Euroblast Select 300 SF



Operating & Maintenance Instructions

Machine	
Serial No.	
Customer	
A/C No.	

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1. Introduction

This manual should be regarded as part of the product and must be retained for the life of the machine. The manual must be passed to any subsequent owners of the machine.

Any amendments should be attached to the original manual. Machine identification and serial number can be found on the identification plate fixed to the machine body.

1.1 Safety recommendations

Users of Guyson equipment are advised to make sure they have identified any hazards associated with their specific blasting processes, including:

Use of compressed air
Fire/explosion risks, e.g. Aluminium dust
Suitable procedures for dealing with fire hazards
Production of carcinogenic or toxic dusts from media or component surface removal
Any other known hazards

Users are responsible for ensuring that they have implemented any current regulatory requirements, e.g. COSHH, to deal with any potential risks and/or hazards associated with their processes.

ATEX ZONE DESIGNATION

The ATEX Directives 2014/34/EU (product requirements) and 99/92/EC (user requirements) are implemented by the Equipment and Protective Systems intended for use in potentially explosive Atmospheres Regulations 1996 (EPS and the Dangerous Substances and Explosive Atmosphere Regulations 2002 (DSEAR) respectively.

We are able to provide equipment that is suitable for use in a hazardous area, and/or equipment that is suitable for use when a hazardous area is created within a system, but it is the end users' responsibility to classify the area in which the equipment is to be used and/or the explosivity of any internal atmosphere created within the system. This is defined in Section 2, Article 3 to 9 of the 99/92/EC Directive (ATEX 137).

Unless we have been advised otherwise, we have to assume that the equipment will be used in an area that is not classified as potentially explosive, and uses a process which will not create an explosive atmosphere within the equipment.

1.2 Electrical specification

Electrical wiring on Guyson equipment conforms to:

BSEN 60204-1:2006
IEC 60204-1:2005

1.3 Blast media

Type	Guyson reference	Material	Application
Abrasive	Saftigrit brown	Brown alumina	Cleaning, removing corrosion and other surface deposits, roughening, preparing surfaces, etching and decorating.
	Saftigrit white	White alumina	
	Saftigrit pink	Pink alumina	
	Saftigrain	Reclaimed alumina	
	Sinterball	Sintered alumina	Different qualities are available for all applications.
	Silicon carbide	Silicon carbide	
Glass	Honite	Glass bead	Cleaning, peening, sheen surface cleaning
	Glass grit	Glass granules	Mild cutting version of above.
Metallic	Saftimetal	Angular iron grit	Removing corrosion, surface preparation for bonding.
	Turbogrit	Carbon steel grit	
	Turbobead	Carbon steel shot	Cleaning, deburring and peening.
	Flexgrain	Soft iron shot	Cleaning without dimensional change.
	Turbonox	Stainless steel shot	Cleaning, deburring and finishing.
Plastic	Guyblast	Urea - US type 2	Cleaning without dimensional change mould and die cleaning, light deburring and deflashing, paint removal.
	Guystrip	Melamine - US type 3	
	Flashgrit	Acrylic - US type 5	
	Flashgrain	Polycarbonate	Deburring and deflashing
	Flashbead	Polystyrene	Very fine deburring and deflashing
	Thermoflash	Polyamide nylon	Deburring and deflashing
Natural	Loygrain	Corn cob	Removal of corrosion and carbon
	Walnut shell	Walnut shell	
Ceramic	Zirblast	Fused zirconia	Cleaning, peening, deburring and scale removal
Expendables	Iron silicate	Copper slag	Site blasting, removing corrosion and paint prior to recoating

A data sheet is available for each of the media listed in the table, giving more specific details of the product, applications and mesh sizes. Contact Guyson International Ltd for further information and advice on which blast media will suit your application. Test and evaluation facilities are available if required.

2. Data sheet

2.1 Blast cabinets

	Euroblast Select cabinet model number	
	4	**6**
Overall dimensions		
Height (mm)	1637*	1675*
Width (mm)	990	1115
Depth (mm)	806	985
Cabinet outlet	100	100
Maximum air pressure	90 psi or 6 bar	
Maximum air supply	See air consumption tables	
Cabinet lighting **Electric supply** **Batten fluorescent** **Fuse rating**	 Single phase, 230 V, 50 Hz 18 W 2 A	
Operator protection required	Hand and lower arm by gloves or gauntlets (supplied)	

* Adjustable height

2.2 Cyclones

	Cyclone & dust collector combination	
	75/16 with 41 D/C	**75/16 with C400 or C800 D/C**
Inlet diameter (mm)	100	100
Outlet diameter (mm)	100	150
Static inlet pressure (mm Wg.)	100	165
Static inlet pressure (Pa)	980	1620
Airflow (m^3/min)	8.0	12.0
Height (mm)	2095	2095
Base diameter (width x depth mm)	880 x 700	880 x 700
Body diameter (mm)	400	400

2.3 Dust collectors

	Dust collector model number		
	41	**C400**	**C800**
Inlet diameter (mm)	100	150	150
Extraction outlet	Open exhaust		
Maximum inlet static pressure (mm Wg)	150	165	230
Maximum inlet static pressure (Pa)	1470	1620	2555
Measured airflow (with open inlet/outlet) (m^3/min)	10	11	33
Airflow adjustable?	Yes		
Number of filters	4	1	2
Type of filter	B	A	A
Filtration area	1.8 m^2 17.5 ft^2	10 m^2 97 ft^2	20 m^2 194 ft^2
Air flow rating (with a filter velocity of 1.5 m/min)	162 m^3/hr 95 CFM	900 m^3/hr 530 CFM	1800 m^3/hr 1059 CFM
Filter cleaning system	C	D	E
Air consumption (litres per pulse)	N/A	7	7
Maximum compressed air supply pressure	N/A	50 psi 3.5 bar	50 psi 3.5 bar

where:-

A	Cartridge filter - Polyester element
B	Fabric filter - Polyester needlefelt - Scrim reinforced
C	Manual shaking system
D	Manual pulse air cleaning system
E	Auto pulse air cleaning system

2.4 Air consumption tables

2.4.1 Air flow measured in m³/hr at different pressures measured in bar

Air-jet bore (mm)	Guyson gun type	Blast pressure (bar)				
		2	3	4	5	6
2.0	400	4.8	7.2	9.0	11.4	13.8
2.4	400	6.6	10.2	13.8	17.1	20.4
2.8	400	10.2	15.0	19.2	25.2	29.4
3.3	400	15.6	22.8	28.2	35.4	40.8
3.2	900	11.4	16.5	21.6	27.0	31.8
4.0	900	19.2	27.3	35.4	43.2	51.6
4.8	900	30.6	42.0	53.4	66.0	77.4

2.4.2 Air flow measured in CFM at different pressures measured in psi

Air-jet bore (mm)	Guyson gun type	Blast pressure (psi)					
		30	40	50	60	70	80
2.0	400	3	4	4.5	5.5	6.5	7.5
2.4	400	4	5	7	8	9	11
2.8	400	6	8	10	12	14	16
3.3	400	10	12	15	17	20	22
3.2	900	7	9	11	14	16	17
4.0	900	12	15	18	21	24	27
4.8	900	18	22	27	32	37	42

3. Installation

The machine may comprise of the following units:

- Blast Cabinet/ Cyclone/ Dust Collector

Flexible extraction hose, sealing bands and hose clamps are supplied to connect these together.

Remove packing materials and check inside blast cabinet for loose items.

3.1 Location

The equipment must be located on a clean, dry surface.

Locate the cabinet in the required position and orientation; always allow sufficient room around the units to fully open doors and to give access for operation and maintenance.

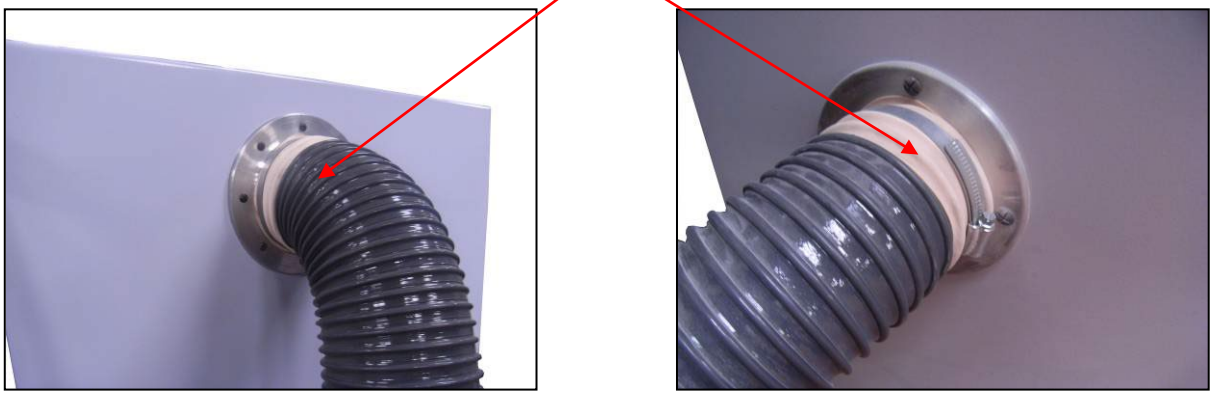
Care should be taken to ensure all parts of the system are level

3.2 Assembly

Hoses with media flowing through them should only have smooth flowing curves in them.

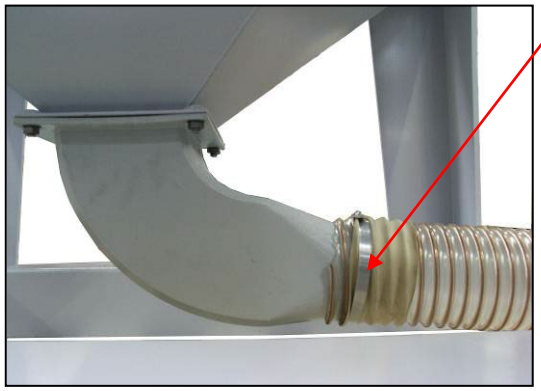
If your system only comprises of a blast cabinet and dust collector then:

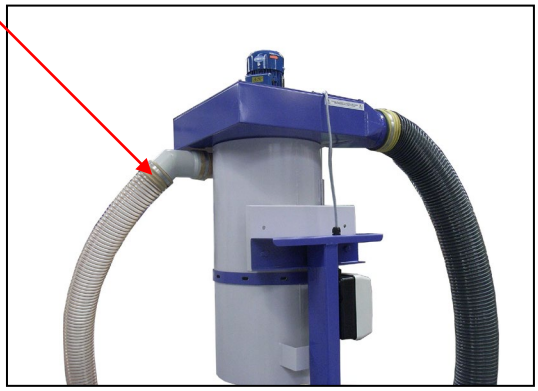
Connect the flexible extraction hose from the cabinet outlet to the dust collector inlet using the sealing bands and hose clamps supplied.



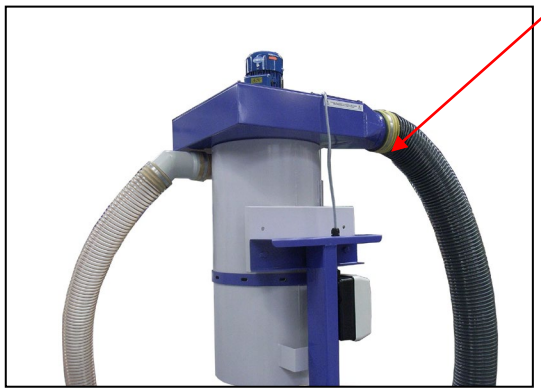
If your system comprises of a blast cabinet, cyclone and dust collector then the cyclone needs to be connected between the blast cabinet and dust collector:

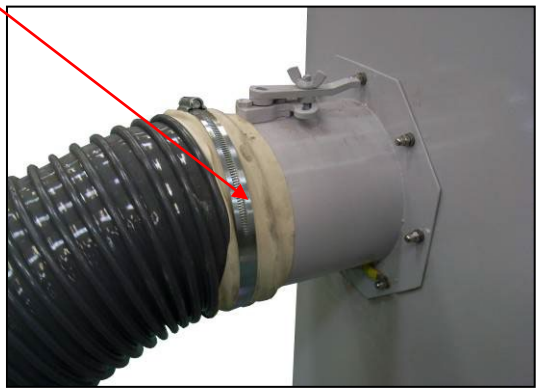
Connect the flexible extraction hose from the cabinet outlet to the cyclone inlet using the sealing bands and hose clamps supplied.





Connect the flexible extraction hose from the cyclone outlet to the dust collector inlet using the sealing bands and hose clamps supplied.

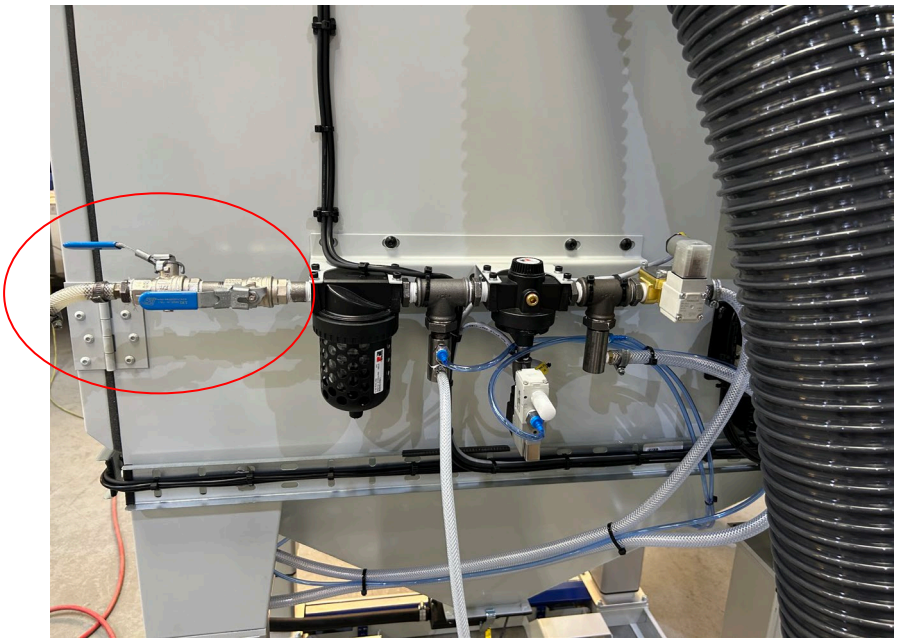




3.2.1 Compressed air connections

The air supply should be from a manual shut-off valve that will exhaust down-stream air and be clean, dry and oil-free.

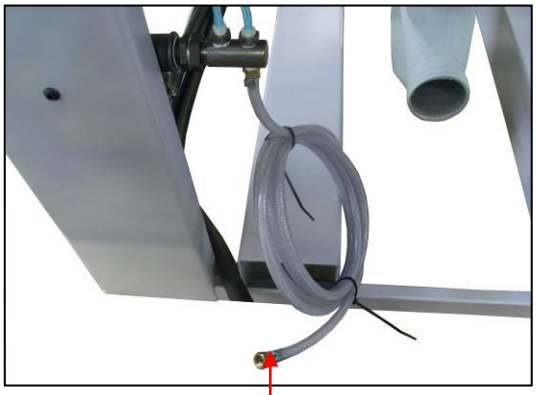
The machine requires a compressed air supply at a maximum of 6.0 bar (90 psi) at the filter inlet and pipework of adequate diameter to provide the flow rate required (see air consumption tables). The minimum recommended bore for the compressed air line is 1” and it connects to a 1/2” BSP thread



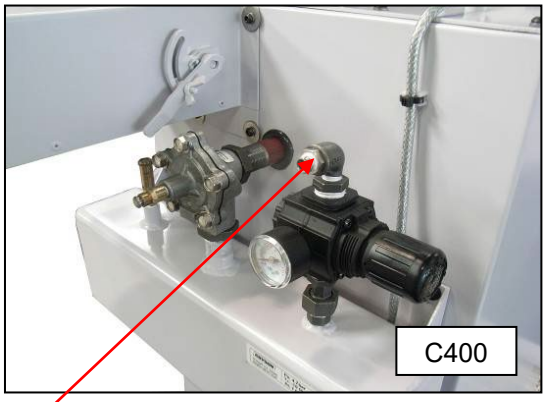
Connect the main compressed air supply to the pneumatic isolator valve.

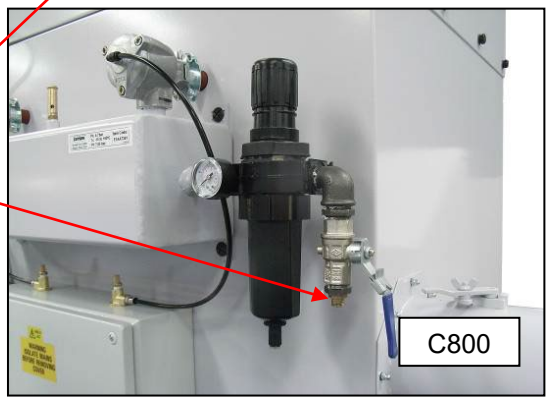
Take care that any jointing material (e.g. PTFE tape) does not enter the pipework.

The C400 or C800 dust collector will require a compressed air supply. The regulator should be set to a max of 50 psi.



Connect the air supply from the back right leg of the blast cabinet to the dust collector.





3.2.2 Electrical connections

Electrical installations should only be carried out by qualified electricians

Please see "Electrical Installation of Dust Collectors and Cyclones" in the appendix

Power supplies should be taken to the starter boxes situated on the side of the dust collector and cyclone.



The electrical supply to the lighting on the cabinet is via an IEC lead.



4. Testing installation

4.1 Testing installation procedure

After completing all the connections the cabinet operation should be checked.

Do not add media at this stage.

Do not open the air supply at this stage.

- Switch on main electrical power supply
- Switch on cabinet light
- Start the dust collector:
    - The direction of the impellor motor should be checked visually against the arrow on the motor. If rotation is in the wrong direction, then on a 3 phase motor two of the input phase lines should be changed over. Guyson International should be contacted for more info if it is a single phase motor

      NOTE: Air will flow from the outlet even if the fan rotation is wrong, but only at a low level, so rotation must be checked visually.

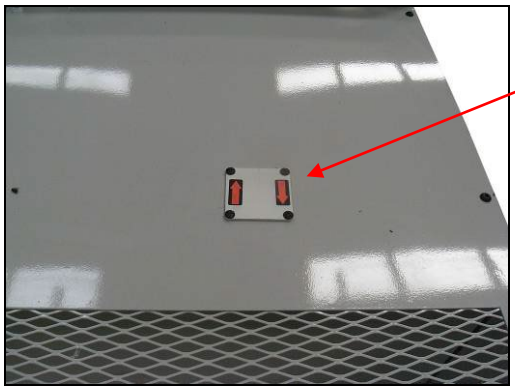
      The best way to do this task is by starting then stopping the dust collector and watch the fan as it slows down.



On a 41 dust collector the motor is inside. The front cover must be removed to see the top of the motor.



On a C400 dust collector the motor is on the outside and can be easily checked.

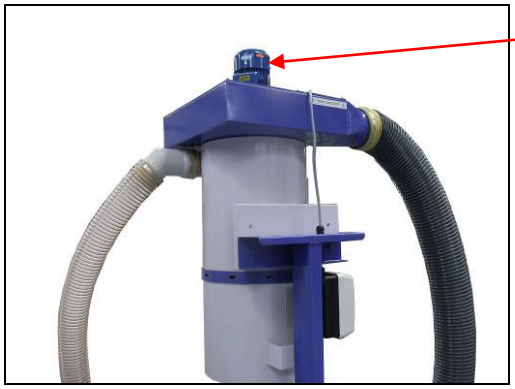


On a C800 dust collector the motor is inside. There is a viewing hatch on top of the dust collector that can be opened to see the top of the motor.

- Start the cyclone:
    - The direction of the impellor motor should be checked visually against the arrow on the motor. If rotation is in the wrong direction, then on a 3 phase motor two of the input phase lines should be changed over. Guyson International should be contacted for more info if it is a single phase motor.

      NOTE: Air will flow from the outlet even if the fan rotation is wrong, but only at a low level, so rotation must be checked visually.

      The best way to do this task is by starting then stopping the dust collector and watch the fan as it slows down.



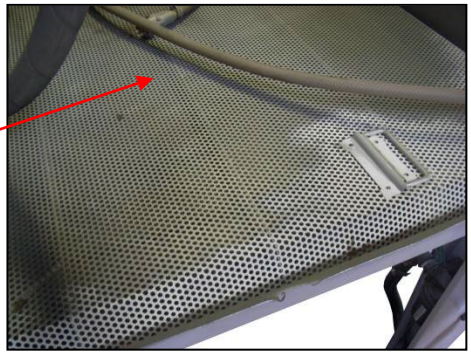
On a 75/16 and CY600 cyclone the motors are on the outside and can be easily checked.

- Turn on the air supply by opening the main air valve
- Set pressure regulator to required blast pressure
- Check all in-line connections for leaks and possible blockages
- Insert both arms through the armhole entries
- Depress the foot pedal
- Check for steady air blast from gun and for possible leaks
- Release foot pedal and remove arms from entries
- Add media to machine

4.2 Media levels

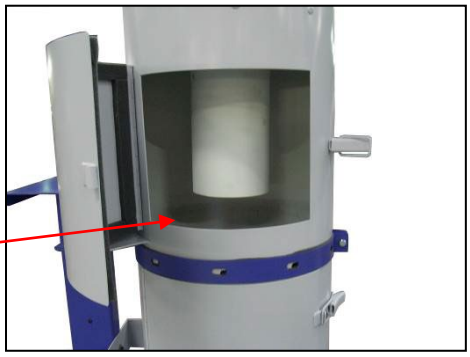
If a cyclone is fitted to the system then media should be added to this. If not then it should be added to the cabinet hopper. ¼ - ¾ of a 25kg bag of media should suffice.

4.2.1 Adding media to hopper

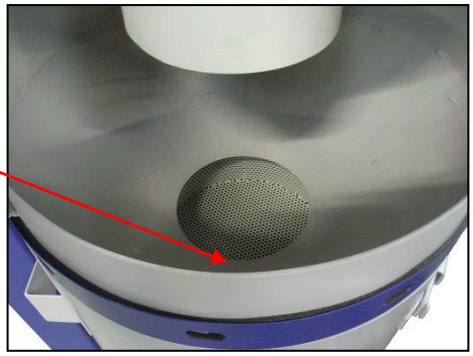


- Turn off the dust collector
- Open the cabinet door
- Pour media into the hopper
- Close the door
- Turn the dust collector on

4.2.2 Adding media to 75/16 cyclone



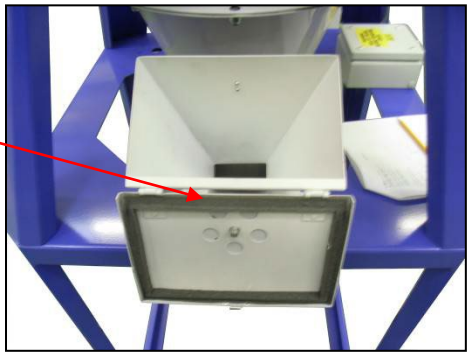
- Turn off the dust collector
- Turn off the cyclone
- Open the upper cyclone door
- Pour media into the cyclone
- Close the door
- Turn the dust collector on
- Turn the cyclone on



The upper door should always be used so the media can pass through the sieve before it gets to the mixer box.

4.2.3 Adding media to CY600 cyclone

- Turn off the dust collector
- Turn off the cyclone
- Open the filler chute flap
- Pour media into the cyclone
- Close the filler chute flap
- Turn the dust collector on
- Turn the cyclone on



5. Machine settings

5.1 Adjusting the operating height of the blast cabinet

The operating height of the cabinet is adjusted as needed by the height adjustable remote. The below sets out the functions of how to drive the cabinet legs up/down.

For the setting of user specific positions and wider settings of the height adjustable legs, please see the operational manuals included in the appendices.

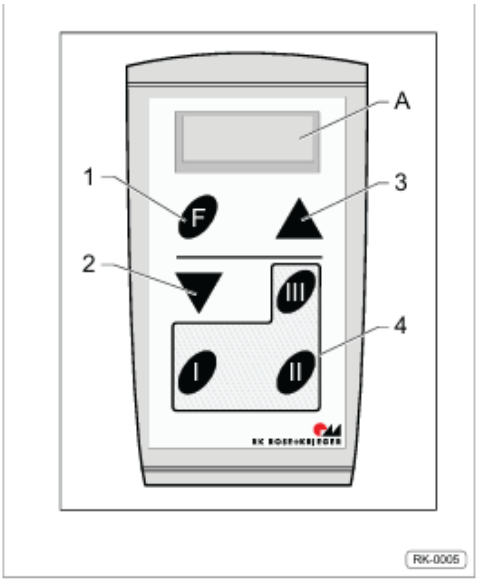
1 ***Function key***
Select and display settings
(e.g. a user or a position)

2 ***Drive DOWN***
The drive moves when the key is pressed.

3 ***Drive UP***
The drive moves when the key is pressed.

4 ***Hot keys 1 to 3***
Selecting and driving up to user-specific positions or carrying out settings

A ***Display***
Display the current position, settings and error messages



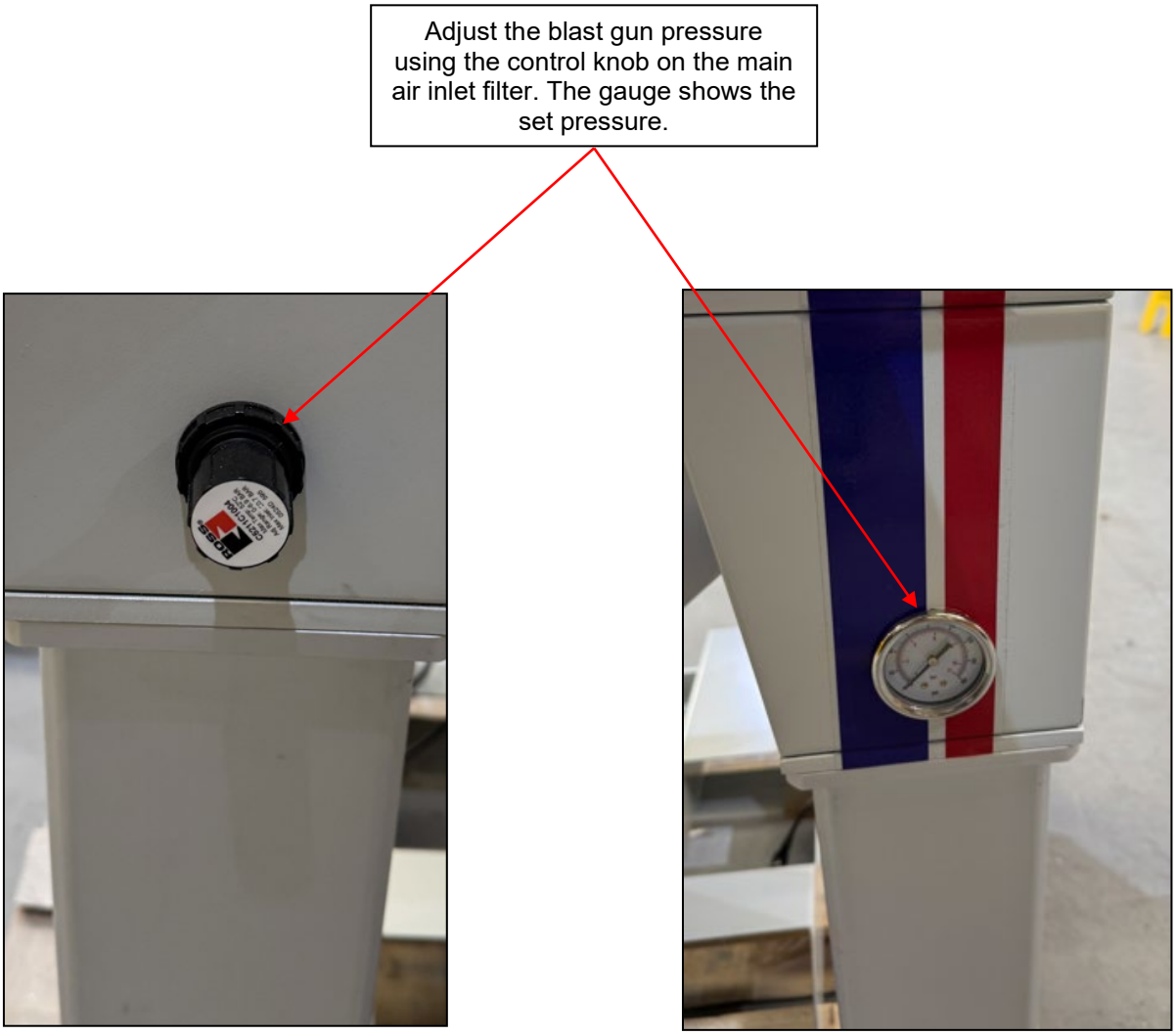
5.2 Blast settings

The blast settings should be set in the order they appear in the following sections.

5.2.1 Blasting pressure

Air pressure controls the speed at which the blast media leaves the nozzle. Blasting speed increases at higher pressures and shortens operation time. Never use a higher blast pressure than necessary to achieve the finish required.

- Higher pressure air is less economical
- It may distort or damage components
- Greater media breakdown means higher media consumption
- Noise increases



5.2.2 Media pick-up tubes

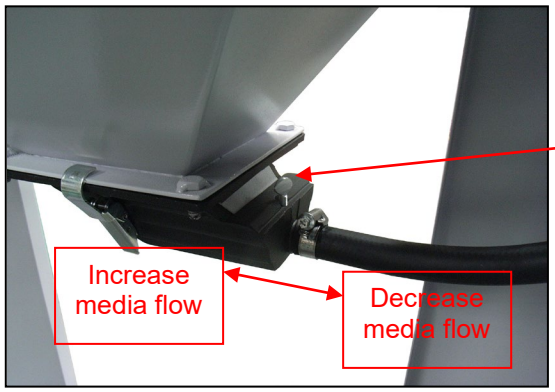
The setting of the pick-up tube in the media box has a significant effect on the blasting performance. Adjustment varies with the media density, with denser media requiring more air to circulate it.

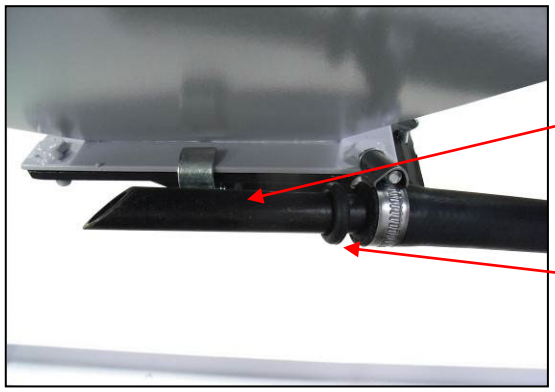
The greater the flow of media from the mixer box to the blast gun, the higher the rate of wear on media hose, blast nozzle.

- Check that there is a supply of free-flowing, dry media to the mixer box
- With compressed air flowing through the blast gun gradually move the pick-up tube into the mixer box with the chamfer facing upwards while a colleague watches the media flow from the nozzle.

  The pick-up tube is in the right position when you are just able to see the media stream leaving the nozzle. If the media stream is intermittent then the pick-up tube has been pushed too far in.

  - Moving the pick-up tube out decreases media flow
  - Moving the pick-up tube in increases media flow
- Lock the pick-up tube in place with the retaining screw
- Further adjustment should not be needed whilst using the same media





5.2.3 Stand-off distance

This is the distance of the gun nozzle from the component. The stand-off distance should not normally be reduced below 50 mm as media from the nozzle will be deflected or slowed down by media ricocheting from the surface being blasted.

The impact of the media can be affected by the stand-off distance and the air pressure. The type of media will influence this but a larger blast area may be achieved by increasing both the stand-off distance and the blast air pressure.

5.2.4 Angle of blasting

The optimum angle for blasting for surface finishing is between 90 and 60 degrees to the horizontal. Shallower angles can cause surface damage or compromise material properties. Shallower angles than this can be used for deposit removal where the surface finish is not critical and with softer media.

Blast guns should be angled to minimise interference between the outputs from different guns. This will avoid disrupting the speed and direction of media between nozzle and component.

Always position guns pointing away from any cabinet openings; this minimises the risk of media being blasted out of the cabinet.

5.3 Extraction settings

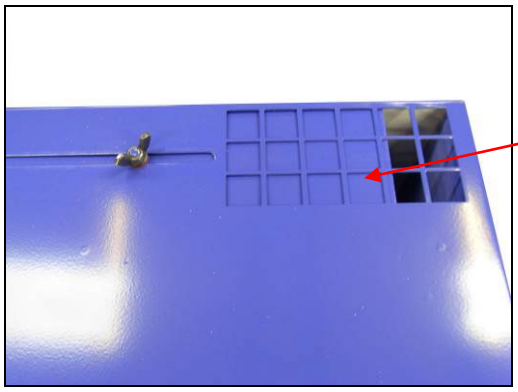
5.3.1 Extraction system

The air-flow must be sufficient to create a slight negative pressure inside the cabinet to prevent dust from blowing out. The airspeed must also be high enough to carry the blast media and dust out of the cabinet and up the extraction hose to the inlet of the cyclone. This varies with the size and weight of blast media.

The suction in the dust collector should be such that a minimum amount of media is transferred into the dust collection system.

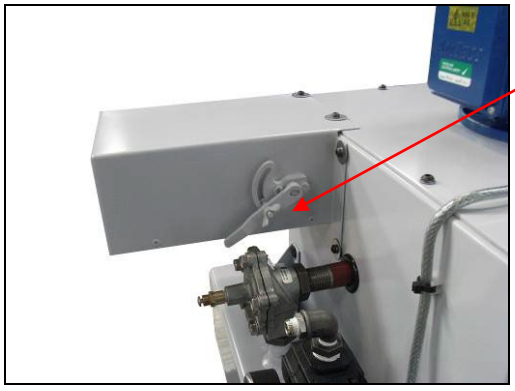
This is altered with the damper/blast gate on the dust collector outlet/inlet:

- Opening the damper/blast gate increases the suction
- Closing the damper/blast gate reduces the suction.



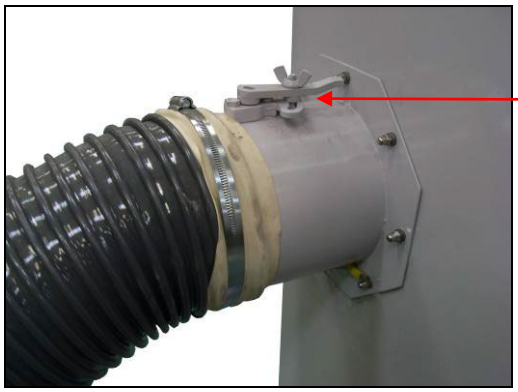
41 Dust collector

Air flow is controlled by the slide damper on the exhaust outlet on the dust collector.



C400 Dust collector

Air flow is controlled by the slide damper on the exhaust outlet on the dust collector.



C400, C800 Dust collector

Air flow is controlled by the blast gate on the inlet to the dust collector.

A blast gate will be fitted to the C400 if a cyclone is being used. If this is the case then the slide damper on the exhaust must be permanently fixed in the fully open position.

The dust collector must be started before and stopped after the cyclone unit (if fitted) in order to clear the system of dust after the blasting operation.

The dust collector should be checked to see how much reusable media has been transferred and the settings adjusted accordingly.

Never try to extract reusable media for reuse in the machine.

On a C800 it is essential that a plastic bin liner (Y1CA0047) is used. It provides a simple and clean means of removing and disposing of the dust, but its use requires balancing the pressure either side of the bag to prevent it being drawn up into the hopper. This is achieved by the use of the bin balance pipe so that the same negative pressure is applied to the outside of the bag as the inside.

If a bin liner is not used then dust will be drawn up through the bin balance pipe into the clean side of the dust collector.

5.3.2 Cyclone

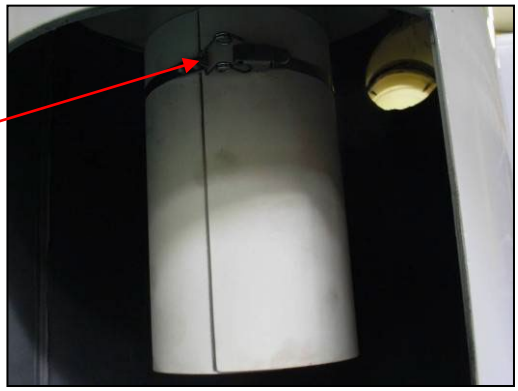
If after adjusting the dust collector damper good media is still being drawn into the dust collector, it may be necessary to adjust the cyclone vortex as well.

To test the position of the vortex; first clean the dust collector waste bin. Operate the blast process for 10 minutes and then look inside the dust collector waste bin. A large quantity of usable blast media in the waste bin indicates the vortex needs adjusting to reduce carry over. The absence of any dust at all indicates the vortex needs adjustment to separate the dust which may be retained within the media hopper.

A short vortex will usually draw more dust out of the cyclone than a long vortex. Each process may need a different vortex setting, with best results being achieved by trial.

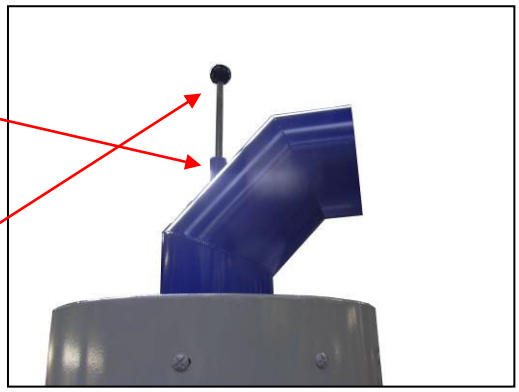
To adjust the length of the vortex in a motorized cyclone:

- Switch off the cyclone then the dust collector
- Open the access panel
- Slacken the tensioning clip around the vortex sleeve
- Slide the sleeve up or down as required
- Replace and secure the tensioning clip and close the access panel



To adjust the length of the vortex on a non-motorized cyclone:

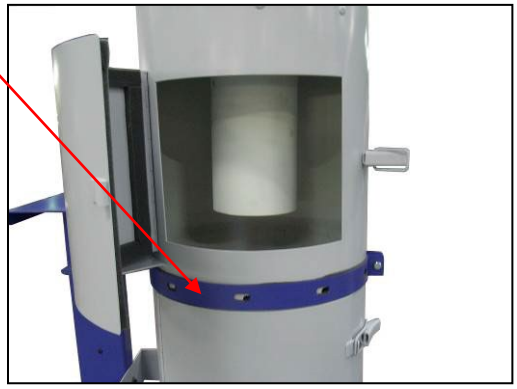
- Switch off the cyclone then the dust collector
- Open the access panel
- Release the thumb-screw securing the vortex adjusting rod at the top of the cyclone exit elbow.
- By means of the knob attached to the adjusting rod, slide the rod up or down as required to decrease or increase respectively the length of the vortex.
- Secure the thumb-screw when the adjusting rod is in the desired position.
- Close the access panel



NOTE: The position of the vortex can be viewed by opening the top access door during the adjustment procedure.

As a further aid to the separation of good media from dust and fines there is an adjustable airflow separation control disc mounted on the top of the filler chute flap on a CY600/12 or an air-flow separation control band around the body of the 75/16 cyclone





This disc/band has slots cut in it which coincide with holes in the filler chute flap/cyclone body itself. When all the holes are lined up, air is permitted to enter the cyclone increasing the amount of air available for extraction to the dust collector. In turn this reduces the velocity of the exhaust air and permits media to fall out of the airstream more easily. This is particularly beneficial with light media (such as plastics) where the individual granules do not have sufficient mass to drop out of a moving airstream.

Where it is not necessary or not required to increase the velocity of the exhaust airstream the separator disc/band should be rotated so that the holes in the disc/band do not line up with the holes in the filler chute flap/cyclone body; this will inhibit the entry of any extra air by this route and hence leave the characteristics of the air-flow unchanged.

It must be remembered that the air-flow separation disc/band is adjustable to give all permutations between fully open and fully closed; this provides the operator with a wide range of adjustment to suit individual situations. However, it is also important to remember that there is no firm rule concerning the use of this disc/band and the best results will be achieved by trial and error.

Once the cyclone has been set for a particular application, it should not require adjustment. Any loss of visibility or a failure to remove sufficient dust may be caused by blocked breather pads or choked dust collector filters.

To maximize operation, each different blasting operation will need the settings checking for best blasting performance.

6. Operation

6.1 Operating procedure

- Perform daily maintenance tasks (see section 7.1)
- Ensure cabinet is at correct working height (see section 5.1)
- Switch on main electrical power supply
- Switch on cabinet light
- Start the dust collector
- Start the cyclone
- Turn on the air supply by opening the main air valve
- Ensure any component is grease-free and dry before blasting
- Open the cabinet door
- Place component in cabinet
- Position the blast gun and airwash so that they will be easily reached when using the gauntlets/gloves and sleeves
- Close the cabinet door securely
- Insert both arms through the armhole entries



GAUNTLETS/GLOVES MUST BE USED IN CONJUNCTION WITH THE ARMHOLE SLEEVES.

- Depress the foot pedal, media will exit from the gun nozzle
- Move the nozzle jet across the component surface at a suitable distance, refer to blast gun settings section
- The component should be blasted evenly
- When the blasting is complete, release the foot pedal
- The door can now be opened, and the component can be removed for inspection
- Further blasting may be necessary, or an adjustment to one or more of the machine or blast settings
- The air line may be used to clean dust from the component surface

7. Maintenance

Blast machines are subject to wear. The rate of wear is determined by:

- The speed of media passing over the component surface
- The proportion of media to air exiting the blast nozzle
- The angle of contact with component surface
- Component material
- Media coarseness and type used

The wear can be minimised by regular maintenance and monitoring settings particularly those effecting localised wear

The frequency of any maintenance schedule and the replacement of parts are determined by the amount of use, media used and operating conditions. Maintenance intervals will be determined by experience of machine-use over time. The following periods are recommended for initial trial periods until wear patterns are established.



ENSURE ALL AIR SUPPLIES ARE TURNED OFF AND THE SYSTEM IS FULLY EXHAUSTED BEFORE PERFORMING ANY MAINTENANCE



THE BLAST CABINET AND ALL ITS ANCILLARY EQUIPMENT SHOULD BE FULLY ISOLATED BEFORE PERFORMING ANY MAINTENANCE



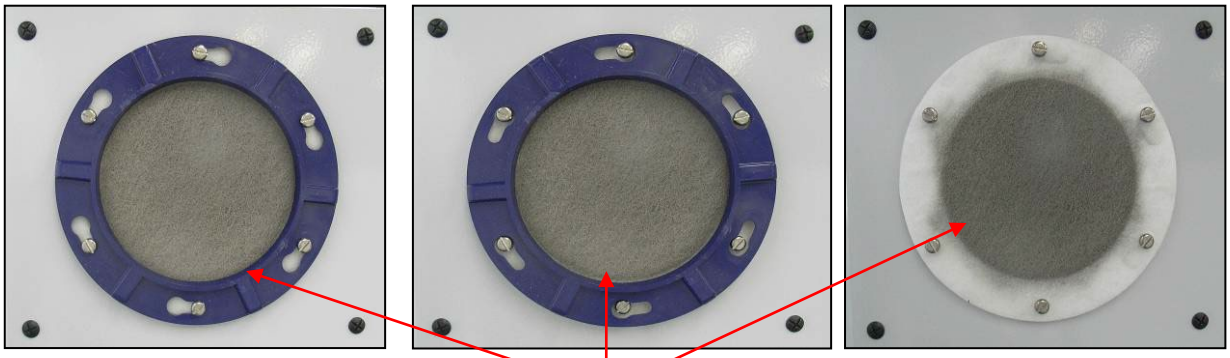
REFERENCE SHOULD BE MADE TO THE MSDS OF THE MEDIA BEING USED FOR USE OF CORRECT PPE WHEN HANDLING IT AND ITS DUST

7.1 Daily

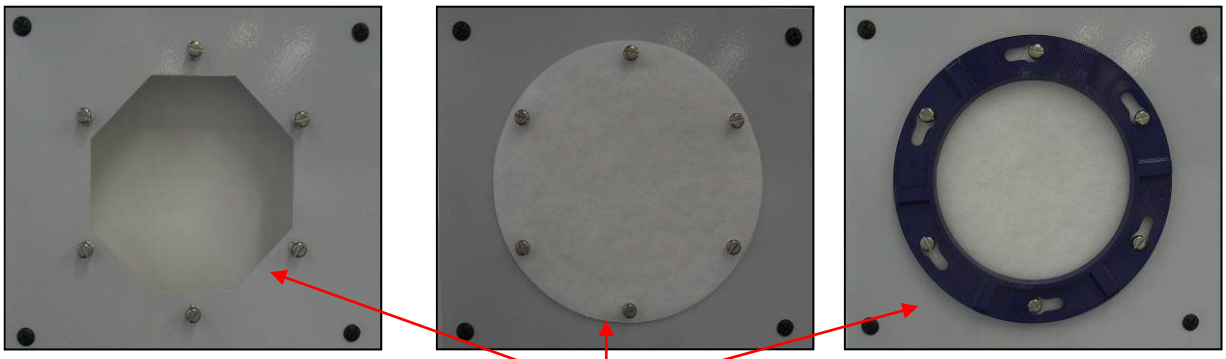
- Inspect breathers pads (see section 7.1.1)
- Inspect the viewing window, anti-frost sheet and illumination window (see section 7.1.2)
- Inspect all hoses for wear and damage (see section 7.1.3)
- Inspect pick up tube(s) and mixer box for wear and damage (see section 7.1.4)
- Inspect blast nozzles for uneven wear and bore size (maximum oversize is plus 20%) (see section 7.1.5)
- Inspect door seals for wear (see section 7.1.6)
- Inspect hopper for signs of overspray wear (see section 7.1.7)
- Empty dust collector bin and check contents for quality of media, ensure good media is not being wasted (see section 7.1.8)
- Top up media as required (see section 7.1.9)
- Clean the filters every four working hours (see section 7.1.10)
- Check compressed air filter (see section 7.1.11)
- Check earthing bonds are secure (see section 7.1.12)

7.1.1 Breather pads

The breather pads should be checked to see that they are not blocked. If they are they can cause an excessive negative pressure in the cabinet and affect the media stream from the gun. See below for how to change them if necessary.



Slide breather bezel anti-clockwise and remove

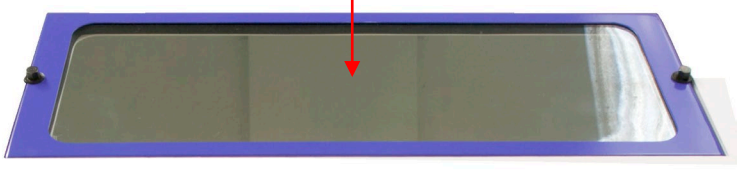


Remove and replace the breather pad **(Y1AB0001)**. Return the breather bezel to the locked position

7.1.2 Viewing and illumination window

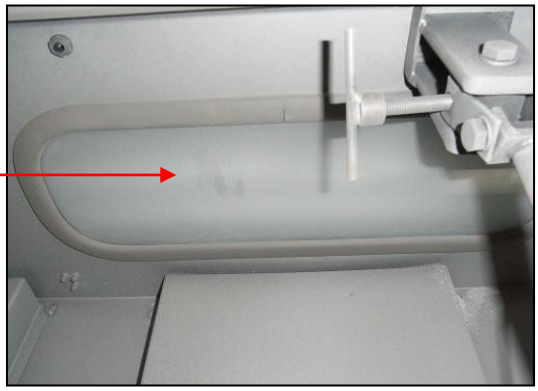
Check that the view of the component to be blasted is not impaired by a scratched anti frost sheet **(P2PF0013)** or glass **(P2GL0009)**. Replace if necessary.

The window gasket should also be inspect and replaced when worn **(R5SL0028)**.

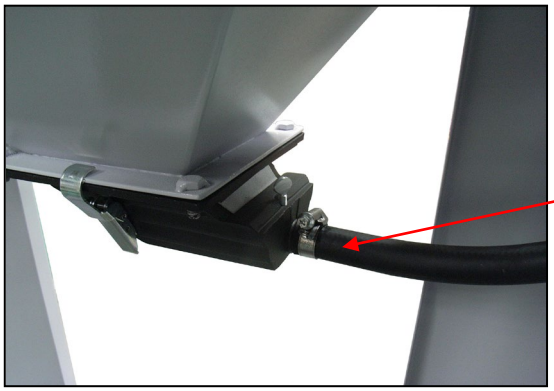


Check there is enough light entering the cabinet to work by. If not the illumination window **(P2GL0012)** may be scratched. Replace if necessary.

The rubber gasket **(R5SL0000)** and the gasket filler strip **(R5SL0002)** should also be inspected and replaced if necessary.

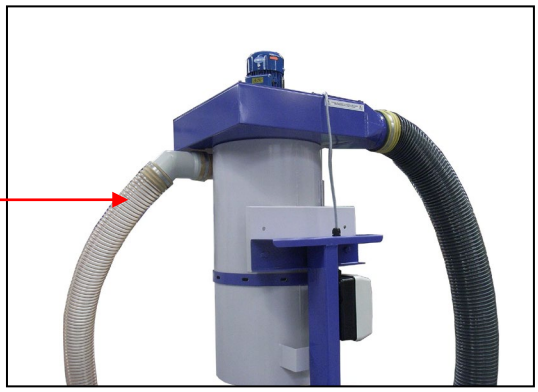


7.1.3 Hoses



Check the media supply hose **(R6TB0018)** for signs of wear and damage. Internal wear can be determined by feeling the rigidity of the tubing along its length. Any internal wear will result in the hose feeling soft where the hose wall is thinner. The first section to wear out is usually next to the pick up tube.

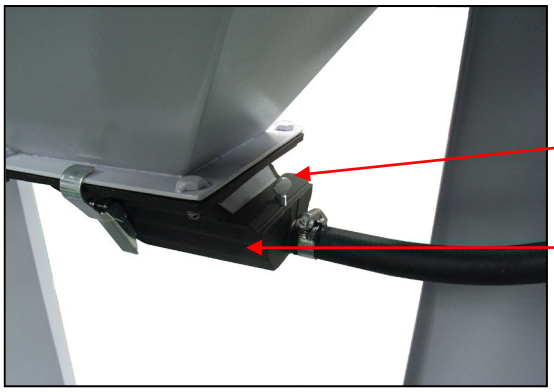
Check the extraction hose for holes or breaks as these will affect the rate of extraction from the cabinet.

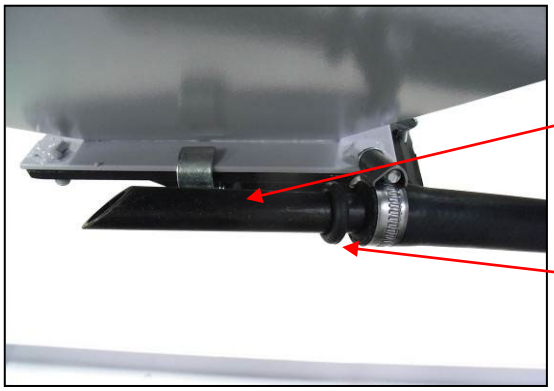


Item code	Description
R6TB0030	Flexible exhaust ducting - standard - 100 mm bore (m)
R6TB0032	Flexible exhaust ducting - polyurethane - 100 mm (m)
P2HS0000	Hose sleeve - 100mm
P1HC0004	Hose clip - 100mm
Y2AB0013	Hose flange - 100mm
R6TB0034	Flexible exhaust ducting - standard - 150 mm bore (m)
R6TB0036	Flexible exhaust ducting - polyurethane - 150 mm bore (m)
P2HS0001	Hose sleeve - 150mm
P1HC0006	Hose clip - 150mm
Y2AB0014	Hose flange - 150mm

7.1.4 Pick up tubes and mixer box

Unscrew the retaining screw so the mixer box and the pick up tube can be inspected for wear and replaced when necessary. Refer to section 5.1.2 for setting up the new mixer box and/or pick-up tube.

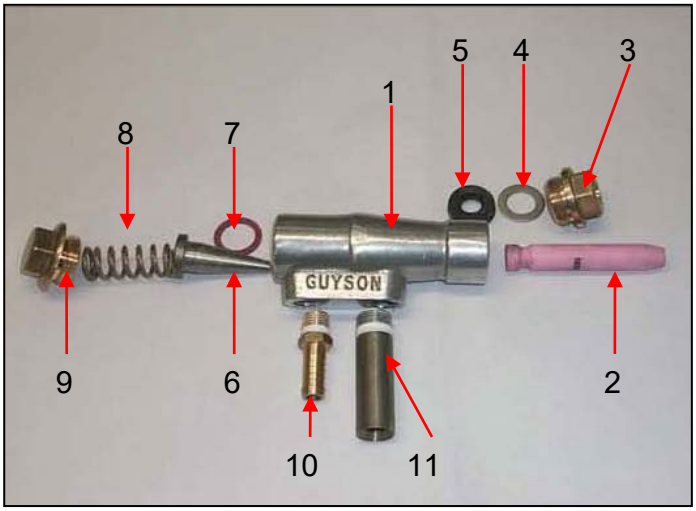




Item code	Description
E1AA4060	16mm pick up tube
E1AA3673	10mm pick up tube

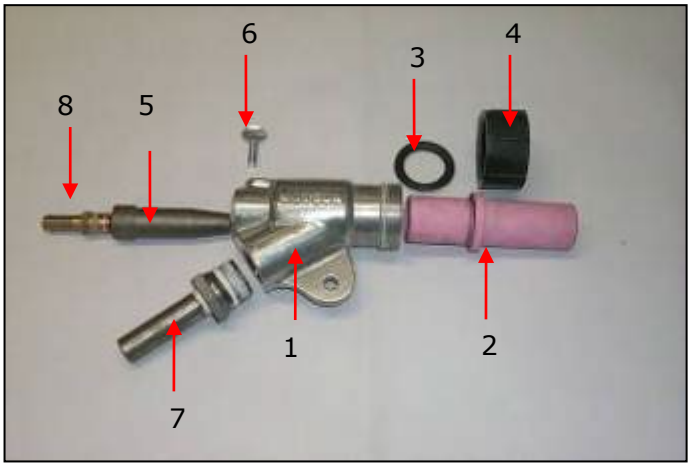
7.1.5 Blast nozzles

400 Blast gun



Pos	Item code	Description
1		400 Gun body
2	D2BA0001	6.4mm Ceramic nozzle
	D2BA0002	8.0mm Ceramic nozzle
	D2BA0004	6.4mm Tungsten nozzle
	D2BA0005	8.0mm Tungsten nozzle
3	D2AA0007	Nozzle locknut
4	P1WS0038	Nozzle washer
5	P2GT0012	Nozzle grommet
	D1AA0000	2.0mm Airjet
	D1AA0001	2.4mm Airjet
6	D1AA0002	2.8mm Airjet
	D1AA0003	3.3mm Airjet
7	P1WS0037	Airjet gasket
8	P2SG0000	Airjet coil spring
9	D2AA0008	Top nut
10	P4CG0001	¼” Hosetail x 10mm
11	P4CG0002	Media entry 3/8” x 16mm

900 Blast gun



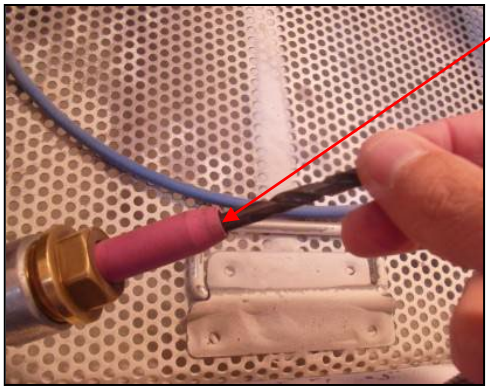
Pos	Item code	Description
1		900 Gun body
2	D2BA0006	9.5mm Ceramic nozzle
	D2BA0007	12.7mm Ceramic nozzle
	D2BA0009	9.5mm Boron nozzle
	D2BA0010	12.7mm Boron nozzle
3	P1WS0039	Nozzle washer
4	D2AA0009	Nozzle locknut
	D1AA0004	3.2mm Airjet
	D1AA0005	4.0mm Airjet
5	D1AA0006	4.8mm Airjet
	D1AA0007	6.4mm Airjet
	D1AA0012	3.2mm Tungsten sleeved airjet
	D1AA0011	4.0mm Tungsten sleeved airjet
	D1AA0008	4.8mm Tungsten sleeved airjet
6	P1TH0189	Thumbscrew
7	P4CG0009	Media entry 16mm Hose
8	P4CG0001	¼” BSP Hosetail x 10mm

Blast nozzle

Inspect the blast nozzle for wear. When the bore size has increased by 20% (6mm bore @ 20% = 7.2mm) then the nozzle needs to be replaced. The effective bore of a nozzle can be quickly checked by use of a twist drill bit.

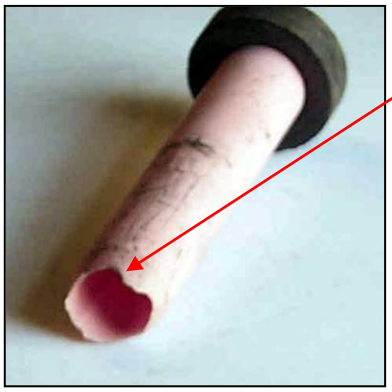
The nozzle should be withdrawn from the gun body after 8 hours blasting and rotated by 5° to avoid uneven wear.

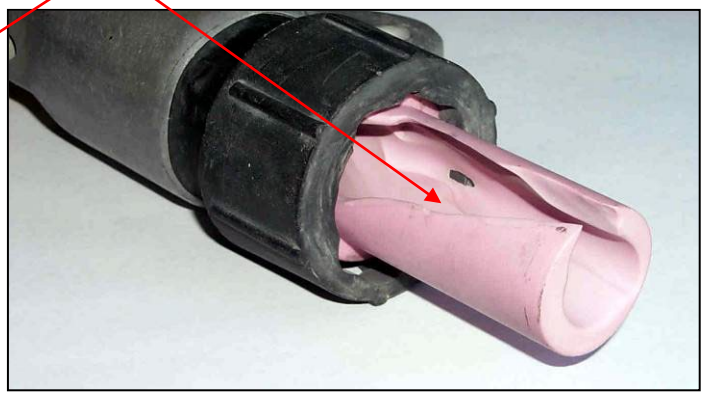
CAUTION: CUSTOMER WEAR LIMITS ON SHOT PEENING APPLICATIONS MAY NEED TO BE 10% WEAR LIMIT MAXIMUM





The pictures below show extremely worn nozzles. Your nozzle should not be allowed to reach this state as it will decrease its blasting effectiveness and may also damage the blast gun.





Airjet

The airjet should be withdrawn from the gun body after 8 hours blasting to establish the wear pattern on its outer surface. When wear has become noticeable, the fitting should be rotated to the next unworn section. When wear has occurred around the whole circumference, the airjet should be replaced.



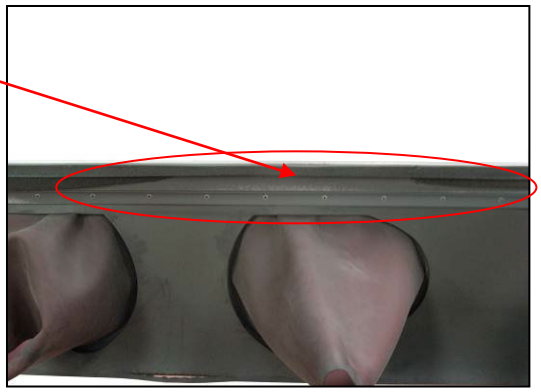
Media entry

The media entry connection should be withdrawn from the gun body and inspected for wear on a regular basis.

7.1.6 Door seals

If the door gasket strips are worn then:

- this allows noise to escape from the cabinet more easily
- media may be able to exit the cabinet



Item code	Description
R5SL0024	16mm wide x 5m roll
R5SL0027	25mm wide x 5m roll
R5SL0026	38mm wide x 5m roll

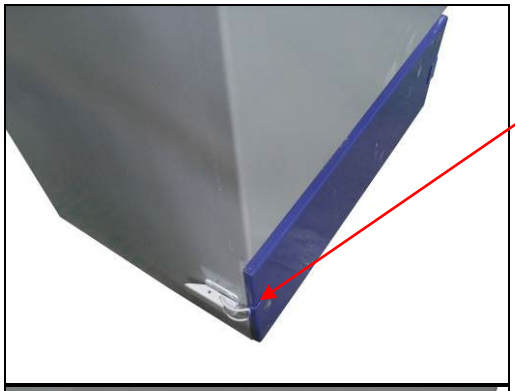
7.1.7 Overspray

Care should be taken not to wear away the insides of the cabinet. If certain areas are getting increased wear then Guyson International can supply rubber curtains and linings

7.1.8 Empty dust collector bin

The dust collector bins should be emptied twice daily. They should also be checked for good media. If this is present then the dust collector/cyclone settings will need adjusting.

CARE SHOULD BE TAKEN WHEN HANDLING THE WASTE BINS AS THEY MAY BE HEAVY



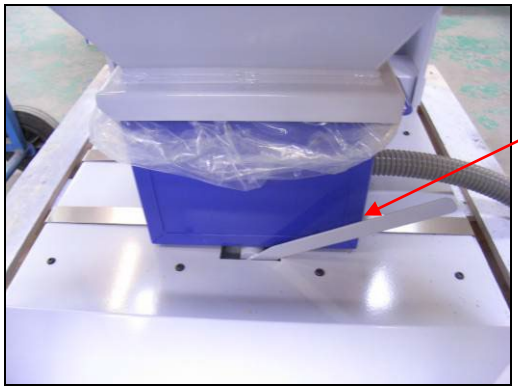
41 Dust collector

This bin is held in by clips on both sides of the dust collector. Release these to remove the bin from the dust collector.



C400 Dust collector

This bin is compressed against the filter chamber of the dust collector by a lifter cam. To lower the bin; use the handle on the side. Then slide the bin out.



C800 Dust collector

This bin is compressed against the filter chamber of the dust collector by a lifter cam. To lower the bin; use the lever on the side. Then slide the bin out.

It is essential that a plastic bin liner (Y1CA0047) is used.

If a bin liner is not used then dust will be drawn up into the clean side of the dust collector.

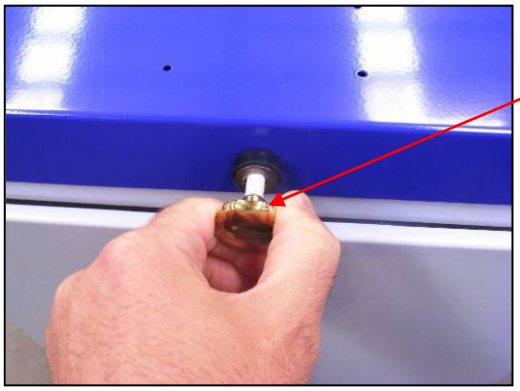
7.1.9 Topping up media

Top up the media levels as required as media is consumed. This can be roughly gauged from the waste bin on the dust collector. Regular additions of small quantities of media maintain an even particle size and assist in producing consistent results.

7.1.10 Filter cleaning

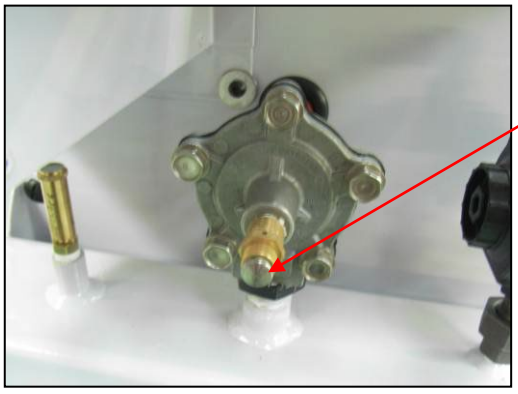
Filter cleaning must be carried out on a regular basis. Initially this should be carried out every four hours, until a working pattern is reached. The table below shows the different cleaning mechanisms on the various dust collector models:

THE MOTOR SHOULD BE SWITCHED OFF WHEN USING THE CLEANING MECHANISM ON THE 41, C400 AND C600 DUST COLLECTORS



41 Dust collector

The filter cleaning system is manual. Pull and push the knob back and forth to shake the filter clean.



C400 and C600 Dust collector

The filter cleaning system is manual. Push the button to release the compressed air from the pressure vessel to knock the dust from the filter.



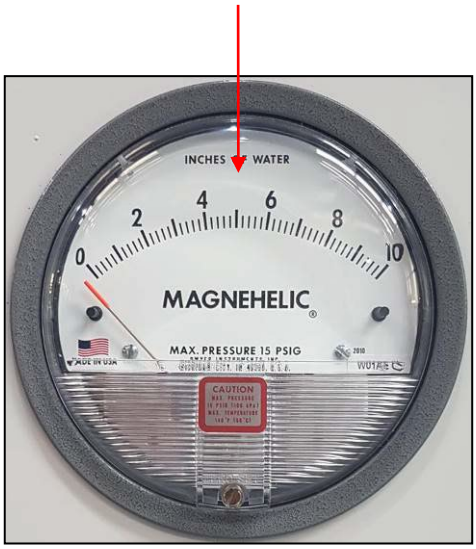
C800 Dust collector

This has an automatic filter cleaning system. A controller automatically releases compressed air from the pressure vessel to knock the dust from the filters.

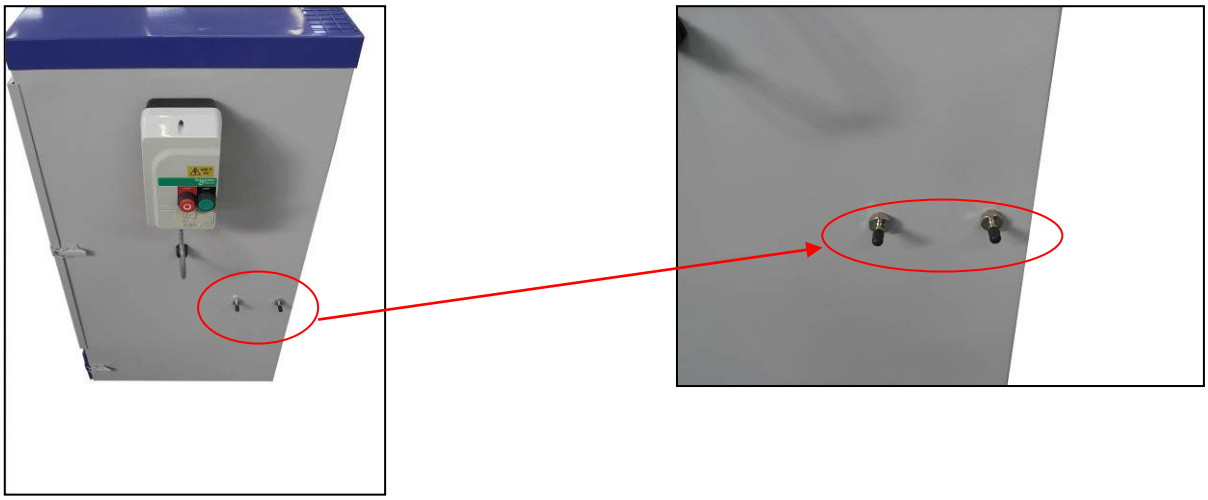
The release interval is set to 30 secs in the factory.

See appendix for controller manual.

C400, C600 and C800 dust collectors are fitted as standard with differential pressure gauges. These measure the differential pressure across the main filter(s). When the pressure difference reaches 5" Water Gauge then a filter change will be necessary. The HEPA 14 filter (where fitted) has a separate gauge. When this reaches 2.5" Water Gauge then a filter change will become necessary. See sections 7.1.10.4 and 7.1.10.5 for details.

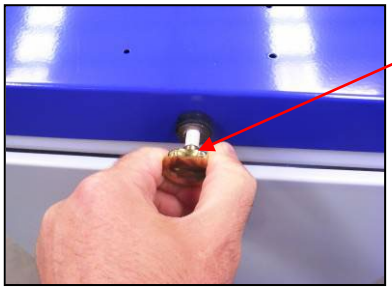


The 41 dust collector does not come fitted with differential pressure gauges as standard. Hosetails are fitted as standard allowing an aftermarket differential pressure gauge (**E1AA1836**) to be used.



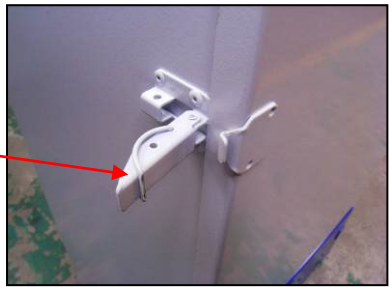
On a 41 dust collector, after approximately five hundred hours use the dust will have worked its way into the body of the filters and cleaning with the cleaning mechanism will no longer clean sufficiently to allow enough air through. This will be evident by poor visibility in the cabinet and/or failure to extract the dust even with the dust collector damper fully open. A filter change will be necessary at this point.

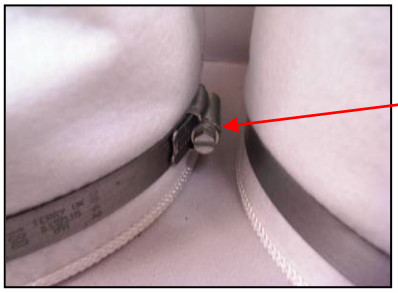
7.1.10.1 Replacing the filter sleeves on a 41



Shake filters and allow dust to settle.

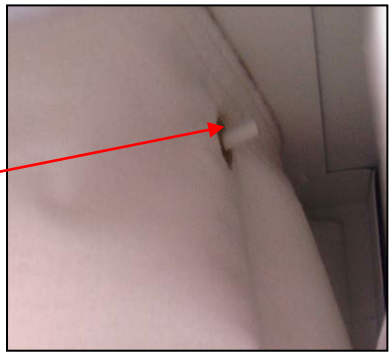
Remove front panel by unhooking latches.





Remove large worm-drive clip from base of each filter sleeve.

Unhook top of each filter from retainer clip.





Carefully remove filter from dust collector.

Replace with new filter sleeve **(Y1CA0000)** by hooking top of filter onto retainer clip first then pass worm drive clip over the base of the sleeve and secure to base of dust collector. Re-fit front cover.



7.1.10.2 Replacing the filter cartridge on a C400

- Press the filter cleaning push button and turn off the air supply.



Turn anti-clockwise to unlock

Remove front cover





For filter removal turn lifter cam 180° to the left

The cam is now unlocked and the filter cartridge can be removed





Replace with new filter cartridge **(Y1CA0049)**

Turn lifter cam 180° to the right to lock cartridge

Replace front cover



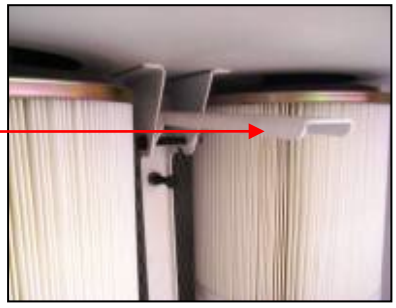
ENSURE THE FILTER IS CORRECTLY POSITIONED SO THAT DUST CANNOT BYPASS IT TO THE EXHAUST

7.1.10.3 Replacing the filter cartridges on a C800



Unlock and open door

Lift filter handle to its unlocked position

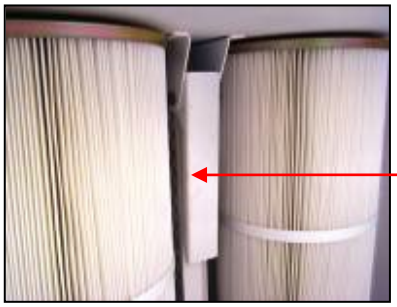




Remove filter cartridges and clean inside the dust collector

Fit new filter cartridge (**Y1CA0049**) ensuring cartridge sits to the rear of the bottom plate





Ensure filters are sitting evenly on the top plate

Lower lifting handle to its locked position

Close door and lock



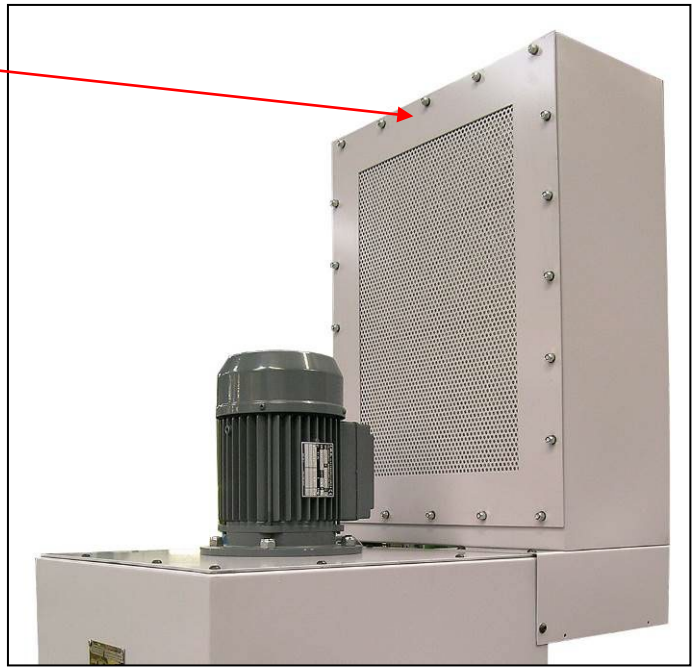


ENSURE THE FILTERS ARE CORRECTLY POSITIONED SO THAT DUST CANNOT BYPASS THEM TO THE EXHAUST

7.1.10.4 Replacing the filter cartridge on a HEPA 14

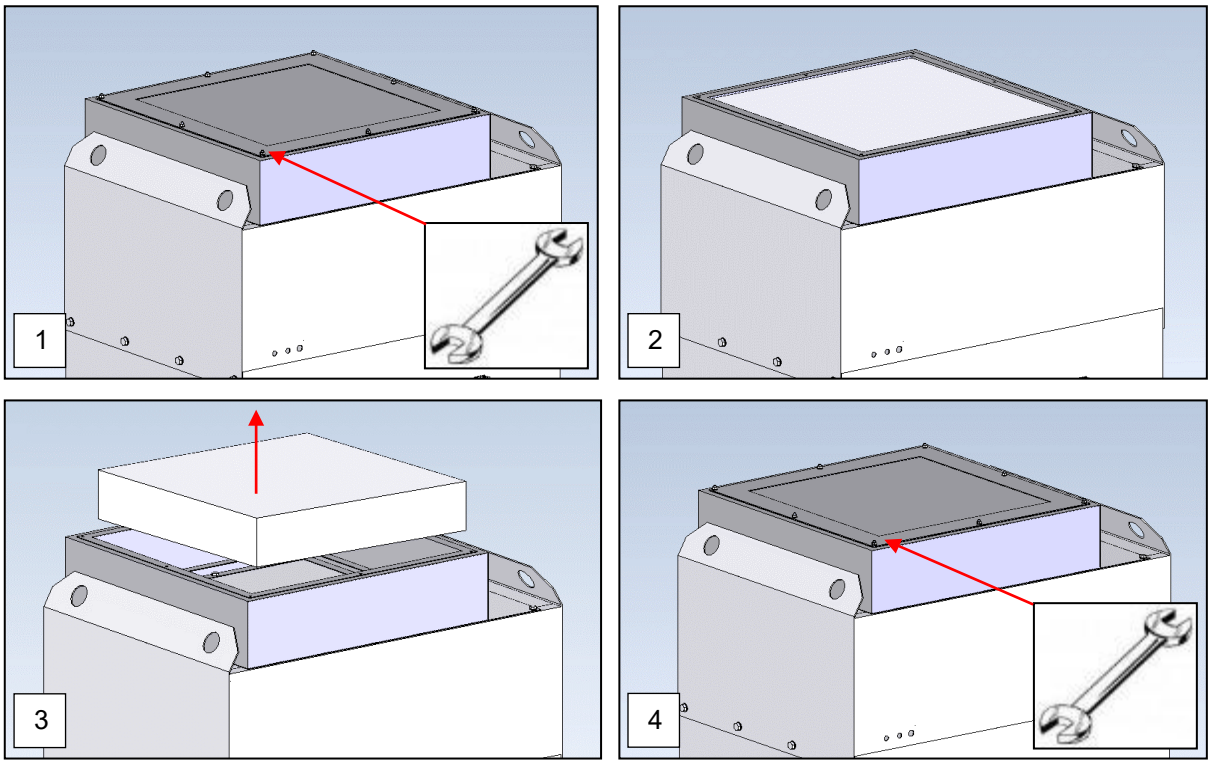
A secondary HEPA 14 filter has been added to ensure maximum air filtration, minimising the amount of air born particles exhausted by the system. The health of this filter is checked by using the magnehelic manometer gauge fitted to the side of the machine. This measures the differential pressure across the main filters. When the pressure difference reaches 2.5” Water Gauge then a filter change will be necessary.

- Undo the M6 Hex Screws from the filter lid and remove.
- Carefully lift the HEPA 14 panel filter from the frame and remove.
- Replace with a new HEPA 14 filter **(Y1CA0063)**, ensuring that the air flow arrow on the filter match those on the inner frame.
- Replace the filter lid and tighten the M6 Hex screws.



7.1.10.5 Replacing the HEPA14 Filter Cartridge, C800 Dust Collector

A secondary HEPA filter has been added to ensure maximum air filtration, minimising the amount of air born particles exhausted by the system. The health of this filter is checked by using the magnehelic manometer gauge fitted to the side of the machine. This measures the differential pressure across the main filters. When the pressure difference reaches 2.5” Water Gauge then a filter change will be necessary.



1. Undo the M6 Hex Screws from the filter lid and remove.

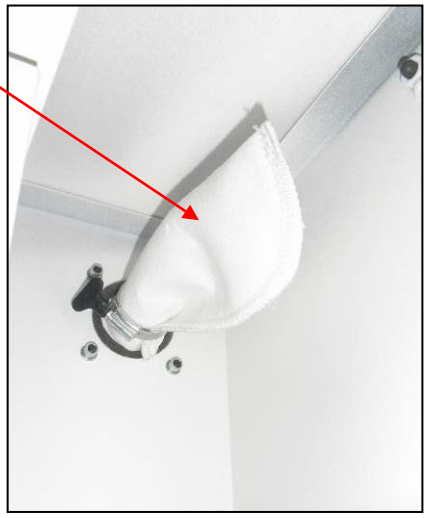
2. Replace with a new HEPA filter **(Y1CA0064)** ensuring that the air flow arrow on the filter match those on the inner frame.

3. Carefully lift the HEPA panel filter from the frame and remove.

4. Replace the filter lid and tighten the M6 Hex screws.

7.1.10.6 Bin Balance Breather Sock

When changing the filter cartridges on a dust collector fitted with a bin balance pipe, check that the filter sock is in place and not full of media. The filter sock is attached to the end of the bin balance pipe and is there to prevent dust from being drawn into the clean side of the dust collector.



If a plastic bin liner has not been used then dust will be drawn up the bin balance pipe into the sock.

It is essential therefore that a plastic bin liner is always used.

Check that the sock is firmly attached and not full of dust. The sock prevents dust from contaminating the clean side, as dust will be drawn out of the dust collector bin if a plastic bin liner is not used.

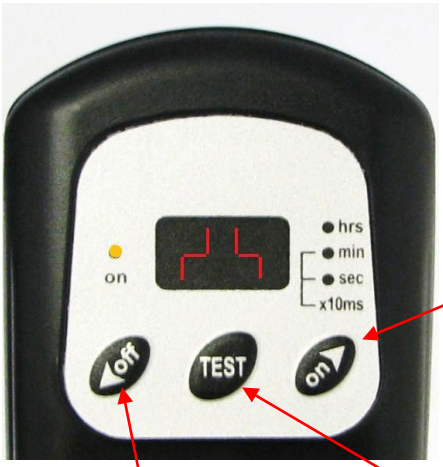
7.1.10.7 Autopulse, C400

Filter cleaning must be carried out on a regular basis. Initially this should be carried out every four hours. This can be done by setting the DLUX pulse timer correctly. The pulse timer has two settings, the first being how long you want the machine to be pulsed for (discharge time), the other being the frequency in which you want the machine to be pulsed (interval time). The ON and OFF time on the DLUX timer can be programmed anywhere between 10 milliseconds and 99 hours.

To set these, follow the below instructions:

ON = Discharge Time

OFF = Interval Time



To change the ON time (discharge time), simply press the right 'on/arrow up' button and 'on' will appear briefly on the display. You can now press the 'off/arrow down' button to decrease the time or the right 'on/arrow up' button to increase the time. Once the desired ON time is set, simply don't press any buttons and the display will flash, indicating that the new time is being saved. Once saved, the unit will operate with the new time setting.

To change the OFF time press the left 'off/arrow down' button and 'off' will appear briefly on the display. You can now press the left 'off/down arrow' for decreasing the time or the right 'on/arrow up' for increasing the time. Once the desired OFF time is set, simply don't press any buttons and the display will flash, indicating that the new time is being saved. Once the new time is saved, the unit will start operating with the new settings.

The TEST button allows you to check the valve function.

Replacing the AutoPulse Timer:

NOTE: Before any installation or replacement occurs, depressurise the system.

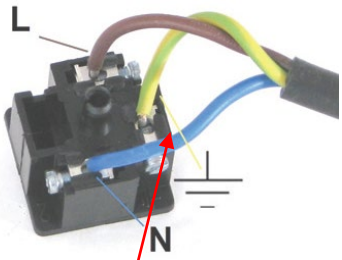
Having removed the old timer, follow the below instructions to install the new one.



Place the flat gasket over the coil connection pins.



Mount the timer on to the coil as shown above.



Connect your power cable to the connector as shown above.

Place the connector gasket on the connector, plug the connector on the timer as shown below and tighten the screw



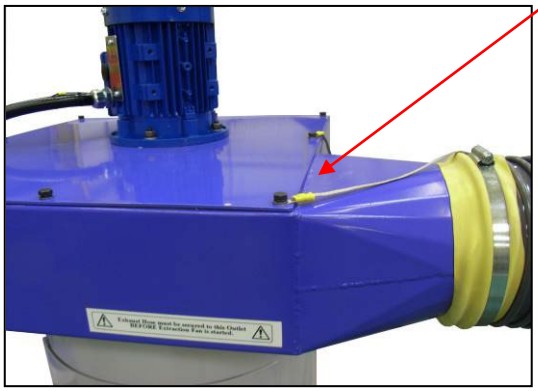
You are now ready to start using the DLUX timer again. Restore normal system pressure and proceed to use the machine.

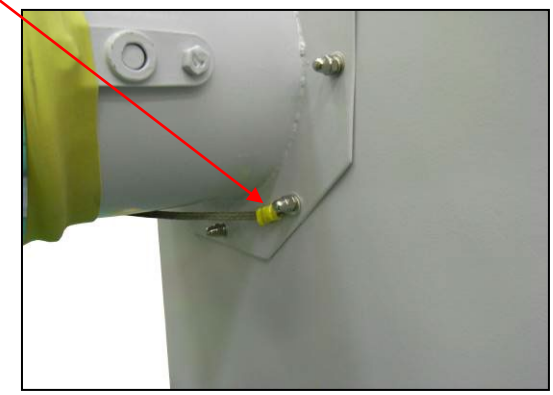
7.1.11 Compressed air filter

The compressed air filter is self draining. If the media is dry and not clumping together then the compressed air filter is working correctly. If the media is clumping together then there is a problem with the compressed air filter or your air supply. Guyson International should be contacted for more information.

7.1.12 Earthing bonds

Check that the earthing wires between the separate units of the system are secure.





7.2 Weekly

- Inspect hopper elbow and wear plates for wear (see section 7.2.1)
- Inspect cyclone interior and wear plates for wear (see section 7.2.2)
- Inspect sleeves/gauntlets for wear (see section 7.2.3)

7.2.1 Hopper elbow

Hopper elbows will either be made of PU or Mild Steel. If they are Mild Steel they will either have a PU or Mild Steel Wear plate fitted depending on the specification ordered. The wear plate should be inspected and replaced when worn thin. If the elbow is made of PU and has worn through then a new hopper elbow will be required.

7.2.1.1 Replacing the wear plate

- Turn dust collector on
- Turn cyclone on
- Run machine for 10 mins to clear pipes
- Turn cyclone off
- Turn dust collector off
- Detach hopper elbow
- Replace wear plate
- Reattach hopper elbow

Item code	Description
E1AA0097	90° Ø100 PU Hopper Elbow
E1AA3176	Wear Plate Side Loader Hopper Elbow

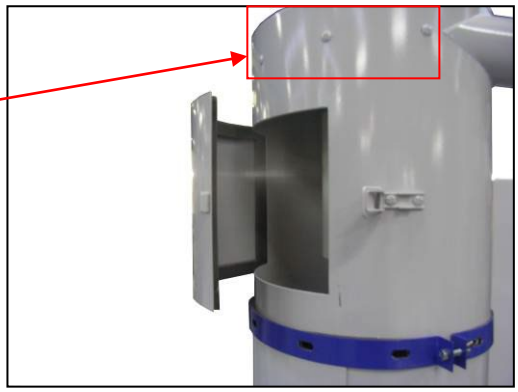
If your elbow is not one of those listed in the table above then please contact Guyson International for more information.

7.2.2 Cyclone

Cyclones will either have a PU lining or a wear plate fitted depending on the specification ordered. The wear plate should be inspected and replaced when worn thin. The PU lining cannot be relined and a new cyclone body will be required when it has been worn away.

7.2.2.1 Replacing the wear plate

- Open the top door
- Remove the 3 bolts while holding on to the wear plate to stop it falling off
- Replace wear plate and secure it in position with the 3 bolts



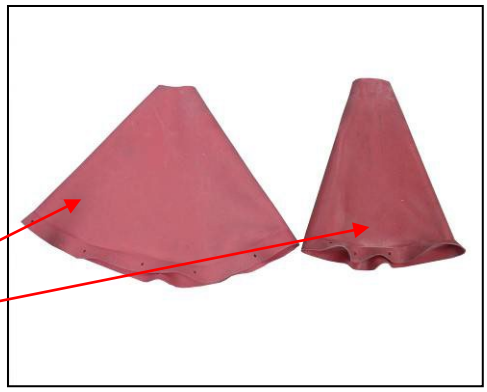
Item code	Description
E1AA2454	75/16 Body wear plate
E1AA2711	CY600/12 Body wear plate
E1AA2713	CY600/12 Entry wear plate
E1AA1611	CY600/16 Body wear plate
E1AA1613	CY600/16 Entry wear plate

7.2.3 Sleeves/Gauntlets

If the sleeves or gauntlets have holes in them or have split then:

- this allows noise to escape the cabinet more easily
- media may be able to exit the cabinet

Item code	Description
Y1AA0024	Armhole sleeve large
Y1AA0011	Armhole sleeve 3 corner
Y1AA0017	Gauntlets



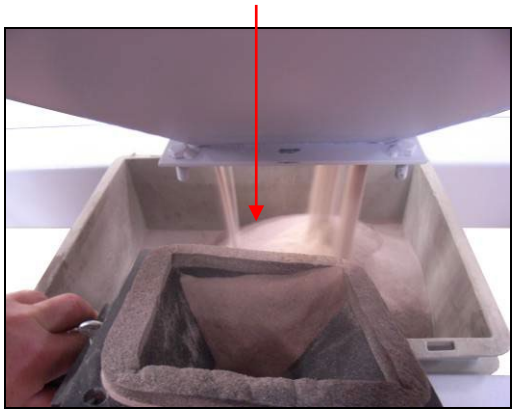
7.3 Monthly

- Drain old media and discard (see section 7.3.1) and refill system with new media (see section 4.2)

7.3.1 Emptying media

To empty machine:

- Turn on the dust collector
- Turn on the cyclone
- Use an air line to clean inside cabinet
- Once clean leave dust extraction on for 10 minutes to clear pipes of residual media
- Switch off cyclone
- Switch off dust collector
- When motor has stopped remove pick-up tube from mixer box
- Place container under mixer box, unclip and remove mixer box and collect media



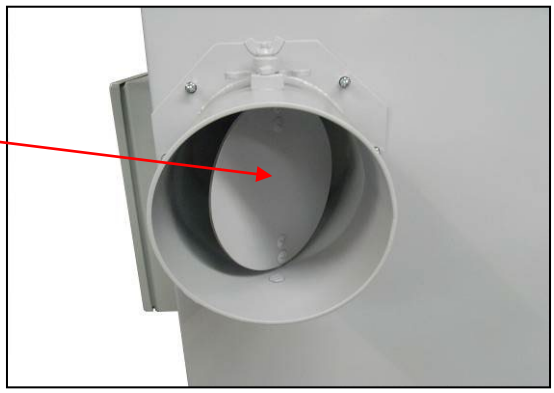
TAKE CARE TO AVOID TRAPPING FINGERS; THE MIXER BOX COULD BE VERY HEAVY

7.4 Quarterly

- Inspect blast gates for internal wear (see section 7.4.1)

7.4.1 Blast gates

Inspect for excessive wear. If this wear is so excessive that you cannot set the blast gate correctly then it will need replacing. Contact Guyson International for more information.



8. FAQ's

Static Electricity

Cabinet, Media and Component

Un-insulated Earth braid wrapped round the media hose and/or connected to the component and then earthed to the Cabinet and extraction equipment provides a drain path.

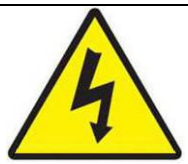
Static Build-Up on Extraction Hose

Un-insulated Earth braid wrapped round the extraction hose and earthed to the Cabinet and extraction equipment provides a drain path.

If you experience any problems with static electricity please contact our Service Department



FAULT-FINDING CHECKS SHOULD ONLY BE CARRIED OUT BY A FULLY QUALIFIED ENGINEER



IF REQUIRED THE BLAST CABINET AND ALL ITS ANCILLARY EQUIPMENT SHOULD BE FULLY ISOLATED BEFORE PERFORMING ANY FAULT FINDING CHECKS



IF REQUIRED ENSURE ALL AIR SUPPLIES ARE TURNED OFF AND THE SYSTEM IS FULLY EXHAUSTED BEFORE PERFORMING ANY MAINTENANCE

Questions for Suction-feed machines		
Fault	**No air from blast gun when in cycle**	**Action**
Possible cause	Bore of air-jet in blast gun blocked	Unblock and clean
	Nozzle blocked	Unblock and clean
Fault	**Moisture coming from blast gun nozzle**	**Action**
Possible cause	Fault with customer air supply	Customer to check and correct

Fault	**Air pressure from blast nozzle drops**	**Action**
Possible cause	Compressor fault/not to specification	Customer to check air supply and correct
	Incorrect mains supply pipe diameter	Refer to Data sheets, change pipe
	Worn air-jets or nozzle	Replace
	Faulty air valve	Replace
Fault	**No media flow from blast gun**	**Action**
Possible cause	Pick-up-tube incorrectly set in mixer box	Refer to Setting Media Pick-up-tube
	Damp media causing poor flow to mixer box	Replace media and check air supply and compressed air filter
	No suction at pick-up-tube	Check for hose blockage/ gun wear
	Blocked media supply hose to blast gun	Unblock
	No media in hopper	Refill
	Blocked nozzle	Unblock
Fault	**Erratic media flow from gun nozzle**	**Action**
Possible cause	Incorrect pick-up-tube setting	Refer to Setting Media Pick-up-tube
	Incorrect air-pressure setting	Refer to Set-up information
	Worn pick-up-tube/air-jet/gun nozzle	Replace as necessary
	Hole in gun body	Replace as necessary
	Air supply causing moisture in media	Customer to check air supply
Questions for machines with Cyclones / Dust collectors		
Fault	**Incorrect media separation**	**Action**
Possible cause	Cyclone vortex incorrectly set	Refer to Cyclone set-up
	Breather filters blocked	Replace
	Cyclone door seals worn/bin seals faulty	Replace as necessary
Fault	**Poor visibility/dust emissions**	**Action**
Possible cause	Lack of negative pressure in extraction system	Check dust collector filters and damper settings
	Damaged hoses on dust collector	Replace
	Breather filters blocked	Replace
	Poor media quality	Replace all media
If problems are ongoing please conduct a full maintenance service of the equipment or contact Customer Services to book a Guyson Service Engineer visit		

9. Spares and servicing

A maintenance and service agreement for this system is available as an optional extra, for further details please refer to contact details below.

When ordering spares or accessories please quote the following information:-

Customer Account Number
Machine Serial Number
Product code of item required

If an item needs replacing that is not listed in the maintenance section and cannot be identified from the assembly drawings in the appendix of this manual then please contact Guyson International on the details below for further help.

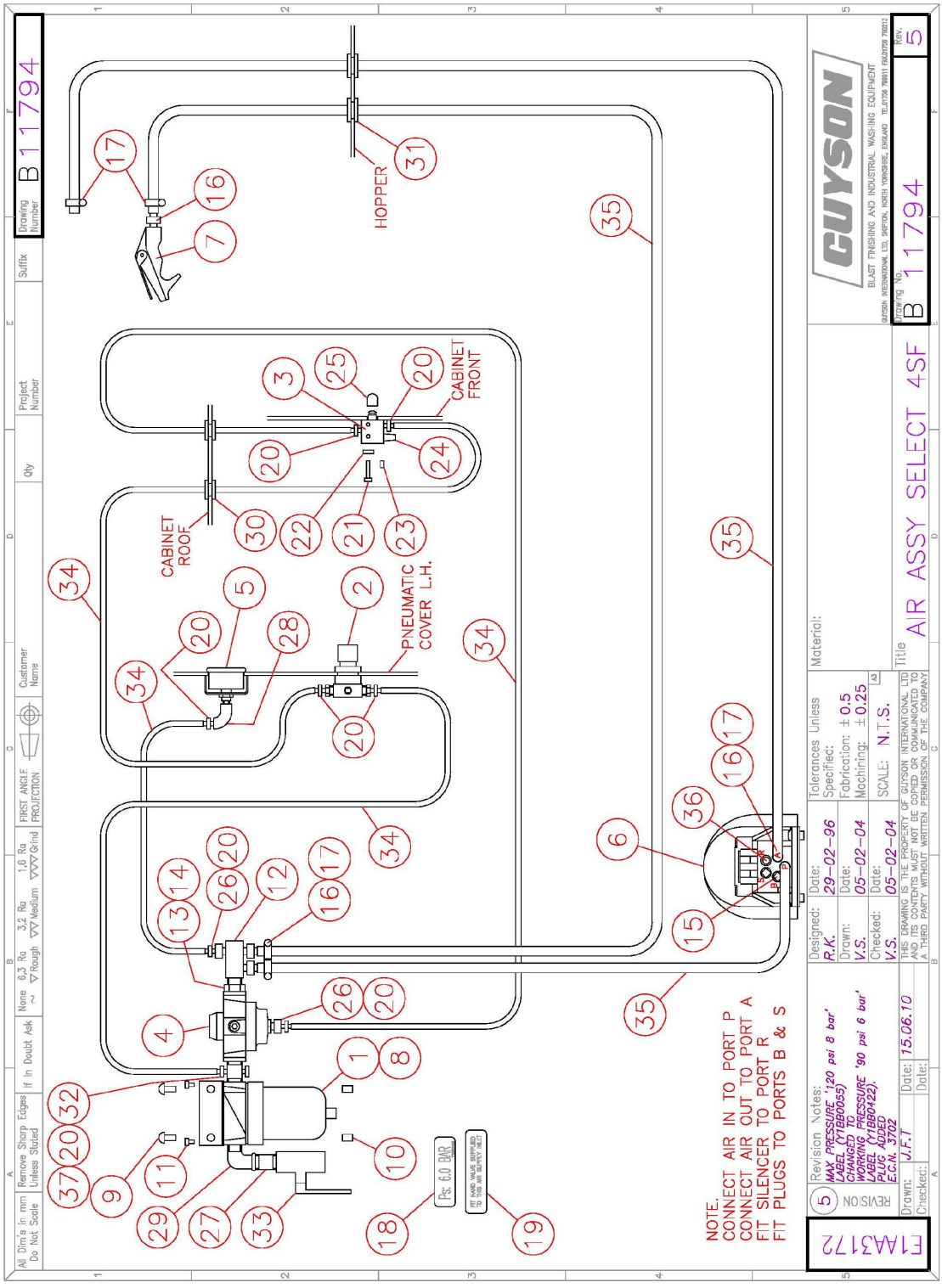
Customer Service Department
Guyson International Ltd
Snaygill Industrial Estate
Keighley Road
Skipton
North Yorkshire
BD23 2QR

Tel: 01756-799911
E-mail: info@guyson.co.uk
Website: www.guyson.co.uk

10. Appendices

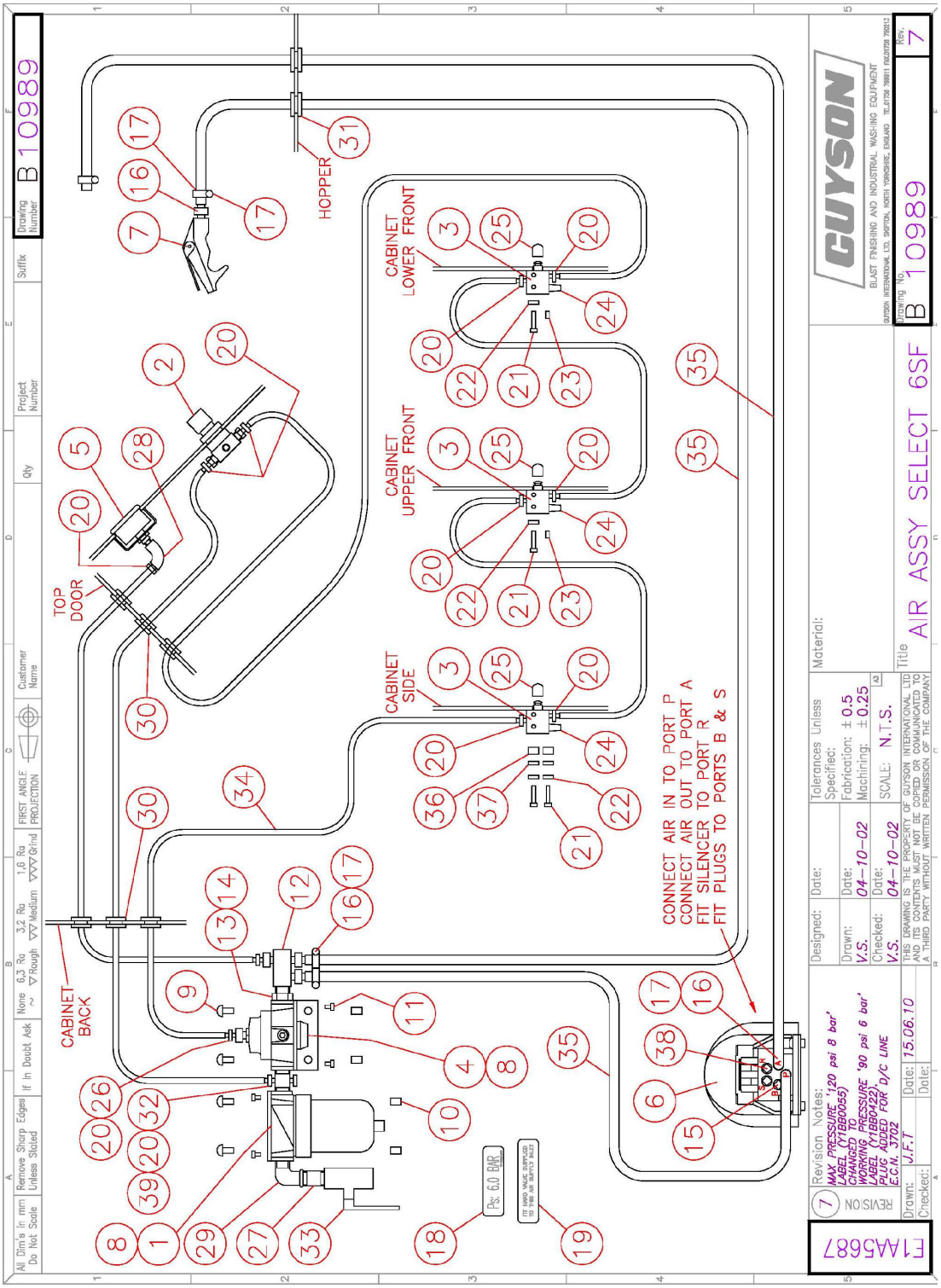
10.1 Mechanical drawings and parts lists

10.1.1 Air assembly for Euroblast 4 SF Select



Pos.	Item number	Description
1	P4AP0027	Filter 1/2” BSP Autodrain
2	P4AP0030	Regulator 1/8” BSP Pilot Reg
3	P4VL0033	Plunger Valve 3/2” 1/8” NPT
4	P4AP0028	Regulator 1/2” BSP P/Operated
5	P4SD0000	Press Gauge Panel 0-10 Bar
6	P4VL0097	Foot/spg Valve 3/2 ¼ BSP
7	P4VL0072	Valve Trigger Gun (2006ga44)
8	E1AA0032	Mounting Bracket
9	P1TH0184	Hex.Skt. Button Screw M8 x 16
10	P1TH0228	Nutsert M8
11	P1TH0093	Hex.Skt.Cap Screw M5 x 10
12	D1MC0000	Manifold A3201 (3 Outlets)
13	P4MN0179	Locknut 1/2” BSP (Manifold)
14	P1WS0036	Washer Dowty 1/2"
15	P4MN0134	Plug Solid ¼ BSP
16	P4CG0001	Hosetail 1/4" BSP x 10mm Hose
17	P1HC0000	Hose Clip 10mm
18	Y1BB0422	Label, "Ps: 6.0 Bar"
19	Y1BB0056	Label "Fit Hand Valve ...."
20	P4TF0132	Hosetail Barb 1/8" - 1/8" NPT
21	P1TH0025	Hex. Set Screw M5 x 25
22	P1WS0012	Spring Washer M5
23	E1AA0031	Valve Locating Pin
24	P4SL0002	Silencer 1/8” NPT
25	P2GT0013	PVC Black End Cap
26	P4MN0151	Bush Red 1/4” x 1/8” BSP
27	P4MN0089	Nipple Barrel 1/2” BSP
28	P4MN0000	Elbow Fem. 1/8” BSP
29	P4MN0019	Elbow M/F 1/2” BSP
30	P2GT0009	Grommet 5.6 x 8mm
31	P2GT0000	Grommet 10mm PVC Hose
32	E1AA0273	Nipple ½” Mod
33	P4VL0114	Ball Valve 1/2" BSP Venting
34	R6TB0046	Tube 1/8” ID Blue PU
35	R6TB0003	Hose 10mm x 16 OD Braided PVC
36	P4SL0004	Silencer ¼ BSP
37	P4MN0133	Plug 1/8 BSP

10.1.2 Air assembly for Euroblast 6 SF Select



Pos.	Item number	Description
1	P4AP0027	Filter 1/2” BSP Autodrain
2	P4AP0030	Regulator 1/8” BSP Pilot Reg
3	P4VL0033	Plunger Valve 3/2” 1/8” NPT
4	P4AP0028	Regulator 1/2” BSP P/Operated
5	P4SD0000	Press Gauge Panel 0-10 Bar
6	P4VL0097	Foot/spg Valve 3/2 ¼ BSP
7	P4VL0072	Valve Trigger Gun (2006ga44)
8	E1AA0032	Mounting Bracket
9	P1TH0184	Hex.Skt. Button Screw M8 x 16
10	P1TH0228	Nutsert M8
11	P1TH0093	Hex.Skt.Cap Screw M5 x 10
12	D1MC0000	Manifold A3201 (3 Outlets)
13	P4MN0179	Locknut 1/2” BSP (Manifold)
14	P1WS0036	Washer Dowty 1/2"
15	P4MN0134	Plug Solid ¼ BSP
16	P4CG0001	Hosetail 1/4" BSP x 10mm Hose
17	P1HC0000	Hose Clip 10mm
18	Y1BB0422	Label, "Ps: 6.0 Bar"
19	Y1BB0056	Label "Fit Hand Valve ...."
20	P4TF0132	Hosetail Barb 1/8" - 1/8" NPT
21	P1TH0025	Hex. Set Screw M5 x 25
22	P1WS0012	Spring Washer M5
23	E1AA0031	Valve Locating Pin
24	P4SL0002	Silencer 1/8” NPT
25	P2GT0013	PVC Black End Cap
26	P4MN0151	Bush Red 1/4” x 1/8” BSP
27	P4MN0089	Nipple Barrel 1/2” BSP
28	P4MN0000	Elbow Fem. 1/8” BSP
29	P4MN0019	Elbow M/F 1/2” BSP
30	P2GT0009	Grommet 5.6 x 8mm
31	P2GT0000	Grommet 10mm PVC Hose
32	E1AA0273	Nipple ½” Mod
33	P4VL0114	Ball Valve 1/2" BSP Venting
34	R6TB0046	Tube 1/8" Id Blue PU
35	R6TB0003	Hose 10mm x 16 OD Braided PVC
36	P1TH0213	Hex. Nut M5 Nyloc
37	P1WS0002	Plain Washer M5
38	P4SL0004	Silencer ¼ BSP
39	P4MN0133	Plug 1/8 BSP

10.2 Electrical schematics and parts lists

The following references are used on the electrical drawing package.
Where numbering is added, this is to distinguish between like components.
Where a component consists of several units performing different functions, separate part numbers are given.

Reference	Description	Example
A	Assemblies/sub-assemblies	Speed controller, PLC
B	Transducers	Pressure, Vacuum, Reed, Proximity and Limit switches
E	Misc. equipment	Machine lighting
F	Protection devices	Fuses, Overloads, RCDs
H	Signalling devices	Visual and Audio indicators
KA	Relays	Control, Signal, Interface relays
KM	Main contactors	Motor contactors
KT	Timers	Process, Interface, Delay timers
M	Motors	All electrical motors
P	Test devices, meters	Hourmeter, Counter, Ammeter, Voltmeter
Q	Mechanical connecting devices for power circuits	Isolators, Circuit breakers
R	Resistors	Potentiometers, Resistors
S	Mechanical connecting devices for control circuits	Selector switches, Pushbuttons
T	Transformers	Voltage: Lighting, Controls, Power, Sensors
U	Converters (electrical)	Rectifiers, Encoders, Filters
X	Terminal connectors	Plugs/Sockets, Terminals
Y	Electrically actuated devices	Solenoid valves, Motor brakes, Door locks

Note:

These reference letters should be distinguished from lower case letters used to identify terminal connections

10.2.1 Electrical installation of dust collectors and cyclones

Guyson Dust Collectors and Motorised Cyclones (whether for single or three phase supplies), when supplied to complement Blast Cabinets, are fitted with starters. These should be wired from the customer's switched fused isolator.

The starter needs to be wired up by a suitably qualified electrician; electrical schematics for the single and three phase systems are attached.

The supply required can be discovered from reading this chart:-

Model	Phase	Voltage	Cycle (Hz)	Power (kW)	Full Load Current (A)*
21/41	1	230	50	0.37	3
C400	1	230	50	0.75	5
C600	1	230	50	0.75	5
C800	1	230	50	1.5	6.8
75/16	1	230	50	0.55	4.7
CY600	1	230	50	1.5	6.8
41	3	400	50	0.37	1.4
C400	3	400	50	0.75	1.8
C600	3	400	50	0.75	1.8
C800	3	400	50	1.5	3.6
75/16	3	400	50	0.55	1.5
CY600	3	400	50	1.5	3.6
CY900	3	400	50	1.5	3.6

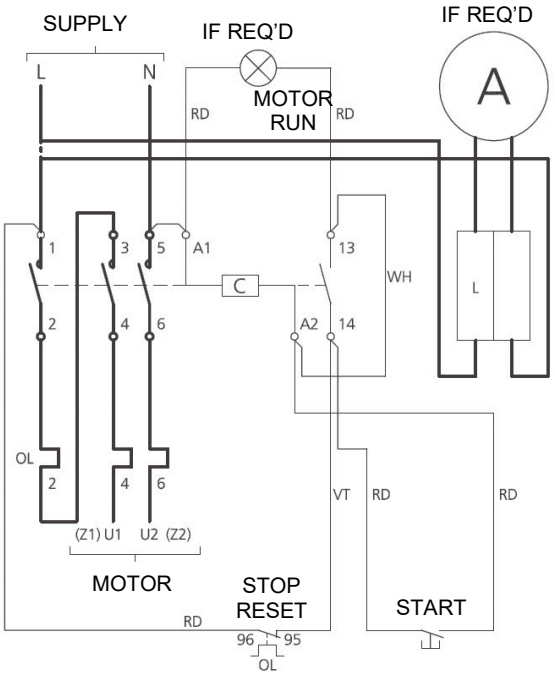
* Fuses should be sized to comply with full load current. When sizing fuses, smallest fuse rating should be used to suit motor and starting characteristics.

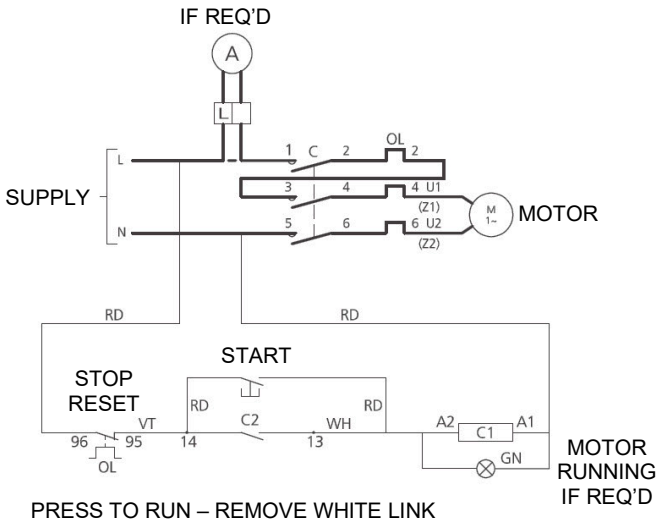
On both single and three phase motors it is essential to check that the direction of rotation matches the arrow attached to the motor housing. This is best done visually. If the motor is rotating in the wrong direction, it will be necessary to switch off the machine, isolate the electric supply and reverse the position of L1 and L2 on single phase machines or any TWO of the feed wires (L1, L2 or L3) on three phase machines.



If a problem occurs with installation then Guyson can be contacted on the details below to provide support:

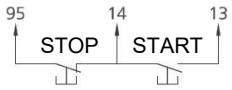
SINGLE PHASE



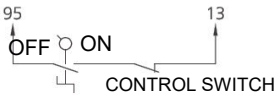


PRESS TO RUN – REMOVE WHITE LINK
SEPARATE NO-VOLT SUPPLY – REMOVE LINK
BETWEEN 1 ON C & 96 ON OL AND 5 ON C & A1.
CONNECT SEPARATE SUPPLY TO 96 ON OL & A1

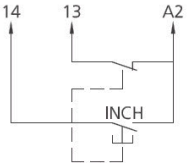
REMOTE START-STOP BUTTONS
REMOVE VIOLET LINK



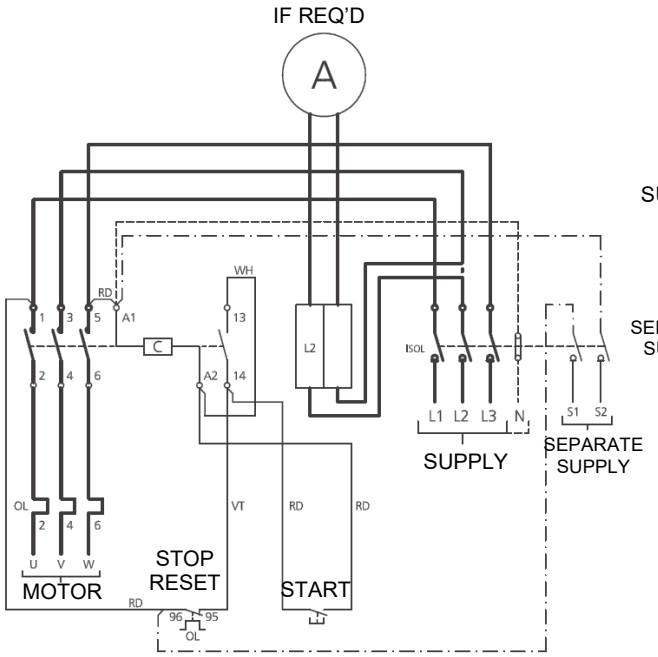
REMOTE CONTROL SWITCH
REMOVE VIOLET LINK

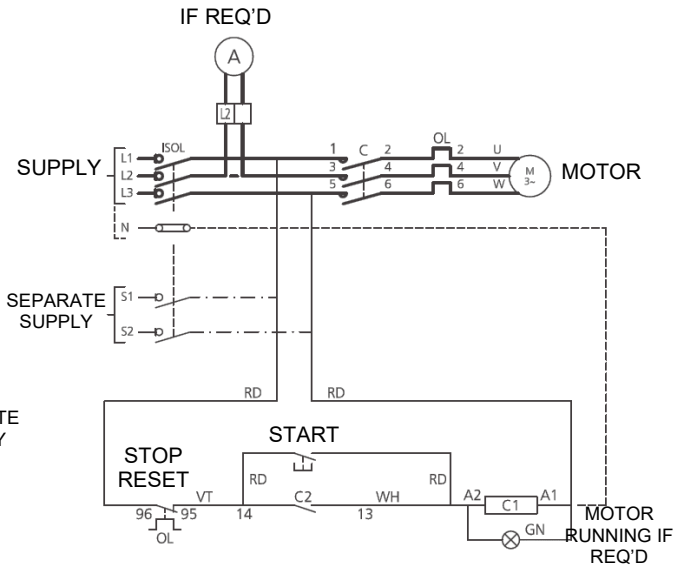


REMOTE INCH BUTTON
REMOVE WHITE LINK

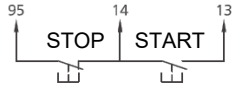


3 PHASE

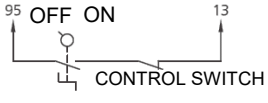




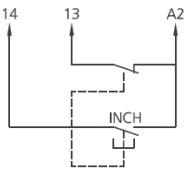
REMOTE START-STOP
BUTTONS
REMOVE VIOLET LINK



REMOTE CONTROL
SWITCH
REMOVE VIOLET LINK



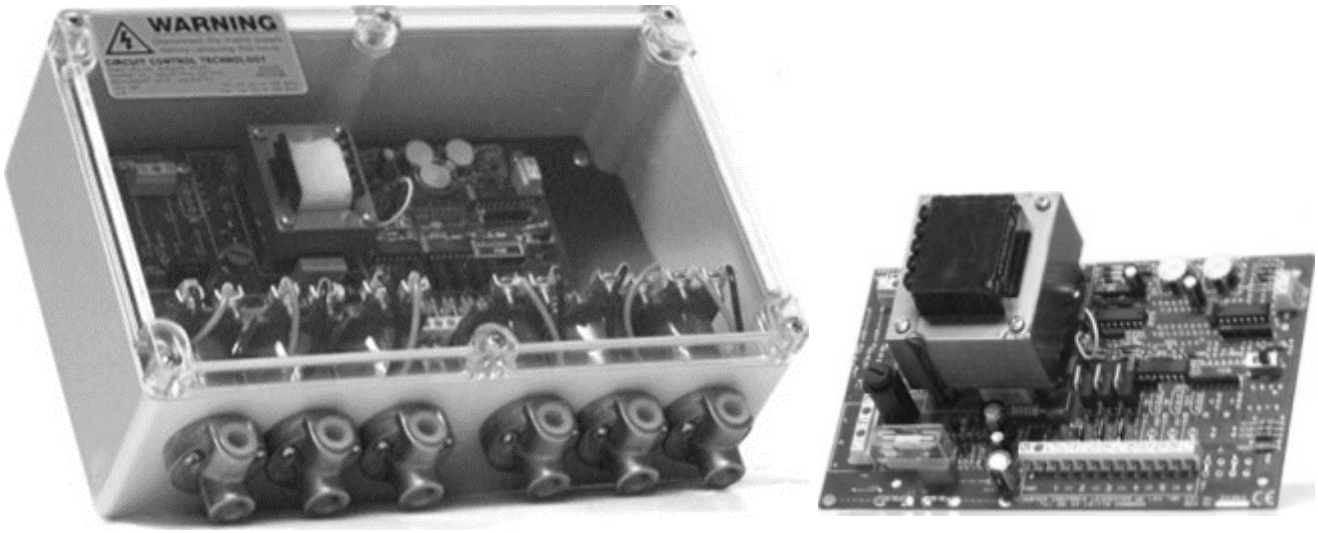
REMOTE INCH BUTTON
REMOVE WHITE LINK



FOR LINE & NEUTRAL CONTROL, REMOVE
LINK BETWEEN A1 & 5 ON C AND WIRE AS
SHOWN DOTTED
PRESS TO RUN – REMOVE WHITE LINK
SEPARATE NO-VOLT SUPPLY – CONNECT AS
SHOWN

10.3 Proprietary manuals

Product Data Sheet ZX393 1-6 Way Sequence Controller



F E A T U R E S

- *The **ZX393 Sequence Controller pcb** is the pulsing heart of our range of tried and tested Reverse Jet Stations. Aimed primarily at Dust Extraction and Air Flow applications, this sequencer has an electronic control system and responds to a simple volt-free open circuit. The unit is fully versatile for input voltage, output voltage, number of ways, pulse length and time between pulses.*
  You select the number of ways by ordering 2, 4 or 6 way units. Each unit has an on-board selector to pulse any number of ways you like up to the nominal. In other words a 2 way unit can pulse 2 ways; a 4 way unit does 1, 2, 3 or 4 ways and a 6 way unit covers all the options up to 6 ways.
  Input and output voltages are available from 12Vdc to 24Vdc, or 110Vac to 240Vac - see the table on page 2 for a breakdown. This table also details the options available on the various models - options like Fan Rundown, Multiple Cycling of Outputs, Delay before Pulsing, Fast Clean Control, Enhanced Wattage Output (can fire 2 valves on a single pulse)and top entry terminals.
  Pulse Duration and Pulse Interval are adjustable as standard on all models.
  *The **ZX393** is offered as a naked PCB ASSEMBLY or housed in a robust, IP65 rated, plastic enclosure as a SEQUENCE CONTROLLER or complete with pilot valves (and pipe fittings if required)- also in an IP65 plastic enclosure - as a REVERSE JET STATION.*

CIRCUIT CONTROL TECHNOLOGY
dust filter controls
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E-mail: sales@dustfiltercontrols.co.uk

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Set-up Procedure	3
Technical Specifications	4

CCT REV.C/01.03.2012

Models and Options

The following is a table of models (-G...) available in the ZX393 Sequence Controller PCB.
The features incorporated with each model are shown as well as a reference drawing number.

MODEL	INPUT VOLTAGE	OUTPUT VOLTAGE	FEATURES	REFERENCE DRAWING
-G4	110 / 220 / 240 Vac	110Vac	Pressure Switch Control (PSC)	ZX393G4600
-G49	110 / 220 / 240 Vac	110Vac	Pressure Switch Control (PSC)	ZX393G49600
			Fan Run Down (FRD)	
			Fast Clean Control (FCC)	
			Cycles of Board (PSC)	
-G9	12Vdc	12Vdc	Pressure Switch Control (PSC)	ZX393G9600
-G10	24Vdc	24Vdc	Pressure Switch Control (PSC)	ZX393G10600
-G1419	110Vac	110Vac	Pressure Switch Control (PSC)	ZX393G1419600
			Fan Run Down (FRD)	
			Fast Clean Control (FCC)	
			Cycles of Board (PSC)	
-G15	110 / 220 / 240 Vac	24Vdc	Pressure Switch Control (PSC)	ZX393G15600
			Enhanced Wattage Output	
-G159	110 / 220 / 240 Vac	24Vdc	Pressure Switch Control (PSC)	ZX393G159600
			Fan Run Down (FRD)	
			Fast Clean Control (FCC)	
			Cycles of Board (PSC)	
			Enhanced Wattage Output	
-G31	110 / 220 / 240 Vac	24Vac	Pressure Switch Control (PSC)	ZX393G31600
			Enhanced Wattage Output	
-G319	110 / 220 / 240 Vac	24Vac	Pressure Switch Control (PSC)	ZX393G319600
			Fan Run Down (FRD)	
			Fast Clean Control (FCC)	
			Cycles of Board (PSC)	
			Enhanced Wattage Output	
-G33	24Vac	24Vac	Pressure Switch Control (PSC)	ZX393G33600
-G339	24Vac	24Vac	Pressure Switch Control (PSC)	ZX393G339600
			Fan Run Down (FRD)	
			Fast Clean Control (FCC)	
			Cycles of Board (PSC)	

Top entry terminals are available on each model - simply add "2" at the end of the -G number.

Drawing references shown are all for 6 way boards. 2 way and 4 way boards are also available and the drawing reference is the same except that the number "6" - third from the right hand end - becomes "2" for a 2 way and "4" for a 4 way.

To order by part number, start by stating the number of ways (outputs) required followed by "W", then "ZX393" followed by the "-G,,," number, e.g. a "4W ZX393-G92" is a 4 way ZX393 pcb with 12Vdc in, 12Vdc out, pressure switch control only and top entry terminals.

CIRCUIT CONTROL TECHNOLOGY
dust filter controls

Set-up Procedure

The following is a flow chart of the set-up procedure for the ZX393 Sequence Controller PCB.
The options available at each stage are explained in an easy to follow format.

STAGE 1

Power Supply

Wire an isolated power supply into appropriately marked terminals at lower-left hand area of the board.
DO NOT SWITCH ON
Double check that supply is correct for model ("G"no.) and wired into correct terminals.
On 240/220/110Vac input models ensure that the LINK adjacent to the power terminals is in the sockets appropriate to the incoming voltage. For safety reasons this link is factory set for 240V.

STAGE 2

Pressure Switch Control (PSC)

This unit pulses when there is an open circuit across terminals PS1 and PS2. Connect the volt-free N/C contacts of a pressure switch across these terminals to cause the board to pulse whenever pressure opens the contacts! Of course it doesn't have to be a pressure switch, you can use any volt-free contacts to automate pulsing. Switching SW1 (PSC) to the "OFF" position will override (open circuit) the PS1/PS2 terminals and pulse the board - use this facility for testing and commissioning.
The normal operating position for this switch is the "DLY" setting.This allows a short time delay after PS1/PS2 goes open circuit before pulsing starts so that short term transient pressure signals do not precipitate premature pulsing.

STAGE 3 - applicable to some models only

Fast Clean Control (FCC)

The FCC switch (SW2) controls the fast clean facility available on some models - see the table on page 2. This facility only comes into effect during Fan Rundown.
Set the swtch to "OFF"for no fast clean.
Set the switch to "FC1" to reduce the time interval between pulses by approximately 10%
Set the switch to "FC2" to reduce the time interval between pulses by approximately 20%.
This facility is of limited usefulness when applied to low numbers of valves e.g. on small installations.

STAGE 4 - applicable to some models only

Fan Rundown Control (FRDC)

The FRDC switch (SW3) controls the Fan Rundown or "Afterclean" facility available on some models - see table on page 2. This functions by recognising a change of mode from open to closed circuit across terminals FR1/FR2. Connecting a N/C Volt-Free auxiliary of the Fan contactor to these terminals achieves this.
Set SW3 to "OFF" for no aftercleaning.
Set SW3 to "DLY" to introduce a delay of about 1 minute between the Fan being switched off and aftercleaning commencing. This allows the Fan and any free particles in the system to stabilise.
Set SW3 to "O.DLY" for aftercleaning to start immediately upon the Fan being switched off.
N.B. Aftercleaning does not require a Pressure Switch "HIGH" signal (open circuit at PS1/PS2) for the board to pulse.

STAGE 5 - applicable to some models only

Cycles of Board

This facility is available only on certain models - see table on page 2. It runs the pulsing of the board for up to 9 complete cycles every time cycling is initiated, whether by Pressure Switch or Fan Rundown.
Set the PSC switch (SW1) to "CYC" and select the number of cycles you require by pushing the "PROG" flying lead on the board onto the appropriately marked terminal pin in the adjacent row. When cycling is complete, a red "STOP" LED lights up to indicate the board has returned to stand-by.

STAGE 6

Number of Ways

Sets the number of outlets to be pulsedin one cleaning cycle. Simply push the "SET" flying lead on the PCB onto the appropriately marked pin in the row adjacent to it! e.g."2" for 2 ways, "3" for 3 ways etc.

STAGE 7

Moment of Truth

This is the time tou find out if you've got the power supply connected correctly. For your own peace of mind and personal safety - check it again.
Set the PSC switch (SW1) to "OFF" and TURN THE POWER ON!!
After a short interval No.1 output will pulse, then No.2, No.3 and so on. Red LED's adjacent to each output will flash in turn to indicate which one is pulsing.

STAGE 8

Set Interval and Duration

The "INTERVAL" potentiometer (RV1) controls the time delay between successive output pulses.
This is adjustable over a range of approximately 4 to 60 seconds (turn clockwise to increase).

The "DURATION" potentiometer (RV2) controls the length or "time on" of each pulse.
This is adjustable over a range of approximately 40 to 300 milliseconds (turn clockwise to increase).

LEAVE IT SAFE

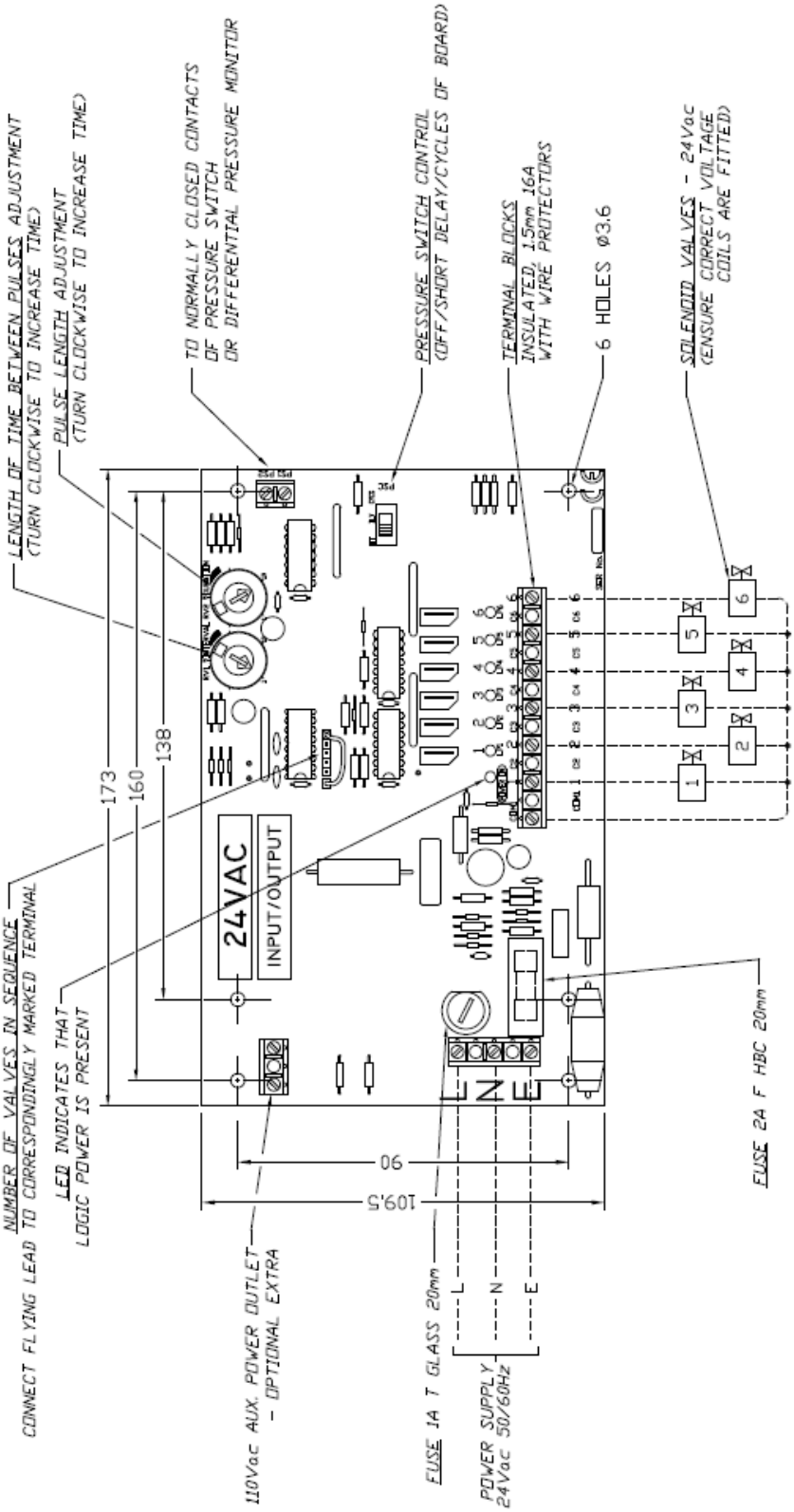
Turn off the power - Set PSC switch to "DLY".

CIRCUIT CONTROL TECHNOLOGY
dust filter controls

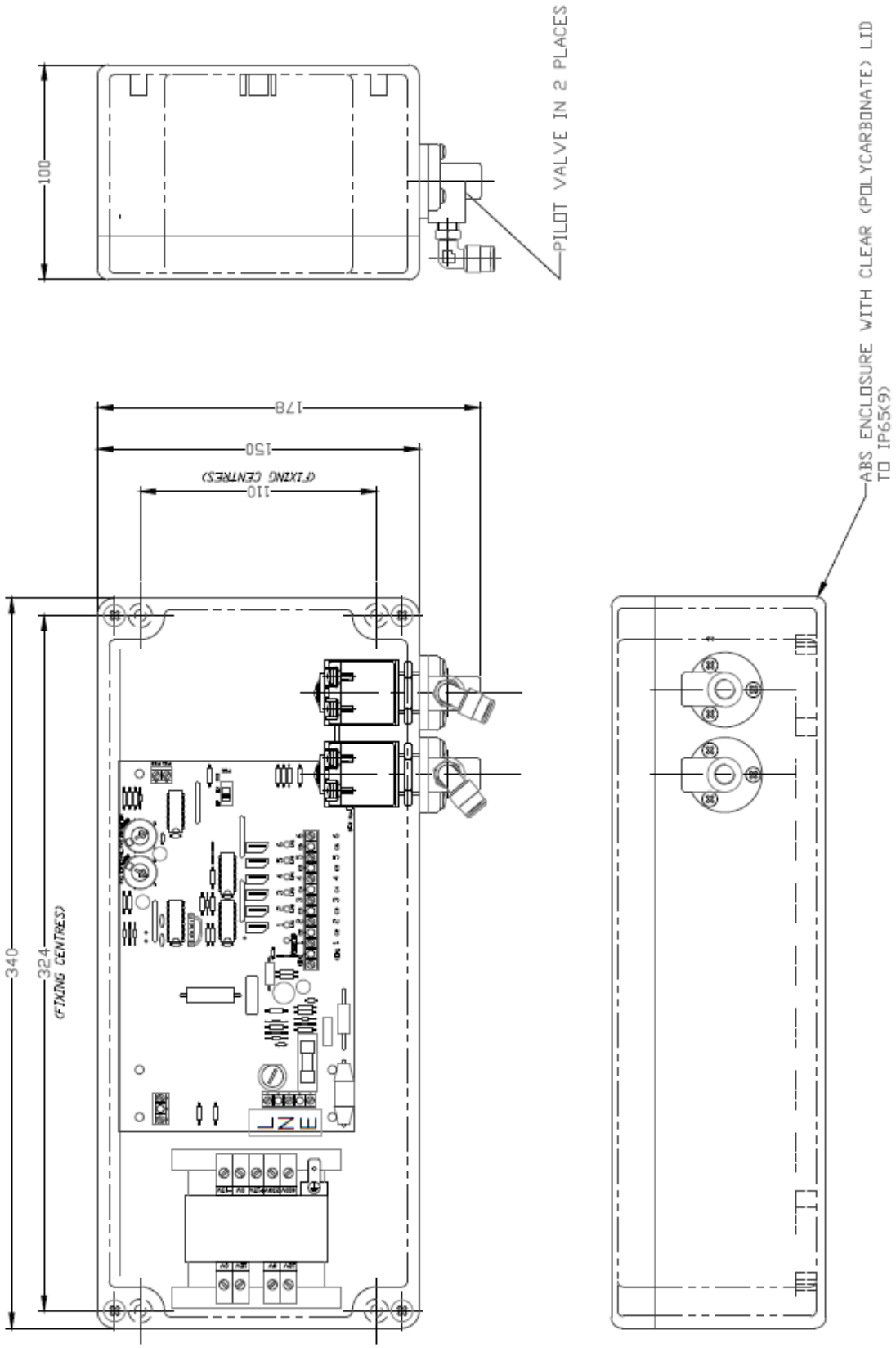
Technical Specifications

UNIT:	Part Number ZX393
INPUT SUPPLY/ POWER CONSUMPTION:	Volts:-refer to table on page 2. Amps:- less than 500mA
INPUT FUSE:	Depending on Model Number.
OUTPUT FUSE:	Depending on Model Number.
MAINS FAILURE:	In the event of power interruption, the unit will operate to specification when the supply voltage is re-instated..
START UP SEQUENCE:	The unit is arranged so that pulsing will start as soon as an open circuit has been established across terminals PS1/PS2 for a few seconds, unless another option has been selected (see "Power Supply" on page 3).
INDICATION:	Red LED indicates "Power On", others light up to show which output is pulsing during cycling. Some models also have "STOP" LED also (see "Cycles of Board on page 3).
AMBIENT TEMPERATURE AT BOARD SURFACE:	-10 to +45 deg.C.
STORAGE TEMPERATURE:	-20 to + 70 deg.C.
SEQUENCE CONTROLLER:	The ZX393 is also available enclosed within an IP65 rated plastic .box. Just add "/E0" to the Part Number immediately after the model (-G...) number. Non-standard enclosures are also possible, or we can mount your ZX393 integrally with other equipments (e.g. Pressure Switch) on request. Please consult Circuit Control's sales department for more information.
REVERSE JET STATION:	The ZX393 can be used to drive any normally configured pilot valve, and we offer a variety of commercially available solenoid valves as standard in our Rev. Jet Stations - with or without rapid-fit or compression pipe fittings. Please consult Circuit Control's sales department for availability of specific combinations of board, box and valves to suit your requirements.
EXTERNAL SIGNALS:	The ZX393 conforms to current regulations regarding proper operation within zones of electrical interference. Nevertheless we recommend that connections to external equipments are kept as short as possible, made with screened cable earthed at one end and/or via an interposing relay.
MAINS (ac) SUPPLIES:	To ensure the reliable operation and longevity of your ZX393, any mains supply should not be a branch off a line carrying power to equipment containing rectifiers and/or thyristors (e.g. welders, variable speed drives, battery chargers etc.). Keep supply cables away from other power carrying conductors. A free-standing mains filter is available if needed.

Wiring diagram



General arrangement



Multicontrol -
Installation Manual

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Website. www.industrialdevicesgroup.com

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Compliance declaration

1 Compliance declaration

1.1 Compliance declaration RK MultiControl duo / duo silent

The manufacturer,

RK Rose+Krieger GmbH
Potsdamer Straße 9
D-32423 Minden, Germany

hereby declares that the system mentioned hereafter is compliant with the following directives:

2014/35/EU	Low voltage directive
2014/30/EU	EMC directive
2011/65/EU	RoHS directive
System designation	RK MultiControl duo RK MultiControl duo silent
Type designation	QSTxxx02Ax000 (x-system versions)
Type of device	Synchronous controller for integration in table or similar systems.

Applicable to equipment that has been produced after construction year: Week 05/2020.

European harmonised standards used:

EN 61010-1:2010	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements
EN 55014-1:2006/A1:2009/ A2:2011	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission
EN 55014-2:1997/A1:2001/ A2:2008	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity
EN 61000-3-2:2014	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
EN 61000-3-3:2013	Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A
EN 62233:2008/AC:2008	Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure

Revision of the standards to reflect the latest state by QA for DIN/ISO 9001.

Minden / 01.06.2023	Björn Riechers
Ort/Datum	Managing Director

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1.2 Compliance declaration RK MultiControl quadro

The manufacturer,

RK Rose+Krieger GmbH
Potsdamer Straße 9
D-32423 Minden, Germany

hereby declares that the system mentioned hereafter is compliant with the following directives:

2014/35/EU	Low voltage directive
2014/30/EU	EMC directive
2011/65/EU	RoHS directive
System designation	RK MultiControl quadro
Type designation	QSTxxx04Ax000 (x-System versions)
Type of device	Synchronous controller for integration in table or similar systems.

Applicable to equipment that has been produced after construction year: Week 05/2020.

European harmonised standards used:

EN 61010-1:2010	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements
EN 55014-1:2006/ A1:2009/A2:2011	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission
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Revision of the standards to reflect the latest state by QA for DIN/ISO 9001.

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Ort/Datum	Managing Director

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2 Notes

2.1 Notes to these assembly instructions

These assembly instructions are only applicable to the controllers described and are intended as documentation for the manufacturer of the end product in which this incomplete machine is incorporated.

We wish to point out explicitly that the manufacturer of the end product must produce an operating guide for the end user which includes all the functions and notes on the dangers of the end product.

This applies equally to integration in a machine. In this case, the manufacturer of the machine is responsible for the relevant safety devices, checks, monitoring potential crushing and shearing points and the documentation.

These assembly instructions will help you,

- to avoid hazards,
- to prevent down time,
- and to guarantee and increase the working life of this product.

Notes on hazards, safety regulations and the information in these assembly instructions are to be obeyed to the letter.

These assembly instructions are to be read and applied by everyone who works with the product.

Commissioning is forbidden until the machine complies with the provisions of EC Directive 2006/42/EC (Machines Directive). Before bringing into service, this must comply with EC directives, including documentation.

We hereby advise any re-user of this incomplete machine/part-machine/machine parts explicitly of its obligation to expand and complete this documentation. In particular, when building in or attaching electrical components and/or drives, the re-user is to complete a CE compliance declaration.
Our installation declaration becomes invalid automatically.

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3 Liability/Warranty

3.1 Liability

RK Rose+Krieger GmbH will not accept any liability for structural changes by third parties or modifications to protective devices for the controllers or hand switches, or any changes to the electrical equipment and its controllers.

The manufacturer's declaration becomes null and void.

Only original spare parts should be used for repairs and maintenance.

RK Rose+Krieger GmbH does not accept liability for spare parts which it has not inspected and approved.

Safety-related devices must be checked at least once a year for serviceability, damage and completeness.

We reserve the right to make technical changes without notice.

Our address:

RK Rose+Krieger GmbH
Postfach 1564
32375 Minden, Germany

Tel.: +49 (0) 571 9335 0
Fax: +49 (0) 571 9335 119

3.2 Product monitoring

RK Rose+Krieger GmbH offers you state of the art products compliant with current safety standards. Please tell us immediately if you experience repeated failures or faults.

3.3 Assembly Instructions language

The original version of these assembly instructions was produced in the official EU language used by the manufacturer of this incomplete machine.
Translations into other languages are translations of the original version and the legal provisions of the Machines Directive apply to these.

3.4 Copyright

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4 Use/Operators

4.1 Proper use

This controller may only be used if it is connected to the drives listed in these instructions in section 7.8. A maximum of two drives can be connected to the *RK* **Multi***Control* duo and a maximum of four to the *RK* **Multi***Control* quadro.

Proper use of the controller includes motorised adjustment of moving furniture components or comparable items.

In principle, use must be restricted to dry areas and it should not be used in the open air.

4.2 Improper use

Improper use means that the information quoted in section *4.1 Proper use* is not being observed.
The improper use, incorrect handling and operation of this controller can cause danger to persons and property.
If this controller is used improperly, then RK Rose+Krieger GmbH ceases to be liable and its general operating licence will be void.

4.2.1 Reasonably predictable improper use

- Controlling unsuitable drives
- Overloading appropriate drives
- Exceeding the duty cycle of the controller or drives
- Operation with damage to the mains supply, casing, motor lead, hand switch or other control lines (PLC, PC, etc.)
- Operation with the controller housing open
- Use in the open air
- Use in an environment with air humidity > dewpoint
- Use in an atmosphere containing solvents
- Contact with paints containing solvents
- Use in an environment in which it can be expected that combustible and explosive gases or vapours might be present
- Failure to comply with the rated voltage as given on the maker's plate on the controller with a maximum tolerance of ± 10%
- Failure to comply with the upper and lower ambient temperature thresholds: 40 °C/5 °C

4.3 Who can use this controller

Anyone who has read and understood the assembly instructions may use the controller. Responsibilities in use must be clearly defined and obeyed.
The controller should not be used unsupervised by small children or infirm individuals.

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5 Safety

5.1 Safety instructions

RK Rose+Krieger GmbH has built the controllers and hand switches to the state of the art and existing safety regulations. Nonetheless, controllers and hand switches may pose risks to persons and property if these are used incorrectly or not for the intended purpose or if the safety instructions are not obeyed. Expert operation and careful maintenance will guarantee high performance and availability of this controller.
We accordingly recommend that you pay particular attention to these sections.

This includes

- understanding the safety instructions in the text and
- the configuration of the various operating options and how these work.

Only persons nominated for this task may operate controllers and hand switches. Work on and with the controller may only take place in accordance with these instructions.
General, national and operating safety regulations are to be obeyed.
Responsibilities for the use of this controller must be regulated unambiguously and obeyed, in order that there cannot be any ill-defined authorities in relation to safety aspects.
Before any commissioning, the user must be sure that no persons or objects are in the controller's danger area. The user should only operate the controller in perfect condition. Any change is to be reported to the nearest line manager immediately and the operation is to be shut down.



- The controller must not be used with damage to the mains supply, casing, motor lead, hand switch or any other control lines (PLC, PC, etc.).
- In an emergency, pull the mains plug out of the controller in order to shut down the connected drives.
- Independent conversions or changes to the controller are forbidden.

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Safety

5.2 Safety signs

These warning and command signs are safety signs which warn against risk or danger.
Information in these assembly instructions on particular dangers or situations on the controller is to be obeyed, as failure to do so increases the risk of accident.



The "General Command Sign" instructs you to be observant.
Marked information in these assembly instructions is for your individual attention.
It provides you with important information on functions, settings and procedures.
Failure to obey may lead to personal injury and faults on this controller or damage to the environment.

5.2.1 Symbols on the maker's plate



Independent conversions or changes to the controller are forbidden.



Do not dispose of in the household waste.



Protection class II



Attention, observe the assembly instructions.



Use only in closed rooms.

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Product information

6 Product information

6.1 How it works

You use the *RK* **Multi***Control* controller to move Rose+Krieger drives.

According to the design, you can connect up to two (with the *RK* **Multi***Control* duo) or up to four (with the *RK* **Multi***Control* quadro) drives to the controller. You use a hand switch to operate the controller. If more than two or four drives need to be moved synchronously, you have the option to connect up to eight controllers.

6.2 Technical specification

Type/Model	RK MultiControl duo/quadro	RK MultiControl duo silent
Dimensions W × H × L	110 × 62 × 335 mm	
Weight	2.5 kg	
Supply voltage (primary) (depending on design)	230V (±10%) AC 50/60 Hz 115V (±10%) AC 50/60 Hz	
Type of protection	IP 30	
max. current drain (primary)	*RK MultiControl duo*: 2A (230V AC, 50/60 Hz) *RK MultiControl duo*: 4A (115V AC, 50/60 Hz) *RK MultiControl quadro*: 2A (230V AC, 50/60 Hz) *RK MultiControl quadro*: 4A (115V AC, 50/60 Hz)	*RK MultiControl duo silent*: 2A (230V AC, 50/60 Hz) *RK MultiControl duo silent*: 4A (115V AC, 50/60 Hz)
max. output current	6A per drive, total 12A	5A per drive, total 10A
Duty cycle	20 % duty cycle/10 min runtime	10 % duty cycle/10 min runtime
Rated output	300 VA	250 VA
Protection class	II (insulated construction)	
Primary fuse rating	at 230V: 2.5A slow-blow at 115V: 5A slow-blow	
Secondary fuse rating	at 230V: 12.5A slow-blow at 115V: 12.5A slow-blow	
Ambient temperature	+5 °C to +40 °C	
Ambient air pressure	from 700 hPa to 1600 hPa	
Relative humidity	30 % to 75 %	

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6.2.1 Duty cycle

It is essential that you obey the permitted controller duty cycle of 20% (drive for max. 2 minutes and then rest for 8 minutes), in order to avoid damage.

You must take note of drive duty cycle. This can sometimes be lower. You will find the stipulated duty cycles on the maker's plate.

Please note that in the delivery state, the duty cycle limiter is set to 30 % on the controller!

In order to protect controllers and drives against damage, you can increase the duty cycle limiter upon request. To do so, please contact RK Rose+Krieger GmbH.

If you do not obey the duty cycles, you can damage controllers and drives!

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7 Working life

7.1 Transport and storage

Damage due to transport and storage is to be reported to the line manager and to RK Rose+Krieger GmbH immediately.
The product is to be checked by qualified staff for visual and functional damage.
It is forbidden to start up damaged controllers.

The following environmental conditions are laid down for controller storage:

- contact with solvent-based paints must be avoided
- lowest/highest ambient temperature: -25 °C/+60°C
- Relative humidity in storage: falling below the dewpoint is not allowed

Divergent environmental factors must be approved by RK Rose+Krieger GmbH.

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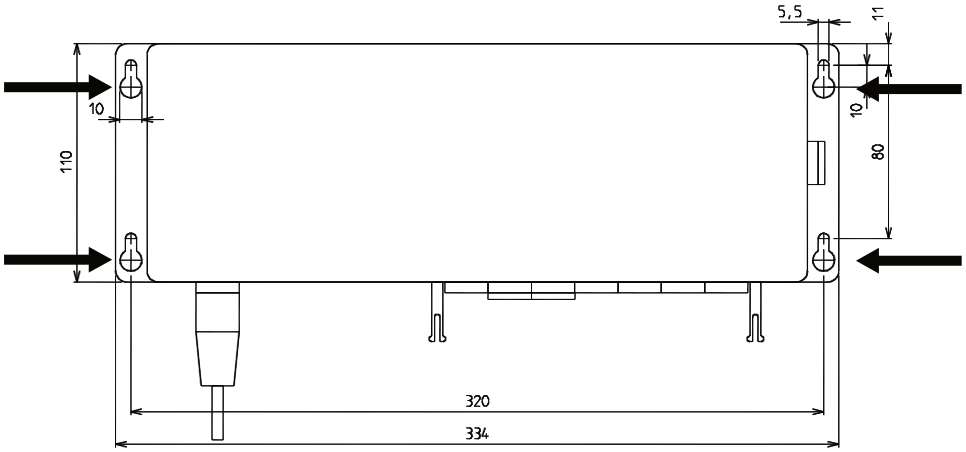
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Working life

7.2 Installation

7.2.1 General

The controller is only to be fixed at the points laid down for the installation.



Layout of electrical leads

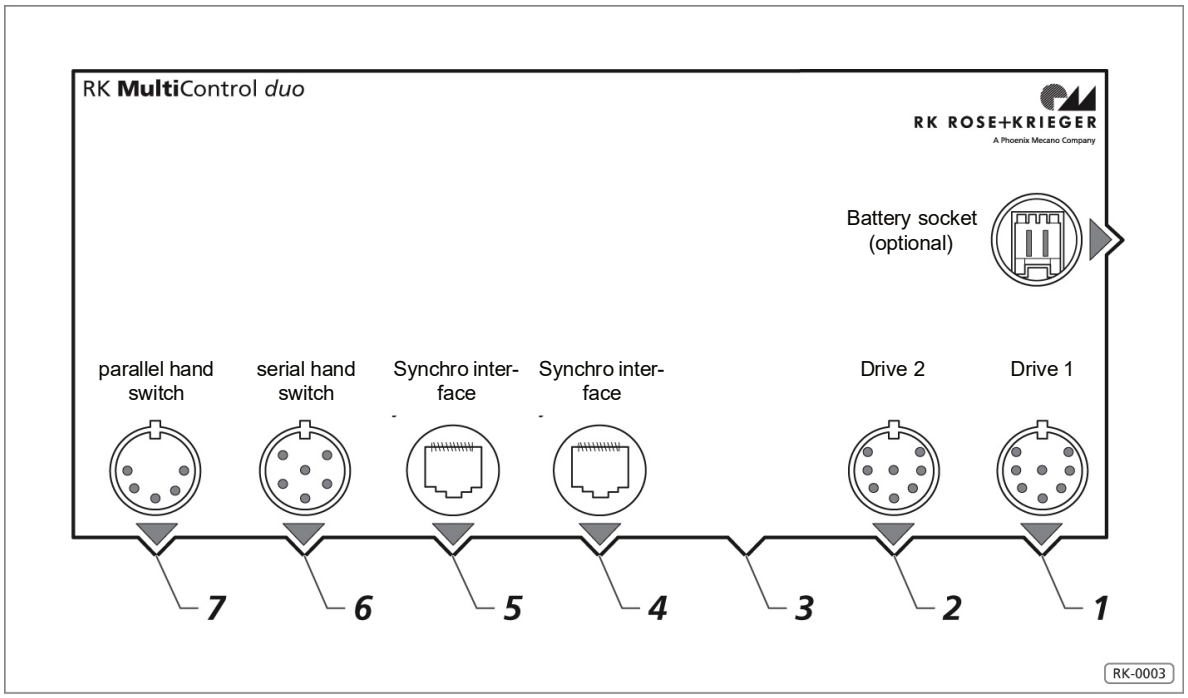
When laying out electrical leads, ensure that

- these cannot be crimped,
- no mechanical load is exerted on them,
- they are undamaged in any other way and
- obstacles do not pose any risks to persons.

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7.2.2 Pin assignment of the *RK* Multi*Control* duo



1 Socket for the first drive

2 Socket for the second drive

3 Spare

4 Connection socket for lead or plug

5 Connection socket for lead or plug

6 Socket for a serial hand switch (6-pin DIN plug to DIN 45322)
(6-key hand switch or base station for the 8-key wireless hand switch)

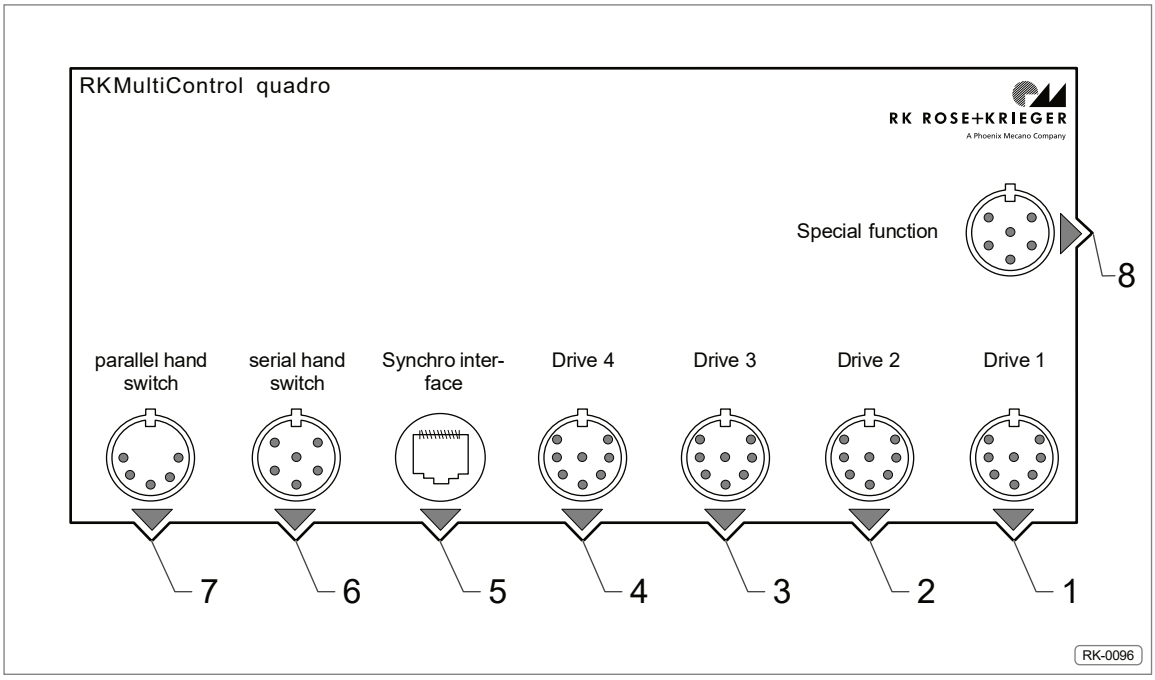
7 Socket for a parallel hand switch (5-pin DIN plug to DIN 41524)
(2-key hand switch with adapter)

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7.2.3 Pin assignment for the *RK* Multi*Control* quadro



1 Socket for the first drive

2 Socket for the second drive

3 Socket for the third drive

4 Socket for the fourth drive

5 Connection socket for lead

6 Socket for a serial hand switch (6-pin DIN plug to DIN 45322)
(6-key hand switch or base station for the 8-key wireless hand switch)

7 Socket for a parallel hand switch (5-pin DIN plug to DIN 41524)
(2-key hand switch with adapter)

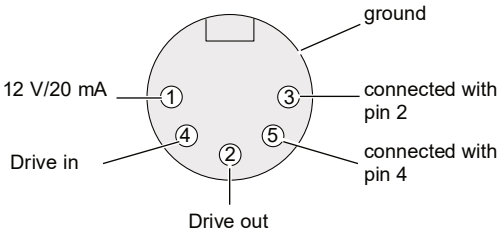
8 Socket for a special function (6-pin DIN plug according to DIN 45322)

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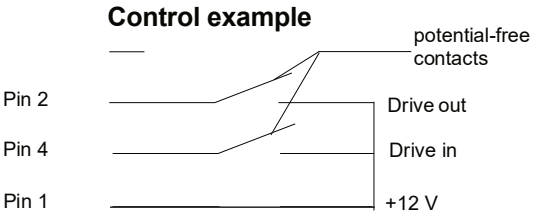
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7.2.4 Pin assignment for the plug connections

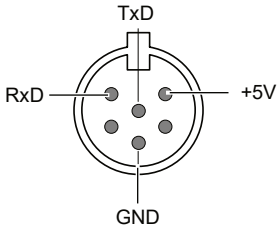
Pin assignment for the 5-pin plug



Control example

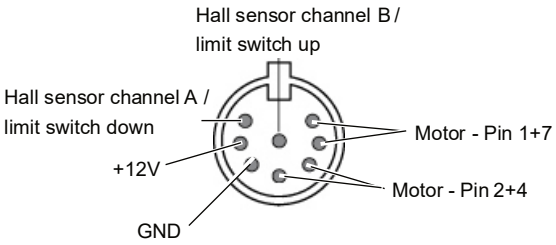


Pin assignment for the serial hand switch socket (socket 6)



Baud rate: 9600 bauds
Data bits: 7
Stop bit: 1
Parity: odd
Level: TTL

Pin assignment for the motor socket (sockets 1 and 2)

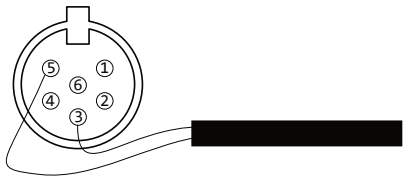


Motor direction of rotation

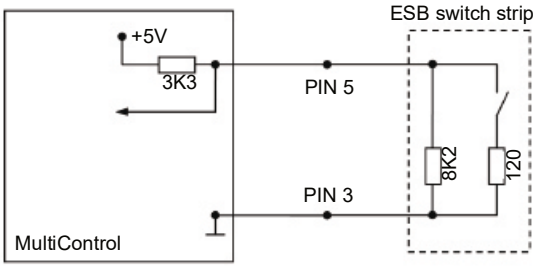
Option	Pin 1+7	Pin 2+4	Direction
1	+	-	Drive in
2	-	+	Drive out

Switch strip socket terminal assignment (socket 8)

A 6-pin DIN 45322 plug is required to connect the switch strip to the *RK* **Multi***Control* quadro. The two ends of the switch strip cable must be soldered onto PIN3 and PIN5 of the plug.



DIN 45322 plug –
Connection of PIN3 and PIN5 to the switch strip



RK MultiControl quadro circuit diagram with switch strip.

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Working life

7.3 Connecting drives and hand switches

7.3.1 Connecting drives

You can connect up to two (with the *RK* **Multi***Control* duo) or up to four (with the *RK* **Multi***Control* quadro) drives per controller.

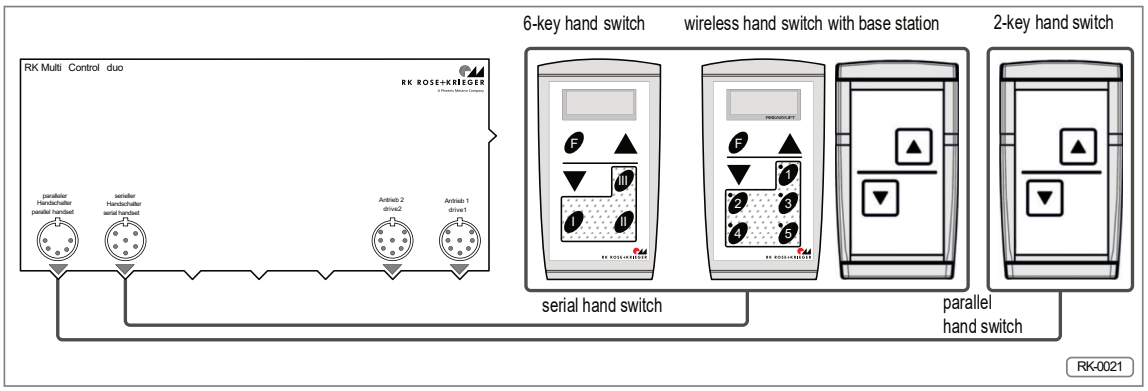
- Plug the lead for the first drive into socket ***1*** (see section 7.2.2 or 7.2.3).
- Connect the remaining drives to the controller (second drive in socket ***2***, third drive in socket ***3***, etc.).

If only one drive is connected to the controller, this must always be plugged into socket ***1***. Otherwise the controller will not recognise the drive.

Only drives of the same design should be connected to all controllers.

7.3.2 Connecting the hand switch

You can connect the following hand switches to the controller:



- Connect the 2-key hand switch to the adapter and plug it into the parallel connection socket 7 (see section 7.2.2 or 7.2.3).
- Plug the lead from the 6-key hand switch or the base station for the 8-key wireless hand switch into the serial socket 6 (see section 7.2.2 or 7.2.3).

You can connect a serial and a parallel hand switch simultaneously. In this case, the serial hand switch has priority, i.e. the parallel hand switch is not in operation. If you want to use the parallel hand switch, pull the controller mains plug out of the socket. Remove the serial hand switch. After a pause of at least 30 seconds, replace the mains plug in the socket. You can now move the drives with the parallel hand switch.

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7.4 Connecting switch strip – RK MultiControl quadro

7.4.1 Functional description

The new version of the *RK* **Multi***Control* quadro offers a safety shutdown function for protection at crushing and shearing points. This function is achieved by connecting a switch strip to the controller. The safety shutdown function is only possible in conjunction with a 6-button hand-switch.

Operating principle: if a switch strip is not actuated, it does not have any effect upon the normal mode of function of the controller and lifting columns. If the switch strip is pressed, the controller stops all connected drives.

The switch strip is connected to socket 8 -Special function (see page Seite 56). When delivered, a dummy plug is plugged into socket 8 -Special function. Remove the dummy plug. The error message E007 appears in the display of the hand switch. Attach the switch strip. The error is deleted automatically. If the initialisation run is interrupted by operating the switch strip, the error message E008 appears on the display of the hand switch. Once the obstacle has been removed, the initialisation run must be repeated.

If the switch strip is actuated when extending or retracting the lifting column / lifting columns, the controller switches off the lifting column. The lifting columns stop and remain at this stop position. Movement is not possible. The error message E008 appears on the display of the hand switch. After removing the obstacle, the switch strip is not actuated. The error message E008 is acknowledged by pressing the F-button on the hand switch. The lifting columns connected can now be moved again.

If the switch strip cannot be set to deactivated without moving the lifting columns, the F button on the hand switch must be kept pressed until the lifting columns are moved by the controller. After moving the lifting columns, the switch strip is not actuated. The error message E008 is deleted.

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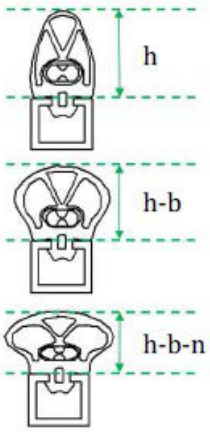
Working life

7.4.2 Assembly instructions

Switch strips from different suppliers may have different features. In order to select a suitable switch strip, the following characteristics of the switch strip must be observed:

- Actuating path
- Overrun path
- Load resistance
- Switching resistance

"h" is the basic height of a switch strip when not actuated. To allow the switch strip to trip, it must be deformed by the actuation path "b". The switch strip is only ACTIVE after that.



After the switch strip has been actuated, it can be deformed using the overrun path "n". Deformations > Overrun path "n" lead to permanent damage and malfunctions. Damaged switch strips must be replaced. Please note that not all switch strips have an overrun path.

The overrun path of the switch strip must be greater than the stopping distance of the lifting columns.

The actuating and overrun path of each application / unit must be considered separately. To select the switch strip you require, use Table on page 61.

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Lifting columns	Unloaded		Fully loaded	
	Stopping distance retracting in [mm]	Stopping distance extending in [mm]	Stopping distance retracting in [mm]	Stopping distance extending in [mm]
LZ60P, 600N	2	2	2	1
LZ60P, 1000N	1,5	1,5	1,5	1
LZ60P, 2000N	0,5	0,5	1	0,5
LZ60P, 3000N	0,5	0,5	0,5	0,5
LZ60P, 4000N	0,5	0,5	0,5	0,5
LZ60S, 1500N	1	1	1,5	1
LZ60S, 3000N	0,5	0,5	0,5	0,5
Multilift, 1000N	1	1	1	1
Multilift, 3000N	0,5	0,5	0,5	0,5
Slimlift, 1000N	1	1	1	1
Slimlift, 4000N	0,5	0,5	0,5	0,5
Slimlift EM, 1000N	1	1	1	1
AlphaColone, 1000N	0,5	0,5	0,5	0,5
AlphaColone, 1000N	0,5	0,5	0,5	0,5
AlphaColone, 3000N	0,5	0,5	0,5	0,5
PowerliftS, 25,1000N	1	1	1	0,5
PowerliftS, 18,2000N	0,5	0,5	0,5	0,5
PowerliftS, 10,3000N	0,5	0,5	0,5	0,5
PowerliftM, 1500N	0,5	0,5	0,5	0,5
Powerlift telescope, 30,800N	1	1	1	1
Powerlift telescope, 15,1600N	1	1	1	0,5
Powerlift rack, 1000N	1,5	2	3	1,5

The switch strip to be used must have the following basic values.

Resistance: < 560 Ohm

Load resistance: 680 Ohm 10k Ohm

If several controllers are operated at the same time, the safety shutdown function must only be used on the master controller.

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7.5 Commissioning

Before you can move the columns synchronously, you must perform an initialisation run. During the initialisation run, the number of connected drives will be recorded and the lifting columns synchronised to a single height.

An initialisation run on the drives must take place before installing the drives. With mechanical connection of the drives, the initialisation run must be conducted with the greatest care. With a mechanical connection and an asynchronous run, there is a risk of breakage.

7.5.1 When must you perform an initialisation run?

An initialisation run must always be performed if

- a controller is in operation for the first time *or*
- the number of drives connected to the controller has changed *or*
- the controller has been reset to the factory settings *or*
- the controller prompts a run by means of E000 *or*
- if there is a fault (see section 7.15).

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7.5.2 Performing an initialisation run

The initialisation run can be performed as follows with any hand switch if error E000, E010 or E021 is present:

Error messages will only be indicated on the 6-key hand switch!

- Ensure that all drives and controllers are interconnected and that the mains plug is *not* connected. If you have pulled out the mains plug to perform an initialisation run, wait for at least 30 seconds before plugging it back in.
- Keep the DOWN ▼ key on the hand switch pressed.
- Plug the mains plug in and wait for about 5 seconds.
  *Note: The software release (e.g. "**0217**"), the type of lifting column connected (e.g. "**-20-**") and "**[In d]**" appears in hand switches with display.*
- Release the DOWN ▼ key.
- Press the DOWN ▼ key again and keep it pressed until all drives have moved to or are at the lower end stop.
  *Note: When the lower end stop is reached, "**[In U]**" appears in the display.*
- Press the UP ▲ key and keep it pressed until all drives have moved to the upper end stop.

Should it be impossible to reach the top end stop, the initialisation run can be ended in any position by keeping the DOWN ▼ key pressed for 5 seconds. The position is the new end stop for the drives.

The initialisation run is complete. The controller is now ready for operation.
The operation of the 2-key or 6-key hand switch is described in sections 7.10 and 7.11.

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The initialisation run can be performed with any hand switch if no error is present:

2-key hand switch

- Ensure that all drives and controllers are interconnected and that the mains plug is *not* connected. If you have pulled out the mains plug to perform an initialisation run, wait for at least 30 seconds before plugging it back in.
- Keep the DOWN ▼ and UP ▲ keys on the hand switch pressed at the same time.
- Plug the mains plug in and wait for about 5 seconds.
- Release the keys.
- Press the DOWN ▼ key again and keep it pressed until all drives have moved to or are at the lower end stop.
- Press the UP ▲ key and keep it pressed until all drives have moved to the upper end stop.

Should it be impossible to reach the top end stop, the initialisation run can be ended in any position by keeping the DOWN ▼ key pressed for 5 seconds. The position is the new end stop for the drives.

The initialisation run is complete. The controller is now ready for operation.
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6-key hand switches

- Ensure that all drives and controllers are interconnected and that the mains plug is connected.
- Press the **F** key three times (see section 7.11.1). If the access code has still not been entered, "***ParA***" appears in the display.
- Enter the access code. The access code is: ***13121***.
  6-key hand switch: Press the keys in this sequence: I - III - I - II - I
  8-key remote hand switch: Press the keys in this sequence: 1-3-1-2-1.
  If the access code has been entered correctly, "***P---***" appears in the display.
- Use the hand switch keys to enter the 3-digit code (***211***) to start the initialisation run.
  *Note: "**[In d]**" appears in the display.*
- Press the DOWN ▼ key again and keep it pressed until all drives have moved to the lower end stop.
  *Note: When the lower end position is reached, "**[In U]**" appears in the display.*
- Press the UP ▲ key and keep it pressed until all drives have moved to the upper end stop.

Should it be impossible to reach the top end stop, the initialisation run can be ended in any position by keeping the DOWN ▼ key pressed for 5 seconds. The position is the new end stop for the drives.

The initialisation run is complete. The controller is now ready for operation.
The operation of the 2-key or 6-key hand switch is described in sections 7.10 and 7.11.

We recommend that you perform the initialisation run with a hand switch with display. You can read in the display when the top and bottom end stops are reached.

An initialisation run must be fully completed because the drives will not move otherwise.

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7.6 Connecting controllers

The following steps are possible only with the 6-key hand switch or the 8-key wireless hand switch. You can interconnect up to eight controllers using the lead. In this way, you can increase the number of drives columns moved synchronously.
It is also possible to connect a mixture of *RK* **Multi***Control* duo and *RK* **Multi***Control* quadro controllers.

- You should only interconnect controllers with the same software and hardware versions. Version numbers are on the configuration sticker (see section 7.9.2).
- You must not use *RK* **Multi***Control* duo silent and *RK* **Multi***Control* duo/quadro together in a synchronous system.

7.6.1 *Connecting RK* Multi*Control* duo controllers

Example: You would like to interconnect three *RK* ***Multi****Control* duo controllers. To do this, you need two connection leads and two termination plugs.

Remove the blanking plug from the central controller. To do this, press the bottom retaining clip upwards with a small screwdriver and pull the blanking plug out of the socket.

- Plug the first lead into socket ***4*** (see section 7.2.3) of the first controller.
- Plug the other end of the first lead into socket ***5*** of the second controller.
- Plug the second lead into socket ***4*** of the second controller.
- Plug the other end of the second lead into socket ***5*** of the third controller.Push a blanking plug into each of socket ***5*** of the first controller and ***4*** of the third controller.

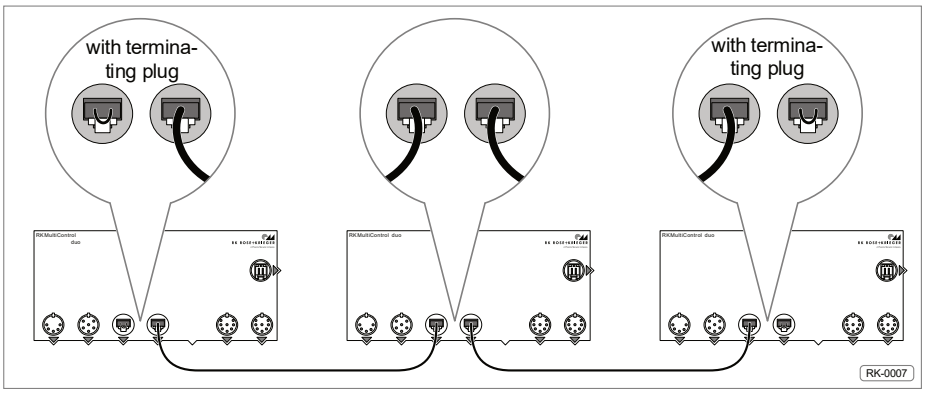
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- Set up the controllers with the parameter ***113*** (see section 7.7).



Master
Parameter 113 to „1“

Slave 1
Parameter 113 to „2“

Slave 2
Parameter 113 to „3“

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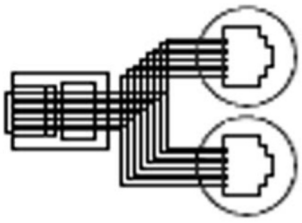
7.6.2 Connecting *RK* Multi*Control* quadro controllers

Example: You would like to interconnect two RK **Multi***Control* quadro *controllers. To do this, you need a lead.*

- Plug the lead into socket ***5*** (see section 7.2.3)) of the first controller.
- Plug the lead into socket ***5*** of the second controller.
- Activate the load resistors on the first and last connected controllers using the parameter ***233***.
- Set up the controllers with the parameter ***113*** (see section 7.7).

If you want to connect more than two RK **Multi***Control* quadro controllers, you need a Y-adapter.

If you set to few or too many load resistors, this can lead to error functions.



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7.6.3 Activation of the load resistor (only with *RK* Multi*Control* quadro):

In order to interoperate the controllers, you must set up and activate the load resistors for the first and last *RK* **Multi***Control* quadro controllers.

Example: You want to set up the load resistors for three interconnected controllers.

Configuring the load resistor on the first controller

- Ensure that the hand switch is plugged into the socket of the first controller.
- Press the **F** key until *"**P---**"* or "***ParA***" appears in the display. If "***P---***" appears in the display, continue with step 3. If "***ParA***" appears in the display, use the hand switch keypad to enter the access code ***13121***. The display changes to "***P---***".
- Use the hand switch keypad to enter the code ***233***.
- Use the UP and DOWN ▲ / ▼ keys to set the value "***1***".
- Press the **F** key to quit setup.

Configuring the load resistor on the third controller

- Press the **F** key until "***P---***" or "***ParA***" appears in the display. If "***P---***" appears in the display, continue with step 3. If "***ParA***" appears in the display, use the hand switch keypad to enter the access code ***13121***. The display changes to "***P---***".
- Use the hand switch keypad to enter the code ***233***.
- Use the UP and DOWN ▲ / ▼ keys to set the value "***1***".
- Press the **F** key to quit setup.
- Set up the controllers (Master/Slave).

Detailed information on configuring the controller is in section 7.7).

Ensure that the load resistor for the second controller is set to "*0*". If you activate more load resistors than those for the first and last controllers, you can damage the controllers!

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7.6.4 Configuring controllers: Master/Slave

After connecting the controllers, each controller must be set up with its own address, so that it can work correctly in partnership.
The first controller must always be assigned the address 1. The 1 establishes that this controller is the Master controller.
Each additional controller must be assigned an address between 2 and 8, with no address being assigned twice. We therefore recommend that you allocate addresses in ascending order (the second controller will be assigned address 2, the third controller address 3 etc.).

Example: You want to allocate addresses to three interconnected controllers.

7.6.5 Set up first controller (Master)

- Ensure that the hand switch is plugged into the socket of the first controller.
- Press the **F** key until "***P---***" or "***ParA***" appears in the display. If "***P---***" appears in the display, continue with step 3. If "***ParA***" appears in the display, use the hand switch keypad to enter the access code ***13121***. The display changes to "***P---***".
- Use the hand switch keypad to enter the code ***113***.
- Use the UP and DOWN ▲ / ▼ keys to set the value "***1***".
- Press the **F** key to quit setup.
- Press the **F** key again until *"**P---**"* appears in the display.
- Use the hand switch keypad to enter the code ***123***.
- Set the number of slaves in the bus system using the up / down keys. In this example, the parameter must be set to "***2***".
- Then press the **F** key to store the setting.

7.6.6 Set up second controller (Slave 1)

- Plug the hand switch into the socket of the second controller.
- Now enter the access code ***13121*** again, followed by the code ***113***.
- Set the value "***2***".
- Press the **F** key to quit setup.

7.6.7 Set up third controller (Slave 2)

- Plug the hand switch into the socket of the third controller.
- Now enter the access code ***13121*** again, followed by the code ***113***.
- Set the value *"**3**"*.
- Press the **F** key to quit setup.
- Plug the hand switch into the Master lifting column and execute the initialisation run (see section 7.5.2).
- Detailed information on configuring the controller is in see section 7.7).

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7.7 Install settings (configuration)

Use configuration to install the settings on the controller. You can, for example, determine the addresses for the interconnected controllers. The possible settings are explained in the table in section 7.8.

Settings may only be adjusted if the drives are at rest.

7.7.1 Basic configuration procedure

You must first enter an access code via the hand switch keypad and then a 3-digit code before you can adjust the desired setting.

The access code must only be entered once and is then fixed until the mains plug is pulled out.

All entries must be made within 5 seconds, because the [lifting column] then quits configuration.

To store a setting, the **F** key must be pressed.

- Press the **F** key three times (see section 7.11.1). If the access code has still not been entered, "***ParA***" appears in the display.
- Enter the access code ***13121***.
  6-key hand switch: Press the keys in this sequence: I - III - I - II - I
  8-key remote hand switch: Press the keys in this sequence: 1-3-1-2-1.
  If the access code has been entered correctly, "***P---***" appears in the display.
- Now use the hand switch to enter the 3-digit code (e.g. ***213*** for the height indication) in order to install the desired setting.
- Install the setting by pressing the UP and DOWN ▲ / ▼ keys.
- Press the **F** key to store the setting. To quit configuration, press the **F** key again or wait for 5 seconds.

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7.8 Settings table (configuration)

All the settings which you can perform on drives are described in the following table.

Code	Description
113	Determine the addresses of the connected drives: 0 = Off (if the drive is used individually) 1 = Master (address of the first drive) 2-8 = Slave (address of the other connected drives)
123	Set the number of slave controls in the bus system.
133	*Set the base height of the retracted drive. The display on the hand switch then shows the base height. Parameter 213 must be switched from percentage to milimetre display prior to this.*
211	Start initialisation: start initialisation run without having previously disconnected the mains plug of the drive.
213	Height indication in the display: Setting = 0 -> Height is displayed in the display in percent ("xxxP."). Stroke length in mm -> Display shows the stroke moved. If parameter 133 has a base height set, the hand switch display shows the total of the base height and the stroke moved.
233	Activation of the load resistor (only with *RK* **Multi***Control* quadro): Switching the load resistor on or off with interconnected controllers. To ensure faultless communication between multiple controllers in one bus network, the first and last controller must be defined with a load resistance. By pressing the UP and DOWN buttons, the following values can be set: 0 = off (load resistor deactivated) 1 = on (load resistor activated)
311	Change the position of the decimal point of the height display. By pressing the UP and DOWN buttons, the decimal point can be shifted to the left or to the right: *.xxxx* *x.xxx* *xx.xx* *xxx.x* *xxxx.* *xxxx*

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7.9 List of appropriate drives

There is a list of drives which can be connected to the controller in the table below.

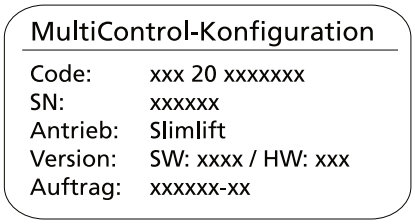
Indication	Drive
01	not used
10	Multilift
20	Slimlift
21	Slimlift EM
30	LZ 60
35	LZ drive unit
40	Powerlift
41	Powerlift med.
42	Powerlift spindle
43	Telescopic Powerlift
44	Powerlift M
61	AlphaColone (qlt...)
81	Lambda Colone
91	Special applications (to order)
99	Special applications (to order)

7.9.1 How do I detect the set drive?

The controller is set in the factory to a given drive type.

The drive type is recorded on the data medium (see picture). The data medium is stuck to every controller.
In this example, the controller is registered on the "Slimlift" drive (Code: 20).

If you connect the controller to the mains, the drive set in the controller appears briefly in hand switches with display (e.g. "***-20-"***).



7.9.2 How do I recognise the software release?

The configuration plate shows the software (SW) and hardware (HW) releases as well as the drive type.

If you connect the controller to the mains, the software version programmed in the controller appears briefly in hand switches with display (e.g. "2.17").

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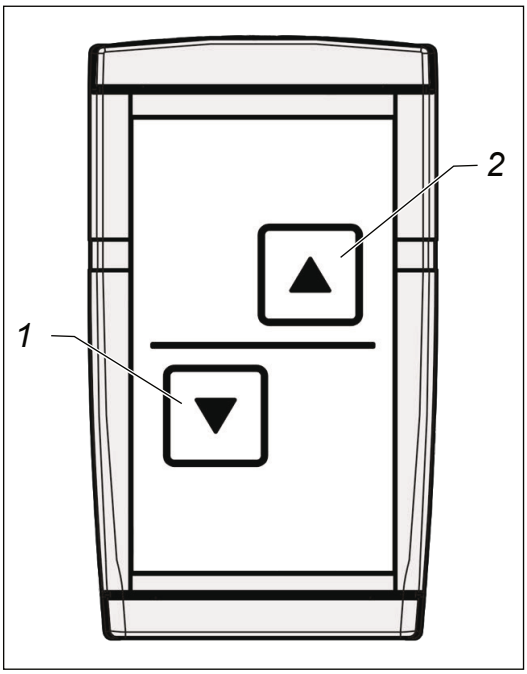
7.10 Operating the 2-key hand switch

You control drives with the keypad on the 2-key hand switch.

7.10.1 Overview of the 2-key hand switch

1 Drive DOWN
The drive moves when the key is pressed.

2 Drive UP
The drive moves when the key is pressed.



7.10.2 Drive up to position manually

- Press the DOWN or UP key and keep the relevant key pressed until the drive has moved into the desired position.

Ensure that nobody is in the vicinity of the drives when they are moving. Therefore, only use the hand switch if you can see the drives - danger - risk of accident!

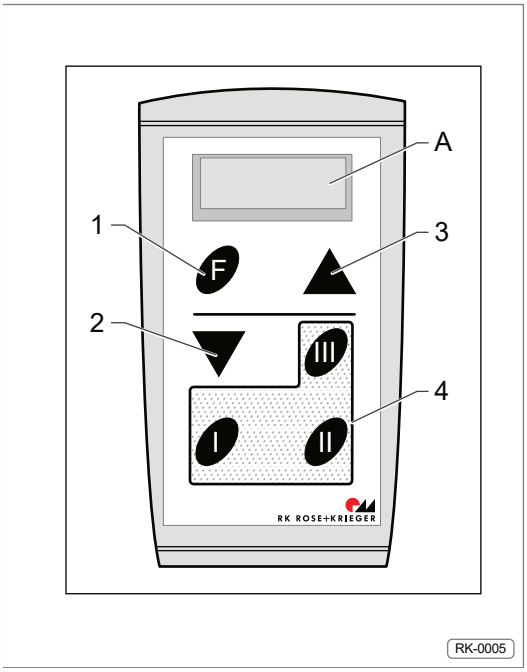
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7.11 Operating the 6-key hand switch

You control drives with the keypad on the hand switch. You can also store positions for a specific user or set the controls.

7.11.1 Overview of the 6-key hand switch



Function key

1 Select and display settings (e.g. a user or a position)

Drive DOWN

2 The drive moves when the key is pressed.

Drive UP

3 The drive moves when the key is pressed.

Hot keys 1 to 3

4 Selecting and driving up to user-specific positions or carrying out settings

Display

A Display the current position, settings and error messages

7.11.2 Drive up to position manually

- Press the DOWN or UP key and keep the relevant key pressed until the drive has moved into the desired position.

The position of the drive appears in the display.

Ensure that nobody is in the vicinity of the drives when they are moving. Therefore, only use the hand switch if you can see the drives - danger - risk of accident!

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7.12 Storing and driving up to positions

Besides moving the drives manually with the UP and DOWN keys, you can also store positions and drive up to these.
Up to 3 users can store up to 3 positions each, i.e. up to 9 positions in all.
We recommend that you use position storage only if the drives have to be driven by different users into constantly recurring positions.

7.12.1 Storing positions

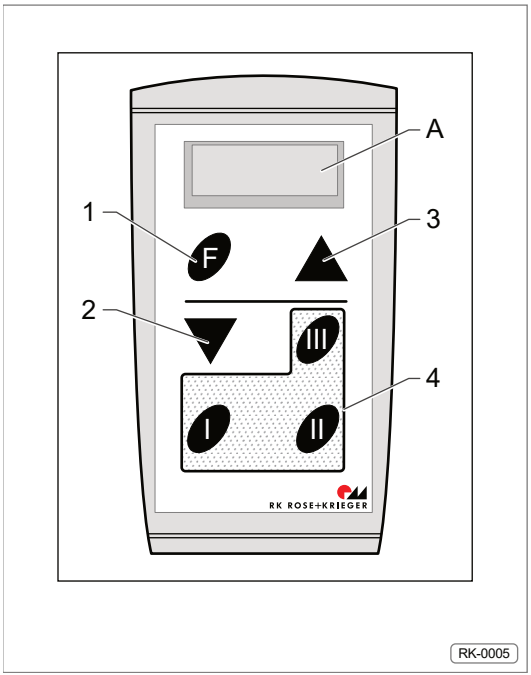
A position is stored in a 2-step sequence.
In the first step, the user gives his instructions via a user level. In the second step, the position is placed on a storage key.

7.12.2 Determining users

Example: You want to store your positions as user 1.

- Press the **F** key until the last selected user appears in the display (e.g. "***USE.3***").
- Press storage key **I** within 5 seconds. ***"USE.1***" appears in the display.
  You have selected user 1.

Now you can store a position on a hot key as user 1.



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7.12.3 Place position on a hot key

Example: You would like to store the position "50 P." on hot key 2.

- Move the drives with the UP or DOWN keys until "***50 P***." appears in the display.
- Press the **F** key until "***POS.-***" appears in the display.
- Press hot key **II** within 5 seconds.
- You have placed the position on hot key 2.
- You can now drive up to the position with hot key **II**.

Ensure that nobody is in the vicinity of the drives when they are moving. Therefore, only use the hand switch if you can see the drives - danger - risk of accident!

The selected user level and the stored position are still stored, even after switching off the control.

7.12.4 Drive up to stored position

Example: You want to drive up to the stored position 50P. using the hot key.
The position is placed in user level 1 on hot key 2:

- Press the **F** key until the last selected user level appears in the display (e.g. "***USE.2***").
- Press hot key **I** within 5 seconds. "***USE.1***" appears in the display. You have selected the correct user level.
- Press hot key **II** and keep it pressed until the drives have moved into the stored position.

Ensure that nobody is in the vicinity of the drives when they are moving. Therefore, only use the hand switch if you can see the drives - danger - risk of accident!

If the correct user level is already set (User level 1 in the example), you can drive up to the desired position without selecting the user level beforehand.

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7.13 Servicing

Controllers do not require any servicing.

You may only work on controllers in accordance with these instructions. If there is a fault with the unit, we recommend that you contact the manufacturer or send the unit for repair.

7.14 Cleaning

You can clean the hand switch with a clean, lint-free cloth and a mild soap solution.

Cleaners containing solvents attack the material and can damage it.

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7.15 Error messages and fault clearance

If there is a fault, an error code appears in the hand switch display (e.g. ***"E002"***). The error codes with their meanings are listed in the table below.

No error messages are displayed in the 2-key hand switch!

Indication	Fault	Fault rectification
E000	As delivered state	Execute initialisation run (see section 7.5.2)
E002	System overload	If the fault is appearing frequently, check your system for mechanical overload.
E004	Duty cycle exceeded	Wait until the error message goes out.
E006	Voltage is too low	*To Firmware 2.15:* Pull out the mains plug, wait for 30 seconds and plug it back in again. *From Firmware 2.16 and later:* The error message stays on while low voltage is still detected in the control unit.
E007	The switch strip is not correctly connected or a cable break has been detected.	The fault will be deleted after the contact has been re-established.
E008	The switch strip is operated during the process movement.	Using the F-key against the last movement direction, you can release the switch strip by moving off it. The fault is deleted after the switch strip has reset, and free movement is set.
E010	The number of drives has been changed during operation.	Pull out the mains plug, check the connections and execute an initialisation run (see section 7.5.2)
E021	Difference between drives 1 and 2	A difference between the drive connected in socket 1 and that, for example, connected to socket 3 has been detected (in this case error *E022* is indicated). Perform an initialisation run. If the error message is still present, the control unit or a drive may be faulty.
E022	Difference between drives 1 and 3	
E023	Difference between drives 1 and 4	

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Indication	Fault	Fault rectification
E900	Communication between interconnected control units is faulty.	Pull out the mains plug, check the lead and connections and perform an initialisation run (see section 7.5.2). If the error is still indicated, check the Slave control units for fault *E920* (see below).
E910 (Master only)	The number of slave controls detected does not correspond with the parameter 123.	Check the connecting cable and the value set in parameter 123. Then start the initialisation run on the master control.
E920 (Slave only)	A Slave control unit has detected a position difference in comparison to the Master control unit.	If the fault *E920* is indicated, there is a position difference between the corresponding Slave controller drives and the Master controller drives. Perform an initialisation run.
E90x (Master only	The x slave control has reported an error. For example, E901 stands for the 1st slave control.	Check the error message on the slave control and continue according to the error message.
CANS (Slave only)	An attempt is being made to start an initialisation run on a slave control.	If the control is located in a bus system, restart the initialisation run on the master control. Otherwise you will initially have to set the parameter 113 to "0".

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7.16 Disposal and returns

The controller must either be disposed of according to the applicable policies and regulations, or returned to the manufacturer.

The *RK* **Multi***Control* controller contains electronic components, leads, metals, plastics, etc., and must be disposed of in accordance with the applicable environmental regulations for the country in question. In Germany, disposal is governed by the *Elektro-G* (RoHS) [Electrical Code] and in the European [Economic] Area by EU Directive 2002/95/EC or the relevant national legislation.



Do not dispose of in the household waste.

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Alpha Column System

The Alpha Lifting Column is designed in column form for industrial applications with high overhung load. Ideal for assembly jigs, machine tables, display and computer benches.





Alpha Column System

Description

The Alpha Column is a lifting device for the continuous height adjustment of assembly tables, medical equipment, audio visual displays etc.

Due to the well designed anodised aluminium profile the column does not need any other external panelling.

The Alpha column is available in two sizes “Medium” and “Large”. Due to increased dimensions the “Large” version is able to take higher overhung loads.

Load Capacity up to 3000N at 5mm/s and a maximum travel length of 1000mm.

Special stroke lengths on request

Features

- Adjusted sliding guides guarantee zero backlash, even after years of operation
- Assembly dimensions can be adjusted by ± 3mm
- Integrated limit switches
- Self locking, even under maximum load
- Compressive and tensile forces
- Attractive design, anodised aluminium
- Smooth surface for easy cleaning
- Single unit or synchronised controls

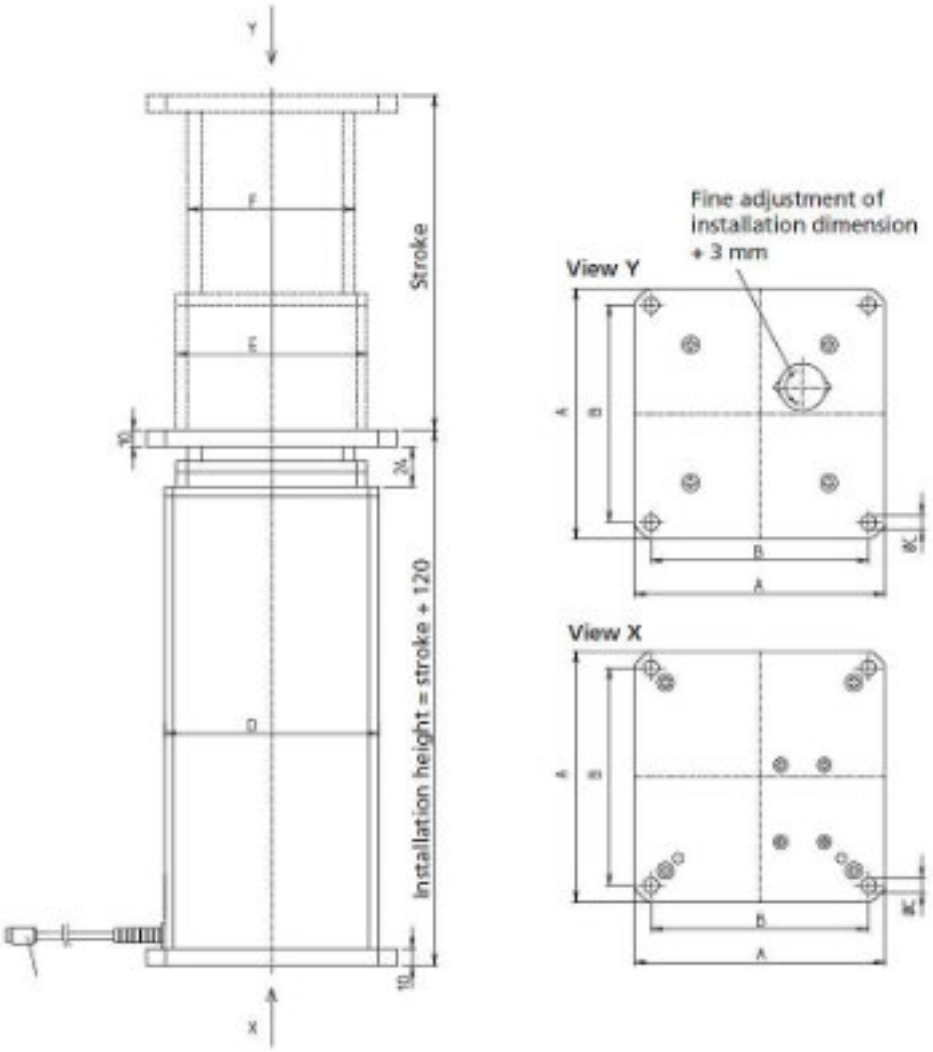


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Dimensions



Dimension	ACM "Medium"	ACL "Large"
A	150	190
B	130	170
C	9	11
D	128	163
E	114	145
F	100	128

Technical Data

Standard Column

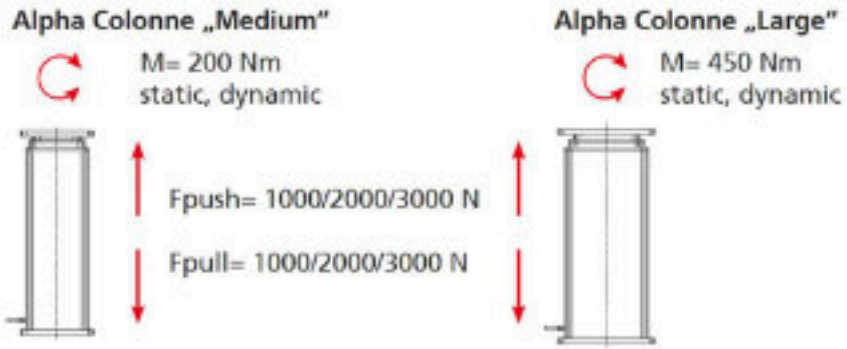
Voltage	24VDC for Standard
Controller	120/230VAC
Current	5A maximum
Protection	IP40
Ambient Temperature	-10°C to + 75°C
Load Capacity	1000N, 2000N, 3000N

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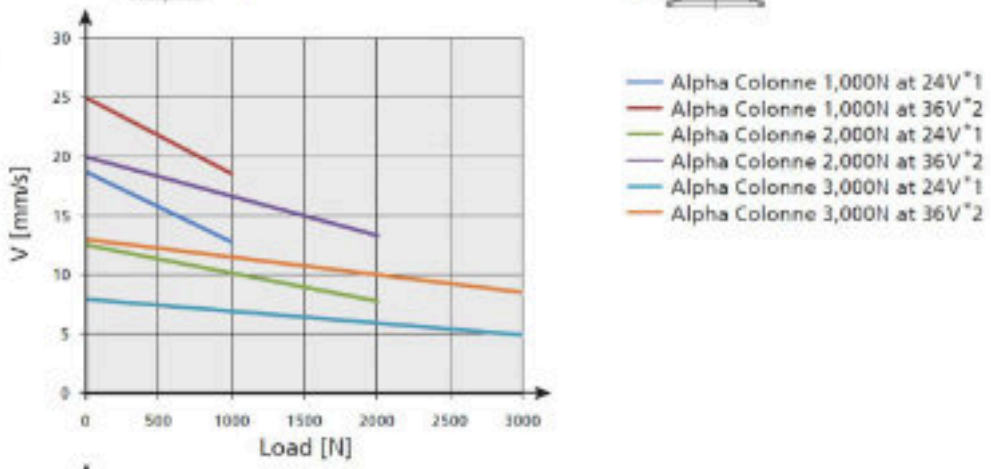
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Load Data



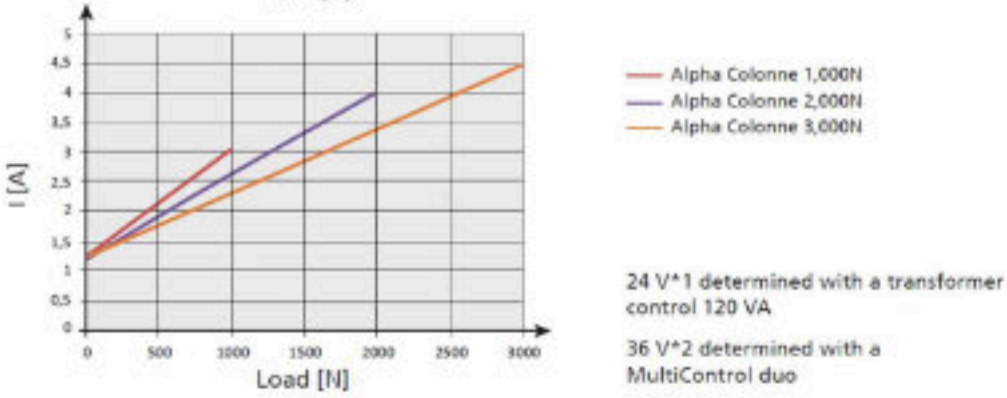
Speed/Force diagram

Alpha Colonne for external control



Current output/Force diagram

Alpha Colonne with external control



24 V*1 determined with a transformer control 120 VA

36 V*2 determined with a MultiControl duo

Duty Cycle

The lifting columns are designed for intermittent service. The maximum operating time under normal load may not exceed 20% (2 minutes operation, 8 minutes rest)

Over Hung Load

Medium Units - 250Nm
Large Unites - 450 Nm

Terms of use - Product details subject to change without notice

View Alpha Column System Online Visit:
https://actuatorselectric.com

Contact

Our specialist team are always ready to listen and help, please drop us an email or call to talk with the team.

Address.

Industrial Devices
Unit 32A
Atcham Business Park
Shrewsbury
Shropshire
United Kingdom
SY4 4UG

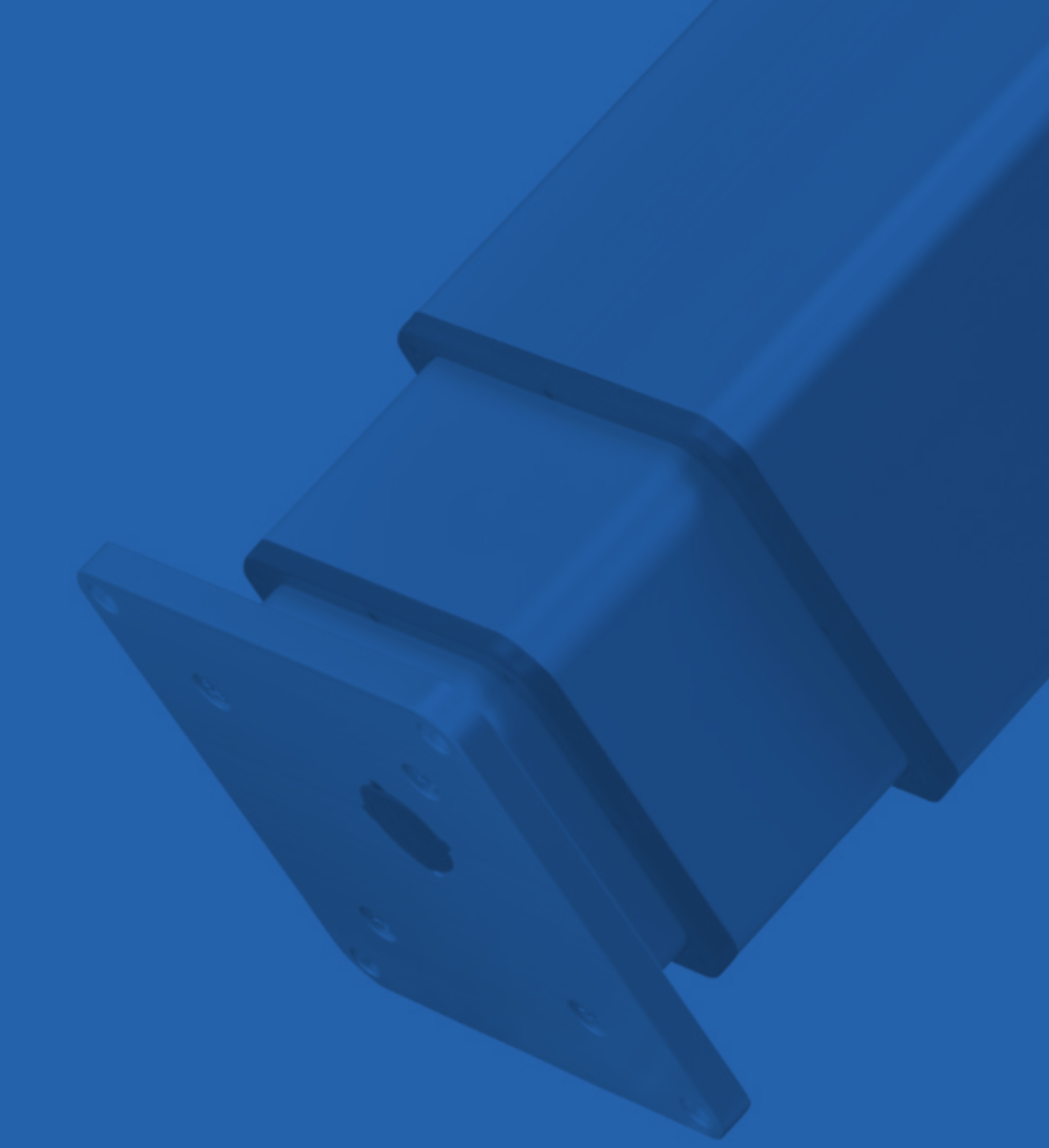
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