

TITLE : TECHNICAL SPECIFICATION FOR BOUGHT-OUT ITEMS FOR ECI				
ITEM : GI FLEXIBLE METALLIC CONDUITS WITH ACCESSORIES				
	NAME	DESIGNATION	SIGNATURE	DATE
PREPARED	G.M.KUMAR	EAE	<i>G.M. Kumar</i>	02.02.2015
CHECKED	M.JEYAMURUGANAND	DGM	<i>[Signature]</i>	02.02.2015
APPROVED	M.JEYAMURUGANAND	DGM	<i>[Signature]</i>	02.02.2015
ISSUED BY				
EDC-ECI				
RECORDS OF REVISION:				
REVISION NUMBER 03 CLAUSE 5.1.0,5.1.1,5.1.2& 8.1.0 REVISED REVISED : 02.02.2015				
REVISION NUMBER 02 CLAUSE 3.0.0, 5.0.0 , 7.0.0 & 9.0.0.REVISED REVISED : 27.12.2014				
REVISION NUMBER 01 CLAUSE 5.1.1, 9.2.0 REVISED REVISED : 27.03.2014				
REVISION NUMBER 00 INITIAL RELEASE : 19.11.2007				

1.0.0 SCOPE OF SUPPLY:

The scope of supply includes design, manufacture, inspection , testing, packing and delivery of conduit with accessories (set basis) as per drawings referred in Enquiry/ P.O. 

2.0.0 APPLICATION:

The GI flexible metallic conduits are used in between junction box (LCB) and panel type electrical hopper heaters and from junction box (LCB) to cable trays. This conduit is used for the protection of Panel type hopper heaters flexible wires and cables.

3.0.0 APPLICABLE STANDARDS:

- 3.1.1 IS 10748 - Sheet Metal. 
- 3.1.2 IS 2062 – Hot rolled low, medium and high tensile structural steel.
- 3.1.3 IS 2633 – Methods of testing uniformity of coating of zinc coated articles.
- 3.1.4 IS 3480 - Specification for Flexible steel conduit for Electrical Wiring. 

4.0.0 SITE CONDITION:

- 4.1.0 The GI flexible metallic conduits with fittings shall be manufactured and supplied considering the following site conditions.
 - 4.1.1 Ambient temperature : 6° C to 50° C.
 - 4.1.2 Design ambient temperature : 50° C.
 - 4.1.3 Relative humidity : 100%
 - 4.1.4 Environment condition : Highly polluted abrasive, dusty atmosphere.
 - 4.1.5 Location : Out door. Touching hopper walls at 150° C.

5.0.0 CONSTRUCTION:

- 5.1.0 The material shall be GALVANISED SHEET steel of thickness 0.25mm with galvanizing deposit at any spot shall not be less than 72 gms/sq.M. 
- 5.1.1 The type shall be SPIRAL, SELF LOCKING (SQUARE LOCK) and FLEXIBLE type. 

5.1.2 The flexible metallic conduits shall be manufactured from hot dip galvanized sheet steel. The hot dip galvanizing of the sheet steel shall be carried out as per IS. The galvanizing shall be uniform, clean, smooth, continuous and free from acid spots. The thickness of deposit at any spot shall not be less than 72 gms/sq.M. Other fittings can be electro zinc plated with minimum 72 gms/sq.M.  

5.1.3 For each size of conduit, clamps and other fitting accessories shall be manufactured in such a way that, they fit exactly with the conduit.

6.0.0 DOCUMENT TO BE SUBMITTED ALONG WITH THE OFFER:

6.1.0 Compliance to the tender technical specification.

6.2.0 Compliance to the tender drawing.

7.0.0 DOCUMENT TO BE SUBMITTED AFTER AWARD OF CONTRACT:

7.1.0 Drawing shall be submitted for a) Conduit b) Fittings c) Packing. For BHEL approval. 

8.0.0 INSPECTION AND TESTING:

8.1.0 The inspection and testing of GI flexible metallic conduits and fittings shall be carried out based on the following documents.

BHEL purchase order.

BHEL approved vendor's dimensional drawing.

BHEL technical specification (TECI: GEN: FMC-Latest Revision). 

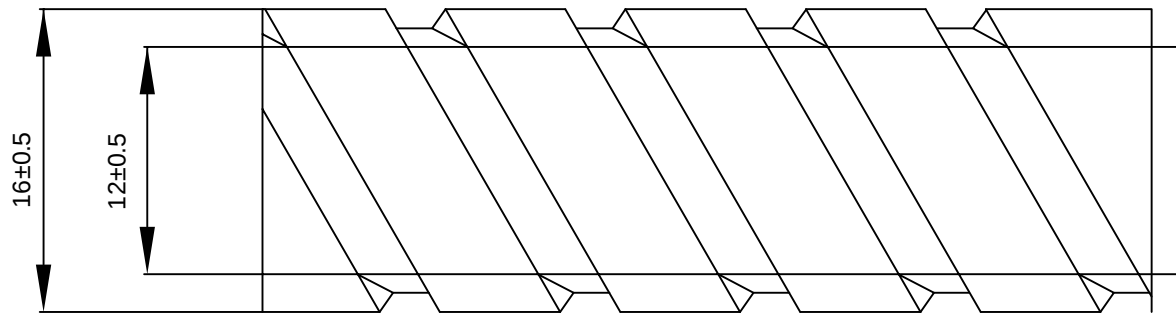
9.0.0 PACKING:

9.1.0 The conduits shall be packed in 50 mtr. coils.

9.2.0 The conduits, conduit fixing clamps, fasteners, male, female adopters and other fittings shall be packed separately in gunny bags material code wise. All these gunny bags shall be packed in a wooden crate of minimum 10 mm thickness work order wise / project wise. 

REV	DATE	ALTERED : G.M.KUMAR
01	23.12.14	CHECKED : M.J.M.
NOTE NO. 4,5&6 ADDED.		
REV	DATE	ALTERED : G.M.KUMAR
01	05.02.15	CHECKED : M.J.M.
NOTE NO. 2 ALTERED.		

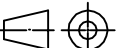
ALL DIMENSIONS ARE IN MILLIMETRES



NOTE: —

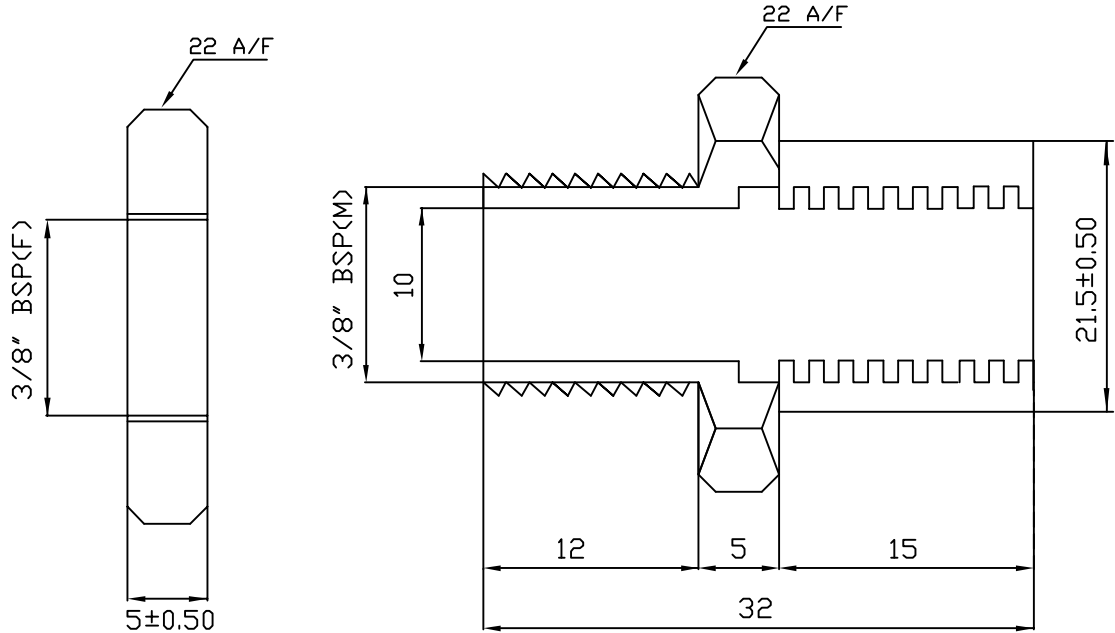
1. THE CONDUIT SHALL BE GALVANISED.
2. THE GALVANISING DEPOSIT(MIN) SHALL BE 72gms/sq.M. $\triangle 02$
3. BEND RADIUS — 100 MM (MIN)
4. NO OF PITCH/METER — 210 (MIN).
5. THICKNESS OF SHEET STEEL — 0.25 MM.
6. WEIGHT OF CONDUIT/METER IN COMPRESSED CONDITION — 0.17 KG (MIN).

STANDARD

 BHARAT HEAVY ELECTRICALS LTD., UNIT: BOILER AUXILIARIES PLANT. RANIPET – 632 406.					DRN	NAME R.V.R	SIGN –signed–	DATE 19.11.04	NO.OF VAR
	CHD	R.V.R	–signed–	19.11.04					
	APPD	S.R	–signed–	20.11.04					
DEPT AQCS	GRADE OF UNTOL DIM		SCALE --	WEIGHT (KG). --	REF. TO ASSY./OLD DRG. --	ITEM NO.	NO. OF ITEMS		
CODE 862	C / M / F								
TITLE GALVANISED CONDUIT OF 1/2" ID				CARD CODE U 01	DRAWING NO. 4–00–114–30545		REV 02		

REV	DATE	ALTERED : G.M.KUMAR
01	05.02.15	CHECKED : M.J.M.
NOTE NO. 2 ALTERED.		

ALL DIMENSIONS ARE IN MILLIMETRES



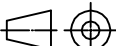
GALVANISED
CHECK NUT

GALVANISED
CONNECTOR MALE

NOTE: —

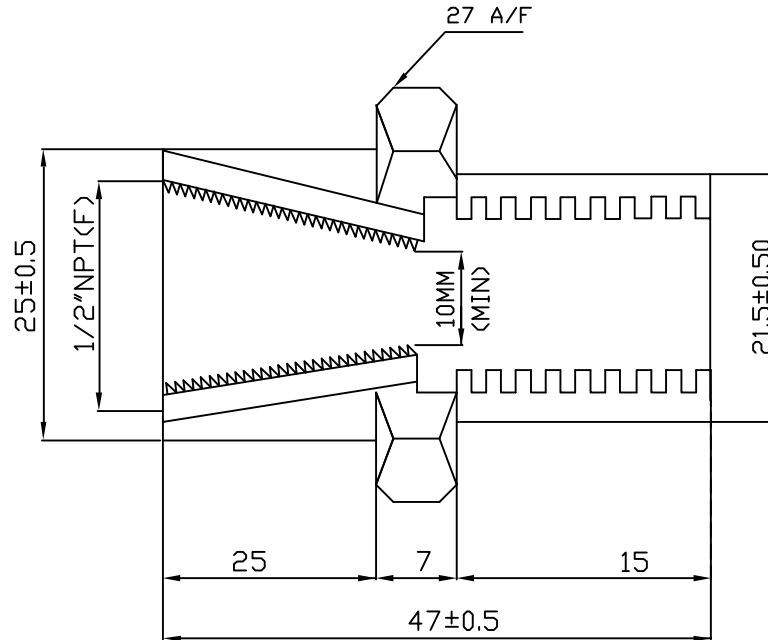
1. THE CHECK NUT AND MALE CONNECTOR SHALL BE GALVANISHED.
2. GALVANISING DEPOSIT(MIN) SHALL BE 72gms/sq.M. Δ_{01}
3. THE MALE CONNECTOR WITH CHECK NUT SHALL MATCH WITH EACH OTHER.
4. THE MALE CONNECTOR WITH CHECK NUT SHALL BE COMPATIBLE WITH 1/2" ID CONDUIT

STANDARD

 BHARAT HEAVY ELECTRICALS LTD., UNIT: BOILER AUXILIARIES PLANT. RANIPET — 632 406.				DRN	NAME R.VR	SIGN —signed—	DATE 19.11.04	NO. OF VAR
				CHD	R.VR	—signed—	19.11.04	
				APPD	S.R	—signed—	20.11.04	
DEPT AQCS	GRADE OF UNTOL.DIM		SCALE --	WEIGHT (KG). --	REF. TO ASSY./OLD DRG. --	ITEM NO.	NO. OF ITEMS	
CODE 862	C / M / F							
TITLE GALVANISED MALE CONNECTOR WITH CHECK NUT FOR 1/2" CONDUIT				CARD CODE U 01	DRAWING NO. 4-00-114-30547		REV 01	

REV	DATE	ALTERED : G.M.KUMAR
01	05.02.15	CHECKED: M.J.M.
NOTE NO. 2 ALTERED.		

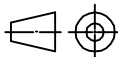
ALL DIMENSIONS ARE IN MILLIMETRES



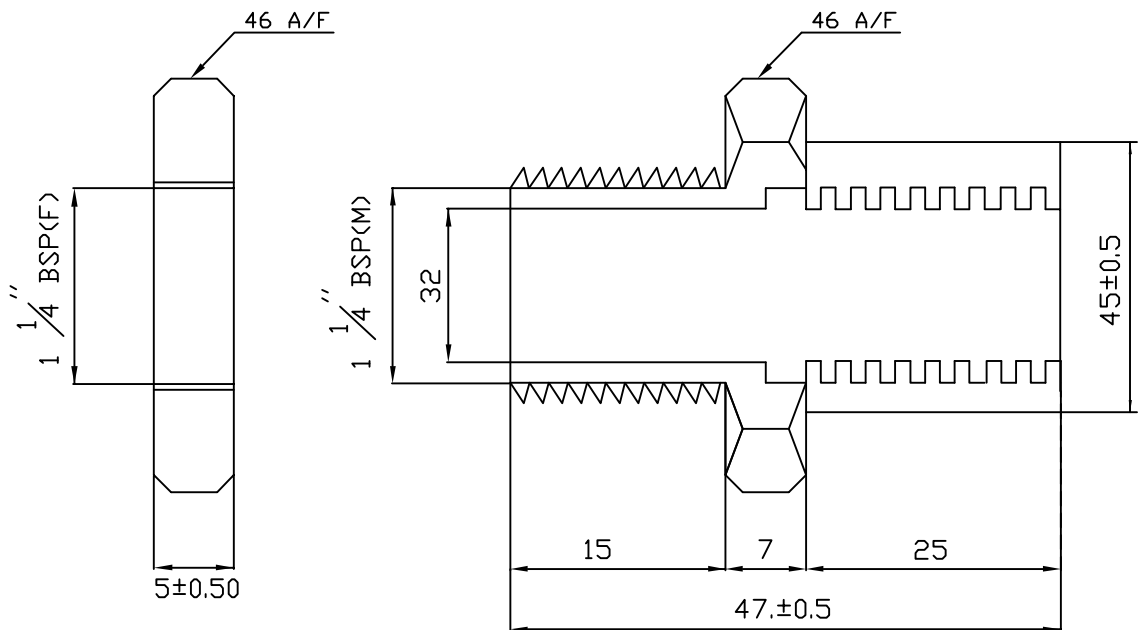
NOTE: —

1. THE ADOPTER FEMALE, SHALL BE GALVANISED
2. GALVANISING DEPOSIT(MIN) SHALL BE 72gms/sq.M. $\triangle 01$
3. THE ADOPTER — FEMALE, SHALL BE COMPATIBLE WITH 1/2" ID CONDUIT

STANDARD

 BHARAT HEAVY ELECTRICALS LTD., UNIT: BOILER AUXILIARIES PLANT. RANIPET - 632 406.				DRN	NAME R.VR	SIGN —signed—	DATE 19.11.04	NO.OF VAR	
				CHD	R.VR	—signed—	19.11.04		
				APPD	S.R	—signed—	20.11.04		
DEPT AQCS	GRADE OF UNTOL.DIM		SCALE --	WEIGHT (KG). --	REF. TO ASSY./OLD DRG. --			ITEM NO.	NO. OF ITEMS
CODE 862	C / M / F								
TITLE GALVANISED ADOPTER FEMALE FOR 1/2" CONDUIT				CARD CODE U 01	DRAWING NO. 4-00-114-30548				REV 01

ALL DIMENSIONS ARE IN MILLIMETRES



GALVANISED
CHECK NUT

GALVANISED
CONNECTOR MALE

NOTE: —

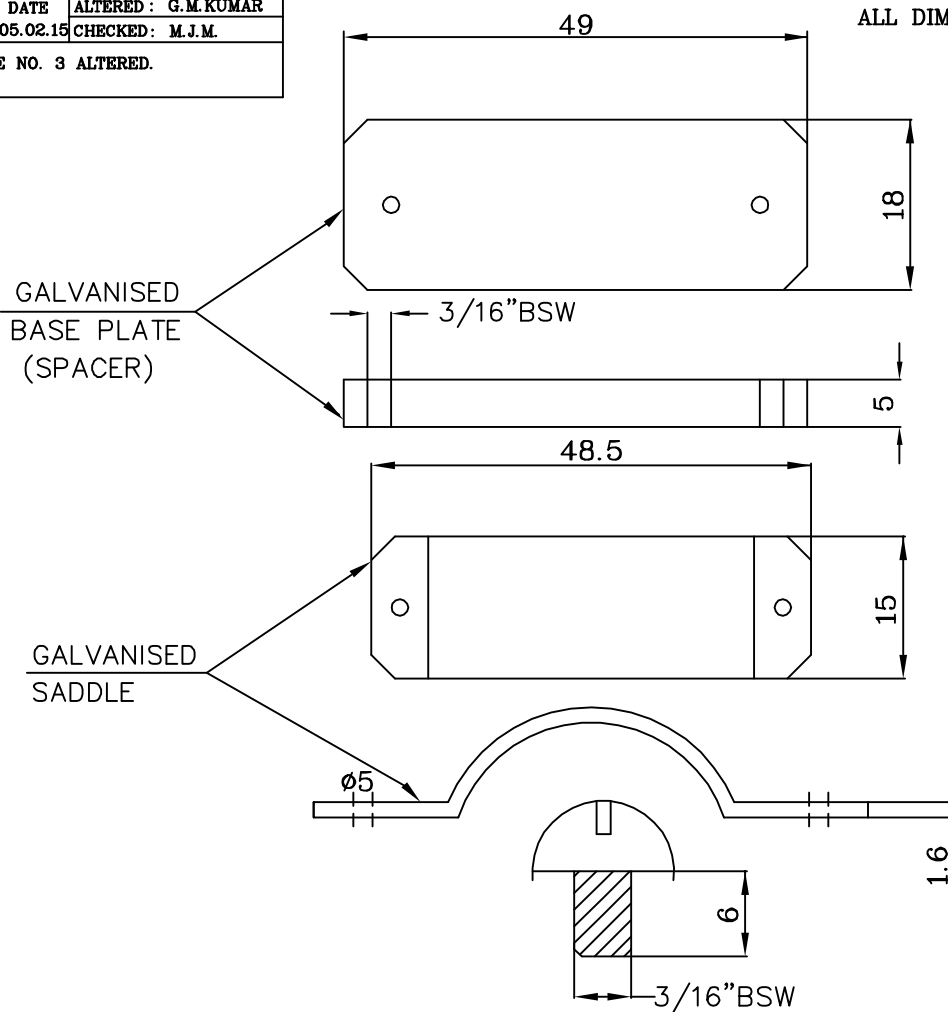
1. THE CHECK NUT AND MALE CONNECTOR SHALL BE GALVANISHED.
2. GALVANISING THICKNESS SHALL BE 10 MICRONS(MIN).
3. THE CONNECTOR MALE AND THE CHECK NUT SHALL MATCH WITH EACH OTHER.
4. THE MALE CONNECTOR WITH CHEK NUT SHALL BE COMPATIBLE WITH THE 1 1/4" ID CONDUIT

STANDARD

 BHARAT HEAVY ELECTRICALS LTD., UNIT: BOILER AUXILIARIES PLANT. RANIPET — 632 406.					DRN	NAME	SIGN	DATE	NO.OF VAR
					CHD	R.VR		19.11.04	
					APPD	S.R		20.11.04	
DEPT AQCS	GRADE OF UNTOL.DIM		SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.	ITEM NO.	NO. OF ITEMS		
CODE 862	C / M / F		--	--	--				
TITLE				CARD CODE	DRAWING NO.		REV		
GALVANISED MALE CONNECTOR WITH CHECK NUT FOR 1 $\frac{1}{4}$ " CONDUIT				U 01	4-00-114-30549		00		

REV	DATE	ALTERED : G.M.KUMAR
01	05.02.15	CHECKED: M.J.M.
NOTE NO. 3 ALTERED.		

ALL DIMENSIONS ARE IN MILLIMETRES



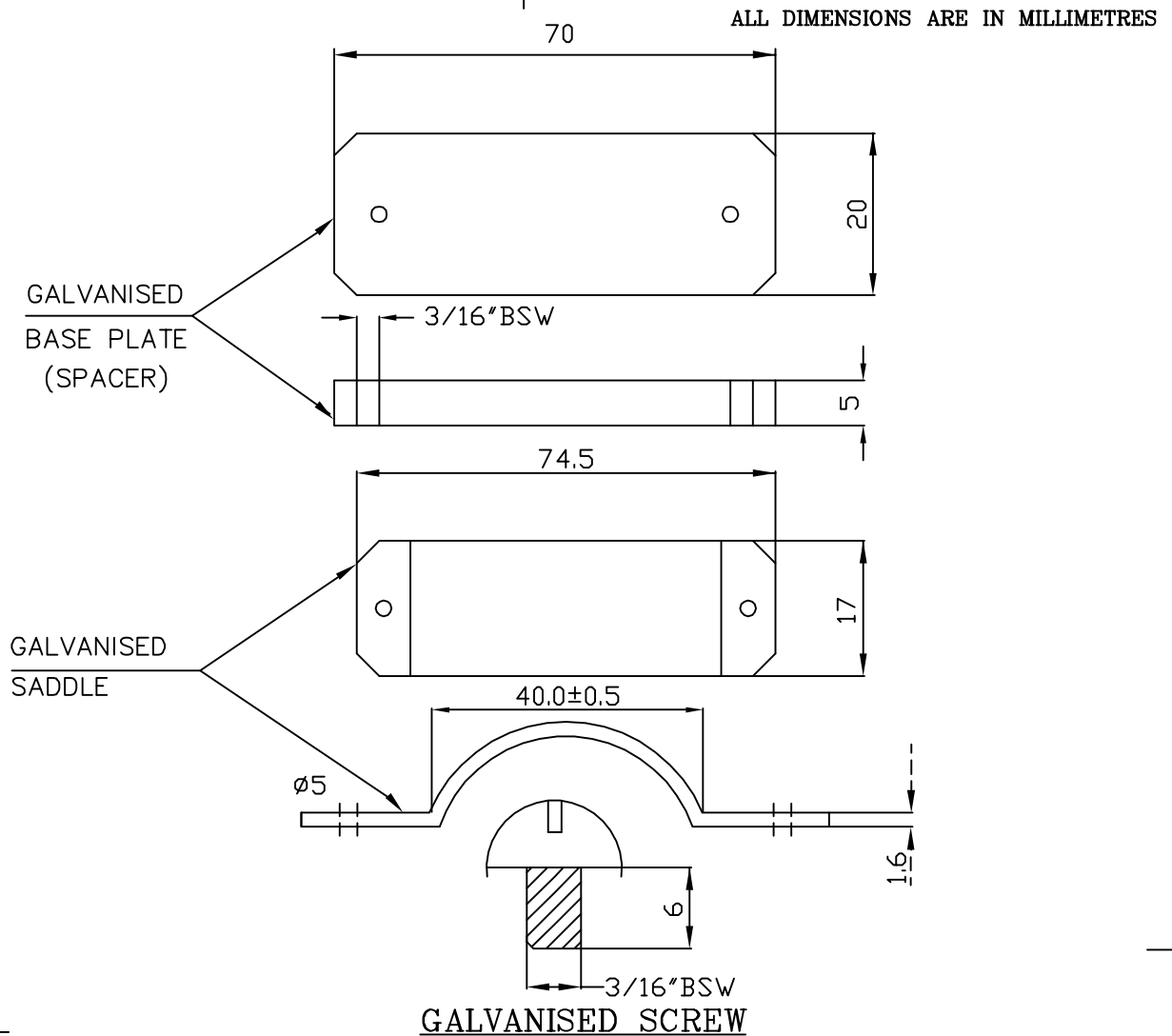
NOTE: —

GALVANISED SCREW

1. EACH CLAMP SET CONSIST OF 1NO. BASE PLATE
1NO. SADDLE
2NOS. SCREWS
2. THE BASE PLATE,SADDLE AND SCREW SHALL BE GALVANISED
3. THE GALVANIZING DEPOSIT(MIN) SHALL BE 72gms/sq.M. 01
4. THE BASE PLATE,SADDLE AND SCREW SHALL BE COMPATIBLE FOR EACH OTHER.
5. 1/2" CLAMP SET 1/2" ID CONDUIT AND THE 1/2" MALE CONNECTOR
SHALL BE COMPATIBLE WITH EACH OTHER

STANDARD

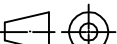
 BHARAT HEAVY ELECTRICALS LTD., UNIT: BOILER AUXILIARIES PLANT. RANIPET – 632 406.				DRN	NAME R.VR	SIGN –signed–	DATE 19.11.04	NO.OF VAR
				CHD	R.VR	–signed–	19.11.04	
				APPD	S.R	–signed–	20.11.04	
DEPT AQCS	GRADE OF UNTOL.DIM		SCALE --	WEIGHT (KG). --	REF. TO ASSY./OLD DRG. --		ITEM NO.	NO. OF ITEMS
CODE 862	C / M / F							
TITLE GALVANISED CLAMP SET FOR 1/2" CONDUIT				CARD CODE U 01	DRAWING NO. 4–00–114–30550			REV 01



NOTE: —

1. EACH CLAMP SET CONSIST OF 1NO. BASE PLATE
1NO. SADDLE
2NOS. SCREWS
2. THE BASE PLATE, SADDLE AND SCREW SHALL BE GALVANISED
3. THE GALVANISING THICKNESS SHALL BE 10 MICRONS (MIN)
4. THE BASE PLATE, SADDLE AND SCREW SHALL BE COMPATIBLE FOR EACH OTHER.
5. THE 1 1/4" CLAMPSET, CONDUIT AND MALE CONNECTOR SHALL BE COMPATIBLE WITH EACH OTHER

STANDARD

 BHARAT HEAVY ELECTRICALS LTD., UNIT: BOILER AUXILIARIES PLANT. RANIPET — 632 406.				DRN	NAME	SIGN	DATE	NO.OF VAR	
				CHD	R.VR		19.11.04		
				APPD	S.R		20.11.04		
DEPT AQCS	GRADE OF UNTOL.DIM		SCALE	WEIGHT (KG).	REF. TO ASSY./OLD DRG.			ITEM NO.	NO. OF ITEMS
CODE 862	C / M / F		--	--	--				
TITLE					CARD CODE	DRAWING NO.			REV
GALVANISED CLAMP SET FOR 1 ¹ / ₄ " CONDUIT					U 01	4—00—114—30551			00