

ENGINEERING SERVICES DEPARTMENT



CONTROL VALVE FV1510J SPECIFICATION SHEET

Project	NW PlasGas Demonstration Facility	Unit Tag Number	FV1510J
Datasheet Document No.	ENS-NWPVR-SPE-25004	Revision	1.0
Description	Flow control valve FV1510J is installed on the oxygen gas supply line 25-13-GSVP-012 to regulate the oxygen feed rate into the plasma reactor R1403 in the NW PlasGas Demonstration Facility.		
Plant Location	Necsa, Pelindaba, North-West Province		
Equipment Location	NW PlasGas Demonstration Facility - Process area inside Laboratory-150, Building V-H2		
Controlling Instrument No.	FICA1510J		
Safety Classification	Non-classified(N) and SC-2(C) ^{Note 1}		
Quality Classification	Non-classified(N) and QC-2(C) ^{Note 2}		
Fluid	Oxygen		
Fluid state	Gas		

FLUID PROPERTIES

Mass flow rate ^[4]	kg/h	32,76
Volume flow rate	m³/h	3,69
Inlet temperature ^[2]	°C	25
Inlet density ^[4]	kg/m³	6,3
Viscosity ^[4]	Pa.s	2,05E-05
Inlet pressure ^[4]	bar (a)	4,86
Outlet pressure ^[4]	bar (a)	0,845
Control valve design pressure drop ^[4]	bar	4,015
Cv-value ^[4]	-	5,92
Specific heat capacity (Cp) ^[4]	kJ/kg.K	0,91
Specific heat capacity (Cv)	kJ/kg.K	0,65

MECHANICAL PROPERTIES

Nominal valve size	in.	3/4
Port diameter	in.	1/2
Pipeline Size	25 NB, Sch 40 ^{Note 4*}	
Process Connections	Threaded connection, Class 150, RF, SS, ASTM A182-F304/304L, ASME B16.5 if flanged	
Gasket (if flanged)	Class 150, 1/16" thick flexible graphite w/ 304 or 316 SS corrugated insert, ASME B16.21	
Bolting (if flanged)	ASTM A193, Gr B7 stud w/ 2 heavy hex nuts ASTM A194, Gr 2H	
Valve rating	150#	
Material of Construction		
Wetted parts	304/304L Stainless Steel	
Non-wetted parts	Supplier to advise	
Valve type	Globe valve	
Valve fail position	Fail Closed (FC)	
Control characteristics	Equal percentage	
Positioner		
Style	Electrical	
Input Signal	4-20 mA	

REFERENCE DRAWINGS AND DOCUMENTS

[1] ENS-NWPVR-PID-24004; P&ID Diagram - NW PlasGas Demonstration Plant Subsystem 13
[2] ENS-NWPVR-REP-24017: Energy Balance Report for the NW PlasGas Demonstration Facility
[3] ENS-NWPVR-REP-24015: Mass Balance Report for the NW PlasGas Demonstration Facility
[4] ENS-NWPVR-CLC-24010: Pressure Relief Valve Sizing for the NW PlasGas System.
[5] ENS-NWPVR-CLC-24019: Control Valve Sizing for the NW PlasGas System.

NOTES

Note 1: SC - Safety Class
Note 2: QC - Quality Class
Note 3: Supplier to advise on impact of valve size exceeding pipeline size and to propose better alternatives, if available.
Note 4: This represents the line size before the valve connection point and not necessarily the size of fitting on which the valve is to be connected.

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CONTROL VALVE FV150J SPECIFICATION SHEET

Project	NW PlasGas Demonstration Facility	Unit Tag Number	FV1510J
Datasheet Document No.	ENS-NWPVR-SPE-25004	Revision	1.0
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