

# PRESSURE REGULATOR

Type REGAL 3



# REGAL 3 Regulator

## Introduction

The **REGAL 3** is a direct-operated, spring set point pressure regulator, used for supplying industries and commercial businesses.

As an option, it can be equipped with a slam shut type VSX2 or OS2 which permits the gas flow to be cut off rapidly and totally in the case of under or over outlet pressure. As a standard feature for outlet pressure settings inferior or equal to 180 mbar, a relief valve is provided. On request, this relief valve may be disconnected and replaced by a dampener.

Also on request, for pressures  $180 \text{ mbar} > P_a \leq 1100 \text{ mbar}$ , the **REGAL 3** can be equipped with a relief valve. This relief valve can be factory adjusted.

The REGAL 3 Series is in conformity with the Pressure Equipment Directive PED 97/23/EC and is classified under Category I.

## Main Features

- **Integral Slam-Shut** • **Ease of Installation** • **Precise Flows** • **Internal Relief**

## Configurations

- **Type Regal 3** Regulator
- **Type Regal 3-VSX2** Regulator with integral slam shut Type VSX2
- **Type Regal 3-OS2** Regulator with integral slam shut Type OS2

## Characteristics

### Inlet Pressure

- Maximum Inlet Pressure (PS)
- Body, Valve Plug, Slam Shut : up to 10 bar
  - Actuator
    - Pd  $\leq$  1.5 bar (PED Version) : 1.5 bar
    - Pd  $\leq$  3.0 bar (Non-PED Version) : 3.0 bar
  - OS2 BMS (Safety Manometric Box)
    - According to size : 5 bar

### Outlet Pressure

- PED Version : 8 - 1500 mbar
- Non-PED Version : 2000 - 3000 mbar

### Operating Temperature

- TS : -30 - 71°C

### Accuracy Class

- AC : 10%

### Pressure Registration

External

### Internal Relief Setting

Inlet Pressure + 90 mbar

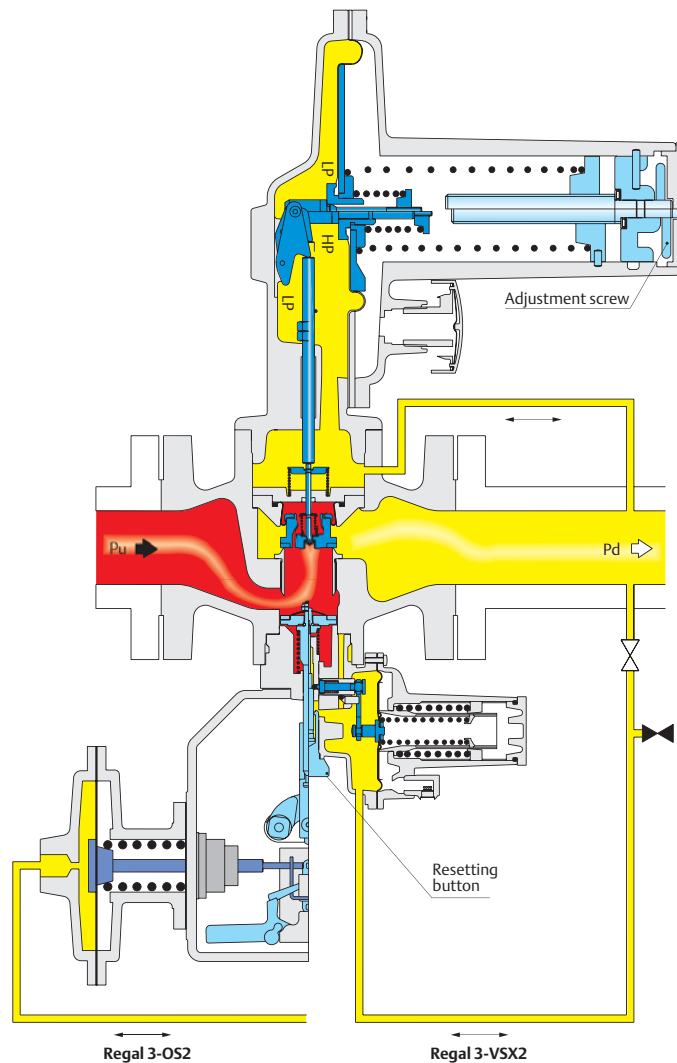
### Connections

- Inlet / Outlet : ISO PN 10/16  
: ISO PN 20 / ANSI 150
- Actuator Impulse Line : 1/2" NPT tapped
- Actuator Vent : 3/4" NPT tapped
- Slam-Shut Impulse Line : 1/4" NPT tapped
- Slam-Shut Vent : 1/4" GAZ

### Materials

- Body : Ductile iron
- Seat : Brass
- Actuator : Aluminium
- Regulator / Slam-shut orifice : Brass
- Regulator valve plug : Aluminium
- Slam-shut valve plug : Aluminium
- Regulator / Slam-shut plug disc : Nitrile

## Principal of Operation



*Types Regal 3-OS2 and Regal 3-VSX2 Pressure Reducing Regulator*

The **REGAL 3** is a pressure reducing regulator with expansion achieved by a balanced valve plug and pressure control by a direct-operated actuator.

The balanced valve plug / stem assures accuracy independent of inlet and outlet pressures.

Pressure control is achieved through the actuator diaphragm, which receives, on the one side, the outlet pressure and, on the other side the spring load, adjusted to the required value by the set point spring.

Tight shutoff is ensured by the regulator plug disc pushing against the orifice.

The regulator can be equipped with a slam-shut valve using a release relay type VSX2 or OS2.

For the EC standard version and for a  $P_d \leq 180$  mbar, an actuator with an integral partial relief valve avoids slam shut tripping in the case of the gas flow being abruptly cut off or temperature increase on the outlet side when the regulator is not in operation.

For the version without relief valve, in the case of over pressure, the diaphragm plate assembly will travel up the actuator and sit into the cap, without any leak or deterioration of the components (disconnecter).

### Orientation and regulator impulse line

The actuator and slam shut can be orientated 360°. The regulator impulse line is connected directly onto the body, which makes maintenance easier (the actuator can be removed without disconnecting the impulse pipeline).

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## Type Regal 3 Characteristics and FS Codes

Regulator FS Codes								Settings		
Relief Valve	Pd (mbar)	Type VSX2 SlamShut		Type OS2 Slam Shut		Without Slam Shut		VSX2 & OS2 Settings		Relief Valve Settings
		Flanges						Min.	Max.	
		PN 10	PN 20	PN 10	PN 20	PN 10	PN 20			
With	20	FSREG3-25	FSREG3-46			FSREG3-36	FSREG3-57	10	50	40
	35	FSREG3-26	FSREG3-47			FSREG3-37	FSREG3-58	17	70	55
	60	FSREG3-27	FSREG3-48			FSREG3-38	FSREG3-59	35	100	80
	100	FSREG3-28	FSREG3-49	FSREG3-70	FSREG3-81	FSREG3-39	FSREG3-60	60 <sup>(1)</sup> /70 <sup>(2)</sup>	160	130
	160	FSREG3-29	FSREG3-50	FSREG3-71	FSREG3-82	FSREG3-40	FSREG3-61	110	235	200
	300	FSREG3-30	FSREG3-51	FSREG3-72	FSREG3-83	FSREG3-41	FSREG3-62	200	430	360
	500	FSREG3-31	FSREG3-52	FSREG3-73	FSREG3-84	FSREG3-42	FSREG3-63	350	700	600
	1000	FSREG3-32	FSREG3-53	FSREG3-74	FSREG3-85	FSREG3-43	FSREG3-64	700	1400	1200
Without	20	FSREG3-25NR	FSREG3-46NR			FSREG3-36NR	FSREG3-57NR	10	40	
	35	FSREG3-26NR	FSREG3-47NR			FSREG3-37NR	FSREG3-58NR	17	60	
	60	FSREG3-27NR	FSREG3-48NR			FSREG3-38NR	FSREG3-59NR	35	90	
	100	FSREG3-28NR	FSREG3-49NR	FSREG3-70NR	FSREG3-81NR	FSREG3-39NR	FSREG3-60NR	60	150	
	160	FSREG3-29NR	FSREG3-50NR	FSREG3-71NR	FSREG3-82NR	FSREG3-40NR	FSREG3-61NR	110	225	
	300	FSREG3-30NR	FSREG3-51NR	FSREG3-72NR	FSREG3-83NR	FSREG3-41NR	FSREG3-62NR	200	400	
	500	FSREG3-31NR	FSREG3-52NR	FSREG3-73NR	FSREG3-84NR	FSREG3-42NR	FSREG3-63NR	350	650	
	1000	FSREG3-32NR	FSREG3-53NR	FSREG3-74NR	FSREG3-85NR	FSREG3-43NR	FSREG3-64NR	700	1300	
1500	FSREG3-33NR	FSREG3-54NR	FSREG3-75NR	FSREG3-86NR	FSREG3-44NR	FSREG3-65NR	1000	2000		

(1) Type VSX2 version (2) Type OS2 version

## Type Regal 3 Spring Set Points

Nominal	Pd (mbar)		Spring		Spring Code
	Min.	Max.	Wire Ø (mm)	Length (mm)	
20	8	25	3.0	171	144136
35	20	55	4.0		122832
60	40	90	4.5		131919
100	60	140	5.5	165	131918
160	80	180	6.0		142539
300	100	340	7.5	180	137054
500	300	550	8.0		131793
1000	400	1100	10.0		144035
1500	750	1500	8.0	170	131793
2000*	1400	2600	10.0		144035
3000*	2000	4000			144035

\* Non-PED version

## Type Regal 3 Flow Ranges - AC 10

Pu (bar)	Pd (mbar)										
	Q m <sup>3</sup> /h(n)										
	20	35	60	100	160	300	500	1000	1500	2000	3000
0.5	270	320	380	320	320	320					
1	470	470	520	560	550	550	510				
2	800	800	950	950	950	1000	1000	950	750		
4	1400	1450	1550	1650	1650	1650	1750	1750	1750	1750	1450
8	2350	2500	2800	2900	2900	2900	2900	2900	2900	2900	2900
10	2600	2900	3200	3200	3200	3200	3400	3400	3400	3400	3400

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