



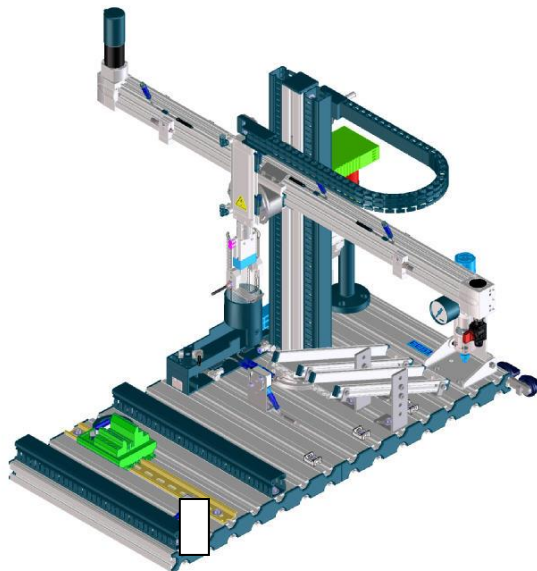
PROJECT 1:

ASSEMBLY, PROGRAMMING AND COMMISSIONING OF A HANDLING STATION WITH ELECTRICAL DRIVE AND STACK MAGAZINE

Weighting (points out of total)	t max	Information
15/100	180 min	also on USB-Stick

SCENARIO

You are responsible for the delivery of a Handling Station purchased by a customer in the world to be used in the partial automation of its production process.



TASK

Assemble, wire and tube the Handling Station (HS) on the profile plate according to the following guidelines and the technical information.

Develop a program and commission the system.

Your task is complete as soon as:

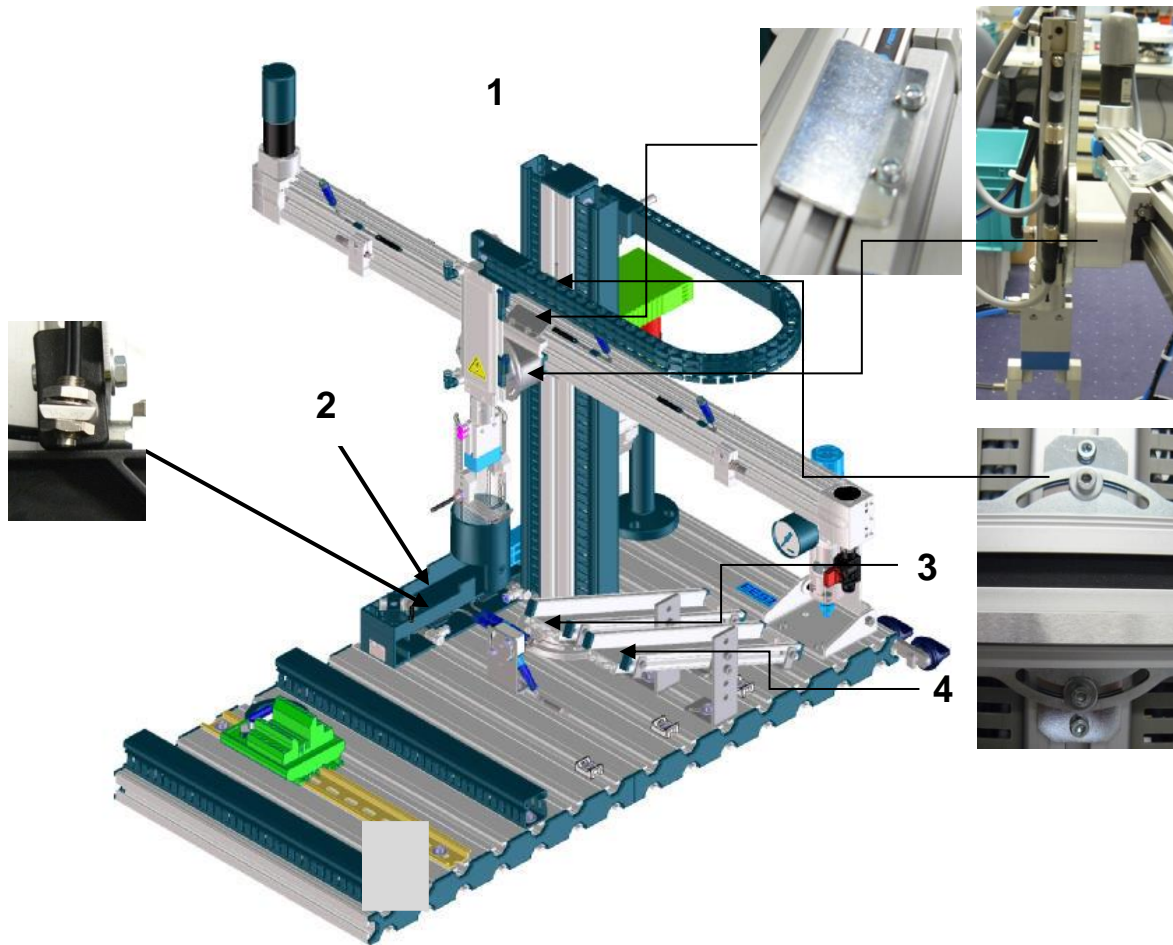
1. The production line has been mechanically assembled, correctly wired, connected and its correct operation is guaranteed (based on evaluation using the simulation box).
2. Correct execution of the program with PLC activation (based on evaluation with PLC) is guaranteed.
3. The system meets the specifications (in accordance with the 'Agreement on Professional Practice' which has been handed out separately).

The system will be sent to the customer as soon as you are finished. You will have no opportunity to make improvements later. Hardware problems during the evaluation phase can be solved afterwards.

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MECHANICAL INFORMATION - PRODUCTION LINE LAYOUT:



1. Handling Station (HS)
2. Magazine pickup position
3. Slide drop down position 1
4. Slide drop down position 2

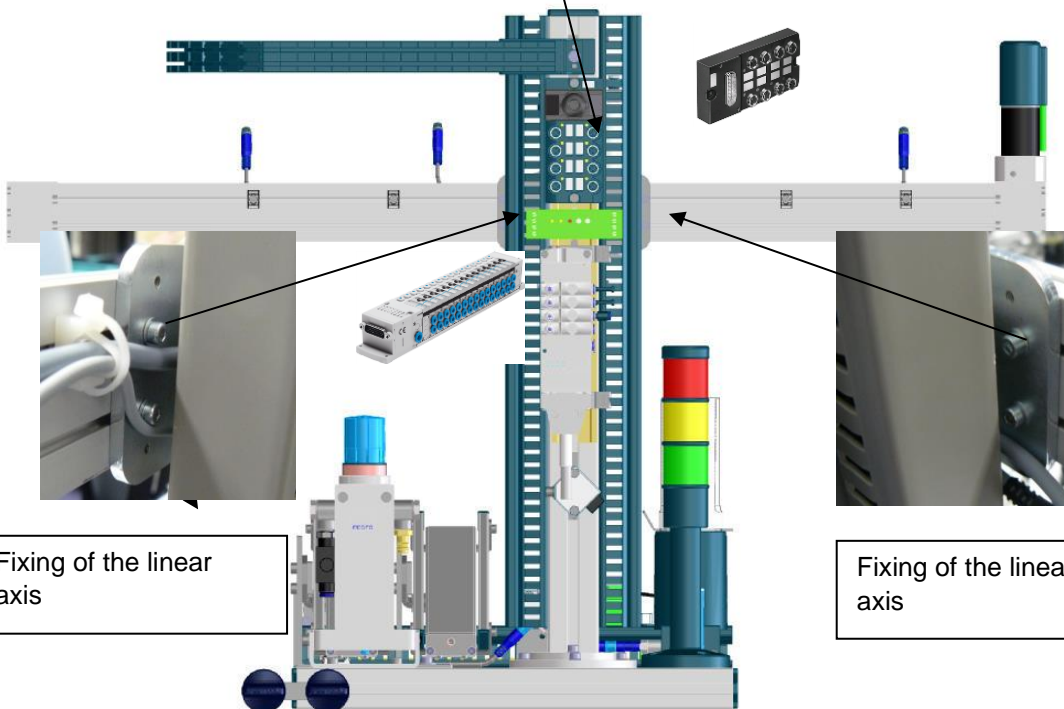
Initial position:

Handling Station (HS):

- Stack magazine ejecting arm retracted (cylinder extended)
- Gripper unit in position stack magazine
- Gripper open
- Gripper up

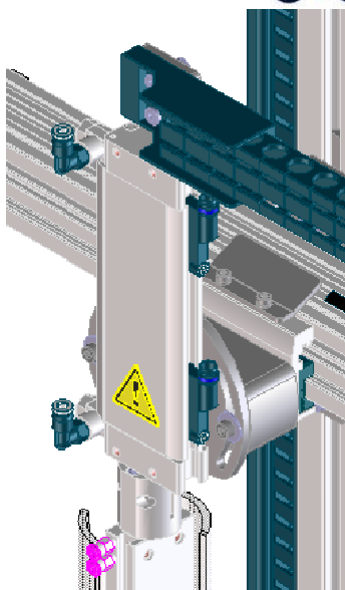


MECHANICAL INFORMATION - BACK SIDE OF THE HANDLING UNIT

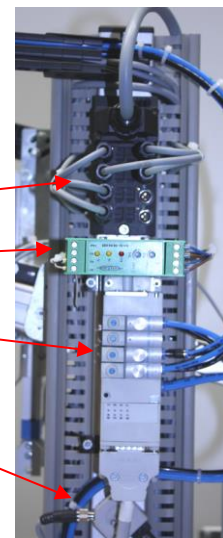


Fixing of the linear axis

Fixing of the linear axis

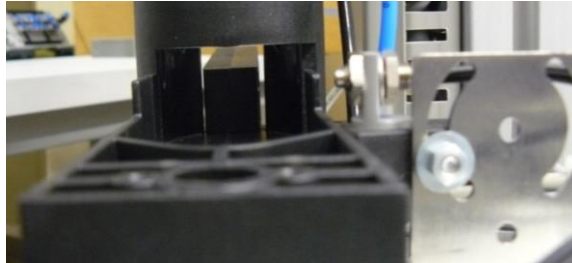
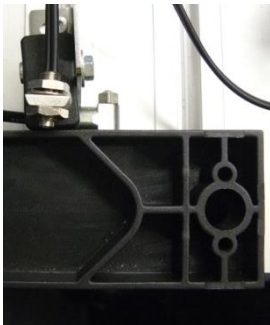


Positions of:
 Multipol I/O module
 Motor controller
 Valve terminal
 Optical Sensor

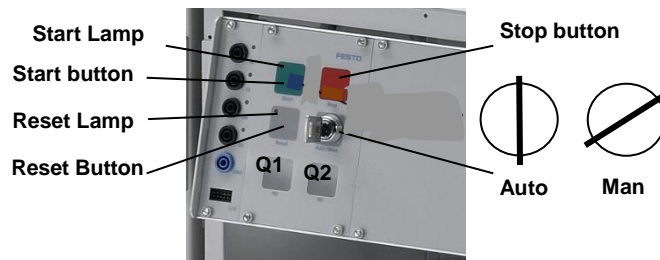




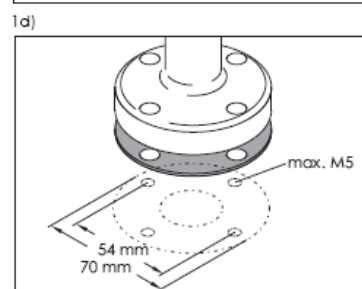
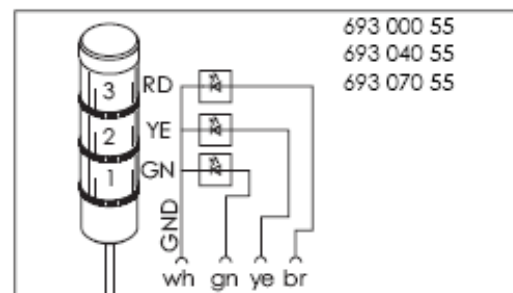
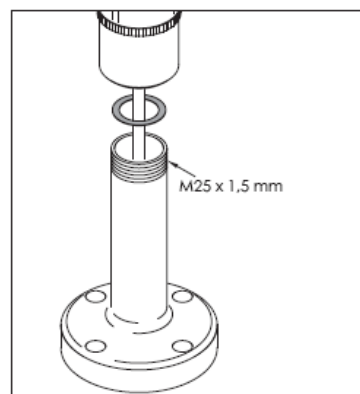
MECHANICAL INFORMATION - OPTICAL SENSOR AT MAGAZINE PICK UP POSITION:



ELECTRICAL INFORMATION - CONTROL PANEL



ELECTRICAL INFORMATION - ASSEMBLY AND WIRING OF SIGNAL COLUMN





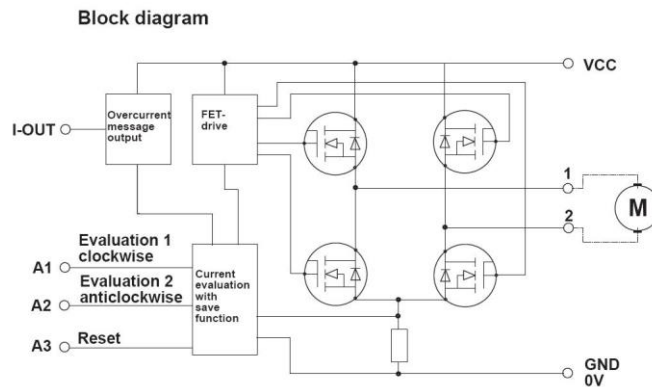
ELECTRICAL INFORMATION - MOTOR CONTROLLER R/L:

A1: move to right side / A2 : move to left side

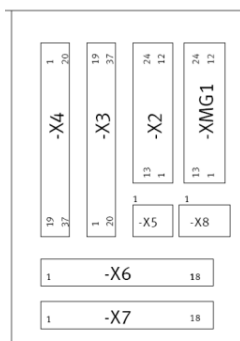
1, 2: Motor

VCC: 24 V / GND: 0V

A3 and I-OUT are not used

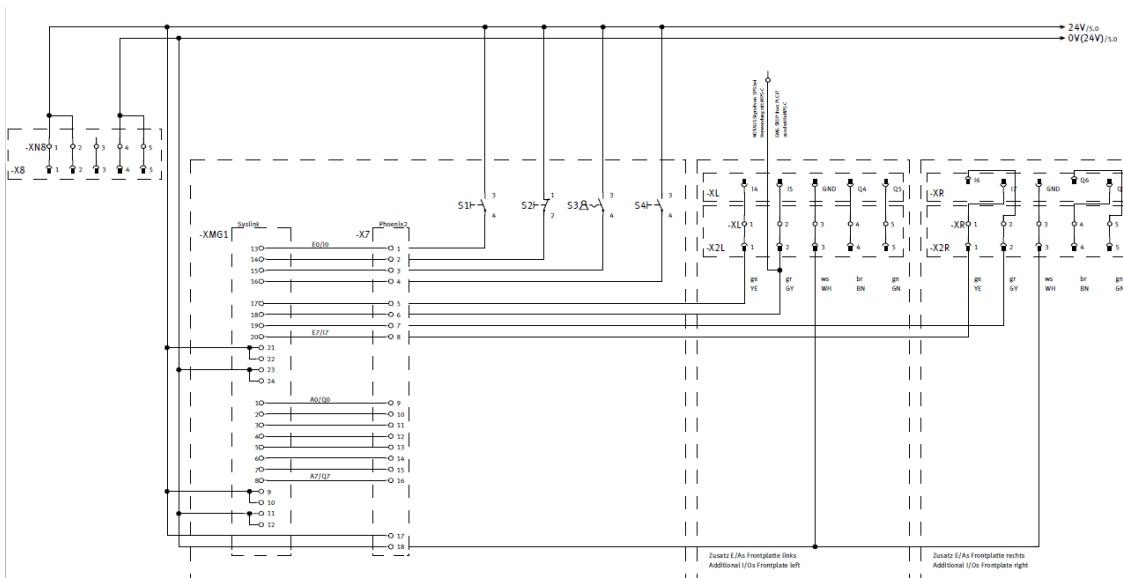


ELECTRICAL INFORMATION - WIRING CONTROL PANEL



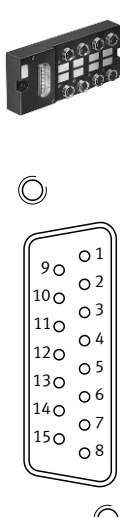
Wiring additional signals to - X7 (pin 5-8 Input; pin 13-16 Output)

ELECTRICAL INFORMATION - INPUT OF CONTROL PANEL (ALSO ON USB-STICK)

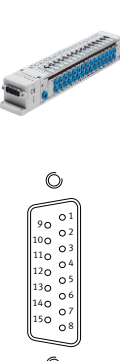


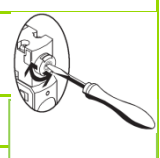


ELECTRICAL INFORMATION - WIRING ALLOCATION OF SENSORS TO MULTIPOL (MPV)

	PIN	CORE COLOUR	M8 SOCKET / PIN	INPUT	FUNCTION
	1	White	0 / 4	—	Gripper is up
	2	Brown	1 / 4	—	Gripper is down
	3	Green	2 / 4	—	Gripper unit in magazine position
	4	Yellow	3 / 4	—	Gripper unit in slide 1 position
	5	Grey	4 / 4	—	Gripper unit is in slide 2 position
	6	Pink	5 / 4	—	workpiece is not black
	7	Blue	6 / 4	—	Not used
	8	Red	7 / 4	—	Not used
	9-12	—	—	—	—
	13	White-green	0-7 / 1	24V DC	
	14	Brown-green	0-7 / 3	0V	
	15	White-yellow	0-7 / 3	0V	

ELECTRICAL INFORMATION - WIRING ALLOCATION VALVE TERMINAL

	PIN	CORE COLOUR	COIL	OUTPUT	FUNCTION
	1	White	0	—	Move gripper down
	2	Brown	1	—	Open gripper
	3	Green	2		not used but switch for manual use with Coil 3 to ON (--)
	4	Yellow	3	—	Ejecting arm push out Workpiece
	5-13	—	—	—	
	14	Brown-green		0V	
	15	White-yellow		0V	



WIRING TO THE CONTROL PANEL IN THE HANDLING STATION

Connector I/O (IN)	Comment: 1 signal indicates		Connector I/O (OUT)	Comment: 1 signal set
DI 0 - 3	Used by Control panel		DO 0 - 3	Used by Control panel
DI 4	Ejecting cylinder extended		DO 4 - 5	Not used
DI 5	Ejecting cylinder retracted		DO 4 - 5	Not used
DI 6	Not used		DO 6	Not used
DI 7	Storage station is busy		DO 7	Not used