part

Firewall Up

P/N Base

MS 01001

Suffix

AA

Details

Upper plate

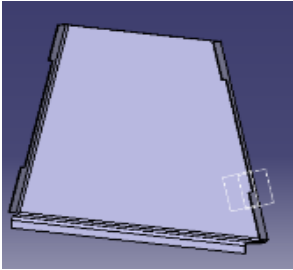
FileLink1

Drawing

FileLink2

FileLink3

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Car #

81

FileLink1

FileLink2

FileLink3

Part Cost

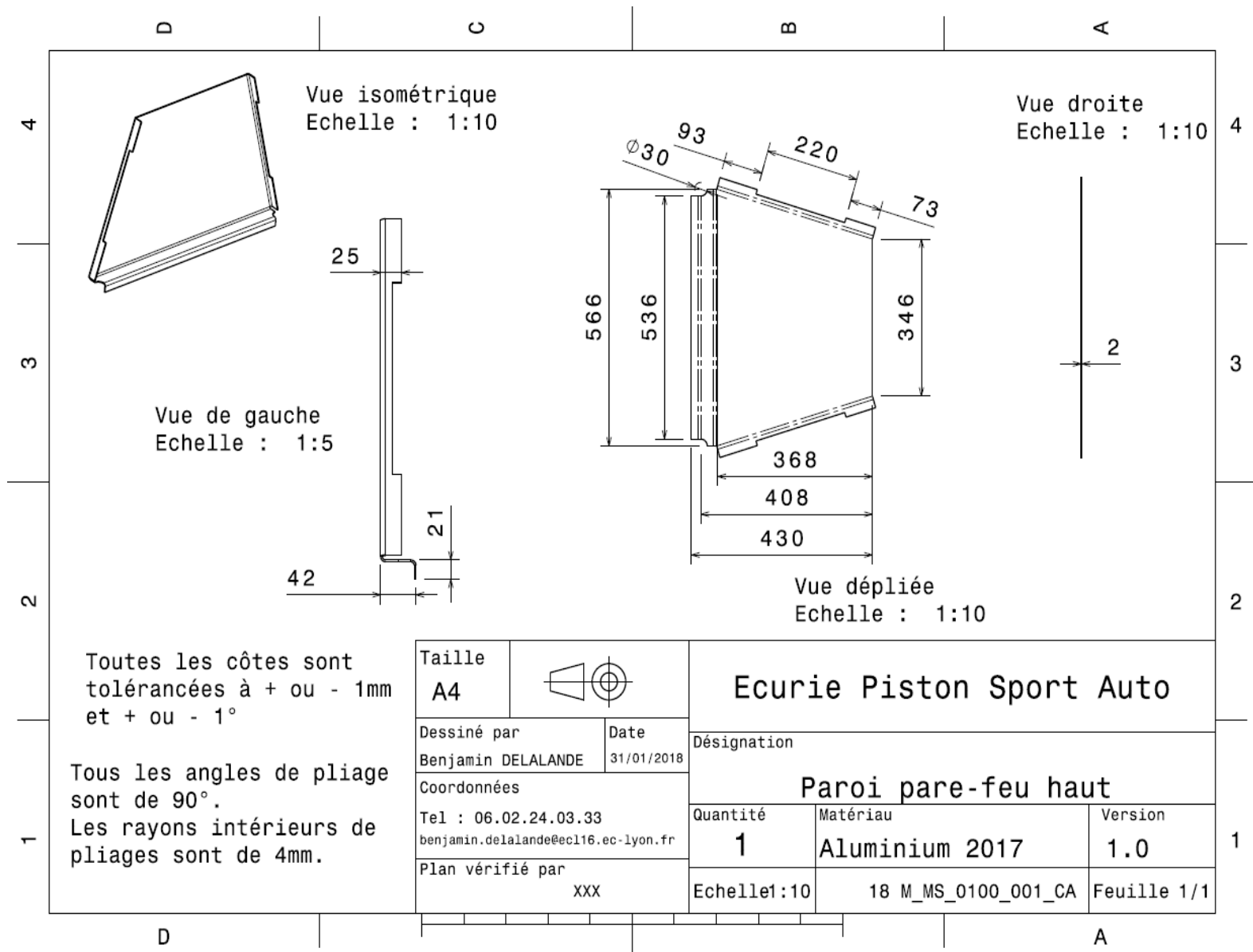
\$ 8,03

Qty

1

Extended Cost

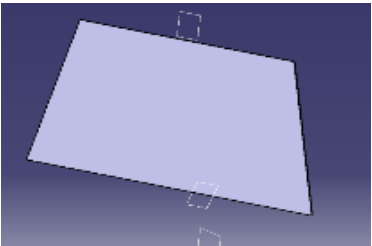
\$ 8,03



University	Ecole Centrale de Lyon
System	Miscellaneous, Finish & Assembly
Assembly	Firewall
Part	Firewall Middle
P/N Base	MS 01002
Suffix	AA
Details	Middle plate

FileLink1	Drawing
FileLink2	
FileLink3	

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Car #	81
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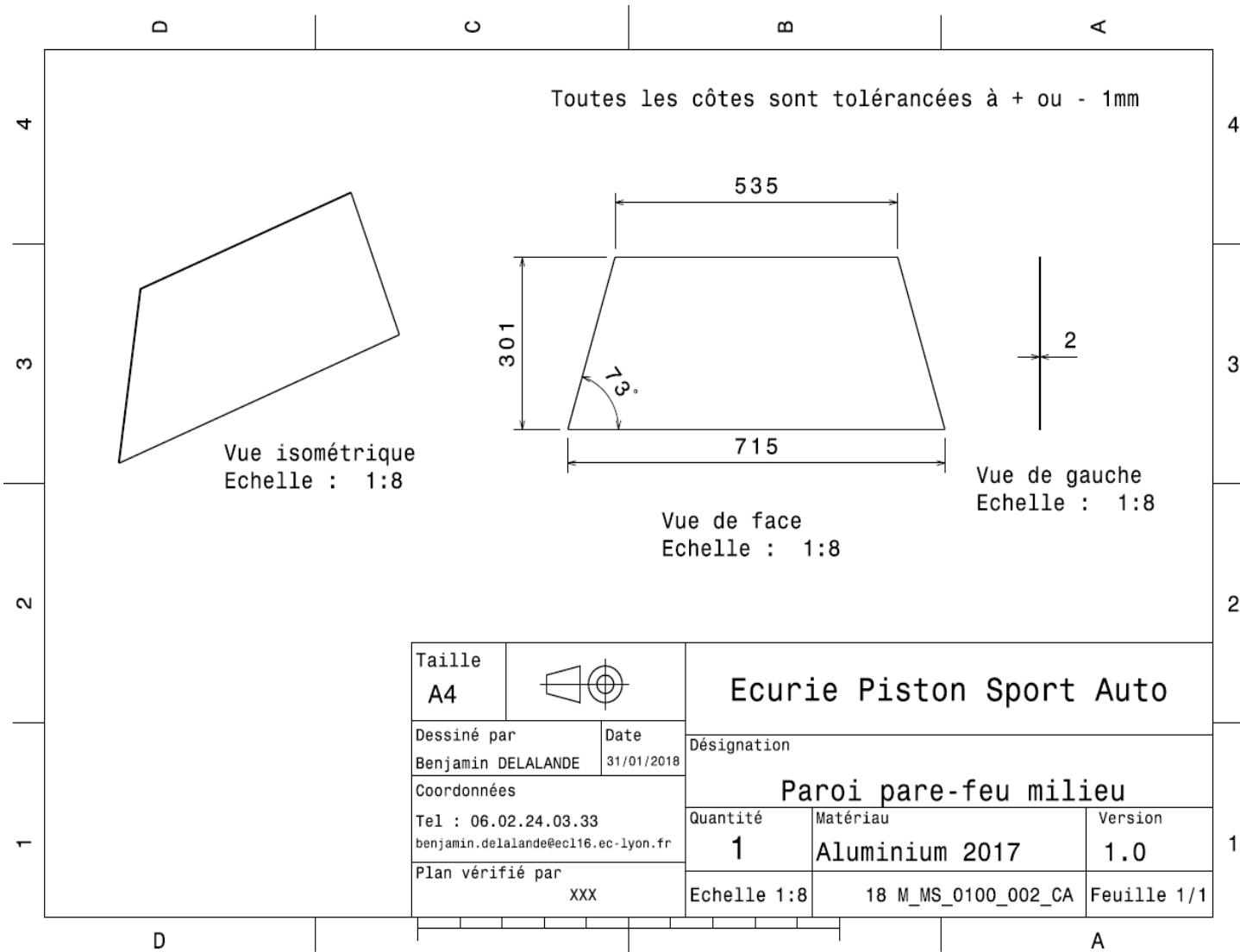
Part Cost	\$ 6,47
Qty	1

FileLink1
FileLink2
FileLink3

Extended Cost	\$ 6,47
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ItemOrder	Material	Use	UnitCost	Size1	Unit1	Size2	Unit2	Area Name	Area	Length	Density	Quantity	Sub Total
10	Aluminum, Normal (per kg)		\$ 4,20	0,767	kg			Frontal area	0,1885	1,50E-03	2712	1	\$ 3,22
												Sub Total	\$ 3,22

ItemOrder	Process	Use	UnitCost	Unit	Quantity	Multiplier	Mult. Val.	Sub Total
10	Machining Setup, Install and remove		\$ 1,30	unit	1			\$ 1,30
20	Laser Cut		\$ 0,01	cm	194,74	Material - Aluminum	1	\$ 1,95
							Sub Total	\$ 3,25



University

Ecole Centrale de Lyon

System

Miscellaneous, Finish & Assembly

Assembly

Firewall

Part

Firewall Bottom

P/N Base

MS 01003

Suffix

AA

Details

Lower plate

FileLink1

Drawing

FileLink2

FileLink3

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Car #

81

FileLink1

FileLink2

FileLink3

Part Cost

\$ 9,43

Qty

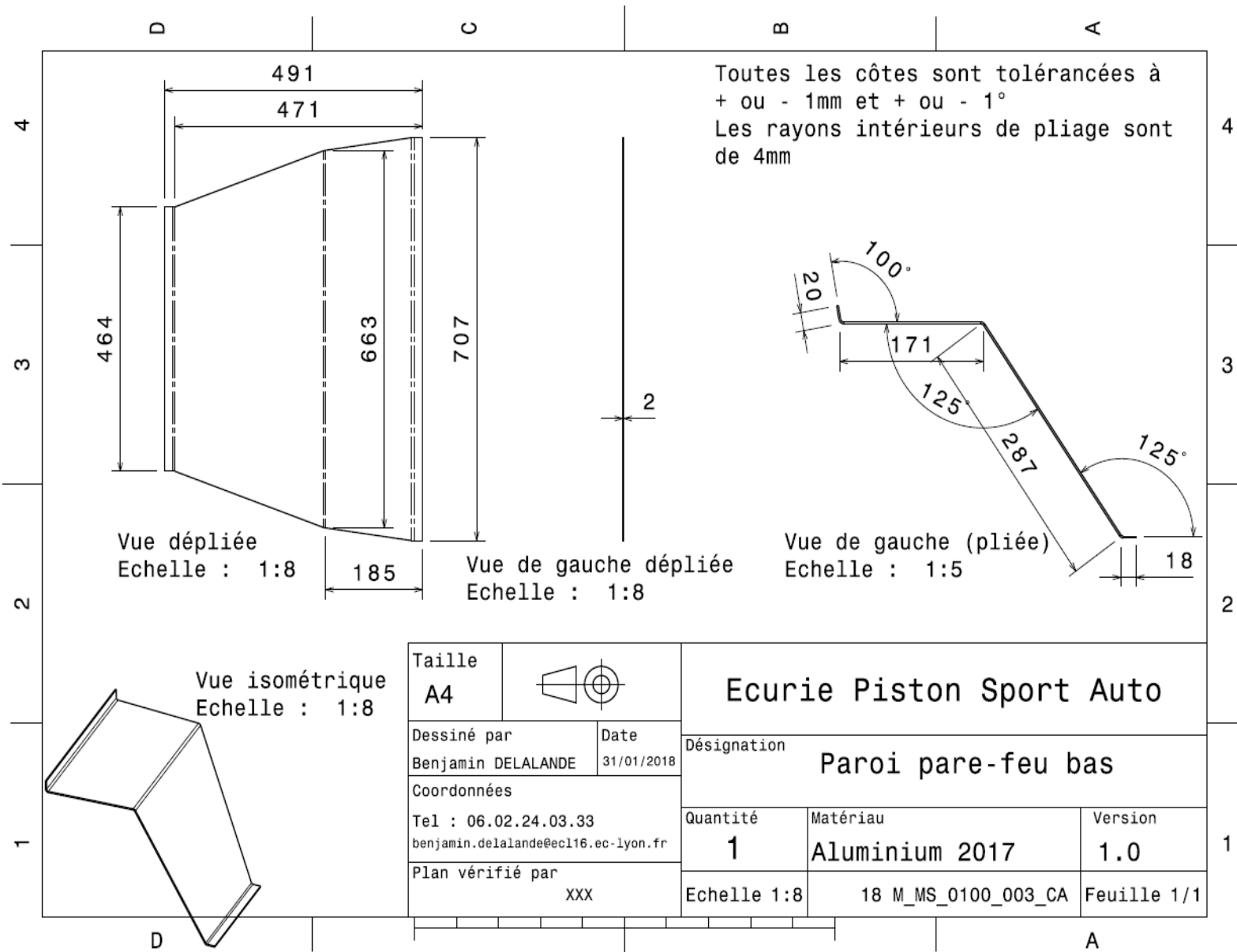
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Extended Cost

\$ 9,43

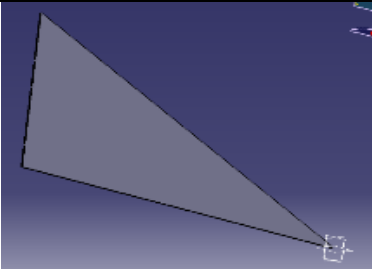
ItemOrder	Material	Use	UnitCost	Size1	Unit1	Size2	Unit2	Area Name	Area	Length	Density	Quantity	Sub Total
10	Aluminum, Normal (per kg)		\$ 4,20	1,219	kg			Frontal area	0,2997	1,50E-03	2712	1	\$ 5,12
												Sub Total	\$ 5,12

ItemOrder	Process	Use	UnitCost	Unit	Quantity	Multiplier	Mult. Val.	Sub Total
10	Machining Setup, Install and remove		\$ 1,30	unit	1			\$ 1,30
20	Laser Cut		\$ 0,01	cm	226,34	Material - Aluminum	1	\$ 2,26
30	Sheet metal bends		\$ 0,25	bend	3			\$ 0,75
							Sub Total	\$ 4,31



University	Ecole Centrale de Lyon					Back to BOM									
System	Miscellaneous, Finish & Assembly														
Assembly	Firewall														
Part	Firewall Upper Side														
P/N Base	MS 01004														
Suffix	AA														
Details	Upper side plate														

FileLink1	Drawing
FileLink2	
FileLink3	

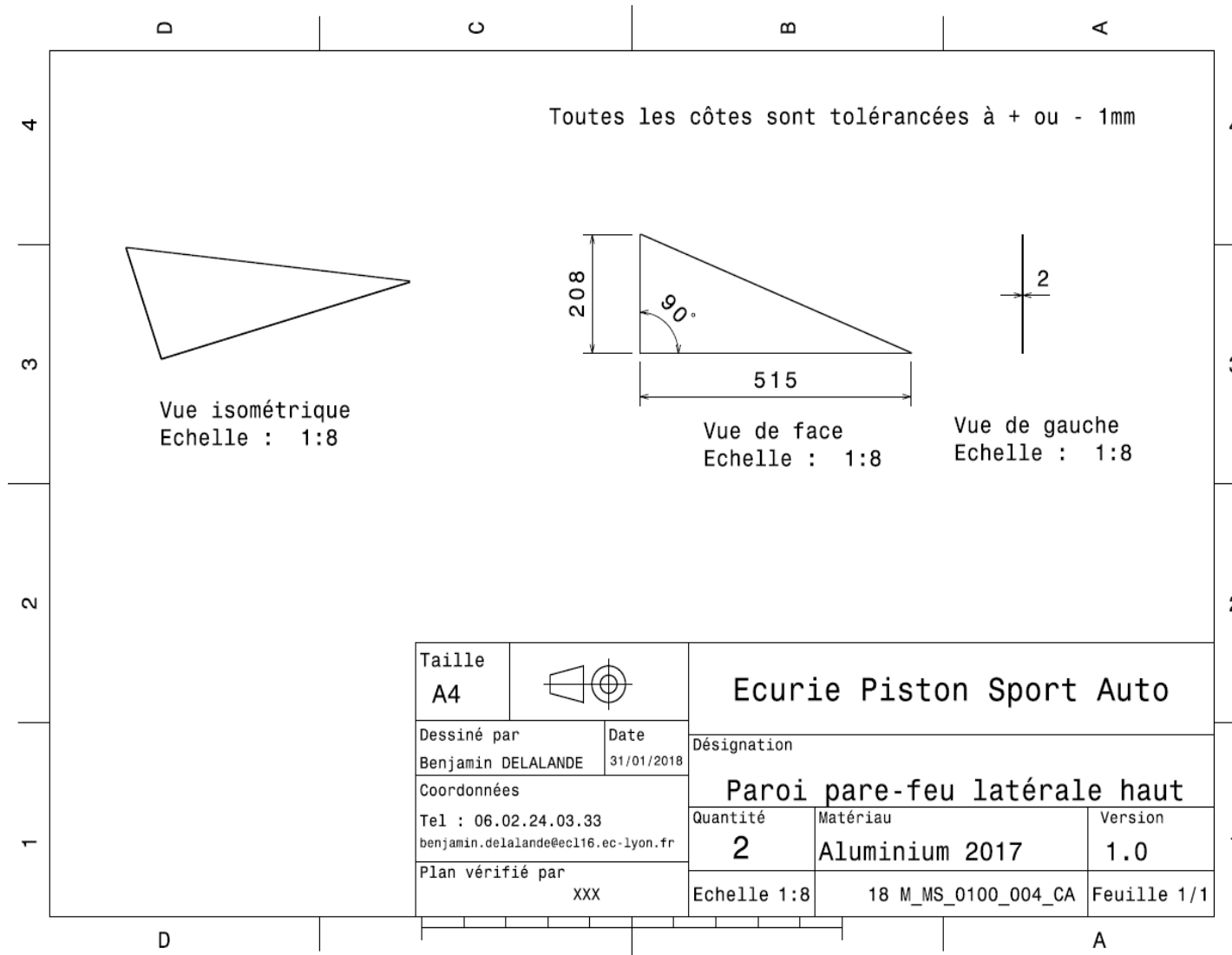


Car #	81
FileLink1	
FileLink2	
FileLink3	

Part Cost	\$ 2,86
Qty	2
Extended Cost	\$ 5,72

ItemOrder	Material	Use	UnitCost	Size1	Unit1	Size2	Unit2	Area Name	Area	Length	Density	Quantity	Sub Total
10	Aluminum, Normal (per kg)		\$ 4,20	0,222	kg			Frontal area	0,0546	1,50E-03	2712	1	\$ 0,93
												Sub Total	\$ 0,93

ItemOrder	Process	Use	UnitCost	Unit	Quantity	Multiplier	Mult. Val.	Sub Total
10	Machining Setup, Install and remove		\$ 1,30	unit	1	2 parts made from the same plate	0,5	\$ 0,65
20	Laser Cut		\$ 0,01	cm	127,57	Material - Aluminum	1	\$ 1,28
							Sub Total	\$ 1,93



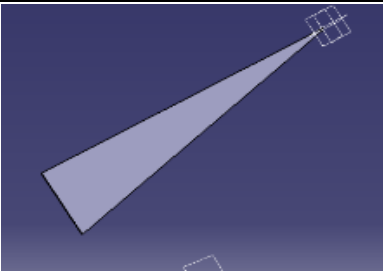
University	Ecole Centrale de Lyon					Back to BOM									
System	Miscellaneous, Finish & Assembly														
Assembly	Firewall														
Part	Firewall Middle Side														
P/N Base	MS 01005														
Suffix	AA														
Details	Middle side plate														

FileLink1

FileLink2

FileLink3

[Drawing](#)



Car #

81

FileLink1

FileLink2

FileLink3

Part Cost

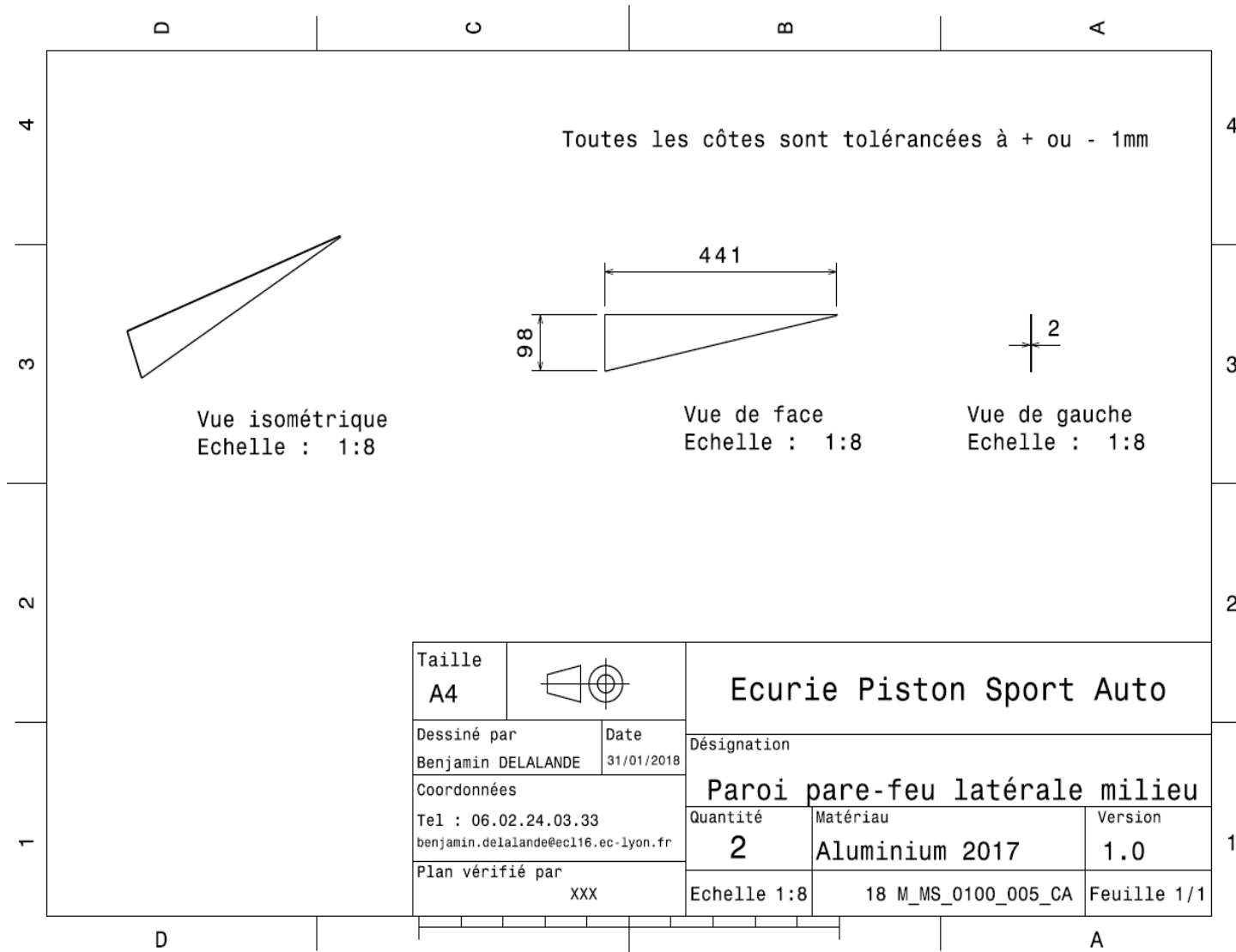
\$ 2,02

Qty

2

Extended Cost

\$ 4,04



University

Ecole Centrale de Lyon

System

Miscellaneous, Finish & Assembly

Assembly

[Firewall](#)

Part

Firewall Lower Side

P/N Base

MS 01006

Suffix

AA

Details

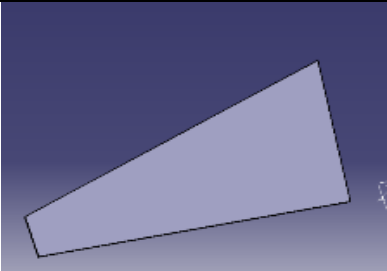
Lower side plate

FileLink1

[Drawing](#)

FileLink2

FileLink3

[Back to BOM](#)


Car #

81

FileLink1

FileLink2

FileLink3

Part Cost

\$ 3,58

Qty

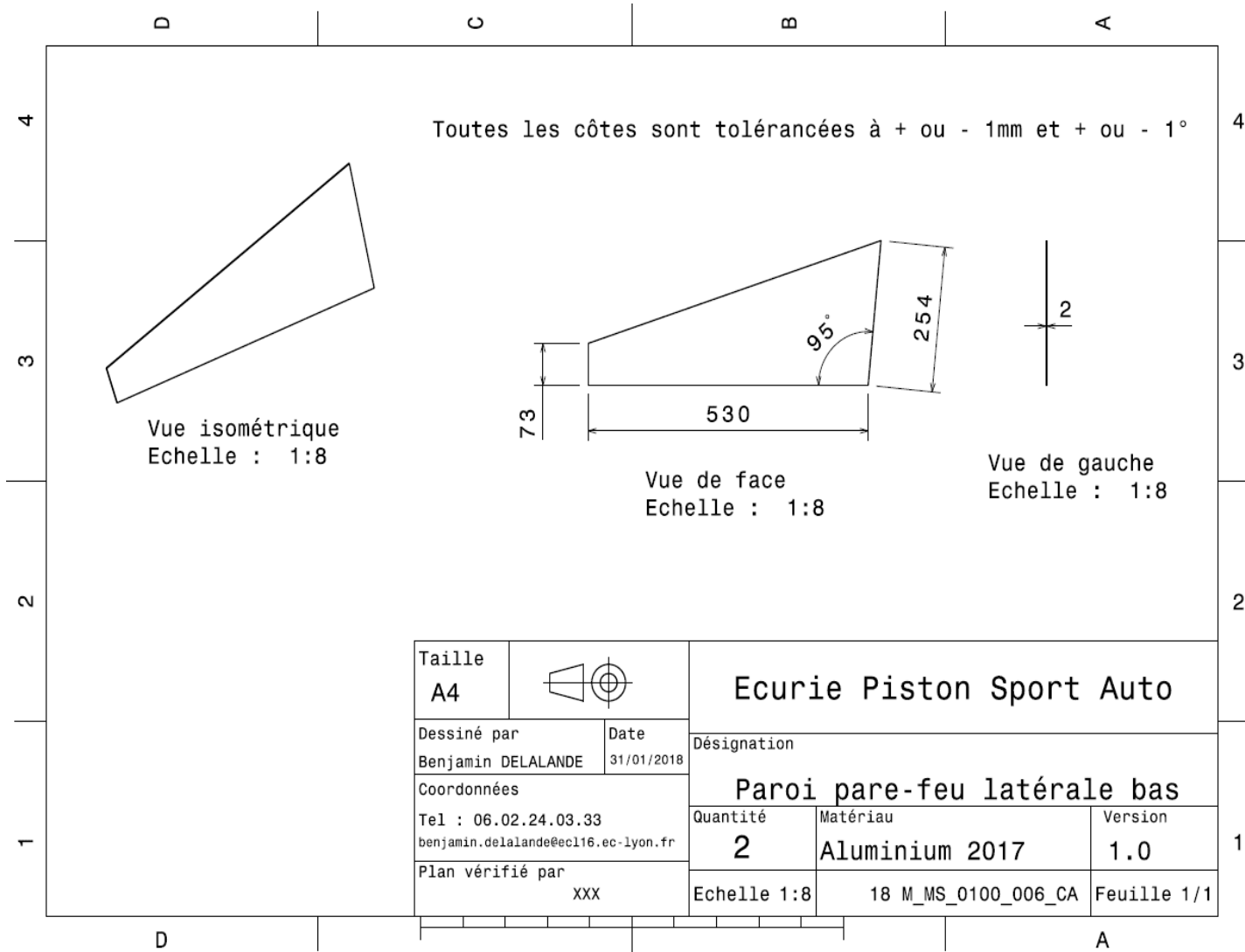
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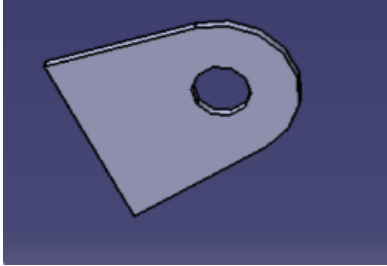
Extended Cost

\$ 7,16

ItemOrder	Material	Use	UnitCost	Size1	Unit1	Size2	Unit2	Area Name	Area	Length	Density	Quantity	Sub Total	
10	Aluminum, Normal (per kg)		\$ 4,20	0,355	kg			frontal area	8,72E-02	1,50E-03	2712	1	\$ 1,49	
													Sub Total	\$ 1,49

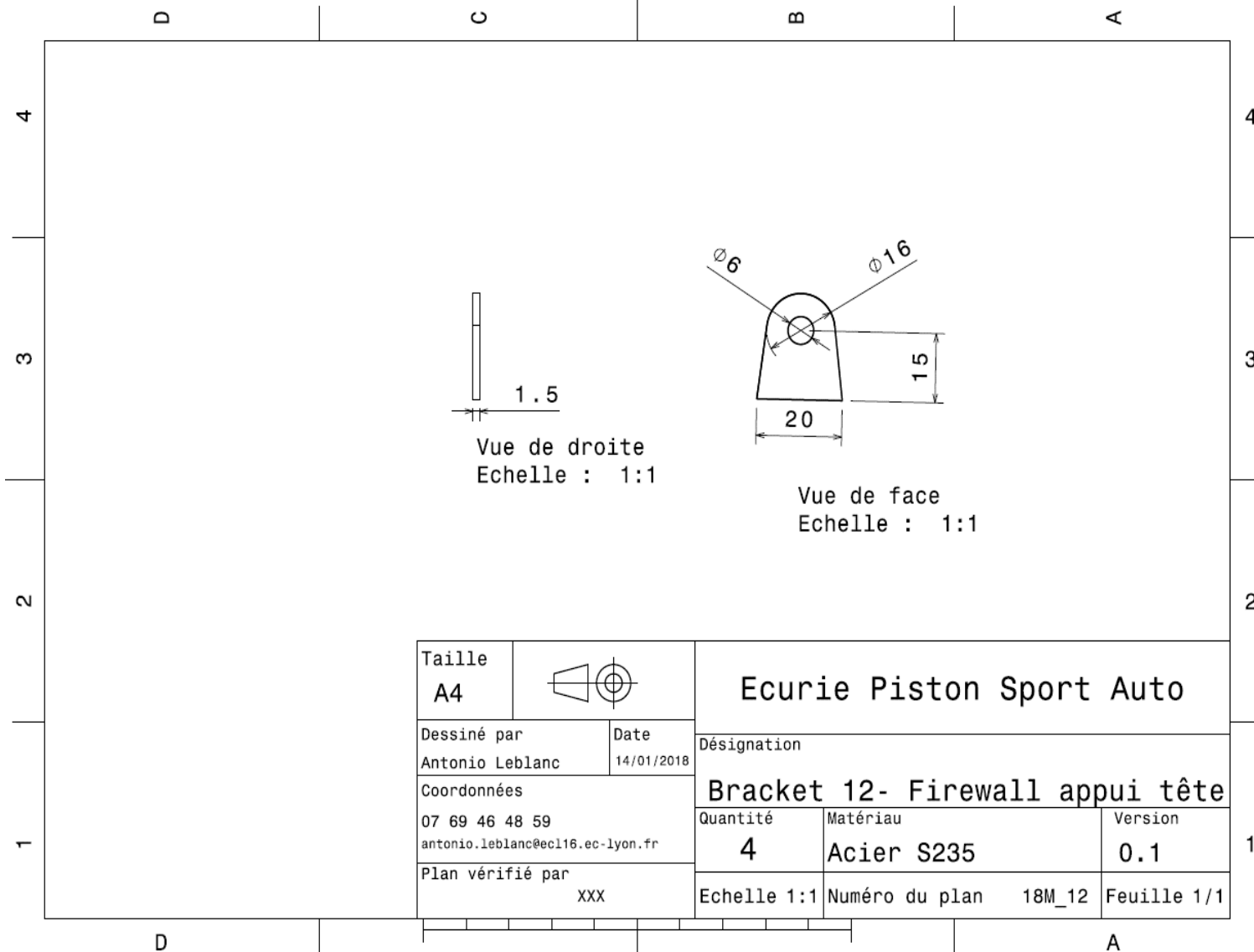
ItemOrder	Process	Use	UnitCost	Unit	Quantity	Multiplier	Mult. Val.	Sub Total
10	Machining Setup, Install and remove		\$ 1,30	unit	1	2 parts made from the same plate	0,5	\$ 0,65
20	Laser Cut		\$ 0,01	cm	143,94	Material - Aluminum	1	\$ 1,44
							Sub Total	\$ 2,09



University	Ecole Centrale de Lyon			Back to BOM				<table border="1"> <tr> <td>Car #</td> <td>81</td> </tr> </table>		Car #	81	<table border="1"> <tr> <td>Part Cost</td> <td>\$ 0,62</td> </tr> </table>		Part Cost	\$ 0,62
Car #	81														
Part Cost	\$ 0,62														
System	Miscellaneous, Finish & Assembly	<table border="1"> <tr> <td>FileLink1</td> <td>Drawing</td> </tr> </table>		FileLink1	Drawing					<table border="1"> <tr> <td>Qty</td> <td>4</td> </tr> </table>		Qty	4		
FileLink1	Drawing														
Qty	4														
Assembly	Firewall	<table border="1"> <tr> <td>FileLink2</td> <td></td> </tr> </table>		FileLink2				<table border="1"> <tr> <td>Extended Cost</td> <td>\$ 2,47</td> </tr> </table>		Extended Cost	\$ 2,47				
FileLink2															
Extended Cost	\$ 2,47														
Part	Firewall Up Bracket	<table border="1"> <tr> <td>FileLink3</td> <td></td> </tr> </table>		FileLink3											
FileLink3															
P/N Base	MS 01007														
Suffix	AA														
Details	Bracket for the upper plate														

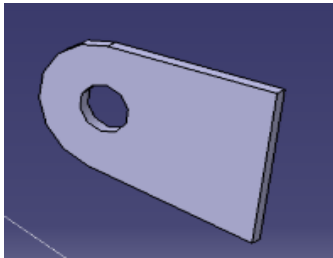
ItemOrder	Material	Use	UnitCost	Size1	Unit1	Size2	Unit2	Area Name	Area	Length	Density	Quantity	Sub Total
10	Steel, Alloy (kg)		\$ 2,25	4,38E-03	kg			Frontal area	3,72E-04	1,50E-03	7850	1	\$ 0,01
												Sub Total \$ 0,01	

ItemOrder	Process	Use	UnitCost	Unit	Quantity	Multiplier	Mult. Val.	Sub Total
10	Machining Setup, Install and remove		\$ 1,30	unit	1	4 parts made from the same plate	0,25	\$ 0,33
20	Laser Cut		\$ 0,01	cm	9,42	Material - Steel	3	\$ 0,28
							Sub Total	\$ 0,61



University	Ecole Centrale de Lyon					Back to BOM									
System	Miscellaneous, Finish & Assembly														
Assembly	Firewall														
Part	Firewall Middle, Bottom and Sides Bracket														
P/N Base	MS 01008														
Suffix	AA														
Details	Bracket for the Middle, Bottom and Side plates														

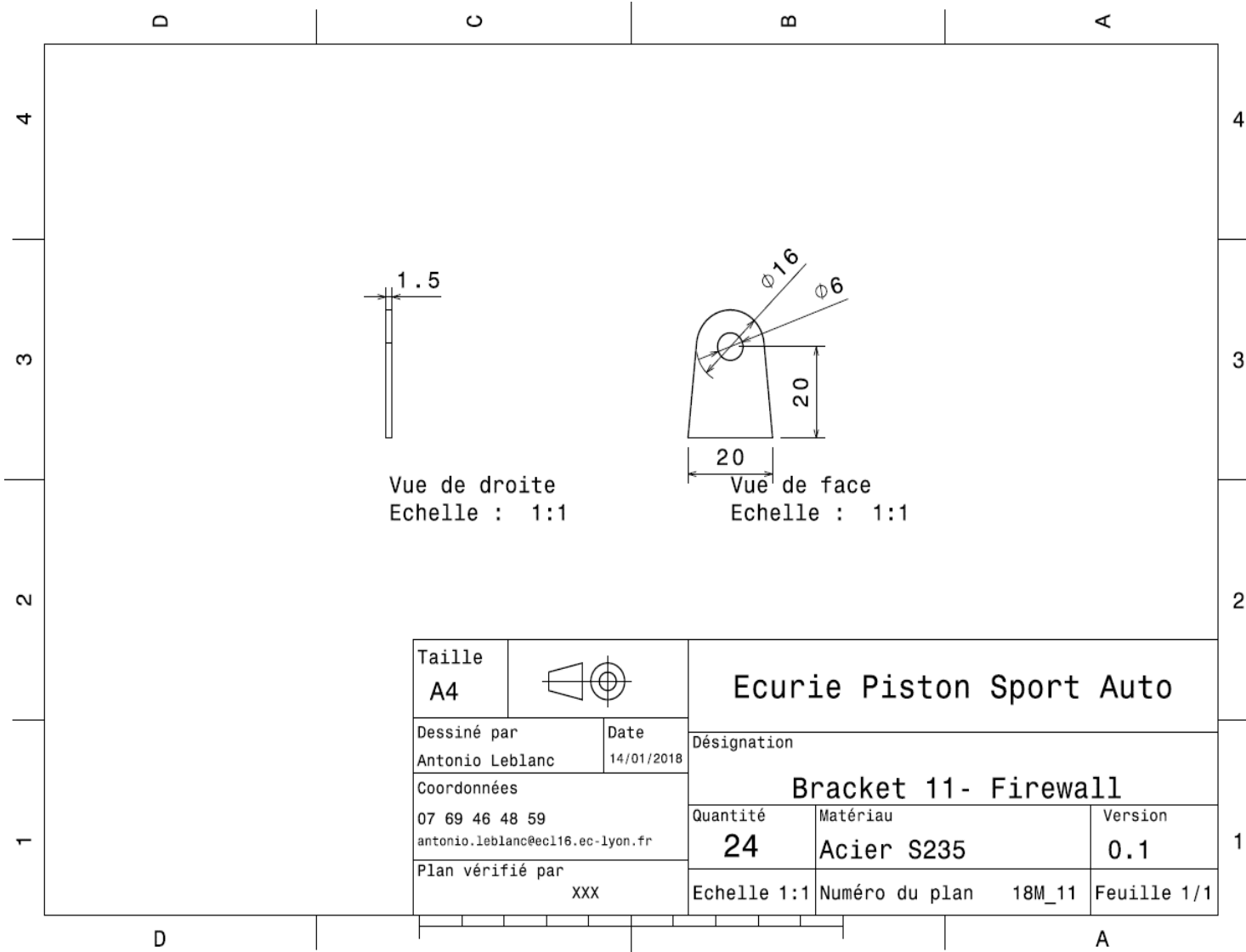
FileLink1	Drawing
FileLink2	
FileLink3	



Car #	81
Part Cost	\$ 0,38
Qty	24
Extended C	\$ 9,10

ItemOrder	Material	Use	UnitCost	Size1	Unit1	Size2	Unit2	Area Name	Area	Length	Density	Quantity	Sub Total
10	Steel, Alloy (kg)		\$ 2,25	5,43E-03	kg			Frontal area	4,61E-04	1,50E-03	7850	1	\$ 0,01
												Sub Total	\$ 0,01

ItemOrder	Process	Use	UnitCost	Unit	Quantity	Multiplier	Mult. Val.	Sub Total
10	Machining Setup, Install and remove		\$ 1,30	unit	1	24 parts made from the same plate	0,04	\$ 0,05
20	Laser Cut		\$ 0,01	cm	10,42	Material - Steel	3	\$ 0,31
							Sub Total	\$ 0,37



University	Ecole Centrale de Lyon
System	Miscellaneous, Finish & Assembly
Assembly	Driver's Safety
P/N Base	MS A0200
Suffix	AA
Details	2 roll bar paddings on frame

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Car #	81
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Asm Cost	\$ 8,62
Qty	1

FileLink1
FileLink2
FileLink3

Extended Cost	\$ 8,62
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ItemOrder	Part	Part Cost	Quantity	Sub Total
10	Rollbar padding	\$ 3,92	2	\$ 7,84
			Sub Total	\$ 7,84

ItemOrder	Process	Use	UnitCost	Unit	Quantity	Multiplier	Mult. Val.	Sub Total
10	Assemble, 1kg, Line-on-Line	Placing rollbar padding on frame	\$ 0,13	unit	2			\$ 0,26
20	Install Tie Wrap (Zip Tie, Cable Clamp)	Maintaining rollbar padding	\$ 0,09	unit	4			\$ 0,36
								Sub Total \$ 0,62

ItemOrder	Fastener	Use	UnitCost	Size1	Unit1	Size2	Unit2	Quantity	Sub Total
10	Tie Wrap	Maintaining rollbar padding	\$ 0,04		unit			4	\$ 0,16
									Sub Total \$ 0,16

University	Ecole Centrale de Lyon			Back to BOM		Car # 81		Part Cost \$ 3,92	
System	Miscellaneous, Finish & Assembly	FileLink1						Qty 2	
Assembly	Driver's Safety	FileLink2				FileLink1			
Part	Rollbar padding	FileLink3				FileLink2		Extended Cost \$ 7,84	
P/N Base	MS 02001					FileLink3			
Suffix	AA								
Details									

ItemOrder	Material	Use	UnitCost	Size1	Unit1	Size2	Unit2	Area Name	Area	Length	Density	Quantity	Sub Total
10	Adhesive		\$ -		unit								\$ -
20	Roll Hoop Padding		\$ 0,05	22	cm							1	\$ 1,10
												Sub Total \$ 1,10	

ItemOrder	Process	Use	UnitCost	Unit	Quantity	Multiplier	Mult. Val.	Sub Total
10	Brush apply	Applying glue to padding	\$ 0,02	cm^2	141			\$ 2,82
							Sub Total	\$ 2,82

University	Ecole Centrale de Lyon	Back to BOM	Car #	81	Asm Cost	\$ 31,54
System	Miscellaneous, Finish & Assembly				Qty	1
Assembly	Head Restraint		FileLink1			
P/N Base	MS A0300		FileLink2		Extended Cost	\$ 31,54
Suffix	AA		FileLink3			
Details	Placed on firewall					

ItemOrder	Material	Use	UnitCost	Size1	Unit1	Size2	Unit2	Area Name	Area	Length	Density	Quantity	Sub Total
10	Head Rest Padding		\$ 0,005	2216	cm^3							1	\$ 11,08
20	Adhesive	Maintain padding on firewall	\$ -		unit								\$ -
30	Fabric	Recover padding	\$ 2,50	0,06	m^2							1	\$ 0,14
												Sub Total	\$ 11,22

ItemOrder	Process	Use	UnitCost	Unit	Quantity	Multiplier	Mult. Val.	Sub Total
10	Cut (scissors, knife)	Cutting padding into shape	\$ 0,06	cm	85,4			\$ 5,12
20	Cut (scissors, knife)	Cutting fabric into shape	\$ 0,06	cm	85,4			\$ 5,12
30	Brush apply	Applying glue to padding	\$ 0,02	cm^2	250			\$ 5,00
40	Assemble, 1kg, Line-on-Line	Placing fabric on padding	\$ 0,01	unit	1			\$ 0,01
50	Brush apply	Applying glue to firewall	\$ 0,02	cm^2	250			\$ 5,00
60	Assemble, 1kg, Loose	Placing padding & fabric on firewall	\$ 0,06	unit	1			\$ 0,06
							Sub Total	\$ 20,32

University	Ecole Centrale de Lyon	Back to BOM		Car #	81	Asm Cost	\$ 87,96						
System	Miscellaneous, Finish & Assembly					Qty	1						
Assembly	Driver's seat			FileLink1		Extended Cost \$ 87,96							
P/N Base	MS A0400			FileLink2									
Suffix	AA			FileLink3									
Details	Driver's restraint system												
ItemOrder	Part	Part Cost	Quantity	Sub Total									
10	Seat	\$ 78,20	1	\$ 78,20									
20	Rear seat bracket	\$ 1,32	2	\$ 2,65									
30	Front seat bracket	\$ 1,19	2	\$ 2,37									
			Sub Total	\$ 83,22									
ItemOrder	Material	Use	UnitCost	Size1	Unit1	Size2	Unit2	Area Name	Area	Length	Density	Quantity	Sub Total
10	Paint	Seat brackets painting	\$ 10,00	0,004	m^2							1	\$ 0,04
												Sub Total	\$ 0,04
ItemOrder	Process	Use	UnitCost	Unit	Quantity	Multiplier	Mult. Val.	Sub Total					
10	Weld	Welding brackets to frame	\$ 0,15	cm	8			\$ 1,20					
20	Aerosol Apply	Bracket painting	\$ 5,25	m^2	0,004		2	\$ 0,04					
30	Assemble, 1kg, Loose	Assemble seat	\$ 0,06	unit	1			\$ 0,06					
40	Ratchet <= 6.35 mm	Fasten seat to brackets	\$ 0,50	unit	2			\$ 1,00					
50	Reaction tool <= 6.35 mm	Fasten seat to brackets	\$ 0,25	unit	2			\$ 0,50					
							Sub Total	\$ 2,80					
ItemOrder	Fastener	Use	UnitCost	Size1	Unit1	Size2	Unit2	Quantity	Sub Total				
10	Bolt, Grade 8,8 (SAE 5)	Bolt seat and brackets	\$ 0,10	6	mm	45	mm	4	\$ 0,40				
20	Nut, Grade 8,8 (SAE 5)	Bolt seat and brackets	\$ 0,03	6	mm			4	\$ 0,12				
20	Washer, Grade 8,8 (SAE 5)	Bolt seat and brackets	\$ 0,01	1	unit			4	\$ 0,04				
								Sub Total	\$ 0,56				
ItemOrder	Tooling	Use	UnitCost	Unit	Quantity	PVF	FractionIncluded	Sub Total					
10	Welds - Welding Fixture	Welding bracket to frame	\$ 500,00	point	8	3000	1	\$ 1,33					
							Sub Total	\$ 1,33					

University

Ecole Centrale de Lyon

System

Miscellaneous, Finish & Assembly

Assembly

Driver's seat

Part

Seat

P/N Base

MS 04001

Suffix

AA

Details

FileLink1

FileLink2

FileLink3

Back to BOM

Car #

81

Part Cost

\$ 78,20

Qty

1

FileLink1

FileLink2

FileLink3

Extended Cost

\$ 78,20

ItemOrder	Material	Use	UnitCost	Size1	Unit1	Size2	Unit2	Area Name	Area	Length	Density	Quantity	Sub Total
10	Glass Fiber, 1 Ply	Stock material for part	\$ 100,00	0,090	kg							2	\$ 18,00
20	Grommet, Elastomer	For harness holes	\$ 0,05		unit							16	\$ 0,80
												Sub Total	\$ 18,80

ItemOrder	Process	Use	UnitCost	Unit	Quantity	Multiplier	Mult. Val.	Sub Total	
10	Cut (scissors, knife)	Cut ply	\$ 0,06	cm	190	Repeat 2 plies	2	\$ 22,80	
20	Lamination, Manual		\$ 35,00	m^2	0,36	Repeat 2 plies	2	\$ 25,20	
30	Resin application, Manual		\$ 5,00	m^2	0,36	Repeat 2 plies	2	\$ 3,60	
40	Vacuum form		\$ 10,00	m^2	0,36			\$ 3,60	
40	Non-metallic cutting > 76,2 mm	Cutout seat border	\$ 1,40	cut	1			\$ 1,40	
50	Hand Finish - Material Removal	Clean cuts	\$ 0,20	cm^3	1			\$ 0,20	
60	Drilled holes < 25,4 mm dia.	Cutout fixation holes	\$ 0,35	hole	4			\$ 1,40	
70	Assemble, 1 kg, Loose	Insert gromets	\$ 0,06	Unit	16			\$ 0,96	
								Sub Total	\$ 58,20

ItemOrder	Tooling	Use	UnitCost	Unit	Quantity	PVF	FractionInc	Sub Total	
10	Lamination - Composite Tool	Lamination	\$ 10 000,00	m^2	0,36	3000	1	\$ 1,20	
								Sub Total	\$ 1,20

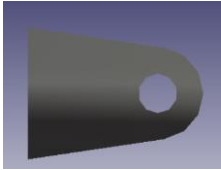
University	Ecole Centrale de Lyon														
System	Miscellaneous, Finish & Assembly														
Assembly	Driver's seat														
Part	Rear seat bracket														
P/N Base	MS 04002														
Suffix	AA														
Details															

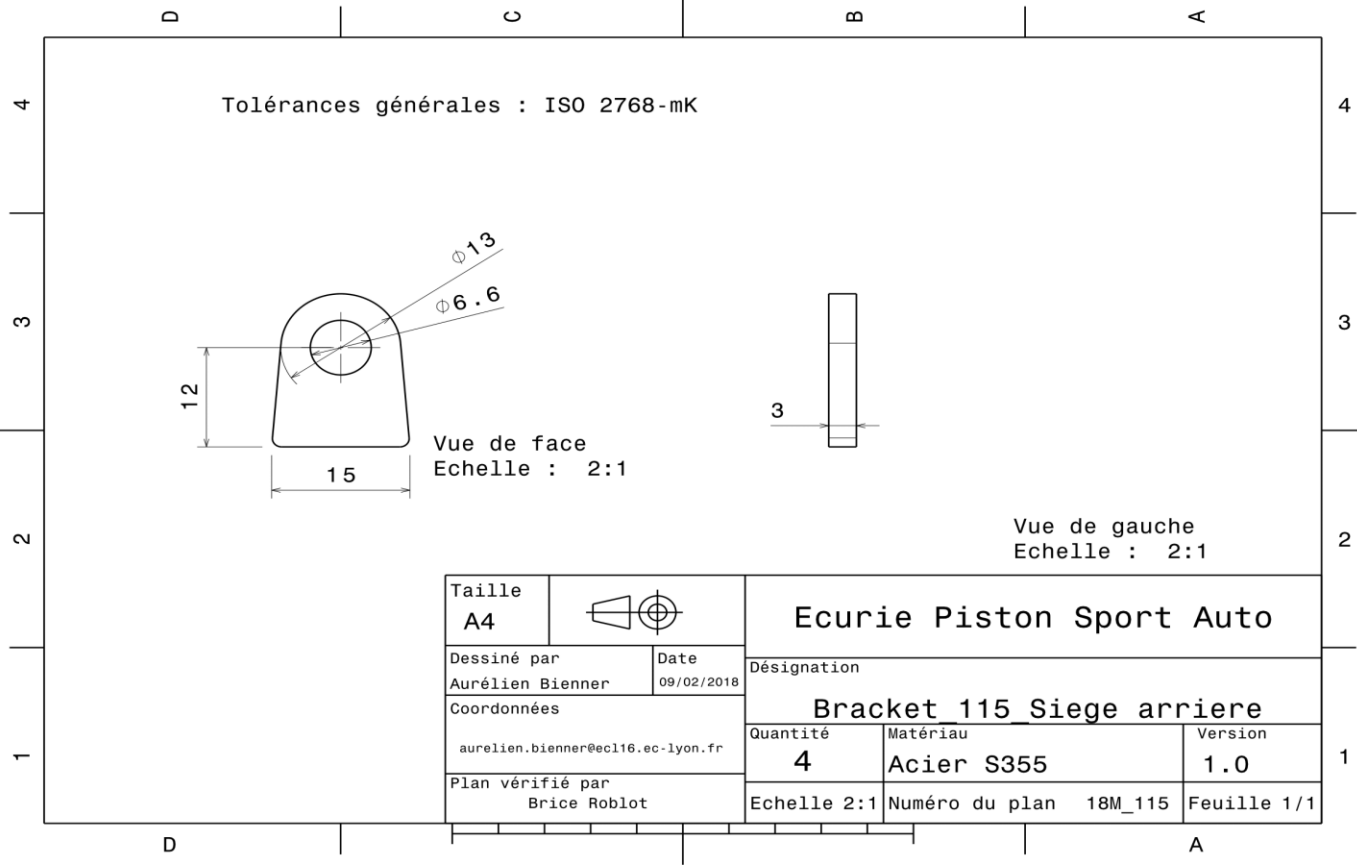
FileLink1	Drawing														
FileLink2															
FileLink3															

Car #	81														
Part Cost	\$ 1,32														
Qty	2														
Extended Cost	\$ 2,65														

ItemOrder	Material	Use	UnitCost	Size1	Unit1	Size2	Unit2	Area Name	Area	Length	Density	Quantity	Sub Total
10	Steel, Mild	Stock material for part	\$ 2,25	6,10E-03	kg							1	\$ 0,01
												Sub Total \$ 0,01	

ItemOrder	Process	Use	UnitCost	Unit	Quantity	Multiplier	Mult. Val.	Sub Total
10	Machining Setup, Install and remove	Setup for laser cutting	\$ 1,30	unit	1	2 parts with one machine setup	0,5	\$ 0,65
20	Laser Cut	Cutout shape	\$ 0,01	cm	22	Material - Steel	3	\$ 0,66
							Sub Total	\$ 1,31





University

Ecole Centrale de Lyon

System

Miscellaneous, Finish & Assembly

Assembly

[Driver's seat](#)

Part

Front seat bracket

P/N Base

MS 04003

Suffix

AA

Details

FileLink1

[Drawing](#)

FileLink2

FileLink3

Back to BOM

Car #

81

Part Cost

\$ 1,19

Qty

2

FileLink1

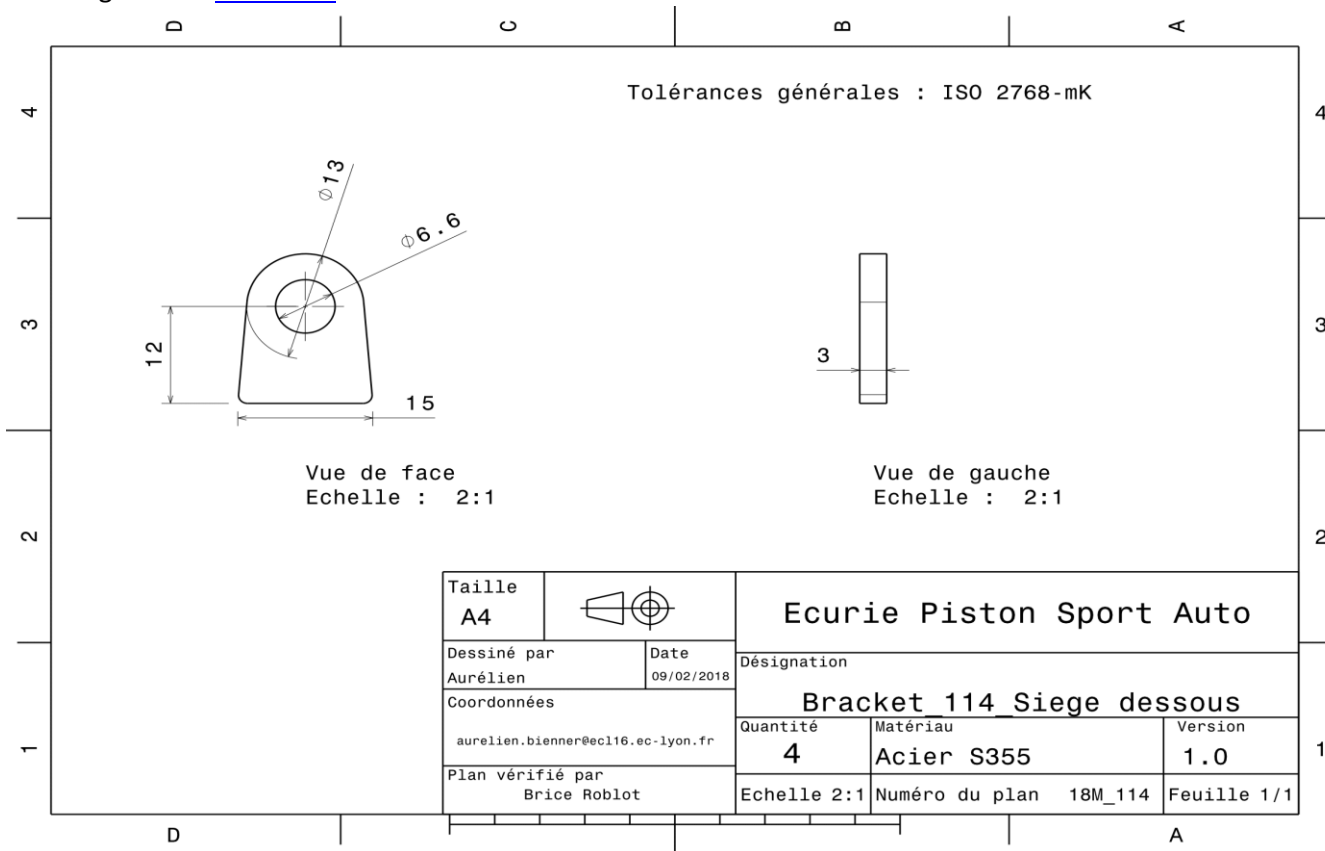
FileLink2

FileLink3

Extended Cost

\$ 2,37





University	Ecole Centrale de Lyon	Back to BOM										Car #	81	Asm Cost	\$ 56,15						
System	Miscellaneous, Finish & Assembly														Qty	1					
Assembly	Harness																				
P/N Base	MS A0500																				
Suffix	AA																				
Details	Driver's restraint system																				
ItemOrder	Part	Part Cost	Quantity	Sub Total																	
10	Harness bracket	\$ 1,25	2	\$ 2,50																	
			Sub Total	\$ 2,50																	
ItemOrder	Material	Use	UnitCost	Size1	Unit1	Size2	Unit2	Area Name	Area	Length	Density	Quantity	Sub Total								
10	Harness, Driver	6-point harness	\$ 45,00	1	unit							1	\$ 45,00								
20	Paint	Harness tab painting	\$ 10,00	0,006	m^2							0,01	\$ 0,06								
												Sub Total	\$ 45,06								
ItemOrder	Process	Use	UnitCost	Unit	Quantity	Multiplier	Mult. Val.	Sub Total													
10	Weld	Welding tab to frame	\$ 0,15	cm	7,2			\$ 1,08													
20	Aerosol Apply	tab painting	\$ 5,25	m^2	0,006			\$ 0,03													
30	Assemble, 1kg, Loose	Assemble eyebolts on tabs	\$ 0,06	unit	2			\$ 0,13													
40	Wrench <= 25,4 mm	Fastener installation	\$ 1,50	unit	2			\$ 3,00													
50	Reaction tool <= 25,4 mm	Fastener installation	\$ 0,25	unit	2			\$ 0,50													
60	Assemble, 3kg, Loose	Assemble harness	\$ 0,19	unit	1			\$ 0,19													
							Sub Total	\$ 4,92													
ItemOrder	Fastener	Use	UnitCost	Size1	Unit1	Size2	Unit2	Quantity	Sub Total												
10	Eyebolt, Threaded, Steel	Attach harness to tab	\$ 1,43	10	mm			2	\$ 2,86												
20	Nut, Grade 8,8 (SAE 5)	Attach harness to tab	\$ 0,07	10	mm			2	\$ 0,14												
								Sub Total	\$ 3,00												
ItemOrder	Tooling	Use	UnitCost	Unit	Quantity	PVF	FractionIncluded	Sub Total													
10	Welds - Welding Fixture	Welding tab to frame	\$ 500,00	point	4	3000	1	\$ 0,67													
							Sub Total	\$ 0,67													

University	Ecole Centrale de Lyon														
System	Miscellaneous, Finish & Assembly														
Assembly	Harness														
Part	Harness bracket														
P/N Base	MS 05001														
Suffix	AA														
Details	Same plan as in 2017														

FileLink1	Drawing														
FileLink2															
FileLink3															

Car #	81														
Part Cost	\$ 1,25														
Qty	2														
Extended Cost	\$ 2,50														

ItemOrder	Material	Use	UnitCost	Size1	Unit1	Size2	Unit2	Area Name	Area	Length	Density	Quantity	Sub Total
10	Steel, Mild	Stock material for part	\$ 2,25	0,041	kg						7 850	1,00	\$ 0,09
												Sub Total \$ 0,09	

ItemOrder	Process	Use	UnitCost	Unit	Quantity	Multiplier	Mult. Val.	Sub Total
10	Machining Setup, Install and Remove	Setup for laser cutting	\$ 1,30	unit	1	2 parts with one machine setup	0,5	\$ 0,65
20	Laser Cut	Cutout shape	\$ 0,01	cm	17	Material - Steel	3	\$ 0,51
							Sub Total	\$ 1,16

