

**Technical Specification**

for

**WATER EXPANSION RELEASE VALVE (WERV)**

**1.0 Technical Requirements**

1.1 Sentinel type spring loaded water expansion release valve with following particulars :

- |    |                              |   |  |
|----|------------------------------|---|--|
| a. | Nominal Bore                 | : | <b>10</b> mm (3/8")                                    |
| b. | Design pressure              | : | <b>47</b> kg/cm <sup>2</sup> g                         |
| c. | Operating (working) pressure | : | <b>37.6</b> kg/cm <sup>2</sup> g                       |
| d. | Hydrostatic test pressure    | : | <b>70.5</b> kg/cm <sup>2</sup> g                       |
| e. | Set pressure                 | : | <b>47</b> kg/sq. cm.g.                                 |
| f. | Application                  | : | Thermal Relief   |
| f. | Relieving capacity           | : | Nominal  |
| g. | Relieving temperature        | : | 150 °C   |
| h. | Back pressure                | : | Atmospheric  |
| i. | Allowable over pressure      | : | 10 %   |
| j. | Blow down                    | : | 15 % max.  |
| k. | Working fluid                | : | Feed water   |
| l. | Connection details           |   |  |
|    | Inlet End                    | : | <b>20</b> NB (3/4")-{Female} – <b>Socket Welded-SW</b> |
|    | Outlet End                   | : | <b>25</b> NB (1") -{Female} – <b>Socket Welded-SW</b>  |

1.2 Code of Construction : **ASME Sec. VIII Div.1; 2013**

1.3 Inlet end of the valve to be suitable for seal welding with SS-316L Nipple for making it suitable to fit in the coupling/Socket provided on equipment/pipe line.

1.4 Valves to be equipped with handle to check the free movement of spring & its relieving capacity.

1.5 Set pressure Tolerance : **+3% -0**

1.6 End connections of each valve shall be protected properly to prevent its damage during Handling & transit.

**2.0 Material of Construction**

- |    |                   |   |
|----|-------------------|---|
| a. | Body              | - Forged carbon Steel; SA-105   |
| b. | Disc, Disc Holder | - Stainless Steel; SS –316  |
| c. | Nozzle            | - Stainless Steel; SS –316  |
| d. | Spindle           | - Stainless Steel; SS –316  |
| e. | Guide             | - Stainless Steel; SS –316  |
| f. | Springs           | - Carbon Steel - for design temperature limited to 204 deg.C.<br><b>Inconel</b> Steel - for design temperature above 204 deg.C. |
| g. | Base              | - Stainless Steel; SS –316  |
| h. | Bush              | - Stainless Steel; SS –410  |

**3.0 Inspection & Testing**

- 3.1 Each valve to be checked for free movement of spring and adjustment in relieving capacity.
- 3.2 Following hydrostatic tests to be carried out
- Valve body - **70.5** kg/sq.cm.g
  - Valve seat - **94** kg/sq.cm.g

**4.0 Documents / Information Required**

Following documents/Information is required for each valve.

- 4.1 Water expansion release valve specification sheet
- 4.2 Drawing of valves indicating end connection details, over all dimensions, material of construction, weight of each valve, Testing details etc.

**5.0 Identification**

Each valve to be provided with a name plate with following details inscribed on it.

- Water expansion release valve – “Duplex LP. Heater ”
- Set Pressure “**47** kg/sq.cm.g”
- “ 800 MW Yeramarus ”

**6.0 Instruction Manual**

Five (5) copies of following Instruction manuals are required.

- Installation Instruction
- Operation & maintenance Instruction Manual.

**7.0 Spare Parts**

Furnish list of recommended spare parts for two (2) years of operating along with their specification.

**8.0 Certification**

Five (5) copies of following certificates are required for each valve.

- Material test certificate of all pressure parts & compliance certificate for other parts.
- Hydrostatic test certificates.
- Test reports for checking set pressure, over pressure & blow down pressure.
- Leak tightness test (hydro test & Air test of seat)
- Dimensional report

**9.0 Packing**

Safety valves to be packed suitably to avoid any kind of damage during handling & transit. Inlet & outlet ends to be capped suitably.

**10.0 Guarantee**

Each valve to be guaranteed for satisfactory performance for a period of **24-months** from the data of supply or 18-months from the date of commissioning, which ever is earlier.