


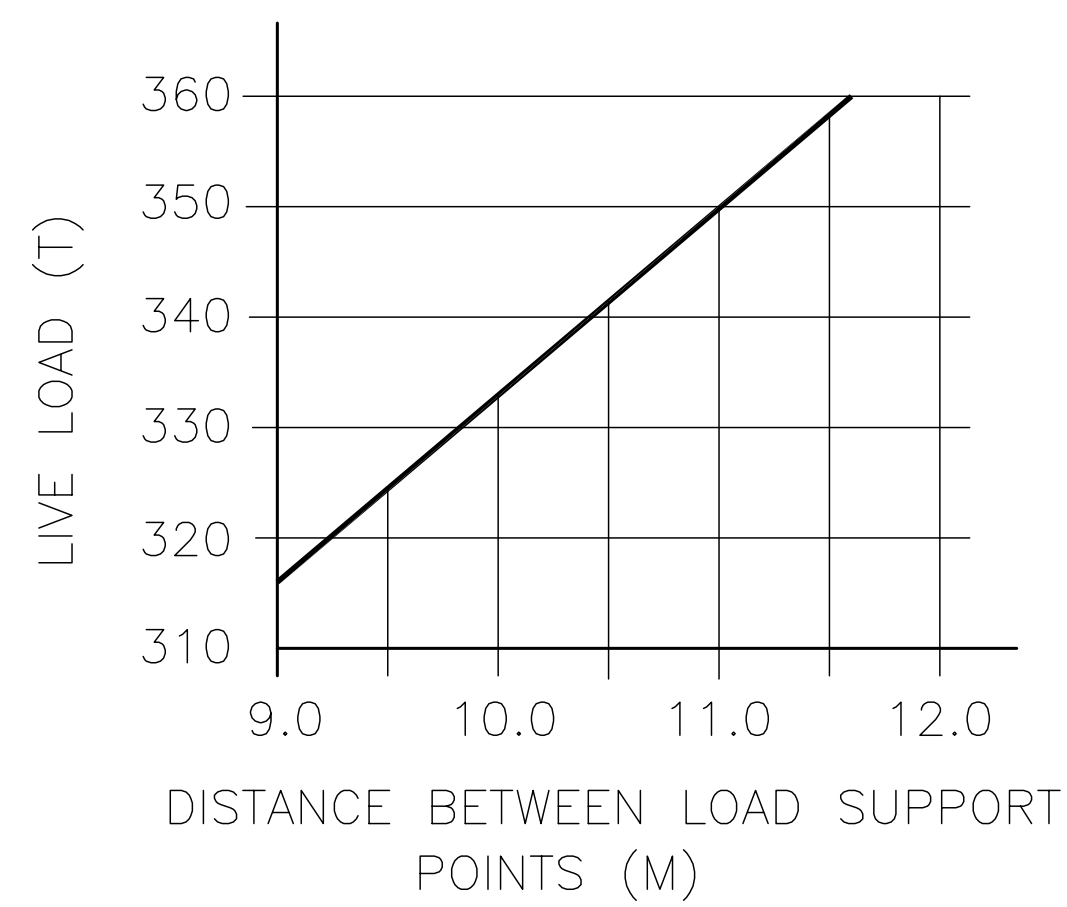


दिनांक एवं हस्ताक्षर SIGN & DATE				उत्पाद मानक		TG60675	
समग्री सूची संख्या को अधिकृतित करता है		SUPERSEDES INVENTORY NO.		PRODUCT STANDARD ELECTRICAL MACHINES ENGINEERING		पृष्ठ 4 का 1 Page 1 of 4	
COPYRIGHT AND CONFIDENTIAL The information on this documents is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company		CARRIER LOADING BEAM "C"					
		1.0 GENERAL:					
		The specification covers the requirement for procurement of carrier Loading beam "C" to be used for transport of Stators of 500 and 600/660 MW Turbogenerators on 24 and 28 axle special rail wagons on Indian Railways. The beam shall be exposed to heavy dynamic loads while transporting TG stators weighing upto 360 MT.					
		2.0 APPLICABLE STANDARD:					
स्वत्वाधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की संपत्ति है इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप से किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए ।		3.0 TECHNICAL DETAILS:					
		The Loading beam shall be manufactured generally as per outline drawing and standard load & deflection values as per sheet 4. Following additional technical details shall also be complied.					
		3.1 Material of construction Steel grade S690QL of EN10029- (or equivalent) to be used					
		3.2 Load carrying capacity shall be 360 MT					
		3.3 Fitted with Support plate as per BHEL drawing no 11393801169,					
		3.4 Fitted with Compressed air pipe for air brake arrangement as per BHEL drawing no 11393801168,					
		3.5 Painting and lettering schedule shall be as per BHEL drawing no 11393801170,					
		3.6 Statutory requirements if any shall be complied by the supplier.					
		4.0 TEST PLAN					
		Test plan, procedure and acceptance norms for load/ overload tests shall be submitted by supplier for approval. Test plan should cover following minimum tests/ checks-					
		4.1 Material tests of all components/ raw materials for mechanical and chemical properties as per applicable standards					
हस्ताक्षर एवं दिनांक SIGN & DATE				नाम NAME		दिनांक एवं हस्ताक्षर SIGNATURE & DATE	
				अनुवादक TRANSLATED BY			
				निर्माणकर्ता WORKED BY		A SHARMA	
				जांचकर्ता CHECKED BY		AK MALHOTRA	
सहमत विभाग AGREED DEPTT.		नाम NAME		दिनांक एवं हस्ताक्षर DATE & SIGNATURE		पर्यवेक्षणकर्ता SUPERVISED BY RC BAJPAI	
समग्री सूची संख्या INVENTORY NO.				स्वीकृति : APPROVED : AGM (EME) KR GUPTA			
		REV.NO.		00		निर्माण : PREPARED : EME	
		Dt.		25.04.2009		जारी : ISSUED : EME	
						दिनांक : DATE : 25.04.2009	

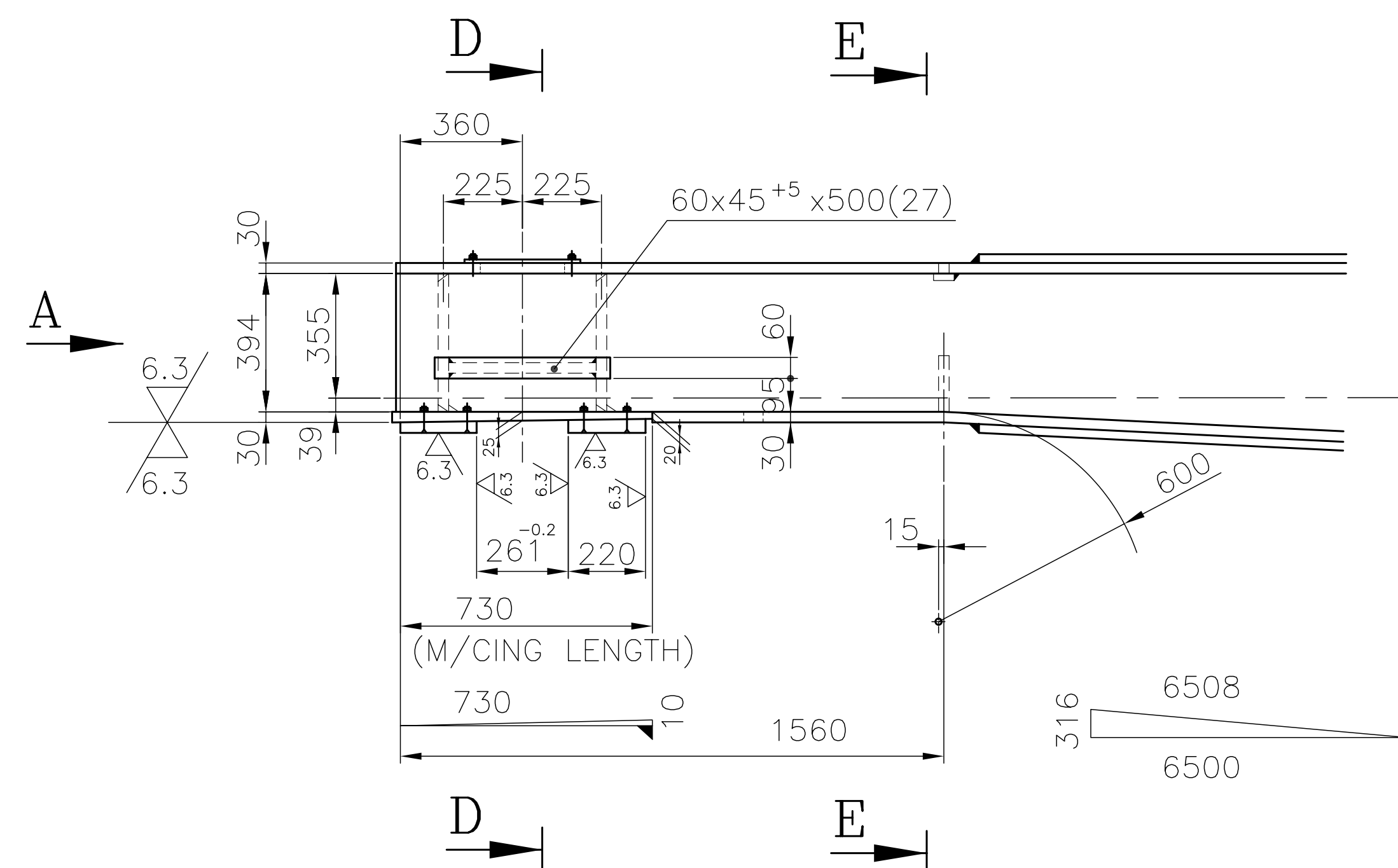
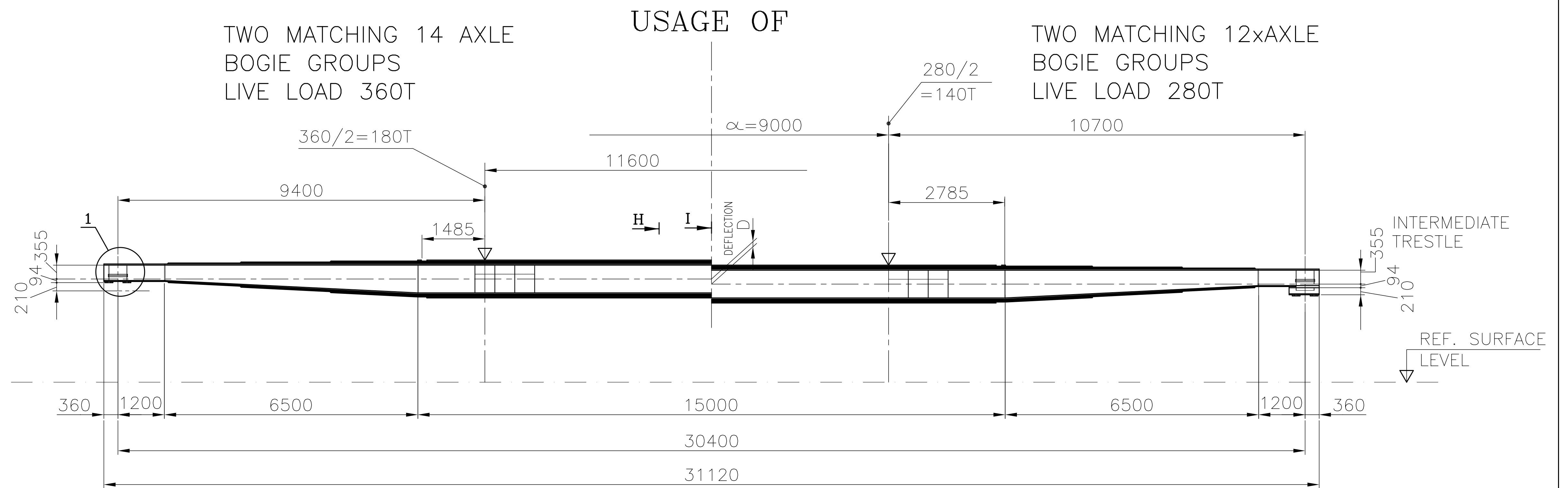
दिनांक एवं हस्ताक्षर SIGN & DATE			उत्पाद मानक		TG60675	
सामग्री सूची संख्या को अधिकृतित करता है			PRODUCT STANDARD ELECTRICAL MACHINES ENGINEERING		पृष्ठ 4 का 2 Page 2 of 4	
SUPERSEDES INVENTORY NO.		<div><div>4.2</div><div>All welding shall be carried out by qualified welders as per applicable codes, and all Weld checked by suitable NDT test</div></div> <div><div>4.3</div><div>Load tests for 280MT, 330 MT and 360 MT at respective loading points as per load diagram (and overload at 120% of 360 MT) on the beam supported at pivot points (30.40 MR apart). Deflections at different loads shall be recorded and verified with design values.</div></div> <div><div>4.4</div><div>Healthiness of the beam shall be checked after load tests.</div></div> <div><div>4.5</div><div>Test certificates shall be provided for Mechanical and chemical tests, NDT report, dimensional report and load, overload and deflection test reports</div></div> <div><div>4.6</div><div>BHEL or their authorized representative reserves the right to carry out inspection at supplier's works as per approved test plan.</div></div> <div><div>5.0</div><div><div>PAINTING, PACKING AND DESPATCH</div><div>The beam shall be primer coated, finish painted and dispatched in sea worthy packing to avoid any damage during transit. The machined surfaces under beam at the ends for lateral sliding shall be properly protected against rusting and accidental damage. The painting and lettering on beam shall be as per relevant BHEL drawing.</div></div></div> <div><div>6.0</div><div><div>GUARANTEE</div><div>The beam shall be guaranteed for freedom against defects in material and manufacturing for a period of 24 months from date of commissioning.</div></div></div> <div><div>7.0</div><div><div>EXPERIENCE/ QUALIFICATION REQUIREMENTS</div><div>Since beam is subjected to extremely high dynamic load conditions while transporting the Stators on Indian Railways, very high degree of reliability is desired. Therefore vendor shall submit documentary evidence in support of their experience in design, manufacture and supply of such beams in the past, to BHEL or other organizations for similar application. BHEL reserves right to reject the offer in absence of requisite documentary evidence.</div></div></div> <div><div>8.0</div><div><div>DOCUMENTS TO BE SUBMITTED BY VENDOR</div><div><div>8.1</div><div><div>AT THE TIME OF TENDER OFFER</div><div><div>8.1.1</div><div>Experience/ qualification details as per clause 7.</div></div><div><div>8.1.2</div><div>Calculated deflection values under beam's self load, loaded for 280MT, 330 MT and 360 MT(and overload at 120% of 360 MT)</div></div><div><div>8.1.3</div><div>Two copies of outline drawing of the beam with complete material details</div></div></div></div></div></div>				
COPYRIGHT AND CONFIDENTIAL The information on this documents is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company						
स्वत्वाधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप से किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए।						
हस्ताक्षर एवं दिनांक SIGN & DATE						
सामग्री सूची संख्या INVENTORY NO.						
REV.NO. 00		निर्माणकर्ता WORKED BY		A Sharma		
		जांचकर्ता CHECKED BY		AK Malhotra		

दिनांक एवं हस्ताक्षर SIGN & DATE				उत्पाद मानक		TG60675							
						पृष्ठ 4 का 3							
				PRODUCT STANDARD		Page 3 of 4							
				ELECTRICAL MACHINES ENGINEERING									
सामग्री सूची संख्या को अधिकृतित करता है		SUPERSEDES INVENTORY NO.		<p>8.1.4 Initial quality plan covering tests/ checks to be conducted during material induction, manufacturing process and final testing, and confirmation to various clauses of test plan at clause 4.0</p> <p>8.2 <u>AFTER PLACEMENT OF ORDER</u></p> <p>8.2.1 Detailed strength calculations and anticipated/ calculated deflections to be submitted in two copies.</p> <p>8.2.2 Detailed test plan as per clause 4.0</p> <p>8.2.3 Five sets of vendor's own manufacturing drawings and bill of materials (with standards) for acceptance and approval</p> <p>8.3 <u>AT THE TIME OF SUPPLY</u></p> <p>8.3.1 Five sets of test certificates as per test plan</p> <p>8.3.2 Guarantee certificate as per clause 6.0</p> <p>9.0 <u>CROSS REFERRED DOCUMENTS</u></p> <table><tr><td>1139 38 01168</td><td>Arrangement for compressed air brake lines</td></tr><tr><td>1139 38 01169</td><td>Support plate</td></tr><tr><td>1139 38 01170</td><td>Painting and Lettering scheme</td></tr></table>				1139 38 01168	Arrangement for compressed air brake lines	1139 38 01169	Support plate	1139 38 01170	Painting and Lettering scheme
1139 38 01168	Arrangement for compressed air brake lines												
1139 38 01169	Support plate												
1139 38 01170	Painting and Lettering scheme												
COPYRIGHT AND CONFIDENTIAL The information on this documents is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company													
स्वत्वाधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप से किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए ।													
हस्ताक्षर एवं दिनांक SIGN & DATE													
सामग्री सूची संख्या INVENTORY NO.	REV.NO. 00		निर्माणकर्ता WORKED BY	A Sharma									
			जांचकर्ता CHECKED BY	AK Malhotra									

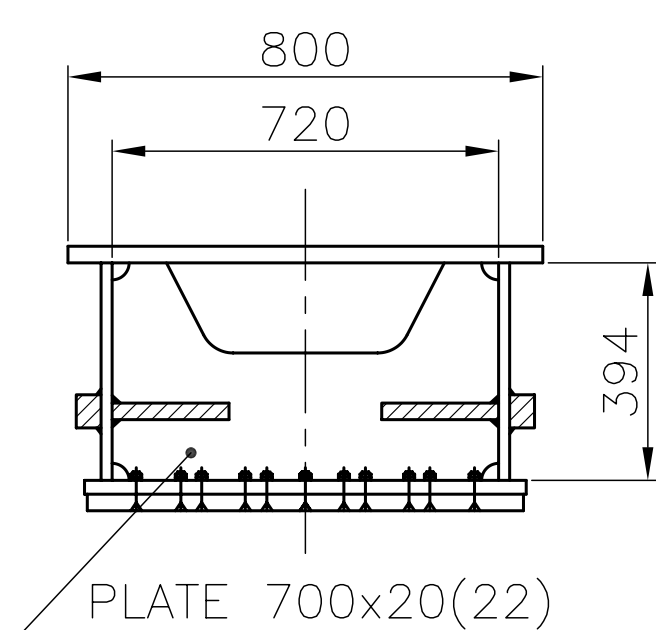


LOAD DIAGRAM

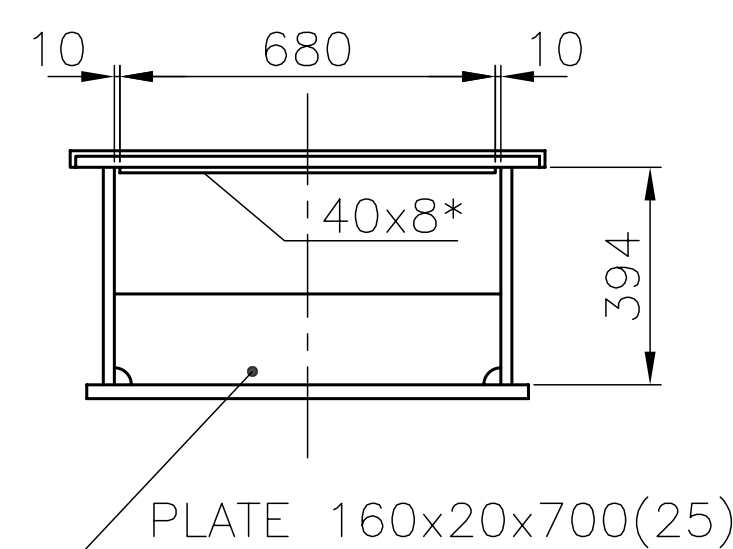
LOAD-DEFLECTION CHART (TYPICAL)		
LOAD (MT)	DISTANCE (mm)	DEFLECTION D (mm)
0	0	37
280	9000	266
330	10000	301
360	11600	310
432	11600	365



DETAIL-1



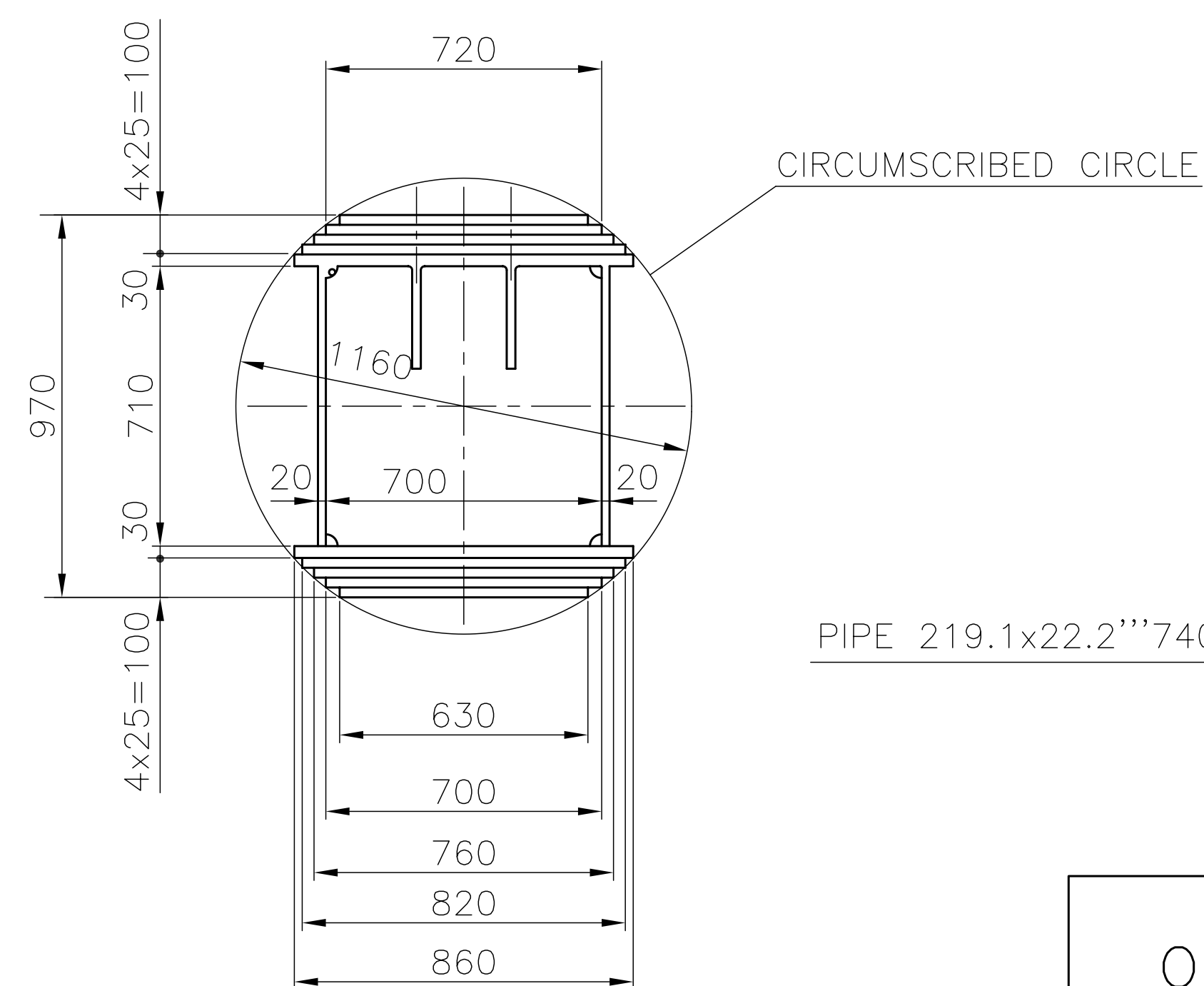
SECTION D-D



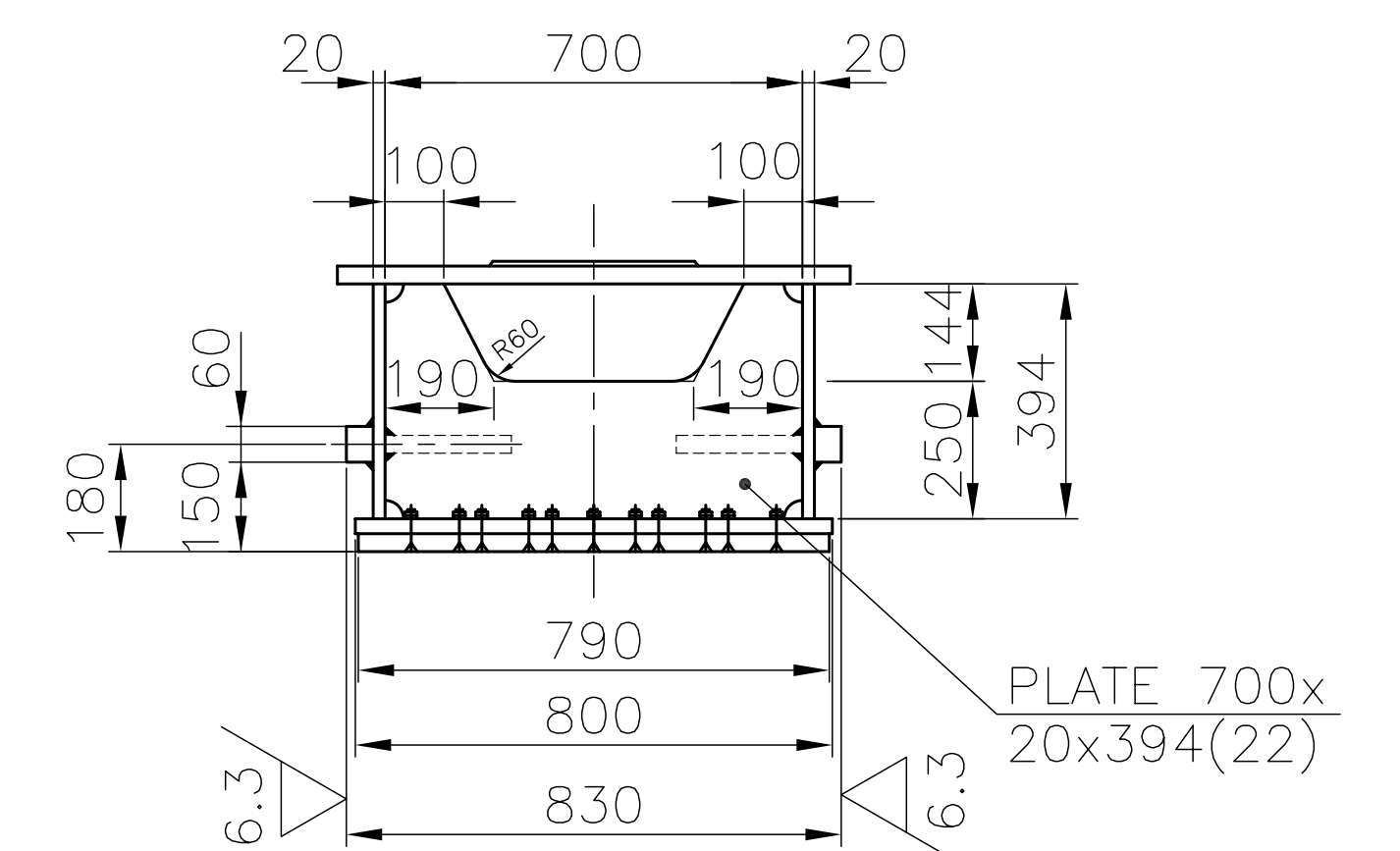
SECTION E-E

LOADING BEAM "C"

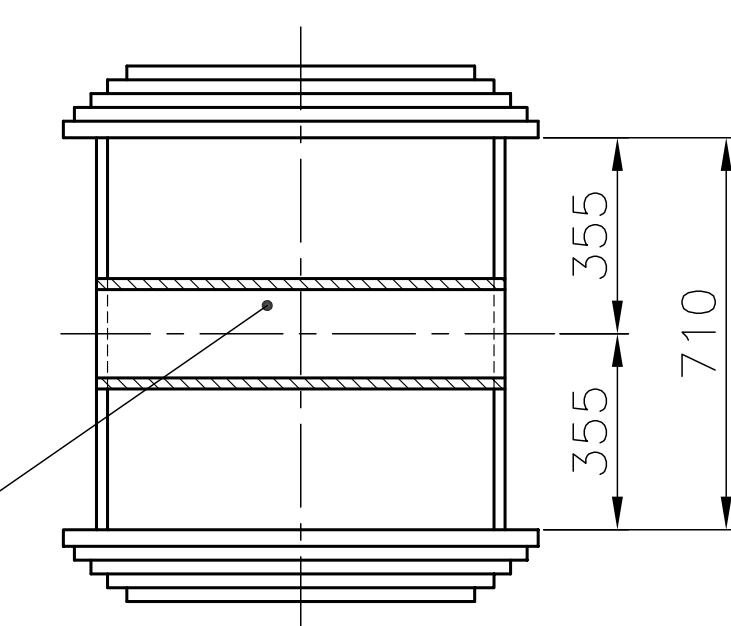
(STANDARD LOAD AND DEFLECTION VALUES)



SECTION H-H



VIEW-A



SECTION I-I

OUTLINE DIAGRAM OF LOADING BEAM-"C"

WEIGHT OF BEAM
46 MT (Typical)

TG60675
Sheet 04 of 04

Rev.
00