



# SISTEMI INDUSTRIALI

The noise of silence

Exhaust fluid silencers under pressure are usually employed to check noise coming from the steam, air, natural gas, azote, oxygen and other gaseous fluids exhaust to the atmosphere with a pressure higher than the atmospheric pressure.

These equipments are usually set up downstream interception valves, which connect a tank or a piping holding the fluid under

pressure and the atmosphere. The opening of these valves generally causes a sonic outflow running, that is a critical pressure drop and produces an extremely high sound level, not easy to tolerate.

The application of the silencer before the outflow to the atmosphere changes the exhaust conditions of the

line, introduces a gradual and controlled counterpressure and so modifies the relation among the pressures.

So a gradual expansion of the fluid exhausted is possible. The atmospheric conditions are gradually reached and the sound level produced is highly reduced.

## TECHNICAL FEATURES

The silencers are made of a cylindrical, carbon or stainless steel, external body, where the expanders battery takes place. Through it the fluid undergoes a gradual pressure reduction. When the fluid-dynamic conditions of the process don't allow high levels of counterpressure produced through the silencer, avoiding the maxim acoustic efficacy,

another attenuation phase is linked together to the expanders battery inside the silencer.

It's a sound absorption silencer type, which produces a further sound attenuation through absorbing of energy of the sound-waves in a deadening material.

## EXHAUST STEAM SILENCER

The following example refers to the setting up of a silencer at a safety valve exhaust which protects a cylindrical body of a heat recovery steam generator.

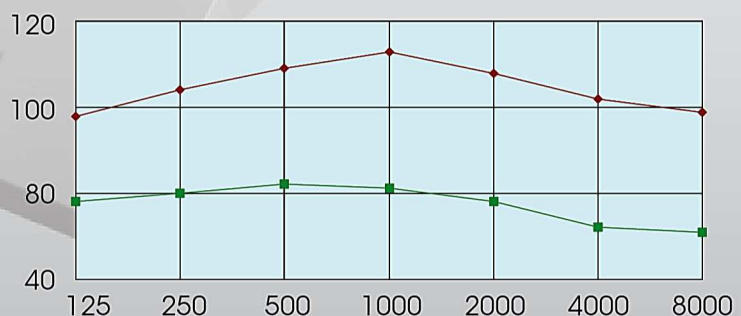
### DESIGN DATA

- capacity : 30 t/h
- temperature : 230 °C
- pressure : 17 bar
- counterpressure : 3 bar

without compromising the exhaust and safety conditions of the vent, the setting up of the silencer has allowed a reduction of the global sound level of 30 dB(A).

### ACOUSTIC RESULTS

- sound pressure level without silencer : 115 dB(A)
- sound pressure level with silencer : 85 dB(A)





## SILENCERS SERIES ES

### DIMENSIONAL FEATURES

MOD.	Ø DN	Ø D	LE	LA
ES 60	65	600	400	900
ES 70	80	700	480	1030
ES 80	100	800	530	1150
ES 90	125	900	620	1350
ES 100	150	1000	680	1500
ES 115	200	1150	770	1750
ES 130	250	1300	870	1900
ES 145	300	1450	950	2250
ES 160	350	1600	1150	2450
ES 175	450	1750	1200	2800

The lengths LE and LA correspond to silencers series ES only with an expansion attenuation battery or to silencers with an absorption attenuation phase, respectively

### DATA FOR THE DESIGN

To design the silencer properly, the customer should convey the following data:

- type of fluid discharged
- type of setting up planned (vertical/horizontal)
- capacity discharged
- fluid temperature upstream valve
- fluid pressure upstream the valve
- counterpressure limit
- residual sound level required
- measure point of the residual sound level
- high of the silencer compared with the measure point

### ACCESSORIES

If required, the silencers series ES can be delivered together with the following accessories:

- inlet flanges and counterflanges
- cover rain
- expansion joint
- support structures

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