GROUPE BOËT

TECHNICAL DATA SHEET FOR ENGINE EXHAUST SM *EVO*®

This technical sheet presents the acoustic and aeraulic performances of the SM *EVO*® silencers. It also provides a dimensional chart with the weight of each product.

INSTALLATION RECOMMENDATIONS

In order for the silencer performance to be optimal, it is recommended to place the silencer as close as possible to the engine exhaust outlet. Our experts can advise you on the optimal position of the silencer in your exhaust system.
The silencer must be installed in such a way as to allow for expansion with a fixed point at the inlet end. An expansion system must be provided on the installation to absorb the movements and to ensure that no vibration or mechanical stress is applied to the silencer.

In order to avoid any vibration transmission, an «elastic» device should be placed
between the silencer and the support system. For further details, please refer to our Installation, Operation and Maintenance Instructions: OMM-SM-EN document.

ACOUSTIC PERFORMANCE OF SILENCER SM *EVO*®

The acoustic principle of our SM *EVO*® silencers is based on a reactive device associated with a dissipative device. The new *EVO*® range generation achieves higher acoustic performance at low frequencies with a smaller size and lower weight.

The attenuation presented below is intrinsic attenuation (Transmission Loss TL) calculated for an exhaust gas temperature of 450° C. They are given for information only and have been calculated using the latest finite element technologies. The values have been verified on an engine physical test bench.
It is important to note that the exhaust line, the temperature, and the length of the upstream / downstream piping can impact the Insertion Loss IL performance of the installed silencer. On sensitive projects, please contact us to simulate the acoustic behavior of the complete line.

Noise and secondary noise such as background noise, solid noise, sound sources not treated by us are assumed to be negligible or at least 10 dB lower than the desired sound pressure level.

It is possible to place silencers in series. In this case, please consult us to obtain the attenuation values.

TL intrinsic attenuation in dB at different octaves from 31.5 to 8000 Hz

SM30 *EVO*®	31.5	63	125	250	500	1000	2000	4000	8000
DN50	5	11	20	34	36	40	45	35	30
DN65	5	11	20	34	36	40	45	35	30
DN80	5	11	20	36	36	40	45	35	30
DN100	5	11	20	36	36	40	45	35	30
DN125	5	11	20	36	36	40	45	35	30
DN150	5	11	23	40	32	40	45	35	30
DN175	5	11	23	40	32	40	45	35	30
DN200	5	11	23	40	33	45	45	35	30
DN225	5	13	24	36	35	45	45	35	30
DN250	5	16	25	32	39	55	60	50	45
DN300	6	16	27	36	42	55	60	50	45
DN350	6	16	28	40	46	55	60	50	45
DN400	6	16	28	37	46	55	60	50	45
DN450	6	16	28	35	46	55	60	50	45
DN500	6	16	29	33	48	55	60	50	45
DN550	6	16	29	33	48	55	60	50	45
DN600	6	16	29	33	48	55	60	50	45
DN700	7	16	29	33	48	60	60	50	45
DN800	7	16	29	33	48	60	60	50	45

SM40 *EVO*®	31.5	63	125	250	500	1000	2000	4000	8000
DN50	9	18	36	40	42	43	43	41	39
DN65	9	18	36	40	42	45	45	45	39
DN80	9	18	36	41	42	45	45	45	40
DN100	9	18	36	43	45	50	50	45	42
DN125	9	18	36	45	50	55	55	50	43
DN150	9	22	34	48	54	60	60	50	45
DN175	9	21	34	47	50	60	60	50	45
DN200	9	20	33	47	45	60	60	50	45
DN225	9	20	33	45	45	60	60	50	45
DN250	9	20	34	43	45	60	60	50	45
DN300	9	20	35	40	50	60	60	50	45
DN350	9	20	36	36	50	60	60	50	45
DN400	9	20	36	36	50	60	60	50	45
DN450	9	19	36	36	50	60	60	50	45
DN500	9	19	36	36	50	60	60	50	45
DN550	9	19	36	35	50	60	60	50	45
DN600	10	20	37	34	50	60	60	50	45
DN700	11	21	37	34	50	60	60	50	45
DN800	11	21	37	34	50	60	60	50	45

SM50 *EVO*®	31.5	63	125	250	500	1000	2000	4000	8000
DN150	13	27	41	55	55	60	60	55	50
DN175	13	26	40	55	50	60	60	55	50
DN200	12	25	40	55	50	60	60	55	50
DN225	12	25	40	50	50	60	60	55	50
DN250	12	25	40	50	50	60	60	55	50
DN300	12	25	40	50	55	60	60	55	50
DN350	12	25	41	46	55	60	60	55	50
DN400	12	25	42	44	55	60	60	55	50
DN450	12	25	42	43	55	60	60	55	50
DN500	12	25	43	46	55	60	60	55	50
DN550	12	25	43	47	55	60	60	55	50
DN600	12	25	44	48	55	60	60	55	50
DN700	12	25	45	48	55	60	60	55	50
DN800	12	25	45	49	55	60	60	55	50

AERAULIC PERFORMANCE OF SM *EVO*® SILENCERS

SM *EVO*® silencers have been designed to minimize the pressure drop of the exhaust system. The silencer pressure drop is calculated based on the following equation:

$$\Delta P = K \frac{\rho v^2}{2} \ [Pa]$$

With :
K, the coefficient of loss of load [without unit]

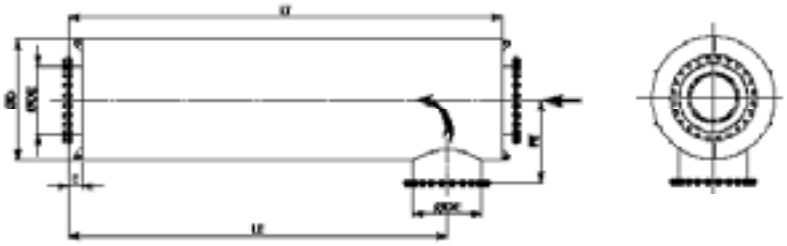
	K (radial inlet, axial outlet)	K (axial inlet, axial outlet)
SM30 *EVO*® standard	3.2	2.2
SM40 *EVO*® standard	3.5	2.5
SM50 *EVO*® standard	3.8	2.8

ρ, the density of the gas in [$kg.m^{-3}$]

v, the average fluid flow velocity in the silencer inlet manifold in [$m.s^{-1}$]

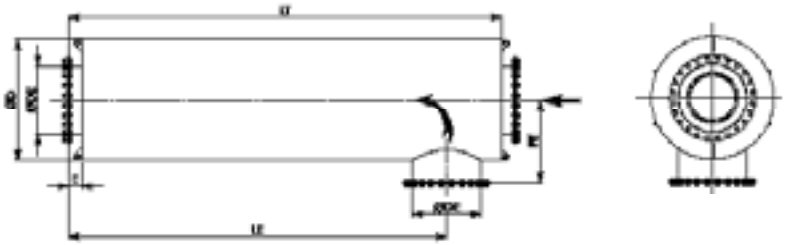
SM 30 *EVO*® TABLE OF DIMENSIONS

DN	50	65	80	100	125	150	175	200	225	250	300	350	400	450	500	550	600	700	800
DE (mm)	60	76	89	114	140	168	194	219	246	274	324	356	406	457	508	557	609	710	812
D (mm)	180	200	250	300	400	400	441	480	528	579	667	718	786	844	897	952	1024	1215	1426
LT (mm)	560	740	900	1100	1250	1636	1874	2066	2381	2655	3027	3207	3539	3801	4090	4256	4464	4814	5123
LE (mm)	440	590	710	880	1025	1250	1440	1631	1880	2098	2484	2733	2980	3224	3426	3633	3818	4173	4472
E (mm)	70	75	75	75	105	95	96	110	110	110	110	120	120	120	130	135	145	150	165
PE (mm)	165	175	210	230	300	330	330	375	405	450	475	550	575	625	685	740	800	905	975
Nett weight (kg) without flanges	8	11	18	29	48	63	80	105	133	174	247	292	351	425	592	669	780	1091	1770
Nett weight (Kg) With flanges, counter-flanges, gaskets & bolts	14	18	26	39	60	80	99	126	156	200	276	332	402	482	655	746	860	1229	1941
Gross weight (Kg) without flanges	11	14	22	35	58	76	98	127	154	195	269	317	382	458	632	714	828	1152	1833
Gross weight (Kg) With flanges, counter-flanges, gaskets & bolts	17	21	30	45	70	93	117	148	177	221	298	357	433	515	695	791	908	1290	2004



SM 40 *EVO*® TABLE OF DIMENSIONS

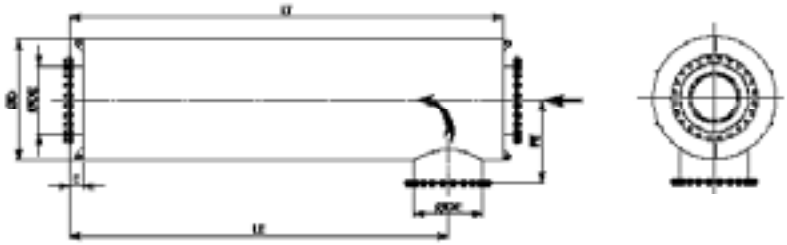
DN	50	65	80	100	125	150	175	200	225	250	300	350	400	450	500	550	600	700	800
DE (mm)	60	76	89	114	140	168	194	219	246	274	324	356	406	457	508	557	609	710	812
D (mm)	305	355	405	455	455	574	595	600	644	673	727	790	825	892	966	1041	1128	1306	1543
LT (mm)	890	1100	1255	1440	1755	1985	2280	2535	2690	2905	3279	3629	3981	4269	4433	4592	4934	5785	5988
LE (mm)	760	970	1080	1260	1550	1686	1927	2135	2271	2410	2683	2855	3267	3433	3549	3769	4243	4944	5180
E (mm)	75	75	75	75	100	100	110	110	110	110	110	120	120	130	130	140	150	150	170
PE (mm)	225	250	275	300	330	405	415	440	465	490	525	575	600	635	685	745	760	910	975
Nett weight (kg) without flanges	23	36	47	60	76	130	154	176	203	239	298	360	415	597	695	821	975	1407	2300
Nett weight (Kg) With flanges, counter-flanges, gaskets & bolts	29	43	55	70	88	147	173	197	226	265	327	400	466	654	758	898	1055	1545	2471
Gross weight (Kg) without flanges	26	39	51	66	86	143	172	197	229	262	323	391	443	638	739	868	1025	1465	2366
Gross weight (Kg) With flanges, counter-flanges, gaskets & bolts	32	46	59	76	98	160	191	218	252	288	352	431	494	695	802	945	1105	1603	2537



SM 50 *EVO*® TABLE OF DIMENSIONS

DN	150	175	200	225	250	300	350	400	450	500	550	600	700	800
DE (mm)	168	194	219	246	274	324	356	406	457	508	557	609	710	812
D (mm)	600	630	650	710	750	825	897	952	1024	1070	1170	1240	1400	1543
LT (mm)	2563	2840	3126	3334	3755	4210	4329	4604	4955	5433	5640	6030	6400	6388
LE (mm)	2128	2380	2630	2755	2955	3300	3555	3840	4160	4399	4750	5050	5585	5530
E (mm)	100	110	126	125	105	110	120	120	130	130	140	151	141	170
PE (mm)	415	440	465	490	525	575	600	620	630	685	745	760	905	975
Nett weight (kg) without flanges	177	203	231	280	354	450	617	710	859	999	1186	1356	2215	2575
Nett weight (Kg) With flanges, counter-flanges, gaskets & bolts	194	222	252	303	380	479	657	761	916	1062	1263	1436	2353	2746
Gross weight (Kg) without flanges	198	229	254	304	379	475	648	742	906	1047	1239	1410	2276	2639
Gross weight (Kg) With flanges, counter-flanges, gaskets & bolts	215	248	275	327	405	504	688	793	963	1110	1316	1490	2414	2810

- Dimensions are given without flanges, add 5 mm for each welded flange.
- Tolerance on dimensions ISO 13920 classe B



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