

## MAINTENANCE OF BEARINGS AND TRANSMISSIONS ON REDUCTION UNIT



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### Experimental capabilities

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- Chain tension adjustments and replacement of chains
- Ball-bearing replacement
- Emptying of oil sump
- Greasing
- Bearings replacement (with ball radial contact, with angular contact ball bearings, with rollers)
- Remplacement de douilles à billes
- Ball bushings replacement
- Smooth guiding ring replacement
- Replacing sealing gaskets
- Improvement: change of type of transmission (V-belt / toothed belt)
- Adjusting the disengagement torque of the torque limiter.
- Adjusting the clearance on assembly of bearings in O
- Adjusting the position of the vertex cone
- Synchronization of different sub mechanical assemblies of the machine
- Many activities of assemblies and of mechanical disassembly
- Change format
- Handling by slinging
- Handling by lifting table

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Dans le cadre de l'amélioration permanente de nos produits, ce descriptif technique est susceptible d'être modifié sans préavis  
As part of the continuous improvement of our products, this technical specification may be modified without previous notifying

## Operating principle

The industrial control machine MGC 200 allows to implement the mechanical maintenance on a high production rate system. The robust design of this device makes it suitable for use in schools. The equipment is set up on an Anodized aluminium frame on casters wheels. This gives it great strength and a flexibility of integration into your premises. The manufacture of this equipment complies with the European standard for machinery manufacturing.

This equipment can be used alone or with other compatible equipment from our range (see last section of this document).

## Illustrations



## Technical details

- **A welded steel structure** allowing a wide access to the work area by 3 large doors giving full access to 3 main faces of the machine
- **An electrical box** incorporating protection elements (preventa, circuit breaker, differential, PLC ...)
- **A control panel incorporating push-button switches and system control indicators**
- **Asynchronous geared motor wheel and screw** (0.75kW R=1/50) + chain drive to the cam shaft
- **Inductive sensors, magnetic, optical and capacitive**: work material detection, management of gripping cycles and of interruptions cycles
- **Accumulation powered belt conveyor** for supply of the products.
- An upstream **torque limiter** of the cam shaft
- A **cam shaft** used to synchronize the rotation of the transfer with the working operation on the products (vertical reciprocating movement of gripping and removal)
- An **indexer maltese cross** driven in rotation by belt from the cam shaft and allowing to create rotation sequences (for a continuous rotation of the input shaft, the output shaft rotates in a sequential manner). This item is used to immobilize the rotary transfer during ingestion phases and removal of products.
- A **rotary transfer** driven by **bevel gear angular gearbox** R = 1/2: ensures the transfer of products on the machine (feeding, positioning transfer to workstation and evacuation). This housing incorporates angular contact ball bearings , of radial contact as well as of rollers. Lubrication is achieved with the grease and oil in the housing.
- **Chain** drive, by **V-belt or toothed, Oldham coupling, keys, shrink disk, pins, ...**
- **Pneumatic suction gripper** / vacuum
- Thresher of products to manage the feed flow of products on the machine (pneumatic cylinder)
- All removable parts are in steel and the shafts receiving the bearings replacement activities are case hardened and tempered.
- **Maintenance equipment kit**: in cases / bearings, cam roller, sealing lips and O-rings, pinion to increase the rate of production) pulleys and toothed belt , guide bushings, ball bearings ...)
- **Maintenance tool kit**: 1 dynamometer for torque limiter setting
- **3D modeling in solidworks** with animations videos

# MGC200



## Services required

- Electrical supply : 400Vac – 50 Hz – 16 A
- Compressed air supply: 6-8 bars (dry air)
- Dimensions: (LxWxH mm): 1300 x 1300 x 2100
- weight (Kg): 500

Note : if the equipment installation is operated by our staff, all supplies and exhaust connections required must stand at less than 2m from the machine

## Documentation

- User's manual
- Pedagogical manual
- Technical documentation of the components
- Lab exercises
- Certificate of conformity CE

## Options

### Kit format change: (ref MGC 001)

Composed of :

- A batch of product of format # 2
- Machine tools part kit for adaptation of production in the second production format (support columns for guides).

### Sub systems of study and maintenance:

Sub-assemblies identical to those incorporated in the machine in order to perform maintenance and the study of each while maintaining at all times the integrity of the machine.

- Gripper (ref MGC 010)
- Angle gear casing (ref MGC 020)
- Indexer with maltese cross (ref MGC 030)

### Mechanical construction kits:

Subassembly identical to the sub-assemblies integrated on the system but whose parts initially assembled tight, are over-reamed to allow their assembly by hand. These kits are supplied separately in cases compartmentalized with solidworks files:

- Gripper (ref MGC 011)
- Gearing angle drive (ref MGC 021)
- Indexer (ref MGC 031)

### Clearance adjustment kits: (Ref MGC 040)

Composed of:

**1 support** for clearance control

Fasteners for holding on the shaft support + housing + bearing

**1 comparator**

### Electric kit:

- Contactor breadboard (Ref MGC 051 / qty 1 supplied with MGC 200)
  - Compatible cabinet of the base system
  - Compatible remote cabinet
- Soft starter breadboard (Ref MGC 052)
  - Compatible cabinet of the base system
  - Compatible remote cabinet
- Breadboard controller (Ref MGC 053)
  - Compatible cabinet of the base system
  - Compatible remote cabinet

## Kit modernization - under surveillance (Ref MGC 060):

- **Kit aimed at integrating the functions of control and monitoring of the process and action chains; it is composed of:**
  - **Analysis / vibration monitoring :**
    - 1 motor + 2 reducers
    - 1 accelerometer module with integrated EPROM
    - Parameterization and graphic display on PC - software and cable supplied
    - Diagnosis of alignment defects
    - Diagnosis of imbalances defects
  - Monitoring vacuum
    - 1 manometer pressure switch
  - Torque limiter slippage monitoring
    - 2 inductive sensors
    - 1 differential speed monitoring module

## Description of pedagogical activities on system \*:

- Chain tension adjustments and replacement of strings
- Roller-bearing replacement
- Change of oil sump
- Greasing
- Bearings replacement (with radial contact ball, angular contact ball bearings, rollers)
- Linear bushing replacement
- Smooth guide ring replacement
- Replacement of sealing gaskets
- Improvement: change of type of transmission (V / toothed belt )
- Adjusting the disengagement torque of the torque limiter.
- Setting the clearance on mounting bearings in O
- Adjusting the position of the cone vertex
- Synchronization of various mechanical sub-assemblies of the machine
- Many activities of assemblies and mechanical disassembly
- Change format
- Handling by slinging
- Handling with lift table
- Vibration diagnosis
- Modernization of action chains
- Under surveillance