



CONTROL VALVE SPECIFICATION SHEET

(IN ACCORDANCE WITH I.S.A. FORM S20.51)

PROJECT:

NTPC-NABINAGAR STPP, STAGE-I, UNIT NO.1,2&3(3X660 MW) CUST.No:7200,7201&7202

GENERAL: THIS IS TO BE READ ALONG WITH TECHNICAL SPECIFICATION PC: TSP: APRDS: NABINAGAR

1. Valve tag No.	AS-03(LBG10 AA101)	5. Manufacturer	: *
2. Service	: High capacity combined PRDS valve	6. Model No.	: *
3. Line No./Vessel No.	:	7. Rating	: ASME CL. 3000 Spl. (Dual class rating is also acceptable)
4. Qty. required per unit	: 1 No.	8. Total Qty Required	: 3 Nos.

BODY:		16. Bonnet type : Standard <input type="checkbox"/> Finned <input checked="" type="checkbox"/>	
9. Type : Thru <input type="checkbox"/> 3 Way <input type="checkbox"/>		Extended <input checked="" type="checkbox"/> Pr. seal <input type="checkbox"/>	
Z type <input type="checkbox"/> Angle <input checked="" type="checkbox"/>			
10. Form : Globe <input checked="" type="checkbox"/> Ball <input type="checkbox"/>		17. Material : Body : ASTM SA182F91/A217 C12A	
Butterfly <input type="checkbox"/>		Packing: GRAFOIL	
11. Size : *		Bolting : *	
12. Port Size : *		18. Flow direction : SIDE ENTRY-BOTTOM EXIT	
13. Connecting Steam Inlet : OD 219.1 x 34(P91)		19. Suitable matching pieces to match with pipe size specified shall be offered.	
Pipe size Steam Outlet : OD 610 x 25(P91)			
Spray inlet : OD 88.9 x 15.24(P91)			
14. Body rating : ASME CL. 3000 Spl.			

15. Type of end connections : Screwed <input type="checkbox"/>	BW <input checked="" type="checkbox"/> (Steam and spray side)	SW <input type="checkbox"/>
NPI <input type="checkbox"/>	BSPT <input type="checkbox"/>	BS <input type="checkbox"/>
Flanged <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ANSI <input type="checkbox"/>	DIN <input type="checkbox"/>	

Edge Preparation as per BPS. Inlet: STY.'X', d1=159.6mm; Outlet: STY.'X', d1=572.6mm

TRIM:		24. Stem material : }	
20. No. of ports : *		25. Plug material : }	
21. Type : Balanced <input checked="" type="checkbox"/> Unbalanced <input type="checkbox"/>		26. Seat material : } 440C OR EQUIVALENT	
22. Plug characteristics: L/LV/EP / MODIFIED EP		27. Disc material : }	
23. Guiding : Cage <input checked="" type="checkbox"/> Port <input type="checkbox"/> Top <input type="checkbox"/>		28. stem guide material : }	
Bottom <input type="checkbox"/>		29. Cage Material : F22 Ion Nitrided (or) Better	

ACTUATOR:		34. Diaphragm/Cylinder pressure at Valve full open : *	
30. Type : Electric <input type="checkbox"/>		Valve full close : *	
Hydraulic <input type="checkbox"/> Pneumatic <input checked="" type="checkbox"/>		35. Force required for process & Force available at actuator. : *	
31. Size : *		36. Actuator sizing ΔP : *	
32. Supply : 5-8 Kg/cm ²		37. If actuator electric fill in data sheet as per annexure : NAPL	
Shut off Pressure : 8 Kg/cm ²		furnished and shall comply with annexure-I specification.	
33. Failsafe position : Stayput <input checked="" type="checkbox"/>			
Full Close <input type="checkbox"/> Full Open <input type="checkbox"/>			

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38. Type : Pneumatic ☐ Electronic ☐
 DA/RA Electro Pneumatic (SMART WITH FAIL FREEZE FACILITY)# ☒

39. If Electronic : Type :
 Model : Solid plate deversing contactors

Main contactor : Solid state thyristor: ☐
 Relay Switching : ☐

Also refer annexure – II
 position indicator reqd. for Valve & VCB

40. If Pneumatic : Type :
Model : *

Split range : Yes ☐ No ☐

Controller Input & Output Signal Value } : 4-20 mA

Air supply : 45 PSIG

Input/Output Pr. guage :

Required : Yes ☐ No ☐

By pass provision : Yes ☐ No ☐

Action : Direct ☐ Reverse ☐ Both ☐

Cam : =% ☐ Linear ☐ Both ☐

41. Handwheel : Yes ☒ Side ☒ Top ☐

42. Air filter : Yes ☒ No ☐
Filter Size : 5 Micron ☒ 25 Micron ☐

43. Limit Switches : Yes ☒ No ☐
Qty. : 1 at full open &
: 1 at full close
Rating : 240v. 5Amp. ac
No of contacts per switch : 2No + 2NC

44. Solenoid valve to effect
Stayput : Yes ☒ No ☐
Type : 3 Way universal: Yes ☒ No ☐
Rating : 24V DC 2 wire
Class H coil : Yes ☒ No ☐

45. Vol. booster : Yes ☐ No ☒

46. Travel time : < 10 sec

47. Installation : Indoor ☐ Outdoor ☒

48. All accessories enclosure : IP65 \$

49.	Isolated Position transmitter :	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	Type :	Pnuematic <input type="checkbox"/>	Electronic Non contact type <input type="checkbox"/>
	Rating :	2 wire 24V DC: <input type="checkbox"/>	<input type="checkbox"/>
	Output :	4-20 ma <input type="checkbox"/>	3-15 paig <input type="checkbox"/>
50.	Torque Switches :	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	Qty. :		
	Rating :		
51.	Air lock :	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	Function :	TO EFFECT STAYPUT	
	Type *	3 Way single acting <input type="checkbox"/>	
		3 Way double acting <input type="checkbox"/>	
52.	Ambience :	Dusty corrosive <input checked="" type="checkbox"/>	
	Toxic hazardous :	<input type="checkbox"/>	<input type="checkbox"/>
53.1.	Local position Indicator :	Required.	
53.3	Integral JB :	36 Way JB required	
53.4	All electrical terminating :	plug & socket type	

54.	Seat leakage : FCI 70.2	class	<input checked="" type="checkbox"/>	CLASS	IV
	I.S.A :		<input type="checkbox"/>		
55.	Approx. weight (total)	:	*		
56.	Space requirements for online servicing	:	*		

57. Valve sizing as per ISA 75.01 : Yes ☒ No ☐

58. Noise Level : Less than 85 DBA at 1m
from Valve & Piping System. The noise
abatement shall be by trim design & not
by use of silencers/thermal insulation

59. Hookup Diagram : As per Enclosed.

60. Performance Data
Linearity : $\pm 1\%$ Hysterisis : $\pm 0.5\%$
Sensitivity : $\pm 0.5\%$ Accuracy (overall) : $\pm 2\%$

61. Medium :	SH Steam	<input checked="" type="checkbox"/>	Sat. Steam	<input type="checkbox"/>
	Water	<input type="checkbox"/>		
62. Flow rate in			T/Hr	
63. Operating inlet pressure in			Kg/cm ² (a)	
64. Operating inlet temperature in			°C	
65. Outlet pressure in			Kg/cm ² (a)	
66. Viscosity		:	--	
67. Operating (required) Cv				
68. Operating noise level at 1.0 metre from valve				
69. Outlet velocity			surface	

CONDITION				
1	2	3	4	5
REFER DRAWING No. 4-00-306-40460 FOR VALVE SIZING DATA				

REFER STANDARD TABLE

<85	dba	(for all	conditions)	
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03.05.2016	E.KRITHIGA	C.SARAVANAN	R.PRABA
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DRG. NO:

4-00-306-40459

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DESIGN DATA:

	(A) Steam inlet	(B) St.outlet (Incase of dual rating)	(C) Spray
70. Design Pressure Kg/cm ² (g):	269	20	46
71. Design Temperature °C :	573	350	95
72. Rated/Design/Selected Cv of valve : Vendor to limit Cv value of max 460			
73. Velocity restriction : *			
74. Operating lift restriction : 10 to 80 % \$ (The valve stem travel range from min. flow to max.flow cond. shall not be < 50% of total stem travel)			

75. lift at various operating Conditions 1 TO 6 : *
76. Down stream limitations : *
77. Up stream limitations : *
78. Increase in signal Air : To open the Valve

TESTING/INSPECTION:

79. Hydraulic test report : Yes ☒ No ☐
80. Radiography : Critical Parts : ☒ Total ☐
Not required : ☐
81. IBR test report : Req'd. : ☒
82. Type test : *
Cv test as per ISA 75.02 : Required.
83. Valve functional test : Yes ☒ No ☐
- * Type test to be done atleast for one no on this consignment.

84. Accessories functional : Yes ☒ No ☐
Test :
85. Seat leakage test : Yes ☒ No ☐
- 85a. Actuator leak test : Yes ☒ No ☐
86. Material test report : Yes ☒ No ☐
87. Customer Inspection :
In process : Yes ☒ No ☐
Final : Yes ☒ No ☐
88. Third Party inspection : Yes ☐ No ☐

DOCUMENTATION: (Required)

89. With bid. (3 sets)
Catalogues : Yes ☒ No ☐
Dimensional drawing : Yes ☒ No ☐
All data sheets : Yes ☒ No ☐
Recommendation / Limitation : Yes ☒ No ☐
Confirmatory report : Yes ☒ No ☐
Contrary report : Yes ☒ No ☐
Deviation report : Yes ☒ No ☐
90. Quality plan : Yes ☒ No ☐

91. With equipment :
Dimensional drawing : 15 Sets + 1 CD
O & M : 15 Sets + 1 CD
Data Sheets : 15 Sets + 1 CD
Test certificate : 03 Sets + 1 CD
92. Valve sizing, actuator sizing, noise level calculations required with bid(with formulae) : Yes ☒ No ☐
93. --

SPARES:

94. Commissioning spares : *
95. Mandatory spares : As per specification

96. 2/3 Years maintenance spares : *

OTHERS:

97. Bidders experience list : Required ☒ Not required ☐
98. Operational feed back of such valves supplied elsewhere : Required ☒ Not required ☐
99. Equipment guarantee : Required ☒ Not required ☐
100. System guarantee : Required ☒ Not required ☐
101. Service contract for 5 Years : - To quote seperately
102. Commissioning of the valves : Required ☐ Not required ☒

NOTES:

1. * DENOTES BIDDER TO SPECIFY
2. \$ AS PER TENDER SPECIFICATION
3. # AFTER INSPECTION, SMART POSITIONER TO BE PACKED SEPARATELY ALONG WITH THE CONTROL VALVE AND MOUNTING ACCESSORIES. THE SAME WILL BE OPENED AND INSTALLED ONLY DURING COMMISSIONING.

03.05.2016	E.KRITHIGA	C.SARAVANAN	R.PRABA	DRG. NO:	4-00-306-40459	REV
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CONTROL VALVE SPECIFICATION SHEET

(IN ACCORDANCE WITH I.S.A. FORM S20.51)

PROJECT:

NTPC-NABINAGAR STPP, STAGE-I, UNIT NO.1,2&3(3X660 MW) CUST.No: 7200,7201&7202

GENERAL: THIS IS TO BE READ ALONG WITH TECHNICAL SPECIFICATION PC: TSP: APRDS: NABINAGAR

1. Valve tag No. AS-22(LBG21 AA101)
2. Service : Low capacity Pressure Control valve
3. Line No./Vessel No. :
4. Qty. required per unit : 1 No.

5. Manufacturer : *
6. Model No. : *
7. Rating : ASME CL. 600
8. Total Qty Required : 3 Nos.

BODY:

9. Type : Thru ☒ 3 Way ☐
Z type ☐ Angle ☐

10. Form : Globe ☒ Ball ☐
Butterfly ☐

11. Size : *

12. Port Size : *

13. Connecting pipe size : Inlet : OD 168.3X10.97(Gr.C)
Outlet : OD 273X12.7(Gr.C)

14. Body rating : ASME CL. 600

16. Bonnet type : Standard ☐ Finned ☒
Extended ☒ Pr. seal ☐

17. Material : Body : ASTM A217 Gr.WC9/SA182F22
Packing: GRAFOIL
Bolting : *

18. Flow direction : HORIZONTAL

19. Suitable matching piece of material P11/F11 to match with size specified shall be offered.

15. Type of end connections : Screwed ☐ BW ☒ SW ☐
NPI ☐ BSPT ☐ BS ☐
Flanged ☐
ANSI ☐ DIN ☐

Edge Preparation as per BPS. Inlet: STY.'D', d1=147.4mm; Outlet: STY.'D', d1=248.0mm

TRIM:

20. No. of ports : *
21. Type : Balanced ☒ Unbalanced ☐
22. Plug characteristics: ~~L/LV/EP~~ / ~~MODIFIED EP~~
23. Guiding : Cage ☒ Port ☐ Top ☐
Bottom ☐

24. Stem material :
25. Plug material :
26. Seat material :
27. Disc material :
28. stem guide material :
29. --
- 440C or EQUIVALENT

ACTUATOR:

30. Type : Electric
Hydraulic ☐ Pneumatic ☒
31. Size : * ☐ DA/RA(Air To Close)
32. Supply : 5-8 Kg/cm²
Shut off Pressure: 8 Kg/cm²
33. Failsafe position : Stayput ☒
of valve. Full Close ☐ Full Open ☐

34. Diaphragm/Cylinder pressure at
Valve full open : *
Valve full close : *
35. Force required for process &
Force available at actuator. : *
36. Actuator sizing ΔP : *
37. If actuator electric fill in
data sheet as per annexure : NAPL
furnished and shall comply
with annexure-I specification.

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DRG. NO:

4-00-306-40464

REV

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POSITIONER:

38. Type : Pneumatic ☐ Electronic ☐
DA/RA Electro Pneumatic (SMART WITH FAIL FREEZE FACILITY)# ☒

39. If Electronic : Type :
Model : Solid plate deversing contactors
Main contactor : Solid state thyristor: ☐
Relay Switching : ☐
Also refer annexure – II

position indicator reqd. for Valve & VCB

40. If Pneumatic : Type : *
Model : *
Split range : Yes ☐ No ☐
Controller Input & Output Signal Value } : 4-20 mA
Air supply : 45 PSIG
Input/Output Pr. guage :
Required : Yes ☐ No ☐
By pass provision : Yes ☐ No ☐
Action : Direct ☐ Reverse ☐ Both ☐
Cam : =% ☐ Linear ☐ Both ☐

ACCESSORIES:

41. Handwheel : Yes ☒ Side ☒ Top ☐

42. Air filter : Yes ☒ No ☐
Filter Size : 5 Micron ☒ 25 Micron ☐

43. Limit Switches : Yes ☒ No ☐
Qty. : 1 at full open &
: 1 at full close
Rating : 240v. 5Amp. ac
No of contacts per switch : 2No + 2NC

44. Solenoid valve to effect
Stayput : Yes ☒ No ☐
Type : 3 Way universal: Yes ☒ No ☐
Rating : 24V DC 2 wire
Class H coil : Yes ☒ No ☐

45. Vol. booster : Yes ☐ No ☒

46. Travel time : < 10 sec

47. Installation : Indoor ☐ Outdoor ☒

48. All accessories enclosure : IP65^{\$}

49. Isolated Position transmitter : Yes ☐ No ☒

Type : Pneumatic : ☐ Electronic Non contact type ☐

Rating : 2 wire 24V DC: ☐ ☐

Output : 4–20 ma : ☐ 3–15 paig ☐

50. Torque Switches : Yes ☐ No ☒

Qty. : ☐

Rating : ☐

51. Air lock : Yes ☒ No ☐

Function : TO EFFECT STAYPUT

Type * : 3 Way single acting ☐

: 3 Way double acting ☐

52. Ambience : Dusty corrosive ☒

Toxic hazardous : ☐ ☐

53.1. Local position Indicator : Required.

53.2. Integral JB : 36 Way JB required

53.3. All electrical terminating : plug & socket type

MISCELLANEOUS:

54. Seat leakage : FCI 70.2 ☒ CLASS IV[®]
I.S.A : ☐

55. Approx. weight (total) : ✖

56. Space requirements for
online servicing : ✖

57. Valve sizing as per ISA 75.01 : Yes ☒ No ☐

58. Noise Level : Less than 85 DBA at 1m
from Valve & Piping System. The noise
abatement shall be by trim design & not
by use of silencers/thermal insulation

59. Hookup Diagram : As per Enclosed.

60. Performance Data
Linearity : $\pm 1\%$ Hysterisis : $\pm 0.5\%$
Sensitivity : $\pm 0.5\%$ Accuracy (overall) : $\pm 2\%$

VALVE SIZING DATA:

61. Medium :	SH Steam	<input checked="" type="checkbox"/>	Sat. Steam	<input type="checkbox"/>
	Water	<input type="checkbox"/>		
62. Flow rate in			T/Hr	
63. Operating inlet pressure in			Kg/cm ² (a)	
64. Operating inlet temperature in			°C	
65. Outlet pressure in			Kg/cm ² (a)	
66. Viscosity		:	--	
67. Operating (required)	Cv			
68. Operating noise level at	1.0 metre from valve			
69. Outlet velocity	surface			

CONDITION				
1	2	3	4	5
<p>REFER DRAWING No.</p> <p>4-00-306-40457</p> <p>FOR VALVE SIZING DATA</p>				
REFER STANDARD TABLE				
<85	dba	(for all conditions)		

04.05.16	E.KRITHIGA	C.SARAVANAN	R.PRABA
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70. Design Pressure Kg/cm²(g) : 73.1 Kg/Cm² (g)

71. Design Temperature °C : 378 °C

72. Rated/Design/Selected Cv of valve : *

73. Velocity restriction : *

74. Operating lift restriction : 10 to 80 % .
(The valve stem travel range from min. flow to max.flow cond. shall not be < 50% of total stem travel)

75.	lift at various operating		
	Conditions 1 TO 6	:	*
76.	Down stream limitations	:	*
77.	Up stream limitations	:	*
78.	Increase in signal Air	:	To open the Valve

79.	Hydraulic test report	:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
80.	Radiography : Critical Parts	:		<input checked="" type="checkbox"/>	Total	<input type="checkbox"/>
	Not required	:		<input type="checkbox"/>		<input type="checkbox"/>
81.	IBR test report : Req'd.	:		<input checked="" type="checkbox"/>		<input type="checkbox"/>
82.	Type test : *					
	Cv test as per ISA 75.02	:	Required.			
83.	Valve functional test	:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>

* Type test to be done atleast for one no on this consignment.

84.	Accessories functional	:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
	Test	:				
85.	Seat leakage test	:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
85a.	Actuator leak test	:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
86.	Material test report	:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
87.	Customer Inspection	:				
	In process	:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
	Final	:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
88.	Third Party inspection	:	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>

89.	With bid. (3 sets)			
	Catalogues	: Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
	Dimensional drawing	: Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
	All data sheets	: Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
	Recommendation /			
	Limitation	: Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
	Confirmatory report	: Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
	Contrary report	: Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
	Deviation report	: Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
90.	Quality plan	: Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>

91. With equipment :
 Dimensional drawing : 15 Sets + 1 CD
 O & M : 15 Sets + 1 CD
 Data Sheets : 15 Sets + 1 CD
 Test certificate : 03 Sets + 1 CD

92. Valve sizing, actuator sizing,
 noise level calculations required
 with bid(with formulae) : Yes ☒ No ☐

93. --

94. Commissioning spares : *

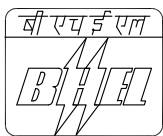
95. Mandatory spares : As per specification

96. 2/3 Years maintenance spares : *

97.	Bidders experience list	:	Required	<input checked="" type="checkbox"/>	Not required	<input type="checkbox"/>
98.	Operational feed back of such valves supplied elsewhere	:	Required	<input checked="" type="checkbox"/>	Not required	<input type="checkbox"/>
99.	Equipment guarantee	:	Required	<input checked="" type="checkbox"/>	Not required	<input type="checkbox"/>
100.	System guarantee	:	Required	<input checked="" type="checkbox"/>	Not required	<input type="checkbox"/>
101.	<u>Service contract for 5 Years : – To quote seperately</u>					
102.	Commissioning of the valves	:	Required	<input type="checkbox"/>	Not required	<input checked="" type="checkbox"/>

1. * DENOTES BIDDER TO SPECIFY
2. \$ AS PER TENDER SPECIFICATION
3. # AFTER INSPECTION, SMART POSITIONER TO BE PACKED SEPARATELY ALONG WITH THE CONTROL VALVE AND MOUNTING ACCESSORIES. THE SAME WILL BE OPENED AND INSTALLED ONLY DURING COMMISSIONING.

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CONTROL VALVE SPECIFICATION SHEET

(IN ACCORDANCE WITH I.S.A. FORM S20.51)

PROJECT:

NTPC-NABINAGAR STPP, STAGE-I, UNIT NO.1,2&3(3X660 MW) CUST.No: 7200,7201&7202

GENERAL: THIS IS TO BE READ ALONG WITH TECHNICAL SPECIFICATION PC: TSP: APRDS: NABINAGAR

1. Valve tag No. FD-01(LAF10 AA101)
2. Service : Common
Spray Block valve
3. Line No./Vessel No. :
4. Qty. required per unit : 1 No.

5. Manufacturer : *
6. Model No. : *
7. Rating : ASME CL.300
8. Total Qty Required : 3 Nos.

BODY:

9. Type : Thru ☒ 3 Way ☐
Z type ☐ Angle ☐
☐
10. Form : Globe ☒ Ball ☐
Butterfly ☐ ☐
11. Size : *
12. Port Size : *
13. Connecting pipe size : Inlet : OD 88.9X7.62(Gr.C)
Outlet : OD 88.9X7.62(Gr.C)
14. Body rating : ASME CL.300

16. Bonnet type : Standard ☒ Finned ☐
Extended ☐ Pr. seal ☐
☐
17. Material : Body : A216 Gr.WCB/SA105
Packing: GRAFOIL
Bolting : *
18. Flow direction : HORIZONTAL
19. Suitable matching pieces to match with pipe size specified shall be offered.

15. Type of end connections : Screwed ☐ BW ☒ SW ☐
NPI ☐ BSPT ☐ BS ☐
Flanged ☐ ☐
ANSI ☐ DIN ☐

Edge Preparation as per BPS. STY.'D', d1=73.7mm

TRIM:

20. No. of ports : *
21. Type : Balanced ☒ Unbalanced ☐
22. Plug characteristics: QUICK OPENING
23. Guiding : Cage ☒ Port ☐ Top ☐
Bottom ☐

24. Stem material :
25. Plug material :
26. Seat material : 316SS stellited with stellite
27. Disc material : faced guide posts and bushings or equivalent
28. stem guide material :
29. --

ACTUATOR:

30. Type : Electric ☐ Pneumatic ☒
Hydraulic ☐ DA/RA(Air To Close)
31. Size : *
32. Supply : 5-8 Kg/cm²
Shut off Pressure : 8 Kg/cm²
33. Failsafe position : Stayput ☒
of valve. Full Close ☐ Full Open ☐

34. Diaphragm/Cylinder pressure at
Valve full open : *
Valve full close :
35. Force required for process &
Force available at actuator. : *
36. Actuator sizing ΔP : *
37. If actuator electric fill in
data sheet as per annexure : NAPL
furnished and shall comply
with annexure-I specification.

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38. Type : Pneumatic ☐ Electronic ☐
 DA/RA ☐ Electro Pneumatic ☐
 39. If Electronic : Type :
 Model : Solid plate deversing
 Main contactor : Solid state thyristor: ☐
 Relay Switching : ☐
 Also refer annexure – II
 position indicator reqd. for Valve & VCB

40. If Pneumatic :- Type : *
Model : *

Split range : Yes ☐ No ☐

Controller Input & Output Signal Value } : 4-20 mA

Air supply : 45 PSIG

Input/Output Pr. guage :

Required : Yes ☐ No ☐

By pass provision : Yes ☐ No ☐

Action : Direct ☐ Reverse ☐ Both ☐

Cam : =% ☐ Linear ☐ Both ☐

41. Handwheel : Yes ☒ Side ☒ Top ☐

42. Air filter : Yes ☒ No ☐
Filter Size : 5 Micron ☒ 25 Micron ☐

43. Limit Switches : Yes ☒ No ☐
Qty. : 1 at full open &
: 1 at full close
Rating : 240v. 5Amp. ac
No of contacts per switch : 2No + 2NC

44. Solenoid valve as pilot device
Stayput : Yes ☐ No ☐
Type : 4 Way Dual coil Universal: Yes ☒ No ☐
Rating : 24V DC 2 wire
Class H coil : Yes ☒ No ☐

45. Vol. booster : Yes ☐ No ☒

46. Travel time : < 10 Sec.

47. Installation : Indoor ☐ Outdoor ☒

48. All accessories enclosure : IP65\$

49.	Position transmitter	: Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
	Type	:	<input type="checkbox"/>	Electronic Non contact type	<input type="checkbox"/>
	Rating	:	<input type="checkbox"/>	2 wire 24V DC:	<input type="checkbox"/>
	Output	:	<input type="checkbox"/>	4-20 ma	<input type="checkbox"/>
50.	Torque Switches	: Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
	Qty.	:			
	Rating	:			
51.	Air lock	: Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
	Function	:	TO EFFECT STAYPUT		
	Type *	:	3 Way single acting		<input type="checkbox"/>
		:	3 Way double acting		<input type="checkbox"/>
52.	Ambience	:	Dusty corrosive		<input checked="" type="checkbox"/>
	Toxic hazardous	:	<input type="checkbox"/>		<input type="checkbox"/>
53.1.	Local position Indicator:	Required.			
53.2.	I/P converter with A/F regulator	:	Not Required		
53.3	Integral JB	:	36 Way JB required		
53.4	All electrical terminating	:	plug & socket type		

54. Seat leakage : ASME FCI/RP 70.2 ☒ CLASS IV¹
I.S.A : ☐ ☐

55. Approx. weight (total) : ✖

56. Space requirements for : ✖
online servicing

57. Valve sizing as per ISA 75.01 : Yes ☒ No ☐

58. Noise Level : Less than 85 DBA at 1m
from Valve & Piping System. The noise
abatement shall be by trim design & not
by use of silencers/thermal insulation

59. Hookup Diagram : As per Enclosed.

60. Performance Data
Linearity : $\pm 1\%$ Hysterisis : $\pm 0.5\%$
Sensitivity : $\pm 0.5\%$ Accuracy (overall) : $\pm 2\%$

61. Medium :	SH Steam	<input type="checkbox"/>	Sat. Steam	<input type="checkbox"/>
	Water	<input checked="" type="checkbox"/>		
62. Flow rate in			T/Hr	
63. Operating inlet pressure in			Kg/cm ² (a)	
64. Operating inlet temperature in			°C	
65. Outlet pressure in			Kg/cm ² (a)	
66. Viscosity		:	--	
67. Operating (required)	Cv			
68. Operating noise level at	1.0 metre from valve			
69. Outlet velocity	surface			

CONDITION				
1	2	3	4	5
REFER DRAWING No. 4-00-306-40458 AND 4-00-306-40460 FOR VALVE SIZING DATA				
REFER STANDARD TABLE				
<85	dba	(for all conditions)		

04.05.2016	E.KRITHIGA	C.SARAVANAN	R.PRABA
DATE	PREPARED	APPD	APPD /C&I

4-00-306-40465

00

70. Design Pressure Kg/cm²(g) : 46 Kg/Cm²(g)

71. Design Temperature °C : 95

72. Rated/Design/Selected Cv of valve : *

73. Velocity restriction : *

74. Operating lift restriction : —

75.	lift at various operating		
	Conditions 1 TO 6	:	*
76.	Down stream limitations	:	*
77.	Up stream limitations	:	*
78.	Increase in signal Air	:	To open the Valve

79.	Hydraulic test report	:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
80.	Radiography : Critical Parts	:		<input checked="" type="checkbox"/>	Total	<input type="checkbox"/>
	Not required	:		<input type="checkbox"/>		<input type="checkbox"/>
81.	IBR test report : Req'd.	:		<input checked="" type="checkbox"/>		<input type="checkbox"/>
82.	Type test : *					
	Cv test as per ISA 75.02	:	Required.			
83.	Valve functional test	:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>

* Type test to be done atleast for one no on this consignment.

84.	Accessories functional	:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
	Test	:				
85.	Seat leakage test	:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
85a.	Actuator leak test	:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
86.	Material test report	:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
87.	Customer Inspection	:				
	In process	:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
	Final	:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
88.	Third Party inspection	:	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>

89.	With bid. (3 sets)			
	Catalogues	: Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
	Dimensional drawing	: Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
	All data sheets	: Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
	Recommendation /			
	Limitation	: Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
	Confirmatory report	: Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
	Contrary report	: Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
	Deviation report	: Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>
90.	Quality plan	: Yes	<input checked="" type="checkbox"/>	No <input type="checkbox"/>

91. With equipment :
 Dimensional drawing : 15 Sets + 1 CD
 O & M : 15 Sets + 1 CD
 Data Sheets : 15 Sets + 1 CD
 Test certificate : 03 Sets + 1 CD

92. Valve sizing, actuator sizing,
 noise level calculations required
 with bid(with formulae) : Yes ☒ No ☐

93. --

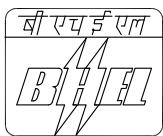
94. Commissioning spares	:	*
95. Mandatory spares	:	As per specification

96. 2/3 Years maintenance spares : *

97.	Bidders experience list	:	Required	<input checked="" type="checkbox"/>	Not required	<input type="checkbox"/>
98.	Operational feed back of such valves supplied elsewhere	:	Required	<input checked="" type="checkbox"/>	Not required	<input type="checkbox"/>
99.	Equipment guarantee	:	Required	<input checked="" type="checkbox"/>	Not required	<input type="checkbox"/>
100.	System guarantee	:	Required	<input checked="" type="checkbox"/>	Not required	<input type="checkbox"/>
101.	<u>Service contract for 5 Years : – To quote seperately</u>					
102.	Commissioning of the valves	:	Required	<input type="checkbox"/>	Not required	<input checked="" type="checkbox"/>

1. * DENOTES BIDDER TO SPECIFY
2. \$ AS PER TENDER SPECIFICATION
3. # AFTER INSPECTION, SMART POSITIONER TO BE PACKED SEPARATELY ALONG WITH THE CONTROL VALVE AND MOUNTING ACCESSORIES. THE SAME WILL BE OPENED AND INSTALLED ONLY DURING COMMISSIONING.

04.05.2016	E.KRITHIGA	C.SARAVANAN	R.PRABA	DRG. NO: 4-00-306-40465	REV 00
DATE	PREPARED	APPD	APPD/C&I		



CONTROL VALVE SPECIFICATION SHEET

(IN ACCORDANCE WITH I.S.A. FORM S20.51)

PROJECT:

NTPC-NABINAGAR STPP, STAGE-I, UNIT NO.1,2&3(3X660 MW) CUST.No: 7200,7201&7202

GENERAL: THIS IS TO BE READ ALONG WITH TECHNICAL SPECIFICATION PC: TSP: APRDS: NABINAGAR

1. Valve tag No. : FD-03(LAF20 AA102) & FD-07(LAF21 AA101)
2. Service : High capacity Spray Control valve
3. Line No./Vessel No. :
4. Qty. required per unit : 2 Nos.(1 No. in each tag)

5. Manufacturer : *
6. Model No. : *
7. Rating : ASME CL. 300
8. Total Qty Required : 6 Nos.

BODY:

9. Type : Thru ☒ 3 Way ☐
Z type ☐ Angle ☐
☐
10. Form : Globe ☒ Ball ☐
Butterfly ☐ ☐
11. Size : *
12. Port Size : *
13. Connecting pipe size : Inlet : OD 88.9X7.62(Gr.C)
Outlet : OD 88.9X7.62(Gr.C)
14. Body rating : ASME CL.300

16. Bonnet type : Standard ☒ Finned ☐
Extended ☐ Pr. seal ☐
☐

17. Material : Body : A216Gr.WCB/SA105
Packing: GRAFOIL
Bolting : *
18. Flow direction : HORIZONTAL
19. Suitable matching pieces to match with pipe/bold size specified shall be offered.

15. Type of end connections : Screwed ☐ BW ☒ SW ☐
NPI ☐ BSPT ☐ BS ☐
Flanged ☐ ☐ ☐
ANSI ☐ DIN ☐

Edge Preparation as per BPS. STY.'D', d1=73.7mm

TRIM: MULTI STAGE, LOW RECOVERY / *

20. No. of ports : *
21. Type : Balanced ☒ Unbalanced ☐
22. Plug characteristics: ~~L/LV/EP~~ / ~~MODIFIED EP~~
23. Guiding : Cage ☒ Port ☐ Top ☐
Bottom ☐

24. Stem material :
 25. Plug material :
 26. Seat material :
 27. Disc material :
 28. stem guide material :
 29. --
- 316SS stellited with stellite
faced guide posts and
bushings or equivalent

ACTUATOR:

30. Type : Electric ☐ Pneumatic ☒
Hydraulic ☐ DA/RA(Air To Close)
31. Size : *
32. Supply : 5-8 Kg/cm²
Shut off Pressure : 8 Kg/cm²
33. Failsafe position : Stayput ☒
of valve. Full Close ☐ Full Open ☐

34. Diaphragm/Cylinder pressure at
Valve full open : *
Valve full close :
35. Force required for process &
Force available at actuator. : *
36. Actuator sizing ΔP : *
37. If actuator electric fill in
data sheet as per annexure : NAPL
furnished and shall comply
with annexure-I specification.

00	04.05.2016	FRESH ISSUE	E.KRITHIGA	C.SARAVANAN	R.PRABA
REV	DATE	ALTERATION	PREPARED	APPD.	APPD/C&I

DRG. NO:

4-00-306-40467

REV

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38. Type : Pneumatic ☐ Electronic ☐
 DA/RA ☐ Electro Pneumatic (SMART WITH FAIL FREE FACILITY)# ☒

39. If Electronic : Type :
 Model : Solid plate deversing contactors

Main contactor : Solid state thyristor: ☐

Relay Switching : ☐

Also refer annexure – II

position indicator reqd. for Valve & VCB

40. If Pneumatic : Type : *

Model : *

Split range : Yes ☐ No ☐

Controller Input & Output Signal Value } : 4-20 mA

Air supply : 45 PSIG

Input/Output Pr. guage :

Required : Yes ☐ No ☐

By pass provision : Yes ☐ No ☐

Action : Direct ☐ Reverse ☐ Both ☐

Cam : =% ☐ Linear ☐ Both ☐

41. Handwheel : Yes ☒ Side ☒ Top ☐

42. Air filter : Yes ☒ No ☐
Filter Size : 5 Micron ☒ 25 Micron ☐

43. Limit Switches : Yes ☒ No ☐
Qty. : 1 at full open &
: 1 at full close
Rating : 240v. 5Amp. ac
No of contacts per switch : 2No + 2NC

44. Solenoid valve to effect
Stayput : Yes ☒ No ☐
Type : 3 Way universal: Yes ☒ No ☐
Rating : 24V DC 2 wire
Class H coil : Yes ☒ No ☐

45. Vol. booster : Yes ☐ No ☒

46. Travel time : < 10 sec

47. Installation : Indoor ☐ Outdoor ☒

48. All accessories enclosure : IP65 ^{\$}

49.	Isolated Position	transmitter : Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
	Type	: Pnuematic	<input type="checkbox"/>	Electronic Non contact type	<input type="checkbox"/>
	Rating	: 2 wire 24V DC:	<input type="checkbox"/>		<input type="checkbox"/>
	Output	: 4-20 ma	<input type="checkbox"/>	3-15 paig	<input type="checkbox"/>
50.	Torque Switches	: Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
	Qty.	:			
	Rating	:			
51.	Air lock	: Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
	Function	: TO EFFECT STAYPUT			
	Type	: 3 Way single acting	<input type="checkbox"/>		
		: 3 Way double acting	<input type="checkbox"/>		
52.	Ambience	: Dusty corrosive	<input checked="" type="checkbox"/>		
	Toxic hazardous	:	<input type="checkbox"/>		<input type="checkbox"/>
53.1.	Local position Indicator:	Required.			
53.2.	Integral JB	: 36 Way JB required			
53.3.	All electrical terminating :	plug & socket type			

54.	Seat leakage : FCI 70.2	class	<input checked="" type="checkbox"/>	CLASS IV
	I.S.A :		<input type="checkbox"/>	<input type="checkbox"/>
55.	Approx. weight (total)	:	✖	
56.	Space requirements for online servicing	:	✖	

57. Valve sizing as per ISA 75.01 : Yes ☒ No ☐

58. Noise Level : Less than 85 DBA at 1m
from Valve & Piping System. The noise
abatement shall be by trim design & not
by use of silencers/thermal insulation

59. Hookup Diagram : As per Enclosed.

60. Performance Data
Linearity : $\pm 1\%$ Hysterisis : $\pm 0.5\%$
Sensitivity : $\pm 0.5\%$ Accuracy (overall) : $\pm 2\%$

61. Medium :	SH Steam	<input type="checkbox"/>	Sat. Steam	<input type="checkbox"/>
	Water	<input checked="" type="checkbox"/>		
62. Flow rate in			T/Hr	
63. Operating inlet pressure in			Kg/cm ² (a)	
64. Operating inlet temperature in			°C	
65. Outlet pressure in			Kg/cm ² (a)	
66. Viscosity		:	--	
67. Operating (required) Cv				
68. Operating noise level at 1.0 metre from valve				
69. Outlet velocity				surface

CONDITION				
1	2	3	4	5
REFER DRAWING No. 4-00-306-40460 FOR VALVE SIZING DATA				
REFER STANDARD TABLE				
<85	dba	(for all conditions)		

04.05.2016	E.KRITHIGA	C.SARAVANAN	R.PRABA
DATE	PREPARED	APPD.	APPD /C&I

DRG. NO:	REV
4-00-306-40467	00

DESIGN DATA:

70. Design Pressure Kg/cm²(g) : 46 Kg/Cm² (g)
71. Design Temperature °C : 95 °C
72. Rated/Design/Selected Cv of valve : *
73. Velocity restriction : *
74. Operating lift restriction : 10 to 80 %^{\$}.
(The valve stem travel range from min. flow to max.flow cond. shall not be < 50% of total stem travel)
75. lift at various operating Conditions 1 TO 6 : *
76. Down stream limitations : *
77. Up stream limitations : *
78. Increase in signal Air : To open the Valve

TESTING/INSPECTION:

79. Hydraulic test report : Yes ☒ No ☐
80. Radiography : Critical Parts : ☒ Total ☐
Not required : ☐ ☐
81. IBR test report : Req'd. : ☒ ☐
82. Type test : *
Cv test as per ISA 75.02 : Required.
83. Valve functional test : Yes ☒ No ☐
* Type test to be done atleast for one no on this consignment.
84. Accessories functional : Yes ☒ No ☐
Test :
85. Seat leakage test : Yes ☒ No ☐
- 85a. Actuator leak test : Yes ☒ No ☐
86. Material test report : Yes ☒ No ☐
87. Customer Inspection :
In process : Yes ☒ No ☐
Final : Yes ☒ No ☐
88. Third Party inspection : Yes ☐ No ☐

DOCUMENTATION: (Required)

89. With bid. (3 sets)
Catalogues : Yes ☒ No ☐
Dimensional drawing : Yes ☒ No ☐
All data sheets : Yes ☒ No ☐
Recommendation / Limitation : Yes ☒ No ☐
Confirmatory report : Yes ☒ No ☐
Contrary report : Yes ☒ No ☐
Deviation report : Yes ☒ No ☐
90. Quality plan : Yes ☒ No ☐
91. With equipment :
Dimensional drawing : 15 Sets + 1 CD
O & M : 15 Sets + 1 CD
Data Sheets : 15 Sets + 1 CD
Test certificate : 03 Sets + 1 CD
92. Valve sizing, actuator sizing, Cavitation check, noise level calculations required with bid(with formulae) : Yes ☒ No ☐
93. --

SPARES:

94. Commissioning spares : *
95. Mandatory spares : As per specification
96. 2/3 Years maintenance spares : *

OTHERS:

97. Bidders experience list : Required ☒ Not required ☐
98. Operational feed back of such valves supplied elsewhere : Required ☒ Not required ☐
99. Equipment guarantee : Required ☒ Not required ☐
100. System guarantee : Required ☒ Not required ☐
101. Service contract for 5 Years : - To quote seperately
102. Commissioning of the valves : Required ☐ Not required ☒

NOTES:

1. * DENOTES BIDDER TO SPECIFY
2. \$ AS PER TENDER SPECIFICATION
3. # AFTER INSPECTION, SMART POSITIONER TO BE PACKED SEPARATELY ALONG WITH THE CONTROL VALVE AND MOUNTING ACCESSORIES. THE SAME WILL BE OPENED AND INSTALLED ONLY DURING COMMISSIONING.

04.05.2016	E.KRITHIGA	C.SARAVANAN	R.PRABA	DRG. NO:	4-00-306-40467	REV
DATE	PREPARED	APPD.	APPD/C&I			00



CONTROL VALVE SPECIFICATION SHEET

(IN ACCORDANCE WITH I.S.A. FORM S20.51)

PROJECT:

NTPC-NABINAGAR STPP, STAGE-I, UNIT NO.1,2&3(3X660 MW) CUST.No:7200,7201&7202

GENERAL: THIS IS TO BE READ ALONG WITH TECHNICAL SPECIFICATION PC: TSP: APRDS: NABINAGAR

1. Valve tag No. : FD-12(LAF31 AA101) & FD-16(LAF32 AA101)
2. Service : Low capacity Spray Control valve
3. Line No./Vessel No. :
4. Qty. required per unit : 2 Nos.(1No. in each tag)

5. Manufacturer : *
6. Model No. : *
7. Rating : ASME CI 300
8. Total Qty Required : 6 Nos.

BODY:

9. Type : Thru ☒ 3 Way ☐
Z type ☐ Angle ☐
☐
10. Form : Globe ☒ Ball ☐
Butterfly ☐ ☐
11. Size : *
12. Port Size : *
13. Connecting pipe size : Inlet : OD 60.3 x 5.54
Outlet : OD 60.3 x 5.54
14. Body rating : ASME CI 300

16. Bonnet type : Standard ☒ Finned ☐
Extended ☐ Pr. seal ☐
☐
17. Material : Body : A216Gr.WCB/SA105
Packing: GRAFOIL
Bolting : *
18. Flow direction : HORIZONTAL
19. Suitable matching pieces to match with pipe size specified shall be offered.

15. Type of end connections : Screwed ☐ BW ☐ SW ☒
NPI ☐ BSPT ☐ BS ☐
Flanged ☐ ☐
ANSI ☐ DIN ☐

Edge Preparation as per BPS.

TRIM: MULTI STAGE, LOW RECOVERY /*

20. No. of ports : *
21. Type : Balanced/Unbalanced
22. Plug characteristics: L/LV/EP/MODIFIED EP
23. Guiding : Cage ☒ Port ☐ Top ☐
Bottom ☐

24. Stem material :
 25. Plug material :
 26. Seat material :
 27. Disc material :
 28. stem guide material :
 29. --
- 316SS stellited with stellite faced guide posts and bushings or equivalent

ACTUATOR:

30. Type : Electric ☐ Pneumatic ☒
Hydraulic ☐ DA/RA(Air To Close)
31. Size : *
32. Supply : 5-8 Kg/cm²
Shut off Pressure : 8 Kg/cm²
33. Failsafe position : Stayput ☒
of valve. Full Close ☐ Full Open ☐

34. Diaphragm/Cylinder pressure at
Valve full open : *
Valve full close :
35. Force required for process &
Force available at actuator. : *
36. Actuator sizing ΔP : *
37. If actuator electric fill in
data sheet as per annexure : NAPL
furnished and shall comply
with annexure-I specification.

00	04.05.2016	FRESH ISSUE	E.KRITHIGA	C.SARAVANAN	R.PRABA
REV	DATE	ALTERATION	PREPARED	APPD	APPD/C&I

DRG. NO:

4-00-306-40468

REV

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POSITIONER:

38. Type : Pneumatic ☐ Electronic ☐

DA/RA ☒ Electro Pneumatic (SMART WITH FAIL FREEZE FACILITY)#

39. If Electronic : Type : ☐

Model : Solid plate deversing contactors

Main contactor : Solid state thyristor: ☐

Relay Switching : ☐

Also refer annexure - II

position indicator reqd. for Valve & VCB

40. If Pneumatic : Type : *

Model : *

Split range : Yes ☐ No ☐

Controller Input & Output Signal Value } : 4-20 mA

Air supply : 45 PSIG

Input/Output Pr. guage :

Required : Yes ☐ No ☐

By pass provision : Yes ☐ No ☐

Action : Direct ☐ Reverse ☐ Both ☐

Cam : =% ☐ Linear ☐ Both ☐

ACCESSORIES:

41. Handwheel : Yes ☒ Side ☒ Top ☐

42. Air filter : Yes ☒ No ☐
Filter Size : 5 Micron ☒ 25 Micron ☐

43. Limit Switches : Yes ☒ No ☐
Qty. : 1 at full open &
: 1 at full close
Rating : 240v. 5Amp. ac
No of contacts per switch : 2No + 2NC

44. Solenoid valve as
Stayput : Yes ☒ No ☐
Type : 3 Way universal: Yes ☒ No ☐
Rating : 24V DC 2 wire
Class H coil : Yes ☒ No ☐

45. Vol. booster : Yes ☐ No ☒

46. Travel time : < 10 sec

47. Installation : Indoor ☐ Outdoor ☒

48. All accessories enclosure : IP65\$

49. Isolated Position transmitter : Yes ☐ No ☒

Type : Pneumatic : ☐ Electronic Non contact type ☐

Rating : 2 wire 24V DC: ☐ ☐

Output : 4–20 ma : ☐ 3–15 paig ☐

50. Torque Switches : Yes ☐ No ☒

Qty. : ☐

Rating : ☐

51. Air lock : Yes ☒ No ☐

Function : TO EFFECT STAYPUT

Type * : 3 Way single acting ☐

: 3 Way double acting ☐

52. Ambience : Dusty corrosive ☒

Toxic hazardous : ☐ ☐

53.1. Local position Indicator : Required.

53.2. Integral JB : 36 Way JB required

53.3. All electrical terminating : plug & socket type

MISCELLANEOUS:

54. Seat leakage : FCI 70.2 class ☒ CLASS IV ^④
I.S.A : ☐ ☐

55. Approx. weight (total) : ✖

56. Space requirements for online servicing : ✖

57. Valve sizing as per ISA 75.01 : Yes ☒ No ☐

58. Noise Level : Less than 85 DBA at 1m
from Valve & Piping System. The noise
abatement shall be by trim design & not
by use of silencers/thermal insulation

59. Hookup Diagram : As per Enclosed.

60. Performance Data
Linearity : $\pm 1\%$ Hysterisis : $\pm 0.5\%$
Sensitivity : $\pm 0.5\%$ Accuracy (overall) : $\pm 2\%$

VALVE SIZING DATA:

61. Medium :	SH Steam	<input type="checkbox"/>	Sat. Steam	<input type="checkbox"/>
	Water	<input checked="" type="checkbox"/>		
62. Flow rate in				T/Hr
63. Operating inlet pressure in				Kg/cm ² (a)
64. Operating inlet temperature in				°C
65. Outlet pressure in				Kg/cm ² (a)
66. Viscosity		:	--	
67. Operating (required)	Cv			
68. Operating noise level at	1.0 metre from valve			
69. Outlet velocity				surface

CONDITION				
1	2	3	4	5
REFER DRAWING No. 4-00-306-40458 FOR VALVE SIZING DATA				
REFER STANDARD TABLE				
<85	dba	(for all conditions)		

04.05.2016	E.KRITHIGA	C.SARAVANAN	R.PRABA
DATE	PREPARED	APPD	APPD/C&I

DRG. NO:	4-00-306-40468	REV	00
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DESIGN DATA:70. Design Pressure Kg/cm²(g) : 46 Kg/Cm² (g)

71. Design Temperature °C : 95 °C

72. Rated/Design/Selected Cv of valve : *

73. Velocity restriction : *

74. Operating lift restriction : 10 to 80 %.

(The valve stem travel range from min. flow to max.flow cond. shall not be < 50% of total stem travel)

75. lift at various operating

Conditions 1 TO 6 : *

76. Down stream limitations : *

77. Up stream limitations : *

78. Increase in signal Air : To open the Valve

TESTING/INSPECTION:79. Hydraulic test report : Yes ☒ No ☐80. Radiography : Critical Parts : ☒ Total ☐Not required : ☐ ☐81. IBR test report : Req'd. : ☒ ☐

82. Type test : *

Cv test as per ISA 75.02 : Required.

83. Valve functional test : Yes ☒ No ☐

* Type test to be done atleast for one no on this consignment.

84. Accessories functional : Yes ☒ No ☐

Test :

85. Seat leakage test : Yes ☒ No ☐85a. Actuator leak test : Yes ☒ No ☐86. Material test report : Yes ☒ No ☐

87. Customer Inspection :

In process : Yes ☒ No ☐Final : Yes ☒ No ☐88. Third Party inspection : Yes ☐ No ☐**DOCUMENTATION: (Required)**

89. With bid. (3 sets)

Catalogues : Yes ☒ No ☐Dimensional drawing : Yes ☒ No ☐All data sheets : Yes ☒ No ☐Recommendation /
Limitation : Yes ☒ No ☐Confirmatory report : Yes ☒ No ☐Contrary report : Yes ☒ No ☐Deviation report : Yes ☒ No ☐90. Quality plan : Yes ☒ No ☐

91. With equipment :

Dimensional drawing : 15 Sets + 1 CD

O & M : 15 Sets + 1 CD

Data Sheets : 15 Sets + 1 CD

Test certificate : 03 Sets + 1 CD

92. Valve sizing, actuator sizing, Cavitation check,
noise level calculations requiredwith bid(with formulae) : Yes ☒ No ☐

93. --

SPARES:

94. Commissioning spares : *

95. Mandatory spares : As per specification

96. 2/3 Years maintenance spares : *

OTHERS:97. Bidders experience list : Required ☒ Not required ☐98. Operational feed back of such
valves supplied elsewhere : Required ☒ Not required ☐99. Equipment guarantee : Required ☒ Not required ☐100. System guarantee : Required ☒ Not required ☐

101. Service contract for 5 Years : - To quote separately

102. Commissioning of the valves : Required ☐ Not required ☒**NOTES:**

1. * DENOTES BIDDER TO SPECIFY

2. \$ AS PER TENDER SPECIFICATION

3. # AFTER INSPECTION, SMART POSITIONER TO BE PACKED SEPARATELY ALONG WITH THE CONTROL VALVE AND MOUNTING ACCESSORIES. THE SAME WILL BE OPENED AND INSTALLED ONLY DURING COMMISSIONING.

04.05.2016	E.KRITHIGA	C.SARAVANAN	R.PRABA	DRG. NO:	4-00-306-40468	REV
DATE	PREPARED	APPD	APPD/C&I			00

NTPC
NABINAGAR STPP,STAGE-I,UNIT NO.1,2&3(3X660 MW)

L.T. DESUPERHEATER SPECIFICATION SHEET

01. Designation/Tag No : Auxiliary steam line / DESH – 1
02. Quantity Required per unit : 1 No.
- 02a. Total quantity required for 3 Units : 3 Nos.
03. Turndown ratio : Bidder to specify
04. Material : ASTM A 106 Gr B
05. Inlet connection/Outlet connection } : $\phi 457 \times 9.53\text{mm}$
(Steam side) } $\phi 457 \times 9.53\text{mm}$
06. End connection (Steam side) : Butt Welded
07. Inlet connection (Spray side) : OD 60.3 x 5.54
08. End connection (Spray side) : Butt Welded / Socket Welded
09. Mounting arrangement : Suitable for Horizontal installation(Flow direction is Horizontal).*
10. Minimum straight length required } : Bidder to specify.*
U/S of Desuperheater }
11. Minimum distance required } : Bidder to specify.*
downstream of DESH }
12. Sizing Parameters : Refer Drg. No. 4-00-306-40458
13. Design Pressure : 20 Kg / cm^2 (g)
14. Design Temperature : 350 °C
15. Minimum distance required in D/S } : Bidder to specify.*
of DESH for temp. control sensing }
16. Minimum distance required in D/S } : Bidder to specify.*
of DESH for pressure control sensing }
17. IBR Certification required : Yes
18. Testing/Inspection : As per purchaser approved vendor QP
19. Documents required during offer :

Catalogues, filled up data sheets, Sizing calculations, Turn down ration calculation, Detailed drawing with BOM, Material specifications, Weight, Special requirements such as Liner, Upstream & Downstream straight length, O & M manual. Quality plan indicating various checks for raw material in process & final inspection stage.

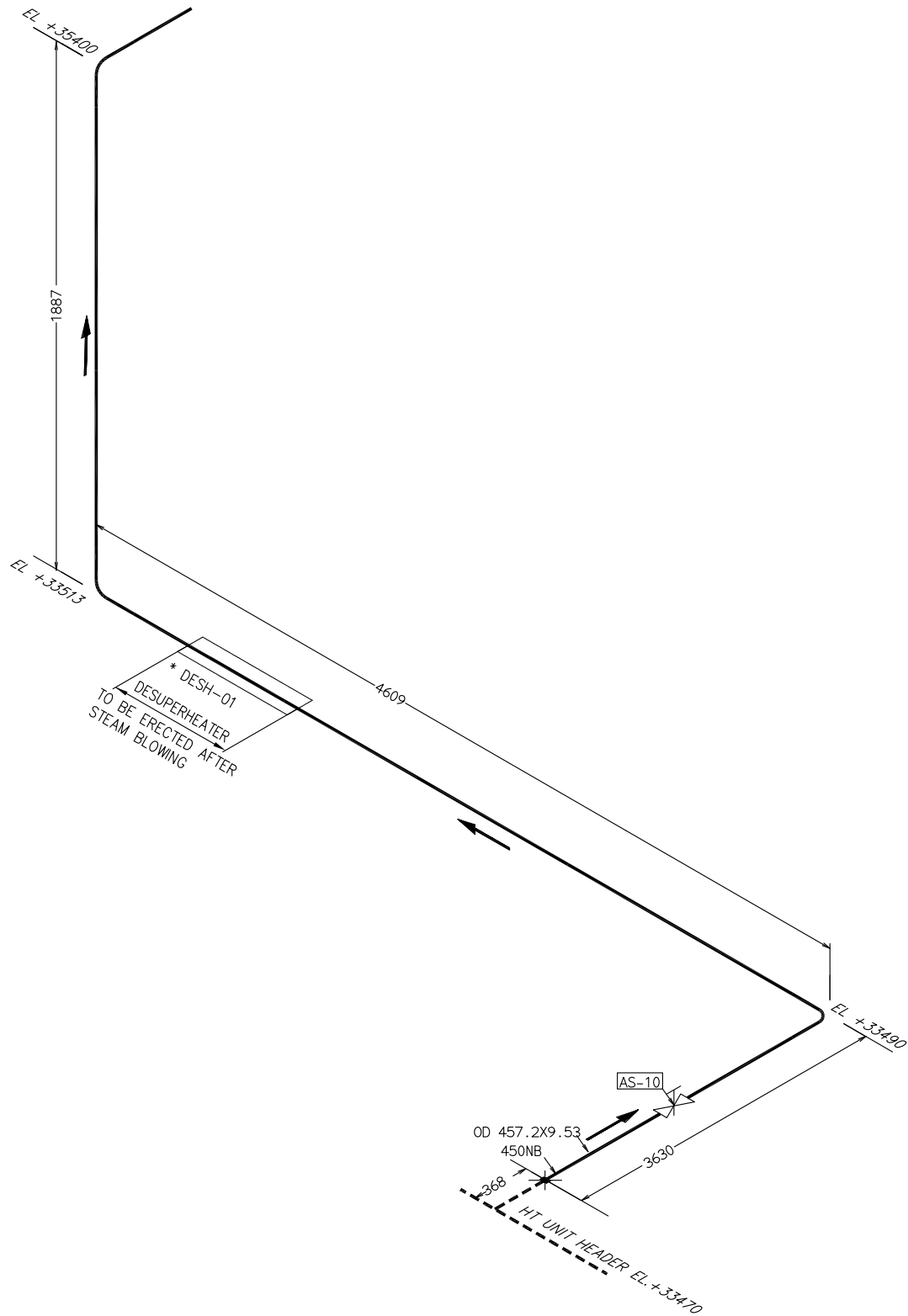
20. Documents required after Placement of Order

Catalogues, Final detailed drawing with BOM, Material } 20 sets plus
specification, Weight,Final sizing, Turn down ratio calculation, } 2 sets on CD
Testcertificates as per QP and O & M manual.

*** Refer attached the actual Layout extract for compliance**

04.05.2016	E.KRITHIGA	C.SARAVANAN	R.PRABA	DRG. NO:	4-00-306-40466	REV
DATE	PREPARED	APPD.	APPD/C&I			00

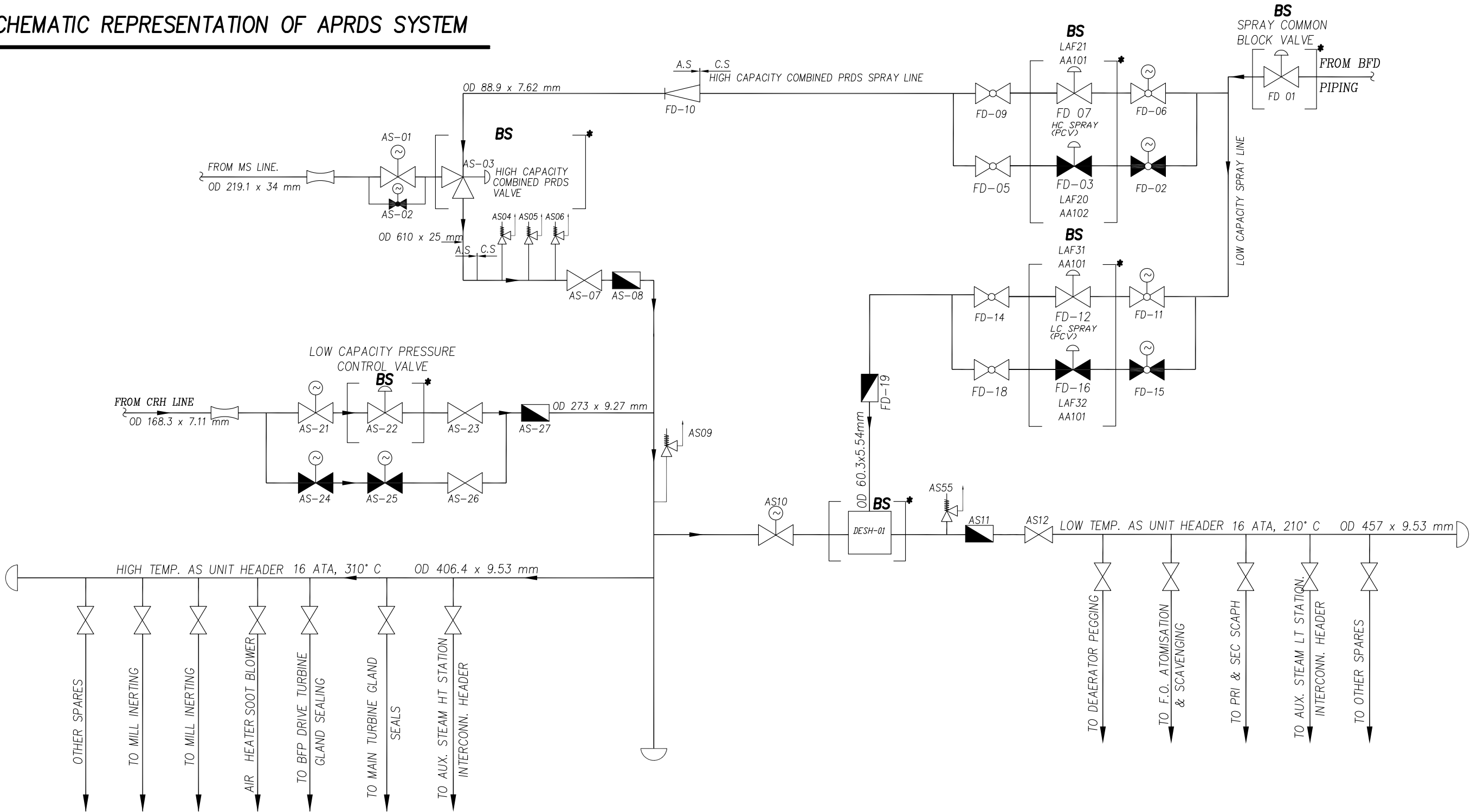
EXTRACT OF LT AUXILIARY STEAM HEADER LAYOUT
(Bidder shall comply selection of LT DESUPERHEATER accordingly)



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3-00-301-31334
DRAWING No

SCHEMATIC REPRESENTATION OF APRDS SYSTEM



BS * BIDDER SCOPE OF SUPPLY

CUST.NO: 7200,7201,7202

NTPC LTD. NABINAGAR STPP; STAGE-I; 3X660MW STEAM GENERATOR PACKAGE			
DRAWN	CHECKED	APPROVED	DATE
E.KRITHIGA	C.SARAVANAN	R.PRABA	04.05.2016
TITLE AUX. PRDS STATION SCHEME		DRAWING No 3-00-301-31334	REV 00



NTPC–NABINAGAR STPP, STAGE–I, UNIT NO.1,2&3(3X660 MW)

STEAM GENERATOR PACKAGE

LOW CAPACITY PRV SIZING DATA (AS–22)

S.No.	MEDIUM : SH STEAM	CONDITION					
		1	2	3			
		CASE 6 @40% LOAD	CASE 6 @100% LOAD	CASE 7 @100% LOAD			
01	STEAM FLOW RATE T/Hr.	38.17	39.41	39.98			
02	STEAM OPERATING INLET PR. Kg/cm ² (a)	24.717	63.587	63.587			
03	STEAM OPERATING INLET TEMP. °C	357.01	352.99	352.99			

04	STEAM OUTLET PRESSURE Kg/cm ² (a)	16 +Δp DSH	16 +Δp DSH	16 +Δp DSH			
05	STEAM OUTLET TEMP. °C	349.27	304.98	304.98			
06	Cv REQUIRED (STEAM)	*	*	*			
07	OPERATING NOISE LEVEL AT 1.0 METRE	*	*	*			
08	OUTLET VELOCITY	*	*	*			

NOTES:— 1. Δp DSH → STEAM SIDE Δp ACROSS L.T.DESUPERHEATER
2. * BIDDER TO SPECIFY

PREPARED	CHECKED	APPROVED	DATE	DRG.No.	4–00–306–40457	SH. 1 OF 1	REV. 00
E.KRITHIGA	C.SARAVANAN	R.PRABA	03.05.16				



CUST. No: 7200,7201&7202

NTPC–NABINAGAR STPP,STAGE–I,UNIT NO.1,2&3(3X660 MW)
STEAM GENERATOR PACKAGE
SIZING DATA FOR LT DESUPERHEATER,FD–01,FD–12 & FD–16

S.No.	MEDIUM : SH STEAM	CONDITION											REMARKS
		1	2	3	4	5	6	7	8	9	10	11	
		CASE 1	CASE 2	CASE 3	CASE 4	CASE 5	CASE 6 @40%	CASE 6 @100%	CASE 7 @100%	CASE 8	CASE 9	CASE 10	
01	STEAM FLOW RATE INLET T/Hr.	115	128	149.95	168.57	170.28	36.17	37.41	43.38	156.28	179.17	37.45	
02	STEAM OPERATING INLET PR. Kg/cm ² (a)	9 +dp DSH	13.5 +dp DSH	16 +dp DSH	16 +dp DSH	16 +dp DSH	16 +dp DSH	16 +dp DSH	16 +dp DSH	16 +dp DSH	16 +dp DSH	16 +dp DSH	
03	STEAM OPERATING INLET TEMP. °C	140.01	192.45	288.38	288.38	310	349.27	304.98	304.98	310	310	310	

S.No.	MEDIUM : SPRAY WATER	CONDITION											REMARKS
		1	2	3	4	5	6	7	8	9	10	11	
		CASE 1	CASE 2	CASE 3	CASE 4	CASE 5	CASE 6 @40%	CASE 6 @100%	CASE 7 @100%	CASE 8	CASE 9	CASE 10	
04	SPRAY FLOW RATE T/Hr.	0	0	11.05	12.43	15.72	4.53	3.29	3.82	14.42	16.53	3.45	
05	SPRAY PR AT BLOCK VALVE INLET .Kg/cm ² (a)	40.48	40.48	40.48	40.48	40.48	36.7	36.7	36.7	36.7	36.7	36.7	
06	SPRAY INLET TEMP. °C	47.40	47.40	47.40	47.40	47.40	46.9	46.9	46.9	46.9	46.9	46.9	

07	STEAM OUTLET FLOW RATE T/Hr.	115	128	161	181	186	40.7	40.7	47.2	170.7	195.7	40.90	
08	STEAM OUTLET PRESSURE Kg/cm ² (a)	9	13.5	16	16	16	16	16	16	16	16	16	
09	STEAM OUTLET TEMP. °C	140.01	192.45	210	210	210	210	210	210	210	210	210	

NOTES: –

1. dp DSH → STEAM SIDE dp ACROSS L.T.DESUPERHEATER
2. PRESSURE INDICATED ARE AT INLET OF SPRAY BLOCK VALVE.
3. THE PRESSURE DROP FROM INLET OF BLOCK VALVE (FD–01) TO BE SUITABLY APPORTIONED BETWEEN SPRAY BLOCK VALVE FD 01, FD–12, FD–16 & DESH–01(LT DESUPERHEATER.)
4. THE OUTLET PRESSURE OF FD–12 SHALL CORRESPONDS TO SPRAY INLET PRESSURE OF DESH–01 (LT DESUPERHEATER.)
5. THIS TO BE READ IN CONJUNCTION WITH DRG. 4–00–306–40465 FOR ADDITIONAL DATA FOR BLOCK VALVE SIZING FD 01.

PREPARED	CHECKED	APPROVED	DATE	DRG.No.	4–00–306–40458	SH. 1 OF 1	REV. 00
E.KRITHIGA	C.SARAVANAN	PRABA	03.05.16				



CUST. No: 7200,7201 & 7202

NTPC–NABINAGAR STPP,STAGE–I,UNIT NO.1,2&3(3X660 MW)
STEAM GENERATOR PACKAGE
COMBINED PRDS VALVE SIZING DATA (AS–03)

S.No.	MEDIUM : SH STEAM	CONDITION								
		1	2	3	4	5	6	7	8	9
		CASE 1	CASE 2	CASE 3	CASE 4	CASE 5	CASE 7	CASE 8	CASE 9	CASE 10
01	STEAM FLOW RATE INLET T/Hr.	150	167.51	203.08	200.7	209.26	27.21	211.76	232.3	235.07
02	STEAM OPERATING INLET PR. Kg/cm ² (a)	10	15	105	105	105	256	256	256	256
03	STEAM OPERATING INLET TEMP. °C	140	195	375	375	455	568	568	568	568

S.No.	MEDIUM : SPRAY WATER	CONDITION								
		1	2	3	4	5	6	7	8	9
		CASE 1	CASE 2	CASE 3	CASE 4	CASE 5	CASE 7	CASE 8	CASE 9	CASE 10
04	SPRAY WATER FLOW RATE T/Hr.	0	0	0	0	14.15	3.17	24.66	27.04	27.37
05	SPRAY WATER OPERATING PR. AT BLOCK VALVE INLET Kg/cm ² (a)	40.48	40.48	40.48	40.48	40.48	36.7	36.7	36.7	36.7
06	SPRAY WATER OPERATING INLET TEMP. °C	47.40	47.40	47.40	47.40	47.40	46.9	46.9	46.9	46.9

07	STEAM OUTLET PRESSURE Kg/cm ² (a)	9 +Δp DSH	13.5 +Δp DSH	16 +Δp DSH	16 +Δp DSH	16 +Δp DSH	16 +Δp DSH	16 +Δp DSH	16 + p DSH	16 +Δp DSH
08	STEAM OUTLET TEMP. °C	140.02	192.45	288.38	288.38	310	310	310	310	310
09	Cv REQUIRED	*	*	*	*	*	*	*	*	*
10	OPERATING NOISE LEVEL AT 1.0 METRE	<85dbA	<85dbA	<85dbA	<85dbA	<85dbA	<85dbA	<85dbA	<85dbA	<85dbA
11	OUTLET VELOCITY	*	*	*	*	*	*	*	*	*

- NOTES:— 1. THIS SIZING TABLE TO BE USED FOR VALVE AS–03, SPRAY BLOCK VALVE (TAG No.FD 01),
HC SPRAY CV (TAG No.FD–03 & FD–07).
2. * BIDDER TO SPECIFY
3. Δp DSH → STEAM SIDE Δp ACROSS L.T.DESUPERHEATER

PREPARED	CHECKED	APPROVED	DATE	DRG.No. 4–00–306–40460	SH. 1 OF 1	REV. 00
E.KRITHIGA	C.SARAVANAN	R.PRABA	03.05.16			