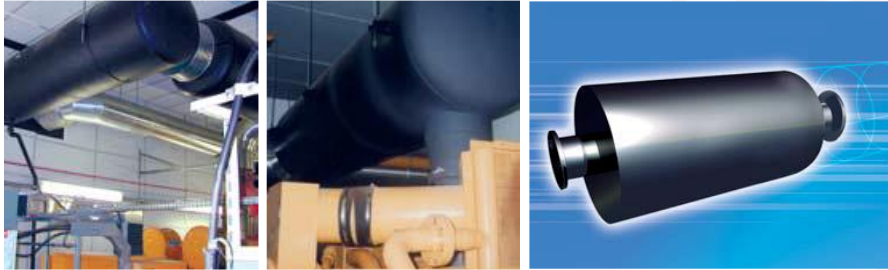


EXHAUST / ENGINE SILENCERS

SM Range - a wide range of silencers adapted for all applications



Our silencers are entirely welded in carbon steel S235 JR with internal and external protection provided by a high temperature black prime paint. Heat emission is reduced by internal insulation in all our silencers ensuring low surface temperatures. The nominal diameter of the inlet, the exhaust (DN) and the noise reduction rating (15, 25, 30, 40) determines the name of the silencers. E.g. SM 30P DN50.

Our research and development organisation has optimised acoustical design of these SM silencers.

As soon as a silencer type is selected according to the noise reduction range, please refer to the table on the following page for the silencer nominal diameter choice.



ADVANTAGES

- ✓ **Adaptability** - many configurations available to suit your design requirements
- ✓ **Availability** - computer aided selection and large stock to reduce lead time
- ✓ **Technical Expertise** - Acoustic, Thermal and Aerodynamic
- ✓ **Research and Development** - Products developed and tested in-house to give optimum performance/environment solutions

KEY FEATURES

- ✓ Space saving, cost saving solutions – a conventional arrangement of reactive and absorptive silencers can be replaced by a single combination silencer;
- ✓ All products fully factory-tested;
- ✓ Specific ranges for CHP and container applications;
- ✓ Circular or rectangular design;
- ✓ Radial, axial and twin intakes;
- ✓ Stand alone and integrated spark arrestors:
- ✓ All types of materials;
- ✓ All types of accessories available on request

APPLICATIONS :

Our SM silencers are designed to reduce the exhaust noise of internal combustion engines of all types (petrol, diesel or gas).

Power ; Industry (test beds facilities) ; Railway ; Military ; Marine...

We offer adaptable products that take into account specific requirements. Their acoustic expertise and competences in project management enable them to propose optimized solutions.

- Rectangular silencers ;
- Catalytic silencers ;
- Stainless steel ;
- Spark arrestors ;
- Design for Marine ; Rail ; Test bench ; etc...

Performance guarantee from 40,45,50 dB(A) and more



TYPES:

- **SM15P-SM25P:** Our products type SM15P and SM25P are absorptive type.
- **SM30P:** Our products type SM30P are absorptive and reactive type.
- **SM40P:** Our products type SM40P are absorptive and reactive type.
- **SMC40:** Our products type SMC40 are absorptive and reactive type.
- **SM50P:** Our product type SM50P is based on a multi-volume reactive arrangement linked to an absorptive device.

EXPANSION:

The silencers form a fixed point. For operation at high temperatures, an expansion system is required to absorb all relative movements.

SELECTION CRITERIA

- Select silencer type (E.g. SM15P; SM25P etc.) based on the acoustic performance requirement
- Select nominal diameter of silencer from corresponding chart based on :

a) For an exhaust gas temperature of 450° C use actual exhaust flow rate Q_{v1} (m³/hr.)

b) For any other exhaust gas temperature (t°C) use corrected exhaust flow Q_{v1} (m³ /hr.) where

$$Q_{v1} = \frac{26,32 \cdot Q_v}{\sqrt{t + 273}}$$

c) For an assumed specific exhaust mass flow of 6.9kg/k will use actual engine power P (kW)

SOUND INSULATION

For high attenuation or low residual levels, we would recommend sound insulation of the silencer casing as well as the flanges and the pipes upstream of the silencer in order to eliminate radiation of unsilenced noise.

VIBRATION ISOLATION

Where high attenuation or low residual levels are required it is advisable to use a flexible connection from the engine to isolate vibration. Similarly, antivibration mounts may be provided between the silencer and its support structure.

INSTALLATION

The gas flow direction must be observed. It is marked by an arrow on the body of the device.

Our silencers can be placed horizontally or vertically depending on the space available and the position of the pipes. We can advise you on the most suitable inline position for the silencer. Full installation, operation and maintenance instructions are provided in our datasheet TE BO 185.

All our silencers > 50 kgs are equipped with lifting lugs welded into the casing of the apparatus to facilitate handling.

DOCUMENTATION AND TESTING

This type of equipment is not a pressure vessel and is therefore not subject to specific tests or controls. A dimensional check report and visual inspection will be carried out in our workshops. For special applications we can provide you with: welding record, certificate of materials, assembly plan, various notes and calculations; identification and packing list, acceptance report by an official body, etc. A drawing of the whole product (CAD format) is automatically provided.

OPTIONAL ACCESSORIES

- Special exterior protection (metal spraying...)
- Other material (Stainless steel, corten steel...)
- Integrated spark arrestors or catalysers
- Flanges, mating flanges, gaskets, bolts.
- Supports

For any special equipment, please contact us.



SPARK ARRESTOR

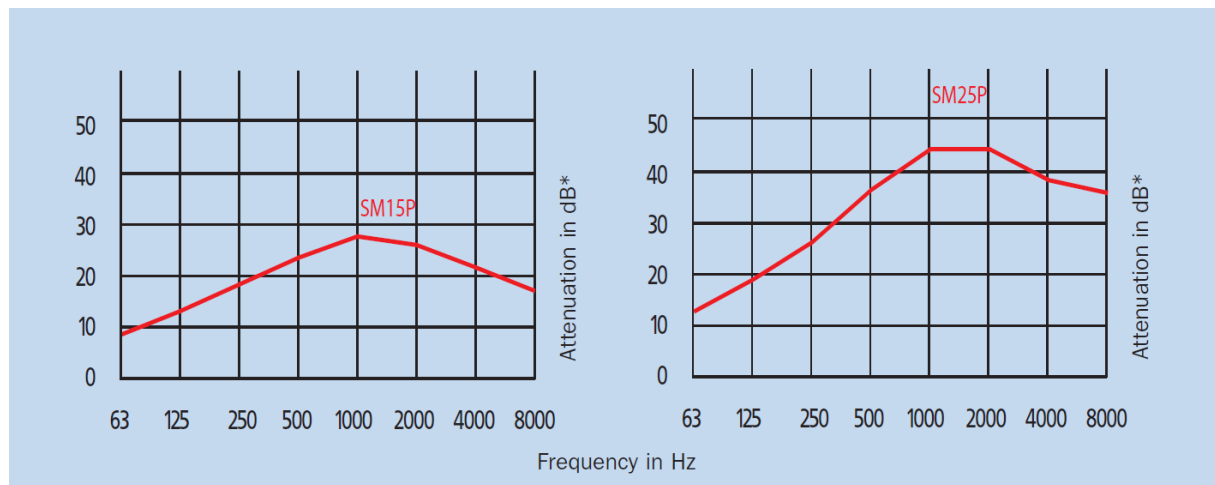


ACOUSTIC PERFORMANCE:

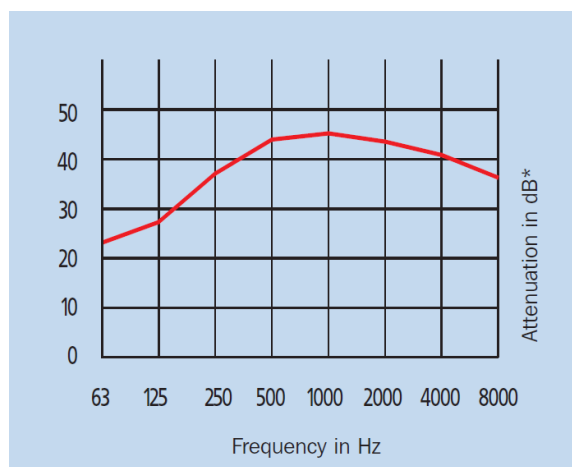
The acoustic definition of our SM silencers has been optimised by our Research and Development department. Our silencers are based on two noise-reducing principles :

- Absorption – SM15P and SM25P
- Reactive and wave phase shift plus absorption for SM30P and SM40P

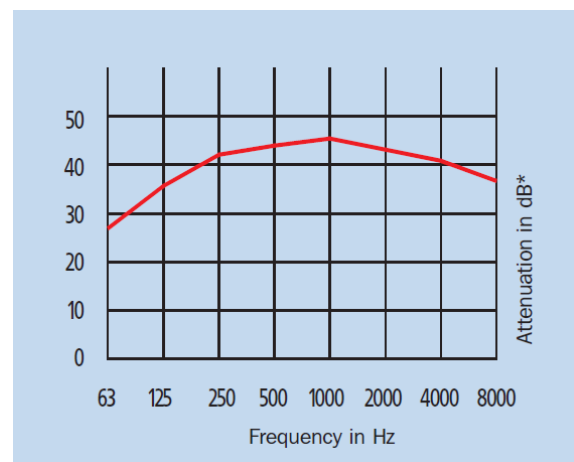
SM15P-SM25P: Guaranteed acoustic performance from 15 to 23 dB(A)*



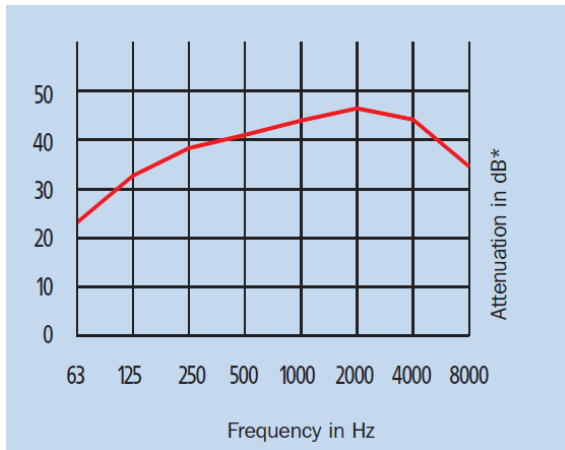
SM30P: Guaranteed acoustic performance from 29 dB(A)*



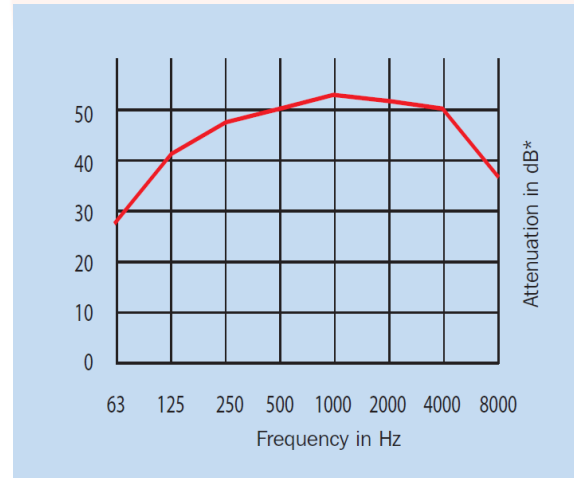
SM40P: Guaranteed acoustic performance from 37 dB(A)



SMC40: Guaranteed acoustic performance from 39 dB(A)*

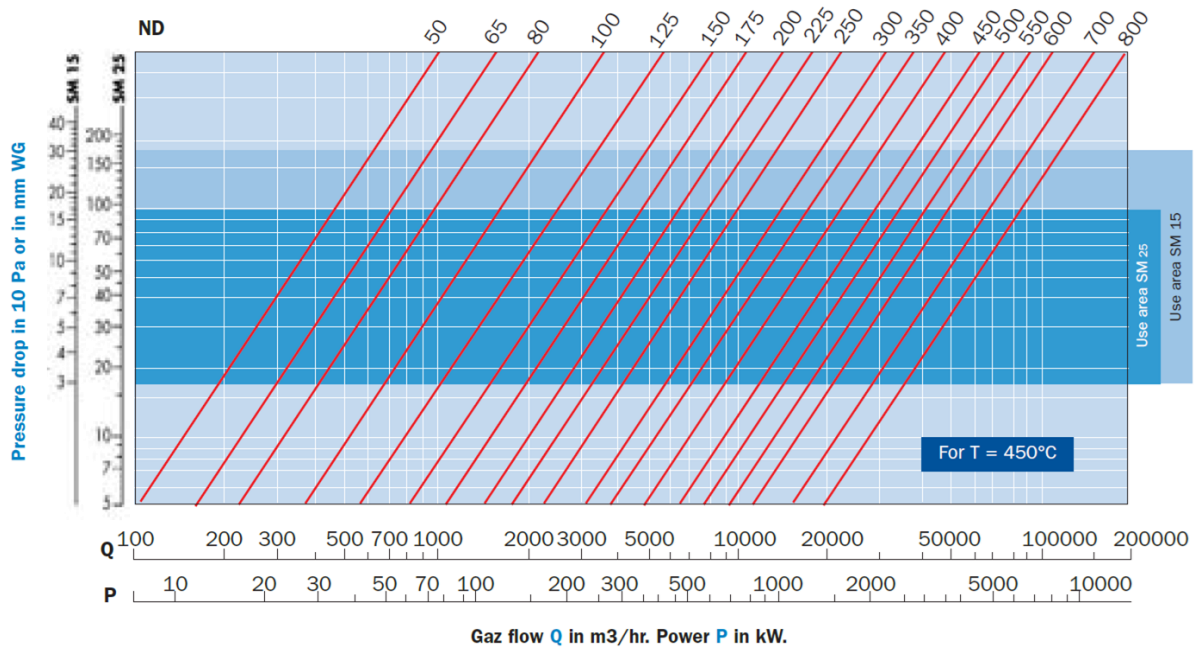


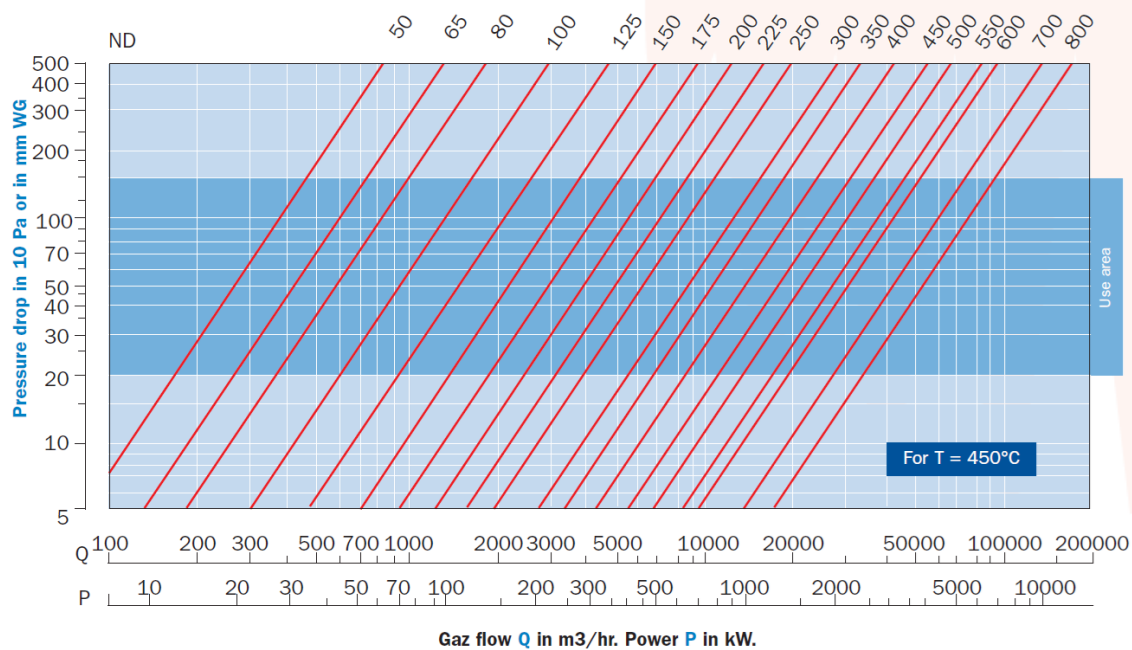
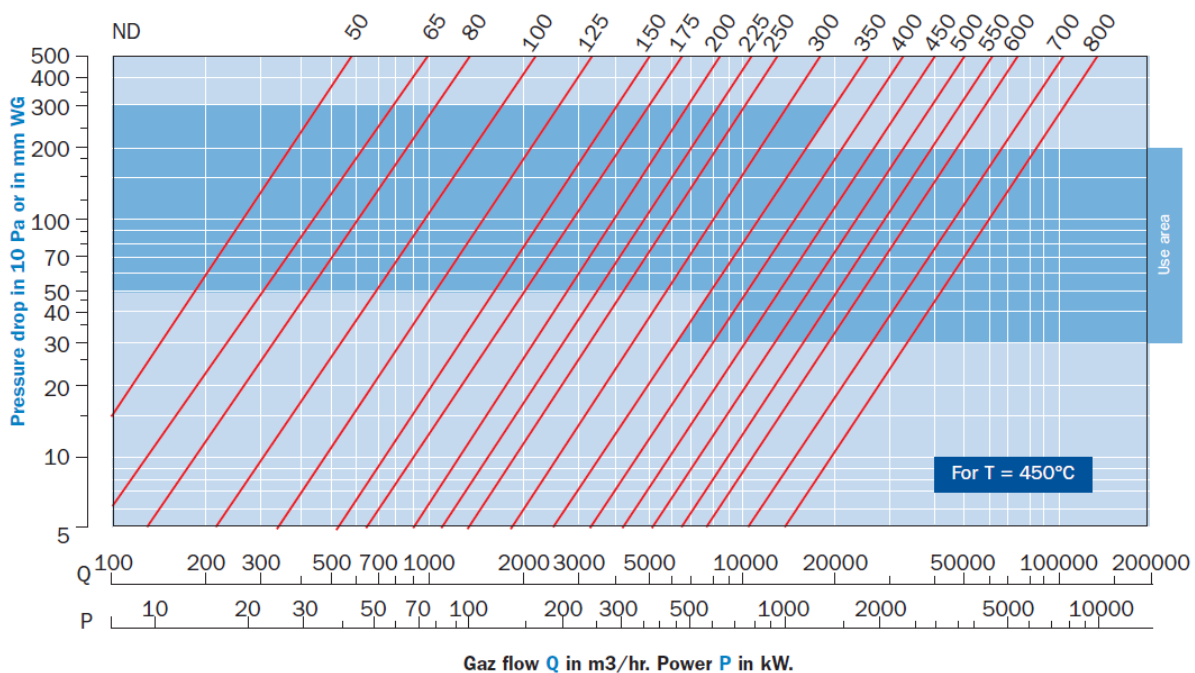
SM50P: Guaranteed acoustic performance from 48 dB(A)



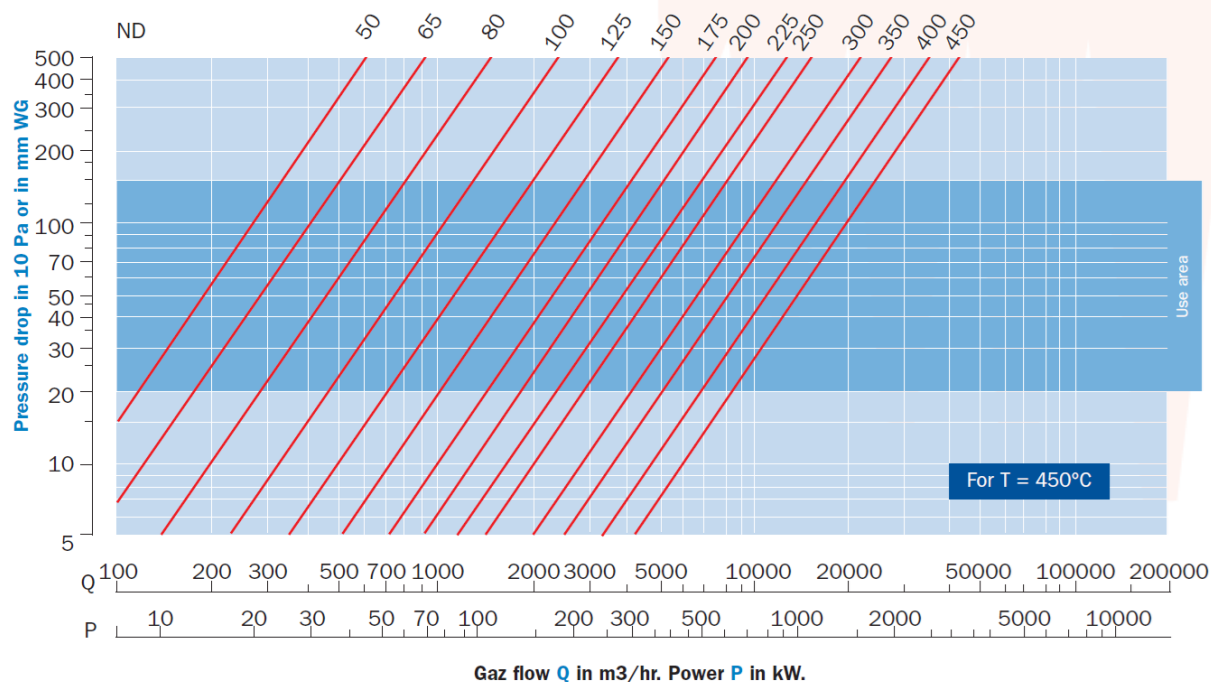
SILENCER NOMINAL DIAMETER CHOICE:

SM15P – SM25P:



SM30P:**SM40P:**

SMC40:



SM50P:

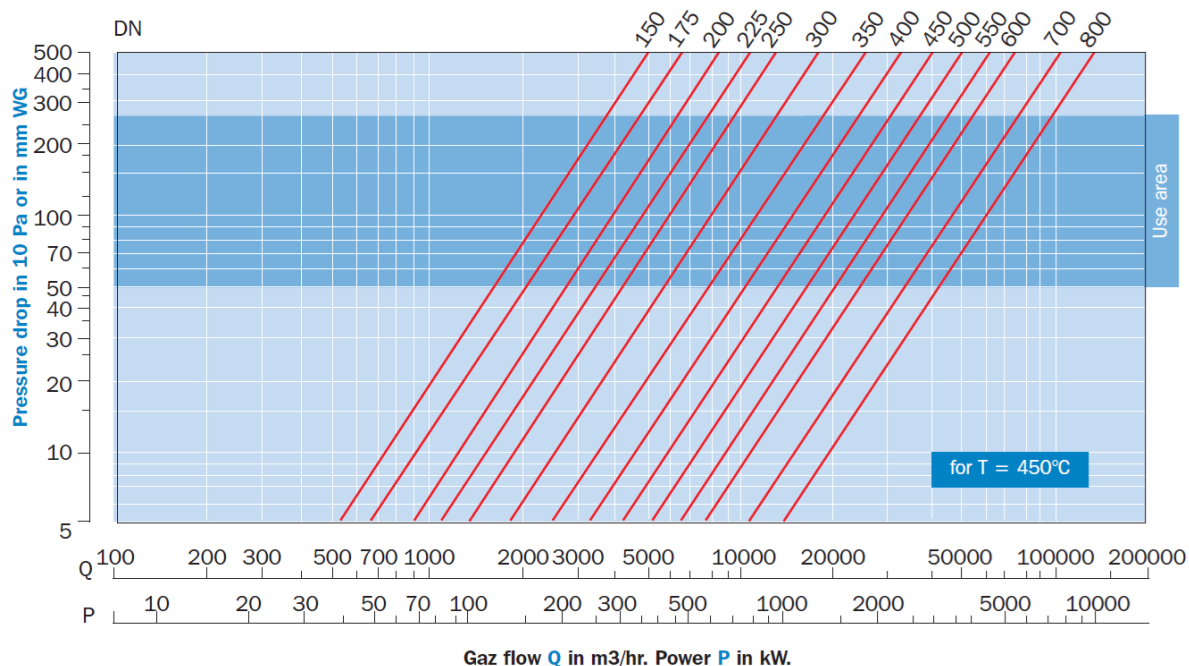


TABLE OF DIMENSIONS: NOMINAL DIAMETER

SM15P – SM25P:

ND	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)	158	158	209	208	260	300	304	360	400	456	500	550	655	758	858	958	1108	1208	1308
LC (mm)	356	456	551	667	776	957	1086	1215	1314	1500	1680	1925	2176	2500	2730	2920	2820	3275	3600
LT (mm)	456	556	651	767	876	1087	1206	1345	1534	1720	1900	2165	2446	2700	2930	3120	3120	3575	3900
Weight SM15 (kg)	4	4	8	9	16	26	27	36	49	57	80	109	169	288	317	435	557	704	875
Weight SM25 (kg)	4	4	9	11	18	29	30	42	56	67	92	125	190	314	377	488	682	857	1106

SM30P:

ND	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	450	500	550	600	650	750	850	900	1008	1108	1208	1310	1510	1612
LT (mm)	560	740	900	1100	1250	1540	1750	2050	2300	2650	2980	3350	3850	4300	4750	4950	5200	6000	6850
LE (mm)	440	590	710	880	1025	1250	1440	1670	1880	2260	2500	2850	3300	3670	4045	4175	4370	5150	5650
E (mm)	70	70	70	85	100	100	110	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
Masse SM25 (kg)	7	10	16	26	43	69	88	115	149	187	255	334	486	720	900	1042	1246	1716	2342

SM40P:

ND	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	608	608	639	708	758	799	908	960	1008	1108	1210	1210	1510	1610
LT (mm)	890	1100	1255	1440	1755	2065	2210	2600	2800	3125	3505	3500	3895	4295	4590	4680	4920	5435	5900
LE (mm)	760	970	1080	1260	1550	1795	1945	2305	2430	2700	3060	3115	3465	3825	4100	4175	4375	4765	5180
E (mm)	70	70	70	70	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
WEIGHT (kg)	23	36	47	60	76	145	175	225	260	340	415	583	672	828	1009	1192	1307	1979	2315

SMC40:

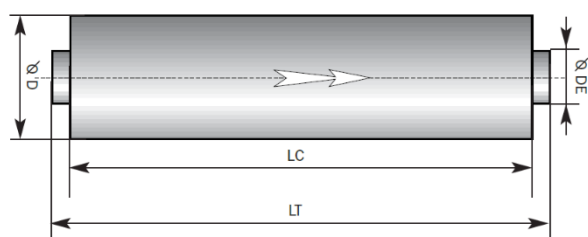
ND	50	65	80	100	125	150	175	200	225	250	300	350	400	450
DE (mm)	60	76	89	114	140	168	194	219	246	274	324	356	406	457
D (mm)	305	305	355	406	456	555	555	605	705	755	856	956	1008	1108
LT (mm)	770	770	900	1050	1300	1465	1530	1770	1890	2060	2260	2520	2710	2965
LC (mm)	700	700	830	980	1200	1365	1420	1660	1780	1950	2150	2400	2590	2845
LE (mm)	190	200	210	220	260	280	310	320	340	350	380	410	440	490
C (mm)	50	50	60	70	90	110	110	125	150	160	185	200	220	245
PS (mm)	275	275	310	350	420	490	500	540	615	650	730	810	845	920
Masse (kg)	31	32	35	45	60	100	105	135	190	280	330	460	530	660

SM50P:

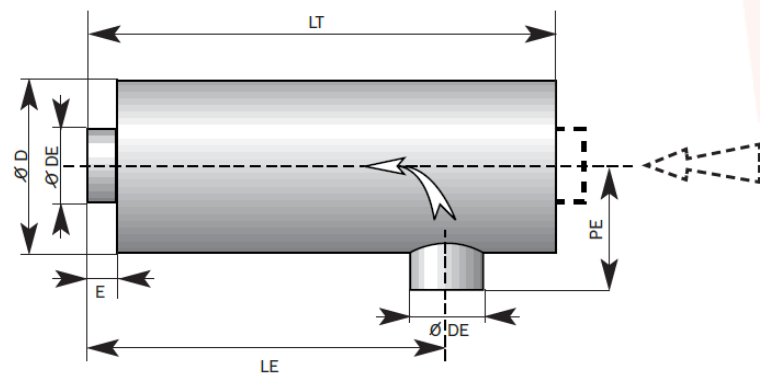
DN	150	175	200	225	250	300	350	400	450	500	550	600	700	800
DE (mm)	168	194	220	246	274	324	356	406	457	508	557	609	710	812
D (mm)	658	658	708	758	800	908	958	1008	1008	1110	1200	1308	1510	1608
LT (mm)	2550	2800	3000	3200	3400	4300	4500	4800	5130	5300	5505	5800	6300	6600
LE (mm)	2285	2505	2630	2775	2955	3915	4070	4330	4640	4810	4860	5255	5585	5785
E (mm)	110	110	110	110	110	120	120	120	130	130	140	150	150	170
PE (mm)	415	440	465	490	525	575	600	620	630	685	755	760	905	975
Masse (kg)	260	280	330	380	430	690	750	860	965	1110	1450	1780	2230	2540

- Sizes (dimensions) are given in mm, weights in Kg.
- Dimensions exclude flanges. Add 5 mm for each flange.
- Tolerances on lengths less than 4000 mm : + - 3 mm. Greater than 4000 mm : + - 4 mm

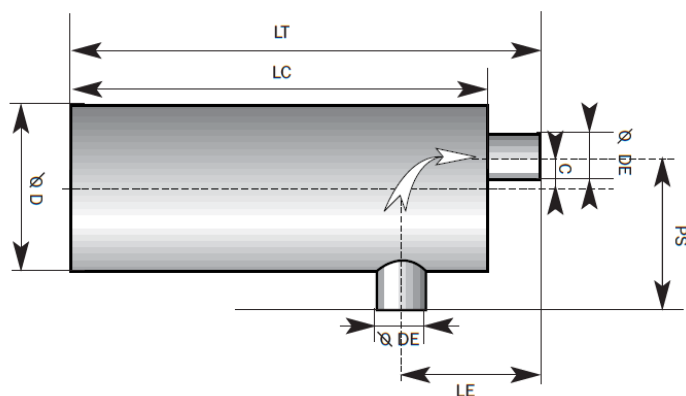
* Mean attenuation range. Value in dB(A) is given for dominant sound spectrum at 125 Hz.



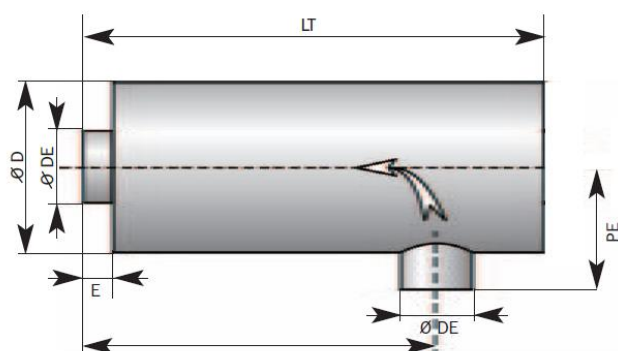
SM15P – SM25P



SM30P, SM40P



SMC40



SM50P