



## Type VHDD Absorption silencer with spark arrester

### Application

The TIO silencer/spark arrester type VHDD can be installed in the exhausts of internal combustion engines etc.

### Design

The operation of the TIO silencer/spark arrester, type VHDD, is based on the absorption system. The gas flow passes straight-through a perforated tube surrounded by highly efficient sound absorbing material, thus giving an excellent attenuation over a wide frequency range.

### 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/spark arrester.

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/spark arrester 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

If a low body temperature of the silencer/spark arrester is required, it is recommended to insulate the silencer/spark arrester.

### Material

In- and outside – normal steel, trade quality.

Execution with other materials like stainless steel and Cor-Ten steel are possible.

### Paint

One layer of zinc phosphate primer.

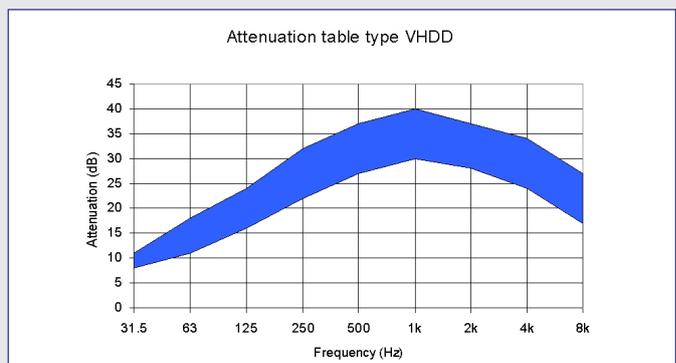
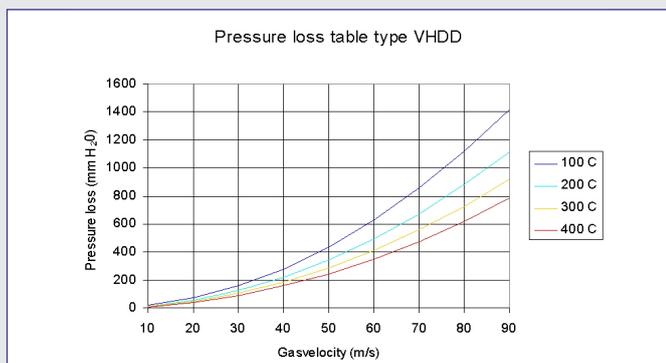
### Installation

Type VHDD silencer/spark arrester may be installed vertically, horizontally or in any position wanted, but in consideration of the position of the spark arrester. The silencer/spark arrester type VHDD has to be installed as close as possible to the end of the exhaust pipe.

When installing at site, it is possible to weld supports on the body.

### Special connection

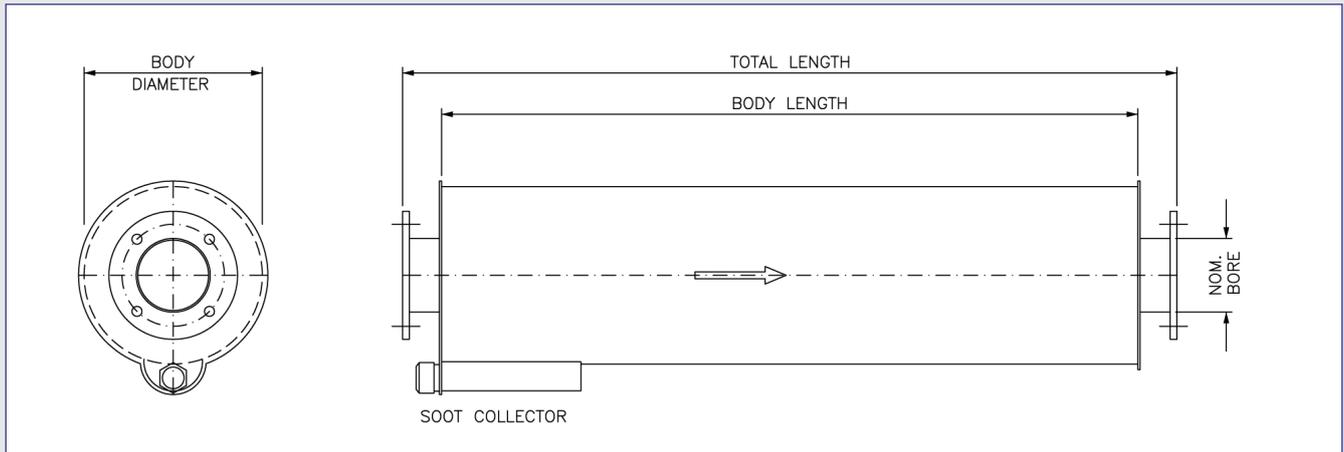
For in- and outlet are special connections on request available.



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### Executions with TIO flanges

Silencer type	Nominal bore	Body diameter	Body length	Total length
1-1/2"	40	180	970	1060
2"	50	240	1000	1090
2-1/2"	70	240	1200	1300
3"	80	320	1290	1400
3-1/2"	94	320	1480	1600
4"	100	370	1570	1700
5"	125	390	1710	1850
6"	150	479	1800	1950
7"	175	537	2200	2400
8"	200	570	2400	2600
9"	225	635	2450	2650
10"	250	700	2850	3050
11"	275	700	2850	3050
12"	300	750	3300	3500
13"	325	750	3300	3500
14"	350	850	3550	3750
15"	375	900	3700	4000
16"	400	950	4100	4400
18"	450	1050	4350	4650
20"	500	1100	4400	4700
22"	550	1200	4650	4950
24"	600	1250	4900	5200