

Note No. #1

Attachment:PR DOCS – MAIN –1900141231-FRAME WORK-STRAINERS.pdf

## FRAMEWORK AGREEMENT FOR FGD FPS PROJECTS

R00 -08.11.2021

## Un-Priced Price Bid Format

Item: STRAINERS

PR No: 1900141231

Sl No	PR No	Material Code	Material Description	UOM	PR Qty (No.s)	Technical Specification	Price Weightage Factor	Bidder Confirmation (Quoted)
1	1900141231	PY9752284035	Y-STRAINER FABRICATED 3" CL150 FF	EA	20	PY52284	0.02575	
2	1900141231	PY9752284019	Y-STRAINER FABRICATED 4" CL150 FF	EA	550	PY52284	0.82021	
3	1900141231	PY9752284027	Y-STRAINER FABRICATED 6" CL150 FF	EA	50	PY52284	0.08107	
4	1900141231	PY9752163025	Y-STRAINER 2.5" #150 FL RF SS	EA	2	PY52163	0.00313	
5	1900141231	PY9752247024	BASKET STRAINER CS 10" CL#150 FF	EA	4	PY52247	0.03847	
6	1900141231	PY9752287026	Y-STRAINER ELEMENTS WITH O-RING-80NB	EA	3	PY52287	0.00078	
7	1900141231	PY9752287034	Y-STRAINER ELEMENTS WITH O-RING-100NB	EA	85	PY52287	0.02207	
8	1900141231	PY9752287042	Y-STRAINER ELEMENTS WITH O-RING-150NB	EA	16	PY52287	0.00521	
9	1900141231	PY9752287123	Y-STRAINER ELEMENTS WITH O-RING-65NB	EA	2	PY52287	0.00065	
10	1900141231	PY9752287085	BASKET STRAINER ELEMENT-250NB	EA	2	PY52287	0.00265	
<b>Total</b>							<b>1.00000</b>	

## NOTES:

- 1) Vendor to Quote Lumpsum Price for the Total Package.
- 2) Line Item Rates of the individual items shall be derived by multiplying the "Price Weightage Factor" with the Lumpsum Price quoted.
- 3) Unit Rates of the Individual items thus arrived, shall be binding on the bidder, for the total period of Framework Agreement.
- 4) Observations / Objections, if any, of the Bidder, to the "Price Weightage Factor" shall be brought to the notice of BHEL, during Pre-Bid Stage.
- 5) No Observations / Objections shall be entertained after the Techno-Commercial Bid is opened.
- 6) Bidder to indicate "Quoted" in the column "Bidder's Confirmation" as a confirmation of their bid to the respective item.
- 7) The Bid Evaluation is on Overall L1 Basis. Each and Every item of the Package shall be quoted by the bidder.
- 8) Partial offers will not be considered for evaluation and the same are liable for rejection.
- 9) The details of the Projects for which Framework Agreement is proposed are given elsewhere in the NIT. The distribution of the line items across the projects is attached as **Annexure-A**.
- 10) The permissible ordering limits specified in NIT are strictly applicable on the Total Framework Value. The same are not applicable at the Individual Project level.
- 11) The Total Lump price quoted shall be INCLUSIVE of Freight, Packing & Forwarding and Testing Charges.
- 12) The Total Lump price quoted shall be EXCLUSIVE of GST, Third party inspection (TPI) & Insurance Charges.

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## DISTRIBUTION OF FRAMEWORK ITEMS ACROSS PROJECTS

## Annexure-A to Price Bid Format

ITEM: STRAINERS

PR NO 1900141231

SL NO	Material No	Material Desc	UOM	PMD No	UWT	KOTHAGUDEM	BHADRAORI	NORTH KARANPURA	BARH-1	BARH-2	MAUDA	BRBCL NABINAGAR	NPGL NABINAGAR	RAMAGUNDAM	KORBA	NSPCL BILLAI	TUTICORIN	UDANGUDI	SAGARDIGH	ENMORE	BHUSAWAL	YADARI	PATRATU	PANKI	CONTINGENCY
1.00	P19752284035	Y-STRAINER FABRICATED 3" CL150 FF	EA	PE.MP.072														10				10			10
2.00	P19752284019	Y-STRAINER FABRICATED 4" CL150 FF	EA	PE.MP.072		8	8	11	11	9	8	11	11	11	11	8	8	154	151		18	348			
3.00	P19752284027	Y-STRAINER FABRICATED 6" CL150 FF	EA	PE.MP.072		1	1	0	1	1	1	0	0	0	0	1	1	22	7		1	37			
4.00	P19752163025	Y-STRAINER 2.5" #150 FL RF SS	EA	PE.MP.072														2							
5.00	P19752247024	BASKET STRAINER CS 10" CL#150 FF	EA	PE.MP.072														2	2						
6.00	P19752287026	Y-STRAINER ELEMENTS WITH O-RING-80NB	EA	PE.MP.072																					3
7.00	P19752287034	Y-STRAINER ELEMENTS WITH O-RING-100NB	EA	PE.MP.072																					85
8.00	P19752287042	Y-STRAINER ELEMENTS WITH O-RING-150NB	EA	PE.MP.072																					16
9.00	P19752287123	Y-STRAINER ELEMENTS WITH O-RING-65NB	EA	PE.MP.072																					2
10.00	P19752287085	BASKET STRAINER ELEMENT-250NB	EA	PE.MP.072																					2

1. The quantities indicated are total quantity with additional 50 % qty variation considered

2. The above list of Quantity , project/customer is tentative only. Final details of quantity, Project/ Customer shall be informed at the time of PO

3. The Project/ Customer are subject to change based on business scenario of BHEL.

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Attachment: **BB DOCS - MAIN - 1900141231 FRAME WORK-STRAINERS.pdf**  
**BULK PROCUREMENT OF GENERIC PIPING ITEMS**  
**Pre-Qualification Criteria (Technical)**

**Package Name : STRAINERS**  
**PR No : 1900141231**

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Manufacturers of **STRAINERS** qualified as per the Pre-qualification criteria laid down below, are allowed to bid. Documentary evidence shall be provided by such bidders to establish their claim. **However, offer consideration is subjected to approval from end Customer.**

**The bid evaluation shall be on Overall L1 basis. The Bidder shall meet the Pre-Qualification Criteria (listed below.**

*Non-compliance to any of the criteria listed below will lead to disqualification of bidder for the subject item of the tender.*

**Qualification Criteria of the Bidder:**

1. The bidder should be an established manufacturer of **Strainers** and should have successfully completed Manufacture, Supply of **Strainers**.
2. The Bidder should have successfully completed supply of **Y & Basket Strainers** for similar specification with a total minimum quantity of **270 No.s** (Sizes in the range of 80NB to 250 NB) through a single Purchase Order or multiple Purchase Orders in the last 5 years ending on original due date of this tender, with at least one order executed after 01.01.2019.
3. Detailed BOQ of the items supplied, satisfying the criteria laid down above, shall be provided in the format enclosed as Annexure-1, with details like Project & Customer, Description & Quantity of Items supplied, PO details etc. as a minimum for assessing pre-qualification. **PO Copies, Inspection Reports and Dispatch documents shall be enclosed for the references provided.**
4. The bidder should not have been under suspension for business or blacklisted by any of the BHEL units.

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**Annexure-1 PQC Criteria****Supply References for the Last 5 Years (dispatch date) from the Original due date of this tender**

Enquiry Item No &amp; Description: (To be filled by Bidder)

Sl No	Project Name along with name of Customer	Description Item(s) supplied	Purchase Order No & Date (Copy to be enclosed)	Delivery Date as per Order	Value of Order	Inspection Reports / Dispatch Documents (Copy to be enclosed)	Remarks

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**Bulk Procurement of STRAINERS**  
**Price Variation Formula –Strainers**  
**PVC-STRNRS**

$$PO = PA \times \left( \left[ 0.60 \times \frac{MO}{MA} \right] + \left[ 0.15 \times \frac{FO}{FA} \right] + \left[ 0.10 \times \frac{LO}{LA} \right] + 0.15 \right)$$

PO	Purchase Order Value, adjusted in accordance with above Price Variation Formula
PA	Purchase Order Value, as per Original Framework Agreement Price

**Escalation for Raw Material:**

MO	JPC Retail Market Price of "PIG IRON", as on the date of respective Project PO Placement, <i>calculated as an Average of the Prices for Kolkata, Delhi, Mumbai, Chennai regions.</i>
MA	JPC Retail Market Price for "PIG IRON", as on the date of Part-1 bid opening of Framework Agreement Tender, <i>calculated as an Average of the Prices for Kolkata, Delhi, Mumbai, Chennai regions.</i>
As published under the Item " <b>PIG IRON</b> " by Joint Plant Committee, Ministry of Steel, Govt of India, in their subscription based bimonthly publication "JPC MARKET PRICE RETAIL".	

**Escalation for Fuel & Power:**

FO	Wholesale Price Index for "Fuel & Power", as on the date of respective Project PO Placement
FA	Wholesale Price Index for "Fuel & Power", as on the date of Part-1 bid opening of Framework Agreement Tender
As published under the Index " <b>II Fuel &amp; Power</b> " by Office of the Economic Adviser, Ministry of Commerce and Industry, Govt of India, on their website <a href="http://www.eaindustry.nic.in">www.eaindustry.nic.in</a>	

**Escalation for Labour:**

LO	All-India Average Consumer Price Index Number for Industrial Workers (Base_2016=100), as on date of respective Project PO Placement
LA	All-India Average Consumer Price Index Number for Industrial Workers (Base_2016=100), as on the date of Part-1 bid opening of Framework Agreement Tender
As published by Labour Bureau, Ministry of Labour and Employment, Govt of India, on their website <a href="http://www.labourbureau.gov.in">www.labourbureau.gov.in</a>	


**Overheads and Margin:**

0.15	Constant for Overheads and Margin
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**NOTE: Latest Index Values**, as published by respective agencies, **Available as on the date** of Part-1 bid opening of FA Tender / date of PO, shall be considered, for all the factors.

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ITEM- <b>STRAINER</b> (Y TYPE AND BASKET TYPE) FOR AUX. PACKAGES, MAXIMUM WORKING PRESSURE UP TO 10 KG/CM <sup>2</sup>		STANDARD QUALITY PLAN CONFORMING TO CODE				QP NO.	0000-999-QOM-S -013		REVIEWED BY	APPROVED BY			
SN	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS	
						REV. NO	01	H. S. MAURYA					
						DATE	01-05-2014	M.KASTHANA					
						PAGE	01 of 02	RAJEEV GARG					
						VALID UPTO	30-04-2017						
1.	2.	3.	4.	5.	6.	7.	8.	9.	D*	**	10.	11.	
						M	C/N						
<b>1.0 RAW MATERIAL INSPECTION</b>													
1.1	MS PLATE / ERW PIPE FOR BODY (IF FABRICATED)	CHEMICAL & MECHANICAL PROPERTIES	MAJOR	CHEMICAL ANALYSIS	1 SAMPLE / HEAT	RELEVANT MATERIAL STANDARD AS PER APPROVED DRAWING/ DATA SHEET	TC	✓	P	V	V	REFER NOTE-1	
				MECHANICAL PROPERTIES	1 SAMPLE / HEAT								
		VISUAL	MAJOR	VISUAL	100%	FREE FROM SURFACE DEFECTS	IR		P	-	-		
1.2	CAST BODY	CHEMICAL & MECHANICAL PROPERTIES	MAJOR	CHEMICAL ANALYSIS	1 SAMPLE / HEAT	RELEVANT MATERIAL STANDARD AS PER APPROVED DRAWING/ DATA SHEET	TC	✓	P	V	V	REFER NOTE-2	
				MECHANICAL PROPERTIES	1 SAMPLE / HEAT								
		SOUNDNESS OF CASTING	MAJOR	HYDRO TEST	100%	SEE NOTE - 3	TC	✓	P	V	V		
1.3	WIRE MESH (SCREEN)	CHEMICAL	MAJOR	CHEMICAL ANALYSIS	1 SAMPLE / HEAT	RELEVANT MATERIAL STANDARD AS PER APPROVED DRAWING/ DATA SHEET	TC	✓	P	V	V		
		MESH SIZE	MAJOR	DIMENSIONAL	1 SAMPLE / LOT	APPROVED DRAWING/ DATA SHEET	IR	✓	P	V	V		
		VISUAL	MAJOR	VISUAL	100%	FREE OF SURFACE DEFECTS	IR		P	-	-		
<b>2.0 IN PROCESS INSPECTION</b>													
2.1	WELDING	WELDING PROCEDURE QUALIFICATION WELDER QUALIFICATION	MAJOR	VISUAL MECHANICAL TESTS, NDT	100% & EACH WELDER	ASME SEC IX, APPROVED WPS	ASME SEC IX, QW-482, 483, 484 OF ASME SEC IX	✓	P	V	V	REFER NOTE-4	
		EDGE PREPARATION & FIT UP CHECK	MAJOR	VISUAL & DIMENSIONAL	100%	APPROVED WPS / FABRICATION DRAWING	IR		P	V	-		
2.2	WELD QUALITY	SOUNDNESS OF FINAL RUN OF BUTT WELDS AND FILLET WELDS INCLUDING NOZZLE WELDS	MAJOR	DP TEST	100% RANDOM 10% OF EACH WELD	ASTM E - 165	NO RELAVANT INDICATIONS	IR	✓	P	W	V	REFER NOTE-5
2.3	MACHINING OF SURFACES, DRILLING OF HOLES ETC	COMPLETENESS, SURFACE FINISH	MAJOR	VISUAL DIMENSIONAL	100% 100%	MANUFACTURING DRAWING	IR		P	V	V		
<b>3.0 FINAL INSPECTION</b>													
3.1	STRAINER ASSEMBLY	COMPLETENESS	MAJOR	VISUAL MEASURE	100%	APPROVED DRAWING / APPROVED DATA SHEET	IR	✓	P	W	W		
LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER / SUB-SUPPLIER C: MAIN SUPPLIER, N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION. AS APPROPRIATE, CHP: NTPC SHALL IDENTIFY IN COLUMN 'N'													


FORMAT NO QS-01-QA/P-10/F3-R1

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ENGG. DIV/JQA&amp;I

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	<b>ITEM-</b> <b>STRAINER</b> <b>(‘Y’ TYPE AND BASKET TYPE)</b> FOR AUX. PACKAGES, MAXIMUM WORKING PRESSURE UP TO 10 KG/CM <sup>2</sup>		<b>STANDARD QUALITY PLAN</b> CONFORMING TO CODE				QP NO.	0000-999-QOM-S -013		REVIEWED BY	APPROVED BY		
							REV. NO	01		H. S. MAURYA			
							DATE	01-05-2014		M.K.ASTHANA			
							PAGE	01 of 02		RAJEEV GARG			
							VALID UPTO	30-04-2017					
SN	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY	REMARKS			
									M C N				
1.	2.	3.	4.	5.	6.	7.	8.	9.	D*	**	10.	11.	
					M C/N								
		HYDRAULIC TEST	MAJOR	VISUAL MEASURE	100% OF EACH SIZE PER VIST	APPROVED DRAWING / APPROVED DATA SHEET	IR	√	P	W	W		
		FLOW V/S PRESSURE DROP CHARACTERISTIC	CRITICAL	MEASURE (TYPE TEST)	ONE PER TYPE & SIZE	APPROVED TEST PROCEDURE	APPROVED DRAWING / DATA SHEET	IR	√	P	W	W	REFER NOTE-6
		PAINING – COLOR, SHADE, DRY FILM THICKNESS	MAJOR	VISUAL & MEASURE	100% 10% RANDOM	TECHNICAL SPECIFICATION	IR	√	P	V	V		
3.2	REVIEW OF QA DOCUMENTS	COMPLETENESS OF DOCUMENTS/ RECORDS	MAJOR	VERIFICATION	100%	APPROVED DRAWING / DATA SHEET & APPROVED SQP		√	P	V	V		
4.1	MARKING & PACKING	COMPLETENESS	MAJOR	VERIFICATION	100% 100%	MANUFACTURER STANDARAD			P	V	-		
<b>NOTE</b>													
1	IN ABSENCE OF CO-RELATED TCS, CHECK-TESTS SHALL BE CARRIED OUT IN PRESENCE OF MAIN CONTRACTOR.												
2	NO WELD REPAIR ON CI CASTING IS PERMITTED												
3	HYDRO TEST PRESSURE SHALL BE 2TIMES OF WORKING PRESSURE OR 1.5 TIMES OF DESIGN PRESSURE WHICHEVER IS HIGHER FOR 30 MINUTES.												
4	WPS/PQR APPROVED BY NTPC/BHEL/LLOYDS/ BVQI/ DNV/TUV ARE ACCEPTABLE. WELDERS QUALIFIED BY THESE AGENCIES SHALL BE DEPLOYED.												
5	SL.NO 2.1, 2.2 APPLICABLE IN CASE OF WELDED CONSTRUCTION ONLY.												
6	FLOW V/S PRESSURE DROP TEST; ACCEPTANCE OF NTPC ENGINEERING FOR FLOW V/S PRESSURE DROP TEST TO BE REVIEWED DURING FINAL INSPECTION. IF NOT CARRIED OUT EARLIER, THIS TEST SHALL BE OFFERED TO NTPC FOR WITNESS.												


Packing shall be in witness category by BHEL/BHEL's TPIA.

LEGEND: \* RECORDS, IDENTIFIED WITH 'TICK' (□) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.

\*\* M: MANUFACTURER / SUB-SUPPLIER C: MAIN SUPPLIER, N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION. AS APPROPRIATE, CHP: NTPC SHALL IDENTIFY IN COLUMN "N"



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Rev No. B Form No.	 BHARAT HEAVY ELECTRICALS LIMITED Project Engineering & Systems Division (PE&SD) HYDERABAD – 32	PEMC- 07575
		Rev No. 00
		Page 1 of 1

Project: FRAME WORK AGREEMENT FGD FPS PROJECTS

**Scope:**

This document indicates the **special requirements** to be considered for supply of Strainers **in addition to requirements** indicated in PY Specifications furnished along with the Tender documents.

## Design Parameters for Y-Strainers

Sl. No.	Size	150 NB	100 NB	80 NB	65 NB
1	Maximum Flow	6833 LPM	5000 LPM	1150 LPM	255 LPM
2	Working (Max.)/Design Pressure	12/16 Kg/cm <sup>2</sup>	12/16 Kg/cm <sup>2</sup>	12/16 Kg/cm <sup>2</sup>	12.1/16 Kg/cm <sup>2</sup>
3	Pressure Drop at design flow rate				
3.1	Max. at clean condition	1.5 Kg/cm <sup>2</sup>	1.5 Kg/cm <sup>2</sup>	1.0 Kg/cm <sup>2</sup>	0.1 Kg/cm <sup>2</sup>
3.2	50% clogged condition	2.0 Kg/cm <sup>2</sup>	2.0 Kg/cm <sup>2</sup>	1.5 Kg/cm <sup>2</sup>	0.15 Kg/cm <sup>2</sup>

## Design Parameters for Basket Strainers

Sl. No.	Size	250 NB
1	Rated Flow	410M <sup>3</sup> /hr
2	Working (Max.)/Design Pressure	12/16 Kg/cm <sup>2</sup>
3	Pressure Drop at design flow rate	
3.1	100% clean condition	4.0 MWC
3.2	50% clogged condition	7.5 MWC

## Design Parameters for SS Strainers (65 NB)


1	Fluid to be filtered	Foam
a)	Viscosity - max.	Less than 10 cSt.
b)	Density - max.	1040 KG/M <sup>3</sup>
2	Maximum Flow	15.3 M <sup>3</sup> /hr
3	Working (Max.)/Design Pressure	12.1/Kg/cm <sup>2</sup>
4	Pressure Drop at design flow rate	
4.1	100% clean condition	0.1 Kg/cm <sup>2</sup>
4.2	50% clogged condition	0.15 Kg/cm <sup>2</sup>

**Y-type Inline Strainer**

Strainer wires shall be of stainless steel AISI: 316, 30 BWG, 30 mesh.

Blowing arrangement shall be provided with removable plug at the outlet.

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Rev No. B Form No.		<b>BHARAT HEAVY ELECTRICALS LIMITED</b> <b>Project Engineering &amp; Systems Division (PE&amp;SD)</b> <b>HYDERABAD – 32</b>	<b>PEMC- 07575</b>
			Rev No. <b>00</b>
			Page <b>1</b> of <b>1</b>


**Basket Strainer**

Internal : SS (AISI 316), 30 mesh suitably reinforced.

Painting requirements being project specific, details such as type of paint, no of coats and DFT will be provided in the design stage. Vendor may consider a minimum of 250 microns of DFT.

Ref Doc	Revisions:	Prepared by:	Checked by:	Approved by:	Date:
	Refer to record of revisions	AM	VUK	GSK	08.11.2021

Note No. #1

Io. #1	Form No:	 PE&SD	Attachment: PR DGOS - MAIN - 1000141231-FRAMEWORK-STRAINERS.pdf	
			BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING & SYSTEMS DIVISION PY 52247	
			PURCHASE SPECIFICATION	
			Rev. No. 01	
BASKET STRAINER, CARBON STEEL			Page 1 of 4	

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### TECHNICAL SPECIFICATION FOR BASKET STRAINER, CARBON STEEL

#### 1.0 Scope:

The standard specifies the requirement of BASKET strainer, along with required commissioning spares for a Basket-Strainer with Carbon steel body- Flanged.

#### 2.0 Designation:

A 1000(NB) 40" size strainer of carbon steel body material, Pressure class ANSI 150 with end connections as flanged Flat face shall be designated as follows.

##### 2.1 On drawings and indents:

- (i) Material specification column: PY52247
- (ii) Description column: BASKET STRAINER CS 40" CL150 FF

##### 2.2 On enquires and purchase orders: In addition incorporating the above details a copy of this standard shall be enclosed.


#### 3.0 TECHNICAL REQUIREMENTS:

REQUIREMENTS	COMPLIANCE
INTENDED SERVICE	PERMANENT STRAINER – <u>WATER LINES.</u>
PRESSURE TEMP. RATING	ANSI B 16.34
MATERIALS	AS SPECIFIED IN TABLE I.
CONSTRUCTION	Basket Strainer with replaceable filter element
END CONNECTIONS: FLANGED	Upto 24" As per ANSI B16.5 #150 FF OR RF as specified in variant table.
SCREEN	SS 304 [40mesh]
FREE FLOW AREA	Six (6) times the cross sectional area of the inlet pipe.
PRESSURE DROP	0.2 Kg/cm <sup>2</sup> in 50% clogged conditions 0.07 kg/cm <sup>2</sup> in 100% clean condition
BACK UP SCREEN	PERFORATED SS BACK UP SCREEN SHALL BE PROVIDED.

##### 3.1 Strainer design shall meet the requirements of ASME Section VIII Div I

##### 3.2 Sizes: Sizes shall be as indicated in variant table against the material code.

##### 3.3 Commissioning Spares: One Set of Gaskets and Filter Element (Screen) to be supplied along with the main supply of strainer.

Refer Doc	LAYOUTS & PIPING ENGINEERING  PROJECT ENGINEERING & SYSTEMS DIVISION	PREPARED	CHECKED	APPROVED	DATE
		VUK	VUK	 G SRIKANTH	31.07.18

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		PURCHASE SPECIFICATION	
		BASKET STRAINER, CARBON STEEL	
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TABLE- 1

SL No	Part Name	Material
01	Housing	A 106 GR-B
02	End Flanges	A 105 , As per ANSI B16.5
03	Gasket	NAB MSW (SS316)+ PTFE FILL for up to 24"
04	Bolts & Nuts	ASTM A 193 Gr B-7 & ASTM A 194 Gr 2H
05	Vent & Drain	ASTM A 105 , 1" NPT with SS plugs
06	Screen Retainer	Perforated SS304 sheet along with stiffener rings
07	DP provision	1/2" NPT (F)-4 NO'S, WITH SS PLUGS
08	Support legs	ISA 75
09	Dish-end	ASTM A 234 WPB-Welded.-sch std-B16.9
10	TOP COVER	Bolted type made of IS2062 , 20 mm thk plate

**4.0 TEST & TEST CERTIFICATES:**

- 4.1 All strainers shall be hydrostatically tested at test pressure specified in data sheet.
- 4.2 Body test: The strainer shall be subjected to a hydraulic pressure of 30 kg/cm<sup>2</sup> with all the ends blanked. No leakage is permitted.
- 4.3 For all other testing requirements like radiography, NDT and other testing requirements refer project specific PEMC-XXXX document,(Provided along with inquiry).
- 4.4 Visual & dimension checks on all strainers shall be carried out as per approved GA drawings.
- 4.5 Manufacturer shall review & check all materials test certificates & mandatory inspection & test reports for the compliance to the requirements of applicable material specifications/technical notes.
- 4.6 Test certificates: 5 copies of the following test certificates shall be furnished to BHEL.
- 4.7 **Type test certificate for the flow vs pressure drop for each variety of the Strainers for the flow specified. These type test certificates and the Flow vs Pressure drop curves of the strainers submitted by the vendor should have been certified by Govt. approved labs like CWPRS, Pune.**

**5.0 INSPECTION AGENCY:**

The inspection agency for indigenous strainers shall be authorized inspector of inspection agency approved by BHEL or inspection by BHEL Quality official.


**6.0 GUARANTEE CERTIFICATES:**

A guarantee certificate for trouble free operation for a period of 12 months from the date of commissioning OR 24 months from the date of dispatch shall be submitted.

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Form No:	 PE&SD	Attachment: PR 2003-MAIN-1900141231-FRAMEWORK-STRAINERS.pdf PY 52247
		PROJECT ENGINEERING & SYSTEMS DIVISION
		PURCHASE SPECIFICATION
		BASKET STRAINER, CARBON STEEL
		Rev. No. 01
		Page 3 of 4

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## 7.0 DOCUMENTS:

### Along with the offer:

One copy each of the following documents shall be submitted along with offer:

- G.A. Drawings / leaflets / catalogues for the offered item with binding dimensions, material specification details, weight etc.
- Signed and stamped copies of this specification accepting the scope of supply as indicated in the specification.**

### After placement of order:

Four copies each of the following documents shall be submitted for approval

G.A. Drawings for the offered item with binding dimensions, material specification details, tests to be conducted, weight etc.

### Schedule for document submissions:

S.no	Description	Schedule
1	Submission of GA drawing by vendor	7 days from the date of P.O.
2	Pressure Drop Calculation Across Strainer	7 days from the date of P.O, Along with GA drawing.
3	Approval of GA drawing by BHEL	14 days from drawing submission *

\* The GA drawing submitted by vendor shall be strictly in compliance to all applicable standards and specification. The approval of GA drawing in no way absolves the supplier from meeting this specification requirement.

## 8.0 SURFACE PREPARATION AND PAINTING: (UNLESS OTHERWISE SPECIFIED IN ENQUIRY)

- Surface Preparation: SA 2 1/2
- Primer: Epoxy zinc phosphate primer-two Coats, DFT-35 microns per coat
- Finish Paint: Epoxy high build coating- Finish Color – FIRE RED DFT-25 microns per Coat.

## 9.0 MARKING:


### 9.1 BODY: The body of the strainer shall have the following markings:

- Normal size
- Pressure rating
- Body and screen material
- Suppliers trade mark
- Arrow showing direction of flow
- Inspector's identification mark.
- Material code:
- BHEL Purchase order No:

### 9.2 PACKING CASE: The following marking shall be done on each packing case.

- Complete address of the consignee and destination as per BHEL purchase order.
- BHEL purchase order no.
- BHEL standard no.: PY52247
- Number of pieces in each packing case.

Note No. #1

Form No:	 PE&SD	Attachment: PR 0063 - MAIN - 1900141231 - FRAME WORK-STRAINERS.pdf PY 52247
		PROJECT ENGINEERING & SYSTEMS DIVISION
		PURCHASE SPECIFICATION
		Rev. No. 01
	BASKET STRAINER, CARBON STEEL	Page 4 of 4

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- e) Net weight
- f) Gross weight
- g) Packing case number and total number of Packing.
- h) Arrow indicating top of packing case.

**10.0 Preservation:**

A suitable temporary rust preventive with minimum life of 1 year shall be applied inside the body in order to prevent corrosion.

**11.0 End protection:**

A circular blanking plate made of thin steel sheet with a diameter 6mm less than the bolt holes inner PCD shall be firmly fixed to the flange faces, a wooden blank should then be bolted to the flange using a minimum of four bolts.

**12.0 Packing:**

The strainers shall be packed separately in wooden cases in order to avoid damage during transit and storage at BHEL site office. Suitable supporters shall be provided inside the case in order avoid internal movement.

Each packing cases must contain 2 copies of the shipping list giving details of all the content of the case.

+++


**VARIANT TABLE:**

Var No	Size	End conn	Item Description	Material Code
01	12"	FL	BASKET STRAINER CS 12" CL#150 FF	PY9752247016
02	10"	FL	BASKET STRAINER CS 10" CL#150 FF	PY9752247024
03	4"	FL	BASKET STRAINER CS 4" CL#150 FF	PY9752247040
04	8"	FL	BASKET STRAINER CS 8" CL#150 FF	PY9752247032
05	8"	FL	BASKET STRAINER CS 8" CL#150 RF	PY9752247059

**RECORD OF REVISIONS:**

Rev No	Date	Revision Detail	Revised by	Approved by
00	17/09/2018	FIRST ISSUE		
01	27/05/2020	INCLUDED CL 4.7 TYPE TEST CERTIFICATE REQUIREMENTS	IMRAN	G SRIKANTH
02	07/07/2021	CL 4.3 IS REVISED	MOQEET	G SRIKANTH

Note No. #1

Form No:	 PE&SD	Attachment PR DOCS - MAIN - 1900141231 - FRAME WORK-STRAINERS.pdf BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING & SYSTEMS DIVISION PY 52 284
		TECHNICAL SPECIFICATION FOR Y-TYPE STRAINERS FOR FIRE FIGHTING APPLICATIONS
		Rev. No. 01 Page 1 of 4

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### TECHNICAL SPECIFICATION FOR Y TYPE STRAINER, FOR FIRE FIGHTING APPLICATIONS

#### 1.0 GENERAL

The standard specifies the requirements of 'Y' type strainer, Fabricated body (Flanged Connections as per ANSI B16.5) for various sizes as mentioned in variant table.

#### 2.0 APPLICATION

These strainers are used for carrying water in firefighting applications.

#### 3.0 TECHNICAL REQUIREMENTS

CL NO:	Requirements	Compliance
3.1	Design code & Pressure temperature rating	ASME SEC VIII DIV 1 & ANSI B 16.34, ANSI B16.5 Rating shall be as per Variant Table
3.2	Material	As specified in the TABLE-1
3.3	Construction	<b>Y- Type</b>
3.4	End Connections	As per material description in variant table Flanged: Flat Face (FF) / Raised face (RF)
3.5	Face to Face / End to end dimensions.	ASME B16.10 / Manufacturer's Standard
3.6	Wire mesh (Screen)	a) 30 Mesh size b) Wire dia – 30 SWG (Unless otherwise specified in project specific bid document)
3.7	Free flow area	Four (4) times the pipe flow area (Unless otherwise specified in project specific bid document)
3.8	Perforated sheet (Back up screen)	Sheet thickness, Hole dia & Pitch to be selected by vendor to meet the free flow area requirement
3.9	Screen retainer	Required. Bolted screen retainer with off centered blow down design.
3.10	Maximum allowable pressure drop	1.5 MWC in Clean condition 2.5 MWC at 50% Clogged condition (Unless otherwise specified in project specific bid document)
3.11	Rated flow and maximum flow at the end of the curve	To be furnished by Vendor. Vendor to furnish pressure drop, open area and free flow area calculations (Refer clause 4.2.C)

#### Note:

For any additional requirements and deviations to this specification and other details like design pressure, design temperature, flow rate, surface preparation and painting etc., project specific bid document PEMC-XXXX provided along with inquiry shall be referred.

Form No:	LAYOUT & PIPING ENGINEERING PROJECT ENGINEERING & SYSTEMS DIVISION	PREPARED	CHECKED	APPROVED	DATE
		AKB	UP/GKC	GS	21.04.20

Note No. #1

Form No:



PE&amp;SD

Attachment: PR DOCS - MAIN - 1900141231 - FRAME WORK-STRAINERS.pdf

BHARAT HEAVY ELECTRICALS LIMITED

PROJECT ENGINEERING &amp; SYSTEMS DIVISION

TECHNICAL SPECIFICATION FOR

Y- TYPE STRAINERS FOR FIRE FIGHTING APPLICATIONS

PY 52 284

Rev. No. 01

Page 2 of 4

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TABLE –1

SL NO	PART	MATERIAL
1.	BODY	IS 1239 / IS 2062 Gr B for Sizes up to 150 NB IS 3589 / IS 2062 Gr B for Sizes greater than 150 NB
2.	SCREEN & INTERNALS (INCLUDING SCREEN RETAINER)	SS 316
3.	GASKET	NBR Sheet
4.	COVER	IS 2062 Gr B
5.	BOLTS & NUTS	ASTM A 193 Gr B7 & ASTM A 194 Gr 2H
6.	DRAIN PLUG	ASTM A 105

Note:

1. Cu & Cu Alloys shall not be used for any component.

#### 4.0 TEST & TEST CERTIFICATES

##### 4.1 Body Test:

Unless otherwise specified, the strainer shall be subjected to a hydraulic pressure of

- 30 Kg/cm<sup>2</sup> (425 PSIG) for #150 FL Body,
- 78 Kg/cm<sup>2</sup> (1130 PSIG) for #300 FL Body
- No leakage is permitted.

##### 4.2 Test certificates:

5 copies of the following test certificates shall be furnished for review:

- a) Hydraulic test certificates of body shall be provided for 100% of ordered Qty.
- b) Chemical and Mechanical test certificate for components of the strainer body, screen and Cover for each heat/melt.
- c) **Type test certificate for the flow vs pressure drop for each variety of the Strainers for the flow specified. These type test certificates and the Flow vs Pressure drop curves of the strainers submitted by the vendor should have been certified by Govt. approved labs like CWPRS, Pune.**


#### 5.0 GUARANTEE CERTIFICATES

A guarantee certificate for trouble free operating for a period of 12 months from the date of commissioning or 24 months from the date of dispatch shall be submitted.


#### 6.0 DOCUMENTATION

6.1 Along with Quotation: 4 copies each of the following documents shall be submitted along with quotations.

- a) Drawings/leaflets/catalogues for the offered item indicating direction of flow,
- b) binding dimensions, bill of materials with material specification details, hydraulic
- c) test pressure, weight etc.
- d) Pressure drop, flow area & open area Calculations as indicated above in point 3.10.
- e) Quality plan adopted by the supplier during manufacture and inspection/testing.
- f) Any deviation to this standard proposed by the supplier.

Note No. #1	Form No:	 PE&SD	Attachment: PR DOCS - MAIN - 1900141231 - FRAME WORK-S <b>BHARAT HEAVY ELECTRICALS LIMITED</b> <b>PROJECT ENGINEERING &amp; SYSTEMS DIVISION</b> <b>TECHNICAL SPECIFICATION FOR</b> <b>Y- TYPE STRAINERS FOR FIRE FIGHTING APPLICATIONS</b>	STRAINERS.pdf PY 52 284 Rev. No. 01 Page 3 of 4
<div data-bbox="236 696 325 1682" data-label="Text" style="writing-mode: vertical-rl; transform: rotate(180deg);"> <p><b>COPYRIGHT AND CONFIDENTIAL</b>            The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED,            It must not be used directly or indirectly in any way detrimental to the interest of the company.</p> </div> <div data-bbox="437 371 1423 1861" data-label="List-Group"> <p>6.2 After the award of contract:</p> <ol style="list-style-type: none"> <li><u>All documentations required as applicable and indicated above shall be submitted within 7 days of PO placement.</u></li> <li><u>BHEL will furnish their approvals / comments within 15 days after submission of drawings/ documents.</u></li> </ol> <p><b>7.0 CLEANING</b>          Particular care shall be taken to ensure that all foundry sand and loose materials is properly removed by fettling/shot blasting/sand blasting and thoroughly cleaned</p> <p><b>8.0 SURFACE PREPARATION &amp; PAINTING</b>          Unless otherwise specified in the project specific bid document, the following shall be followed by default, after the hydraulic testing has been carried out:</p> <ol style="list-style-type: none"> <li>Strainer body surface shall be prepared for SA2½ Grade</li> <li>Internal Paint: 2 coats of Coal tar Epoxy Paint</li> <li>External Paint: Primer - One coat of epoxy resin based Zinc Phosphate of 30-35 Microns, Finish Paint - 3 coats of epoxy resin based pigmented with titanium dioxide (Shade P.O. Red Colour Shade - RAL 300, Fire Red), 25 microns per each coat.</li> </ol> <p><b>9.0 PRESERVATION</b>          A suitable temporary rust preventive with minimum life of 1 year shall be applied inside the body in order to prevent corrosion.</p> <p><b>10.0 END PROTECTION</b>          Strainer ends shall be protected from external damage and sealed against the ingress of dirt by means of plastic/steel end covers firmly secured.</p> <p><b>11.0 PACKING</b></p> <ol style="list-style-type: none"> <li>The strainers shall be packed separately in wooden cases in order to avoid damage during transit and storage at BHEL. Suitable supporters shall be provided inside the case in order to avoid internal movement. In case of imported consignment, the packing shall be seaworthy, as per the Seaworthy Packing Specification, which shall be provided separately.</li> <li>Each packing case must contain 2 copies of the shipping list giving details of all the contents of the cases.</li> </ol> <p><b>12.0 MARKING</b></p> <ol style="list-style-type: none"> <li>Body: The body of the strainer shall have the following markings:             <ol style="list-style-type: none"> <li>PO Number</li> <li>Nominal size</li> <li>Pressure rating</li> <li>Body &amp; Screen material</li> <li>Suppliers trade mark</li> <li>Arrow showing direction of flow</li> <li>Inspector's identification mark.</li> </ol> </li> </ol> </div>				

Note No. #1

Form No:	 PE&SD	Attachment: PR DOCS - MAIN - 1900141231 - FRAME WORK-STRAINERS.pdf <b>BHARAT HEAVY ELECTRICALS LIMITED</b> <b>PROJECT ENGINEERING &amp; SYSTEMS DIVISION</b> <b>PY 52 284</b>	Rev. No. 01 Page 4 of 4
		<b>TECHNICAL SPECIFICATION FOR</b> <b>Y- TYPE STRAINERS FOR FIRE FIGHTING APPLICATIONS</b>	

12.2 Packing Case: The following marking shall be done on each packing case.

- Complete address of the consignee and destination as per BHEL purchase order.
- BHEL purchase order No.
- BHEL Standard No.: PY52284
- Number of pieces in each packing case
- Net weight
- Gross weight
- Packing case number and total number of packings
- Arrow indicating top of packing case.

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**VARIANT TABLE**

VAR	ITEM DESCRIPTION	MATL CODE
01	Y-STRAINER FABRICATED 4" CL150 FF	PY9752284019
02	Y-STRAINER FABRICATED 6" CL150 FF	PY9752284027
03	Y-STRAINER FABRICATED 3" CL150 FF	PY9752284035
04	Y-STRAINER FABRICATED 8" CL150 FF	PY9752284043


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**RECORD OF REVISIONS**

Rev. No.	Date	Revision Details	Revised	Approved
00	21.04.20	First Issue	GKC	GS
01	02.05.20	Variants 03 and 04 added	AKB	GS

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Note No. #1	Form No:	 PE&SD	Attachment: PR DOCS - MAIN - 1900141231 - FRAME WORK-STRAINERS.pdf BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING & SYSTEMS DIVISION	PY 52287
			PURCHASE SPECIFICATION	Rev. No. 00
			SPARE FOR STRAINERS	Page 1 of 2

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### SPARES FOR STRAINERS

#### 1.0 GENERAL

- 1.1 This document specifies requirements for procurement of spares of both Y-Strainers and Basket strainers.

#### 2.0 SCOPE OF SUPPLY


- 2.1 The spares for Strainers (Both Y-Strainer and Basket strainer) have to be offered as a loose supply. The construction, dimension, material of these items shall be exactly same as supplied for the main strainers & shall be suitable for direct replacement without any modification/ alterations in the main strainers.
- 2.2 For part details of Y-Strainers, BHEL spec No PY52056 has to be followed.
- 2.3 For part details of Fabricated Y-Strainers, BHEL spec No PY52284 has to be followed.
- 2.4 For part details of Basket Strainers, BHEL spec No PY52247 has to be followed.
- 2.5 For part details of Y-Strainers SS ,BHEL spec No PY52163 has to be followed.
- 2.6 Wherever spare item is specified as strainer element, it shall consist of screen and screen retainer for all type of strainers.

#### 3.0 DESIGNATION:


- 3.1 As indicated in the variant table.

#### 4.0 DISPATCH & PACKING

- 4.1 The full responsibility of dispatch & packing of the items / equipment rests on the vendor to determine that the packing is adequate to assure that all the items / equipment shall arrive at the destination in an undamaged condition. The vendor shall ensure that the items / equipment packed are adequately protected against shock during shipment / handling. There shall not be any damage during storing at site & also it shall be ready for intended use.
- 4.2 All the items shall be dry, clean and free from moisture, dirt and loose foreign materials of any kind. All the items shall be protected from rust, corrosion and any mechanical damage during transportation, shipment and storage.
- 4.3 The open ends of all the equipment shall suitably be protected and the protectors shall be securely and tightly attached. Dummy plastic sheets of minimum 1 mm thickness shall be used for this purpose.

Refer Doc	LAYOUTS & PIPING ENGINEERING	PREPARED	CHECKED	APPROVED	DATE
	PROJECT ENGINEERING & SYSTEMS DIVISION	IMRAN	UDAY G	 G SRIKANTH	12.01.16

Note No. #1

Form No:	 PE&SD	Attachment: PR 2003-MAIN-1900141231- <del>FRAME WORK</del> -STRAINERS.pdf	PY 52287	
		PROJECT ENGINEERING & SYSTEMS DIVISION		Rev. No. 00
		PURCHASE SPECIFICATION		Page 2 of 2
SPARES FOR STRAINERS				

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## 5.0 DOCUMENTATION

- 5.1 Vendor shall make the offer in detail, with respect to every item of the Purchaser's specifications. Vendor's offer shall include engineering documents along with relevant drawings.


## 4.0 VARIANT TABLE:

Var No	Item Description	Material Code	Relevant Specification
1	Y-STRAINER ELEMENTS WITH O-RINGS-50NB	PY9752287018	PY52287
2	Y-STRAINER ELEMENTS WITH O-RING-80NB	PY9752287026	PY52287
3	Y-STRAINER ELEMENTS WITH O-RING-100NB	PY9752287034	PY52287
4	Y-STRAINER ELEMENTS WITH O-RING-150NB	PY9752287042	PY52287
5	Y-STRAINER ELEMENTS WITH O-RING-200NB	PY9752287050	PY52287
6	Y-STRAINER ELEMENTS WITH O-RING-250NB	PY9752287069	PY52287
7	Y-STRAINER ELEMENTS WITH O-RING-300NB	PY9752287077	PY52287
8	BASKET STRAINER ELEMENT-250NB	PY9752287085	PY52287
9	BASKET STRAINER ELEMENT-350NB	PY9752287093	PY52287
10	BASKET STRAINER ELEMENT-300NB	PY9752287107	PY52287
11	BASKET STRAINER ELEMENT-100NB	PY9752287115	PY52287
12	Y-STRAINER ELEMENTS WITH O-RING-65NB	PY9752287123	PY52287

## RECORD OF REVISIONS:

Rev No	Date	Revision Detail	Revised by	Approved by
00	30.05.19	FIRST ISSUE	IMRAN	GS

Note No. #1

Form No:	 PE&SD	Attachment: PR DOCS - MAIN - 1900141231 - FRAME WORK - STRAINERS.pdf	BHARAT HEAVY ELECTRICALS LIMITED PY 52163
		PROJECT ENGINEERING & SYSTEMS DIVISION	
		<b>TECHNICAL SPECIFICATION FOR</b> <b>Y- TYPE STRAINERS (SS)</b>	
			Rev. No. 01
			Page 1 of 4

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### TECHNICAL SPECIFICATION FOR Y -TYPE STRAINER (SS)

#### 1.0 GENERAL

The standard specifies the requirements of 'Y' type steam strainer, Stainless steel body material, SW End connections for #800, flanged End connections for #150, #300, #1500 for various sizes as mentioned in variant table.

#### 2.0 Application :



These strainers are used in foam concentrate, DM water application where the fluid being carried will not attack or not to be contaminated by the material of construction.

#### 3.0 TECHNICAL REQUIREMENTS

SL NO:	Requirements	Compliance
3.1	Press./temp Rating	ANSI B 16.34, API 602 (for #800)
3.2	Material	As specified in the TABLE –1 and variant table
3.3	Construction	Y- type
3.4	End Connections	Shall be either Socket Welded : 3000# / 6000# as per ANSI B 16.11 <b>OR</b> Flanged : ANSI B 16.5 (150# / 300# / 1500# as mentioned in Variant Table
3.5	Face to Face /End to end dimensions.	(To be furnished by Vendor)
3.6	Wire mesh (Screen)	20SWG-SS316;30 mesh <b>Position of Wire mesh &amp; perforated sheet:</b> The position of both wire mesh & perforated sheet shall be such a way that wire mesh should be first to in the flow line so that perforated sheet shall be supported. I.e if the flow is from inward to outward direction, wire mesh shall be inside perforated sheet and if the flow is from outward to inward, wire mesh shall be outside the perforated sheet
3.7	Perforated sheet (Back up screen)	Sheet thickness (Minimum of 18 SWG SS316), Hole dia & Pitch to be selected by vendor to meet the free flow area requirement. Structural bar support to be provided for this perforated sheet.
3.8	Free flow area	Four (4) times pipe flow area
3.9	Screen retainer	Required. Bolted screen retainer with off centered blow down
3.10	1. Pressure drop @ 50% clogged condition 2. Flow: Rated flow and maximum flow at the end of the curve	(To be furnished by Vendor) Vendor to furnish pressure drop, open area and free flow area calculations

Form No:	LAYOUT & PIPING ENGINEERING PROJECT ENGINEERING & SYSTEMS DIVISION	PREPARED	CHECKED	APPROVED	DATE
		G.PARAMESH	V.UDAY	SRIKANTH . G	1.06.18

Note No. #1

Form No:	  PE&SD	Attachment: PR DOCS - MAIN - 1900141231 FRAME WORK-STRAINERS.pdf	<b>PROJECT ENGINEERING &amp; SYSTEMS DIVISION</b> <b>PY 52163</b>	
		<b>PURCHASE SPECIFICATION FOR</b>		Rev. No. 01
		<b>Y-STRAINER (SS)</b>		Page 2 of 4

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TABLE -1

SLNO	PART	MATERIAL
1.	BODY	ASTM A403 Gr WP304
2.	SCREEN	SS 316
3.	GASKET	GRAPHITEFILLER
4.	COVER	ASTM A182 Gr F304
5.	BOLTS & NUTS	ASTM A 193 Gr.B-7 ASTM A 194 Gr 2-H
6.	DRAIN PLUG	ASTM A182 F316

NOTE: Cu & Cu alloys shall not be used for any component.

#### 4.0 TEST & TEST CERTIFICATES:

4.1 Body test: The strainer shall be subjected to a hydraulic pressure of

- 207kg/cm<sup>2</sup> (3000 PSIG) for #800 SW Body,
- 30Kg/cm<sup>2</sup> (425 PSIG) for #150 FL Body,
- 76Kg/cm<sup>2</sup> (110 PSIG) for #300 FL Body,
- 373Kg/cm<sup>2</sup> (5400 PSIG) for #1500 FL Body with all the ends blanked.
- No leakage is permitted.
- The hydro test pressure shall be 1.5 times the design pressure  
 Design pressure – maximum allowable pressure at room temperature as per respective codes (B16.34 for #150,#300,#1500 for flanged and API602 for #800 socket welded ends)

4.2 Test certificates: 5 copies of the following test certificates shall be furnished to BHEL along with each consignment.

4.2.1 Hydraulic test certificates of body for 100% of ordered Qty.

4.2.2 Chemical and mechanical test certificate for components of the strainer body, screen and Cover for each heat/melt

4.2.3 Type test certificate for the flow vs pressure drop for each variety of the Strainers for the flow specified. These type test certificates and the Flow vs Pressure drop curves of the strainers submitted by the vendor should have been certified by Govt. approved labs like CWPRS, Pune.

#### 5.0 INSPECTION AGENCY:

The inspection agency for indigenous strainers shall be authorized inspector of inspection agency approved by BHEL or inspection by BHEL Quality official.

#### 6.0 GUARANTEE CERTIFICATES:


A guarantee certificate for trouble free operating for a period of 12 months from the date of Commissioning or 24 months from the date of dispatch shall be submitted.

#### 7.0 DOCUMENTS:



7.1 4 copies each of the following documents shall be submitted along with quotations.

- Drawings/leaflets/catalogues for the offered item indicating direction of flow, binding dimensions, bill of materials with material specification details, hydraulic test pressure, weight Pressure drop, flow area & open area Calculations as indicated above in point 3.10.
- Quality plan adopted by the supplier during manufacture and inspection/testing.
- Any deviation to this standard proposed by the supplier.

Note No. #1

Form No:	 PE&SD	Attachment: PR DOCS - MAIN - 1900141231 FRAME WORK STRAINERS.pdf BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING & SYSTEMS DIVISION <b>PURCHASE SPECIFICATION FOR</b> <b>Y-STRAINER (SS)</b>	PY 52163 Rev. No. 01 Page 3 of 4
	<p style="writing-mode: vertical-rl; transform: rotate(180deg);"> <b>COPYRIGHT AND CONFIDENTIAL</b>          The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED, It must not be used directly or indirectly in any way detrimental to the interest of the company.       </p> <p>After the award of contract:</p> <ol style="list-style-type: none"> <li><u>All documentations required as applicable and indicated above shall be submitted within 7 days of PO placement.</u></li> <li><u>BHEL will furnish their approvals / comments within 15 days after submission of drawings/ documents.</u></li> </ol> <p><b>8.0 CLEANING:</b></p> <p>Particular care shall be taken to ensure that all foundry sand and loose materials is properly removed by fettling/shot blasting / sand blasting and thoroughly cleaned.</p> <p><b>9.0 PAINTING:</b></p> <p>Painting shall as per project specific painting specification provided along with inquiry. In case of non-availability of the same, Strainers shall be painted externally with blue colour enamel after the hydraulic testing has been carried out.</p> <p><b>10.0 MARKING:</b></p> <p>10.1 Body: The body of the valve shall have the following markings:</p> <ol style="list-style-type: none"> <li>Nominal size</li> <li>Pressure rating</li> <li>Body &amp; Screen material</li> <li>Suppliers trade mark</li> <li>Arrow showing direction of flow</li> <li>Inspector's identification mark.</li> </ol> <p><b>11.0 PRESERVATION:</b></p> <p>A suitable temporary rust preventive with minimum life of 1 year shall be applied inside the body in order to prevent corrosion.</p> <p><b>12.0 END PROTECTION:</b></p> <p>Strainer ends shall be protected from external damage and sealed against the ingress of dirt by Means of plastic/steel end covers firmly secured.</p> <p><b>13.0 PACKING:</b></p> <p>13.1 The strainers shall be packed separately in wooden cases in order to avoid damage during Transit and storage at BHEL. Suitable supporters shall be provided inside the case in order to Avoid internal movement. In case of imported consignment the packing shall be seaworthy.</p> <p>13.2 Each packing case must contain 2 copies of the shipping list giving details of all the contents of the case.</p> <p><b>14.0 MARKING:</b></p> <p>14.1 The following marking shall be done on each packing case.</p> <ol style="list-style-type: none"> <li>Complete address of the consignee and destination as per BHEL purchase order.</li> <li>BHEL purchase order No.</li> <li>BHEL Standard No.: PY52163</li> </ol>		

Note No. #1

Form No:	  <b>BHARAT HEAVY ELECTRICALS LIMITED</b> PE&SD	<b>Attachment: PR DOCS - MAIN - 1900141231 - FRAME WORK - STRAINERS.pdf</b> <b>PY 52163</b>
		<b>PROJECT ENGINEERING &amp; SYSTEMS DIVISION</b>
		<b>PURCHASE SPECIFICATION FOR</b> <b>Y-STRAINER (SS)</b>
		Rev. No. 01
		Page 4 of 4

- d) Number of pieces in each packing case  
 e) Net weight  
 f) Gross weight  
 g) Packing case number and total number of packings.  
 h) Arrow indicating top of packing case.

#### VARIANT TABLE

SL .NO	VAR	ITEM DESCRIPTION	MATL CODE
01	01	Y-STRAINER 2" #150 FL FF SS	PY9752163017
02	02	Y-STRAINER 2.5" #150 FL FF SS	PY9752163025

#### RECORD OF REVISIONS

Rev. No.	Date	Revision Details	Revised	Approved
00	01.06.18	First Issue		
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