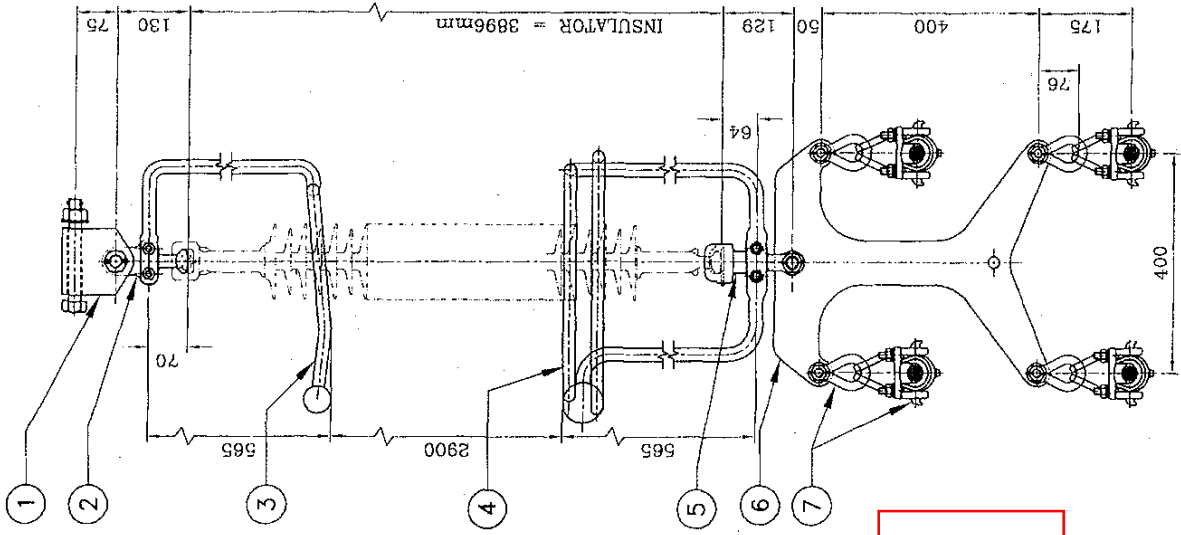


* TECHNICAL DATA *

1. U.T.S. OF HARDWARE FITTINGS: 160 KN.
2. SLIP STRENGTH OF SUSPENSION CLAMP : 15 % UTS OF ACSR LARK
3. BALL & SOCKET DESIGNATION : 20 mm. AS PER IEC:120.
4. H/WARE FITTINGS CONFORMS TO B.S.: 3288, PART-I.
5. ALL FERROUS PARTS (EXCEPT SPRING WASHER) SHALL BE HOT DIP GALVANISED CONFORMING TO B.S: 729.
6. SPRING WASHER : SPRING STEEL, ELECTRO-GALVANISED.
7. SPLIT PIN & SECURITY CLIP: STAINLESS STEEL.
8. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
9. MIN. CORONA EXTINCTION VOLTAGE - 290 KV.
10. GENERAL TOLERANCE : $\pm 3\%$.



182AKPSI0012B

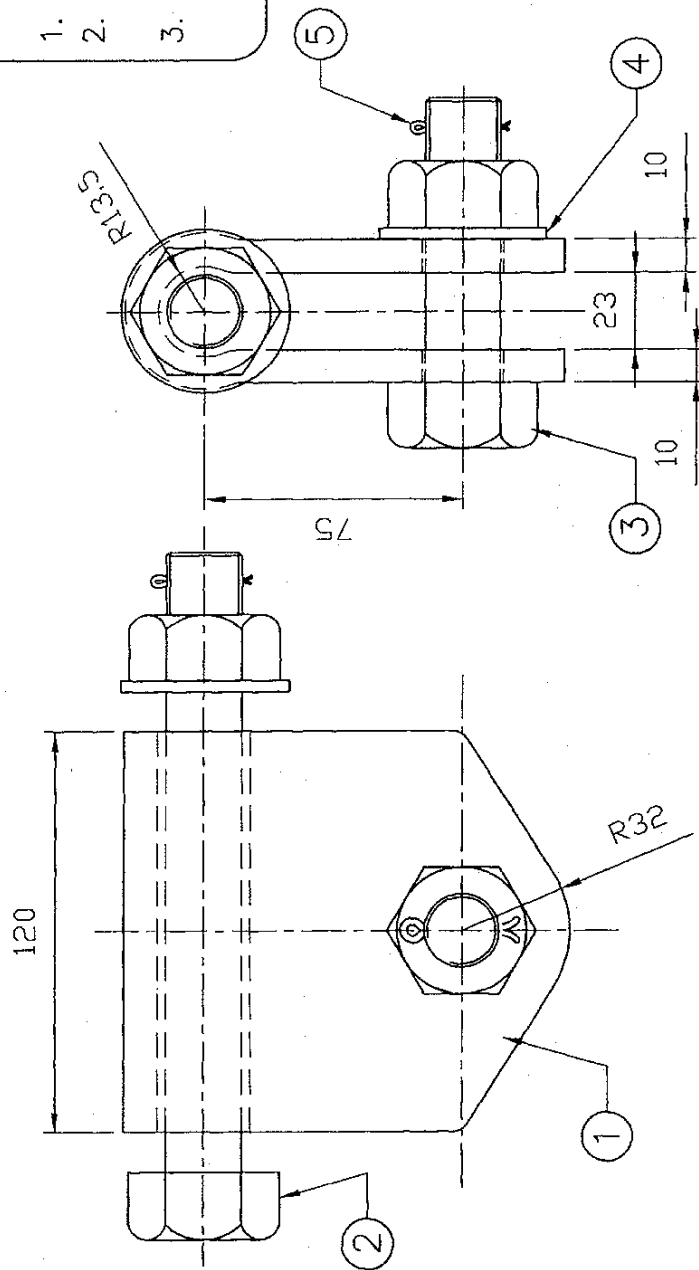
COMPONENT DETAILS						
SL. NO.	ITEM DESCRIPTION	DRG./CAT. NO.	MATERIAL.	FINISH	U.T.S. (KN)	REQD. QTY.
1	TOWER HINGE	ATEL-3B/2	MILD STEEL FE-410	H.D.G.	160	1
2	H.H. BALL EYE	ABL-8	FORGED STEEL (CL-IV)	H.D.G.	160	1
3	ARCING RING (T.S)	AAH/FRB-13H	MILD STEEL FE-410	H.D.G.	-	1
4	ARCING RING (L.S)	AAH/FRB-14G	MILD STEEL FE-410	H.D.G.	-	1
5	H.H. SOCKET CLEVIS	ASC-6H/1	FORGED STEEL (CL-IV)	H.D.G.	160	1
6	YOKE PLATE	AYP-176	MILD STEEL FE-410	H.D.G.	160	1
7	SUSPENSION CLAMP ASSY. WITH P.A. ROD	A-30-ASSY	FORGED STEEL (CL-IV) & AL. ALLOY	H.D.G.	70	4SETS

ITEM :

400 KV. SINGLE SUSPENSION H/WARE FITTINGS
SUITABLE FOR ACSR QUAD LARK CONDUCTOR.

*** TECHNICAL DATA ***

1. BREAKING STRENGTH : 160 KN
 2. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
 3. GENERAL TOLERANCE : $\pm 3\%$
- UNLESS OTHERWISE SPECIFIED.



BILL OF MATERIALS				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD. QTY.
1	TOWER HINGE	MILD STEEL	H.D.G.	1
2	M22x180 BOLT & NUT	MILD STEEL	H.D.G.	1 SET
3	M22x80 BOLT & NUT	MILD STEEL	H.D.G.	1 SET
4	PLAIN WASHER	MILD STEEL	H.D.G.	2
5	SPLIT PIN	S.S.	-	2

CAT. NO. ATEL-3B/2

ITEM : TOWER HINGE FOR SINGLE SUSPENSION
H/WARE FITTINGS SUITABLE FOR ACSR
QUAD LARK CONDUCTOR. (400 KV)

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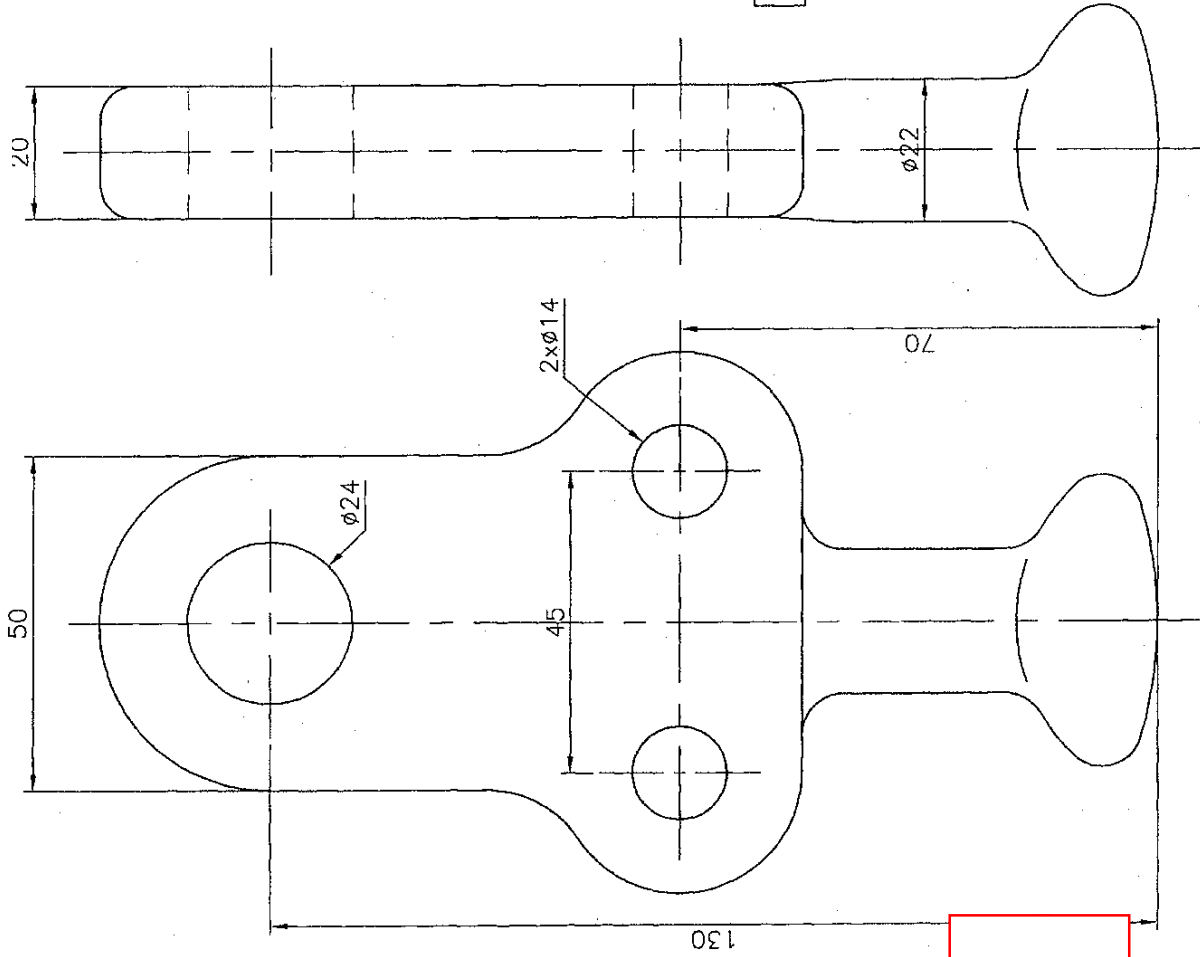
*** TECHNICAL DATA ***

1. MINIMUM BREAKING LOAD : 160 KN.
2. BALL DESIGNATION : 20 mm. AS PER IEC 120/BS-3288.
3. FINISH : HOT DIP GALVANISED CONFORMS TO B.S: 729 OR EQUIVALENT.
4. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
5. GENERAL TOLERANCE : $\pm 3\%$.
UNLESS OTHERWISE SPECIFIED.

B I L L O F M A T E R I A L S

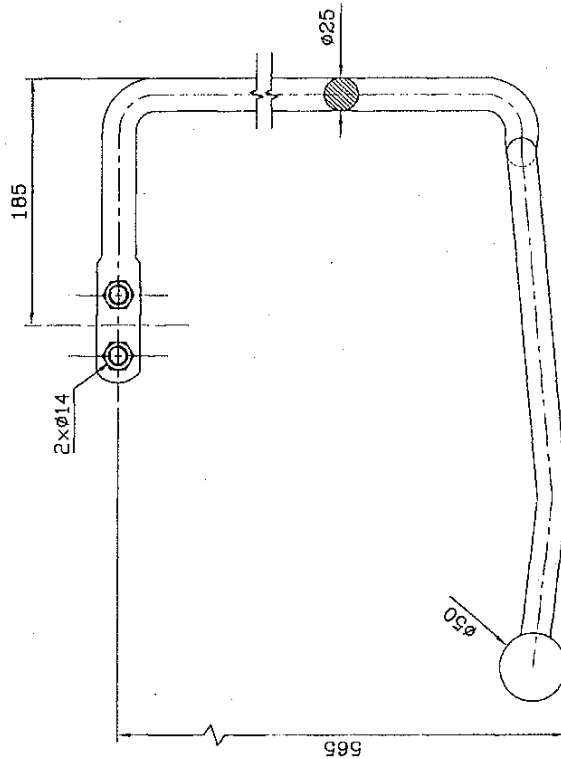
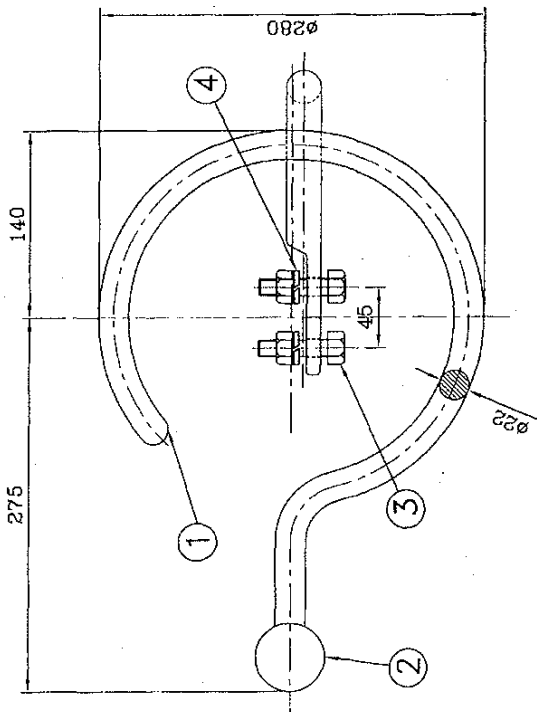
ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD.NO.
H.H. BALL EYE.	FORGED STEEL	H.D.G.	1

CAT. NO. ABL-8



182AKPS10012B

ITEM : H.H. BALL EYE FOR SINGLE SUSPENSION
H/WARE FITTINGS SUITABLE FOR ACSR
QUAD LARK CONDUCTOR. (400 KV)



* BILL OF MATERIALS *				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD. NO.
1.	ARCING RING	MILD STEEL	H.D.G.	1.
2.	BALL (Ø50)	MILD STEEL	H.D.G.	1.
3.	M12X55 BOLT & NUT.	MILD STEEL	H.D.G.	2 SETS.
4.	SPRING WASHER.	SP. STEEL.	E.G.	2.

*** TECHNICAL DATA ***

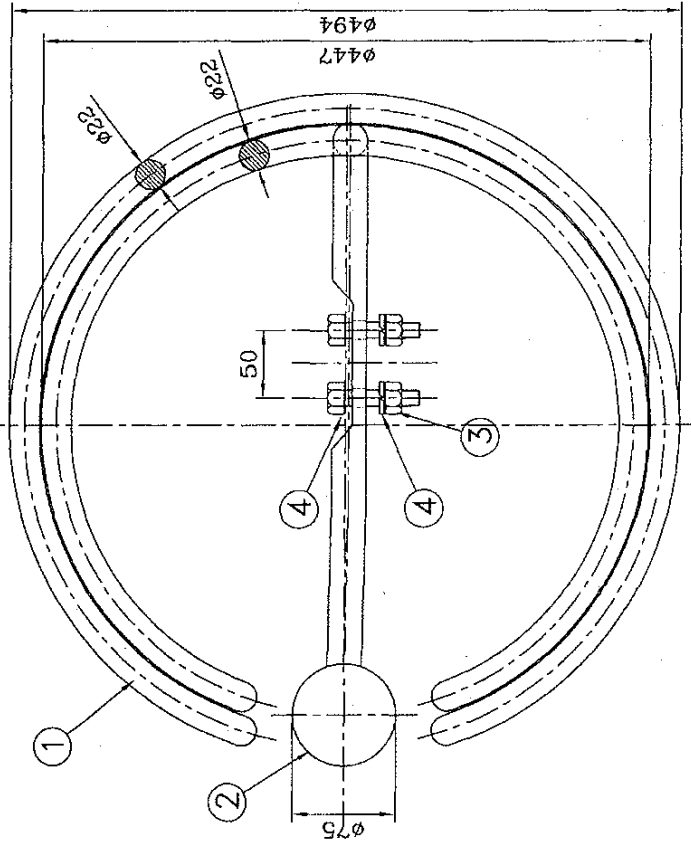
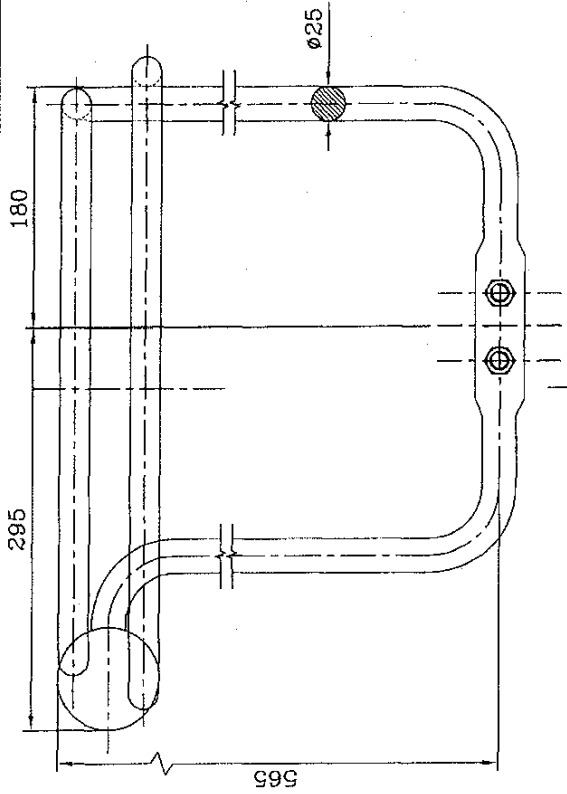
1. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
2. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

CAT NO. AAH/FRB-13H

ITEM : ARCING RING (T.S.) FOR SINGLE SUSPENSION
H/WARE FITTINGS SUITABLE FOR ACSR
QUAD LARK CONDUCTOR. (400 KV)

DRG. NO. : AAH/FRB-13H

182AKPS10012B



* BILL OF MATERIALS *				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD.NO.
1.	ARCING RING	MILD STEEL	H.D.G.	1.
2.	BALL (Ø75)	FORGED STEEL	H.D.G.	1.
3.	M12X55 BOLT & NUT.	MILD STEEL	H.D.G.	2 SETS.
4.	SPRING WASHER.	SP. STEEL.	E.G.	2.

* TECHNICAL DATA *

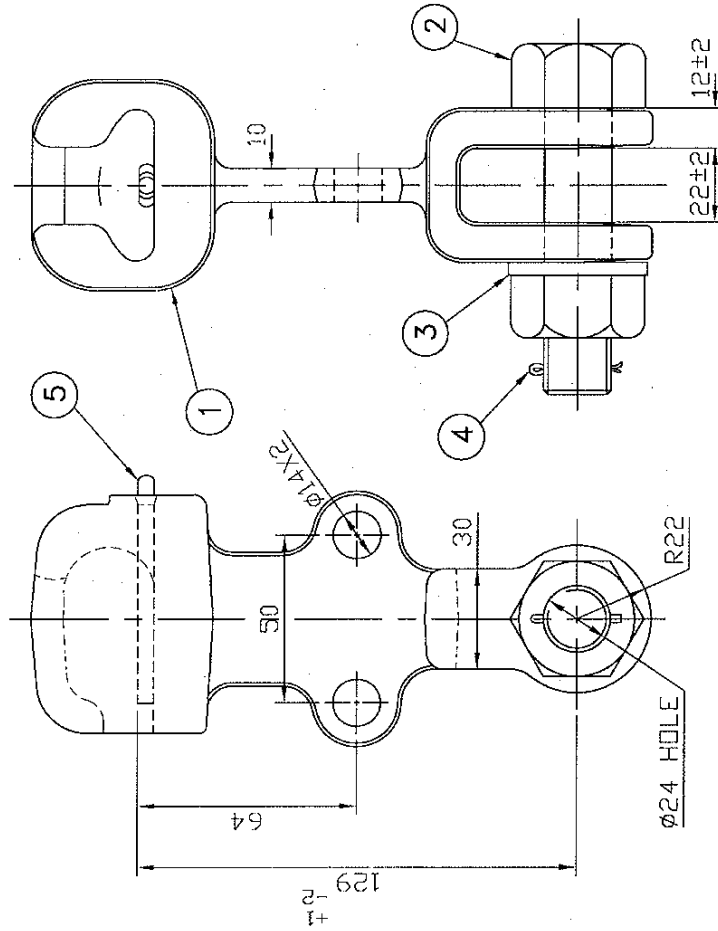
1. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
2. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

CAT NO. AAH/FRB-14G

182AKPSI0012B

ITEM : ARCING RING (L.S.) FOR SINGLE SUSPENSION
H/WARE FITTINGS SUITABLE FOR ACSR
QUAD LARK CONDUCTOR. (400 KV)

DRG. NO. : AAH/FRB-14G



CAT. NO. ASC-6H/1

BILL OF MATERIALS

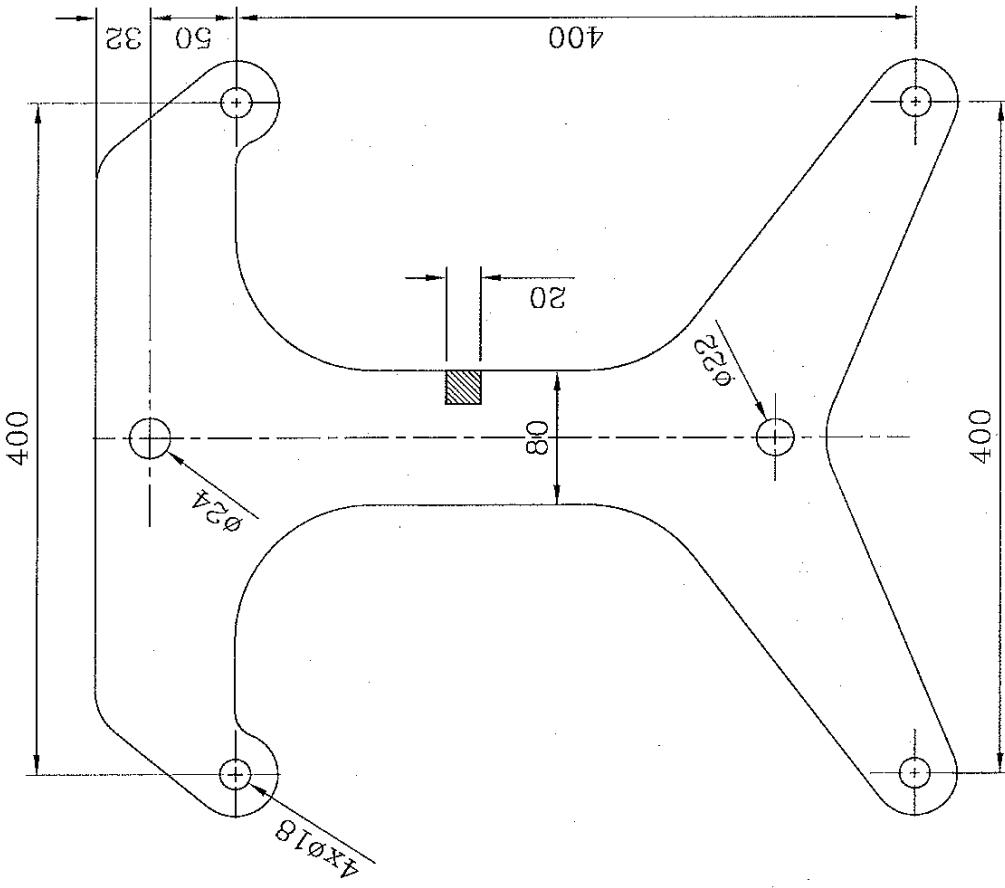
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD.NO.
1	SOCKET CLEVIS	FORGED STEEL	H.D.G.	1.
2.	M22 BOLT & NUT.	STEEL.	H.D.G.	1 SET.
3.	FLAT WASHER	MILD STEEL.	H.D.G.	1.
4.	SPLIT PIN	STAINLESS STEEL	—	1.
5.	'R' CLIP	STAINLESS STEEL	—	1.

- * TECHNICAL DATA ***
1. MINIMUM BREAKING LOAD : 160 KN.
 2. SOCKET DESIGNATION : 20 mm. AS PER IEC 120/BS-3288.
 3. FINISH : HOT DIP GALVANISED CONFORMS TO B.S: 729 OR EQUIVALENT.
 4. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
 5. GENERAL TOLERANCE : ±3%.
- UNLESS OTHERWISE SPECIFIED.

ITEM : SOCKET CLEVIS FOR SINGLE SUSPENSION
H/WARE FITTINGS SUITABLE FOR ACSR QUAD
LARK CONDUCTOR. (400 KV)

DRG. NO. : ASC-6H/1

182AKPS10012B



- * TECHNICAL DATA ***
1. BREAKING STRENGTH : 160 KN
 2. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
 3. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

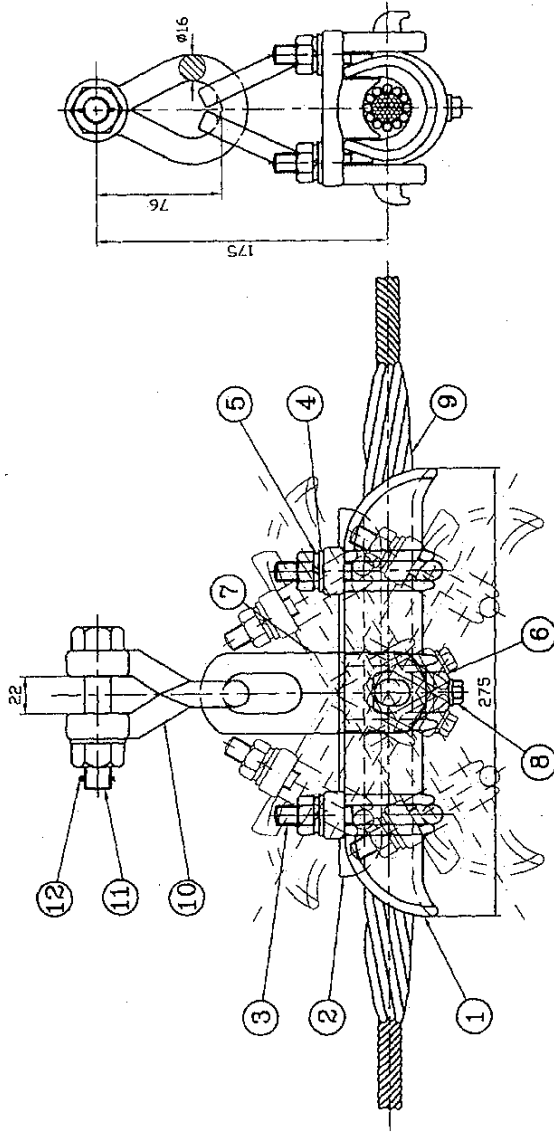
CAT. NO. AYP-176

BILL OF MATERIALS		
ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.
YOKE PLATE	MILD STEEL	H.D.G.

ITEM : YOKE PLATE FOR SINGLE SUSPENSION
H/WARE FITTINGS SUITABLE FOR ACSR
QUAD LARK CONDUCTOR. (400 KV)

DRG. NO. : AYP-176

182AKPSI0012B



* TECHNICAL DATA *

1. MIN. BREAKING STRENGTH OF CLAMP : 70 KN.
2. MIN. SLIP STRENGTH : 15% U.T.S. OF ACSR LARK
3. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
4. GENERAL TOLERANCE $\pm 3\%$

BILL OF MATERIAL.

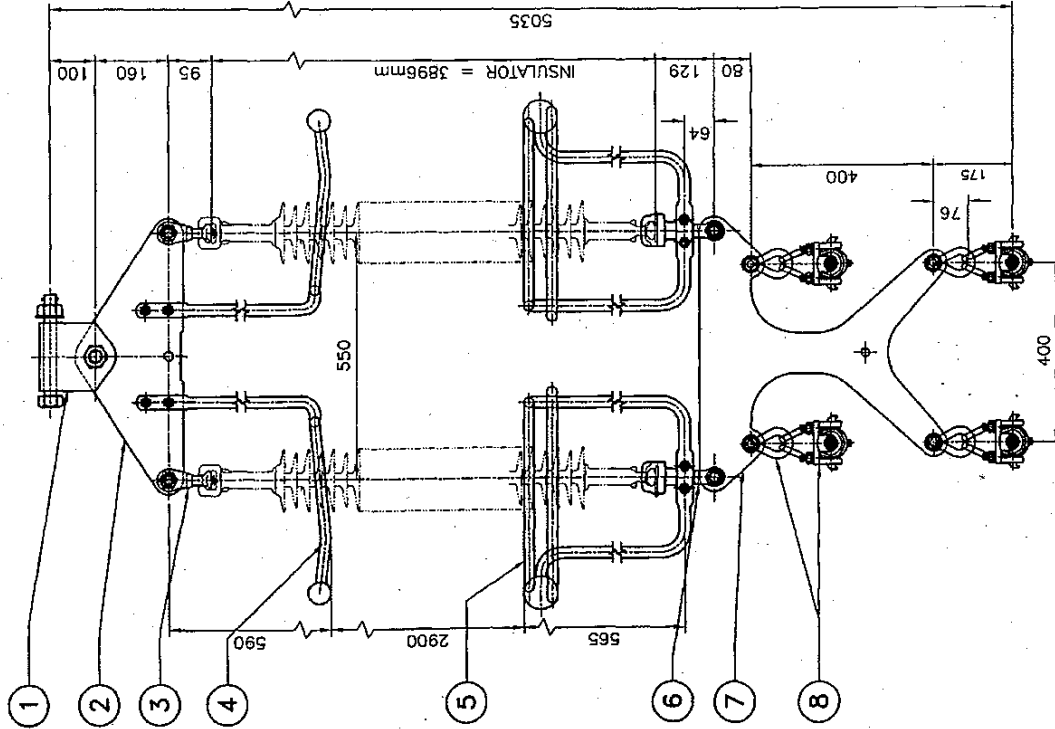
SL. NO.	DESCRIPTION	MATERIAL	TREATMENT	QTY./SET.	CAT. NO.
1.	SUSPENSION CLAMP	AL. ALLOY	-	1	A-30
2.	KEEPER	AL. ALLOY	-	1	
3.	M12 U-BOLTS & NUT	MILD STEEL	H.D.G.	2 SETS	
4.	FLAT WASHER	MILD STEEL	H.D.G.	4	
5.	SP. WASHER	SPRING STEEL	E.G.	4	
6.	SHADDLE	MILD STEEL	H.D.G.	1 SET	
7.	SIDE STRAP	MILD STEEL	H.D.G.	2	
8.	M-10 BOLT	MILD STEEL	H.D.G.	2	
9.	ARMOUR ROD (11 NOS/SET)	AL. ALLOY	-	1 SET	APR-012
10.	TWISTED SHACKLE	FORGED STEEL	H.D.G.	1	ATS-1
11.	M16x90 BOLT, NUT & FLAT WASHER.	MILD STEEL	H.D.G.	1 SET	
12.	SPLIT PIN	STAINLESS STEEL	-	1	

ITEM : SUSPENSION CLAMP ASSY. FOR SINGLE
SUSPENSION H/WWARE FITTINGS SUITABLE
FOR QUAD ACSR LARK CONDUCTOR. (400 KV)
DRG. NO. : A-30-ASSY.

182AKPS10012B

COMPONENT DETAILS

SL. NO.	ITEM DESCRIPTION	DRG./CAT. NO.	MATERIAL	FINISH	U.T.S. (KN)	REOD. QTY.
1	TOWER HINGE	ATEL-3B/3	MILD STEEL FE-410	H.D.G.	320	1
2	YOKE PLATE	ATP-211	MILD STEEL FE-410	H.D.G.	320	1
3	BALL CLEVIS	ABC-2	FORGED STEEL (CL-N)	H.D.G.	160	2
4	ARCING RING (T.S.)	AAH/FRB-18B	MILD STEEL FE-410	H.D.G.	-	2
5	ARCING RING (L.S.)	AAH/FRB-14G	MILD STEEL FE-410	H.D.G.	-	2
6	H.H. SOCKET CLEVIS	ASC-6H/1	FORGED STEEL (CL-N)	H.D.G.	160	2
7	YOKE PLATE	ATP-101K	MILD STEEL FE-410	H.D.G.	320	1
8	SUSPENSION CLAMP ASST. WITH P.A. ROD	A-30-ASSY	FORGED STEEL (CL-N) & AL. ALLOY	H.D.G.	70	4SETS



182AKPS10011B

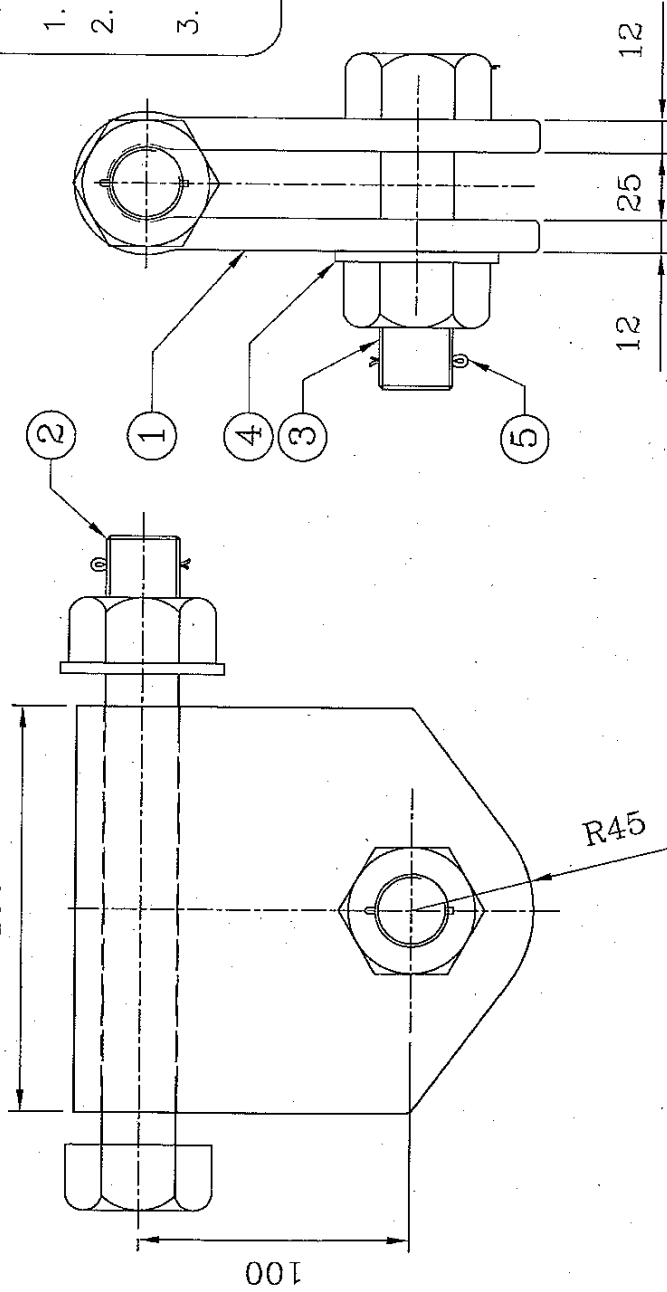
* TECHNICAL DATA *

1. U.T.S. OF HARDWARE FITTINGS: 2x160 KN
2. SUP. STRENGTH OF SUSPENSION CLAMP : 15 % UTS OF ACSR LARK
3. BALL & SOCKET DESIGNATION : 20 mm. AS PER IEC:120.
4. H/WARE FITTINGS CONFORMS TO B.S.: 3288, PART-1.
5. ALL FERROUS PARTS (EXCEPT SPRING WASHER) SHALL BE HOT DIP GALVANISED CONFORMING TO B.S: 729.
6. SPRING WASHER : SPRING STEEL, ELECTRO-GALVANISED.
7. SPURT PIN & SECURITY CLIP: STAINLESS STEEL
8. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
9. MIN. CORONA EXTINCTION VOLTAGE ~ 280 KV.
10. GENERAL TOLERANCE : +3%.

ITEM :
400 KV. DOUBLE SUSPENSION H/WARE FITTINGS
SUITABLE FOR QUAD ACSR LARK CONDUCTOR.

DRG.NO. : ADS-557

150



*** TECHNICAL DATA ***

1. BREAKING STRENGTH : 320 KN
2. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
3. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

BILL OF MATERIALS				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD. QTY.
1	TOWER HINGE	MILD STEEL	H.D.G.	1
2	M27x225 BOLT & NUT	MILD STEEL	H.D.G.	1 SET
3	M27x100 BOLT & NUT	MILD STEEL	H.D.G.	1 SET
4	PLAIN WASHER	MILD STEEL	H.D.G.	2
5	SPLIT PIN	S.S.	-	2

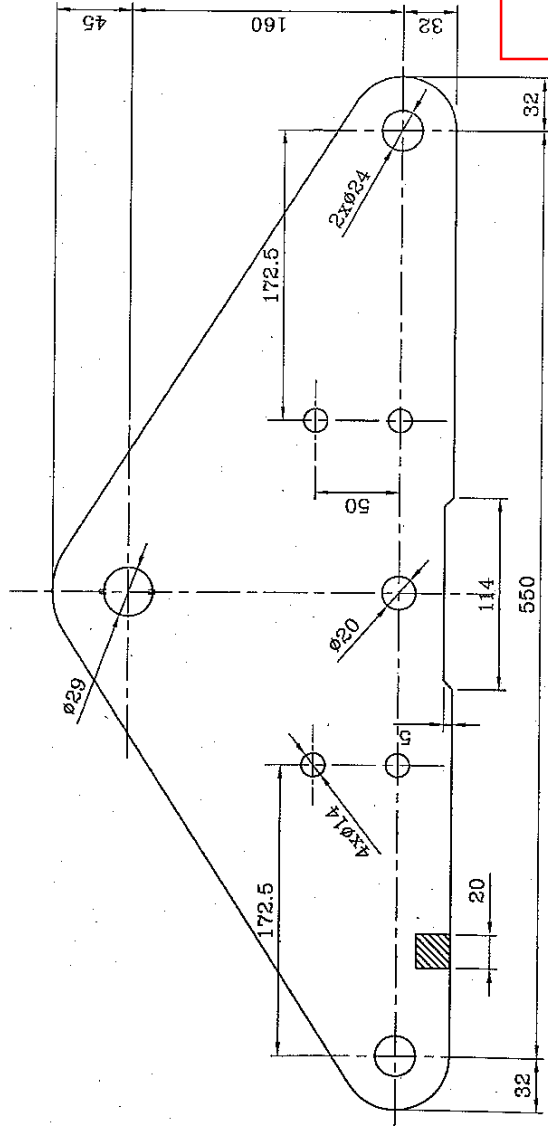
CAT. NO. ATEL--3B/3

ITEM : TOWER HINGE FOR DOUBLE SUSPENSION
H/WARE FITTINGS SUITABLE FOR ACSR
QUAD LARK CONDUCTOR. (400 KV)

DRG. NO. : ATEL--3B/3

182AKPSI0011B

BILL OF MATERIALS		
ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.
YOKE PLATE	MILD STEEL	H.D.G.



*** TECHNICAL DATA ***

1. BREAKING STRENGTH : 320 KN
2. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
3. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

CAT. NO. AYP-211

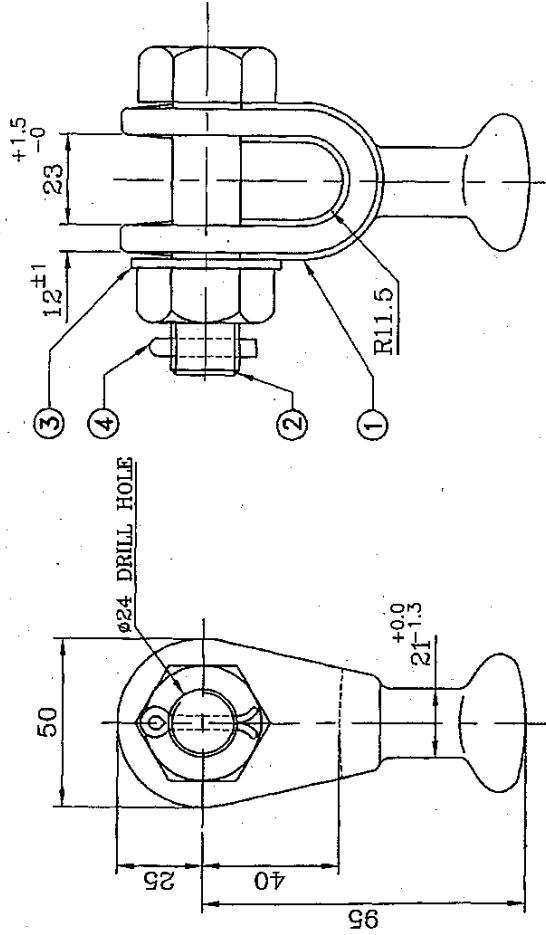
182AKPSI0011B

ITEM : YOKE PLATE FOR DOUBLE SUSPENSION
H/WARE FITTINGS SUITABLE FOR ACSR
QUAD LARK CONDUCTOR. (400 KV)

DRG. NO. : AYP-211

* TECHNICAL DATA *

1. MINIMUM BREAKING LOAD : 160 KN.
2. BALL DESIGNATION : 20 mm. AS PER IEC 120/BS-3288.
3. FINISH : HOT DIP GALVANISED CONFORMS TO B.S. 729 OR EQUIVALENT.
4. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
5. GENERAL TOLERANCE : $\pm 3\%$. UNLESS OTHERWISE SPECIFIED.



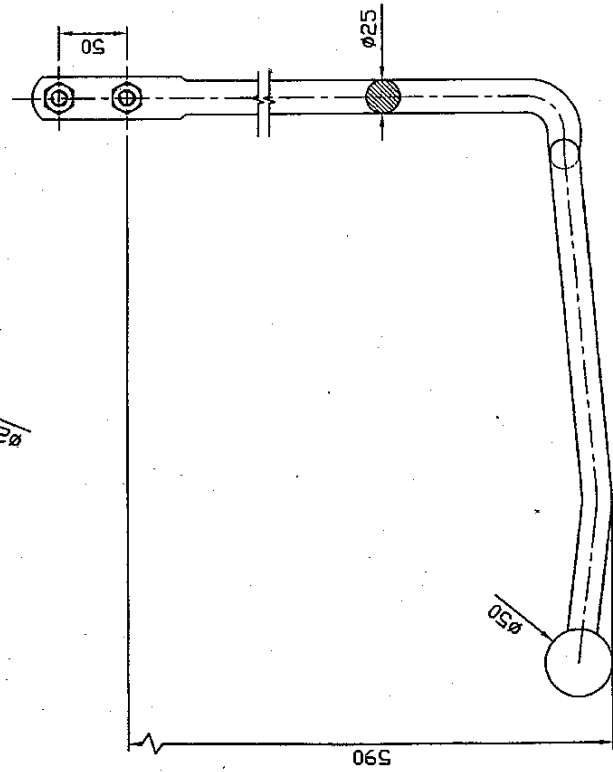
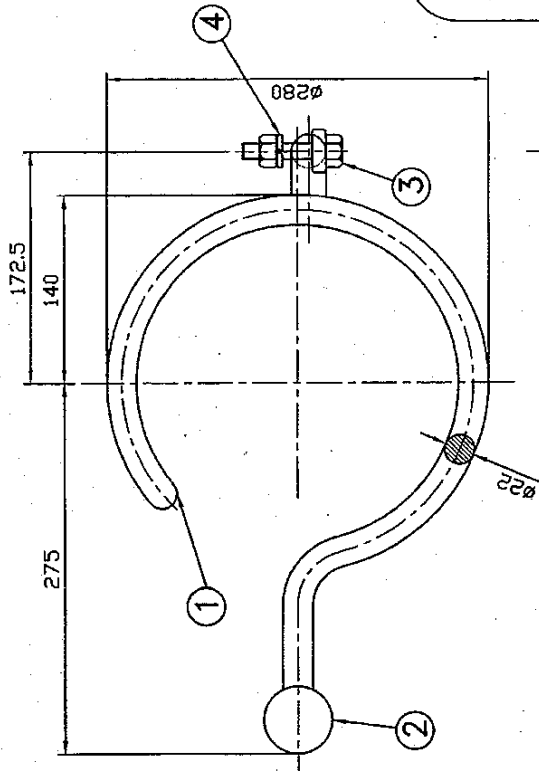
CAT. NO. ABC-2

B I L L O F M A T E R I A L S				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL	SURFACE TREATMENT.	REQD. NO.
1.	SOCKET CLEVIS	FORGED STEEL	H.D.G.	1.
2.	M22X85.BOLT&NUT	MILD STEEL	H.D.G.	1.
3.	PLAIN WASHER.	MILD STEEL	H.D.G.	1.
4.	SPLIT PIN	STAINLESS STEEL	—	1.

ITEM : BALL CLEVIS FOR DOUBLE SUSPENSION
H/WARE FITTINGS SUITABLE FOR QUAD
ACSR LARK CONDUCTOR. (400 KV)

DRG. NO. : ABC-2

182AKPS10011B



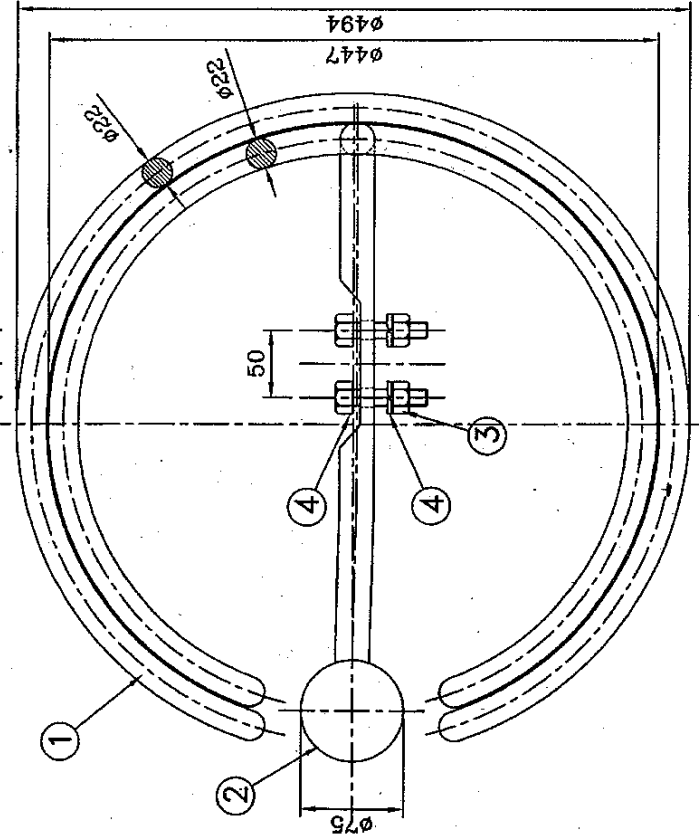
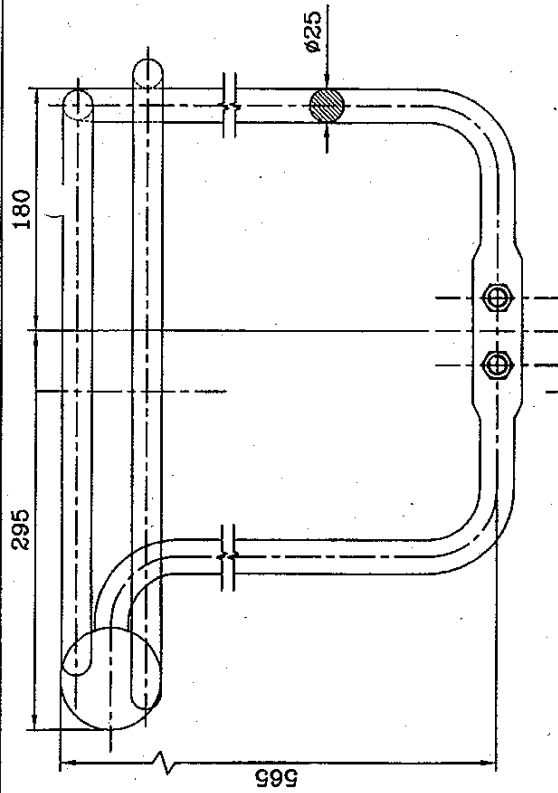
* B I L L O F M A T E R I A L S *				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD.NO.
1.	ARCING RING	MILD STEEL	H.D.G.	1.
2.	BALL ($\phi 50$)	MILD STEEL	H.D.G.	1.
3.	M12X55 BOLT & NUT.	MILD STEEL	H.D.G.	2 SETS.
4.	SPRING WASHER.	SP. STEEL.	E.G.	2.

*** TECHNICAL DATA ***
 1. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
 2. GENERAL TOLERANCE : $\pm 3\%$
 UNLESS OTHERWISE SPECIFIED.

CAT NO. AAH/FRB-18B

182AKPSI0011B

ITEM : ARCING RING (T.S.) FOR DOUBLE SUSPENSION
 H/WARE FITTINGS SUITABLE FOR QUAD
 ACSR LARK CONDUCTOR. (400 KV)
 DRG. NO. : AAH/FRB-18B



* BILL OF MATERIALS *				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD.NO.
1.	ARCING RING	MILD STEEL	H.D.G.	1.
2.	BALL (φ75)	FORGED STEEL	H.D.G.	1.
3.	M12X55 BOLT & NUT.	MILD STEEL	H.D.G.	2 SETS.
4.	SPRING WASHER.	SP. STEEL.	E.G.	2.

*** TECHNICAL DATA ***

1. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
2. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

CAT NO. AAH/FRB-14G

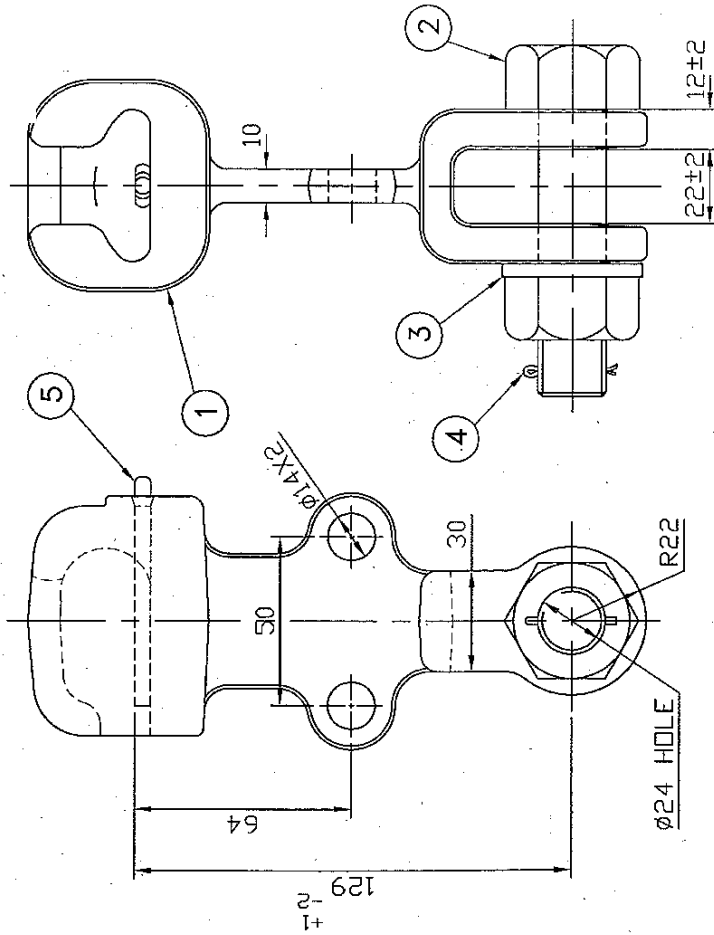
182AKPS0011B

ITEM : ARCING RING (L.S.) FOR DOUBLE SUSPENSION
H/WARE FITTINGS SUITABLE FOR QUAD
ACSR LARK CONDUCTOR. (400 KV)

DRG. NO. : AAH/FRB-14G

*** TECHNICAL DATA ***

1. MINIMUM BREAKING LOAD : 160 KN.
2. SOCKET DESIGNATION : 20 mm. AS PER IEC 120/BS-3288.
3. FINISH : HOT DIP GALVANISED CONFORMS TO B.S: 729 OR EQUIVALENT.
4. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
5. GENERAL TOLERANCE : $\pm 3\%$. UNLESS OTHERWISE SPECIFIED.



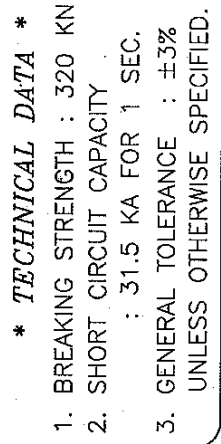
CAT. NO. ASC-6H/1

BILL OF MATERIALS				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD.NO.
1	SOCKET CLEVIS	FORGED STEEL	H.D.G.	1.
2.	M22 BOLT & NUT.	STEEL.	H.D.G.	1 SET.
3.	FLAT WASHER	MILD STEEL.	H.D.G.	1.
4.	SPLIT PIN	STAINLESS STEEL	—	1.
5.	'R' CLIP	STAINLESS STEEL	—	1.

ITEM : SOCKET CLEVIS FOR DOUBLE SUSPENSION
H/WARE FITTINGS SUITABLE FOR ACSR
QUAD LARK CONDUCTOR. (400 KV)

DRG. NO. : ASC-6H/1

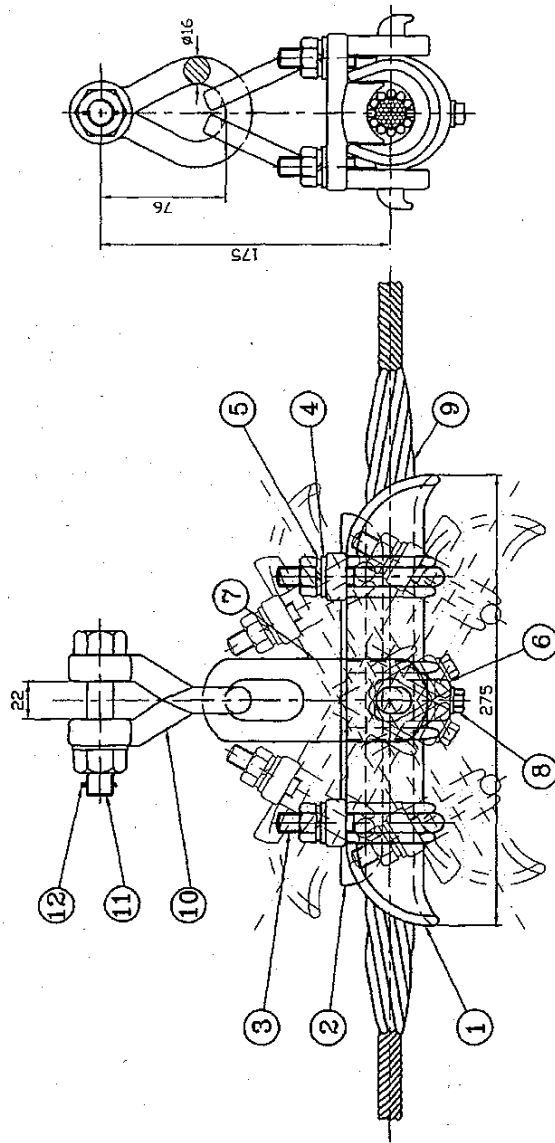
182AKPSI0011B



CAT. NO. AYP-101K

182AKPSI0011B

DRG. NO. : AYP-101K



*** TECHNICAL DATA ***

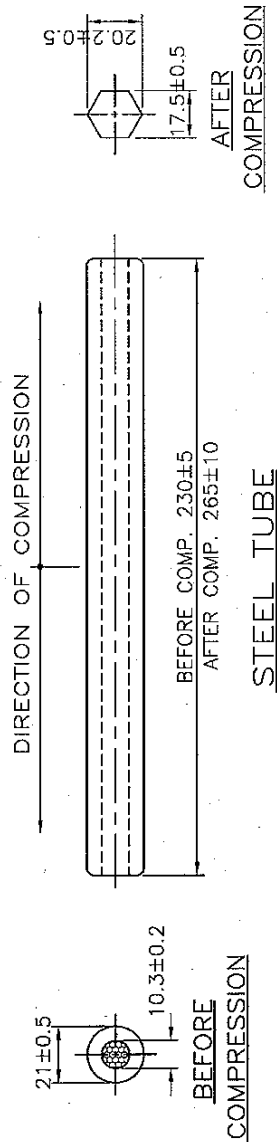
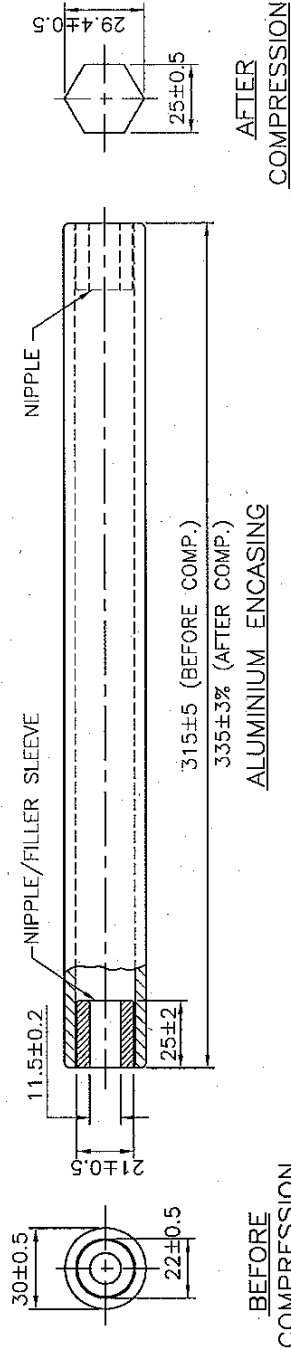
1. MIN. BREAKING STRENGTH OF CLAMP : 70 KN.
2. MIN. SLIP STRENGTH : 15% U.T.S. OF ACSR LARK
3. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
4. GENERAL TOLERANCE $\pm 3\%$

BILL OF MATERIAL.

SL.NO.	DESCRIPTION	MATERIAL	TREATMENT	QTY./SET.	CAT. NO.
1.	SUSPENSION CLAMP	AL. ALLOY	-	1	
2.	KEEPER	AL. ALLOY	-	1	
3.	M12 U-BOLTS & NUT	MILD STEEL	H.D.G.	2 SETS	
4.	FLAT WASHER	MILD STEEL	H.D.G.	4	
5.	SP. WASHER	SPRING STEEL	E.G.	4	
6.	SHADDLE	MILD STEEL	H.D.G.	1 SET	
7.	SIDE STRAP	MILD STEEL	H.D.G.	2	
8.	M-10 BOLT	MILD STEEL	H.D.G.	2	
9.	ARMOUR ROD (11 NOS./SET)	AL. ALLOY	-	1 SET	APR-012
10.	TWISTED SHACKLE	FORGED STEEL	H.D.G.	1	
11.	M-16x90 BOLT, NUT & FLAT WASHER.	MILD STEEL	H.D.G.	1 SET	ATS-1
12.	SPLIT PIN	STAINLESS STEEL	-	1	

ITEM : SUSPENSION CLAMP ASSY. FOR DOUBLE
SUSPENSION H/WWARE FITTINGS SUITABLE
FOR QUAD ACSR LARK CONDUCTOR. (400 KV)
DRG. NO. : A-30-ASSY.

182AKPS10011B



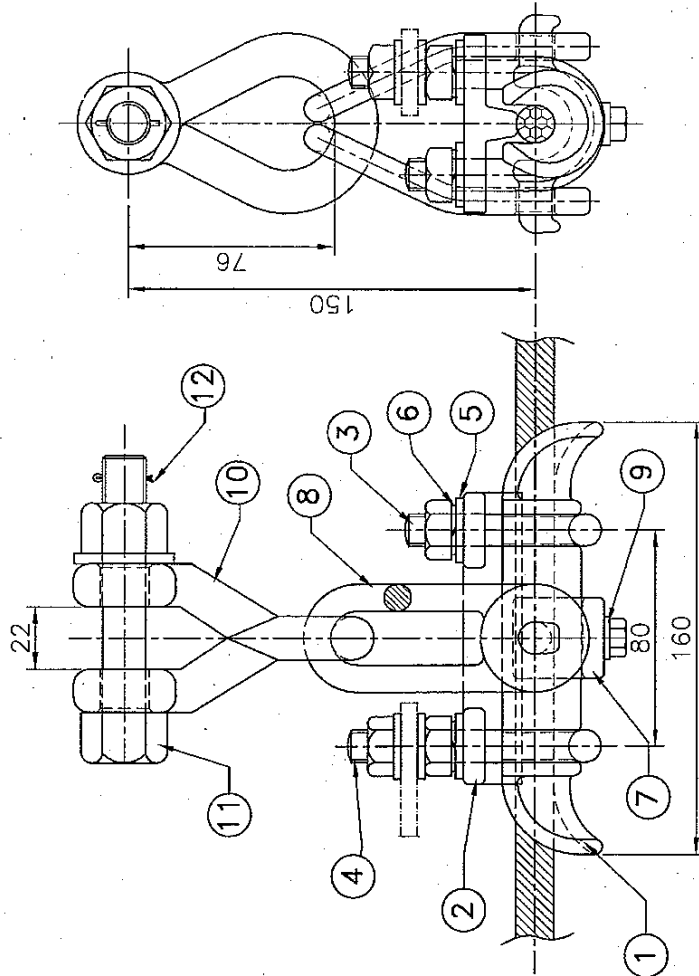
CAT.NO.:— AC-010A

- * TECHNICAL DATA ***
1. SLIP/MECHANICAL STRENGTH OF THE FITTINGS : 95% OF U.T.S OF E/WIRE.
 2. SPECIFICATION TO WHICH FITTINGS CONFORMS TO B.S.: 3288, (PART-I).
 3. MATERIALS : STEEL TUBE—MILD STEEL.
 4. COMPRESSION PRESSURE : 100 TON.
 5. GENERAL TOLERANCE : ±3% UNLESS OTHERWISE SPECIFIED.

ITEM : MIDSPAN COMPRESSION JOINT WITH AL. ENCASING
FOR ACS EARTHWIRE (7/8.26)

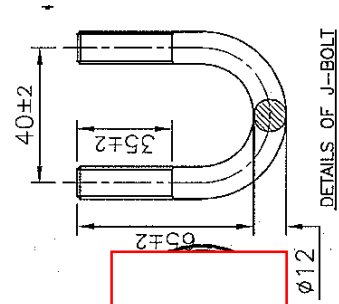
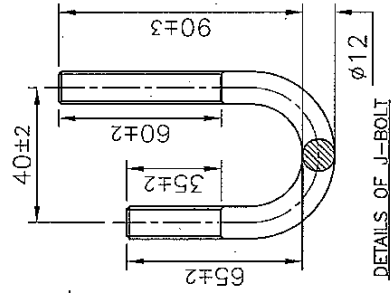
CSD No. 182AKPSI0015C

DRG. NO. : AGCJ-001



*** TECHNICAL DATA.***

1. U.T.S. FOR FITTINGS : 25 KN. (MIN.)
2. SLIP STRENGTH : NOT LESS THEN 9KN & NOT MORE THEN 14 KN.
3. ALL FERROUS PARTS (EXCEPT SPRING WASHER) SHALL BE HOT DIP GALVANISED CONFORMING TO B.S.: 729 SPRING WASHER: SPRING STEEL, E.G.
4. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.
5. TIGHTENING TORQUE : 5 KG-M.

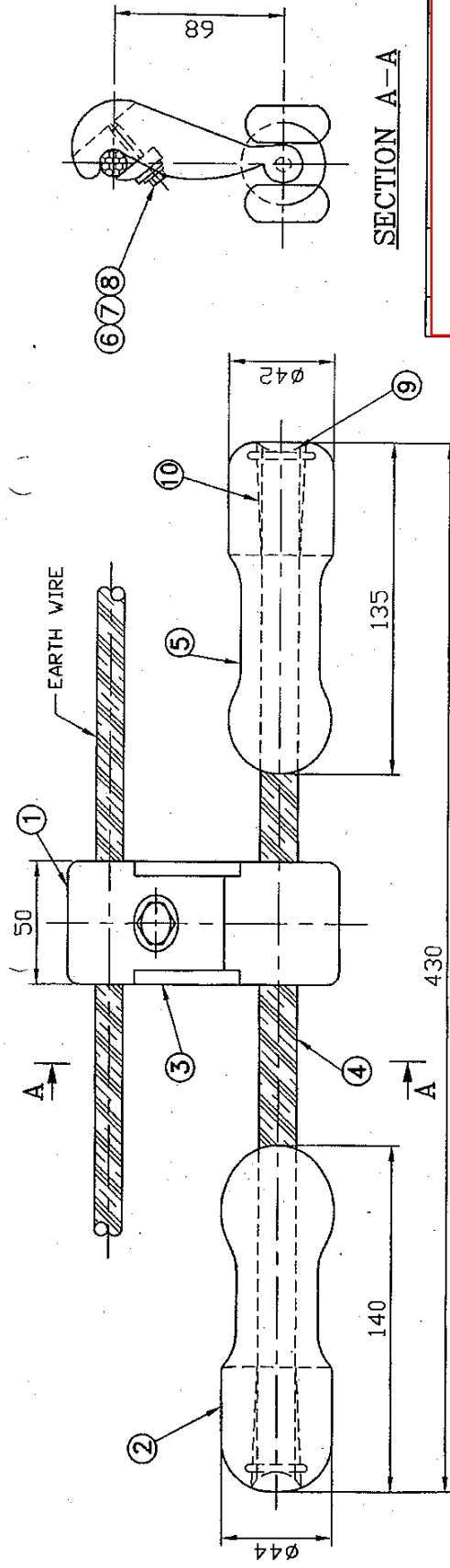


BILL OF MATERIALS				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL	REQD.NO.	CAT. NO.
1	CLAMP BODY.	M.C.I., H.D.G., BM-340	1.	AGS-10
2.	KEEPER PIECE	M.C.I., H.D.G., BM-340	1.	
3.	Ø12 U-BOLT & M12 NUT	M.S., H.D.G., FE-410,	1 & 2.	
4.	Ø12 J-BOLT & M12 NUT	M.S., FE-410,	1 & 3.	
5.	WASHER (2.5 mm.thk.)	M.S., FE-410,	6	
6	SP. WASHER	SP. STEEL., E.G.,	4	
7	SADDLE	M.S., H.D.G.	1	
8	SIDE STRAP	M.S., H.D.G.	2	
9	M10 BOLT	M.S., H.D.G. (GR-5.6)	1	
10	TWISTED SHACKLE ,	F.S.(CL-IV), H.D.G.,	1.	
11	M16X90 BOLT, NUT & WASHER	M.S., H.D.G. (GR-5.6/5.0)	1 SET	ATS-1
12	SPLIT PIN.	STAINLESS STEEL AISI : 304/EN-58, AS PER BS: 970	1	

ITEM : SUSPENSION CLAMP ASSY. SUITABLE FOR
ACS EARTH WIRE (7/3.26)

DRG. NO. : AGSC-001A

CSD No. 182AKPS10015C



SECTION A-A

CAT. NO. AVD-4R-5

BILL OF MATERIALS			
SL.NO.	ITEM	MATERIAL	QTY.
1.	HOOK HALF CLAMP	AL ALLOY	1
2.	DAMPER MASS (BIG)	C.I., H.D.G.	1
3.	COVER HALF CLAMP	AL ALLOY	1
4.	MESSENGER CABLE	HIGH T.S.	19 STRAND
5.	DAMPER MASS (SMALL)	C.I., H.D.G.	1
6.	12mm. FLAT WASHER	M.S., H.D.G.	1
7.	12mm SPRING WASHER	SP. STEEL, E.G.	1
8.	M-12X50 BOLT	M.S., H.D.G.	1
9.	TAPPER SLEEVES	AL. ALLOY.	2
10.	SEALING PLUG.	AL. ALLOY.	2

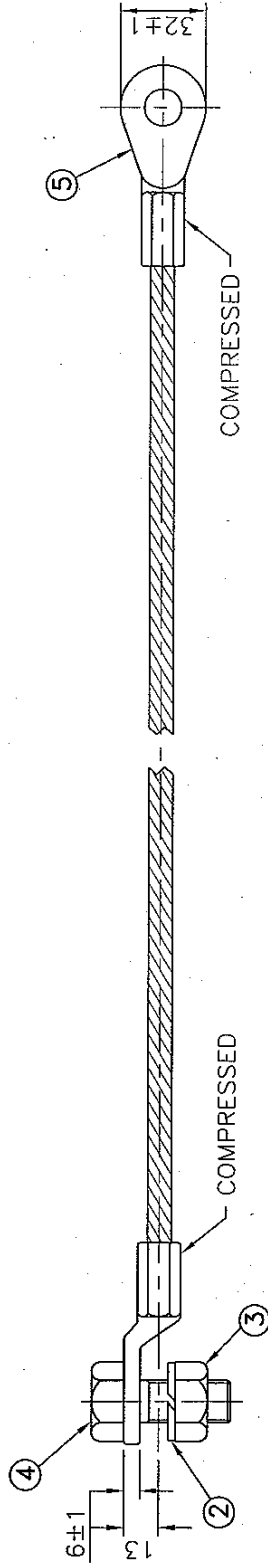
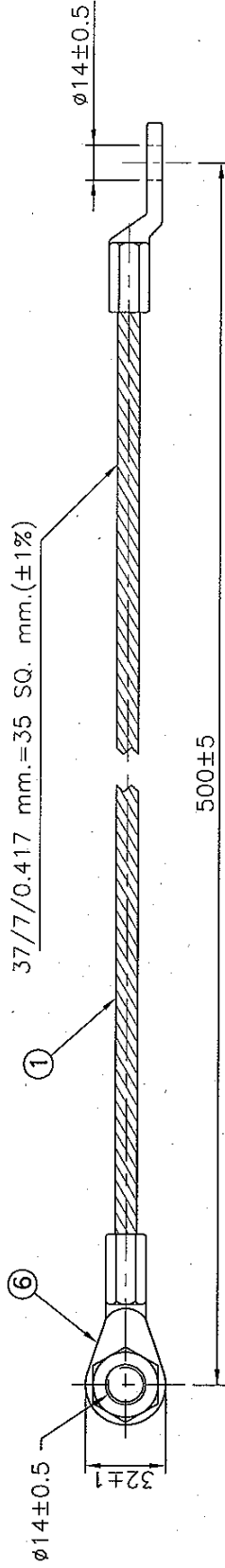
TECHNICAL DATA

1. MASS PULL OFF VALUE : 500 KG.
2. SLIP STRENGTH OF CLAMP :
BEFORE FATIGUE TEST-2.5KN. MIN.
AFTER FATIGUE TEST-2.0 KN.
3. U.T.S. OF MESSENGER CABLE : 135 KG/SQ.MM.
4. MESSENGER CABLE: 19 STRAND.
EACH OF 2.11 MM.(19/2.11MM.)
5. LAY RATIO OF MESSENGER CABLE: 10-11.
6. GENERAL TOLERANCE: $\pm 5\%$, UNLESS OTHERWISE SPECIFIED
7. TIGHTENING TORQUE:- 6 KG-M.
8. WEIGHT (KG.) BIG MASS = 1.1 ± 50 GM.,
SMALL MASS = 0.850 ± 50 GM.
TOTAL APPROX. WT. = 2.35 KG. ± 100 GM.

ITEM : VIBRATION DAMPER SUITABLE FOR
7/3.26 mm STEEL EARTH WIRE

DRG. NO. : AVD-005-4R-5

CSD No. 182AKPS10015C



BILL OF MATERIALS

ITEM NO.	ITEM DESCRIPTION	MATERIAL	FINISH	REQD. NO.
1.	FLEXIBLE BOND	COPPER WIRE	TINNED	1
2.	SP. WASHER	SP. STEEL IS:4072	E.G.	1
3.	M12 NUT	M.S. GR-5.0	H.D.G.	1
4.	M12x40 LG. BOLT	M.S. GR-5.6	H.D.G.	1
5.	CONNECTING LUG (CLAMP SIDE)	COPPER	TINNED	1
6.	CONNECTING LUG (TOWER SIDE)	COPPER	TINNED	1

* TECHNICAL DATA *

- PULL-OFF LOAD : 300 KG.
- ALL STEEL COMPONENTS EXCEPT SPRING WASHER HOT DIP GALVANISED & SP WASHER ELECTRO GALVANISED.
- SHORT CIRCUIT CAPACITY : 31.5 KA PER 1 SEC.
- CONNECTING SOCKET COMPRESSED ON EACH END OF FLEXIBLE CABLE.
- RESISTANCE : LESS THEN 1 OHM.
- GENERAL TOLERANCE : ±5%

CAT. NO. AEB-1

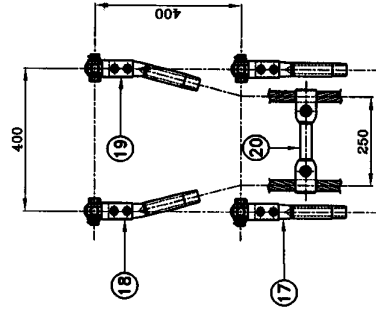
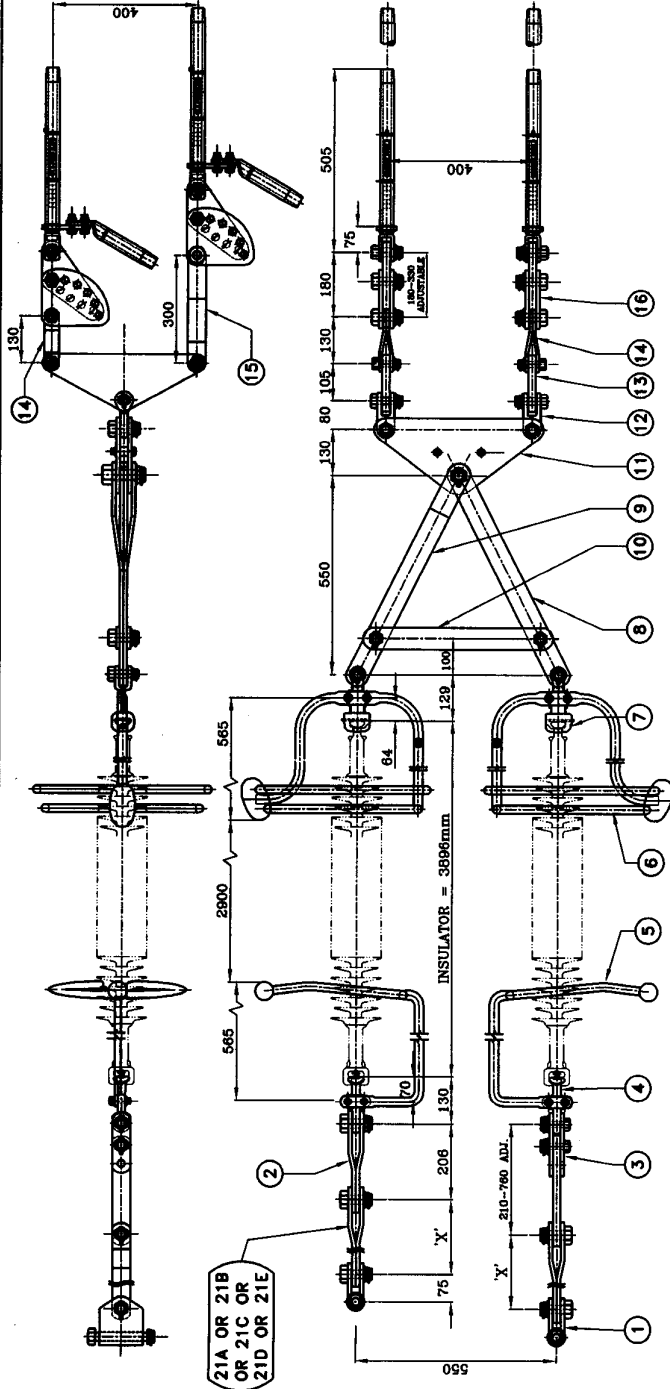
ITEM : FLEXIBLE COPPER EARTH BOND SUITABLE FOR ACS EARTHWIRE (7/3.26.)

DRG. NO. : AEB-01

182AKPSI0015C

* TECHNICAL DATA *

1. U.T.S. OF HARDWARE FITTINGS: 2x160 KN.
(WITHOUT TENSION CLAMP)
2. SLIP STRENGTH/MECH. LOAD OF TENSION CLAMP : 95 % UTS OF ACSR LARK.
3. BALL & SOCKET DESIGNATION : 20 mm. AS PER IEC:120.
4. H/WARE FITTINGS CONFORMS TO B.S.: 3288, PART-I.
5. ALL FERROUS PARTS (EXCEPT SPRING WASHER) SHALL BE HOT DIP GALVANISED CONFORMING TO B.S: 729.
6. SPLIT PIN & SECURITY CLIP: STAINLESS STEEL.
7. SPRING WASHER : SPRING STEEL, ELECTRO-GALVANISED.
8. SHORT CIRCUIT CAPACITY : 31.5 kA FOR 1 SEC.
9. MIN. CORONA EXTINCTION VOLTAGE - 290 KV.
10. GENERAL TOLERANCE : $\pm 3\%$.

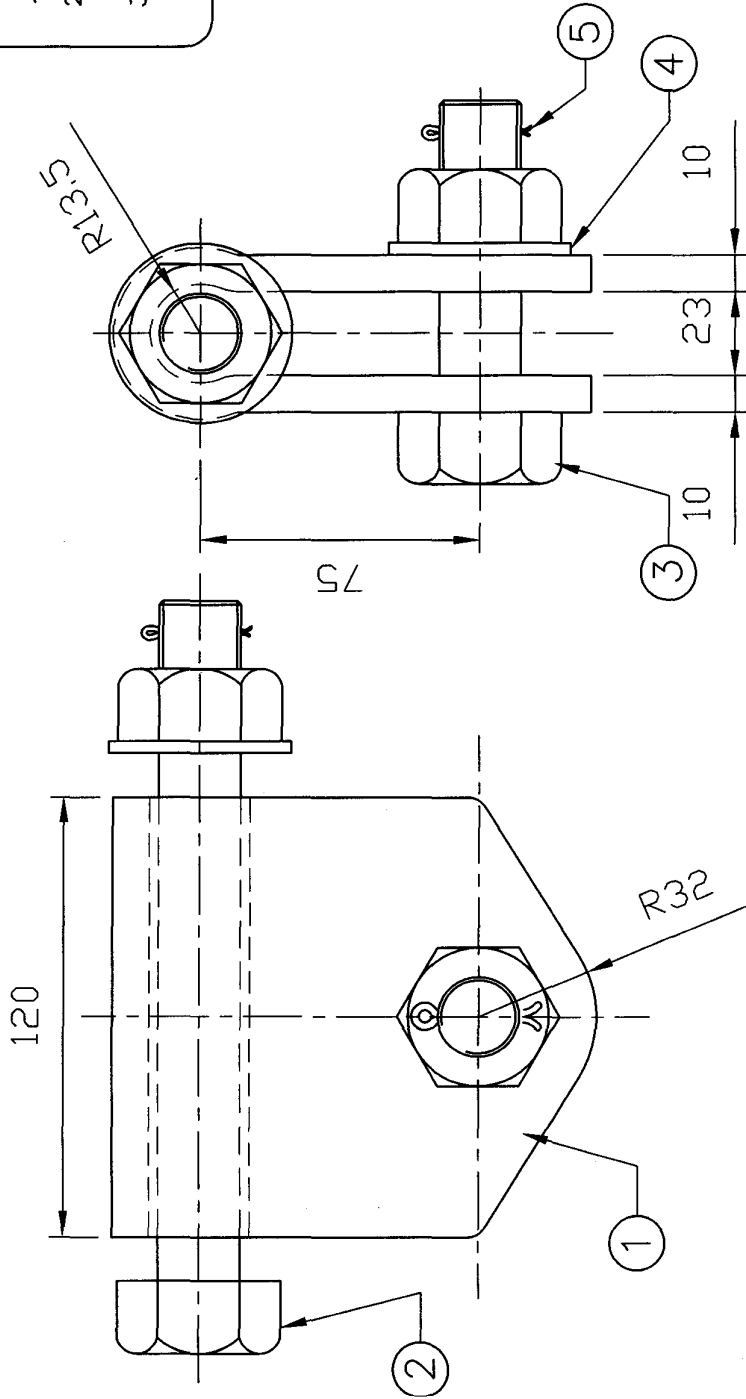


COMPONENT DETAILS				
Sl. NO.	ITEM DESCRIPTION	DRG./CAT. NO.	MATERIAL	FINISH
1	TOWER HINGE	ATEL-3B/2	MILD STEEL FE-410	H.D.G.
2	FIXED EXTENSION STRAP	AEL-273	MILD STEEL FE-410	H.D.G.
3	ADJ. EXTENSION STRAP	ASA-79	MILD STEEL FE-410	H.D.G.
4	H.H. BALL EYE	ABE-20	FORGED STEEL (CL-N)	H.D.G.
5	ARCING RING(T.S)	AAH/FRB-13H	MILD STEEL FE-410	H.D.G.
6	ARCING RING(L.S)	AAH/FRB-14H	MILD STEEL FE-410	H.D.G.
7	H.H. SOCKET CLEVIS	ASC-6H/1	FORGED STEEL (CL-N)	H.D.G.
8	EXTENSION STRAP	AEL-274	MILD STEEL FE-410	H.D.G.
9	EXTENSION STRAP	AEL-275	MILD STEEL FE-410	H.D.G.
10	EXTENSION STRAP	AEL-276	MILD STEEL FE-410	H.D.G.
11	YOKE PLATE	AYP-64K	MILD STEEL FE-410	H.D.G.
12	CLEVIS EYE	ACE-76T	FORGED STEEL (CL-N)	H.D.G.
13	YOKE PLATE	AYP-10N3	MILD STEEL FE-410	H.D.G.
14	EXTENSION STRAP	AEL-130	MILD STEEL FE-410	H.D.G.
15	EXTENSION STRAP	AEL-255	MILD STEEL FE-410	H.D.G.
16	SAG ADJ. PLATE	ASA-59A	MILD STEEL FE-410	H.D.G.
17	DEAD END ASSY.	ADE/C-023	AL ALLOY & FR STEEL	-/H.D.G.
18	DEAD END ASSY.	ADE/C-023R	AL ALLOY & FR STEEL	-/H.D.G.
19	DEAD END ASSY.	ARGS-001/LR	AL ALLOY 4600	-
20	RIGID SPACER	AEL-353	MILD STEEL FE-410	H.D.G.
21A	ADDITIONAL LINK	AEL-360	MILD STEEL FE-410	H.D.G.
21B	ADDITIONAL LINK	AEL-361	MILD STEEL FE-410	H.D.G.
21C	ADDITIONAL LINK	AEL-362	MILD STEEL FE-410	H.D.G.
21D	ADDITIONAL LINK	AEL-363	MILD STEEL FE-410	H.D.G.
21E	ADDITIONAL LINK	AEL-363	MILD STEEL FE-410	H.D.G.

ITEM : 400 KV DOUBLE TENSION H/WARE FITTINGS FOR QUAD ACSR LARK CONDUCTOR
DRG.NO. : ADT-559/AD

*** T E C H N I C A L D A T A ***

1. BREAKING STRENGTH : 160 KN
2. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
3. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.



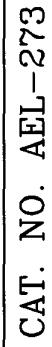
CAT. NO. ATEL-3B/2

BILL OF MATERIALS				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD. QTY.
1	TOWER HINGE	MILD STEEL	H.D.G.	1
2	M22x210 BOLT & NUT	MILD STEEL	H.D.G.	1 SET
3	M22x80 BOLT & NUT	MILD STEEL	H.D.G.	1 SET
4	PLAIN WASHER	MILD STEEL	H.D.G.	2
5	SPLIT PIN	S.S.	-	2

ITEM : TOWER HINGE FOR DOUBLE TENSION
H/WARE FITTINGS SUITABLE FOR QUAD
ACSR LARK CONDUCTOR. (400 KV)

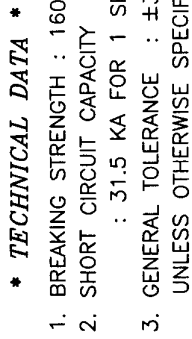
DRG. NO. : ATEL-3B/R

1. BREAKING STRENGTH : 160 KN
2. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
3. GENERAL TOLERANCE : $\pm 3\%$
UNLESS OTHERWISE SPECIFIED.



BILL OF MATERIALS				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD. QTY.
1	EXTENSION STRAP	MILD STEEL	H.D.G.	1 SET
2	M22x80 BOLT & NUT	MILD STEEL	H.D.G.	1 SET
3	PLAIN WASHER	MILD STEEL	H.D.G.	1
4	SPLIT PIN	S.S.	-	1

DRG. NO. : AEL-273

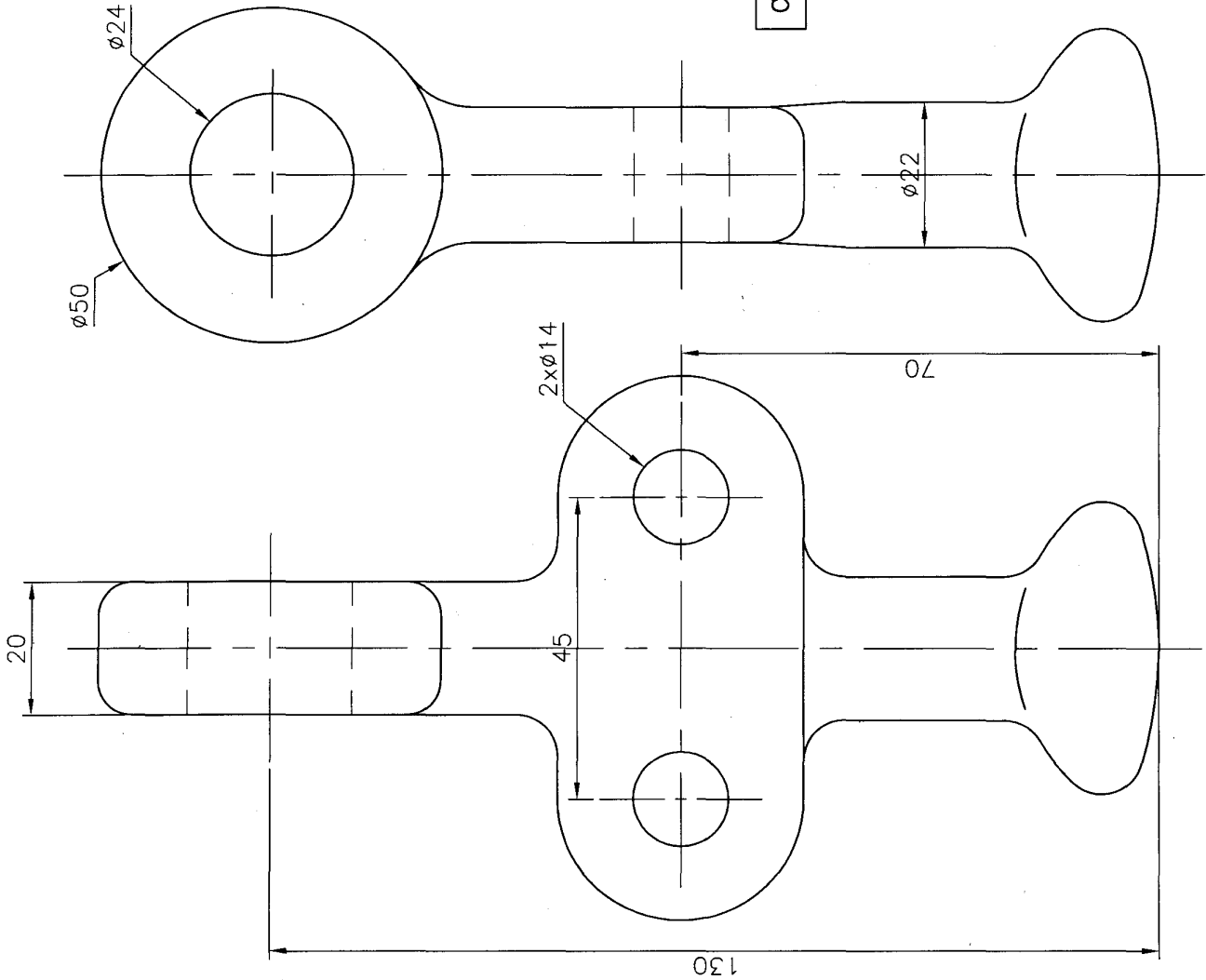


ADJ.	DOUBLE STRAPS	SINGLE STRAP	SINGLE STRAP SL. NO.
210	90	120	1A
235	140	95	1B
260	140	120	1A
285	140	145	1C
310	90	220	1C
335	90	245	1D
360	140	220	1C
385	140	245	1D
410	140	270	1E
435	90	345	1E
460	90	370	1F
485	140	345	1E
510	140	370	1F
535	140	395	1G
560	90	470	1G
585	90	495	1H
610	140	470	1G
635	140	495	1H
660	140	520	1I
685	90	595	1I
710	90	620	1J
735	140	595	1I
760	140	620	1J

ADJ.	DOUBLE STRAPS	SINGLE STRAP	SINGLE STRAP SL. NO.
210	90	120	1A
235	140	95	1B
260	140	120	1A
285	140	145	1C
310	90	220	1C
335	90	245	1D
360	140	220	1C
385	140	245	1D
410	140	270	1E
435	90	345	1E
460	90	370	1F
485	140	345	1E
510	140	370	1F
535	140	395	1G
560	90	470	1G
585	90	495	1H
610	140	470	1G
635	140	495	1H
660	140	520	1I
685	90	595	1I
710	90	620	1J
735	140	595	1I
760	140	620	1J

ITEM : ADJUSTABLE EXTENSION STRAP FOR DOUBLE TENSION H/WARE FITTINGS SUITABLE FOR QUAD ACSR LARK CONDUCTOR. (400 KV)

DRG. NO. : ASA-79



CAT. NO. ABE-20

* TECHNICAL DATA *

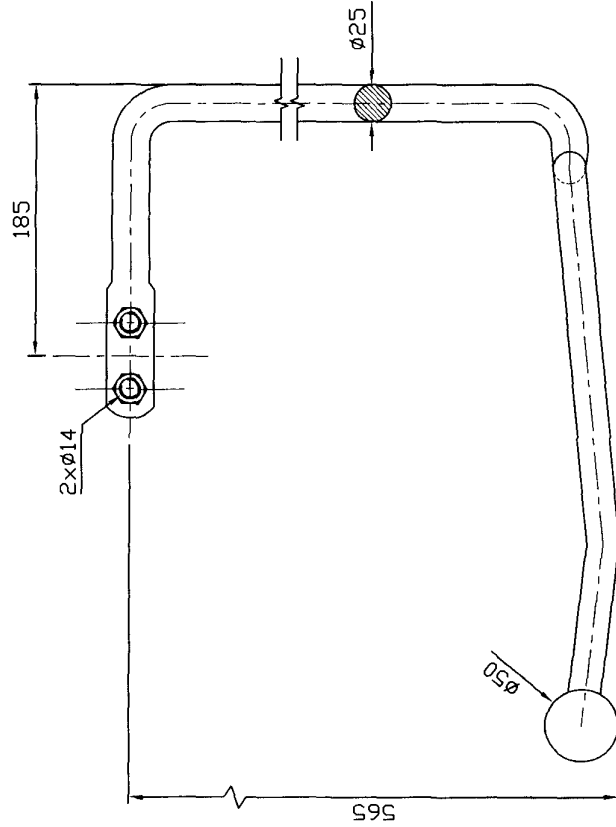
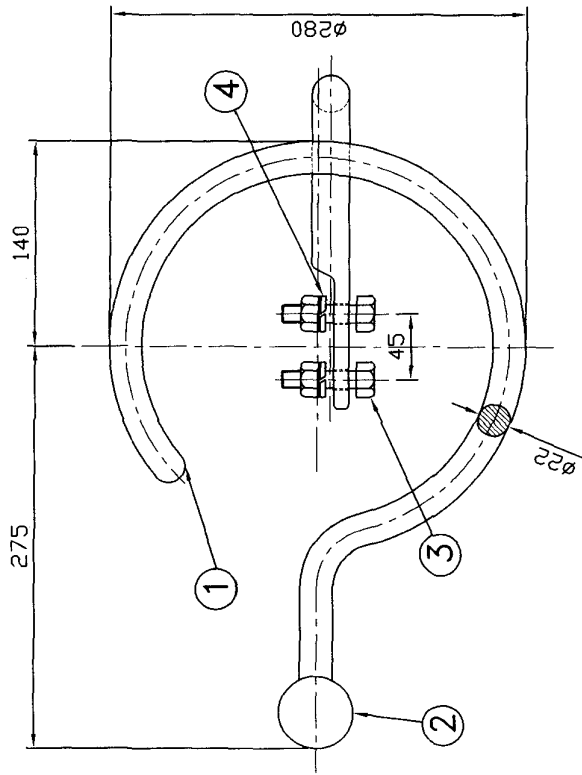
1. MINIMUM BREAKING LOAD : 160 KN.
2. BALL DESIGNATION : 20 mm. AS PER IEC 120/BS-3288.
3. FINISH : HOT DIP GALVANISED CONFORMS TO B.S: 729 OR EQUIVALENT.
4. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
5. GENERAL TOLERANCE : $\pm 3\%$.
UNLESS OTHERWISE SPECIFIED..

B I L L O F M A T E R I A L S

ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD.NO.
H.H. BALL EYE.	FORGED STEEL	H.D.G.	1

ITEM : H.H. BALL EYE FOR DOUBLE TENSION
H/WARE FITTINGS SUITABLE FOR ACSR
QUAD LARK CONDUCTOR. (400 KV)

DRG. NO. : ABE-20



* B I L L O F M A T E R I A L S *				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD.NO.
1.	ARCING RING	MILD STEEL	H.D.G.	1.
2.	BALL (ø50)	MILD STEEL	H.D.G.	1.
3.	M12X55 BOLT & NUT.	MILD STEEL	H.D.G.	2 SETS.
4.	SPRING WASHER.	SP. STEEL.	E.G.	2.

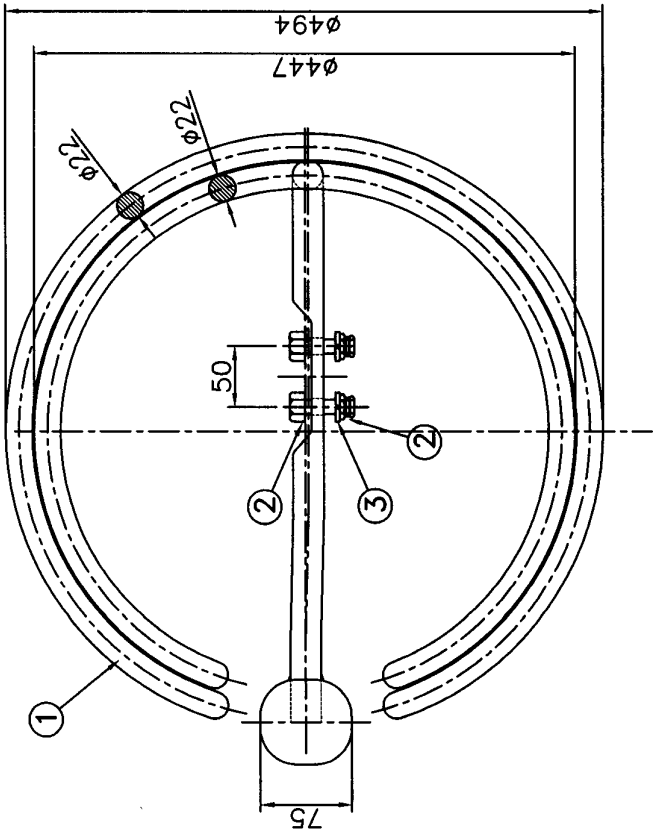
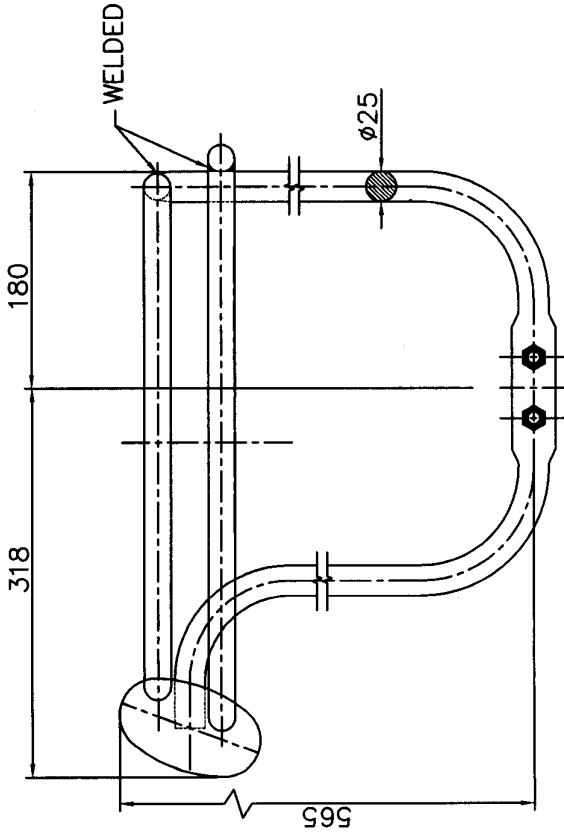
* TECHNICAL DATA *

1. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
2. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

CAT NO. AAH/FRB-13H

ITEM : ARCING RING (T.S.) FOR DOUBLE TENSION
H/WARE FITTINGS SUITABLE FOR ACSR
QUAD LARK CONDUCTOR. (400 KV)

DRG. NO. : AAH/FRB-13H



* B I L L O F M A T E R I A L S *				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD.NO.
1.	ARCING RING	MILD STEEL	H.D.G.	1.
2.	M12X50 BOLT & NUT.	MILD STEEL	H.D.G.	2 SETS.
3.	SPRING WASHER.	SP. STEEL.	E.G.	2.

*** TECHNICAL DATA ***

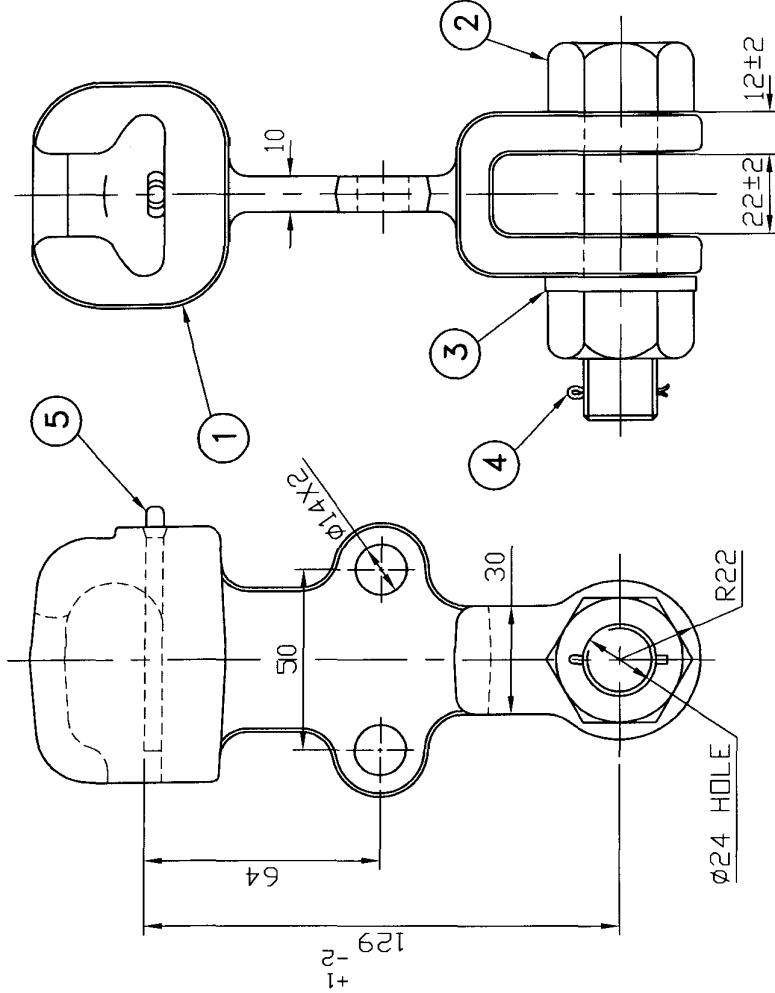
1. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.

2. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

CAT NO. AAH/FRB-14H

ITEM : ARCING RING (L.S.) FOR DOUBLE TENSION
H/WARE FITTINGS SUITABLE FOR QUAD
ACSR LARK CONDUCTOR. (400 KV)

DRG. NO. : AAH/FRB-14H				
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CAT. NO. ASC-6H/1

BILL OF MATERIALS				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD.NO.
1	SOCKET CLEVIS	FORGED STEEL	H.D.G.	1.
2.	M22 BOLT & NUT.	STEEL.	H.D.G.	1 SET.
3.	FLAT WASHER	MILD STEEL.	H.D.G.	1.
4.	SPLIT PIN	STAINLESS STEEL	—	1.
5.	'R' CLIP	STAINLESS STEEL	—	1.

* TECHNICAL DATA *

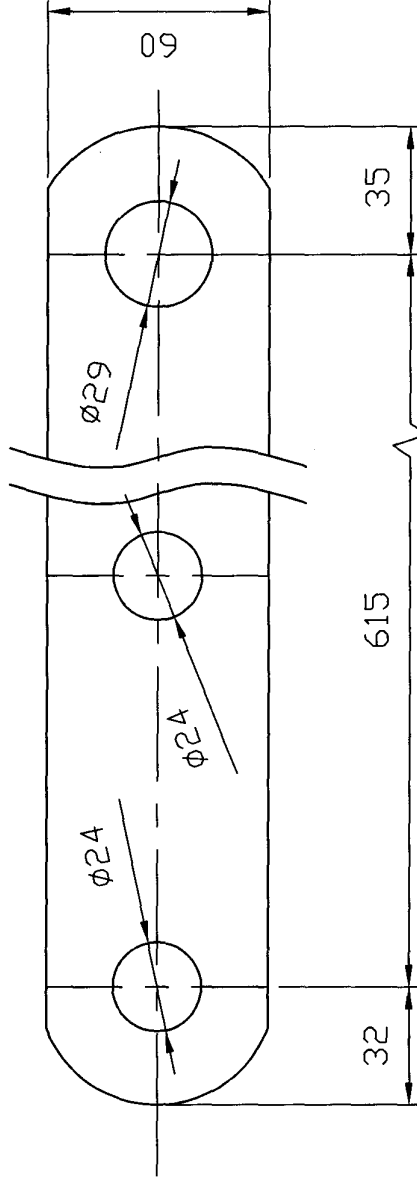
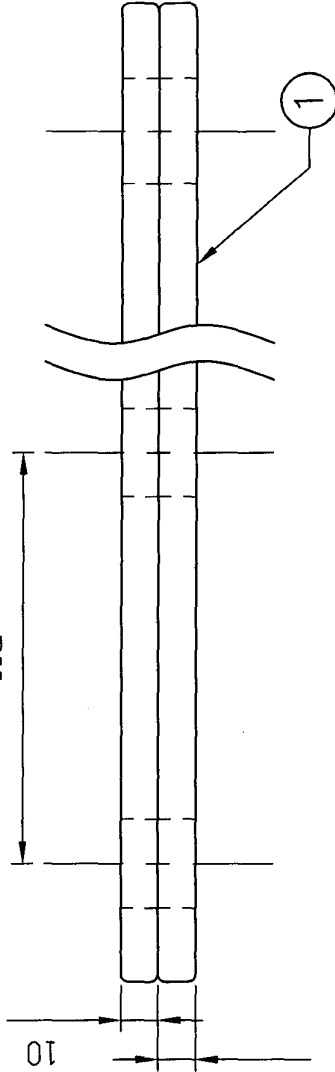
1. MINIMUM BREAKING LOAD : 160 KN.
2. SOCKET DESIGNATION : 20 mm. AS PER IEC 120/BS-3288.
3. FINISH : HOT DIP GALVANISED CONFORMS TO B.S: 729 OR EQUIVALENT.
4. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
5. GENERAL TOLERANCE : $\pm 3\%$. UNLESS OTHERWISE SPECIFIED.

ITEM : SOCKET CLEVIS FOR DOUBLE TENSION
H/WARE FITTINGS SUITABLE FOR ACSR QUAD
LARK CONDUCTOR. (400 KV)

DRG. NO. : ASC-6H/1

112

10



CAT. NO. AEL-274

BILL OF MATERIALS				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD. QTY.
1	EXTENSION STRAP	MILD STEEL	H.D.G.	1 SET

*** TECHNICAL DATA ***

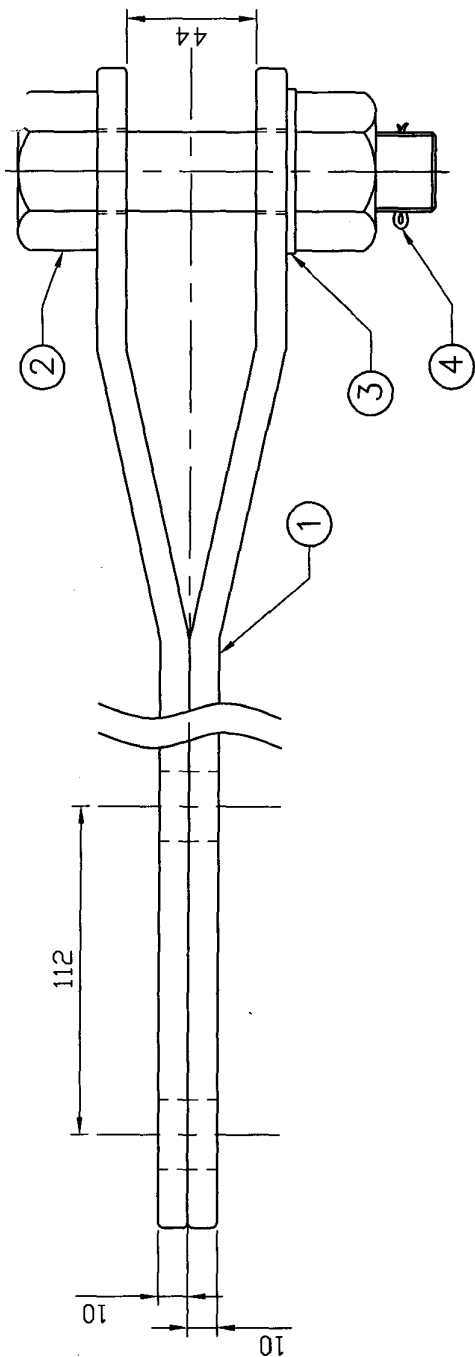
1. BREAKING STRENGTH : 160 KN
2. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
3. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

ITEM : EXTENSION STRAP FOR DOUBLE TENSION
H/WARE FITTINGS SUITABLE FOR QUAD
ACSR LARK CONDUCTOR. (400 KV)

DRG. NO. : AEL-274

*** TECHNICAL DATA ***

1. BREAKING STRENGTH : 160 KN
2. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
3. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.



CAT. NO. AEL-275

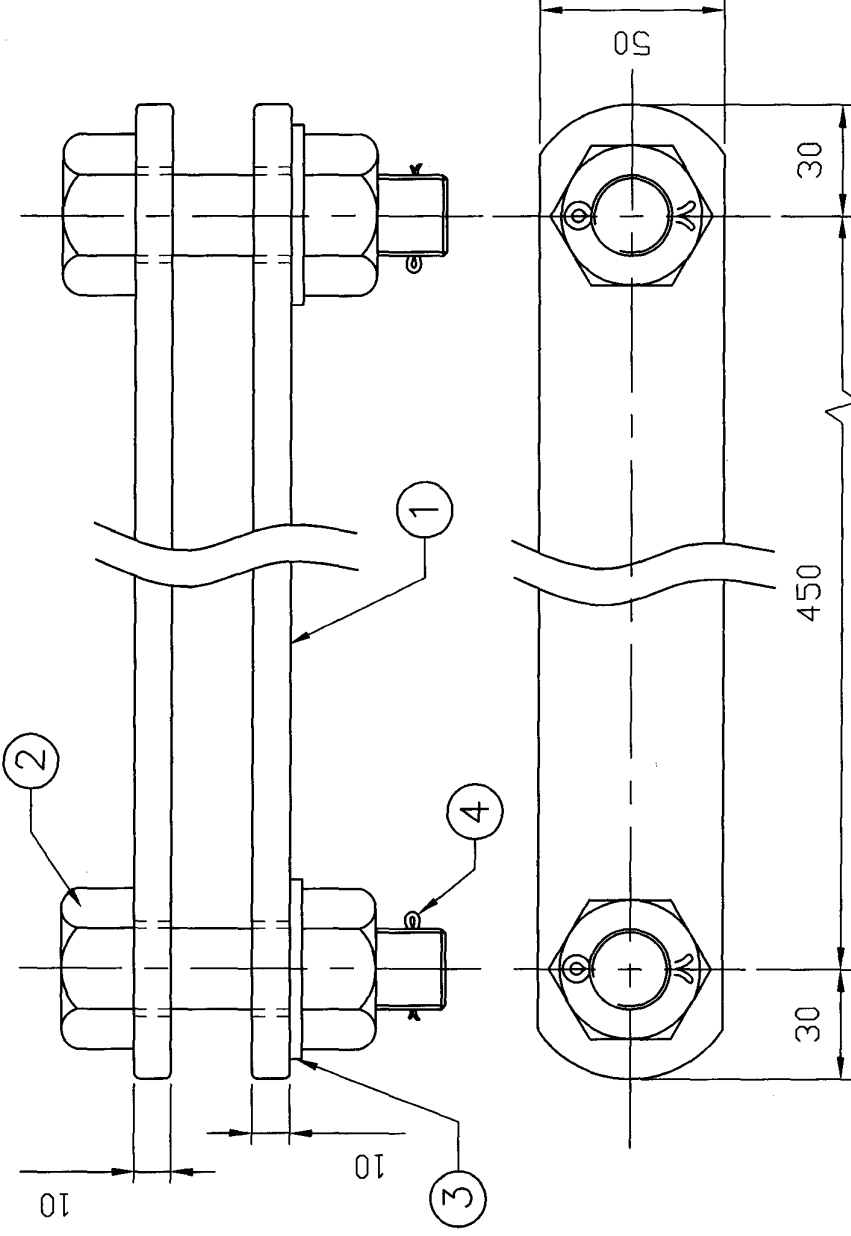
BILL OF MATERIALS				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD. QTY.
1	EXTENSION STRAP	MILD STEEL	H.D.G.	1 SET
2	M27x110 BOLT & NUT	MILD STEEL	H.D.G.	1 SET
3	PLAIN WASHER	MILD STEEL	H.D.G.	1
4	SPLIT PIN	S.S.	-	1

ITEM : EXTENSION STRAP FOR DOUBLE TENSION
H/WARE FITTINGS SUITABLE FOR QUAD
ACSR LARK CONDUCTOR. (400 KV)

DRG. NO. : AEL-275

*** TECHNICAL DATA ***

1. BREAKING STRENGTH : 160 KN
2. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
3. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.



BILL OF MATERIALS

ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD. QTY.
1	EXTENSION STRAP	MILD STEEL	H.D.G.	1 SET
2	M22x80 BOLT & NUT	MILD STEEL	H.D.G.	2 SETS
3	PLAIN WASHER	MILD STEEL	H.D.G.	2
4	SPLIT PIN	S.S.	-	2

CAT. NO. AEL-276

ITEM : EXTENSION STRAP FOR DOUBLE TENSION
H/WARE FITTINGS SUITABLE FOR QUAD
ACSR LARK CONDUCTOR. (400 KV)

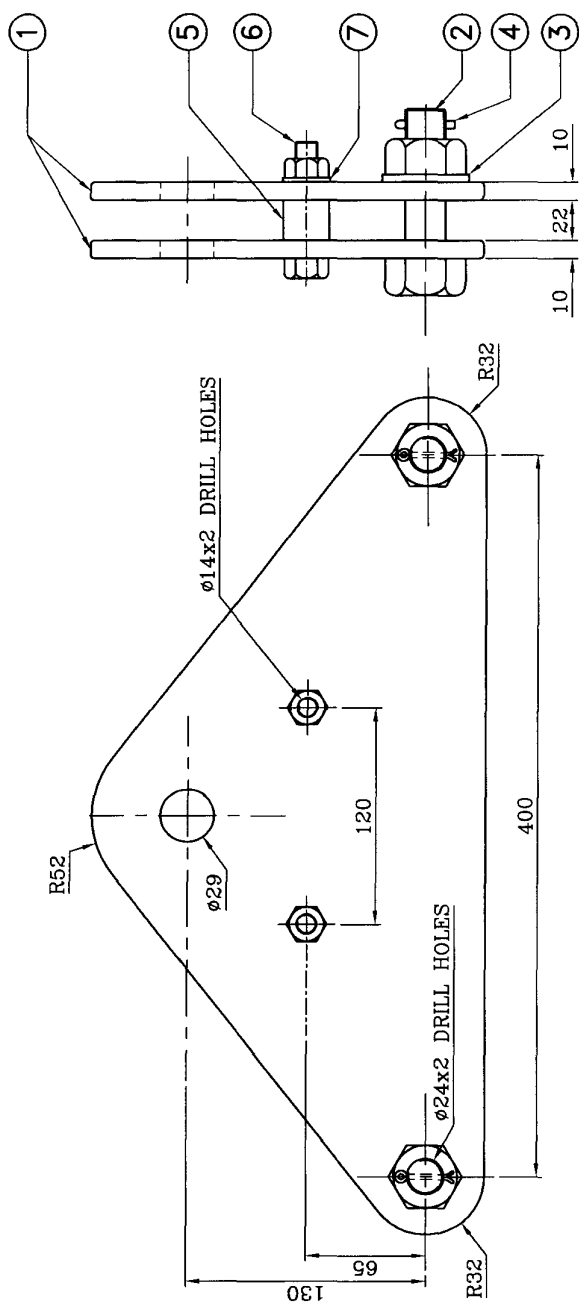
DRG. NO. : AEL-276

* TECHNICAL DATA *

1. BREAKING STRENGTH : 320 KN

2. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.

3. GENERAL TOLERANCE : ±3% UNLESS OTHERWISE SPECIFIED.

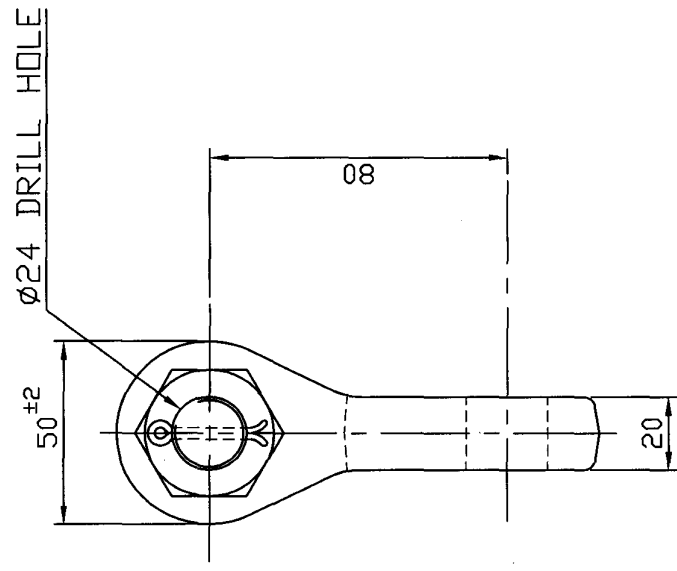
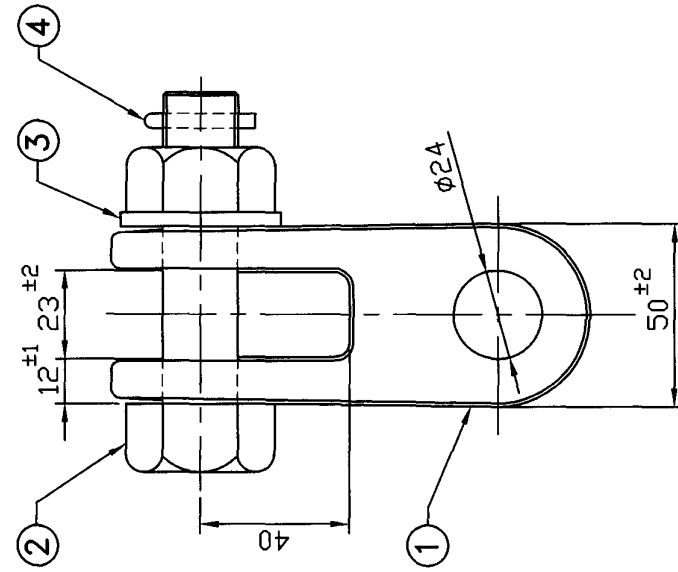


BILL OF MATERIALS				
ITEM NO.	ITEM DESCRIPTION	MATERIAL	SURFACE TREATMENT.	REQD. NO.
1.	YOKE PLATE	MILD STEEL	H.D.G.	2
2.	M22x80 BOLT & NUT	MILD STEEL	H.D.G.	2 SETS
3.	FLAT WASHER 22mm (3 mm THK. MIN.)	MILD STEEL	H.D.G.	2.
4.	SPLIT PIN	STAINLESS STEEL	—	2.
5.	SPACER TUBE	MILD STEEL	H.D.G.	2.
6.	M12x65 BOLT & NUT	MILD STEEL	H.D.G.	2 SETS
7.	FLAT WASHER 12mm	MILD STEEL	H.D.G.	2.

CAT. NO. AYP-64K

ITEM : YOKE PLATE FOR DOUBLE TENSION
H/WARE FITTINGS SUITABLE FOR ACSR
QUAD LARK CONDUCTOR. (400 KV)

DRG. NO. : AYP-64K



*** T E C H N I C A L D A T A ***

1. BREAKING STRENGTH : 160 KN.
2. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
3. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

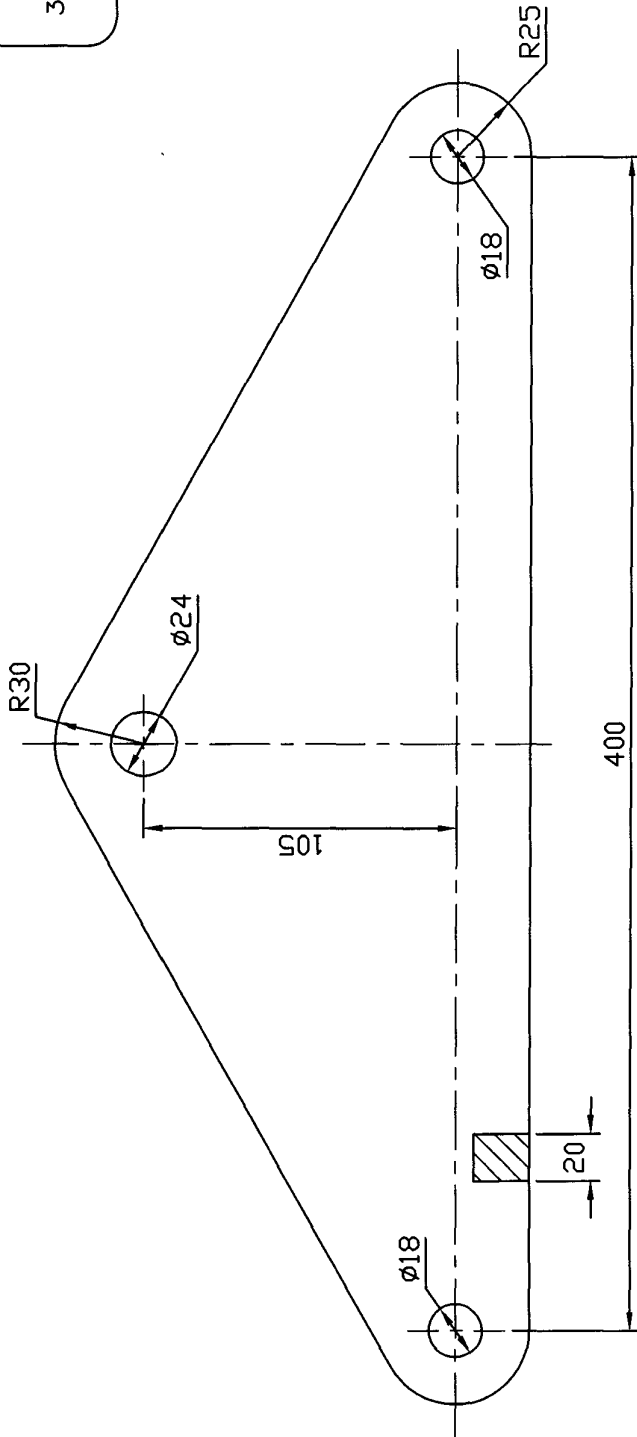
CAT NO. ACE-76T

BILL OF MATERIALS				
ITEM NO.	ITEM DESCRIPTION	MATERIAL.	SURFACE TREATMENT.	REQD. NO.
1.	CLEVIS EYE	F.S. (CL-IV)	H.D.G.	1.
2.	M22x85 BOLT & NUT	MILD STEEL	H.D.G.	1 SETS
3.	FLAT WASHER (3 mm THK. MIN.)	MILD STEEL	H.D.G.	1.
4.	SPLIT PIN	STAINLESS STEEL	—	1.

ITEM : CLEVIS EYE FOR DOUBLE TENSION
H/WARE FITTINGS SUITABLE FOR QUAD
ACSR LARK CONDUCTOR. (400 KV)
DRG. NO. : ACE-76T

TECHNICAL DATA

- 1. BREAKING STRENGTH : 160 KN.
- 2. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
- 3. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

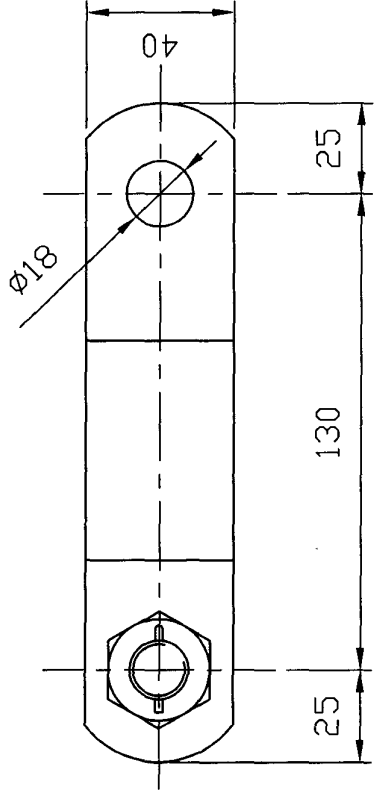
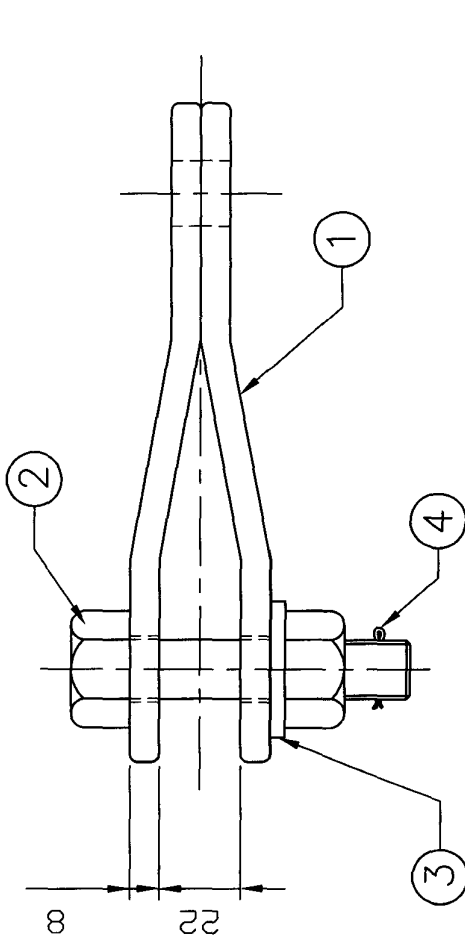


CAT. NO. AYP-10N3

BILL OF MATERIALS			
ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD.NO.
YOKE PLATE	MILD STEEL	H.D.G.	1.

ITEM : YOKE PLATE FOR DOUBLE TENSION
H/WARE FITTINGS SUITABLE FOR QUAD
ACSR LARK CONDUCTOR. (400 KV)

DRG. NO. : AYP-10N3



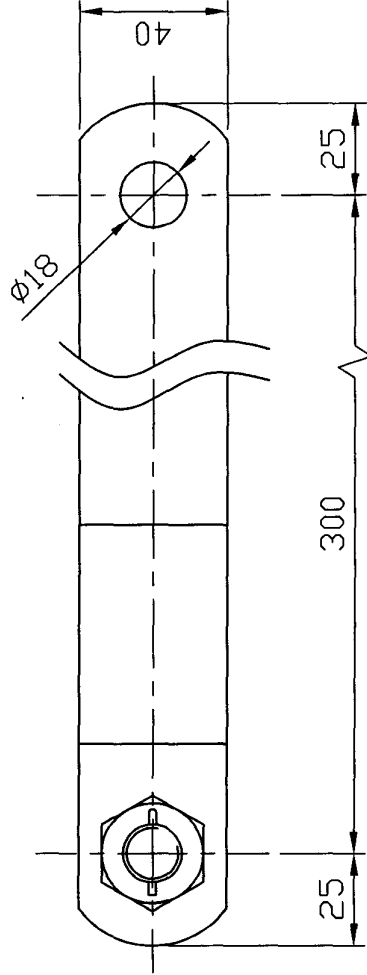
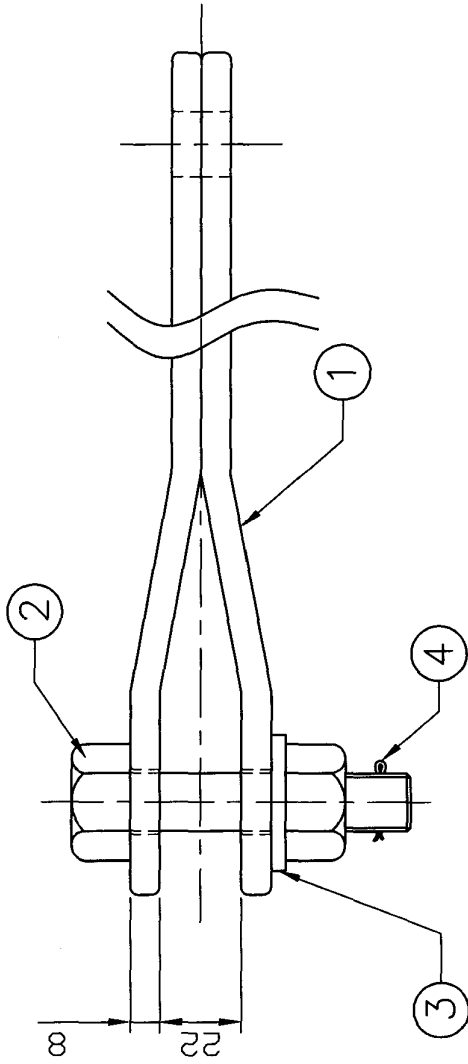
BILL OF MATERIALS				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD. QTY.
1	EXTENSION STRAP	MILD STEEL	H.D.G.	1 SET
2	M16x70 BOLT & NUT	MILD STEEL	H.D.G.	1 SET
3	PLAIN WASHER	MILD STEEL	H.D.G.	1
4	SPLIT PIN	S.S.	-	1

CAT. NO. AEL-130

ITEM : EXTENSION STRAP FOR DOUBLE TENSION
H/WARE FITTINGS SUITABLE FOR QUAD
ACSR LARK CONDUCTOR. (400 KV)
DRG. NO. : AEL-130

*** TECHNICAL DATA ***

1. BREAKING STRENGTH : 80 KN
2. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
3. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.



BILL OF MATERIALS				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD. QTY.
1	EXTENSION STRAP	MILD STEEL	H.D.G.	1 SET
2	M16x70 BOLT & NUT	MILD STEEL	H.D.G.	1 SET
3	PLAIN WASHER	MILD STEEL	H.D.G.	1
4	SPLIT PIN	S.S.	-	1

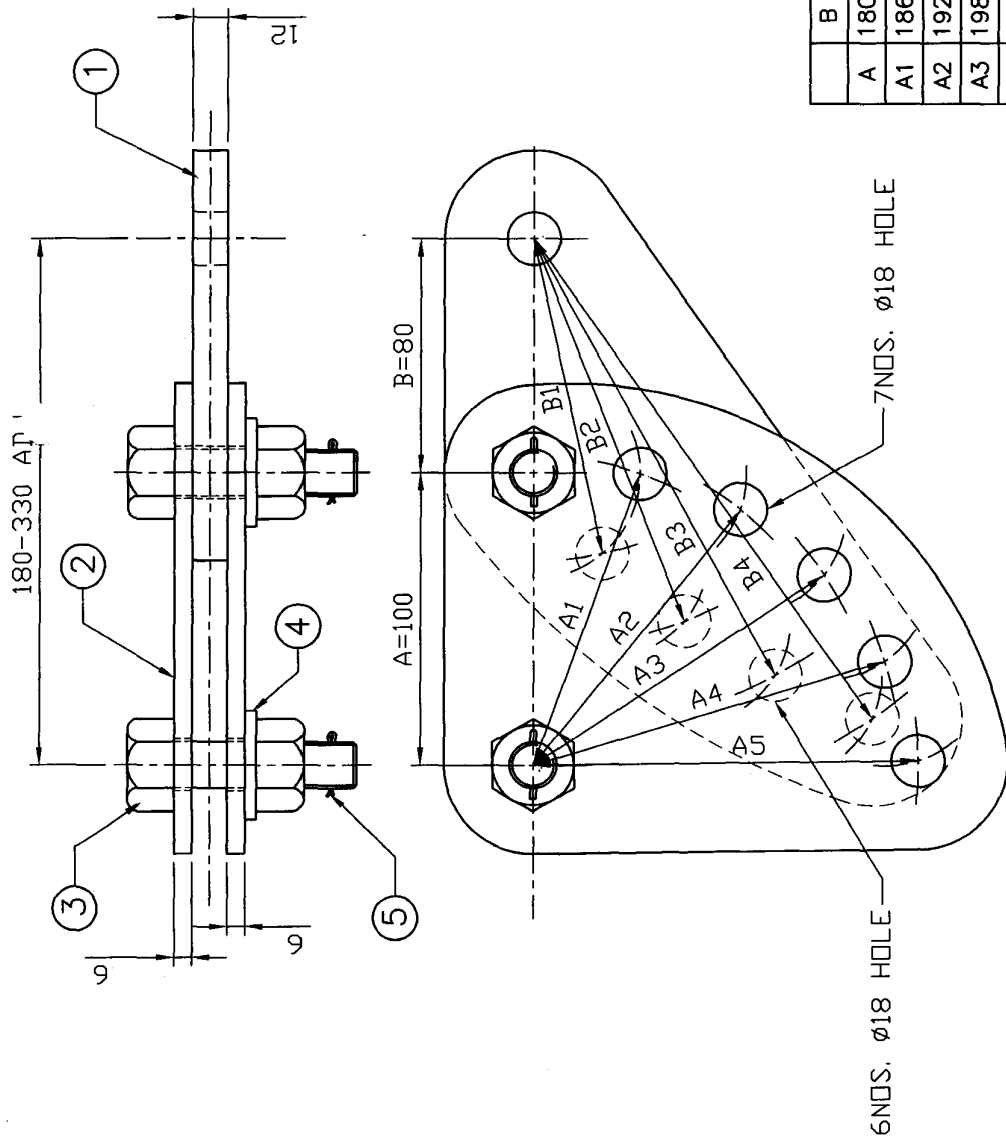
CAT. NO. AEL-255

*** TECHNICAL DATA ***

1. BREAKING STRENGTH : 80 KN
2. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
3. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

ITEM : EXTENSION STRAP FOR DOUBLE TENSION
H/WARE FITTINGS SUITABLE FOR QUAD
ACSR LARK CONDUCTOR. (400 KV)

DRG. NO. : AEL-255



*** TECHNICAL DATA ***

1. BREAKING STRENGTH : 80 KN
2. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
3. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

	B	B1	B2	B3	B4
A	180	210	240	270	300
A1	186	216	246	276	306
A2	192	222	252	282	312
A3	198	228	258	288	318
A4	204	234	264	294	324
A5	210	240	270	300	330

CAT. NO. ASA-59A

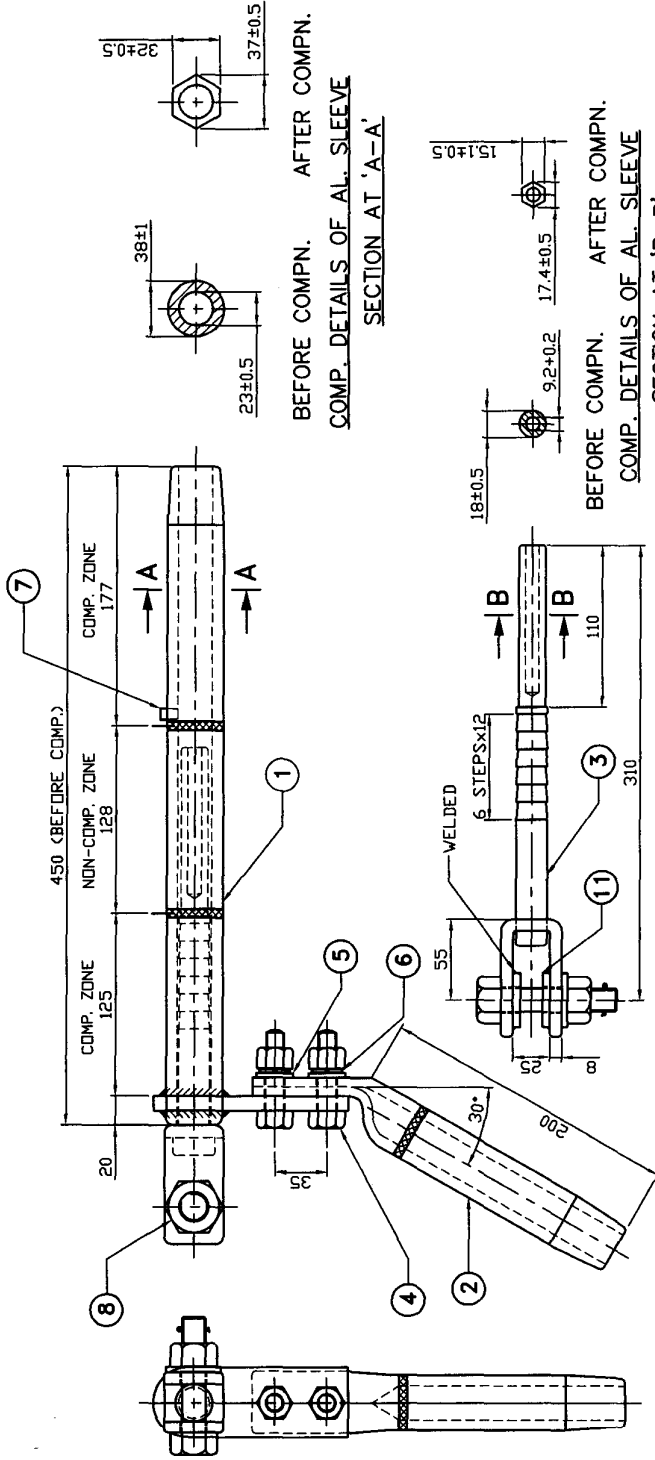
BILL OF MATERIALS				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD. QTY.
1	MIDDLE PLATE	MILD STEEL	H.D.G.	1
2	SIDE PLATE	MILD STEEL	H.D.G.	2
3	M16x60 BOLT & NUT	MILD STEEL	H.D.G.	2 SETS
4	PLAIN WASHER	MILD STEEL	H.D.G.	2
5	SPLIT PIN	S.S.	-	2

ITEM : SAG ADJ. PLATE FOR DOUBLE TENSION
H/WARE FITTINGS SUITABLE FOR QUAD
ACSR LARK CONDUCTOR. (400 KV)

DRG. NO. : ASA-59A

T E C H N I C A L D A T A

1. SLIP/MECH. STRENGTH(MIN): 95% U.T.S. OF CONDUCTOR.
2. GENERAL TOLERANCE: $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.
3. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
4. COMPRESSION DIE NOS.DA-9 (AL) & DS-9 (STEEL) COMPRESSION PRSSURE: 100 TON.



BEFORE COMPN. AFTER COMPN.
COMP. DETAILS OF AL. SLEEVE
SECTION AT 'A-A'

BEFORE COMPN. AFTER COMPN.
COMP. DETAILS OF AL. SLEEVE
SECTION AT 'B-B'

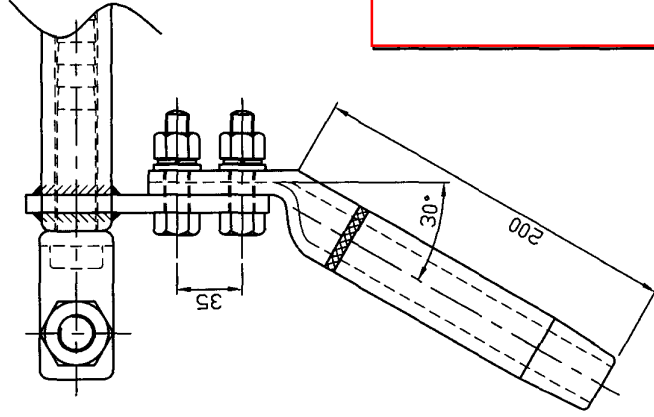
BILL OF MATERIALS

ITEM NO.	COMPONENT.	MATERIAL.	SURFACE TREATMENT	RECD. QTY.
1.	DEAD END BODY.	EXTRUDED AL TUBE (99.5% PURITY)	-	1.
2.	JUMPER.	-	-	1.
3.	STEEL DEAD END.	F.S.(CL-II)	H.D.G.	1.
4.	M-12X50 BOLT NUT.	M.S., (GR : 5.6/5.0)	H.D.G.	2 SETS.
5.	FLAT WASHER	MILD STEEL	H.D.G.	4
6.	SPRING WASHER.	SPRING STEEL.	E.G.	2
7.	FILLER PLUG.	PURE AL. ROD	-	1.
8.	M-16X70 BOLT, NUT	M.S., (GR : 5.6/5.0)	H.D.G.	1 SET.
9.	FLAT WASHER	MILD STEEL	H.D.G.	1.
10.	SPLIT PIN	STAINLESS STEEL	-	1.
11.	WASHER (5mm THK.)	MILD STEEL	H.D.G.	2.

CAT. NO. ADE/C-023

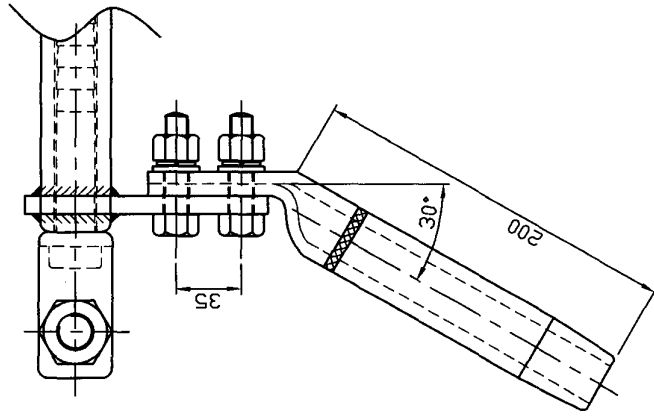
ITEM : DEAD END ASSY. FOR DOUBLE TENSION
H/WARE FITTINGS SUITABLE FOR QUAD
ACSR LARK CONDUCTOR. (400 KV)

DRG. NO. : ADE/C-023



RIGHT HAND

CAT. NO. ADE/C-023R



LEFT HAND

CAT. NO. ADE/C-023L

T E C H N I C A L D A T A

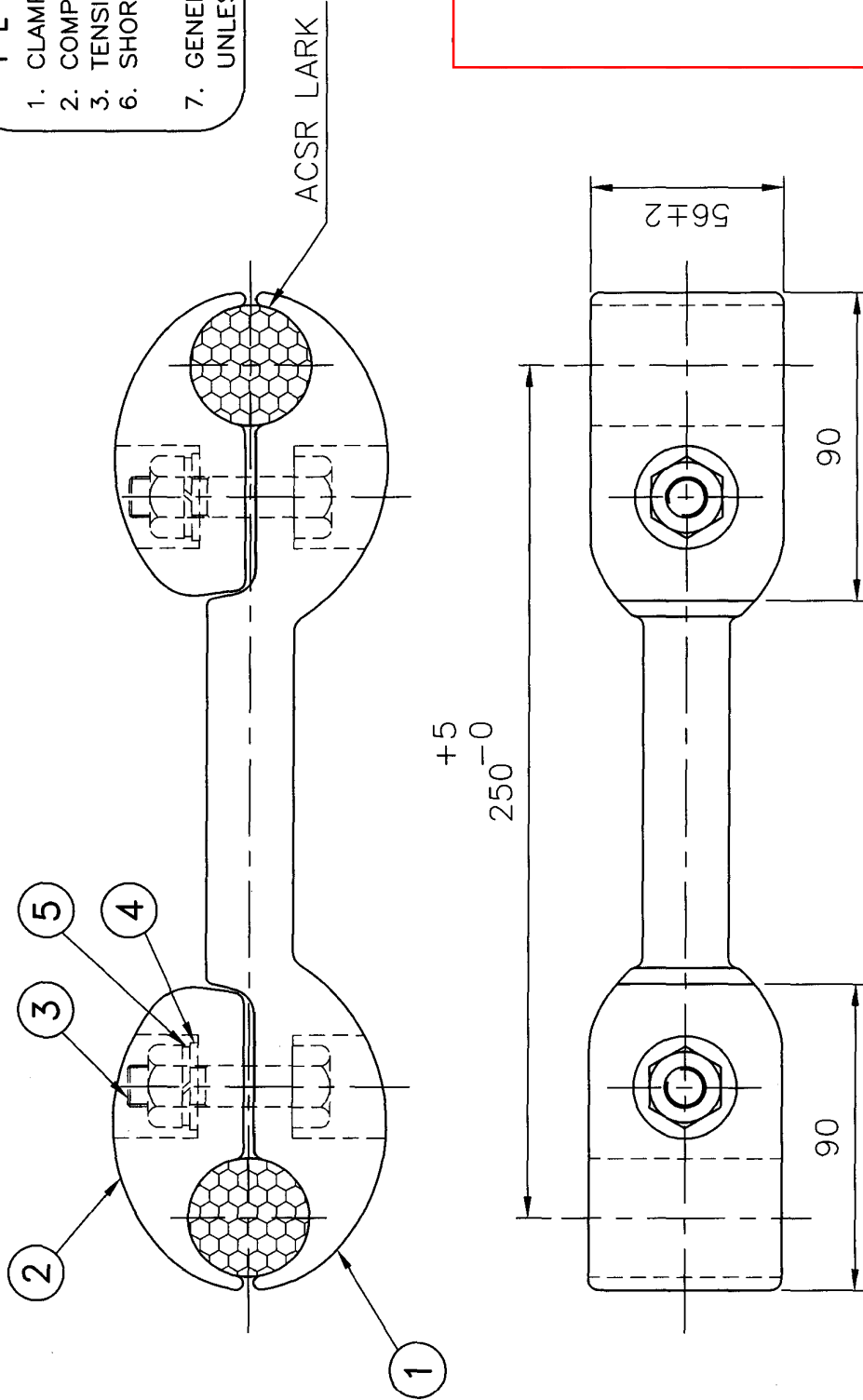
1. SLIP/MECH. STRENGTH(MIN): 95% U.T.S. OF CONDUCTOR.
2. BILL OF MATERIALS TO BE SAME FOR BOTH DEAD END ASSY AS PER DEAD END ASSY. DRG. NO. ADE/C-023
3. COMPRESSION DIE NOS. : DA-9 (AL) & DS-9 (ST)
COMPRESSION PRESSURE: 100 TON.
4. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
5. GENERAL TOLERANCE: $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

H/WARE FITTINGS SUITABLE FOR QUAD
ACSR LARK CONDUCTOR. (400 KV)

DRG. NO. : ADE/C-023L & ADE/C-023R

*** T E C H N I C A L D A T A ***

1. CLAMP SLIP STRENGTH : 2.5 KN.
2. COMPRESSION LOAD : 14 KN.
3. TENSION LOAD : 7 KN.
6. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
7. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

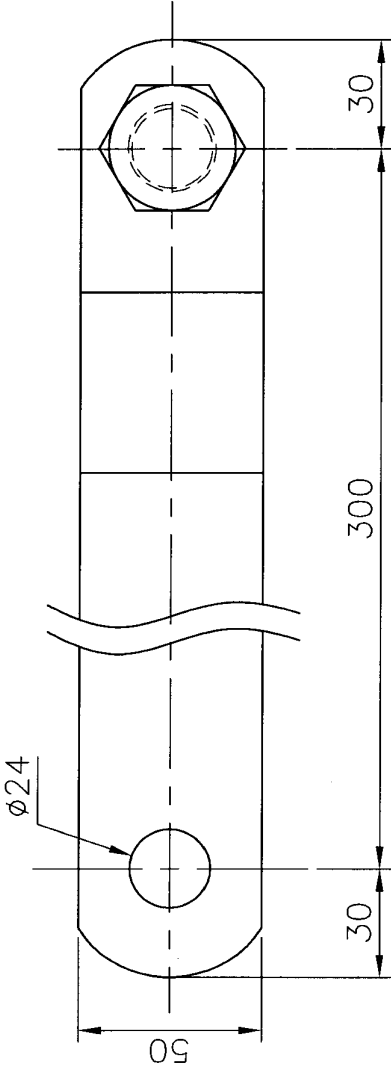


BILL OF MATERIALS				
ITEM NO.	ITEM DESCRIPTION.	MATERIAL.	SURFACE TREATMENT.	REQD. QTY.
1	CLAMP	AL. ALLOY	-	1
2	KEEPER	AL. ALLOY	-	2
3	M12x50 BOLT & NUT	MILD STEEL	H.D.G.	2 SETS
4	PLAIN WASHER	MILD STEEL	H.D.G.	2
5	SPRING WASHER	SPRING STEEL	E.G.	2

CAT.NO. : ARGGS-001/LR

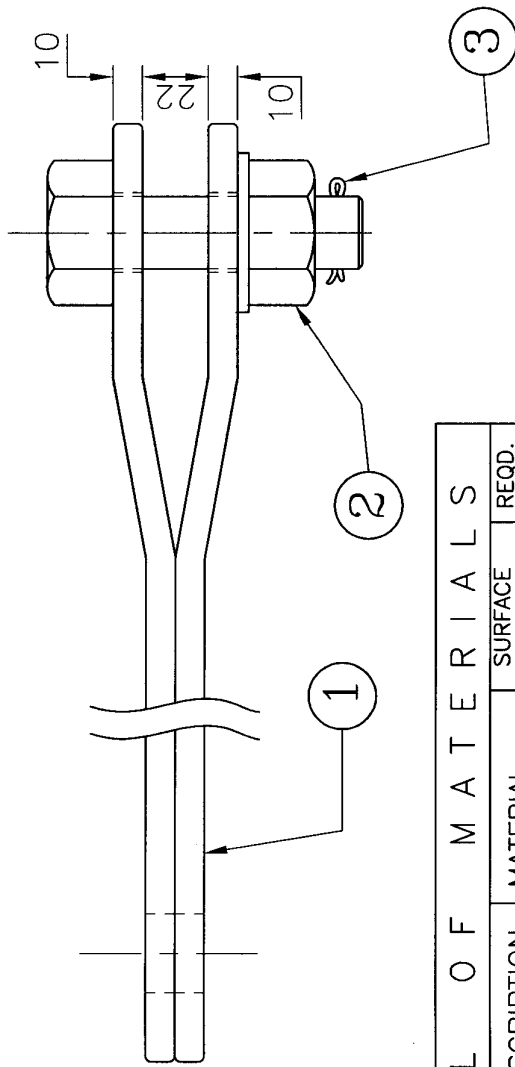
ITEM : RIGID SPACER FOR DOUBLE TENSION
H/WARE FITTINGS SUITABLE FOR QUAD
ACSR LARK CONDUCTOR. (400 KV)

DRG. NO. : ARGGS-001/LR



TECHNICAL DATA

1. BREAKING STRENGTH : 160 KN.
2. ITEM SHOULD BE HOT DIP GALVANISED CONFORMING TO B.S.729.
3. SHORT CIRCUIT CAPACITY : 31.5 KA PER 1 SEC.
4. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

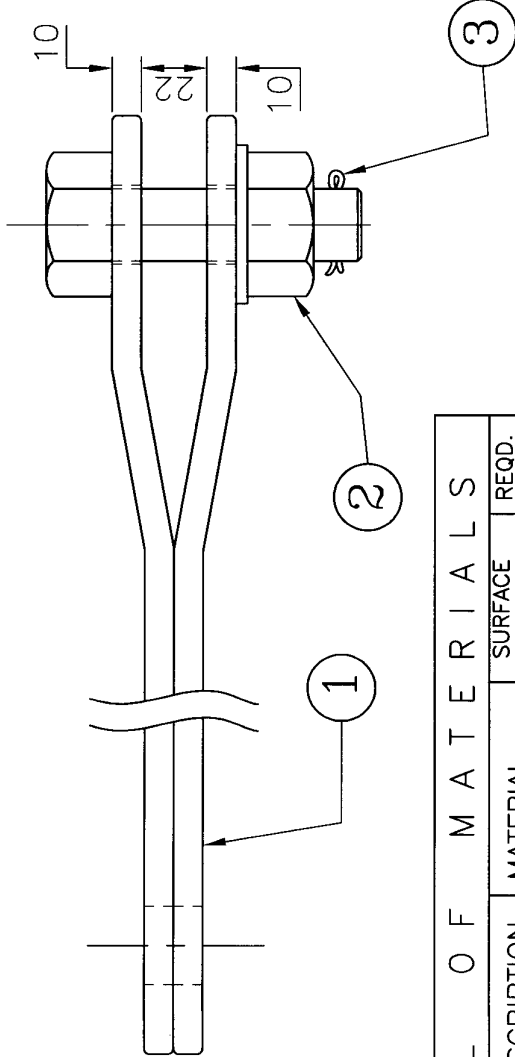
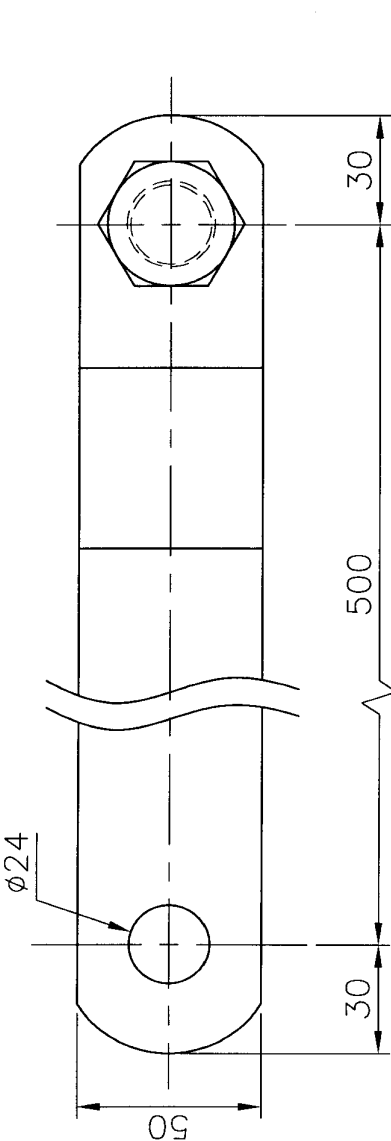


B I L L O F M A T E R I A L S				
ITEM NO.	ITEM DESCRIPTION	MATERIAL.	SURFACE TREATMENT.	REQD. NO.
1.	ADDITIONAL LINK	MILD STEEL	H.D.G.	1 PAIR
2.	M22X85 BOLT & NUT & FLAT WASHER	MILD STEEL	H.D.G.	1SET.
3.	SPLIT PIN	STAINLESS STEEL	—	1.

CAT. NO. AEL-353

ITEM : ADDITIONAL LINK (300mm) FOR DOUBLE TENSION H/W FITTINGS SUITABLE FOR QUAD ACSR LARK CONDUCTOR (400kV) FOR TT "760" FOR DEVIATION ANGLE (40°-50°) & TT-Trm FOR 45° DEVIATION ANGLE .

DRG. NO. : AEL-353



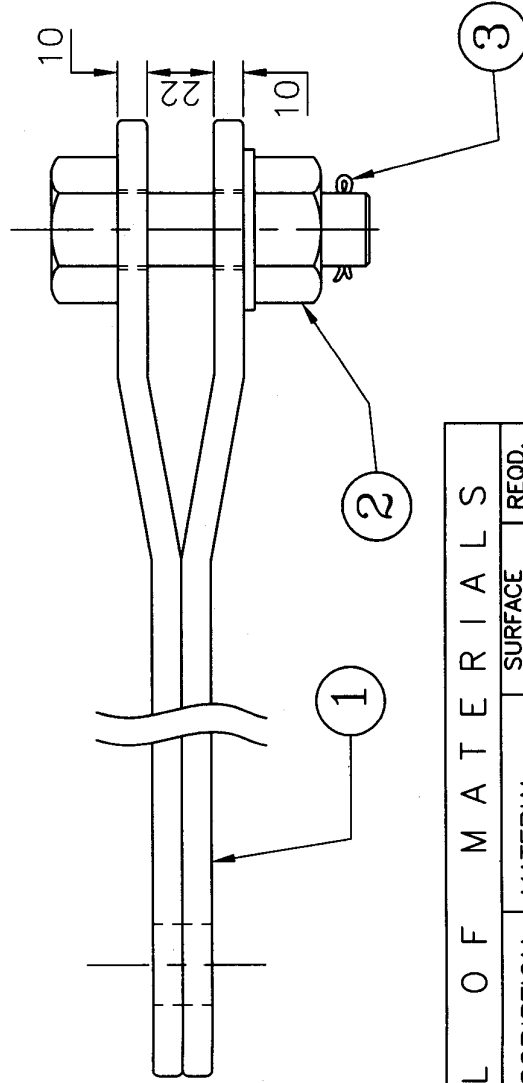
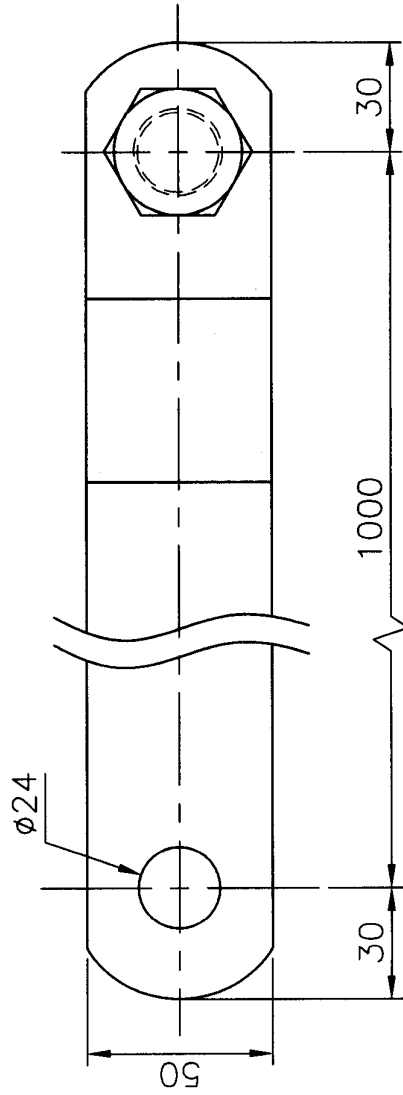
B I L L O F M A T E R I A L S				
ITEM NO.	ITEM DESCRIPTION	MATERIAL.	SURFACE TREATMENT.	REQD. NO.
1.	ADDITIONAL LINK	MILD STEEL	H.D.G.	1 PAIR
2.	M22X85 BOLT & NUT & FLAT WASHER	MILD STEEL	H.D.G.	1SET.
3.	SPLIT PIN	STAINLESS STEEL	—	1.

CAT. NO. AEL--360

- TECHNICAL DATA
1. BREAKING STRENGTH : 160 KN.
 2. ITEM SHOULD BE HOT DIP GALVANISED CONFORMING TO B.S.729.
 3. SHORT CIRCUIT CAPACITY : 31.5 kA PER 1 SEC.
 4. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

ITEM : ADDITIONAL LINK (500mm) FOR DOUBLE TENSION H/W FITTINGS
SUITABLE FOR QUAD ACSR LARK CONDUCTOR (400kV) FOR TT
"T60" FOR DEVIATION ANGLE (50°-60°).

DRG. NO. : AEL-360



B I L L O F M A T E R I A L S				
ITEM NO.	ITEM DESCRIPTION	MATERIAL.	SURFACE TREATMENT.	REQD. NO.
1.	ADDITIONAL LINK	MILD STEEL	H.D.G.	1 PAIR
2.	M22X85 BOLT & NUT & FLAT WASHER	MILD STEEL	H.D.G.	1SET.
3.	SPLIT PIN	STAINLESS STEEL	—	1.

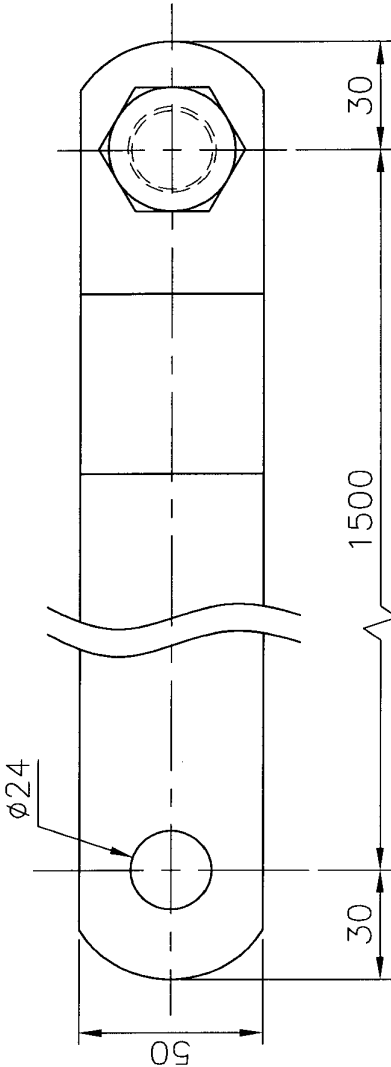
CAT. NO. AEL-361

TECHNICAL DATA

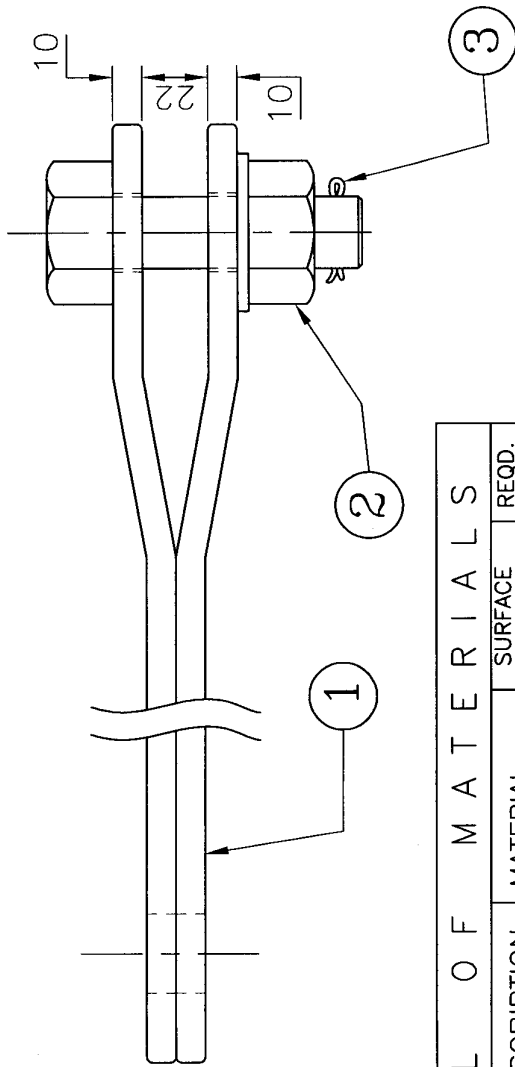
1. BREAKING STRENGTH : 160 KN.
2. ITEM SHOULD BE HOT DIP GALVANISED CONFORMING TO B.S.729.
3. SHORT CIRCUIT CAPACITY : 31.5 kA PER 1 SEC.
4. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

ITEM : ADDITIONAL LINK (1000mm) FOR DOUBLE TENSION H/W FITTINGS
SUITABLE FOR QUAD ACSR LARK CONDUCTOR (400kV) FOR TT
"T90" FOR DEVIATION ANGLE (60°-70°).

DRG. NO. : AEL-361



- TECHNICAL DATA
1. BREAKING STRENGTH : 160 KN.
 2. ITEM SHOULD BE HOT DIP GALVANISED CONFORMING TO B.S.729.
 3. SHORT CIRCUIT CAPACITY : 31.5 kA PER 1 SEC.
 4. GENERAL TOLERANCE : ±3% UNLESS OTHERWISE SPECIFIED.

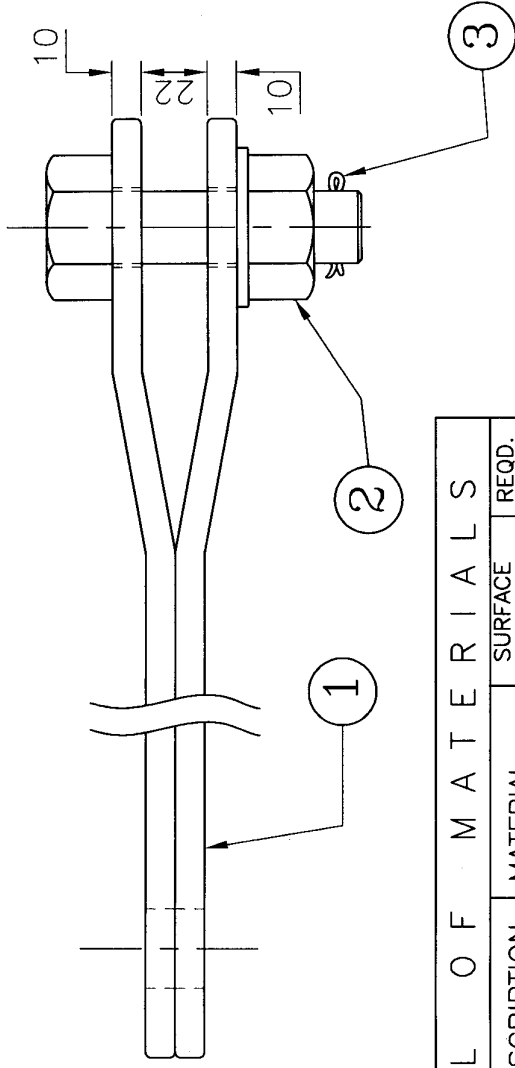
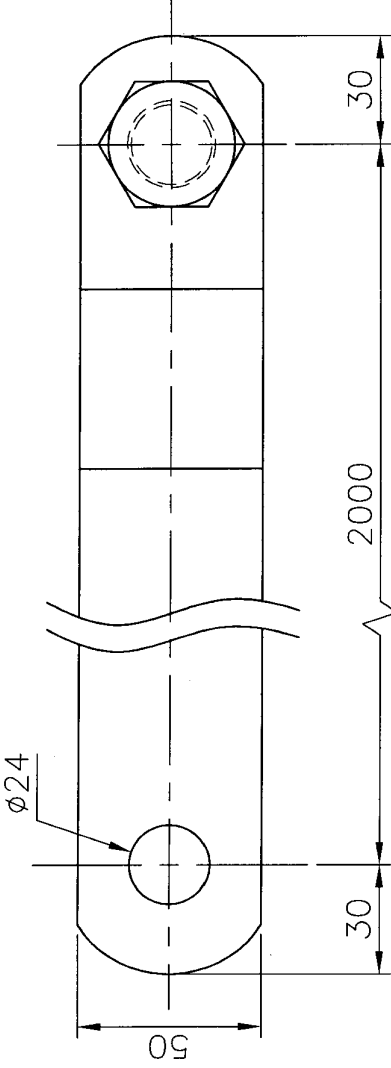


B I L L O F M A T E R I A L S				
ITEM NO.	ITEM DESCRIPTION	MATERIAL.	SURFACE TREATMENT.	REQD. NO.
1.	ADDITIONAL LINK	MILD STEEL	H.D.G.	1 PAIR
2.	M22X85 BOLT & NUT & FLAT WASHER	MILD STEEL	H.D.G.	1SET.
3.	SPLIT PIN	STAINLESS STEEL	—	1.

CAT. NO. AEL-362

ITEM : ADDITIONAL LINK (1500mm) FOR DOUBLE TENSION H/W FITTINGS
SUITABLE FOR QUAD ACSR LARK CONDUCTOR (400kV) FOR TT
T90° FOR DEVIATION ANGLE (70°-80°).

DRG. NO. : AEL-362



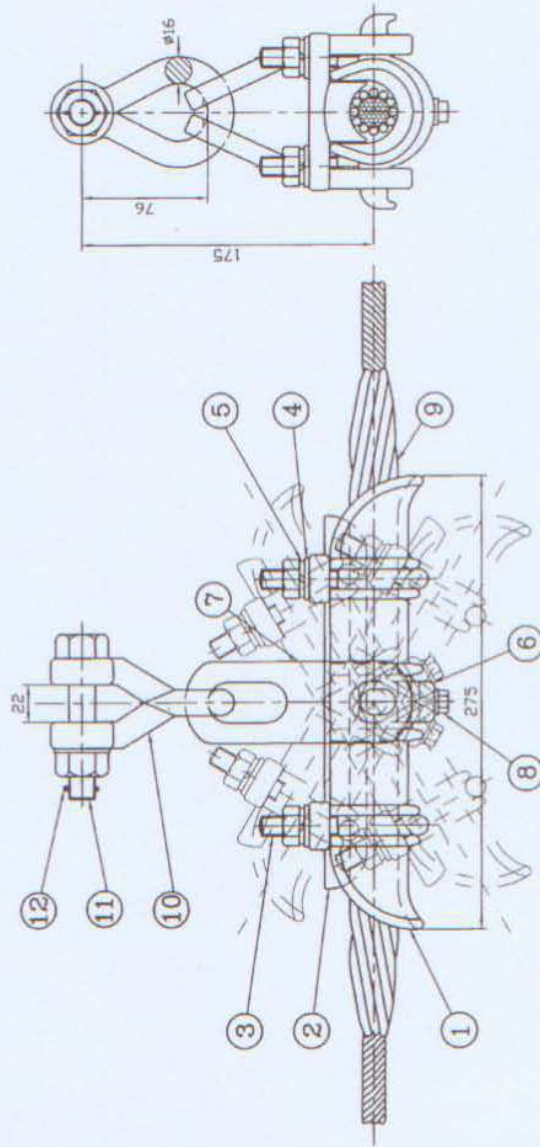
- TECHNICAL DATA
1. BREAKING STRENGTH : 160 KN.
 2. ITEM SHOULD BE HOT DIP GALVANISED CONFORMING TO B.S.729.
 3. SHORT CIRCUIT CAPACITY : 31.5 kA PER 1 SEC.
 4. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

B I L L O F M A T E R I A L S				
ITEM NO.	ITEM DESCRIPTION	MATERIAL.	SURFACE TREATMENT.	REQD. NO.
1.	ADDITIONAL LINK	MILD STEEL	H.D.G.	1 PAIR
2.	M22X85 BOLT & NUT & FLAT WASHER	MILD STEEL	H.D.G.	1SET.
3.	SPLIT PIN	STAINLESS STEEL	—	1.

CAT. NO. AEL-363

ITEM : ADDITIONAL LINK (2000mm) FOR DOUBLE TENSION H/W FITTINGS
SUITABLE FOR QUAD ACSR LARK CONDUCTOR (400kV) FOR TT
"T80" FOR DEVIATION ANGLE (80°-90°).

DRG. NO. : AEL-363



* TECHNICAL DATA *

1. MIN. BREAKING STRENGTH OF CLAMP : 70 KN.
2. MIN. SLIP STRENGTH : 15% U.T.S. OF ACSR LARK
3. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
4. GENERAL TOLERANCE $\pm 3\%$

BILL OF MATERIAL.

SL.NO.	DESCRIPTION	MATERIAL	TREATMENT	QTY./SET.	CAT. NO.
1.	SUSPENSION CLAMP	AL. ALLOY	-	1	
2	KEEPER	AL. ALLOY	-	1	
3	M12 U-BOLTS & NUT	MILD STEEL	H.D.G.	2 SETS	
4	FLAT WASHER	MILD STEEL	H.D.G.	4	
5	SP. WASHER	SPRING STEEL	E.G.	4	
6	SHADOLE	MILD STEEL	H.D.G.	1 SET	
7	SIDE STRAP	MILD STEEL	H.D.G.	2	
8	M-10 BOLT	MILD STEEL	H.D.G.	2	
9	ARMOUR ROD (11 NOS./SET)	AL. ALLOY	-	1 SET	APR-012
10.	TWISTED SHACKLE	FORGED STEEL	H.D.G.	1	
11	M-16x90 BOLT, NUT & FLAT WASHER.	MILD STEEL	H.D.G.	1 SET	ATS-1
12	SPLIT PIN	STAINLESS STEEL	-	1	

ITEM : SUSPENSION CLAMP ASSY. FOR ACSR LARK
CONDUCTOR. (400 KV)

DRG. NO. : A-30-ASSY.

CSD No. 182AKPSI0014A

1. SLIP/MECH. STRENGTH(MIN): 95% U.T.S. OF CONDUCTOR.
2. GENERAL TOLERANCE: $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.
3. SHORT CIRCUIT CAPACITY: ≥ 31.5 KA FOR 1 SEC.
4. COMPRESSION DIE NOS. DA-9 (AL) & DS-9 (STEEL) COMPRESSION PRESSURE: 100 TON.



BEFORE COMPN. AFTER COMPN.
COMP. DETAILS OF AL. SLEEVE
SECTION AT 'B-B'

BILL OF MATERIALS				
ITEM NO.	COMPONENT.	MATERIAL.	SURFACE TREATMENT	REDD. QTY.
1.	DEAD END BODY.	EXTRUDED AL TUBE	-	1.
2.	JUMPER.	(99.5% PURITY)	-	1.
3.	STEEL DEAD END.	F.S.(CL-II)	H.D.G.	1.
4.	M-12X50 BOLT NUT.	M.S., (GR : 5.6/5.0)	H.D.G.	2 SETS.
5.	FLAT WASHER	MILD STEEL.	H.D.G.	4
6.	SPRING WASHER.	SPRING STEEL.	E.G.	2
7.	FILLER PLUG.	PURE AL. ROD	-	1.
8.	M-16X70 BOLT, NUT	M.S., (GR : 5.6/5.0)	H.D.G.	1 SET.
9.	FLAT WASHER	MILD STEEL.	H.D.G.	1.
10.	SPLIT PIN	STAINLESS STEEL	-	1.
11.	WASHER (5mm THK.)	MILD STEEL	H.D.G.	2.

ITEM : DEAD END ASSY. FOR ACSR LARK
CONDUCTOR. (400 KV)

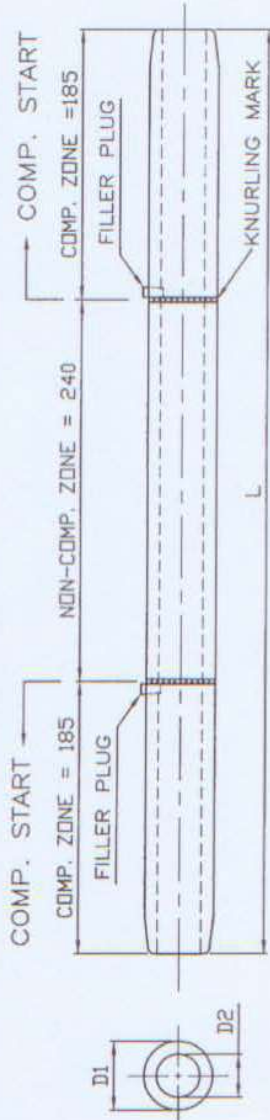
CSD No. 182AKPSI0014A

DRG. NO. : ADE/C-023

CONTROLLED COPY

DD\GK\ORG.-07\EXP\KENYA\O\MOMBASA-NAIROBI\400KV\ACCRS\REV-01\ADE/C-023

A.Shaw	S.Das	1.5	27.10.10	1
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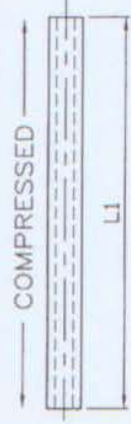


BEFORE
COMPN.

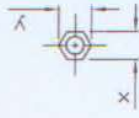
ALUMINIUM SLEEVE



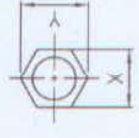
BEFORE
COMPN.



STEEL SLEEVE



AFTER
COMPN.



AFTER
COMPN.

		A L U M I N I U M S L E E V E						S T E E L S L E E V E					
		D I M E N S I O N S (m m)						D I M E N S I O N S (m m)					
C O N D U C T O R C O D E N A M E	C A T. N O.	L E N G T H (L)	O U T S I D E D I A (D 1)	I N S I D E D I A (D 2)	A C C R O S S F L A T (X)	A C C R O S S C O R N E R (Y)	D I E N O.	L E N G T H (L 1)	O U T S I D E D I A (d 1)	I N S I D E D I A (d 2)	A C C R O S S F L A T (x)	A C C R O S S C O R N E R (y)	D I E N O.
A C S R L A R K	A C J - 1 3	610	38	23	32	37	DA-9	203	18	9.4	15.1	17.4	DS-9

- TECHNICAL DATA**
- JOINT CONFORMS TO B.S.: 3288.(PART-I)
 - SLIP STRENGTH: 95% OF U.T.S. OF RELEVANT CONDUCTOR.
 - COMP. PRESSURE: 100 TONNE.
 - GENERAL TOLERANCE: $\pm 3\%$

B I L L O F M A T E R I A L S

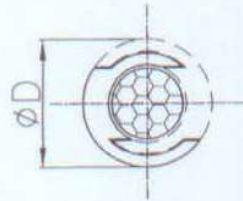
ITEM NO.	ITEM	MATERIAL	QTY/SET
1.	AL. SLEEVE	EXTRUD. AL (E.C.GRADE)	1
2.	FILLER PLUG	ALUMINIUM	2
3.	STEEL SLEEVE	M.S. H.D.G.	1

ITEM : MIDSPAN COMP. JOINT SUITABLE FOR
ACSR LARK CONDUCTOR. (400 KV)

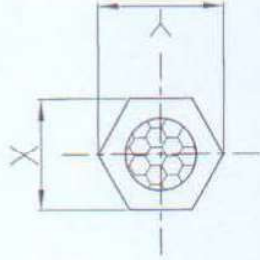
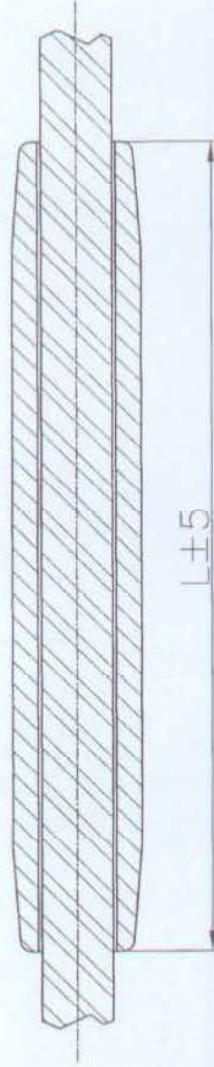
DRG. NO. : ACJ-001

CSD No. 182AKPSI0014A

DIRECTION OF COMPRESSION.



BEFORE COMPRESSION



AFTER COMPRESSION

CONDUCTOR C O D E N A M E	C A T. N O.	DIMENSIONS(mm.)				D I E N O.
		LENGTH (L)	OUTSIDE D I A (ϕ D)	ACROSS FLAT (X)	ACROSS CORNER (Y)	
ACSR LARK	ARS-13	241	38	32	37	0.37 DA-9

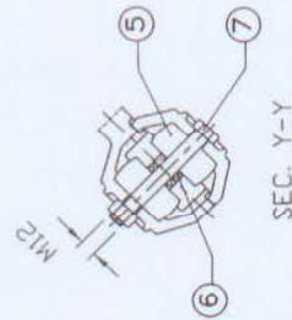
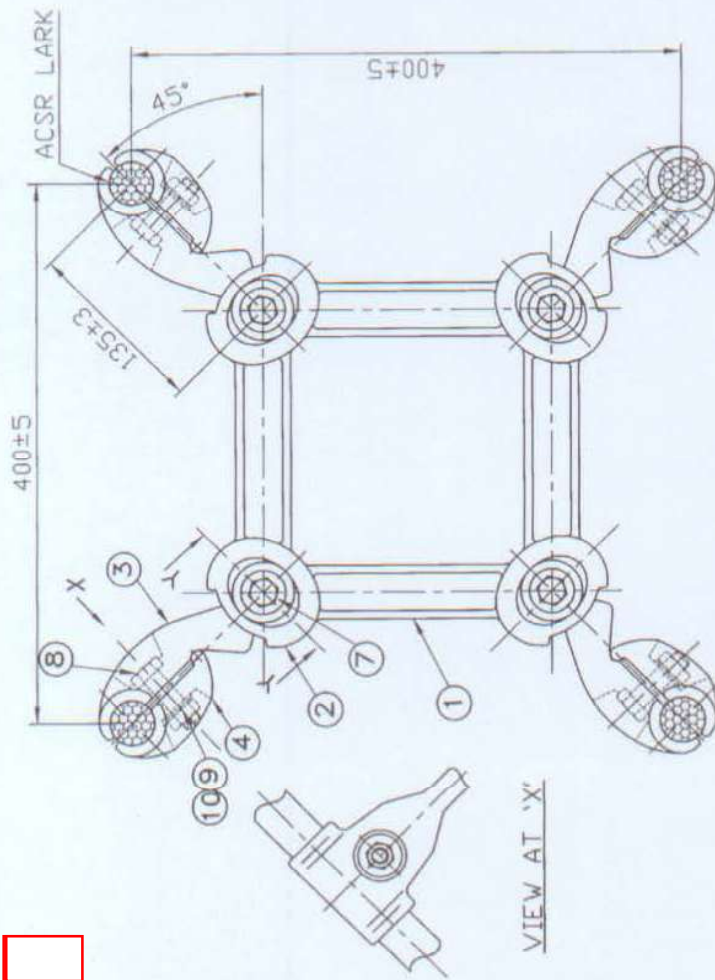
* TECHNICAL DATA *

1. ITEM CONFORMS TO B.S: 3288, PART I.
2. SLIP STRENGTH : 95% OF U.T.S. OF RELEVANT CONDUCTOR.
3. MATERIAL : ALUMINIUM ALLOY.
4. GENERAL TOLERANCE : $\pm 3\%$.

ITEM : REPAIR SLEEVE FOR ACSR LARK
CONDUCTOR (400 KV)

CSD No. 182AKPS10014A

DRG. NO. : ARS-001



BILL OF MATERIALS			
SL.NO.	COMPONENTS	MATERIAL	QTY.
1.	FRAME	ALALLOY	1
2.	COVER	ALALLOY	4
3.	ARM	ALALLOY	4
4.	KEEPER	ALALLOY	4
5.	DAMPING ELEMENT	EPDM	8
6.	RUBBER BUSHING	NEOPRENE	4
7.	M12X100 LG. BOLT & NUT	MILD STEEL	4
8.	M12X50 LG. BOLT & NUT	MILD STEEL	4
9.	SPRING WASHER	SPRING STEEL	4
10.	FLAT WASHER	MILD STEEL	4

* T E C H N I C A L D A T A *

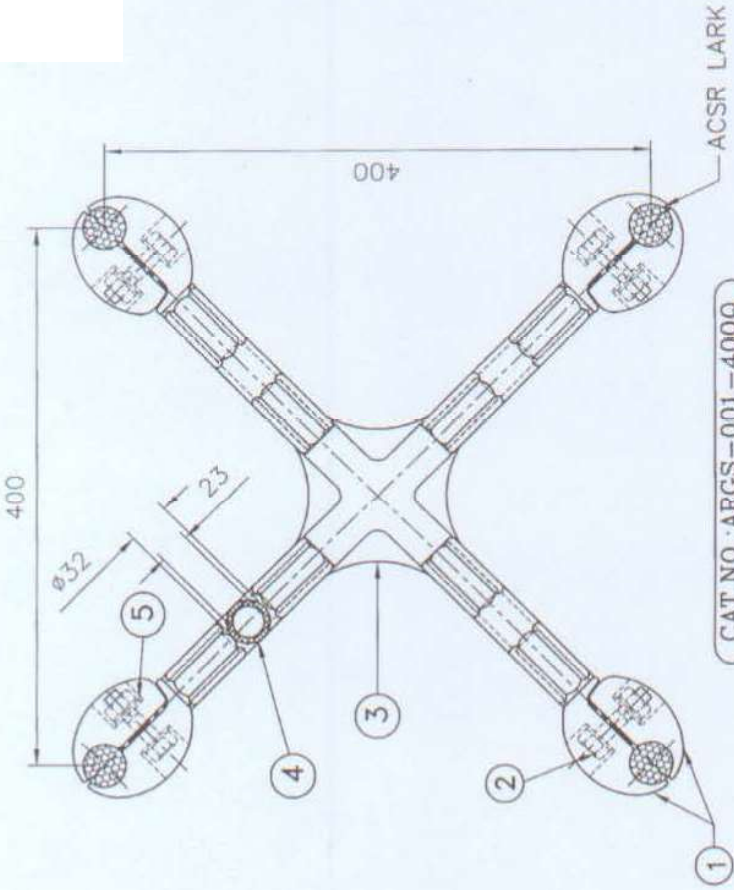
1. COMPRESSIVE STRENGTH : 14 KN.
2. TENSILE STRENGTH : 7 KN.
3. SLIP STRENGTH: 6.5 KN.
4. DAMPING ELEMENT HARDNESS- 65-80 SHORE A.
5. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
6. GENERAL TOLERANCE : ±3% UNLESS OTHERWISE SPECIFIED.

CAT. NO. ASD/Q-400/L

CSD No. 182AKPSI0014A

ITEM : QUAD SPACER DAMPER FOR ACSR LARK
CONDUCTOR. (400 KV)

DRG. NO. : ASD-004Q



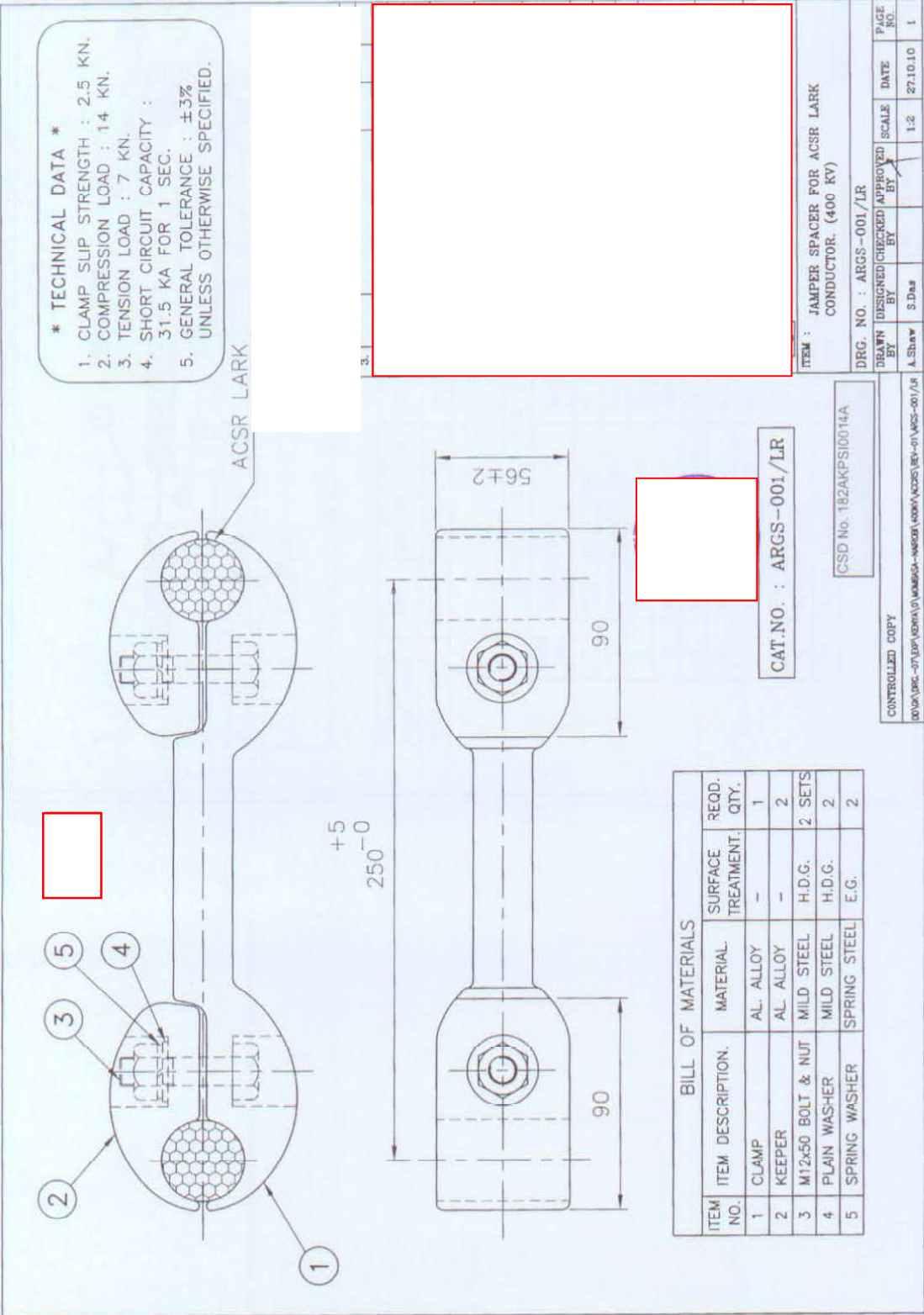
- * TECHNICAL DATA ***
1. COMPRESSION LOAD : 14 KN.
 2. TENSION LOAD : 7 KN.
 3. SLIP STRENGTH: 6.5 KN.
 4. SHORT CIRCUIT CAPACITY : 31.5 KA FOR 1 SEC.
 5. GENERAL TOLERANCE : $\pm 3\%$ UNLESS OTHERWISE SPECIFIED.

COMPONENT DETAILS				
SL.NO.	COMPONENTS	MATERIAL	SURFACE TREATMENT	QTY.
1.	CLAMP & KEEPER	AL ALLOY	—	4 EACH
2.	BOLT & NUT (M12X50) & FLAT WASHER	MILD STEEL	HOT DIP GALVANISED	4 EACH
3.	CENTRAL BODY	AL ALLOY	—	1
4.	SPACING TUBE	AL-ALLOY (EXTRUDED)	—	4
5.	SPRING WASHER	SPRING STEEL	ELECTRO-GALVANISED	4

ITEM : QUAD RIGID SPACER FOR ACSR LARK
CONDUCTOR. (400 KV)

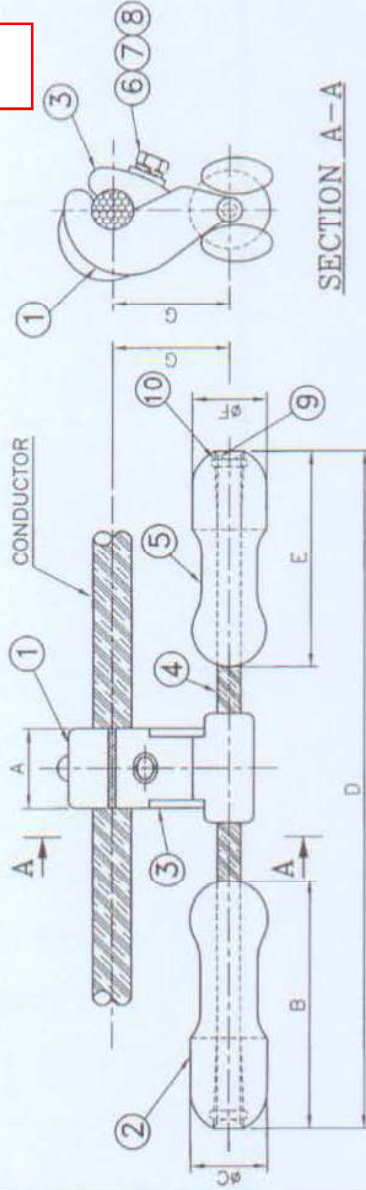
DRG. NO. : ARGS-001/400Q

CSD No. 182AKPSI0014A



TECHNICAL DATA

- ITEM CONFORMS TO B.S.: 3288, (PART-I).
- MASS PULL OFF VALUE : 500 KG.
- SLIP STRENGTH OF CLAMP :
BEFORE FATIGUE TEST-2.5 KN.(MIN.),
AFTER FATIGUE TEST-2.0 KN.
- U.T.S. OF MESSENGER CABLE : 135 KG/SQ.MM.(Min).
- MESSENGER CABLE : 19 STRAND.
- LAY RATIO OF MESSENGER CABLE : 9-11.
- GENERAL TOLERANCE : $\pm 5\%$.
- TIGHTENING TORQUE : 6.5 KG-M.
- WEIGHT IS INDICATIVE ONLY, NOT MANDATORY.
- RESONANCE FREQUENCIES
1st 16 ± 1 2nd 19 ± 1 3rd 35 ± 2 4th 42 ± 2



SECTION A-A

CONDUCTOR CODE NAME	DIA.	CAT. NO.	A	B	ØC	D	E	ØF	G	APPROX. WT.(KG)
ACSR LARK	Ø20.44	AVD-4R-2	57	140	44	475	135	42	78	2.5

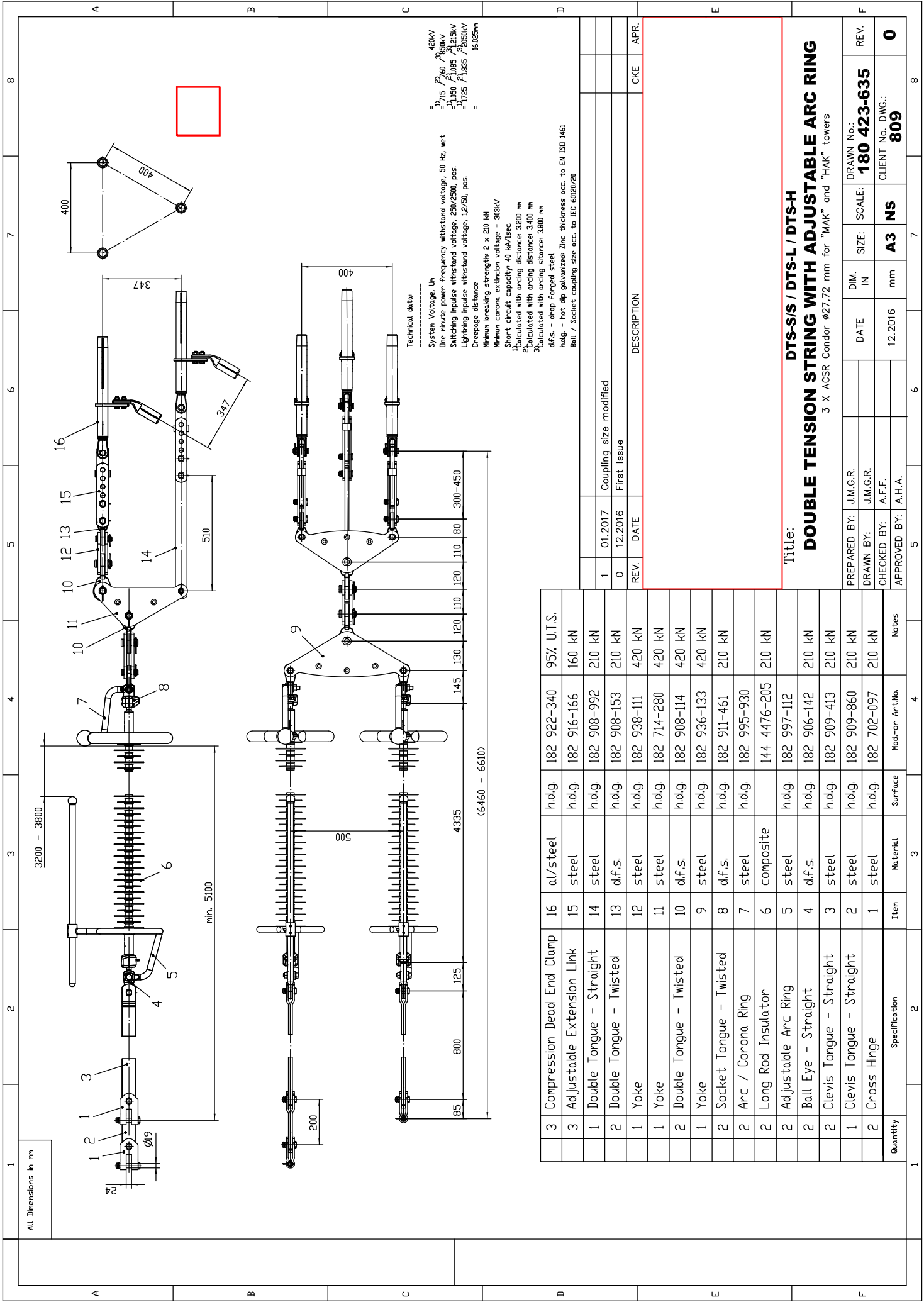
BILL OF MATERIALS

ITEM NO.	DESCRIPTION	MATERIAL	QTY./SET
1	HOOK HALF CLAMP	AL. ALLOY	1
2	DAMPER MASS (BIG)	C.I., H.D.G.	1
3	COVER HALF CLAMP	AL. ALLOY	1
4	MESSENGER CABLE	HIGH T.S., H.D.G.	19 STRAND
5	DAMPER MASS (SMALL)	C.I., H.D.G.	1
6	M16 FLAT WASHER	M.S., H.D.G.	1
7	M16 SPRING WASHER	SP. STEEL, E.G.	1
8	BOLT (M16)	M.S., H.D.G.	1
9	SEALING PLUG	AL. ALLOY	2
10	TAPER SLEEVES	AL. ALLOY	2

ITEM : VIBRATION DAMPER FOR ACSR LARK CONDUCTOR. (400 KV)

CSD No. 182AKPSI0014A

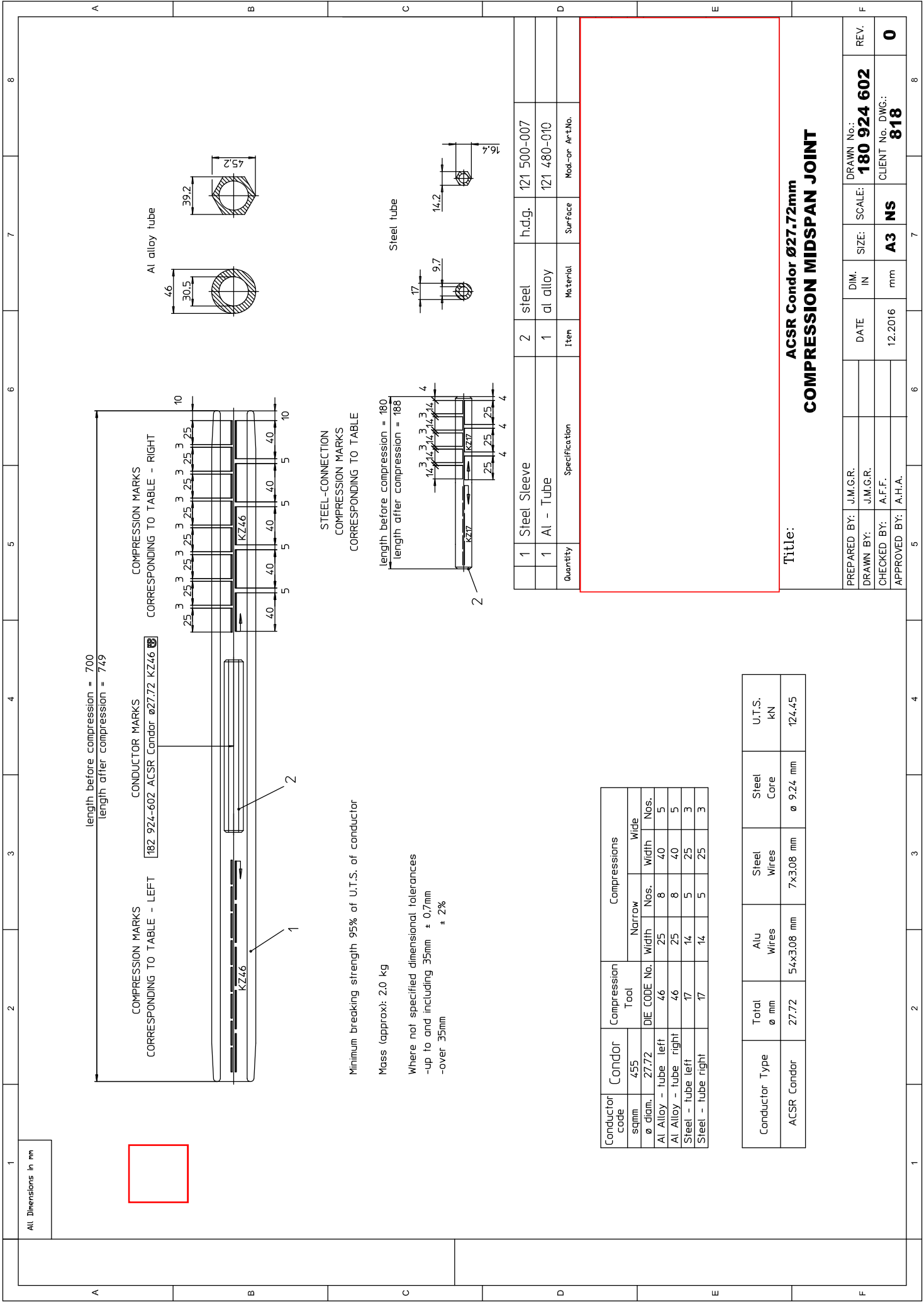
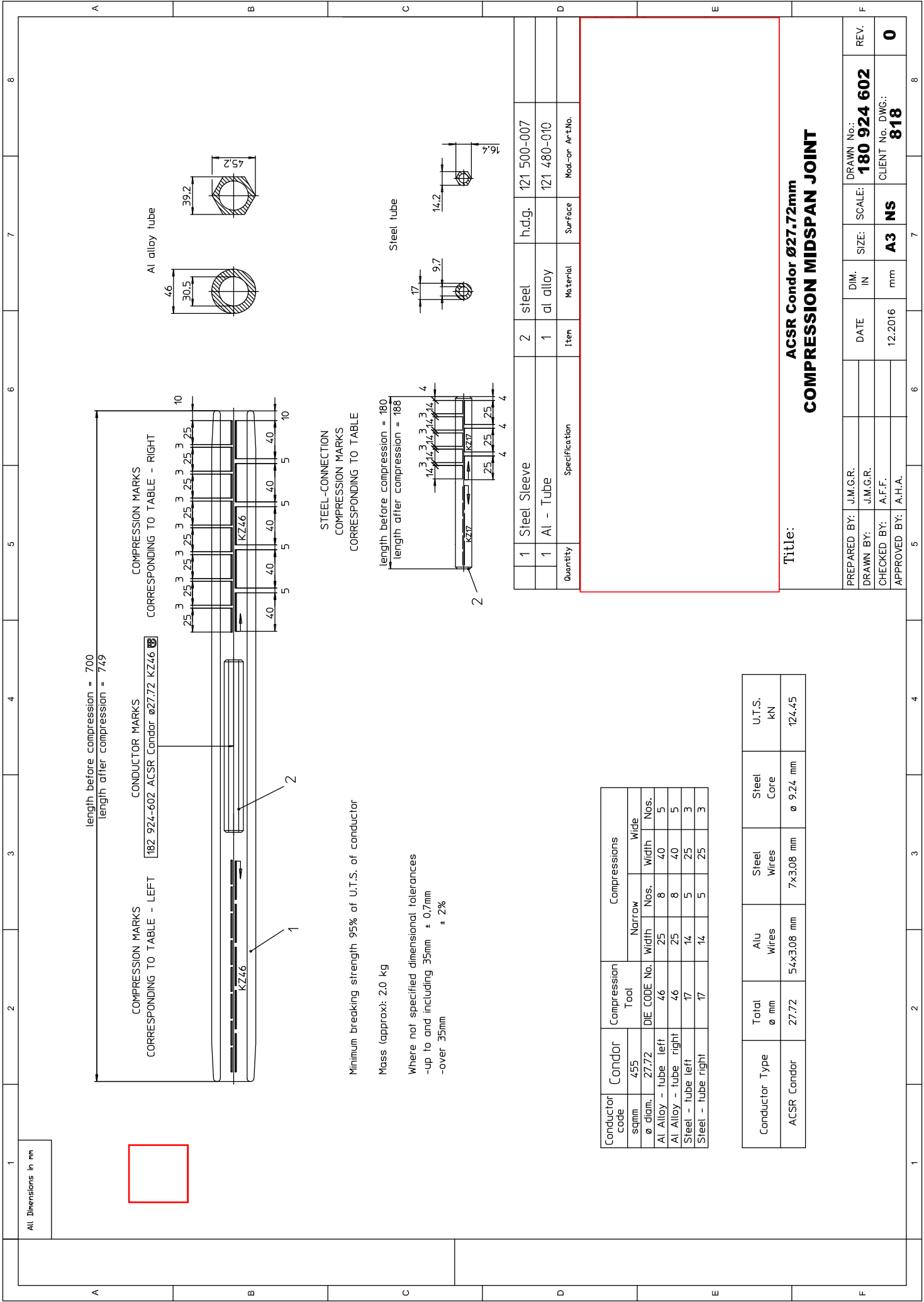
DRG. NO. : AVD-002-4R-2



Quantity	Specification	Item	Material	Surface	Mod-or Art.No.	Notes
3	Compression Dead End Clamp	16	al/steel	hd.g.	182 922-340	95% U.T.S.
3	Adjustable Extension Link	15	steel	hd.g.	182 916-166	160 kN
1	Double Tongue - Straight	14	steel	hd.g.	182 908-992	210 kN
2	Double Tongue - Twisted	13	d.f.s.	hd.g.	182 908-153	210 kN
1	Yoke	12	steel	hd.g.	182 938-111	420 kN
1	Yoke	11	steel	hd.g.	182 714-280	420 kN
2	Double Tongue - Twisted	10	d.f.s.	hd.g.	182 908-114	420 kN
1	Yoke	9	steel	hd.g.	182 936-133	420 kN
2	Socket Tongue - Twisted	8	d.f.s.	hd.g.	182 911-461	210 kN
2	Arc / Corona Ring	7	steel	hd.g.	182 995-930	
2	Long Rod Insulator	6	Composite		144 4476-205	210 kN
2	Adjustable Arc Ring	5	steel	hd.g.	182 997-112	
2	Ball Eye - Straight	4	d.f.s.	hd.g.	182 906-142	210 kN
2	Clevis Tongue - Straight	3	steel	hd.g.	182 909-413	210 kN
1	Clevis Tongue - Straight	2	steel	hd.g.	182 909-860	210 kN
2	Cross Hinge	1	steel	hd.g.	182 702-097	210 kN

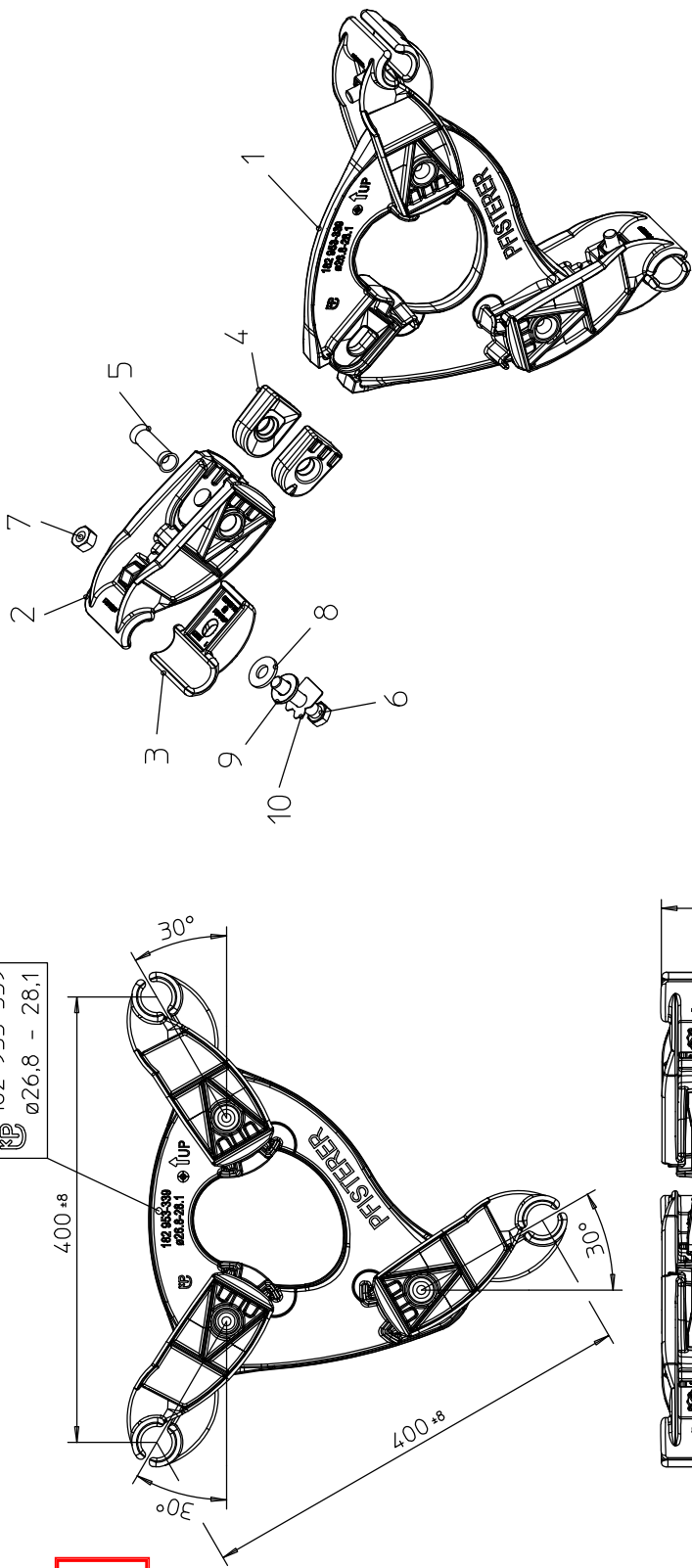
Title: **DTS-S/S / DTS-L / DTS-H**
DOUBLE TENSION STRING WITH ADJUSTABLE ARC RING
3 X ACSR Conductor $\varnothing 27.72$ mm for "MAK" and "HAK" towers

PREPARED BY:	J.M.G.R.	DATE		DIM. IN	SCALE:	DRAWN No.:	REV.
DRAWN BY:	J.M.G.R.					180 423-635	
CHECKED BY:	A.F.F.	12.2016		mm	A3 NS	CLIENT No. DWG.:	0
APPROVED BY:	A.H.A.					809	

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All Dimensions in mm

Marking:
182 953-339
ø26.8 - 28.1



m.z.c. - mechanical zinc coating
h.d.g. - hot dip galvanized
Tolerances:
Dimension without specified tolerances up to
35mm ±0.7mm and over 35mm ±2%.
Tightening Torque for M12 Bolt 45 Nm

3	Safety Plate	10	stainl. st.	181 952-008	
3	Belleville Washer ø13	9	steel	m.z.c.	DIN 6796
3	Washer ø13/30x3	8	steel	h.d.g.	
3	Hexagonal Nut M12-8	7	steel 8	h.d.g.	DIN 934
3	Hexagonal Screw M12 x 60	6	steel 8.8	h.d.g.	DIN 933
3	Rivets	5	al alloy	181 952-050	
6	Elastomer	4	rubber	181 952-007	
3	Clamp Keeper	3	cast alu	181 952-233	
3	Clamp Body	2	cast alu	181 952-133	
1	Twin Spacer Damper Frame	1	cast alu	181 953-339	
Quantity	Specification	Item	Material	Surface	Mod-or Art.No.

Title:
TRIPLE SPACER DAMPER
Conductor range: ø26.8-28.1

PREPARED BY:	J.M.G.R.	DATE	DIM. IN	SIZE:	SCALE:	DRAWN No.:	REV.
DRAWN BY:	J.M.G.R.					180 953 339	
CHECKED BY:	A.F.F.	12.2016	mm	A3	NS	CLIENT No. DWG.:	0
APPROVED BY:	A.H.A.					815	

