

ACTUATION · LINEAR

HPL Series Linear Actuator — Double Acting

Double acting linear pneumatic actuator for wedge gate, flat gate, knife gate and globe valves. Cylinder Ø80–Ø1000, 1.5–381 kN output at 3–6 bar.



DOUBLE ACTING

Ø80 – Ø1000

4–6 BAR

GATE & GLOBE VALVES

TECHNICAL FEATURES

Designed for wedge gate, flat gate, knife gate and globe valves — a linear actuator with a wide application range and stable performance, best suited to safety shut-off and control duties

Widely used as a pipeline switching device in petroleum, chemical, metallurgical, electric power and maritime installations

Available with manual, hydraulic and spring operating modules; specially configured to suit the working conditions

Operated on dry compressed air or inert gas, moving the pistons to drive disc displacement and open or close the valve

OPERATING PRESSURE

Recommended pressure	4 – 6 bar
Maximum operating pressure	10 bar
Control medium	Dry compressed air or inert gas

WORKING TEMPERATURE

Standard	–20 °C to +80 °C
High temperature	–15 °C to +80 °C
Low temperature	–40 °C to +80 °C

TYPICAL APPLICATIONS



Linear actuators mounted to flanged gate valves prior to dispatch.



Batch production of actuated valve assemblies.

CONSTRUCTION — Ø80 TO Ø250

No	Component	Material	Protection	Qty
1	Front cap	Aluminium alloy	Painted	1
2	End cap	Aluminium alloy	Painted	1
3	Body	Aluminium alloy	Hard anodised	1
4	Piston rod	Alloy steel	Chrome plated	1
5	Piston	Cast aluminium	—	1
6	U-ring (piston rod)	NBR	—	1
7	Y-ring (piston)	NBR	—	2
8	Bearing	Surface lubricating bearing	—	1
9	Magnet	Plastic	—	1
10	Buffer screw	Alloy steel	—	2
11	Wear ring	PTFE	—	1
12	O-ring (end cap)	NBR	—	2
13	Cushion seal	NBR	—	2

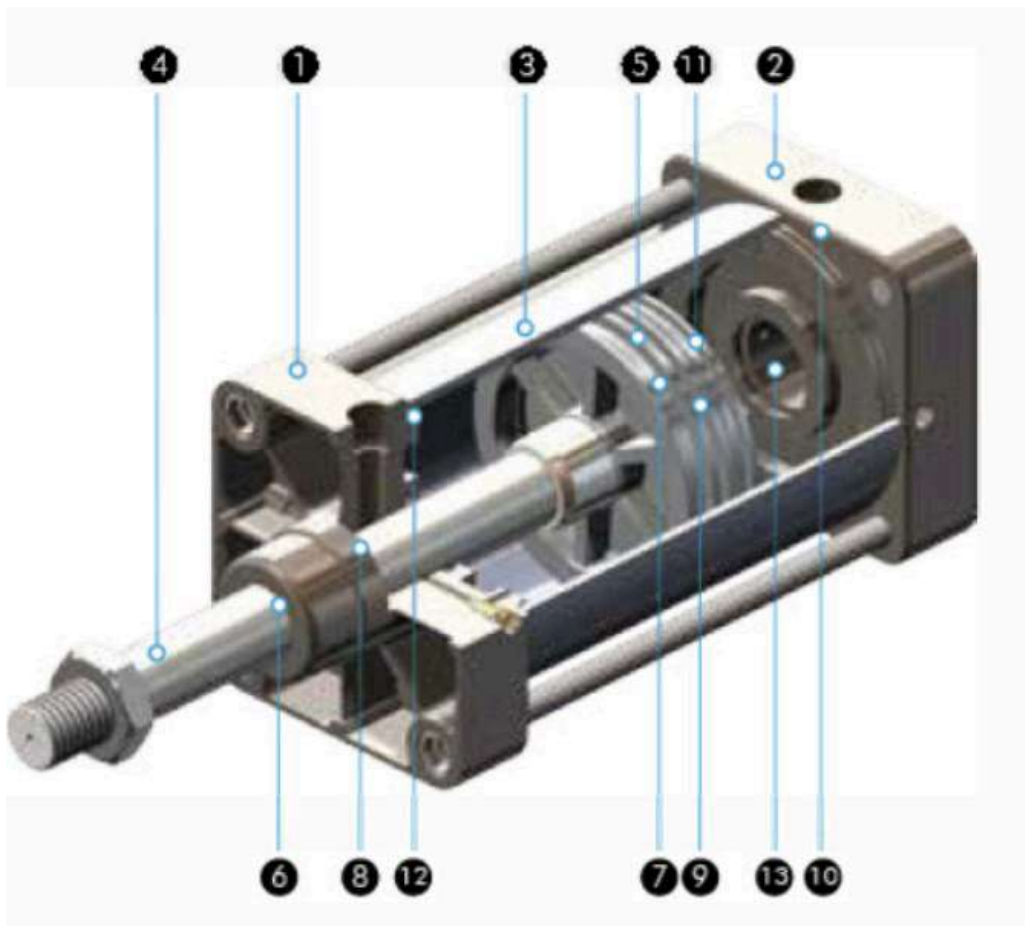


Fig. 1 — Ø80 to Ø250 cylinder assembly, item numbers as tabled above.

DIMENSIONAL SPECIFICATIONS

Cylinder Ø	AM	B	EE	F	G	KK	L	MM	R	TF	AB	UF	E	W	WH
Ø80	40	45	G3/8	16	32	M20×1.5	108	25	70	119	12	143	94	29	46
Ø100	40	55	G1/2	16	37	M20×1.5	114	25	84	138	12	162	115	35	51
Ø125	54	60	G1/2	20	42	M27×2	122	32	90	180	16	224	140	41	65
Ø160	72	80	G1/2	20	45	M36×2	168	45	115	230	18	280	180	60	80
Ø200	72	80	G3/4	25	50	M36×2	180	45	135	270	22	320	220	65	95
Ø250	84	95	G1	30	50	M42×2	200	50	180	330	26	390	280	80	105

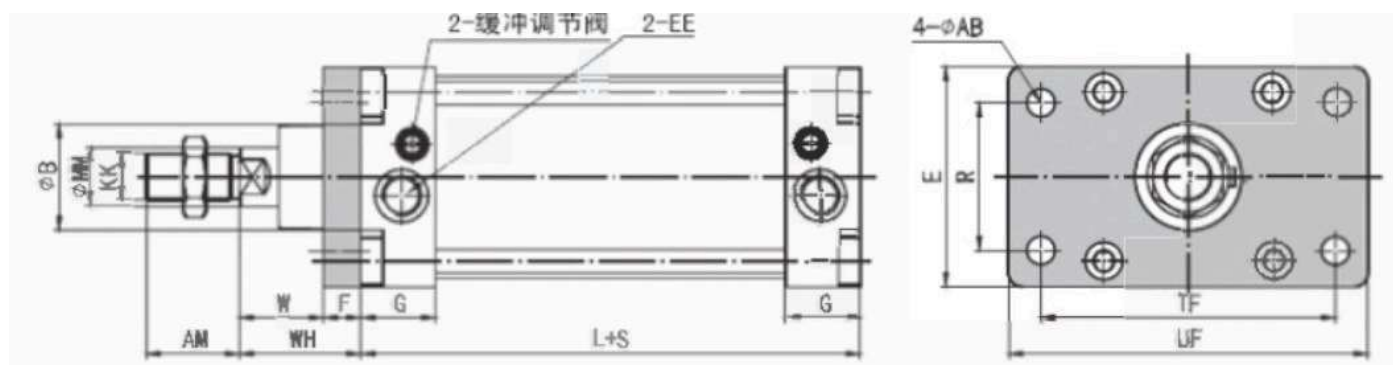


Fig. 2 — Side elevation with rod and port dimensions, and front mounting face (E, R, TF, UF, 4 × ØAB).

All dimensions in millimetres unless stated. L + S denotes body length plus stroke.

CONSTRUCTION — Ø280 TO Ø1000

No	Component	Material	Qty
1	Body	Carbon steel	1
2	Front cap	Ductile iron	1
3	End cap	Ductile iron	1
4	Nut	Carbon steel	n
5	Bolt	Carbon steel	n
6	Adjustment screw	Carbon steel	1
7	Nut	Carbon steel	1
8	Piston	Ductile iron	1
9	Stem	Alloy steel	1
10	Lock nut	Carbon steel	1

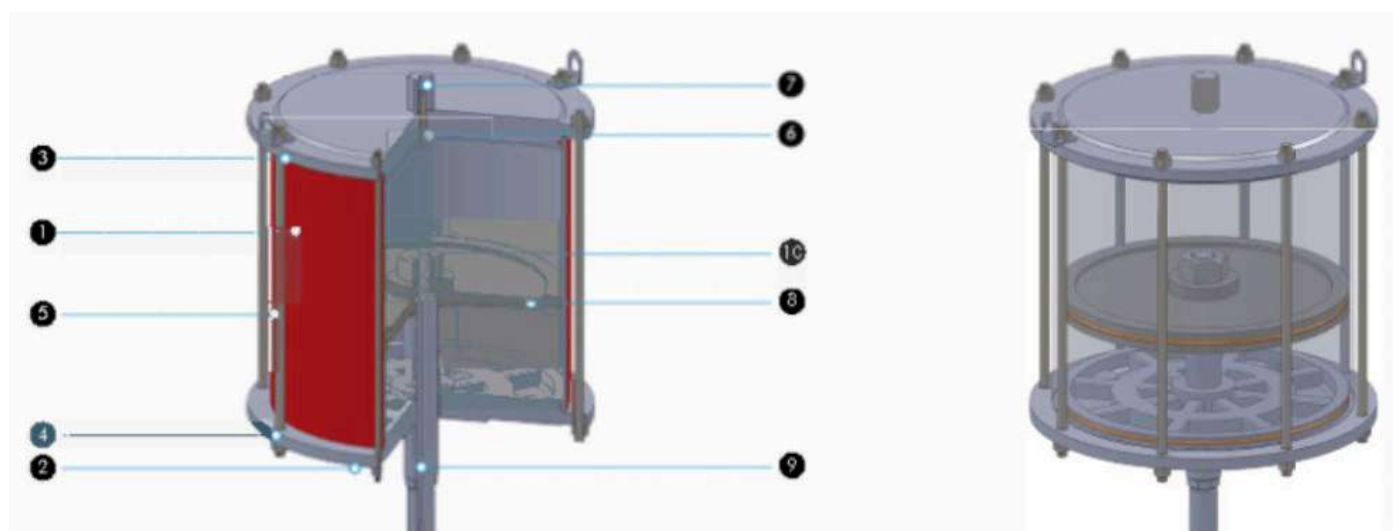


Fig. 3 — Ø280 to Ø1000 fabricated cylinder, sectioned and external views.

OUTPUT FORCE

Cylinder Ø (mm)	3 bar		3.5 bar		4 bar		4.5 bar		5 bar		5.5 bar		6 bar	
	Push	Pull	Push	Pull	Push	Pull	Push	Pull	Push	Pull	Push	Pull	Push	Pull
Ø80	1,507	1,360	1,758	1,587	2,010	1,813	2,261	2,040	2,512	2,267	2,763	2,493	3,014	2,720
Ø100	2,355	2,208	2,748	2,576	3,140	2,944	3,533	3,312	3,925	3,680	4,318	4,048	4,710	4,418
Ø125	3,680	3,439	4,293	4,012	4,906	4,585	5,520	5,158	6,133	5,731	6,746	6,304	7,359	6,877
Ø160	6,029	5,652	7,034	6,594	8,033	7,536	9,043	8,478	10,048	9,420	11,053	10,362	12,058	11,304
Ø200	9,420	9,043	10,990	10,550	12,560	12,058	14,130	13,565	15,700	15,072	17,570	16,579	18,840	18,086
Ø250	14,719	14,342	17,172	16,732	19,625	19,123	22,078	21,513	24,531	23,903	26,984	26,294	29,438	28,684
Ø280	18,463	18,086	21,540	21,101	24,618	24,115	27,695	27,130	30,772	30,144	33,849	33,158	36,926	36,173
Ø320	24,115	23,738	28,134	27,695	32,154	31,651	36,173	35,808	40,192	39,564	44,211	43,520	48,230	47,477
Ø350	28,849	28,472	33,657	33,217	38,465	37,963	43,273	42,708	48,081	47,453	52,886	52,199	57,698	56,944
Ø400	37,680	37,303	43,960	43,520	50,240	49,738	56,520	55,965	62,800	62,172	69,080	68,389	75,360	74,606
Ø450	47,689	47,100	55,637	54,850	63,585	62,800	71,533	70,650	79,481	78,500	87,429	86,350	95,378	94,200
Ø500	58,875	58,027	68,688	67,698	78,500	77,370	88,313	87,041	98,125	96,712	107,988	106,383	117,750	116,054
Ø550	73,853	73,005	86,162	85,173	98,470	97,340	110,779	109,508	123,088	121,675	135,397	133,843	147,706	146,010
Ø600	84,780	83,932	98,910	97,921	113,040	111,910	127,170	125,898	141,300	139,887	155,430	153,876	169,560	167,864
Ø630	93,470	92,622	109,048	108,059	124,627	123,496	140,205	138,933	155,783	154,370	171,362	169,807	186,940	185,244
Ø700	115,395	114,547	134,628	133,638	153,860	152,730	173,083	171,821	192,325	190,912	211,558	210,003	230,790	229,094
Ø800	150,720	149,566	178,540	174,494	200,960	199,421	226,060	224,349	251,200	249,277	276,320	274,204	301,440	299,132
Ø900	190,755	189,601	222,548	221,201	254,340	252,801	286,133	284,402	317,925	316,002	349,718	347,602	381,210	379,202

Output force in newtons at the stated air supply pressure. "Push" is the extending stroke (rod out); "pull" is the retracting stroke (rod in), reduced by the piston rod area.

SELECTION NOTES

Size on the pull stroke where the valve requires the higher seating force

Stroke length is made to order — confirm L + S with the valve stem travel

Manual, hydraulic and spring modules available on request
Ø280 and larger supplied as fabricated steel cylinders with ductile iron caps

Designs, materials and specifications shown are subject to change without notice due to our continuing program of product development. Confirm critical dimensions with Global Water Group prior to fabrication.