



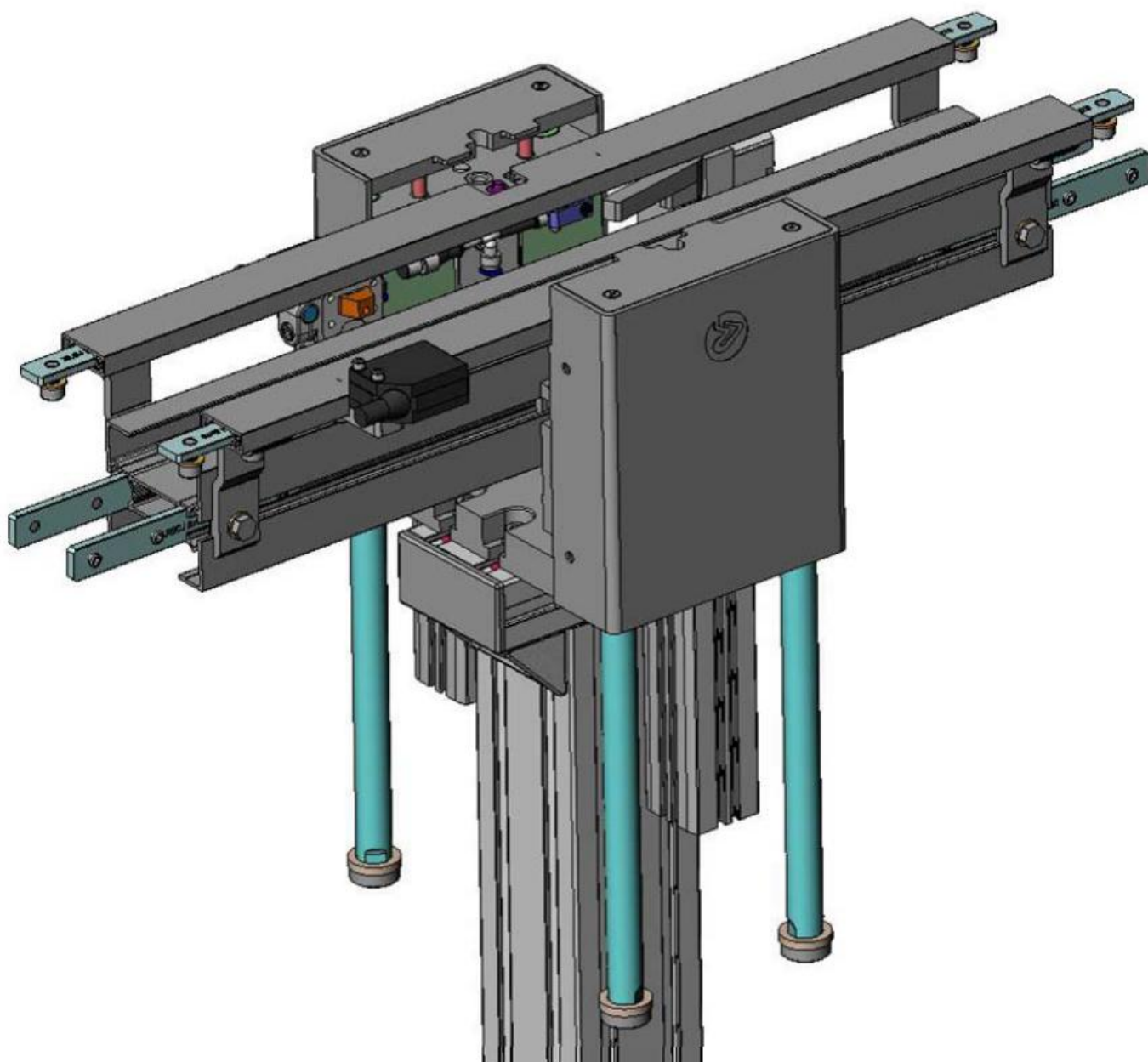
FlexLink®

Tunnel locating module

XBUL 11 T
5110396-02

User documentation ver 2.0

Tunnel locating module XBUL 11 T



Observe! The sensor set-up depends on pallet size.

Tunnel locating module XBUL 11 T

Function description

The module is divided into Pre-stop position and Process position.

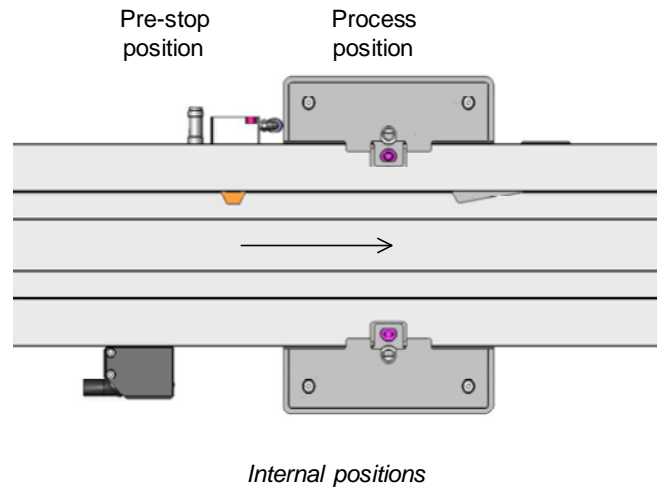
Pre-stop position

The Pre-stop position is relieving the process position from the queue-pressure. The RFID-reader at the Pre-stop identifies the pallet, enhancing the efficiency as pallets with another destination quickly pass the Process position.

Process position

The Process position receives one pallet at a time from the Pre-stop. If the pallet should be processed, it is caught by the integrated stop. Thereafter it is lifted, locked and the process is allowed to start.

While the pallet is raised and locked, pallets are allowed to pass through the process position.



- Data:
- Pre-stop queue pressure limit: 100 kg
- Process position accuracy: +/- 0.1 mm
- Lifting capacity: 10 kg
- Exchange time:

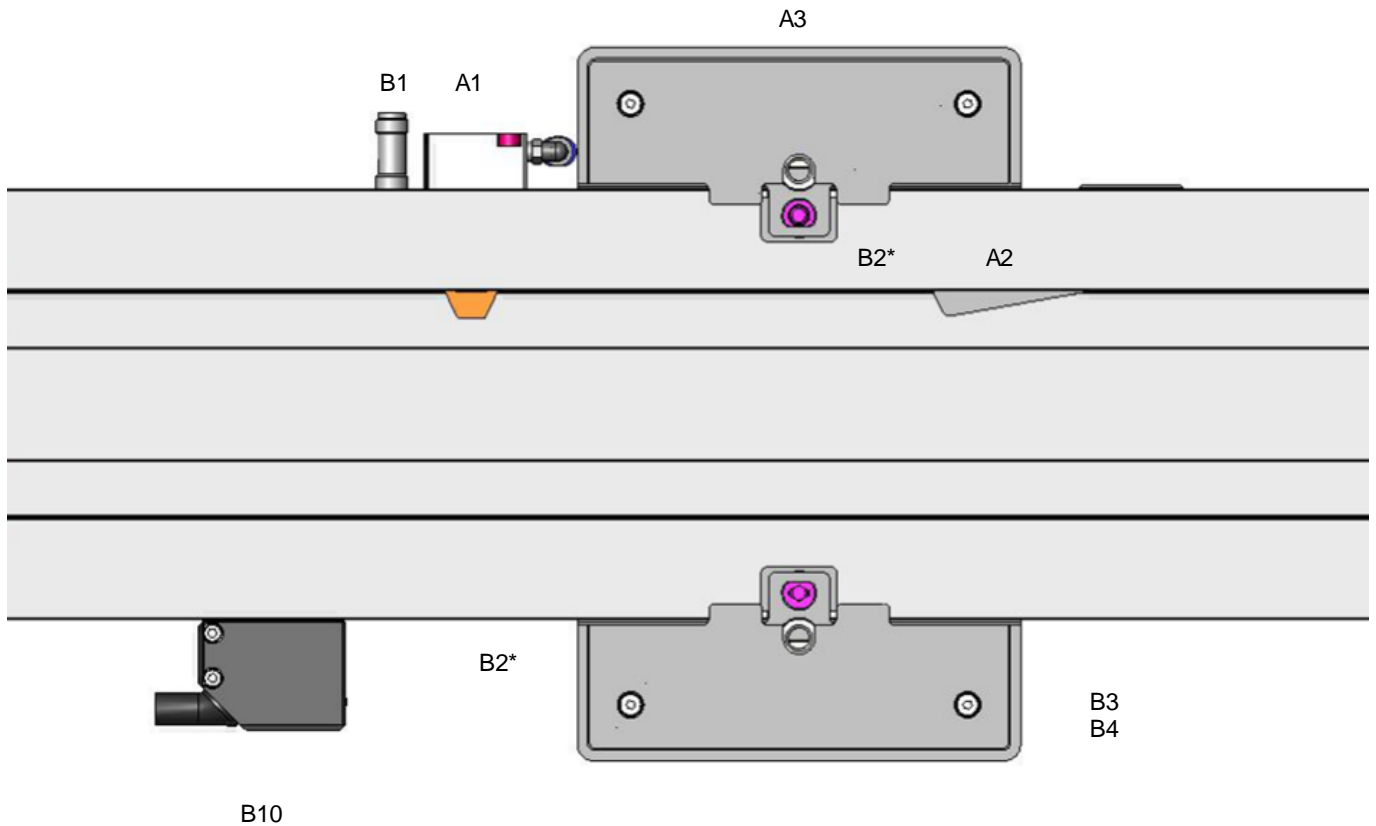
Conveyor speed [m/min]	Time [s]
5	8
10	6,3
15	5

Notes:

- The station is not equipped with any downstream max queue sensor as the design is only possible with an overview of the line concept as a whole.
- The sensor configuration is depending on the size of pallet. Mixed flow with reference to pallet length is not possible.

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Initiators and actuators



Initiators

- B1 Pre-stop
- B2 In position
- B3 Locking Up
- B4 Locking Down

Actuators

- A1 Pre-stop. Single acting.
- A2 Stop. Single acting.
- A3 Lifting. Double acting.

* B2's position depends on pallet size

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Interfaces

Initiator cable connector type

B1: M12-connector, 3-pin
B2: M12-connector, 3-pin
B3: M12-connector, 3-pin
B4: M12-connector, 3-pin

B10: M12-connector, 3-pin (AS-i)

Note: Sensors placed inside the housing is equipped with sensor cables (with the given connector type above), reaching outside the housing.

Actuator tubing size

Pneumatic cylinders

A1: 6 mm
A2: 6 mm
A3: 6 mm

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Spare parts list

Standard name	Des.	Manufacturer	Type	Order number	FlexLink ID
Pallet 160x100 mm					
Sensor	B1	SICK	IM12-08NPS-ZC1	7900045	5058572
Sensor bracket		FlexLink	XBPB 12 H		5110793
Sensor	B2	SICK	IQ10-06NPS-KT1	7900209	5058574
Sensor	B3	SICK	MZT1-03VPS-KP0	1016910	5058571
Sensor	B4	SICK	MZT1-03VPS-KP0	1016910	5058571
RFID Reader/Writer	B10	IFM	DTA100		5058152
Read/Write head bracket		FlexLink			5110840
Pallet 160x125 mm					
Sensor	B1	SICK	IM12-08NPS-ZC1	7900045	5058572
Sensor bracket		FlexLink	XBPB 12 H		5110793
Sensor	B2	SICK	IQ10-06NPS-KT1	7900209	5058574
Sensor	B3	SICK	MZT1-03VPS-KP0	1016910	5058571
Sensor	B4	SICK	MZT1-03VPS-KP0	1016910	5058571
RFID Reader/Writer	B10	IFM	DTA100		5058152
Read/Write head bracket		FlexLink			5110840
Pallet 160x175 mm					
Sensor	B1	SICK	IM12-08NPS-ZC1	7900045	5058572
Sensor bracket		FlexLink	XBPB 12 H		5110793
Sensor	B2	SICK	IQ10-06NPS-KT1	7900209	5058574
Sensor	B3	SICK	MZT1-03VPS-KP0	1016910	5058571
Sensor	B4	SICK	MZT1-03VPS-KP0	1016910	5058571
RFID Reader/Writer	B10	IFM	DTA100		5058152
Read/Write head bracket		FlexLink			5110840
Pallet 160x225 mm					
Sensor	B1	SICK	IM12-08NPS-ZC1	7900045	5058572
Sensor bracket		FlexLink	XBPB 12 H		5110793
Sensor	B2	SICK	IM12-08NPS-ZC1	7900045	5058572
Sensor bracket		FlexLink	XBPB 12 H		5110793
Sensor	B3	SICK	MZT1-03VPS-KP0	1016910	5058571
Sensor	B4	SICK	MZT1-03VPS-KP0	1016910	5058571
RFID Reader/Writer	B10	IFM	DTA100		5058152
Read/Write head bracket		FlexLink			5110840

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Cylinder details

Cylinder A1 "Pre-stop"

Type: Double acting with spring return

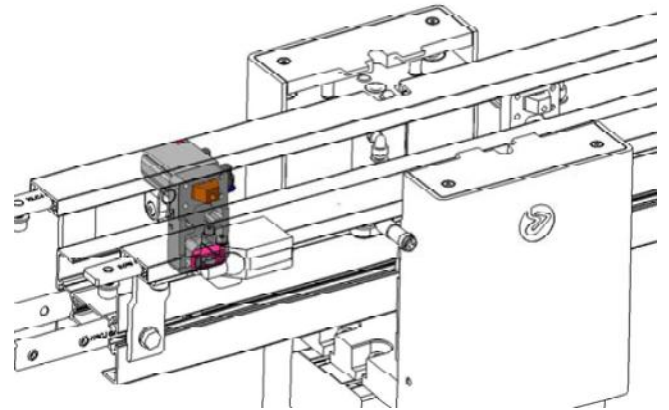
Function:

- Pressurized: Releases the pallet flow
- No pressure: Blocks the pallet flow

For security reasons, the pallet stop is blocking the flow in case of a pressure drop, preventing pallets from travelling uncontrolled along the conveyor.

The stop should not re-block the flow while a pallet puck is in a position where it could be clamped.

It is recommended to re-block the flow after each pallet.



Cylinder A1

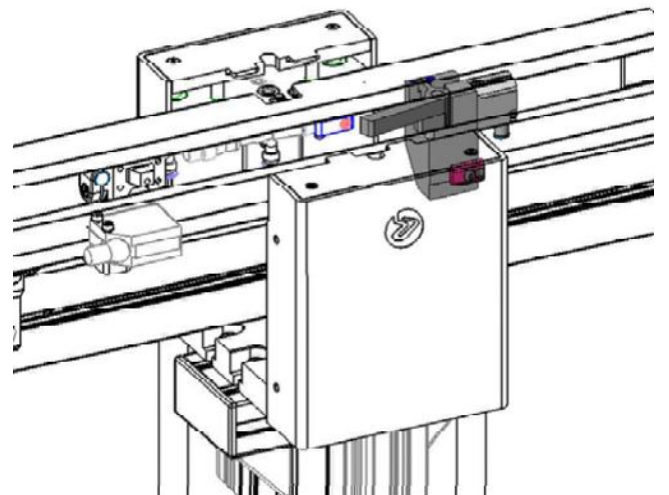
Cylinder A2 "Stop"

Type: Double acting with spring return

Function:

- Pressurized: Releases the pallet flow
- No pressure: Blocks the pallet flow

For security reasons, the pallet stop is blocking the flow in case of a pressure drop, preventing pallets from travelling uncontrolled along the conveyor.



Cylinder A2, pallet size 100-175 mm
(pallet size 225 mm, cylinder A1)

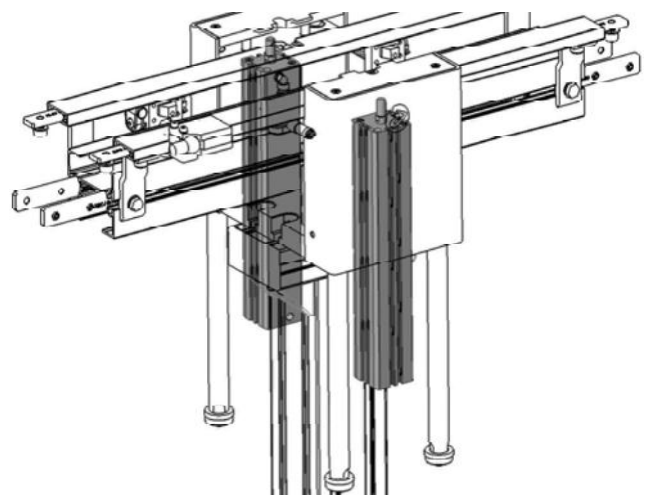
Cylinder A3 "Lifting"

Type: Double acting

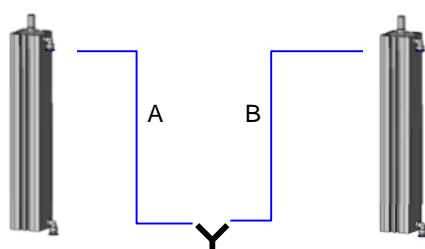
Function: Lifts the pallet. Close to upper end-position, the pallet is locked during lifting.

Note 1: The cylinders are not equipped with tubing. When installing the tubing, it is important that the tubing have equal lengths from Y-connector to the connectors of the parallel cylinder connectors.

Note 2: It is recommended that flow control valves are used, for example Festo GR-QS-6 (193969).



Cylinder pair A3



Distance A=B

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Sensor details

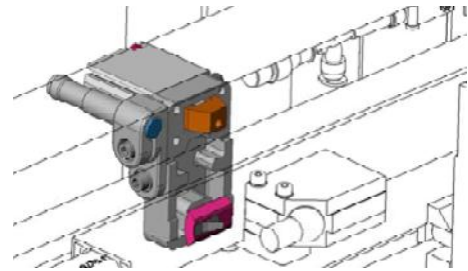
Sensor B1 "Pre-stop"

Type: Proximity switch, inductive

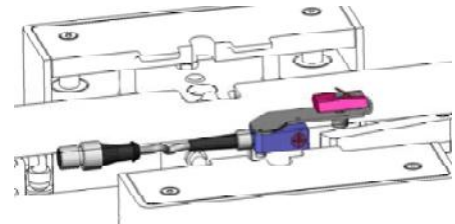
Position: Placed together with Pre-stop.

Function: Detects the initiator plate of the pallet before the pallet is stopped and stays active until the pallet leaves the stop.

The reason why the pallet is detected by the sensor before the pallet hits the stop, is to enhance the efficiency of the pallet flow. As the pallet is detected in advance, the controller has time to take a decision whether or not the pallet should be stopped. If it should pass, the stop change state to "Release flow" before the pallet reach it.



Sensor B1



Sensor B2 (pallet length 100/125/175)

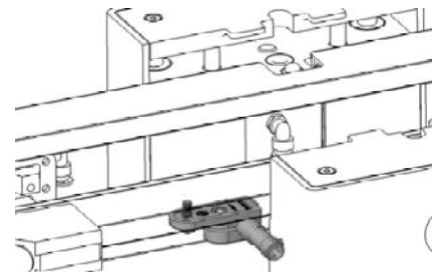
Sensor B2 "In position"

Type: Proximity switch, inductive. Model depends on pallet length.

Position: Depends on pallet length.

- 100/125/175: Inside process position, left side
- 225: Before process position, right side

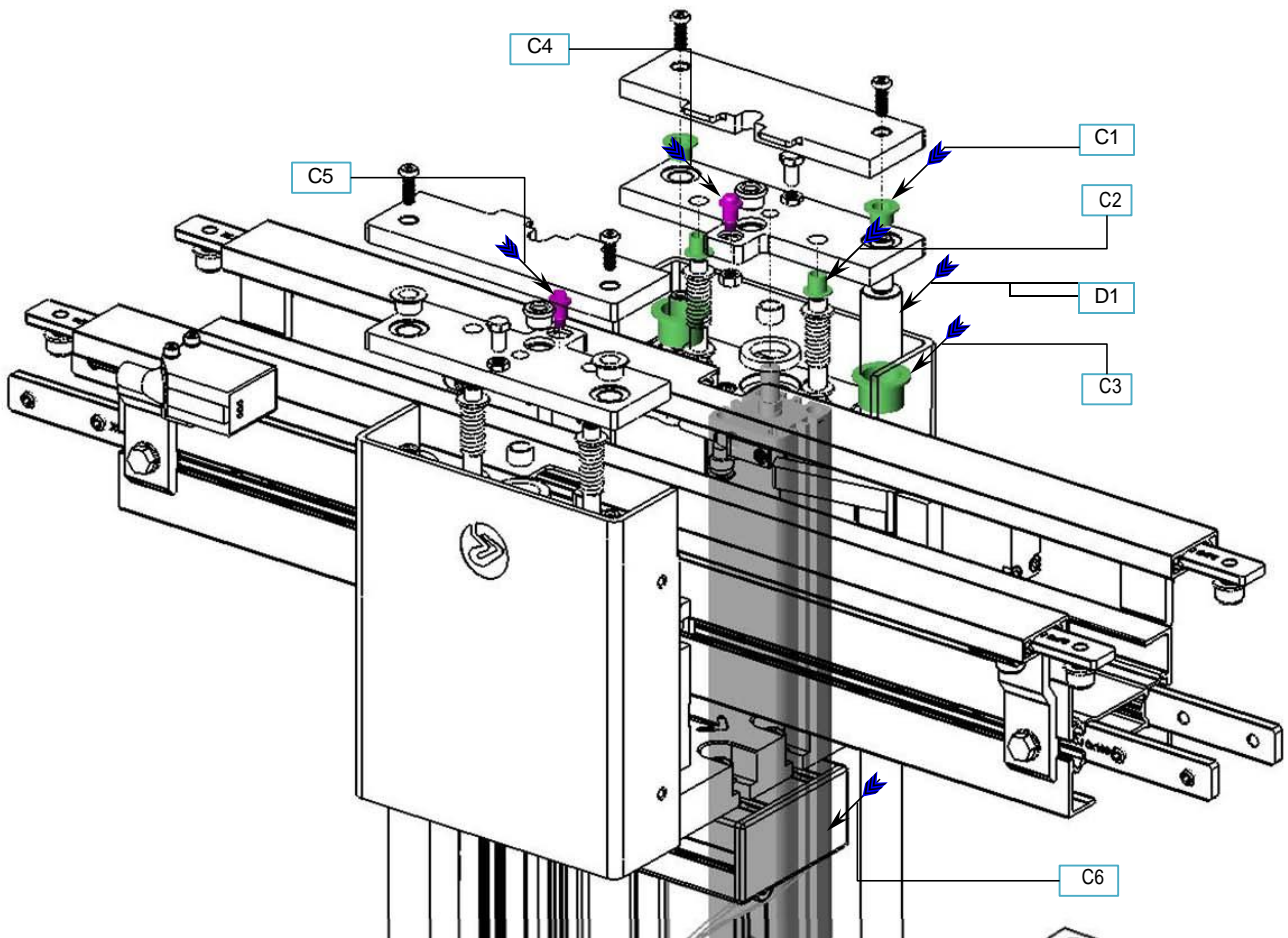
Function: Detects the pallet initiator plate when the pallet is stopped in the process position.



Sensor B2 (pallet length 225)

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Mechanical spare parts



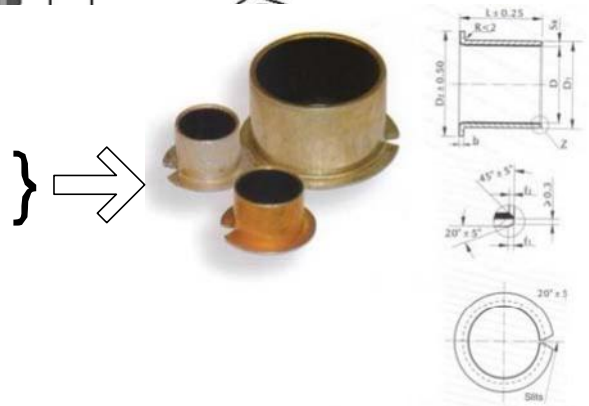
No. Flexlink No. Std name/Order No./Dimensions/Mtrl

C1 = 5110106 – Plan bearing, TFF 010090, D=Ø10mm, L=9mm, Steel
 C2 = 5110104 – Plan bearing, TFF 08100, D=Ø8mm, L=10mm, Steel
 C3 = 5110107 – Plan bearing, TFF 02016.5, D=Ø20mm, L=16.5mm, Steel

C4 = 5110058

C5 = 5110057

C6 = 5110110 – Festo Cylinder, ADN-32-250-A-P-A



Service / Maintenance

D1 = 5110059 (4 shafts) needs to be cleaned with alcohol and relubricated after approx. 500000 strokes depending on environment. Use thin oil (CRC 5-56).

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Pneumatic drawing

