



Type SAD Reflection/absorption silencer

Application

The TIO silencers type SAD can be installed in the exhausts of internal combustion engines etc. The SAD silencer gives an excellent attenuation over a wide frequency range.

Design

The acoustical performance of the silencer type SAD is determined by several expansion chambers. The gas flow passes through these chambers which are connected by perforated tubes. Last section of the silencer is filled up with highly efficient sound absorbing material.

The type SAD is a combination of resonance – absorption silencer.

Attenuation

The attenuation is approximately 35 dB(A). The attenuation in each middle frequency is shown in the adjacent graphic. The shaded area shows the differences which probably appear due to the influence of temperature, back pressure and location of silencer. The attenuation also depends on unsilenced noise level.

Gas velocity

The recommended gas velocity is 35 – 50 m/sec. The maximum allowable gas velocity in the silencer is depending on the type of engine and related to the maximum back pressure which may be appear in the whole exhaust system.

Pressure loss

The graph shows the approximate pressure drop across the silencer in relation to the gas velocity. If required, we can advise in detail and make computer calculations.

Temperature

Maximum: 600°C.
Special designs are available for higher temperatures.

Insulation

In order to avoid that noise radiation of the body of the silencer is of influence of the required noise level, it is recommended to insulate the silencer acoustically. As the body temperature is more or less the same as the temperature of the medium, we also advise to insulate the silencer thermally.

Material

In- and outside – normal steel, trade quality, acoustical material – mineral wool
Execution with other materials like stainless steel and Cor-Ten steel are possible.

Paint

One layer of zinc phosphate primer.

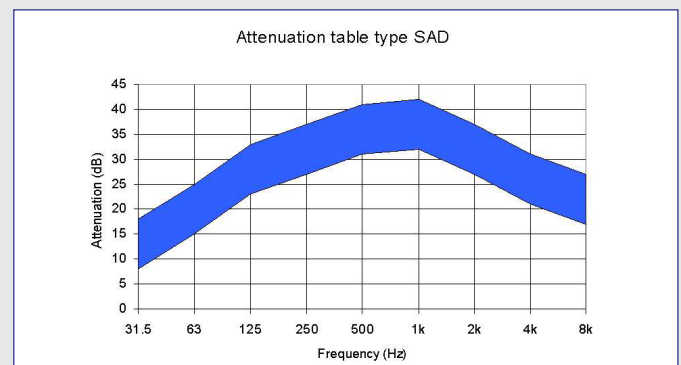
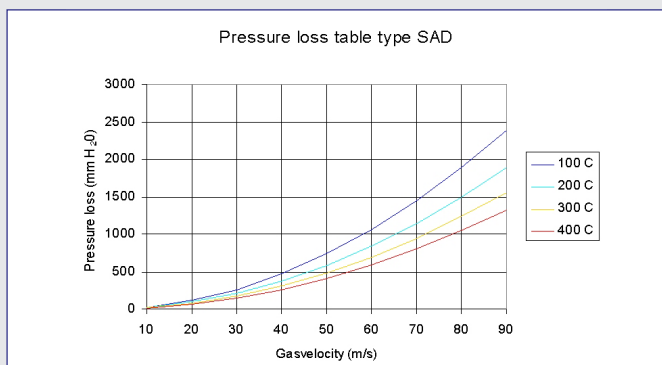
Installation

Type SAD may be installed vertically, horizontally or in any position close to the engine.

Special connection

For in- and outlet are special connections on request available.

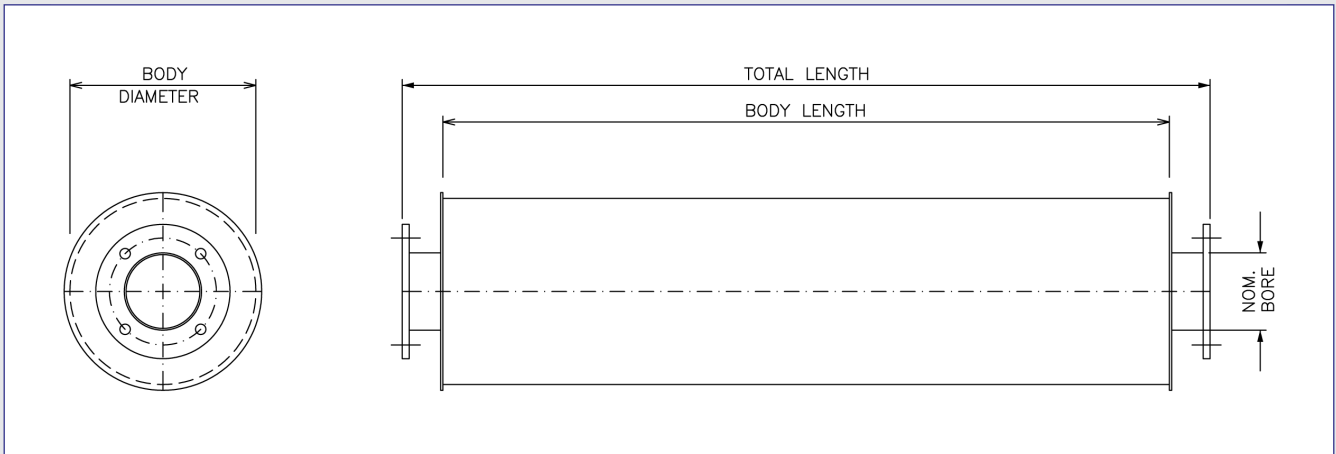
N.B. All TIO silencers can be combined with TIO spark arrestors.



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Executions with TIO thread

Silencer type	Nominal bore	Body diameter	Body length	Total length
1"	25	158	490	560

Executions with TIO flanges

Silencer type	Nominal bore	Body diameter	Body length	Total length
1-1/2"	40	181	520	610
2"	50	240	680	770
2-1/2"	70	240	720	820
3"	80	240	1000	1120
3-1/2"	94	320	1050	1170
4"	100	369	1090	1220
5"	125	390	1335	1475
6"	150	457	1680	1830
7"	175	531	1830	1980
8"	200	608	1980	2130
9"	225	656	2440	2590
10"	250	756	2745	2895
11"	275	850	2800	3000
12"	300	911	2900	3100
13"	325	911	3350	3550
14"	350	911	3760	3960
15"	375	1020	3850	4050
16"	400	1067	3915	4115
18"	450	1220	4065	4265
20"	500	1370	4220	4420
22"	550	1370	4930	5130
24"	600	1525	5080	5280