

PRODUCT IDENTIFICATION

FOR THE METALLURGICAL INDUSTRY

A Member of **MNI**®

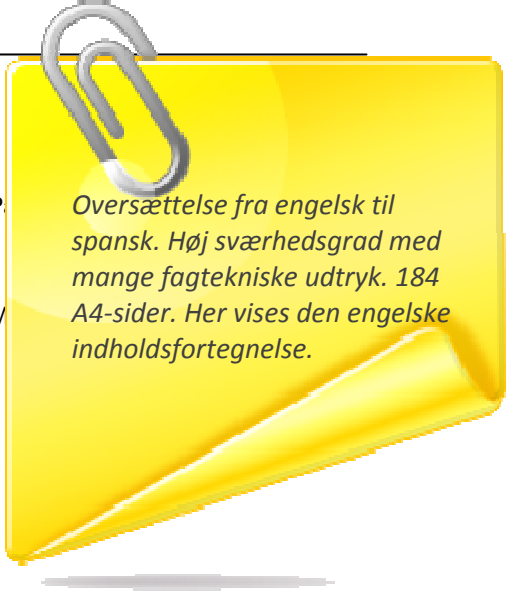


Index

Section I: Electrical Specifications

Chapter 1: Electrical Specifications

- 1.0 Electrical Specifications
 - 1.1 Voltages
 - 1.2 Components
 - 1.3 Panels
 - 1.3.1 Main Power / PLC and Paint Driver P
 - 1.3.2 Maintenance Panel +P01
 - 1.3.3 Terminal boxes
 - 1.4 Cables
 - 1.4.1 Cable Distances from Mangemag's M
 - 1.5 Mounting Wiring
 - 1.6 Electrical documentation
 - 1.6.1 Written documentation
 - 1.6.2 1E Operator's manual
 - 1.6.3 2E Electrical Drawings
 - 1.6.4 3E Installation Guide and Application
 - 1.6.5 4E Enclosures
 - 1.7 Software environment



Oversættelse fra engelsk til spansk. Høj sværhedsgrad med mange fagtekniske udtryk. 184 A4-sider. Her vises den engelske indholdsfortegnelse.

Chapter 2: General

- 2.0 General
 - 2.1 Marking Machine System Lay-out
 - 2.2 General safety
 - 2.3 Main supply
 - 2.3.1 Main switch
 - 2.3.2 Power outlet
 - 2.3.3 Safety switch
 - 2.3.4 Safety module for emergency stop
 - 2.3.5 Power outlet
 - 2.3.6 Safety module for door contact
 - 2.3.7 Power outlet
 - 2.4 Safety modules
 - 2.5 Principles of electrical documentation

Chapter 3: Interlocking

- 3.0 Interlocking signals
 - 3.1 Interlocking signals hardwired from MM marking machine to customer
 - 3.1.1 Emergency stop x 2, standard signals (safety interlock)
 - 3.1.2 Release conveyor, standard signals (safety interlock)
 - 3.1.3 Ready to start marking, standard signal
 - 3.1.4 Marking finished, standard signal
 - 3.1.5 Spare, special signal
 - 3.1.6 Spare, special signal
 - 3.1.7 Spare, special signal
 - 3.1.8 Spare, special signal
 - 3.1.9 Spare, special signal
 - 3.2 Interlocking signals hardwired from customer to MM marking machine
 - 3.2.1 Emergency stop x 2, standard signal
 - 3.2.2 Enable/ Disable marking, standard signal
 - 3.2.3 Direction of profile, standard signal
 - 3.2.4 Profile length, Bit 0, special signal
 - 3.2.5 Profile length, Bit 1, special signal
 - 3.2.6 Profile length, Bit 2, special signal
 - 3.2.7 Start marking (stop marking) left to right, special signal

- 3.2.8 Start marking (stop marking) right to left, special signal
- 3.2.9 Spare, for special signal

Chapter 4: Maintenance Panel

- 4.0 Maintenance panels +P01
 - 4.1 "Auto" lamp
 - 4.2 "Maintenance" lamp
 - 4.3 "Clearing" lamp
 - 4.4 "Error" lamp
 - 4.5 "Air min." lamp
 - 4.6 "Solvent min." lamp
 - 4.7 "Paint min." lamp
 - 4.8 "Marking head, out / home" switch with spring return
 - 4.9 "Gun 1-16": 0X, 1X, 1-16 selector switch
 - 4.10 "Gun 1-16": 0, 1, -> 9" selector switch (x)
 - 4.11 "Impulse pushbutton"
 - 4.12 "Pulsation / constant" switch with spring return
 - 4.13 "Atomizing/ Cleaning air – solvent" pushbutton
 - 4.14 "Atomizing/ Cleaning air – Off/ On" pushbutton
 - 4.15 "Machine status off" pushbutton
 - 4.16 "Machine status on" illuminated pushbutton
 - 4.17 "Machine status " key switch
 - 4.18 "Machine status stop" pushbutton
 - 4.19 "Machine status start" illuminated pushbutton
 - 4.20 "Reset" pushbutton
 - 4.21 "Lamp test" pushbutton
 - 4.22 "Emergency stop" Push/ Turn pushbutton
 - 4.23 "Safety switch" Lockable safety switch

Chapter 5: HMI

- 5.0 HMI
 - 5.1 Main screen
 - 5.2 Machine status
 - 5.3 Show marking data
 - 5.4 Edit marking data
 - 5.5 Marking settings
 - 5.6 Maintenance screen paint
 - 5.7 Alarm list

Chapter 6: Description of Errors

- 6.0 Description of errors in the marking machine
 - 6.1 Error group no.
 - 6.2 Error location
 - 6.3 Error type no.
 - 6.4 Detailed error list
 - 6.4.1 Voltage
 - 6.4.2 Data communication
 - 6.4.3 Air pressure/ Paint level minimum
 - 6.4.4 Emergency stop
 - 6.4.5 Errors at automatic sequences
 - 6.4.6 Marking data
 - 6.4.7 Sensor errors
 - 6.4.8 Safety error
 - 6.4.9 PLC system error
 - 6.4.10 Circuit breaker error
 - 6.4.11 Head positioning error
 - 6.4.12 Trolley drive error
 - 6.4.13 Driver communication error
 - 6.4.14 Driver errors

Chapter 7: Cleaning

- 7.0 Cleaning
 - 7.1 Interval spray cleaning
 - 7.2 Cleaning after marking
 - 7.3 Cleaning flowchart

Chapter 8: Data Communication

- 8.0 Software protocol between customer-host and operator-PC
 - 8.1 Way of communication between customer-host and operator-PC
 - 8.1.1 From Customer-host to operator-PC
 - 8.1.2 From Operator-PC to customer-Host
 - 8.2 Description of variables
 - 8.2.1 Definition of an integer ("int")
 - 8.2.2 Definition of a Double Integer ("Dint")
 - 8.2.3 Definition of a String ("Str[x]")
 - 8.3 Telegrams from customer-host to operator-PC
 - 8.3.1 Marking Data telegram (MD)
 - 8.3.2 Request status telegram (RS)
 - 8.4 Telegram from operator PC to Customer-host
 - 8.4.1 Marking finished (MF)
 - 8.4.2 Machine status (MS)

Chapter 9: Description of Function

- 9.0 Functional description
 - 9.1 Marking layouts
 - 9.1.1 Beam definitions
 - 9.2 Automatic mode for paint marking machine
 - 9.3 General for the automatic mode
 - 9.3.1 Timeouts
 - 9.3.2 Marking data
 - 9.3.3 Automatic cleaning
 - 9.3.4 Home position/ maintenance position
 - 9.4 Manual mode

Section II: Mechanical Specifications

Chapter 10: Paint marking machine for profiles steel profiles from -10° to 100°C

- 10.0 Mechanical specifications
 - 10.1 Drawings relating to mechanical specifications
 - 10.2 Plate marking machine
 - 10.3 Profile specifications
 - 10.4 Marking specifications
 - 10.4.1 Distance from marking to profile leading/tailing end
 - 10.5 Specifications of paint, solvent and oil
 - 10.6 Specifications of compressed air
 - 10.7 Hoses between paint pneumatic equipment & machine
 - 10.8 Final mechanical documentation

Chapter 11: General Description

- 11.0 General description
- 11.1 General safety

Chapter 12: Technical Description

- 12.0 General paint marking machine
 - 12.1 Arr. Turning mechanism
 - 12.2 Arr. Linear movement system
 - 12.2.1 Adjustments
 - 12.3 The marking head arrangement
 - 12.3.1 Adjustable console
 - 12.4 Valves by-pass
 - 12.5 Paint marking head
 - 12.5.1 Dosing
 - 12.5.2 Marking section, combi jet CMM16R
 - 12.5.3 Cleaning/Solvent valve
 - 12.6 Encoder
 - 12.6.1 Encoder wheel arrangement
 - 12.7 Valve connection
 - 12.7.1 Atomizer air valve
 - 12.7.2 Start-up and emergency stop valve
 - 12.7.3 Adjustments
 - 12.8 Paint/ Pneumatic cabinet
 - 12.8.1 Pneumatic module
 - 12.8.1.1 Adjustments
 - 12.8.2 Pump module
 - 12.8.2.1 Adjustments
 - 12.8.3 Lifting/ Lowering for paint
 - 12.8.3.1 Adjustments
 - 12.8.4 Cover for paint canister
 - 12.8.4.1 Adjustments

Chapter 13: Cleaning Functions

- 13.0 Cleaning functions
 - 13.1 Automatic cleaning after marking a defined number of markings
 - 13.2 Automatic interval cleaning
 - 13.3 Semiautomatic cleaning program
 - 13.3.1 Paint by-pass for maintenance, step 1
 - 13.3.2 Paint by-pass for maintenance, step 2 – cleaning of marking sections
 - 13.3.3 Paint by-pass for maintenance, step 3– cleaning of marking sections
 - 13.3.4 Return to normal paint circulations, step 1 – marking section ready for marking
 - 13.3.5 Return to normal paint circulations, step 2 – marking section ready for marking

Chapter 14: Start of Machine

- 14.0 Start and stop of the machine
 - 14.1 Running-in and start-up
 - 14.1.1 Start-up air system
 - 14.1.2 Start-up of cleaning fluid pump
 - 14.1.3 Start-up of paint system with cleaning fluid
 - 14.1.4 Filling of paint
 - 14.1.5 Start-up of marking guns

Chapter 15: Stop of Machine

- 15.0 Stop of machine
 - 15.1 Short stop
 - 15.2 Temporary stop
 - 15.3 Complete stop

Chapter 16: Maintenance

- 16.0 Maintenance
 - 16.1 Daily maintenance
 - 16.1.1 Paint marking head
 - 16.2 Weekly maintenance
 - 16.2.1 Paint marking head
 - 16.3 Monthly maintenance
 - 16.3.1 General
 - 16.3.2 Paint marking head
 - 16.3.3 PP equipment
 - 16.4 Instruction for replacement of parts
 - 16.4.1 Replacing the marking head/section
 - 16.4.2 Mounting instructions for guns
 - 16.4.3 Assembly instructions marking gun
 - 16.4.4 Assembly of anchor in manifold with air nozzles
 - 16.4.5 Dismantlement of paint marking pump
 - 16.4.6 Measuring of viscosity with a DIN 4 Cup
 - 16.4.7 Replenishment of paint
 - 16.4.8 Special conditions cleaning
 - 16.4.9 Lubrication instructions for lubricator
 - 16.4.10 List of tools to be supplied by Magnemag

Chapter 17: Installation

- 17.0 Installation
 - 17.1 Machine parts
 - 17.2 Positioning of the marking machine on foundation bolts
 - 17.3 Paint/ Pneumatic equipment
 - 17.4 Safety fence

Chapter 18: Troubleshooting

- 18.0 Maintenance
 - 18.1 Marking guns
 - 18.1.1 Poor legibility – all guns function
 - 18.1.2 Dot missing
 - 18.1.3 Gun hangs idle – remains open
 - 18.1.4 Gun fails after brief standstill

Chapter 19: Protection of Environment

- 19.0 Protection of the Environment
 - 19.1 Disposal of paint, oil and the like
 - 19.2 Scrapping of machine