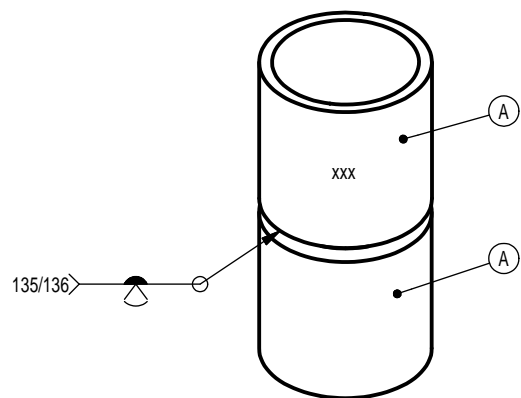


**PIPE TEST COUPON 1A:**

MATERIAL: CARBON STEEL PIPE  
2 PCS Ø114.3 X 8.0 WALL X 115 LONG

**NOTE:**  
THE NUMBER OF TACKS IS TO BE LIMITED WITH A MAXIMUM 4 TACKS.



**WELDING PROCESSES/POSITION:** PC(2G)

ROOT PASS: 135 (GMAW)

FILL & CAP: 136 (FCAW)

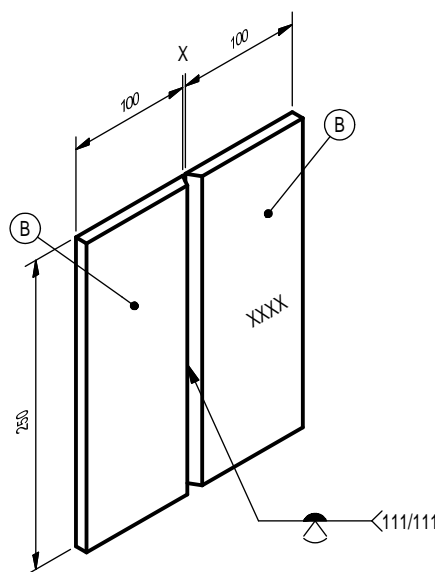
**EVALUATION:**

1. VISUAL
2. X-RAY ENTIRE WELD JOINT

**TEST PLATE COUPON 1B:**

MATERIAL: CARBON STEEL PLATE  
THICKNESS: 10 mm.

X = YOUR CHOICE



**WELDING PROCESSES/POSITION:** PF(3G)

ROOT PASS: 111(SMAW)

FILL & CAP: 111(SMAW)

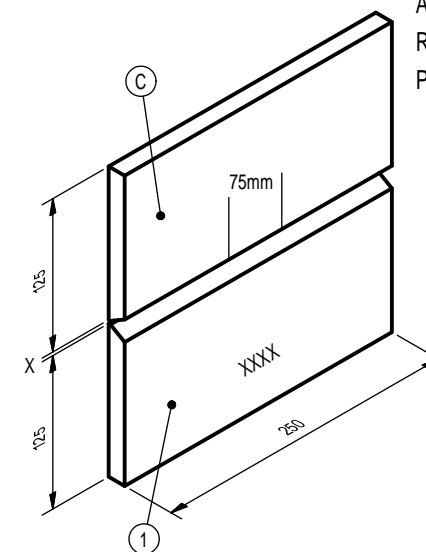
**EVALUATION:**

1. VISUAL
2. X-RAY ENTIRE WELD JOINT

**TEST PLATE COUPON 1C:**

MATERIAL: CARBON STEEL PLATE  
THICKNESS: 16 mm.

X = YOUR CHOICE



**WELDING PROCESSES/POSITION:** PC(2G)

ROOT PASS: 111(SMAW)

FILL & CAP: 135(GMAW)

**HOLD POINT**

AREA OF STOP AND RESTART IN FINAL CAP PASS

**EVALUATION:**

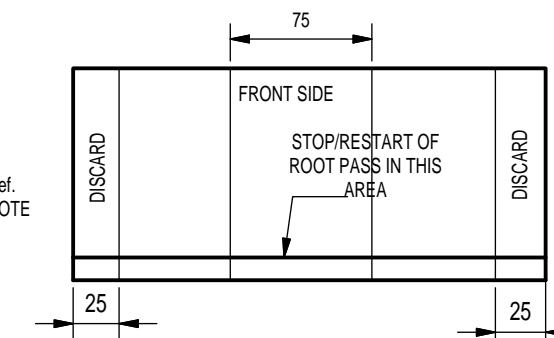
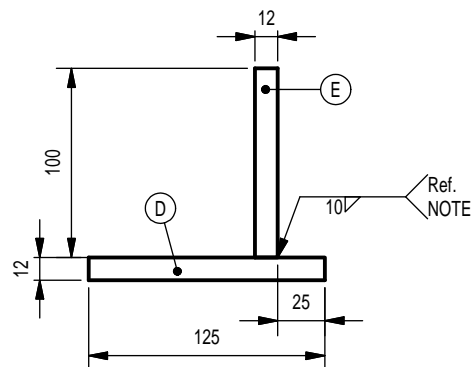
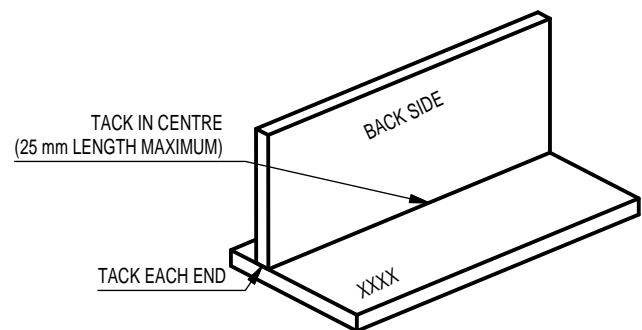
1. VISUAL
2. X-RAY ENTIRE WELD JOINT

**FILLET WELD COUPON 1D:**

MATERIAL: CARBON STEEL PLATE  
THICKNESS: 12 mm  
WELDING PROCESS: 111(SMAW)  
WELDING POSITION: PB(2F)

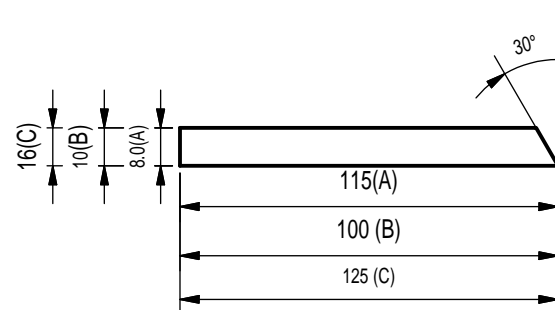
**NOTE:**

1. DEPOSIT A FILLET WELD ON THE FRONT SIDE OF THE JOINT WITH A 10 mm (+2.0/-0) mm LEG LENGTH.
2. WELD TO BE DEPOSITED WITH A MINIMUM OF 2 RUNS AND A MAXIMUM OF 3 RUNS.
3. EDGE PREPARATION MUST REMAIN AT 90° TO THE PLATE FACE. NO CHAMFER AND GAP ALLOWED.



**NOTE:**

1. ANY PROCESS AND ANY POSITION MAY BE USED FOR TACKWELDING.
2. ALL TACK WELDS EXCEPT CENTRE OF FILLET WELDS ARE TO BE NOT LONGER THAN 15 mm. A MAXIMUM OF 4 TACKS ARE TO BE MADE FOR TEST PIPE COUPON.
3. ALL PLATE OR PIPE COUPONS ARE TO BE TACKWELDED BEFORE ANY WELDING COMMENCES.
4. PROCESS INDICATED FOR ROOT WELD TO BE USED ONLY FOR ONE RUN, NOT FOR SECOND AND SUBSEQUENT PASSES.
5. ALL PLATE OR PIPE COUPONS MUST BE WELDED IN THE POSITION AS INDICATED FOR EACH TEST.
6. GRINDING IS **NOT** ALLOWED FOR THE CLEANING OF THE FINAL SURFACES OF BOTH CAP AND ROOT WELDS.
7. XXXX= COMPETITOR'S I.D.



DETAIL OF MILLED BEVEL

ALL DIMENSIONS IN MILLIMETRES  
BUT DO NOT SCALE DRAWING

NTS = NOT TO SCALE

ITEM	QTY	MATERIAL	DESCRIPTIONS	REMARKS
E	1	CARBON STEEL	PLATE 250 X 100 X 12	
D	1	CARBON STEEL	PLATE 250 X 125 X 12	
C	2	CARBON STEEL	PLATE 250 X 125 X 16	30 deg. MILLED BEVEL
B	2	CARBON STEEL	PLATE 250 X 100 X 10	30 deg. MILLED BEVEL
A	2	CARBON STEEL	PIPE OD 114.3 X 8.0 WALL X 115 LONG	30 deg. TURNED BEVEL

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Competition in São Paulo, Brazil 2015  
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Skill: 10. Welding, Schweißen, Soudage, Soldagem

Scale: N. T. S

Date: 08. Aug. 2015

Paper: A3

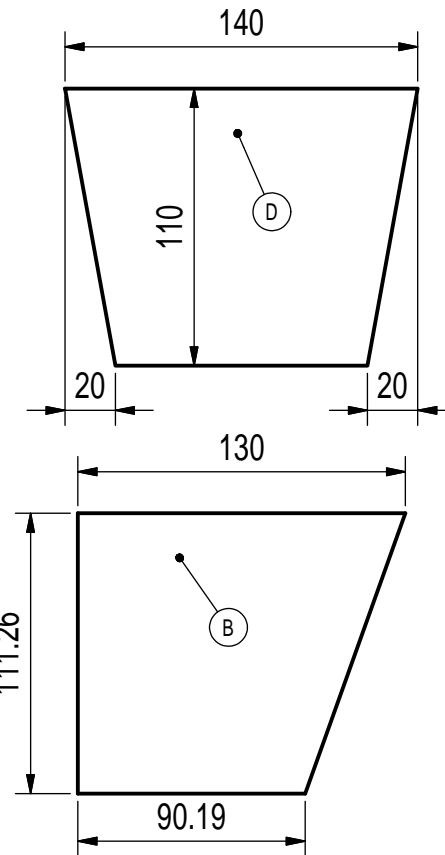
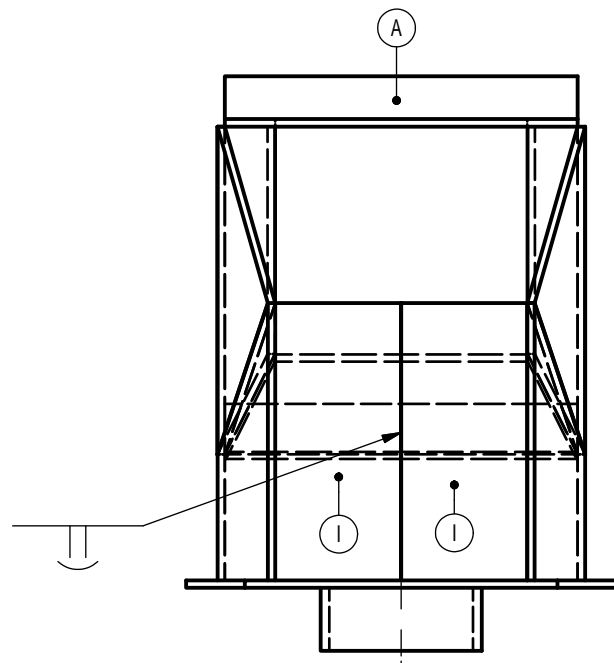
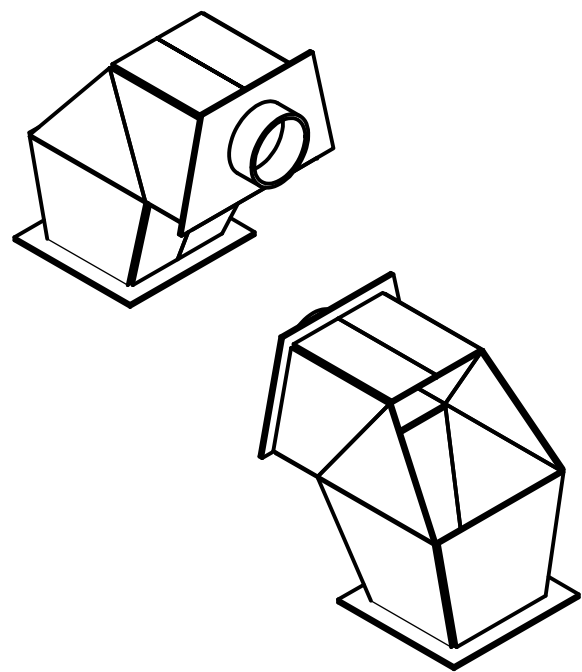
Designed/Drawn by: Chih-Peng Chen TW

Drawing No: TP10\_43BR\_DAY1\_GENERIC

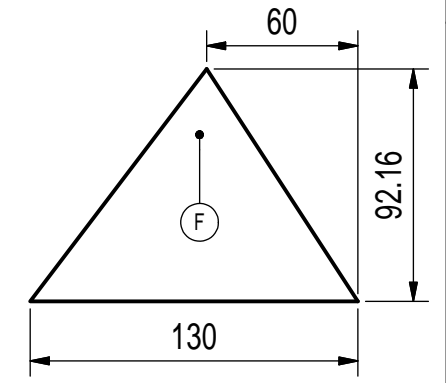
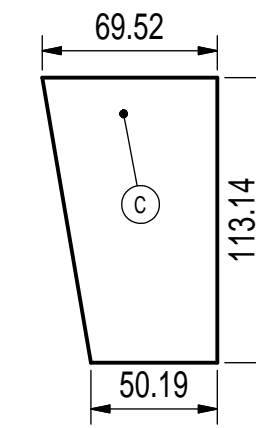
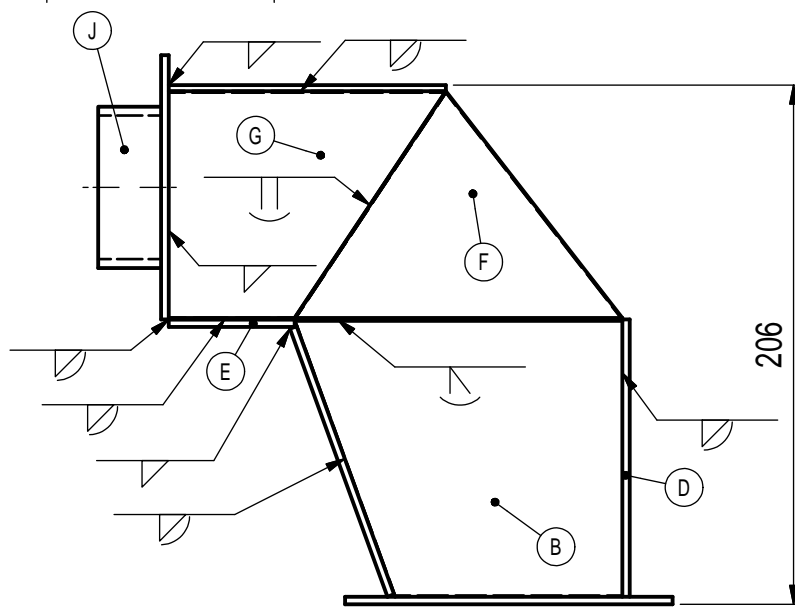
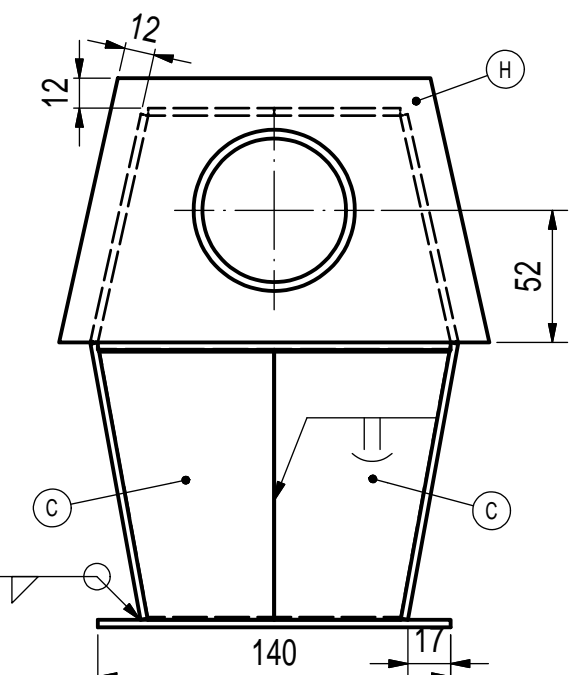
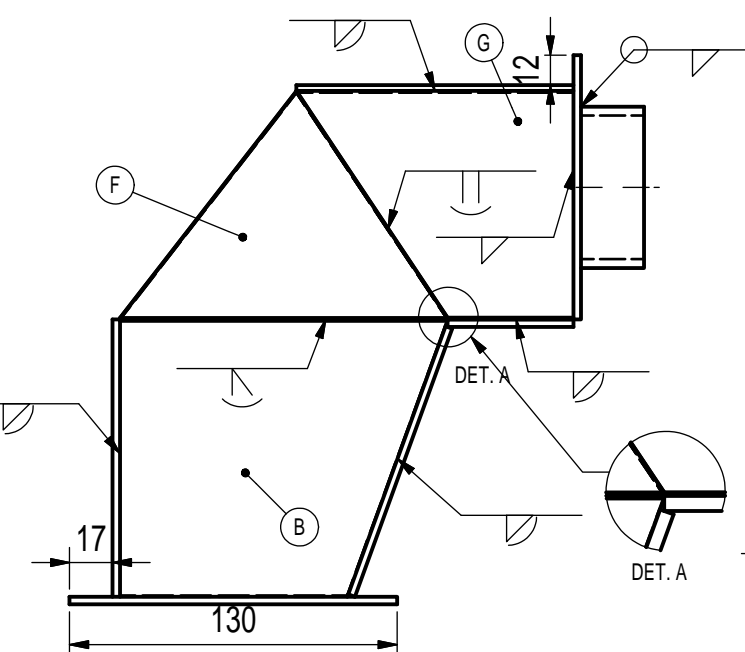
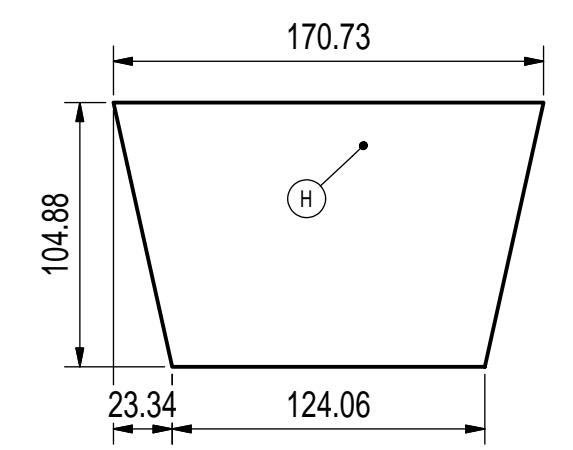
Description: Module I--Test Coupons (Plates/Pipe/Fillet)

Rev. 3

Page: 1 of 1



No.	Items	Q'ty	Descriptions
1	A	1	AA 5052 SHEET, 140X130X3
2	B	2	AA 5052 SHEET, 130X111.26X90.19X3, CUT TO SHAPE
3	C	2	AA5052 SHEET, 50.19X113.14X69.52X3 CUT TO SHAPE
4	D	1	AA5052 SHEET, 140X110X100X3 CUT TO SHAPE
5	E	1	AA5052 SHEET, 140X50X3
6	F	2	AA5052 SHEET, 130X92.16X60X3 CUT TO SHAPE
7	G	2	AA5052 SHEET, 110X92.16X50X3 CUT TO SHAPE
8	H	1	AA5052 SHEET, 170.73X104.88X124.06X3 CUT TO SHAPE
9	I	2	AA5052 SHEET, 110X50X3
10	J	1	AA 6061 TUBE, OD 64X25X3



**INSTRUCTIONS TO COMPETITORS**

1. WELDING PROCESS: GTAW (TIG) (141).
2. WELDING POSITIONS: ALL EXCEPT VERTICAL DOWN.
3. ALL THE WELDING MUST BE CARRIED OUT WITH BASE PLATE "A" IN THE FLAT POSITION.
4. ALL FILLET LEG SIZES: 4.0 mm WITH TOLERANCE (+2.0 mm/-0.0 mm).
5. OUTSIDE CORNER WELD RADII: 3.0mm WITH TOLERANCE (+1.0 mm/-0.9 mm).

Note: All Dimension in Millimetres

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Skill: 10. Welding, Schweissen, Soudage, Soldagem

Scale: N. T. S Date: 08. Aug. 2015 Paper: A3

Drawn/Designed by: Chih-Peng Chen TW

Description: Aluminium-Assembly & Symbols



OR



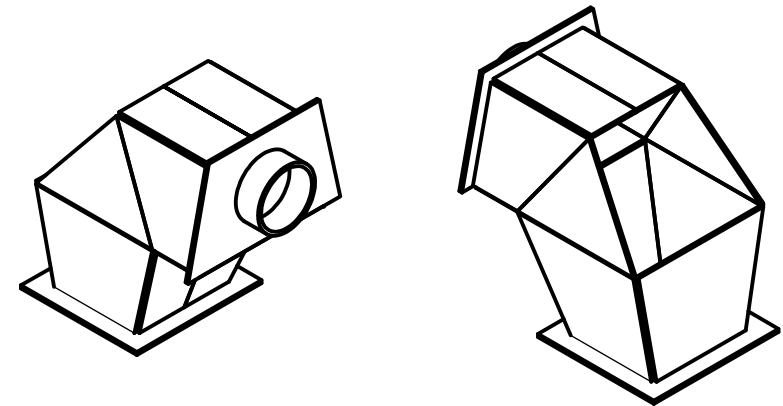
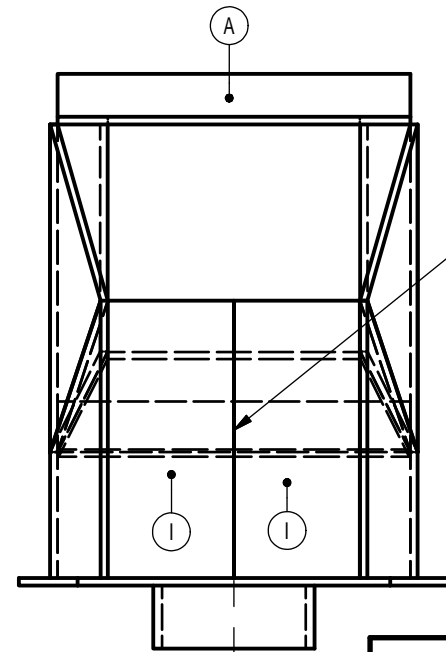
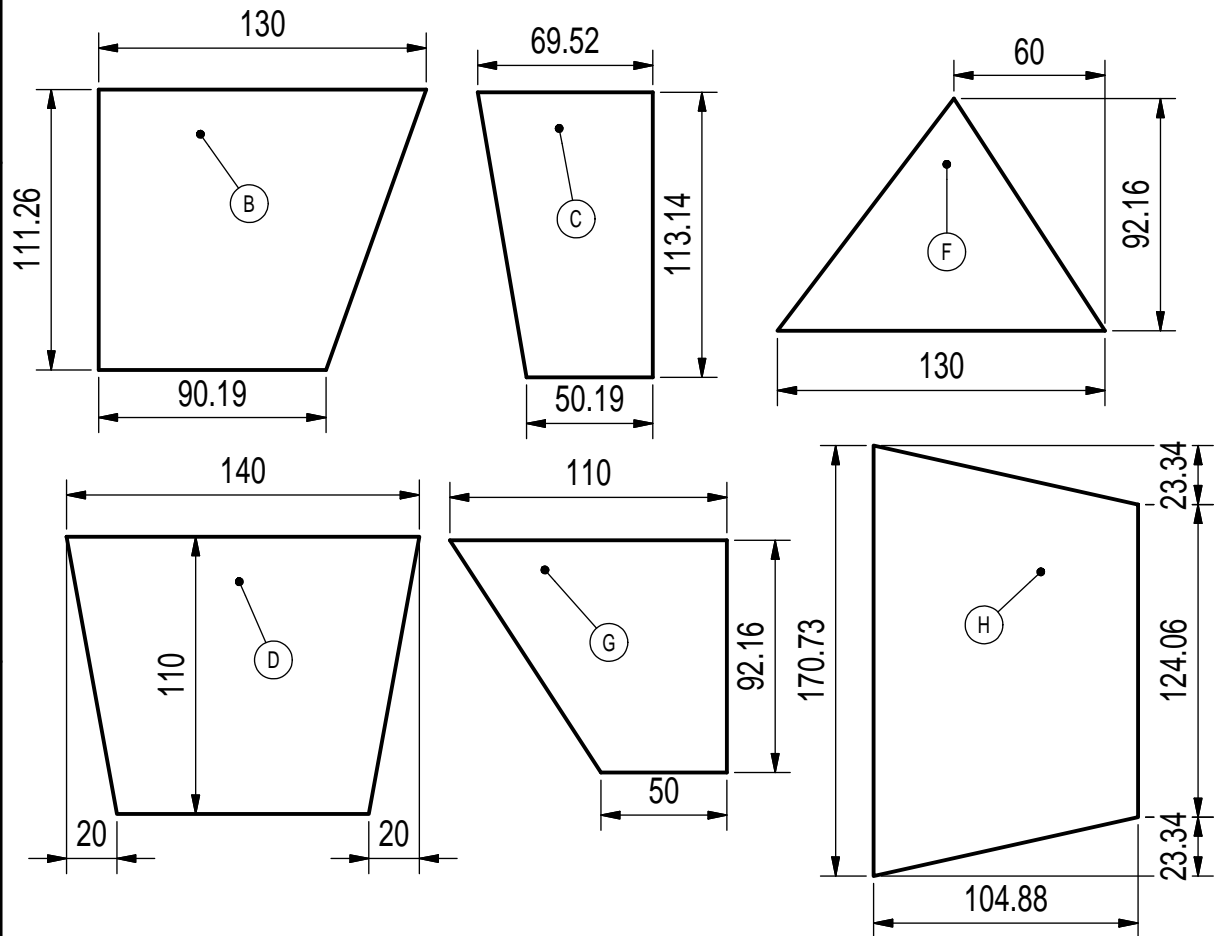
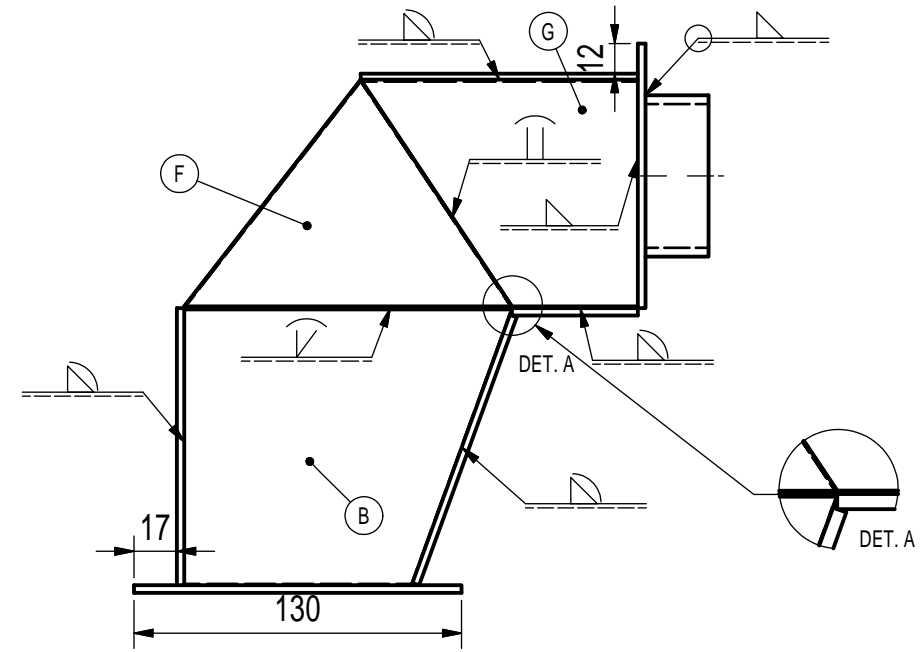
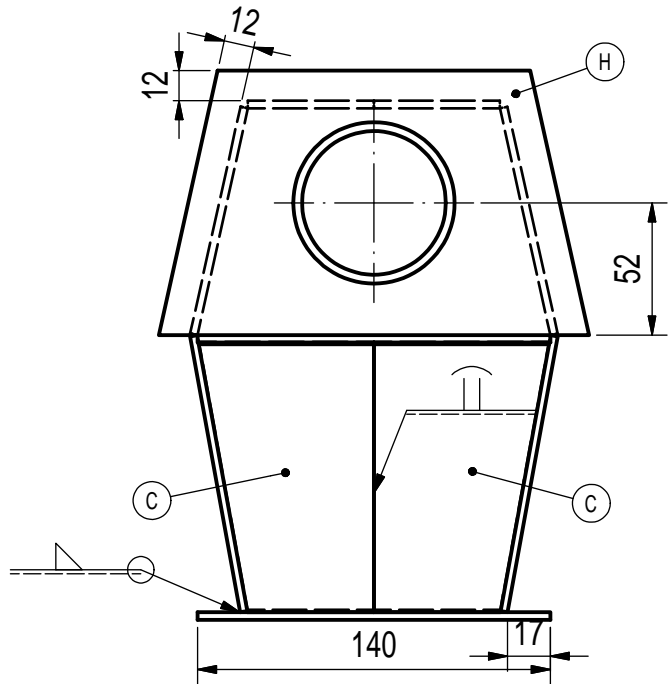
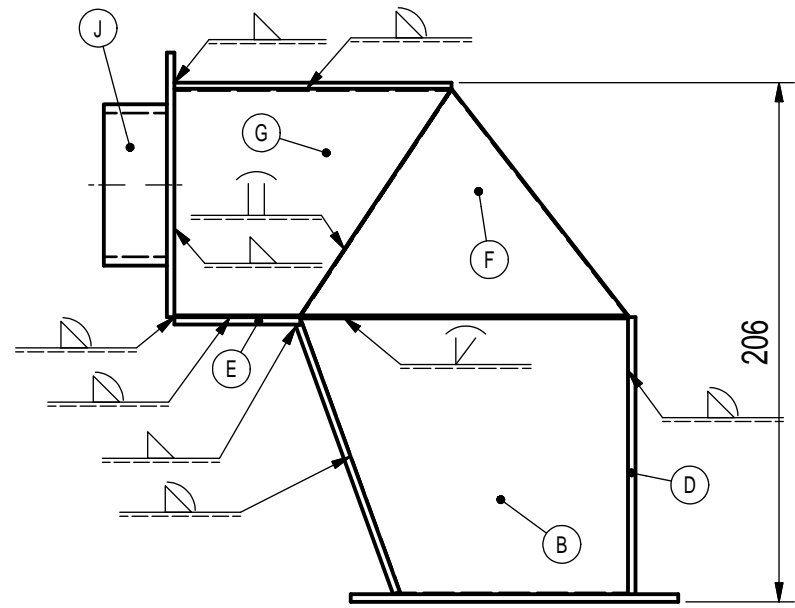
Drawing No: WSC2015\_TP10\_TW\_AL\_ASSEMBLY\_ISO A

Rev: 1

Page:

Appd:

Sign:



No.	Items	Qty	Descriptions
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9	I	2	AA5052 SHEET, 110X50X3
8	H	1	AA5052 SHEET, 170.73X104.88X124.06X3 CUT TO SHAPE
7	G	2	AA5052 SHEET, 110X92.16X50X3 CUT TO SHAPE
6	F	2	AA5052 SHEET, 130X92.16X60X3 CUT TO SHAPE
5	E	1	AA5052 SHEET, 140X50X3
4	D	1	AA5052 SHEET, 140X110X100X3 CUT TO SHAPE
3	C	2	AA5052 SHEET, 50.19X113.14X69.52X3 CUT TO SHAPE
2	B	2	AA 5052 SHEET, 130X111.26X90.19X3, CUT TO SHAPE
1	A	1	AA 5052 SHEET, 140X130X3

**INSTRUCTIONS TO COMPETITORS**

1. WELDING PROCESS: GTAW (TIG) (141).
2. WELDING POSITIONS: ALL EXCEPT VERTICAL DOWN.
3. ALL THE WELDING MUST BE CARRIED OUT WITH BASE PLATE "A" IN THE FLAT POSITION.
4. ALL FILLET LEG SIZES: 4.0 mm WITH TOLERANCE (+2.0 mm/-0.0 mm).
5. OUTSIDE CORNER WELD RADII: 3.0mm WITH TOLERANCE (+1.0 mm/-0.9 mm).

Note: All Dimension in Millimetres

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Skill: 10. Welding, Schweissen, Soudage, Soldagem			
Scale: N. T. S	Date: 08.Aug.2015	Paper: A3	
Drawn/Designed by: Chih-Peng Chen TW			Drawing No: WSC2015_TP10_TW_AL_ASSEMBLY_ISO E
Description: Aluminium-Assembly & Symbols			Rev: 1
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			Sign:

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2

3

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5

6

A

A

B

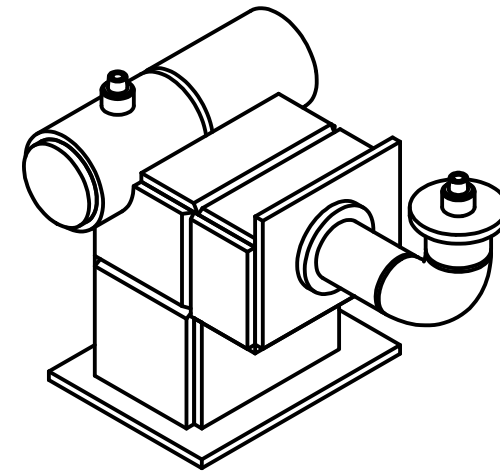
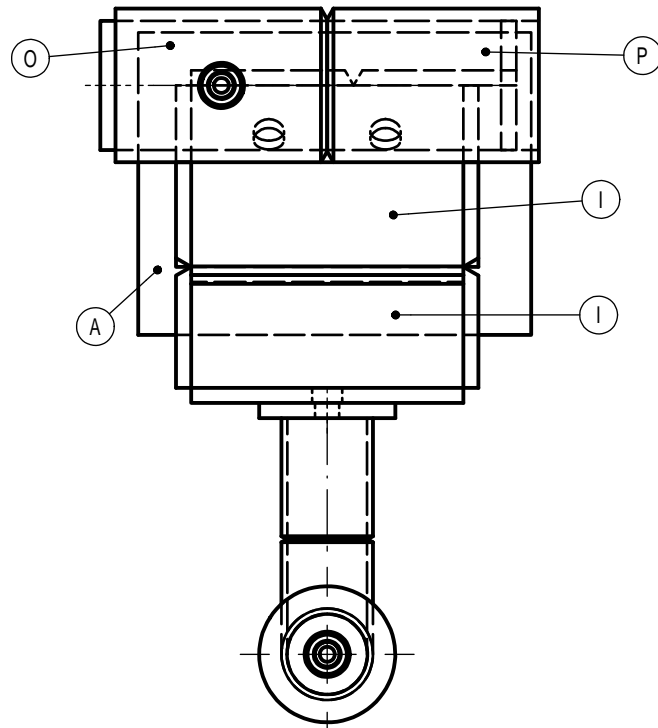
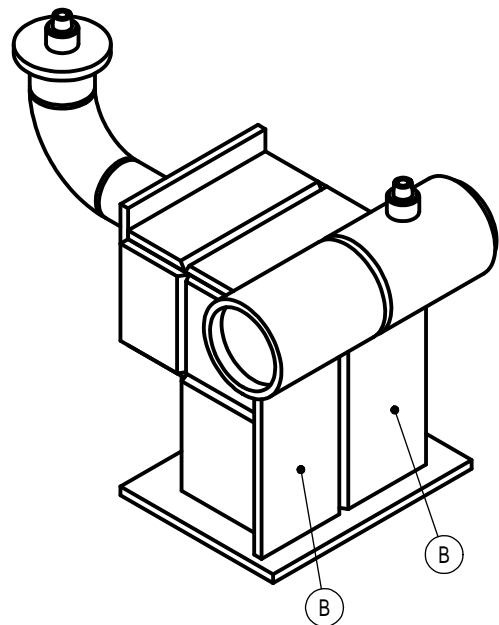
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C

C

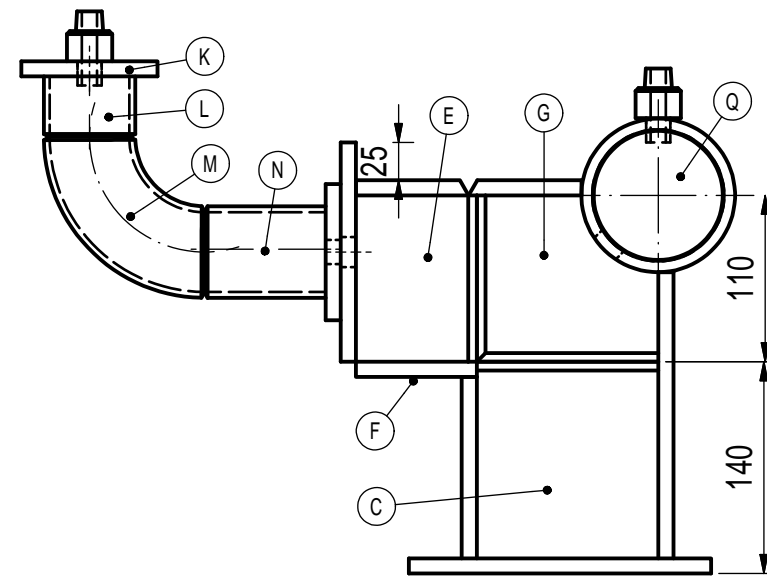
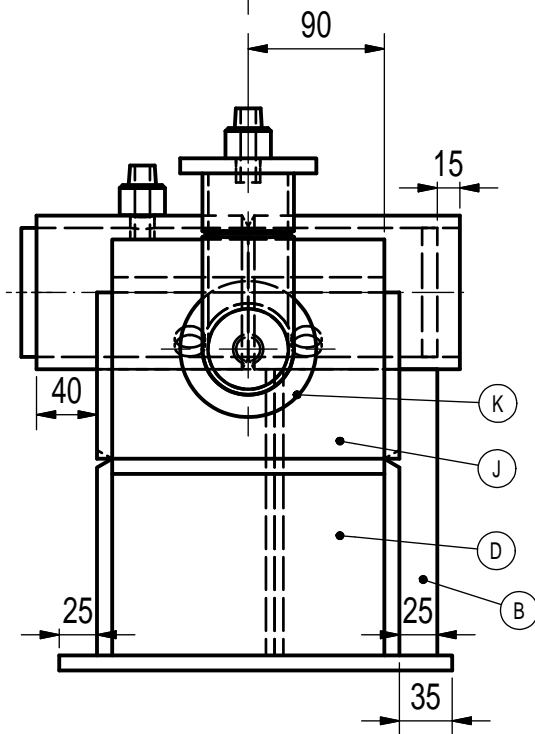
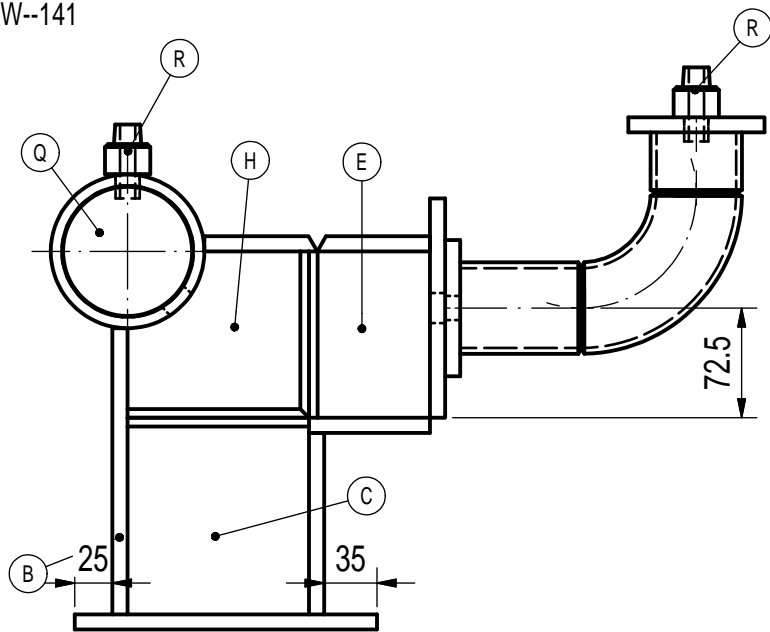
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**Welding Processes:**

- SMAW--111
- GMAW--135
- FCAW--136
- GTAW--141



UNIT:mm

**INSTRUCTIONS TO COMPETITORS**

1. TACK WELDS SHOULD BE MADE IN ANY POSITIONS USING ANY PROCESSES LISTED ON THE DRAWING.
2. ALL TACK WELDS ARE TO BE MADE NOT LONGER THAN 15 mm AND SHALL BE MADE ONLY ON THE OUTSIDE OF THE VESSEL.
3. ALL FILLET WELDS SHALL HAVE A LEG SIZE OF 10 mm WITH TOLERANCE (+2.0 mm/-0.0 mm).
4. OUTSIDE CORNER WELD RADII: 10 mm WITH TOLERANCE (+1.0 mm/-0.9mm).
5. GRINDING SHOULD BE ALLOWED TO BE CARRIED OUT ONLY FOR TACK WELD, START/STOP AND INTERLAYER PASSES OF THE WELDS.
6. FINAL CLEANING MAY BE CARRIED OUT BY USING WIRE BRUSH.

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Skill: 10. Welding, Schweissen, Soudage, Soldagem			
Scale: N. T. S	Date: 08. Aug. 2015	Paper: A3	
Drawn/Designed by: Chih-Peng Chen TW			Drawing No: WSC2015_TP10_TW_PV_ASSEMBLY_ISO A
Description: Pressure Vessel-Assembly			Rev: 3
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			Sign:

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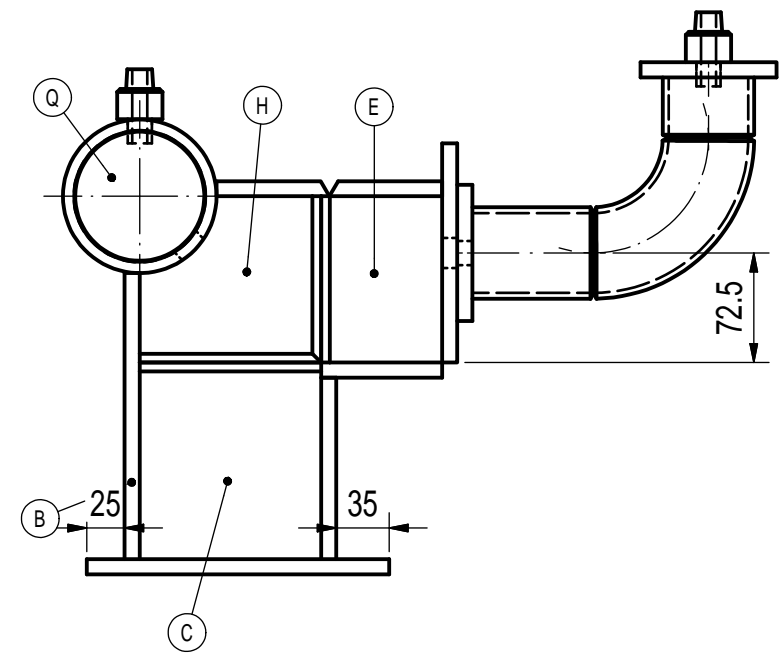
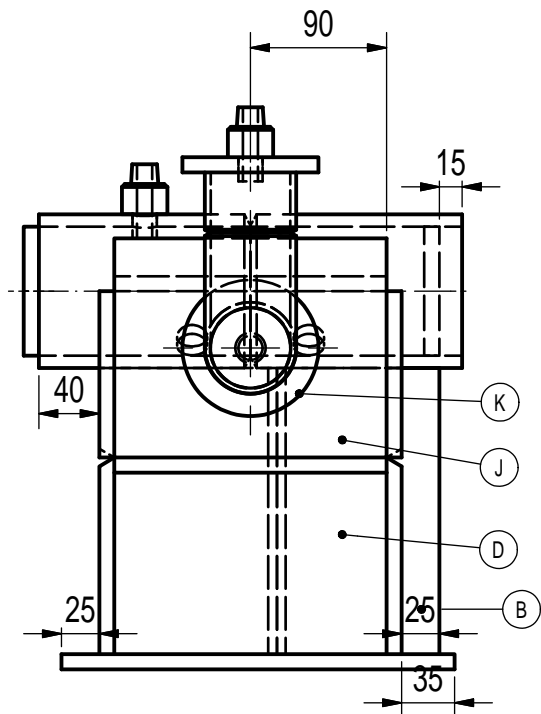
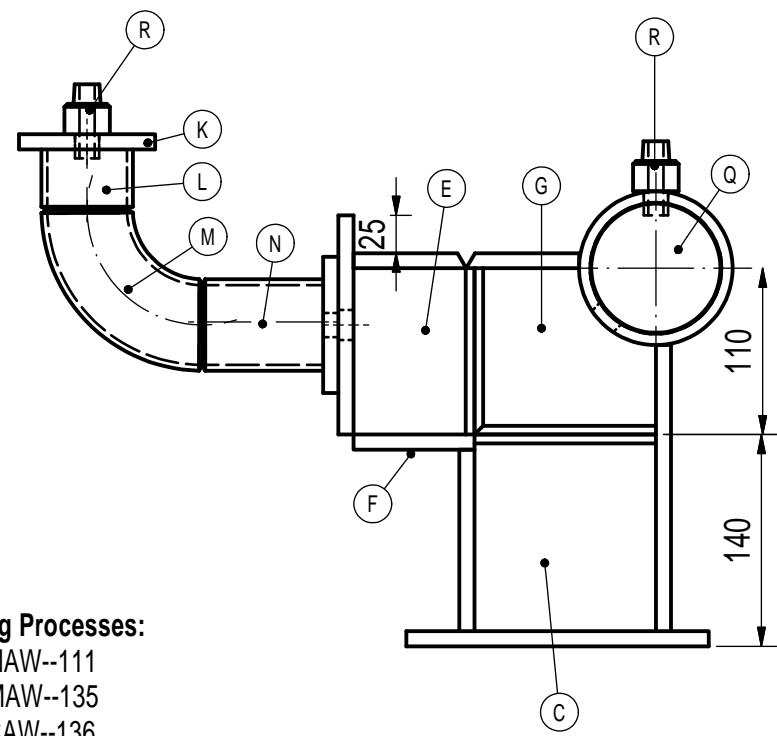
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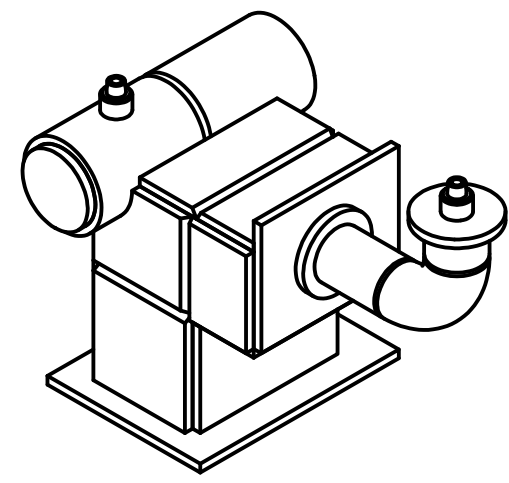
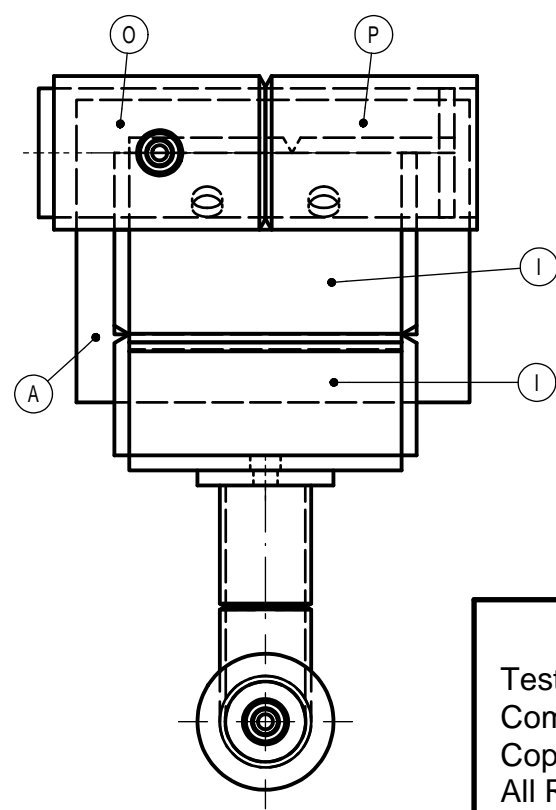
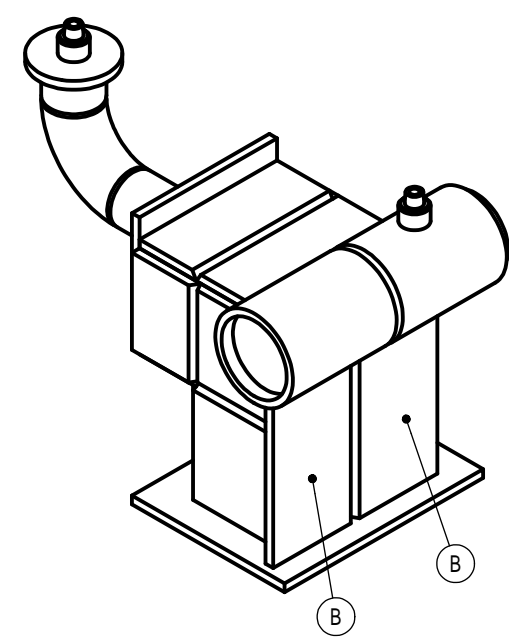
A

A



B

**Welding Processes:**  
 SMAW--111  
 GMAW--135  
 FCAW--136  
 GTAW--141



C

UNIT:mm

**INSTRUCTIONS TO COMPETITORS**

1. TACK WELDS SHOULD BE MADE IN ANY POSITIONS USING ANY PROCESSES LISTED ON THE DRAWING.
2. ALL TACK WELDS ARE TO BE MADE NOT LONGER THAN 15 mm AND SHALL BE MADE ONLY ON THE OUTSIDE OF THE VESSEL.
3. ALL FILLET WELDS SHALL HAVE A LEG SIZE OF 10 mm WITH TOLERANCE (+2.0 mm/-0.0 mm).
4. OUTSIDE CORNER WELD RADII: 10 mm WITH TOLERANCE (+1.0 mm/-0.9mm).
5. GRINDING SHOULD BE ALLOWED TO BE CARRIED OUT ONLY FOR TACK WELD, START/STOP AND INTERLAYER PASSES.OF THE WELDS.
6. FINAL CLEANING MAY BE CARRIED OUT BY USING WIRE BRUSH.

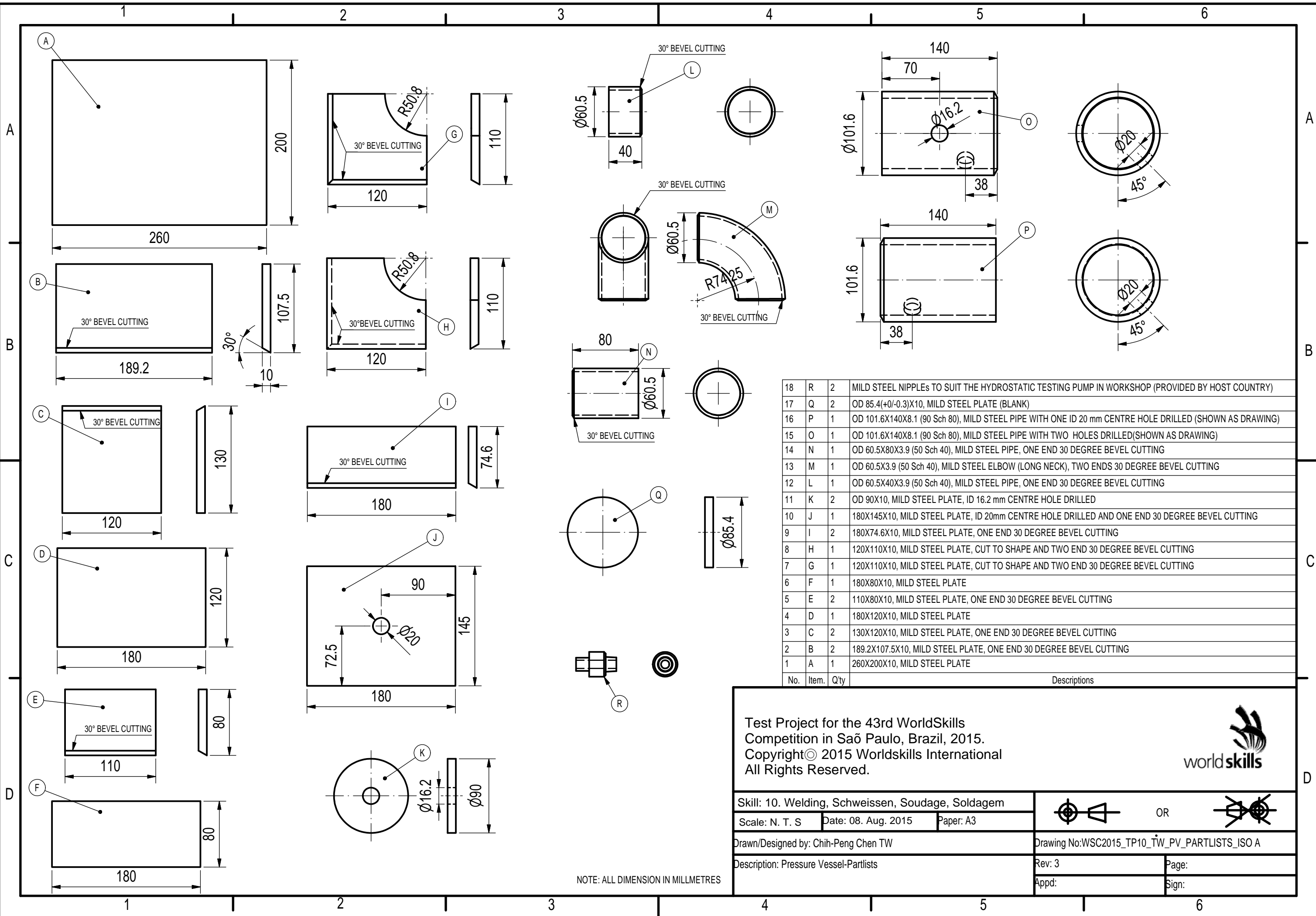
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Skill: 10. Welding, Schweissen, Soudage, Soldagem			OR
Scale: N. T. S	Date: 08. Aug 2015	Paper: A3	
Drawn/Designed by: Chih-Peng Chen TW			Drawing No:WSC2015_TP10_TW_PV_ASSEMBLY_ISO E
Description: Pressure Vessel-Assembly			Rev: 3
			Page:
			Appd:
			Sign:

D

1 2 3 4 5 6



No.	Item	Qty	Descriptions
18	R	2	MILD STEEL NIPPLEs TO SUIT THE HYDROSTATIC TESTING PUMP IN WORKSHOP (PROVIDED BY HOST COUNTRY)
17	Q	2	OD 85.4(+0/-0.3)X10, MILD STEEL PLATE (BLANK)
16	P	1	OD 101.6X140X8.1 (90 Sch 80), MILD STEEL PIPE WITH ONE ID 20 mm CENTRE HOLE DRILLED (SHOWN AS DRAWING)
15	O	1	OD 101.6X140X8.1 (90 Sch 80), MILD STEEL PIPE WITH TWO HOLES DRILLED(SHOWN AS DRAWING)
14	N	1	OD 60.5X80X3.9 (50 Sch 40), MILD STEEL PIPE, ONE END 30 DEGREE BEVEL CUTTING
13	M	1	OD 60.5X3.9 (50 Sch 40), MILD STEEL ELBOW (LONG NECK), TWO ENDS 30 DEGREE BEVEL CUTTING
12	L	1	OD 60.5X40X3.9 (50 Sch 40), MILD STEEL PIPE, ONE END 30 DEGREE BEVEL CUTTING
11	K	2	OD 90X10, MILD STEEL PLATE, ID 16.2 mm CENTRE HOLE DRILLED
10	J	1	180X145X10, MILD STEEL PLATE, ID 20mm CENTRE HOLE DRILLED AND ONE END 30 DEGREE BEVEL CUTTING
9	I	2	180X74.6X10, MILD STEEL PLATE, ONE END 30 DEGREE BEVEL CUTTING
8	H	1	120X110X10, MILD STEEL PLATE, CUT TO SHAPE AND TWO END 30 DEGREE BEVEL CUTTING
7	G	1	120X110X10, MILD STEEL PLATE, CUT TO SHAPE AND TWO END 30 DEGREE BEVEL CUTTING
6	F	1	180X80X10, MILD STEEL PLATE
5	E	2	110X80X10, MILD STEEL PLATE, ONE END 30 DEGREE BEVEL CUTTING
4	D	1	180X120X10, MILD STEEL PLATE
3	C	2	130X120X10, MILD STEEL PLATE, ONE END 30 DEGREE BEVEL CUTTING
2	B	2	189.2X107.5X10, MILD STEEL PLATE, ONE END 30 DEGREE BEVEL CUTTING
1	A	1	260X200X10, MILD STEEL PLATE

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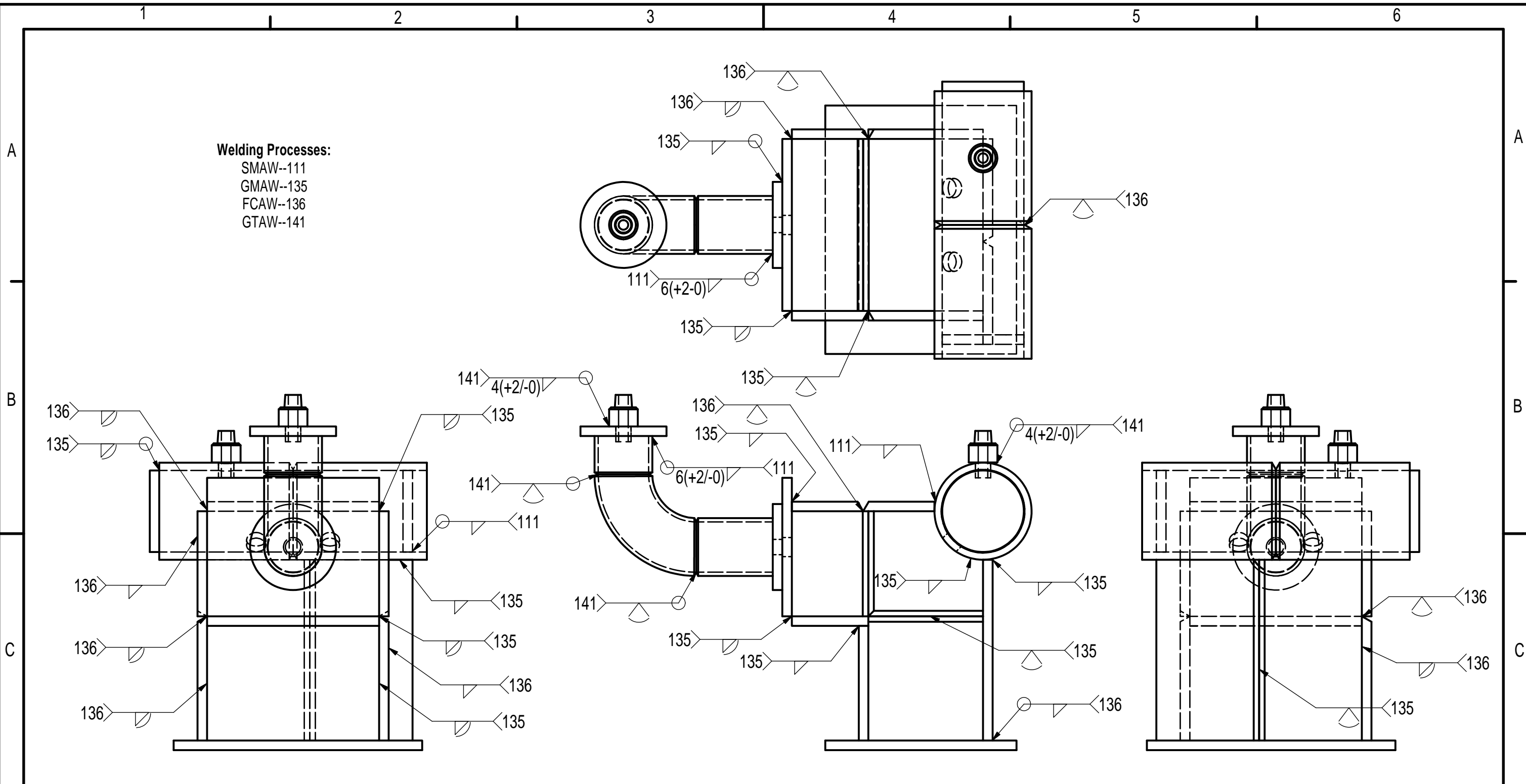


Skill: 10. Welding, Schweissen, Soudage, Soldagem				
Scale: N. T. S	Date: 08. Aug. 2015	Paper: A3		
Drawn/Designed by: Chih-Peng Chen TW			Drawing No: WSC2015_TP10_TW_PV_PARTLISTS_ISO A	
Description: Pressure Vessel-Partlists			Rev: 3	Page:
			Appd:	Sign:

NOTE: ALL DIMENSION IN MILLMETRES

**Welding Processes:**

- SMAW--111
- GMAW--135
- FCAW--136
- GTAW--141

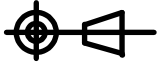



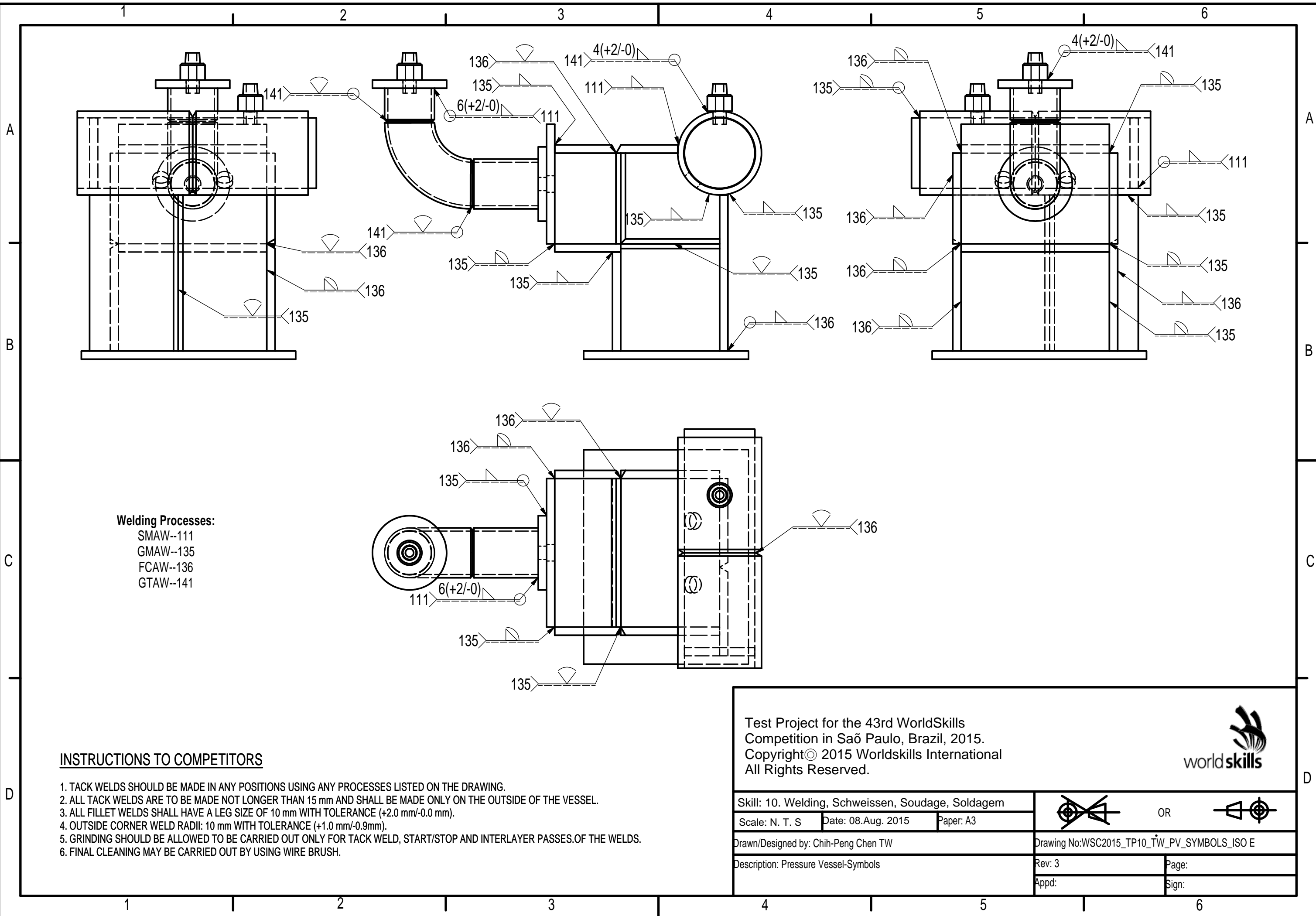
**INSTRUCTIONS TO COMPETITORS**

1. TACK WELDS SHOULD BE MADE IN ANY POSITIONS USING ANY PROCESSES LISTED ON THE DRAWING.
2. ALL TACK WELDS ARE TO BE MADE NOT LONGER THAN 15 mm AND SHALL BE MADE ONLY ON THE OUTSIDE OF THE VESSEL.
3. ALL FILLET WELDS SHALL HAVE A LEG SIZE OF 10 mm WITH TOLERANCE (+2.0 mm/-0.0 mm).
4. OUTSIDE CORNER WELD RADII: 10 mm WITH TOLERANCE (+1.0 mm/-0.9mm).
5. GRINDING SHOULD BE ALLOWED TO BE CARRIED OUT ONLY FOR TACK WELD, START/STOP AND INTERLAYER PASSES OF THE WELDS.
6. FINAL CLEANING MAY BE CARRIED OUT BY USING WIRE BRUSH.

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Skill: 10. Welding, Schweissen, Soudage, Soldagem				OR	
Scale: N. T. S	Date: 08.Aug. 2015	Paper: A3			
Drawn/Designed by: Chih-Peng Chen TW			Drawing No: WSC2015_TP10_TW_PV_SYMBOLS_ISO A		
Description: Pressure Vessel-Symbols			Rev: 3	Page:	
			Appd:	Sign:	



**Welding Processes:**

- SMAW--111
- GMAW--135
- FCAW--136
- GTAW--141

**INSTRUCTIONS TO COMPETITORS**

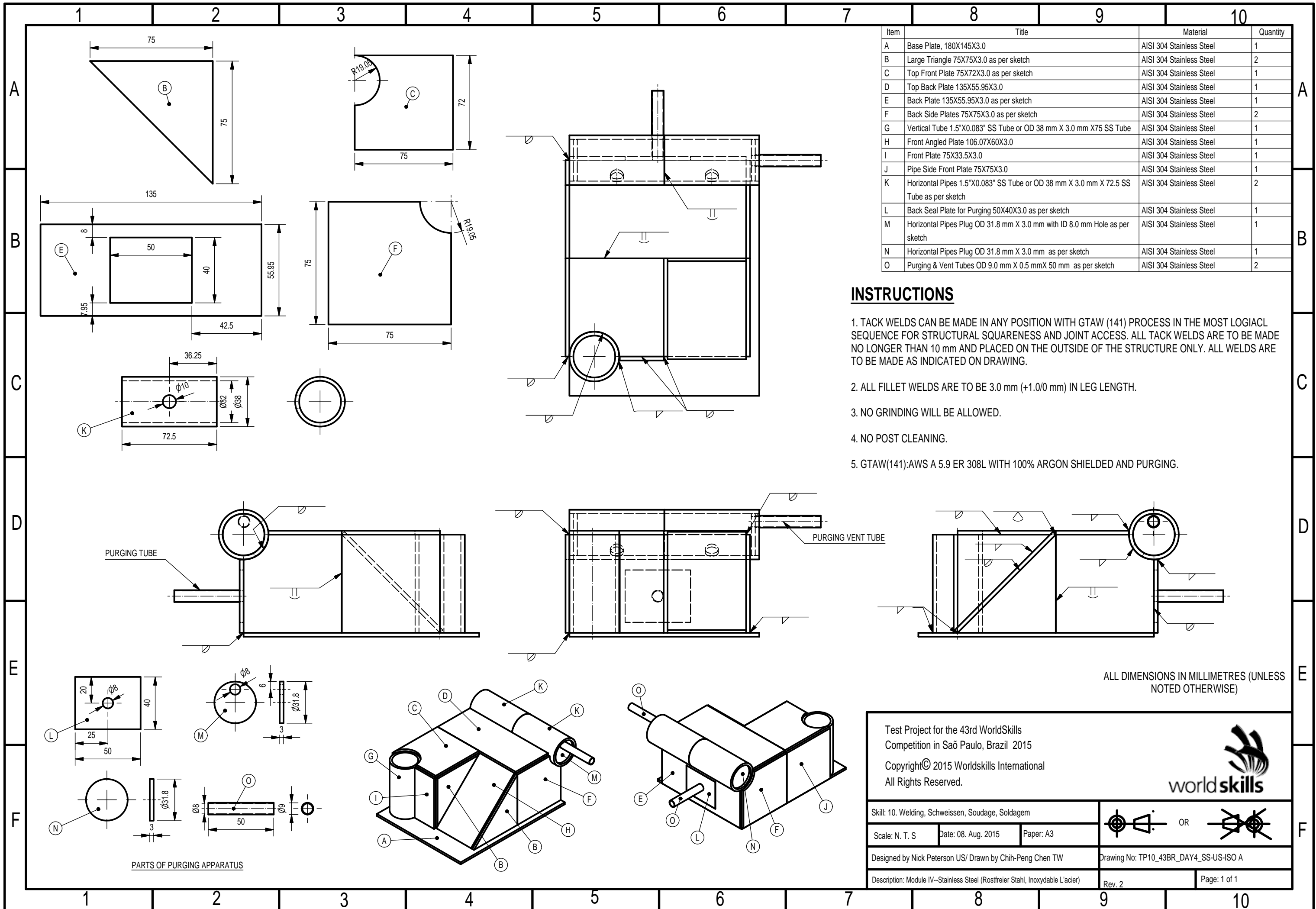
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Skill: 10. Welding, Schweißen, Soudage, Soldagem			
Scale: N. T. S	Date: 08.Aug. 2015	Paper: A3	
Drawn/Designed by: Chih-Peng Chen TW			Drawing No: WSC2015_TP10_TW_PV_SYMBOLS_ISO E
Description: Pressure Vessel-Symbols			Rev: 3
			Page:
			Appd:
			Sign:





Item	Title	Material	Quantity
A	Base Plate, 180X145X3.0	AISI 304 Stainless Steel	1
B	Large Triangle 75X75X3.0 as per sketch	AISI 304 Stainless Steel	2
C	Top Front Plate 75X72X3.0 as per sketch	AISI 304 Stainless Steel	1
D	Top Back Plate 135X55.95X3.0	AISI 304 Stainless Steel	1
E	Back Plate 135X55.95X3.0 as per sketch	AISI 304 Stainless Steel	1
F	Back Side Plates 75X75X3.0 as per sketch	AISI 304 Stainless Steel	2
G	Vertical Tube 1.5"X0.083" SS Tube or OD 38 mm X 3.0 mm X75 SS Tube	AISI 304 Stainless Steel	1
H	Front Angled Plate 106.07X60X3.0	AISI 304 Stainless Steel	1
I	Front Plate 75X33.5X3.0	AISI 304 Stainless Steel	1
J	Pipe Side Front Plate 75X75X3.0	AISI 304 Stainless Steel	1
K	Horizontal Pipes 1.5"X0.083" SS Tube or OD 38 mm X 3.0 mm X 72.5 SS Tube as per sketch	AISI 304 Stainless Steel	2
L	Back Seal Plate for Purging 50X40X3.0 as per sketch	AISI 304 Stainless Steel	1
M	Horizontal Pipes Plug OD 31.8 mm X 3.0 mm with ID 8.0 mm Hole as per sketch	AISI 304 Stainless Steel	1
N	Horizontal Pipes Plug OD 31.8 mm X 3.0 mm as per sketch	AISI 304 Stainless Steel	1
O	Purging & Vent Tubes OD 9.0 mm X 0.5 mm X 50 mm as per sketch	AISI 304 Stainless Steel	2

### INSTRUCTIONS

1. TACK WELDS CAN BE MADE IN ANY POSITION WITH GTAW (141) PROCESS IN THE MOST LOGICAL SEQUENCE FOR STRUCTURAL SQUARENESS AND JOINT ACCESS. ALL TACK WELDS ARE TO BE MADE NO LONGER THAN 10 mm AND PLACED ON THE OUTSIDE OF THE STRUCTURE ONLY. ALL WELDS ARE TO BE MADE AS INDICATED ON DRAWING.
2. ALL FILLET WELDS ARE TO BE 3.0 mm (+1.0/0 mm) IN LEG LENGTH.
3. NO GRINDING WILL BE ALLOWED.
4. NO POST CLEANING.
5. GTAW(141):AWS A 5.9 ER 308L WITH 100% ARGON SHIELDED AND PURGING.

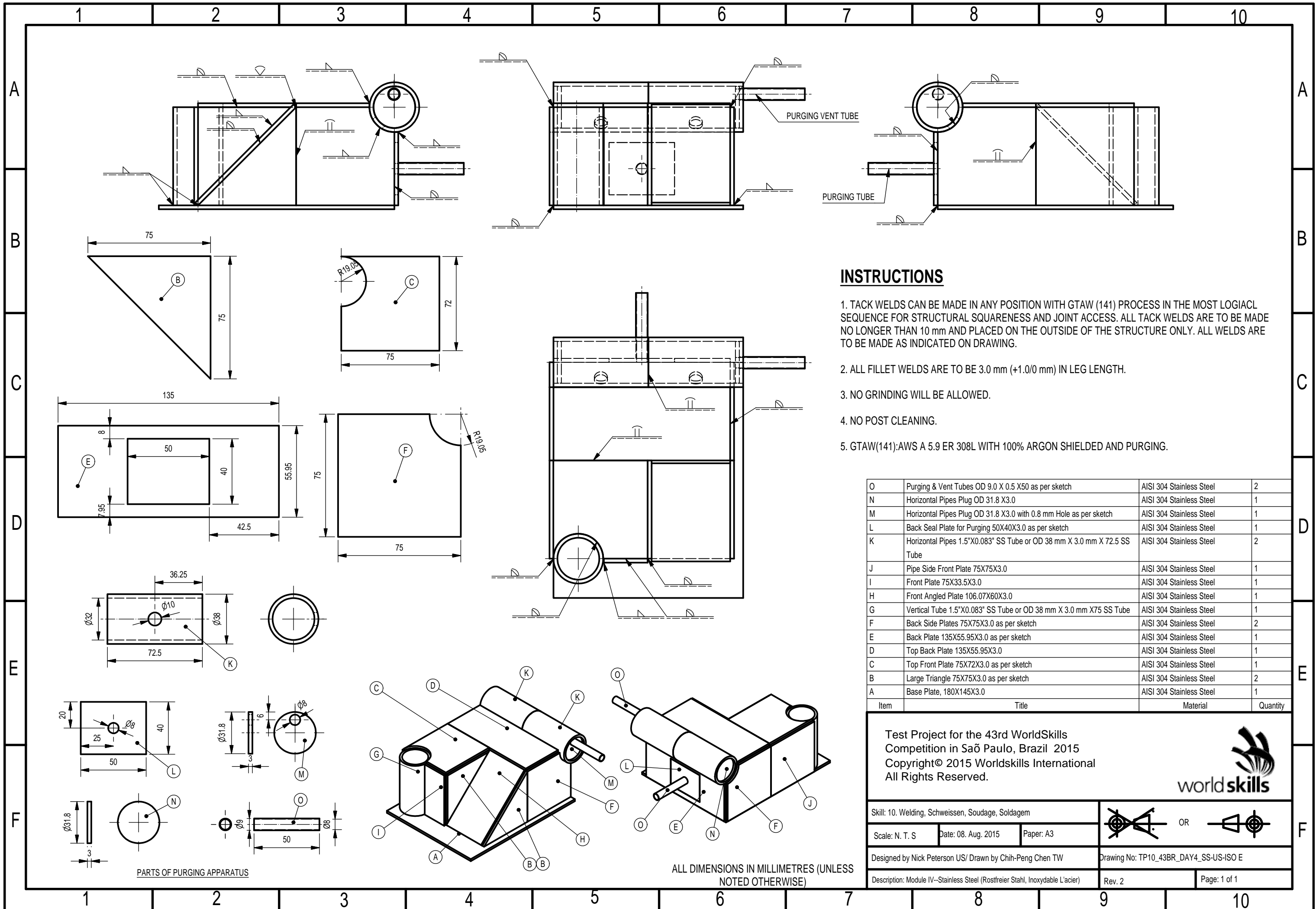
ALL DIMENSIONS IN MILLIMETRES (UNLESS NOTED OTHERWISE)

Test Project for the 43rd WorldSkills  
 Competition in São Paulo, Brazil 2015  
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Skill: 10. Welding, Schweißen, Soudage, Soldagem			
Scale: N. T. S	Date: 08. Aug. 2015	Paper: A3	
Designed by Nick Peterson US/ Drawn by Chih-Peng Chen TW		Drawing No: TP10_43BR_DAY4_SS-US-ISO A	
Description: Module IV--Stainless Steel (Rostfreier Stahl, Inoxydable L'acier)		Rev. 2	Page: 1 of 1

PARTS OF PURGING APPARATUS



### INSTRUCTIONS

1. TACK WELDS CAN BE MADE IN ANY POSITION WITH GTAW (141) PROCESS IN THE MOST LOGIACL SEQUENCE FOR STRUCTURAL SQUARENESS AND JOINT ACCESS. ALL TACK WELDS ARE TO BE MADE NO LONGER THAN 10 mm AND PLACED ON THE OUTSIDE OF THE STRUCTURE ONLY. ALL WELDS ARE TO BE MADE AS INDICATED ON DRAWING.
2. ALL FILLET WELDS ARE TO BE 3.0 mm (+1.0/0 mm) IN LEG LENGTH.
3. NO GRINDING WILL BE ALLOWED.
4. NO POST CLEANING.
5. GTAW(141):AWS A 5.9 ER 308L WITH 100% ARGON SHIELDED AND PURGING.

Item	Title	Material	Quantity
O	Purging & Vent Tubes OD 9.0 X 0.5 X50 as per sketch	AISI 304 Stainless Steel	2
N	Horizontal Pipes Plug OD 31.8 X3.0	AISI 304 Stainless Steel	1
M	Horizontal Pipes Plug OD 31.8 X3.0 with 0.8 mm Hole as per sketch	AISI 304 Stainless Steel	1
L	Back Seal Plate for Purging 50X40X3.0 as per sketch	AISI 304 Stainless Steel	1
K	Horizontal Pipes 1.5"X0.083" SS Tube or OD 38 mm X 3.0 mm X 72.5 SS Tube	AISI 304 Stainless Steel	2
J	Pipe Side Front Plate 75X75X3.0	AISI 304 Stainless Steel	1
I	Front Plate 75X33.5X3.0	AISI 304 Stainless Steel	1
H	Front Angled Plate 106.07X60X3.0	AISI 304 Stainless Steel	1
G	Vertical Tube 1.5"X0.083" SS Tube or OD 38 mm X 3.0 mm X75 SS Tube	AISI 304 Stainless Steel	1
F	Back Side Plates 75X75X3.0 as per sketch	AISI 304 Stainless Steel	2
E	Back Plate 135X55.95X3.0 as per sketch	AISI 304 Stainless Steel	1
D	Top Back Plate 135X55.95X3.0	AISI 304 Stainless Steel	1
C	Top Front Plate 75X72X3.0 as per sketch	AISI 304 Stainless Steel	1
B	Large Triangle 75X75X3.0 as per sketch	AISI 304 Stainless Steel	2
A	Base Plate, 180X145X3.0	AISI 304 Stainless Steel	1

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 Competition in Saõ Paulo, Brazil 2015  
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Skill: 10. Welding, Schweißen, Soudage, Soldagem			
Scale: N. T. S	Date: 08. Aug. 2015	Paper: A3	
Designed by Nick Peterson US/ Drawn by Chih-Peng Chen TW		Drawing No: TP10_43BR_DAY4_SS-US-ISO E	
Description: Module IV--Stainless Steel (Rostfreier Stahl, Inoxydable L'acier)		Rev. 2	Page: 1 of 1

ALL DIMENSIONS IN MILLIMETRES (UNLESS NOTED OTHERWISE)

PARTS OF PURGING APPARATUS

Skill name

Welding

Criteria

Mark

A	Visual Marking	50.00
B	Pressure Test	15.00
C	Destructive testing	4.00
D	Non Destructive Testing - Radiograph	21.00
E	Assembly and Competency	10.00

Sub Criteria ID	Sub Criteria Name or Description	Aspect Type O = Obj S = Sub J = Judg	Aspect - Description	Judg Score
A1	Visual Assessment of Fillet Weld	<input type="radio"/>	Fillet weld sizes in accordance with specifications and drawings?	
		<input type="radio"/>	Fillet welds free from undercut?	
		<input type="radio"/>	Fillet weld free from arc strike?	
A2	Visual Assessment of Test Pipe	<input type="radio"/>	Butt welds free from undercut or underfill?	
		<input type="radio"/>	Butt weld joint free from excessive face reinforcement	
		<input type="radio"/>	Butt Joint weld widths uniform and regular?	
		<input type="radio"/>	Butt weld joint free from arc strike?	
		<input type="radio"/>	Butt weld joint free from excessive root concavity	
		<input type="radio"/>	Butt weld joint free from excessive root reinforcement	
A3	Visual Assessment of Test Plate 10mm	<input type="radio"/>	Butt welds free from undercut or underfill?	
		<input type="radio"/>	Butt weld joint free from excessive face reinforcement	

A4	Visual Assessment of Test Plate 16mm	<input type="radio"/> Butt Joint weld widths uniform and regular? <input type="radio"/> Butt weld joint free from arc strike? <input type="radio"/> Butt weld joint free from excessive root concavity <input type="radio"/> Butt weld joint free from excessive root reinforcement  <input type="radio"/> Butt welds free from undercut or underfill? <input type="radio"/> Butt weld joint free from excessive face reinforcement <input type="radio"/> Butt Joint weld widths uniform and regular? <input type="radio"/> Butt weld joint free from arc strike? <input type="radio"/> Butt weld joint free from excessive root concavity <input type="radio"/> Butt weld joint free from excessive root reinforcement
A5	Pressure Vessel – Visual Assessment of Weld S	<input type="radio"/> General - Surface slag, spatter and smoke has been removed from the surface? <input type="radio"/> General - Vessel is free from stray arc strikes?  <input type="radio"/> General - Joints are free from linear misalignment? <input type="radio"/> General - Tie-ins at corners are smooth and continuous to within the joint?  <input type="radio"/> Fillet Joints - All stop/restarts smooth on the capping layer of the joint? <input type="radio"/> Fillet joints completely fused into the parent material? <input type="radio"/> Fillet joints completely free from surface porosity or inclusions?  <input type="radio"/> Fillet joints free from undercut? <input type="radio"/> Fillet Joint weld sizes in accordance with the specifications and drawings?  <input type="radio"/> Butt Joint weld widths uniform and regular? <input type="radio"/> Butt Joints - All stop/restarts are smooth on the capping layer of the joint? <input type="radio"/> Butt Joint weld metal completely fused into the parent material? <input type="radio"/> Butt Joint weld metal completely free from inclusions or surface porosity?  <input type="radio"/> Butt Joint weld joint grooves completely filled? <input type="radio"/> Butt weld joints free from excessive face reinforcement? <input type="radio"/> Corner weld bead widths uniform and regular? <input type="radio"/> Corner Joints - All stop/restarts smooth on the capping layer of the joint? <input type="radio"/> Corner Joint weld metal completely fused into the parent material? <input type="radio"/> Corner Joint weld metal completely free from surface porosity or inclusions?  <input type="radio"/> Corner welded joints free from undercut? <input type="radio"/> Corner welds exhibit a full radius contour?

A6 Aluminium Structure - Visual Assessment of We

- Butt Joints free from undercut?
- Project is free from stray arc strike
- Butt weld bead widths uniform and regular?
- All stop/restarts are smooth on the capping layer?
- Butt weld joints free from excessive face reinforcement?
- Weld metal is completely free from surface porosity or inclusions
- Welded joints are free from undercut?
- Fillet weld leg lengths are in accordance with the specifications?
- Corner welds exhibit a full radius contour?
- All fillet welds free from burn through?
- Joints are free from linear misalignment
- Weld joints are completely welded?
- All butt and corner joints display penetration/root fusion?
- Welded joints are free from excessive penetration?
- Weld penetration completely free from excessive root concavity

A7 Stainless Steel Structure - Visual Assessment of

- Project is free from stray arc strikes?
- Butt weld bead widths are uniform and regular?
- All stop/restarts are smooth on the capping layer?
- Weld metal is completely free from surface porosity or inclusions
- Welded joints are free from undercut?
- Butt weld joint is free from excessive face reinforcement?
- Fillet weld leg lengths are in accordance with the specifications?

- Corner welds exhibit a full radius contour?
- All fillet welds are free from burn through?
- Weld joint is completely welded?
- All butt and corner joints display penetration/root fusion?
- Welded joints are free from excessive penetration?
- Weld penetration is completely free from excessive root concavity?
- Joints are free from linear misalignment
- The root penetration is free from contamination (oxidation/sugaring)

Sub Criteria ID	Sub Criteria Name or Description	Aspect Type O = Obj S = Sub J = Judg	Aspect - Description	Judg Score
B1	Pressure Vessel – Pressure Test	<ul style="list-style-type: none"> <li><input type="radio"/> Vessel presented for assessment test</li> <li><input type="radio"/> The vessel holds pressure at 10 Bar - Refer TD Section 4.9</li> <li><input type="radio"/> The vessel holds pressure at 25 Bar - Refer TD Section 4.9</li> <li><input type="radio"/> The vessel holds pressure at 30 Bar - Refer TD Section 4.9</li> <li><input type="radio"/> The vessel holds pressure at 40 Bar - Refer TD Section 4.9</li> <li><input type="radio"/> The vessel holds pressure at 50 Bar - Refer TD Section 4.9</li> <li><input type="radio"/> The vessel holds pressure at 60 Bar - Refer TD Section 4.9</li> <li><input type="radio"/> The vessel holds pressure at 69 Bar - Refer TD Section 4.9</li> </ul>		

Sub Criteria ID	Sub Criteria Name or Description	Aspect Type O = Obj S = Sub J = Judg	Aspect - Description	Judg Score
C1	Visual Assessment of Fillet Weld Break Test	<input type="radio"/> <input type="radio"/> <input type="radio"/>	The fillet weld is completely fused at the root of the joint? The fillet weld is completely fused between individual runs? The fractured fillet welds are free from porosity and inclusion?	
Sub Criteria ID	Sub Criteria Name or Description	Aspect Type O = Obj S = Sub J = Judg	Aspect - Description	Judg Score
D1	Non Destructive (X-Ray) Test – Pipe Coupon	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	ISO 5817 - Quality level of imperfections - Class D? ISO 5817 - Quality level of imperfections - Class C? ISO 5817 - Quality level of imperfections - Class B? Class A?	
D2	Non Destructive (X-Ray) Test – 10mm Plate Cou	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	ISO 5817 - Quality level of imperfections - Class D? ISO 5817 - Quality level of imperfections - Class C? ISO 5817 - Quality level of imperfections - Class B? Class A?	
D3	Non Destructive (X-Ray) Test – 16mm Plate Cou	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	ISO 5817 - Quality level of imperfections - Class D? ISO 5817 - Quality level of imperfections - Class C? ISO 5817 - Quality level of imperfections - Class B? Class A?	

Sub Criteria ID	Sub Criteria Name or Description	Aspect Type O = Obj S = Sub J = Judg	Aspect - Description	Judg Score
E1	Assembly and Competency Interpretation – A1	<input type="checkbox"/>	Competitor conducted the hold point on the root run?	
E2	Assembly and Competency Interpretation – A2	<input type="checkbox"/>	Completed Fillet Joint free from grinding or other metal removal on	
E3	Assembly and Competency Interpretation – A3	<input type="checkbox"/>	Completed coupon free from grinding or other metal removal on	
E4	Assembly and Competency Interpretation – A4	<input type="checkbox"/>	Completed coupon free from grinding or other metal removal on	
E5	Assembly and Competency Interpretation – A5	<input type="checkbox"/>	Competitor conducted the hold point for the final (cap) run on the	
E6	Assembly and Competency Interpretation – A6	<input type="checkbox"/>	Final (cap) run stop on the 16mm test plate in the correct position	
E7	Assembly and Competency Interpretation – A7	<input type="checkbox"/>	Completed coupon free from grinding or other metal removal on	
E8	Assembly and Competency Interpretation	<input type="checkbox"/>	The pressure vessel free from internal tacks?	
		<input type="checkbox"/>	The external tacks within the sized allowed?	
		<input type="checkbox"/>	The Pressure Vessel was assembled correctly and completely be	
		<input type="checkbox"/>	Completed vessel free from grinding or other metal removal on th	
		<input type="checkbox"/>	External tacks within the sized allowed?	
		<input type="checkbox"/>	Aluminium Structure assembled correctly?	
		<input type="checkbox"/>	Completed Structure free from brushing, grinding or other weld c	
		<input type="checkbox"/>	External tacks within the sized allowed?	
		<input type="checkbox"/>	Stainless Steel Structure assembled correctly?	
		<input type="checkbox"/>	Completed Structure free from brushing, grinding or other weld c	
		<input type="checkbox"/>	Were all of the projects completed within the 18 hours?	



Extra Aspect Description (Obj or Subj) OR Judgement Score Description (Judg only)	Requirement or Nominal Size (Obj Only)	WSSS Section	Max Mark
(-0/+2mm)	yes/no	1	1.40
0.5 mm maximum depth allowed.	yes/no	4	0.50
	yes/no	4	0.50
Undercut - 0.5 mm maximum depth allowed. Underfill - 0	yes/no	4	0.40
Allow 2.5 mm or less, and 1.5 mm variation in height	yes/no	4	0.40
Allow 2 mm variation in width	yes/no	4	0.30
	yes/no	4	0.30
Allow 0.5mm maximum. Zero mark if 100% penetration is	yes/no	4	0.40
Allow 2 mm maximum. Zero mark if 100% penetration is	yes/no	4	0.40
Undercut - 0.5 mm maximum depth allowed. Underfill - 0	yes/no	4	0.40
Allow 2.5 mm or less, and 1.5 mm variation in height	yes/no	4	0.40

Criterion  
A

Total  
Mark 50.00

Allow 2 mm variation in width	yes/no	4	0.30
	yes/no	4	0.30
Allow 0.5mm maximum. Zero mark if 100% penetration is	yes/no	4	0.40
Allow 2 mm maximum. Zero mark if 100% penetration is	yes/no	4	0.40
Undercut - 0.5 mm maximum depth allowed. Underfill - 0	yes/no	4	0.40
Allow 2.5 mm or less, and 1.5 mm variation in height	yes/no	4	0.40
Allow 2 mm variation in width	yes/no	4	0.30
	yes/no	4	0.30
Allow 0.5mm maximum. Zero mark if 100% penetration is	yes/no	4	0.40
Allow 2 mm maximum. Zero mark if 100% penetration is	yes/no	4	0.40
	yes/no	1	1.00
One defect = 0.7 marks, 2 defects = 0.4 marks, 3 or more Defects =		4	1.00
1 visible arc strike = 1 defect			
Allow 1mm maximum	yes/no	2	0.80
Allow 2 mm variation in height and width between runs	Defects =	4	1.00
1 tie - in not smooth = 1 defect			
Allow 1.5 mm variation between stop/start	yes/no	4	1.00
No overlap/cold lap	yes/no	3	1.00
One defect = 0.7 marks, 2 defects = 0.4 marks, 3 or more Defects =		4	1.00
-1 visible pore or inclusion = 1 defect			
Disregard depth of 0.5mm or less.	yes/no	4	1.00
(-0 / +2 mm). One defect = 1.5 marks, 2 defects = 1.0 mark Defects =		1	2.00
Less than or equal to 25mmL = 1 defect (accumulative)			
Allow 2 mm variation in width	yes/no	4	0.80
Allow 1.5 mm variation between stop/start	yes/no	4	0.80
No overlap/cold lap	yes/no	3	0.80
One defect = 0.7 marks, 2 defects = 0.4 marks, 3 or more Defects =		4	1.00
-1 visible pore or inclusion = 1 defect			
	yes/no	1	0.80
Greater than 2.5 mm.	yes/no	4	0.80
Allow 2 mm variation in width	yes/no	4	0.80
Allow 1.5 mm variation in height between stop/start	yes/no	4	0.80
No overlap/cold lap	yes/no	4	0.80
One defect = 0.7 marks, 2 defects = 0.4 marks, 3 or more Defects =		4	1.00
-1 visible pore or inclusion = 1 defect			
Disregard depth of 0.5mm or less	yes/no	4	0.80
(-1mm/+1.0mm). Less than or equal to 25mmL = 1 defect Defects =		1	1.00

One defect = 0.7 marks, 2 defects = 0.4 marks, 3 or more Disregard depth of 0.5mm or less	yes/no	4	1.00
One defect = 0.4 marks, 2 defects = 0.2 marks, 3 or more Allow 1.5 mm variation in width. Each weld outside the variation =	Defects =	4	0.60
One defect = 0.4 marks, 2 defects = 0.2 marks, 3 or more Allow 1 mm variation between stop/start	yes/no	1	0.60
Greater than 1.5 mm. Less than or equal to 10mmL = 1 defect	Defects =	4	0.60
One defect = 0.4 marks, 2 defects = 0.2 marks, 3 or more - 1 visible pore = 1 defect	Defects =	4	0.60
One defect = 0.4 marks, 2 defects = 0.2 marks, 3 or more Disregard depth of 0.5mm or less	yes/no	4	0.50
(-0 /+2.0 mm). Less than or equal to 10mmL = 1 defect (accumulative)	Defects =	1	0.80
One defect = 0.6 marks, 2 defects = 0.4 marks, 3 or more (-1.0mm/+1.0mm). Less than or equal to 10mmL = 1 defect (accumulative)	Defects =	1	0.60
One defect = 0.4 marks, 2 defects = 0.2 marks, 3 or more - less than or equal to 10mmL = 1 defect (accumulative)	Defects =	3	0.50
One defect = 0.4 marks, 2 defects = 0.2 marks, 3 or more Allow 1mm variation	yes/no	2	0.50
Fully formed bead may not terminate greater than or equal to 10mmL = 1 defect	yes/no	4	0.50
100% = 2.0 marks, >or=90% = 1.5 marks, >or=75% = 1.0 marks, >or=50% = 0.4 marks, <50% = 0 marks	% Penetration =	3	2.00
Greater than 3 mm. Zero mark if the total amount of penetration = 1 defect (accumulative)	Defects =	4	0.80
One defect = 0.6 marks, 2 defects = 0.3 marks, 3 or more Allow depth of 0.5 mm or less. Zero mark if the total amount of penetration = 1 defect (accumulative)	Defects =	4	0.80
One defect = 0.6 marks, 2 defects = 0.3 marks, 3 or more Allow 1.5 mm variation. Each weld outside the variation =	Defects =	4	0.50
One defect = 0.3 marks, 2 defects = 0.2 marks, 3 or more Allow 1mm variation between stop/start	yes/no	1	0.50
- 1 visible pore/inclusion = 1 defect	Defects =	4	0.50
One defect = 0.3 marks, 2 defects = 0.2 marks, 3 or more Disregard depth of 0.5mm or less	yes/no	4	0.50
Greater than 1.5 mm. Less than or equal to 10mmL = 1 defect (accumulative)	Defects =	4	0.60
One defect = 0.4 marks, 2 defects = 0.2 marks, 3 or more (-0 /+1.0 mm). Less than or equal to 10mmL = 1 defect (accumulative)	Defects =	1	0.60

One defect = 0.4 marks, 2 defects = 0.2 marks, 3 or more (-1.0mm/+1.0mm). Less than or equal to 10mmL = 1 defect	Defects =	1	0.60
One defect = 0.4 marks, 2 defects = 0.2 marks, 3 or more - less than or equal to 10mmL = 1 defect (accumulative)	Defects =	4	0.60
One defect = 0.4 marks, 2 defects = 0.2 marks, 3 or more Fully formed bead may not terminate greater than or equal to 10mmL	yes/no	4	0.50
100% = 2.0 marks, >or=90% = 1.5 marks, >or=75% = 1.0 mark, >or=50% = 0.4 marks, <50% = 0 marks	% Penetration =	3	2.00
Greater than 2.5 mm. Zero mark if the total amount of penetration is less than or equal to 10mmL = 1 defect (accumulative)	Defects =	4	0.70
One defect = 0.5 marks, 2 defects = 0.3 marks, 3 or more Allow depth of 0.5 mm or less. Zero mark if the total amount of penetration is less than or equal to 10mmL = 1 defect (accumulative)	Defects =	4	0.70
One defect = 0.5 marks, 2 defects = 0.3 marks, 3 or more Allow 1 mm variation	yes/no	2	0.50
Zero mark if the total amount of penetration is less than 75% of nominal size	Defects =	3	0.70
One defect = 0.5 marks, 2 defects = 0.3 marks, 3 or more			
Extra Aspect Description (Obj or Subj) OR Judgement Score Description (Judg only)	Requirement or Nominal Size (Obj Only)	WSSS Section	Max Mark
Vessel presented for pressure test	yes/no	3	1.00
No leaks observed at 10 Bar	yes/no	1	2.00
No leaks observed at 20 Bar	yes/no	1	2.00
No leaks observed at 30 Bar	yes/no	4	2.00
No leaks observed at 40 Bar	yes/no	4	2.00
No leaks observed at 50 Bar	yes/no	4	2.00
No leaks observed at 60 Bar	yes/no	4	2.00
No leaks observed at 69 Bar	yes/no	4	2.00

**Criterion B Total Mark 15.00**

Extra Aspect Description (Obj or Subj) OR Judgement Score Description (Judg only)	Requirement or Nominal Size (Obj Only)	WSSS Section	Max Mark
One defect 2.5 mm or less = 0.50 marks Two defects 2.5 mm or less = 0.25 marks 3 or more defects = 0 mark	yes/no yes/no Defects =	2 4 4	1.50 1.50 1.00
Extra Aspect Description (Obj or Subj) OR Judgement Score Description (Judg only)	Requirement or Nominal Size (Obj Only)	WSSS Section	Max Mark
Class D = 1 mark Class C= 2 marks Class B= 2 marks Class A= 2 marks. *Class A represents "No recordable in	Yes/no Yes/no Yes/no Yes/no	2 4 4 4	1.00 2.00 2.00 2.00
Class D= 1 mark Class C= 2 marks Class B= 2 marks Class A= 2 marks. *Class A represents "No recordable in	Yes/no Yes/no Yes/no Yes/no	2 4 4 4	1.00 2.00 2.00 2.00
Class D = 1 mark Class C= 2 marks Class B= 2 marks Class A= 2 marks. *Class A represents "No recordable in	Yes/no Yes/no Yes/no Yes/no	2 4 4 4	1.00 2.00 2.00 2.00

Criterion C Total Mark 4.00

Criterion D Total Mark 21.00

Extra Aspect Description (Obj or Subj) OR Judgement Score Description (Judg only)	Requirement or Nominal Size (Obj Only)	WSSS Section	Max Mark
	Yes/no	1	0.50
	Yes/no	1	0.25
	Yes/no	1	0.25
	Yes/no	1	0.25
	Yes/no	1	0.35
	Yes/no	1	0.35
	Yes/no	1	0.30
	Yes/no	1	0.25
	Yes/no	1	0.25
	Yes/no	1	1.25
	Yes/no	1	0.50
	Yes/no	1	0.25
	Yes/no	1	1.25
	Yes/no	1	0.25
	Yes/no	1	0.25
	Yes/no	1	1.25
	Yes/no	1	0.25
	Yes/no	3	2.00

Criterion E      Total Mark      10.00

Competition      Total Mark      100.00