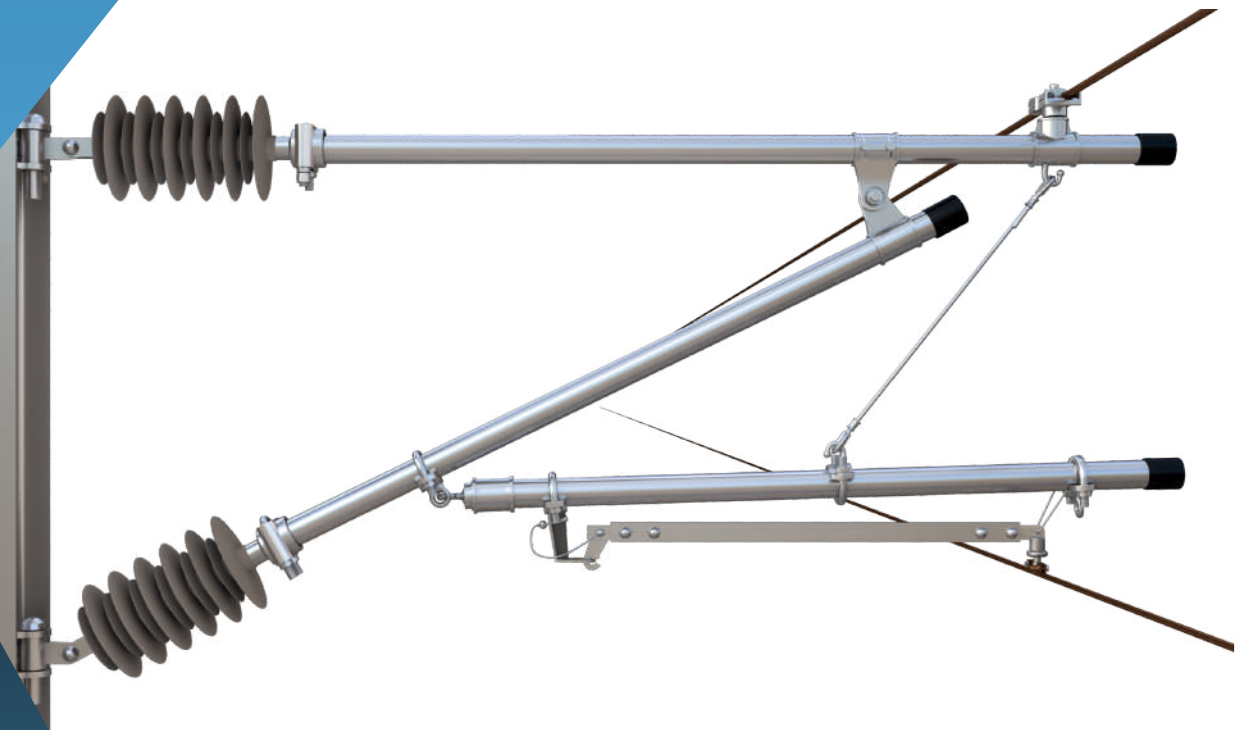


# ALUMINIUM CANTILEVER ASSEMBLY FOR RAILWAYS / METROS



***PPS International***

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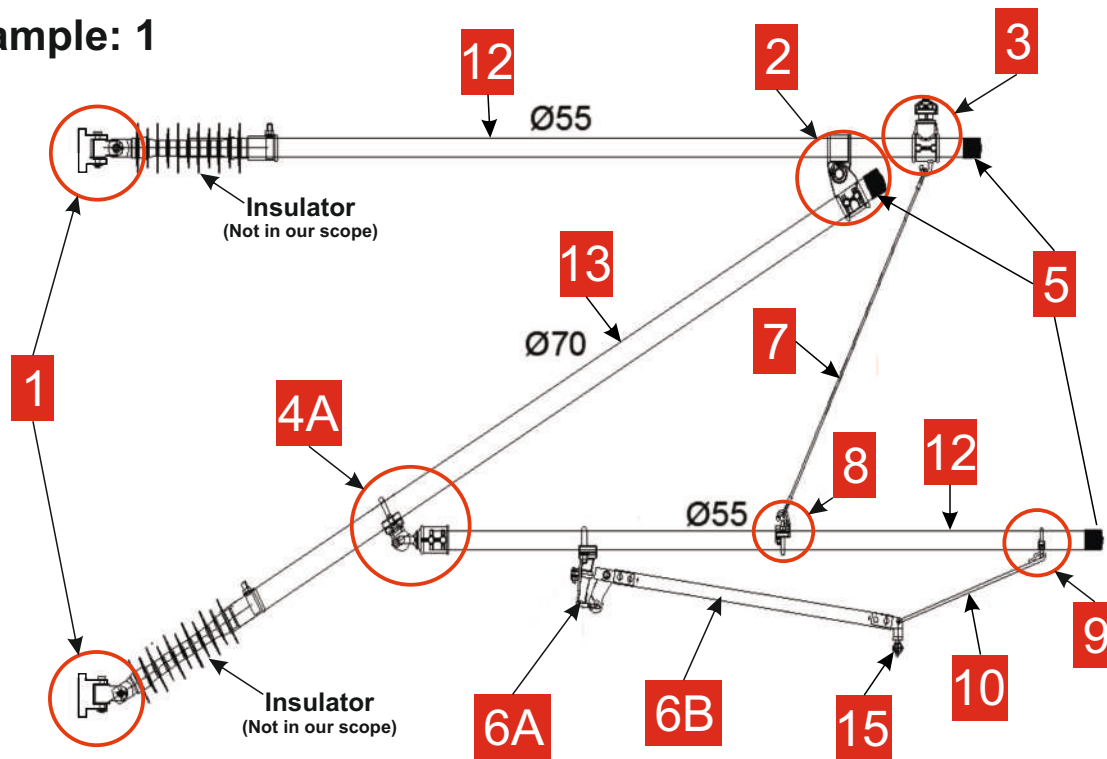
**24-25**

**CURRENT CARRYING DROPPERS**

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# ALUMINIUM CANTILEVER FOR CONVENTIONAL RAILWAYS / METRO LINES

## Example: 1



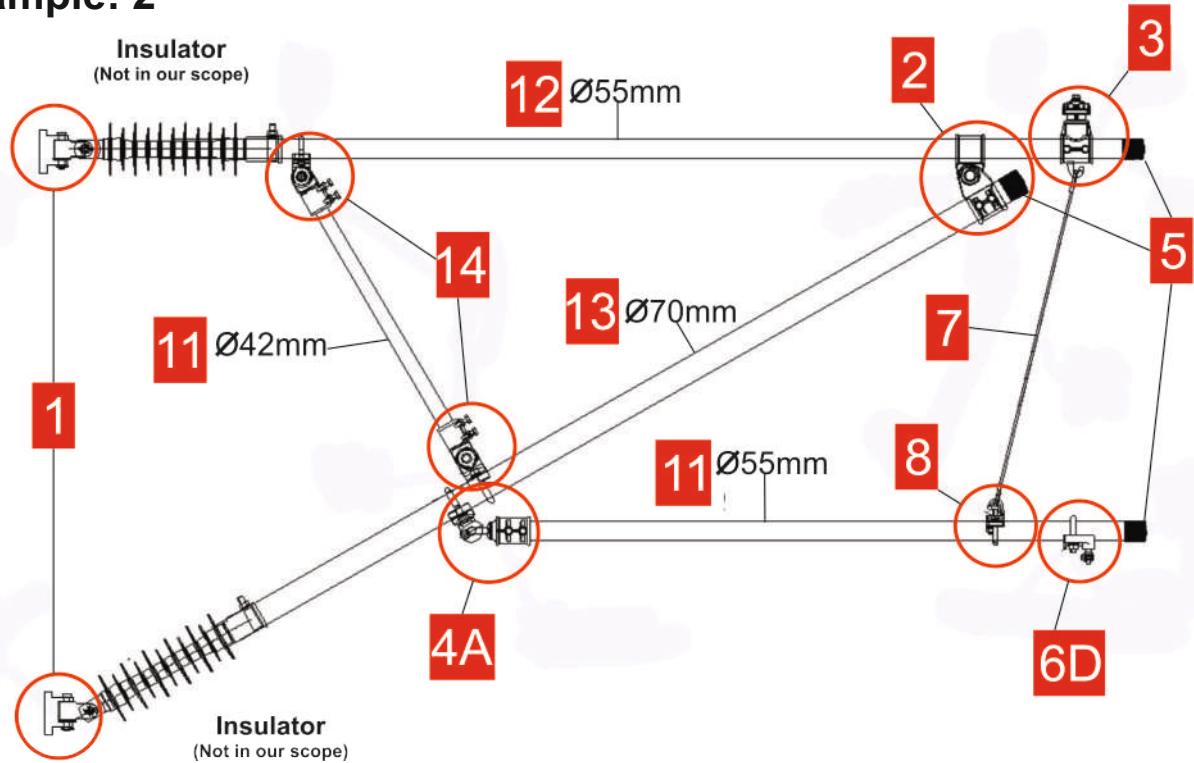
No.	Description	Part No.	Qty
1	Mast Bracket Assembly	10.20.571	2
2	Double Tube Holder 55-70 Assembly	10.20.509	1
3	Catenary wire support D-55 Assembly with bimetallic sleeve	10.20.517	1
4A	Hook and eye type clamp 55 - 70 assembly	10.20.572	1
5	PVC tube cap Ø55mm/Ø70mm	10.20.074	2(55)+1(70)
6A	Steady arm bracket AD 55 assembly	10.20.535	1
6B	Steady arm straight assembly	10.20.562	1
7	Registration arm dropper	10.20.520	1
8	Hook clip D-55 assembly	10.20.519	1
9	Eye clamp for windstay D 55 assembly	10.20.532	1
10	Windstay rod	10.20.040	1
12	Cantilever tube 55mm	10.20.071	2
13	Cantilever tube 70mm	10.20.072	1
15	Contact wire clip assembly	10.20.570	1

The alphabet in the part no. indicated alternate/optional design.

1. In general all the materials are made of special aluminium alloy with A2/A4 grade stainless steel hardware.
2. Aluminium pipes are also made of special aluminium alloy with T6 heat treatment.
3. PVC tube caps are made of special rubber, which can withstand adverse/ambient environmental condition for long life.

# ALUMINIUM CANTILEVER FOR OVERLAP / CROSS OVER

## Example: 2



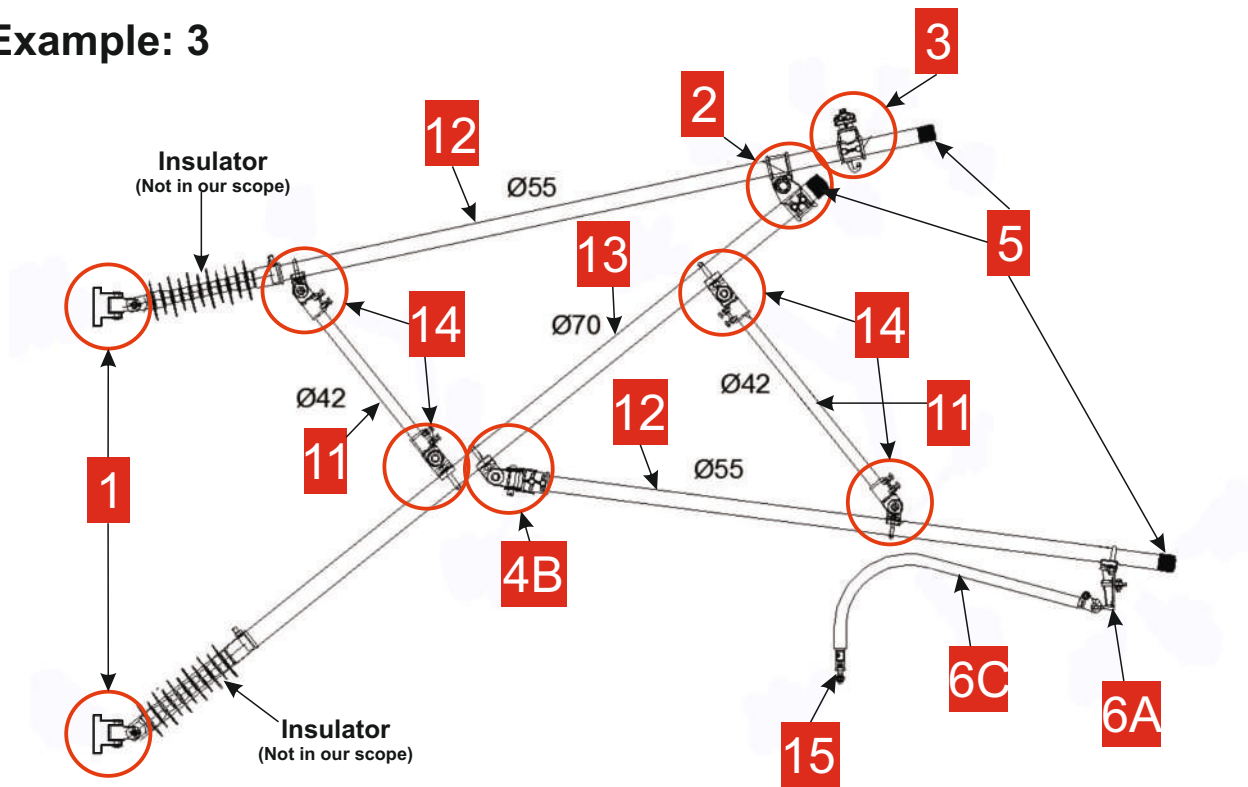
No.	Description	Part No.	Qty
1	Mast Bracket Assembly	10.20.571	2
2	Double Tube Holder Assembly	10.20.509	1
3	Catenary wire support with bimetallic sleeve	10.20.517	1
4A	Hook and eye type clamp assembly	10.20.572	1
5	PVC tube cap $\text{\O}55\text{mm}/\text{\O}70\text{mm}$	10.20.074	2(55)+1(70)
6D	Contact wire holder clamp with wire clip assembly	10.20.576	1
7	Registration arm dropper	10.20.520	1
8	Hook clip assembly	10.20.519	1
11	Cantilever tube 42mm	10.20.070	1
12	Cantilever Tube 55mm	10.20.071	2
13	Cantilever Tube 70mm	10.20.072	1
14	End Fitting D-42 with eye clamp assembly	10.20.577	2

The alphabet in the part no. indicated alternate/optional design.

- In general all the materials are made of special aluminium alloy with A2/A4 grade stainless steel hardware.
- Aluminium pipes are also made of special aluminium alloy with T6 heat treatment.
- PVC tube caps are made of special rubber, which can withstand adverse/ambient environmental condition for long life.

# ALUMINIUM CANTILEVER FOR LINE OVERLAP

## Example: 3



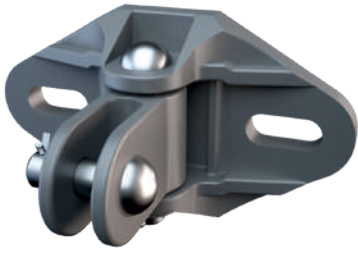
No.	Description	Part No.	Qty
1	Mast Bracket Assembly	10.20.571	2
2	Double Tube Holder Assembly	10.20.509	1
3	Catenary wire support with bimetallic sleeve	10.20.517	1
4B	Axel and Cardan clamp assembly	10.20.573	1
5	PVC tube cap Ø55mm/Ø70mm	10.20.074	2(55)+1(70)
6A	Steady arm bracket	10.20.535	1
6C	Steady arm round for overlap with support & contact wire clip assembly	10.20.586	1
11	Cantilever tube 42mm	10.20.070	2
12	Cantilever Tube 55mm	10.20.071	2
13	Cantilever Tube 70mm	10.20.072	1
14	End Fitting D-42 with eye clamp assembly	10.20.577	4
15	Contact wire clip assembly	10.20.570	1

The alphabet in the part no. indicated alternate/optional design.

1. In general all the materials are made of special aluminium alloy with A2/A4 grade stainless steel hardware.
2. Aluminium pipes are also made of special aluminium alloy with T6 heat treatment.
3. PVC tube caps are made of special rubber, which can withstand adverse/ambient environmental condition for long life.

# MAJOR ASSEMBLIES

1



**Mast Bracket Assembly**

PART NO. 10.20.571

2



**Double Tube Holder 55-70 Assembly**

PART NO. 10.20.509

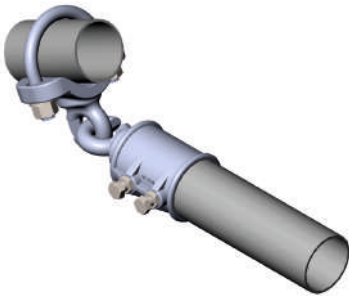
3



**Catenary Wire Support D-55 Assembly with Bimetallic Sleeve**

PART NO. 10.20.517

4A



**Hook and Eye Type Clamp 55-70 Assembly**

PART NO. 10.20.572

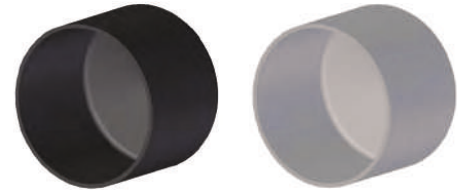
4B



**Axel and Cardan clamp assembly**

PART NO. 10.20.573

5



**Aluminum / PVC tube cap 55-70**

PART NO. 10.20.074 (55mm)  
PART NO. 10.20.075 (70mm)

6A



**Steady Arm Bracket-A D-55 Assembly**

PART NO. 10.20.535

6B



**Steady arm straight Assembly**

PART NO. 10.20.562

6C



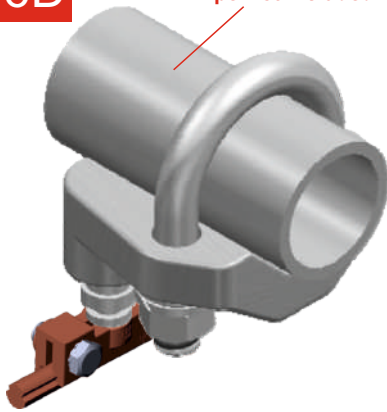
**Steady arm round**

PART NO. 10.20.542

# MAJOR ASSEMBLIES

6D

Pipe Not Included



**Contact Wire Holder  
Clamp D-55 Assembly**

PART NO. 10.20.568

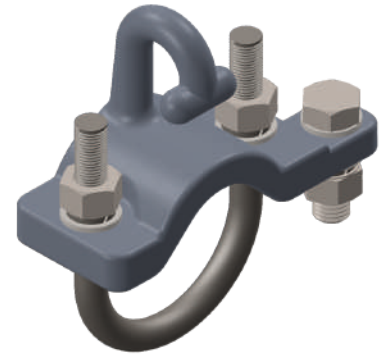
7



**Registration Arm  
Dropper**

PART NO. 10.20.520

8



**Hook Clip D-55 Assembly**

(Ø55) PART NO. 10.20.519

9



**Eye Clamp for  
Windstay D-55 Assembly**

PART NO. 10.20.532

10



**Windstay Rod**

PART NO. 10.20.040

11

**Cantilever tube 42mm**

PART NO. 10.20.070

12

**Cantilever tube 55mm**

PART NO. 10.20.071

13

**Cantilever tube 70mm**

PART NO. 10.20.072

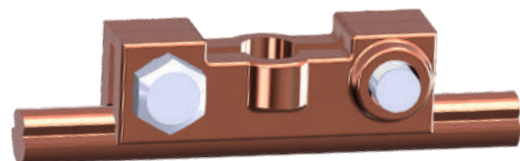
14



**End fitting D-42 with  
eye clamp assembly**

PART NO. 10.20.577

15



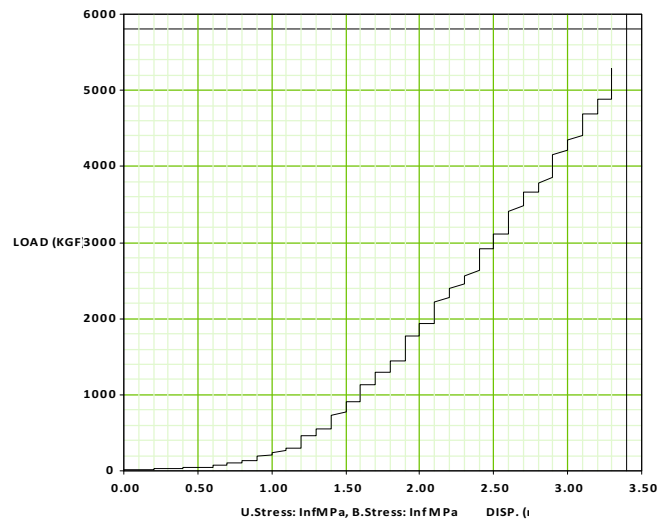
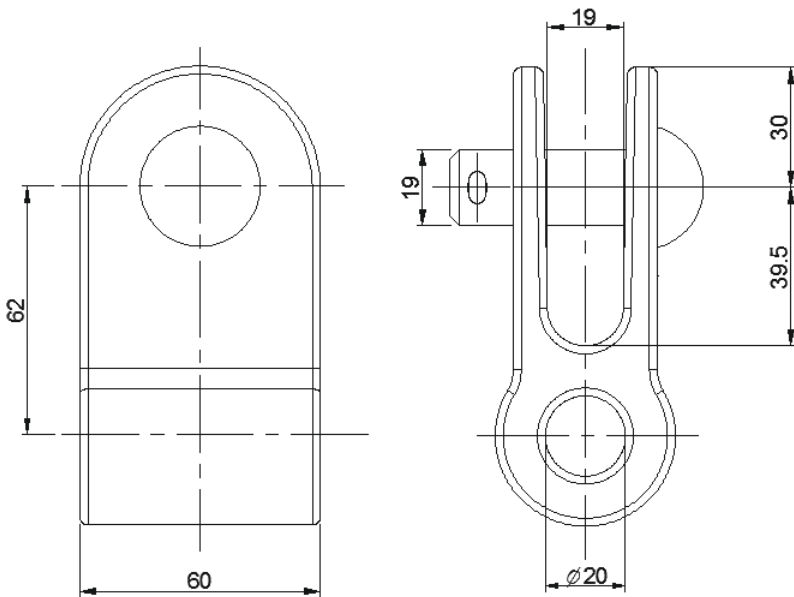
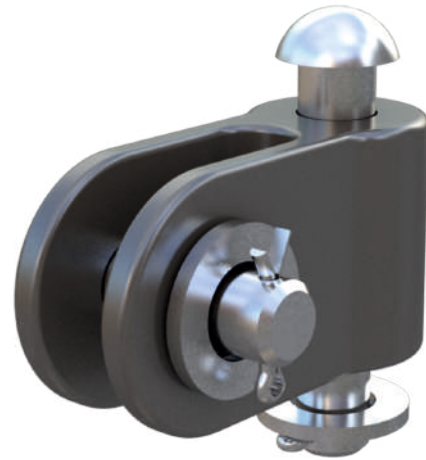
**Contact wire clip**

PART NO. 10.20.570

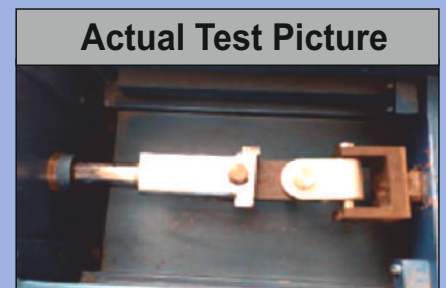


# BALL & SOCKET ASSEMBLY

PART NO. 10.20.524



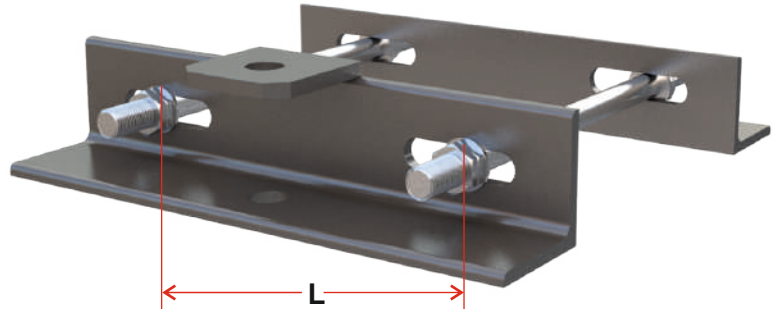
Part No.	FEA Results			Actual FAT Results	
	Working load in Kgf	Factor of Safety	Failing load as per EN 50119	Failing Load in Kgf	Factor Of Safety Achieved
10.20.029 Ball & Socket	556	2.5	1390	5289	9.51



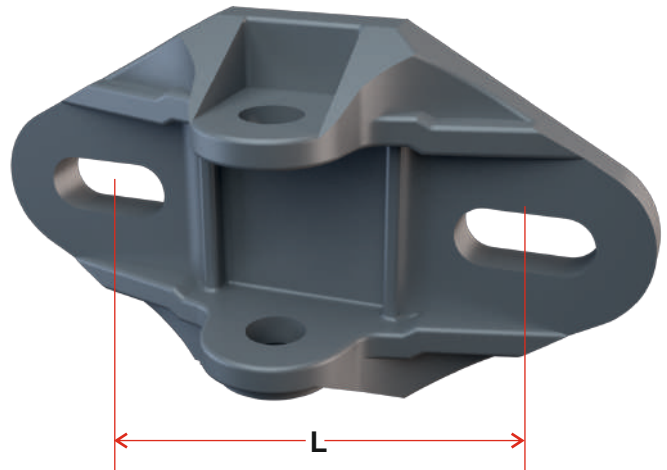


# MAST BRACKET

Part No.	Mounting Distance A (mm)
10.20.595	150-250



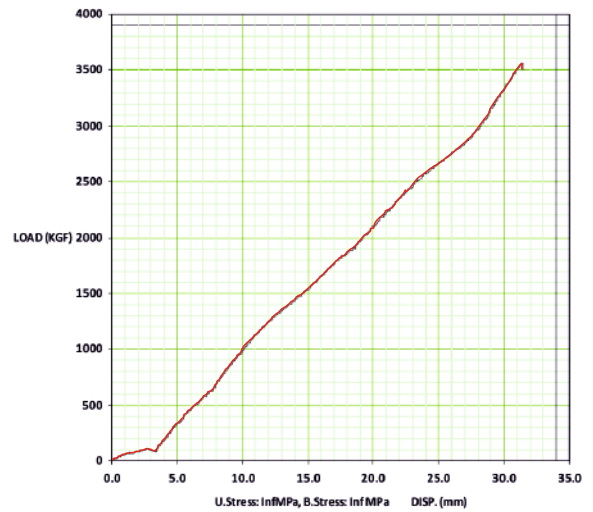
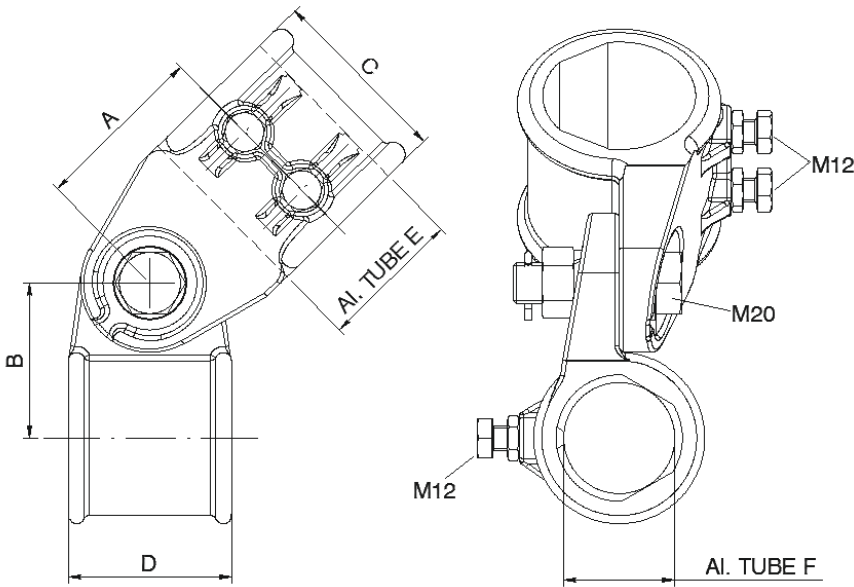
Part No.	Mounting Distance L (mm)
10.20.076	120-140
10.20.077	140-165
10.20.087	150-250



Part No.	A (mm)
10.20.001	17
10.20.002	21

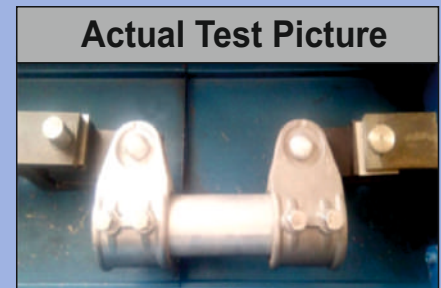
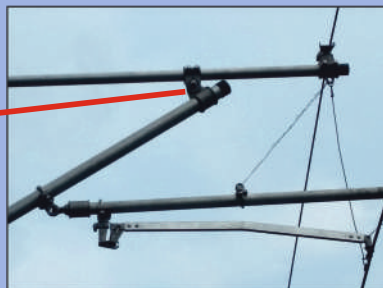


# DOUBLE TUBE HOLDER ASSEMBLY



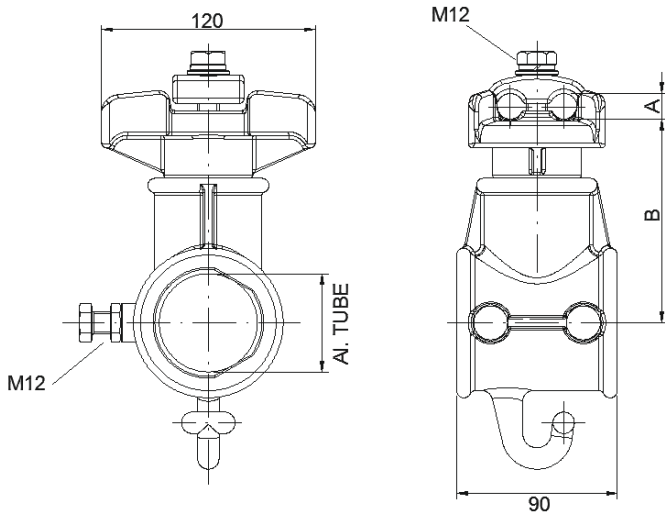
Part No.	Dia Combination (mm)
10.20.508	55-55
10.20.509	55-70
10.20.510	70-70

Part No.	FEA Results			Actual FAT Results	
	Working load in Kgf	Factor of safety	Failing load as per EN 50119	Failing Load in Kgf	Factor Of Safety Achieved
10.20.008 Tube Holder Ø 55	456	2.5	1140	1802	3.95
10.20.007 Tube Holder Ø 70	456	2.5	1140	3561	7.8



# CATENARY WIRE SUPPORT ASSEMBLY

PART NO. 10.20.517



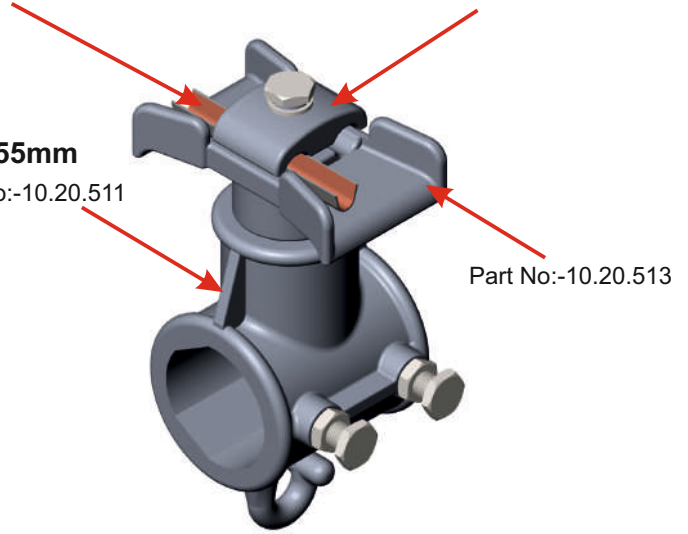
Part No:-10.20.016

Part No:-10.20.013

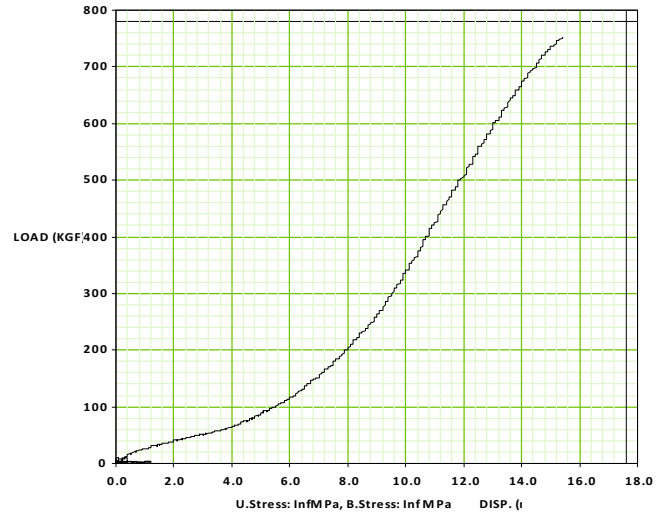
Ø55mm

Part No:-10.20.511

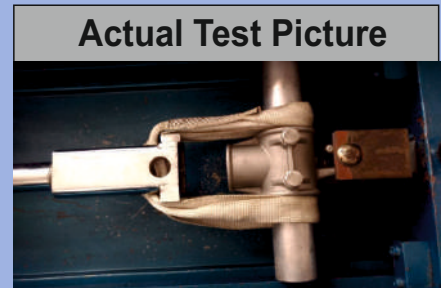
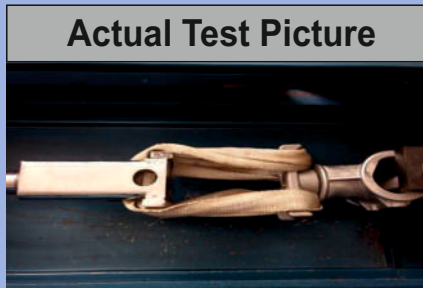
Part No:-10.20.513



Part No.	Tube Dia	Messenger Wire (mm <sup>2</sup> )	Dimension (mm)	
			A	B
10.20.009	55	50-95	11-15	114
10.20.010	70	50-95	11-15	112

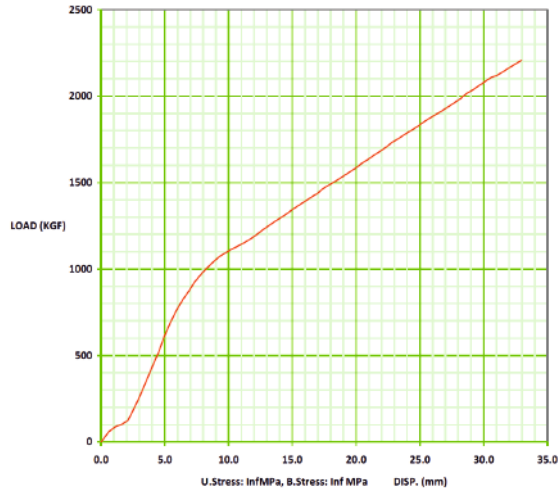
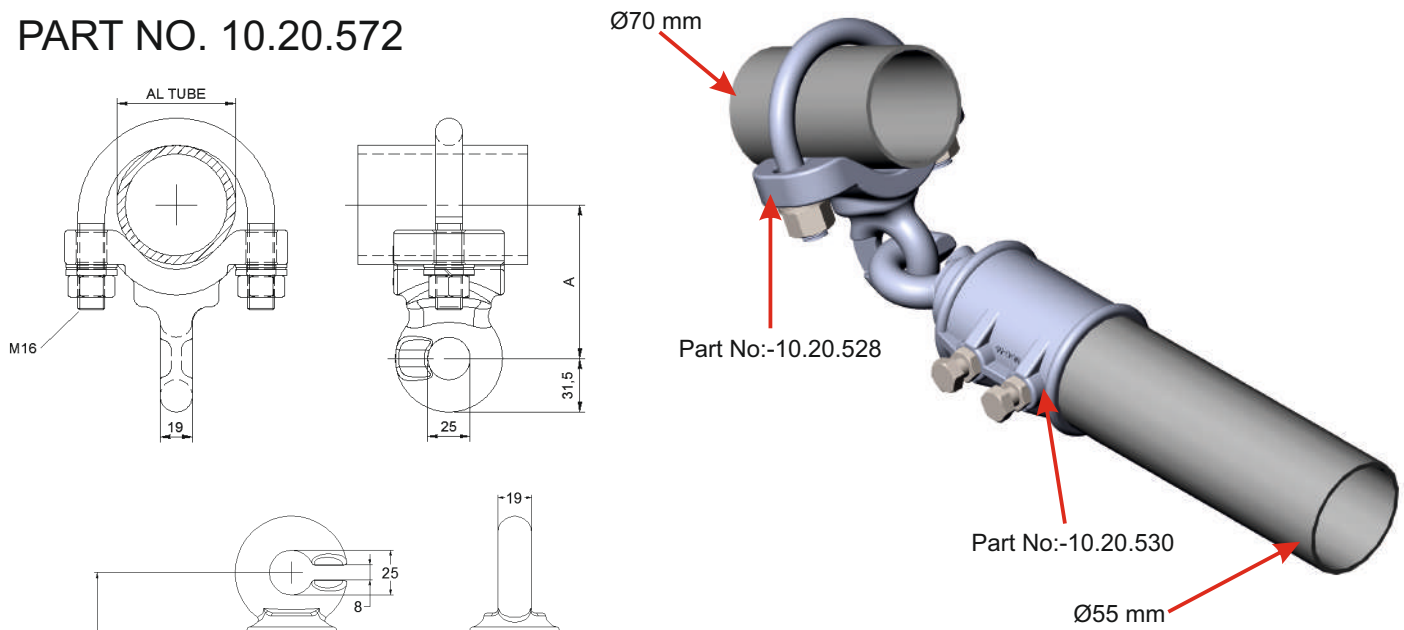


Part No.	FEA Results			Actual FAT Results	
	Working load in Kgf	Factor of safety	Failing load as per EN 50119	Failing Load in Kgf	Factor Of Safety Achieved
10.20.009 (Clamp A)	100	2.5	250	752	7.52
10.20.011 (Clamp B)	310	2.5	775	2624	8.46



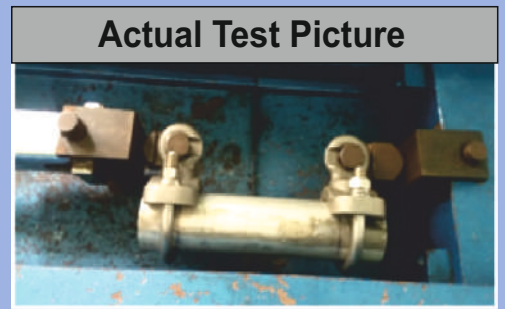
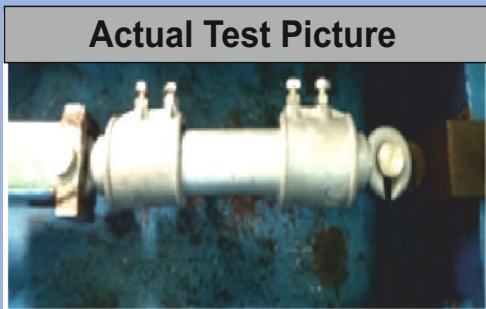
# HOOK AND EYE CLAMP ASSEMBLY

PART NO. 10.20.572



Part No.	Dia Combination (mm)
10.20.584	42-55
10.20.572	55-70

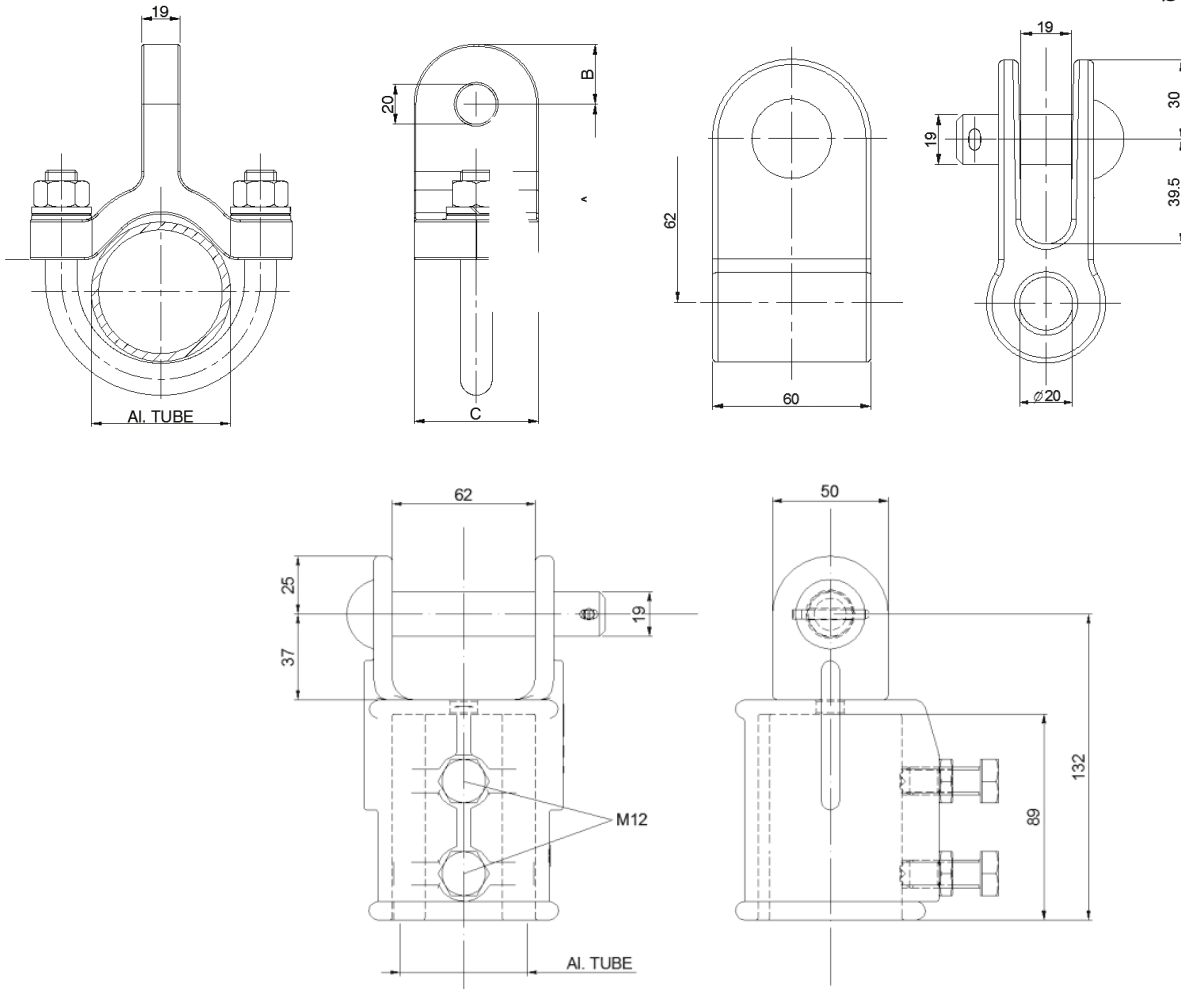
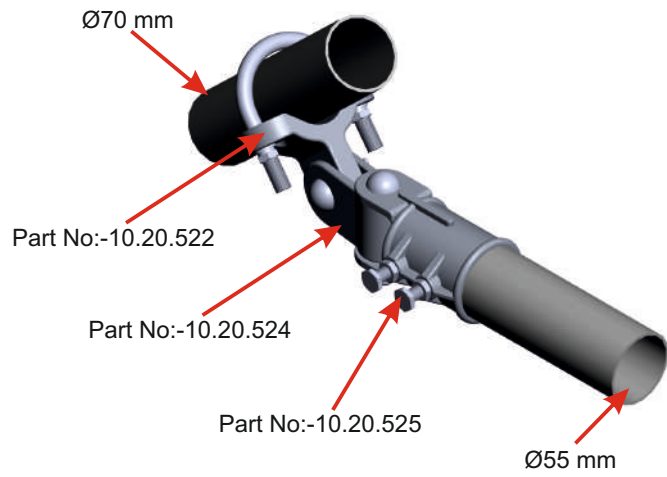
Part No.	FEA Results			Actual FAT Results	
	Working load in Kgf	Factor of safety	Failing load as per EN 50119	Failing Load in Kgf	Factor Of Safety Achieved
10.20.035 Hook End Fitting D-55	168	2.5	420	1407	8.37
10.20.033 Eye Clamp BD-70	168	2.5	420	2258	13.44



# AXEL AND CARDAN CLAMP ASSEMBLY

(Optional)

PART NO. 10.20.573

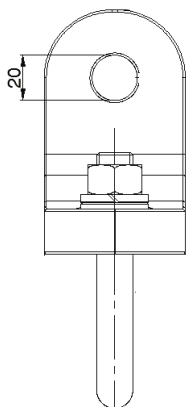
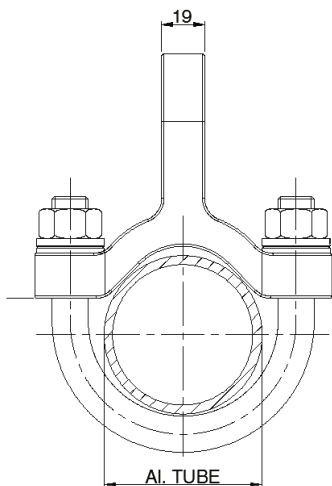


# END FITTING D-42 WITH EYE CLAMP ASSEMBLY

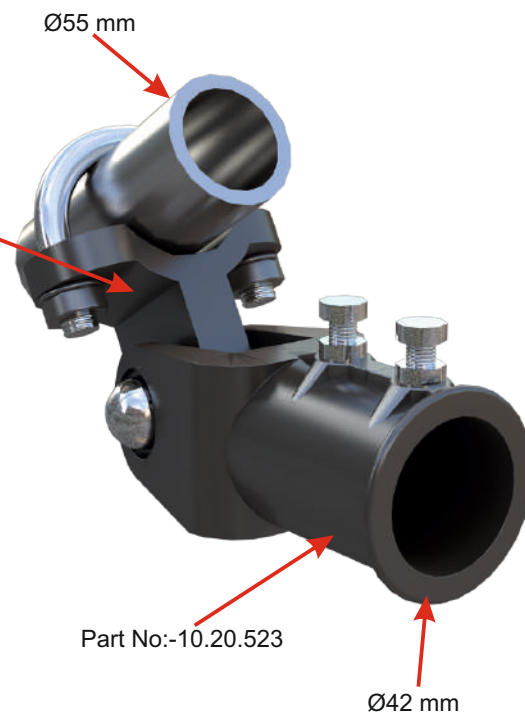
(Optional)

PART NO. 10.20.577

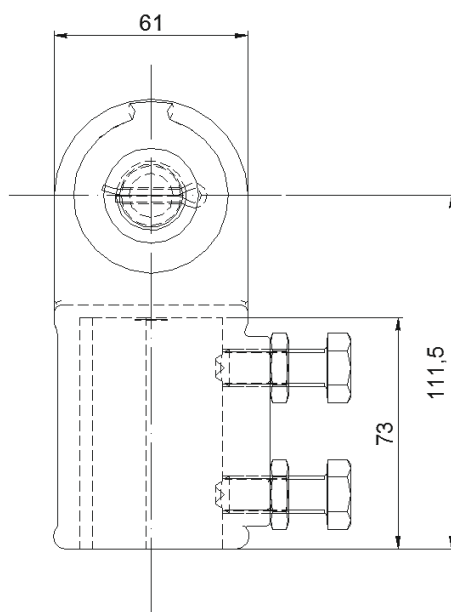
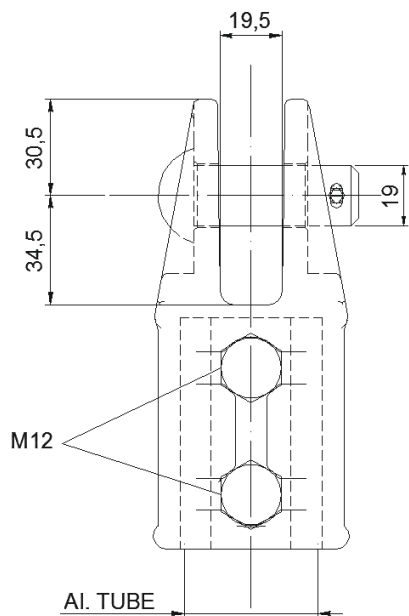
EYE CLAMP Part No:- 10.20.521



Part No:-10.20.521



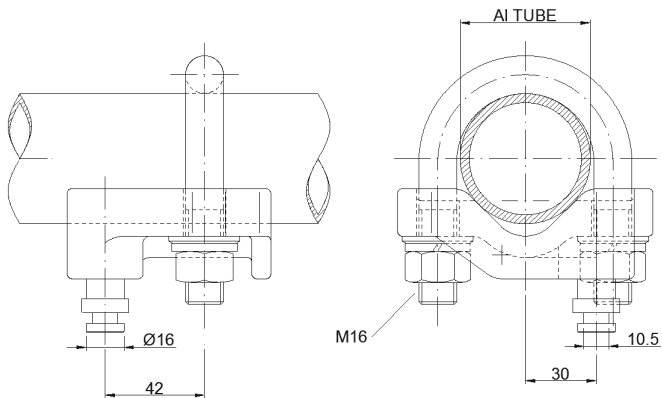
END FITTING Part No:- 10.20.523





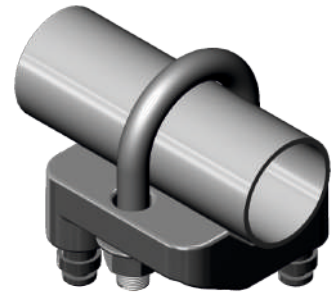
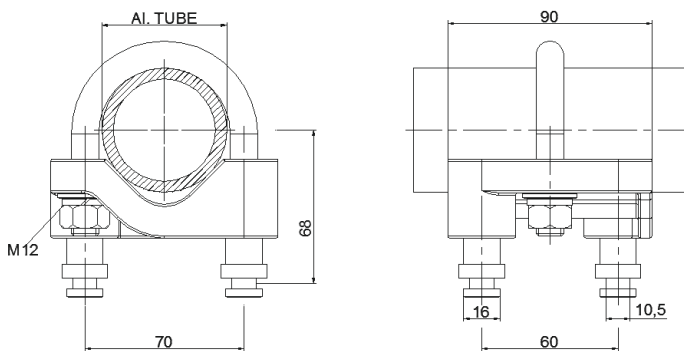
# CONTACT WIRE HOLDER CLAMP

PART NO. 10.20.568



Part No.	Dia Combination (mm)
10.20.567	42
10.20.568	55

# DUAL CONTACT WIRE HOLDER CLAMP ASSEMBLY



Part No.	Dia Combination (mm)
10.20.567	42
10.20.568	55

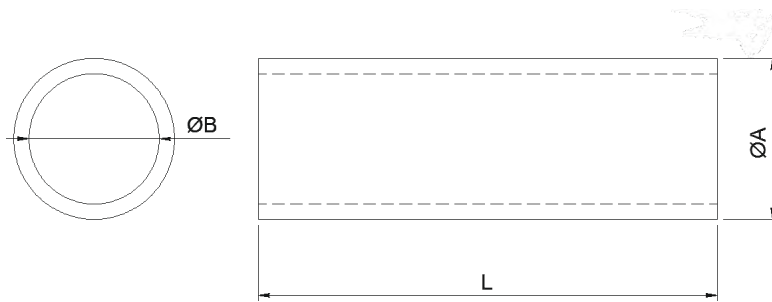
Part No.	FEA Results			Actual FAT Results	
	Working load in Kgf	Factor of safety	Failing load as per EN 50119	Failing Load in Kgf	Factor Of Safety Achieved
10.20.066 (CW holder clamp)	321	2.5	803	5262	16.40





# CANTILEVER TUBE

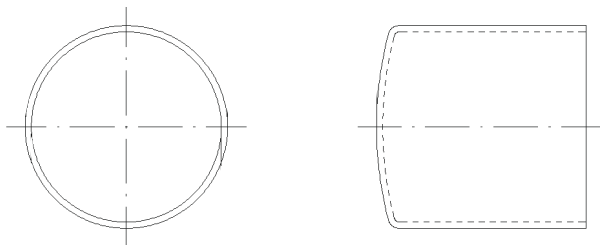
PART NO. 10.20.070(Ø42mm)



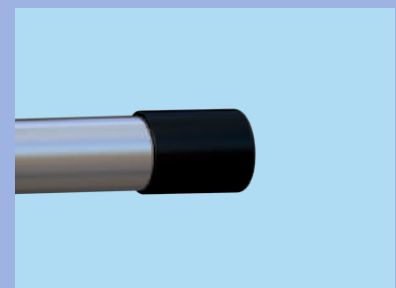
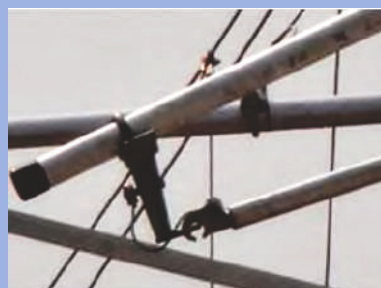
Part No.	Exterior diameter A (mm)	Internal diameter B (mm)
10.20.070	42	34
10.20.071	55	43
10.20.072	70	58

# PVC TUBE CAP

PART NO. 10.20.073 (Ø 42mm)  
 10.20.074 (Ø 55mm)  
 10.20.075 (Ø70mm)



PVC tube caps are made of special rubber which can withstand environmental condition for long life.



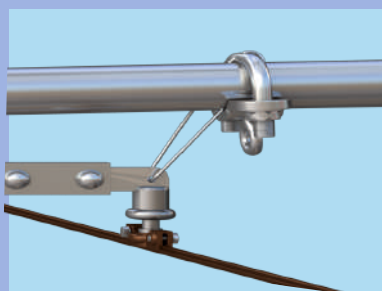
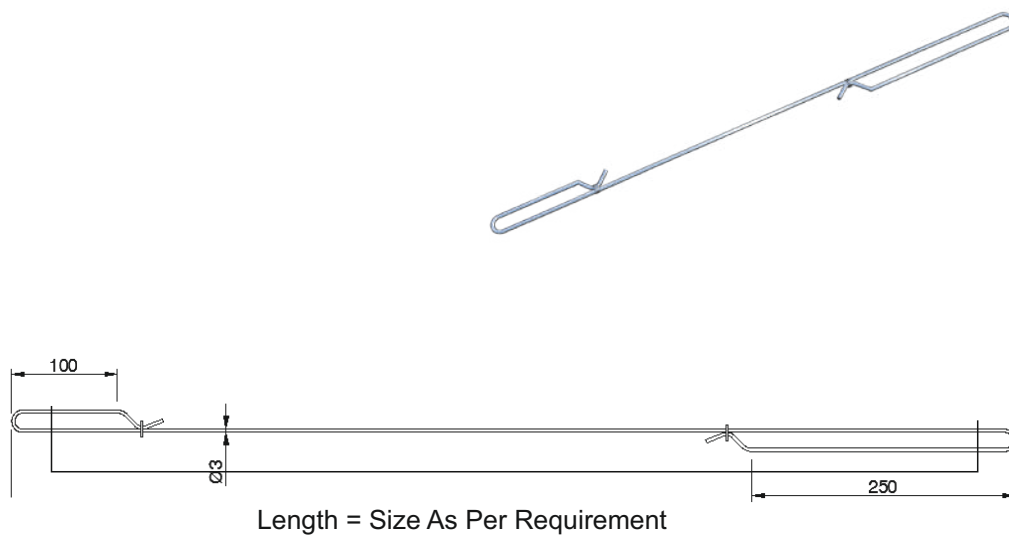
# REGISTRATION ARM DROPPER

PART NO. 10.20.520



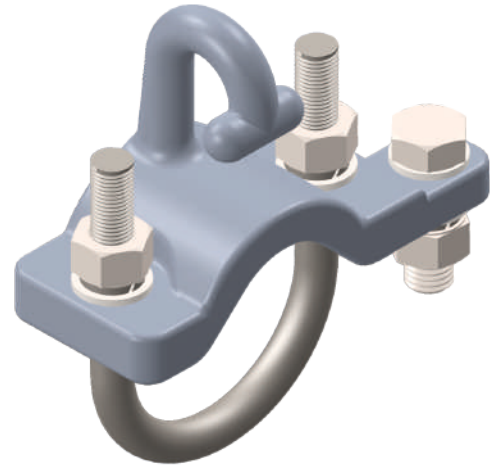
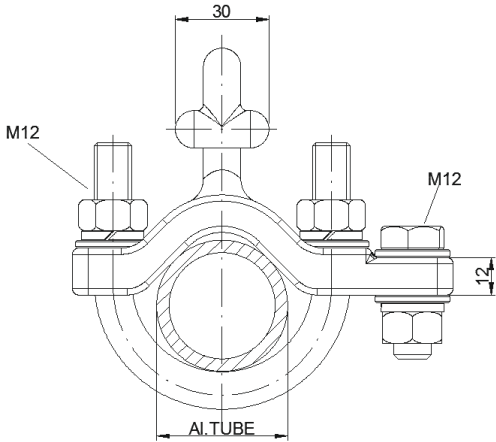
# WINDSTAY ROD

PART NO. 10.20.040

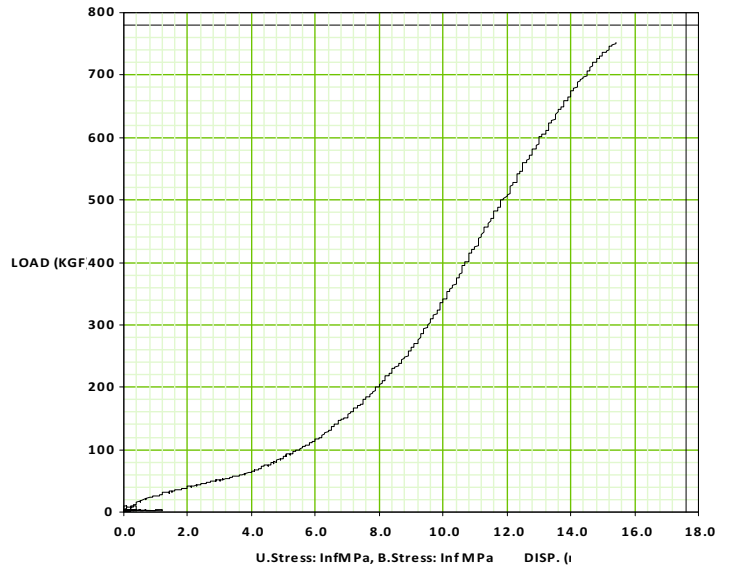


# HOOK CLIP

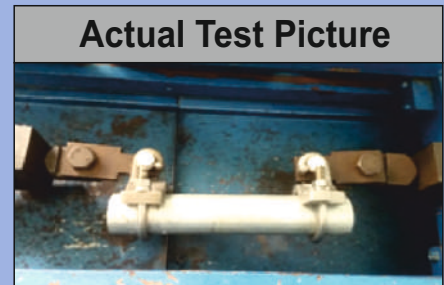
PART NO. 10.20.519



Part No.	Tube Diameter (mm)
10.20.518	42
10.20.519	55

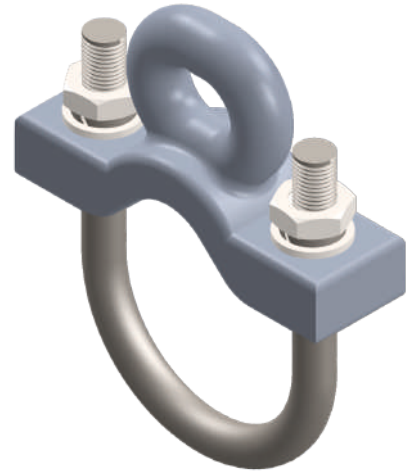
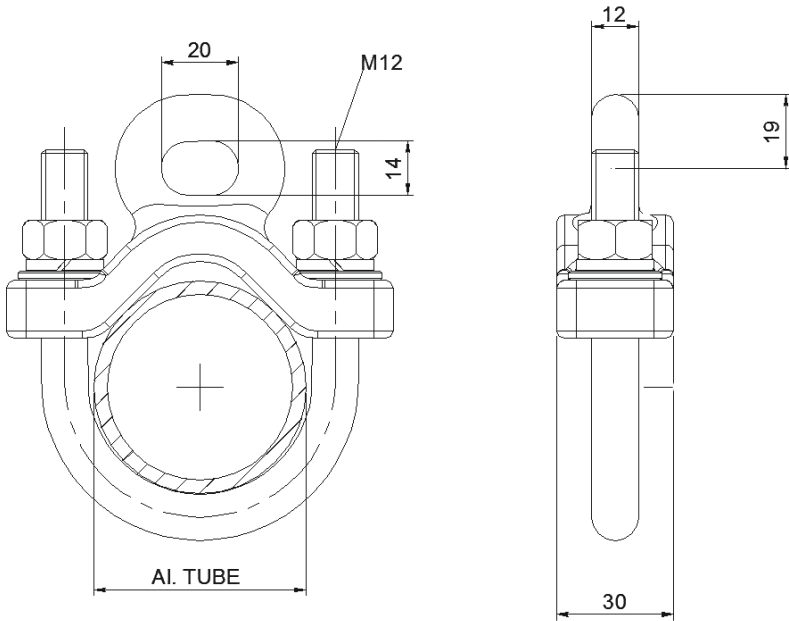


Part No.	FEA Results			FAT Results	
	Working load in Kgf	Factor of safety	Failing load as per EN 50119	Failing Load in Kgf	Factor Of Safety Achieved
0.20.021 (Hook Clip)	102	2.5	255	767	7.52

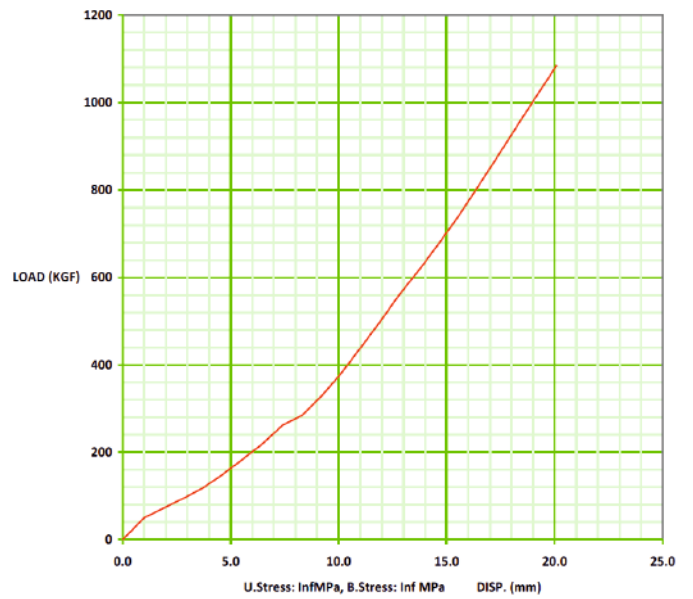


# EYE CLAMP FOR WINDSTAY

PART NO. 10.20.532

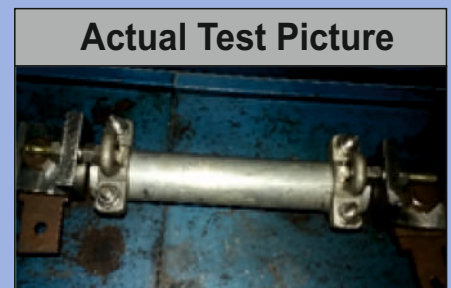


LOAD vs DISP



Part No.	Tube Diameter (mm)
10.20.531	42
10.20.532	55

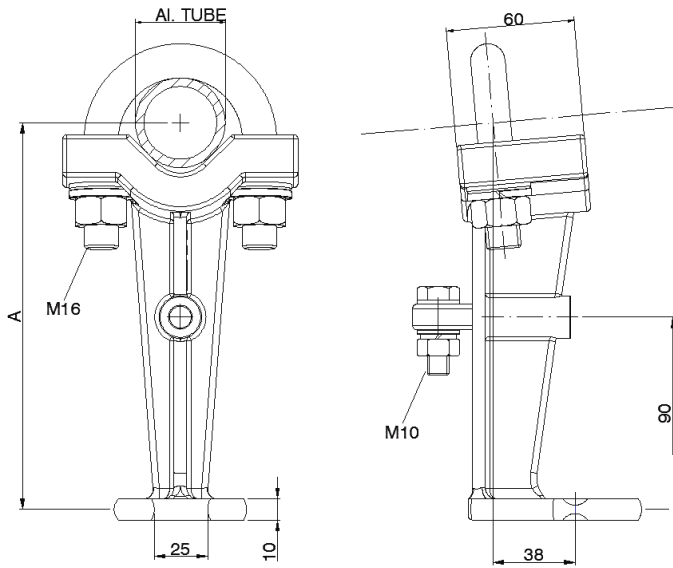
Part No.	FEA Results			FAT Results	
	Working load in Kgf	Factor of Safety	Failing load as per EN 50119	Failing Load in Kgf	Factor Of Safety Achieved
10.20.037 (Eye Clamp)	15	2.5	38	1142	76.67



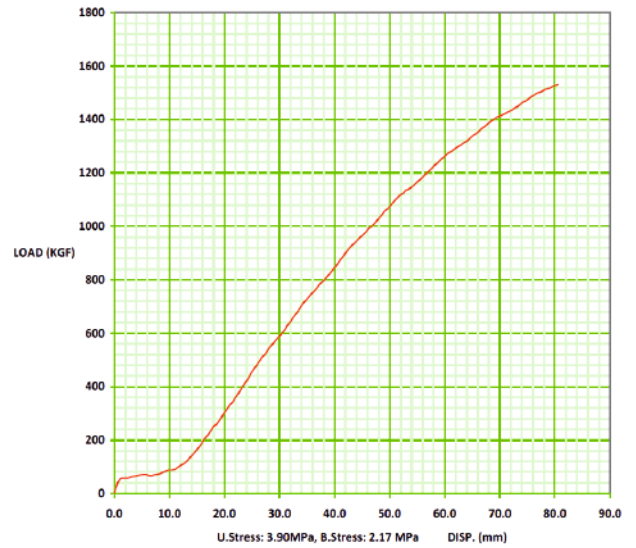
Actual Test Picture

# STEADY ARM BRACKET

PART NO. 10.20.535

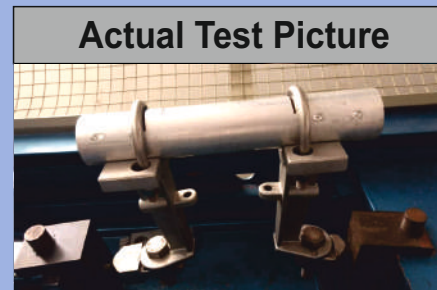


LOAD vs DISP



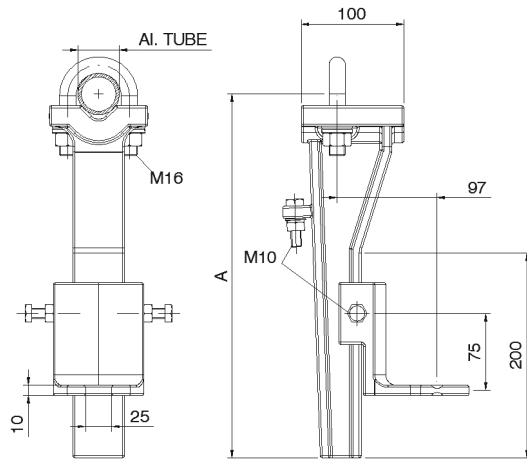
Part No.	Diameter tube (mm)	Dimension A (mm)
10.20.536	42	180
10.20.535	55	189

Part No.	FEA Results			FAT Results	
	Working load in Kgf	Factor of Safety	Failing load as per EN 50119	Failing Load in Kgf	Factor Of Safety Achieved
10.20.046 (Steady Arm Bracket)	168	2.5	420	1522	9.05

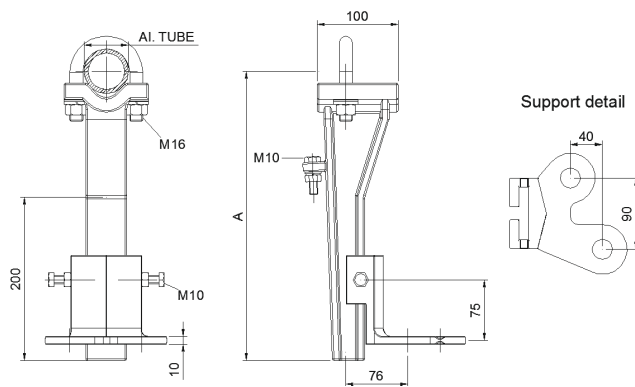


Actual Test Picture

# ADJUSTABLE STEADY ARM BRACKET



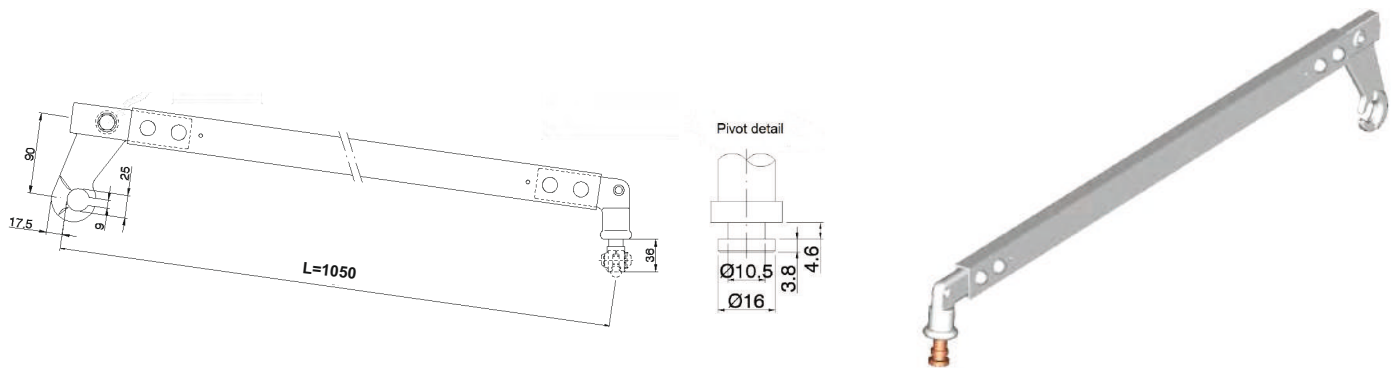
Part No.	Diameter tube (mm)	Dimension A (mm)
10.20.537	42	348
10.20.538	55	357



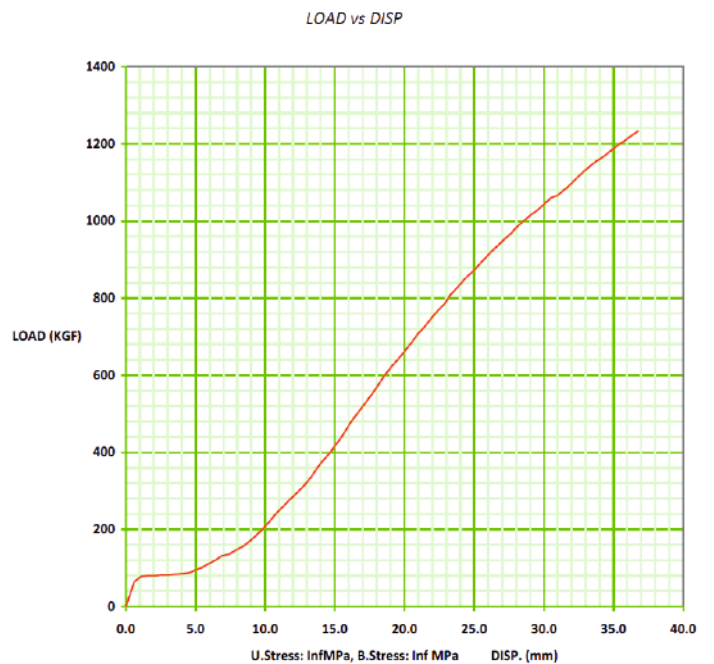
Part No.	Diameter tube (mm)	Dimension A (mm)
10.20.539	42	348
10.20.540	55	357



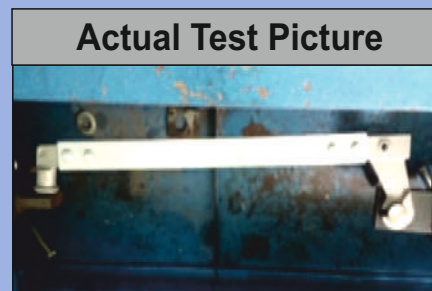
# STEADY ARM STRAIGHT



Part No.	Length L (m)
10.20.593	650
10.20.556	700
10.20.557	750
10.20.558	850
10.20.559	900
10.20.560	950
10.20.561	1000
10.20.562	1050
10.20.563	1100
10.20.564	1150
10.20.579	1200
10.20.565	1250
10.20.566	1385
10.20.580	1400
10.20.581	1500



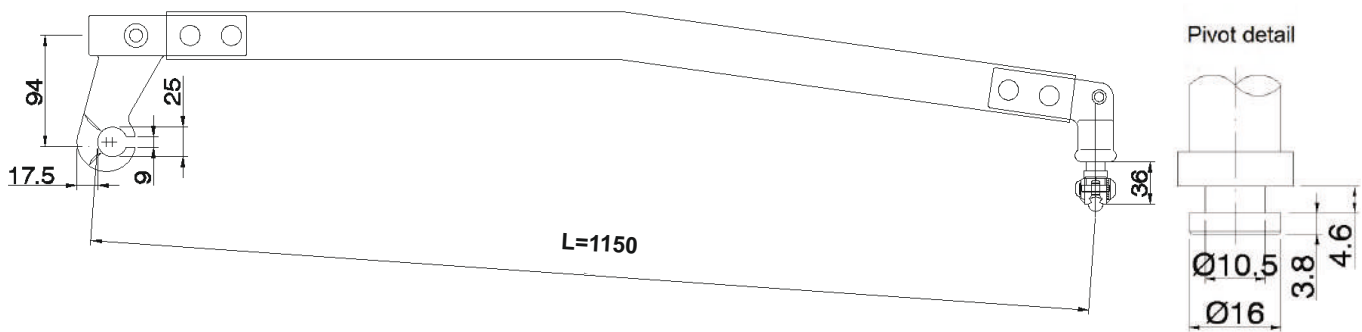
Part No.	FEA Results			FAT Results	
	Working load in Kgf	Factor of safety	Failing load as per EN 50119	Failing Load in Kgf	Factor Of Safety Actual
10.20.562 (1050)	168	2.5	420	1242	7.40



Actual Test Picture



# STEADY ARM BENT

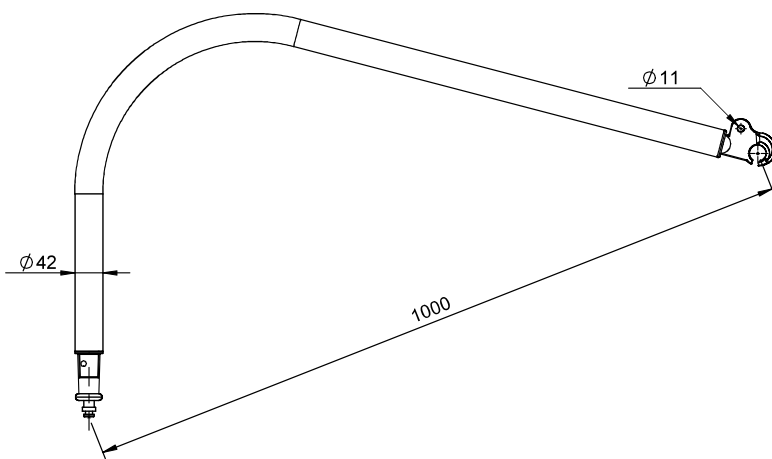
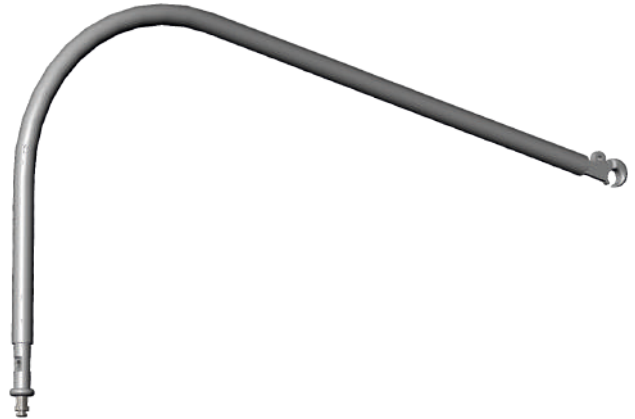


Part No.	Length
	L (mm)
10.20.543	700
10.20.544	750
10.20.545	800
10.20.546	850
10.20.547	900
10.20.548	950
10.20.549	1000
10.20.550	1050
10.20.551	1100
10.20.552	1150
10.20.553	1200
10.20.554	1250
10.20.555	1300
10.20.582	1450

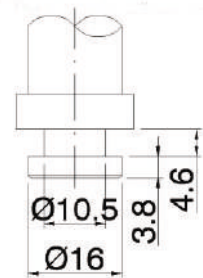


# STEADY ARM ROUND (1000mm)

PART NO. 10.20.542



Pivot detail



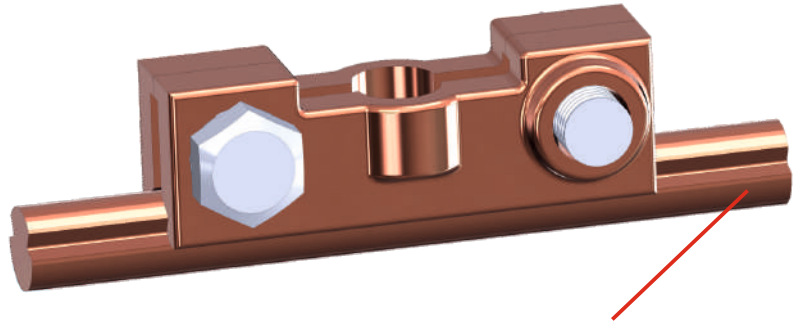
Part No.	Length L (mm)
10.20.541	968
10.20.542	1000



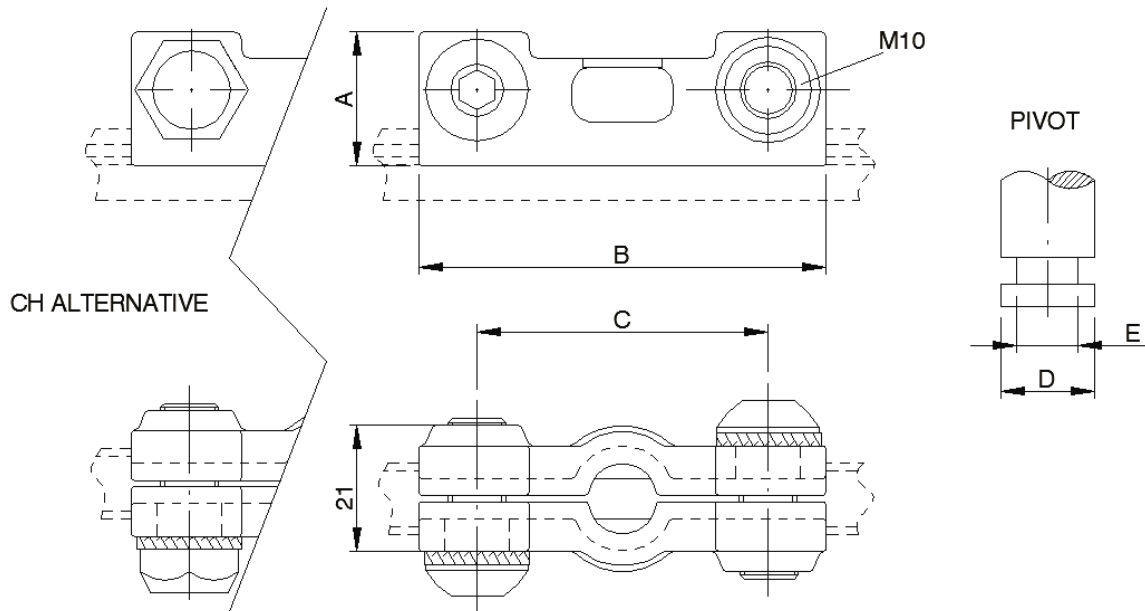
# CONTACT WIRE CLIP

PART NO. 10.20.570

**MATERIAL:-**  
 Forged parts:-CuNi2Si  
 Washer:- St. Steel  
 Screw: St. Steel



Contact Wire Not Included



Contact wire	Dimensions			Pivot Dimensions	
	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
AC/DC 80/150	23.5	75	53	23.7	15.7
AC/DC 80/150	23	70	50	16	10.5
AC/DC 80/150	23.5	75	53	23.7	15.7
AC/DC 80/150	23	70	50	16	10.5



# BRIDGING CLAMP ASSEMBLY 70/150

PART NO. 400.000.014

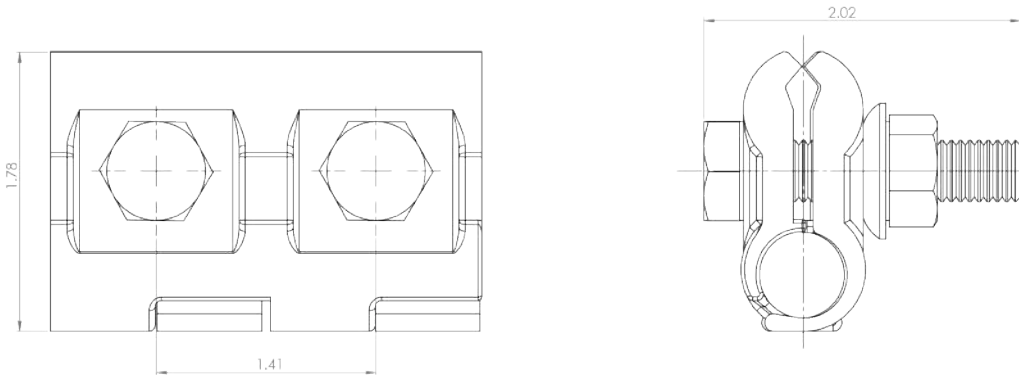
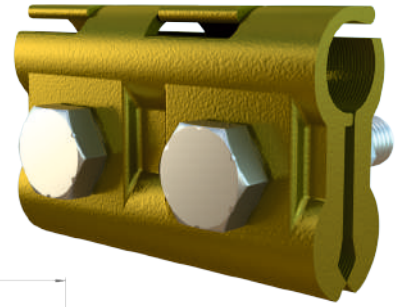
**MATERIAL:-**

Forged parts:-CuNi2Si

Washer:- St. Steel

Screw:- St. Steel

Nut:- St. Steel



# PG CLAMP ASSEMBLY 35/300 mm<sup>2</sup>

PART NO. 400.000.004

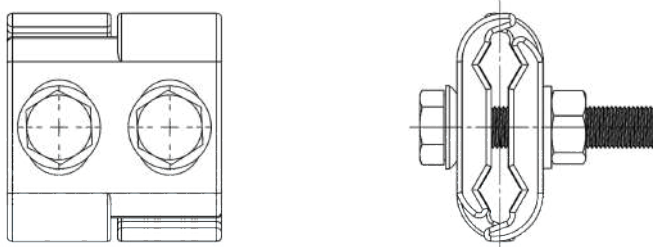
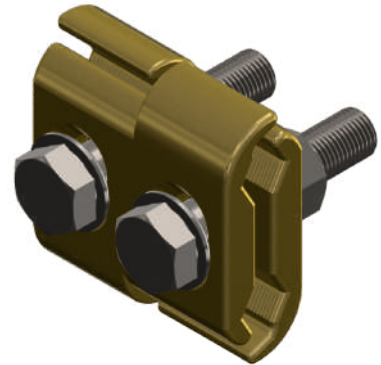
**MATERIAL:-**

Forged parts:-Brass

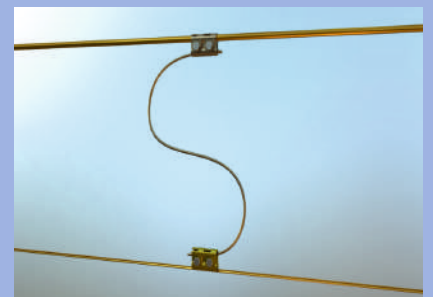
Washer:- St. Steel

Screw:- St. Steel

Nut:- St. Steel



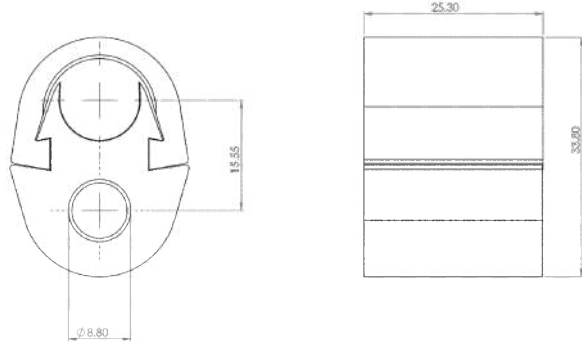
For wire size 35-300 mm<sup>2</sup>



# COMPRESSION SLEEVE

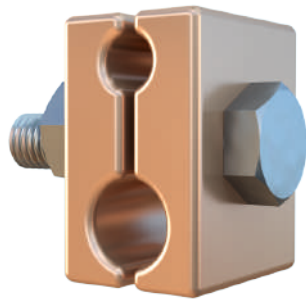
PART NO. 400.000.018

**MATERIAL:-** Copper

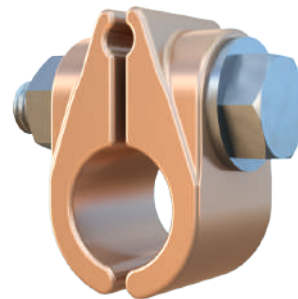


Part No.	Part Name
400-000-18	Compression Sleeve 65/26mm <sup>2</sup> (Small)
400-000-19	Compression Sleeve-A 65/26mm <sup>2</sup>
400-000-21	Compression Sleeve-B 65/164mm <sup>2</sup>
400-000-22	Compression Sleeve-C 164/164mm <sup>2</sup>
400-000-23	Compression Sleeve-D 145/164mm <sup>2</sup>
400-000-24	Compression Sleeve-E 120/26mm <sup>2</sup>
400-000-26	Compression Sleeve-F 145/120mm <sup>2</sup>
400-000-28	Compression Sleeve-G 120/120mm <sup>2</sup>

# PG CLAMP



Cu Clamp for  
12-26 mm<sup>2</sup>

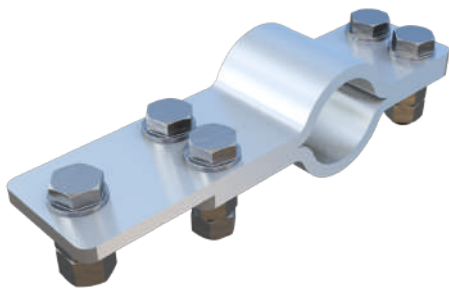


Cu Clamp for  
12-164 mm<sup>2</sup>

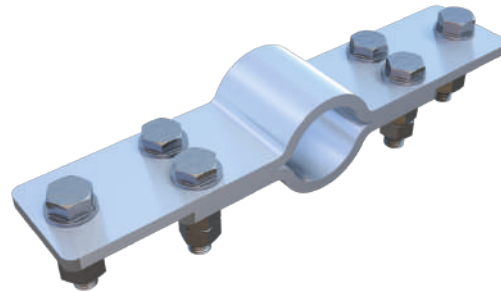


# JUMPER STAY TUBE CLAMP

PART NO. 10.20.622 (Single)  
PART NO. 10.20.623 (Double)



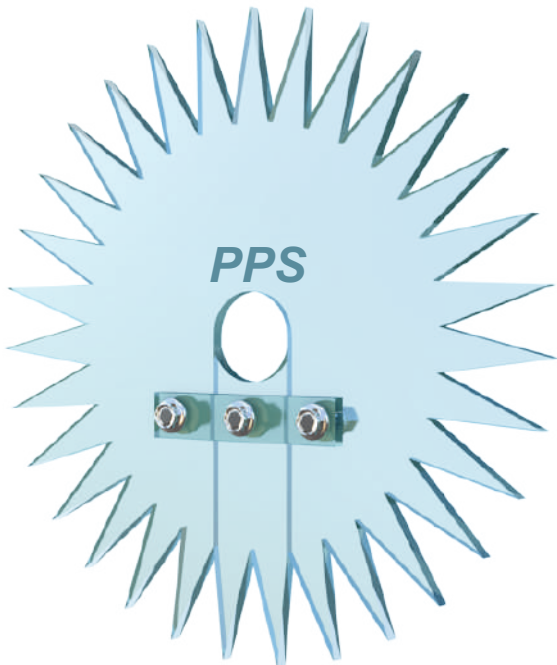
Single



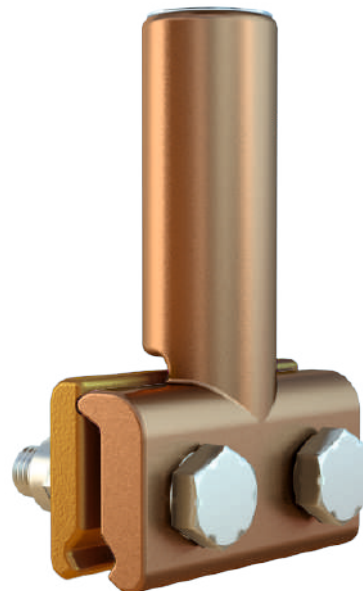
Double

## ANTI-BIRD DISK

PART NO. 10.20.620 (47mm)  
PART NO. 10.20.621 (54mm)

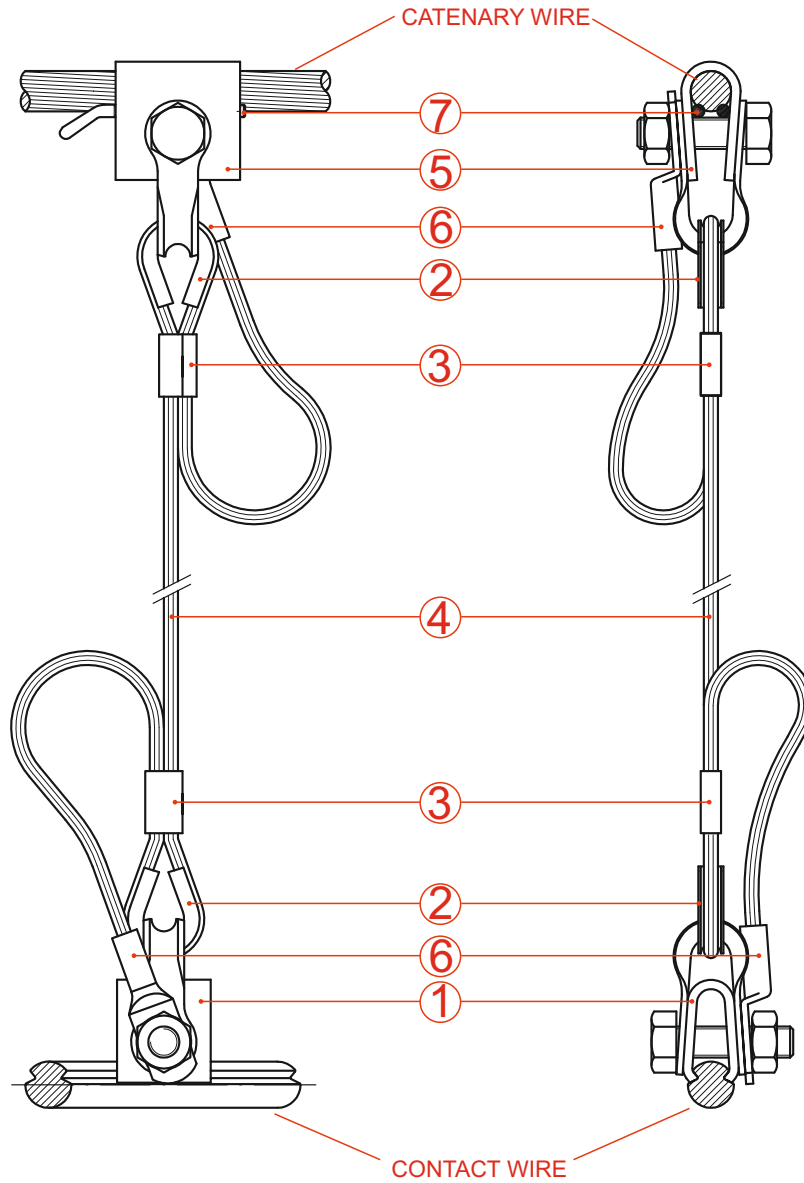


## T-CLAMP



# DROPPER

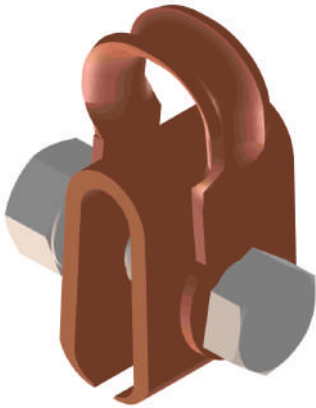
PART NO. 10.20.592



1. Contact wire clamp
2. Thimble
3. Sleeve
4. Dropper wire
5. Catenary wire clamp
6. Lug
7. Stopper pin



# DROPPER ASSEMBLY



## 1. Contact Wire Clamp Assembly

PART NO. 10.20.589

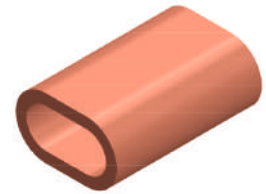
Material : CuNi2Si  
Loop : CuNi2Si  
Screw : St. Steel (A2) (EN ISO 3506)  
Nut : St. Steel (A2) (EN ISO 3506)



## 2. Thimble (Dropper Wire)

PART NO. 10.20.084

Material : Cu- ETP



## 3. Sleeve (Dropper Wire)

PART NO. 10.20.085

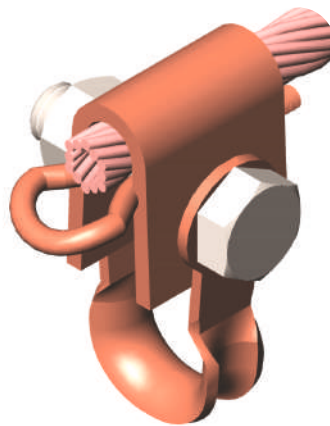
Material : Cu- ETP



## 4. Dropper Wire

PART NO. 10.20.086

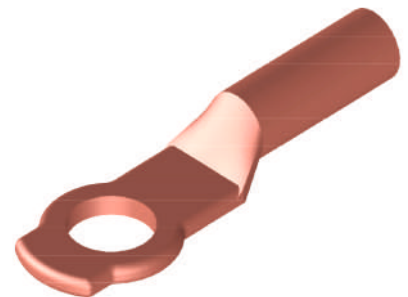
Material : Bronze  
Size : (10/12 sq mm)  
Multi strand



## 5. Catenary Wire Clamp Assembly

PART NO. 10.20.591

Material : CuNi2Si  
Screw : St. Steel (A2)  
Nut : St. Steel (A2)  
Pin : Bronze

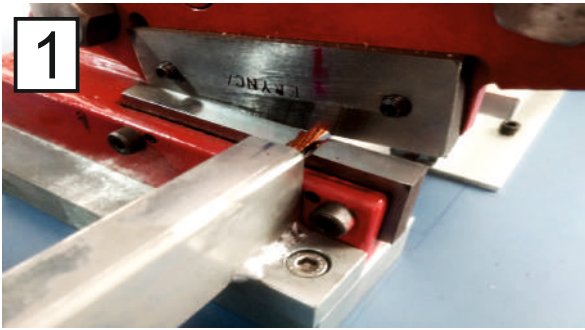


## 6. Lug (Dropper Wire)

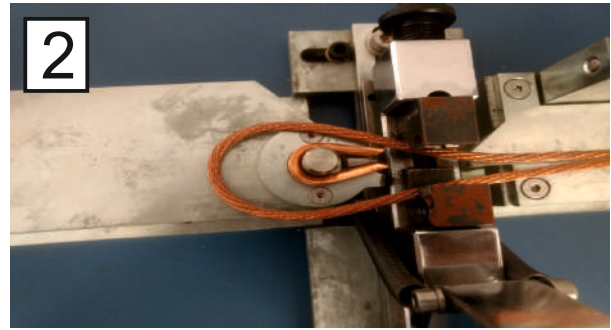
PART NO. 10.20.078

Material : Cu- ETP

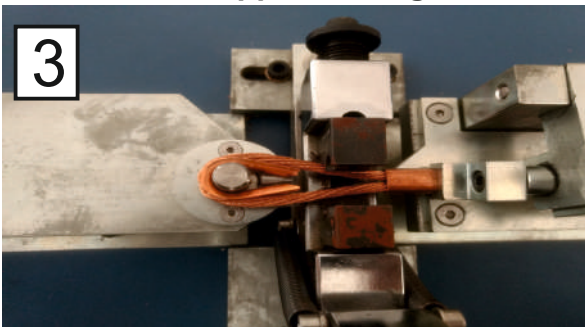
# IN-HOUSE ASSEMBLY OF DROPPER



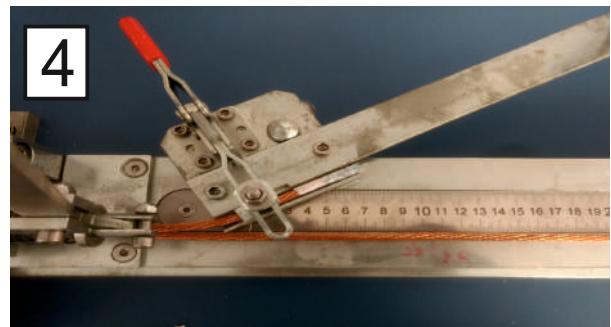
**Dropper Cutting**



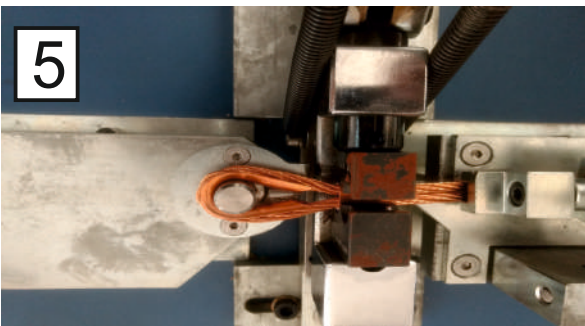
**Thimble Placement**



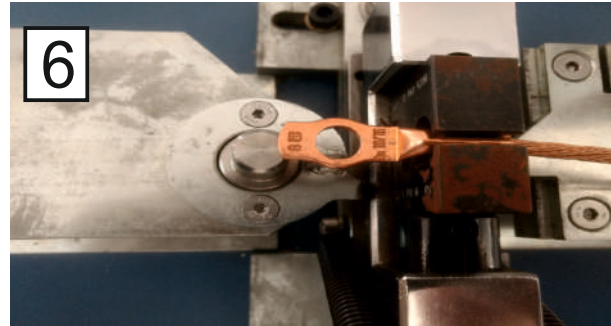
**Sleeve Insertion**



**Dropper Straightening**



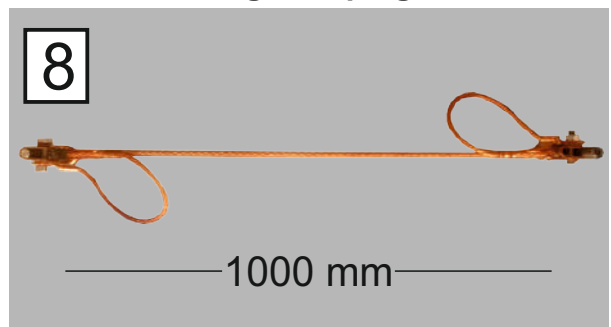
**Sleeve crimping**



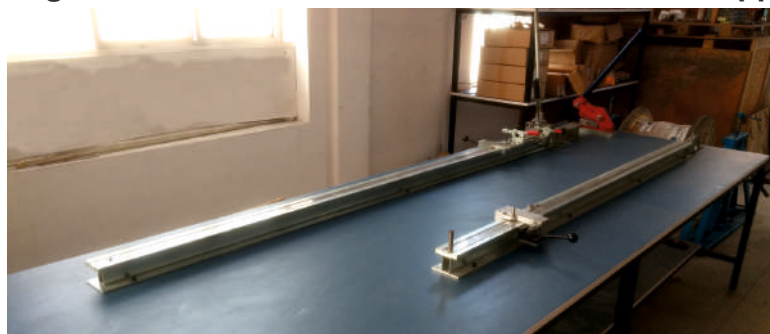
**Lug Crimping**



**Dropper Length Verification**



**Final Dropper Assembly**



**Dropper Assembly Table**



**UNIT-1**  
Corporate Office



**UNIT-2**



**PPS International**

[www.ppsinternational.in](http://www.ppsinternational.in)

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Email : [info@ppsinternational.in](mailto:info@ppsinternational.in)  
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