



VAT Vakuumventile AG
CH-9469 Haag, Schweiz

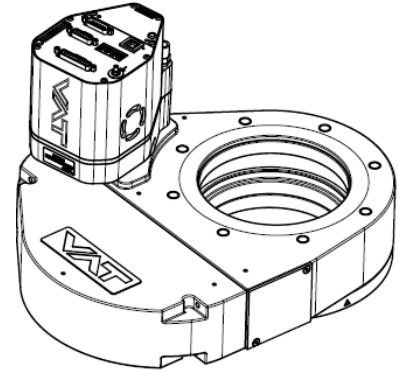
Product data sheet

Control pendulum valve
Series 653, DN 160 (I.D. 6")
Ordering No. 65344-JACE-0001

1 Description

This product is a Pendulum control valve for conductance control in vacuum systems.

Flange			DN 160 (6"), ISO-F
Actuator	type		servo motor
	position		B1
Controller	type		integrated
	interface		Logic
	number of sensor inputs		2
	options		SPS / PFO ¹⁾
	firmware version		F01.0C.28.23
Rotary feedthrough			double sealed
Seals	rotary feedthrough	atmosphere side	FKM (e.g. Viton®)
		vacuum side	FKM (e.g. Viton®)
	seal ring	Body	FKM (e.g. Viton®)
		Plate	FKM (e.g. Viton®)
	bonnet		FKM (e.g. Viton®)
	shaft feedthrough	atmosphere side	FKM (e.g. Viton®)
vacuum side		FKM (e.g. Viton®)	



Sample picture

1) none = no option, PFO = power failure option, SPS = sensor power supply

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2 Technical data

2.1 Valve unit

Pressure range at 20°C		1 x 10E-8 mbar to 1.2 bar (abs)
Leak rate at 20°C	to outside (global)	1 x 10E-9 mbar l/s
	seat	1 x 10E-9 mbar l/s
Max. differential pressure on plate during isolation (in both directions)		1200 mbar in either direction
Max. differential pressure on plate during opening		10 mbar
Cycles until first service (preventive maintenance)	throttling (open – max. throttle – open)	1'000'000 (unheated and under clean conditions)
	isolation (open – closed – open)	200'000 (unheated and under clean conditions)
Admissible operating temperature		≤ 120°C
<ul style="list-style-type: none"> • Valve body • Ambient 		≤ 150°C
Mounting position		any (valve seat on chamber side is recommended)
Process side materials	body	EN AW-6061 (3.3211)
	plate	EN AW-6061 (3.3211)
	sealing ring	EN AW-6061 (3.3211), AISI 305 (1.4303), AISI 420C (1.3541), AISI 631 (1.4568)
	other parts	AISI 316L (1.4404, 1.4435), AISI 440 (1.4122), AISI 301 (1.4310), AISI 316 Ti (1.4571), AISI 304 (1.4301)
Seals	body	FKM (e.g. Viton®)
	plate	FKM (e.g. Viton®)
	rotary feedthrough atmosphere side	FKM (e.g. Viton®)
	rotary feedthrough vacuum side	FKM (e.g. Viton®)
	shaft feedthrough atmosphere side	FKM (e.g. Viton®)
	shaft feedthrough vacuum side	FKM (e.g. Viton®)
	bonnet	FKM (e.g. Viton®)
Min. controllable conductance (N ₂ molecular flow)		4 l/s

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Max. conductance (N2 molecular flow)		5000 l/s
Actuating time	Pressure control (throttling) - Default speed	0.8 s typ.
	Pressure control (throttling) - Fast speed	0.4 s typ.
	full open to close (isolated)	3 s typ.
	close (isolated) to full open	4 s typ.

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)	70 W (max.) with optional SPS + 40 W with optional PFO + 10 W
Ambient	temperature	0 °C to +50 °C max. (<35 °C recommended)
	humidity	0 to 95% RH, non-condensing
Interface	remote	Logic
	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)
Position resolution		58'000 (full stroke)
Actuator type		Stepper motor with servo control
Pressure control accuracy		5 mV or 0.1% of setpoint, the higher value applies
Ingress Protection		IP 30

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2.2 Interface

2.4.1 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	12 ... 24V / 4 ... 8 mA
	contact control	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

2.4 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

2.5 General data

Weight	approx..18 kg
Dimensional drawing	1075516

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