



DV 20 NC

Micrometering valve with piezoelectric drive

Technical Information

Revision 1.2

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1. Function Mode

The valve DV 20 NC is driven by two piezoelectric actuators being arranged in a special way. The movement of same is imparted to a rod, which is then lifted or lowered. A sealing ball from resistive ceramics is fixed to the lower end of this rod. The tight fit from ceramics, which is also the nozzle, is closed by means of the sealing ball. When the sealing ball is lifted the medium can flow off the valve.

Due to the extremely fast piezoelectric drive it is possible to achieve a metering with a frequency of up to 1000 Hz. By means of the metering time of approx. 220 μ s (maximum stroke; 60 μ s opening, 160 μ s closing) it is possible to realize a minimum of metering quantities. A minimum delay time between two pulses of 350 μ s is necessary.

The valve is closed in the condition without tension.

The drive and the tight fit have an extremely long service life due to the arrangement of the piezoelectric actuators and the material used for the tight fit.

The following metering type is possible: **Non-contact metering**

- non-contact metering of drops without dosing needle
- non-contact metering of a medium jet

By means of the non-contact mode it is possible to meter the medium with a distance between valve and substrate of up to several centimeters. This way a Z-axis movement of the valve and the danger of the dosing needle running against the substrate are avoided.

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2. Technical Data

dimensions (L x W x H)	72 x 14 x 60 mm
measurable media	media having a low viscosity like e.g. various oils, alcohol, octane, organic solutions
measurable viscosity range	approx. 50 – 1000 mPas (thixotrope)
measurable fillers in the medium	none
minimum metering time	220 μ s (once open and close) (approx. 60 μ s open, 160 μ s close)
maximum metering time	infinite (permanent metering)
minimum dead time	350 μ s (in the middle of two metering cycles)
maximum dead time	infinite (stop)
metering frequency	150 Hz in continuous operation
metering accuracy	approx. 2 % (with constant pressure and temperature)
maximum working pressure	100 bar
ambient temperature range	up to +45 °C
medium temperature range	room temperature
tight fit ball / nozzle	self-adjustable of hard ceramics, removable for cleaning
diameter tight fit opening	150 μ m and 300 μ m (alternative diameters on request)
maintenance and control interval tight fit	30.000.000 cycles with Oktan. Puriss. p. a. 99,5%
maintenance and control interval piezoelectric drive	approx. 1.0 – 3.5 x 10 ⁸ cycles (depending on the working frequency and temperature)
materials in contact with the medium	Viton, perfluoroelastomer, stainless steel 1.4305
electric supply	0.5 m cable with 10-pole circular connector; extension cable 4.5 m optional
min. bending radius electric supply	R 35 mm (one-time); R 100 mm (deliberate movement)
medium connection	M 10 x 1
fastening thread at the valve body	M 4; 6 mm deep Tightening torque moment: 2.5 Ncm +0.2
protection class	IP 54
explosion protection	no
storage temperature	-10 °C up to +85 °C
weight incl. connecting cable	approx. 290 g
suitable drive electronics	control unit type CON 20 NC (for 1 valve each)
suitable process electronic	PDA 1 ⁺¹ , PDA 2 ⁺²

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3. Important Comments Regarding Technical Information

The information regarding the medium to be metered do not lay claim to completeness. If you have some questions or need further advice, please get in contact with PICODOSTEC.

Due to the variety of the medium that can basically be metered the mentioned examples can only give a general overview which is based on the experiences of PICODOSTEC. Same are on no account a guaranteed characteristic as defined by a technical specification. This is also valid for the service life of the valve being influenced by the metered medium (e.g. fillers in the medium).

PICODOSTEC recommends to the user to check at any rate the metering properties of the medium, the resistance of the sealings used in the valve and the service life of the valve depending on the medium to be metered by means of field tests.

It is not allowed to meter medium, which cure irreversibly in the valve, like e.g. anaerobic adhesives and superglues (cyanacrylates) or materials damaging the sealing material ISOLAST. In case you have difficulties regarding the valuation of your medium, please just get in contact with us – we will certainly give you the required support.

4. Safety Instructions

The described electric devices and machines are equipment to be used in industrial installations.

Therefore the persons in charge for the safety of this installation have to guarantee that

- unqualified personnel is not allowed to work on the devices and machines or in close proximity to same
- only qualified personnel will be instructed to work on the devices and machines
- among other things the operating manual and the other documents will always be at the disposal of these persons while effecting the corresponding work and that they will be obliged to observe these documents resolutely

Qualified personnel are persons, who – due to their training, experience and instruction as well as to their knowledge of relevant standards, regulations and rules for prevention of accidents and operating conditions – have been entitled by the person in charge for the safety of the installation to effect the required work and who are able to recognize and avoid possible dangers on this occasion. (definitions for specialists according to VDE 105 or ICE 364)

The warranty for the products of PICODOSTEC GmbH follows exclusively the current setting of our general business conditions.

These safety instructions do not lay claim to completeness.

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We scrutinized this product manual very carefully. However, we cannot guarantee that same is without faults. If you have further questions or need some advice please get in contact with:

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