

VTork Actuated Lugged Butterfly Valve

Tapped-Lug Body · EPDM Liner · VT Series Rack & Pinion Pneumatic Actuator · PN16 · DN32 – DN400

A ductile iron lugged-pattern butterfly valve, factory-fitted with a VT Series rack-and-pinion pneumatic actuator for automated on/off or throttling duty in general industrial, HVAC, water and process service. Unlike a wafer-pattern body, the tapped lugs allow the valve to be bolted from one side only, so downstream pipework can be removed for dead-end isolation without a blank flange. Each lug is multi-drilled and tapped for PN10, PN16 and ANSI Class 150 bolt patterns as standard, with PN16 the rating covered by this sheet. The bare-shaft valve is supplied with an ISO 5211 top flange, mating directly to the actuator's integral mounting pad without a bracket on all sizes covered here. The full-vulcanised EPDM liner seals directly against the pipe flange faces, giving zero-leakage shut-off to API 598 across the full DN32–DN400 range. The actuator is available double acting or spring return, with dual independent travel stops for precise open/close alignment.

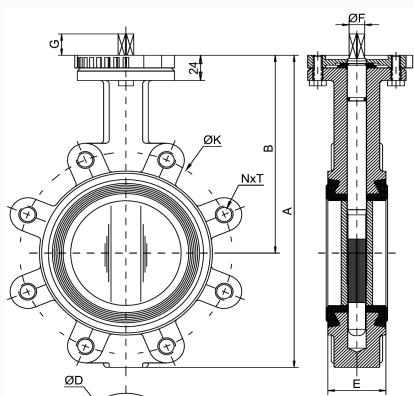


FIG. 1 — LUGGED VALVE, FRONT & SECTIONAL VIEWS



FIG. 2 — VTORK ACTUATED LUGGED BUTTERFLY VALVE ASSEMBLY

Technical Data

Valve type	Lugged (tapped), dead-end capable, bare-shaft butterfly valve, factory-actuated
Size range	DN32 to DN400 (1¼" – 16")
Pressure rating	PN16 (lugs multi-drilled & tapped for PN10, PN16 and ANSI Class 150 as standard)
Body	Ductile iron, EN 1563 GJS500-7
Disc	Stainless steel, ASTM A351 CF8M
Shaft	Stainless steel, ASTM A182 F304
Seat / liner	EPDM, full vulcanised, sealing directly against pipe flange faces
Valve temperature range	–20°C to +110°C (EPDM liner)
Face to face	EN 558 Series 20 / ISO 5752 Series 20 / API 609 Table 1 / BS 5155 Series 4
Pressure test	EN 12266-1, ISO 5208 — body 1.5×PN, seat 1.1×PN
Tightness test	ISO 5208, zero leakage, API 598
Actuator type	VT Series rack & pinion pneumatic actuator, double acting or spring return
Actuator body	Extruded aluminium alloy, hard anodised; end caps aluminium alloy
Actuator mounting	Direct ISO 5211 / DIN 3337 / VDI-VDE 3845 flange, NAMUR-compliant top pad
Standard sealing	Nitrile rubber, –18°C to +80°C (HT / LT / LLT options — see page 2)
Actuator certification	ISO 9001 manufactured, CE marked, ATEX 2014/34/EU compliant
Reference drawings	L32200203040E0 · L250400203040E0 (valve) — VT Series catalogue (actuator)

Key Features

- **Dead-end capable lugged body** — tapped lugs allow bolting from one side only, so downstream pipework can be removed for line-end isolation without a blank flange or spacer.
- **Multi-drilled & tapped** for PN10, PN16 and ANSI Class 150 bolt patterns as standard, so a single valve body suits all three duties — this sheet covers the PN16 rating.
- **Zero-leakage shut-off** to API 598, with body and seat pressure tested to EN 12266-1 / ISO 5208.
- **Ductile iron body** (EN 1563 GJS500-7) with a mirror-polished CF8M stainless steel disc for corrosion resistance and low operating torque.
- **Common actuator platform** — the VT Series body and end caps are shared between double-acting and spring-return versions of the same frame size, simplifying spares holding; spring cartridges are added or removed in the field.
- **Dual independent travel stops**, externally adjustable $\pm 4^\circ$ in both directions, for precise alignment of the actuator with the valve's open and closed positions.
- **Rack and pinion, double-piston drive** with high-precision gearing for low backlash, long cycle life and fast stroke times; rotation direction is reversed simply by inverting the pistons.
- **NAMUR-compliant top-mounted position indicator**, accepting standard solenoid valves, limit switch boxes and proximity sensors without adaptors.
- **Corrosion-resistant construction** — hard-anodised extruded aluminium actuator body and stainless steel internal/external fasteners throughout.
- **ATEX 2014/34/EU compliant** actuator, manufactured under ISO 9001; every unit is factory pressure and leak tested and individually serial-marked for traceability.

Materials of Construction

Valve	
Body	Ductile iron, EN 1563 GJS500-7
Disc	Stainless steel, ASTM A351 CF8M
Shaft	Stainless steel, ASTM A182 F304
Seat / liner	EPDM

Actuator (VT Series)	
Body / end caps	Aluminium alloy, hard anodised
Pinion / OCTI-CAM	45# carbon steel
Piston	Aluminium alloy
Spring (spring-return)	Spring steel, coated cartridge
Bearings / bushings	Advanced polymer composite
Piston / travel-stop O-rings	NBR standard (FKM / silicone optional)
Fasteners	Stainless steel throughout
Output shaft	304 or 316 stainless steel (on request)

Actuator Options

Seal code	Elastomer	Temperature range
Standard	Nitrile rubber (NBR)	-18°C to +80°C
HT	Fluororubber (FPM/FKM)	-18°C to +150°C
LT	Silicone (silastic)	-40°C to +80°C
LLT	Fluorosilicone	-60°C to +80°C

Actuator sealing is selected independently of the valve liner — confirm the combined system temperature range against the EPDM valve liner limit of -20°C to +110°C stated on page 1. Double-acting and spring-return actuators share the same body and end caps; spring-return units are ordered with 4 to 12 spring cartridges depending on frame size and fail-safe torque required. Pneumatic operation is clockwise-to-close as standard. Full double-acting and spring-return torque tables (by air supply pressure, 2.5–8 bar) are available from Actuation Valve & Control Ltd on request.

Dimensions Valve envelope & lug drilling, all dimensions in millimetres

DN	inch	A	B	D	E	F	G	J	PN10		PN16		ANSI150		ISO 5752 Conn.	Weight kg
									K	N°×T1	K	N°×T1	K	N°×T1		
32	1¼"	205	140	88	33	9.5	14	8	100	4×M16	100	4×M16	88.9	4×1/2"	F5/F7	3
40	1½"	205	140	88	33	9.5	14	8	110	4×M16	110	4×M16	98.5	4×1/2"	F5/F7	3
50	2"	228	156	88	43	9.5	14	8	125	4×M16	125	4×M16	120.6	4×5/8"	F5/F7	3.5
65	2½"	248	161	88	46	12	16	9	145	4×M16	145	4×M16	139.7	4×5/8"	F5/F7	4.5
80	3"	265	169	88	46	14	16	11	160	8×M16	160	8×M16	152.4	4×5/8"	F5/F7	6.5
100	4"	298	187	88	52	14	20	11	180	8×M16	180	8×M16	190.5	8×5/8"	F5/F7	8
125	5"	331	206	105	56	17	20	14	210	8×M16	210	8×M16	215.9	8×3/4"	F7	11
150	6"	349	215	105	56	17	20	14	240	8×M20	240	8×M20	241.3	8×3/4"	F7	12
200	8"	430	255	105	60	21	24	17	295	8×M20	295	12×M20	298.5	8×3/4"	F7	18.5
250	10"	460	248	150	68	25	24	19	350	12×M20	355	12×M24	362	12×7/8"	F10	28.5
300	12"	523	280	150	78	28	24	22	400	12×M20	410	12×M24	431.8	12×7/8"	F10	42
350	14"	570	300	170	78	28	29	22	460	16×M20	470	16×M24	476.3	12×1"	F14	53
400	16"	644	340	170	102	35	29	27	515	16×M24	525	16×M27	539.8	16×1"	F14	77

Valve weight only (excludes actuator). K = bolt circle diameter, N°×T1 = number and size of tapped lug holes, for each drilling standard. This sheet specifies the PN16 rating; PN10 and ANSI150 drillings are shown for reference since all three tappings are cut as standard. Dimensions and standards may vary without prior notice.

ISO 5211 Actuator Interface Flange compatibility guide

Valve flange	DN range	Actuator flange group	VT models sharing this flange*
F5/F7	DN32–100	F05 / F07	VT050 – VT125
F7	DN125–200	F07	VT095 – VT125
F10	DN250–300	F10	VT140 – VT190
F14	DN350–400	F14	VT190 – VT210

* Indicates ISO 5211 bolt-circle and pinion-bore compatibility only, taken directly from the valve and actuator manufacturers' published flange tables. It is **not** a torque rating. Final actuator frame size must be confirmed against the valve's break-to-open and running torque at the specified pressure, seat friction and service conditions before ordering — contact Actuation Valve & Control Ltd for a sized selection.

Typical Specification Reference

Example	DN150-20L3040E0-VT125D-EPDM-PN16-P7046
Description	DN150 lugged butterfly valve, ductile iron body, EPDM liner (ref. 20L3040E0), lugs tapped for PN16 duty, fitted with a VT125 double-acting actuator on ISO 5211 F07/10 flange, standard nitrile rubber sealing, grey (RAL 7046) actuator end caps.

Redrawn by Actuation Valve & Control Ltd from manufacturer data: lugged butterfly valve assembly drawings L32200203040E0 (DN32–200) and L250400203040E0 (DN250–400); VT Series Rack and Pinion Pneumatic Actuator catalogue (VTORK Technology (Wuxi) Co., Ltd.). Certified drawings and full torque data are available on request against a specific order. Pressure-temperature ratings and dimensions in this catalogue are typical values for general guidance; users should confirm suitability for their specific application, including dead-end service, before specifying.