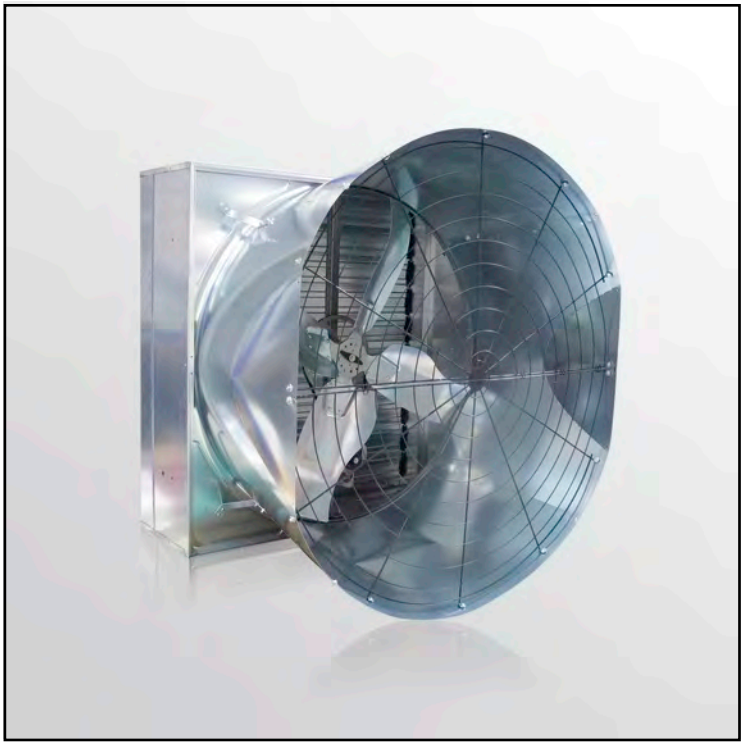
EC52

Assembly manual



Spare part list + Assembling guideline

EC52

Exhaust fan

Ag/MIT/IGB-2206-08/14 rev 1.0

Munters

EC52

Assembly manual

Original instructions

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Index

WARNING | *All the components and spare parts MUST be storaged in dry and clean environment.*

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Spare part list

EC52

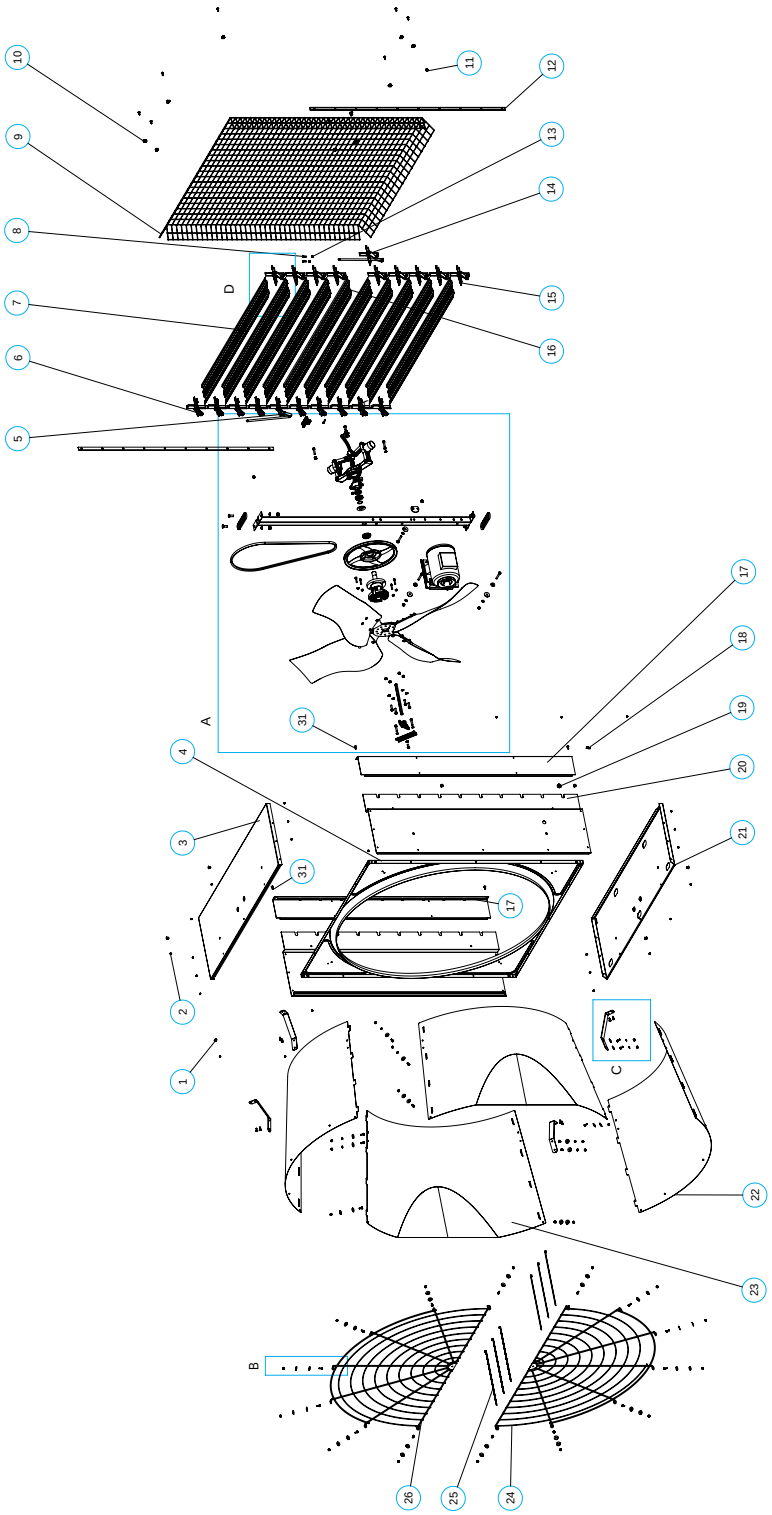

fig.1

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DETAIL A

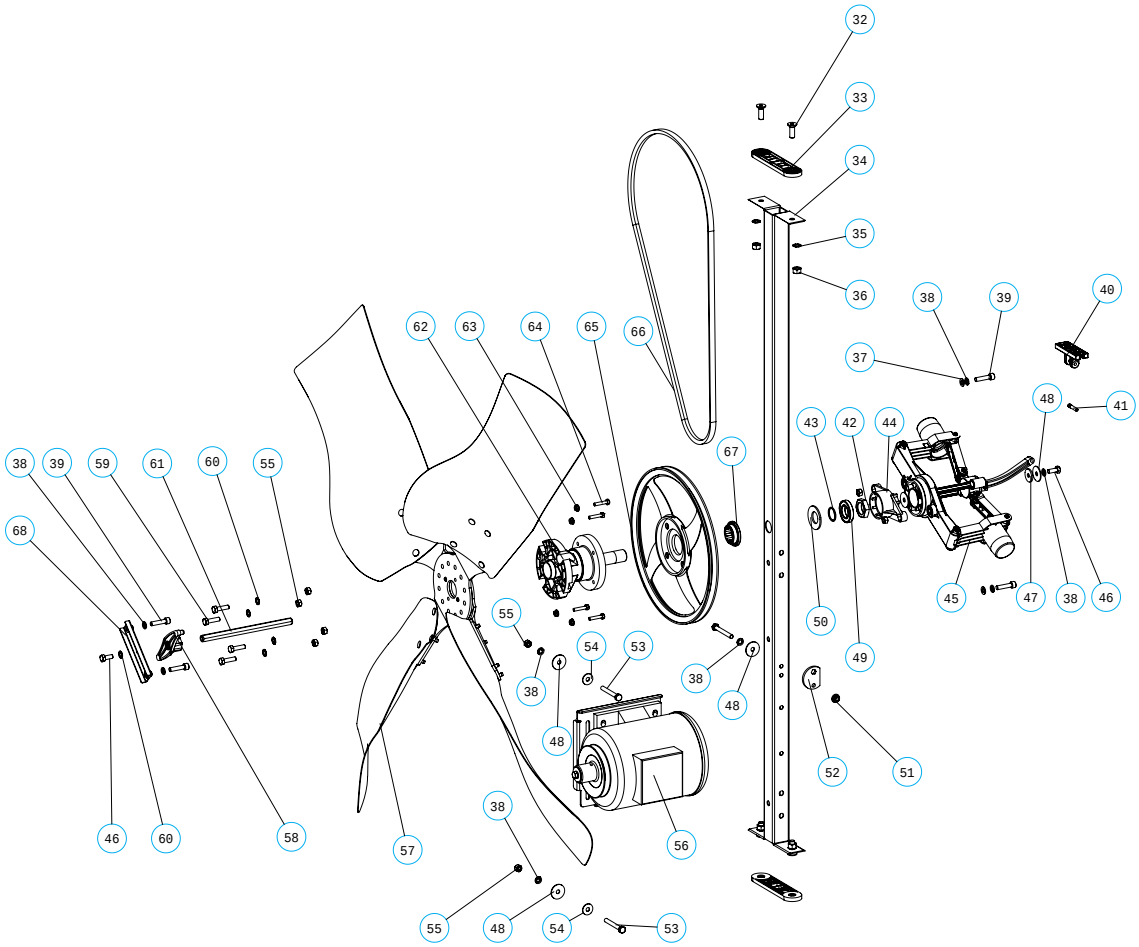

fig.2

DETAIL B

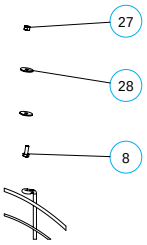

fig.3

DETAIL C

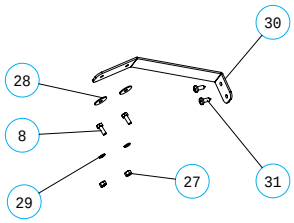

fig.4

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DETAIL D: ALIGNEMENT OF SHUTTER BLADE

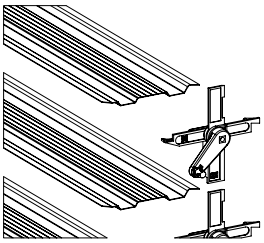
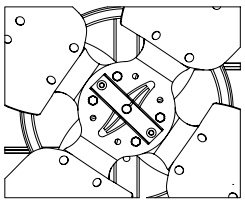
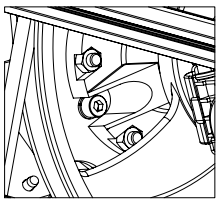


fig.5

POSITIONING OF REINFORCEMENT





Hex socket screw M8 with spring washer D8 to fix reinforcement

fig.6

ALIGNEMENT OF BELLEVILLE SPRING

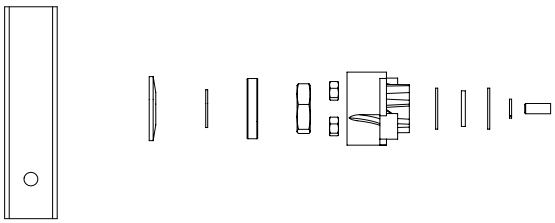


fig.7

Spare parts

Ref.	Picture	Description	Q.ty
1		THREADED BUSH M8X12.5	8
2		POP UP RIVET 4.9X7 STEEL	26

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3		TOP PANEL	1
4		CONVEYOR	1
5		CENTRAL RIGHT PLASTIC BEARING	1
6		RIGHT PLASTIC BEARING	9
7		SHUTTER BLADE	9
8		HEXAGON SCREW M6X16	28
9		PYRAMIDAL REAR SAFETY MESH	1
10		PLASTIC CLIP FOR MESH	10
11		STOP COLLAR D7X17	2

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12		TIE ROD	2
13		HEXAGON NUT M6	2
14		CENTRAL LEFT PLASTIC BEARING	1
15		LEFT PLASTIC BEARING	9
16		CENTRAL SHUTTER BLADE	1
17		COVER PLATE	2
18		SPRING HOOK	2
19		RUBBER GROMMET	1
20		SIDE PANEL	2

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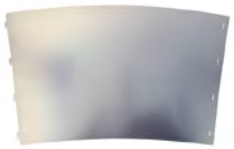
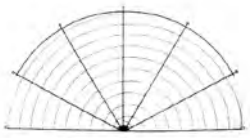
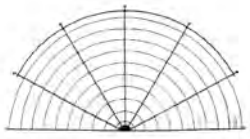
21		BOTTOM PANEL	1
22		CONE SECTOR	2
23		CONE SECTOR CUT	2
24		CONE MESH INTERRUPTED WIRE	1
25		PLASTIC TIE LEGRAND MM9X357	6
26		CONE MESH CONTINUOUS WIRE	1
27		HEXAGON NUT THICK M6	26
28		PLAIN WASHER Ø6.4X24	44
29		SPRING WASHER D6	8

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30		CONE BRACKETS	4
31		SELF TAPPING SCREW 6.3X19	22
32		HEXAGON SOCKET COUNTERSUNK HEAD SCREW M10X30	4
33		OVAL PLATE	2
34		CENTRAL SUPPORT	1
35		EXTERNAL TOOTHED WASHER D10	4
36		HEXAGON NUT M10	4
37		PLAIN WASHER D8X16	2
38		SPRING WASHER D8	8

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39		HEXAGON SOCKET HEAD CAP SCREW M8X35	4
40		PLASTIC FORK	1
41		BRASS PIN	1
42		HEXAGON NUT M25	1
43		SPACER WASHER D25.2X29.5	1
44		REAR FLANGE	1
45		CENTRIFUGAL SYSTEM	1
46		HEXAGON SCREW M8X20	2
47		WASHER D8.2X27.8 THK 3.0MM	1

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48		PLAIN WASHER D8X32	5
49		BEARING 16005-2RS	1
50		BELLEVILLE SPRING	1
51		HEXAGONAL NUT M8 WITH FLANGE	1
52		BELT TENSIONING ADJUSTER	1
53		HEXAGON SCREW M8X65	3
54		PLAIN WASHER D8X24	2
55		HEXAGONAL NUT M8	8
56		MOTOR	1

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57		PROPELLER*	1
58		FLANGE FOR PROPELLER	1
59		HEXAGON SCREW M8X30	4
60		EXTERNAL TOOTHED WASHER D8	5
61		HEXAGONAL AXLE WITH M8 HOLES	1
62		HUB	1
63		HEXAGONAL NUT M6 WITH FLANGE	4
64		HEXAGON SCREW M6X30	4
65		CENTRAL PULLEY	1

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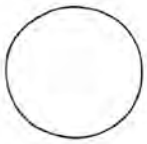
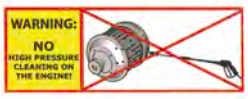
66		V-BELT A61	1
67		WATERPROOF DISTANCE PIECE	1
68		FRONT FLANGE REINFORCEMENT	1
69		EUROEMME STICKER 24.6X180	2
70		WARNING STICKER A-1997 35X210	2
71		WARNING STICKER B-1997 70X105	1
72		PRODUCT LABEL G-1998 95X115	1
73		NO HIGH PRESSURE STICKER 42X118	2
74		MUNTERS PROTECT STICKER 70X46	1

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75		TENSIONER (OPTIONAL)	1
76		METAL SPACER FOR BELT TENSIONER (OPTIONAL)	1
77		ALUMINUM POP UP RIVET 3.9X7(OPTIONAL)	2
78		HEXAGON SCREW M10X90 (OPTIONAL)	1
79		EXTERNAL TOOTHED WASHER 10.5×18 (OPTIONAL)	1
80		PLAIN WASHER 10.5×40 (OPTIONAL)	1

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Assembling tools

2.

Ref.	Picture	Description	Q.ty
1		RIVETING MACHINE RAC171	1
2		INSERTING MACHINE KJ 45	1
3		PNEUMATIC SCREWDRIVER	1
4		17mm SPANNER	1
5		10mm LONG SPANNER	1
6		13mm LONG SPANNER	1
7		6mm LONG ALLEN SPANNER	1

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8		36mm SPANNER	1
9		PHILLIPS SCREW HEAD ADAPTOR	1
10		13mm RING SPANNER	1
11		SMALL HAMMER	1
12		10mm COMBINATION SPANNER	2
13		SCREWDRIVER	1
14		RATCHET DRIVE EXTENSION	1
15		17MM COMBINATION SPANNER	1

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16		10MM ALLEN KEY	1

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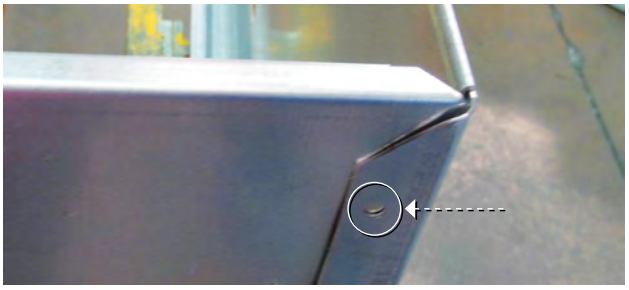
Assembling guidelines

3.

HOUSING ASSEMBLING	
	Take the bottom panel *(ref. 21)*, the side panels *(ref. 22)* and place them taking care that slot for the plastic bearing is downward.
	Before fixing the bottom and the side panels make sure that these pieces are in the right position as in the picture (place the edge of the bottom panel outside the side panel).
	Join bottom panel with side panels and fix qty. 3 pop rivets *(ref. 2)* for each edge by using riveting machine *(ref. 1/Assembling tools)*. To make the mounting of the Venturi *(ref. 4)* easy take care to fix the signed pop rivet after the Venturi assembling (see arrow in the previous picture).
	Insert Venturi into the housing on the right side as in the picture. Fix Venturi to bottom panel and then to side panels with qty. 3 pop rivets for side. Fix the last pop rivets of the previous step. Qty. 1 pop rivet for each edge.
	Place the top panel *(ref. 3)* as in the picture (place the edge of the bottom panel outside the side panel).

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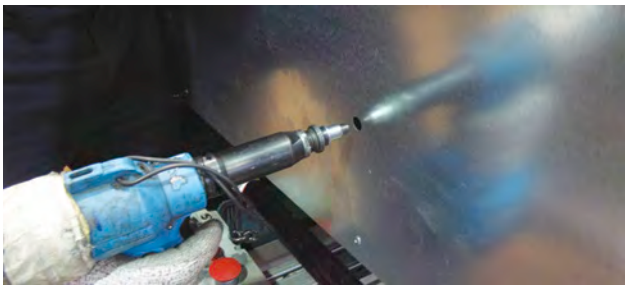
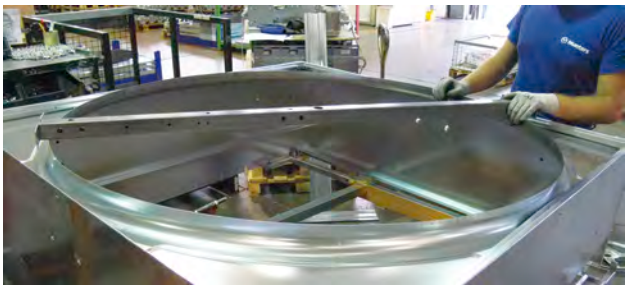
Fix it to side panels with qty. 4 pop rivets for side: qty. 3 lateral + qty. 1 frontal.

Fix it to Venturi with qty. 3 pop rivets.



Place the threaded bushes *(ref. 1)* in correspondence of proper holes around the housing. Qty. 2 threaded bushes for each panel.



The propeller central support *(ref. 34)* shall be fixed to housing by means of qty. 4 bolts *(ref. 32*, qty. 4 washers *(ref. 35)*, qty. 4 nuts *(ref. 36)* and qty. 2 oval plates *(ref. 33*). The holes for motor slide and optional belt tensioner have to be on lower side of the fan (near to bottom panel).

Place the oval plates between propeller central support and panels. The conic surface of the holes shall face the metal panels (top and bottom).

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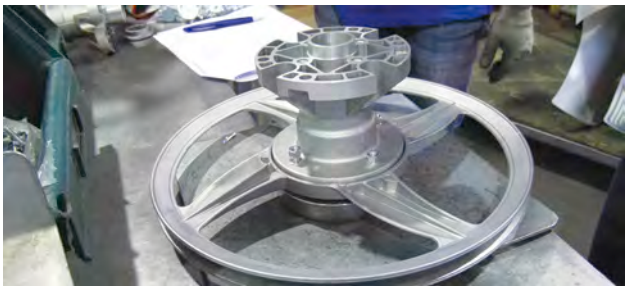
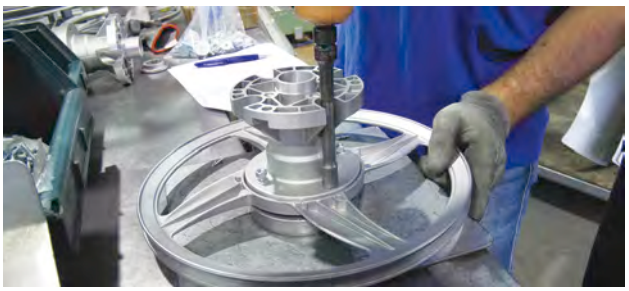
	Place the oval plates over support frame and then start to screw the nuts. Tighten it by using pneumatic screw-driver *(ref. 3/Assembling tools)*.
CENTRIFUGAL SYSTEM AND PULLEY TO PROPELLER ASSEMBLING	
	Take the pulley *(ref. 65)* and insert qty. 4 M6x30 screws *(ref. 64)* on external part of it.
	Turn the pulley upside down and place the hub *(ref. 62)* on it.
	Insert and fix qty. 4 nuts with flange *(ref. 63)* over the bolts.
	Tighten the nuts by using pneumatic screw-driver *(ref. 3/Assembling tools)*.
	Place the waterproof distance piece *(ref. 67)* on the axle and then place the axle on a support.

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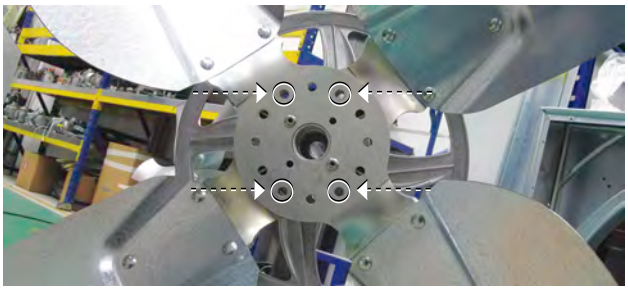
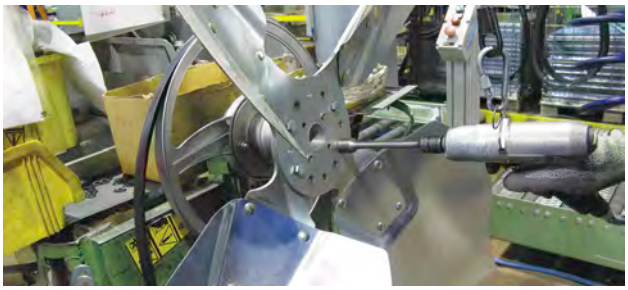
Place the v-belt *(ref. 66)* on the central pulley.

Before assembling the propeller make sure that the hub is oriented as shown in the picture. The 4 highlighted holes are used to fix the propeller to the hub.



Place the propeller *(ref. 57)* on the hub as shown in pictures. Make sure that the holes with the pop rivets are correctly oriented. The 4 highlighted holes are used to fix the propeller to the hub.

Fix qty. 4 screws M8x30 *(ref. 59)*, qty. 4 external toothed washers *(ref. 60)* and qty. 4 M8 nuts *(ref. 55)* in order to fix the propeller.



Tighten the nuts by using pneumatic screw-driver *(ref. 3/Assembling tools)*.

PROPELLER AND MOTOR TO CENTRAL SUPPORT ASSEMBLING

Place the propeller on the fan, by inserting the axle through the central support hole.

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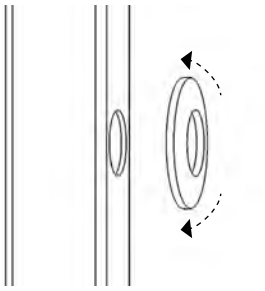
	Insert the belleville spring *(ref. 50)* on the propeller axle. Pay attention to place it with its concave side facing the central support *(see picture)*. 
	Insert the spacer washer D25.2x29.5 *(ref. 43)*.
	Insert the bearing *(ref. 49)*.
	Insert the M25 nut *(ref. 42)*.
	Tighten the nut by using a pneumatic screw-driver *(ref. 3/Assembling tools)* equipped with a 36 mm spanner *(ref. 8/Assembling tools)* by applying a torque of 60Nm .
	Put qty. 1 D8x32 plain washer *(ref. 48)* on back side of the rear flange *(ref. 44)*.

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	Insert the rear flange *(ref. 44)* into the centrifugal system base *(ref. 45)*.
	Insert qty. 2 M8x35 screws *(ref. 39)*, qty. 2 D8 spring washers *(ref. 38)* and qty. 2 D8x16 plain washers *(ref. 37)* to fix the centrifugal system to the rear flange.
	Tighten them by means of a 6mm long allen spanner *(ref. 7/Assembling tools)*, closing torque 20Nm.
	Place qty. 1 D8,2x27,8 washer *(ref. 47)* inside the hole on the centrifugal system base *(ref. 45)*.
	Insert the hexagonal axle *(ref. 61)* on the bottom side of the assembly. If necessary, push it hardly until it touches the D8x32 plain washer *(ref. 48)*, already placed on the back side of the rear flange *(ref. 44)*.
	Fix the hexagonal axle *(ref. 61)* by using qty. 1 M8x20 screw *(ref. 46)*, qty. 1 D8 spring washer *(ref. 38)* and qty. 1 D8x32 washer *(ref. 48)*.

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	Tighten them by means of a 13mm ring spanner *(ref. 10/Assembling tools)*.
	On the front side of propeller mount the flange for propeller *(ref. 58)* inserting its pins on the proper hole of the propeller.
	Put in position the front flange reinforcement *(ref. 68)*.
	Fix it by means of qty. 2 M8x35 screws *(ref. 39)* and qty. 2 D8 spring washers *(ref. 38)*.
	Tighten them by means of a 6mm long allen spanner *(ref. 7/Assembling tools)*.
	Insert the complete assembly on rear side of the central pulley *(ref. 65)*.

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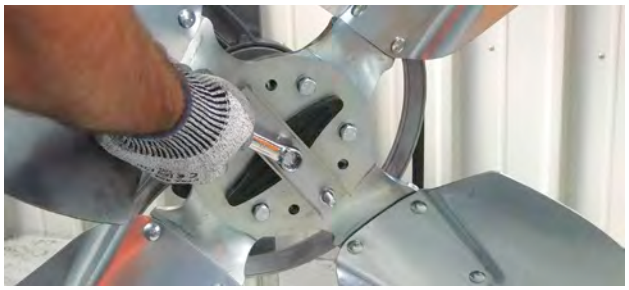
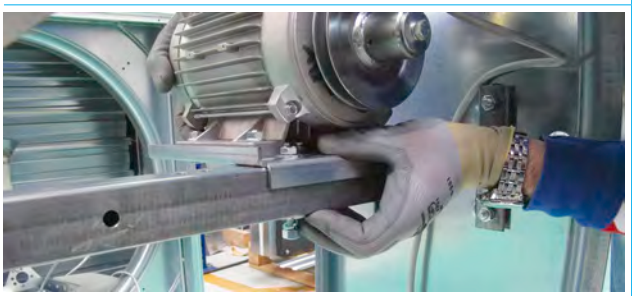
	Insert a qty. 1 M8x20 screw *(ref. 46)* and qty. 1 D8 external toothed washer *(ref. 60)* and screw it on thread present on hexagonal axle.
	Tighten them by means of a 13mm ring spanner *(ref. 10/Assembling tools)*.
	Turn the fan and place the central support in horizontal position. Place the assembled motor *(ref. 56)* on the central support.
	Fix motor slide on central support by qty. 2 M8×65 screws *(ref. 53)* and qty. 2 D8×24 washers *(ref. 54)* as shown in the picture.
	Insert qty. 2 D8×32 washers *(ref. 48)*, qty. 2 D8 spring washers *(ref. 38)* and qty. 2 M8 nuts *(ref. 55)*. Screw the bolts without tightening.

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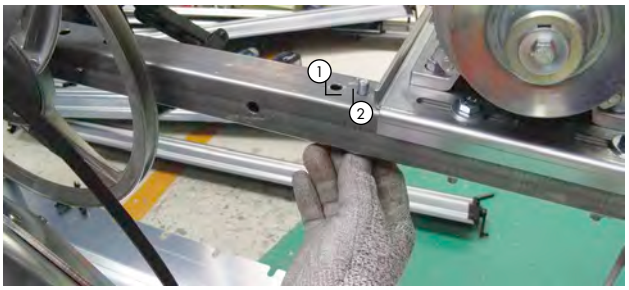

Place the D8 spring washer *(ref. 38)* and the D8x32 plain washer *(ref. 48)* onto the M8x65 screw *(ref. 53)*. Insert it in the proper hole* of the support and tight it through the belt tensioning adjuster *(ref. 52)* by using qty. 1 M8 nut with flange *(ref. 51)*.

Please note that the round part of the belt tensioning adjuster has to be oriented towards the propeller, as shown in the pictures.

*NOTE: for M80 Motor/Hp1 use the hole nearest to the central pulley *(no. 1 in the picture)*; for M90 Frame Motor/Hp1.5 use the hole furthest from the central pulley *(no. 2 in the picture)*.

Bring motor in the nearest position toward central pulley.

Put the v-belt on both central and motor pulley.

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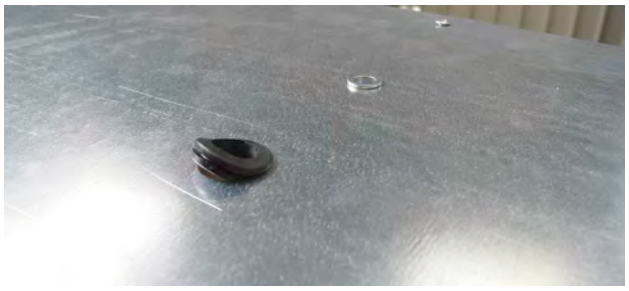
Give proper tension to v-belt by using a 10mm allen key *(ref. 16/Assembling tools)*.

CHECK TENSIONING: right tensioning is obtained when maximum deflexion on one side only (half-way from motor and central pulley) is about 10 mm.

TENSIONING VALUES:
Hp1 = 250 N, corresponding to a vibration frequency 55 Hz +/- 2%
Hp2 = 320 N, corresponding to a vibration frequency 60 Hz +/- 2%

NOTE: in case of installation of belt tensioner (optional) please refer to *'Optional belt tensioner assembling'* chapter *(see p. 34)*.

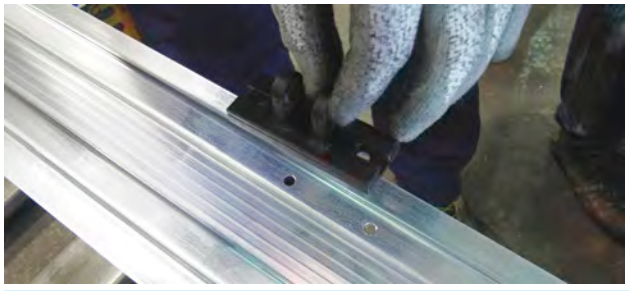
Fix motor slide in its proper position by tightening the motor slide screws by using two 13 mm spanners *(ref. 10/Assembling tools)*.



Place the rubber grommet *(ref. 19)* on the left side panel for electric cable protection.

SHUTTER BLADES ASSEMBLING

Insert the plastic bearings *(ref. 6 and ref. 15)* without spring on all thin shutter blades (thickness 0.6 mm - *ref. 7*). Plastic bearings marked with "DX" are for right side, the ones marked with "SX" are for left side (seeing the fan from its rear side). Be sure to assemble the bearings with the right orientation (see picture).



Insert qty. 2 M6 nuts *(ref. 13)* in the slots of the plastic fork *(ref. 40)* as shown in the picture.

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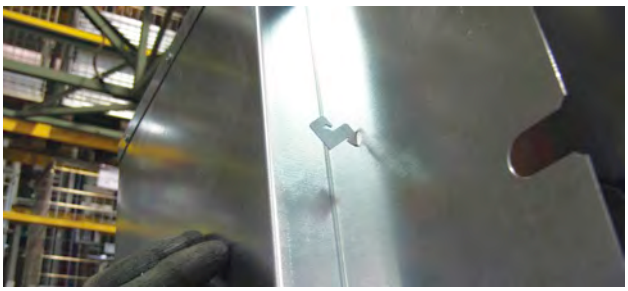
	Assemble the plastic fork *(ref. 40)* and the central shutter blade *(thickness 1.2 mm - ref. 16)* with qty. 2 M6×16 screws *(ref. 8)* by using two 10 mm combination spanners *(ref. 12/Assembling tools)*.
	Insert the plastic bearing with spring *(ref. 5 and 14)* on the central shutter blade *(ref. 17)*. "DX" is for right side, "SX" is for left side.
	Fit the assembled central shutter blade on the central slot (fifth position from the top) of the housing.
	Insert the spring hooks *(ref. 18)* in the holes of the side panels *(ref. 20)*.
	Insert the free terminal of the spring on the hook.
	Connect the centrifugal system to the fork of the central shutter blade with the knurled brass pin *(ref. 41)*. To insert the pin use a small hammer *(ref. 11/Assembling tools)*.

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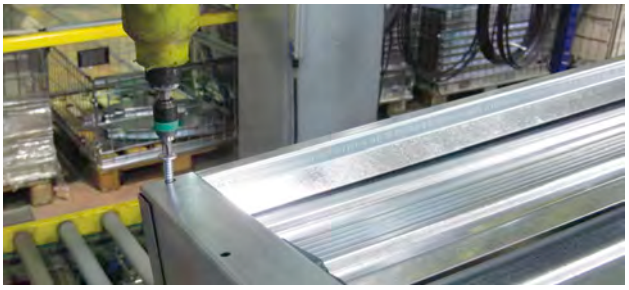
	Insert qty. 9 shutter blades *(ref. 7)* in the free slots of the housing and then place the fan horizontally.
	Fix the pvc tie-rod *(ref. 12)* on plastic bearing pivots.
	The tie-rod must be fixed on the central plastic berings (the ones with the spring) by using a stop collar *(ref. 11)*.
	Put the cover plates *(ref. 17)* over the plastic bearing mechanism.
	By means of a screw-driver *(ref. 13/Assembling tools)* insert the cover plate over the fan housing.
	Fix the cover plate on each side by using the 6.3×19 screws *(ref. 31)* with a pneumatic screw-driver *(ref. 3/ Assembling tools)*.

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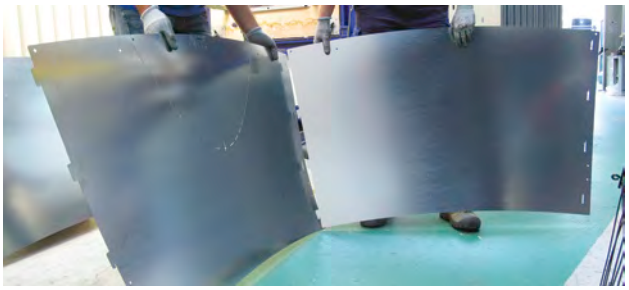
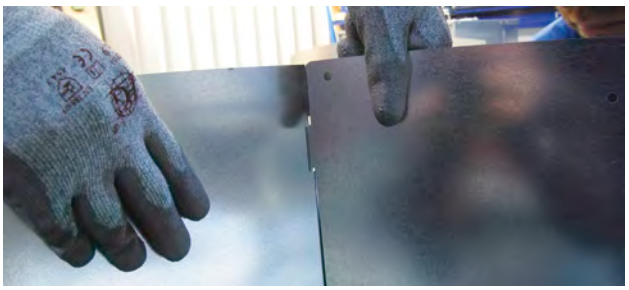
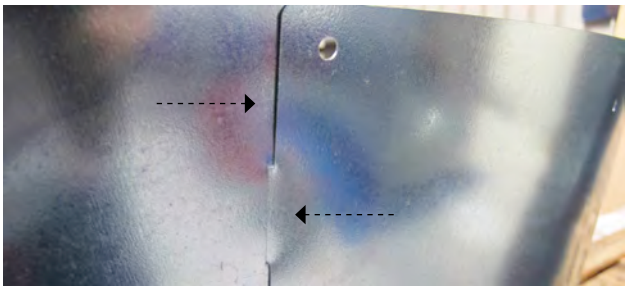
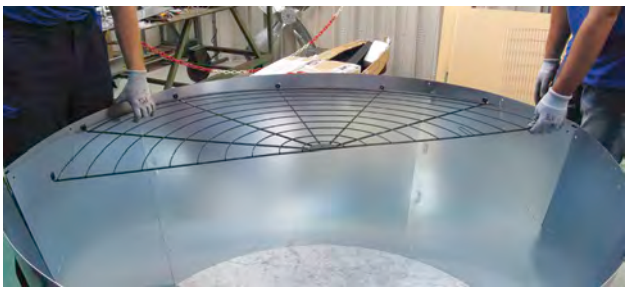
CONE DISCHARGE ASSEMBLING	
 	Assemble the cone sectors *(ref. 22 and 23)* as shown in the pictures, inserting the wings of the first sector in the slots of the second one. Repeat the operation for all four sectors.
	To obtain the discharge cone join the first sector with the last one.
	Make sure that the sectors wings are correctly inserted in the slots and that the holes of the sectors are coincident (see arrows).
	Place the half mesh *(ref. 24 or 26)* on the discharge cone. In order to fix it, use qty. 1 M6×16 screw *(ref. 8)* with qty. 1 D6.4×24 washer *(ref. 28)* for the internal side and qty. 1 D6.4×24 washer *(ref. 28)* with qty. 1 M6 nut *(ref. 27)* for the external side of the cone. Repeat the operation for each of the seven spokes of the half mesh.
	Tighten the screws by using two 10 mm combination spanners *(ref. 12/Assembling tools)* or similar 10mm tool.

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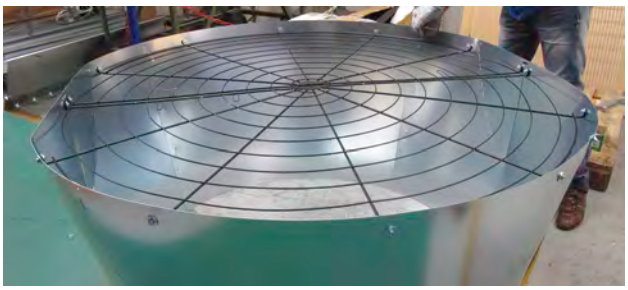
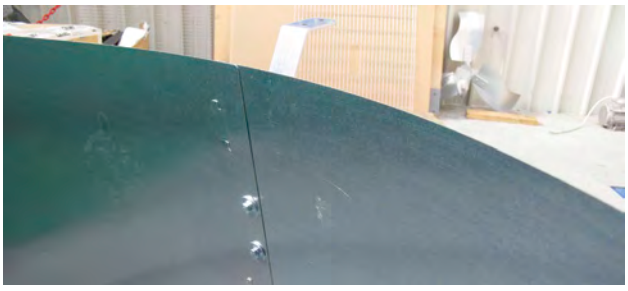
	Complete the assemblage of the cone sectors by using qty. 1 M6×16 screw *(ref. 8)* with qty. 1 D6.4×24 washer *(ref. 28)* for the internal side and qty. 1 D6×24 washer *(ref. 28)* with qty. 1 M6 nut *(ref. 27)* for the external side of the cone, as previosly done. Repeat the operation for each of the four sectors of the discharge cone.
	Tighten the screws by using two 10 mm spanners *(ref. 12/Assembling tools)*.
	Assemble the remaining half mesh in the same way.
	Fix the cone bracket *(ref. 30)* to the discharge cone by using qty. 1 M6×16 screw *(ref. 8)* with qty. 1 D6.4×24 washer *(ref. 28)* for the internal side and qty. 1 D6 spring washer *(ref. 29)* with qty. 1 M6 nut *(ref. 27)* for the external side of the cone.
	Make sure that the bracket is assembled in the correct way, as shown in the picture, and tighten the screw with two 10 mm combination spanners *(ref. 12/ Assembling tools)*. Repeat the operation for each of the four brackets of the discharge cone.
	Place the complete assembly on the conveyor. Make sure that the discharge cone is positioned outside of the conveyor edge.

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Fix the discharge cone to the conveyor with q.ty. 8 D6.3×19 screws *(ref. 31)* by using a pneumatic screw-driver *(ref. 3/Assembling tools)* and its proper adapter *(ref. 9/Assembling tools)*.

Join together the half meshes by tightrning the plastic ties as shown in the pictures.

Joint firmly the 2 meshes together by means of the 6 plastic ties *(ref. 25)* supplied.

OPTIONAL BELT TENSIONER ASSEMBLING

Insert the pop up rivet 3.9x7 *(ref. 77)* in the metal spacer by using a pneumatic screw-driver *(ref. 3/ Assembling tools)*.

Place the metal spacer on the tensioner *(ref. 76)*, making sure to insert the pins of the spacer in the slots of the tensioner.

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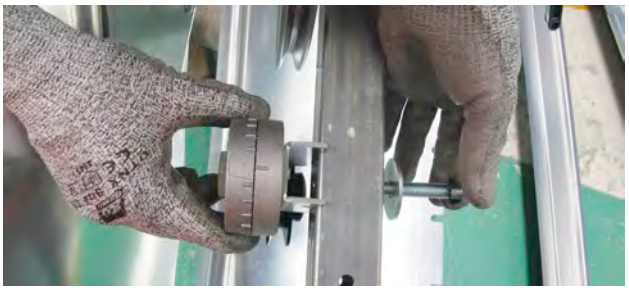
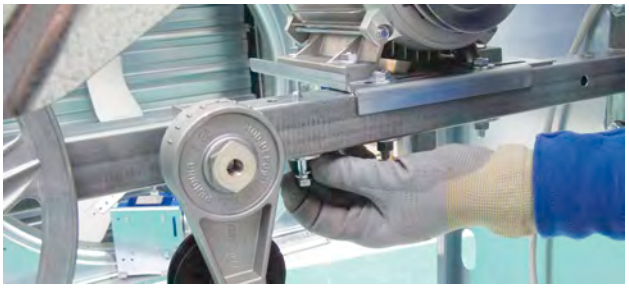
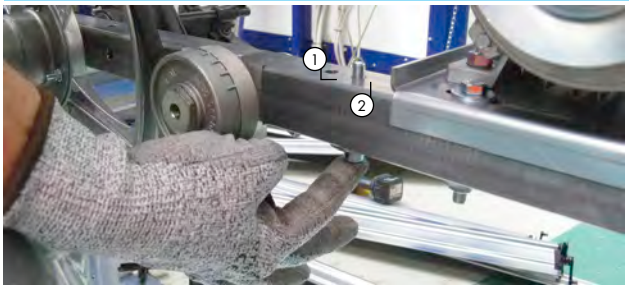


Insert the D10.5 toothed washer *(ref. 79)* and the D10.5 plain washer *(ref. 80)* in the M10×90 screw *(ref. 78)* and fix the tensioner to the central support by means of a 17mm combination spanner *(ref. 3/ Assembling tools)*.





Place the D8 spring washer *(ref. 38)* and the D8x32 plain washer *(ref. 48)* onto the M8x65 screw *(ref. 53)*. Insert it in the proper hole* of the support and tight it through the belt tensioning adjuster *(ref. 52)* by using qty. 1 M8 nut with flange *(ref. 51)*.

Please note that the round part of the belt tensioning adjuster has to be oriented towards the propeller, as shown in the pictures.

*NOTE: for M80 Motor/Hp1 use the hole nearest to the central pulley *(no. 1 in the picture)*; for M90 Frame Motor/Hp1.5 use the hole furthest from the central pulley *(no. 2 in the picture)*.

Place the V-belt on the pulleys.

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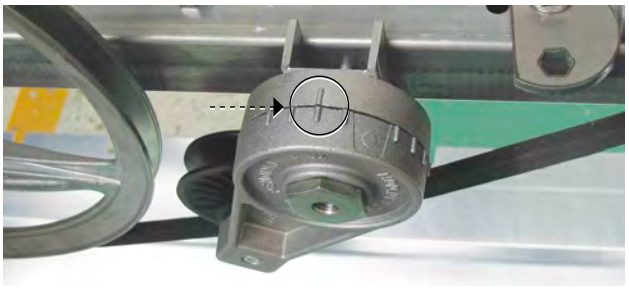
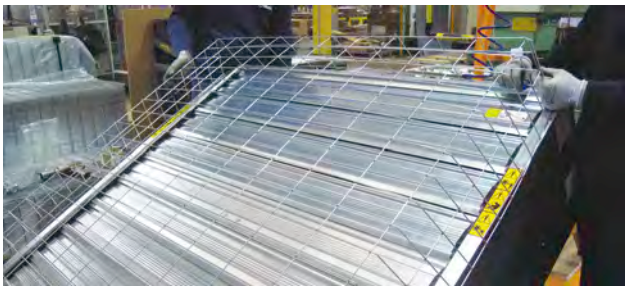
Tighten with a 10 mm allen key *(ref. 16/Assembling tools)*.

TENSIONING VALUES:
Hp1 = 250 N, corresponding to a vibration frequency 55 Hz +/- 2%
Hp2 = 320 N, corresponding to a vibration frequency 60 Hz +/- 2%

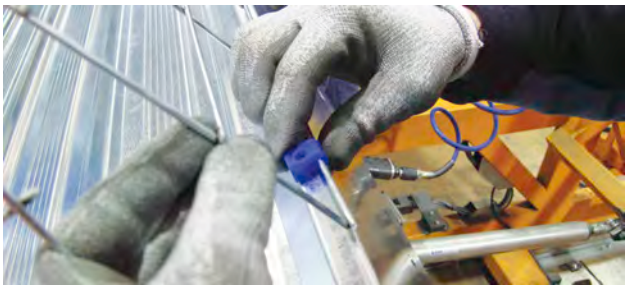


Check the final position of the tensioner. If the tensioner looks like the picture (mark on the 2nd slot) it will be in the right position.
Otherwise repeat this step by changing motor position.

OPTIONAL PYRAMIDAL SHAPE MESH ASSEMBLING



Put the pyramidal shape mesh *(ref. 9)* on the fan like the picture. The rectangular holes must have the long side in horizontal position.



Fix it to the bottom and top panels by means of qty. 10 plastic clips *(ref. 10)* and qty. 10 D6.3x19 screws *(ref. 31)*.

The clips must be fixed in the same position as shown in the picture.

Fix it by using a pneumatic screwdriver *(ref. 3/ Assembling tools)* and its proper adapter *(ref. 9/ Assembling tools)*.

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Australia Munters Pty Limited, Phone +61 2 8843 1594, Brazil Munters Brasil Industria e Comercio Ltda, Phone +55 41 3317 5050, Canada Munters Corporation Mason, Phone +1 517 676 7070, China Munters Air Treatment Equipment (Beijing) Co. Ltd, Phone +86 10 80 418 000, Denmark Munters A/S, Phone +45 9862 3311, India Munters India, Phone +91 20 6681 8900, Indonesia Munters, Phone +62 818 739 235, Italy Munters Italy S.p.A., Chiusavecchia, Phone +39 0183 52 11, Japan Munters K.K., Phone +81 3 5970 0021, Korea Munters Korea Co. Ltd., Phone +82 2 761 8701, Mexico Munters Mexico, Phone +52 818 262 54 00, Russia Munters AB, Phone +7 812 448 5740, Singapore Munters Pte Ltd., Phone +65 744 6828, South Africa and Sub-Sahara Countries Munters (Pty) Ltd., Phone +27 11 997 2000, Spain Munters Spain S.A., Phone +34 91 640 09 02, Sweden Munters AB, Phone +46 8 626 63 00, Thailand Munters Co. Ltd., Phone +66 2 642 2670, Turkey Munters Form Endüstri Sistemleri A.Ş, Phone +90 262 751 3750, USA Munters Corporation Mason, Phone +1 517 676 7070, Vietnam Munters Vietnam, Phone +84 8 3825 6838, Export & Other countries Munters Italy S.p.A., Chiusavecchia Phone +39 0183 52 11

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