



Plant CAUSTIC SODA	Client Punjab Alkali	Contract Code PACL	Document Number 0215-PRC-00-EC-0009	Contract No. 66-0215
	Technical Specification for Additional Safety Valve			

<p>TKIS - India / Vendor</p> <p>Category Codes (Submission Purpose)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/></td><td>1</td><td>For Approval</td></tr> <tr><td><input type="checkbox"/></td><td>2</td><td>For Review / Comments</td></tr> <tr><td><input type="checkbox"/></td><td>3</td><td>For Information</td></tr> <tr><td><input type="checkbox"/></td><td>4</td><td>For Engineering</td></tr> <tr><td><input type="checkbox"/></td><td>5</td><td>For Enquiry</td></tr> <tr><td><input type="checkbox"/></td><td>6</td><td>For Order Placement</td></tr> <tr><td><input type="checkbox"/></td><td>7</td><td>Final & Approved</td></tr> <tr><td><input type="checkbox"/></td><td>8</td><td>Released for Construction</td></tr> </table> <hr/> <p>Acceptance Codes (Approval Codes)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/></td><td>1</td><td>Approved</td></tr> <tr><td><input type="checkbox"/></td><td>2</td><td>Approved for Manufacturing / Fabrication with Comments as marked</td></tr> <tr><td><input type="checkbox"/></td><td>3</td><td>Not Approved / Resubmit</td></tr> <tr><td><input type="checkbox"/></td><td>4</td><td>Retained for Information / Records</td></tr> <tr><td><input type="checkbox"/></td><td>5</td><td>Reviewed</td></tr> <tr><td><input type="checkbox"/></td><td>6</td><td>Reviewed as Noted / Resubmit</td></tr> </table> <p>Remarks for AC2 : This marked-up drawings is hereby approved for fabrication / manufacturing and shall be re-submitted after revision. This drawing should be revised only to the extent of TKIS - India / Owner / Client comments. Any other changes made by you will not be considered unless clearly highlighted in covering letter asking for approval.</p> <p>This approval / review does not absolve the supplier from the full responsibility for design and fabrication.</p> <p>Date : ___/___/___ Name : _____</p>	<input type="checkbox"/>	1	For Approval	<input type="checkbox"/>	2	For Review / Comments	<input type="checkbox"/>	3	For Information	<input type="checkbox"/>	4	For Engineering	<input type="checkbox"/>	5	For Enquiry	<input type="checkbox"/>	6	For Order Placement	<input type="checkbox"/>	7	Final & Approved	<input type="checkbox"/>	8	Released for Construction	<input type="checkbox"/>	1	Approved	<input type="checkbox"/>	2	Approved for Manufacturing / Fabrication with Comments as marked	<input type="checkbox"/>	3	Not Approved / Resubmit	<input type="checkbox"/>	4	Retained for Information / Records	<input type="checkbox"/>	5	Reviewed	<input type="checkbox"/>	6	Reviewed as Noted / Resubmit	<p>TKIS - India / Owner / Client</p> <p>Category Codes (Submission Purpose)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/></td><td>1</td><td>For Approval</td></tr> <tr><td><input type="checkbox"/></td><td>2</td><td>For Review / Comments</td></tr> <tr><td><input type="checkbox"/></td><td>3</td><td>For Information</td></tr> <tr><td><input type="checkbox"/></td><td>4</td><td>For Engineering</td></tr> <tr><td><input checked="" type="checkbox"/></td><td>5</td><td>For Enquiry</td></tr> <tr><td><input type="checkbox"/></td><td>6</td><td>For Order Placement</td></tr> <tr><td><input type="checkbox"/></td><td>7</td><td>Final & Approved</td></tr> <tr><td><input type="checkbox"/></td><td>8</td><td>Released for Construction</td></tr> </table> <hr/> <p>Acceptance Codes (Approval Codes)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/></td><td>1</td><td>Approved</td></tr> <tr><td><input type="checkbox"/></td><td>2</td><td>Approved for Manufacturing / Fabrication with Comments as marked</td></tr> <tr><td><input type="checkbox"/></td><td>3</td><td>Not Approved / Resubmit</td></tr> <tr><td><input type="checkbox"/></td><td>4</td><td>Retained for Information / Records</td></tr> <tr><td><input type="checkbox"/></td><td>5</td><td>Reviewed</td></tr> <tr><td><input type="checkbox"/></td><td>6</td><td>Reviewed as Noted / Resubmit</td></tr> </table> <p>Date : ___/___/___ Name : _____</p>	<input type="checkbox"/>	1	For Approval	<input type="checkbox"/>	2	For Review / Comments	<input type="checkbox"/>	3	For Information	<input type="checkbox"/>	4	For Engineering	<input checked="" type="checkbox"/>	5	For Enquiry	<input type="checkbox"/>	6	For Order Placement	<input type="checkbox"/>	7	Final & Approved	<input type="checkbox"/>	8	Released for Construction	<input type="checkbox"/>	1	Approved	<input type="checkbox"/>	2	Approved for Manufacturing / Fabrication with Comments as marked	<input type="checkbox"/>	3	Not Approved / Resubmit	<input type="checkbox"/>	4	Retained for Information / Records	<input type="checkbox"/>	5	Reviewed	<input type="checkbox"/>	6	Reviewed as Noted / Resubmit
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00		Issued for enquiry	18.03.19	IND	18.03.19	PKM	18.03.19	PKM	-	-
Rev.	Status	Description	Date	Prepared	Date	Checked	Date	Approved	AC	
<div style="display: flex; justify-content: space-between;"> <div style="width: 40%;"> <p>© thyssenkrupp Industrial Solutions (India) Private Limited 2019</p> </div> <div style="width: 50%; text-align: center;"> <h2 style="font-size: 2em;">Barcode</h2> </div> <div style="width: 10%; text-align: right;"> <p>Category Code: -5</p> </div> </div>										

B 66-0215-10785669 EC 000 00 IA 18.03.2019

Plant		Client		Contract Code		Contract No.		Page		
CAUSTIC SODA		Punjab Alkali		PACL		66-0215-700		2		
Technical Specifications						TON	SV4101N			
TECHNICAL SPECIFICATION FOR SAFETY VALVE						Item				
						Rev.	00			
						Doc. No	0215-PRC-00-EC-0009			
SN	Rev									
1		1.0 GENERAL INFORMATION								
2										
3		Designation	:	Safety Valve						
4										
5		Plant location	:	Naya Nangal, Punjab						
6										
7	1	TON No.	:	SV 4101N						
11	1									
12		Manufacturer	:	*						
13										
14		Quotation No.	:	*						
15		Date	:	*						
16										
17		Purchase Order no.	:	*						
17		Date	:	*						
18										
19		2.0 SCOPE								
20										
21		Design, Engineering, fabrication, Painting, inspection, Testing, approval from statutory authorities and supply of safety valve & Spare set of Gasket as per the technical specification.								
22										
23										
24										
25		3.0 INSPECTION								
26										
27		Following procedures and qualifications shall be made available to the Purchaser's shop inspector								
28		a. Positive Material Identification Procedure.								
29		b. Inspection and test Plan.								
30		c. Material Hardness test procedure.								
31		d. PWHT procedures.								
32		e. Hydrotest procedure.								
33										
34		Following tests shall be performed at supplier's workshop & witnessed by tkIS India/ PACL								
35		as per API 527 / API 526 / IBR / ASME as applicable.								
36		a. Set pressure test								
37		b. Seat leakage test								
38		c. Back pressure test								
39		d. Hydrotest of body at 1.5 times of set pressure								
40		The duration for the test shall be at least 30 min.								
41		e. Visual / Dimensional check								
42		f. Material test certificate for body, disc, seat, below and spring should be submitted by supplier.								
43		g. PWHT records and charts if required.								
44		h. Complete datasheets for safety valves.								
45										
46		4.0 PAINTING								
47		Painting shall be done as per Manufacturer's standard.								
48										
49		5.0 GUARANTEES								
50										
51		Vendor to guarantee the following								
52										
53		a. Material of construction								
54										
55		b. Workmanship								
56										
57		c. Performance (set pressure, leakage and rated capacity)								
58		Final documentation should also be submitted in electronic form on CD (2Sets)								
59		6.0 SPARES								
60										
61		a) Start-up and Commissioning Spare Parts								
62										
63		b) Two years spares (to be quoted separately)								
64										
65		Disc - 1 No. each								
66		Spring - 1 No. each								
67		Spring Set - 1 No. each								
68										
69		7.0 DOCUMENTATION								
70		Vendor should confirm to submit the documents as per summary of engineering and final documents.								
71										
72										
73		8.0 DISPOSAL								
74		Vendor to include suitable disposal method after the end of life cycle in operation and maintenance manual.								
75										
76										

Plant		Client		Contract Code		Contract No.		Page	
CAUSTIC SODA		Punjab Alkali		PACL		66-0215-700		3	
Technical specification						TON		SV4101N	
TECHNICAL SPECIFICATION FOR SAFETY VALVE						Item			
						Rev.		00	
						Doc. No.		0215-PRC-00-EC-0009	
SN	Rev	UNITS							
1		GENERAL							
2		TON no.		SV4101N					
3		Model no.		*					
4		Quantity		1					
5		P & I Diagram No.		41-22N					
6		Location (Line no. / Eqpt no.)		250-H1-41159N-BA55CC					
7		Rupture disc below safety valve		NO					
8		Code / Standards		API 520, API 521					
9		Statutory Reqt. CCE/IBR/SMPV/Not reqd.		NOT REQD					
10		Basis for sizing		Pressure Relief					
11		FLUID DATA							
12		Fluid		HYDROGEN					
13		Gas / Vapour / Liquid		GAS					
14		Density / Mol. Weight		kg/m3 / kg/kgmole		0.15 / 2.896			
15		Compressibility Factor		1					
16		Specific Heat Ratio (Cp/Cv)		1.38					
17		Viscosity at Flowing Temperature		cP		0.0088			
18		PROCESS PARAMETERS							
19		Capacity		kg/hr		653			
20		Operating Pressure		Kg/cm2 g		0.30			
21		Set Pressure		Kg/cm2 g		0.45			
22		Allowable Overpressure		%		10			
23		Blowdown		%		*			
24		Back Pressure, Constant		Kg/cm2 g		ATM			
25		Back Pressure, Variable		Kg/cm2 g		-			
26		Back Pressure, Total		Kg/cm2 g		ATM			
27		Hydrotest Pressure		Kg/cm2 g		*(NOTE 1)			
28		Cold Diff. Test Pressure		Kg/cm2 g		*			
29		Reseat Pressure		Kg/cm2 g		*			
30		Operating Temperature		°C		40			
31		Temperature at Blow Off Cond.		°C		40			
32		Design Temperature		°C		95			
33		VALVE SPECIFICATION							
34		Type (conventional /bellow /pilot)		*					
35		Type of valve (spring/weight loaded)		SPRING					
36		Type of nozzle (full/semi)		FULL					
37		Bonnet (open/closed)		CLOSED					
38		Orifice designation as per API		*					
39		Orifice area (cal.)		mm2		*			
40		Orifice area (selected)		mm2		*			
41		Lifting lever (yes/no)		YES					
42		Lifting lever (packed/plain)		PLAIN					
43		Weight of valve		kg		*			
44		Cap (closed / open)		CLOSED					
45		Cap (screwed/bolted)		SCREWED					
46		Test gag (yes / no)		YES					
47		Testing medium		AIR					
48		MATERIAL OF CONSTRUCTION							
49		Body		ASTM A 216 GR WCB					
50		Bonnet		ASTM A 216 GR WCB					
51		Bellows		-					
52		Disc		SS 316					
53		Disc seat		SS 316					
54		Spring		C.S. Cd PLATED					
55		Guide		SS 304					
56		Gasket		CNAF					
57		END CONNECTIONS							
58		Type(flanged/screwed)		FLANGED					
59		Final documentation should also be submitted in		inch / inch		*			
60		Flange connection ASME/DIN		ASME B16.5					
61		Flange facing (inlet / outlet)		RF / RF					
62		Flange rating (inlet / outlet)		lb.		150 # / 150 #			
63		Horizontal Reaction Force (F _x)		N		*			
64		Vertical Reaction Force (F _y)		N		*			
65		Total Reaction Force (F _t)		N		*			
66									
67									
68		ALL DATA MARKED AS *** TO BE FURNISHED BY VENDOR							
69									
70		NOTE : 1. MINIMUM HYDROTEST PRESSURE WILL BE 1.5 TIMES OF MAX. ALLOWABLE PRESSURE.							
71									
72									



Plant CAUSTIC SODA	Client Punjab Alkali	Contract Code PACL	Contract No. 66-0215-700	Page 4
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Summary Of Engineering & Final Documents

TON	SV 4101N
Item No.	
Rev.	00
DOC ID	0215-PRC-00-EC-0009

TECHNICAL SPECIFICATION FOR SAFETY VALVES

S.N	Rev		Reproducible	Copy	Version	Delivery Dt
1		The following engineering and final documents shall be furnished by the manufacturers :				
2		Version and delivery date shall be specified				
3		1.0 FOR ENGINEERING & APPROVAL				
4		Pos. Documents			Quantity	
5	1	Assembly drawing - Arrangement drawing & GAP		1 Soft	II	A
6	2	Valve sizing calculations		1 Soft	II	A
7	3	Cross sectional drawing with partlist		1 Soft	II	B
8	4	Engineering data and specifications (tkIS-India DATA SHEETS FILLED)		1 Soft	II	A
9	5					
10	6					
11	7					
12	8					
13	9	Product catalogue		1 Soft	II	A
14	10					
15	11	Documents bearing tkIS-India/Client's notes shall be resubmitted	As indicated above			C
16	12					
17	13					
18		2.0 SPARE PARTS				
19	1	Quotation for two years operation & commissioning spares		1 Soft	II	A
20	2	Spare part list with itemised drawing or sketches.				
21						
22		3.0 FINAL DOCUMENTS				
23	1	Final documents as listed under 1.0		4 Hard + 2 Soft	II	G
24	2	Instructions for operation and maintenance		4 Hard + 2 Soft	II	
25	3	Erection instructions		4 Hard + 2 Soft	II	
26	4					
27	5					
28	6					
29	7					
30	8					
31	9					
32	10					
33	11					
34	12					
35	13					
36	14					
37	15					
38	16					
39	17					
40	18					
41	19					
42		4.0 INSPECTION				
43	1	Shop inspection certificate		4 Hard + 2 Soft	II	E
44	2	Material test certificate to DIN 50 049/3.1A-3.1C		4 Hard + 2 Soft	II	E
45	3	Capacity type test certificates		4 Hard + 2 Soft	II	E
46	4	Inspection reports issued by statutory authorities		4 Hard + 2 Soft	II	E
47	5					
48		5.0 Explanation of figures listed in column Notes pertaining to column "delivery date"				
49	I	Lettering or wording in German	A	To be submitted with quotation		
50			B	15 days after order placements		
51	II	Lettering or wording in English	C	Two weeks after return of documents		
52			D	One month after order placement, thereafter monthly		
53	III	Lettering or wording in German and English	E	Not later than date of final inspection		
54			F	One month after final inspection ; to be submitted with shipping documents if the equipment has to be shipped		
55	IV	Lettering or wording in German	G	After final release, but not later than 4 weeks prior to final inspection		
56						
57		6.0 REMARKS :				
58	1)	Standard size DIN A4 and smaller on white sheets, larger sizes on reproducibles.				
59	2)	Final documentation should also be submitted in electronic form on CD (2Sets)				