t-line120

- High temperature extract fans
- Duty range up to 11.0 m³/s
- Low energy / high efficiency fans
- IE3 motors
- Up to 120 ˚C operating temperature
- Easy to clean and maintain
- Variety of control options to suit application requirements

t-line120
Part of a complete range of innovative, flexible products from the HVAC experts

t-line 120
high temperature

VES
Better air for the built environment

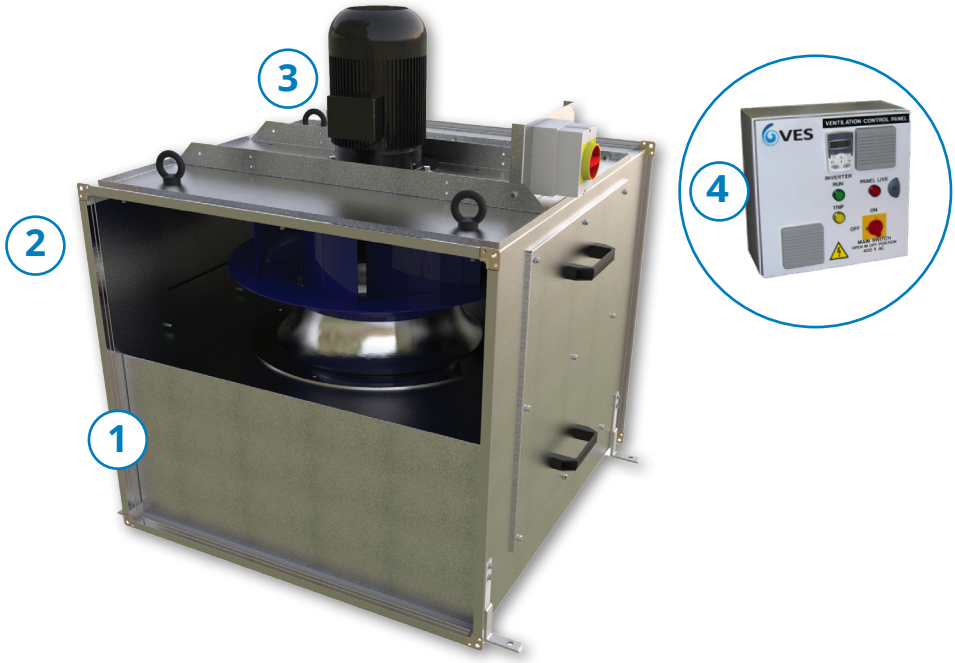
t-line 120

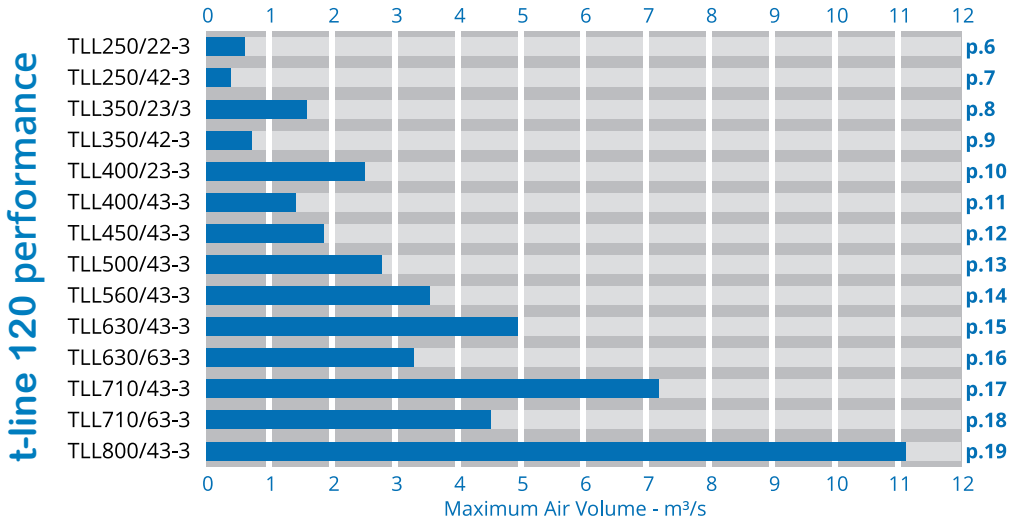
t-line 120

The VES **t-line** is ideal for polluted air extract, including kitchen hood, commercial and industrial processes, suitable for up to 120 ˚C constant operating temperatures.

t-line features low energy, high efficiency fans with low SFPs for a wide range of applications and locations. Optional controls and demand ventilation deliver even more energy saving benefits and comfort levels to users, buildings, and their occupants.

t-line provides both great value and choice to specifiers, contractors and users alike.





Energy saving

Intelligent controls enhance performance whilst saving energy and money.

High temperature extract units

t-line 120
Features and Benefits

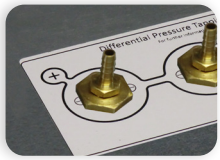
Energy saving
Meet regulations, minimise noise and maximise performance.

Energy efficient
Energy efficient units with low SFPs to help achieve L2 building regulations. Units are fully tested to DIN 45635-38 (acoustic performance).

Complete ventilation package
VES offer the expertise, products and services to provide a complete ventilation package including heat recovery unit, integrated controls and site assistance, providing peace of mind through reliable products and expert knowledge.

Simple installation and maintenance
Simple connection and pre-installed features save on site costs and reduce lead times.
Carefully designed maintenance features minimise downtime and total cost of ownership.

Easy connections
Fitted with 30 mm flange for easy connection to ductwork and ancillaries.

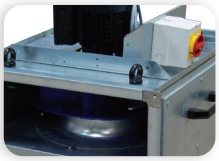


Differential tapping point
Unit airflow is easily commissioned directly at the fan with the use of micromanometer. Removes the requirement for conventional pitot traverse readings.

High efficiency motors
Using the latest generation of high efficiency motor for optimal performance including IE3 on larger units.

Maintenance
Access available on both sides via removable access doors. With motor out of the air stream and backward curved impellers, the units are easy to clean without dismantling.

Robust construction
Excellent build quality ensures minimal noise breakout, low SFPs and airtight performance.



Excellent construction
Rigid single skin galvanised sheet steel.

Airtight
High quality, high temperature EPDM memory gasket to ensure a continued airtight seal.

Powdercoat options
External units are powder coated RAL7004 as standard, with many other colours available. Plantroom units are galvanised as standard and powder coated if required.

Motor guard
Motors are rated to IP55 for water and ingress protection. External units are fitted with a protective guard to further protect and prolong motor life.

Versatile options
Versatile location, handing and access options meet the widest range of project requirements.

Weatherproof and plantroom options
Weatherproof (W) and plantroom (P) versions available, including versatile mounting feet for easy installation.

Controls
t-line 120 with control and commissioning modules for differential pressure /air volume, advanced multi applicational inverter and an array of sensors.

Unit configuration
Units can be supplied as straight through (PH/WH) or L shaped (PL/WL) configurations. Plantroom units can be mounted for vertical air flow.

Acoustic control
Acoustic enclosures available for plantroom and external mounting.

BlueSense energy saving package

t-line 120 with fitted sensor control and commissioning module for differential pressure and air volume

+

Advanced multi-application inverter

+

Air quality, temperature, humidity and PIR sensors

=

BlueSense Intelligent Control

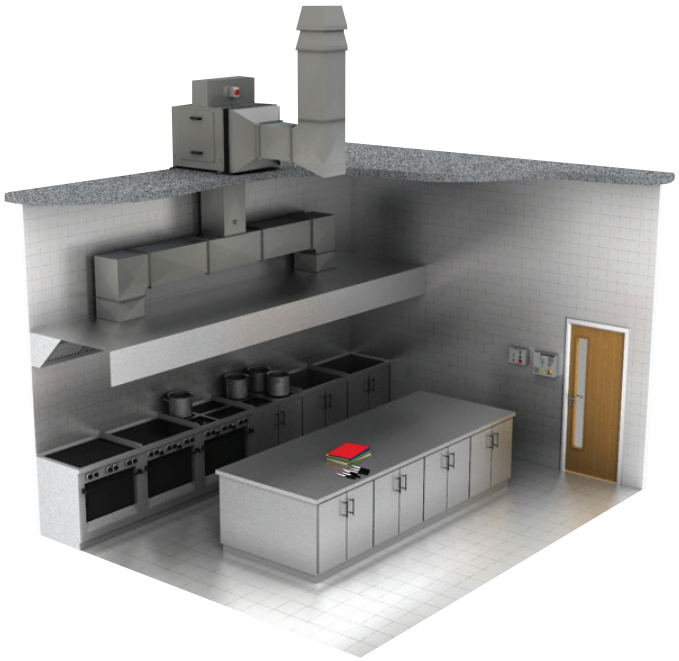
The sign of energy saving products, services and expertise

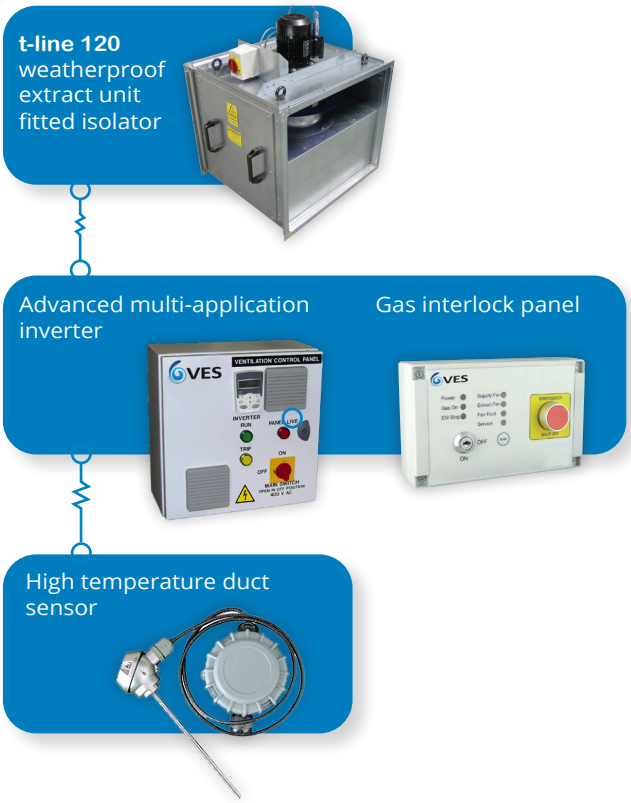
t-line 120

Applications

Kitchen extract application

As well as lower temperature applications, the following illustrations show solutions where higher temperatures and humidity are present.





High temperature sensor

A 400 ˚C sensor can be mounted within the duct to control the fan speed dependent upon duct temperature; as the temperature of the duct reduces the fan speed can also be reduced to save energy. Using this in conjunction with a VES speed control panel will allow finite adjustment of the speed parameters and temperature control loop, tailored to the suit the application requirements.

Gas safety system

VES also offer a range of gas safety systems that can work in conjunction with the **t-line 120** to provide a versatile kitchen ventilation system. All VES gas safety systems are specifically designed for use in commercial kitchens and to help specifiers, purchasers and installers meet BS 6173:2020, the British standards required for new or refit/refurbished kitchen ventilation installations. Our systems combine digital technology and reliable interlocking connections for gas proving in a single easy to install panel, providing makeup air for the associated appliances.

Features

- Gas proving for use in kitchen applications
- Airflow interlocked gas solenoid control
- Low pressure monitoring for incoming gas control
- Interlocked with fans using Air Pressure Differential switches or current sensors
- Key operation for user override
- LED display of system functions
- Input for remote emergency stop button

Applications

Welding bay application

t-line 120 plantroom extract unit with isolator

Advanced multi-application inverter

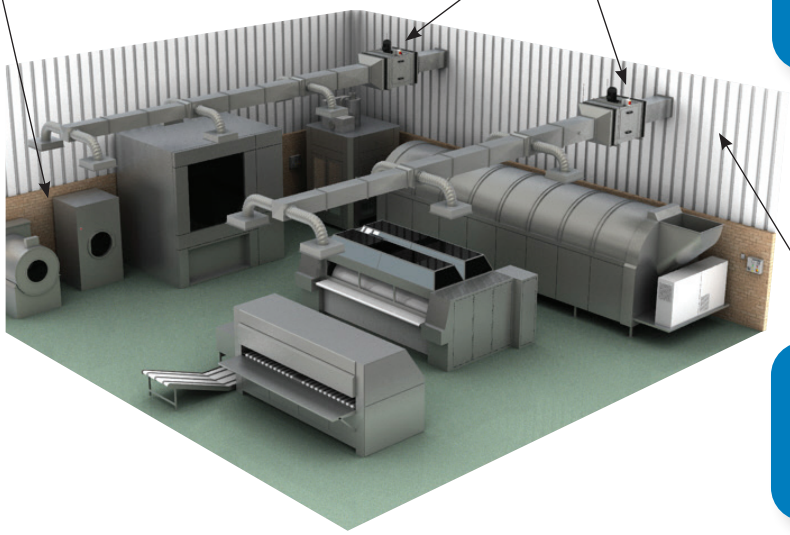
Industrial laundry

Room temperature and humidity sensor

A duct/room sensor can be used in conjunction with a VES control panel to control the fan speed in relation to humidity.

t-line 120 plantroom extract unit with isolator

Advanced multi-application inverter



Duct temperature and humidity sensor

(Units may require internal protection on applications with high humidity and / or aggressive atmospheres)

Selection data

TLL250/22-3

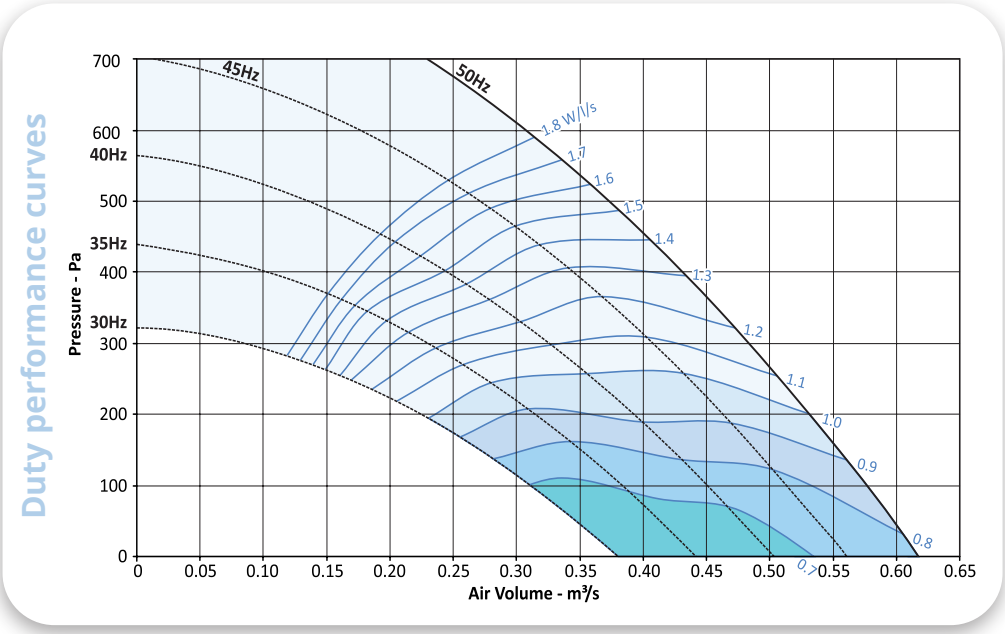
Performance

Product	Size		Pole	Efficiency	Phase	Orientation
TLL	250	/	2	2	- 3	/

SFP (Watts / litres / second) = Electrical input power (watts) / Air volume flow rate (litres / second)

Notes: SFP figures quoted at voltages tested in accordance with BS EN ISO 5801:2017

Tolerances:
On flow rates: +/- 5%
On acoustic power pressure levels: +/- 3dB
By octave band: +/- 5dB



Technical data							
Efficiency	**Size**	**Phase**	**Motor (kW)**	**Voltage (VAC)**	**Fan speed (rpm)**	**Full load current (A)**	**Speed control**
IE2	250	3	0.37	400	2820	0.91	Inverter

Noise data

Sound data												
Fan speed setting (Hz)	**Fan speed (rpm)**	**Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)**								**Casing noise breakout**			
		63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**NR @1m**	**NR @3m**	**dBA @1m**	**dBA @3m**
50	2820	69	73	78	79	76	72	67	63	56	48	57	49
45	2538	66	71	76	76	73	69	64	60	54	46	55	47
40	2256	64	69	73	74	70	66	61	54	51	42	52	44
35	1974	62	66	70	70	67	62	58	54	48	39	49	41
30	1692	59	63	67	67	63	59	55	50	44	36	46	38

Insertion loss table								
	Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)							
	63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Case insertion loss	+7	-1	-1	-11	-19	-23	-23	-19

For both case and acoustic enclosure insertion loss values, see page 24 for more information.
For unit dimensions, see page 20 for more information.

Note: Data for design guidance only. Detailed information is available upon request.

Selection data

TLL250/42-3

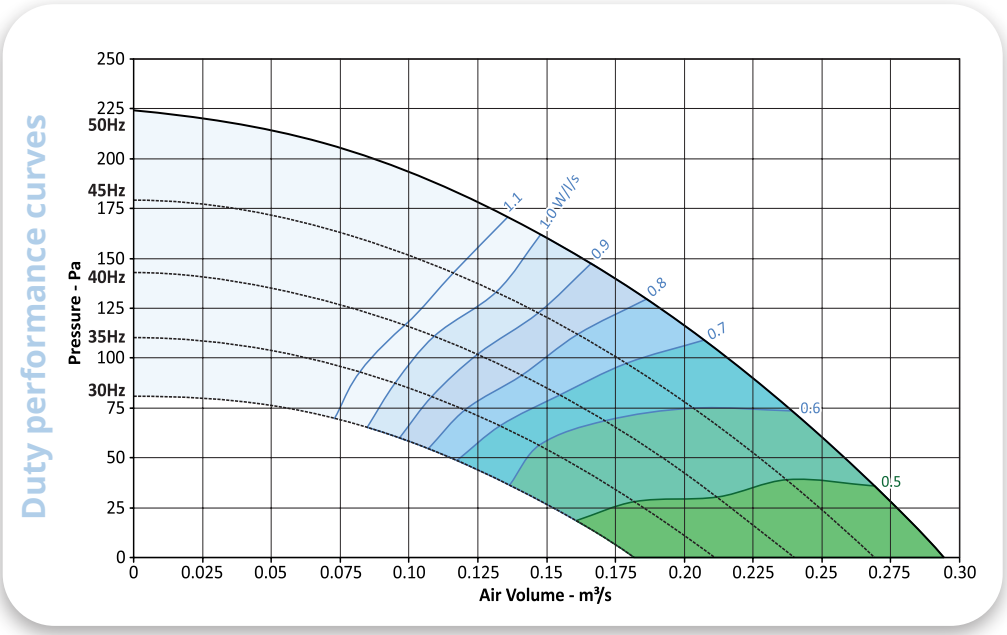
Performance

Product	Size		Pole	Efficiency	Phase		Orientation
TILL	250	/	4	2	3	/	

SFP (Watts / litres / second) = *Electrical input power (watts)* / *Air volume flow rate (litres / second)*

Notes: SFP figures quoted at voltages tested in accordance with BS EN ISO 5801:2017

Tolerances:
On flow rates: +/- 5%
On acoustic power pressure levels: +/- 3dB
By octave band: +/- 5dB



Technical data							
Efficiency	**Size**	**Phase**	**Motor (kW)**	**Voltage (VAC)**	**Fan speed (rpm)**	**Full load current (A)**	**Speed control**
IE2	250	3	0.25	400	1365	0.72	Inverter

Noise data

Sound data												
Fan speed setting (Hz)	**Fan speed (rpm)**	**Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)**								**Casing noise breakout**			
		63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**NR @1m**	**NR @3m**	**dBA @1m**	**dBA @3m**
50	1365	53	57	61	61	57	53	49	44	38	29	40	32
45	1228	50	54	58	58	54	50	46	41	35	26	37	29
40	1092	47	51	55	55	51	47	43	38	31	23	34	26
35	955	44	48	52	52	48	44	40	35	28	20	31	23
30	819	41	45	49	49	45	41	37	32	25	16	28	20

Insertion loss table								
	Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)							
	63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Case insertion loss	+7	-1	-1	-11	-19	-23	-23	-19

For both case and acoustic enclosure insertion loss values, see page 24 for more information.
For unit dimensions, see page 20 for more information.

Note: Data for design guidance only. Detailed information is available upon request.

t-line 120

Selection data

TLL350/23-3

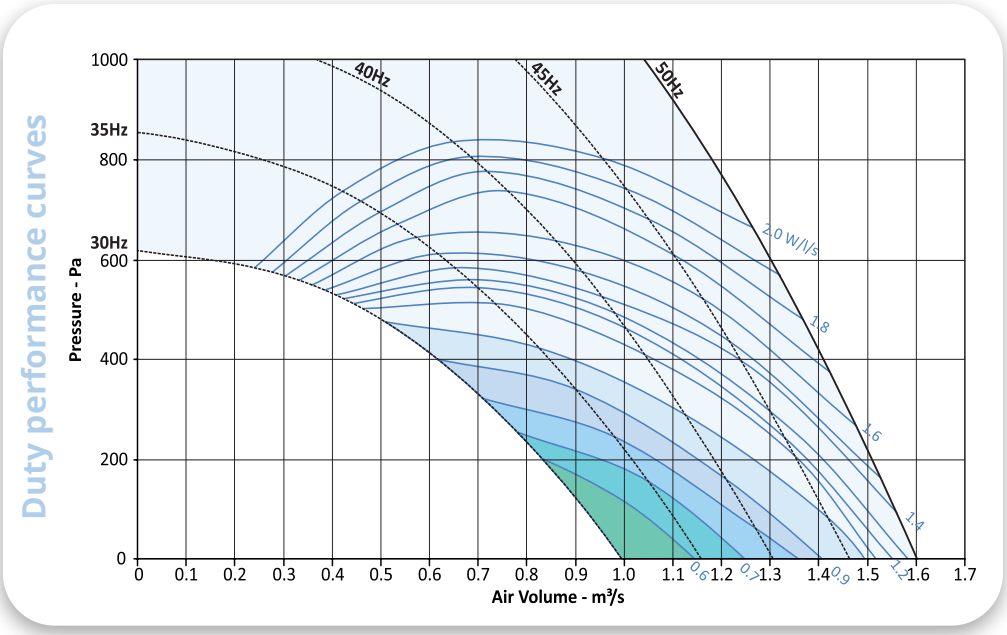
Performance

Product	Size		Pole	Efficiency	Phase		Orientation
TLL	350	/	2	3	3	/	

SFP (Watts / litres / second) = *Electrical input power (watts)* / *Air volume flow rate (litres / second)*

Notes: SFP figures quoted at voltages tested in accordance with BS EN ISO 5801:2017

Tolerances:
On flow rates: +/- 5%
On acoustic power pressure levels: +/- 3dB
By octave band: +/- 5dB



Technical data							
Efficiency	**Size**	**Phase**	**Motor (kW)**	**Voltage (VAC)**	**Fan speed (rpm)**	**Full load current (A)**	**Speed control**
IE3	350	3	2.2	400	2900	4.0	Inverter

Noise data

Sound data												
Fan speed setting (Hz)	**Fan speed (rpm)**	**Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)**								**Casing noise breakout**			
		63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**NR @1m**	**NR @3m**	**dBA @1m**	**dBA @3m**
50	2900	79	83	88	89	86	82	77	73	66	58	67	59
45	2610	77	81	86	86	83	79	75	70	64	56	64	57
40	2320	74	78	83	84	80	76	72	67	61	53	61	54
35	2030	71	76	80	80	77	72	68	64	58	49	58	51
30	1740	68	72	77	77	73	69	64	60	54	46	55	48

Insertion loss table								
	Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)							
	63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Case insertion loss	+7	-1	-1	-11	-19	-23	-23	-19

For both case and acoustic enclosure insertion loss values, see page 24 for more information.
For unit dimensions, see page 20 for more information.

Note: Data for design guidance only. Detailed information is available upon request.

Selection data

TLL350/42-3

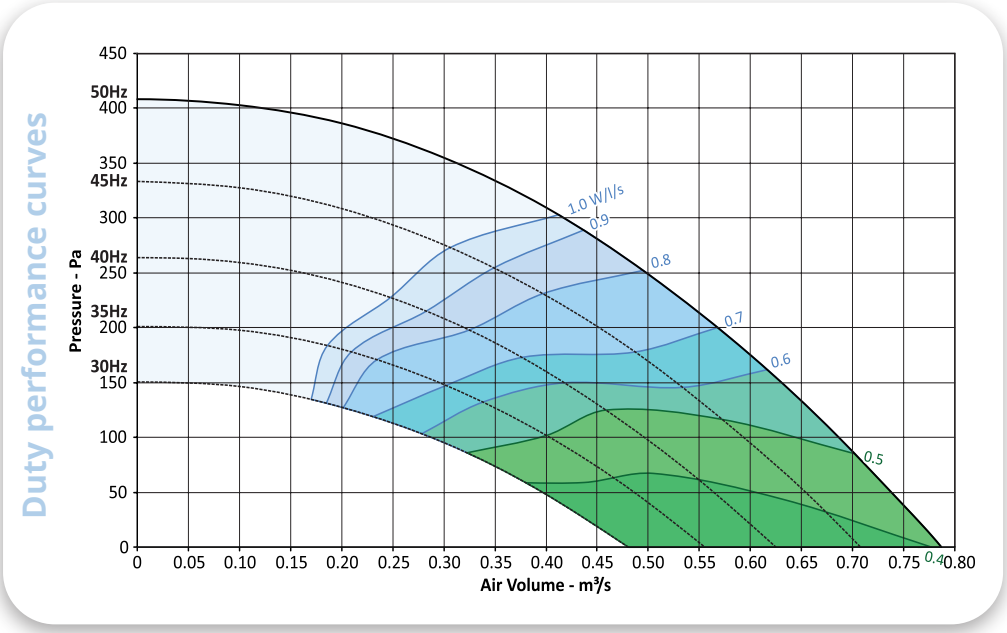
Performance

Product	Size		Pole	Efficiency	Phase		Orientation
TLL	350	/	4	2	3	/	

SFP (Watts / litres / second) = *Electrical input power (watts)* / *Air volume flow rate (litres / second)*

Notes: SFP figures quoted at voltages tested in accordance with BS EN ISO 5801:2017

Tolerances:
On flow rates: +/- 5%
On acoustic power pressure levels: +/- 3dB
By octave band: +/- 5dB



Technical data							
Efficiency	**Size**	**Phase**	**Motor (kW)**	**Voltage (VAC)**	**Fan speed (rpm)**	**Full load current (A)**	**Speed control**
IE2	350	3	0.37	400	1375	0.96	Inverter

Noise data

Sound data												
Fan speed setting (Hz)	**Fan speed (rpm)**	**Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)**								**Casing noise breakout**			
		63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**NR @1m**	**NR @3m**	**dBA @1m**	**dBA @3m**
50	1375	64	68	71	71	67	63	58	54	48	40	49	42
45	1237	61	65	69	68	64	60	55	51	46	38	47	39
40	1100	58	62	66	65	61	57	52	48	43	34	44	36
35	962	55	59	63	62	58	54	49	45	39	31	41	33
30	825	52	56	60	59	55	51	46	42	36	28	38	30

Insertion loss table								
	Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)							
	63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Case insertion loss	+7	-1	-1	-11	-19	-23	-23	-19

For both case and acoustic enclosure insertion loss values, see page 24 for more information.
For unit dimensions, see page 20 for more information.

Note: *Data for design guidance only. Detailed information is available upon request.*

t-line 120

Selection data

TLL400/23-3

Performance

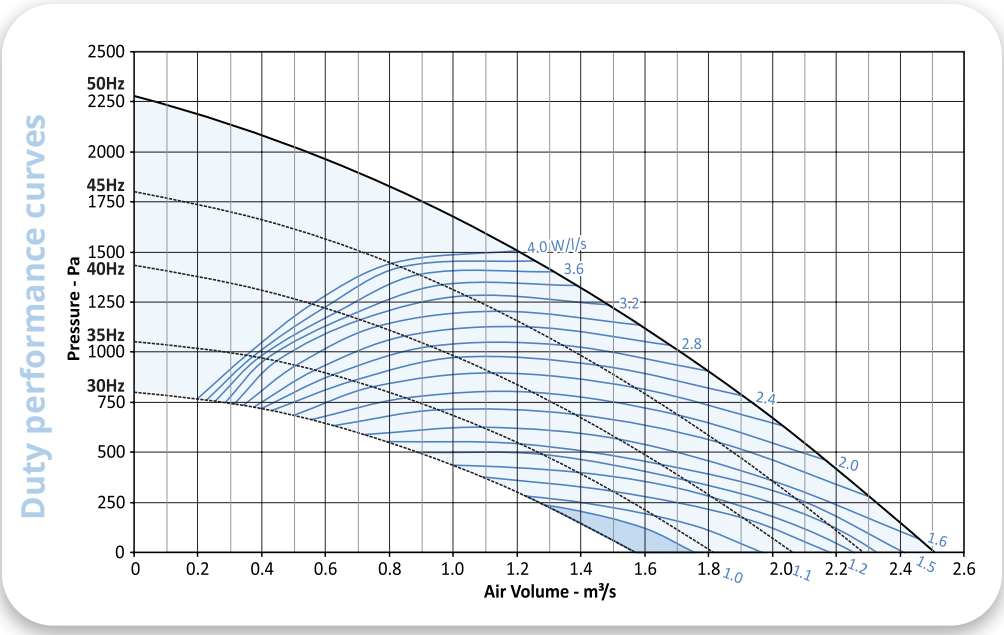
Product Size Pole Efficiency Phase Orientation

TLL 400 / 2 3 - 3 /

SFP (Watts / litres / second) = *Electrical input power (watts)* / *Air volume flow rate (litres / second)*

Notes: SFP figures quoted at voltages tested in accordance with BS EN ISO 5801:2017

Tolerances:
On flow rates: +/- 5%
On acoustic power pressure levels: +/- 3dB
By octave band: +/- 5dB



Technical data							
Efficiency	**Size**	**Phase**	**Motor (kW)**	**Voltage (VAC)**	**Fan speed (rpm)**	**Full load current (A)**	**Speed control**
IE3	400	3	4.0	400	2888	7.1	Inverter

Noise data

Sound data												
Fan speed setting (Hz)	**Fan speed (rpm)**	**Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)**								**Casing noise breakout**			
		63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**NR @1m**	**NR @3m**	**dBA @1m**	**dBA @3m**
50	2888	83	87	92	93	90	86	81	77	70	62	70	63
45	2599	80	85	90	90	87	83	79	74	68	60	68	60
40	2310	78	82	87	88	84	80	76	71	65	57	65	58
35	2021	75	80	84	84	81	77	72	68	61	53	62	54
30	1732	72	76	81	81	77	83	68	64	58	50	59	52

Insertion loss table								
	Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)							
	63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Case insertion loss	+7	-1	-1	-11	-19	-23	-23	-19

For both case and acoustic enclosure insertion loss values, see page 24 for more information.
For unit dimensions, see page 20 for more information.

Note: *Data for design guidance only. Detailed information is available upon request.*

Selection data

TLL400/43-3

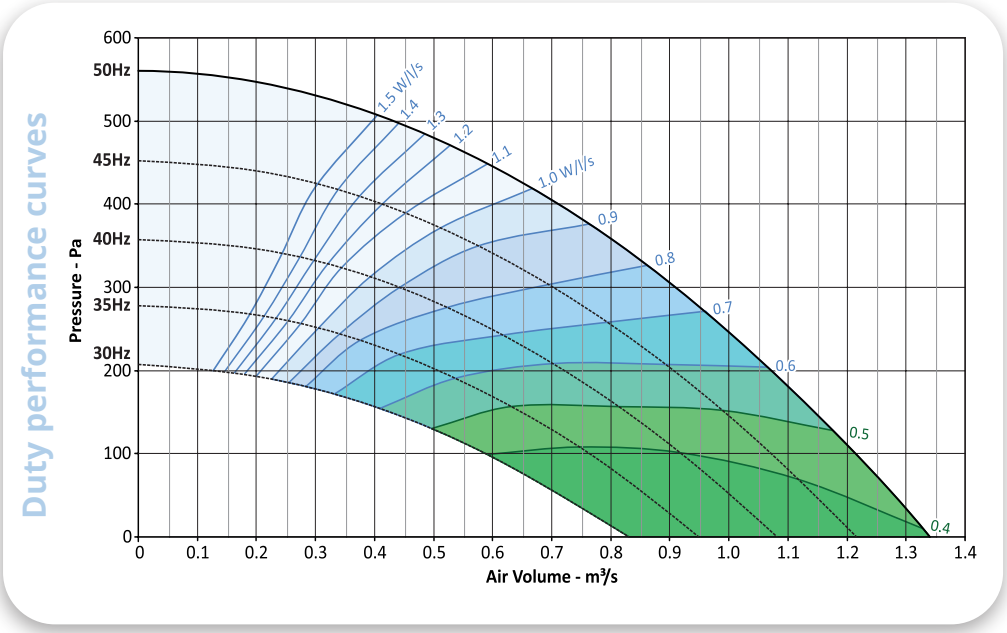
Performance

Product	Size		Pole	Efficiency	Phase		Orientation
TLL	400	/	4	3	3	/	

SFP (Watts / litres / second) = *Electrical input power (watts)* / *Air volume flow rate (litres / second)*

Notes: SFP figures quoted at voltages tested in accordance with BS EN ISO 5801:2017

Tolerances:
On flow rates: +/- 5%
On acoustic power pressure levels: +/- 3dB
By octave band: +/- 5dB



Technical data							
Efficiency	**Size**	**Phase**	**Motor (kW)**	**Voltage (VAC)**	**Fan speed (rpm)**	**Full load current (A)**	**Speed control**
IE3	400	3	0.75	400	1440	1.68	Inverter

Noise data

Sound data												
Fan speed setting (Hz)	**Fan speed (rpm)**	**Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)**								**Casing noise breakout**			
		63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**NR @1m**	**NR @3m**	**dBA @1m**	**dBA @3m**
50	1440	66	70	73	73	69	65	60	56	49	42	51	43
45	1296	64	67	71	70	66	62	58	53	47	39	48	41
40	1152	61	65	68	68	63	59	55	50	44	36	46	38
35	1008	58	62	65	65	60	56	52	47	41	33	43	35
30	864	55	59	62	62	57	53	49	44	38	30	40	32

Insertion loss table								
	Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)							
	63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Case insertion loss	+7	-1	-1	-11	-19	-23	-23	-19

For both case and acoustic enclosure insertion loss values, see page 24 for more information.
For unit dimensions, see page 20 for more information.

Note: Data for design guidance only. Detailed information is available upon request.

Selection data

TLL450/43-3

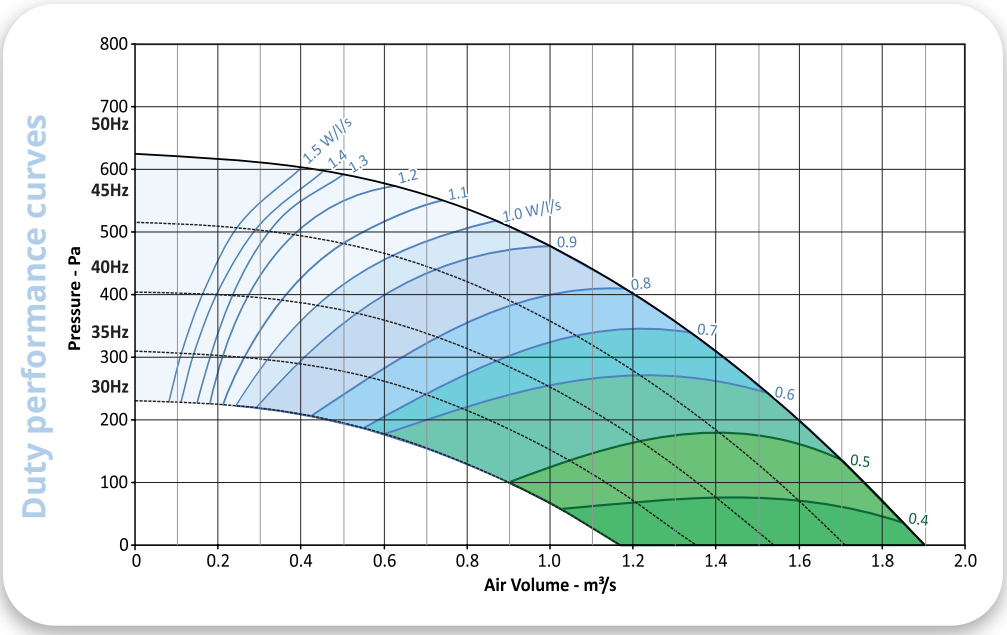
Performance

Product	Size		Pole	Efficiency	Phase		Orientation
TLL	450	/	4	3	3	/	

SFP (Watts / litres / second) = Electrical input power (watts) / Air volume flow rate (litres / second)

Notes: SFP figures quoted at voltages tested in accordance with BS EN ISO 5801:2017

Tolerances:
On flow rates: +/- 5%
On acoustic power pressure levels: +/- 3dB
By octave band: +/- 5dB



Technical data							
Efficiency	**Size**	**Phase**	**Motor (kW)**	**Voltage (VAC)**	**Fan speed (rpm)**	**Full load current (A)**	**Speed control**
IE3	450	3	1.1	400	1442	2.3	Inverter

Noise data

Sound data												
Fan speed setting (Hz)	**Fan speed (rpm)**	**Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)**								**Casing noise breakout**			
		63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**NR @1m**	**NR @3m**	**dBA @1m**	**dBA @3m**
50	1442	71	75	79	78	74	70	66	61	56	48	56	49
45	1297	69	73	76	76	72	67	63	58	53	45	54	46
40	1153	66	70	73	73	69	64	60	55	49	42	51	43
35	1009	63	67	70	70	66	61	57	52	46	38	48	40
30	865	60	64	67	67	63	58	54	49	43	35	45	37

Insertion loss table								
	Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)							
	63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Case insertion loss	+7	-1	-1	-11	-19	-23	-23	-19

For both case and acoustic enclosure insertion loss values, see page 24 for more information.
For unit dimensions, see page 20 for more information.

Note: Data for design guidance only. Detailed information is available upon request.

Selection data

TLL500/43-3

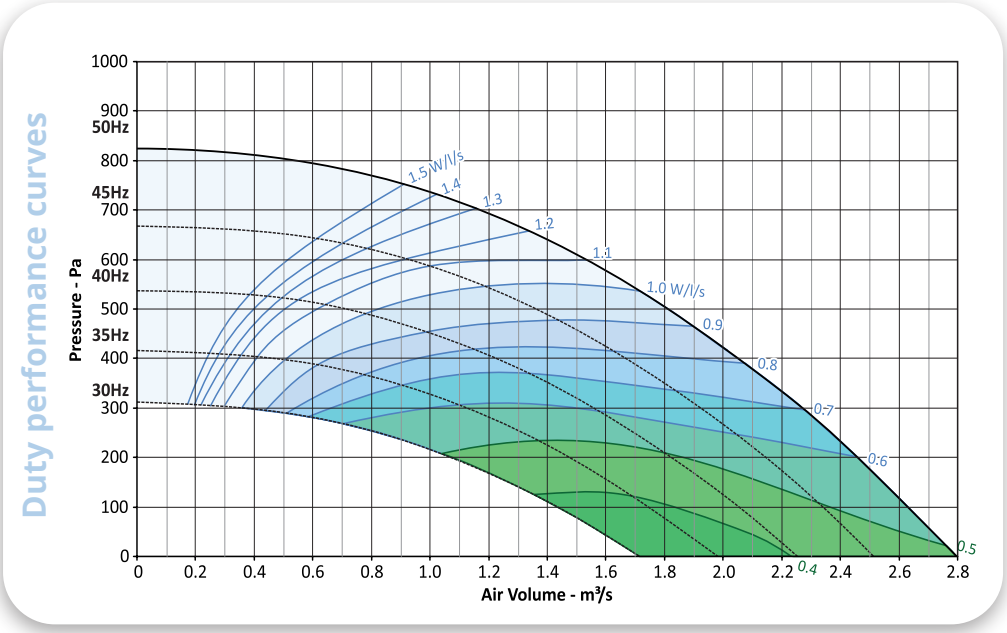
Performance

Product	Size		Pole	Efficiency	Phase		Orientation
TLL	500	/	4	3	3	/	

SFP (Watts / litres / second) = *Electrical input power (watts)* / *Air volume flow rate (litres / second)*

Notes: SFP figures quoted at voltages tested in accordance with BS EN ISO 5801:2017

Tolerances:
On flow rates: +/- 5%
On acoustic power pressure levels: +/- 3dB
By octave band: +/- 5dB



Technical data							
Efficiency	**Size**	**Phase**	**Motor (kW)**	**Voltage (VAC)**	**Fan speed (rpm)**	**Full load current (A)**	**Speed control**
IE3	500	3	1.5	400	1439	3.2	Inverter

Noise data

Sound data												
Fan speed setting (Hz)	**Fan speed (rpm)**	**Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)**								**Casing noise breakout**			
		63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**NR @1m**	**NR @3m**	**dBA @1m**	**dBA @3m**
50	1439	74	78	82	82	78	73	69	64	59	51	59	52
45	1245	72	76	79	79	75	71	66	62	56	48	56	49
40	1151	70	73	77	76	72	68	63	59	53	46	54	47
35	1007	67	70	73	73	69	64	60	55	49	42	50	43
30	863	64	67	70	70	66	61	57	52	46	38	47	40

Insertion loss table								
	Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)							
	63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Case insertion loss	+7	-1	-1	-11	-19	-23	-23	-19

For both case and acoustic enclosure insertion loss values, see page 24 for more information.
For unit dimensions, see page 20 for more information.

Note: Data for design guidance only. Detailed information is available upon request.

Selection data

TLL560/43-3

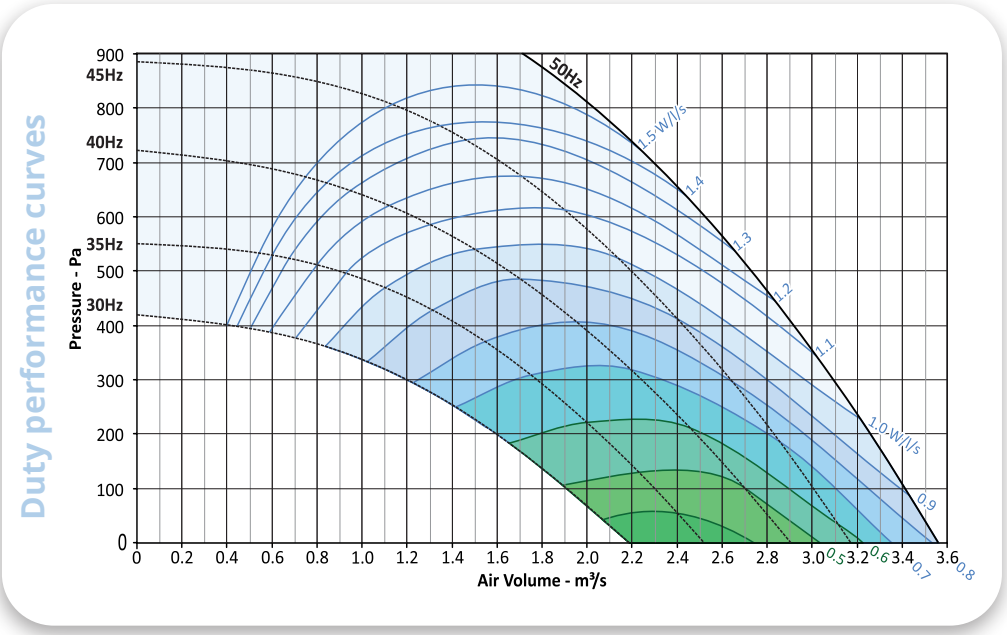
Performance

Product	Size		Pole	Efficiency	Phase		Orientation
TLL	560	/	4	3	- 3	/	

SFP (Watts / litres / second) = *Electrical input power (watts)* / *Air volume flow rate (litres / second)*

Notes: SFP figures quoted at voltages tested in accordance with BS EN ISO 5801:2017

Tolerances:
On flow rates: +/- 5%
On acoustic power pressure levels: +/- 3dB
By octave band: +/- 5dB



Technical data							
Efficiency	**Size**	**Phase**	**Motor (kW)**	**Voltage (VAC)**	**Fan speed (rpm)**	**Full load current (A)**	**Speed control**
IE3	560	3	3.0	400	1452	5.9	Inverter

Noise data

Sound data												
Fan speed setting (Hz)	**Fan speed (rpm)**	**Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)**								**Casing noise breakout**			
		63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**NR @1m**	**NR @3m**	**dBA @1m**	**dBA @3m**
50	1452	78	81	85	85	81	77	72	68	62	54	62	53
45	1306	75	79	83	82	78	74	70	65	60	52	60	53
40	1161	73	77	80	79	75	71	67	62	56	49	57	50
35	1016	70	74	77	76	72	68	63	59	53	46	54	47
30	871	67	70	73	72	68	64	59	55	49	41	50	43

Insertion loss table								
	Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)							
	63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Case insertion loss	+7	-1	-1	-11	-19	-23	-23	-19

For both case and acoustic enclosure insertion loss values, see page 24 for more information.
For unit dimensions, see page 20 for more information.

Note: Data for design guidance only. Detailed information is available upon request.

Selection data

TLL630/43-3

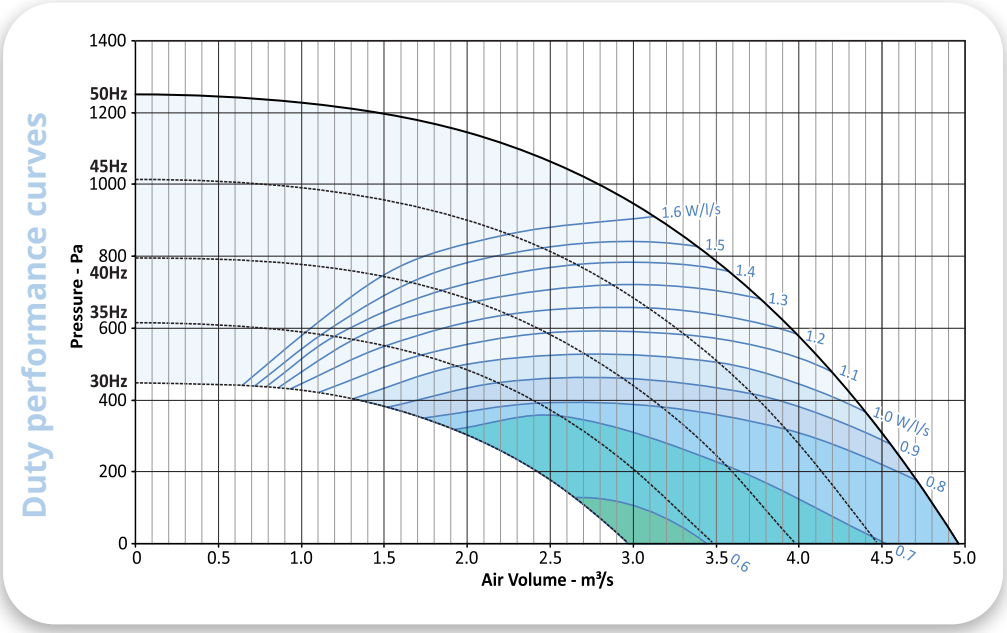
Performance

Product	Size		Pole	Efficiency	Phase		Orientation
TLL	630	/	4	3	3	/	

SFP (Watts / litres / second = Electrical input power (watts) / Air volume flow rate (litres / second))

Notes: SFP figures quoted at voltages tested in accordance with BS EN ISO 5801:2017

Tolerances:
On flow rates: +/- 5%
On acoustic power pressure levels: +/- 3dB
By octave band: +/- 5dB



Technical data							
Efficiency	**Size**	**Phase**	**Motor (kW)**	**Voltage (VAC)**	**Fan speed (rpm)**	**Full load current (A)**	**Speed control**
IE3	630	3	5.5	400	1464	11.4	Inverter

Noise data

Sound data												
Fan speed setting (Hz)	**Fan speed (rpm)**	**Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)**								**Casing noise breakout**			
		63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**NR @1m**	**NR @3m**	**dBA @1m**	**dBA @3m**
50	1464	81	85	89	88	84	80	76	71	66	58	66	59
45	1317	79	82	86	86	82	77	73	68	63	55	63	56
40	1171	76	80	83	83	79	74	70	65	59	52	60	53
35	1024	73	77	80	79	75	71	66	62	56	49	57	50
30	878	70	73	76	75	71	67	62	58	52	45	53	46

Insertion loss table								
	Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)							
	63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Case insertion loss	+7	-1	-1	-11	-19	-23	-23	-19

For both case and acoustic enclosure insertion loss values, see page 24 for more information.
For unit dimensions, see page 20 for more information.

Note: Data for design guidance only. Detailed information is available upon request.

Selection data

TLL630/63-3

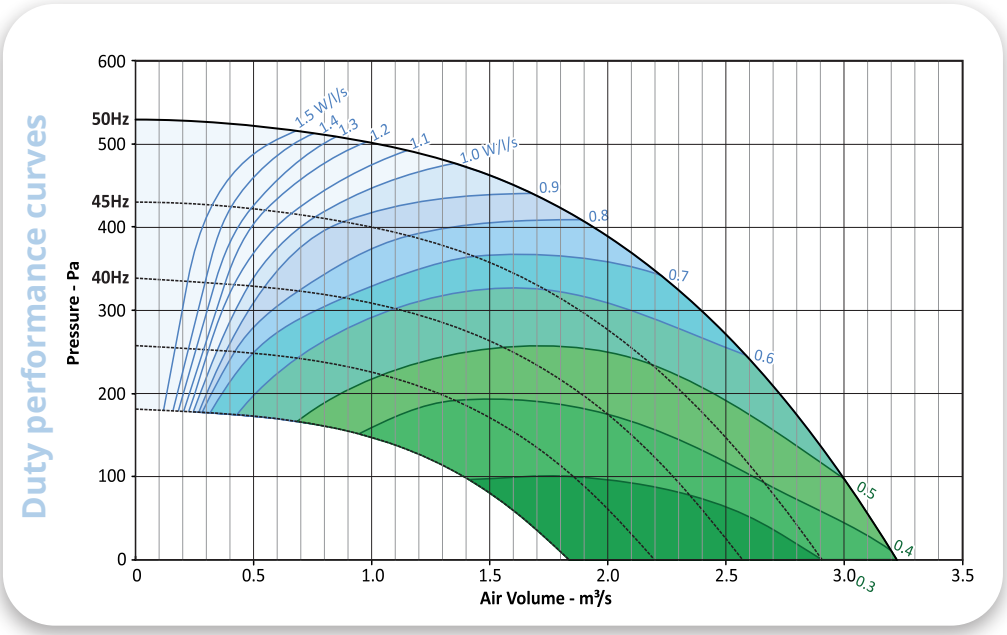
Performance

Product	Size		Pole	Efficiency	Phase		Orientation
TLL	630	/	6	3	- 3	/	

SFP (Watts / litres / second) = *Electrical input power (watts)* / *Air volume flow rate (litres / second)*

Notes: SFP figures quoted at voltages tested in accordance with BS EN ISO 5801:2017

Tolerances:
On flow rates: +/- 5%
On acoustic power pressure levels: +/- 3dB
By octave band: +/- 5dB



Technical data							
Efficiency	**Size**	**Phase**	**Motor (kW)**	**Voltage (VAC)**	**Fan speed (rpm)**	**Full load current (A)**	**Speed control**
IE3	630	3	2.2	400	967	5.2	Inverter

Noise data

Sound data												
Fan speed setting (Hz)	**Fan speed (rpm)**	**Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)**								**Casing noise breakout**			
		63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**NR @1m**	**NR @3m**	**dBA @1m**	**dBA @3m**
50	967	72	75	79	78	74	69	65	60	55	48	56	49
45	870	70	73	76	75	71	67	62	58	52	45	53	46
40	773	67	70	73	72	68	63	59	54	49	41	50	43

Insertion loss table								
	Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)							
	63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Case insertion loss	+7	-1	-1	-11	-19	-23	-23	-19

For both case and acoustic enclosure insertion loss values, see page 24 for more information.
For unit dimensions, see page 20 for more information.

Note: Data for design guidance only. Detailed information is available upon request.

Selection data

TLL710/43-3

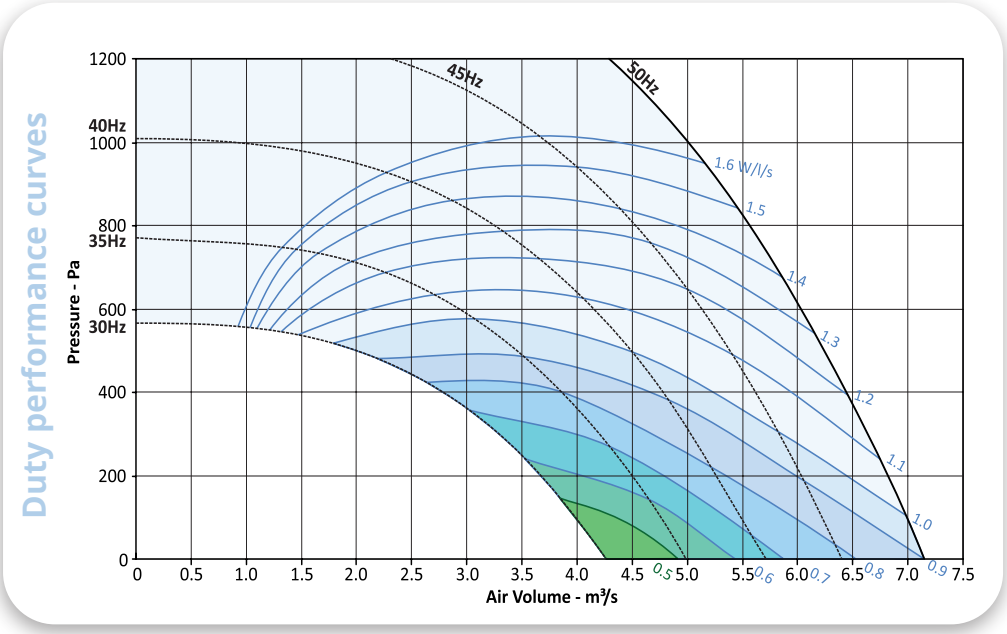
Performance

Product: TLL | Size: 710 | / | Pole: 4 | Efficiency: 3 | - | Phase: 3 | / | Orientation:

SFP (Watts / litres / second) = *Electrical input power (watts)* / *Air volume flow rate (litres / second)*

Notes: SFP figures quoted at voltages tested in accordance with BS EN ISO 5801:2017

Tolerances:
On flow rates: +/- 5%
On acoustic power pressure levels: +/- 3dB
By octave band: +/- 5dB



Technical data							
Efficiency	**Size**	**Phase**	**Motor (kW)**	**Voltage (VAC)**	**Fan speed (rpm)**	**Full load current (A)**	**Speed control**
IE3	710	3	7.5	400	1464	14.7	Inverter

Noise data

Sound data												
Fan speed setting (Hz)	**Fan speed (rpm)**	**Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)**								**Casing noise breakout**			
		63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**NR @1m**	**NR @3m**	**dBA @1m**	**dBA @3m**
50	1464	84	88	92	92	88	84	79	75	68	61	68	62
45	1317	82	86	90	89	85	71	76	72	66	59	66	59
40	1171	80	83	87	86	82	78	73	69	63	56	63	56
35	1024	77	80	84	83	79	74	70	65	60	53	60	53
30	878	74	77	80	79	75	70	66	61	56	49	56	50

Insertion loss table								
	Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)							
	63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Case insertion loss	+7	-1	-1	-11	-19	-23	-23	-19

For both case and acoustic enclosure insertion loss values, see page 24 for more information.
For unit dimensions, see page 20 for more information.

Note: Data for design guidance only. Detailed information is available upon request.

Selection data

TLL710/63-3

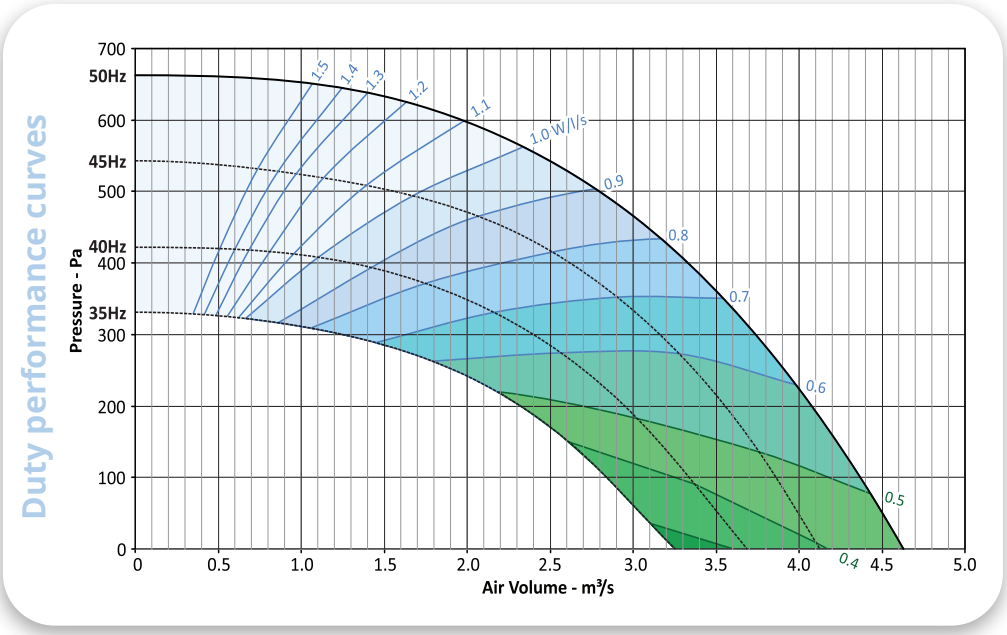
Performance

Product	Size		Pole	Efficiency		Phase		Orientation
TLL	710	/	6	3	-	3	/	

SFP (Watts / litres / second) = *Electrical input power (watts)* / *Air volume flow rate (litres / second)*

Notes: SFP figures quoted at voltages tested in accordance with BS EN ISO 5801:2017

Tolerances:
On flow rates: +/- 5%
On acoustic power pressure levels: +/- 3dB
By octave band: +/- 5dB



Technical data							
Efficiency	**Size**	**Phase**	**Motor (kW)**	**Voltage (VAC)**	**Fan speed (rpm)**	**Full load current (A)**	**Speed control**
IE3	710	3	3.0	400	978	7.0	Inverter

Noise data

Sound data												
Fan speed setting (Hz)	**Fan speed (rpm)**	**Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)**								**Casing noise breakout**			
		63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**NR @1m**	**NR @3m**	**dBA @1m**	**dBA @3m**
50	978	75	79	82	81	77	73	68	64	58	51	58	52
45	880	73	76	79	78	74	70	65	61	54	48	55	49
40	782	71	74	76	76	71	67	62	58	51	44	52	46
35	684	68	70	73	72	68	63	59	54	48	41	49	43

Insertion loss table								
	Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)							
	63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Case insertion loss	+7	-1	-1	-11	-19	-23	-23	-19

For both case and acoustic enclosure insertion loss values, see page 24 for more information.
For unit dimensions, see page 20 for more information.

Note: *Data for design guidance only. Detailed information is available upon request.*

Selection data

TLL800/43-3

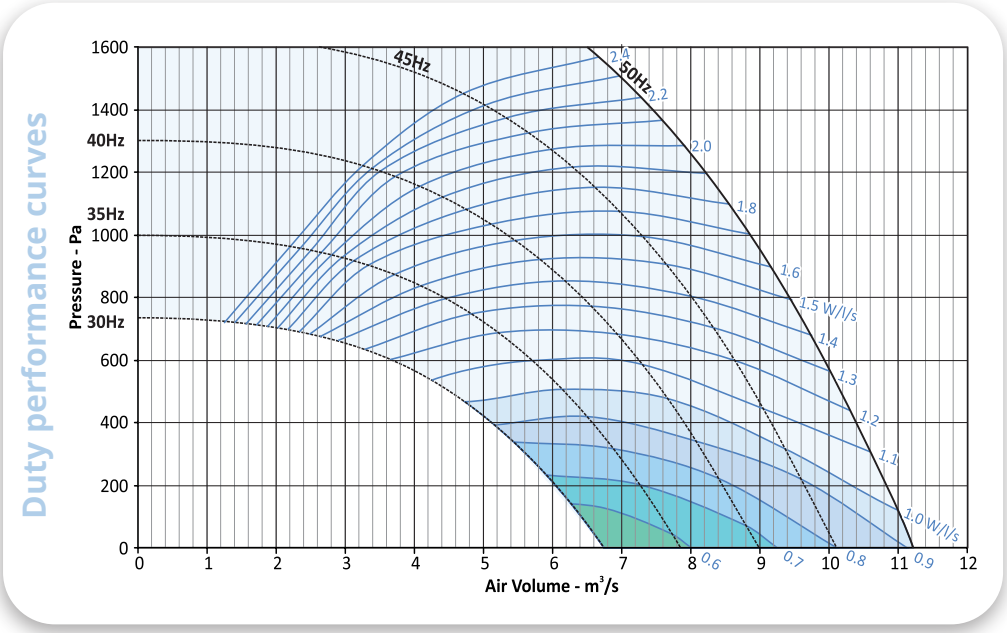
Performance

Product	Size		Pole	Efficiency	Phase		Orientation
TLL	800	/	4	3	3	/	

SFP (Watts / litres / second) = *Electrical input power (watts)* / *Air volume flow rate (litres / second)*

Notes: SFP figures quoted at voltages tested in accordance with BS EN ISO 5801:2017

Tolerances:
On flow rates: +/- 5%
On acoustic power pressure levels: +/- 3dB
By octave band: +/- 5dB



Technical data							
Efficiency	**Size**	**Phase**	**Motor (kW)**	**Voltage (VAC)**	**Fan speed (rpm)**	**Full load current (A)**	**Speed control**
IE3	800	3	18.5	400	1481	34.9	Inverter

Noise data

Sound data												
Fan speed setting (Hz)	**Fan speed (rpm)**	**Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)**								**Casing noise breakout**			
		63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**	**NR @1m**	**NR @3m**	**dBA @1m**	**dBA @3m**
50	1481	90	94	98	98	94	89	85	80	74	68	74	67
45	1332	88	92	95	95	91	87	82	78	71	64	71	65
40	1184	85	89	92	82	88	84	79	75	68	61	68	62
35	1036	83	86	89	89	84	80	76	71	65	58	65	59
30	888	79	82	86	85	80	76	72	67	61	55	61	55

Insertion loss table								
	Sound spectrum dB re 10^{-12} W PWL centre frequency (Hz)							
	63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
Case insertion loss	+7	-1	-1	-11	-19	-23	-23	-19

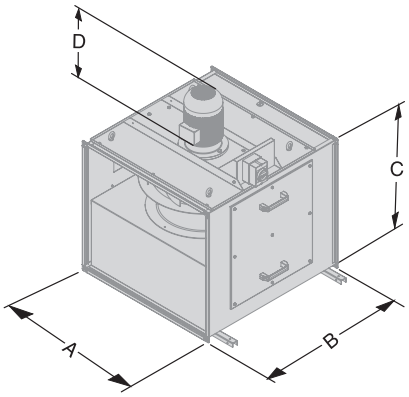
For both case and acoustic enclosure insertion loss values, see page 24 for more information.
For unit dimensions, see page 20 for more information.

Note: *Data for design guidance only. Detailed information is available upon request.*

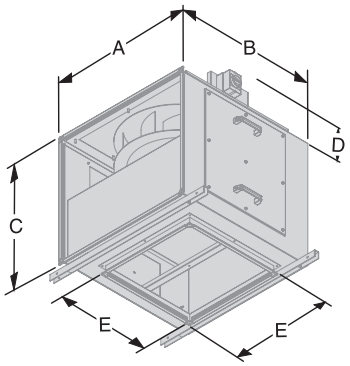
t-line 120

Dimensions

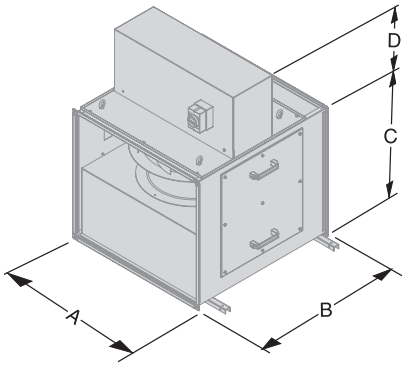
PH



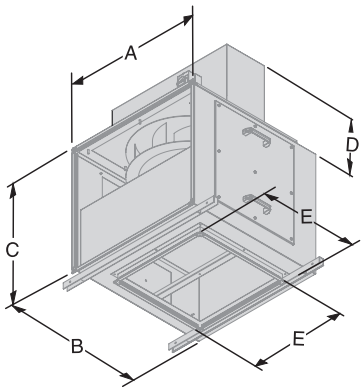
PL



WH



WL



Mounting

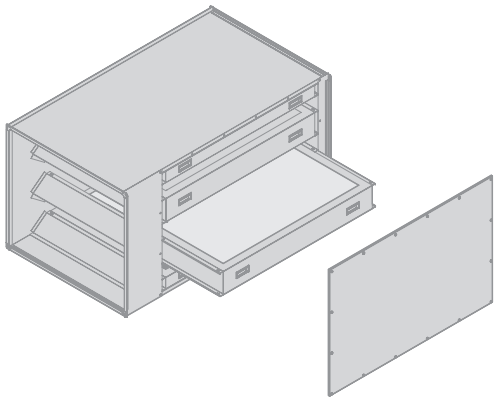
Units are supplied to suit mounting with the motor on top as standard.
By referring to the O and M documentation, the unit can be re-orientated to suit a side mounted motor with either vertical or horizontal airflow.
t-line 710 and 800 units are not suitable for re-orientation and should be operated with a top mounted motor only.

	Dimensions (mm)						
Unit size	**A**	**B**	**C**	**D (P)**	**D (W)**	**E**	**Weight (kg)**
250	380	480	380	215	250	280	30
350	500	600	500	336	404	400	50
400	700	650	600	351	402	450	70
450	750	700	600	336	354	500	95
500	800	800	700	336	354	600	105
560	850	900	750	322	379	600	130
630	900	900	800	506	579	600	200
710	1100	1000	1000	506	579	600	245
800	1250	1150	1050	618	675	825	340

Note: *Data for design guidance only. Detailed information is available upon request.*

Silencers

- Designed to fit directly onto the **t-line 120** unit, with the exception of those marked * which will require a duct transition.
- Silencers are available with splitters that are easily removed for cleaning.
- The set back pointed splitter ends to face fan unit.

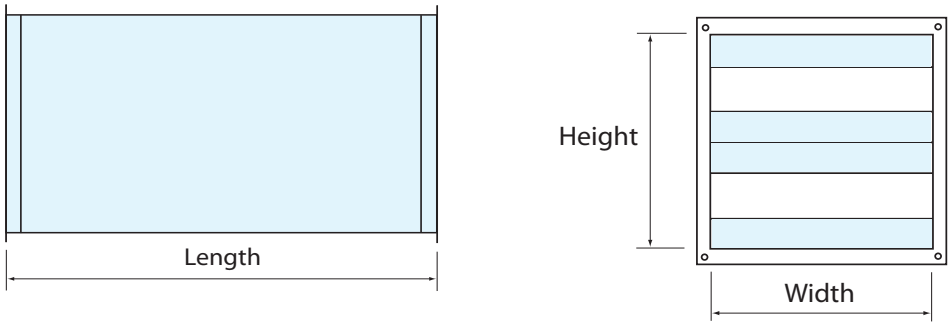


Induct loss sound spectrum dB re 10^{-12} W PWL centre									
		Frequency (Hz)							
To suit t-line	Silencer model	63	125	250	500	1k	2k	4k	8k
250	TLLVA250/1250	-4	-7	-13	-24	-28	-28	-17	-24
*350/2**	TLLVA350/2/1250	-4	-8	-14	-27	-35	-35	-26	-22
350/4	TLLVA350/4/1250	-4	-8	-14	-27	-35	-35	-26	-22
*400/2**	TLLVA400/2/1500	-4	-8	-17	-30	-37	-37	-27	-16
400/4	TLLVA400/4/1250	-4	-8	-14	-27	-35	-35	-26	-22
450	TLLVA450/1500	-4	-8	-17	-30	-37	-37	-27	-16
500	TLLVA500/1500	-4	-7	-14	-24	-30	-30	-17	-10
560	TLLVA560/1500	-4	-9	-18	-30	-40	-40	-34	-24
*630/4**	TLLVA630/4/1500	-5	-10	-20	-35	-42	-42	-36	-32
630/6	TLLVA630/6/1500	-4	-8	-17	-30	-37	-37	-27	-16
*710/4**	TLLVA710/4/1700	-5	-9	-18	-30	-37	-37	-27	-16
710/6	TLLVA710/6/1500	-4	-5	-17	-30	-37	-37	-27	-16

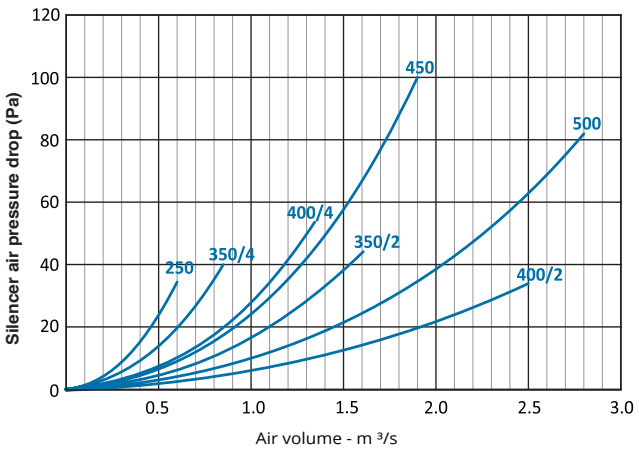
t-line part numbers marked * are ***not*** suitable for direct silencer

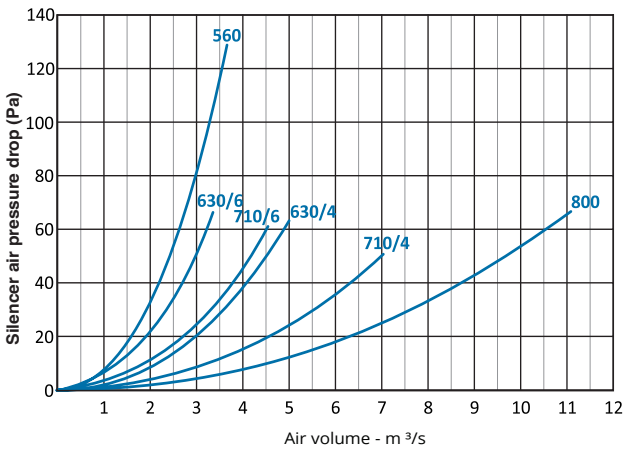
Note: *Data for design guidance only. Detailed information is available upon request.*

Silencers dimensions and air pressure drop



Silencer dimensions (mm)				
Silencer model	**Width**	**Height**	**Length**	**Weight (kg)**
TLLVA250/1250	380	380	1250	40
TLLVA350/2/1250	600	600	1250	65
TLLVA350/4/1250	500	500	1250	55
TLLVA400/2/1500	800	800	1500	120
TLLVA400/4/1250	700	600	1250	80
TLLVA450/1500	750	600	1500	105
TLLVA500/1500	800	700	1500	120
TLLVA560/1500	850	750	1500	135
TLLVA630/4/1500	1200	1200	1500	255
TLLVA630/6/1500	900	800	1500	145
TLLVA710/4/1700	1350	1350	1700	285
TLLVA710/6/1500	1100	100	1500	200

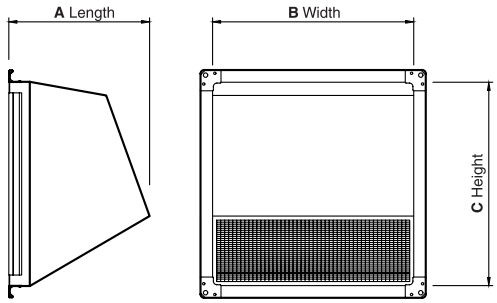




Note: *Data for design guidance only. Detailed information is available upon request.*

Horizontal weather cowl - CWL

- Suitable for fitting to end of silencers
- Suitable for fitting to end of units up to 710
- Supplied with 30 mm frame
- Powdercoated as standard for external mounting



Weather Cowl dimensions (mm)				
Cowl part no.	**Width**	**Height**	**Length**	**Weight (kg)**
TLLCWL250/H	380	380	300	5
TLLCWL350/2/H*	***600***	***600***	***350***	***12***
TLLCWL350/4/H	500	500	450	10
TLLCWL400/2/H*	***800***	***800***	***500***	***20***
TLLCWL400/4/H	700	600	450	14
TLLCWL450/H	750	600	500	16
TLLCWL500/H	800	700	500	19
TLLCWL560/H	850	750	500	20
TLLCWL630/4/H*	***1200***	***1200***	***600***	***45***
TLLCWL630/6/H	900	800	600	25
TLLCWL710/4/H*	***1350***	***1350***	***600***	***50***
TLLCWL710/6/H	1100	1000	600	35
TLLCWL800/H*	***1250***	***1050***	***600***	***60***

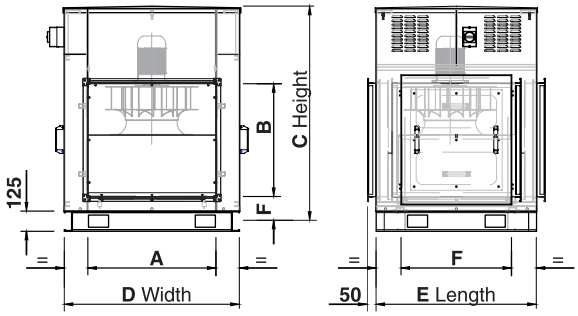
Cowl parts marked * are ***not*** suitable for fitting direct to the unit.

Note: *Data for design guidance only. Detailed information is available upon request.*

t-line 120

Acoustic enclosure

- Internally vibration isolated
- High quality acoustic liner
- Suitable for plantroom and external mounting
- Access doors both sides



Dimensions (mm)							
Unit size	**A**	**B**	**C (height)**	**D (width)**	**E (length)**	**F**	**Weight (kg)**
TLLAE250	380	380	970	630	680	91	60
TLLAE350	500	500	1090	750	800	91	100
TLLAE400	700	600	1210	900	900	91	135
TLLAE450	750	600	1285	1223	900	91	170
TLLAE500	800	700	1385	1092	1000	91	215
TLLAE560	850	750	1535	1150	1235	91	255
TLLAE630/4	900	800	1610	1200	1235	111	330
TLLAE630/6	900	800	1610	1200	1235	111	330
TLLAE710/4	1100	1000	1785	1300	1335	111	390
TLLAE710/6	1100	1000	1785	1300	1335	111	390
TLLAE800	1250	1050	1970	1500	1485	111	690

Anti vibration mounting kit

- Spring or rubber AV mounts dependent on unit size
- Double flex flange
- Separate kits for units with bottom inlet

Insertion loss table								
Sound spectrum dB re 10^{-12} w PWL centre frequency Hz								
Unit size	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
TLL250 - TLL450	+4	-3	-8	-17	-30	-33	-34	-28
TLL500 - TLL800	+2	-9	-12	-18	-26	-31	-31	-29

The sum of both the unit casework and the acoustic enclosure insertion value loss.

Note: Data for design guidance only. Detailed information is available upon request.

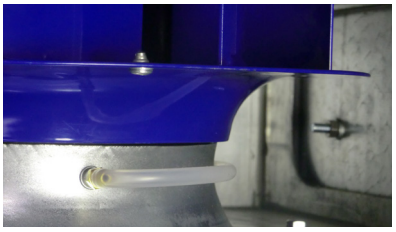
Differential pressure and air volume control module

Intelligent control module provides measurement of the differential pressure across the fan or in duct air volume, so that fan commissioning and control is very quick and simple. The module is directly mounted on the air handling unit and factory fitted and tested.

Features

- Calculation of the air volume through input of the inlet ring k factor
- Adjustable set point and control range to generate 0-10V DC signal for fan speed
- Configurable control loop parameters with sensor display
- Three pressure applications 0-200 Pa, 0-1000 Pa or 0-6000 Pa

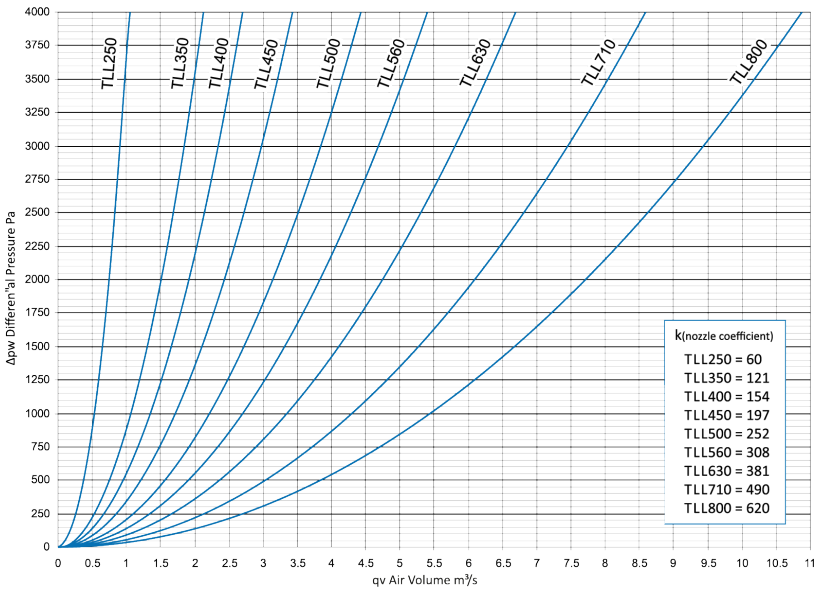
Air volume and pressure commissioning



Instant and accurate measuring of the air volume, right at the fan. There will be no need for duct traverse.

- Each unit is fitted with pressure tapping connections on the outside of the case, these are piped inside the unit to provide an accurate differential static pressure (Δp) across the fan
- Air volume may be measured on site using a micromanometer or directly by VES factory fitted intelligent control module
- There is a k factor for each size of impeller / fan
- The VES Control Module will automatically calculate the air volume. The air volume can also be determined using the following calculation:

$$q_v = k\sqrt{\Delta p}$$



Where:

q_v = volume m³/h

k = k factor

Δp = differential pressure (Pa)

Example:

Fan size 500: k factor = 252

Static pressure differential measured at fan 2500 Pa (Δp)

$q_v = 252 \times \sqrt{2500} = 12600$ m³/h

$\frac{12600}{3600} = 3.5$ m³/s

Note: Data for design guidance only. Detailed information is available upon request.

t-line 120

Control packages for performance and efficiency

BlueSense
Intelligent Control

Save energy and costs with BlueSense controls

Demand ventilation solutions

BlueSense philosophy combines intelligent control technologies with energy saving products, services and engineering expertise. BlueSense helps meet energy reduction commitments by optimising equipment performance, improving energy efficiency, saving money and increasing equipment life expectancy.

BlueSense can be applied to a variety of projects and applications, providing efficient solutions whilst supporting design for best practice and sustainability.

BlueSense features

- Inbuilt intelligent controls technology
- Optimises performance and efficiency
- Demand ventilation control improves air quality, reducing energy consumption and lowering operating costs
- Combined CO_2 and VOC sensing technology with energy efficient speed control
- Extending equipment life expectancy and reducing maintenance
- Short term payback on capital expenditure
- Extended warranty

t-line 120 BlueSense

All products in the Ecovent range can form part of a BlueSense energy saving package. Specify BlueSense to ensure units are optimised with pre-wired controls, energy efficient speed controller and air quality sensor. All of these work in unison, reducing energy consumption and saving money.

A BlueSense example

t-line 120 with fitted sensor control and commissioning module for differential pressure and air volume

+

Advanced multi-application inverter

+

Air quality, temperature humidity and PIR sensors

=

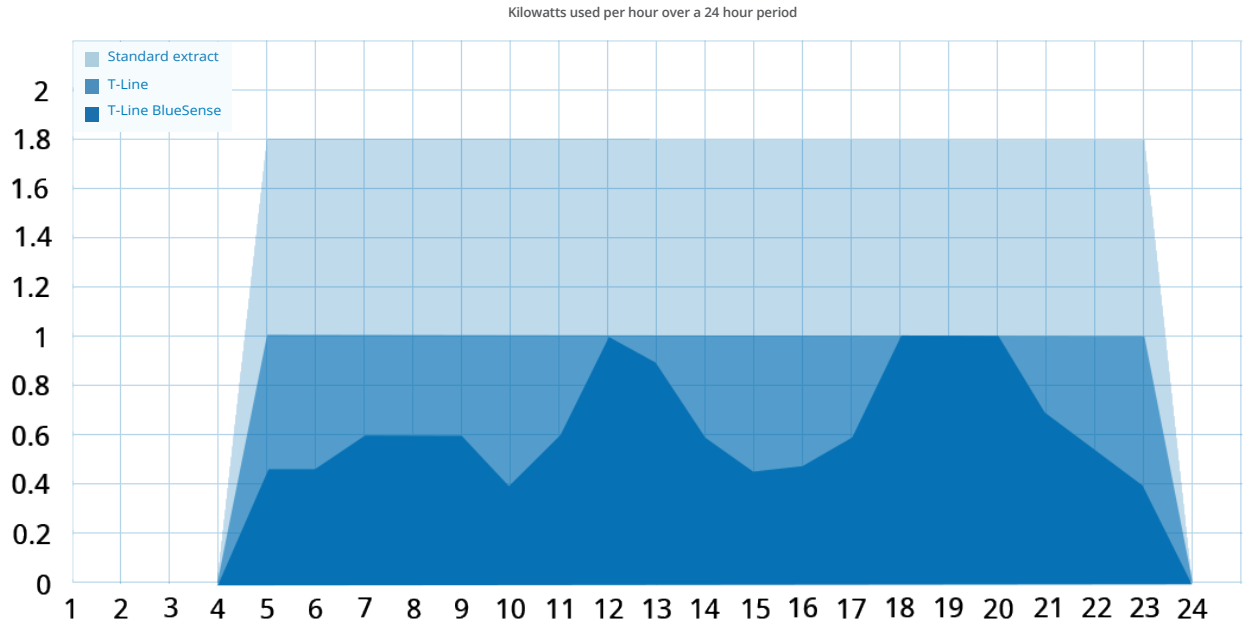
BlueSense
Intelligent Control

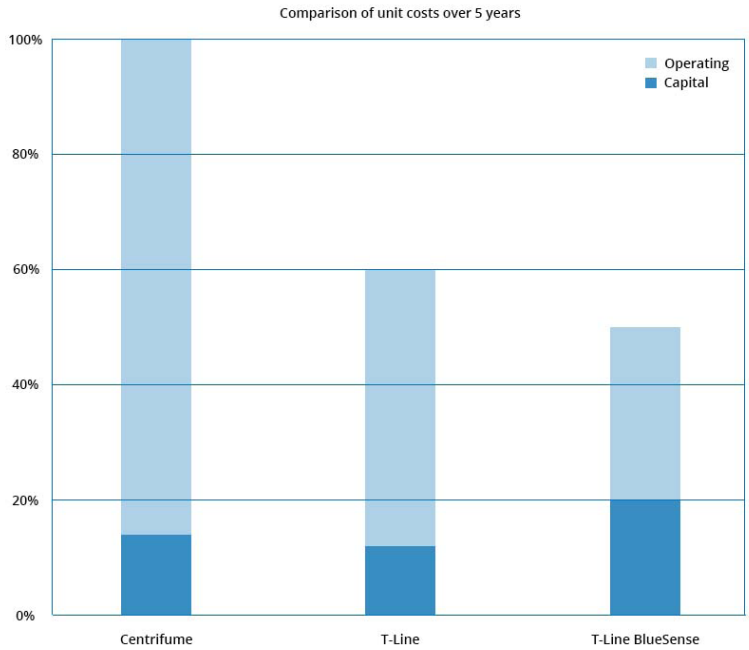
The sign of energy saving products, services and expertise

BlueSense energy savings

Energy chart life cycle costs

The example below is a typical kitchen extract system, where the demand varies in duty over the working day. The ventilation system operates from 4am until 1am, Monday to Sunday, with a ventilation rate of 1.7 m^3/s at 250 Pa.





Conclusion

When the **t-line** range is combined with BlueSense technology you can help both our environment and minimise your overall life cycle costs and reduce payback period.

VES is experienced at discussing energy requirements with clients, our knowledge and technology can help to identify areas where savings can be made. VES can provide assistance for both new and existing buildings.

BlueSense includes an extended warranty

- 3 years with BlueSense packages
- 5 years with BlueSense package and a Post Install visit

Please quote BlueSense with your order, or contact our specialist sales team for further information.

Air volume commissioning

3 phase speed control using inverters

VES offer a range of speed controllers to suit HVAC applications. The result is a system that is easy to setup, quicker to commission with rapid fault diagnostics. The benefits include 0-100% stepless control, from a wide range of input signals, inbuilt processor for application programming and tuning coupled with full fan / motor protection and monitoring.

Option 1

Inverter with comprehensive range of functions and IP54 enclosure.

- Complete with operational keypad
- IP54 protection for indoor or external use
- Main isolating switch with lockable handle
- Panel live indicator, run indicator, trip indicator (IP54 version only)
- Volt-free run and trip indication
- Damper connection available
- Connections for motor thermal cutout safety interlock
- Local frequency fan speed control
- Connections available for remote enable and speed control from BMS, remote controller or other forms of 0-10V speed control devices

Option 2

Low cost inverter with IP21 enclosure. Suitable for internal location.

- Complete with operational keypad
- IP21 / NEMA1 protection for indoor use
- Features include on/off control at inverter pad with built-in pot for easy adjustment and BMS control. Remote manual controller available (CFSC1)

Inverters for 1 phase supply

If only a 230V 1 phase supply is available, it may be possible to use a single to three phase inverter. Please contact VES sales for further information regarding suitability and selection.

Product specification

t-line 120

1.1. **General**

A. Provide a ventilation fan unit to meet the performance and configuration as indicated in the schedule and detail drawings. The unit shall be tested to BS EN ISO 5801:2017 and shall be of the **t-line 120** high performance fan type as manufactured by VES Andover Ltd a company covered by
BS EN ISO 9001:2015.

1.2. **Unit construction**

A. The casework shall be rigidly constructed from heavy gauge galvanised steel and use a high quality non-leakage gasket on the access doors.
B. Access doors shall be provided for the purpose of maintenance. Suitable access shall be provided adjacent to the unit for maintenance.
C. Weatherproof units shall be supplied with a powder coat finish. Colour to be in accordance with specification.
D. Weatherproof units shall be fitted with motor weather guard to prevent water ingress as manufactured by VES Andover Ltd.
E. The unit shall be supplied be supplied with Lifting eyes for safe handling. Lifting eyes will be manufactured in accordance with DIN 580.
F. The ventilation unit shall be supplied with connections to directly fit to a 30 mm ductwork system.

1.3. **Impeller and Motor**

A. The impeller and motor shall be selected to provide a low energy solution and conform to Building Regulations Part L.
B. The impeller shall be a high efficiency centrifugal backward curved design and shall be of a fully welded steel construction.
C. The impeller shall be balanced to DIN ISO 14694.
D. The motor shall be fitted external to the airflow with the options of either IE2 high efficiency or IE3 improved high efficiency class F, IP55 motors in accordance to schedule.
E. The motor shall be manufactured to IEC60034.
F. The ventilation fan unit is suitable for continuous running at 120 ˚C.

1.4. **Ancillaries**

A. The ventilation unit and ancillaries shall be of the **t-line 120** type as manufactured by VES Andover Ltd.

1.5. **Controls**

A. The unit shall be supplied as standard pre-wired to an external isolator.
B. BlueSense controls combine pre-wired factory fitted and tested differential pressure and air volume control module, energy efficient advanced application speed controller and temperature, humidity or air quality sensor; providing effective and efficient control of the ventilation system as supplied by VES.
C. If the differential pressure and air volume control module is indicated within the schedule the unit shall be supplied with the module factory fitted and tested.
D. If speed control is indicated in the schedule the unit shall be supplied with a loose speed controller for remote mounting.
E. The unit shall be fully compatible with a standard range of sensor options to effectively operate the ventilation system as supplied by VES. Sensor options include; High Temperature Duct Sensor, Room / Duct Humidity Sensor, Room / Duct Air Quality Sensor.

Download specification from www.ves.co.uk

Product code guide

Product	Fan dia.	Pole	Efficiency	Phase	Orientation
TLL	250	/ 2	2	-3	/PL
	350	/ 4	3		/PH
	400	/ 6			/WL
	450				/WH
	500				
	560				
	630				
	710				
	800				

Sample code
TLL450/43-3

IE2 = 2
IE3 = 3

Products and Services from VES HVAC Solutions

Air Handling Units

- **MAX bespoke ventilation**
  Customer driven solution, designed to fit any application with duties up to 32.0 m³/s.
- **ecovent counterflow**
  Premium efficiency heat recovery with duties up to 0.70 m³/s
- **ecovent mini**
  Compact heat recovery with duties up to 0.18 m³/s

Supply and Extract Fans

- **Colourfan Supply Acoustic**
  Premium efficiency, low noise supply units
- **Colourfan Extract Acoustic**
  Premium efficiency, low noise extract units
- **Colourfan Twin Extract Acoustic**
  Premium efficiency, low noise twin extract units

Classroom Ventilation Units

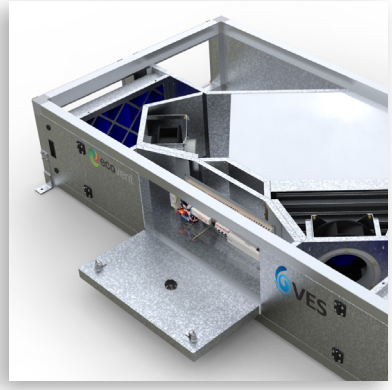
- **ecovent hybrid**
  Natural classroom ventilation enhanced by low powered fans
- **ecovent education solutions**
  Net zero classroom solution, optimised for cross ventilation strategies

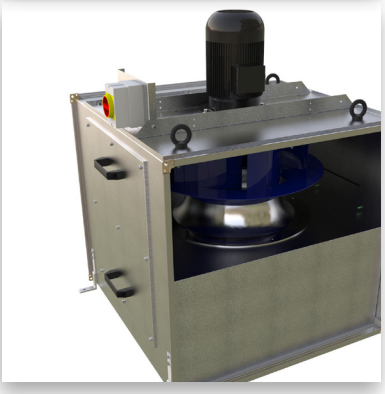
Kitchen Extract & Roof Extract

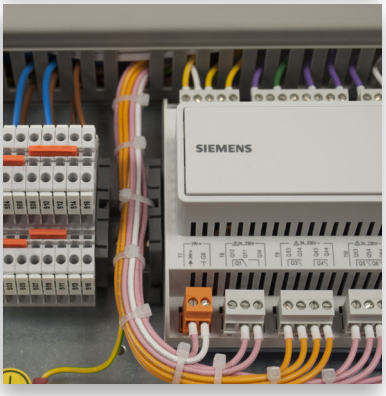
- **T-Line**
  High temperature extract units with duties up to 11.0 m³/s and operating temperatures up to 120°C
- **Dome**
  Premium efficiency, lightweight, roof extract unit

Controls & Services

- **Controls**
  Design, manufacturing, assembling and testing in house
  Bespoke solutions for any project or application
- **Specialist Site Service Projects**
  Plant refurbishment, energy saving upgrades
  AHU flat pack installation where access is restricted
  Maintenance and spares services



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Visit our website at **ves.co.uk**

Telephone **02380 461150**

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