



K. BHASKAR

Head of the Department

Ref: No. ASE/SRCH/ Panchagni Burner Test Facility/2013/

DATE: 19.07. 2013

DUE DATE: 12.8.2013

Dear Sir,

1. Quotations are invited in duplicate for the various items shown below/overleaf/**enclosed list**.
2. The quotations are to be in two parts as
Technical Offer and as Commercial offer:
The two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in separate envelopes must be enclosed in the one bigger envelope duly sealed and super scribed with reference number and due date and must be addressed to the undersigned so as to reach him on or before the due date stipulated above.
3. The quotations duly sealed and super scribed on the envelope with reference no. and due date, should be addressed to the undersigned so as to reach him or before the due date stipulated above. Fax and Email quotation are not acceptable.
4. Quotations should be valid for 60 days from the due date and period of delivery required , warranty terms etc. should also be clearly indicated. A minimum of one year warranty is required from the date of commissioning.
5. Imported supplies should be quoted **for CIF Madras**.
6. Local firms to quote for free delivery to this Institute. If quoted for Ex-Godown delivery charges be indicated separately.
7. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples / machine/ equipment if called for should be submitted / demonstrated at free of charges, and collected back at the supplier's expenses. Compliancy certificate is to be provided indicating conformity to the technical specifications
8. Sales Tax/General Taxes/ED if applicable and such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. If this is not indicated no such claim will be admitted at any stage. The taxes leviable should take into consideration that we are entitled to have concessional Sales Tax applicable to Non-Government Educational Institutions run with no profit motive for which a concession is given. Sales Tax Certificate will be issued at the time of final settlement of the bill.
9. Goods should be supplied carriage paid and insured.
10. Goods shall not be supplied without an official supply order.
11. If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.
12. In case of LC. Payment,90% of the payment will be made after completion of the supply. The balance 10% of the payment will be made after satisfactory installation of the equipment.
13. IIT Madras is exempt from payment of Excise Duty and is eligible for concessional rate of custom duty. Necessary certificate will be issued on demand. IIT Madras will make necessary arrangements for the clearance of imported goods at the Airport/Seaport. Hence the price should not include the above charges.
14. **Acceptance and Rejection:-** I.I.T. Madras has the right to accept the whole or any part of the Tender or portion of the quantity offered or reject it in full without assigning any reason.

Yours faithfully

HEAD OF THE DEPARTMENT

Items required: Panchagni Burner Test Facility as per specifications drawing enclosed.

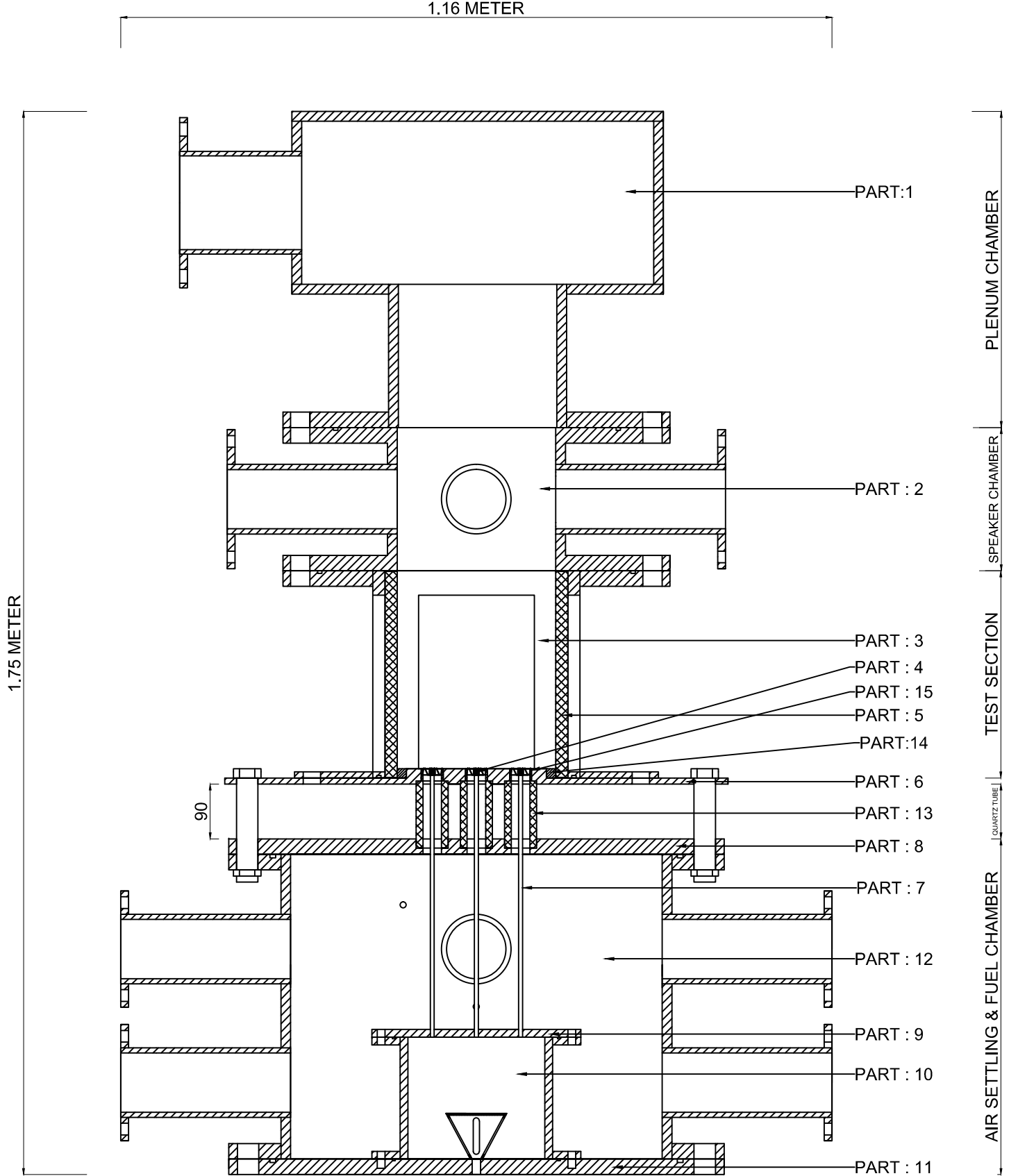
Quantity Required _ 1 No.





Department of Aerospace Engineering
Indian Institute of Technology Madras
Chennai – 600 036, India

Scope of work for PANCHAGNI BURNER TEST FACILITY:


1. The fabricator should fabricate the entire facility and check for alignment of assembly.
2. 100% GTAW process shall be adopted with high quality Argon shielding .
3. The parts are to be hydrostatically tested at 7 bar wherever applicable.
4. The nozzles are to be supplied with blind flanges.
5. High tension bolts are to be provided for all flanges.
6. Quartz glass tubes are exempted from the scope of supply.
7. Toughened glass panes are to be provided for the windows of the test section.
8. The toughened glass panes should be bonded inside the test section with suitable heat resistant adhesive, in consultation with IITM
9. The supplier in consultation with IITM should also design and fabricate a rigid stand/frame out of mild steel on which the test facility can be mounted upright.
10. Silicone O-rings are to be provided where there is an O-ring groove.
11. M36×1.5 tap will be provided by IITM on returnable basis for tapping M36 hole
12. The supplier shall assemble and erect the facility at a chose site at IITM
13. The drawings are given below.
14. For any technical clarification please contact P. John George . phone : 044 22575026
15. Email : nccrdengr@ pallava.iitm.ac.in

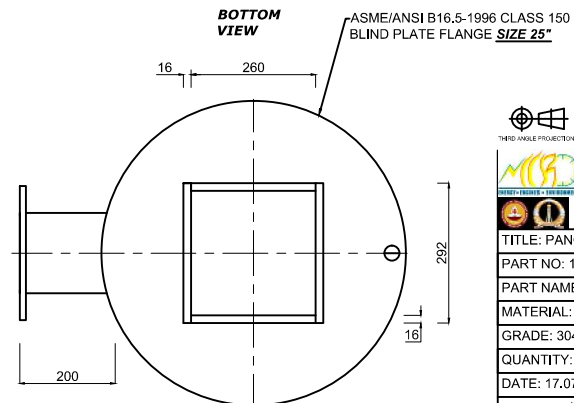
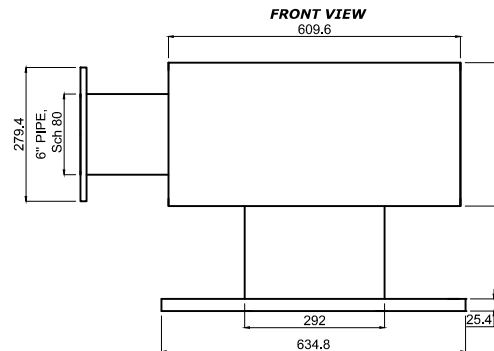
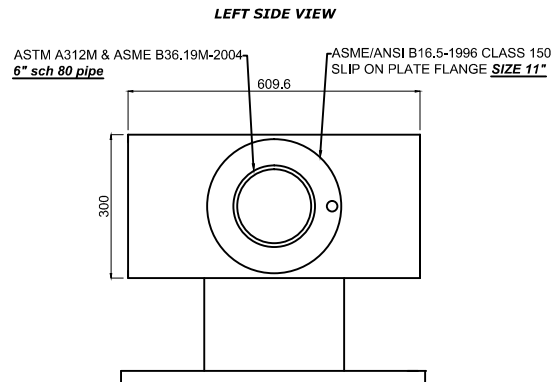
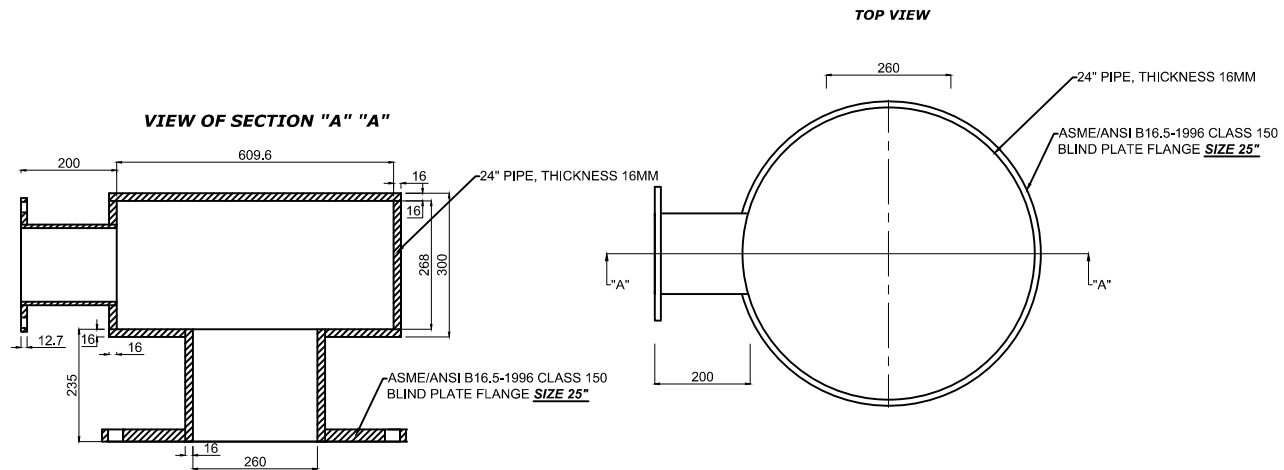


PANCHAGNI 2D ASSEMBLED FRONT VIEW

- LEGEND**
-  METAL HATCH
 -  GLASS HATCH

NOTE
 Bolt, nut & washer set to be provided at the required places.
 It is not shown in the drawing, but require to be provided.

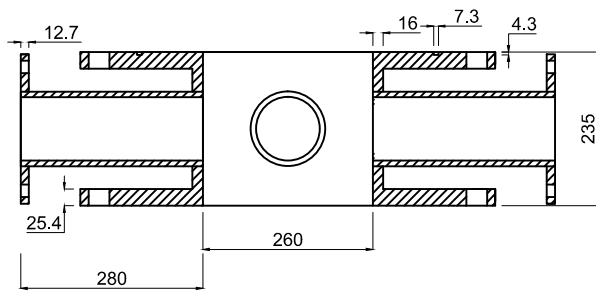
 <small>THREE ANGLE PROJECTION</small>	NATIONAL CENTRE FOR COMBUSTION RESEARCH & DEVELOPMENT INDIAN INSTITUTE OF TECHNOLOGY MADRAS INDIAN INSTITUTE OF SCIENCE
	<small>TITLE: PANCHAGNI BURNER</small> <small>WEIGHT: 1160 KG, APPROXIMATELY</small> <small>PART NAME: 2D ASSEMBLED</small> <small>MATERIAL: STAINLESS STEEL</small> <small>GRADE: 304</small> <small>QUANTITY: 1</small> <small>DATE: 17.07.13</small> <small>UNLESS SPECIFIED ALL DIMENSIONS ARE IN MILLIMETER</small>



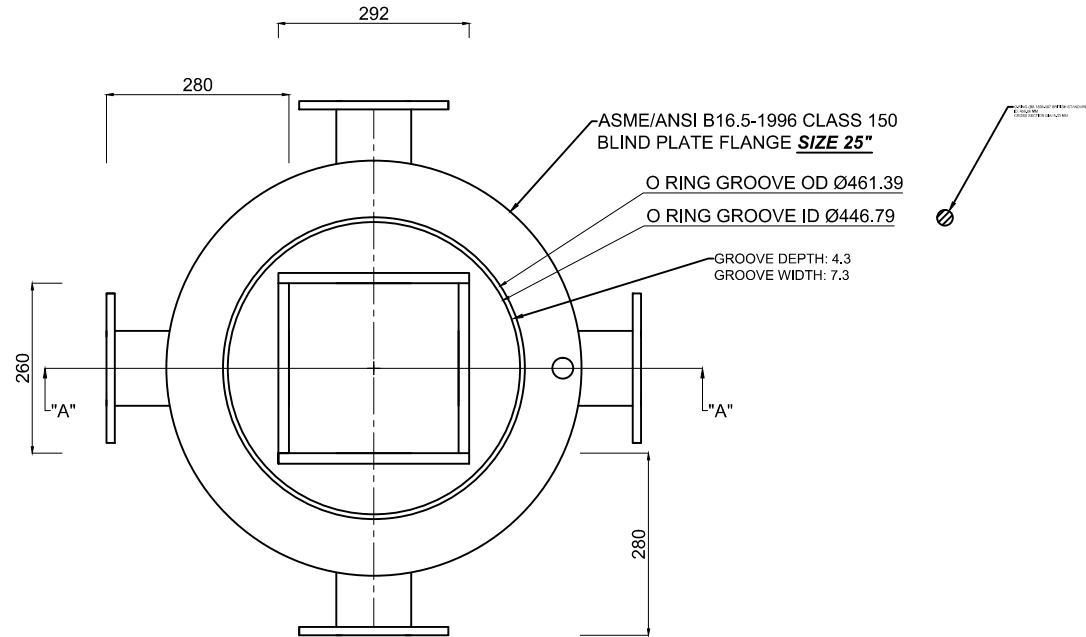
NATIONAL CENTRE FOR COMBUSTION RESEARCH & DEVELOPMENT
INDIAN INSTITUTE OF TECHNOLOGY MADRAS
INDIAN INSTITUTE OF SCIENCE

TITLE: PANCHAGNI BURNER
PART NO: 1
PART NAME: PLNUM CHAMBER
MATERIAL: STAINLESS STEEL
GRADE: 304
QUANTITY: 1
DATE: 17.07.2013
UNLESS SPECIFIED ALL DIMENSIONS ARE IN MILLIMETER

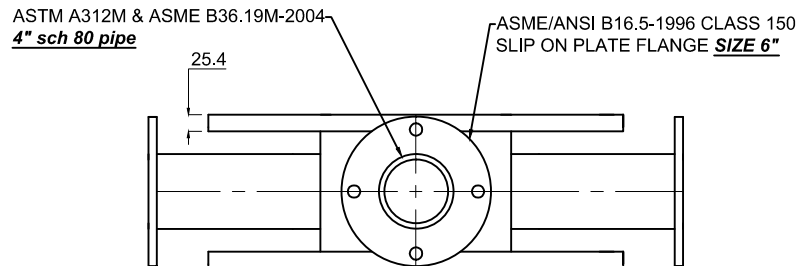
VIEW OF SECTION "A" "A"



TOP VIEW



FRONT VIEW



NATIONAL CENTRE FOR COMBUSTION RESEARCH & DEVELOPMENT
INDIAN INSTITUTE OF TECHNOLOGY MADRAS
INDIAN INSTITUTE OF SCIENCE

TITLE: PANCHAGNI BURNER

PART NO: 2

PART NAME: SPEAKER CHAMBER

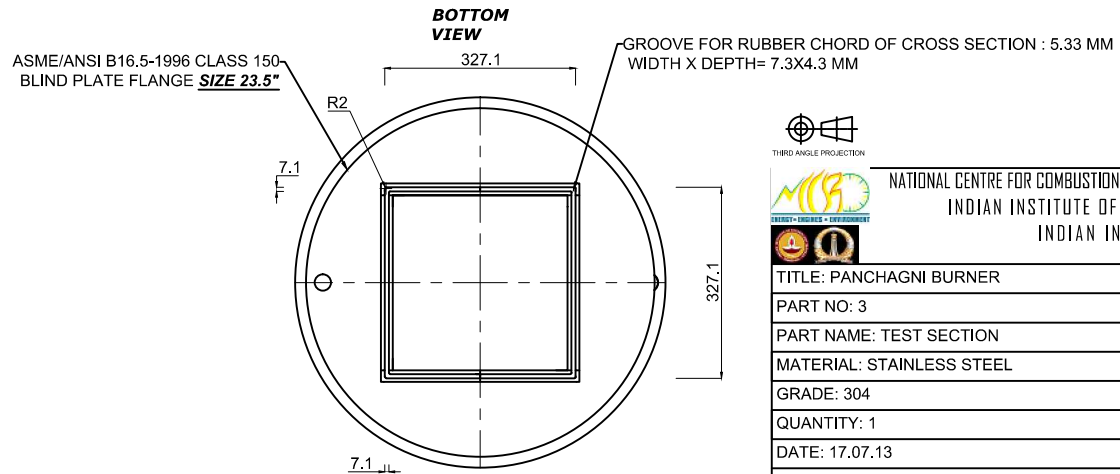
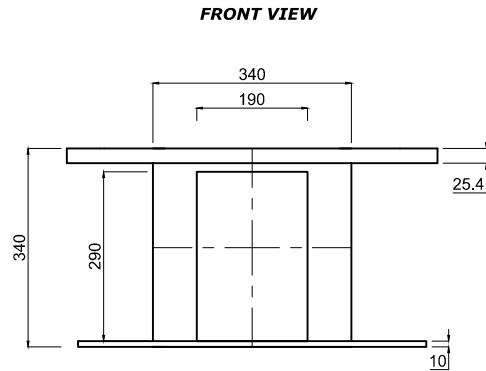
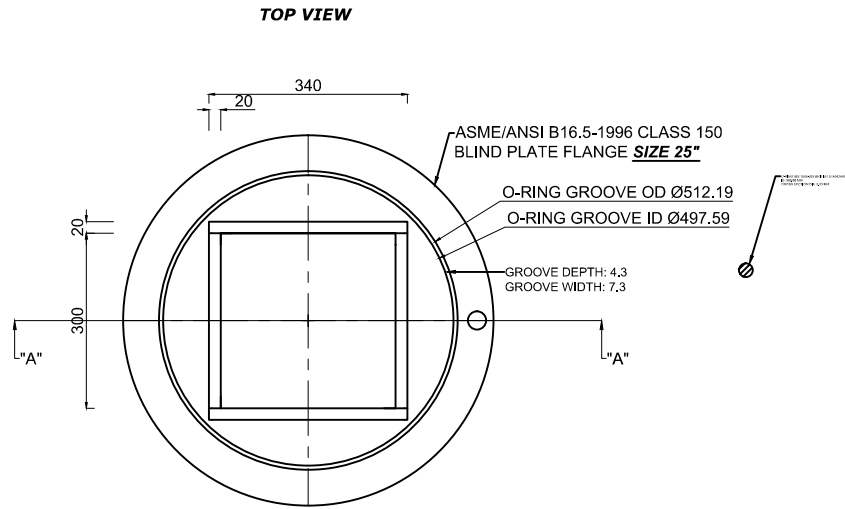
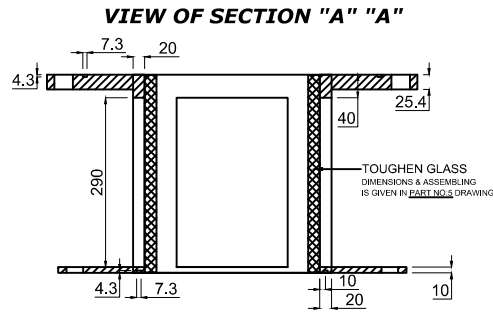
MATERIAL: STAINLESS STEEL

GRADE: 304

QUANTITY: 1

DATE: 17.07.13

UNLESS SPECIFIED ALL DIMENSIONS ARE IN MILLIMETER



NATIONAL CENTRE FOR COMBUSTION RESEARCH & DEVELOPMENT
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INDIAN INSTITUTE OF SCIENCE

TITLE: PANCHAGNI BURNER

PART NO: 3

PART NAME: TEST SECTION

MATERIAL: STAINLESS STEEL

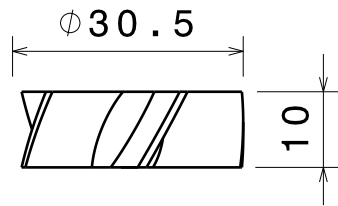
GRADE: 304

QUANTITY: 1

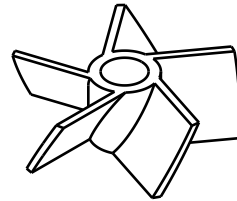
DATE: 17.07.13

UNLESS SPECIFIED ALL DIMENSIONS ARE IN MILLIMETER

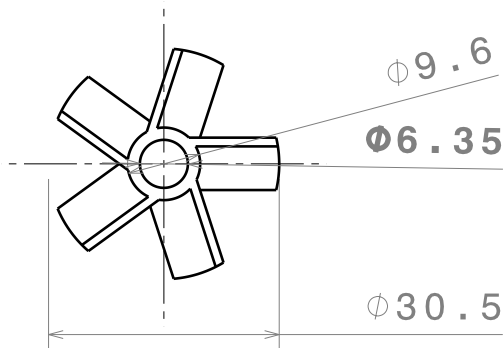
SWIRLER 30 DEGREE



Top view




Isometric view

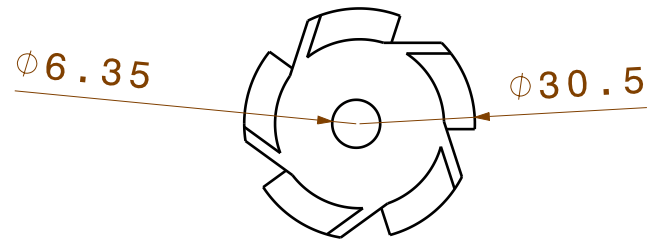


Front view

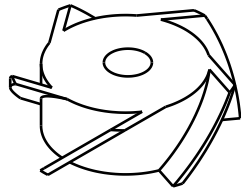
THICKNESS OF VANE = 1

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TITLE: PANCHAGNI BURNER DRAWING	
PART NAME: SWIRLER 30 DEG	
PART NO: 4A	
MATERIAL:BRASS	
GRADE:BS 249	
QUANTITY: 5 NO'S	
DATE:17.07.2013	
UNLESS SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETER	

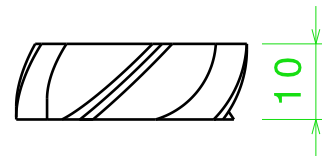
SWIRLER 45 DEGREE



Front view



Isometric view



Top view

VANE THICKNESS : 1MM

 NATIONAL CENTRE FOR COMBUSTION
RESEARCH AND DEVELOPMENT
INDIAN INSTITUTE OF TECHNOLOGY MADRAS
INDIAN INSTITUTE OF SCIENCE

TITLE: PANCHAGNI BURNER DRAWING

PART NAME: SWIRLER 45 DEG

PART NO: 4B

MATERIAL:BRASS

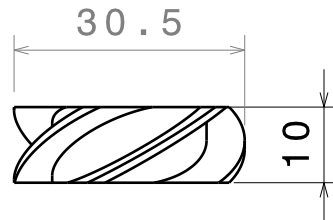
GRADE:BS 249

QUANTITY: 5 NO'S

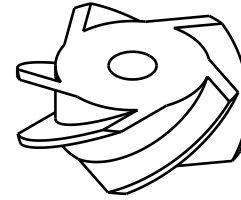
DATE:17.07.2013

UNLESS SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETER

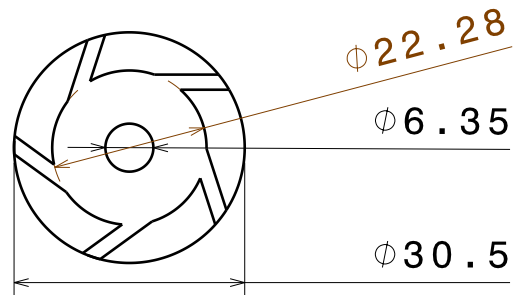
SWIRLER 60 DEGREE



Top view




Isometric view

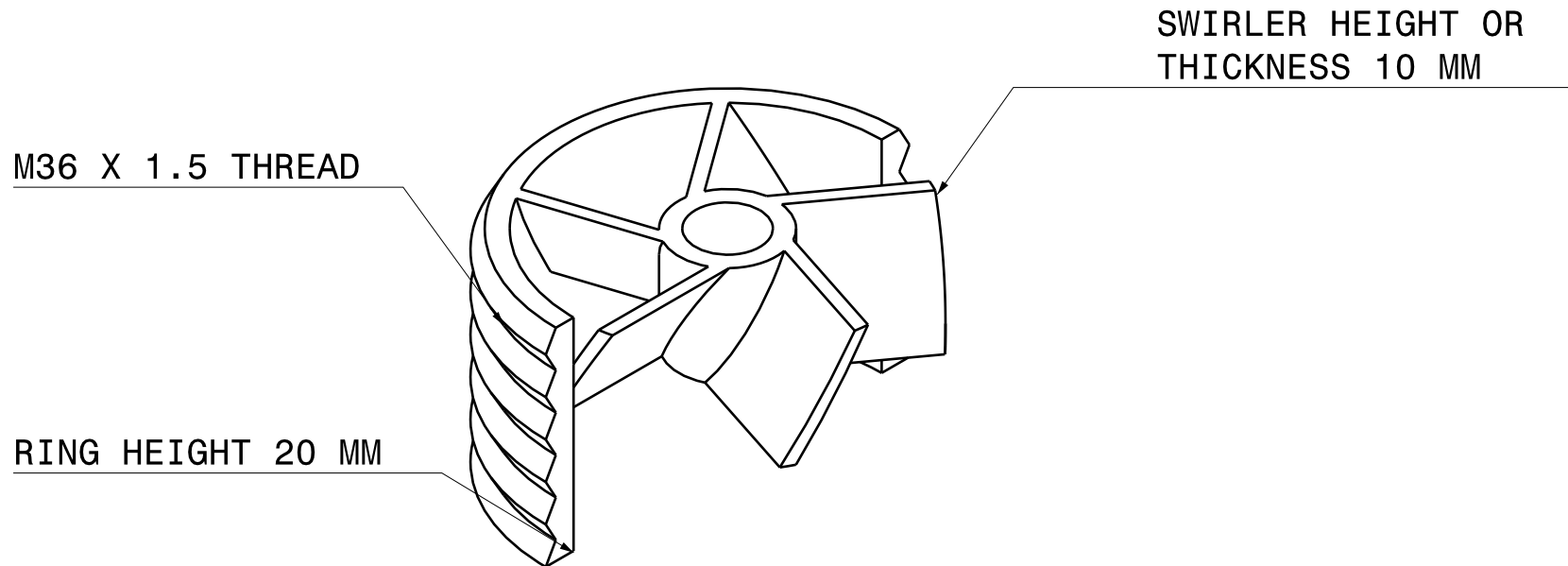



Front view

THICKNESS OF VANE = 1

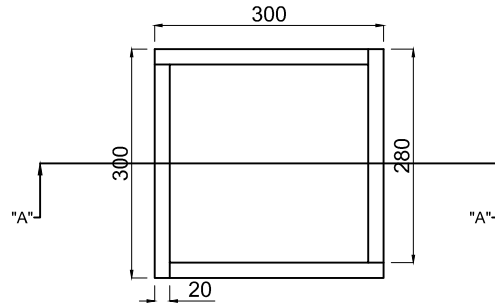
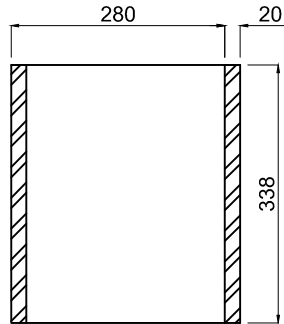
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TITLE: PANCHAGNI BURNER DRAWING	
PART NAME: SWIRLER 60 DEG	
PART NO: 4C	
MATERIAL:BRASS	
GRADE:BS 249	
QUANTITY: 5 NO'S	
DATE:17.07.2013	
UNLESS SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETER	

SECTIONAL VIEW MODEL OF SWIRLER RING WITH SWIRLER
ISOMETRIC VIEW
FOR 30,45,60 DEGREE



	NATIONAL CENTRE FOR COMBUSTION RESEARCH AND DEVELOPMENT INDIAN INSTITUTE OF TECHNOLOGY MADRAS INDIAN INSTITUTE OF SCIENCE
TITLE: PANCHAGNI BURNER	
PART NO: 4 & 15	
PART NAME: SWIRLER WITH RING SECTIONAL VIEW	
MATERIAL: BRASS & STAINLESS STEEL	
DATE: 13.07.13	
UNLESS SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETER	

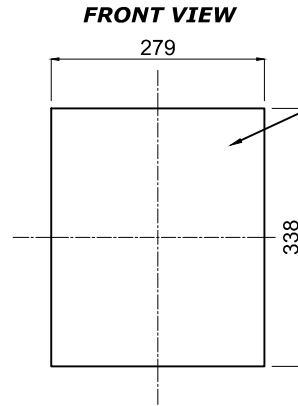
VIEW OF SECTION "A" "A"



TOP VIEW OF GLASS ASSEMBLY
IN TEST SECTION



TOP VIEW



FRONT VIEW

THE GLASS DIMENSION IS PROVIDED WITH STICKING AND ASSEMBLING ALLOWANCE



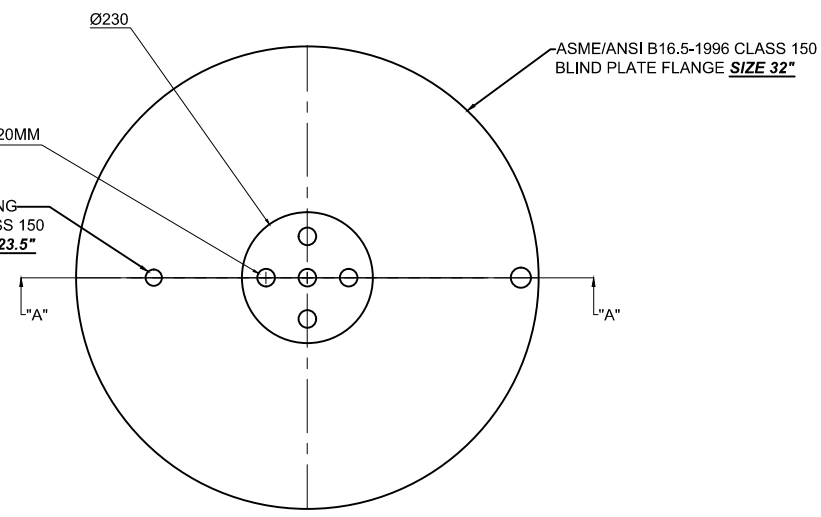
THIRD ANGLE PROJECTION



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INDIAN INSTITUTE OF SCIENCE

TITLE: PANCHAGNI BURNER
PART NO: 5
PART NAME: WINDOW GLASS
MATERIAL: STAINLESS STEEL
GRADE: 304
QUANTITY: 1 ASSEMBLED [4 PIECES REQUIRE FOR 1 ASSEMBLED]
DATE: 17.07.13
UNLESS SPECIFIED ALL DIMENSIONS ARE IN MILLIMETER

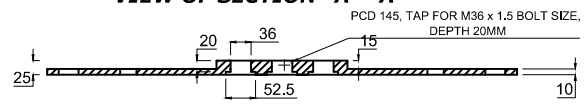
TOP VIEW



PCD 145, TAP FOR M36 x 1.5 BOLT SIZE, DEPTH 20MM

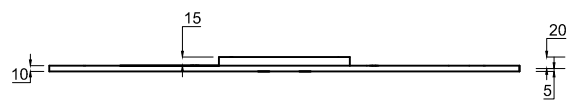
THROUGH HOLES FOR FIXING
ASME/ANSI B16.5-1996 CLASS 150
BLIND PLATE FLANGE SIZE 23.5"

VIEW OF SECTION "A" "A"

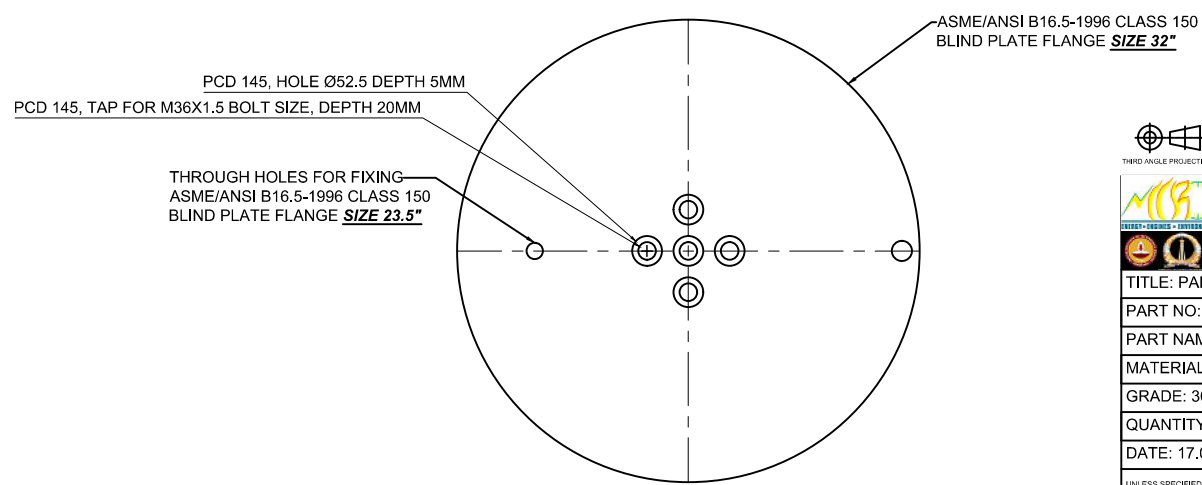


PCD 145, TAP FOR M36 x 1.5 BOLT SIZE,
DEPTH 20MM

FRONT VIEW



BOTTOM VIEW



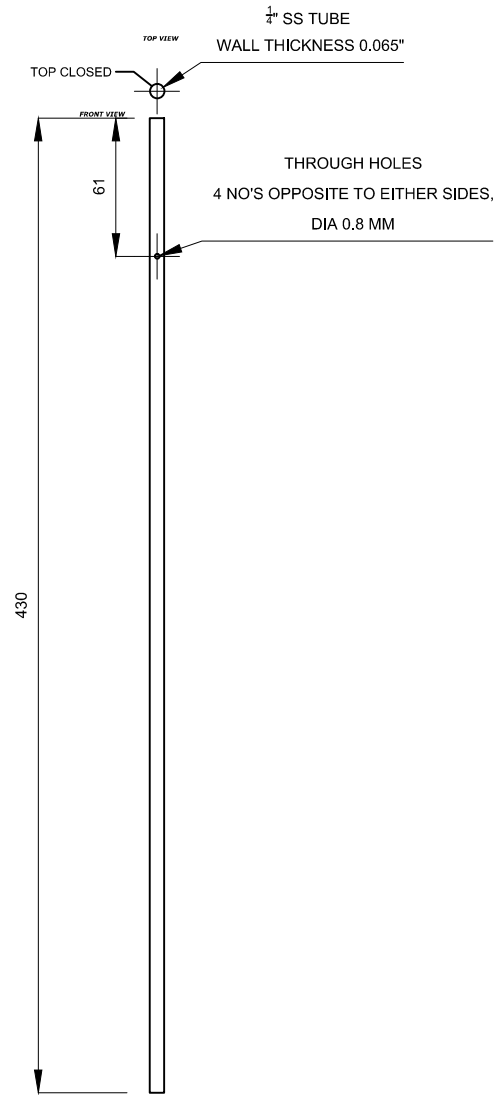
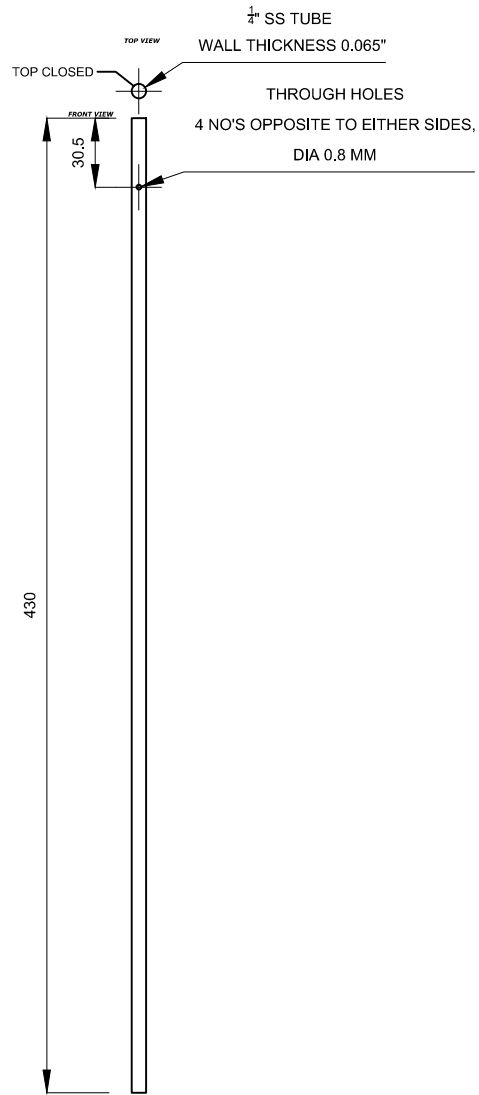
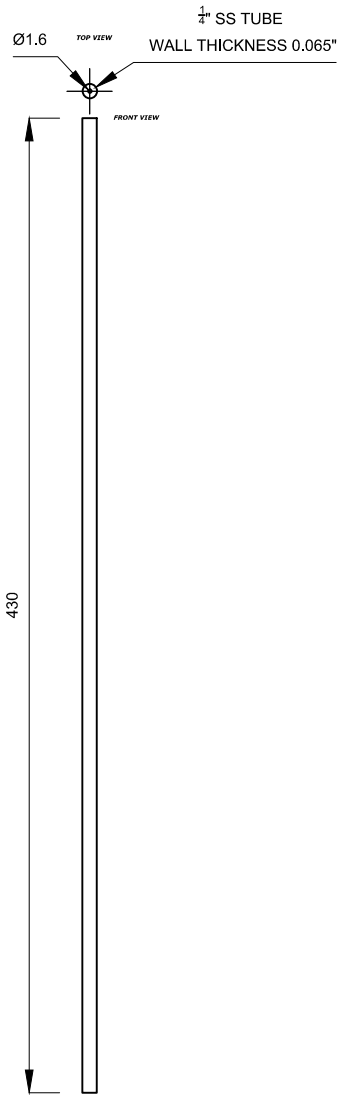
PCD 145, HOLE Ø52.5 DEPTH 5MM
PCD 145, TAP FOR M36X1.5 BOLT SIZE, DEPTH 20MM

THROUGH HOLES FOR FIXING
ASME/ANSI B16.5-1996 CLASS 150
BLIND PLATE FLANGE SIZE 23.5"



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INDIAN INSTITUTE OF TECHNOLOGY MADRAS
INDIAN INSTITUTE OF SCIENCE

TITLE: PANCHAGNI BURNER
PART NO: 6
PART NAME: SWIRLER FLANGE
MATERIAL: STAINLESS STEEL
GRADE: 304
QUANTITY: 1
DATE: 17.07.13
UNLESS SPECIFIED ALL DIMENSIONS ARE IN MILLIMETER



THIRD ANGLE PROJECTION



NATIONAL CENTRE FOR COMBUSTION RESEARCH & DEVELOPMENT
 INDIAN INSTITUTE OF TECHNOLOGY MADRAS
 INDIAN INSTITUTE OF SCIENCE

TITLE: PANCHAGNI BURNER
PART NO: 7
PART NAME: $\frac{1}{4}$ " SS TUBE
MATERIAL: STAINLESS STEEL
GRADE: AS PER AVAILABILITY
QUANTITY: EACH TYPE 5 NO'S WITH $\frac{1}{4}$ " FERRULE TUBE FITTING
DATE: 17.07.13

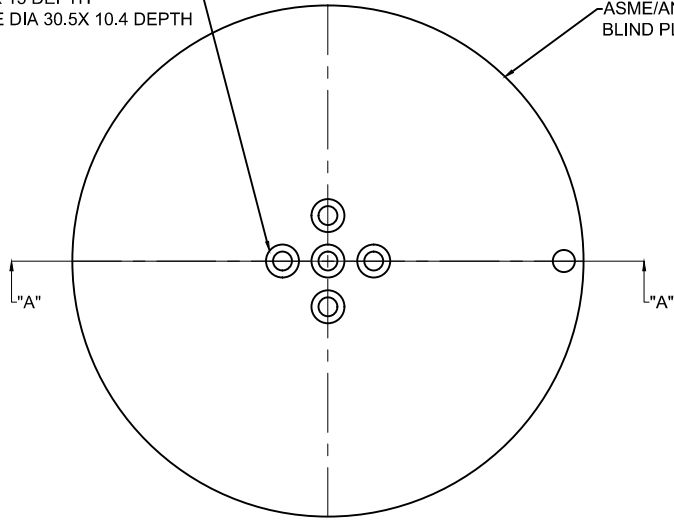
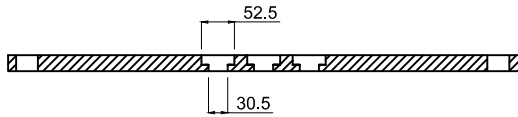
UNLESS SPECIFIED ALL DIMENSIONS ARE IN MILLIMETER

TOP VIEW

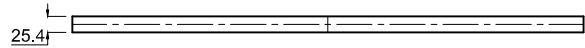
PCD 145
BORE DIA 52.5 X 15 DEPTH
COUNTER BORE DIA 30.5X 10.4 DEPTH

ASME/ANSI B16.5-1996 CLASS 150
BLIND PLATE FLANGE **SIZE 32"**

VIEW OF SECTION "A" "A"



FRONT VIEW



BOTTOM VIEW

PCD 145 HOLE DIA 30.5X 10.4 DEPTH

ASME/ANSI B16.5-1996 CLASS 150
BLIND PLATE FLANGE **SIZE 32"**



THIRD ANGLE PROJECTION



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INDIAN INSTITUTE OF TECHNOLOGY MADRAS
INDIAN INSTITUTE OF SCIENCE

TITLE: PANCHAGNI BURNER

PART NO: 8

PART NAME: AIR SETTLING CHAMBER FLANGE

MATERIAL: STAINLESS STEEL

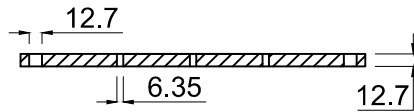
GRADE: 304

QUANTITY: 1

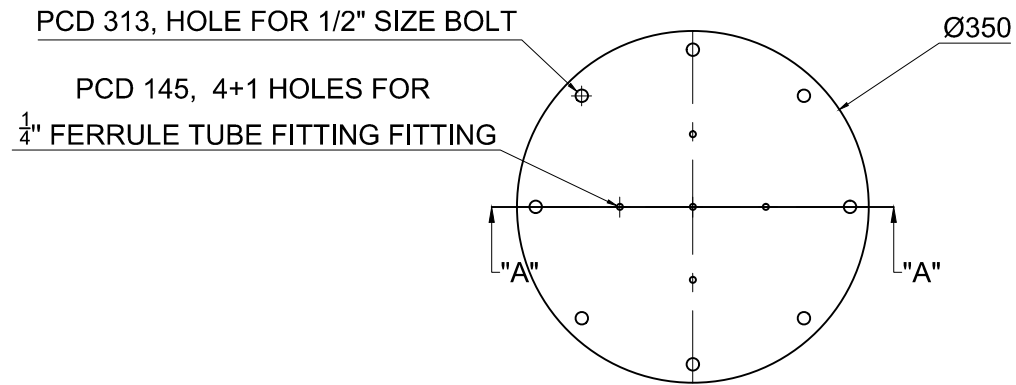
DATE: 17.07.13

UNLESS SPECIFIED ALL DIMENSIONS ARE IN MILLIMETER

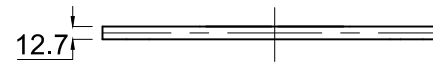
VIEW OF SECTION "A" "A"



TOP VIEW



FRONT VIEW



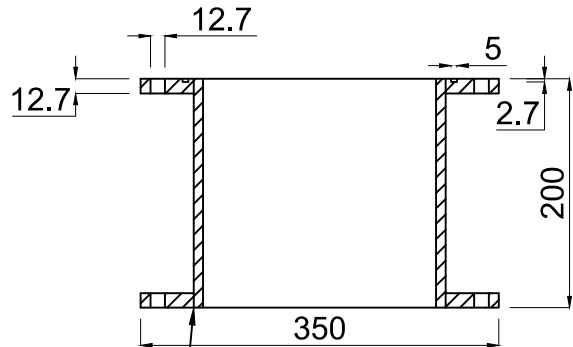
NATIONAL CENTRE FOR COMBUSTION RESEARCH & DEVELOPMENT
INDIAN INSTITUTE OF TECHNOLOGY MADRAS
INDIAN INSTITUTE OF SCIENCE

TITLE: PANCHAGNI BURNER
PART NO: 9
PART NAME: FUEL CHAMBER FLANGE
MATERIAL: STAINLESS STEEL
GRADE: 304
QUANTITY: 1
DATE: 17.07.13
UNLESS SPECIFIED ALL DIMENSIONS ARE IN MILLIMETER

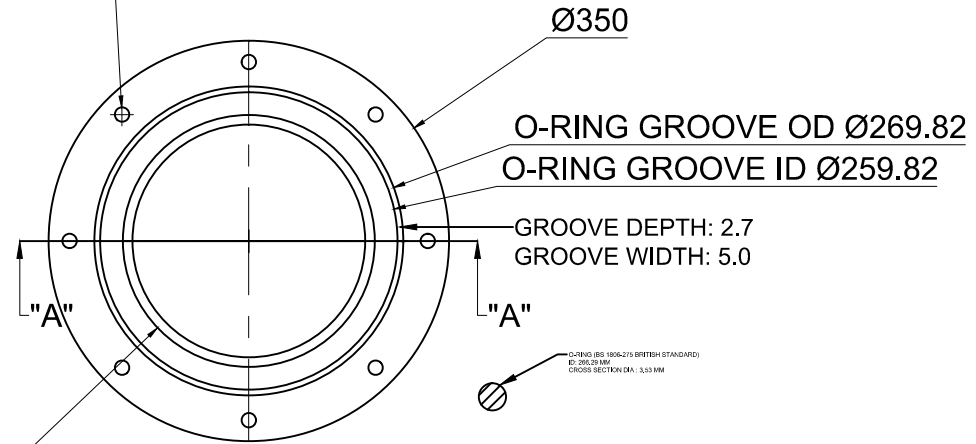
PCD 313, HOLE FOR 1/2" SIZE BOLT

TOP VIEW

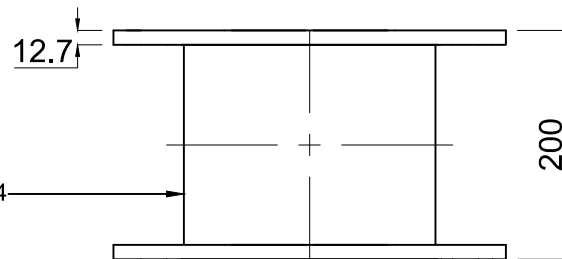
VIEW OF SECTION "A" "A"



ASTM A312M & ASME B36.19M-2004
8" sch 40 pipe



FRONT VIEW



ASTM A312M & ASME B36.19M-2004
8" sch 40 pipe



NATIONAL CENTRE FOR COMBUSTION RESEARCH & DEVELOPMENT
INDIAN INSTITUTE OF TECHNOLOGY MADRAS
INDIAN INSTITUTE OF SCIENCE

TITLE: PANCHAGNI BURNER
PART NO: 10
PART NAME: FUEL CHAMBER
MATERIAL: STAINLESS STEEL
GRADE: 304
QUANTITY: 1
DATE: 17.07.13
UNLESS SPECIFIED ALL DIMENSIONS ARE IN MILLIMETER

TOP VIEW

PCD 313, TAP FOR 1/2" STUD BOLT, DEPTH 15MM

TAPPING FOR 1/2" BSP ADAPTOR IN THE FLANGE

ASME/ANSI B16.5-1996 CLASS 150
BLIND PLATE FLANGE SIZE 32"

O-RING GROOVE OD $\varnothing 269.82$
O-RING GROOVE ID $\varnothing 259.82$

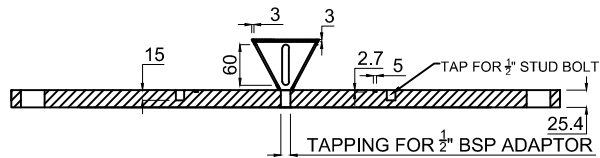
$\varnothing 100$

$\varnothing 94$

GROOVE DEPTH: 2.7
GROOVE WIDTH: 5.0

O-RING (BS 1806:275 BRITISH STANDARD)
ID: 266.23 MM
CROSS SECTION DIA: 3.53 MM

VIEW OF SECTION "A" "A"



O-RING GROOVE OD $\varnothing 688$

O-RING GROOVE ID $\varnothing 668.6$

GROOVE DEPTH: 5.8
GROOVE WIDTH: 9.7

O-RING
ID: 661 MM
CROSS SECTION DIA: 7 MM

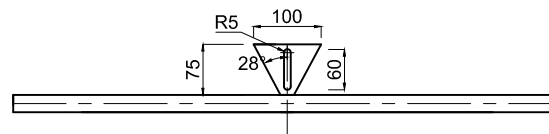


THIRD ANGLE PROJECTION

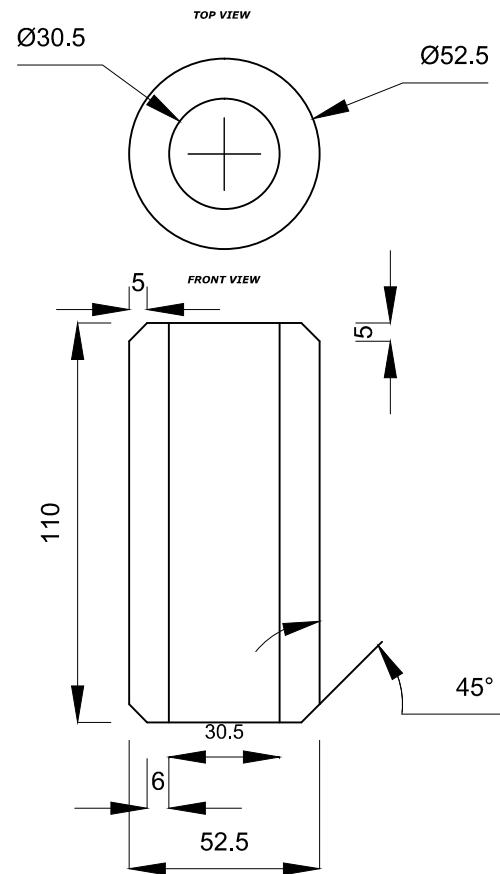


NATIONAL CENTRE FOR COMBUSTION RESEARCH & DEVELOPMENT
INDIAN INSTITUTE OF TECHNOLOGY MADRAS
INDIAN INSTITUTE OF SCIENCE

FRONT VIEW



TITLE: PANCHAGNI BURNER
PART NO: 11
PART NAME: CONE FLANGE
MATERIAL: STAINLESS STEEL
GRADE: 304
QUANTITY: 1
DATE: 17.07.13
UNLESS SPECIFIED ALL DIMENSIONS ARE IN MILLIMETER

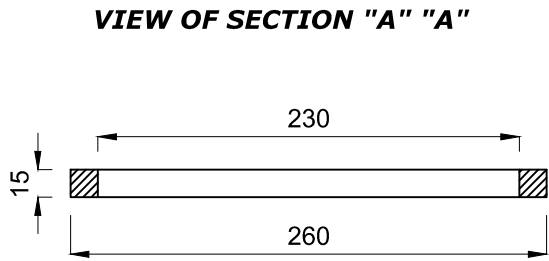


THIRD ANGLE PROJECTION

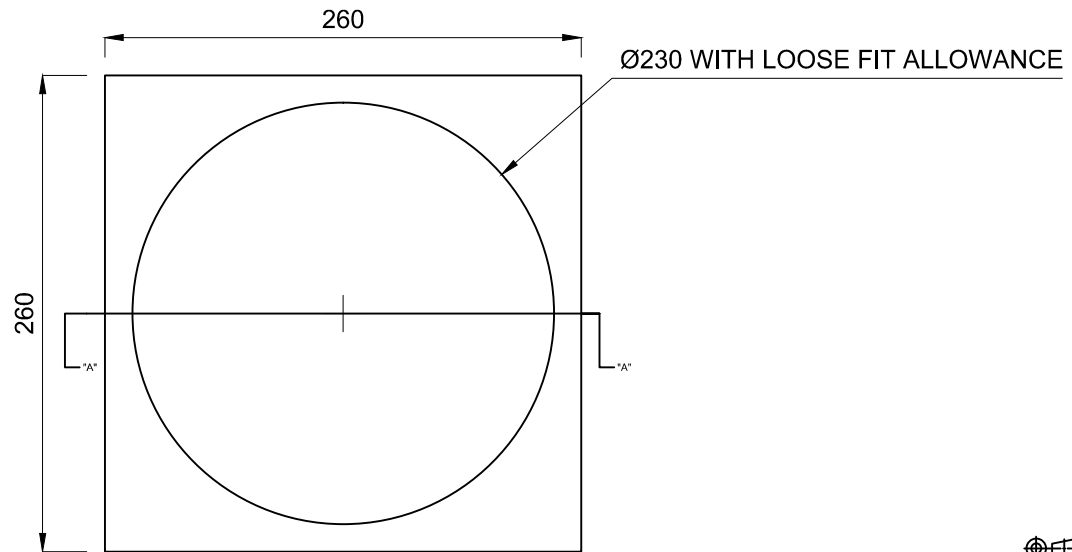


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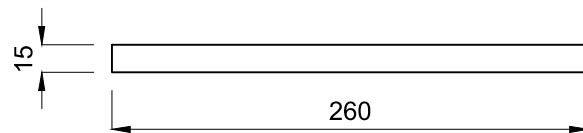
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PART NO: 13
PART NAME: QUARTZ TUBE
MATERIAL: QUARTZ
GRADE: CFQ 099
QUANTITY: 5 NO'S
DATE: 17.07.13
UNLESS SPECIFIED ALL DIMENSIONS ARE IN MILLIMETER



TOP VIEW



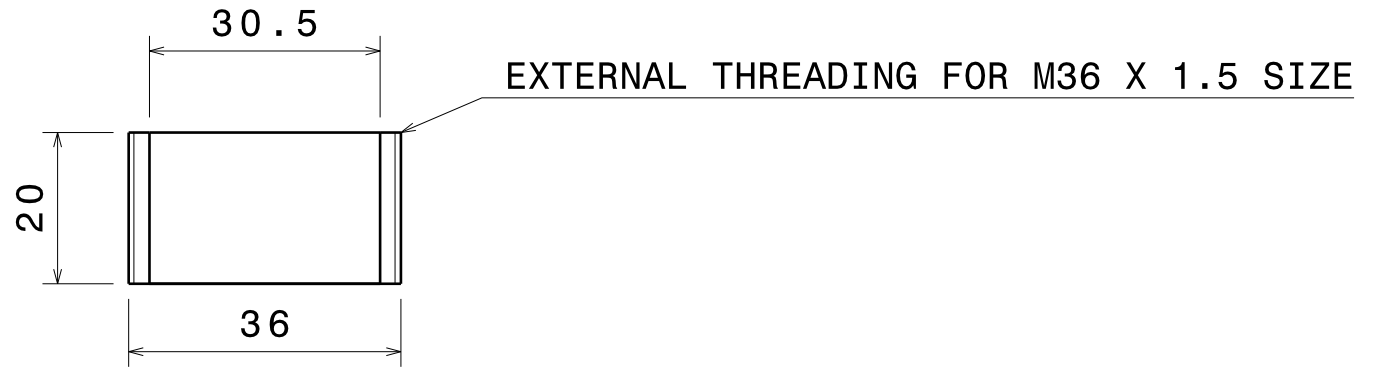
FRONT VIEW



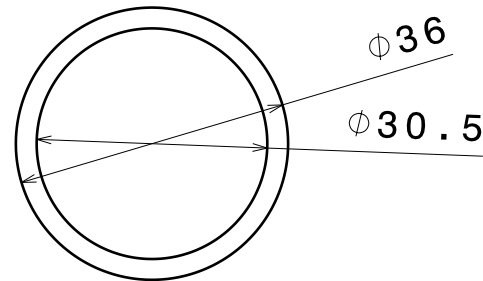
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 INDIAN INSTITUTE OF SCIENCE

TITLE: PANCHAGNI BURNER
PART NO: 14
PART NAME: FLUSH PLATE
MATERIAL: STAINLESS STEEL
GRADE: 304
QUANTITY: 1
DATE: 17.07.13
UNLESS SPECIFIED ALL DIMENSIONS ARE IN MILLIMETER


SWIRLER RING



Top view



Front view

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TITLE: PANCHAGNI BURNER DRAWING
PART NAME: SWIRLER RING
PART NO: 15
MATERIAL: STAINLESS STEEL
GRADE: 304
DATE: 01.07.2013
UNLESS SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETER