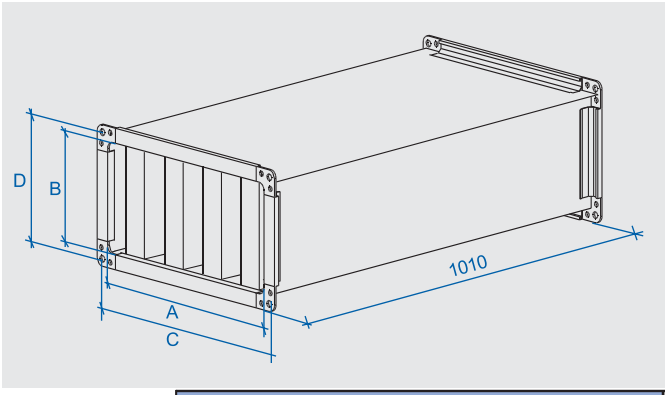
TKU Attenuators



	A (mm)	B (mm)	C (mm)	D (mm)	m ±10% (kg)	graph (curve no.)
TKU 30-15	300	150	320	170	13	❸
TKU 40-20	400	200	420	220	14	❶
TKU 50-25	500	250	520	270	19	❸
TKU 50-30	500	300	520	320	21	❸
TKU 60-30	600	300	620	320	23	❶
TKU 60-35	600	350	620	370	24	❶
TKU 70-40	700	400	720	420	31	❷
TKU 80-50	800	500	820	520	40	❶
TKU 90-50	900	500	930	530	44	❷
TKU 100-50	1000	500	1030	530	50	❶

Application

TKU splitter attenuators are intended for attenuation of the noise transmitted through the air-handling duct both, in the inlet and outlet.

Operating Conditions and Position

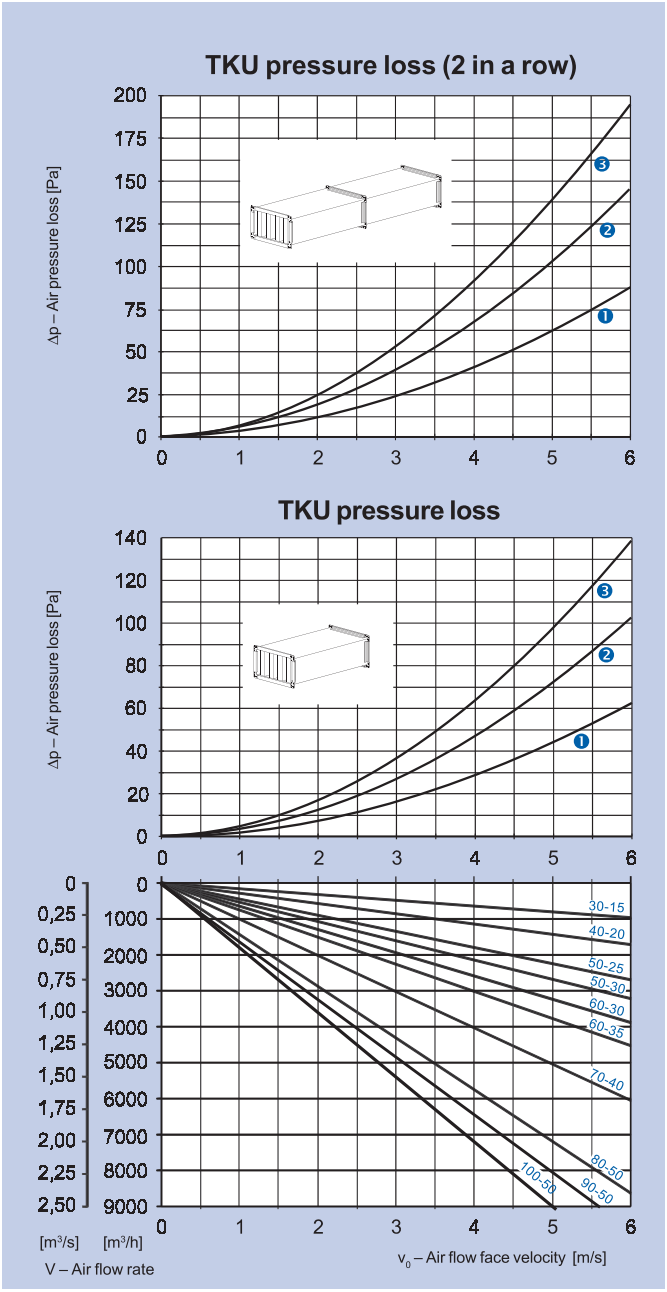
TKU attenuators are designed for direct installation into square air ducts. They are intended for indoor use (when installed outside, they must be protected against water by a cover). Transported air must be free of solid, fibrous, sticky, aggressive impurities. Maximum air flow speed between splitters can be 20 m/s. Operating position is arbitrary, and the range of operating temperatures can be from -40 °C to +70 °C. If possible, we recommend putting a 1-1.5 m long duct in front of the attenuator to partly balance the speed profile of the air flow. Two successive attenuators can be installed in series to increase insertion loss. Pressure loss - air flow rate correlation is shown in the graph "TKU attenuator pressure losses" (two successive attenuators in series).

Dimensional and Type Range

As standard, the splitter attenuators are manufactured in ten Vento dimensional ranges, refer to the table. Non-standard dimensions or sizes can be manufactured according to the customer's requirement. As the attenuator's own noisiness increases with increased air flow velocity, in some cases it is advisable to combine the duct system with an attenuator from a higher (larger) dimensional range. The interconnection must be performed using a 500mm-long transition piece.

Materials

The attenuator consists of the casing and hard installed splitters. The external casing is made of galvanized steel sheets (Zn 275 g/m2) reinforced by "Z" profiles. The splitters are created by the profiled frame, made of galvanized steel sheets and non-combustible sound-absorbing lining. The splitters are mould-resistant and impregnated with water-repellent coating. The splitter surface is backed with a special glass textile. The material complies with A2 Combustibility Class (non-combustible) in accordance with the DIN 4102 standard.



Installation, Maintenance and Service

Before installation, check the surface condition of attenuation splitters and paste self-adhesive sealing onto the connecting flange face. To connect the flanges, use galvanized M8 screws and nuts, for dimensions 90-50 and 100-50 use M10 screws. It is necessary to ensure conductive connection of the flange using fan-washers placed on both sides at least on one flange connection. To brace the flanges with a side longer than 40 cm, it is advisable to connect them in the middle with another screw clamp which prevents flange bar gapping.

If two successive attenuators are installed in series, they must be interconnected by the sides where the faces of the splitters match with the flange edge!

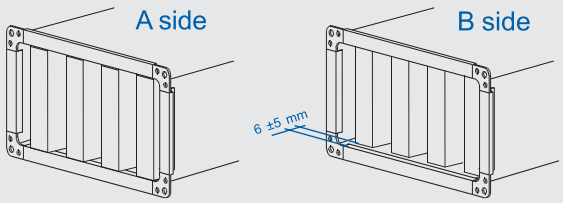
Example of designation

TKU 60 - 30

- 30 – Flange connection B dimension (cm)
- 60 – Flange connection B dimension (cm)
- TKU – Type designation

TKU Attenuators

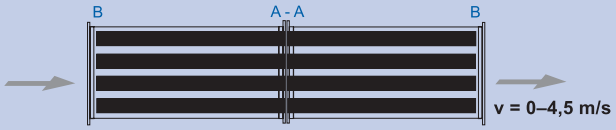
Alignment of attenuators, when connected together



If two successive attenuators are installed in series, they must be interconnected by the A sides (i.e. A-A connection), where the faces of the splitters match with the flange edge. If incorrectly connected (B-B, A-B, or B-A), the splitters do not bear on each other, and do not create continuous 2m-long splitters.

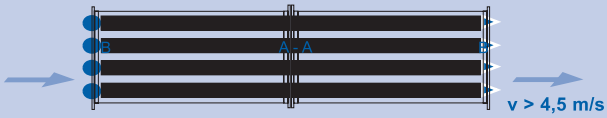
Examples of attenuator arrangements and installation of leading sheets

One standard attenuator, total effective length 1 m; installation of leading sheets is not recommended for air flow velocities below 4 m/s.



Two successive standard attenuators in series, total effective length 2 m; installation of leading sheets on the faces of opposite splitters is not recommended for air flow velocities below 4 m/s. The attenuators must be interconnected by the sides where the faces of the splitters match with the flange edge.

One standard attenuator completed with leading sheets, total effective length 1 m. Leading sheets on the inlet side are shaped in radius R = approx. 50 mm while the leading sheets on the outlet side are shaped in an equilateral triangle.



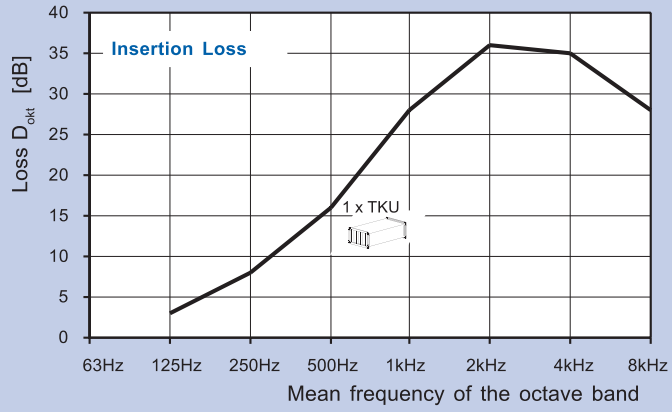
Two successive standard attenuators in series, total effective length 2 m. Leading sheets on the inlet side are shaped in radius R = approx. 50 mm while the leading sheets on the outlet side are shaped in an equilateral triangle. The attenuators must be interconnected by the sides where the faces of the splitters match with the flange edge.

Operating Characteristics

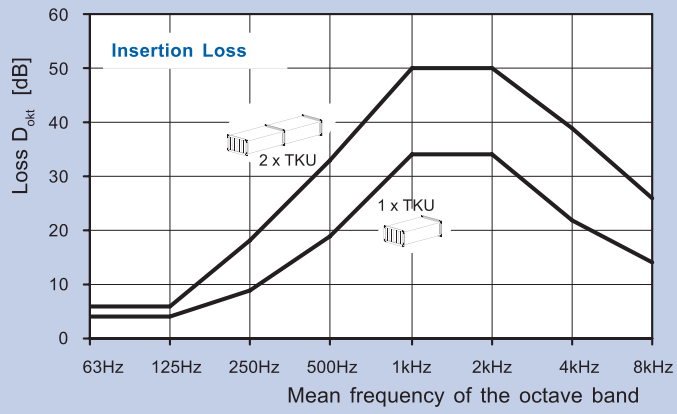
Absorbent TKU splitter attenuators feature excellent attenuation characteristics within the frequency range 500 to 4,000 Hz. Graphs contain the noise attenuation (insertion loss) of attenuators and their own noisiness. Insertion loss is a reduction of sound coming through the duct after the attenuator has been inserted. Attenuation of the attenuator depends on the width, pitch, and total length of the splitters. Pressure loss and own noisiness of the attenuator depend on the pitch of the splitters and the air flow velocity. The attenuation is expressed by the differential of sound power levels [dB] within mean frequencies of octave bands from 63 Hz to 8 kHz. All values in the graphs are related to standard attenuators without leading sheets. This version is suitable for easy assembly of two attenuators in series and for increased attenuation utilizing reflection of sound from the splitter faces back to the sound source. If the leading sheets, made of galvanized steel sheets, are prescribed in the project (and installed) according to the figure, air pressure loss lowered by 15 % and lower own noisiness of the attenuator can be expected; however, at the cost of attenuation decreased by 3 dB in the whole frequency band. Therefore, use of the leading sheets only makes sense at air flow velocities above 4.5 m/s.

Insertion Losses of Attenuators

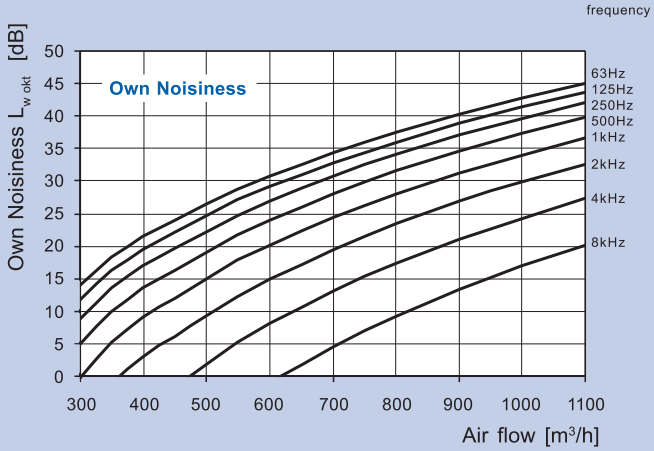
TKU 30-15

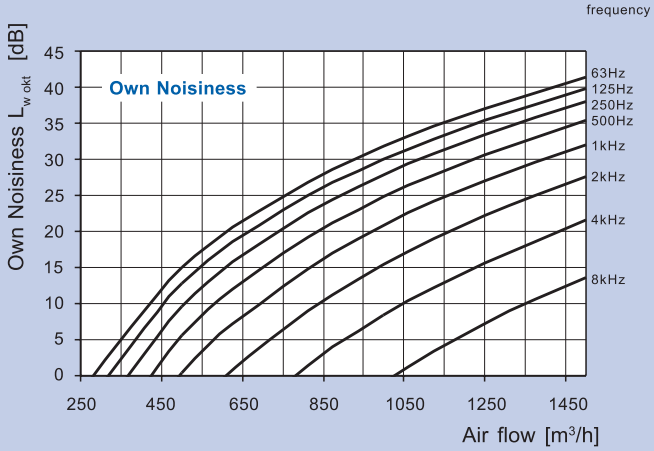


TKU 40-20

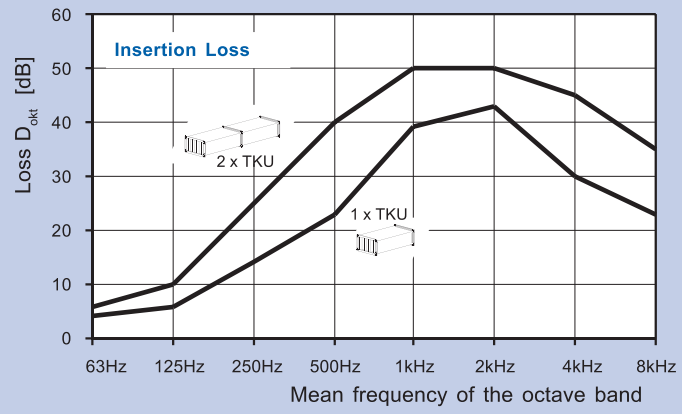


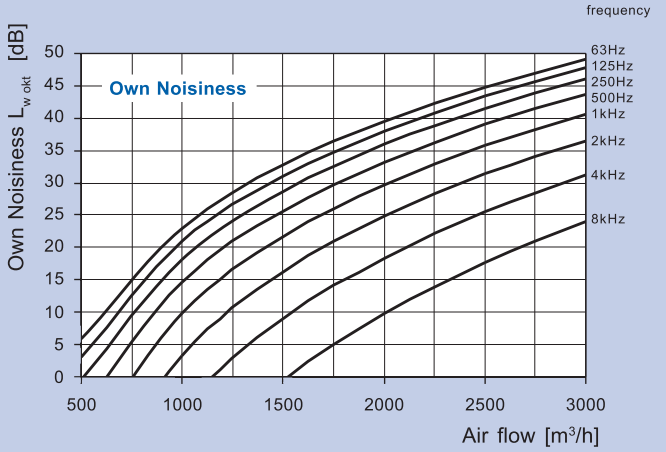
Own Noisiness of Attenuators



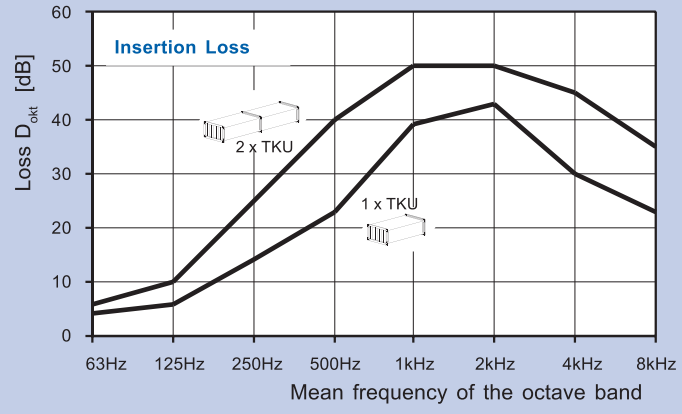


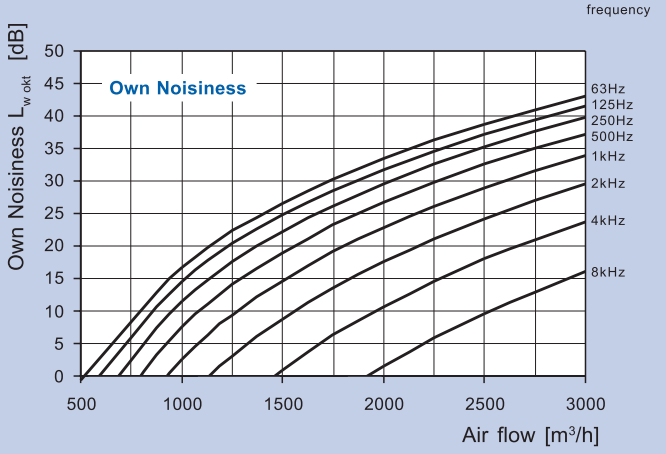
TKU 50-25



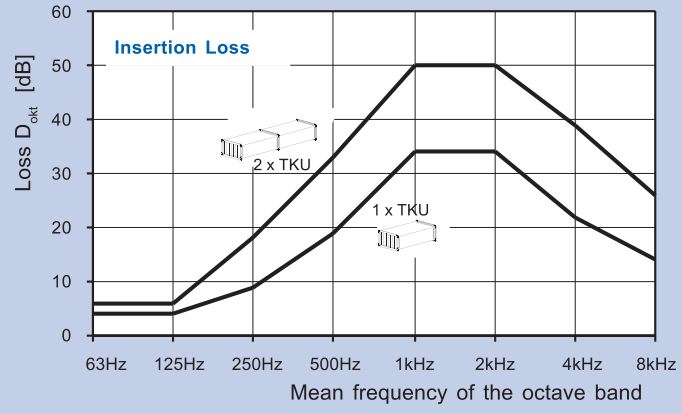


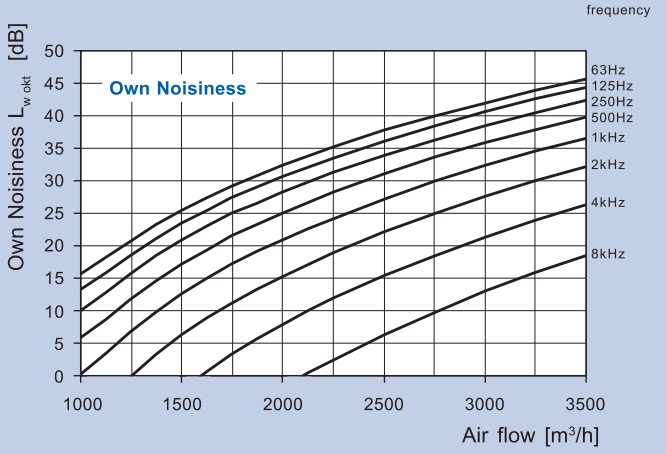
TKU 50-30



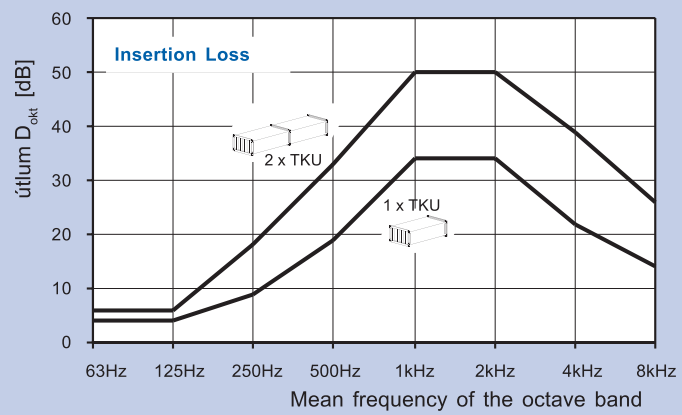


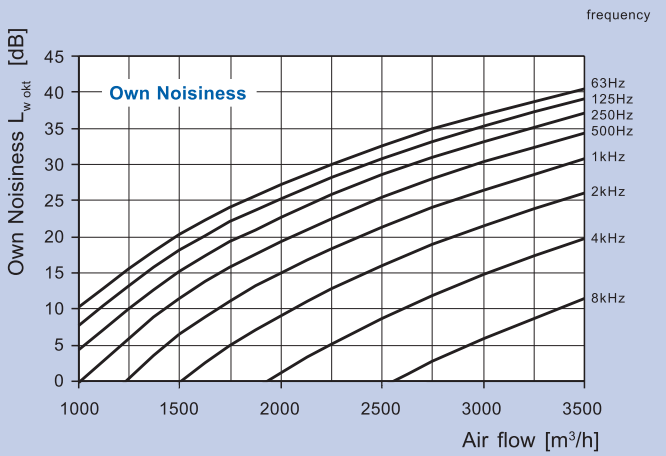
TKU 60-30



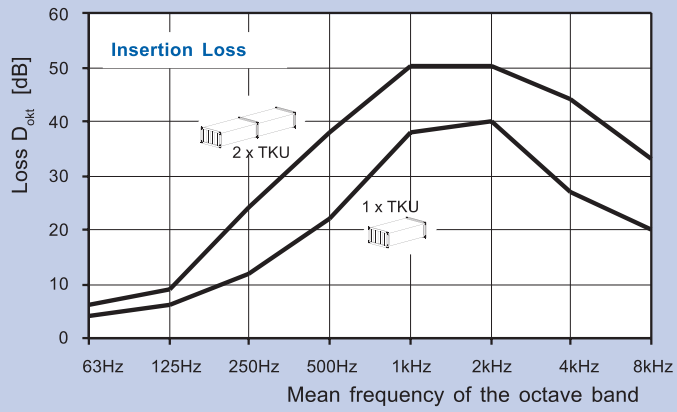


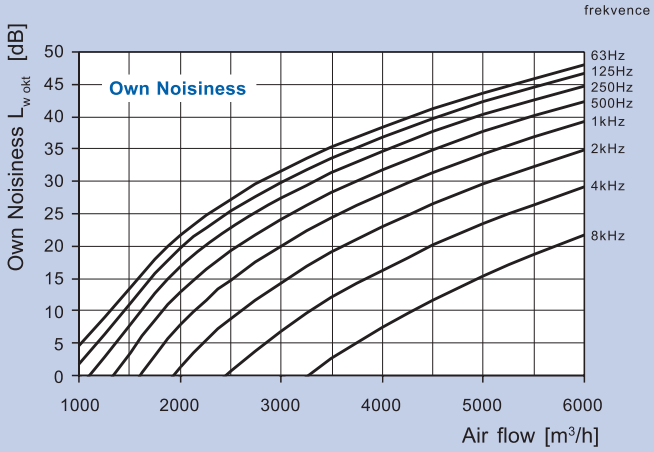
TKU 60-35



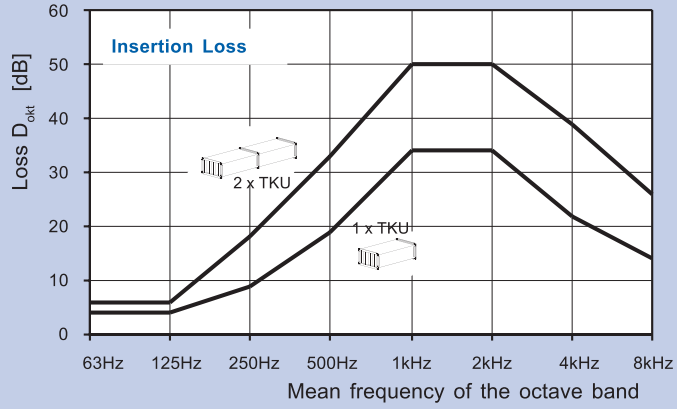


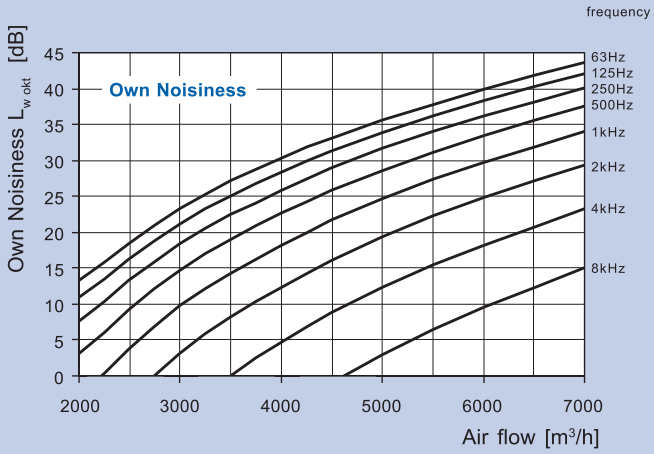
TKU 70-40



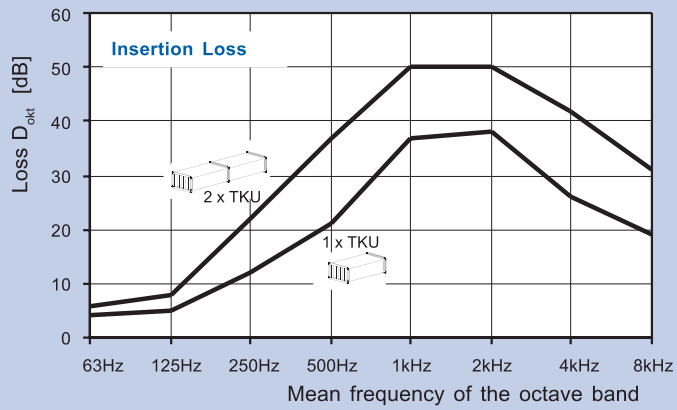


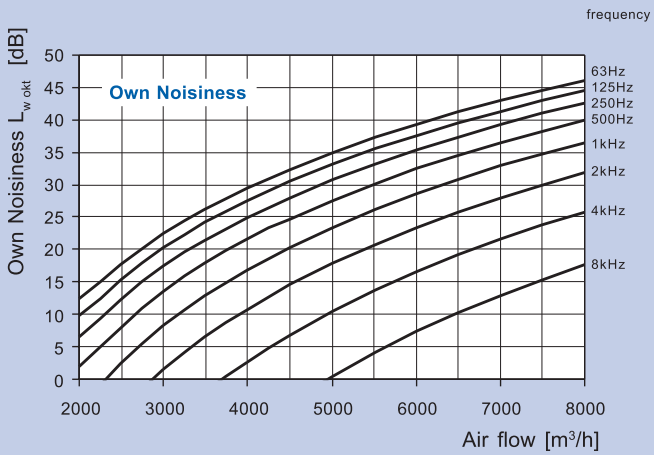
TKU 80-50





TKU 90-50





TKU 100-50