

*Library*

232.2 92SP

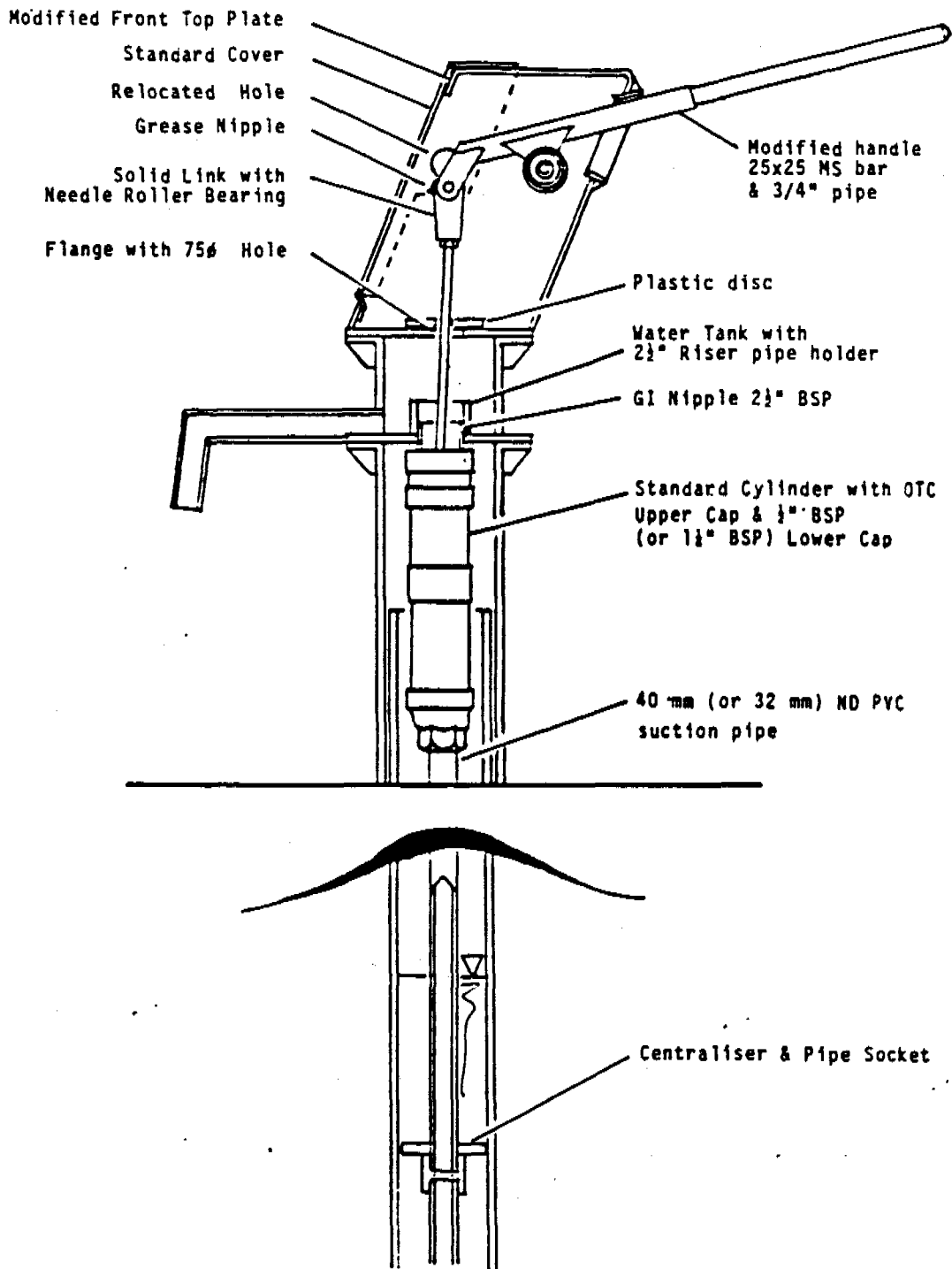
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SANITATION (INDIA)

**Specifications for**  
**India Mark II**  
**Solid Link Suction Pump**

Maintenance Division  
Danida Project Directorate  
Bhubaneswar, Orissa

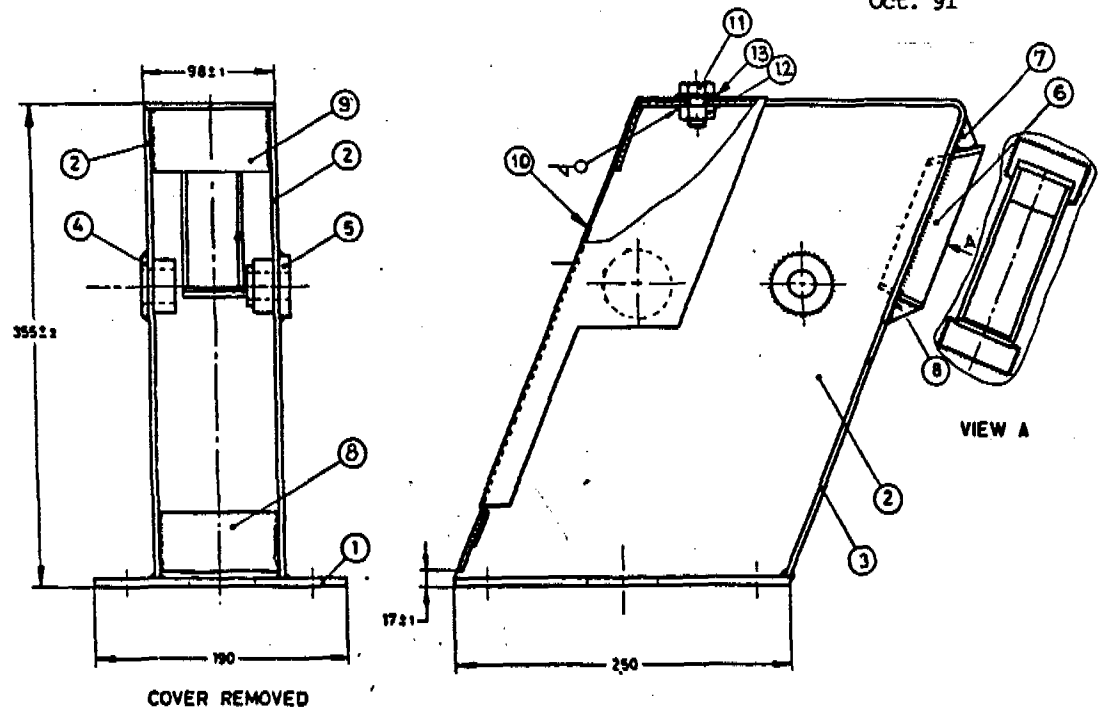
July 1992

232.2-92SP-10221



Schematic Drawing of IM II Solid Link Hand Pump

Danida Project  
Bhubaneswar  
Oct. 91

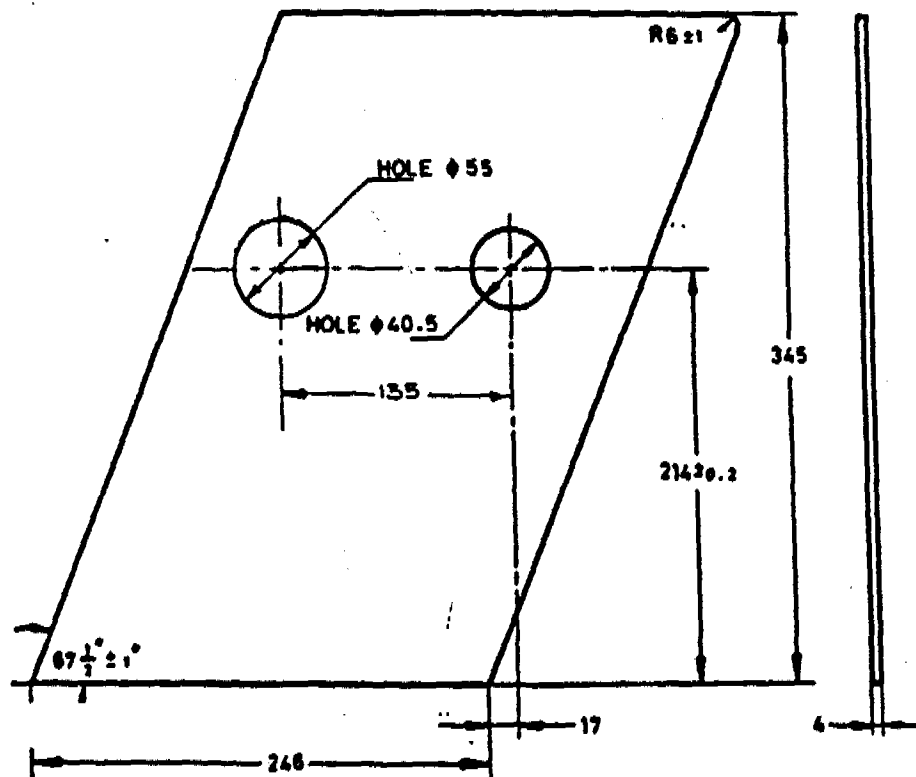


13	1	Washer (to suit M12)	—
12	1	Hex nut — M12	—
11	1	Hex bolt — M12 x 20	—
10	1	Front cover	Ordinary Grade of IS : 313-1973
9	1	Front top end plate	St42-S of IS : 226
8	1	Front bottom end plate	St42-S of IS : 226
7	2	Gusset	St42-S of IS : 226
6	1	Bracket	St42-S of IS : 226
5	1	Axle bush (left)	St42-S of IS : 226
4	1	Axle bush (right)	St42-S of IS : 226
3	1	Back Plate	St42-S of IS : 226
2	2	Side plate	St42-S of IS : 226
1	1	Pump head flange	St42-S of IS : 226
Part No.	No. Off	Description	Material

- Note 1 — Inside fillet welding of side plates and back plate to the flange should be 3.2 mm. *Min.*  
 Note 2 — Welding fillets in other places should be 4 mm. *Min.*  
 Note 3 — The side plate shall be welded inside and outside as shown in the drawing.  
 Note 4 — The head assembly shall be welded from inside and outside. The outside seal welding run shall be ground smooth.  
 Note 5 — In-line reaming of left and right axle bushes shall be done to secure alignment.  
 All dimensions in millimetres

Head Assembly modified for IM II Solid Link  
(adapted from IS:9301-1984)

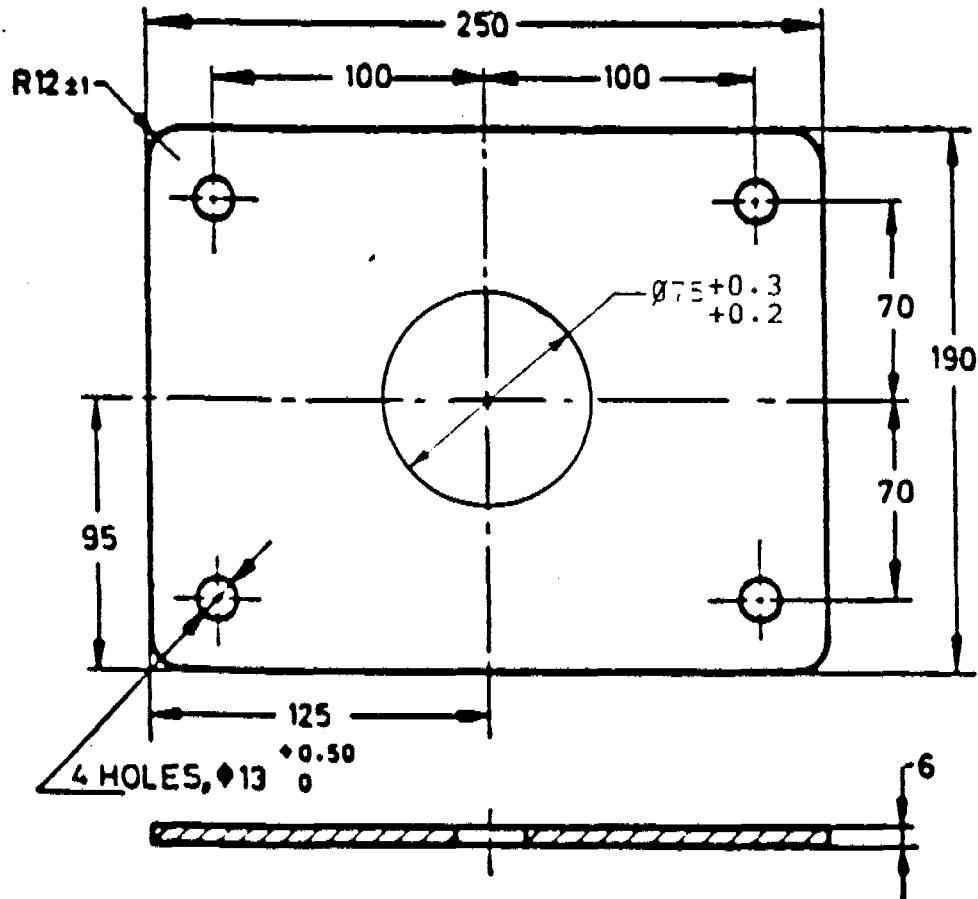
All dimensions are in mm



Manufacturing tolerance to be  $\pm 0.5$  unless otherwise specified.

Side Plate for IM II Solid Link  
(adapted from IS:9301-1984)

All dimensions are in mm

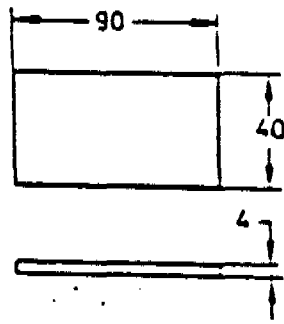


**Manufacturing tolerance to be  $\pm 0.5$  unless otherwise specified.**

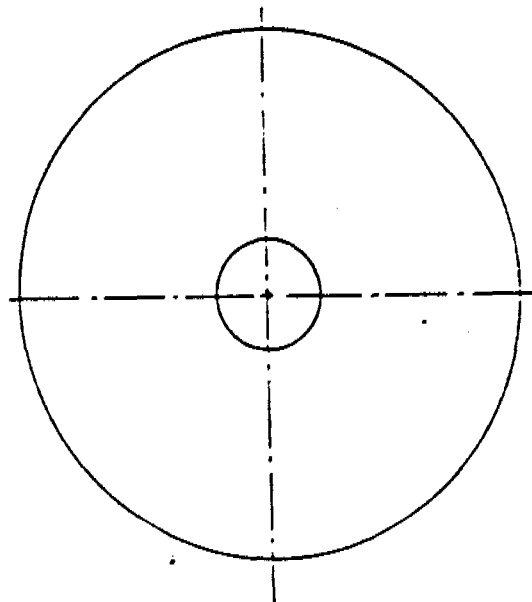
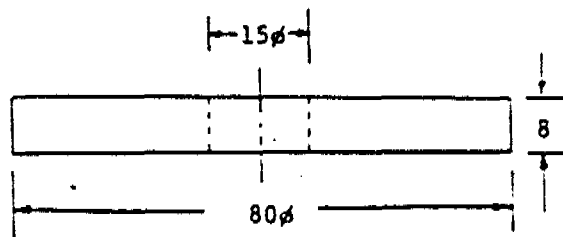
Pump Head Flange for IM II Solid Link

(Adapted from IS:9301-1984)

All dimensions are in mm

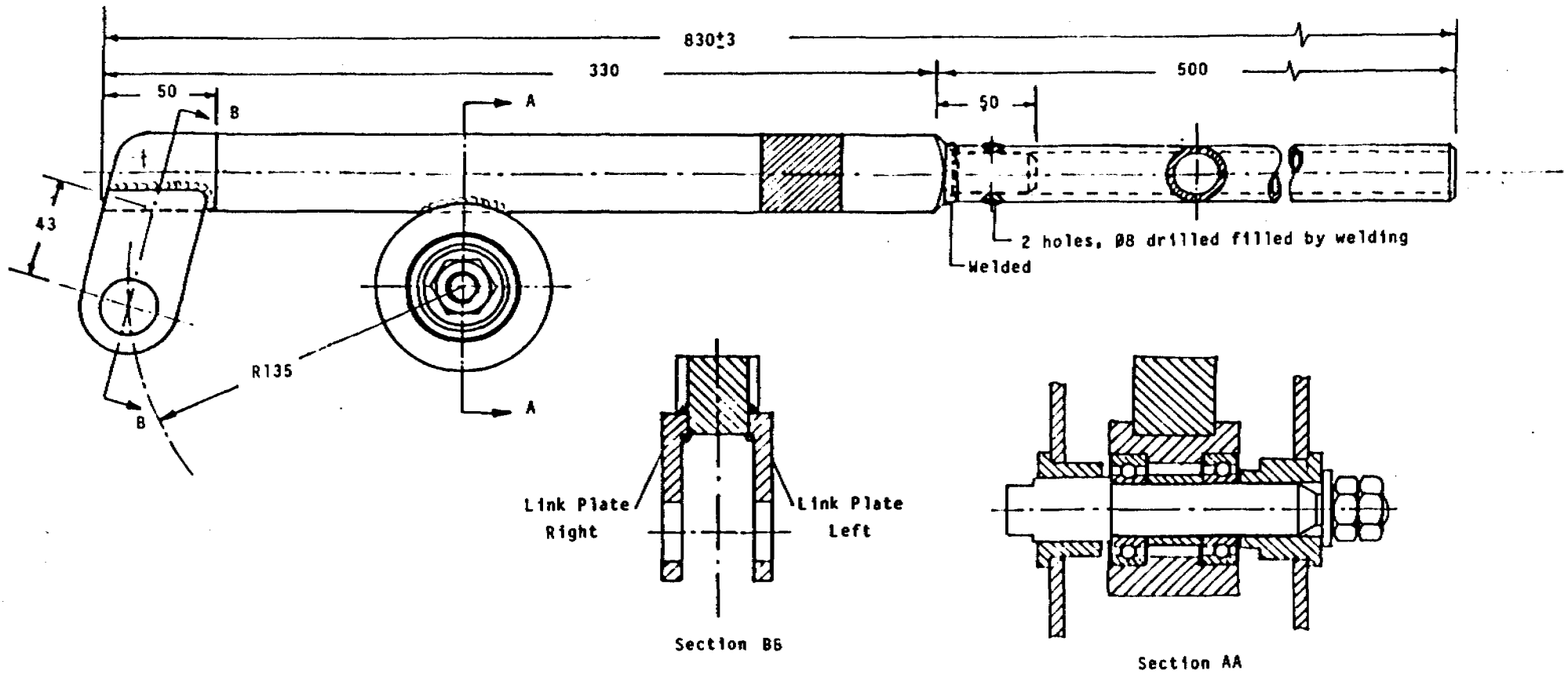


Front Top End Plate for  
IM II Solid Link Pump  
adapted from IS:9301-1990



Plastic Disc  
for use in Head of IM II Solid  
Link Pump  
Material : Polypropylene

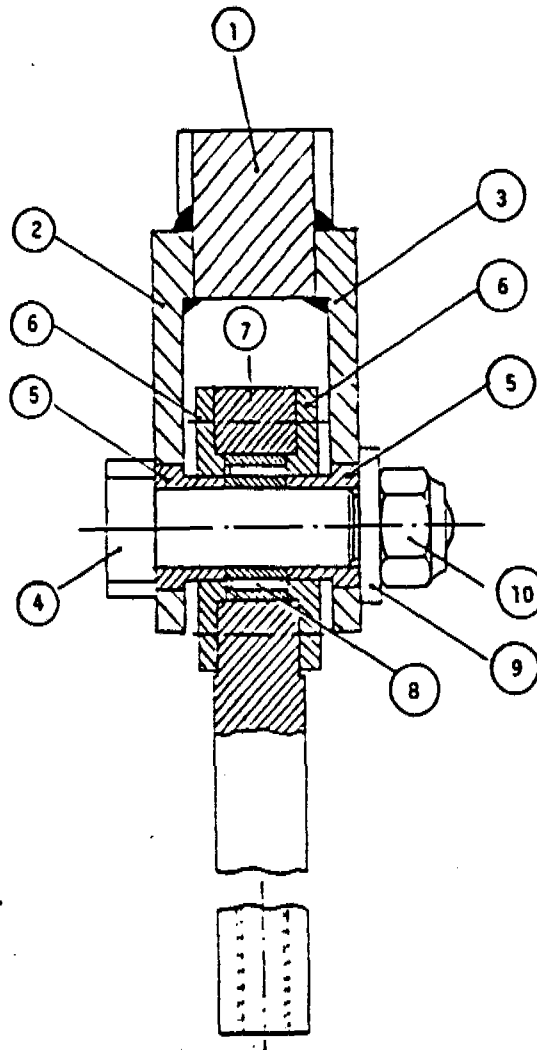
All dimensions in mm



(Same as in IS 9301:1990  
 Fig.5 Section AA)

All dimensions in mm

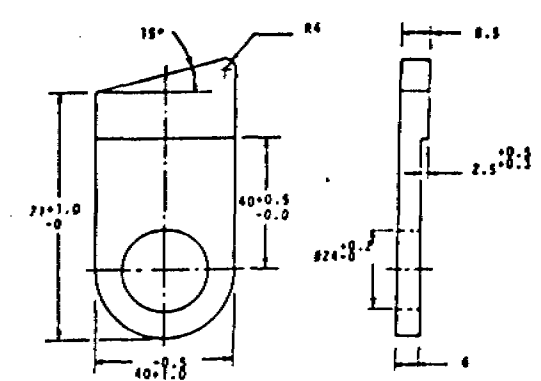
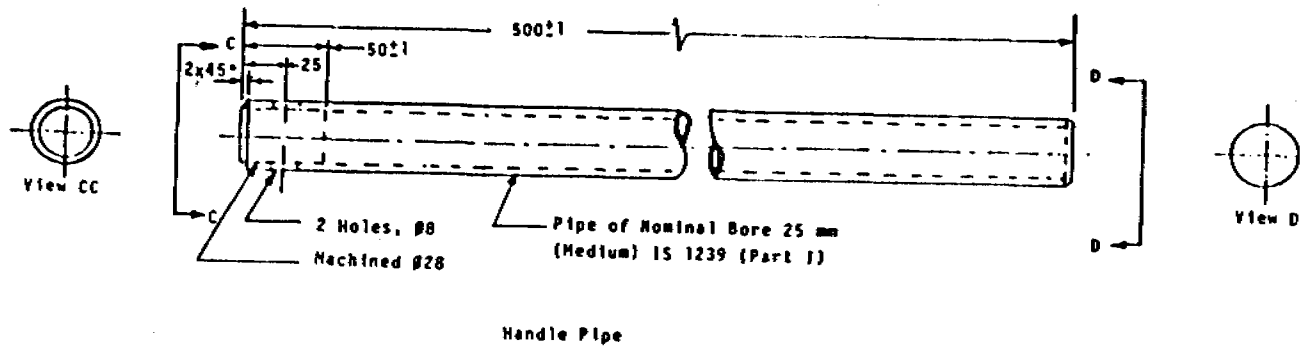
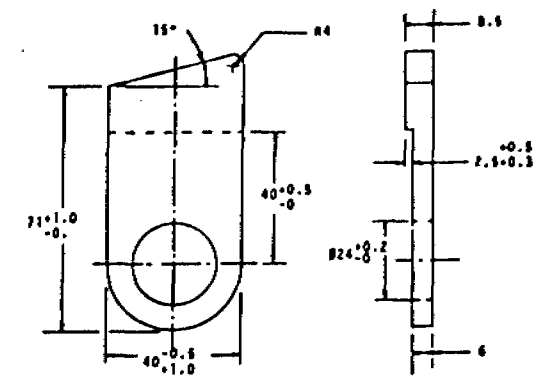
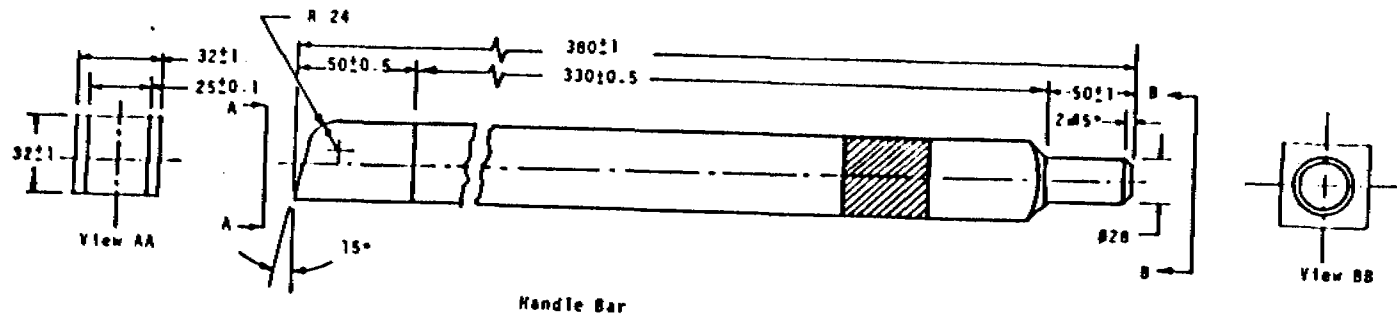
Solid Link Handle Assembly



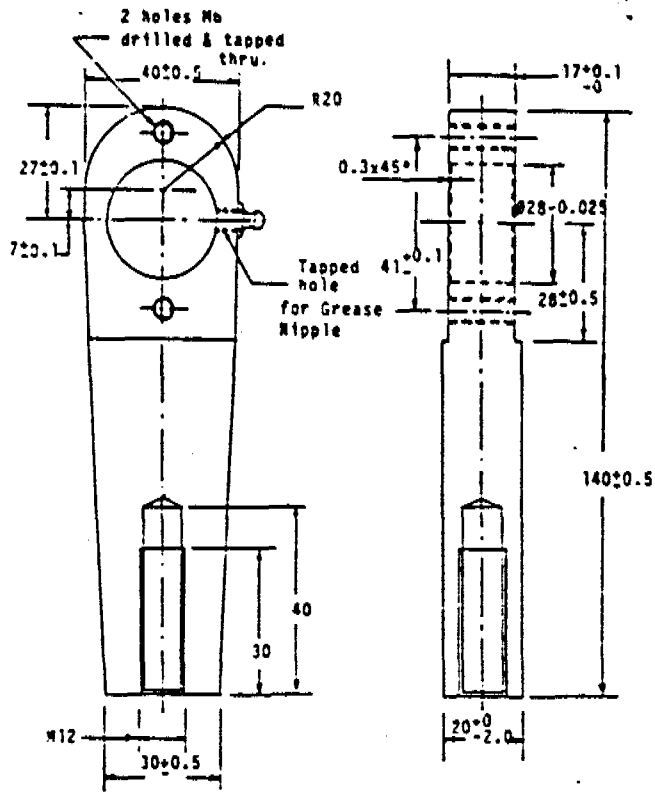
**Solid Link Handle Assembly & Solid Link Components**

10	1	Nyloc Nut (M12x1.75)	IS 7002 :1972
9	1	Washer 3 mm thick (to suit M12)	Type A IS:2106-1967
8	1	Needle Roller Bearing (RNA-4902)	
7	1	Solid Link	Fe 410 of IS 226:1975
6	2	Bearing Cover	Fe 410 of IS 226:1975
5	2	Spacer	Fe 410 of IS 226:1975
4	1	Axle	Fe 410 of IS 226:1975
3	1	Link Plate (Right)	Fe 410 of IS 226:1975
2	1	Link Plate (Left)	Fe 410 of IS 226:1975
1	1	Handle	Fe 410 of IS:226:1975
<b>Part No.</b>	<b>No. of</b>	<b>Description</b>	<b>Material</b>



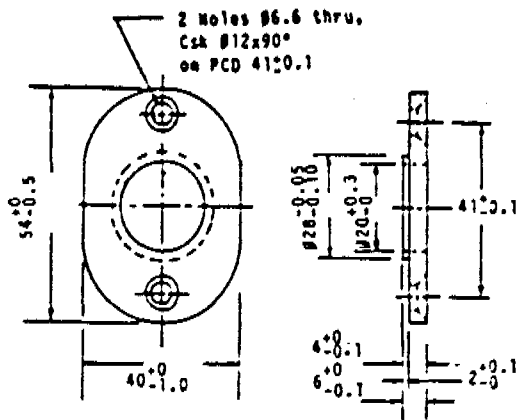


All dimensions in mm  
Solid Link Handle Assembly Parts

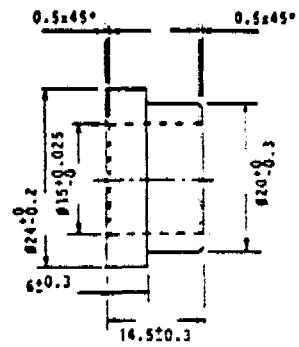


- Note: 1. The Solid Link thickness should be  $17^{+0.1}_{-0}$  accomplished by milling from a 20 thick flat
2. The grease nipple hole should be tapped for a standard Grease nipple

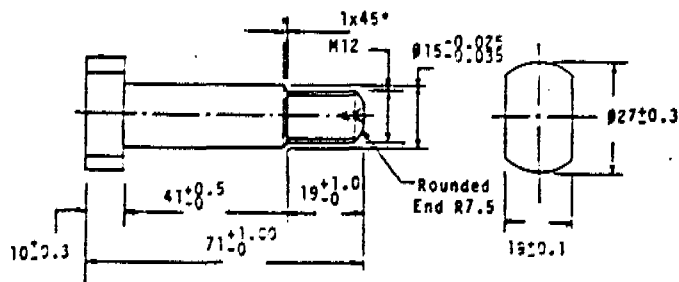
Solid Link



Bearing Cover



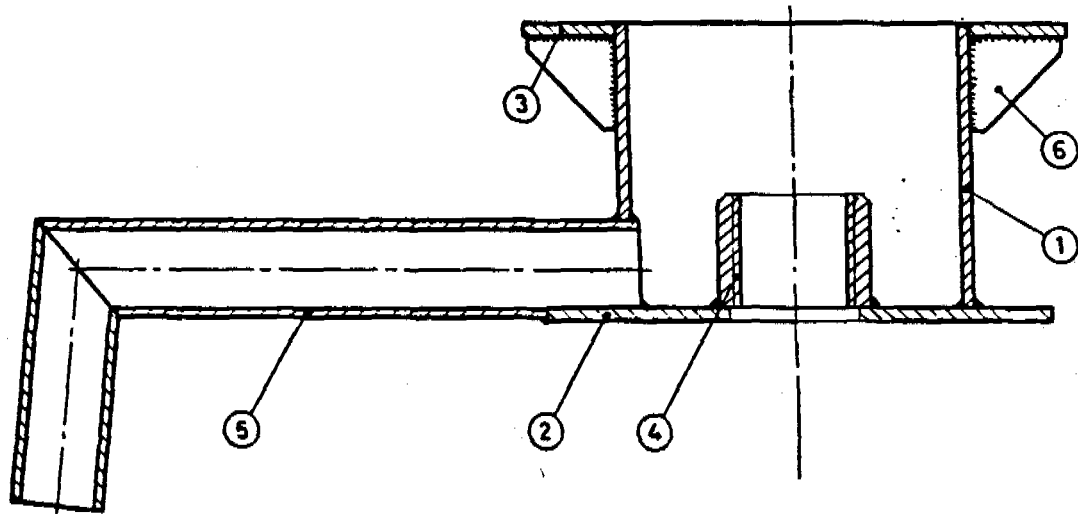
Spacer



Axle

All dimensions in mm

Solid Link Parts



6	2	Gusset	St42-S of IS : 226
8	1	Spout	IS : 1239 (Part 1)-1979
4	1	Riser pipe holder (62.5 mm Coupling)	*
3	1	Tank top flange	St42-S of IS : 226
2	1	Tank bottom flange	St42-S of IS : 226
1	1	Tank pipe	IS : 1239 (Part 1)-1979
Part No.	No. Off	Description	Material

Note 1 — Fillet size of weld at all places shall be minimum 6 mm excepting spout where it shall not be less than 4 mm. The inside welding of the tank pipe shall be given a sealing run.

Note 2 — The component shall be hot dip galvanized according to IS : 4759-1979.

Note 3 — One side of coupling to be faced.

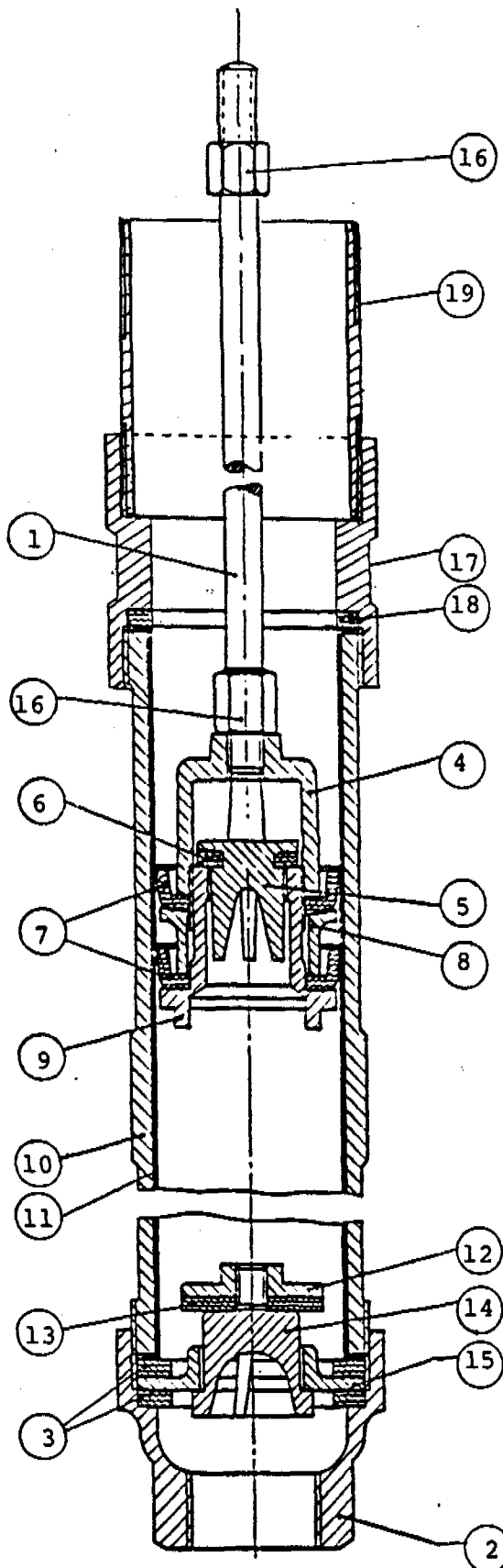
Note 4 — Sealing run on the top flange to be ground smooth.

\*St42-S of IS : 226-1975 or Class 2 of IS : 2004-1978.

All dimensions in millimetres.

Water Tank Assembly for IM II Solid Link  
 as per Fig. 7, IS : 13056 : 1991

All dimensions are in mm



19*	1	Nipple-Galvanised	Heavy Grade Pipe 2-1/2" IS:1239 (part 1)-1979
18*	1	Sealing Ring - OTC	Chrome tanned leather. IS:3020-1976
17*	1	Upper Cap	Grade FG 200 of IS:210-1978
16	2	Hex Coupler	Stainless Steel conforming to AISI 316
15	1	Check Valve Seat	Grade LTB 2 of IS:318-1981
14	1	Check Valve Guide	Grade LTB 2 of IS:318-1981
13	1	Rubber Seating (Check Valve)	Nitrile Rubber
12	1	Rubber Seat Retainer	Grade LTB 2 of IS:318-1981
11	1	Brass Liner	Cu Zn 30 As of IS:407-1981 Temper annealed
10	1	Cylinder Body	Grade FG 200 of IS:210-1978
9	1	Follower	Grade LTB 2 of IS:318-1981
8	1	Spacer	Grade LTB 2 of IS:318-1981
7*	2	Pump Bucket with out insert	Nitrile Rubber
6*	1	Rubber Seating (Upper Valve)	Nitrile Rubber
5*	1	Upper Valve Guide	Grade LTB 2 of IS:318-1981
4	1	Plunger Yoke Body	Grade LTB 2 of IS:318-1981
3	2	Sealing Ring	Chrome tanned leather. IS:3020-1976
2	1	Reducer Cap	Grade FG 200 of IS:210-1978
1*	1	Plunger Rod	Stainless Steel AISI: 304 or 316
Part No.	No. of	Description	Material

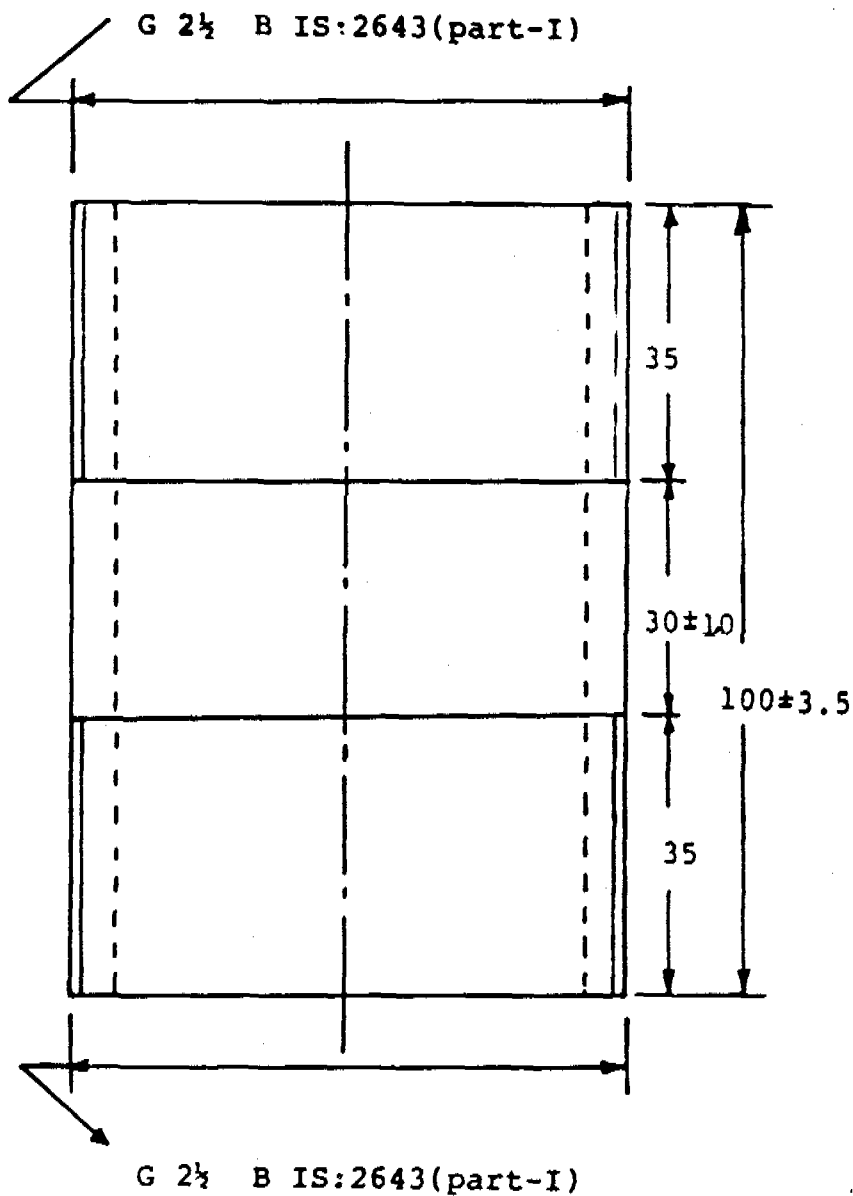
\* Separate drawings attached, all other items are as per IS:9301-1984

Note 1: As an alternate, metal components to Grade 2 of IS:318-1981 of Cylinder Assembly shall be forged from Naval Brass conforming to IS:6912-1973.

Note 2: All bronze castings shall be free from lead segregation and hardness shall be 80 HB minimum.

All dimensions are in mm

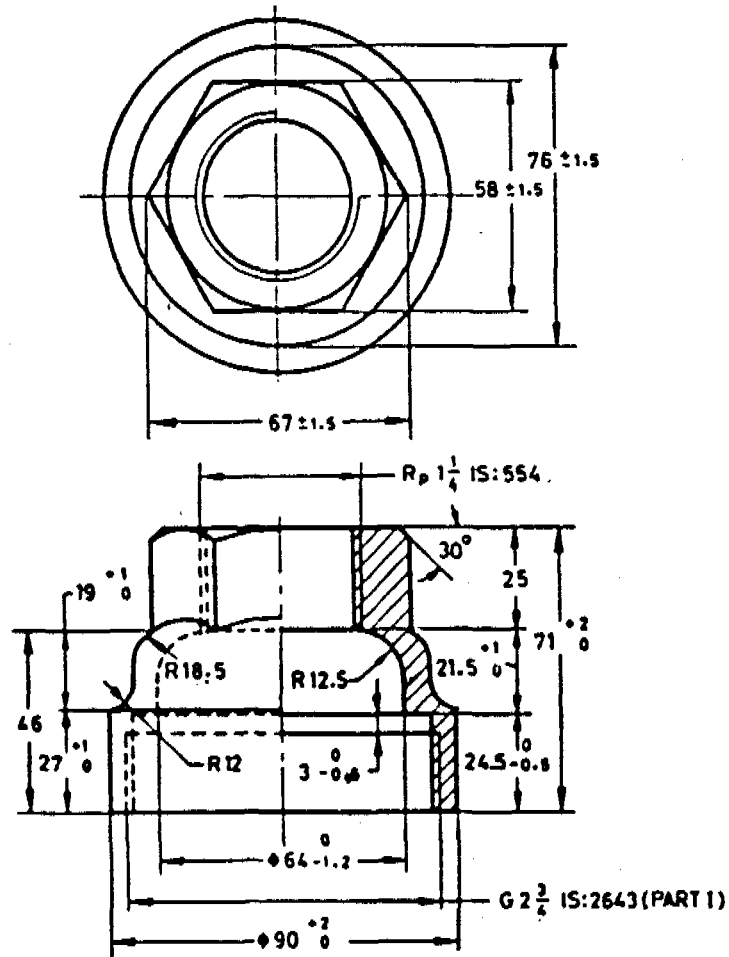
Cylinder Assembly for IM II Solid Link hand pump (adapted from IS 930L-1984)



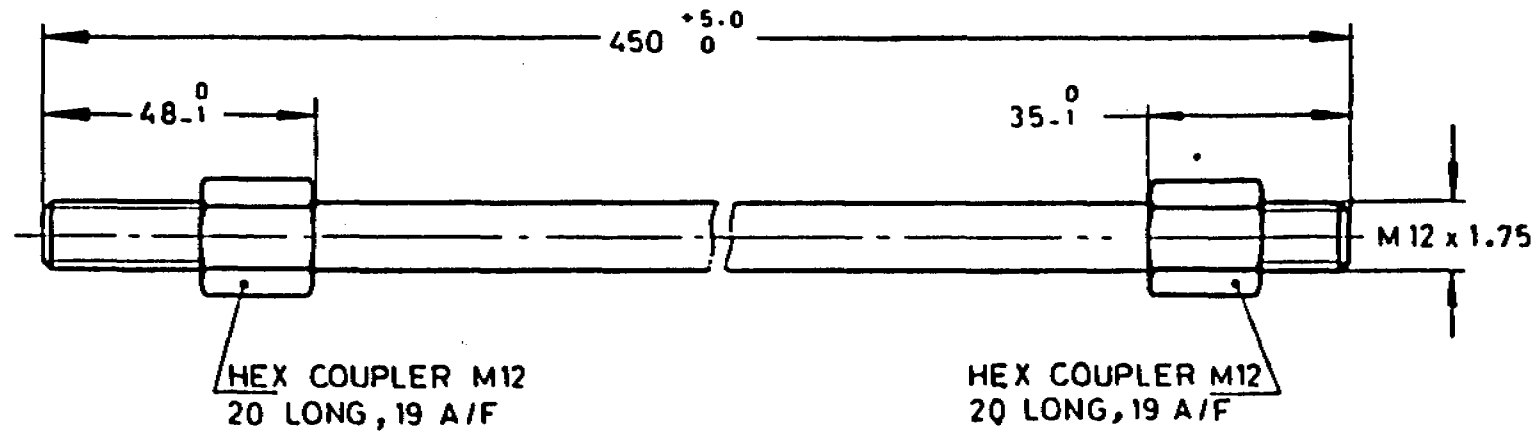
GI Nipple

62.5 NB Pipe (Heavy) as per IS:1239 (Part 1)

Note: The nipple shall be hot dip galvanised as per  
IS: 4759-1979



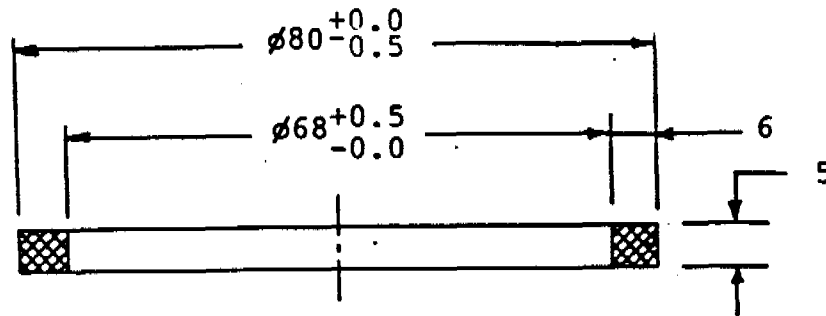
Lower reducer cap for IM II Solid Link Pump



Plunger Rod for IM II Pump Cylinder

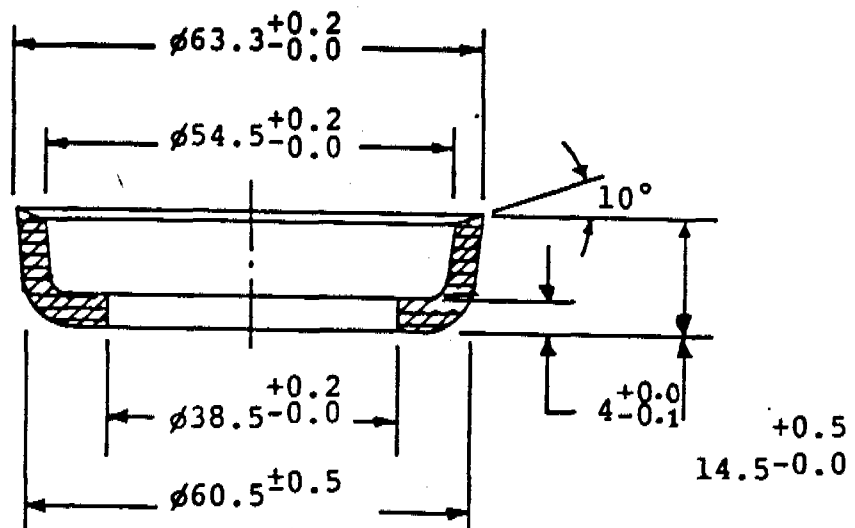
Material : Stainless Steel as per AISI 316 or AISI 304

All dimensions are in mm



Material: Chrome tanned leather as per IS:3020-1976

Sealing Ring for upper cap for cylinder  
 of IM II Solid Link hand pump



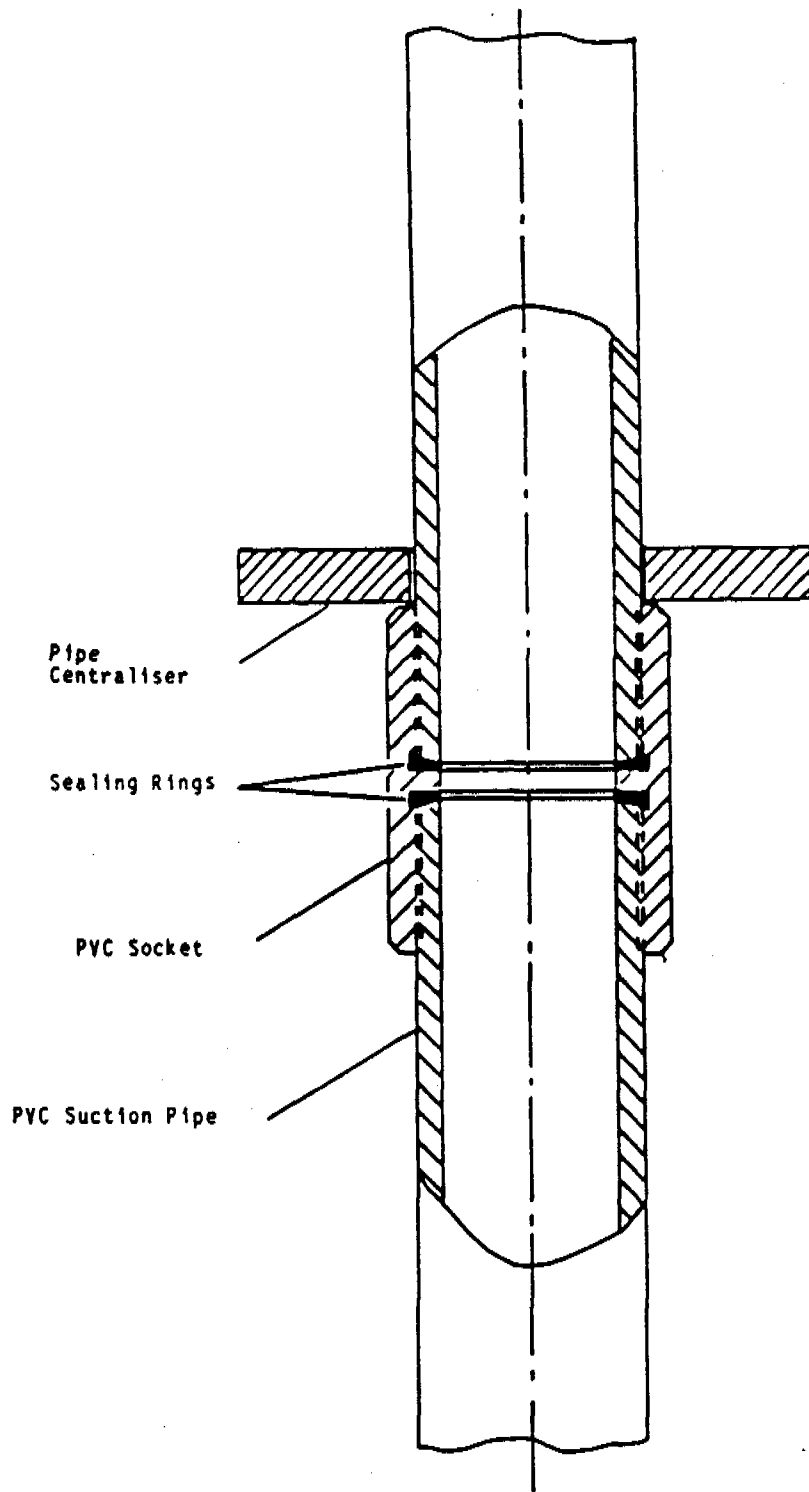
All dimensions are in mm

Material : Nitrile\* Rubber with fabric reinforcement

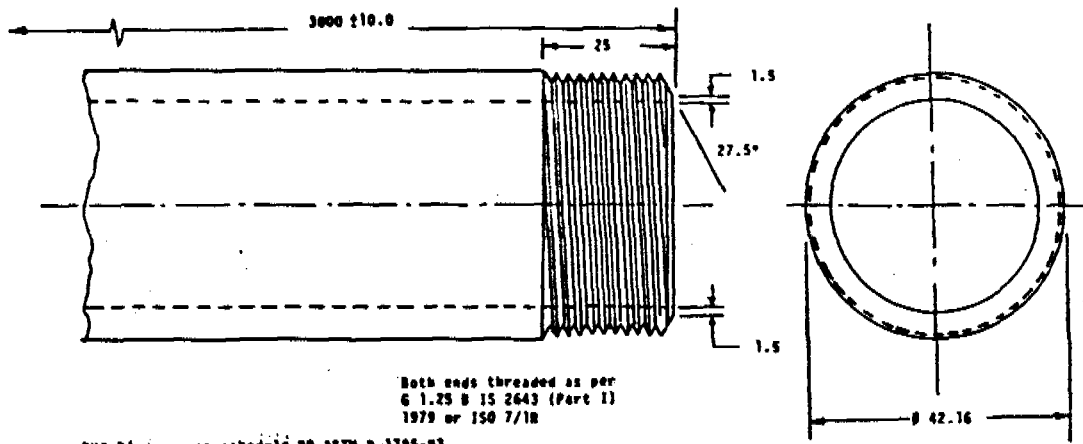
\* Physical properties of nitrile rubber  
 shall be as per Fig 12, IS 13056 : 1991

Pump Bucket for IM II pump cylinder





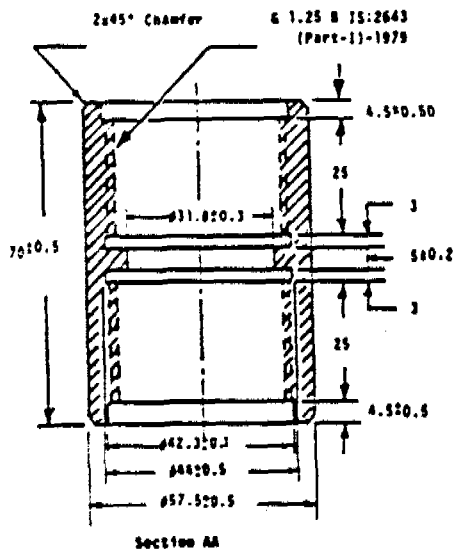
**Suction Pipe Assembly for India Mark II  
Solid Link Suction Pump**



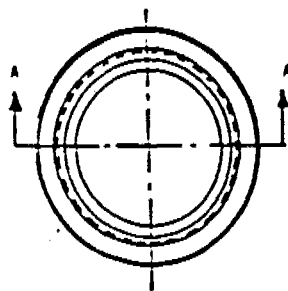
Both ends threaded as per  
G 1.25 B IS 2643 (Part 1)  
1979 or ISO 7/18

PVC Pipe as per schedule 80 ASTM-D-1785-83  
O.D. 42.16 ± 0.13  
Out of Roundness 0.30  
Wall Thickness 4.85 ± 0.58

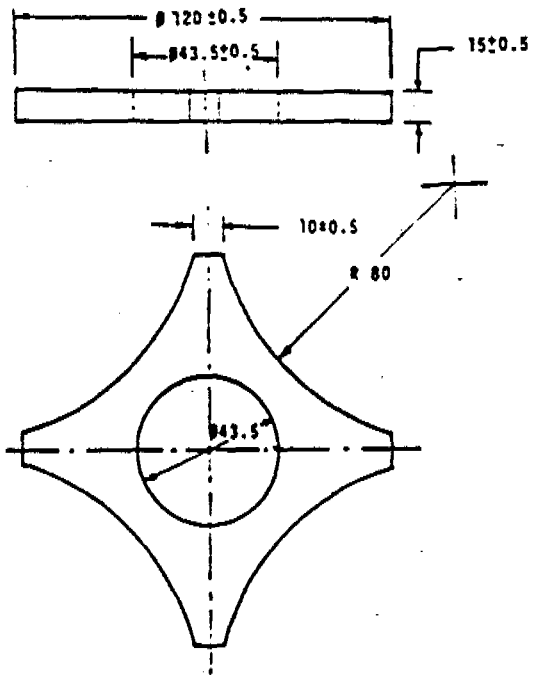
32 mm ND PVC Suction Pipe



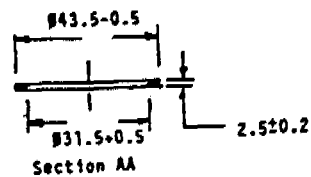
Section AA



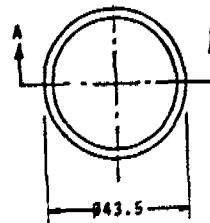
PVC Socket (Moulded/Machined)  
for 32 mm ND PVC Pipe



Polypropylene Pipe Centraliser  
for 32 mm ND PVC Pipe



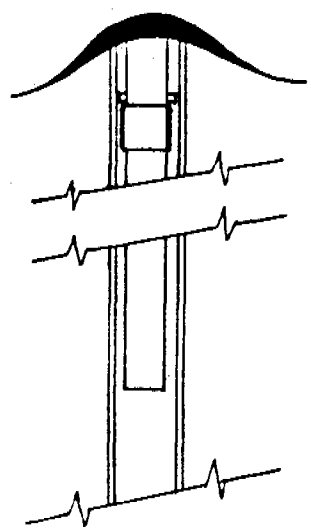
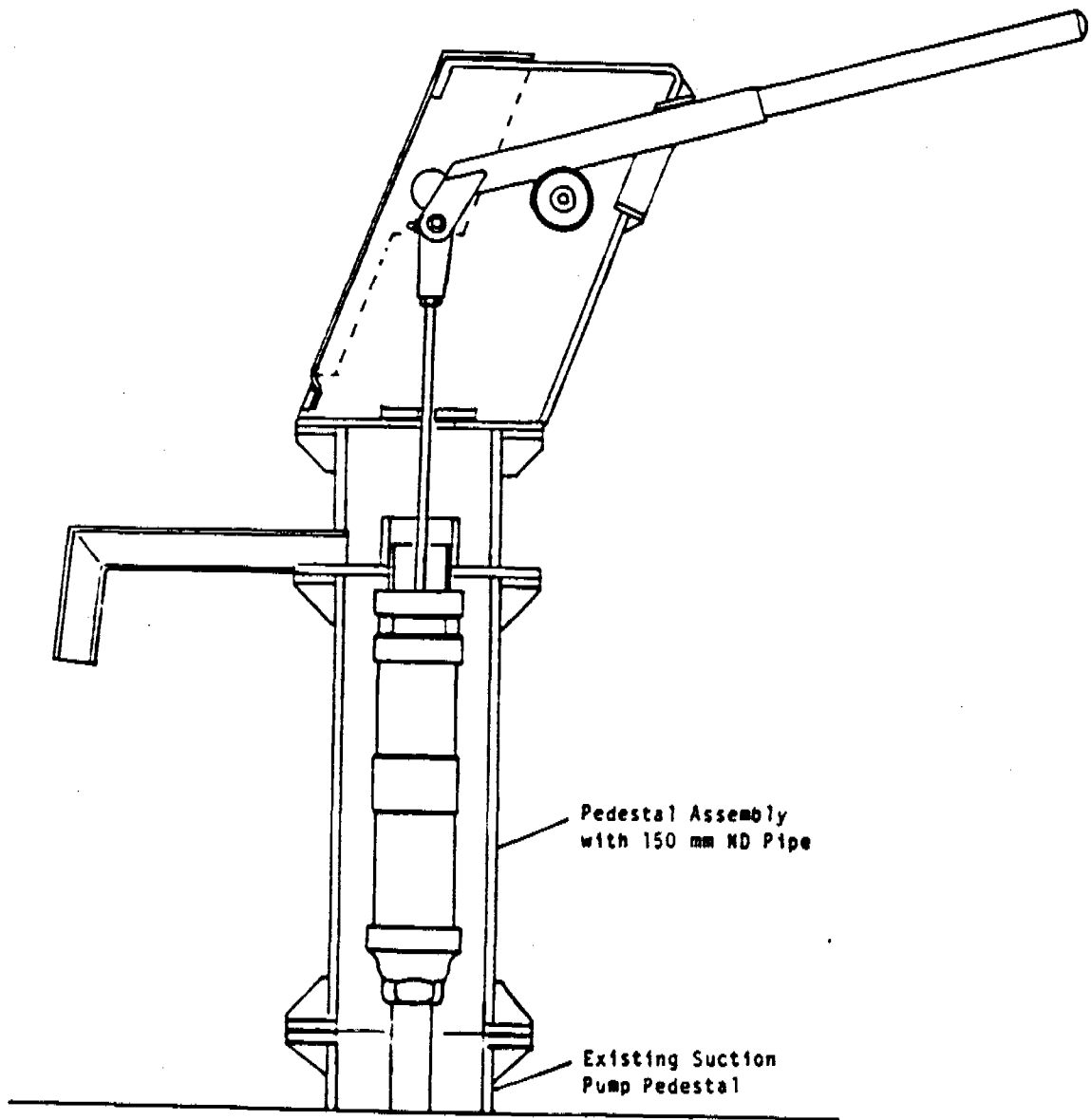
Section AA



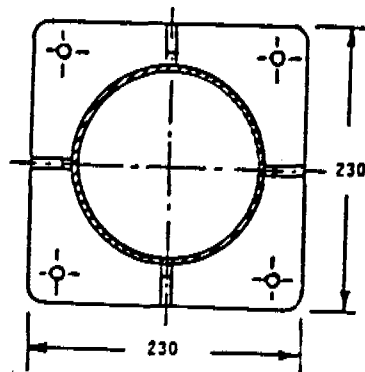
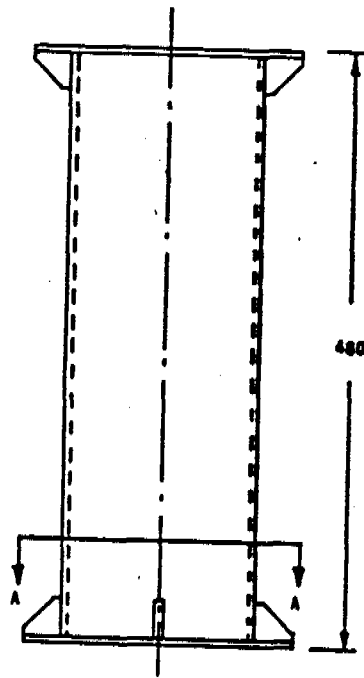
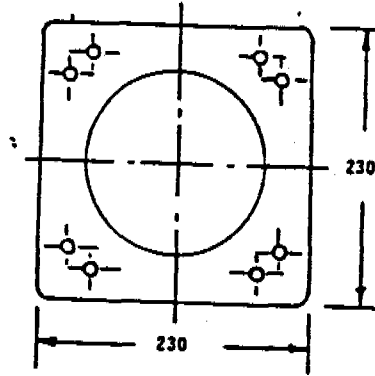
Nitrile Rubber  
Sealing Ring  
(Ref. IS 9301:1990  
Pg.23 for physical  
properties of  
Nitrile Rubber)

All dimensions in mm

Parts for Suction Pipe Assembly



**India Mark II Solid Link Suction Pump with 150 mm MD Pipe Pedestal for adaptation on Suction Pumps**

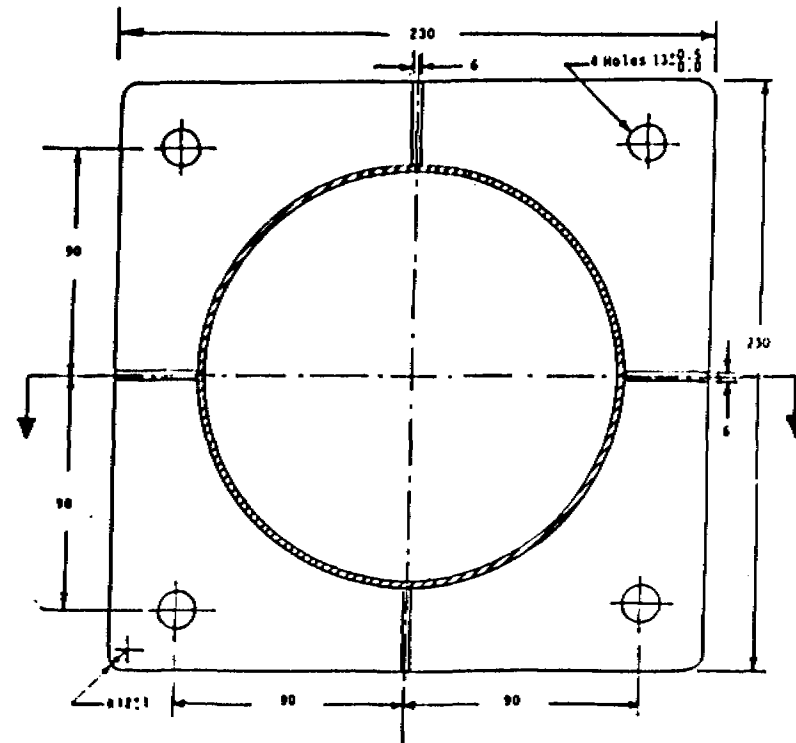
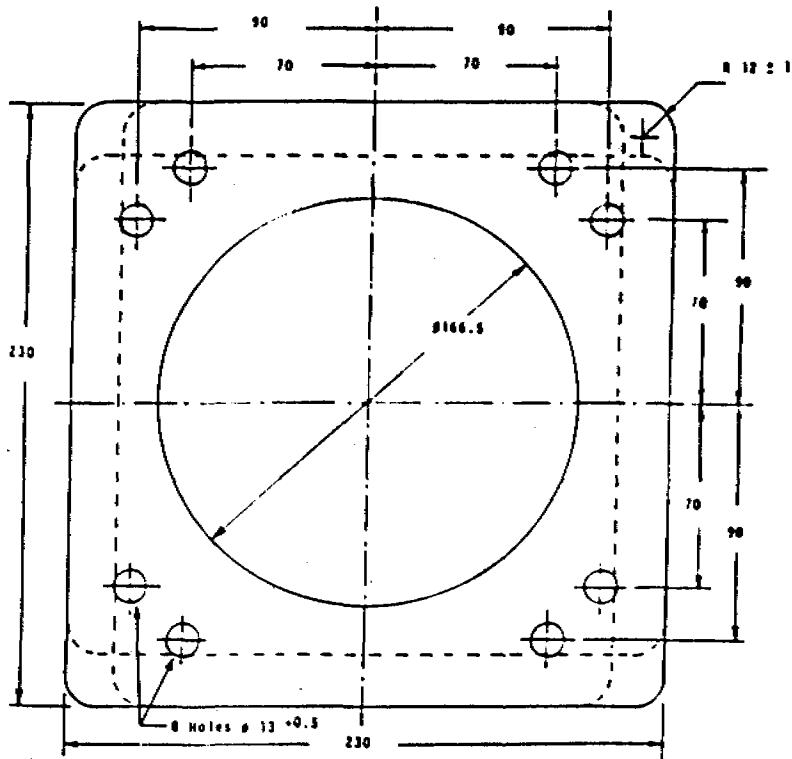
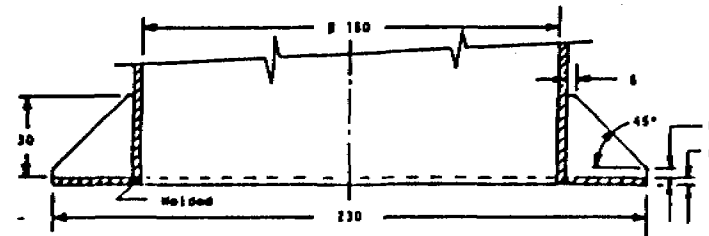
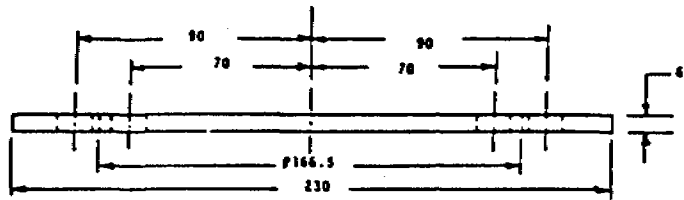


Section AA

All dimensions in mm

Pedestal Assembly with 150 mm ND Pipe, Square Flanged  
(Ref. IS 9301:1991, Fig.9)

Note: Hot dip galvanised as per IS 4759:1984

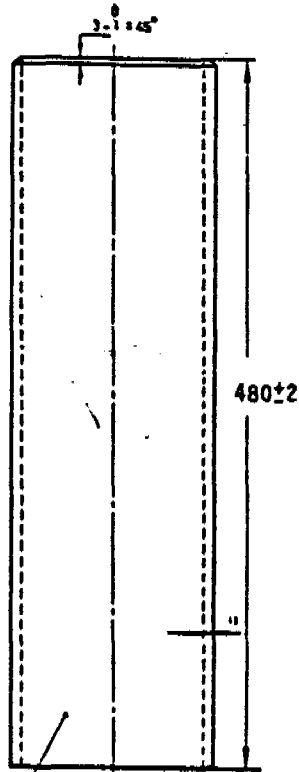


Pedestal Upper Flange

Pedestal Lower Flange assembly details

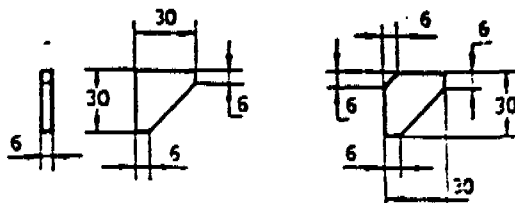
All dimensions in mm

Parts for Pedestal Assembly with 150 mm ND Pipe



PIPE OF NOMINAL BORE 150 mm  
(MEDIUM IS: 1230 (PART 1))

Pedestal Pipe

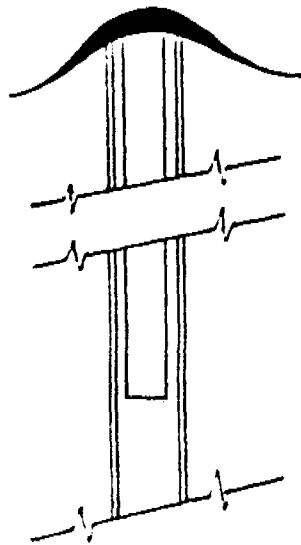
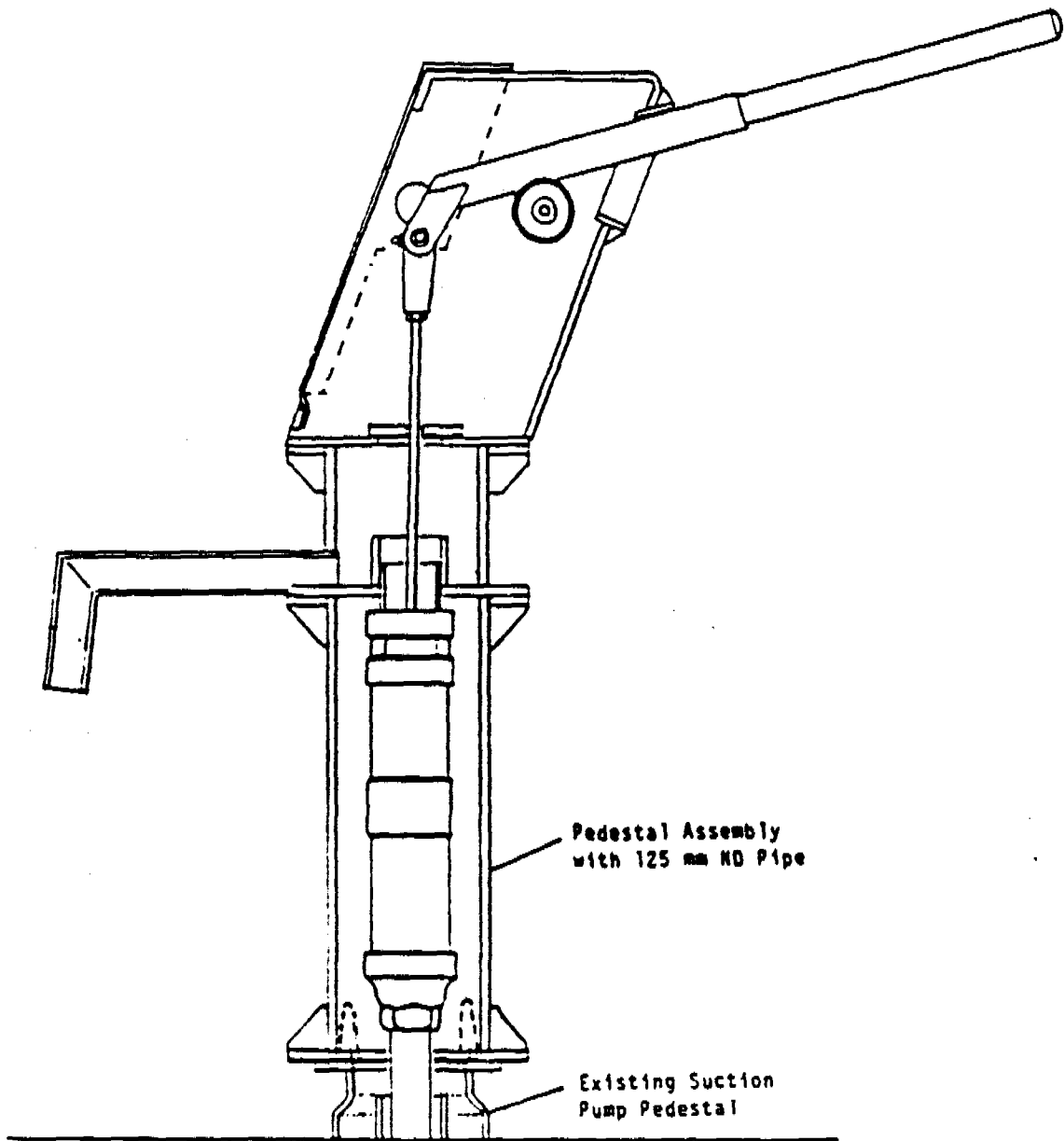


ALTERNATE  
DESIGN

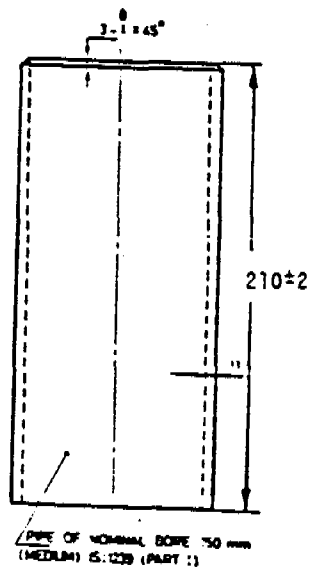
Gusset

All dimensions in mm

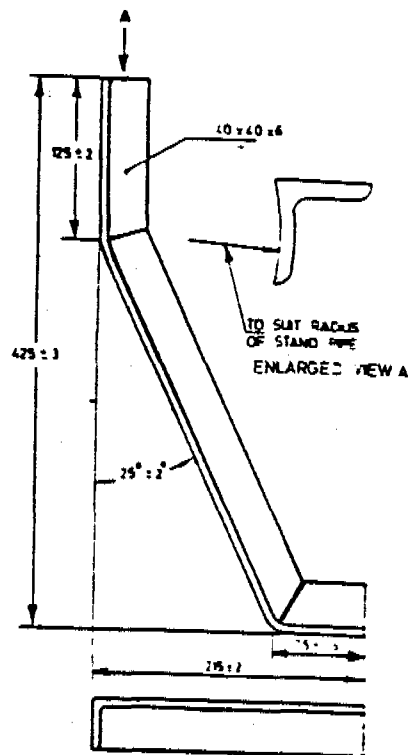
Pedestal Assembly with 150 mm ND Pipe



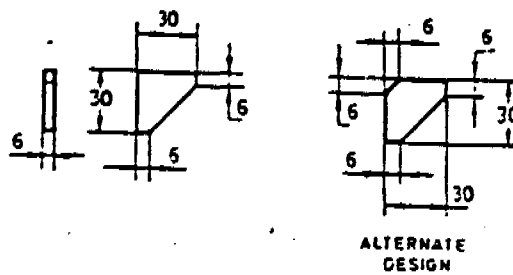
India Mark II Solid Link Suction Pump with 125 mm ND Pipe Pedestal for adaptation on Suction Pumps



Stand Pipe  
 (Ref. IS 9301:1990 Fig.10B)



Leg  
 (Ref. IS 9301:1990 Fig.10C)

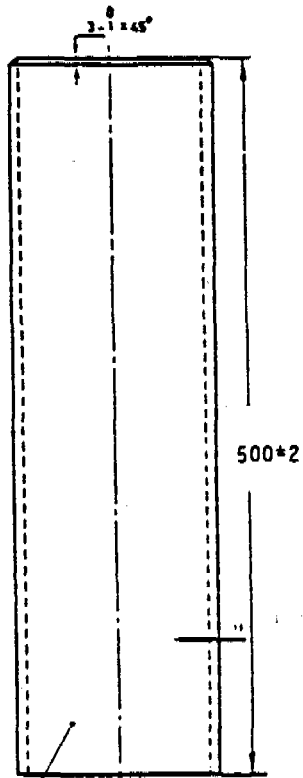


Gusset

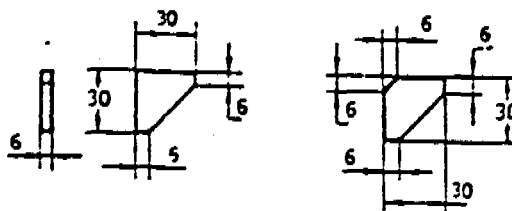
All dimensions in mm

Stand Assembly Parts





Pipe of Nominal bore 125 mm  
 (Medium) IS 1239 (Part 1)  
 Pedestal Pipe

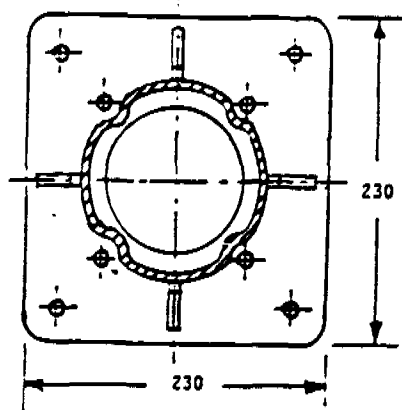
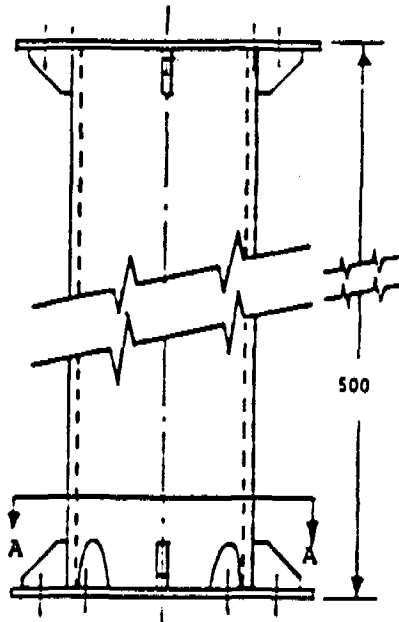
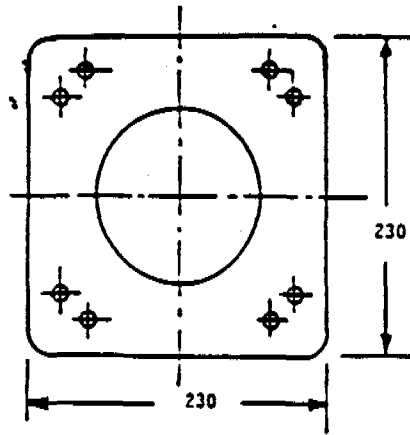


ALTERNATE DESIGN

Gusset

All dimensions in mm

Pedestal Parts for Pedestal with 125 mm ND Pipe



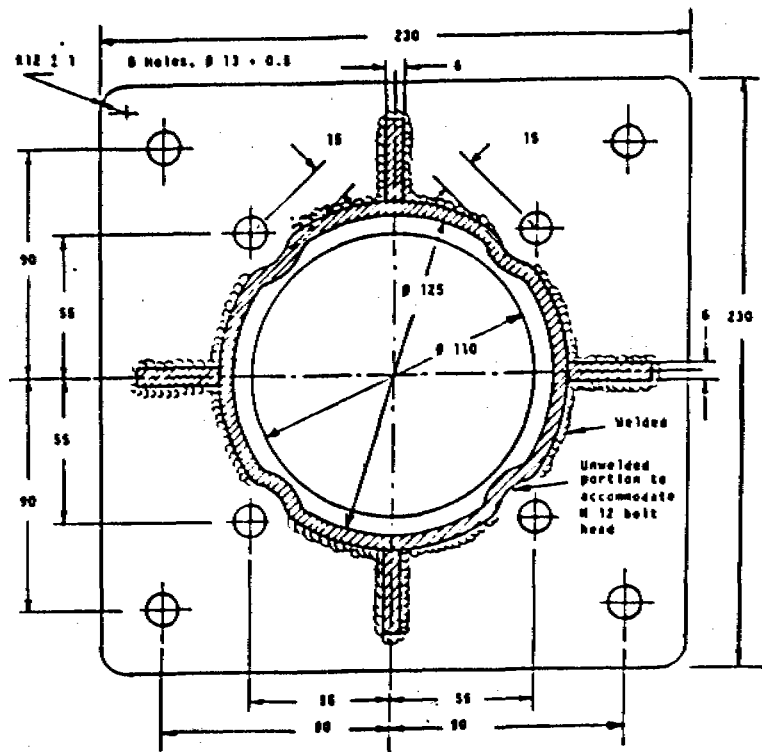
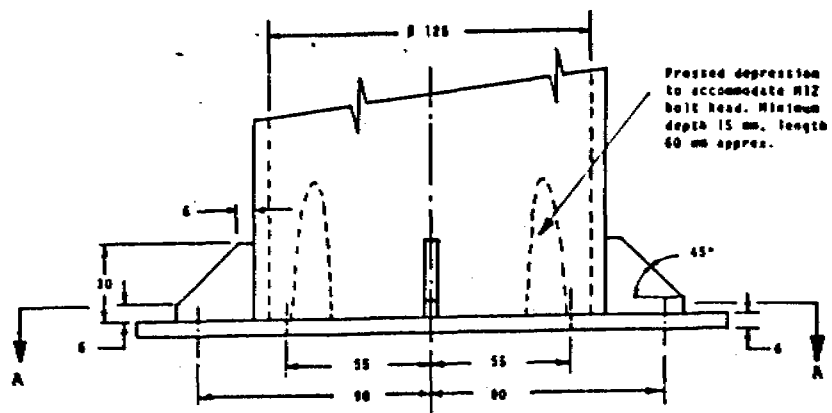
Section AA

All dimensions in mm

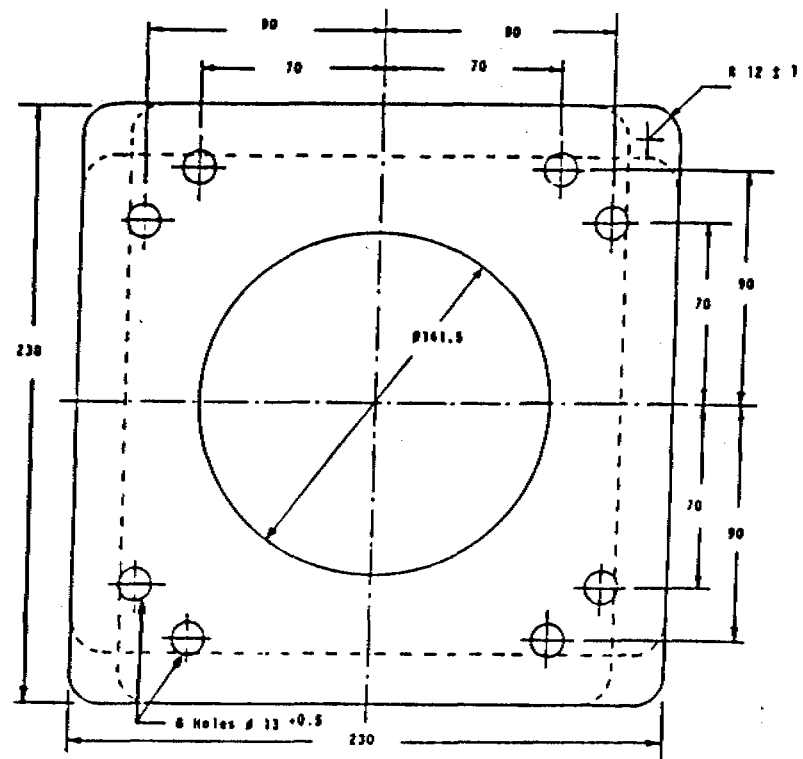
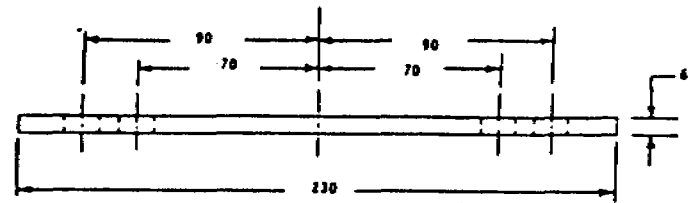
Pedestal Assembly with 125 mm ND Pipe.  
Square Flanged, for Suction Pump adaptation

(Ref. IS 9301:1990, Fig.9)

Note: Hot dip galvanized as per IS 4759:1984

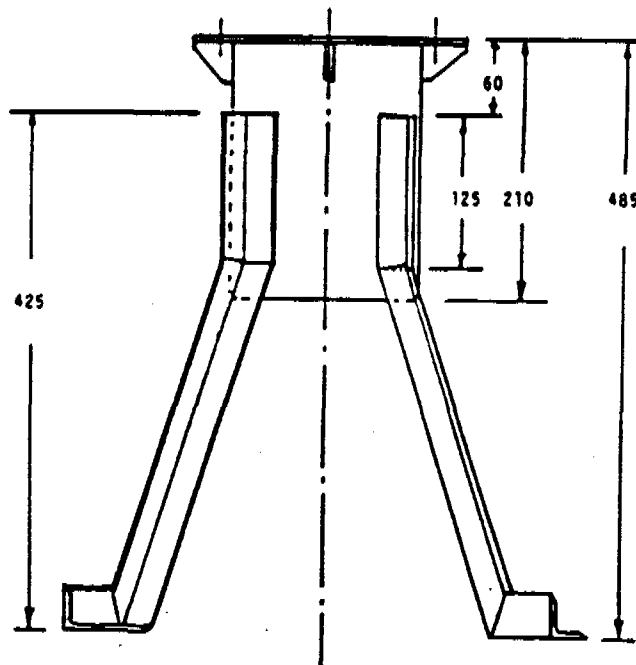
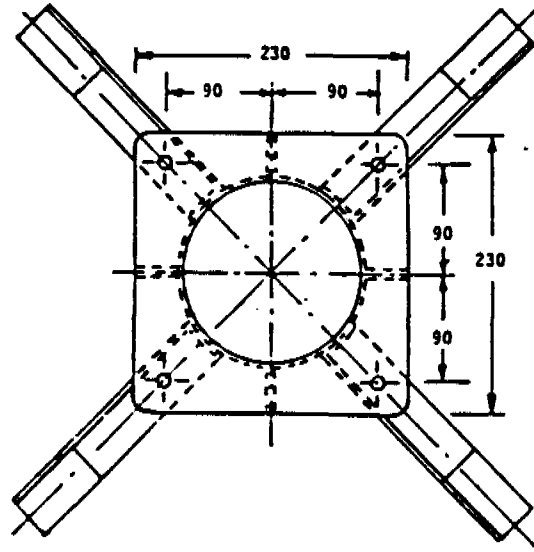


Pedestal Lower Flange assembly details

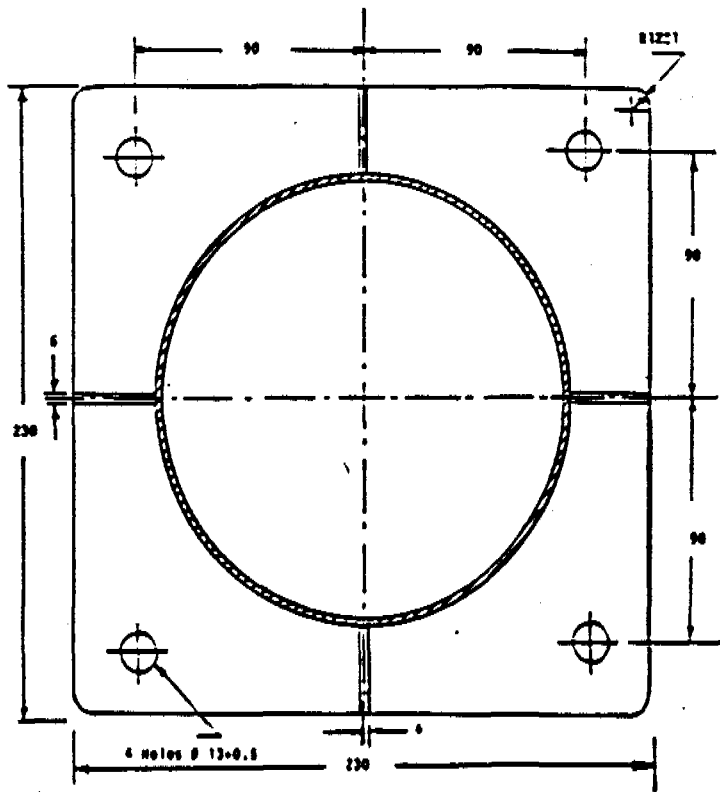


Pedestal Upper Flange

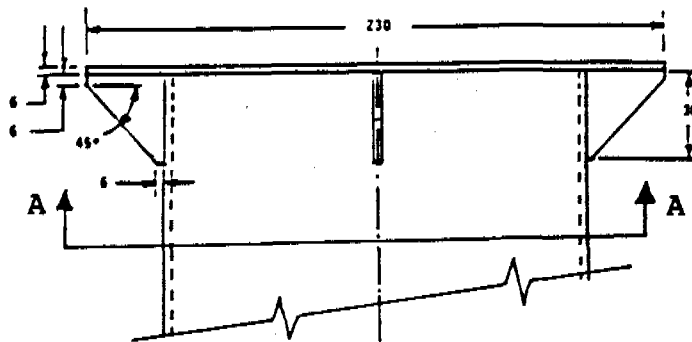
All dimensions in mm  
Flanges for Pedestal with 125 mm ND Pipe



All dimensions in mm  
 Stand Assembly for Square Flanged Pedestal  
 (Ref. IS 9301:1991, Fig.9)  
 Note: Hot dip galvanised as per IS 4759:1984

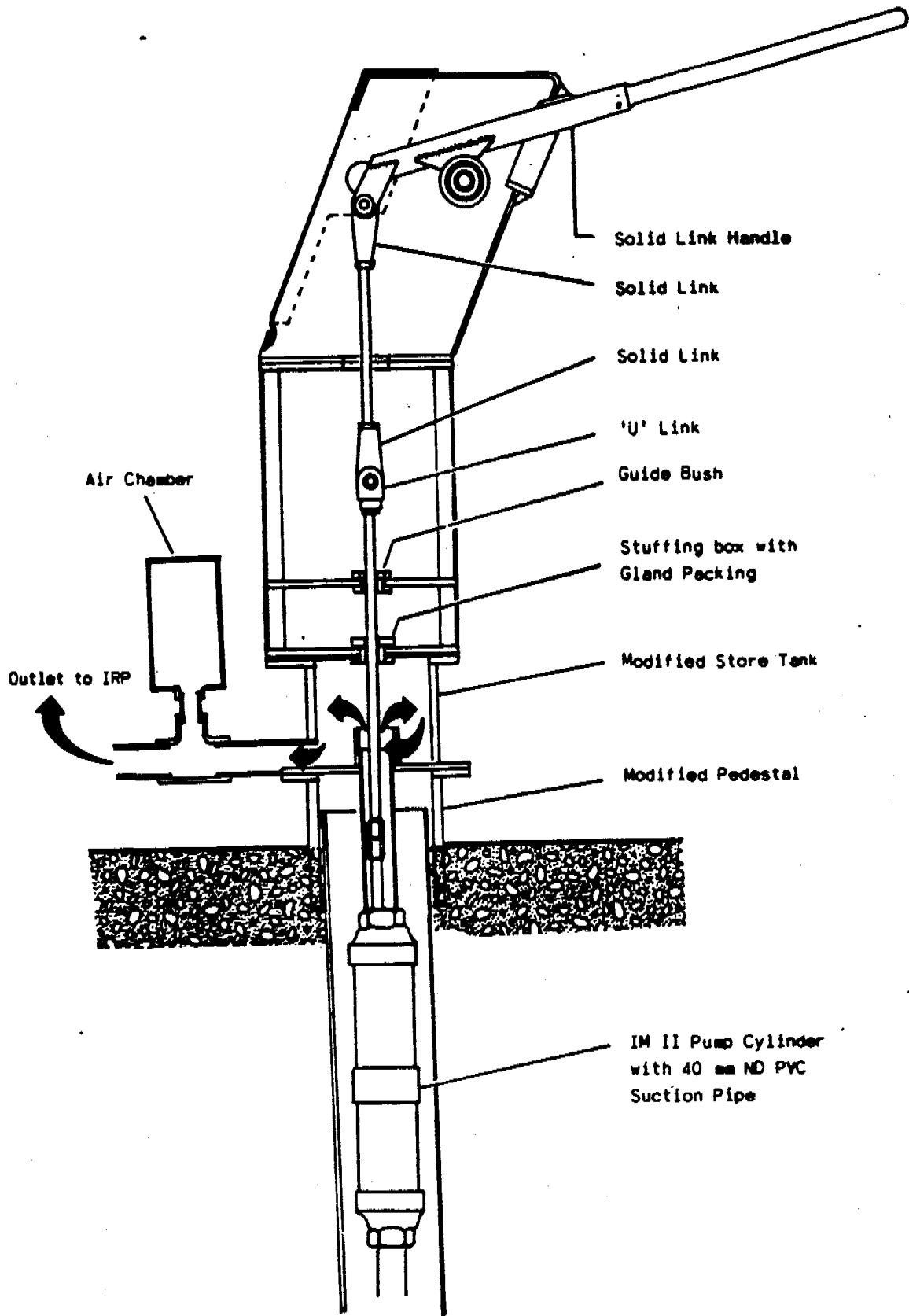


Section AA



All dimensions in mm

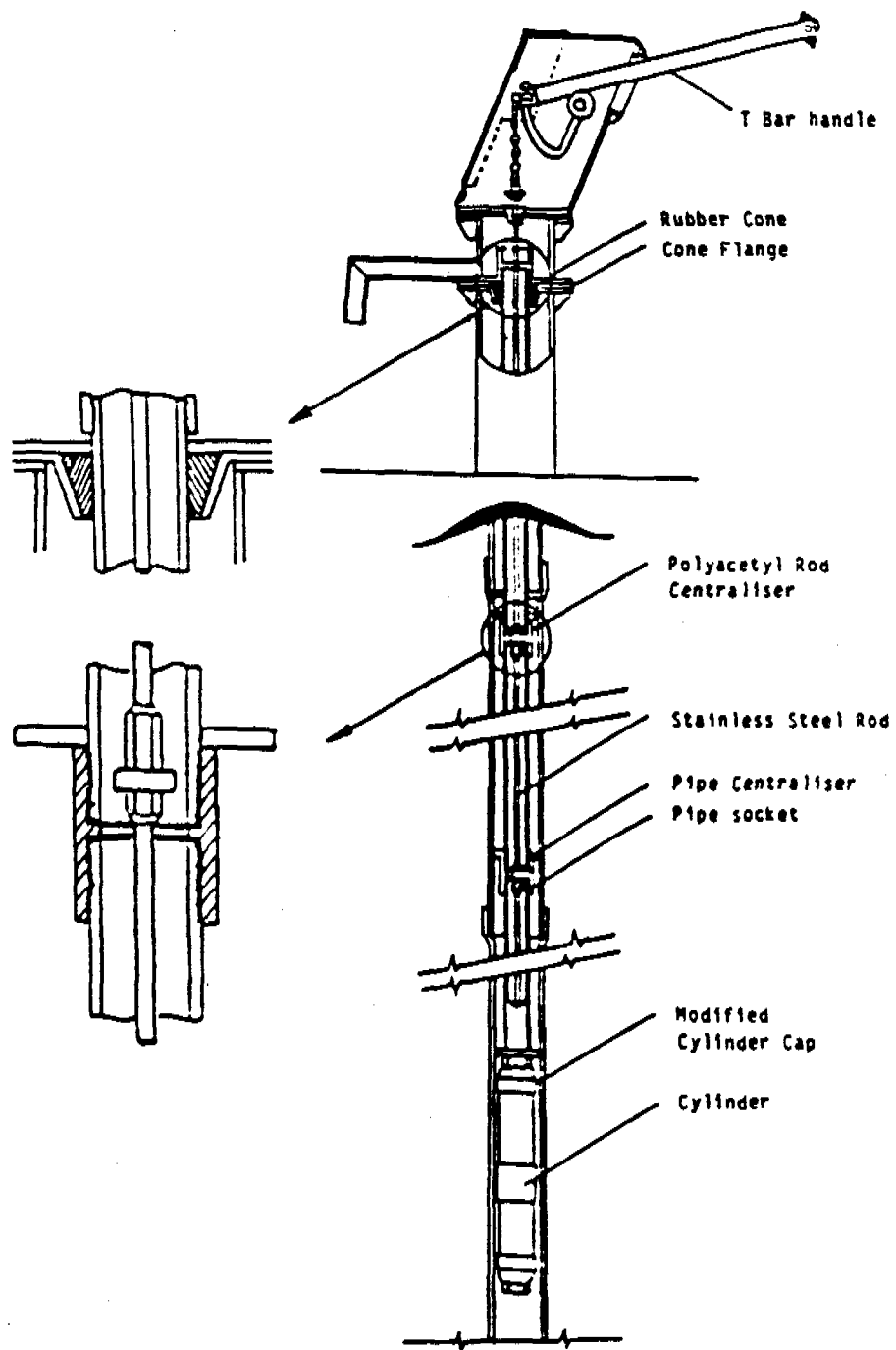
Stand Flange Assembly details



**IM II Force & Lift Pump for use  
with Iron Removal Plants**

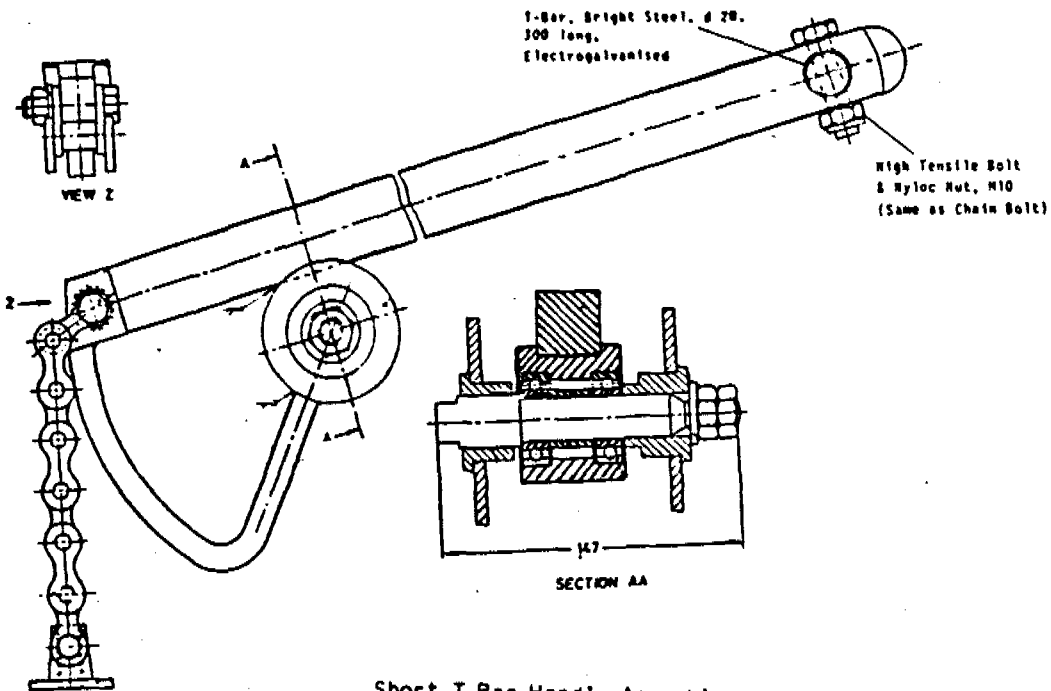
**Specifications for**

**India Mark II Hand Pump  
with PVC Riser Pipes**



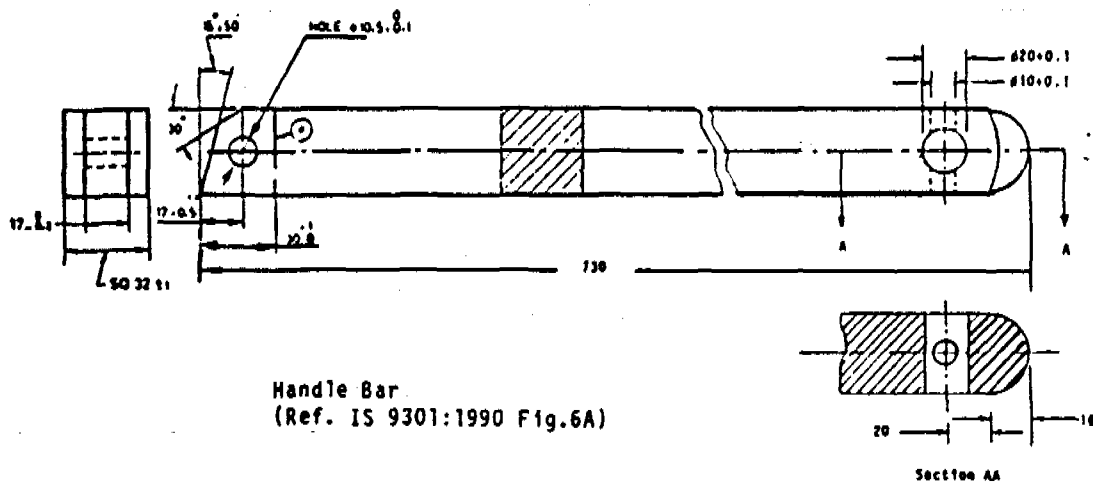
**India Mark II hand pump with  
PVC riser pipes in Low Lift application**



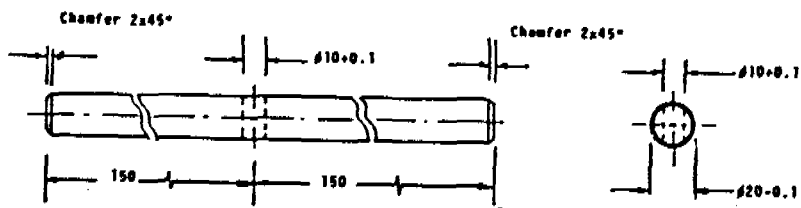


Short T Bar Handle Assembly  
(Ref. IS 9301:1990 Fig.5)

Note: Electrogalvanised as per IS 1573:1986  
service condition No.4



Handle Bar  
(Ref. IS 9301:1990 Fig.6A)

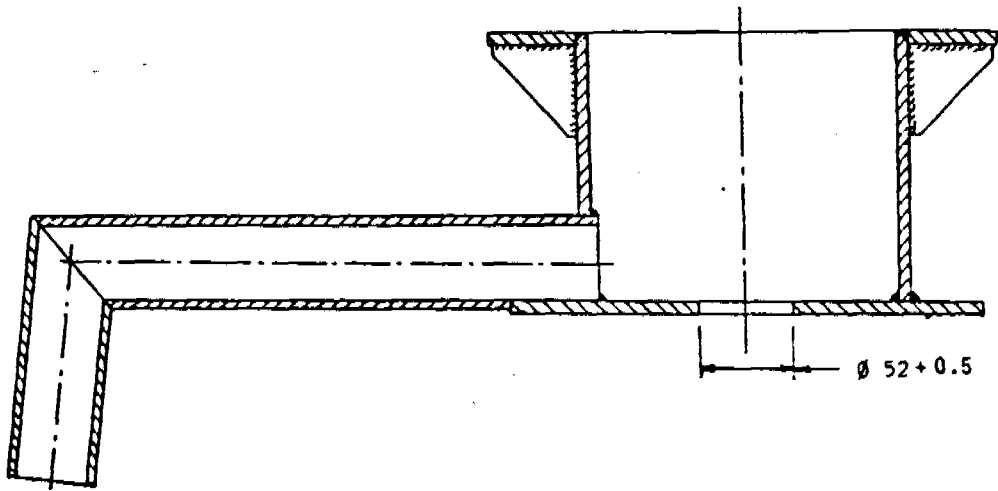


T Bar

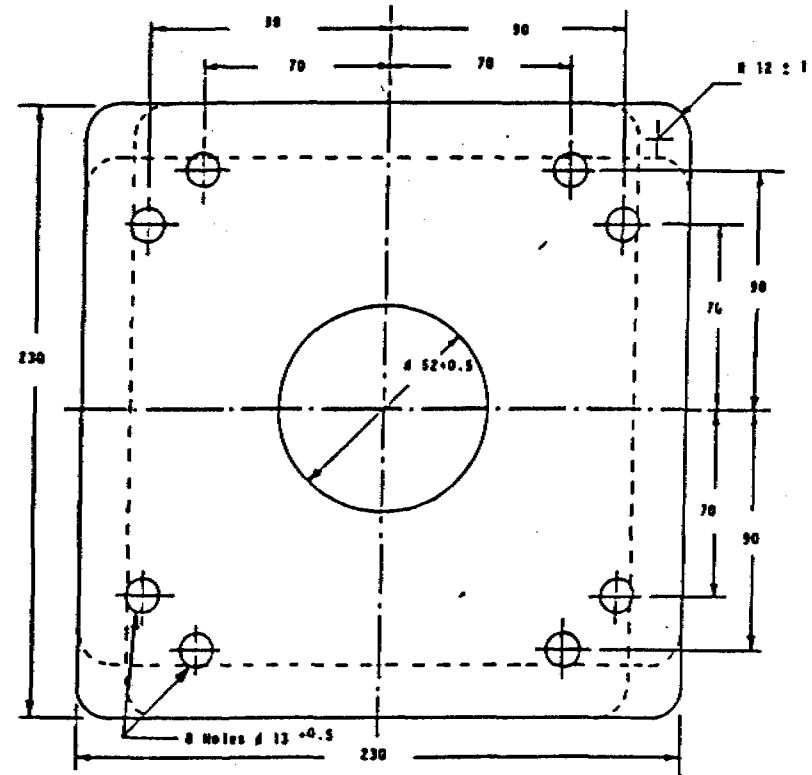
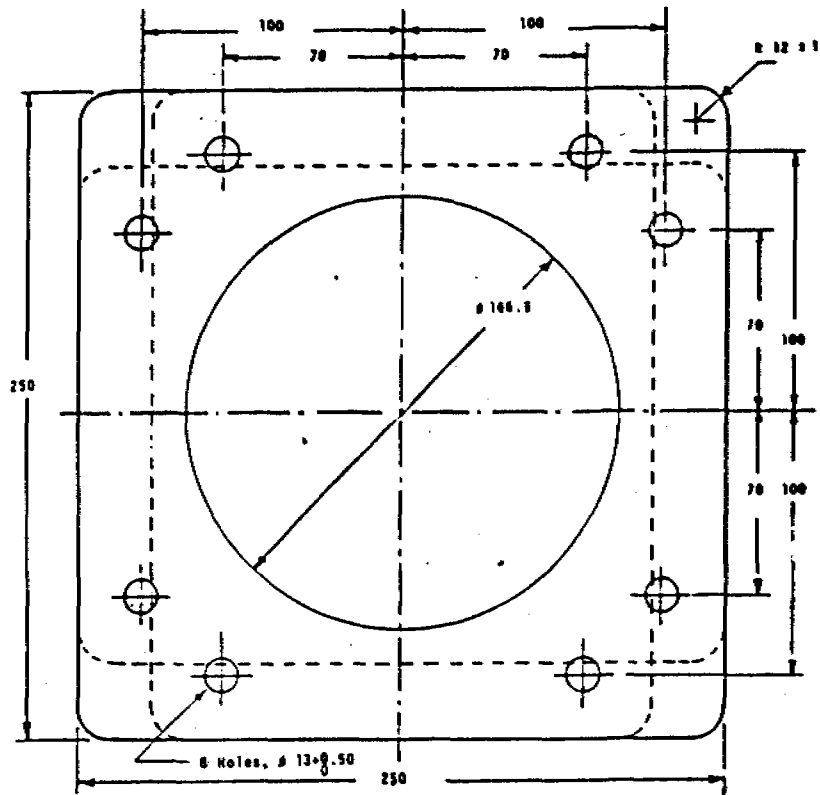
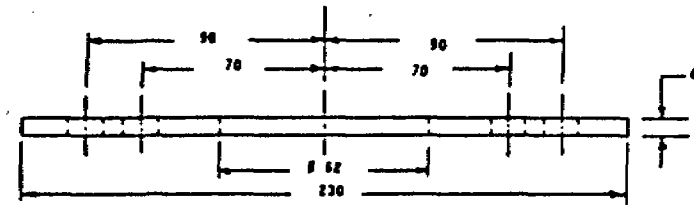
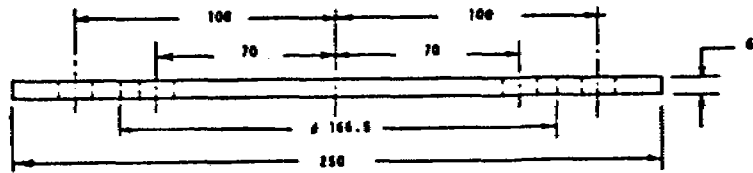
Notes : 1. Material: Bright Bar of Type A conforming to Grade 2 or 3 of IS 9550  
2. Electrogalvanised according to IS 1573:1986 service condition No. 3

All dimensions in mm

Short T Bar Handle



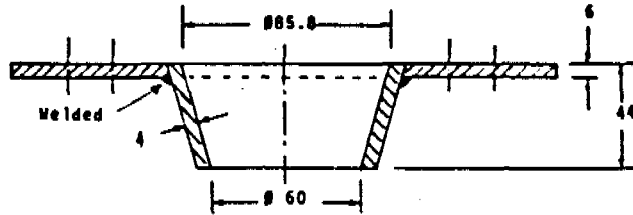
Modified Water Tank for use with 40 mm ND  
PVC Riser Pipe



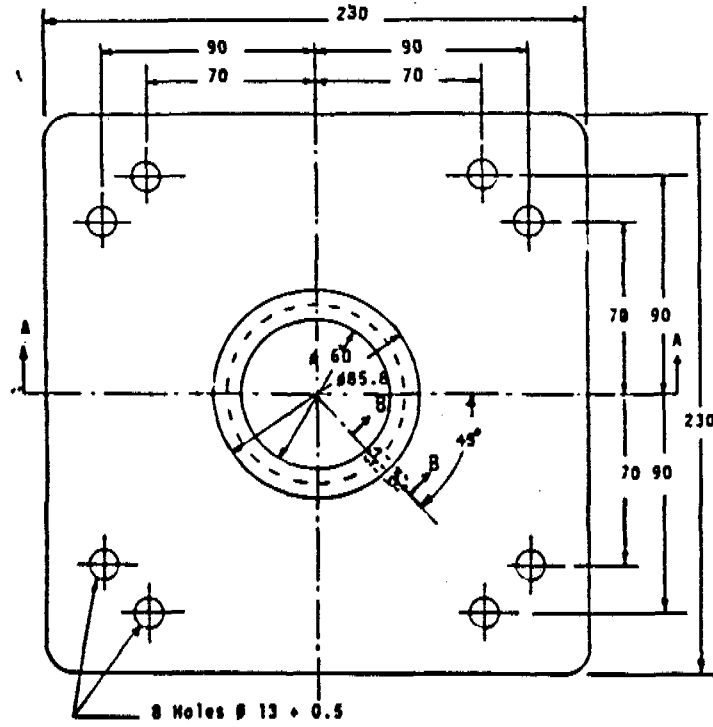
Tank Top Flange

Tank Bottom Flange

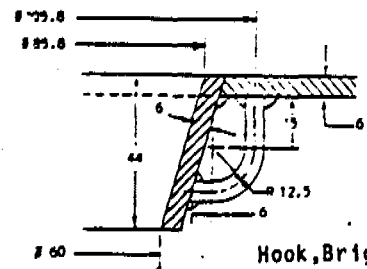
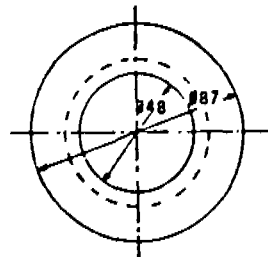
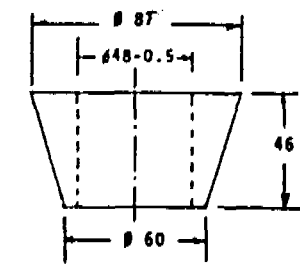
All dimensions in mm  
 Water Tank Assembly & Parts for 40 mm ND PVC Pipe



Section AA



Cone Flange  
(Hot dip galvanised as per IS 4759:1984)



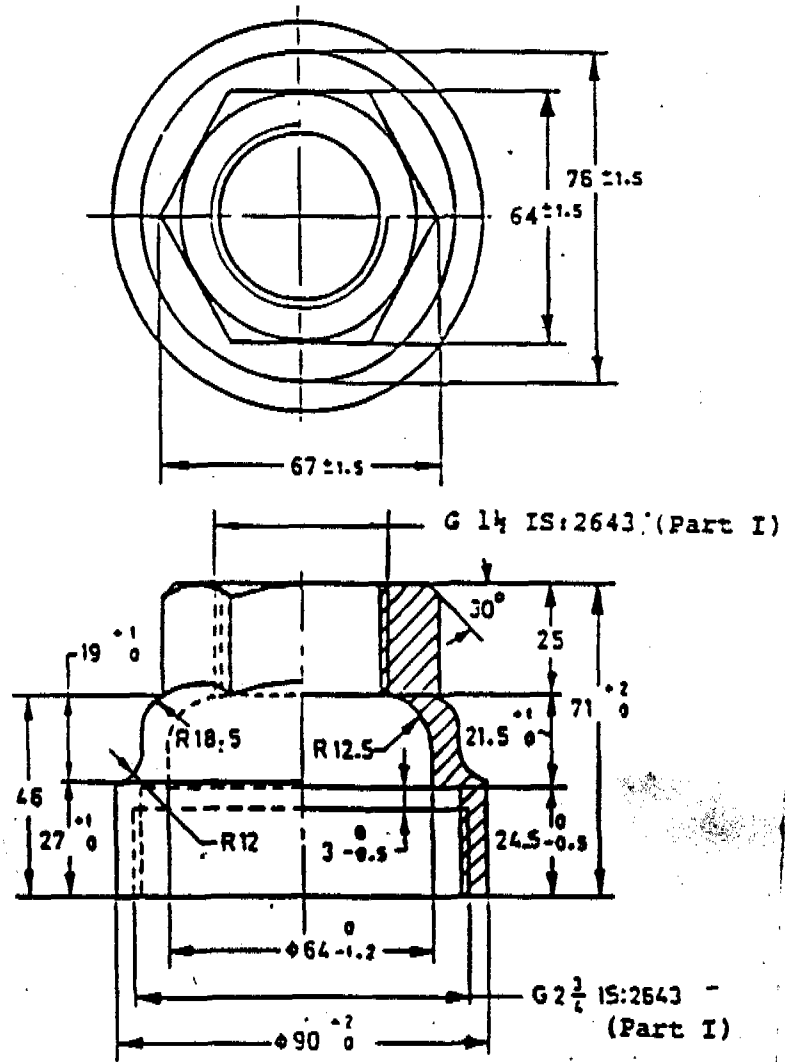
Hook, Bright bar, Ø 6

Section BB  
Detail of Hook for  
Nylon Retaining Rope

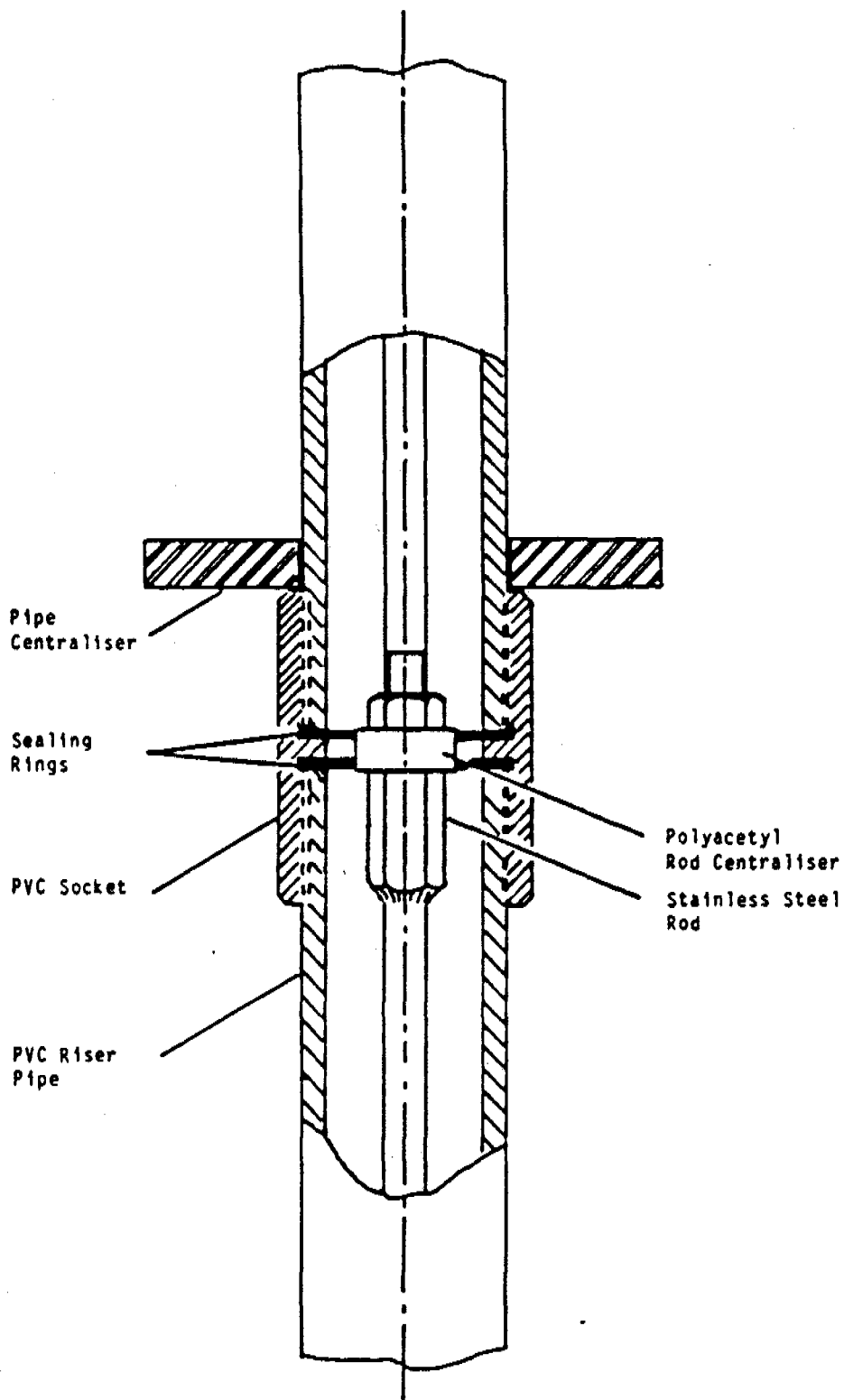
Nitrile Rubber Cone (Ref. IS 9301:1990  
Pg.23 for physical properties of  
Nitrile Rubber)

All dimensions in mm

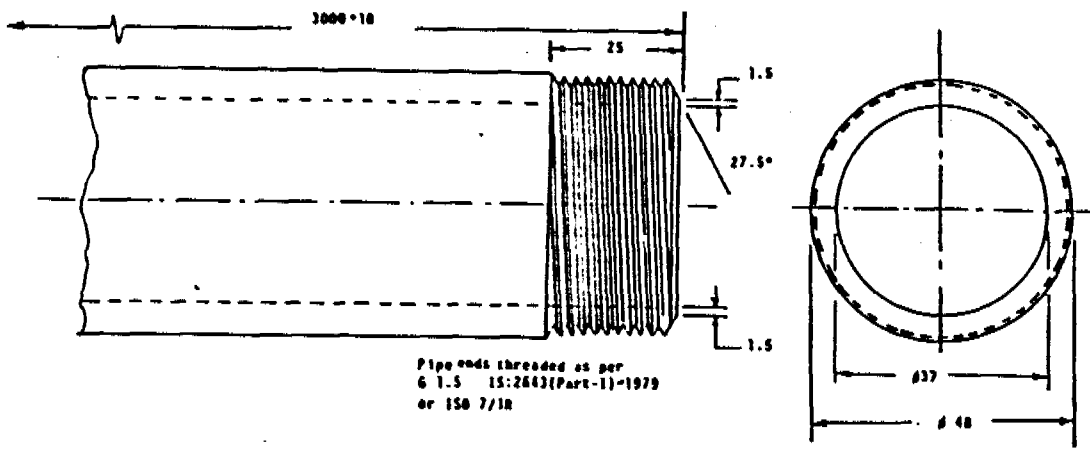
Cone Flange & Cone for 40 mm ND PVC Pipe



All dimensions in mm  
 Reducer Cap for 40 mm ND PVC Pipe  
 (Ref. IS 9301:1990, Fig.13A)

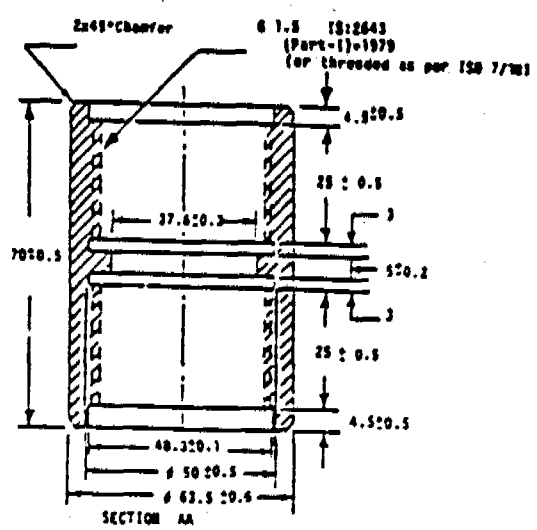


**Riser Pipe and Pump Rod Assembly for India Mark II  
 Hand Pump using PVC Pipes, Stainless Steel Rods  
 and Centralisers**

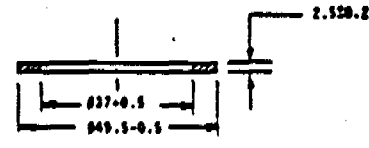


PVC Pipe as per schedule 80, ASTM-D-1785-03  
 O.D. 40.26 mm ± 0.15  
 Out of Roundness 0.3  
 Wall Thickness 3.00 ± 0.61

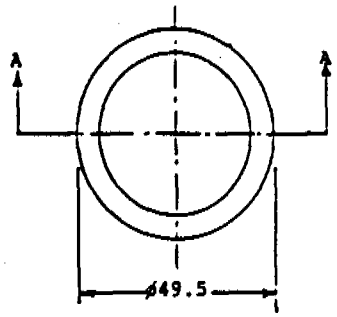
40 mm ND PVC Riser Pipe



PVC Socket (Moulded/Machined)  
 for 40 mm ND PVC Riser Pipe



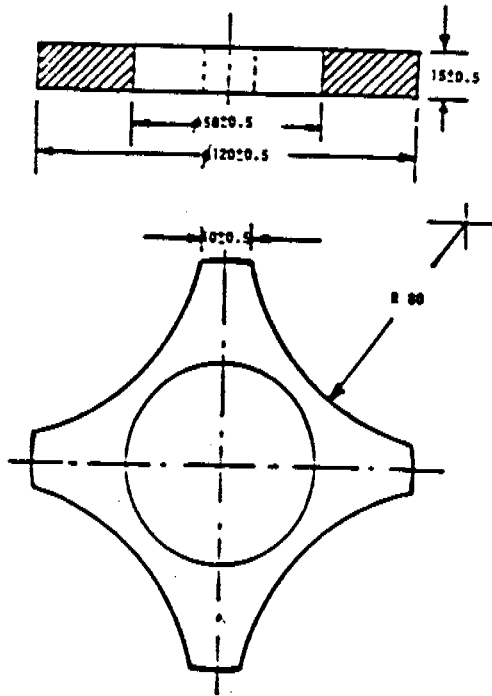
Section AA



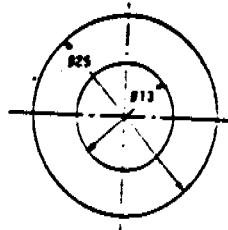
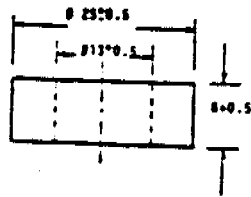
Nitrile Rubber  
 Sealing Ring

(Ref. IS 9301:1990, Pg.23 for  
 physical properties of Nitrile  
 Rubber)  
 Shore Hardness : 80

All dimensions in mm



Polypropylene Pipe Centraliser  
for 40 mm ND PVC Riser Pipe

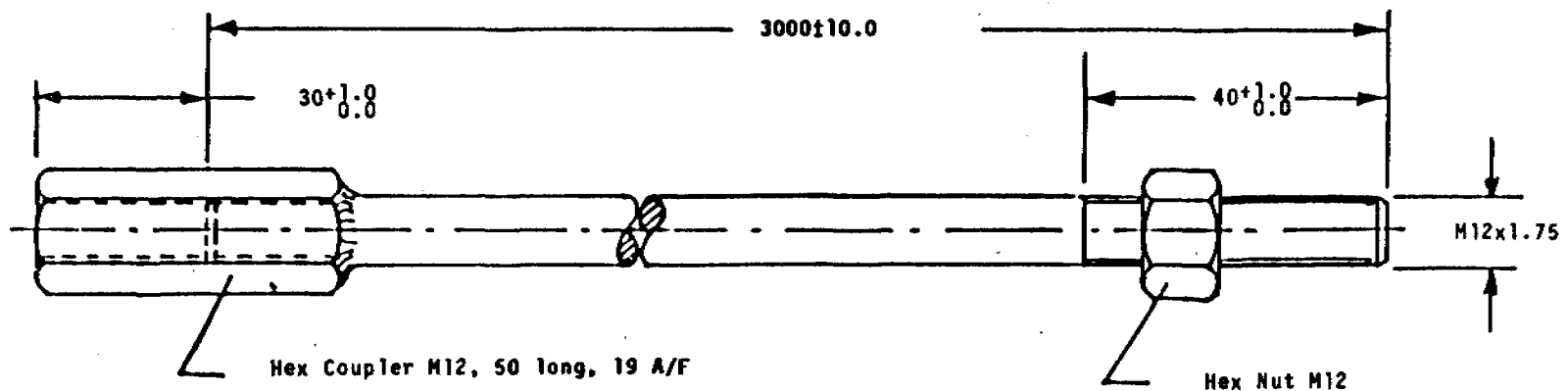


Polyacetyl Rod Centraliser

All dimensions in mm

Parts for Riser Pipe and Pump Rod Assembly

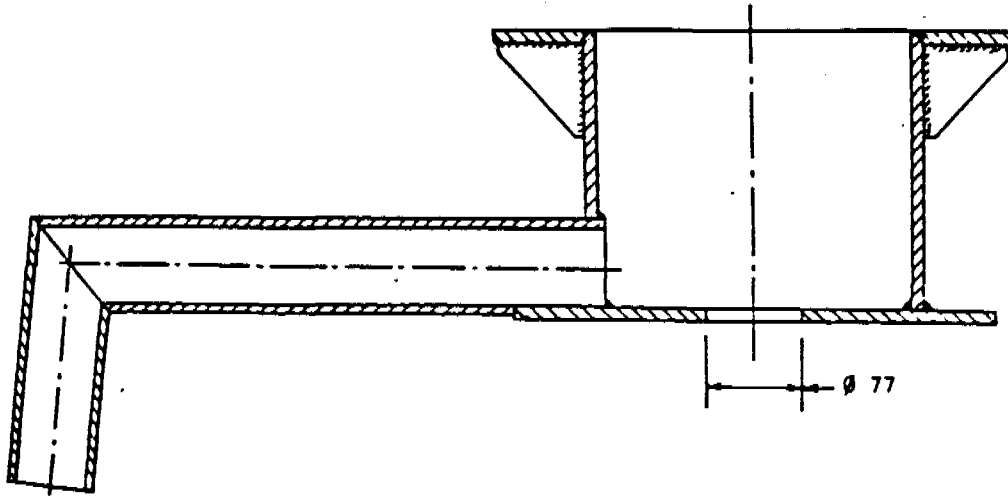




All dimensions in mm

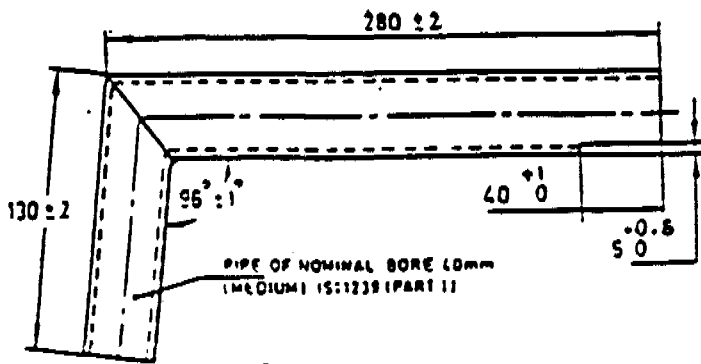
Stainless Steel Connecting Rod, AISI 304 (AISI 316 for better corrosion resistance)

Parts for Riser Pipe and Pump Rod Assembly

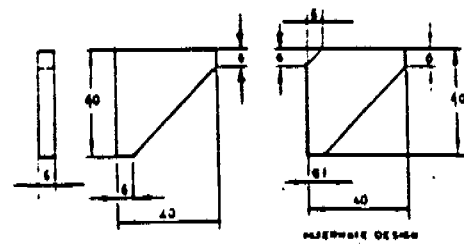


Water Tank Assembly for 75 mm ND PVC Riser Pipe  
(Ref. IS 9301:1990 Fig.7)

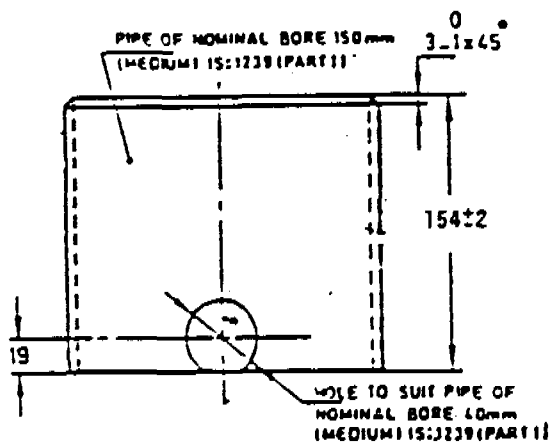
Note: Hot dip galvanised as per IS 4759:1984



Spout  
(Ref. IS 9301:1990 Fig.8C)

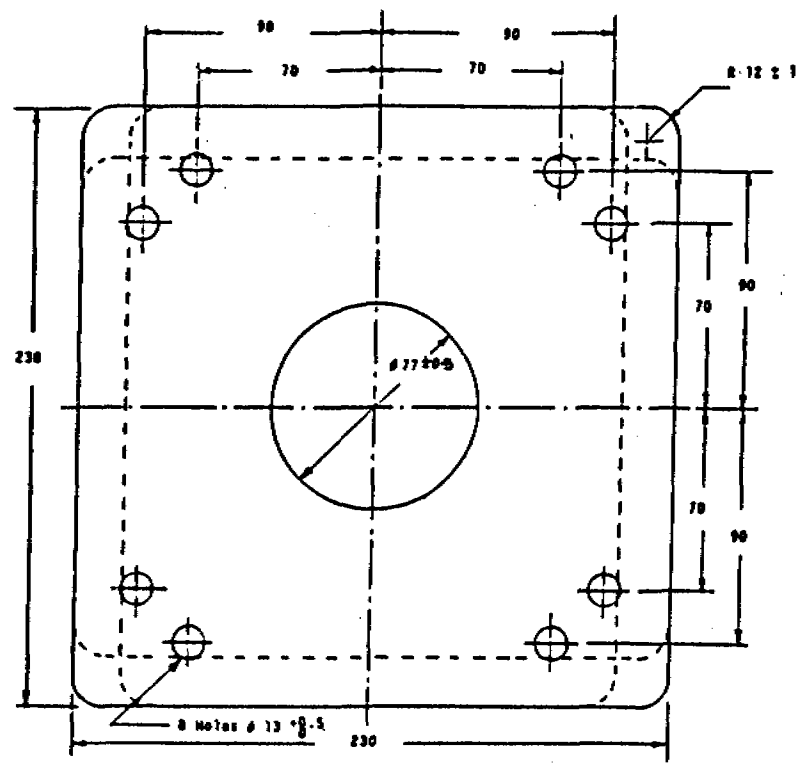
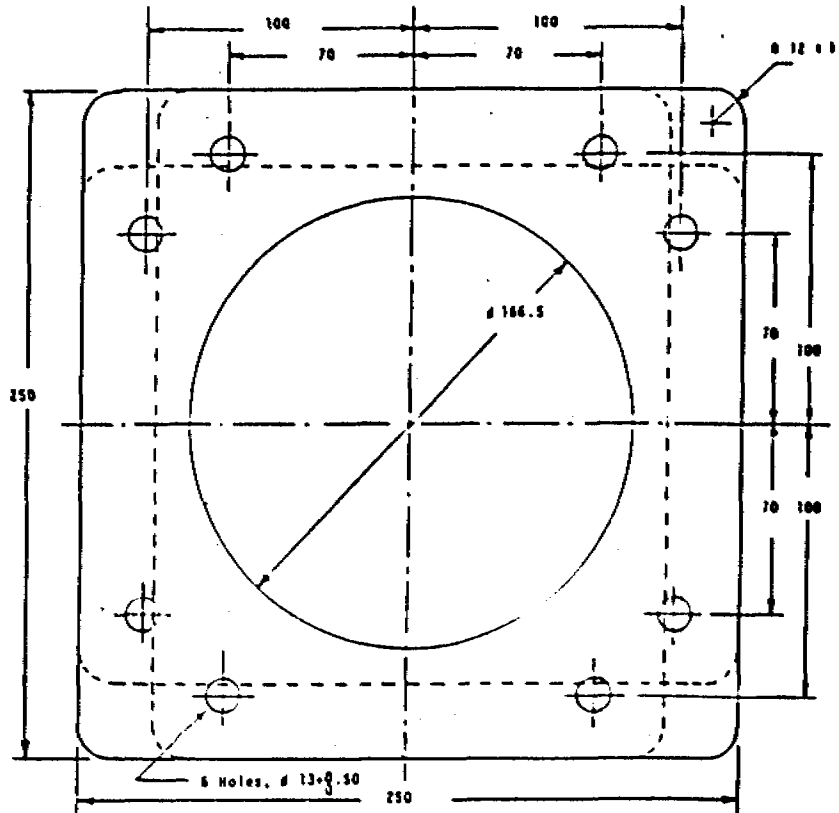
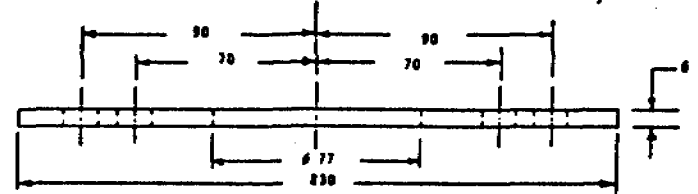
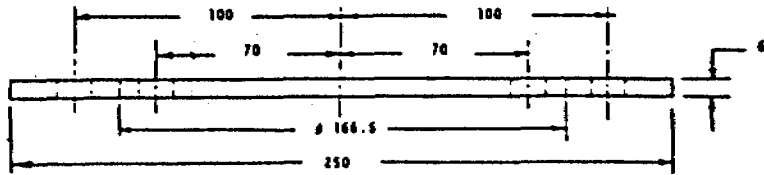


Gusset  
(Ref. IS 9301:1990 Fig.8F)



Tank Pipe  
(Ref. IS 9301:1990 Fig.8D)

All dimensions in mm  
Water Tank Assembly & Parts for 75 mm ND PVC Pipe

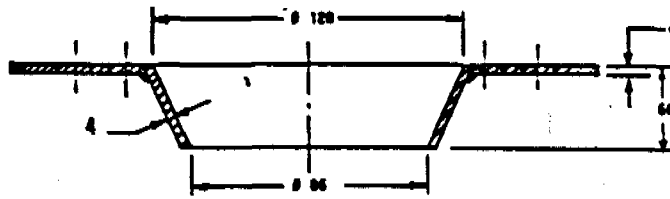


Tank Top Flange

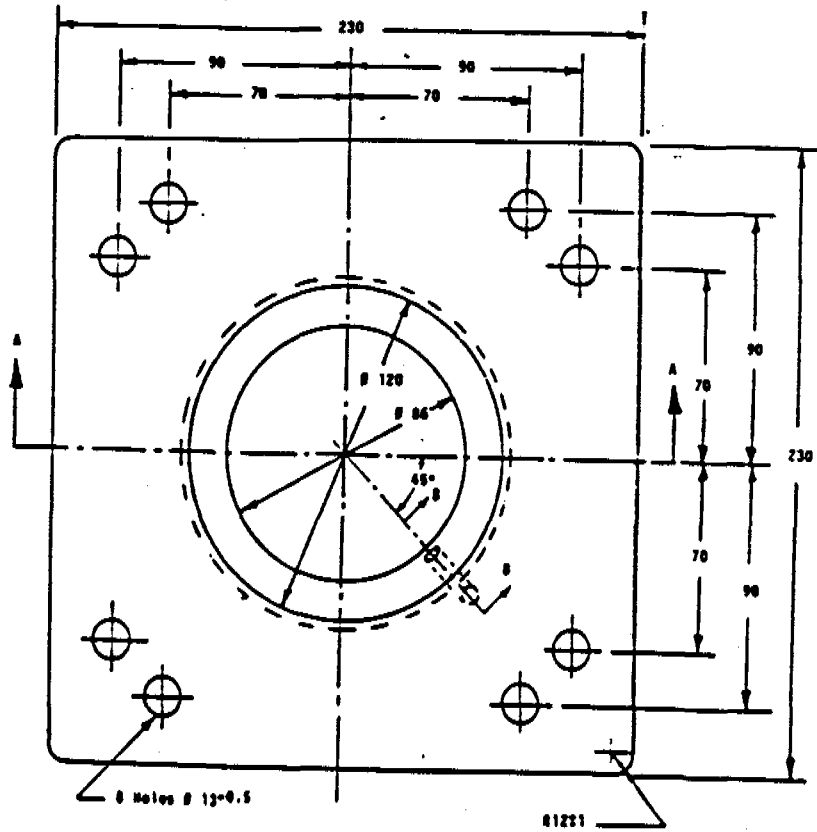
Tank Bottom Flange

All dimensions in mm

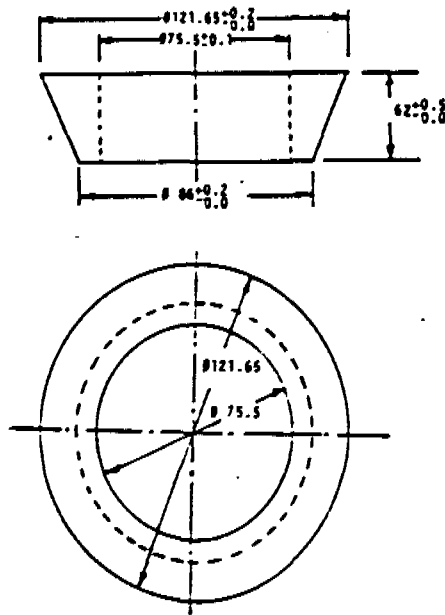
Water Tank Assembly & Parts for 75 mm ND PVC Pipe



Section AA

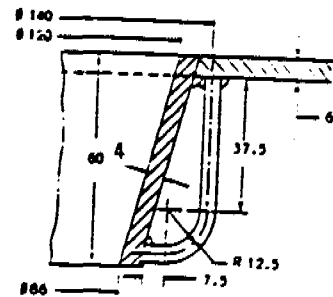


Cone Flange (Hot dip galvanised as per IS 4759:1984)



Mitrile Rubber Cone (Ref. IS 9301:1990  
Pg.23 for physical properties of Mitrile  
Rubber)

All dimensions in mm



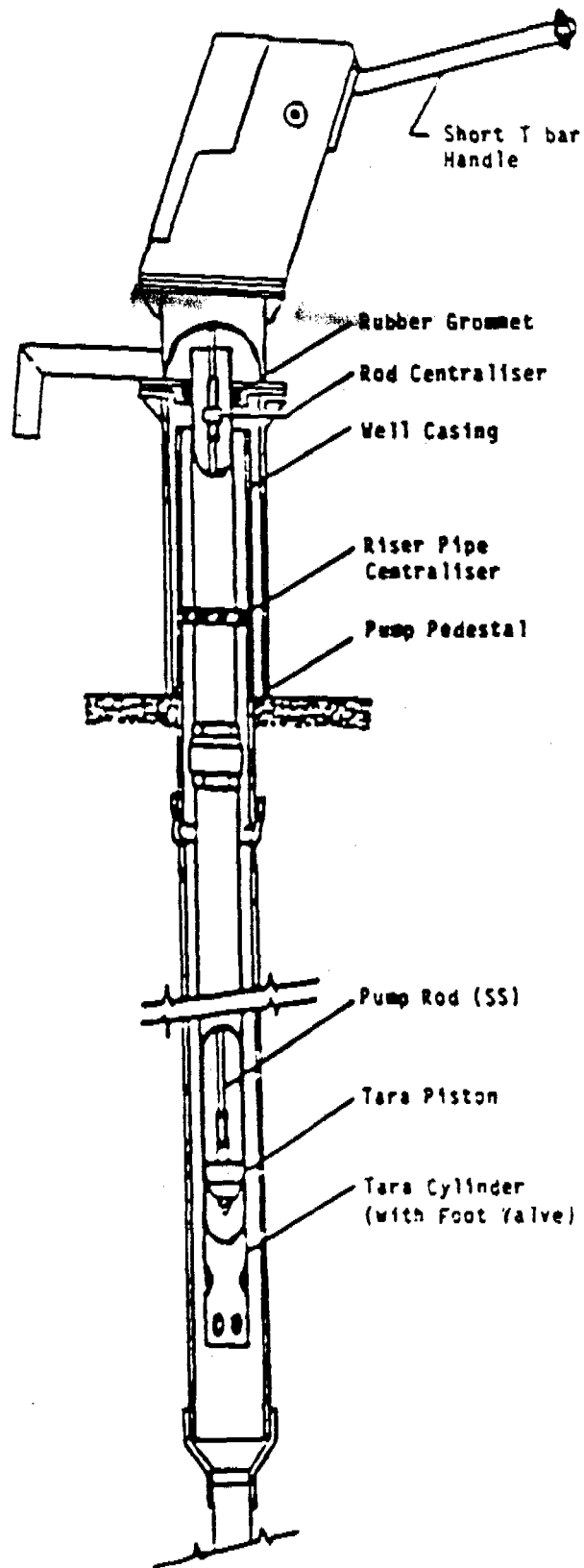
Hook, Bright  
bar,  $\phi$  6

Section BB  
Detail of Hook for  
Nylon Retaining Rope

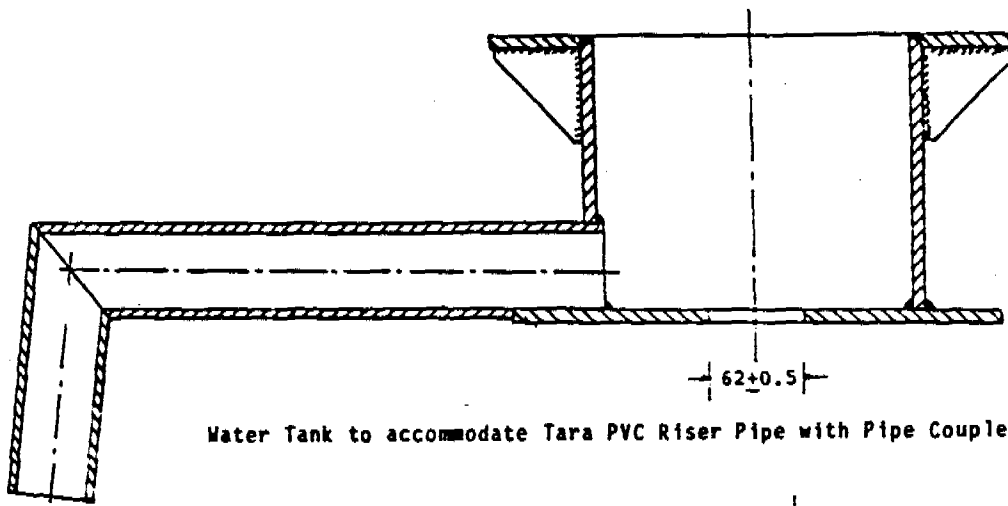
**Specifications for  
India Mark II  
Hand Pump  
using Tara DA  
PVC Riser Pipes**

**Maintenance Division  
Danida Project Directorate  
Bhubaneswar, Orissa**

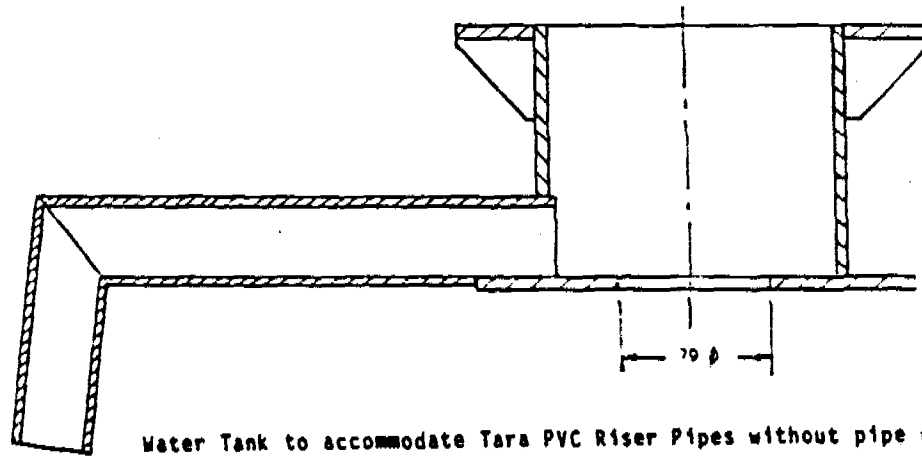
**July 92**



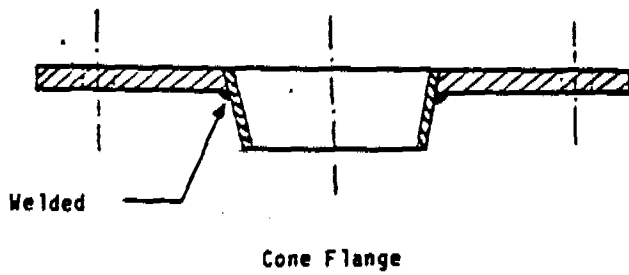
**India Mark II pump using Tara  
pump's PVC riser pipes**



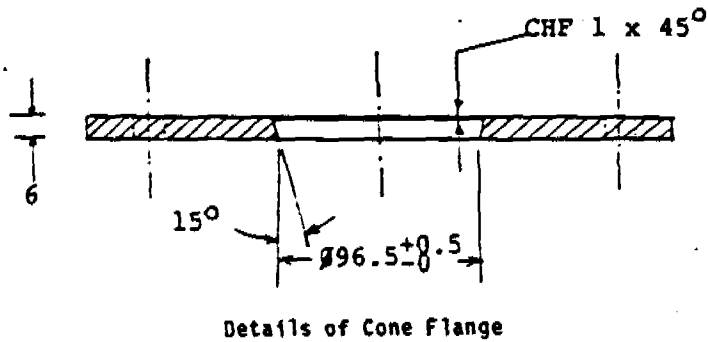
Water Tank to accommodate Tara PVC Riser Pipe with Pipe Coupler



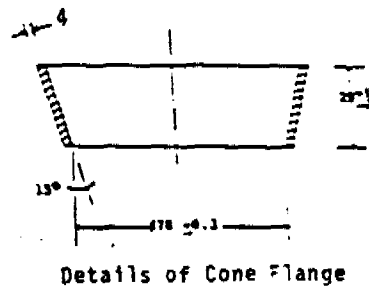
Water Tank to accommodate Tara PVC Riser Pipes without pipe coupler



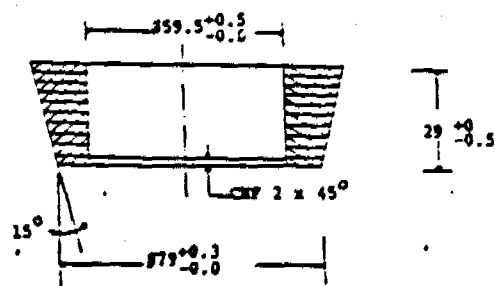
Cone Flange



Details of Cone Flange



Details of Cone Flange



Nitrile Rubber Cone

Water Tanks, Cone Flange & Cone for using 50mm HD PVC Riser Pipes of Tara Pumps

All dimensions in mm