USER MANUAL

ZERO-POINT CLAMPING SYSTEM QC022

Pneumatic QuickChange Module

TABLE OF CONTENTS

1. GENERAL INFORMATION

In many industries the application of innovative technical products results in large cost savings and higher production output. InClaTec B.V. is specialized in developing and producing innovative high-tech clamping devices which can be applied as standard.

1.1 Introduction

This user manual is a support how to use your new product. It's recommended to read this document fully. For further information please contact InClaTec B.V.

This user manual is a part of the supply and should be kept in a safe place while using the QuickChange Module. There must be a copy available for those working with this system. It's the intension that this manual should also be transferred to the eventual new owner of the QuickChange Module.

Treat this instruction carefully. It isn't allowed to change or delete pages. InClaTec B.V. reserves the right to replace parts of this guide, in the context of product improvement, at any time without directly providing a new edition.

All drawings and/or pictures in this manual are not binding. These drawings and/or pictures may differ from the actual situation. InClaTec B.V. isn't responsible for any misunderstandings regarding the drawings and/or pictures.

1.2 Staff

Certain operations can only be operated or made by qualified or trained staff. For the description of the qualification level the following standard features are used:

- The qualified staff must have sufficiently technical knowledge and/or work experience to be able to recognize and prevent potential danger (engineers and technicians).

- The staff must be adequately trained and/or controlled by the qualified staff to identify and prevent the potential danger (the operated and maintenance staff). They should have the following qualifications:

    1. They must be trained to operate the product safely. They must be capable to operate the equipment according to standard safety regulations.
    2. They must maintain the product and use the safety devices as described in this manual.

The customer and/or user is/are required to make sure, before using the QuickChange Module:

- that the staff has read and understood this manual.
- that the staff follows the instructions as given in this manual.

1.3 Individual Means Of Protection

The staff, mentioned in the previous section, must wear protecting clothing which is necessary during operating of the machine, on which the QuickChange Module has been assembled.

Safety shoes are required. The need for wearing hearing protection, eye protection and a helmet can be defined by the user.

It isn't allowed to wear clothing that can get caught in moving machine parts.

1.4 General Safety Instructions

The following provisions and recommendations are primarily based on observing the rules of the safety regulations mentioned in this manual.

InClaTec B.V. isn't responsible for possible damage to persons or goods related to ignoring of the safety regulations and instructions in this manual.

It's necessary to check that the air pressure complies with the working pressure, before connecting the air pressure. Only clean and dry air can be used to avoid polluting and moisturing the QuickChange Module.

Transportation, installation, operation and maintenance of the QuickChange Module can only be performed by the staff which meets the conditions described in the previous section.

1.5 Emergency Situation

In an emergency situation, it's advised to apply the methods of the operating and maintenance manual of the machine where the QuickChange Module is mounted.

In an emergency situation there must be measures taken which cause no danger to persons or goods.

In case of fire there should be ensured that no working pressure is present at taking action.

1.6 Operational Restrictions

The QuickChange Module may only be used for applications described in this manual. In addition, it may only be used in connection with the InClaTec B.V. recommended and approved parts.

Consequences of the use of the QuickChange Module in other applications aren't the responsibility of InClaTec B.V. in any way whatsoever. For the right application area you can contact InClaTec B.V.

By InClaTec B.V. specified load and pressure can't be exceeded. All other uses must in agreement with InClaTec B.V. be viewed.

1.7 Marking

At the QuickChange Module is a label or name plate affixed by the manufacturer. This marking may, under no circumstances, be removed. If the marking is damaged or has been dissolved, we advise you to contact InClaTec B.V.

In all communications to InClaTec B.V. it's recommended to mention the marking of the QuickChange Module.

1.8 Transport

Before shipment each QuickChange Module has been examined and checked thoroughly. Check at reception of the goods the integrity and the contents of the package to ensure that nothing has been damaged during the transport. Check also if the delivery correspondents to the order.

Report any defects or damage immediately to InClaTec B.V. and the carrier who is responsible for damage during the transport.

A reclamation against any defects or damage must be made within 10 days after receipt of the goods.

2. DESCRIPTION OF THE QUICKCHANGE MODULE

2.1 Technical Data

	Unit	1. Type QC02206	2. Type QC02208	3. Type QC02214
Clamping force of the QuickChange Module ($F_{clamping\ force}$)	[N]	235	375	575
Holding force	[N]	6000	6000	6000
Work pressure (Max.)	[bar]	6	8	14
Work pressure (Min.)	[bar]	5	7	13
Positioning (from the center line)	[mm]	1	1	1
Repeatability	[mm]	<0,02	<0,02	<0,02
Max. operating temperature	[ºC]	120	120	120

The maximum work pressure must not be exceeded. This can be avoided by placing a pressure relief valve. The safety factor isn't included in the specified holding force. This should always be considered separately because it depends on the application and the material of the exchange pallet where the QuickChange Module is mounted.

1. Type	Order No.
QC02206	0001.0220
QC02206 C	0001.0230
QC02208	0001.0221
QC02208 C	0001.0231
QC02214	0001.0222
QC02214 C	0001.0232

2. Type	Order No.
QC022S-06	0001.1220
QC022S-06 C	0001.1230
QC022S-08	0001.1221
QC022S-08 C	0001.1231
QC022S-14	0001.1222
QC022S-14 C	0001.1232

3. Type	Order No.
QC022XS-06	0001.2220
QC022XS-06 C	0001.2230
QC022XS-08	0001.2221
QC022XS-08 C	0001.2231
QC022XS-14	0001.2222
QC022XS-14 C	0001.2232

2.2 Overview Of The QuickChange Module

The ball house [4] is glued together with loctite 542 (or a comparable alternative) to the sleeve [7]. It isn't allowed to disassemble the QuickChange Module. This will void the warranty and the risk of pollution is high.

Figure 2.2.1

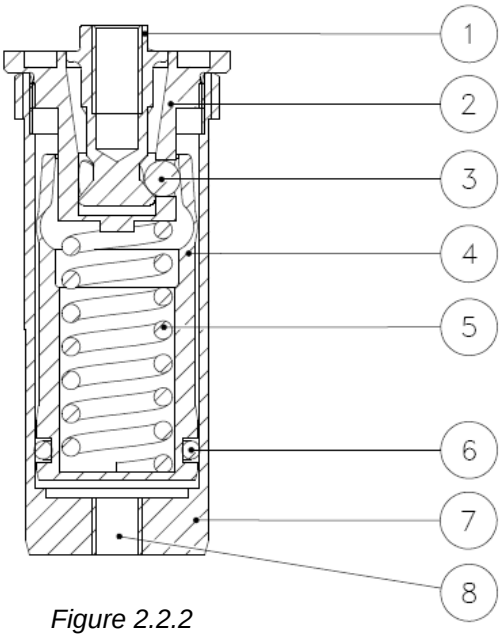


Figure 2.2.2

1. Nipple
2. Screw head
3. Ball
4. Sliding part
5. Compression spring
6. O-ring
7. Hose
8. Air Supply

2.3 Operation Of The QuickChange Module

"Loose procedure"

Connect the air line or air hose to the QuickChange Module [8]. Provide the QuickChange Module of air. This pressure pushes the sliding house [4] up and the balls [3] can fall freely. The clamping nipple [1] can be put in the QuickChange Module. The QuickChange Module remains open as long as there is pressure on the clamping system. See Figure 2.3.1

"Clamping procedure"

Remove the pressure from the QuickChange Module when the clamping nipple [1] is present in the QuickChange Module. The compression spring [5] pushes the sliding house [4] down and presses the balls [3] inwards. The QuickChange Module is now mechanically closed and locked by the spring. The air line or air hose can be disconnected if necessary. The QuickChange Module remains closed as long as the "loose procedure" hasn't been repeated. See Figure 2.3.2

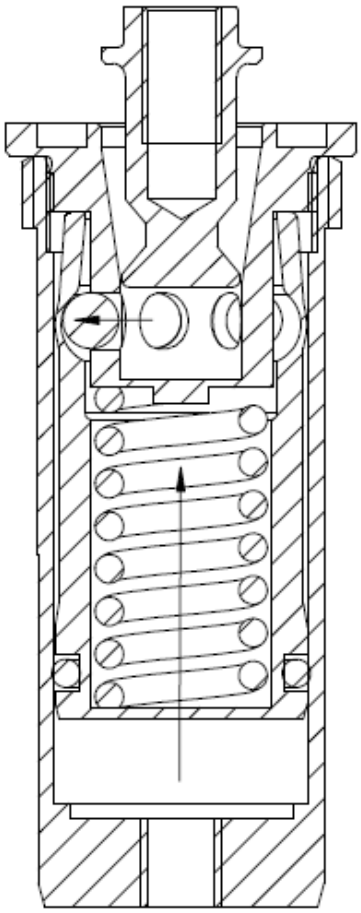


Figure 2.3.1

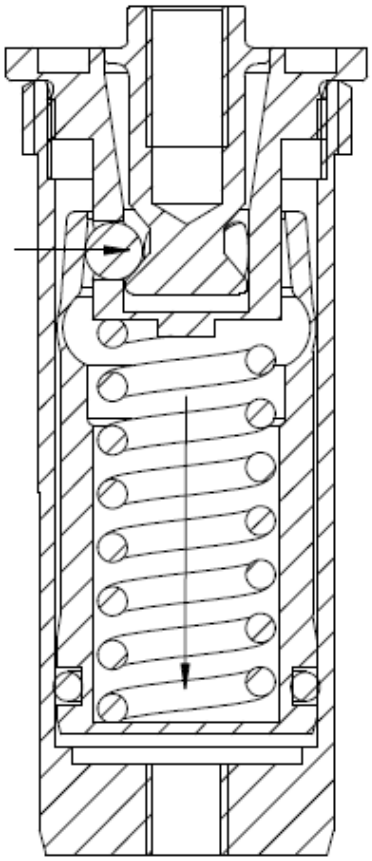


Figure 2.3.2

3. INSTALLATION

3.1 General

Safety is only assured if the QuickChange Module is connected properly, in accordance with safety regulations. Connecting the air must only be done by qualified staff.

When there are multiple QuickChange Modules mounted side by side, make sure that the pitch distance is located within a tolerance of ± 0.01 mm between the QuickChange Modules.

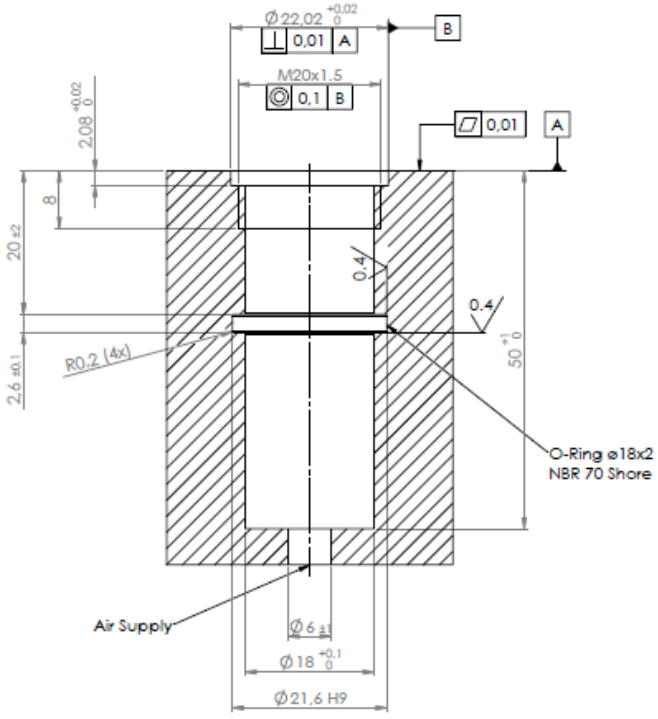
3.2 Assembly In The Mounting Holes

There are a couple of alternatives shown below to mount the QuickChange Module in the mounting holes. The seal and air connections are included in these pictures.

Make sure that the mounting holes always have been deburred and cleaned.

- QC022 / QC022 C

Option 1



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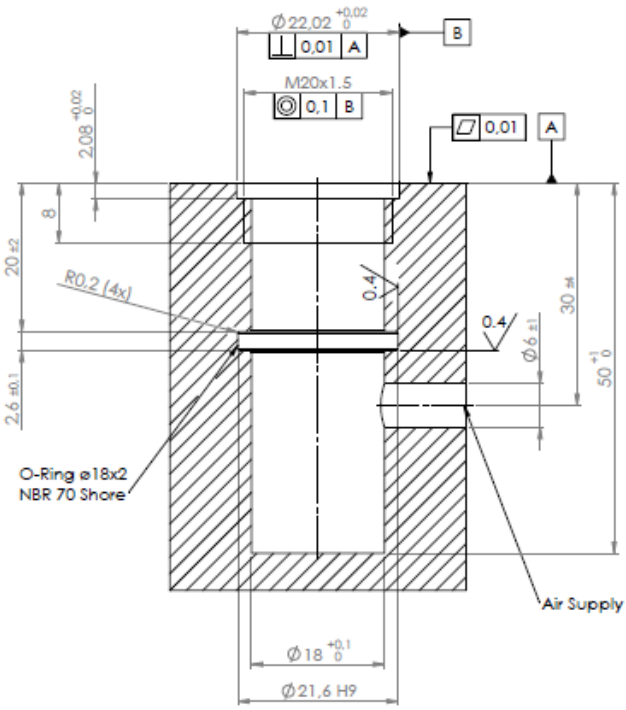

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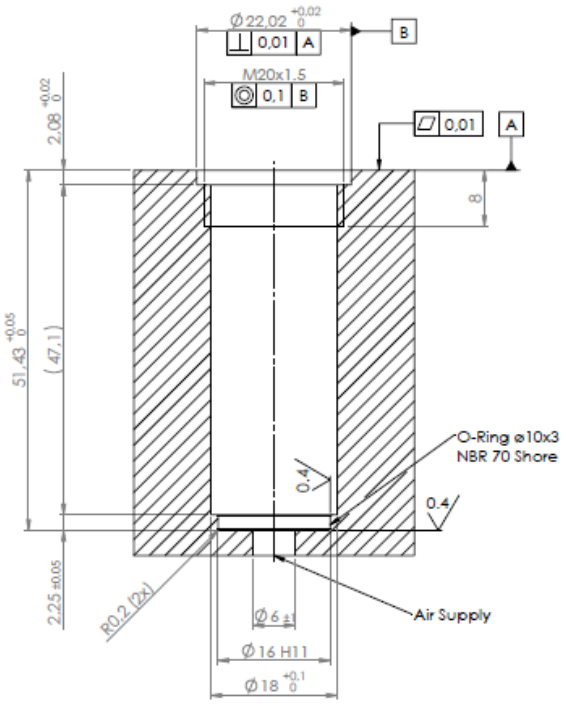
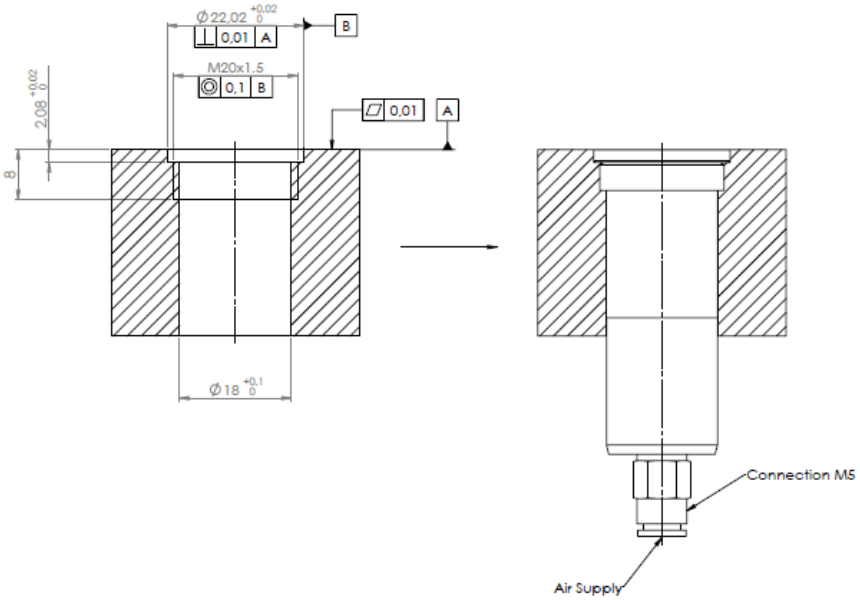
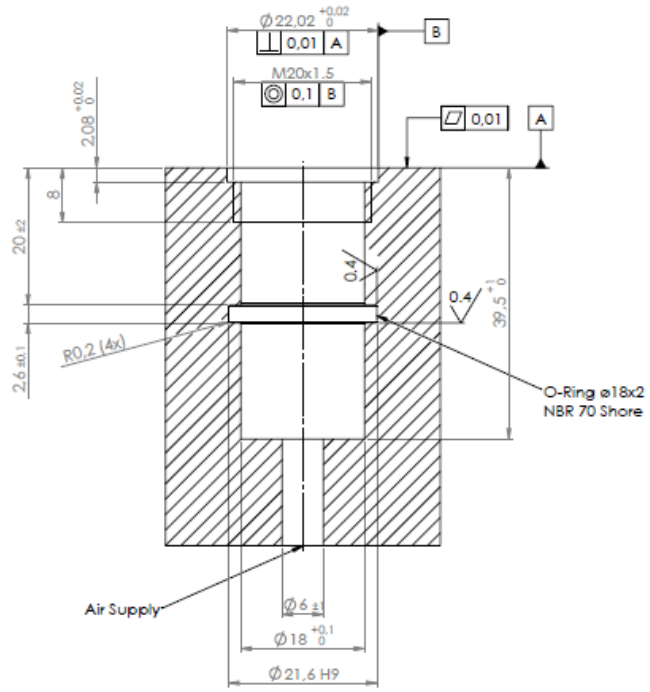


Option 4



- QC022S / QS022 C

Option 1



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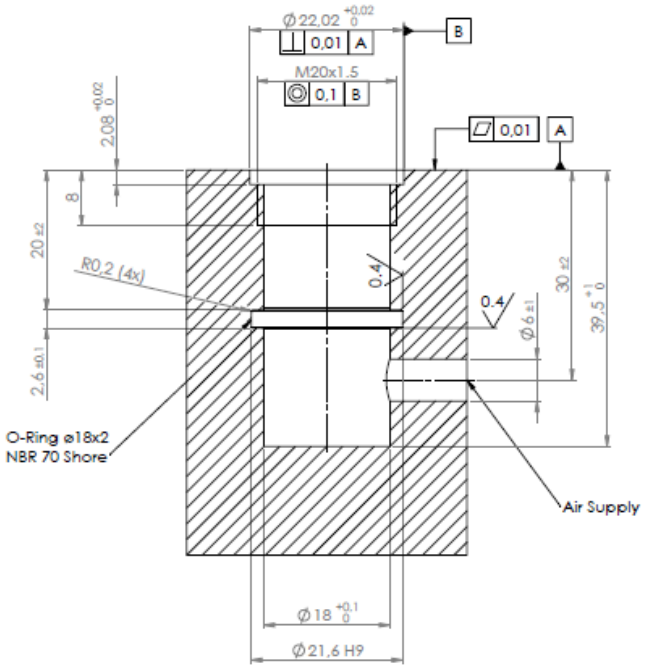

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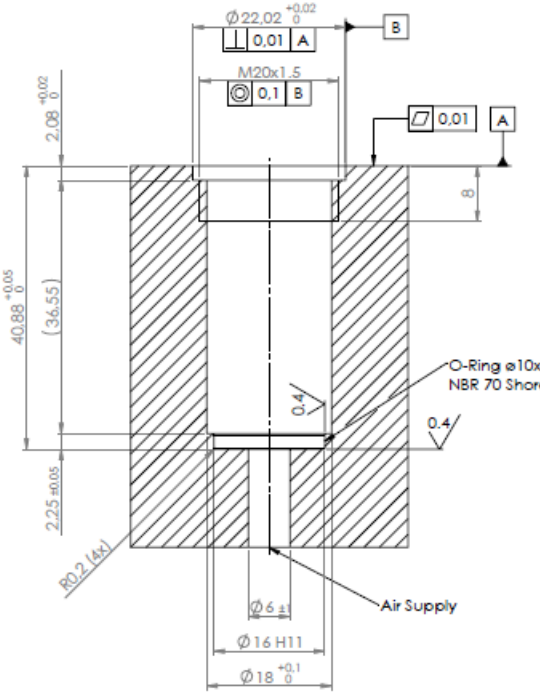
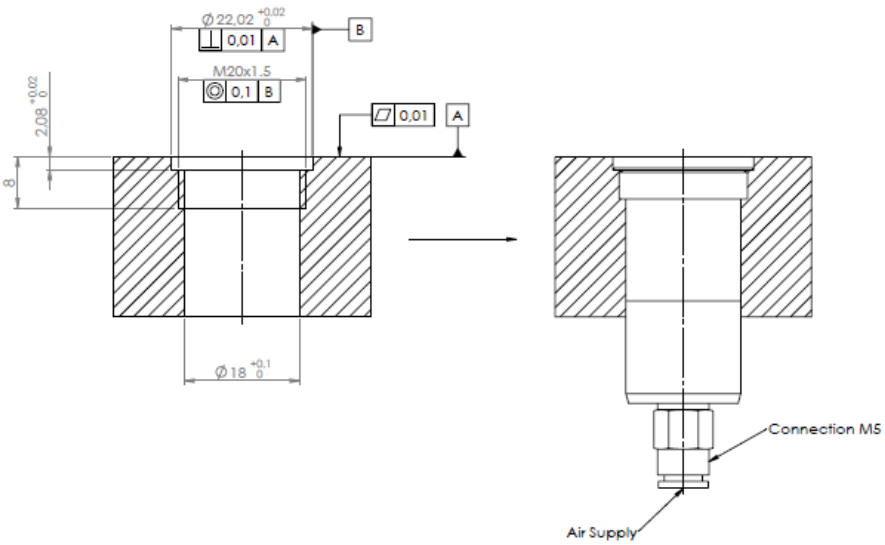
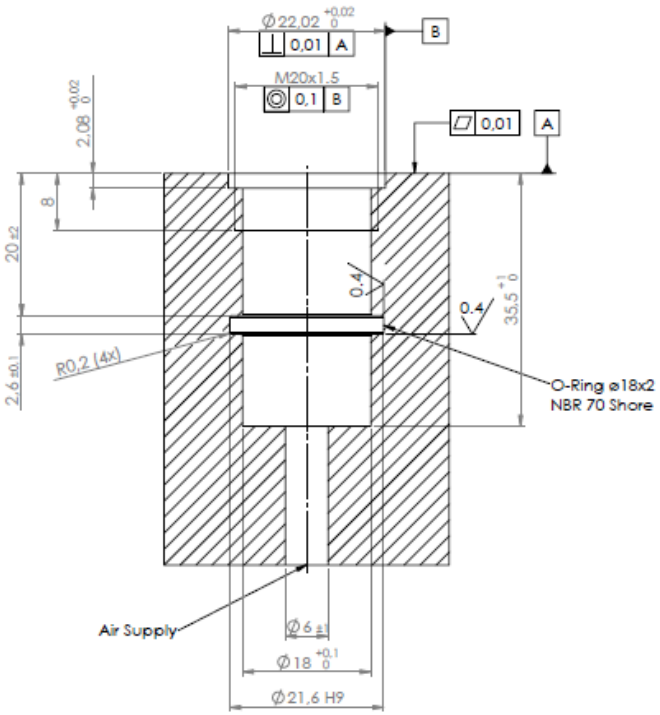


Option 4



- QC022XS / QC022XS C

Option 1



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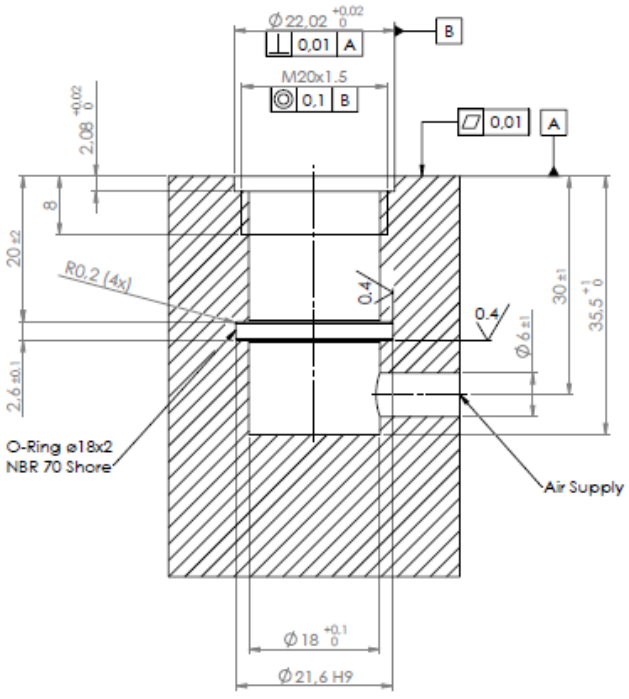

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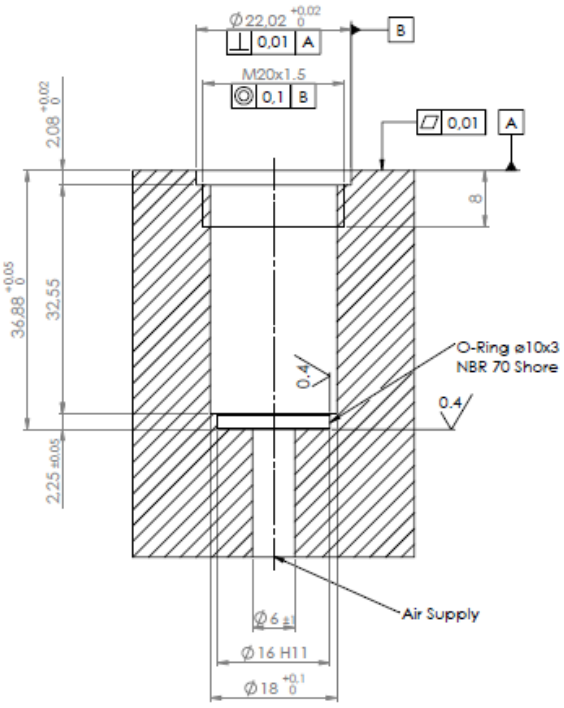


The QuickChange Module can be mounted in the mounting holes with the assembly key QC022-AK. The QuickChange Module must be tightened with a torque. All systems have the same torque, namely: 10 Nm.

Fugure 3.2.1
QC022-AK

4. CLAMPING NIPPLE

The clamping nipple must be screwed into the exchange pallet or the mold. This clamping nipple is divided in 2 categories: upward- and downward assembly. Each category includes 3 different clamping nipples, namely:

- Nipple Floating QS022-EF / QS022-IF

- Nipple Centering QS022-EC / QS022-IC

- Nipple Aligning QS022-EA / QS022-IA

4.1 Installation Downward

Figure 4.1.1
QS022-EF

Figure 4.1.2
QS022-EC

Figure 4.1.3
QS022-EAA/QS022-EAS

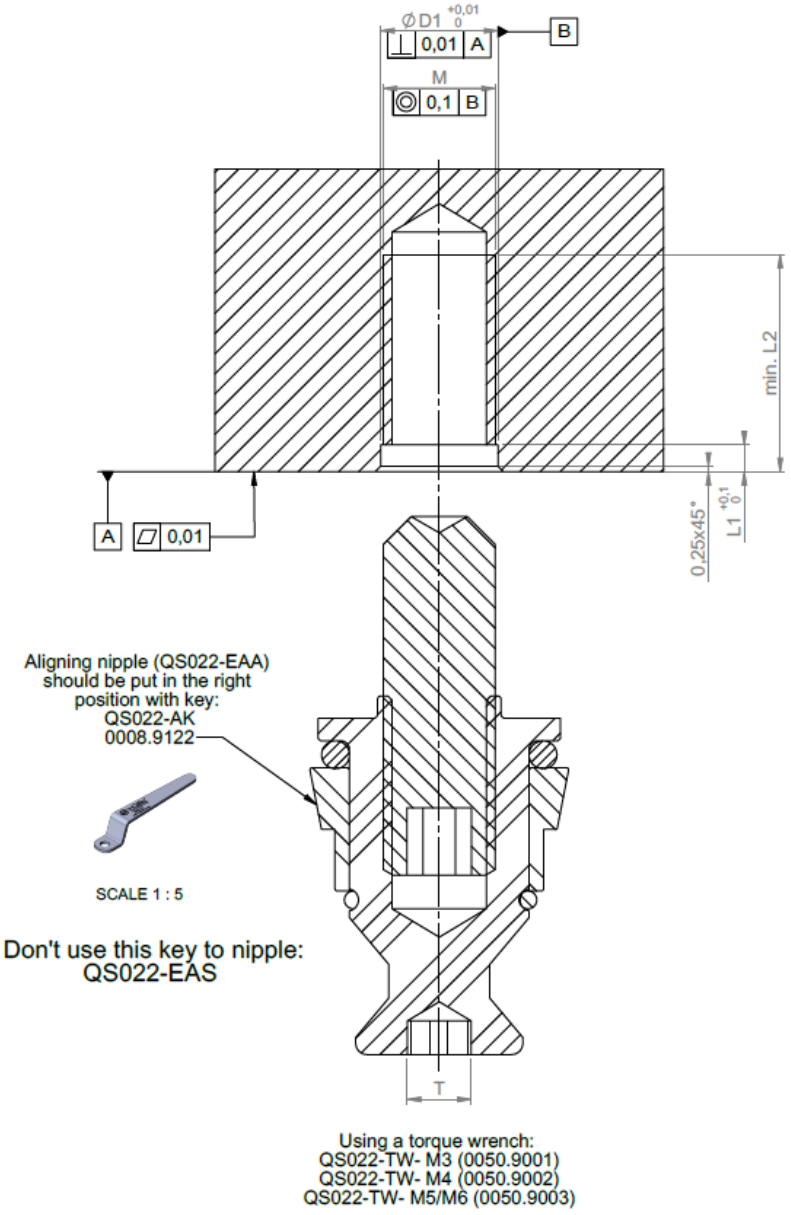
Type	Article number
QS022-EF-M3	0008.0253
QS022-EF-M4	0008.0254
QS022-EF-M5	0008.0255
QS022-EF-M6	0008.0256
QS022-EC-M3	0008.0233
QS022-EC-M4	0008.0234
QS022-EC-M5	0008.0235
QS022-EC-M6	0008.0236

Type	Article number
QS022-EAA-M3	0008.0283
QS022-EAA-M4	0008.0284
QS022-EAA-M5	0008.0285
QS022-EAA-M6	0008.0286
QS022-EAS-M3	0008.0293
QS022-EAS-M4	0008.0294
QS022-EAS-M5	0008.0295
QS022-EAS-M6	0008.0296

Because of the external thread the clamping nipple can be screwed in the mounting hole by the torx hole on the underside.

The mounting hole for the different clamping nipples for installation downward is shown in the following example.

- Mounting hole of the clamping nipples (installation downward):



Order no.	M	ØD1 (mm)	L1 (mm)	L2 (mm)	T	Torque (Nm)
QS022-EF-M3 / QS022-EC-M3 QS022-EAA-M3 / QS022-EAS-M3	M3	3,5	1,1	8,5	T20	1
QS022-EF-M4 / QS022-EC-M4 QS022-EAA-M4 / QS022-EAS-M4	M4	4,5	1,1	10,5	T20	2,2
QS022-EF-M5 / QS022-EC-M5 QS022-EAA-M5 / QS022-EAS-M5	M5	5,5	1,1	11,5	T20	5
QS022-EF-M6 / QS022-EC-M6 QS022-EAA-M6 / QS022-EAS-M6	M6	6,5	1,1	14,5	T20	5

4.2 Installation Upward

Figure 4.2.1
QS022-IF

Figure 4.2.2
QS022-IC

Figure 4.2.3
QS022-IAA/QS022-IAS

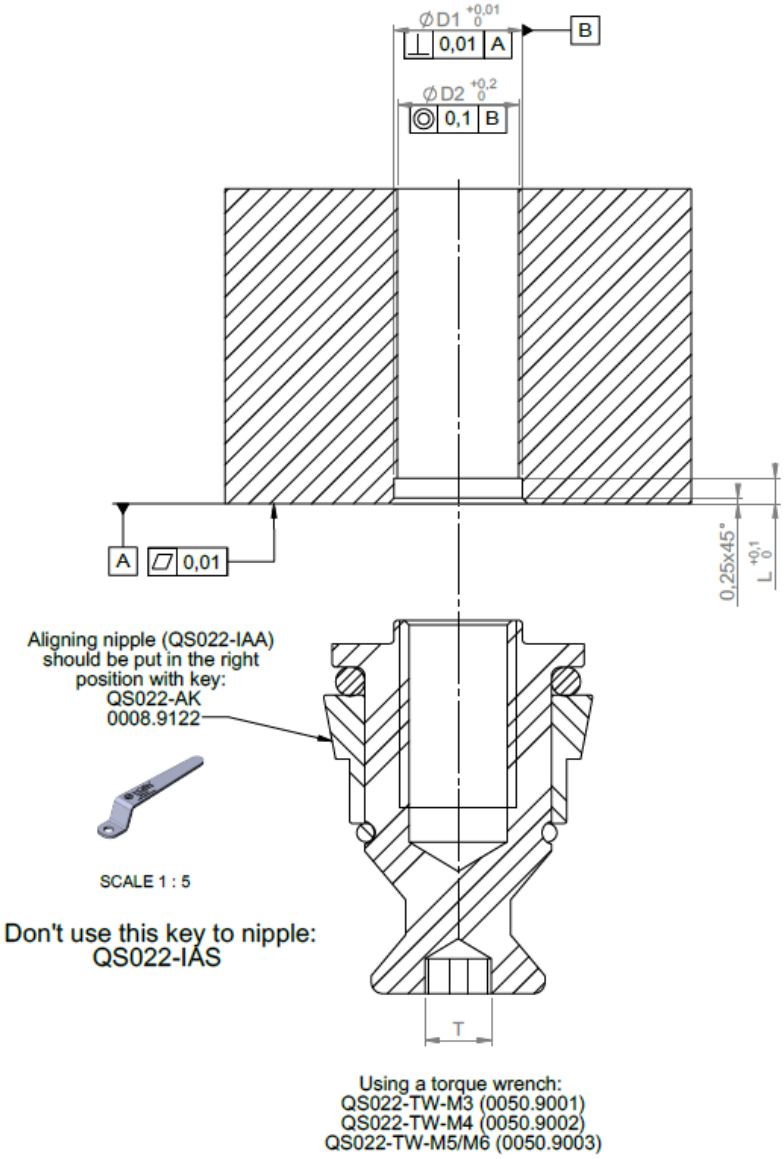
Type	Article number
QS022-IF-M3	0008.0243
QS022-IF-M4	0008.0244
QS022-IF-M5	0008.0245
QS022-IF-M6	0008.0246
QS022-IC-M3	0008.0223
QS022-IC-M4	0008.0224
QS022-IC-M5	0008.0225
QS022-IC-M6	0008.0226

Type	Article number
QS022-IAA-M3	0008.0263
QS022-IAA-M4	0008.0264
QS022-IAA-M5	0008.0265
QS022-IAA-M6	0008.0266
QS022-IAS-M3	0008.0273
QS022-IAS-M4	0008.0274
QS022-IAS-M5	0008.0275
QS022-IAS-M6	0008.0276

The clamping nipple can be mounted with a bolt by the torx hole on the underside.

The mounting hole for the different clamping nipples for installation upward is shown in the following example.

- Mounting hole of the clamping nipples (installation upward):



Order no.	ØD1 (mm)	ØD2 (mm)	L1 (mm)	T	Torque (Nm)
QS022-IF-M3 / QS022-IC-M3 QS022-IAA-M3 / QS022-IAS-M3	3,5	3,2	1,1	T20	1
QS022-IF-M4 / QS022-IC-M4 QS022-IAA-M4 / QS022-IAS-M4	4,5	4,2	1,1	T20	2,2
QS022-IF-M5 / QS022-IC-M5 QS022-IAA-M5 / QS022-IAS-M5	5,5	5,2	1,1	T20	5
QS022-IF-M6 / QS022-IC-M6 QS022-IAA-M6 / QS022-IAS-M6	6,5	6,2	1,1	T20	5

The clamping nipple must be tightened with a torque. In the tables above, you can see which nipple should be tightened with which torque. The following torque wrenches (see figure 4.2.4) can be used:

- QS022-TW-M3 (For M3 nipple)
- QS022-TW-M4 (For M4 nipple)
- QS022-TW-M5 (For M5/M6 nipple)

Figure 4.2.3
QS022-TW

Use always a fastener with classification 12.9 to mount the clamping nipple.

The distance tolerance between the QuickChange Modules must be ± 0,01 mm when there are multiple nipples on a pallet.

The aligning nipples consists two different types as you can see in the tables above. You can turn the aligning function of the EAA and the IAA in every position after installation with wrench QS022-AK (see figure 4.2.5). The aligning function of the EAS and the IAS should be in the correct position before installation.

Important: The key below shouldn't be applied to version EAS and IAS!!

Figure 4.2.5
QS022-AK

5. Maintenance

5.1 Introduction

The appropriate maintenance is important for a long life of the QuickChange Module and its components, under good and functional conditions. It will also ensure the necessary long-term reliability.

5.2 Security During The Maintenance

The maintenance work of the QuickChange Module requires a few conduct rules, namely:

- All maintenance work must be performed by qualified staff (see section 1.2).

- All maintenance work must be performed if there is no pressure on the QuickChange Module. All operational and maintenance staff must follow strictly the rules for the prevention of accidents, of the machine on which the QuickChange Module is mounted.

- Wear always safety shoes, protective clothing and all other necessary equipment. During maintenance work wear no jewelry or loose clothing.

- Use only original parts for a proper functioning of the system.

- When cleaning the QuickChange Module don't use abrasive or corrosive materials or solvents.

Daily maintenance:

- Check the QuickChange Module for pollution. Pollution can be removed to blow in the QuickChange Module with an air gun. Wear safety glasses.

Monthly maintenance:

- Visual condition inspection of the QuickChange Module.

- Check if the clamping nipple is tightened enough. Eventual re-tighten the clamping nipple with the right torque (see section 4.2).

- Make sure that the marking is still visible.

- Check the working of the QuickChange Module.

After 6 months (or 10.000 workings) the balls must be lubricated with grease (Eurol HT Grease EP2)

5.3 Storage

If you use the QuickChange Module no longer in the machine it must be removed. When the QuickChange Module is stored then the following points must be made:

- The QuickChange Module must be clean and free of grease.

- The QuickChange Module must be stored in dry conditions at 10ºC to 55ºC.

6. EC-DECLARATION OF CONFORMITY

This Declaration of Conformity and the CE mark is valid for the QuickChange Module which is part of the InClaTec delivery. When this QuickChange Module is incorporated into a larger system, the manufacturer of this system carry out the conformity assessment process for this greater system of Machinery Directive 2006/42 / EC, submit their Declaration of Conformity and the system features the CE marking.

CE

We

InClaTec B.V.
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The Netherlands

Declare that all QuickChange Modules (indicated in section 2.1) are

In accordance with the EU Directives:
- "Machines" 2006/42 / EC

designed and manufactured according to the following standards:
- DIN EN ISO 12100-1 / -2 Safety of Machinery - General Design Principles, Part 1 and 2

Manufacturer

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