

DEMMELE Turning Unit 40To

DEMMELE Maschinenbau – Germany



Article No.: I40-40000-050

Hydraulically synchronised pair of manipulators for lifting and rotating heavy workpieces. Total payload 40,000 kg. Suitable for integration as an additional robot axis in automated welding applications.

SCOPE OF DELIVERY (PER UNIT)

- 2x Manipulator IP20000 — contains the base column, lifting carriage, drive for lifting and rotation axis, hydraulic unit, slewing ring and flange plate
- 1x control unit to operate the two main axes
- Axis 1 = 2 pieces of hydraulically synchronized lift axes
- Axis 2 = 2 pieces of hydraulically synchronized rotation axes

PAYLOAD

- Payload total: 40,000 kg
- Payload per manipulator: 20,000 kg
- The load capacity refers to the total load (customer workpieces, crossbeams, fixtures, etc.)

INSTALLATION

- Both manipulators are anchored on the floor — the fixation holes must not be on expansion joints
- Four adjusting screws per manipulator for adjustment and levelling of both manipulators against each other
- A manual adjusting unit (laser) is designated for levelling the two manipulators

CONTROL UNIT

- Control cabinet with control panel for manual control and touch display, mounted at the master manipulator
- Electrical design agreeing European standard
- Movement of the manipulators in inching mode (axis 1: lifting up / down, axis 2: rotation left / right)
- Emergency shutdown button, status and control lights
- Key switch to deactivate the movement of the lifting and turning axis
- Override (approx. 20-100%) for the speed control of all movements in inching mode
- 2x additional emergency stop push buttons, installed on the manipulators right / left side
- 4x combined acoustic and optical warning signal for movements, installed at the manipulators right / left side
- Speed control for the lifting and rotation axis, with evaluation of the current torque of all engines by the hydraulic pressure and indication in the display (0-100%)
- Half automatic program flow (100 programs á 50 positions)
- Smooth start of the lifting and turning axis
- Protection category: panel IP 54, switching elements IP 65
- Software end switches for the lifting axis
- Cable duct between the two manipulators over floor
- Engine hour indicator for lifting and turning axis (software solution)
- Cables between the two manipulators with plug connection

AXIS 1 - LIFTING AXIS

- Lifting speed S1: approx. 0.25 – 1.2 m/min
- Lifting max.: approx. 2,000 mm
- Min. height rotation centre: approx. 1,200 mm
- Max. height rotation centre: approx. 3,200 mm

AXIS 2 - ROTATION AXIS

- Max. rotation speed: approx. 0.25 – 1.0 rpm
- Rotation: $\pm 360^\circ$ endless
- Torque: approx. 60,000 Nm (each manipulator 30,000 Nm)
- Table top: flange plate $\varnothing$ approx. 1,400 mm
- Max. workpiece $\varnothing$: approx. $\varnothing$ 5,800 mm

- The central lubrication unit is integrated into the control (status and warning information part of the information concept)

CONNECTION AS ADDITIONAL ROBOT AXIS - SUITABILITY FOR AUTOMATED WELDING APPLICATIONS

- Precise lifting axis and rotary axis for accurate positioning of workpieces
- Both axes can be controlled with high positional accuracy and are designed for automated welding processes
- Beckhoff control system, can be integrated as an additional axis into a robot controller via a PROFINET interface

INTEGRATED TEACH-CONTROL-SYSTEM

- Dialog guided user interface for both axes
- Visualisation of both axes on the screen
- Copy, paste and delete within individual command lines / programs
- Program stops can be made during a program run; the system can still be used with the push buttons to drive manually
- Guided restart of program
- The program runs line by line and switches automatically to the next line once the previous has been finished
- Behind each command line an individual description can be written to describe the next working steps

WELDING CURRENT / GROUND CONNECTION

- 2x weld current connection on each manipulator with max. 500 A, via sliding contacts
- Connections: 2x Dinse DIX BEK 70/95 connection boxes and 2x M20 thread
- Welding current return cables made of highly flexible arc welding cables H01N2-E according to DIN EN 50525-2-81

OTHER FEATURES

- Manipulators with threads for transport, aligned to eyebolts DIN 580 / eyelets for shackles DIN EN 13889
- Both manipulators connected with pneumatics, one side with coupling for customer connection
- Stable shutter to protect the guides against weld spatter
- Hydraulic unit incl. valves
- Painting: double coating (primer and paint) — lifting column RAL 7035, lifting carriage RAL 7016, lubrication and lifting points RAL 3000
- Design engineering included
- Documentation as digital version: instruction manual, spare part drawings, maintenance plan, audit book, CE-confirmation
- The rotary axes are mechanically bolted in the rest position

NOT SCOPE OF SUPPLY

- Installation, start up and briefing (quoted separately)
- Device / tie beams — the interface are the flange plates
- Energy supply (pneumatic, power) — a pneumatic supply with min. 6 bar must be provided by the customer
- Safety devices (workroom separation, anti-dazzle devices and so on)
- Safety concept for the complete machine
- Logistics concept (crane, means of carriage etc.)
- Complete welding equipment
- Possible foundation work

Manufacturer's note: production will commence only after all technical details have been clarified and the design has been approved. Technical specifications provided in the descriptions of individual items may change during the design phase. Binding execution details will be defined in an approval drawing to be signed by both parties. The proper completion of the foundation and the fixation of the workpieces on the manipulator have to be ensured by the customer.