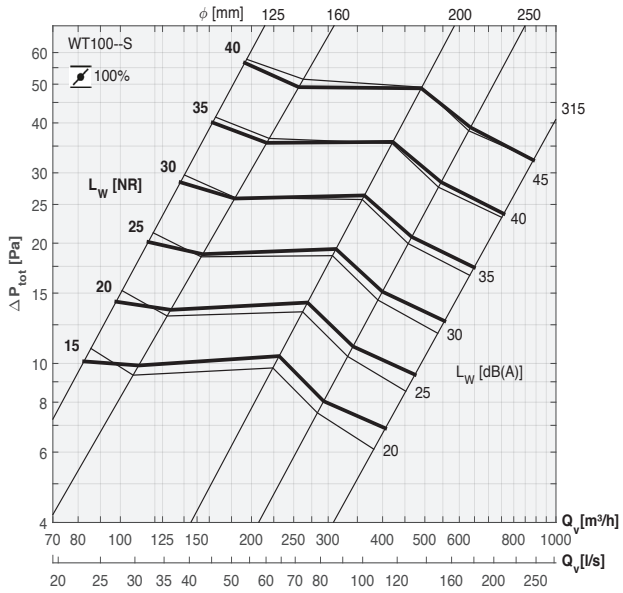
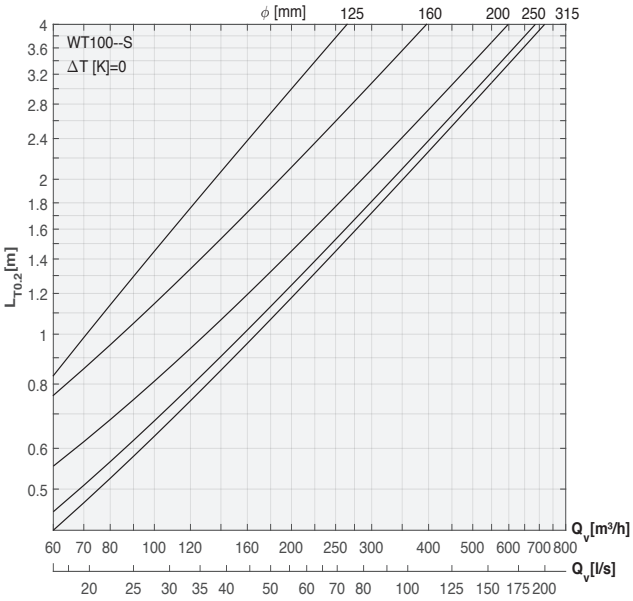
SELECTION

SUPPLY

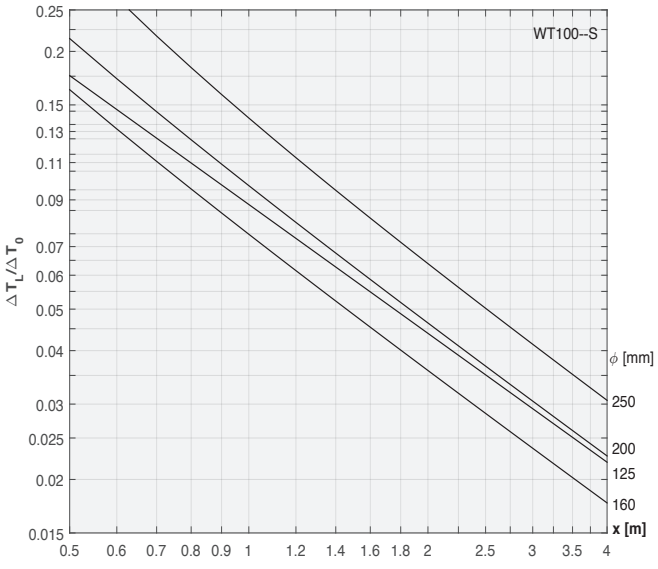
SOUND POWER, PRESSURE DROP



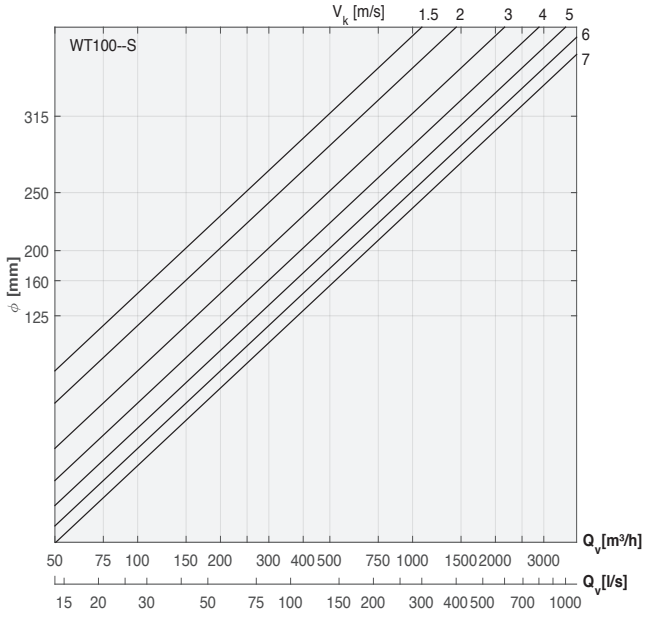
THROW



TEMPERATURE



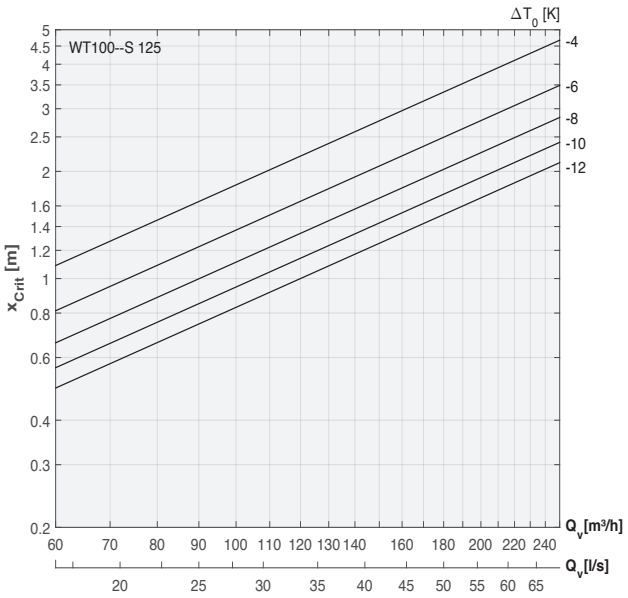
AIR DISCHARGE VELOCITY

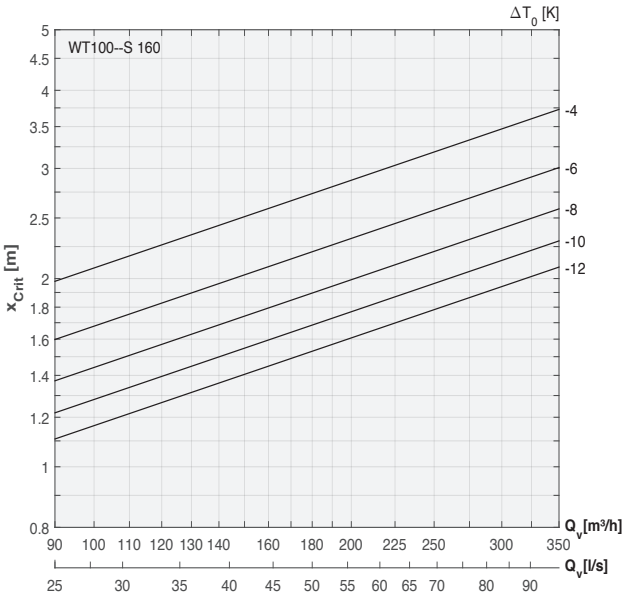


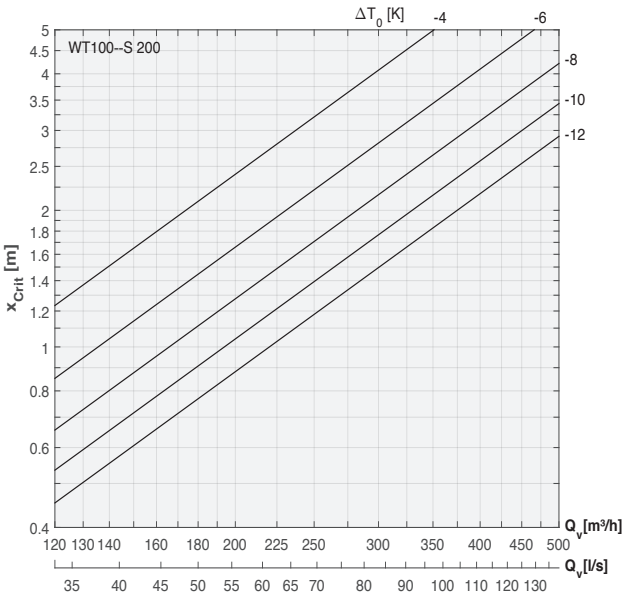
To calculate the airflow behavior in rooms as well as performance data such as sound level and pressure loss, please consult our **FACT selection software.**

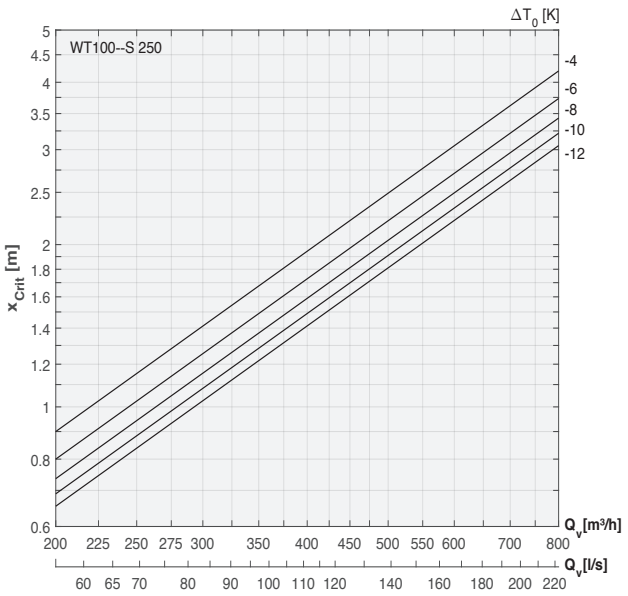
SELECTION

CRITICAL DISTANCE









To calculate the airflow behavior in rooms as well as performance data such as sound level and pressure loss, please consult our **FACT selection software.**

SELECTION

AIR DISCHARGE SURFACE AREA

	Ø [MM]				
	125	160	200	250	315
A_k [m²]	0,152	0,0207	0,0271	0,456	0,0902

SELECTION EXAMPLE

Known data		
supply air flow rate, Q_v	[m³/h]	150
supply air temperature, T_0	[°C]	20
ambiant temperature, T_a	[°C]	24
max. allowable sound pressure, l_p	[dB(A)	30
acoustic room attenuation, ΔL_r	[dB(A)	8
max. air velocity in occupied zone	[m/s]	0,2
selection from graphs		
Sound		
requested max. sound power, $L_{w,L}$ (= L_p + ΔL_r)	[dB(A)]	38
proposal of size, Ø	[mm]	160
Pressure drop		
total pressure, ΔP_{tot}	[Pa]	18
Velocity		
air discharge surface area A_k	[m²]	0,0207
discharge velocity V_k, Q_v/A_k (or by graph)	[m/s]	2,0
throw, $L_{T0.2}$	[m]	1,6
Temperature		
critical distance @ $\Delta T_0 = T_a - T_0$, x_{crit}	[m]	2,5
temperature coefficient @ $L_{T0.2,L}$, $\Delta T_x/\Delta T_0$	[-]	0,045
-->temperature $T_x = T_a-(\Delta T_x/\Delta T_0)\ (T_a-T_0)$	[°C]	23,8

LEGEND

Symbol	Unit	
A_k	[m²]	effective air discharge surface area (measured)
L_W	NR] / [dB(A)]	sound power
$L_{T0.2}$	[m]	distance at which the jet centreline velocity decreases to 0.2 m/s
ΔP_{tot}	[Pa]	total pressure loss
Q_v	[m³/h] / [l/s]	airflow
ΔT_x	[K]	difference between ambiant temperature and jet centreline temperature at distance x
ΔT_0	[K]	temperature difference between ambiant air and supply air
V_k	[m/s]	air discharge velocity based on A_k
x	[m]	distance measured from the diffuser centre
x_{crit}	[m]	critical distance at which the jet detaches from the ceiling because of ΔT_0
⦟	[%]	valve position (100% = open)