UltraLink Controller FTCUJB

Description

Application
FTCUJB is suitable for measuring and controlling air flow and measuring temperature. Communication is established via analog signals and/or digital signal using Modbus.

FTCUJB can also be commissioned via Bluetooth.

The OneLink app is the perfect tool to monitor and adjust the airflow directly via a mobile device, which speeds up installation and commissioning.

FTCUJB are provided with remote support via cloud solution for trouble shooting.

Design
FTCUJB consists of a sensor body attached to a damper body with Lindab Safe gaskets.

Two transducers are mounted on the sensor body and connected to a display unit. The display unit is mounted on top of a shelf on the damper body.

The product has a pre-mounted cable which makes it easy to connect.

The shelf, FTES, can be used for mounting equipment such as an electrical junction box or a Regula Combi.

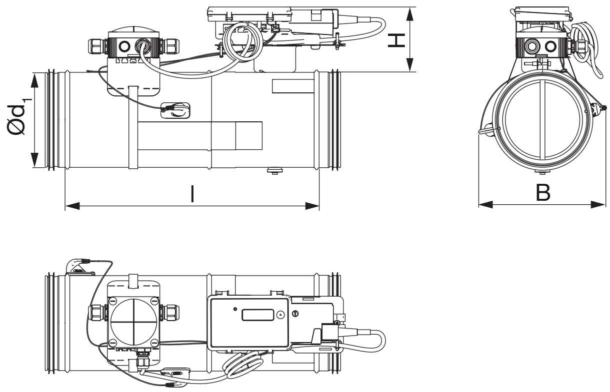
Firmware
Upgrading the firmware allows you to always have access to the latest functionalities in UltraLink.

Maintenance

Normally does not require any maintenance.

The visible parts of the device can be wiped with a damp cloth.

Dimensions



$Ød_1$ nom	l mm	H mm	B mm	m kg
100	321	108	160	1,87
125	345	108	185	2,14
160	423	108	220	2,94
200	493	108	260	3,55
250	590	108	310	4,88
315	720	108	375	6,61

Special versions

We can supply UltraLink with the following special designs (Ø 100 – 315):

- White (RAL 9003)
- Black (RAL 9005)
- Stainless steel 4404 (acid-proof)

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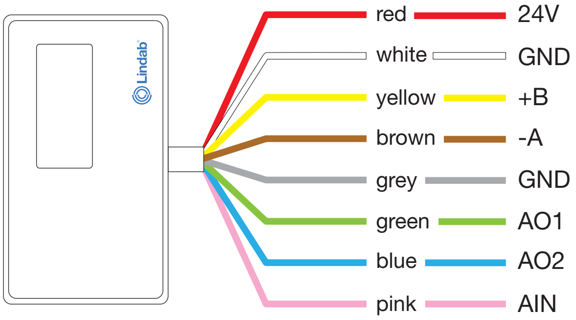
Factory settings

	Default		On request	
	Value	Parameter	Value	Parameter
Min. flow velocity [m/s]	0		0,7	
Max. flow velocity v(nom) [m/s]	7		10 15	
Analog in range [V]	2–10	Flow	0–10	Flow
Analog out 1 range [V]	2–10	Flow	0–10	Flow
Analog out 2 range [V]	2–10		0–10 2–10 0–10	

Wiring

For wiring with premounted cable:



Red **24V**, power supply (AC G, DC +) *
White **GND**, power supply (AC G0, DC -) *
Yellow **+B**, connection for Modbus via RS485
Brown **-A**, connection for Modbus via RS485
Grey **GND**, ground (system neutral)
Green **AO1**, analog output
Blue **AO2**, analog output
Pink **AIN**, analog input

*) When using AC terminal 1 (G) should have system potential and terminal 2 (G0) should be system neutral.

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Technical data

Power supply	AC/DC	24 (19-28)	V
Cable grommet	Max outer diameter	7	mm
Cable (Bus recommended)	RS485 standard cable, 2-wire shielded twisted pair, recommended 0,25 mm² (LIYCY cable)		
Power consumption	Dim. 100–315	2	W
Power consumption	For wiring dim. 100–315	3	VA
Premounted cable	Lenght	0,7	m
Degree of protection	EN 60529	IP44	
Tightness class to the environment	EN 12237	D	
Tightness class to the environment	EN 1751	ATC 2	
Tightness class, past a closed damper	EN 1751	4	
Pressure class, Δp closed damper	Dim. 100–315	C (max. 5000 Pa)	
Storage temperature range		-30 to +50	°C
Maximum ambient moisture		95	% RH
Connection	RS485 standard or analog		
Protocol	Modbus		
Output	Flow Flow Velocity Temperature Damper position (0% fully closed, 100% fully open)		m³/h l/s m/s °C %
Velocity range	For guaranteed measurement uncer-tainty	0,2 - 15	m/s
Measurement uncertainty flow (assuming correct installation.)	Depending on which is the greatest of the percentage or the absolute number for the specific products size.	±5 Dim. 100 = ±1,00 Dim. 125 = ±1,25 Dim. 160 = ±1,60 Dim. 200 = ±2,00 Dim. 250 = ±2,50 Dim. 315 = ±3,15	% or l/s l/s l/s l/s l/s l/s
Operating temperature range		-10 to +50	°C
Measurement uncertainty temperature		±1	°C
Bluetooth signal	Frequency	2402 - 2480	MHz
	Output power	-40 to +9	dB
Bluetooth range (free line of sight)	UltraLink	100	m
Firmware	Upgradable for optimal performance and new features		

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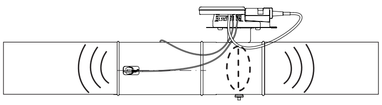
Technical data

Pressure drop graphs with noise data to ducts for dimensioning

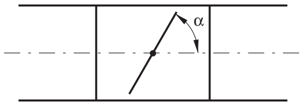


The solid curves show the pressure drop, Δp_t, over the damper as a function of flow q, and setting angle α.

The dashed curves give the A-weighted sound power data, L_{WA}, in dB to the duct. These curvs are intended for brief comparision. For more accurate calculation, please use the tables.

Setting angle °
α = 0° = open blade
α = 90° = closed blade

Setting angel %
α = 100% = open blade
α = 0% = closed blade



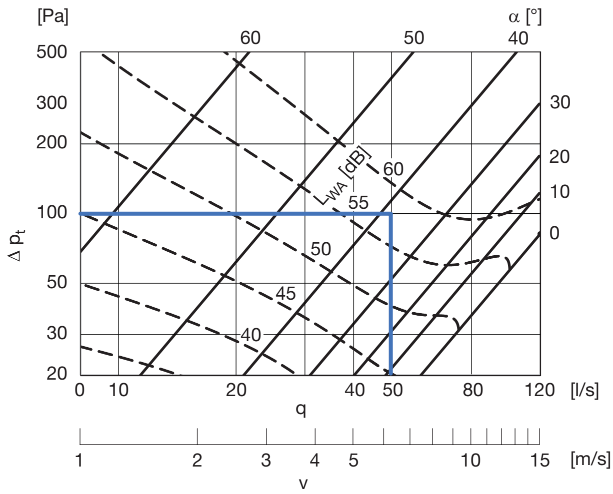
Example

Given	Dimension	Ø100
	Flow	50 l/s
	Pressure drop	100 Pa

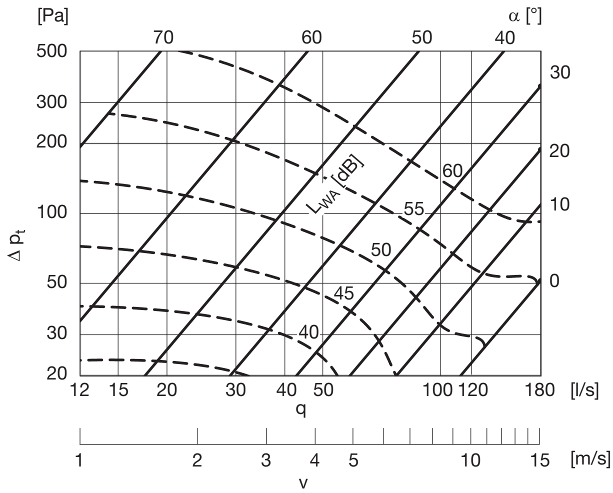
Obtained from graph

	Setting angle	39°
	Sound power level	57,7 dB (A)

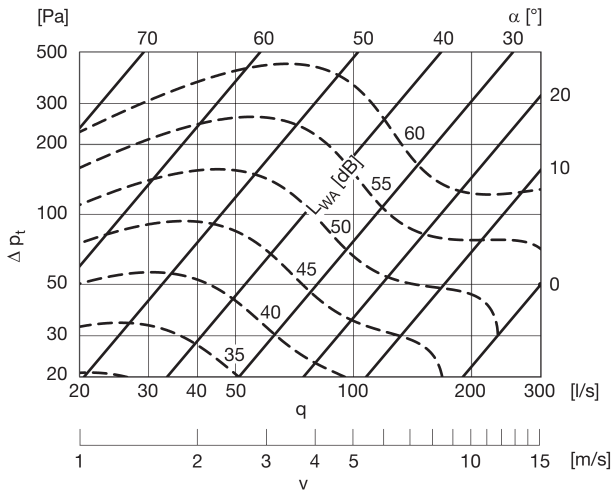
Ø100



Ø125



Ø160



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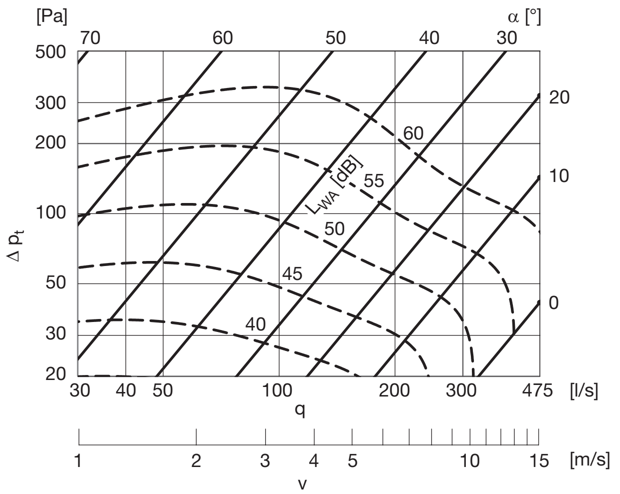
Ø200



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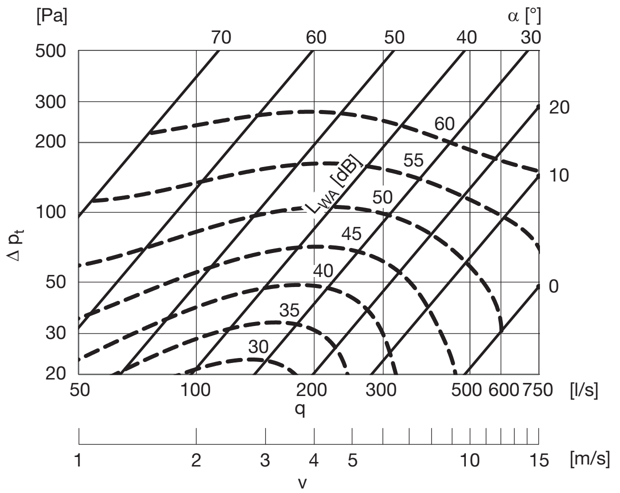
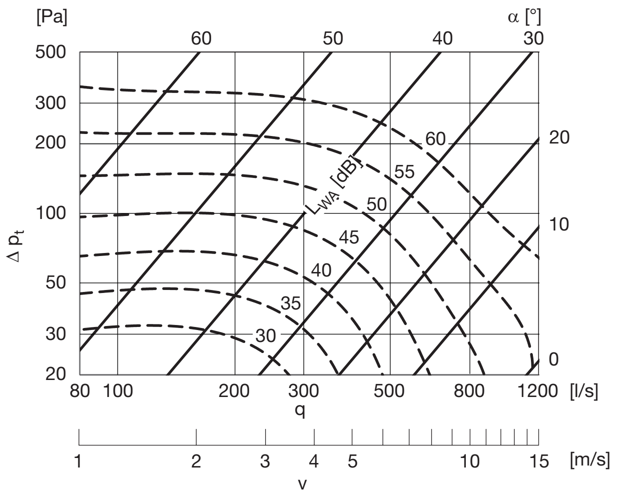


Ø315



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Sound data

Sound power level L_W, [dB] to duct in the octave bands 1–8, 63–8000 Hz, as a function of dimension, flow and pressure drop.
Note: A-filter have to be applied to the figures in the table if Lw(A) is to be calculated.

A-filter correction.

63	125	250	500	1K	2K	4K	8K
-26	-16	-9	-3	0	1	1	-1

dim $Ød_1$	Pressure drop [Pa]	Centre frequency [Hz]								Centre frequency [Hz]								Centre frequency [Hz]							
		63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k
100		Velocity app. 1 [m/s]								Velocity app. 3 [m/s]								Velocity app. 6 [m/s]							
		Flow 8 [l/s]								Flow 24 [l/s]								Flow 47 [l/s]							
	500	71	47	44	48	50	48	42	31	74	55	57	59	58	54	46	36	77	66	68	67	63	57	49	38
	200	65	44	42	45	45	42	37	28	68	55	55	55	52	46	40	31	70	66	66	61	55	48	40	32
	100	60	42	40	41	41	37	32	24	62	54	53	50	46	40	34	27	65	64	62	55	48	41	33	26
	50	55	40	38	37	35	32	27	21	57	51	49	45	39	33	28	22	61	60	57	49	42	35	27	21
	20	47	36	33	30	27	23	19	15	51	47	43	36	29	25	19	15	61	49	47	44	38	32	24	17
		Velocity app. 9 [m/s]								Velocity app. 12 [m/s]								Velocity app. 15 [m/s]							
		Flow 71 [l/s]								Flow 94 [l/s]								Flow 118 [l/s]							
	500	78	75	76	72	65	58	49	39	80	81	81	75	66	58	48	38	81	85	84	76	67	58	47	37
	200	72	73	72	65	56	48	39	31	75	76	74	66	57	49	39	30	77	75	74	67	59	50	40	29
	100	69	68	66	58	50	43	33	25	73	65	64	59	52	45	35	25	75	60	61	58	51	44	35	24
	50	68	57	56	52	46	39	30	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

dim $Ød_1$	Pressure drop [Pa]	Centre frequency [Hz]								Centre frequency [Hz]								Centre frequency [Hz]							
		63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k
125		Velocity app. 1 [m/s]								Velocity app. 3 [m/s]								Velocity app. 6 [m/s]							
		Flow 12 [l/s]								Flow 37 [l/s]								Flow 74 [l/s]							
	500	79	61	48	48	53	54	49	38	77	56	55	58	58	55	51	43	80	68	67	66	61	55	49	41
	200	70	50	43	45	47	47	44	35	71	56	54	54	51	46	42	36	73	67	65	59	52	44	36	31
	100	64	45	41	42	42	41	38	31	65	55	52	49	44	39	34	29	67	64	60	52	44	37	29	24
	50	58	41	38	38	37	34	32	27	59	52	48	42	36	30	25	21	63	58	54	47	40	34	26	20
	20	50	37	34	31	27	24	21	18	51	46	40	33	27	22	16	13	59	48	45	42	39	35	29	20
		Velocity app. 9 [m/s]								Velocity app. 12 [m/s]								Velocity app. 15 [m/s]							
		Flow 110 [l/s]								Flow 147 [l/s]								Flow 184 [l/s]							
	500	82	76	75	69	62	54	45	38	83	82	79	71	62	53	42	35	85	85	81	73	63	54	42	34
	200	75	73	69	61	53	45	35	28	77	75	71	64	56	49	38	29	79	74	71	66	61	55	44	31
	100	70	67	63	56	49	43	33	25	73	65	62	59	55	50	41	28	75	62	61	59	56	52	43	30
	50	67	57	55	51	48	44	36	24	71	57	56	52	49	45	37	26	-	-	-	-	-	-	-	-
	20	66	53	50	45	40	36	29	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

dim $Ød_1$	Pressure drop [Pa]	Centre frequency [Hz]								Centre frequency [Hz]								Centre frequency [Hz]							
		63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k
160		Velocity app. 1 [m/s]								Velocity app. 3 [m/s]								Velocity app. 6 [m/s]							
		Flow 20 [l/s]								Flow 60 [l/s]								Flow 121 [l/s]							
	500	83	61	53	54	60	66	67	57	68	53	54	56	56	55	53	45	69	61	63	62	58	55	51	43
	200	68	50	47	49	51	53	52	44	60	50	51	50	47	45	42	36	65	60	61	58	53	48	42	34
	100	59	43	41	42	43	43	41	35	56	48	48	45	42	39	35	29	63	57	58	54	48	42	34	26
	50	51	38	36	35	34	33	31	27	53	46	45	41	36	33	28	23	60	52	52	49	43	36	27	20
	20	42	32	29	26	23	21	20	17	49	41	39	35	30	25	19	15	58	44	44	41	35	29	21	15
		Velocity app. 9 [m/s]								Velocity app. 12 [m/s]								Velocity app. 15 [m/s]							
		Flow 181 [l/s]								Flow 241 [l/s]								Flow 302 [l/s]							
	500	73	68	71	68	62	58	51	41	76	73	76	72	66	59	50	39	78	75	78	75	68	59	48	36
	200	70	65	67	63	57	50	40	31	73	66	68	66	59	50	38	28	75	65	68	66	59	50	37	26
	100	67	59	60	57	51	43	32	23	70	58	60	58	51	43	32	22	74	58	59	57	51	43	33	23
	50	65	52	53	50	44	37	27	19	71	53	54	51	45	39	31	22	-	-	-	-	-	-	-	-
	20	67	49	48	45	39	34	27	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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dim Ød_1	Pressure drop [Pa]	Centre frequency [Hz]								Centre frequency [Hz]								Centre frequency [Hz]							
		63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k
200		Velocity app. 1 [m/s]								Velocity app. 3 [m/s]								Velocity app. 6 [m/s]							
		Flow 31 [l/s]								Flow 94 [l/s]								Flow 188 [l/s]							
	500	72	54	53	59	63	63	57	44	63	54	57	58	59	57	52	41	72	65	64	61	58	58	56	47
	200	58	46	48	52	53	52	46	35	62	54	53	51	49	49	46	38	72	65	62	56	51	50	48	41
	100	53	43	44	45	46	44	39	30	62	53	51	46	43	43	41	35	68	63	59	51	45	42	39	32
	50	50	40	40	39	38	37	34	27	59	52	47	41	37	36	34	29	62	58	54	46	39	34	29	22
	20	47	37	34	31	28	28	26	22	53	46	41	34	28	25	23	19	54	49	46	40	33	27	20	13
		Velocity app. 9 [m/s]								Velocity app. 12 [m/s]								Velocity app. 15 [m/s]							
		Flow 283 [l/s]								Flow 377 [l/s]								Flow 471 [l/s]							
	500	80	73	71	64	60	59	57	49	83	79	76	68	61	59	56	47	84	82	79	70	62	58	53	43
	200	75	71	68	60	53	49	45	37	75	73	70	63	54	48	41	31	75	74	72	65	56	48	38	27
	100	68	66	63	55	47	41	34	26	68	66	64	58	50	42	32	22	71	67	65	60	53	45	34	23
	50	62	59	56	50	43	36	27	18	68	61	58	53	47	41	32	22	74	64	61	56	51	47	38	27
	20	64	54	51	45	41	36	29	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

dim Ød_1	Pressure drop [Pa]	Centre frequency [Hz]								Centre frequency [Hz]								Centre frequency [Hz]							
		63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k
250		Velocity app. 1 [m/s]								Velocity app. 3 [m/s]								Velocity app. 6 [m/s]							
		Flow 49 [l/s]								Flow 147 [l/s]								Flow 295 [l/s]							
	500	-	-	-	-	-	-	-	-	67	54	56	57	59	61	57	45	70	67	65	61	59	59	57	47
	200	-	-	-	-	-	-	-	-	62	56	54	52	51	52	50	40	67	65	61	55	50	48	45	39
	100	60	44	45	47	48	49	46	36	59	55	51	46	43	43	41	34	62	59	53	47	42	38	33	29
	50	55	43	43	42	42	43	41	32	53	49	43	37	33	31	29	25	57	51	46	41	36	30	25	20
	20	48	40	37	33	31	31	30	24	44	37	31	25	20	17	14	13	57	44	41	36	32	27	21	15
		Velocity app. 9 [m/s]								Velocity app. 12 [m/s]								Velocity app. 15 [m/s]							
		Flow 442 [l/s]								Flow 589 [l/s]								Flow 736 [l/s]							
	500	76	75	71	65	61	59	55	48	80	80	75	69	63	58	53	46	83	81	77	71	65	58	51	44
	200	71	69	64	58	52	47	41	35	74	69	65	60	54	47	39	32	77	68	66	62	56	48	39	30
	100	66	60	56	51	46	39	32	26	71	60	58	54	49	42	34	24	76	61	59	55	50	45	36	25
	50	65	53	50	46	41	35	28	20	71	56	53	49	44	40	33	23	76	59	56	51	47	44	37	26
	20	65	50	46	41	37	34	29	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

dim Ød_1	Pressure drop [Pa]	Centre frequency [Hz]								Centre frequency [Hz]								Centre frequency [Hz]							
		63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k	63	125	250	500	1k	2k	4k	8k
315		Velocity app. 1 [m/s]								Velocity app. 3 [m/s]								Velocity app. 6 [m/s]							
		Flow 78 [l/s]								Flow 234 [l/s]								Flow 468 [l/s]							
	500	59	46	50	56	59	59	53	38	64	54	55	57	59	60	57	46	75	65	63	63	63	61	56	49
	200	53	42	43	46	48	49	45	34	62	52	49	49	49	48	45	38	72	62	57	55	53	49	43	39
	100	50	39	38	38	39	40	38	29	58	48	44	42	40	38	35	31	68	58	52	49	45	40	35	31
	50	46	35	32	31	30	30	29	23	53	43	37	34	31	28	25	23	64	53	47	42	38	33	28	24
	20	-	-	-	-	-	-	-	-	46	36	29	24	21	17	14	13	59	47	42	37	32	28	24	18
		Velocity app. 9 [m/s]								Velocity app. 12 [m/s]								Velocity app. 15 [m/s]							
		Flow 701 [l/s]								Flow 935 [l/s]								Flow 1169 [l/s]							
	500	83	73	69	68	66	62	56	50	89	79	74	72	69	63	56	50	94	83	78	75	71	64	56	49
	200	79	69	63	60	56	51	44	39	84	74	68	64	60	53	46	39	88	77	71	67	62	55	48	39
	100	75	64	58	54	50	44	38	32	79	68	63	58	53	48	41	32	82	70	66	61	56	51	44	33
	50	70	59	54	49	44	39	34	26	74	62	58	53	48	44	38	27	75	64	60	56	52	47	40	28
	20	65	53	49	44	40	36	30	21	68	57	52	49	45	41	33	23	-	-	-	-	-	-	-	-

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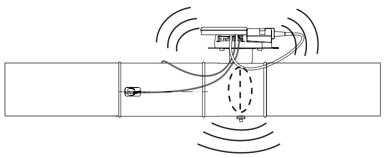
Technical data

Pressure drop graphs with noise data to the surroundings



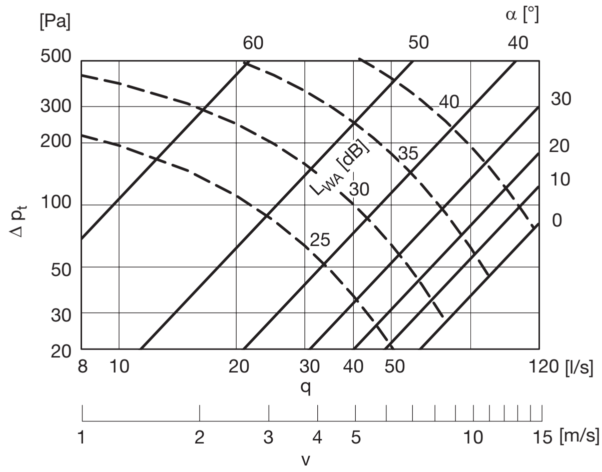
The graphs show A-weighted sound **power** level, L_{WA} [dB], to the surroundings.

Example:
Diameter 125 mm
Flow 50 l/s
Pressure drop 100 Pa
The graph gives:
A-weighted sound
Power level approx. 28 dB

The FTCU unit can easily be insulated and then the sound **pressure** level in the room will be much lower depending on the insulation sound performance on condition that also the connected ducts are attenuated (insulated) to the same extent.

Still lower sound **pressure** level can be achieved with additional constructional sound attenuation measures (false ceiling, high room attenuation).

Ø100



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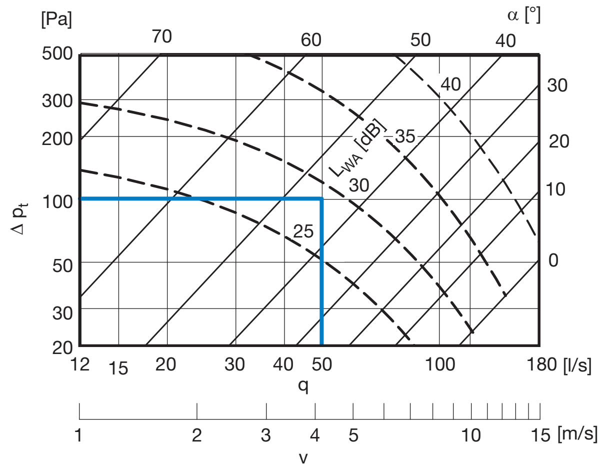
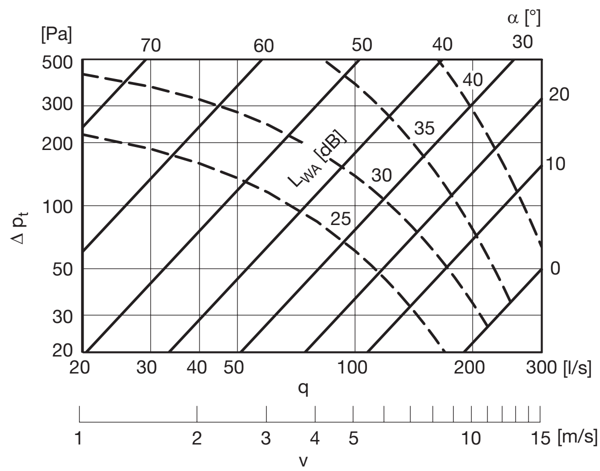


Ø160



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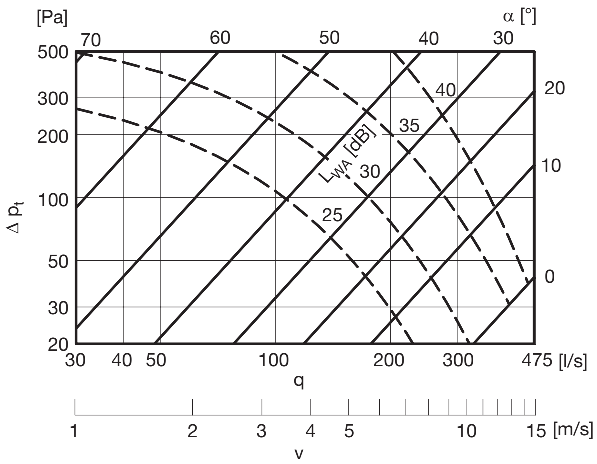
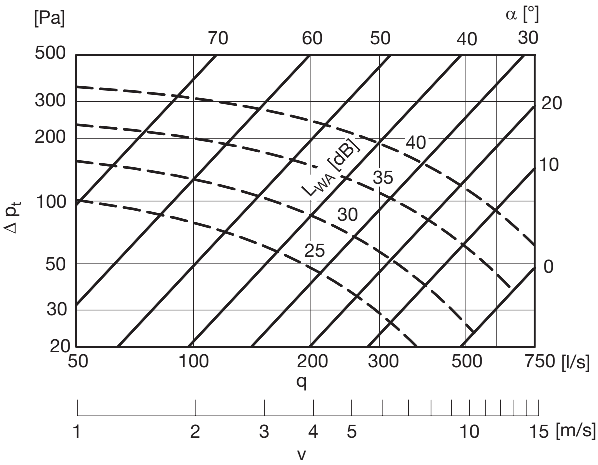
Ø200



Ø250



Ø315