

Sr.No.	Description	Quantity Required (Nos.)
1	2	3
1	Pressure control valve for CR-201, Falnge size= DIN 25, PN 40, Fluid: Gas, Temp. 40 °C, F-F= 152mm with pressure regulator and Electronic positioner	1
2	Degasifier Butterfly control valves, Size 3"x3" #150 Seat material SS316 , F-F 70mm with pressure regulator and Electronic positioner,	1
3	Butterfly water control valve-110, Size 3"x3" #300 Seat material SS316 , F-F 75mm with pressure regulator and Electronic positioner,	1
4	Type Guided control valve, LV- .203, Valve Size 3"x3" #300, Seat material SS316L, F-F 298mm, with pressure regulator and Electronic positioner,	1
5	Globe Type contyrol valve for saturated Steam, Valve Size 2" # 150 (RF), Seat and Stem material SS316 F-F= 225mm,with pressure regulator and Electronic positioner,	1
6	Distilled water type Dead weight tester, with window based CAL software, Range: 0~15000PSI make Fluke/Ametek or Equal.	1
Detailed Specification are attached on separate sheets.		

SPECIFICATION OF PRESSURE CONTROL VALVE FOR CR-201

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PCV

QUANTITY= 01 No.

**1. PROCESS CONDITIONS AND VALVE SPECIFICATION:**

Fluid state:	Gas
Temperature:	40 °C
Specific gravity:	1.19 at 20 °C
Inlet pressure:	10 bar (g)
Outlet pressure:	2 bar (g)
Diff. Pressure:	1 ~ 8 bar (g)
Flow rate:	4 m <sup>3</sup> / min
Critical temperature:	100 °C
Trim material:	SS316L
Flange and valve body:	SS316L
Seat/stem material:	SS316L
Type:	Globe/Plug-Cocks tapered
Actuator type:	Diaphragm
Failure position:	Open (Changeable)
Valve characteristic:	Equal %

**2. End Connection:**

Flange size:	RF, PN: 40, DIN: 25
Flange To Flange distance:	152mm

**3. Air Pressure Regulator with Filter (Integral) and Gauge**

Maximum Working Pressure:	12 bar
Set Pressure Range:	0.5 - 8.0 bar
Inlet/Outlet Connection:	¼" NPT (Female)
Body Material:	Die Cast Aluminum
Ambient Temperature:	-5 ~ 60 °C
Filter Element:	Brass
Filter Housing:	Die Cast Aluminum
Drain:	Manual
Pressure Gauge:	0-10 bar

**4. Positioner:**

Input signal:	4 ~ 20 mA DC
Output:	3 ~ 15 PSI

Specifications for Butterfly Steam control valve

TAG NO. Degasifier Butterfly steam control valve

QUANTITY: 01

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BODY SPECIFICATION

SIZE : 3x3  
 RATING : ANSI 150

CONN : WAFER (SMOOTH)  
 TRIM FORM : CONCENTRIC  
 CHARACT : THROTTLING  
 BONNET : ST'D (DUST/SAND PROOF)  
 MO. POS. : S (STANDARD) TYPE  
 ACTION : AIR TO OPEN / AIR FAIL CLOSE  
 BODY TRIM : CS  
 TRIM T. : H. Cr PLATED  
 BEARING : SUS304 / H. Cr PLATED  
 SEAT : SUS304  
 SEAT T. : NONE  
 PACKING : GLAND - GASKET  
           PTFE CARBON      V1500AC

Flange to Flange Distance: 70mm  
 Butterfly Thickness: 60mm

ACTUATOR SPECIFICATION

MODEL : PNEUMATIC DIAPHRAGM  
 SIZE :  $\Phi$ 240 or Equivalent  
 ACTION : S. RTN/ DA (PRES. TO OPEN) Air fail Close.  
 RE.ACT : 2.4(0.6~1.8) Kgf/cm<sup>2</sup>  
 R. ANGLE : 60 DEG

ACCESSORIES

AIR SET : SS304  
 Positioner : Electro Pneumatic type, Input 4-20 mA DC

AIR REGULATOR WITH FILTER (INTEGRAL)

MAX. WORKING PRESSURE: 10 Bar  
 SET PRESSURE RANGE: 0.5 – 6.0 Bar  
 INLET/ OUTLET CONNECTION: 1/4" NPT  
 FILTER ELEMENT: BRASS  
 FILTER BOWL: METALLIC  
 DRAIN: MANUAL

ACCESSORIES

PRESSURE GAUGE  
 MOUNTING BRACKET

FLUID SPECIFICATION

FLUID : STEAM

Ambient Temp. 0-55 °C

	UNIT	NORMAL	MAXIMUM
FLOW RATE	Kg/H	1,750.00	2,500.00
P1	KG/cm <sup>2</sup>	11.92	12.00
$\Delta$ P		0.35	0.35
SHUT OFF	G	12.00	
TEMP.	°C	190.50	200.00

Specifications for Butterfly Water control valve

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TAG NO. Butterfly Water control valve-110

QUANTITY: 01

**BODY SPECIFICATION**

SIZE : 3x3  
 RATING : ANSI 300  
 CONN : WAFER (SMOOTH)  
 TRIM FORM : CONCENTRIC  
 CHARACT : THROTTLING  
 BONNET : ST'D (DUST/SAND PROOF)  
 MO. POS. : S (STANDARD) TYPE  
 ACTION : AIR TO Close / AIR FAIL Open  
 BODY TRIM : CS  
 TRIM T. : H. Cr PLATED  
 BEARING : SUS304/ H. Cr PLATED  
 SEAT : SUS304  
 PACKING : GLAND - GASKET  
           PTFE CARBON       V1500AC

Flange to Flange Distance: 75mm

Butterfly Thickness: 65mm

**ACTUATOR SPECIFICATION**

MODEL : PNEUMATIC DIAPHRAGM  
 SIZE :  $\Phi$ 240 or Equivalent  
 ACTION : S. RTN/ DA (PRES. TO Close) Air fail Open.  
 RE.ACT : 2.4(0.6~1.8) Kgf/cm<sup>2</sup>  
 R. ANGLE : 60 DEG

**ACCESSORIES**

AIR SET : SS304  
 Positioner : Electro Pneumatic type, Input 4-20 mA DC

**AIR REGULATOR WITH FILTER (INTEGRAL)**

MAX. WORKING PRESSURE: 10 Bar  
 SET PRESSURE RANGE: 0.5 – 6.0 Bar  
 INLET/ OUTLET CONNECTION: 1/4" NPT  
 FILTER ELEMENT: BRASS  
 FILTER BOWL: METALLIC  
 DRAIN: MANUAL

**ACCESSORIES**

PRESSURE GAUGE  
MOUNTING BRACKET

**FLUID SPECIFICATION**

FLUID : Hot Water

Ambient Temp. 0-55 °C

	UNIT	NORMAL	MAXIMUM
FLOW RATE	L/Min	1,750.00	2,500.00
P1	KG/cm <sup>2</sup>	28.60	30.00
$\Delta$ P		0.35	0.35
SHUT OFF	G		3.00
TEMP.	°C	75.0	100.00



Specifications for Top Guided control valve

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TAG NO. LV- 203

QUANTITY: 01

BODY SPECIFICATION

SIZE : 3"x 3"  
 RATING : ANSI 300

CONN : RF (SMOOTH)  
 TRIM FORM : BALANCE  
 CHARACT : P.PORT LINEAR  
 BONNET : ST'D (DUST/SAND PROOF)  
 MO. POS. : S (STANDARD) TYPE  
 ACTION : AIR TO OPENE / AIR FAIL CLOSE  
 BODY TRIM : SUS316L  
 GUIDE : SUS316L / H. Cr PLATED  
 SEAT : SUS316L  
 PACKING : GLAND - GASKET Balance  
           TV-P.TFE T9090 CAPSEAL

FACE TO FACE  
 DISTANCE: 298 mm

ACTUATOR SPECIFICATION

MODEL : PNEUMATIC DIAPHRAGM  
 SIZE :  $\Phi$ 240 or Equivalent  
 ACTION : S. RTN/ RA (AIR. TO STEM UP)  
 RE.ACT : 2.2(0.6~1.1) Kgf/cm<sup>2</sup>  
 STROKE : 30 mm

ACCESSORIES

AIR SET : PRF 304  
 Positioner : Electro Pneumatic type, Input 4-20 mA DC  
AIR REGULATOR WITH FILTER (INTEGRAL)

MAX. WORKING PRESSURE: 10 Bar  
 SET PRESSURE RANGE: 0.5 - 6.0 Bar  
 INLET/ OUTLET CONNECTION: 1/4" NPT  
 FILTER ELEMENT: BRASS  
 FILTER BOWL: METALLIC  
 DRAIN: MANUAL

ACCESSORIES

PRESSURE GAUGE  
 MOUNTING BRACKET

FLUID SPECIFICATION

FLUID : SOUR WATER

Ambient Temp. 0-55 °C

	UNIT	NORMAL	MAXIMUM
FLOW RATE	L/MIN	1,040.00	1,500.00
P1	KG/cm <sup>2</sup>	23.55	30.00
$\Delta$ P		1.40	1.40
SHUT OFF	G	8.0	
TEMP.	°C	58.00	100.00
Sp. Gr.		0.978	
CV VALVE	VALVE	CAL.	CAL.
	100	61.32	87.17

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**SPECIFICATION OF GLOBE TYPE CONTROL VALVE FOR SATURATED STEAM**

**Globe Type Control Valve:**

**Quantity = 01 No**

**1. PROCESS CONDITIONS AND VALVE SPECIFICATION:**

Fluid state:	Saturated Steam
Temperature:	200 °C
Inlet pressure:	8 bar (g)
Outlet pressure:	6 bar (g)
Diff. Pressure:	0.1 ~ 1.9 bar (g)
Bonnet	Extended for high temperature
Critical pressure:	30 bar
Critical temperature:	300 °C
Nominal travel	30mm
Trim material:	SS304
Flange and valve body:	CS
Seat/stem material:	SS304
Type:	Globe
Actuator type:	Diaphragm
Failure position:	Close
Valve characteristic:	Equal %

**2. Valve Body:**

Plug:	Balanced with graphite Ring
Bonnet:	Extended for high temperature
Leakage class:	Metal Sealing – IV
Plug and Seat:	Material SS304
KVS/CV	40/47

**3. End Connection:**

Flange size:	RF, 2" #150
<b>Flange to Flange distance</b>	<b>225 mm</b>

**4. Air Pressure Regulator with Filter (Integral) and Gauge**

Maximum Working Pressure:	12 bar
Set Pressure Range:	0.5 - 8.0 bar
Inlet/Outlet Connection:	¼" NPT (Female)
Body Material:	Die.Cast Aluminum
Ambient Temperature:	-5 ~ 60 °C
Filter Element:	Brass

**SPECIFICATION OF DISTILLED WATER TYPE DEAD WEIGHT TESTER.**

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**QUANTITY:**

01 No.

**Range:**

0 ~15000 PSI

**Accuracy:**

±0.015% of reading

**Material of Construction:**

Standard Weight material: Series-3 Non-Magnetic austenitic stain less steel

**Weight density:**

7.8 g/cm<sup>3</sup>

**Piston Material:**

Tungsten carbide with nickel binder, Density 15g/cm<sup>3</sup>

**Cylinder material:** Hardened martensitic steel tungsten carbide

**Thermal Coefficient of Expansion:** Cylinder 16.5ppm/°C (Water above 500PSI, 35Bar, 11ppm/°C).

**Reservoir Volume:**

150 CC

**Pump Displacement:**

4.7 CC / Stroke

**O-Ring Seal material:**

BUNNAN

**Operating Fluid:**

Distilled water

**Press. CAL Software:**

Window based software program that allows uses to easily apply all accessory correction to enhance the dead weight tester performance.

**Note:**

1. Technical literature, maintenance & installation manuals are required in English.
2. On-site inspection at Manufacturer premises should be included in quotation.
3. Recommended maintenance schedule [Preventive (PM), Predictive (PDM,)] by vendor in English is required.
4. Pressure test certificate and warranty Certificate is required.