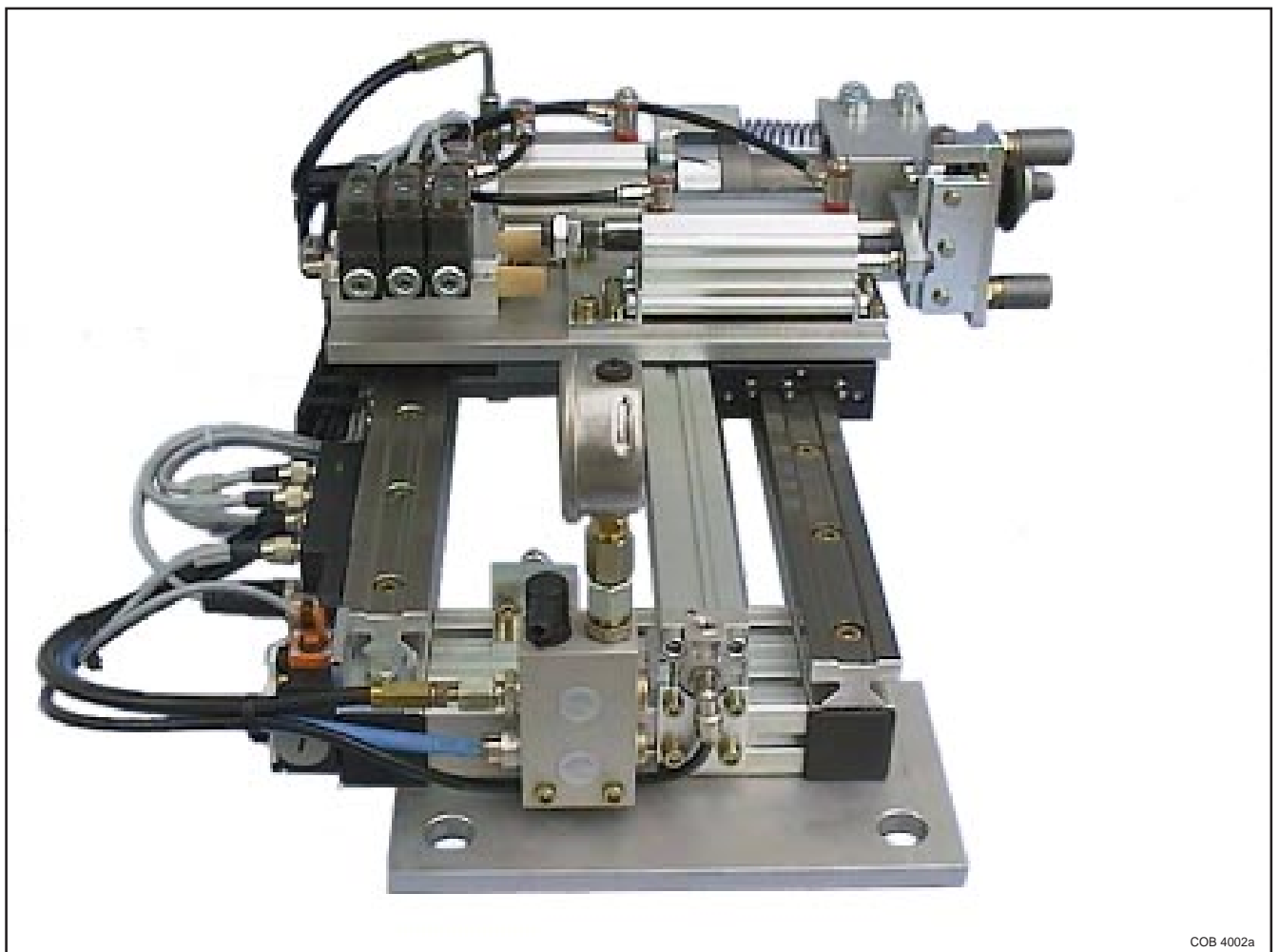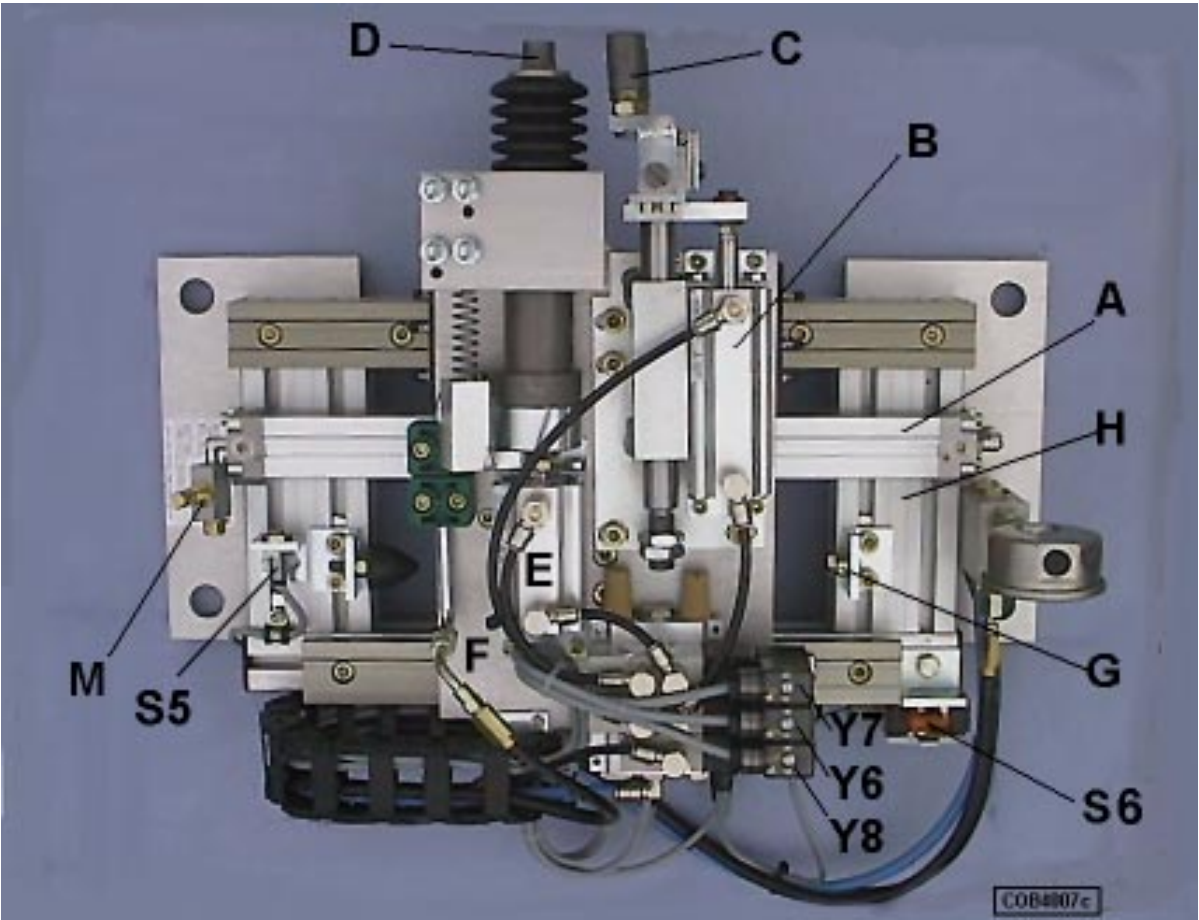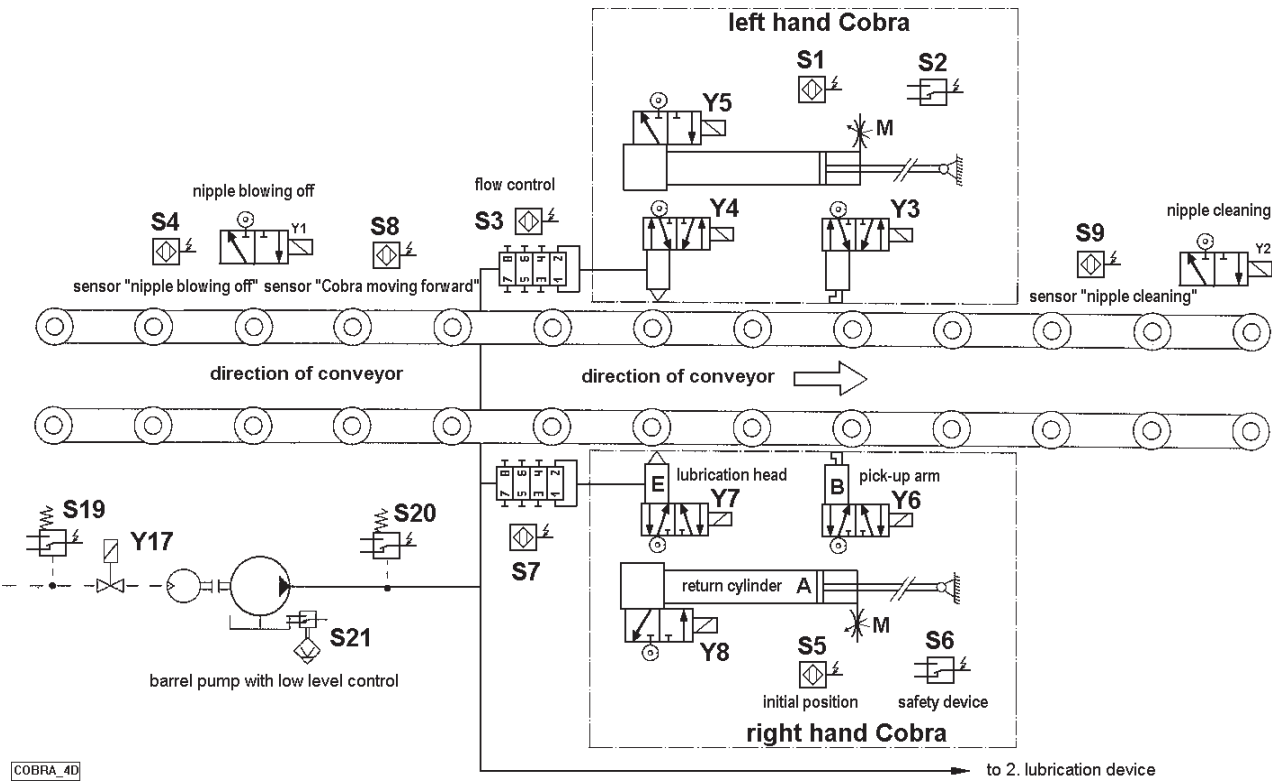# COBRA 4
Lubricating Device for Moving Lubrication Points

COB 4002a

Subject to change

Mode of operation

Subject to change

Valve and sensor designation for left-hand COBRA in brakkets ( )

Conditions:

- The COBRA 4 must be in initial position, i.e. the S5 (S1) proximity switch is dampened (connected).
- A working cycle of the COBRA is initiated by the S8 proximity switch.

A) The S8 proximity switch inductively detects the position of the roller and at the same time connects the Y6 (Y3) 5/2-way valve. The air pressure acts on the pick-up cylinder (B), the pick-up arm (C) is moved forward.

Note: The sequence of the lubrication cycles (every roller or every second roller, etc.) depends on the number of the rollers and on the speed of the chain or roller conveyor or on the distance between the rollers.

B) The roller to be lubricated detects the pick-up arm (C) and at the same time moves the COBRA 4 exactly in parallel to the roller.

Note: The pick-up arm and the lubrication head are firmly installed on a carriage which is placed on a frame in such as way to be easily movable.

C) During the movement the dampened component leaves the zone of the S5 (S1) proximity switch. The S5 (S1) proximity switch goes into resting position and at the same time activates the Y7 (Y4) 5/2-way valve. The air pressure acts on the lubrication head cylinder (E) in such a way that the lubrication head (D) moves onto the lubrication point of the roller.

• The correct operation of the lubrication head can be checked by:
- Observing the pressure gauge in the lubricant and air connection block (visible pressure drop when the lubrication head is pressed onto the lubrication point);
- Observing the front bellows at the lubrication head: Shortening of the bellows (bellows between the mouth piece and the lubricant input at the lubrication head) as a function of the metering distance sleeve at
max. stroke..approx. 17 mm
or
reduced stroke.................................approx. 10 to 13 mm
for the lubricant outputs of approx. 0.15, 0.3, 0.45 and 0.6 cm³/stroke

D) When the lubrication head (D) is pressed onto the lubrication hole, a piston supplies the lubricant to the lubrication point from a pre-filled metering chamber.

C) When the "lubrication head moves onto the roller" phase is started, a time defined in the control unit begins to run. Once this time has elapsed, the Y7 (Y4) valve goes into resting position, the lubrication head cylinder moves the lubrication head away from the lubrication point or the chain.

D) When the "lubrication head leaves the lubrication point" phase is started, a second defined time begins to run. Once this second time has elapsed, the Y6 (Y3) valve goes into resting position so that the pick-up arm moves away from the chain.

E) When the "pick-up arm leaves the chain" phase is started, the third defined time is started. At the end of this time, the Y8 (Y5) valve goes in position P → A. The return cylinder (A) moves the COBRA 4 into the initial position. The S5 (S1) proximity switch is dampened again.

Notes:
- *The defined times are fixed in advance as a function of the chain speed and chain pitches and are checked when starting the operation.*
- *The S6 (S2) position switch has only a safety function. If the **"pick-up leaves the chain"** phase does not take place because of a fault, the carriage activates the S6 position switch just before the mechanical final position is reached. All valves are connected when they are de-energized. The pick-up arm leaves the chain and the carriage remains in its position.*
To avoid damage during the automatic return, the carriage must be taken out of this position by hand. When the fault is acknowledged, the carriage returns automatically into the initial position.
- *The S4, Y1 and S9, Y2 proximity switch/valve units are part of a blowing unit which can be installed optionally. The lubrication point is cleaned by means of the blowing unit by application of the power network air, namely before (S4, Y1) and after (S9, Y2) the lubrication cycle. The roller to be lubricated detects the S4 or S9 proximity switch, and the Y1 or Y2 valve is connected for the supply, the network air pressure blows impurities or excessive lubricant away from the lubrication point. The opening time of the Y1 and Y2 valves is fixed in advance as a function of the chain speed and/or the degree of contamination. It is checked when the system is put into operation.*
- *The S7 (S3) electric switch serves, together with a progressive metering device, for the monitoring of the lubricant flow. It releases a fault signal when too little lubricant flows for a certain number of supply strokes of the COBRA 4 to the lubrication head. This monitoring system is an optional part of the COBRA.*

Subject to change

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General

The COBRA chain lubrication unit COBRA 4 is especially suitable for following application ranges:

Lubrication of track rollers or middle bars of heavy-duty conveyor units in:
- Mining (plate conveyors)
- Steel and iron industry (coil conveyor belts)
- Cement industry (clinker transport and crusher discharging belt conveyors)
- Automotive industry (endless conveyors, car body transport conveyors, e.g. in immersion painting systems)
- Sugar industry (beet transport conveyors)

Advantages:

Metered application of lubricants, even if they are highly viscous, through lubrication fittings at the conveyor belt directly into the bearing unit.

Mode of operation:

Each conveyor requires 2 COBRA units:
One unit for the left-hand side, and one unit for the right-hand side.

The pneumatic lubricating unit COBRA consists primarily of a driving cylinder and a lubricating cylinder mounted together on a mobile slide.

All motions are controlled by air cylinders with the help of proximity switches.
The lubricant is supplied to the COBRA unit by a reservoir pump or a barrel pump.
Electronic control is by means of a programmable logic controller (PLC).

Technical Data

Air connection: .... G 3/8
Lubricant connection: .... G 3/8
Inlet air pressure: .... 5 - 6 bar
Inlet lubricant pressure: 40 - 70 bar (grease), 20 - 40 bar (oil)
Lubricant output: .... max. 1.0 cm³/stroke
Factory setting
with distance sleeve 9003620/005-06 .... ~0.6 cm³/stroke
Stroke of the pick-up arm: adjustable between 55 und 75 mm
(smaller strokes with distance washers)
Max. stroke of lubrication head
without lubricant supply, i. e. the lubricant head
does not move to the lubrication point: .... 40 mm
at max. lubricant output .... 20 mm
Supplied media: .... grease NLGI 2 or oil
Operating temperature: .... - 10° to + 70° C
Chain speed: .... 6,5 m/min
Min. distance between rollers: .... 300 mm
Sound pressure level: .... < 70 dB/A

Electric data:
Supply voltage: .... 24 V DC, residual wave <5%
Power consumption: .... 20 W without additional units
Protection: .... IP 65

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