BUTTERFLY VALVES
Radiator valves
The optimal solution for easy and safe transformer radiator isolation

www.cedaspe.com
1 General Features

1.1 Characteristics
The butterfly valves, metal to metal sealing with thin blade (or full tightening type, with o-ring blade), are used on power transformer with the scope to allow the disconnection of a component of the circuit (ie buchholz relay or radiator) without having to lower the oil below the level of the component itself. This kind of valve are preferred to the conventional gate valves for their compact overall dimension in the direction of the oil flow.

1.2 Field of Use
The butterfly valves (standard execution) may be used with the following characteristic values:
- Fluid: mineral oil or silicon fluid
- operating pressure in open position max 10 bar
- operating pressure in close position max 8 bar
- operating conditions (depending from material of gasket) see par 4

2 Construction Features, Finish and Accessories

2.1 Construction Features
Butterfly valves are constructed as follows (please refer to drawings):
- Body in forged mild steel or cut from steel sheet
- Spindle made in steel
- Drive and gland made in brass
- Open/close position indicated by an aluminium plate.
- S/steel screws
- Throttle made in carbon steel (thin blade) or made in brass (o-ring blade)
- O/Rings made in oil resistant rubber

2.2 Finish
Body of the wafer type is zinc plated first and after is protected by one coat of epoxy primer and one coat of polyurethane paint (total thickness 80 µm), final colour RAL 7030; in all types screws and pins are in stainless steel; brass parts and aluminium parts are self colour.
In any case the device is suitable for outdoor installation in tropical climate and with normal industrial pollution.
Body of the welding neck type is self colour without any coating or painting

2.3 Accessories
The valve is supplied with one (or two) O/Ring flange gasket

2.4 Special executions
Special execution are available for very low temperatures or very corrosive ambient. Please contact our technical department.
3 Operating features

3.1 Tightness of spindle

The tightness to oil leakage from the spindle on the butterfly valve is guaranteed by a set of o/rings on the spindle and on the gland obtaining an excellent tightness and at the same time allowing an easy replacement of the gasket.

No leakage is tolerated from the spindle in any case.

3.2 Tightness of butterfly

3.2.1 Metal to metal sealing (thin blade throttle)

The oil tightness of the butterfly is obtained by contact metal to metal, thus assuring a constant performance even after a long use.

Leakage at the butterfly is checked during assembly, testing with oil at 20° C, 1 bar and viscosity of 30.5 cSt.

Following values of max admitted leakage:

<table>
<thead>
<tr>
<th>Nominal diameter of valve in mm</th>
<th>≤ 100</th>
<th>100 &lt; 175</th>
<th>≥ 175</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admitted leakage in dm³/h measured in 1 hour</td>
<td>≤ 0.5</td>
<td>≤ 1.0</td>
<td>≤ 2.0</td>
</tr>
</tbody>
</table>

3.2.2 Full tightening sealing (TW80 with o-ring blade)

The oil tightness of the butterfly is obtained by contact of an o/ring (mounted on the throttle) and the metal body, thus assuring full sealing between throttle and body.

No leakage is present between throttle and body in closed position.

3.3 Operating Torque

The operating torque measured by dynamometric spanner are the following:

<table>
<thead>
<tr>
<th>Nominal diameter of valve in mm</th>
<th>≤ 100</th>
<th>100 &lt; 150</th>
<th>≥ 150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating torque in Nm.</td>
<td>≤ 10</td>
<td>≤ 30</td>
<td>≤ 30</td>
</tr>
<tr>
<td>Closing torque in Nm.</td>
<td>≤ 70</td>
<td>≤ 100</td>
<td>≤ 150</td>
</tr>
<tr>
<td>Opening torque in Nm.</td>
<td>≤ 40</td>
<td>≤ 50</td>
<td>≤ 50</td>
</tr>
</tbody>
</table>

Operating torque: Torque necessary to turn the shaft from the open to the closed position;

Closing torque: Torque necessary to obtain the complete closure of the valve;

Opening torque: Torque necessary to open the valve, after complete closure.
4 Admitted operating conditions

4.1 Standard execution (N) – Nitrile rubber gaskets

- Ambient conditions:
  - Ambient temperature: -20°C to +50°C
  - Relative humidity: 95% to 20°C - 80% to 40°C - 50% to 50°C

- Insulating liquid and its temperature:
  - Mineral oil: -20°C to +110°C
  - Silicone oil: -20°C to +110°C

4.2 Execution H – H-NBR rubber gaskets

- Ambient conditions:
  - Ambient temperature: -40°C to +50°C
  - Relative humidity: 95% to 20°C - 80% to 40°C - 50% to 50°C

- Insulating liquid and its temperature:
  - Mineral oil: -40°C to +140°C
  - Silicone oil: Not admitted

4.3 Execution V – Fluor-rubber gaskets (Viton V)

- Ambient conditions:
  - Ambient temperature: -15°C to +50°C
  - Relative humidity: 95% to 20°C - 80% to 40°C - 50% to 50°C

- Insulating liquid and its temperature:
  - Mineral oil: -15°C to +160°C
  - Silicone oil: -15°C to +160°C

5 Mounting, Adjustment and Maintenance

5.1 Mounting

The throttle valve has to be mounted as shown on reference drawings or at page 5.86. Valve has to be mounted using screws or rods, washers and nuts and putting the o-ring on the groove for flange tightening.

5.2 Operating instructions

The design of the operating system is common to all valves; to open and close the valve operate as follows (please refer to drawings):

- The visible symbol or inscription on plate (10) indicates the valve position;
- To close the valve first remove the seal or padlock (if present);
- With the appropriate spanner turn the drive (2) clockwise 90° to close the valve; counter clockwise 90° to open the valve
- The visible part of plate (10) indicates the actual valve position;

5.3 Maintenance

The Throttle valves do not need periodic maintenance; however it is advisable to check regularly the external tightening of valve
Titolo: RADIATOR VALVE
TYPE TW80-B
WITH O-RING BLADE
(zero leakage)
Data: 12/03/13
Scala: ****
Dis. Nr: 3840
Visto: 11/12
Fig. 1 - Type SW80-A1L  CODE: AVSW080A8L
WEIGHT: 4.5 Kg
Montaggio fra due flange / Mounting between flanges

Fig. 2 - Type SW80-B1L  CODE: AVSW080B8L
WEIGHT: 4 Kg
Sede per O-Ring OR 6400 STD NBR
Seat for O-Ring OR 6400 STD NBR

Schema smontaggio componenti per sostituzione guarnizione
Assembly sketch showing gasket replacement

<table>
<thead>
<tr>
<th>Pos</th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>Steel</td>
</tr>
<tr>
<td>3</td>
<td>Spindle</td>
<td>Steel</td>
</tr>
<tr>
<td>4</td>
<td>Drive</td>
<td>Brass</td>
</tr>
<tr>
<td>5</td>
<td>Gland</td>
<td>Brass</td>
</tr>
<tr>
<td>6</td>
<td>Throttle</td>
<td>Steel</td>
</tr>
<tr>
<td>7</td>
<td>O-ring</td>
<td>HNBR</td>
</tr>
<tr>
<td>8</td>
<td>O-ring</td>
<td>HNBR</td>
</tr>
<tr>
<td>9</td>
<td>Pin</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>10</td>
<td>Label open/closed</td>
<td>Aluminium</td>
</tr>
<tr>
<td>11</td>
<td>Screw</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>12</td>
<td>Rivet</td>
<td>Stainless Steel</td>
</tr>
</tbody>
</table>

Il presente disegno sostituisce i disegni
NR 1297 - 1298 PAG. 5.76.B
The present draw take place drawings
NR 1297 - 1298 PAG. 5.76.B

THROTTLE VALVE
FOR RADIATORS
TYPE SW80 DIN42560

CEDASPE

Data 12/03/13
Scala ====
Dis. Nr 3841
Visto 1 2 3 4
Tronchetto a saldare / Welding neck

Fig. 1 - Type SW80-AOL CODE: VASW080A0L
WEIGHT: 4.5 Kg

Montaggio tra due flange / Mounting between flanges

Fig. 2 - Type SW80-BOL CODE: VASW080B0L
WEIGHT: 4 Kg

Flange gasket for A0–B0
In NBR: Code: GNW085SP6
In CORK: Code: GSNW085SP6

Assembly sketch showing gasket replacement

<table>
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<tr>
<td>6</td>
<td>Throttle</td>
<td>Steel</td>
</tr>
<tr>
<td>7</td>
<td>O-ring</td>
<td>HNBR</td>
</tr>
<tr>
<td>8</td>
<td>O-ring</td>
<td>HNBR</td>
</tr>
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<td>Pin</td>
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<tr>
<td>12</td>
<td>Rivet</td>
<td>Stainless Steel</td>
</tr>
</tbody>
</table>

Il presente disegno sostituisce il disegno NR P2224 – PAG.5.76.G
The present draw take place drawing NR P2224 – PAG.5.76.G

THROTTLE VALVE
FOR RADIATORS
TYPE SW80 DIN42560

Data 12/03/13
Scala =
Dis. Nr 3842
Visto 1 2 3
The present drawing represents an assembly involving the following components:

- **Mounting Kit Code:** AVZT130A00
- **Mounting between flanges**

### Drawing Details:

**Figures:**
- **Fig. A**
- **Fig. B**
- **Fig. C**
- **Fig. D**

**Dimensions:**
- L = 130

**Parts List:**

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Qty</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>TUBO</td>
<td></td>
<td>TUBO</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>TIRANTE M16 X 130</td>
</tr>
<tr>
<td>7</td>
<td>VITE T.E. M16X35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>CASA TRASFORMATORE</td>
<td></td>
<td>CASA TRASFORMATORE</td>
</tr>
<tr>
<td>5</td>
<td>PRIGIONIERO M16X30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td>RONDELLA CROMER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>ROSETTA PIANA M16</td>
<td></td>
<td>ROSETTA PIANA M16</td>
</tr>
<tr>
<td>3</td>
<td>DADO M16</td>
<td></td>
<td>DADO M16</td>
</tr>
<tr>
<td>2</td>
<td>CONTROFLANGIA</td>
<td></td>
<td>CONTROFLANGIA</td>
</tr>
<tr>
<td>1</td>
<td>VALVOLA</td>
<td></td>
<td>VALVOLA</td>
</tr>
</tbody>
</table>

Pos. | FIG. A | FIG. B | FIG. C | FIG. D

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**Notes:**

- The present drawing depicts the mounting sketch of the Radiator valve assembly.
- All necessary parts and their quantities are listed above.

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**Title:** Radiator valve - Mounting sketch -

**Date:** 12/03/13

**Designation:** 3845
## ORDER FORM

**Size:**

<table>
<thead>
<tr>
<th>TW80</th>
<th>SW80</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Type A**
(With Welding neck)

- [ ] With O/Ring Seat
- [ ] Without O/Ring Seat

**Type B**
(Mounting between flanges)

- [ ] With O/Ring Seat
- [ ] Without O/Ring Seat

**Operating conditions:**

- [ ] STANDARD
  (Mild steel Zinc-Plated)
- [ ] OFF-SHORE
  (S/S AISI 316)

**Gasket:**

- [ ] NBR
  (-25°C)
- [ ] HNBR
  (-45°C)
- [ ] Fluorosilicone Blue
  (-60°C)
- [ ] Heavy Duty
  (VITON)

**Notes:**

- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]

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**Titolo:** Radiator valves

**Order sheet**

**Data:** 05/12/17

**Scala:** ****

**Dis. Nr:** 4409

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