

Warnings and general precautions - PNZZ

WARNINGS

A designer studying the introduction of a pneumatic clutch in one of their machines must always:

- carry out a risk analysis,
- consider the dangers of the component and its installation,
- follow Machinery Directive 2006/42/EC, and
- follow the regulations in force in the country in which the machine being developed will be used.

It is recommended that the correct choice of clutch, its correct assembly, the appropriate connection to the transmission command through compressed air and the correct functioning of the spring system for separation from the transmission itself be considered during the design phase.

Particular attention must be paid to the last function as, if it is separated from the transmission, the machine operating downstream the clutch could be in neutral and with uncontrolled inertia.

- Specific oils complying to standards are used as protection against rust; wearing protective gloves in case of allergies and washing hands thoroughly before handling food is recommended.
- To avoid accidents during handling and assembly, use suitable equipment and lifting systems that are suitable for moving the weight involved.
- Wear safety shoes, gloves and goggles.
- Particular attention shall be paid to the risk of crushing hands or other parts of the body.
- Do not assemble in explosive atmospheres (NO ATEX).
- Use appropriate protection and containment casings for all the moving components in compliance with the regulations in force.

SIZING AND CHOICE OF CLUTCH

To determine the correct clutch size, the maximum transmissible torque (C_{max}) shall be estimated, (theoretical torque required (C_{tr}) multiplied by the service/safety factor (S)). Additionally, make sure that the clutch chosen from the brochure has a nominal torque transmission (CU) that is higher than the result obtained.

$$C_{tr} = 9550 \times P / n$$

$$C_{max} = C_{tr} \times S$$

$$CU > C_{max} \quad \leftarrow \quad \text{Verification condition}$$

P = Motor power [KW]

n = Number of revolutions [rpm]

C_{tr} = Theoretical torque [Nm]

C_{max} = Maximum torque with safety factor [Nm]

CU = Nominal torque = Torque as in the brochure table [Nm]

$S = 2$

For correct functioning, avoid assemblies that are not rigid enough or which are subject to vibrations.

Incorrect calculations or the inappropriate assembly of the components can significantly reduce the transmission's resistance and the lifespan of the details most severely stressed.

INSTALLATION

Each part of the system must be designed to avoid any potential loss of pressure within the compressed air circuit. supplying the system.

A sensor must be installed that can detect any drops in pressure in the circuit and that, if necessary, intervenes to stop the machine to avoid anyone being harmed or any damage being done to the machinery itself.

The supply line used for the commands and/or the power must not create dangers and therefore must be designed and built with care.

If interruptions to the pneumatic supply are envisaged, it will be necessary to install a compressed air service tank that can be used to intervene at the end of a phase or a machine cycle in case of an interruption to the main pneumatic supply.

The design must also take maintenance into account: the position and housing of the clutches must be such that they can easily be reached and maintained, taking into account their weights and volumes.

The system must avoid unexpected and spontaneous start-ups of the machine, by making sure that the supplied compressed air is correctly filtered and that there is suitable lubrication with low viscosity oils (synthetic oils are not recommended).

The clutches are provided with bearings that are already lubricated and which do not require further lubrication.

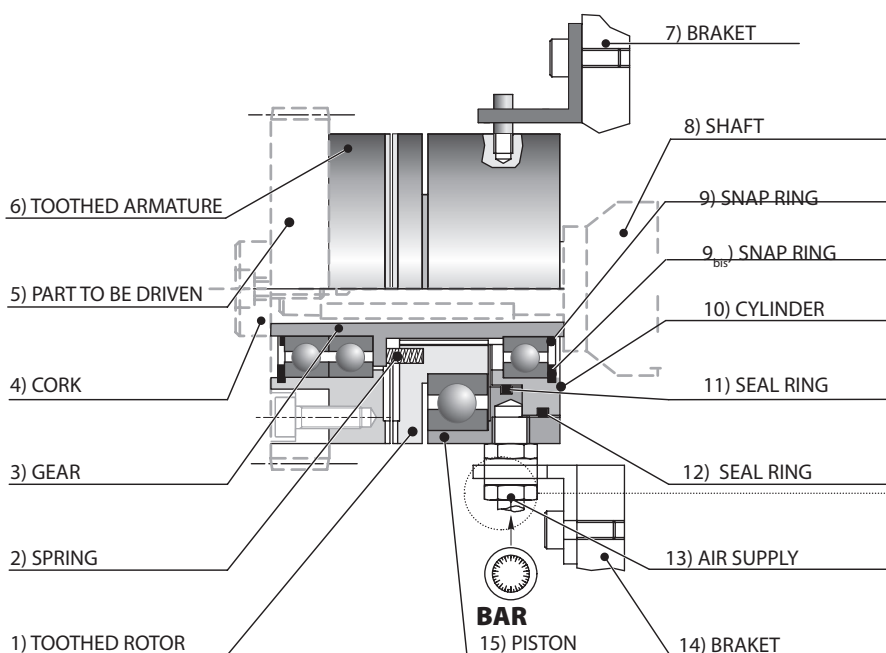
All seals used in TELCOMEC clutches are lubricated for life and do not require further lubrication.

Pressure lubrication systems are supported through the use of compressed air from the supply system. They can be used in temperatures ranging from 0° to 100° C.

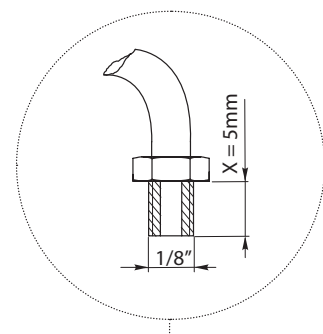
Before the installation, make sure that the clutch is complete and that its packaging does not have any dents or imperfections from being transported.

Do not tamper with or modify the clutch or any of its components in any way; any alterations not authorised by TELCOMEC will immediately void all product guarantees. TELCOMEC is not liable for damages to persons or objects caused by improper use of and/or modifications to the clutches themselves.

TELCOMEC PNEUMATIC CLUTCH



**Please do not replace.
If replaced, respect the height
indicated (X).**



- Direct the clutch in such a way as to maintain the air inlet (13) where the TELCOMEC clutch is in its lowest position to prevent the stagnation of any condensation in the cylinder/piston; in this way, if the machine stops, it will be possible to prevent rust formation inside the clutch.
- Mount the TELCOMEC clutch on the shaft, with the latter already equipped with the required transmission tab.
- Go through the cork (4) and tighten the screw into the threaded housing at the top of the shaft (8).
- Adapt the component to be driven (5) by carrying out the necessary centring operations and passages through the fastening screws so that it can be fixed to the armature (6). Then insert the part to be driven (5) into the armature (6) and screw them together by tightening the suitable screws.
- Carry out the installation by connecting the pneumatic system pipe to the air supply (13) clutch (which was previously directed downwards). Set the pressure regulator of the pneumatic system to 6 bars and connect the supply to the clutch.
- When the clutch is installed for the first time it is advisable to carry out several tests and operations to check that it is working properly.
- For sizes up to PNZZ166, fix the clutch to a fixed support using the suitable anti-rotation lower bracket (14). For sizes larger than PNZZ166, use the upper bracket (7) and fix the clutch onto the support.

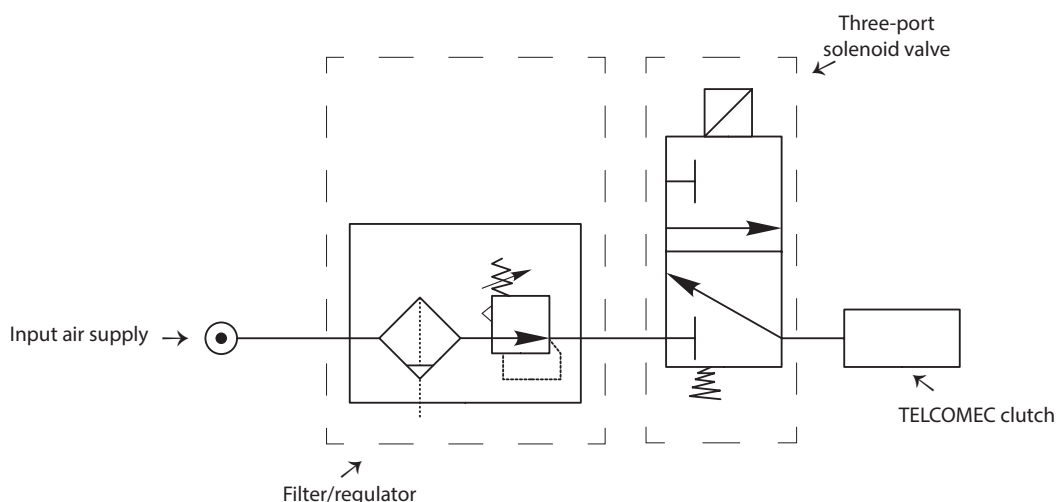
Position the discharge control valve as close as possible to the supply inlet (13), particularly if there are silencers that could slow down the air discharge within the clutch and therefore increase the time taken for it to disengage.

Always use appropriate protection and containment casings for all the moving components (part to be driven, toothed armature, etc.), in compliance with the regulations in force.

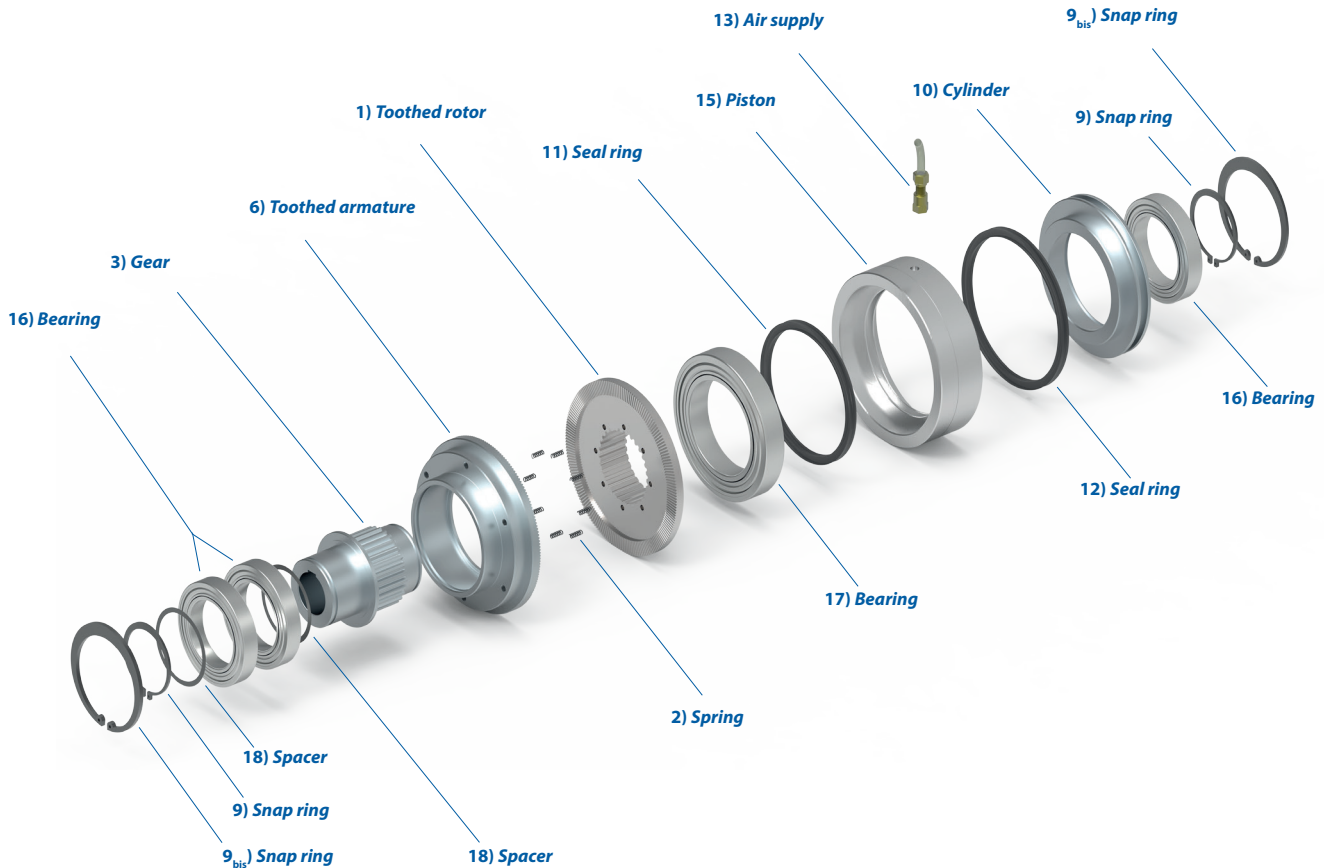
The two toothed parts of the pneumatic clutch must be inserted while the clutch is stopped, NOT rotating.

Transmit the maximum torque for the type of clutch in use, as stated by its manufacturer. Non-compliance with this rule and a resultant overload of torque can cause the disengagement of the teeth and deterioration.

PNEUMATIC CONNECTION DIAGRAM



CHECKS AND MAINTENANCE



PROBLEMS ENGAGING

First make sure that the air filter/regulator is working correctly. If so, check the seal rings (11) and (12) and then check that the supply pipe is connected correctly and that there are no bends or restrictions that are hindering the flow of compressed air.

PROBLEMS DISENGAGING

First make sure that the air discharge valve is working correctly. If so, check the seal rings (11) and (12) and then check that the release springs are not damaged (2).

If the seal rings (11) and/or (12) have to be replaced:

- Remove the snap ring on the cylinder side.
- With a rubber-headed hammer, strike at the top of the gears (3) to push the gears and the toothed armature out of the cylinder (10) bearing (16). Make sure not to lose the springs (2) and to put them in a clean place.
- Apply pressure (1 to 2 bars) to remove the cylinder (10) from the piston (15) and the seals (11) and (12).
- Thoroughly clean the piston (15), the cylinder (10) and the housings of the seals. Lubricate the housings with non-synthetic oil and reassemble the new seals (11) and (12) in their respective housings.
- Reassemble the cylinder (10), inserting it into the piston (15). Make sure to put the springs (2) back in their housings on the toothed rotor (1).
- Insert the gears (3) and toothed armature (6), making sure to engage the teeth of the gears (3) correctly with the rotor's teeth (1). Put them all the way back in and close by reassembling the snap ring (9) on the gears housing (3).
- Check that everything has been assembled correctly by applying 3 to 4 bars of pressure to the TELCOMEC clutch and perform around ten cycles of engaging and disengaging as a test.
- If everything is OK, set the nominal working pressure to 6 bars.

COMPLIANCE DECLARATION

TELCOMECE srl Via del Maccabreccia, 21 b - 40012 Lippo di Calderara di Reno - Bologna Italy, tel. +39 051 72 62 42, as the manufacturer of the product **PNEUMATIC TOOTH CLUTCH SERIES PNZZ**, declares that the product described above corresponds to the designs and technical brochures produced by TELCOMEC srl and that it cannot be declared compliant before the machine that it is part of is declared CE compliant, as indicated in article 4, paragraph 2 of Directive 2006/42/EC (Annex B).

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