

# MANVIA CONDITIONING SAMPLE PANEL CP-1B.1-4-D7-J(40°C)-LMP2500-NO GRAB V-T

## INSTALLATION, OPERATION & MAINTENANCE MANUAL



# manvia



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## 1 NOTES ON SAFETY

In this manual, you will find various notes categorized under the following levels with the signal words “DANGER” and “CAUTION”.

 <b>DANGER</b>	Indicates a hazardous situation which, if materialized, could result in a serious injury and even in death.
 <b>CAUTION</b>	Indicates a hazardous situation which, if materialized, could result in material damage or a moderate injury.

 <b>DANGER</b>	Do not disassemble the equipment when it is in service or without isolation from the process.
	Do not disconnect any piping or equipment when in service or uninsulated from the process.
	Make sure that the panel is depressurized before opening any line.

## 2 APPLICATIONS

The Manvia sample conditioning panels are designed to conditioning water and steam samples according to the ASME PTC 19.11. Once the sample has been conditioned, it can be sent to the analyzers for continuous measurement and / or to take a manual sampling.

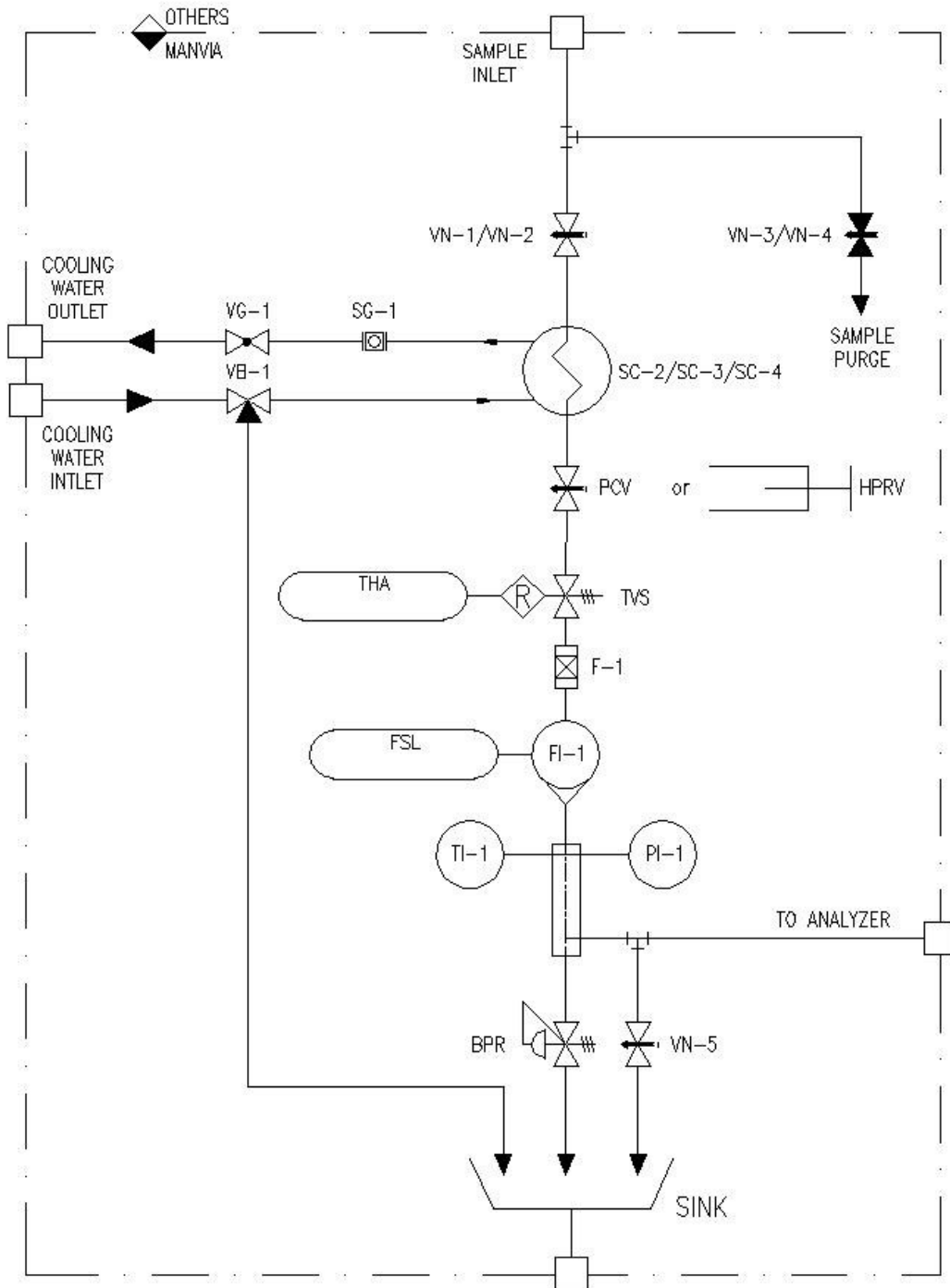
### 3 CONFIGURATION

The sample conditioning panels allow multiple different configurations, depending on the process conditions and customer requirements.

All Manvia sample conditioning panels are identified with a code that defines their components, according to the following table:

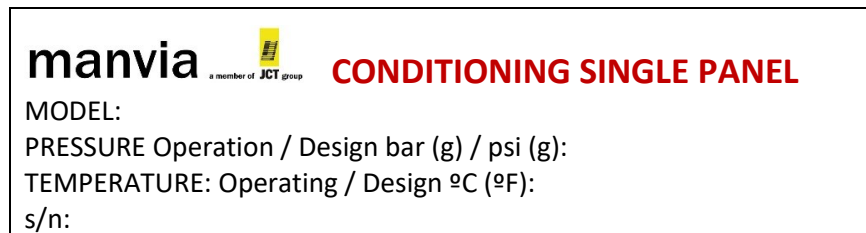
CONDITIONING PANEL	CP-							
<b>Sample Shut-Off Valve</b>								
1 Sample temperature to 232°C (VN-1)								
2 Sample temperature 232°C to 540°C (VN-2)								
<b>Sample Blowdown Valve</b>								
A Not Included (VN-3)								
B Included (VN-4)								
<b>Pressure Reducer</b>								
3 Not Included (sample below 5 barg)								
4 Up to 35 barg (PCV1 and BPR Back Pressure)								
5 From 35 to 200 barg (HPRV Rod-in-tube valve and BPR Back Pressure)								
<b>Sample Cooler</b>								
C Not Included								
D SC-2 (Cooling area 0.22 m <sup>2</sup> / Sample 245 barg@540°C)								
E SC-3 (Cooling area 0.35 m <sup>2</sup> / Sample 215 barg@540°C)								
F SC-4 (Cooling area 0.45 m <sup>2</sup> / Sample 215 barg@540°C)								
<b>Cooling Water Components</b>								
6 Not included								
7 Isolation and control valves (3-way valve (VB-1) in input and globe valve (VG-1) in output)								
8 Relief valve (RV-1)								
9 Sight Flow (SG-1)								
<b>Thermal Shut-Off Valve (TVS)</b>								
G Not Included								
H Included @ 49°C (w/o switch) (TVS-49-A)								
J Included @ 49°C (with switch) (TVS-49-B)								
<b>Instrumentation</b>								
K Not Included								
L Pressure gauge (0-4 barg) (PI-1)								
M Temperature gauge (0-120 °C) (TI-1)								
N Total Flow Sample Indicator								
P Total Flow Sample Indicator with Low Flow Sample Switch SPDT								
<b>Others Components</b>								
R Filter to analyzers 100µ								
S Grab Sample valve								
T Sink								

4 P&ID



## 5 SPECIFICATIONS

The Manvia sample conditioning panel has an identification plate, which indicates the following data:



**THE PROCESS CONDITIONS SPECIFIED IN THE PANEL SHALL NEVER BE EXCEEDED.**

## 6 COMPONENTS

Next, the components that make up the conditioning panel are described. Please check the codes or labels (TAG's) to identify those included in your conditioning panel.

### SAMPLE SHUT-OFF VALVE

Sample inlet shut-off valve to the conditioning panel.

**Code: 1 TAG: VN-1** Description: Needle valve 1/4" OD AISI316 + PTFE 232°C@343 barg

**Code: 2 TAG: VN-2** Description: Needle valve 1/4" OD AISI316 + Grafoil 565°C

### SAMPLE BLOWDOWN VALVE

High pressure purge valve.

**Code: B.1 TAG: VN-3** Description: Needle valve 1/2" OD AISI316 + PTFE 232°C@343 barg

**Code: B.2 TAG: VN-4** Description: Needle valve 1/2" OD AISI316 + Grafoil 565°C

### PRESSURE REDUCER

Pressure reduction system of the sample. This system is composed of a two-valve tandem, depending on the pressure inlet of the line, according of it is lower or higher than 35 barg.

Adjustment with the PCV1 or HPRV valve guarantees a sample pressure of 1.5 barg

**Code: 4 TAG's: PCV1 y BPR** Description: Up to 35 barg (PCV1 and BPR Back Pressure).

System to reduce pressure when the process it is less than 35 barg.

**Code: 5 TAG's: HPRV y BPR** Description: From 35 to 200 barg (HPRV Rod-in-tube valve and BPR Back Pressure).

System to reduce pressure when the process it is greater than 35 barg.

### SAMPLE COOLER

Equipment for cooling the sample by exchanging with cooling water.

**Code: D TAG: SC-2** Description: Sample Cooler (Cooling area 0.22 m<sup>2</sup> / Sample 245 barg@540°C)

**Code: E TAG: SC-3** Description: Sample Cooler (Cooling area 0.35 m<sup>2</sup> / Sample 215 barg@540°C)

**Code: F TAG: SC-4** Description: Sample Cooler (Cooling area 0.45 m<sup>2</sup> / Sample 215 barg@540°C)

## COOLING WATER COMPONENTS

Components associated with the coolers. There are three options compatible with each other.

**Code: 7 TAG: VB-1 y VG-1** Description: Isolation and control valves (3-way in input and globe valve in output).

The system incorporates two valves to the cooler. A 3-way valve in the input and a globe valve in the output. The three-way valve at the input of the cooler allows in its usual position to send the cooling water into the cooler, or, if we change the position, drain the cooler. This system assures us that the shell cooler will never be isolated. The valve installed at the output allows regulating the flow of cooling water according of the temperature of the sample. This adjustment must be done manually.

**Code: 8 TAG: RV-1** Description: Relief valve

This valve acts as a safety valve, relieving the fluid of the cooler shell in case of overpressure. Depending on the configuration of the panel, this valve can be supplied loose to install on site.

**Code: 9 TAG: SG-1** Description: Sight Flow

Sight-flow to check the existence of flow in the cooling water.

## THERMAL SHUT-OFF VALVE (TVS)

Sample closing valve when the temperature exceeds 49 °C.

**Code: H TAG: TVS** Description: Included @ 49°C (w/o switch)

This valve does not incorporate switch to send a signal closed or open valve. Ref. Equipment: TVS-A-49

**Code: J TAG: TVS y THA** Description: Included @ 49°C (with switch)

This valve include a switch to send a signal closed or open valve. Ref. Equipment: TVS-B-49

## INSTRUMENTATION

Pressure, flow and / or temperature instruments for sample measurement.

**Code: L TAG: PI-1** Description: Pressure gauge (0-4 barg).

Manometer indicator of the sample pressure. Range: 0 a 4 barg.

**Code: M TAG: TI-1** Description: Temperature gauge (0-120 °C).

Thermometer sample temperature indicator. Range: 0 a 120 °C.

**Code: N TAG: FI-1** Description: Total Flow Sample Indicator.

Rotameter flow indicator. Range: 0-1600 c.c./min.

**Code: P TAG: FI-1 y FSL** Description: Total Flow Sample Indicator with Low Flow Sample Switch SPDT.

Rotameter sample flow indicator with switch low sample flow alarm. Range: 0-1600 c.c./min.

## OTHERS COMPONENTS

Other components of the sample conditioning system.

**Code: R TAG: F-1** Description: Filter to analyzers 100µ  
100 microns filter at the exit of the sample to the analyzers.

**Code: S TAG: VN-5** Description: Grab Sample valve  
Valve for manual sampling.

**Code: T** Description: Sink  
Sink for drains.

For more information about MANVIA components, please consult our data sheets or access to:

<https://jct-ls.com/productcategory/swas-equipment/>

## 7 INSTALLATION.

Perform the installation considering all instructions in this manual.

Check that the sample conditioning panel has no damage.

Make the connections for sample inlet, cooling water inlet, cooling water outlet and drain according to the information in the drawing shown in Annex I.

Close valves VN-1 or VN-2, VN-3 or VN-4.

Close the PCV or HPRV regulating valve

Open the cooling water valves to the cooler VG-1 and VB-1 (check that the three-way VB-1 valve is in the cooling water inlet to the cooler position).

**Note:** Probably your sample conditioning panel does not have all the mentioned valves. In this case, you must act only on those installed in your panel.

## 8 OPERATION.

Check that all connections to the sample conditioning panel are connected according to the drawing showed in ANNEX I.

Open the cooling water valves to the cooler VG-1 and VB-1 (check that the three-way VB-1 is in the cooling water inlet position to the cooler). The cooling water must be recirculated through the shell cooler. You can check it in the sight-flow if you have this option.

Check that the PCV or HPRV regulating valve is closed.

Open the purge valve VN-3 or VN-4 to purge the system. When you consider that the sample is available of being analyzed, open the sample inlet valve VN-1 or VN-2. Close the purge valve VN-3 or VN-4

Slowly open the PCV or HPRV regulating valve until the desired flow rate is obtained in the FI-1 rotameter

The BPR valve should pass a small flow (drip) to stabilize the sample pressure at 1.5 barg approx.



Verify that the temperature of the sample is below 49 °C. This can be regulated with the globe valve VG-1.

Under these conditions, the sample can be sent to the analyzers.

**NOTE:**

1. In case of cavitation in the cooler, increase the cooling water flow and reduce the sample flow as much as possible.

## 9 WARRANTY

To contact the warranty service, please contact:

[sales@jct-ls.com](mailto:sales@jct-ls.com)

**C/ Maria González – La Pondala, 98**

**P.I. de Somonte – Gijón - 33393**

**Asturias SPAIN**

**Or with your area agent.**

# ANNEX I

## LAY-OUT

# **ANNEX II**

## **MANUALS OF SAMPLE CONDITIONING EQUIPMENT**





MANVIA STEAM WATER EQUIPMENTS, S.L.  
C/ María González "La Pondala", 98 – Bajo B  
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