

## CHECKLIST FOR CONTROL VALVES(To be filled by bidder)

<b>ENQUIRY NO:</b>		<b>DATE:</b>
<b>PROJECT:</b>		
<b>VALVE DESCRIPTION:</b>		
<b>VALVE TAG NO:</b>		

S.NO	SPECIFICATION REQUIREMENT	COMPLIED	NOT COMPLIED	REMARKS	BHEL ACCEPTANCE
<b>1</b>	<b>SCOPE OF SUPPLY</b>				
1.1	Design, fabrication, testing with complete actuators and accessories meeting specification and datasheets				
1.2	All interconnecting instrument testing and fittings between valve actuator, positioner and air regulator				
1.3	Valve drawing, calculation and specification sheet				
1.4	Commissioning spares				
<b>2</b>	<b>CONFLICTS AND DEVIATION</b>				
2.1	Conflicts between this specification and applicable international/industrial standards and codes				
2.2	List of deviation taken by vendor				
<b>3</b>	<b>MATERIALS</b>				
3.1	Material selection for trim				
3.2	Material selection for gasket/packing				
3.2.a	PTFE upto 230 deg C				
3.2.b	Graphite above 230 deg C				
<b>4</b>	<b>FLOW DIRECTION</b>				
4.1	Liquid service: Flow to close				
4.2	Gas service: Flow to open				
<b>5</b>	<b>NOISE</b>				
5.1	Noise abatement within limits shall be achieved by valve body and trim design without using diffusers, baffle plates and silencers				
<b>6</b>	<b>FLOW CHARACTERISTICS</b>				
6.1	Flow characteristics shall meet rangeability requirements and stable control over required range of operating condition				
<b>7</b>	<b>PERFORMANCE</b>				
7.1	Valve travel position accuracy less than 2%				
7.2	Stability-In modulation not more than 2%				
7.3	Fail position				
<b>8</b>	<b>Cv TEST</b>				
8.1	Cv full capacity(Rated Cv) as per ISA-75.02 characteristics at every 10% travel				
<b>9</b>	<b>% LIFT</b>				
9.1	Valve stem travel range from Minimum flow to Maximum flow condition shall not be <50% of total stem travel				
<b>10</b>	<b>CONTROLS AND INSTRUMENTATION</b>				
10.1	Pneumatic Actuator shall be adequately sized , for a Delta – P equal to Design Pr .				

10.2	Following accessories shall be provided (wherever applicable, accessories shall be of minimum IP-65)				
10.2a	SMART Positioner				
10.2b	Air Filter Regulator				
10.2c	Open Limit Switch & Close Limit Switch (contact rated for 5A, 240 V, AC)				
10.2d	Air lock valve				
10.2e	Solenoid valve (to ensure stayput, 24 V, DC, 2 wire)				
10.2f	Volume booster (required only if specified travel time is not met).				
10.2g	36 way Junction Box with plug and socket connector (all accessories to be wired upto JB)				
10.3	<b>SMART Positioner</b>				
10.3a	Bidder to confirm supply of SMART Positioner (Electro Pneumatic) with HART protocol, having fail freeze feature on failure of 4 - 20 mA demand (control) signal. Fail freeze shall be achieved by the Positioner for both the following conditions (a) Loss of control signal, including breakage of control cable (b) Failure of 24V, DC supply (this shall not be achieved through external solenoid valve) Bidder shall specifically mention the make and model number (only latest) of quoted SMART positioner.				
10.3b	Position feedback 4 - 20 mA output is part of SMART Positioner. (ie Positioner shall have inbuilt Position feedback module to generate 4 - 20 ma feedback signal).				
10.4	All CV accessories shall be tubed / piped and supplied as a single assembly.				
10.5	Bidder to note that all CV documents of finalized bidder is subject to BHEL/Customer approval.				
<b>Note:</b> Separate I/P converter is NOT applicable					

**CHECKLIST FOR APRDS CONTROL VALVES (To be filled by bidder)**  
**(Additional points apart from Checklist for Control valves)**

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<b>1</b>	<b>GENERAL</b>				
1.1	Split rating/ Full rating				
1.2	LT Desuperheater-Horizontal/ Vertical				
1.3	LT Dsh-Upstream and Downstream length acceptable as per Layout attached				
1.4	Smart Positioner as per NTPC specification				