Multibox

Montage- und Betriebsanleitung für
Installation and Operating Instructions for
Installations- och bruksanvisning för

CE

■ **Deutsche Originalversion**

systemair

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The data stated in these operating instructions are merely for the purpose of describing the product. Information about a certain property or suitability for a certain purpose of use cannot be derived from our information. The information does not release the user from his own assessments and examin-ations.

Please consider the fact that our products are subject to a natural wear and ageing process.

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An exemplary configuration has been shown on the title page. The product supplied can therefore deviate from the illustration. The original operating instructions have been written in the German lan-guage.

1 General information

1.1 Portrayal of the information

HAZARD

Direct danger

Failure to comply with this warning leads directly to death or to serious bodily harm.

WARNING

Possible danger

Failure to comply with this warning possibly leads to death or to serious bodily harm.

CARE

Hazard with a low risk

Failure to comply with this warning leads to slight to moderate injuries..

CARE

Hazard with risk of property damage

Failure to comply with this warning leads to property damage.

NOTE

Useful information and notes

1.1.1 Symbols used

General hazard symbol

Hazard of fire or explosion

Electrical voltage

Risk of combustion

1.1.2 Portrayal of instructions for action

Instruction for action

Instruction for action with fixed order

1. Carry out this action
2. Carry out this action
3. (if applicable, further actions)

1.2 Notes on the documentation

WARNING

Hazard as a result of improper dealings with the Multibox.

These operating instructions describe safe use of the Multibox.

› Read the operating instructions exactly.

› Keep the operating instructions with the Multibox. They must permanently be available at the place of use.

2 Important safety information

2.1 Safety notes

Planners, plant builders and operators are responsible for the proper assembly and intended use.

- Only use the Multibox in a flawless condition.
- Provide generally prescribed electrical and mechanical protective devices.
- During assembly, commissioning, maintenance and controls, secure the place of assembly and the premises for any preparations against unauthorised access.
- Obey the industrial safety directives.
- Safety components may not be circumvented or put out of function.
- Keep all the warning signs on the Multibox complete and in a legible condition.
- Regularly instruct the personnel about safety-conscious conduct.

NOTE

We have carried out a risk assessment for the Multiboxes. However, it can only apply to the Multibox itself. After installation of the Multibox, we recommend carrying out a risk assessment of the total sys-tem. In this way, you have the guarantee that there is no risk potential from the system.

2.2 Personnel

2.2.1 Assembly personnel

- Assembly may only be carried out by trained, qualified personnel.

2.2.2 Work on the electrical equipment

- Work on the electrical equipment of the ventilator may only be done by a trained electrician or a person given instruction in electrical engineering. This person must know the relevant safety directives in order to recognise or to avoid possible risks.

2.2.3 Personnel for operation, use, maintenance and cleaning

- Operation, use, maintenance and cleaning may only be done by trained personnel with the authorisation to do so. The operating personnel must possess knowledge of how to use the Multibox. In the event of a disturbance or an emergency, they must be able to react correctly and suitably.

2.3 Intended use

The Multiboxes (MUB) are intended for installation in ventilation systems. They can be installed both in channel systems and also with free suction via an admission nozzle and a suction-side contact protec-tion grid. Free blow-out via a contact protection grid is also possible following prior consideration dur-ing design.

- The Multiboxes are suitable for the conveying of clean air, air with a low dust and grease content, media up to a max. air density of 1.3 kg/m3 and an admissible moisture of max. 95%.
- The maximum admissible operating data on the name plate apply for an air density p = 1.2 kg/m3 (sea level) and a maximum air moisture of 80%.
- The multiboxes are suited for the following range of ambient and conveyed goods temperatures:
  - MUB from -20 °C to +50 °C
  - MUB (UL) from -30 °C to +50 °C
  - MUB/F from -20 °C to +55 °C, 400° C/120 min
  - MUB/T from -20 °C to +100 °C
  - MUB-EC from -20 °C to +60 °C

2.4 Incorrect use

Incorrect use is above all if you use the Multibox in a way other than that described.
The following points are incorrect and hazardous:

- conveying explosive and combustible media
- conveying aggressive media or ones containing dust or grease
- positioning outside without protection against weather influences
- positioning in moist rooms
- operation in an explosion-capable atmosphere
- operation without channel system or protective grid
- operation with the air connections closed.

3 Warranty

Warrant for our products shall be determined according to the contractual agreements, our quotations and also, as a supplement, our General Terms and Conditions of Business. Warranty claims shall presuppose that the products are correctly connected, operated and used according to the data sheets, also maintained if necessary.

4 Delivery, transport, storage

4.1 Delivery

Each device leaves our works in an electrically and mechanically flawless condition. The multiboxes are supplied on pallets. We recommend that they are transported to the place of assembly in the packaging.

⚠ CARE

Hazard from cutting

› Wear protective gloves when unpacking.

Check delivery

☞ Check the Multibox for obvious defects, which can impair safe operation.

☞ Above all, pay attention for defects, on the connection wire, terminal boxes and rotor, cracks in the housing, missing rivets, screws or covering caps.

4.2 Transport

WARNING

Hazard of impact if the Multibox falls down

» Transport the device carefully and with suitable hoisting gear.

» Wear a helmet and goggles.

WARNING

Electrical hazard from damaged connection wire or connections

» Do not use the connection wire, terminal box or rotor for transporting..

☞ Transport and unload the pallet with the necessary care.

☞ Transport the Multibox either in the original packaging or on the transport devices provided for this purpose (e.g. lifting screws) with suitable hoisting equipment.

☞ Only lift the Multibox by the base frame when unpacking it.

☞ In manual transport, remember human lifting and carrier powers which can be expected (weight can be seen on the name plate).

☞ Avoid impacts and blows and distortion of the base frame and other parts of the housing.

4.3 Storage

CARE

Hazard due to loss of function of the motor bearings

» Avoid storing for too long (recommendation: max. 1 year)

» Turn the rotor manually every three months, wear gloves.

» Before installation, check proper function of the motor bearings.

☞ Store the Multibox in the original packaging dustproof, dry and protected against weather.

☞ Avoid extreme effects of heat or cold.

5 Description

5.1 Description of multibox MUB and MUB (UL)

- Speed-variable
- Multifunctional use
- Integrated thermo-contacts
- Low sound level
- Blow-out direction can be changed on site at any time without any problems
- Safe for operation and maintenance-free to a great extent
- Installation possible in any position

MUB fans have been equipped with bent-backwards, free-running fan wheels of polyamide and vol-tage-variable external rotor motors. An exception is formed by the Multibox MUB 062 630 D4-A2, in which the speed variation is only possible by a frequency inverter.

The 400V version is suitable for D/Y connection and makes 2-level operation possible (not with Multi-box MUB 062 630 D4-A2). An internal thermo-contact with finished lines for connection to a motor protection device has been installed as an overheating protection for the motors of the MUB fans.

The frame section of the housing comprises corrosion-proof aluminium with aluminium or alternatively plastic corners. In this way, the highest possible impact resistance is guaranteed. The housing itself comprises double-shelled panels of galvanised sheet metal with a 20 mm mineral wool insulation.

For thermal decoupling, the side sheets have tabular rivets. As a default, the Multibox fans have been designed for a straight air throughflow. As a result of their replaceable elements, they can easily be refitted. This permits flexible solutions in the area of ventila-tion. MUB fans can thus be used in the rack system area as air-feed or waste air devices.

The Multiboxes are suitable for the conveying of clean air, air with a low dust and grease content, me-dia up to a max. air density of 1.3 kg/m3 and an admissible moisture of max. 95%.

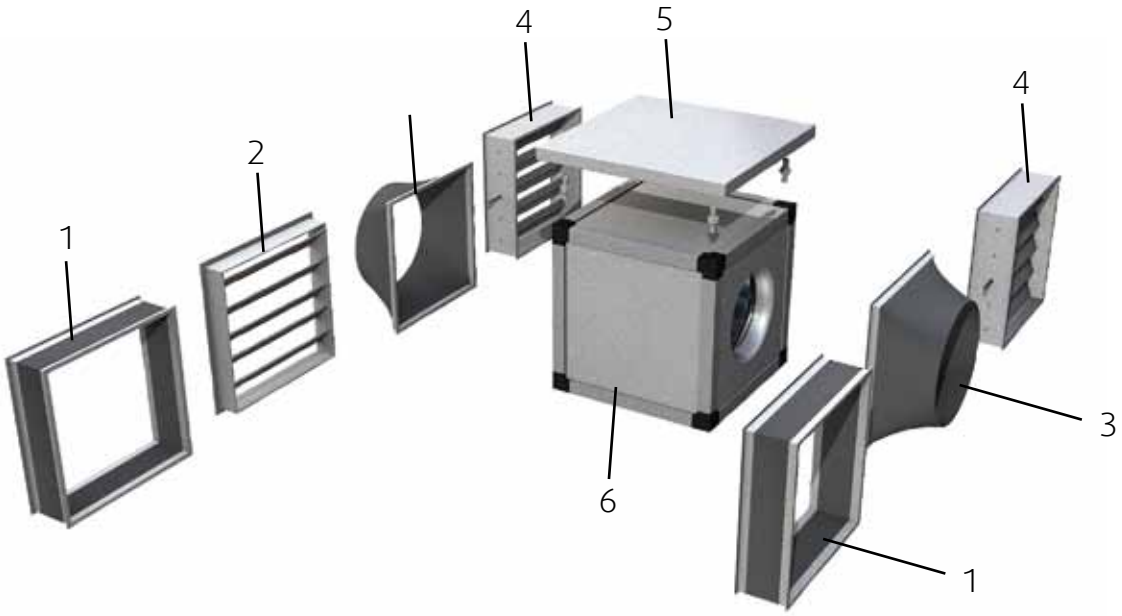


Fig. 1: MUB with accessories

Legende

1	FGV	Flexible connection	4	SRKG	Shutter flap
2	WSG	Weather-protection grid	5	WSD	Weather-protection roof
3	USG	Transition connections, square to round	6	MUB	Multibox MUB, MUB (UL), MUB-EC

5.1.1 Name plates

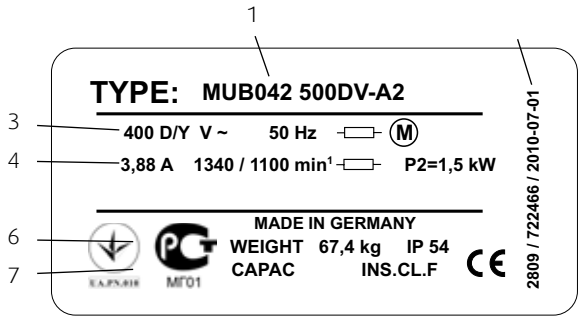


Fig. 2: Name plate MUB

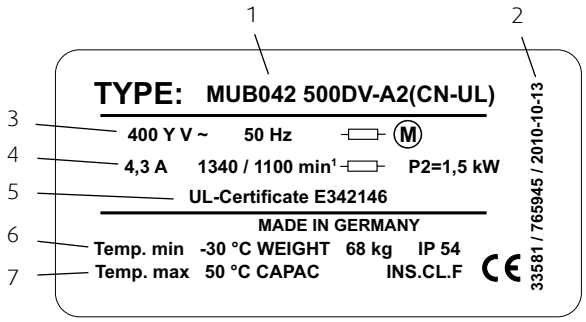


Fig. 3: Name plate MUB (UL)

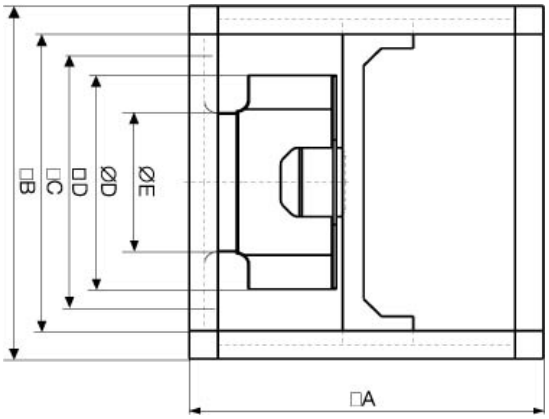
Legend

1	Type designation	1	Type designation (country of manufacture - UL-registration)
2	Article number/ Production number / Manufacturing date	2	Article number/ Production number / Manufacturing date
3	Voltage / Frequency / Motor output	3	Voltage / Frequency / Motor output
4	Current / Speed (max./min.) / Output	4	Current / Speed (max./min.) / Output
		5	UL-certification number
6	Registration Ukraine, Russia / Weight / Protection class	6	Minimum temperature / Weight / Protection class
7	Capacity at 1~ / Insulation class, motor	7	Maximum temperature / Capacity at 1~ / Insulation class, motor

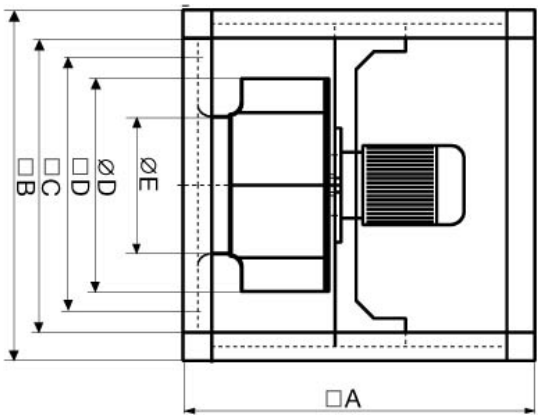
Dimensions

BG	□A	□B	□C	□D	øD	øE
025 355	500	500	420	378	355	224
042 400	670	670	590	548	404	253
042 450	670	670	590	548	454	253
042 499	670	670	590	548	504	321
042 500	670	670	590	548	504	321
062 560	800	800	720	676	570	361
062 630	800	800	720	678	635	407
062 710	1000	1000	920	878	630	389

Table 1: Dimensions of multiboxes MUB and MUB (UL)



MUB 355 to 500E4



MUB from 500DV

5.2 Description of multibox MUB/T

- Up to 100°C medium temperature
- Multi-functionally applicable e.g. for kitchen exhaust air
- Modular system
- Pre-assembled isolator is standard
- Low sound level
- Maintenance-free and reliable
- High efficient motors
- Motor outside of the air stream

All MUB/T fans have impellers with backward curved blades, manufactured from aluminium, and IEC standard motors outside of the air stream with efficiency class IE2 for all 400V three phase motors from 0.75 kW. The MUB/T fans are suitable for medium temperatures up to 100°C continuously. Motor protection by cold conductors or thermal contact, to be connected to an external motor protection device.

The casing consists of an aluminium frame with fiberglass reinforced plastic corners and double skin, galvanised steel panels with a 20 mm mineral wool insulation. Panels are removable, allowing flexible ventilation solutions. With quick lock access door. The MUB bottom panel is shaped as a grease tray and incorporates a premounted drain plug. An isolator switch is mounted on the casing. The outlet direction can easily be rebuilt due to removable panels. This allows flexible ventilation solutions.

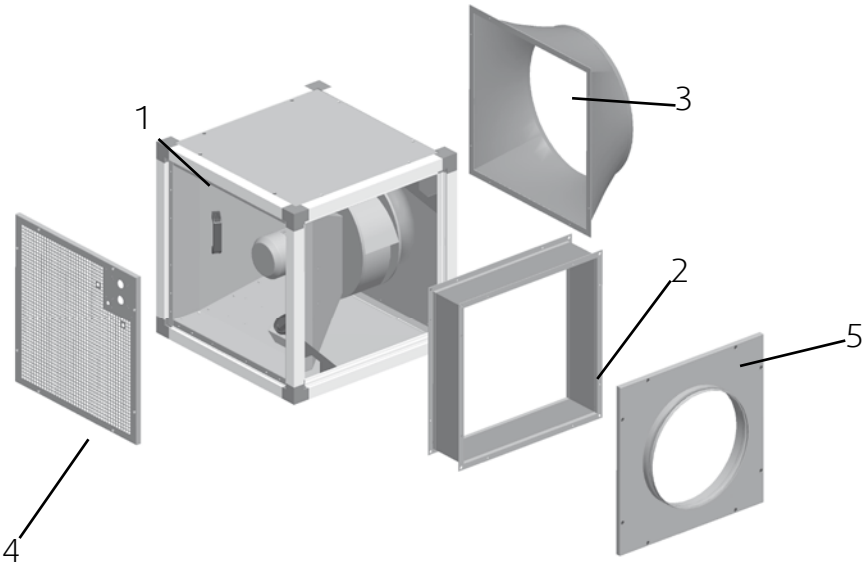
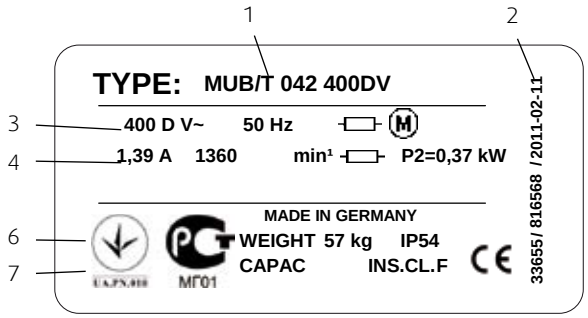


Fig. 4: Multibox MUB/T with accessories

Legend

1	MUB/T	Multibox	4	EGF	Protection guard
2	FGV	Flexible connection	5	CCM or CCMI	Transition connections isolated or not isolated, square to round
3	UGS	Transition connections, square to round			

5.2.1 Name plate



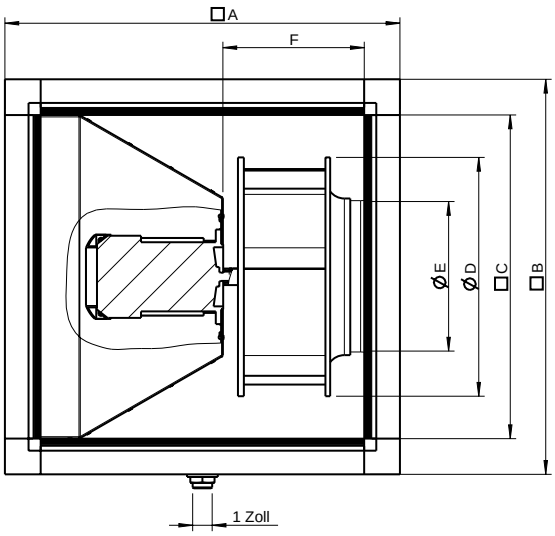
1 Type designation
2 Article number/ Production number / Manufacturing date
3 Voltage / Frequency / Motor output
4 Current / Speed (max./min.) / Output
6 Registration Ukraine, Russia / Weight / Protection class
7 Capacity at 1~ / Insulation class, motor

Fig. 5: Name plate MUB/T

5.2.2 Dimensions

BG	□A	□B	□C	øD	øE	□F
042 400	670	670	548	404	253	300
042 450	670	670	548	454	286	300
062 500	800	800	548	504	321	300
062 560	800	800	718	570	361	321
062 630	800	800	718	635	407	321
100 630	1000	1000	918	635	389	378

Table 2: Dimensions of multiboxes MUB/T



5.3 Description of Multibox MUB/F

- smoke-removal fan
- 400°C/120 min. (F400)
- insulated housing
- low noise level
- can be operated on two levels
- tested to EN 12101-3 with LGAI, Barcelona

The smoke-removal fans of the MUB/F series are suited for conveying hot fume gases in the standard area with standard temperatures up to 55°C. The MUB/F multibox has been fitted with backward-bent, free-running fan wheels of galvanised steel. The housing comprises a sectioned steel frame. All parts have been galvanised and are resistant against the influence of sea water. The 4 side parts comprise double-shelled panels of galvanised steel sheet with a mineral wool insulation 20 mm in thickness. They have smooth surfaces as protection against dust and dirt deposits. The blow-out direction can be chosen quite simply between a straight and lateral direction. The motors are aligned to use of high temperatures, F 400°C / 120 min. The motors are available as one- or two phase versions.

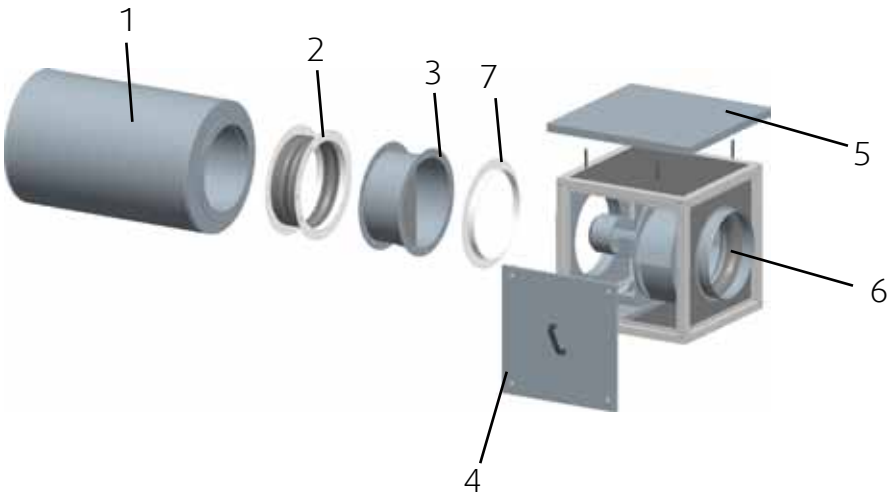
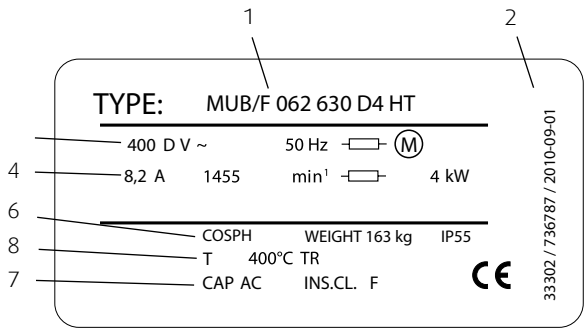


Fig. 6: Multibox MUB/F

Legend

1	RSA	Sound absorber	5	WSD	Weather-protection roof
2	EVH	Elastic connection	6	MUB/F	Multibox
3	LRK	Automatic closing flap	7	GFL	Counter flange
4	SDM	Service door			

5.3.1 Name plate



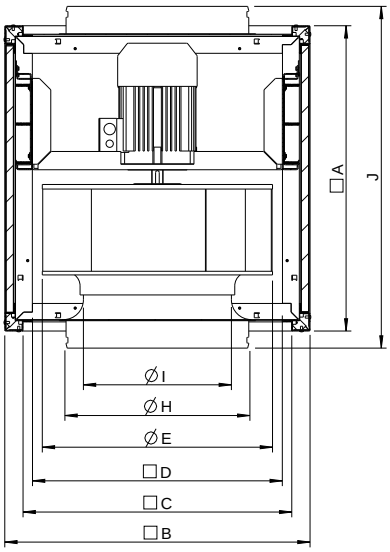
1 Type designation
2 Article number/ Production number / Manufacturing date
3 Voltage / Frequency / Motor output
4 Current / Speed (max./min.) / Output
6 Registration Ukraine, Russia / Weight / Protection class
7 Capacity at 1~ / Insulation class, motor
8 Temperature (TR: Temperature on ventilator)

Fig. 7: Name plate MUB/F

5.3.2 Dimensions

BG	□A	□B	□C	□D	øE	øH	øI	J max.
042 400	670	670	590	548	410	400	289	783
042 450	670	670	590	548	454	400	289	783
062 500	800	800	720	676	520	560	364	915
062 560	800	800	720	676	570	560	364	915
062 630	800	800	720	676	650	630	456	915

Table 3: Dimensions of multiboxes MUB/F



5.3.3 Installation conditions

Type designation	Temperature-time class to DIN EN 12101-3	Snow-load class	Wind load	Installation conditions
MUB/F 042 400 D4-HT	F400 (120)	-	-	IB, AB, IF, VA, HA, LB
MUB/F 042 400 D6-HT	F400 (120)	-	-	IB, AB, IF, VA, HA, LB
MUB/F 042 400 D4-6-HT	F400 (120)	-	-	IB, AB, IF, VA, HA, LB
MUB/F 042 450 D4-HT	F400 (120)	-	-	IB, AB, IF, VA, HA, LB
MUB/F 042 450 D6-HT	F400 (120)	-	-	IB, AB, IF, VA, HA, LB
MUB/F 042 450 D4-6-HT	F400 (120)	-	-	IB, AB, IF, VA, HA, LB
MUB/F 042 500 D4-HT	F400 (120)	-	-	IB, AB, IF, VA, HA, LB
MUB/F 042 500 D6-HT	F400 (120)	-	-	IB, AB, IF, VA, HA, LB
MUB/F 042 500 D4-6-HT	F400 (120)	-	-	IB, AB, IF, VA, HA, LB
MUB/F 042 560 D4-HT	F400 (120)	-	-	IB, AB, IF, VA, HA, LB
MUB/F 042 560 D6-HT	F400 (120)	-	-	IB, AB, IF, VA, HA, LB
MUB/F 042 560 D4-6-HT	F400 (120)	-	-	IB, AB, IF, VA, HA, LB
MUB/F 042 630 D4-HT	F400 (120)	-	-	IB, AB, IF, VA, HA, LB
MUB/F 042 630 D6-HT	F400 (120)	-	-	IB, AB, IF, VA, HA, LB
MUB/F 042 630 D4-6-HT	F400 (120)	-	-	IB, AB, IF, VA, HA, LB

Table 4: Installation conditions for MUB/F multiboxes

Legend for the installation conditions in Table 4

IB	Can be positioned in combustion area	VA	Suitable for vertical positioning
AB	Can be positioned outside the combustion area	HA	Suitable for horizontal positioning
IF	Can be positioned outdoors	LB	Suitable for fan operation

5.4 Description of the MUB-EC Multibox

- 100 % controllable
- integrated motor protection
- multifunctional use
- low sound level
- blow-out direction can be changed on site at any time without problems
- installation in any position possible
- safe for operation and maintenance-free
- saves energy

In the MUB-EC series, all models have backward-bent rotor blades of aluminium and energy-saving, highly efficient EC external rotor motors in a DC version. The output electronics have been integrated into the motor housing. Their input voltage can vary for single-phase between 200 V and 277 V or for three-phase between 380 V and 480 V. Actuation is via a 0...10 V input signal, via which the fan can be controlled. All motors have been suspended free of vibrations and are suited for 50 Hz and 60 Hz. The housing comprises a self-supporting construction of aluminium section with encapsulated screw channels. The corners comprise highly impact-resistant PA6. All MUB-EC multiboxes have an insula-tion of non-flammable glass wool 20 mm in thickness. For thermal decoupling, the side panels have tabular rivets. Thanks to the box-of-bricks system, all MUB-EC multiboxes can be used as ideal and individual fed and exhaust air solutions.

5.4.1 Name plate MUB-EC

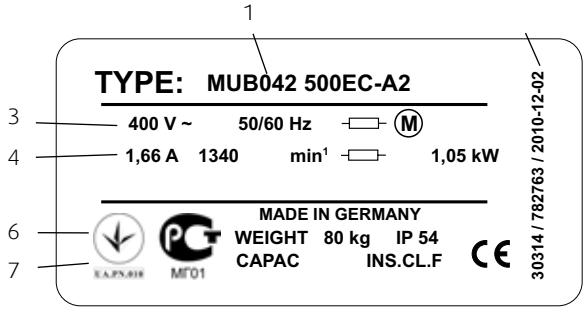


Fig. 8: Name plate MUB-EC

1	Type designation
2	Article number/ Production number / Manufacturing date
3	Voltage / Frequency / Motor output
4	Current / Speed (max./min.) / Output
6	Registration Ukraine, Russia / Weight / Protection class
7	Capacity at 1~ / Insulation class, motor

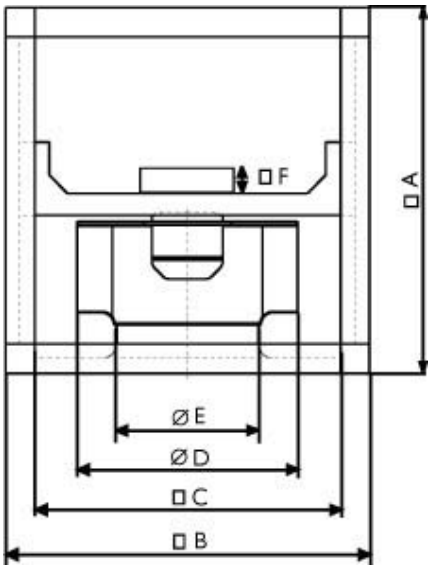
NOTE

The accessories for Multibox MUB-EC are identical with the accessories for the standard multibox MUB (see Fig. 1)

5.4.2 Dimensions

BG	□A	□B	□C	øD	øE	□F
025 315 EC	500	500	420	315	200	40
025 355 EC	500	500	420	255	224	40
042 400 EC	670	670	590	400	253	40
042 450 EC	670	670	590	450	286	70
042 500 EC	670	670	590	504	321	70
062 560 EC	800	800	720	560	360	70
062 630 EC	800	800	720	630	407	70

Table 3: Dimensions of multiboxes MUB-EC



5.5 Type key

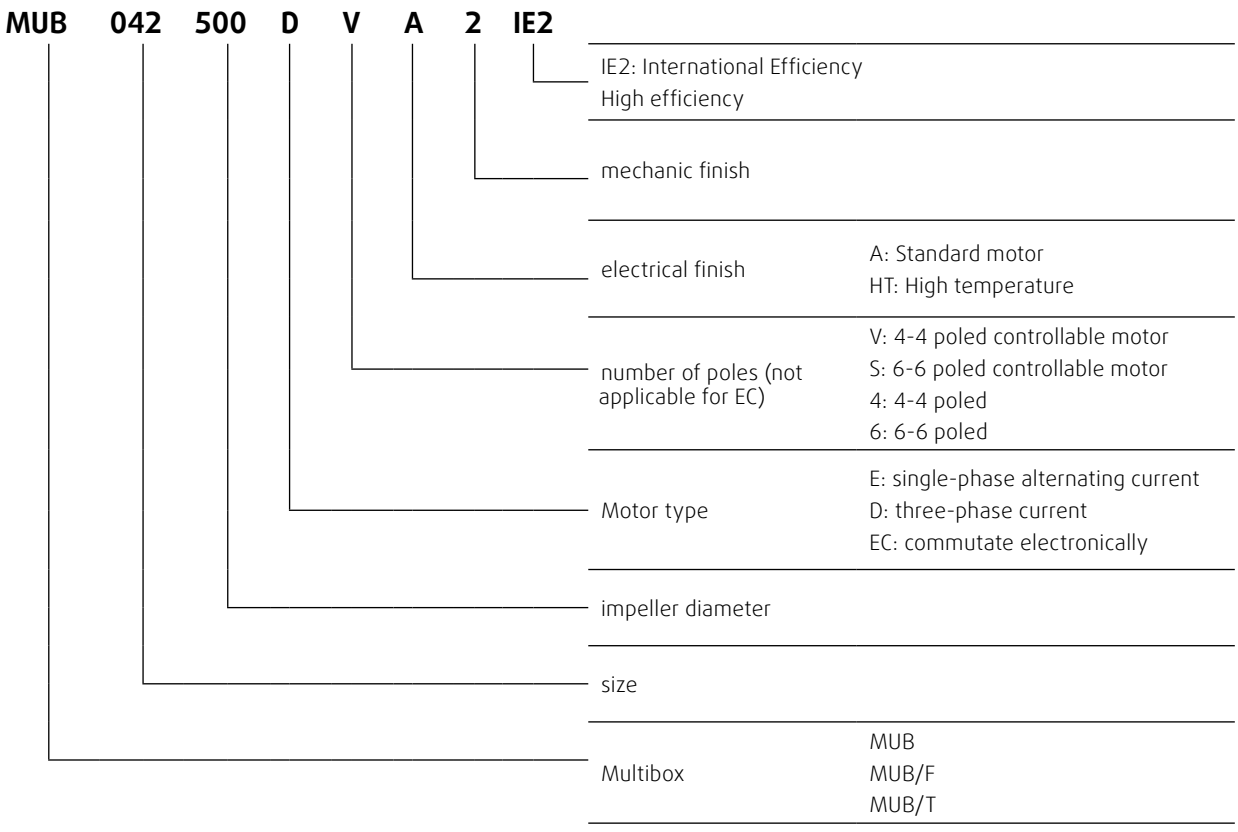


Fig. 9: Type key

5.6 Technical data

	MUB	MUB (UL)	MUB/T	MUB/F	MUB-EC
Temperature range [°C] ambient and material	-20 °C ... +50	-30 °C ... +50	-20 °C ... +100	-20 °C ... +55 400 °C/120 min.	-20 °C ... +60
Voltage / current strength	see name plate				
Protection class	see name plate				
Sound pressure at 1 m [dB(A)]	46 ... 75				
Dimensions	see name plate				
Weight	see name plate				
Rotor diameter	see name plate				

Table 6: Technical data of Multiboxes

NOTE

Further technical data can be found on the data sheet of your Multibox.

5.7 Safety devices

As overheating protection for the motors of the multiboxes, an integrated thermo-contact has been installed with lines included for connection to a protective motor switching device.

CARE

Property damage as a result of overheating of the motor

» The motor can overheat and be destroyed if the thermo-contacts have not been functionally connected.

» Always connect thermo-contacts to a protective motor switching device!

5.8 Motor data

The motor data can be found in the technical documents of the motor manufacturer.

6 Assembly

6.1 Safety information

› Assembly may only be carried out by trained, qualified personnel.
› Abide by the system-related conditions and requirements of the system manufacturer or plant constructor.
› Safety elements, e.g. protective grids, may not be dismantled, circumvented or put out of function.

6.2 Preconditions for assembly

- Place of installation protected against dust, moisture and influences of the weather.
- The installation position is unimportant, the Multibox can be installed both horizontally and also vertically, likewise the blow-out direction can be changed on site.
- Only to be positioned outside with a weather-protection roof (accessory).

6.3 Assembly

NOTE

The fan may only be lifted by the base frame when unpacking it.

☞ Do not distort the housing of the Multibox in installation.
☞ Pay attention to the throughflow direction (arrows).
☞ Ensure secure access to the Multibox for maintenance and repairs.
☞ Provide for contact and suction protection and safety distances pursuant to DIN EN 294 and DIN 24167-1.
☞ Guarantee uninhibited and even flowing into the device and free blowing-out.

6.3.1 Floor assembly

☞ Fit the base frame on a level, flat surface.
☞ Close the contact surface between the base frame and plinth or floor with cellular rubber or with a cellular material tape.
☞ Fit the air connection lines and the accessories.

6.3.2 Wall and ceiling assembly

WARNING

Hazard from falling parts

› Check the base (wall/ceiling) for strength before assembly.
› When selecting the fitting material, pay attention to weight, tendency to vibrate and tensile forces (weight information on the name plate).

☞ Fit the Multibox on a firm base with suitable fitting material.
☞ Fit the air connection lines and the accessories.

6.3.3 Changing the blow-out direction

As a default, the Multiboxes have been designed for a straight air throughflow. However, they can be refitted simply as a result of their replaceable side panels.

☞ Remove the side panel of the required direction.
☞ Close the other side with this side panel (see Fig. 4 on page 12).

NOTE

The drain plug is secured inside the box for transport, closed with a protective cap. During installation the protective cap has to be removed, the drain plug has to be properly fixed to the thread at the bottom outside panel. After assembly of the drain plug it has to be connected to the drain pipe provided at site.

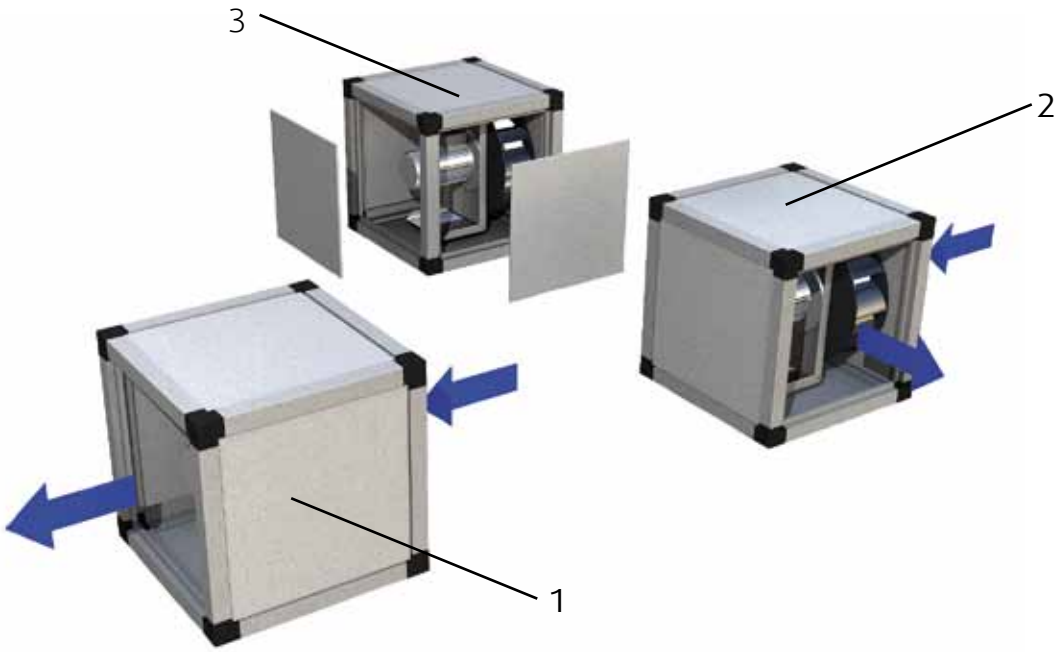


Fig. 10: MUB with various possibilities of blow-out

Legend

1 Multibox with straight air throughflow (factory assembly)

2 Multibox with angled air throughflow

3 Change of blow-out direction

NOTE

Speciality: MUB/T

The motor of the MUB/T multibox must not be in the air flow. For this reason, a straight air throughflow is not possible.

7 Electrical connection

The electrical connection picture can be seen on the motor console.

NOTE

- The motors contain triple posistors. More than two posistor chains may not be switched in series, as this can lead to undefined cut-outs.
- Maximum check voltage of the posistors, 2.5 V.

WARNING

Hazard from electrical voltage

- Electrical connection only by trained electricians or trained and instructed qualified personnel.
- Electrical connection in harmony with the valid directives.
- Avoid penetration of water into the terminal box.
- Pay attention to the 5 rules of electrical engineering:
  - clear (all-pole separation of an electrical system from live parts)
  - secure against switching on again
  - establish freedom from voltage
  - earth and short-circuit
  - cover or fence off neighbouring live parts.

☞ Connect the electrical connection according to the circuit diagram on the motor console.

CARE

Property damage as a result of overheating of the motor

» The motor can overheat and be destroyed if the thermo-contacts have not been functionally connected.

» Always connect thermo-contacts to a protective motor switching device!

☞ Connect the thermo-contacts/posistor connections to a protective motor switching device.
☞ For plastic terminal boxes, do not use any gland bolt connections of metal.
☞ Lay the mains feed line from the outside through a bore.
☞ Seal the bore in order to guarantee the IP 54 protection class.
☞ Seal the bore against water penetration. Depending on the kind of cable duct, provide water drainage bores or use a sealing putty.
☞ Additionally seal the lid screw connections of plastic terminal boxes with sealing putty.

7.1 Secure 3-phase motors

☞ Avoiding two-phase running:
In 3-phase motors, use an all-pole C- or K safety cut-out (current consumption, see name plate).

7.2 Connect temperature monitor

☞ If a temperature monitor is used, it must be connected to a triggering device and/or a motor-protection device.

8 Commissioning

8.1 Preconditions

- Fitting and electrical installation have been completed expertly.
- Assembly residue and foreign bodies have been removed from the fan area.
- Suction and blow-out openings are free.
- The safety devices have been fitted (contact protection).
- The protective conductor has been connected.
- The thermo-contacts (temperature monitors) have been properly connected to the motor protection switch.
  - The motor protection switch is functional.
  - The temperature monitor is functional.
- The cable insert has been sealed.
- Connection data correspond to the data on the name plate.
- The nominal current consumption (name plate) is not exceeded.

8.2 Commissioning

WARNING

Hazard as a result of electrical voltage

› Commissioning only by trained and instructed qualified personnel.

☞ Switch the Multibox on as planned.

WARNING

Hazard from bursting parts

› When checking the direction of rotation of the rotor, wear goggles.

☞ Check:
  - the direction of rotation/conveying. The direction of rotation looking at the rotor always applies.
  - the smoothness of running.

8.2.1 Safety elements

☞ Check secure fitting of the safety elements and protective grids.

9 Operation

9.1 Safety notes

WARNING

Hazard from electrical voltage

› The device may only be operated by people
  – instructed in the function and risks,
  – who have understood them and are in a position to react accordingly.
› Ensure that children do not operate the device or play with it without supervision.
› Ensure that only people who are in a position to operate the device safety have access to it.

9.2 Operating conditions

- Do not operate the Multibox in an explosion-capable atmosphere.
- During operation, touching the rotor may not be possible.
- Safety components may not be circumvented or put out of function.
- Please only operate the multibox within the limits stated on the name plate.
- Prevent suction of foreign bodies, this can destroy the fan.
- Switching frequency::
  – The Multibox has been admitted for S1 long-term operation.
  – The controls may not permit any extreme switching operations.
- In cases of speed control via frequency inverters, make sure that voltage peaks on the motor terminals must be lower than 1000 V and voltage rise velocities lower than 500V/µs (IEC 34-17).
  – If the motor line is long, use an output filter between the frequency inverter and the motor.
- If the operational leakage current of 3.5 mA is exceeded, the conditions with a view to earthing pursuant to DIN VDE 0160/5.88. ART.6.5.2.1 are to be fulfilled.
- Noise development can be minimised by use of a noise filter.

9.3 Operation/use

☞ Only use the Multibox in accordance with the operating instructions and the operating instructions for the motor.
☞ During operation, monitor the Multibox for correct function.
☞ Switch the Multibox off as planned:

WARNING

Danger from electrical voltage or parts flying through the air

Errors occurring can lead to personal or property damage

Switch the Multibox off as planned:

› in cases of atypical running noises, vibrations, pressure fluctuations
› if the values for current, voltage and temperature are exceeded (name plate).

10 Maintenance / remedying of faults

WARNING

Hazard from electrical voltage

- Remedying of faults and maintenance only by a trained electrician or trained and instructed qualified personnel.
- Pay attention to the industrial protection regulations in troubleshooting.
- Pay attention to the 5 rules of electrical engineering:
  - clear (all-pole separation of an electrical system from live parts)
  - secure against switching on again
  - establish freedom from voltage
  - earth and short-circuit
  - cover or fence off neighbouring live parts.

10.1 Defects and remedying

Disturbance	Possible causes	Remedy
Multibox runs loud	Rotor out-of-balance	Re-balance by specialist company
	Adhesions to rotor	Clean carefully, re-balance if necessary
	Wrong direction of rotation of rotor	Change direction of rotation
	Material decomposition on rotor due to excessive tem-perature	Contact manufacturer
	Deformation of rotor due to excessive tem-perature	Contact manufacturer, install new rotor, check bearings
Air volume of Multibox too low	Wrong direction of rotation of rotor	Change direction of rotation
	Loss of pressure in lines too high	Different line guidance
	Throttle organs not or only partly open	Check opening positions on site
	Suction or pressure paths blocked	Remove obstacles
Grinding sounds in operation or start of the Multibox	Suction line installed twisted	Loosen suction line and re-align.
Thermo-contacts/cold conductor have reacted	Capacitor not or not correctly connected	Connect capacitor
	Wrong direction of rotation of rotor	Change direction of rotation
	Motor blocked	Contact the manufacturer
Multibox does not reach no-minal speed	Electrical switching devices set wrongly	Check and possibly reset setting of switching device
	Motor coil defective	Contact manufacturer
	Drive motor has been de-signed wrongly	Contact manufacturer for check of start torque

Table 7: Troubleshooting

10.2 Cleaning

Regular cleaning prevents unbalance.

WARNING

Hazard from electrical voltage

› Internal cleaning of the Multibox only by a trained electrician or trained and instructed qualified personnel.
› Pay attention to the 5 rules of electrical engineering:
  – clear (all-pole separation of an electrical system from live parts)
  – secure against switching on again
  – establish freedom from voltage
  – earth and short-circuit
  – cover or fence off neighbouring live parts.

CARE

Danger from hot surfaces!

› Wear protective gloves in maintenance and cleaning work!

☞ Keep the air ducts of the Multibox clear and clean them with a cleaning brush if necessary.
☞ Do not use a steel brush.
☞ **Under no circumstances should you use a high-pressure cleaner („steam sprayer“).**
☞ In cleaning, do not bend the fan blades.
☞ Do not use any cleaning agents to clean the inside.
☞ Take care of put-on balancing weights during cleaning the impeller

10.3 Maintenance, repairs

As ball bearings with „lifetime lubrication“ have been used, the Multibox is maintenance-free to a great extent. After the end of the period of use for the grease (about 30,000 to 40,000 h in standard applications), replacement of the bearings is necessary.
With I motors, the capacity of the capacitor can drop in the course of time, the life expectation is about 30,000 h according to VDE 0560-8.

WARNING

Hazard from electrical voltage

Observe the following in all installation and maintenance work:

› ventilator rotor must be stationary
› the electrical circuit must have been interrupted and secured against being switched on again.
› industrial safety directives must be complied with.

☞ Pay attention to atypical running noises.
☞ When changing the ball bearings, only use original replacement parts (special greasing) from the firm of Systemair.
☞ For all other damage (e.g. damage to the coil), please get in touch with our Service Department, Defective Multiboxes must be completely replaced. Repairs may only be done by the manufacturer on its premises. You will find the address of the back of these operating instructions.

10.4 Replacement parts

When ordering replacement parts, please state the type designation of your Multibox. You can find it on the name plate.

Replacement parts:

Side panels, Motor, Rotor

11 De-installation / Dismantling

⚠ WARNING

Hazard from electrical voltage

› Switching off and de-installation only by a trained electrician or trained and instructed qualified personnel.
› Pay attention to the 5 rules of electrical engineering:
  – clear (all-pole separation of an electrical system from live parts)
  – secure against switching on again
  – establish freedom from voltage
  – earth and short-circuit
  – cover or fence off neighbouring live parts.

☞ Disconnect all electrical lines carefully.
☞ Separate the Multibox and the supply connections.

⚠ CARE

Hazard from blows and cuts.

› Wear protective gloves when dismantling.
› Dismantle carefully.

☞ Remove the fitting material carefully.
☞ Place the Multibox on the floor.

12 Disposal

Both the device and also the transport packaging comprise recycling-capable raw materials to a great extent.

12.1 Disposing of the Multibox

If the Multibox is to be finally dismantled and disposed of, proceed as follows:

☞ Switch the Multibox free of voltage.
☞ Separate the Multibox and the supply connections.
☞ Dismantle the Multibox into its component parts.
☞ Separate the parts resulting from this according to
  – reusable components
  – material groups to be disposed of (metal, plastic, electrical part etc.)
☞ Ensure that the parts are recycled again. Pay attention to the national directives.

12.2 Disposing of packaging

☞ Ensure that the parts are recycled again. Pay attention to the national directives.

13 Declaration of conformity

Multibox MUB

EG-Konformitätserklärung
EC Declaration of Conformity

systemair

Der Hersteller: *The Manufacturer*	Systemair GmbH Seehöfer Str. 45 D-97944 Windischbuch Tel.: +49-79 30 / 92 72-0

erklärt hiermit, dass folgende Produkte:
certified herewith that the following products:

Produktbezeichnung: *product designation*	Multibox *Multibox*
Typenbezeichnung: *type designation*	MUB...
Baujahr: *year of manufacture*	2012

allen einschlägigen Bestimmungen der Richtlinie Maschinen RL 2006/42/EG entspricht.
ensure all relavant regulations of machinery directive electrical equipment RL 2006/42/EG.

Die Maschine entspricht weiterhin allen Bestimmungen der Richtlinien Elektrische Betriebsmittel (2006/95/EG) und Elektromagnetische Verträglichkeit (EMV) (2004/108/EG).
The products ensure furthermore all regulations of directives electrical equipment and electromagnetic compatibility (EMC) (2004/108/EG).

Folgende harmonisierte Normen wurden angewandt:
The following standards are used:

EN ISO 12100-1:2003	Sicherheit von Maschinen - Grundbegriffe, allgemeine Gestaltungsleitsätze, Teil 1: Grundsätzliche Terminologie, Methodik *Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology*
EN ISO 12100-2:2003	Sicherheit von Maschinen - Grundbegriffe, allgemeine Gestaltungsleitsätze, Teil 2: Technische Leitsätze und Spezifikationen *Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles*
EN ISO 13857:2008	Sicherheit von Maschinen - Sicherheitsabstände gegen das Erreichen von Gefahrstellen mit den oberen und unteren Gliedmaßen *Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs*
EN 60204-1:2006	Sicherheit von Maschinen - Elektrische Ausrüstungen von Maschinen, Teil 1: Allgemeine Anforderungen *Safety of machinery - Electrical equipment of machines - Part 1: General requirements*
DIN EN 61000-6-1:2007	Elektromagnetische Verträglichkeit (EMV) - Teil 6-1: Fachgrundnormen - Störfestigkeit für Wohnbereich, Geschäfts- und Gewerbebereiche sowie Kleinbetriebe *Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments*
DIN EN 61000-6-2:2005	Elektromagnetische Verträglichkeit (EMV) - Teil 6-2: Fachgrundnormen - Störfestigkeit für Industriebereiche *Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments*

Boxberg,

30.12.2011
Datum/*date*

ppa. Harald Rudelgass, Technischer Leiter
ppa. Harald Rudelgass, Technical director

Systemair GmbH • Seehöfer Str. 45 • D-97944 Windischbuch
Tel.: +49 (0)7930/9272-0 • Fax: +49 (0)7930/9273-92
www .systemair . com

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