DNV·GL

Certificate No:
**TAP00000YX**

# TYPE APPROVAL CERTIFICATE

## This is to certify:

**That the Safety Valve for Boiler and Pressure Vessel**

with type designation(s)
**Anderson Greenwood 80 Series (type 81/83/81P/86)**

Issued to
**GRISS SA / EMERSON AUTOMATION SOLUTIONS**
**ARMENTIÈRES, France**

is found to comply with
**DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems**
**DNV GL rules for classification – Ships Pt.4 Ch.7 Pressure equipment**
**DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition January 2018**
**DNV GL class programme DNVGL-CP-0186 – Type approval – Valves**

## Application :

**Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.**
**K. factor:** **See page 2**

Issued at **Høvik** on **2019-04-09**
This Certificate is valid until **2021-12-31**.
DNV GL local station:

Approval Engineer: **Sinisa Sedlan**

for **DNV GL**

**Marianne Spæren Marveng**
**Head of Section**

## Product description

Direct spring pressure relief valves. Flanged type or NPT threaded connection type.

ANSI rating class: 150, 300, 600, 900

Materials:

| | |
|---|---|
| Body | Carbon steel SA-216 Gr. WCB |
| | Stainless steel SA-351 Gr. CF8M |
| | Duplex stainless steel SA-182 Gr. F51 |
| Flange | Carbon steel SA-105 |
| | Stainless steel SA-182 Gr. F316/F316L |
| | Duplex stainless steel SA-182 Gr. F51 |
| Cap | Stainless steel AISI 316/316L |
| | Stainless steel A582 Gr. 303 |
| Nozzle | Stainless steel AISI 316/316L |
| | Stainless steel A564 Gr. 630 |
| | Duplex stainless steel SA-182 Gr. F51 |
| Seat | PTFE, Vespel (polyimide) |

Size: Inlet – 1/2", 3/4", 1", 1-1/2", 2"
Outlet – 3/4", 1", 1-1/2", 2", 3"

The valves are also manufactured at:

Emerson Automation Solutions Final Control US LP
3950 Greenbriar Dr
Stafford, TX 77477-3919
United States

## Application/Limitation

Valves covered by this certificate may be used with gas, steam or liquid with following design conditions:

Design pressure /temperature : As per pressure-temperature ratings of end connection (refer to ASME B16.5 for flanged ends and ASME B16.34 for threaded ends), dependent on the material
Continuous service temperature is limited by the choice of seat material:
+190°C for PTFE
+260°C for Vespel

Discharge coefficient : Type 81/83/81P/86 - 0,816 for steam & gas (ASME)
: Type 81P - 0,720 for liquid (ASME)

Materials and material protection chosen for the specific system shall be suitable for the intended medium and environmental conditions. Valves of austenitic stainless steel shall not be used in direct contact with seawater.

Valves with threaded end connections:

- shall not be installed in systems conveying toxic or flammable media or services where fatigue, severe erosion or crevice corrosion is expected to occur.
- tapered threads: may only be accepted for:
  1) Piping class I where the outside diameter is not more than 33.7 mm
  2) Piping classes II and III where the outside diameter is not more than 60.3 mm.
- parallel threads: shall be allowed for class III, outside diameter not more than 60.3 mm.

Valves covered by this certificate shall not be installed on LNG/LPG applications.

On boilers or steam-heated steam generators safety valves the inside seat diameter is not to be less than 20 mm. Where only one safety valve of ordinary type is fitted, the inside diameter of the valve seat is not to be less than 50 mm

The valves covered by this certificate are not to be considered fire safe, and shall not be installed in systems where fire safe application is required.

## Type Approval documentation

## Tests carried out

Hydrostatic pressure test

## Production Testing

Each valve body shall be subjected to a hydrostatic pressure test at 1.5 times the set pressure (maximum working pressure at room temperature).

Each valve shall be subject to leakage test (at 90% of set pressure) after reset and have set pressure sealed and verified.

## Certification

Boiler safety valves shall be delivered with DNV GL product certificate.

For valves installed on equipment other than boilers, works certificate will be accepted.

Material certificates for valve bodies shall be according to DNV GL Pt.4 Ch.6 Sec.2 Table 3.

## Marking of product

For traceability to this type approval the valves are to be marked as a minimum with:

- Manufacturer's name or trade mark
- Design or type designation
- Size (pipe size of valve inlet)
- Set pressure and capacity
- Arrow to indicate direction of flow

## Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338.