Roof fan MX

Important features

- High efficiency DC motors with single-phase 230V power supply
- Optimum working point with variable adjustment
- Regulation at 0-10V (automatically for pressure, time, temperature, etc)
- High-quality environmentally-friendly casing
- Diagonal exhaust flow
- Motor located outside the main air flow

General

A number of very advanced new technologies are integrated in the MX roof extract fans. The use of DC motors and specially developed electronics has resulted both in considerable energy savings and a unique range of regulation options. Air flow volume up to 5,000m³/h. Single phase, 230V, net connection.

Casing

The casing comprises high quality polypropylene parts and a steel frame. The MX is light grey (RAL 7035) with a dark coloured (RAL 7037) cover. The diagonal exhaust opening is fitted with guide vanes, ensuring optimal air-flow. The motor and electronics have been mounted outside the main air flow, and are cooled by outdoor air. The motor unit is fitted with connectors for speed regulation, sensor-controlled regulation and read-outs and adjustments via an RS-485 serial connector. Extracted air may range in temperature from -30°C to +60°C. The fan base is fitted as standard with a seal for air-tight connection to a silencer or mounting curb.

Fan impeller

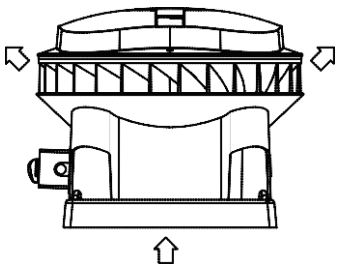
The aluminium mixed-flow impeller has a diagonal exhaust pattern. Combined with the diagonally placed guide vanes, this creates higher exhaust speeds, preventing curvature losses. The impeller (mounted on the motor) is statically and dynamically balanced with electronic precision instruments, guaranteeing vibration-free operation.

Motor

The specially developed DC motors have a Hall effect sensor which regulates the direction of current through the coil (avoiding the use of carbon brushes). This guarantees maintenance-free operation. Working life and maintenance are comparable to three-phase motors. Energy savings of 40 to 60% can be realised relative to AC motors and three-phase motors (depending on usage).

Air direction

The impeller's diagonal exhaust pattern continues into the casing and has been improved by means of the guide vanes. This prevents curvature losses. Shortly after exiting the fan, the air flow automatically returns to the vertical direction, retaining the advantages of vertical exhaust.



Regulation

The electronics unit in the MX roof extract fan allows any required working point/speed to be set within the minimum/maximum range. This allows for an optimal working point to be chosen. The required phased or variable adjustment is possible based on the ideal working point. Adjustment barely affects the high yield of the DC motors. The 0-10V controls and/or sensor connection can be used to automatically regulate pressure, time and temperature, for example.

Electrical connection

The power supply cable can be fed through to the motor compartment via a locating sleeve (no cable gland required). From there, the MX can easily be connected to the external operating switch. A feed-through sleeve is also available for a low-voltage connection to the controls.

MX roof extract fans have a leakage current of ±10mA. For this reason, a residual current device cannot be used when a unit is connected to multiple MX roof extract fans. For further information, please refer to the manual available on the internet.

Adjustment and Read-out

Every MX is fitted with an RS-485 serial connection. This allows read-out of the MX and, using a converter, adjustment of the settings via a sub D9 connector under the lid. This connection allows access to various units of the MX. There are two options for adjustment and read-out:

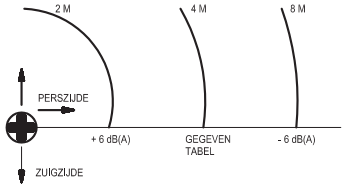
Manual adjustment

Using potmeters (control components), key parameters like air volume or pressure (ZMV) can be easily regulated by hand.

Noise levels

Suction side

Noise levels on the suction side of the fans are strongly influenced by the acoustic properties of the area extracted (noise-proofing in the ducting, absorption in the area to be ventilated, etc.), and can only be determined by a full noise analysis. Noise levels in the table below cover frequencies between 125 and 8000 Hz. These values apply with to a system resistance of 150 Pa at top speed. Lower values will be measured in the event of higher counter-pressures.



Delivery side

The noise in dB(A), as given in the technical specifications for each type of fan, is measured at the delivery (=exhaust) side of the fan, measured at 4 metres distance horizontally, under free field conditions, ref. 2.10^{-5} N/m². As the distance to the source of noise (= fan) increases, the noise will decrease, assuming that the noise is reduced by 6 dB(A) when the distance is doubled, see the illustration.

Option

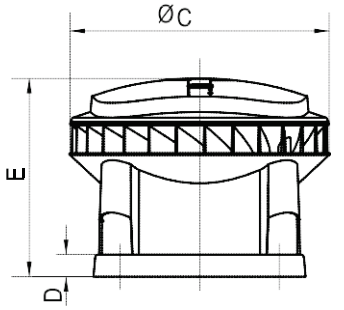
Self-regulating Mechanical Ventilation System.

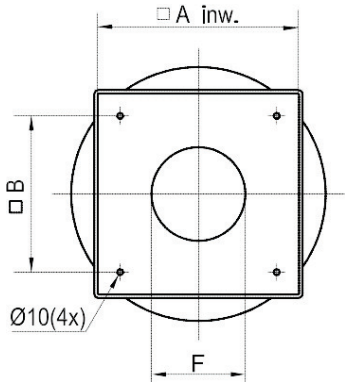
The MX roof extract fan can be fitted with a pressure transmitter and a pressure detector, type indication MX ZMV, with which the underpressure in the ducting can be kept constant.

Dimensions

The dimensions in the table are in mm.

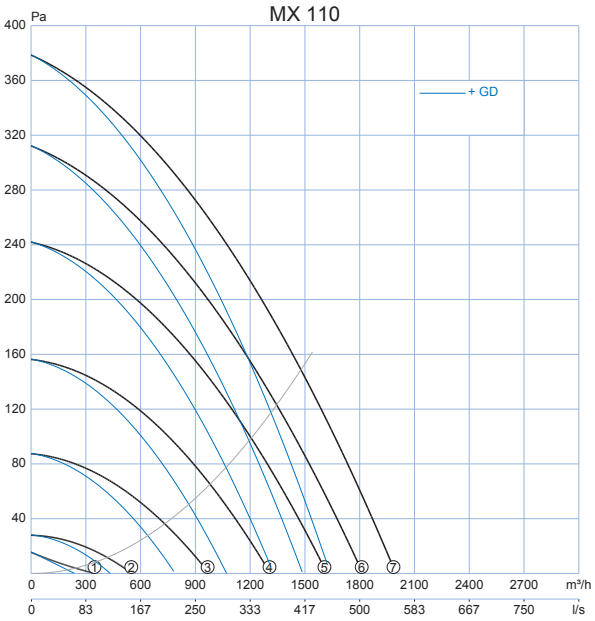
Ventilator type	Accessory type	A (internally)	B	C	D	E	F
MX 110	330	440	330	575	60	473	196
MX 210	450	558	450	708	60	540	241
MX 310	535	645	535	863	60	601	302
MX 320	535	645	535	863	60	601	302





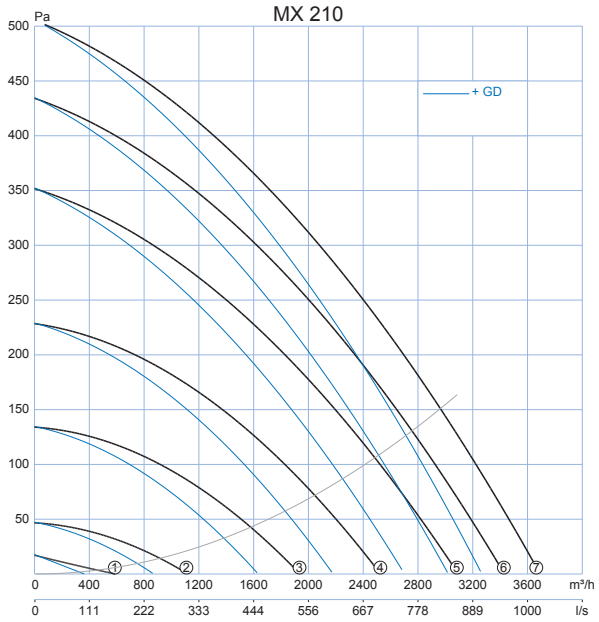
MX 110

Fan curve	Setting percentage	Speed freely exhausting	Capacity freely exhausting	Consumption power*	Consumption current*	Cos*	Noise level* Suction	Noise level* Pres. Side (4m)	Weight	wiring diagram
	%	rev/min	m³/h	Wel	A		dB(A)	dB(A)	kg	number**
MX 110										
(1)	16	326	334	5	0.090	0.24	42	23	18	601
(2)	30	528	549	10	0.130	0.33	45	24		
(3)	50	927	977	31	0.310	0.43	55	35		
(4)	65	1223	1306	62	0.570	0.47	61	41		
(5)	80	1480	1623	108	0.900	0.52	66	47		
(6)	90	1650	1811	130	1.150	0.49	68	50		
(7)	100	1810	2005	180	1.380	0.57	70	52		



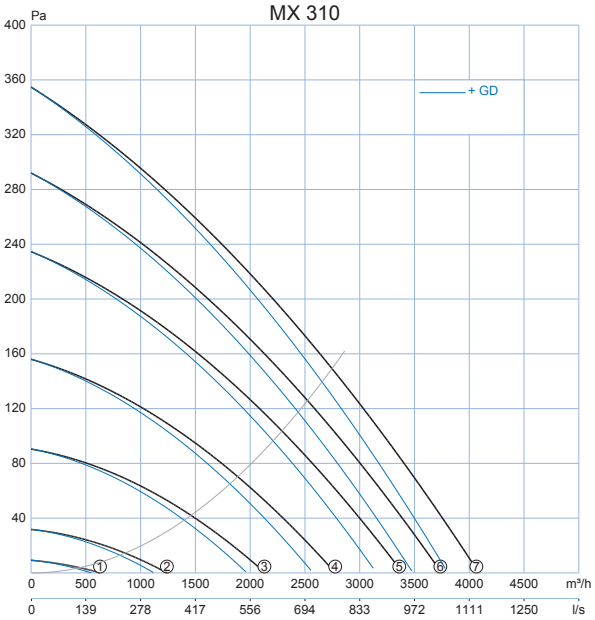
MX 210

Fan curve	Setting percentage	Speed freely exhausting	Capacity freely exhausting	Consumption power*	Consumption current*	Cos*	Noise level* Suction	Noise level* Pres. Side (4m)	Weight	wiring diagram
	%	rev/min	m³/h	Wel	A		dB(A)	dB(A)	kg	number**
MX 210										
(1)	16	277	548	11	0.100	0.48	43	24	25	601
(2)	30	544	1120	24	0.160	0.65	49	35		
(3)	50	921	1935	78	0.360	0.99	61	43		
(4)	65	1179	2525	154	0.670	1.00	66	50		
(5)	80	1417	3084	264	1.140	1.00	70	55		
(6)	90	1565	3427	354	1.540	1.00	73	58		
(7)	100	1640	3701	412	1.780	1.00	75	60		



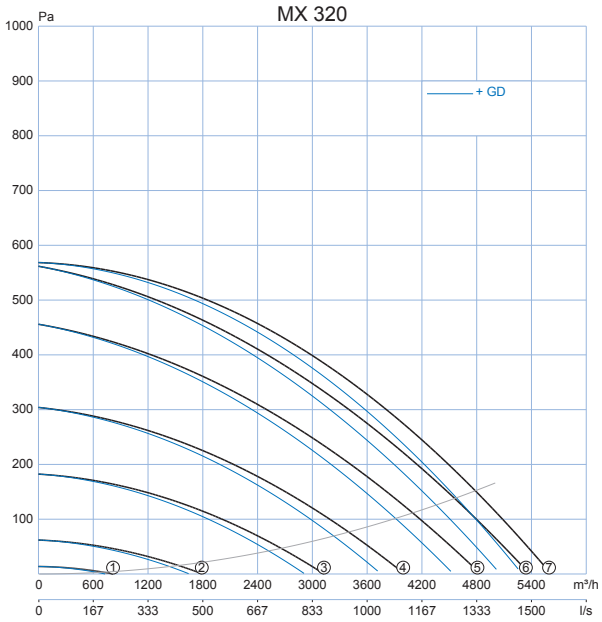
MX 310

Fan curve	Setting percentage	Speed freely exhausting	Capacity freely exhausting	Consumption power*	Consumption current*	Cos*	Noise level* Suction	Noise level* Pres. Side (4m)	Weight	wiring diagram
	%	rev/min	m³/h	Wel	A		dB(A)	dB(A)	kg	number**
MX 310										
(1)	16	176	611	9	0.100	0.39	43	23	32	601
(2)	30	327	1240	18	0.140	0.56	54	25		
(3)	50	550	2130	53	0.260	0.89	54	34		
(4)	65	701	2776	103	0.470	0.95	61	41		
(5)	80	848	3395	176	0.770	0.99	63	46		
(6)	90	937	3736	232	1.010	1.00	66	49		
(7)	100	1020	4065	303	1.330	0.99	68	51		



MX 320

Fan curve	Setting percentage	Speed freely exhausting	Capacity freely exhausting	Consumption power*	Consumption current*	Cos*	Noise level* Suction	Noise level* Pres. Side (4m)	Weight	wiring diagram
	%	rev/min	m³/h	Wel	A		dB(A)	dB(A)		number**
MX 320										
(1)	16	228	779	21	0.170	0.54	44	23	38	601
(2)	30	470	1807	48	0.270	0.77	53	34		
(3)	50	800	3127	156	0.700	0.97	64	48		
(4)	65	1024	3995	285	1.250	0.99	71	55		
(5)	80	1227	4857	485	2.100	1.00	76	60		
(6)	90	1362	5393	660	2.900	0.99	79	64		
(7)	100	1425	5649	755	3.320	0.99	80	65		



Sound

fan		Sound power dB ref. 10^{-12} W						
Type	Stand	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	8000Hz
MX 110	7	70	72	68	65	60	54	47
MX 110	6	73	69	66	63	58	52	46
MX 110	5	71	67	64	60	55	49	43
MX 110	4	68	63	61	54	49	42	41
MX 110	3	56	58	55	47	40	36	40
MX 110	2	45	47	40	32	31	35	40
MX 110	1	40	40	34	30	31	34	40
MX 210	7	76	73	73	69	66	60	53
MX 210	6	76	72	72	68	64	59	51
MX 210	5	73	70	69	65	61	56	48
MX 210	4	70	67	65	60	56	51	43
MX 210	3	63	64	61	52	49	42	41
MX 210	2	52	52	47	38	34	35	40
MX 210	1	45	43	34	31	31	35	40
MX 310	7	71	71	66	63	57	50	45
MX 310	6	68	69	64	60	54	47	43
MX 310	5	66	66	62	58	52	45	42
MX 310	4	63	68	58	51	47	39	41
MX 310	3	58	57	53	43	38	36	41
MX 310	2	49	63	41	31	31	35	40
MX 310	1	39	37	34	30	31	35	40
MX 320	7	80	78	78	74	73	64	59
MX 320	6	81	78	77	73	71	63	57
MX 320	5	78	76	75	71	66	59	54
MX 320	4	71	72	69	66	59	52	48
MX 320	3	67	66	63	59	52	44	42
MX 320	2	57	56	54	44	35	35	41
MX 320	1	42	45	37	31	31	35	40

Accessories and switch and control equipment

For accessories and switch and control equipment, please refer to the relevant chapters.
A summary is given below.

Accessories

Fan connection plates (VAP)
Gaskets (PV)
Mounting curbs (DOS, DOS...G, DSA en DSL)
Roof feed-through sleeves (DVK, DVS)
Silencer plate (GDP)
Silencers (GDH, GDB)

Control equipment

Day/night regulation (DNG)
Temperature control (LTG)
Speed switch (SAG)