

Type: EDC

Application:

The Electronic Dosing Center is used for all lubricating applications and is specially designed for handling a wide range of viscosities. In addition to conventional lubricants, other liquid media can also be processed provided they can be used for the Electronic Dosing Center and have been approved by WERUCON!

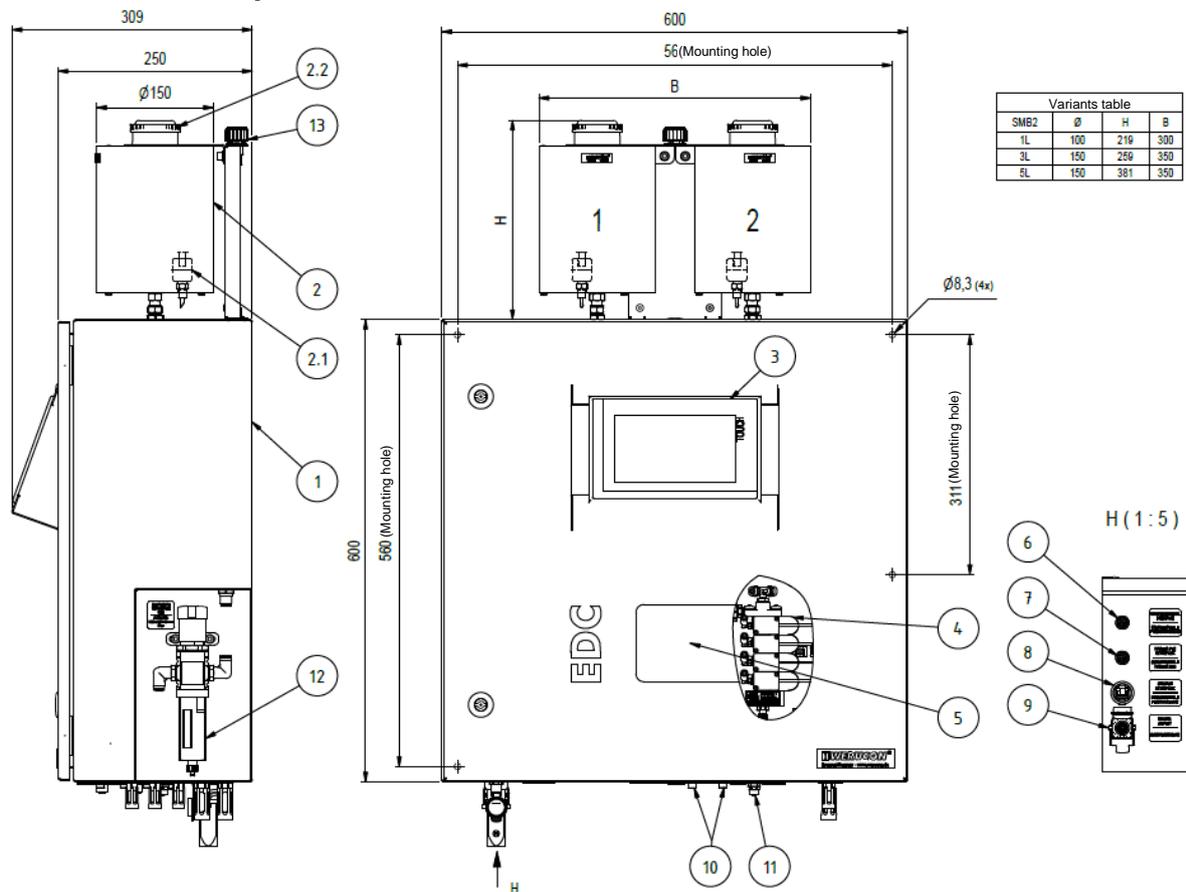
The appliance functions as a supply station, which can be fitted with different dosing nozzles. Originally, the medium is dosed contactlessly onto the component using spray nozzles by adding spray air. The dosing device can also be used as a supply station for contact lubrication (e.g. as a roller conveyor lubricator or similar), i.e. without the addition of spray air.

The device is used, for example, for lubricating sheet metal strips / blanks on automatic punching presses. In this case, contact and contactless lubrication tasks are possible in open or enclosed spray applications for wetting from both above and below. Pinpoint lubricating in the tool as well as process-safe lubrication for tapping threads are also possible.

The device is particularly beneficial in situations where a proportional delivery rate to the process needs to be continuously adjusted during operation, or where individual nozzles have to be selectively switched on or off.



Technical description:



Type: EDC

Pos.	Designation	Description / function	Materials
1	Housing	- H/B/T 600/600/250 - Rear panel with holes for the wall mounting Ø 8.3 with stamping	Pc.; RAL 5010 gentian blue, powder coating, textured
2	Lubricant reservoir	- 1.0 / 3.0 / 5.0 litres (optional 2nd reservoir) - Different sizes can be combined ¹⁾	PC / glass (transparent), Ms (nickel-plated) NBR / FKM / PTFE
2.1	Level sensor	- Float - solenoid switch - Switching output: NCC / NC	Stainless steel; cable: PVC
2.2	Lid	- Lock (aerated) - Filler opening on lubricant reservoir	
3	Control panel	- 7" touch display - S7-based controller - Visualisation of the operating state - Input of the setup parameters: <ul style="list-style-type: none"> ▪ Pump frequency ▪ Feed rates (each dosing pump is separately adjustable) ▪ Spray air intensity (max. 2 different) - Recipe management (max. 500)	Ms (nickel-plated), stainless steel, PTFE, FKM, NBR, POM
4	Dosing pump with elect. volume adjustment	- Pneumatically operated: min. compressed air = 4 bar - Feed rates, variable electronic regulation: max. = 35 mm ³ /stroke - max. pump frequency: 3 Hz / 180 strokes/min - max. 8 pcs. dosing pumps per EDC ¹⁾	
5	Viewing window	- Visual functional check of the dosing pumps <ul style="list-style-type: none"> ▪ LED status indicator for the forked photoelectric sensor ▪ Plunger movement of the dosing pump 	PC
6	Interface, remote control	- Optional usage of a wired remote control - In the visual field of the dosing station: activate dosing and edit recipes	
7	Interface to the higher-level controller	- M12 - jack (screw connection) - Possible interfaces: <ul style="list-style-type: none"> ▪ RS232, RS485, Profibus, Profinet, Ethernet 	
8	Remote maintenance interface	- After release, access is established for manufacturer for maintenance, software updates, etc.	
9	Power supply	- 24 V DC - 4-pin industrial plug connection - Refer to elect. diagram for pin assignments	
10	Coaxial housing connection	- Connection for dosing nozzles - max. 8 nozzle connections possible ¹⁾	
11	Connection Flushing mechanism	- Medium drainage when changing medium or emptying reservoir, e.g. for cleaning - Reservoir is emptied by gravity - Pipe feeds into a reservoir	
12	Maintenance unit	- Integrated installation in housing - Filter regulator (filter mesh 5 µm) - Nominal pressure: 6 bar - Pressure gauge (scale 0-10 bar) - Automatic condensate drainage	
13	Automatic venting	- Atmosphere in the medium return pipe; guarantees that there is no air in the medium pipes and dosing pumps - Prevents air being transported when the dosing pumps are functioning correctly - Process safety	PA

¹⁾ see sheet 5

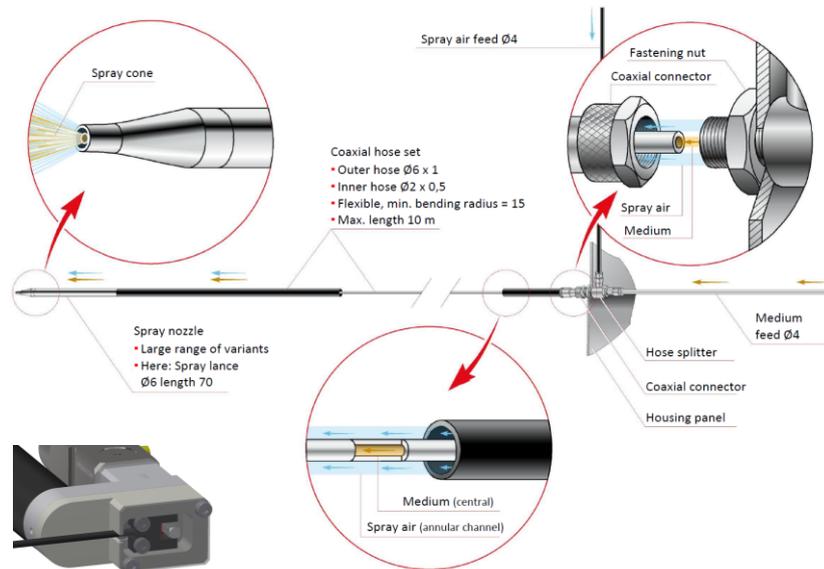
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Operating principle:

The Electronic Dosing Center (EDC) can be fitted with two lubricant reservoirs (2). This allows two different media to be stored in the device which can be alternately chosen for a recipe. When changing the medium, the dosing pumps (4) are automatically flushed with the new medium (11) before it enters the production process.

Gravity and the suction performance of the dosing pump cause the medium to flow out of the lubricant reservoir into the dosing pump. This is a pneumatically driven displacement pump. When the pump is supplied with compressed air, the displacement plunger moves forwards and presses a defined quantity of the medium through a non-return valve into the dosing pump outlet. The spring-preloaded displacement plunger returns to its start position after the pneumatic switch-over. This process is continually repeated by means of the adjustable frequency. The stroke frequency (Hz) can be set separately for each dosing pump at the control panel (3). The stroke length of the displacement plunger, and therefore also the quantity of pumped medium per stroke, can be infinitely adjusted with a servomotor. The dosing quantity setting and the dosing stroke are permanently monitored electronically at each dosing pump.

The spray air is controlled by an electronic proportional pressure control valve and is switched on separately. The spray air intensity can be changed at the control panel.



The medium is fed from the dosing pump outlet into the centre of the coaxial housing connection (10). The spray air is fed radially into the coaxial housing connection.

A coaxial connector connects the dosing nozzle with the housing connection by means of a hose set. The hose set comprises an inner hose and an outer hose. The inner (central) hose carries the medium, while the outer hose (annular channel) carries the spray air. The medium and spray air are fed separately to the tip of the dosing nozzle. The outlet opening for the medium is located in the centre of the dosing nozzle tip. The spray air is fed through a defined annular gap around this opening. Such a nozzle design causes an ideally reproducible, ultra-fine spray cone of the medium to be created at the nozzle tip. The droplet pattern of the spray cone can be adjusted for the specific application at the operating panel.

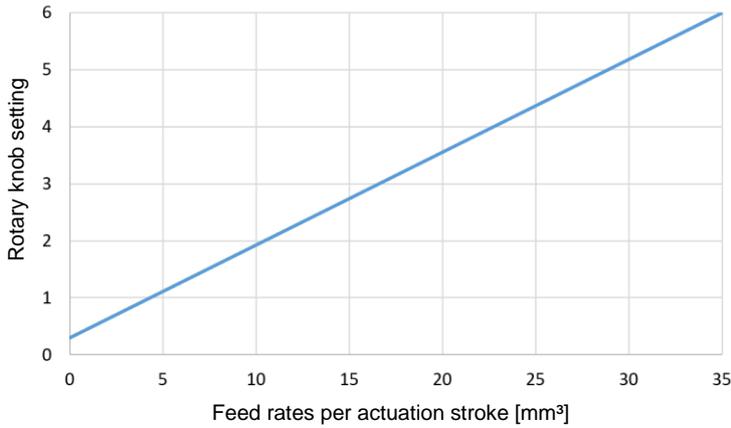


Since the medium and the spraying air are conducted separately, only the addition of the spraying air is suspended for contact lubrication.

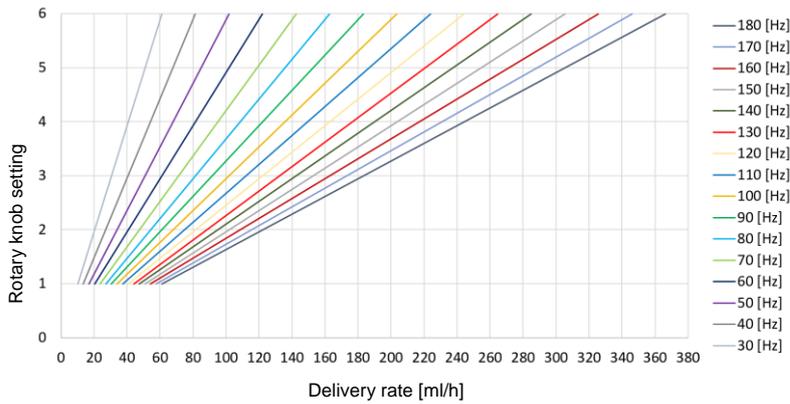
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Dosing pump delivery rate:

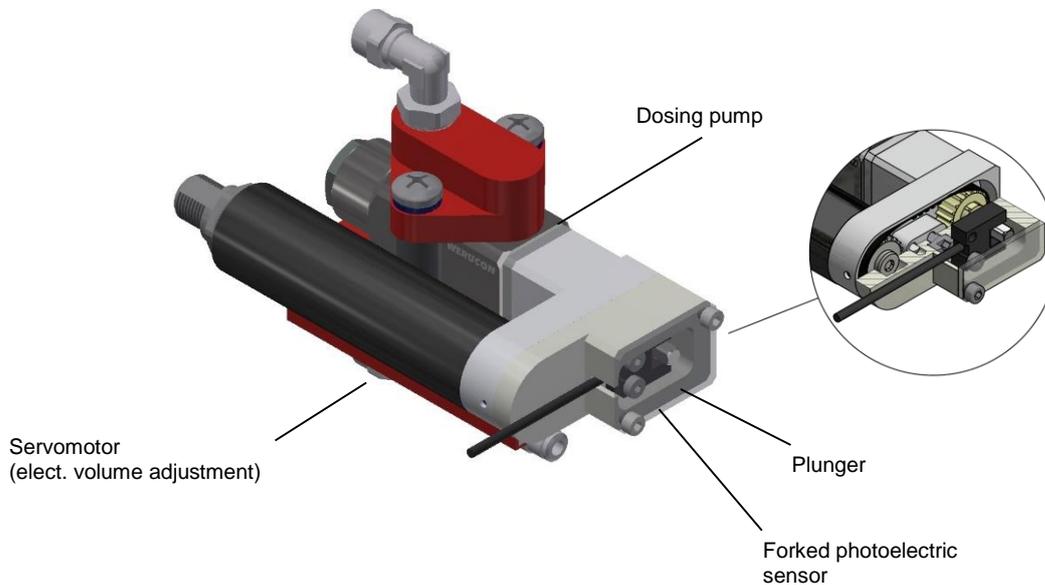
The graphs below correspond to the theoretical values. The actual delivery data may vary slightly due to different viscosities, hose lengths, temperatures, etc.



Theoretical delivery volumes per actuation stroke of the dosing pump with different dosing pump settings.



Theoretical delivery rates of the dosing pump per hour with different dosing pump settings and frequencies.



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Control system:

The control system is based on the powerful Siemens controller. The visualisation of the operating status as well as the input of the possible recipe parameters takes place centrally with the user-friendly 7" operating panel with touch function. Up to 500 different recipes can be created and subsequently edited as well. These are called up by the higher-level control system or manually at the responsive display and activated for the automatic process. The lubricant quantity can be predefined as a process rule for up to eight spray points. When used for strip lubrication in a punching process, the quantity output can be proportionally oriented to the strip speed. Individual nozzles can likewise be switched on or off as required during the process (e.g. for internal lubrication of the tool).

The EDC can optionally be fitted with a wired remote control to perform the setup operation directly in the field of view of the nozzles.

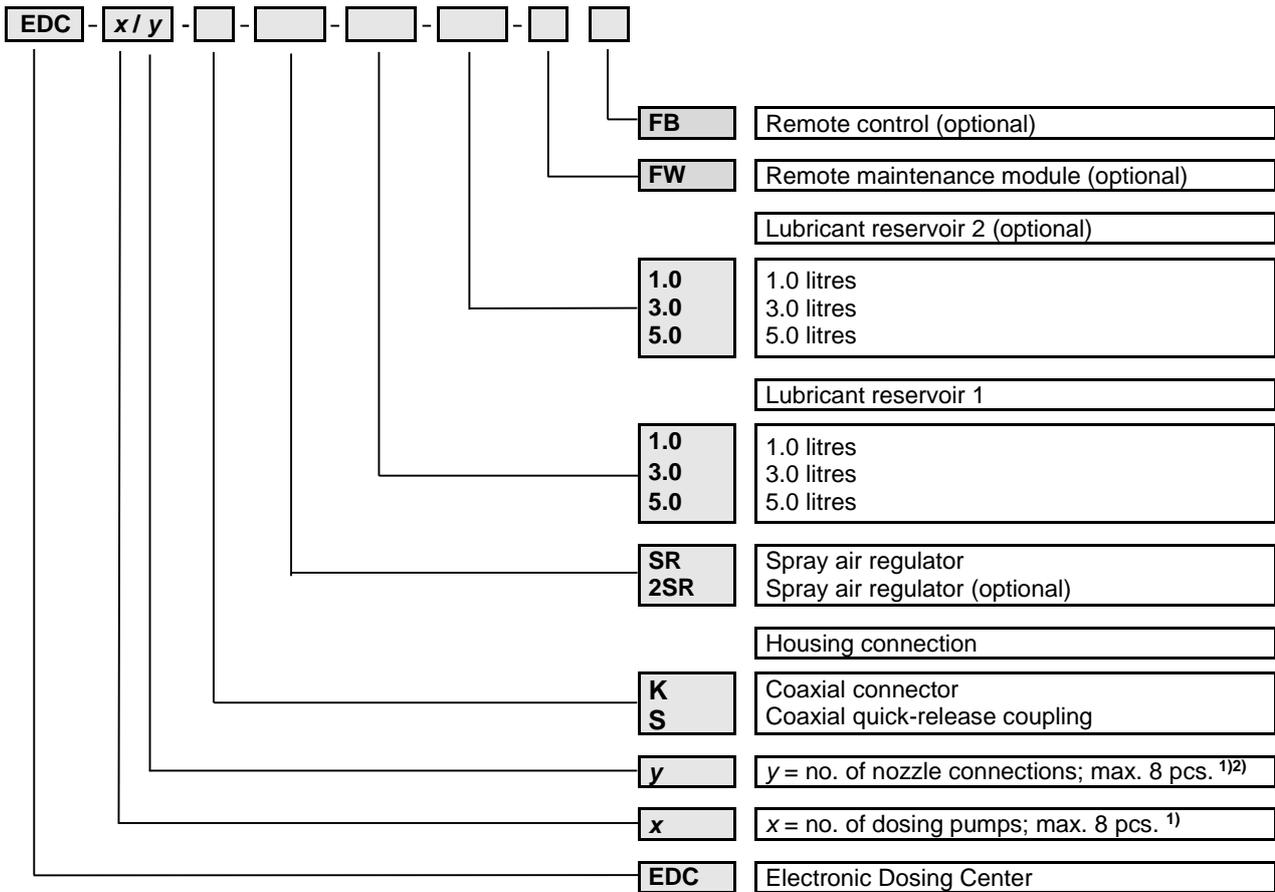
The control system can be easily integrated into higher-level systems thanks to the numerous interfaces (RS232, RS485, Profibus, Profinet, Ethernet). The optional remote maintenance module allows for local wireless access at any time.



EDC user interface

Type: EDC

Ordering key:



Example:

EDC-8/8-K-2SR-5.0-3.0-FW-FB

- (8x) dosing pump
- (8x) dosing nozzle connection
- Coaxial connector
- (2x) spray regulator
- 5.0 litre lubricant reservoir
- 3.0 litre lubricant reservoir
- Remote maintenance module
- Remote control

An application-specific assignment must additionally be specified for dosing centers with 2 spray air regulators.

Example:

- SR1: Nozzle 1,2,3,4,5
- SR2: Nozzle 6,7,8

Note:

- Dosing nozzles configured separately. See separate data sheets for dosing nozzles.
- Information about the installation, operation and setup can be found in the operating manual.

¹⁾ The stated numbers of dosing pumps and nozzle connections only relate to a standard EDC. As a special unit, practically any number of fixtures can be attached to the EDC.

²⁾ See separate data sheets for dosing nozzles.