

EN161/EN ISO 23553-1 CERTIFIED SHUTOFF VALVES FOR BURNER APPLICATIONS

The Jamesbury Automatic Safety Valves are EN161/EN ISO 23553-1 (formerly EN264) approved for providing protection against fire and explosive hazards during light-off and operation of gas or oil burning equipment. When the electrical signal is interrupted or when there is a loss of air pressure, these fuel line valves operate rapidly to isolate. This action may be initiated either by safety trip or normal shutdown sequencing.

The units consist of a valve with actuator and solenoid pilot valve, and are approved as an assembly. Reduced and full bore flanged ball valves, series 7000 and 9000, respectively, from ½" to 6" are available in ANSI Class 150 and 300 and in PN10/16 & PN25/40 as EN rated. 4000 series three-piece valves 1/2" – 2" up to ANSI Class 600 are also available with screwed or welded ends. Valves are offered with either carbon steel or stainless steel bodies. Trim is stainless steel.

The assemblies are available with three different actuator types: the B series piston type actuators, QUADRA-POWR X spring diaphragm actuators and VPVL compact piston actuators.

The certified range covers also wide range of instrumentation components, such as intelligent safety solenoid Neles ValvGuard VG9000, other solenoid valves and quick exhausts.

FEATURES

Tight shutoff

- Polymeric flexible lip-seat design offers tight shutoff in either direction and extended cycle life with minimum maintenance.

Cavity relief

- A circumstance in which the valve cavity is filled, or partially-filled with fluid, and subjected to an increase in temperature can result in an excessive buildup of pressure. Jamesbury valves are able to provide safe cavity relief as required in ANSI B16.34 Para 2.3.3.

Low temperature option

- Although EN161 covers only an ambient temperature range of -15 °C to 60 °C TÜV approved solutions for -40 °C are available.



Long-lasting low fugitive emission levels

- The stem seat design ensures that low fugitive emission levels according to ISO 15848-1 Class BH and TA-Luft VDI 2440 are met.

Efficient operating

- As the valve assemblies need to close in less than one second, the actuator choice is to be made following the guidelines of the tables on p.2 and p.3.

Corrosion resistant

- 316 stainless steel valves are available for highly corrosive atmospheres. The epoxy painted B series actuators have housings of rugged cast iron with aluminium cylinders anodized for added corrosion resistance. QUADRA-POWR X actuators are constructed of all ferrous materials and painted with UV resistant top coat. VPVL actuators are aluminium with PTFE coated bodies and polyester coated end caps.

Reliable safety

- The burner valve units are available according to IEC 61508 up to SIL3.

Actuator selection

- To ensure the conformity according to EN161 / DIN EN ISO 23553-1, the actuator selection should follow the guidelines of the tables below. The different tables show the possible combinations with B series, QUADRA-POWR X and VPVL actuators at air supply pressure of 4 bar.

Valve		Actuator Series and Instrumentation			
Series	Size	B-Series			
		Actuator	max. shutoff pressure ¹⁾	Instrumentation with VG9000	Instrumentation with solenoid valve
Full Bore					
4000 9180 & 9380 916D & 940D	1/2 - DN15	B1J8	full valve rating	VG9_15_H+QEV_1/4" ²⁾³⁾	SV+QEV_1/4" ³⁾
4000 9180 & 9380 916D & 940D	3/4 - DN20	B1J8	full valve rating	VG9_15_H+QEV_1/4" ²⁾³⁾	SV+QEV_1/4" ³⁾
4000 9180 & 9380 916D & 940D	1 - DN25	B1J8	full valve rating	VG9_15_H+QEV_1/4" ²⁾³⁾	SV+QEV_1/4" ³⁾
4000	1-1/4 - DN32	B1J8	full valve rating	VG9_15_H+QEV_1/4" ²⁾³⁾	SV+QEV_1/4" ³⁾
4000 9180 & 9380 916D & 940D	1-1/2 - DN40	B1J8	full valve rating	VG9_15_H+QEV_1/4" ²⁾³⁾	SV+QEV_1/4" ³⁾
9180 & 9380 916D & 940D	2 - DN50	B1J8	<16 bar	VG9_15_H+QEV_1/4" ²⁾³⁾	SV+QEV_1/4" ³⁾
		B1J10	full valve rating	VG9_15_H+QEV_1/2" ²⁾³⁾	SV+QEV_1/2" ²⁾³⁾
9180 & 9380 916D & 940D	3 - DN80	B1J10	<16 bar	VG9_15_H+QEV_1/2" ²⁾³⁾	SV+QEV_1/2" ²⁾³⁾
		B1J12	full valve rating	VG9_15_H+QEV_1/2" ²⁾³⁾	SV+QEV_1/2" ²⁾³⁾
9180 & 9380 916D & 940D	4 - DN100	B1J12	<16 bar	VG9_15_H+QEV_1/2" ²⁾³⁾	SV+QEV_1/2" ²⁾³⁾
		B1J16_F	full valve rating	VG9_15_H+QEV_3/4" ²⁾³⁾	SV+QEV_3/4" ²⁾³⁾
9180 & 9380 916D & 940D	6 - DN150	B1J16_F	<12 bar	VG9_15_H+QEV_3/4" ²⁾³⁾	SV+QEV_3/4" ²⁾³⁾
		B1J20_F	<25 bar	VG9_15_H+QEV_1" ²⁾³⁾	SV+QEV_1" ²⁾³⁾
Reduced Bore					
4000 7180 & 7380 716D & 740D	1/2 - DN15	B1J8	full valve rating	VG9_15_H+QEV_1/4" ²⁾	SV+QEV_1/4" ³⁾
4000 7180 & 7380 716D & 740D	3/4 - DN20	B1J8	full valve rating	VG9_15_H+QEV_1/4" ²⁾	SV+QEV_1/4" ³⁾
4000 7180 & 7380 716D & 740D	1 - DN25	B1J8	full valve rating	VG9_15_H+QEV_1/4" ²⁾	SV+QEV_1/4" ³⁾
4000	1-1/4 - DN32	B1J8	full valve rating	VG9_15_H+QEV_1/4" ²⁾	SV+QEV_1/4" ³⁾
4000 7180 & 7380 716D & 740D	1-1/2 - DN40	B1J8	full valve rating	VG9_15_H+QEV_1/4" ²⁾	SV+QEV_1/4" ³⁾
4000 7180 & 7380 716D & 740D	2 - DN50	B1J8	full valve rating	VG9_15_H+QEV_1/4" ²⁾	SV+QEV_1/4" ³⁾
7180 & 7380 716D & 740D	3 - DN80	B1J10	full valve rating	VG9_15_H+QEV_1/2" ²⁾³⁾	SV+QEV_1/2" ²⁾³⁾
7180 & 7380 716D & 740D	4 - DN100	B1J10	<16 bar	VG9_15_H+QEV_1/2" ²⁾³⁾	SV+QEV_1/2" ²⁾³⁾
		B1J12	full valve rating	VG9_15_H+QEV_1/2" ²⁾³⁾	SV+QEV_1/2" ²⁾³⁾
7180 & 7380 716D & 740D	6 - DN150	B1J16_F	full valve rating	VG9_15_H+QEV_3/4" ²⁾³⁾	SV+QEV_3/4" ²⁾³⁾

- REMARKS:
- The pressure rating of the valve might limit the allowed differential pressure - please refer the bulletin.
 - Minimum size of quick exhaust valve (QEV). Larger sizes are allowed.
 - Select type of instrumentation component from the table on page 4. Instrumentation must be able to close the valve <1sec.

Valve		Actuator Series and Instrumentation					
Series	Size	Quadra-Powr X			Valv-Powr		
		Actuator	max. shutoff pressure ¹⁾	Instrumentation with solenoid valve	Actuator	max. shutoff pressure ¹⁾	Instrumentation with solenoid valve
Full Bore							
4000 9180 & 9380 916D & 940D	1/2 - DN15	QPX1C	full valve rating	SV ³⁾⁴⁾	VPVL100SR4/5	full valve rating	SV ³⁾⁴⁾
4000 9180 & 9380 916D & 940D	3/4 - DN20	QPX1C	full valve rating	SV ³⁾⁴⁾	VPVL100SR4/5 VPVL200SR4/5	<16 bar full valve rating	SV ³⁾⁴⁾ SV ³⁾⁴⁾
4000 9180 & 9380 916D & 940D	1 - DN25	QPX1C	full valve rating	SV ³⁾⁴⁾	VPVL200SR4/5 VPVL250SR4/5	<40 bar ¹⁾ full valve rating	SV ³⁾⁴⁾
4000	1-1/4 - DN32	QPX1C QPX2C	<40 bar ¹⁾ full valve rating	SV ³⁾⁴⁾ SV+QEV_1/4" ²⁾³⁾	VPVL250SR4/5 VPVL300SR4/5	<40 bar ¹⁾ full valve rating	SV ³⁾⁴⁾ SV ³⁾⁴⁾
4000 9180 & 9380 916D & 940D	1-1/2 - DN40	QPX2C	full valve rating	SV+QEV_1/4" ²⁾³⁾	VPVL300SR4/5 VPVL350SR4/5	<16 bar full valve rating	SV ³⁾⁴⁾ SV+QEV_1/2" ²⁾³⁾
9180 & 9380 916D & 940D	2 - DN50	QPX2C QPX3C	<16 bar full valve rating	SV+QEV_1/4" ²⁾³⁾ SV+QEV_1/2" ²⁾³⁾	VPVL350SR4/5	<16 bar	SV+QEV_1/2" ²⁾³⁾
9180 & 9380 916D & 940D	3 - DN80	QPX3C QPX4C	<16 bar full valve rating	SV+QEV_1/2" ²⁾³⁾ SV+QEV_1/2" ²⁾³⁾	n/a		n/a
9180 & 9380 916D & 940D	4 - DN100	n/a		n/a	n/a		n/a
9180 & 9380 916D & 940D	6 - DN150	n/a		n/a	n/a		n/a
Reduced Bore							
4000 7180 & 7380 716D & 740D	1/2 - DN15	QPX1C	full valve rating	SV ³⁾⁴⁾	VPVL100SR4/5	full valve rating	SV ³⁾⁴⁾
4000 7180 & 7380 716D & 740D	3/4 - DN20	QPX1C	full valve rating	SV ³⁾⁴⁾	VPVL200SR4/5	full valve rating	SV ³⁾⁴⁾
4000 7180 & 7380 716D & 740D	1 - DN25	QPX1C	full valve rating	SV ³⁾⁴⁾	VPVL200SR4/5	full valve rating	SV ³⁾⁴⁾
4000	1-1/4 - DN32	QPX1C	full valve rating	SV ³⁾⁴⁾	VPVL200SR4/5 VPVL250SR4/5	<40 bar ¹⁾ full valve rating	SV ³⁾⁴⁾ SV ³⁾⁴⁾
4000 7180 & 7380 716D & 740D	1-1/2 - DN40	QPX1C QPX2C	<40 bar ¹⁾ full valve rating	SV ³⁾⁴⁾	VPVL250SR4/5 VPVL300SR4/5	<40 bar ¹⁾ full valve rating	SV ³⁾⁴⁾ SV ³⁾⁴⁾
4000 7180 & 7380 716D & 740D	2 - DN50	QPX2C	full valve rating	SV+QEV_1/4" ²⁾³⁾	VPVL350SR4/5	full valve rating	SV+QEV_1/2" ²⁾³⁾
7180 & 7380 716D & 740D	3 - DN80	QPX3C	full valve rating	SV+QEV_1/2" ²⁾³⁾	n/a		n/a
7180 & 7380 716D & 740D	4 - DN100	QPX3C QPX4C	<16 bar full valve rating	SV+QEV_1/2" ²⁾³⁾ SV+QEV_1/2" ²⁾³⁾	n/a		n/a
7180 & 7380 716D & 740D	6 - DN150	n/a		n/a	n/a		n/a

REMARKS:

- 1) The pressure rating of the valve might limit the allowed differential pressure - please refer the bulletin.
- 2) Minimum size of quick exhaust valve (QEV). Larger sizes are allowed.
- 3) Select type of instrumentation component from the table on page 4.
Instrumentation must be able to close the valve <1sec.
- 4) No need of quick exhaust valve (QEV).

INSTRUMENTATION COMPONENTS

Wide variety of solenoid valves

- The available solenoid valve materials cover brass, stainless steel and aluminium. The voltages can be chosen among 24 VDC, 120 V/50-60 Hz and 240 V/50-60 Hz. Available ATEX categories are
 - II 2GD EExemIICT4, □ II 2GD EExialIICT6,
 - II 2GD EExmdIICT4-6, □ II 2GD EExdIICT6.
- Some examples of certified solenoid valves are given in table below.
- Recommended choice especially for emergency shut down valves is the intelligent safety solenoid Neles ValvGuard VG9000 with 0-20 mA, HART communication. It gives the possibilities for diagnostics and can also perform a partial stroke test.
- **Please note:** According EN161 cl.6.6 the input signal has to be 0-20 mA to ensure a safe shut down. 4 mA as trip signal is not allowed.

Manufacturer	Model	Size	Body material	Protection
HERION	2401138.0801, 24 VDC	1/4" NPT	Brass	IP65
ASCO	SC8327B002, 24 VDC	1/4" NPT	AISI 316	IP65
HERION	2401138.4261, 230V/50 Hz	1/4" NPT	Brass	II 2GD EExemIICT4
ASCO	NFET8327B201, 24 VDC	1/4" NPT	Brass	II 2GD EExdIICT6
HERION	2401168.4672, 24 VDC	1/4" NPT	AISI 316	II 2GD EExmdIICT6
ASCO	NFET8327B002, 230V/50 Hz	1/4" NPT	AISI 316	II 2GD EExdIICT6

Limit switches

- Due to the required cycling and temperature range only proximity switches shall be used and the temperature range has to be within -15° to +60 °C. If low temperature option is used down to -40 °C the switchbox has to be applicable accordingly.
- Recommended limit switches are listed below, but also other models are possible on request.
 - EN44 A02DM □ QX44K05
 - EN44 A05DM □ QX2EK05
 - QX33K02 □ QX2AK02

Quick exhaust valves

- To ensure the required closing times, there are quick exhaust valves specified for certain assemblies, please consult the table below.

Manufacturer	Model	Size	Body material
NORGREN	T70A2800	1/4"NPT	Alum.
NORGREN	T70A4800	1/2"NPT	Alum.
HERION	4050414	G3/4"	Brass, Ni plated
HERION	4050514	G1"	Brass, Ni plated
MIDLAND	2QEVSE122	1/4"NPT	AISI 316
MIDLAND	4QEVSE122	1/2"NPT	AISI 316
MIDLAND	6QEVSE122	3/4"NPT	AISI 316

HOW TO ORDER

Specify the needed model in Series 4000, 7000 or 9000 valves, and select the correct actuator from B series, QPX or VPVL respecting the guidelines on page 2 and 3. Indicate the requirements for solenoid valve and possible quick exhaust.

The live-loaded packing ensuring the low fugitive emission levels is part of the standard construction for valves up to 2" for reduced bore and 1 1/2" for full bore, whereas larger sizes need the option LW at the end of the type code.

The details of products can be found in the technical bulletins:

Product	Bulletin
Series 4000 Thread and weld ended valves	B105-1
Series 7000 Reduced bore valves (ANSI)	B107-1
Series 9000 Full bore valves (ANSI)	B107-2
Series 7000 Reduced bore valves (EN)	B107-3
Series 9000 Full bore valves (EN)	B107-4
B series pneumatic cylinder actuators	6 B 20
QUADRA-POWR X spring-diaphragm rotary actuators	A110-4
VALV-POWR series VPVL rack-and-pinion pneumatic actuators	A111-5
Neles ValvGuard VG9000 intelligent safety solenoid	9 VG9 21

Subject to change without prior notice.

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