Pressure relief valves type SAGAM

two stage, subplate mounting - ISO 6264 size 10, 20 and 32

SAGAM are two stage pressure relief valves with balanced poppet, designed to operate in oil hydraulic systems.

In standard versions the piloting pressure of the poppet ① of the main stage ② is regulated by means of a grub screw protected by cap ③ in the cover ④. Optional versions with setting adjustment by handwheel ⑤ instead of the grub screw are available on request.

Clockwise rotation increases the pressure.

SAGAM can be equipped with a SDHE pilot solenoid valve ⑥ for venting or for different pressure setting.

Mounting surface: ISO 6264 size 10, 20 and 32

Max flow: 200, 400 and 600 l/min

Max pressure up to 350 bar

1 MODEL CODE

<table>
<thead>
<tr>
<th>SAGAM</th>
<th>20 / 10 / 210</th>
<th>100/100</th>
<th>V</th>
<th>E</th>
<th>X</th>
<th>24DC</th>
<th>**</th>
<th>*</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAGAM</td>
<td>= pressure relief valve subplate mounting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size:</td>
<td>10 20 32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Setting pressure and venting option:

- ⑦ = one setting pressure without option
- 10 = one setting pressure with venting, with de-energized solenoid
- 11 = one setting pressure with venting, with energized solenoid
- 20 = two setting pressure with venting, with de-energized solenoid
- 21 = two setting pressure with venting, with energized solenoid
- 22 = two setting pressure without venting
- 32 = three setting pressure without venting

Setting: see section 3 for available setting

Pressure range of second/third setting (1):

- 50 = 4÷50 bar
- 100 = 6÷100 bar
- 210 = 7÷210 bar
- 350 = 8÷350 bar

(1) Only for SAGAM with solenoid valve for venting and/or for the selection of the setting pressure

| Voltage code, see section 7 (1): |
| X = without connector (1): |
| See section 6 for available connectors, to be ordered separately |
| -00-AC = AC solenoid valve without coils |
| -00-DC = DC solenoid valve without coils |

| Solenoid venting valve (1): |
| E = SDHE for AC and DC supply with cURus certified solenoids |

Options, see section 5: |
| E V WP Y |

Seals material, see section 4:

- - = NBR |
| PE = FKM |
| BT = HNBR |

Series number

(1) Only for SAGAM with solenoid valve for venting and/or for the selection of the setting pressure
## 3 HYDRAULIC CHARACTERISTICS

<table>
<thead>
<tr>
<th>Valve model</th>
<th>SAGAM-10</th>
<th>SAGAM-20</th>
<th>SAGAM-32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting [bar]</td>
<td>50; 100; 210; 350</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure range [bar]</td>
<td>4÷50; 6÷100; 7÷210; 8÷350</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max pressure [bar]</td>
<td>Ports T, Y = 210 (without pilot solenoid valve)</td>
<td>For version with pilot solenoid valve, see technical tables SHE015</td>
<td></td>
</tr>
<tr>
<td>Max flow [l/min]</td>
<td>200</td>
<td>400</td>
<td>600</td>
</tr>
</tbody>
</table>

## 4 MAIN CHARACTERISTICS, SEALS AND FLUIDS

- **Hydraulic fluid**
  - Mineral oils: NBR, FKM, HNBR
  - Flame resistant without water: FKM
  - Flame resistant with water: NBR, HNBR
  - Suitable seals type: DIN 51524
  - Classification: ISO 12922

- **Recommended viscosity**
  - 15÷100 mm²/s - max allowed range 2,8 ÷ 500 mm²/s

- **Max fluid contamination level**
  - ISO4406 class 20/18/15 NAS1638 class 9, see also filter section at www.atos.com or KTF catalog

- **Assembly position**
  - Any position

- **Subplate surface finishing**
  - Roughness index Ra 0.4 - flatness ratio 0.01/100 (ISO 1101)

- **Ambient temperature**
  - Standard execution: -30°C ÷ +70°C
  - PE option: -20°C ÷ +70°C
  - BT option: -40°C ÷ +70°C

- **Seals, recommended fluid temperature**
  - NBR seals (standard): -20°C ÷ +80°C, with HFC hydraulic fluids: -20°C ÷ +50°C
  - FKM seals (PE option): -20°C ÷ +80°C
  - HNBR seals (BT option): -40°C ÷ +60°C, with HFC hydraulic fluids: -40°C ÷ +50°C

- **Recommended viscosity**
  - 15÷100 mm²/s - max allowed range 2,8 ÷ 500 mm²/s

## 4.1 Coils characteristics

- **Insulation class**
  - H (180°C) for DC coils
  - F (155°C) for AC coils

- **Protection degree to DIN EN 60529**
  - IP 65 (with connectors 666, 667, 669 correctly assembled)

- **Relative duty factor**
  - 100%

- **Supply voltage and frequency**
  - See electric feature

- **Supply voltage tolerance**
  - ± 10%

- **Certification**
  - CURUs North American standard
**6 ELECTRIC CONNECTORS ACCORDING TO DIN 43650 FOR SAGAM WITH SOLENOID VALVE**

The connectors must be ordered separately.

<table>
<thead>
<tr>
<th>Code of connector</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>666</td>
<td>Connector IP-65, suitable for direct connection to electric supply source</td>
</tr>
<tr>
<td>667</td>
<td>As 666 connector IP-65 but with built-in signal led, suitable for direct connection to electric supply source</td>
</tr>
</tbody>
</table>

**7 ELECTRIC FEATURES FOR SAGAM WITH SOLENOID VALVE**

<table>
<thead>
<tr>
<th>Solenoid valve type</th>
<th>External supply nominal voltage ± 10% (1)</th>
<th>Voltage code</th>
<th>Type of connector</th>
<th>Power consumption (3)</th>
<th>Code of spare coil</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDHE</td>
<td>12 DC, 24 DC, 110 DC, 220 DC</td>
<td>12 DC, 24 DC</td>
<td>666 or 667</td>
<td>30 W</td>
<td>COE-12DC, COE-24DC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110/50 AC</td>
<td>666 or 667</td>
<td>58 VA</td>
<td>COE-110/50/60AC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>115/60 AC</td>
<td>666 or 667</td>
<td>58 VA</td>
<td>COE-115/60AC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>230/50 AC</td>
<td>666 or 667</td>
<td>58 VA</td>
<td>COE-230/50/60AC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>230/60 AC</td>
<td>80 VA</td>
<td></td>
<td>COE-230/60AC</td>
</tr>
</tbody>
</table>

(1) For other supply voltages available on request see technical tables SHE015.  
(2) Coil can be supplied also with 60 Hz of voltage frequency, in this case the performances are reduced by 10 ÷ 15% and the power consumption is 55 VA.  
(3) Average values based on tests performed at nominal hydraulic condition and ambient/coil temperature of 20°C.  
(4) When AC solenoid is energized, the inrush current is approx 3 times the holding current.

**8 REGULATED PRESSURE VERSUS FLOW DIAGRAMS** based on mineral oil ISO VG 46 at 50°C

**9 MINIMUM PRESSURE VERSUS FLOW DIAGRAMS** based on mineral oil ISO VG 46 at 50°C
SAGAM-10

Mass: 3.6 Kg

ISO 6264: 2007
Mounting surface: 6264-06-09-1-97
Fastening bolts:
4 socket head screws
M12x35 class 12.9
Tightening torque = 125 Nm
Seals: 2 OR 123; 1 OR 109/70
Ports P, T: Ø = 14,5 mm
Ports X: Ø = 3,2 mm

SAGAM-10/10/**-EX
SAGAM-10/11/**-EX
Mass: 5.1 Kg

SAGAM-10/20/**-EX
SAGAM-10/21/**-EX
Mass: 6.2 Kg

SAGAM-10/22/**-EX
Mass: 5.9 Kg

SAGAM-10/32/**-EX
Mass: 6.3 Kg

Overall dimensions refer to valves with connectors type 666

SAGAM-20

Mass: 4.8Kg

ISO 6264: 2007
Mounting surface: 6264-08-11-1-97
Fastening bolts:
4 socket head screws
M16x50 class 12.9
Tightening torque = 300 Nm
Seals: 2 OR 411; 1 OR 109/70
Ports P, T: Ø = 24 mm
Ports X: Ø = 3,2 mm

SAGAM-20/10/**-EX
SAGAM-20/11/**-EX
Mass: 6.3 Kg

SAGAM-20/20/**-EX
SAGAM-20/21/**-EX
Mass: 7.4 Kg

SAGAM-20/22/**-EX
Mass: 7.1 Kg

SAGAM-20/32/**-EX
Mass: 7.5 Kg

Overall dimensions refer to valves with connectors type 666
ISO 6264: 2007
Mounting surface: 6264-10-17-1-97
(with M20 fixing holes instead of standard M18)
Fastening bolts: 4 socket head screws
4 M20x60 class 12.9
Tightening torque = 600 Nm
Seals: 2 OR 4131; 1 OR 109/70
Ports P, T: Ø = 28.5 mm
Ports X: Ø = 3.2 mm

Mass: 6.2 Kg

Sagam-32

Overall dimensions refer to valves with connectors type 666