

MGC 200

Maintenance and study of stacking machine with cam

Objective of the application:

DESCRIPTION

- The machine of industrial control MGC 200 makes it possible to implement the interventions of mechanical maintenance on a system high rate of production
- This machine is conceived to back the activities of repeated assembly and disassembling
- Handbook teaching and technical, files solidworks
- kits of study and under systems
- industrial Components.
- The didactic interest of the MGC 200 is directed towards various levels and fields of studies going from the BEP and VAT PRO MEI, SEMI BTS, CPI, VAT STI and S.
- Electricity: 400V will tetra
- Dimensions (in mm): 1300 * 1800 * 2100



TEACHING APPLICATIONS

- Adjustments of tension of chain and replacement of chains
- Replacement of roller with ball
- Drain of a sump
- Greasing
- Replacement of bearings (with radial contact with ball, with contact obliques with balls, rollers)
- Replacement of ball bushes
- Replacement of ring smooth guidance
- Replacement of seals to grease or oil, for dynamic or static sealing
- Change of the type of transmission (V-belt/notched belt)
- Kinematic study of a system with cam and acquisition on PC *
- Adjustment and metrology on conical couple *
- Many activities of assemblies and mechanical disassemblings
- Handling by élinguage
- Handling by lifting table
- ...

This machine is used in agroalimentary industry or automobile to pile up machine elements or limp... before packing

The rates of output in these fields are such that they require the use of machine with kinematics continuous or indexed with cam, the sequential machines become ineffective.

This machine is made up of 4 functional subsets easily désaccouplables so as to allow the course of simultaneous practical work from 3 to 4 pupils on the basis of this machine

Each kit or subset also makes it possible to increase the number of pupils which can work simultaneously around this same application.

The technological advantage of this machine lies in the great diversity of the components and the technological solutions (see technical description)

This machine being conceived for the formations with the trades of the maintenance plant, the dismountable parts are treated and carried out so as to support a great number of handling within the framework of a school apprenticeship.

The handling of the subsets calls upon the various techniques of handling of the loads (by goat, hoist and lifting table/the subsets requiring a handling in height are equipped with rings of lifting)

Lastly, the machine is evolutionary so as to integrate the improvements of systems as under consideration within the framework of the various reference frames

Technical description of system MGC 200:

- A **structure mechanic welded** allowing a broad access to the working area
- An **electric box** integrating the button manufacture of order as well as the distribution of energy and the automat ensuring the piloting of the system
- **Asynchronous Motor reducer coils and live** (0,75kW R=1/50) + drive chains towards the camshaft
- **Sensors inductive and optics**: matter detection of work, management of the cycles of gripping and the interruptions cycles
- **Belt conveyer motorized** with accumulation for food of the products.
- a **camshaft** allowing to synchronize the **rotation of the transfer** with the **operation of work on the products** (vertical reciprocating motion of gripping and deposits)
- An **indexer with cam** involved in rotation by belt since the camshaft and allowing to create sequences of rotation (for a continuous rotation of the tree of entry, the output shaft turns in a sequential way). This element makes it possible to immobilize the **rotary transfer** during the phases of catch and demounting of the products.
- a **rotary transfer** driven by **case to bevel gearbox to conical couple** R=1/2 ensures the transfer of the products on the machine. This case integrates ball bearings into oblique contact, with radial contact like with rollers. Lubrication is carried out with grease and oil in the case.
- drive **chain**, by **V-belt** or **notched, elastic joining, keys, hoops of tightening, pins,...**
- **pneumatic prehensor** with suction cup/depression
- all the dismountable parts are out of steel and the trees receiving the activities of replacement of the bearings face-hardened and are soaked.
- **specific material for realization of the activities of maintenance suggested**: out of cases/bearings, roller of cam, lip seals and dishes, pinions and chain, pulleys and belt notched, guide bushes, ball bushes...)
- **modeling 3D under solidworks** with animations videos

kits and under complementary systems:

Under systems of study and maintenance:

subsets identical to those integrated into the machine with an aim of making the maintenance and a study of each one while preserving constantly the integrity of the machine.

- belt conveyer on feet with motor reducer and case works/stop
- and system camshaft of catch and deposits products
- indexer with cam
- case bevel gearbox

kits of technological study and mechanical engineering:

for activities D assembly and disassembling, follow-up of procedures, analyzes functional...

- indexer with cam in spare parts and without constraints (= bearings on-reamed for assembly with the hand), crank for manual operational test/arrangement in compartmentalized case + CAD solidworks
- case with bevel gearbox to gears for rotary transfer in parts spare without constraints (= bearings on-reamed for assembly with the hand), crank for manual operational test)/arrangement in compartmentalized case + CAD solidworks

kits of adjustment and metrology:

- kit of adjustment of the conical couple on case with bevel gearbox: column of measurement to comparator and feeler gauge

kinematic kit of study:

- in option on the technological kit of study "indexer with cam": sensors allowing the measurement speeds and positions + chart of acquisition USB for PC with software: establishment of the relation between the various measured sizes and the geometrical definition of the profile of cam

Description of the teaching activities on system:

- handling of loads in heights or suspended (elinguage and deposits by lifting table)
- Adjustments of tension of chain and replacement of chains
- Change of report/ratio of reduction on transmission with chains
- Replacement of roller with ball degraded
- Draining of a sump/filling after intervention
- Greasing
- Replacement of bearings (with ball, with contact obliques with ball, rollers)
- Replacement of ball bushes
- Replacement of ring smoothes guidance
- Replacement of seals to grease or oil, for dynamic or static sealing
- Change of the type of transmission (V-belt/notched belt)
- Adjustments of position and plays *
- Kinematic Study of system to cam with data-processing acquisition *

*: activities on kits and under systems

Utilities: _ Three-phase power pack 400V - 50Hz

Dimensions (L * L * H in mm): 1300 * 1800 * 2100