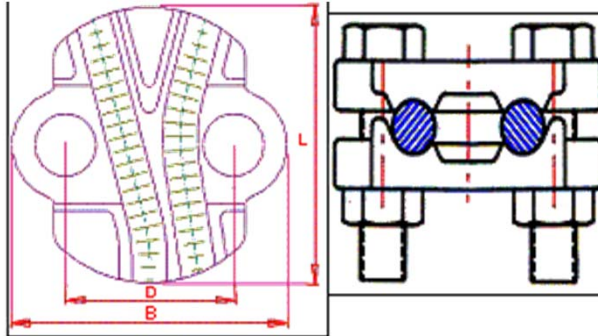


Accessories

Technical Guarantees No. ADEC_70**Aluminium Dead End Clamp , 50/70 mm²**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Standards					
4	Material					
	a) Body		High strength, corrosion-resistant, aluminium alloy (AlMgSi1)			
	b) Bolts		Steel, 8.8, DIN 933 hot-dip galvanized			
	c) Nuts		Steel, 8, DIN 934 hot-dip galvanized			
5	Conductor Cross Sectional Area	mm ²	50-70 AL and 50/8 ACSR			
6	Conductor Diameter	mm	9-11.7			
7	Bolts (No. x Size x Length)		2 x M10 x 35			
8	Bolt Torque Moments		46Nm			
9	Metal Stamping		Required including manufacturer Logo and the Name of the Clamp			
10	Total Weight	gr	200			



L = 60 mm

D = 42 mm

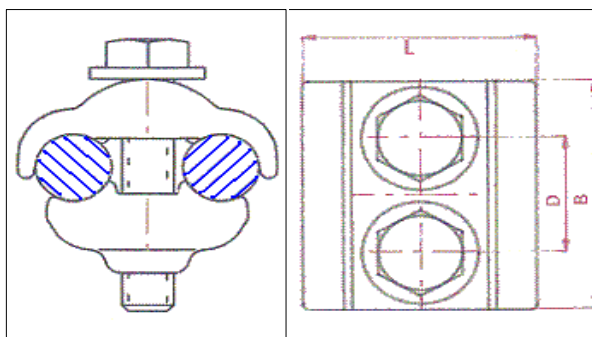
B = 64 mm

Tenderer's Signature :

Date:

Technical Guarantees No. APGC_120**Aluminium Parallel Groove Clamp 16-120 mm² / 16-120 mm²**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Reference Manufacturing Standards		DIN 48072-1			
Material						
4	a) Body		High strength, corrosion-resistant, aluminium alloy (AlMgSi1)			
	b) Bolts		DIN 933, steel 8.8, hot-dip galvanized			
	c) Nuts		DIN 934, steel hot-dip galvanized, pressed into lower clamp body			
	d) Washers (6 each)		DIN 6796, corrosion-protected			
5	Conductor Cross Sectional Area	mm ²	16-120 AL and 16/2.5-95/15 ACSR			
6	Conductor Diameter	mm	5.1-14			
7	Bolts (No. x Size x Length)		2 x M8 x 50			
8	Bolt Torque Moments		23Nm			
9	Metal Stamping		Required including manufacturer Logo and the Name of the Clamp			
10	Total Weight	gr	145			



L = 45 mm
D = 25 mm
B = 50 mm

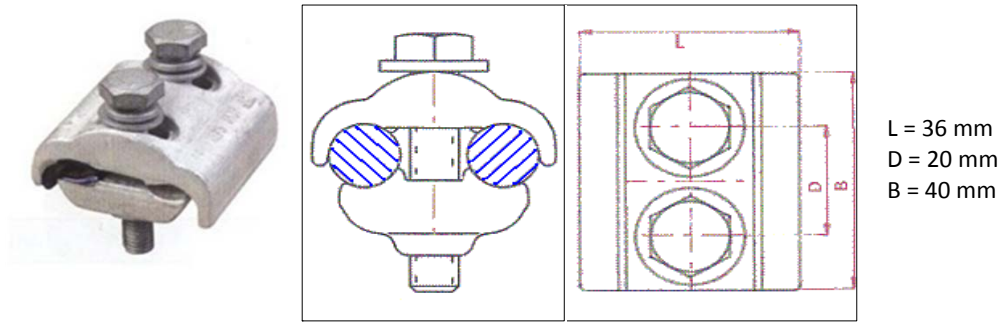
Tenderer's Signature :

Date:

Technical Guarantees No. APMC_70

Aluminium Parallel Groove Clamp 16-70 mm² / 16-70 mm²

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Reference Manufacturing Standards		DIN 48072-1			
4	Material					
	a) Body		High strength, corrosion-resistant, aluminium alloy (AlMgSi1)			
	b) Bolts		DIN 933, steel 8.8, hot-dip galvanized			
	c) Nuts		DIN 934, steel hot-dip galvanized, pressed into lower clamp body			
	d) Washers (6 each)		DIN 6796, corrosion-protected			
5	Conductor Cross Sectional Area	mm ²	16-120 AL , 16/2.5-70/12 ACSR			
6	Conductor Diameter	mm	5.1-11.7			
7	Bolts (No. x Size x Length)		2 x M8 x 40			
8	Bolt Torque Moments		23Nm			
9	Metal Stamping		Required including manufacturer Logo and the Name of the Clamp			
10	Total Weight	gr	90			

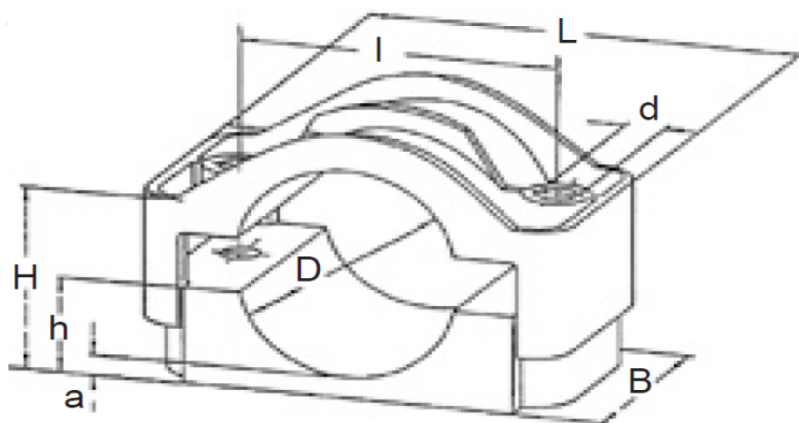


Tenderer's Signature : Date:

Technical Guarantees No. CC_52**Clamp to Holder the Cable (Single , Large)**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Description		Cable Clamps			
4	Cable Outer Diameter	mm	36-52			
5	No. of Cables		1			
6	Material		Polyamide, Glass Fiber Reinforced			
7	Tensile strength	N/mm ²	120			
8	Flexural Strength	N/mm ²	200			
9	Thermal Expansion		0.02% / 1°C			
10	Fire Resistance		UL 94 , VDE 0304, Part 3			
11	Accessories		2 Hot Galvanized Bolt with nuts and washers			
12	Dimensions		As Drawing			

Including 2 Hot Galvanized Bolts for fixing with the Plate



DIMENSIONS
mm

L	B	I	Ød	H
108	60	75	12.4	40 - 57

Tenderer's Signature :

Date:

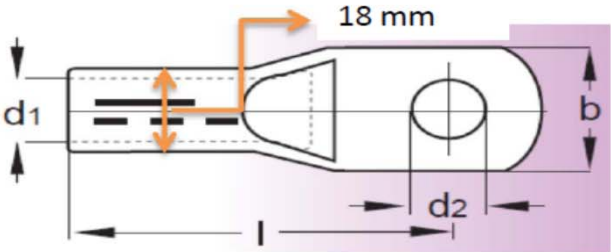
Technical Guarantees No. CLA_70

Compression Terminal Lug with 13 mm Hole for 70 mm2 Aluminium Conductor

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Reference Manufacturing Standards		DIN 46329			
4	Description		Aluminium Compression Lug with 13mm Hole			
5	Material		Al 99.5			
6	Surface		Tin-plated			
7	Type		Compression, Longitudinally Sealed			
8	Conductor Cross Section	mm ²	70			
9	Conductor Diameter	mm	10.5			
10	Barrel		Capped and Filled with Grease to Avoid Oxidation			
11	No. of Mech. Compression		6			
12	Dimensions		as Below Drawing			



d1= 11.2 mm
d2= 13 mm
b= 28 mm
l = 88 mm



Tenderer's Signature :

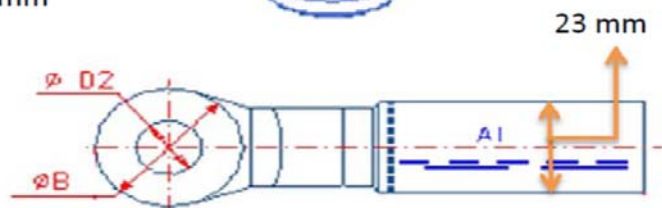
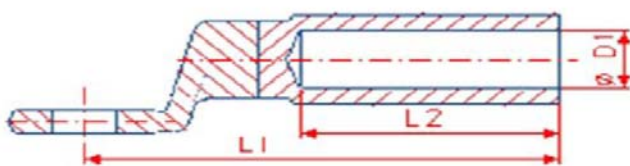
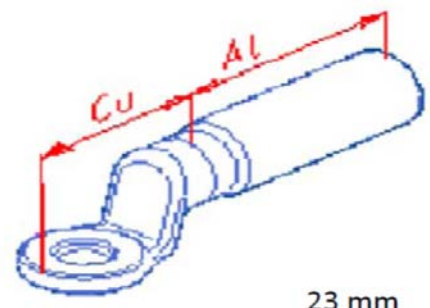
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Technical Guarantees No. CLAC_120**Aluminium / Copper Compression Terminal Lug with 13 mm Hole for 120 mm² Aluminium Conductor**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Reference Standards					
4	Material					
	a) Barrel Part		Aluminium of Purity Equal to or Greater than 99.5%			
	b) Palm Part		Electrolytic Copper			
	c) Barrel		Capped and Filled with Grease to Avoid Oxidation			
5	Surface		Uncoated			
6	Type		Resistant to high temperature Connection Between CU and AL sides and the Barrel Compression, Longitudinally Sealed			
7	Conductor Cross Section	mm ²	120			
8	Conductor Diameter	mm	14			
9	Dimensions		as below Drawing			



D1= 15 mm
 D2= 13 mm
 B = 25 mm
 L1= 81 mm
 L2= 60 mm



Tenderer's Signature :

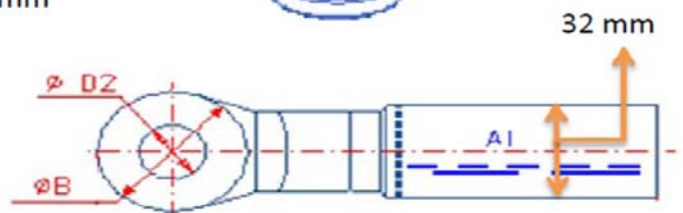
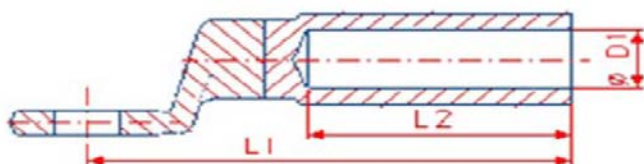
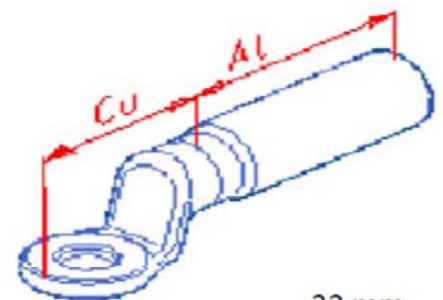
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Technical Guarantees No. CLAC_240**Aluminium / Copper Compression Terminal Lug with 13 mm Hole for 240 mm² Aluminium Conductor**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Reference Standards					
4	Material					
	a) Barrel Part		Aluminium of Purity Equal to or Greater than 99.5%			
	b) Palm Part		Electrolytic Copper			
	c) Barrel		Capped and Filled with Grease to Avoid Oxidation			
5	Surface		Uncoated			
6	Type		Resistant to high temperature Connection Between CU and AL sides and the Barrel Compression, Longitudinally Sealed			
7	Conductor Cross Section	mm ²	240			
8	Conductor Diameter	mm	19.2			
9	Dimensions		as below Drawing			



D1= 21.2 mm
 D2= 13 mm
 B = 30 mm
 L1= 106 mm
 L2= 80 mm



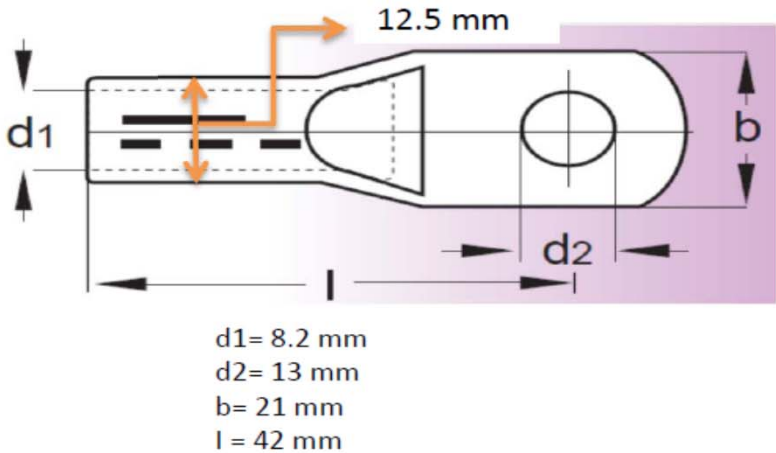
Tenderer's Signature :

Date:

Technical Guarantees No. CLC_35

Compression Terminal Lug with 13 mm Hole for 35 mm² Copper Conductor

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Reference Manufacturing Standards		DIN 46235			
4	Description		Copper Compression Lug with 13mm Hole			
5	Material		E-Cu, DIN 40500/2, F-25			
6	Surface		Tin-plated			
7	Type		Compression, Longitudinally Sealed			
8	Conductor Cross Section	mm ²	35			
9	Conductor Diameter	mm	7.5			
10	No. of Mech. Compression		2			
11	Dimensions		as Below Drawing			



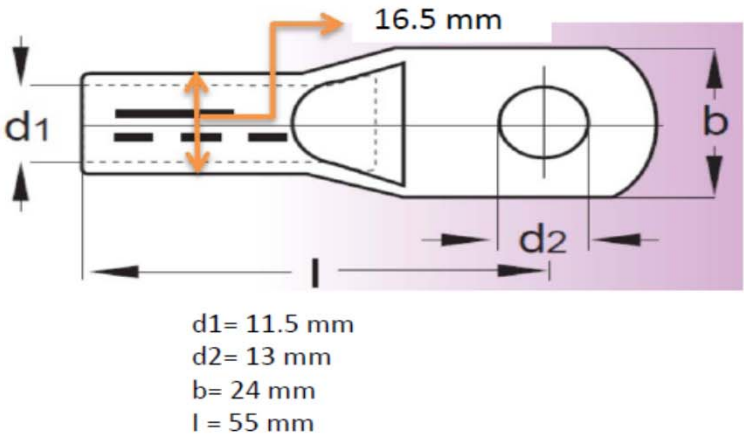
Tenderer’s Signature :

Date:

Technical Guarantees No. CLC_70

Compression Terminal Lug with 13 mm Hole for 70 mm² Copper Conductor

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Reference Manufacturing Standards		DIN 46235			
4	Description		Copper Compression Lug with 13mm Hole			
5	Material		E-Cu, DIN 40500/2, F-25			
6	Surface		Tin-plated			
7	Type		Compression, Longitudinally Sealed			
8	Conductor Cross Section	mm ²	70			
9	Conductor Diameter	mm	10.7			
10	No. of Mech. Compression		3			
11	Dimensions		as Below Drawing			



Tenderer’s Signature :

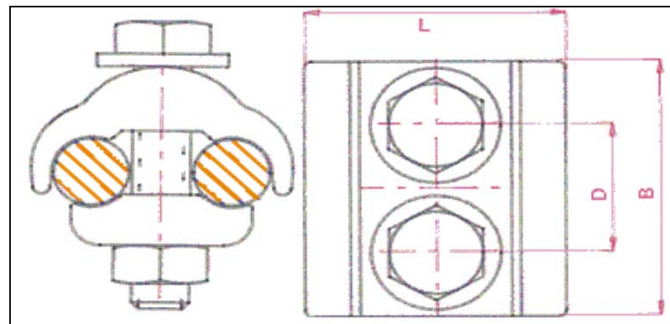
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Technical Guarantees No. CPGC_95**Copper Parallel Groove Clamp 10-95 mm² / 10-95 mm²**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Standards					
4	Material					
	a) Body		High Strength Copper Alloy (Cu Ni 2 Si)			
	b) Bolts		High Strength Copper Alloy, F-60, DIN 933			
	c) Nuts		Copper, DIN 934			
	d) Washers (4 each)		Steel, DIN 6796, Copper Plated			
5	Surface		Uncoated			
6	Conductor Cross Sectional Area	mm ²	10-95 CU			
7	Conductor Diameter	mm	3.5-12.5			
8	Bolts (No. x Size x Length)		2 x M8 x 45			
9	Bolt Torque Moments		20Nm			
10	Metal Stamping		Required including manufacturer Logo and the Name of the Clamp			
11	Total Weight	gr	270			



L = 42.5mm
D = 22.5 mm
B = 42 mm



Tenderer's Signature :

Date:

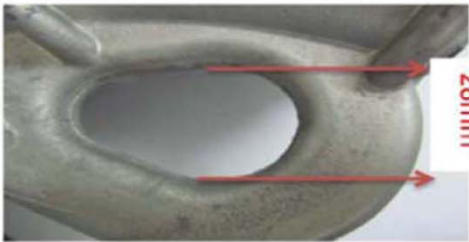
Technical Guarantees No. DET_95**Dead End Tension Clamp for ACSR Wire 95/15 mm²**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Reference Manufacturing Standards					
4	Description		Strain Clamp			
5	Material					
	a) Body and keeper		High Strength Corrosion Resistant Aluminium alloy			
	b) Bolts and Nuts		Hot Galvanized Steel			
6	Conductor Type and Code		ACSR - 95/15			
7	Conductor Diameter	mm	13-15			
8	Bolts		4 x M10			
9	Bolt Torque Moments	Nm	46			
10	Failure Load	KN	70			
11	Metal Stamping		Required including manufacturer Logo and the Name of the Clamp			
12	Dimensions		as Below Drawing			

Technical Guarantees No. DET_95

Dead End Tension Clamp for ACSR Wire 95/15 mm²

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
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Tenderer’s Signature :

Date:

Technical Guarantees No. EBT_20

Electrical Insulation Black Tape

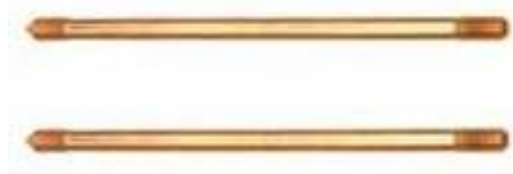
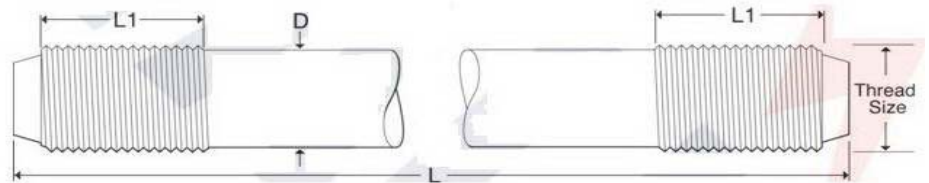
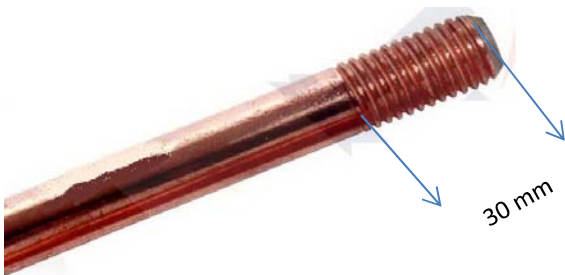
No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Standards		UL 510, ASTM D1000			
4	Material		Flame Retardant Vinyl			
5	Color		Black			
6	Width	mm	20			
7	Length	m	20			
8	Thickness	mm	0.18			
9	Max. Voltage	V	600			
10	Tensile Strength	Kg/cm	3.2			
11	Elongation	%	200			
12	Adhesive		Rubber Resin			
13	Dielectric Breakdown	Volts	9000			
14	UV Resistance		Yes			

Tenderer's Signature :

Date:

Technical Guarantees No. ER_15**Earth Rod 15 mm Diameter , 1.5 m**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Reference Standards					
4	Material		low carbon steel core St-60			
5	Coating		Copper shrink jacket			
6	Coating thickness		Min. 0.3 mm			
7	Threaded Size		5/8"			
8	Threaded Part Length (L1)	mm	30			
9	Length (L)	mm	1500			
10	Shank Diameter (D)	mm	15			
11	Quality Certification		Required			

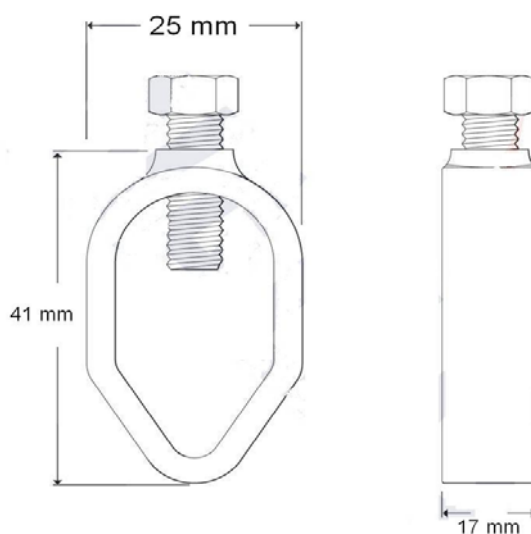
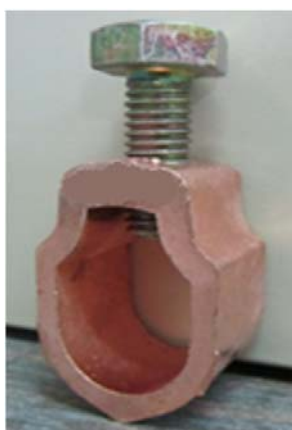


Tenderer's Signature :

Date:

Technical Guarantees No. ERC_15**Earth Rod Connection Clamp**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Reference Manufacturing Standards					
5	Design		Suitable for earth rod 15 mm Dia to used for connection between Rod and cable			
4	Material		Brass			
6	Earth Rod Diameter	mm	15			
7	Copper Cable Cross Section	mm ²	35-70			

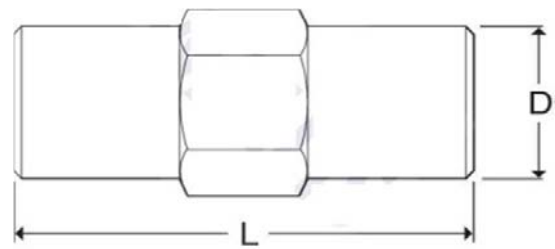


Tenderer's Signature :

Date:

Technical Guarantees No. ERJ_15**Earth Rod Joint**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Reference Standards					
4	Material		high strength copper content Aluminium Bronze alloy			
5	Size		5/8"			
6	Length (L)	mm	70			
7	Outside Diameter (D)	mm	20			



Tenderer's Signature :

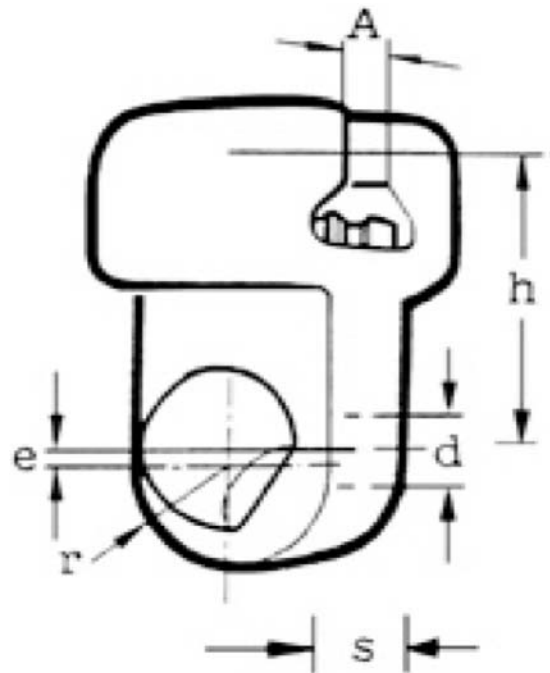
Date:

Technical Guarantees No. FBH_16**Fork Ball Hook 16mm (SOCKET EYES-TYPE-A)**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Connecting Dimensions Standards		DIN 48064			
4	Material Standards		DIN 1692			
5	Surface Standards		DIN 50976			
6	Material		Malleable cast iron GTS-45			
7	Surface		Hot-dip Galvanized			
8	Upper Slot Dimension (A)	mm	16			
9	Nominal Load	KN	160			
10	Ball Eyes thermal overload current	KA	14			
11	Construction and Dimensions	mm	As Below Drawing			



DIMENSIONS mm				
d	e	h	r	s
20	3	69	28	19



Tenderer's Signature :

Date:

Technical Guarantees No. GDI_320

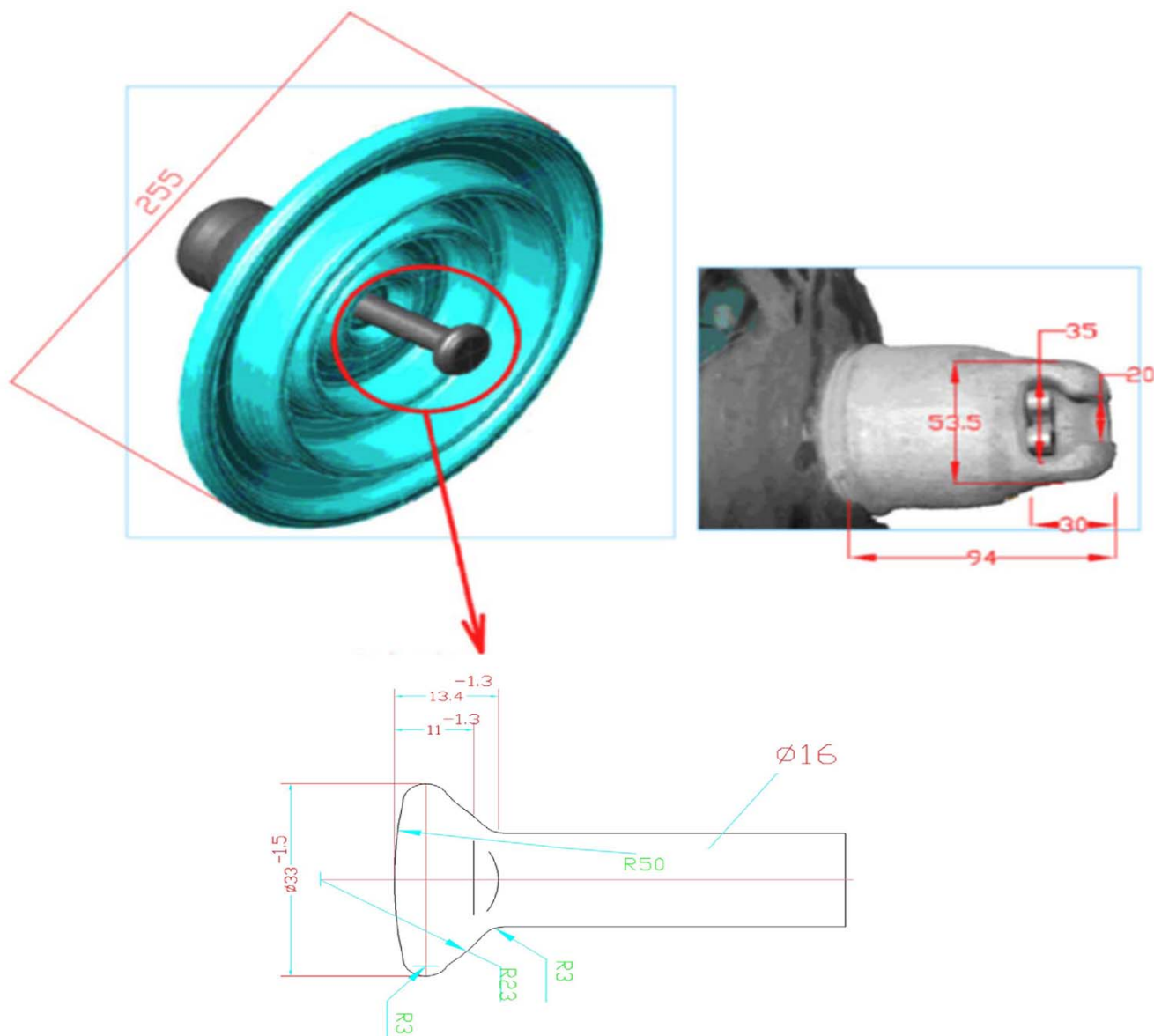
22kv Overhead Line Toughened Tension Glass Disk Insulator with Ball and Socket

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Design Standards		BS137& IEC60120			
5	Insulator material		Glass			
6	Min. Mechanical Failing Load	kN	70			
8	Weight	Kg				
9	Creepage Distance	mm	320			
10	Diameter	mm	255			
11	Ball Size	mm	Φ16			
12	Dimensions		as Below Drawing			
13- Power Frequency withstand Voltage (1min)						
13.1	a)Dry	kV	70			
13.2	b)Wet	kV	40			
13.3	c)Positive Dry Impulse +VE	kV	100			
13.4	d)Negative Dry Impulse -VE	kV	103			
14	Min Puncture Voltage in Oil	kV	130			
15	Phosphorous Bronze Security Clip (BS 3288 Part 4)		W-CLIP			

Technical Guarantees No. GDI_320

22kv Overhead Line Toughened Tension Glass Disk Insulator with Ball and Socket

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
16	Accessories		Hot Galvanized Ball and Socket			



Tenderer's Signature :

Date:

Technical Guarantees No. HST_50/16**Flame Retardant Heat Shrinkable Tube with Shrink Ratio 3:1**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Reference Manufacturing Standards		IEC243 , IEC251			
4	Description		Environment friendly flame retardant heat shrinkable tube			
5	Operating Temperature	C°	-55 to+125 C			
6	Rated Voltage	kv	0.6/1			
7	Material		High Quality Polymer			
8	Min. / Max. Cable Outer Diameter	mm	16/48			
9	Cable Outer Sheath	mm	PVC or LDPE			
10	Dielectric strength	KV/mm	≥20			
11	Tensile strength	Mpa	≥13			
12	Tensile strength after aging	Mpa	≥11			
13	Ultimate Elongation	%	≥300			
14	Shrink Ratio		3:1			
15	Tube Size Before Heating	mm	50			
16	Tube Size after Heating	mm	16			
17	Tube Min. Thickness	mm	1.2			
18	Colour		Red, Green, Blue and Yellow green striped			
19	Delivery type		as required length/4 clour			

Tenderer's Signature :

Date:

Technical Guarantees No. IS_36**36 Kv, 3-phase Outdoor Isolating Switch With Built-In Arc Interruption**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Standards		IEC60129 & IEC60265-1			
4	Rated Voltage	kV	36			
5	Design		Manual Isolating Switch under load having capability of frequent switching			
6	Operating		Under load having capability of frequent switching			
7	All Ferrous Parts Material		Hot Galvanized Steel			
8	Pole No.		3			
9	Safe Operating Zone Temperature	°C	-10 to +55			
10	Rated Frequency	HZ	50			
11	Arc Interruption					
	Name of Manufacturer					
	Country of Origin					
	Type		Heavy Duty			
	Operating	mm	without an External Arc or Flame Conforming to IEC 60265			
	Installation	mm	Hard Fixed and not Able to Rotate			
	Insulators					

Technical Guarantees No. IS_36**36 Kv, 3-phase Outdoor Isolating Switch With Built-In Arc Interruption**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
12	Name of Manufacturer					
	Country of Origin					
	a) Material	mm	Polymer			
	b) Creepage Distance	mm	1050			
13	Continuous Current Capacity	A	630			
14	Rated Peak withstand Current	KA	50			
15	Rated Short Time Current (1 sec Duration)	KA	20			
16	Rated Short Time Current (3 sec Duration)	KA	16			
17	Breaking Current Capacity (20 Operations)	A	400			
18	Breaking Current Capacity (3 Operations)	A	630			
19	Rated Lightning Impulse withstand Voltage					
	a) Standard Impulse with Stand Voltage to Earth (1.2/50 μ s Full Wave)	kV	170			
	b) Between Poles Across Isolating Distance	kV	195			
20	Rated One Minute Power Frequency withstand Voltage in Dry and Wet Conditions					
	a) Power Frequency Test Voltage to Earth	kV	75			
	b) Between Poles Across Isolating Distance	kV	100			
21	Minimum Clearance Between Phase and earth	mm				
22	Minimum Clearance Between Phases	mm				

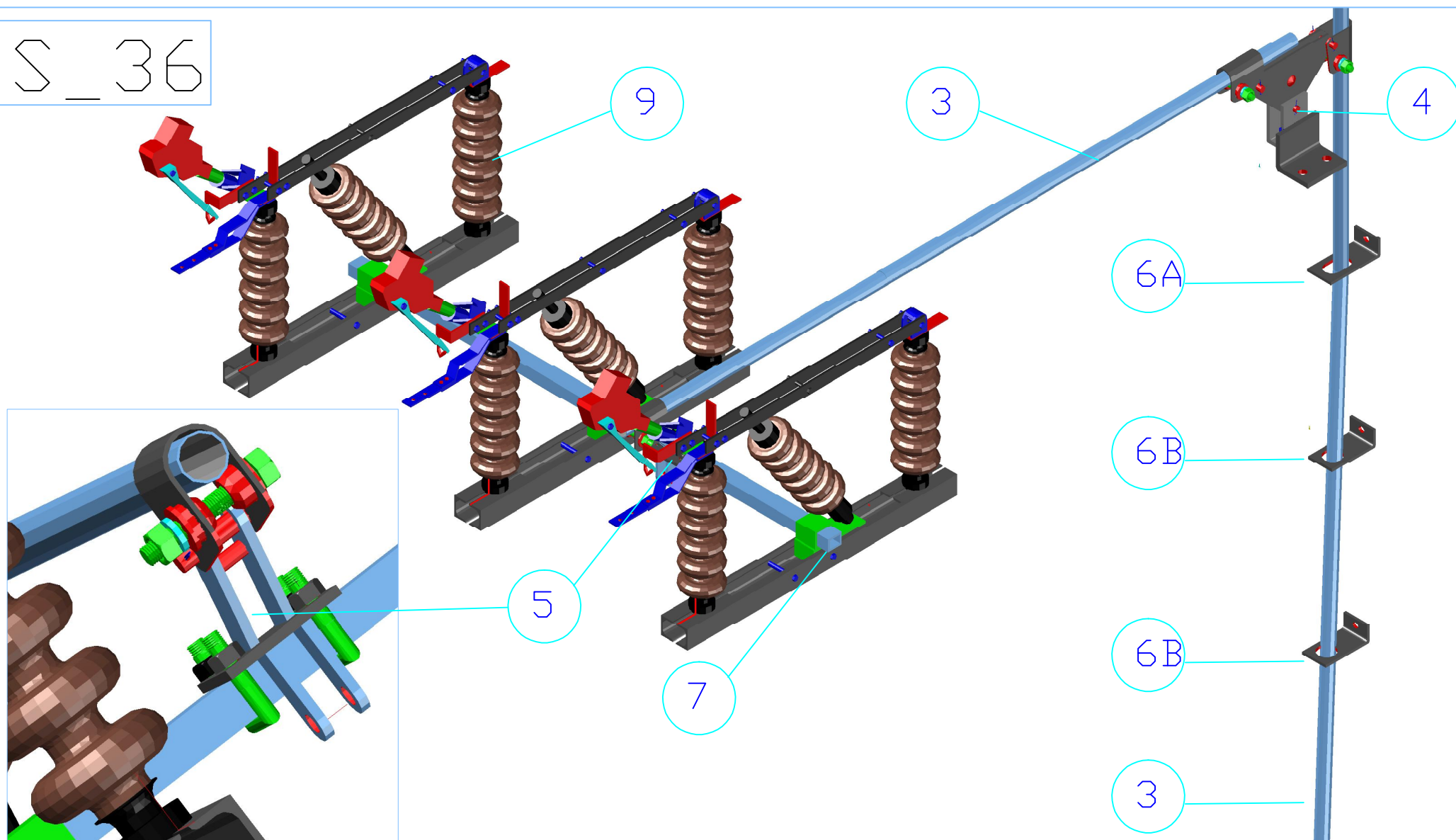
Technical Guarantees No. IS_36**36 Kv, 3-phase Outdoor Isolating Switch With Built-In Arc Interruption**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
23	Mechanical Operations	C/O	>1000			
24	Full load Electrical Operations	C/O	shall be filled by manufacturer			
25	Installation and operating accessories		Required			
26	Master Key Lock Body		Chrome-plated solid brass			
27	Master Key Lock U-Shackle		Boron-steel alloy			
28	Type Test Certificates/Reports from internationally reputed testing agency (According IEC 694 and IEC 265-1)		Required			
29	Acceptance & Routine tests witnessed by Beneficiary		Required			
30	Switch Parts, Accessories and All Dimensions		As Attached Drawing No IS_36			

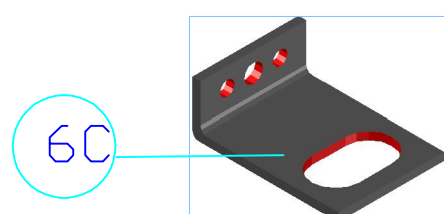
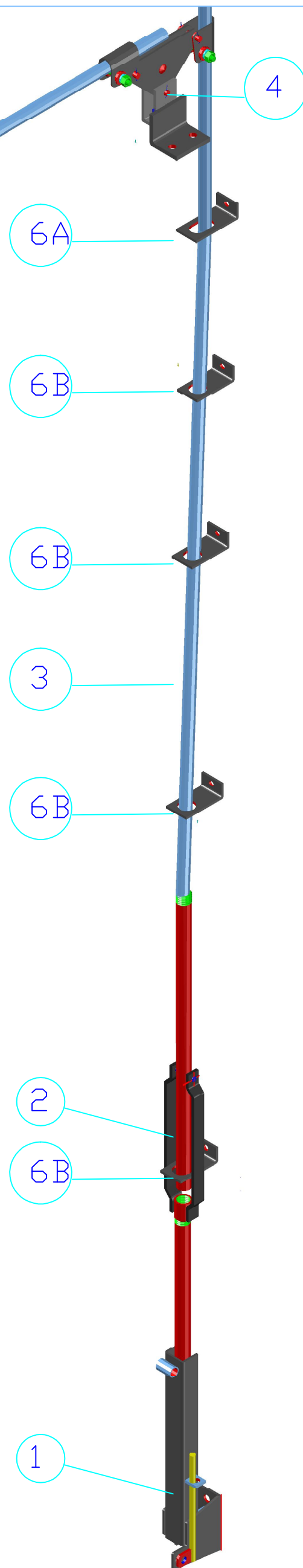
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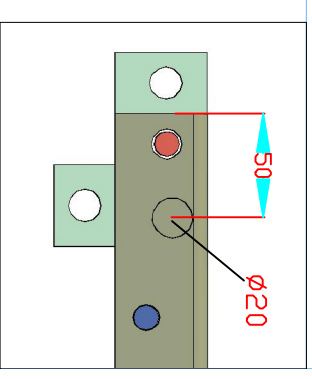
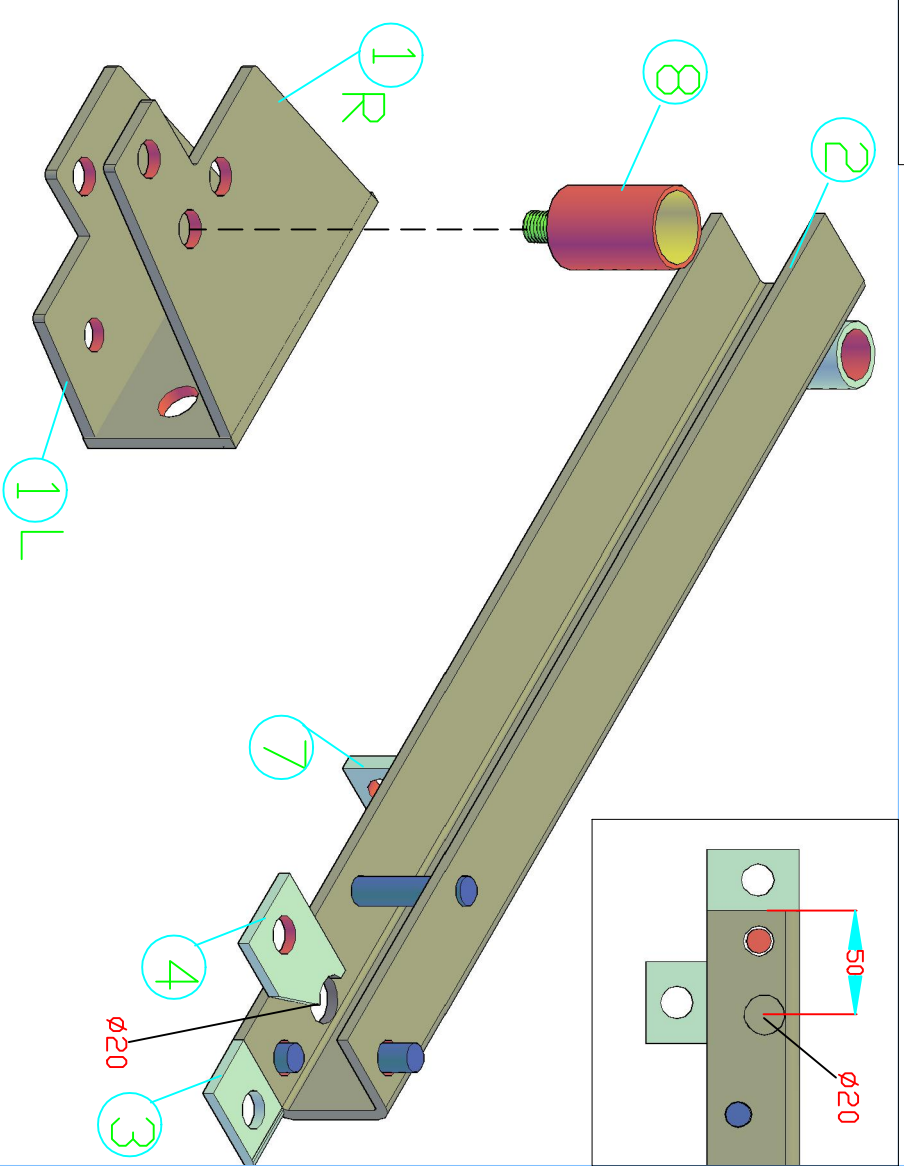
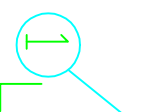
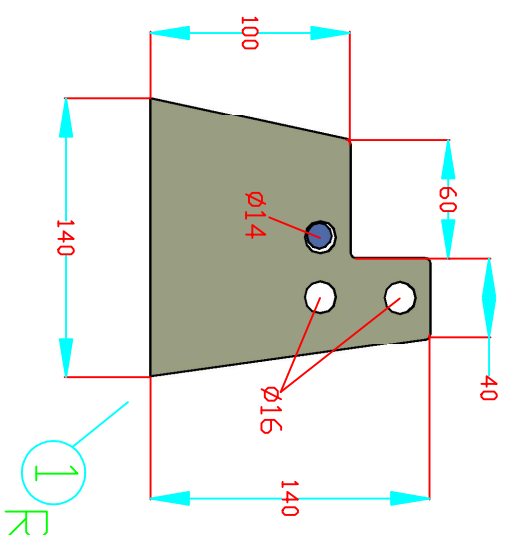
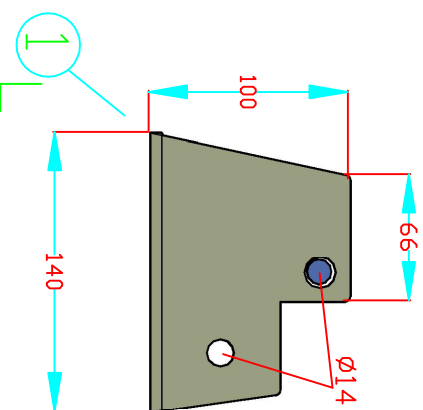
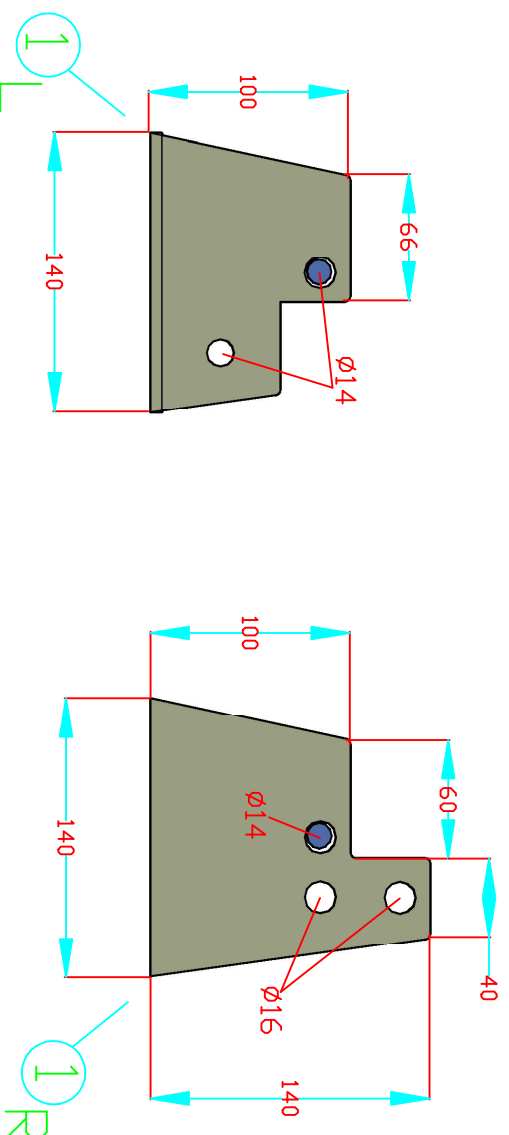
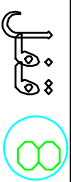
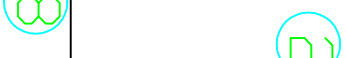
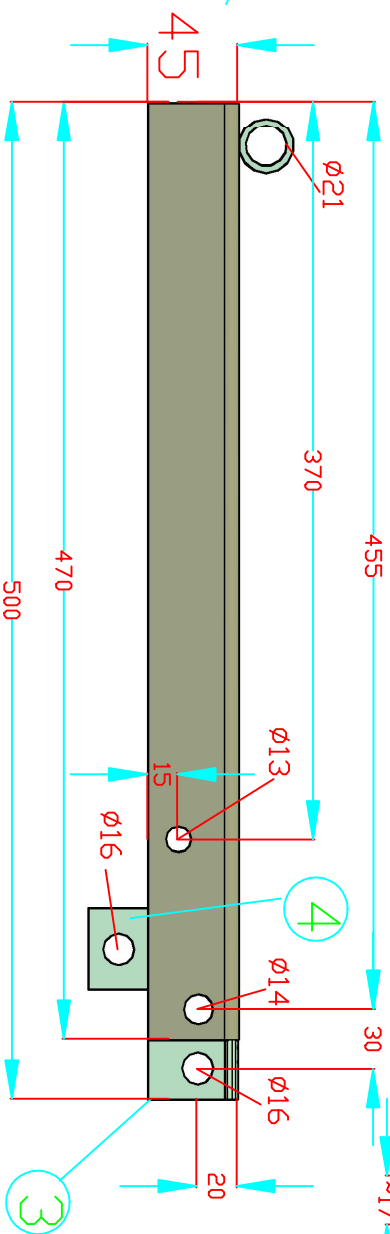
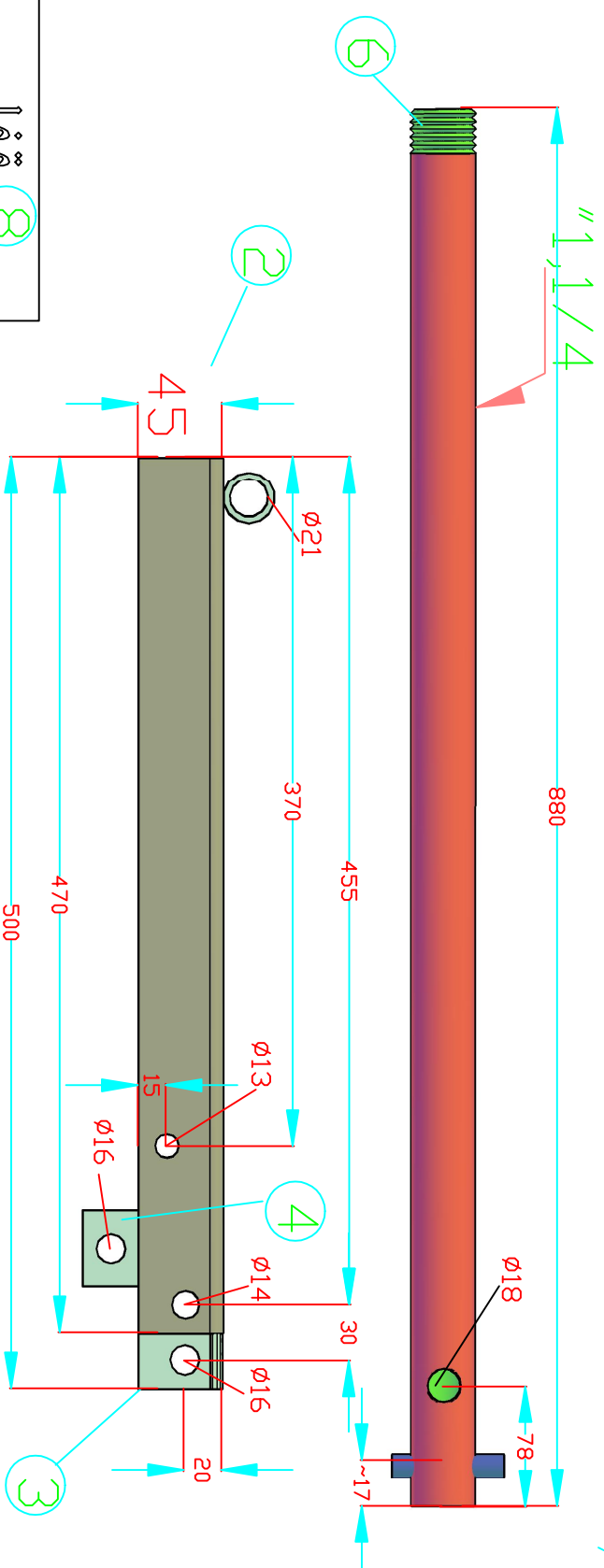
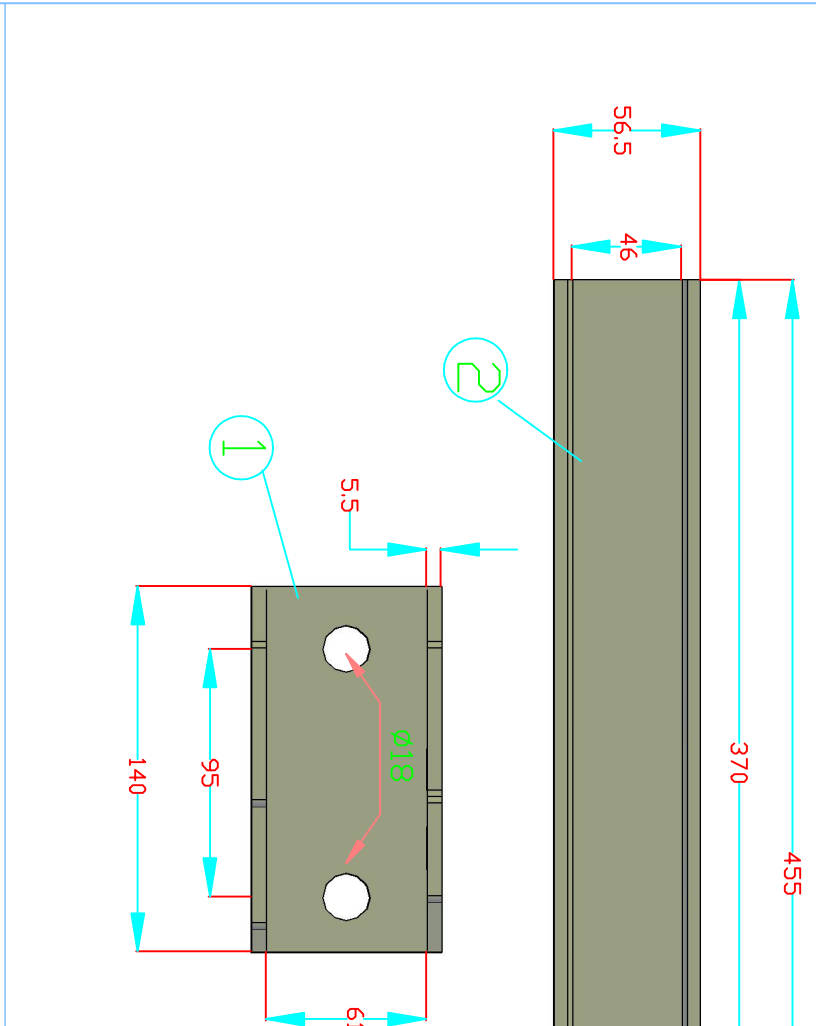
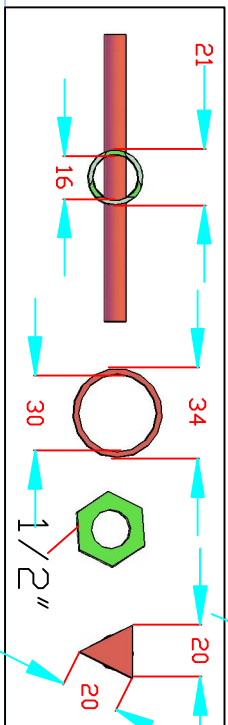
IS_36



Itm	Description	Q.
1	Operating Handle	1
2	Adjusting Device	1
3	Glav. operating Pipe 1 1/4"	12m
4	Crank	1
5	Control Operating Lever	1
6A	Pipe guide model A	1
6B	Pipe guide model B	4
6C	Pipe guide model C	1
7	Interphase Shaft 35*35*3.5mm	3m
8	'U' Bolt Clamps 1/2"	12
9	36Kv Insulator Polymer	9



OPERATING HANDEL 1



شركة توزيع كهرباء محافظات غزة

مركز توزيع كمبريا، محافظات غزة
0598888888

1. **DATE**

Category	Sub-category	Value
Total	Overall	100
	Sub-total	100
Category 1	Sub-category 1.1	25
	Sub-category 1.2	75
Category 2	Sub-category 2.1	30
	Sub-category 2.2	70
Category 3	Sub-category 3.1	40
	Sub-category 3.2	60
Category 4	Sub-category 4.1	50
	Sub-category 4.2	50
Category 5	Sub-category 5.1	60
	Sub-category 5.2	40
Category 6	Sub-category 6.1	70
	Sub-category 6.2	30
Category 7	Sub-category 7.1	80
	Sub-category 7.2	20
Category 8	Sub-category 8.1	90
	Sub-category 8.2	10
Category 9	Sub-category 9.1	100
	Sub-category 9.2	0
Category 10	Sub-category 10.1	110
	Sub-category 10.2	-10

Desired Time and Attendance:

Prepared: Eng. and AlHoussain

Prepared: Eng. zind Al-Homsein

Preparation, and Application

Checked By: Ena Kamil Rabel

Checked By: Eng. Kamal Rabal

Checked By: Eng. Kamel Rabal

Customer ID / Name:

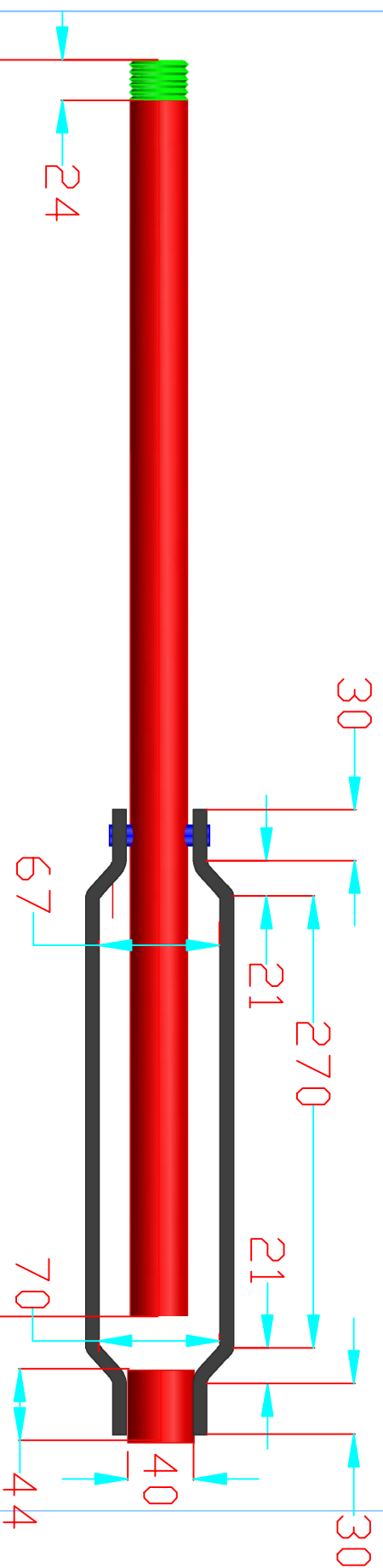
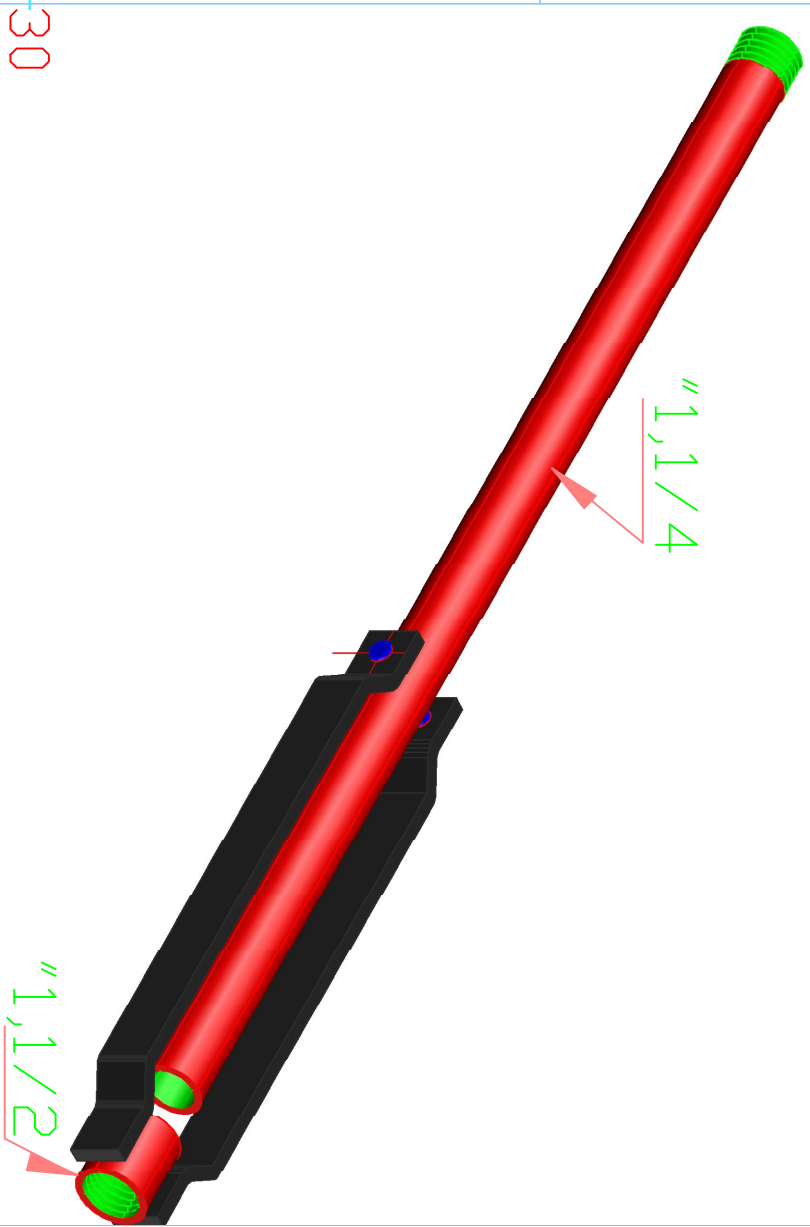
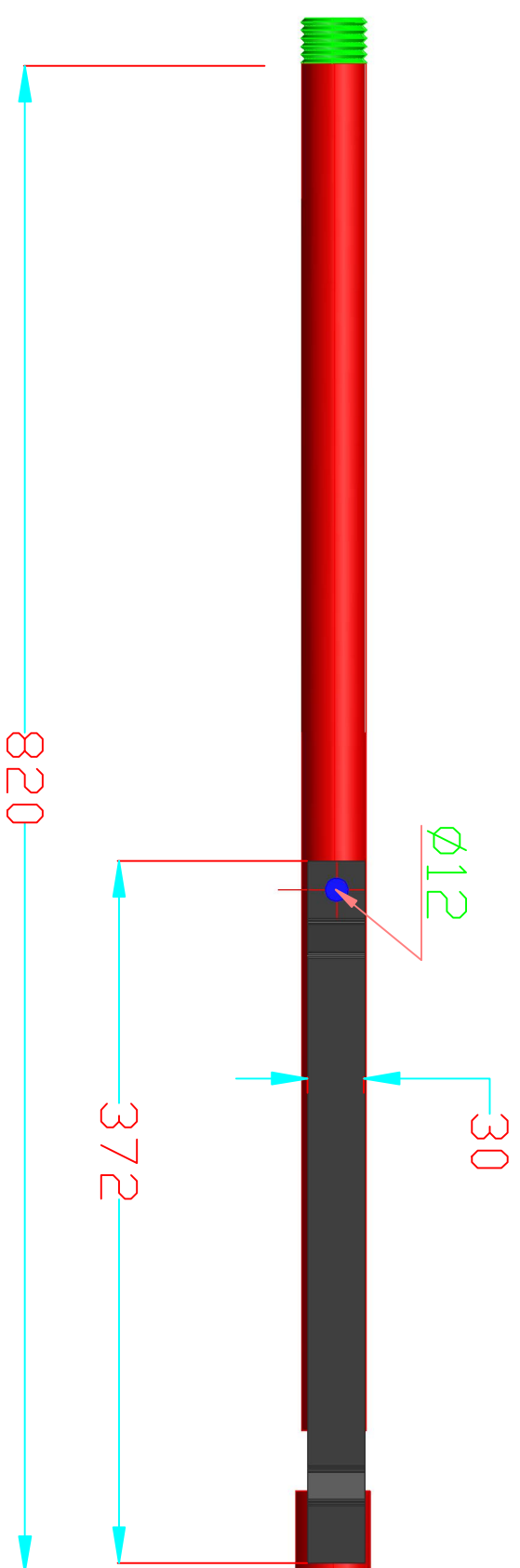
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OPERATING HANDEL

IS_36/2

ADJUSTING DEVICE

2

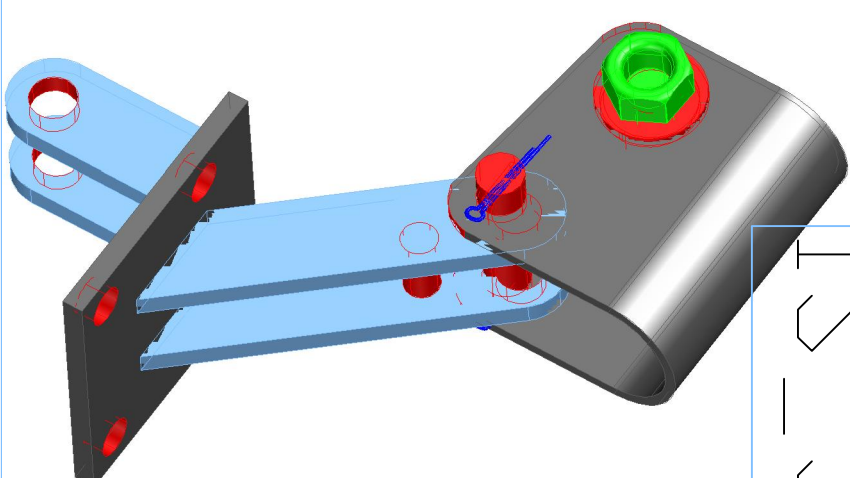
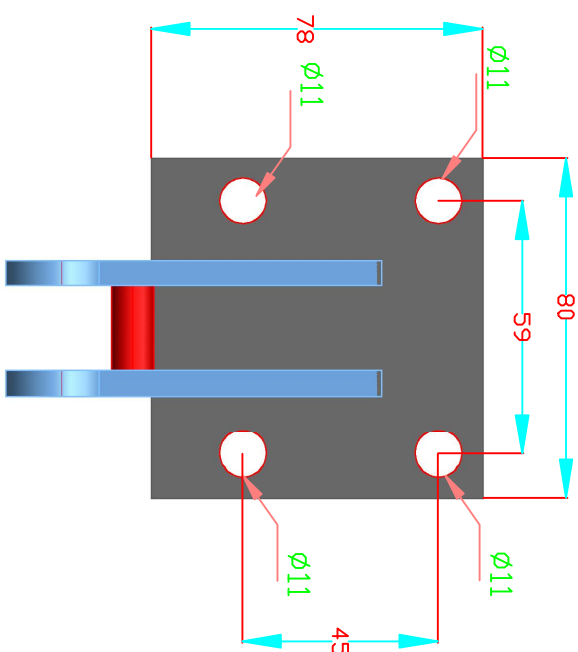
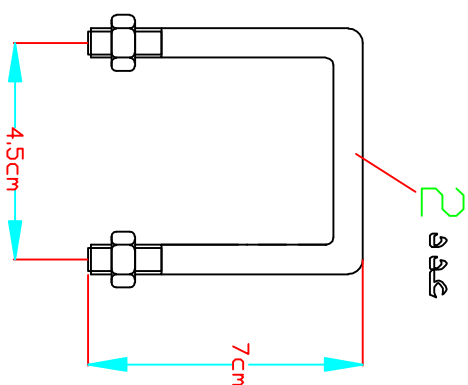
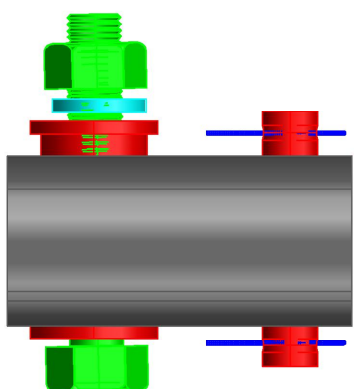
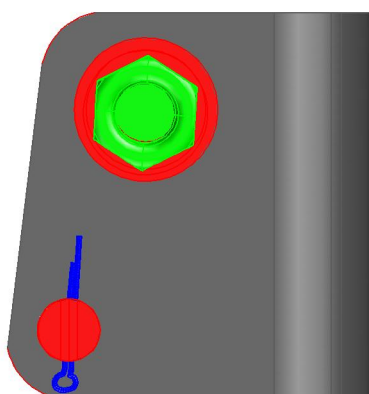
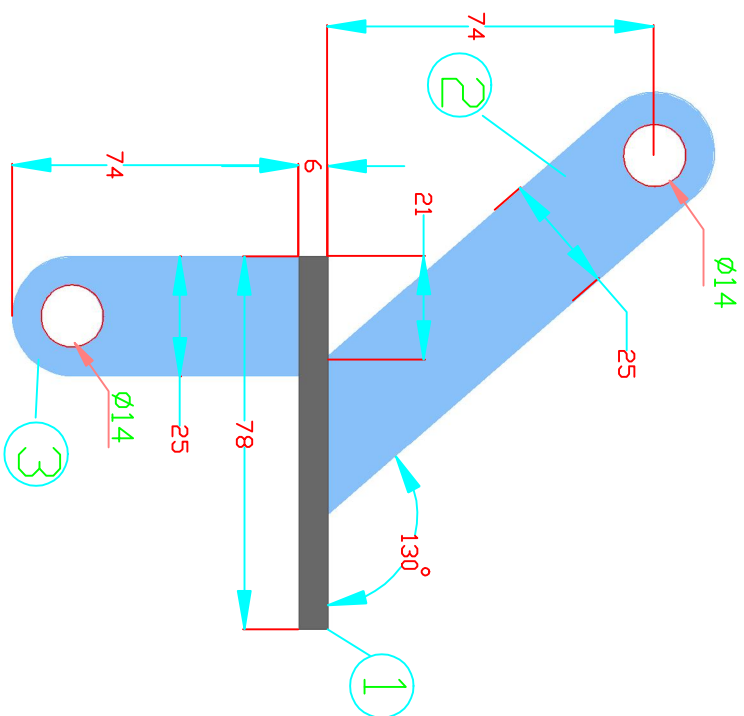


دائرة التصميم والتطوير
DESIGN

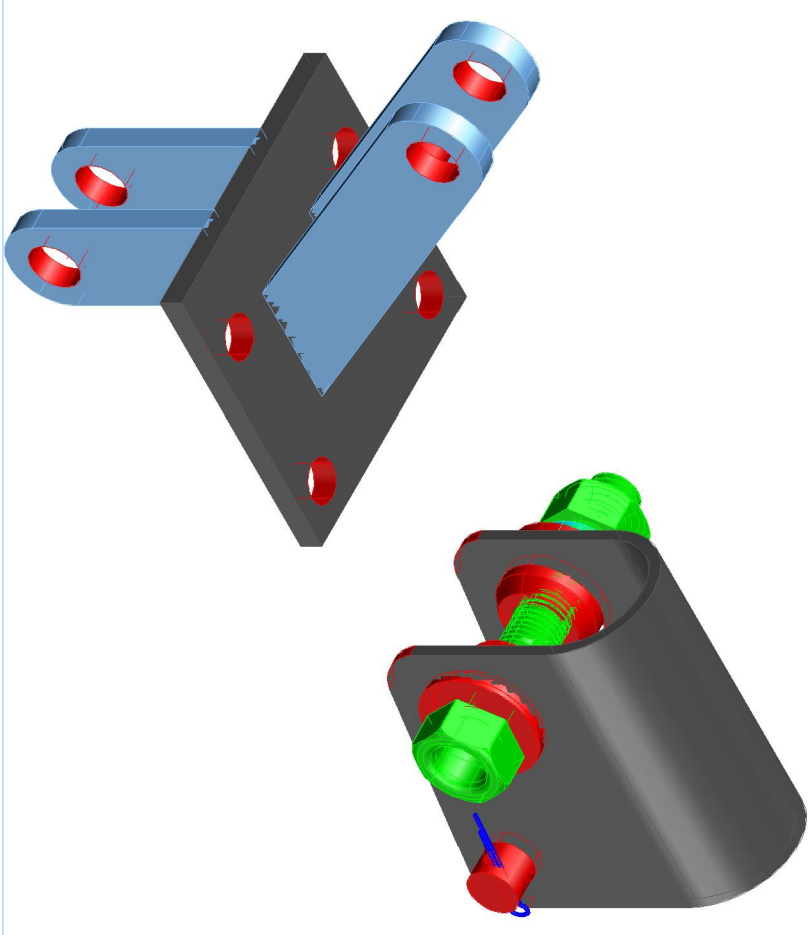
Prepared By: Eng. Ahmed Al-Hussaini

Checked By: Eng. Kamel Rabeh

ADJUSTING DEVICE



IS_36/5



Control Operating

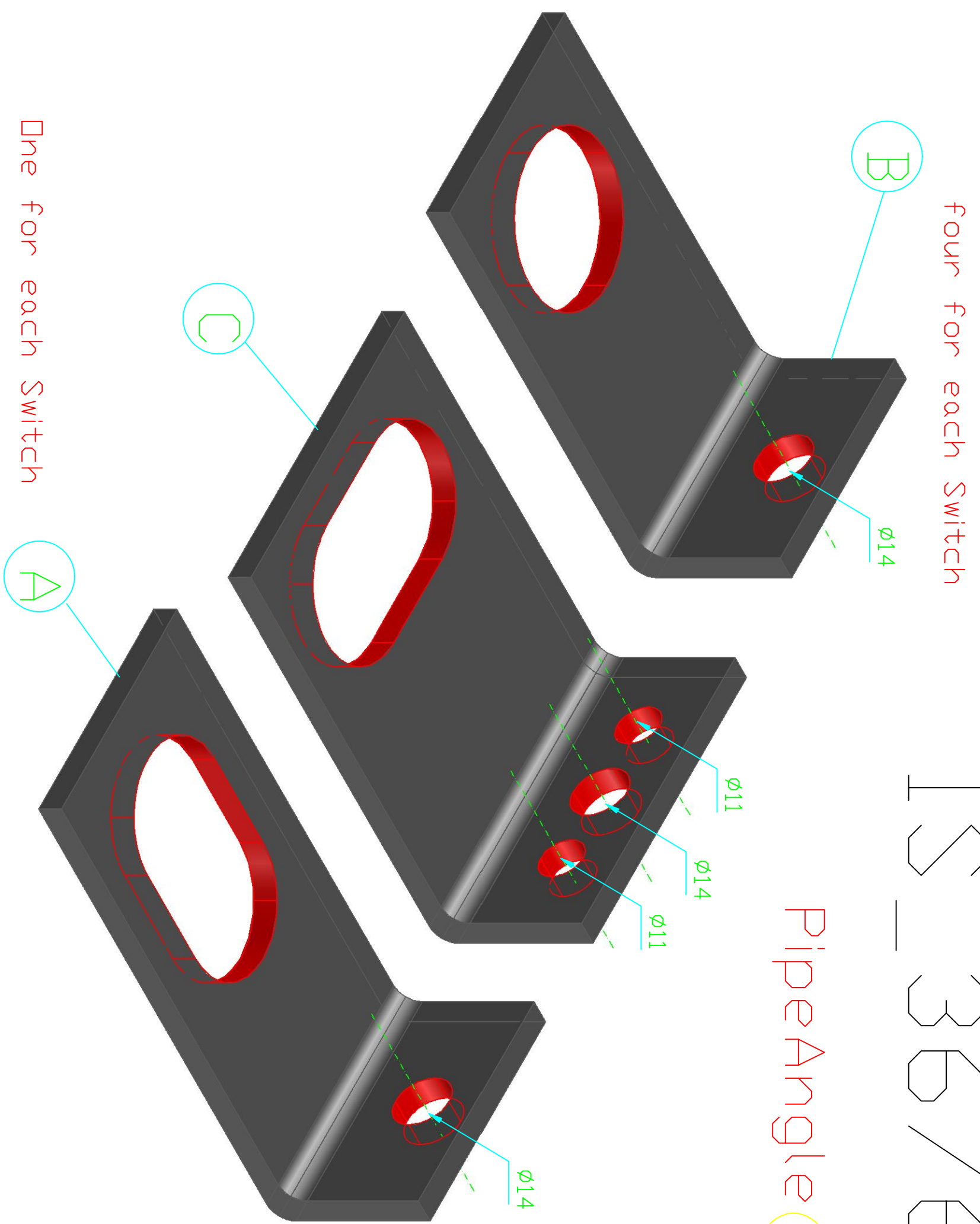
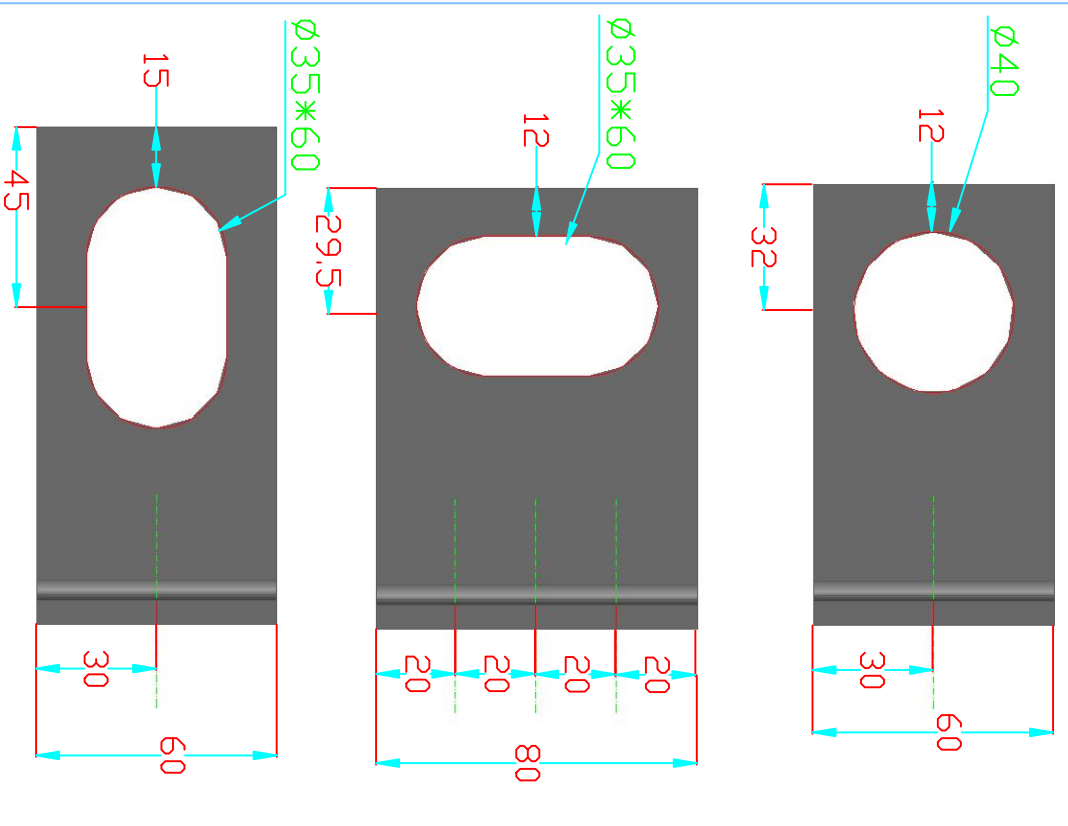
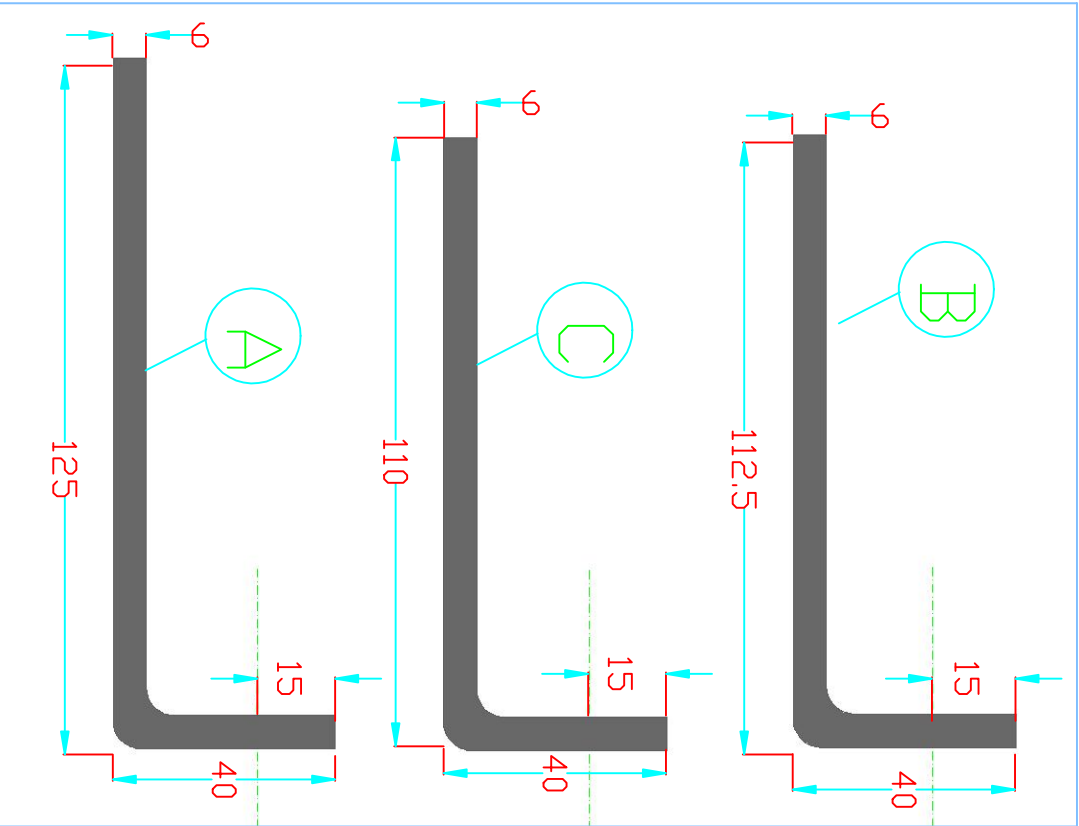
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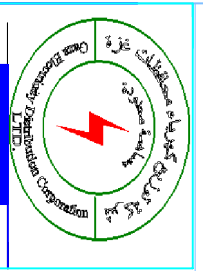
Prepared By: Eng. Khalid M. Al-Hussaini
Checked By: Eng. Kamel R. Al-Hussaini

IS - 36 / 6

PipeAngle6

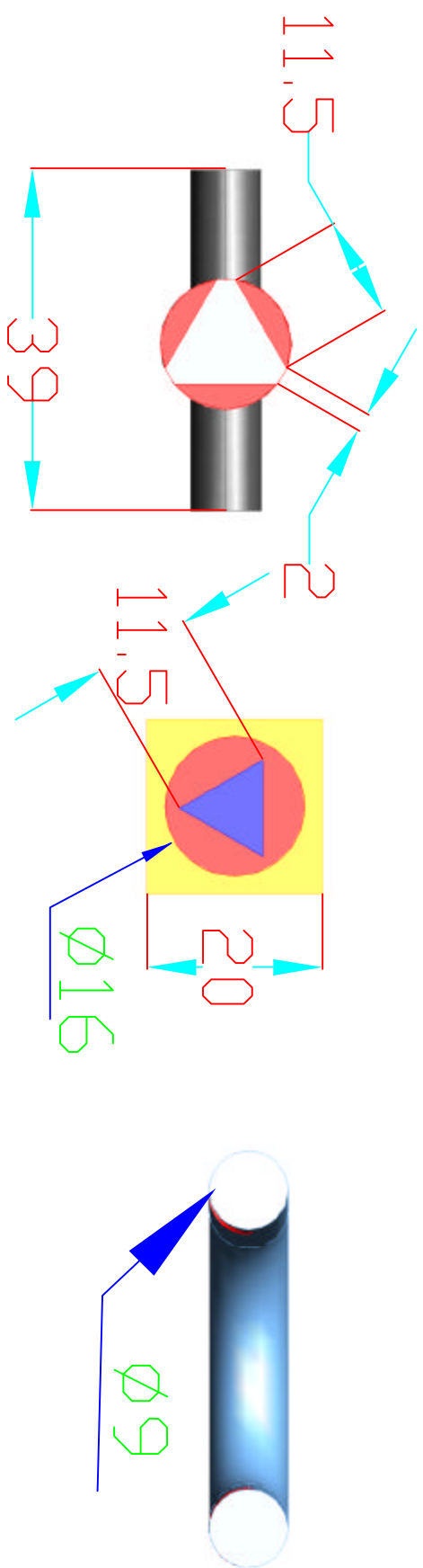
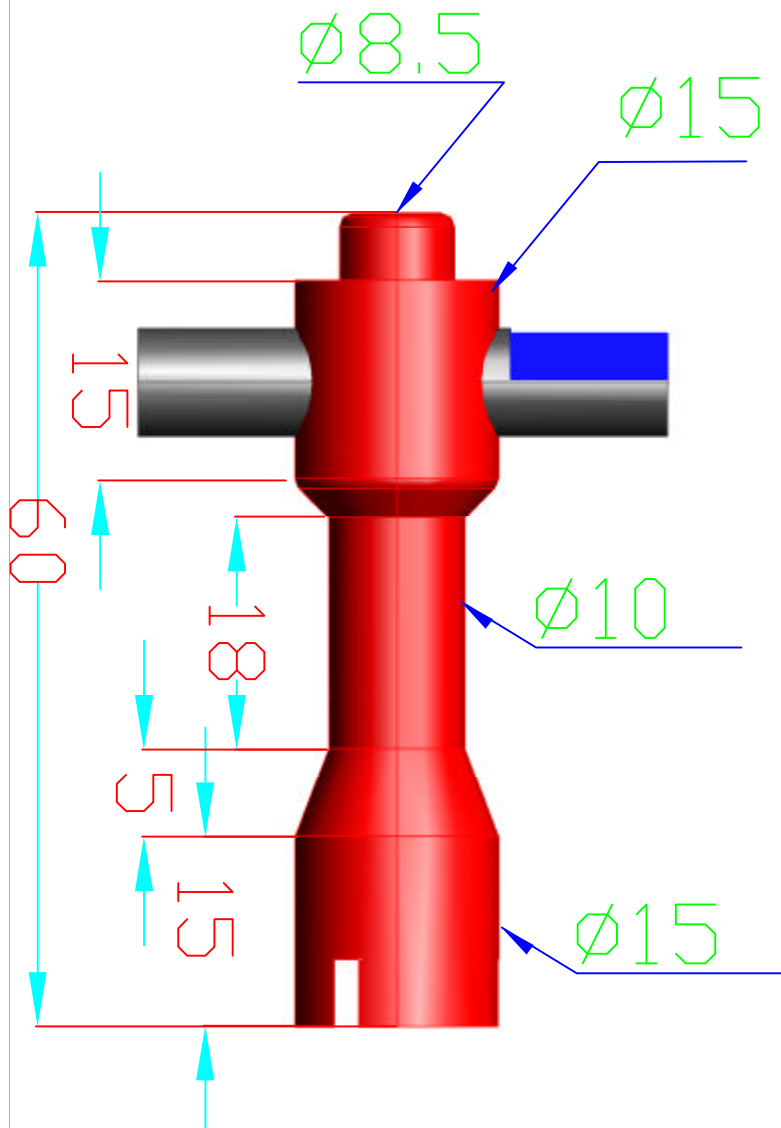
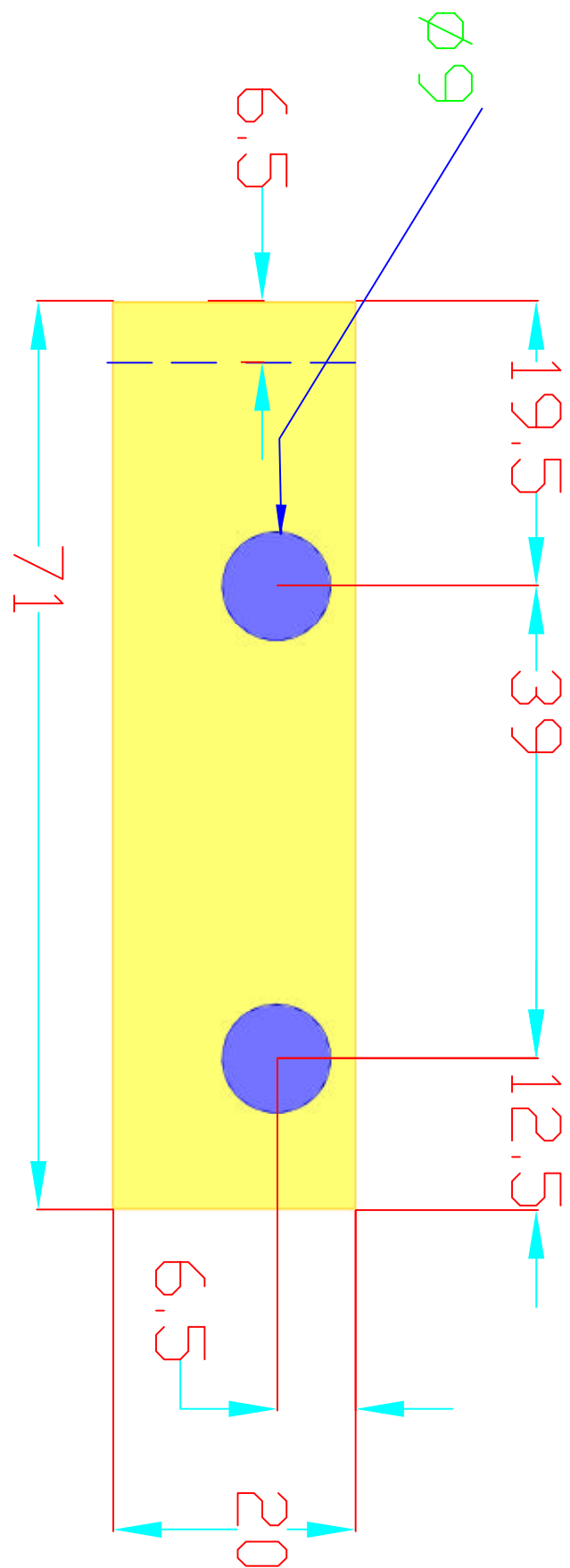
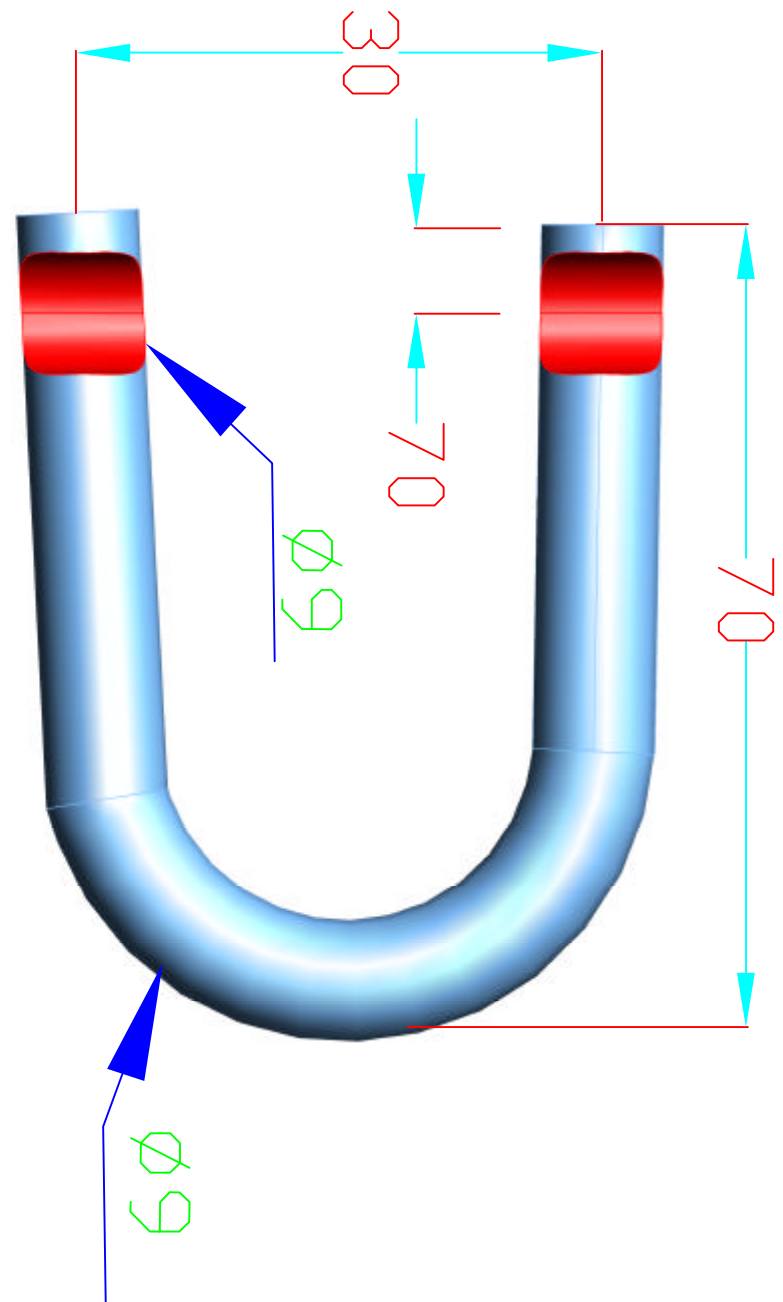


One for each Switch

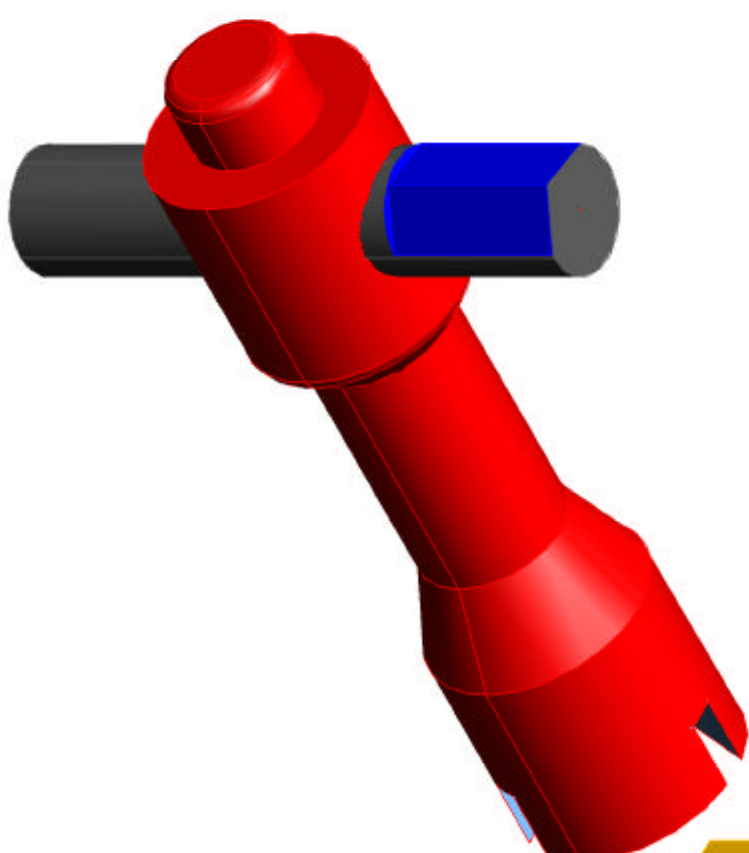
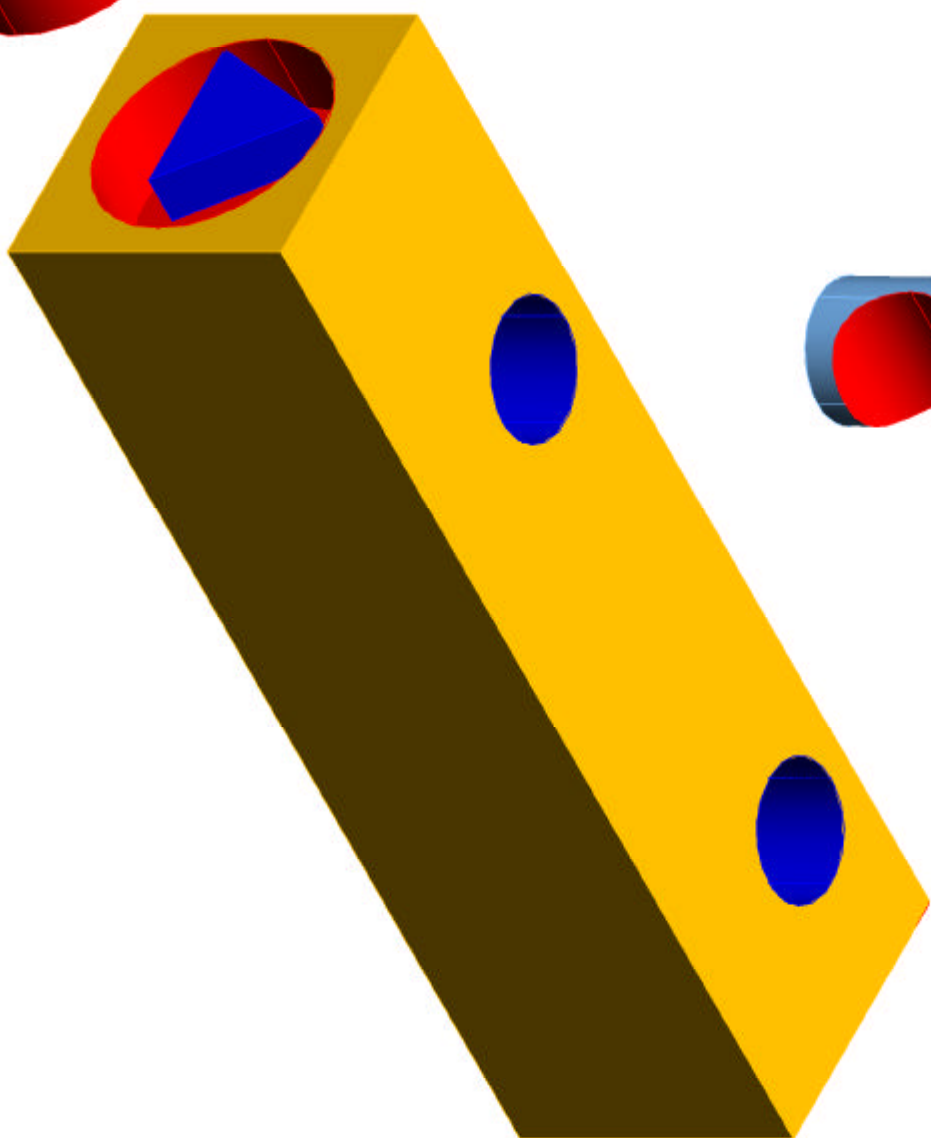
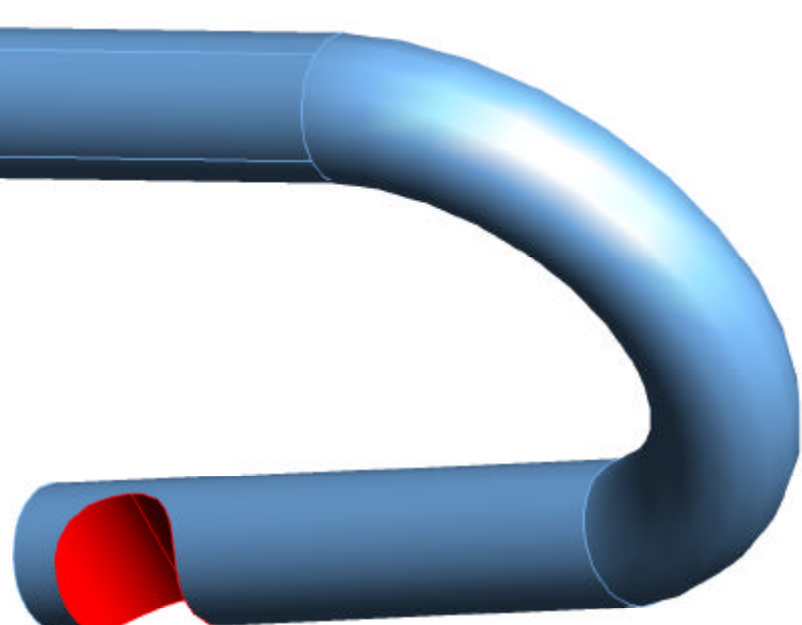


Prepared By: Eng. Kamil Rabeah
Checked By: Eng. Kamil Rabeah

Pipe Guide



D805100



الإدارة الفنية

م. زياد الحسيني

م. نعال طومان

م. كامل رباح

إعداد

إشراف

مراجعة

قفل نحاس هاستر

Master Key Lock

Technical Guarantees No. LTPI_01**Low Tension Shackle Porcelain Insulator for Earth line Including Bracket and Bolt**

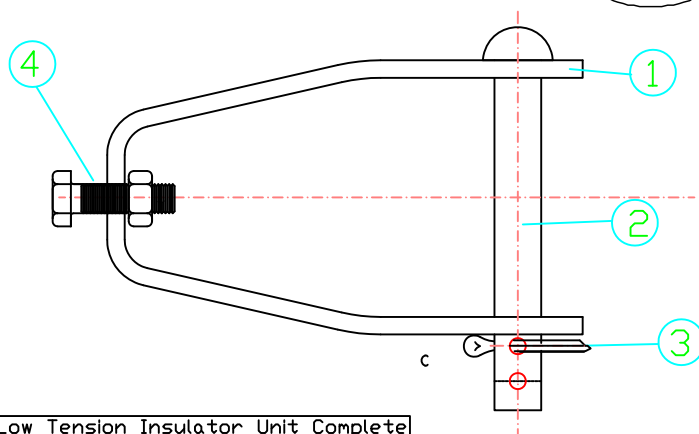
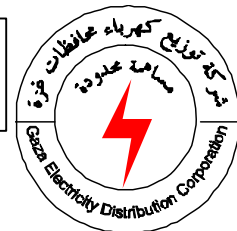
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1	Name of Manufacturer					
2	Country of Origin					
3	Design Standards		BS , IEC			
4- Material						
4.1	Shackle Insulator		Porcelain			
4.2	U - Bracket		Hot-Dip Galvanized Steel			
4.3	Nail		Hot-Dip Galvanized Steel			
4.4	Buckle		Copper Plated			
4.5	Steel Bolt with Nut and Washers (for Connecting with the Pole)		Hot Galvanized Bolt 5/8"-35mm			
5	Dimensions		As Drawing			
6	Insulator Mechanical Failing Load	KN	13			
7	Bracket Ultimate Tensile Strength	KN	20			
8- Insulator Power Frequency withstand Voltage (1min)						
8.1	Dry	kV	25			
8.2	Wet	kV	12			
9	Accessories		U - Bracket , Nail & Buckle , Steel Bolt			
10	Attached Drawing		Drawing No LTPI_01			

Tenderer's Signature :

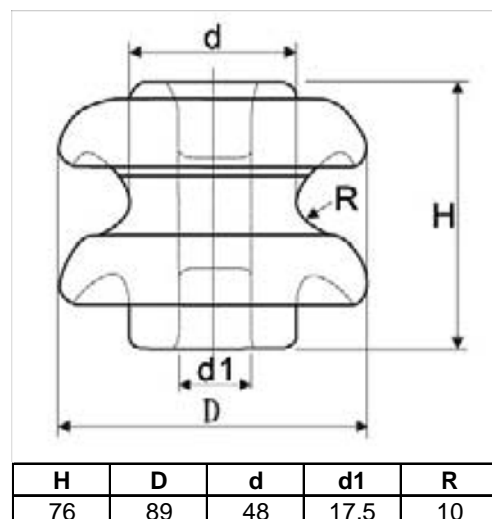
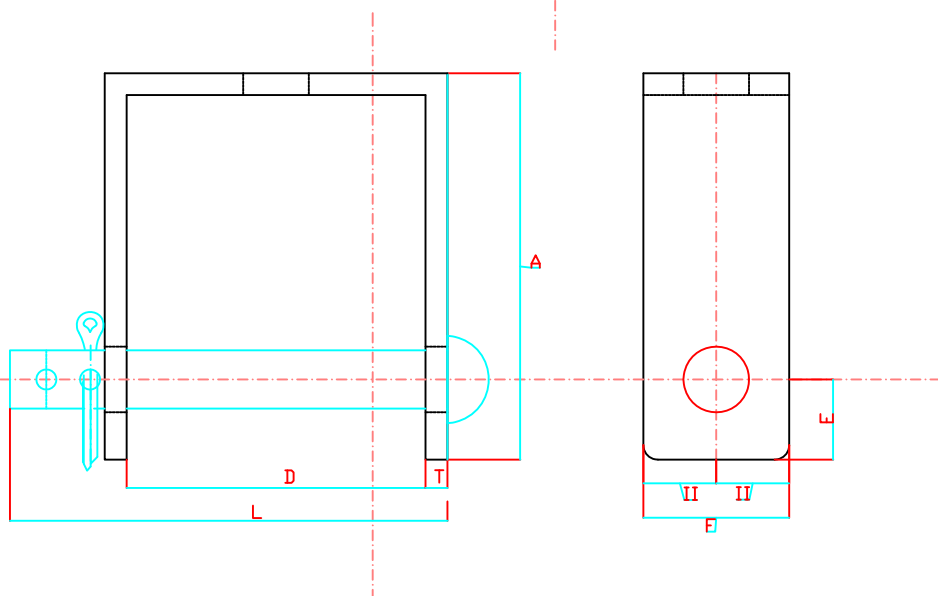
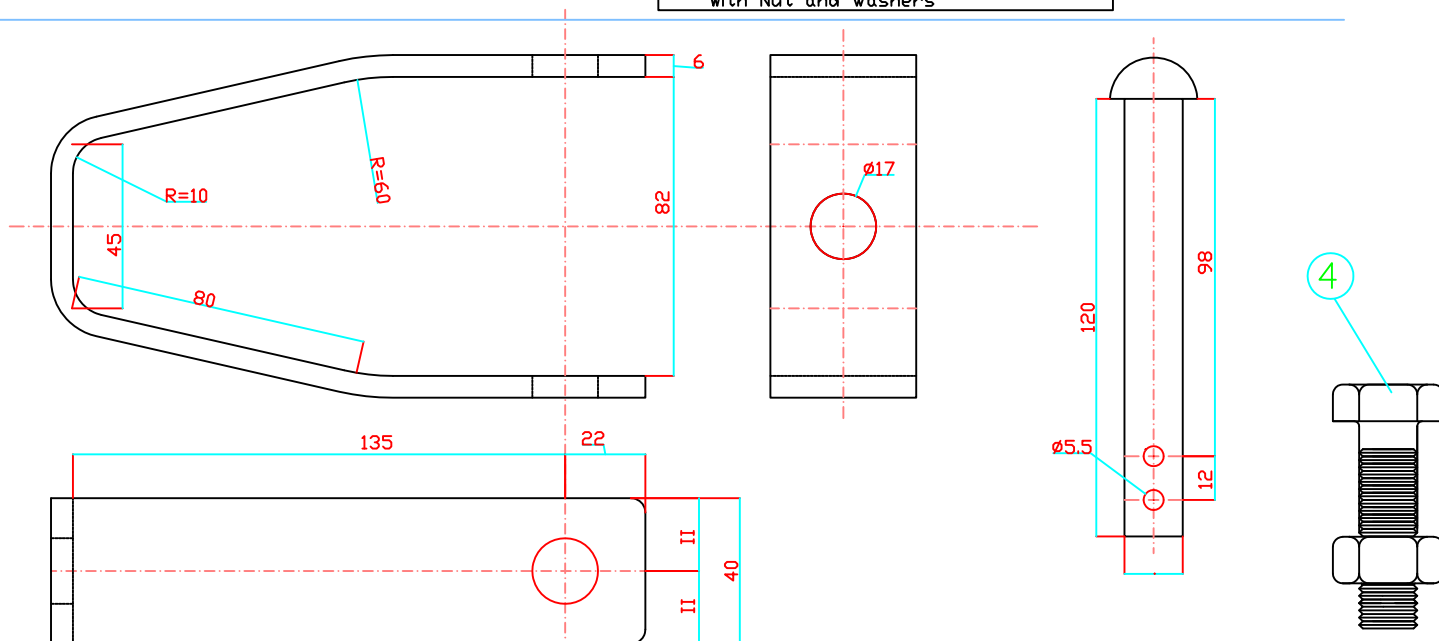
Date:

LTPI_01

Low Tension Shackle Porcelain Insulator for Earth line



- | | |
|---|--|
| 1 | Low Tension Insulator Unit Complete
Ø40*6 |
| 2 | Iron Nail 5/8" |
| 3 | Copper Nail Buckle |
| 4 | 5/8" Hot Galvanized Steel Bolt 3.5cm
with Nut and Washers |



Technical Guarantees No. NCT_50**Natural Nylon Cable Tie 500 mm Long**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Standards		DIN 4102			
4	Material		UV Resistant , UL94 V0 self- extinguishing Natural Nylon ties			
5	Size	mm	7.5			
6	Length	mm	500			
7	Max. bundle diameter	mm	160			
8	Thickness	mm	1.8			
9	Average opening load	daN	65			

Tenderer's Signature :

Date:

Technical Guarantees No. SA_19

Metal-Oxide Surge Arresters gap-less Type for 22KV Network With Silicon-Polymeric housing

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Standards		ANSI C62.1 / IEC60099_4			
4	Surge arrester Type		10kA Heavy Zinc Oxide Duty Polymer Gap-Less			
5- Service Conditions						
5.1	Ambient air temperature		-10 °C to 55°C			
5.2	Temperature with solar radiation		65 °C			
5.3	Installation		Outdoor			
5.4	Type of installation		Phase to earth			
5.5	Nominal syst. Voltage between phases	kV	22			
5.6	Max. syst. Voltage between phases	kV	24			
5.7	Rated Frequency	Hz	50			
6	Impulse withstand Voltage 1,2/50 μs	kV	125			
7	Maximum continues operating voltage (M.C.O.V)	kV	19.5			
8- Temporary overvoltages: Utov						
8.1	a) For 1 sec.	kV				

Technical Guarantees No. SA_19**Metal-Oxide Surge Arresters gap-less Type for 22KV Network With Silicon-Polymeric housing**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
8.2	b) For 10 sec.	kV				
9	submit arrester curves of U_{tov} as function of their duration at 40-60 °C ambient temperature		Should be submitted			
10	Nominal discharge current (8/20 μ s) In	kA peak	10			
11	Partial discharge at 1.05 U_c		≤ 5 pc			
12	Arrester housing Material		High quality Silicon-Polymeric			
13	Creepage Distance	mm	910			
14	Equivalent Front-of-Wave (maximum discharge voltage for a 10 kA impulse current wave which produces a voltage wave cresting in 0.5 μ s.)	kV Crest	≤ 88			
15- Max. Discharge Voltage Using an 8/20 μs Current Impulse						
15.1	a) 2.5 KA	kV	≤ 65			
15.2	b) 5 KA	kV	≤ 70			
15.3	c) 10 KA	kV	≤ 75			
15.4	c) 20 KA	kV	≤ 80			
16- Discharge current withstand						
16.1	a) High current impulse 4/10 μ s	KA _{peak}	100			
16.2	b) Long duration current 200 μ s	A _{peak}	250			

Technical Guarantees No. SA_19**Metal-Oxide Surge Arresters gap-less Type for 22KV Network With Silicon-Polymeric housing**

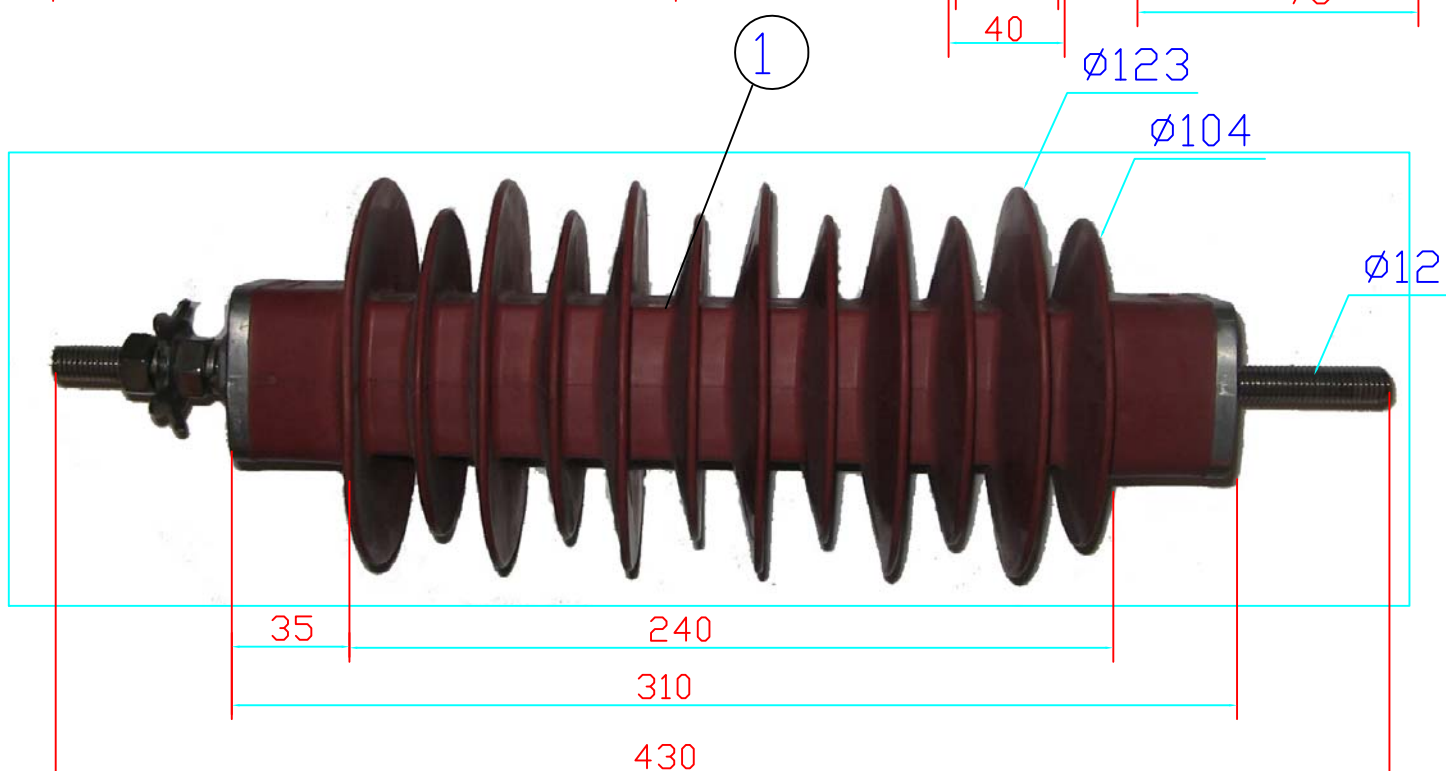
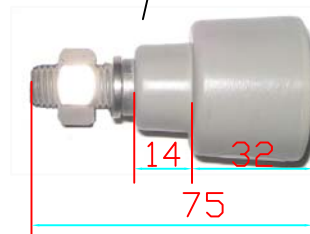
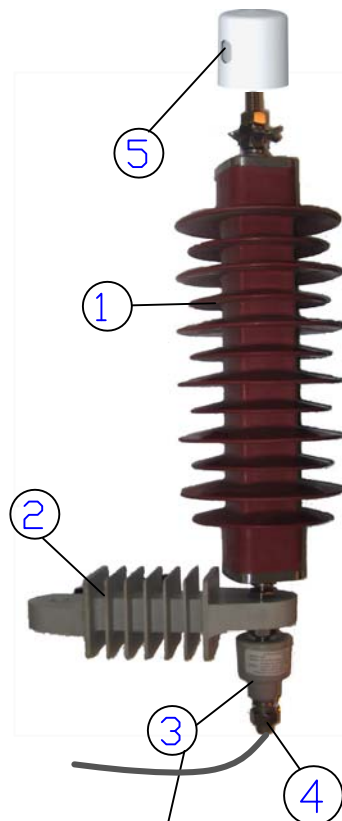
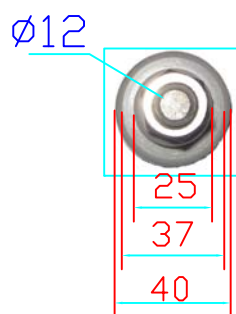
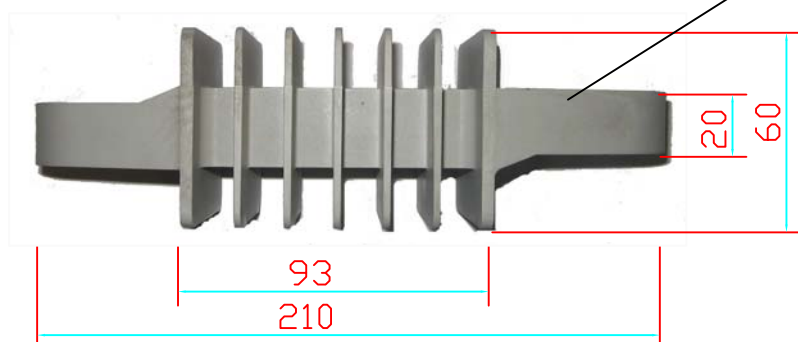
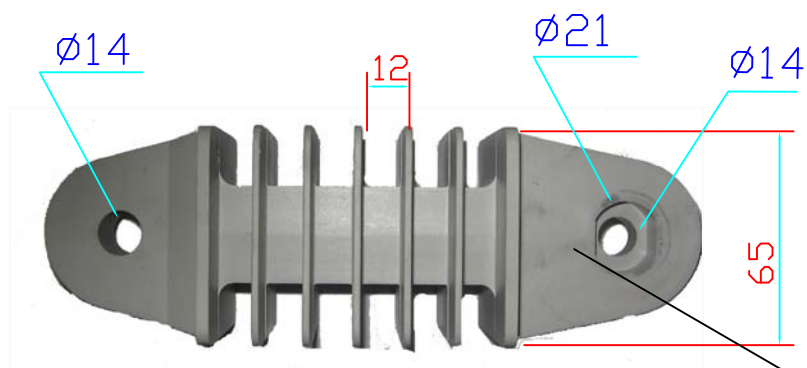
No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
17	All Test reports for all materials of surge arrester		should be submitted			
18- Additional equipment & fittings:						
18.1	a) Disconnecter		Required			
18.2	b) Brackets		Required			
18.3	c) Bird cap		Required			
18.4	b) Earth lead		Required			
18.4.1	Earth lead Cable Material		Extra Flexible PVC Insulated Copper (Multi Stranded Wires according to DIN VDE 0295 Class5)			
18.4.2	Earth lead Cable Length	m	0.5			
18.4.3	Earth lead Cable Cross Section	mm ²	70			
18.4.4	Suitable 2 Each Compression lug with 13 mm Hole for Earth Lead		Required			
19	Type Test Certificates /Reports from internationally reputed testing agency (According IEC 60099-4)		Required			
20	Attached Drawing		Drawing No SA_19			

Tenderer's Signature :

Date:

SA_19

Surge Arrestor



Outdoor Metal Oxide
Surge Arrestor
M.C.O.V 19.5 KV

1	Surge Arrestor
2	Bracket
3	Disconnecter
4	Ground lead
5	Bird Cap

Note: According to the attached specification

Technical Guarantees No. STB_204

Stainless Steel Band

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Standards					
4	Material		201 Stainless Steel			
5	Coil		The steel band Roll Must be properly coiled on Reinforced weatherproof plastic Totes			
6	Width	mm	12.7			
7	Thickness	mm	0.76			
8	Cabbaged Length on the tote	m	30			



Tenderer's Signature :

Date:

Technical Guarantees No. STB_254**Stainless Steel Ear-Lokt Buckle**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Standards					
4	Description		Buckle to hold wrapped band for cable bundling			
5	Construction		with teeth and ears provide for maximum clamping strength			
6	Material		201 Stainless Steel			
7	Entry Slot High (for Band Thickness 0.76mm)	mm	2.3			
8	Min. Width (for Band Width 12.7mm)	mm	15			



Tenderer's Signature :

Date:

Technical Guarantees No. STC_151**Steel Twisted Clamp with Ball Eyes**

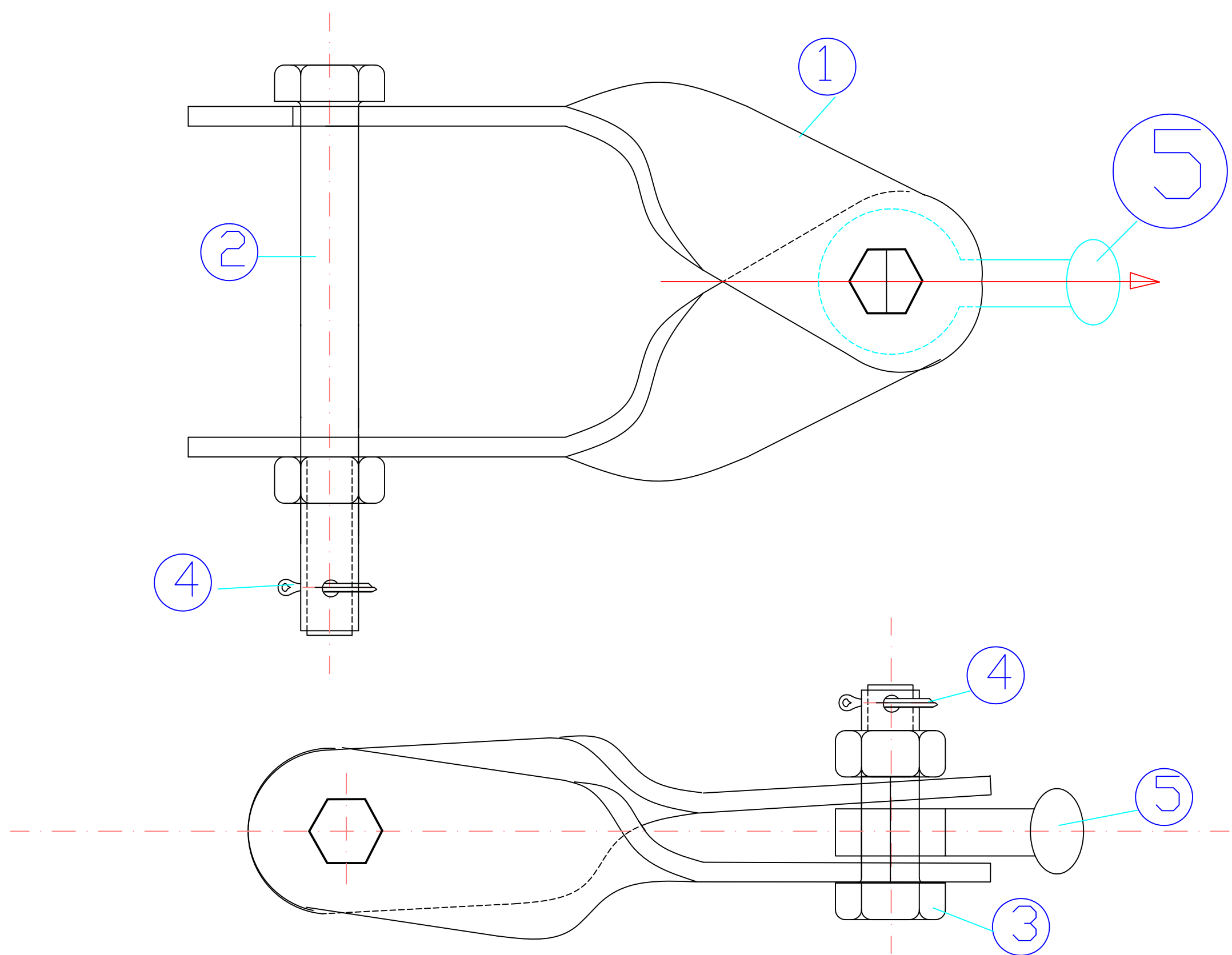
No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Standards		DIN48064 , DIN48074			
4	Description		Steel Clamp to Connect Tension Unit with Arm			
5	Steel Twisted Clamp Material		Hot-Dip Galvanized Steel			
6	Ball Eyes Material		Heat-Treated Steel acc. to DIN 17200, forged.			
7	Ball Eyes Surface		Hot-Dip Galvanized Steel			
8	Bolts & Nuts Material		Hot-Dip Galvanized Steel			
9	Construction and Dimensions	mm	As Drawing			
10	Nominal Load	KN	135			
11	Ball Eyes thermal overload current	KA	14			
12	Attached Drawing		Drawing No. STC_151			

Tenderer's Signature :

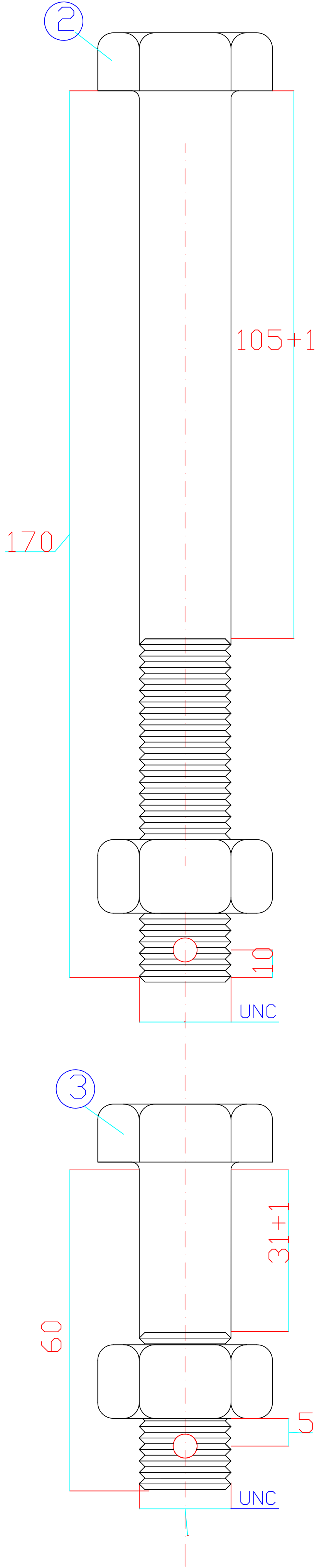
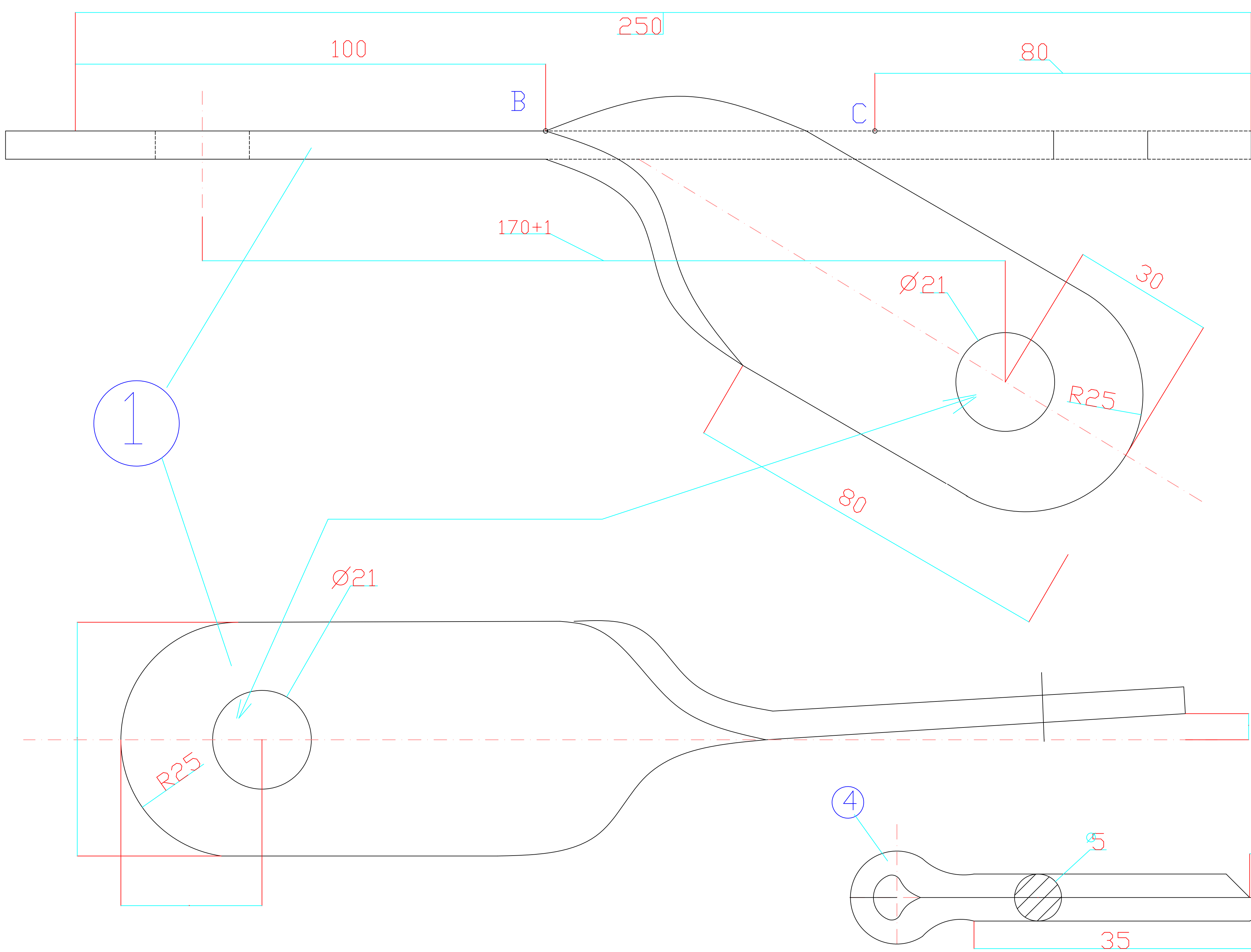
Date:

STC_151

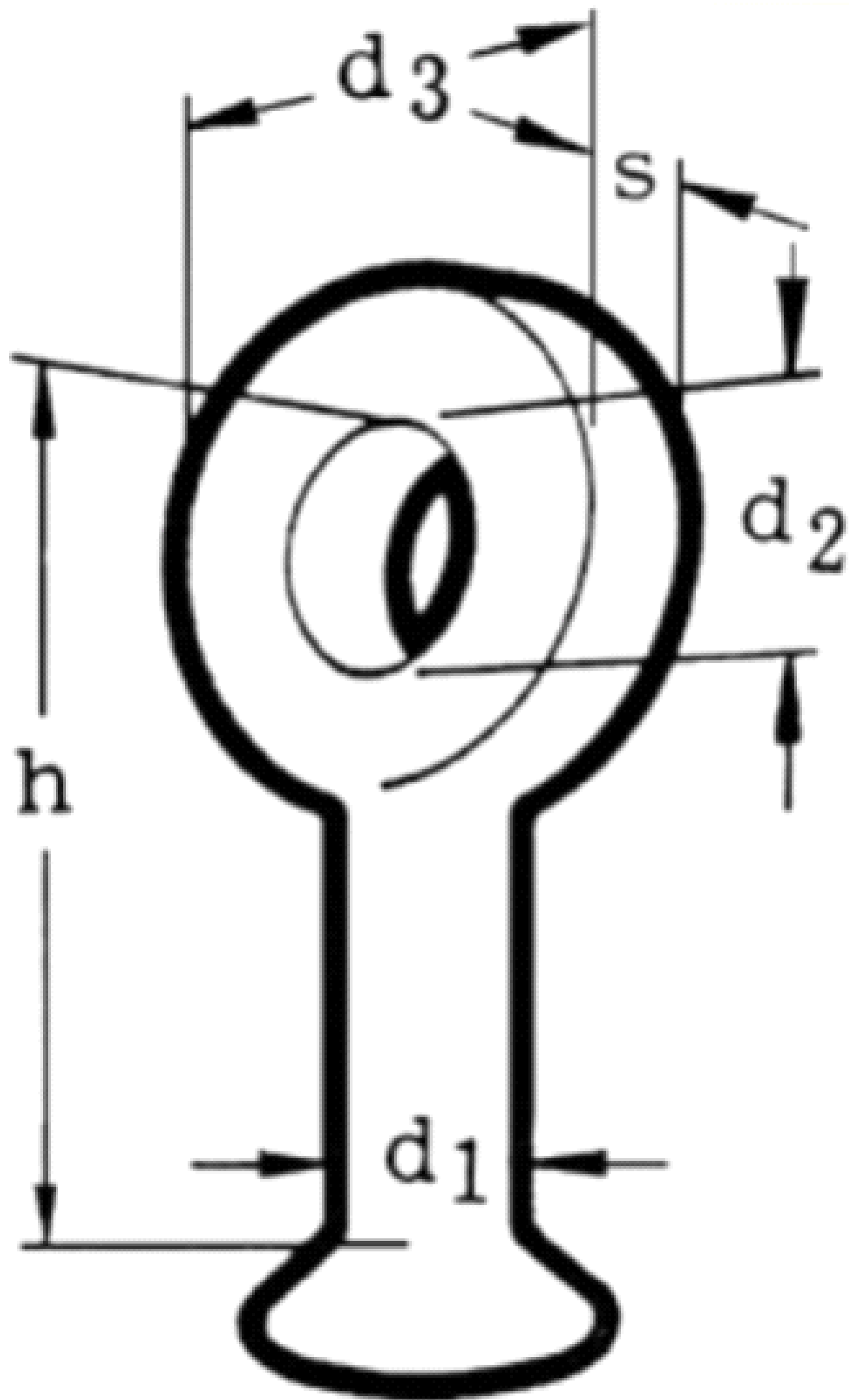
Steel Twisted Clamp
Including ball eyes



5



Bending Item 3 by 90 degree and the distance between C and B should be 70 mm
Item 1 should be Steel RSt37.2
All items should be Coated by Hot zinc



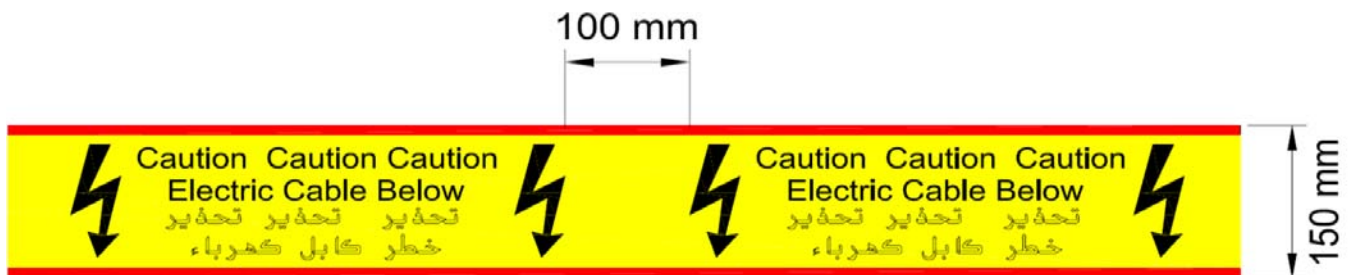
5

DIMENSIONS						
mm						
h	d1	d2	d3	d4	s	s1
80	20	50	50	50	19	19

Total		DIMENSIONS	Item	Name	Qty
		K758	5	ball eyes	1
	35	5Ø	4	Partition Buckle	2
		3/4"-60/30	3	Bolt with Nut	1
		3/4"-170/65	2	Bolt with Nut	1
250	250	Ø 50*6	1	Connection Plate	2

Technical Guarantees No. WT_250**Warning Tape**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Description		Warning Tape			
4	Material		Low Density Polyethylene			
5	Roll Length	meter	250			
6	Width	mm	150			
7	Minimum Thickness	mm	0.1			
8	Printed Legend (2 Language)	English	CAUTION CAUTION CAUTION Electrical Cables Buried Below			
		Arabic	تحذير تحذير تحذير خطر كابل كهرباء			
9	Tape Colour		Phosphoric Yellow			
10	Text Colour		Dark Black			
11	Text Form		Big			
12	Space Between Text	mm	100			
13	Resistant		Acid / Alkali Resistant			



Tenderer's Signature :

Date:

Steel Materials

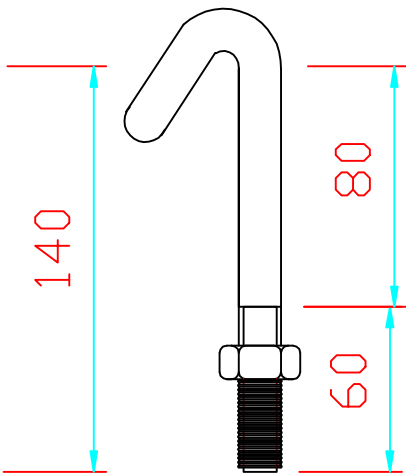
A-2

-UNC-V-Bolt-

Using : For fixing Outdoor L.V switch box
and Anti-climbing arm K1 13/8 on lattice steel poles

Description

1-UNC-V-Bolt 1/2"*140mm. with nut,
Spring washer and Ring washer.



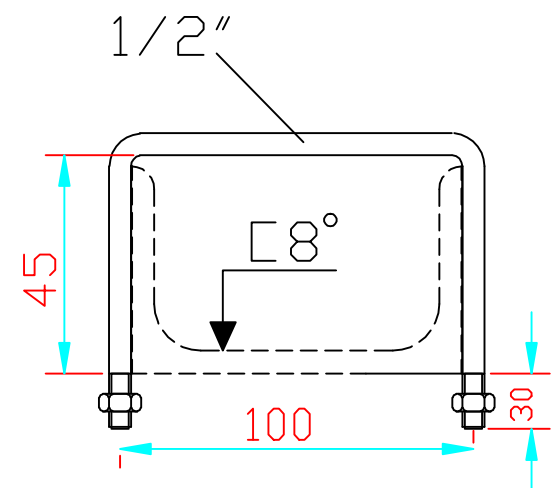
B19

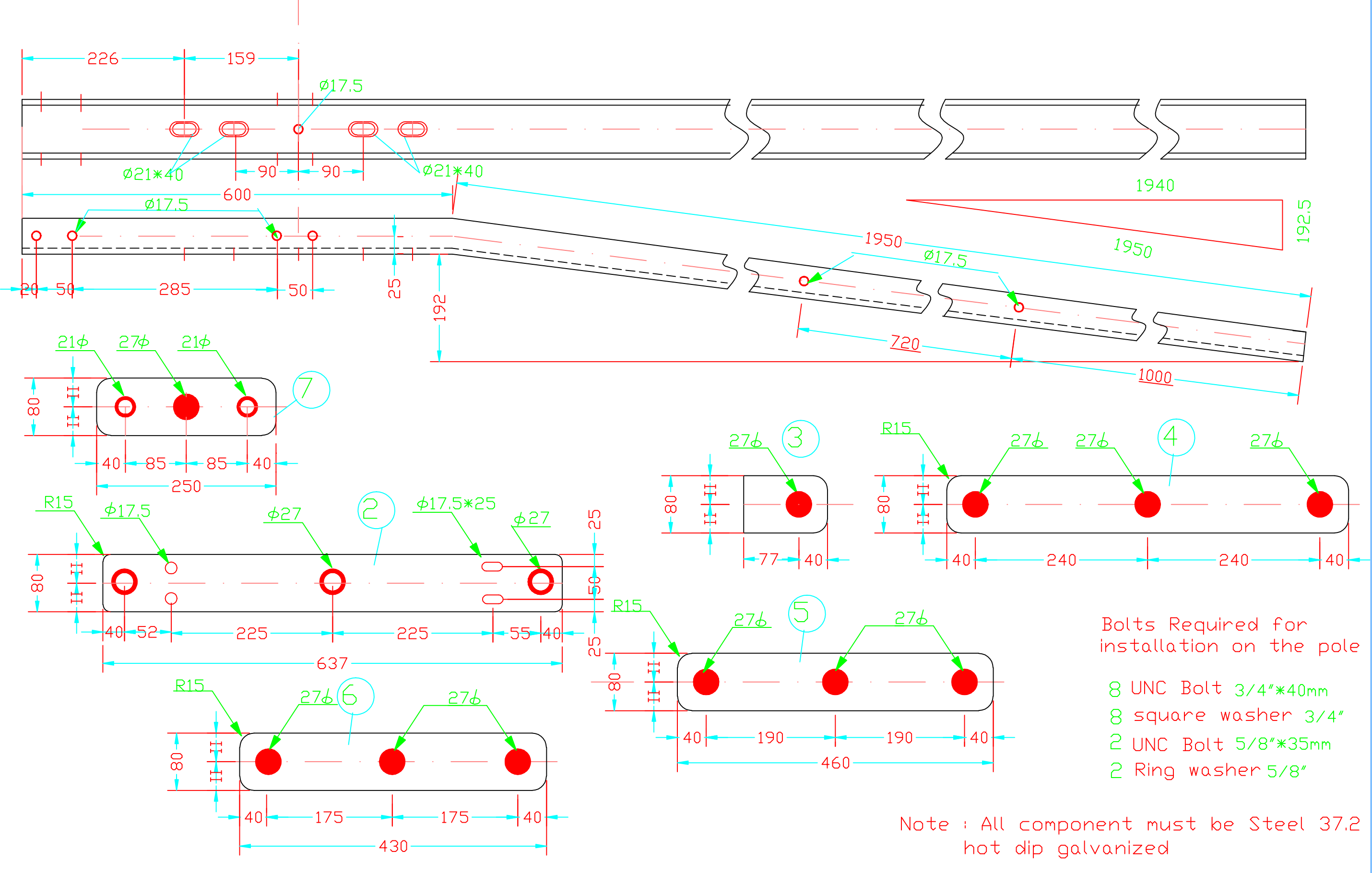
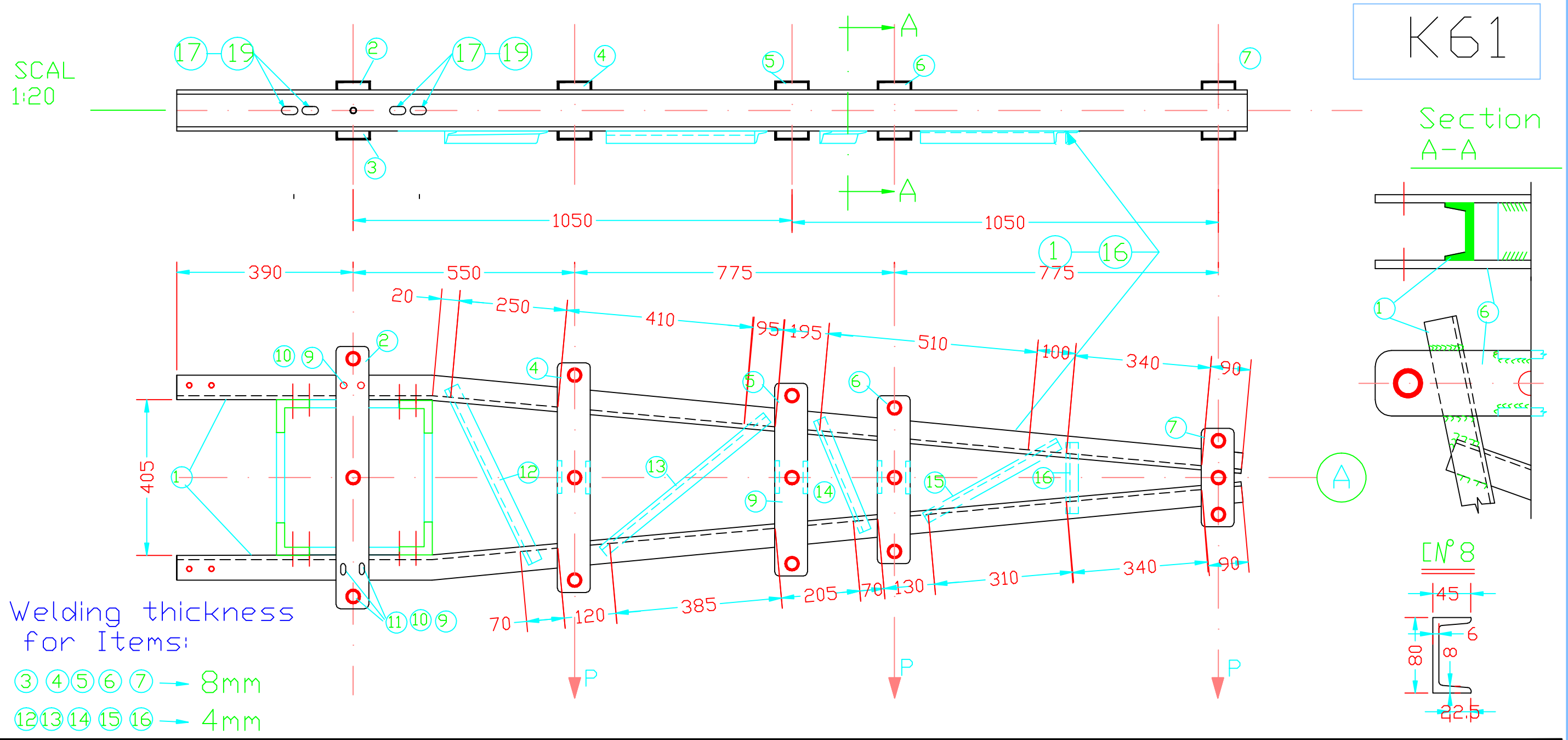
Channel Clamps

Using : For fixing earth Arm
K82 on Lattics Steel Pole

Drawing No B19/1

*U8 Clamp 1/2" مربوط
With nuts and washers.
Hot Dip galvanized Steel.





Hot Galvanized
Lattice Steel
Pole Side Arm K61

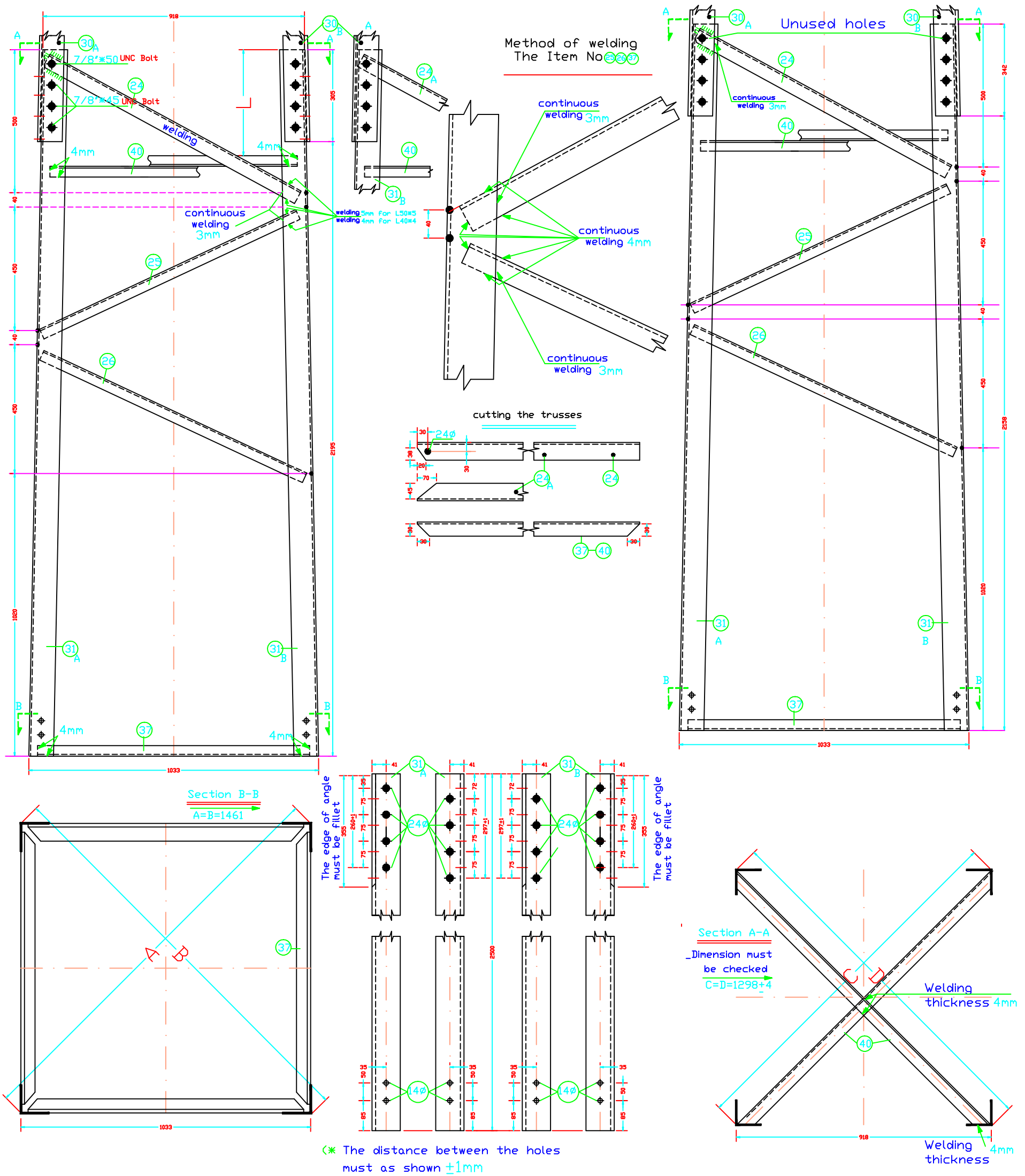
Wieght kg	Total mm mesurment	Unit mm mesurment	Description	Item	Quant.
44	5100	2550	[N° 8	1	1R+1L
4	637	637	Plate 100*8	2	1
	234	117	Plate 80*8	3	2
	1120	560	Plate 80*8	4	2
	920	460	Plate 80*8	5	2
	860	430	Plate 80*8	6	2
	500	250	Plate 80*8	7	2
	600	100	Support Plate 80*8	8	6
			UNC Bolt 5/8\"*40	9	4
			Spring washer 5/8\"	10	4
			square washer 5/8\"	11	2
	320	320	L40*40*4	12	1
	520	520	L40*40*4	13	1
	320	320	L40*40*4	14	1
	370	370	L40*40*4	15	1
	180	180	L40*40*4	16	1

73.7 Kg Total Wieght

Prepared: Eng. ziad ALHoussaini

Checked By: Eng. Kamil Rabah

K109

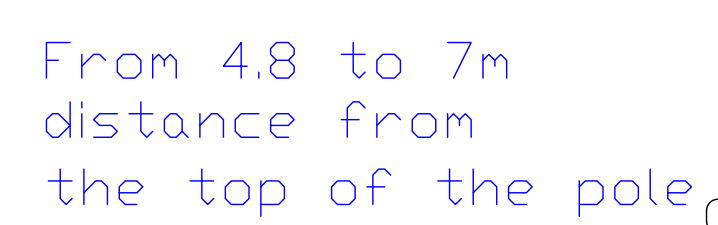


Steel Base 2.25m long
For Lattice Steel pole
80/90-12m

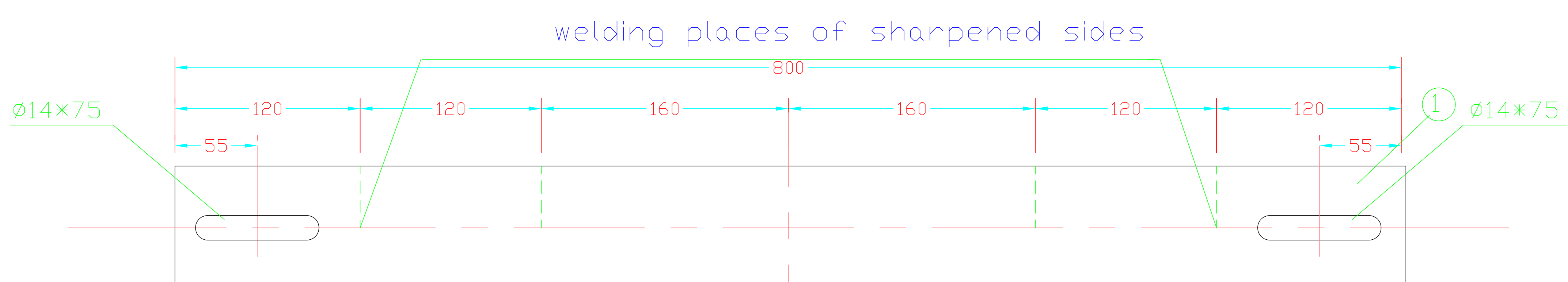
Note: All component must be RSt 37.2
hot dip galvanized

Weight kg	Total mm mesurment	Unit mm mesurment	Description	Item	Quant.
8.7	2570	1285	Truss L45*45*5	40	2
9.5	3920	980	Truss L40*40*4	37	4
122	10000	2500	L90*90*9	31AB	2+2
9.8	4040	1010	Truss L40*40*4	26	4
9.6	3960	990	Truss L40*40*4	25	4
7.4	1970	985	Truss L50*50*5	24A	2
7.5	2000	1000	Truss L50*50*5	24	2
175kg Total Weight					

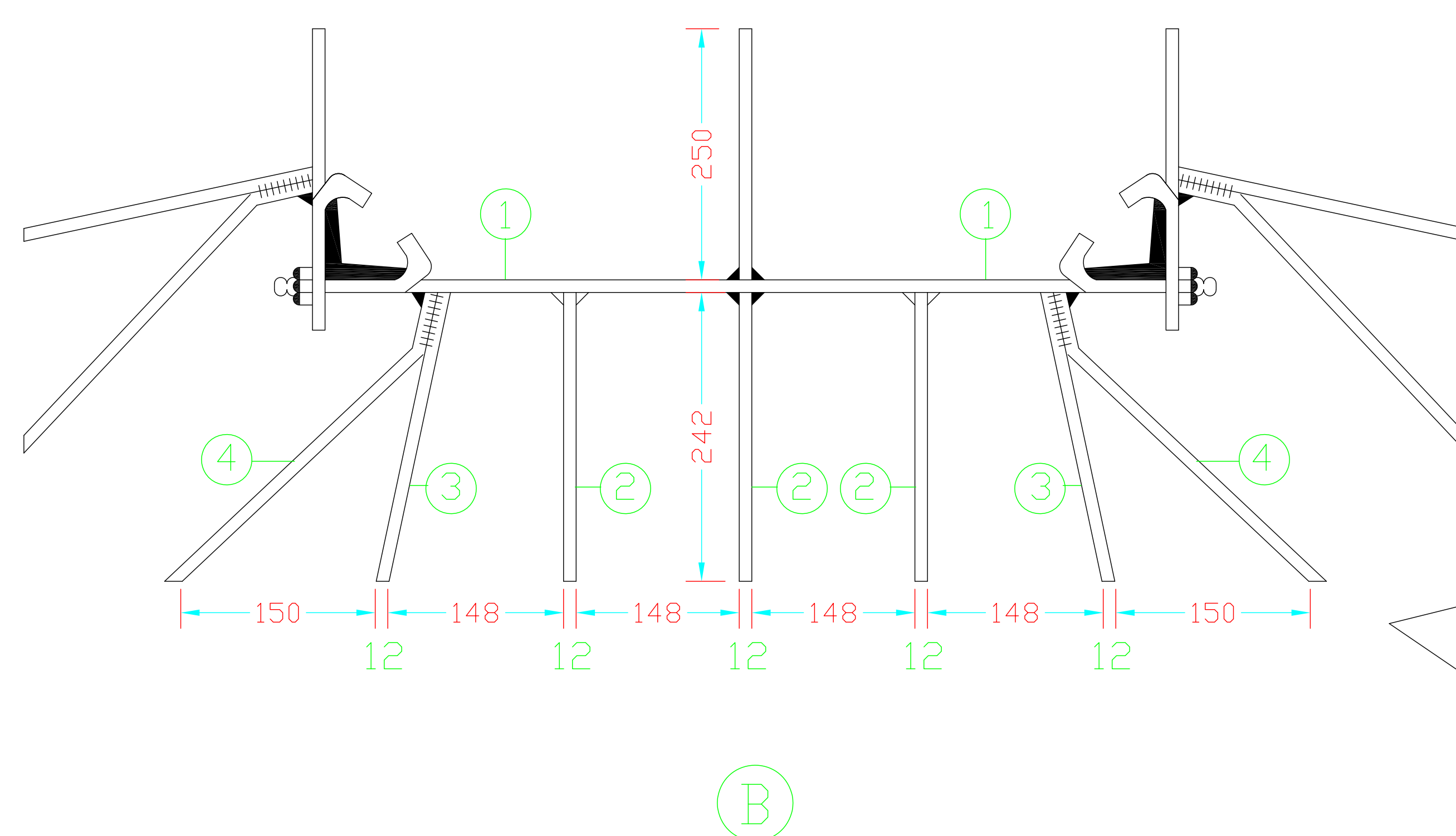
Technical drawing of a square frame structure, likely a roof or floor truss, showing a plan view. The drawing includes a central square frame with diagonal bracing. The frame is composed of horizontal and vertical members. The diagonal bracing is shown as two sets of parallel lines forming an 'X' shape. The drawing includes dimensions: a horizontal dimension 'c' is indicated at the top, and a vertical dimension 'c' is indicated on the left. The drawing is labeled with 'A' in a green circle at the top and bottom center, and 'B' in a green circle on the left and right center. A red dashed crosshair is centered on the drawing.



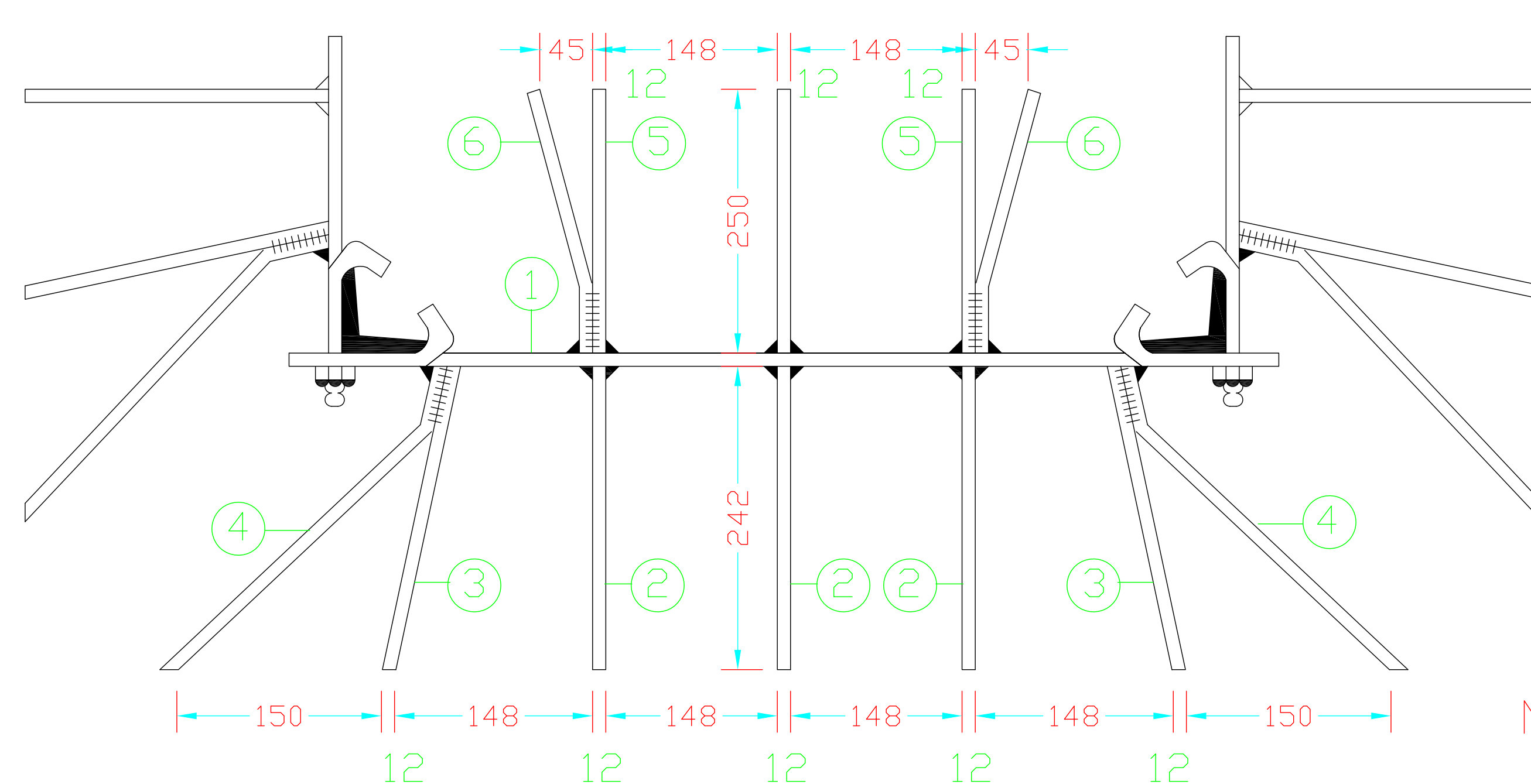
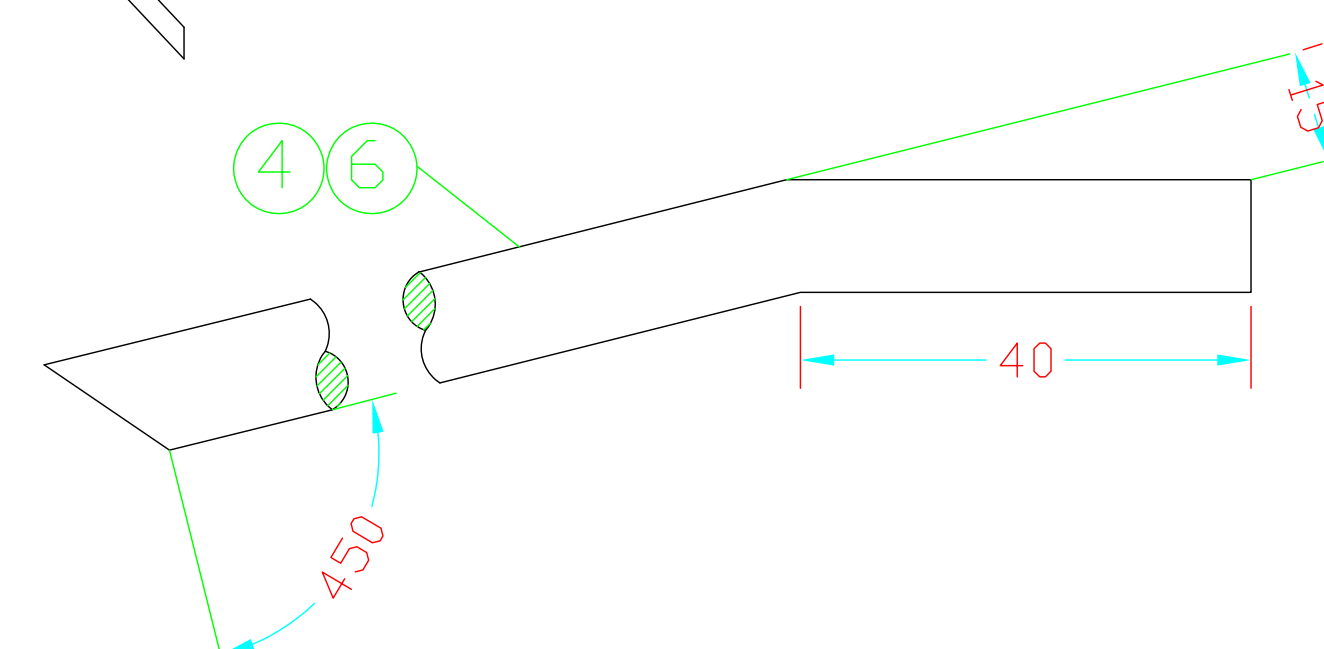
V-Shaped Bolt 1/2"

$$q = 140 \div 150$$


Method of bending and Cutting of the edges



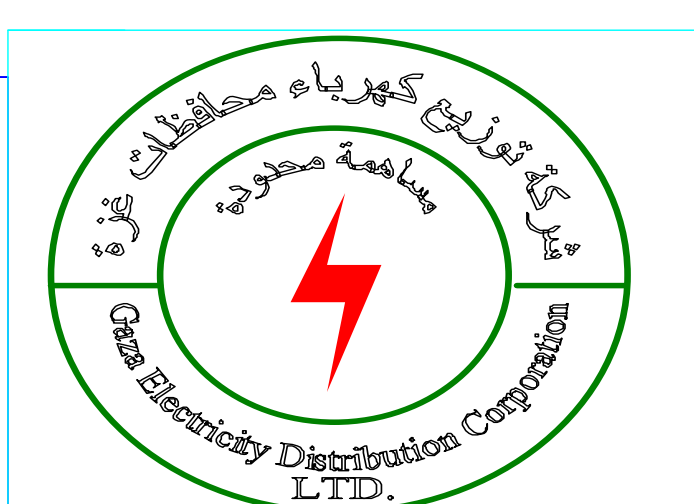
sharpened side from items 2 to 6 should be welding with Item No 1 thickness 5mm
Bending in Cold as specified Standards



Bolts Required for
installation on
the pole

8 V-Shaped Bolt 1/2" 140mm

Note: All component must be Steel 37.2 hot dip galvanized



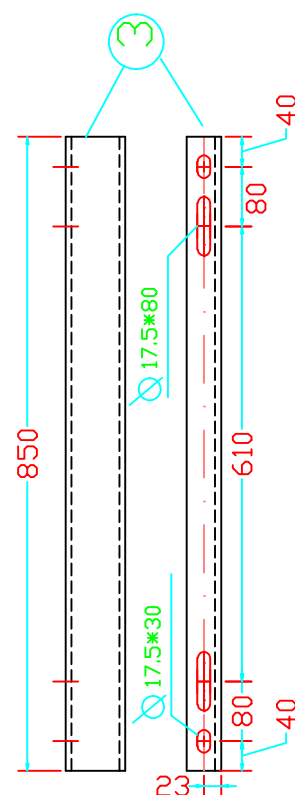
شركة توزيع كهرباء محافظات غزة

Prepared: Eng. ziad ALHoussaini

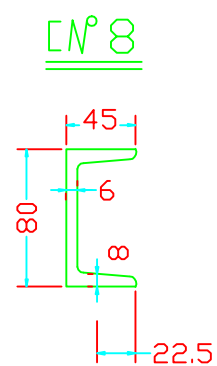
Checked By:Eng. Kamil Rabah

Anti- Climbing Steel Arm K113/8

Weight Kg	Total mm mesurment	Unit mm mesurment	Description	Item	Quant
10	3200	800	Plate \varnothing 50*6	1	4
2.9	3240	270	\varnothing 12	2	12
2.0	2240	280	\varnothing 12	3	8
2.4	2680	335	\varnothing 12	4	8
2.0	2240	280	\varnothing 12	5	8
1.0	1120	280	\varnothing 12	6	4
21kg					



- 8 UNC Bolt 5/8" * 40mm
- 8 square washer 5/8"
- 8 UNC Bolt 5/8" * 35mm
- 8 Ring washer 5/8"



Note: All component must be Steel RST37.2
hot dip galvanized

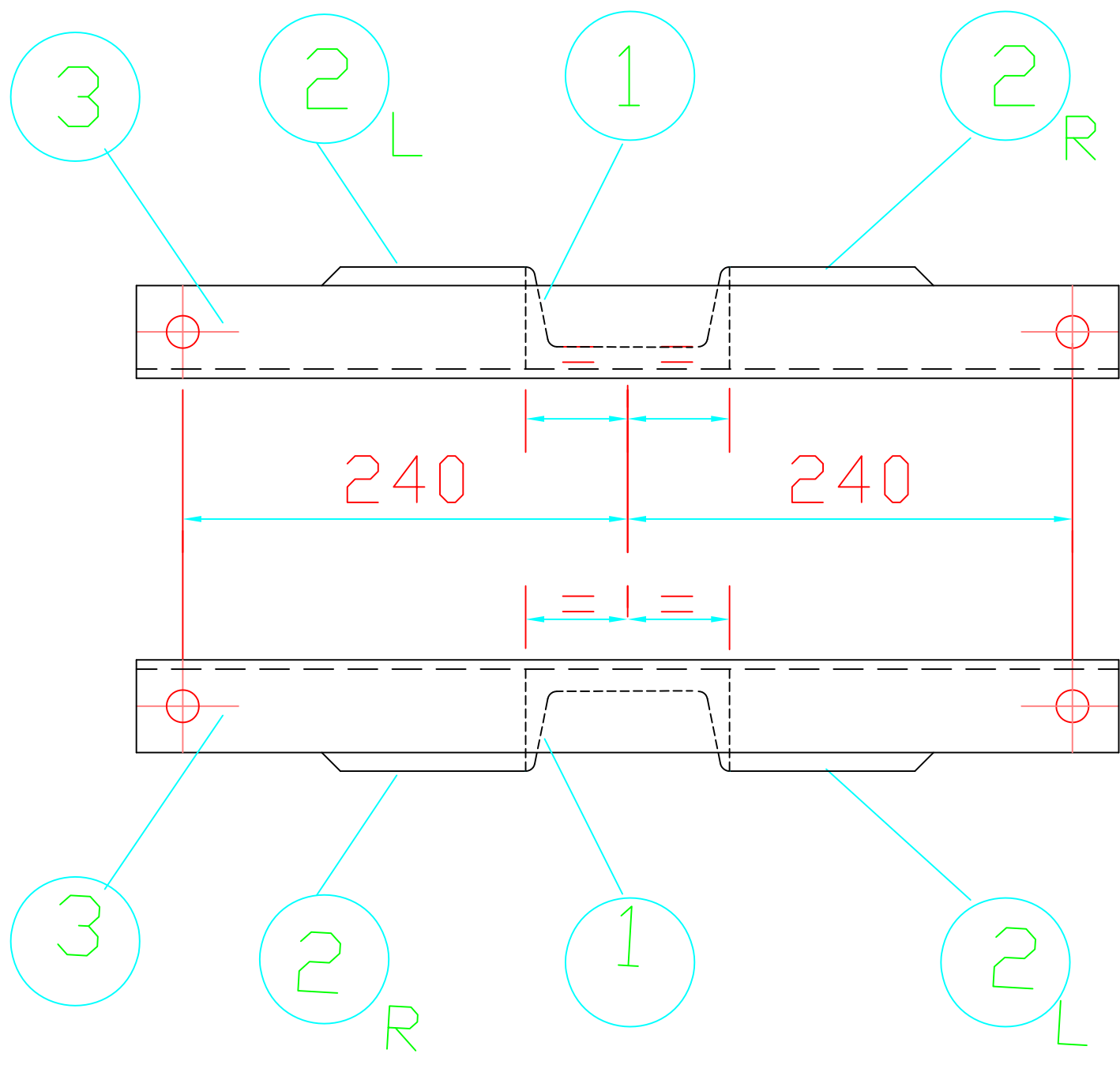
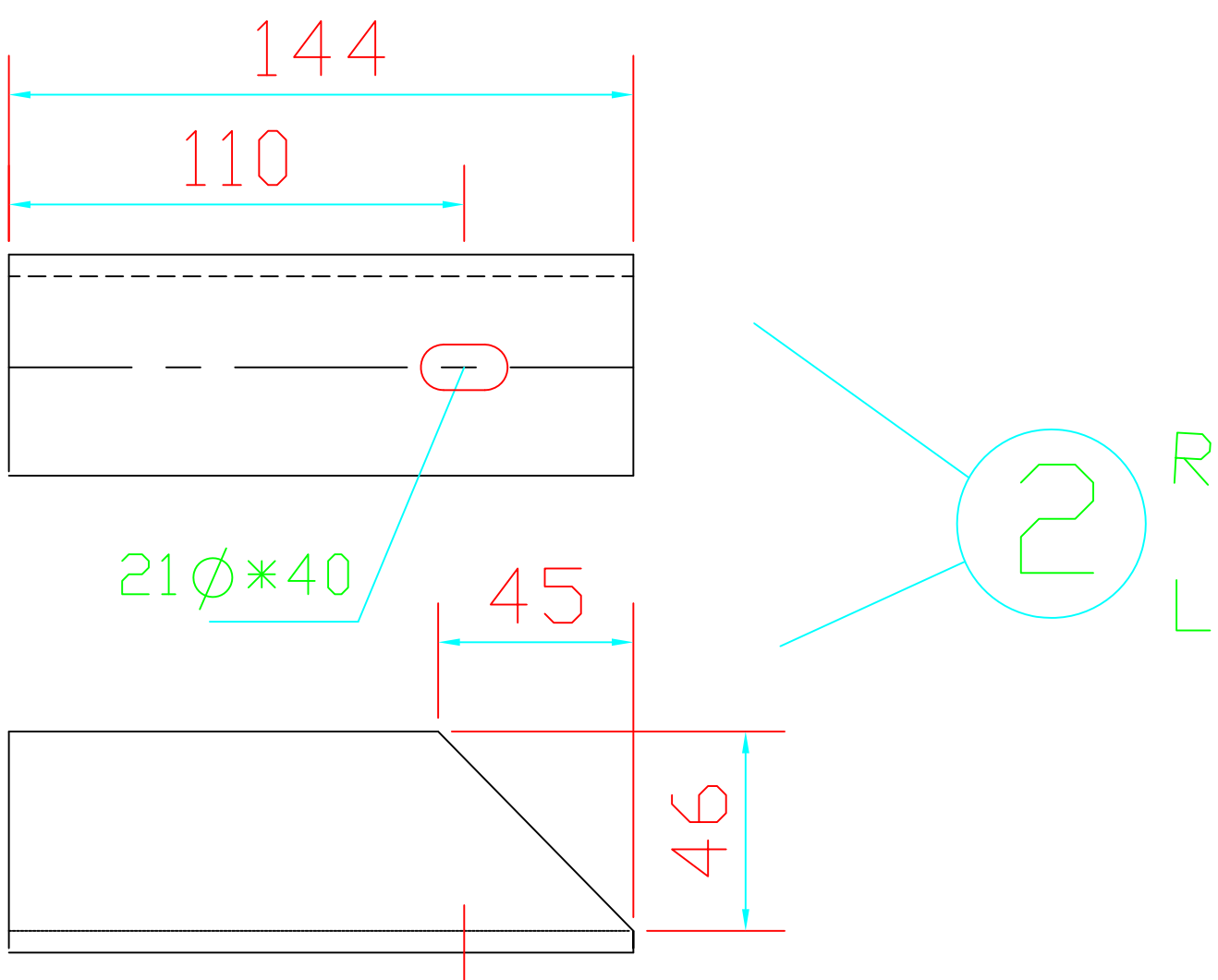
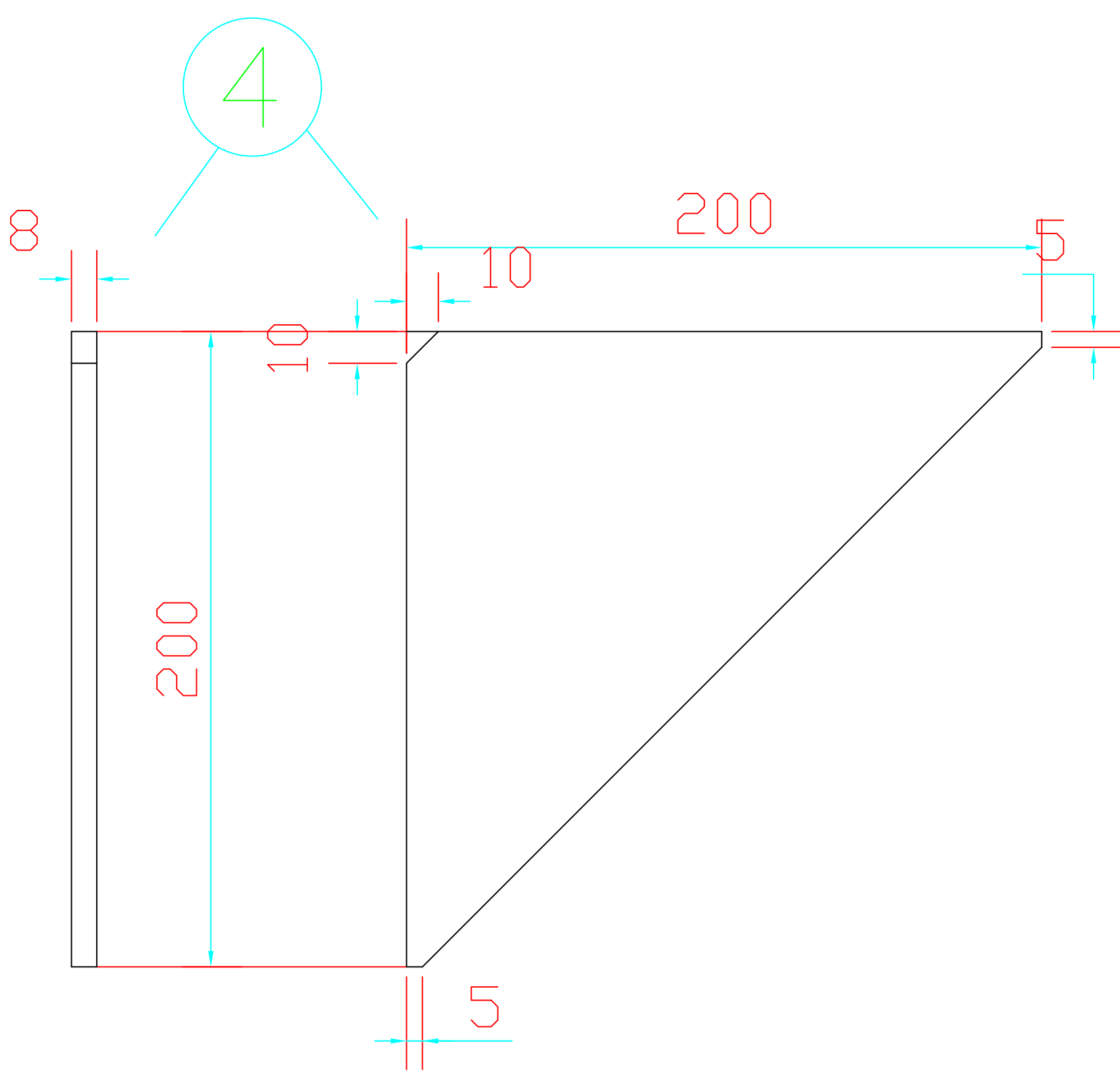
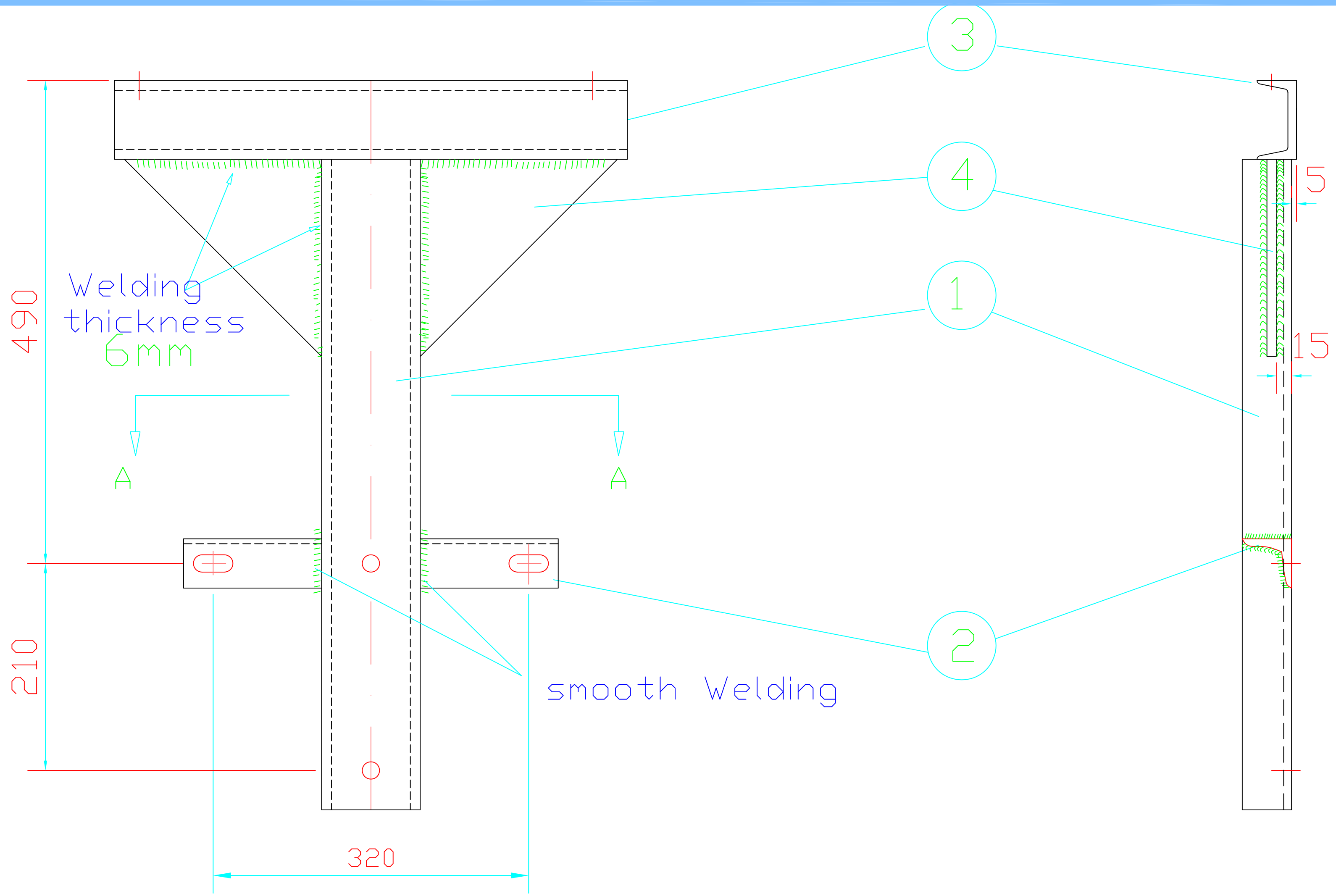
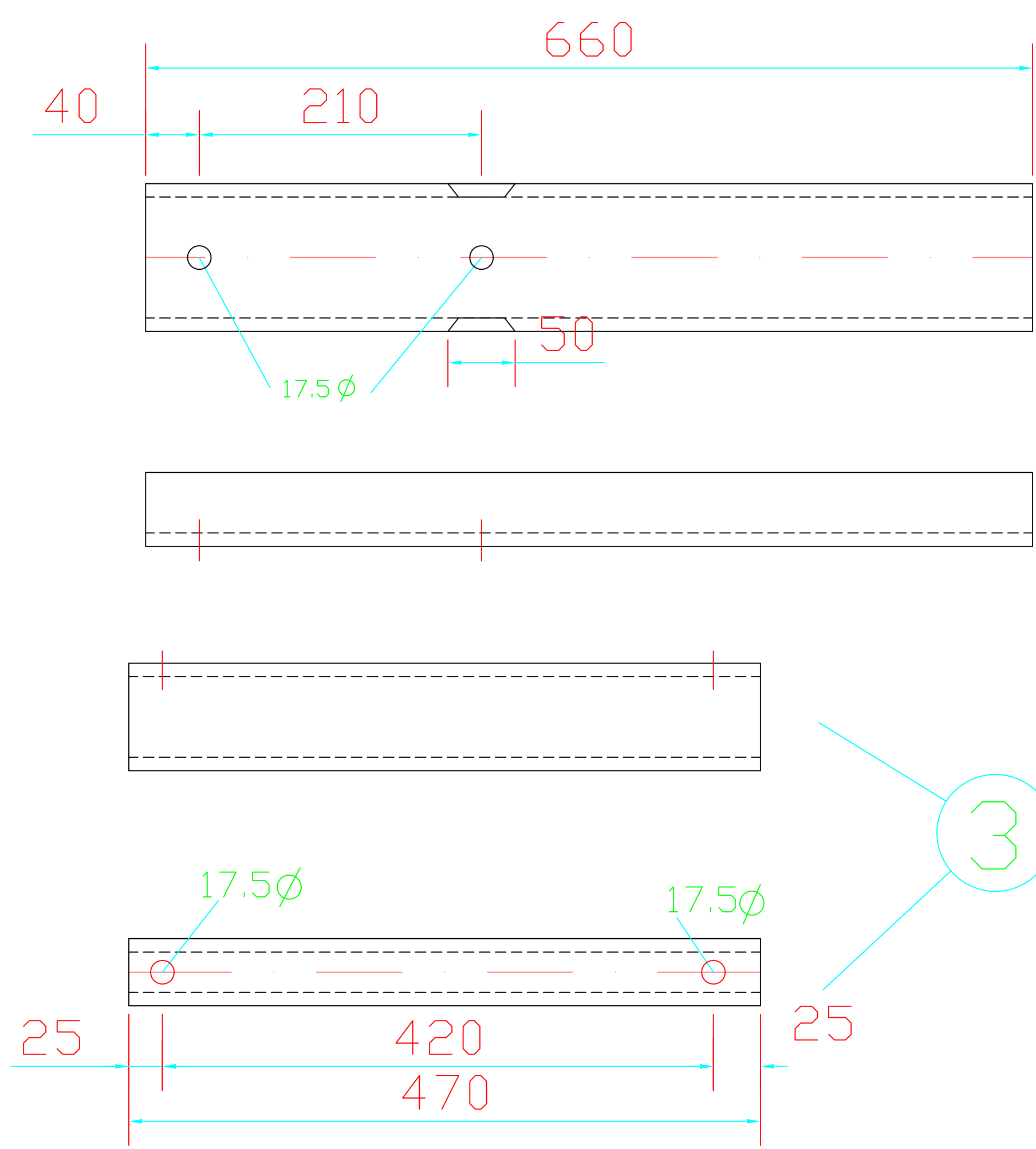


Prepared: Eng. ziad ALHoussaini

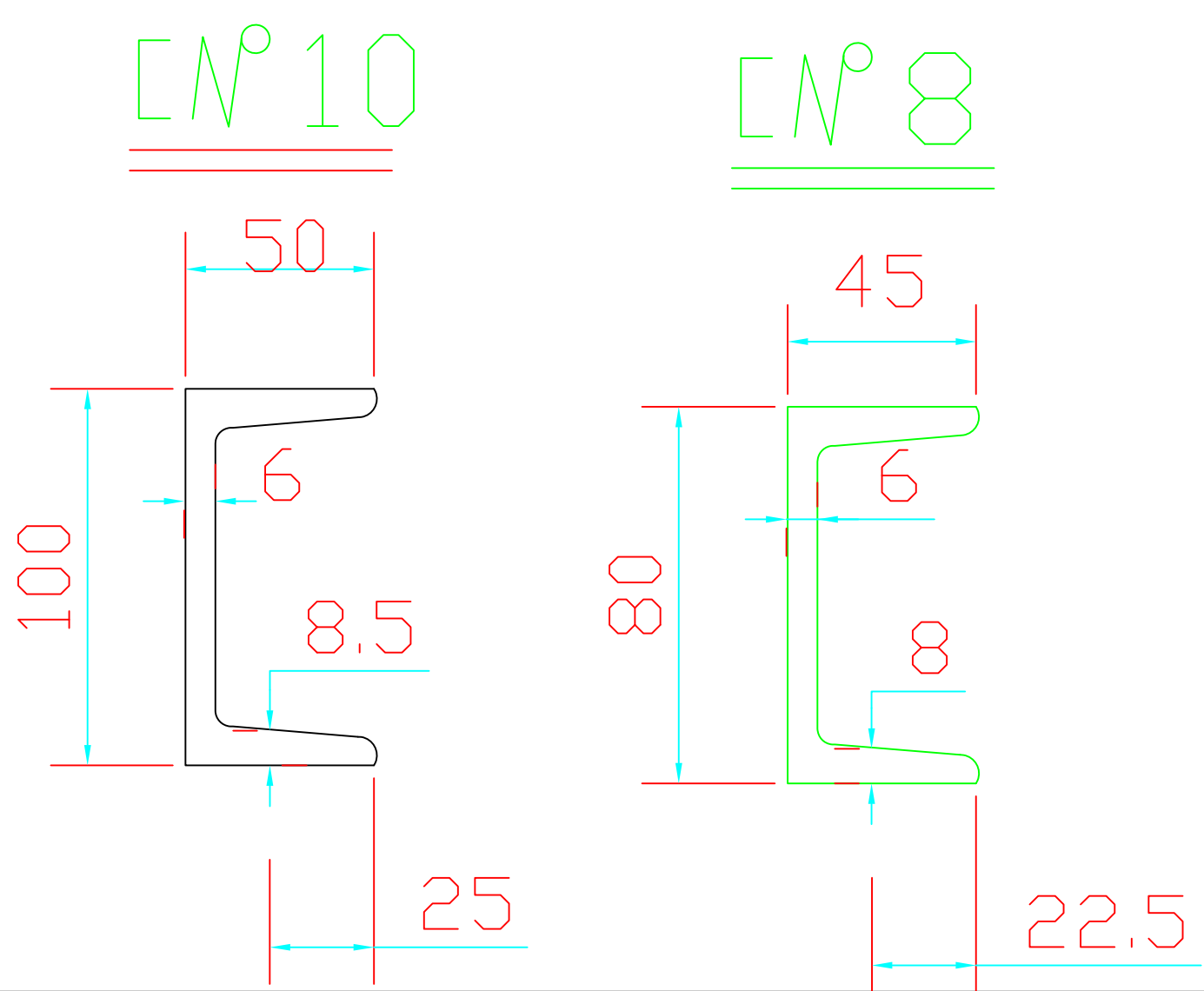
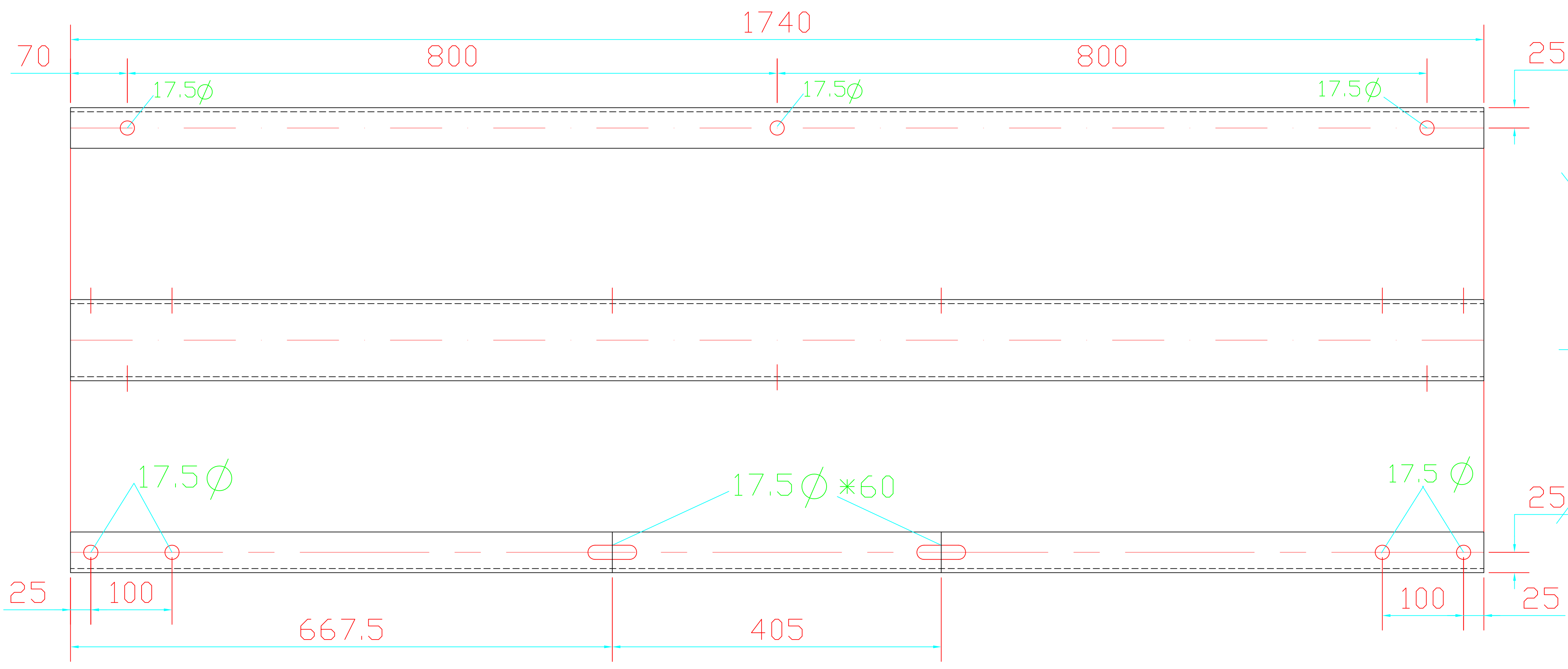
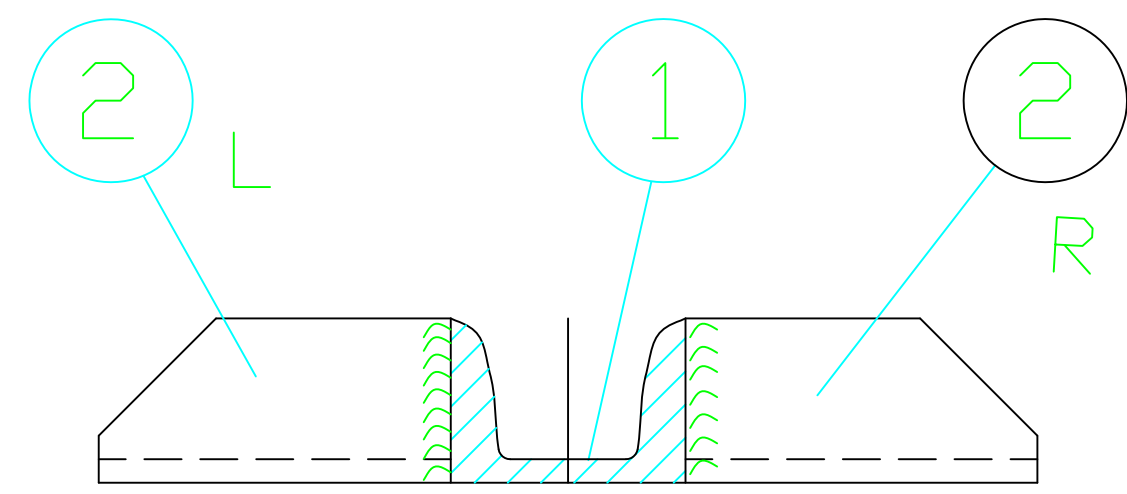
Checked By: Eng. Kamil Rabah

Hot Galvanized Transformer
Isolator Side Arm K1558
3.35m long

K.g	mesurement	mesurement	Description	Item	Quant.
107.2	6700	3350	CN ^P 14	1	2
34.5	4000	2000	CN ^P 8	2	2
7.3	850	850	CN ^P 8	3	1
149Kg	Total Weight				



Section A-A



- Bolts Required for installation on the pole
- 4 UNC Bolt 3/4" * 40mm
 - 4 Rounded washer 3/4"
 - 8 UNC Bolt 5/8" * 35mm
 - 8 Rounded washer 5/8"
 - 4 UNC Bolt 1/2" * 35mm

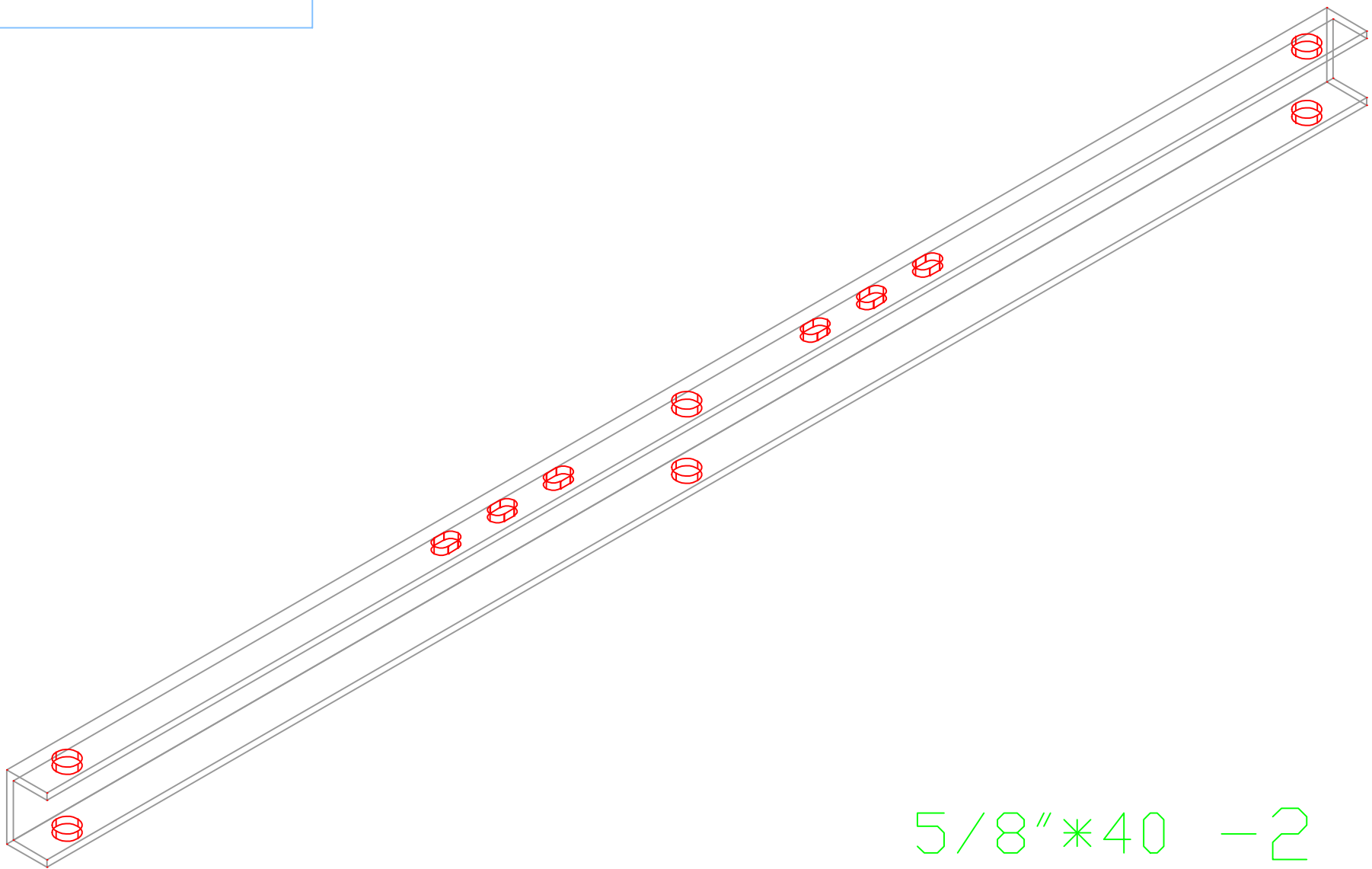
Note: All component must be Steel RSt37.2 hot dip galvanized



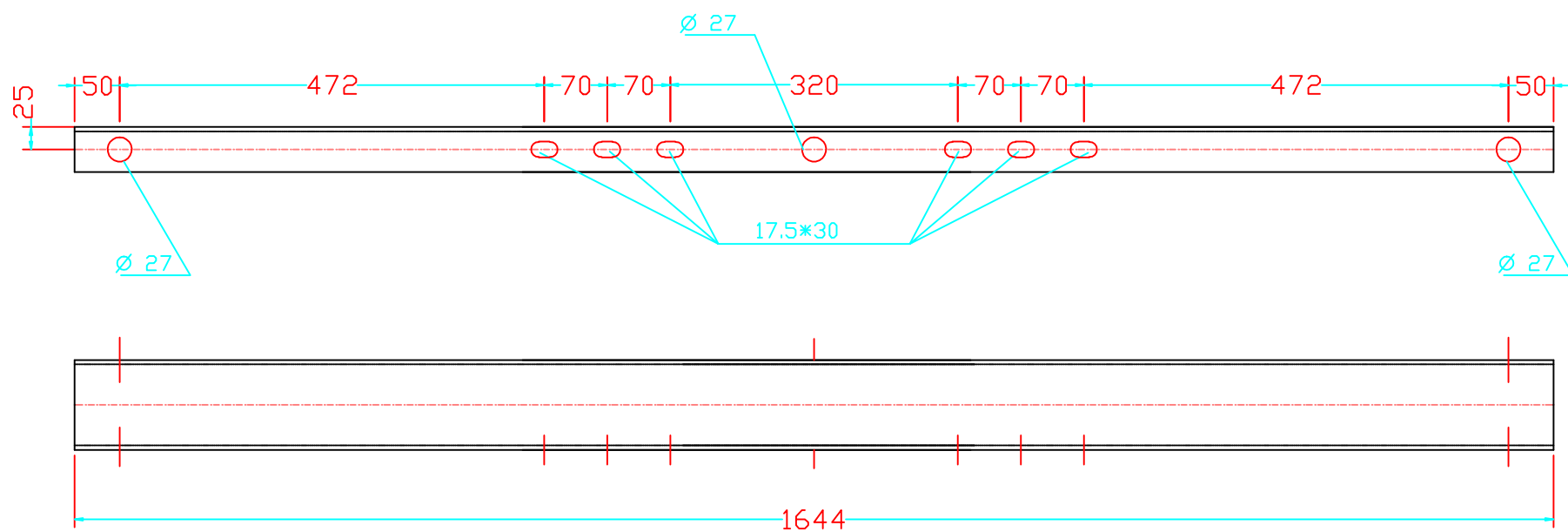
Hot Galvanized Line Isolator Central Arm K1561 Top

Weight kg	Total mm mesurment	Unit mm mesurment	Material	Quantity	Item
14	1320	660	[N° 10	2	1
2.2	576	144	L50*50*5	2R+2L	2 ^R _L
9.1	1060	530	[N° 8	2	3
5.3	420		φ 200*8	4	4
30.1	3480	1740	[N° 8	2	5
61k.g Total Weight					

K160/3_B



5/8" * 40 - 2





شركة توزيع كهرباء محافظات غزة
QEDCO

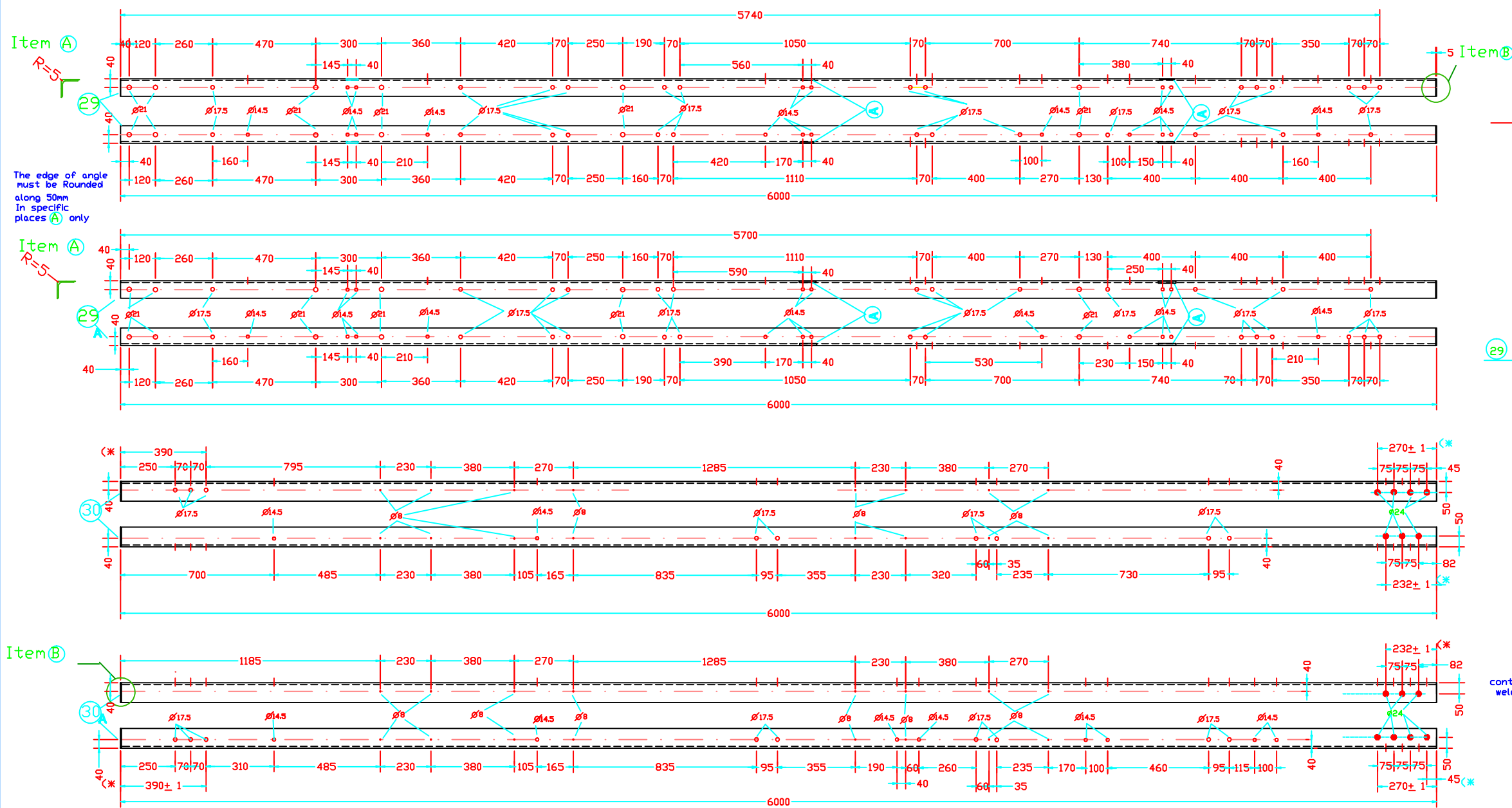
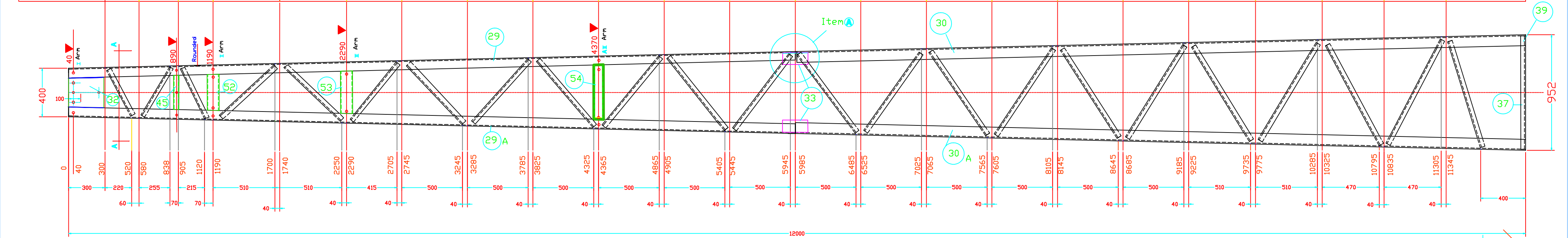
Prepared: Eng. ziad ALHoussaini

Checked By: Eng. Kamil Rabah

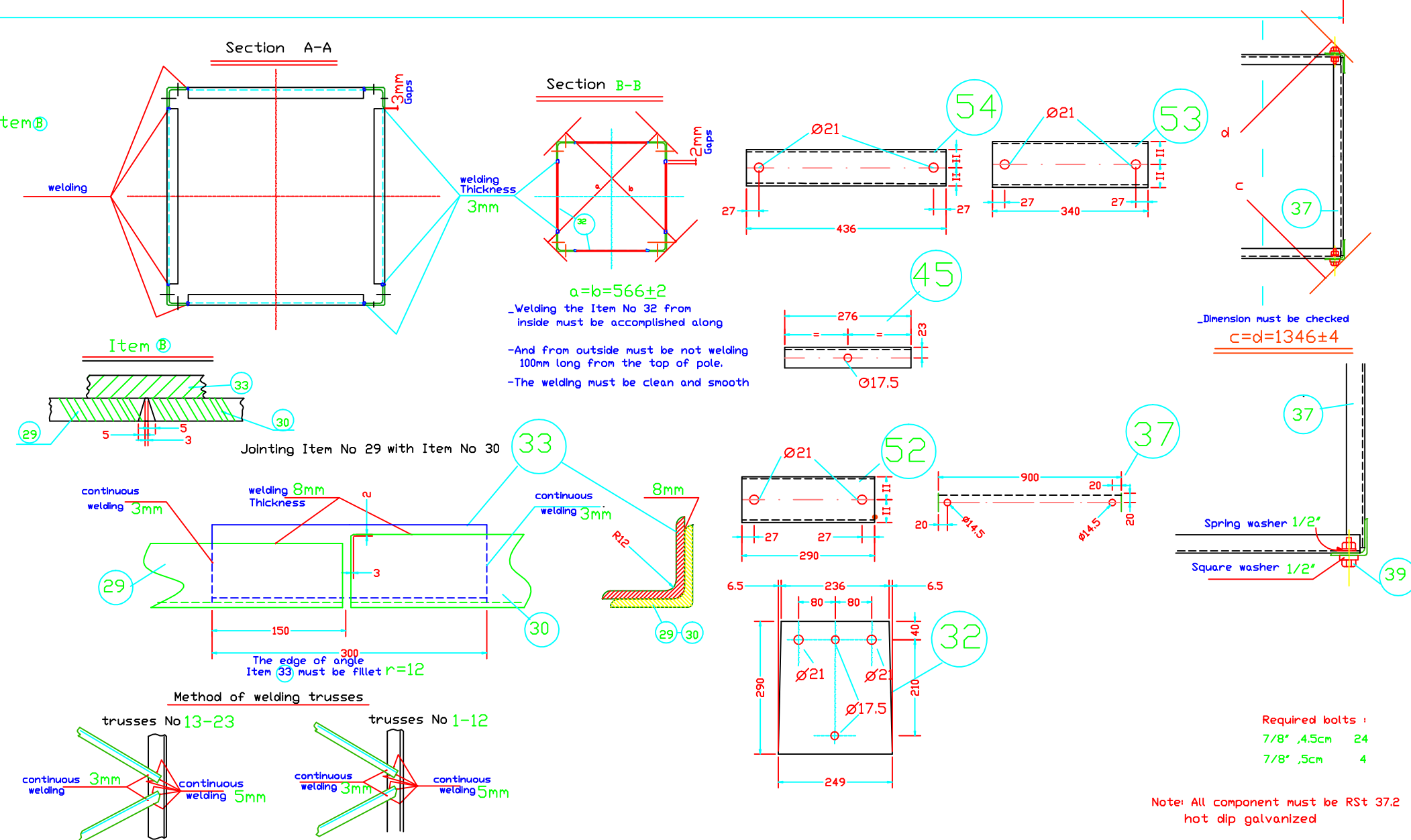
Hot Galvanized Auxilliary
Steel Arm K160/3_B

Weight Kg	Unit mesurment mm	Description	Quant.
	1644	CN° 8	1
Note: All component must be Steel RST37.2 hot dip galvanized			

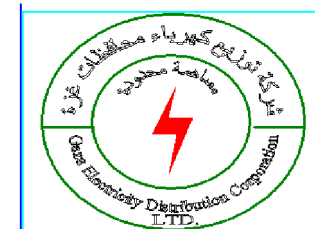
mesurement =L mm	430	455	445	630	650	610	680	695	720	735	760	765	780	815	835	855	875	900	920	945	950	970	920
Item No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23



⊗ The distance between the holes must as shown ± 1




Note: All component must be RSt 37.2 hot dip galvanized




شركة توزيع كهرباء محافظات غزة
GEDCO

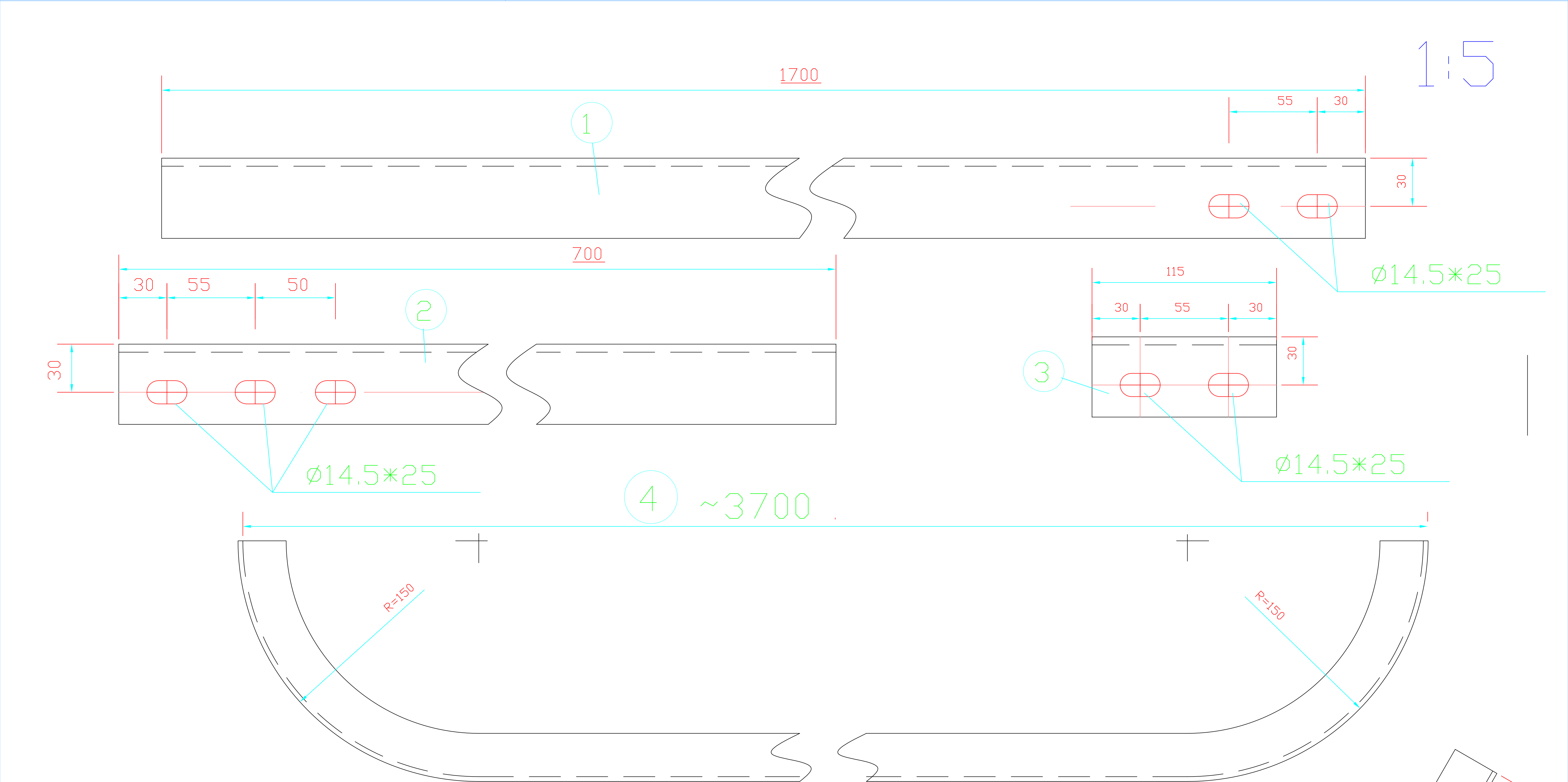
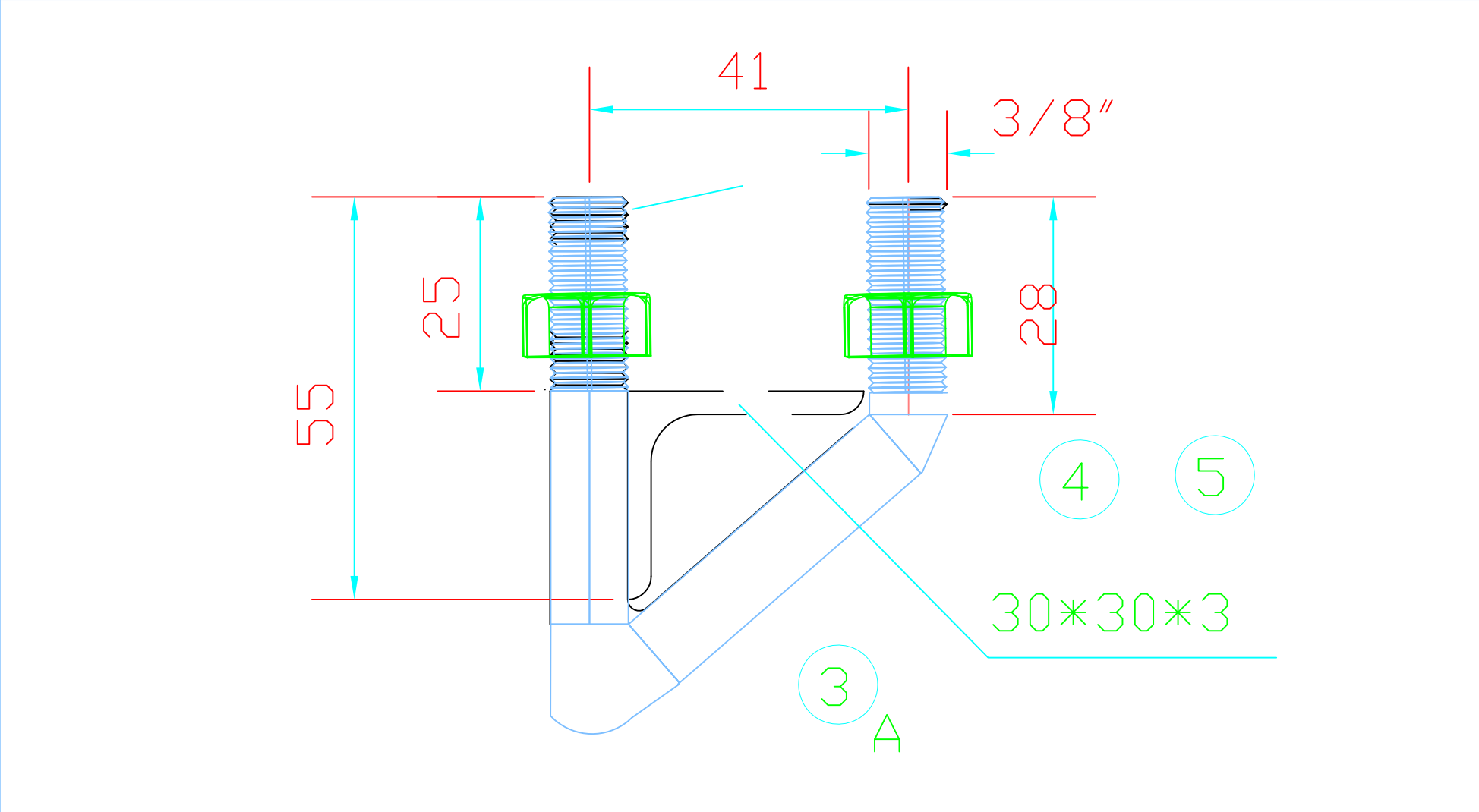
Prepared: Eng. ziad ALHoussaini

Checked By: Eng. Kamil Rabah

	<p>M.V. Lattice</p> <p>Steel Pole</p> <p>80/90 long</p> <p>12m</p>	<p>102.7</p> <p>142.3</p> <p>231.8</p> <p>292.1</p> <p>18.0</p> <p>14.6</p> <p>8.7</p>	<p>27240</p> <p>42120</p> <p>24000</p> <p>24000</p> <p>996</p> <p>1200</p> <p>3600</p>	<p>L</p> <p>L</p> <p>6000</p> <p>6000</p> <p>249</p> <p>300</p> <p>900</p>	<p>L50*50*5</p> <p>L45*45*5</p> <p>L80*80*8</p> <p>L90*90*9</p> <p>290*8</p> <p>L90*90*9</p> <p>L40*40*4</p>	<p>11*4</p> <p>12*4</p> <p>2+2</p> <p>2+2</p> <p>4</p> <p>4</p> <p>8</p>	<p>1-11</p> <p>12-23</p> <p>29+29A</p> <p>30+30A</p> <p>4</p> <p>33</p> <p>37</p>
<p>شركة توزيع كهرباء جدة GEDCO</p> <p>Prepared: Eng. ziad ALHoussaini</p> <p>Checked By: Eng. Yassir Bakhat</p>			<p>3.7</p> <p>10.</p> <p>11.8</p>	<p>1104</p> <p>1160</p> <p>1360</p>	<p>276</p> <p>290</p> <p>340</p>	<p>L45*45*5</p> <p>U 8</p> <p>U 8</p>	<p>4</p> <p>4</p> <p>4</p>

	<p>M.V. Lattice</p> <p>Steel Pole</p> <p>80/90 long</p> <p>12m</p>		<p>Wleight kg</p>	<p>Total mm measurement</p>	<p>Unit mm measurement</p>	<p>Description</p>	<p>Quant.</p>	<p>Item</p>
			102.7	27240	L	L50*50*5	11*4	1-11
			142.3	42120	L	L45*45*5	12*4	12-23
			231.8	24000	6000	L80*80*8	2+2	29+29A
			292.1	24000	6000	L90*90*9	2+2	30+30A
			18.0	996	249	290*8	4	32
			14.6	1200	300	L90*90*9	4	33
			8.7	3600	900	L40*40*4	4	37
			UNC Bolt 1/2" *35				8	
			Spring washer 1/2"				8	39
			Square washer 1/2"				8	
			3.7	1104	276	L45*45*5	4	45
			10.	1160	290	U 8	4	52
			11.8	1360	340	U 8	4	53
			15.1	1744	436	U 8	4	54
			851kg	Total Weight				

K2103

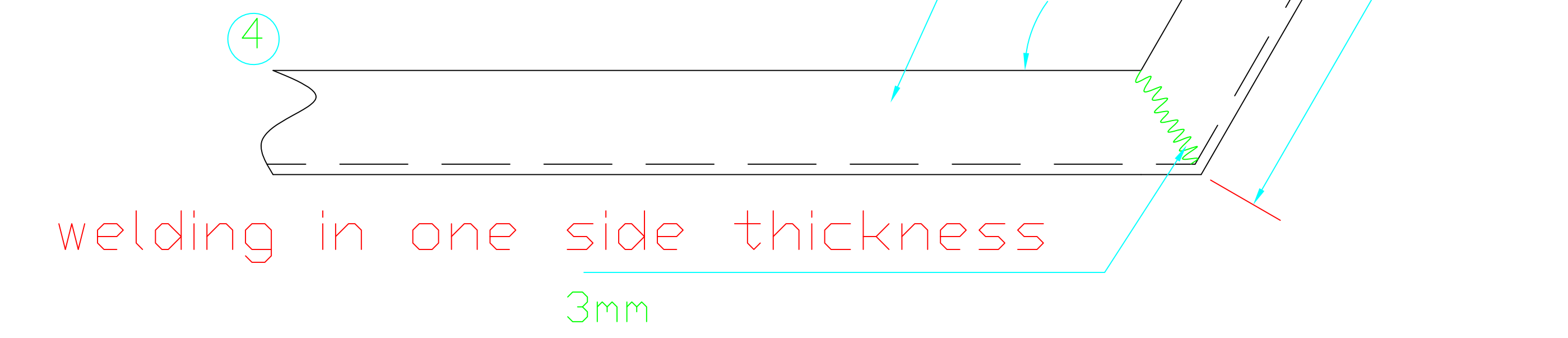


Bolts Required for Installation on the Arm

2 U8 or U6.5 1/2"

Note: All component must be Steel 37.2 hot dip galvanized

Bending and welding items

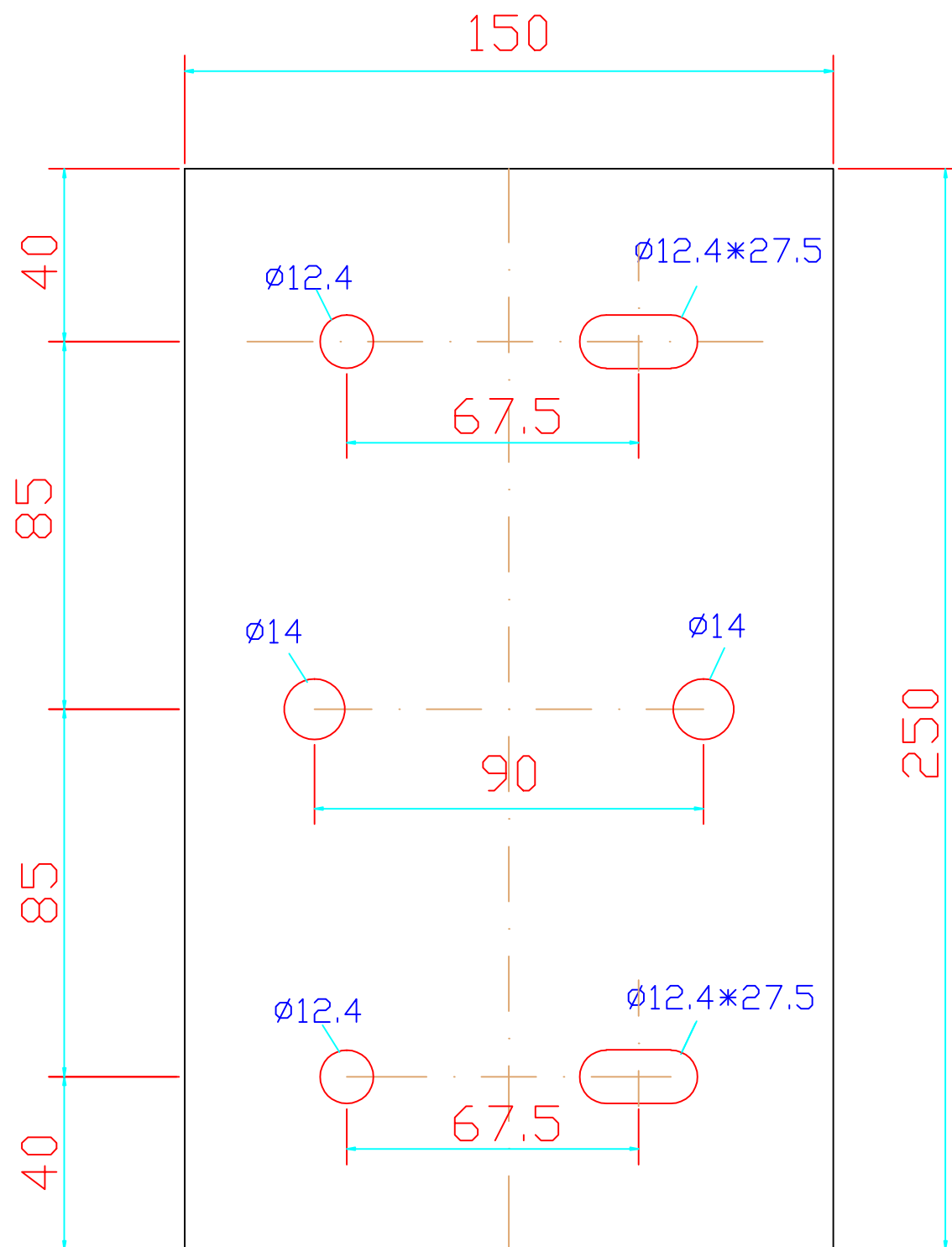


Hot Galvanized
Protection Arm
K82

Weight Kg	Total mm mesurment	Unit mm mesurment	Description	Item	Quant
		3850	L30*30*3	4	1
	290	145	V-Shape angle $\phi 3/8"$	③A	2
		115	L50*50*5	3	2
19	5030	700	L50*50*5	2	2
		1700	L50*50*5	1	2

PMV_250

Plate for M.V Cable



Bolts Required for
installation on the Arm

2 UNC Bolt 1/2"*35mm



Plate for M.V Cable

Nots: All component must be Steel 37.2
hot dip galvanized

Unit mesurment	Description	Item	Quant.
250	Plate 150*3	1	1

Technical Guarantees No. SCG_200

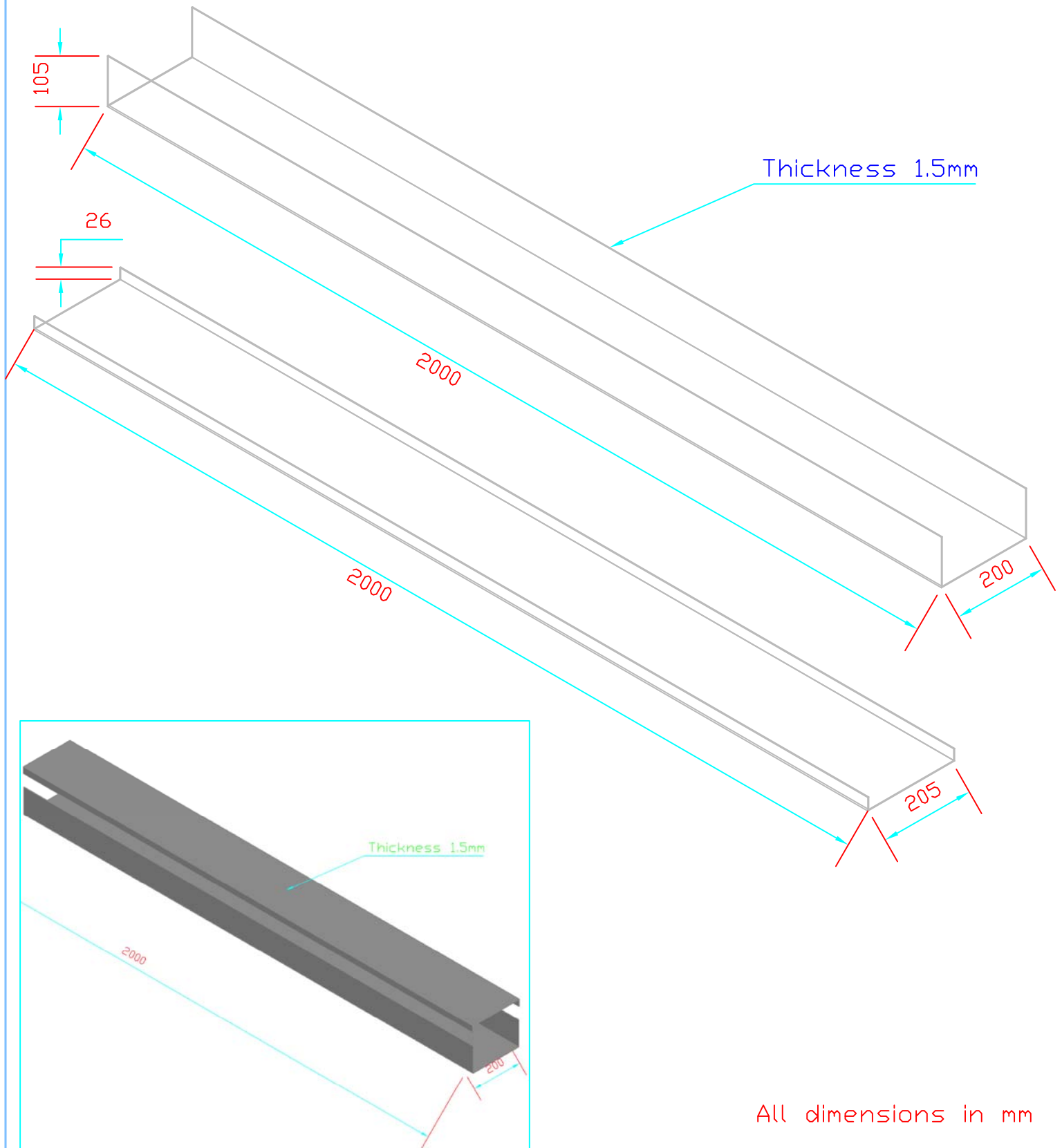
Hot Galvanized Steel Cable Guard

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Description		Cable Guard			
4	Material		Hot Dip Galvanized			
5	Steel Guard with Steel Cover		Required			
6	Steel Guard and Steel Cover Length	mm	2000			
7	Steel Guard Wedth	mm	200			
8	Steel Cover Width	mm	203			
9	Steel Guard Edge Hight	mm	105			
10	Cover Edge Hight	mm	26			
11	Steel Guard and Steel Cover Thickness	mm	1.5			
12	Attached Drawing		Drawing No. SCG_200			

Tenderer's Signature :

Date:

SCG_200 Cable Guard





شركة توزيع كهرباء محافظات غزة

Gaza Electricity Distribution Corporation

TECHNICAL SPECIFICATIONS FOR STEEL STRUCTURES

March 2012

1 GENERAL SPECIFICATIONS

1.1 Completeness of Contract

- 1.1.1 All apparatus, accessories or fittings which may not have been specifically mentioned, but which are usual or necessary in the respective equipment for the completeness of the finished work in an operable status, shall be deemed to be included in the Contract and shall be provided by the Contractor without any extra charge. All equipment shall be complete in all details, whether or not such details are mentioned in the Specifications. This includes fixation details and connection clamps and/or terminals.
- 1.1.2 Any reference in the quantity and price schedules, the delivery period schedule or in the various clauses and schedules of the text of either the Specification or the Bid, to any equipment shall imply that the equipment is complete with all accessories, apparatus and fittings as outlined in sub-clause 1.1.1 above.
- 1.1.3 The Bidder shall be responsible for ensuring that the equipment supplied is fit for the purpose intended. Available information on the characteristics of the system to which the works will be connected and associated will be supplied on request to the Bidder who shall be responsible for obtaining and determining all applicable knowledge relevant to the works.

1.2 Drawings and Documentation

The Contractor shall prepare and submit to the Engineer/GEDCO for approval dimensioned general and detailed design drawings and other pertinent information of all the Equipment specified in the Specifications.

The Contractor shall supply detailed instructions for erection, operation and maintenance of all equipment and components in English and preferably Arabic language.

In the event of any difference between the drawings and the Specifications, the latter shall prevail.

Approval of drawings shall not relieve the Contractor of his obligations to supply the Plant in accordance with the Specifications. In the event of any difference between scaled dimensions and figures on the drawings, the figures shall prevail

All text on drawings provided by the Contractor shall be in the English language in addition, if necessary, to that of the country of origin.

All drawings shall be dimensioned in millimeters.

1.3 Time of Delivery and Completion

The guaranteed delivery times shall be stated in the appropriate schedule in this document.

1.4 Quality of Materials

All materials supplied under this Contract shall be new and of the best quality and of the class most suitable for working under the conditions specified and shall withstand the variations of temperature and atmospheric conditions arising under working conditions without distortion or deterioration in the setting up of undue stresses in any parts and also without affecting the suitability of the various parts of the Works for which they were designed. No toxic material (such as Halon, PCB, and Asbestos) shall be utilized.

1.5 Contractor's Quality Assurance Procedures

The Bidder shall have established a quality assurance system based on ISO 9001 or 9002. The Contractor shall include a documentation of the system with a list of current procedures, an organogram of the quality organization and the name of the quality manager. He shall also submit a list of quality revisions performed the last twelve months with a list of closed and unclosed findings as well planned revisions the coming twelve months.

The Contractor shall submit for approval a program of quality control and inspection procedures to assure that the product during manufacture and on completion complies with the specified requirements. The program shall relate the quality control and inspection activities to the production cycle. In support of the quality control and inspection program the Contractor shall provide details of quality control and inspection procedures available for use in the execution of the Contract. The Contractor shall retain responsibility for quality control and inspection activities made by his sub-contractors and shall indicate on the program, which items are to be sub-contracted.

1.6 Guarantees and Particulars

The Works shall comply with the technical guarantee data stated in the Bid. The Contractor shall be responsible for any discrepancies, errors and omissions in the particulars and guarantees, whether the Engineer/GEDCO has approved such particulars and guarantees or not.

1.7 Places of Manufacture and Sub-Contractors

The manufacturer's identity and places of manufacture, testing and inspection before shipment for the various portions of the Contract Works shall be specified in the Technical Schedules and shall not be departed from without the agreement of the Engineer/GEDCO.

All Sub-contractors and Sub-suppliers of components and materials shall be subject to the approval of the Engineer/GEDCO. Information shall be given on each Sub-order sufficient to identify the material or equipment, to which the sub-order relates, stating that the material is subject to inspection by the Engineer/GEDCO before dispatch.

All equipment offered shall be the product of recognized and experienced manufacturers and shall be proven equipment of the same basic design and size similar to that which has been in successful continuous operation for at least three years preferably under similar climatic conditions. Proven plant reliability and high availability are of prime importance and the attention of the Bidder is drawn to these particular requirements.

1.8 Inspection and Testing

All materials used in the Contract Works may be to inspection by the Engineer/GEDCO and it is the Contractor's responsibility to advise the Engineer/GEDCO when equipment and materials are available for inspection, at least 1 month in advance.

Factory tests on equipment shall be made according to the applicable IEC Standards, or as specifically specified or according to standards approved by the Engineer/GEDCO.

Routine tests shall be made on each unit of all equipment.

Type tests shall be made on one unit of each type of different equipment. Instead of carrying out the type tests the Contractor may submit suitable certificates of tests made on equipment of the same type; however, the Employer reserves the right of accepting these certificates or to reject them partially or totally.

The Engineer/GEDCO shall be at liberty to demand any additional testing at the manufacturer's works, at site or elsewhere in order to verify that the equipment complies with the conditions of the Specifications.

A test program shall be submitted to the Engineer/GEDCO for approval at least 1 month ahead of the commencement of testing.

Measuring apparatus shall be approved by the Engineer/GEDCO and if required shall be calibrated at the expense of the Contractor at an approved laboratory.

1.9 Packing, Transportation and Storage

Packing shall give adequate protection to the enclosed materials against mechanical damage during transport to its final destination, including rough handling during sea, rail and road transport and transition from one mode of transport to another.

Packing should be stout close-boarded wooden cases of adequate thickness, suitably braced and banded and lined internally with water-resistant material or equally solid enclosures.

Steelworks sections and similar items may be bundled provided that the ends are adequately protected and the enclosing bands or wires are robust.

Indoor electrical equipment must be enclosed in welded polythene envelopes inside packing cases and the envelopes shall be evacuated or have a desiccant inside.

All items in cases or crates shall be secured so that they are not free to move and cannot work loose in transport. If rotating parts are shipped within their bearings or mountings, they must be adequately braced and restrained to prevent relative movement. Loose items shall be placed in bags in a case, each bag having stitched onto it a label indicating the number and nature of its contents. Where a filler material is used in a case to restrict movement or provide additional protection, it must be inorganic and non-hygroscopic.

All surfaces liable to corrosion shall be thoroughly cleaned and special steps adapted to the nature of the materials and the time interval between packing and unpacking shall be taken to prevent corrosion. These steps may constitute the greasing on surfaces, the application of a protective coat, enclosure of the items in a hermetically sealed container, the addition of vapour phase inhibitor paper to the package or other approved means.

Steps shall be taken to ensure that moisture, moulds, insects or rodents cannot damage insulated materials. Items that include materials liable to be damaged by moisture shall be packed in hermetically sealed containers in which silica gel, or some other approved desiccant has been inserted.

Cases shall be marked with large lettering to show which side of the case is to be up, and if the contents are fragile, marked "FRAGILE" in large letters with the international wineglass symbol. Packages shall be marked with their place of destination in such a way that rough handling or the effect of weather cannot remove or obliterate the marking. Each item shall be marked with its gross weight and, for all lifts over two tonnes, marks on the cases shall show the correct positions for the slings.

Special steps shall be taken to guard against theft during transport. No small items such as padlocks nameplates and so forth that could be torn off or unscrewed shall be accessible.

Cases, crates, barrels and drums shall be banded in such a manner as to obstruct the theft of any of the timber used for packaging and the bands shall be so secured that they are not rendered ineffective by shrinkage of the wood.

A descriptive and fully itemized list shall be prepared of the contents of each packing case. A copy of this list shall be placed in a waterproof envelope under a metal or other suitable plate securely fastened to the outside of one end of the case, and its position indicated by stenciling on the case. Where appropriate, drawings showing the erection markings of the items concerned shall be placed inside the case.

All stenciled markings on cases and crates, or other markings on descriptive metal tabs fixed to cable drums, bundles of structural steel works and so forth, shall be applied in two places with a material which cannot wash off and shall be additional to any erection or other marks or impressions which may be specified elsewhere.

Shipping marks are to be stenciled in oil based paint in block letters and symbols. When unobstructed flat smooth surfaces of sufficient size are not available on the case for the shipping marks they are to be stenciled on marine-ply notice boards of adequate size and of at least 6 mm thickness securely fastened to the packing case.

All packing cases, though not steel containers, shall remain the property of the Employer.

1.10 Tools

The Supplier shall supply in lockable boxes, for the Employer's use, any special tools that may be required for assembly, dismantling and adjustments to the equipment. The tools shall be unused and in new condition at the time of hand over. Suitable special spanners shall be provided for bolts and nuts which are not properly accessible by means of an ordinary spanner.

1.11 Spare Parts

Particulars of spare parts, which may or not from part of the contract at the Purchaser's discretion, shall be agreed. Bidders giving their recommendations should complete the relevant Schedules and prices for spares that they believe should be purchased by Purchaser

2. PARTICULAR TECHNICAL SPECIFICATIONS FOR STEEL STRUCTURE

General

Steel structures shall be of lattice steel self-supporting, bolted construction.

The structures shall be designed with main dimensions and electrical clearances according to the Employer's standard design.

The structures shall be designed in accordance with BS, ASCE or other recognized standard to the approval of the Engineer.

2.1 Structure types

The types and sizes of structure shall be as described in the schedule of quantities and prices. The types and design shall comply with GEDCo and Israeli standard practice.

2.2 Accessories to structures

All accessories, such as cross-arms, transformer arms, brackets, bases, bolts, nuts, washers and all other parts necessary for completeness of supply shall be included in the supply and be suitable to the structures as described in the schedule of quantities and prices. All accessories shall be compliance with GEDCo and Israeli standard practice

2.3 Corrosion Protection

2.3.1 General

All parts of the work shall be protected against corrosion under service conditions. The protection shall also prevent corrosion during transport, handling, storage and erection.

Damage to the protection during transport, handling, erection etc. and jointing shall be repaired to the same quality as specified for the object.

2.3.2 Galvanizing

Except where otherwise specified all ferrous parts shall be galvanized.

Galvanizing shall be applied by the hot-dip process and shall consist of a continuous coating to minimum thickness as follows:

	Average of Specimens tested $\mu\text{m (g/m}^2\text{)}$	Any Individual Specimen tested $\mu\text{m (g/m}^2\text{)}$
Rolled steel exposed to the atmosphere only		
t<5 mm	87 (610)	79 (550)
t>5 mm	95 (685)	87 (610)
Rolled steel under ground Surface and in contact with ground	215 (1550)	190 (1370)
Cast iron and malleable iron	87 (610)	70 (500)
Bolts, nuts and washers	45 (305)	45 (305)

The zinc coating shall meet the requirements according to ASTM A123, A153, A239 and A385, or relevant BS.

All steel shall be fully fabricated before galvanizing, no machine or shop work, boring, punching etc. will be allowed after galvanizing. Minor damage to the galvanizing resulting from transportation and the like shall be repaired at site in an approved manner, e.g. by painting with an approved zinc-rich paint, containing at least 92 weight per cent zinc powder.

After galvanizing all members shall be dipped in a dichromate solution bath to avoid formation of white rust during storage and transportation.

Prior to bundling of towers, after galvanizing, all members shall be completely dry.

Underground parts shall be coated with one layer of bitumen after installation on site.

2.4 Structural Steel

Structural steel shall be made by the open hearth basic oxygen or electrical furnace process, and shall comply in quality with the requirements for RST37-2 in DIN17100 or Grade 43 A in BS 4360 Steel of higher tensile grade if offered, shall comply with relevant DIN or BS Standards.

Only two strength classes may be used, low tensile steel (yield point 220-250 N/mm²) and a high tensile steel (yield point 300-350 N/mm²).

Steel shall comply with the requirements of ASTM A143 and embitterment tests shall be made in accordance with that specification.

If the Contractor intends to use more than one quality of steel, he will be required to take every precaution to the satisfaction of the Employer or the Engineer against any possible intermixing of different qualities during transport, storage, handling, manufacture and installation.

Cast iron shall have a tensile strength of at least 140 N/mm². It shall be made from the best grey pig and scrap iron and shall be close-grained, tough and uniform in character.

Malleable iron shall be of the black hearth type with a tensile strength of not less than 330 N/mm².

2.5 Bolted Connections

Bolts shall conform to the requirements of clause 1.6 below

Bolted connections may have one bolt only.

Minimum bolt spacing is equal to two point five (2.5) times the bolt diameter.

The distance from the Centre of a fastener hole to the end and any connected part shall not be less than two (2.0) times the bolt diameter minus five (5.0) mm and the distance to the adjacent edge shall not be less than one point five (1.5) times the bolt diameter.

The distance from the Centre of a bolt to the face of the outstanding flange of an angle or other members shall be such as to permit the use of a socket wrench, in tightening the nut.

The bolt hole diameter shall be equal to the bolt diameter plus one point five (1.5) mm.

Allowable ultimate bearing stress for bolts as well as members are equal to one point zero (1.0) times the ultimate stress F_u of the steel.

Allowable ultimate shearing stress for bolts and members is equal to zero point six (0.6) times the ultimate stress F_u of the steel.

2.6 Bolts, Nuts and Washers

Bolts in poles shall be high strength with M-threads. Connection bolts, step bolts and nuts shall be high strength bolts conforming to ASTM - A325 or equivalent, except as specified herein and shall be hot dip galvanized.

Bolts and nuts shall be of standard design. Nuts shall be tapped after galvanizing and the threads of the nuts left bare and greased. Washers shall be used under the nuts. Bolt lengths shall be such as to ensure that bearing is upon the shank and not upon the thread of the bolt. The threaded part shall end within the washer. When installed, the bolt shall project through the nut not less than three (3) mm and not more than ten (10) mm. Taper washers shall be used where required.

An extra 5% bolts, nuts and washers shall be delivered to compensate for loss during construction. The cost of the extras shall be included in the appropriate unit prices in the Prices Schedules.

2.7 Splices

Splices in all members shall be of the butt-splice or lap-splice type.

Splices of the main members shall be located immediately above horizontal members or diagonal brace connection.

2.8 Cutting

Members shall be cut, drilled or punched and shaped to jig or by other means ensuring a proper fit. Arris formed by sawing or shearing shall be removed. Cracks and unevenness or sheared surface shall be removed by suitable means. Burrs shall be removed.

2.9 Holes

Final hole diameter may not exceed the corresponding bolt diameter by more than 1.5 mm. Holes may be punched to full size in steel not exceeding 13 mm in thickness provided that the diameter of the hole

exceeds the thickness of the material. Holes in steel thicker than 13 mm may be punched to a diameter 3 mm less than final and Centre drilled to full size. Steel thicker than 16 mm must not be punched.

Incorrectly drilled or punched holes shall not be refilled by welding.

Cutting and punching may not be carried out at lower steel temperature than 0°C.

Detail design shall be such as to avoid as far as possible eccentricities of joints. Pockets or depressions which would hold water shall be avoided. Tubes and similar profiles shall be properly drained.

2.10 Labeling:

All materials shall have Fixed steel or Aluminium Non-erasable Clearly readable large enough Label to Reading including Name, Code of the Poles ,Bases ,Arms and If the Arms supply more than One piece the Manufacturer shall Fix the Labels on every Part of the Arms.

The Label shall fix on 3 meter from the Ground in the Outer Interface for Poles.

The Label shall fix on the top of the Bases in the Outer Interface.

The Label shall fix In the outer edge of the bottom of the Arms Away from the Poles .

2.11 Welding

2.11.1 Qualifications for Executing the Welding Work

The welding work on the structures, if employed, shall be performed with a labour management experienced in welding and with skilled welders. The qualifications shall be testified by a certificate.

2.11.2 Execution of the Welding Work

The sequence of welding shall be such as to cause as small deformations and welding stresses as possible.

The welding shall be performed with equipment and in premises suitable for the purpose.

Equipment shall be well suited to the type of weld to be performed so that the right quality shall be attained.

No gaps or hollows may appear in the welding into which acid may penetrate during the pickling procedure preceding galvanizing.

The weld shall be ground flush to the surface in such places where the welding bulge prevents a perfect fitting of components together.

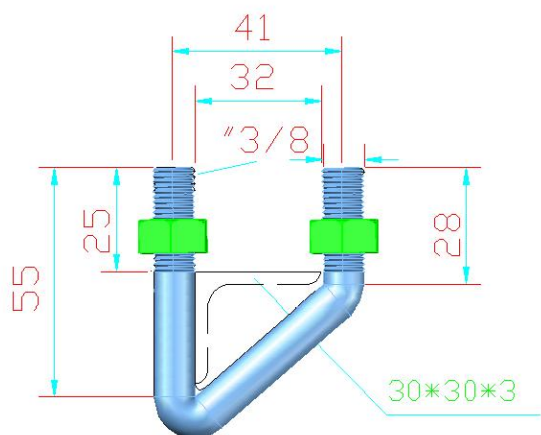
A high bulge or uneven weld surface may be leveled out by chiseling or grinding.

2.11.3 Filler Metals for Welding

Standard filler metals shall be used and the strength class and quality shall be chosen to correspond to the base material.

2.12 Acceptance

GEDCO has the right to visit the factory before manufacturing also has the right to request samples and examined by the committee in charge also has the right to refuse the all non-conforming materials.



Drawing X1

V-Shaped angle clamp
3/8" L30*30*3

according to Drawing N1

For K82



شركة توزيع الكهرباء - محافظات غزة

EDC

Prepared:
Eng. ziad ALHosaini

Cables and Wires

Technical Guarantees No. ACSR_5**ACSR Conductor Rabbit**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Reference Manufacturing Standards		British Sizes BS215 PART2 or EN 50182			
4	Type		Aluminium Conductor Steel Reinforced - (ACSR)			
5	Core Material		Greased Stranded Galvanized Steel Wires			
6	Conductor Material		Stranded Aluminium Wires			
7	Code		ACSR Rabbit			
8	Nominal Cross-Sectional area of ACSR Wire	mm ²	61.7			
9	Number of Steel Core Strands	No.	1			
10	Diameter of Steel Core Strand	mm	3.35			
11	Number of Aluminium Strands	No.	6			
12	Diameter of Aluminium Strand	mm	3.35			
13	Total Overall Diameter of Conductor	mm	10.05			
14	Max. Conductor DC Resistance at 20 °C	Ω/km	0.5426			

Technical Guarantees No. ACSR_5**ACSR Conductor Rabbit**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
15	Breaking Strength	Newton	18350			
16	Min. Current Rating in free Air	Amps	185			
17	Conductor resistance for base temperature 20 C°	ohm/Km	shall be filled by manufacturer			
18	Modulus of Elasticity	kg/mm ²	shall be filled by manufacturer			
19	Coefficient of Thermal Elongation , per °C		shall be filled by manufacturer			
20	Weight of Aluminium Conductors	kg/km	145			
21	Weight of Steel Conductors	kg/km	69			
22	Total Weight of the Conductor	kg/km	shall be filled by manufacturer			
23	Drum Material		New Wood			
24	Cable Protection on Drum		Wooden Batten			
25	Drum Dimensions		shall be filled by manufacturer			
26	Conductor Length on Drum	m	2000			
27	Type Test Certificates/Reports from internationally reputed testing agency		Required			
28	Acceptance & Routine tests witnessed by Beneficiary		Required			

Tenderer's Signature :

Date:

Technical Guarantees No. HDC_35**Hard Drawn Stranded Copper Conductor 35 mm²**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Reference Manufacturing Standards		BS7884 & DIN 48201			
4	Conductor Material		Copper			
5	Conductor Construction		Hard Drawn Stranded			
6	Nominal Cross-Sectional Area of Conductor	mm ²	35			
7	Number Copper Strands	No.	7			
8	Diameter of Copper Strand	mm	2.5			
9	Overall Diameter of Conductor	mm	7.5			
10	Max. Conductor DC Resistance at 20 °C	Ω/km	0.5337			
11	Minimum Breaking Load	Newton	12860			
12	Current Rating in Free Air	Amps	200			
13	Conductor Geometric Mean radius	mm	shall be filled by manufacturer			
14	Modulus of Elasticity	kg/mm ²	shall be filled by manufacturer			
15	Coefficient of Thermal Elongation , per °C		shall be filled by manufacturer			
16	Conductor Nominal mass per unit Length	kg/km	308			
17	Drum Material		New Wood			

Technical Guarantees No. HDC_35**Hard Drawn Stranded Copper Conductor 35 mm²**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
18	Cable Protection on Drum		Wooden Batten			
19	Drum Dimensions		shall be filled by manufacturer			
20	Conductor Length on Drum	m	1000			
21	Total mass of Conductor with Drum	Kg	shall be filled by manufacturer			
22	Type Test Certificates/Reports from internationally reputed testing agency		Required			
23	Acceptance & Routine tests witnessed by Beneficiary		Required			

Tenderer's Signature :

Date:

Technical Guarantees No. HDC_70**Hard Drawn Stranded Copper Conductor 70 mm²**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Reference Manufacturing Standards		BS7884 & DIN 48201			
4	Conductor Material		Copper			
5	Conductor Construction		Hard Drawn Stranded			
6	Nominal Cross-Sectional Area of Conductor	mm ²	70			
7	Number Copper Strands	No.	19			
8	Diameter of Copper Strand	mm	2.1			
9	Overall Diameter of Conductor	mm	10.5			
10	Max. Conductor DC Resistance at 20 °C	Ω/km	0.2806			
11	Minimum Breaking Load	Newton	24090			
12	Current Rating in Free Air	Amps	310			
13	Conductor Geometric Mean radius	mm	shall be filled by manufacturer			
14	Modulus of Elasticity	kg/mm ²	shall be filled by manufacturer			
15	Coefficient of Thermal Elongation , per °C		shall be filled by manufacturer			
16	Conductor Nominal mass per unit Length	kg/km	593			
17	Drum Material		New Wood			
18	Cable Protection on Drum		Wooden Batten			

Technical Guarantees No. HDC_70

Hard Drawn Stranded Copper Conductor 70 mm²

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
19	Drum Dimensions		shall be filled by manufacturer			
20	Conductor Length on Drum	m	1000			
21	Total mass of Conductor with Drum	Kg	shall be filled by manufacturer			
22	Type Test Certificates/Reports from internationally reputed testing agency		Required			
23	Acceptance & Routine tests witnessed by Beneficiary		Required			

Tenderer's Signature :

Date:

Technical Guarantees No. IT24_240**630A , 24 kv Indoor Screened Separable Termination Kit for 12/20 kv XLPE Cable
1x240/25 mm²**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
1	Name of Manufacturer					
2	Country of Origin					
3	Reference Manufacturing Standards		CENELEC HD629.1 S2, HD506 S1 , DIN47636, EN50180 and EN50181			
4	Max. Service Voltage (Um)	kV	24			
5	Design		Separable Tee Shape Connector			
6	Material		Cross linked EPDM			
7	Cable and Conductor Type		Single Core Cable with Copper Wire Shield			
8	Cable Insulation Type / Thickness		XLPE/5.5mm			
9	Conductor Cross Sectional Area	mm ²	240			
10	Current Carrying Capacity	A	630			
11	Basic Impulse Level	kV	125			
12	Partial discharge at 2 U ₀		< 10 Pc			

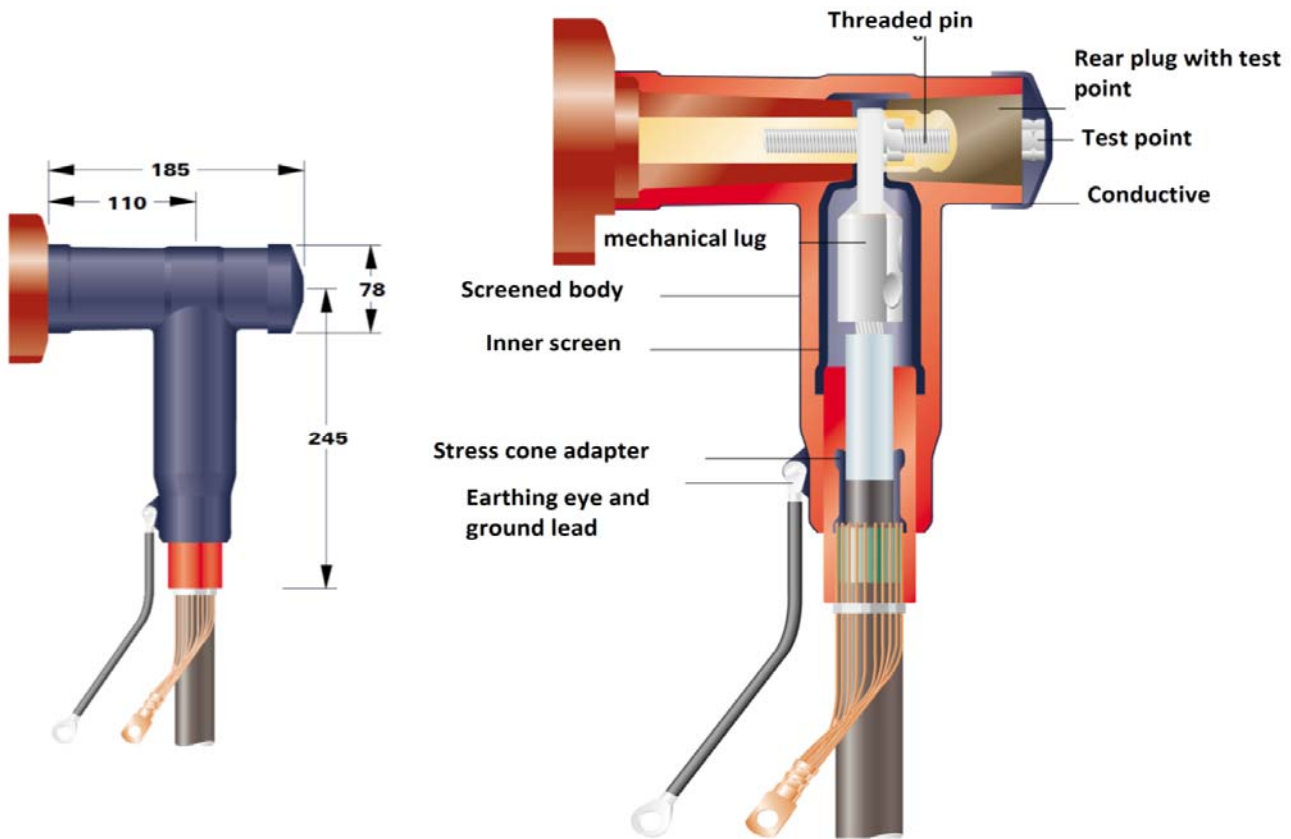
Technical Guarantees No. IT24_240**630A , 24 kv Indoor Screened Separable Termination Kit for 12/20 kv XLPE Cable
1x240/25 mm²**

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
13	AC Dry withstand Voltage Test (1 minute without Flashover and No Breakdown)	Kv	57			
14	DC withstand Voltage Test (15 minute without Flashover and No Breakdown)	Kv	76			
15	Thermal Short Circuit (1 second)	KA	33			
16	Dynamic short circuit	KA	84			
17	Termination Kit Parts					
	a) Screened Body		Required			
	b) Inner Screen		Required			
	c) Mechanical Lug with Shear-Head Bolts and Central Barrier for AL or CU Conductors (240 mm ²)		Required			
	d) Stress Cone Adaptor		Required			
	e) Earthing eye and Ground Lead		Required			
	f) Threaded Pin Together with a Spring Washer and Hex Nut		Required			
	g) Removable Rear Plug with Capacitive Test Point		Required			
	h) Test Point		Required			

Technical Guarantees No. IT24_240

630A , 24 kv Indoor Screened Separable Termination Kit for 12/20 kv XLPE Cable 1x240/25 mm²

No	Description	Unit	Requirements	Offered Data	Notes, Remarks , Ref to Documentation	Evaluation Committee Comments
	i) Conductive End cap		Required			
18	Type Tests and Routine Tests reports by qualified laboratory according to the international specifications		Required			



Tenderer's Signature :

Date: