

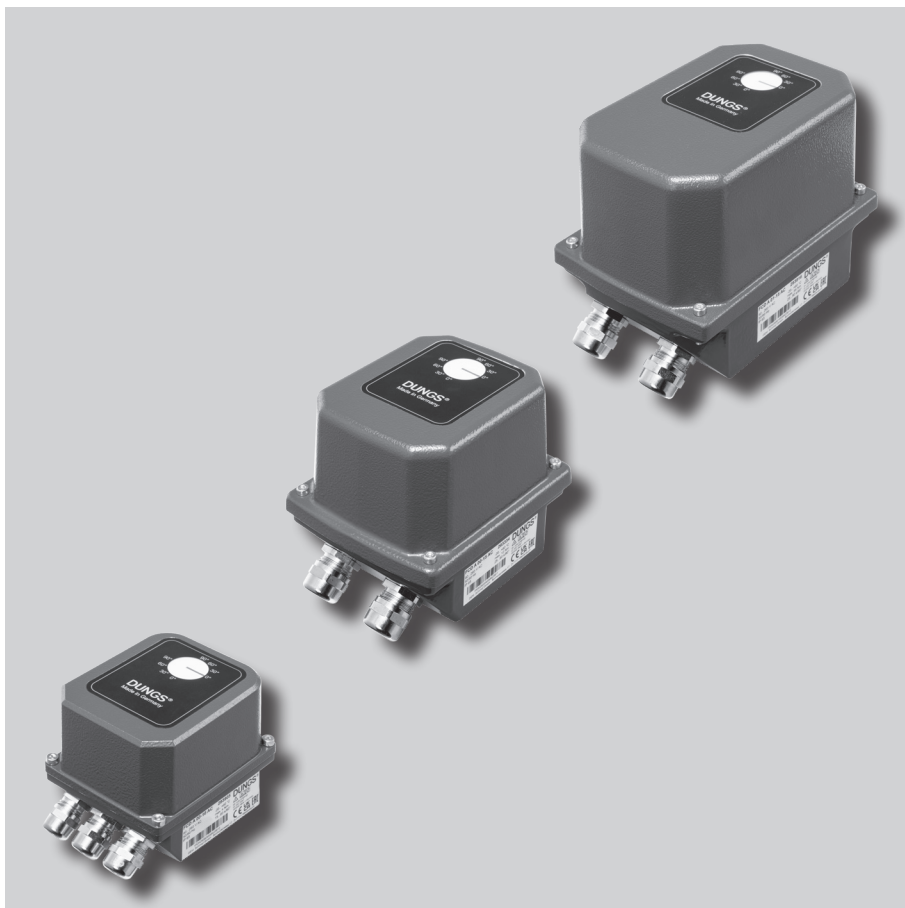
Actuators
FCD A 00-10 xx
FCD A 00-15 xx
FCD A 01-15 xx

DUNGS[®]
Combustion Controls

ACTUATORS

Manufacturer / owner of the
EC type-examination certificate

Schimpf Antriebstechnik
Waldenbuch / Germany



Technical description

The DUNGS Flow Control Drive actuators are programmable, electronic actuators with 3-point step as well as analogue control. The three design sizes cover a torque range up to 35 Nm. Due to the robust die-cast housing with optical position indicator in the cover, the actuators achieve a high protection category. Together with the integrated heating, the actuators are also suitable for extreme ambient conditions.

Application

The Flow Control Drive actuators are used to control motor-driven control and throttle valves.

In combination with the FCV-A air control valves and FCV-G gas control valves, the FCD actuators form an ideal combination. Flow rates of air or gas can therefore be precisely controlled.

Certification

CE

Actuators

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Product description

The DUNGS Flow Control Drive actuators FCD A xx-xx xx are suitable for precise control and adjustment of motor-driven control and throttle valves. In conjunction with an air or gas control valve (FCV G/FCV A) or a comparable actuator, flow rates can be precisely controlled:

- Three design sizes cover torques from 3 Nm to 35 Nm.
 - The integrated step motor in combination with the micro-controller control enables a high-precision control.
 - Device properties and parameters are set directly on the device.
 - As standard, the signal for positioning the FCD actuators can be switched to during operation:
 - 3-point-step signal
 - Setpoint specification: 0/4-20 mA or 0/2-10 V
 - Optical position indicator in the housing cover and electronic position feedback (0/4-20 mA or 0/2-10 V).
- End positions freely programmable for min. and max. position. End positions are signalled via potential-free relay change-over contacts.
 - Potential-free relay change-over contact for evaluation of operational readiness.
 - Depending on the design size, two (only FCD A 00-10 xx) or three additional position cam switches are available.
 - The contacts are wired to the connecting terminals potential-free.
 - The actuators have additional, diverse setting options and features.
 - Simple parametrisation / setting by rotary switch / button directly on the device: running time, direction of rotation, ramp times and hysteresis.
 - Robust aluminium housing, protection class IP 65 and integrated heating ensure smooth and continuous operation even under difficult conditions.

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Certification / Approvals		
2014/35/EU Low Voltage Directive 2014/30/EU EMC directive 2011/65/EU RoHS	Conformity with the requirements for Great Britain (UK). Available from 2022/12	
DIN EN 16340: 2014-10 DIN EN 60730-1: 2021-06		

Technical data			
	FCD A 00-10	FCD A 00-15	FCD A 01-15
Max. torque	4 Nm	12 Nm	35 Nm
Runtime	15 - 60 s / 90°	25 - 90 s / 90°	25 - 90 s / 90°
Max. rotation angle	110°		
Voltage AV variant	90 - 260 VAC, 50/60 Hz		
Voltage DC variant	18 - 30 VDC		
Power consumption	DC: max. 200 mA	DC: max. 250 mA	DC: max. 450 mA
	AC: max. 5 VA	AC: max. 6 VA	AC: max. 15 VA
Protection class	IP 65		
Ambient temperature	-20 °C to 60 °C		
Weight	0.8 kg	1.6 kg	2.2 kg
Dimensions	114 x 82 x 93 mm	135 x 108 x 122 mm	176 x 111 x 142 mm
Cable entry	3 pcs. M16 x 1.5 mm Ø 5 - 9 mm	2 pcs. M20 x 1.5 mm Ø 9 - 13 mm	2 pcs. M20 x 1.5 mm Ø 9 - 13 mm
Housing	Cast aluminium		
Shaft connection	7 x 7 x 7.5 mm Square socket	9 x 9 x 9.5 mm Square socket	9 x 9 x 9.5 mm Square socket

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Technical data			
	FCD A 00-10	FCD A 00-15	FCD A 01-15
Adoption	F03, PCD* Ø 30, 4 x M5, PCD* Ø 50, 2 x M6	F03, F05, PCD* Ø 4 x M6	F07, PCD* Ø 50, 4 x M5, PCD* Ø 50, 4 x M6
Service life	500,000 cycles under full load, 2,000,000 cycles at 60 % load		
Programming / operation	Operation and programming via switches and keyboard in the device Control devices can be accessed when the housing is open		
Three-point-step control	Open & close via potential-free inputs Control release switches between 3-point step and analogue control Adjustable start ramp		
Analogue control	0/4 - 20 mA	Selectively 0/4 - 20 mA or 0/2 - 10 V	
Analogue operating mode	Control release switches between 3-point step and analogue control up to 1,000 steps/90°: <ul style="list-style-type: none"> • adjustable step size • adjustable averaging for analogue input • adjustable safe position • adjustable ramp 		
Position feedback	0/4 - 20 mA	Selectively 0/4 - 20 mA or 0/2 - 10 V	
Min./max. end positions	End positions freely programmable for min. and max. position on the device End positions are signalled via relay outputs (change-over contacts)		
Free cam switch	Two adjustable cam switches, NO or NC selectable via slide switch	Two adjustable cam switches, potential-free change-over contacts	Three adjustable cam switches, potential-free change-over contacts
Status message	Relay output for reporting operational readiness Potential-free change-over contacts		

*PCD (Pitch Circle Diameter)

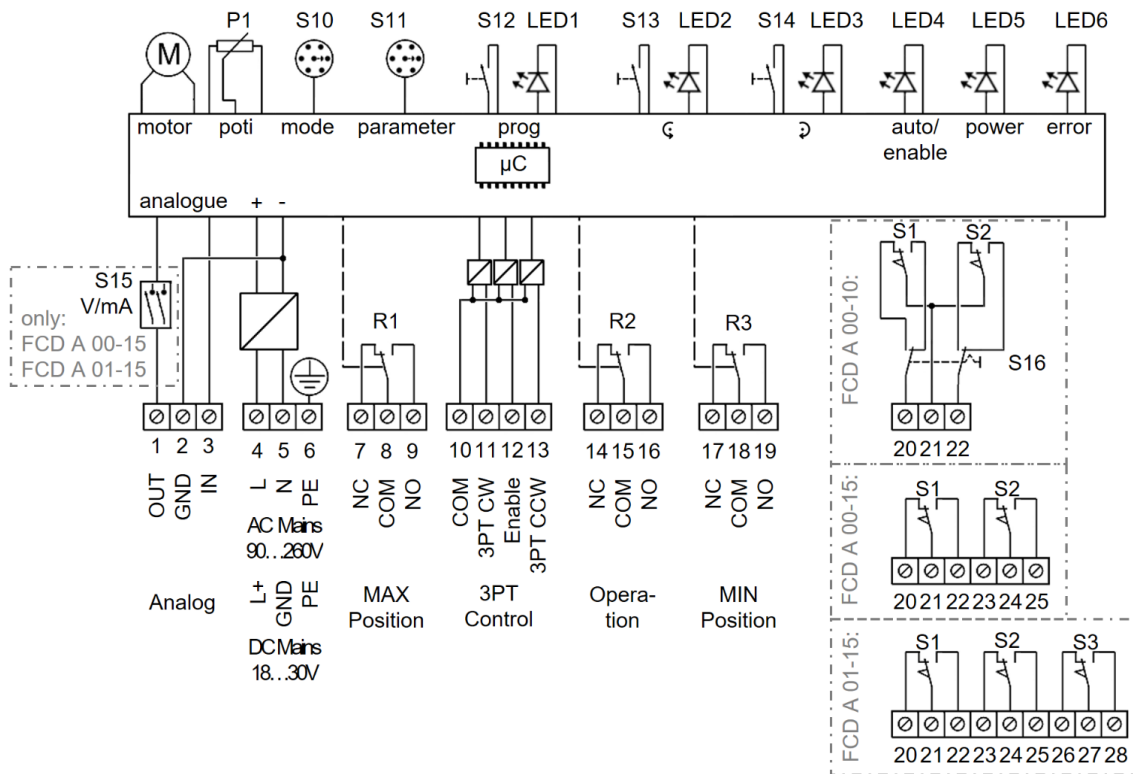
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Technical data			
	FCD A 00-10	FCD A 00-15	FCD A 01-15
Electric specifications of the inputs and outputs	Analogue position feedback Power source: max. 12 V output voltage, load max. 500 Ω Voltage source: max. 12 V output voltage, max. 30 mA current		
	Analogue setpoint specification max. input voltage: 12 V, current input, load 500 Ω		
Other product features	Relay outputs Switching load AC: max. 250 V, 500 mA, Ohmic load Switching load DC max. 220 V, 500 mA, Ohmic load		
	Cam switch Switching load AC: max. 250 V, 500 mA, Ohmic load max. 250 V, 250 mA, inductive load Switching load DC: 30 V, 1,000 mA, Ohmic load max. 125 V, 100 mA, Ohmic load 30 V, 500 mA, Ohmic load max. 125 V, 30 mA, Ohmic load		
	3-Point-step, release signal for inputs AC variant: 90 - 260 VAC, max. current 5 mA DC variant: 18 - 30 VDC, max. current 10 mA		
	Mechanical position display in the housing cover Heating with thermostat		

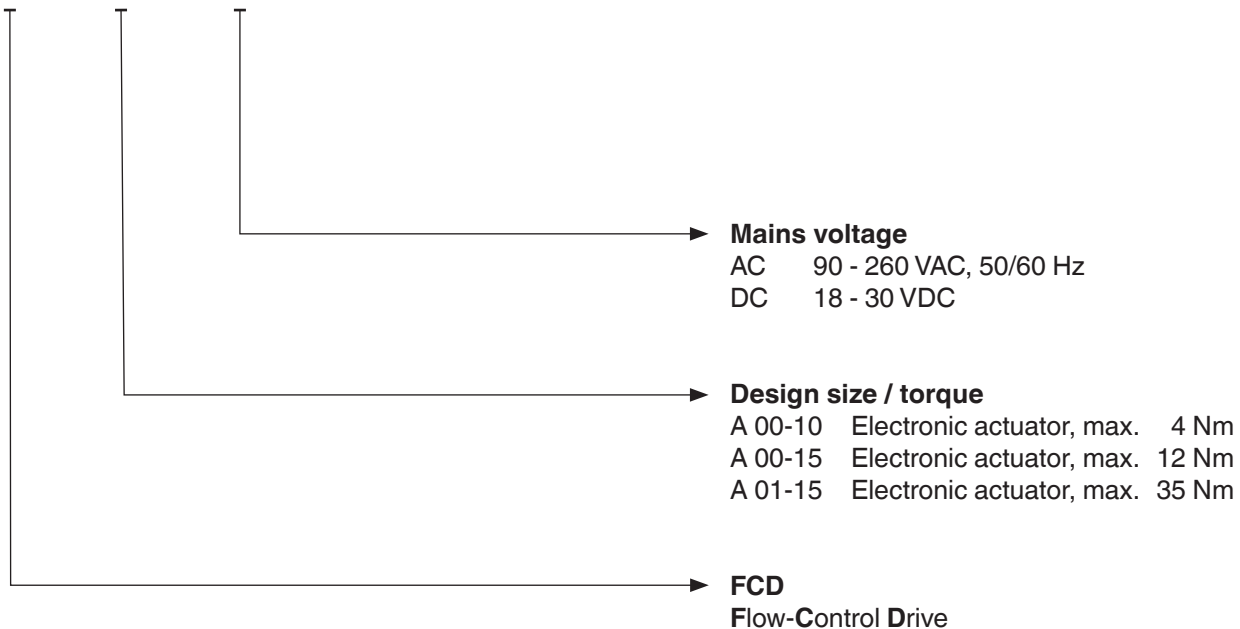
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Electrical connection



Type code FCD

FCD A XX-XX XX



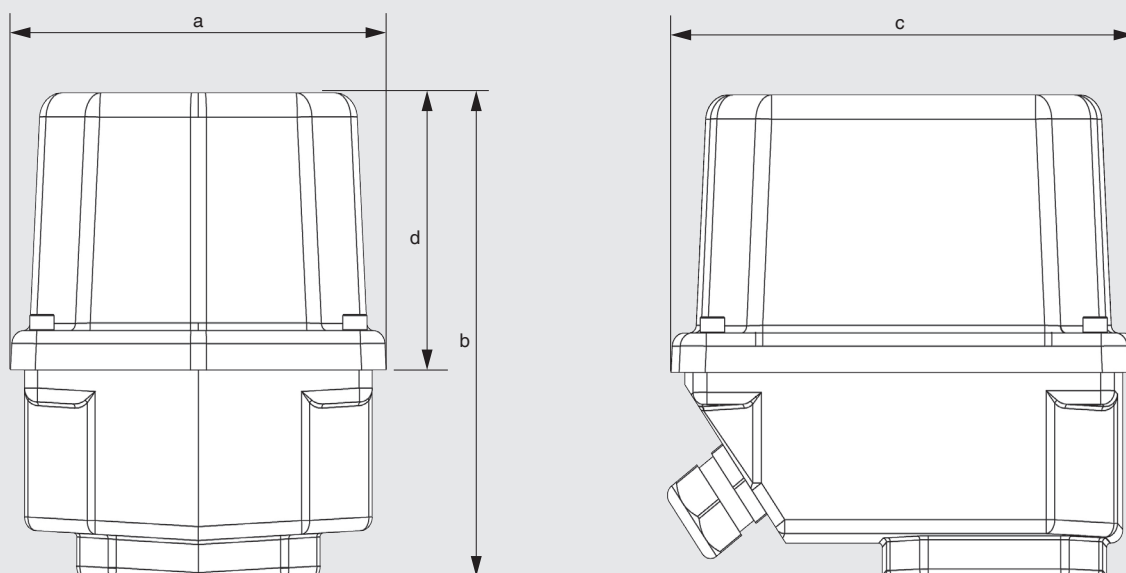
For example: "FCD-A 00-15 AC"

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Type	Ordering No.	Torque	Mains voltage
FCD A 00-10 AC	293905	4 Nm	90 - 260 VAC, 50/60 Hz
FCD A 00-10 DC	293907	4 Nm	18 - 30 VDC
FCD A 00-15 AC	293334	12 Nm	90 - 260 VAC, 50/60 Hz
FCD A 00-15 DC	293911	12 Nm	18 - 30 VDC
FCD A 01-15 AC	293916	35 Nm	90 - 260 VAC, 50/60 Hz
FCD A 01-15 DC	293917	35 Nm	18 - 30 VDC

Dimensions [mm]



Type	Dimensions [mm]			
	a	b	c	d
FCD A 00-10 xx	82.6	92.5	101.4	52.5
FCD A 00-15 xx	108.0	122.0	134.0	70.0
FCD A 01-15 xx	111.0	142.0	167.0	84.0

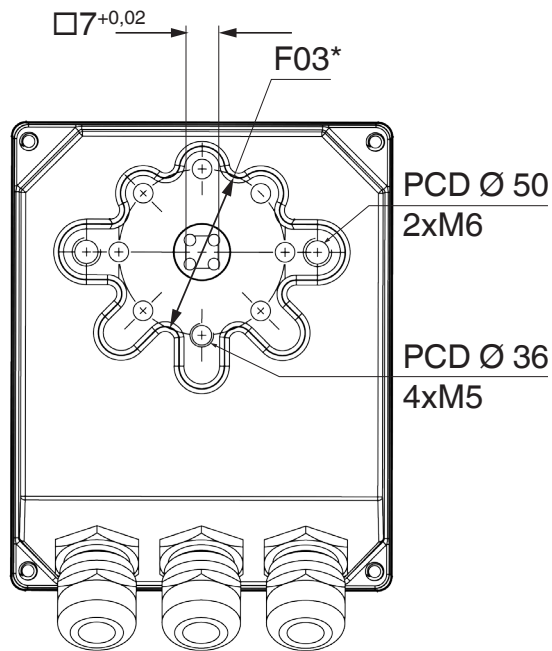
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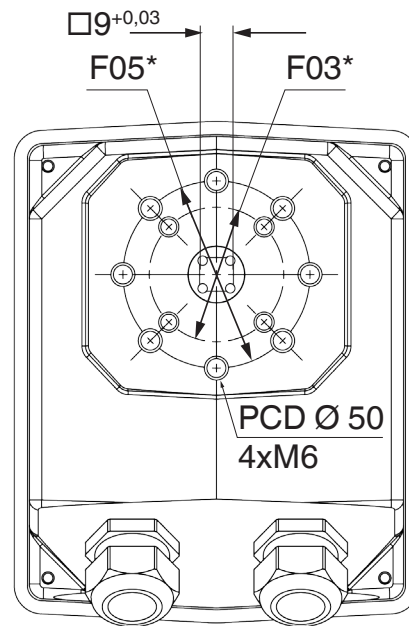
FCD A 00-15 xx

FCD A 01-15 xx

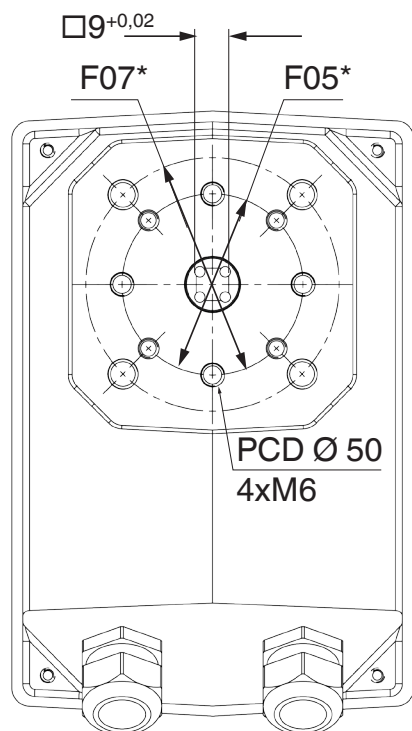
Dimensions of the mechanical fastening



FCD A 00-10



FCD A 00-15



FCD A 01-15

*Details in accordance with ISO 5211

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Installation instructions

The FCD A 00-10 actuator is suitable for operating Rp threaded valves (DMK control valves) up to a nominal diameter of 2". For control valves in flanged version, the actuator FCD A 00-15 xx can be used up to a nominal flow diameter of ≤ 80 mm. The FCD A 01-15 xx actuator is suitable for a nominal flow diameter ≥ 100 mm up to and including a nominal flow diameter of 200 mm.

This assignment is based on a maximum differential pressure [Δp_{max}] of 500 mbar.

Accessories

The DUNGS Flow Control Drive actuators of the FCD A xx-xx xx series are naturally also suitable for controlling the DUNGS DMK motor-driven valves and other control valves. To adapt the FCD actuators to the DMK motor-driven valves, the flange plate installed

as standard must be replaced. Special shaft flanges are also required to adapt the drive shaft.

Flange plates for mounting on DMK motor-driven valves

In the following, it is apparent which flange plate is required to adapt an FCD actuator to a corresponding DMK control valve.

FCD flange plate with 28 x 28 mm hole pattern Order no. 297477	Order no. DMK	
	221041	252403
	222619	252404
	222620	254011
	222621	254015
	225975	254016
	225978	254018
	225981	254019
	225982	254020
	225983	254719
	225984	254733
	225985	255724
	225986	257088
	225987	258048
	225988	258792
	225989	264382
	225990	264383
	225992	264384
	252400	264385
252401	264386	
252402		

Actuators

FCD A 00-10 xx

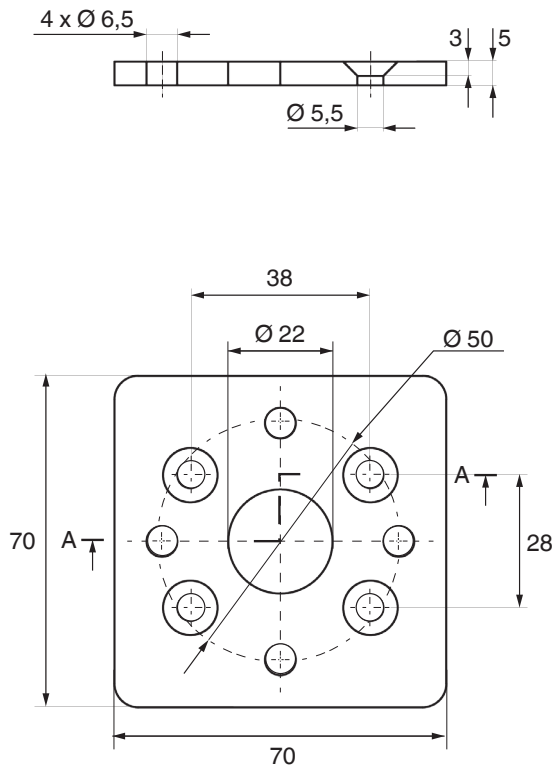
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FCD flange plate with 38 x 28 mm hole pattern
Order no. 297478

Order no. DMK



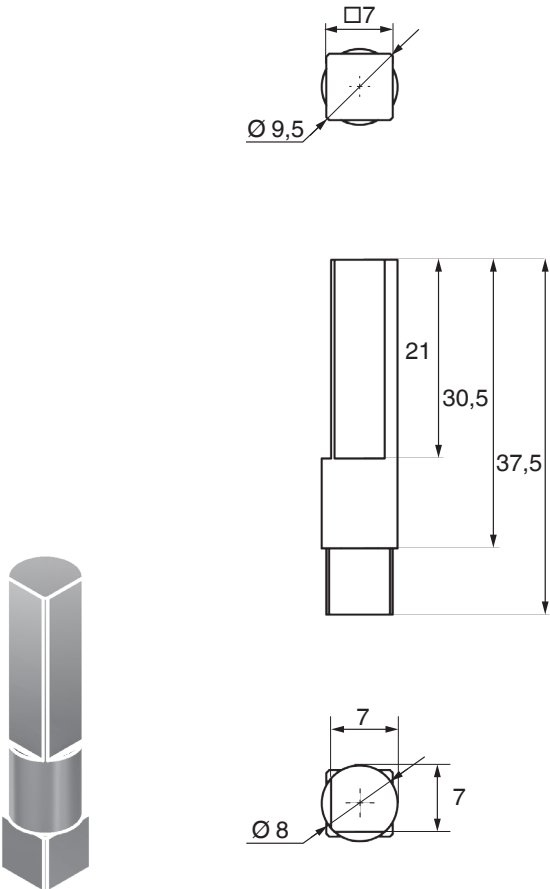
221047	222615
221052	222616
221057	222617
221352	222618
222608	237611
222609	237612
222610	237613
222611	270303
222612	270304
222613	270305
222614	270306

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FCD A 01-15 xx



Shaft plates for mounting on DMK FCD actuator to a corresponding motor-driven valves DMK control valve.

In the following, it is apparent which shaft flange is required to adapt an

FCD shaft flange with 7 x 7 mm hole pattern Order no. 297479	Order no. DMK	DMK Size	FCD Actuator
	221352	Rp 3/4 - Rp 2	FCD A 00-10 xx
	237611		
	237612		
	237613		
	254011		
	221052		
	222611		
	222612		
	222613		
	221047		
	222614		
	222615		
	222616		
	222617		
	222618		
	270304		
	270305		
	270306		
	221057		
	222608		
	222609		
	222610		
	254015		
	254016		
	221041		
	222619		
	222620		
	222621		
	270303		

Actuators

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FCD A 00-15 xx

FCD A 01-15 xx



FCD shaft flange with 9 x 9 mm Order no. 297480	Order no. DMK	DMK Nominal flow diameter	FCD Actuator
	225975	40 - 80	FCD A 00-15 xx
	254733		
	225978		
	257088		
	264382		
	225981		
	225982		
	225983		
	252404		
	254018		
	255724		
	264383		
	225984		
	225985		
	225986		
	252401		
	252402		
	254019		
	264384		
	225987	100 - 125	FCD A 01-15 xx
	252403		
	254020		
	258792		
	264385		
	225990		
	252400		
	254719		
	264386		

Technical Information based on:
Revision: Product information
BA_FCD_2022_05

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