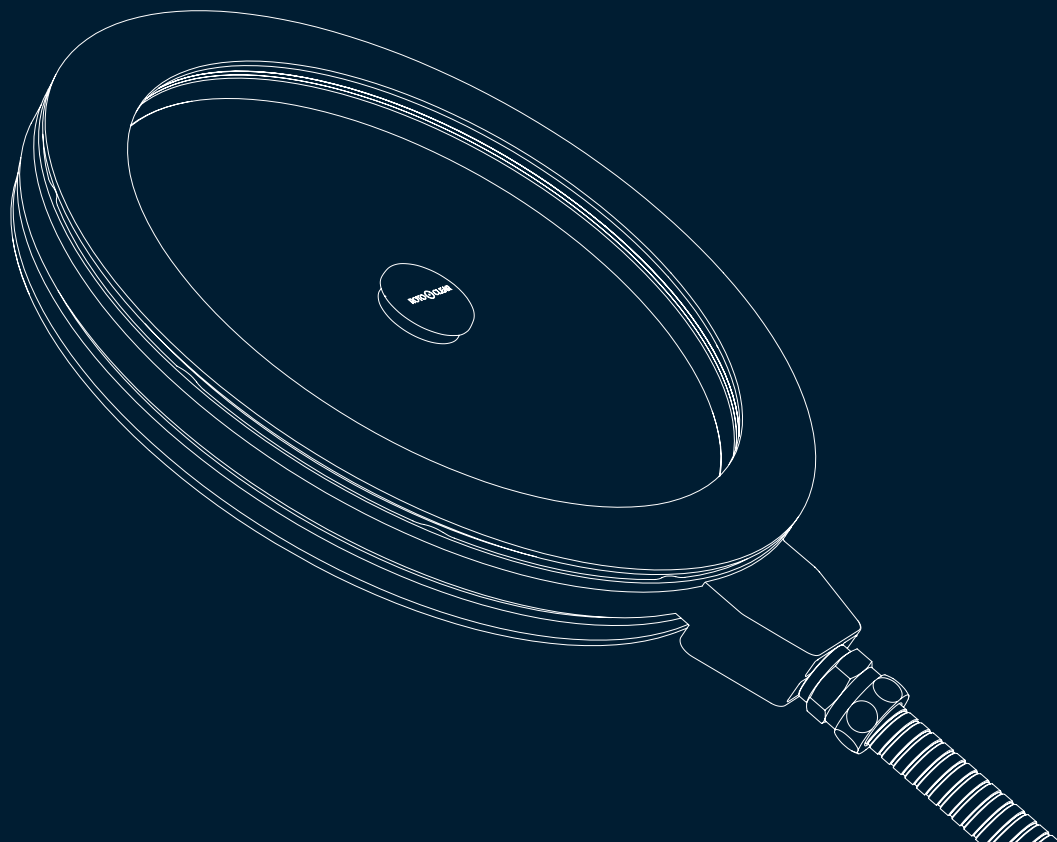


Rotoclear S3



Instruction manual

The rotating inspection window for machine tools



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Thank you for choosing the Rotoclear S3 – the technological leader in the field of self-cleaning inspection windows!

This operating manual contains all the information you will require for the smooth installation, daily operation and optimal maintenance of your Rotoclear S3.



Discover Rotoclear S3
online → 



The Rotoclear S3 self-cleaning window employs centrifugal force to create a permanently clear view of machining processes. Its clever design makes it the world's only self-cleaning window to offer unobstructed views without irritating bars getting in the way.

→ What Rotoclear S3 offers you

The option of continuous visual monitoring makes start-up much easier, faster, safer and more efficient.

A clear view of your processes also allows you to minimize scrap costs, while the Rotoclear S3 significantly reduces the amount of time-consuming cleaning required.

The patented drive concept of the Rotoclear S3 also ensures very short maintenance times, as the rotor can be replaced in no time at all if necessary.

Rotoclear GmbH holds the copyright to this operating manual. Keep this document in a safe place at the location where the unit is in use.

Version 01 July 2023

This version replaces all previous versions. Please note that older versions of the operating manual are not automatically replaced.

The latest version is always available on our website



Introduction

Safety information



Before installing and commissioning the unit, please carefully read through the operating manuals for the Rotoclear S3 as well as your machine tool and its safety functions. We have included information on installing and using the system safely. The manufacturer accepts no liability for any issues that may occur due to non-observance of this operating manual.

Please pay particular attention to the information symbols.

Disclaimer

The manufacturer accepts no liability in the event of loss due to fire, earthquake, intervention by third parties or any other accidents, wilful or accidental misuse, incorrect use or use under abnormal conditions. Repairs resulting from this will be invoiced by Rotoclear GmbH.

The manufacturer shall not be liable for accidental loss due to use or non-use of this product, such as the loss of business revenue.

Rotoclear GmbH accepts no liability in the event of improper use.

Important information



The nameplate is an integral part of the unit. Any modification of the unit, alterations to the nameplate, or opening of the housing will result in a loss of conformity and void the warranty.

Rotoclear, Rotoclear S3 and "Insights in Sight" are registered trademarks of Rotoclear GmbH in Germany and other countries.

Optimisations by the manufacturer

The product is subject to a continuous optimisation process. At the manufacturer's discretion, changes may be made to the geometry, connections, and interfaces which do not change the basic concept of the product. The manufacturer is under no obligation to actively inform customers about non-functional adjustments to the product.

Intended use

The intended use of the Rotoclear S3 extends to applications in metal-cutting machine tools, in particular milling machines and lathes or the corresponding closed environments in which media such as cooling lubricants, oils, water, rinsing and cleaning fluids are used.

In environments of this kind, visibility is impaired or obstructed by the media spraying or splashing onto the window or protective screen. The spinning window of the Rotoclear S3 continuously flings away any incoming particles or liquids towards the outside to ensure a clear view through the pane. This requires the purge air to be permanently connected to the spinning window (in accordance with the Rotoclear seal guarantee). The rotor disc must also rotate constantly to produce the self-cleaning effect while the machine is switched on.

The stream of cooling lubricant must not be aimed directly or targeted at the spinning window.

The unit must not be operated under water or cooling lubricant, neither completely nor partially.

If liquid enters the unit, please check the installation parameters.

Operating Rotoclear S3 for a purpose other than that specified by the manufacturer may endanger persons and animals and damage property. Rotoclear S3 must not be operated as a centrifuge, as a spinning window for pressure vessels or in an explosive atmosphere. Only use Rotoclear S3 as intended.

Misuse

Only use the spinning window for its intended purpose and in the environments for which it was designed to prevent any misuse.

When gluing the bonding flange, follow the instructions exactly and use the adhesive before the specified minimum shelf life expires to ensure that the bond is secure and to prevent the unit from falling off. If using the screw version, make sure that the machinery glass is not cracked at the points where holes are drilled.

Replace the machinery glass and the safety window of the replacement kit for S and S2 immediately if any cracks are visible or if their service life has expired. This is vital for safety reasons!

Avoid touching the rotor while the unit is switched on, especially during tasks that require you to enter the interior of the machine. Only enter the machine once the unit has been de-energized and the rotor has come to a standstill. The same applies for regular cleaning or maintenance tasks. Do not insert any sealing rings into the grooves of the rotor's outer ring. This is part of the labyrinth seal. The rotor must be able to rotate freely after assembly.

Adjust the purge air supply correctly or make appropriate provisions for the intake of air to ensure that the spinning window is 100% sealed.

Read the operating manual before commissioning and using the system.

Rotoclear seal guarantee

The Rotoclear S3 features a labyrinth seal with a small gap between the rotor and stator.

It requires a sufficient supply of purge air to fulfil the Rotoclear seal guarantee. Air consumption has been minimized while still ensuring that visibility is maintained under all conditions.

If it is not possible to provide a purge air supply (e.g. if the window is retrofitted or converted), the unit will still be sufficiently sealed under moderate conditions even if directly exposed to cooling lubricants.

Use of screw and bonding flanges

Polycarbonate machine tool safety windows age and become brittle due to the influence of cooling lubricants that contain oil. They then no longer fulfil their safety function. They must be replaced after a certain period of use.

The same naturally also applies to any other safety-critical damage regardless of the age of the pane. Please also read the machine manufacturer's instructions.

The following chapters describe the mounting of the unit with a screw or bonding flange. This application was subjected to ballistic testing in line with EN ISO 16090-1 Machine Tool Safety – Machining Centres, Milling Machinery, Transfer Machinery and with DIN EN ISO 23125 Machine Tools – Safety – Lathes using machinery glass of various thicknesses.

The results show:

→ The impact resistance of the test specimen (in line with DIN EN ISO 16090-1 Machine Tool Safety – Machining Centres, Milling Machinery, Transfer Machinery) was not affected when screw-mounted and bonding flanges were used in milling machinery. This supports the presumption of conformity that use of either mounting method is permissible in machining centres and milling machinery under standard-compliant conditions.

→ The impact resistance of the test specimen (iaw. DIN EN ISO 23125 Machine Tools – Safety – Lathes) was not influenced when adhesive-mounted flanges are used on lathes. This supports the presumption of conformity that the use of adhesive-mounted flanges is permitted in lathes under standard-compliant conditions, whereas use of screw-mounted flanges is not.

Please note that Rotoclear S3 can nevertheless influence the impact resistance of the window on workspace enclosures of machinery. Machinery manufacturers are required to provide a risk assessment as proof that the impact resistance of the workspace enclosure employed meets applicable standards. Parties operating a retrofitted Rotoclear S3 are required to demonstrate this via a risk assessment.

An application-specific risk assessment is required before using the Rotoclear S3 in metal-cutting machines that are not covered by DIN EN ISO 16090-1 and DIN EN ISO 23125 (e.g. grinding machines). Impact resistance must be proven individually by the operator or distributor of the respective machine tool.

Scope of delivery

Rotoclear S3 is supplied in a shock-protected, environmentally friendly packaging.

Upon receiving the product, please check that its contents are complete and undamaged.



Only use the original packaging for return transport and dismantle the rotor to protect the bearings during transportation.

Please also see the section entitled "Troubleshooting"

The scope of delivery comprises different parts, depending on the type of mounting and equipment.

All packages contain

- Rotoclear S3 basic unit (rotor and stator) 1 ×
- Cylinder bolt M5 Tx10 10 ×
- Operating manual DE / EN 1 ×

All complete packages contain

- Protective hose (2 m) 1 ×
- Hose fitting 2 ×
- Air hose (8 m) 1 ×
- Power cable (10 m) 1 ×
- Electric-pneumatic adapter 1 ×
- Elbow fitting 1 ×

The adhesive-mounted version also includes

- Adhesive-mounted flange with cover 1 ×
- Two-component adhesive 1 ×
- Cleaning cloth 1 ×
- Dosing gun for two-component adhesive 1 ×

The screw-mounted version also includes

- Position template (screw-mounted version) 1 ×
- Screw-mounted flange (6–16 mm clamping range) 1 ×

The replacement kit for S and S2 additionally contains

- Adapter flange (6–16 mm clamping range) 1 ×
- Flange for machinery glass 1 ×
- Cylinder bolt M5 × 16 1 ×
- Cylinder bolt M5 × 20 24 ×
- Cylinder bolt M5 × 25 12 ×
- Safety window 2 years 1 ×
- Cable bushing M16 1 ×

Replacement kits for third-party devices

The kits contain different components for adapting the Rotoclear S3 depending on the model that is being replaced:

The replacement kit for third-party devices (standard) contains

- | | |
|---|------|
| • Adapter flange for replacing third-party devices (e.g. Visiport with screw flange - hole circle 226.7 mm in diameter) | 1 × |
| • Cylinder bolt M5x14 Tx10 | 10 × |
| • Cylinder bolt UNC 4-40 x 7 (1/4") | 6 × |
| • Cylinder bolt M3x8 | 6 × |
| • Sealing ring | 1 × |

The replacement kit for third-party devices (DMG MORI) contains

- | | |
|-----------------------|-----|
| • Cover 0.5 mm | 1 × |
| • Adhesive dots 20 mm | 12× |
| • Adhesive dots 12 mm | 12× |

Optional accessories

- Additional primer kit for bonding to polycarbonate surfaces
- Straight-way valve
- Manometer
- M16 to T1/4" adapter
- Threaded pipe union
- Hose fitting
- Air hose (8 m)
- Power cable (10 m)
- Electric-pneumatic adapter (for protective hose or tube)
- Elbow fitting

Preparing the parts



Remove the rotor and the stator from the packaging. Both components are packed separately. When unpacking, pay attention to cleanliness. Store all parts on a clean, soft surface or in the original packaging. Handle the product with care.



The unit must be protected from any shocks, as they may damage the bearing unit, the rotor or other parts.



There is a magnet in the rotor. Beware of the magnetic forces if you have an active medical implant. Keep a minimum distance of 20 mm between the implant and the rotor.

Loosen the cover on the connection box and loosen the screws of the strain relief.

Remove the M16 screw plug. Put all parts back in the packaging or onto a clean and non-metallic surface.

The Rotoclear S3 can also be mounted with the machinery glass installed. The alignment of the connection box can be freely selected between 0-360°. Alignments of 0, 90, 180 or 270° are recommended.

The unit is mounted on the inner side of the machinery glass that is exposed to media.



Make sure that the tightening torques are observed! Exceeding the torque values can destroy parts of the Rotoclear S3. If the tightening torque falls below this value, the sealing ring may not provide the desired sealing effect.

Required tools

- Allen key, WAF 6 mm
- Screwdriver 12 × 1 mm and 3 × 0.5 mm
- Screwdriver Tx 10
- Side cutter
- Stripping tool
- Stripping pliers for 0.75 mm²
- Wire end ferrules for 0.75 mm²
- Crimping pliers for wire end ferrules
- Open-ended spanner; WAF 22, 23, 25
- Cleaning cloths
- Isopropyl alcohol

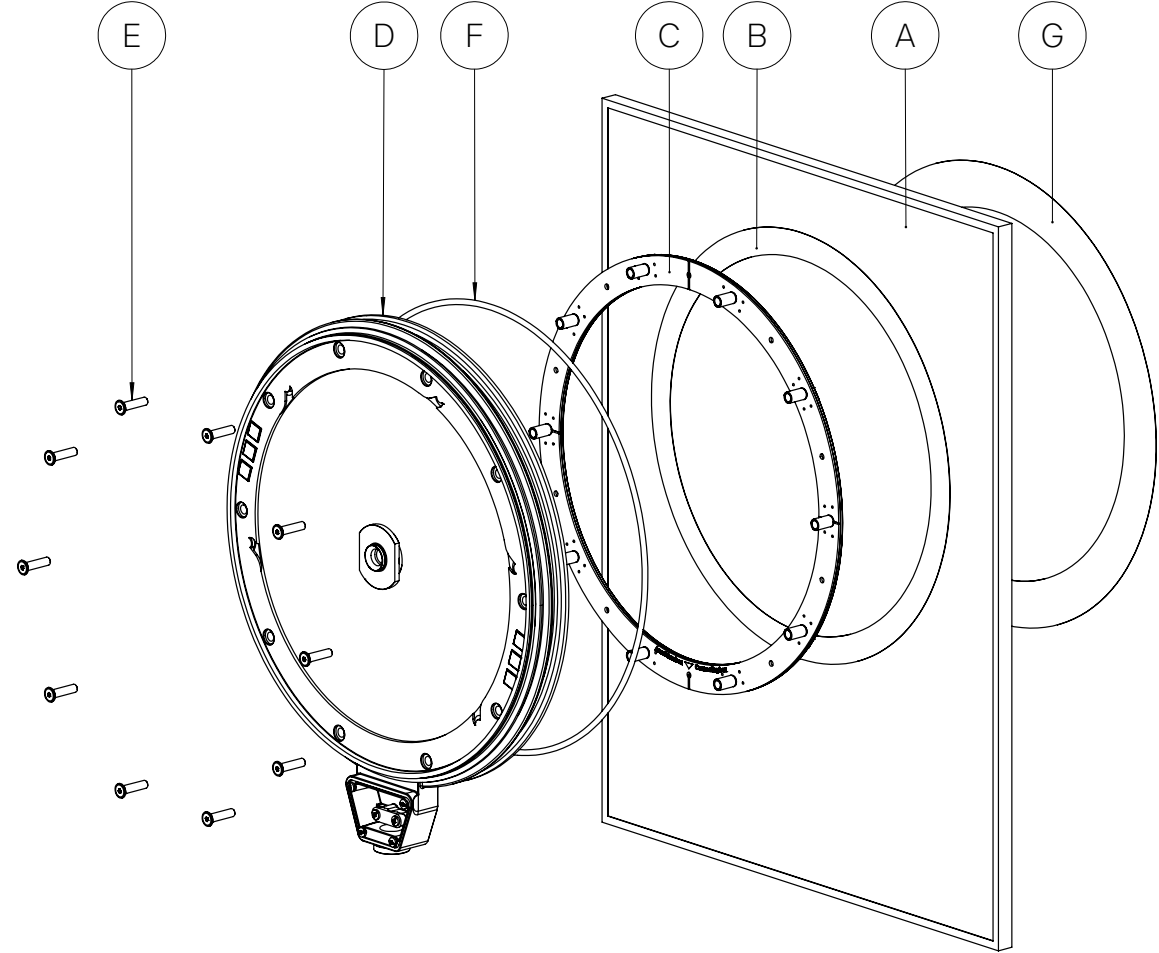


Figure 1

Mounting the bonding version



This type of mounting requires the parts provided in the bonding version of the Rotoclear S3.



The unit can be glued to laminated glass or polycarbonate panes that do not have a special non-stick coating. Please note the additional mounting steps for gluing to polycarbonate.

Mounting steps

The following steps take approx. 1 hour in total. The adhesive takes at least 6 hours to cure.



Be sure to observe the prescribed curing time of the adhesive as well as the tightening torques.

→ Clean the inside of the machinery glass (Fig. 1-A) at the place of installation extensively with a grease-dissolving agent (e.g. isopropyl alcohol or Terostat 450). The glass side of a laminated glass pane can also be cleaned with acetone. Do not use acetone on polycarbonate, as it corrodes and damages the plastic! Clean with a dry, clean and lint-free cloth without leaving any residue. The pane must be clean, grease-free and dry.

→ Determine the position of the Rotoclear S3 and mark the outer limit and the horizontal position with a marker on the inside of the machinery glass.

Additional steps when gluing to polycarbonate

→ Carefully apply the adhesive template, smooth it out and remove the backing film.

→ Apply a single coat of primer (Fig. 1-B) to the ring surface and allow to flash off for at least 10 minutes. Make sure that no droplets form.

→ Now remove both the inner and outer parts of the adhesive template.

Subsequent steps for both laminated glass and polycarbonate panes

→ Unpack the adhesive-mounted flange (Fig. 1-C) and remove the protective film (Fig. 2-A) (5 ×) from the adhesive pads on the back. For the best adhesive results, please do not touch the side of the flange facing the machinery glass with your bare fingers.

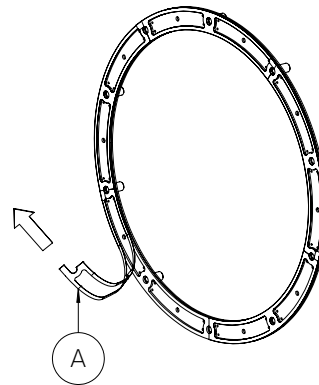


Figure 2

→ Place the adhesive-mounted flange (Fig. 1-C) on the inside of the pane, adjusted to the desired orientation and according to the labelling on the adhesive flange, and correct if necessary. Then, press the flange down firmly over its entire surface so that no adhesive can escape during the injection process in the following steps.

→ Check the expiry date of the two-component adhesive (Fig. 3-A). Never use adhesive that is past its expiry date.

→ Place two-component adhesive in dosing gun and fit on mixing nozzle (Fig. 3-B). Squeeze out one strand of adhesive the length of the mixing nozzle. The adhesive is now well-mixed and bubble-free. Test the discharge speed with a second strand of adhesive.

→ Insert the mixing nozzle into the filling hole (Fig. 3-C) between two threaded sleeves and carefully squeeze in adhesive until it comes out of all four small inspection holes (Fig. 3-D) in the pocket corners. Repeat the process nine times until all pockets are filled.

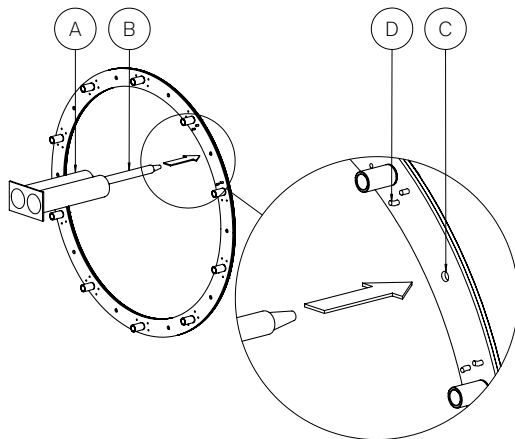


Figure 3

→ The adhesive cartridge as well as the remaining adhesive must not be disposed of in household waste. Dispose of them properly.

→ Important: the flange must not be subjected to loads or moved from its position during the curing process. You must wait at least 6 hours before the flange can be subjected to loads (90% of the final strength will have been achieved).

→ Check the strength of the adhesive-mounted flange before installing Rotoclear S3. When consistency of the adhesive (Fig. 3-D) that came out through the inspection hole is rubbery and hard enough to cut, the adhesive is ready to be subjected to loads.

→ Cut off the adhesive residue with a knife and clean the glass surface in and around the ring with a lint-free cloth.

→ Align the logo cap (Fig. 4-A) according to the desired orientation of the connection box.

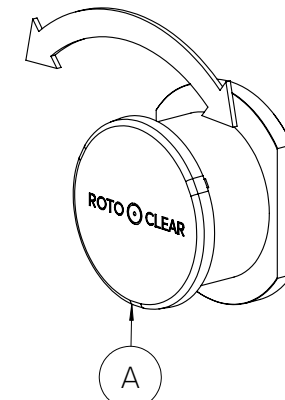


Figure 4

→ Place the Rotoclear S3 stator (Fig. 1-D) onto the threaded sleeves of the bonding flange (Fig. 1-C) and fasten it using the M5 × 19 Tx 10 cylinder bolts (Fig. 1-E). Check that the sealing ring (Fig. 1-F) is seated correctly and that the stator is tightened to the correct torque of 1.1 Nm.

→ Clean the other side of the machinery glass. Remove the protective film from the adhesive pads of the cover (Fig. 1-G), stick them on to an exact fit, and press them firmly into place. Allow for a waiting period of at least 24 hours without machine operation (warm-cold alternation).

We recommend installing the cover over a week-end if possible.

Safety information



The bonding agent, adhesive, and cooling lubricant, in combination with the influence of temperature, may shorten the service life of the polycarbonate machinery glass. Check the area around the adhesion site at regular intervals (6 months) for cracks in the polycarbonate. Comply with the relevant standards and replace the pane in good time.



Read the additional mounting information



instructions

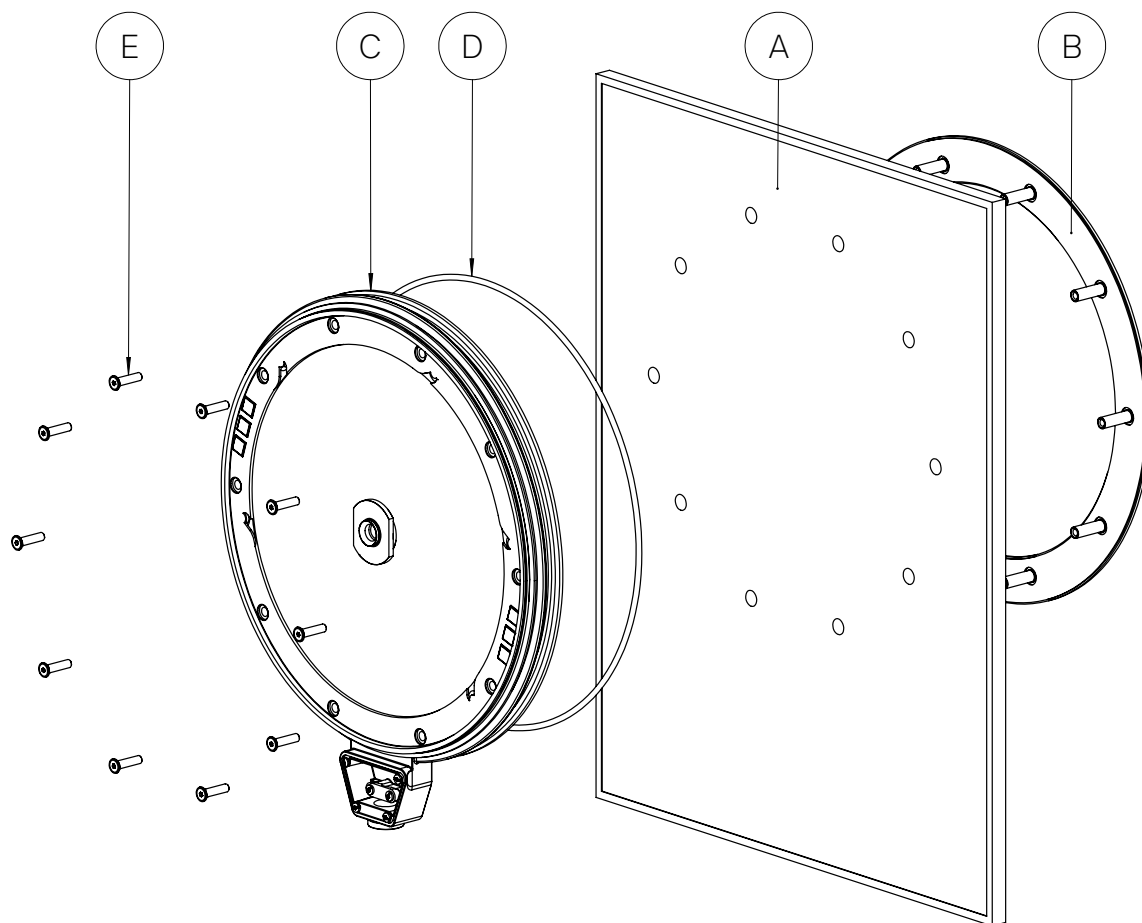


Figure 5

Mounting the screw version



This type of mounting requires the parts provided for the screw version of Rotoclear S3.



Drilling and tightly clamping the polycarbonate pane may affect the properties of the pane. Have the installation carried out by qualified personnel. Adhere to the tightening torques and observe the clamping range of the screw-mounted flange. In the case of old panes or after a long period of use, look out for cracks and clouding on the machinery glass. Replace the pane in good time.



Due to the impact resistance values obtained in ballistic tests, the screw version of Rotoclear S3 is not to be used in combination with lathes. In such cases, you must install the bonding version of Rotoclear S3. Fastening by means of a hole circle is only used on milling machines and centres with polycarbonate discs. For more information, please refer to the section "Intended use".

Mounting steps

The following steps take approximately one hour in total.

→ Drill a hole circle in the polycarbonate disc using the dimensions shown in Figure 6, adapted to the desired orientation of the connection box. For this, use the enclosed drilling template and drill bits suitable for polycarbonate. Blunt drill bits can negatively impact the drilling result and promote the formation of cracks. These can also form at a later time if the drilling results are imperfect.

→ Clean the inside and outside of the pane (Fig. 5-A) thoroughly with isopropyl alcohol.

→ Align the logo cap (Fig. 4-A) according to the desired orientation of the connection box.

→ We recommend using polycarbonate-compatible plastic sleeves (max. outside diameter 8.5 mm, inside 7 mm, length max. 14 mm) that are pushed onto the 10 bolts of the screw flange before assembly. This is a gentle measure that minimizes the risk of cracks forming in the machine's protective screen. These sleeves are not included.

→ Insert the screw-mounted flange (Fig. 5-B) into the holes of the pane from the outside and fix it in place temporarily, e.g. using residue-free adhesive tape, so that it does not fall out when the stator is attached.

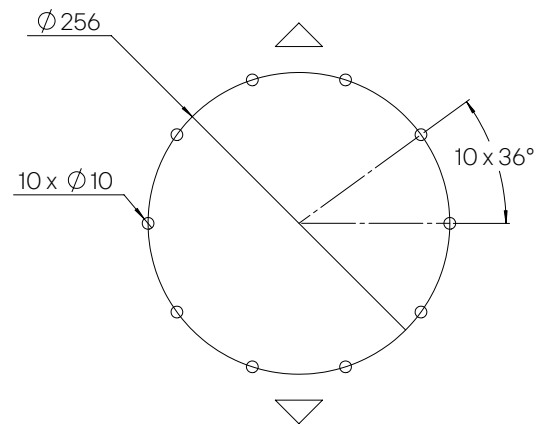


Figure 6

→ Once the stator (Fig. 5-C) with inserted sealing ring (Fig. 5-D) has been attached, screw in the M5 x 20 Tx 10 screws (Fig. 5-E) and tighten them with a torque of 1.1 Nm.



Read the additional mounting information
→
instructions

Mounting the replacement kit for S and S2

The Rotoclear S or S2 can be replaced by the Rotoclear S3 using the replacement kit for S and S2 under the conditions mentioned below.

This mounting variant is a special case and only intended for retrofitting. Ordinarily, the bonding or screw version should be used.



Checking compatibility

The replacement kit for S and S2 fits windows 6 – 16 mm thick. A spacer ring is available for thinner panes or sheet metal walls.

For installation, you will require at least 40 mm of space behind the pane. Please verify this, especially if the following types are to be replaced:

- Rotoclear S: AP1620 500 / AP1620 500 30
- Rotoclear S2: AP10850 500 / AP10850 500 30

If less than 40 mm of space is available behind the window for installing the replacement kit for S and S2, replace your unit with a Rotoclear S2 type AP10850 500.

Installation is possible without any problems if the following types are to be replaced:

- Rotoclear S: EP1620 600 / EP1620 600 30
- Rotoclear S2: EP10850 600 / EP10850 600 30

The replacement kit for S and S2 must not be used to replace the following types:

- Rotoclear S: AP1620 500 50 / EP1620 600 50 / EP1620 600 60
- Rotoclear S2: AP10850 500 50 / EP10850 600 50 / EP10850 600 60

→ Rotoclear S2: A P10850 500 50 / E P10850 600 50 / E P10850 600 60

In this case, install the adhesive- or screw-mounted version of Rotoclear S3. This usually requires the replacement of the machinery glass.

Mounting

→ Remove the Rotoclear S or S2 and clean the area around the cut-out with isopropyl alcohol.

→ The adapter, the safety window and Rotoclear S3 are pre-assembled. Insert the unit together with the adapter into the cut-out from the inside.

→ Position the flange from the outside and align the unit. Be careful that the unit does not fall out.

→ Fix the unit in place using the corresponding marked screws for the respective pane thicknesses of 6-10 mm (M5 × 16), 11-15 mm (M5 × 20) or 16 mm (M5 × 25).

Safety information

Installation is exclusively approved for machines that comply with the standard DIN EN ISO 16090-1 (Machine tools safety - Machining centres, milling machines, transfer machines). Use the unit in other machines at your own risk.

The safety window of the Rotoclear S / S2 is installed in the adapter flange.

Replace the safety window after the date indicated on the pane has expired.

Only use polycarbonate safety windows with replacement intervals of 2 years with thereplacement kit for S and S2.

The machine must not be operated with the adapter flange without a Rotoclear S3 mounted.



Changing the machinery glass

If you need to replace the machinery glass at a later date due to the replacement interval elapsing, order the new window without the 282 mm cut-out. You can install the Rotoclear S3 on a new window as described for the standard version – i.e. without the adapter flange. We recommend providing a compressed air supply (see chapter Purge air supply).

Mounting the replacement kit for third-party devices

Rotoclear S3 can replace spinning windows made by some third-party manufacturers (e.g. Visiport and compatible products or substitutes) using the replacement kit for third-party devices. This is particularly useful for servicing purposes or in cases where a retrofitting task needs to be kept as simple as possible.



This installation variant is a special version. It is only intended to be used to replace third-party devices on existing machinery glass and protective screens until the machinery glass has to be replaced in line with the manufacturer's standard replacement interval. In standard cases, such as after replacing a machine's protective screen, a standard bonding or screw-mounted Rotoclear S3 should be installed..



Check the machinery glass for damage before conducting any conversion work. Replace the pane if the glass is starting to crack, if cracks are already present, or if the polycarbonate window's service life has expired and it must be removed from service for safety reasons. The same naturally also applies to any other safety-critical damage, regardless of any retrofitted components. Please also read the machine manufacturer's instructions.

A standard bonding or screw version of the Rotoclear S3 can then be mounted on new machinery glass. See chapters Mounting the bonding version and Mounting the screw version

Replacing the rotating window

First, check whether the spinning window is compatible with the Rotoclear S3 adapter flange. This component is used to replace third-party devices with holes 220.7 mm in diameter. It must be possible to screw the Rotoclear S3 adapter flange to the components of the old unit that are being re-used. To do so, six #4-40 mounting points or six M3 mounting points with female threads, each at an angle of 60°, must be available around a hole 226.7 mm in diameter.

This is the case, for example, in units with the following type designations:

- Visiport VP220.C
- Visiport VP220.C2
- Visiport E220.C

You can also use it to replace products that are compatible with or substitutes for the Visiport types listed above.

If you are replacing a spinning window made by a third-party manufacturer, a distinction must be made between the following cases:

- The old unit being replaced is glued directly to the machinery glass.
- The old unit being replaced is fixed in place by a flange glued to the glass (e.g. screw-mounted Visiport units on machine tools made by DMG MORI or WFL Millturn Technologies).
- The old unit being replaced is fixed in place using a method that is particular to the machine manufacturer.



For units glued directly to the glass

If the old unit is glued directly to the machinery glass, it must be removed without leaving any residue. Provided this is possible without damaging the glass, the standard bonding version of the Rotoclear S3 can then be used without the need for further parts or measures. See chapter Mounting the bonding version.

If it is not possible to remove the unit without causing damage, the machinery glass must be replaced. The standard, bonding or screw version of the Rotoclear S3 can then be installed. See chapters Mounting the bonding version and Mounting the screw version

For units attached to a flange

If the unit is attached to the machinery glass on a bonded flange (also called mounting plate in Visiport units), the unit can be replaced with a Rotoclear S3 using the Rotoclear S3 adapter flange:

→ Disconnect the unit from the power supply. Open the unit's connection box and disconnect the power supply.

→ Remove the rotor of the old unit. The central cap usually has to be unscrewed to reach the four rotor screws. If in doubt, consult the operating instructions of the unit.

→ Loosen the fixing screws located in the labyrinth of the unit to remove it.

→ Loosen the nut of the protective hose and disconnect the old unit from the hose connection.



When working on the electrical system, make sure that the machine has first been disconnected from the power supply. Work on electrical installations

must always be carried out by trained specialists.

The flange of the third-party device is reused to install the Rotoclear S3 using the Rotoclear S3 adapter flange for replacing third-party devices with a hole 226.7 mm in diameter.

→ In some cases, the flange has a groove for installing sealing rings. The sealing concept of the Rotoclear S3 adapter flange is not affected by this. Remove any old seals if necessary.

→ Pay attention to the alignment instructions on the Rotoclear S3 adapter flange. Place the side with the inserted sealing ring on the flange in the desired orientation.

→ Mount the Rotoclear S3 adapter flange on the flange on the glass using the enclosed UNC-4-40 bolts.

→ Once the stator (Fig. 5-C) and its inserted sealing ring (Fig. 5-D) have been fitted, screw in the M5 × 14 Tx 10 bolts and tighten them with a torque of 1.1 Nm.

For units attached using a special solution

Special solutions are widely used for machines made by DMG MORI or WFL, for example. First, check whether the special solution is compatible.

For DMG MORI-specific mounting solutions

The old unit is usually fixed in place by a flange located on the operator side of the machinery glass and six screws that are screwed into the unit from the operator side through the flange and through the glass. Rotoclear classifies installation solutions of this kind as safety-critical, as external parts can break off and be flung away if the window is bombarded with chips. We strongly recommend replacing the unit.



This job must be performed with the assistance of a second person as work must be done from both sides of the machinery glass at the same time.

→ Disconnect all supply lines and remove the unit as described in the paragraph For units attached to a flange.

→ Loosen the fastening screws from the outside before removing the unit. Hold the unit firmly to prevent it from being dropped.

→ Clean the inside and outside of the machinery glass thoroughly without leaving any residue.

→ If the inside panel is made of polycarbonate, prepare the surface using primer as described in chapter Mounting the bonding version. Wait at least 10 minutes for the primer to flash off.

→ Before applying the bonding flange, seal the holes of the third-party unit that are no longer needed on the inside and outside of the unit using the transparent adhesive dots. Use the enclosed adhesive dots of the appropriate diameter (either 15 or 20 mm) to seal the holes. The adhesive dots may partially overlap the surface pre-treated with primer.

→ Position the bonding flange according to the desired orientation so that the adhesive flange encircles the sealed holes.

→ Carry out the bonding attachment process step by step as described in chapter Mounting the bonding version and wait for the adhesive to cure (at least 6 hours curing time).

→ Once the stator (Fig. 5-C) and its inserted sealing ring (Fig. 5-D) have been fitted, screw in the M5 × 14 Tx 10 bolts and tighten them with a torque of 1.1 Nm.

→ Position the stainless steel cover concentrically to cover the drilled holes on the exterior side and glue it in place.



For WFL-specific installation solutions

The unit is usually attached to a flange located in the space between the polycarbonate window and the glass pane.

There are two different versions of this solution. In the first, a mounting plate resting on the interior side is screwed to the flange located in the space between the panes of machine safety glass. In the second, there is a screw flange in the space between the panes. It is equipped with M3 internal threaded bolts.

Neither flange version can be dismantled. They are then used to install the Rotoclear S3 with the Rotoclear S3 adapter flange for third-party devices with a hole 226.7 mm in diameter.

→ Disconnect all supply lines and remove the unit as described in the paragraph For units attached to a flange.

→ Read the instructions for aligning the unit on the Rotoclear S3 adapter flange for third-party units with a hole 226.7 mm in diameter. Position the side with the inserted sealing ring in the desired orientation on the interior side of the machinery glass.

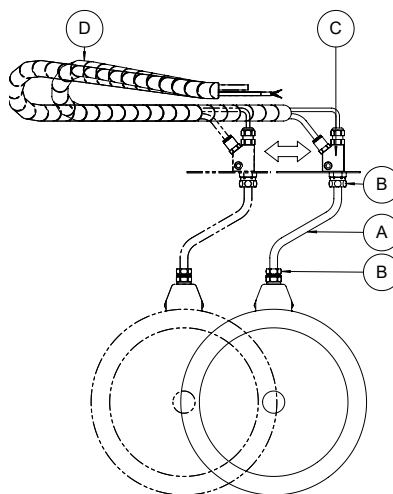
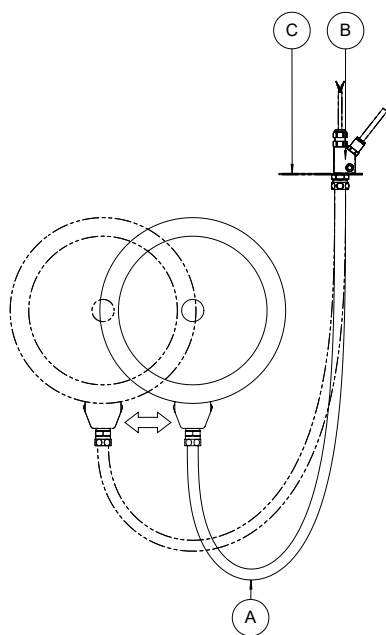


Read the additional mounting information

→ instructions

→ Mount the Rotoclear S3 adapter flange for third-party devices with a hole 226.7 mm in diameter. Alternatively, if using a support disc and mounting plate, mount the Rotoclear S3 on the mounting plate using the enclosed UNC 4.40 x 7 hexagon socket screws.

If using a screw flange with internally threaded bushings, mount the Rotoclear S3 on the screw flange inside the pane using the enclosed M3 x 8 bolts.



→ Once the stator (Fig. 5-C) and its inserted sealing ring (Fig. 5-D) have been fitted, screw in the M5 × 14 Tx 10 bolts and tighten them with a torque of 1.1 Nm.

Safety information



The same conditions that were validated and defined by the manufacturer of the third-party device or the manufacturer who supplied the third-party device along with the machine continue to apply for safety against chip impact.

Changing the machinery glass

If you need to replace the machinery glass at a later date due to the replacement interval elapsing, it is advisable to install the standard version of the Rotoclear S3 on a new pane – i.e. without the Rotoclear S3 adapter flange for third-party devices with a hole 226.7 mm in diameter.

We recommend providing a compressed air supply (see chapter Purge air supply).

Electrical installation

Electrical installation may only be carried out by authorized and trained specialists.

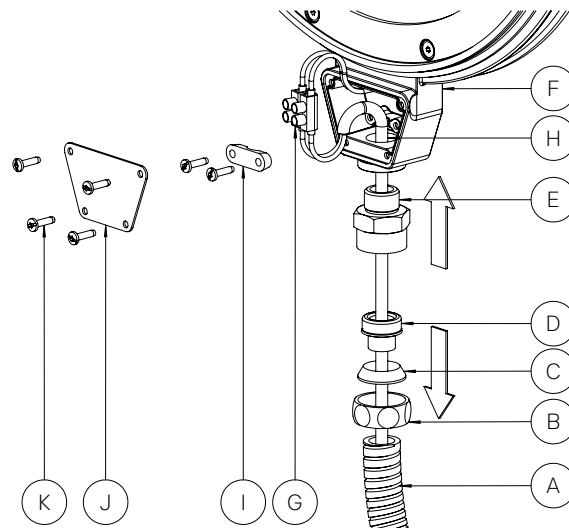


Figure 9

Installation with protective hose

If necessary, trim the protective hose (Fig. 8-A) to the required length using a hacksaw.

If the Rotoclear S3 is mounted on the window of a sliding door, make sure that the section of protective hose is long enough to accommodate the full movement of the door.



Deburr the ends. Fit both nuts (Fig. 9-B) and the seal (Fig. 9-C) of the hose fitting on the protective hose in the appropriate orientation and screw the brass sleeve (Fig. 9-D) back into the ends to fasten it.

Screw the part of the hose fitting with the external threads (Fig. 9-E) into the connection box (Fig. 9-F) of the Rotoclear S3 until hand tight and then tighten it by no more than a quarter turn. The adapter is sealed by a sealing ring.



If the unit is installed on the window of a sliding door, the movement is usually accommodated by the protective hose (Fig. 7-A). For this reason, the electric-pneumatic adapter (Fig. 7-B) is installed on the stationary part of the machine housing (Fig. 7-C). It can then be used to feed the power and purge air supply lines through into the working area of the machine.

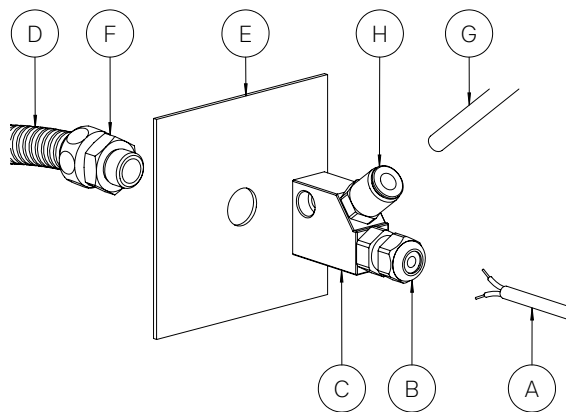


Figure 10

Pull the power cable (Fig. 10-A) through the protective hose (Fig. 10-D) with the stripped end in the cable gland (Fig. 10-B) of the electric-pneumatic adapter (Fig. 10-C) and through the screw connection of the Rotoclear S3 connection box. Note that the cable must also be fed through the sheet metal wall at the intended location (Fig. 10-E). Connect the hose fitting (Fig. 10-F) to the electric-pneumatic adapter.

To connect the power cable, pull the terminal (Fig. 9-G) and the end of the power cable (Fig. 9-H) out

of the connection box. Connect the cable ends to the terminal and ensure that L1 and L2 have the correct polarity. (Brown +, Blue -). Secure the power cable in position with the strain relief fitting (Fig. 9-I).

If the polarity is reversed, the motor will not be damaged, but will not start.



To connect the protective hose to the connection box, fit it on the part that is already screwed in and tighten the nut while holding the screwed-in part (Fig. 9-E) in position with a spanner.

Installation with rigid tube

Depending on the installation situation, it may make sense to substitute the protective hose (Fig. 7-A) with a straight or pre-bent metallic tube (Fig. 8-A). The tube needs to be 12 mm in diameter and have walls 1 mm ($\varnothing 12 \times 1$) thick. In addition to replacing the protective hose, replace the hose fittings (Fig. 9-B, C, D, E and Fig. 10-F) with separately available pipe fittings (Fig. 9-B).

Fit the screw connections and route the connection lines as described in the previous paragraph. If installing in a sliding door, the electric-pneumatic adapter (Fig. 8-C) is also positioned in the door. It can be used to feed through the supply lines in the same way as when installing the unit with a protective hose.

Dimension the power and purge air supply lines such that they can accommodate the movement. Use a trailing cable (Fig. 8-D) to route the lines safely.

Using your own screw elements or protective hoses with firmly attached screw elements can damage the Rotoclear S3 housing.

Close the connection box with the cover (Fig. 9-J) and the 4 screws provided for this purpose (torque 1.1 Nm) (Fig. 9-K) making sure that no cables are pinched or crushed.

Close the cable gland (Fig. 10-B) of the electric-pneumatic adapter to fix the power cable in place.

Lay the power cable (e.g. via a trailing cable or fixed routing) to the control cabinet and connect the unit into the machine control system.

The Rotoclear S3 should be coupled to the machine's main switch and must operate continuously to seal the machinery glass (see chapter Purge air supply) and to provide a view of the machine interior. The constant centrifugal force can only enable a permanently clean pane if vapours and cooling lubricant particles that are still in the atmosphere after machining are also repelled by the centrifugal action of the rotor.



For example, for reasons of fire protection or in accordance with standards applicable in your installation situation (e.g. IEC 60204-1:2019-06), it may be necessary to earth the system. This applies in particular when using non-water-miscible oils, flammable or explosive coolants.

Connect the protective conductor to the electric-pneumatic adapter with earthing hole (available as an option) and to all metallic parts of the unit that could come into contact with the electrical supply.

Be absolutely sure that all units are connected to the same protective conductor.

There must be electrical contact between the adapter and the screw connection of the protective hose. Otherwise, the screw connections must be earthed separately (e.g. when using Teflon tape). If a metal tube is used, it must also be earthed separately.

We recommend earthing the metallic parts independently of the environment and the coolants used.

Special case: Replacement kit for S and S2

As a rule, the existing power supply can continue to be used (see also the section "Electrical installation").

The following types of Rotoclear S or S2 are connected to the power supply on the outside of the pane:

- Rotoclear S: A P1620 500 / A P1620 500 30
- Rotoclear S2: A P10850 500 / A P10850 500 30

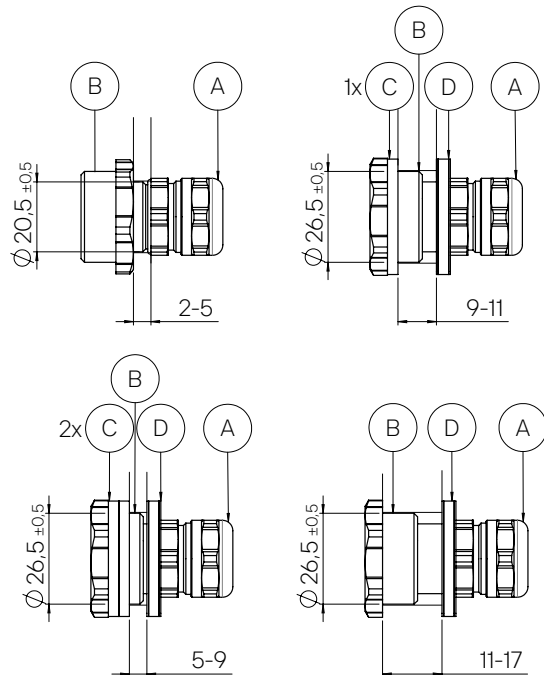


Figure 11

The power connection can be routed to the inside the machine using the cable gland leading to the connection for the Rotoclear S3, which is mounted entirely on the inside of the machinery glass. You only need power to supply the Rotoclear S3 with adapter. You can continue to use the power cables of the previous model if necessary.

If a Rotoclear S or S2 of the type mentioned under 1. or 2. above was installed, the connection is on the outside. You can use the cable gland (Fig. 11-A) to feed through the power cable. Different sheet metal or pane thicknesses require different hole diameters. Ensure that the nut is screwed in facing in the right direction (Fig. 11-B) and that a correct number of spacer rings is used (Fig. 11-C). A

sealing washer (Fig. 11-D) is used for holes with larger diameters.

Special case: Replacement kit for third-party devices

It is essential to read the instructions related to this retrofit kit in the chapter Purge air supply.



There are many manufacturer-specific installation variants of third-party devices, some of which are bespoke designs. The list of connection variants given below is not exhaustive. If you come across a different variant, it is still usually possible to connect the Rotoclear S3 in a few simple steps by adapting the cable routing to the specific situation. In cases such as these, it is advisable to have the work done by specialist maintenance personnel.



The following options are available for connecting a unit that is being used to replace a third-party unit (e.g. Visiport):

Replacing the supply line

Replace the supply line of the third-party unit with the standard supply line provided with the Rotoclear S3:

→ A connection cable set containing all the necessary parts is available for this purpose. Proceed as described in the section Installation with protective hose. In this case, the M16 to T1/4" adapter and the pipe fitting included in the retrofit kit for third-party devices are not required.

This is the recommended connection variant.

→ You can continue using the supply line of the third-party unit.

Third-party unit is installed with a flexible protective hose

→ Screw the M16 to T1/4" adapter into the connection box (Fig. 7-F) of the Rotoclear S3 until hand tight and then tighten it by no more than a quarter turn. The adapter is sealed by the fitted Usit ring seal.

→ Connect the protective hose of the third-party device by fitting it on the previously screwed-in adapter. Then, tighten the nut while holding the screwed-in part in position with a spanner.

Third-party device is installed with a rigid tube

→ Screw the pipe fitting into the connection box (Fig. 7-F) of the Rotoclear S3 until hand tight and then tighten it by no more than a quarter turn. The adapter is sealed by an integrated sealing ring.

→ To connect the installed rigid tube, insert it into the previously screwed-in adapter and tighten the nut while holding the screwed-in part in position with a spanner. Cut the tube to length if necessary.

The adapter can be used with tubes that are 9 – 13 mm in diameter.

→ Connect the power supply line with the connections in the connection box of the Rotoclear S3 as described in this chapter.

Mounting the rotor

There is a magnet in the rotor. Beware of the magnetic forces if you have an active medical implant. Keep a minimum distance of 20 mm between the implant and the rotor.

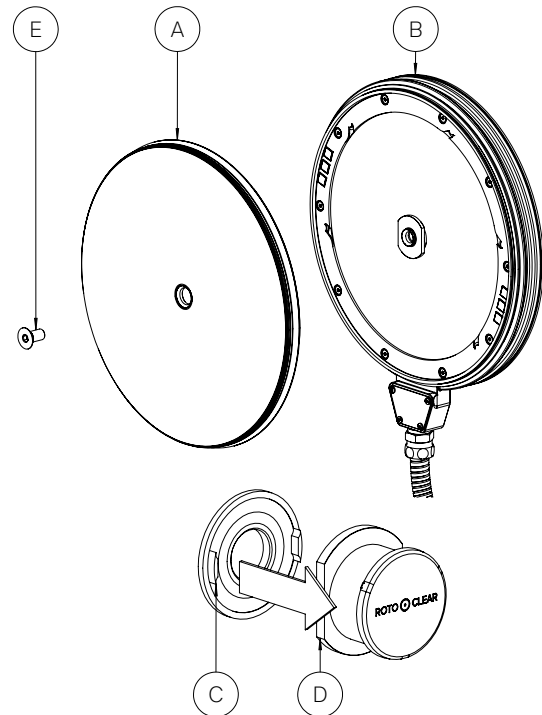


Figure 12

Fit the rotor (Fig. 12-A) on the shaft of the stator (Fig. 12-B).

Ensure that the rotor is seated correctly. The flanks of the flange (Fig. 12-C) must enclose the flat segments of the shaft (Fig. 12-D) and must not rest on the flat surface of the flange.

Screw in the M10 × 1 countersunk screw (Fig. 12-E) in the middle and tighten it with a torque of 2 Nm (max. 2.5 Nm). When doing so, hold the rotor in place by the outer edge using your hand.

Finally, check the mechanical freewheeling of the rotor by rotating it by hand.



The rotor is equipped with rare earth magnets. Due to the strong magnetic fields, chips and particles may adhere to the inside of the rotor. Chips and magnetic particles can be collected from the rotor disc with a commercially available holding magnet. Clean the rotor disc to remove any adhering particles and chips before reassembling the rotor.

Purge air supply

A purge air supply is required to fulfil the Rotoclear seal guarantee and is provided as standard for the bonding and screw-mounting methods.



The suction effect of the rotating window creates an air flow that prevents cooling lubricant from entering the unit under moderate conditions inside the machine tool.

This means that the unit (e.g. if retrofitted or converted) can also be operated without a purge air supply under moderate conditions.

If it is not possible to provide a purge air supply (e.g. when retrofitting or converting a machine), the unit can also be operated without a purge air supply under moderate conditions.

Air must be able to flow freely through the connection box and the protective hose to allow the air flow to circulate.

Installation with purge air (Rotoclear seal guarantee)

The purge air is fed into the system through the purge air line (Fig. 10-G) via the plug-in connection (Fig. 10-H) on the electric-pneumatic adapter and supplied to the unit through the protective hose. The purge air prevents the ingress of cooling lubricants, oils or other liquid media. Purge air must always be connected to maintain the Rotoclear seal guarantee. The air pressure must be individually adjusted due to the different possible sizes of supply lines.



For safe operation of the unit, a back pressure of 2-5 mbar (200-500 Pa) is required at the connection box.

The back pressure must not exceed 2 bar.



For the correct calibration pressure of older units, please contact us.

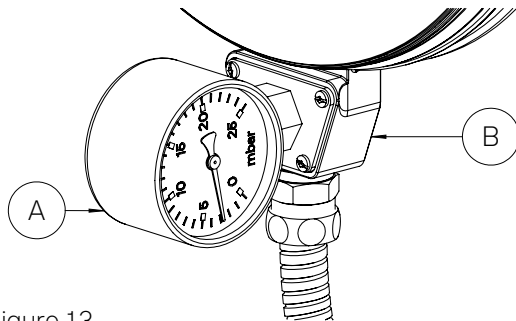


Figure 13

A suitable measuring device is available as an accessory.

Check the purge air pressure at the connection box (Fig. 13-A) using the manometer (Fig. 13-B) (accessory). To do this, screw the adapter plate of the manometer onto the open connection box and regulate the supply line until the necessary pressure is reached.

The supply pressure can be adjusted to approx. 0.5 bar with the supply lines provided. Depending on the distance between the feed and the RotoClear S3, a pressure of 0.3 – 2.0 bar may be necessary to achieve the required back pressure at the connection box.

Precise adjustment reduces the air consumption as well as the corresponding costs.



Please ensure that the purge air supplied is dry, clean and correctly adjusted.

If necessary, pre-treat the purge air using a service unit with a multi-stage filter system.

Pay attention to the requirements for the purge air which are indicated in the section “Specifications”.

Ensure that all screw connections and cable glands are screwed tightly in place and that no air can escape into the supply line.



Installation without purge air

Air must be able to flow through the connection box and the protective hose into the unit to maintain the air flow created by the rotation of the window. Instead of connecting a purge air line (Fig. 10-G) to the pneumatic plug-in connection (Fig. 10-H), the line must be removed or the connection left open.

It is vital to ensure that air can flow in and that the plug connection is not covered or closed.

A perfectly clear view cannot be guaranteed. The view can be affected, for example, by humidity, temperature differences and the air supply to the unit. A purge air supply can be connected at any time if the conditions do not allow for a clear view and, for example, the unit or machinery glass turns foggy.

Special case: Replacement kit for S and S2

A purge air supply is not provided for the standard version of the replacement kit for S and S2. The sealing concept corresponds to that of the previous models. If this is insufficient, it is possible to retrofit a purge air supply to seal the unit in line with the RotoClear seal guarantee. Please contact RotoClear Customer Service.

Special case: Retrofit kit for third-party devices

A purge air supply is not provided as standard when installing the unit using the retrofit kit for third-party units.

Nevertheless, it must be ensured that the Rotoclear S3 can take in air to provide the required air flow.

→ When using the Rotoclear S3 standard supply line, the Rotoclear S3 can be operated with or without a separate purge air supply according to the specifications in this chapter.

→ When using the existing supply line of a third-party unit, the connection box (which is also called the terminal box in Visiport units) located at the end of the protective hose opposite the Rotoclear S3 must be equipped with an air inlet. To do so, you can, for example, drill a hole (min. diameter 5 mm) in the housing of the connection box through which air can be drawn in.

Alternatively, the terminal box can be replaced with an electric-pneumatic adapter (Fig. 10-C). To do so, a second M16 to T1/4" adapter, as is provided on the connection box of Rotoclear S3, is required in addition to the electric-pneumatic adapter. Install it as described in chapter Electrical installation.

When using the electric-pneumatic adapter, it is also possible to subsequently connect a purge air supply to ensure that the unit is sealed in accordance with the Rotoclear seal guarantee. Please contact Rotoclear Customer Service.

Commissioning

This rotating window is only to be put into operation when the machine in question complies with the provisions of Directive 2006/42/EC (Machinery Directive) after the installation.

Commissioning is only to be performed by qualified specialist personnel. During commissioning, components that are starting up or rotating pose a hazard. Avoid any contact during operation.

Wear protective equipment, including safety glasses.

After switching on or applying voltage, the rotor accelerates up to a speed of approx. 2300 revolutions per minute. There must be a back pressure of 2-5 mbar in the connection box. Only when rotating and supplied with purge air is the system impervious to liquids and flinging away the incoming cooling lubricant, thereby guaranteeing a clear view of the process. Do not touch the rotating disc while it is rotating. Risk of minor injuries.



Normal operation

In normal operation, the spinning window is typically mounted in the interior of the machine or in an environment exposed to media.

The unit is connected to the main switch of the machine and is therefore in constant operation. The rotor of the unit is mounted and rotates at approx. 2300 revolutions per minute. It is sealed off from the environment by the supply of purge air. The unit is capable of generating sufficient air flow itself if a passive purge air supply is used.

Operation and maintenance

During operation of the machine, Rotoclear S3 must also be in operation and continuously supplied with compressed air.



Rotor

The rotating disc contains exclusively rotationally symmetrical elements. As a result, it may not be readily apparent that the disc is rotating.

Do not touch the rotating disc while it is rotating. Risk of minor injuries.

The rotor disc may splinter upon impact or when encountering external forces. As a result of this, fragments of the glass disc may be flung outwards radially and cause injuries.



When performing tasks in the direct vicinity of the Rotoclear S3 which may result in damage to the disc, keep a safe distance and wear protective goggles.



The motor must not be permanently blocked by mechanical means (e.g. by dirt) and must be able to rotate freely, otherwise the rotor drive may be damaged (loss of warranty).



To ensure safe and damage-free operation, also observe the safety and warranty instructions in the sections on mounting and commissioning when operating the system.



There is a permanent magnet in the rotor. Beware of the magnetic forces if you have an active medical implant. Keep a minimum distance of 20 mm between the implant and the rotor.



When the system is in nominal operation, there is a possibility that active medical implants in the immediate vicinity may be affected. The measured

values of the magnetic flux density in nominal operation are listed in the table below. Contact the manufacturer of the medical implant to determine the minimum distance to be observed in each case.

Distance between measuring device and system d [mm]	Peak value of magnetic flux density during nominal operation (system frequency 750 Hz) B [μ T]
0	120
10	61
20	29
30	17
40	10
50	6



The machine safety window can bulge outwards when struck by flying parts. Fastening elements of the Rotoclear S3 may become loose and cause injuries. During operation, maintain the distance to the machinery glass as specified by the machine tool manufacturer.



In the event of an overload, the motor switches off and accelerates back to operating speed after a short time.
Do not point the coolant jet directly at the unit, but at the cutting edge of the tool.



Do not operate your machine with Rotoclear S3 without the rotor attached.
Cooling lubricants entering the system or chips hitting it can damage it and lead to failure. This will void the warranty.

Cleaning

Despite the self-cleaning ability of the rotating disc, the view through it may be impaired over time due to oil/cooling lubricant residue or hard water deposits. Clean the disc at regular intervals using a damp cloth. To do so, draw the cloth carefully and slowly from the inside to the outside using a finger while the motor is running. Repeat the procedure until the visibility is optimal. If it is particularly dirty, you can clean the window with glass cleaner or isopropyl alcohol.
Include the cleaning of the window in the maintenance plan of your machine. We recommend weekly cleaning, or more frequently depending on the environmental conditions.



Please note that when the machine is switched on, the Rotoclear S3 must also be in operation and the disc must be rotating. Only then can the window clean itself constantly. For a clear view, it is essential that no medium, including mist-like cooling lubricants, can make contact with a stationary window and dirty it. In particular, tiny amounts of cooling lubricant swirled up in the air may become encrusted on the disc and cause it to become dirty.

Changing the rotor

The rotor may need to be removed for cleaning or replacement if it becomes excessively dirty, if it is damaged, or if it is broken

due to being hit by broken tool or workpiece parts. Turn off the entire unit and remove the screw in the middle after it has coasted to a standstill. Levering out the rotor using an object inserted into the gap will easily cause damage. This will void the system's warranty.



If the rotor is damaged, wear suitable cut-resistant gloves. We recommend keeping a replacement disc on hand and installing/cleaning it in alternation. This ensures a clear view of what is going on and hence optimal manufacturing conditions at all times.

The rotor is a wear part. If the window is dirty or damaged due to chips or other parts, this does not constitute grounds for a claim. If the rotating disc is impacted by a part that has been flung off, the rotor will need to be replaced immediately. Never operate the unit without a rotor installed. If the machine is to be operated in the interim, the unit is to be securely protected against the ingress of and damage due to chips, particles, oils, cooling lubricants and/or other media, and completely shut down. Otherwise, the Rotoclear S3 may be damaged and become unusable. This will void the warranty.

Decommissioning, disposal

According to the WEEE directive, electronic and electrical devices do not belong in household waste. This product and its components must be disposed of or recycled separately. The consumer shall undertake to dispose of the product in accordance with applicable legal regulations.



Troubleshooting



Work on the electrical system may only be carried out by authorized and trained specialists.

The unit is emitting alternating sounds.

De-energize the system electrically. Manually check the freewheel by turning the rotor by hand. When using hard water, a crust may form on the inside of the rotor in the area around the gap. Remove the crust using a knife or scraper without leaving any residue.

There may be dirt in the gap between the stator and the rotor. In the case of ferrous chips, clean the area around the magnetic fields. If necessary, use a strong holding magnet. When doing so, do not place the disc on a dirty workbench. Use clean cardboard as a buffer. We recommend increasing the internal pressure if more chips impact the pane and there are repeated malfunctions due to dirt.

Increase the feed pressure by max. 0.5 bar and check the level of dynamic pressure in the connection box. Mount the rotating disc again. Check the mechanical freewheel by hand and switch on the unit.

The rotating disc stops and starts again after a short time.

The motor has a built-in protective function. If the motor experiences a large load and heats up as a result, the overload protection switches it off and back on again after a short time.

Electrically de-energize the system again.

Avoid aiming coolant jets directly at the rotating disc. Check whether the rotating disc is rubbing against an object.

Look out for excessive heat being generated in the middle.

The rotating disc does not rotate.

Although the rotating disc can be turned freely 360° by hand and runs freely after being pushed, the unit does not start by itself.

Check whether the polarity of the voltage is correct and, if necessary, reconnect the wires.

Check the polarity, whether the correct voltage is applied and whether the power supply is sufficient. Rotoclear S3 is internally protected against incorrect polarity, overvoltage and undervoltage.

It is an electronic motor. You cannot make any conclusions regarding the functioning of the motor by measuring the internal resistance.

Switch off the voltage. Ensure that the electrical connections have been established correctly and close the cover of the connection box after checking the voltage applied. Disconnect the power supply and, observing cleanliness, mount the rotor. Start up Rotoclear S3 electrically and with internal pressure.

Streaks or cooling lubricant are visible in the space between the stator and the rotor.

There is a ventilation system in the Rotoclear S3 that creates an exchange of air between the individual chambers [internal pressure system]. If there are streaks, it could be that oil from oiled air is being deposited on the support disc. In the case of a pool, there may be a leak at the sealing ring of the housing.

De-energize the system and remove the rotor and the electrical supply cable. Remove the 10 fastening screws on the front side of the housing. Carefully remove the housing (stator) and clean the discs and housing thoroughly. Clean the inside

of the machinery glass and check the fit of the flange if the mounting was performed with adhesive. Refit the housing, making sure that the sealing ring is pressed evenly against the disc.

The rotating disc is dirty or has water deposits such that it is no longer possible to see through it.

As a wear part, the rotating disc can quickly be replaced. Disconnect the system from the power supply and remove the rotor after it has coasted down. Depending on how dirty it is, clean the surface with a glass scraper and then use e.g. cleaner for ceramic hobs or glass cleaner for polishing. Replace the rotor and switch on the power.

If you notice that the pane is very dirty due to aluminium chips or the machining of grey cast iron, you can keep a cleaned disc on hand for swapping it out.

The rotating disc has been hit by flying debris and splintered.

Obtain a new rotor and install it. We recommend keeping a spare disc on hand for quick replacement. If the machine is to be operated in the meantime, protect Rotoclear S3 such that it is safe from damage by chips and cooling lubricant.

Technical data

Basic data

Dimensions	Ø 290 mm (290 mm × 333 mm) × 34 mm
Field of vision	Ø 232 mm (minus Ø 40 mm in the centre)
Connections	Internal thread M16 × 1.5, 10 mm
Stator	PBT, 8 mm ESG tempered glass
Sealing ring	Ø 275 mm × 3.5 mm FPM (Viton)
Rotor	Alu, PBT, 4 mm ESG, magnetic ring NdFeB
Motor	Brushless with blocking and reverse polarity protection
Rated speed	max. 2300 rpm
Rated voltage	24 VDC (16–28 V)
Power consumption	24 W (start-up power consumption < 60 W)
Rated current	1.0 A, (start-up current < 2.5 A)
Current draw	0.6–0.7 A (upon delivery)
Noise emissions	< 65 dB(A) (standard measurement on operator side)
Overpressure in the connection box	2 – 5 mbar (200 – 500 Pa) (required for the Rotoclear seal guarantee)
Air consumption	1.2 m³/h (at 200 Pa) (with purge air connection)
Air purity	ISO 8573-1:2010[3:4:3] (required if connected to a purge air supply)
Storage temperature	-20 °C to 60 °C permissible
Operating temperature	10 °C to 60 °C permissible

Interfaces

Electrical supply	2 × 0.75 mm², Ø 6 mm (sheath), + brown, - blue, PUR sheathed, suitable for drag chains
Protective hose in the chip chamber	Ø 17 mm × 2 mm, 2.0 m, oil-resistant, PUR sheathed
Air supply line	Ø 8 mm × 1 mm, 8.5 m or optional air inlet
Fastening by screws on polycarbonate	6–16 mm pane thickness, Ø 256 mm hole circle, 10 × 36° × Ø 10 mm
Connection box alignment	0° to 360°

Attachment by gluing to glass
Attachment by gluing
to polycarbonate

Two-component adhesive
Two-component adhesive, primer

Transport

Weight	3 kg / 4 kg
Dimensions	350 × 325 × 90 mm
	350 × 325 × 135 mm

Maintenance

Cleaning in the chip chamber	Isopropyl alcohol
Cleaning of rotor disc	Glass scraper, ceramic hob cleaner, isopropyl alcohol
Changing of rotor	Countersunk screw M10 × 1

Range of application

Environment	Machine tools, milling centres, lathes
Media	Water-miscible and non-water-miscible cooling lubricants

Torques

Cylinder bolt	1.1 Nm
Connection box screw	1.1 Nm
Central screw of rotor	2 Nm (max. 2.5 Nm)

CE declaration of conformity

The Rotoclear S3 is a self-cleaning spinning window for machine tools. It employs centrifugal force to create a permanently clear view of machining processes. It gives operators a continuous view of the processes to allow these to be optimized. The design and the drive concept provide unrestricted views without an irritating bar in the way. The rotor can also be quickly replaced to speed up maintenance tasks.

Furthermore, the following other standards and technical specifications were applied:

- DIN EN ISO 16090-1:2019-12
- DIN EN ISO 23125:2015-04
- DIN EN 50527-2-1:2017-12

Technical documentation provided by:



- 2006/42/EG:2006-05-17
EC Machinery Directive
- 2014/30/EU:2014-02-26
EU Electromagnetic Compatibility Directive

Applied harmonized standards:

- DIN EN ISO 12100:2011-03
- DIN EN 55011:2022-05
- DIN EN IEC 55014-1:2022-12
- DIN EN IEC 55014-2:2022-10
- DIN EN IEC 61000-6-2:2019-11

y, 01/07/2023

Deutsch

English

ROTO CLEAR

Operating Manual

