Indice Index	Data Date	Modificare Modification/Revision	Proiectant Designer	Aprobat Consultant Approved Consultant	Aprobat CFR Approved CFR

GUVERNUL ROMANIEI
ROMANIAN GOVERNMENT

PROIECT FINANȚAT DE UNIUNEA EUROPEANĂ
EUROPEAN UNION FINANCED PROJECT

CLIENT / CLIENT

C.N.C.F. C.F.R. - S.A.

ITALFERR
GRUPPO FERROVIE DELLO STATO
Joint Venture leader

Scott Wilson

OBERMEYER
PLANEN + BERATEN GmbH

TECNIC
Consulting Engineers

CONSULTANT / CONSULTANT

			Data Date	Semnătură Signature
Aprobat Approved	Şef proiect Project manager	R. Liuzza	12.2011	
Aprobat Approved	Coordonator Secţiune 1 Section 1 Coordinator	C. Gambelli	12.2011	
Verificat Checked	Expert Verificator Checking Expert	G. Buffarini	12.2011	

SUBCONTRACTANT / SUBCONTRACTOR

AREX

Aprobat Approved	Responsabil Subconsultant Subconsultant Responsible	A. Stanciu - Dinulescu	12.2011	
Întocmit Elaborated	Proiectant Designer	D. Dan	12.2011	

Reabilitarea liniei de cale ferata Braşov - Simeria, parte componentă a coridorului IV Pan European, pentru circulaţia trenurilor cu viteza maximă de 160 km/h,
Tronsonul: Braşov - Sighişoara
Rehabilitation of the railway line Braşov - Simeria, component Part of the IV Pan-European Corridor, for the trains circulation with maximum speed of 160 km/h,
Section: Braşov - Sighişoara

Proiect/Project
2004/RO/16/P/PA/003

Faza / Phase:
P.Th. / T.D.

Denumire desen / Drawing Title:

Desene de baza generale / Basic design general
Linie de contact / Contact line

Codificare / Codification System	Scara / Scale	LOT / LOT	Nr. / No
E A 5 1 0 1 C 0 0 B X L C 0 0 0 1 0 0 5 1	-		01 /01

(297 x 420)

Nr. Crt.	DENOMINATION	No. BDG	Nr. Revizie
1	CRITERII GENERALE PENTRU DEFINIREA OCS PENTRU LINIA PRINCIPALA GENERAL CRITERIA FOR OCS DEFINITION ON MAIN LINE	01LC00BDG002	0
2	CABLU PURTATOR DIN BRONZ 50mmp MESSENGER BRONZE CABLE 50 mmp	01LC00BDG003	0
3	CRITERII GENERALE PENTRU DEFINIREA OCS PENTRU LINIA SECUNDARA GENERAL CRITERIA FOR OCS DEFINITION SECONDARY LINE	01LC00BDG004	0
4	PROTECTIA STALPILOR DICE PROTECTION	01LC00BDG008	0
5	TIPURI DE STALPI SI REFERINTE MAST TYPES AND REFERENCES	01LC00BDG010	0
6	STALP PENTRU TRAVERSA RIGIDA MAST FOR GANTRY BEAM	01LC00BDG011	0
7	SPECIFICATII PENTRU LIVRAREA STALPILOR H SPECIFICATION FOR SUPPLYNG H BEAM	01LC00BDG012	0
8	FIR DE CONTACT 100 mmp CONTACT WIRE 100 mm	01LC00BDG013	0
9	FIR DE CONTACT 80mmp CONTACT WIRE 80mmp	01LC00BDG014	0
10	CABLU DE BRONZ PENTRU PENDULE 10 mmp DROPPER BRONZE CABLE 10 mmp	01LC00BDG015	0
11	CABLU PURTATOR DIN BRONZ 70mmp MESSENGER BRONZE CABLE 70mmp	01LC00BDG016	0
12	CONDUCTOR PENTRU CABLUL COLECTOR 95/15 ACSR 95/15 ACSR WIRE FOR EARTHING CONDUCTOR	01LC00BDG017	0
13	IZOLATOR COMPOZIT DE ANCORARE COMPOSITE ANCHORING INSULATOR	01LC00BDG018	0
14	IZOLATOR COMPOZIT PENTRU TIRANT SI CONTRAFISA COMPOSITE INSULATOR FOR STRUT TUBE AND TOP TUBE	01LC00BDG019	0
15	PENDULA (L>=250mm.) DROPPER (L>=250mm.)	01LC00BDG020	0
16	IZOLATOR DE SECTIONARE SECTION INSULATOR	01LC00BDG021	0
17	CARACTERISTICILE PANTOGRAFULUI PANTOGRAPH ENVELOPE	01LC00BDG028	0
18	LINIA DE CONTACT LA MACAZE SI DIAGONALE CATENARY AT CROSS-OVER AND TURNOUT	01LC00BDG029	0
19	ZONA NEIZOLATA DE ANCORARE UNINSULATED OVERLAPS	01LC00BDG030	0
20	ZONA IZOLATA DE ANCORARE INSULATED OVERLAPS	01LC00BDG031	0
21	ANCORARE MEDIANA IN LINIE DIRECTA MID POINT ANCHOR ON OPEN ROUTE	01LC00BDG032	0
22	ALEGERE ZIG-ZAG CATENARA IN FUNCTIE DE DESCHIDERE STAGGERING OF CONDUCTORS ALLOCATION OF SPANS	01LC00BDG033	0
23	ANCORAREA CONDUCTOARELOR CONDUCTORS ANCHORING	01LC00BDG034	0
24	ECHIPARE TIP CATENARA IN LINIE CURENTA (CONSOLA TENSIONATA) TYPICAL CATENARY EQUIPAMENT ON OPEN ROUTE (PULL OFF ASSEMLY)	01LC00BDG035	0
25	ECHIPARE TIP CATENARA IN LINIE CURENTA (CONSOLA TENSIONATA) TYPICAL CATENARY EQUIPAMENT ON OPEN ROUTE (PUSH OFF ASSEMLY)	01LC00BDG036	0
26	ECHIPARE TIP CATENARA (CU DISTANTA INTRE CONSOLE DE 1m) TYPICAL CATENARY EQUIPMENT (WITH EQUIPMENTS SPACING 1m)	01LC00BDG037	0
27	ECHIPARE TIP A CATENAREI PENTRU ZONA DE IZOLATIE MECANICA (DISTANTA INTRE CONSOLE DE 1.60 m) TYPICAL CATENARY EQUIPMENT FOR UNINSULATED OVERLAP AXIS (WITH EQUIPMENTS SPACING 1.60m)	01LC00BDG038	0
28	ECHIPARE TIP A CATENAREI PENTRU STALPII MEDIANI AI ZONEI IZOLATE (DISTANTA INTRE CONSOLE DE 1.60 m) TYPICAL CATENARY EQUIPMENT FOR INSULATED OVERLAP AXIS (WITH EQUIPMENTS SPACING 1.60m)	01LC00BDG039	0
29	ECHIPARE TIP A CATENAREI PE TRAVERSA RIGIDA TYPICAL CATENARY EQUIPMENT ON GANTER BEAM	01LC00BDG040	0
30	MONTAJ TIP PENTRU INCRUCISARE TYPICAL MOUNTING FOR CROSS-OVER	01LC00BDG042	0
31	ANCORA LA NIVEL LEVEL ANCHOR	01LC00BDG047	0
32	ANCORARE CABLU COLECTOR EARTHING CONDUCTOR ANCHORING	01LC00BDG048	0
33	ANCORA SUPRAINALTATA SUPERELEVATED ANCHOR	01LC00BDG049	0
34	LEGATURA LONGITUDINALA LONGITUDINAL CONNECTION	01LC00BDG050	0
35	DEPLASAREA CATENAREI IN LUNGUL LINIEI FUNCTIE DE TEMPERATURA ALONG TRACK MOVEMENT OF EQUIPMENT ACCORDING TO TEMPERARE RANGE	01LC00BDG052	0
36	REGLAJUL CONTRAGREUTATILOR BALANCE WEIGHT SETTINGS	01LC00BDG053	0
37	SUPORT PENTRU FIBRA OPTICA OPTICAL FIBER BRACKET	01LC00BDG054	0
38	SUPORT PENTRU DOUA FIBRE OPTICE BRACKET FOR TWO OPTICAL FIBRES	01LC00BDG055	0

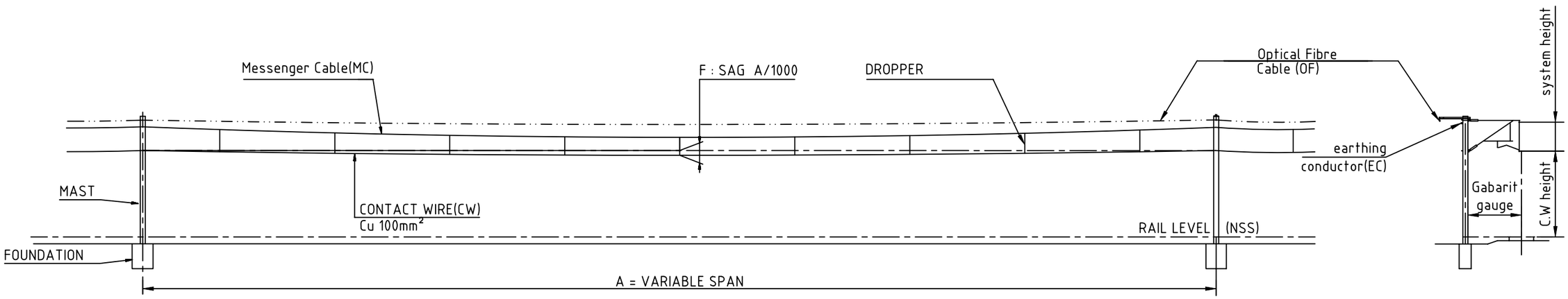
Nr. Crt.	DENOMINATION	No. BDG	Nr. Revizie
39	SUPORT PENTRU ANCORAREA FIBRAEI OPTICE OPTICAL FIBER BRACKET ANCHORING	01LC00BDG056	0
40	FIXARE PENTRU TIRANT SI CONTRAFISA CU GABARITUL STALPULUI>3.1m FASTENING FOR TOP AND STRUT TUBE WITH OFFSET>3.1m	01LC00BDG057	0
41	FIXARE PENTRU CONTRAFISA FASTERNING FOR STRUT TUBE	01LC00BDG058	0
42	FIXARE PENTRU TIRANT FASTENING FOR TOP TUBE	01LC00BDG059	0
43	TRAVERSA DE TRECERE PENTRU 2 SAU 3 CONTRAFISE (distanta 1m) SPREADER ASSEMBLY FOR 2 OR 3 STRUT TUBES (spacing 1m)	01LC00BDG060	0
44	TRAVERSA DE TRECERE PENTRU 2 SAU 3 TIRANTI (distanta 1m) SPREADER ASSEMBLY FOR 2 OR 3 TOP TUBES (spacing 1m)	01LC00BDG061	0
45	TIRANT IZOLAT ø 60 INSULATED FOR TOP TUBE ø 60	01LC00BDG064	0
46	CONTRAFISA IZOLATA ø 60 INSULATED FOR STRUT TUBE ø 60	01LC00BDG066	0
47	FIXARE PENTRU TIRANT FASTENING FOR TOP TUBE	01LC00BDG069	0
48	SUPORT PENTRU 1 SAU 2 CABLURI PURTATOARE SUSPENSION FOR 1 OR 2 MESSENGERS	01LC00BDG070	0
49	CRAPODINA CU SUSTINEREA CABLULUI COLECTOR PENTRU TIRANT FASTENING FOR STRUT TUBE WITH EARTHING CONDUCTOR	01LC00BDG071	0
50	FIXARE PENTRU CABLUL COLECTOR EARTHING CONDUCTOR FASTENING	01LC00BDG072	0
51	TRAVERSA CU SUSTINEREA CABLULUI COLECTOR PENTRU 2 SAU 3 CONTRAFISE (distanta 1m) SPREADER ASSEMBLY FOR 2 OR 3 STRUT TUBES WITH EARTHING CONDUCTOR (spacing 1m)	01LC00BDG078	0
52	TRAVERSA CU SUSTINEREA CABLULUI COLECTOR PENTRU 2 SAU 3 TIRANTI (distanta 1.60m) SPREADER ASSEMBLY FOR 2 OR 3 TOP TUBES WITH EARTHING CONDUCTOR (spacing 1.60m)	01LC00BDG079	0
53	TRAVERSA PENTRU 2 SAU 3 CONTRAFISE (distanta 1.60m) SPREADER ASSEMBLY FOR 2 OR 3 STRUT TUBES (spacing 1.60m)	01LC00BDG080	0
54	TRAVERSA CU SUSTINEREA CABLULUI COLECTOR PENTRU 2 SAU 3 CONTRAFISE (distanta 1.60m) SPREADER ASSEMBLY FOR 2 OR 3 STRUT TUBES WITH EARTHING CONDUCTOR (spacing 1.60m)	01LC00BDG081	0
55	TRAVERSA PENTRU 2 SAU 3 TIRANTI (distanta 1.40m) SPREADER ASSEMBLY FOR 2 OR 3 TOP TUBES (spacing 1.40m)	01LC00BDG082	0
56	BARA DE RIGIDIZARE AUXILIARY STRUT TUBE	01LC00BDG083	0
57	ANSAMBLU DE FIXARE ROTATIV ROTATING FASTENING ASSEMBLY	01LC00BDG084	0
58	SUPORT PENTRU FIBRA OPTICA SUPPORT FOR OPTICAL FIBER	01LC00BDG086	0
59	CONTRASUPORT PENTRU FIBRA OPTICA COUNTERPLATE FOR OPTICAL FIBER	01LC00BDG087	0
60	SUPORT PENTRU BALAMA HINGE SUPPORT	01LC00BDG088	0
61	TRAVERSA (distanta 1m) SPREADER (spacing 1m)	01LC00BDG089	0
62	CONTRASUPORT PENTRU TIRANT SI CONTRAFISA COUNTREPLATE FOR TOP AND STRUT TUBE	01LC00BDG090	0
63	CONTRASUPORT FOR SPREADER (PENTRU HE200 LA HE320 COUNTERPLATE FOR SPREADER (FOR HE200 TO HE320)	01LC00BDG094	0
64	TEAVA ø60-4 PENTRU TIRANT ø60-4 TUBE FOR TOP TUBE	01LC00BDG095	0
65	TEAVA Ø49-4.5 PENTRU FIXARE FIXATOR Ø49-4.5 TUBE FOR STEADY ARM FASTENING	01LC00BDG100	0
66	TEAVA ø60-4 PENTRU CONTRAFISA ø60-4 TUBE FOR STRUT TUBE	01LC00BDG101	0
67	CONTRASUPORT CU FIXAREA CABLULUI COLECTOR COUNTERPLATE WITH EARTHING CONDUCTOR	01LC00BDG102	0
68	SUPORT PENTRU DOUA FIBRE OPTICE SUPPORT FOR TWO OPTICAL FIBERS	01LC00BDG106	0
69	SUPORT PENTRU ANCORAREA FIBREI OPTICE SUPPORT FOR OPTICAL FIBER ANCHORING	01LC00BDG107	0
70	CONTRASUPORT PENTRU ANCORAREA FIBREI OPTICE COUNTERPLATE FOR OPTICAL FIBER ANCHORING	01LC00BDG113	0
71	SUPORT BALAMA PENTRU 2 SAU 3 CONSOLE HINGE SUPPORT FOR 2 OR 3 TUBES	01LC00BDG114	0
72	TRAVESRA (distanta 1.60m) SPREADER (spacing 1.60m)	01LC00BDG115	0
73	TEAVA ø28-3 TUBE ø28-3	01LC00BDG116	0
74	SUPORT ROTATIV ROTATING STAND OFF BRACKET	01LC00BDG117	0
75	FLANSA ROTATIVA PENTRU TEAVA ø60-4 ROTATING HALF FLANGE FOR TUBE ø60-4	01LC00BDG118	0
76	FIXARE L=900 PENTRU TIRANT SI CONTRAFISA FASTENING FOR TOP AND STRUT TUBE L=900	01LC00BDG120	0
77	ANSAMBLU TRAVERSA RIGIDA PE STALP ASSEMBLIES GANTRY BEAM ON MAST	01LC00BDG121	0
78	CONTRASUPORT PENTRU TRAVERSA RIGIDA COUNTERPLATE FOR GANTRY BEAM	01LC00BDG122	0
79	CONTRASUPORT COUNTERPLATE	01LC00BDG129	0

Nr. Crt.	DENOMINATION	No. BDG	Nr. Revizie
80	TENSOR ANCORARE ANCHOR TIE ROD	01LC00BDG130	0
81	CONTRASUPORT PENTRU CABLUL COLECTOR ANGLE FOR EARTHING ANCHORING	01LC00BDG131	0
82	TRAVERSA PENTRU ANCORA LA NIVEL LEVEL ANCHOR BEAM	01LC00BDG132	0
83	CONTRASUPORT PENTRU CABLU CULECTOR COUNTERPLATE FOR EARTHING ANCHORING	01LC00BDG133	0
84	FIXARE TIRANT SI CONTRAFISA PENTRU GABRIT>4.10M FASTENING FOR TOP TUBE AND STRUT TUBE WITH OFFSET>4.10M	01LC00BDG134	0
85	CRAPODINA PENTRU TIRANT CU SUTINEREA CABLULUI COLECTOR FASTENING FOR TOP TUBE WITH EARTHING CONDUCTOR	01LC00BDG135	0
86	TRAVERSA PENTTRU 2 SAU 3 TIRANTI CU SUTINEREA CABLULUI COLECTOR SPREADER ASSEMBLY FOR 2 OR 3 TOP TUBES WITH EARTHING CONDUCTOR	01LC00BDG136	0
87	CRAPODINA PENTRU TIRANT CU FIXAREA CABLULUI COLECTOR FASTENING FOR TOP TUBE WITH EARTHING CONDUCTOR	01LC00BDG137	0
88	TRAVERSA PENTRU 2 SAU 3 TIRANTI CU FIXAREA CABLULUI PURTATOR SPREADER ASSEMBLY FOR 2 OR 3 TOP TUBES WITH EARTHING CONDUCTOR	01LC00BDG138	0
89	CARPODINA PENTRU CONTRAFISA PENTRU STALP MU (300X120) FASTENING FOR STRUT TUBE FOR MU (300X120)	01LC00BDG139	0
90	FIXARE PENTRU ANCORAREA CABLULUI COLECTOR PENTRU STALP HEA SAU HEB 200 LA 240 FASTENING FOR ANCHORING OF EARTH CONDUCTOR FOR MAST HEA OR HEB 200 TO 240	01LC00BDG140	0
91	PREZON THREADED ROD	01LC00BDG141	0
92	SAIBA WASHER	01LC00BDG142	0
93	BOLT TIP U U-BOLT	01LC00BDG143	0
94	BOLT BOLT	01LC00BDG144	0
95	SPLINT SPLIT PIN	01LC00BDG145	0
96	AX AXIS	01LC00BDG146	0
97	PORTFIXATOR ø 34-4 CU FIXATOR 0.9m PENTRU LINIE DREAPTA ø 34-4 REGISTRATION ARM WITH 0.9m STEADY ARM FOR STRAIGHT LINE	01LC00BDG150	0
98	PORTFIXATOR ø 34-4 CU FIXATOR 1.1m PENTRU LINIE CURBA ø 34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR CURVE	01LC00BDG151	0
99	PORTFIXATOR ø 34-4 CU FIXATOR 1.1m PENTRU ZONA IZOLATA ø 34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR INSULATED OVERLAP	01LC00BDG152	0
100	PORTFIXATOR ø 34-4 CU FIXATOR 1.1m PENTRU INCRUCISARE ø 34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR CROSS-OVER	01LC00BDG153	0
101	ANCORAREA RIGIDA A CATENAREI CATENARY RIGID ANCHORING	01LC00BDG154	0
102	ANCORARE MEDIANA MID POINT ANCHORING	01LC00BDG155	0
103	SUPORT SUPPORT	01LC00BDG156	0
104	AX SUPORT COGWHEEL SUPORT AXIS	01LC00BDG157	0
105	PLACA PLATE	01LC00BDG158	0
106	PLACA PLATE	01LC00BDG159	0
107	PROFIL II FRAME II	01LC00BDG165	0
108	PROFIL II FRAME II	01LC00BDG168	0
109	PROFIL II FRAME II	01LC00BDG171	0
110	CONTRAGREUTATE DIN BETON CONCRETE COUNTERWEIGHT	01LC00BDG172	0
111	CONTRAGREUTATE DIN FONTA CAST IRON COUNTERWEIGHT	01LC00BDG173	0
112	OCHI TIP I EYE I	01LC00BDG174	0
113	OCHI TIP II EYE II	01LC00BDG175	0
114	DISPOZITIV CU 3 PRINDERI 3 PIN CLEVIS	01LC00BDG179	0
115	CLEMA DE PRINDERE IN COLT CORNER CRAMP	01LC00BDG180	0
116	ANCORAREA TOTAL COMPENSATA A CATENAREI FULL COMPENSATED CATENARY ANCHORING	01LC00BDG182	0
117	FIXARE SUPERIOARA PENTRU MU 10-5/8.2 SAU STALP HEB UPPER FASTENING FOR MU 10-5/8.2 OR HEB POLE	01LC00BDG183	0
118	FIXARE SUPERIOARA PENTRU STALP SECP6 UPPER FASTENING FOR SECP6 POLE	01LC00BDG184	0
119	FIXARE SUPERIOARA PENTRU STALP SMT273 UPPER FASTENING FOR SMT273 POLE	01LC00BDG185	0
120	AX SUPORT COGWHEEL SUPORT AXIS	01LC00BDG186	0

Nr. Crt.	DENOMINATION	No. BDG	Nr. Revizie
121	GHIDAJ GUIDEWAY	01LC00BDG187	0
122	BARA BAR	01LC00BDG188	0
123	LEGATURA CU 3 GAURI THREE PIN STRAP	01LC00BDG189	0
124	SURUB SCREW	01LC00BDG190	0
125	CAPAC COVER	01LC00BDG191	0
126	PRINDERE RASUCITA CU OCHI CLEVIS WITH EYE TWISTED	01LC00BDG192	0
127	FIXARE INFERIOARA PE STALP HEB SAU MU INFERIOR FASTENING ON HEB OR MU POLE	01LC00BDG193	0
128	PROFIL I FRAME I	01LC00BDG194	0
129	FIXARE INFERIOARA PENTRU STALP SECP6 INFERIOR FASTENING ON SECP6 POLE	01LC00BDG195	0
130	PROFIL I FRAME I	01LC00BDG196	0
131	FIXARE INFERIOARA PENTRU STALP SMT INFERIOR FASTENING ON SMT POLE	01LC00BDG197	0
132	PROFIL I FRAME I	01LC00BDG198	0
133	ZONA NEUTRA NEUTRAL SECTION	01LC00BDG199	0
134	CADRU PENTRU CONTRAGREUTATI DIN BETON CADRE FOR CONCRETE COUNTERWEIGHTS	01LC00BDG201	0
135	BARA PENTRU CONTRAGREUTATI DIN FONTA ROD FOR CAST IRON COUNTERWEIGHTS	01LC00BDG202	0
136	FIXARE CABLUL COLECTOR PENTRU STALP MU EARTHING CONDUCTOR FASTENING FOR MU POLE	01LC00BDG203	0
137	FIXARE PENTRU ANCORAREA CABLULUI COLECTOR PENTRU STALP MU FASTENING FOR ANCHORING OF EARTH CONDUCTOR FOR MU POLE	01LC00BDG204	0
138	ANCORARE MEDIANA PENTRU STALP MU MID POINT ANCHORING ON MU POLES	01LC00BDG205	0
139	PROFIL PENTRU ANCORAREA RIGIDA PE STALP MU ANGLE FOR RIGID ANCHORING ON MU POLE	01LC00BDG206	0
140	PLACA PLATE	01LC00BDG209	0
141	ECHIPARE TIP PENTRU CATENARA CU FIXARE PENTRU 2 CONSOLE L=900 TYPICAL CATENARY EQUIPMENT WITH FASTENING FOR 2 CANTILEVER L=900	01LC00BDG210	0
142	FIXARE TIRANT PENTRU 2 CONSOLE L=900 FASTENING FOR TOP TUBE FOR 2 CANTILEVER L=900	01LC00BDG211	0
143	FIXARE CONTRAFISA PENTRU 2 CONSOLE L=900 FASTENING FOR STRUT TUBE FOR 2 CANTILEVER L=900	01LC00BDG212	0
144	FIXARE PENTRU 2 CONSOLE L=900 FASTENING FOR 2 CANTILEVER L=900	01LC00BDG213	0
145	INTINZATOR TURNBUCKLE	01LC00BDG214	0
146	CORP INTINZATOR TURNBUCKLE BOADY	01LC00BDG215	0
147	BARA CU URECHE ROD WITH CLEVIS	01LC00BDG216	0
148	BARA CU OCHI ROD WITH EYE	01LC00BDG217	0
149	MONTARE IZOLATOR DE SECTIONARE IN ZONA MACAZURILOR SECTION INSULATOR MOUNTING ON TURN-OUT	01LC00BDG220	0
150	PIESA DE EXTENSIE PENTRU STALP H EXTENSION PIECE FOR H POLES	01LC00BDG222	0
151	MONTARE TIP ECHIPAMENT MEDIAN PENTRU LINIE CURENTA (ANSAMBLU TENSIONAT) TYPICAL MID POINT EQUIPMENT ON OPEN ROUTE (PULL OF ASSEMBLY)	01LC00BDG230	0
152	MONTARE TIP ECHIPAMENT MEDIAN PENTRU LINIE CURENTA (ANSAMBLU COMPRIMAT) TYPICAL MID POINT EQUIPMENT ON OPEN ROUTE (PUSH OFF ASSEMBLY)	01LC00BDG231	0
153	VARFAR CU INEL PENTRU FIBRA OPTICA SURELEVATED SUPPORT FOR OPTICAL FIBER WITH RING	01LC00BDG250	0
154	VARFAR CU ROLA PENTRU FIBRA OPTICA SURELEVATED SUPPORT FOR OPTICAL FIBER WITH PULLEY	01LC00BDG251	0
155	SUPORT PENTRU FIBRA OPTICA SUPPORT FOR OPTICAL FIBER	01LC00BDG252	0
156	BOLT STRUT	01LC00BDG253	0
157	CONTRASUPORT COUNTERPLATE	01LC00BDG254	0
158	CONEXIUNE DE IMPAMANTARE EARTH CONNECTION	01LC00BDG260	0
159	CONTRASUPORT SPECIAL SPECIAL COUNTERPLATE	01LC00BDG261	0
160	ANSAMBLU SUPORT PENTRU FIBRA OPTICA OPTICAL FIBER SUPPORT ASSEMBLY	01LC00BDG270	0
161	SUPORT FIBRA OPTICA OPTICAL FIBER SUPPORT	01LC00BDG271	0

Nr. Crt.	DENOMINATION	No. BDG	Nr. Revizie
162	PORTFIXATOR ø42x4 CU FIXATOR 1.1m PENTRU LINIE CURBA ø42x4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR CURVE	01LC00BDG272	0
163	ATASAMENT PENTRU FIXATOR Ø34 STEADY ARM BRACKET ATTACHMENT Ø34	01LC00BDG273	0
164	SUPORT PENTRU REZERVA DE FIBRA OPTICA (pentru joctiune FO) SUPPORT FOR RESERVE OF OPTICAL FIBER (for OF junction)	01LC00BDG275	0
165	SUPORT FIBRA OPTICA (pentru jonctiune FO) OPTICAL FIBER SUPPORT (for OF junction)	01LC00BDG276	0
166	SUPORT FIBRA OPTICA PENTRU JONCTIUNE OPTICAL FIBER SUPPORT FOR PLUG JUNCTION	01LC00BDG277	0
167	CONTRASUPORT PENTRU FIXARE JONCTIUNE COUNTERPLATE FOR OF PLUG JUNCTION	01LC00BDG278	0
168	PANA TIP II	E-LC 2 - 3.3	0
169	CLEMA DE LEGATURAPENTRU CONDUCTOARE DE PUNERE LA PAMANT	E-LC 2 - 4.0	0
170	FALCA CLEMEI	E-LC 2 - 4.1	0
171	COLIER	ELC 5 - 4B	0
172	CLEMA TERMINALA CU PANA SI FURCA	E-LC 9.29.0	0
173	CORP	E-LC 9.29.1	0
174	PANA TIP I	E-LC 9.29.2	0
175	CONTRAFISA CU IZOLATOR	E-LC 13 - 1.2.0	0
176	BRIDA CU CERCEL	E-LC 13 - 1.2.3.0	0
177	URECHE NESECTIONATA	E-LC 13 - 1.2.3.1	0
178	BRATARA	E-LC 13 - 1.2.3.2	0
179	BRATARA CU PIVOT	ELC 13 - 1.3.1A	0
180	CERCEL	E-LC 13 - 1.3.2.0	0
181	SA TIP I	E-LC 13 - 1.4.0	0
182	SA-I	ELC 13 - 1.4.0A	0
183	SA-II	ELC 13 - 1.4.0B	0
184	SA I	ELC 13 - 1.4.1A	0
185	ETRIER	ELC 13 - 1.4.2A	0
186	FILIERA	ELC 13 - 1.4.3A	0
187	FILIERA PENTRU UN CABLU	E-LC 13 - 1.4.6	0
188	FILIERA PENTRU 2 CABLURI	E-LC 13 - 1.4.9	0
189	SURUB	E-LC 13 - 3.3.8	0
190	BALAMA PENTRU TIRANT	ELC 13 - 9.10 A	0
191	BALAMA PENTRU CONTRAFISA	ELC 13 - 9.11 A	0
192	CRAPODINA PENTRU O CONSOLA SIMPLA PE PINTEN	ELC 13 - 13.0A	0
193	SUPORT	ELC 13 - 13.1A	0
194	BRIDA	E-LC 13 - 13.2	0
195	BRIDA	ELC 13 - 13.3B	0
196	CONTRAFISA	ELC 13 - 14.0B	0
197	CAPAC CU FURCA	ELC 13 - 14.7.0B	0
198	PORTFIXATOR DREPT	ELC 13 - 15.0 B	0
199	PORTFIXATOR ø 42-4	ELC 13 - 15.0 BM	0
200	STUT	ELC 13 - 15.3 BM	0
201	BRIDA	ELC 13 - 15.6 BM	0
202	PASTILA	ELC 13 - 15.7 BM	0
203	SAIBA DE COLT	E-LC 16 - 12.3.0	0
204	SUPORT	E-LC 16 - 12.3.1	0
205	SAIBA SFERICA	E-LC 16 - 12.3.2	0
206	MUFA 1" CU CERCEL	E-LC 26 - 4.7.0	0
207	MUFA	E-LC 26 - 4.7.1	0
208	MUFA 1" CU PINTEN SI OCHI	E-LC 27 - 4.8.0	0
209	MUFA	E-LC 27 - 4.8.1	0
210	SAIBA SFERICA	E-LC 31 - 5	0
211	MUFA TERMINALA 1" CU CARLIG	E-LC 32 - 2.2	0
212	STUT	E-LC 32 - 2.4	0
213	DOP	ELC 32 - 9.2A	0
214	MUFA TERMINALA 3/4" CU CARLIG	E-LC 32 - 9.3	0
215	CLEMA DE FIXARE PREIN SERTIZARE PE FIR TTF100	ELC 32 - 9.5.5.0B	0
216	FALCA CLEMA	ELC 32 - 9.5.5.1B	0
217	CIOC	ELC 32 - 9.6A	0
218	DISTANTIER	ELC 32 - 9.11.6B	0
219	FIXATOR CURBAT DC	ELC 32 - 10.0A	0
220	FIXATOR CURBAT PENTRU ACE DCA	ELC 32 - 11.0A	0
221	FIXATOR CURBAT PENTRU STALPUL MEDIAN DCM	ELC 32 - 12.0A	0
222	FIXATOR DE ANCORARE A	ELC 32 - 13.0A	0
223	CIOC FILETAT	ELC 32 - 13.6A	0
224	MUFA	ELC 32 - 13.7A	0
225	PLACA DE REGLARE	E-LC 49 - 17	0
226	TRAVERSA PENTRU SECP6	ELC 50 - 3.1A	0
227	TRAVERSA PENTRU mu10-5/8.2 SI HEB	ELC 50 - 4.1A	0
228	TRAVERSA PENTRU SMT273	ELC 50 - 5.1A	0
229	TRAVERSA	ELC 50 - 13.1A	0
230	TRAVERSA	ELC 50 - 14.1A	0
231	TRAVERSA	ELC 50 - 15.1A	0
232	SCOABA	E-LC 51 - 22	0
233	ANCORA SPECIALA AS	ELC-CFO 1 - 6.0	0

Nr. Crt.	DENOMINATION	No. BDG	Nr. Revizie
234	RODANTA	ELC-CFO 1 - 8	0
235	CLEMA DE LEGARE CU TREI SURUBURI	ELC-CFO 1 - 12.0	0
236	FALCA CLEMA	ELC-CFO 1 - 12.1	0
237	CARLIG	ELC-CFO 3-15.0	0
238	CARLIG TIP A	ELC-CFO 3 - 15.0B	0
239	CARLIG	ELC-CFO 3 - 15.1B	0
240	ANCORAREA CONDUCTORULUI COLECTOR IN LINIE CURENTA	EP 2610 - 4.0A	0
241	SEMIBRIDA	EP 2610 - 4.1A	0
242	CLEMA DE LEGATURA PENTRU CABLUL PURATATOR	LECP 00	0
243	CLEMA DE LEGATURA PENTRU FIRUL DE CONTACT	LEFC 00	0



CATENARY CHARACTERISTICS

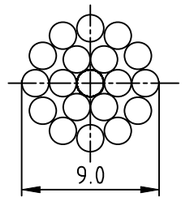
CONSTITUTION OF OVERHEAD SYSTEM FOR MAIN LINE					
DESCRIPTION	DESIGNATION	NOMINAL CROSS SECTION	TENSION APPLIED	METHOD OF TENSIONNING	
1 messenger Cable	Bz 70	65.81mm2	1000 daN	Auto tensioning	from −33°C to +32°C
1 contact wire	Cu 100	100 mm2	1000 daN	Auto tensioning	average temp.: +9°C
1 earthing conductor	95/15 ACSR	105 mm2	1000 daN	Fixed tensioning	

CATENARY CONDUCTIVITY

Description	Conductivity	Copper Standard
1 messenger Cable	72%	47.38 mm2
1 contact wire	98%	98.00 mm2
	Total	145.38 mm2

CRITERII GENERALE PENTRU DEFINIREA OCS PENTRU LINIA PRINCIPALA GENERAL CRITERIA FOR OCS DEFINITION ON MAIN LINE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG002		*1 / 1*	*0*

(297 x 420)



50mm² Bronze Cable for messenger		
Specification designation	Unit	Specified value
Wire designation	N/A	BZ 50
Composition and make up	N/A	19x1.8mm
Raw material	N/A	BZ II
Nominal diameter	mm	9.0
Nominal cross section	mm²	48.35
Wire lay	N/A	
Thermic linear expansion coefficient	m/m.°C	0.000017
Mechanical extension coefficient	m/N	0.000118
Conductivity(%equivalent Copper)	%	72
Weight per meter	kg/m	0.438
Minimum breaking load	kN	28.39
Applicable standard	N/A	DIN 48 201

joints are not allowed (even by welding or hard silver soldering)

Notes:

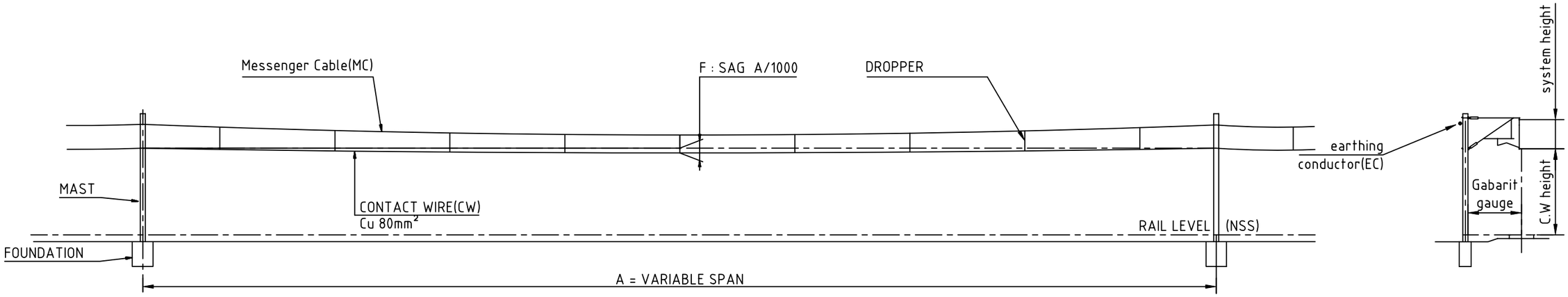
*Cable to be delivered on wood drums closed with flanges

*Quantity (in meter) on each drum to be allocated and provided with purchase order

*Product marking label to display:

Compania Nationala de Cai Ferate
Rehabilitation of ..... OCS Contract Lot .....
Wire designation : ..... BZ 50
Wire actual lenght : ..... (m)

CABLU PURTATOR DIN BRONZ 50mmp MESSENGER BRONZE CABLE 50 mmp	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG003	-	*1 / 1*	*0*



CATENARY CHARACTERISTICS

CONSTITUTION OF OVERHEAD SYSTEM FOR SECONDARY LINE					
DESCRIPTION	DESIGNATION	NOMINAL CROSS SECTION	TENSION APPLIED	METHOD OF TENSIONNING	
1 messenger cable	Bz 50	48.35 mm2	1000 daN	Auto tensioning	from −33°C to +40°C
1 contact wire	Cu 80	80 mm2	1000 daN	Auto tensioning	average temp.: +15°C
1 earthing conductor	95/15 ACSR	105 mm2	1000 daN	Fixed tensioning	

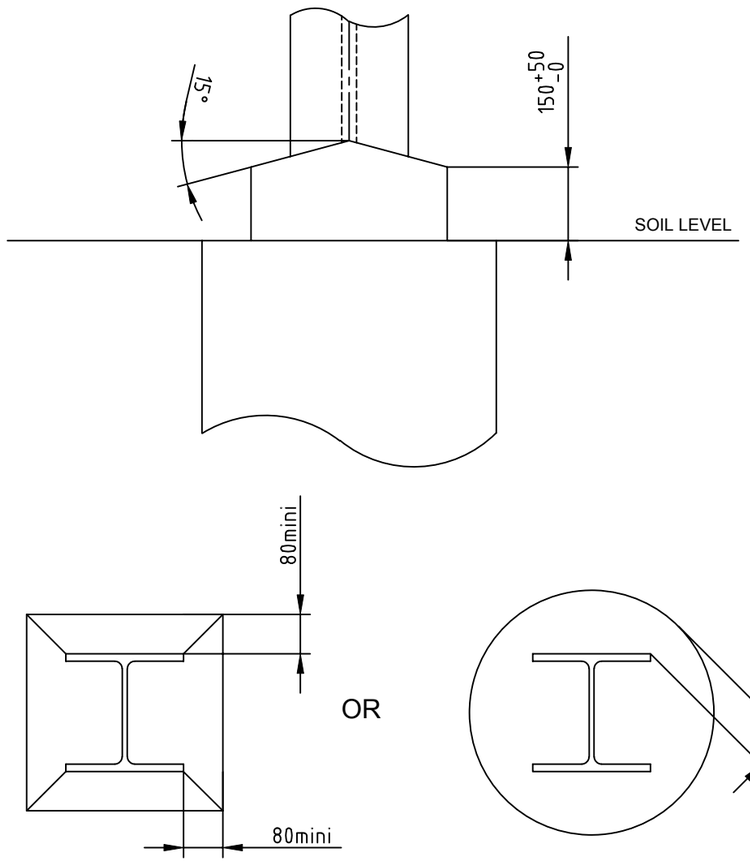
CATENARY CONDUCTIVITY

Description	Conductivity	Copper Standard
1 messenger cable	72%	34.81 mm2
1 contact wire	98%	78.40 mm2
	Total	113.21 mm2

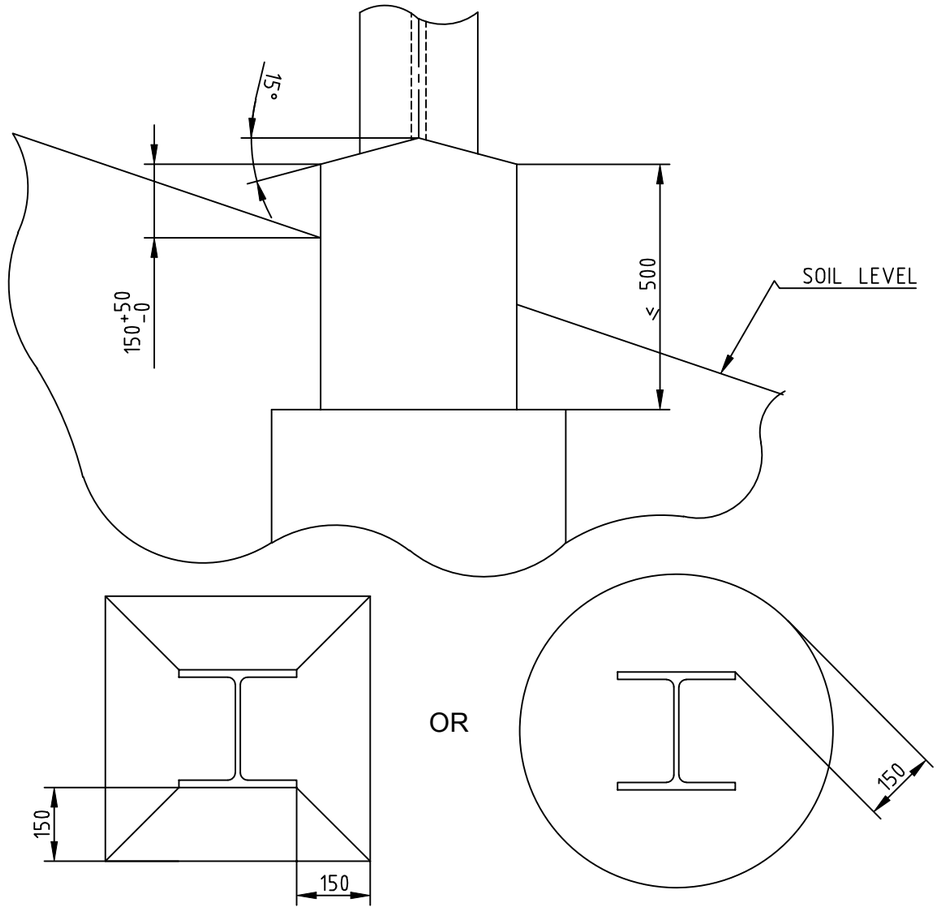
CRITERII GENERALE PENTRU DEFINIREA OCS PENTRU LINIA SECUNDARA GENERAL CRITERIA FOR OCS DEFINITION SECONDARY LINE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG004		1 / 1	0

(297x420)

STANDARD DICE PROTECTION



ELEVATED DICE PROTECTION

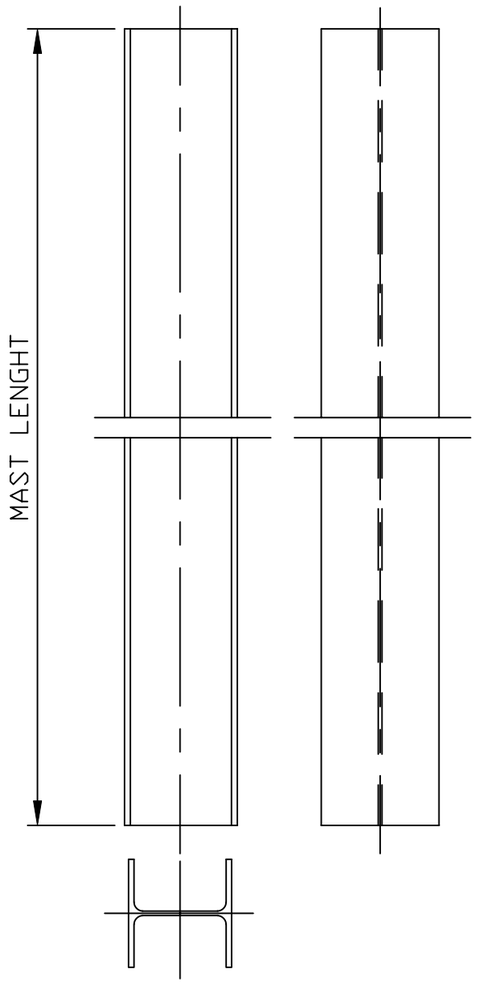


NOTE :

- THE DICE PROTECTION WILL BE DONE AFTER CATENARY INSTALLATION (LOADED MAST)
- THE DICE PROTECTION MAKING IS FORBIDDEN DURING RAINING WEATHER
- BEFORE INSTALLATION , THE FOUNDATION SURFACE MUST BE CLEANED AND PRICKED
- MORTAR CEMENT : 350 kg OF CEMENT / m^3

PROTECTIA STALPILOR DICE PROTECTION	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG008		*1 / 1*	*0*

(297 x 420)



HEA 200		
MARK	LENGTH (m)	MASS (kg)
A20S	9.80	415
A20A	10.20	431
A20B	10.60	448
A20C	11.00	465
A20D	11.40	482

HEA 220		
MARK	LENGTH (m)	MASS (kg)
A22S	9.80	495
A22A	10.20	515
A22B	10.60	535
A22C	11.00	556
A22D	11.40	576

HEA 240		
MARK	LENGTH (m)	MASS (kg)
A24S	9.80	591
A24A	10.20	615
A24B	10.60	639
A24C	11.00	663
A24D	11.40	687

HEA 260		
MARK	LENGTH (m)	MASS (kg)
A26A	10.20	696
A26B	10.60	723
A26C	11.00	750
A26D	11.40	777

HEA 280		
MARK	LENGTH (m)	MASS (kg)
A28A	10.20	779
A28B	10.60	810
A28C	11.00	840
A28D	11.40	871

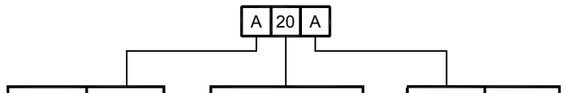
HEB 240		
MARK	LENGTH (m)	MASS (kg)
B24A	10.20	849
B24B	10.60	882
B24C	11.00	915
B24D	11.40	948
B24E	11.80	982
B24F	12.20	1015
B24G	12.60	1049

HEB 260		
MARK	LENGTH (m)	MASS (kg)
B26A	10.20	949
B26B	10.60	986
B26C	11.00	1023
B26D	11.40	1060
B26E	11.80	1097
B26F	12.20	1134
B26G	12.60	1171

HEB 280		
MARK	LENGTH (m)	MASS (kg)
B28A	10.20	1051
B28B	10.60	1092
B28C	11.00	1133
B28D	11.40	1175
B28E	11.80	1216
B28F	12.20	1257
B28G	12.60	1298

HEB 300		
MARK	LENGTH (m)	MASS (kg)
B30A	10.20	1193
B30B	10.60	1240
B30C	11.00	1287
B30D	11.40	1334
B30E	11.80	1381
B30F	12.20	1427
B30G	12.60	1474

THE EXPLANATION OF EACH DIGIT IS AS FOLLOWS :



TYPICAL MAST	MAST
A	HEA
B	HEB

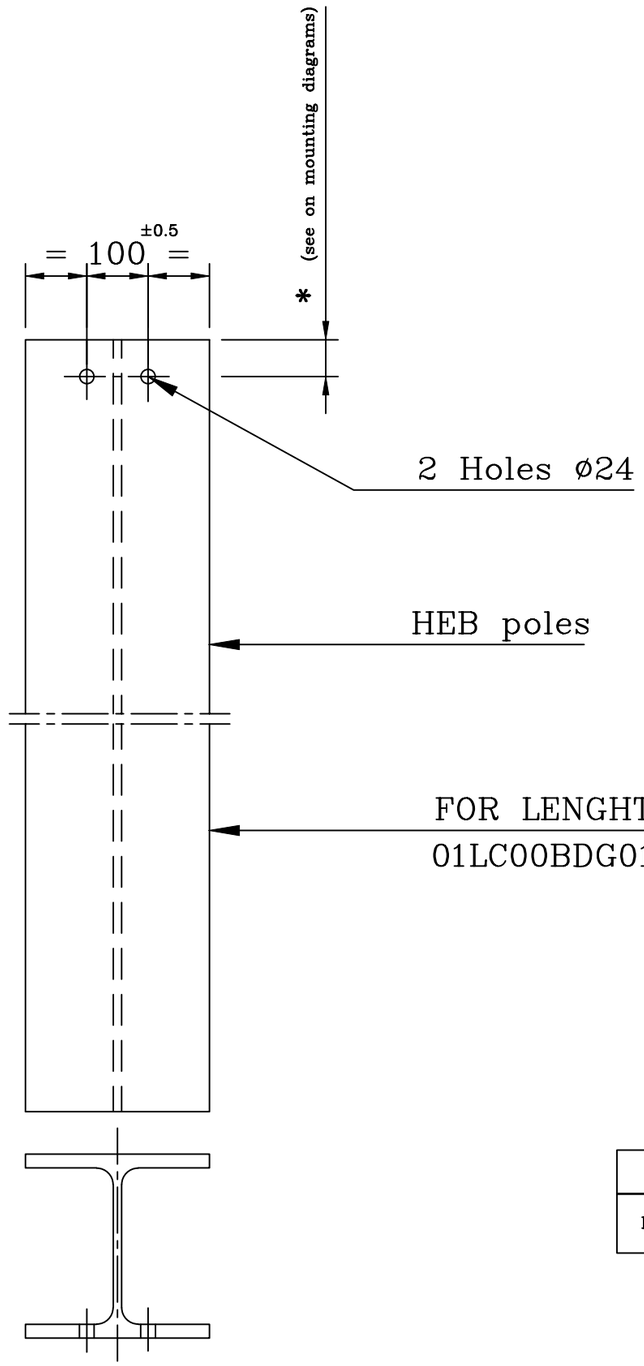
DIMENSION OF TYPICAL MAST	
20	200
22	220
24	240
26	260
28	280
30	300

LENGTH MARK	LENGTH (m)
S	9.80
A	10.20
B	10.60
C	11.00
D	11.40
E	11.80
F	12.20
G	12.60

01LC00BDG011		MAST FOR GANTRY BEAM	Materiali min S235JR Hot galvanized AT/DL/Zn 500-STAS 7221-90	
DRAWING NUMBER	**MARK**	**DESIGNATION**	**MATERIAL TECHNICAL SPECIFICATION**	**UNIT MASS kg**

TIPURI DE STALPI SI REFERINTE MAST TYPES AND REFERENCES	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG010		*1 / 1*	*0*

(297 x 420)



01LC00BDG011		MAST FOR GANTRY BEAM	Material: min S235JR Hot galvanized AT/DL/Zn 500-STAS 7221-90	
DRAWING NUMBER	**MARK**	**DESIGNATION**	**MATERIAL TECHNICAL SPECIFICATION**	**UNIT MASS kg**

STALP PENTRU TRAVERSA RIGIDA MAST FOR GANTRY BEAM	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG011		*1 / 1*	*0*

(297 x 420)

SPECIFICATION

1) H BEAMS NOT GALVANIZED

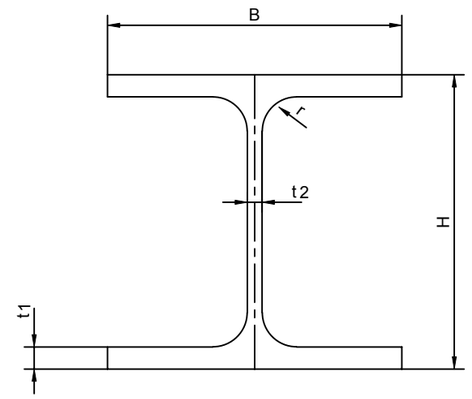
- STEEL SUITED FOR GALVANIZATION-CLASS 2 FOLLOWING NF A 35503
- STANDARDS:
  - NF A 35.503
  - NF A 45.201
  - NF EN 10034
  - NF EN 10.163-3 CLASS C SUBCLASS 3
- TOLERANCE ON THE LENGTH : $^{+100\ mm}_{0}$

HOLLOW MARKING ON EXTREMITIES :
- SET OF INITIALS OF MANUFACTURER
- CASTING NUMBER
- RAW MATERIAL

ALLOWABLE SEAMS
2 mm OR 20% OF t 1 OR t 2 ; THE SMALLER OF THE TWO VALUES IS REQUIRED.

ANGLE OF CUT
MAXI 2% OF HEIGHT H AND OF THE WIDTH B.

DELIVERY STATE
NO PAINT, NO GREASE, NO OIL.



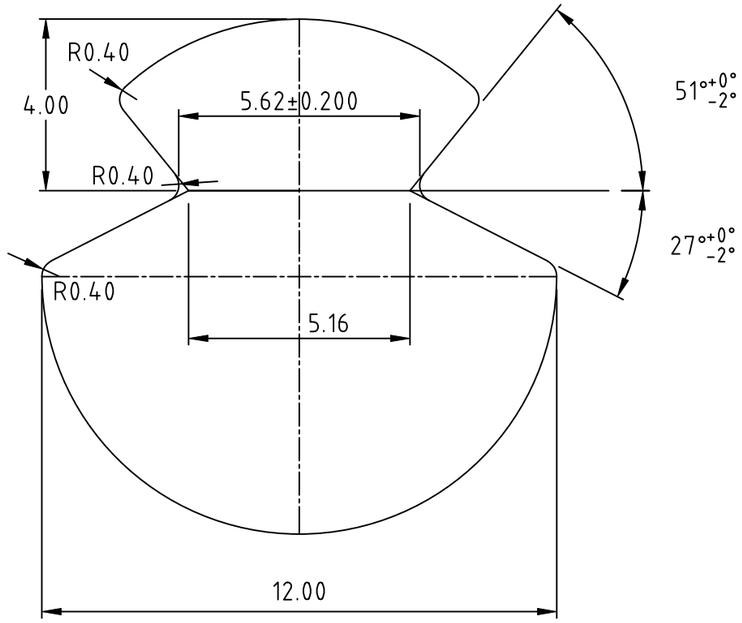
HEIGHT	: H
WIDTH	: B
FLANGE THICKNESS	: t 1
WEB THICKNESS	: t 2
RADIUS	: r

2) BEAMS GALVANIZED

- BEAMS SHOWING AFTER GALVANIZING A SAG 0,15% ≤ F < 0,6% OF THE LENGTH
  WILL BE STRAIGHTENED UP TO OBTAIN A SAG < 0,15% OF THE LENGTH.
- WHEN THE SAG F OF A BEAM EXCEED 0,6% OF THE LENGTH, THE BEAM WILL BE REJECTED.
- ZINC THICKNESS, GALVANIZATION SIGHT, CONTROL OPERATING SEE STANDARD: NF EN ISO 1461
- SURFACE IMPERFECTIONS SEE STANDARD: NF EN 10163-3 CLASS C SUBCLASS 3
- ALL STANDARD DRILLINGS MUST BE UNDERTAKEN BEFORE GALVANIZING

SPECIFICATII PENTRU LIVRAREA STALPILOR H SPECIFICATION FOR SUPPLYNG H BEAM	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG012		1 / 1	0

(297 x 420)



Contact Wire 100mm^2		
Specification designation	Unit	Specified value
Wire designation	N/A	AC-100
Composition and make up	N/A	Solid rod
Raw material	N/A	Copper (Cu-FRHC)
Nominal diameter	mm	12
Nominal cross section	mm^2	100
Wire lay	N/A	N/A
Thermic linear expansion coefficient	m/m.°C	0.000017
Mechanical extension coefficient	m/N	0.000083
Maximum guaranteed resistance at 20°C	Ω/km	0.183
Conductivity(%equivalent Copper)	%	98
Weight per meter	kg/m	0.889
Minimum breaking load	kN	34.5
Applicable standard	N/A	DIN 43141(EN 50149)

joints are not allowed (even by welding or hard silver soldering)

Notes:

*Cable to be delivered on wood drums closed with flanges

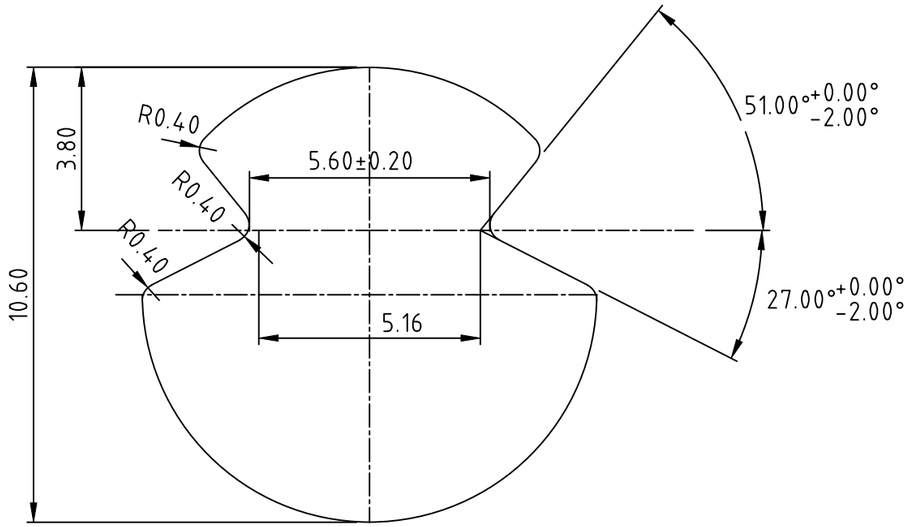
*Quantity (in meter) on each drum to be allocated and provided with purchase order

*Product marking label to display:

Compania Nationala de Cai Ferate
Rehabilitation of ..... OCS Contract Lot .....
Wire designation : AC-100
Wire actual lenght : ..... (m)

FIR DE CONTACT 100 mmp CONTACT WIRE 100 mmp	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG013		1 / 1	0

(297 x 420)



Contact Wire 80mm^2		
Specification designation	Unit	Specified value
Wire designation	N/A	AC-80
Composition and make up	N/A	Solid rod
Raw material	N/A	Copper (Cu-FRHC)
Nominal diameter	mm	10.6
Nominal cross section	mm^2	80
Wire lay	N/A	N/A
Thermic linear expansion coefficient	m/m.°C	0.000017
Mechanical extension coefficient	m/N	0.000083
Maximum guaranteed resistance at 20°C	Ω/km	0.229
Conductivity(%equivalent Copper)	%	98
Weight per meter	kg/m	0.711
Minimum breaking load	kN	27.5
Applicable standard	N/A	DIN 43141(EN 50149)

joints are not allowed (even by welding or hard silver soldering)

Notes:

*Cable to be delivered on wood drums closed with flanges

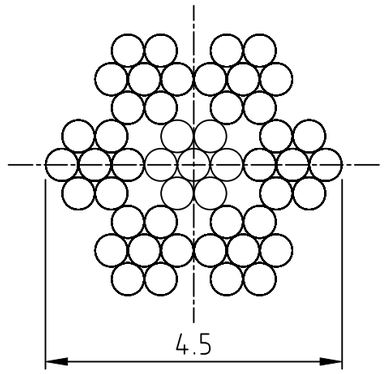
*Quantity (in meter) on each drum to be allocated and provided with purchase order

*Product marking label to display:

Compania Nationala de Cai Ferate
Rehabilitation of ..... OCS Contract Lot .....
Wire designation : AC-80
Wire actual lenght : ..... (m)

FIR DE CONTACT 80mmp CONTACT WIRE 80mmp	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG014		1 / 1	0

(297 x 420)



10mm² Bronze Cable for droppers		
Specification designation	Unit	Specified value
Wire designation	N/A	BZ 10
Composition and make up	N/A	7x7x0.5mm
Raw material	N/A	Bz II
Nominal diameter	mm	4.5
Nominal cross section	mm²	9.6
Wire lay	N/A	"Z" (Right hand)
Thermic linear expansion coefficient	m/m.°C	0.000017
Mechanical extension coefficient	m/N	0.000118
Conductivity(%equivalent Copper)	%	72
Weight per meter	kg/m	0.089
Minimum breaking load	kN	5.68
Applicable standard	N/A	DIN 43 138

joints are not allowed (even by welding or hard silver soldering)

Notes:

*Cable to be delivered on wood drums closed with flanges

*Quantity (in meter) on each drum to be allocated and provided with purchase order

*Product marking label to display:

Compania Nationala de Cai Ferate

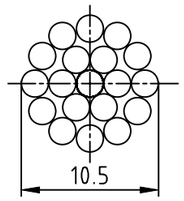
Rehabilitation of ..... OCS Contract Lot .....

Wire designation : ..... BZ 10

Wire actual lenght : ..... (m)

CABLU DE BRONZ PENTRU PENDULE 10mmp DROPPER BRONZE CABLE 10 mmp	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG015		1 / 1	0

(297 x 420)



70mm² Bronze Cable for messenger		
Specification designation	Unit	Specified value
Wire designation	N/A	BZ 70
Composition and make up	N/A	19x2.1mm
Raw material	N/A	BZ II
Nominal diameter	mm	10.5
Nominal cross section	mm²	65.81
Wire lay	N/A	
Thermic linear expansion coefficient	m/m.°C	0.000017
Mechanical extension coefficient	m/N	0.000118
Conductivity(%equivalent Copper)	%	72
Weight per meter	kg/m	0.596
Minimum breaking load	kN	38.64
Applicable standard	N/A	DIN 48 201

joints are not allowed (even by welding or hard silver soldering)

Notes:

*Cable to be delivered on wood drums closed with flanges

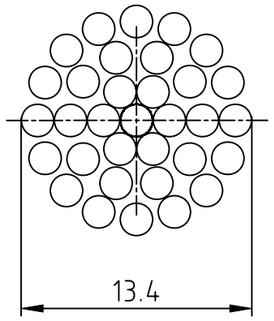
*Quantity (in meter) on each drum to be allocated and provided with purchase order

*Product marking label to display:

Compania Nationala de Cai Ferate
Rehabilitation of ..... OCS Contract Lot .....
Wire designation : ..... BZ 70
Wire actual lenght : ..... (m)

CABLU PURTATOR DIN BRONZ 70mmp MESSENGER BRONZE CABLE 70mmp	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG016		*1 / 1*	*0*

(297 x 420)



95/15 ACSR wire for earthing Conductor		
Specification designation	Unit	Specified value
Wire designation	N/A	95/15
Composition and make up	N/A	26 x 2.10 (Alu) 7 x 1.65 (Steel)
Raw material	N/A	Aluminium conductor steel reinforced(ACSR) outside and inside greased
Nominal diameter	mm	13.4
Nominal cross section	mm^2	105
Wire lay	N/A	Direction of the outside lay of wire : "right handed" "Z"
Weight per meter	kg/m	0.381
Lenght of drum	m	1500±50m
Applicable standard		
– Aluminium wire		STAS 3033–87
– Steel wire		SR CEI 60888–1994
– ACSR manufactoring		CEI 1089

Notes:

*Cable to be delivered on wood drums closed with flanges

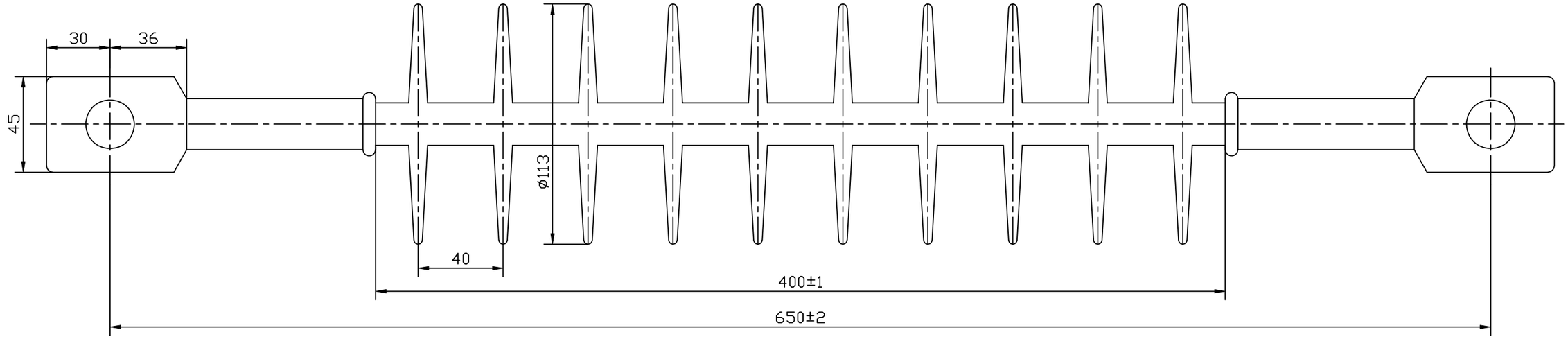
*Quantity (in meter) on each drum to be allocated and provided with purchase order

*Product marking label to display:

Compania Nationala de Cai Ferate
Rehabilitation of ..... OCS Contract Lot .....
Wire designation : ..... 95/15 ACSR
Wire actual lenght : ..... (m)

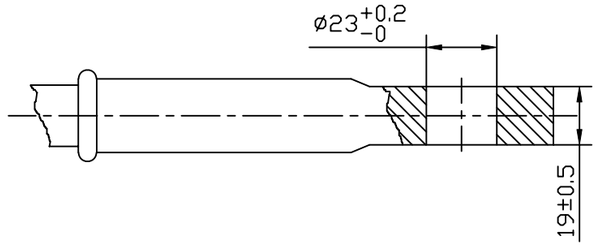
CONDUCTOR PENTRU CABLUL COLECTOR 95/15 ACSR 95/15 ACSR WIRE FOR EARTHING CONDUCTOR	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG017		1 / 1	0

(297 x 420)



1. General characteristics

- Ambient temperature — Minimum : -33°C
- Ambient temperature — Maximum: +40°C
- Temperature of hoard frost apparition : -5°C
- Wind pressure — Maximum 55 daN/m2
- Environment — Normal and polluted areas
- Nominal voltage — 25000V AC
- Rated frequency — 50Hz
- Maximum voltage — 27500V AC



2. Material

Composite with glass fibre bar covered by Teflon and silicon rubber cap according EN 50151 and EN 50124

3. Minimum electrical requirements

- Creepage distance Minimum : 1295mm
- Maximum flashover voltage
  - impulse positive 307 kV
  - impulse negative 350 kV
- Withstand voltage for 50 Hz, 1 min..... 95 kV
- Maximum withstand voltage
  - impulse positive 250 kV
  - impulse negative 331 kV
- Maximum dry condition
  - flashover 184.1 kV
- Maximum wet condition
  - flashover 163 kV

4. Minimum mechanical requirements

- Minimum break load (SML) 12000 daN
- Routine test (RTL) 6000 daN

01LC00BDG018		COMPOSITE ANCHORING INSULATOR	-	3
DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg

NOTES :

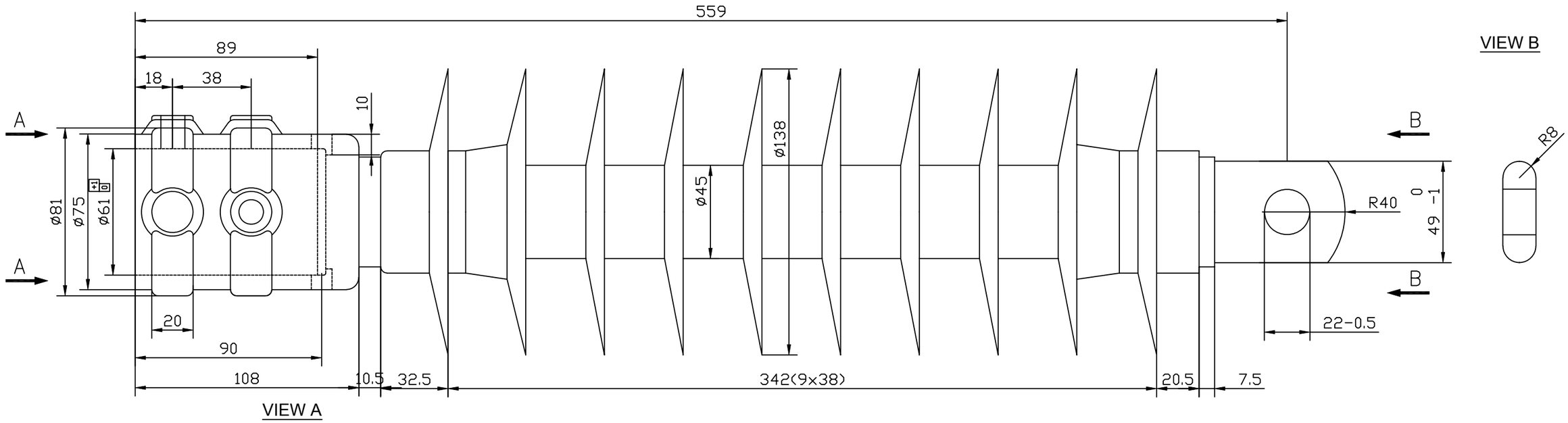
1/ THE INSULATOR CAPS AND THE INSULATED COMPONENT ARE DEFINITED TO SATISFY ALL REQUIRED SPECIFICATIONS FOR COMPLETE INSULATOR.

2/ THE MANUFACTURER WILL SUPPLY FOR ACCEPTANCE DETAILED DRAWINGS OF CONSTITUENT COMPONENTS (ESPECIALLY IN THE COUPLING AREA).

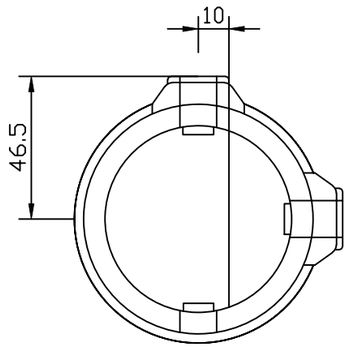
3/ CARE MUST BE TAKEN SO AS NO TO SCRATCH THE OUTSIDE COATING WITH A SHARP OBJECT WHEN UNPACKING.

IZOLATOR COMPOZIT DE ANCORARE COMPOSITE ANCHORING INSULATOR	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG018		*1 / 1*	*0*

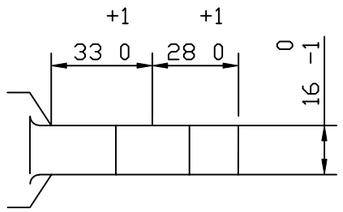
(297 x 420)



VIEW A



VIEW B



1. General characteristics

• Ambient temperature	Minimum :	-33°C
• Ambient temperature	Maximum:	+40°C
• Temperature of hoard frost apparition :		-5°C
• Wind pressure	Maximum	55 daN/m2
• Environment	Normal and polluted areas	
• Nominal voltage	25000V AC	
• Rated frequency	50Hz	
• Maximum voltage	27500V AC	

2. Material

Composite with glass fibre bar covered by Teflon and silicon rubber cap according EN 50151 and EN 50124

3. Minimum electrical requirements

• Creepage distance Minimum :	1100mm
• Maximum flashover voltage	
impulse positive	250 kV
impulse negative	250 kV
• Withstand voltage for 50 Hz, 1 min.....	95 kV
• Maximum withstand voltage	
impulse positive	250 kV
impulse negative	331 kV
• Effective dry power frequency voltage	
flashover	154.8 kV
withstand	150 kV
• Effective wet power frequency at industrial frequency	
Flashover in horizontal position	125 kV
Flashover at 45°	125 kV
Withstand in horizontal position	115 kV
Withstand in vertical position	80 kV
Withstand at 45°	115 kV

4.4 Minimum mechanical requirements

• Minimum break load (SML)	7000 daN
• Routine test (RTL)	6000 daN
• Bending moment	200 daN.m

NOTES :

1/ ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.

2/ THE INSULATOR CAPS AND THE INSULATED COMPONENT ARE DEFINED TO SATISFY ALL REQUIRED SPECIFICATIONS FOR COMPLETE INSULATOR.

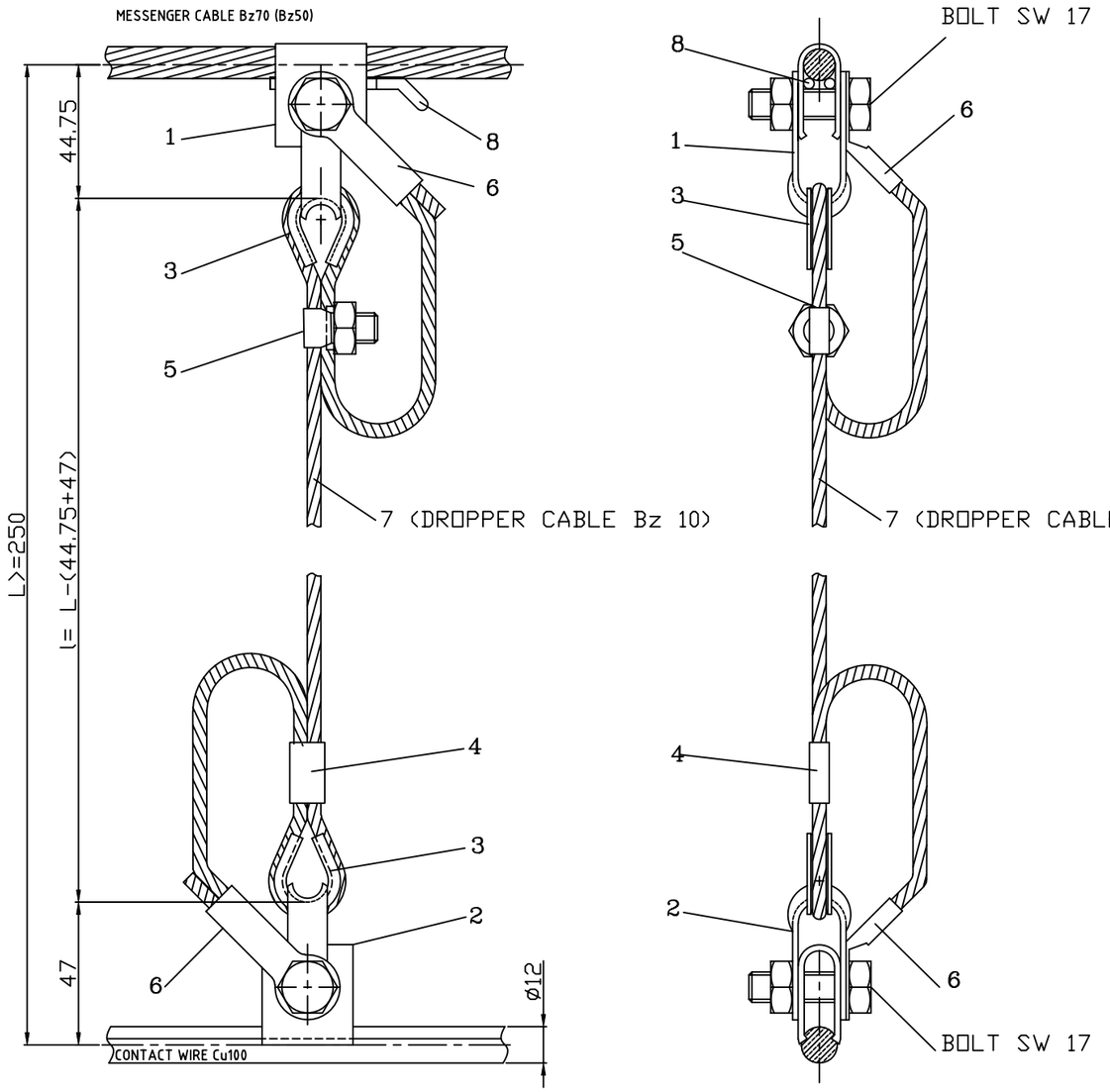
3/ THE MANUFACTURER WILL SUPPLY FOR ACCEPTANCE DETAILED DRAWINGS OF CONSTITUENT COMPONENTS (ESPECIALLY IN THE COUPLING AREA)

4/ AVOID DAMAGE TO THE OUTSIDE HOUSING OF THE INSULATOR WITH A CUTTER WHEN UNPACKING

01LC00BDG019		COMPOSITE INSULATOR FOR STRUT TUBE AND TOP TUBE	-	5.7
DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg

IZOLATOR COMPOZIT PENTRU TIRANT SI CONTRAFISA COMPOSITE INSULATOR FOR STRUT TUBE AND TOP TUBE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG019		1 / 1	0

(297 x 420)



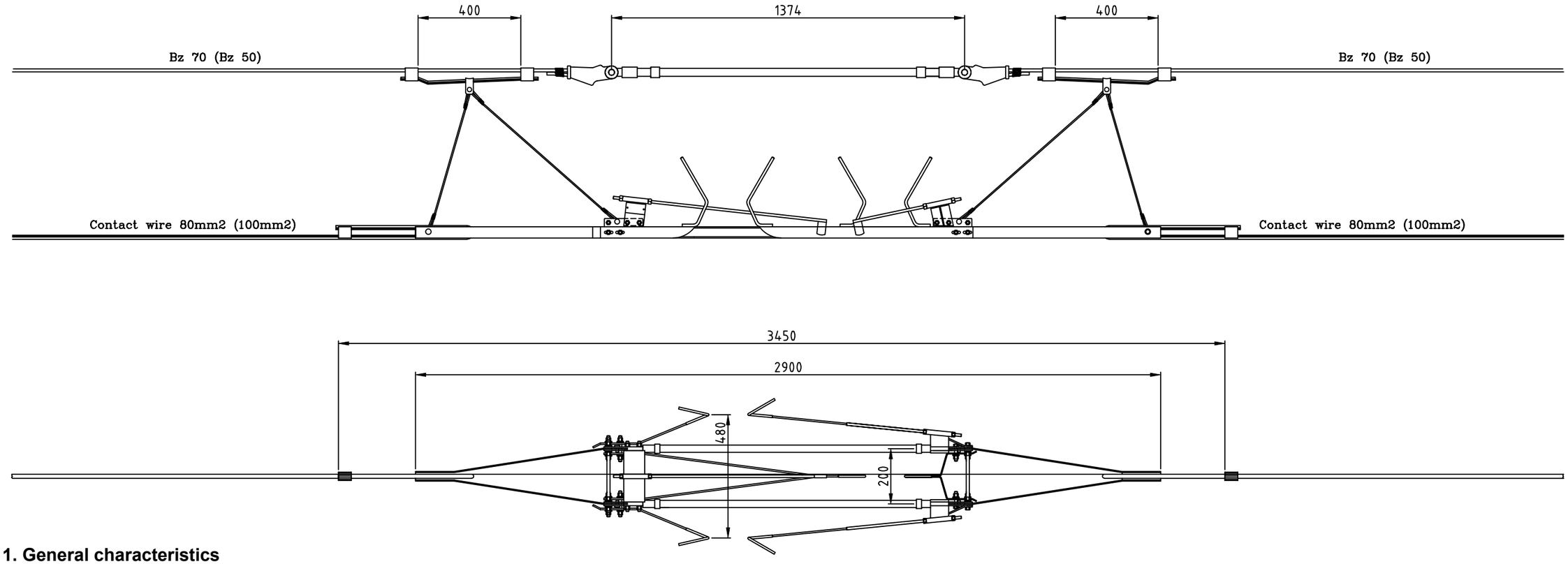
DROPPER (L>=250mm)

* EXAMPLE : FOR l=1m, THE LENGHT OF CABLE Bz10 IS 1.55m

QUANTITY	1	8	CLIP	0.011	RIBE 5991142	
	*	7	DROPPER CABLE BZ 10 ø4.5		01LC00BDG015	
	2	6	CABLE LUGS		RIBE4F01918-05A1	
	1	5	BOLT		RIBE 16-KU-S	
	1	4	CONNECTOR	0.0045	RIBE 031104	
	2	3	THIMBLE	0.007	RIBE B6 15001A07	
	1	2	CONTACT WIRE CLAMP	0.11	RIBE 5311115	
	1	1	MESSENGER CLAMP	0.11	RIBE 5311182A2	
MARK GROUP	....	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK

PENDULA (L>=250mm.) DROPPER (L>=250mm.)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG020		1 / 1	0

(297 x 420)



1. General characteristics

- Ambient temperature — Minimum : -33°C
- Ambient temperature — Maximum: +40°C
- Temperature of hoard frost apparition : -5°C
- Wind pressure — Maximum 55 daN/m2
- Environment — Normal and polluted areas
- Nominal voltage — 25000V AC
- Rated frequency — 50Hz
- Maximum voltage — 27500V AC

2. Material

Insulated bar with glass fibre covered by Teflon

3. Minimum electrical requirements

- Creepage distance Minimum : 1100mm
- Dry withstand frequency voltage — Minimum : 290 kV
- Withstand voltage for 50 Hz, 1 min..... 95 kV
- Wet withstand frequency voltage — Minimum : 190 kV
- Impulse withstand voltage 1.2/50 µs..... 250 kV

4. Minimum mechanical requirements

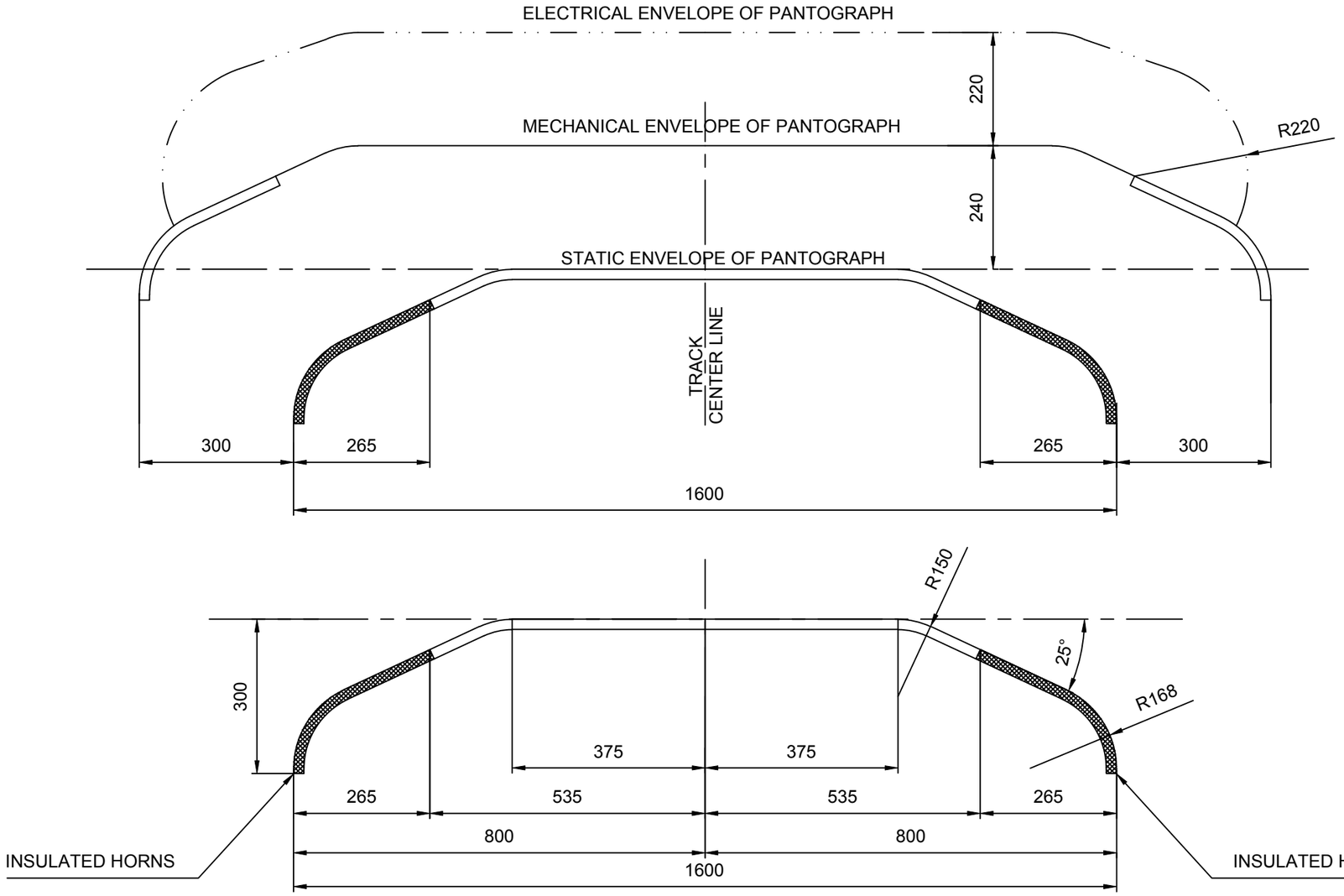
- Minimum break load (SML) 3500 daN
- Routine test (RTL) 1500 daN

01LC00BDG021		SECTION INSULATOR	-	26
DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg

MARK	GROUP	QUANT.				
		1	...	SECTION INSULATOR	IS - MMN 1	
	....		ITEM	DESIGNATION	REFERENCE DRAWING	MARK

IZOLATOR DE SECTIONARE SECTION INSULATOR	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG021	-	1 / 1	0

(297x420)



NOTES:

1/ PANTOGRAPH ENVELOPE ACCORDING TO UIC608 ANNEX 3

2/ THE MECHANICAL ENVELOPE OF THE PANTOGRAPH TAKES INTO ACCOUNT THE 0.24m UPLIFT OF THE CONTACT WIRE

3/ THE ELECTRICAL ENVELOPE OF THE PANTOGRAPH TAKES INTO ACCOUNT AN ELECTRICAL CLEARANCE OF 0.22m
IN STATIC SITUATION , THE ELECTRICAL CLEARANCE IS 0.32m (LEAFLET UIC 606)

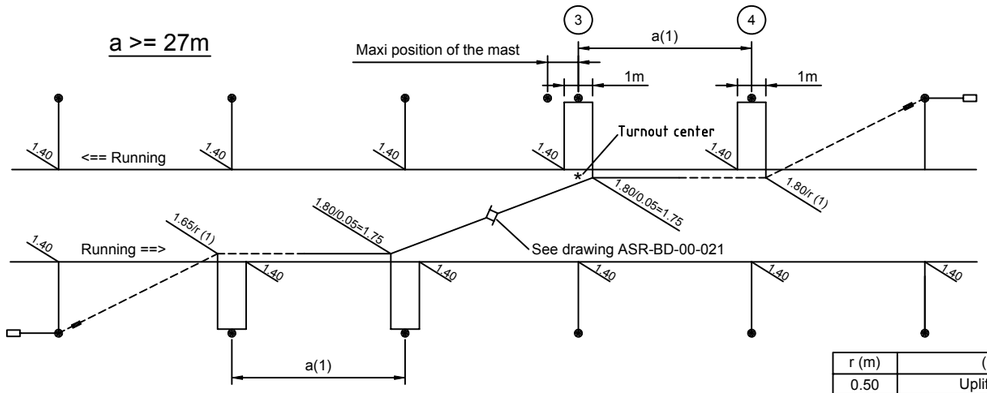
4/ ANY CLEARANCE PROBLEM HAS TO BE NOTIFIED TO SPIE DROUARD DESIGN OFFICE

CARACTERISTICILE PANTOGRAFULUI PANTOGRAPH ENVELOPE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG028		*1 / 1*	*0*

(297 x 420)

CROSS - OVER

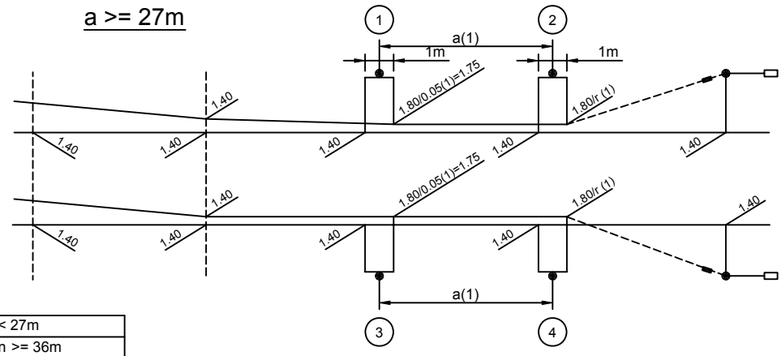
a >= 27m



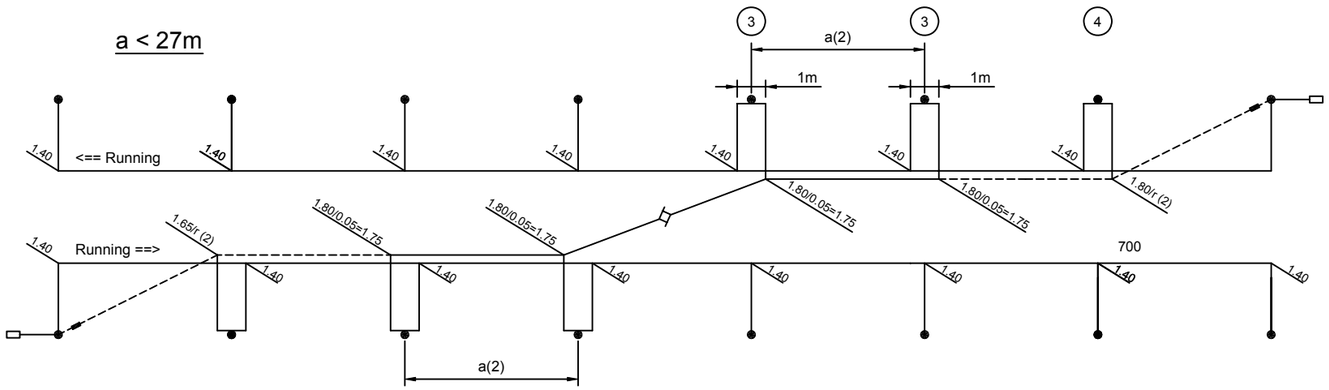
r (m)	(1) a > 27m	(2) a < 27m
0.50	Uplift span >= 36m	Uplift span >= 36m
0.35	36 m > Uplift span > 27m	27m < Uplift span < 36m

TURNOUT

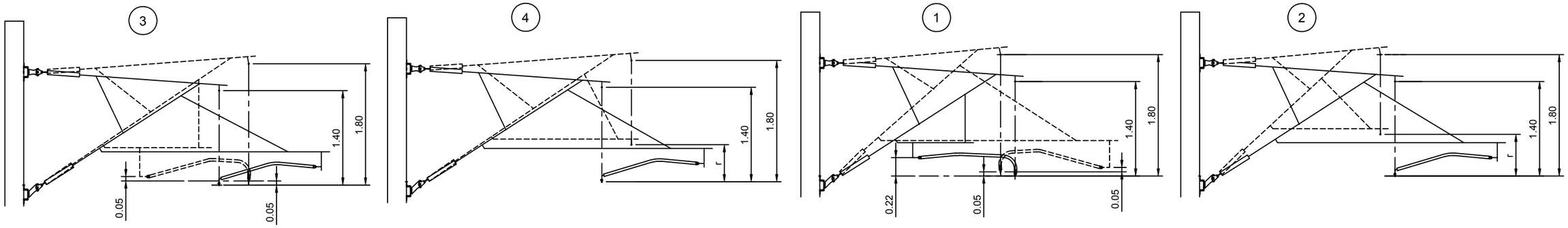
a >= 27m



a < 27m



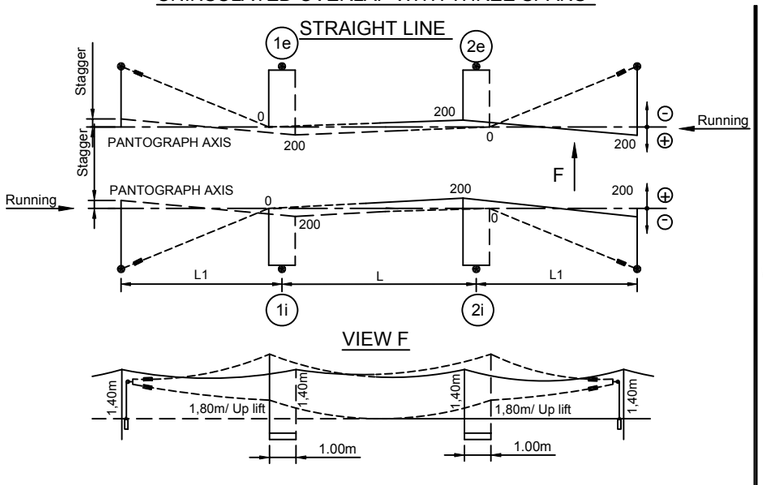
a < 27m



LINIA DE CONTACT LA MACAZE SI DIAGONALE CATENARY AT CROSS-OVER AND TURNOUT	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG029		1 / 1	0

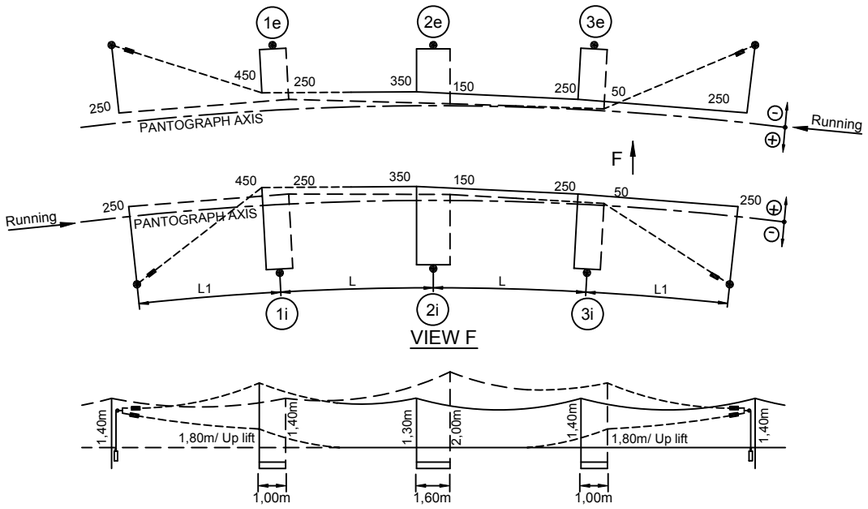
(297 x 420)

UNINSULATED OVERLAP WITH THREE SPANS



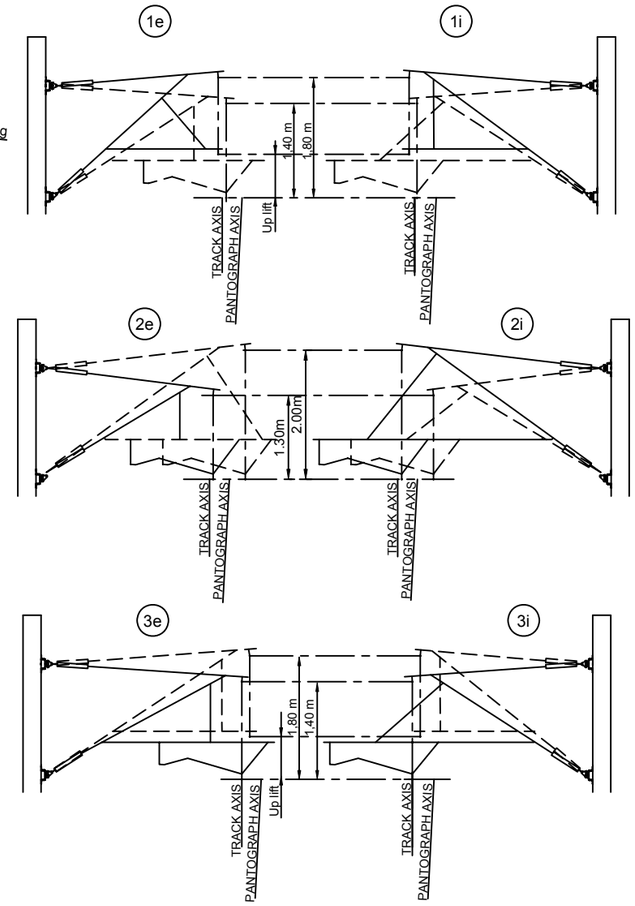
NOTE: JUMPERS OMITTED FOR CLARITY

UNINSULATED OVERLAP WITH FOUR SPANS IN CURVE

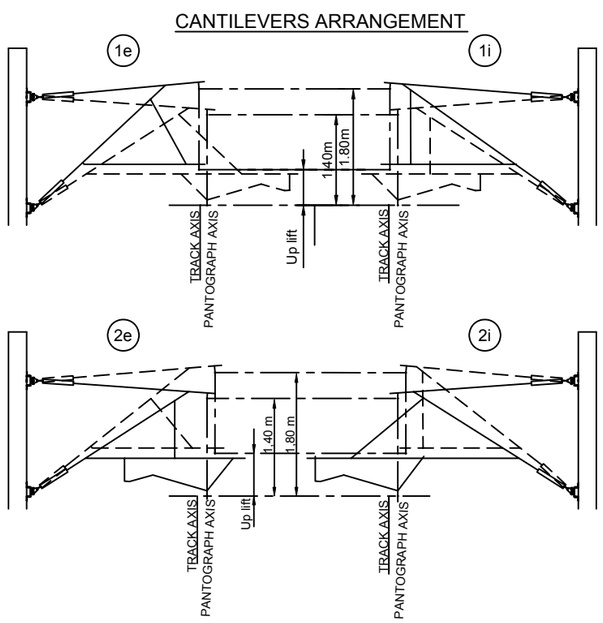


NOTE: JUMPERS OMITTED FOR CLARITY

CANTILEVERS ARRANGEMENT



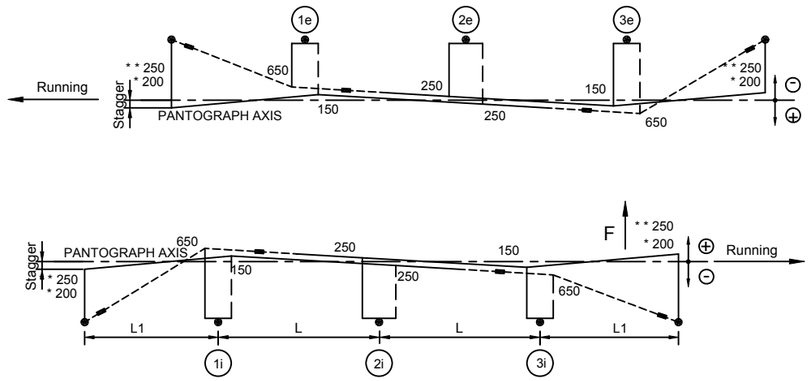
CANTILEVERS ARRANGEMENT



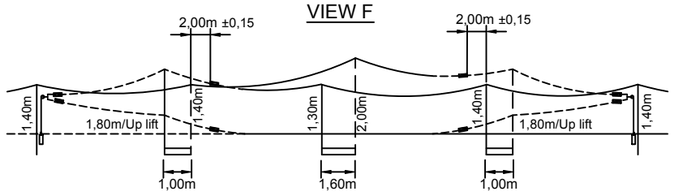
ZONA NEIZOLATA DE ANCORARE UNINSULATED OVERLAPS	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG030		*1 / 1*	*0*

(297 x 420)

INSULATED OVERLAP WITH FOUR SPANS IN TANGENT TRACKS AND CURVE

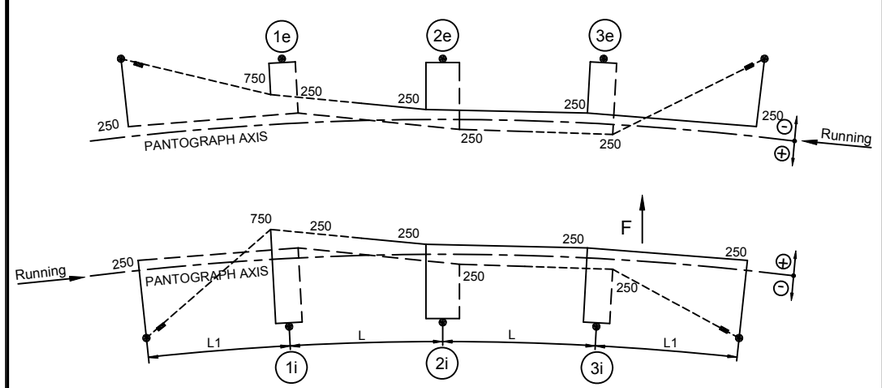


VIEW F

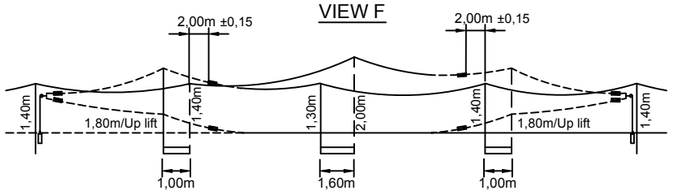


* the stagger is equal to 200 mm for tangent tracks
** the stagger is equal to 250 mm for curve tracks

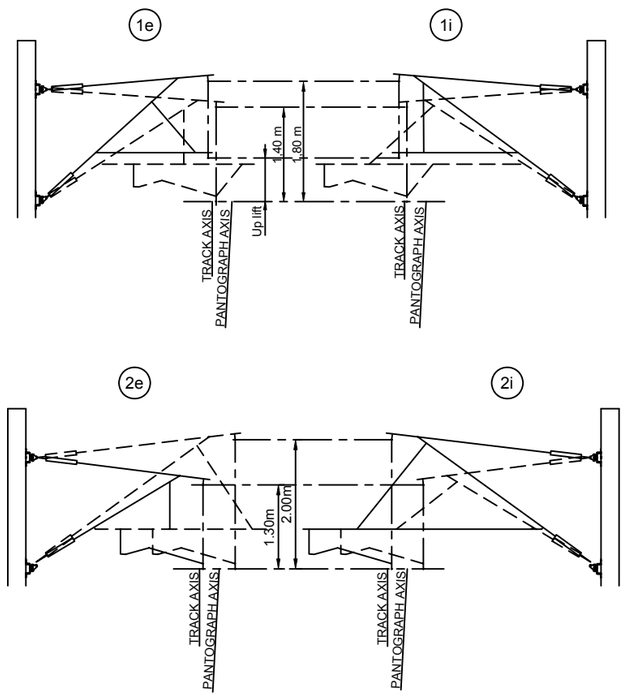
INSULATED OVERLAP WITH FOUR SPANS IN CURVE



VIEW F

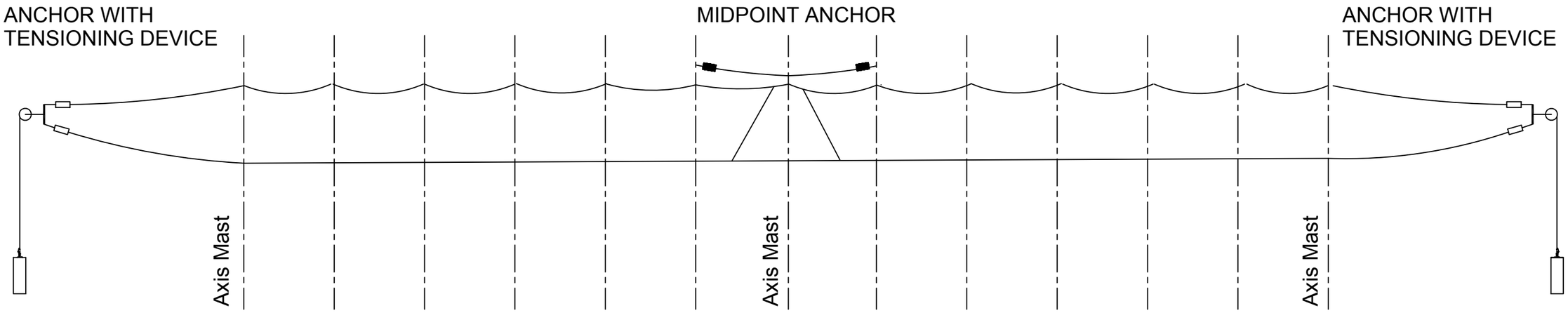


CANTILEVERS ARRANGEMENT

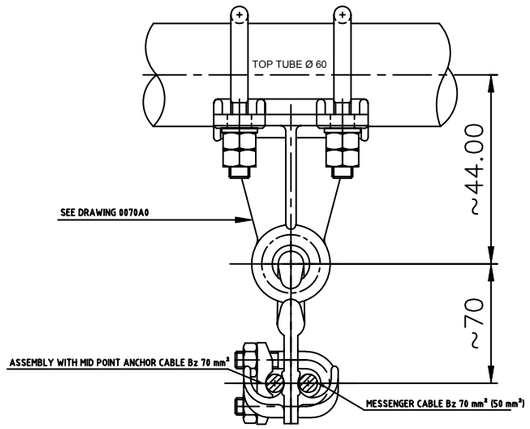


ZONA IZOLATA DE ANCORARE INSULATED OVERLAPS	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG031		*1 / 1*	*0*

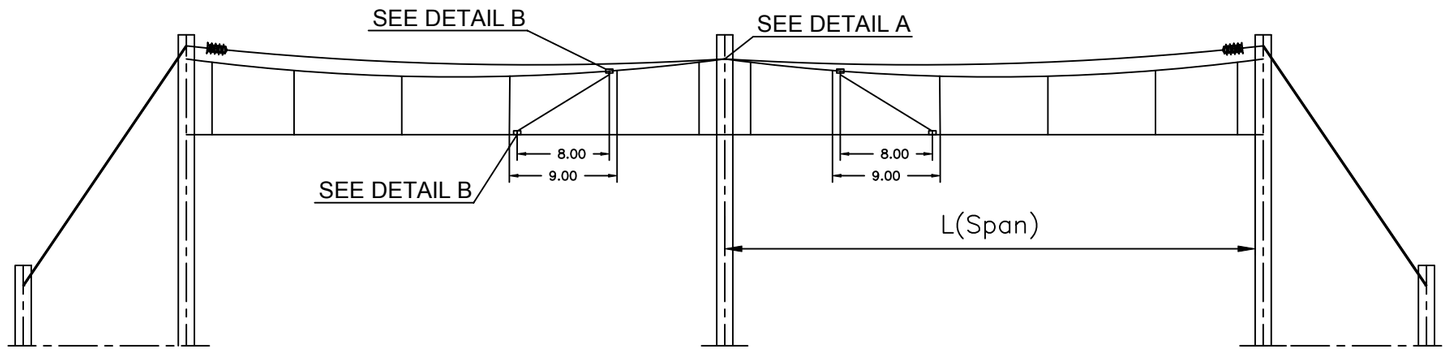
(297 x 420)



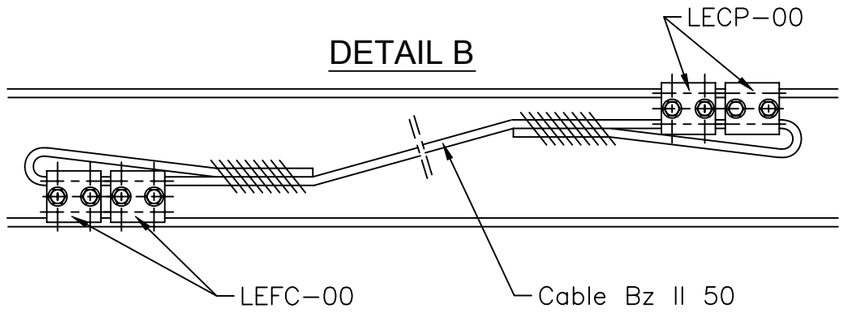
DETAIL A



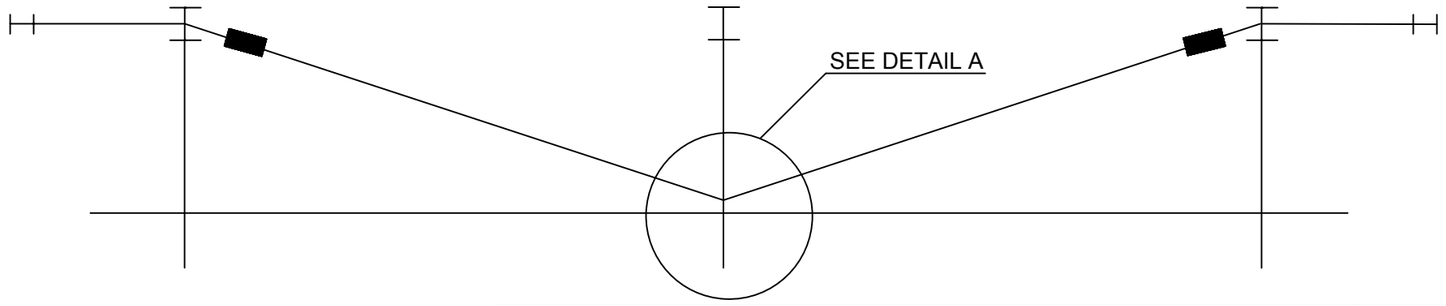
MECHANICAL TENSION FOR MID POINT ANCHOR WIRE = 1000 daN at 15°C
MECHANICAL TENSION FOR "Z" ANCHOR WIRE = ... daN at 15°C



DETAIL B



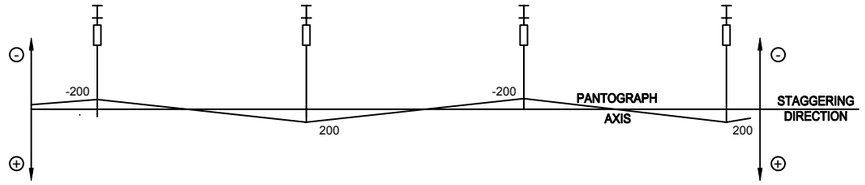
MID POINT ANCHOR WIRE Bz 70 mm²



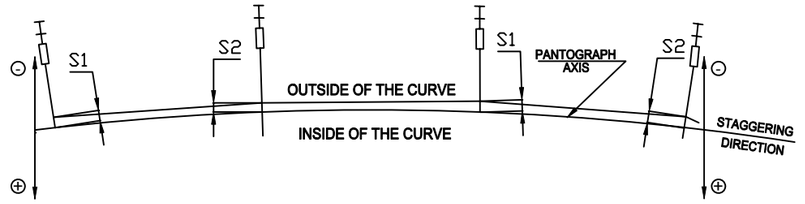
ANCORARE MEDIANA IN LINIE DIRECTA MID POINT ANCHOR ON OPEN ROUTE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG032		*1 / 1*	*0*

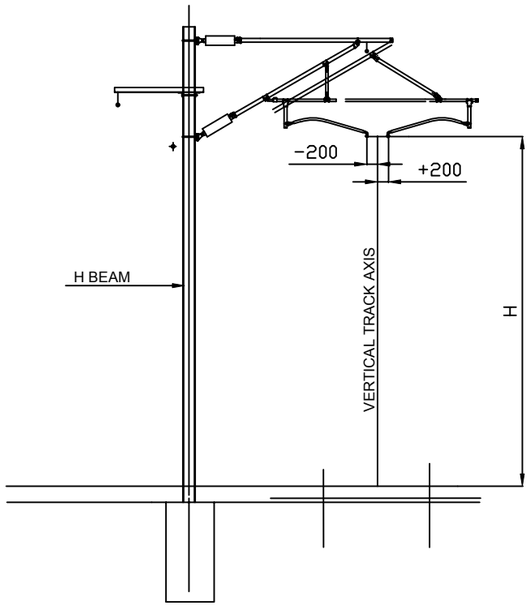
(297 x 420)

TANGENT TRACK



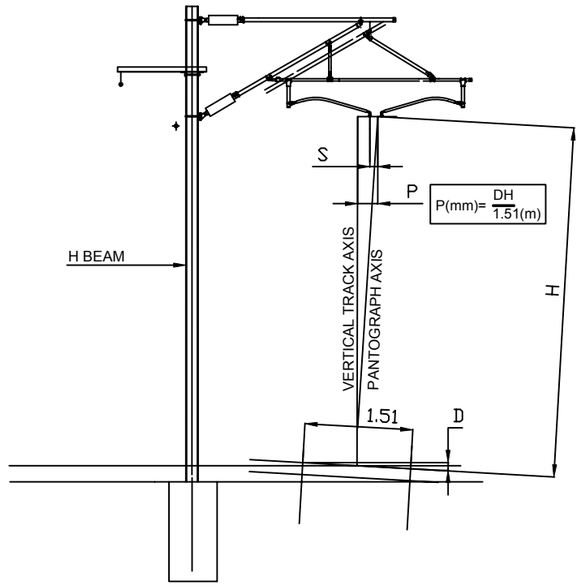
CURVE TRACK





MAXIMUM STAGGERING IN RUNNING TRACK

Wind speed : 38 m/s	
Radius (m)	Stagger (mm)
∞	-200 / +200
∞ > R ≥ 7500	-250 / -250
7500 > R ≥ 5000	-250 / +150
5000 > R ≥ 4000	-250 / +100
4000 > R ≥ 3000	-250 / +50
3000 > R ≥ 2500	-250 / 0
2500 > R ≥ 2000	-250 / -50
2000 > R ≥ 1800	-250 / -100
1800 > R ≥ 1600	-250 / -150
1600 > R ≥ 150	-250 / -250



ALLOCATION SPANS

NOTE : THE DIFFERENCES BETWEEN TWO ADJACENT SPANS WILL NOT EXCEED 15 m

FC: 100mmp; CP: 70mmp

Radius (m)	∞	∞ > R > 1200	1200 ≥ R > 800	800 ≥ R > 500	500 ≥ R > 300	300 ≥ R > 250	250 ≥ R > 180	180 ≥ R
Span Lenght (m)	49.5	49.5	45	40.5	36	32	28	21

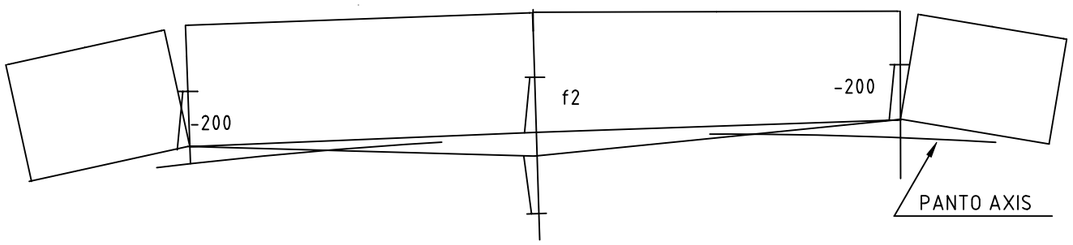
FC: 80mmp; CP: 50mmp

Radius (m)	∞	∞ ≥ R > 1000	1000 ≥ R > 600	600 ≥ R > 400	400 ≥ R > 250	250 ≥ R > 180	180 ≥ R
Span Lenght (m)	45	45	40.5	36	32	28	21

ALEGERE ZIG–ZAG CATENARA IN FUNCTIE DE DESCHIDERE STAGGERING OF CONDUCTORS ALLOCATION OF SPANS	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG033		1 / 2	0

(297 x 420)

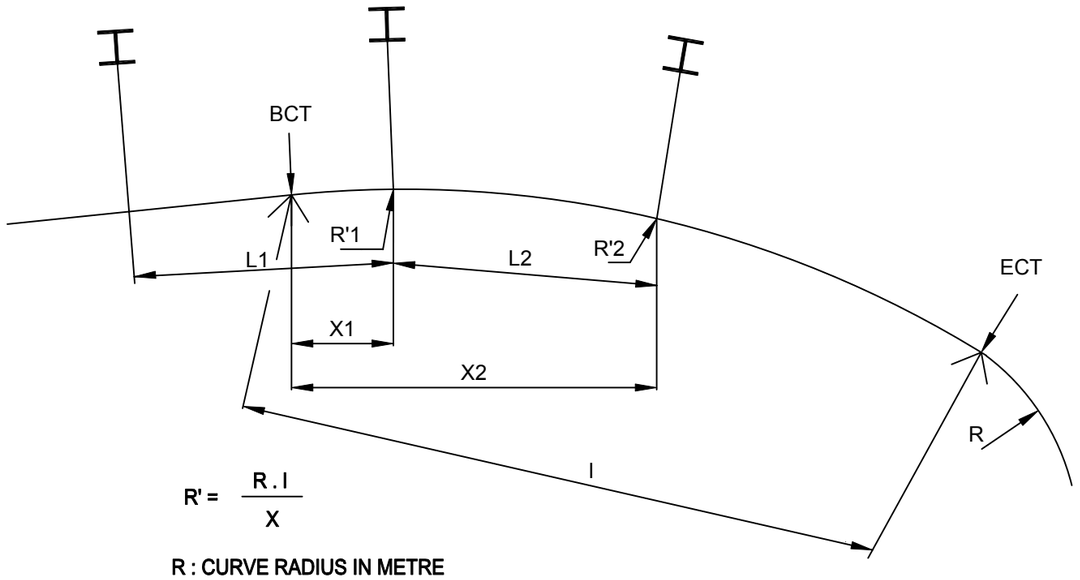
ALLOCATION STEADY ARMS AND REGISTRATIONS



IN (1) { SUPPORT OUTSIDE THE CURVE, COMPRESSION REGISTRATION TUBE
SUPPORT INSIDE THE CURVE, TENSION REGISTRATION TUBE } WHEN $\frac{(L1 + L2)^2}{8R} - f2 < 200$

THIS RULE IS NOT USED AT THE END OF OVERLAP AND TURNOUT

RADIUS CALCULATION IN TRANSITION CURVE



$$R' = \frac{R \cdot l}{X}$$

R : CURVE RADIUS IN METRE
l : LENGTH OF TRANSITION CURVE
X : DISTANCE FROM BEGINNING CURVE TRANSITION TO NEEDED SUPPORT

BCT : BEGINNING CURVE TRANSITION
ECT : END CURVE TRANSITION

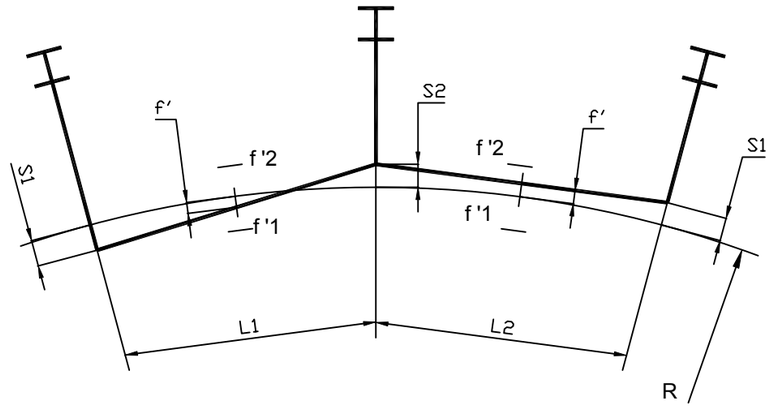
CONDUCTOR STAGGERING IN TRANSITION CURVE

THE CATENARY STAGGER AT THE SUPPORT IN TRANSITION CURVE WILL BE DEFINED IN ORDER TO RESPECT THE LIMIT VALUES OF MID-SPAN STAGGER f'. STAGGERS f1 AND f2 AT ADJACENT MASTS OF A GIVEN SPAN WILL BE DEFINED AS FOLLOWS :

$$S1 + S2 = 2 (f' + F) \text{ WITH } F = \frac{L^2}{8R}$$

S1 , S2 : STAGGER AT ADJACENT MASTS
f ' : STAGGER AT MID-SPAN
F : CATENARY OFFSET DUE TO CURVE RADIUS
L : AVERAGE SPAN LENGTH
R : CURVE RADIUS

THE MID-SPAN STAGGER f ' SHOULD BE TAKEN AS LOW AS POSSIBLE , AND SHOULD BE INCLUDED IN THE RANGE [f '1 ; f '2]



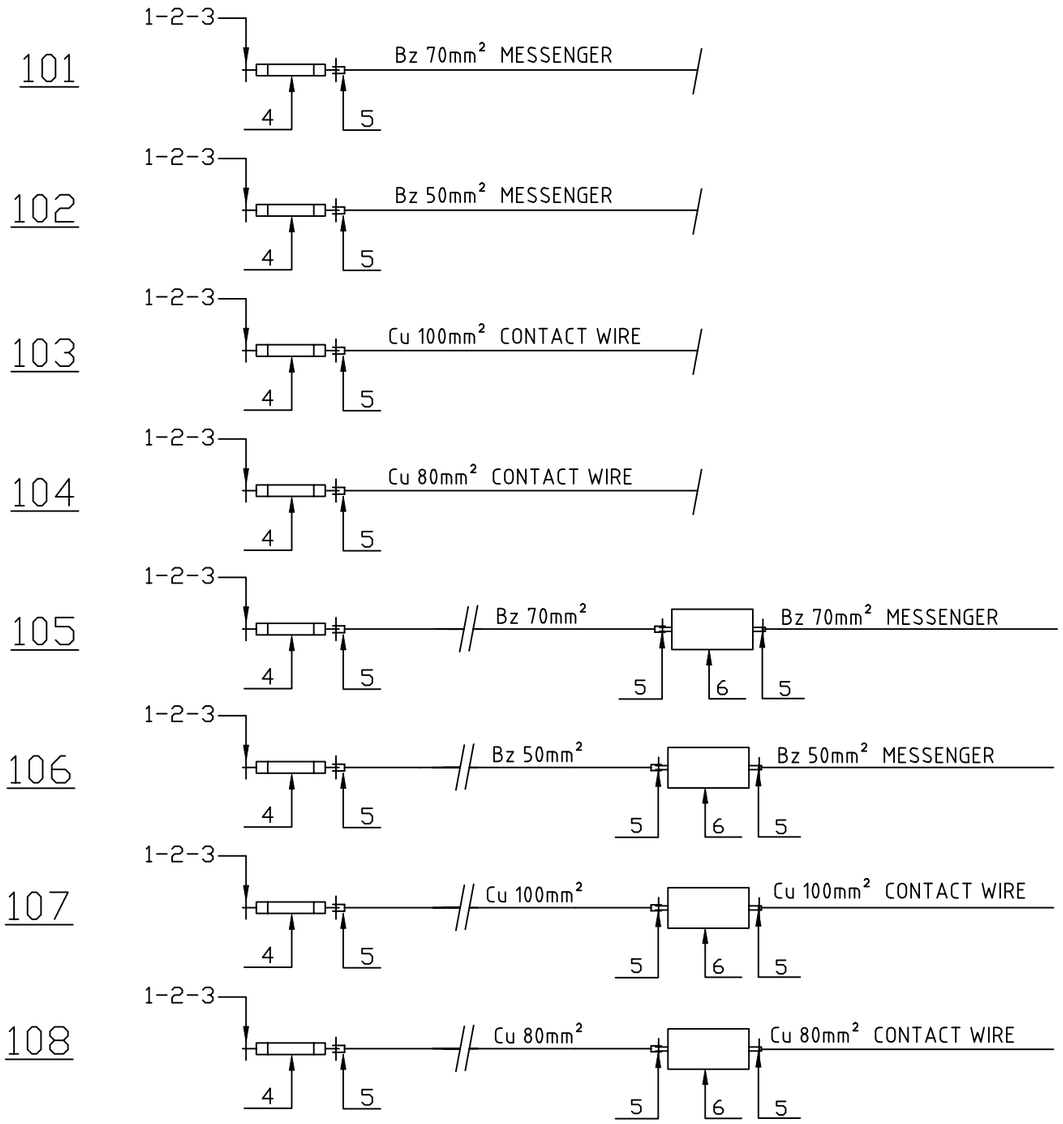
THE VALUES f1 AND f2 HAVE TO BE ADDED WHEN CATENARY IS STAGGERED AT THE SAME SIDE OF THE TRACK AXIS, AND THE LOWER VALUE SHOULD BE SUBTRACT FROM THE HIGHER WHEN f1 AND f2 ARE NOT AT THE SAME SIDE OF THIS AXIS. THE MID-SPAN STAGGER f' HAS TO BE SUBTRACK FROM F WHEN MEASURED FROM TRACK CENTRELINE TO INSIDE CURVE, AND ADDED WHEN MEASURED IN OUTSIDE CURVE.

GENERAL ARRANGEMENT
STAGGERING OF CONDUCTORS ALLOCATION OF SPANS AND
REGISTRATION TUBE FOR MAIN TRACK

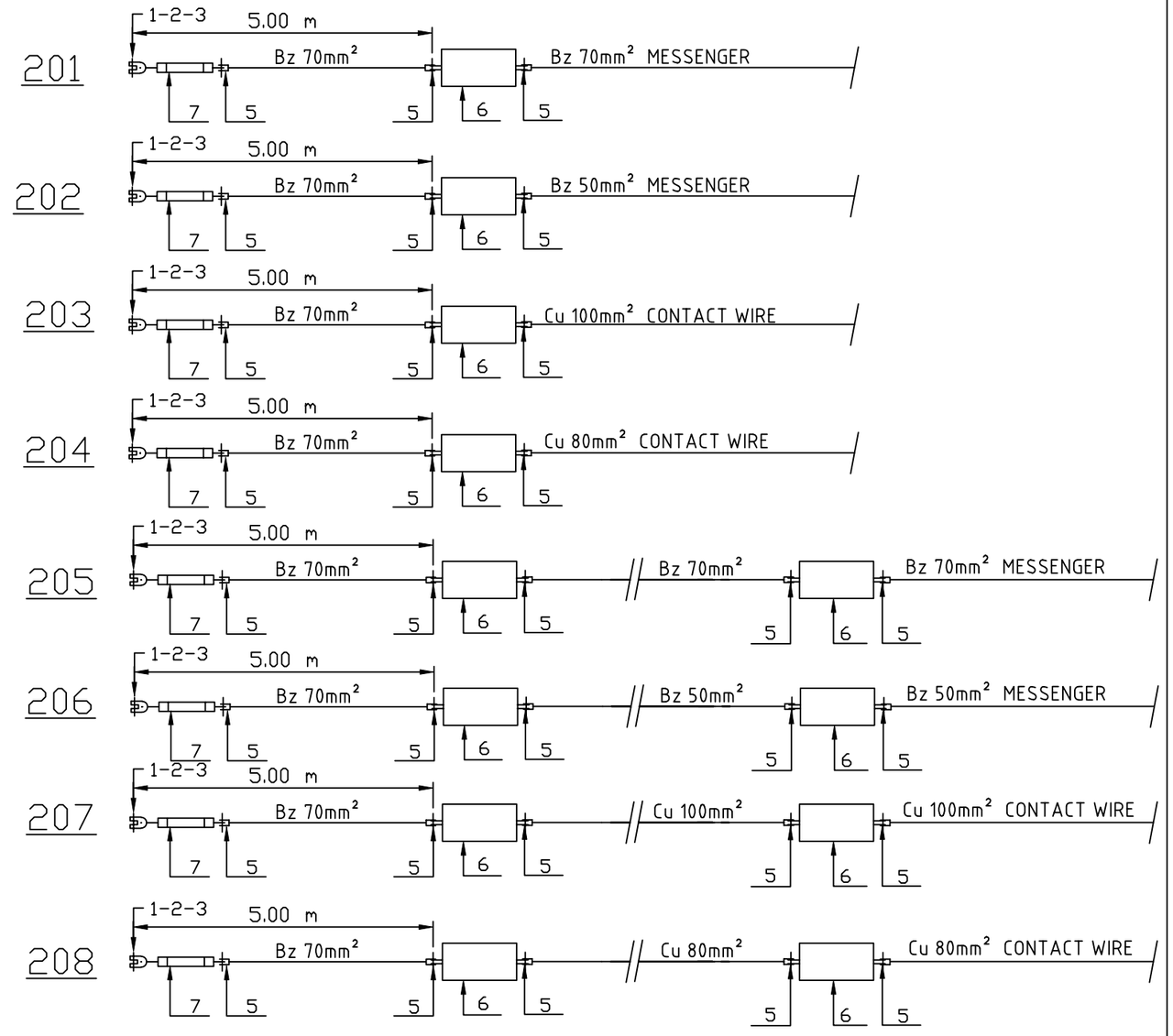
ALEGERE ZIG–ZAG CATENARA IN FUNCTIE DE DESCHIDERE STAGGERING OF CONDUCTORS ALLOCATION OF SPANS	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG033		2 / 2	0

(297 x 420)

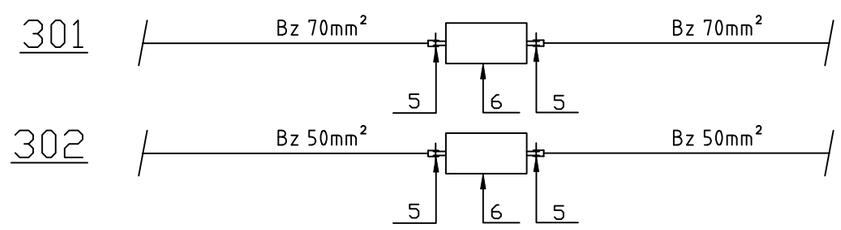
FULL COMPENSATED CATENARY ANCHORING



CATENARY RIGID ANCHORING



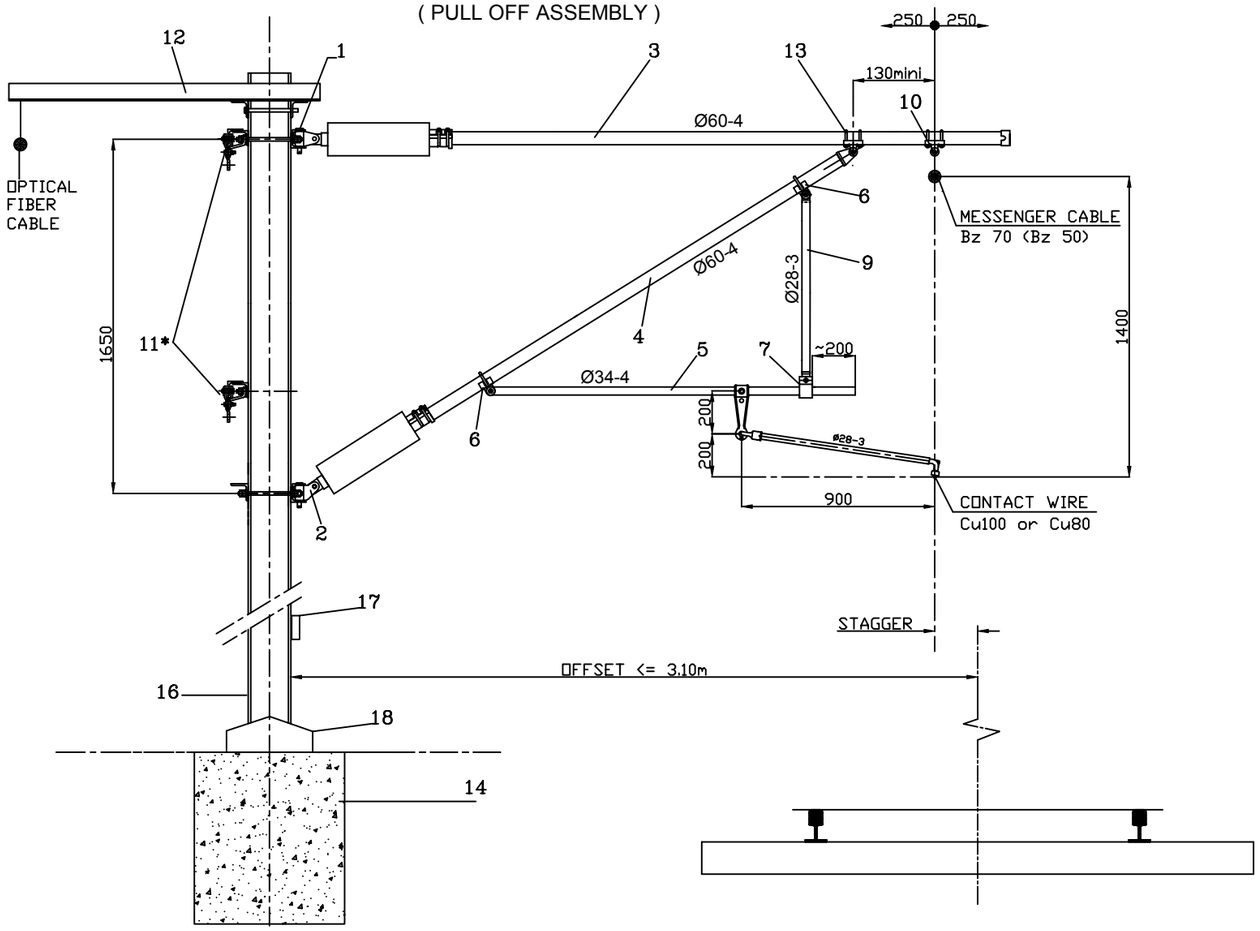
SUPPLEMENTARY INSULATOR



QUANTITY																	ITEM	DESIGNATION	REFERENCE DRAWING	MARK
			1	1	1	1	1	1	1								7	TURNBUCKLE	01LC00BDG214	102
	1	1	2	2	2	1	1	1	1	1	1	1	1				6	COMPOSITE INSULATOR	01LC00BDG018	
	2	2	5	5	5	3	3	3	3	3	3	3	3	1	1	1	5	CLAMP	ELC 9-29.0	
										1	1	1	1	1	1	1	4	TURNBUCKLE	01LC00BDG214	103
			1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	PIN	01LC00BDG145	22A40
			1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	WASHER	01LC00BDG142	22A11
			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	BOLT	01LC00BDG146	221055
MARK GROUP	302	301	208	207	206	205	204	203	202	201	108	107	106	105	104	103	102	101			

ANCORAREA CONDUCTOARELOR CONDUCTORS ANCHORING	Numele fisierului/ CAD file name: *01LC00BDG034*	Scara/ Scale:	Part *1 / 1*	Rev. *0*

(297 x 420)



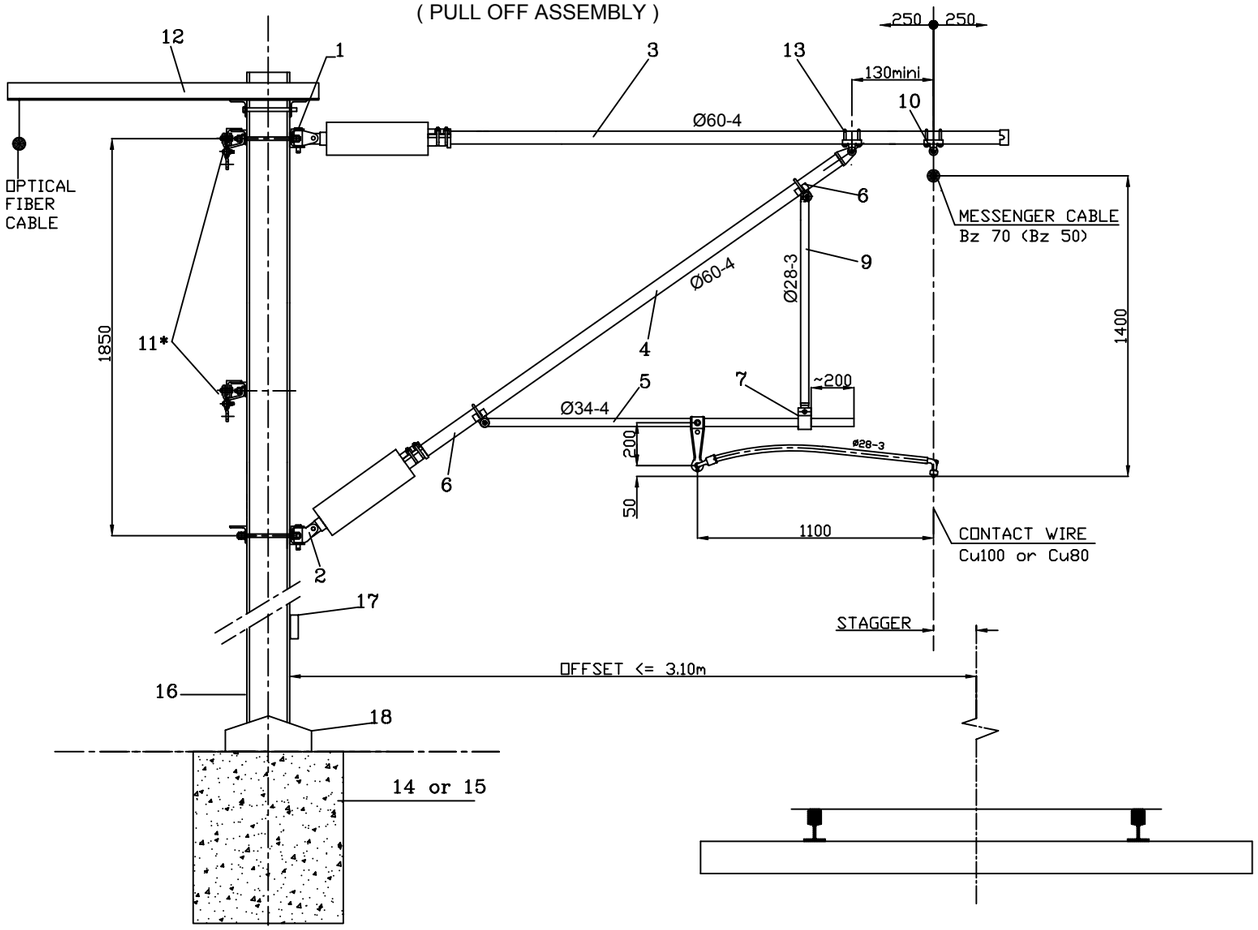
18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	POLE FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG071 01LC00BDG072	
10	SUSPENSION FOR 1 or 2 MESSENGERS	01LC00BDG070	
9	AUXILIARY STRUT TUBE	01LC00BDG083	
8	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE ø60	ELC 13-1.2.3.0	
5	ø34-4REGISTRATION ARM WITH 0.9m STEADY ARM FOR STRAIGHT LINE	01LC00BDG150	
4	INSULATED FOR STRUT TUBE ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG058 01LC00BDG071	
1	FASTENING FOR TOP TUBE	or 01LC00BDG059 01LC00BDG135	
ITEM	DESIGNATION	REFERENCE DRAWING	MARK

NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

ECHIPARE TIP CATENARA IN LINIE CURENTA (CONSOLA TENSIONATA) TYPICAL CATENARY EQUIPAMENT ON OPEN ROUTE (PULL OFF ASSEMLY)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG035		1/2	0

(297 x 420)



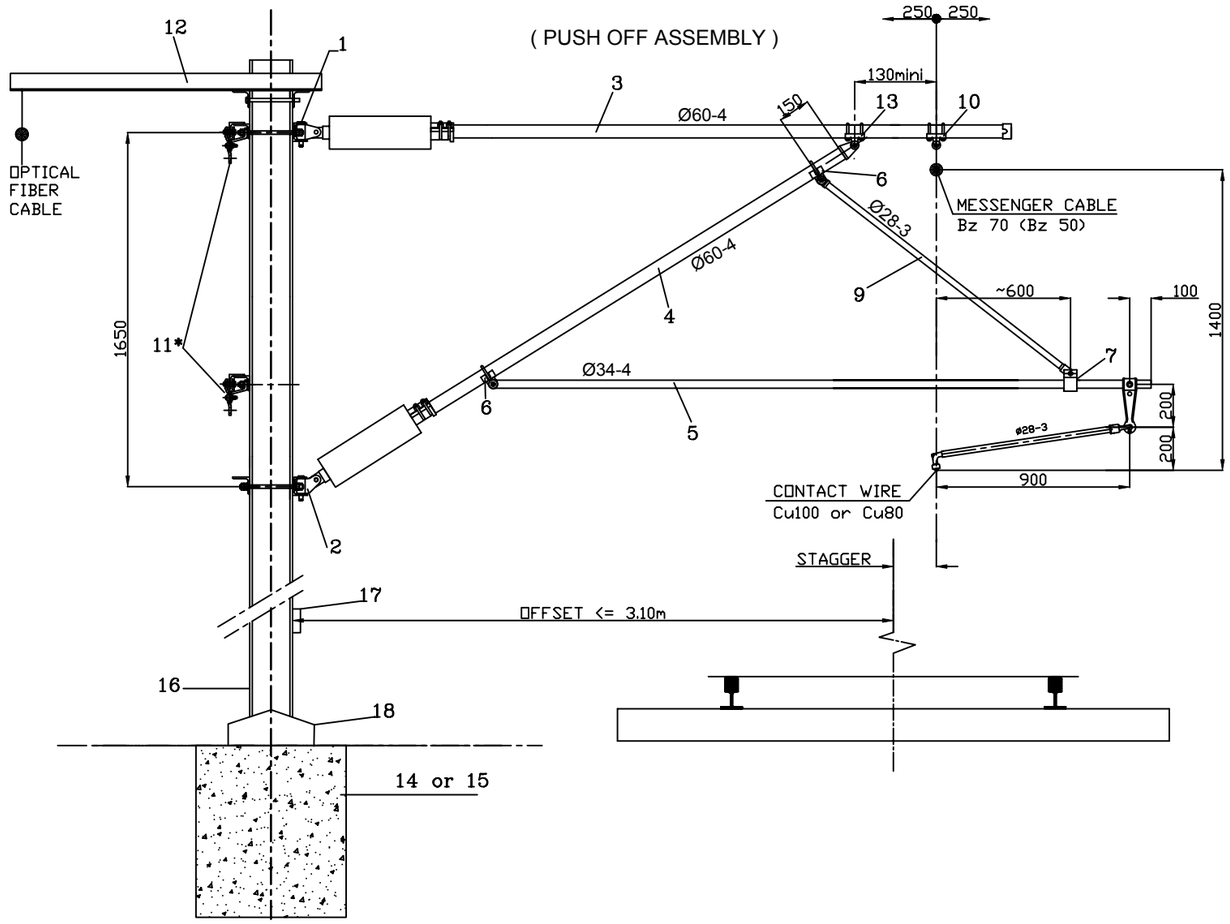
ITEM	DESIGNATION	REFERENCE DRAWING	MARK
18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	POLE FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG071 01LC00BDG072	
10	SUSPENSION FOR 1 or 2 MESSENGERS	01LC00BDG070	
9	AUXILIARY STRUT TUBE	01LC00BDG083	
8	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE Ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE Ø60	ELC 13-1.2.3.0	
5	Ø34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR CURVE	01LC00BDG151	
4	INSULATED FOR STRUT TUBE Ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE Ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG058 01LC00BDG071	
1	FASTENING FOR TOP TUBE	or 01LC00BDG059 01LC00BDG135	

NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

ECHIPARE TIP CATENARA IN LINIE CURENTA (CONSOLA TENSIONATA) TYPICAL CATENARY EQUIPAMENT ON OPEN ROUTE (PULL OFF ASSEMLY)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG035		2 / 2	0

(297 x 420)



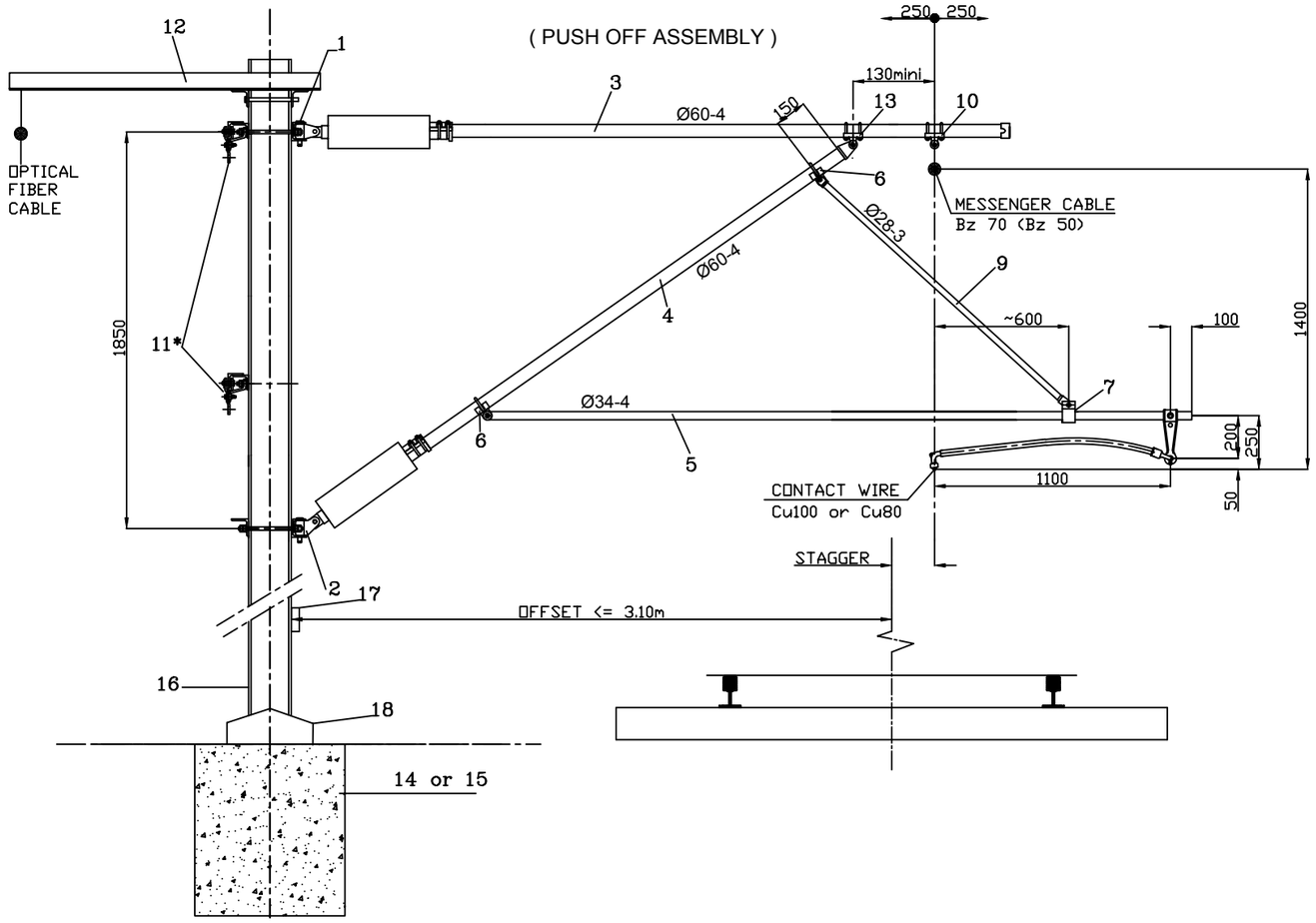
18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	POLE FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG071 01LC00BDG072	
10	SUSPENSION FOR 1 or 2 MESSENGERS	01LC00BDG070	
9	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE Ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE Ø60	ELC 13-1.2.3.0	
5	Ø34-4 REGISTRATION ARM WITH 0.9m STEADY ARM FOR STRAIGHT LINE	01LC00BDG150	
4	INSULATED FOR STRUT TUBE Ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE Ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG058 01LC00BDG071	
1	FASTENING FOR TOP TUBE	or 01LC00BDG059 01LC00BDG135	
ITEM	DESIGNATION	REFERENCE DRAWING	MARK

NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

ECHIPARE TIP CATENARA IN LINIE CURENTA (CONSOLA TENSIONATA) TYPICAL CATENARY EQUIPAMENT ON OPEN ROUTE (PUSH OFF ASSEMLY)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG036		*1 / 3*	*0*

(297 x 420)



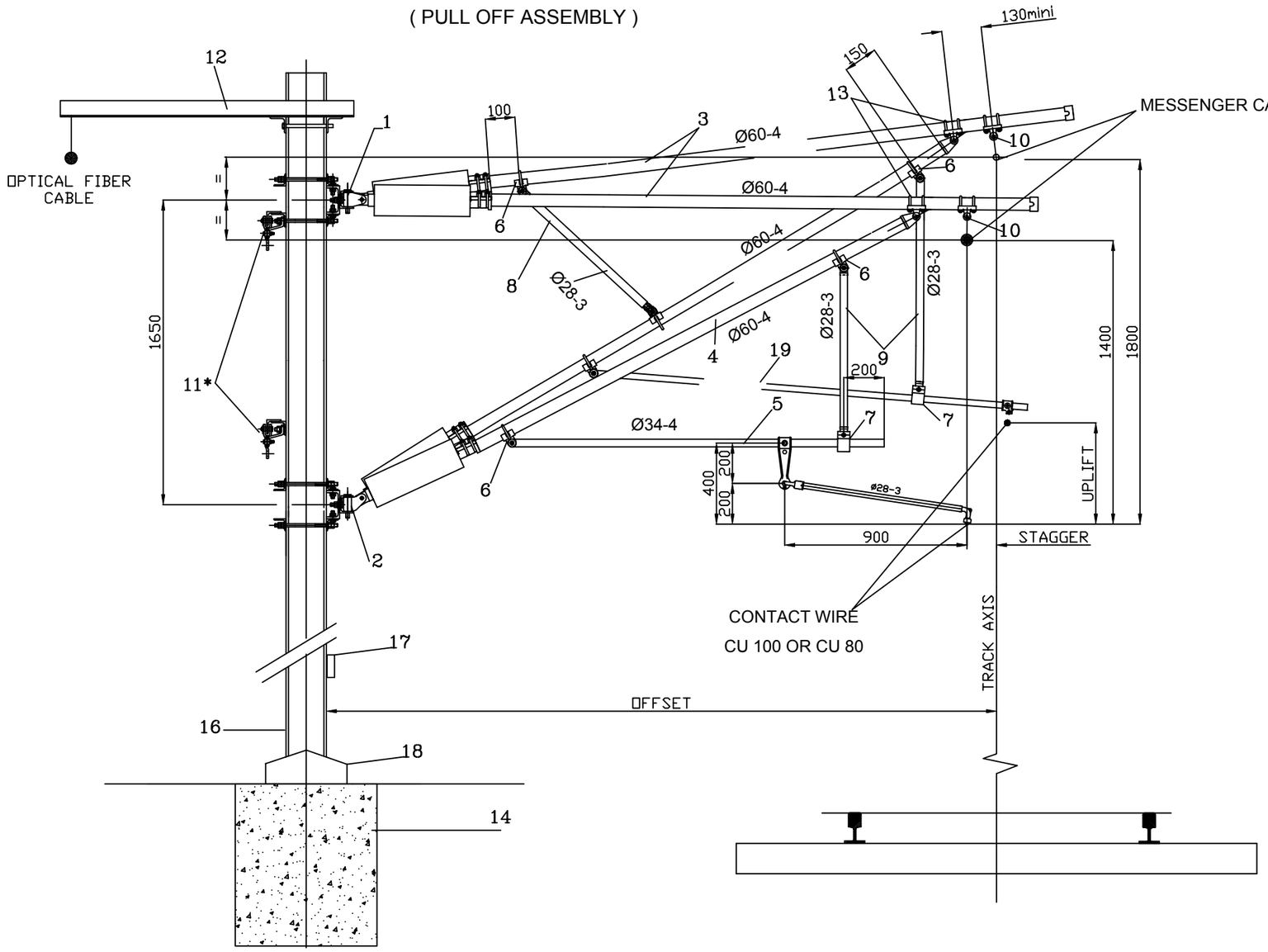
18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	POLE FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG071 01LC00BDG072	
10	SUSPENSION FOR 1 or 2 MESSENGERS	01LC00BDG070	
9	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE ø60	ELC 13-1.2.3.0	
5	ø34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR CURVE	01LC00BDG151	
4	INSULATED FOR STRUT TUBE ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG058 01LC00BDG071	
1	FASTENING FOR TOP TUBE	or 01LC00BDG059 01LC00BDG135	
ITEM	DESIGNATION	REFERENCE DRAWING	MARK

NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

ECHIPARE TIP CATENARA IN LINIE CURENTA (CONSOLA TENSIONATA) TYPICAL CATENARY EQUIPAMENT ON OPEN ROUTE (PUSH OFF ASSEMLY)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG036		2 / 3	0

(297 x 420)



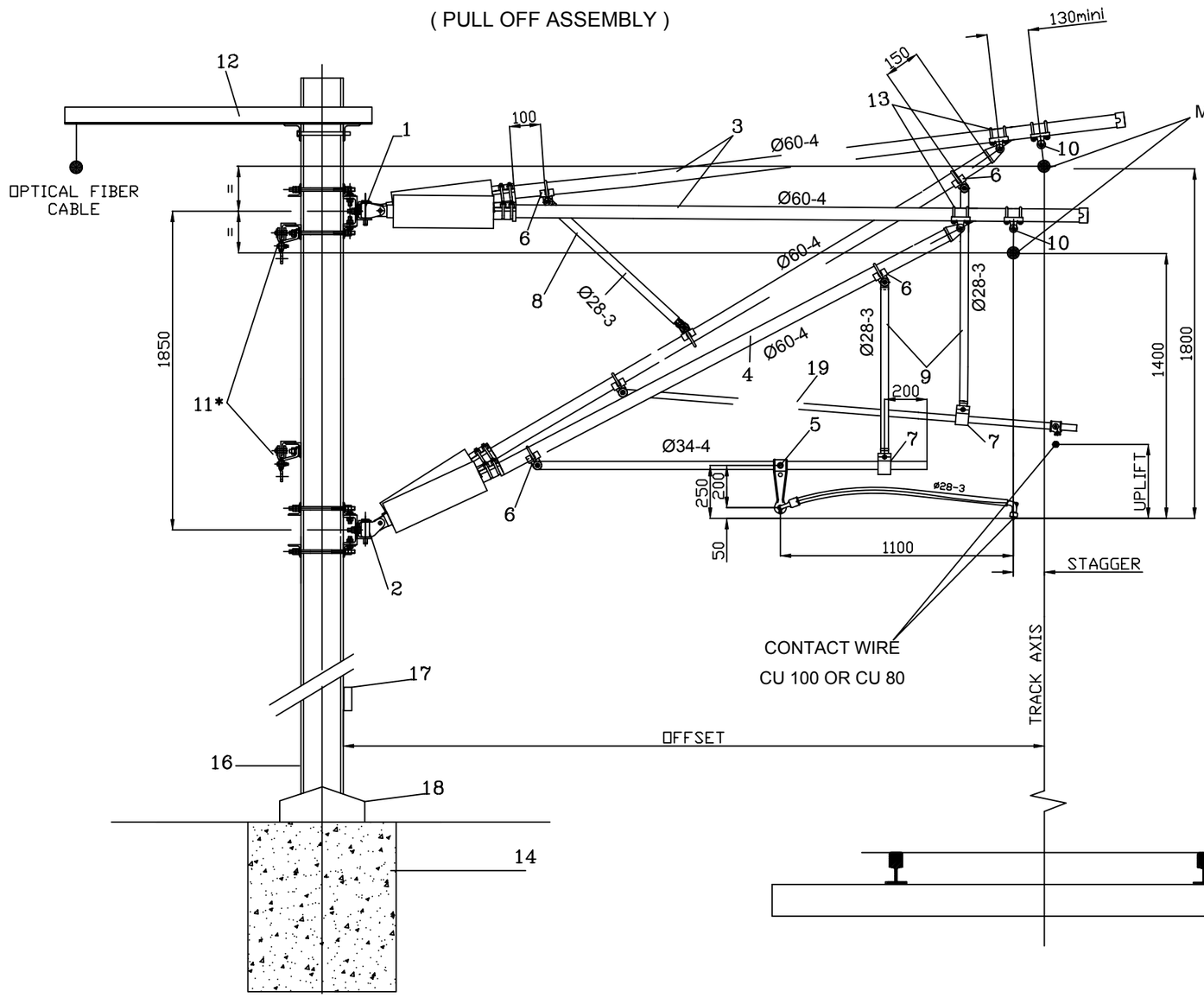
ITEM	DESIGNATION	REFERENCE DRAWING	MARK
19	REGISTRATION ARM FOR UPLIFT C.W.	ELC 32-13.0.A	
18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	POLE FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG0136 01LC00BDG072	
10	SUSPENSION FOR 1 OR 2 MESSENGER	01LC00BDG070	
9	AUXILIARY STRUT TUBE	01LC00BDG083	
8	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE Ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE Ø60	ELC 13-1.2.3.0	
5	Ø34-4 REGISTRATION ARM WITH 0.9m STEADY ARM FOR STRAIGHT LINE	01LC00BDG150	201
4	INSULATED FOR STRUT TUBE Ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE Ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG060 01LC00BDG078	
1	FASTENING FOR TOP TUBE	or 01LC00BDG061 01LC00BDG136	

NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

ECHIPARE TIP CATENARA (CU DISTANTA INTRE CONSOLE DE 1m) TYPICAL CATENARY EQUIPMENT (WITH EQUIPMENTS SPACING 1m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG037		1 / 4	0

(297 x 420)



ITEM	DESIGNATION	REFERENCE DRAWING	MARK
19	REGISTRATION ARM FOR UPLIFT C.W.	ELC 32-13.0.A	
18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	POLE FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG0136 01LC00BDG072	
10	SUSPENSION FOR 1 OR 2 MESSENGER	01LC00BDG070	
9	AUXILIARY STRUT TUBE	01LC00BDG083	
8	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE ø60	ELC 13-1.2.3.0	
5	ø34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR CURVE	01LC00BDG151	201
4	INSULATED FOR STRUT TUBE ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG060 01LC00BDG078	
1	FASTENING FOR TOP TUBE	or 01LC00BDG061 01LC00BDG136	

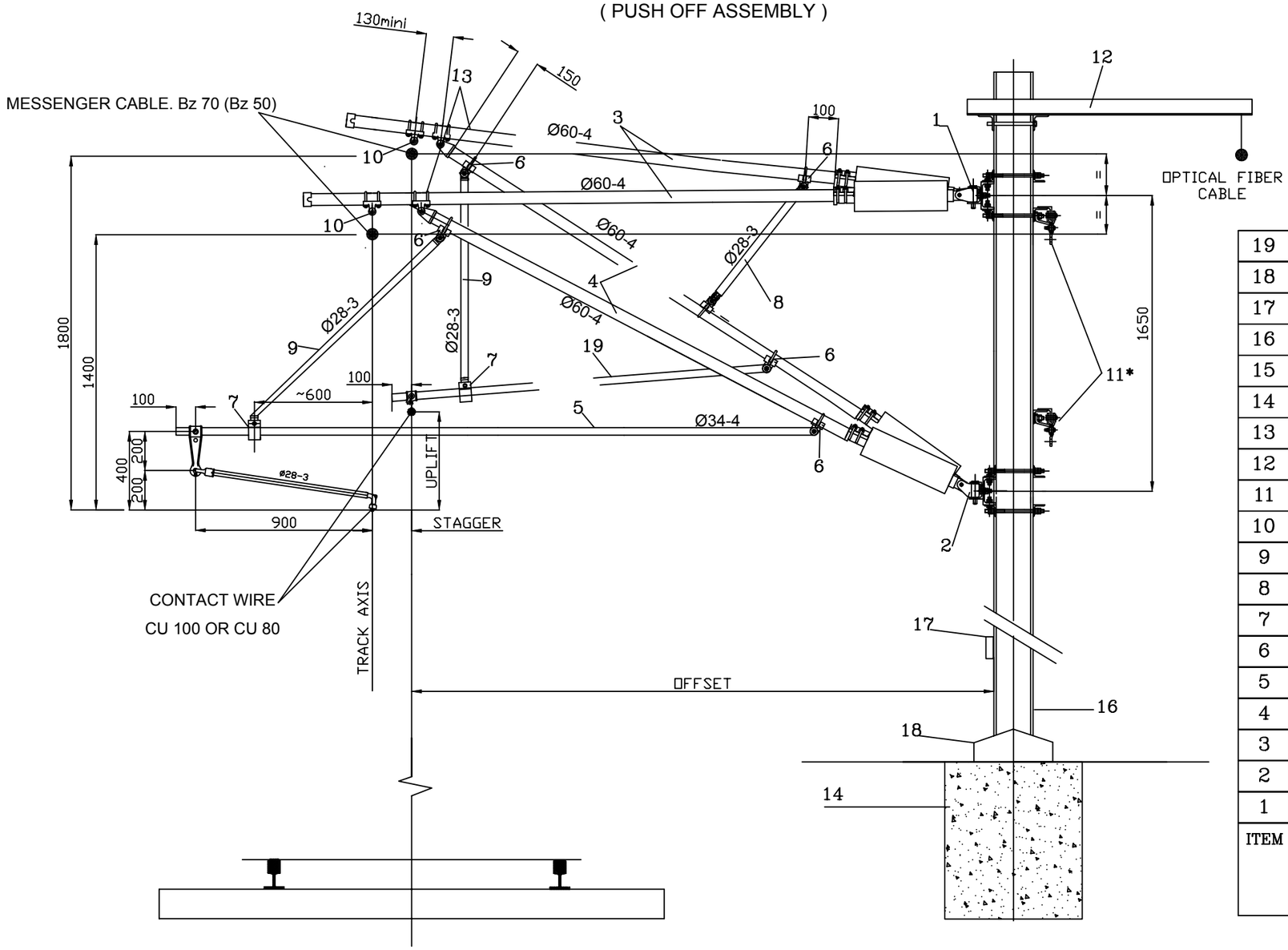
NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

ECHIPARE TIP CATENARA (CU DISTANTA INTRE CONSOLE DE 1m) TYPICAL CATENARY EQUIPMENT (WITH EQUIPMENTS SPACING 1m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG037		2 / 4	0

(297 x 420)

(PUSH OFF ASSEMBLY)



ITEM	DESIGNATION	REFERENCE DRAWING	MARK
19	REGISTRATION ARM FOR UPLIFT C.W.	ELC 32-13.0.A	
18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	POLE FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG0136 01LC00BDG072	
10	SUSPENSION FOR 1 OR 2 MESSENGER	01LC00BDG070	
9	AUXILIARY STRUT TUBE	01LC00BDG083	
8	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE ø60	ELC 13-1.2.3.0	
5	ø34-4 REGISTRATION ARM WITH 0.9m STEADY ARM FOR STRAIGHT LINE	01LC00BDG150	202
4	INSULATED FOR STRUT TUBE ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG060 01LC00BDG078	
1	FASTENING FOR TOP TUBE	or 01LC00BDG061 01LC00BDG136	

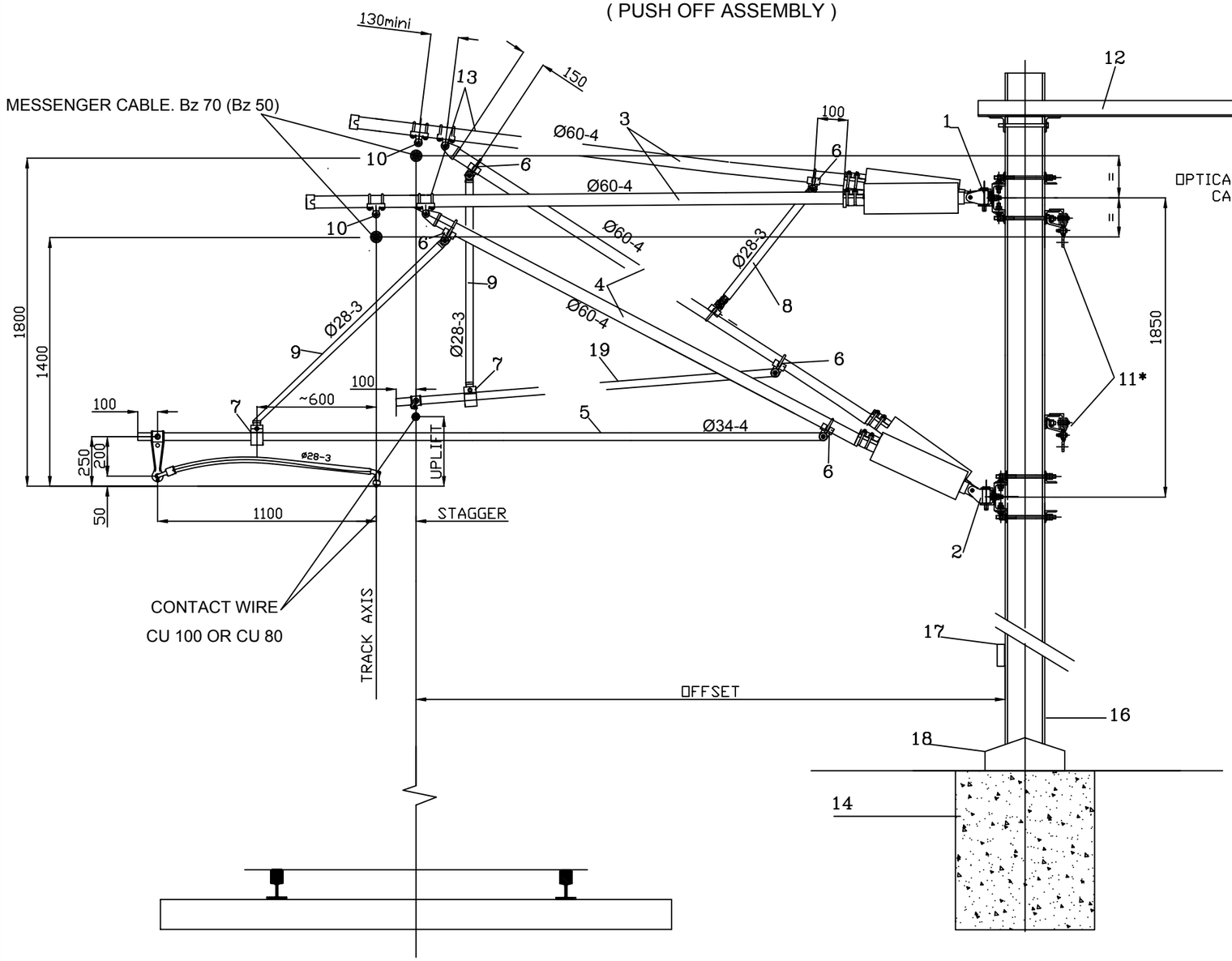
NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

ECHIPARE TIP CATENARA (CU DISTANTA INTRE CONSOLE DE 1m) TYPICAL CATENARY EQUIPMENT (WITH EQUIPMENTS SPACING 1m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG037		3 / 4	0

(297 x 420)

(PUSH OFF ASSEMBLY)



ITEM	DESIGNATION	REFERENCE DRAWING	MARK
19	REGISTRATION ARM FOR UPLIFT C.W.	ELC 32-13.0.A	
18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	POLE FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG0136 01LC00BDG072	
10	SUSPENSION FOR 1 OR 2 MESSENGER	01LC00BDG070	
9	AUXILIARY STRUT TUBE	01LC00BDG083	
8	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE ø60	ELC 13-1.2.3.0	
5	ø34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR CURVE	01LC00BDG151	202
4	INSULATED FOR STRUT TUBE ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG060 01LC00BDG078	
1	FASTENING FOR TOP TUBE	or 01LC00BDG061 01LC00BDG136	

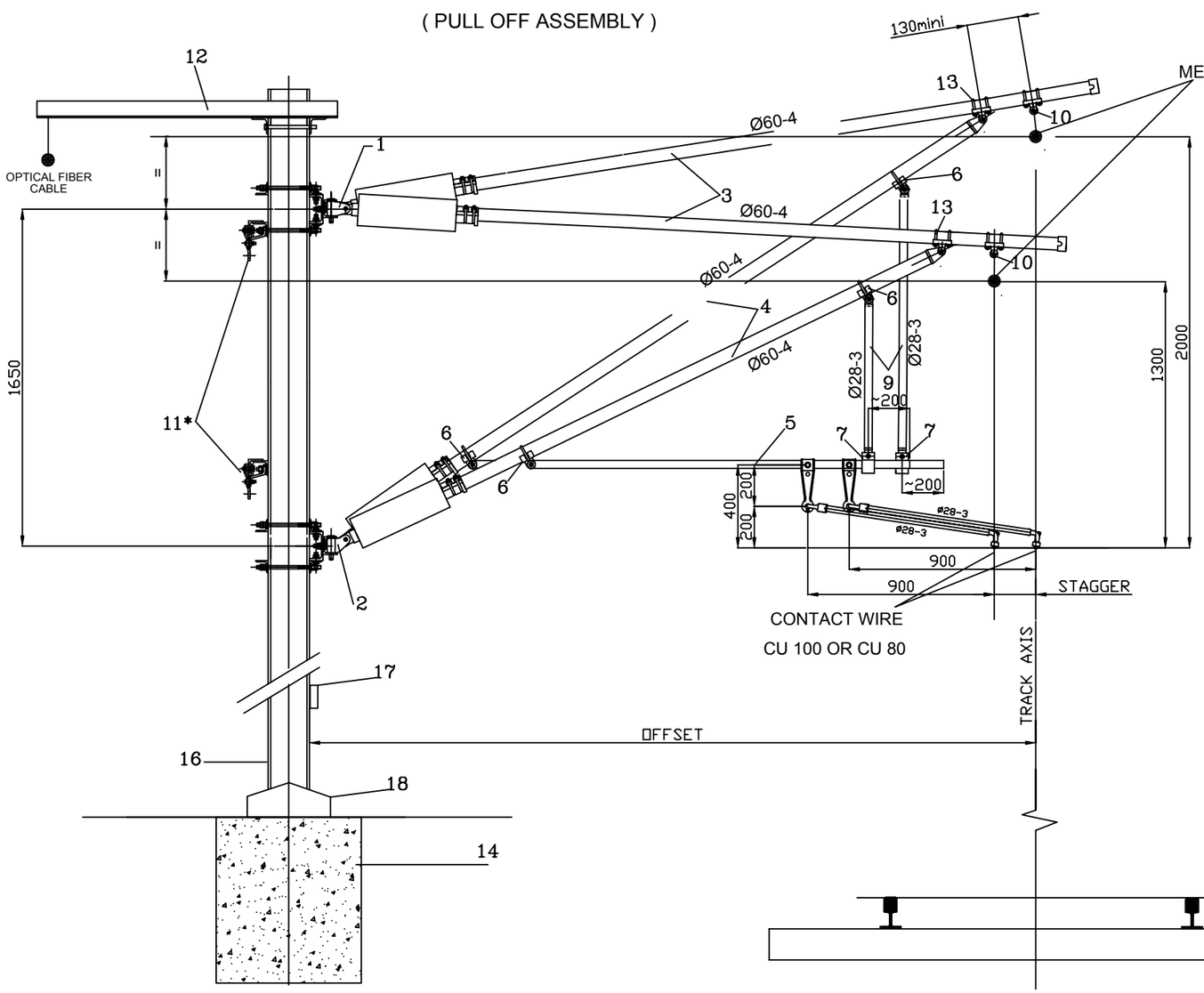
NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

ECHIPARE TIP CATENARA (CU DISTANTA INTRE CONSOLE DE 1m) TYPICAL CATENARY EQUIPMENT (WITH EQUIPMENTS SPACING 1m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG037		4 / 4	0

(297 x 420)

(PULL OFF ASSEMBLY)



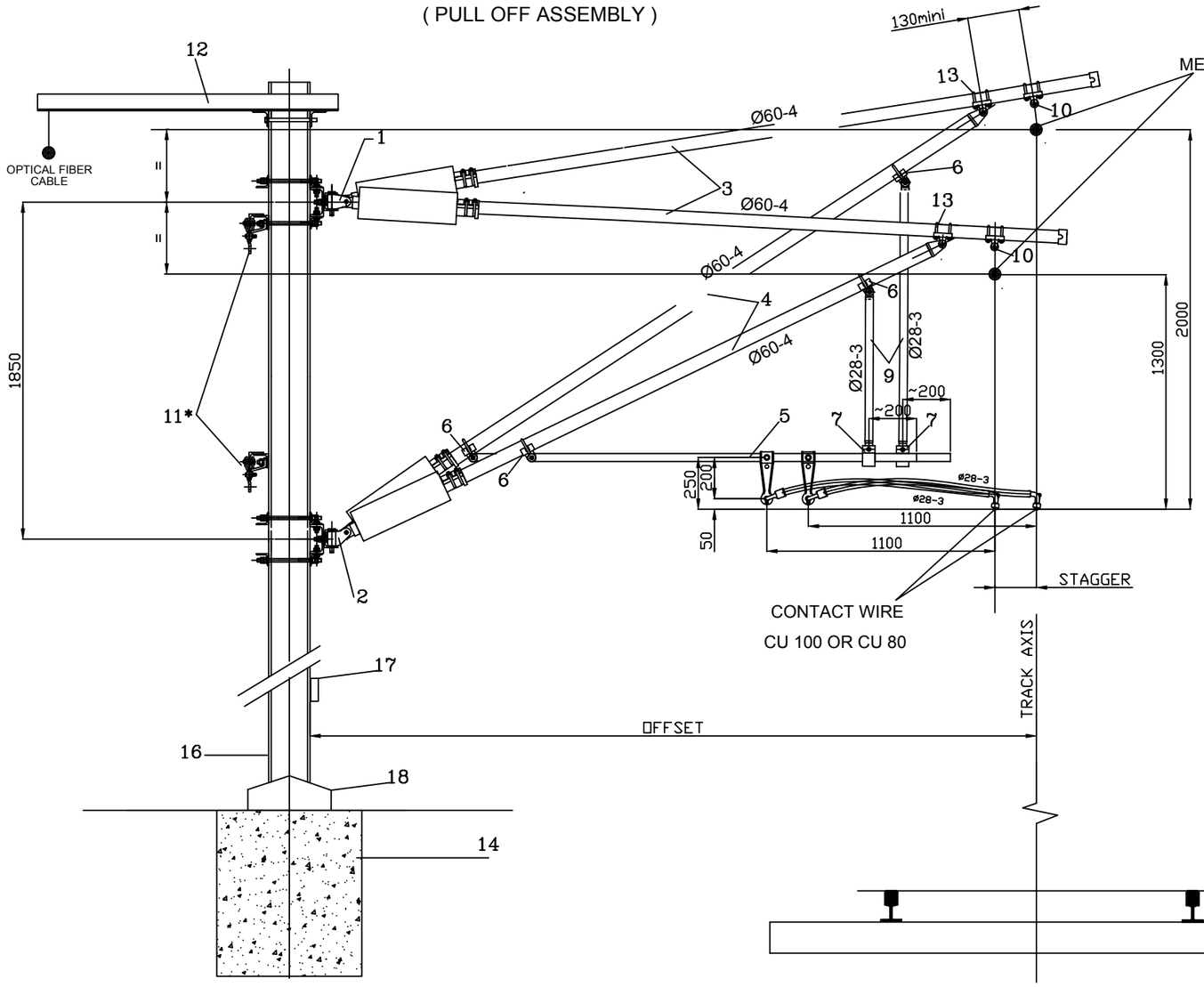
ITEM	DESIGNATION	REFERENCE DRAWING	MARK
18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	POLE FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG081 01LC00BDG072	
10	SUSPENSION FOR 1 OR 2 MESSENGER	01LC00BDG070	
9	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE ø60	ELC 13-1.2.3.0	
5	ø34-4 REGISTRATION ARM WITH 0.9m STEADY ARM FOR STRAIGHT LINE	01LC00BDG150	201
4	INSULATED FOR STRUT TUBE ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG080 01LC00BDG081	
1	FASTENING FOR TOP TUBE	or 01LC00BDG079 01LC00BDG136	

NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

ECHIPARE TIP A CATENAREI PENTRU ZONA DE IZOLATIE MECANICA (DISTANTA INTRE CONSOLE DE 1.60 m) TYPICAL CATENARY EQUIPMENT FOR UNINSULATED OVERLAP AXIS (WITH EQUIPMENTS SPACING 1.60m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG038		1 / 4	0

(297 x 420)



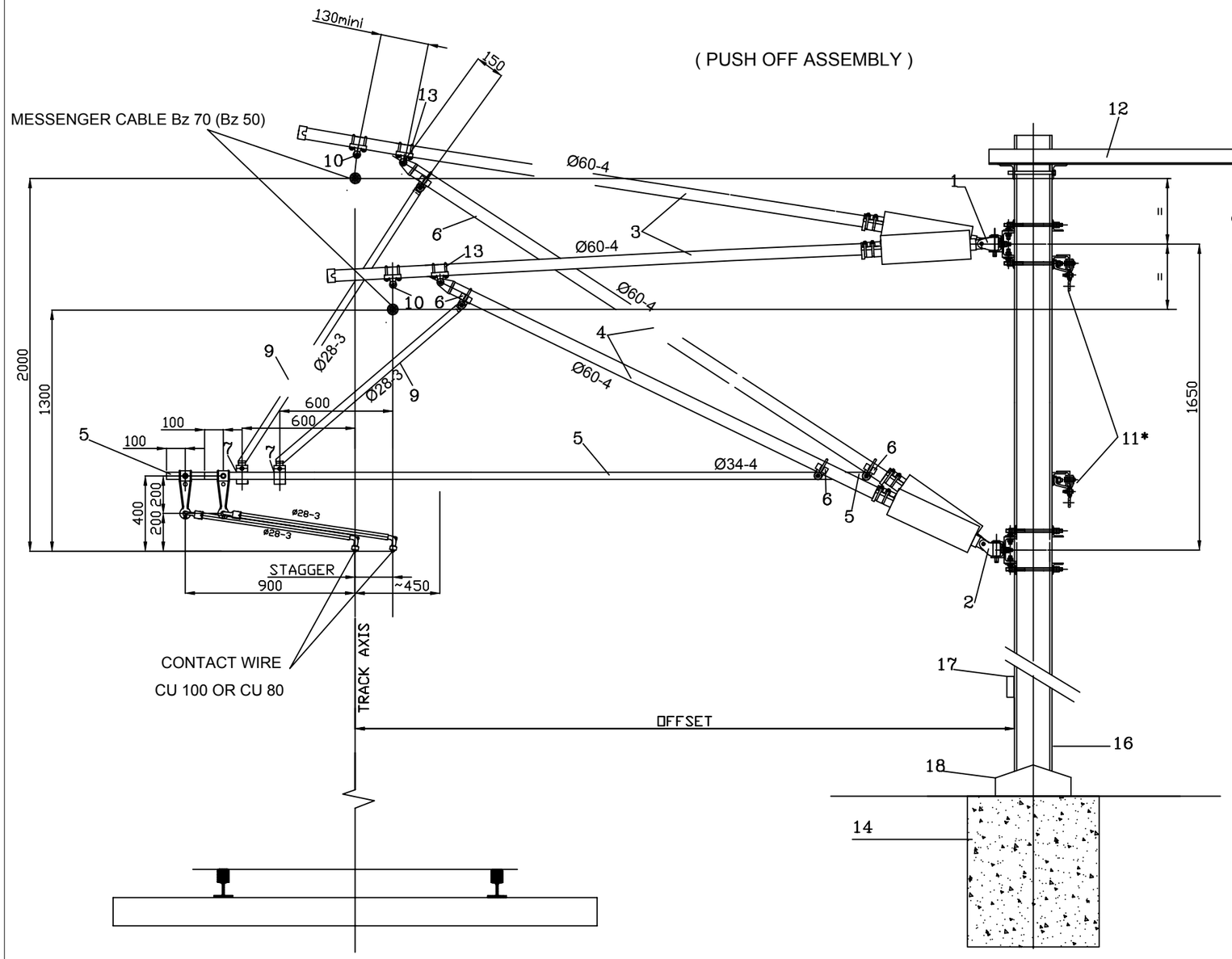
ITEM	DESIGNATION	REFERENCE DRAWING	MARK
18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	POLE FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG081 01LC00BDG072	
10	SUSPENSION FOR 1 OR 2 MESSENGER	01LC00BDG070	
9	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE ø60	ELC 13-1.2.3.0	
5	ø34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR CURVE	01LC00BDG151	201
4	INSULATED FOR STRUT TUBE ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG080 01LC00BDG081	
1	FASTENING FOR TOP TUBE	or 01LC00BDG079 01LC00BDG136	

NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

ECHIPARE TIP A CATENAREI PENTRU ZONA DE IZOLATIE MECANICA (DISTANTA INTRE CONSOLE DE 1.60 m) TYPICAL CATENARY EQUIPMENT FOR UNINSULATED OVERLAP AXIS (WITH EQUIPMENTS SPACING 1.60m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG038		2 / 4	0

(297 x 420)



18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	POLE FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG081 01LC00BDG072	
10	SUSPENSION FOR 1 OR 2 MESSENGER	01LC00BDG070	
9	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE ø60	ELC 13-1.2.3.0	
5	ø34-4 REGISTRATION ARM WITH 0.9m STEADY ARM FOR STRAIGHT LINE	01LC00BDG150	202
4	INSULATED FOR STRUT TUBE ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG080 01LC00BDG081	
1	FASTENING FOR TOP TUBE	or 01LC00BDG079 01LC00BDG136	
ITEM	DESIGNATION	REFERENCE DRAWING	MARK

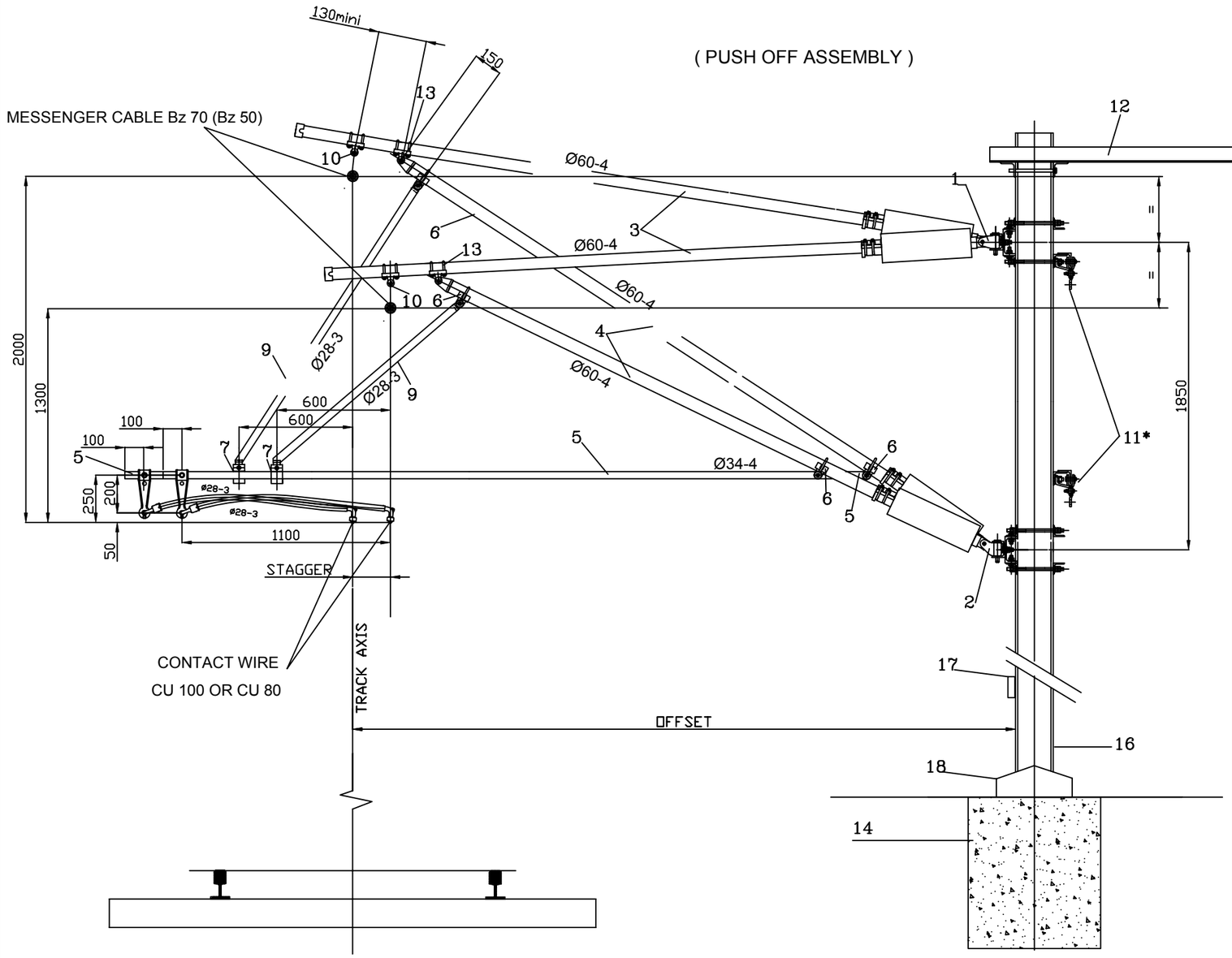
NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

ECHIPARE TIP A CATENAREI PENTRU ZONA DE IZOLATIE MECANICA (DISTANTA INTRE CONSOLE DE 1.60 m) TYPICAL CATENARY EQUIPMENT FOR UNINSULATED OVERLAP AXIS (WITH EQUIPMENTS SPACING 1.60m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG038		3 / 4	0

(297 x 420)

(PUSH OFF ASSEMBLY)



18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	POLE FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG081 01LC00BDG072	
10	SUSPENSION FOR 1 OR 2 MESSENGER	01LC00BDG070	
9	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE ø60	ELC 13-1.2.3.0	
5	ø34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR CURVE	01LC00BDG151	202
4	INSULATED FOR STRUT TUBE ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG080 01LC00BDG081	
1	FASTENING FOR TOP TUBE	or 01LC00BDG079 01LC00BDG136	
ITEM	DESIGNATION	REFERENCE DRAWING	MARK

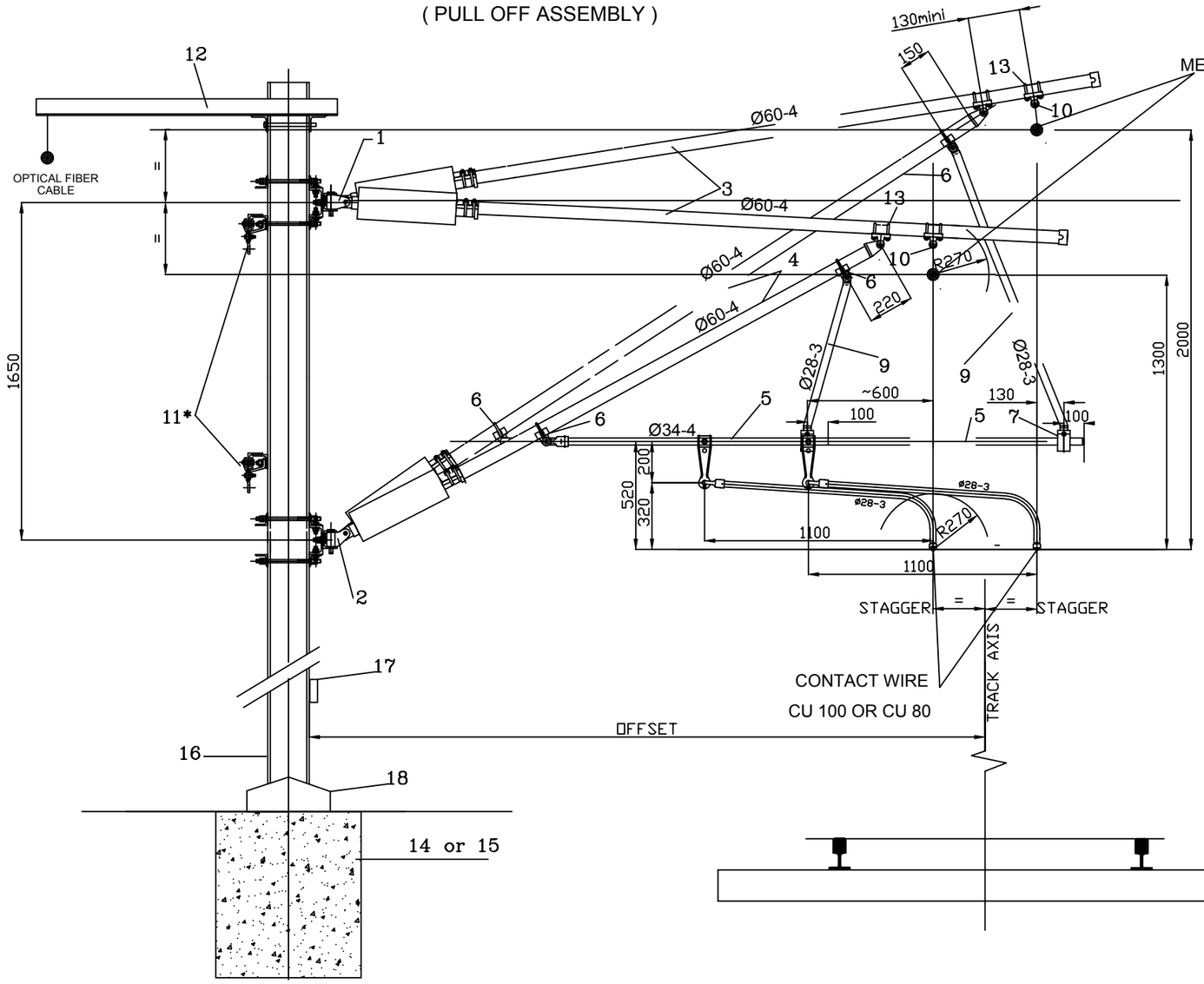
NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

ECHIPARE TIP A CATENAREI PENTRU ZONA DE IZOLATIE MECANICA (DISTANTA INTRE CONSOLE DE 1.60 m) TYPICAL CATENARY EQUIPMENT FOR UNINSULATED OVERLAP AXIS (WITH EQUIPMENTS SPACING 1.60m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG038		4 / 4	0

(297 x 420)

(PULL OFF ASSEMBLY)



18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	POLE FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG081 01LC00BDG072	
10	SUSPENSION FOR 1 OR 2 MESSENGER	01LC00BDG070	
9	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE ø60	ELC 13-1.2.3.0	
5	ø34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR INS. OVERLAP	01LC00BDG152	201
4	INSULATED FOR STRUT TUBE ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE ø60	01LC00BDG04	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG080 01LC00BDG081	
1	FASTENING FOR TOP TUBE	or 01LC00BDG079 01LC00BDG136	
ITEM	DESIGNATION	REFERENCE DRAWING	MARK

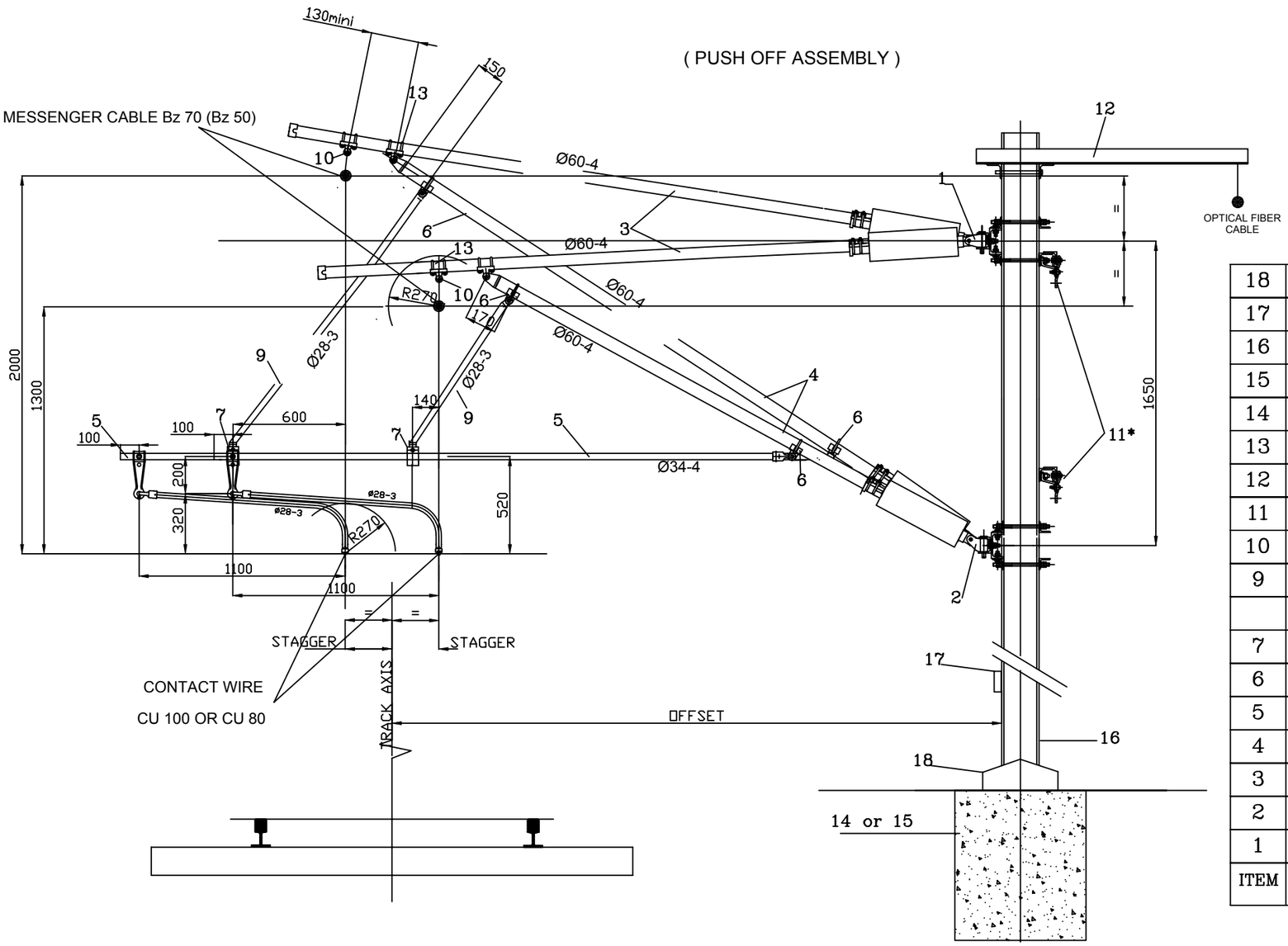
NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

ECHIPARE TIP A CATENAREI PENTRU STALPII MEDIANI AI ZONEI IZOLATE (DISTANTA INTRE CONSOLE DE 1.60 m) TYPICAL CATENARY EQUIPMENT FOR INSULATED OVERLAP AXIS (WITH EQUIPMENTS SPACING 1.60m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG039		1 / 2	0

(297 x 420)

(PUSH OFF ASSEMBLY)



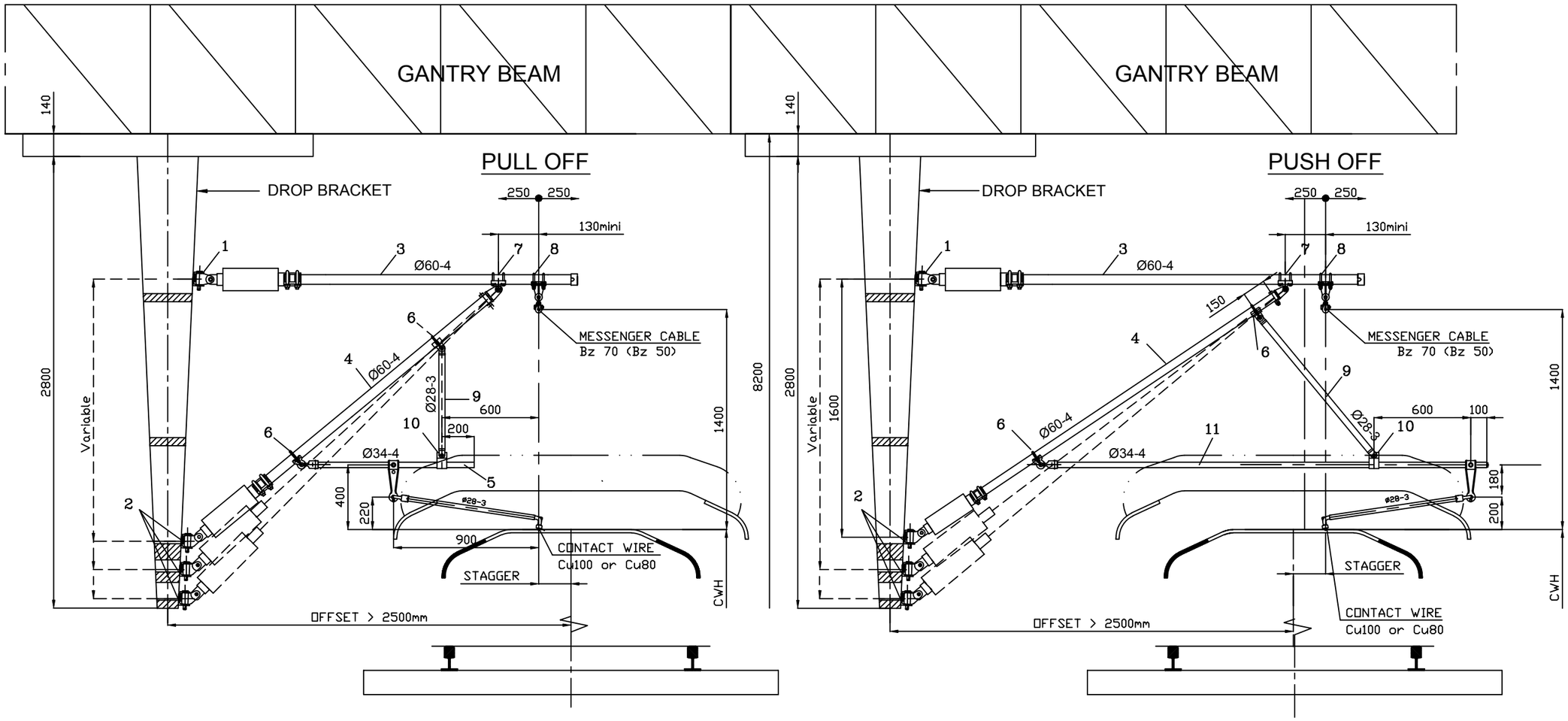
ITEM	DESIGNATION	REFERENCE DRAWING	MARK
18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	POLE FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG081 01LC00BDG072	
10	SUSPENSION FOR 1 OR 2 MESSENGER	01LC00BDG070	
9	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE Ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE Ø60	ELC 13-1.2.3.0	
5	Ø34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR INS. OVERLAP	01LC00BDG152	202
4	INSULATED FOR STRUT TUBE Ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE Ø60	01LC00BDG04	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG080 01LC00BDG081	
1	FASTENING FOR TOP TUBE	or 01LC00BDG079 01LC00BDG136	

NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

ECHIPARE TIP A CATENAREI PENTRU STALPII MEDIANI AI ZONEI IZOLATE (DISTANTA INTRE CONSOLE DE 1.60 m) TYPICAL CATENARY EQUIPMENT FOR INSULATED OVERLAP AXIS (WITH EQUIPMENTS SPACING 1.60m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG039		2/2	0

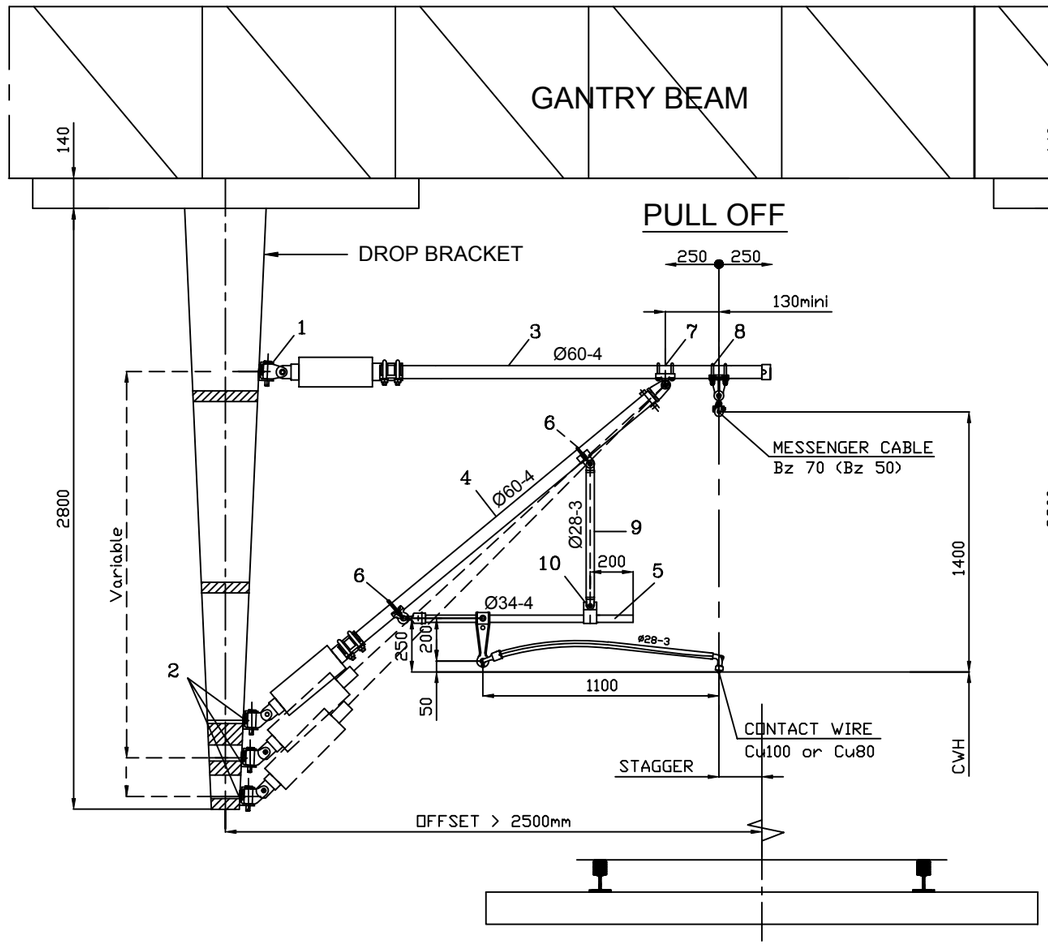
(297 x 420)

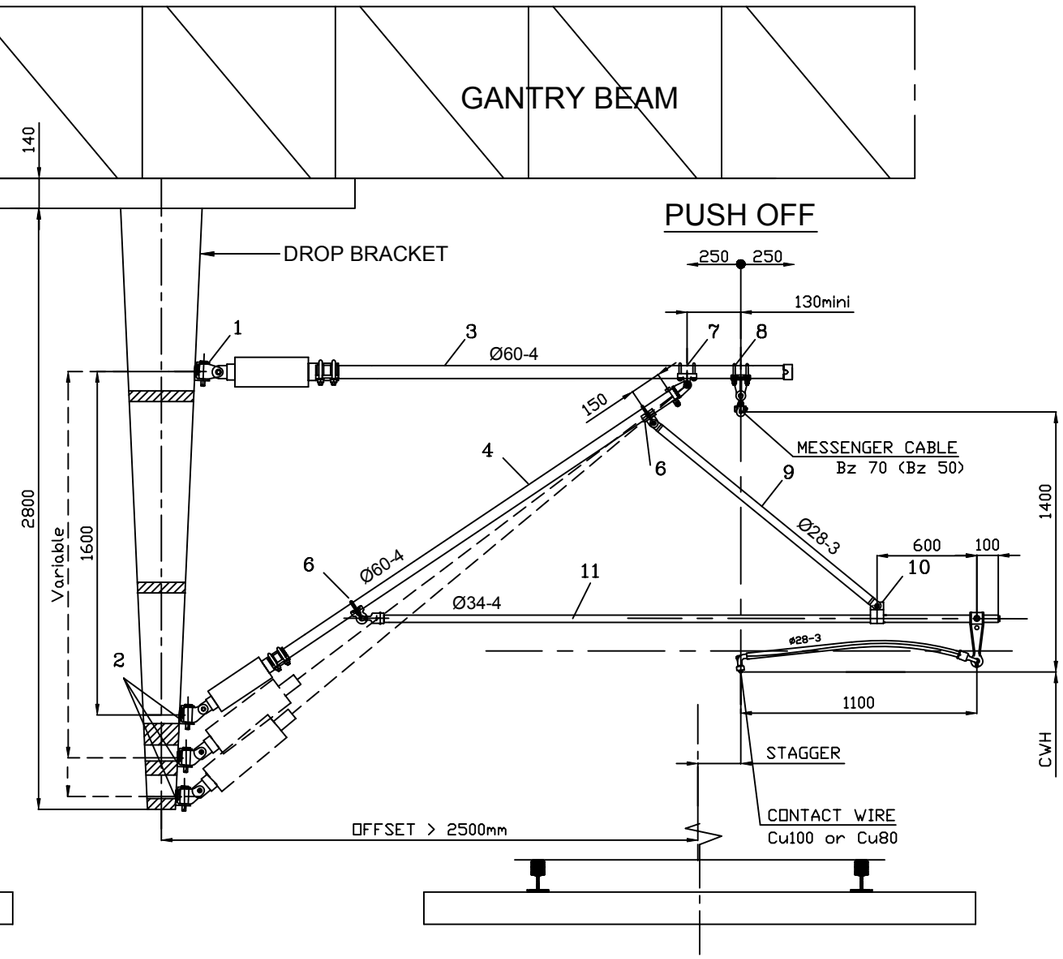


ITEM	DESIGNATION	REFERENCE DRAWING	MARK
11	ø34-4 REGISTRATION ARM WITH 0.9m STEADY ARM FOR STRAIGHT LINE	01LC00BDG150	202
10	FASTENING ON TUBE ø34	ELC 26-4.7.0	
9	AUXILIARY STRUT TUBE	01LC00BDG083	
8	SUSPENSION FOR 1 or 2 MESSENGERS	01LC00BDG071	
7	FASTENING FOR TOP TUBE	01LC00BDG070	
6	FASTENING ON TUBE ø60	ELC 13-1.2.3.0	
5	ø34-4 REGISTRATION ARM WITH 0.9m STEADY ARM FOR STRAIGHT LINE	01LC00BDG150	201
4	INSULATED FOR STRUT TUBE ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	ELC 13-13.0A	II
1	FASTENING FOR TOP TUBE	ELC 13-13.0A	I

ECHIPARE TIP A CATENAREI PE TRAVERSA RIGIDA TYPICAL CATENARY EQUIPMENT ON GANTER BEAM	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG040		*1 / 2*	*0*

(297 x 420)



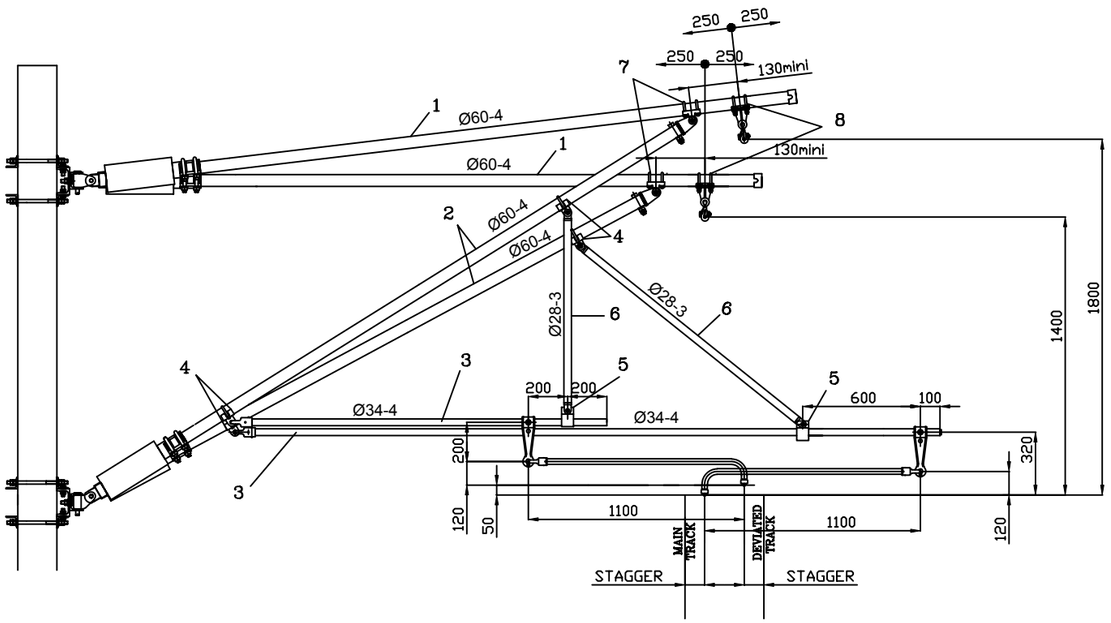


ITEM	DESIGNATION	REFERENCE DRAWING	MARK
11	Ø34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR CURVE	01LC00BDG151	202
10	FASTENING ON TUBE Ø34	ELC 26-4.7.0	
9	AUXILIARY STRUT TUBE	01LC00BDG083	
8	SUSPENSION FOR 1 or 2 MESSENGERS	01LC00BDG071	
7	FASTENING FOR TOP TUBE	01LC00BDG070	
6	FASTENING ON TUBE Ø60	ELC 13-1.2.3.0	
5	Ø34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR CURVE	01LC00BDG151	201
4	INSULATED FOR STRUT TUBE Ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE Ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	ELC 13-13.0A	II
1	FASTENING FOR TOP TUBE	ELC 13-13.0A	I

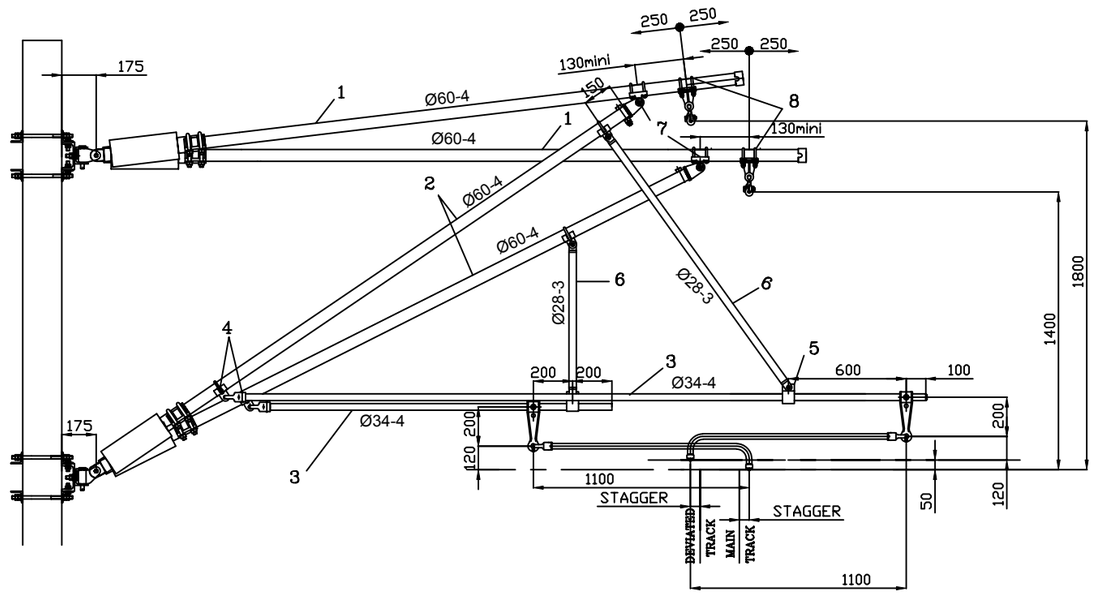
ECHIPARE TIP A CATENAREI PE TRAVERSA RIGIDA TYPICAL CATENARY EQUIPMENT ON GANTER BEAM	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG040		*2 / 2*	*0*

(297 x 420)

TYPICAL MOUNTING

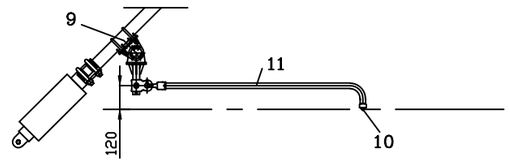


TYPICAL MOUNTING



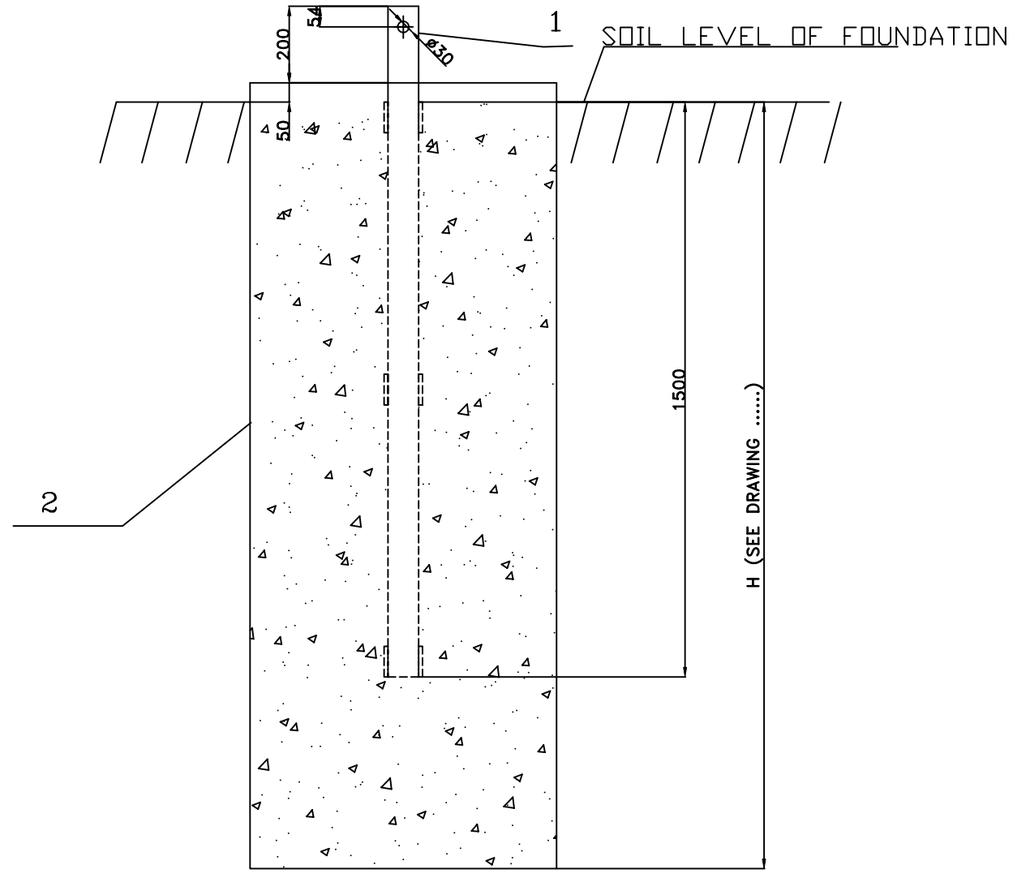
ITEM	DESIGNATION	REFERENCE DRAWING	MARK
11	1.1m STEADY ARM FOR CROSS-OVER	ELC 32-11.0A	
10	ASSEMBLY CLAMP GROOVED CONTACT WIRE	ELC 32-9.5.5.0B	
9	ROTATING FASTENING ASSEMBLY	01LC00BDG084	
8	SUSPENSION FOR 1 OR 2 MESSENGERS	01LC00BDG070	
7	FASTENING FOR TOP TUBE	01LC00BDG069	
6	AUXILIARY STRUT TUBE	ELC 32-9.11.1B	
5	FASTENING ON TUBE ø34	ELC 26-4.7.0	
4	FASTENING ON TUBE ø60	ELC 13-1.2.3.0	
3	ø34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR CROSS-OVER	01LC00BDG153	
2	INSULATED FOR STRUT TUBE	01LC00BDG066	
1	INSULATED FOR TOP TUBE	01LC00BDG064	

TYPICAL MOUNTING WITH SMALL OFFSET



MONTAJ TIP PENTRU INCRUCISARE TYPICAL MOUNTING FOR CROSS-OVER	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG042		*1 / 1*	*0*

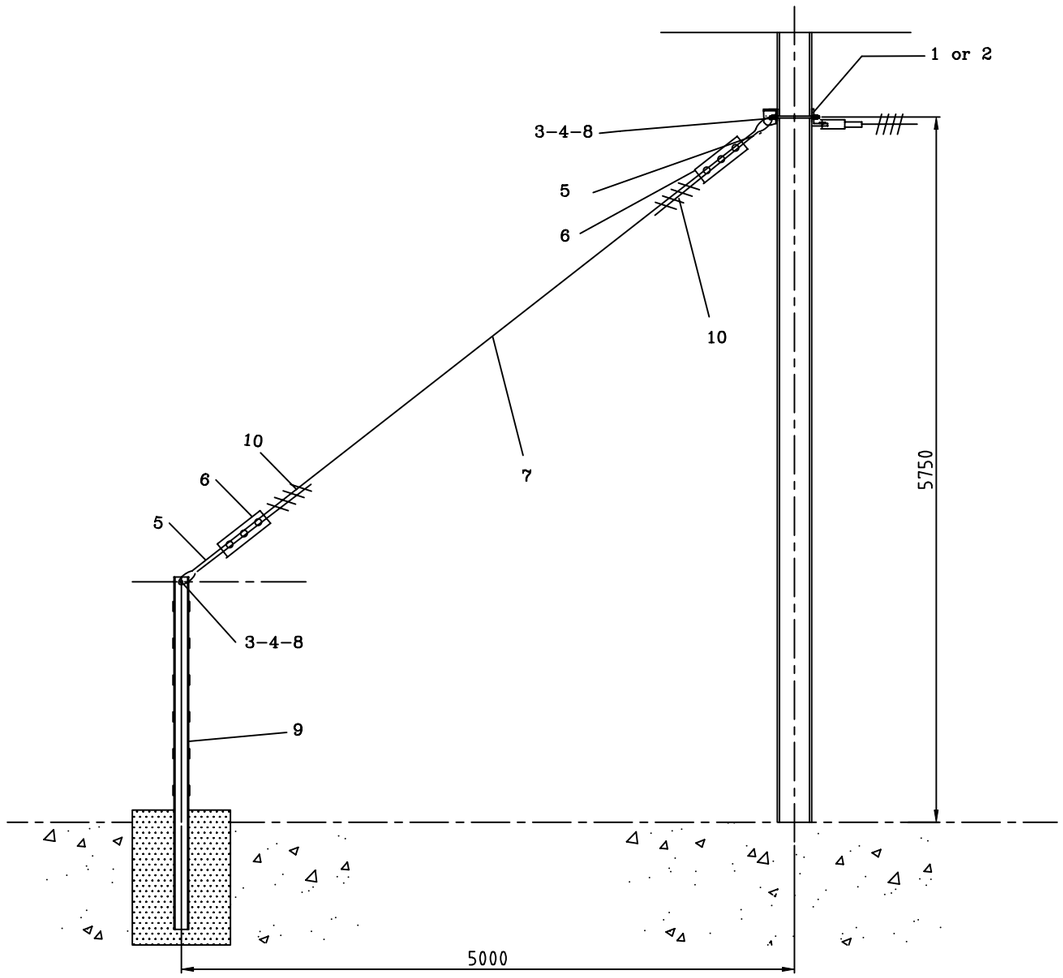
(297 x 420)



MARK GROUP	QUANT.	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
*****	1	2	CYLINDRICAL FOUNDATION ALLOCATION TABLE	***	01LC00BDG006	
	1	1	LEVEL ANCHOR BEAM		01LC00BDG132	

	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
ANCORA LA NIVEL LEVEL ANCHOR	*01LC00BDG047*		*1 / 1*	*0*

(297 x 420)



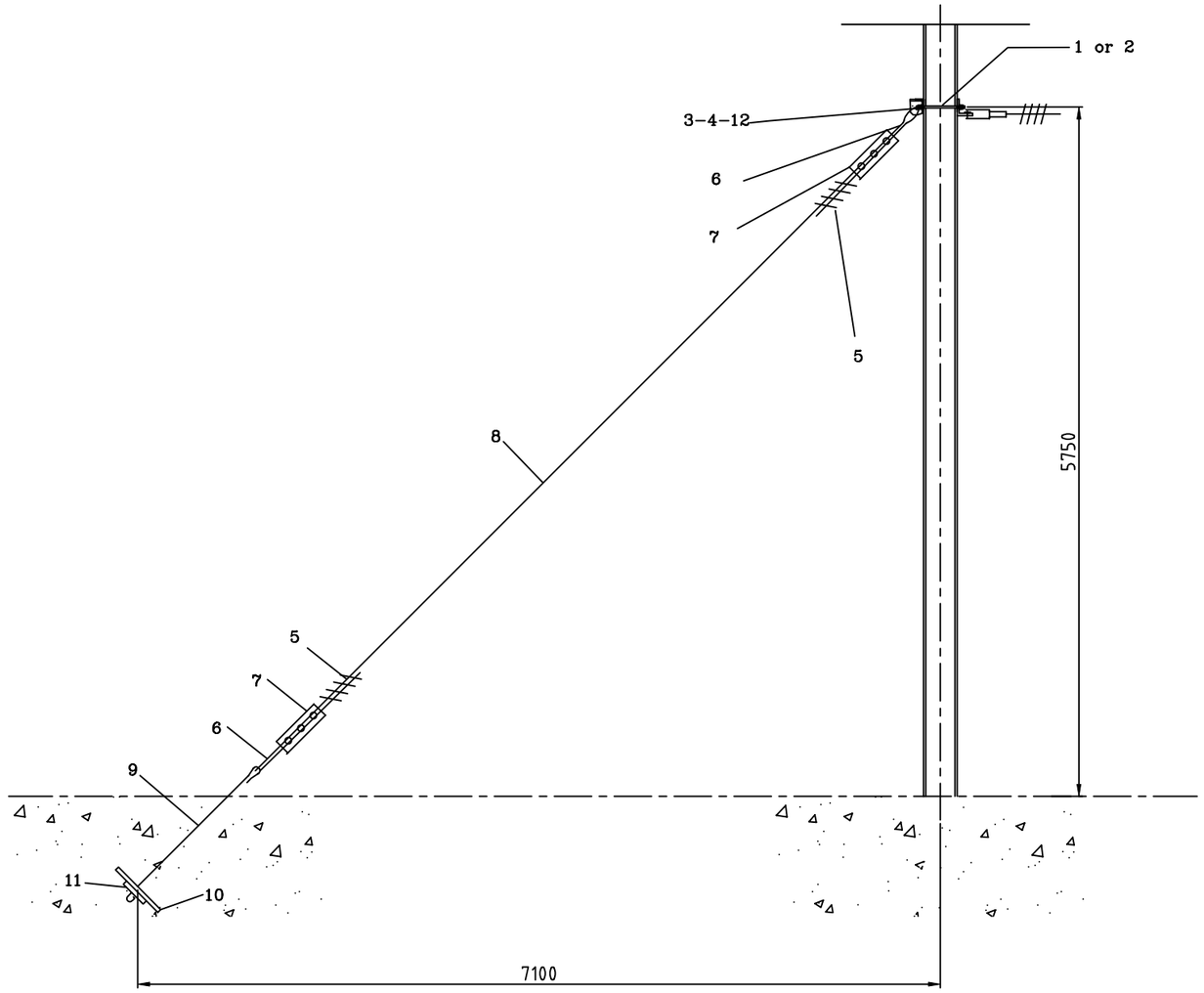
FROM HEA or HEB 200 TO 240 : MARK 103

FROM HEA or HEB 260 TO 320 : MARK 104

QUANTITY						
2	2	10	IRON	STAS 434-73	
1	1	9	UPN ANCHOR][120	ELC/CFO 1-6.0	
1	1	8	WASHER M20	01LC00BDG142	20A110
1	1	7	CABLE 70mm2 (L= ~ 10m) OL2m	EP2610-4.0A/13	...
2	2	6	EYES PLATE	ELC/CFO 1-12-0	
2	2	5	TRIMBLE	ELC/CFO 1-8	
1	1	4	PIN V5-36	01LC00BDG145	05A036
1	1	3	AXIS ø20-70	01LC00BDG146	201070
1		2	FASTENING FOR ANCHORING OF EARTH CONDUCTOR	01LC00BDG140	102
	1	1	FASTENING FOR ANCHORING OF EARTH CONDUCTOR	01LC00BDG140	101
MARK.GROUP					
104	103	ITEM	DESIGNATION	REFERENCE DRAWING	MARK

ANCORARE CABLU COLECTOR EARTHING CONDUCTOR ANCHORING	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG048		*1 / 2*	*0*

(297 x 420)



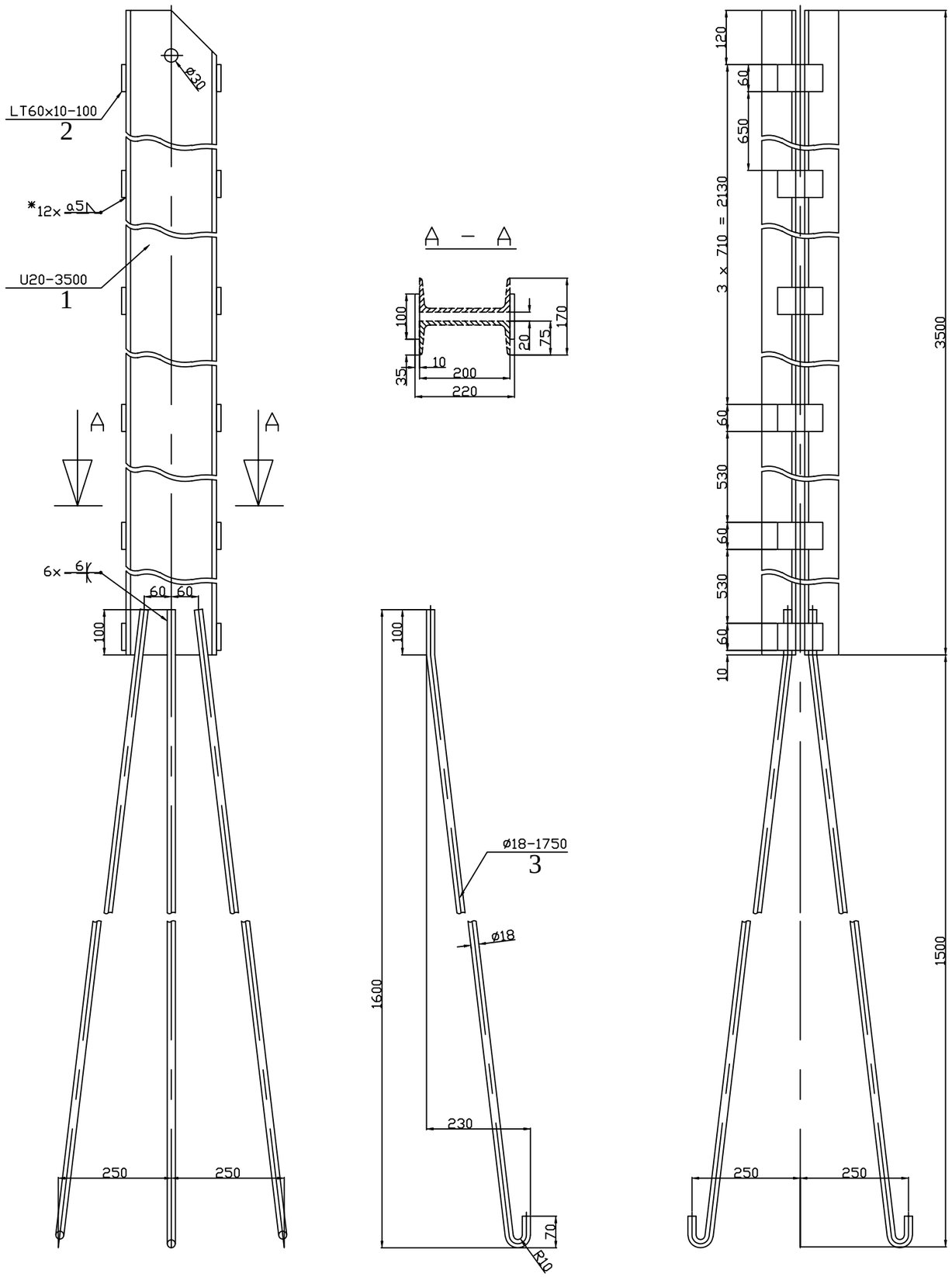
FROM HEA or HEB 200 TO 240 : MARK 101

FROM HEA or HEB 260 TO 320 : MARK 102

MARK.GROUP 102	MARK.GROUP 101	ITEM	DESIGNATION	REFERENCE DRAWING	MARK
QUANTITY	1	12	WASHER M20	01LC00BDG142	20A110
	1	11	SMALL PLATE	EP2610-16	...
	1	10	CONCRETE PLATE FOR ANCHORING	RA2-214/1978	...
	1	9	ANCHOR ROD RCA 37 (OL-37-2)	EP2610-4.0A/14	...
	1	8	CABLE 70mm2 (L= ~ 10m) OL2m	EP2610-4.0A/13	...
	2	7	EYES PLATE	ELC/CFO 1-12-0	
	2	6	TRIMBLE	ELC/CFO 1-8	
	2	5	IRON	STAS 434-73	
	1	4	PIN V5-36	01LC00BDG145	05A036
	1	3	AXIS ø20-70	01LC00BDG146	201070
	1	2	FASTENING FOR ANCHORING OF EARTH CONDUCTOR	01LC00BDG140	102
	1	1	FASTENING FOR ANCHORING OF EARTH CONDUCTOR	01LC00BDG140	101

ANCORARE CABLU COLECTOR EARTHING CONDUCTOR ANCHORING	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG048		*2 / 2*	*0*

(297 x 420)

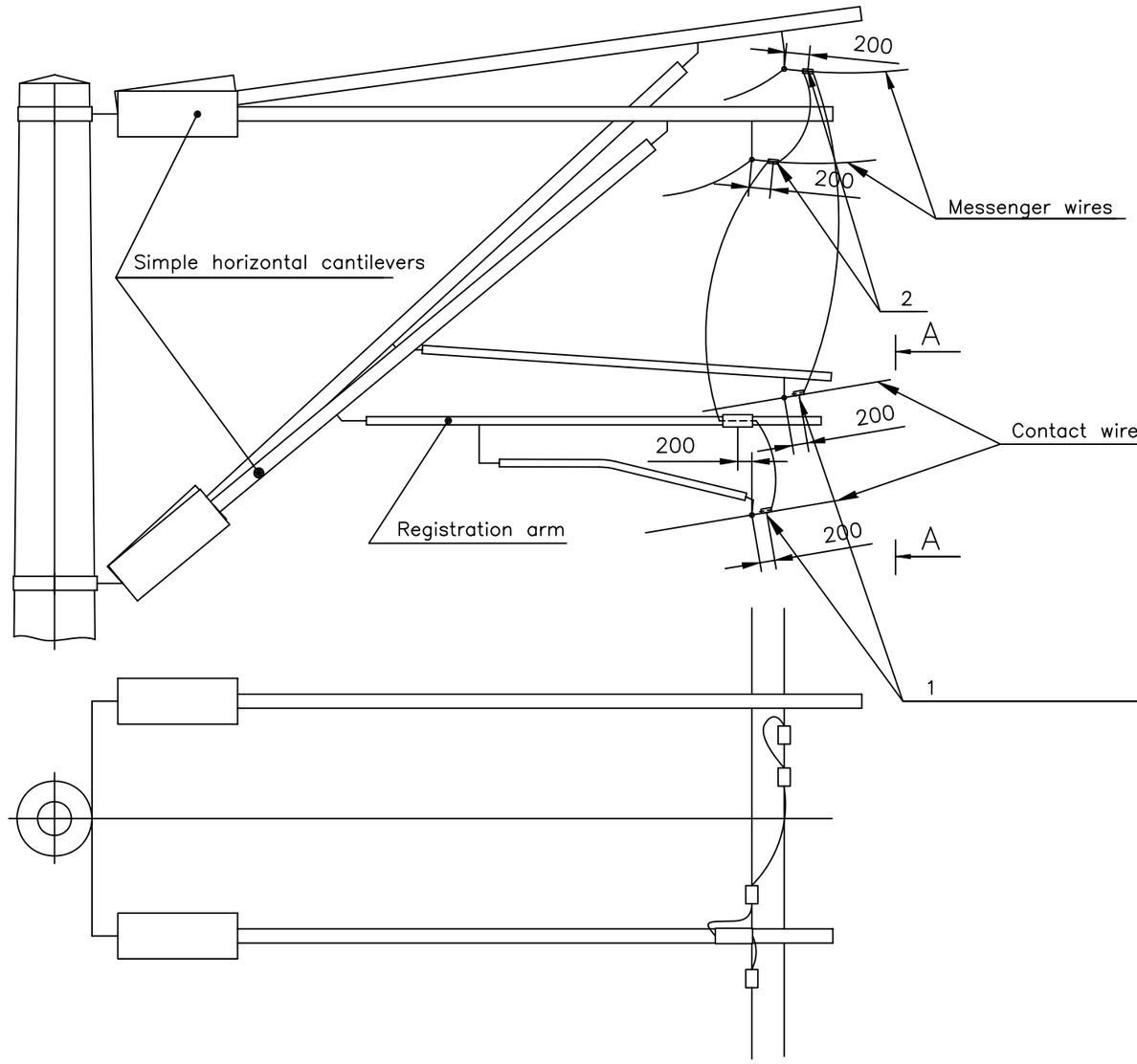


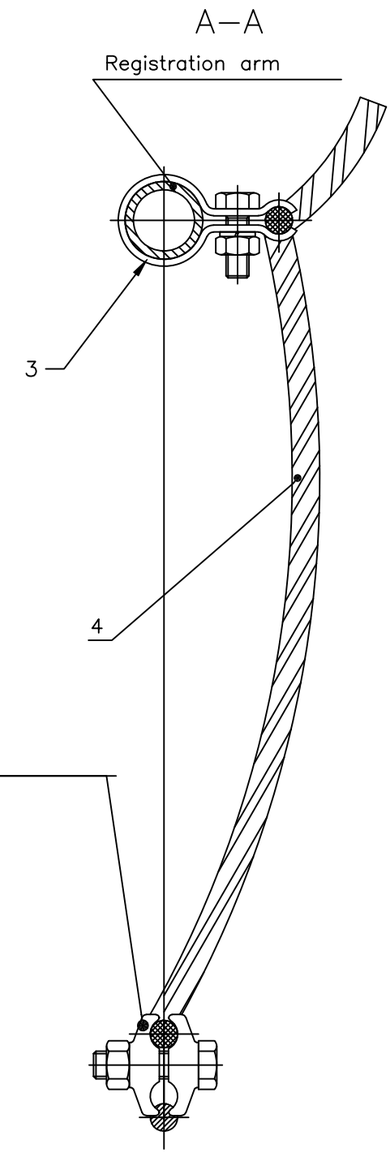
NOTE:
1.The welds marked with * will be made tight.
2.After welding of items 1 and 2 and drilling, the assembly will be hot galvanized AT/OL/Zn600–STAS 7221–90.
3. After hot gavanize will be made the weldings for armature item 3.

MARK GROUP		ITEM	DESIGNATION	UNIT MASS kg	MATERIAL TECHNICAL SPECIFICATION
QUANTITY	6	3	ARMATURE		minim. S235JR
	12	2	STRAP		minim. S235JR
	2	1	LONGERON		minim. S235JR

ANCORA SUPRAINALTATA SUPERELEVATED ANCHOR	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG049		*1 / 1*	*0*

(297 x 420)

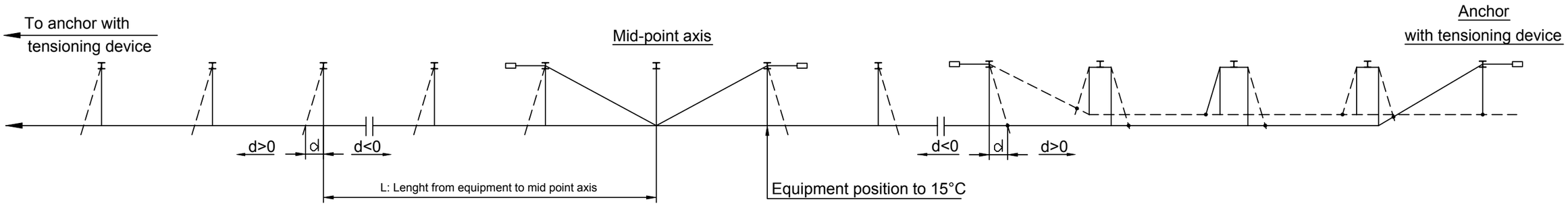




MARK GROUP	QUANTITY	ITEM	DESIGNATION	REFERENCE DRAWING	MARK
SEE TABLE					
	2	1	ELECTRICAL CONNECTION CLAMP FOR CONTACT WIRE	LEFC-00	
	2	2	ELECTRICAL CONNECTION CLAMP FOR MESSENGER WIRE	LECP-00	
	1	3	CONNECTION CLAMP FOR REGISTRATION ARM	ELC 5-4.B	
	-	4	ELECTRICAL CONNECTION WIRE 70mmp	L=5.2 m	

LEGATURA LONGITUDINALA LONGITUDINAL CONNECTION	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG050		*1 / 1*	*0*

(297 x 420)



FOR : 15°C THE EQUIPMENT IS PERPENDICULAR TO THE TRACK. d = 0

FOR : Θ2 >15°C d >0 THE EQUIPMENT MOVED TOWARDS ANCHOR WITH TENSIONING DEVICE

FOR : Θ2 <15°C d<0 THE EQUIPMENT MOVED TOWARDS FIXED ANCHOR OR MID POINT AXIS

		"d" values (cm)												
		L (m) from L min to L max												
	L min	0	51	101	151	201	251	301	351	401	451	501	551	601
	L max	50	100	150	200	250	300	350	400	450	500	550	600	650
Θ2	**-33**	-2	-5	-8	-11	-15	-18	-21	-24	-27	-31	-34	-37	-40
Θ2	**-30**	-1	-4	-7	-10	-13	-16	-19	-22	-25	-28	-31	-34	-37
Θ2	**-25**	-1	-4	-6	-9	-11	-14	-17	-19	-22	-24	-27	-29	-32
Θ2	**-20**	-1	-3	-5	-7	-10	-12	-14	-16	-18	-20	-22	-24	-27
Θ2	**-15**	-1	-3	-4	-6	-8	-9	-11	-13	-14	-16	-18	-20	-21
Θ2	**-10**	-1	-2	-3	-4	-6	-7	-8	-10	-11	-12	-13	-15	-16
Θ2	**-5**	0	-1	-2	-3	-4	-5	-6	-6	-7	-8	-9	-10	-11
Θ2	**0**	0	-1	-1	-1	-2	-2	-3	-3	-4	-4	-4	-5	-5
Θ2	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Θ2	**10**	0	1	1	1	2	2	3	3	4	4	4	5	5
Θ2	**15**	0	1	2	3	4	5	6	6	7	8	9	10	11
Θ2	**20**	1	2	3	4	6	7	8	10	11	12	13	15	16
Θ2	**25**	1	3	4	6	8	9	11	13	14	16	18	20	21
Θ2	**30**	1	3	5	7	10	12	14	16	18	20	22	24	27
Θ2	**35**	1	4	6	9	11	14	17	19	22	24	27	29	32

DEPLASAREA CATENAREI IN LUNGUL LINIEI FUNCTIE DE TEMPERATURA ALONG TRACK MOVEMENT OF EQUIPMENT ACCORDING TO TEMPERARE RANGE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG052		*1 / 1*	*0*

(297 x 420)

GENERALITY

1 / THE MECHANICAL TENSIONS OF THE CONTACT WIRE AND CATENARY WIRE KEPT CONSTANT BETWEEN THE MINIMUM AND MAXIMUM TEMPERATURES WITH BALANCE WEIGHT ARRANGEMENTS INSTALLED ON THE OVERLAP ANCHORING MAST .

2 / TO MINIMISE THE WEIGHT OF THE BALANCE WEIGHT,THE TENSIONING DEVICE IS A PULLEY WHEEL TERMINATION ARRANGEMENT GIVING A REDUCTION RATIO EQUAL TO 3.

3 / THE BALANCE WEIGHT LOAD IS 1/3 OF THE CABLE TENSION AND THE BALANCE WEIGHT VERTICAL MOVEMENT IS 3 TIMES THE ELONGATION OR REDUCTION OF THE CABLE LENGHT CAUSED BY THE VARIATION OF THE TEMPERATURE .

ADJUSTMENT: THE TENSIONING DEVICE IS ADJUSTED SUCH THAT AT THE MAXIMUM TEMPERATURE, THE B AND C VALUES SHOWN HERE UNDER ARE : B = 130 cm
C = 0

DEFINITION OF B AND C

L = LENGTH OF CATENARY WIRE OR CONTACT WIRE FROM MID POINT AXIS OR FIXED ANCHOR

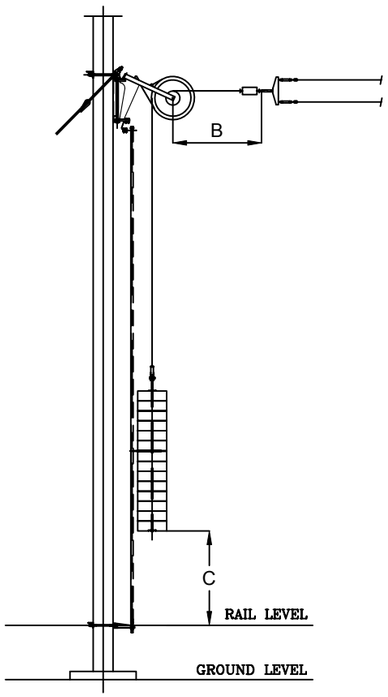
Θ° = OUTSIDE TEMPERATURE FOR ADJUSTMENT

$17 . 10^{-6}$ = COEFFICIENT OF LINEAR EXPANSION FOR COPPER

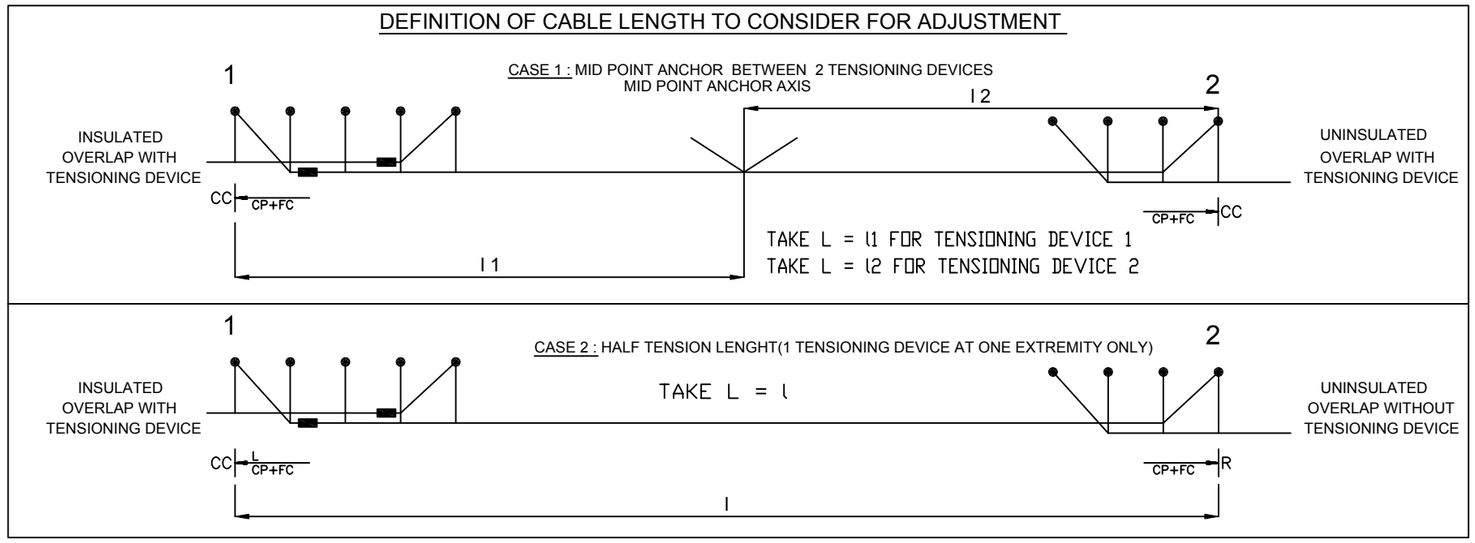
$B = 17 . 10^{-6} . L . (\Theta MAXI - \Theta) + 130$

$C = 3 . 17 . 10^{-6} . L . (\Theta MAXI - \Theta)$

THE VALUES B, C AND L ARE IN CENTIMETRES



DEFINITION OF CABLE LENGTH TO CONSIDER FOR ADJUSTMENT



Values of B (cm) for L

70 °C / -35°C to 35°C	100	150	200	250	300	350	400	450	500	550	600	650	700
-35	148	157	166	175	184	192	201	210	219	228	237	246	**255**
-30	147	156	164	173	181	190	198	207	215	224	232	241	249
-25	146	154	162	170	178	187	195	203	211	219	227	235	243
-20	145	153	161	168	176	184	191	199	207	214	222	229	237
-15	144	152	159	166	173	181	188	195	202	209	217	224	231
-10	144	150	157	164	171	178	184	191	198	205	212	218	225
-5	143	149	156	162	168	175	181	187	194	200	207	213	219
0	142	148	154	160	166	172	178	184	190	195	201	207	213
5	***141***	***147***	***152***	***158***	***163***	***169***	***174***	***180***	***185***	***191***	***196***	***202***	***207***
10	140	145	150	156	161	166	171	176	181	186	191	196	201
15	139	144	149	153	158	163	167	172	177	181	186	191	195
20	139	143	147	151	156	160	164	168	173	177	181	185	190
25	138	141	145	149	153	157	161	164	168	172	176	180	184
30	137	140	144	147	150	154	157	161	164	167	171	174	178
35	136	139	142	145	148	151	154	157	160	163	166	169	172

Raport anc. **1: 3**

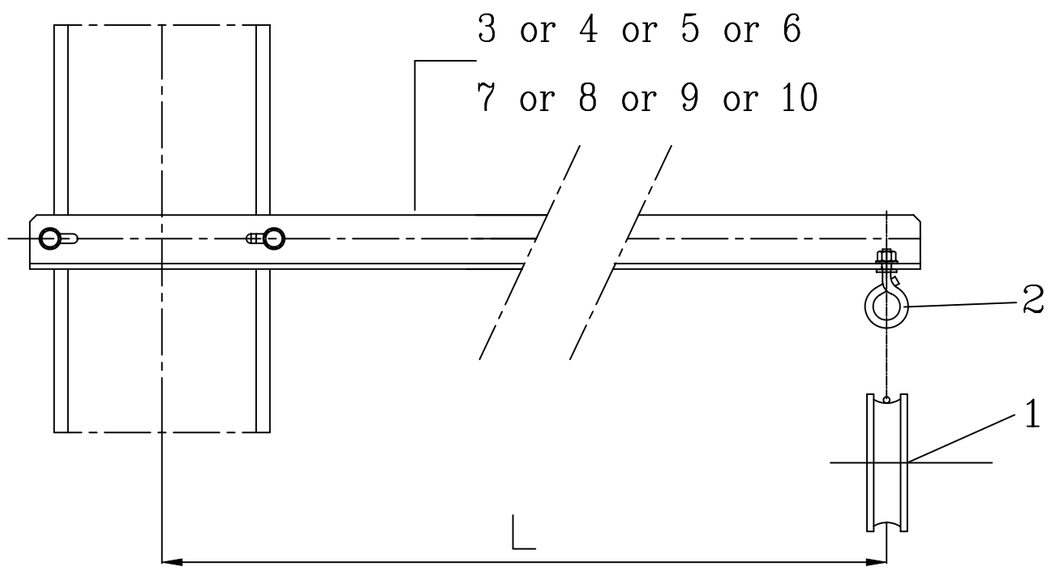
Values of C (cm) for L

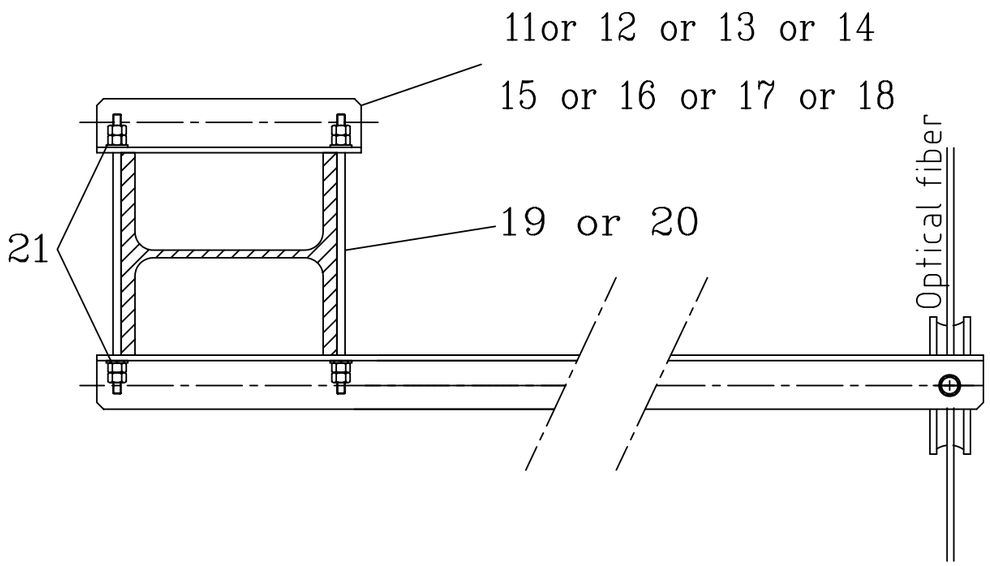
-35°C to 35°C	100	150	200	250	300	350	400	450	500	550	600	650	700
-35	54	80	107	134	161	187	214	241	268	295	321	348	**375**
-30	51	77	102	128	153	179	204	230	255	281	306	332	357
-25	48	73	97	121	145	170	194	218	242	266	291	315	339
-20	46	69	92	115	138	161	184	207	230	252	275	298	321
-15	43	65	87	108	130	152	173	195	217	238	260	282	303
-10	41	61	82	102	122	143	163	184	204	224	245	265	286
-5	38	57	77	96	115	134	153	172	191	210	230	249	268
0	36	54	71	89	107	125	143	161	179	196	214	232	250
5	***33***	***50***	***66***	***83***	***99***	***116***	***133***	***149***	***166***	***182***	***199***	***215***	***232***
10	31	46	61	77	92	107	122	138	153	168	184	199	214
15	28	42	56	70	84	98	112	126	140	154	168	182	196
20	26	38	51	64	77	89	102	115	128	140	153	166	179
25	23	34	46	57	69	80	92	103	115	126	138	149	161
30	20	31	41	51	61	71	82	92	102	112	122	133	143
35	18	27	36	45	54	62	71	80	89	98	107	116	125

REGLAJUL CONTRAGREUTATILOR BALANCE WEIGHT SETTINGS	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG053		*1 / 1*	*0*

(297 x 420)

	L			
	350	600	1000	1500
FROM HE 200 TO HE240	101	102	103	104
FROM HE 260 TO HE320	201	202	203	204



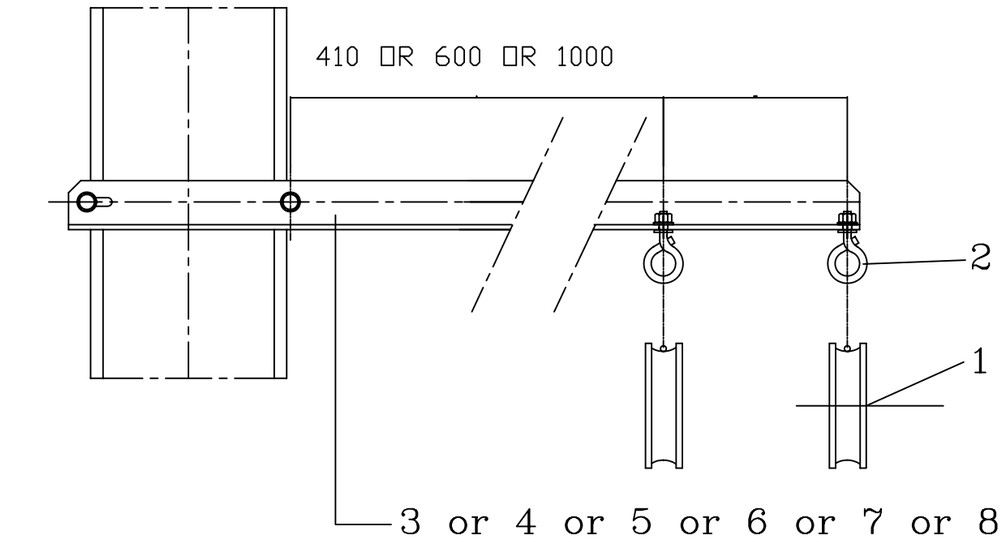


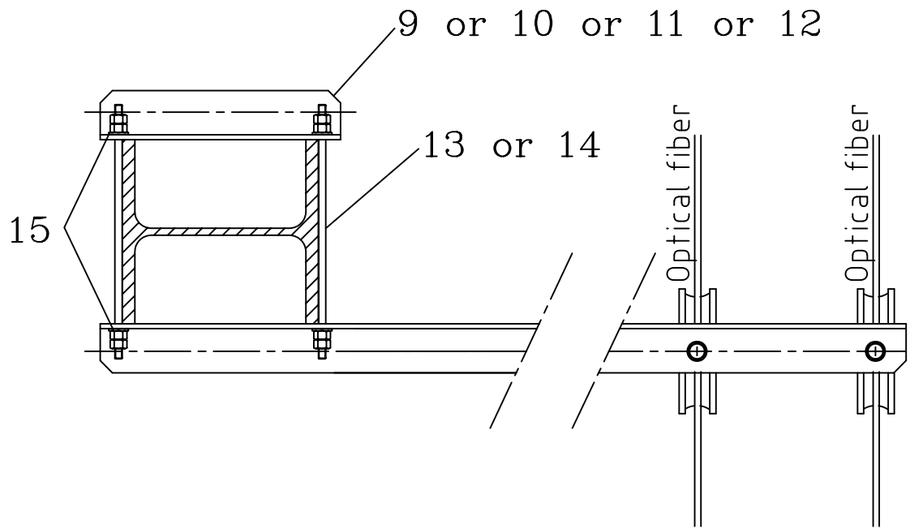
QUANTITY								ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
4	4	4	4	4	4	4	4	21	WASHER M12		01LC00BDG142	12A110
2	2	2	2					20	THREADED ROD M12-400/100		01LC00BDG141	1211D2
				2	2	2	2	19	THREADED ROD M12-350/100		01LC00BDG141	1211C2
1								18	COUNTERPLATE FOR OPTICAL FIBER	3.85	01LC00BDG087	204
	1							17	COUNTERPLATE FOR OPTICAL FIBER	1.78	01LC00BDG087	203
		1						16	COUNTERPLATE FOR OPTICAL FIBER	0.84	01LC00BDG087	202
			1					15	COUNTERPLATE FOR OPTICAL FIBER	0.84	01LC00BDG087	201
				1				14	COUNTERPLATE FOR OPTICAL FIBER	3.08	01LC00BDG087	104
					1			13	COUNTERPLATE FOR OPTICAL FIBER	1.43	01LC00BDG087	103
						1		12	COUNTERPLATE FOR OPTICAL FIBER	0.67	01LC00BDG087	102
							1	11	COUNTERPLATE FOR OPTICAL FIBER	0.67	01LC00BDG087	101
1								10	SUPPORT FOR OPTICAL FIBER L=1500	16.37	01LC00BDG086	204
	1							9	SUPPORT FOR OPTICAL FIBER L=1000	5.36	01LC00BDG086	203
		1						8	SUPPORT FOR OPTICAL FIBER L=600	1.68	01LC00BDG086	202
			1					7	SUPPORT FOR OPTICAL FIBER L=350	1.15	01LC00BDG086	201
				1				6	SUPPORT FOR OPTICAL FIBER L=1500	15.98	01LC00BDG086	104
					1			5	SUPPORT FOR OPTICAL FIBER L=1000	5.18	01LC00BDG086	103
						1		4	SUPPORT FOR OPTICAL FIBER L=600	1.59	01LC00BDG086	102
							1	3	SUPPORT FOR OPTICAL FIBER L=350	1.07	01LC00BDG086	101
1	1	1	1	1	1	1	1	2	PULLEY SUPPORT RING (TYPE A)	0.24	ELC/CF0 3-15.0 B	
1	1	1	1	1	1	1	1	1	PULLEY ASSEMBLY (TYPE R)		BE-F' 13252	
MARK GROUP	204	203	202	201	104	103	102	101				

SUPORT PENTRU FIBRA OPTICA OPTICAL FIBER BRACKET	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG054		*1 / 1*	*0*

(297 x 420)

	L		
	410	600	1000
FROM HE 200 TO HE240	111	112	113
FROM HE 260 TO HE320	211	212	213



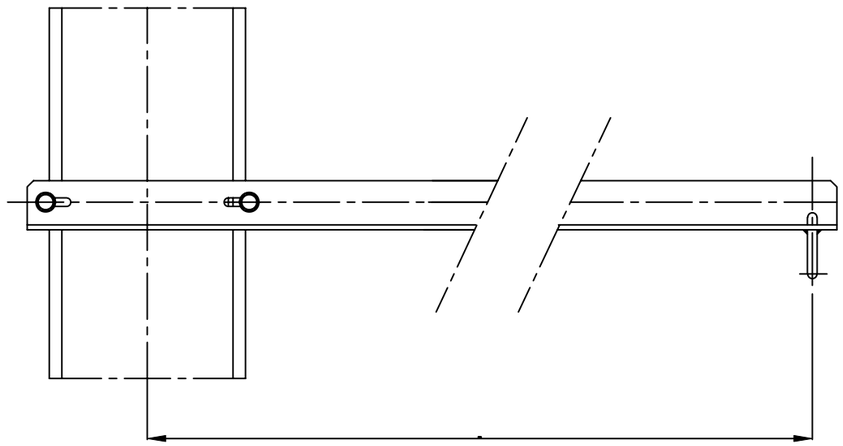


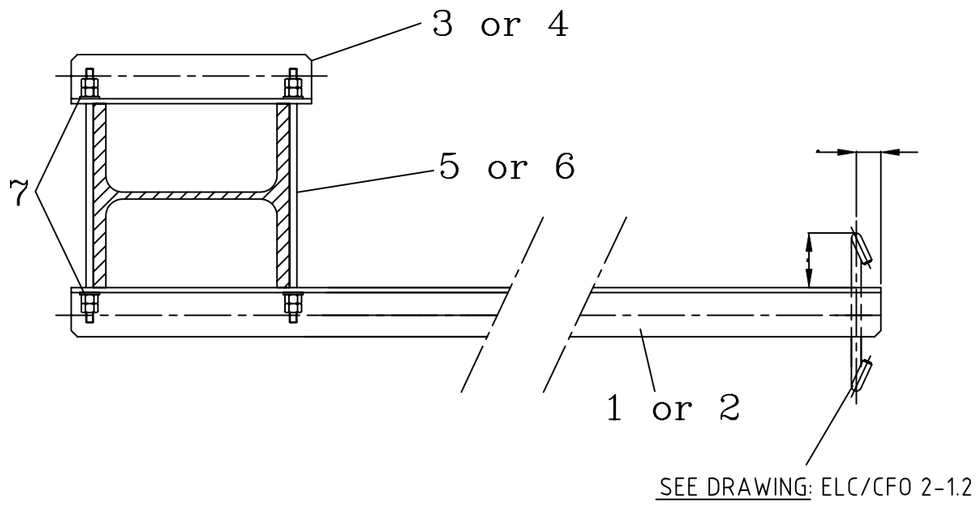
QUANTITY											
4	4	4	4	4	4	15	WASHER M12		01LC00BDG142	12A110
2	2	2				14	THREADED ROD M12-400/100		01LC00BDG141	1211D2
			2	2	2	13	THREADED ROD M12-350/100		01LC00BDG141	1211C2
1	1					12	COUNTERPLATE FOR TWO OPTICAL FIBERS	0.84	01LC00BDG087	204
		1				11	COUNTERPLATE FOR TWO OPTICAL FIBERS	0.84	01LC00BDG087	203
			1	1		10	COUNTERPLATE FOR TWO OPTICAL FIBERS	0.67	01LC00BDG087	104
					1	9	COUNTERPLATE FOR TWO OPTICAL FIBERS	0.67	01LC00BDG087	103
1						8	SUPPORT FOR TWO OPTICAL FIBERS L=1000	16.1	01LC00BDG106	213
	1					7	SUPPORT FOR TWO OPTICAL FIBERS L=600	12.24	01LC00BDG106	212
		1				6	SUPPORT FOR TWO OPTICAL FIBERS L=410	5.86	01LC00BDG106	211
			1			5	SUPPORT FOR TWO OPTICAL FIBERS L=1000	15.39	01LC00BDG106	113
				1		4	SUPPORT FOR TWO OPTICAL FIBERS L=600	11.54	01LC00BDG106	112
					1	3	SUPPORT FOR TWO OPTICAL FIBERS L=410	5.46	01LC00BDG106	111
2	2	2	2	2	2	2	PULLEY SUPPORT RING (TYPE A)	0.24	ELC/CF0 3-15.0 B	
2	2	2	2	2	2	1	PULLEY ASSEMBLY (TYPE R)		BE-F' 13252	
MARK GROUP 213	MARK GROUP 212	MARK GROUP 211	MARK GROUP 113	MARK GROUP 112	MARK GROUP 111	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK

SUPORT PENTRU DOUA FIBRE OPTICE BRACKET FOR TWO OPTICAL FIBRES	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG055		*1 / 1*	*0*

(297 x 420)

FROM HE 200 TO HE240	121
FROM HE 260 TO HE320	221



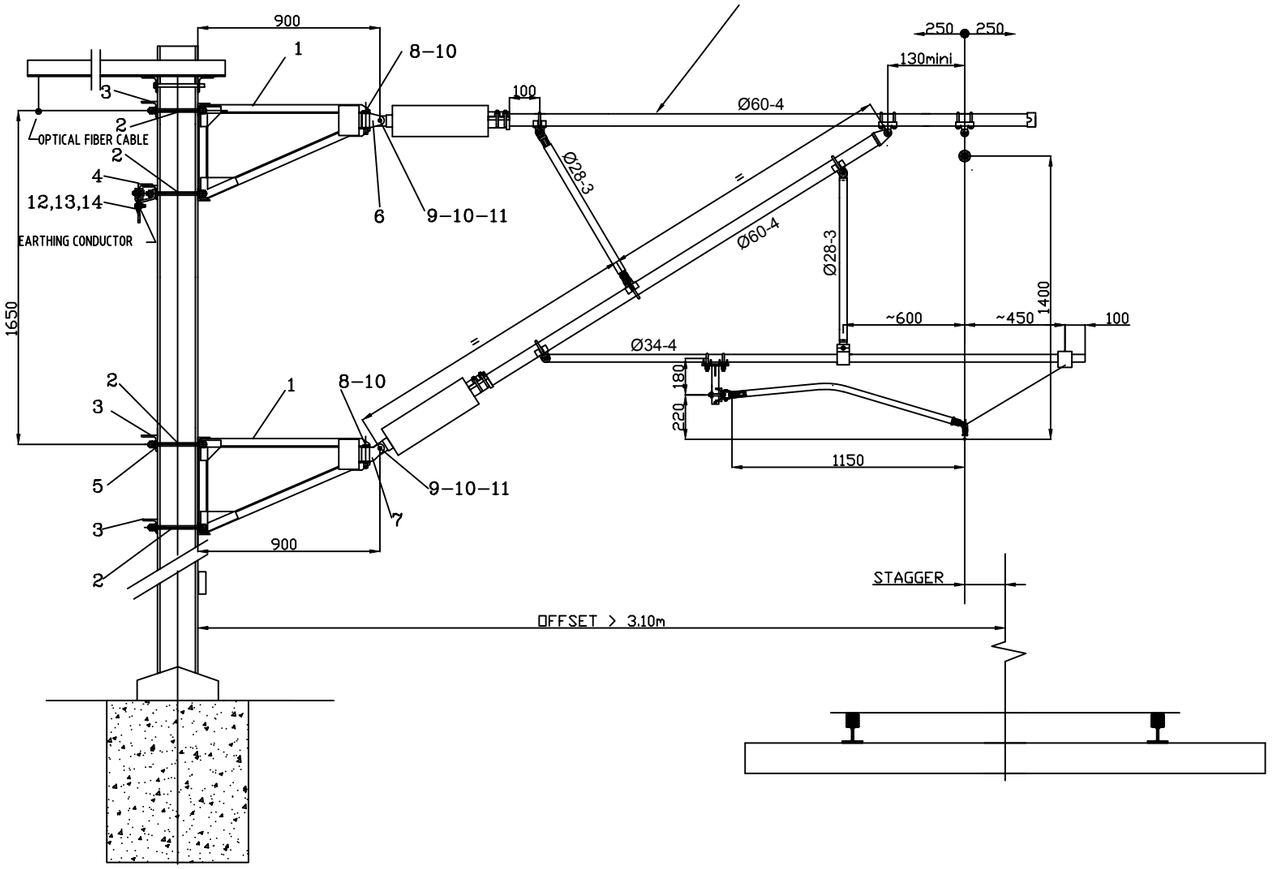


QUANTITY			ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
4	4		7	WASHER M16	0.03	01LC00BDG142	16A110
2			6	THREADED ROD M16-400/100		01LC00BDG141	1611D2
	2		5	THREADED ROD M16-350/100		01LC00BDG141	1611C2
1			4	COUNTERPLATE FOR OPTICAL FIBER ANCHORING	3.94	01LC00BDG113	221
	1		3	COUNTERPLATE FOR OPTICAL FIBER ANCHORING	3.17	01LC00BDG113	121
1			2	SUPPORT FOR OPTICAL FIBER ANCHORING	7.17	01LC00BDG107	221
	1		1	SUPPORT FOR OPTICAL FIBER ANCHORING	6.78	01LC00BDG107	121
MARK GROUP	221	121					

SUPORT PENTRU ANCORAREA FIBRAEI OPTICE OPTICAL FIBER BRACKET ANCHORING	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG056		*1 / 1*	*0*

(297 x 420)

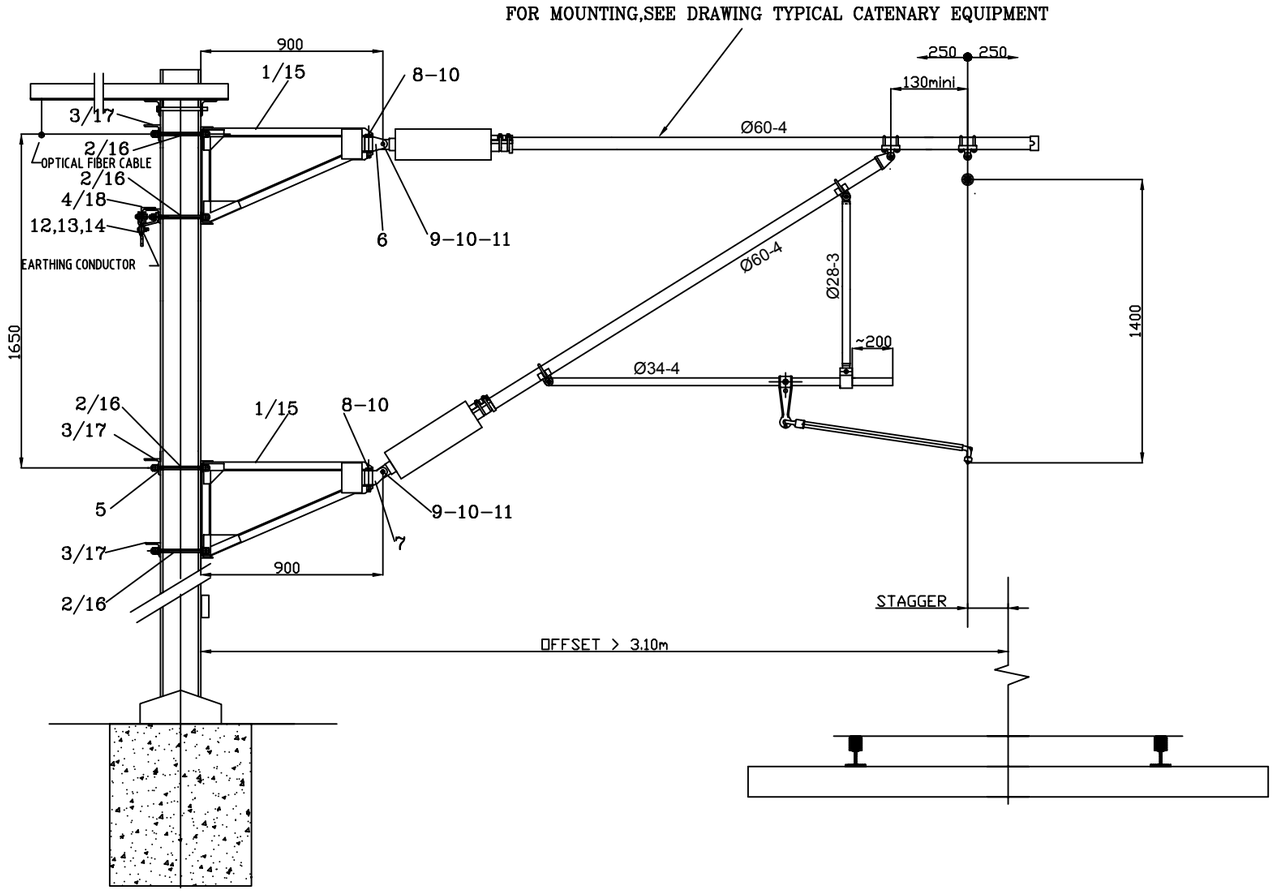
FOR MOUNTING,SEE DRAWING TYPICAL CATENARY EQUIPMENT



MARK.GROUP			ITEM	DESIGNATION	REFERENCE DRAWING	MARK
		1	18	COUNTERPLATE WITH EARTHING CABLE	01LC00BDG102	102
		3	17	COUNTERPLATE	01LC00BDG090	102
		8	16	TRHEADED ROD M16 450/100	01LC00BDG141	1611E2
		2	15	FASTENING FOR TOP AND STRUT TUBE L=900	01LC00BDG120	102
	1	1	14	CLAMP FOR EARTHING CABLE	ELC 2-4.0	
	1	1	13	CONNECTING ROD L=400	STAS 438/1-89	
	1	1	12	SUSPENSION TYPE I	ELC 13-1.4.0	
	2	2	11	WASHER M18	SR EN 7089/4-2002	
	4	4	10	PIN 4.5-40	SR EN 1234-2001	
	2	2	9	AXIS. 18-50	SR EN 22341-2001	
	2	2	8	AXIS. 18-110	SR EN 22341-2001	
	1	1	7	HINGE STRUT TUBE	ELC 13-9-11 A	
	1	1	6	HINGE TOP TUBE	ELC 13-9-11 A	
	16	16	5	WASHER M16	01LC00BDG142	16A110
	1		4	COUNTERPLATE WITH EARTHING CABLE	01LC00BDG102	101
	3		3	COUNTERPLATE	01LC00BDG090	101
	8		2	TRHEADED ROD M16 400/100	01LC00BDG141	1611D2
	2		1	FASTENING FOR TOP AND STRUT TUBE L=900	01LC00BDG120	101
QUANTITY	101	102				

FIXARE PENTRU TIRANT SI CONTRAFISA CU GABARITUL STALPULUI>3.1m FASTENING FOR TOP AND STRUT TUBE WITH OFFSET>3.1m	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG057		*1 / 3*	*0*

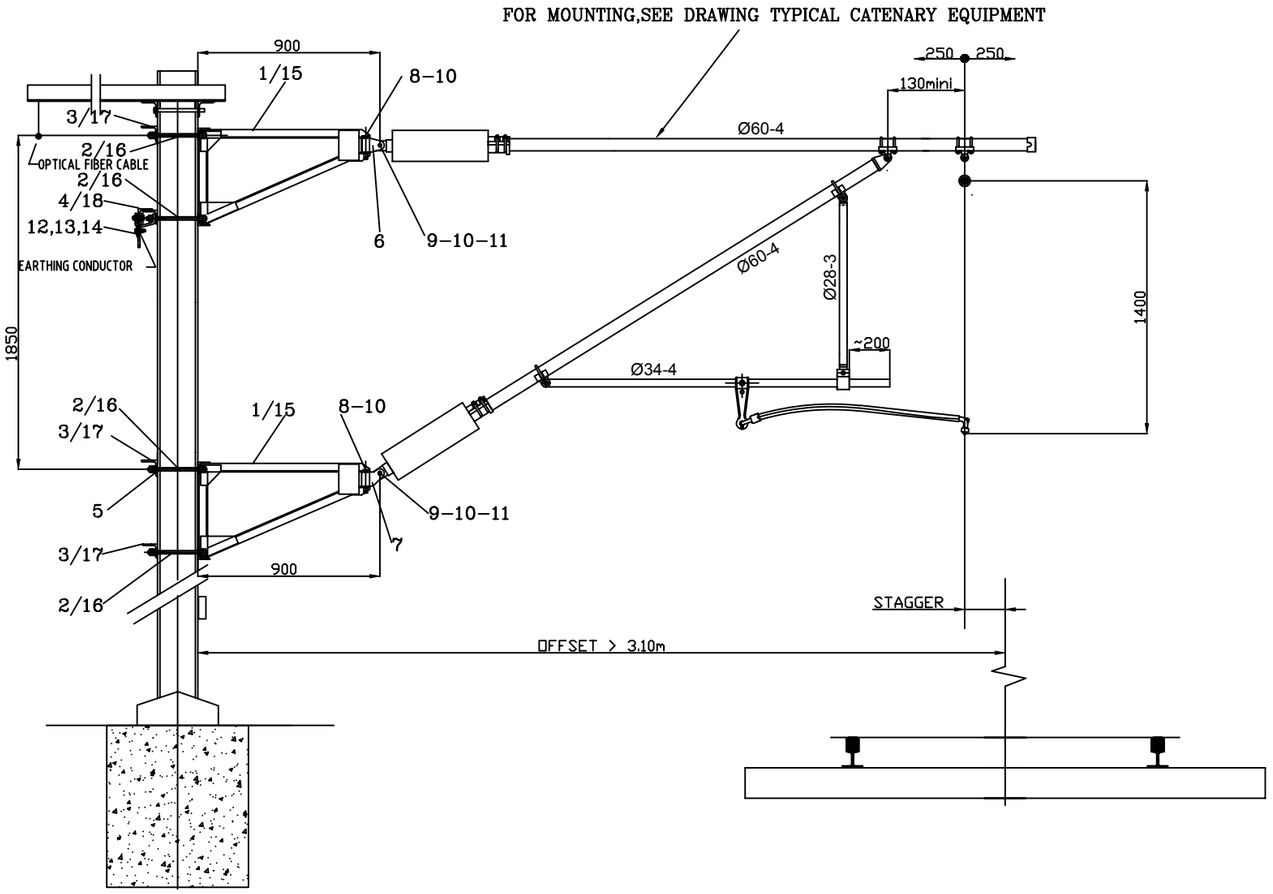
(297 x 420)



MARK.GROUP						
	QUANTITY		ITEM	DESIGNATION	REFERENCE DRAWING	MARK
		1	18	COUNTERPLATE WITH EARTHING CABLE	01LC00BDG102	102
		3	17	COUNTERPLATE	01LC00BDG090	102
		8	16	TRHEADED ROD M16 450/100	01LC00BDG141	1611E2
		2	15	FASTENING FOR TOP AND STRUT TUBE L=900	01LC00BDG120	102
	1	1	14	CLAMP FOR EARTHING CABLE	ELC 2-4.0	
	1	1	13	CONNECTING ROD L=400	STAS 438/1-89	
	1	1	12	SUSPENSION TYPE I	ELC 13-1.4.0	
	2	2	11	WASHER M18	SR EN 7089/4-2002	
	4	4	10	PIN 4.5-40	SR EN 1234-2001	
	2	2	9	AXIS. 18-50	SR EN 22341-2001	
	2	2	8	AXIS. 18-110	SR EN 22341-2001	
	1	1	7	HINGE STRUT TUBE	ELC 13-9-11 A	
	1	1	6	HINGE TOP TUBE	ELC 13-9-11 A	
	16	16	5	WASHER M16	01LC00BDG142	16A110
	1		4	COUNTERPLATE WITH EARTHING CABLE	01LC00BDG102	101
	3		3	COUNTERPLATE	01LC00BDG090	101
	8		2	TRHEADED ROD M16 400/100	01LC00BDG141	1611D2
	2		1	FASTENING FOR TOP AND STRUT TUBE L=900	01LC00BDG120	101
	101	102	ITEM	DESIGNATION	REFERENCE DRAWING	MARK

FIXARE PENTRU TIRANT SI CONTRAFISA CU GABARITUL STALPULUI>3.1m FASTENING FOR TOP AND STRUT TUBE WITH OFFSET>3.1m	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG057		*3 / 3*	*0*

(297 x 420)

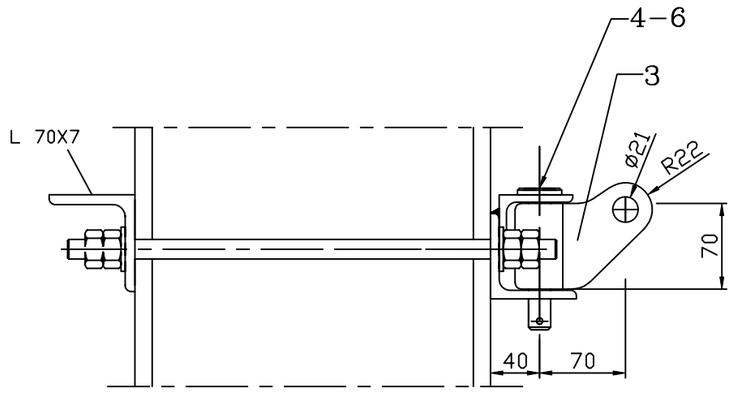


QUANTITY			MARK.GROUP		ITEM	DESIGNATION	REFERENCE DRAWING	MARK
	1	1			18	COUNTERPLATE WITH EARTHING CABLE	01LC00BDG102	102
	3	1			17	COUNTERPLATE	01LC00BDG090	102
	8	1			16	TRHEADED ROD M16 450/100	01LC00BDG141	1611E2
	2	1			15	FASTENING FOR TOP AND STRUT TUBE L=900	01LC00BDG120	102
1	1	1			14	CLAMP FOR EARTHING CABLE	ELC 2-4.0	
1	1	1			13	CONNECTING ROD L=400	STAS 438/1-89	
1	1	1			12	SUSPENSION TYPE I	ELC 13-1.4.0	
2	2	1			11	WASHER M18	SR EN 7089/4-2002	
4	4	1			10	PIN 4.5-40	SR EN 1234-2001	
2	2	1			9	AXIS. 18-50	SR EN 22341-2001	
2	2	1			8	AXIS. 18-110	SR EN 22341-2001	
1	1	1			7	HINGE STRUT TUBE	ELC 13-9-11 A	
1	1	1			6	HINGE TOP TUBE	ELC 13-9-11 A	
16	16	1			5	WASHER M16	01LC00BDG142	16A110
1		1			4	COUNTERPLATE WITH EARTHING CABLE	01LC00BDG102	101
3		1			3	COUNTERPLATE	01LC00BDG090	101
8		1			2	TRHEADED ROD M16 400/100	01LC00BDG141	1611D2
2		1			1	FASTENING FOR TOP AND STRUT TUBE L=900	01LC00BDG120	101

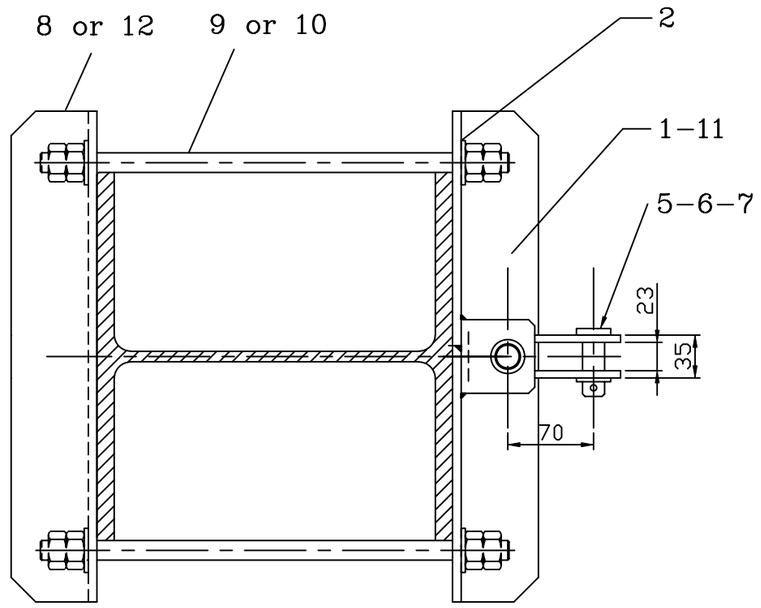
FIXARE PENTRU TIRANT SI CONTRAFISA CU GABARITUL STALPULUI>3.1m FASTENING FOR TOP AND STRUT TUBE WITH OFFSET>3.1m	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG057		*3 / 3*	*0*

(297 x 420)

MARK	DESIGNATION
101	FROM HE 200 TO 240
102	FROM HE 260 TO 320

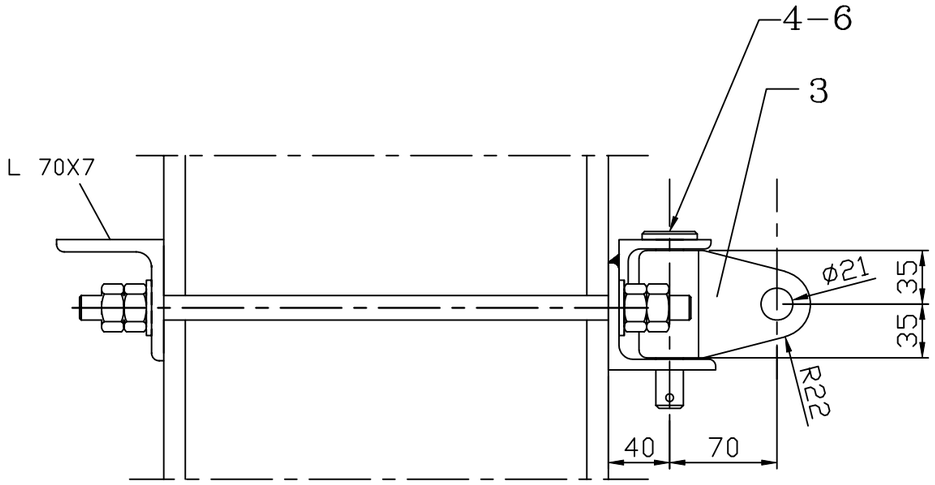


QUANTITY							
1		12	COUNTERPLATE		01LC00BDG090	102
1		11	HINGE SUPPORT		01LC00BDG088	102
	2	10	THREADED ROD M16- 350/100		01LC00BDG141	1611C2
2		9	THREADED ROD M16- 450/100		01LC00BDG141	1611E2
	1	8	COUNTERPLATE		01LC00BDG090	101
1	1	7	AXIS 20-50		01LC00BDG146	201050
2	2	6	PIN. 4,5*40		01LC00BDG145	45A040
1	1	5	WASHER M20		01LC00BDG142	20A110
1	1	4	AXIS . 18*110		01LC00BDG146	181110
1	1	3	HINGE STRUT TUBE	0.78	ELC 13-9-11 A rev. C	...
4	4	2	WASHER M16N		01LC00BDG141	16A110
	1	1	HINGE SUPPORT		01LC00BDG088	101
MARK.GROUP 102	MARK.GROUP 101	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK

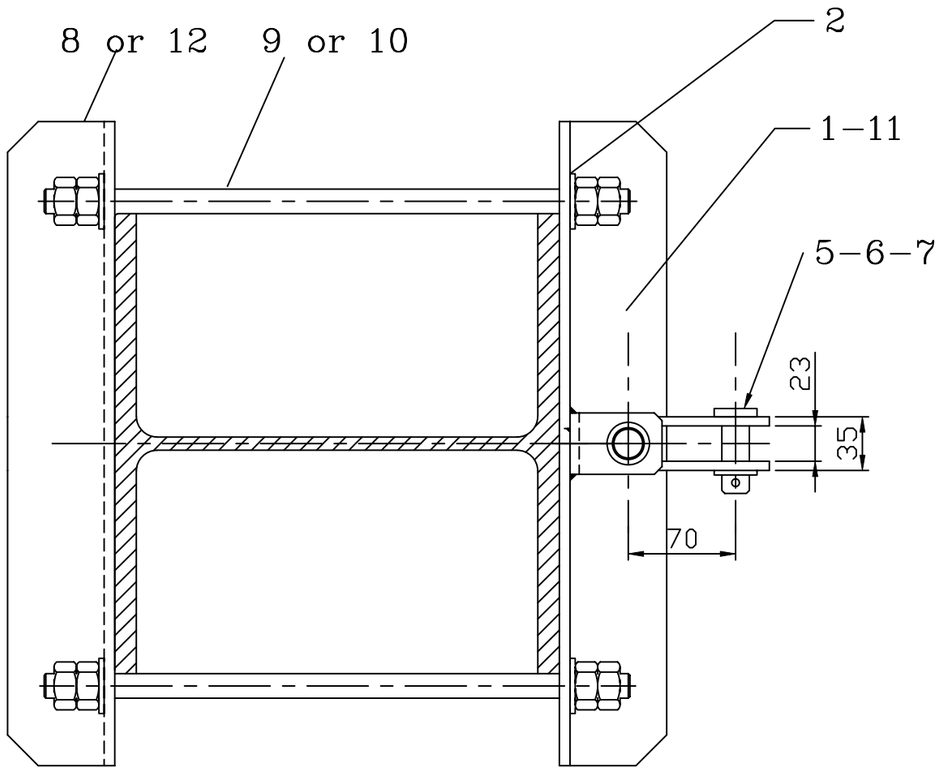


FIXARE PENTRU CONTRAFISA FASTERNING FOR STRUT TUBE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG058		*1 / 1*	*0*

(297 x 420)



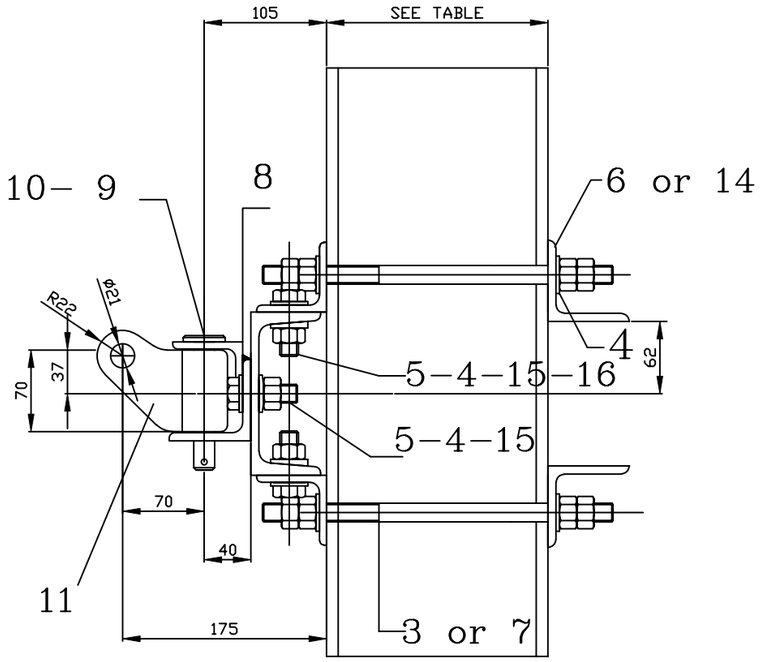
MARK	DESIGNATION
101	FROM HE 200 TO 240
102	FROM HE 260 TO 320

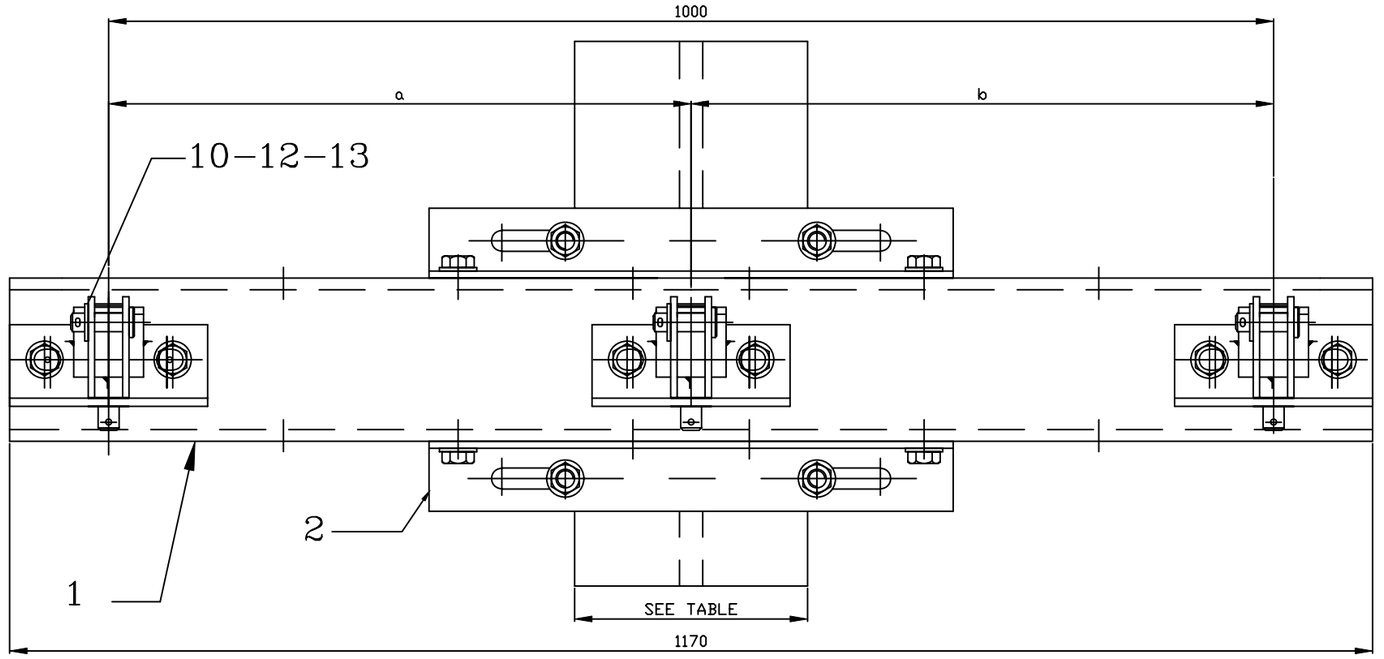


MARK GROUP	QUANTITY		ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
102	1		12	COUNTERPLATE		01LC00BDG090	102
	1		11	HINGE SUPPORT		01LC00BDG088	102
		2	10	THREADED ROD M16- 350/100		01LC00BDG141	1611C2
	2		9	THREADED ROD M16- 450/100		01LC00BDG141	1611E2
		1	8	COUNTERPLATE		01LC00BDG090	101
	1	1	7	AXIS 20-50		01LC00BDG146	201050
	2	2	6	PIN. 4,5*40		01LC00BDG145	45A040
	1	1	5	WASHER M20		01LC00BDG142	20A110
	1	1	4	AXIS . 18*110		01LC00BDG146	181110
	1	1	3	HINGE TOP TUBE	0.74	E.L.C 13-9.10 A rev. C	...
	4	4	2	WASHER M16N		01LC00BDG142	16A110
		1	1	HINGE SUPPORT		01LC00BDG088	101

FIXARE PENTRU TIRANT FASTENING FOR TOP TUBE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG059		*1 / 1*	*0*

(297 x 420)





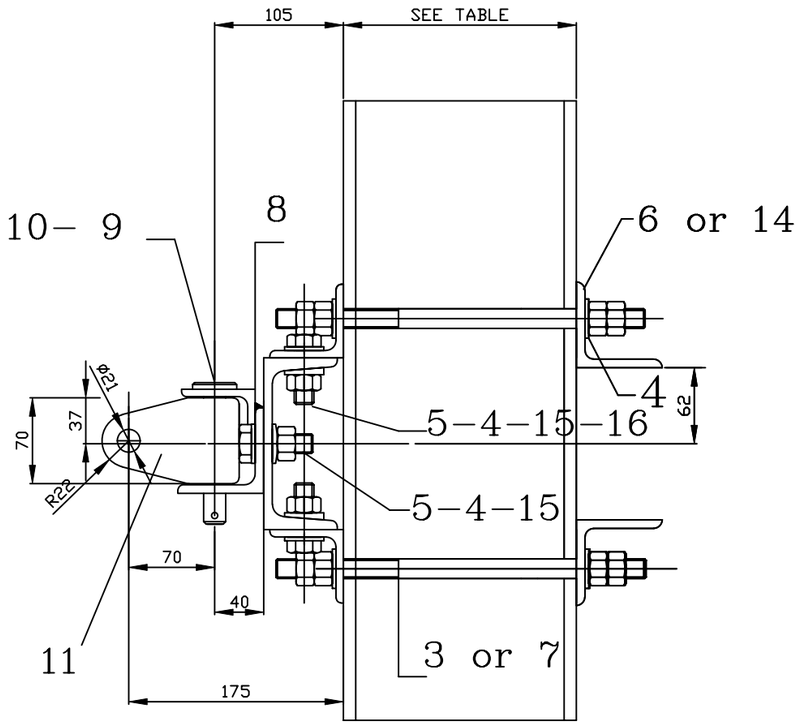
ON H BEAM	ASSEMBLY ALLOCATION	
	2 TOP TUBES SPACING 1.00 m	3 TOP TUBES SPACING 0.50 m
HE 200 TO 240	101	201
H 260 TO 320 (A OR B)	102	202

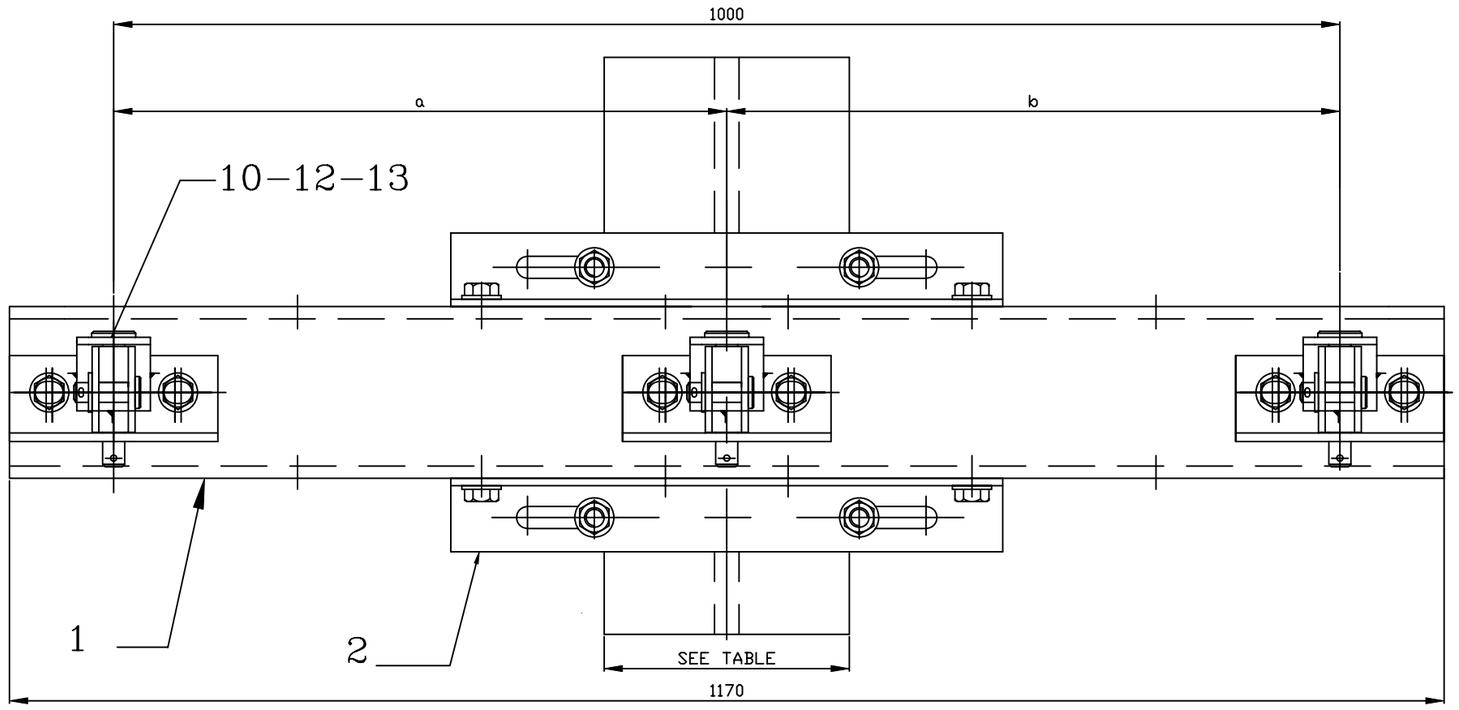
Note
For cotes a and b see the mounting diagrams.

QUANTITY					ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
MARK GROUP 202	MARK GROUP 201	MARK GROUP 102	MARK GROUP 101						
4	4	4	4		16	WASHER . TYPE U		01LC00BDG142	16A710
10	10	8	8		15	WASHER . CS-16-32-2.8		01LC00BDG142	16A310
2		2			14	COUNTERPLATE		01LC00BDG090	102
3	3	2	2		13	AXIS 20-50		01LC00BDG146	201050
3	3	2	2		12	WASHER M20		01LC00BDG142	20A110
3	3	2	2		11	HINGE STRUT TUBE		E.L.C 13-9-11 A REV C	
6	6	4	4		10	PIN 4.5*40		01LC00BDG145	45A040
3	3	2	2		9	AXIS 18-110		01LC00BDG146	181110
3	3	2	2		8	HINGE SUPPORT		01LC00BDG114	
4		4			7	THREADED ROD M16-450/100		01LC00BDG141	1611E2
	2		2		6	COUNTERPLATE		01LC00BDG090	101
10	10	8	8		5	BOLT HM 16-50/50		01LC00BDG114	1612H1
18	18	16	16		4	WASHER M16N		01LC00BDG142	16A110
	4		4		3	THREADED ROD M16-350/100		01LC00BDG141	1611C2
2	2	2	2		2	COUNTERPLATE FOR SPREADER		01LC00BDG094	
1	1	1	1		1	SPREADER		01LC00BDG089	

TRAVERSA DE TRECERE PENTRU 2 SAU 3 CONTRAFISE (distanta 1m) SPREADER ASSEMBLY FOR 2 OR 3 STRUT TUBES (spacing 1m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG060		*1 / 1*	*0*

(297 x 420)





MARK GROUP 202	MARK GROUP 201	MARK GROUP 102	MARK GROUP 101	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
4	4	4	4	16	WASHER TYPE U		01LC00BDG142	16A710
10	10	8	8	15	WASHER . CS-16-32-2.8		01LC00BDG142	16A310
2		2		14	COUNTERPLATE		01LC00BDG090	102
3	3	2	2	13	AXIS 20-50		01LC00BDG146	201050
3	3	2	2	12	WASHER M20		01LC00BDG142	20A110
3	3	2	2	11	HINGE TOP TUBE		E.L.C 13-9-10 A REV C	
6	6	4	4	10	PIN 4.5*40		01LC00BDG145	45A040
3	3	2	2	9	AXIS 18-110		01LC00BDG146	181110
3	3	2	2	8	HINGE SUPPORT		01LC00BDG114	
4		4		7	THREADED ROD M16-450/100		01LC00BDG141	1611E2
	2		2	6	COUNTERPLATE		01LC00BDG090	101
10	10	8	8	5	BOLT HM 16-50/50		01LC00BDG144	1612H1
18	18	16	16	4	WASHER M16N		01LC00BDG142	16A110
	4		4	3	THREADED ROD M16 -350/100		01LC00BDG141	1611C2
2	2	2	2	2	COUNTERPLATE FOR SPREADER		01LC00BDG094	
1	1	1	1	1	SPREADER		01LC00BDG089	

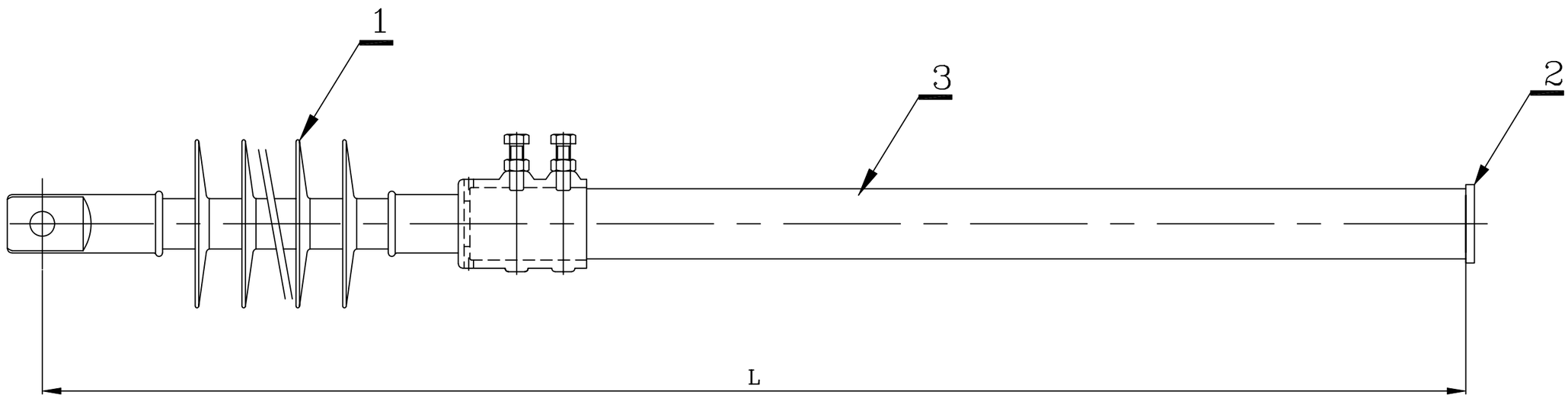
QUANTITY

Note
For cotes a and b see the mounting diagrams.

ON H BEAM	ASSEMBLY ALLOCATION	
	2 TOP TUBES SPACING 1.00 m	3 TOP TUBES SPACING 0.50 m
HE 200 TO 240	101	201
H 260 TO 320 (A OR B)	102	202

TRAVERSA DE TRECERE PENTRU 2 SAU 3 TIRANTI (distanta 1m) SPREADER ASSEMBLY FOR 2 OR 3 TOP TUBES (spacing 1m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG061		*1 / 1*	*0*

(297 x 420)

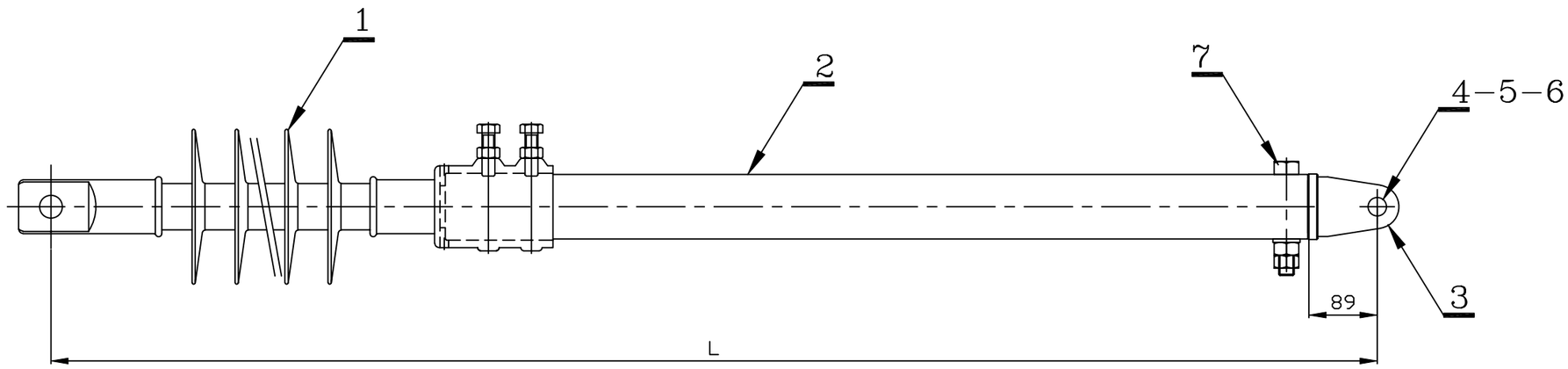


MARK GROUP	QUANTITY SEE TABLE	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
	1	3	ø60-4 TUBE FOR TOP TUBE (LENGHT "L" SEE TABLE)		01LC00BDG095	
	1	2	END CAP FOR TOP TUBE		ELC 13-1.2.0	
	1	1	COMPOSITE INSULATOR FOR TOP TUBE		01LC00BDG019	

* THE SCREW AND NUT ARE SUPPLIED WITH INSULATOR

TIRANT IZOLAT ø 60 INSULATED FOR TOP TUBE ø 60	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG064		*1 / 1*	*0*

(297 x 420)

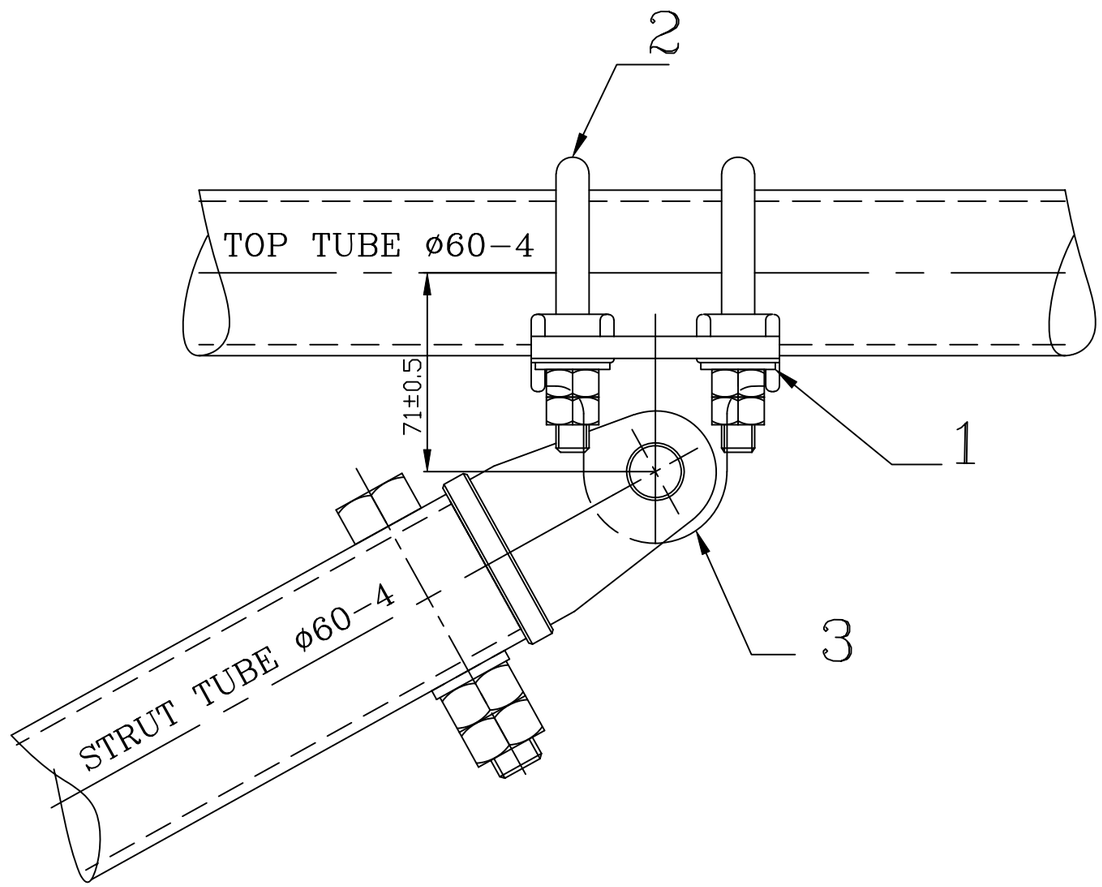


MARK GROUP	SEE TABLE	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
QUANTITY			ASSEMBLY INCLUDING :			
	1	1	COMPOSITE INSULATOR FOR TOP TUBE		01LC00BDG019	
	1	2	ø60-4 TUBE FOR STRUT TUBE (LENGHT "L" SEE TABLE)		01LC00BDG101	
	1	3	FASTENING ON TUBE Ø60		ELC 13-14.7.0 B	
	1	4	BOLT 18 x 50		01LC00BDG146	181050
	1	5	WASHER T18		01LC00BDG142	18A110
	1	6	PIN 4.5 x 40		01LC00BDG145	45A040
	1	7	SCREW M12 x 90-gr 8-8		01LC00BDG144	1243T1

* THE SCREW AND NUT ARE SUPPLIED WITH INSULATOR

CONTRAFISA IZOLATA ø 60 INSULATED FOR STRUT TUBE ø 60	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG066		*1 / 1*	*0*

(297 x 420)



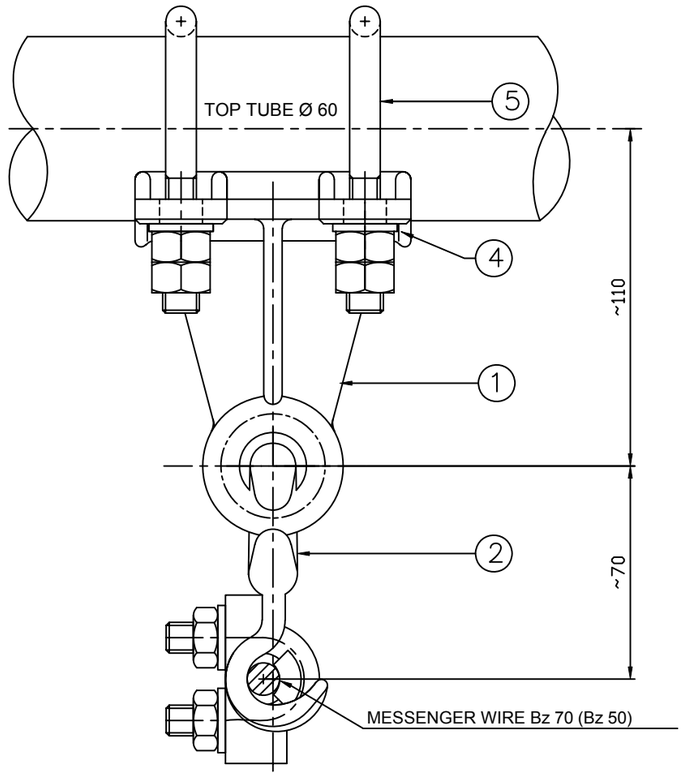
MARK GROUP	QUANTITY	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
****	1	3	FASTENING BETWEEN TUBES ø60		ELC 13-13.1.B	
	2	2	U BOLT M 12		01LC00BDG143	122171
	4	1	WASHER M 12		01LC00BDG142	12B110

FIXARE PENTRU TIRANT FASTENING FOR TOP TUBE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG069		*1 / 1*	*0*

(297 x 420)

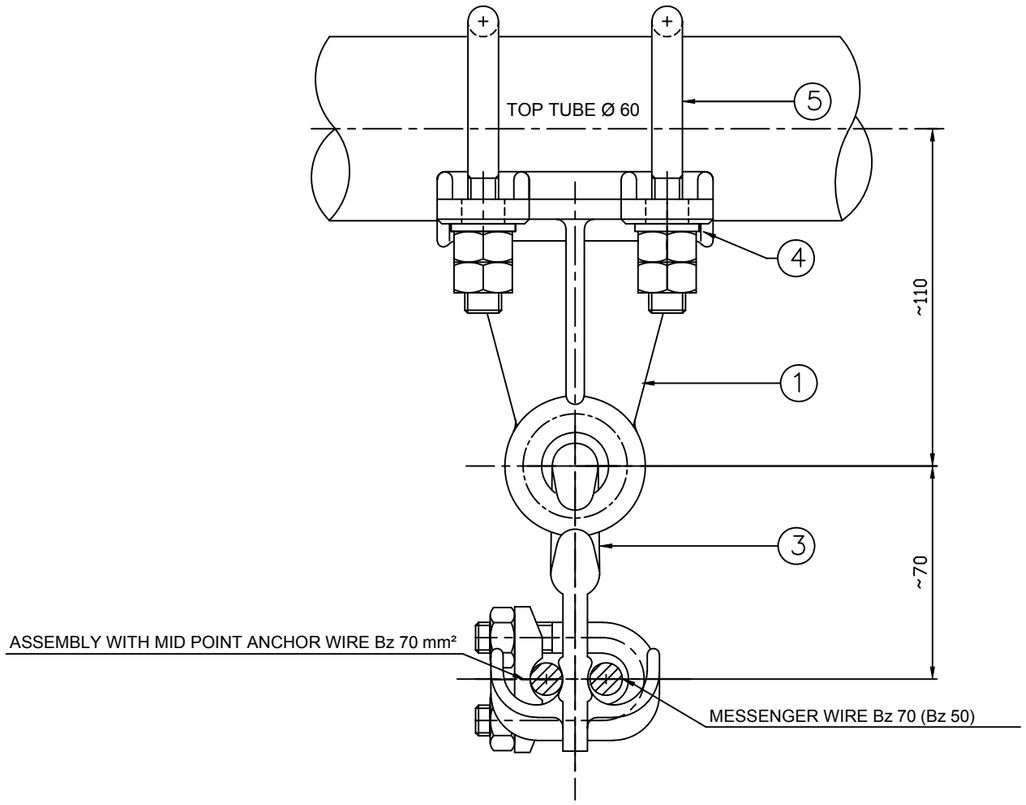
ASSEMBLY WITHOUT MID POINT ANCHOR

101



ASSEMBLY WITH MID POINT ANCHOR

102

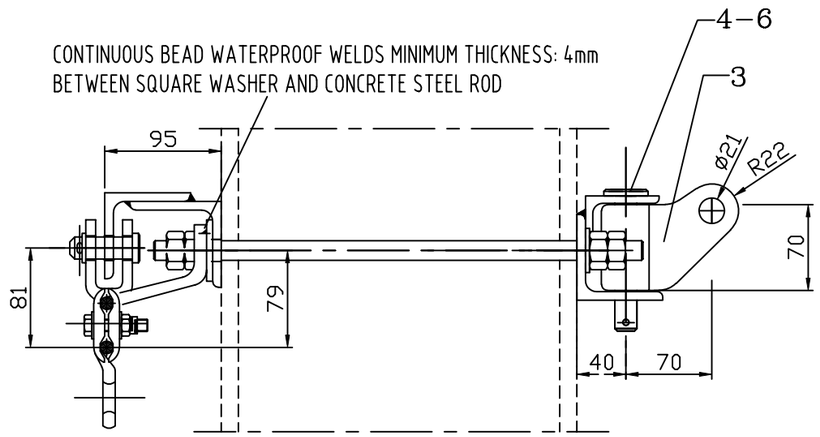


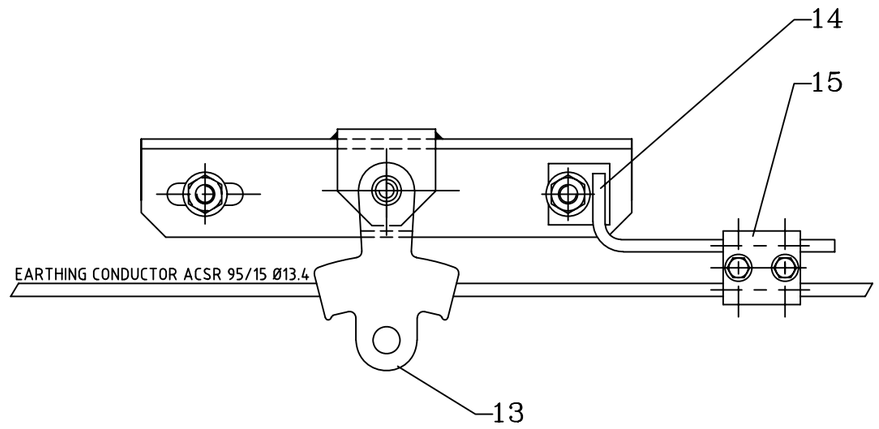
QUANTITY			ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
2	2	5	5	U BOLT M12-80 (90/45) gr.4.6 WITH 2 NUTS		01LC00BDG143	122171
4	4	4	4	WASHER M12 gr.6		SR EN ISO 4034-2002	
1		3	3	HOOK WITH SWIWEL		ELC 13-1.4.0.B	
	1	2	2	HOOK WITH SWIWEL		ELC 13-1.4.0.A	
1	1	1	1	FASTENING FOR HOOK	0.95	ELC 13-1.3.1.A	

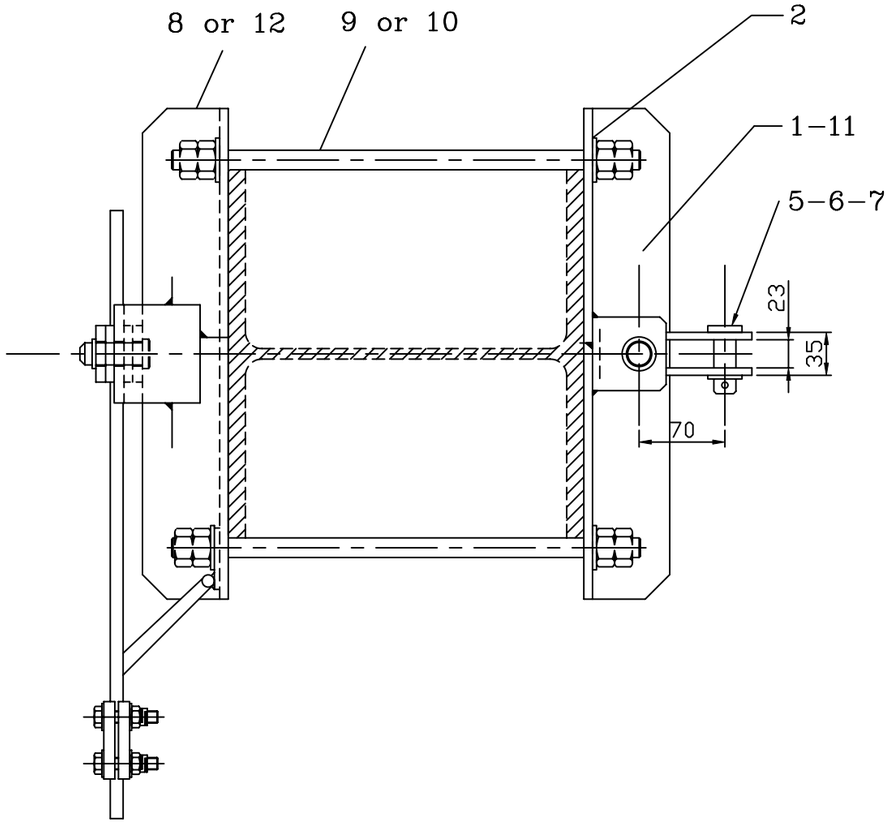
MARK GROUP: 102 | 101

SUPORT PENTRU 1 SAU 2 CABLURI PURTATOARE SUSPENSION FOR 1 OR 2 MESSENGERS	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG070		*1 / 1*	*0*

(297 x 420)





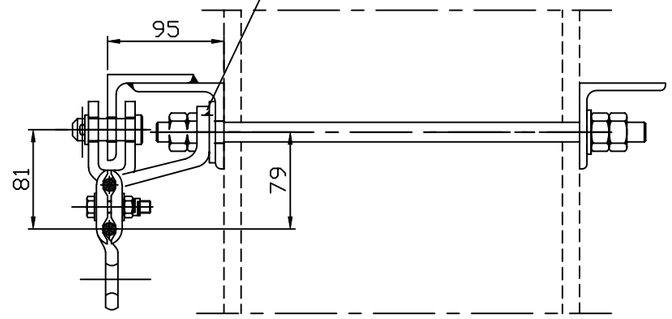


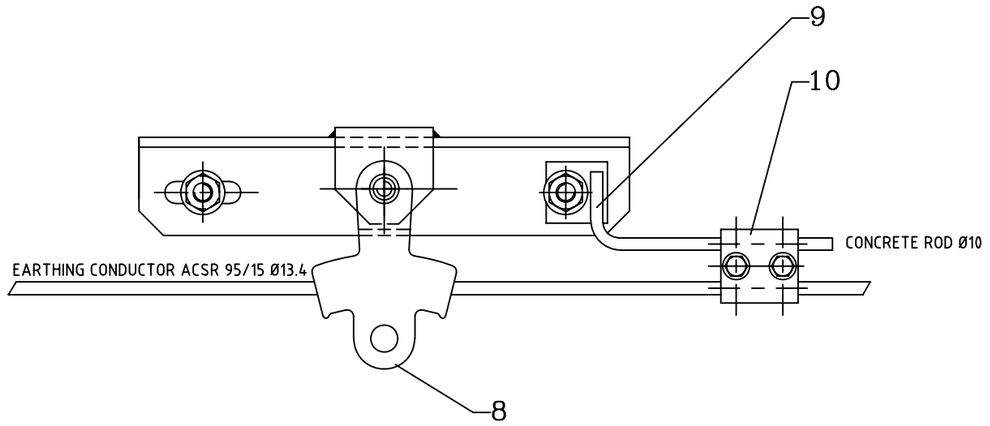
MARK.GROUP	QUANTITY 102	QUANTITY 101	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
	1	1	15	CLAMP	0.59	ELC 2-4.0	
	1	1	14	EARTHING CONNECTION		01LC00BDG260	101
	1	1	13	EARTHING CONDUCTOR SUSPESION TYPE I	1.30	ELC 13-1.4.0	
	1		12	COUNTERPLATE WITH EARTHING CONDUCTOR		01LC00BDG102	102
	1		11	HINGE SUPPORT		01LC00BDG088	102
		2	10	THREADED ROD M16- 350/100		01LC00BDG141	1611C2
	2		9	THREADED ROD M16- 450/100		01LC00BDG141	1611E2
		1	8	COUNTERPLATE WITH EARTHING CONDUCTOR		01LC00BDG102	101
	1	1	7	AXIS 20-50		01LC00BDG146	201050
	2	2	6	PIN. 4,5*40		01LC00BDG145	45A040
	1	1	5	WASHER M20		01LC00BDG142	20A110
	1	1	4	AXIS 18-110		01LC00BDG146	181110
	1	1	3	HINGE STRUT TUBE	0.78	E.L.C 13-9-11 A rev.C	...
	4	4	2	WASHER M16N		01LC00BDG142	161110
		1	1	HINGE SUPPORT		01LC00BDG088	101

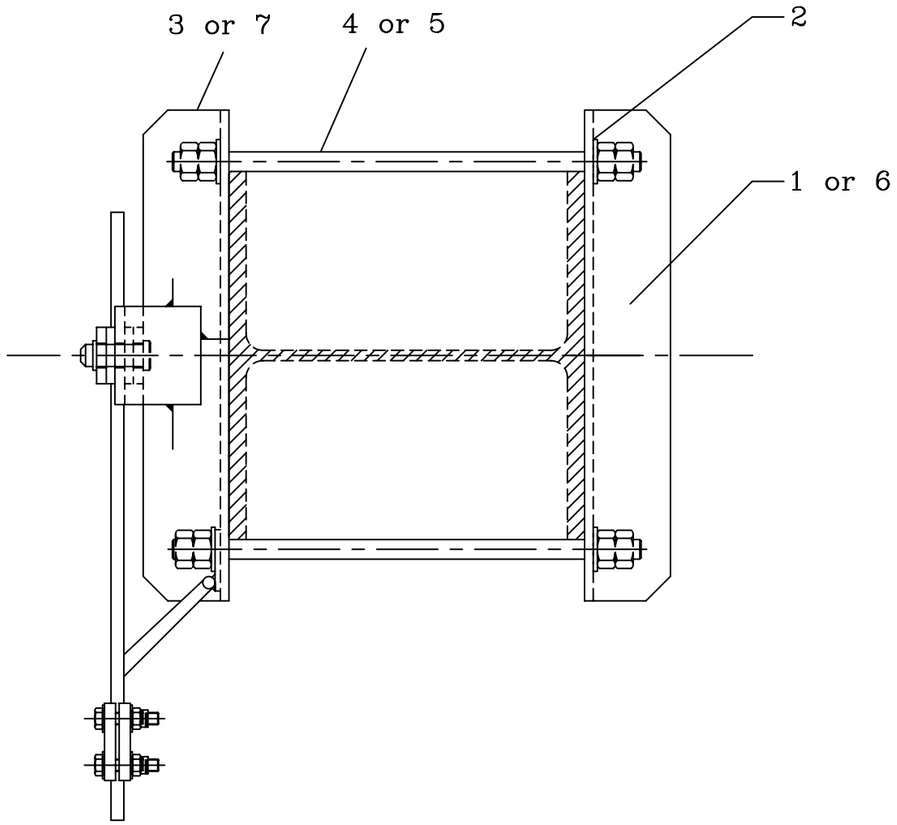
CRAPODINA CU SUSTINEREA CABLULUI COLECTOR PENTRU TIRANT FASTENING FOR STRUT TUBE WITH EARTHING CONDUCTOR	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG071		*1 / 1*	*0*

(297 x 420)

CONTINUOUS BEAD WATERPROOF WELDS MINIMUM THICKNESS: 4mm
BETWEEN SQUARE WASHER AND CONCRETE ROD



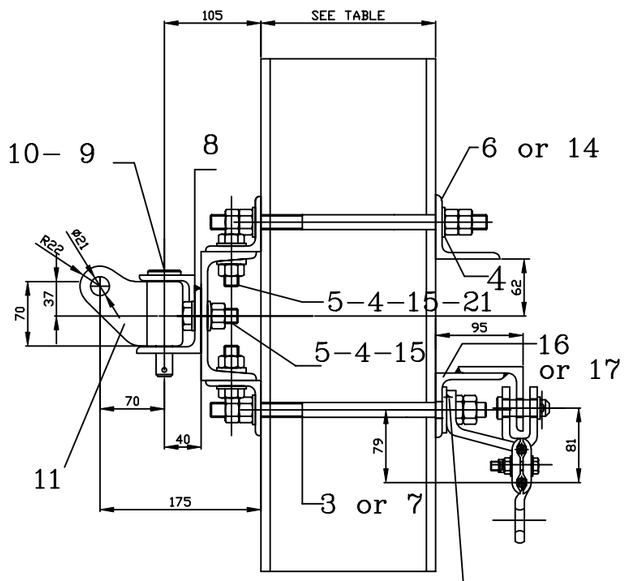


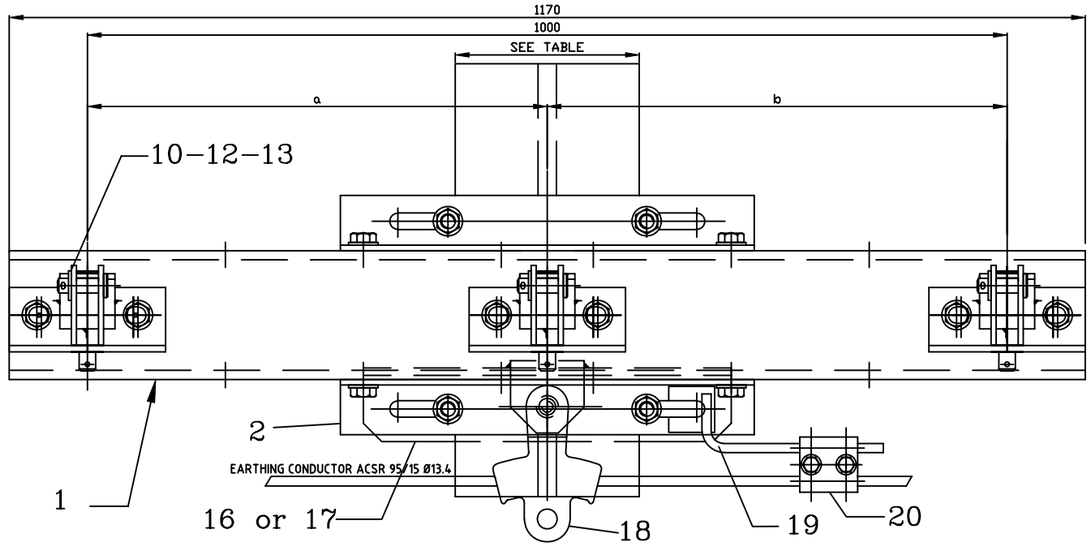


QUANTITY							
1	1	10	CLAMP	0.59	ELC 2-4.0	
1	1	9	EARTHING CONNECTION		01LC00BDG260	101
1	1	8	EARTHING CONDUCTOR SUSPESION TYPE I	1.30	ELC 13-1.4.0	
1		7	COUNTERPLATE WITH EARTHING CONDUCTOR		01LC00BDG102	102
1		6	COUNTERPLATE		01LC00BDG090	102
	2	5	THREADED ROD M16- 350/100		01LC00BDG141	1611C2
2		4	THREADED ROD M16- 450/100		01LC00BDG141	1611E2
	1	3	COUNTERPLATE WITH EARTHING CONDUCTOR		01LC00BDG102	101
4	4	2	WASHER M16N		01LC00BDG142	161110
	1	1	COUNTERPLATE		01LC00BDG090	101
MARK.GROUP 102	MARK.GROUP 101	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK

FIXARE PENTRU CABLUL COLECTOR EARTHING CONDUCTOR FASTENING	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG072		*1 / 1*	*0*

(297 x 420)





ON H BEAM	ASSEMBLY ALLOCATION	
	2 TOP TUBES SPACING 1.00 m	3 TOP TUBES SPACING 0.50 m
HE 200 TO 240	101	201
H 260 TO 320 (A OR B)	102	202

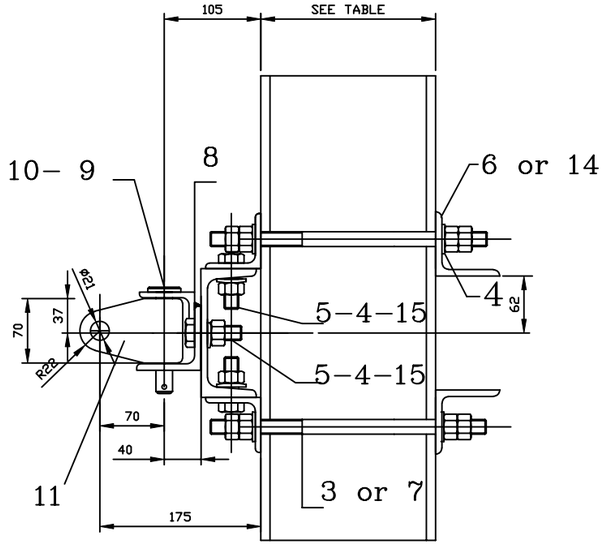
CONTINUOUS BEAD WATERPROOF WELDS MINIMUM THICKNESS: 4mm
BETWEEN SQUARE WASHER AND CONCRETE STEEL ROD

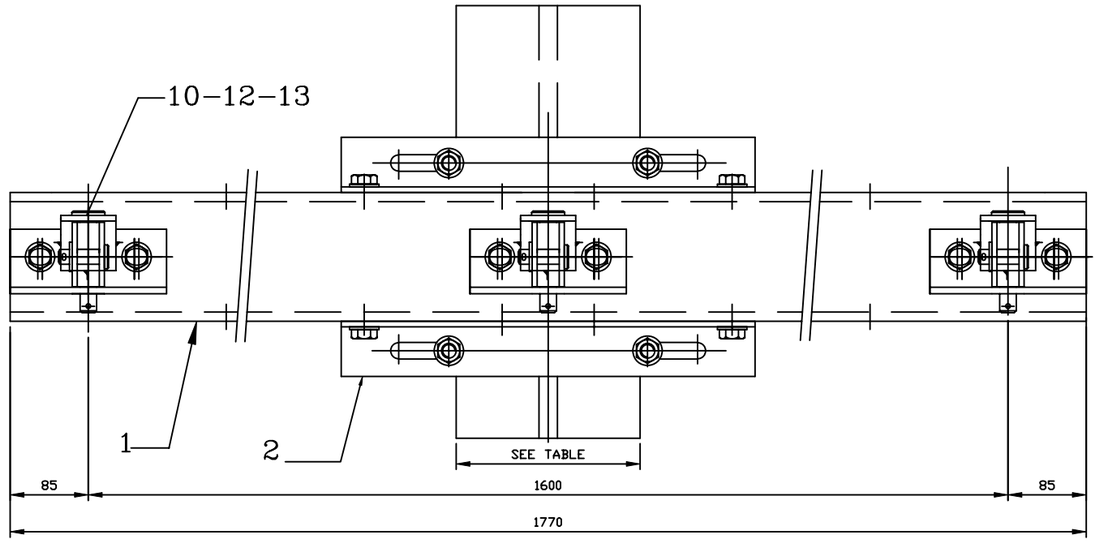
Note
For cotes a and b see the mounting diagrams.

MARK GROUP 202	MARK GROUP 201	MARK GROUP 102	MARK GROUP 101	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
QUANTITY 4	4	4	4	21	WASHER TYPE U		01LC00BDG142	16A710
1	1	1	1	20	CLAMP	0.59	ELC 2-4.0	
1	1	1	1	19	EARTHING CONNECTION	0.25	01LC00BDG260	101
1	1	1	1	18	EARTHING CONDUCTOR SUSPESION TYPE I	1.30	ELC 13-1.4.0	
1		1		17	COUNTERPLATE WITH EARTHING CONDUCTOR		01LC00BDG102	102
	1		1	16	COUNTERPLATE WITH EARTHING CONDUCTOR		01LC00BDG102	101
10	10	8	8	15	WASHER . CS-16-32-2.8		01LC00BDG142	16A310
1		1		14	COUNTERPLATE		01LC00BDG090	102
3	3	2	2	13	AXIS 20-50		01LC00BDG146	201050
3	3	2	2	12	WASHER M20		01LC00BDG142	20A110
QUANTITY 3	3	2	2	11	HINGE STRUT TUBE		E.L.C 13-9.11 A REV C	
6	6	4	4	10	PIN 4.5*40		01LC00BDG145	45A040
3	3	2	2	9	AXIS 18-110		01LC00BDG146	181110
3	3	2	2	8	HINGE SUPPORT		01LC00BDG114	
4		4		7	THREADED ROD M16-450/100		01LC00BDG141	1611E2
	1		1	6	COUNTERPLATE		01LC00BDG090	101
10	10	8	8	5	BOLT HM 16-50/50		01LC00BDG144	1612H1
18	18	16	16	4	WASHER M16N		01LC00BDG142	16A110
	4		4	3	THREADED ROD M16 -350/100		01LC00BDG141	1611C2
2	2	2	2	2	COUNTERPLATE FOR SPREADER		01LC00BDG094	
1	1	1	1	1	SPREADER		01LC00BDG089	

TRAVERSA CU SUSTINEREA CABLULUI COLECTOR PENTRU 2 SAU 3 CONTRAFISE (distanta 1m) SPREADER ASSEMBLY FOR 2 OR 3 STRUT TUBES WITH EARTHING CONDUCTOR (spacing 1m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG078		1 / 1	0

(297 x 420)



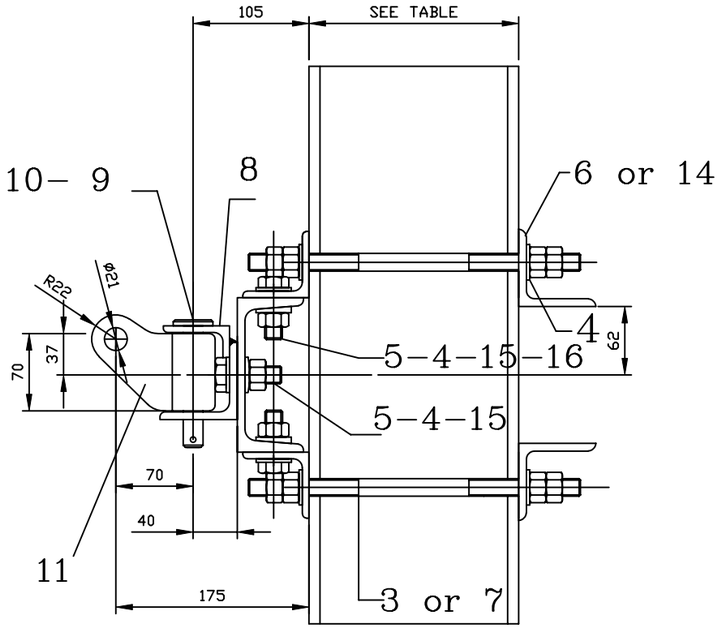


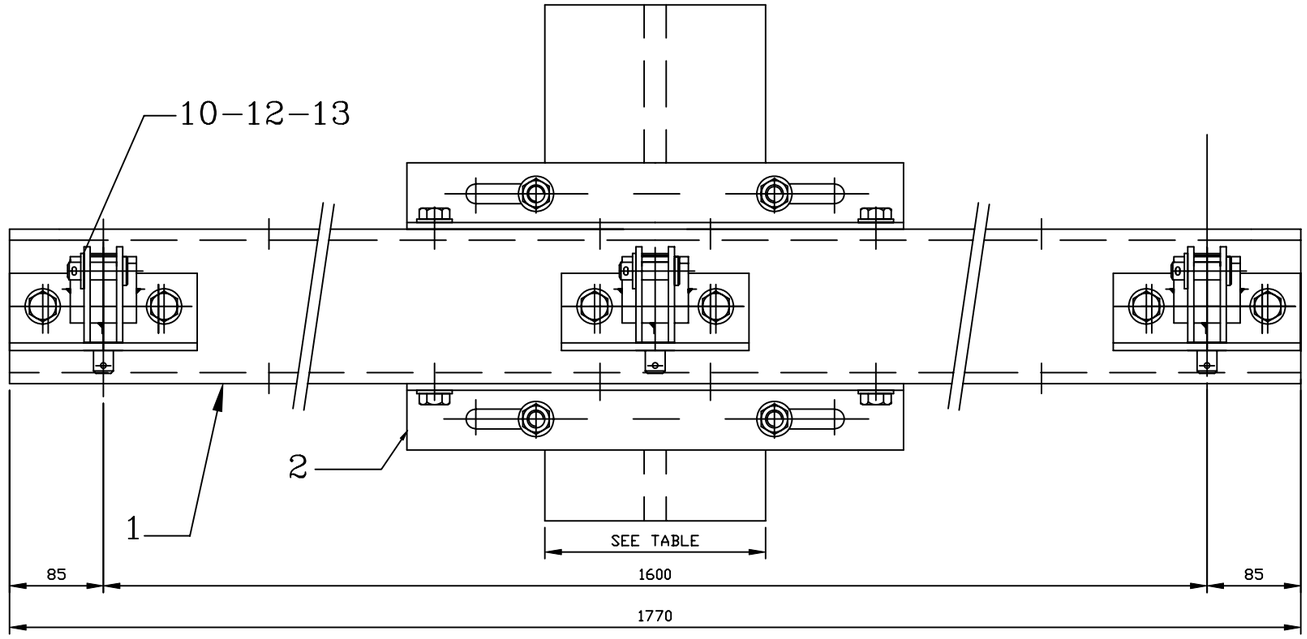
ON H BEAM	ASSEMBLY ALLOCATION	
	2 TOP TUBES SPACING 1.60 m	3 TOP TUBES SPACING 0.80 m
HE 200 TO 240	111	211
H 260 TO 320 (A OR B)	112	212

MARK GROUP 212	MARK GROUP 211	MARK GROUP 112	MARK GROUP 111	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
QUANTITTY								
10	10	8	8	15	WASHER		01LC00BDG142	16A710
2		2		14	COUNTERPLATE		01LC00BDG090	102
3	3	2	2	13	AXIS 20-50		01LC00BDG146	201050
3	3	2	2	12	WASHER M20		01LC00BDG142	20A110
3	3	2	2	11	HINGE TOP TUBE		ELC 13-9.10 A REV C	
QUANTITTY								
6	6	4	4	10	PIN 4.5*40		01LC00BDG145	45A040
3	3	2	2	9	AXIS 18-110		01LC00BDG146	181110
3	3	2	2	8	HINGE SUPPORT		01LC00BDG114	
4		4		7	THREADED ROD M16-450/100		01LC00BDG141	1611E2
	2		2	6	COUNTERPLATE		01LC00BDG090	101
10	10	8	8	5	BOLT HM 16-50/50		01LC00BDG144	1612H1
18	18	16	16	4	WASHER M16N		01LC00BDG142	161110
	4		4	3	THREADED ROD M16 -350/100		01LC00BDG141	1611C2
2	2	2	2	2	COUNTERPLATE FOR SPREADER		01LC00BDG094	
1	1	1	1	1	SPREADER (1.60m)		01LC00BDG115	

TRAVERSA CU SUSTINEREA CABLULUI COLECTOR PENTRU 2 SAU 3 TIRANTI (distanta 1.60m) SPREADER ASSEMBLY FOR 2 OR 3 TOP TUBES WITH EARTHING CONDUCTOR (spacing 1.60m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG079		1 / 1	0

(297 x 420)



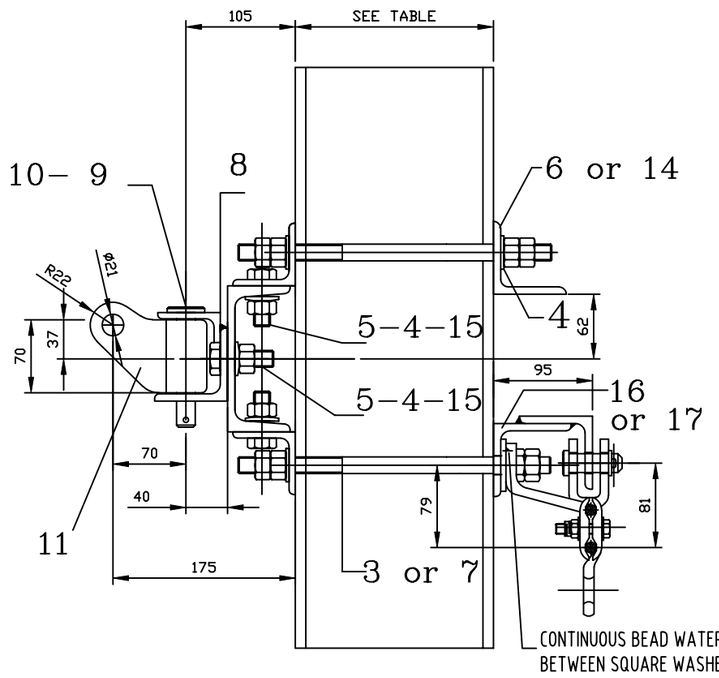


ON H BEAM	ASSEMBLY ALLOCATION	
	2 TOP TUBES SPACING 1.60 m	3 TOP TUBES SPACING 0.80 m
HE 200 TO 240	111	211
H 260 TO 320 (A OR B)	112	212

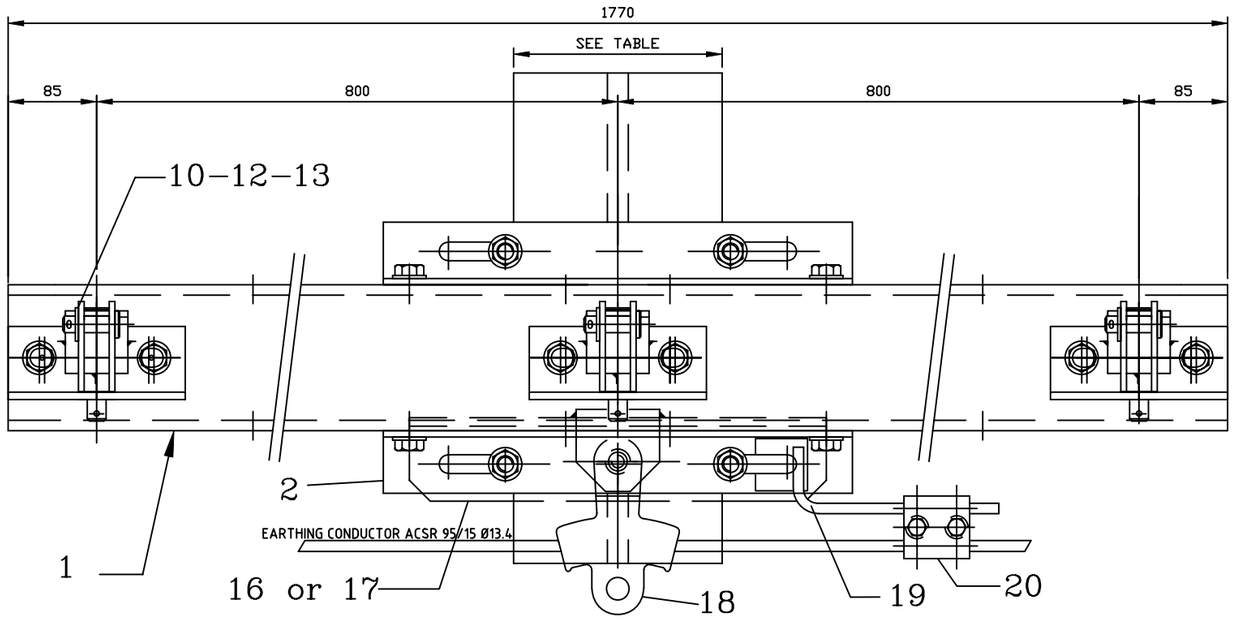
MARK GROUP 212	MARK GROUP 211	MARK GROUP 112	MARK GROUP 111	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
QUANTITY								
4	4	4	4	16	WASHER . TYPE U		01LC00BDG142	16A710
10	10	8	8	15	WASHER . CS-16-32-2.8		01LC00BDG142	16A310
2		2		14	COUNTERPLATE		01LC00BDG090	102
3	3	2	2	13	AXIS 20-50		01LC00BDG146	201050
3	3	2	2	12	WASHER M20		01LC00BDG142	20A110
3	3	2	2	11	HINGE STRUT TUBE		E.L.C 13-9.11 A REV C	
6	6	4	4	10	PIN 4.5*40		01LC00BDG145	45A040
3	3	2	2	9	AXIS 18-110		01LC00BDG146	181110
3	3	2	2	8	HINGE SUPPORT		01LC00BDG114	
4		4		7	THREADED ROD M16-450/100		01LC00BDG141	1611E2
	2		2	6	COUNTERPLATE		01LC00BDG090	101
10	10	8	8	5	BOLT HM 16-50/50		01LC00BDG144	1612H1
18	18	16	16	4	WASHER M16N		01LC00BDG142	16A110
	4		4	3	THREADED ROD M16-350/100		01LC00BDG141	1611C2
2	2	2	2	2	COUNTERPLATE FOR SPREADER		01LC00BDG094	
1	1	1	1	1	SPREADER (1.60m)		01LC00BDG115	

TRAVERSA PENTRU 2 SAU 3 CONTRAFISE (distanta 1.60m) SPREADER ASSEMBLY FOR 2 OR 3 STRUT TUBES (spacing 1.60m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG080		*1 / 1*	*0*

(297 x 420)



CONTINUOUS BEAD WATERPROOF WELDS MINIMUM THICKNESS: 4mm
BETWEEN SQUARE WASHER AND CONCRETE STEEL ROD

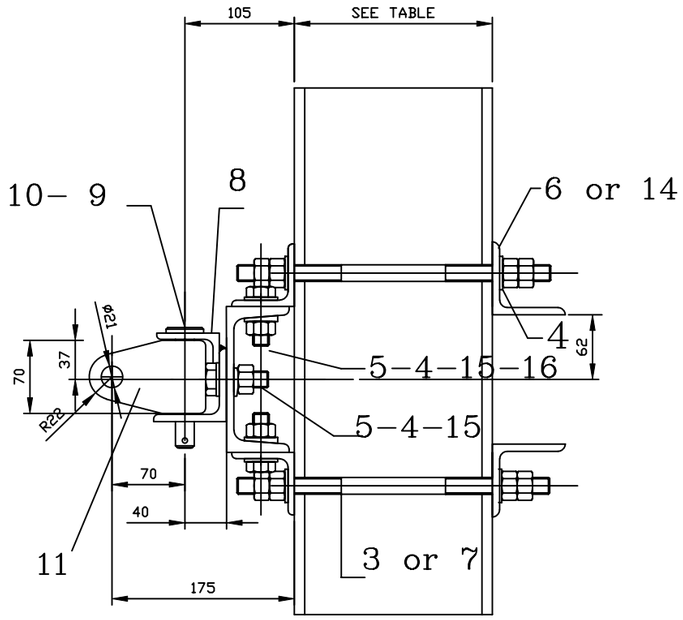


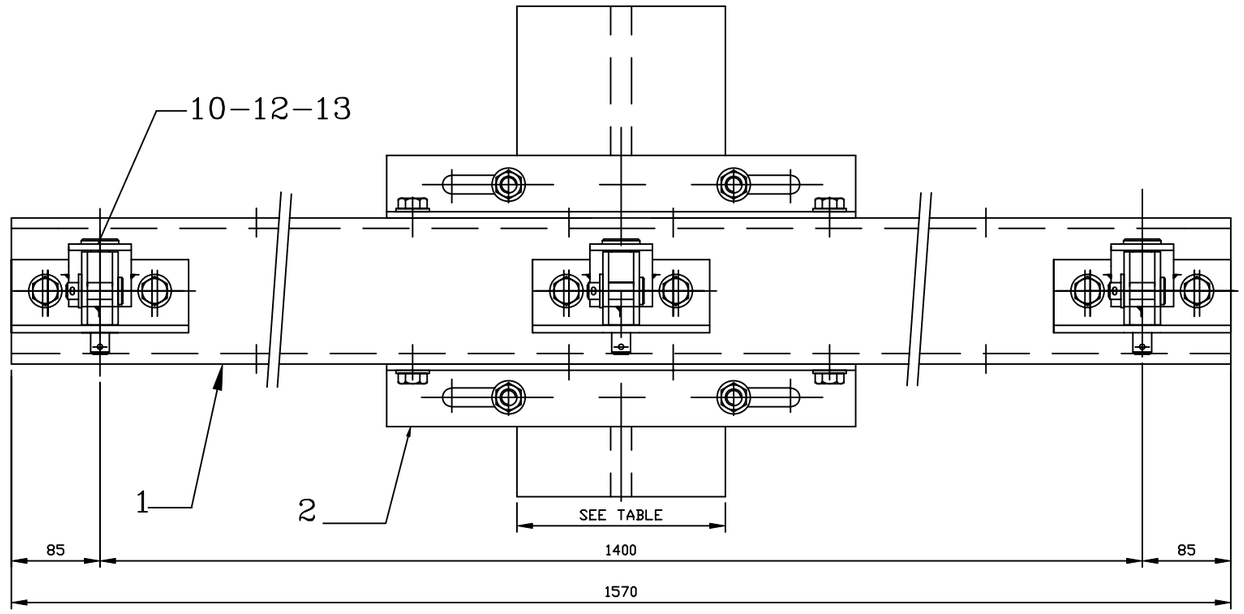
QUANTITY					ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
	1	1	1	1	20	CLAMP	0.59	ELC 2-4.0	
	1	1	1	1	19	EARTHING CONNECTION		01LC00BDG260	101
	1	1	1	1	18	EARTHING CONDUCTOR SUSPESION TYPE I	1.30	ELC 13-1.4.0	
	1		1		17	COUNTERPLATE WITH EARTHING CONDUCTOR		01LC00BDG102	102
		1		1	16	COUNTERPLATE WITH EARTHING CONDUCTOR		01LC00BDG102	101
	10	10	8	8	15	WASHER . CS-16-32-2.8		01LC00BDG142	16A310
	1		1		14	COUNTERPLATE		01LC00BDG090	102
	3	3	2	2	13	AXIS 20-50		01LC00BDG146	201050
	3	3	2	2	12	WASHER M20		01LC00BDG142	20A110
	3	3	2	2	11	HINGE STRUT TUBE		ELC 13-9.11 A REV C	
	6	6	4	4	10	PIN 4.5*40		01LC00BDG145	45A040
	3	3	2	2	9	AXIS 18-110		01LC00BDG146	181110
	3	3	2	2	8	HINGE SUPPORT		01LC00BDG114	
	4		4		7	THREADED ROD M16-450/100		01LC00BDG141	1611E2
		1		1	6	COUNTERPLATE		01LC00BDG090	101
	10	10	8	8	5	BOLT HM 16-50/50		01LC00BDG144	1612H1
	18	18	16	16	4	WASHER M16N		01LC00BDG142	16A110
		4		4	3	THREADED ROD M16 -350/100		01LC00BDG141	1611C2
	2	2	2	2	2	COUNTERPLATE FOR SPREADER		01LC00BDG094	
	1	1	1	1	1	SPREADER (1.60 m)		01LC00BDG115	
MARK GROUP	212	211	112	111					

ON H BEAM	ASSEMBLY ALLOCATION	
	2 TOP TUBES SPACING 1.60 m	3 TOP TUBES SPACING 0.80 m
HE 200 TO 240	111	211
H 260 TO 320 (A OR B)	112	212

TRAVERSA CU SUSTINEREA CABLULUI COLECTOR PENTRU 2 SAU 3 CONTRAFISE (distanta 1.60m) SPREADER ASSEMBLY FOR 2 OR 3 STRUT TUBES WITH EARTHING CONDUCTOR (spacing 1.60m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG081		1 / 1	0

(297 x 420)



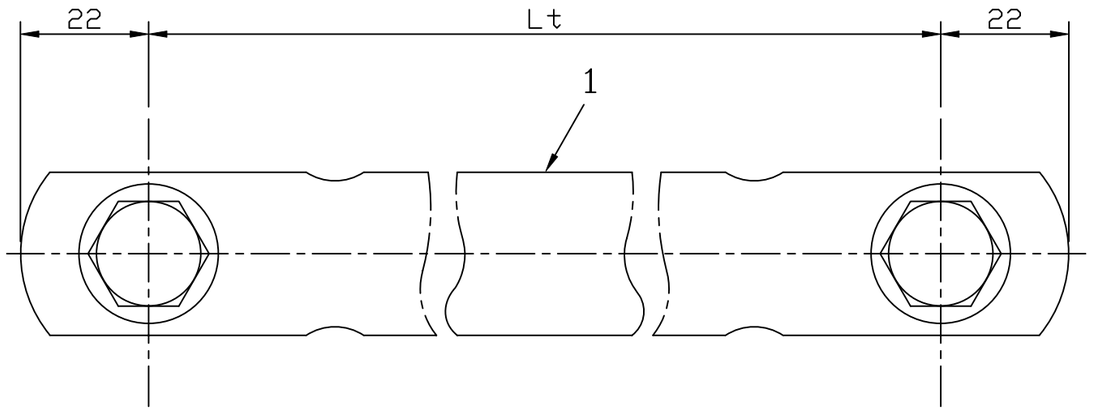


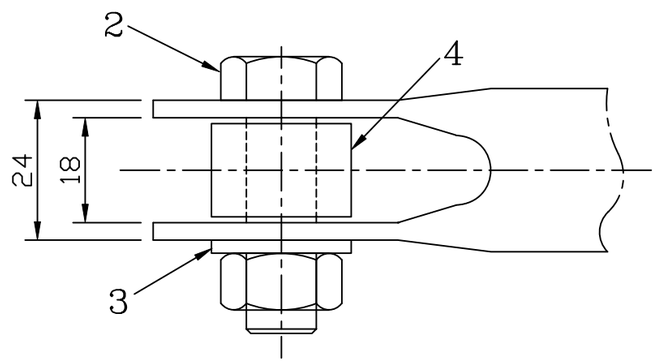
	MARK GROUP	QUANTITY				ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
	222	221	122	121						
	4	4	4	4	16	WASHER . TYPE U		01LC00BDG142	16A710
	10	10	8	8	15	WASHER . CS-16-32-2.8		01LC00BDG142	16A310
	2		2		14	COUNTERPLATE		01LC00BDG090	102
	3	3	2	2	13	AXIS 20-50		01LC00BDG146	201050
	3	3	2	2	12	WASHER M20		01LC00BDG142	20A110
	3	3	2	2	11	HINGE TOP TUBE		ELC 13-9.10 A REV C	
	6	6	4	4	10	PIN 4.5*40		01LC00BDG145	45A040
	3	3	2	2	9	AXIS 18-110		01LC00BDG146	181110
	3	3	2	2	8	HINGE SUPPORT		01LC00BDG114	
	4		4		7	THREADED ROD M16-450/100		01LC00BDG141	1611E2
		2		2	6	COUNTERPLATE		01LC00BDG090	101
	10	10	8	8	5	BOLT HM 16-50/50		01LC00BDG144	1612H1
	18	18	16	16	4	WASHER M16N		01LC00BDG142	16A110
		4		4	3	THREADED ROD M16 -350/100		01LC00BDG141	1611C2
	2	2	2	2	2	COUNTERPLATE FOR SPREADER		01LC00BDG094	
	1	1	1	1	1	SPREADER (1.40m)		01LC00BDG115	

ON H BEAM	ASSEMBLY ALLOCATION	
	2 TOP TUBES SPACING 1.40 m	3 TOP TUBES SPACING 0.70 m
HE 200 TO 240	121	221
H 260 TO 320 (A OR B)	122	222

TRAVERSA PENTRU 2 SAU 3 TIRANTI (distanta 1.40m) SPREADER ASSEMBLY FOR 2 OR 3 TOP TUBES (spacing 1.40m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG082		*1 / 1*	*0*

(297 x 420)

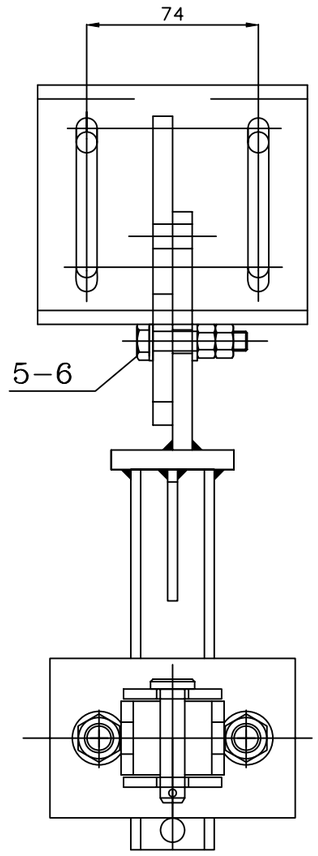


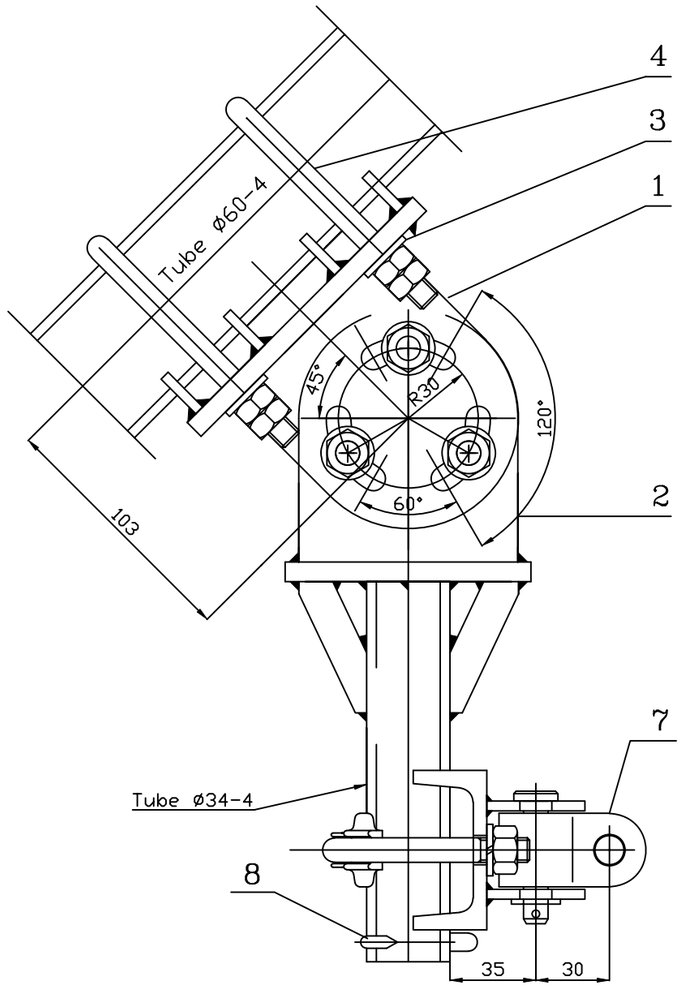


QUANTITY	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
2	4	WEDGE		ELC 32-9.11.6B	
2	3	WASHER SC 12		01LC00BDG142	12B310
2	2	BOLT M12x40/22 STAINLESS STEEL		01LC00BDG144	1222F4
1	1	TUBE 28-3		01LC00BDG116	

BARA DE RIGIDIZARE AUXILIARY STRUT TUBE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG083		*1 / 1*	*0*

(297 x 420)

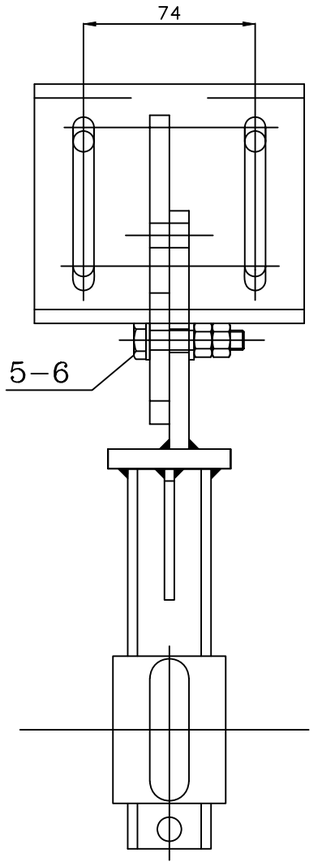


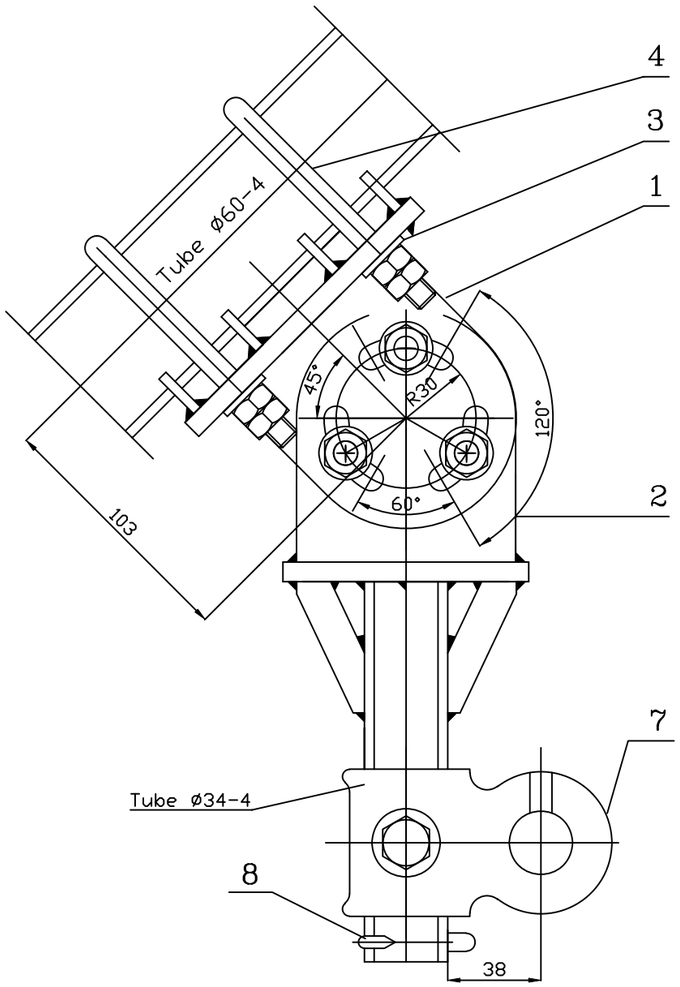


QUANTITY		ITEM	DESIGNATION	REFERENCE DRAWING	MARK
1		8	PIN V8-63	01LC00BDG145	08A063
1		7	HINGY STEADY ARM FASTENING	01LC00BDG074	
6		6	WASHER M8N	01LC00BDG142	08B110
3		5	BOLT HM8-40/28	01LC00BDG144	0823F3
2		4	U-BOLT 10-74(110/35) WITHOUT CAP	01LC00BDG143	102141
4		3	WASHER W10	01LC00BDG142	10B510
1		2	ROTATING STAND OFF BRACKET	01LC00BDG117	
1		1	ROTATING HALF FLANGE	01LC00BDG118	
MARK GROUP		ITEM	DESIGNATION	REFERENCE DRAWING	MARK

ANSAMBLU DE FIXARE ROTATIV ROTATING FASTENING ASSEMBLY	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG084		*1 / 2*	*0*

(297 x 420)



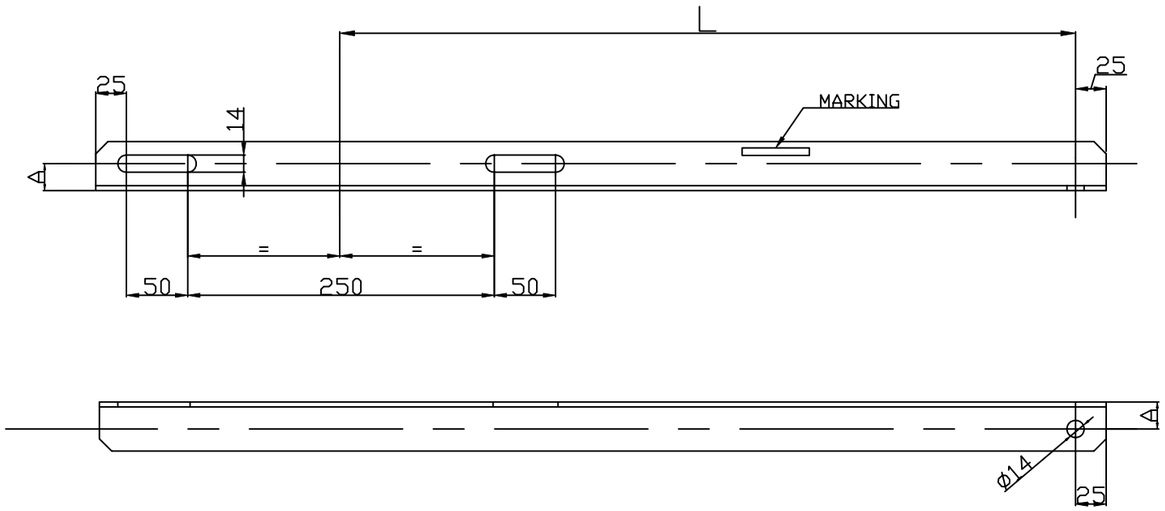


QUANTITY		ITEM	DESIGNATION	REFERENCE DRAWING	MARK
	1	8	PIN V8-63	01LC00BDG145	08A063
	1	7	HINGY STEADY ARM FASTENING	ELC 26-4.7.0	
	6	6	WASHER M8N	01LC00BDG142	08B110
	3	5	BOLT HM8-40/28	01LC00BDG144	0823F3
	2	4	U-BOLT 10-74(110/35) WITHOUT CAP	01LC00BDG143	102141
	4	3	WASHER W10	01LC00BDG142	10B510
	1	2	ROTATING STAND OFF BRACKET	01LC00BDG117	
	1	1	ROTATING HALF FLANGE	01LC00BDG118	
MARK GROUP		ITEM	DESIGNATION	REFERENCE DRAWING	MARK

ANSAMBLU DE FIXARE ROTATIV ROTATING FASTENING ASSEMBLY	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG084		*2 / 2*	*0*

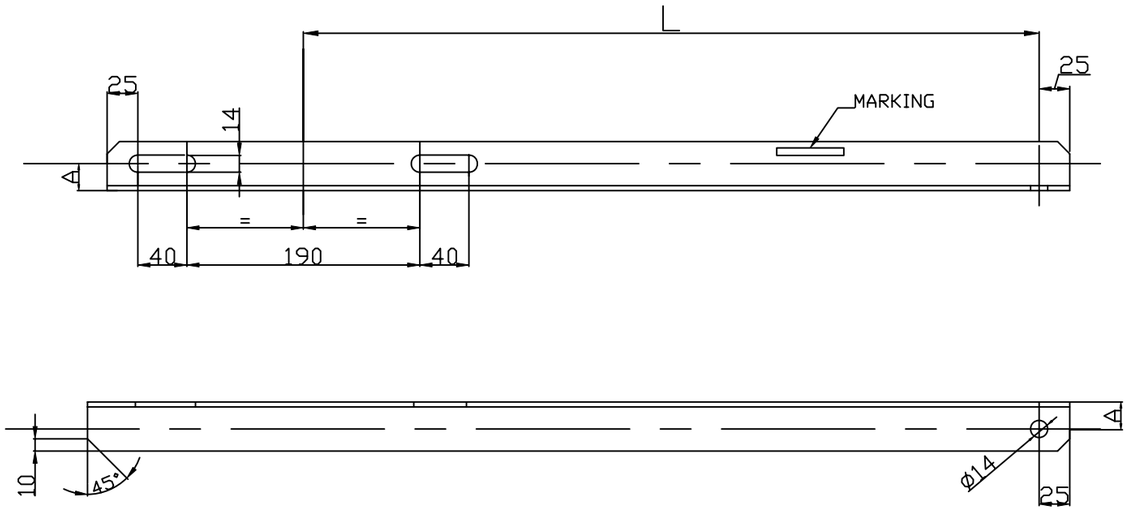
(297 x 420)

FROM HE 260 TO HE 320



MARK	DESIGNATION	A mm	L mm	UNIT MARK kg
201	L 40 X40 X 4	22	350	1.15
202	L 40 X40 X 4	22	600	1.68
203	L 60 X 60 X 6	35	1000	5.36
204	L 80 X 80 X 8	45	1500	16.37

FROM HE 200 TO HE 240



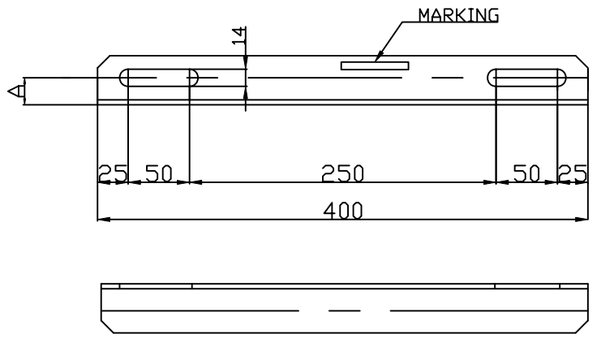
MARK	DESIGNATION	A mm	L mm	UNIT MARK kg
101	L 40 X40 X 4	22	350	1.07
102	L 40 X40 X 4	22	600	1.59
103	L 60 X 60 X 6	35	1000	5.18
104	L 80 X 80 X 8	45	1500	15.98

Note:
1. Material: S235JR
2. After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

SUPORT PENTRU FIBRA OPTICA SUPPORT FOR OPTICAL FIBER	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG086		1 / 1	0

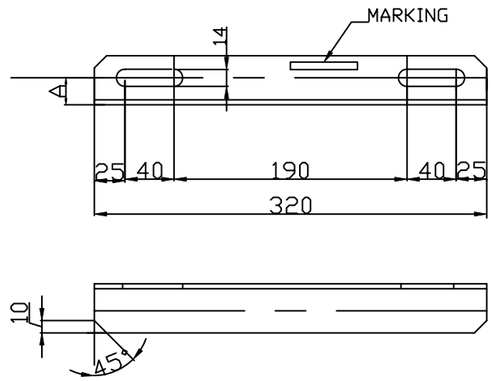
(297 x 420)

FROM HE 260 TO HE 320



MARK	DESIGNATION	A mm	UNIT MARK kg
201 -202	L 40 X40 X 4	22	0.84
203	L 60 X 60 X 6	35	1.78
204	L 80 X 80 X 8	45	3.85

FROM HE 200 TO HE 240



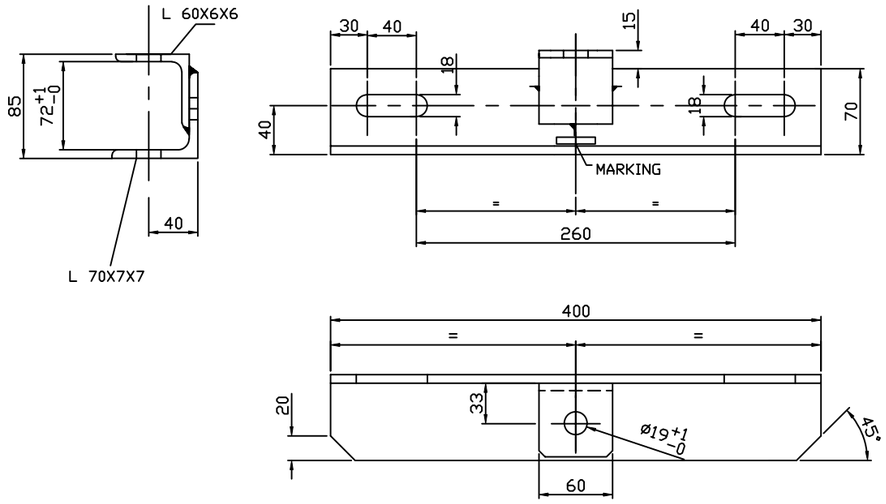
MARK	DESIGNATION	A mm	UNIT MARK kg
101 -102	L 40 X40 X 4	22	0.67
103	L 60 X 60 X 6	35	1.43
104	L 80 X 80 X 8	45	3.08

Note:
1. Material: S235JR
2. After welding and drilling will be hot galvanized AT/OL/Zn600–STAS 7221–90.

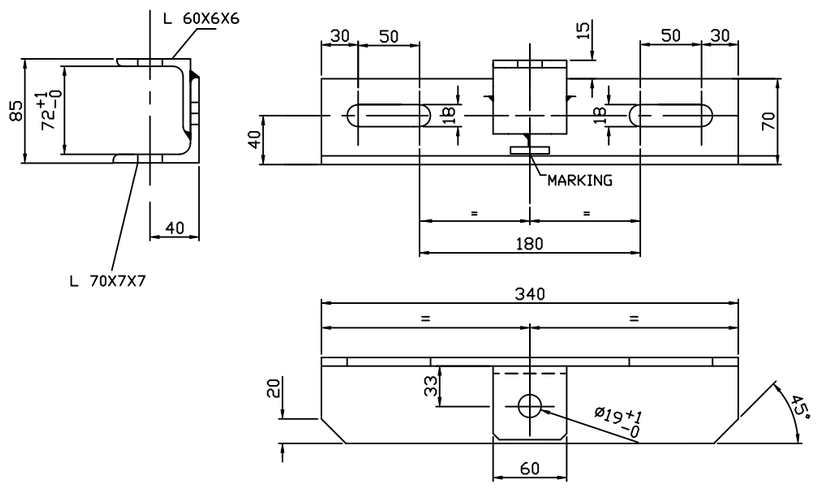
CONTRASUPORT PENTRU FIBRA OPTICA COUNTERPLATE FOR OPTICAL FIBER	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG087		*1 / 1*	*0*

(297 x 420)

FROM HE 260 TO 320



FROM HE 200 TO 240



MARK	DESIGNATION
101	FROM HE 200 TO 240
102	FROM HE 260 TO 320

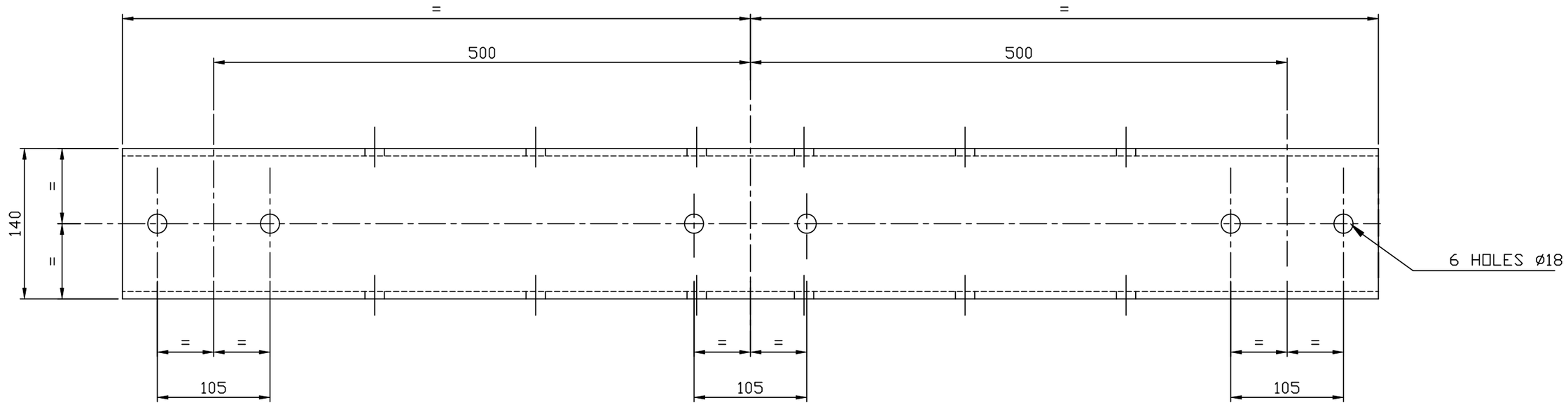
NOTES:

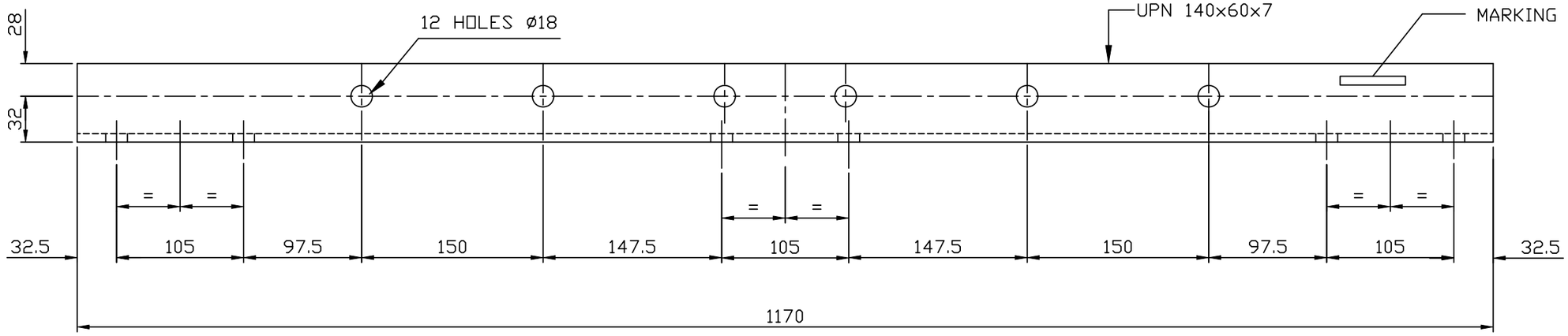
1. CONTINIOUS BEAD WATERPROOF WELDS MINIMUM THICKNESS: 3mm
2. After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg
03LC00BDG088	102	HINGE SUPPORT	S235JR	2.95
03LC00BDG088	101	HINGE SUPPORT	S235JR	2.50

	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
SUPORT PENTRU BALAMA HINGE SUPPORT	*01LC00BDG088*		*1 / 1*	*0*

(297 x 420)





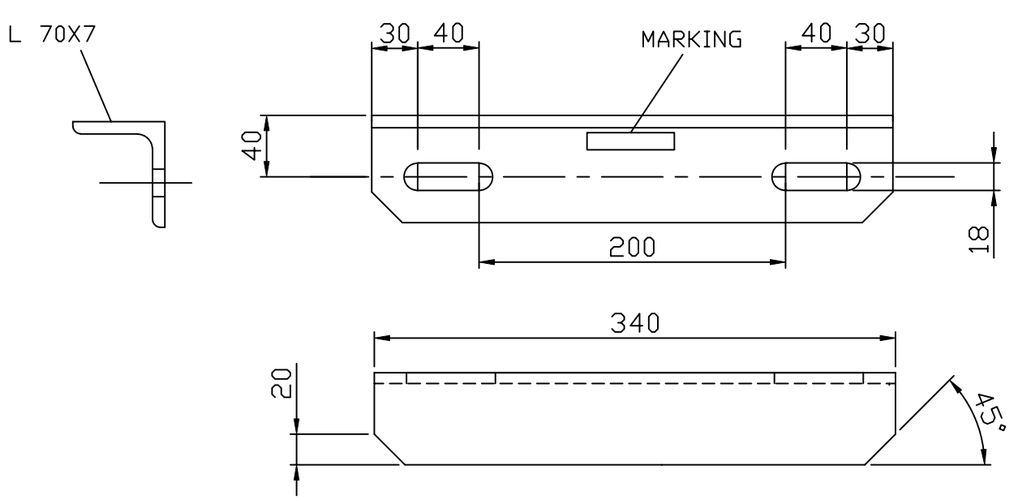
01LC00BDG089	.....	SPREADER (Spacing 1m)	S235JR	21.44
DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg

Note:
After welding and drilling will be
hot galvanized AT/OL/Zn600-STAS 7221-90.

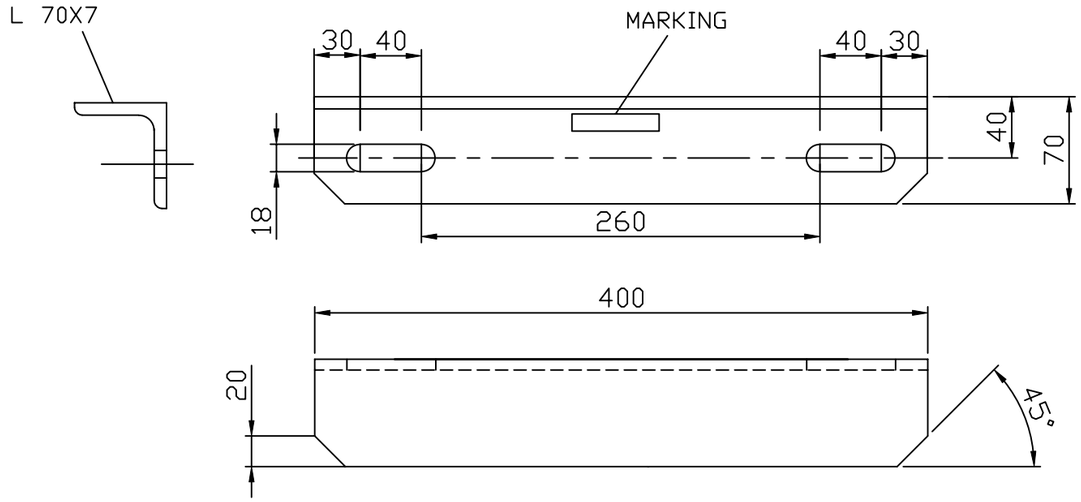
TRAVERSA (distanta 1m) SPREADER (spacing 1m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG089		*1 / 1*	*0*

(297 x 420)

FROM HE 200 TO 240



FROM HE 260 TO 320



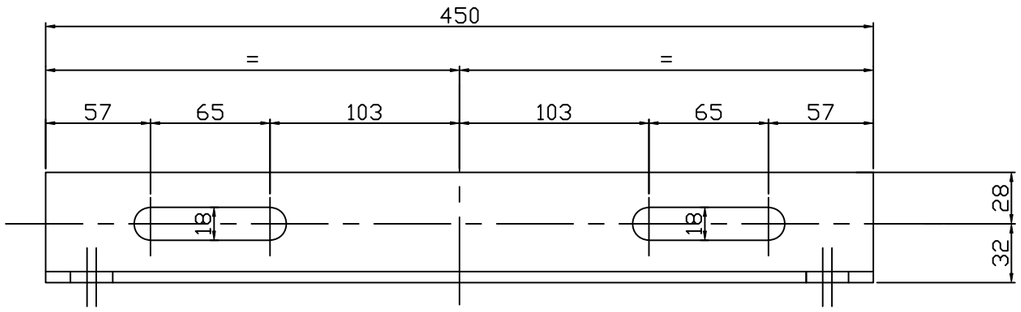
MARK	DESIGNATION
101	FROM HE 200 TO 240
102	FROM HE 260 TO 320

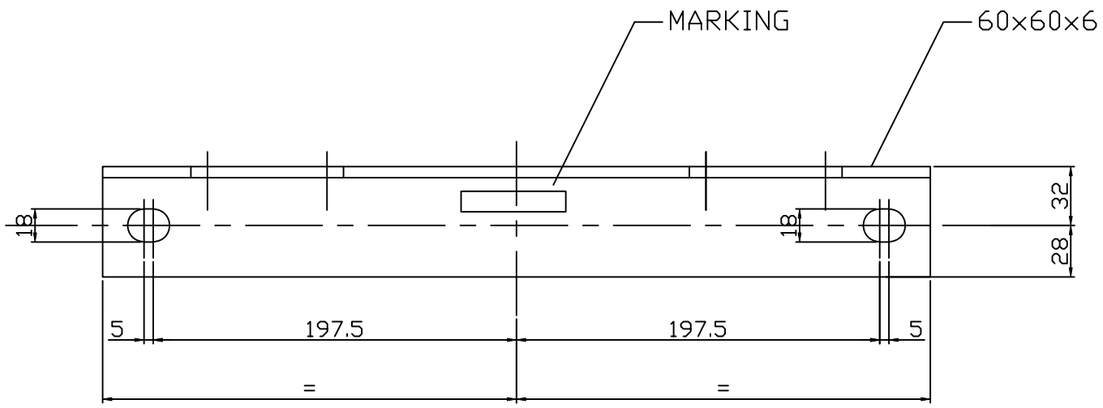
After welding and drilling will
be hot galvanized AT/OL/Zn600-STAS 7221-90.

DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg
01LC00BDG090	102	COUNTERPLATE (L 70*70*7)	S235JR	3.36
01LC00BDG090	101	COUNTERPLATE (L 70*70*7)	S235JR	2.86

CONTRASUPORT PENTRU TIRANT SI CONTRAFISA COUNTREPLATE FOR TOP AND STRUT TUBE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG090		*1 / 1*	*0*

(297 x 420)



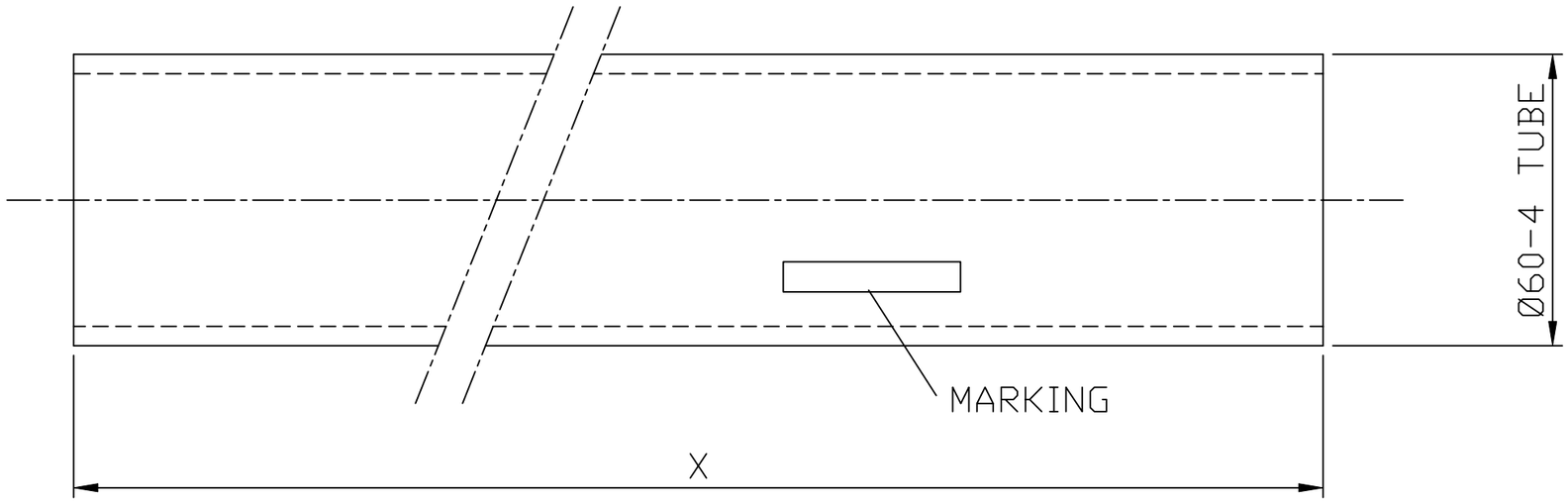


After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

01LC00BDG094	....	COUNTERPLATE (L 60*60*6)	S235JR	2.3
DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg

Contrasuport for spreader (pentru HE200 la HE320 Counterplate for spreader (for HE200 to HE320)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG094		*1 / 1*	*0*

(297 x 420)

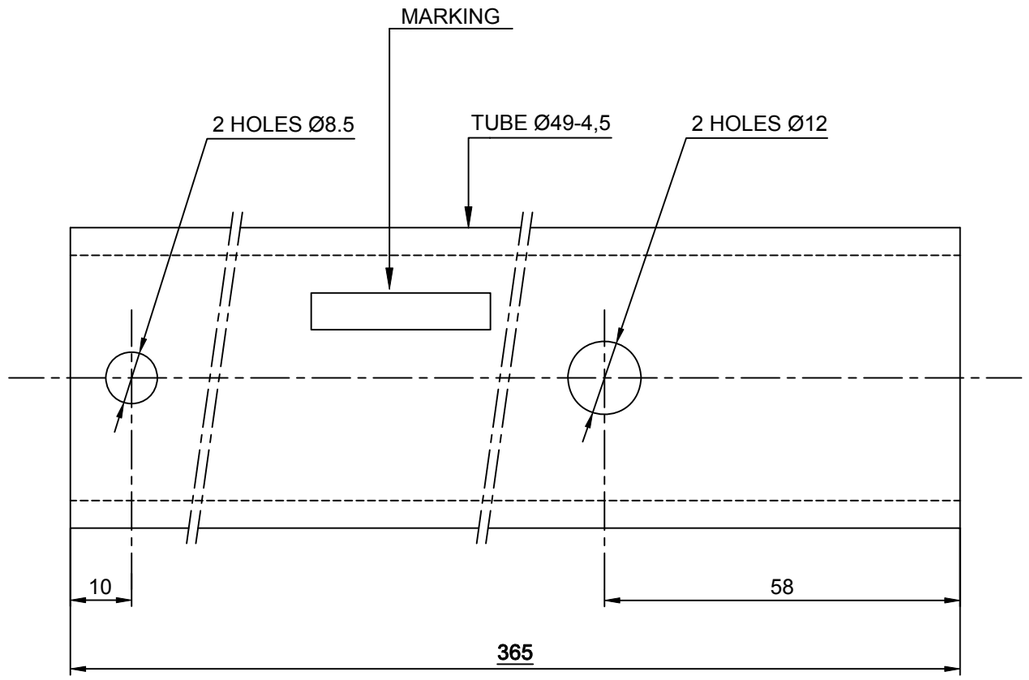


After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

01LC00BDG095		ø60-4 TUBE FOR TOP TUBE	S355J0H	5.50 kg/m
DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg

TEAVA ø60-4 PENTRU TIRANT ø60-4 TUBE FOR TOP TUBE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG095		*1 / 1*	*0*

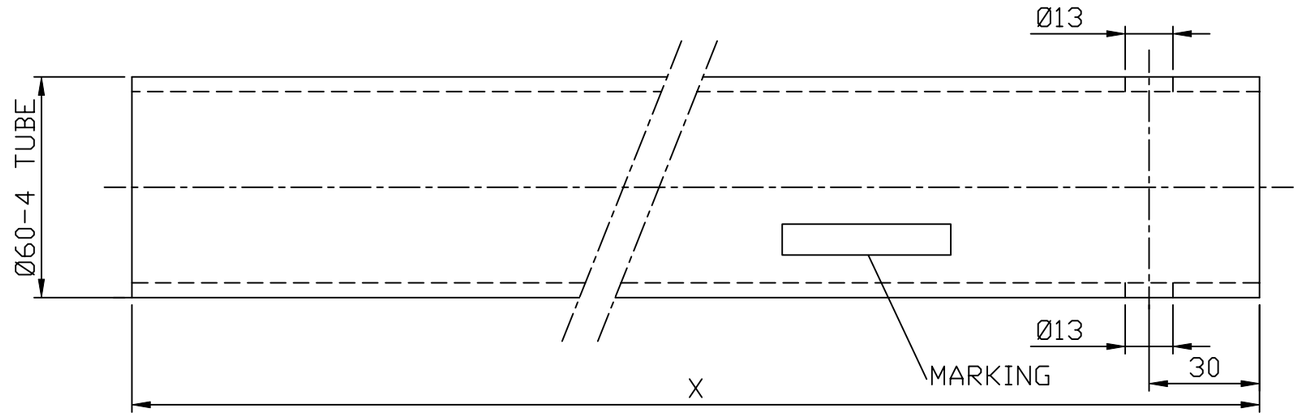
(297 x 420)



01LC00BDG100	---	Ø49-4.5 TUBE FOR STEADY ARM FASTENING	S355JDH	1.85
DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg

TEAVA Ø49-4.5 PENTRU FIXARE FIXATOR Ø49-4.5 TUBE FOR STEADY ARM FASTENING	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG100		*1 / 1*	*0*

(297 x 420)



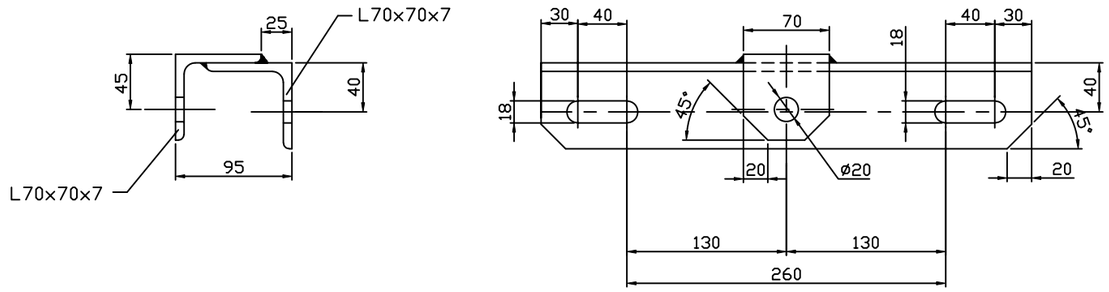
After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

01LC00BDG101		ø60-4 TUBE FOR STRUT TUBE	S355J0H	5.50 kg/m
DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg

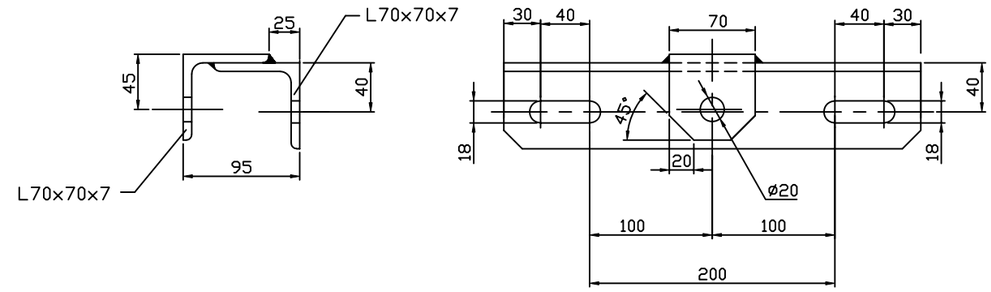
TEAVA ø60-4 PENTRU CONTRAFISA ø60-4 TUBE FOR STRUT TUBE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG101		*1 / 1*	*0*

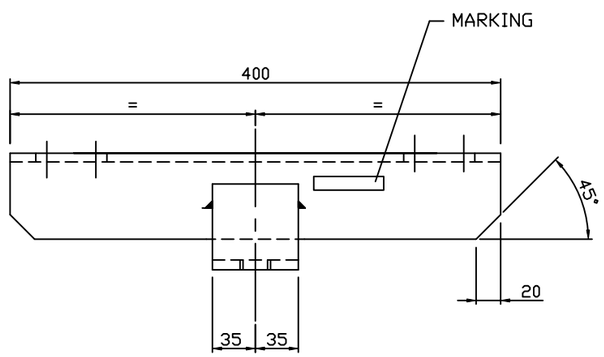
(297 x 420)

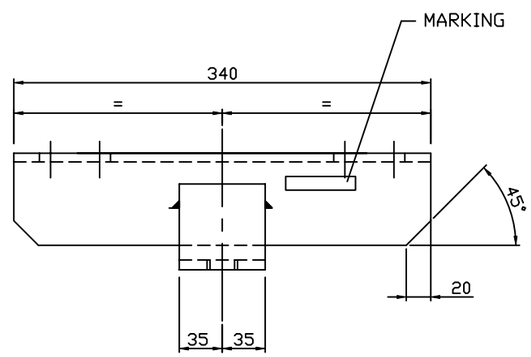
MARK 102
FROM HE 260 TO 320



MARK 101
FROM HE 200 TO 240







NOTES:

1.CONTINUOUS BEAD WATERPROOF WELDS MINIMUM THICKNESS: 5mm

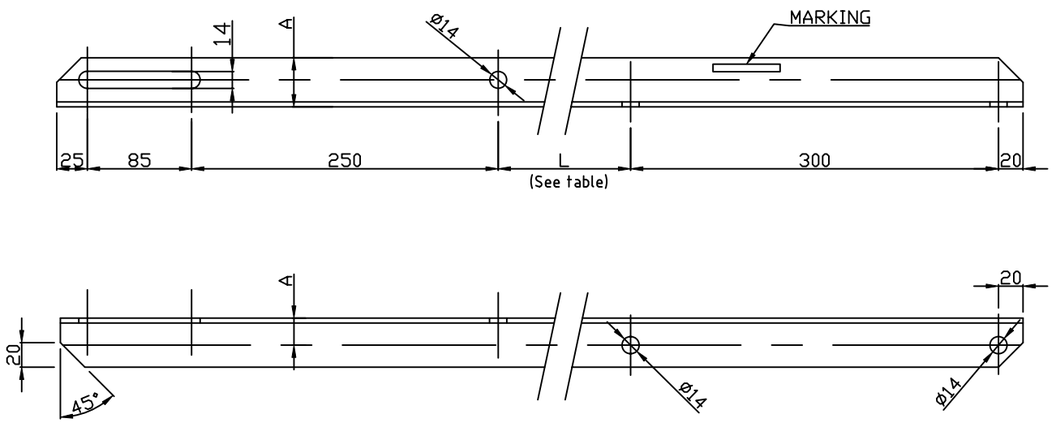
2.After welding and drilling will be hot galvanized AT/OL/Zn600–STAS 7221–90.

DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg
01LC00BDG102	102	COUNTERPLATE FOR STRUT TUBE	S235JR	3.5
01LC00BDG102	101	COUNTERPLATE FOR STRUT TUBE	S235JR	3.1

CONTRASUPORT CU FIXAREA CABLULUI COLECTOR COUNTERPLATE WITH EARTHING CONDUCTOR	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG102		*1 / 1*	*0*

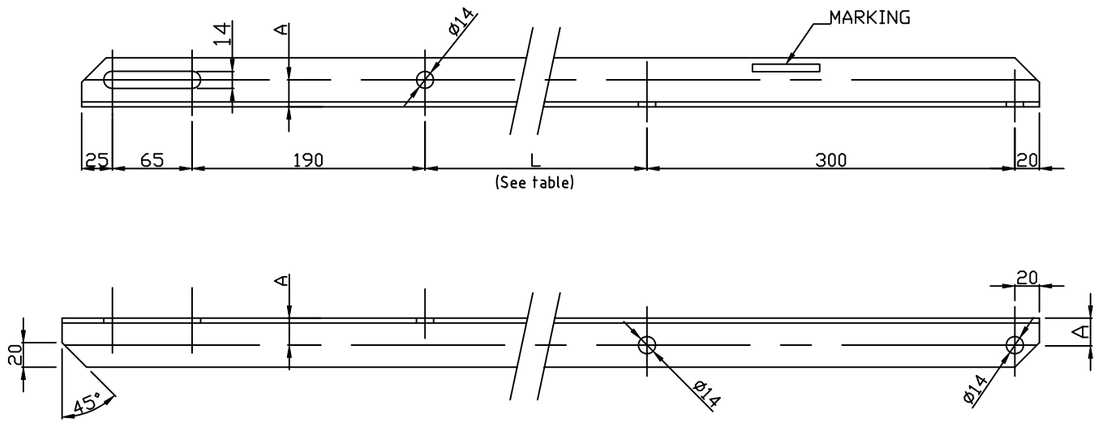
(297 x 420)

FROM HE 260 TO HE 320



MARK	DESIGNATION	A mm	L mm	UNIT MARK kg
211	L 60X60X6	35	410	5.86
212	L 80X80X8	45	600	12.24
213	L 80X80X8	45	1000	16.1

FROM HE 200 TO HE 240



MARK	DESIGNATION	A mm	L mm	UNIT MARK kg
111	L 60X60X6	35	410	5.46
112	L 80X80X8	45	600	11.54
113	L 80X80X8	45	1000	15.39

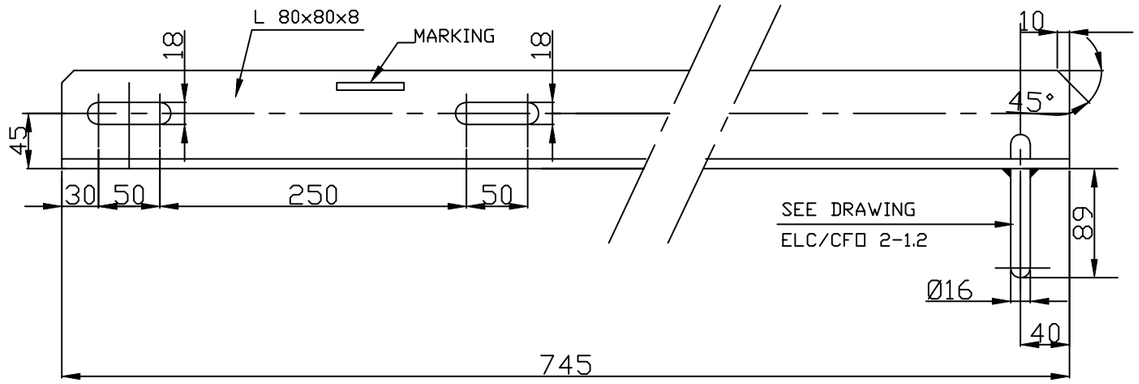
Note: 1.Material : S235JR
2.After welding and drilling will be hot galvanized AT/OL/Zn600–STAS 7221–90.

SUPORT PENTRU DOUA FIBRE OPTICE SUPPORT FOR TWO OPTICAL FIBERS	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG106		*1 / 1*	*0*

(297 x 420)

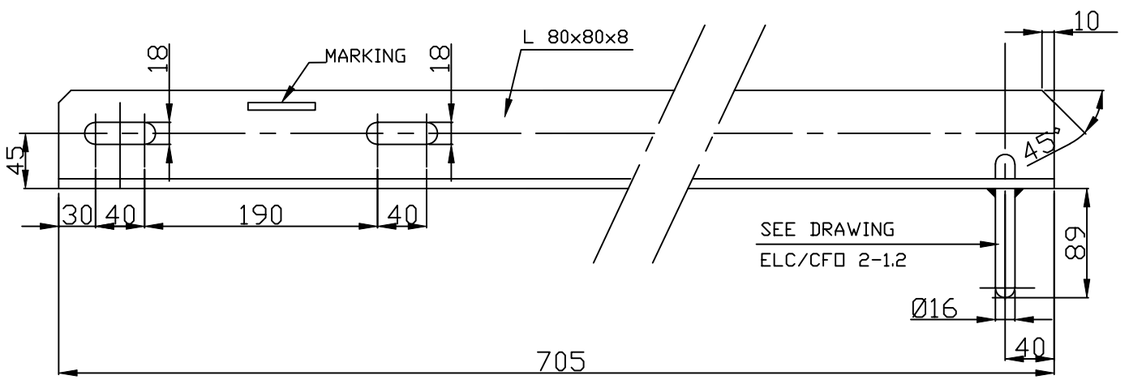
FROM HEA or HEB 260 TO 320

221



FROM HEA or HEB 200 TO 240

121



NOTE:

1.CONTINUOUS BEAD WATERPROOF WELDS MINIMUM THICKNESS: 8mm

2.After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

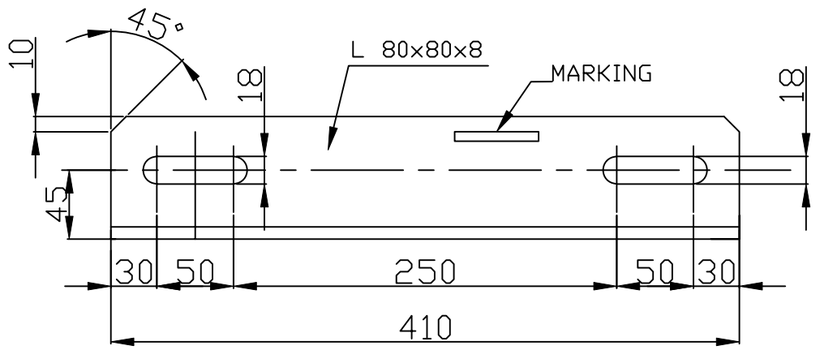
DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg
01LC00BDG107	221	SUPPORT FOR OPTICAL FIBER ANCHORING	S235JR	7.17
01LC00BDG107	121	SUPPORT FOR OPTICAL FIBER ANCHORING	S235JR	6.78

SUPORT PENTRU ANCORAREA FIBREI OPTICE SUPPORT FOR OPTICAL FIBER ANCHORING	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG107		*1 / 1*	*0*

(297 x 420)

FROM HEA or HEB 260 TO 320

221

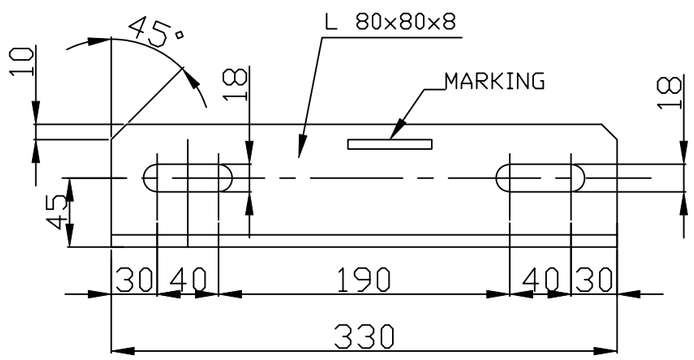


After welding and drilling will be hot galvanized AT/OL/Zn600–STAS 7221–90.

DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg
01LC00BDG113	221	COUNTERPLATE FOR OPTICAL FIBER ANCHORING	S235JR	3.94
01LC00BDG113	121	COUNTERPLATE FOR OPTICAL FIBER ANCHORING	S235JR	3.17

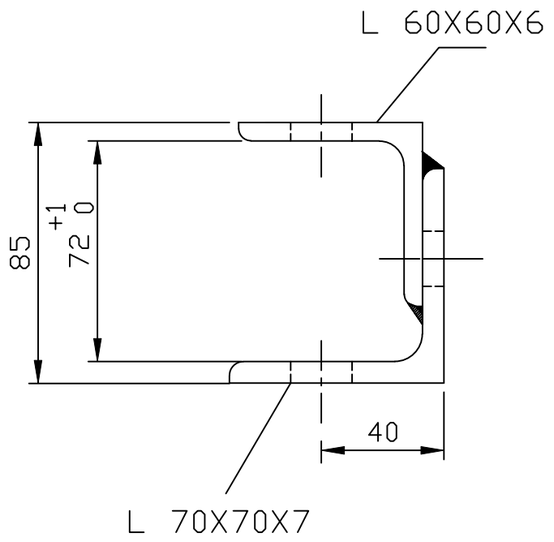
FROM HEA or HEB 200 TO 240

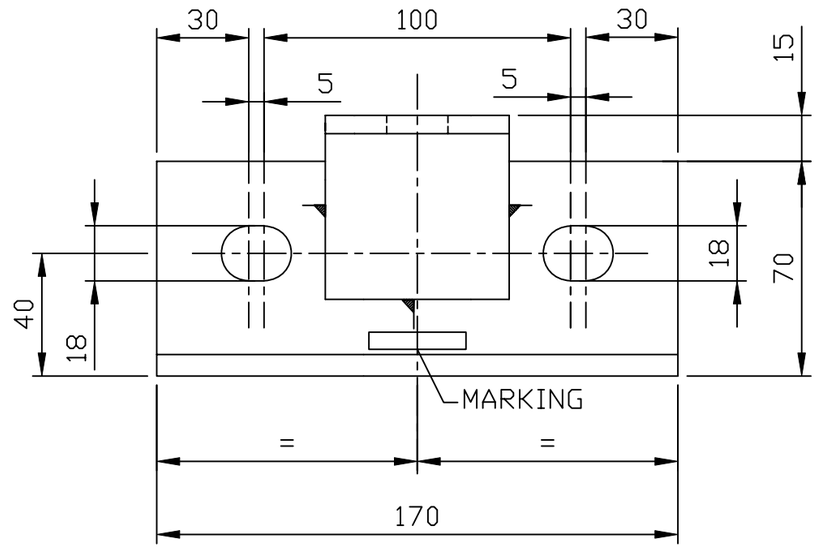
121

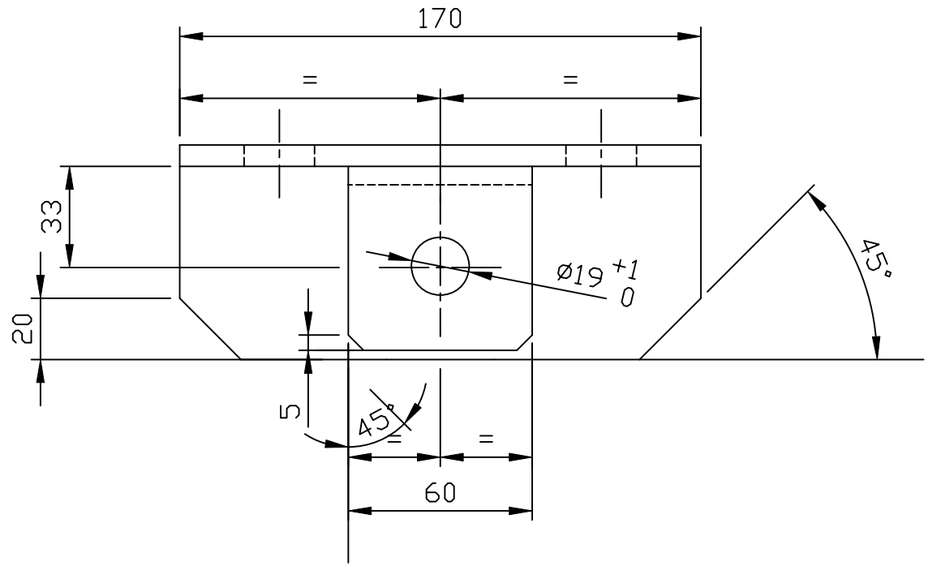


CONTRASUPORT PENTRU ANCORAREA FIBREI OPTICE COUNTERPLATE FOR OPTICAL FIBER ANCHORING	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG113		*1 / 1*	*0*

(297 x 420)







NOTE:

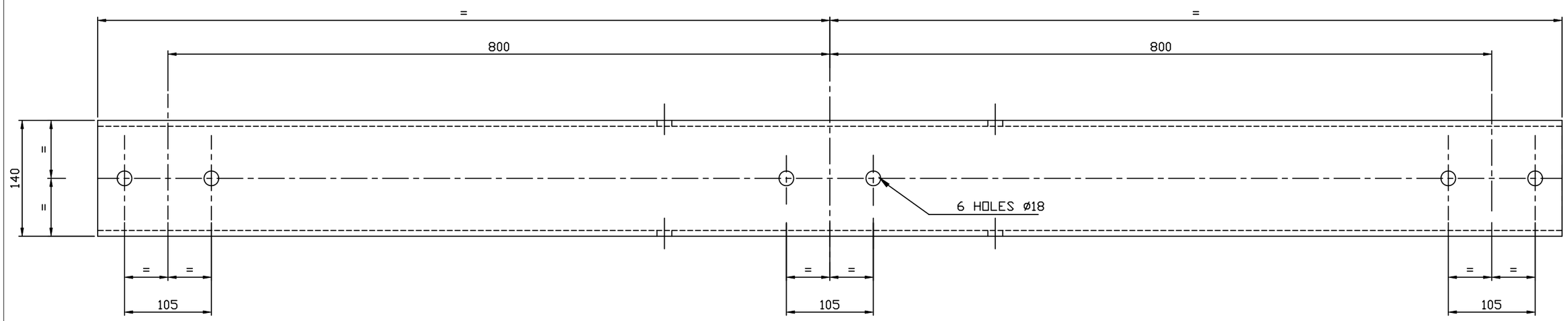
1.CONTINUOUS BEAD WATERPROOF WELDS MINIMUM THICKNESS: 3mm

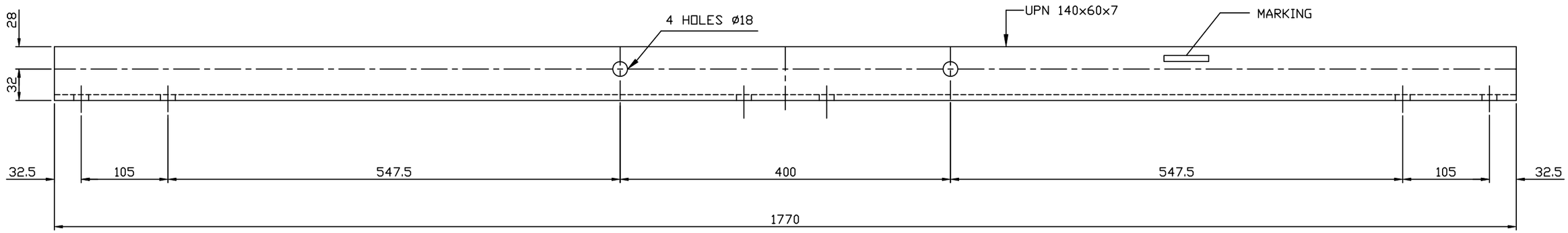
2.After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

01LC00BDG114		HINGE SUPPORT FOR 2 OR 3 TUBES	S235JR	1.57
DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg

SUPORT BALAMA PENTRU 2 SAU 3 CONSOLE HINGE SUPPORT FOR 2 OR 3 TUBES	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG114		*1 / 1*	*0*

(297 x 420)



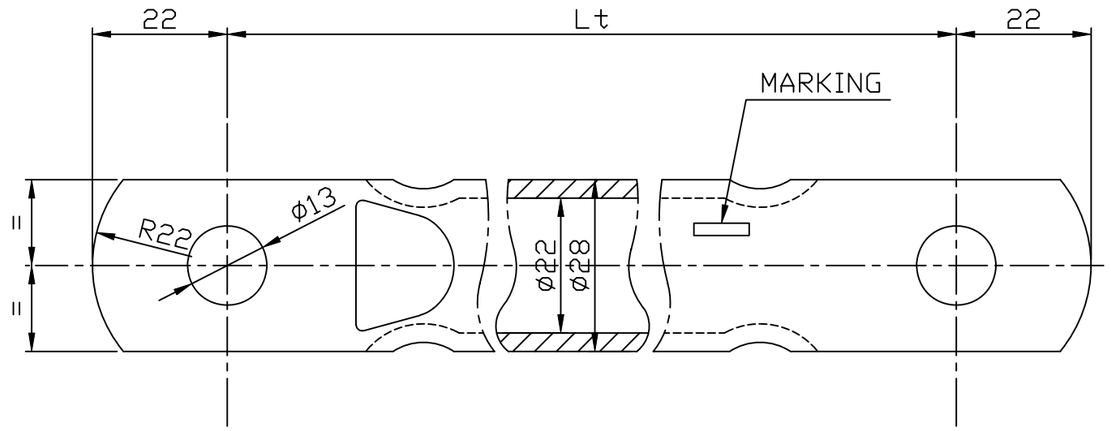


After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

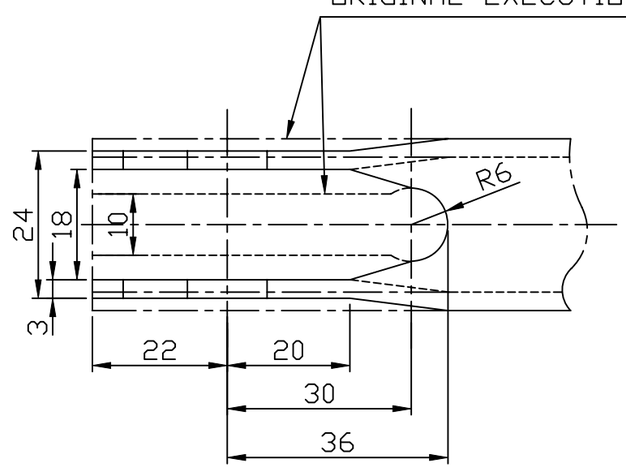
01LC00BDG115	.....	SPREADER (spacing 1.60m)	S235JR	25.6
DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg

TRAVESRA (distanta 1.60m) SPREADER (spacing 1.60m)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG115		*1 / 1*	*0*

(297 x 420)



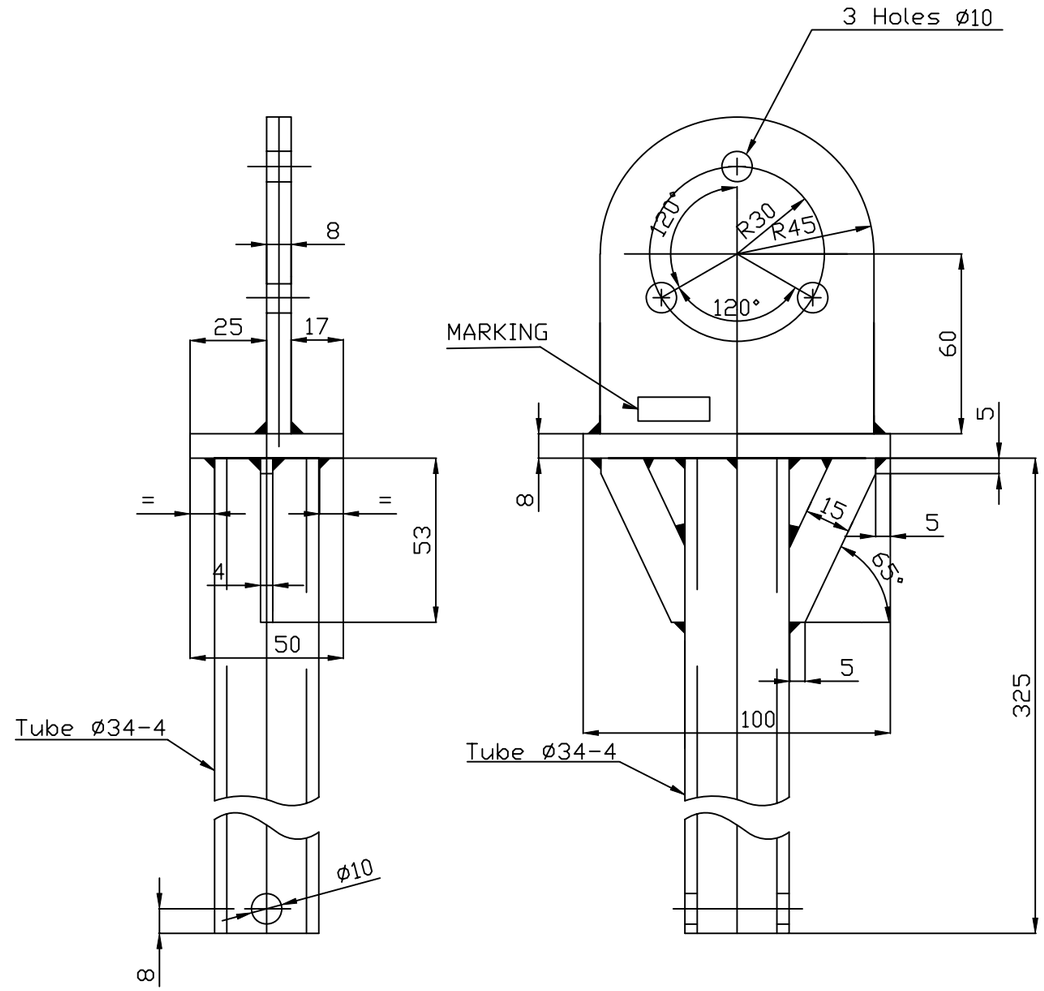
ORIGINAL EXECUTION BEFORE REALISATION



01LC00BDG116	-	TUBE 28-3	03LC00BDG022 REF.63&72	1,85 kg/m
DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg

TEAVA ø28–3 TUBE ø28–3	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG116		*1 / 1*	*0*

(297 x 420)



NOTE:

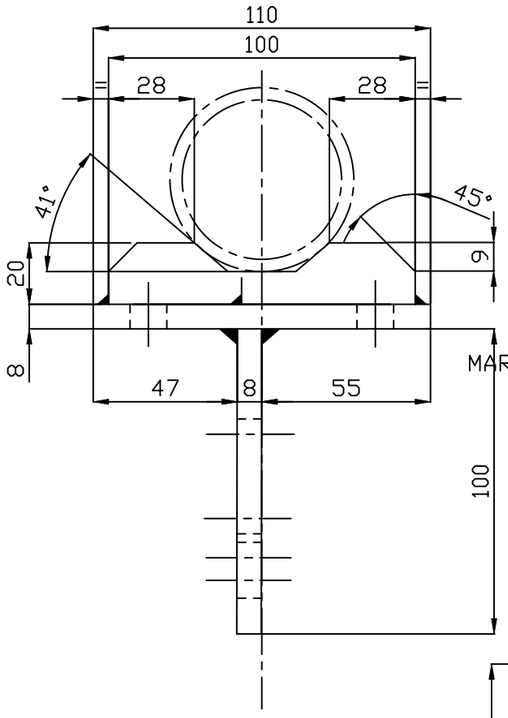
Continuous bead waterproof welds minimum thickness: 3mm and 5mm

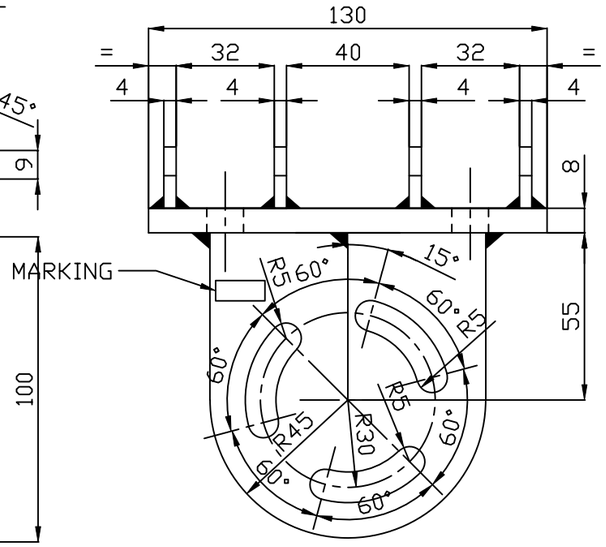
After welding and drilling will be hot galvanized AT/OL/Zn600–STAS 7221–90.

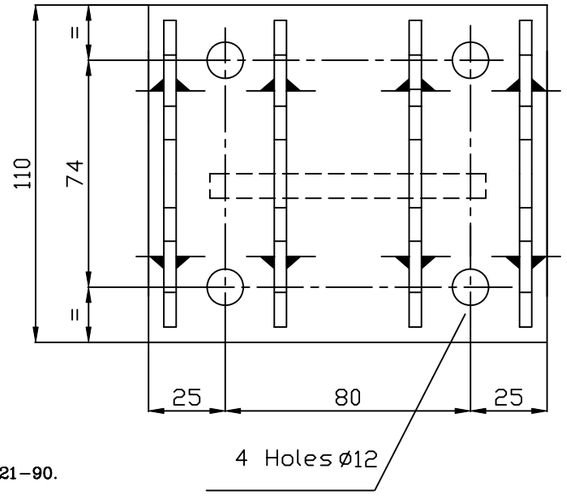
01LC00BDG117		ROTATING STAND OFF BRACKET	S235JR	2.9
DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg

SUPORT ROTATIV ROTATING STAND OFF BRACKET	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG117		*1 / 1*	*0*

(297 x 420)







NOTE:

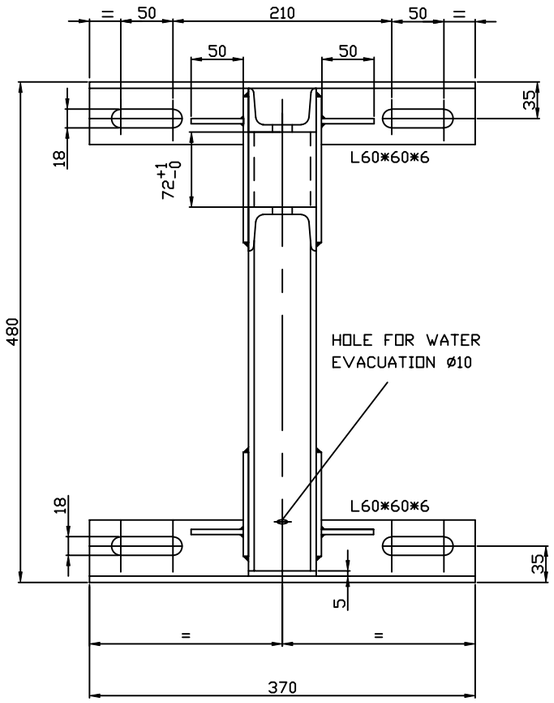
Continuous bead waterproof welds minimum thickness: 3mm and 5mm

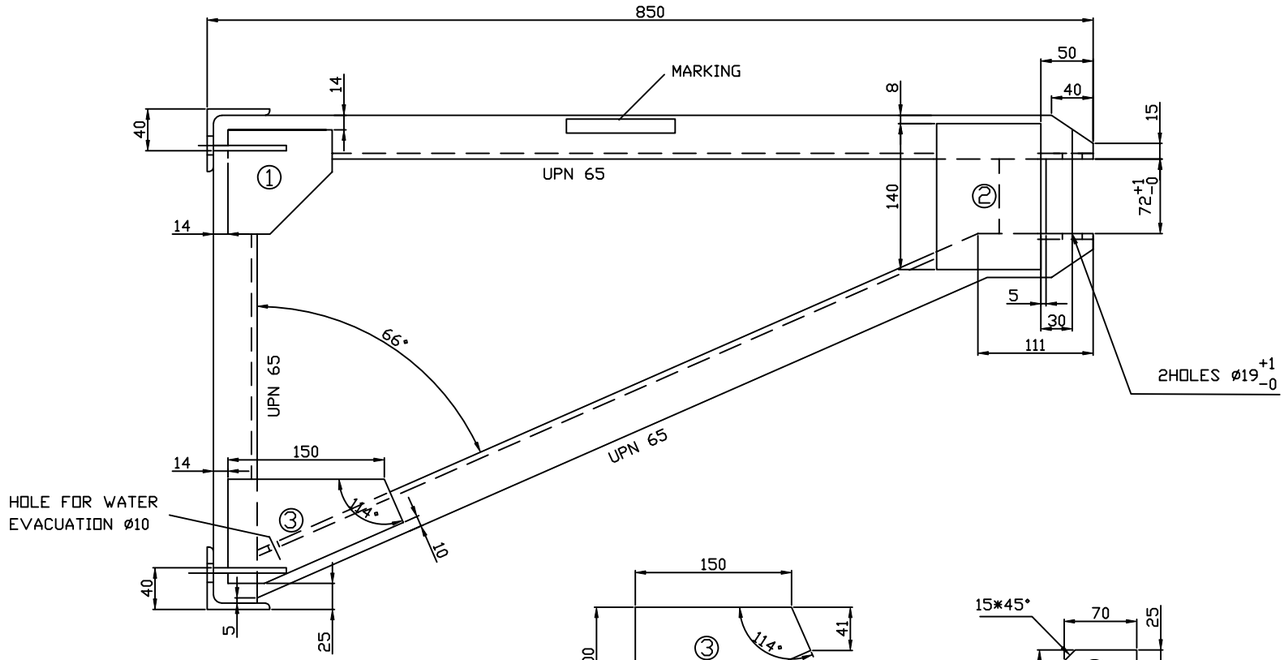
After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

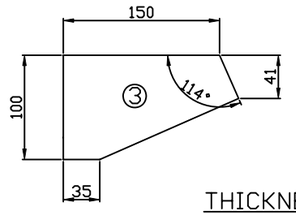
01LC00BDG118		ROTATING HALF FLANGE FOR TUBE ø60-4	S235JR	1.75
DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg

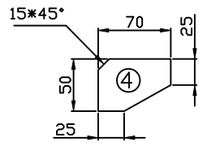
FLANSA ROTATIVA PENTRU TEAVA ø60-4 ROTATING HALF FLANGE FOR TUBE ø60-4	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG118		*1 / 1*	*0*

(297 x 420)



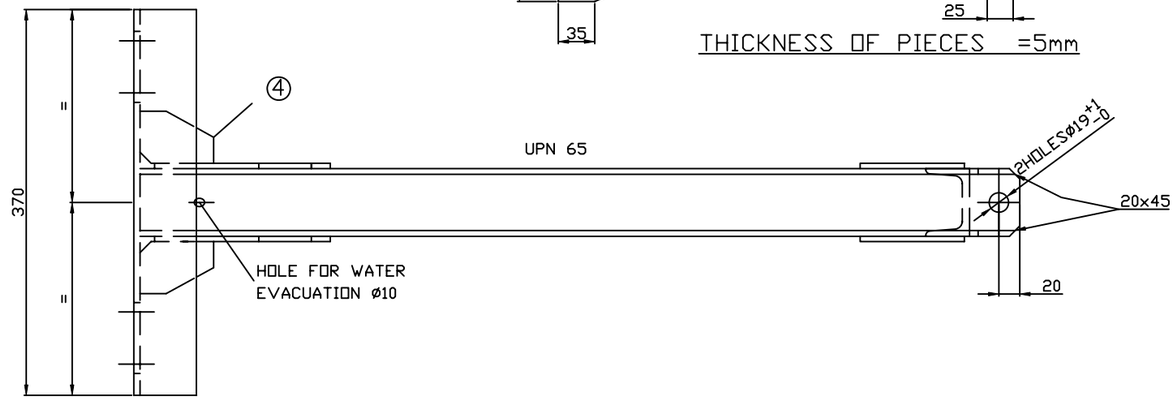






THICKNESS OF PIECES =5mm

THICKNESS OF PIECES =5mm



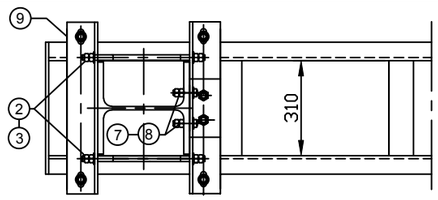
NOTE:

1.CONTINIOUS BEAD WATERPROOF WELDS MINIMUM THICKNESS: 3.5mm
2.After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

01LC00BDG120	***	FASTENING FOR TOP AND STRUT TUBE WITH OFFSET>3.10m	S235JR	25.2
DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg

FIXARE L=900 PENTRU TIRANT SI CONTRAFISA FASTENING FOR TOP AND STRUT TUBE L=900	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG120		1 / 1	0

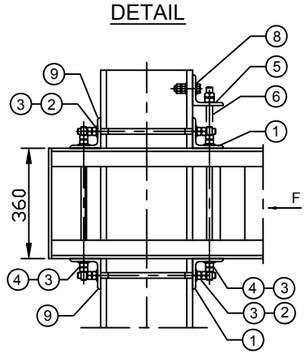
(297 x 420)



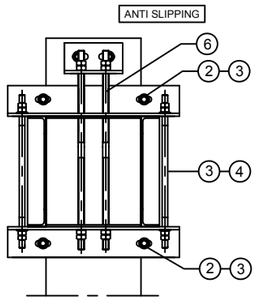
NOTE
For the exacte position of antislipping
(side track or opposite of side track)
see mounting diagram

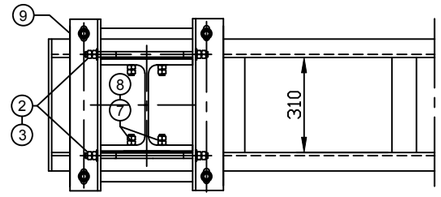
101

DETAIL



VIEW F

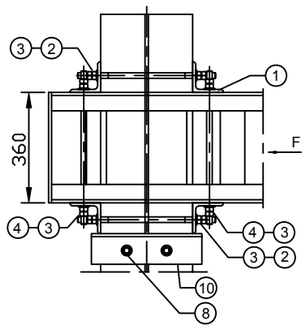




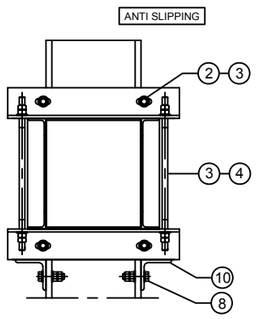
NOTE
For the exacte position of antislipping
(side track or opposite of side track)
see mounting diagram

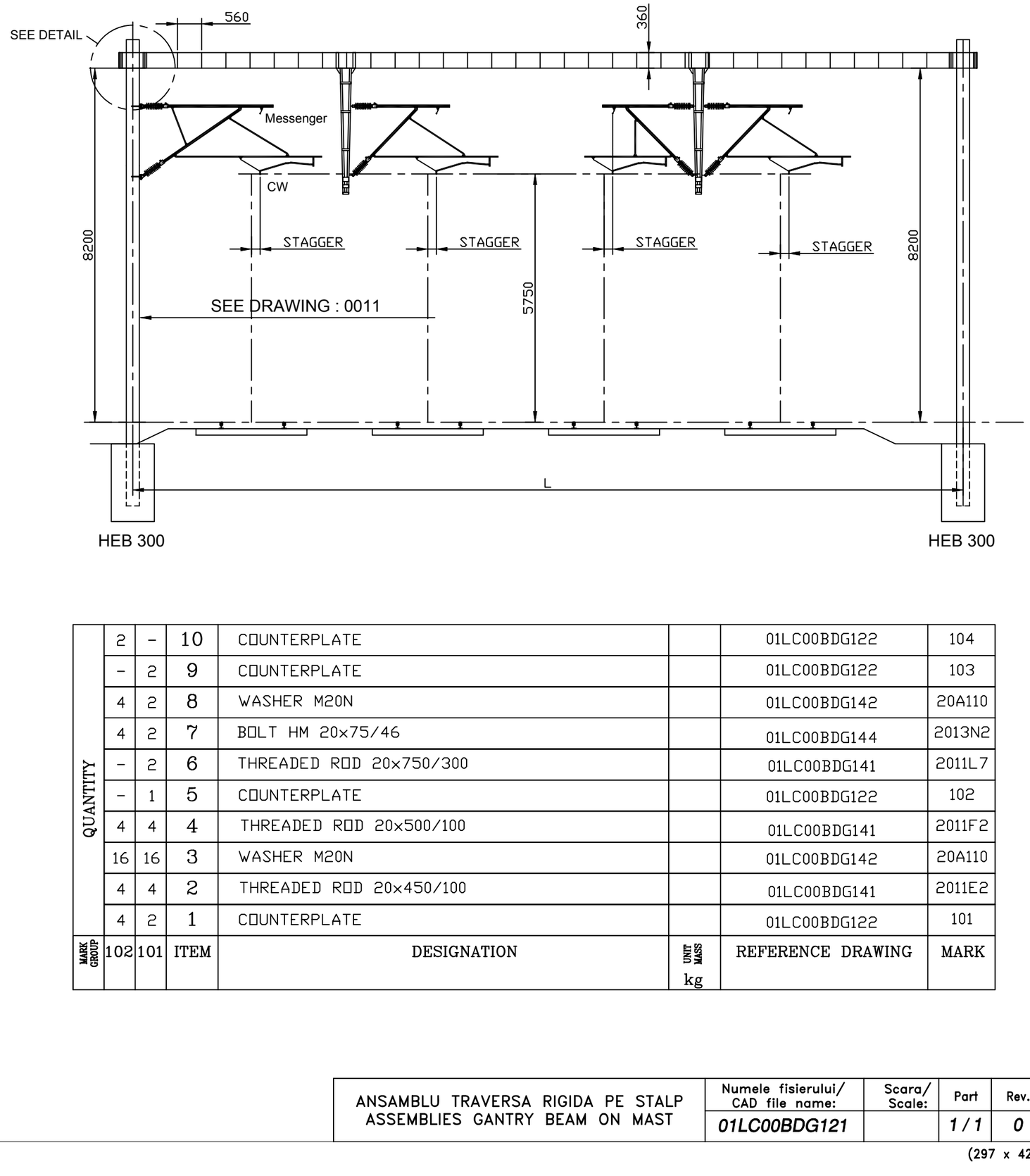
102

DETAIL



VIEW F



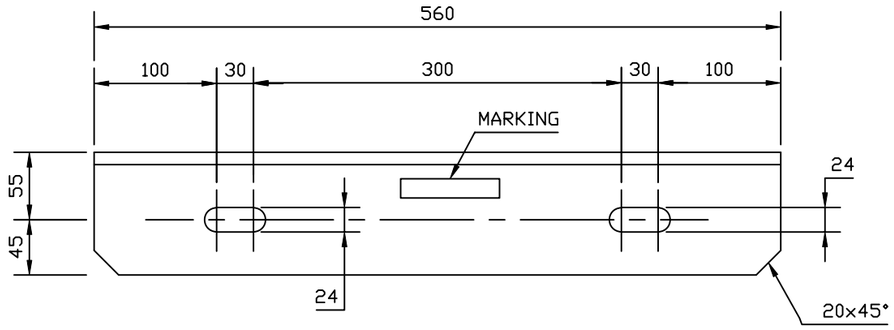


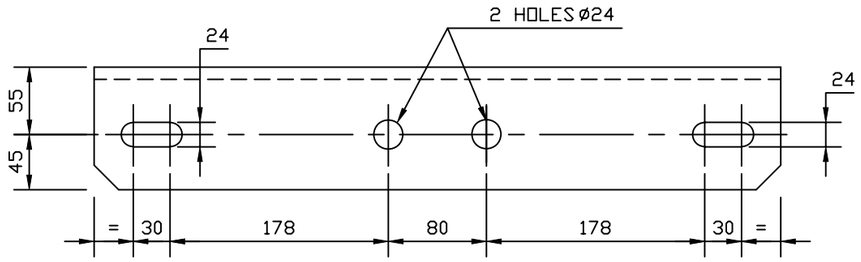
QUANTITY			MARK	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
2	-	10		COUNTERPLATE		01LC00BDG122	104
-	2	9		COUNTERPLATE		01LC00BDG122	103
4	2	8		WASHER M20N		01LC00BDG142	20A110
4	2	7		BOLT HM 20x75/46		01LC00BDG144	2013N2
-	2	6		THREADED ROD 20x750/300		01LC00BDG141	2011L7
-	1	5		COUNTERPLATE		01LC00BDG122	102
4	4	4		THREADED ROD 20x500/100		01LC00BDG141	2011F2
16	16	3		WASHER M20N		01LC00BDG142	20A110
4	4	2		THREADED ROD 20x450/100		01LC00BDG141	2011E2
4	2	1		COUNTERPLATE		01LC00BDG122	101
MARK GROUP	102	101	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK

ANSAMBLU TRAVERSA RIGIDA PE STALP ASSEMBLIES GANTRY BEAM ON MAST	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG121		*1 / 1*	*0*

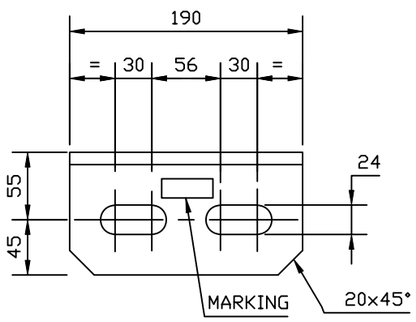
(297 x 420)

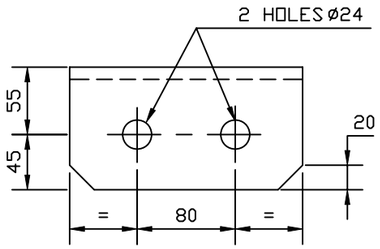
101



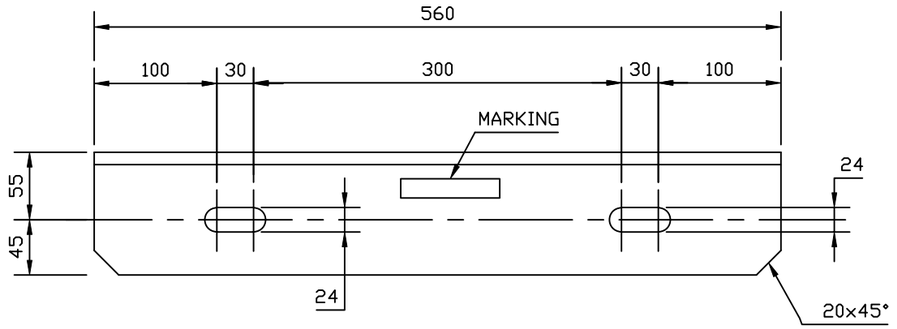


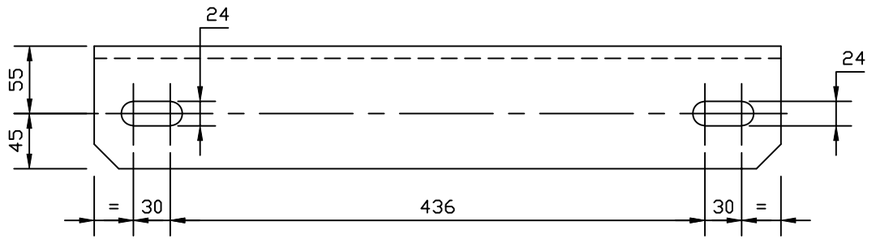
102



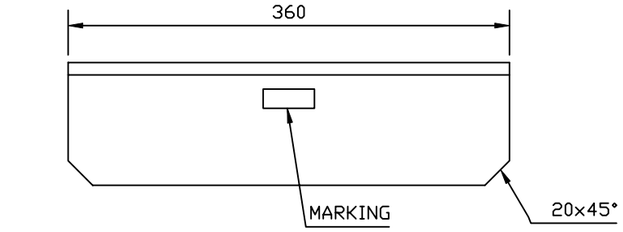


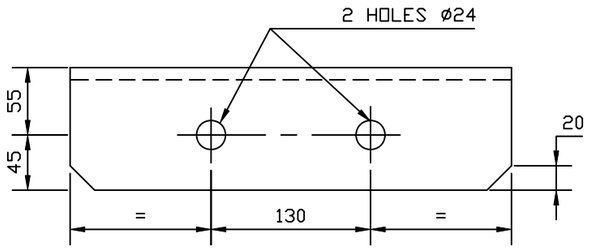
103





104



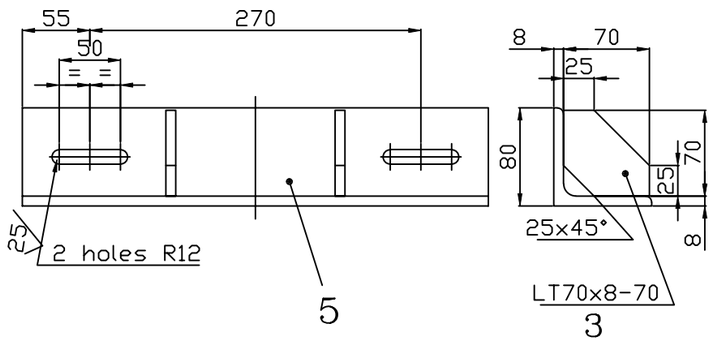


DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg
01LC00BDG122	104	COUNTERPLATE (L 100*100*10)	S235JR	5.40
01LC00BDG122	103	COUNTERPLATE (L 100*100*10)	S235JR	8.40
01LC00BDG122	102	COUNTERPLATE (L 100*100*10)	S235JR	2.43
01LC00BDG122	101	COUNTERPLATE (L 100*100*10)	S235JR	8.40

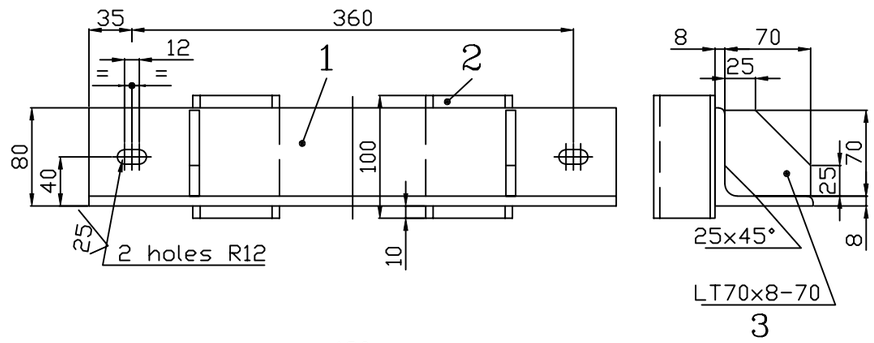
CONTRASUPORT PENTRU TRAVERSA RIGIDA COUNTERPLATE FOR GANTRY BEAM	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG122		*1 / 1*	*0*

(297 x 420)

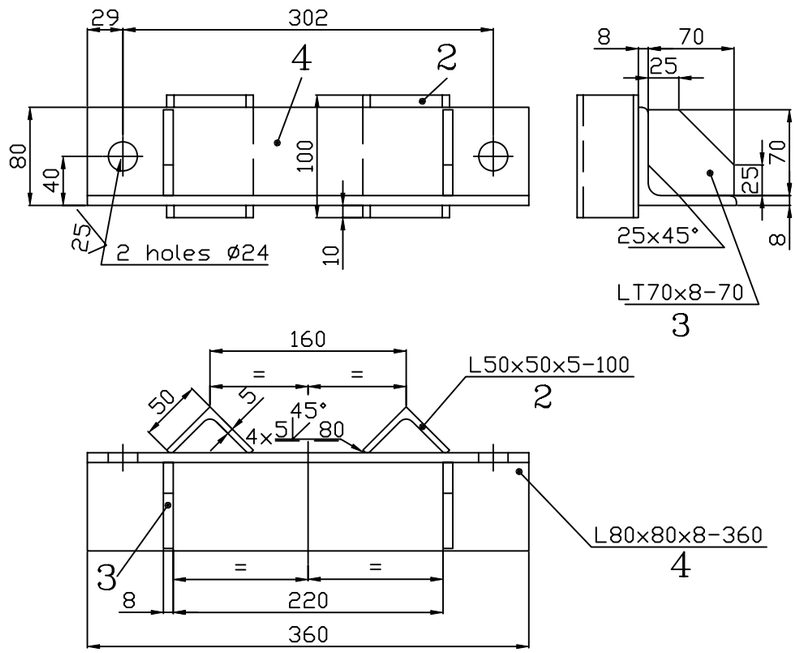
101



102



103



QUANTITY				ITEM	DESIGNATION	UNIT MASS kg	MATERIAL TECHNICAL SPECIFICATION
1			5		CADRE		S275JR
	1		4		CADRE		S275JR
2	2	2	3		RIB		S235JR
2	2		2		SPACER		S235JR
		1	1		CADRE		S275JR
MARK GROUP 103 SMT 273	MARK GROUP 102 SECP6	MARK GROUP 101 MU 10-5/8,2, HEB					

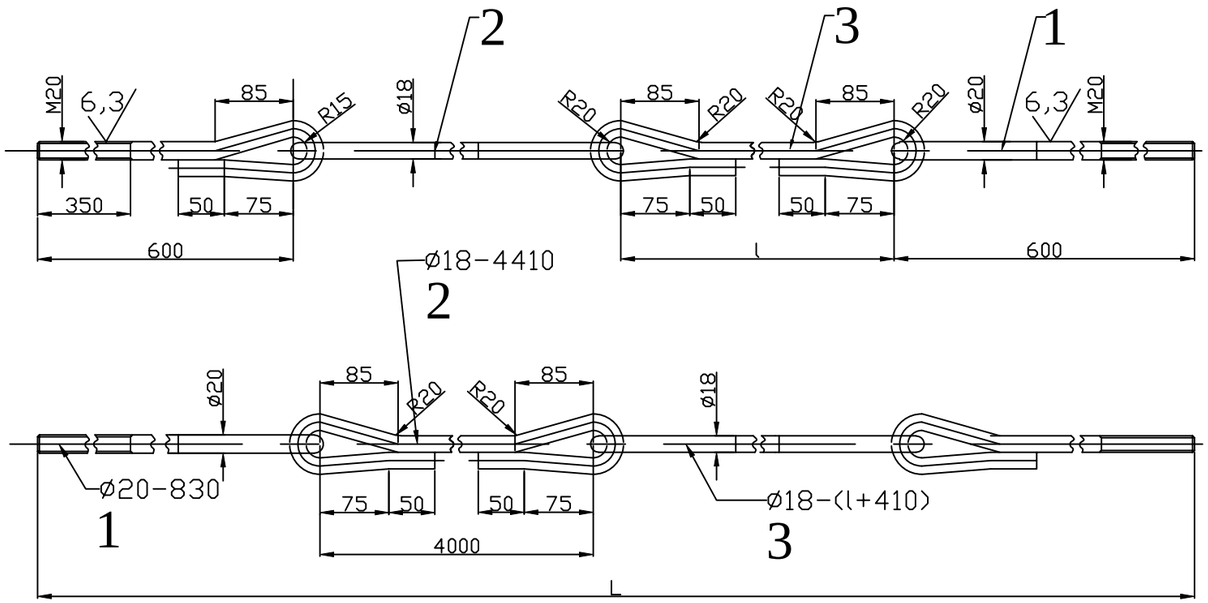
NOTE:

1.The weldings will be made continuous, tight for hot galvanize.

2.After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

CONTRASUPORT COUNTERPLATE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG129		*1 / 1*	*0*

(297 x 420)



NOTE:

1.Will be hot galvanized AT/OL/Zn600, exept the threads AT/OL/Zn310 -STAS 7221-90, witch will be run in.

2. After the hot galvanize, the parts without zinc will be retouch with paint with min 95% zinc, in two layers.

3. For standard situation, when the distance between NS and ground is 900mm, will be use marks I6 and I16 with cassette 05 LC 00BDG-156 mounted in the middle of regulation plate ELC 49-17. In particular situation, when the distance is different then 900mm or the anchors are installed at different distances than in the mounting diagrams, will be measure the necessary lenght.

4. ×At variants I19 and I110, item 3 disappeare and item 2 will have a length of 4200mm for the first case and 3800mm for the other.

101 LEVEL ANCHOR

Mark	L	l
101	10800	5500
102	10500	5200
103	10200	4900
104	9900	4600
105	9600	4300
106	9300	4000
107	9000	3700
108	8700	3400
109	8400	3100
110	8100	3800

102 SPECIAL AMCHOR

Mark	L	l
201	7800	2500
202	7500	2200
203	7200	1900
204	6900	1600
205	6600	1300
206	6300	1000
207	6000	700
208	5700	400
209	5400	*
210	5100	*

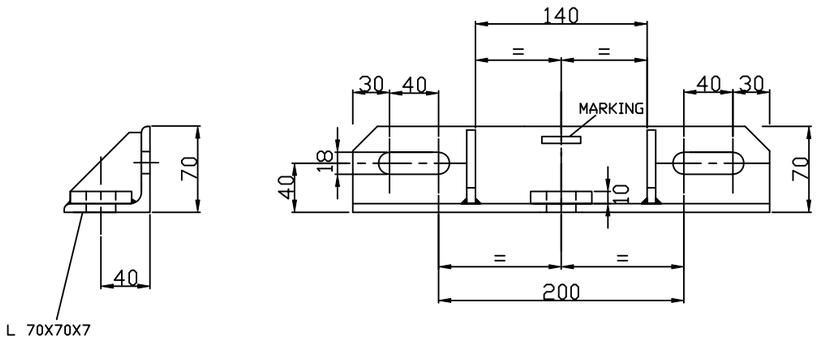
ITEM	DESIGNATION	UNIT	MATERIAL TECHNICAL SPECIFICATION
3	INTERMEDIARY ROD II	1	S235JR
2	INTERMEDIARY ROD I	1	S235JR
1	THREADED ROD	2	S235JR

TENSOR ANCORARE ANCHOR TIE ROD	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG130		1 / 1	0

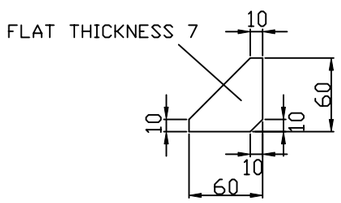
(297 x 420)

FROM HEA or HEB 200 TO 240

MARK 101

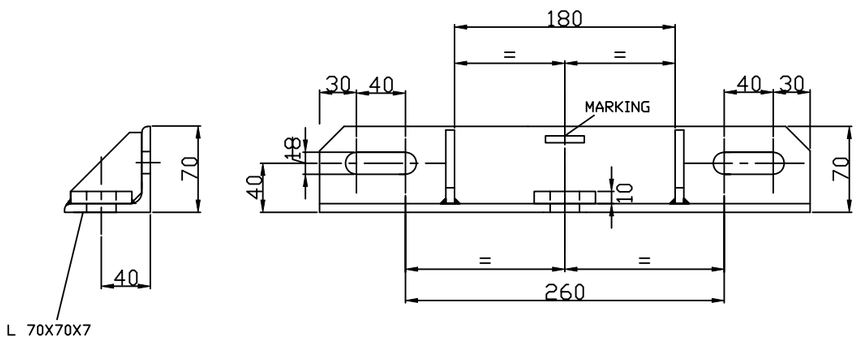


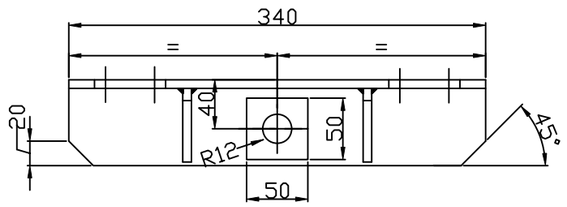
GUSSET

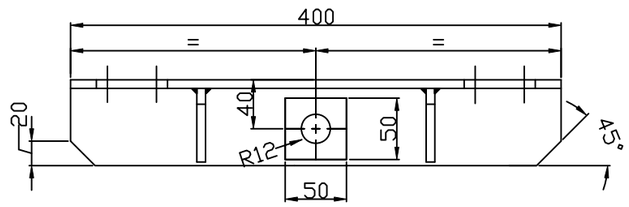


FROM HEA or HEB 260 TO 320

MARK 102







DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg
01LC00BDG131	102	ANGLE FOR EARTHING ANCHORING	S235JR	3.1
01LC00BDG131	101	ANGLE FOR EARTHING ANCHORING	S235JR	2.8

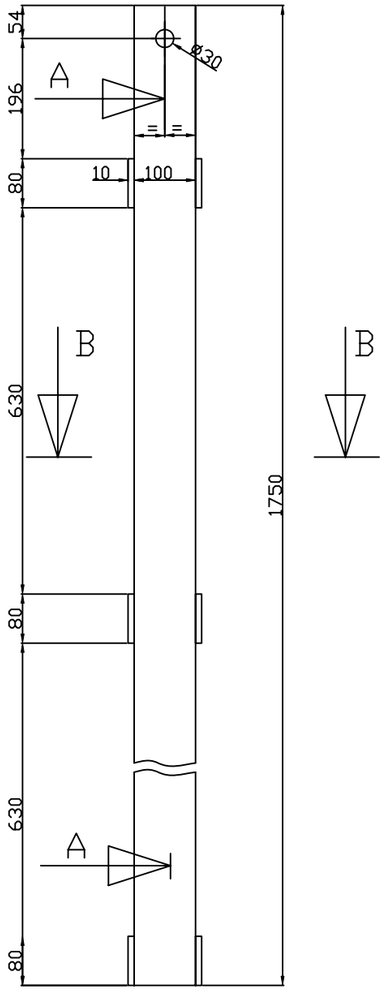
NOTE:

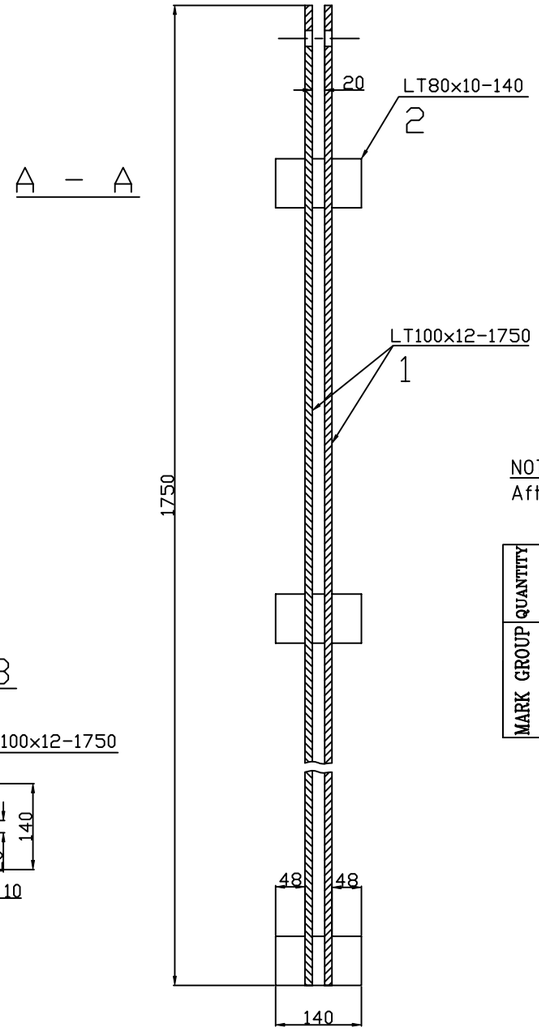
1.CONTINUOUS BEAD WATERPROOF WELDS MINIMUM THICKNESS: 3mm

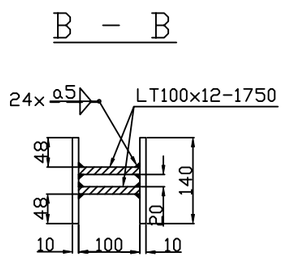
2.After welding and drilling will be hot galvanised AT/OL/Zn 600 – STAS 7221–90

CONTRASUPORT PENTRU CABLUL COLECTOR ANGLE FOR EARTHING ANCHORING	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG131		*1 / 1*	*0*

(297 x 420)







NOTE:
After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

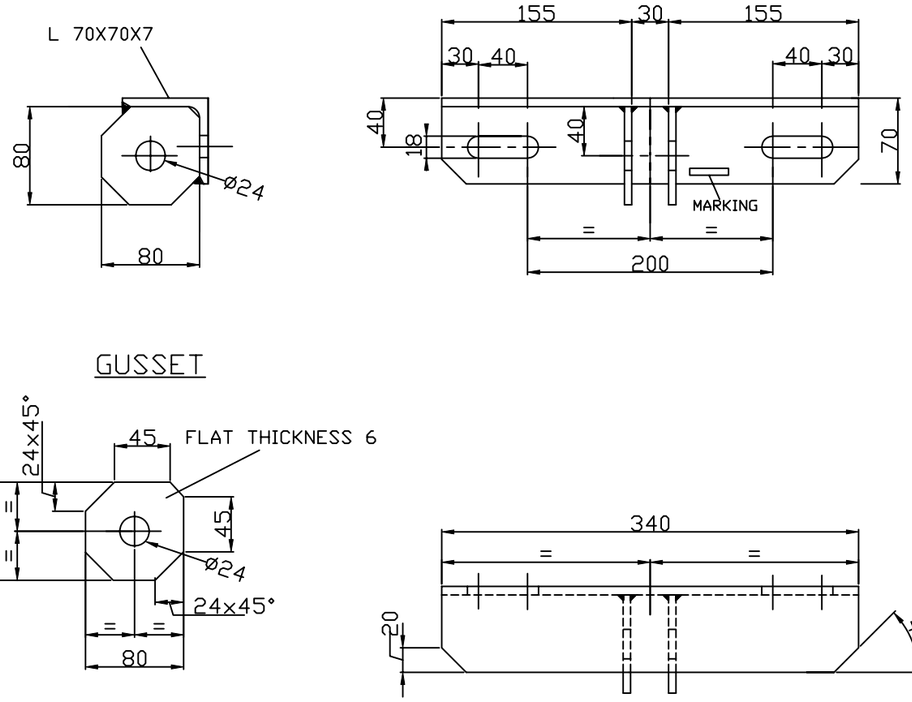
MARK GROUP	QUANTITY	ITEM	DESIGNATION	UNIT MASS kg	MATERIAL TECHNICAL SPECIFICATION
	6	2	PLATE		S235JR
	2	1	LONGERON		S235JR

TRAVERSA PENTRU ANCORA LA NIVEL LEVEL ANCHOR BEAM	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG132		*1 / 1*	*0*

(297 x 420)

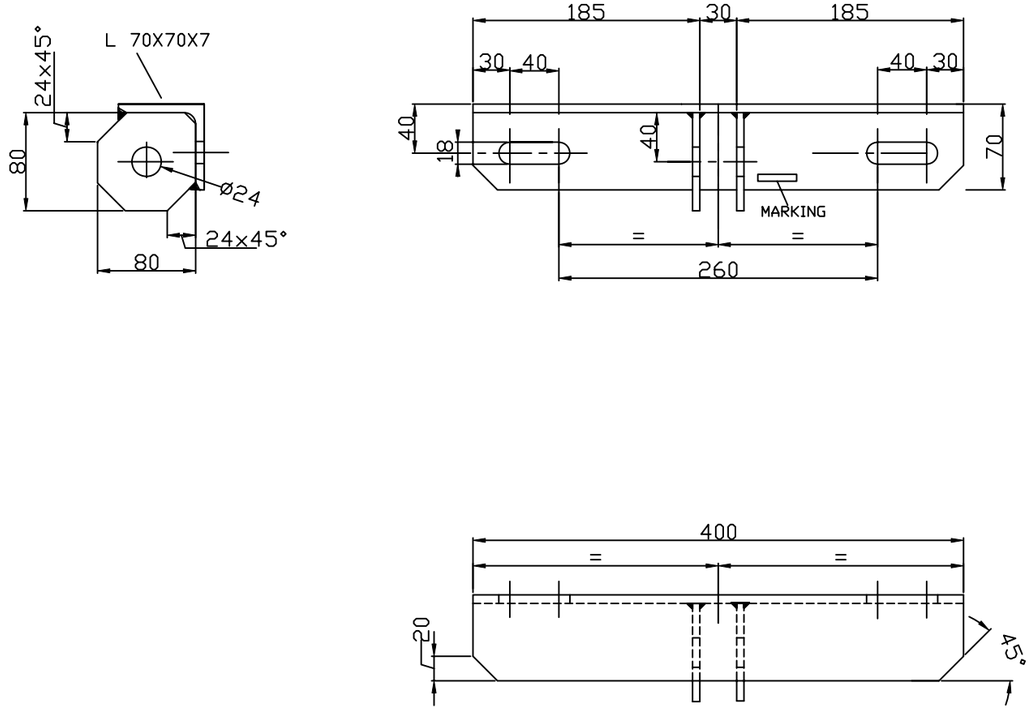
FROM HEA or HEB 200 TO 240

MARK 101



FROM HEA or HEB 260 TO 320

MARK 102



NOTE:

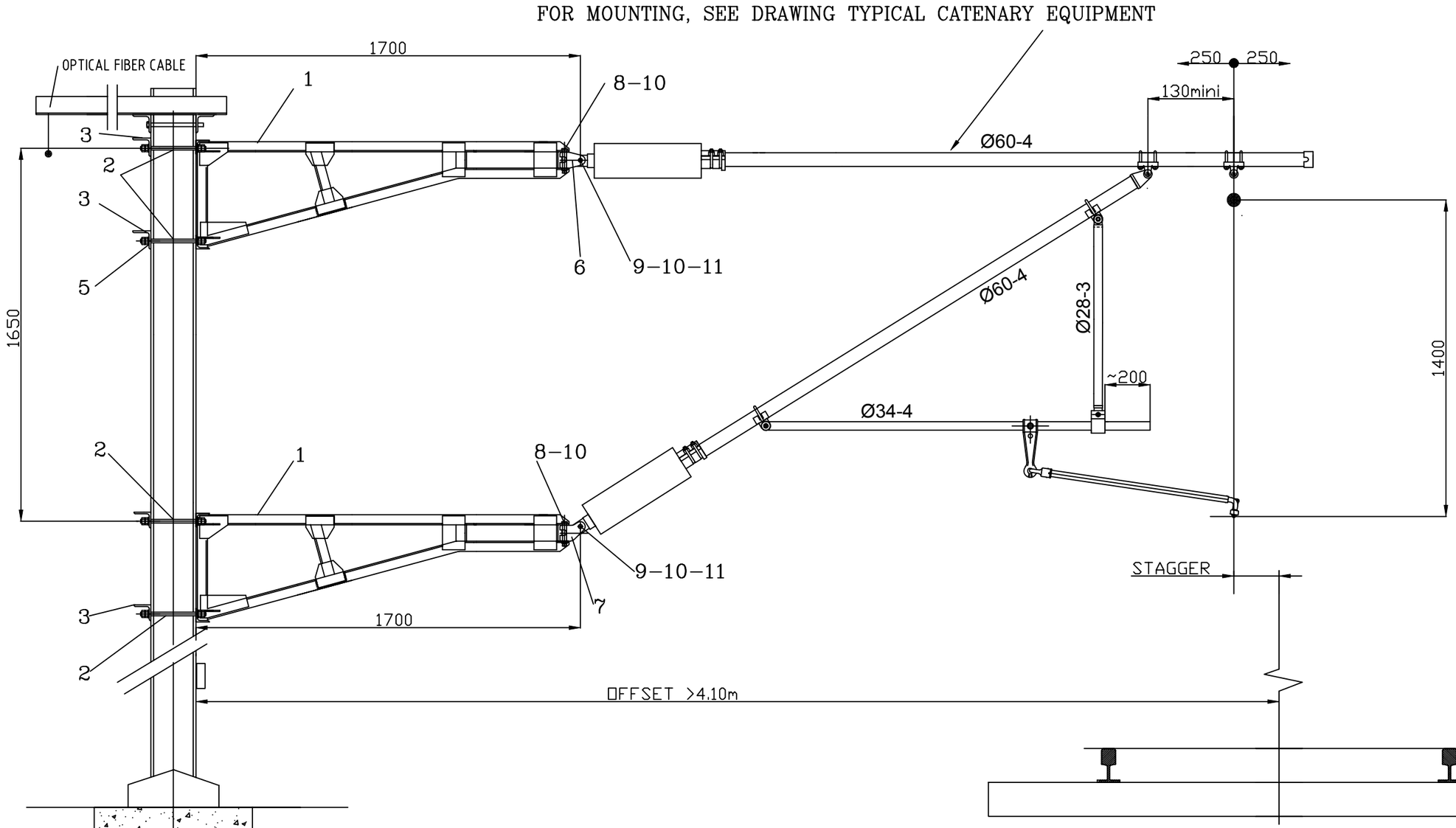
1.CONTINUOUS BEAD WATERPROOF WELDS MINIMUM THICKNESS: 3mm

2.After welding and drilling will be hot galvanised AT/OL/Zn600–STAS 7221–90

DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg
01LC00BDG133	102	COUNTERPLATE FOR EARTHING ANCHORING	S235JR	3.2
01LC00BDG133	101	COUNTERPLATE FOR EARTHING ANCHORING	S235JR	2.8

CONTRASUPORT PENTRU CABLU CULECTOR COUNTERPLATE FOR EARTHING ANCHORING	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG133		*1 / 1*	*0*

(297 x 420)

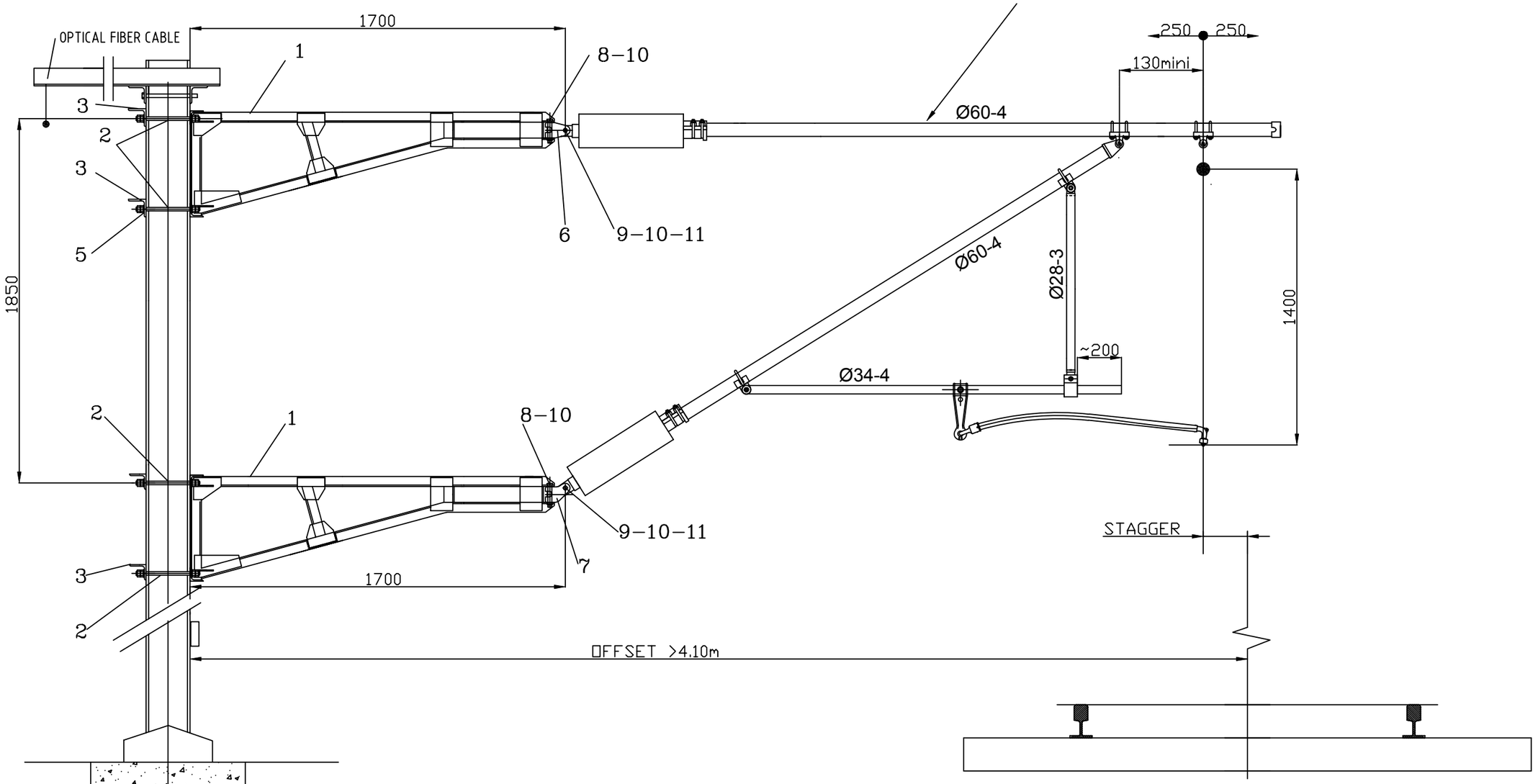


MARK	QUANTITY	ITEM	DESIGNATION	REFERENCE DRAWING	
	101				
	2	11	WASHER M18	01LC00BDG142	18A110
	4	10	PIN 4.5-40	01LC00BDG145	45A040
	2	9	AXIS. 18-50	01LC00BDG146	181050
	2	8	AXIS. 18-110	01LC00BDG146	181110
	1	7	HINGE STRUT TUBE	ELC 13-9.11 A rev c	
	1	6	HINGE TOP TUBE	ELC 13-9.10 A rev c	
	16	5	WASHER M16	01LC00BDG142	16A110
	4	3	COUNTERPLATE	01LC00BDG090	101
	8	2	TRHEADED ROD M16 400/100	01LC00BDG141	1611D2
	2	1	FASTENING FOR TOP AND STRUT TUBE L=1700	ELC 22-4.0C	

FIXARE TIRANT SI CONTRAFISA PENTRU GABRIT>4.10M FASTENING FOR TOP TUBE AND STRUT TUBE WITH OFFSET>4.10M	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG134		1 / 2	0

(297 x 420)

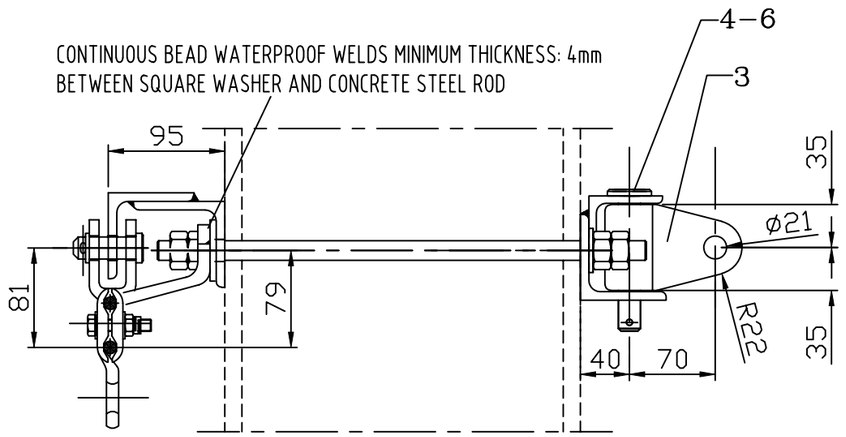
FOR MOUNTING, SEE DRAWING TYPICAL CATENARY EQUIPMENT

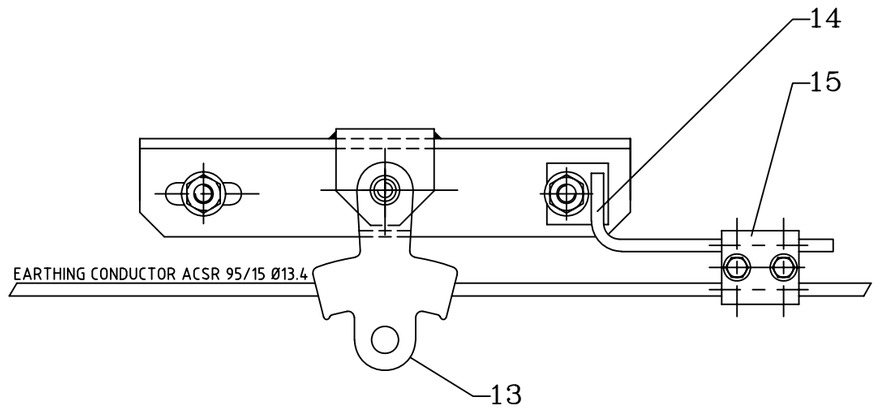


QUANTITY					
	2	11	WASHER M18	01LC00BDG142	18A110
	4	10	PIN 4.5-40	01LC00BDG145	45A040
	2	9	AXIS. 18-50	01LC00BDG146	181050
	2	8	AXIS. 18-110	01LC00BDG146	181110
	1	7	HINGE STRUT TUBE	ELC 13-9.11 A rev c	
	1	6	HINGE TOP TUBE	ELC 13-9.10 A rev c	
	16	5	WASHER M16	01LC00BDG142	16A110
	4	3	COUNTERPLATE	01LC00BDG090	101
	8	2	TRHEADED ROD M16 400/100	01LC00BDG141	1611D2
	2	1	FASTENING FOR TOP AND STRUT TUBE L=1700	ELC 22-4.0C	
MARK	101	ITEM	DESIGNATION	REFERENCE DRAWING	

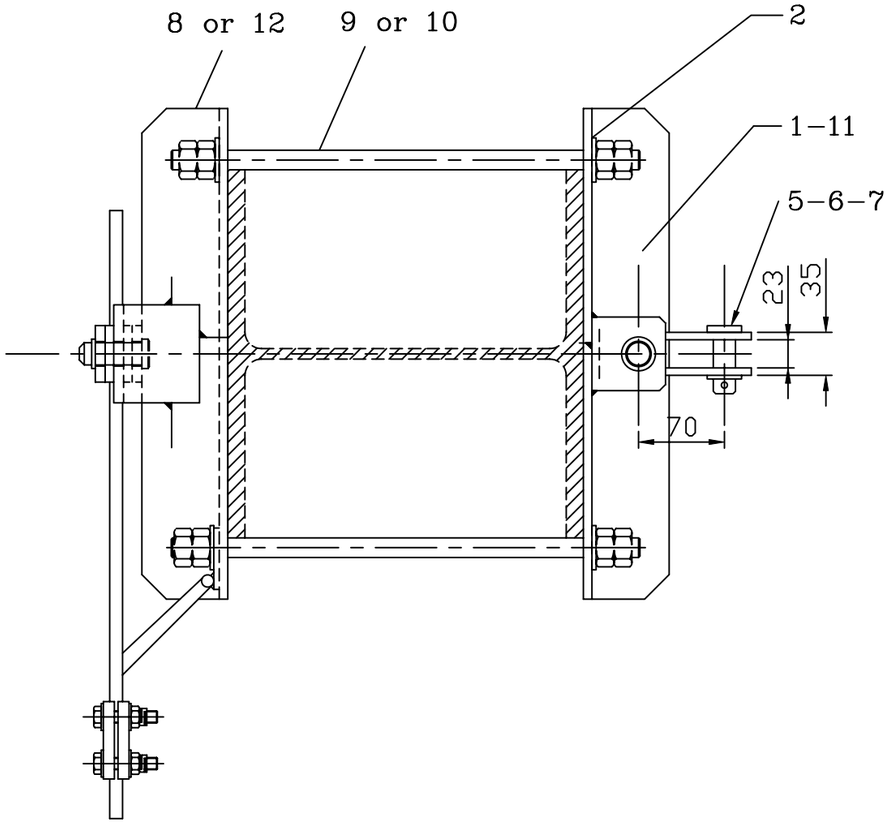
FIXARE TIRANT SI CONTRAFISA PENTRU GABRIT>4.10M FASTENING FOR TOP TUBE AND STRUT TUBE WITH OFFSET>4.10M	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG134		2 / 2	0

(297 x 420)





MARK	DESIGNATION
101	FROM HE 200 TO 240
102	FROM HE 260 TO 320

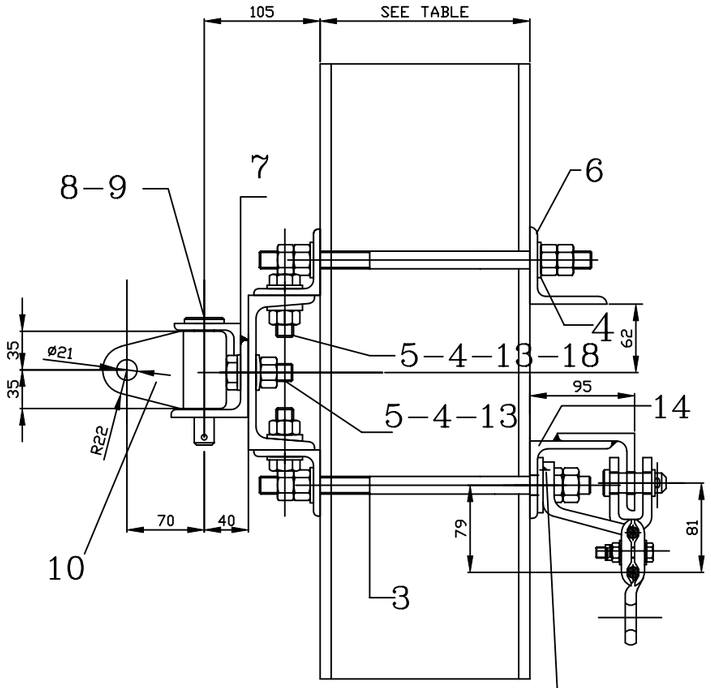


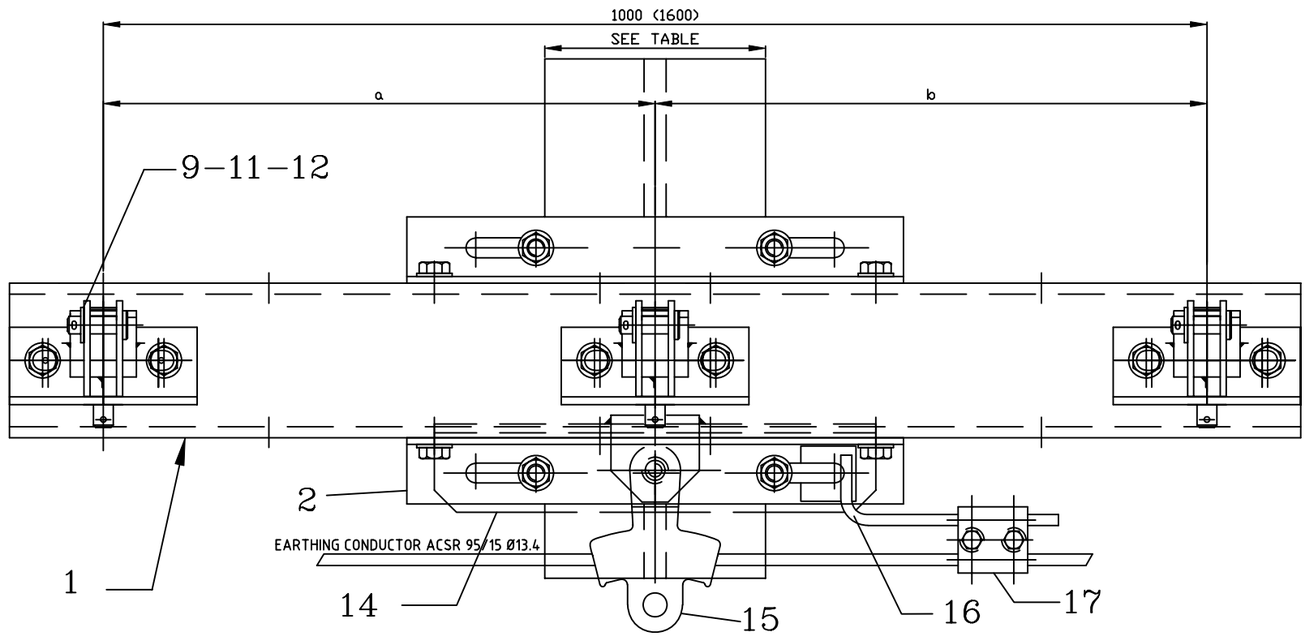
MARK.GROUP 102	MARK.GROUP 101	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
1	1	15	CLAMP	0.59	ELC 2-4.0	
1	1	14	EARTHING CONNECTION	0.25	01LC00BDG260	101
1	1	13	EARTHING CONDUCTOR SUSPESION TYPE I	1.30	ELC 13-1.4.0	
1		12	COUNTERPLATE WITH EARTHING CONDUCTOR		01LC00BDG102	102
1		11	HINGE SUPPORT		01LC00BDG088	102
	2	10	THREADED ROD M16- 350/100		01LC00BDG141	1611C2
2		9	THREADED ROD M16- 450/100		01LC00BDG141	1611E2
	1	8	COUNTERPLATE WITH EARTHING CONDUCTOR		01LC00BDG102	101
1	1	7	AXIS 20-50		01LC00BDG146	201050
2	2	6	PIN. 4,5*40		01LC00BDG145	45A040
1	1	5	WASHER M20		01LC00BDG142	20A110
1	1	4	AXIS . 18*110		01LC00BDG146	181110
1	1	3	HINGE TOP TUBE	0.78	E.L.C 13-9.10 A rev.c	...
4	4	2	WASHER M16N		01LC00BDG142	161110
	1	1	HINGE SUPPORT		01LC00BDG088	101

QUANTITY

CRAPODINA PENTRU TIRANT CU SUTINEREA CABLULUI COLECTOR FASTENING FOR TOP TUBE WITH EARTHING CONDUCTOR	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG135		*1 / 1*	*0*

(297 x 420)





CONTINUOUS BEAD WATERPROOF WELDS MINIMUM THICKNESS: 4mm
BETWEEN SQUARE WASHER AND CONCRETE STEEL ROD

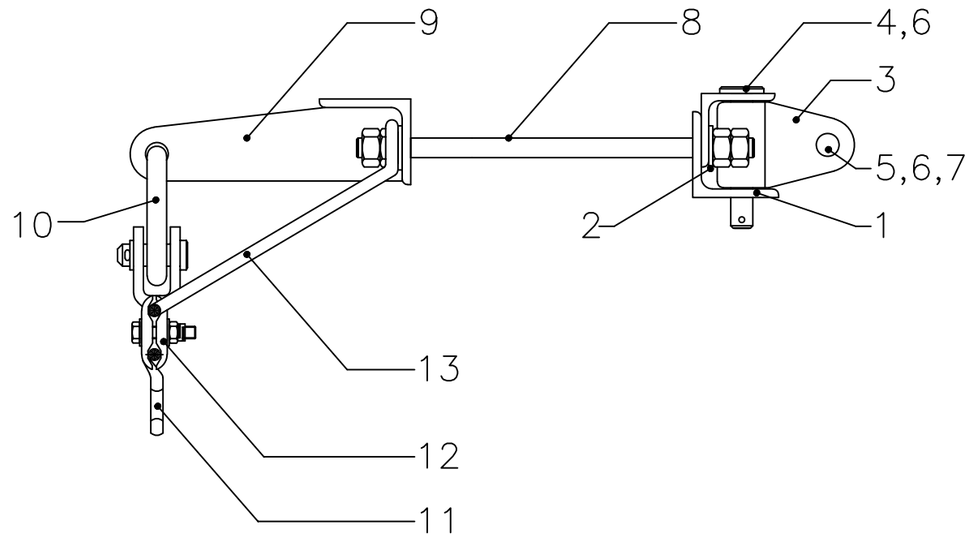
Note
For cotes a and b see the mounting diagrams.

ON H BEAM	ASSEMBLY ALLOCATION			
	2 TOP TUBES SPACING 1.00 m	3 TOP TUBES SPACING 0.50 m	2 TOP TUBES SPACING 1.60 m	3 TOP TUBES SPACING 0.80 m
HE 200 TO 240	101	201	111	211

QUANTITY					ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
211	201	111	101						
4	4	4	4	18	WASHER TYPE U		01LC00BDG142	16A710
1	1	1	1	17	CLAMP	0.59	ELC 2-4.0	
1	1	1	1	16	EARTHING CONNECTION	0.25	01LC00BDG260	101
1	1	1	1	15	EARTHING CONDUCTOR SUSPESION TYPE I	1.30	ELC 13-1.4.0	
1	1	1	1	14	COUNTERPLATE WITH EARTHING CONDUCTOR		01LC00BDG102	101
10	10	8	8	13	WASHER . CS-16-32-2.8		01LC00BDG142	16A310
3	3	2	2	12	AXIS 20-50		01LC00BDG146	201050
3	3	2	2	11	WASHER M20		01LC00BDG142	20A110
3	3	2	2	10	HINGE TOP TUBE		E.L.C 13-9.10A REV C	
6	6	4	4	9	PIN 4.5*40		01LC00BDG145	45A040
3	3	2	2	8	AXIS 18-110		01LC00BDG146	181110
3	3	2	2	7	HINGE SUPPORT		01LC00BDG114	
1	1	1	1	6	COUNTERPLATE		01LC00BDG090	101
10	10	8	8	5	BOLT HM 16-50/50		01LC00BDG144	1612H1
18	18	16	16	4	WASHER M16N		01LC00BDG142	16A110
4	4	4	4	3	THREADED ROD M16 -350/100		01LC00BDG141	1611C2
2	2	2	2	2	COUNTERPLATE FOR SPREADER		01LC00BDG094	
1		1		1	SPREADER (1.60m)		01LC00BDG115	
	1		1		SPREADER (1.00m)		01LC00BDG089	

TRAVERSA PENTTRU 2 SAU 3 TIRANTI CU SUTINEREA CABLULUI COLECTOR SPREADER ASSEMBLY FOR 2 OR 3 TOP TUBES WITH EARTHING CONDUCTOR	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG136		1 / 1	0

(297 x 420)

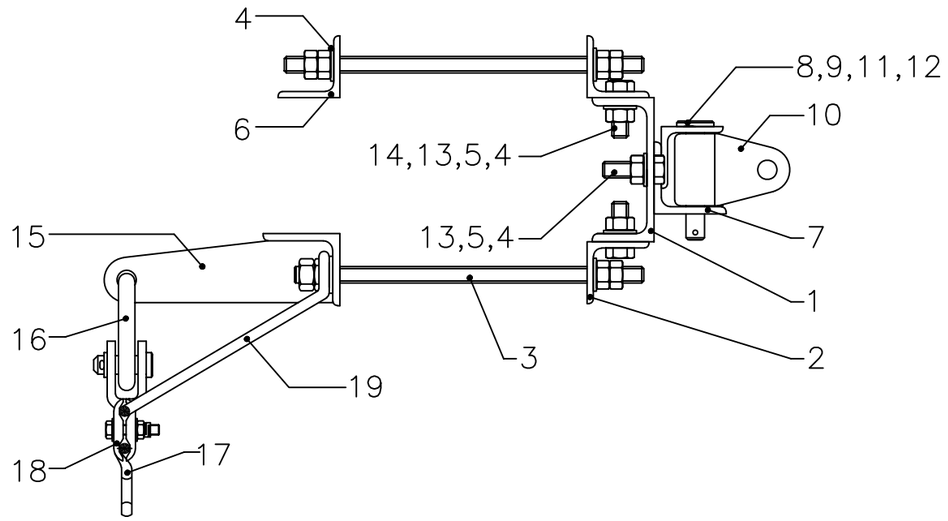


ITEM	DESIGNATION	QUANTITY	REFERENCE DRAWING	MARK
13	EARTHING CONNECTION L=400	1	01LC00BDG260	101
12	CLAMP	1	ELC 2-4.0	
11	EARTHING CONDUCTOR SUSPENSION TYPE I	1	ELC 13-1.4.0	
10	RING	1	ELC 13-1.3.2.0	
9	SPECIAL COUNTERPLATE	1	01LC00BDG261	
8	THREADED ROD M16- 350/100	2	01LC00BDG141	1611C2
7	AXIS 20-50	1	01LC00BDG146	201050
6	PIN. 4,5*40	2	01LC00BDG145	45A040
5	WASHER M20	1	01LC00BDG142	20A110
4	AXIS . 18*110	1	01LC00BDG146	181110
3	HINGE TOP TUBE	1	ELC 13-9.10 A rev. C	
2	WASHER M16N	4	01LC00BDG142	16A110
1	HINGE SUPPORT	1	01LC00BDG088	101

CRAPODINA PENTRU TIRANT CU FIXAREA CABLULUI COLECTOR FASTENING FOR TOP TUBE WITH EARTHING CONDUCTOR	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG137		*1 / 1*	*0*

(297 x 420)

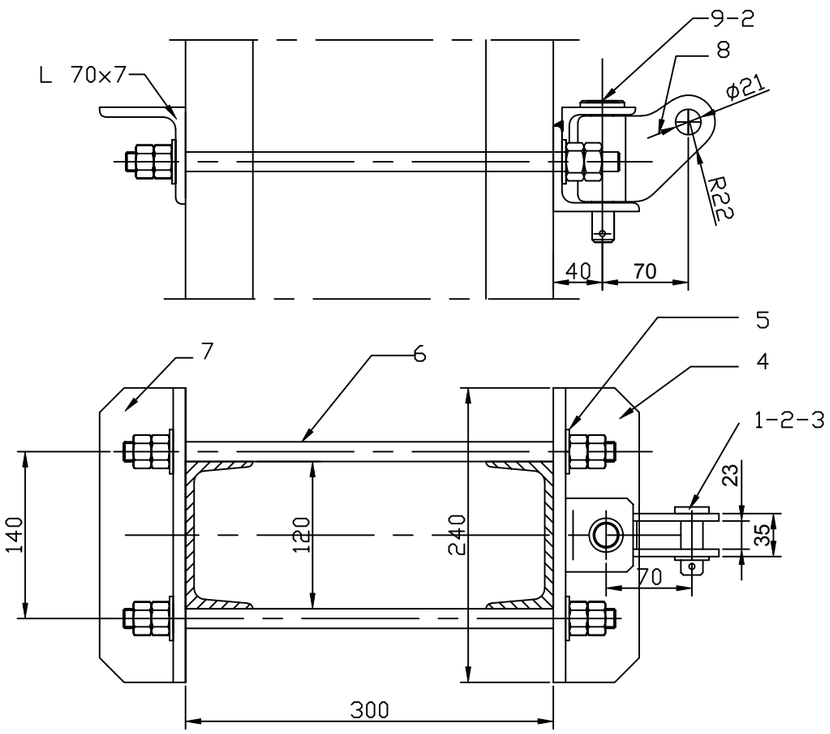
QUANTITY								
	1	1	1	1	19	Earthing connection L=400	01LC00BDG260	101
	1	1	1	1	18	CLAMP	ELC 2-4.0	
	1	1	1	1	17	EARTHING CONDUCTOR SUSPENSION TYPE I	ELC 13-1.4.0	
	1	1	1	1	16	RING	ELC 13-1.3.2.0	
	1	1	1	1	15	SPECIAL COUNTERPLATE	01LC00BDG261	
	4	4	4	4	14	WASHER TYPE U	01LC00BDG142	16A710
	10	10	8	8	13	WASHER . CS-16-32-2.8	01LC00BDG142	16A310
	3	3	2	2	12	AXIS 20-50	01LC00BDG146	201050
	3	3	2	2	11	WASHER M20	01LC00BDG142	20A110
	3	3	2	2	10	HINGE TOP TUBE	ELC 13-9.10 A REV C	
	6	6	4	4	9	PIN 4.5*40	01LC00BDG145	45A040
	3	3	2	2	8	AXIS 18-110	01LC00BDG146	181110
	3	3	2	2	7	HINGE SUPPORT	01LC00BDG114	
	1	1	1	1	6	COUNTERPLATE	01LC00BDG090	101
	10	10	8	8	5	BOLT HM 16-50/50	01LC00BDG144	1612H1
	18	18	16	16	4	WASHER M16N	01LC00BDG142	16A110
	4	4	4	4	3	THREADED ROD M16 -350/100	01LC00BDG141	1611C2
	2	2	2	2	2	COUNTERPLATE FOR SPREADER	01LC00BDG094	
	1		1		1	SPREADER (1.60m)	01LC00BDG115	
		1		1		SPREADER	01LC00BDG089	
MARK GROUP	211	201	111	101	ITEM	DESIGNATION	REFERENCE DRAWING	MARK



ON H BEAM	ASSEMBLY ALLOCATION			
	2 TOP TUBES SPACING 1.00 m	3 TOP TUBES SPACING 0.50 m	2 TOP TUBES SPACING 1.60 m	3 TOP TUBES SPACING 0.80 m
HE 200 TO 240	101	201	111	211

TRAVERSA PENTRU 2 SAU 3 TIRANTI CU FIXAREA CABLULUI PURTATOR SPREADER ASSEMBLY FOR 2 OR 3 TOP TUBES WITH EARTHING CONDUCTOR	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG138		*1 / 1*	*0*

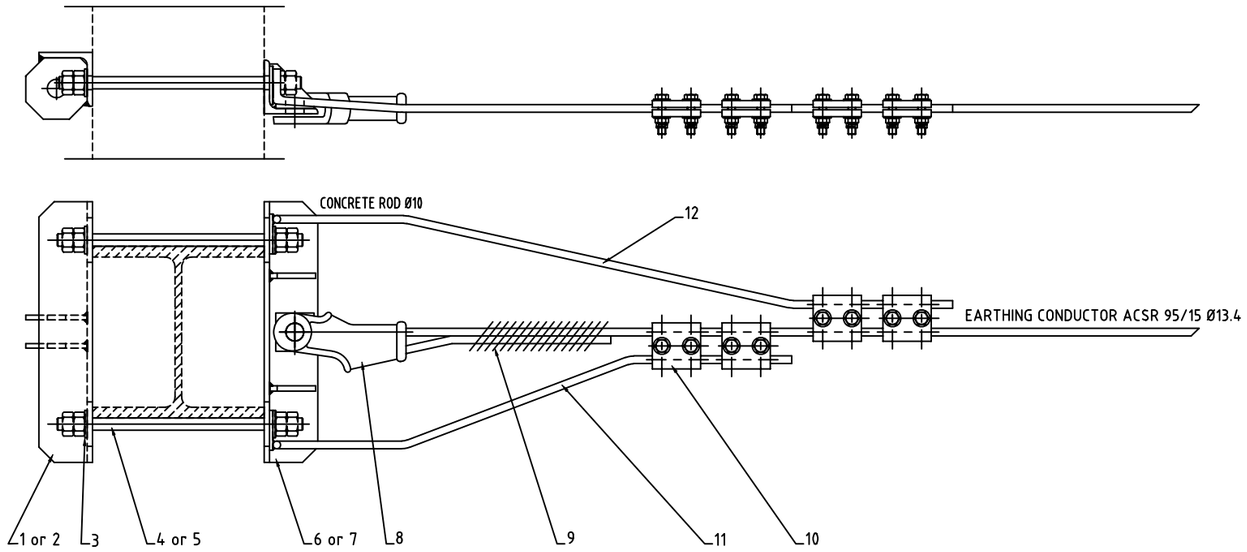
(297 x 420)



QUANTITY	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
1	9	AXIS 18*110		01LC00BDG146	181110
1	8	HINGE STRUT TUBE		ELC 13-9.10 A rev C	
1	7	COUNTERPLATE		LC 4662-7	
2	6	THREADED ROD M16- 450/100		01LC00BDG141	1611E2
4	5	WASHER M16N		01LC00BDG142	16A110
1	4	HINGE SUPPORT		LC 4662-4	
1	3	AXIS 20-50		01LC00BDG142	201050
1	2	PIN. 4,5*40		01LC00BDG142	45A040
1	1	WASHER M20		01LC00BDG142	20A110

CARPODINA PENTRU CONTRAFISA PENTRU STALP MU (300X120) FASTENING FOR STRUT TUBE FOR MU (300X120)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG139		*1 / 1*	*0*

(297 x 420)



FROM HEA or HEB 200 TO 240 : MARK GROUP 101

FROM HEA or HEB 260 TO 320 : MARK GROUP 102

QUANTITY			ITEM	DESIGNATION	REFERENCE DRAWING	MARK
1	1		12	EARTHING CONNECTION L=900	01LC00BDG260	103
1	1		11	EARTHING CONNECTION L=700	01LC00BDG260	102
4	4		10	CLAMP	ELC 2-4.0	
1	1		9	IRON	STAS 434-73	
1	1		8	CLAMP	ELC 9-29-0	
2			7	ANGLE FOR EARTHING ANCHORING	01LC00BDG131	102
	2		6	ANGLE FOR EARTHING ANCHORING	01LC00BDG131	101
2			5	THREADED ROD M16 - 450/100	01LC00BDG141	1611E2
	2		4	THREADED ROD M16 - 350/100	01LC00BDG141	1611C2
4	4		3	WASHER M16	01LC00BDG142	16A110
1			2	COUNTERPLATE FOR EARTHING ANCHORING	01LC00BDG133	102
	1		1	COUNTERPLATE FOR EARTHING ANCHORING	01LC00BDG133	101
MARK GROUP	102	101				

FIXARE PENTRU ANCORAREA CABLULUI COLECTOR PENTRU STALP HEA SAU HEB 200 LA 240 FASTENING FOR ANCHORING OF EARTH CONDUCTOR FOR MAST HEA OR HEB 200 TO 240	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG140		*1 / 1*	*0*

(297 x 420)

NOTES AND DIGITS EXPLANATIONS

THE NUMBER OF DIGITS FOR NUMBERING THE THREADED RODS IS 6
THE EXPLANATION OF EACH DIGIT IS AS FOLLOWS :

NUMBER OF NUTS	
1	4 NUTS
2	6 NUTS

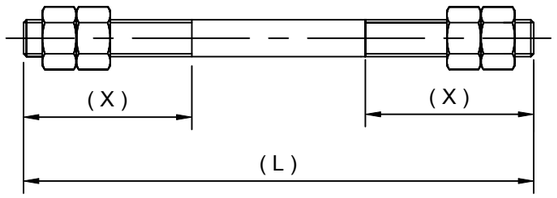
NOMINAL DIAMETER (mm)

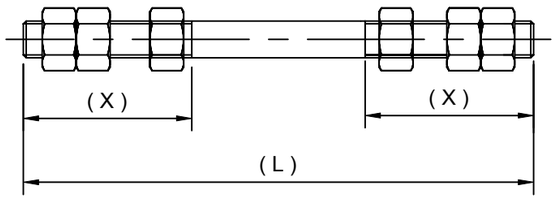
1	6	1	1	G	2

MATERIAL	
1	GALVA. STEEL STANDARD GRADE
2	STAINLESS STEEL
3	GALVA. STEEL GRADE 6.8
4	GALVA. STEEL GRADE 8.8
5	GALVA. STEEL GRADE 10.9

LENGTH L (mm)	
A	250
B	300
C	350
D	400
E	450
F	500
G	550
H	600
J	650
K	700
L	750
M	800
N	850
P	900
R	950
T	1000

THREAD LENGTH (X) mm	
1	ALL THE LENGTH
2	100
3	125
4	150
5	175
6	200
7	300





NOTES :

1) THREADED ROD ASSEMBLY INCLUDE DIFFERENT PARTS AS FOLLOWS :

IF 4TH. DIGIT OF ALLOCATION IS N°1 :
- 1 THREAD ROD
- 4 NUTS

2) DIMENSIONAL SPECIFICATIONS :

2.1) THREADED ROD

DIMENSIONAL SPECIFICATIONS OF THREADED RODS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :

* NF E 25-136

2.2) NUTS

DIMENSIONAL SPECIFICATIONS OF NUTS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :

* NF EN ISO 4032 OR NF EN ISO 4034

3) MECHANICAL SPECIFICATIONS :

THE NORMAL GRADE (3RD DIGIT OF ALLOCATION IS N°1) IS GRADE 5.6 MINIMUM .

3.1) GENERAL REMARKS FOR STEEL

THREADED ROD WITH Ø ⩽ 12 mm MUST BE IN STAINLESS STEEL .
THREADED ROD WITH Ø ⩾ 14 mm IS GENERALLY GALVANIZED STEEL .

3.2) STAINLESS STEEL

MECHANICAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :

* NF EN 10088-3 (GRADE A2-70 OR A4-70)

3.3) STEEL

MECHANICAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :

* NF A 35-053 OR NF EN 10025

4) PROTECTION

FOR STEEL :
HOT DIP GALVANIZING HAS BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :

* NF EN ISO 1461

5) THREADING

INTERNAL THREADS SHALL BE TAPPED OVER SIZE AFTER GALVANIZING BY A DIAMETRICAL AMOUNT SUFFICIENT TO PERMIT ASSEMBLY OF A COMPONENT WITH EXTERNAL THREADING TO STANDARD : * ISO 965-2 AND GALVANIZED TO THE ABOVE STANDARDS .
THREADS SHALL BE PROTECTED WITH GREASE AFTER TAPPING .

PREZON THREADED ROD	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG141		*1 / 1*	*0*

(297 x 420)

NOTES AND DIGITS EXPLANATIONS

THE NUMBER OF DIGITS FOR NUMBERING THE WASHERS IS 6
THE EXPLANATION OF EACH DIGIT IS AS FOLLOWS :

NOMINAL DIAMETER (mm)

1	4	B	1	1	0

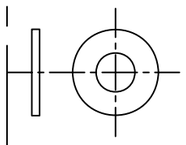
TYPE	
1	PLAIN
2	THICK PLAIN
3	SERRATED CONICAL SPRING
4	DELTA
5	SINGLE COIL
6	FAN SHAPED WASHER
7	WEDGE

MATERIAL	
A	GALVA. STEEL STANDARD GRADE
B	STAINLESS STEEL
C	ALU. - MAGNESIUM
D	BRASS
E	LEAD
F	NEOPRENE OR THERMOPLASTICS
G	ASBESTOS AND RUBBER
H	INSULATING AND DAMP PROOF
J	SILICOMANGANESE STEEL.CADMIUM PLATED
K	STEEL RE 375

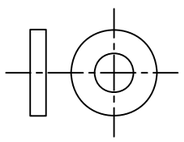
SIZE	
1	NORMAL
2	SMALL
3	LARGE
4	EXTRA LARGE

LEGEND OF WASHERS TYPE :

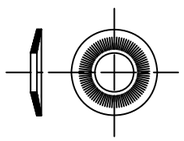
TYPE 1 : PLAIN



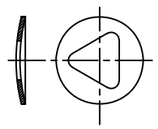
TYPE 2 : THICK PLAIN



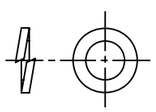
TYPE 3 : SERRATED CONICAL SPRING



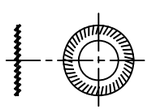
TYPE 4 : DELTA



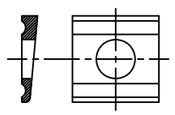
TYPE 5 : SINGLE COIL



TYPE 6 : FAN SHAPED WASHER



TYPE 7 : WEDGE



NOTES :

1) DIMENSIONAL SPECIFICATIONS :

1.1) PLAIN WASHER (NORMAL WASHER, SMALL WASHER, LARGE WASHER, EXTRA LARGE WASHER)
DIMENSIONAL SPECIFICATION HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
* NF EN ISO 7091 OR NF EN ISO 7089

1.2) THICK PLAIN WASHER
DIMENSIONAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
* NF E 25-518

1.3) SINGLE COIL SPRING SQUARE (WITHOUT LIP)
DIMENSIONAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
* NF E 25-515

1.4) SERRATED CONICAL SPRING WASHER
DIMENSIONAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
* NF E 25-511

1.5) FAN SHAPED WASHER
DIMENSIONAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
* NF E 27-624

1.6) WEDGE
DIMENSIONAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
* NF E 27-681

2) MATERIAL SPECIFICATIONS :

2.1) STAINLESS STEEL
MECHANICAL SPECIFICATIONS HAVE BEEN ESTABLISHED FOLLOWING STANDARDS :
* NF EN 10088-3 (GRADE A2 OR A4)

2.2) STEEL
MECHANICAL SPECIFICATIONS HAVE BEEN ESTABLISHED FOLLOWING STANDARDS :
* NF A 36-102

2.3) STEEL : RE 375
MECHANICAL SPECIFICATIONS HAVE BEEN ESTABLISHED FOLLOWING STANDARDS :
* NF EN 10089

3) PROTECTION :

FOR STEEL :
HOT DIP GALVANIZING HAS BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
* NF EN ISO 1461

SAIBA WASHER	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG142		1 / 1	0

(297 x 420)

NUMBERING SYSTEM FOR U BOLT

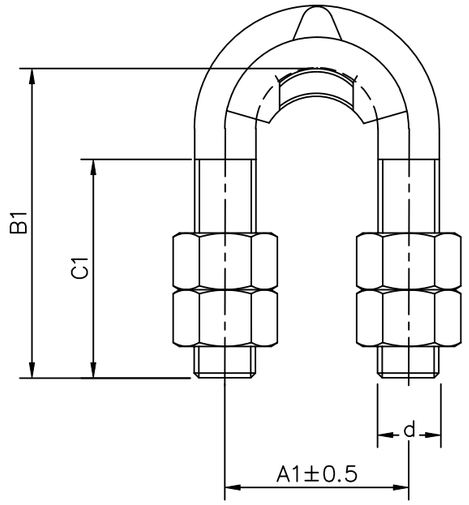


TABLE A

REF. : 1 2 2 4 N 1

NOMINAL DIAMETER d (mm)

TABLE C

CAP/MATERIAL	
1	WITHOUT CAP/STAINLESS STEEL
2	WITH CAP/STAINLESS STEEL
3	WITHOUT CAP/GALVA.STEEL GRADE 4.8
4	WITH CAP/GALVA.STEEL GRADE 4.8
5	WITHOUT CAP/GALVA.STEEL GRADE 8.8
6	WITH CAP/GALVA.STEEL GRADE 8.8
7	WITHOUT CAP/GALVA.STEEL GRADE 10.9
8	WITH CAP/GALVA.STEEL GRADE 10.9

TABLE B

NUMBER OF NUT	
0	NO NUT
1	2 FULL NUTS
2	4 FULL NUTS
3	6 FULL NUTS
4	8 FULL NUTS
5	2 SLOTTED SELF-LOCKING NUTS

TABLE D

	DIMENSION A1	B1	C1	
A	20	35	28	1
	20	50	43	2
B	26	45	30	1
	26	60	40	2
	26	75	55	3
C	27	38.5	25	1
	27	58.5	35	2
D	28	55	25	0
E	30	55	40	0
F	33	60	35	1
	33	105	80	2
G	35	45	25	0
H	36	55	36	1
	36	60	35	2
J	39	60	35	0
K	40	90	35	1
	40	45	20	2
	40	55	35	3
	40	110	70	4
	40	75	55	5
	40	110	50	6
L	42	55	25	1
	42	58	30	2
	42	105	50	3
M	44	110	45	0
	44	80	30	1
	A1	B1	C1	

TABLE E

	DIMENSION A1	B1	C1	
N	45	50	30	1
	45	50	25	2
P	47	53	30	0
R	50	60	25	1
	50	65	30	2
	50	75	30	3
T	55	60	35	0
U	57	63	30	0
V	58	60	20	0
W	61	65	30	1
	61	75	30	2
	61	80	35	3
X	62	74	30	1
	62	90	25	2
	62	170	30	3
Y	65	80	50	0
1	68	73	30	1
	68	80	30	2
2	69	70	20	0
3	70	75	30	0
4	74	85	35	0
	74	110	35	1
5	95	109	32	1
	95	130	45	2
6	60	75	20	1
	60	80	30	2
7	80	90	45	1
	A1	B1	C1	

NOTES :

1) DIMENSIONAL SPECIFICATIONS :

1.1) U BOLT

DIMENSIONAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :

THE BENDING OF U-BOLT OF DIAMETER >14 MM, WILL BE MANUFACTURED HOT BEND .

* NF E 25-136

1.2) NUTS

DIMENSIONAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :

* NF EN ISO 4032 OR NF EN ISO 4034

2) MECHANICAL SPECIFICATIONS :

THE NORMAL GRADE N° 1 , A , C , E , G OR J (4 TH. DIGIT) IS 5.6 MINIMUM .

2.1) GENERAL REMARKS FOR STEEL

U BOLTS WITH Ø ≤ 12 MM MUST BE IN STAINLESS STEEL .

U BOLTS WITH Ø ≥ 14 MM ARE GENERALLY IN GALVANIZED STEEL .

2.2) STAINLESS STEEL

MECHANICAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :

* NF EN 10088-3 (GRADE A2-70 OR A4-70)

2.3) STEEL

MECHANICAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :

* NF EN 10083-2 (GRADE AF37 C12)

3) PROTECTION

FOR STEEL :

HOT DIP GALVANIZING HAS BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :

* NF EN ISO 1461

4) THREADING

INTERNAL THREADS SHALL BE TAPPED OVER SIZE AFTER GALVANIZING BY A DIAMETRICAL AMOUNT SUFFICIENT TO PERMIT ASSEMBLY OF A COMPONENT WITH EXTERNAL THREADING TO STANDARD : * ISO 965-2 AND GALVANIZED TO THE ABOVE STANDARDS

THREADS SHALL BE PROTECTED WITH GREASE AFTER TAPPING .

5) CAP SPECIFICATION

THE CAP WILL BE DELIVERED MOUNTED ON THE U BOLT .

BOLT TIP U U-BOLT	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG143		*1 / 1*	*0*

(297 x 420)

NOTES AND DIGITS EXPLANATIONS

THE NUMBER OF DIGITS FOR NUMBERING THE BOLTS IS 6
THE EXPLANATION OF EACH DIGIT IS AS FOLLOWS :

DRILLED/PLAIN SHANK BOLT AND NUT	
1	DRILLED AND ONE NUT PLAIN
2	PLAIN AND ONE NUT PLAIN
3	PLAIN AND TWO NUTS PLAIN
4	PLAIN AND THREE NUTS PLAIN

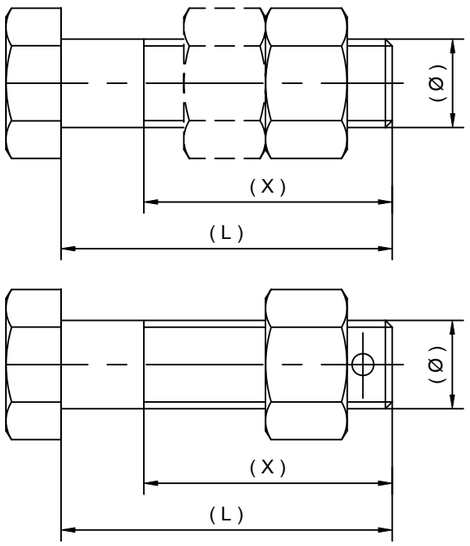
NOMINAL DIAMETER (mm)

2	0	1	3	N	2

MATERIAL	
1	GALVA. STEEL STANDARD GRADE
2	STAINLESS STEEL
3	GALVA. STEEL GRADE 6.8
4	GALVA. STEEL GRADE 8.8
5	GALVA. STEEL GRADE 10.9

LENGTH L (mm)	
A	16
B	20
C	25
D	30
E	35
F	40
G	45
H	50
J	55
K	60
L	65
M	70
N	75
P	80
R	85
T	90
U	100
V	110
W	115
X	120
Y	125
Z	130
1	135
2	140
3	150
4	160
5	170
6	180
7	200
8	220

SCREW THREAD LENGTH (X) mm	
1	ALL THE LENGTH
2	2 x DIAMETER + 6 mm
3	2 x DIAMETER + 12 mm
4	22
5	25
6	26
7	32
8	34
9	35
A	37
B	39
C	42
D	44
E	45
F	60
G	80
H	100



NOTES :

1) BOLT ASSEMBLY INCLUDES DIFFERENT PARTS AS FOLLOWS:
IF 4TH DIGIT OF ALLOCATION IS N°1 OR N°2:
- 1 BOLT
- 1 FULL NUT

IF 4TH DIGIT OF ALLOCATION IS N°3:
- 1 BOLT
- 2 FULL NUTS

IF 4TH DIGIT OF ALLOCATION IS N°4:
- 1 BOLT
- 3 FULL NUTS

2) DIMENSIONAL SPECIFICATIONS

2.1) BOLTS
DIMENSIONAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS : * NF E 27-711

2.2) SCREWS
DIMENSIONAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
* NF EN ISO 4014 , NF EN ISO 4016 , NF EN ISO 4017 OR NF EN ISO 4018

2.3) FULL NUTS
DIMENSIONAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
* NF EN ISO 4032 OR NF EN ISO 4034

3) MECHANICAL SPECIFICATIONS
THE NORMAL GRADE N° 1 (3 RD. DIGIT.) IS 5.6 MINIMUM .

3.1) GENERAL REMARKS FOR STEEL
BOLTS WITH Ø < 12 MM MUST BE IN STAINLESS STEEL
BOLTS WITH Ø > 14 MM ARE GENERALLY IN GALVANIZED STEEL

3.2) STAINLESS STEEL
MECHANICAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARD :
* NF EN 10088-3 (GRADE A2-70 OR A4-70)

3.3) STEEL
MECHANICAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARD :
* NF A 35-053 OR NF EN 10025

4) DRILLING (HOLE)
DRILLINGS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARD : * NF E 27-488

5) PROTECTION
FOR STEEL :
HOT DIP GALVANIZED HAS BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS : * NF EN ISO 1461

6) THREADING
INTERNAL THREADS SHALL BE TAPPED OVER SIZE AFTER GALVANIZING BY A DIAMETRICAL AMOUNT SUFFICIENT TO PERMIT ASSEMBLY ON A COMPONENT WITH EXTERNAL THREADING TO STANDARD : * ISO 965-2 AND GALVANIZED TO THE ABOVE STANDARDS.
THE THREADS SHALL BE PROTECTED WITH GREASE AFTER TAPPING .

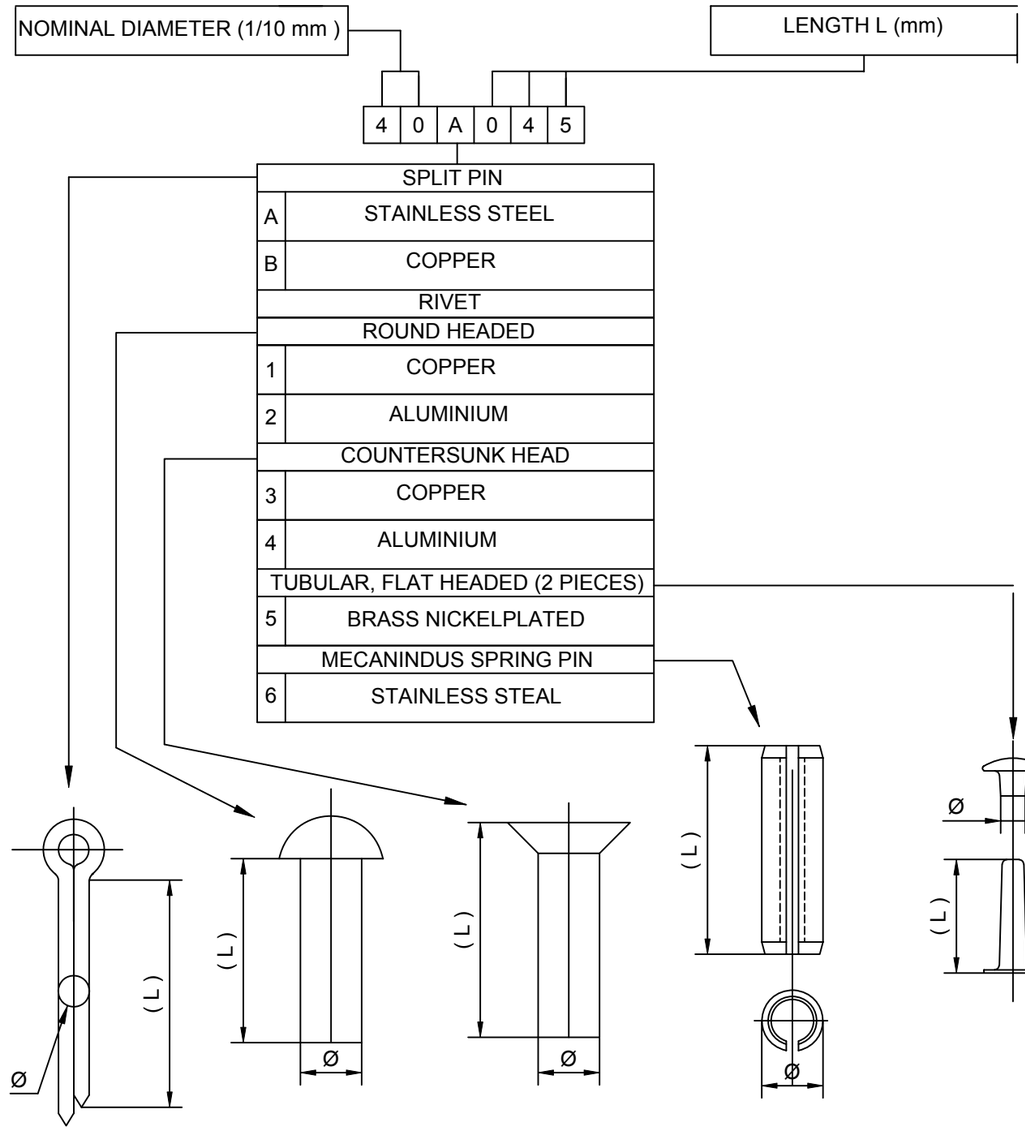
7) SCREWING UP
IN CASES WHERE A TORQUE IS SPECIFIED , BOLTS WILL BE SECURED MANUALLY USING STANDARD EQUIPEMENT.
WHEN USING SPRING OR CUPPED WASHERS , THESE WILL HAVE TO BE FLATTENED TO ENSURE CORRECT TORQUE .

BOLT BOLT	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG144		*1 / 1*	*0*

(297 x 420)

NOTES AND DIGITS EXPLANATIONS

THE NUMBER OF DIGITS FOR NUMBERING THE SPLIT PIN AND RIVET IS 6
THE EXPLANATION OF EACH DIGIT IS AS FOLLOWS :



NOTES :

1) DIMENSIONAL SPECIFICATIONS :

1.1) SPLIT PINS

DIMENSIONAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
* NF EN ISO 1234

1.2) RIVETS

DIMENSIONAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
ROUND HEADED
* NF E 27-153
* NF E 27-155

COUNTERSUNK HEAD
* NF E 27-154
* NF E 27-155

TUBULAR , FLAT HEADED (2 COMPONENTS)
* NF R 93-506

2) MECHANICAL SPECIFICATIONS :

2.1) STAINLESS STEEL

MECHANICAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
* NF EN 10088-3 (GRADE A2-70 OR A4-70)

2.2) COPPER

MECHANICAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
* NF A 54-118-1

2.3) ALUMINIUM

MECHANICAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
* NF EN 1301 (GRADE 1050 A)

2.4) BRASS NICKELPLATED :

MECHANICAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
* NF EN 12163 (GRADE CU ZN 36)

SPLINT SPLIT PIN	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG145		*1 / 1*	*0*

(297 x 420)

NUMBERING SYSTEM FOR AXIS

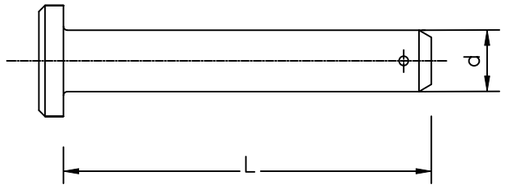


TABLE A

REF. : 1 0 2 0 6 0

NOMINAL DIAMETER d (mm)

LENGTH L (mm)

TABLE B

MATERIAL	
1	GALVA.STEEL STANDARD GRADE Fe 430B
2	STAINLESS STEEL
3	GALVA.STEEL GRADE Fe 360B
4	GALVA.STEEL GRADE Fe 510C

NOTES :

1) DIMENSIONAL SPECIFICATIONS :

DIMENSIONAL SPECIFICATIONS OF SNAP HEAD PINS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
* NF EN 21341

2) MECHANICAL SPECIFICATIONS :

2.1) GENERAL REMARKS FOR STEEL

SNAP HEAD PIN WITH Ø < 12 mm MUST BE IN STAINLESS STEEL .
SNAP HEAD PIN WITH Ø > 14 mm ARE GENERALLY IN GALVANIZED STEEL .

2.2) STAINLESS STEEL

MECHANICAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
* NF EN 10088-3 (GRADE A2-70 OR A4-70)

2.3) STEEL

MECHANICAL SPECIFICATIONS HAVE BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS :
* NF EN 10083-2 (GRADE AF37 C12)

3) DRILLING (HOLE) :

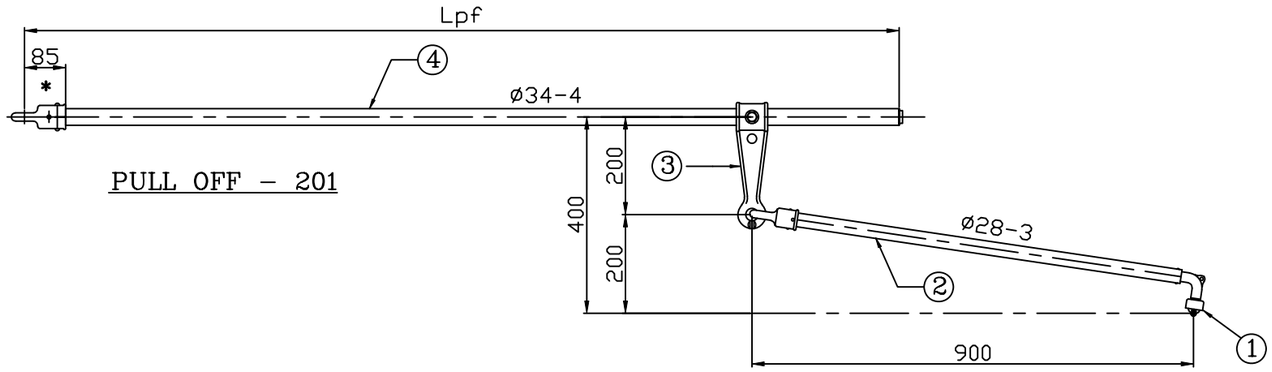
DRILLING HAS BEEN ESTABLISHED FROM THE FOLLOWING STANDARD :
* NF E 27-488

4) PROTECTION :

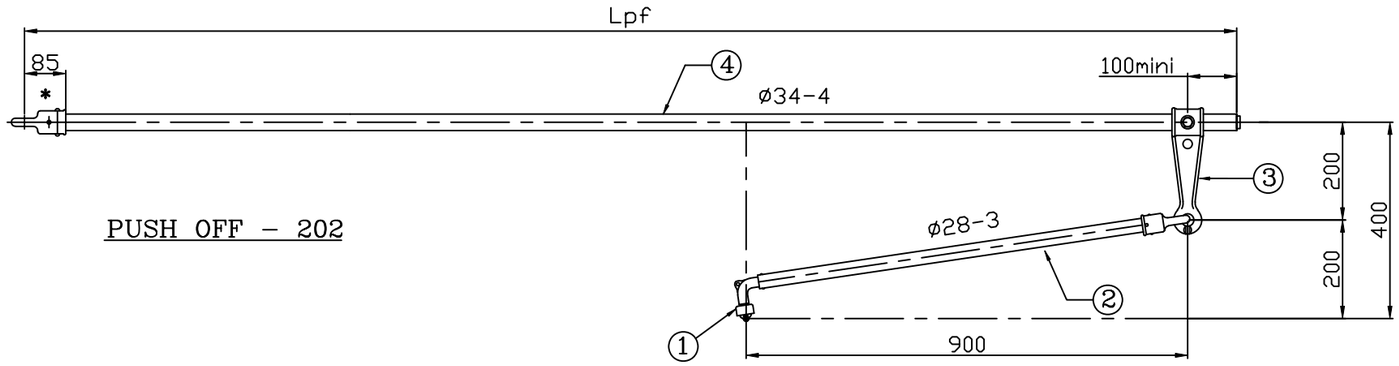
FOR STEEL
HOT DIP GALVANIZING HAS BEEN ESTABLISHED FROM THE FOLLOWING STANDARDS : * NF EN ISO 1461

AX AXIS	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG146		*1 / 1*	*0*

(297 x 420)



PULL OFF – 201

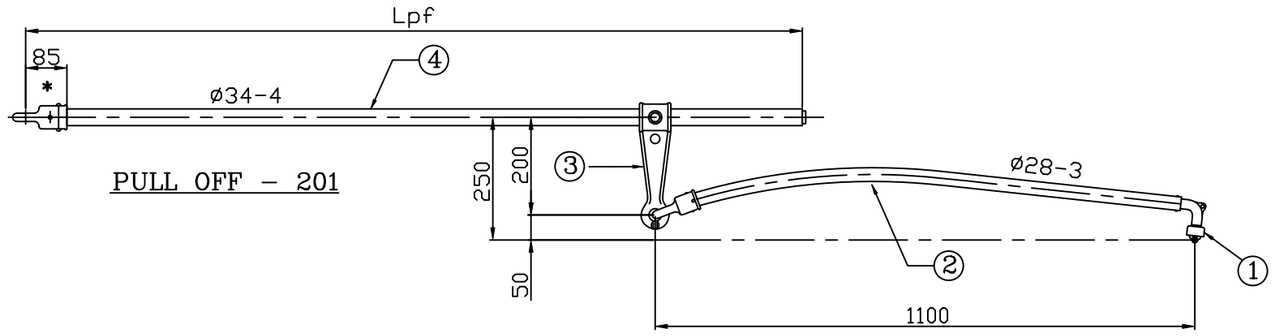


PUSH OFF – 202

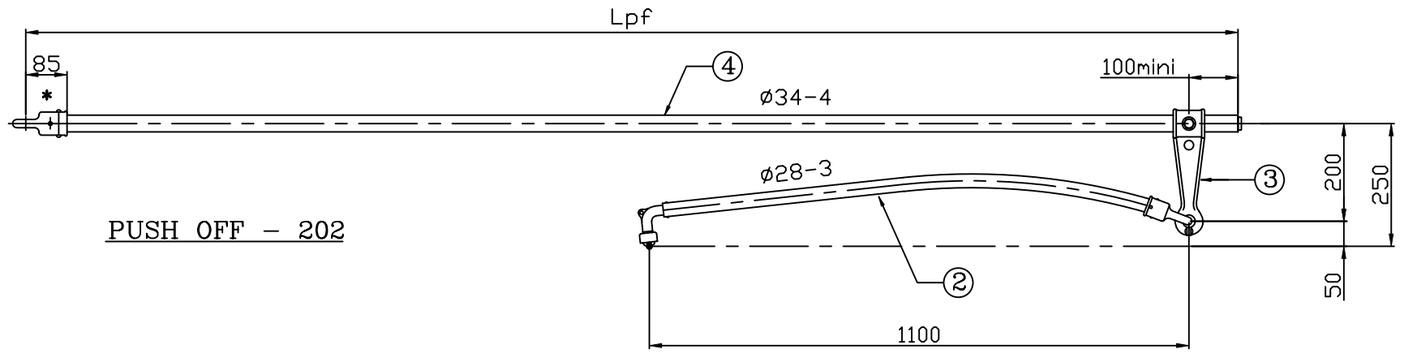
MARK GROUP	SEE TABLE	ITEM	DESIGNATION	REFERENCE DRAWING	MARK
QUANTITY	1	4	ø34-4 TUBE FOR STEADY ARM	ELC 13-15.0B	
	1	3	STAND OFF ASSEMBLY FOR STEADY ARM	ELC 27-4.8.0	
	1	2	0.9m STEADY ARM FOR STRAIGHT LINE	ELC 32-9.0A	
	1	1	ASSEMBLY CLAMP GROOVED CONTACT WIRE	ELC 32-9.5.5.0B	

PORTFIXATOR ø 34-4 CU FIXATOR 0.9m PENTRU LINIE DREAPTA ø 34-4 REGISTRATION ARM WITH 0.9m STEADY ARM FOR STRAIGHT LINE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG150		*1 / 1*	*0*

(297 x 420)



PULL OFF – 201

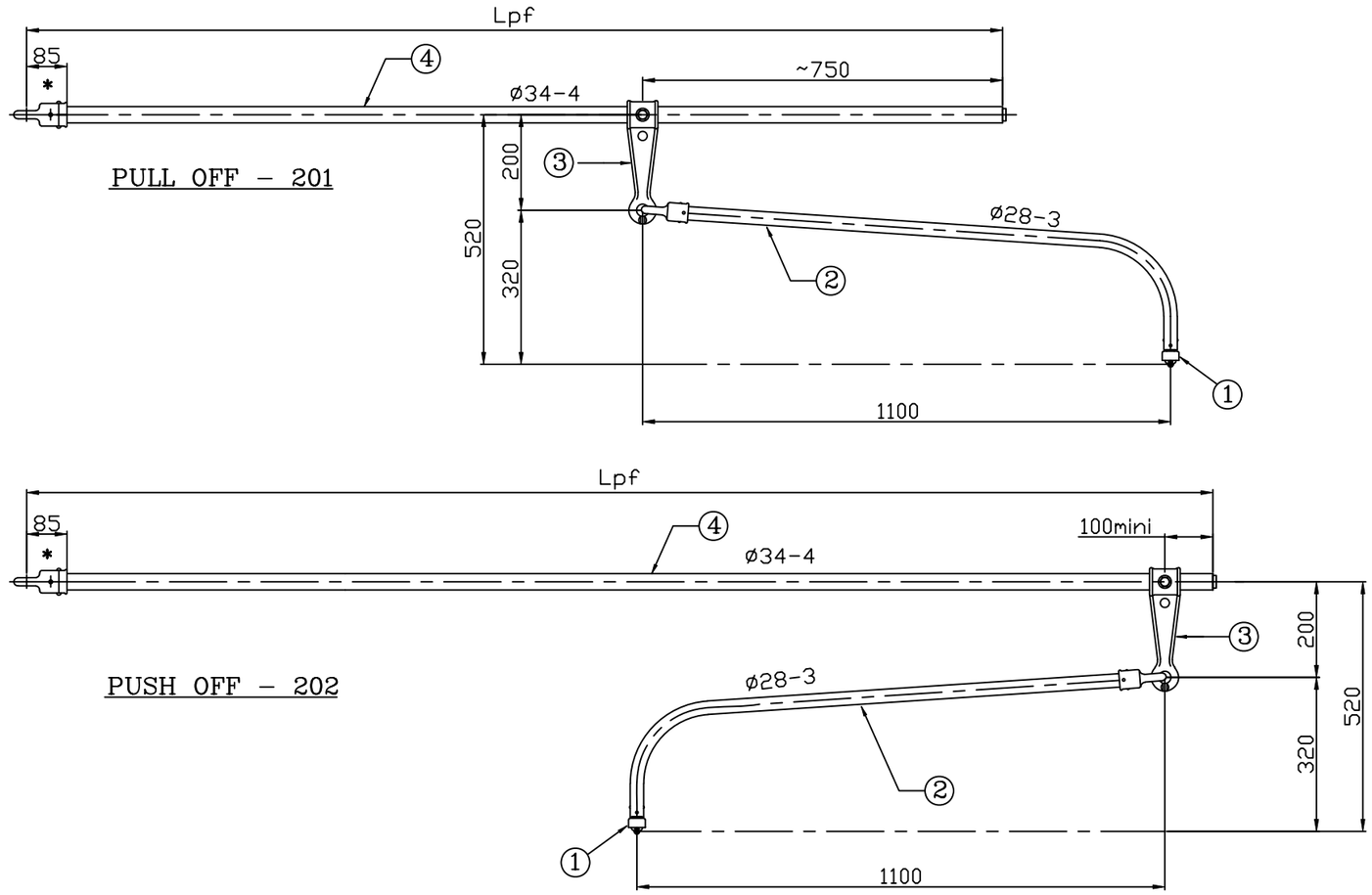


PUSH OFF – 202

MARK GROUP	QUANTITY	ITEM	DESIGNATION	REFERENCE DRAWING	MARK
SEE TABLE					
	1	4	ø34-4 TUBE FOR STEADY ARM	ELC 13-15.0B	
	1	3	STAND OFF ASSEMBLY FOR STEADY ARM	ELC 27-4.8.0	
	1	2	1.1m STEADY ARM FOR CURVE	ELC 32-10.0A	
	1	1	ASSEMBLY CLAMP GROOVED CONTACT WIRE	ELC 32-9.5.5.0B	

PORTFIXATOR ø 34-4 CU FIXATOR 1.1m PENTRU LINIE CURBA ø 34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR CURVE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG151		*1 / 1*	*0*

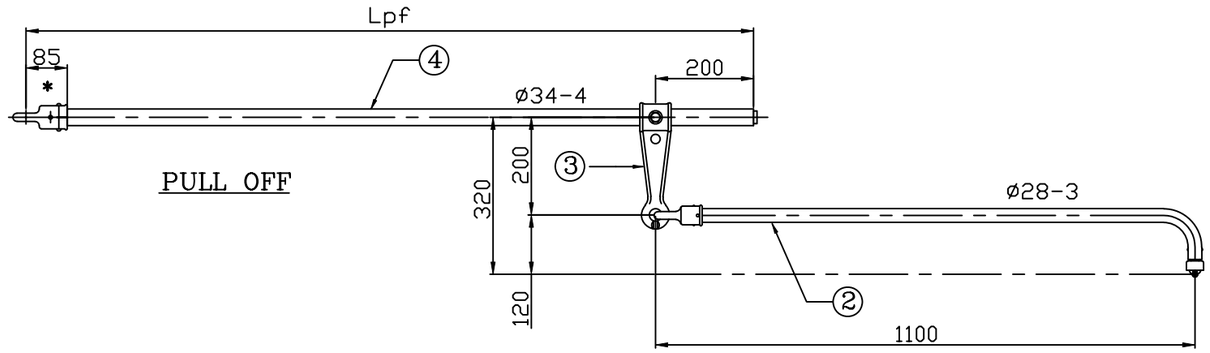
(297 x 420)



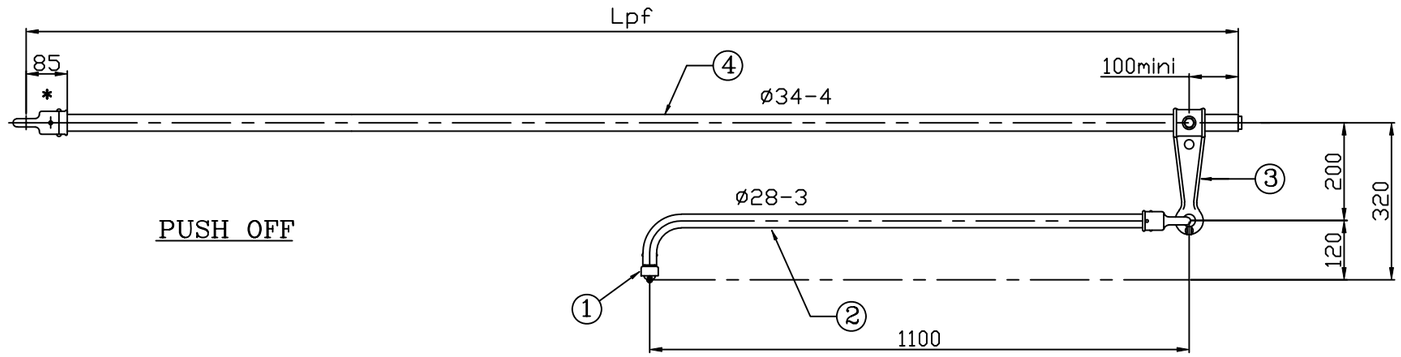
QUANTITY	1	4	ø34-4 TUBE FOR STEADY ARM	ELC 13-15.0B	
	1	3	STAND OFF ASSEMBLY FOR STEADY ARM	ELC 27-4.8.0	
	1	2	1.1m STEADY ARM FOR INSULATED OVERLAP	ELC 32-12.0A	
	1	1	ASSEMBLY CLAMP GROOVED CONTACT WIRE	ELC 32-9.5.5.0B	
MARK GROUP	SEE TABLE	ITEM	DESIGNATION	REFERENCE DRAWING	MARK

PORTFIXATOR ø 34–4 CU FIXATOR 1.1m PENTRU ZONA IZOLATA ø 34–4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR INSULATED OVERLAP	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG152		*1 / 1*	*0*

(297 x 420)



PULL OFF

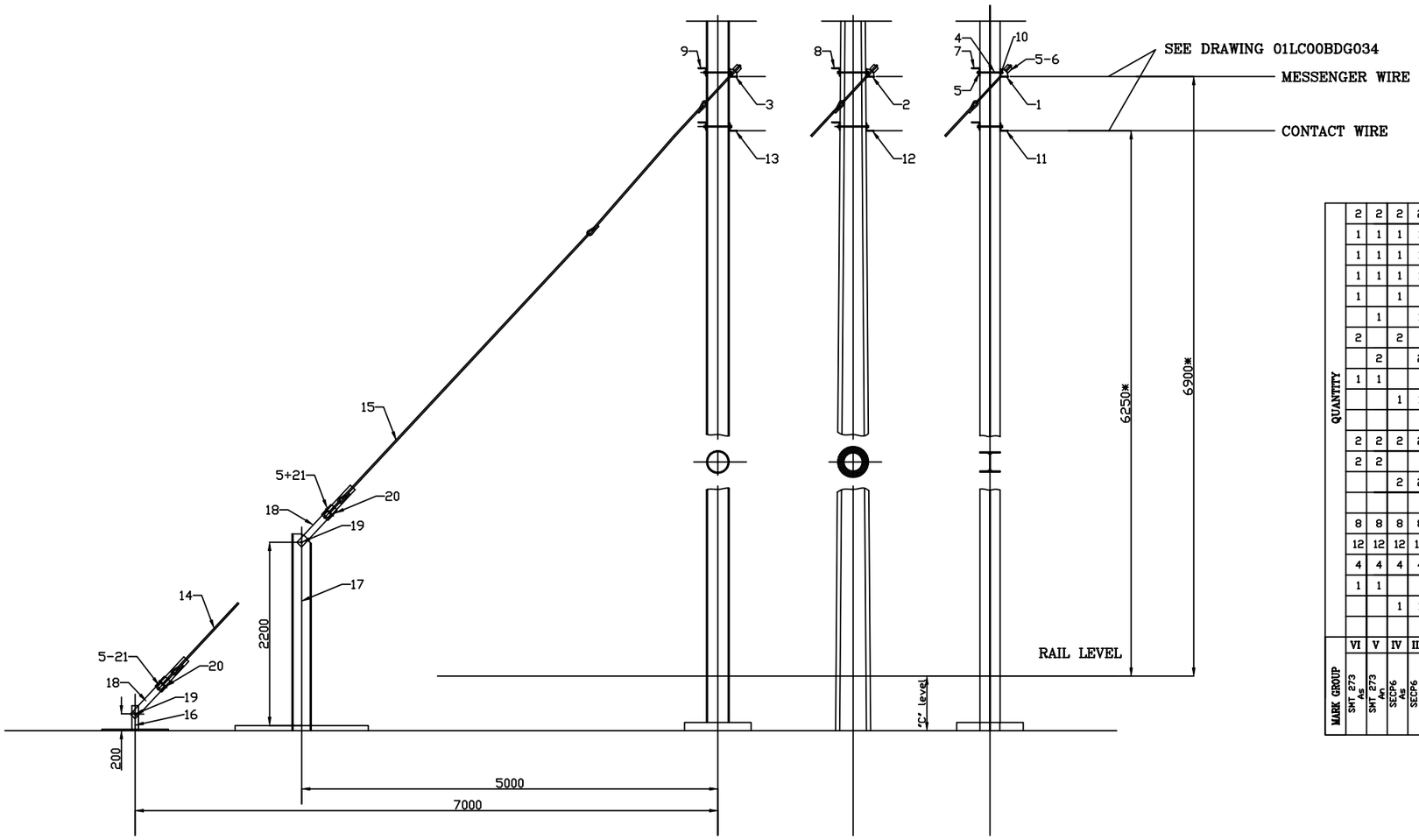


PUSH OFF

MARK GROUP	QUANTITY	ITEM	DESIGNATION	REFERENCE DRAWING	MARK
SEE TABLE	1	4	ø34-4 TUBE FOR STEADY ARM	ELC 13-15.0B	
	1	3	STAND OFF ASSEMBLY FOR STEADY ARM	ELC 27-4.8.0	
	1	2	1.1m STEADY ARM FOR CROSS-OVER	ELC 32-11.0A	
	1	1	ASSEMBLY CLAMP GROOVED CONTACT WIRE	ELC 32-9.5.5.0B	

PORTFIXATOR ø 34-4 CU FIXATOR 1.1m PENTRU INCRUCISARE ø 34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR CROSS-OVER	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG153		*1 / 1*	*0*

(297 x 420)



QUANTITY										
	2	2	2	2	2	2	21	SPHERIC WASHER		ELC 31-5	
	1	1	1	1	1	1	20	SUPPORT		01LC00BDG156	
	1	1	1	1	1	1	19	SCREW		01LC00BDG144	2743TF
	1	1	1	1	1	1	18	ADJUSTABLE PLATE		ELC 49-17	
	1		1		1		17	SUPERELEVATED ANCHOR BEAM		01LC00BDG049	
		1		1		1	16	LEVEL ANCHOR BEAM		01LC00BDG132	
	2		2		2		15	ANCHOR TIE ROD		01LC00BDG130	102
		2		2		2	14	ANCHOR TIE ROD		01LC00BDG130	101
	1	1					13	COUNTERPLATE		ELC 50-15.1A	
			1	1			12	COUNTERPLATE		ELC 50-14.1A	
					1	1	11	COUNTERPLATE		ELC 50-13.1A	
	2	2	2	2	2	2	10	SPECIAL WASHER		ELC 16-12.3.0	
	2	2					9	COUNTERPLATE		01LC00BDG129	103
			2	2			8	COUNTERPLATE		01LC00BDG129	102
					2	2	7	COUNTERPLATE		01LC00BDG129	101
	8	8	8	8	8	8	6	NUT M20 GR 8		SR EN ISO 4032-2002	
	12	12	12	12	12	12	5	WASHER		01LC00BDG142	20A110
	4	4	4	4	4	4	4	THREADED ROD		01LC00BDG141	2041E2
	1	1					3	ANGLE FOR RIGID ANCHORING		ELC 50-5.1A	
			1	1			2	ANGLE FOR RIGID ANCHORING		ELC 50-3.1A	
					1	1	1	ANGLE FOR RIGID ANCHORING		ELC 50-4.1A	
MARK GROUP	VI	V	IV	III	II	I	ITEM	DESIGNATION	UNIT	REFERENCE DRAWING	MARK
	SMT 273 As	SMT 273 An	SECP6 As	SECP6 An	MUO-5/8.2 , HEB As	MUO-5/8.2 , HEB An					

LEGEND

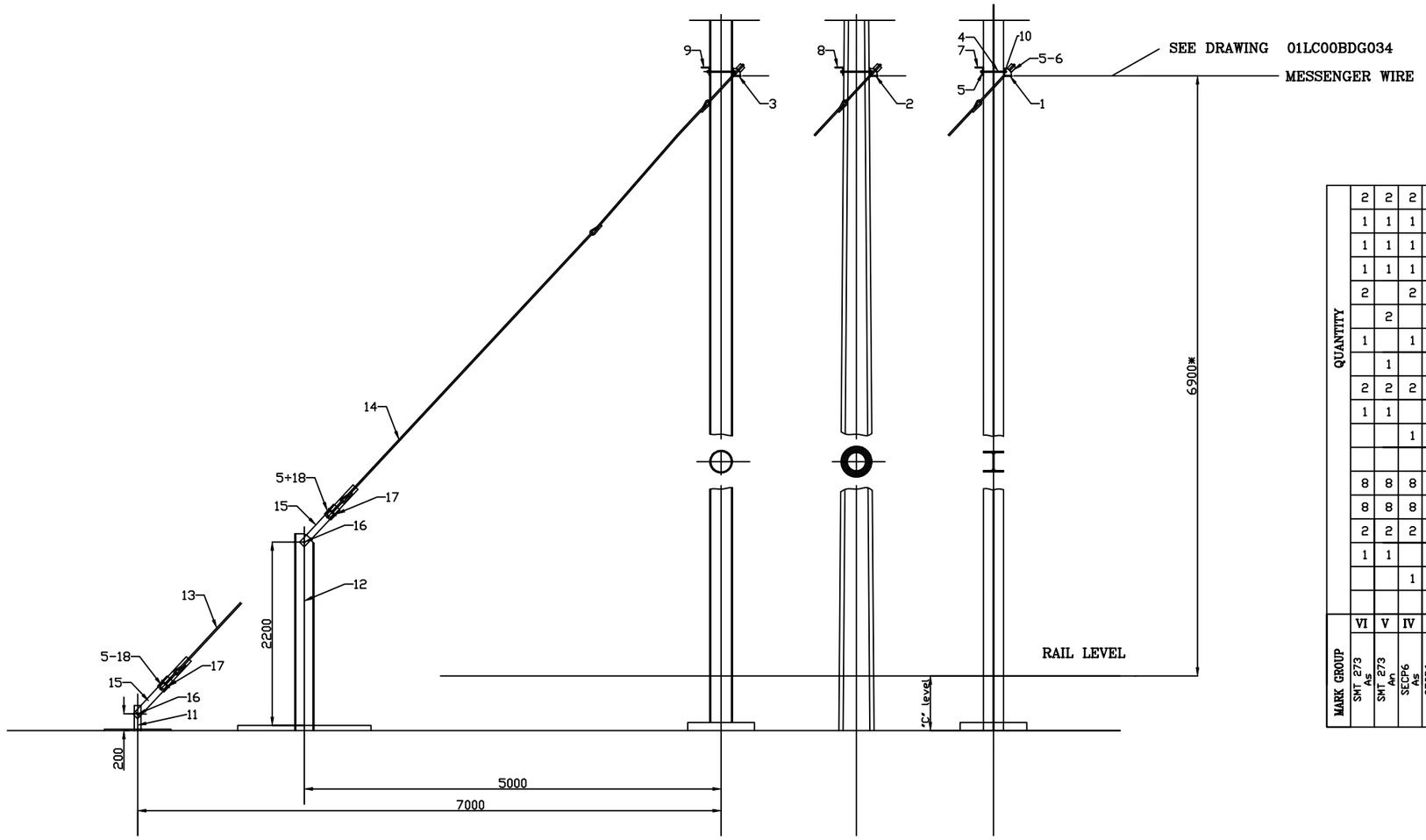
An – level anchor
As – superelevated anchor
HEB – metallical mast, H type
SECP6 – concrete mast
SMT 273 – metallical mast, tubular type

NOTE:

* –THESE HEIGHTS ARE DEFINED FOR 5.75M CONTACT WIRE HEIGHT
–FOR DIFFERENT CONTACT WIRE HEIGHT, IT'S NECESSARY TO INCREASE OR REDUCE THESE VALUES WITH THE SAME DIFFERENCES

ANCORAREA RIGIDA A CATENAREI CATENARY RIGID ANCHORING	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG154		1 / 1	0

(297 x 420)



QUANTITY											
2	2	2	2	2	2	18	SPHERIC WASHER		ELC 31-5	
1	1	1	1	1	1	17	SUPPORT		01LC00BDG156	
1	1	1	1	1	1	16	SCREW		01LC00BDG144	2743TF
1	1	1	1	1	1	15	ADJUSTABLE PLATE		ELC 49-17	
2		2		2		14	ANCHOR TIE ROD		01LC00BDG130	102
	2		2		2	13	ANCHOR TIE ROD		01LC00BDG130	101
1		1		1		12	SUPERELEVATED ANCHOR BEAM		01LC00BDG049	
	1		1		1	11	LEVEL ANCHOR BEAM		01LC00BDG132	
2	2	2	2	2	2	10	SPECIAL WASHER		ELC 16-12.3.0	
1	1					9	COUNTERPLATE		01LC00BDG129	103
		1	1			8	COUNTERPLATE		01LC00BDG129	102
				1	1	7	COUNTERPLATE		01LC00BDG129	101
8	8	8	8	8	8	6	NUT M20 GR 8		SR EN ISO 4032-2002	
8	8	8	8	8	8	5	WASHER		01LC00BDG142	20A110
2	2	2	2	2	2	4	THREADED ROD		01LC00BDG141	2041E2
1	1					3	ANGLE FOR RIGID ANCHORING		ELC 50-5.1A	
		1	1			2	ANGLE FOR RIGID ANCHORING		ELC 50-3.1A	
				1	1	1	ANGLE FOR RIGID ANCHORING		ELC 50-4.1A	
VI	V	IV	III	II	I	ITEM	DESIGNATION	UNIT	REFERENCE DRAWING	MARK
MARK GROUP: SMT 273 As	SMT 273 An	SECP6 As	SECP6 An	MU10-5/8.2 , HEB As	MU10-5/8.2 , HEB An					

LEGEND

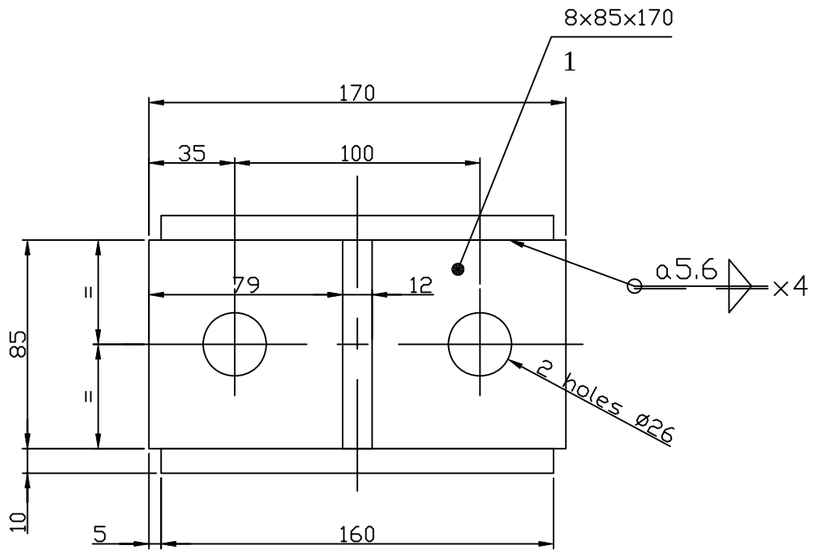
An – level anchor
As – superelevated anchor
HEB – metallical mast, H type
SECP6 – concrete mast
SMT 273 – metallical mast, tubular type

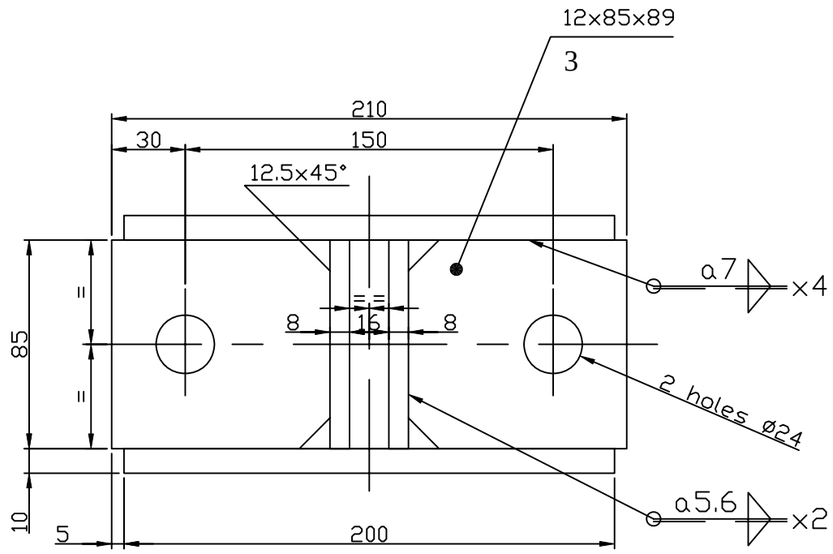
NOTE:

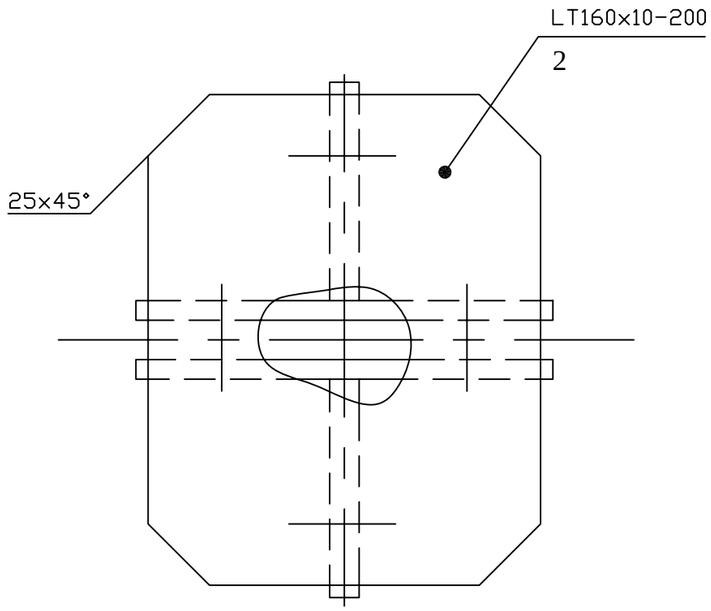
* –THESE HEIGHTS ARE DEFINED FOR 5.75M CONTACT WIRE HEIGHT
–FOR DIFFERENT CONTACT WIRE HEIGHT, IT'S NECESSARY TO INCREASE OR REDUCE THESE VALUES WITH THE SAME DIFFERENCES

ANCORARE MEDIANA MID POINT ANCHORING	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG155		*1 / 1*	*0*

(297 x 420)







MARK GROUP	QUANTITY	ITEM	DESIGNATION	UNIT MASS kg	MATERIAL TECHNICAL SPECIFICATION
	2	3	PLATE II		S235JR
	2	2	PATE I		S235JR
	2	1	LONGERON		S235JR

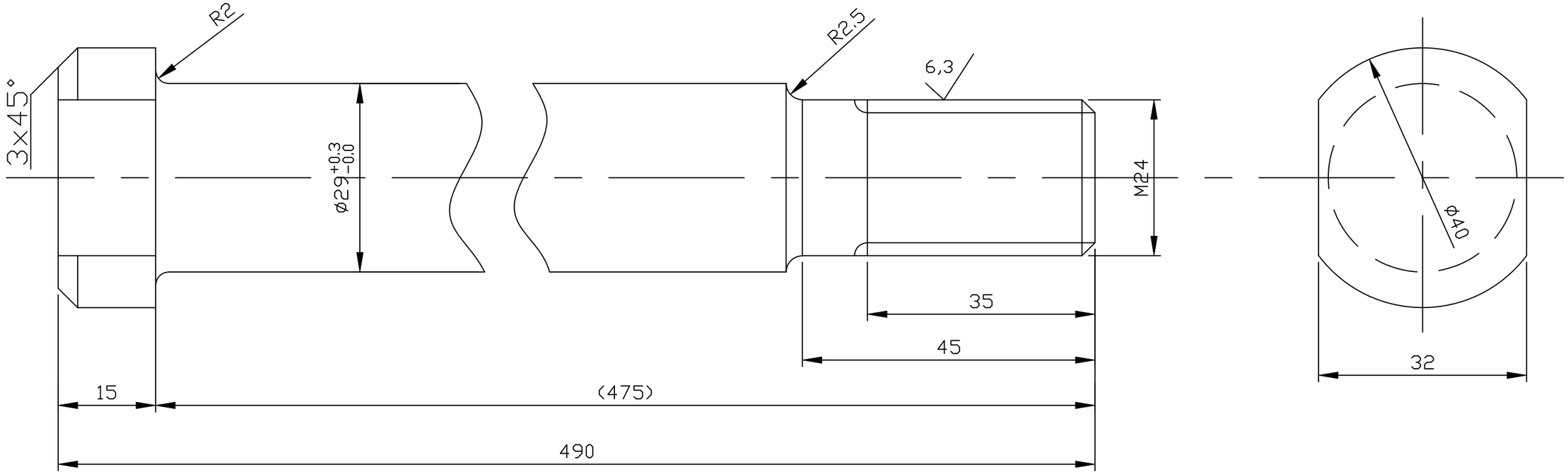
NOTE:

1.The holes will be made after welding.

2.After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

SUPORT SUPPORT	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG156		*1 / 1*	*0*

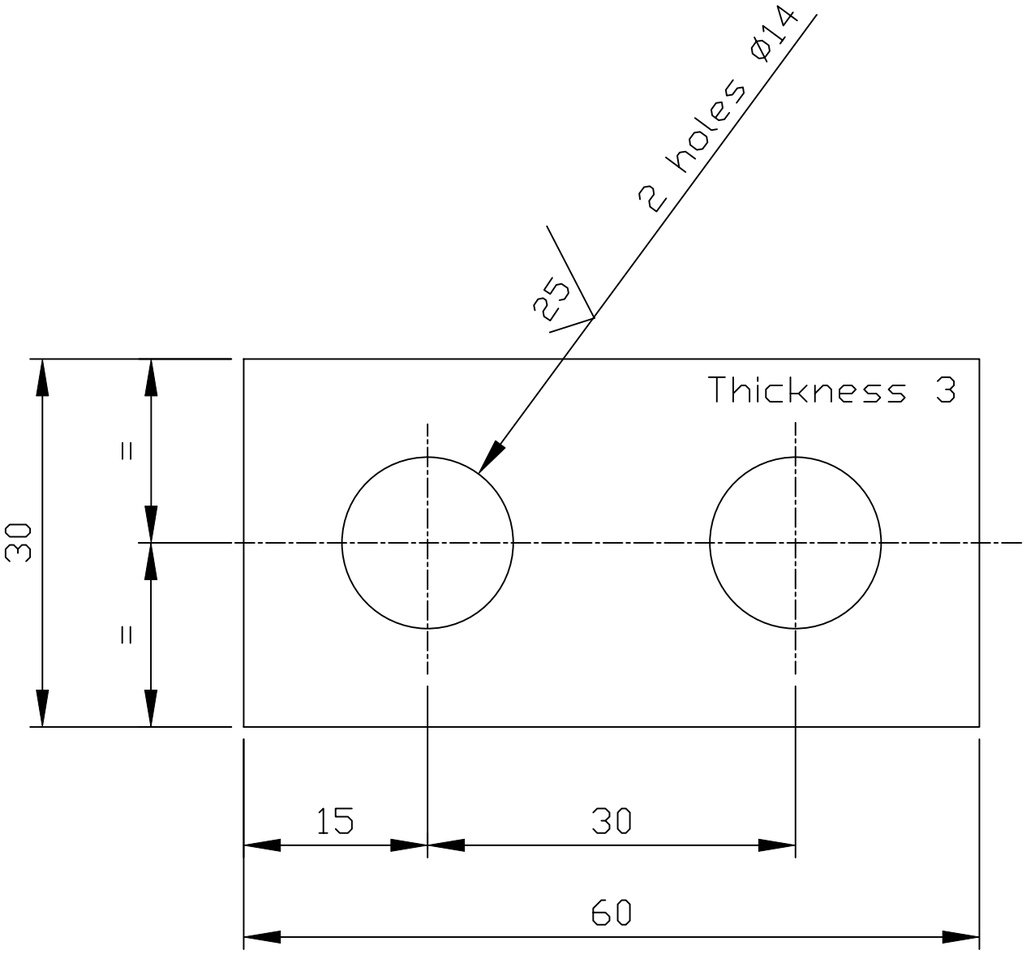
(297 x 420)



NOTE
MATERIAL: S355J0

AX SUPORT COGWHEEL SUPORT AXIS	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG157		*1 / 1*	*0*

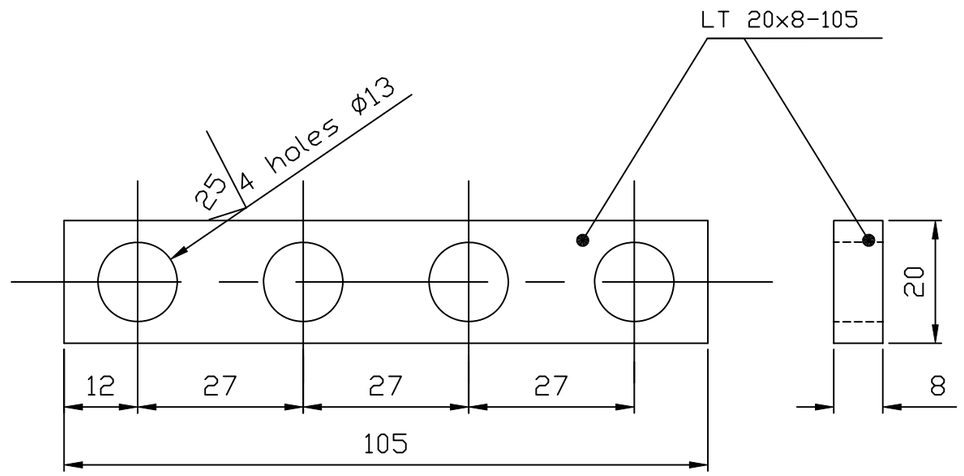
(297 x 420)



NOTE
MATERIAL: S235JR

PLACA PLATE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG158		*1 / 1*	*0*

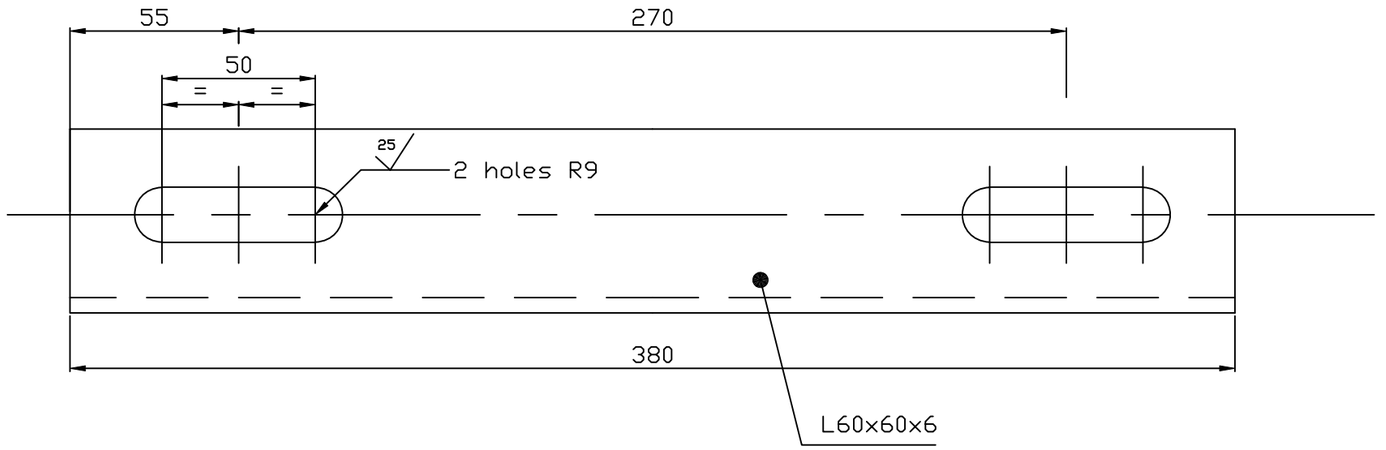
(297 x 420)

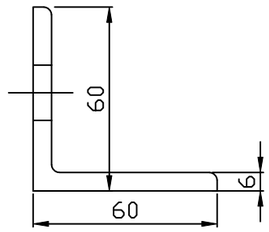


NOTE:
Will be hot galvanized AT/OL/Zn500-STAS 7221-90.
MATERIAL: S235JR

PLACA PLATE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG159		*1 / 1*	*0*

(297 x 420)

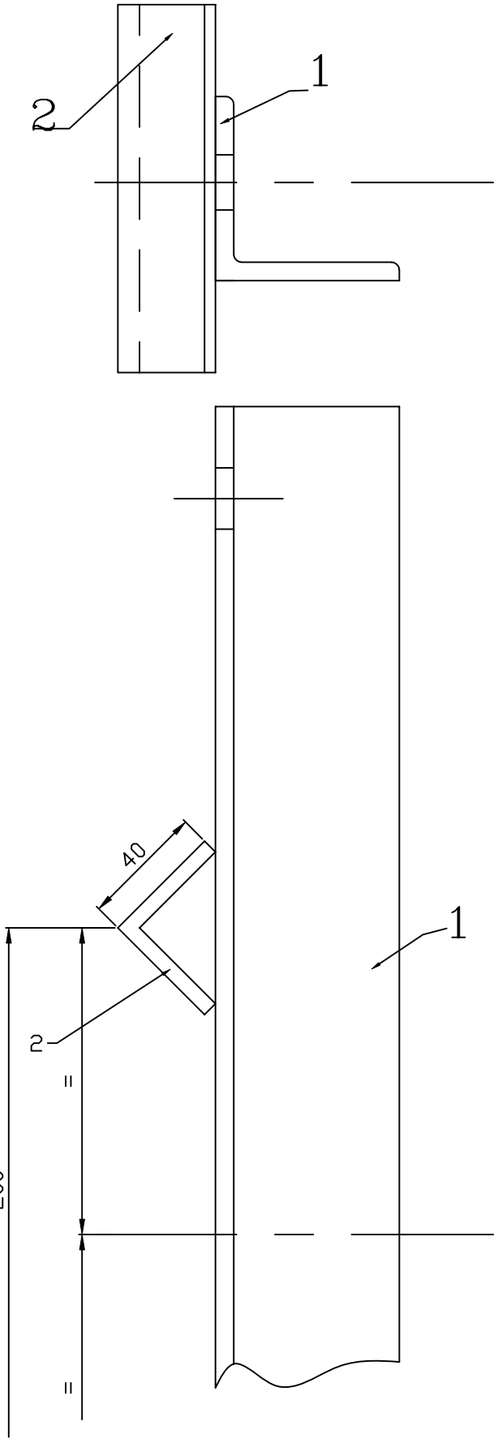


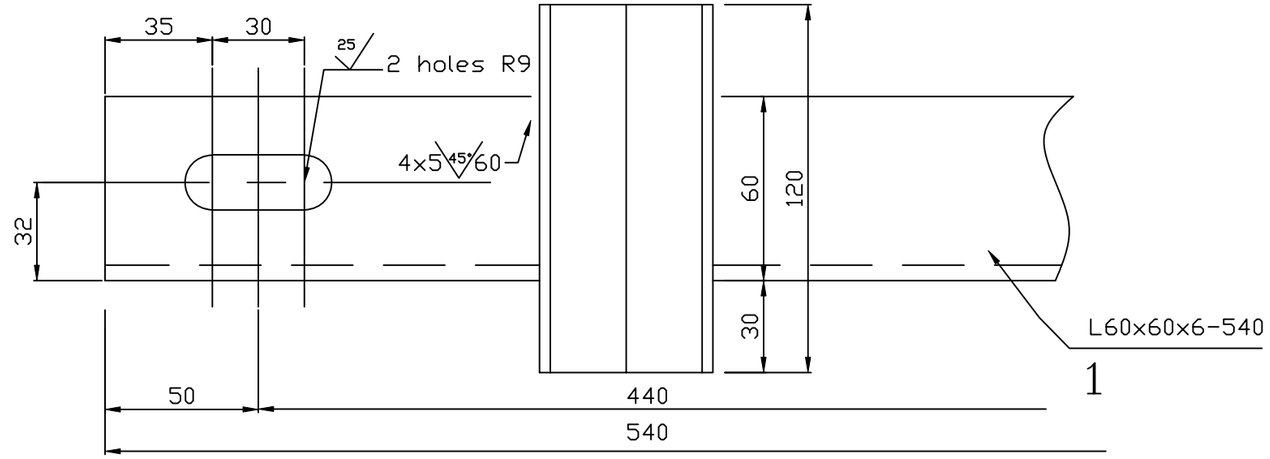


NOTE:
Will be hot galvanized AT/OL/Zn500-STAS 7221-90.
Material: S235JR

PROFIL II FRAME II	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG165		*1 / 1*	*0*

(297 x 420)



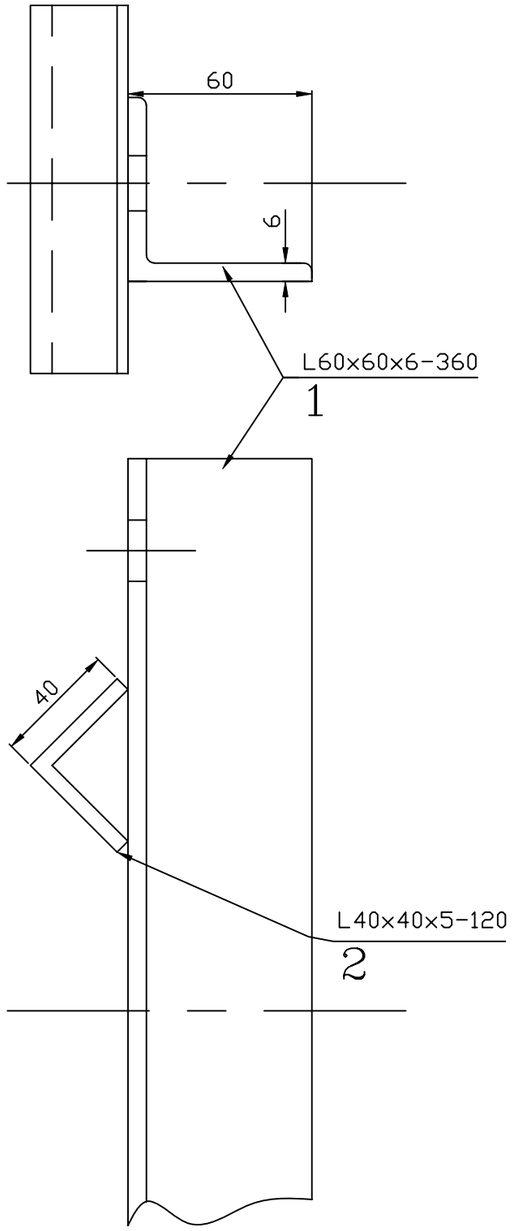


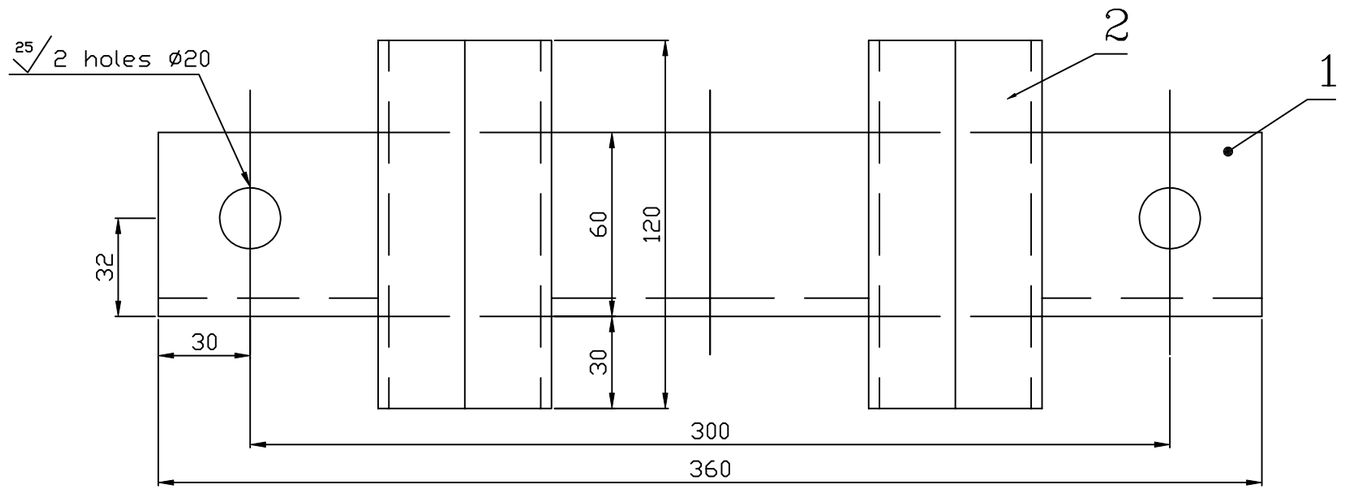
NOTE:
After welding and drilling will be hot galvanized AT/OL/Zn500-STAS 7221-90.

2	PROFILE	2	S235JR
1	FRAME	1	S235JR
ITEM	DESIGNATION	UNIT	MATERIAL TECHNICAL SPECIFICATION

PROFIL II FRAME II	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG168		*1 / 1*	*0*

(297 x 420)



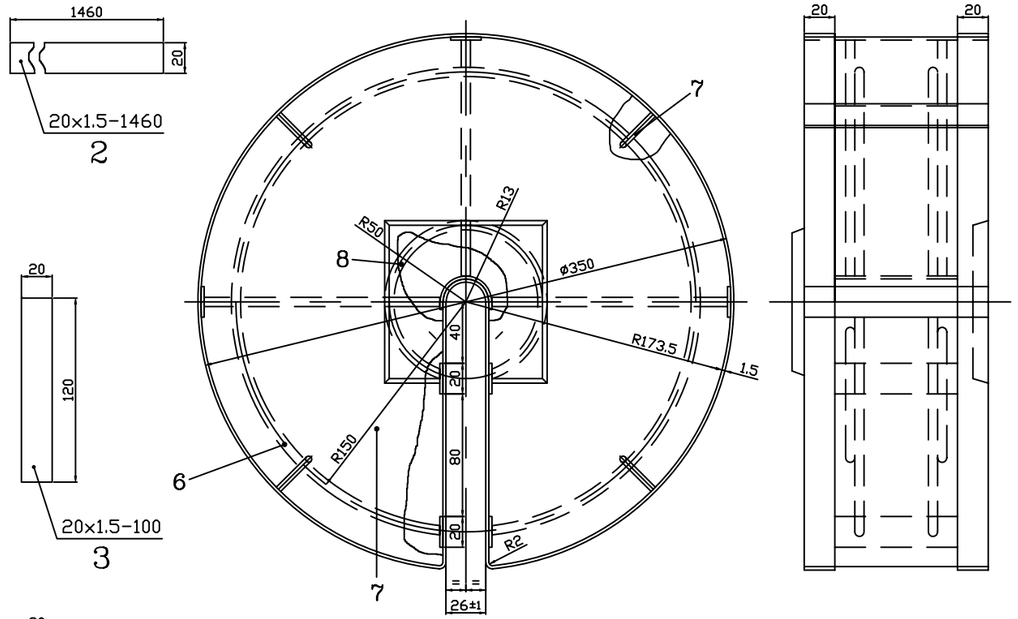


NOTE:
After welding and drilling will be hot galvanized AT/OL/Zn500-STAS 7221-90.

ITEM	DESIGNATION	UNIT	MATERIAL TECHNICAL SPECIFICATION
2	PROFILE	2	S235JR
1	FRAME	1	S235JR

	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
PROFIL II FRAME II	*01LC00BDG171*		*1 / 1*	*0*

(297 x 420)



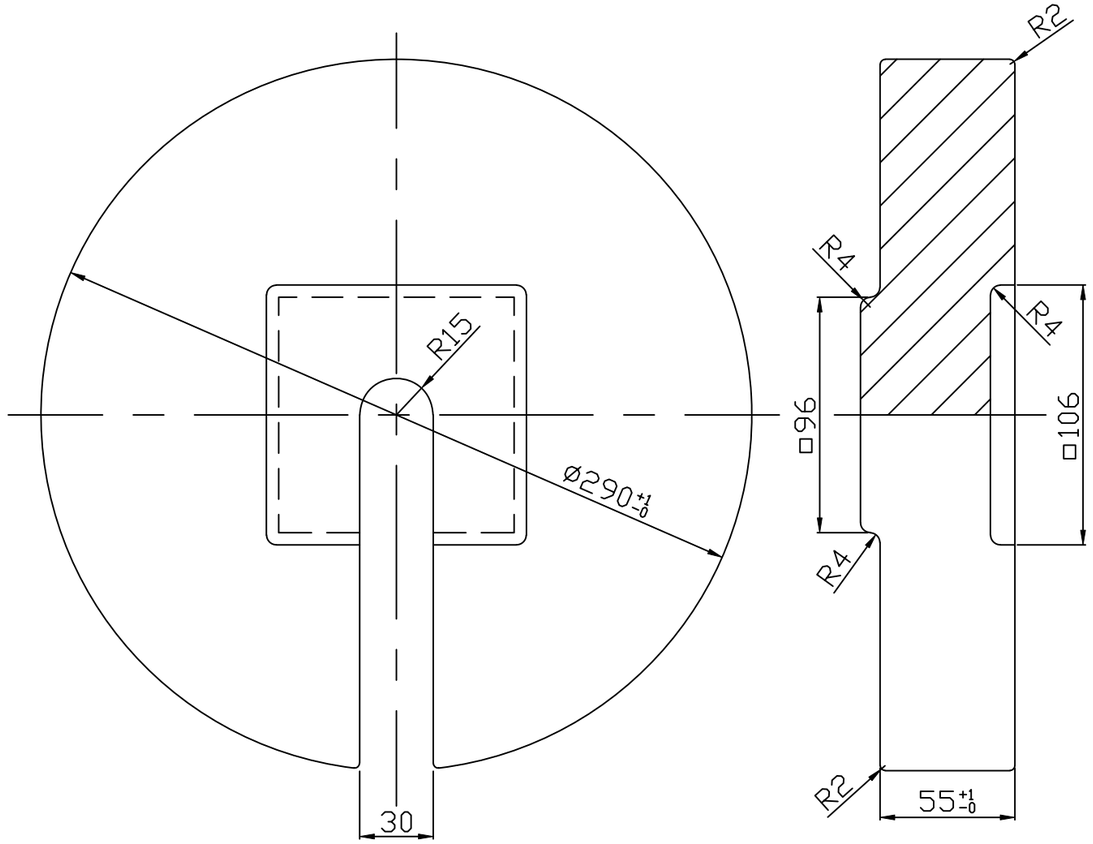
NOTE:

*The assambly of the elements will be made by welding in points.
*The frames items 1 and 2, the spacers items 3 and 4 and the sleev item 5 will be applay a rime paint twice before concrete pouring.
*Te concrete mark will be minimum C16/20 in accordance with the code NE012-99.

MARK GROUP	QUANTITY	ITEM	DESIGNATION	UNIT MASS kg	MATERIAL TECHNICAL SPECIFICATION
	6	9	CLAMP I		S235JR
	2	8	COILE II		S235JR
	4	7	CLAMP II		S235JR
	2	6	COILE I		S235JR
	1	5	SLEEV		S235JR
	2	4	SPACER II		S235JR
	5	3	SPACER I		S235JR
	1	2	FRAME II		S235JR
	1	1	FRAME I		S235JR

CONTRAGREUTATE DIN BETON CONCRETE COUNTERWEIGHT	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG172		*1 / 1*	*0*

(297 x 420)

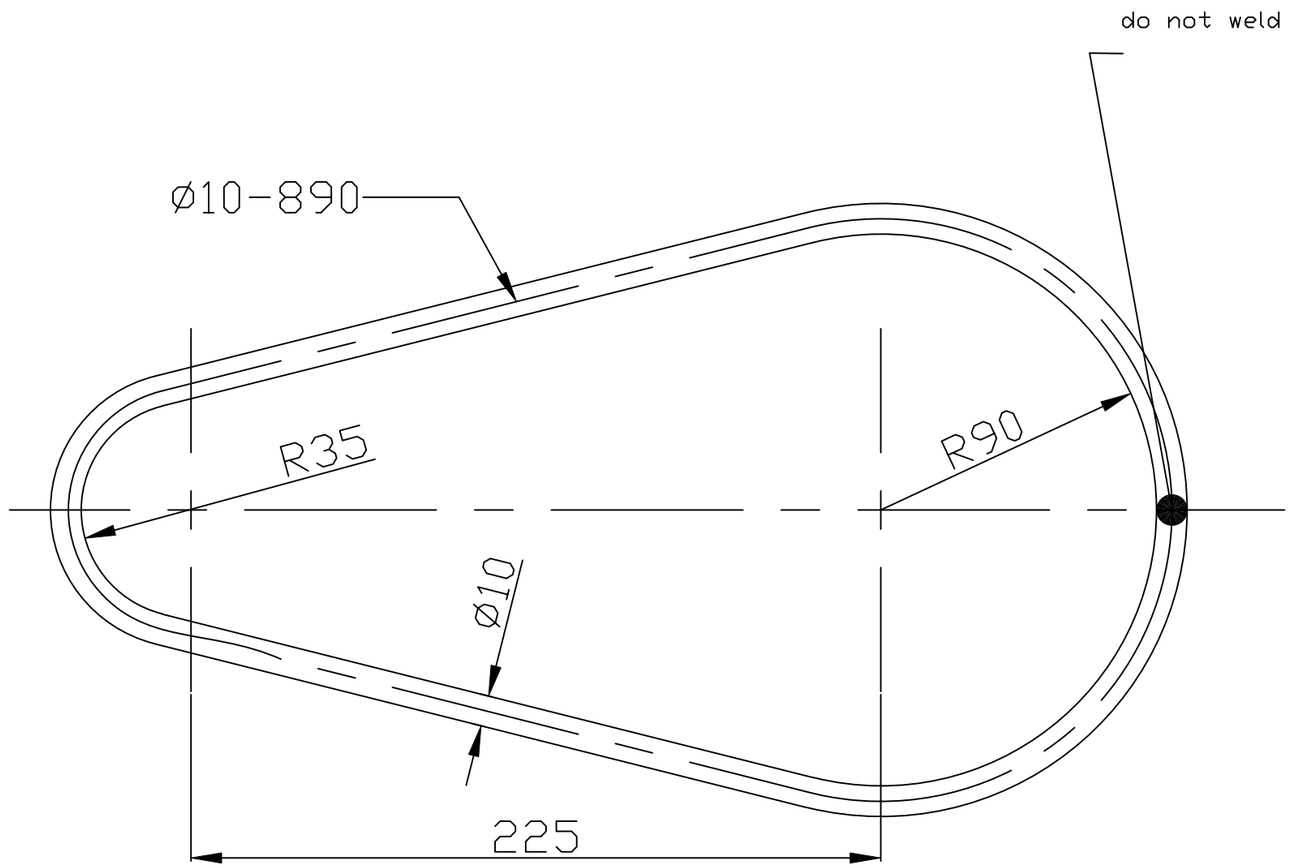


NOTE:

1.The minimal admissible weight is 25kg.
2.The piece wii be clean, apply a prime paint and painted in two coats.
3.Material: EN-GJL-HB-155 SR EN 1562-1999

CONTRAGREUTATE DIN FONTA CAST IRON COUNTERWEIGHT	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG173		*1 / 1*	*0*

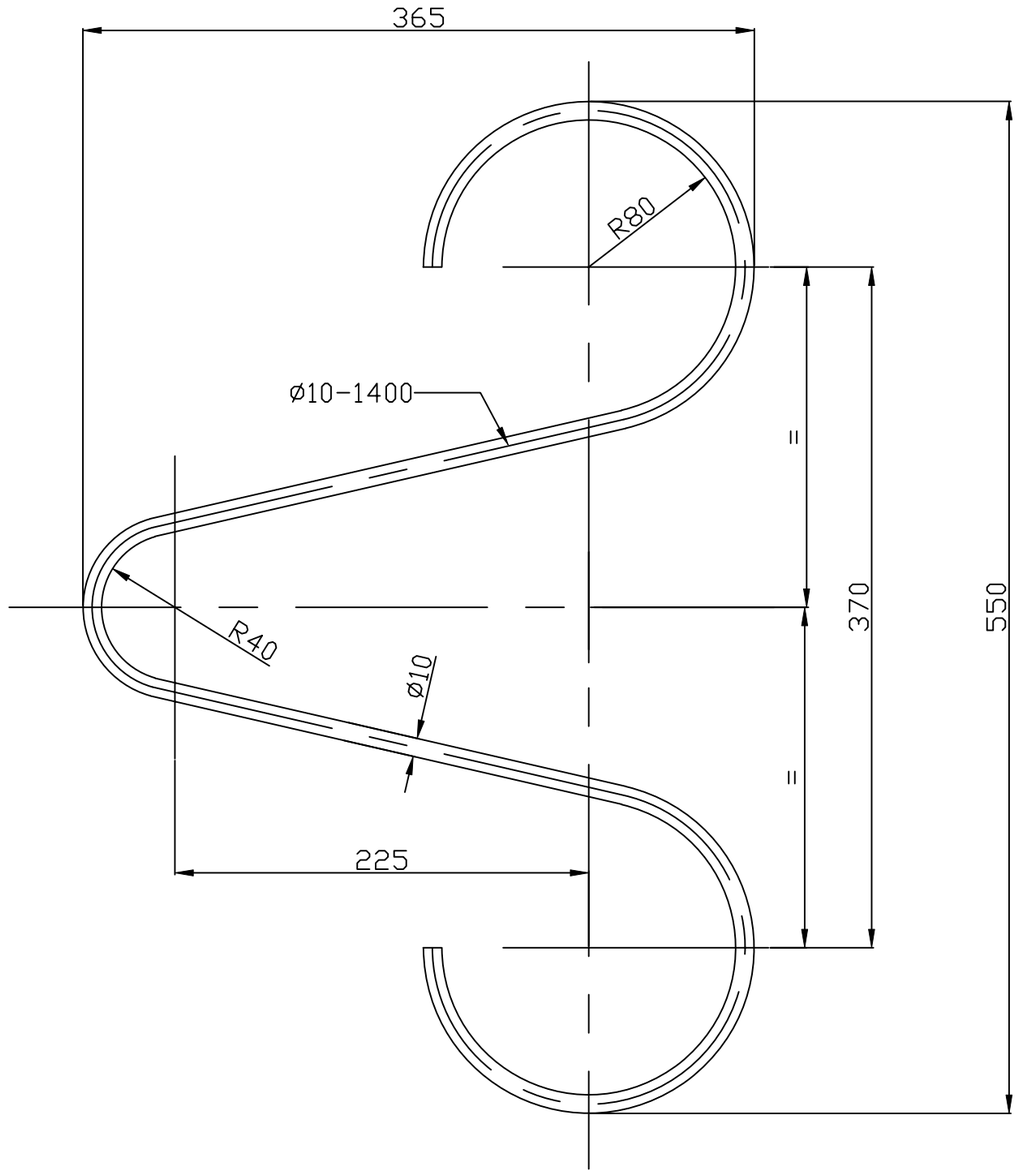
(297 x 420)



NOTE:
1.Will be hot galvanized AT/OL/Zn600-STAS 7221-90.
2.The eye will be used with the rod for iron cast counterwieghts 0173A1.
3.Material: S235JR

OCHI TIP I EYE I	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG174		*1 / 1*	*0*

(297 x 420)



NOTE:

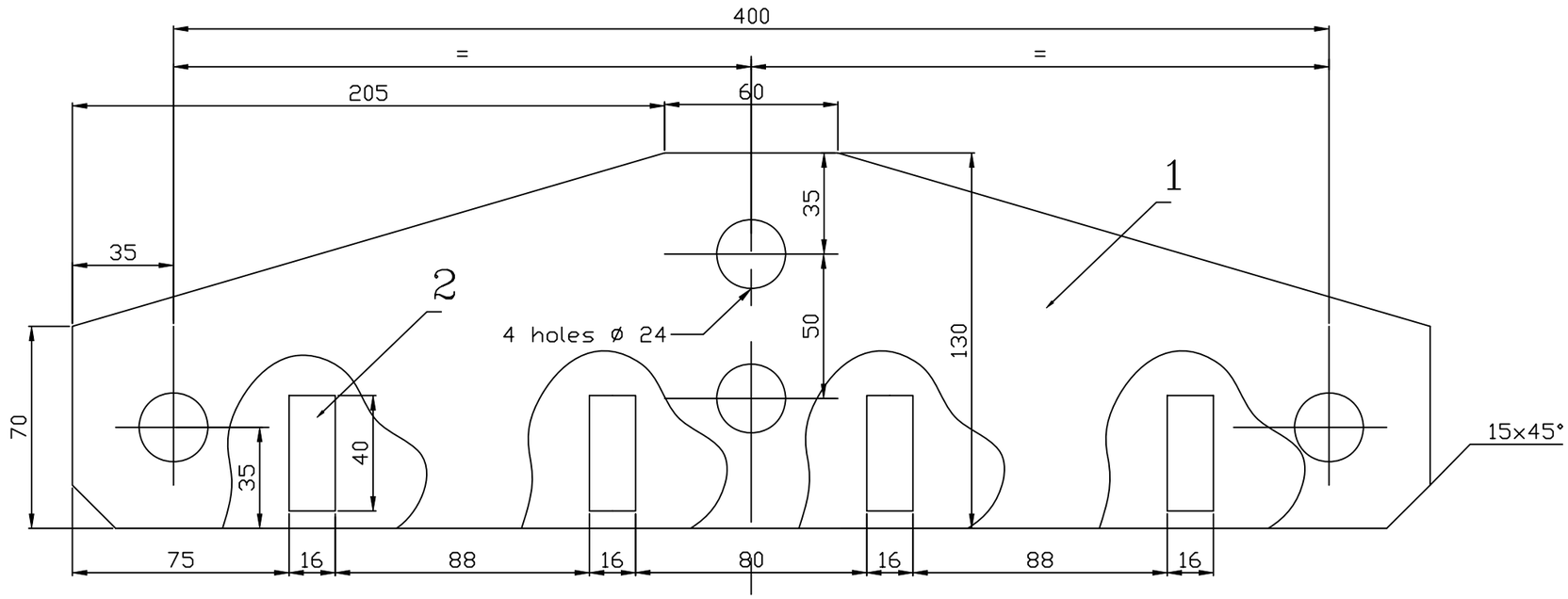
1.Will be hot galvanized AT/OL/Zn600-STAS 7221-90.

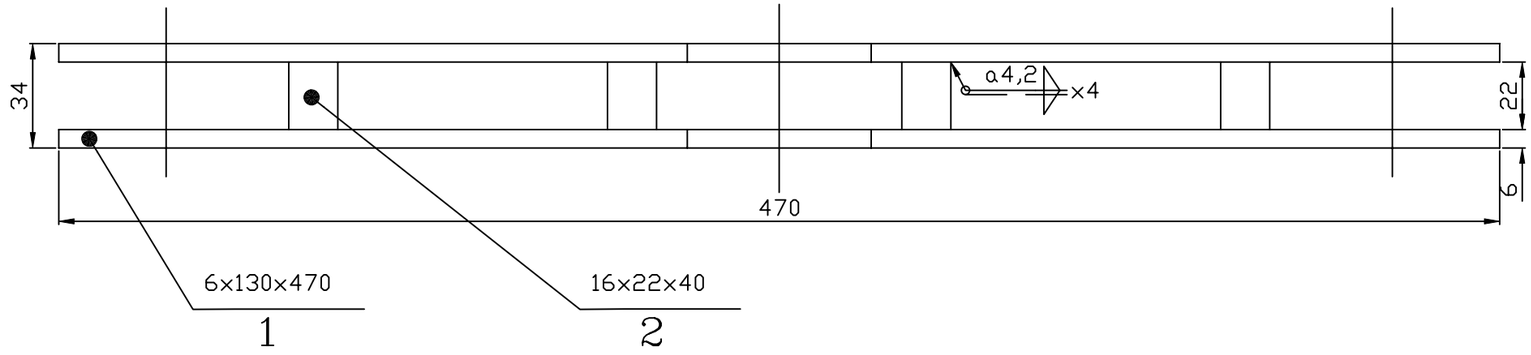
2.The eye will be used with the frame for concrete counterweights 0172A1.

3.Material: S235JR

OCHI TIP II EYE II	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG175		*1 / 1*	*0*

(297 x 420)



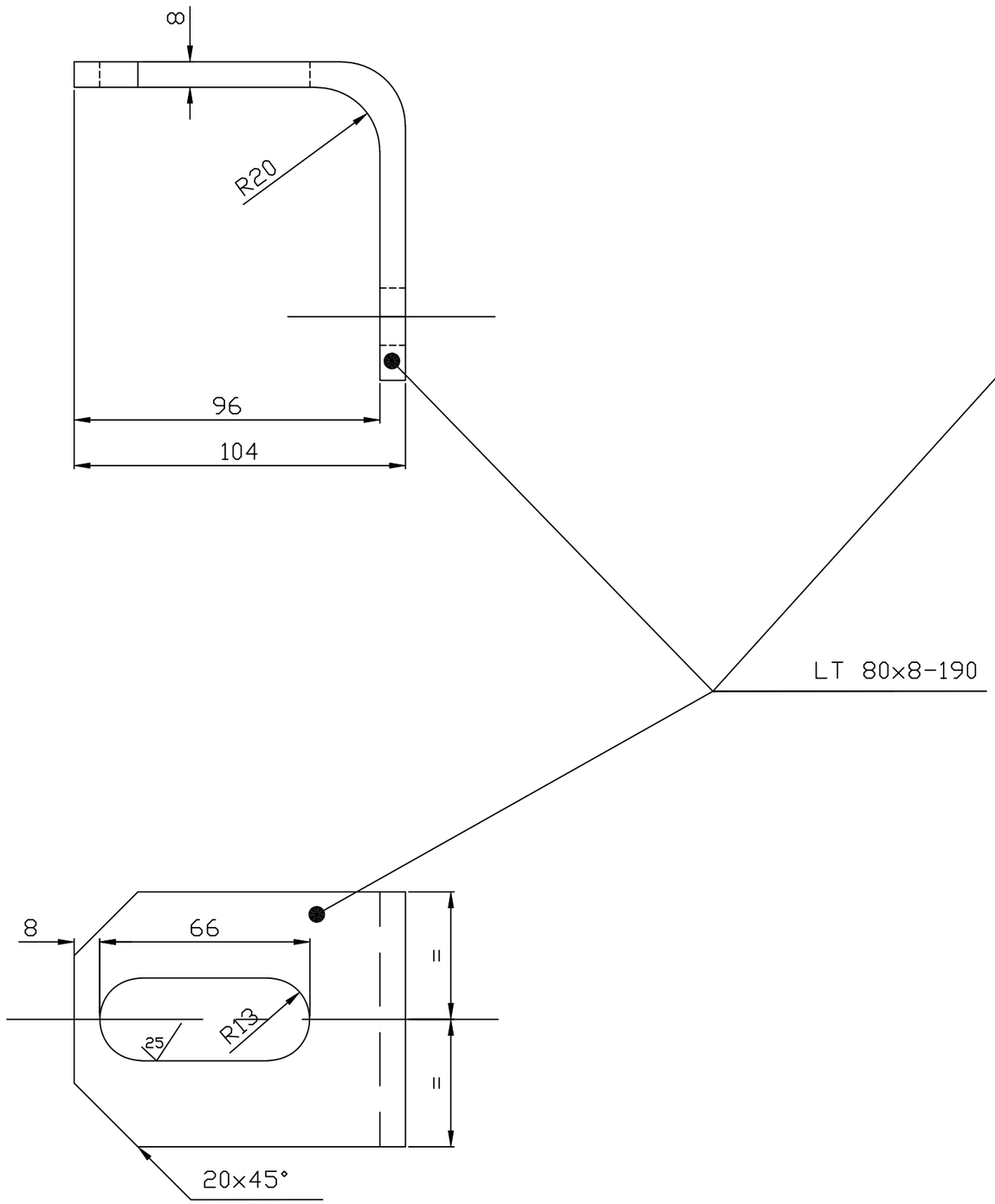


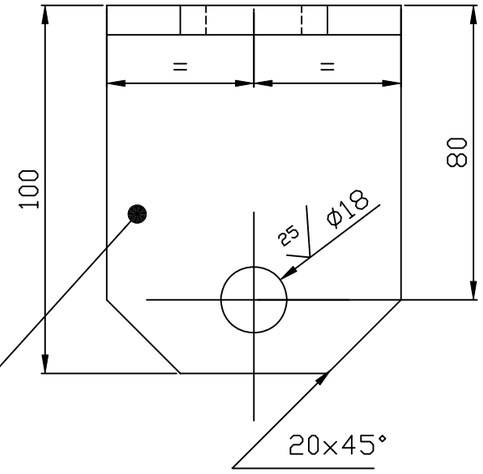
NOTE:
After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

2	SPACER	3	S235JR
1	PLATE	1	S235JR
ITEM	DESIGNATION	UNIT	MATERIAL TECHNICAL SPECIFICATION

DISPOZITIV CU 3 PRINDERI 3 PIN CLEVIS	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG179		1 / 1	0

(297 x 420)





NOTA:

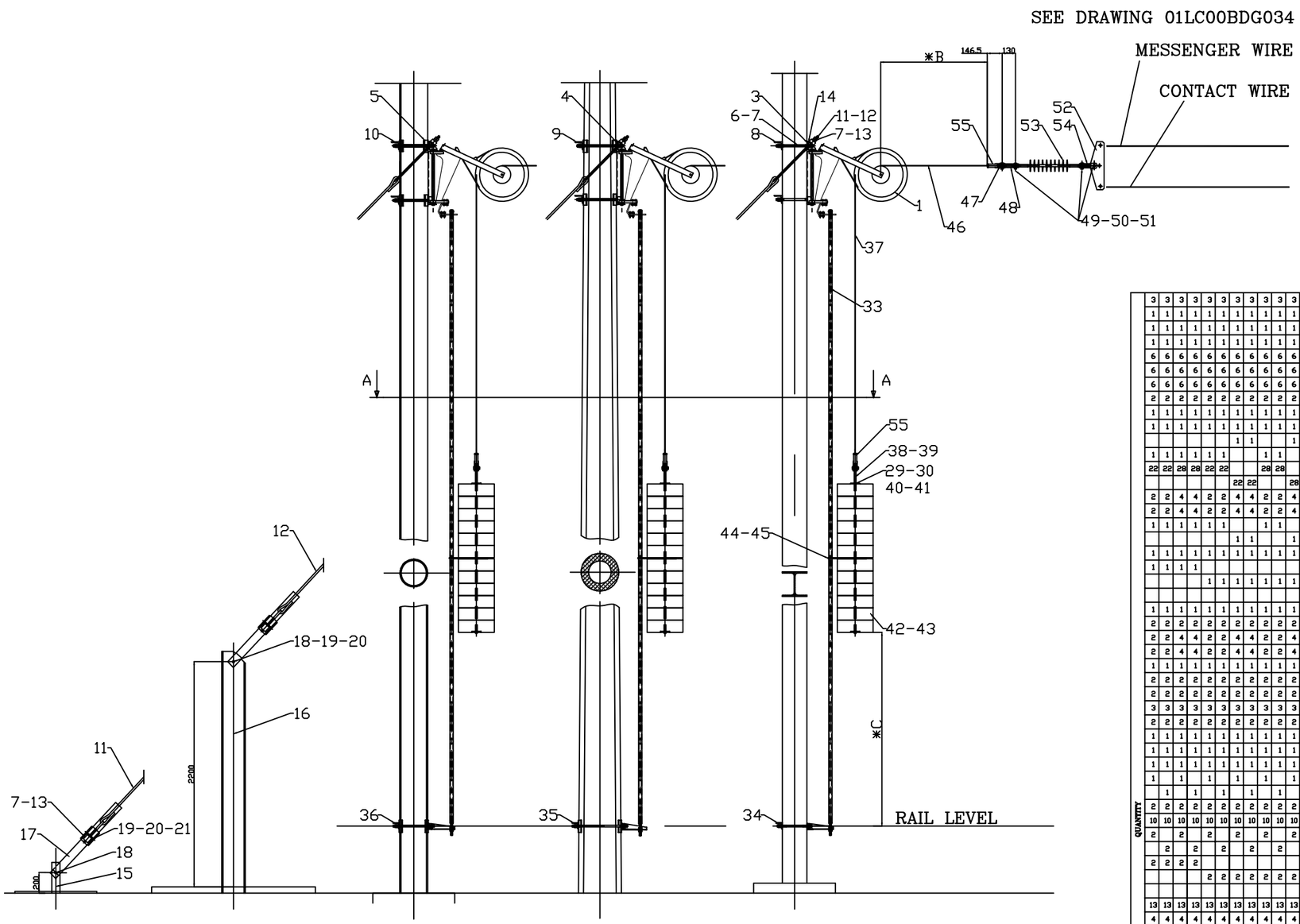
1.Will be hot galvanized AT/OL/Zn600-STAS 7221-90.

2.Material: S275JR

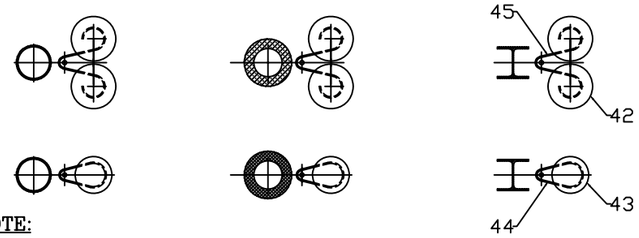
CLEMA DE PRINDERE IN COLT CORNER CRAMP	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG180		*1 / 1*	*0*

(297 x 420)

SEE DRAWING 01LC00BDG034



A-A



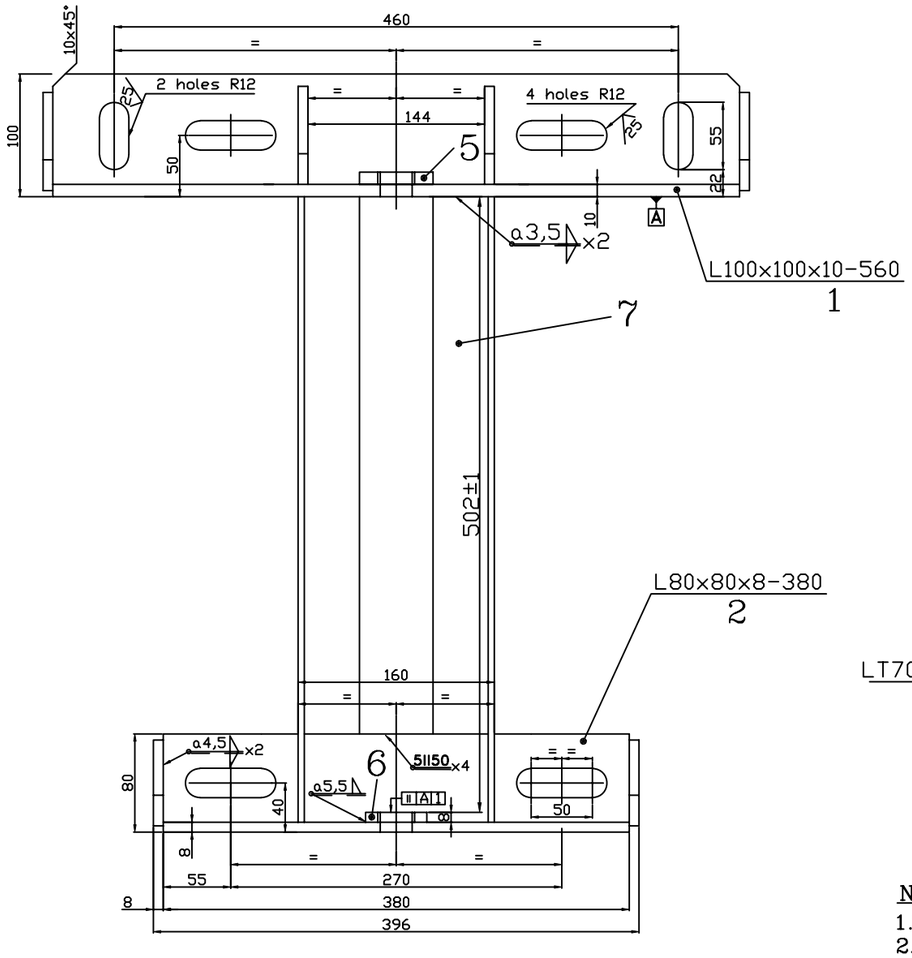
NOTE:

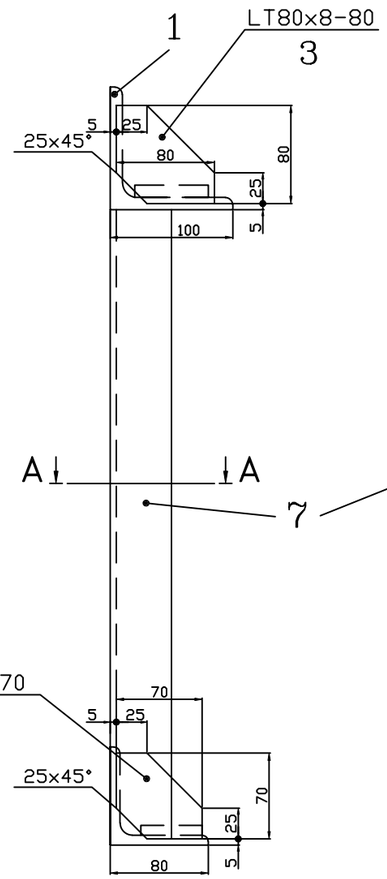
* –THE DIMENSIONS B AND C ARE IN DRAWING NO. 01LC00BDG053

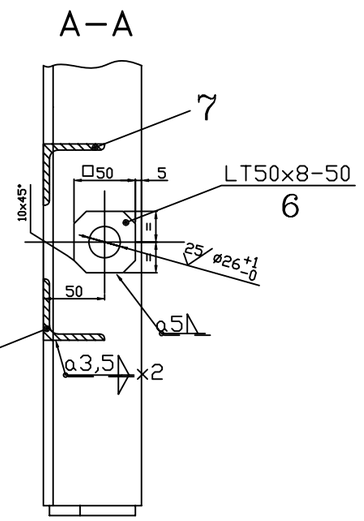
QUANTITY																					ITEM	DESIGNATION	UNIT	REFERENCE DRAWING	MARK
MARK GROUP	120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101					
	As	An	As	An	As	An	As	An	As	An	As	An	As	An	As	An	As	An	As	An					
	CGF		CGF		CGF		CGb		CGF		CGb		CGF		CGb		CGF		CGb						
	TF 80		TF 100		TF 80				TF 100				TF 80				TF 100								
	SMT 273				SECP6								MU10-5/8.2, HEB												
	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	55	CLAMP		ELC 9-29.0	
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	54	CLEVIS WITH EYE TWISTED		01LC00BDG192	
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	53	INSULATOR		01LC00BDG018	
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	52	3 PIN CLEVIS		01LC00BDG179	
	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	51	SPLIT PIN		01LC00BDG145	22A40
	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	50	WASHER		01LC00BDG142	22A11
	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	49	AXIS		01LC00BDG146	22460
	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	48	PLATE		01LC00BDG209	
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	47	THREE PIN STRAP		01LC00BDG189	
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	46	DOUBLE NORMAL CABLE 10-H-6x37-1770/8-g-s/z		STAS 1353-86	
							1	1			1	1			1	1			1	1	45	EYE II		01LC00BDG175	
	1	1	1	1	1	1			1	1			1	1			1	1			44	EYE I		01LC00BDG174	
	22	22	28	28	22	22			28	28			22	22			28	28			43	CAST IRON COUNTERWEIGHT		01LC00BDG173	
							22	22			28	28			22	22			28	28	42	CONCRETE COUNTERWEIGHT		01LC00BDG172	
	2	2	4	4	2	2	4	4	2	2	4	4	2	2	4	4	2	2	4	4	41	NUT M12 gr.4		SR EN ISO 4032-2002	
	2	2	4	4	2	2	4	4	2	2	4	4	2	2	4	4	2	2	4	4	40	CRAMP		ELC 51-22	
	1	1	1	1	1	1			1	1			1	1			1	1			39	ROD FOR CAST IRON COUNTERWEIGHTS		01LC00BDG202	
							1	1			1	1			1	1			1	1	38	CADRE FOR CONCRETE COUNTERWEIGHTS		01LC00BDG201	
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	37	DOUBLE NORMAL CABLE 10-H-6x37-1770/8-g-s/z		STAS 1353-86	
	1	1	1	1																	36	INFERIOR FASTENING ON SMT 273 POLE		01LC00BDG197	
					1	1	1	1	1	1	1	1									35	INFERIOR FASTENING ON SECP6 POLE		01LC00BDG195	
													1	1	1	1	1	1	1	1	34	INFERIOR FASTENING ON MU 10-5/8.2 OR HEB POLE		01LC00BDG193	
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	33	GUIDEWAY		01LC00BDG187	
	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	31	PLATE		01LC00BDG158	
	2	2	4	4	2	2	4	4	2	2	4	4	2	2	4	4	2	2	4	4	30	WASHER		01LC00BDG142	12B51
	2	2	4	4	2	2	4	4	2	2	4	4	2	2	4	4	2	2	4	4	29	BOLT		01LC00BDG144	1222E7
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	27	COGWHEEL SUPPORT AXIS		01LC00BDG186	
	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	23	NUT M24-gr.8		SR EN ISO 4032-2002	
	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	22	SPLIT PIN		01LC00BDG145	24A50
	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	21	WASHER		01LC00BDG142	24A11
	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	20	AXIS		01LC00BDG146	24460
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	SUPPORT		01LC00BDG156	
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	BOLT		01LC00BDG144	2743TF
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17	REGULATION PLATE		ELC 49-17	
	1		1		1		1		1		1		1		1		1		1		16	SUPERELEVATED ANCHOR BEAM		01LC00BDG049	
		1		1		1		1		1		1		1		1		1		1	15	LEVEL ANCHOR BEAM		01LC00BDG132	
	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	14	SPECIAL WASHER		ELC 16-12.3.0	
	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	13	NUT M20-gr.8		SR EN ISO 4032-2002	
	2		2		2		2		2		2		2		2		2		2		12	TIE ROD		01LC00BDG130	102
		2		2		2		2		2		2		2		2		2		2	11	TIE ROD		01LC00BDG130	101
	2	2	2	2																	10	COUNTERPLATE		01LC00BDG129	103
					2	2	2	2	2	2	2										9	COUNTERPLATE		01LC00BDG129	102
													2	2	2	2	2	2	2	2	8	COUNTERPLATE		01LC00BDG129	101
	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	7	WASHER		01LC00BDG142	20A11
	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	6	THREADED ROD		01LC00BDG141	2041E2
	1	1	1	1																	5	UPPER FASTENING FOR SMT 273 POLE		01LC00BDG185	
					1	1	1	1	1	1	1	1									4	UPPER FASTENING FOR SECP6 POLE		01LC00BDG184	
													1	1	1	1	1	1	1	1	3	UPPER FASTENING FOR MU 10-5/8.2 OR HEB POLE		01LC00BDG183	
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	COGWHEEL		B624006h	RIBE

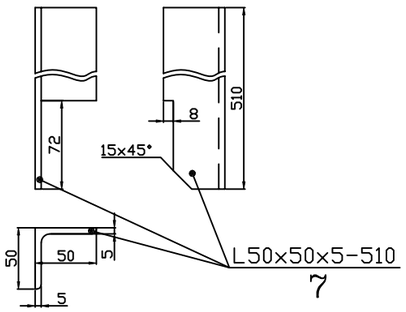
ANCORAREA TOTAL COMPENSATA A CATENAREI FULL COMPENSATED CATENARY ANCHORING	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG182		1 / 1	0

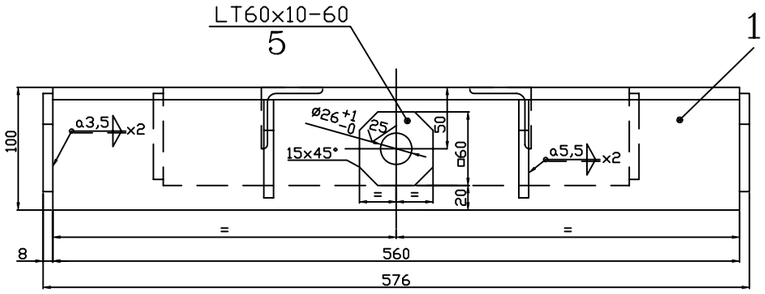
(297 x 420)









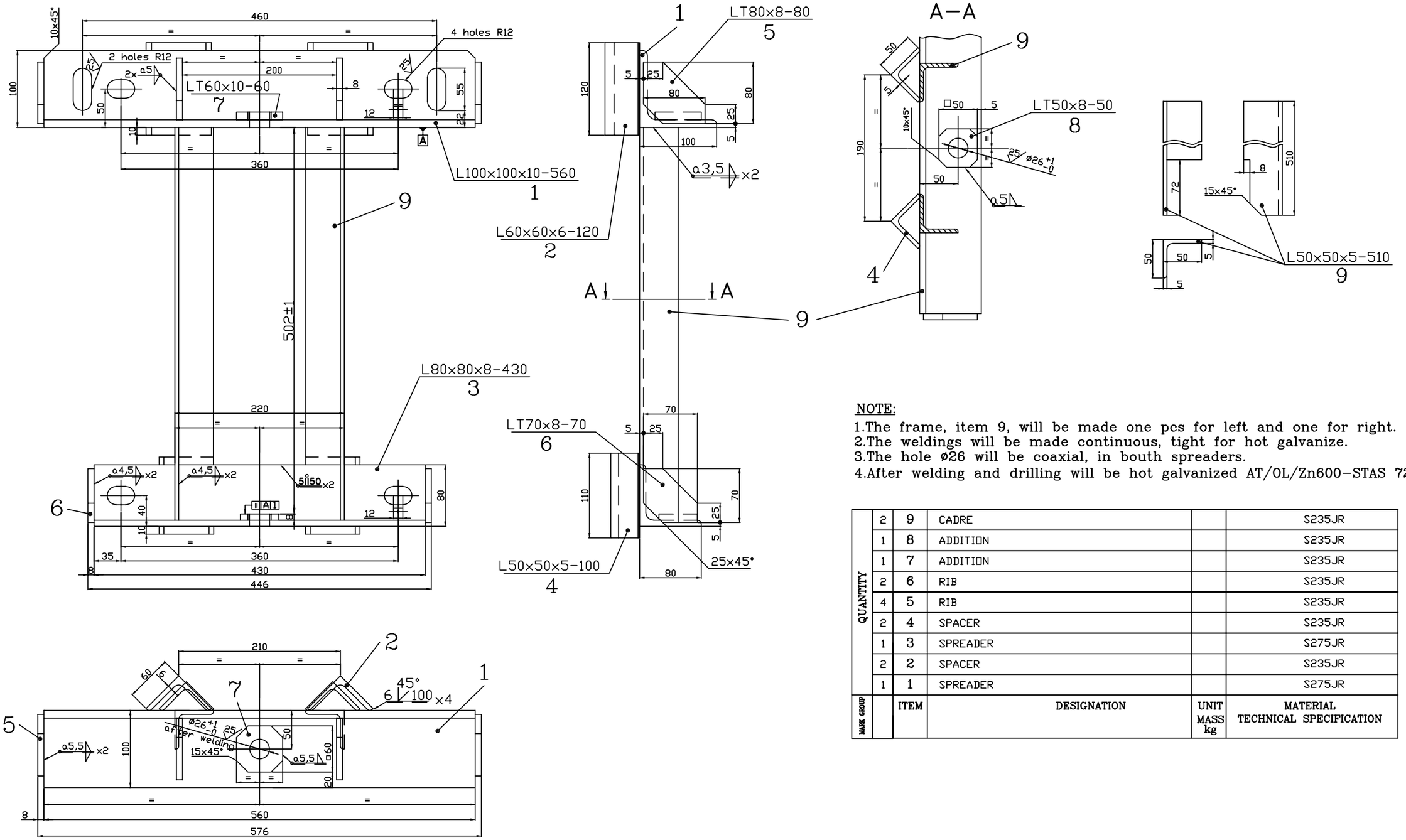


NOTE:
1.The weldings will be made continuous, tight for hot galvanize.
2.The hole ø26 will be coaxial, in bouth spreaders.
3.After welding and drilling will be hot galvanized AT/OL/Zn600–STAS 7221–90.

QUANTITY		ITEM	DESIGNATION	UNIT MASS kg	MATERIAL TECHNICAL SPECIFICATION	MARK
2		7	CADRE		S235JR	2
1		6	ADDITION		S235JR	2
1		5	ADDITION		S235JR	2
2		4	RIB		S235JR	2
4		3	RIB		S235JR	2
1		2	SPREADER		S275JR	8
1		1	SPREADER		S275JR	8
MARK GROUP						

FIXARE SUPERIOARA PENTRU MU 10–5/8.2 SAU STALP HEB UPPER FASTENING FOR MU 10–5/8.2 OR HEB POLE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG183		1 / 1	0

(297 x 420)



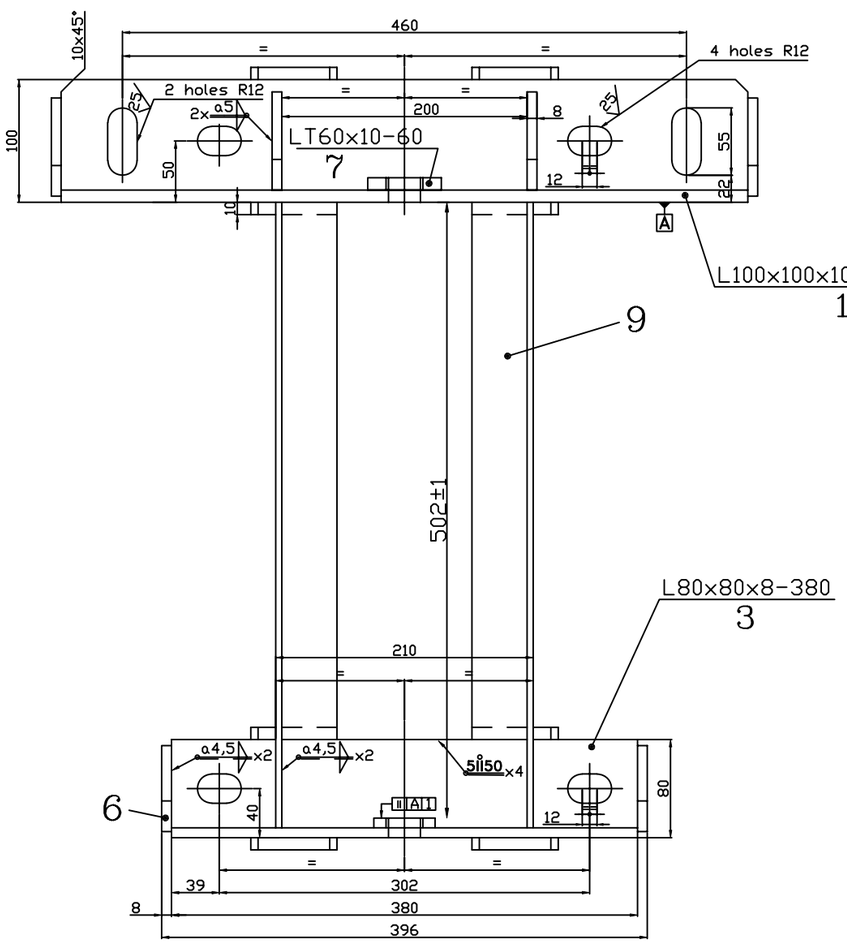
NOTE:

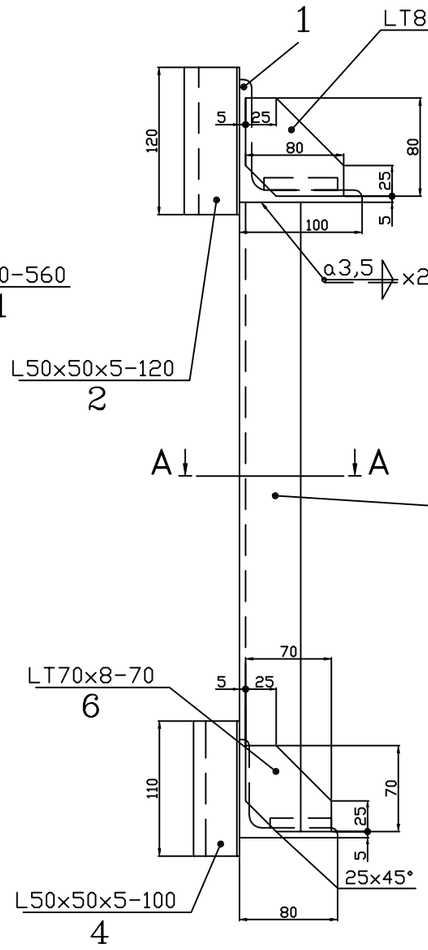
1.The frame, item 9, will be made one pcs for left and one for right.
2.The weldings will be made continuous, tight for hot galvanize.
3.The hole ø26 will be coaxial, in bouth spreaders.
4.After welding and drilling will be hot galvanized AT/OL/Zn600–STAS 7221–90.

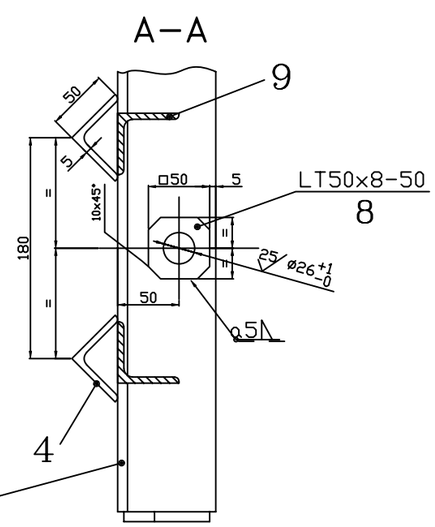
MARK GROUP	QUANTITY	ITEM	DESIGNATION	UNIT MASS kg	MATERIAL TECHNICAL SPECIFICATION
	2	9	CADRE		S235JR
	1	8	ADDITION		S235JR
	1	7	ADDITION		S235JR
	2	6	RIB		S235JR
	4	5	RIB		S235JR
	2	4	SPACER		S235JR
	1	3	SPREADER		S275JR
	2	2	SPACER		S235JR
	1	1	SPREADER		S275JR

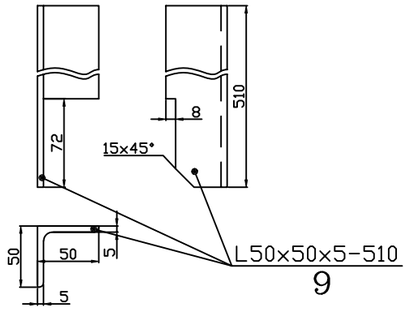
FIXARE SUPERIOARA PENTRU STALP SECP6 UPPER FASTENING FOR SECP6 POLE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG184		1 / 1	0

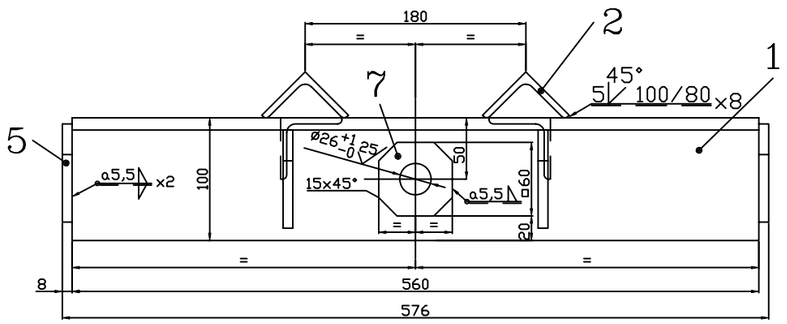
(297 x 420)











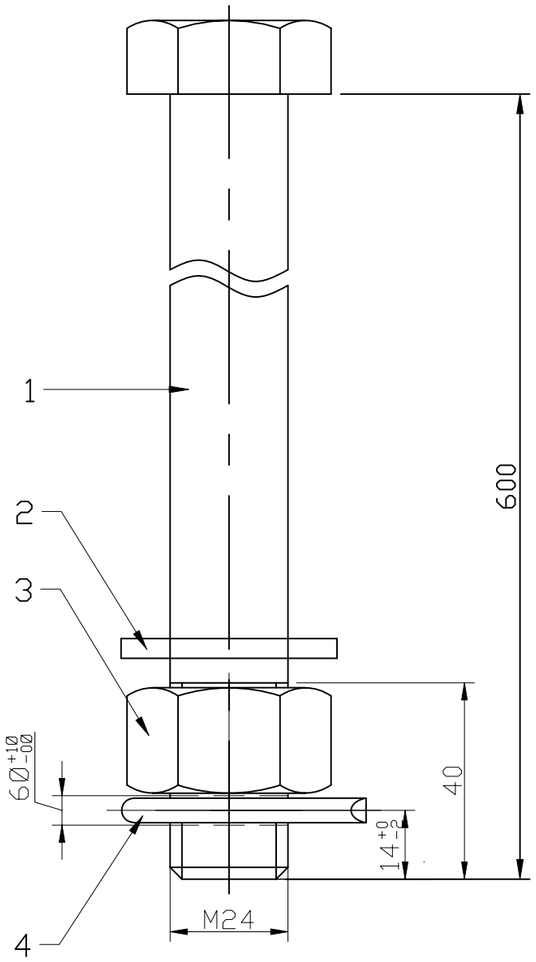
NOTE:

1.The frame, item 9, will be made one pcs for left and one for right.
2.The weldings will be made continuous, tight for hot galvanize.
3.The hole ø26 will be coaxial, in bouth spreaders.
4.After welding and drilling will be hot galvanized AT/OL/Zn600–STAS 7221–90.

MARK GROUP	ITEM	DESIGNATION	UNIT MASS kg	MATERIAL TECHNICAL SPECIFICATION
QUANTITY 2	9	CADRE		S235JR
QUANTITY 1	8	ADDITION		S235JR
QUANTITY 1	7	ADDITION		S235JR
QUANTITY 2	6	RIB		S235JR
QUANTITY 4	5	RIB		S235JR
QUANTITY 2	4	SPACER		S235JR
QUANTITY 1	3	SPREADER		S275JR
QUANTITY 2	2	SPACER		S235JR
QUANTITY 1	1	SPREADER		S275JR

FIXARE SUPERIOARA PENTRU STALP SMT273 UPPER FASTENING FOR SMT273 POLE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG185		*1 / 1*	*0*

(297 x 420)



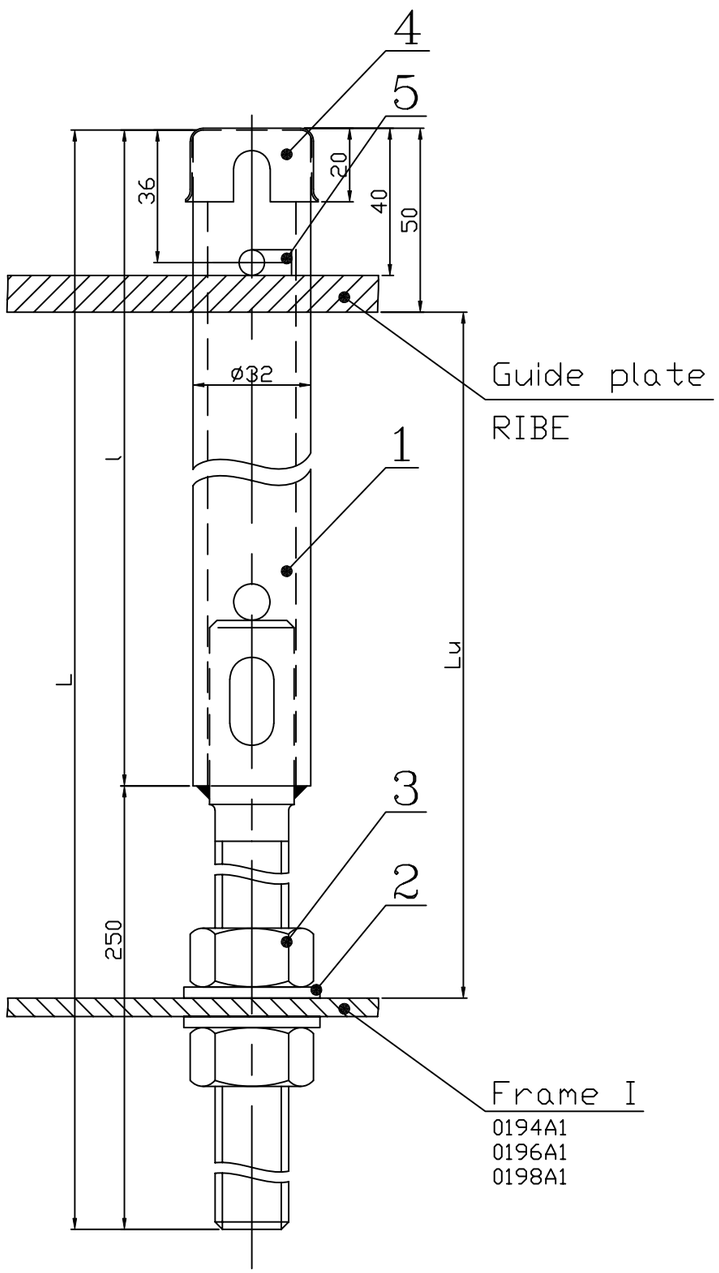
NOTE:

The axis 1 will be executed from OLC 45.
Tje position 2 and 3 will be hot galvanized AT/OL/Zn500.

MARK GROUP	QUANTITY	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
	1	4	SPLIT 5x40		01LC00BDG145	506040
	2	3	WASHER T24		01LC00BDG142	
	2	2	NUT M24		SR EN ISO 4032-2002	
	1	1	SCREW M24		-	

AX SUPORT COGWHEEL SUPORT AXIS	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG186		*1 / 1*	*0*

(297 x 420)



Mark	Hfc	L	l	Lu
101	5650-5500	5900	5650	5600-5750
102	5750-5600	6000	5750	5700-5850
103	5850-5700	6100	5850	5800-5950
104	5950-5800	6200	5950	5900-6050
105	6050-5900	6300	6050	6000-6150
106	6150-6000	6400	6150	6100-6250
107	6250-6100	6500	6250	6200-6350
108	6350-6200	6600	6350	6300-6450
109	6450-6300	6700	6450	6400-6550
110	6550-6400	6800	6550	6500-6650

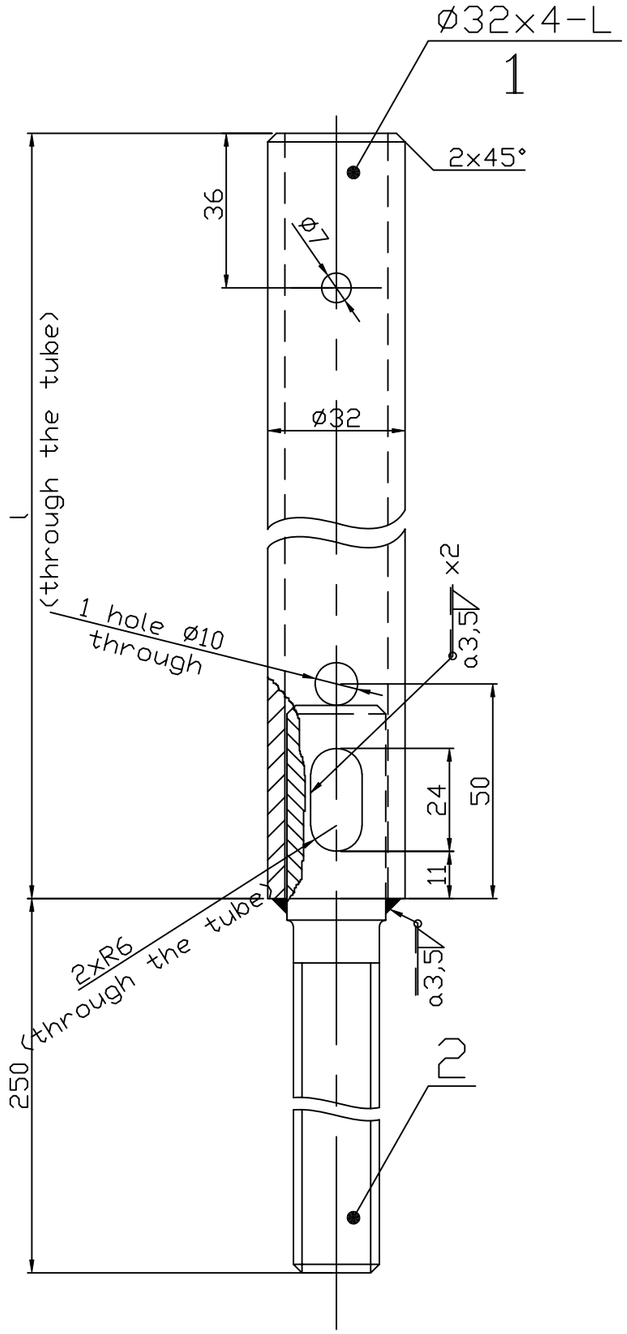
NOTE:

The elements 2 and 3 will be hot galvanized AT/OL/Zn500, except the threader AT/OL/Zn310.
Material P5: COOPER

MARK GROUP	QUANTITY	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
	1	5	Split 5x70 (32B70)		01LC00BDG145	32B070
	1	4	Cover		01LC00BDG191	
	2	3	NUT M20		SR EN ISO 4032-2002	
	2	2	WASHER T20		01LC00BDG142	20A110
	1	1	BAR		01LC00BDG188	

GHIDAJ GUIDEWAY	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG187		*1 / 1*	*0*

(297 x 420)



ANOTE:

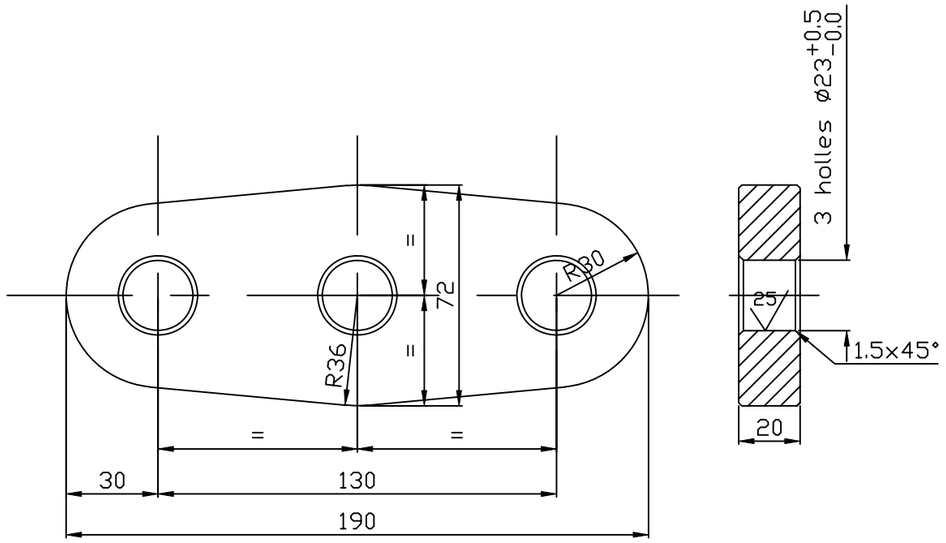
fter the welding will be hot galvanized
AT/OL/Zn500, except the threader AT/OL/Zn310.

Material 1: OLT 45 STAS 8183-80
Material 2: S275JR

MARK GROUP	QUANT.	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
	1	2	SCREW		03LC00BDG190	
	1	1	BAR		-	

	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
BARA BAR	*01LC00BDG188*		*1 / 1*	*0*

(297 x 420)

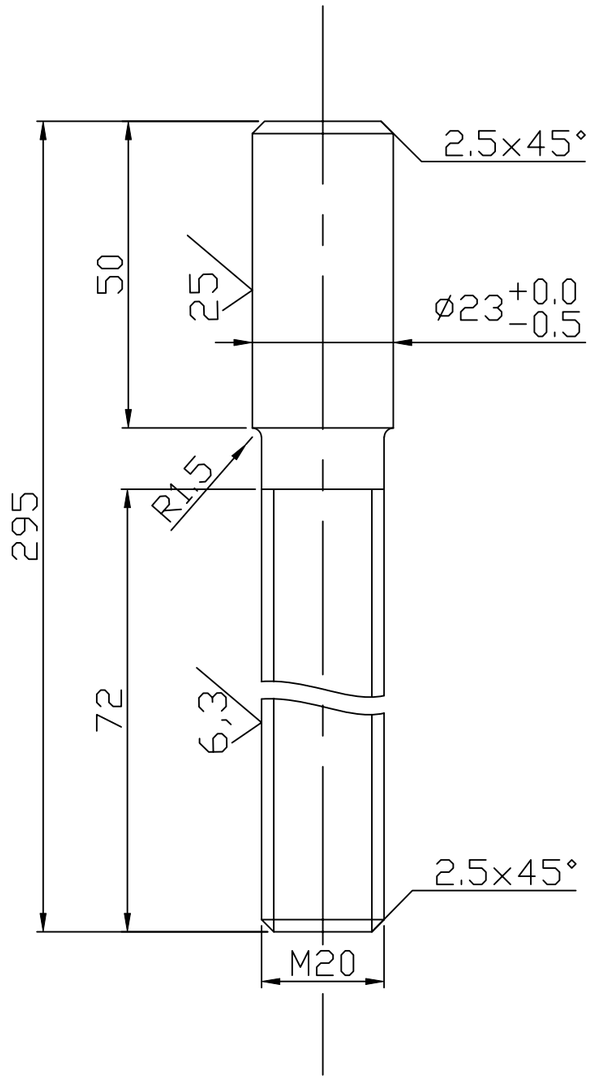


NOTE:

After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.
MATERIAL: S275JR

LEGATURA CU 3 GAURI THREE PIN STRAP	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG189		*1 / 1*	*0*

(297 x 420)

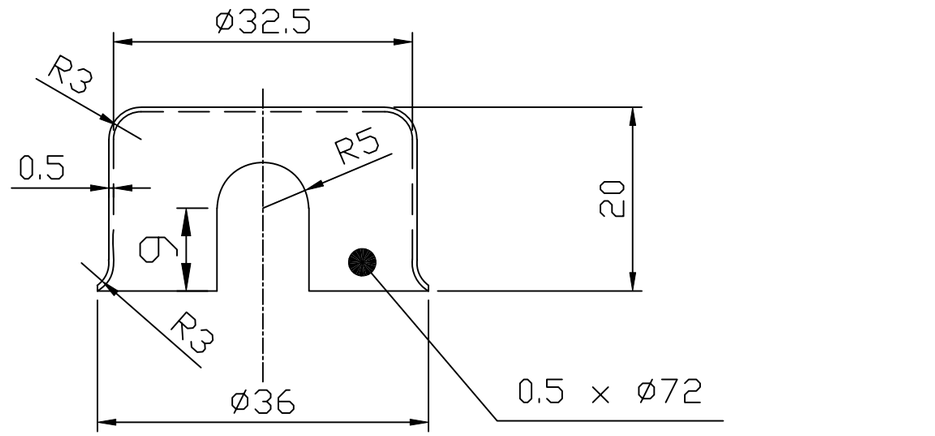


NOTE

MATERIAL: S235JR

SURUB SCREW	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG190		*1 / 1*	*0*

(297 x 420)



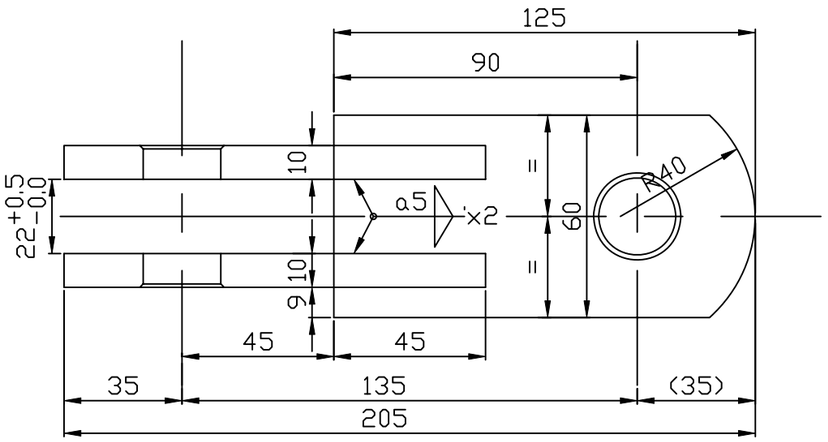
(deployment)

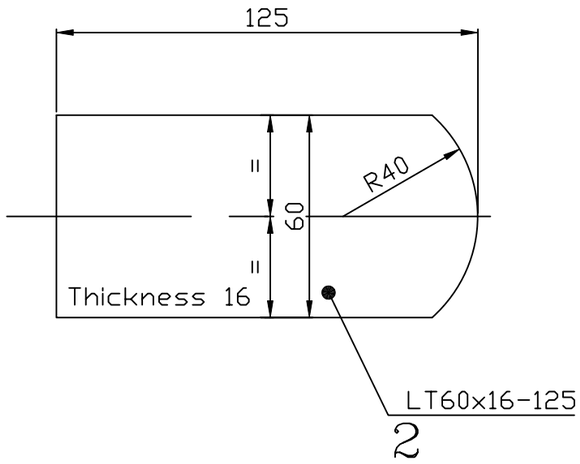
NOTE:

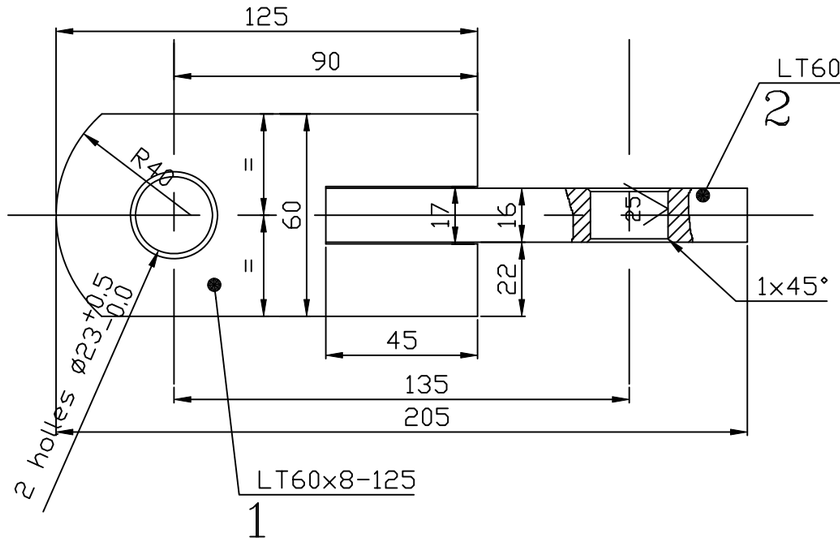
The part will be hot galvanized AT/OL/Zn500
MATERIAL: S235JR

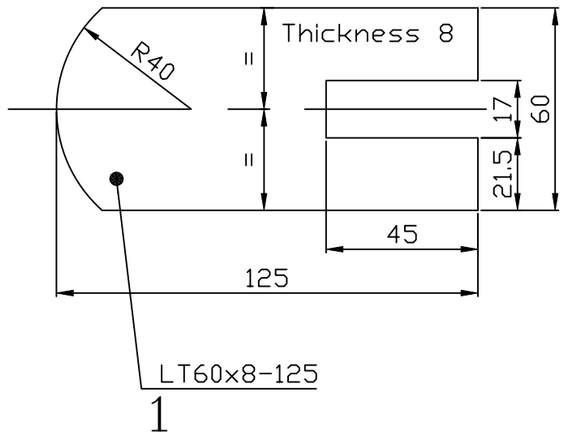
CAPAC COVER	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG191		*1 / 1*	*0*

(297 x 420)







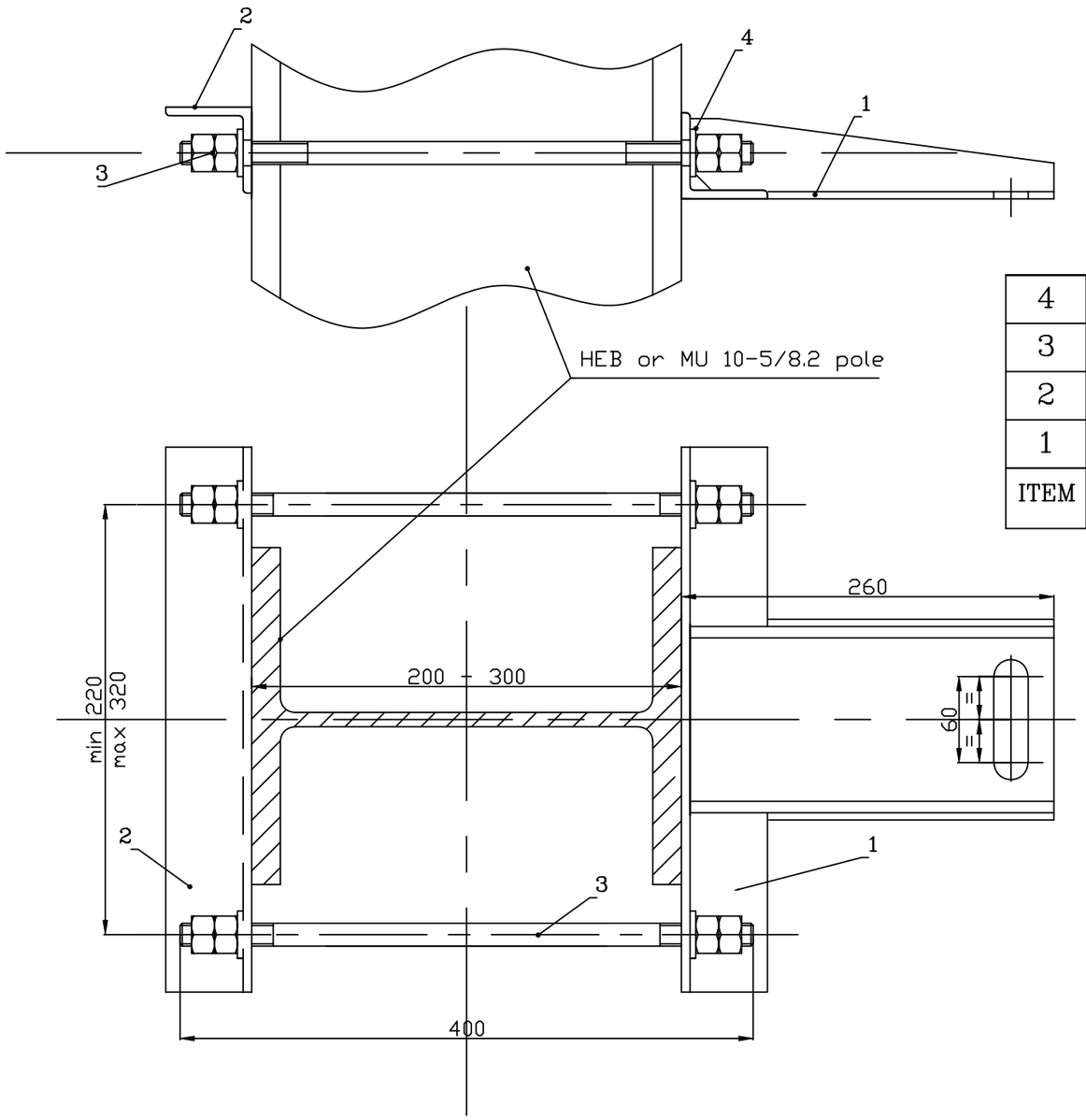


NOTE:
After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

ITEM	DESIGNATION	UNIT	MATERIAL TECHNICAL SPECIFICATION
2	EYE II	2	S275JR
1	EYE I	1	S275JR

PRINDERE RASUCITA CU OCHI CLEVIS WITH EYE TWISTED	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG192		*1 / 1*	*0*

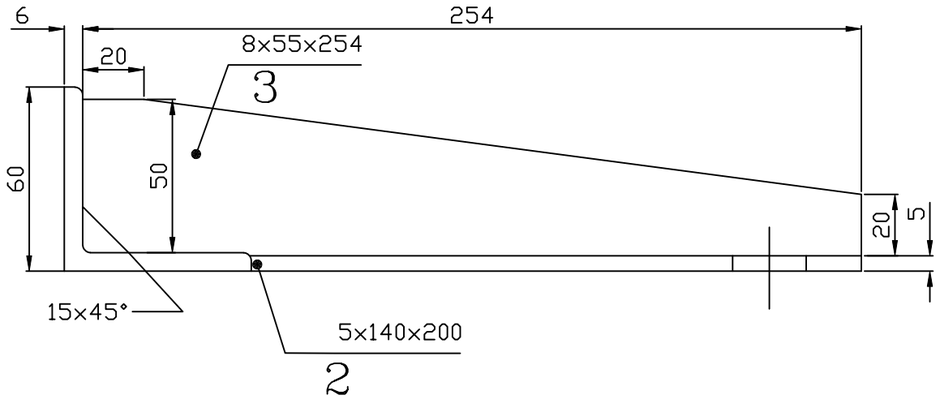
(297 x 420)

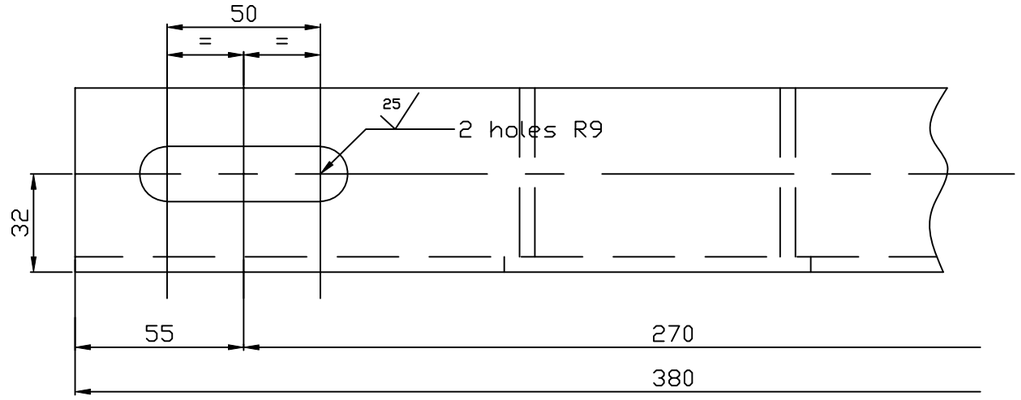


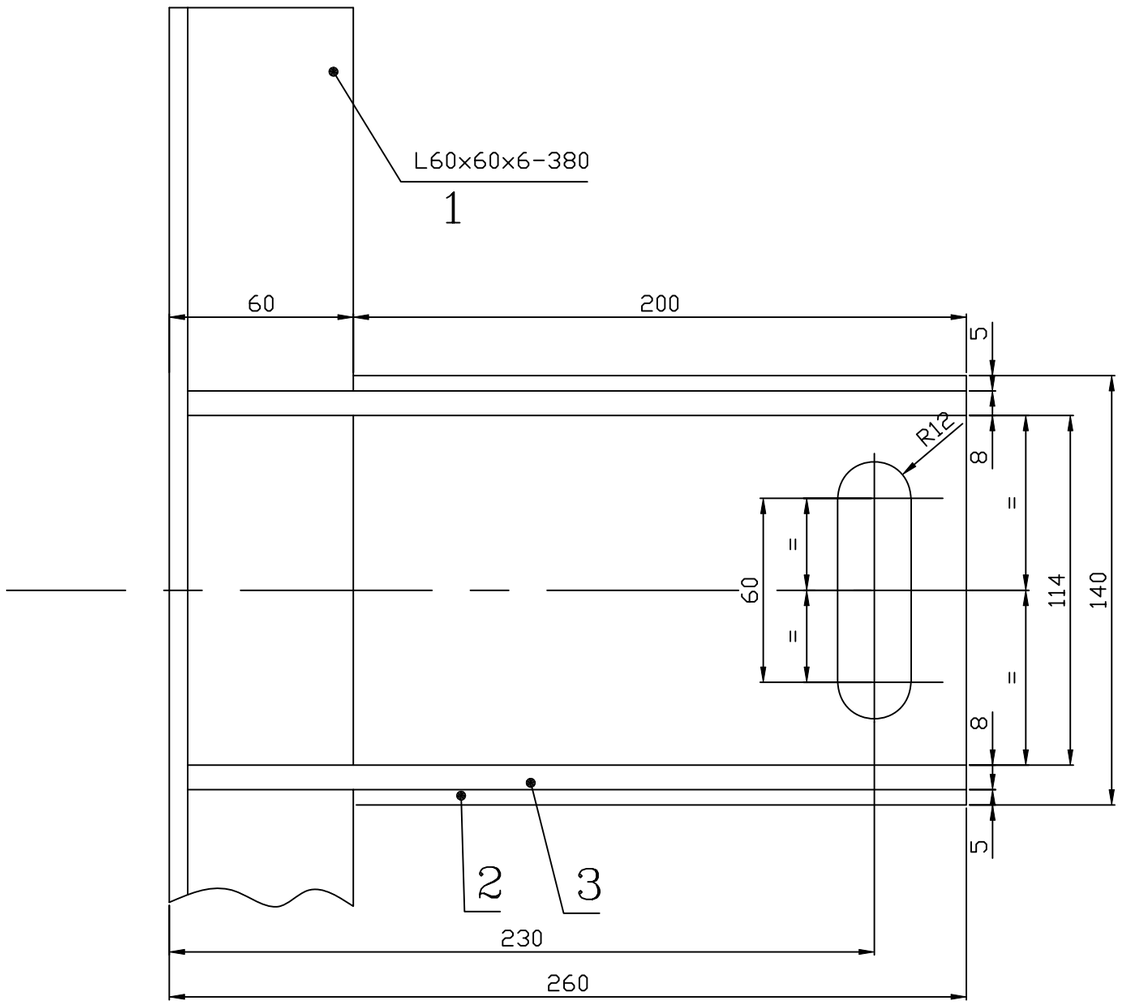
4	WASHER	4	01LC00BDG142	16A21
3	THREADED ROD	2	01LC00BDG141	1611D2
2	FRAME II	1	01LC00BDG165	
1	FRAME I	1	01LC00BDG194	
ITEM	DESIGNATION	UNIT	REFERENCE DRAWING	MARK

FIXARE INFERIOARA PE STALP HEB SAU MU INFERIOR FASTENING ON HEB OR MU POLE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG193		*1 / 1*	*0*

(297 x 420)





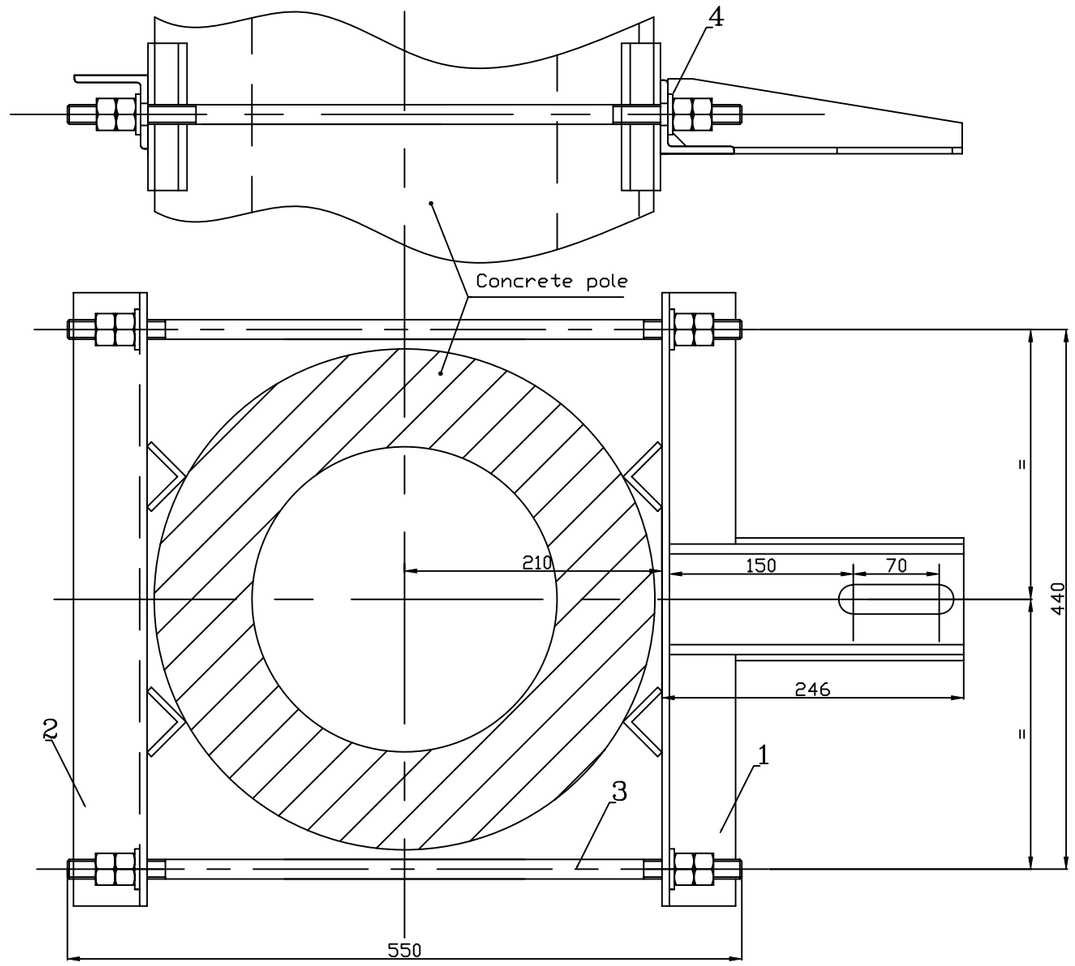


NOTE:
After welding and drilling will be hot galvanized AT/OL/Zn500-STAS 7221-90.

3	RIB	2	S235JR
2	ADDITION	1	S235JR
1	FRAME	1	S235JR
ITEM	DESIGNATION	UNIT	MATERIAL TECHNICAL SPECIFICATION

PROFIL I FRAME I	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG194		*1 / 1*	*0*

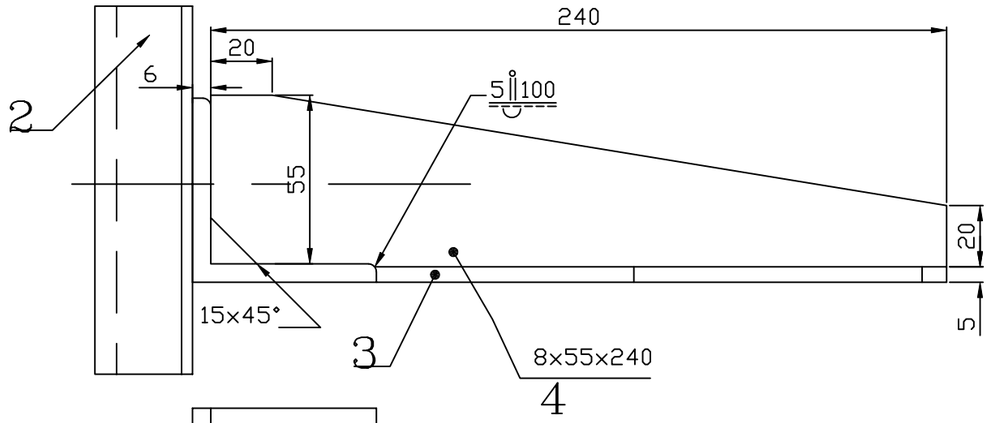
(297 x 420)

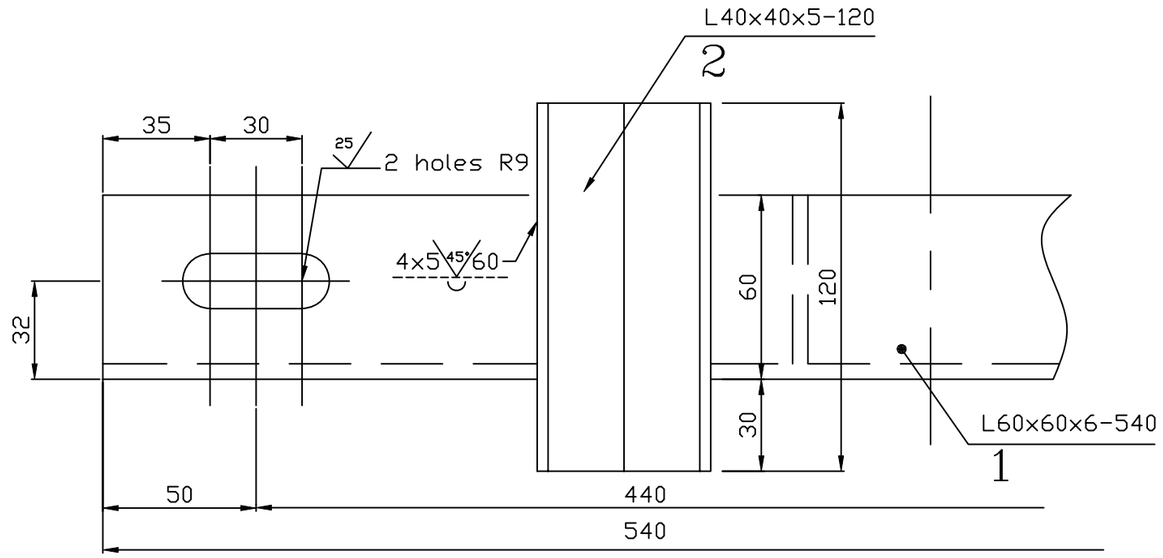


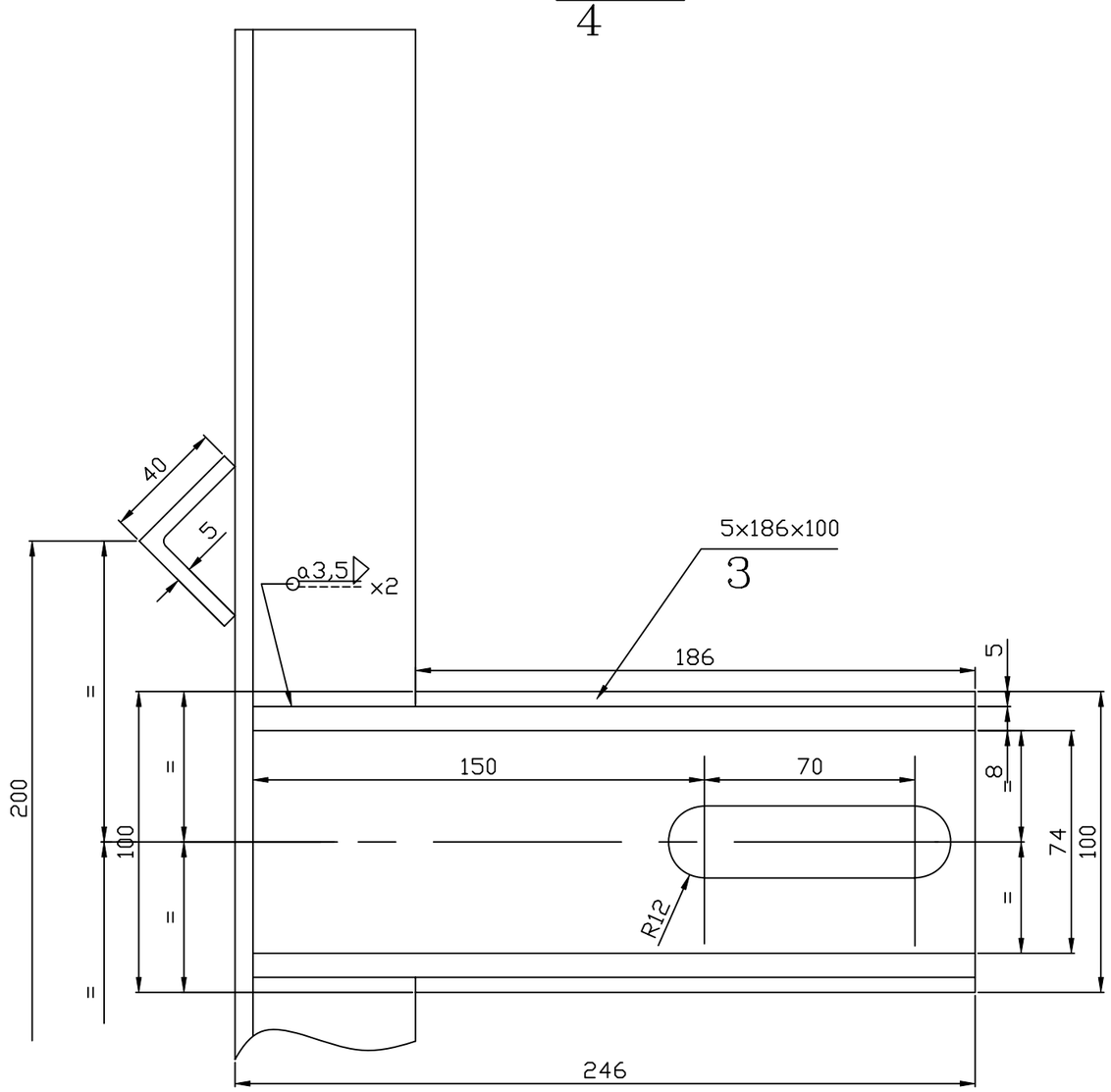
ITEM	DESIGNATION	UNIT	REFERENCE DRAWING	MARK
4	WASHER	4	01LC00BDG142	16A21
3	THREADED ROD	2	01LC00BDG141	1611G2
2	FRAME II	1	01LC00BDG168	
1	FRAME I	1	01LC00BDG196	

FIXARE INFERIOARA PENTRU STALP SECP6 INFERIOR FASTENING ON SECP6 POLE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG195		*1 / 1*	*0*

(297 x 420)





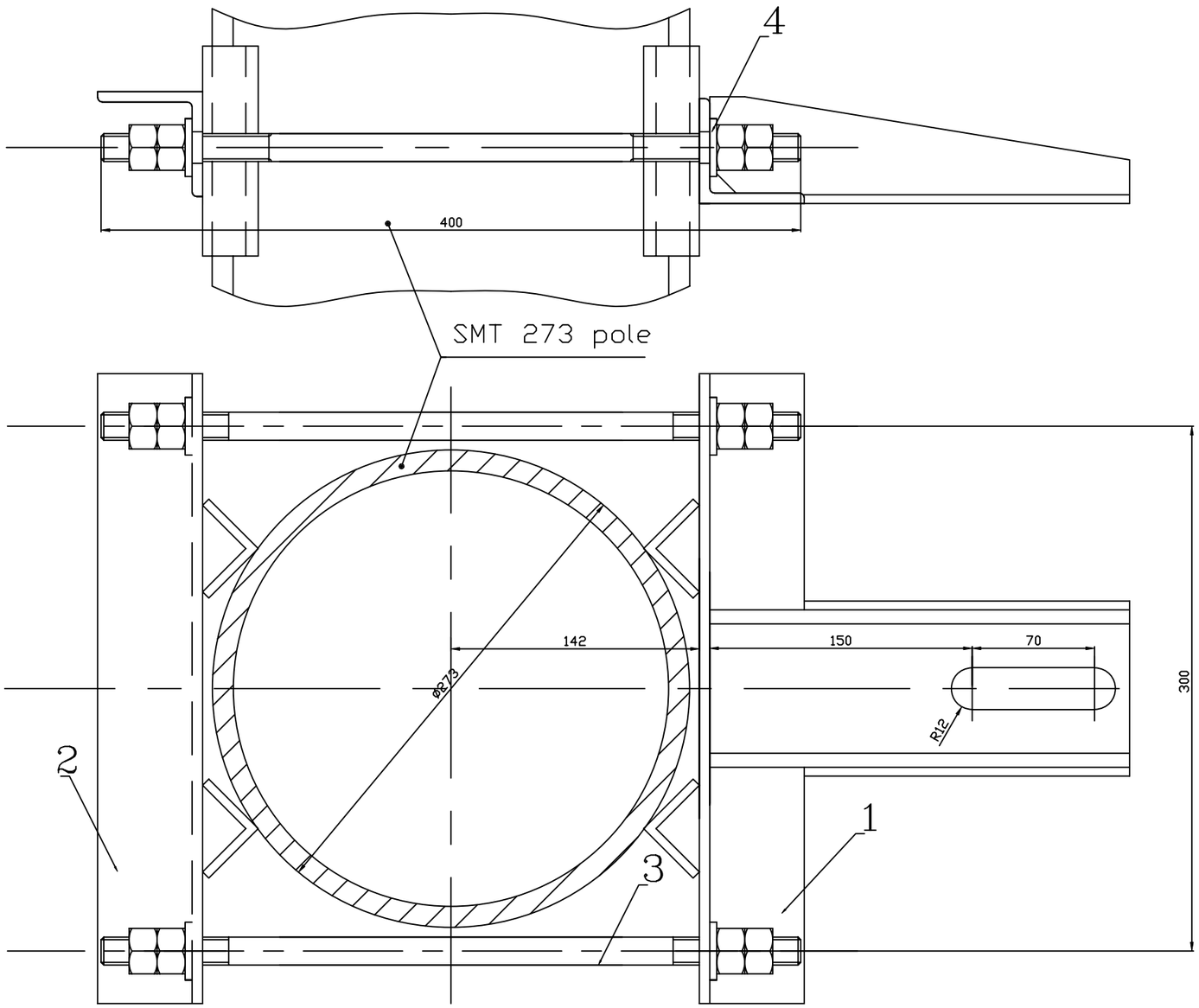


NOTE:
After welding and drilling will be hot galvanized AT/OL/Zn500-STAS 7221-90.

ITEM	DESIGNATION	UNIT	MATERIAL TECHNICAL SPECIFICATION
4	RIB	2	S235JR
3	ADDITION	1	S235JR
2	PROFILE	2	S235JR
1	FRAME	1	S235JR

	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
PROFIL I FRAME I	*01LC00BDG196*		*1 / 1*	*0*

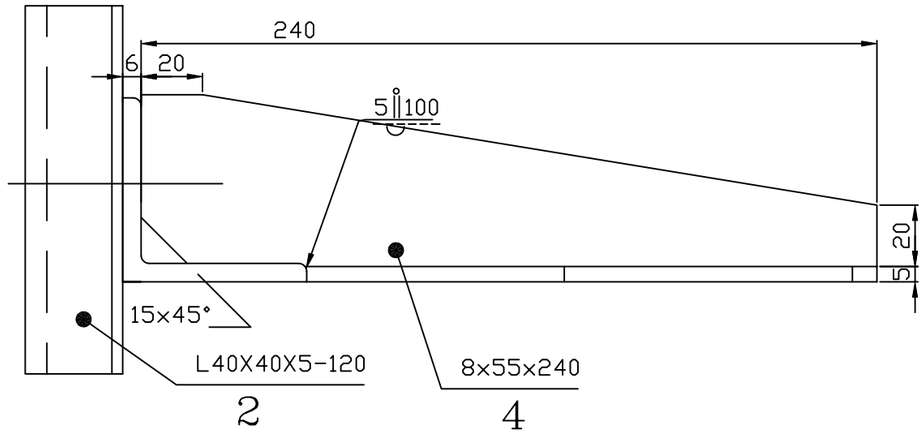
(297 x 420)

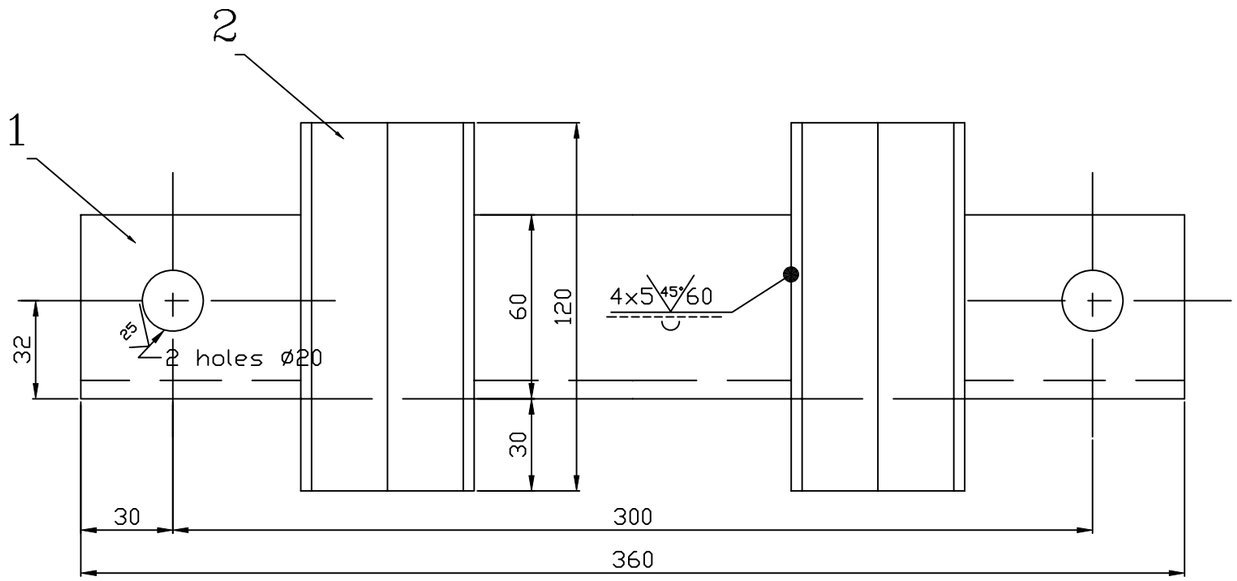


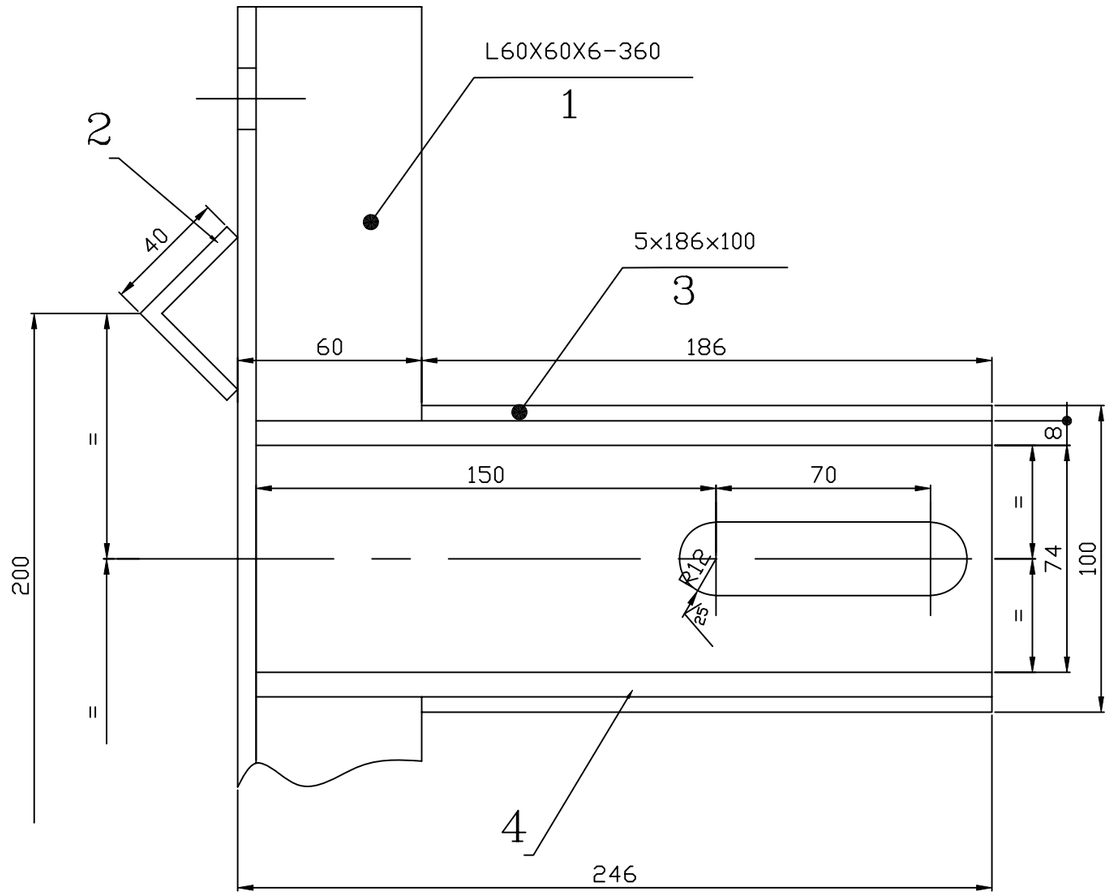
4	WASHER	4	01LC00BDG142	16A21
3	THREADED ROD	2	01LC00BDG141	1611D2
2	FRAME II	1	01LC00BDG171	
1	FRAME I	1	01LC00BDG198	
ITEM	DESIGNATION	UNIT	REFERENCE DRAWING	MARK

FIXARE INFERIOARA PENTRU STALP SMT INFERIOR FASTENING ON SMT POLE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG197		*1 / 1*	*0*

(297 x 420)







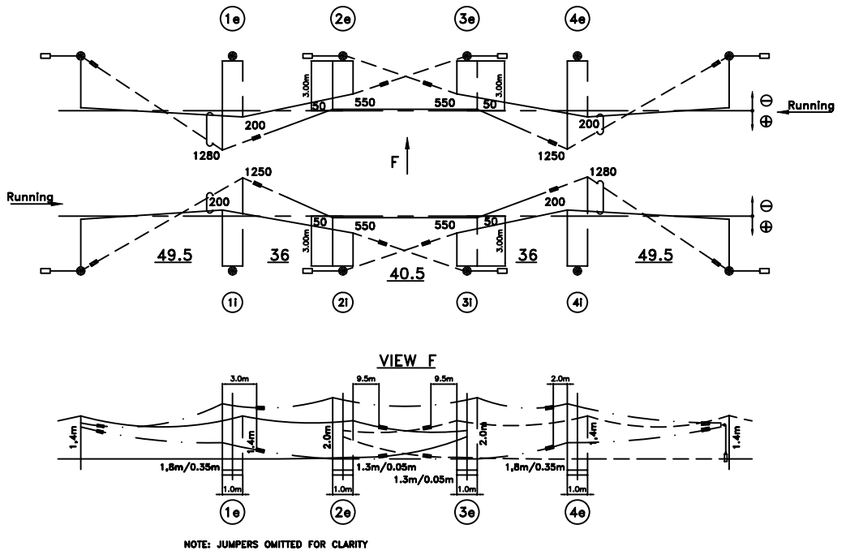
NOTE:
After welding and drilling will be hot galvanized AT/OL/Zn500-STAS 7221-90.

ITEM	DESIGNATION	UNIT	MATERIAL TECHNICAL SPECIFICATION
4	RIB	2	S235JR
3	ADDITTION	1	S235JR
2	PROFILE	2	S235JR
1	SINGLE-BANK OAR	1	S235JR

PROFIL I FRAME I	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG198		*1 / 1*	*0*

(297 x 420)

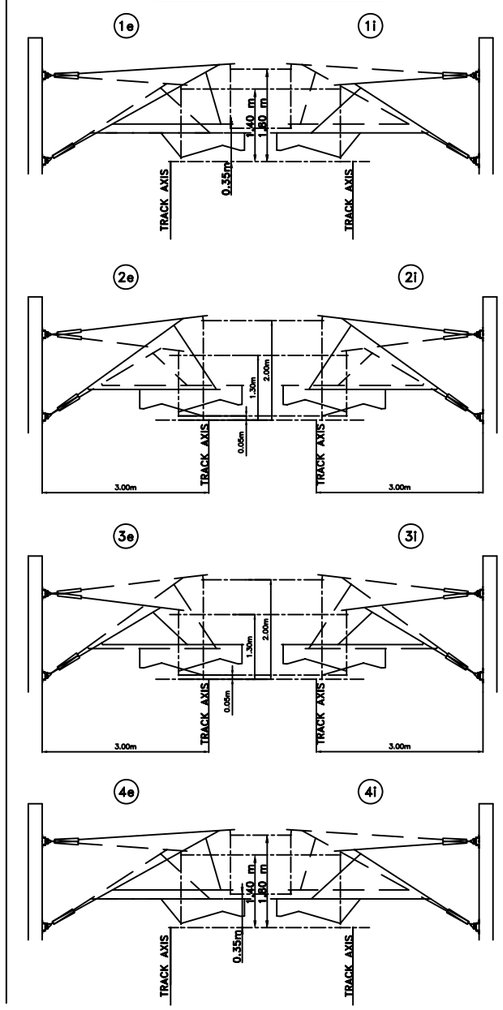
NEUTRAL SECTION



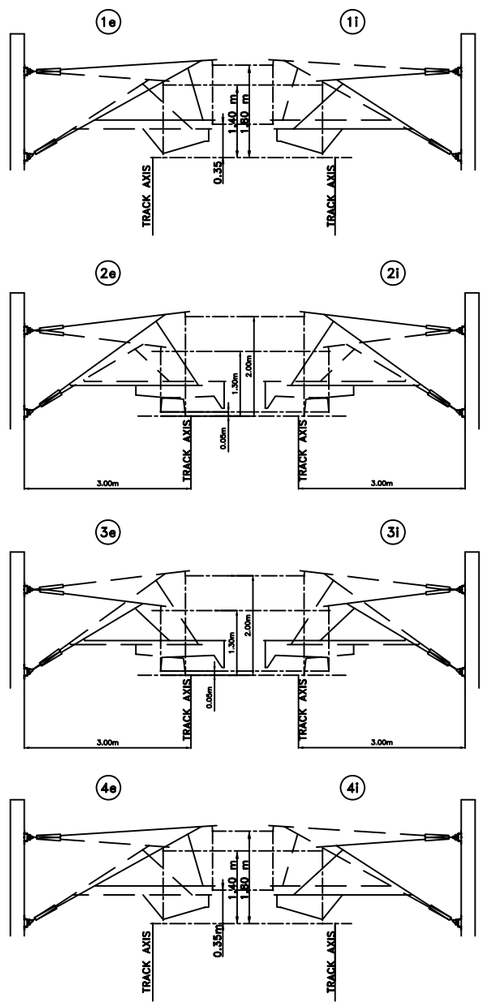
VIEW F

NOTE: JUMPERS OMITTED FOR CLARITY

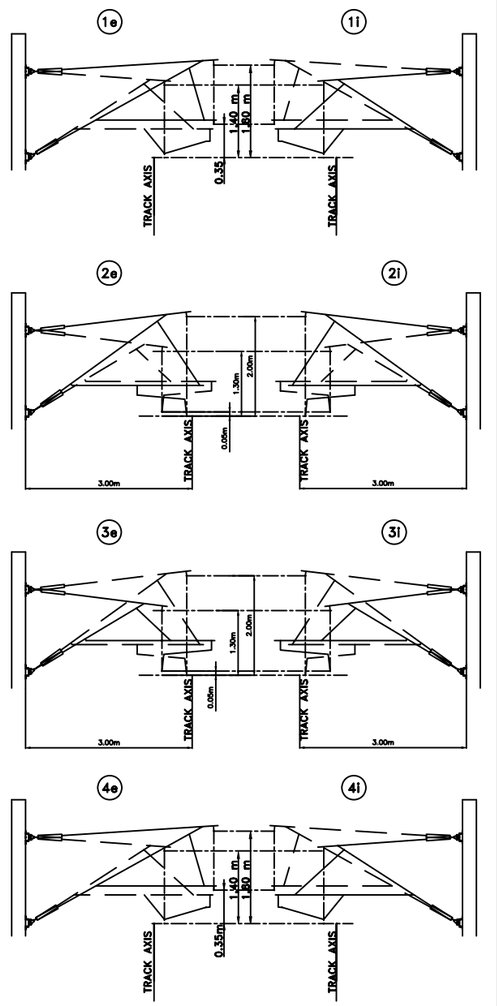
high speed (aluminium cantilever) CANTILEVERS ARRANGEMENT



reduced speed (steel steady arm – DCM+Vvari) CANTILEVERS ARRANGEMENT

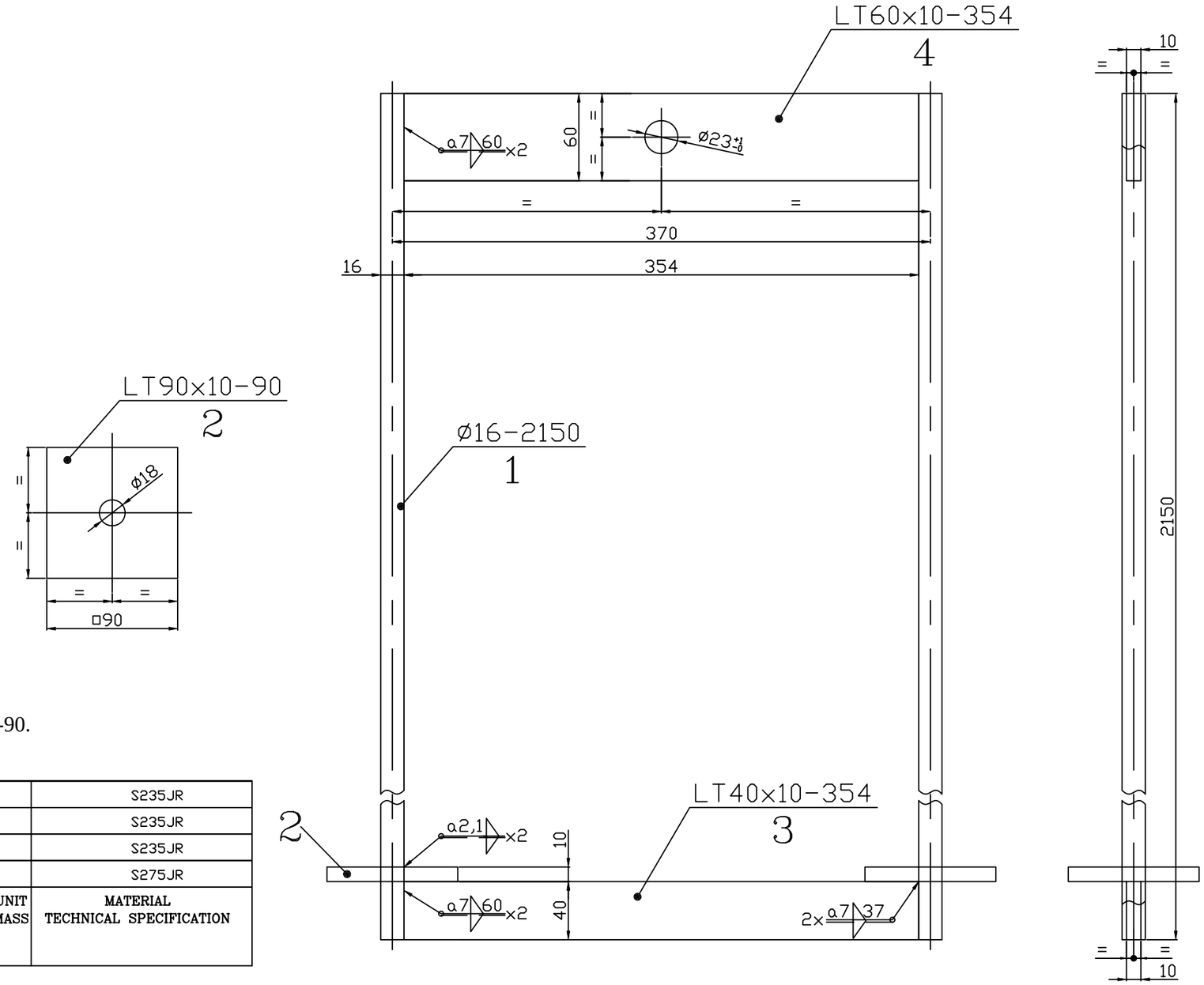


reduced speed (steel steady arm – DCM+ICM) CANTILEVERS ARRANGEMENT



ZONA NEUTRA NEUTRAL SECTION	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG199		*1 / 1*	*0*

(297 x 420)

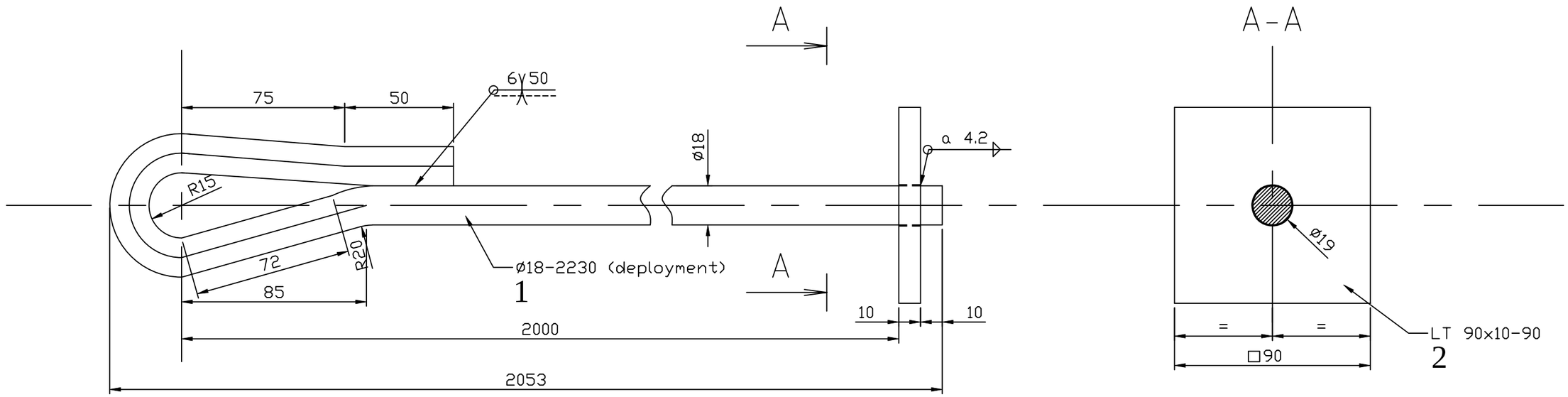


NOTE:
Will be hot galvanized AT/OL/Zn500-STAS 7221-90.

MARK GROUP	QUANTITY	ITEM	DESIGNATION	UNIT MASS	MATERIAL TECHNICAL SPECIFICATION
	1	4	UPPER BAR		S235JR
	1	3	LOWER BAR		S235JR
	2	2	PLATE		S235JR
	2	1	ROD		S275JR

CADRU PENTRU CONTRAGREUTATI DIN BETON CADRE FOR CONCRETE COUNTERWEIGHTS	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG201		1 / 1	0

(297 x 420)



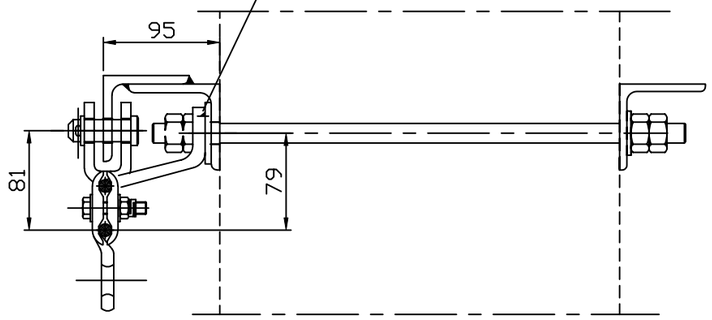
NOTE:
Will be hot galvanized AT/OL/Zn500-STAS 7221-90.

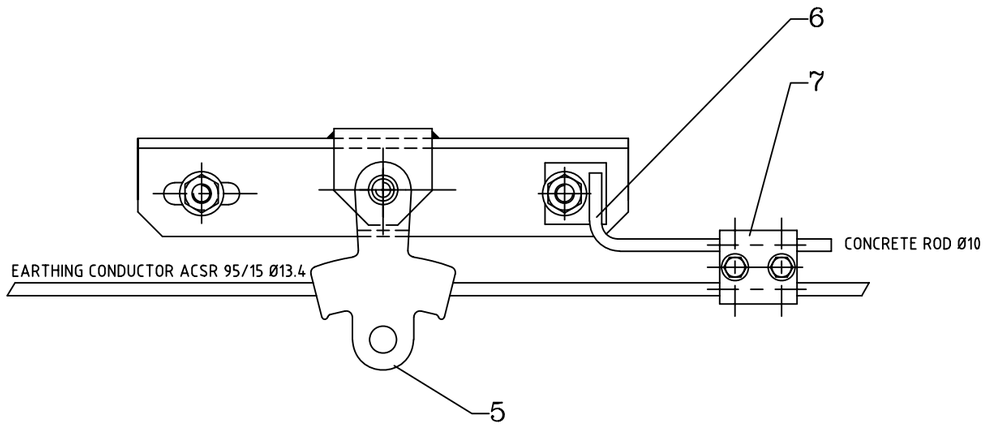
2	PLATE	1	S235JR
1	ROD WITH EYE	1	S275JR
ITEM	DESIGNATION	UNIT	MATERIAL TECHNICAL SPECIFICATION

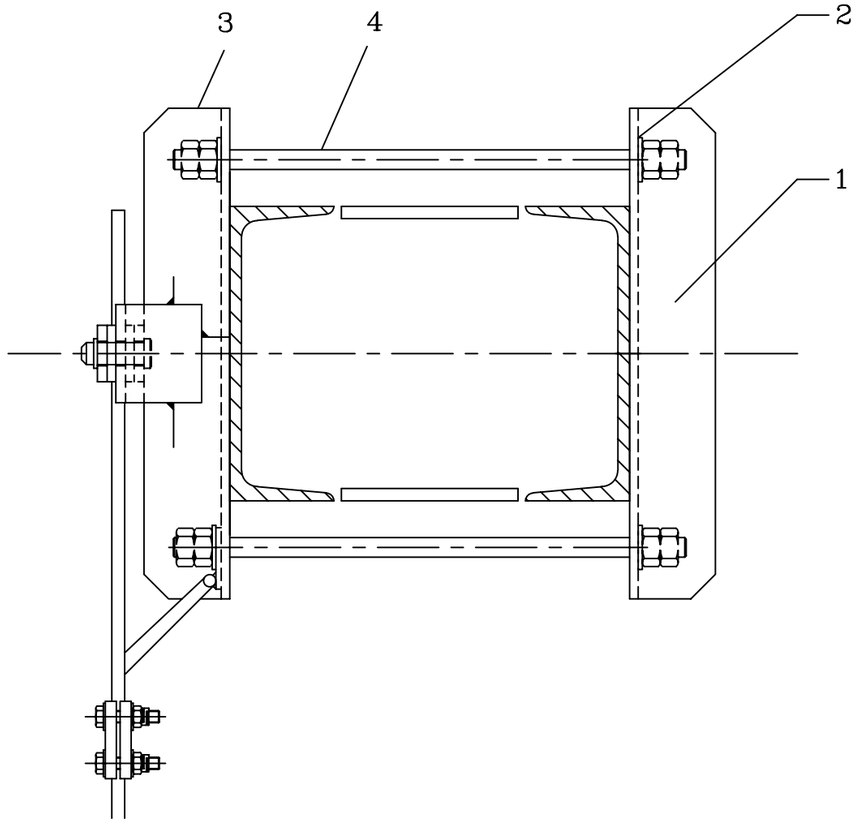
BARA PENTRU CONTRAGREUTATI DIN FONTA ROD FOR CAST IRON COUNTERWEIGHTS	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG202		*1 / 1*	*0*

(297 x 420)

CONTINUOUS BEAD WATERPROOF WELDS MINIMUM THICKNESS: 4mm
BETWEEN SQUARE WASHER AND CONCRETE ROD



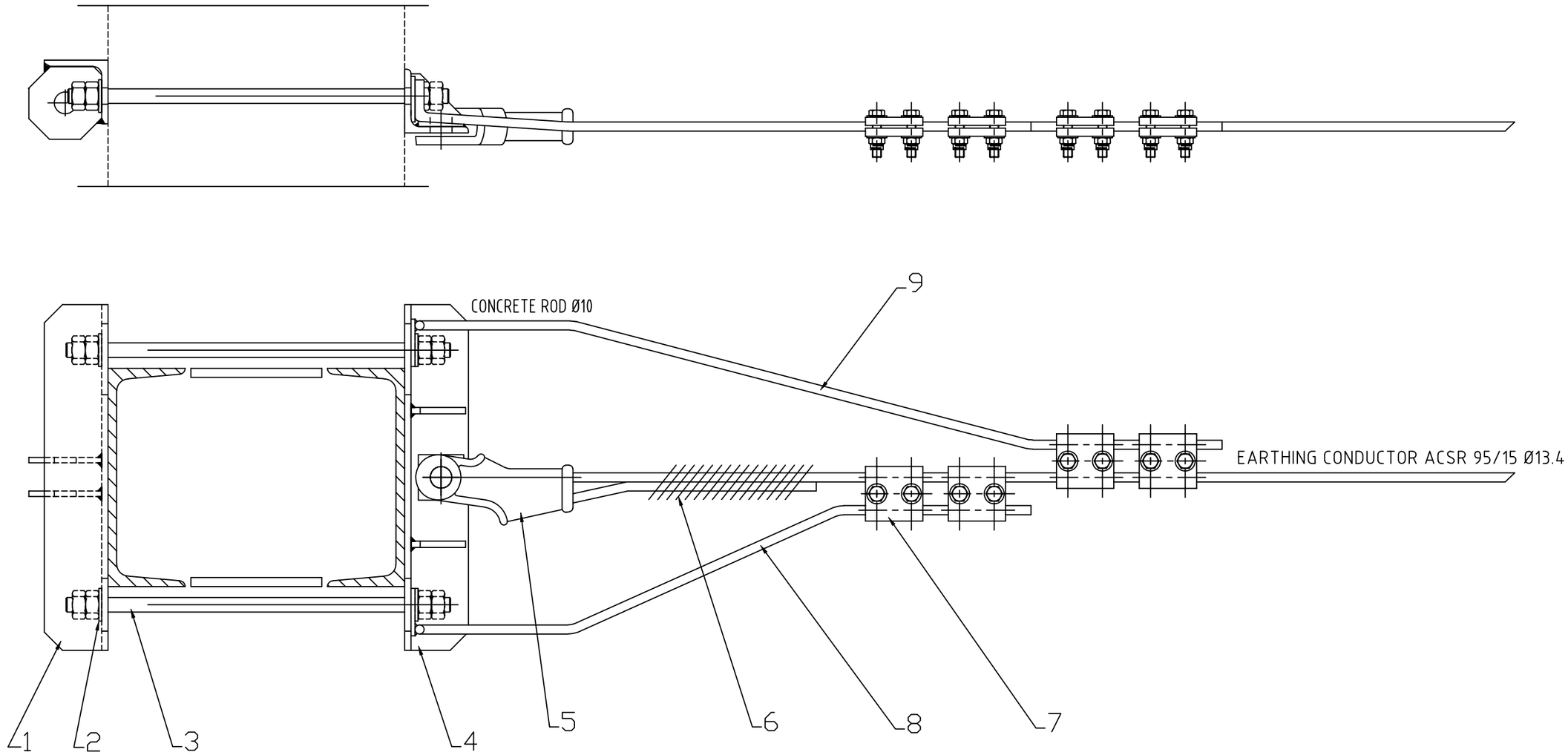




QUANTITY	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
1	7	CLAMP	0.59	ELC 2-4.0	
1	6	EARTHING CONNECTION	0.25	01LC00BDG260	101
1	5	EARTHING CONDUCTOR SUSPESION TYPE I	1.30	ELC 13-1.4.0	
2	4	THREADED ROD M16- 500/100		01LC00BDG141	1611F2
1	3	COUNTERPLATE WITH EARTHING CONDUCTOR		01LC00BDG102	102
4	2	WASHER M16N		01LC00BDG142	161110
1	1	COUNTERPLATE		01LC00BDG090	102

FIXARE CABLUL COLECTOR PENTRU STALP MU EARTHING CONDUCTOR FASTENING FOR MU POLES	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG203		*1 / 1*	*0*

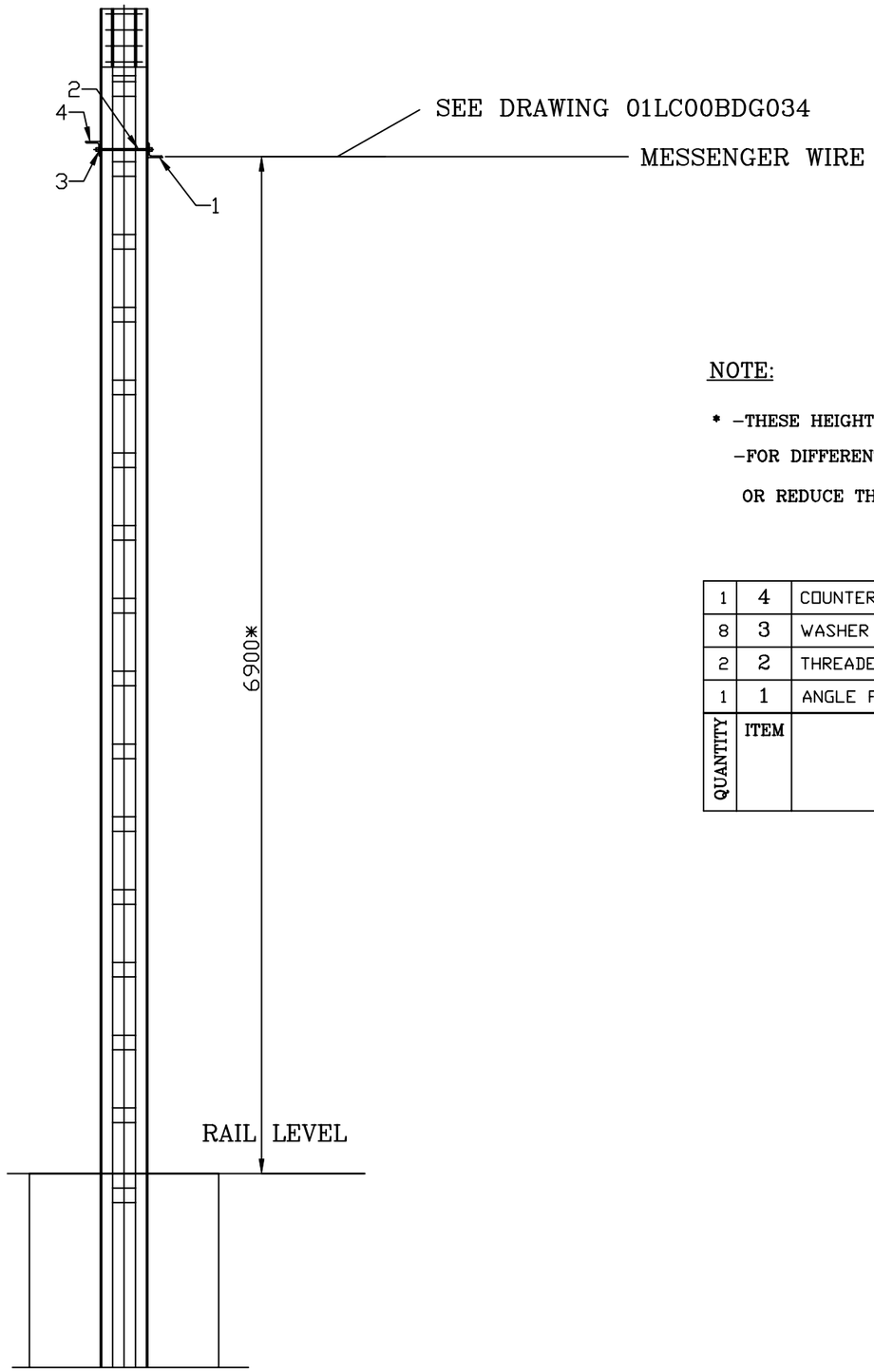
(297 x 420)



ITEM	DESIGNATION	QUANTITY	REFERENCE DRAWING	MARK
9	EARTHING CONNECTION L=900	1	01LC00BDG260	103
8	EARHING CONNECTION L=700	1	01LC00BDG260	102
7	CLAMP	4	ELC 2-4.0	
6	IRON	1	STAS 434-73	
5	CLAMP	1	ELC 9-29-0	
4	ANGLE FOR EARTHING ANCHORING	1	01LC00BDG131	102
3	THREADED ROD M16- 500/100	2	01LC00BDG141	1611F2
2	WASHER M16	4	01LC00BDG142	16A110
1	COUNTERPLATE FOR EARTHING ANCHORING	1	01LC00BDG133	102

FIXARE PENTRU ANCORAREA CABLULUI COLECTOR PENTRU STALP MU FASTENING FOR ANCHORING OF EARTH CONDUCTOR FOR MU POLE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG204		*1 / 1*	*0*

(297 x 420)



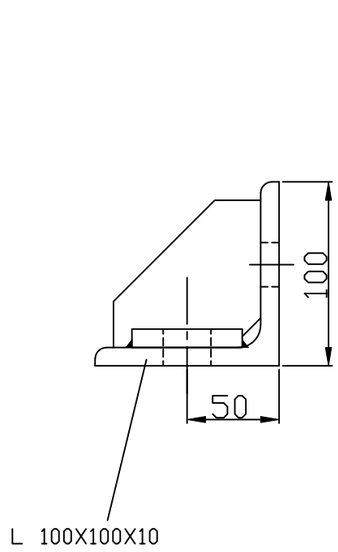
NOTE:

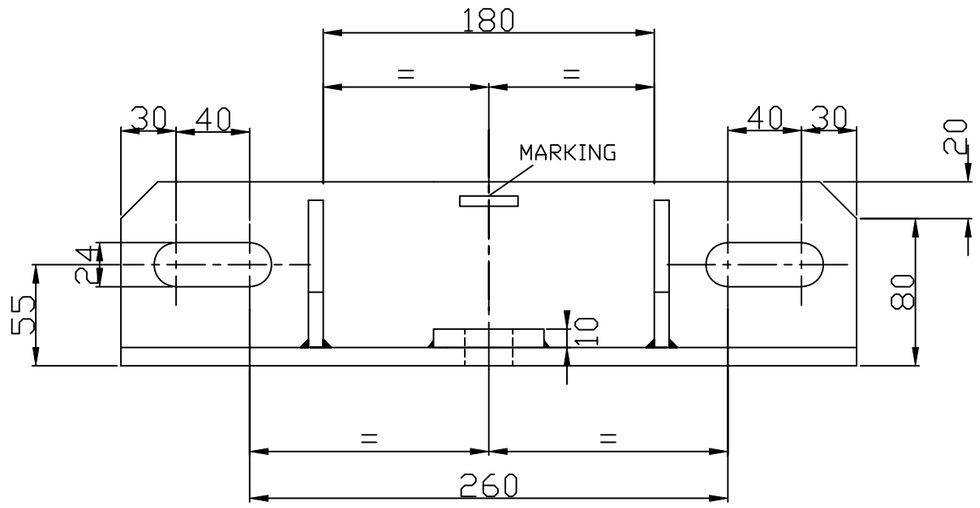
* –THESE HEIGHTS ARE DEFINED FOR 5.75M CONTACT WIRE HEIGHT
  –FOR DIFFERENT CONTACT WIRE HEIGHT, IT'S NECESSARY TO INCREASE
  OR REDUCE THESE VALUES WITH THE SAME DIFFERENCES

QUANTITY	ITEM	DESIGNATION	UNIT	REFERENCE DRAWING	MARK
1	4	COUNTERPLATE		01LC00BDG129	101
8	3	WASHER		01LC00BDG142	20A110
2	2	THREADED ROD		01LC00BDG141	2041F2
1	1	ANGLE FOR RIGID ANCHORING		01LC00BDG206	

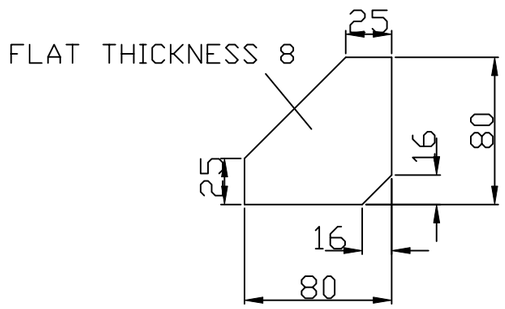
ANCORARE MEDIANA PENTRU STALP MU MID POINT ANCHORING ON MU POLES	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG205		*1 / 1*	*0*

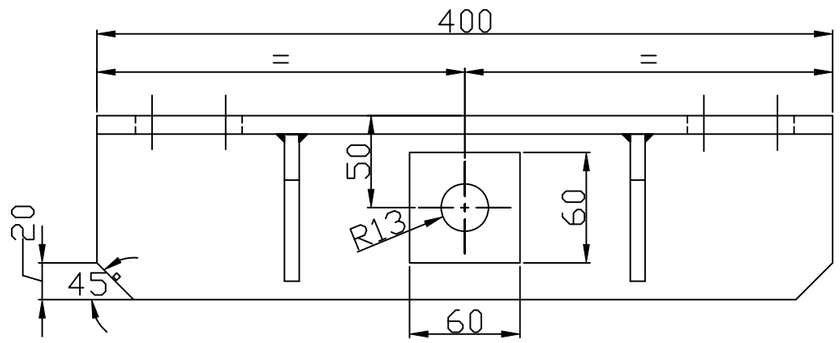
(297 x 420)





GUSSET



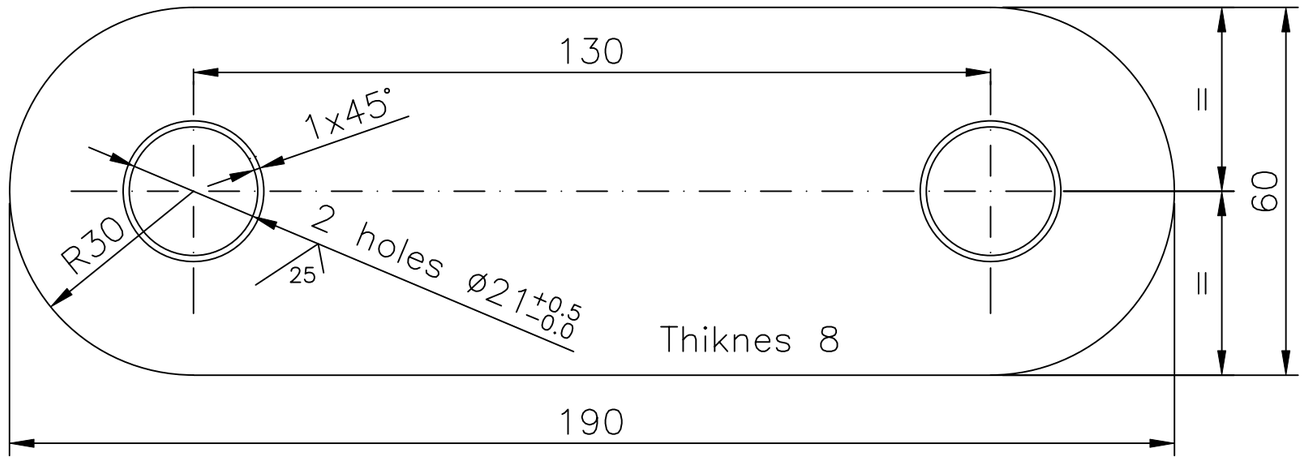


NOTE:

Continuous bead waterproof welds minimum thickness: 3mm
Material: S235JR
After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

PROFIL PENTRU ANCORAREA RIGIDA PE STALP MU ANGLE FOR RIGID ANCHORING ON MU POLE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG206		*1 / 1*	*0*

(297 x 420)

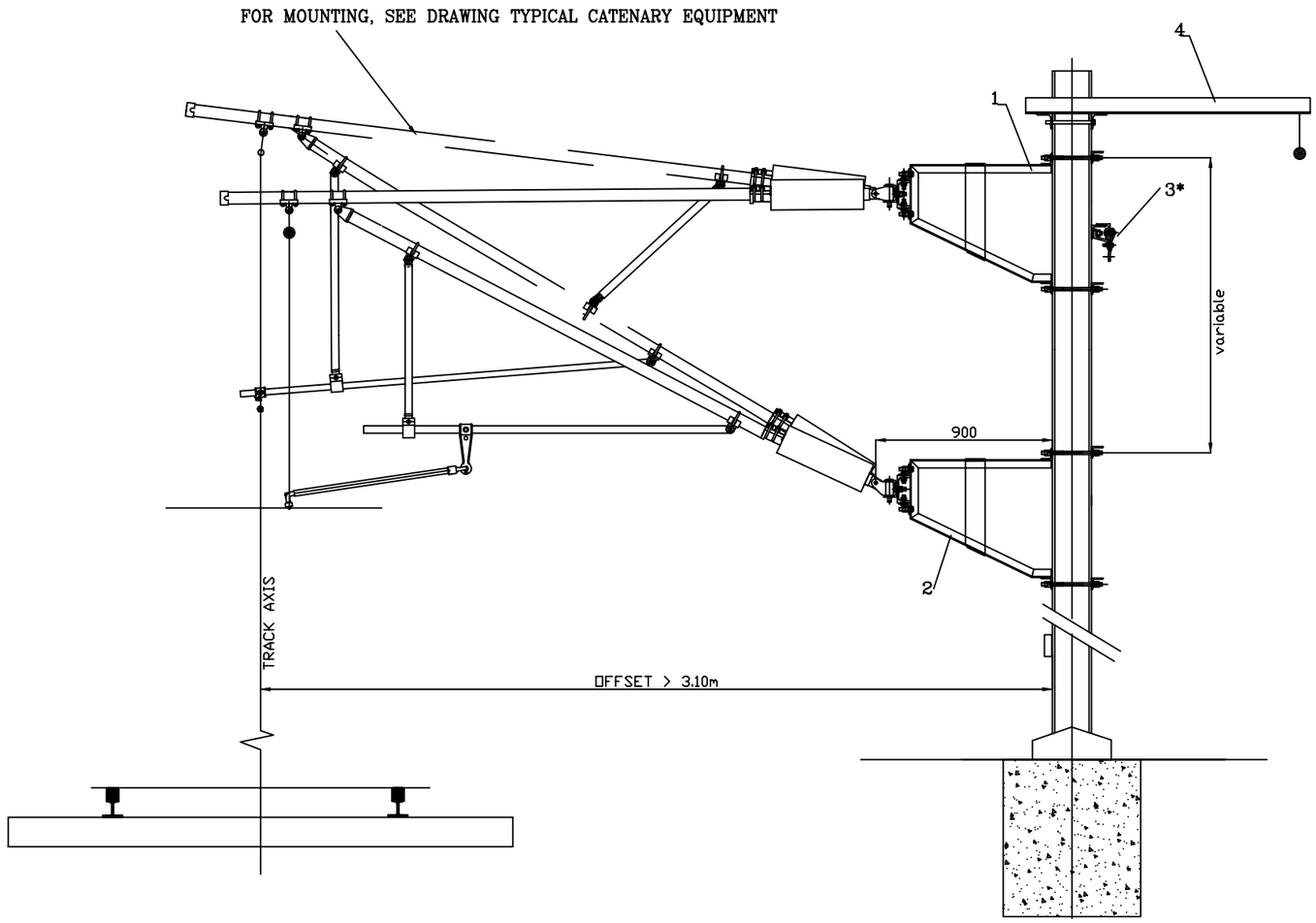


Note:

After drilling will be hot galvanised AL/OL/Zn500-STAS 7221-90

PLACA PLATE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG209		*1 / 1*	*0*

(297 x 420)



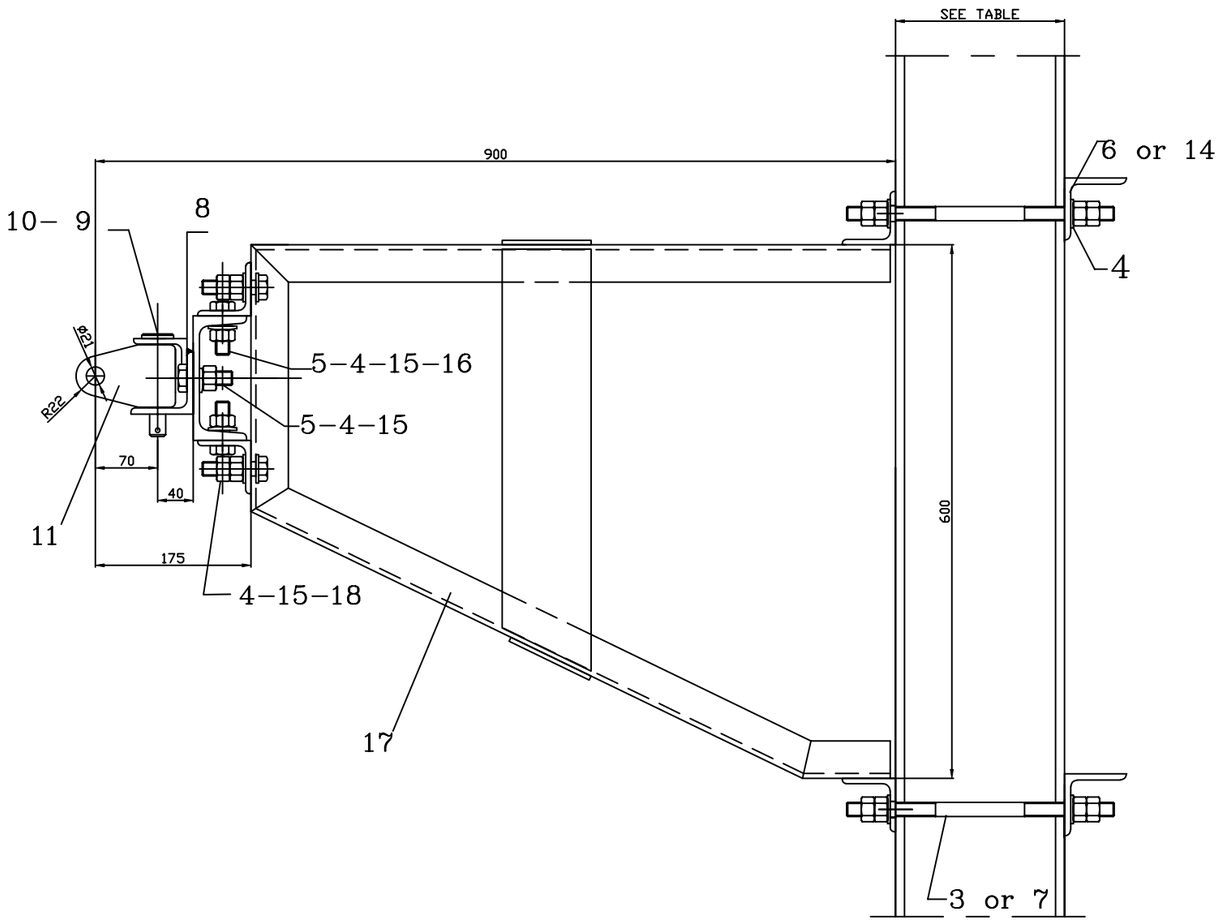
NOTE:

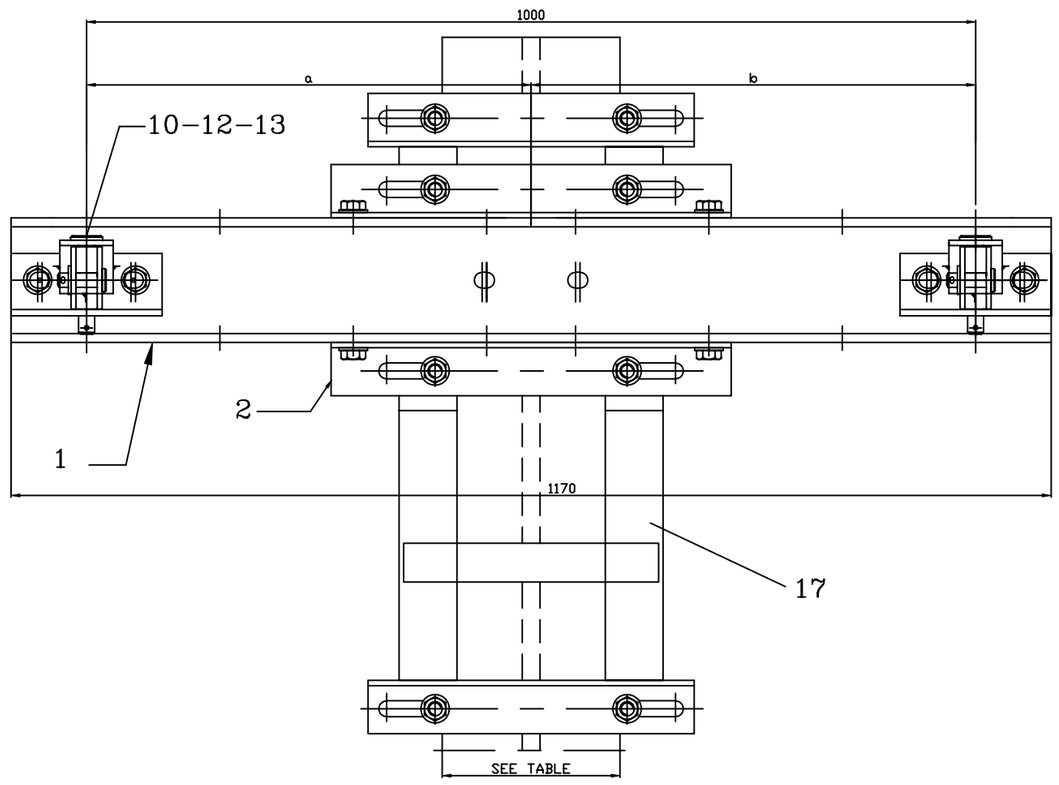
* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

ITEM	DESIGNATION	REFERENCE DRAWING	MARK
4	OPTICAL FIBER BRACKET	01LC00BDG054	
3	EARTHING SUSPENSION	01LC00BDG072	
2	FASTENING FOR STRUT TUBE L=900 FOR 2 EQUIPMENTS	01LC00BDG212	
1	FASTENING FOR TOP TUBE L=900 FOR 2 EQUIPMENTS	01LC00BDG211	

ECHIPARE TIP PENTRU CATENARA CU FIXARE PENTRU 2 CONSOLE L=900 TYPICAL CATENARY EQUIPMENT WITH FASTENING FOR 2 CANTILEVER L=900	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG210		*1 / 1*	*0*

(297 x 420)





QUANTITY			ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
4	4	18	BOLT HM 16-50/50		01LC00BDG144	1613K1
1	1	17	FASTENING FOR 2 EQUIPEMENTS L=900		01LC00BDG212	
4	4	16	WASHER TYPE U		01LC00BDG142	16A710
8	8	15	WASHER . CS-16-32-2.8		01LC00BDG142	16A310
2		14	COUNTERPLATE		01LC00BDG090	102
2	2	13	AXIS 20-50		01LC00BDG146	201050
2	2	12	WASHER M20		01LC00BDG142	20A110
2	2	11	HINGE TOP TUBE		E.L.C 13-9-10 A REV C	
4	4	10	PIN 4.5*40		01LC00BDG145	45A040
2	2	9	AXIS 18-110		01LC00BDG146	181110
2	2	8	HINGE SUPPORT		01LC00BDG114	
4		7	THREADED ROD M16-450/100		01LC00BDG141	1611E2
	2	6	COUNTERPLATE		01LC00BDG090	101
8	8	5	BOLT HM 16-50/50		01LC00BDG144	1612H1
16	16	4	WASHER M16N		01LC00BDG142	16A110
	4	3	THREADED ROD M16 -350/100		01LC00BDG141	1611C2
2	2	2	COUNTERPLATE FOR SPREADER		01LC00BDG094	
1	1	1	SPREADER		01LC00BDG089	

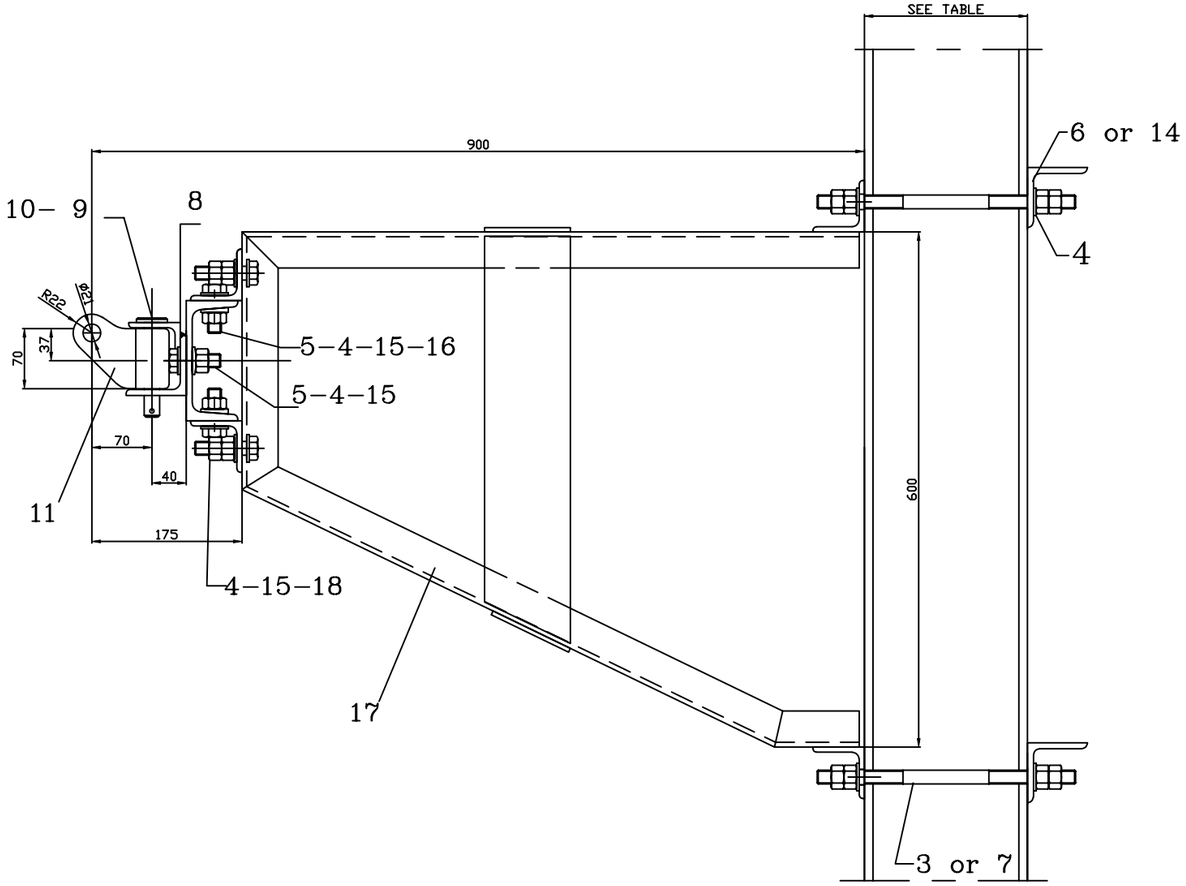
MARK GROUP 102	MARK GROUP 101

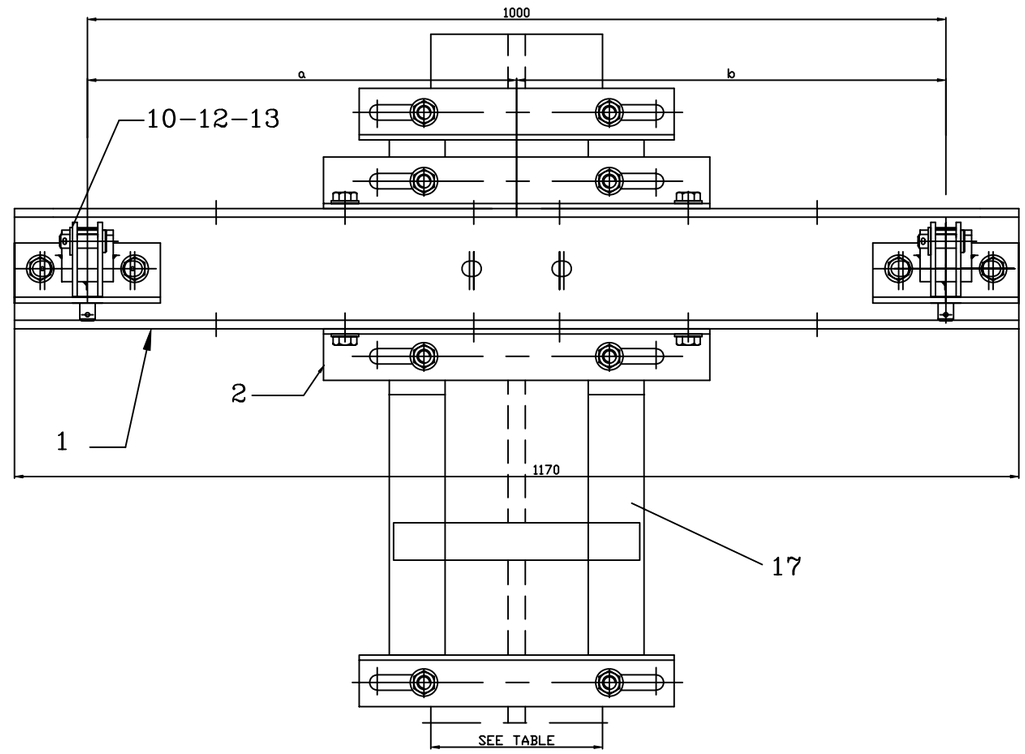
Note
For cotes a and b see the mounting diagrams.

MARK	DESIGNATION
101	FROM HE 200 TO 240
102	FROM HE 260 TO 320

FIXARE TIRANT PENTRU 2 CONSOLE L=900 FASTENING FOR TOP TUBE FOR 2 CANTILEVER L=900	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG211		1 / 1	0

(297 x 420)





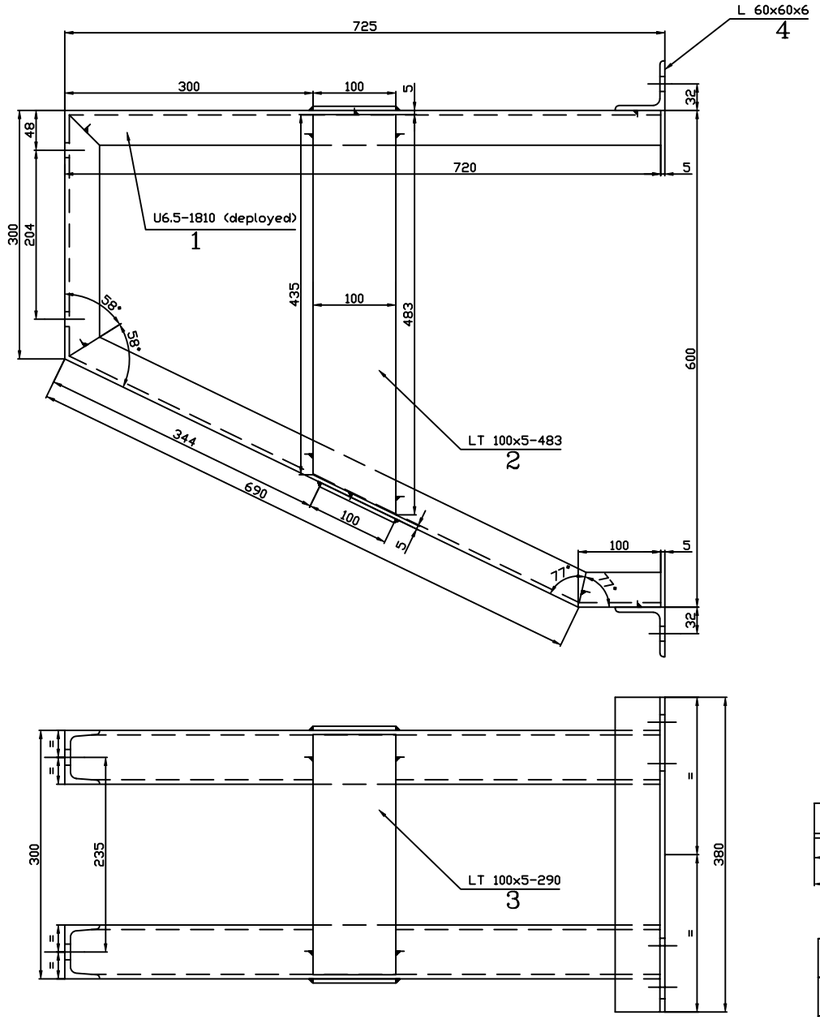
MARK GROUP 102	MARK GROUP 101	QUANTITY 101	QUANTITY 102	ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
		4	4	18	BOLT HM 16-50/50		01LC00BDG144	1613K1
		1	1	17	FASTENING FOR 2 EQUIPEMENTS L=900		01LC00BDG212	
		4	4	16	WASHER . TYPE U		01LC00BDG142	16A710
		12	12	15	WASHER . CS-16-32-2.8		01LC00BDG142	16A310
		2		14	COUNTERPLATE		01LC00BDG090	102
		2	2	13	AXIS 20-50		01LC00BDG146	201050
		2	2	12	WASHER M20		01LC00BDG142	20A110
		2	2	11	HINGE STRUT TUBE		E.L.C 13-9-11 A REV C	
		4	4	10	PIN 4.5*40		01LC00BDG145	45A040
		2	2	9	AXIS 18-110		01LC00BDG146	181110
		2	2	8	HINGE SUPPORT		01LC00BDG114	
		4		7	THREADED ROD M16-450/100		01LC00BDG141	1611E2
			2	6	COUNTERPLATE		01LC00BDG090	101
		8	8	5	BOLT HM 16-50/50		01LC00BDG114	1612H1
		24	24	4	WASHER M16N		01LC00BDG142	16A110
			4	3	THREADED ROD M16-350/100		01LC00BDG141	1611C2
		2	2	2	COUNTERPLATE FOR SPREADER		01LC00BDG094	
		1	1	1	SPREADER		01LC00BDG089	

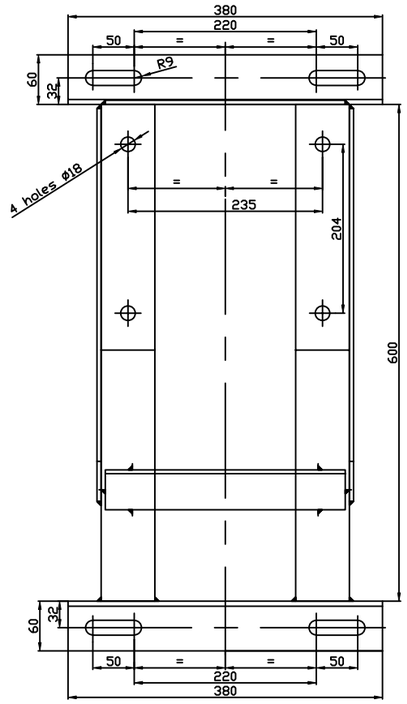
Note
For cotes a and b see the mounting diagrams.

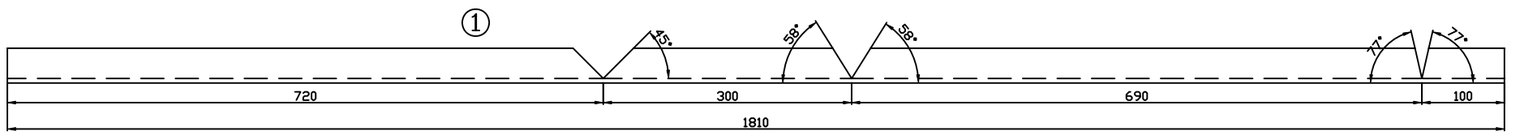
MARK	DESIGNATION
101	FROM HE 200 TO 240
102	FROM HE 260 TO 320

FIXARE CONTRAFISA PENTRU 2 CONSOLE L=900 FASTENING FOR STRUT TUBE FOR 2 CANTILEVER L=900	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG212		*1 / 1*	*0*

(297 x 420)







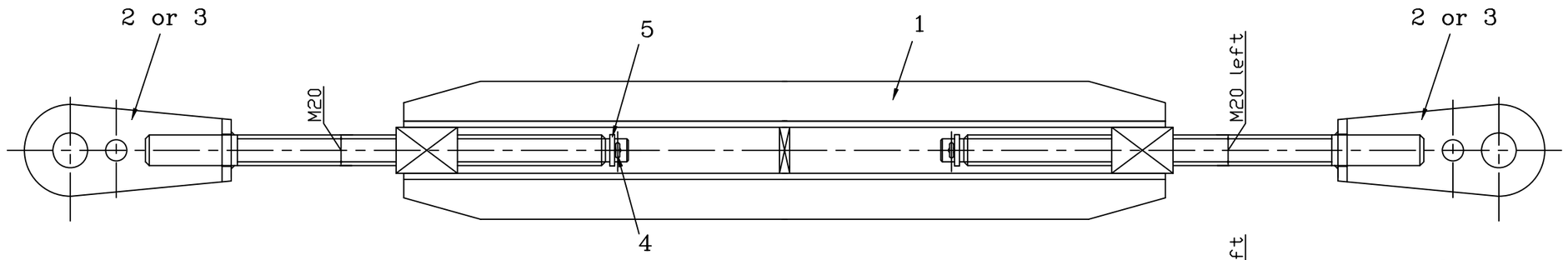
QUANTITY	ITEM	DESIGNATION	UNIT MASS kg	MATERIAL TECHNICAL SPECIFICATION
2	4	CADRE		S235JR
2	3	PLATE		S235JR
2	2	PLATE		S235JR
1	1	CADRE		S235JR

NOTE:

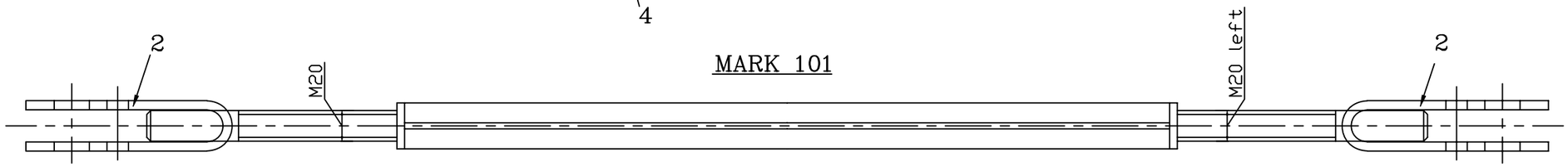
1.The weldings will be made continuous, tight for hot galvanize.
2.After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

FIXARE PENTRU 2 CONSOLE L=900 FASTENING FOR 2 CANTILEVER L=900	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG213		*1 / 1*	*0*

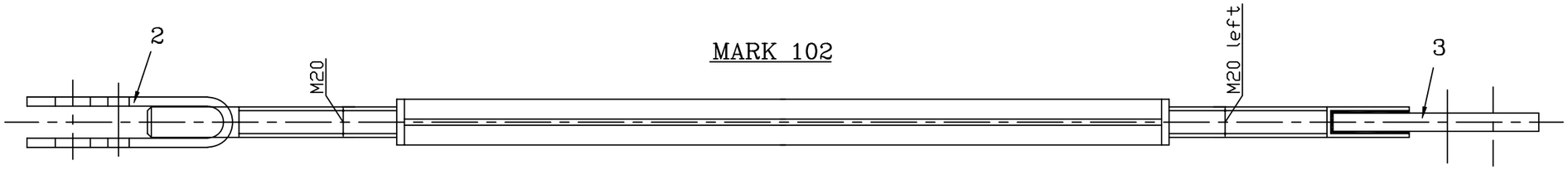
(297 x 420)



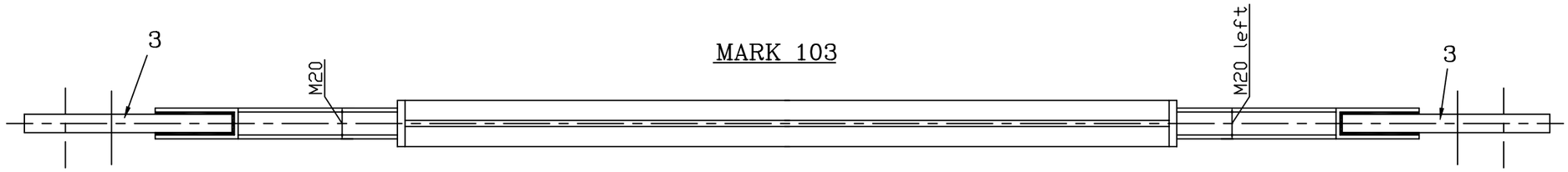
MARK 101



MARK 102



MARK 103

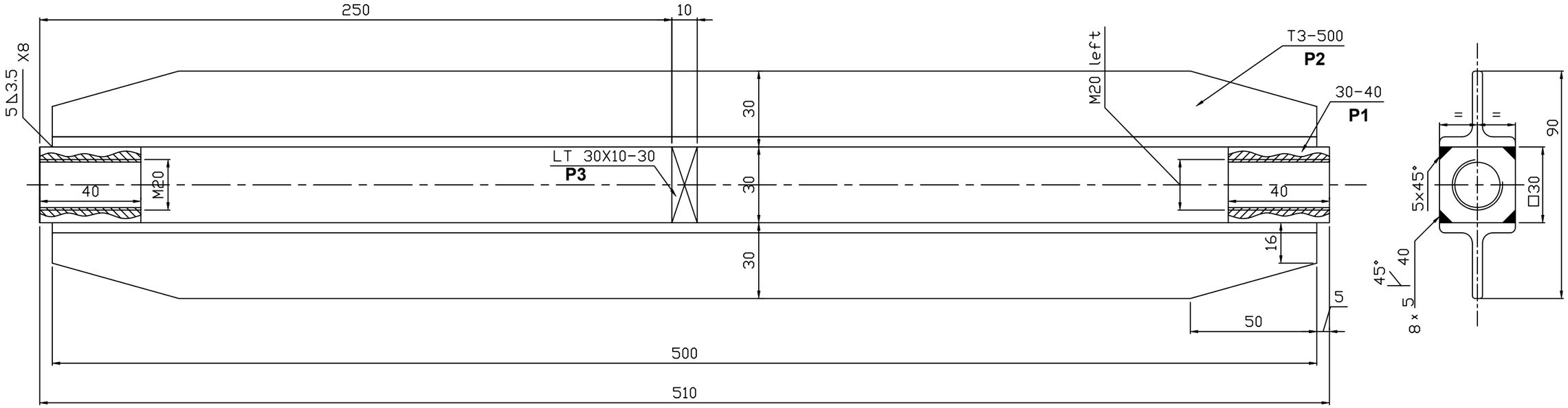


Note:
Each turnbuckle will have a rod with **right thread** and the other rod with **left thread**.

2	2	2	5	SPLIT PIN	stainless steel
2	2	2	4	WASHER	stainless steel
2	1	-	3	ROD WITH EYE	S235JR
-	1	2	2	ROD WITH CLEVIS	S235JR
1	1	1	1	TURNBUCKLE BODY	S235JR
103	102	101	ITEM	DESIGNATION	MATERIAL

INTINZATOR TURNBUCKLE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG214		*1 / 1*	*0*

(297 x 420)

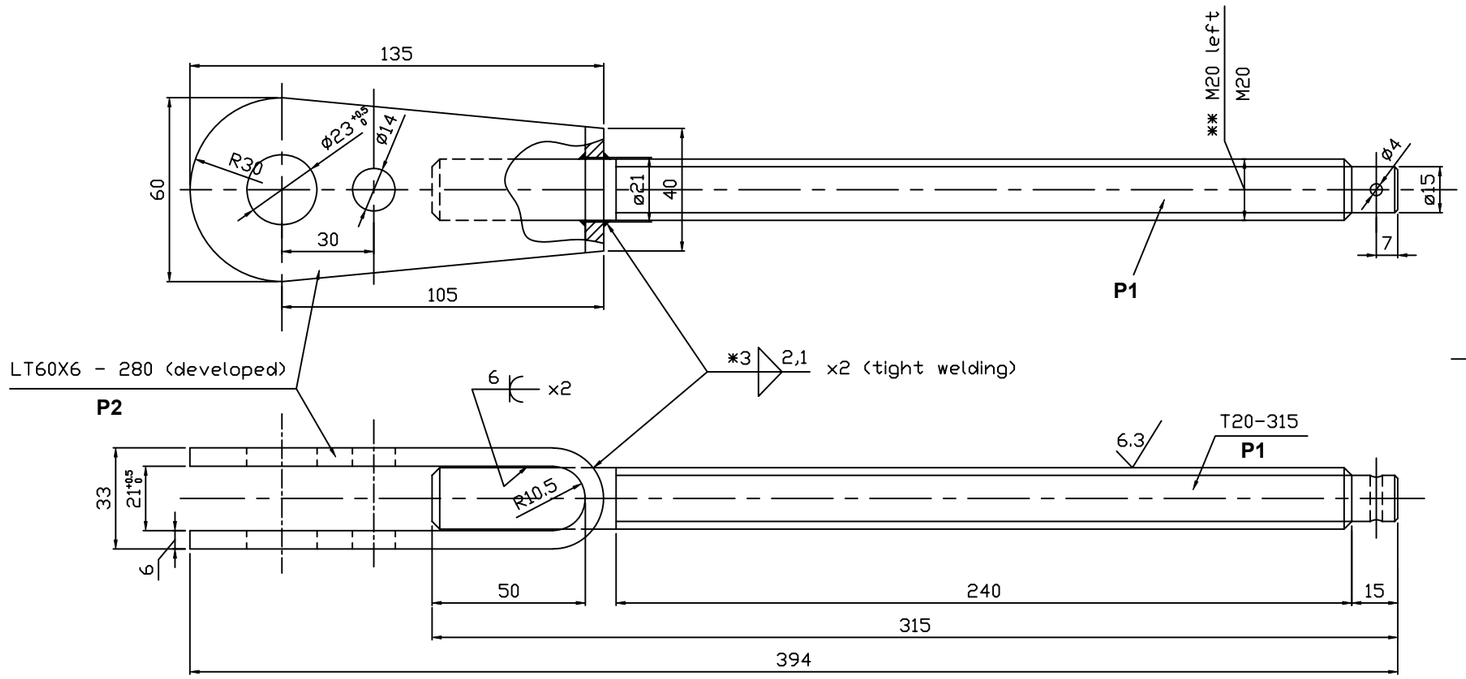


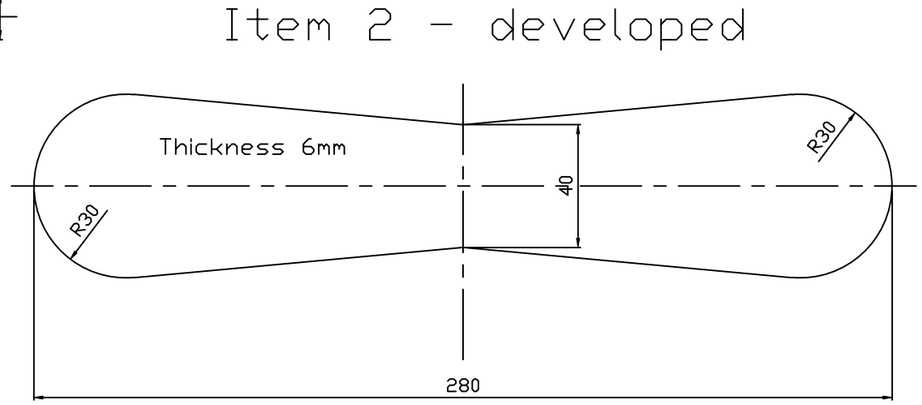
NOTE
1.All weldings will be made tight and continuous.
2.After welding, drilling and threading , will be hot galvanised AT/OL/Zn 500 excepting the threads , wich will be galvanised AT/OL/Zn 510 – STAS7221–90.

ITEM	DESIGNATION	QUANTITY	MATERIAL
3	Spacer	1	S235JR
2	"T" profile 30x30x4 - 500	2	S235JR
1	Square rod 30x30 - 40	2	S235JR

CORP INTINZATOR TURNBUCKLE BOADY	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG215		*1 / 1*	*0*

(297 x 420)



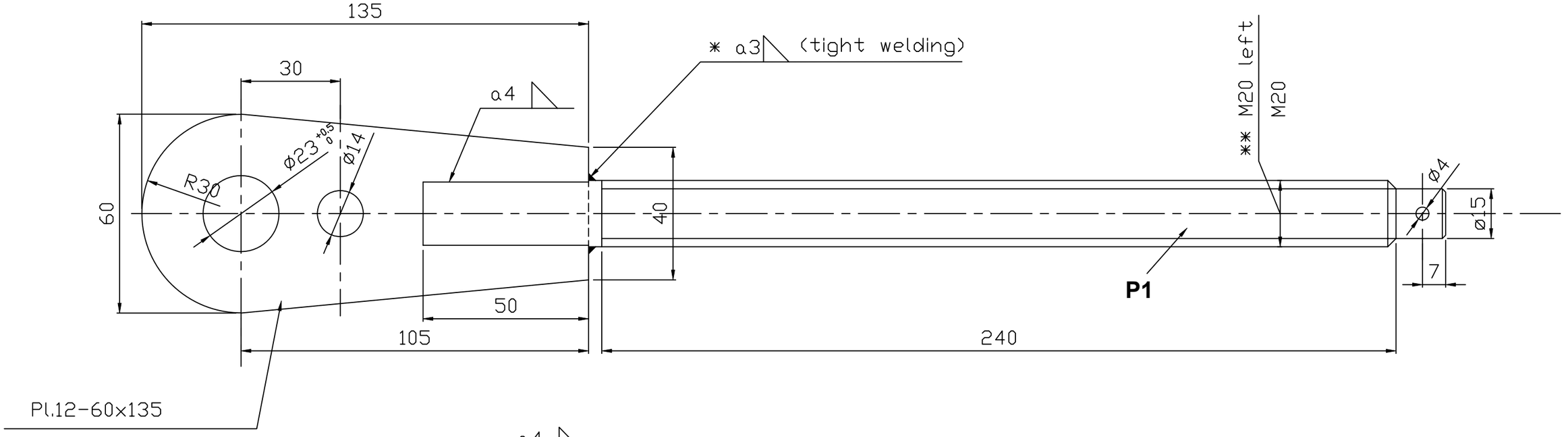


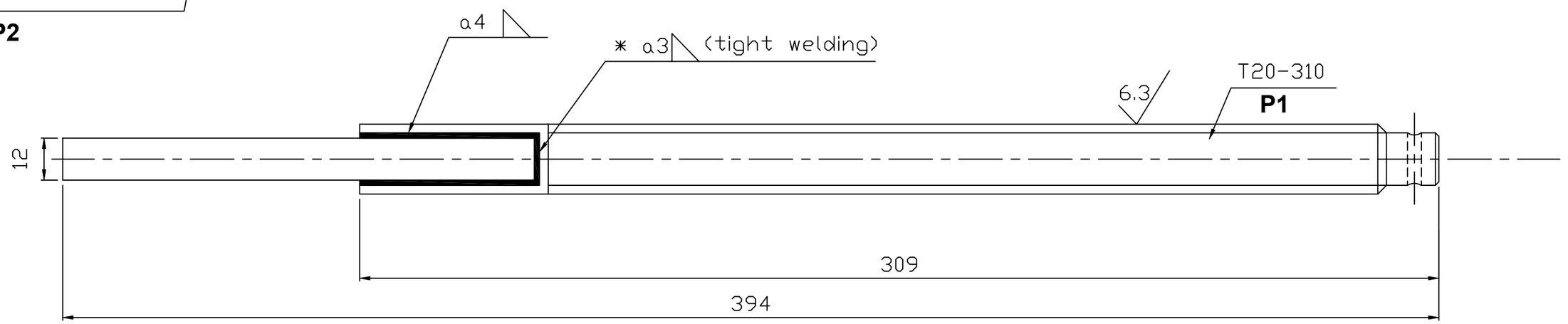
NOTE
1.All weldings will be made tight and continuous.
2.After welding, drilling and threading , will be hot galvanised AT/OL/Zn 500 excepting the thread , wich will be galvanised AT/OL/Zn 510 – STAS7221–90.

ITEM	DESIGNATION	QUANTITY	MATERIAL
P2	Clevis	1	S235JR
P1	Threaded bar	1	S235JR

BARA CU URECHE ROD WITH CLEVIS	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG216		*1 / 1*	*0*

(297 x 420)



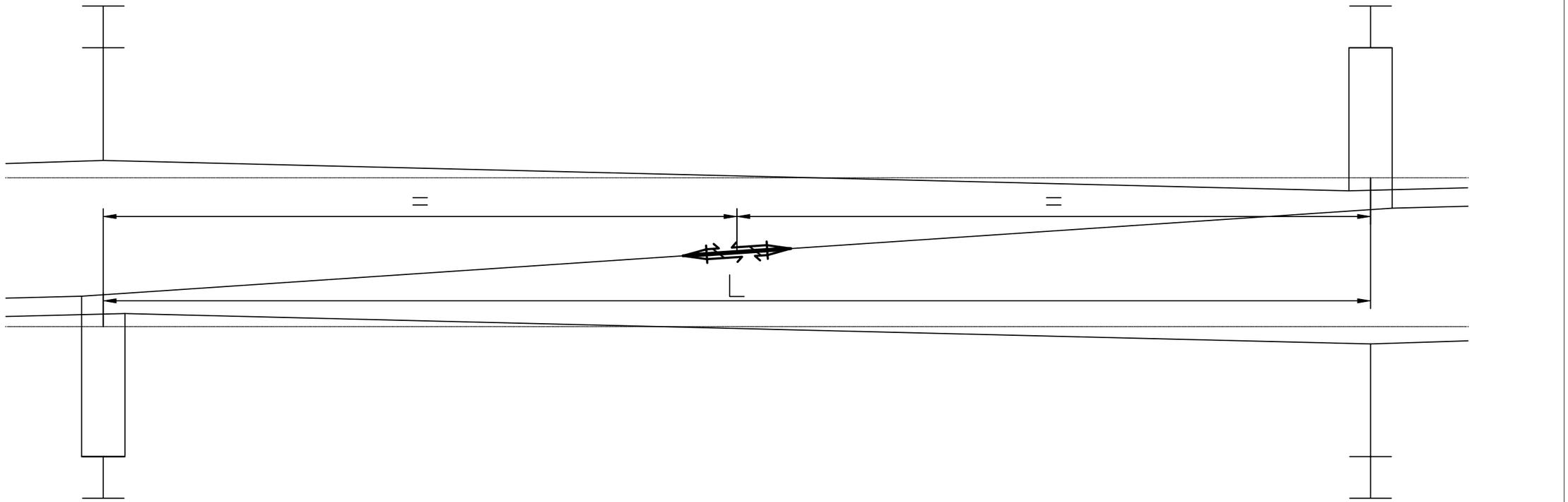


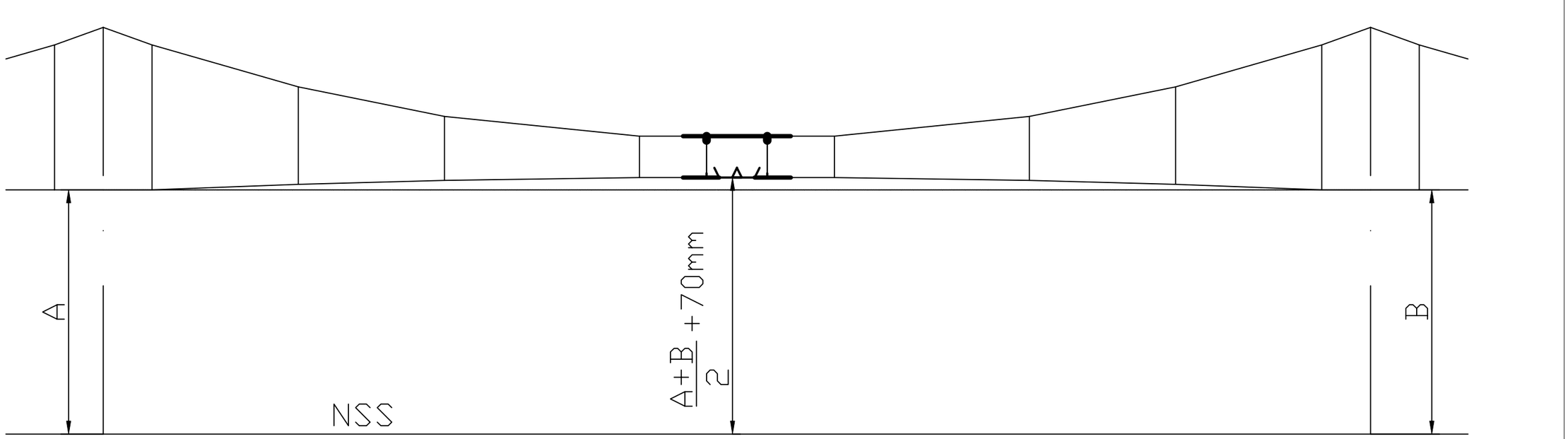
NOTE
1.All weldings will be made tight and continuous.
2.After welding, drilling and threading , will be hot galvanised AT/OL/Zn 500 excepting the thread , wich will be galvanised AT/OL/Zn 510 – STAS7221–90.

ITEM	DESIGNATION	QUANTITY	MATERIAL
P2	Plate	1	S235JR
P1	Threaded bar	1	S235JR

BARA CU OCHI ROD WITH EYE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG217		*1 / 1*	*0*

(297 x 420)

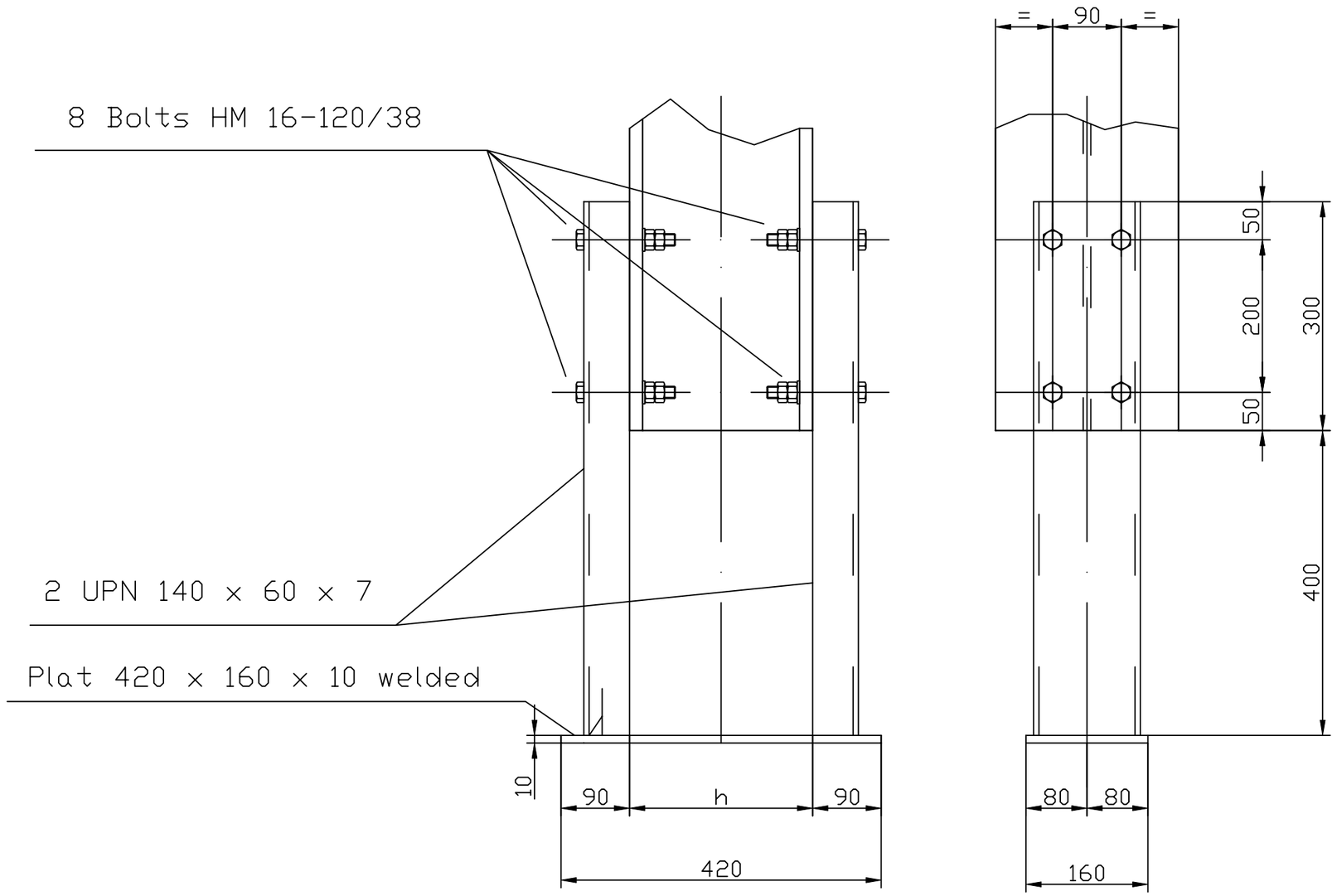




NOTE
Admisible tolerances at the assemblage of SI regarding to the track axis: 0÷50 mm

MONTARE IZOLATOR DE SECTIONARE IN ZONA MACAZURILOR SECTION INSULATOR MOUNTING ON TURN–OUT	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG220		*1 / 1*	*0*

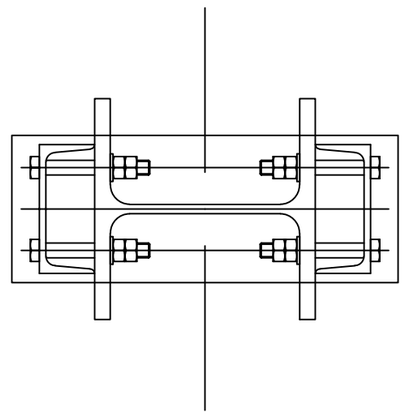
(297 x 420)



MARK	POLE TYPE	h
101	HEA200	190
102	HEA220	210
103	HEA240	230
104	HEA260	250
105	HEA280	270

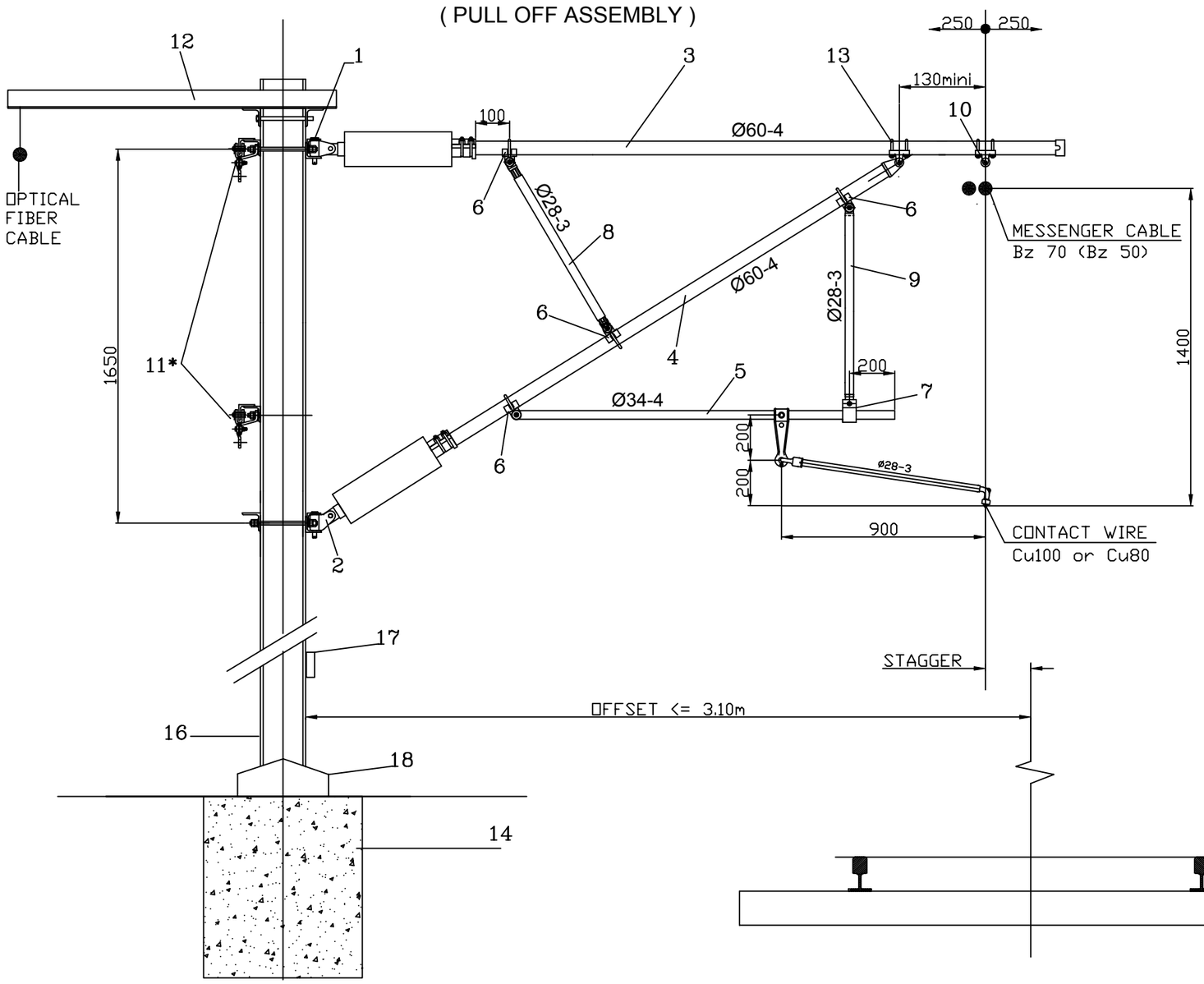
MARK	POLE TYPE	h
201	HEB240	240
202	HEB260	260
203	HEB280	280
204	HEB300	300

Note: for h dimension see tables



PIESA DE EXTENSIE PENTRU STALP H EXTENSION PIECE FOR H POLES	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG222		*1 / 1*	*0*

(297 x 420)



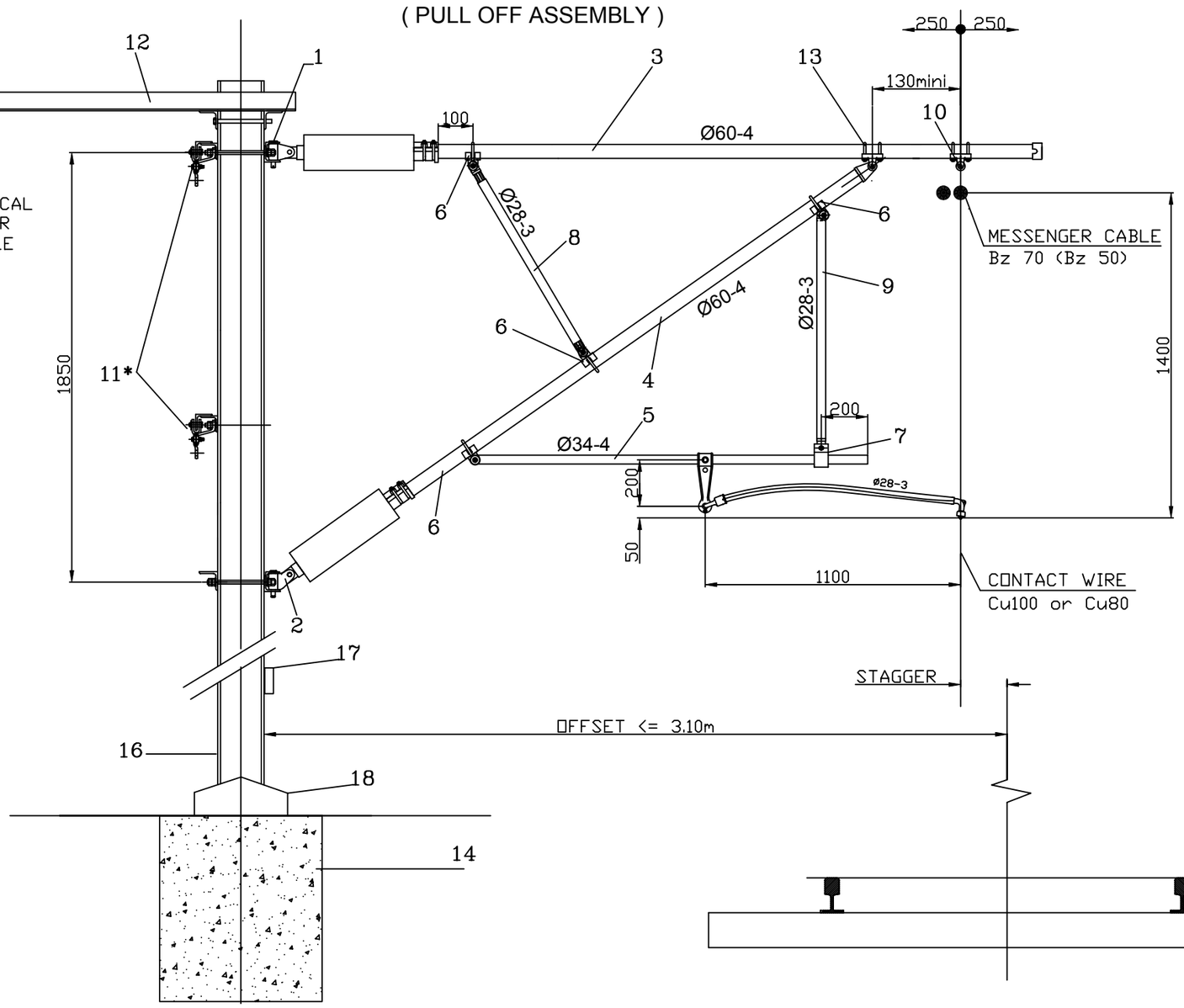
18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG071 01LC00BDG072	
10	SUSPENSION FOR 2 MESSENGERS	01LC00BDG070	102
9	AUXILIARY STRUT TUBE	01LC00BDG083	
8	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE ø60	ELC 13-1.2.3.0	
5	ø34-4REGISTRATION ARM WITH 0.9m STEADY ARM FOR STRAIGHT LINE	01LC00BDG150	201
4	INSULATED FOR STRUT TUBE ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG058 01LC00BDG071	
1	FASTENING FOR TOP TUBE	or 01LC00BDG059 01LC00BDG135	
ITEM	DESIGNATION	REFERENCE DRAWING	MARK

NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

MONTARE TIP ECHIPAMENT MEDIAN PENTRU LINIE CURENTA (ANSAMBLU TENSIONAT) TYPICAL MID POINT EQUIPMENT ON OPEN ROUTE (PULL OF ASSEMBLY)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG230		1 / 2	0

(297 x 420)



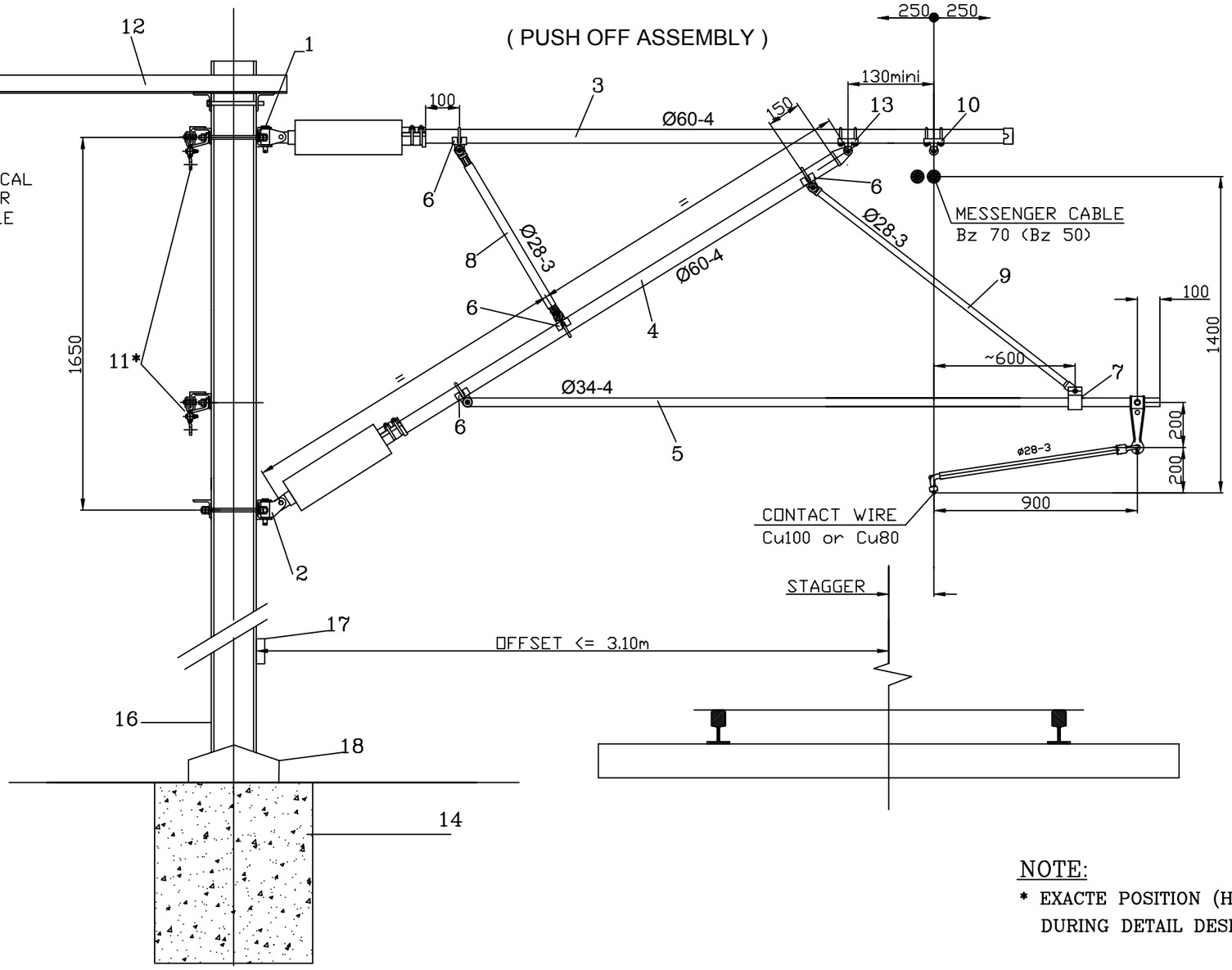
18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG071 01LC00BDG072	
10	SUSPENSION FOR 2 MESSENGERS	01LC00BDG070	102
9	AUXILIARY STRUT TUBE	01LC00BDG083	
8	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE ø60	ELC 13-1.2.3.0	
5	ø34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR CURVE	01LC00BDG151	201
4	INSULATED FOR STRUT TUBE ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG058 01LC00BDG071	
1	FASTENING FOR TOP TUBE	or 01LC00BDG059 01LC00BDG135	
ITEM	DESIGNATION	REFERENCE DRAWING	MARK

NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

MONTARE TIP ECHIPAMENT MEDIAN PENTRU LINIE CURENTA (ANSAMBLU TENSIONAT) TYPICAL MID POINT EQUIPMENT ON OPEN ROUTE (PULL OF ASSEMBLY)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG230		2 / 2	0

(297 x 420)



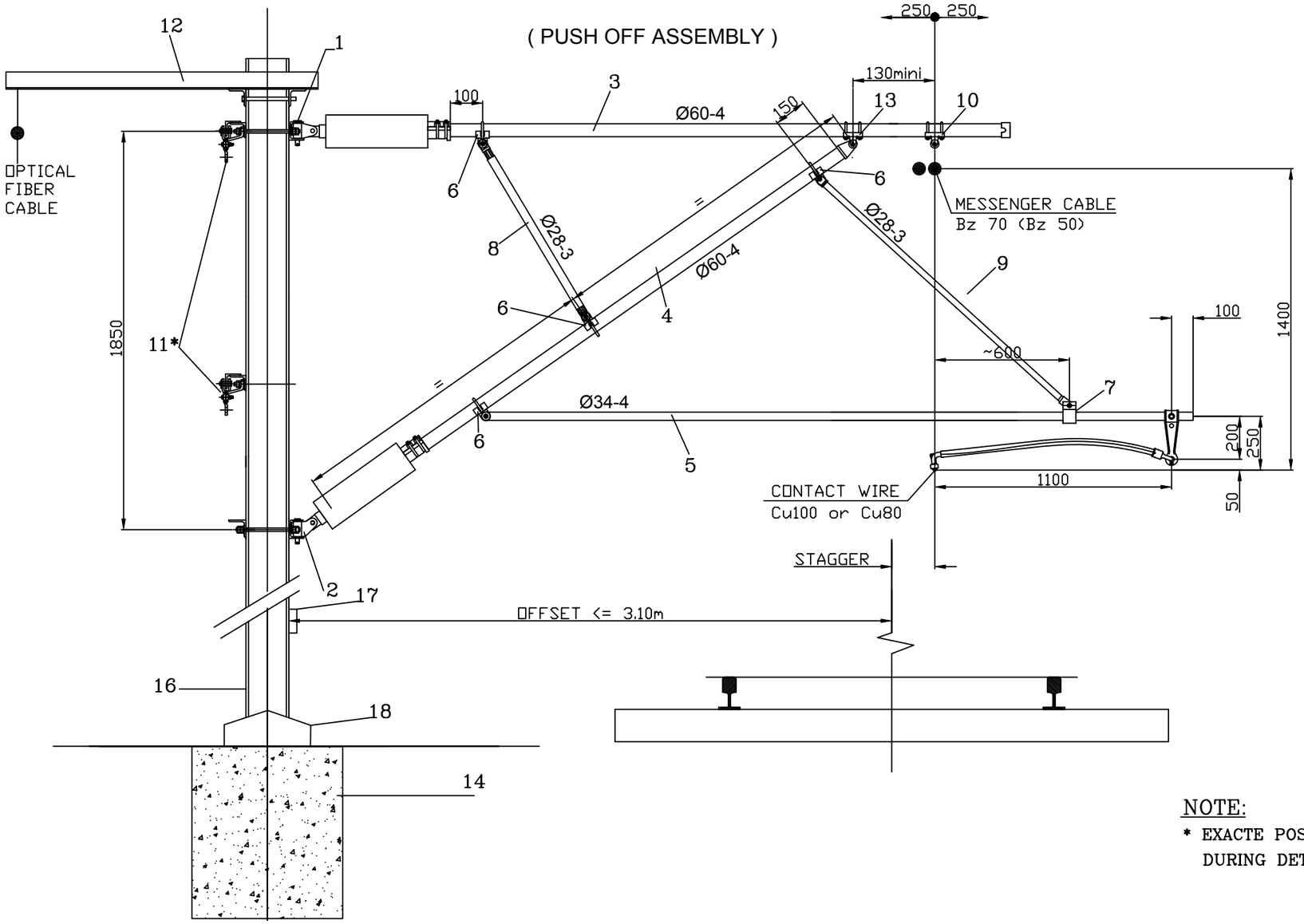
18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG071 01LC00BDG072	
10	SUSPENSION FOR MESSENGERS	01LC00BDG070	102
9	AUXILIARY STRUT TUBE	01LC00BDG083	
8	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE Ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE Ø60	ELC 13-1.2.3.0	
5	Ø34-4 REGISTRATION ARM WITH 0.9m STEADY ARM FOR STRAIGHT LINE	01LC00BDG150	202
4	INSULATED FOR STRUT TUBE Ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE Ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG058 01LC00BDG071	
1	FASTENING FOR TOP TUBE	or 01LC00BDG059 01LC00BDG135	
ITEM	DESIGNATION	REFERENCE DRAWING	MARK

NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

MONTARE TIP ECHIPAMENT MEDIAN PENTRU LINIE CURENTA (ANSAMBLU COMPRIMAT) TYPICAL MID POINT EQUIPMENT ON OPEN ROUTE (PUSH OFF ASSEMBLY)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG231		1 / 2	0

(297 x 420)



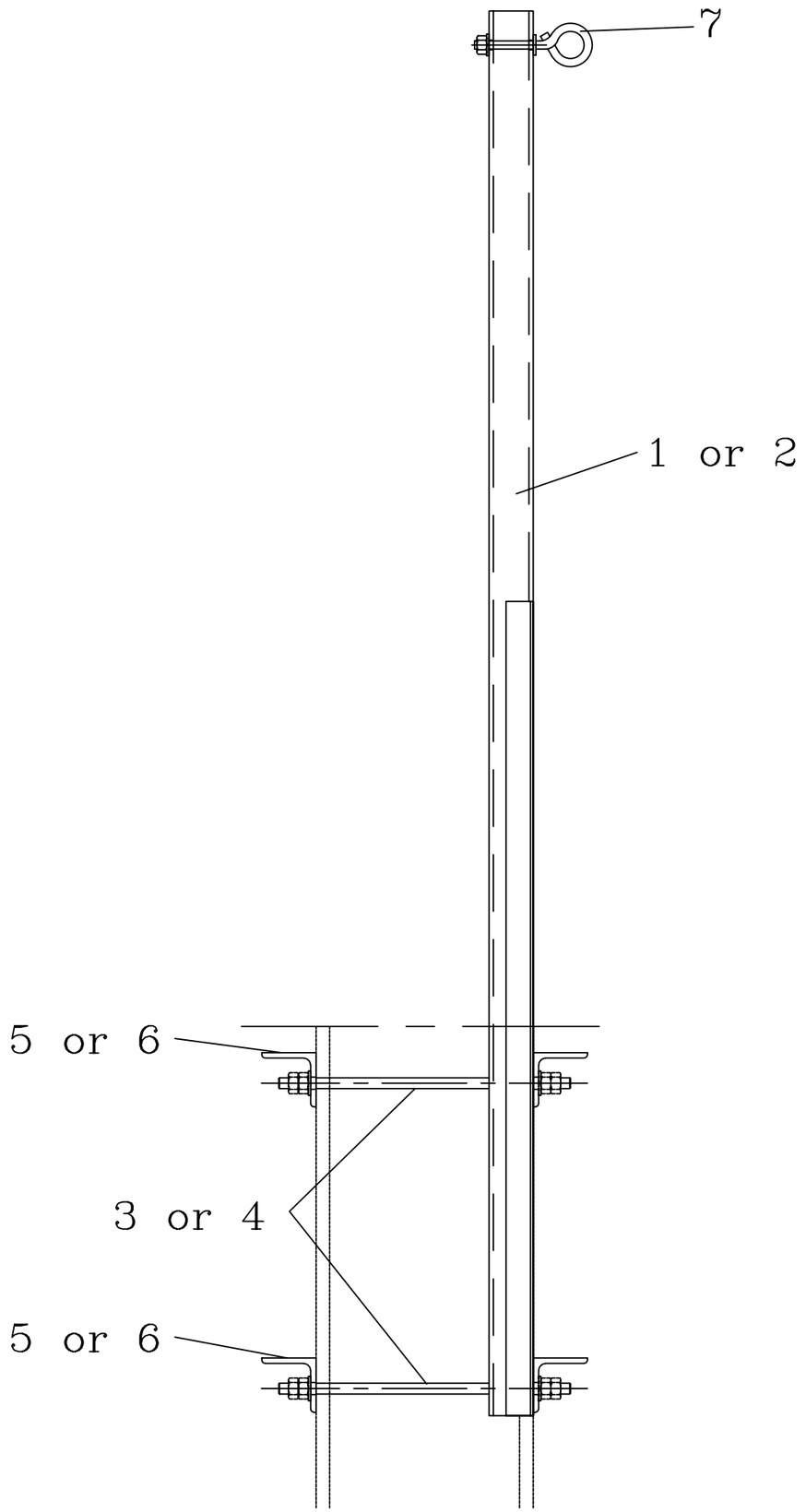
ITEM	DESIGNATION	REFERENCE DRAWING	MARK
18	DICE PROTECTION	01LC00BDG008	
17	ASSEMBLY OF SAFETY DEVICES		
16	MAST TYPES AND REFERENCES	01LC00BDG010	
15	-	-	
14	FOUNDATION	01LC00BDG006	
13	FASTENING FOR TOP TUBE	01LC00BDG069	
12	OPTICAL FIBER BRACKET	01LC00BDG054	
11	EARTHING SUSPENSION	or 01LC00BDG071 01LC00BDG072	
10	SUSPENSION FOR 2 MESSENGERS	01LC00BDG070	102
9	AUXILIARY STRUT TUBE	01LC00BDG083	
8	AUXILIARY STRUT TUBE	01LC00BDG083	
7	FASTENING ON TUBE ø34	ELC 26-4.7.0	
6	FASTENING ON TUBE ø60	ELC 13-1.2.3.0	
5	ø34-4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR CURVE	01LC00BDG151	202
4	INSULATED FOR STRUT TUBE ø60	01LC00BDG066	
3	INSULATED FOR TOP TUBE ø60	01LC00BDG064	
2	FASTENING FOR STRUT TUBE	or 01LC00BDG058 01LC00BDG071	
1	FASTENING FOR TOP TUBE	or 01LC00BDG059 01LC00BDG135	

NOTE:

* EXACTE POSITION (HEIGHT,FIELD OR TRACK SIDE) WILL BE DEFINED DURING DETAIL DESIGN STAGE

MONTARE TIP ECHIPAMENT MEDIAN PENTRU LINIE CURENTA (ANSAMBLU COMPRIMAT) TYPICAL MID POINT EQUIPMENT ON OPEN ROUTE (PUSH OFF ASSEMBLY)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG231		2 / 2	0

(297 x 420)

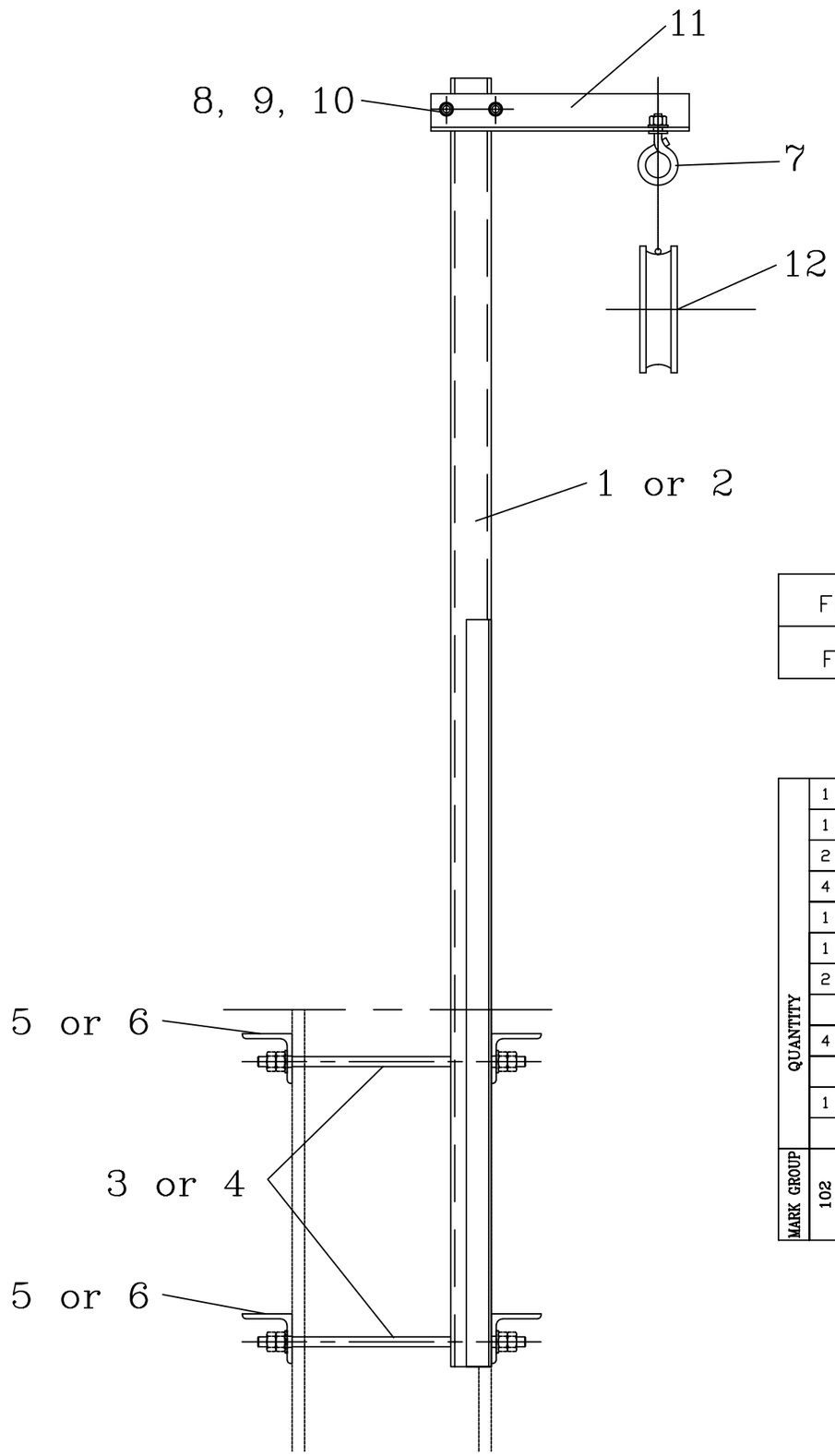


FROM HE 200 TO HE240	101
FROM HE 260 TO HE320	102

QUANTITY			ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
1	1		7	SUPPORT RING TYPE II	.024	ELC/CF0 3-15.0	
2			6	COUNTERPLATE FOR OPTICAL FIBER	3.85	01LC00BDG087	204
	2		5	COUNTERPLATE FOR OPTICAL FIBER	3.08	01LC00BDG087	104
4			4	THREADED ROD M12-400/100	0.35	01LC00BDG141	1211D2
	4		3	THREADED ROD M12-350/100	0.30	01LC00BDG141	1211C2
1			2	SUPPORT FOR OPTICAL FIBER	28.00	01LC00BDG252	102
	1		1	SUPPORT FOR OPTICAL FIBER	26.34	01LC00BDG252	101
MARK GROUP 102	MARK GROUP 101						

VARFAR CU INEL PENTRU FIBRA OPTICA SURELEVATED SUPPORT FOR OPTICAL FIBER WITH RING	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG250		*1 / 1*	*0*

(297 x 420)

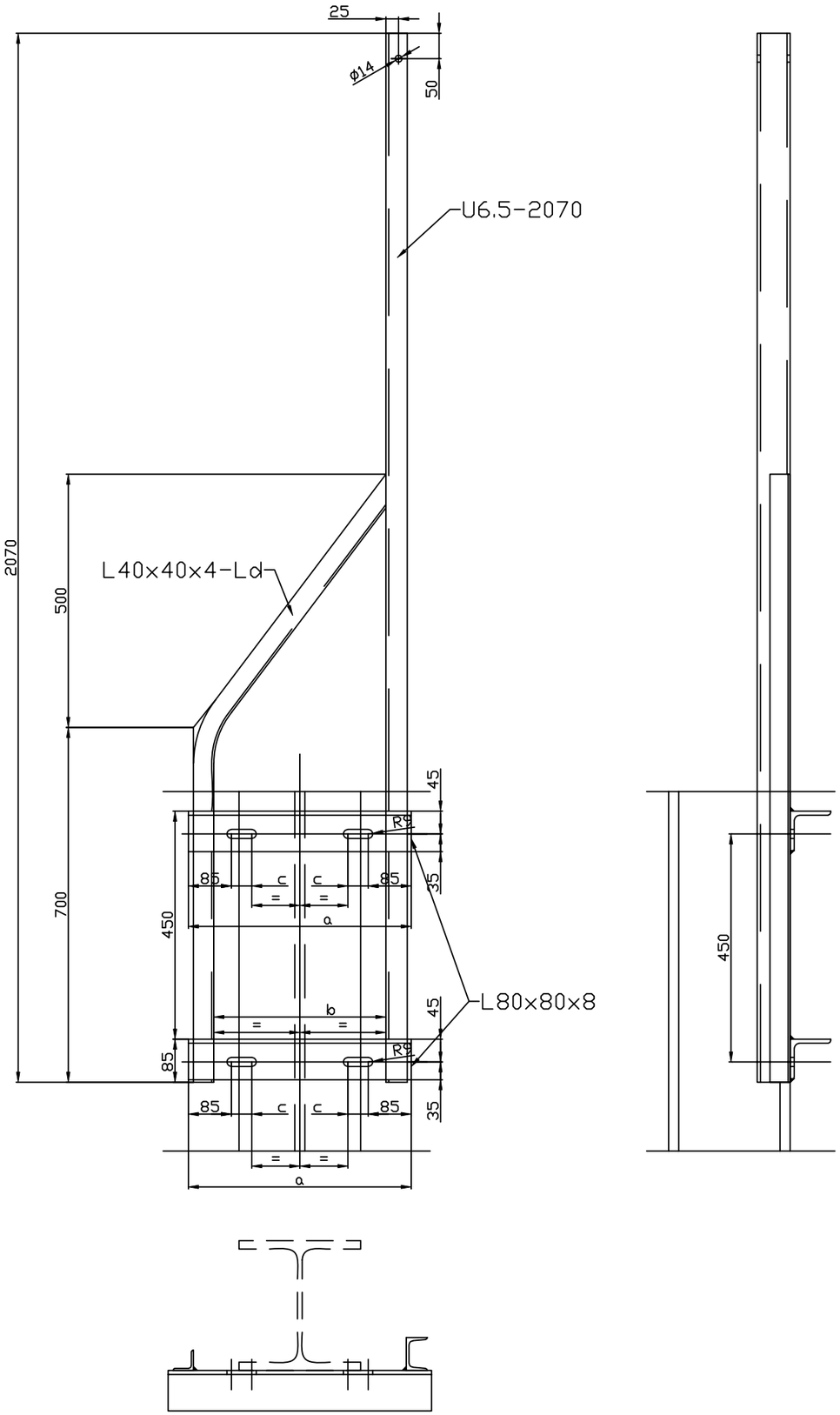


FROM HE 200 TO HE240	101
FROM HE 260 TO HE320	102

QUANTITY			ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
1	1		12	PULLEY ASSEMBLY (TYPE R)	-	BE-F' 13252	
1	1		11	COUNTERPLATE	2.25	01LC00BDG254	
2	2		10	WASHER M12	0.03	SR EN 7089/4	
4	4		9	NUT M12-gr8	0.02	SR EN ISO 4032	
1	1		8	STRUT	0.26	01LC00BDG253	
1	1		7	PULLEY SUPPORT RING (TYPE A)	0.24	ELC/CF0 3-15.0 B	
2			6	COUNTERPLATE FOR OPTICAL FIBER	3.85	01LC00BDG087	204
	2		5	COUNTERPLATE FOR OPTICAL FIBER	3.08	01LC00BDG087	104
4			4	THREADED ROD M12-400/100	0.35	01LC00BDG141	1211D2
	4		3	THREADED ROD M12-350/100	0.30	01LC00BDG141	1211C2
1			2	SUPPORT FOR OPTICAL FIBER	28.00	01LC00BDG252	102
	1		1	SUPPORT FOR OPTICAL FIBER	26.34	01LC00BDG252	101
MARK GROUP	102	101					

VARFAR CU ROLA PENTRU FIBRA OPTICA SURELEVATED SUPPORT FOR OPTICAL FIBER WITH PULLEY	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG251		*1 / 1*	*0*

(297 x 420)



NOTE:

1.Continious bead waterproof welds minimum thickness: 3.5mm

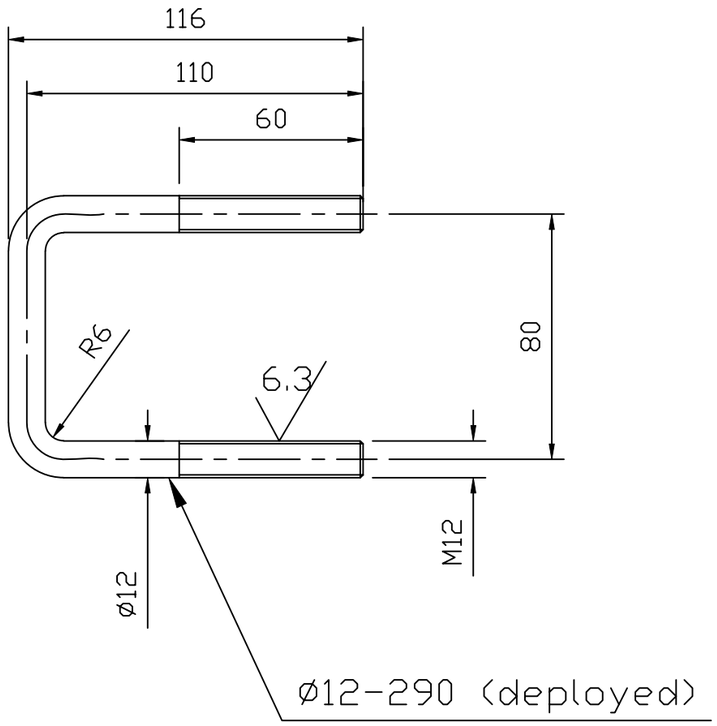
2.After welding and drilling , the assembly will be hot galvanised AT/OL/Zn600-STAS 7221-90

		Ld	a	b	c
FROM HE 200 TO HE240	101	1323	440	340	40
FROM HE 260 TO HE320	102	1374	520	420	45

03LC00BDG252	***	SUPPORT FOR OPTICAL FIBER	S235JR	-
DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg

SUPORT PENTRU FIBRA OPTICA SUPPORT FOR OPTICAL FIBER	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG252		*1 / 1*	*0*

(297 x 420)

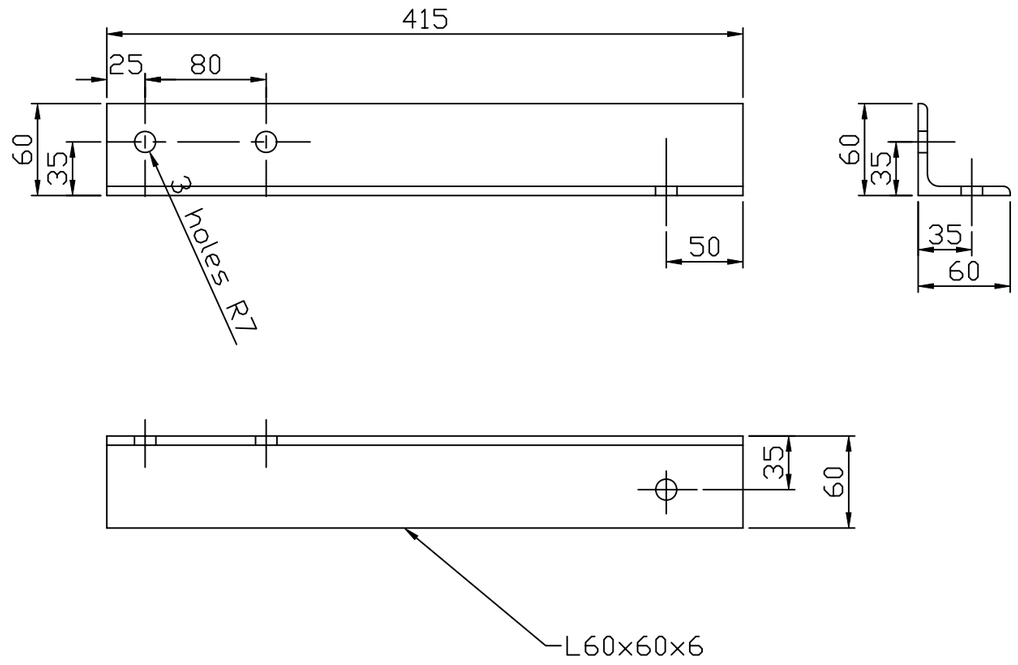


NOTE:

Will be hot galvanized AT/OL/Zn500, except threaders AT/OL/Zn310-STAS 7221-90.
MATERIAL: S275JR

BOLT STRUT	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG253		*1 / 1*	*0*

(297 x 420)

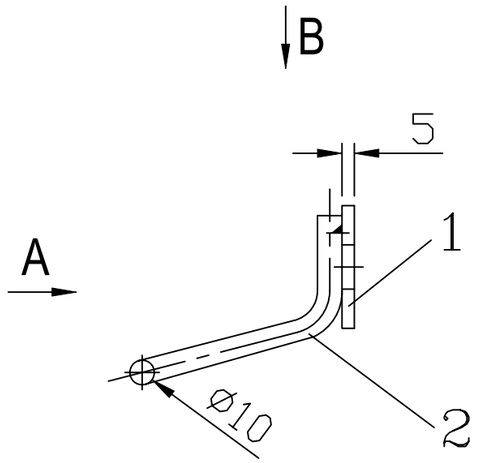


Note : After welding and drilling will be hot galvanized AT/OL/Zn600-STAS 7221-90.

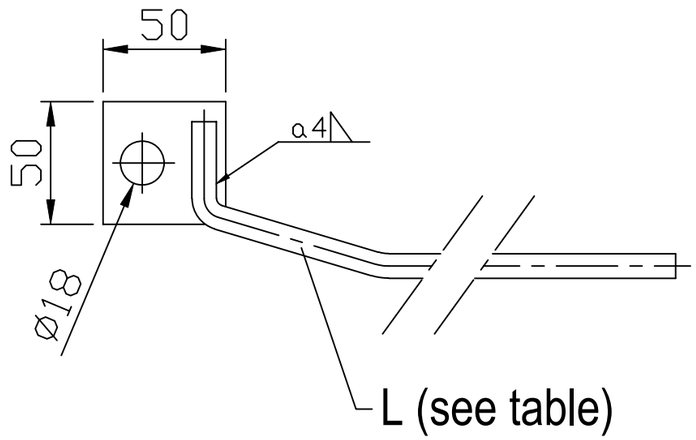
01LC00BDG254	101	COUNTERPLATE (L 60*60*6)	S235JR	
DRAWING NUMBER	MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg

CONTRASUPORT COUNTERPLATE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG254		*1 / 1*	*0*

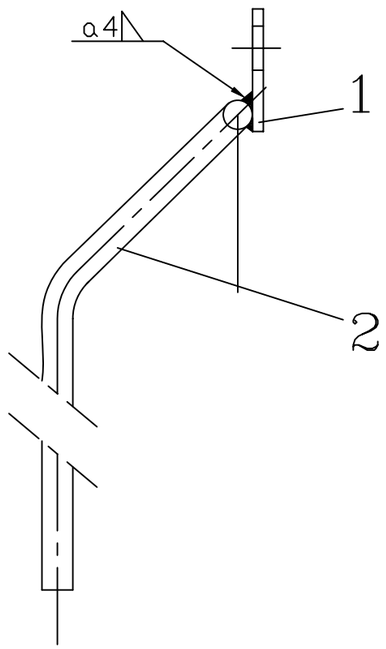
(297 x 420)



View A



View B

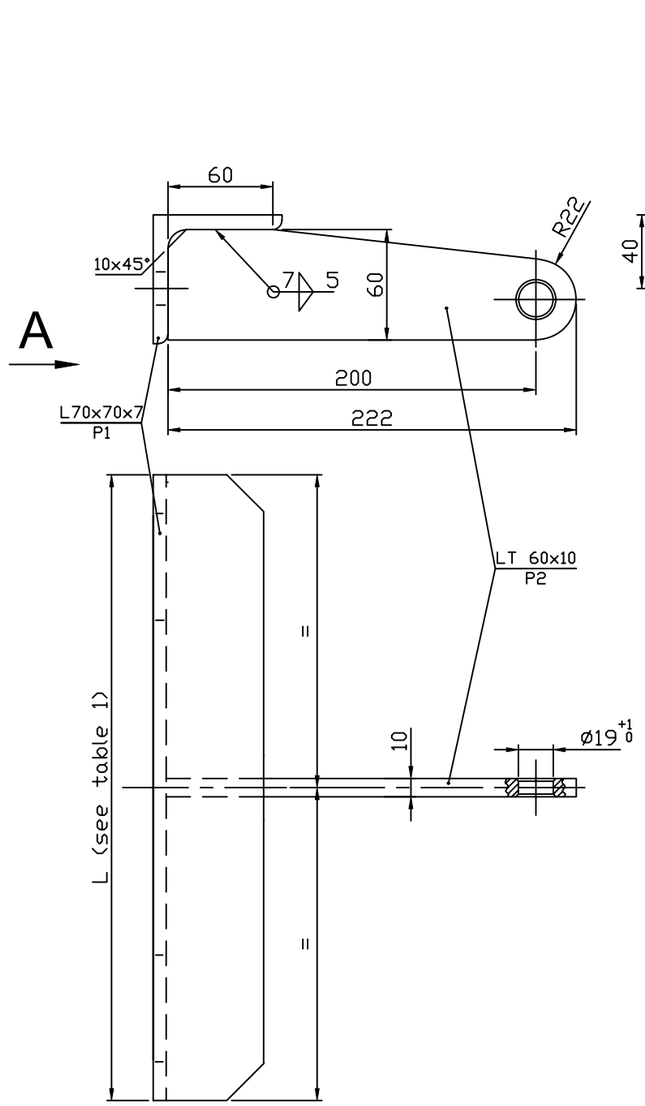


NOTE:
Continuous bead waterproof welds minimum thickness: 4mm
Between square washer and concrete steel rod

			L (mm)			
2	CONCRETE STEEL ROD ø10	S235JR	400	700	900	
1	SQUARE WASHER TYPE II	S235JR				
ITEM	DESIGNATION	Material	101	102	103	Mark group

CONEXIUNE DE IMPAMANTARE EARTH CONNECTION	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG260		*1 / 1*	*0*

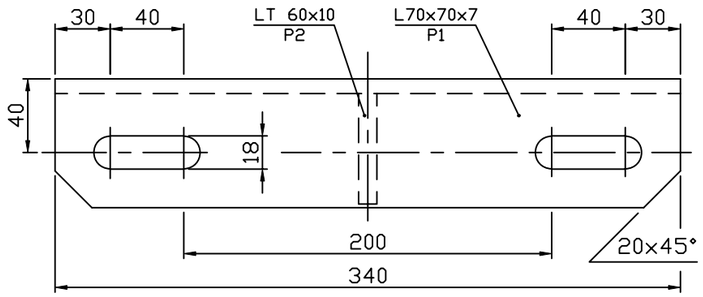
(297 x 420)



View A

Mark 101

FROM HE 200 TO 240



Mark 102

FROM HE 260 TO 320

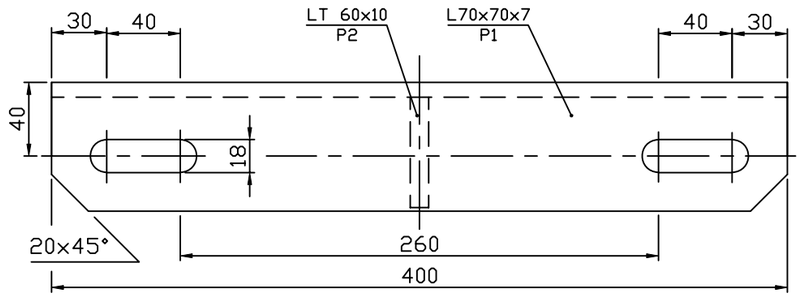


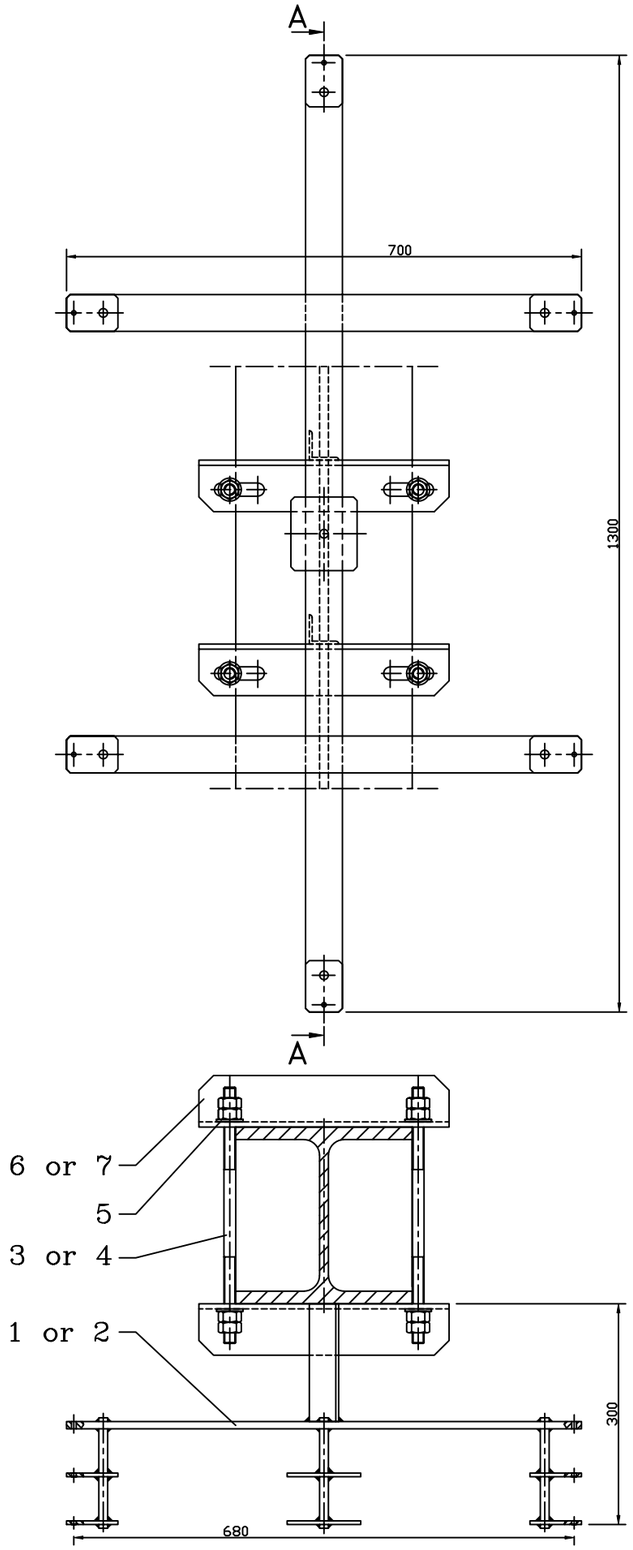
TABLE 1		
MARK	DESIGNATION	L
101	FROM HE 200 TO 240	340
102	FROM HE 260 TO 320	400

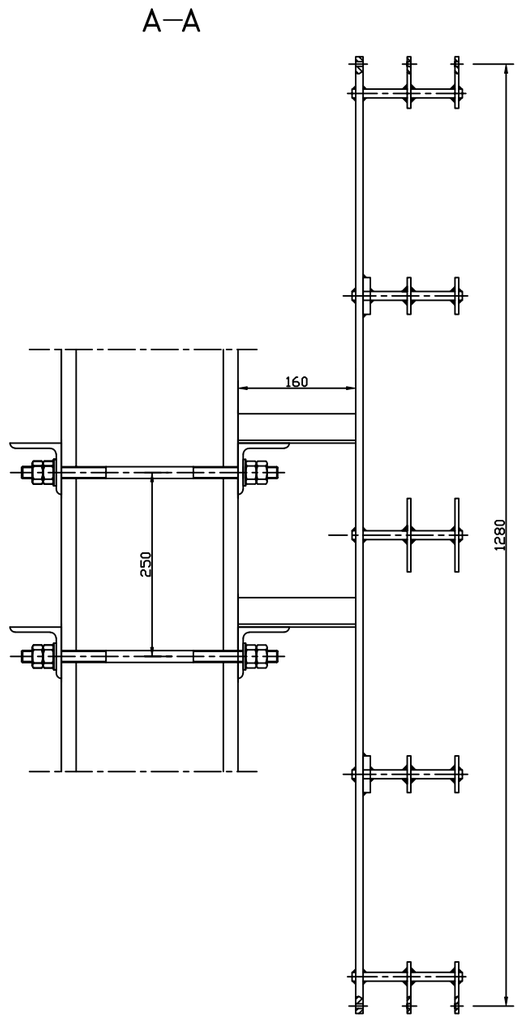
After welding and drilling will
be hot galvanized AT/OL/Zn600-STAS 7221-90.

102	COUNTERPLATE (L 70*70*7)	S235JR	3.36
101	COUNTERPLATE (L 70*70*7)	S235JR	2.86
MARK	DESIGNATION	MATERIAL TECHNICAL SPECIFICATION	UNIT MASS kg

CONTRASUPORT SPECIAL SPECIAL COUNTERPLATE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG261		*1 / 1*	*0*

(297 x 420)





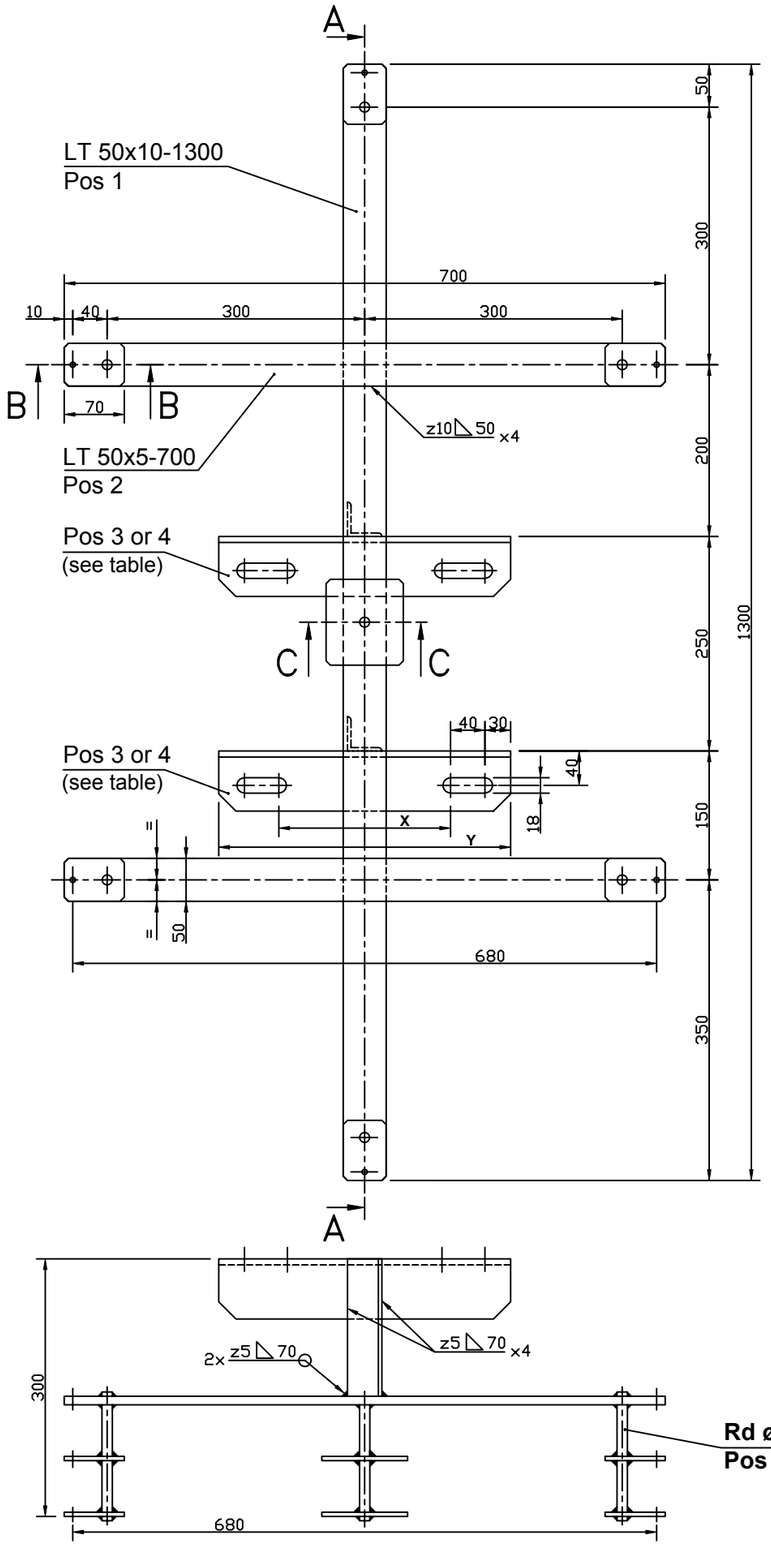
MARK	DESIGNATION
101	FROM HE 200 TO 240
102	FROM HE 260 TO 320

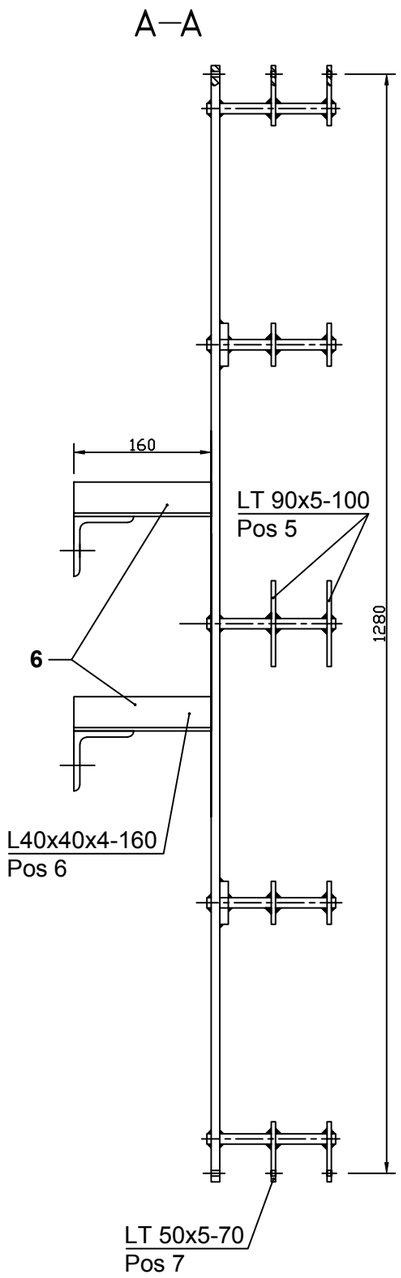
QUANTITY			ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
1			7	COUNTERPLATE	3.36	01LC00BDG090	102
	1		6	COUNTERPLATE	2.86	01LC00BDG090	101
4	4		5	WASHER M16	0.03	01LC00BDG142	16A110
	2		4	THREADED ROD M16- 350/100	0.55	01LC00BDG141	1611C3
2			3	THREADED ROD M16- 450/100	0.70	01LC00BDG141	1611E4
1			2	O.F. SUPPORT	18.11	01LC00BDG271	102
	1		1	O.F. SUPPORT	17.21	01LC00BDG271	101

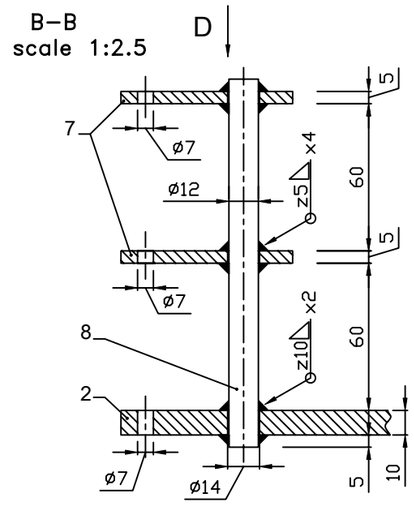
MARK. GROUP: 102 | 101

ANSAMBLU SUPORT PENTRU FIBRA OPTICA OPTICAL FIBER SUPPORT ASSEMBLY	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG270		*1 / 1*	*0*

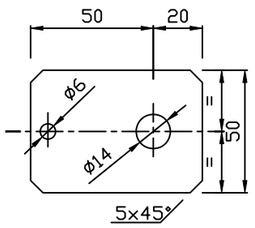
(297 x 420)

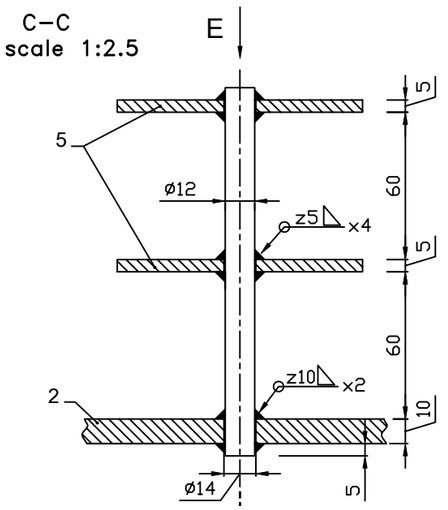




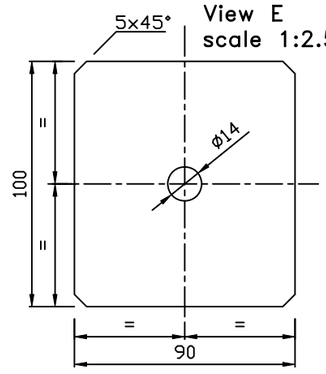


View D
scale 1:2.5





View E
scale 1:2.5

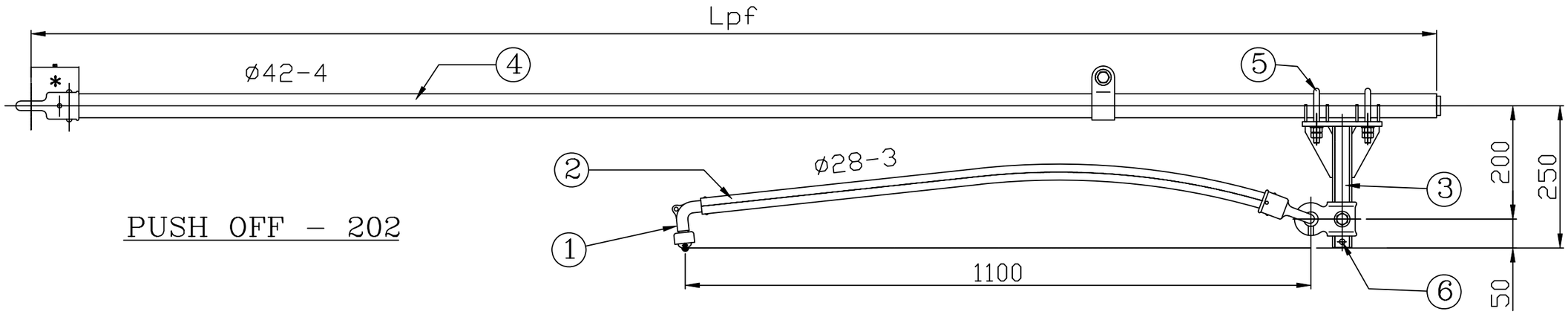


MARK	DESIGNATION	X	Y
101	FROM HE 200 TO HE 240	200	340
102	FROM HE 260 TO HE 320	260	400

QUANTITY			ITEM	DESIGNATION	UNIT MASS (kg)	MATERIAL
7	7	8	8	Round ø12 - 150		S 235 JR
12	12	7	7	PLATE (LT 50x5 - 70)		S 235 JR
2	2	6	6	SPACER (L 40x40x4 - 160)		S 235 JR
2	2	5	5	PLATE (LT 90x5 - 100)		S 235 JR
2		4	4	COUNTERPLATE (L 70x70x7 - 400)		S 235 JR
	2	3	3	COUNTERPLATE (L 70x70x7 - 340)		S 235 JR
2	2	2	2	FLAT BAR (LT 50x5 - 700)		S 235 JR
1	1	1	1	FLAT BAR (LT 50x10 - 1300)		S 235 JR
MARK GROUP	102	101	ITEM	DESIGNATION	UNIT MASS (kg)	MATERIAL

SUPORT FIBRA OPTICA OPTICAL FIBER SUPPORT	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG271		*1 / 1*	*0*

(297 x 420)

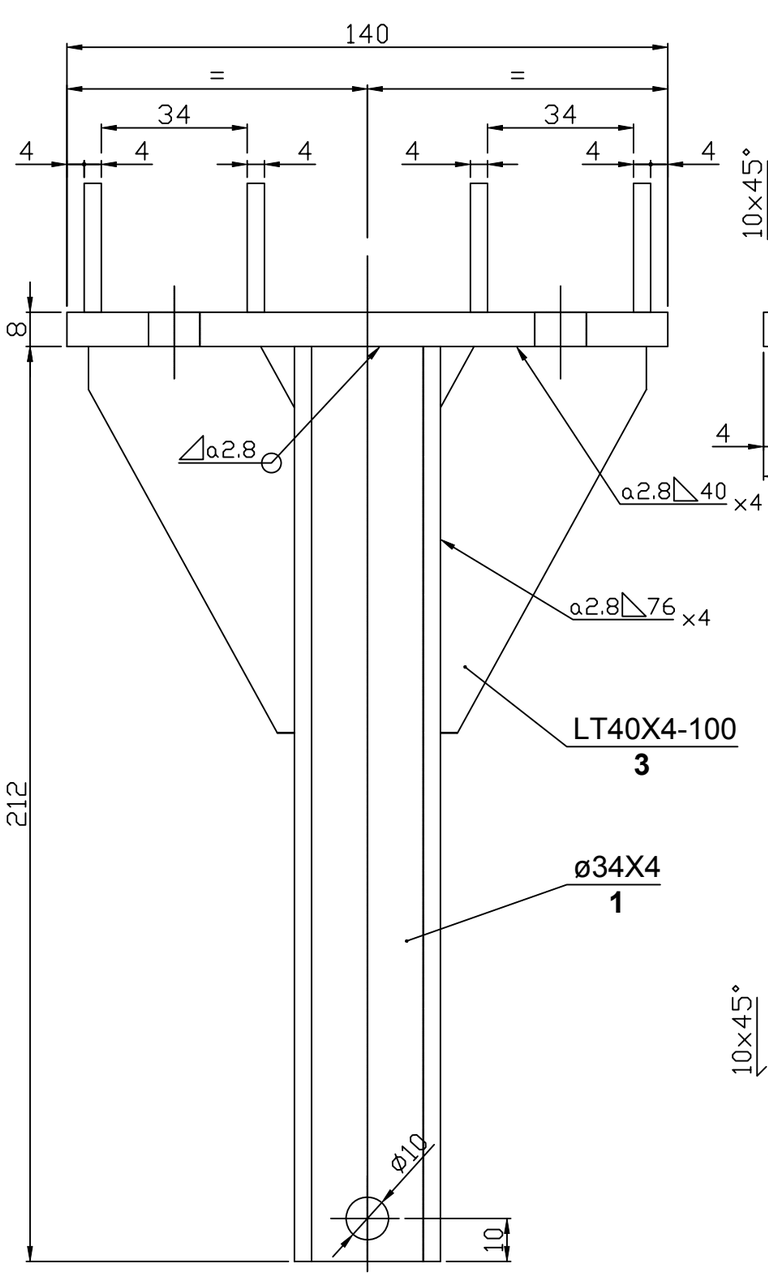


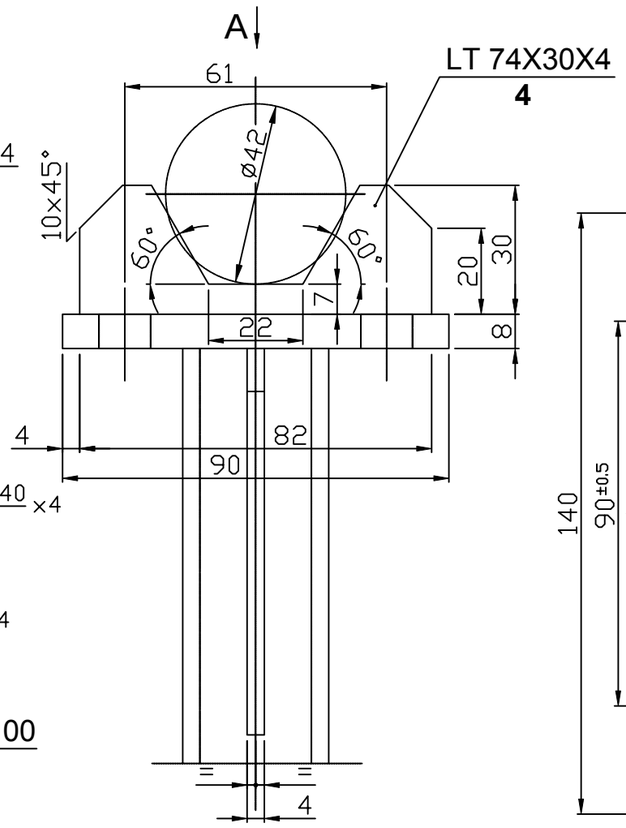
PUSH OFF – 202

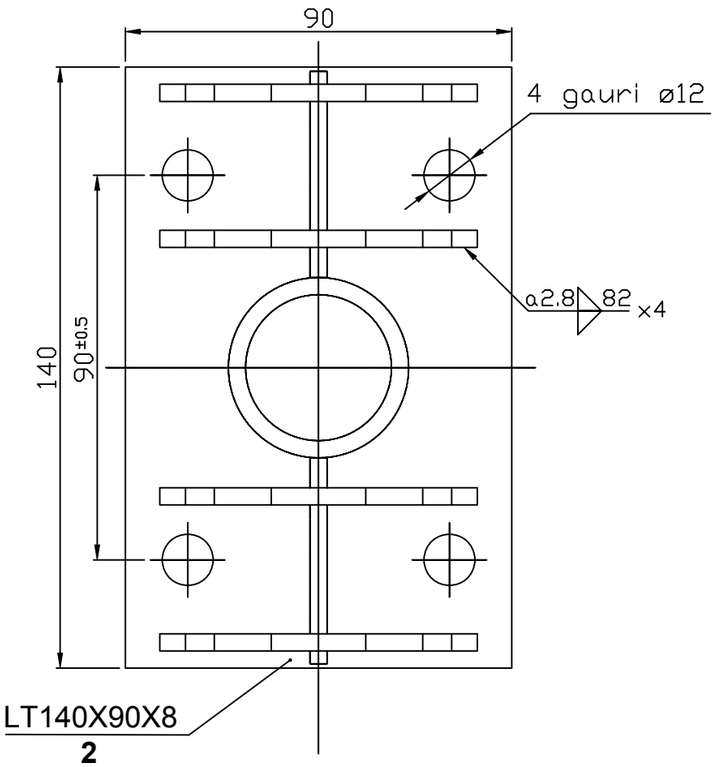
MARK GROUP	QUANTITY	ITEM	DESIGNATION	REFERENCE DRAWING	MARK
SEE TABLE	1	6	WIRE ø8 L=100 (STAINLESS STEEL)		
	2	5	"U" BOLT M 10	01LC00BDG143	1021W3
	1	4	ø42X4 TUBE FOR STEADY ARM	ELC 13-15.0BM	
	1	3	STAND OFF ASSEMBLY FOR STEADY ARM ø34	01LC00BDG273	
	1	2	1.1m STEADY ARM FOR CURVE	ELC 32-10.0A	
	1	1	ASSEMBLY CLAMP GROOVED CONTACT WIRE	ELC 32-9.5.5.0B	

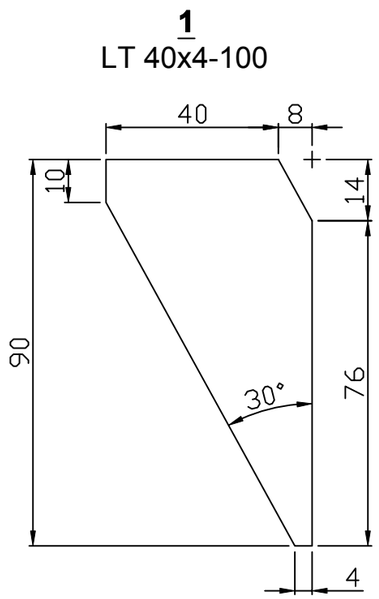
PORTFIXATOR ø42x4 CU FIXATOR 1.1m PENTRU LINIE CURBA ø42x4 REGISTRATION ARM WITH 1.1m STEADY ARM FOR CURVE	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG272		*1 / 1*	*0*

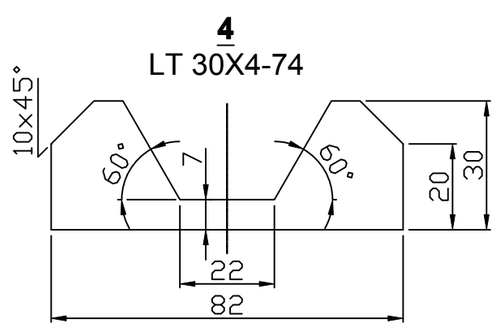
(297 x 420)







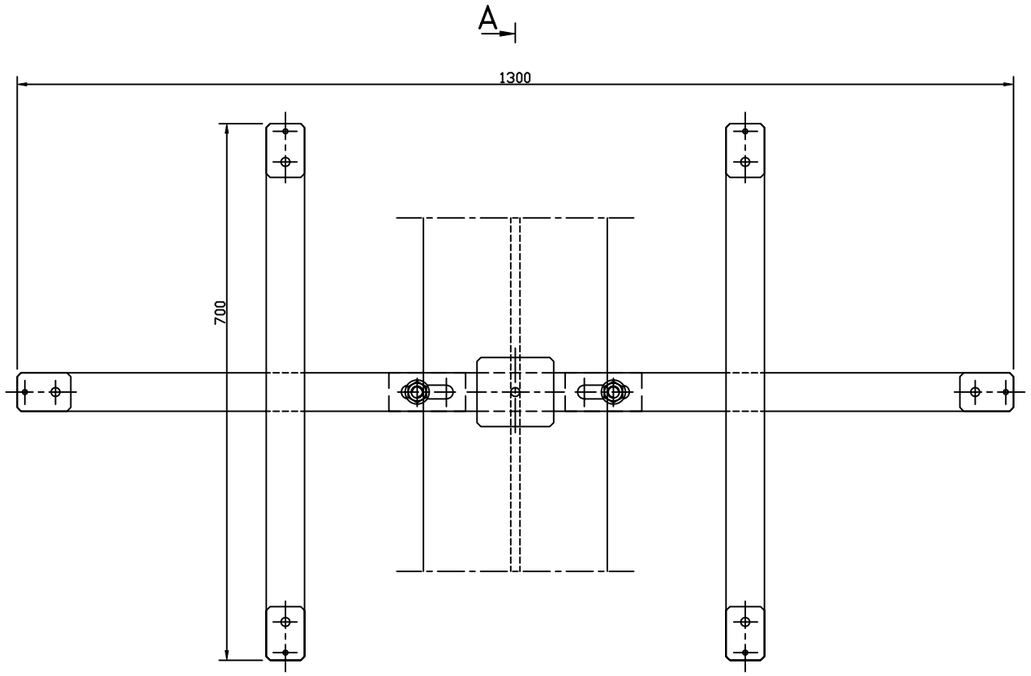


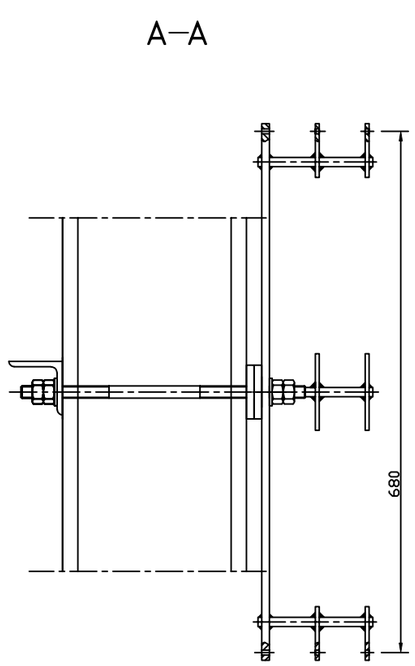


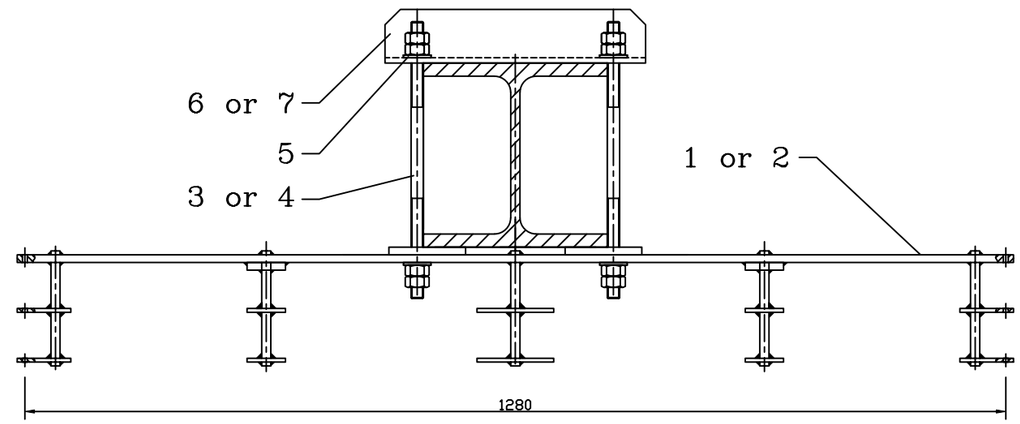
QUANTITY	Pcs	ITEM	DESIGNATION	UNIT MASS	MATERIAL
	4	4	PLATE 74×30×4		S 235 JR
	2	3	RIB 40×4-100		S 235 JR
	1	2	PLATE 140×90×8		S 235 JR
	1	1	TUBE ø34×4		S 235 JR

ATASAMENT PENTRU FIXATOR ø34 STEADY ARM BRACKET ATTACHMENT ø34	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG273		*1 / 1*	*0*

(297 x 420)





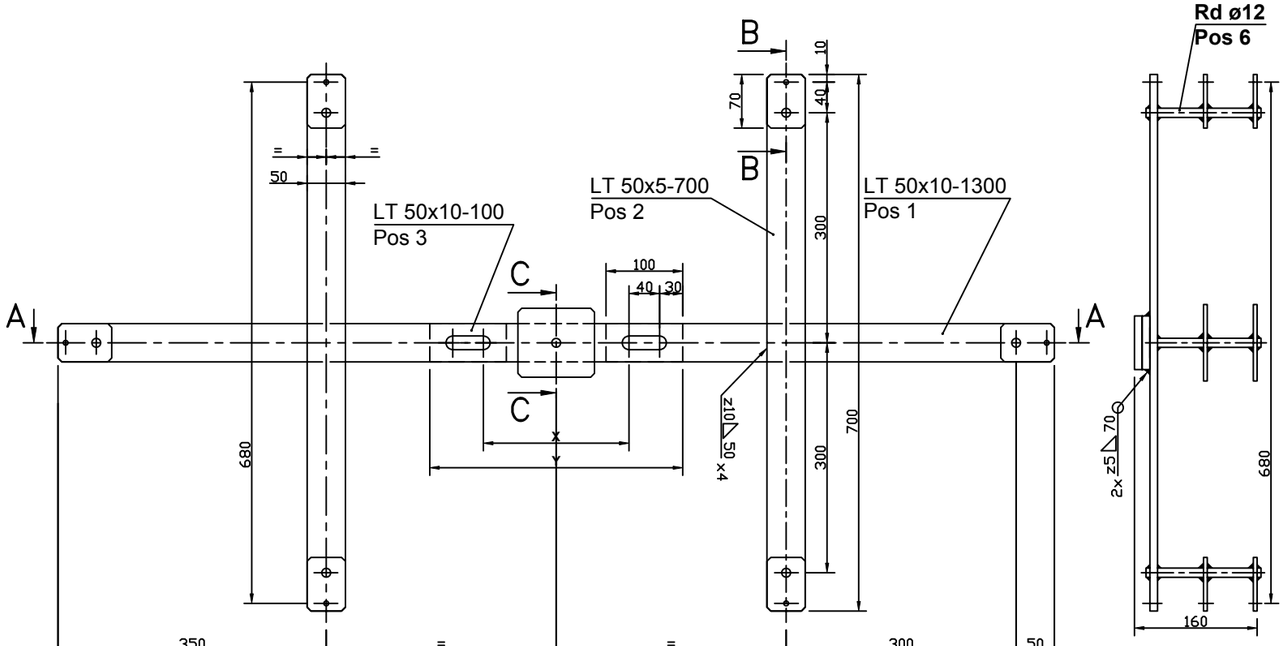


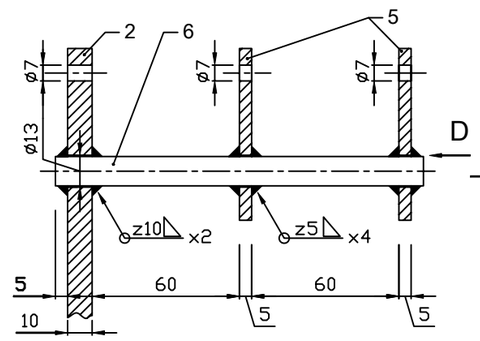
MARK	DESIGNATION
101	FROM HE 200 TO 240
102	FROM HE 260 TO 320

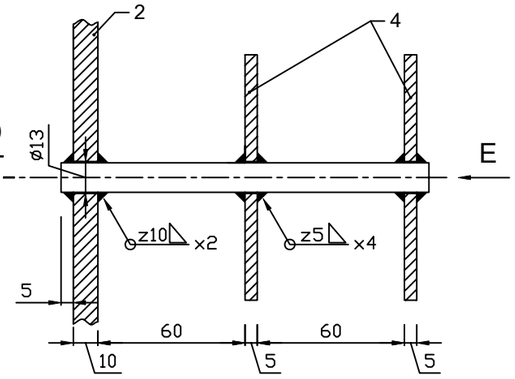
QUANTITY			ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK
1		7		COUNTERPLATE		01LC00BDG090	102
	1	6		COUNTERPLATE		01LC00BDG090	101
4	4	5		WASHER M16		01LC00BDG142	16A110
2		4		THREADED ROD M16- 350/100		01LC00BDG141	
	2	3		THREADED ROD M16- 450/100		01LC00BDG141	
1		2		OF SUPPORT (for OF junction)		01LC00BDG276	102
	1	1		OF SUPPORT (for OF junction)		01LC00BDG276	101
MARK.GROUP 102	MARK.GROUP 101						

SUPORT PENTRU REZERVA DE FIBRA OPTICA (pentru joctiune FO) SUPPORT FOR RESERVE OF OPTICAL FIBER (for OF junction)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG275		*1 / 1*	*0*

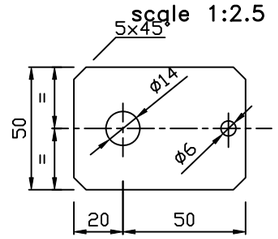
(297 x 420)



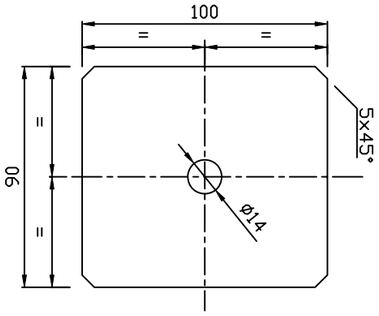


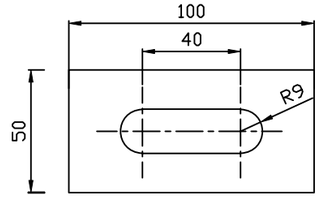


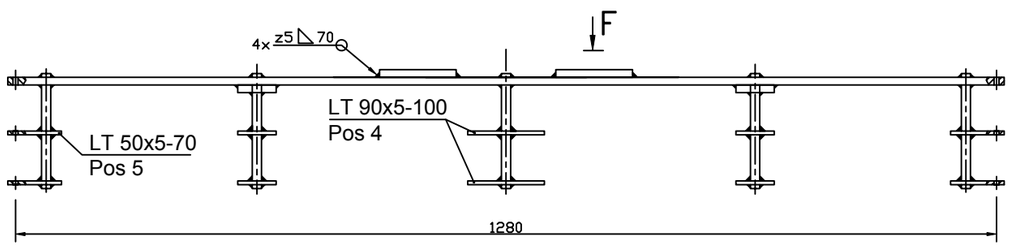
View D
scale 1:2.5



View E
scale 1:2.5





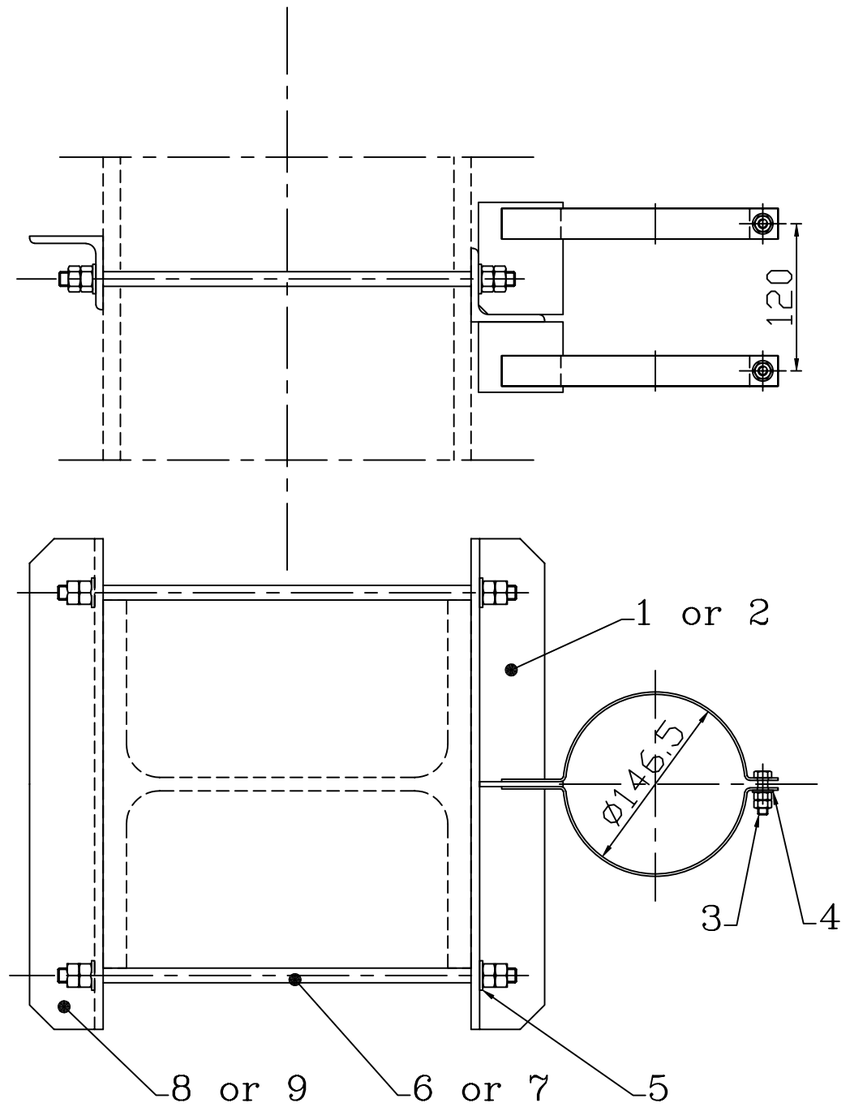


MARK	DESIGNATION	X	Y
101	FROM HE 200 TO HE 240	200	340
102	FROM HE 260 TO HE 320	260	400

QUANTITY			ITEM	DESIGNATION	UNIT MASS (kg)	MATERIAL
	7	7	6	Round ø12 - 150		S 235 JR
	12	12	5	PLATE (LT 50x5 - 70)		S 235 JR
	2	2	4	PLATE (LT 90x5 - 100)		S 235 JR
	2	2	3	FLAT BAR (LT 50x10 - 100)		S 235 JR
	2	2	2	FLAT BAR (LT 50x5 - 700)		S 235 JR
	1	1	1	FLAT BAR (LT 50x10 - 1300)		S 235 JR
MARK GROUP	102	101				

SUPORT FIBRA OPTICA (pentru jonctiune FO) OPTICAL FIBER SUPPORT (for OF junction)	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG276		1 / 1	0

(297 x 420)

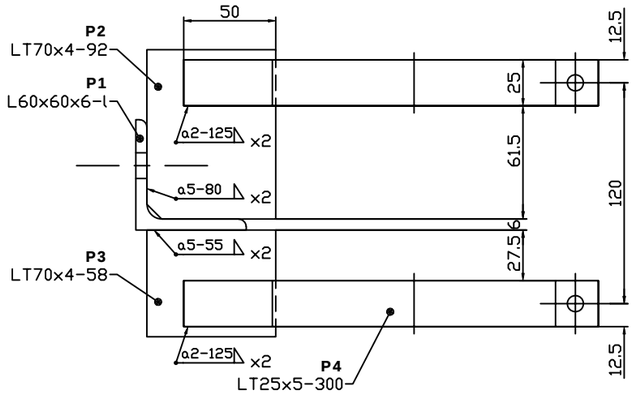


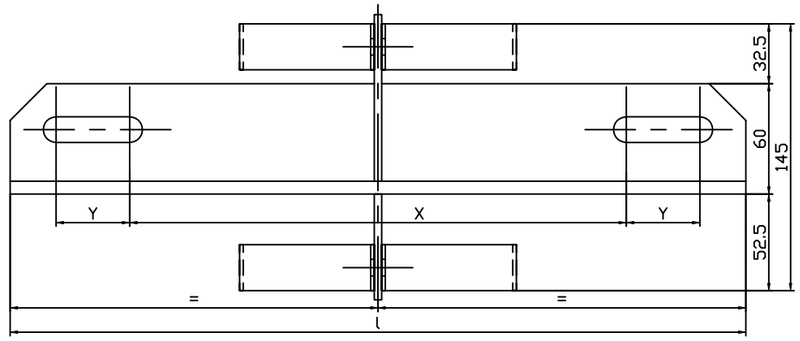
QUANTITY			ITEM	DESIGNATION		REFERENCE DRAWING	MARK
1			9	COUNTERPLATE FOR OF		01LC00BDG087	203
	1		8	COUNTERPLATE FOR OF		01LC00BDG087	103
2			7	THREADED ROD M12-400/100		01LC00BDG141	1211C2
	2		6	THREADED ROD M12-350/100		01LC00BDG141	1211C2
4	4		5	WASHER M12		01LC00BDG142	12A110
2	2		4	WASHER M8		01LC00BDG142	08A110
2	2		3	BOLT M8-40		01LC00BDG144	0813F1
1			2	COUNTERPLATE FOR OF PLUG JUNCTION		01LC00BDG278	102
	1		1	COUNTERPLATE FOR OF PLUG JUNCTION		01LC00BDG278	101
MARK.GROUP 102	MARK.GROUP 101		ITEM	DESIGNATION	UNIT MASS kg	REFERENCE DRAWING	MARK

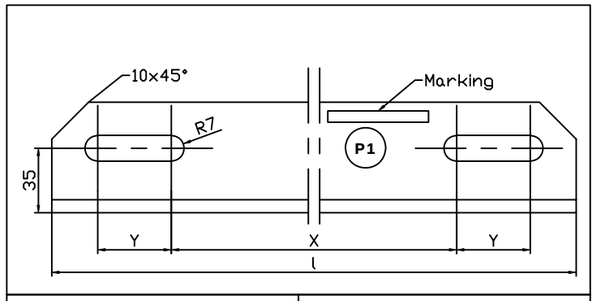
MARK	DESIGNATION
101	FROM HE 200 TO HE 240
102	FROM HE 260 TO HE 320

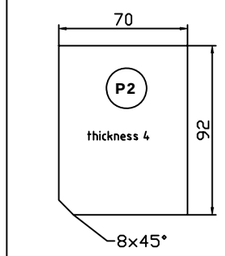
SUPORT FIBRA OPTICA PENTRU JONCTIUNE OPTICAL FIBER SUPPORT FOR PLUG JUNCTION	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG277		*1 / 1*	*0*

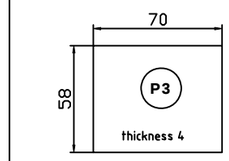
(297 x 420)

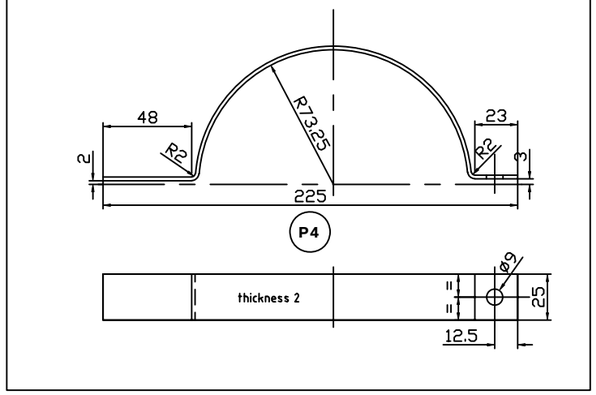


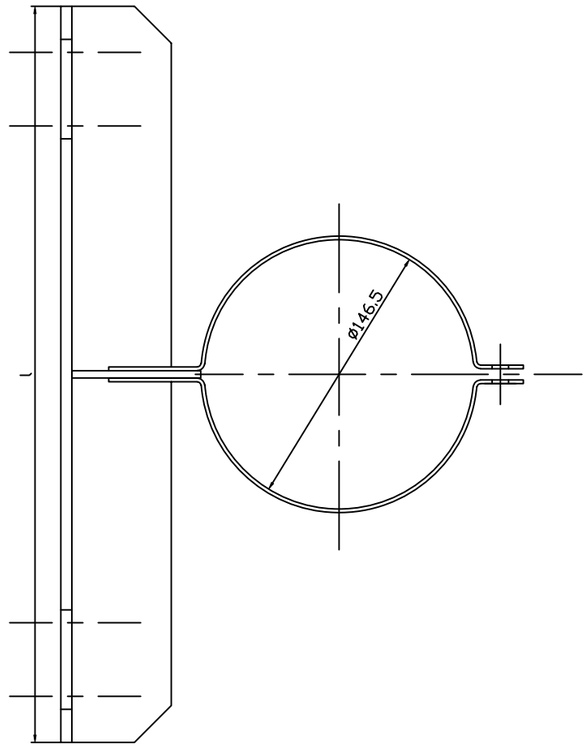












MARK	DESIGNATION	X	Y	l
101	FROM HE 200 TO HE 240	190	40	320
102	FROM HE 260 TO HE 320	250	50	400

MARK GROUP		ITEM	DESIGNATION	UNIT MASS (kg)	MATERIAL
102	101				
	4	4	PLATE (LT25x5-300)		S 235 JR
	1	3	PLATE (LT70x4-58)		S 235 JR
	1	2	PLATE (LT70x4-92)		S 235 JR
	1	1	COUNTERPLATE (L60x60x6-400)		S 235 JR
	1	1	COUNTERPLATE (L60x60x6-320)		S 235 JR

QUANTITY

Note:

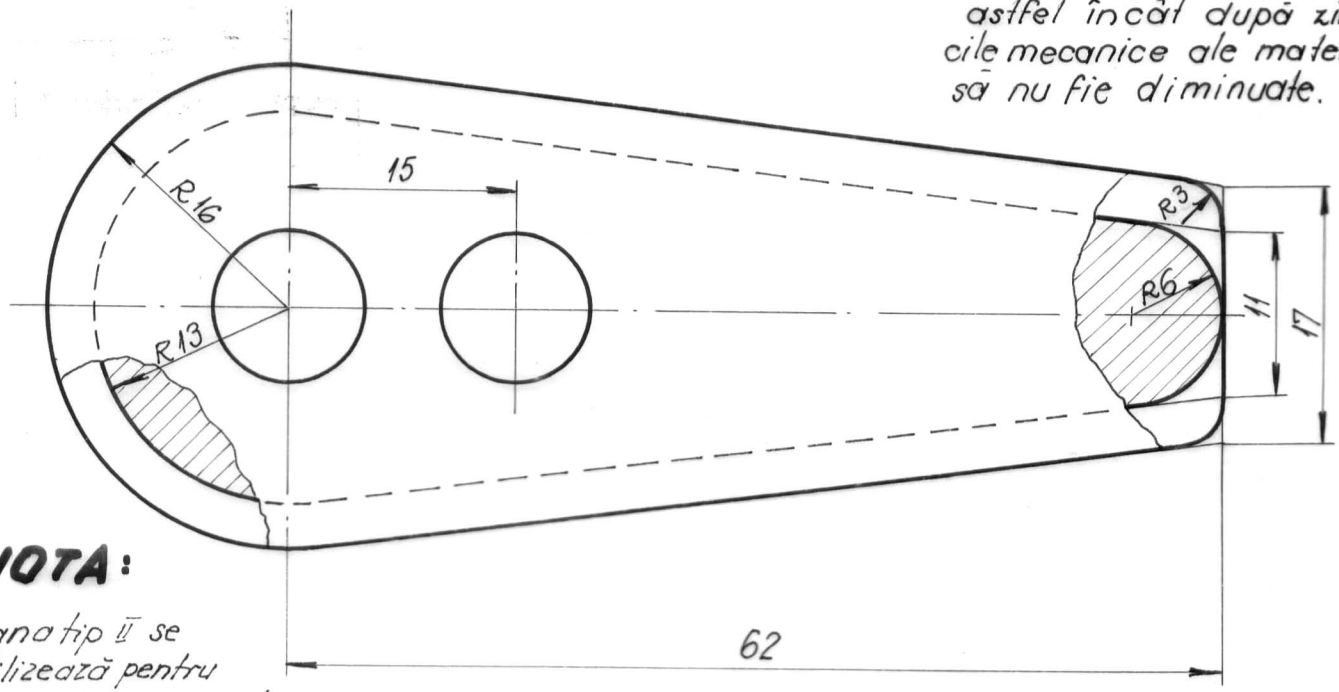
After welding and drilling will be
hot galvanized AT/OL/Zn600-STAS 7221-90.

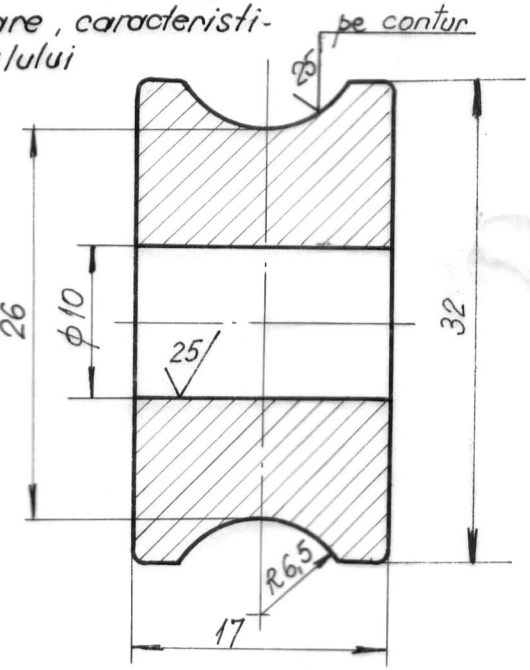
CONTRASUPORT PENTRU FIXARE JONCTIUNE COUNTERPLATE FOR OF PLUG JUNCTION	Numele fisierului/ CAD file name:	Scara/ Scale:	Part	Rev.
	01LC00BDG278		1 / 1	0

(297 x 420)

(b) NOTĂ:

7. Se va zinca AT/OL/Zn 500 - STAS 7221-90
8. Înainte de zincare piesa se va trata termic astfel încât după zincare, caracteristicile mecanice ale materialului să nu fie diminuate.





NOTA:

1- Pana tip II se utilizează pentru conductori cu secțiunea de 50 ÷ 70 mm²
2- Vezi nota des. E-LC-2.3.0
3- Nu se admit sufluri mai adînci de 1mm si cu diametrul peste 5mm distanțate la min. 15mm.
4- Suprafața trebuie să fie fără fisuri si curățată de bavuri și cruste.
5- Deplasarea modelelor în planul de separare va fi max. 0,6 mm.
6- După turnare va urma o recoacere de ferităzare - încălzire la 950°C și menținere 5 ore si răcire lentă de la (b) 760°C la 700°C min. 20 ore
7- După ~~tratament~~ se va zinca (a) ~~AE (OL) Zn 40 St/fos STAS 7222-74~~ AT/OL/Zn 500/STAS 7221-82 90 (b)

De acord, Constructor

Șef proiect, ing. Spack I.

C.T.E. Ing. Ciortan P.

VIZAT
Serviciul Electrificare
Data

100

c	1	Completat material	15-VIII-02	Ing Novleanu	
b	3	Actualizat STAS	28 X 1996	Ing. Novleanu	
a	1	conf. minută 24 IV-84	25 IV-84	ing Novleanu	

Proiectat	Ilie Traian		b B 35.10 (c) sau TUC 10
Desenat	Aldea R.		~~Fmn 35.10~~
Verificat	Ing. Spack I.		
Contr. STAS	Ing. Bădăi L.		Masa netă: 0,170 Kg
Aprobat	Ing. Schmidth M.		

E-LC-2.3.3

I.P.C.F

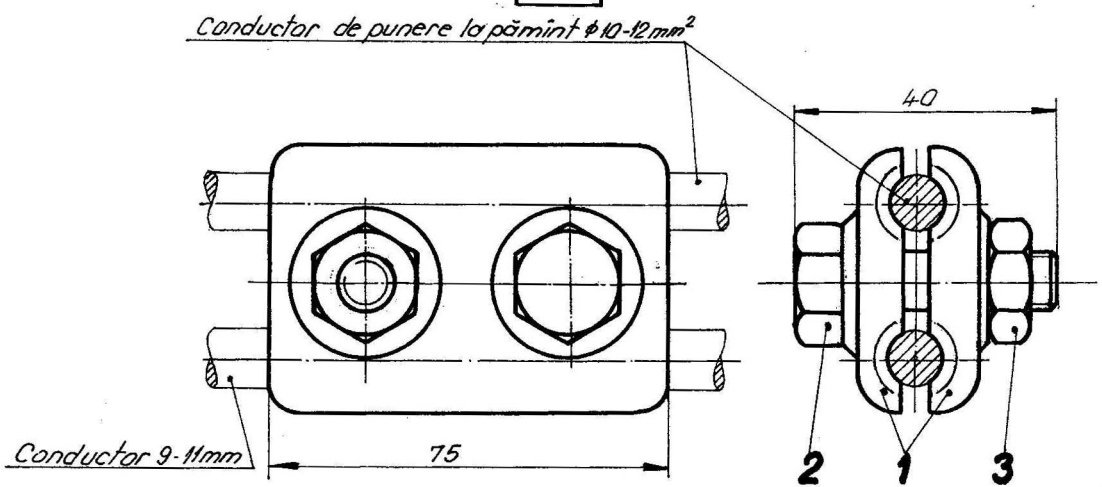
E.I.E.U-Electrificare - LC 2

2:1

Data:

PANA TIP II

E



C.T.E,
ing. Ciortan P.

De acord,
Constructor

Sef proiect,
ing. Spack I.

NOTA:

1- Prezentul plan are la bază LC/C 48

2- Elementele se vor zinca
AT/OL/Zn 500 STAS 7221-82 (b)
~~AT/OL/Zn 40-SL/FOS STAS 7222-74~~ 90 (c)

3- Clema este destinată conductoarelor cu ϕ 9÷11mm.

Poz.	Denumirea	Nr. desen sau STAS	Buc.	Material	Observații	Masa netă kg/buc
3	Piuliță M12 - gr. 4.6	STAS 922-~~69~~ 89/~~76~~ (c)	2			0,016
2	Surub M12 × 40 - gr. 4.6	SR ISO 4016 - 94 (c) STAS 920-~~69~~	2			0,050
1	Falca clemei	E-LC-2-4.1	2	~~Fmm 35-40~~ B 35-10	(c)	0,225

b	3	Actualizat STAS	28 x 1996	ing. Novleanu
b'	1	conf. minuta 24 IV 84	25 IV 84	ing. Novleanu
a	1	Modificări STAS	30.11.82	ing. Novleanu

Proiectat	ing. Novleanu	
Desenat	Bolintineanu	
Verificat	ing. Spack I.	
Contr. STAS	ing. Bădăi L.	
Aprobat	ing. Schmidt M.	

Masa netă: ~0,580 kg.

E-LC-2-4.0

I.P.C.F.

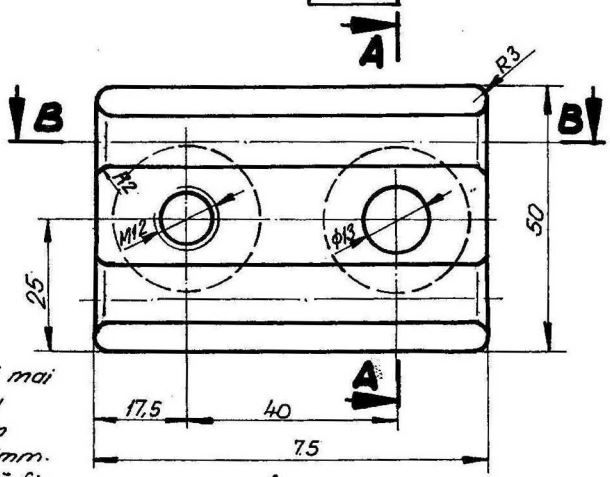
E.I.E.U. - Electrificare LC2

1:1

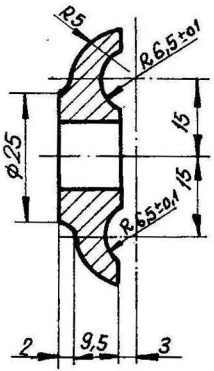
Data:

CLEMA DE LEGATURA ptr. **CONDUCTOR** de **PUNERE** la **PAMINT**

E



SECȚIUNEA A-A



SECȚIUNEA B-B

NOTA:

1- Nu se admit sufluri mai adînci de 1mm și cu diametrul peste 5mm distanțate la min. 15mm.
2- Suprafața trebuie să fie fără fisuri și curățată de bavuri și cruste.
3- Deplasarea modelelor în planul de separare va fi max. 0,6 mm.
4- După turnare, va urma o recoacere de ferităzare încălzire la 950°C și menținere 5 ore și răcire lentă de la 760°C la 700°C min 20 ore
5- După tratament se va zinca ~~AE (OL) Zn 40 St/Fos STAS 7222-74 AT10L/Zn500 STAS7221-82~~ (a)
6. Sarcina admisibilă 100 daN Incercările se vor efectua conform STAS 1566-80

b	1	Actualizat STAS	28 X 96	ing. Novleanu	
a	1	conf. minuții 24 IV-84	25 IV-84	ing. Novleanu	
Proiectat		ing. Novleanu D.			
Desenat		Balintineanu A.			
Verificat		ing. Spack I.			
Contr. STAS		ing. Bădăi L.			
Aprobat		ing. Ciortan P.			

~~Fmn 35.10~~ (b) B 35.10

E-LC-2-4.1

Masa netă: 0,225 kg

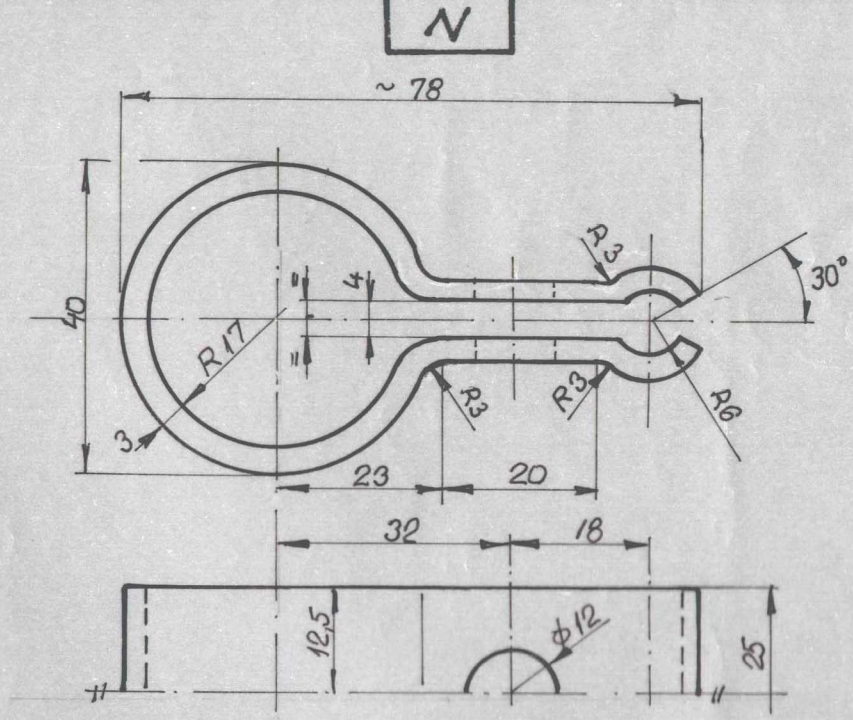
I.P.C.F.

E.I.E.U.-Electrificare LC2

1:1

Data:

FALCA CLEMEI



Lungimea desfășurată ~ 190

NOTĂ:

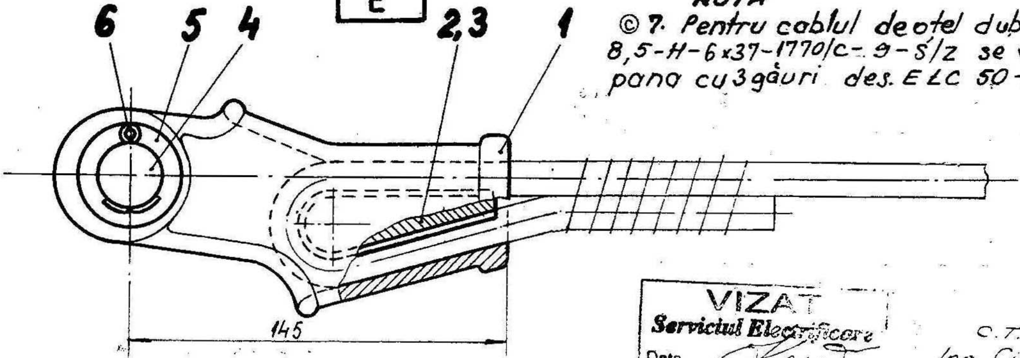
Se va zinca AT/OL/Zn 500 - - STAS 7221 - 90

Șef proiect:
Ing. Cr. Popescu

D. G. I.

Proiectat	Ing. O. Navleanu		OL 37.2	ELC 5 - 4B
Desenat	R. Navleanu			
Verificat	Ing. L. Bădăi			
Contr. STAS	Ing. O. Roman			
Aprobat	Ing. H. Tilichi		Masa netă: 0,3 Kg	
I.S.P.C.F. E.I.E.U. COL. ELECTRIFICARE - LC			Scara: 1 : 1	COLIER
			Data: VII 1997	

E



NOTA

© 7. Pentru cablul de oțel dublu normal 8,5-H-6x37-1770/c-9-S/Z se va utiliza pana cu 3 găuri des. ELC 50-1.12A.

VIZAT
Servicitul Electrificare
Data

C.T.E.
Ing. Ciortan P.

NOTA

1. Clema este destinată pentru conductoare cu secțiunea de la 50÷100 mmp. și respectiv o sarcină de lucru max. 2000 kgf.
2. Nu se admit sufluri în adîncime mai mare de 1 mm. și cu diametrul de 5 mm. distanța minimă dintre două sufluri fiind de 15 mm.
3. Suprafața presei trebuie să fie lipsită de fisuri și se va curăța de bavuri și cruste.
4. Deplasarea admisibilă în planul de separare a modelelor va fi de cel mult 0,6 mm.
5. Suprafețele clemei și penei care vin în contact cu conductorul vor fi perfect netede și cu razele de racordare indicate în desen ptr. a se evita degradarea acestora.
6. După turnare, piesa va fi supusă unei recoaceri de feritizare și anume:
   - încălzire la 950°C și menținerea la această temperatură minimum 5 ore.
   - răcirea lentă de la 760° la 720°C min 20 ore.
7. După tratamentul termic piesa va fi zincată ~~AE/OL/Zn 40-SL/FOS~~ ⓑ ~~STAS 7222-74~~ AT/OL/Zn 500/STAS 7221-~~82~~ 90 ⓒ

Poz.	Denumirea	Nr. desen sau STAS	Buc.	Material	Observații	Masa netă kg/buc.
6	Splint 4,5×40	STAS 1991-~~73~~ ~~80~~ 89 ⓐ ⓒ	1	OL 00		0,005
5	Saibă ~~26~~ 22	STAS ~~1388-72~~ 5200/4-91 ⓒ	1	OL 34.1n		0,018
4	Bolt B 22×55	STAS 5754-~~73~~ 80 79 ⓒ	1 ⓓ	OL 50.1K		0,190
3	Pană tip II	E-LC-2.3.3. ⓐ	1 ⓓ	sau [illegible] B 35-10 ~~Fmn 35.10~~ ⓒ	Pentru conductor 50÷70 mm²	0,170
2	Pană tip I	E-LC-9.29.2	1 ⓓ	[illegible] sau B 35-10 ~~Fmn 35.10~~ ⓒ	Pentru conductor 80÷100 mm²	0,125
1	Corp	E-LC-9.29.1	1	[illegible] sau B 35-10 ~~Fmn 35.10~~ ⓒ		1,010

d	3	Completat material	15-~~VII~~-82	Ing. Novleanu	[signature]
c	7	Completări	26.X.96	ing. Novleanu	[signature]
b	1	conf. minută 24 IV 84	25 IV 84	ing. Novleanu	[signature]
a	2	Modificat STAS	30.11.82	ing. Novleanu	[signature]

Proiectat	Ilie Traian	[signature]
Desenat	Aldea R.	[signature]
Verificat	Ing. Spack I.	[signature]
Contr. STAS	Ing. Bădăi L.	[signature]
Aprobat	Ing. Schmidt N.	[signature]

Masa netă: 1,490 Kg

E-LC-9.29.0

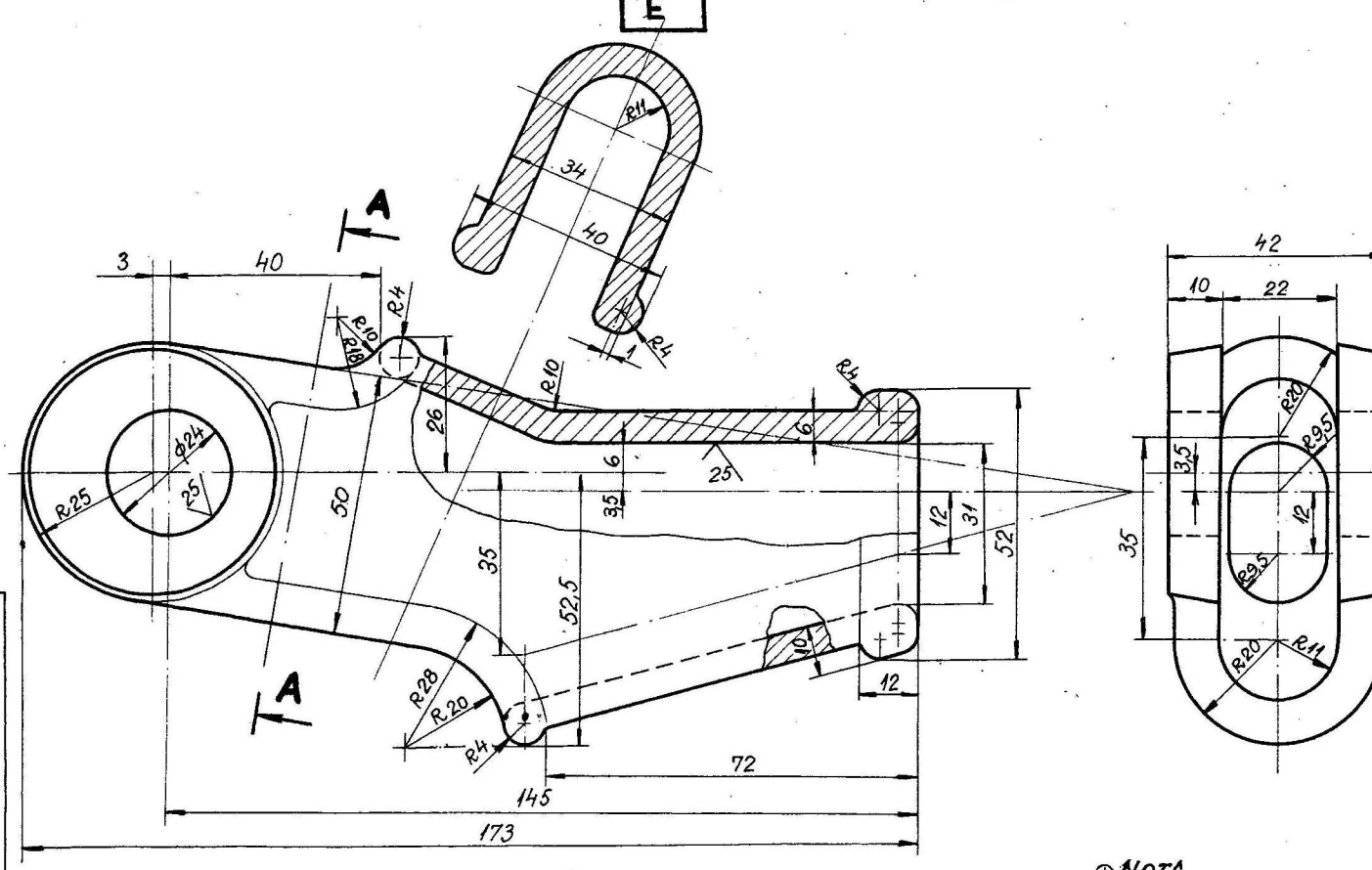
I.P.C.F.

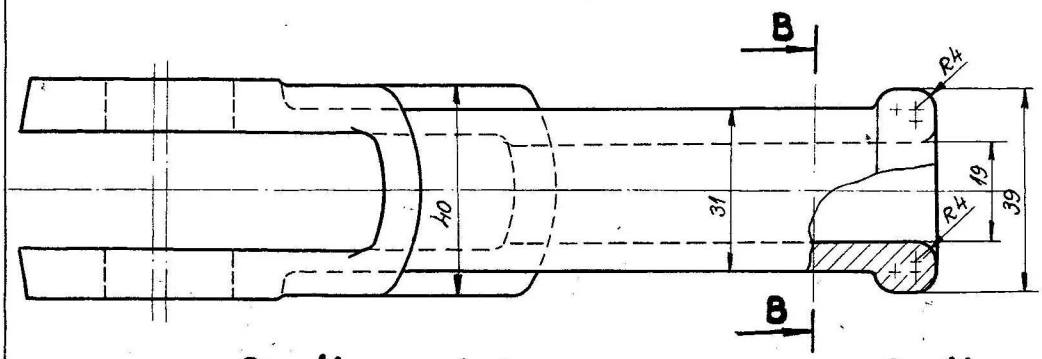
E.I.E.U - Electrificare - LC2

1:2

Data:

CLEMA TERMINALA CU PANA SI FURCA



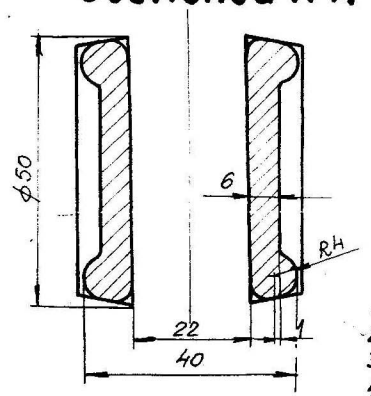


ⓐ NOTA

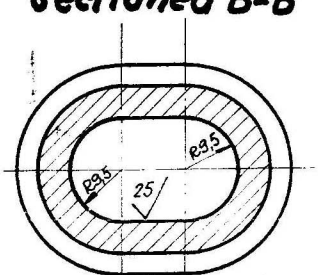
5. Se va zinca AT/oL/Zn 5 STAS 7221-90.

6. Înainte de zincare pi se va trata termic, astfe încât, după zincare, car teristicile mecanice al materialului să nu fie diminuate.

Sectiunea A-A



Sectiunea B-B



NOTA:

1- Nu se admit sufluri mai adînci de 1mm. si cu diametrul peste 5 mm distantate la min 15mm.

2- Suprafata trebuie să fie fără fisuri si curătată de bavuri și cruste

3- Deplasarea modelelor în planul de separare va fi max. 0,6 mm.

4- După turnare, va urma o recoacere de ferităizare - încălzire la 950° C și menținere 5 ore si răcire lentă de la 760°C la 700°C min. 20 ore.

ⓑ ~~5- După tratament se va zinca AT/oL/Zn 40 SLIFOS STAS 7222-74 AT/oL/Zn 500/STAS 7221-82~~ ⓐ

C. T. E.
Ing. Ciortan F.

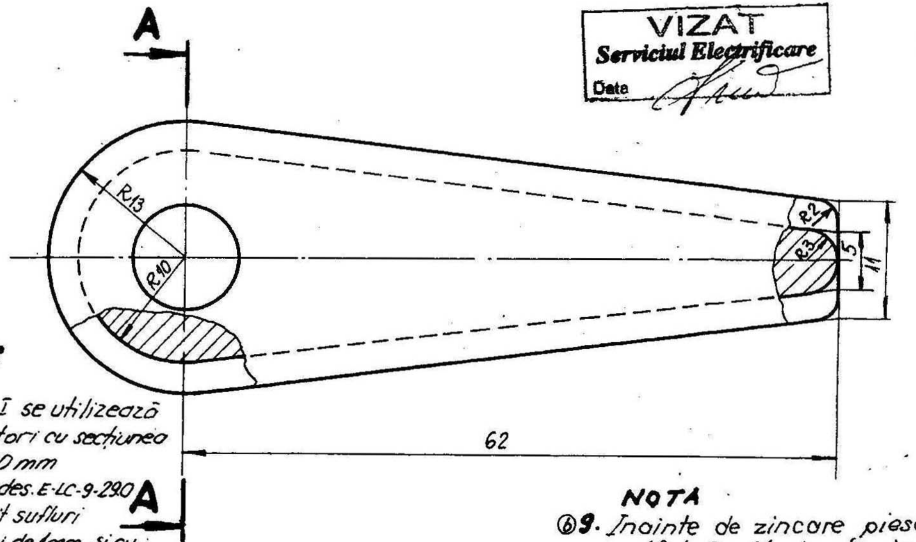
VIZAT
Serviciul Electrificare
Data

c	1	Completat material	15.VIII-96	ing. Novleanu	
b	3	Actualizat STAS	20.X.96	ing. Novleanu	
a	1	Conf. minută 24 IV 84	25.IV.84	ing. Novleanu	
Proiectat		Ilie Traian		© Sau T40C10	
Desenat		Aldea R.		Fmn. 35.10 B 35-10 ⓑ	E-LC-9.29.1
Verificat		Ing. Spack I.			
Contr. STAS		Ing. Bădăi L.			
Aprobat		Ing. Schmidt M.		Masa netă: 1,010 kg	

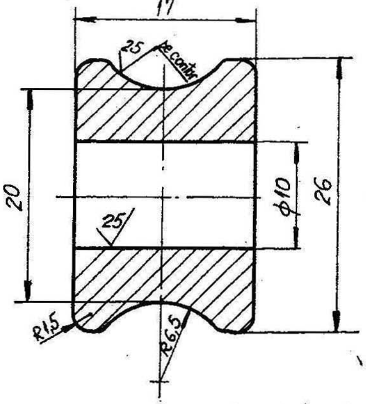
I.P.C.F. | 1:1 | CORP

E.I.E.U - Electrificare-LC2 | Data:

VIZAT
ServicIul Electrificare
Data



Secțiunea A·A



NOTA:

1- Pana tip I se utilizează pt. conductori cu secțiunea de 80 ÷ 100 mm
2- Vezi nota des. E-LC-9-29.0
3- Nu se admit sufluri mai adînci de 1mm și cu diametrul peste 5mm distanțate la 15 mm
4- Suprafața trebuie să fie fără fisuri și curățată de bavuri și cruste.
5- Deplasarea modelelor în planul de separare va fi max. 0,6 mm.
6- După turnare, va urma o recoacere de feritizare - încălzire la 950°C și menținere 5 ore și răcire lentă de la 760°C la 700°C min 20 ore
~~7- După tratament se va zinca AE (OL) Zn 40-SL/Fps STAS 7222-74~~
~~AT/OL/Zn 500/STAS 7221-82~~ (a)
(b) 8. Se va zinca AT/OL/Zn 500 - STAS 7221-90

NOTA

(b) 9. Înainte de zincare piesa se va trata termic, astfel încât, după zincare, caracteristicile mecanice ale materialului să nu fie diminuate.

C.T.E.
Ing. Ciortan P.

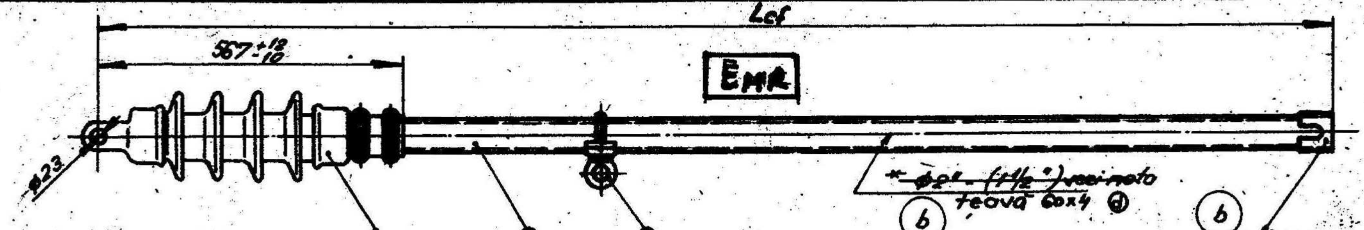
100 √ (√ √)

c	1	Completat material	15-VIII-02	Ing. Novleanu	
b	3	Completări	26.X.96	Ing. Novleanu	
a	1	conf. minută 24 IV 84	25 IV 84	ing. Novleanu	

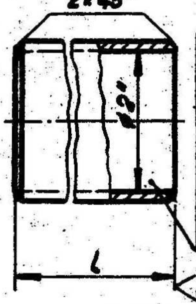
Proiectat	Ilie Traian		B 35-10 (b) sau T40C10 (c) ~~Fmn. 35.10~~
Desenat	Aldea R.		
Verificat	Ing. Spack I.		
Contr. STAS	Ing. Bădăi L.		
Aprobat	Ing. Schmidt M.		Masa netă: 0,125 Kg

E-LC-9.29.2

I.P.C.F.	**2:1**	**PANA TIP I**
E.I.F.U-Electrificare - LC2	Data:	



TABEL

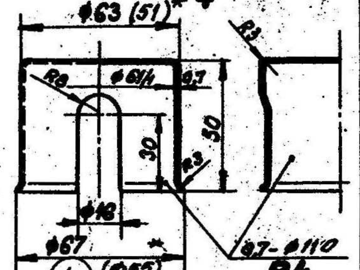


Lungimea contrafișei Lcf		2680	2810	2940	3080	3220	3370	3520	3670	3840	4000	4170	4340	4510	4710	4910
Poz 2	Reper	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
	L [mm]	2210	2340	2470	2610	2750	2900	3050	3200	3370	3530	3700	3870	4040	4240	4440
	Masa [Kg.]	11,300	11,900	12,500	13,300	14,000	14,750	15,500	16,200	17,150	18,000	18,900	19,200	20,000	21,000	22,0..
Masa netă (Kg.)		28,6	29,2	29,9	30,6	31,3	32,0	32,8	33,5	34,4	35,3	36,2	36,5	37,9	37,9	40,0

Țeavă obișnuită zincată 2" x 3,65 - L

P2

Sc. 1:2



P4

Scara 1:2

NOTA:
Contrafișa poz. 2 are lungimea „L" conform tabel (reper 01 ÷ 15)

NOTA:

1. Capacul poz. 4 se va executa prin ambutisare. ⓓ ⓒ
2. Poz. 3 și 4 ~~se zincă la cald — STAS 7222-74~~
3. Prezentul desen are la bază următoarele planuri: LC/A 20 - LC/A 20-04, LC/A 20-01/A, LC/C-50
4. ~~Pentru încărcări ușoare se poate utiliza și țeavă M 1 1/2" - 3,25 având elementul de utilizare indicat în proiectele de execuție LC~~ ⓑ ⓓ

Poz.	Denumirea	Nr. desen sau STAS	Buc.	Material	Observații	Masa netă kg/buc
4	Capac	—	1		Tablă 0,7 STAS 501-... ⓐ ⓓ	0,130
3	Bridă cu cercel	E-LC-13-1.2.3.0	1		Țeavă 60x4 STAS 404/1-87	0,965
2	Contrafișă	—	1	OL 37.2K ⓓ	~~Țeavă obișnuită zincată STAS ...~~ 403/1-80	Conform tabel
1	Izolator bastan tip C	—	1		RDG	ⓐ 16,00

d	5	completări	26.X.96	ing. Navleanu
c	1	conf. minută 24 IV 84	25 IV 84	ing. Navleanu
b	4	Completat cote și ...	30-II-1982	ing. Navleanu
a	2	Modificat STAS	30-II-1982	ing. Navleanu

Proiectat	ing. Navleanu I.
Desenat	Bolintineanu
Verificat	ing. Spack I.
Contr. STAS	ing. Navleanu I.
Aprobat	ing. Schmidt H.P.

Masa netă: Conf. tabel

E-LC-13-1.2.0

CTE
ing. Ciortan P.

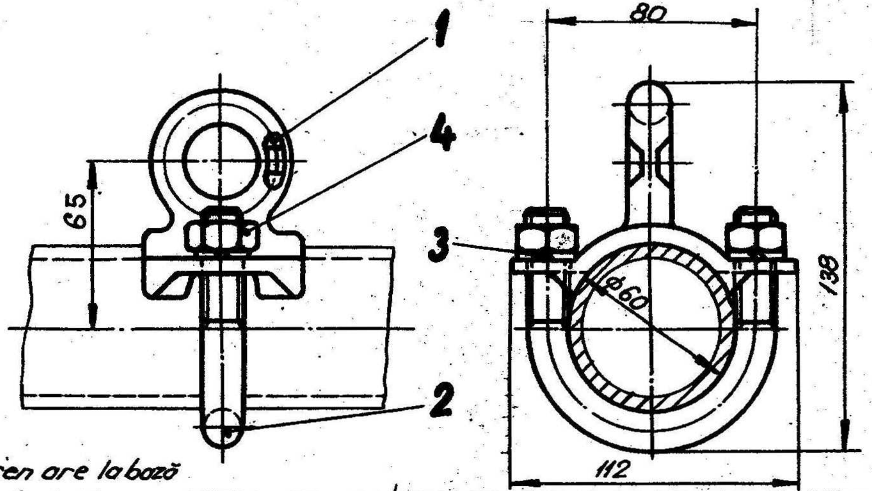
De acord,
Constructor

I.P.C.F.
E.I.E.U. - Electrificare L.C. 2

1:10; 1:2
Data: 6 VIII 1976

CONTRAFIȘA CU IZOLATOR R.D.G.

E



NOTA:

Prezentul desen are la bază următoarele planuri:

- LC/C 50
- LC/C 50-01
- LC/C 50-02

	Poz.	Denumirea	Nr. desen sau STAS	Buc	Material	Observații	Masa netă kg/buc.
©	4	Piuliță M12 gr. 4.6	STAS 922-89 ⓐ	2	20 Cr 130	ⓑ	0,060
©	3	Saibă Grower MN 12	SR STAS 7666-90 ⓐ	2	Arc 6A ⓑ	Nichelat	0,010
©	2	Brățară	E-LC-13-1.2.3.2	1	20 Cr 130 OL 37.2 K	ⓑ	0,190
	1	Ureche nesecționată	E-LC-13-1.2.3.1	1	B 35-10		0,600

c	3	Completări	26.X.96	ing. Hovleanu
b	3	Modificat material	26-06-96	ing. Hovleanu
a	2	Modificat STAS	30.11.[illegible]	ing. [illegible]

Proiectat	ing. Hovleanu
Desenat	Balintineanu
Verificat	ing. Spack I.
Contr. STAS	ing. Bădiță L.
Aprobat	ing. Schmidt M.

Masa netă: 0,830 Kg

E-LC-13-1.2.3.0

C.T.E.,
ing. Ciortan P.

Șef proiect,
ing. Spack I.

De acord,
constructor

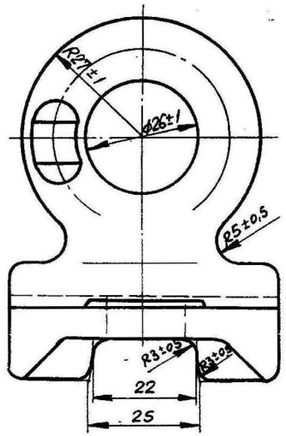
I.P.C.F.

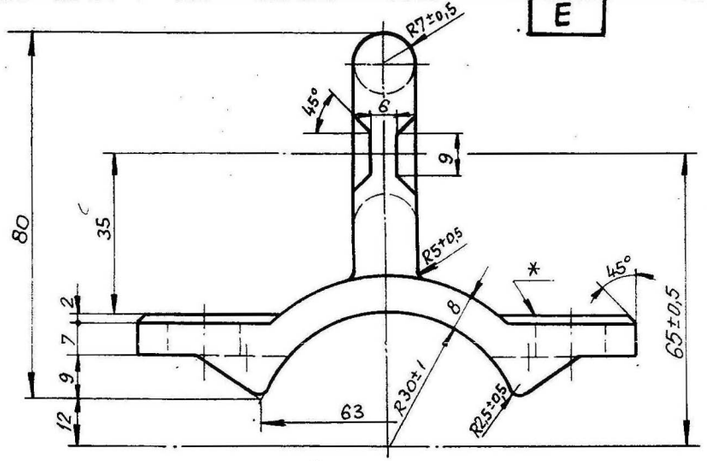
E.I.E.U. - Electrificare

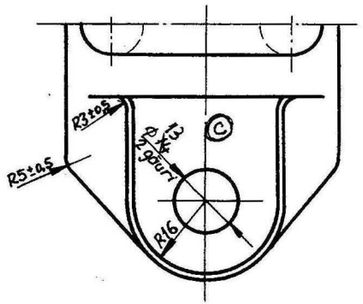
1:2

Data:

BRIDA CU CERCEL



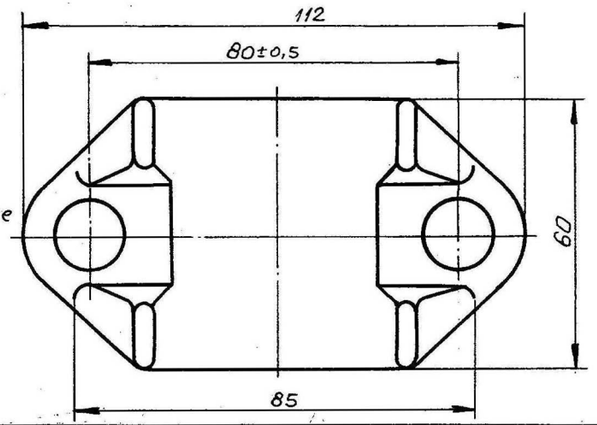




Ⓑ NOTA

9. Se va zinca AT/OL/Zn 500 - STAS 7221-90.

10. Înainte de zincare piesa se va trata termic, astfel încât, după zincare caracteristicile mecanice ale materialului să nu fie diminuate



NOTA:

1-Nu se admit sufluri în adîncime mai mare de 1mm și cu diametrul mai mare de 5m, distanța minimă dintre două sufluri fiind de 15mm

2-Suprafața piesei trebuie să fie lipsită de fisuri și se va curăța de bavuri și cruste.

3-Deplasarea admisibilă în planul de separare a modelelor va fi de cel mult 0,6mm.

4-Se va insista asupra obținerii unui aspect curat, neted a suprafetii notate cu *.

5-După turnare, piesa va fi supusă unei recoaceri de feritizare și anume:
- încălzire la 950°C și menținerea la această temperatură minim 5ore.
- răcire lentă de la 760° la 700°C min 20ore. Ⓐ AT/OL/Zn 500/STAS 7221-82

~~Ⓑ 6-După tratamentul termic piesa va fi zincată AT/OL/Zn 40-SL/Fos STAS 7222-74~~

7-Prezentul desen are la bază planul nr. LC/c 50-01

8-Sarcina admisibilă 500daN. Încercările se vor efectua conform STAS 1566-80

C.T.E., ing. Cantor P.

Șef proiect, ing. Spack I.

De acord, Constructor

100 V/ V/

c	1	Modific diam găuri	1-09-82	Ing. Novleanu	
6	3	Completări	26.x.96	Ing. Novleanu	
a	1	conf. minuta 24 IV 84	25 IV 84	ing. Novleanu	

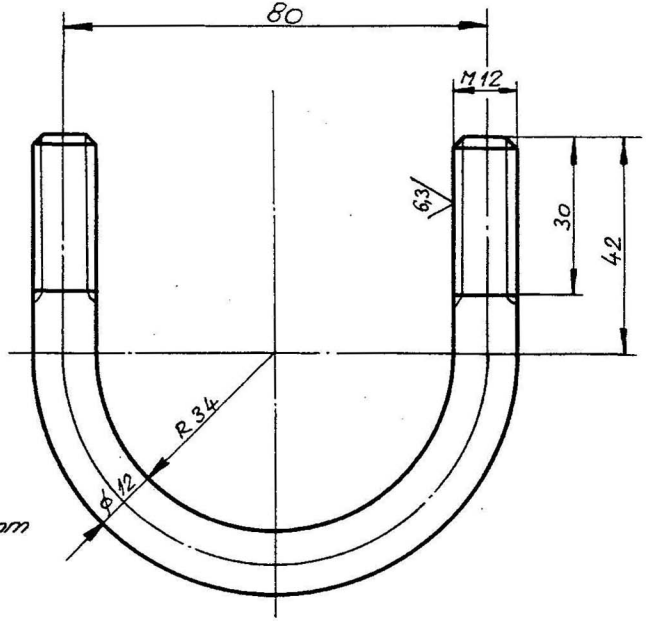
Proiectat	ing. Novleanu		~~Fmn 35.10~~ Ⓑ B 35-10
Desenat	Bolintineanu		E-LC-13-1.2.3.1
Verificat	ing. Spack I.		
Contr. STAS	ing. Bădăi L.		Masa netă:
Aprobat	ing. Schmidt M.		

I.P.C.F.
E.I.E.U.-Electrificare

1:1

Data:

URECHE NESECȚIONATA



Lungimea desfășurată ~ 210 mm

NOTA:

1- Prezentul desen are la bază planul nr. LC/c 50-02

2- Se va codmia ~~AT/OL/Fed 42-81~~ ~~STAS 7222-74~~ @ AT/OL/Zn 610/STAS 7221-82 ©90

50

c	1	Actualizare STAS	26.X.96	ing. Novleanu	
b	1	Modificat material	26-06-96	ing Novleanu	
a	1	conf. minuta 24 IV 84	25 IV 84	ing. Novleanu	

Proiectat	ing Novleanu	20 Cr 130	
Desenat	Bălintineanu	OL 37.2 K ⑥	E-LC-13-1.2.3.2
Verificat	ing. Spack I.		
Contr. STAS	ing. Bădăi L.		
Aprobat	ing. Schmidt M.	Masa netă: 0,190 kg	

C.T.E., ing. Ciortan P.

Șef proiect, ing. Spack I.

De acord, Constructor

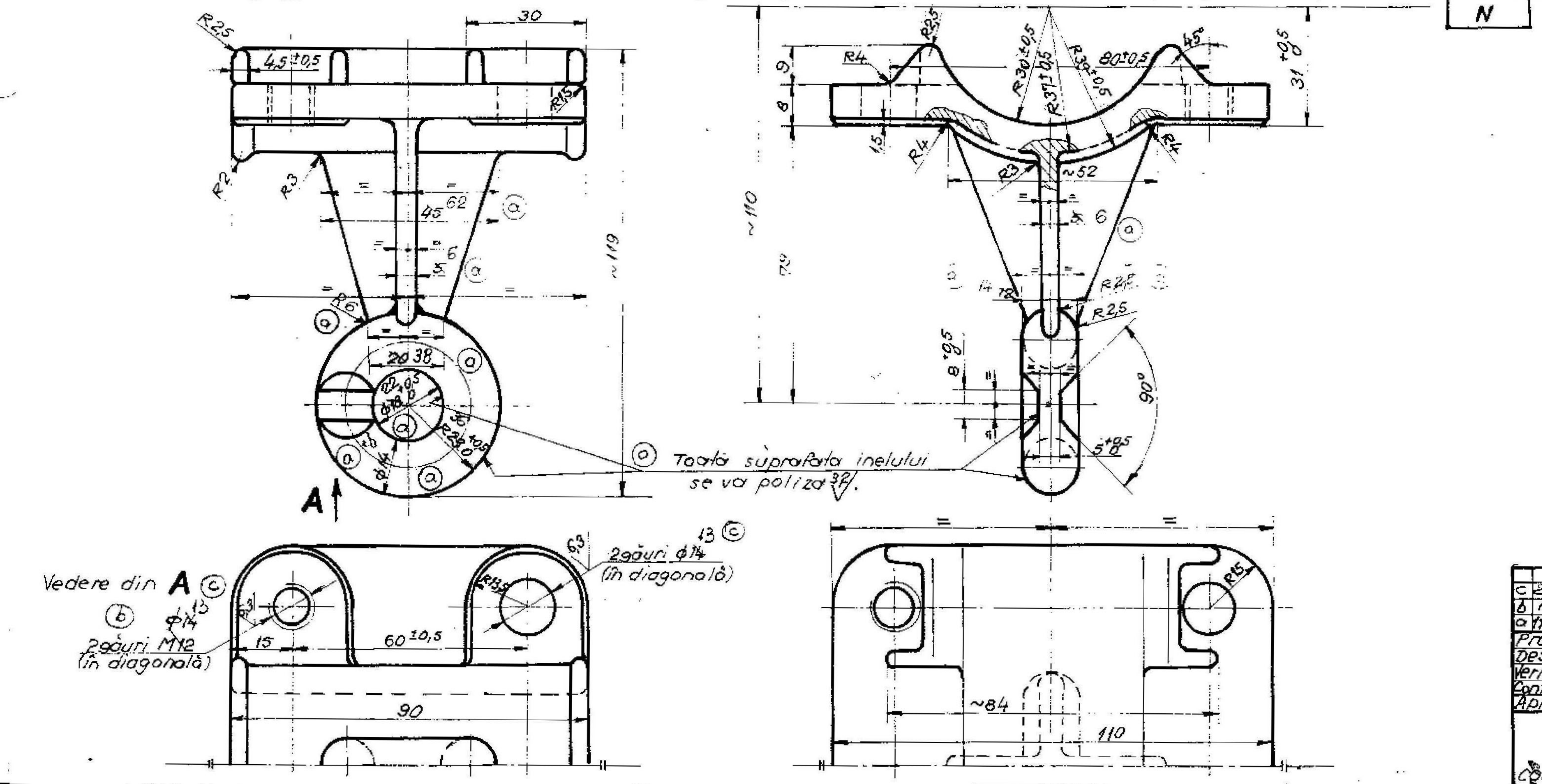
I.P.C.F.

E.I.E.U.- Electrificare

1:1

Data:

BRATARĂ



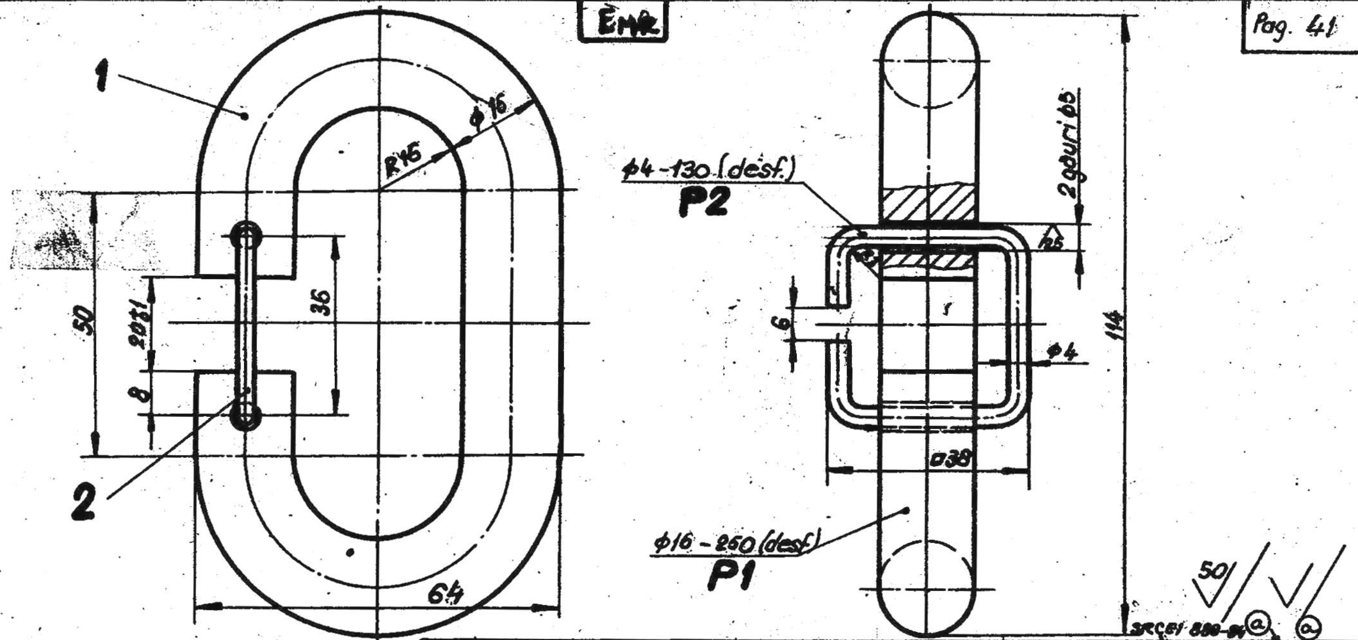
NOTA

1. Se va zinca AT/OL/Zn 600 - STAS 7221-90, cu excepția filetelor AT/OL/Zn 310
2. După zincare piesa se va trata termic pentru detensionare
3. * Pentru zonele poluate reperul se va executa din Cu Al 10 Fe3T, fără a se mai zinca, procedeu de turnare C

D.G.I.

Șef proiect
Ing. Cr. Popescu

c	2	Modific. diam. găuri	1-09-02	ing. Navleanu
b	1	Modif. prototip	18-09-98	ing. Navleanu
a	11	Modif. prototip	4.09.1998	ing. O. Navleanu
Proiectat	ing. Navleanu		*T 40C10	ELC 13 - 1.3.1.A
Desenat	Badea F.			
Verificat	ing. Badă, L.			
Contr. STAS	ing. Roman			
Aprobat	ing. Tilichi H.		Masa netă:	
I.S.P.C.F. EIEU COL. ELECTRIFICARE-LC			Scara: 1:1	BRĂȚARĂ CU PIVOT
			Data: V. 1996	



Poz.	Denumirea	Nr. desen sau STAS	Buc	Material	Obs	Masa netă kg/buc
ⓒ 2	Siguranță	—	1	Oțel zincat	Oțel φ4 STAS 3322-74	0,014
ⓒ 1	Cercel	—	1	OL 37.2k	Oțel φ16 STAS 333-74	0,480

c	3	Actualizare STAS	29.X.96	ing. Novleanu
b	1	conf. minută 24 IV 84	25 IV 84	ing. Novleanu
a	2	Modificat STAS	30.II.82	ing. Novleanu

Proiectat	ing. Novleanu
Desenat	Balintineanu
Verificat	ing. Spack I.
Contr. STAS	ing. Novleanu
Aprobat	ing. Sabovici

Masa netă: 0,5 kg

E-LC-13-1.3.2.0

I.P.C.F.

E.I.E.U.-Electrificare LC2

1:1

Data: 5 VIII 1976

CERCEL

NOTA:

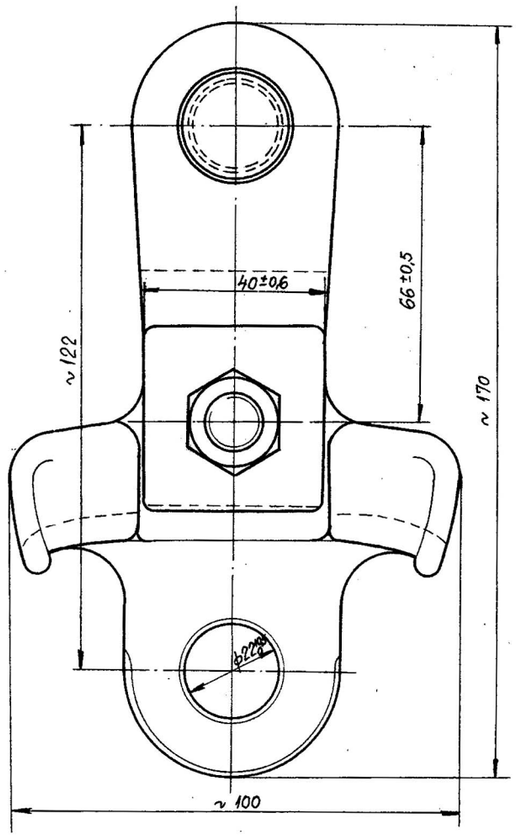
1-Cercelul poz. 1 se va zinca ⓑ ~~AE/OL/Zn 40-SL/Fas STAS 7222-74~~ AT/OL/Zn 500/STAS 7221-82 ⓒ

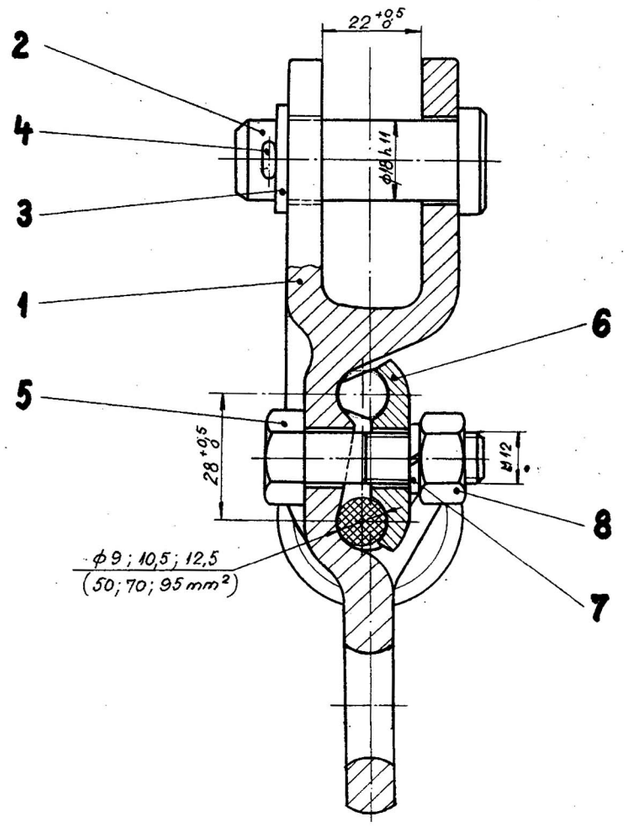
2-Prezentul desen are la bază planul LC/c-49-02/A

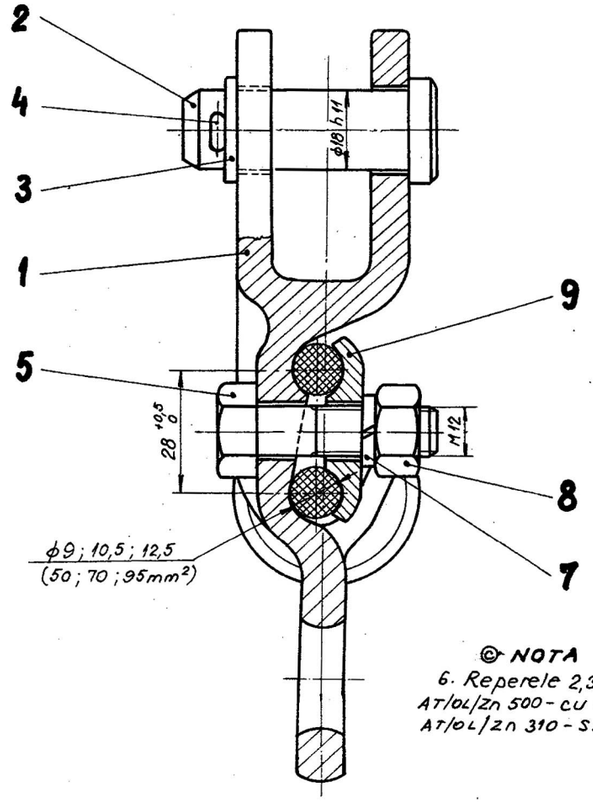
CTE
ing. Ciortan P.

De acord,
Constructor

Șef proiect
ing. Spack I.







© NOTA
6. Reperele 2,3,4,5 si 8 se vor zinca AT/OL/Zn 500 - cu exceptia filetelor AT/OL/Zn 310 - STAS 7221-90.

NOTA

1. Atît șaua pentru 1 cablu cît și șaua pentru 2 cabluri se pot utiliza pentru cablurile purtătoare de 50; 70 și 95 mm² (ϕ9 ; ϕ 10,5 ; ϕ 12,5 mm)
2. Toate elementele șeii se vor zinca ~~AE/OL/Zn 40 - SL/FOS - STAS 7222-74~~ AT/OL/Zn 500/STAS 7221-82 (b) cu excepția poz. 5, 7 și 8 care se vor cadmia AE/OL/Cd12 - SL - FOS STAS 7222 - 74
3. Filetul șurubului poz. 5 și al piuliței poz. 8 se vor proteja cu vaselină anticorozivă pe timpul depozitării.
4. Prezentul desen are la bază planul LC/C-3 și LC/C-3A
5. © Șaua se poate înlocui împreună cu brățara des. ELC 13-1.3.0 cu des. ELC 13-1.3.0A

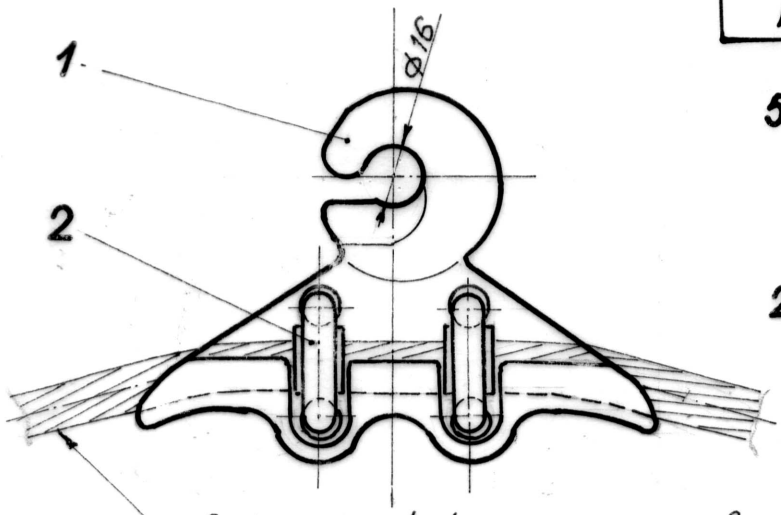
CTE ing. Ciortan P. — Șef proiect, ing. Spack I. — De acord, Constructor

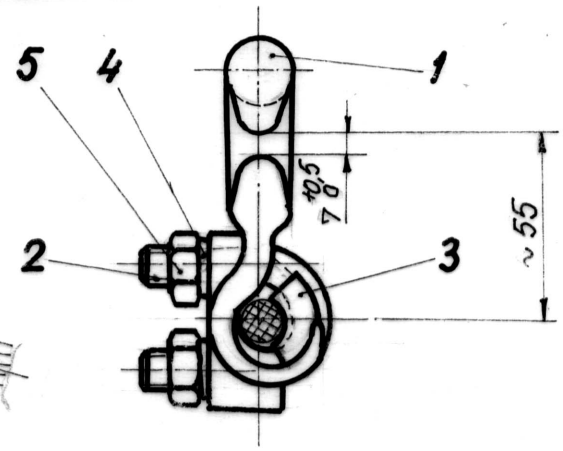
6

	1	–	9	Filieră ptr. 2 cabluri	E-LC-13.1.4.9		Fmn 35.10	Turnat	0,090
©	1	1	8	Piuliță M12 - gr.6.6	STAS ~~6218-69~~ (a)		20 Cr 130		0,016
©	1	1	7	Saibă Grower MN12	SR STAS ~~7666-66~~ (a)		Arc 7A	Nichelat	0,003
	1	1	6	Filieră ptr. 1 cablu	E-LC-13-1.4.6		Fmn 35.10	Turnat	0,095
©	1	1	5	Șurub M12x40 - gr.6.6	STAS ~~6220-69~~ (a)		20 Cr 130		0,050
©	1	1	4	Splint 4,5x28	STAS ~~1991-73~~ (a)		OL 34.1		0,005
©	1	1	3	Saibă ~~19~~ T18	STAS ~~1388-72~~		OL 34.1		0,014
©	1	1	2	Bolț B18x50	STAS ~~5754-73~~ (a)		OL 50.1K		0,016
©	1	1	1	Șa	E-LC-13-1.4.1		Fmn 35.10	Turnat	1,000
	Bucăți II	Bucăți I	Poz.	Denumirea	Nr. desen sau STAS	Buc.	Material	Observații	Masa netă Kg/buc.

1,30	1,20	c 9 Completări 26.x.96 ing. Novleanu		
		b 1 cont minută 24 IV 84 25 IV 84 ing. Novleanu		
		a 5 Modificat STAS 30.11.80 ing. Novleanu		
Șa pentru două cabluri	Șa pentru un cablu	Proiectat ing. Șef proiect I. ing. Novleanu D.		E-LC-13-1.4.0
		Desenat Aldea R.		
		Verificat Ing. Spack I.		
		Contr. STAS Ing. Novleanu		
		Aprobat Ing. Schmidt M.	Masa netă: 1,300 Kg.	
		I.P.C.F. E.I.E.U. - Electrificare LC2	1:1 Data: 24 VII 96	ȘA TIP I

N





D.G.I. Cintan

Șef proiect

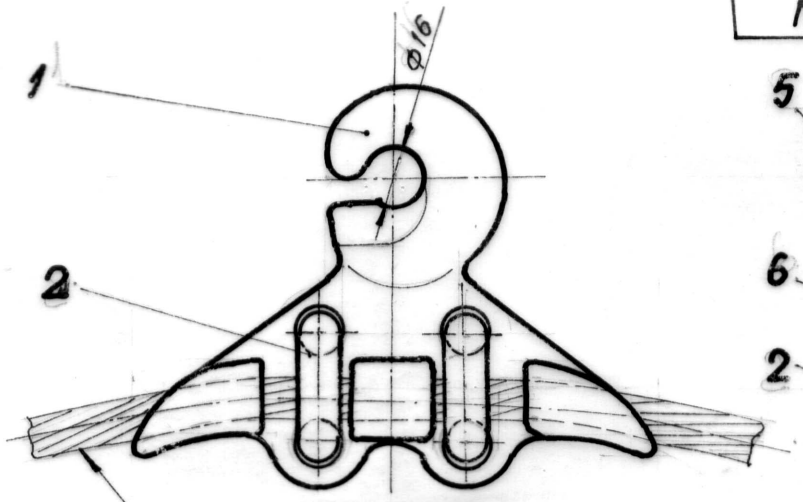
16

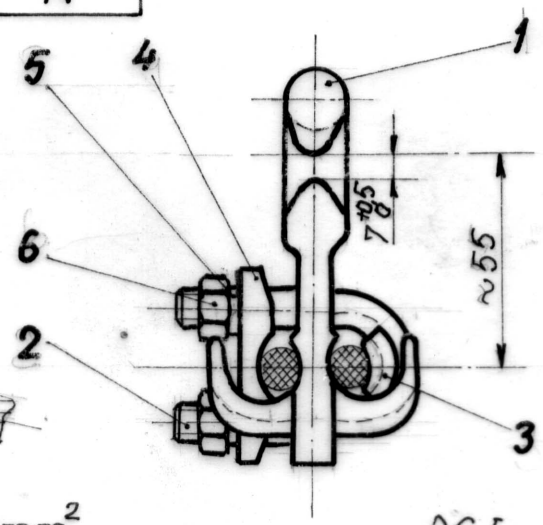
NOTA

1. Reperele 1 și 3 se vor zinca AT/OL/Zn 600 - STAS 7221 - 90; înainte de zincare se vor detensiona printr-un tratament termic corespunzător.
2. * În cazul zonelor poluate reperele 1 și 3 se vor executa din Cu Al 10 Fe 3T (nezincate).
3. Șaibele poz. 4 se vor nichela AE/OL/Ni 40b - STAS 6705 - 90

Poz.	Denumire	Nr. desen sau STAS	Buc	Material	Obs	Masa netă kg/buc
5	Piuliță M10 - gr.6	STAS 922 - 89	2	20 Cr 130		0,011
4	Șaibă N 10	SR 7666/2-94	2	OLC 55	nichelat	0,0025
3	Filieră	ELC13-1.4.3A	1	*T40C10		
2	Etrier	ELC13-1.4.2.A/I	2	20Cr130		
1	Șa I	ELC13-1.4.1A	1	*T40C10		

Proiectat	Ing. Novleanu D.		ELC 13 - 1.4.0A
Desenat	Neagu M.		
Verificat	Ing. Bădăi L.		
Contr. STAS	Ing. Roman O.		
Aprobat	Ing. Tilichi H.	Masa netă:	
ISPCF EIEU		scara 1:2	ȘA-I
Col. electrificare - LC		Data: 05.1996	





D.G.J.

Sef proiect

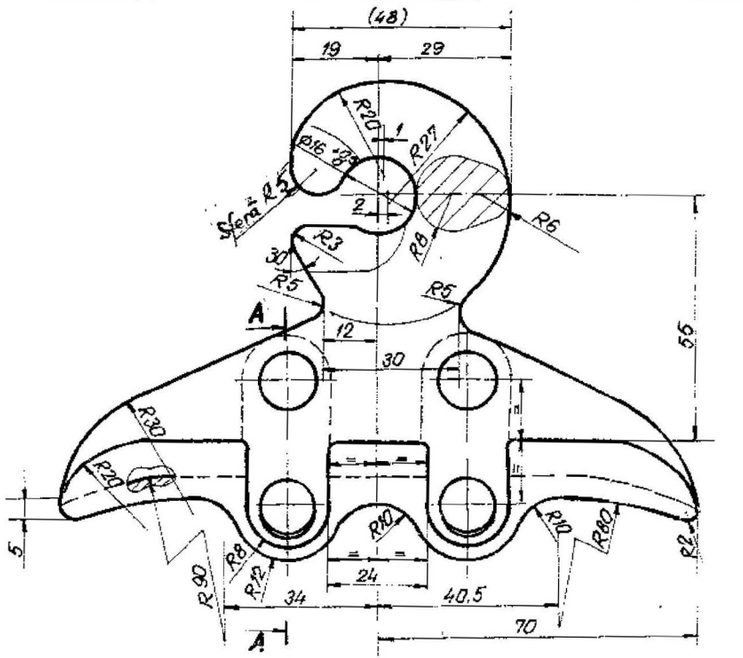
NOTA

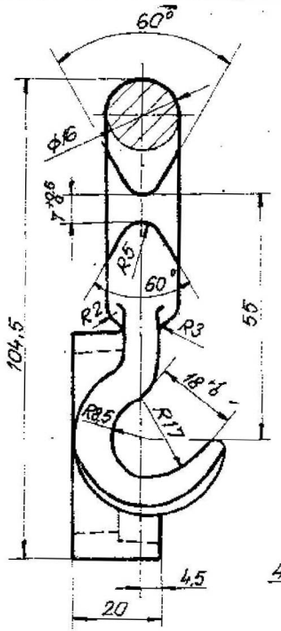
1. Reperele 1, 3 și 4 se vor zinco AT/OL/Zn 600 - STAS 7221-90; înainte de zincare se vor detensiona printr-un tratament termic corespunzător.

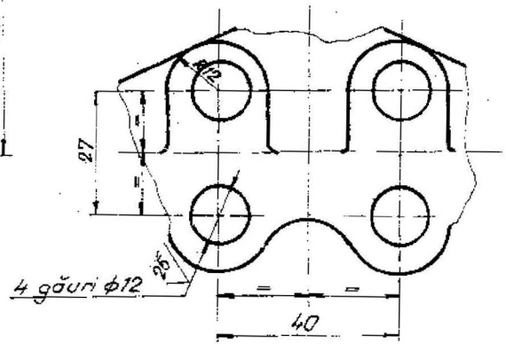
2.* În cazul zonelor poluate reperele 1, 3 și 4 se vor executa din Cu Al 10 Fe 3T (nezincate), procedeu de turnare C

Poz.	Denumire	Nr. desen sau STAS	Buc.	Material	Obs.	Masa netă Kg/buc
6	Piuliță M 10-gr 6	STAS 922-89	2	20 Cr 130		0,011
5	Saibă N10	SR 7666/2-94	2	OL C 55	nichelat	0,0025
4	Plăcuță	ELC 13-1.4.4B	1	*T40C10		
3	Filieră	ELC 13-1.4.3A	1	*T40C10		
2	Etrier	ELC 13-1.4.2A/II	2	20Cr130		
1	Șa II	ELC 13-1.4.1.B	1	*T40C10		

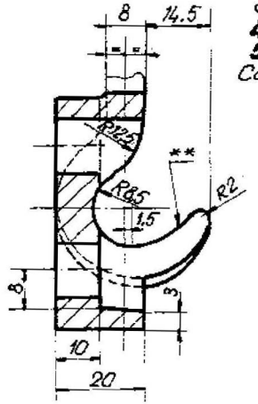
Proiectat Ing. Novleanu D.		ELC 13-1.4.0B
Desenat Neagu M.		
Verificat Ing. Bădăi L.		
Contr. STAS Ing. Roman O.		
Aprobat Ing. Tilichi H.	Masa netă	
ISPCF EIEU	scara 1:2	ȘA-II
Col. electrificare - LC	Data: 05. 1996	







A – A



NOTĂ

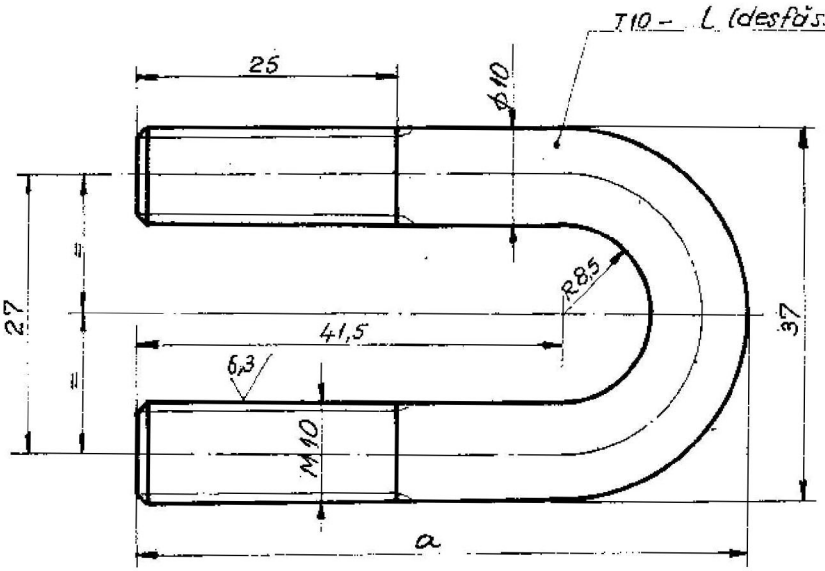
1. Distanța între planurile de separare max 0,5 mm.
2. Muchiile necotate R 0,5 mm
3. ** Se va insista în mod deosebit pentru obținerea unei suprafețe curate lipsită de bavuri.
4. Se va zinca AT/OL/Zn 600 – STAS 7221 – 80
5. *Pentru zone poluate se va executa o Cu Al 10 Fe 3T, nezincată, procedeu de turnare

Proiectat	Ing. Navicanu L.	*T40C10	ELC 13-1.4.1A
Desenat	Neagu M.		
Verificat	Ing. Bădăi L.		
Contr-STAS	Ing. Roman O.		
Aprobat	Ing. Tilichi H.	Masa netă	
I.S.P.C.F. E.I.E.U. Col electrificare – LC		scara 1:1	ȘA I
		Data: V.1996	

D.G.I. Buțan

Șef proiect

N



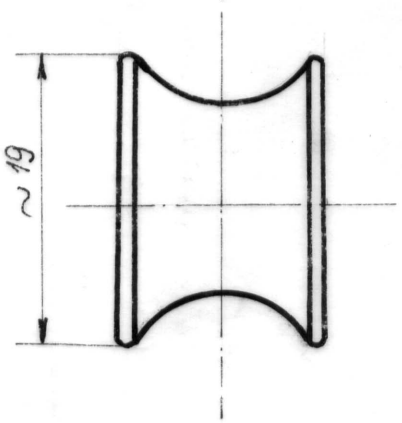
Tip	a	L	Masa [kg]
I	50	10.5	0,065
II	60	125	0,080

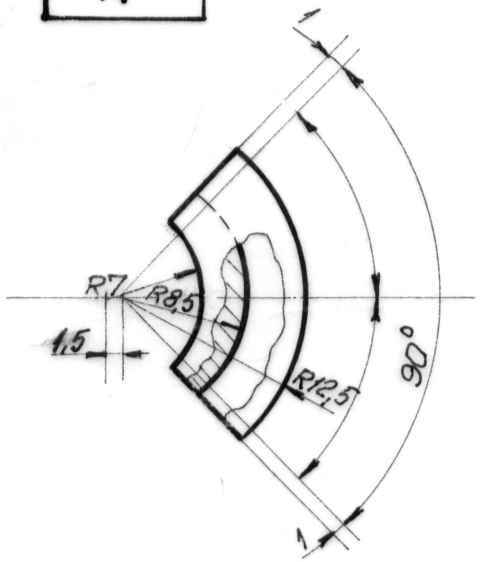
D.G.I. Ruiten

Șef proiect Ing. Cr. Popescu

50

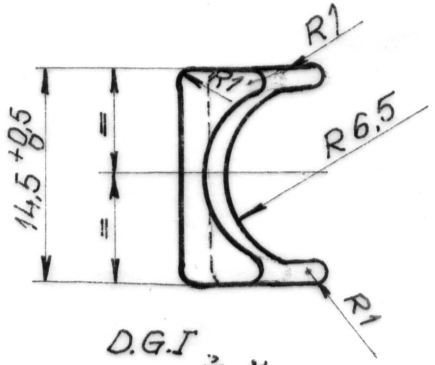
Proiectat	ing. Novleanu D.		
Desenat	Bodea F.	20 Cr 130	ELC 13-1.4.2A
Verificat	ing. Bodi L.		
Contr. STAS	ing. Roman O.		
Aprobat	ing. Tilichi H.	Masa netă:	
I. S. P. C. F. EIEU COL. ELECTRIFICARE - LC		Scara: 2:1	ETRIER
		Data: V. 1996	





NOTĂ

1. Se va zinca AT/OL/Zn 600 STAS 7221 - 90 ; înainte de zincare se va detensiona prin tratament termic.
2. *Pentru zonele poluate filiera se va executa din Cu Al 10 Fe 3 J, nezincată ; procedeu de turnare C



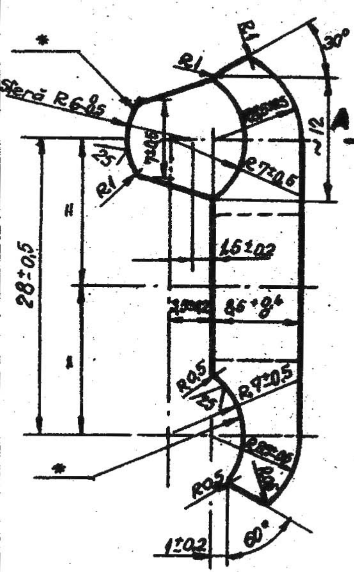
D.G.I

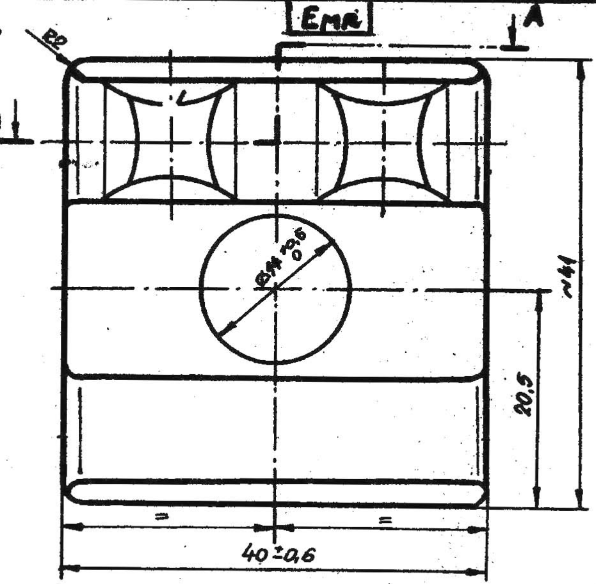
Șef proiect

19

50

Proiectat	Ing. Novleanu L.		*T 40 C 10	ELC 13 - 1.4.3A
Desenat	Neagu M.			
Verificat	Ing. Bădăi L.			
Contr STAS	Ing. Roman C.			
Aprobat	Ing. Tilichi H.			
I.S.P.C.F EIEU Col. electrificare - LC			scara 2:1	FILIERĂ
			Data: 05.1996	





SECTIUNEA A-A

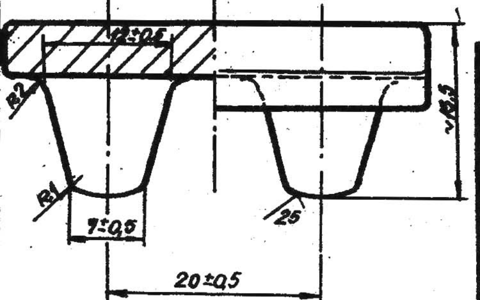
CTE
ing. Ciortan P.

De acord,
constructor

Sef proiect,
ing. Spack I.

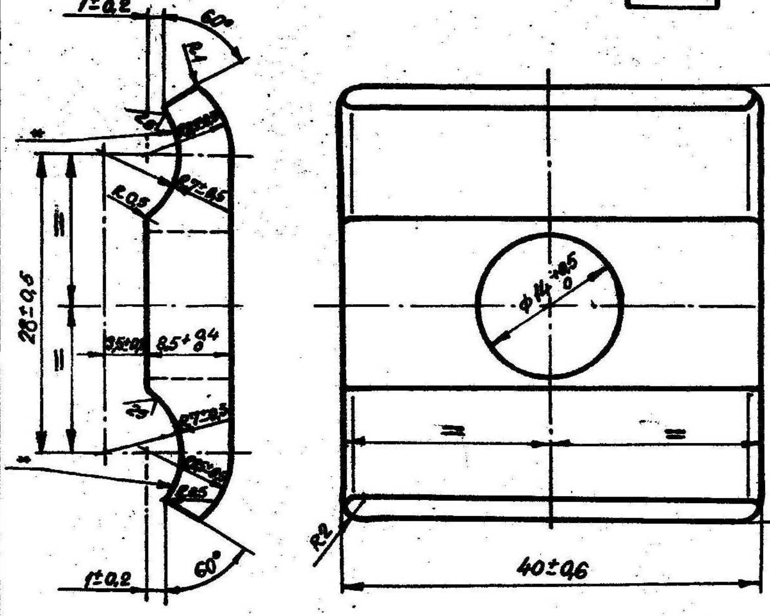
NOTA

1. Nu se admit sufluri în adîncime mai mare de 1mm. şi cu diametrul mai mare de 6mm. distanţa minimă dintre două sufluri fiind de minim 15mm.
2. Suprafaţa piesei trebuie să fie lipsită de fisuri şi se va curăţa de bavuri şi cruste.
3. Deplasarea admisibilă în planul de separare a modelelor va fi de cel mult 0,6 mm.
4. Se va insista asupra obţinerii unui aspect curat, neted a suprafeţii notate cu *
5. După turnare, piesa va fi supusă unei recoaceri de feritizare şi anume:
   - încălzire la 950°C şi menţinerea la ac. temperatură minimum 5 ore.
   - răcirea lentă de la 760°C la 700°C min. 20 ore.
6. ~~După tratamentul termic piesa se va zincat ... STAS 7222-74~~
   ⓐ AT 10L / Zn 500 / STAS 7221-82
7. ⓑ Inainte de zincare piesa se va trata termic pentru detensionare



a	1	conf. minută	24-IV 84	25 IV 84 ing.
Proiectat				
Desenat	Dobrin Mioara		Fmn 32.10	E-LC-13-1.4.6
Verificat	Ing. Spack I.			
Contr. STAS	Ing.			
Aprobat	Ing. Schmidt		Masa netă:	
I.P.C.F. E.I.E.U. Col. Electrificare LC 2			2:1 Data: 8 VIII 1976	FILIERA PTR. 1 CABLU

E



NOTA

1. Nu se admit sufluri în adâncime mai mare de 1mm și cu diametrul mai mare de 5mm, distanța minimă dintre două sufluri fiind de 15 mm.
2. Suprafața piesei trebuie să fie lipsită de fisuri și se va curăța de bavuri și cruste.
3. Deplasarea admisibilă în planul de separare a modelelor va fi de cel mult 0,6 mm.
4. Se va insista asupra obținerii unui aspect curat neted a suprafeței notate cu *
5. După turnare, piesa va fi supusă unei recoaceri de feritizare și anume:
   – încălzire la 950° C și menținerea la această temperatură minimum 5 ore.
   – răcire lentă de la 760°C la 700°C min. 20 ore
6. ~~După tratamentul termic~~ se va zinca ~~AE/OL/Zn 40 ... STAS 7222-74~~
   AT/OL/Zn 500 STAS 7221-~~82~~ 90 (a) (b)

(b) 7. Inainte de zincare piesa se va trata termic astfel încât după zincare caracteristicile mecanice ale materialului să nu fie diminuate.

Sef proiect
Ing. Spaak I.

C.T.E.
Ing. Ciortan P.

De acord
Constructor

b	3	Completări	26.10.96	[illegible]
a	1	conf. minută 24.IV.84	25.IV.84	Ing. [illegible]

Proiectat	Ing. [illegible]
Desenat	[illegible] M.
Verificat	Ing. Spaak I.
Contr. STAS	Ing. [illegible]
Aprobat	Ing. [illegible]

B35-10
~~Fmut 35-10~~ (b)

Masa netă.

E-LC-13-1.4.9.

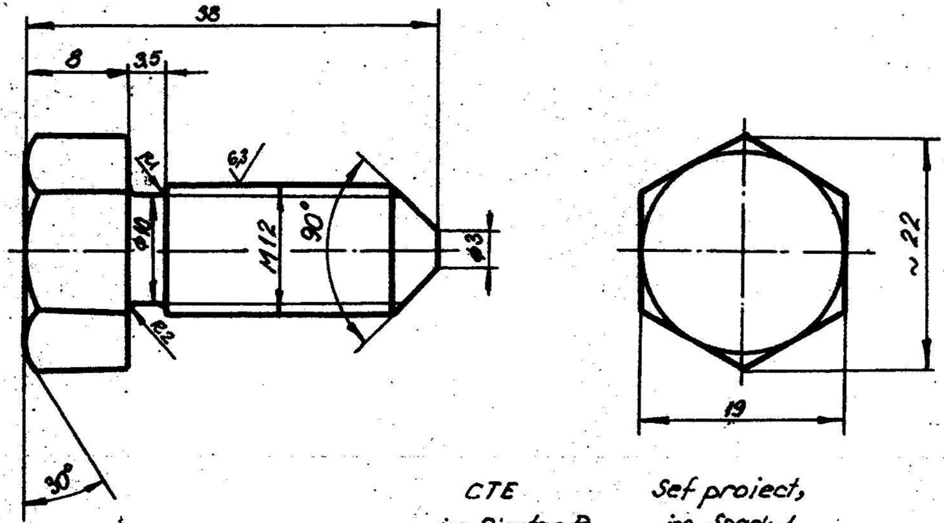
I.P.C.F.
E.I.E.U
Col. electrificare LC2

1:1

Data: [illegible]

FILIERĂ PENTRU 2 CABLURI

Emr



NOTA

~~1. Se va cadmia AE / a/ka 12 - SL - STAS 7222-74.~~

2. ~~Pe timpul depozitării filetul va fi protejat cu vaselină anticorozivă.~~

CTE
ing. Ciortan P.

Şef proiect,
ing. Spack I.

De acord,
Constructor

a	3	Completări	26.X.96	ing. Vadeanu
Proiectat	ing. Spack I.			
Desenat	Dobrin Mioara			
Verificat	ing. Spack I.			
Contr. STAS	ing.			
Aprobat	ing.			

~~OL 60.1 K~~ ⓐ
20 Cr 130

Masa netă:

E-LC-13-3.3.8

I.P.C.F.

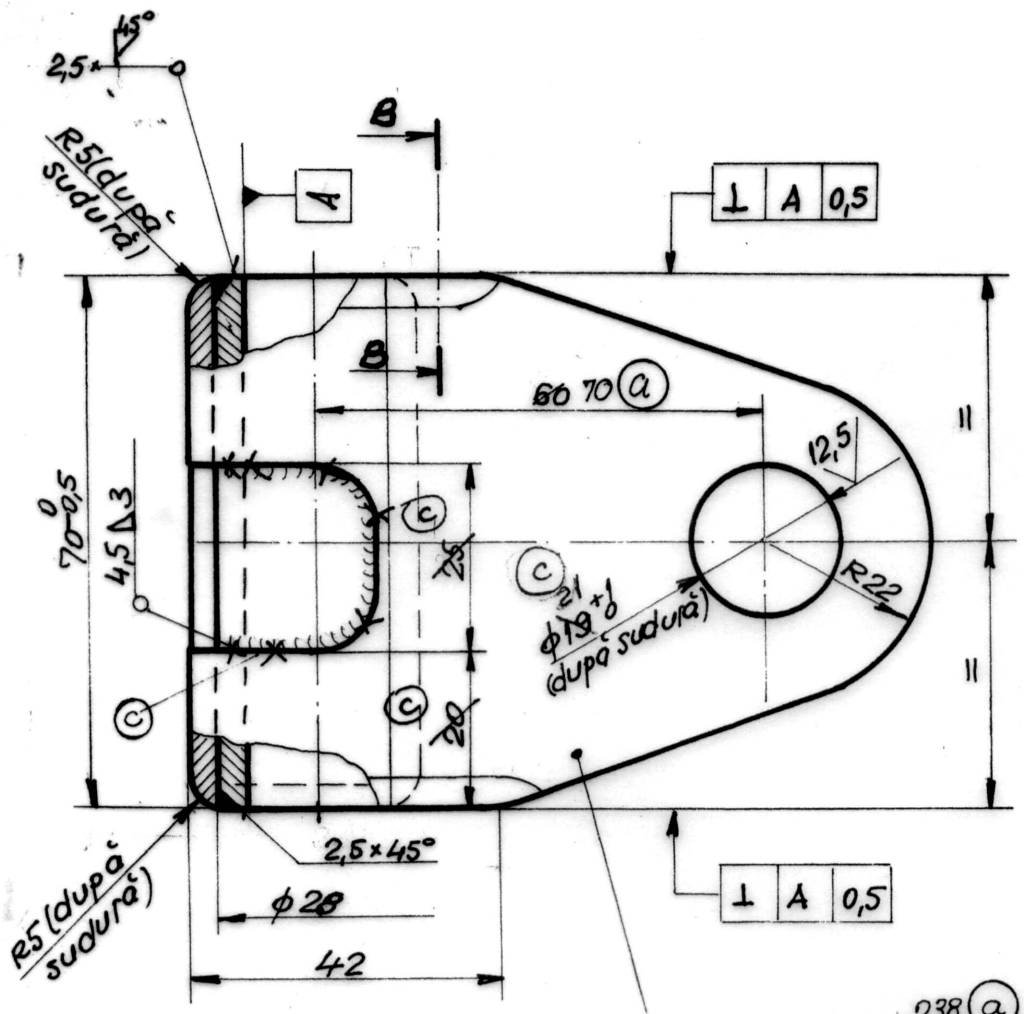
E.I.E.U. Colectiv Electrificare LC2

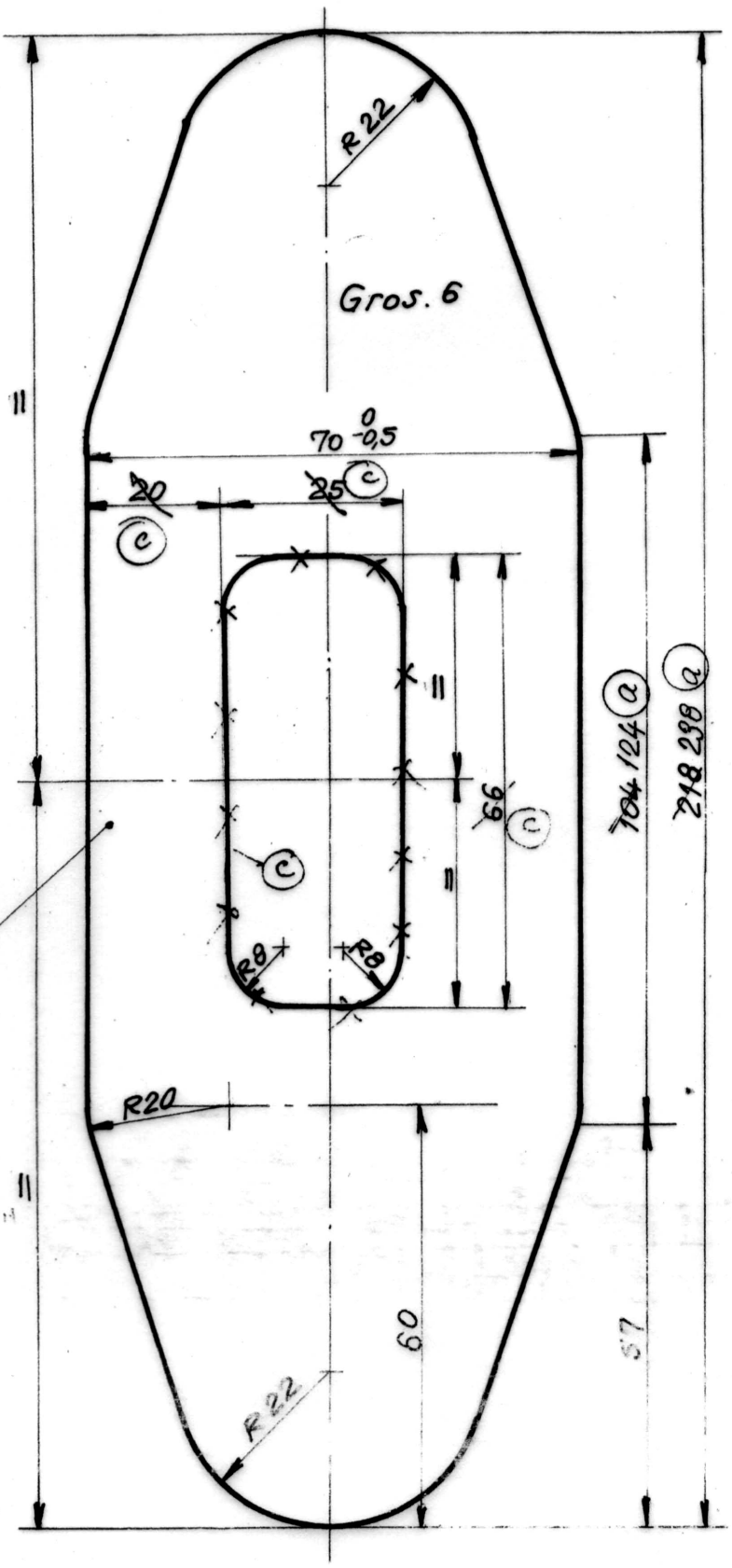
2:1

Data: 9 iun 1976

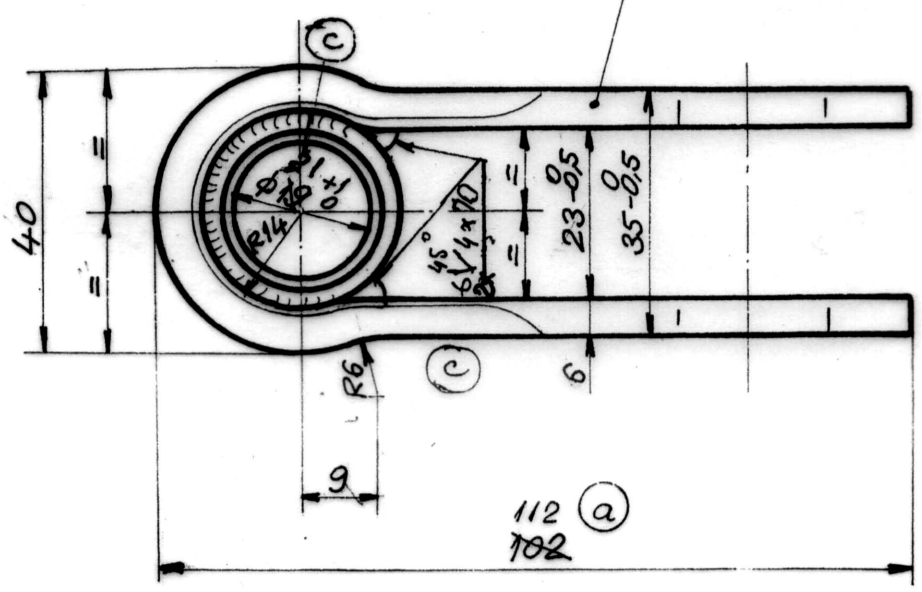
SURUB

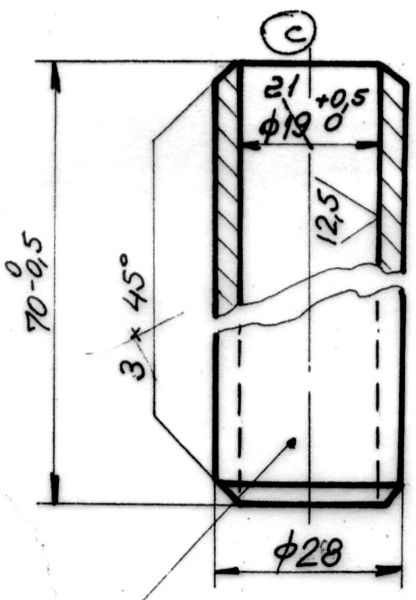
N





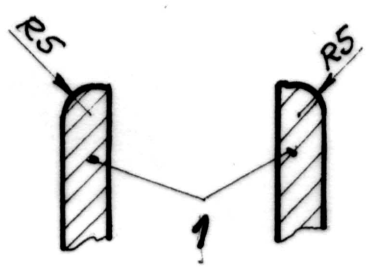
238 (a)
LT 70×6 -216 (desf.)
P1





Teavă 28×4,5-70
P2

B-B



NOTA

1. Muchiile se vor teși 1×45°
2. După sudură se va zinca AT/OL/Zn 600 - STAS 7221-90

50 (a)

Poz.	Denumire	Nr. desen sau STAS	Buc	Material	Observații	Masa netă kg/buc
2	Ghidaj	–	1	OL 37.2	Teavă 28×4,5 STAS 530 I4-87	0,185
1	Furcă	–	1	OL 37.2	LT 70×6 STAS 395-87	0,570 0,510

a	10	Modific prototip	14-09-01 ing. D. Novleanu
a	5.	Modific prototip	5-11. 96 ing. D. Novleanu

Proiectat ing. Novleanu
Desenat Bodea F.
Verificat ing. Baldoi L.
Contr. STAS ing. Roman
Aprobat ing. Tilichi H.

(a) 0.72
Masa netă: 0,70 kg

I.S.P.C.F. EIEU
COL. ELECTRIFICARE-LC

Scara: 1:1
Data: VI. 1996

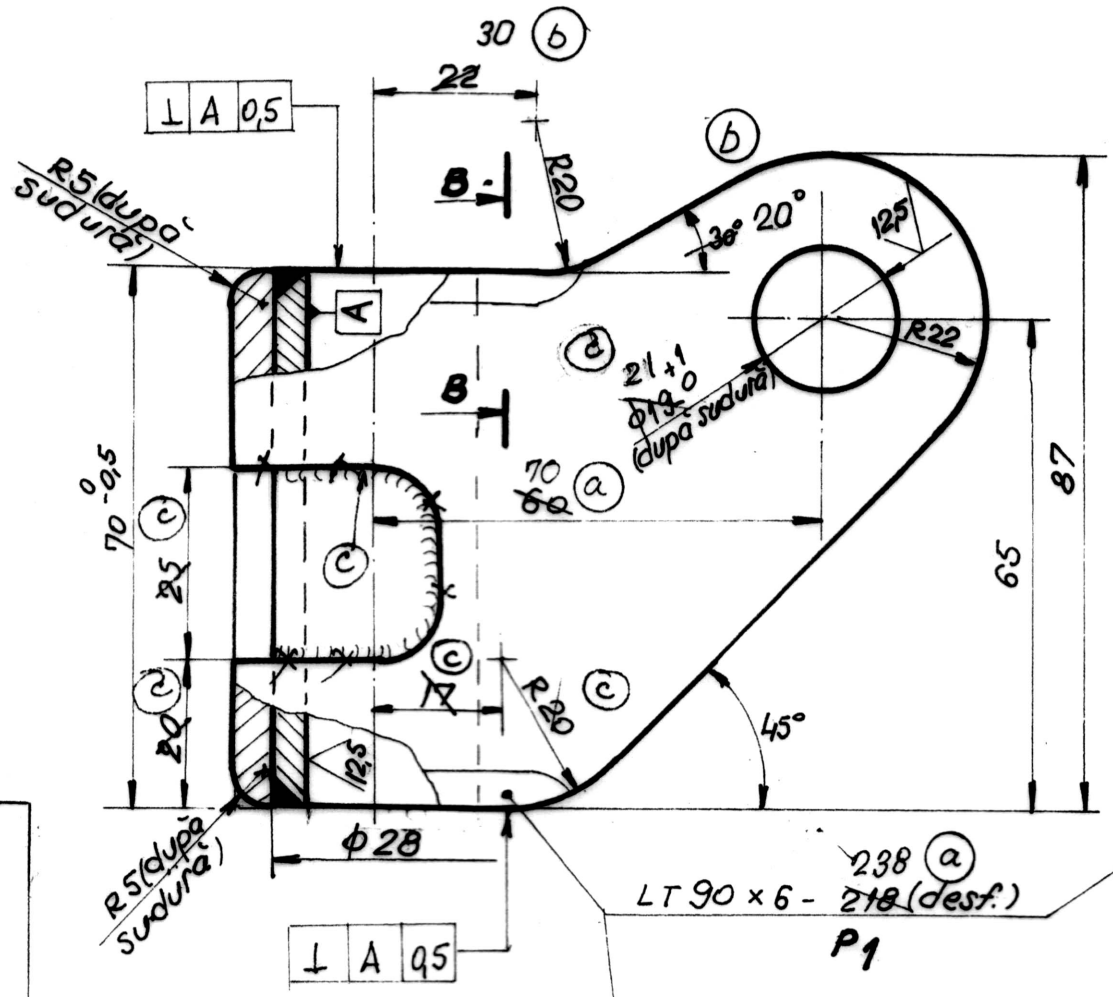
ELC 13-9.10 A

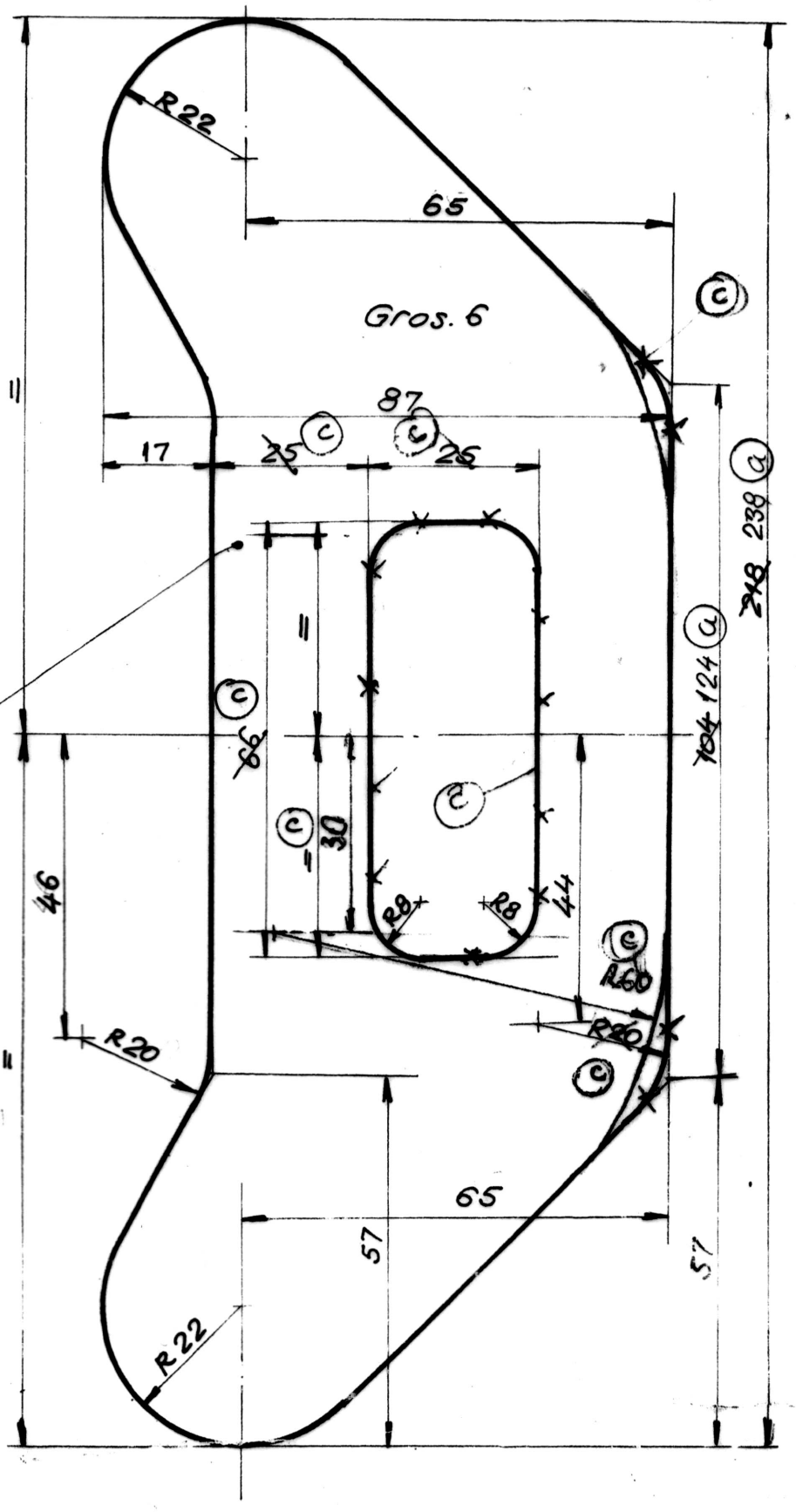
BALAMA PTR. TIRANT

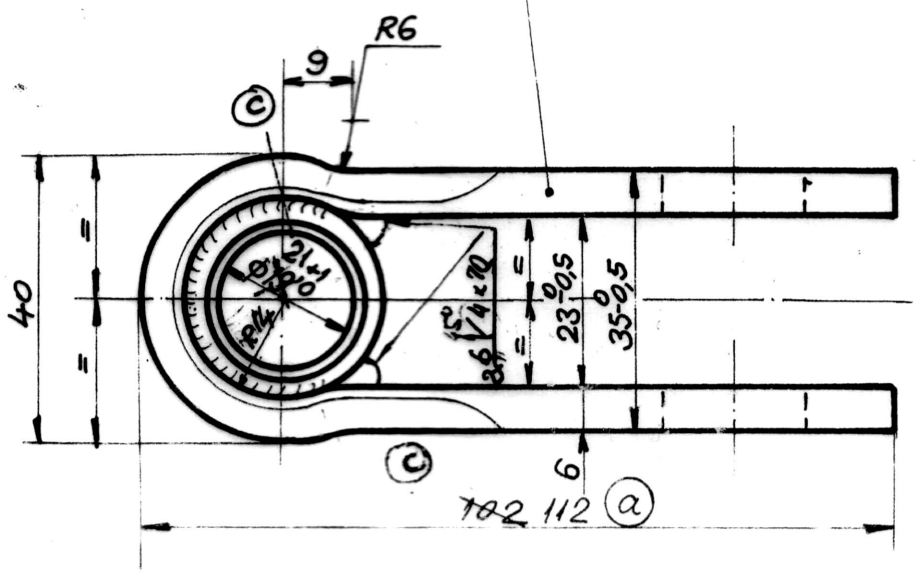
D.G.I. Pintea

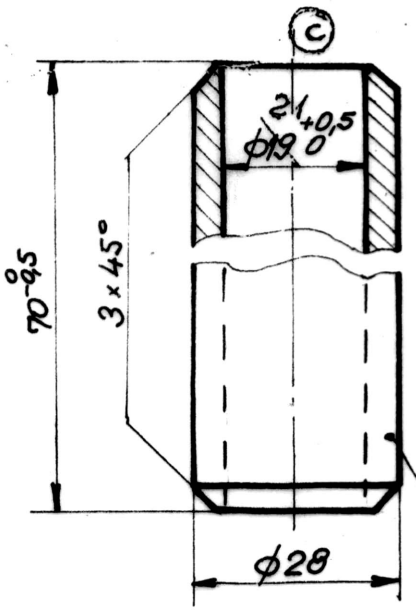
Șef proiect
Ing. Cr. Popescu

Desfășurata poz. 1





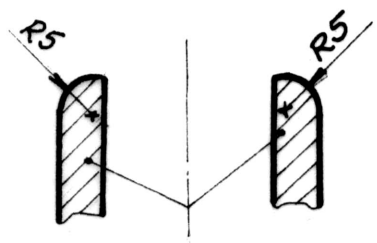




Teavă 26 × 4,5 - 70

P2

B - B



NOTA

1. Muchiile se vor tesi 1 × 45°
2. După sudură se va zinca AT/OL/Zn 600 - STAS 7221 - 90

50 (a)

Poz	Denumirea	Nr. desen sau STAS	Buc	Material	Observații	Masa netă kg/buc
2	Ghidaj	–	1	OL 37.2	Teavă 28 × 4,5 STAS 5391-87	0,185
1	Furcă	–	1	OL 37.2	LT 90 × 6 STAS 395-87	0,329 0,520

c	16	Modific prototip	14-09-01	ing. Novleanu
b	2	Modific prototip	7-11-96	ing. D. Novleanu
a	5	Modific prototip	5-11-96	ing. D. Novleanu

Proiectat	ing. Novleanu	
Desenat	Badea F.	
Verificat	ing. Bădăi L.	
Contr. STAS	ing. Roman	
Aprobat	ing. Tilichi H.	

(a) 0.784 kg
Masa netă: 0,71 kg

ELC 13 - 9.11.A

I.S.P.C.F.
EIEU
COL. ELECTRIFICARE-LC

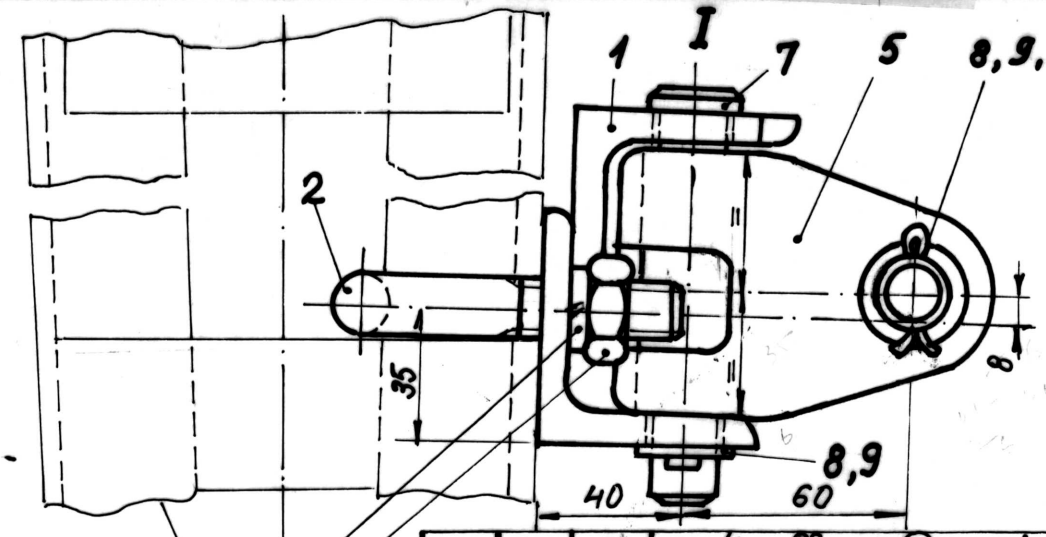
Scara: 1:1

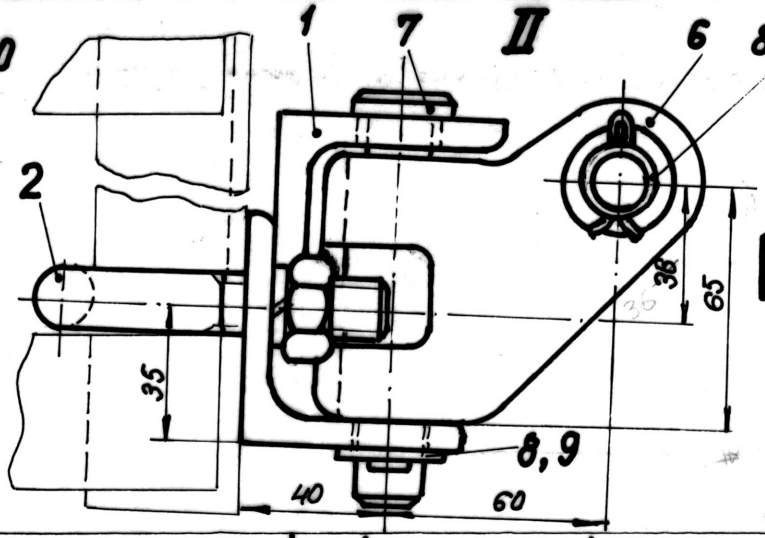
Data: VI. 1996

BALAMA FTR. CONTRAFIȘĂ

D.G.I. Nicolau

Șef proiect
Ing. Cr. Popescu





N

Buc. I	Buc. II	Poz.	Denumirea	Nr desen sau STAS	Buc.	Material	Observații	Masa netă kg/buc
1	1	10	Bolț B 20×50 @	STAS 5754/1-80		OL 50.1K		0,130
2	2	9	Splint 4,5×40	STAS 1991-89		OL 34		0,006
2	2	8	Saibă T 20 @	STAS 5200/4-91		OL 34		0,013
1	1	7	Bolț B 20×110 @	STAS 5754/1-80		OL 50.1K		0,237
1	–	6	Balama pl.contrafișă	ELC 13-9.11-A				0,710
–	1	5	Balama pl. tirant	ELC 13-9.10-A				0,700
2	2	4	Piuliță	STAS 922-89		OL 37.2		0,030
2	2	3	Saibă 16	SR 7666/2-93		OLC 55		0,004
1	1	2	Bridă	ELC 13-13.2		OL 37.2	T16 STAS 1800-87	0,410
1	1	1	Suport	ELC 13-13.1A				1,300

Crapodina ptr. 1 consolă simplă pe pinten pl.contrafișă

Crapodină ptr. 1 consolă simplă pe pinten pl.tirant

a 3	Modificare prototip	14.09.91	ing. Novleanu
Proiectat	ing. D. Novleanu		
Desenat	R. Novleanu		
Verificat	ing. L. Bădai		
Contr. STAS	ing. O. Roman		
Aprobat	ing. H. Tilichi		

Masa netă:

ELC 13-13.0A

I.S.P.C.F.
E.I.E.U.
COL. ELECTRIFICARE-LC

Scara: 1:2

Data: ÎY 1997

CRAPODINĂ PT. O CONSOLĂ SIMPLĂ PE PINTEN

D.G.I. Șef proiect
Ing. Cr. Popescu

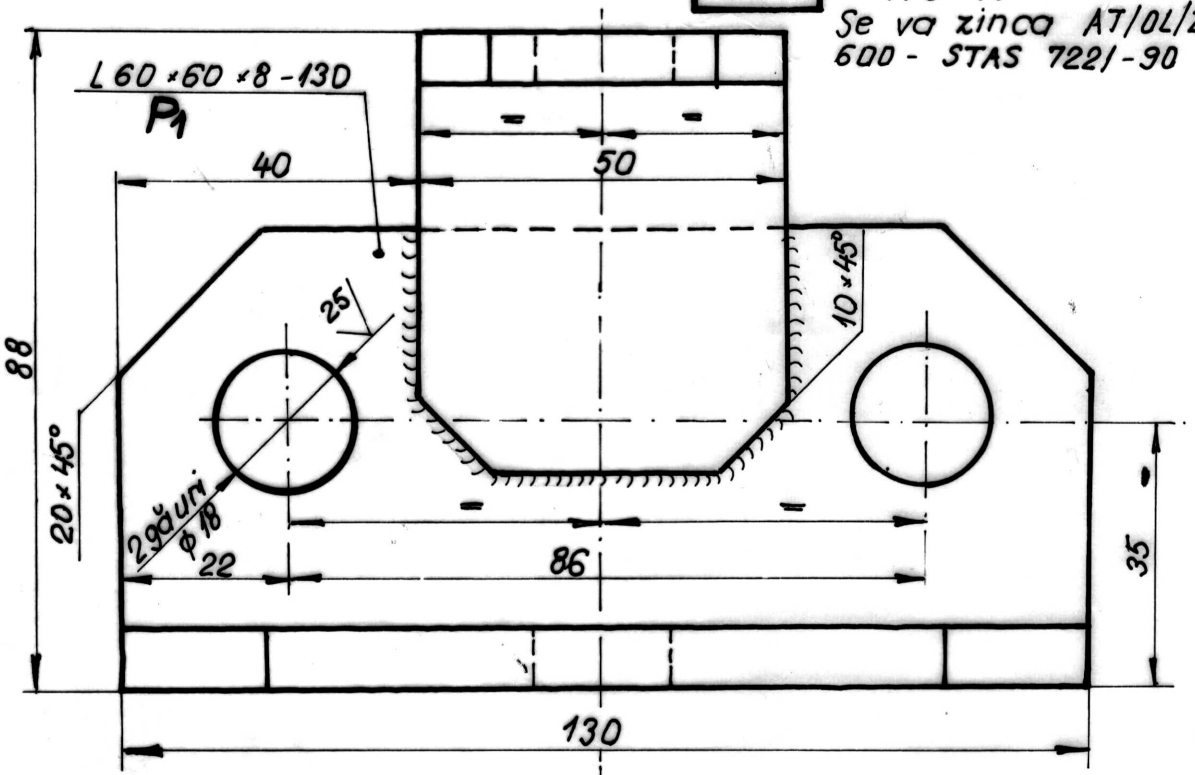
NOTĂ:

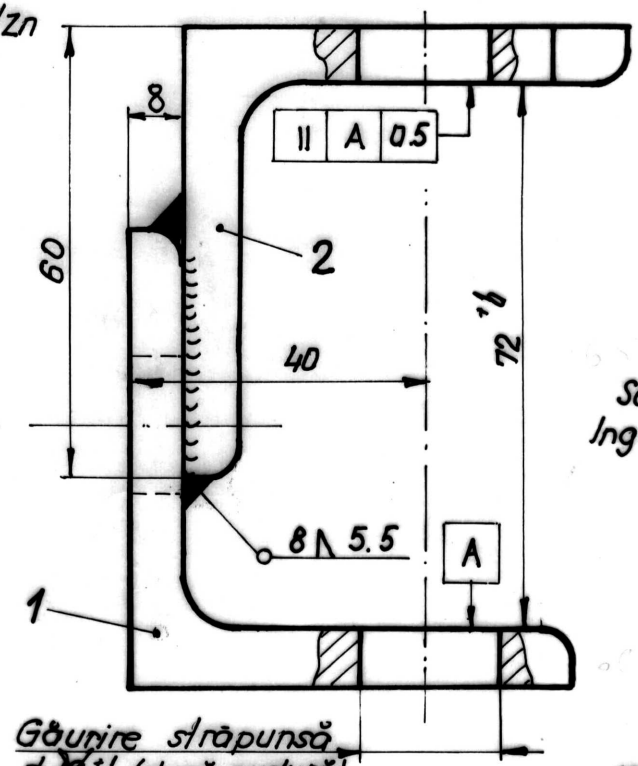
1. Reperele se vor zinca AT/OL/Zn 600-STAS 7221-90 cu excepția filetelor: AT/OL/310.
2. Boltul poz. 7 se va monta cu capul în sus.

N

NOTĂ

Se va zinca AT/OL/Zn 600 - STAS 7221-90



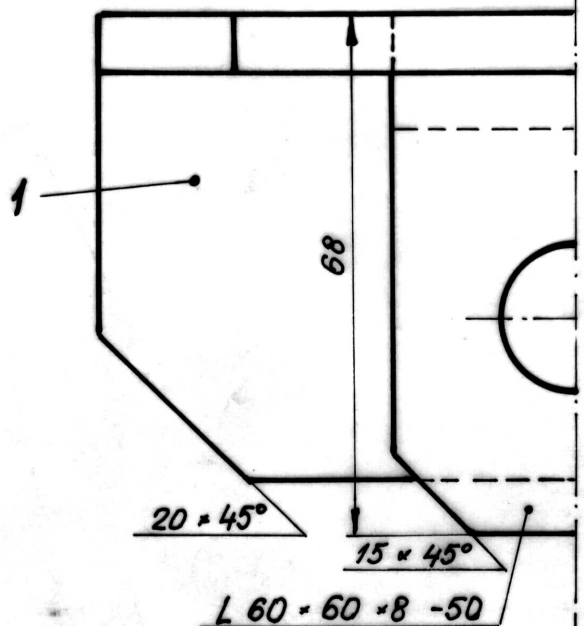


D. G. I.

Sef proiect
Ing. C. Popescu

Găurire străpunsă
ϕ 12 +1 (după sudură)
⌀ 21

100



Poz.	Denumirea	Nr. desen sau STAS	Buc	Material	Observații	Masa netă kg/buc
2	Cornier	—	1	OL 37.2	L60×60×8	0.350
1	Cornier	—	1	OL 37.2	L60×60×8 STAS 424-91	0.92

a 1	Modificare prototip	14.09.a1.	ing. Novleanu
Proiectat	ing. D. Novleanu		
Desenat	R. Novleanu		
Verificat	ing. L. Bădăi		
Contr. STAS	ing. O. Roman		
Aprobat	ing. H. Tilichi		

Masa netă

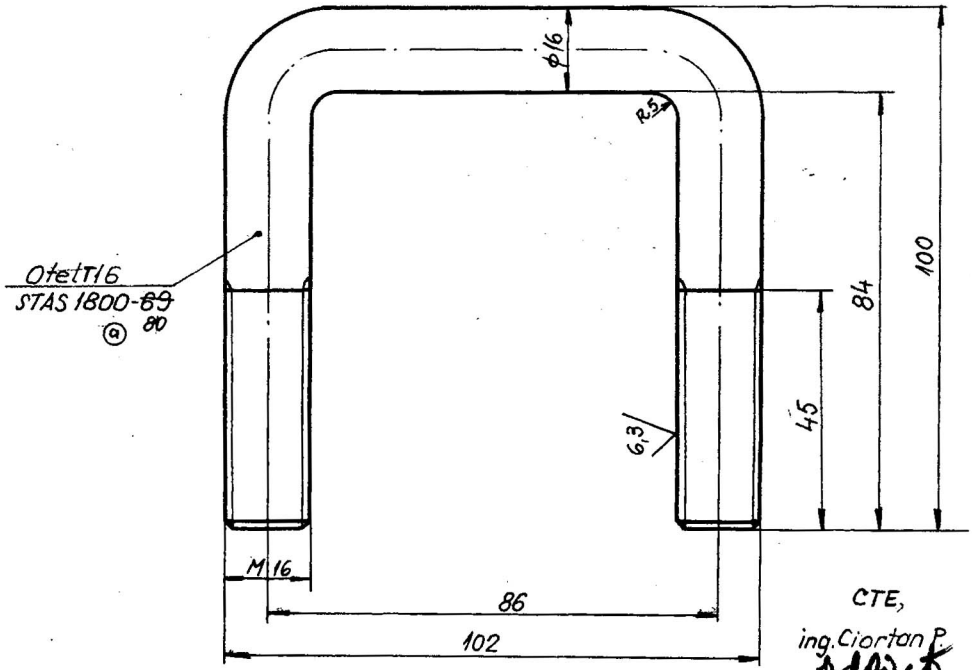
I.S.P.C.F.
E.I.E.U.
COL. ELECTRIFICARE - LC

Scara: 1:1

Data: V-1997

ELC 13 - 13.1 A

SUPORT



OțetTi6
STAS 1800-~~89~~ 80
ⓐ

Lungimea desfășurată ~ 160 mm.

CTE,
ing. Ciortan P.

De acord,
Constructor

NOTA

1. Prezentul plan are la bază desen LC 523-1
2. Se va forja la cald
3. Se va ~~cadmia A5/OL/cd12-SL-STAS 7222-74~~ AT/OL/Zn610/ STAS 7221-82 ⓑ

Șef proiect,
ing. Spack I.

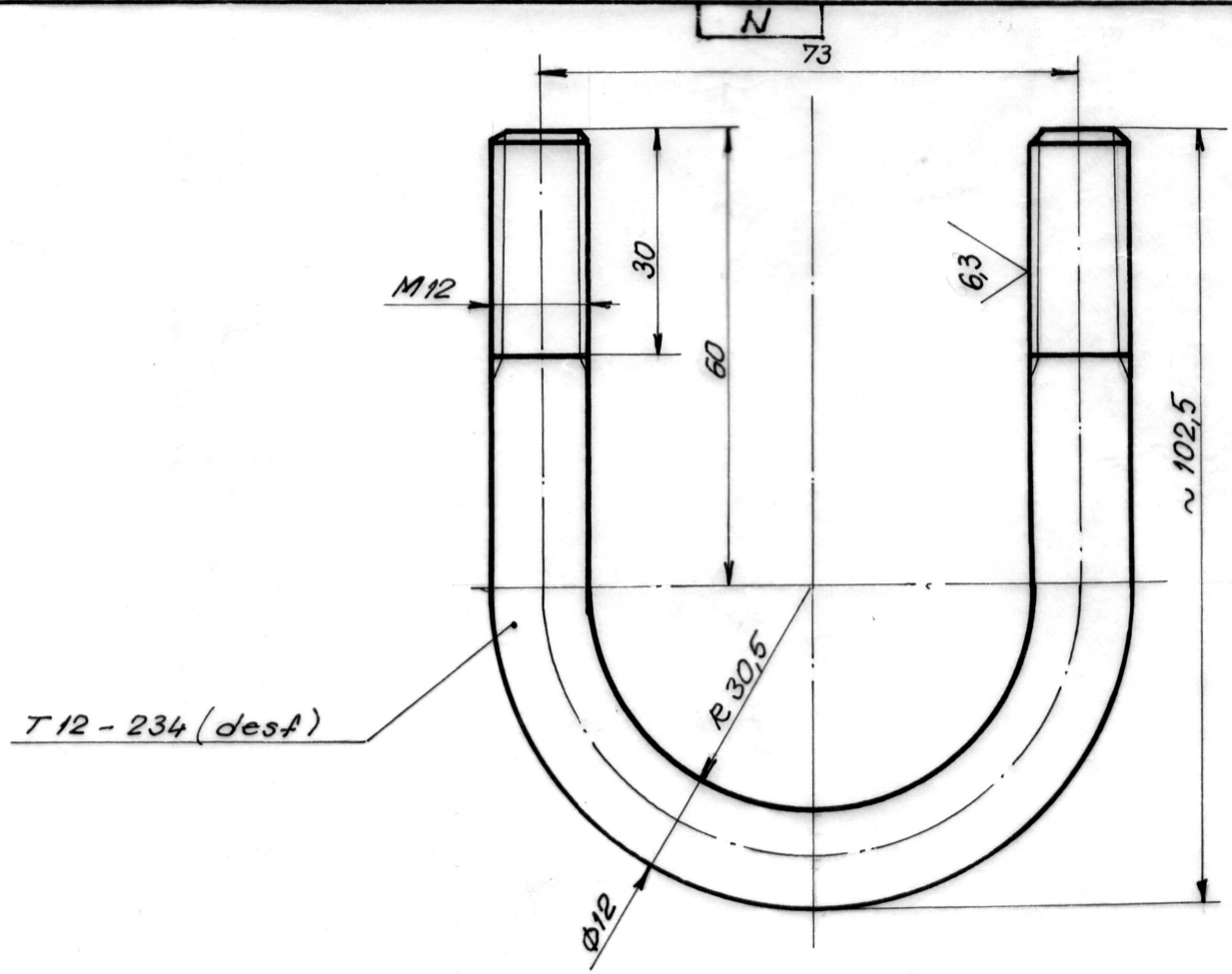
b	1	conf. minuta 24 IV 84	25 IV 84	ing. Novleanu		
a	1	Modificări STAS	30.11.82	ing. Novleanu		
Proiectat		Ing. Novleanu D.			OL 37.2K	E-LC-13-13.2
Desenat		Aldea R.				
Verificat		Ing. Spack I.				
Contr. STAS		Ing. Novleanu D.				
Aprobat		Ing. Schmidtti.			Masa netă: 0,41 Kg.	

I.P.C.F.
E.I.E.U - Electrificare - LC 2

1:1

Data: 1 sept. 1976

BRIDA



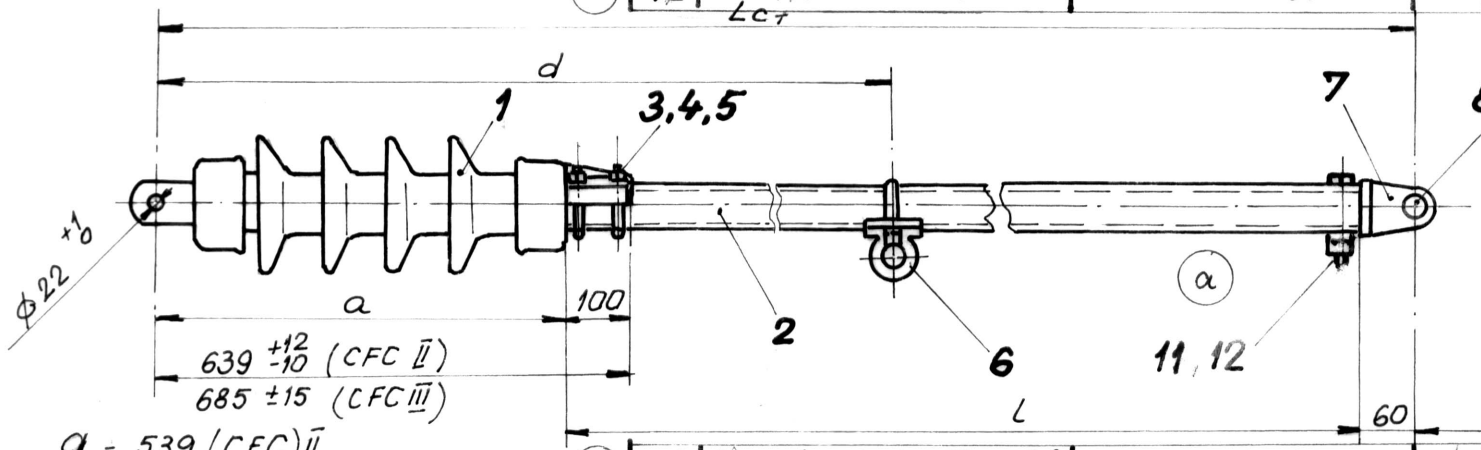
DGI,
Cristian

Sef proiect

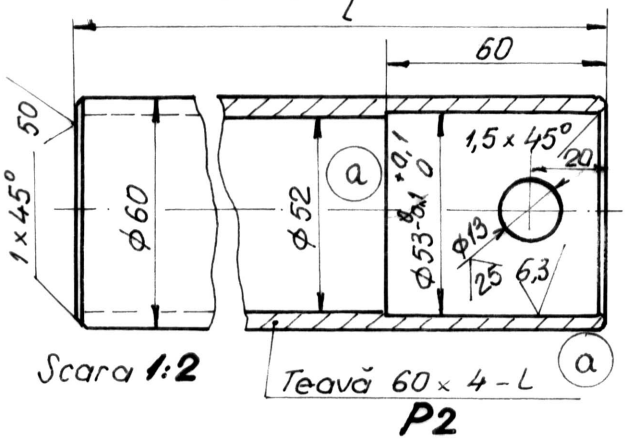
10

25

Proiectat	Ing. Novleanu		
Desenat	Neagu M.	20 Cr 130	ELC 13- 13.3B
Verificat	Ing. Bădăi L.		
Contr. STAS	Ing. Roman O.		
Aprobat	Ing. Tilichi H.	Masa netă: 0,334 Kg	
I.S.P.C.F EIEU		Scara: 1:1	BRIDĂ
Col. Electrificare - LC		Data: 06.1996	



a = 539 (CFC) II
a = 585 (CFC) III



NOTA

1. Poz. 2, 7, 8, 9 și 10 se vor zinca termic AT/OL/Zn 500 - STAS 7221-90 cu detensionare prin tratament termic
2. Pentru zonele poluate se va utiliza izolatorul CFC III (poz. 1) iar pentru zonele normale CFC II
3. Brățara și piulițele din brida cu cercel poz. 6 vor fi din 20Cr130 iar saibele se vor nichela
4. Urechile capacului cu furcă poz 7 se vor poza paralele cu urechea izolatorului.

Poz.	Denumirea	Nr. desen sau STAS	Buc.	Material	Observații	Masa netă Kg/buc.
12	Piuliță M12-8	STAS 922-89	2	20 Cr. 130		0,010
11	Șurub M12×90-gr8.8	SRISO 4018-94	1	20 cr. 130		0,090
10	Splint 4,5×40	STAS 1991-89	1	OL 34		0,006
9	Saibă T18	STAS 5200/4-91	1	OL 34		0,013
8	Bolț B18×50	STAS 5754/1-80	1	OL 50.1K		0,130
7	Capac cu furcă	ELC 13-14.7.0B	1			1,000
6	Bridă cu cercel	ELC 13-1.2.3.0	1			0,830
5	Piuliță M12-gr 6	STAS 922-89	8	20 Cr 130		0,016
4	Saibă 12	SR 7666/2-94	4	OLC 55	Nichelat	0,003
3	Bridă	ELC 13-13.3.B	2	20 Cr 130	T12 STAS 1800-87	0,034
2	Contrafișă	—	1	OLT 45	Țeavă 60×4 STAS 404/1-87	
1	Izolator baston CFC	Ceramica Turda	1	Porțelan		

a	5	Modific prototip	9.07.98	Ing. O. Novleanu

Proiectat	Ing. Novleanu O.	
Desenat	Neagu M.	
Verificat	Ing. Bădăi L.	
Contr. STAS	Ing. Roman O.	
Aprobat	Ing. Tilichi H.	

I.S.P.C.F. EIEU

Col. electrificare - LC

1:10 (1:2)

Data: 06.1996

ELC 13-14.0B

CONTRAFIȘA

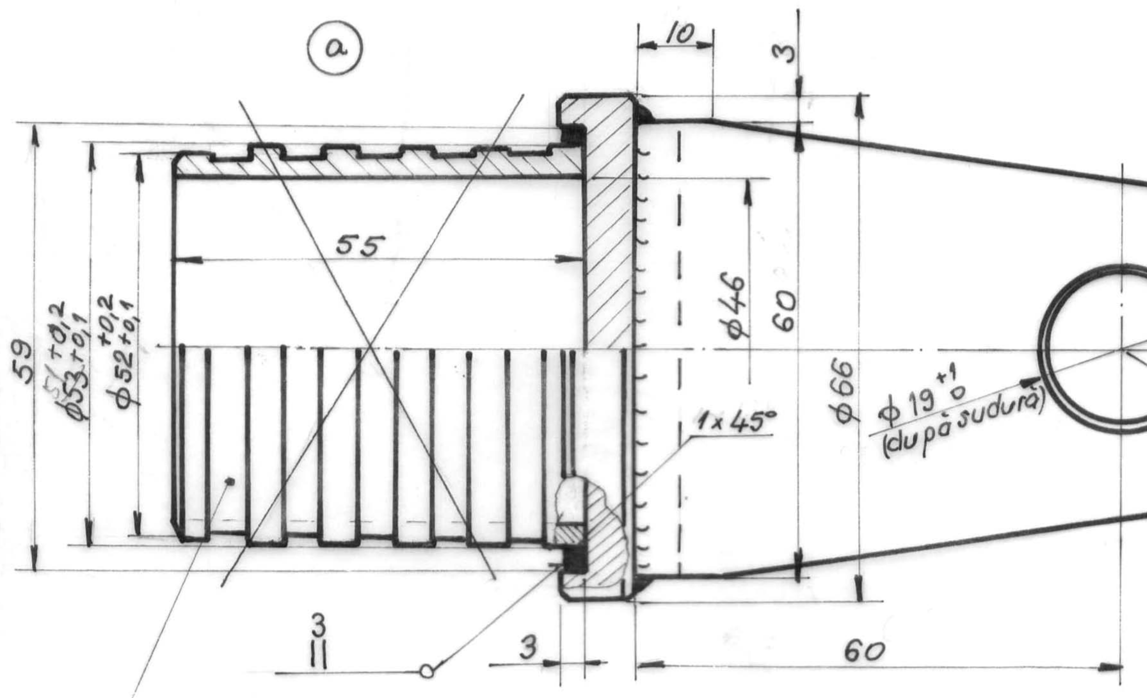
DGI, Cristian

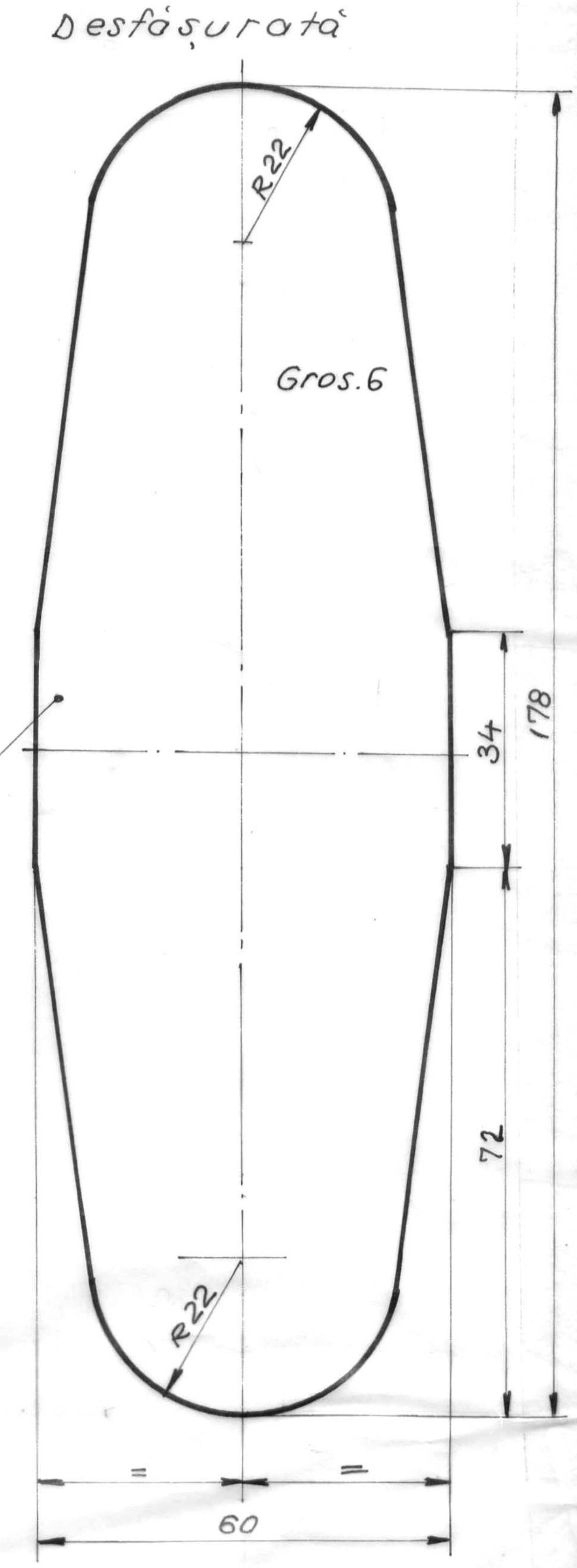
Set proiect,

Pag. 532

14

N



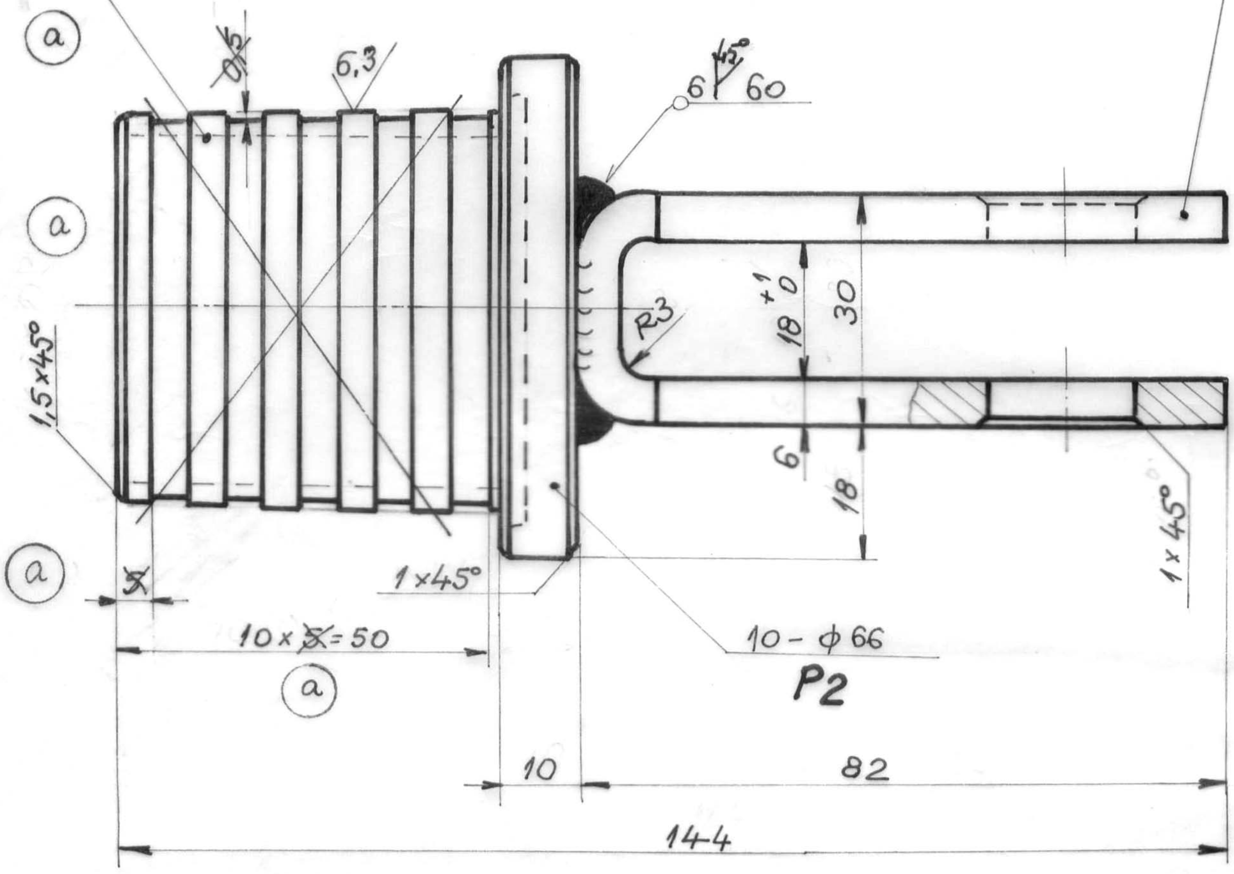


Teavă 54×4 -55

P1

LT60×6 -178 (desf.)

P3

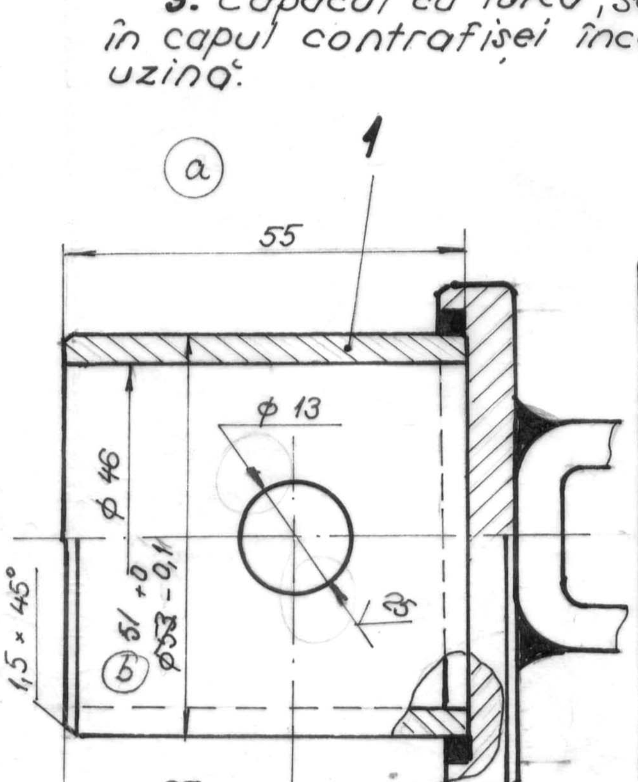


NOTA

1. Prelucrarea canelurilor ștuțului poz.1 se va realiza după sudură.
2. Se va zinca AT/OL/Zn 600 - STAS 7221-91.
3. Capacul cu furcă, se va monta în capul contrafișei încă de la uzină.

D.G.I.

Șef proiect Ing. Cr. Popescu



50

3	Furcă	—	1	OL 37.2	LT 60×6 STAS 395-87	0,440
2	Placă	—	1	OL 37.2	Tabla 10 STAS 505-86	0,270
1	Ștuț	—	1	OLT 35 (51×4 b) 45 (b)	Teavă 54×4 STAS 404/1-87	0,270
Poz	Denumirea	Nr. desen sau STAS	Buc	Material	Observații	Masa netă kg/buc

b	3	Modific prototip	15-03-98	Ing. D. Novleanu
a	6	Modific prototip	9-07.98	Ing. D. Novleanu

Proiectat	ing. Novleanu
Desenat	Badea F.
Verificat	ing. Bădăi L.
Contr. STAS	ing. Roman
Aprobat	ing. Tilichi H.

Masa netă: 1,0 kg

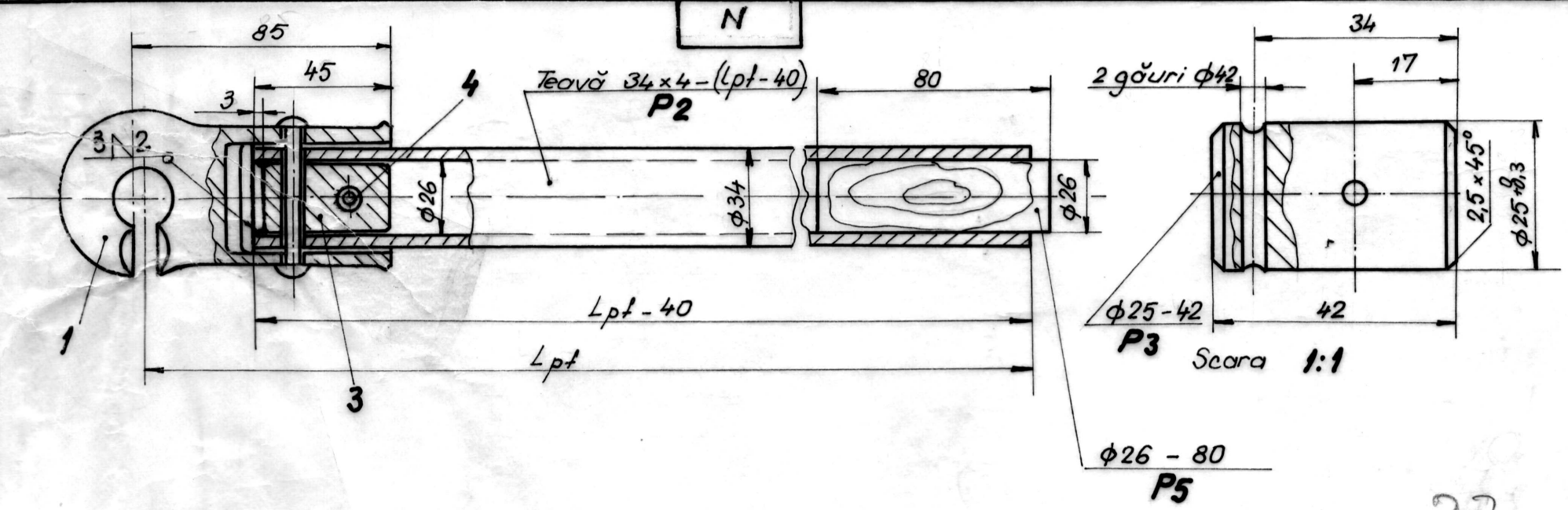
ELC 13 - 14.7.0 B

ISPCF EIEU COL. ELECTRIFICARE-LC

Scara: 1:1

Data: VI.1996

CAPAC CU FURCĂ



22

NOTA

1. Poz 1 si 2+3 se vor zinca AT/OL/Zn 600 – STAS 7221 – 90
2. Lungimea Lpt se va lua din fisa de montaj

Poz	Denumire	Nr. desen sau STAS	Buc	Material	Observatii	Masa neta kg/buc
5	Dop	–	1	lemn fag	gudronat	0,020
4	Nit 4×55	STAS 797 – 80	2	20Cr 130		0,010
3	Stut	–	1	OL 37.2		0,160
2	Bară	–	1	OLT 45	Teavă 34×4 STAS 404/1-89	
1	Muflă terminală 1" cu cârlig	ELC 32 – 2.2	1	Fmn 350		0,680

DGI

Sef proiect

Proiectat	Ing. Novleanu	
Desenat	Neagu M.	
Verificat	Ing. Bădăi L.	
Contr. STAS	Ing. Roman D.	
Aprobat	Ing. Tilichi H.	

I.S.P.C.F
EIEU
Col. Electrificare – LC

Masa netă
scara 1:2 (1:1)
Data: 06.1996

ELC 13-15.0B

PORTFIXATOR DREPT

Marc	Lpf
101	2000
102	2050
103	2100
104	2150
105	2200
106	2250
107	2300
108	2350
109	2400
110	2450
111	2500
112	2550
113	2600
114	2650
115	2700
116	2750
117	2800
118	2850
119	2900
120	2950
121	3000
122	3050
123	3100
124	3150
125	3200
126	3250
127	3300
128	3350
129	3400
130	3450
131	3500
132	3550
133	3600
134	3650
135	3700
136	3750
137	3800

138	3850
139	3900
140	3950
141	4000
142	4050
143	4100
144	4150
145	4200
146	4250
147	4300
148	4350
149	4400
150	4450
151	4500
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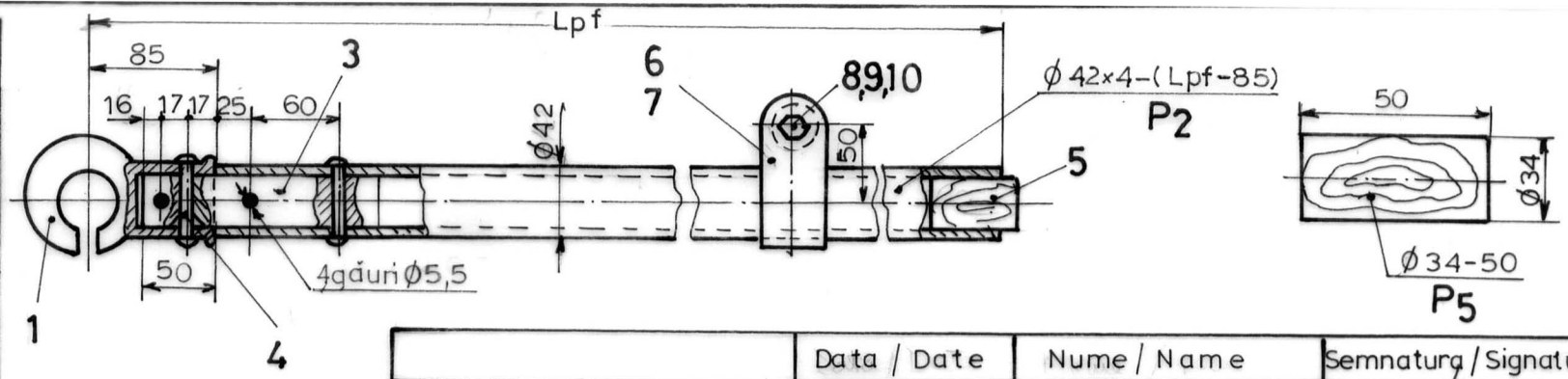
158	4850
159	4900
160	4950
161	5000



Approbation,
Ch. Voisin

	Data / Date	Nume / Name	Semnatura / Signature
Avizat Approved Consultant	8.11.2001	OVIDIU V. ROMAN	
Aprobat Approved CFR	8.11.2001	TREICĂ IOAN	

Poz.	Denumirea	Nr. desen sau STAS	Buc	Material	Observații	Masa neta kg/buc
10	Piuliță M10 - gr.8	STAS 922-89	1	X20Cr130		
9	Șaibă N10	SR 7666/2-76	1	OLC55	Nichelat	
8	Șurub M10x35-gr.8.8	SRISO 4017-95	1	X20Cr130		
7	Pastilă	ELC13-15.7 BM	1	OL 37.2		
6	Bridă	ELC 13-15.6 BM	1	OL37.2		
5	Dop	-	1	Lemn fag		
4	Nit Ø 5 x60	STAS 797-80	4	X15 Cr08		
3	Stut	ELC 13-15.3 BM	1	OL 37.2		
2	Bară	—	1	OLT 45	Ø42-4	
1	Mufă terminală 1" cu cârlig	ELC 32-2,2	1	B 35-10		

Proiectat	ing. Novleanu D.	
Desenat	Badea F.	
Verificat	ing. Roman O.	
Contr. STAS	ing. Reghină R.	
Aprobat	ing. Tilichi H.	

ISPCF
EIEU LC
SPIE DROUARD

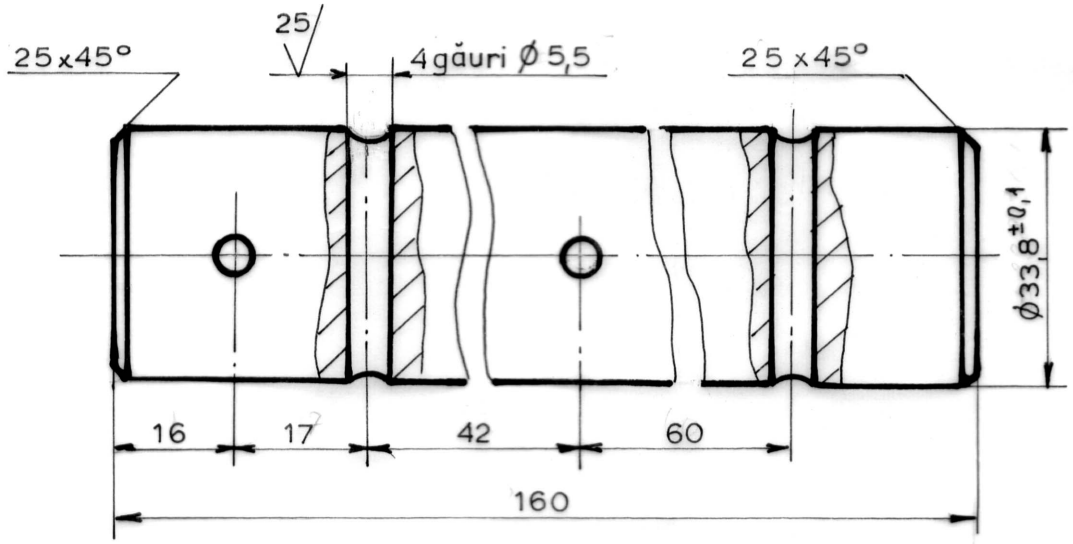
Masa netă:

Scara:

Data: XI.2001

ELC 13-15.0 BM

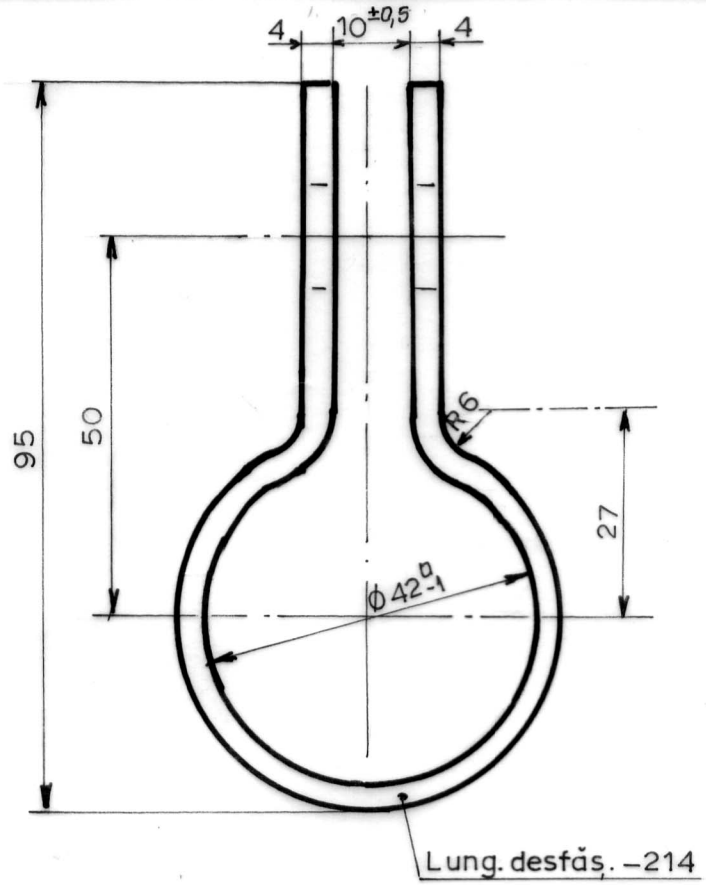
PORTFIXATOR Ø 42x4

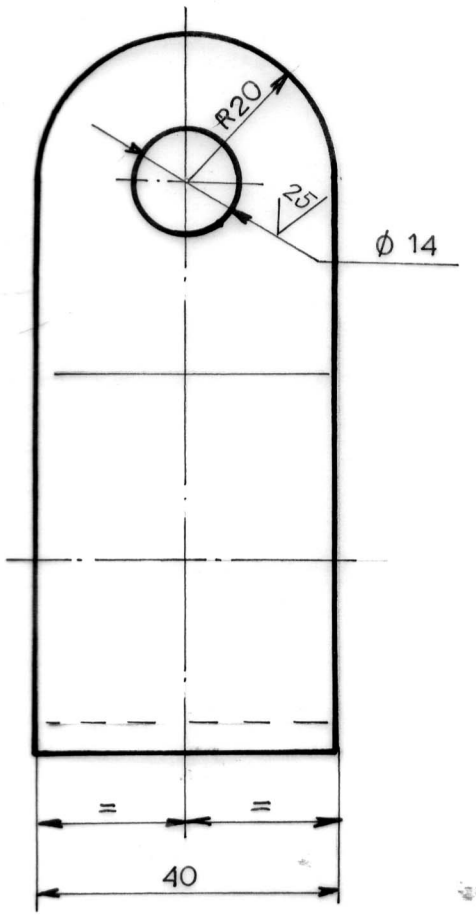


50

Proiectat	ing. Novleanu		OL 37.2	ELC 13 - 15.3 BM
Desenat	Badea F.			
Verificat	ing. Roman O.			
Contr. STAS	ing. Reghin R.			
Aprobat	ing. Tilichi H.		Masa neta:	
ISPCF EIEU LC SPIE DROUARD			Scara: 1:1	S T U Ț
			Data: XI. 2001	

Approbation,
Ch. Voisin





NOTA

Se va zinca AT/OL/Zn 500-
STAS 7221-90

Approbation,
Ch. Voisin

Proiectat	ing. Novleanu		OL 37.2
Desenat	Badea F.		
Verificat	ing. Roman O.		
Contr. STAS	ing. Reghină R.		
Aprobat	ing. Tilichi H.		Masa neta

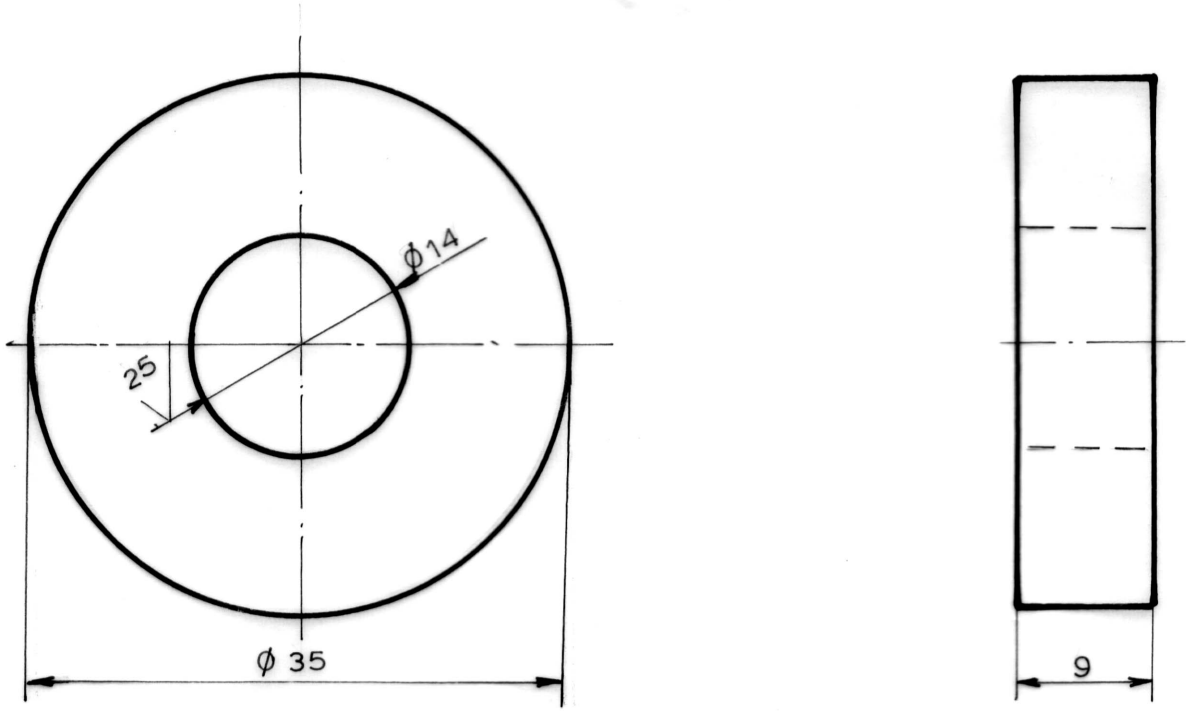
ISPCF
EIEU LC
SPIE DROUARD

Scara: 1:1

Data: XI. 2001

ELC 13-15.6BM

BRIDA



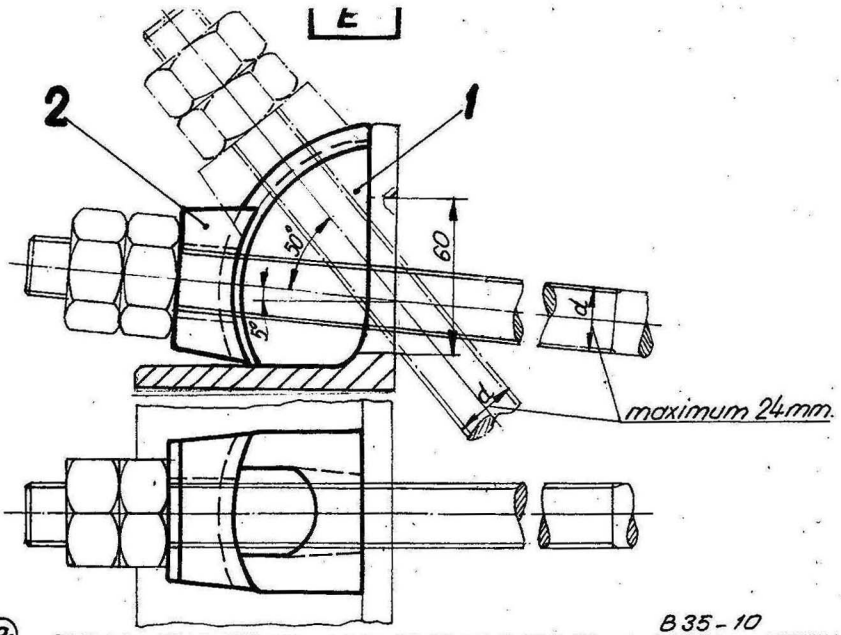
N O T A

1. Muchiile se vor teși 1×45°
2. Se va zinca AT/OL/Zn 600-STAS7221-90

50

Approbation,
Ch. Voisin

Proiectat	ing.Novleanu D.		OL 37-2	ELC 13-15.7 BM
Desenat	Badea F.			
Verificat	ing.Roman O.			
Contr. STAS	ing.Reghină R.		Masa neta:	
Aprobat	ing. Tilichi H.			
ISPCF E1EU LC SPIE DROUARD			Scara: 2:1	PASTILA
			Data: XI.2001	



NOTA:

1-Sarcina admisibilă - 3000 daN
2-Sarcina maximă - 6000 daN
3-Elementele se vor zinca
~~AE/OL/Zn 40 - SL/FOS~~
~~STAS 7222-74~~ AT/OL/Zn 500 STAS 7221-~~82~~ 90 ⓐ

C.T.E.,
ing. Ciortan P. ⓑ

Şef proiect,
ing. Spackl.

De acord,
Constructor

B 35-10

	Poz.	Denumirea	Nr. desen sau STAS	Buc	Materia/	Observaţii	Masa netă kg/buc
ⓑ	2	Saibă sferică	E-LC-16-12.3.2	1	~~Fmn 35.10~~		0,430
ⓑ	1	Suport	E-LC-16-12.3.1	1	~~Fmn 35-10~~	B35-10	1,020

b	3	Actualizat STAS	26.10.96	ing Novleanu
a	1	conf minută 24 IV 84	25 IV 84	ing Novleanu

Proiectat	ing. Novleanu D.	
Desenat	Bolintineanu A.	
Verificat	ing. Spack. I.	
Contr. STAS	ing. Bădăi L.	
Aprobat	ing. Schmidt M.	

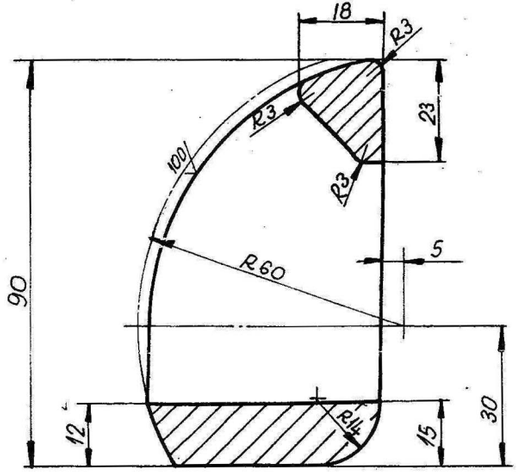
Masa netă: 1,450 Kg.

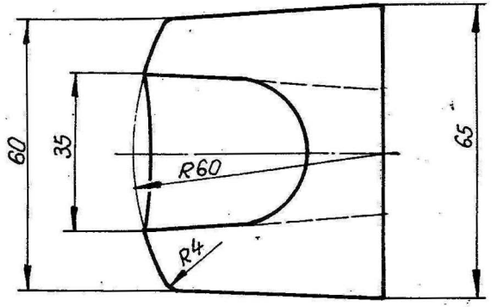
E-LC-16-12.3.0

I.P.C.F.
E.I.E.U.-Electrificare LC2

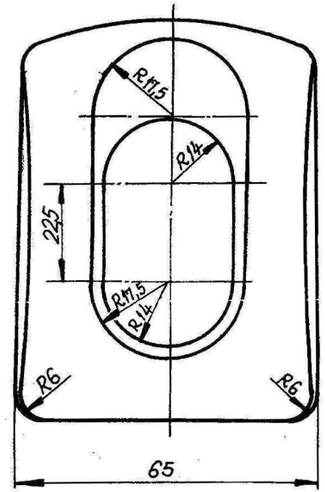
1:2
Data:

SAIBA DE COLT





E



NOTA

1- Nu se admit sufluri mai adinci de 1mm. și cu diametrul peste 5mm distanțate la 15mm.
2- Suprafața trebuie să fie fără fisuri și curățată de bavuri și cruste.
3- Deplasarea modelelor în planul de separare va fi max. 0,6mm.
4- După turnare, va urma o recoacere de feritizare - încălzire la 950°C și menținere 5 ore și răcire lentă de la 760°C la 700°C min. 20 ore.

ⓑ ~~5- După tratament se va zinca AT/OL/Zn 40 SR/ISO STAS 7222-74 AT/OL/Zn 500/STAS 7221-82~~ ⓐ

ⓑ 6- Se va zinca AT/OL/Zn 500
7- Înainte de zincare se va trata termic astfel încât, după zincare, caracteristicile mecanice ale materialului să nu fie diminuate.

b	2	completări		26.10.96	ing Novleanu				
a	1	conf. minută 24 IV 84	25 IV 84	ing. Novleanu					
Proiectat	ing. Novleanu								
Desenat	Bolintineanu A.								
Verificat	ing. Spack, I.								
Contr. STAS	ing. Bădăi L.								
Aprobat	ing. Schmidt M.								

Fmn 35.10

Masa netă: 1,020 Kg.

E-LC-16-12.3.1

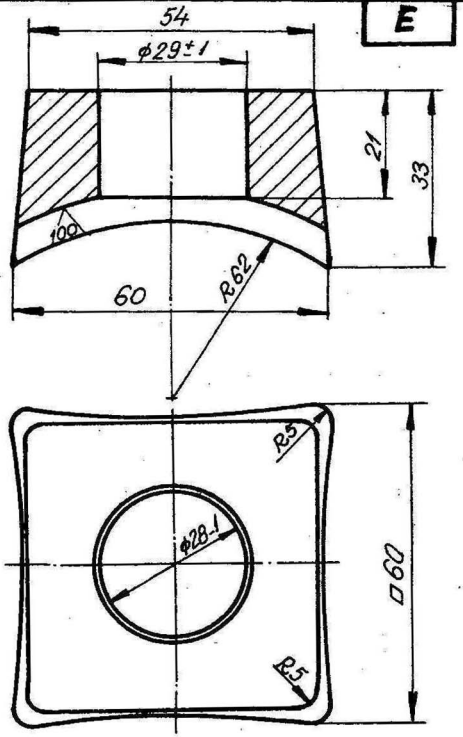
I.P.C.F.

E.I.E.U.- Electrificare LC2

1:1

Data:

SUPORT



NOTA:

1- Nu se admit sufluri mai adînci de 1mm. și cu diametrul peste 5mm distanțate la 15mm.
2- Suprafața trebuie să fie fără fisuri și curățată de bavuri și cruste.
3- Deplasarea modelelor în planul de separare va fi max. 0,6mm.
4- După turnare, va urma o recoacere de feritizare - încălzire la 950°C și menținere 5ore și răcire lentă de la 760°C la 700°C min. 20 ore.
5- ~~După tratament se va zinca AE/OL/Zn 40 SL/Fos STAS 7222-74 AT/OL/Zn 500/STAS 7221-82~~ (a)
(b)
6. Se va zinca AT/OL/Zn 500
(b) 7. Înainte de zincare se va trata termic astfel încât, după zincare, caracteristicile mecanice ale materialului să nu fie diminuate.

b	2	completări	26.10.96	ing Novleanu	
a	1	conf. minută 24 IV 84	25 IV 84	ing Novleanu	
Proiectat		ing. Novleanu			
Desenat		Bălințeanu			
Verificat		ing. Spacek I.			
Contr. STAS		ing. Bădăi L.			
Aprobat		ing. Schmidth			

Fmn 35.10

E-LC-16-12.3.2

Masa netă: 0,430 kg.

I.P.C.F.

E.I.E.U - Electrificare LC 2

1:1

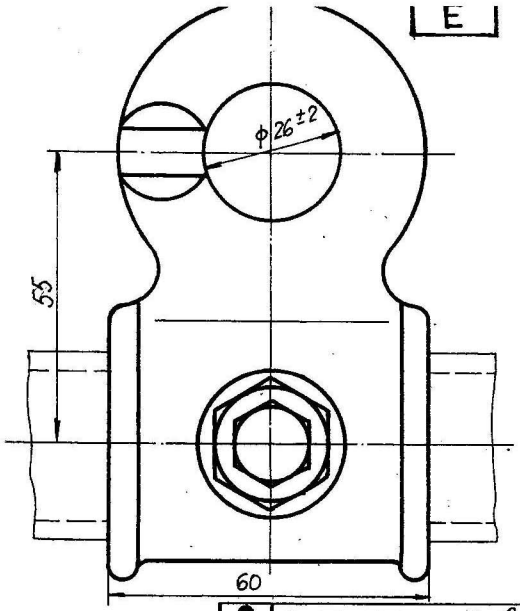
data:

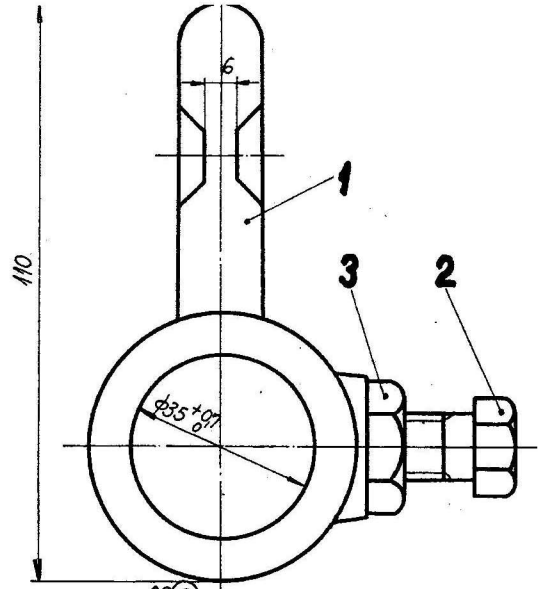
SAIBA SFERICA

CTE
Ing. Ciortan P.

Sef Proiect
Ing. Spack I.

De acord
Constructor





NOTA

1. Elementele se vor zinca ~~AE/OL/Zn 40 - SL/EOS - STAS 7222-74~~ AT/OL/Zn 500 iar piuletele, AT/OL/Zn 310 - STAS 7221-82 (b) 90 (c)
2. Prezentul plan are la bază desenele (c) nr. LC/c 10
   LC/c 10-01

Poz.	Denumirea	Nr. desen sau STAS	Buc.	Material	Observații	Masa netă Kg/buc.
3	Piuliță M12 - gr. 4.6	STAS 922-89 (c) (a)	1	20Cr 130		0,017
2	Surub M12×35-gr. 8.8 4.6	E-LC-13-3.3.8	1	20Cr 130		0,030
1	Mufă cu cercel	E-LC-26-4.7.1	1	~~Fmin 35-40~~ B 35-10 (c)		0,610

c	4	Actualizat STAS	17-11-86	ing. Novkonu
b	1	conf. minută	24.IV.84	25.IV.84 ing. Novkonu
a	1	Modificări STAS	30.11.82	ing. Novkonu

Proiectat	Ing. Novkonu D.	
Desenat	Oblintineanu A.	
Verificat	Ing. Spack I.	
Contr. STAS	Ing. Bădăi L.	
Aprobat	Ing. Schmidt M.	

Masa netă: 0,700 Kg

E-LC-26-4.7.0

I.P.C.F.

E.I.E.U - Electrificare - LC 2

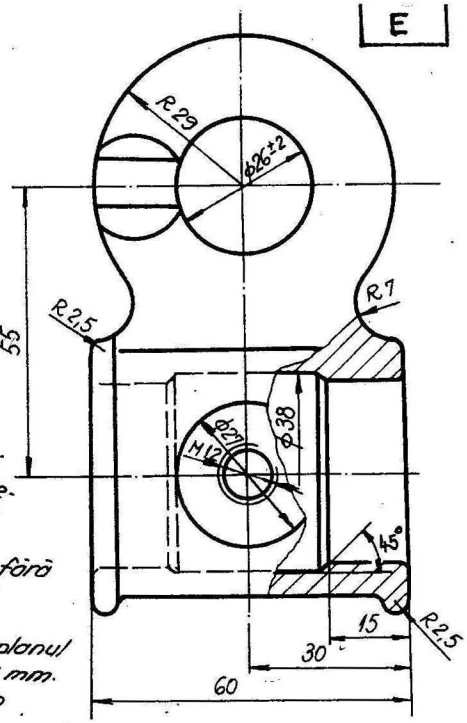
1:1

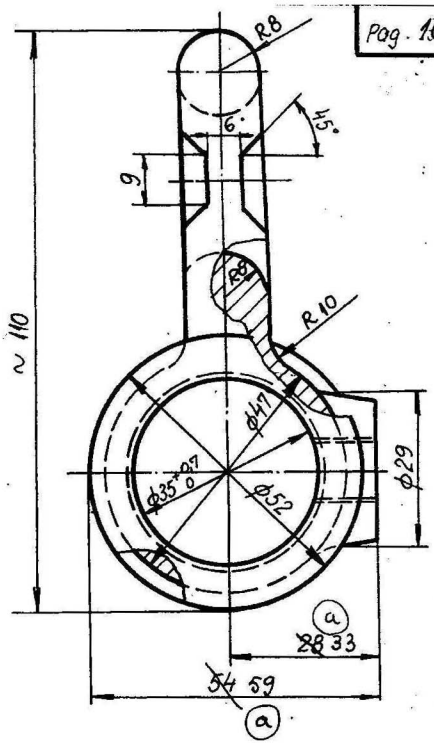
Data:

MUFĂ 1" CU CERCEL

CTE
Ing. Ciortan P.
Verificat
Sef Proiect
Ing. Spack I.

De acord
Constructor





NOTA:

1- Nu se admit sufluri mai adînci de 1mm si cu diametrul peste 5mm distantate la 15mm.
2- Suprafata trebuie să fie fără fisuri și curățată de bavuri și cruste
3- Deplasarea modelelor în planul de separare va fi max. 0,6 mm.
4- După turnare, va urma o recoacere de feritizare.
-încălzire la 950°C și menținere 5 ore și răcire lentă de la 760°C la 700°C min. 20 ore
5- După tratament se va zinca ~~AT/OL/Zn 40 SLFos STAS 7222-74~~ AT/OL/500 STAS 7221-82 (b)
(c) 6. Se va zinca AT/OL/Zn 500-STAS 7221-90
(c) 7. Inainte de zincare se va trata termic astfel încât după zincare, caracteristicile materialului să nu fie diminuate.

c	3	Completări	17-04-93	Ing. Novleanu	
b	1	conf. minută 24.IV.84	25.IV.84	Ing. Novleanu	
a	2	Modific calitatea fontei	1-07-81	Ing. Novleanu	
Proiectat		Ing. Novleanu D.			
Desenat		Bălintineanu A.			
Verificat		Ing. Spack I.			
Contn STAS		Ing. Bădăi L.			
Aprobat		Ing. Schmidt M.			

(c) ~~Fmn 35-10~~ B 35-10

Masa netă:

E-LC-26-4.7.1

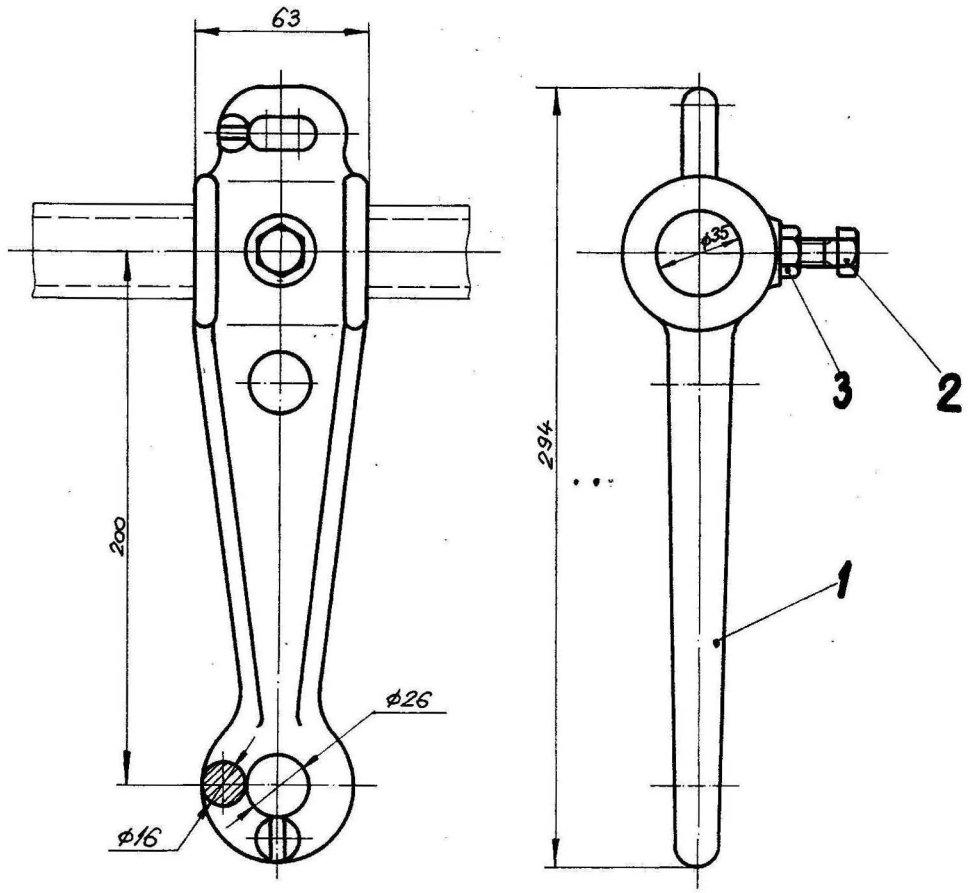
I. P. C. F.

E.I.E.U - Electrificare - LC 2

1:1

Data:

MUFĂ



NOTA:

1- Elementele se vor zinco
~~AE/OL/Zn 40 SL/ISO STAS 7222-74~~ AT/OL/Zn 500/STAS 7221-82 (b)
90 (c)

2- Prezentul plan are la bază
des. LC/C 11
LC/C 11-01

C.T.E., ing. Ciortan

Șef proiect, ing. Spack I.

De acord, Constructor

Poz.	Denumireo	Nr. desen sau STAS	Buc.	Materiol	Observatii	Masa netă kg/buc.
3	Piuliță M12 gr. 4.6	~~STAS 922-69~~ 89 76 (a)	1	20 Cr 130	(c)	0,017
2	Surub M12×30 gr. 4.6	~~SR ISO 4016-94~~ ~~STAS 920-69~~	1	20 Cr 130	(c)	0,030
1	Mufă	E-LC-27-4.8.1	1	~~Fm 35-10~~ B 35-10 (c)		1.600

c	2	Actualizat STAS	17-04-89 ing. D. Novleanu
b	1	conf. minuta 24 IV 84	26.IV.84 ing. Novleanu
a	1	Modificări STAS	30.11.82 ing. Novleanu

Proiectat	ing. Novleanu D.	
Desenat	Bolintineanu A.	
Verificat	ing. Spack I.	
Contr. STAS	ing. Bădăi L.	
Aprobat	ing. Schmidt M.	

Masa netă: 1,65 Kg.

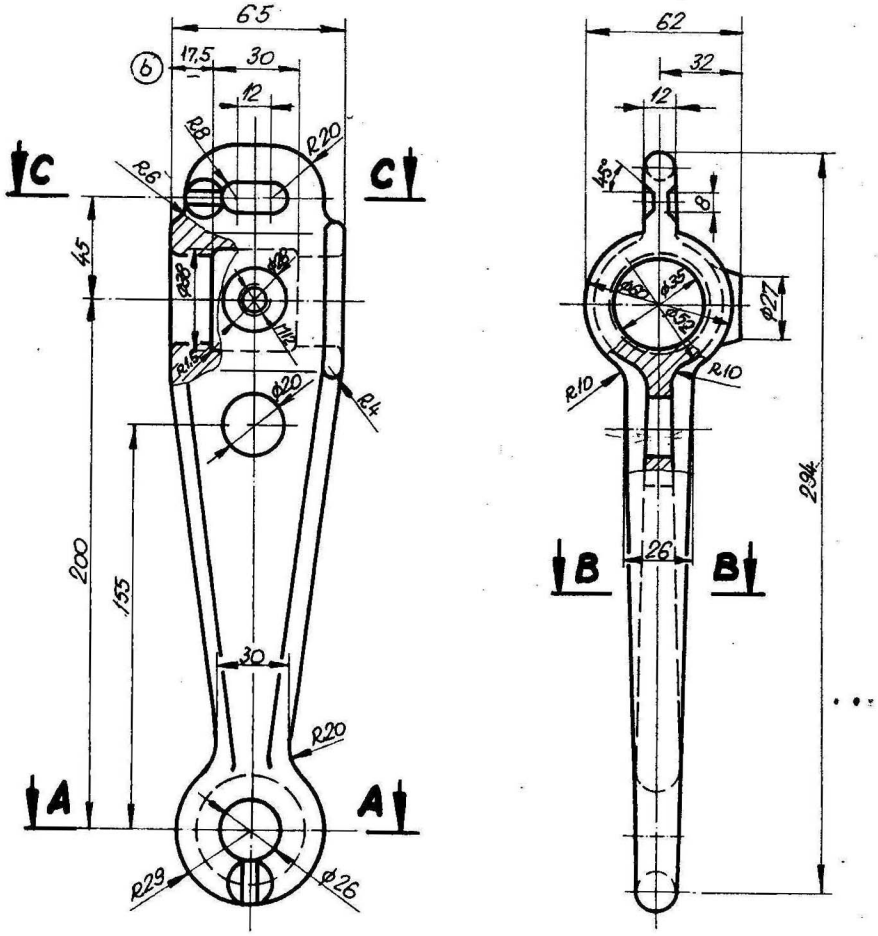
E-LC-27-4.8.0

I.P.C.F.
E.I.E.U.-Electrificare LC2

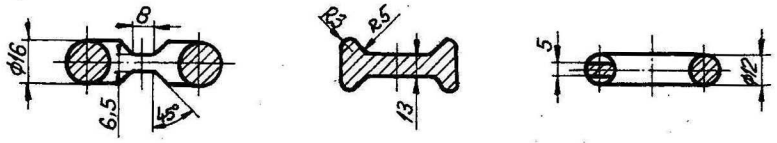
1:2

Data:

MUFA 1" CU PINTEN SI OCHI



SECTIUNEA A-A **SECTIUNEA B-B** **SECTIUNEA C-C**



NOTA:

1- Nu se admit sufluri mai adinci de 1mm și cu diametrul peste 5mm. distanțate la 15mm.
2- Suprafața trebuie să fie fără fisuri si curățată de bavuri si cruste.
3- Deplasarea modelelor în planul de separare va fi max. 0,6 mm.
4- După turnare, va urma o recoacere de feritizare - încălzire la 950°C si menținere 5 ore si răcire lentă de la 760°C la 700°C min. 20 ore.
(b) 5- ~~După tratament~~ Se va zinca ~~AC (OL) Zn 40 - SL/Fos STAS 7222-74~~ AT/OL/Zn 500 STAS 7221-82 (a) 90 (b)
6- Solicitarea admisibilă 600 daN - Incercările pieselor se vor efectua conform STAS 1566-80
(b) 7. Inainte de zincare se va trata termic astfel încât după zincare caracteristicile mecanice ale materialului să nu fie diminuate.

C. T. E., ing. Ciortan P.

Șef proiect, ing. Spack I.

De acord, Constructor

b	4	Actualizat STAS	17-11-98	ing. Novleanu	
a	1	cont. minuta 24 IV 84	26 IV 84	ing. Novleanu	
Proiectat		ing. Novleanu D.			
Desenat		Balintineanu A.			
Verificat		ing. Spack I.			
Contr. STAS		ing. Bödöi L.			
Aprobat		ing. Schmidt M.			

~~B 35.10~~ (b)
~~Fmn 35.10~~

E-LC-27-4.8-1

Masa netă: 1,6 Kg

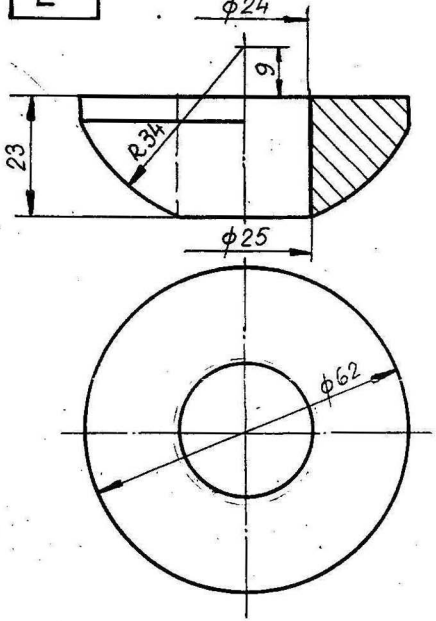
I.P.C.F.
E.I.E.U. - Electrificare LC2

1:2

Data:

MUFA

E



Notă:

(a) Se va zinca AT/OL/Zn 500 - STAS 7221-88

(b) Înainte de zincare se va trata termic astfel încât, după zincare, caracteristicile mecanice ale materialului să nu fie diminuate.

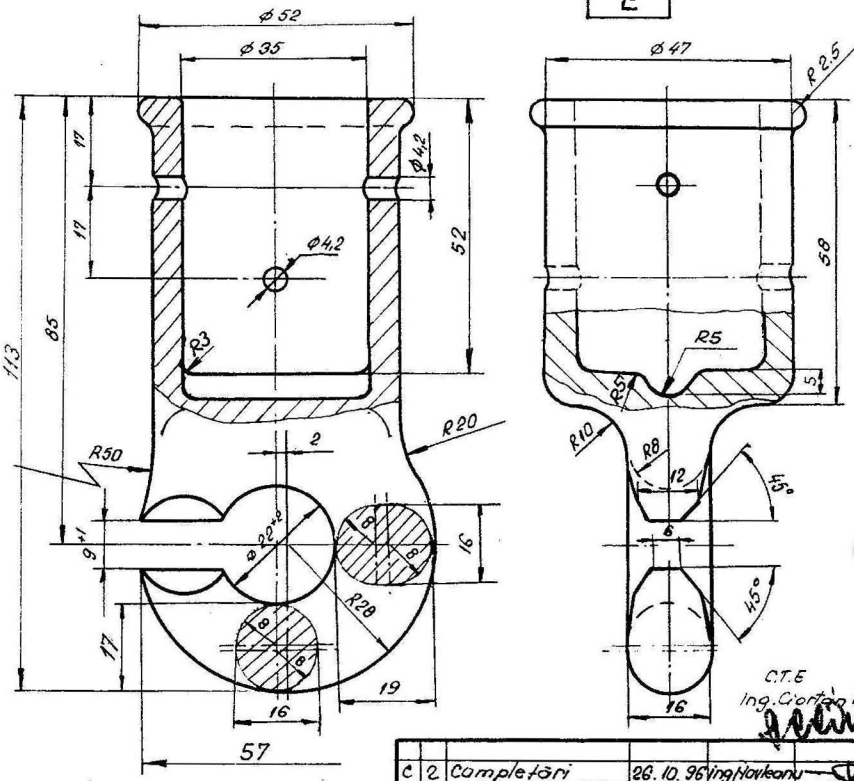
CTE	Şef Proiect	De acord
Ing. Ciortan P.	Ing. Spack I.	Constructor

b	3	Completări	26.10.96	Ing. Novleanu
a	1	cont. minută 24.4.84	26.4.84	Ing. Novleanu

Proiectat	Ing. Novleanu D.	Fc 30 (b)	E-LC-31-5
Desenat	Bălintineanu A.	Fc 300/SRISO 185-94	
Verificat	Ing. Spack I.		
Contr. STAS	Ing. Bădăi L.		
Aprobat	Ing. Schmidt M.	Masa netă: 0,290 kg.	

I.P.C.F E.I.E.U - Electrificare - LC2	1:1 Data:	SAIBA SFERICA

E



NOTA

1. Nu se admit sufluri mai adinci de 1 mm. si cu diametrul peste 5 mm distanțate la 15 mm.
2. Suprafețele trebuie să fie fără fisuri și curățată de bavuri și crustă.
3. Deplasarea modelelor în planul de separare va fi max. 0,6mm
4. După turnare, va urma o recoacere de feritizare -încălzire la 950 mm si mentinere 5 ore și răcire lentă de la 760°C la 700°C minimum 20 ore
5. ~~După tratament se va zinco AE (OL) Zn 40 Si/Fos STAS 7222-74.~~ AT/OL/Zn 500/STAS 7221-82 (b) 90
6. Prezentul plan are la bază desenul LC/c 8
7. Inainte de zincare se va trata termic astfel încât după zincare caracteristicile materialului să nu fie diminuate.

C.T.E ing. Ciortan

Șef Proiect ing. Spackl

De acord, Constructor

c	2	Completări	26.10.96	ing Novleanu
b	1	conf. minuță 24 N84	26.11.84	ing Novleanu
a	1	modif. STAS	30.11.82.	ing Novleanu

Proiectat	Ilie Traian
Desenat	Ion Ștefănescu
Verificat	ing. Spack. I.
Contr. STAS	ing. Bădoi L.
Aprobat	ing. Schmidt H.

Fmm 35-10 STAS 569-76 @ 99

Masa netă: 0,68 kg

E-LC-32-2.2

6. Sarcina admisibilă 550 daN încercările piciorelor se vor efectua conform STAS 1566-80

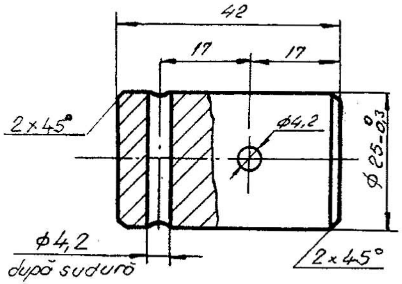
I.P.C.F.

Col. Electrificare

scara: 1:1

Data: 10.XII.76

MUFĂ TERMINALĂ 1" CU CÎRLIG



NOTA:

1. Se va zinca AT/OL/Zn 500/STAS 7221-~~82~~ 90 (a) (b)

C.T.E.
ing. Ciortan P.

Şef Proiect
ing. Spack I.

De acord,
constructor

b	1	Actualizat STAS	26.10.96	ing. Novleanu	
a	1	conf. minută 24.IV.84	26 IV 84	ing. Novleanu	

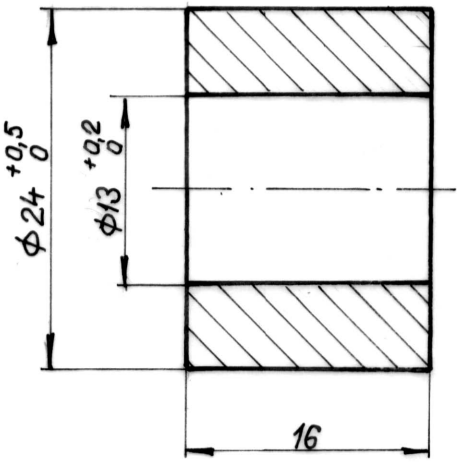
Proiectat	ing. Hiuţi I		OL 37.2k	E-LC-32-2.4
Desenat	Ignătescu R			
Verificat	ing. Frîncu I			
Contr. STAS	Florinescu D			
Aprobat	ing. Schmidt H		Masa netă: 0,160kg	

IPCF Col. Electrificare	scara: 1:1 Data: 10.XII.76	ŞTUŢ

N

NOTĂ:

1. Muchiile se vor teși 1 × 45°
2. Se va zinca AT / OL / Zn 610 - STAS 7221-90



28

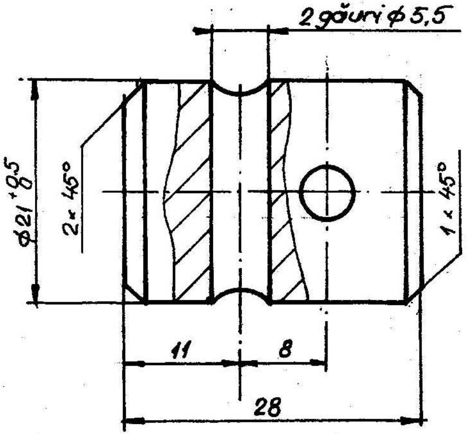
25

D. G. I.

Sef proiect
Ing. Cr. Popescu

Proiectat	Ing. D. Novleanu	OL 37.2	ELC 32 - 9. 11·6 B
Desenat	R. Novleanu		
Verificat	Ing. L. Bădăi		
Contr. STAS	Ing. O. Roman		
Aprobat	Ing. H Tilichi	Masa netă: 0,036	
I. S. P. C. F. E. I. E. U. COL. ELECTRIFICARE - L.C		Scara: 1:1	DISTANȚIER
		Data: VII 1997	

N



NOTĂ:

Se va zinca termic
AT/OL/Zn 500-STAS 7221-90.

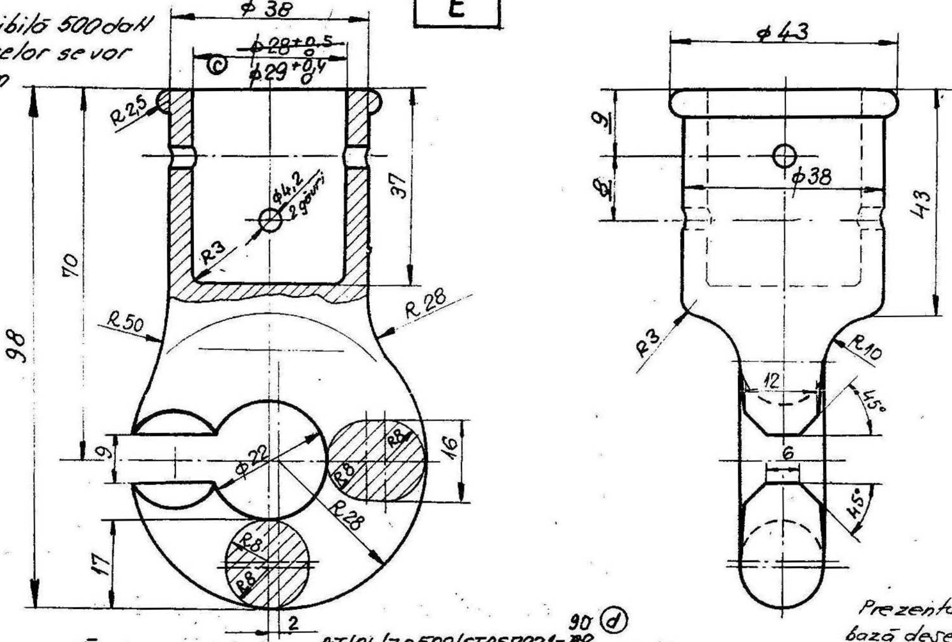
D.G.I.

Șef proiect
Ing. Cr. Popescu

Proiectat ing. D. Navleanu	OL 37.2	ELC 32 - 9.2A	
Desenat R. Navleanu			
Verificat ing. L. Bădăi			
Contr. STAS ing. D. Roman			
Aprobat ing. H. Tilichi	Masa netă: 0,075 kg		
I.S.P.C.F. E.I.E.U.	Scara: 2:1	DOP	
COL.ELECTRIFICARE - L.C.	Data: VI 1997		

E

ⓑ Sarcina admisibilă 500 daN
Incercările pieselor se vor efectua conform STAS 1566-80



Prezentul plan are la bază desenul LC/c 7.

NOTA

1. Nu se admit sufluri mai adinci de 1 mm si cu diametrul 5 mm distanțate la 15 mm.
2. Suprafețele trebuie să fie fără fisuri și curățate de bavuri si crustă.
3. Deplasarea modelelor în planul de separare va fi de max. 6 mm.
4. După turnare va urma o recoacere de feritizare
   - încălzire la 960°C si mentinere 5 ore si răcire lentă de la 760°C la 700°C minimum 20 ore.
ⓓ Inainte de zincare se va trata termic pentru detensionare.

5. Se va zinca ~~AE/OL/Zn 40 - SL / POS - STAS 7222 - 74.~~ AT/OL/Zn 500/STAS 7221 - ~~82~~ 90 ⓓ

C.T.E
ing. Cortan P.

Șef Proiect
ing Spock I

De acord,
constructor

d	2	Completări	26.10.96	ing Novleanu
c	2	Inlocuit teava fixator	27.08.96	ing. Novleanu
b	1	conf. minută 24.04.84	26.04.84	ing Novleanu
a	1	Modificat STAS	30.11.82	ing Novleanu

Proiectat	Ilie Traian	
Desenat	Aldea R	
Verificat	Ing. Spack	
Contr. STAS	Ing. Bădăil	
Aprobat	ing. Schmidt M	

Fmm 350 ⓒ
~~Fmm 35.10~~ ⓐ
STAS 569 - ~~70~~ 79

Masa netă: 0,46 kg

E-LC-32-9.3

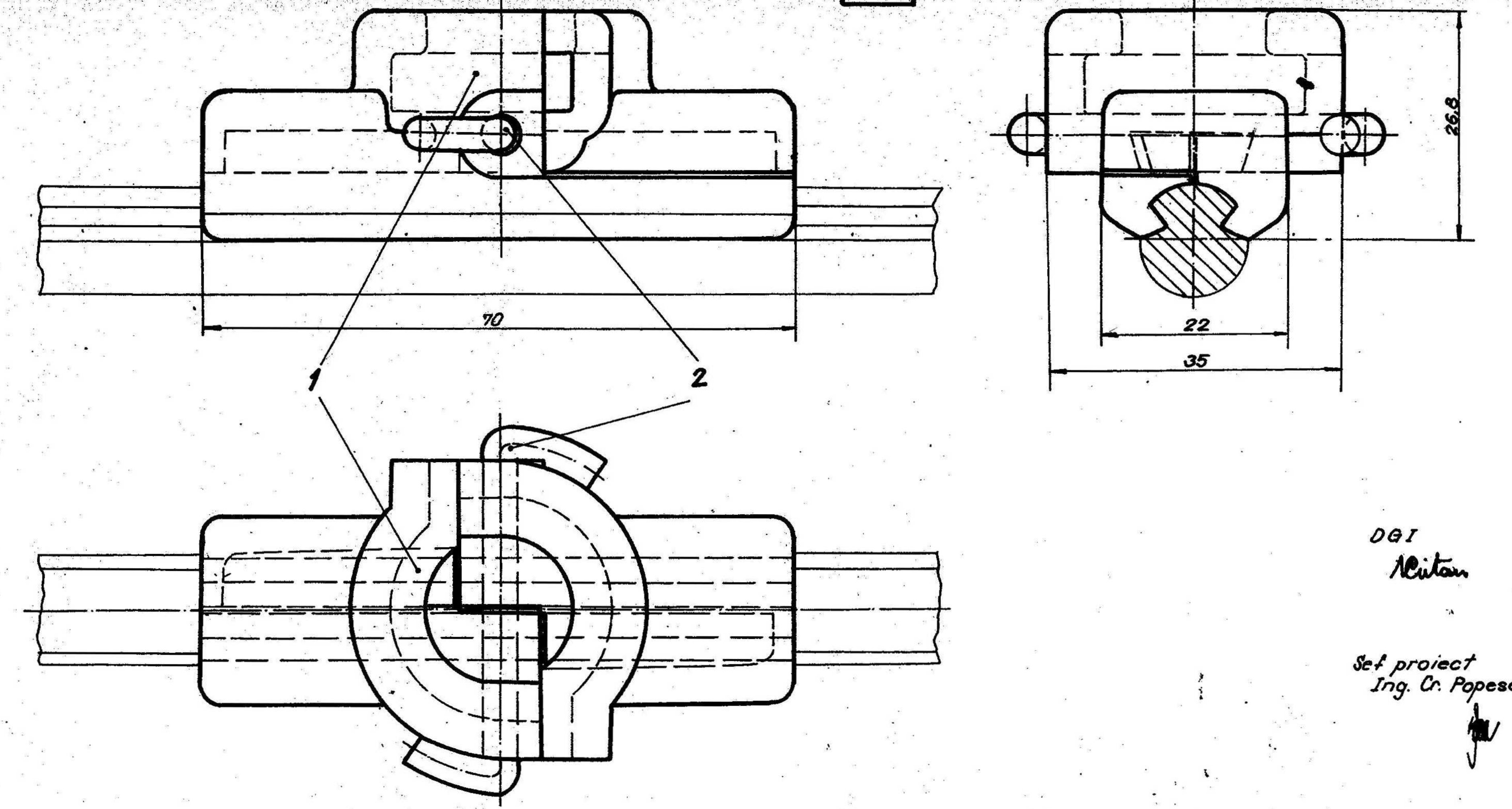
IPCF
Col. Electrificare

Scara: 1:1

Data: 14 XII.76

Mufă terminală 3/4" cu cîrlig

N



NOTA

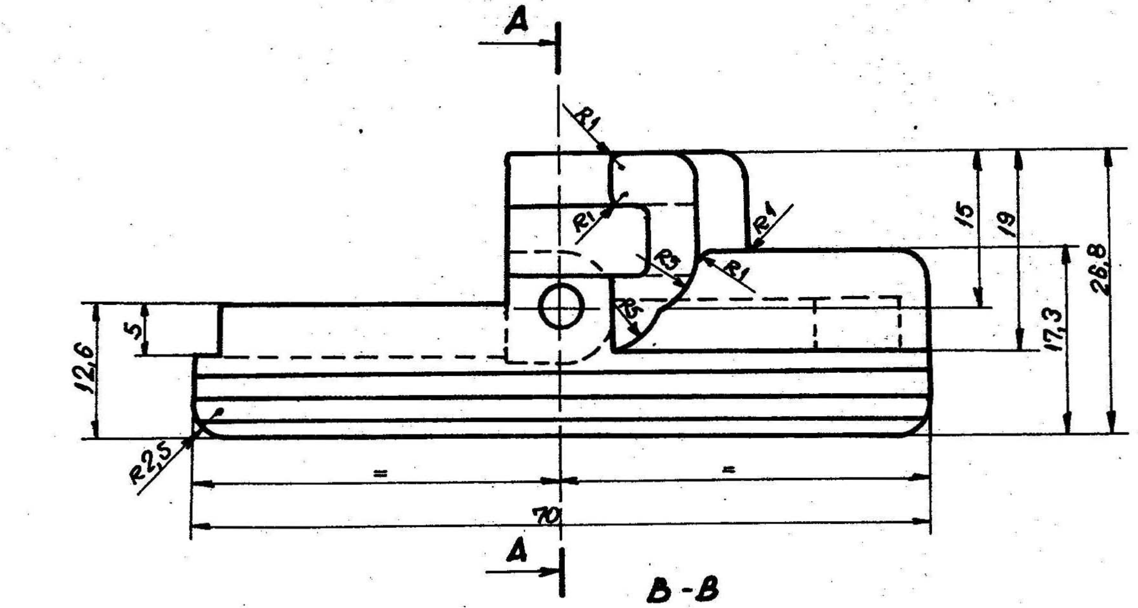
Prezentul plan este valabil numai pentru echipamentul liniei de contact din Romania.

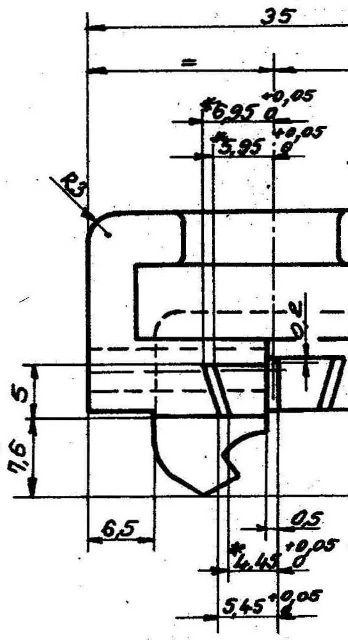
DGI
Neitan

Sef proiect
Ing. Cr. Popescu

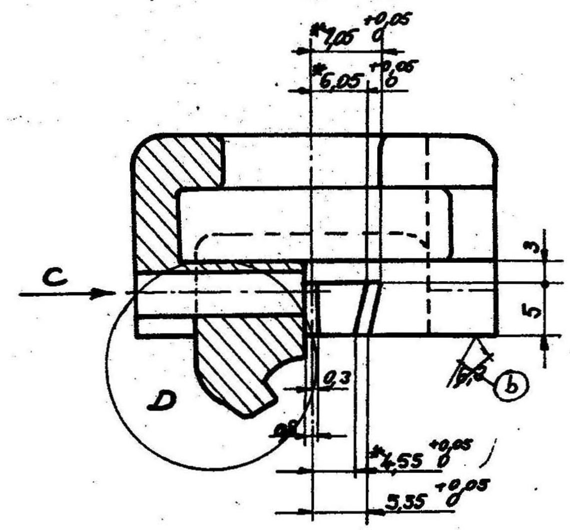
2	Splint 4×60	–	1	20 Cr 130		0,005
1	Falcă clemă	ELC 32-9.5.5.1 B	2	CuAl 10 Fe 3	Tip turnare C	0,100
Poz.	Denumire	Nr. desen sau STAS	Buc	Material	Obs.	Masa Kg/buc

Proiectat: Ing. Navleanu		
Desenat: Neagu M.		
Verificat: Ing. Bădăi L.		ELC 32 - 9.5.5.0 B
Contr. STAS: Ing. Roman D.		
Aprobat: Ing. Tilichi H.	Masa netă: 0,205 Kg	
ISPCF EIEU	Scara 2:1	CLEMA DE FIXARE PRIN SERTIZARE PE FIR TTF 100
Col. electrificare - LC	Data: 07. 1997	

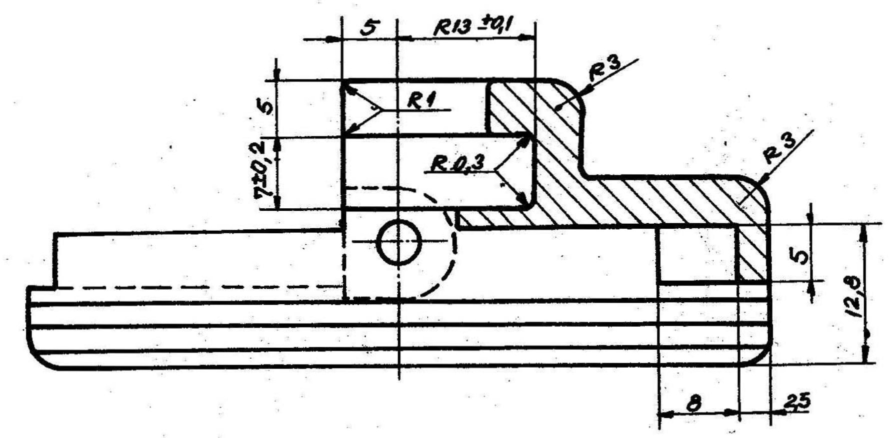


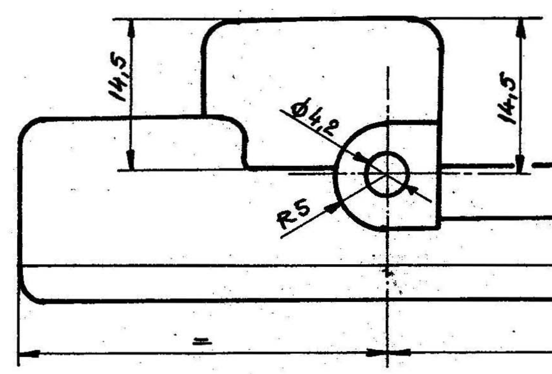


A - A



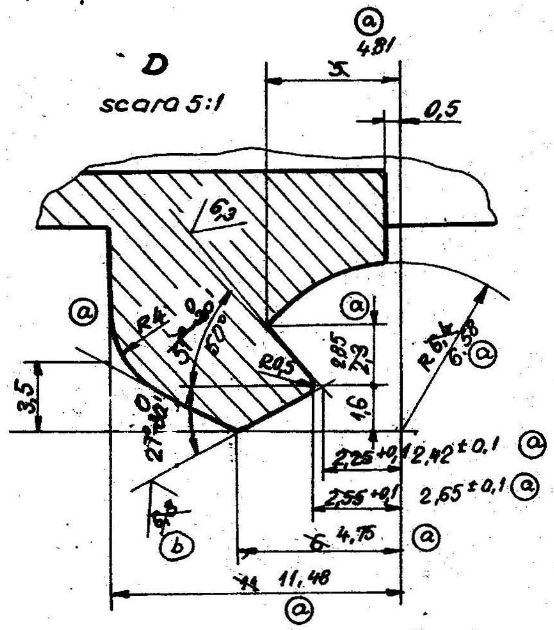
B - B

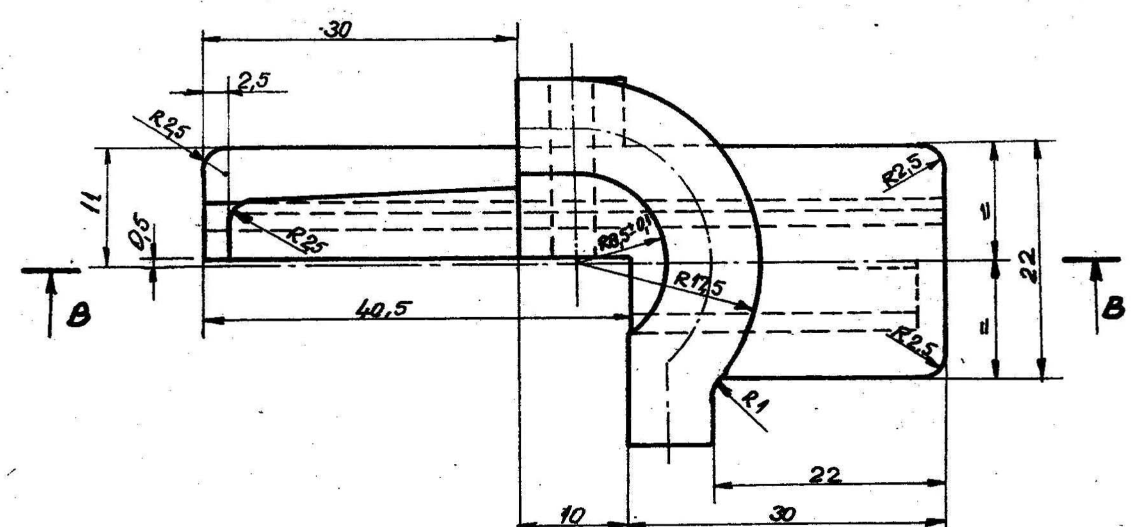




D

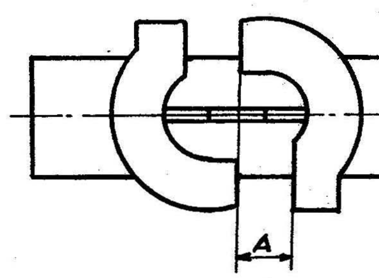
scara 5:1





NOTA

1. Tolerantele de execuție ale piesei, cu excepția celor notate cu *, vor fi 0,2
2. Tolerantele notate cu * sunt astfel alese încât să permită montajul manual al celor 2 fălci ca în figura de mai jos, la cota A=10mm pentru profilul minimal al firului de contact TF 100 (conform STAS 686-71) și A=19mm pentru profilul maximal al aceluiași fir de contact.
3. Verificarea fălcilor se va efectua pentru toate bucățile, după care fălcile se vor livra împerecheate, legate cu sîrmă prin gaura de splint.
4. Fălcile se execută prin turnare sub (b) presiune, abaterile fiind conform CT - SR ISO 8062 - 98

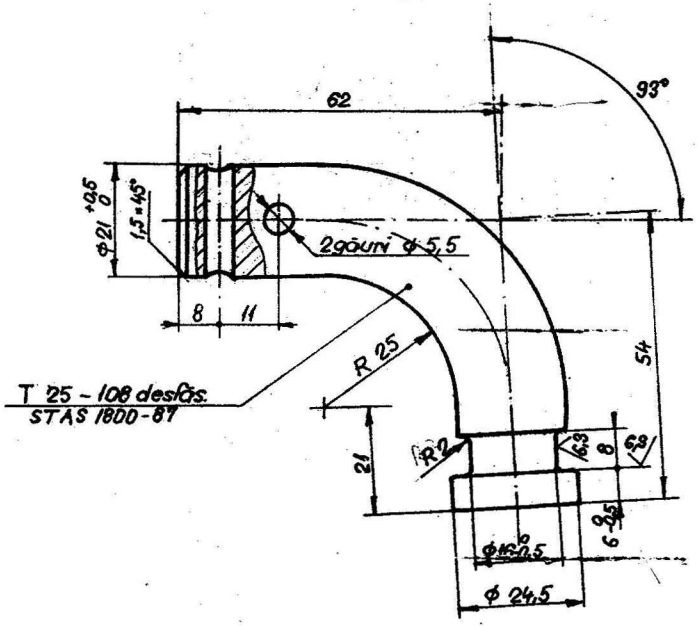


sef proiect
Ing. Cr. Popescu

D.G.I.

b	4	Adaptat rugozitati	17-04-2002	Ing. D. Navleanu	
a	9	Modific. prototip	4-11-98	Ing. D. Navleanu	
Proiectat	Ing. Navleanu		Cu A10 Fe3T tip turnare „C”	ELC 32 - 9.5.5.1 B	
Desenat	Badea F.				
Verificat	Ing. Bădăi B.				
Contr. STAS	Ing. Roman		Masa neta: 0,100		
Aprobat	Ing. Tilichi H.				
I.S.P.C.F. EIEU			Scara: 2:1 (2:1)	FALCA CLEMA	
COL. ELECTRIFICARE-LC			Data: VII.1997	CLEMA DE FIXARE PRIN SECTIONARE	

N



NOTĂ:

1. Muchiile și razele necotate se vor executa R1
2. Se va zinca AT/OL/ Zn 610 STAS 7221 - 90
3. Ciocul se va forja la cald.

25

12,5

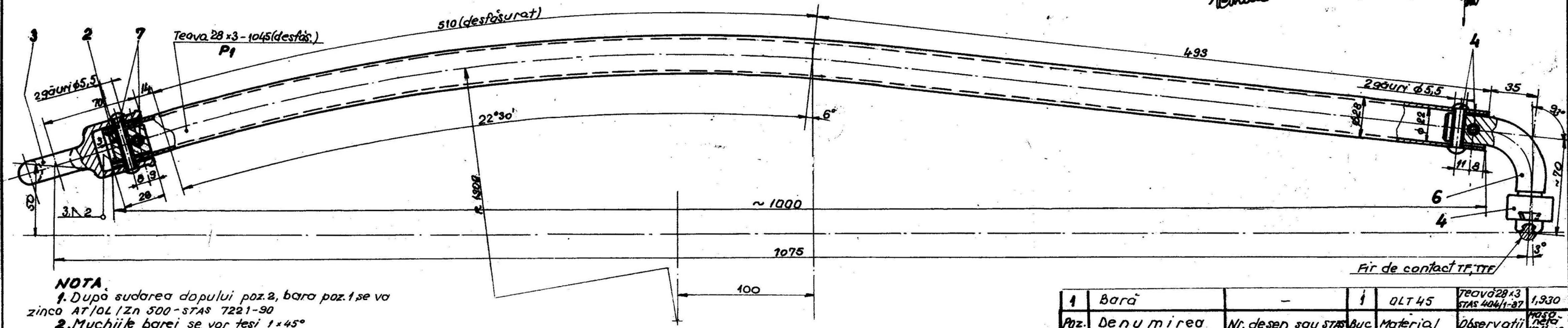
D.G.I

Șef proiect
Ing. Cr. Popescu

Proiectat	ing. D. Horleanu	OL 44.2	ELC 32 - 9.6A
Desenat	R. Novikeanu		
Verificat	ing. L. Bedeți	Masa netă: 0,3 kg	
Contr. STAS	ing. O. Roman	Scara: 1:1	CIOC
Aprobat	ing. H. Tiliehi	Data VI. 1997	
I.S.P.C.F. E.I.E.U. COL. ELECTRIFICARE - L.C.			

N

DGI, Sef proiect Ing. Cr. Popescu

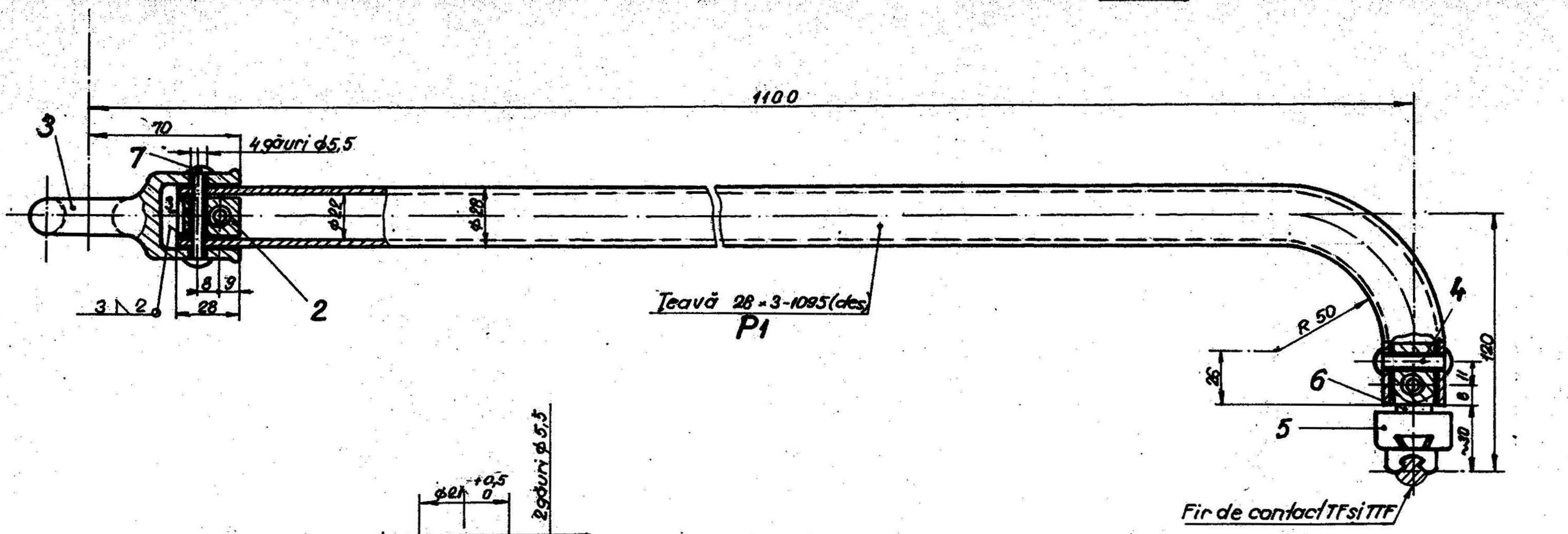


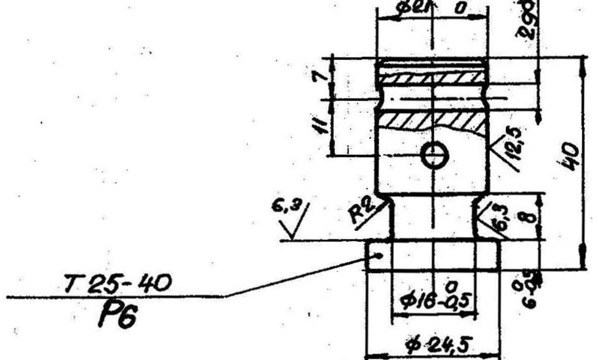
NOTA.

1. După sudarea dopului poz.2, bara poz.1 se va zinca AT/OL/Zn 500 - STAS 7221-90
2. Muchiile barei se vor teși 1×45°

Poz.	Denumirea	Nr. desen sau STAS	Buc	Material	Observații	Masa netă kg/buc
7	Nit 5×50	STAS 797-80	2	15 Cr 08		0,807
6	Ciuc	ELC 32-9.6A	1	OL 44		0,300
5	Clemă de fixare sertizată pt. TTF	ELC 32-9.5.5.08	1			0,205
4	Nit 5×40	STAS 797-80		15 Cr 08		0,008
3	Mufă terminală 3/4" cu cârlig	ELC 32-9.3	1	B 35-15	STAS 5922-95 F21	0,460
2	Dop	ELC 32-9.2A	1	OL 37.2	STAS 1900-87	0,075
Poz.	Denumirea	Nr. desen sau STAS	Buc	Material	Observații	Masa netă kg/buc
1	Bară	—	1	OLT 45	Țeavă 28×3 STAS 404/1-87	1,930

Proiectat ing. Vlaicu			
Desenat Badea F.			
Verificat ing. Badoi L.			
Contr. STAS ing. Roman O.			
Aprobat ing. Tilichi H.		Masa netă: 3,184kg	
I.S.P.C.F. EIEU		Scara: 1:2	ELC 32 - 10.0.A
COL. ELECTRIFICARE		Data: VI.1997	FIXATOR CURBAT DC'





NOTĂ:

1. Muchiile și razele necotate ale reperelor 1, 2 și 6 se vor executa 1 × 45°, respectiv R1.
2. După sudură reperele 1 și 2 se vor zinca AT/OL/Zn 500 - STAS 7221-90
3. Ciocul poz. 6 se vor zinca AT/OL/Zn 610.

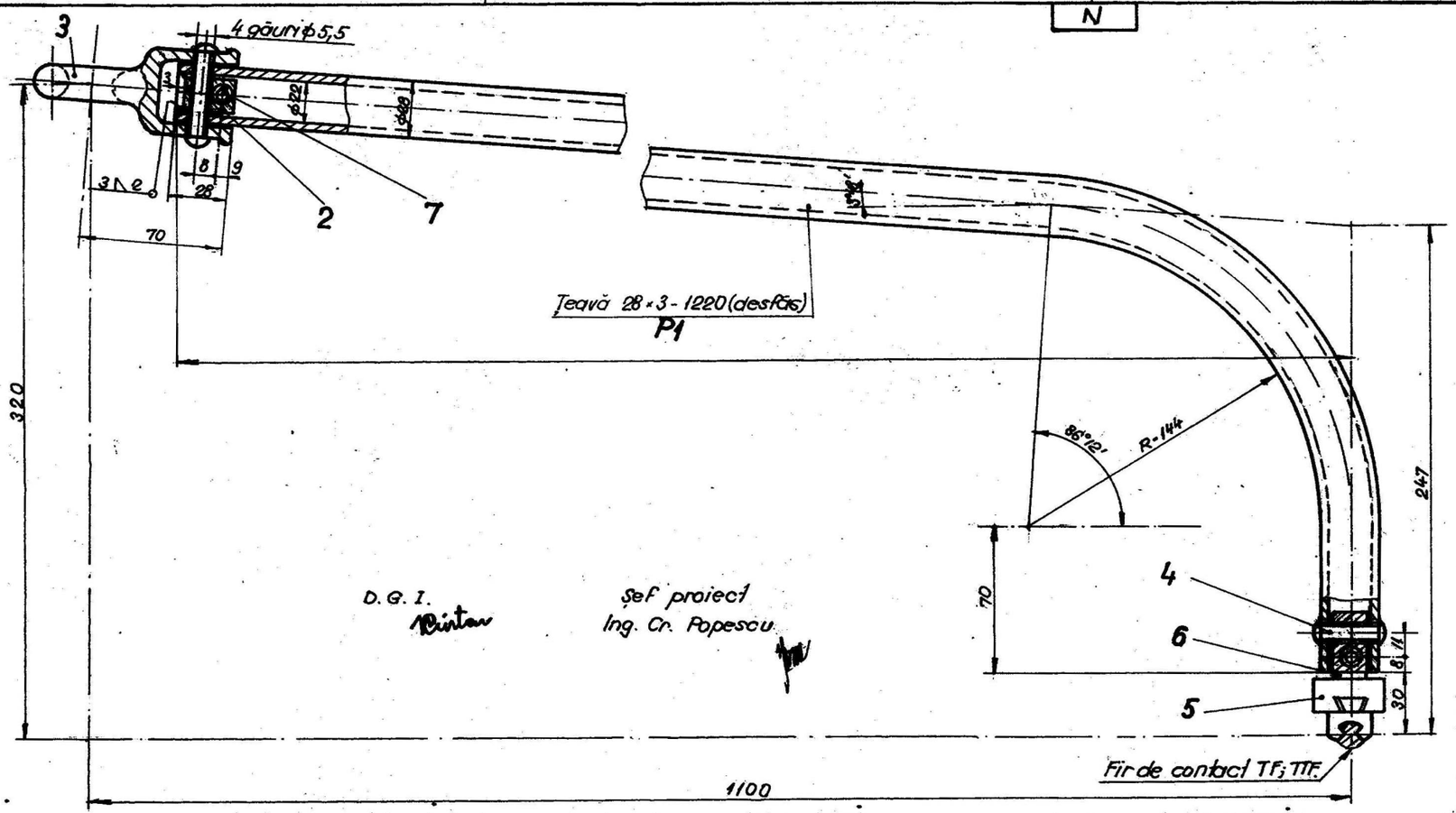
Poz.	Denumirea	Nr. desen sau STAS	Buc	Material	Observații	Masa netă Kg/buc
7	Nit 5 × 50	STAS 797-80	2	15 Cr 08		0,008
6	Cioc	ELC 32 - 11.0A poz 6	1	OL 44	T 25 STAS 1800-87	0,100
5	Clemă de fixare serti-zată pe fir TTF	LCVR 1 - 9.5.5.08	1			0,205
4	Nit 5 × 40	STAS 797-80	2			0,007
3	Mufă terminală 3/4" cu cârlig.	ELC 32 - 9.3	1	B 35-10	SR ISO 5922-95	0,460
2	Dop	ELC 32 - 9.2A	1	OL 37-2		0,075
1	Bară	—	1	OLT 45		2,030

Proiectat	Ing. O. Nărlcanu	
Desenat	R. Nărlcanu	
Verificat	Ing. L. Bădăi	
Contr. STR	Ing. O. Roman	
Aprobat	Ing. H. Tilichi	

D.G.I.

Șef proiect Ing. Cr. Popescu

I.S.P.C.F. E.I.E.U.	Masa netă: 2,91 kg	ELC 32 - 11.0A
COL. ELECTRIFICARE-LC	Scara: 1:2 (1:1) Data: VI 1997	FIXATOR CURBAT PENTRU ACE DCA



D.G.I.

Șef proiect
Ing. Cr. Popescu

NOTĂ:

1. Muchiile și razele necotate ale reperelor 1, 2 și 6 se vor executa 1×45°, respectiv R1.
2. După sudură reperele 1 și 2 se vor zinca AT/OL/Zn500 - STAS 7221-90
3. Ciocul poz. 6 se vor zinca AT/OL/Zn 610

Poz.	Denumirea	Nr desen sau STAS	Buc	Material	Observații	Masa [kg]
7	Nit 5 × 50	STAS 797-80	2	15Cr 08		0,008
6	Cioc	ELC 32-11.0A poz 6	1	OL 44	T25 STAS 1800-87	0,100
5	Clemă de fixare sertizată pe BTTF	LCVR 1 - 9.6-5-08	1			0,205
4	Nit 5 × 40	STAS 797-80	2	15Cr 08		0,007
3	Mufă terminală 3/4" cu carlig	ELC 32 - 9·3	1	Bz 35-10	SR ISO 5922-95	0,460
2	Dop	ELC 32 - 9.2A	1	OL 37·2		0,015
1	Bară	—	1	OLT 45		2,250

Proiectat	Ing. D. Hariteanu		
Desenat	R. Hariteanu		
Verificat	Ing. I. Bădări		
Contr. STAS	Ing. O. Roman		
Aprobat	Ing. H. Tilroni		

Masa netă: 3,14 kg

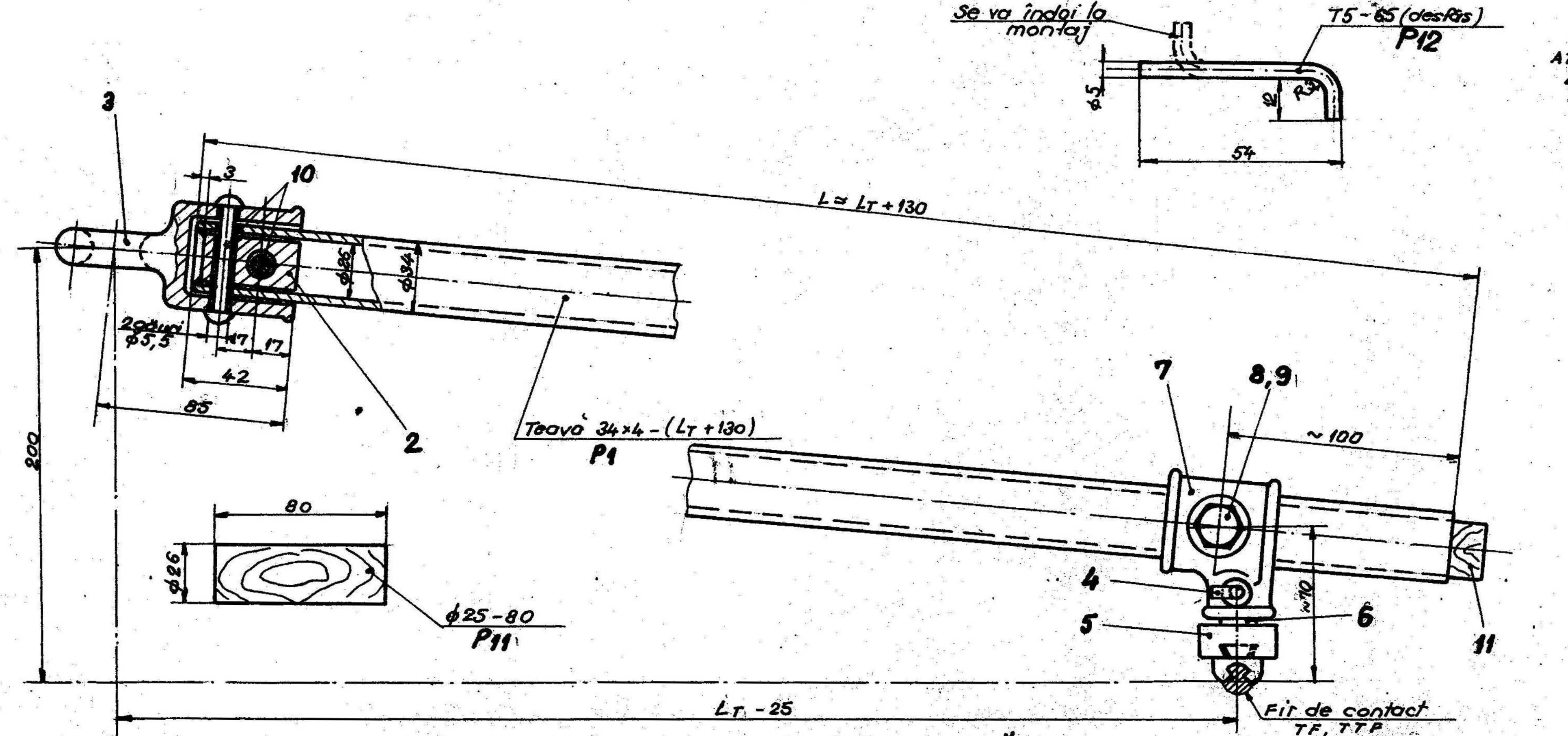
I.S.P.C.F.
E.I.E.U.
COL ELECTRIFICARE - LC

Scara: 1:2 (1:1)

Data:

ELC 32 - 12.0A

FIXATOR CURBAT PTR STALPUL MEDIAN DCM



NOTA

1. După sudarea dopului poz. 11, bara poz. 1 se va zinca AT/OL/Zn 500-STAS 7221-90
2. Muchiile barei se vor teşi 1×45°
3. Cota L_T se va lua din fişa de montaj.

DGI
Sef proiect
Ing. Cr. Popescu

Poz.	Denumirea	Nr. desen sau STAS	Buc	Material	Observaţii	Masa netă kg/buc
11	Dop	—	1	Lemn fag gudronat		0,020
10	Nit 5×60	STAS 797-80	2	15 Cr 08		0,009
9	Piuliţă M12-04	STAS 922-89	1			0,016
8	Şurub M12×30-4.6	SR ISO 4016-94	1			0,040
7	Mufă	ELC 32-13.7.A	1	B 35-10		0,350
6	Cioc filetat	ELC 32-13.6.A	1			0,080
5	Clemă de fixare sertizată ptr. fir de contact TTF	ELC 32-9.5.5.0B	1			0,205
4	Siguranţă	—				0,050
3	Mufă terminală 1" cu cârlig	ELC 32-2.2	1	B 35-10	SR ISO 922-95	0,680
2	Ştuţ	ELC 32-2.4	1	OL 37.2	T25 STAS 1800-87	0,160
1	Bară	—	1		Teavă 34×4 STAS 404/1-87	

Proiectat	ing. Navleanu	
Desenat	Badea F.	
Verificat	ing. Bădăi L.	
Contr. STAS	ing. Roman O.	
Aprobat	ing. Tilichi H.	

Masa netă:

ELC 32-13.0.A

I.S.P.C.F. EIEU
COL. ELECTRIFICARE - LC

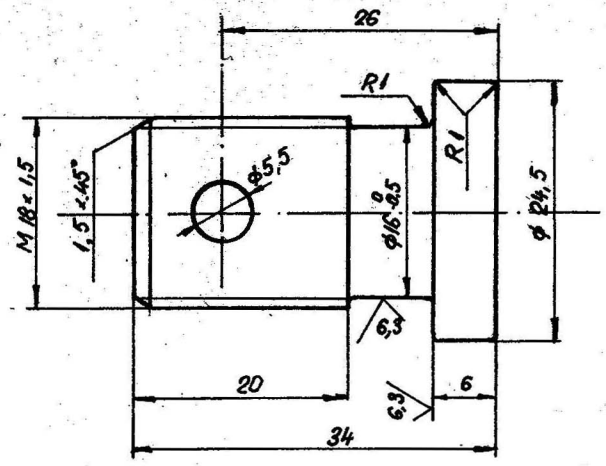
Scara: 1:2

Data: VI.1997

FIXATOR DE ANCORARE A

NOTĂ:

5. Reperele 8 şi 9 se vor zinca AT/OL/Zn 500-STAS 7221-90 cu excepţia filetelor AT/OL/Zn 310.



NOTĂ:

Se va zinca AT/OL/Zn 610 - STAS 7281 - 90 cu excepția filetului : AT/OL/Zn 900

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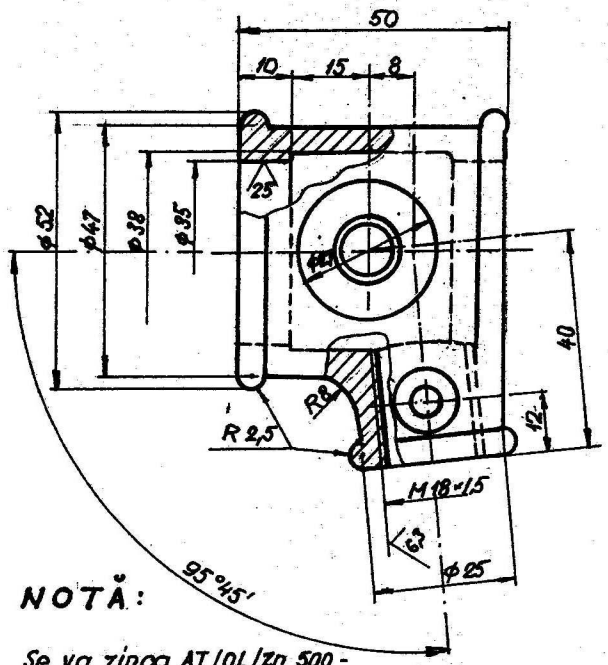
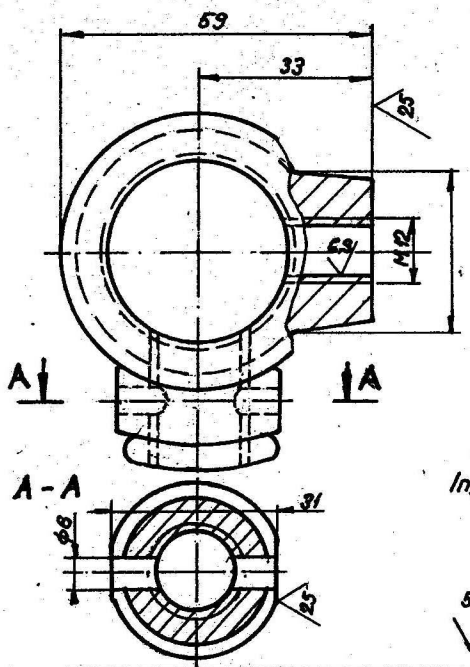
D.G.I.
Rusitan

Sef proiect
Ing. Cr. Popescu

Proiectat	Ing. D. Marleanu			
Desenat	R. Marleanu		OL 44	ELC 32 - 13.6 A
Verificat	Ing. L. Bădăi			
Confr. STAS	Ing. O. Roman			
Aprobat	Ing. H. Tiflohi		Masa netă: 0,065 kg	
I.S.P.C.F. E.I.E.U.			Scara: 2 : 1	CIOC FILETAT
COL. ELECTRIFICARE - L.C.			Data: VI 1997	





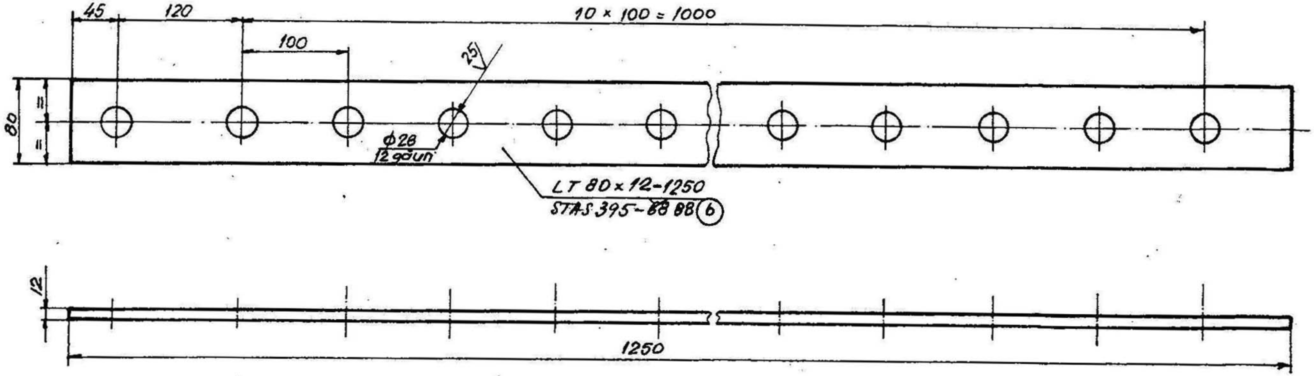
D.G.I.
Sef proiect
Ing. O. Popescu

50

NOTĂ:

1. Se va zinca AT/OL/Zn 500 - - STAS 7221 - 90
2. Piesa se poate obtine si prin prelucrarea (filetarea) mufei vechi, des. ELC 32-13·4·1 după care se va rezinca AT/OL/Zn 300.

Proiectat	Ing. D. Movileanu	B 35-10	ELC 32 - 13.7A
Desenat	R. Movileanu		
Verificat	Ing. L. Bădălai		
Contr. STAS	Ing. O. Roman		
Aprobat	Ing. H. Tilichi	Masa neta: 0.356 kg	
I.S.P.C.F. E.I.E.U.		Scara: 1:1	MUFĂ
COL. ELECTRIFICARE - L.C.		Data: VI-1997	



SEF PROIECT
ING. SPACK I.

DE ACORD
CONSTRUCTOR

C.T.E.
ING. CIORTAN P.

NOTA

1. Se va zinca ~~AE/OL/Zn 40 34/F05~~ ~~STAS 7222-74~~ (a) AT/OL/Zn 610 STAS 7221-90 (b)
2. Prezentul plan are la bază desenul LC/A 48-01.2.

b	2	Actualizat STAS	28.10.96	ing. Navleanu	
a	1	conf. minută 24.IV.84	25.IV.84	ing. Navleanu	

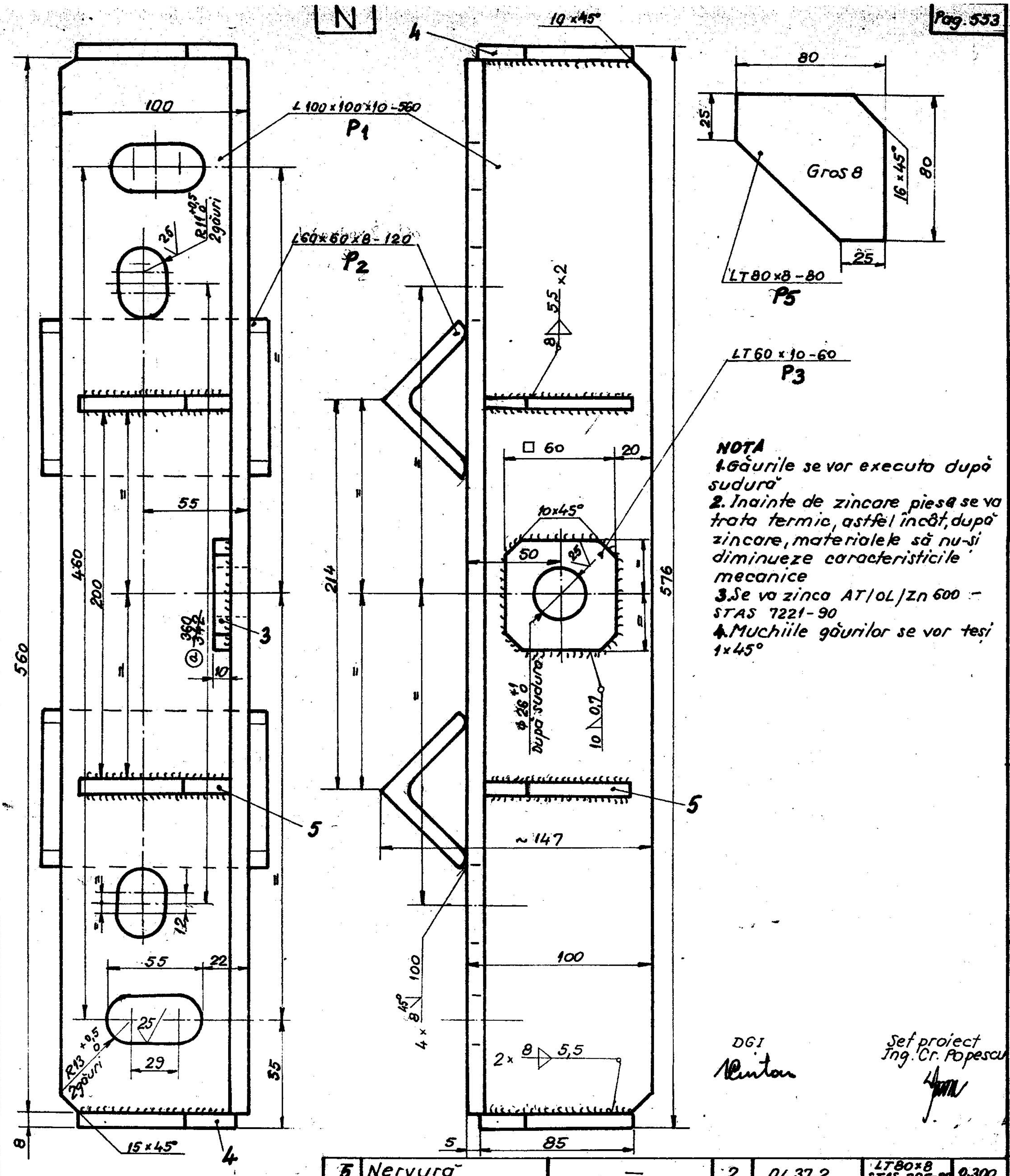
Proiectat	Ilie Traian		
Desenat	Badea F.		
Verificat	ing. Spack I.		OL 37.2K
Contr. STAS	Ilie Traian		
Aprobat	ing. Schmidt		Masa netă: 9,500 Kg.

E-LC-49.17

I.P.C.F.
EIEU
COL. ELECTRIFICARE - LC2

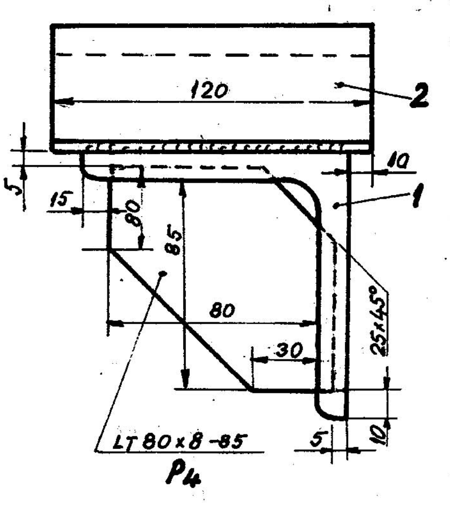
Scara: 1:5
Data: XI.1976

PLACA DE REGLARE



NOTA
1. Găurile se vor executa după sudură
2. Inainte de zincare piesa se va trata termic, astfel încât, după zincare, materialele să nu-și diminueze caracteristicile mecanice
3. Se va zinca AT/OL/Zn 600 – STAS 7221-90
4. Muchiile găurilor se vor teși 1×45°

DGI
Sef proiect Ing. Cr. Popescu



Poz	Denumirea	Nr. desen sau STAS	Buc	Material	Observatii	Masa neta kg/buc
5	Nervură	—	2	OL 37.2	LT 80×8 STAS 395-88	0,300
4	Nervură	—	2	OL 37.2	LT 80×8 STAS 395-88	0,310
3	Adaos	—	1	OL 37.2	LT 60×10 STAS 395-88	0,280
2	Distanțier	—	2	OL 37.2	L 60×60×8 STAS 424-91	0,850
1	Lonjeron	—	1	OL 44.2	L 100×100×10 STAS 424-91	8,400

a	1	Adaptat pe stâlp exist. 22.08.01	Ing. Navleanu
Proiectat	Ing. Navleanu		
Desenat	Badea F.		
Verificat	Ing. Romanu		
Contr. STAS	Ing. Miuți I.		
Aprobat	Ing. Tilichi H.		

Masa neta: 12,314

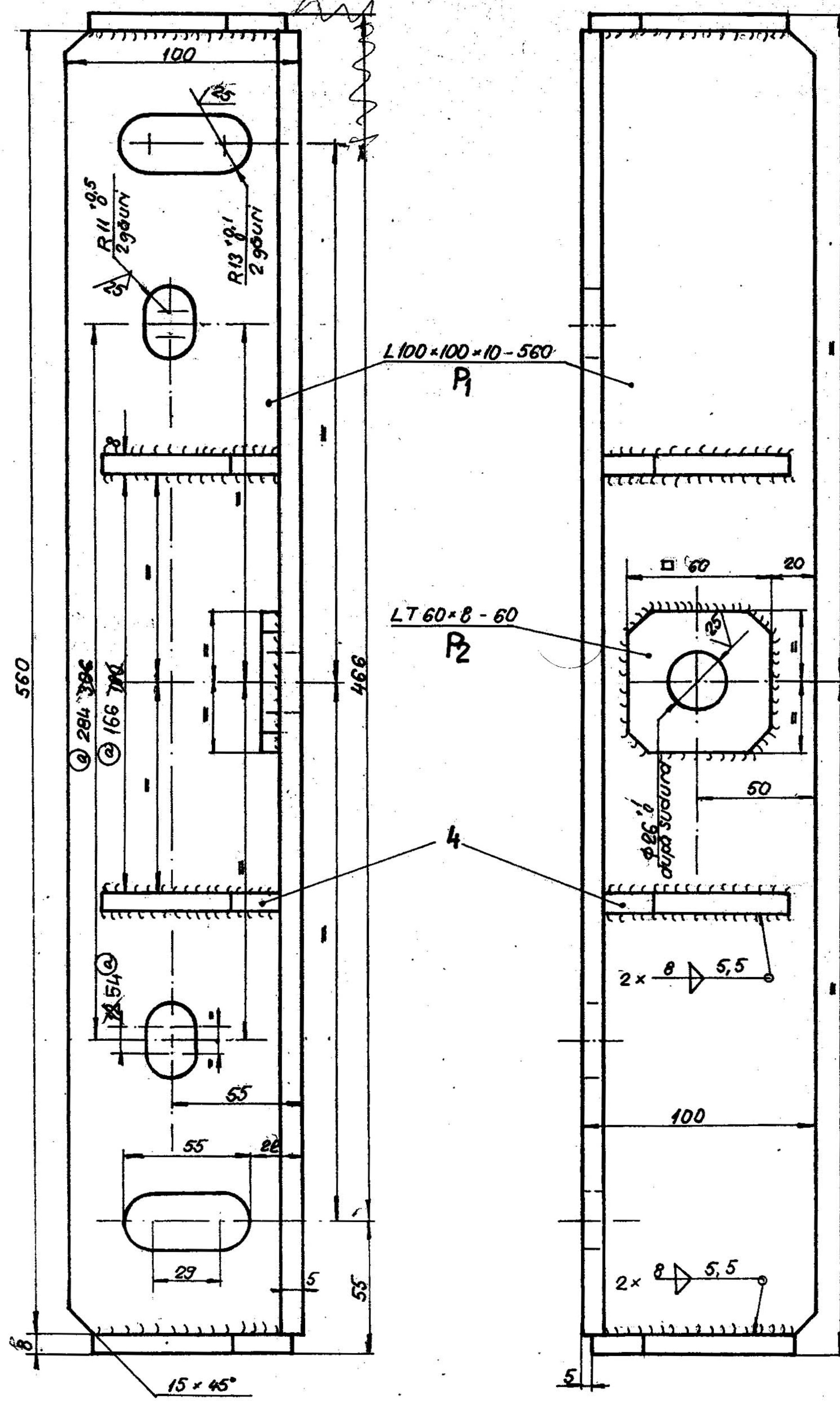
ISPCF EIEU COL. ELECTRIFICARE - LC

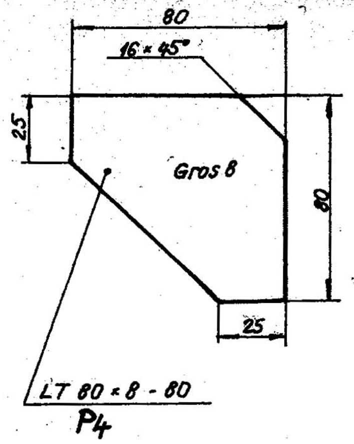
Scara: 1:2

Data: X.1997

ELC 50 - 3.1A

TRAVERSA PTR. SECP 6



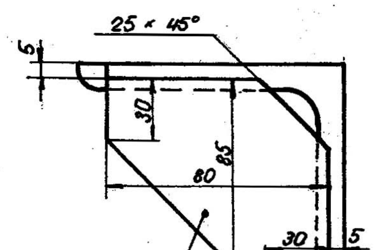


NOTĂ:

1. Găurile se vor executa după sudură.
2. Înainte de zincare piesa va fi tratată termic astfel încât după zincare să nu-și diminueze calitățile mecanice.
3. Se va zinca AT/OL/Zn600
4. Muchiile găurilor se vor teși 1×45°

D. G. I.

Șef proiect:
Ing. Cr. Popescu



Poz.	Denumirea	Nr desen sau STAS	Buc.	Material	Observații	Masa netă kg/buc
4	Nervură	-	2	OL 37·2	LT 80×8	0,300
3	Nervură	-	2	OL 37·2	LT 80×8	0,310
2	Adaos	-	1	OL 37·2	LT 60×10 STAS 395-88	0,280
1	Lonjeron	-	1	OL 37·2	L100×100×10 STAS 424-91	8,400

0.3	Modificare prototip	14-09.01	Ing. Hovleanu
Proiectat	Ing. D. Hovleanu		
Desenat	R. Hovleanu		
Verificat	Ing. D. Roman		
Contr. STAS	Ing. I. Miuți		
Aprobat	Ing. H. Tilichi		Masa netă: 10 Kg

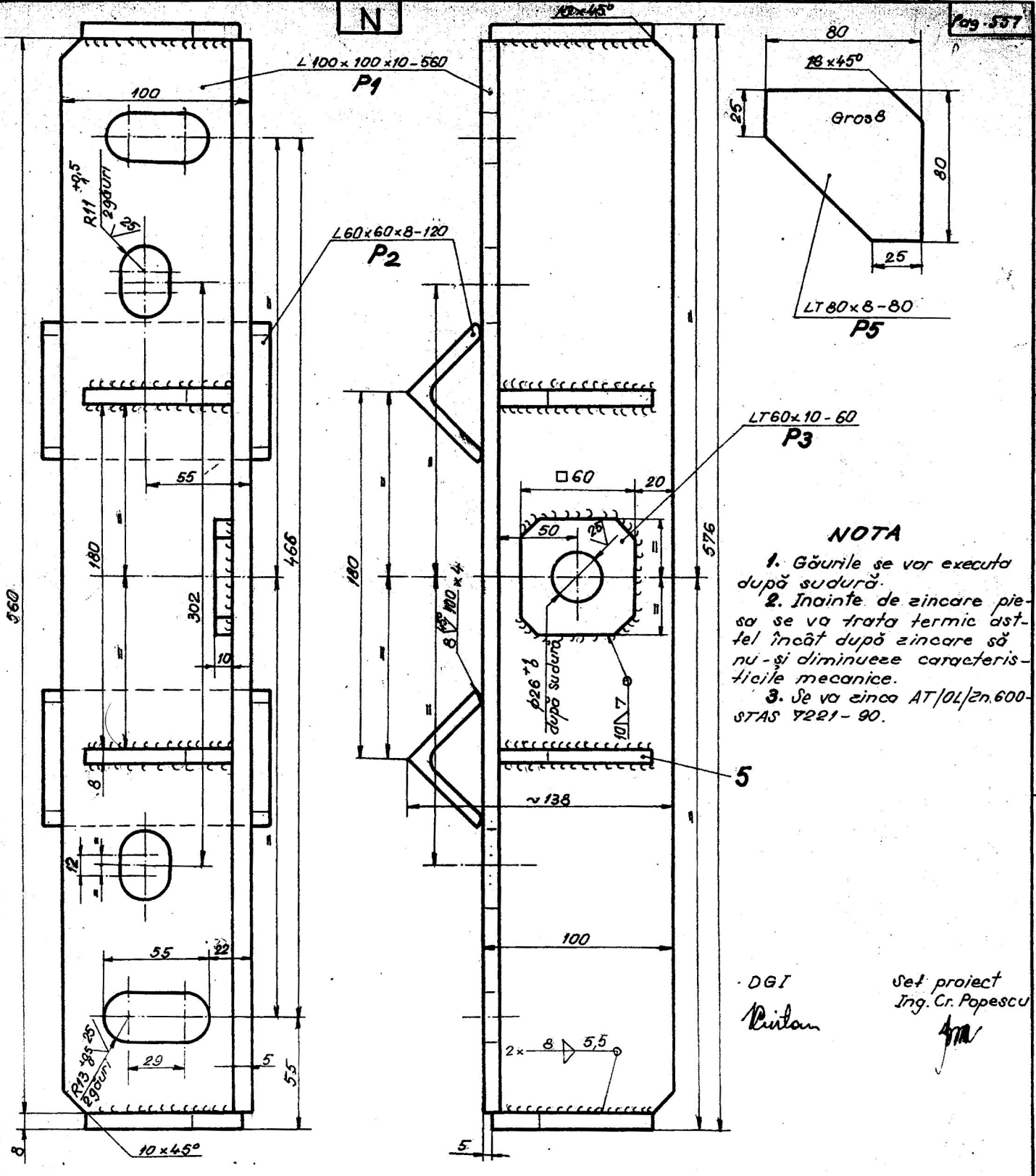
I.S.P.C.F.
E.I.E.U.
COL. ELECTRIFICARE-LC

Scara: 1:2

Data: IX 1997

ELC 50 - 4 · 1A

TRAVERSĂ PENTRU MU 10 - 5/8,2 și HEB

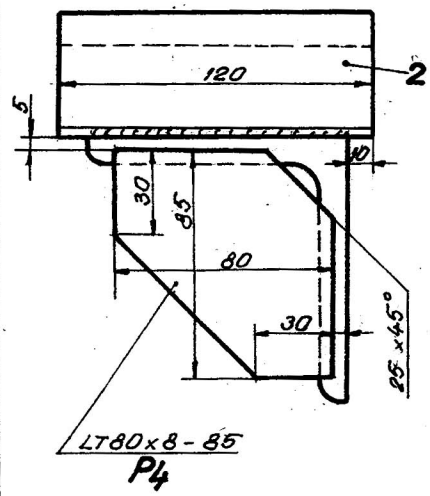


NOTA

1. Găurile se vor executa după sudură.
2. Înainte de zincare piesa se va trata termic astfel încât după zincare să nu-și diminueze caracteristicile mecanice.
3. Se va zinca AT/OL/Zn.600-STAS 7221-90.

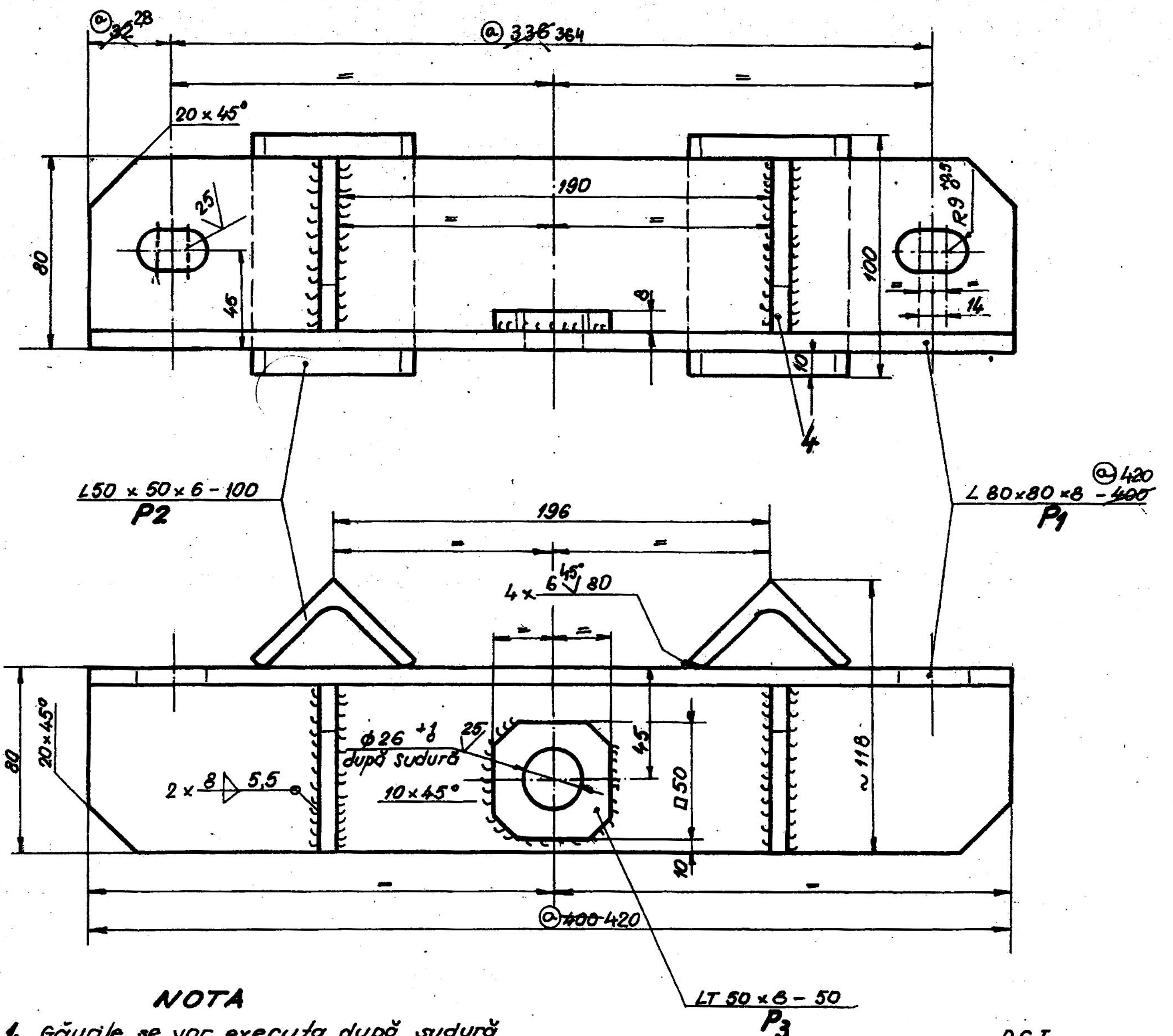
DGI
Birlan

Șef proiect
Ing. Cr. Popescu



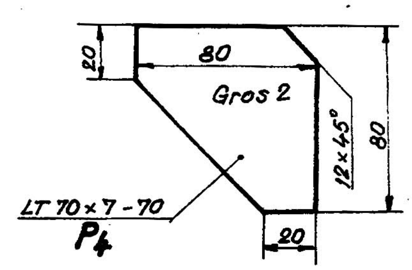
Poz.	Denumire	Nr. desen sau STAS	Buc	Material	Observații	Masa netă kg/buc
5	Nervură	—	2	OL 37.2	LT80×8	0,300
4	Nervură	—	2	OL 37.2	LT80×8	0,380
3	Adaos	—	1	OL 37.2	LT 60×10 STAS 395-88	0,280
2	Distanțier	—	2	OL 37.2	L50×50×6	0,540
1	Lonjeron	—	1	OL 44.2	L100×100×10 STAS 424-91	8,400

Proiectat ing. Novleanu D.		ELC 50 - 5.1A
Desenat Xleagu M.		
Verificat ing. Roman O.		
Contr. STAS ing. Miuți T.		
Aprobat ing. Tilichi H.	Masa netă: 11,7 kg	
I.S.P.C.F EIEU COL. ELECTRIFICARE-LC	Scara 1:2	TRAVERSĂ PENTRU SMT ϕ 273
	Data:	



NOTA

1. Găurile se vor executa după sudură
2. Inainte de eincare piesa va fi supusă unui tratament termic de detensionare ales astfel încât, după răcire, caracteristicile mecanice ale materialelor să nu fie diminuate
3. Se va einca AT/OL/Zn 600 - STAS 7221-90
4. Muchiile găurilor se vor teşi 1×45°.



DGI
Mintan

Şef proiect
Ing. Cr. Popescu

50

Poz	Denumire	Nr. desen sau STAS	Buc	Material	Observatii	Masa neta Kg/buc
4	Nervură	—	2	OL37.2	LT 70 × 7	0,220
3	Adaos	—	1	OL 37.2	LT 50 × 8 STAS 395-88	0,120
2	Profil	—	2	OL37.2	L50×50×6	0,360
1	Lonjeron	—	1	OL 37.2	L80×80×8 STAS 424-91	3,850

a 4 Adaptat pe stâlp exist. 22.08.97 Ing. Novleanu

Proiectat	ing. Navleanu	
Desenat	Neagu M.	
Verificat	ing. Roman A.	
Contr. STAS	ing. Miculi I.	
Aprobat	ing. Tilichi N.	

Masa netă: 5,15 Kg

Scara

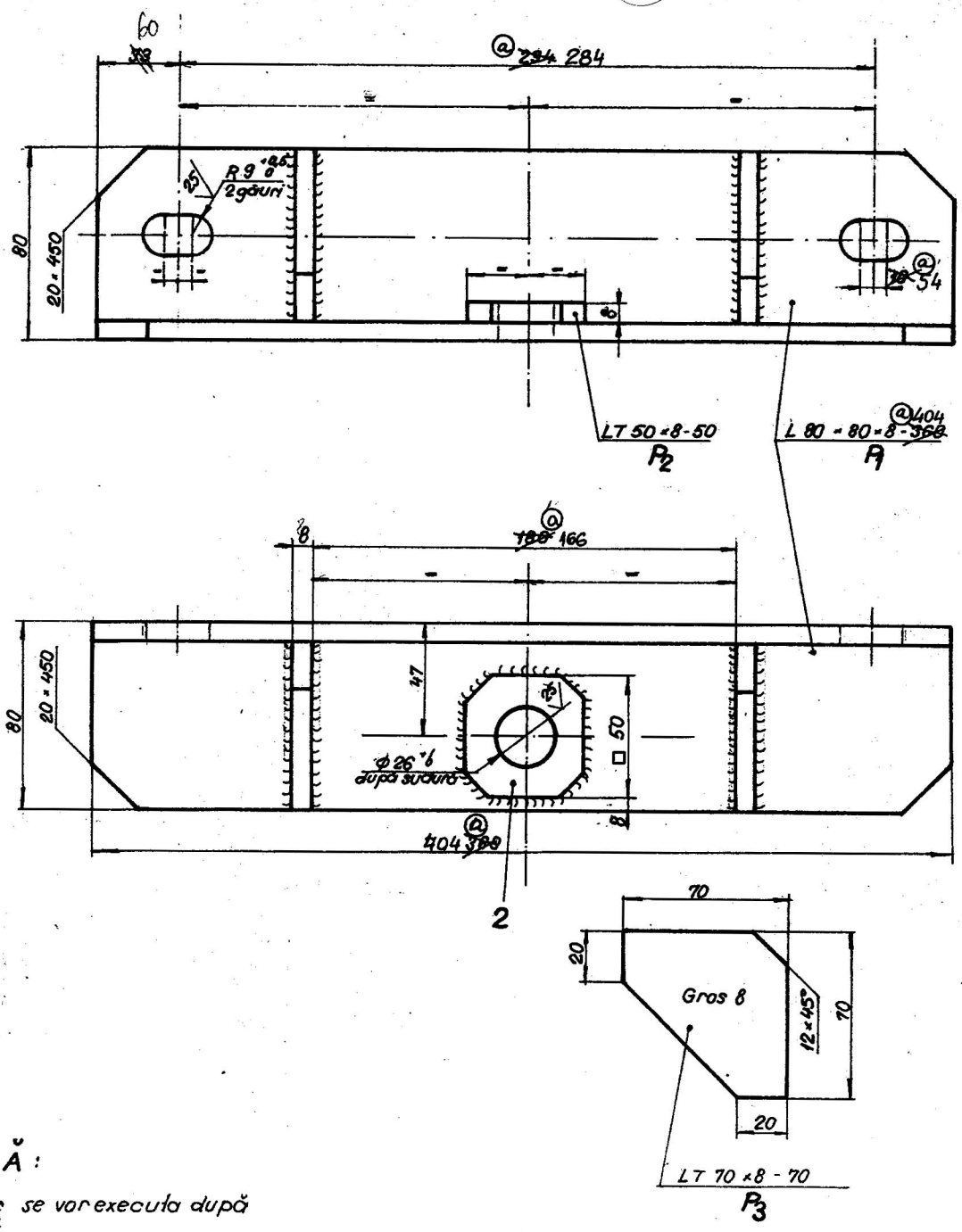
Data

I.S.P.C.F.
EIEU

COL ELECTRIFICARE - LC

ELC 50 - 13.1A

TRAVERSA



NOTĂ:

1. Găurile se vor executa după sudură.
2. Înainte de zincare piesa se va trata termic, astfel încât după zincare caracteristicile mecanice ale materialelor să nu fie diminuate.
3. Se va zinca AT/OL/Zn 600 STAS 7221 - 90
4. Muchiile găurilor se vor teşi 1 × 45°.

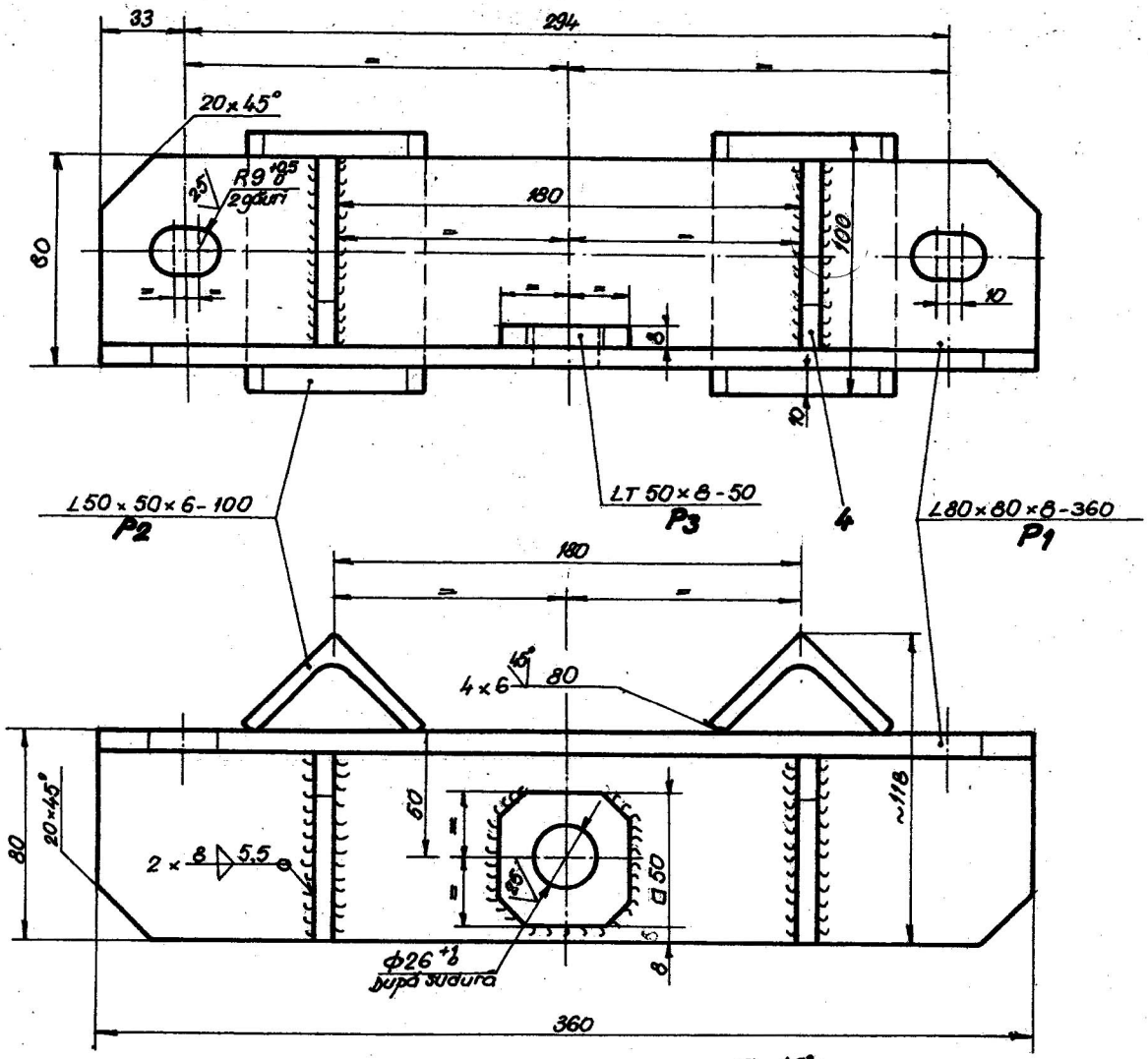
D. G. I.

Şef proiect: Ing. Cr. Popescu

Poz.	Denumirea	Nr. desen sau STAS	Buc.	Material	Observaţii	Masa netă kg/buc.
3	Nervură	—	2	OL 37-2	LT 70 × 8	0,220
2	Adaos	—	1	OL 37-2	LT 50 × 8 STAS 595-88	0,120
1	Lonjeron	—	1	OL 37-2	L 80 × 80 × 8 STAS 424-91	3,890

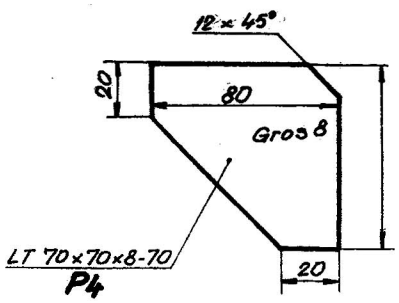
a	7	Modificare prototip 14.03.01	Ing. Novleanu

Proiectat	Ing. D. Novleanu		ELC 50 - 14 - 1A
Desenat	R. Novleanu		
Verificat	Ing. O. Roman	4,5 kg	
Contr. STAS	Ing. I. Miuti	Masa netă: 3,95 kg	
Aprobat	Ing. H. Tilichi		
I. S. P. C. F. E. I. E. U.		Scara: 1:2	TRAVERSĂ
COL ELECTRIFICARE-LC		Data: IX-1997	



NOTA

1. Găurile se vor executa după sudură.
2. Înainte de zincare, piesa va fi supusă unui tratament termic, astfel ales încât după zincare caracteristicile mecanice ale materialelor să nu fie diminuate
3. Se va zinca AT/OL/Zn 600 - STAS 7221-90
4. Muchiile găurilor se vor tesi, 1×45°



50

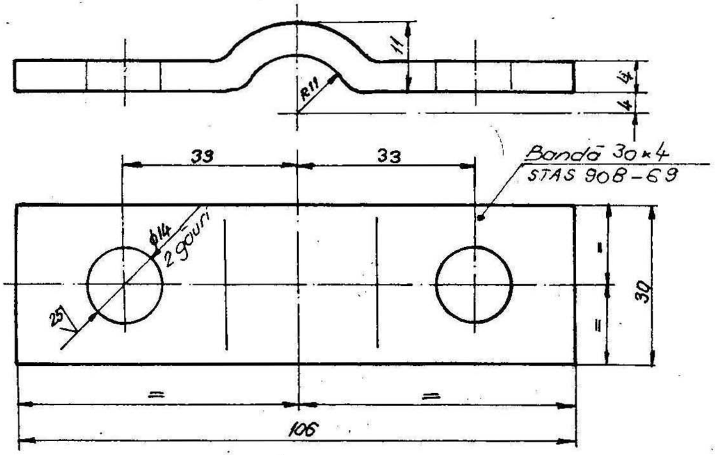
4	Nervură	—	2	OL 37.2	LT 70×8	0,220
3	Adaos	—	1	OL 37.2	LT 50×8 STAS 395-88	0,120
2	Profil	—	2	OL 37.2	L 50×50×6	0,360
1	Lonjeron	—	1	OL 37.2	L 80×80×8 STAS 424-91	3,470

DGI,

Șef proiect
Ing Cr. Popescu

Proiectat	Ing Novikanu L.		ELC 50 - 15.1A
Desenat	Neagu M.		
Verificat	Ing Roman O.		
Contr. STAS	Ing Mihai I.		
Aprobat	Ing Michi N.	Masa netă: 4,95kg	
I.S.P.C.F EIEU		Scara 1:2	TRAVERSĂ
COL. ELECTRIFICARE - 4C		Data	

E



NOTA

1. Se va zinca ~~AE/OL/Zn 40~~ AT/OL/Zn 610 ~~SL/FOS STAS 7222-74.~~ STAS 7221-82 (a) 90 (b)
2. Prezentul plan are la bază desenul LC/A 44-07.

C.T.E.
ING. CIORTAN P.

ŞEF PROIECT
ING. SPACK I.

DE ACORD
CONSTRUCTOR

b	1	completări	26.10.96	ing. Hovleanu
a	1	conf. minută 24 IV 84	26 IV 84	ing. Hovleanu

Proiectat	Ilie Traian	
Desenat	Badea F.	
Verificat	ing. Spack I.	
Contr. STAS	Ilie Traian	
Aprobat	ing. Schmidt	

OL 37.2K

Masa netă: 1,500 kg.

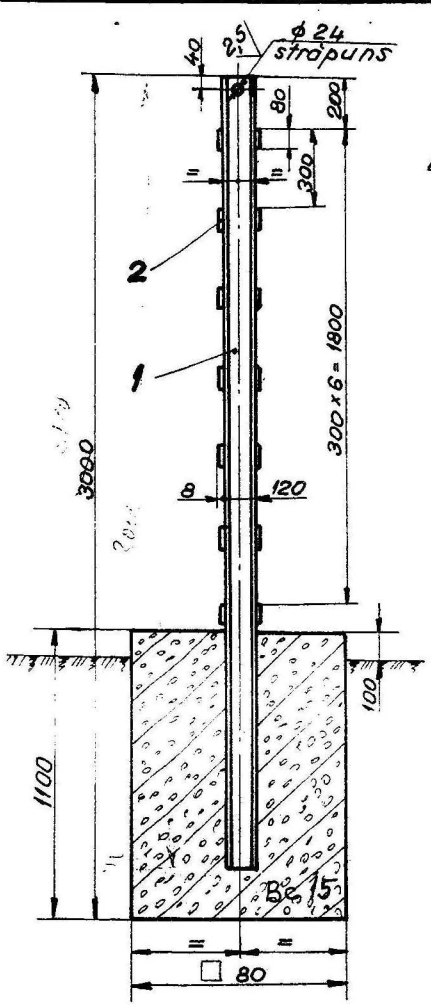
E-LC-51.22

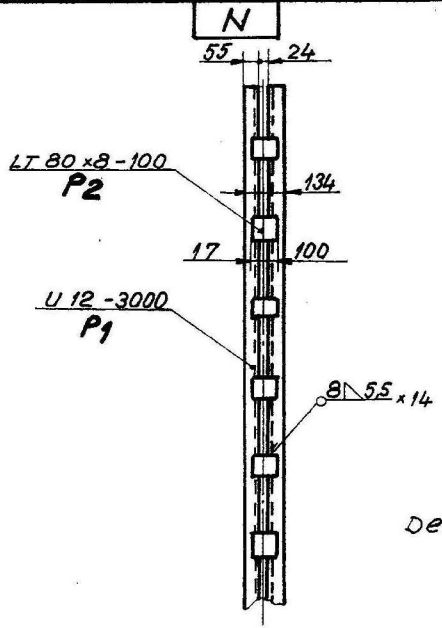
I.P.C.F.
EIEU
COL. ELECTRIFICARE - LC2

Scara: **1:1**

Data: XII.1976

SCOABĂ





NOTA

1. Prezentul plan are la bază des. LC/FO 4222-2.1.3.0
2. După sudarea elementelor se va zinca AT/OL/Zn 600 STAS 7221-90

De acord DGI

Sef proiect
Ing. C. Popescu

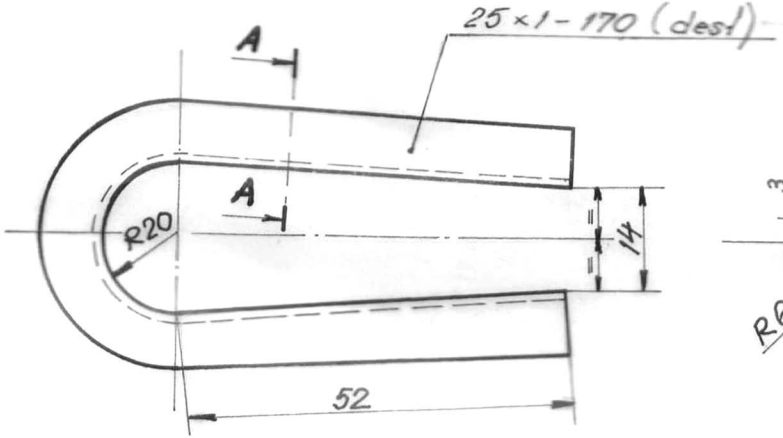
Poz.	Denumirea	Nr. desen sau STAS	Buc	Material	Observații	Masa netă kg/buc
2	Plăcuță	–	14	OL 37.2	LT 80×8 STAS 395-88	0,502
1	Bară	–	2	OL 37.2	U 12 STAS 564-86	40,200

Proiectat ing. Roman N.		
Desenat Bodea F.		
Verificat ing. Baddi L.		
Contr. STAS ing. Novleanu		
Aprobat ing. Tilichi H.	Masa netă: 87,43 kg	
I.S.P.C.F. EIEU	Scara: 1:20	
COL. ELECTRIFICARE - LC	Data: V. 1996	

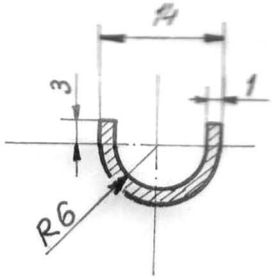
ELC/CFO 1-6.0

ANCORĂ SPECIALĂ (AS)

N



A-A
scara 1:1



NOTA

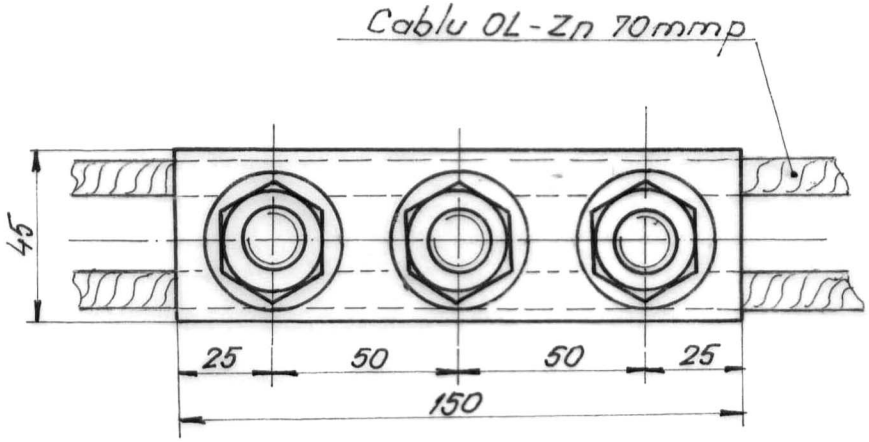
1. Se va zinca AT/OL/Zn 500 STAS 7221-90
2. Prezentul plan are la bază desenul LC/FO 4235-1.0

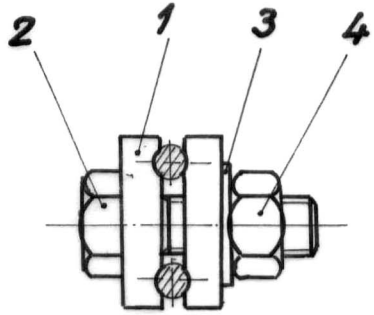
De acord DGI,

Sef proiect,
Ing. C. Popescu

Proiectat	Ilie Traian		
Desenat	Neagu M.		
Verificat	Ing. Bădăi L.	TDAI	ELC/CFO 1-8
Contr. STAS	Ing. Novleanu D.		
Aprobat	Ing. Tilichi H.	Masa netă: 0,035kg	
ISPCF EIEU		scara 1:1	RODANȚĂ
Cal. electrificare - LC		Data: 05.1996	

N





De acord DGI,

Set proiect

NOTA

Filetele se vor zinca:
AT/OL/Zn 310 STAS 7221-90

Poz.	Denumire	Nr. desen sau STAS	Buc.	Material	Observ.	Masă netă Kg/buc
4	Piuliță M16 gr. 4.6	STAS 922-89	3			0,030
3	Șaibă 18	STAS 5200/4-91	3			0,011
2	Șurub M 16x50-gr. 4.6	SRISO 4017-94	3			0,110
1	Falcă clemă	ELC/CFO 1-12.1	2	OL 37.2		0,480

Proiectat	Ilie Traian	
Desenat	Neagu M.	
Verificat	Ing. Bădăi L.	
Contr. STAS	Ing. Novleanu D.	
Aprobat	Ing. Tilichi H.	

Masa netă: 1,42 kg

scara 1:2

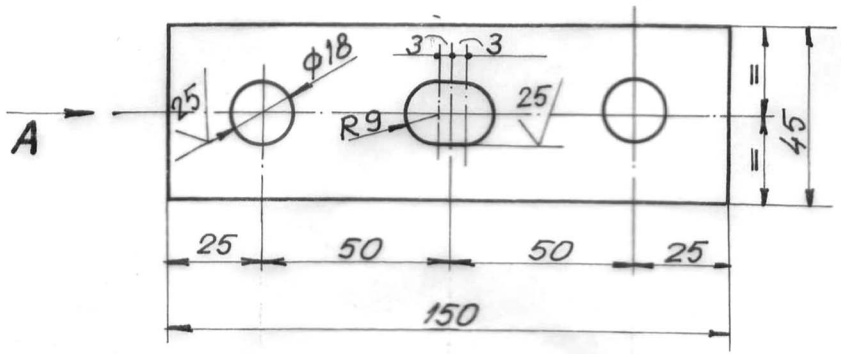
Data: 05.1996

ELC/CFO 1-12.0

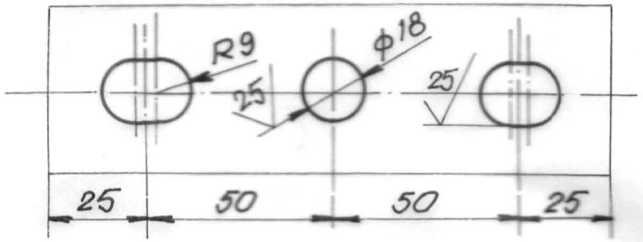
ISPCF EIEU

Col. electrificare - LC

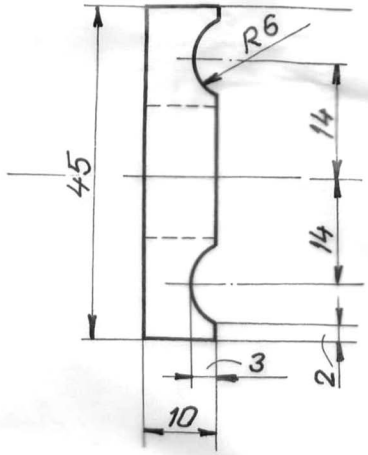
CLEMA DE LEGARE CU TREI ȘURUBURI



POZITIA GĂURILOR PENTRU A DOUA FALCĂ



A
scara: 1:1



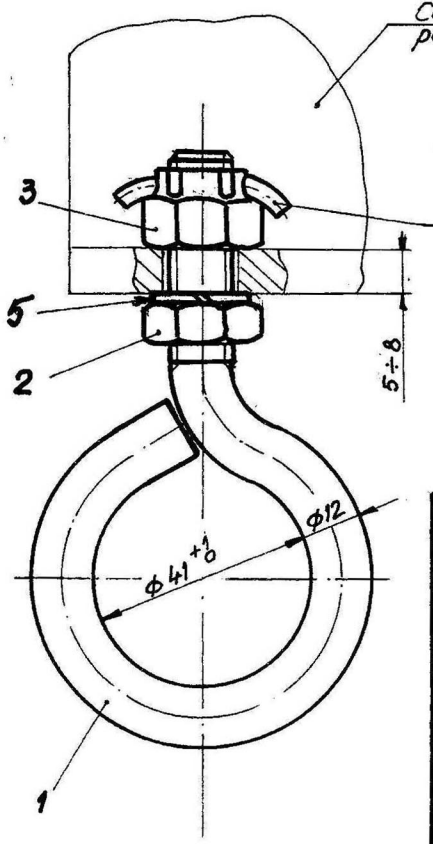
NOTA

1. Se execută 1 buc. conform desen și 1 bucată cu găurile conform detaliului alăturat.
2. Piesele se vor zinca AT/OL/Zn 600 STAS 7221-90
3. Muchiile se vor rotunji cu R1

De acord DGI

Șef proiect
Ing. C. Popescu

Proiectat	Ilie Traian		OL 37.2	ELC/CFO 1-12.1
Desenat	Neagu M.			
Verificat	Ing. Bădăi L.			
Contr. ST/S	Ing. Novleanu			
Aprobat	Ing. Tilichi H.		Masă netă: 0,48Kg	
ISPCF EIEU			scara 1:2 (1:1)	FALCĂ CLEMĂ
Col. electrificare - LC			Data: 05.1996	



5	Șaibă N12	SR 7666/2-94	1	OLC55	Zincat	0,003
4	Siguranță	–	1	15Cr 08	sârmă ϕ3	0,003
3	Piuliță M12-gr.4.6	STAS 4073-90	1		zincat	0,019
2	Piuliță M12-gr.4.6	STAS 922-89	1		zincat	0,016
1	Cârlig	ELC/CFO 3-15.1B	1	OL 37.2		0,142

Proiectat	Ing Novleanu D.	
Desenat	Neagu M.	
Verificat	Ing Roman O.	
Contr. STAS	Ing Roman N.	
Aprobat	Ing Tilichi H.	

Masa netă: 0,18 Kg

ELC/CFO 3-15.0B

I.S.P.C.F. EIEU

COL. ELECTRIFICARE-LC

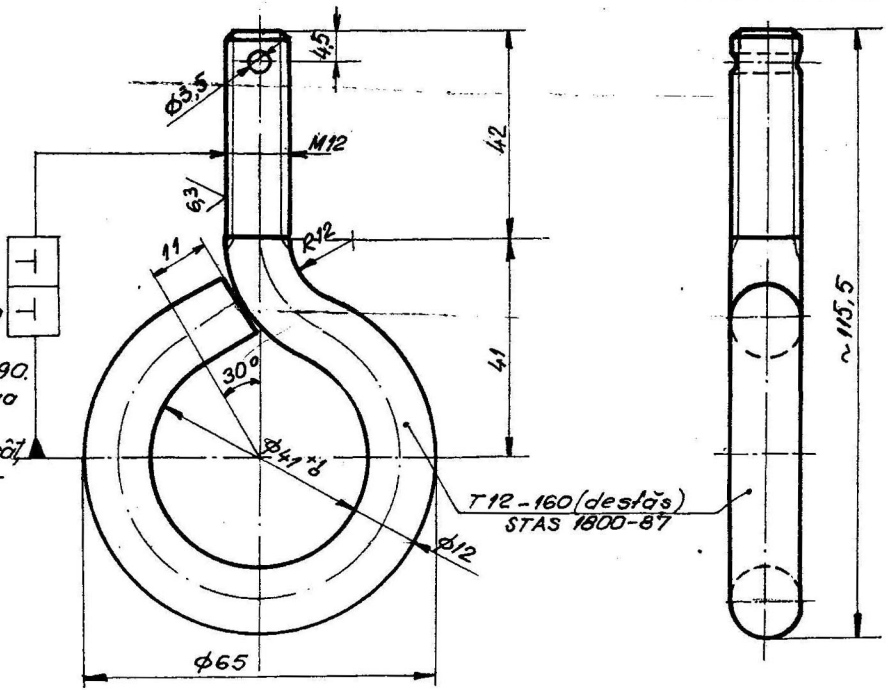
Scara 1:1

Data: 02.2000

CÂRLIG TIP A

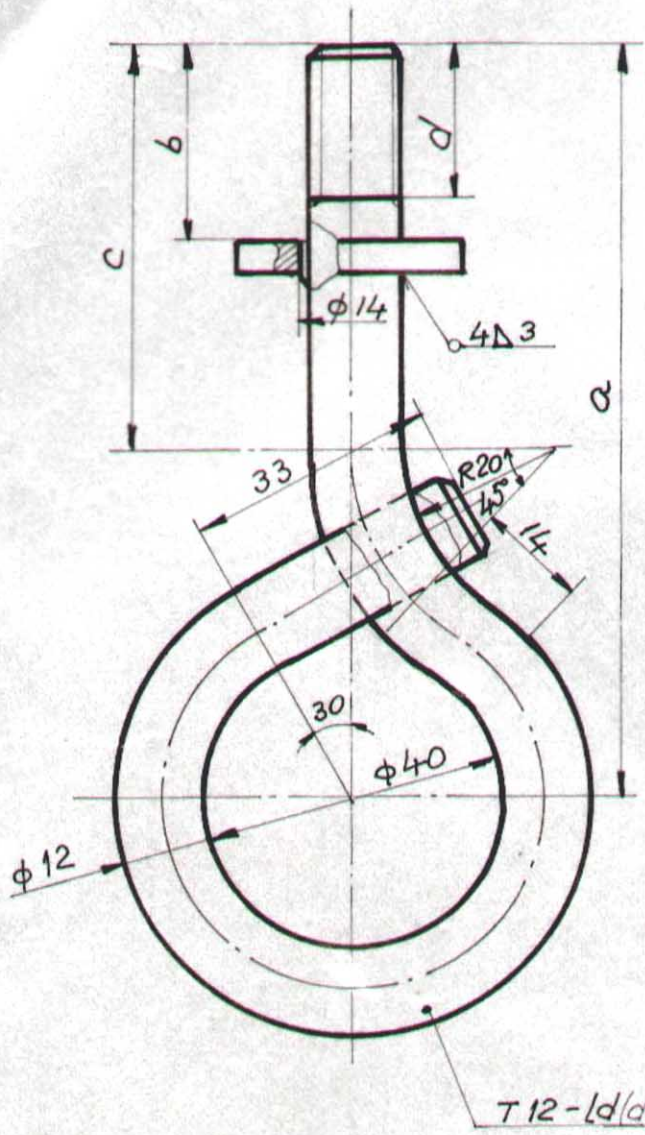
NOTA

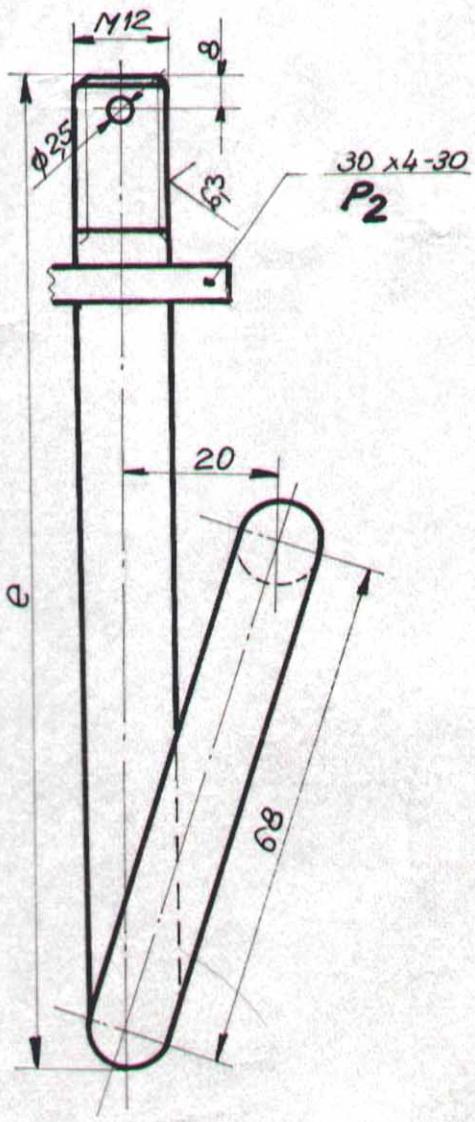
1. Cârligul se va forja la cald.
2. Se va zinca AT/OL/Zn600 cu excepția filetului AT/OL/Zn 310 STAS 7221-90.
3. Înainte de zincare se va detensiona prin tratament termic astfel încât, după zincare, caracteristicile mecanice ale materialului să nu fie diminuate.
4. După zincare se va grundui și vopsi cu vopsea din două componente, nuanță verde închis.



Proiectat	Ing. Navleanu D.		
Desenat	Neagu M.		
Verificat	Ing. Roman O.	OL 37.2	ELC/CFO 3-15.18
Contr. STAS	Ing. Roman N.		
Aprobat	Ing. Tilichi H.	Masa netă: 0,142 Kg	
I.S.P.C.F. EIEU		Scara 1:1	CÂRLIG
COL. ELECTRIFICARE-LC		Data: 02.2000	

N





TIP	a	b	c	d	e	ld	Masa (kg)
I	85	30	40	25	137	210	0,24
II	125	80	80	25	158	250	0,28

NOTĂ

1. Prezentul plan are la bază des. LC/FO 4235 - 3.15.0
2. După sudarea elementelor, se va zinca AT/OL/Zn 600 STAS 7221-90 și filetele se vor zinca AT/OL/Zn 310 STAS 7221-90

De acord DGI,

Șef proiect
ing. C. Popescu

Poz.	Denumirea	Nr. desen sau STAS	Buc	Material	Observații	Masa netă kg/buc
2	Plăcuță	—	1	OL 37.2	Bandă 30×4 STAS 908-90	
1	Cârlig	—	1	OL 37.2	T 12 STAS 1800-87	

Proiectat	Ilie Traian	
Desenat	Badea F.	
Verificat	ing. Bădăi L.	
Contr. STAS	ing. Novleanu	
Aprobat	ing. Tilichi H.	

Masa netă:

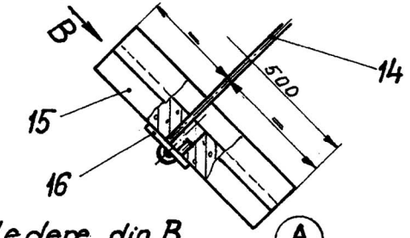
ELC/CFO 3 - 15.0

I.S.P.C.F.
EIEU
COL. ELECTRIFICARE - LC

Scara: 1:1

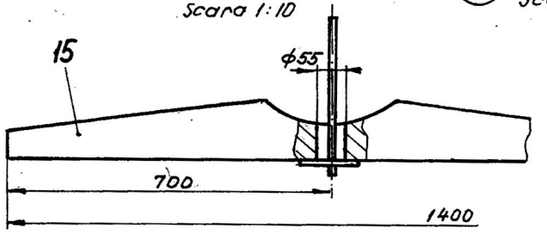
Data: V. 1996

CÂRLIG

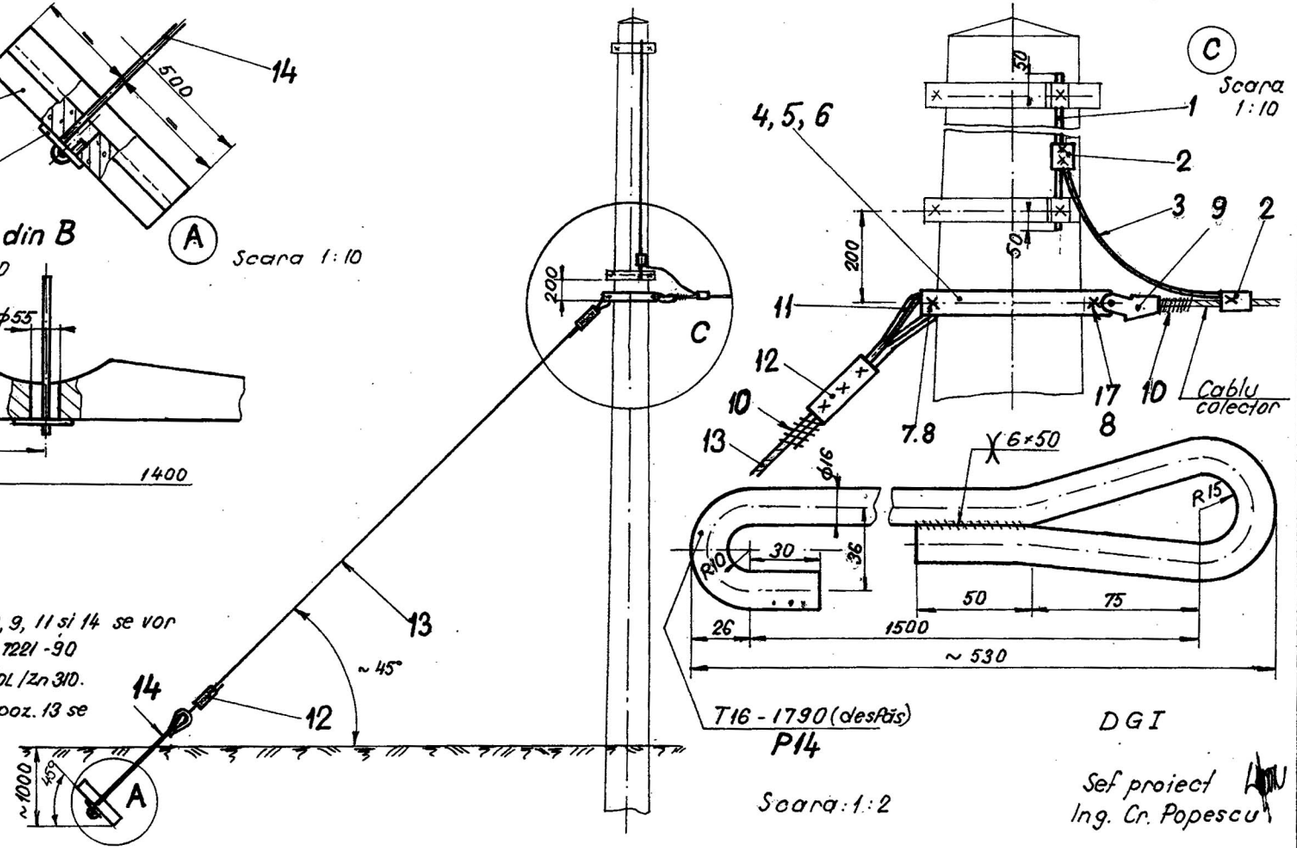


Vedere din B

Scara 1:10



Scara 1:10



NOTĂ:

1. Reperele 1, 2, 4, 5, 6, 7, 8, 9, 11 si 14 se vor zinca AT/OL/Zn 610 STAS 7221-90 cu exceptia filetelor AT/OL/Zn 310.
2. Lungimea tensorului poz. 13 se va stabili la montaje.

1	1	1	16	Placă	EP 2610 - 16		RCA 37 (OL 37.2)		0,680
1	1	1	15	Traversă de sprijin III	RA2 - 214 / 1978		Beton armat		180,000
1	1	1	14	Ancoră	—		RCA 37 (OL 37.2)		2,830
1	1	1	13	Tensor	—		Cablu OL Zn, 70 mm²		4,000
2	2	2	12	Clemă de legare cu 3 suruburi	ELC/CF01-12.0				1,420
2	2	2	11	Rodanță	ELC/CF01-8		OL 37.2		0,200
3	3	3	10	Matisare	—		Sârmă ϕ2 Zn	STAS 434	0,060
1	1	1	9	Clemă terminală cu pană si furcă	ELC 9 - 29.0				1,490
4	4	4	8	Piuliță M 20 gr 04	STAS 922 - 89				0,060
1	1	1	7	Surub M 20 ×70. gr 4.6	SR ISO 4016-94				0,230
2	–	–	6	Semibridă SECP 4	EP 2610 - 4.1A			Var III	2,150
–	2	–	5	Semibridă SECP 5	EP 2610 - 4.1A			Var II	2,370
–	–	2	4	Semibridă SECP 6	EP 2610 - 4.1A			Var I	2,700
1	1	1	3	Conductor de legătură	—		OL-AL (L × 700)	70/12	0,500
2	2	2	2	Clemă de legătură pt conductor de punere la pământ	ELC 2 - 4.0				0,590
1	1	1	1	Conductor de legare	—		RCA 37 (OL 37.2)	T10 STAS 1300-87	1,700
BUCATI									
III	II	I							

Ancorarea conductorului colector pe stâlp SECP 4

Ancorarea conductorului colector pe stâlp SECP5

Ancorarea conductorului colector pe stâlp SECP6.

Proiectat	ing. D. Novleanu	
Desenat	R. Novleanu	
Verificat	ing. L. Bădăi	
Contr. STAS	ing. O. Roman	
Aprobat	ing. H. Tilichi	

Masa netă:

I.S.P.C.F. EIEU

COL. ELECTRIFICARE - LC

Scara: 1:50 (1:10; 1:2)

Data II-1997

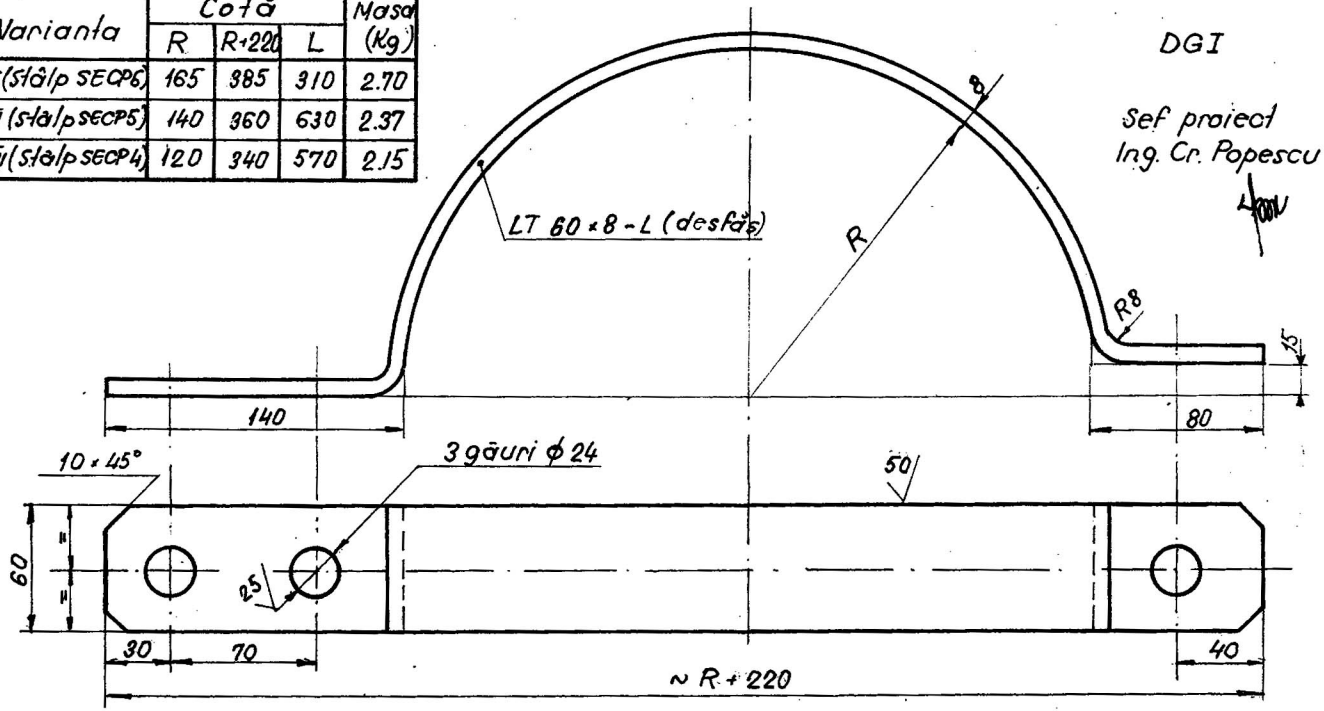
EP 2610 - 4·0A

ANCORAREA CONDUCTORULUI COLECTOR IN LINIE CURENTĂ

Varianta	Cotă			Masa (Kg)
	R	R+220	L	
I (Stâlp SECP6)	165	385	310	2.70
II (Stâlp SECP5)	140	360	630	2.37
III (Stâlp SECP4)	120	340	570	2.15

DGI

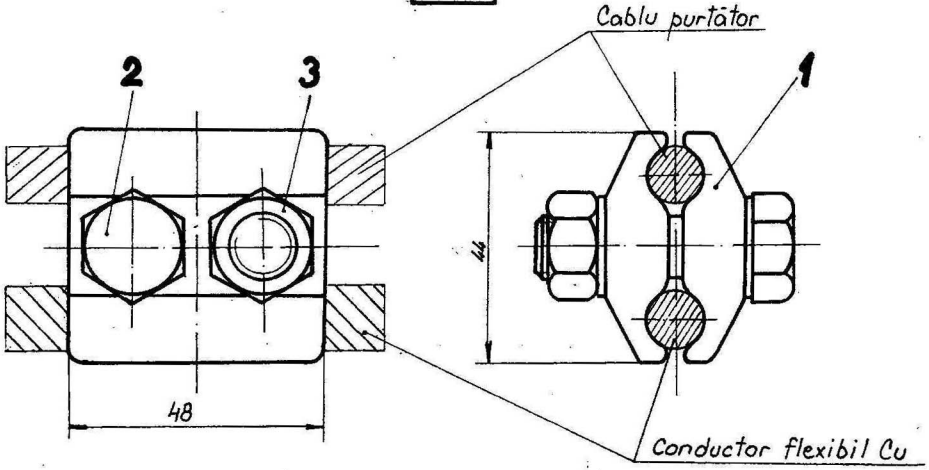
Sef proiect
Ing. Cr. Popescu



NOTĂ:

Se va zinca AT/OL/Zn 610 STAS 7221 - 90.

Proiectat	ing. D Novleanu	RCA-37 OL37-2	EP 2610 - 4.1 A
Desenat	R Novleanu		
Verificat	ing L Badai		
Contr STAS	ing. O. Roman		
Aprobat	ing. H Tilichi	Masa netă:	
I.S.P.C.F. E I E U		Scara: 1:2.5	SEMIBRIDĂ
COL. ELECTRIFICARE-LC		Data:	



NOTA

Clema este destinata pentru legătura electrică a conductorului de cupru flexibil de 70 mm² cu conductori BM 70 mm², OL Zn 50 mm², OL Zn 70 mm².

Poz.	Denumirea	Nr. desen sau STAS	Buc.	Material	Observații	Masa netă kg/buc
3	Piulita M12	STAS 922-76	2	STAS 2700/4-80	cadmiată sau zincată	0,016
2	Surub M12×40	STAS 920-69	2	STAS 2700/3-80	cadmiat sau zincat	0,148
1	Falca clema	LECP-01	2			0,155

C.T.E.
Ing. P. Ciortan

Ptr. conformitate cu desenul original ICPTT
Ing. D. Novleanu

Sef Proiect
Ing. I. Spack.

De acord Constructor

Proiectat	Ing. Marinescu	
Desenat	Sanda I.	
Verificat	Ing. Petrescu	
Contr. STAS	Ing. Marinescu	
Aprobat	Ing. Petrescu	Masa netă:

I.C.P.T.T.

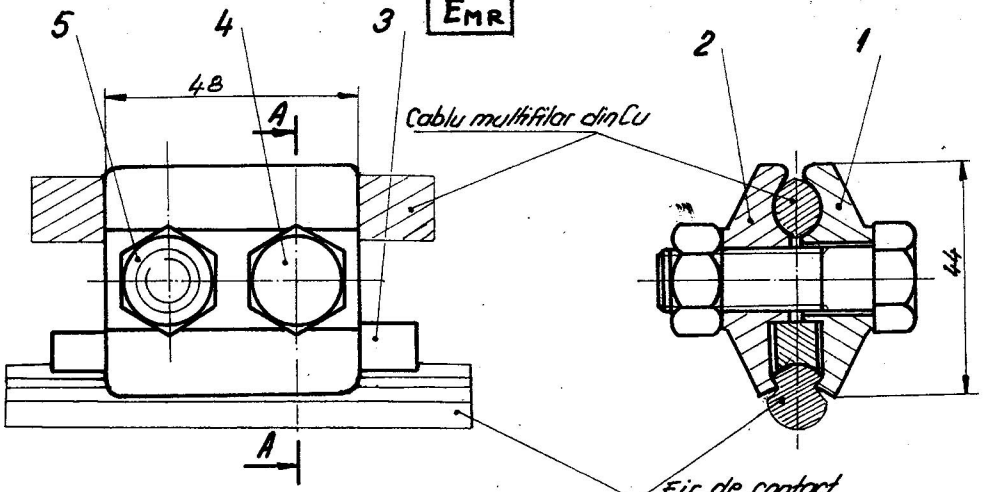
1:1

Data: noe. 1978

LECP-00

CLEMA DE LEGATURA ELECTRICA PE CABLU PURTATOR

EMR



NOTĂ:

Clema este destinată pentru legătura electrică a conductorului de cupru flexibil de 70 mm² la firul de contact TF85, TF100, UIC80, UIC100.

După montarea clemei pe firul de contact capătul despicat al penei se va desface.

C.T.E
ing. P. Giortan

Pentru conformitate cu desenul original
ICPTT
ing. D. Novleanu

Șef proiect
ing. I. Spocke

De acord constructor

Poz.	Denumirea	Nr. desen sau STAS	Buc	Material	Observații	Masa netă kg/buc
5	Piulița M12 gr. 0.4 @	STAS 922-76 89	2	STAS 2700/4-80	cadmiat sau zincat	0,0156
4	Șurub M12×40 gr. 4.6	STAS 920-69 @	2	STAS 2700/3-80	cadmiat sau zincat	0,0484
3	Pană	LEFC-03	1		se va casitari	0,040
2	Falcă clemă (stg.)	LEFC-02	1			0,155
1	Falcă clemă (dr.)	LEFC-01	1			0,155

a. 2 Actualizat STAS 24.X.96 ing. Novleanu

Proiectat ing. Marinescu
Desenat Sondoi
Verificat ing. Petrescu
Contr. STAS ing. Marinescu
Aprobat ing. Petrescu

I.C.P.T.T

Masa netă: 0,47 kg

Scara: 1:1

Data: noe. 1978

LEFC-00

CLEMA DE LEGĂTURĂ ELECTRICĂ PE FIRUL DE CONTACT