

**Annexure -II for Open Tender Enquiry proposal En-SSB1242**

<b>Sno</b>	<b>Purchasing Group</b>	<b>Material</b>	<b>Material Description</b>	<b>Drawing</b>	<b>Specification</b>	<b>Base Unit of Measure</b>	<b>Enquiry Qty</b>
1	SSB	963530760000	CHAIN 1-1/2"PITCH	32005100380/03	TSB026/07	M	<b>4000</b>
2	SSB	963530720000	TRAVERSE CHAIN 2"PITCH 3/380	32005100380/03	TSB026/07	M	<b>30000</b>
3	SSB	963530750000	CHAIN 3/4" PITCH	22000100012/07	TSB026/07	M	<b>20000</b>
4	SSB	963530790000	CONNECTOR.LINK 1-1/2" PITCH	22000100011/06	TSB026/07	NO	<b>1000</b>
5	SSB	963530730000	CONNECTOR LINK - 2" PITCH	32005100380/03	TSB026/07	NO	<b>3000</b>
6	SSB	963530770000	CONNECTOR LINK 3/4" PITCH	22000100012/07	TSB026/07	NO	<b>3000</b>
7	SSB	963530800000	OFFSET LINK1-1/2" PITCH	22000100011/06	TSB026/07	NO	<b>1000</b>
8	SSB	963530740000	OFFSET LINK 2" PITCH	32005100380/03	TSB026/07	NO	<b>1000</b>
9	SSB	963530780000	OFFSET LINK 3/4" PITCH	22000100012/07	TSB026/07	NO	<b>3000</b>
10	SSB	963534360000	DRAG CHAIN L=4300 MM	32096200652/10	TSB055/02	NO	<b>30</b>



## BHARAT HEAVY ELECTRICALS LIMITED

( A Govt. of India Undertaking )

High Pressure Boiler Plant

Tiruchirapalli 620 014

### PURCHASE VALVES

(To be filled and submitted along with Offer)

#### BHEL Commercial Terms and Conditions for INDIGENOUS SUPPLIERS FOR RC / NON RC – TWO BID SYSTEM To be furnished along with offer

	Technical confirmation to BHEL's Specification as called for in BHEL Format shall be furnished. If needed additional sheets shall be used.	Vendor's Confirmation / Comments
<b>Tender opening Route :</b>	<p><b>Tender opening consists of two part systems viz:</b></p> <p>1. Techno Commercial Bid &amp; 2. Price Bid.</p> <p>Techno Commercial Bid will be opened First.</p> <p>After scrutiny and evaluation of Techno Commercial offers, the Price bid will be opened with due intimation to vendors.</p>	
<b>Offers :</b>	Offers should be submitted only in a sealed cover super-scribing clearly the Enquiry No. and due date.	
<b>Prices :</b>	<b>Prices shall be quoted item/s wise to BHEL Material code wise and FIRM PRICE basis only as per the BHEL Enquiry.</b>	
<b>Offers :</b>	Offers should be submitted only in a sealed cover super-scribing clearly the Enquiry No. and Enquiry due date.	
<b>Validity of offer for NON-RC Items.</b>	<p><b><u>VALIDITY OF OFFER FOR NON---RC---ITEMS:</u></b></p> <p>Minimum for a period of 60 days from the date of Tender opening (or) Finalization of tender.</p>	
<b>Validity of offer for RC items</b>	<p><b><u>VALIDITY OF OFFER FOR RC--- ITEMS:</u></b></p> <p>Minimum for a period of 1 year (One year) from the date of Tender opening (or) Finalization of tender.</p>	
<b>Delivery Terms :</b>	FOR / BHEL / TRICHY basis only inclusive of P & F, Insurance and other charges if any.	
<b>Delivery period :</b>	Indicate the early delivery period in the offer	
<b>Liquidated damages :</b>	LD @ 0.5 % per week subject to a maximum of 10% of the order value shall be levied for Total PO value.	

**BHEL Commercial Terms and Conditions for  
INDIGENOUS SUPPLIERS FOR RC / NON RC – TWO BID SYSTEM  
To be furnished along with offer**

<b>Confirmation to BHEL'S Drawing / Specn. / TDC</b>	Item-wise confirmation to BHEL's Drawing/s / Specification / TDC is required in the offer itself.	
<b>Inspection :</b>	Final inspection by BHEL Inspector at BHEL, Trichy.	
<b>Inspection Charges</b>	Please indicate the Inspection charges if any in the offer itself and indicate the details of Inspection Agency.	
<b>Payment Terms :</b>	100% payment will be made after 45 days on acceptance of materials at our Stores.	
<b>Excise Duty : (ED)</b>	Indicate the Excise duty (ED) and Cess in the offer clearly if applicable. (ED 10.3% OR 12.36)	
<b>CST Tax Details :</b>	Indicate the CST - details in the offer clearly if applicable.	
<b>VAT Tax Details :</b>	Indicate the VAT - details in the offer clearly if applicable. (VAT 5% OR 14.5%)	
<b>Risk Purchase clause</b>	Risk Purchase shall be applicable as per BHEL Terms and Conditions. The Purchaser at his option will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or dispatch within the time stipulated or if the same were not available, the best and the nearest available substitute therefore.	
	The supplier shall be liable for any loss which the Purchaser may sustain by reason of such risk purchases	
<b>Guarantee :</b>	The equipment shall be guaranteed for a period of 12 months from the date of commissioning.	
<b>Warranty</b>	Any warranty replacement during warranty period shall be supplied free of cost on FOR / BHEL, Trichy basis.	
<b>Documents:</b>	The vendor shall provide necessary Invoice, Delivery challan, drawings, Test Certificates, Guarantee Certificates, Operating Maintenance Manuals and etc., as called for in the Technical Specification, in the required number of copies at no extra cost.	
<b>NOTE :-</b>	It is confirmed that all the terms and conditions stipulated in the Enquiry have been fully understood by us and all clarifications and details have been obtained.	

Signature & Office Seal of the vendor



# BHARAT HEAVY ELECTRICALS LTD

Valves/Purchase, Tiruchirappalli-620014, INDIA

## TERMS & CONDITIONS

Phone: 0431 257 7137

Email: imuthu@bheltry.co.in

pr@bheltry.co.in

Date: 04.03.2015

### 1. QUOTATIONS:

- a. **Submission of Tender:** Each offer should be sent in double cover separately and the same should be sealed and super scribed with correct Tender No., item of supply and due date of opening. Two or more quotations should not be sent in one cover. Price Bid should contain only Price in Rs per unit for each type. Tender should not be addressed to any individual's name but only by designation as below:

SR. MANAGER/PURCHASE/VALVES  
HIGH PRESSURE BOILER PLANT  
BHARAT HEAVY ELECTRICALS LIMITED  
TIRUCHIRAPPALLI - 620 014, TAMILNADU, INDIA

- b. **Late tenders:** Late tenders shall not be considered under any circumstance.
- c. **Regulations:** Tender should be accompanied by detailed technical literature, Catalogue and detailed dimensional drawings in ENGLISH. Tenders should be free from CORRECTION AND ERASURES. Corrections if any must be attested. All amounts shall be indicated both in words as well as figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall prevail.
- d. **Two Bid Systems:** The offers are invited in twopart bid system (Techno commercial & price Bid). First the Techno Commercial bid will be opened. Techno-commercially suitable vendors alone will be intimated for price bid opening or Reverse Auction.
- e. **PVC:** Price Variation clause not acceptable. Prices should be firm.
- f. **Catalogue:** Manufacturer's name, Trade Mark or Patent No. if any should be specified. Illustrative leaflets giving technical particulars are required along with quotation wherever necessary.
- g. **Acceptance:** The purchaser shall be under no obligation to accept the lowest or any other tender and shall be entitled to accept or reject any tender in part or full without assigning any reason whatsoever.
- h. **Samples:** Samples should be submitted separately if specially requested in tender before due date of the enquiry. They should be clearly marked with the enquiry No and date on the outside cover to facilitate identification.
- i. **Spares:** The tenderer should quote separately for spares that are required for two years trouble free operation. The spares offer should accompany the offer of main equipment; otherwise the quotation will be overlooked.

### 2. COMMERCIAL TERMS & CONDITIONS:

- a. **Terms of Payment:**  
**For Indigenous Suppliers:** 100% after 45 days on satisfactory receipts and acceptance of material at BHEL stores/ Site acknowledgement.  
**For Import Suppliers:** 100% payment against presentation of documents through Bank.  
No other payment term is acceptable to BHEL.
- b. **Liquidated Damage:** A sum equivalent to 0.5% of price for every week up to a maximum of 10% for total PO values
- c. **Delivery Terms:**  
**For Indigenous Suppliers:** EXW as mentioned in enquiry inclusive of freight and insurance.  
**For Import Suppliers:** FOB nearest SEA Port/FCA nearest AIR port.
- d. **Validity of Offer:** Prices should be valid for 60 days.
- e. **Taxes & Duties:** If any Sales Tax is payable as extra to the quoted price, it should be specifically stated in quotation along with CST & T.N.G.S.T No. failing which the purchaser will not be liable for payment of Sales Tax. Our T.N.G.S.T No. 3550005 Dated 01-04-1995 C.S.T. No. 259383 Dt. 11.06.1991 . Quoted prices should be exclusive of taxes and duties.
- f. **Guarantee Clause:** The vendor shall give a guarantee for the performance of his supplies for a period of eighteen months from the date of dispatch or twelve months from the date of commissioning whichever is earlier.
- g. **Risk Purchase:** Alternatively the purchaser at their option will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of seller either the whole of goods or any part which the supplier has failed to deliver or dispatch within the time stipulated as aforesaid or if the same were not available, the best and the nearest available substitute therefore. Supplier shall be liable for any loss which the purchaser may sustain by reason for such risk purchases in addition to penalty at the rate mentioned in clause 2.b above.
- h. **Preferential Delivery:** If a contract is placed on a higher tender as a result of this invitation to tender in preference to the lowest acceptable offer in consideration of the earliest delivery, the seller will be liable to pay to the purchaser the difference between the contract rate and that of the lowest acceptable tender on the basis of final price FOR destination, including all elements of freight, sales tax, duties and other incidents, incidental in case of failure to complete supplies in terms of such contract within the date of delivery specified in the tender and incorporated in the contract.



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- i. **MODVAT/CREDIT:** If any Excise Duty is payable, the chapter head/sub-head reference and the rate of the duty should be quoted. If the tender is availing MODVAT credit for his input materials, the effect of proforma invoice should be passed on to the purchaser.
- j. **Miscellaneous:** Any Other conditions which might have been quoted by the seller and are in contravention to the terms prescribed, the order and which have not been specifically accepted in by Purchaser will not be applicable to the contract.
- k. **Delivery:** Delivery schedule shall be strictly as per BHEL tender requirement which are as indicated against each item in our tender. If supplier offers more than this delivery period BHEL will operate 0.5% loading factor for evaluation of their offer for every week delay.
- l. **Performance Bank Guarantee:** If tender Calls for Performance Bank Guarantee, Vendor should provide a performance bank guarantee (PBG) for 10% of the total Purchase order value valid for warranty/guarantee period with an additional claim period of 2 months.
- m. **Counter offer:** BHEL reserves the right to counter offer with vendors other than L1, in order to have broader vendor base for ensuring delivery. Counter offering will be restricted to 03 vendors, L1 vendors, as finalized, shall be counter offered to the other bidders. In case any bidders do not accept the L1 rates, the counter offer may be extended to other bidders.
  - (i) If one vendor alone accepting the counter offer rates, loading shall be 60:40 on L1:L2.
  - (ii) If two vendors are accepting the counter offer rates, loading shall be 50:30:20 on L1:L2:L3.
  - (iii) If three vendors are accepting the counter offer rates, loading shall be 40:30:20:10 on L1:L2:L3 & L4.
  - (iv) If four vendors are accepting the counter offer rates, loading shall be 40:20:15:15:10 on L1:L2:L3, L4 & L5.
  - (iv) Highest rate bidder will not be considered for this tender, in case of more than four responses for each enquiry serial numbers.
- n. **Reverse Auction:** BHEL reserves the right to go for a Reverse Auction (RA) instead of Opening the price bid, which will be decided after techno-commercial bid evaluation. Information and general terms and conditions governing RA are given below:-

### GENERAL TERMS AND CONDITIONS OF RA

Against this enquiry for the subject item/system with detailed scope of supply as per enquiry specifications, BHEL may resort to "REVERSE AUCTION PROCEDURE" i.e., ON LINE BIDDING ON INTERNET.

- a. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
- b. BHEL will engage the service provider who will provide all the necessary training and assistance before commencement of on line bidding on internet.
- c. BHEL will inform the vendor in writing in case of reverse auction, the details of Service Provider to enable them to contact & get trained.
- d. Business rules like event date, time, Start price, bid decrement value; extensions etc. also will be communicated through service provider for compliance.
- e. Vendors have to mail/fax the Compliance form in the prescribed format (provided by the Service provider) before the start of the Reverse auction. Without this, the vendor will not be eligible to participate in the event.
- f. BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Cost to BHEL" like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the vendor to enable them to fill-in the price and keep it ready for keying in during the Auction.
- g. Reverse auction will be conducted on the scheduled date & time.
- h. At the end of Reverse Auction event, the lowest bidder value will be known on the network.
- i. The lowest bidder has to mail/fax the duly signed Filled-in prescribed format as provided on case-to-case basis to BHEL through Service provider within 24 hours of Auction without fail.
- j. Any variation between the on-line bid value and the signed document will be considered as sabotaging the tender process and will invite disqualification of vendor to conduct business with BHEL as per prevailing procedure.

### 3. GENERAL CONDITIONS

- a. All items shall be supplied as per the Purchase Specifications mentioned in our Enquiry to the latest applicable revision / Drawing
- b. BHEL reserves the right to finalize the tender as per item sl no wise or as a total package or project wise. Separate orders will be released for each project and documents should be supplied for each order separately.
- c. BHEL reserves the right to increase or reduce or split the Tender Quantity and to NOT to order for some or all material based on the changes in project.



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- d. BHEL shall have the right to visit vendor works during the execution of contract along with end customer for verifying status, inspection and testing of the material.
- e. BHEL reserves the right to negotiate or re-float the tender in case the quoted prices are not acceptable.
- f. Supplier shall arrange packing to avoid lose or damages during Road Transport, Site handling & Storage.
- g. Purchase Order, PO Item SI No, Material code, Quantity should marked the Packing clearly.
- h. Confirmation for compliance is to be given in the offer for all the conditions specified above and to the respective Purchase Specification.
- i. Vendors shall give dispatch schedule to BHEL for various items against the pending orders once in 15 days.

#### **4. DOCUMENTATION:**

##### **For Indigenous suppliers:-**

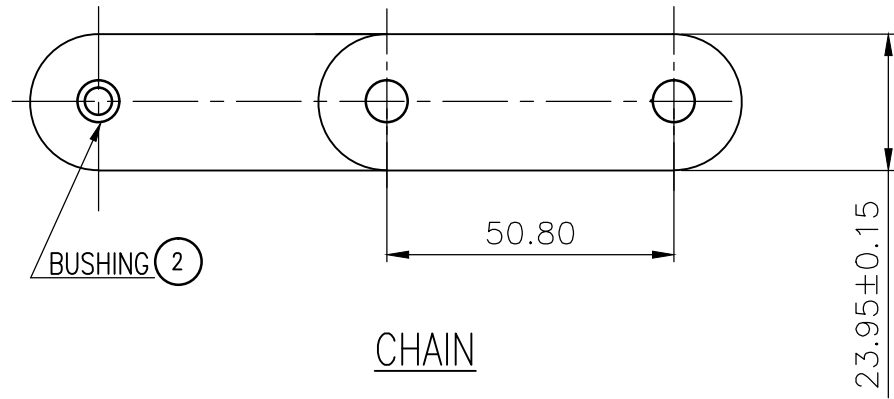
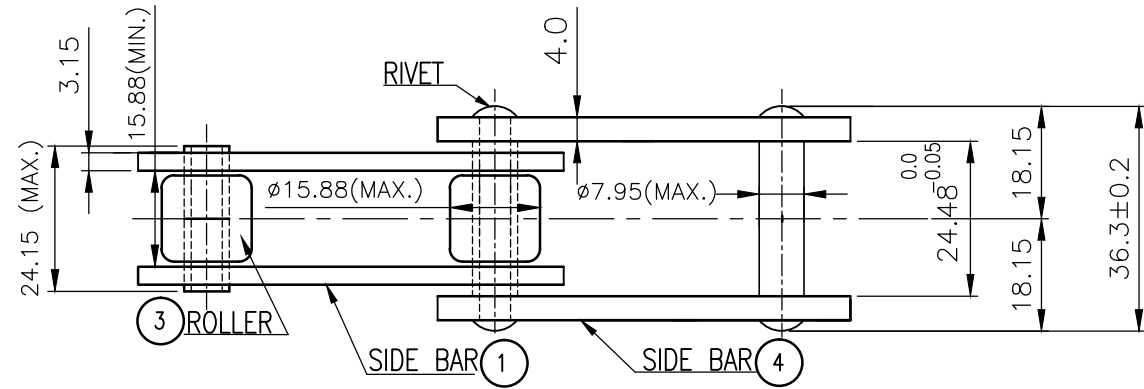
- a. **With Consignment:** Duplicate for transporter copy of Invoice, Packing List, Delivery Challan, O&M manual Material Test Certificate, Test Certificates, Calibration Report, Compliance Certificate & Guarantee/Warrantee Certificate etc...
- b. **Online Submission:** Supplier should upload the soft copy of all Test Certificates in BHEL website <http://vis.bheltry.co.in/vis/index.jsp> at Vendor information system tab.
- c. **To Finance:** Original and Duplicate Invoice for payment with GR reference ,should be sent directly to  
**Sr Manager/Finance/Valves-Bills section**  
**HPBP BHEL Tiruchirappalli-620014, Tamilnadu.**

##### **To Purchase:**

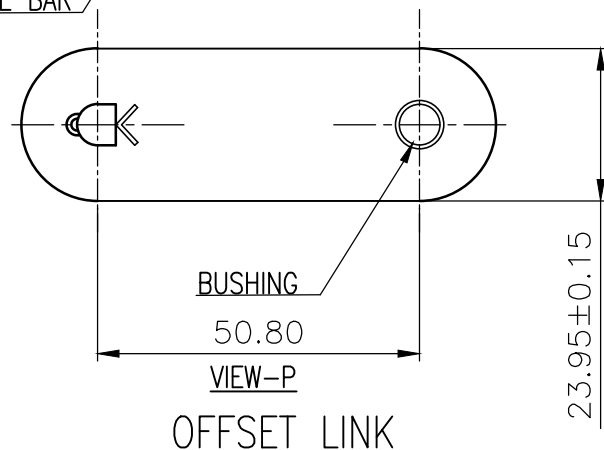
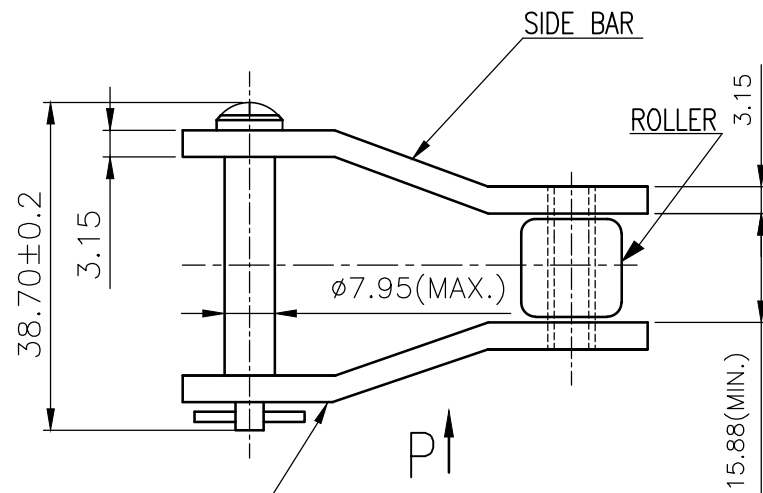
- i. **FOR BHEL TRICHY case-**Copy of Invoice, Packing list, LWB and Delivery challan for reference, original IBR documents/Inspection despatch clearance certificates
- ii. **FOR Site case-** Original Excise Invoice, Original LWB, Original Packing List, Original IBR documents, Original despatch clearance Certificate, Original Inspection report, Test certificates as per PO,Original Site Acknowledgment etc...
- d. **Identification:**, Purchase Order, PO item SI No, Material code, quantity, Unique SI No if any should be provided in all despatch documents, materials and packing clearly.

ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP.

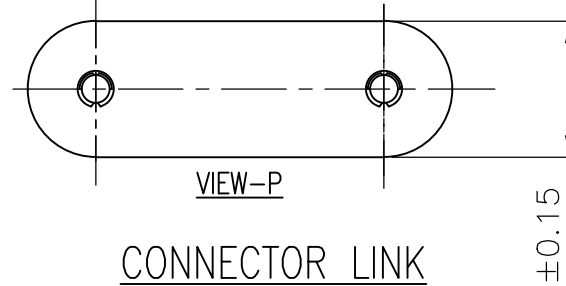
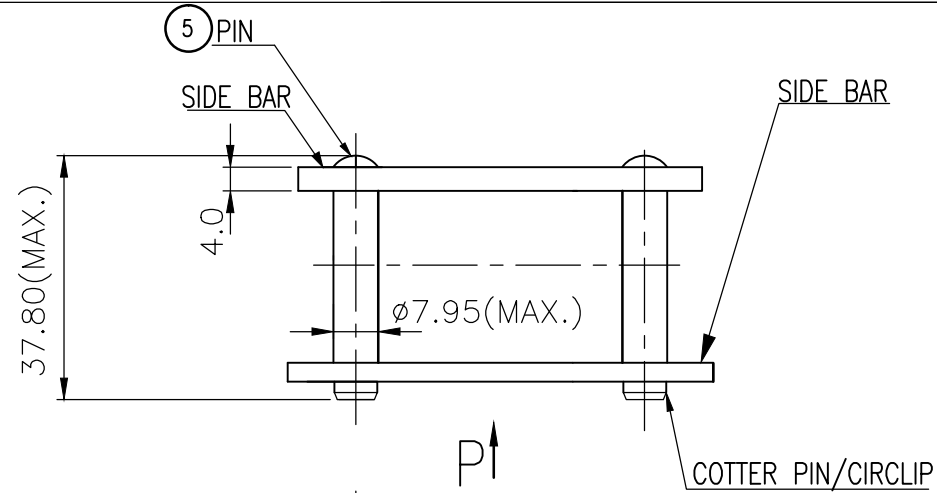
08300-150-07-3  
DRAWING NO.



CHAIN



OFFSET LINK



CONNECTOR LINK

SPECIFICATIONS:

1. STANDARD USED : ASA B-29.4
2. ZINC-COBALT PLATING THICKNESS: 8 MICRONS.
3. TO BE LUBRICATED THROUGHOUT WITH LUBRICANT SPECIFIED SEPARATELY.
4. AFTER ASSEMBLY CHAIN IS TO BE PRESTRESSED WITH 8400LBS LOAD.
5. THE AVERAGE ULTIMATE STRENGTH OF THE MATERIALS USED 14,500 LBS.
6. THE MINIMUM ULTIMATE STRENGTH IS 14,000 LBS.
7. ALL PIN SHOULD BE HARD CHROMIUM PLATED TO MINIMUM THICKNESS OF 25 MICRONS.

NOTES FOR ASSEMBLY:

TYPE 2080 STRAIGHT INSIDE SIDE BAR( ITEM No. 01 ) ZINC-COBALT PLATED.  
ASSEMBLED WITH RC80(H) 410 STAINLESS STEEL BUSHING (ITEM No. 2) & CARBON STEEL ROLLER ZINC-COBALT PLATED. THE BUSHING EXTENDS 0.8 MM BEYOND THE SIDE BAR ON EACH SIDE. THE OUTSIDE SIDE BAR (ITEM No. 4) C2080(H) STEEL, ZINC-COBALT PLATED. THE RIVET PIN WILL BE C2080(H),(ITEM No.5) MADE OF 420 STAINLESS STEEL HARD CHROMIUM PLATED 25 MICRONS MINIMUM THICKNESS. ALL INTERNAL SPACES WILL BE FITTED WITH LUBRICANT ASHLAND TECTYL# 435 WITH COATING AND LUBRIPLATE 630AA ON ALL EXTERNAL SURFACES.

NO OFF	DESCRIPTION	MATL CODE	MATL SPECN	HEAT TREATMENT	SCRAP SORT	NET WT (kg)	GROSS WT (kg)	DRAWING No	ITEM No
-	-	-	-	-	-	-	-	-	-

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.										
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT										
BHARAT HEAVY ELECTRICALS LTD. UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI 620014.				DRN	J.SANKAR	SIGN	J.S	DATE	29.11.13	NO.OF VAR.
				CHD	S.K.GUPTA	S.K.G		DATE	29.11.13	
				APPD	HIRENDRA RAUT	H.R		DATE	29.11.13	
DEPT	SB	SCALE	WEIGHT (KG).	REFERENCE INFORMATION				NO. OF ITEMS		
CODE	330	NTS	-							
TITLE						CARD CODE	DRAWING NO.		REV	
CHAIN ASSEMBLY 2" PITCH TRAVERSE						U 01	3-20-051-00380		03	

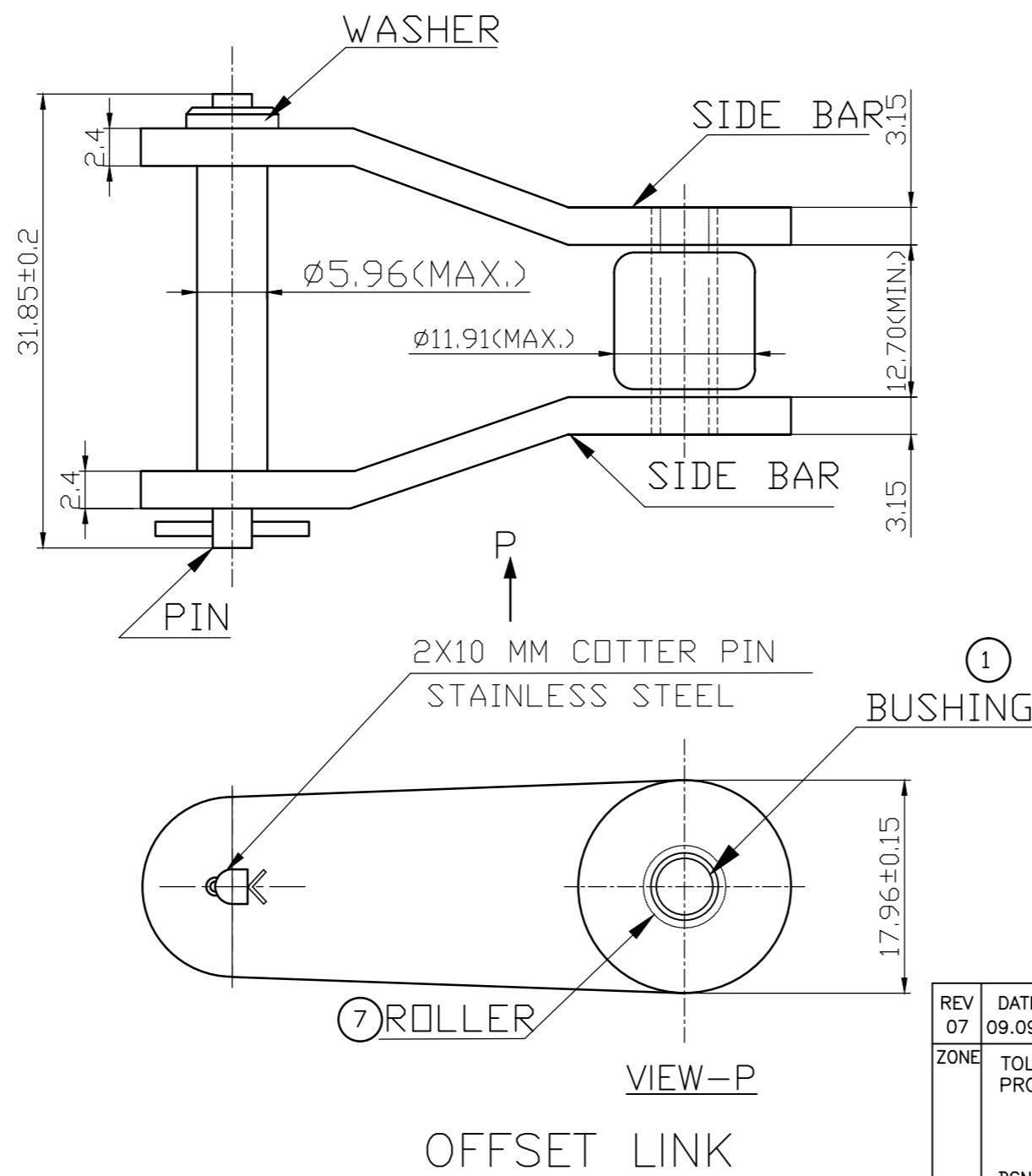
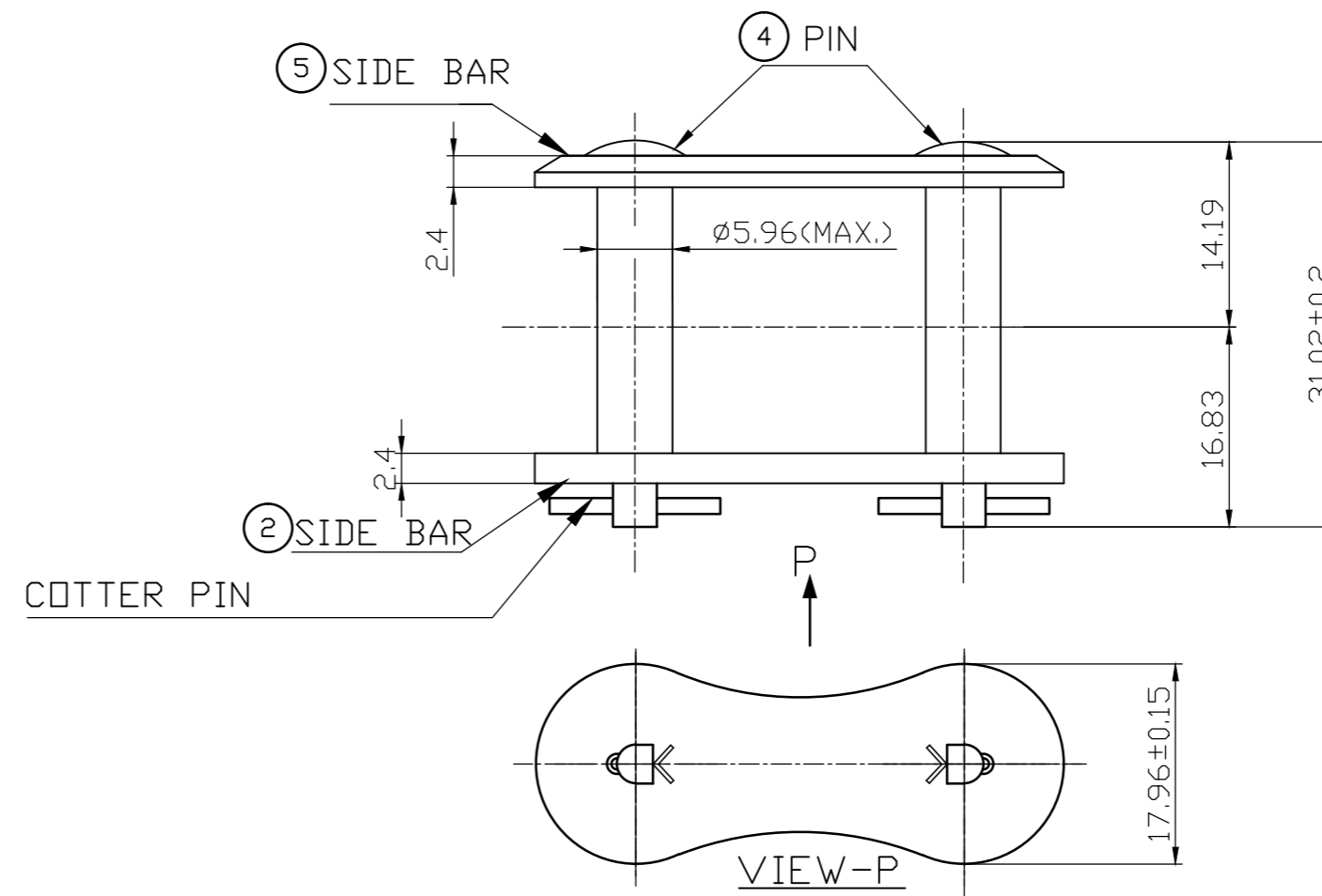
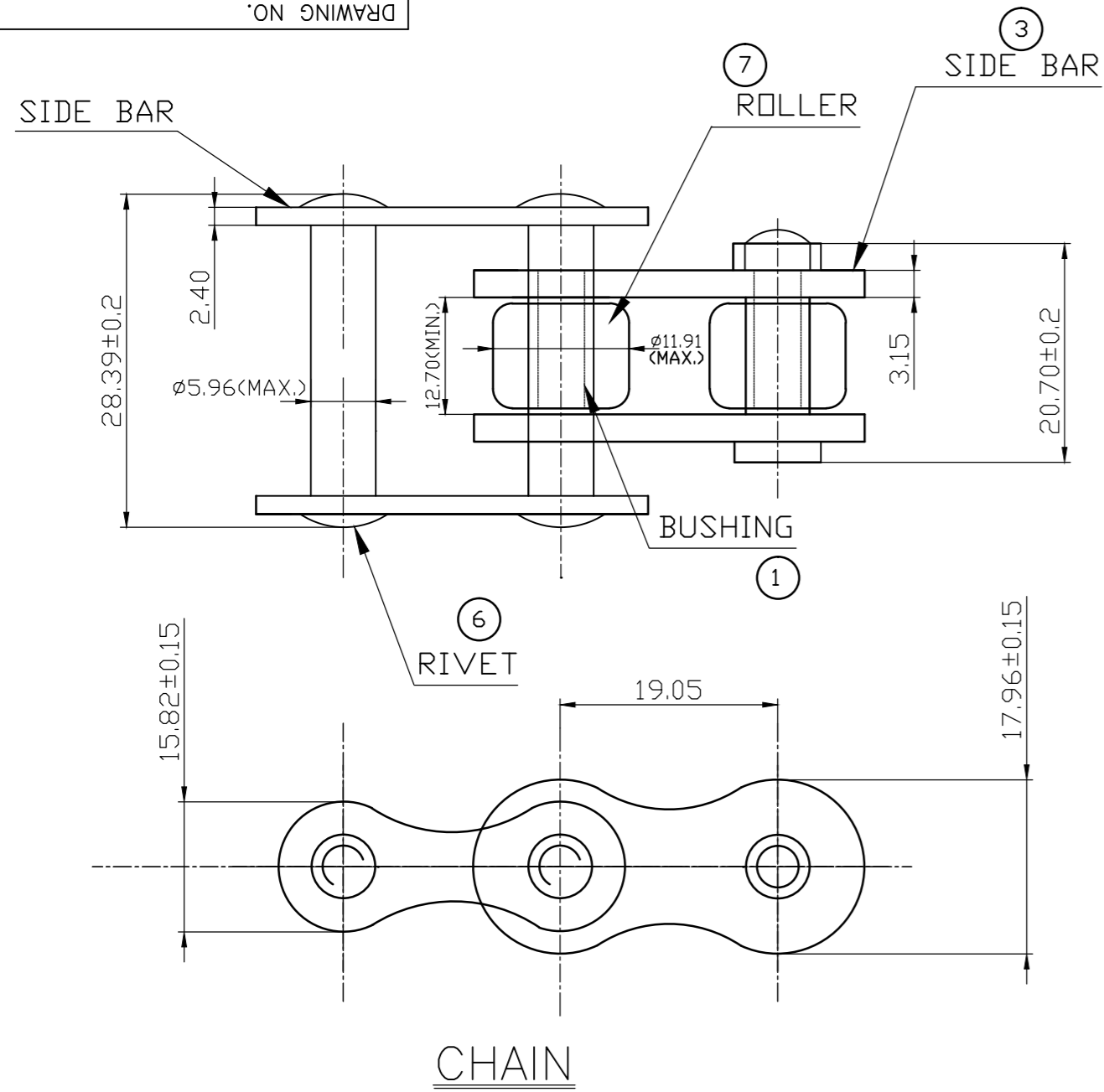
REV	DATE	ALTERED	J.S
03	09.09.14	CHD & APPD	S.K.G & H.R

TOLERANCES FOR DIMENSIONS PROVIDED.

DCN:SB:801795/5018604

DRAWING NO. 2-20-001-00012

ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP



**SPECIFICATIONS:**

1. STANDARD USED :ASA B-29.1
2. ZINC-COBALT PLATING THICKNESS:8 MICRONS.
3. TO BE LUBRICATED THROUGHOUT WITH LUBRICANT SPECIFIED SEPARATELY.
4. AFTER ASSEMBLY CHAIN IS TO BE PRESTRESSED WITH 6000LBS LOAD.
5. THE AVERAGE ULTIMATE STRENGTH OF THE MATERIALS USED 10,000 LBS.
6. ZINC-COBALT PLATING TO BE CARRIED OUT FOR THE FOLLOWING ITEMS : ITEM Nos. 2 TO 7 & SIDE BARS AND PIN OF OFFSET LINK.
7. THE MINIMUM ULTIMATE STRENGTH IS 9,500LBS.
8. ALL PIN SHOULD BE HARD CHROMIUM PLATED TO MINIMUM THICKNESS OF 25 MICRONS.

**NOTES FOR ASSEMBLY:**

RC60(H) CHAIN WITH RC60 STRAIGHT INSIDE SIDE BAR ( ITEM No. 5 ) ZINC-COBALT PLATED (3.15 MM) ASSEMBLED WITH RC60(H) 410 STAINLESS STEEL BUSHING (ITEM No.1) & RC60 ZINC-COBALT PLATED ROLLER (ITEM No.7)THE BUSHING EXTENDS 0.8 MM BEYOND THE SIDE BAR ON EACH SIDE. THE OUTSIDE SIDE BAR (ITEM3) WILL BE RC60(H) ZINC-COBALT PLATED RELIEVED TYPE SIDE BAR (2.4 MM). THE PIN & RIVET (ITEM No. 4 & 6) WILL BE 420 STAINLESS STEEL RC60(H) RIVETED TYPE. THE ENTIRE CHAIN WILL BE DIPPED IN LUBRICANT. PRESTRESS CHAIN WITH 6000LBS LOAD. ALL INTERNAL SPACES WILL BE FITTED WITH LUBRICANT ASHLAND TECTYL# 435 WITH COATING AND LUBRIPLATE 630AA ON ALL EXTERNAL SURFACES.

No OFF	DESCRIPTION	MATL CODE	MATL SPECN	HEAT TREATMENT	SCRAP SORT	NET WT (kg)	GROSS WT (kg)	DRAWING No	ITEM No

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

	<b>BHARAT HEAVY ELECTRICALS LTD.</b> UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI - 620014.		DRN	J. SANKAR	SIGN	J.S	DATE	18.06.10	NO.OF VAR.
	CHD	K. SRIDHARAN	K.S	18.06.10					
	APPD	K. SRIDHARAN	K.S	18.06.10					

DEPT	365-125	SCALE	WEIGHT (KG)	REFERENCE INFORMATION	NO. OF ITEMS
SB		NTS	-	-	
CODE	330				

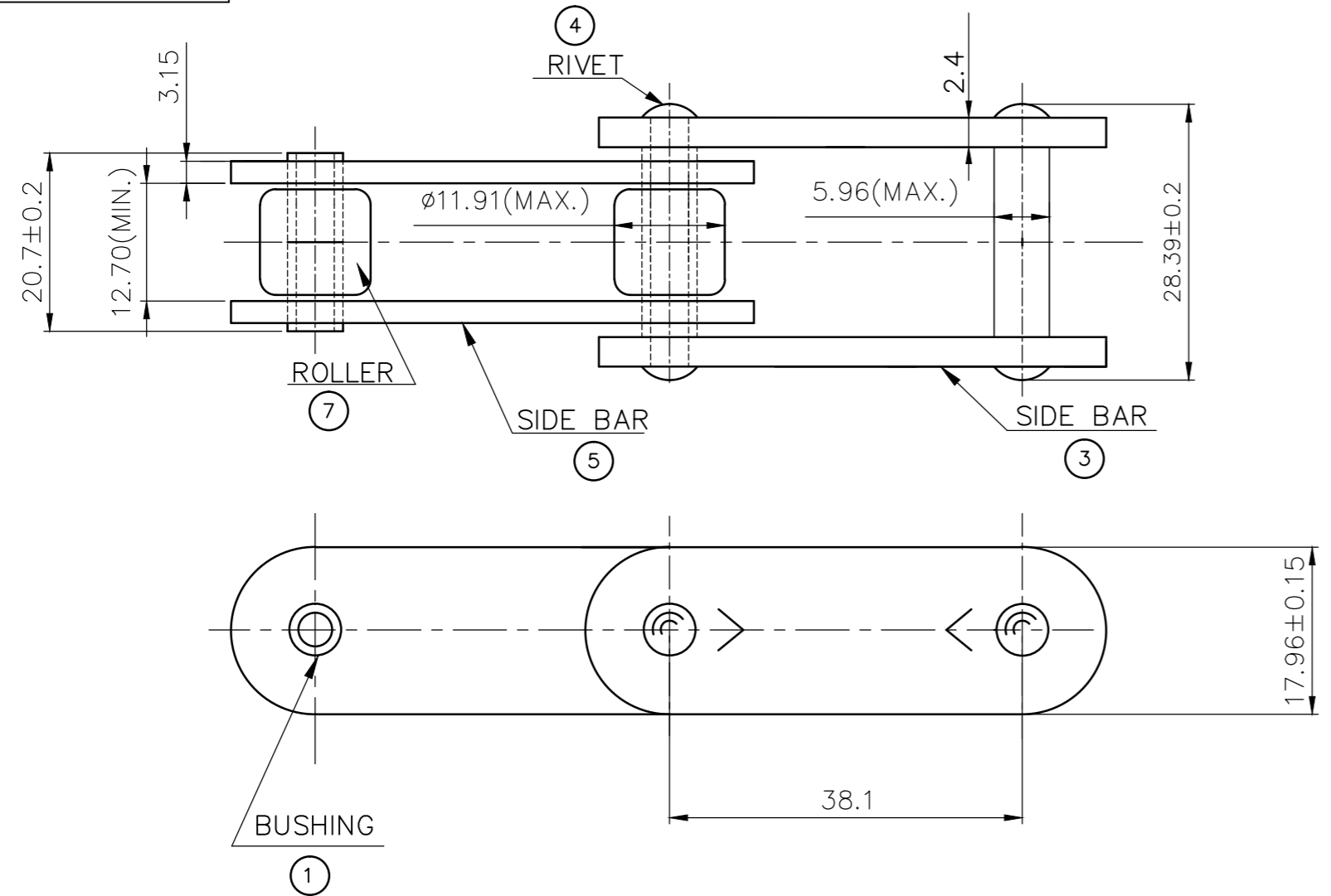
TITLE: R.C 60H 3/4 PITCH ROTARY CHAIN. CARD CODE: U 01. DRAWING NO.: 2-20-001-00012. REV: 07

REV	DATE	ALTERED	J.S
07	09.09.14	CHD & APPD	S.K.G & H.R
TOLERANCES FOR DIMENSIONS PROVIDED.			
DCN:SB#801807/5018666			

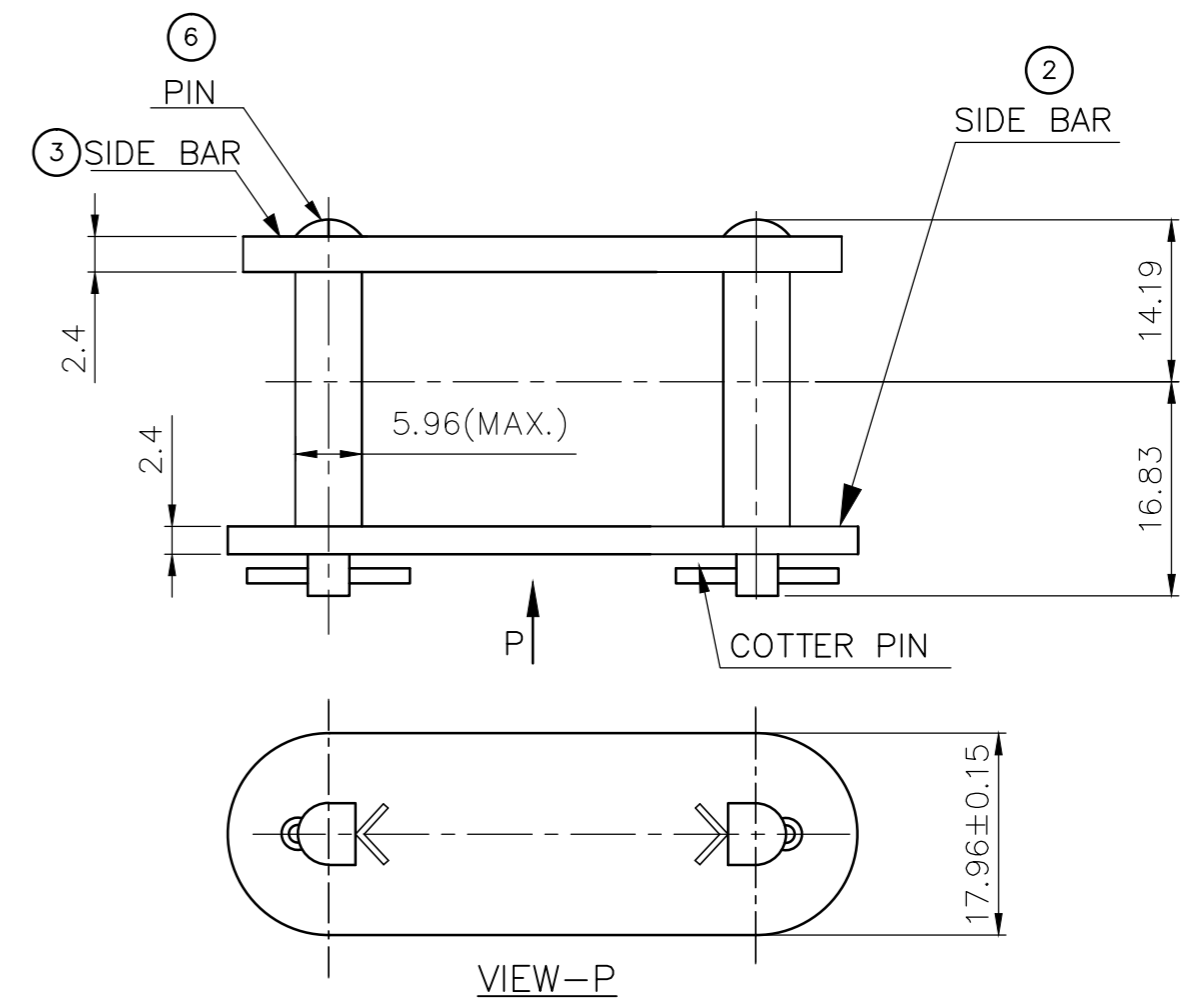
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DRAWING NO. 2-20-001-0011

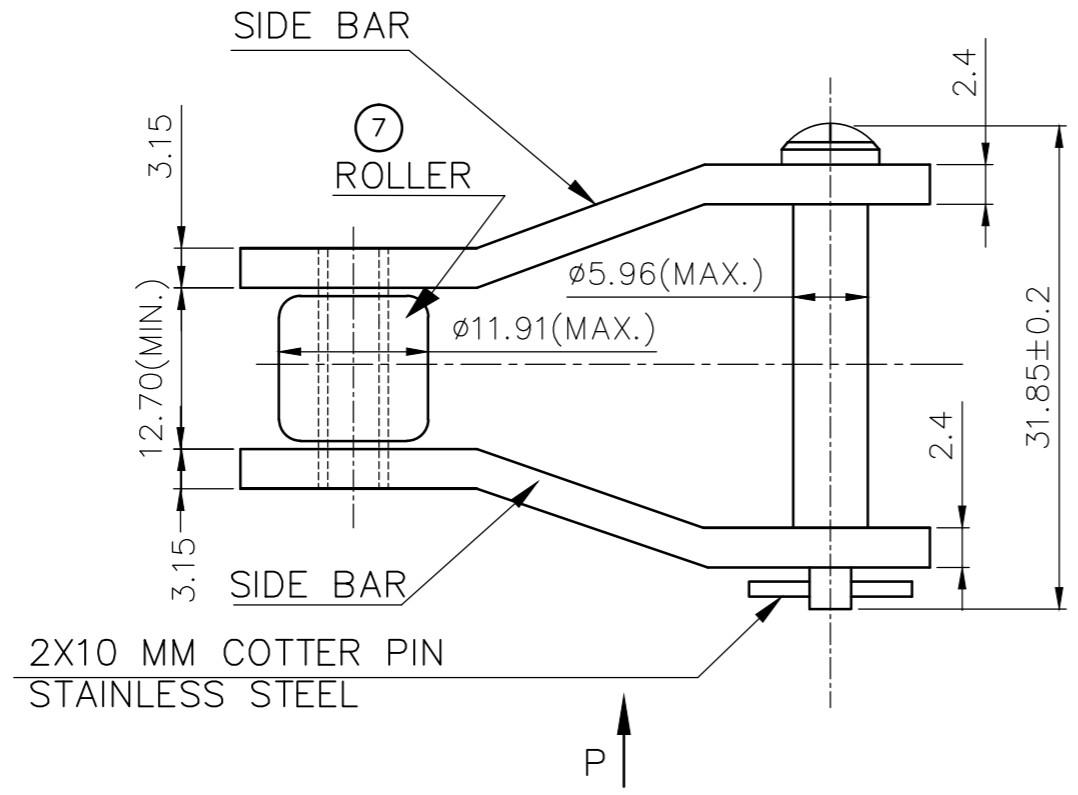
ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP



CHAIN



CONNECTOR LINK



2X10 MM COTTER PIN  
STAINLESS STEEL

OFFSET LINK

SPECIFICATIONS:

1. STANDARD USED :ASA B-29.4
2. ZINC-COBALT PLATING THICKNESS: 8 MICRONS.
3. TO BE LUBRICATED THROUGHOUT WITH LUBRICANT SPECIFIED SEPARATELY.
4. AFTER ASSEMBLY CHAIN IS TO BE PRESTRESSED WITH 6000LBS LOAD.
5. THE AVERAGE ULTIMATE STRENGTH OF THE MATERIALS USED 10,000 LBS.
6. ZINC-COBALT PLATING TO BE CARRIED OUT FOR THE FOLLOWING ITEMS:  
ITEM Nos. 2 TO 7 & SIDE BARS AND PIN OF OFFSET LINK.
7. THE MINIMUM ULTIMATE STRENGTH IS 9,500LBS.
8. ALL PIN SHOULD BE HARD CHROMIUM PLATED TO MINIMUM THICKNESS OF 25 MICRONS.

NOTES FOR ASSEMBLY:

TYPE 2061 STRAIGHT INSIDE SIDE BAR( ITEM No. 5 )ZINC-COBALT PLATED (3.15 MM)  
ASSEMBLED WITH RC60(H) 410 STAINLESS STEEL BUSHING (ITEM No. 1) &  
RC60 ROLLER (ITEM No. 7) ZINC-COBALT PLATED. THE BUSHING EXTENDS 0.8 MM BEYOND  
THE SIDE BAR ON EACH SIDE. THE OUTSIDE SIDE BAR (ITEM No. 3) IS C2060 STRAIGHT SIDE BAR (2.4 MM) ZINC-COBALT  
PLATED. THE PIN & RIVET (ITEM No. 4 & 6) WILL BE 2060(H)-RC 60(H) MADE OF 420 STAINLESS STEEL.  
THE ENTIRE CHAIN WILL BE DIPPED IN LUBRICANT. PRESTRESS CHAIN  
WITH 6000LBS LOAD. ALL INTERNAL SPACES WILL BE FITTED WITH LUBRICANT  
ASHLAND TECTYL# 435 WITH COATING AND LUBRIPLATE 630AA ON ALL EXTERNAL SURFACES.

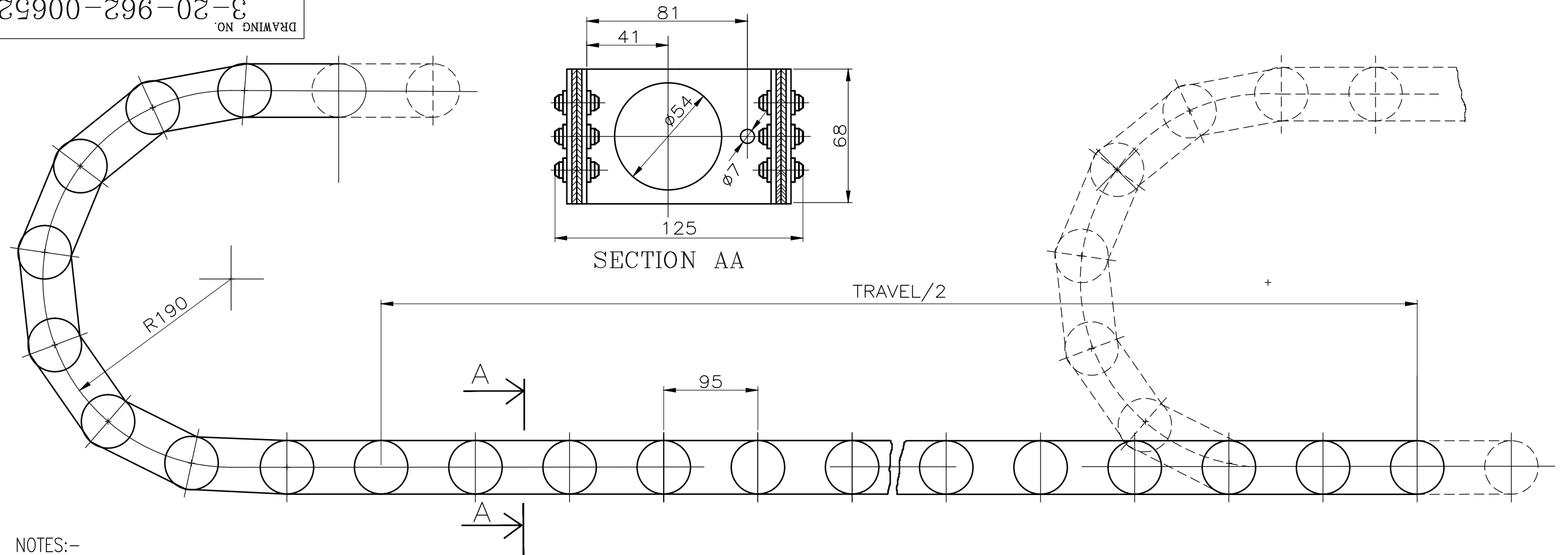
No OFF	DESCRIPTION	MATL CODE	MATL SPECN	HEAT TREATMENT	SCRAP SORT	NET WT (kg)	GROSS WT (kg)	DRAWING No	ITEM No
	TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT	BHARAT HEAVY ELECTRICALS LTD., UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI - 620014.							
	DEPT	SB	SCALE	WEIGHT (KG)	REFERENCE INFORMATION	NO.OF VAR.			
	CODE	330	NTS	-	-	NO.OF ITEMS			
	TITLE	1 1/2 C.2060 D.P. TRAVERSING CHAIN			CARD CODE	DRAWING NO.		REV	
				U 01	2-20-001-00011		06		

REV	DATE	ALTERED	J.S
06	09.09.14	CHD & APPD	S.K.G & H.R
TOLERANCES FOR DIMENSIONS PROVIDED.			
DCN:SB:801807/5018666			

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

ALL DIMENSIONS ARE IN MILLIMETRES. FOR TOLERANCES OF UNTOLERANCED DIMENSIONS DURING MANUFACTURE REFER RELEVANT QCP / QP.

3-20-962-00652  
DRAWING NO.



NOTES:-

1. NECESSARY SAFETY RINGS AND BOLTS ARE ALSO TO BE SUPPLIED ALONG WITH DRAG CHAIN.
2. ALL THE PARTS ARE TO BE CADMIUM PLATED EXCEPT PINS. PINS ARE TO BE ZINC PLATED.
3. ALL THE CHAIN LINKS ARE TO BE PRELUBRICATED.
4. THE DRAG CHAIN SHOULD BE SUPPLIED WITH PRETENSION.
5. FOR QUALITY REQUIREMENTS REFER LATEST APPLICABLE QUALITY PROCEDURES.

VAR.No.	TRAVEL	LENGTH	PART CODE
1	6200	4050	963534110000
2	9000	5450	
3	4100	3000	
4	5300	3600	
5	6700	4300	963534360000
6	5100	3500	
7	6900	4400	963534360100
8	7200	4550	963534360200
9	7500	4700	963534360300

REV	DATE	ALTERED	J.S
10	19.11.14	CHD & APPD	S.K.G & H.R

VARIANT No: 09 ADDED.

DCN : SB : 801822/5018805

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NO OFF	DESCRIPTION	MATL CODE	MATL SPECN	HEAT TREATMENT	SCRAP SORT	NET WT (kg)	GROSS WT (kg)	DRAWING No	ITEM No
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT									
BHARAT HEAVY ELECTRICALS LTD., UNIT: HIGH PRESSURE BOILER PLANT. TIRUCHIRAPALLI-620014.						DRN	J.SANKAR	SIGN	J.S
365-121						CHD	SHIVAM	SIGN	S.K.G
						APPD	SRIDHARAN	SIGN	K.S
DEPT SB						SCALE NTS		REFERENCE INFORMATION	
CODE 330						WEIGHT (KG)		TSB:055	
TITLE DRAG CHAIN						CARD CODE U 01		DRAWING NO. 3-20-962-00652	
								REV 10	



**PRODUCT ENGINEERING / V & SB  
TECHNICAL DELIVERY CONDITIONS FOR  
SUBDELIVERY COMPONENTS OF SOOT BLOWERS**

TSB : 055

Rev. 02

SHEET No. 01 of 01

**DRAG CHAIN**

1. **Component** : Drag Chain.
2. **Application** : To carry the compensating cable & Cooling air hose in air Cooled furnace temp. probe.
3. **Specification** :

Material	CRCA steel & Pin : Mild steel.
Dimensions	As per drawing - 3-20-962-00652 (Latest Revision)
Material Code / Part Number	As per drawing - 3-20-962-00652 (Latest Revision)
Chain pitch	95 mm
Bending Radius	190 mm
Number & External diameter of cables & hoses to be installed.	2 No. & i. Ø 7 mm for compensating cable ii. Ø 54 mm for air hose
Additional weight	Negligible
Climatic condition	Chain exposed to open atmosphere.
Finish of chain	All the parts are to be cadmium plated except Pins. Pins are to be zinc plated (Galvanising).
Lubrication	The chain should be coated with a thin coat of grease. (Servogem-3)

5. **Inspection** :  
Inspection shall be carried out by BHEL at Trichy works which shall include checking of Length of chain, Finish, Lubrication and for any damages.
6. **Certificate** :  
The supplier shall guarantee the performance of the chain for 18 months from the date of supply and a certificate shall be provided along with supply.
7. **Packing** : The chain should be wound on a wooden drum to the standard length as specified in order and stored under covered roof.
8. **Quantity** : Varies with travel. Length of drag chain in mm : (Travel / 2) + (10 x Pitch) mm.

Rev:02 Dt.25/11/2011.

UPDATED & CONVERTED AS SOFT COPY.

Prepared (J. SANKAR)

Reviewed  
(Shivam Kumar Gupta)

Approved (K. SRIDHARAN)



**PRODUCT ENGINEERING / V & SB  
TECHNICAL DELIVERY CONDITIONS FOR  
SUBDELIVERY COMPONENTS OF SOOT BLOWERS**

TSB : 039

Rev. 03

SHEET No. 01 of 01

**DRAG CHAIN & LINKS**

1. **Component** : Drag Chain.
2. **Application** : To carry the compensating cable in furnace temp. probe.
3. **Specification :**

Material	CRCA steel
Dimensions	As per drawing - 3-20-795-00692 (Latest Revision)
Material Code / Part Number	As per drawing - 3-20-795-00692 (Latest Revision)
Chain pitch	65 mm
Bending Radius	145 mm
Number Diameter of conductor	1 No. Ø7 mm conductor
Additional weight	Negligible
Climatic condition	Chain exposed to open atmosphere.
Finish of chain	All the parts are to be cadmium plated except pins.
Lubrication	The chain should be coated with a thin coat of grease. (Servogem-3)

5. **Inspection** :  
Inspection shall be carried out by BHEL at Trichy works which shall include checking of Length of chain, Finish, Lubrication and for any damages.
6. **Certificate** :  
The supplier shall guarantee the performance of the chain for 18 months from the date of supply and a certificate shall be provided along with supply.
7. **Packing** : The chain should be wound on a wooden drum to the standard length as specified in order and stored under covered roof.
8. **Quantity** : Varies with travel. Length of drag chain in mm :  $(\text{Travel} / 2) + (10 \times \text{Pitch})$  mm.

Rev:03 Dt.25/10/2011.

UPDATED & CONVERTED AS SOFT COPY.

Prepared (J. SANKAR)

Reviewed  
(Shivam Kumar Gupta)

Approved (K. SRIDHARAN)



**PRODUCT ENGINEERING / V & SB  
TECHNICAL DELIVERY CONDITIONS FOR  
SUBDELIVERY COMPONENTS OF SOOT BLOWERS**

TSB : 026

Rev. 07

SHEET No. 01 of 02

**ROLLER CHAIN**

Sl. No.	DESCRIPTION	MATERIAL CODE		SRL No.
		IMPORTED	INDEGENEOUS	
01	ROTARY CHAIN - ¾"P	97 366 026 0000	96 353 075 0000	SDQ 274
02	CONNECTOR LINK – ¾"P	97 366 028 0000	96 353 077 0000	SDQ 275
03	OFFSET LINK - ¾"P	97 366 027 0000	96 353 078 0000	SDQ 276
04	TRAVERSE CHAIN – 1 1/2"P	97 366 023 0000	96 353 076 0000	SDQ 277
05	CONNECTOR LINK – 1 1/2"P	97 366 025 0000	96 353 079 0000	SDQ 278
06	OFFSET LINK – 1 1/2"P	97 366 024 0000	96 353 080 0000	SDQ 279
07	TRAVERSE CHAIN – 2"P	97 366 125 0000	96 353 072 0000	SDQ 510
08	CONNECTOR LINK – 2"P	97 366 126 0000	96 353 073 0000	SDQ 511
09	OFFSET LINK – 2"P	97 366 127 0000	96 353 074 0000	SDQ 512

- 1.0 Application: To rotate and traverse long retractable soot blower lance and traverse the Furnace temperature probe lance.
- 2.0 Specification :
- 2.1 The dimensions and material of traverse chain (1½" pitch) should be as per our Drawing No. 2-20-001-00011.  
The dimensions and material of rotary chain (¾" pitch) should be as per our Drawing No. 2-20-001-00012.  
The dimensions and material of Traverse chain (2" pitch) should be as per our Drawing. No. 3-20-051-00380.
- 2.2 Wherever called for in the drawings the parts are to be hard chromium or cadmium plated to 0.008 to 0.012 mm.
- 2.3 The ultimate strength of ¾" pitch and 1½ " pitch chain should be 10000 lbs (Min).  
Breaking Load – 4310 Kgf (Min) to 4540 Kgf (Avg).
- 2.4 The ultimate strength of 2" pitch chain should be 14500 lbs (Minimum).
- 2.5 The chains are to be prestressed with 60% of ultimate load (Min. 6000 lbs for ¾" & 1½" and 8400 lbs for 2" pitch chain)

Rev:07 Dt. 24/08/2009.

CONVERTED AS SOFT COPY.

Prepared ( J.SANKAR )

DATE:  
24/08/2009.

Approved ( K.SRIDHARAN )

