



VAT Vakuumventile AG
CH-9469 Haag, Schweiz

Product data sheet

HV Gas Dosing Valve, Series 628, DN16

Ordering No. 62824-KE..-000.

“Pressure Control”

(without No. 62824-KEM1)

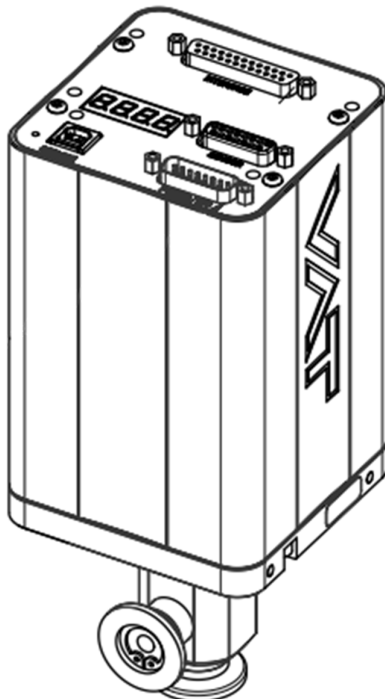
1. Description

This product is a HV Gas Dosing Valve for pressure control in vacuum systems.

This Product Data Sheet is valid for the ordering number(s):

HV Gas Dosing Valve 62824-KExy-000.

| x | y | Sensor Inputs |
|-----------------------------------------------------------------------------------|------------------|------------------|
| Controller configurations | Interface | |
| G = Basic version | H = RS232 | 2 |
| A = With SPS | K = RS485 | 2 |
| H = With PFO | E = Logic (A/D) | 2 |
| C = With SPS and PFO | Q = DeviceNet® | 2 |
| | F = Profibus | 2 |
| SPS = Sensor Power Supply (+/-15 VDC power for external pressure sensor) | N = CC-Link | 2 |
| PFO = Power Failure Option (Valve opens/closes automatically at power failure) | X = EtherCAT | 2 |
| | Z = Ethernet | 2 |



Sample picture only.

| | | |
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| Created by: RIDO | Release date: 11.07.2023 | 1/7 |
| Modified by: | Release date: | 1209232EA |



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2. Technical data

2.1 Valve unit

| | | |
|------------------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Flange | | ISO-KF 16 |
| Actuator | | Stepper motor |
| Feedthrough | | O-ring |
| Leak rate | – Valve body | $< 1 \cdot 10^{-9}$ mbar ls ⁻¹ |
| | – Valve seat | $< 1 \cdot 10^{-9}$ mbar ls ⁻¹ |
| Pressure range | | $1 \cdot 10^{-8}$ mbar to 3 bar (abs) |
| Differential pressure on the plate | – In gas flow direction | ≤ 3 bar |
| Differential pressure at opening | – In gas flow direction | ≤ 3 bar |
| Controllable conductance | | minimum / maximum |
| | | $5 \cdot 10^{-4} / 900$ mbar ls ⁻¹ (with 1 filter) $5 \cdot 10^{-4} / 800$ mbar ls ⁻¹ (with 2 filter) |
| Cycles until first service | | 100'000 leak tight cycles (clean conditions) |
| Temperature (ambient) | | ≤ 40 °C |
| Material | – Valve body | AISI 304 (1.4301) |
| | – Needle | AISI 304 (1.4301) |
| | – Filter | AISI 316L (1.4404) |
| | – Gate | AISI 316L (1.4435) |
| Seal | – Feedthrough | FKM |
| | – Gate | FKM |
| | – Dosing nozzle | PTFE |
| | – Nozzle fixation | FKM |
| | – Filter | FKM |
| Mounting position | | any |
| Position resolution | | 13'500 steps (full stroke) |
| Actuation time | – Closing | ≤ 2 s |
| | – Opening | ≤ 1.7 s |
| Weight | | 2.4 kg / 5.3 lbs (approx.) |
| Behavior in case of power failure | – Valve closed | valve remains closed (with Power Fail Option, default: closing) |
| | – Valve open | depending on controller type (with Power Fail Option, default: closing) |
| | – Valve in motion | depending on controller type (with Power Fail Option, default: closing) |

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2.2 Control unit

| | | |
|---------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply input | connector | D-Sub, DA-15, male |
| | supply voltage | +24 VDC ($\pm 10\%$) @ 0.5 V pk-pk max. |
| Power consumption | (control / drive) | 40 W (max.) with optional SPS + 40 W with optional PFO + 10 W 3 W max. (from DeviceNet® to DeviceNet® Interface board of valve) |
| Ambient | temperature | 0 °C to +50 °C max. (<35 °C recommended) |
| | humidity | 0 to 95% RH, non-condensing |
| Interface | remote | Refer to chapter 2.2 |
| | service port | USB-B (USB 2.0) |
| Sensor | connector | D-Sub, DA-15, female |
| | number of inputs | 2 |
| | signal voltage | -10 ... +10 V |
| | input resistance | 100 k Ω |
| | ADC resolution | 0.1 mV |
| | sampling rate | 2 ms |
| | power supply (output) | +24 VDC / 1.5 A max. or ± 15 VDC / 1.2 A max. (with SPS option) |
| Pressure control accuracy | 5 mV or 0.1% of setpoint, the higher value applies | |
| Ingress Protection | IP 40 | |

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2.3 Interface

2.3.1 Power Connector

| | | |
|-----------------|------------------------------------|-------------------------------------------|
| Connector | | D-Sub, DA-15, male |
| Digital inputs | input 1 | interlock open (adjustable with CPA 4.0) |
| | input 2 | interlock close (adjustable with CPA 4.0) |
| | voltage control contact control | 12 ... 24V / 4 ... 8 mA 24V / 8 mA |
| Digital outputs | output 1 | valve closed (adjustable with CPA 4.0) |
| | output 2 | valve opened (adjustable with CPA 4.0) |
| | load | max. 70 V / 0.1 A |

2.2.2 EtherCAT

| | | |
|---------------|----------------|------------------------------------------------------------------|
| Connector | | 2 x RJ45, 8-pin (socket), IN and OUT |
| Communication | protocol | Protocol specialized for EtherCAT |
| | node address | Explicit device identification or station alias, set by switches |
| | physical layer | 100BASE-Tx (IEEE 802.3) |
| Cable | | shielded Ethernet CAT5e or higher |

2.2.3 DeviceNet

| | | |
|----------------|-------------------------------------|----------------------------------------------------------|
| Connector | | microstyle, 5-pin, male |
| Communication | protocol | DeviceNet, group 2 slave only |
| | data rate | 125, 250, 500 kbaud by switch or network programmable |
| | MAC ID | address 00 - 63 by switch or network programmable |
| | profiles | Generic “C” default, Process Control Device (ODVA) |
| Supply voltage | transceiver at microstyle connector | 24 V _{nom} , 11 ... 25V; max. 0.5 W |

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2.2.4 RS232

| | | |
|------------------------|-------------------|----------------------------------------------|
| Connector | | D-Sub, DB-25, female |
| Communication settings | baud rate | 1200,2400,4800,9600,19200,38400,57600,115200 |
| | data bits | 7 or 8 |
| | stop bits | 1 or 2 |
| | parity bit | even, odd, none |
| Digital inputs | number of inputs | 2 |
| | voltage control | 5 ... 24V / 2 ... 10 mA |
| | contact control | 3.3V / 2 mA |
| Digital outputs | number of outputs | 2 |
| | load | max. 70 V / 0.1 A |
| Analog outputs | number of outputs | 2 |
| | voltage range | 0 ... 10V |
| | load | max. 1 mA |

2.2.5 RS485

| | | |
|------------------------|-------------------|----------------------------------------------|
| Connector | | D-Sub, DB-25, female |
| Communication settings | baud rate | 1200,2400,4800,9600,19200,38400,57600,115200 |
| | data bits | 7 or 8 |
| | stop bits | 1 or 2 |
| | parity bit | even, odd, none |
| | topology | half duplex, full duplex |
| | network | point to point, multiple devices |
| | adress range | 0 ... 255 |
| | | |
| Digital inputs | number of inputs | 2 |
| | voltage control | 5 ... 24V / 2 ... 10 mA |
| | contact control | 3.3V / 2 mA |
| Digital outputs | number of outputs | 2 |
| | load | max. 70 V / 0.1 A |
| Analog outputs | number of outputs | 2 |
| | voltage range | 0 ... 10V |
| | load | max. 1 mA |

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2.2.6 Logic

| | | |
|-----------------|-------------------|-------------------------|
| Connector | | D-Sub, DB-25, female |
| Digital inputs | number of inputs | 8 |
| | voltage control | 5 ... 24V / 2 ... 10 mA |
| | contact control | 3.3V / 2 mA |
| Digital outputs | number of outputs | 4 |
| | load | max. 70 V / 0.1 A |
| Analog input | number of inputs | 1 |
| | voltage range | 0 ... 10V |
| | input resistance | 100 kOhm |
| Analog outputs | number of outputs | 2 |
| | voltage range | 0 ... 10V |
| | load | max. 1 mA |

2.2.7 Profibus

| | | |
|---------------|--------------|------------------------------------------------------------------------------------------------------------------------------------|
| Connector | | D-Sub, DE-9, female |
| Communication | protocol | Profibus DP-V1, DP-V0 |
| | data rate | 9.6, 19.2, 45.45, 93.75, 187.5, 500 kbps, 1.5, 3, 6, 12 Mbps The baud rate is detected automatically or may be configured |
| | node address | SW configurable (0 – 125) |

2.2.8 CC-Link

| | | |
|---------------|----------------|-----------------------------------------------------------|
| Connector | | D-Sub, DE-9, female |
| Communication | protocol | CC-Link V2 |
| | data rate | 156, 625, 500 kbps, 2.5, 5, 10 Mbps SW configurable |
| | station number | SW configurable (1– 64) |

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2.2.9 Ethernet

| | | |
|---------------|----------------|--------------------------------------|
| Connector | | 2 x RJ45, 8-pin (socket), IN and OUT |
| Communication | protocol | Telnet |
| | node address | IP Address (DHCP or static) |
| | physical layer | 100BASE-Tx (IEEE 802.3) |
| Cable | | shielded Ethernet CAT5e or higher |

2.3 General data

| | |
|---------------------|---------------------------------------------------------------------------------------|
| Weight | refer to chapter: 2.1 |
| Dimensional drawing | Refer to dimensional drawing of specific valve ordering number (available on request) |

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