

# General Terms and Conditions for Packing and Storage of Actuators

Valid from 1.2.2018

Version: 0

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## **Introduction**

The general terms and conditions for packing and storage of actuators (hereinafter referred to as the “GT&CPSAs”) laid down terms and conditions for packaging, transport and storage of actuators supplied by the company SPINEA, s.r.o. GT&CPSAs are binding for all customers of actuators and form an integral part of each contractual document having the subject-matter the supply of actuators. Failure to comply with the terms and conditions laid down in the GT&CPSAs and is the reason for rejecting the complaints regarding the defects in actuators. SPINEA, s.r.o. It reserves the right, at its sole discretion and at any time, to amend and/or supplement the GT&CPSAs.

## **1 TRANSPORT of ACTUATORS**

When taking over a consignment of actuators from the carrier, check whether the consignment does not show obvious signs of damage. No later than fourteen (14) days after the receipt of the consignment, check whether the actuators have not been damaged during the transport. Report immediately any damage to the consignment of actuators in writing to the carrier. Where the transport of the consignment has been organised by SPINEA, s.r.o., please, send us a copy of the notice to the carrier. In the event of damage to an actuator, such actuator may not be put into service.

Follow the following measures during the transport:

- Suitable climatic conditions in the category 2K3 under the standard EN 50178.
- Permitted transport temperature -25 °C to +70 °C, maximum allowed temperature change 20 °C per hour.
- Permitted relative humidity during the transport = 5% to 95% non-condensing.
- Pursuant to 2K3, air pressure is 70 to 106 [kPa]
- The transport is only allowed to persons with specialist knowledge and only the product in the original packaging may be transported.

## **2 Storage of Actuators**

### General:

- When handling, it is necessary to avoid contact of bare hands with metal surfaces without surface treatment (functional surfaces). For this purpose, use nitrile work gloves when handling actuators.
- When removal products from storage, use the FIFO procure after delivery from warehouses.
- Keep in rooms equipped with a hygrometer and thermometer. Keep records from measurements.
- Carry out checks of the packaging at least once every six (6) months, depending on the storage conditions. (Early detection of damage to the packaging makes the identification of the extent and source of the problem easier. Make sure that the packaging is properly closed and undamaged.)
- Store in closed store rooms.
- It is necessary to record the dates of receipt of the shipment with actuators for the purposes of demonstrating the passage of the storage time or the application of a curing method in order to extend the storage period.
- Store one-piece packages in the position according to the mark (BZ11) – this side up.

**Warning:** Improper storage may cause irreversible damage to the actuator.

## 2.1 Short-term Storage (up to 6 months)

### 2.1.1 Short-term Storage Terms and Conditions

- Suitable climatic conditions in the category 1K4 under the standard EN 50178.
- Storage temperature: +5 °C to +25 °C, maximum allowed temperature change 10 °C per hour.
- Storage humidity: < 60% RH non-condensing.
- Storage area: Inside, at an altitude of 1,000 [m] or less
- The area free of dust, corrosive gases and without direct sunlight.
- Pressure when stored: 86 to 106 [kPa]
- Store only in the original packaging from the manufacturer.
- Avoiding contact of the actuator with aggressive chemicals.
- Avoid exposure to sunlight and artificial light with a high ultraviolet radiation.

## 2.2 Long-term Storage (12 – 24 months)

**Long-term Storage (12 – 24 months) is only possible when actuators are stored in the transport packaging in accordance with Clause 4.2 of GT&CPSAs.**

Together with the measures referred to in Clause 2.1.1, the shaft seal requires compliance with specific conditions for storage. When stored longer than one (1) year, the lifetime of the shaft sealing rings is reduced by grease lubrication of bearings.

- When stored longer than one (1) year, it is necessary to perform the measurement of insulation resistance.
- All cable connections must be free of visible damage

*The isolation resistance measurement is essential in verifying electrical equipment and is carried out for all kinds of protection against dangerous contact. Isolation of live parts is the first prescribed measures for the protection against electric shock. At the same time, the isolation resistance measurement also verifies the protection by separation of circuits. The separation of live parts of the protected circuit from the other circuits and from protective earthing shall comply with the requirements for the isolation resistance.*

### 2.2.1 Protection against Corrosion - Exterior Surfaces

It is necessary to perform repetitive protection of areas within the meaning of Clause 3 of GT&CPSAs (except for aluminium flanges) which will provide sufficient protection against corrosion and, if necessary, in the case of actuators treated with coating, restore the painting of the housing (the outer coating). The priming coating is not sufficient. The original coating system consists of:

- 1x reactive primary painting
- 2x top polyurethane paint RAL 9005 semi-mat gloss
- Total thickness 30 to 40 µm

Repair the damaged coating system according to the original coating; apply the coating process in accordance with the instructions of the supplier (manufacturer) of paints.

Preserve functional areas within the meaning of Clause 3.2 of GT&CPSAs.

### **2.2.2 Protection against Corrosion - Interior surfaces**

The interior surfaces of the actuator are mainly of aluminium and steel components.

The electrical part of the actuator does not require any additional protection.

The reducing side of the actuator is filled with lubricant with up to 70 to 80% the free space volume. The product is tested and run; after that, the grease covers all internal steel surface. Product actuator should be rotated every twelve (12) months so that the grease is distributed evenly.

### **2.2.3 Storage Facilities**

The storage space must be

- vibration-free, sealed, in a cool, dry place, sufficiently air-conditioned;
- protected against attack by insects and rodents.

### **2.2.4 Lighting**

The following impacts should be avoided:

- direct sunlight;
- artificial light with a high proportion of ultraviolet light;
- ultraviolet / fluorescent light sources;
- mercury vapour lamps.

### **2.2.5 Temperature and Humidity**

- Storage temperature range: +5 °C to + 25 °C
- Keep the temperature as constant as possible, avoid short term fluctuations;
- Keep a safe distance of at least one meter away from heat sources, within a draught-free area;
- Humidity: <60%

### **2.2.6 Ozone and Gases**

At all times, avoid storage in close proximity to:

- Sources of ozone and exhaust gases;
- Solvent vapours, fuel, chemicals, acids, disinfectants, rubber solvents;
- Strong electrical discharges, sparks (electric motors).

## **2.3 Long-term Storage (for more than 2 years, however, no longer than 5 years)**

When maintaining the storage conditions in accordance with Clauses 2.1 and 2.2 of GT&CPSAs and following the re-preserving procedure in accordance with Clause 3 of GT&CPSAs, if not used, the product actuator may be stored for a longer period, i.e. more than two (2) years; however, not more than five (5) years.

The functional areas are preserved using a preservative which provides corrosion protection for up to two (2) years. If the storage period is longer than two (2) years, then re-preservation is required in accordance with Clause 3 of GT&CPSAs.

A written record must be made of the re-preservation procedure that shall include: number of the actuator, re-preservation date, the condition of the surface of the actuator (OK/NOK) and who has carried out the re-preservation. A copy of the record is to be sent to the company SPINEA, s.r.o.

### **3 Re-preservation Procedure**

#### **3.1 Surface Preparation on Preserved Areas**

Prior to the preservation itself, it is necessary:

- Carefully unpack parts (without damaging the original packaging and without damaging the product itself), check whether due to improper storage or corrosion, if any, the actuator is impaired or irreversibly damaged.  
*(In the event of damage to the original packaging it is necessary to replace the original packaging by an appropriate packaging with identical characteristics, in accordance with Clause 4.1 of GT&CPSAs)*
- Before applying a preservative to the functional surface of the actuator, it is necessary to clean and degrease the surface of the input section of the actuator thoroughly.

*Functional area - the part of the surface of the component that is in contact with the functional area of another component or the material that is being processed*

For degreasing, it is advisable to use ecological washing tables that provide for a complete cleaning system, including waste disposal and consistently respect the laws and EU directives related to waste management, environment and safety at work.

##### **3.1.1 Mechanical Cleaning**

**In cases of local surface corrosion on functional areas** the following should be done:

1. Remove surface rust using abrasive cloth with fine grains, e.g., Scotch-Brite 03760, in the direction of the grinder mark of the tool, applying fine force (protect sealing elements - o-rings, guferos, bearing caps).
2. Apply a uniform film of the substance CORTEC VCI 429 on rusty areas; allow the substance to act on rusty areas for 15 to 30 minutes (protect sealing elements - o-rings, guferos, bearing caps).
3. Remove dirt and grease using a clean, dry cloth or paper towels (neither the cloth nor the paper towel may not leave fibres). If rust persists, repeat step No. 2.

**In cases of functional areas free of local surface corrosion,** the following should be done:

1. Remove the preservative carefully with a paper towel or clean cloth.
2. Apply the cleaner ISOPROPANOL.
3. Apply a uniform film of the substance CORTEC VCI 429; allow the substance to act for 5 to 15 minutes (protect sealing elements - o-rings, guferos, bearing caps).
4. Remove dirt and grease using a clean, dry cloth or paper towels.

*Use appropriate personal protective equipment when applying the cleaner.*

### **3.1.2 Degreasing and Recommended Application Substances**

The recommended preservatives:

1. Ensis RPO 1200
2. CIMGUARD® 40

The use of preservatives other than the recommended materials is only permitted with prior written approval by the manufacturer of the actuators.

Surfaces treated with the product Ensis RPO 1200 or the product CIMGUARD® 40 may be degreased using the following products:

1. Alkaline water-based cleaners:

- HOUGHTO-CLEAN 137, HOUGHTO-CLEAN 141, HOUGHTO-CLEAN 147

2. Solvent-based products

- HOUGHTO-CLEAN 508

3. Alcohol-based products

- IZOPROPYLALKOHOL - IPA

Recommended rust removers: CORTEC VCI-429

### **3.2 Preservation Procedure**

The preservative is applied using:

- Sprayer
- Brushing

After application of the preservative (formulation) the excess preservative should be allowed to drip off.

The applied preservative must be continuous and unbroken.

- Warning: Preserving by dipping can only be applied to the transmission part of the actuator, and only its functional areas. The worker applying the preservative by immersion of the actuator shall have such working conditions that will prevent the penetration and application of the preservative out of the functional areas as required.

*Functional area - the part of the surface of the component that is in contact with the functional area of another component or the material that is being processed.*

### **3.3 Repackaging in the original packaging**

Actuators must be visually inspected and identified (they may not be bruised and no other mechanical damage may be visible on them, the manufacturer's plate, as well as the serial number must be affixed in a visible place and must be legible).

A test report must be included in the packaging – so as to prevent its deterioration.

Protect the well lubricated functional surface of the actuator using a stretch film, then insert the preserved and checked actuator into the LDPE container; remove the excess air from the package, fold the end of the package and close the package using binding plastic tape (SK-tape). Insert the packaged product actuator into the original package and close the package.

In the event of damage to or pollution of the original packaging it is necessary to replace the original packaging by an appropriate packaging with identical characteristics, in accordance with Clause 4.1 of GT&CPSAs.

The above procedure must also be followed when sending actuators back to the company SPINEA, s.r.o. in the event of a complaint, if any, or a request for repair or analysis.

## **4 Packaging of Actuators**

### **4.1 Packaging in Single Unit Pack**

Single unit pack of the actuator consists of the following items:

- Outer package - three-layer cardboard box (3VL) – (the dimensions according to the actuator type dimensions)
- Inner package (LDPE bag 100 microns, stretch film to protect the conserved functional areas)
- Fixing material - polyurethane foam/stretch film
- Test report
- Identification label (placed on the outside of the package, the label is identical with the label of the actuator).

The outer package is made of material that is environmentally friendly and allows recycling.

### **4.2 Transportation – Multipack Packaging**

Transport packaging of actuators consist of the following parts:

- Single-piece pack (within the meaning of Clause 4.1 of GT&CPSAs), the number of single piece packs according to the number of pieces shipped
- Moisture absorber
- Inner package
- Fixing material – polyurethane foam/stretch film
- Bill of sale
- Outer package – transport plywood box; the dimensions of the wooden boxes or pallets depend on the number of units shipped.

## **5 Removal from Storage**

- When removal products from storage, use the FIFO procure after delivery from warehouses.
- When re-preserving, use the FIFO principle.
- When handling, it is necessary to avoid contact of bare hands with functional surfaces. For this purpose, use nitrile work gloves when handling actuators.

## **6 Application substances and tools:**

1. Ensis RPO 1200
2. CORTEC VCI 429
3. IZOPROPYLALKOHOL - IPA
4. Sanding fabric Scotch-Brite
5. Dry fabric which does not shed fibres
6. CIMGUARD® 40
7. HOUGHTO-CLEAN 137, 141, 147, 508

## **7 List of attachments**

1. ENSIS RPO 1200 – data sheet
2. CORTEC VCI 429– data sheet
3. IZOPROPYLALKOHOL - IPA– data sheet
4. CIMGUARD® 40 – data sheet

