

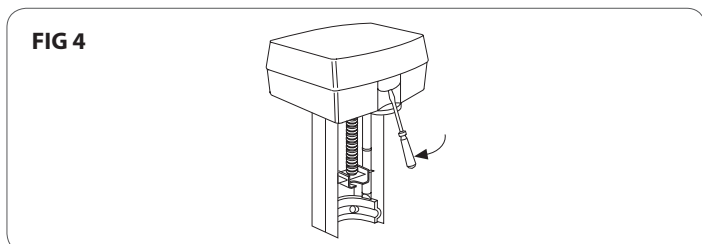
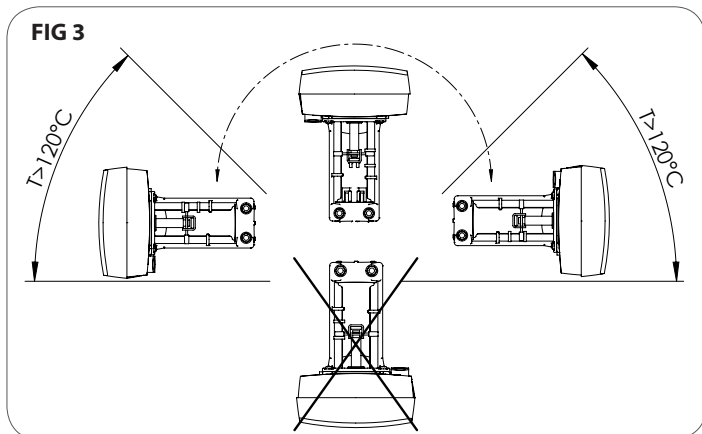
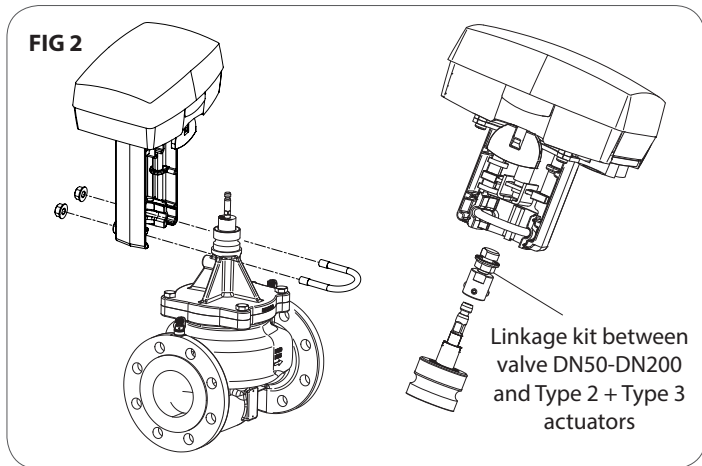
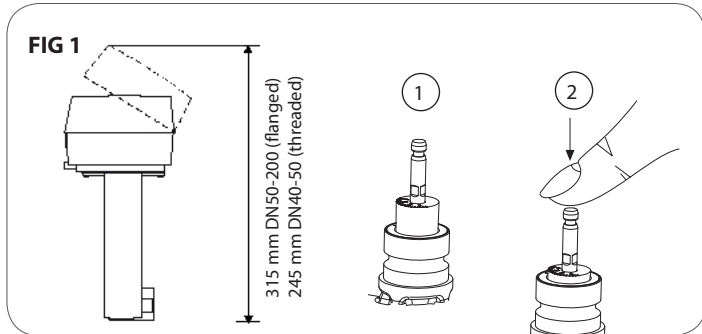
# Frese OPTIMA Compact Actuator

## DN40-DN200

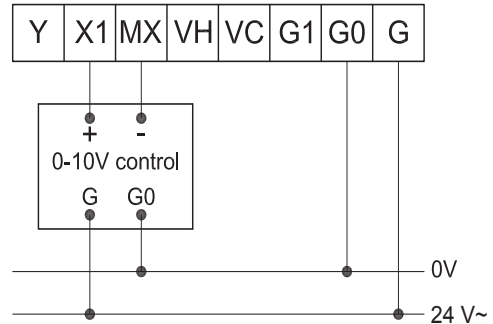
### EN Mounting instructions

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Hot media hazard. Before removing actuator from valve or opening the valve, ensure that the valve control medium is isolated and relieve the pressure. Work should only be carried out by a competent engineer.



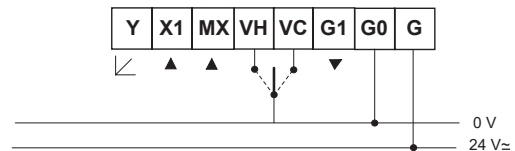
**FIG 5 Wiring 0-10V, 2-10V..... control signal**



For 0-10V control with 3 wire connection, it is needed to mount an internal wiring between MX and G0

**FIG 6 Wiring 3-point floating**

G, G0= Max 100 m 1.5 mm<sup>2</sup> (AWG 15)  
 X1, MX, Y, VH, VC = Max 200 m 0,5 mm<sup>2</sup> (AWG 20)



**FIG 7 Terminals**

Block	Function	Description
G	24 V AC	Supply voltage
G0	24 V AC return	
X1	Input	Control signals (VH, VC short-circuited to G0)
MX	Input, neutral	
VH	Increase	
VC	Decrease	Floating
G1	16±0.3 VDC, 25 mA	Short circuit-safe supply
Y	0-100% (2-10V)	Feedback signal

**FIG 8**

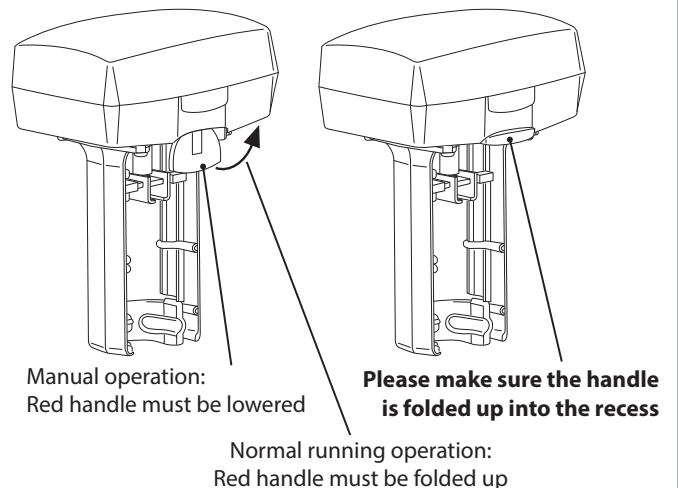


FIG 9

		Function in the		Description
IN	OUT	"OFF" pos.	"ON" position	
MOD	INC	1 Retracts	Extends	Valve closing direction
---	SEQ	2 Modulating	3-point floating	Control (not at Sequence)
0-10	2-10	3 -	Sequence	Sequence control
0-5, 2-6	5-10, 6-10	4 0-10 V	2-10 V	Voltage range
60 s / 0%*	300 s / 50%*	5 0-5 V, 2-6 V	5-10 V, 6-10 V	Part of voltage range
NORM	INV	6 60 s, 0% *	300 s, 50% *	Running time (Security function*)
LIN	EQ%	7 Normal	Inverted	Direction of movement
OP	ADJ	8 Linear	EQ%	Valve characteristic
		9 Operation	Calibration	Operation/End position calibration

\* DN40-50 actuator versions only

**Settings**

There are nine switches in a row on the circuit board. On delivery ('Factory'), all switches are pre-set as above.

**1 Valve Closing Direction — IN / OUT**

IN direction of movement is used when the screw of the actuator moves inwards to close the valve. OUT direction of movement is used when the screw of the actuator moves outwards to close the valve.

**For Optima Compact valves, ensure this switch is always 'ON'**

**2 Control signal — MOD / INC**

Actuator can either be controlled by a variable direct voltage, known as a modulating signal (MOD), or by a 3-point floating signal (INC).

**3 Sequence or parallel control — --- / SEQ**

With sequence (or parallel) control (SEQ), two actuators/valves can be controlled by only one control signal.

For each of these you can choose which part of the voltage range to use, the upper one, 5-10 V (6-10 V) or the lower one, 0-5 V (2-6 V).

If the switch NORM / INV is in the NORM position, the higher voltage corresponds to 100% flow and the lower one to 0%.

With NORM / INV in the INV position you will get the opposite function.

**Note! If sequence or parallel control is not used, the switch --- / SEQ must be in the OFF position, as the switch MOD / INC is not valid during sequence or parallel control.**

**4 Voltage range — 0-10 / 2-10**

You can choose whether to use the control signal voltage range 0-10 V or 2-10 V.

**5 Part of voltage range — 0-5, 2-6 / 5-10. 6-10**

You can choose which part of a voltage range to use, the lower one 0-5 V (2-6 V) or the upper one 5-10 V (6-10 V).

If the switch is in the NORM position, the higher voltage corresponds to 100% flow and the lower one to 0%. To achieve the opposite function, the switch should be put in its INV position.

**6a Running time — 60 s / 300 s**

With 3-point floating control, you can choose a running time between 60 s or 300 s.

With modulating control, the running time is always 15 s / 20 s / 30 s (or 60 s, for DN40-50 actuator versions only).

**6b Security function 0% / 50% (DN40-50 actuator versions only)**

At 2-10 V control signal you can select which security function you want the actuator to have.

If the actuator is used for heating control and switch 6 is ON (50%), the actuator will open the valve halfway if the control signal disappears, e.g. if the X1 connection is unplugged.

If, instead, you want the valve closed, set switch 6 to OFF (0%).

**Note! The direction of movement is also significant. See the following description.**

**7 Direction of movement — NORM / INV**

Actuators direction of movement according to the control signal. In normal 'NORM' mode the actuator directly follows the control signal and closes the valve downwards against a 0V control signal.

In inverse 'INV' mode, the actuator reverses the direction of travel against the control signal and will open the valve upwards against a 0V control signal.





**8 Linearization — LIN /EQ%**

The total valve characteristics can be modified from linear to EQ%.

**9 End position adjustment — OP / ADJ**

This switch is only used to adjust the end positions when the actuator is commissioned.

Momentarily put the switch in the ON position. The actuator will automatically find the end positions of the valve. For normal operation the switch must be OFF.

Combination matrix Frese OPTIMA Compact DN40-200 / Actuators				
	Valve size	Type 1	Type 2	Type 3
	DN40	X		
	DN50	X		
	DN50		X*	
	DN65		X*	
	DN80		X*	
	DN100		X*	
	DN125		X*	
	DN150			
DN200				X*

\*) Linkage kit delivered with the actuator is required