

Sulphuric Acid Plant Haldia Refinery			HALDOR TOPSØE 										
			Document ID S-06841 J62063 3 Job no. Doc. no. Rev.										
Control valves			Page 43 of 97		Spec. J-63								
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P&I diagram	P11												
Service	Process gas from 205-M-02 to 205-K-05 A												
Pipe	72"-P-205-2402-K42N-IH												
Fluid	Process gas												
Pipe data			Design min	Operating	Design max	Unit							
Pressure				-0.04	0.2	kg/cm² g							
Temperature				209	250	°C							
Calculation data		Unit	Minimum	Normal	Maximum	Special							
Fluid phase			Gas		Gas								
Upstream pressure		kg/cm² g	-0.02		-0.04								
Upstream temperature		°C	229		210								
Vapour/Gas, Mass flow rate		kg/h	65965		108626								
Vapour/Gas, Flow rate		Nm³/h	52359		88082								
Vapour/Gas, Density		kg/m³	0.672		0.672								
Vapour/Gas, Viscosity		cP	0.025		0.024								
Vapour/Gas, Mole weight		kg/kmol	28.24		27.64								
Vapour/Gas, Compressibility			1.00		1.00								
Vapour/Gas, Ratio of specific heats			1.38		1.38								
Body/Bonnet													
Valve type		Note1	Size		72"								
Material		Note2	Rating		Low Pressure Ducting								
Pipe Inlet/Outlet		72" / 72"	Connection type		See topsøe duct specification								
Trim													
Cv required		Line size	Characteristic		On/off								
Trim type		Note1	Material		Note2								
			Leakage class (Forward / Rev.)		Gas leak tight by seal air / -								
Actuator													
Actuator type		Note3	dP for sizing		0.2 kg/cm²								
Modulating or On/Off		On/Off	Hand wheel		No								
Failure position		FL	Close/opening time										
Note1: Double butterfly damper. the damper shall be equipped with hot (30°C above the acid dew point) sealing air between the two blades in order to have zero leakage when damper is closed.													
Note2: All wetted parts shall be made from Sanicro 28 Nicrofer 3127LC or Cronifer 1925LC													
Note3: Electric motor (Single action point)													
All bearings shall be purged with hot instrument air and only one instrument air connection of 1/2" NPT (M) will be available.													
Limit switch													
Indication		Valve Open	Tag No.		205-MZSH-2504								
Enclosure		IP65											
Limit switch													
Indication		Valve Closed	Tag No.		205-MZSL-2504								
Enclosure		IP65											

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Sulphuric Acid Plant Haldia Refinery			HALDOR TOPSØE 					
			Document ID S-06841			J62063		3
			Job no.		Doc. no.		Rev.	
Control valves			Page 45 of 97		Spec. J-63			
P&I diagram			P11		205-MOV-2506			
Service			Process gas from 205-K-05 A to 205-E-02					
Pipe			68"-P-205-2502-K22A-IH					
Fluid			Process gas					
Pipe data			Design min	Operating	Design max	Unit		
Pressure				0.09	0.2	kg/cm² g		
Temperature				230	260	°C		
Calculation data			Unit	Minimum	Normal	Maximum	Special	
Fluid phase				Gas		Gas		
Upstream pressure			kg/cm² g	0.03		0.09		
Upstream temperature			°C	237		230		
Vapour/Gas, Mass flow rate			kg/h	65965		108626		
Vapour/Gas, Flow rate			Nm³/h	52363		88087		
Vapour/Gas, Density			kg/m³	0.691		0.727		
Vapour/Gas, Viscosity			cP	0.026		0.025		
Vapour/Gas, Mole weight			kg/kmol	28.24		27.64		
Vapour/Gas, Compressibility				1.00		1.00		
Vapour/Gas, Ratio of specific heats				1.38		1.38		
Body/Bonnet								
Valve type			Note1	Size	68"			
Material			Note2	Rating	Low Pressure Ducting			
Pipe Inlet/Outlet			68" / 68"	Connection type	See topsøe duct specification			
Trim								
Cv required			Line size	Characteristic	On/off			
Trim type			Note1	Material	Note2			
				Leakage class (Forward / Rev.)	Gas leak tight by seal air / -			
Actuator								
Actuator type			Note3	dP for sizing	0.2 kg/cm²			
Modulating or On/Off			On/Off	Hand wheel	No			
Failure position			FL	Close/opening time				
Note1: Double butterfly damper. the damper shall be equipped with hot (30°C above the acid dew point) sealing air between the two blades in order to have zero leakage when damper is closed.								
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Limit switch								
Indication			Valve Open	Tag No.	205-MZSH-2506			
Enclosure			IP65					
Limit switch								
Indication			Valve Closed	Tag No.	205-MZSL-2506			
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