

VENTILATION MOTOR BOX “MB”

Caisson de Ventilation “MB”

CAJAS DE VENTILACION “MB”(Motor Box)

Unidades de Ventilação “MB”



diffusion

acoustic

fire dampers

GENERAL INFORMATION

The Ventilation Motor Boxes MB, designed to work both as supply or air extractors, are made of galvanized steel, quality Z-275. Internally covered with thermal and acoustic insulation, with a high performance and fire behavior B s1 d0, according to Regulation UNE-EN 13501-14102-1.

MB boxes are equipped with a double inlet forward centrifugal fan, statically and dynamically balanced by electronic equipment of high sensibility according to Regulation VDI-2060 with a balanced degree Q of 6,3. The motor is directly coupled to the impeller and supported by brackets fixed on the casing. A rubber shock absorber is placed between the motor and the bracket.

The motor-fan is isolated from the box through a pair of feet with anti-vibration mounts and rubber joint in the outlet. With this system, it is not necessary to place shock absorbers or flexible connections on the outside of the box.

The mouth-flanges to connect the inlet and outlet ducts have a rectangular shape. MB boxes are provided with a stuffing box in order to help with the external wiring connections.

Under request, as an optional accessory, adaptable circular connection can be supplied both in the outlet and inlet.

Temperature working range: From -20°C to +50°C.

As the roof is flat (without grooves) MB boxes can be placed outdoor and a double roof is not necessary.

MOTORS

Motors are closed (IP-54 Protection) according to the European Regulation IEC, with insulation Class F, ball bearings and thermal protection. Depending on the technical needs, they can be selected with 4 or 6 poles.

Depending on the box size, motors can be single-phase (M), 230V, with permanent capacitor, or three-phase (T), 230/400V. See technical data table (Page 4).

For the small sizes, motors are only single-phase; for size 12/33 single-phase motors or three-phase motors can be mounted and for size 15/39 the motor is a three-phase motor with six poles.

The standard MB boxes contain direct driven fans of one speed, but under request they can be supplied with direct driven fans of three speeds.

ASSEMBLY

MB boxes are mounted generally supported without any accessory. In case they need to be hanged, four brackets with their corresponding screws can be supplied.

APPLICATIONS

MB motor box range is suitable for air renovation in any type of room, working either as an extractor or a supplier.

The whole MB range mounts closed motors with IP54 protection which is a very good solution if they are installed in air polluted atmospheres.

MB range covers flow rates from 100 m³/h to 10.000 m³/h with a static pressure drop that can reach up to 500 Pa.

OPTIONAL ACCESORIES (Under request)

- Exhaust regulating dampers (manual or motorized).
- Circular inlet connection.
- Circular outlet connection.
- 3 Speed Motors.
- Single-phase speed regulator (Voltage Regulation).
- Three-phase speed regulator (Frequency Converter).
- Outlet wing for outdoor mounting with bird screen.
- Inlet wing for outdoor mounting with bird screen.
- Safety switch (start/stop).
- Weatherproof roof.



VENTILATION MOTOR BOX SELECTION EXAMPLE

DATA - We need 2.500 m³/h of flow rate and a static pressure of 300 Pa:

We set on the X axis (horizontal) on a flow rate of 2.500 m³/h and on the Y axis (vertical) on a static pressure (ΔP_{st} (Pa)) of 300 Pa.

There is no MB box that gives us the flow rate and pressure drop required, we select the following MB: MB 9/25-9/9 3/4-4P-M-1V (curve N°4), to situate it in the working point we have two options:

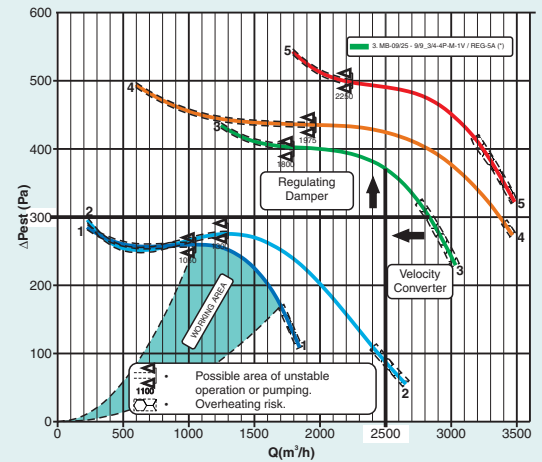
1- Use a regulation damper, we will add an additional pressure drop to the installation (move upwards on the graph). (We obtain a pressure drop of 370 Pa).

2- Use a speed regulator (single-phase motor) or frequency converter (three-phase motor) to decrease the revolutions per minute of the motor-fan until we reach the required flow. (Move horizontally to the left on the graph).

If we consider monetary issues regarding single-phase motors, both options are similar (regulator damper and speed regulator).

If we consider electrical consumption (intensity vs flow graph) we should select the speed regulator. If we take into account a three-phase motor, choosing the most inexpensive option is not that easy, the regulation damper is cheaper than the frequency converter but the electrical consumption is lower if using a converter.

There are three characteristic curves depending on the motor (single-phase 6 poles motor, single-phase 4 poles motor and three-phase 6 poles motor). At the time of deciding the most adequate MB size between these three possibilities, we should consider that ventilation boxes with 4 pole motors give more pressure drop and that the relation between performance-electrical consumption has to be considered (intensity vs flow graph).



ORDER NOMENCLATURE

MB units are defined according to the following set of letters and numbers.

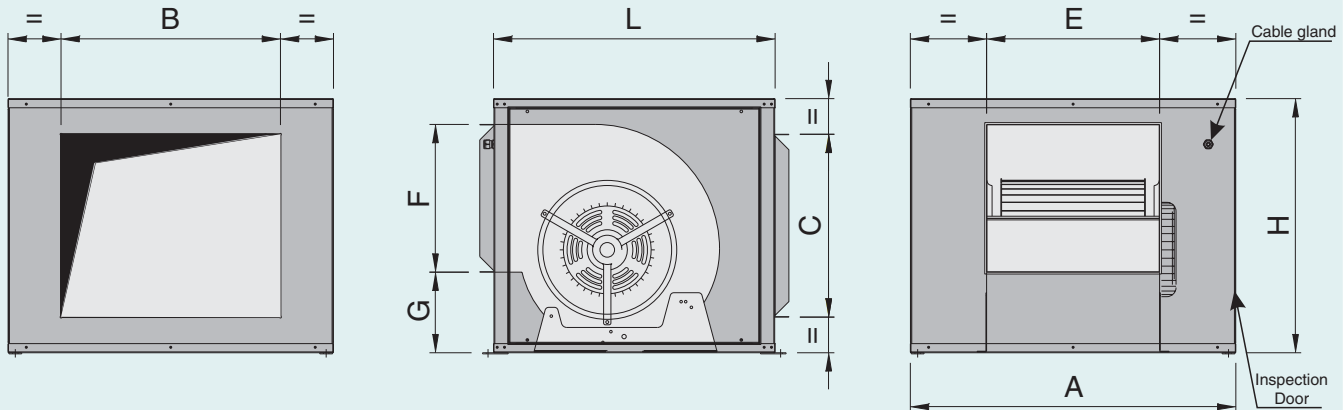
Type; Size; Motor + Accessories.

ORDER EXAMPLE:

MB- 9/25 - 3/4 - 4P - M - 1V + EAD 450x310 MA			
MB	Type		
9/25	Size		
3/4-4P-M-1V	Motor	3/4	Power CV
		4P	N° Poles
		M	Single-Phase
		1V	1 Speed
	EAD-450x310 MA	Regulating damper EAD (Optional Accessory).	

MB ventilation box size 9/25 with fan 9/9 and a motor of 3/4 hp (550W), single phase, 4 poles and 1 speed. With a regulating damper size 450X310 with manual mechanism as an accessory.

NOTE: For additional data check the Technical Data and Dimensions Table.



Technical Data Table



Model and Size	Fan Inches	Motors ⁽¹⁾		Max. Intensity		Regulator or Converter	Max. Flow rate		Max. Pst.		Sound Level dB(A)	Weight Kg
		Description	W/rpm	A			m ³ /h	Pst Pa	Pa	Flow R. m ³ /h		
				230 V	400 V							
Motors 6 Poles Single Phase												
MB-07/19	7/7	1/10-6P-M-1V	80/820	0,85	---	REG-3A	1490	50	120	950	49	15
MB-09/25	9/9	1/5-6P-M-1V	150/850	1,5	---	REG-3A	2400	150	195	1600	55	21
MB-10/28	10/10	1/3-6P-M-1V	250/830	2,2	---	REG-3A	2900	180	240	1800	57	27
MB-10/28	10/10	3/4-6P-M-1V	550/840	4,5	---	REG-5A	4200	175	255	2500	58	30
MB-12/33	12/12	3/4-6P-M-1V	550/850	5,0	---	REG-5A	5300	290	300	3100	58	42
MB-12/33	12/12	1-6P-M-1V	750/850	6,0	---	REG-10A	6000	160	295	4000	64	43
Motors 4 Poles Single Phase												
MB-05/14	5/8	1/20-4P-M-1V	80/820	0,32	---	REG-5A	550	25	130	100	47	8
MB-07/19	7/7	1/5-4P-M-1V	150/1230	1,4	---	REG-3A	1700	170	250	1050	54	15
MB-07/19	7/7	1/2-4P-M-1V	370/1320	3,3	---	REG-5A	2400	110	270	1300	55	18
MB-09/25	9/9	1/2-4P-M-1V	370/1320	3,3	---	REG-5A	2750	320	400	1800	63	24
MB-09/25	9/9	3/4-4P-M-1V	550/1310	4,5	---	REG-5A	3400	290	430	1975	65	25
MB-10/28	10/10	3/4-4P-M-1V	550/1310	4,5	---	REG-5A	3170	420	500	2250	66	28
Motors 6 Poles - Three Phases												
MB-12/33	12/12	1,5-6P-T-1V	1100/850	6,6	3,8	Converter	7000	210	340	3750	70	43
MB-15/39	15/15	3-6P-T-1V	2200/890	10,9	6,3	Converter	10000	290	460	5500	67	69

(1) M = Single Phase Motors 230V 50Hz IP54 Class F; T = Three Phase Motors 230/400V 50Hz IP54 Class F; 1V = One speed.

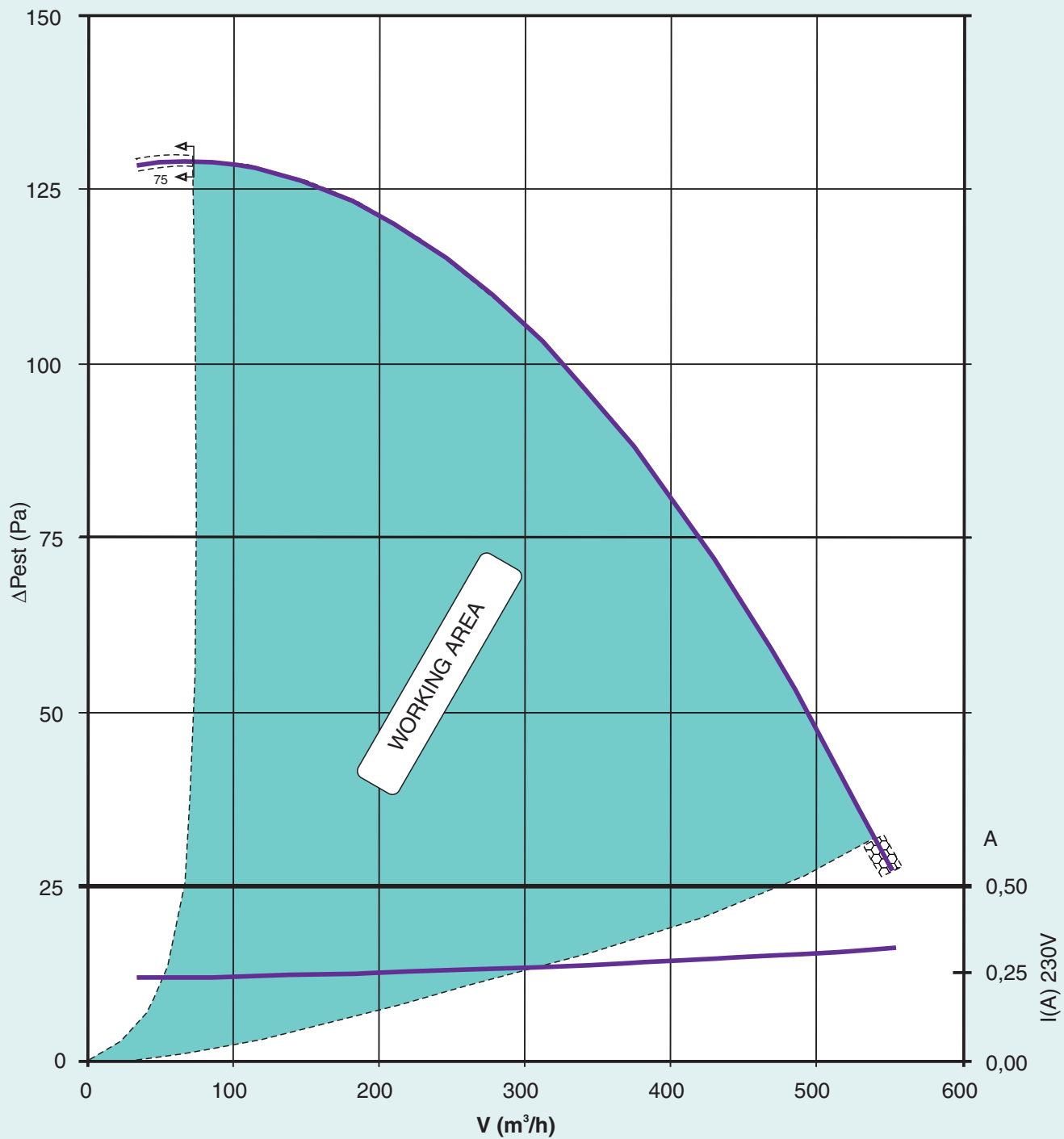
Dimensions

Model and Size	External Dimensions mm			Exhaust mm		Supply mm				Regulation damper
	A	H	L	BxC	DA-Ø ⁽¹⁾	E	F	G	DI-Ø ⁽²⁾	Aspiration ⁽³⁾
MB-05/14	400	248	300	300x100	---	260	100	96	---	EAD- 300x110 MA ó (SA)
MB-07/19	450	400	400	300x300	280	218	195	137	200	EAD- 300x310 MA ó (SA)
MB-09/25	550	470	490	450x300	315	284	251	155	280	EAD- 450x310 MA ó (SA)
MB-10/28	605	525	555	500x400	400	312	276	182	315	EAD- 500x410 MA ó (SA)
MB-12/33	720	600	650	500x500	450	372	328	229	355	EAD- 500x510 MA ó (SA)
MB-15/39	890	695	770	700x500	500	459	390	259	450	EAD- 700x510 MA ó (SA)

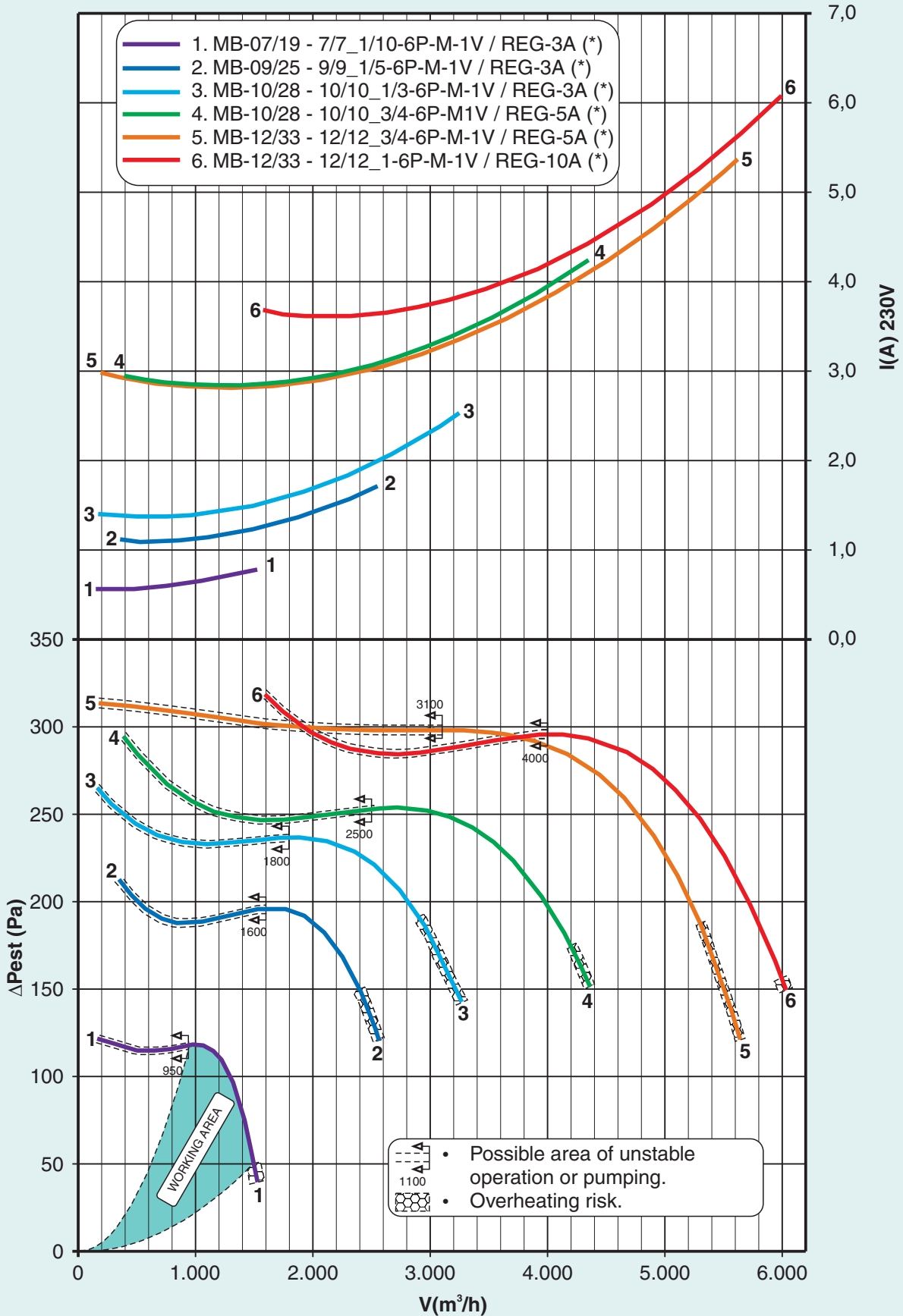
(1) Diameter of the circular aspiration damper associated (Optional accessory, on request).

(2) Diameter of the circular impulsion damper associated (Optional accessory, on request).

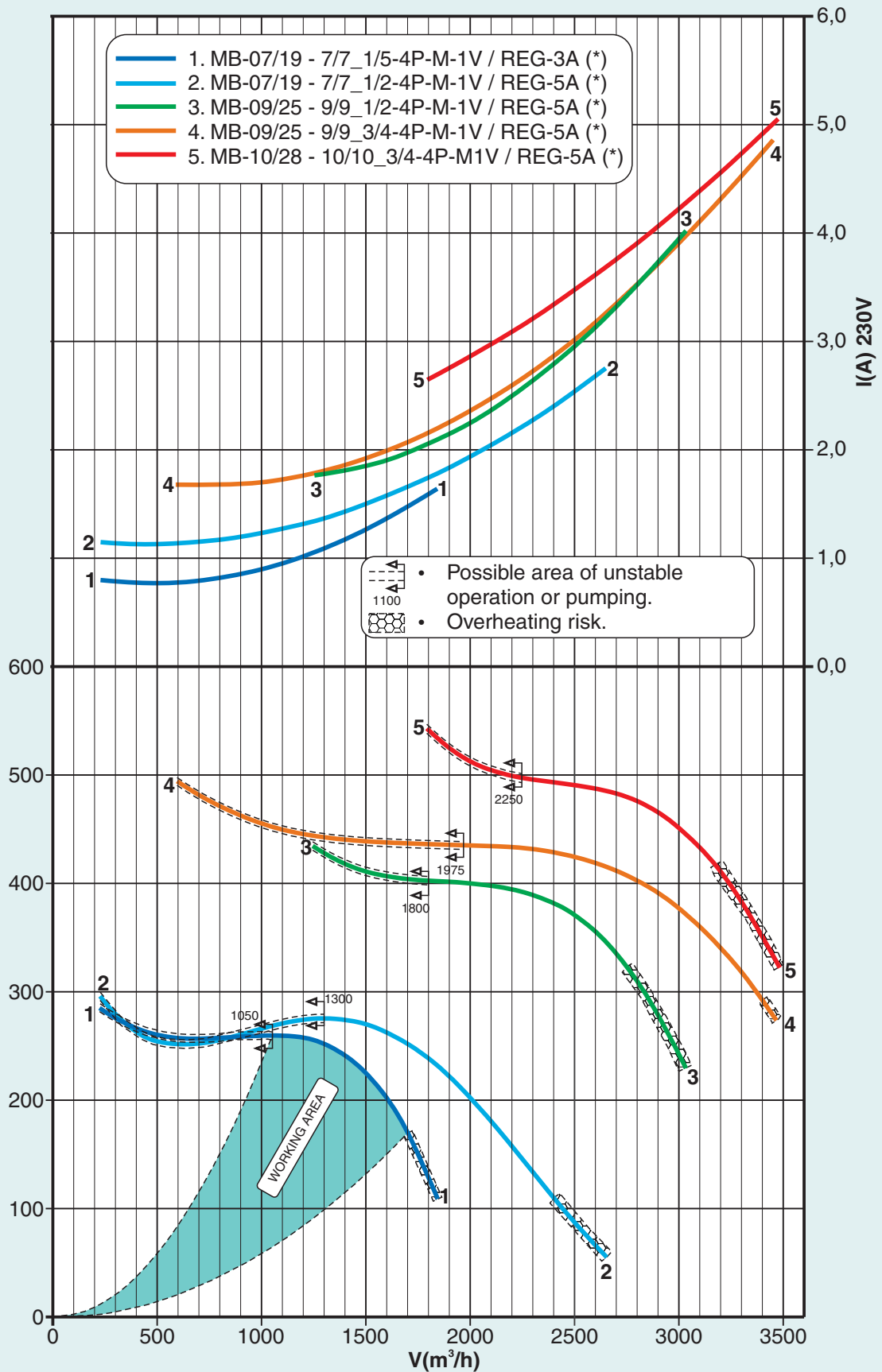
(3) Optional accessory, on request. MA (manual mechanism) - SA (motorized mechanism).



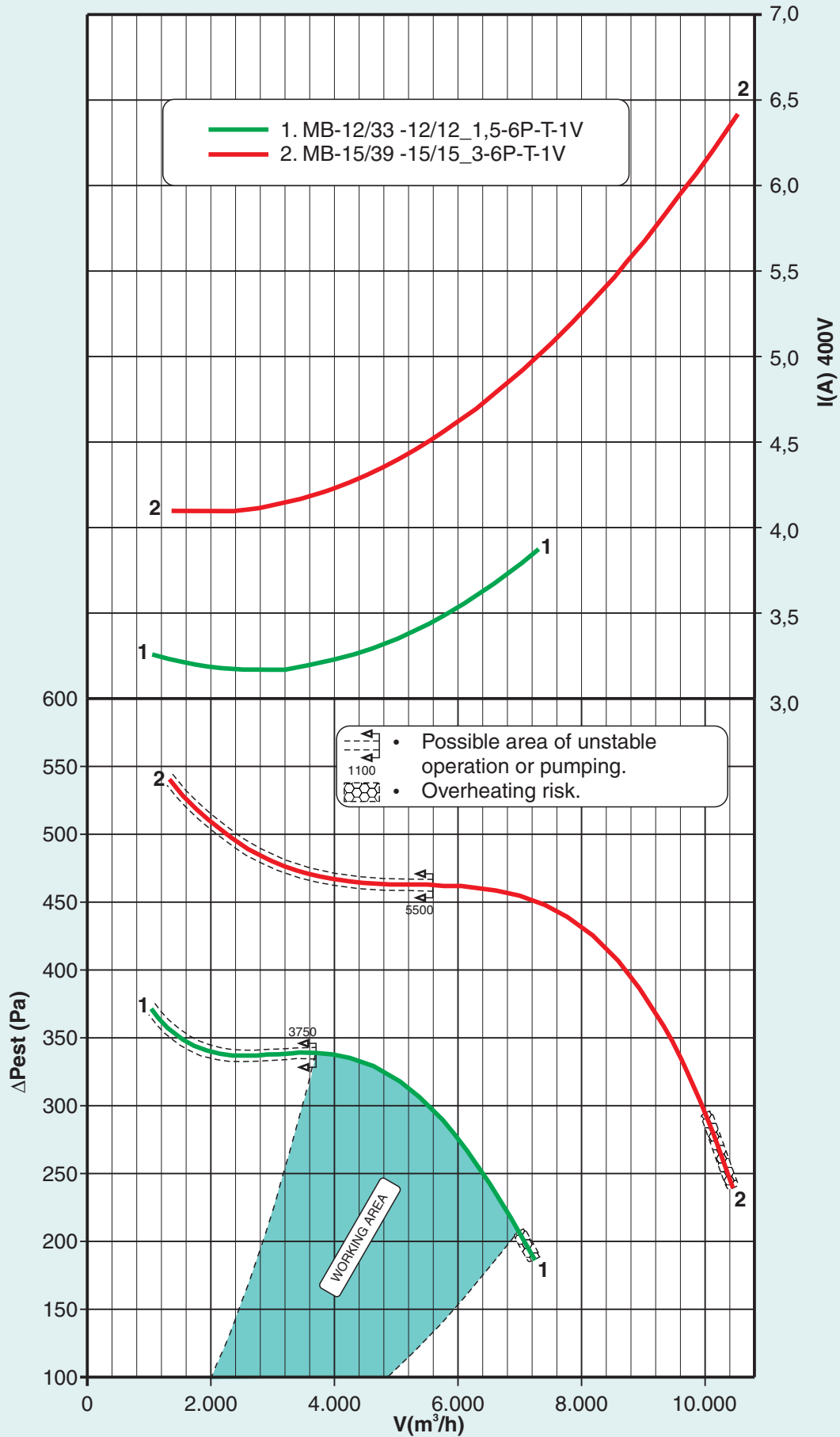
- Possible area of unstable operation or pumping.
- Overheating risk.



(*) Frequency converter is an accessory.



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ISO 9001:2008

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