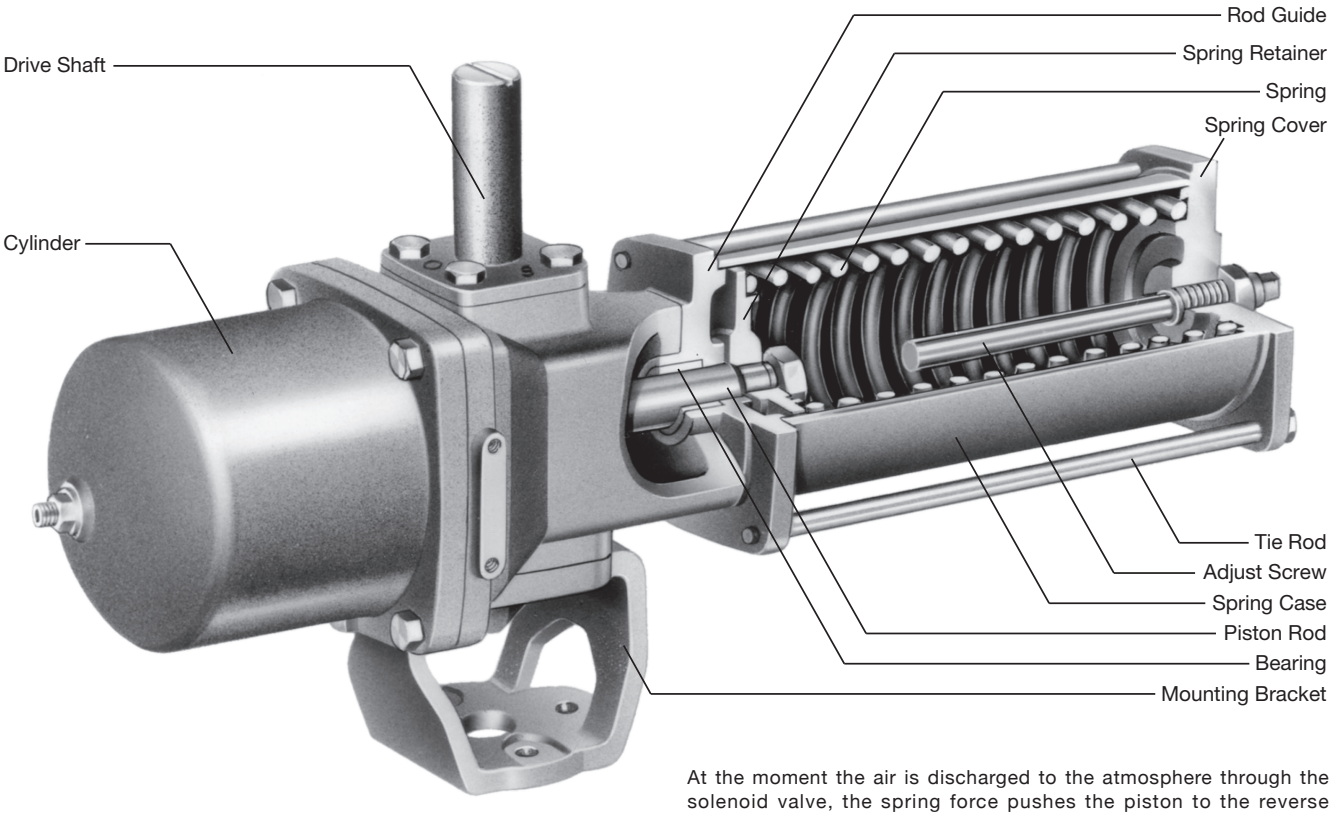
Internationally patented

Type BS (Spring-Return)
Type BSW (Spring-Return with Manual Operation Device)

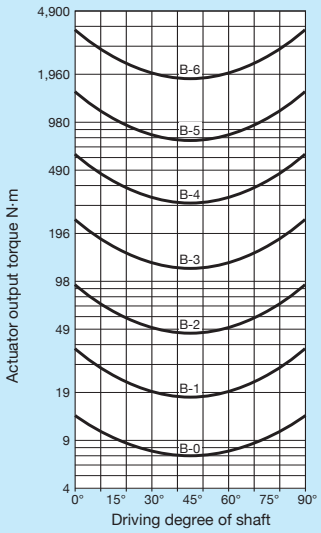


Operational Mechanism

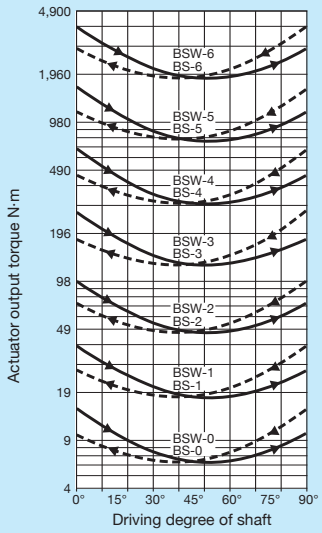
The air pressure supplied into the cylinder pushes the piston outward and energizes its movement to rotate the scotch-yoke counterclockwise, compressing the spring. The scotch-yoke converts linear movement of the piston rod to counterclockwise rotational movement of the drive shaft by 90°, to open or close the valve, following the preset mode.

At the moment the air is discharged to the atmosphere through the solenoid valve, the spring force pushes the piston to the reverse direction, and the scotch-yoke activates clockwise rotation of the shaft to reversely operate the valve. Air failure will cause the valve to return to the original open or closed position automatically, following the preset mode, unlike the valve driven by Type B actuator.
The BSW actuator is driven with the same mechanism as Type BS, but provided with a handwheel for manual operation. Please bear it in mind that the handwheel must be **factory mounted**.

Type B Actuator Output Torque



Type BS/BSW Actuator Output Torque



— Output torque when air pressure is supplied.
--- Output torque caused by spring force when air pressure is exhausted.

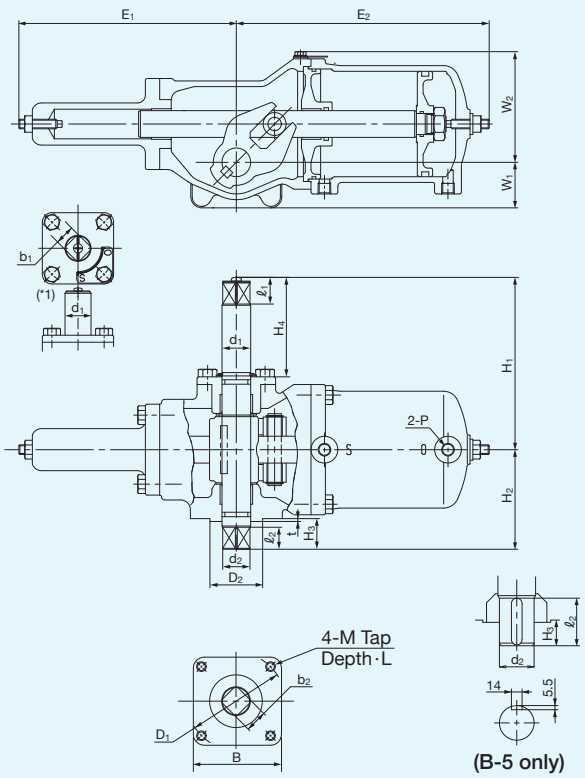
Operating pressure:
0.4 MPa

Specifications and Dimensions

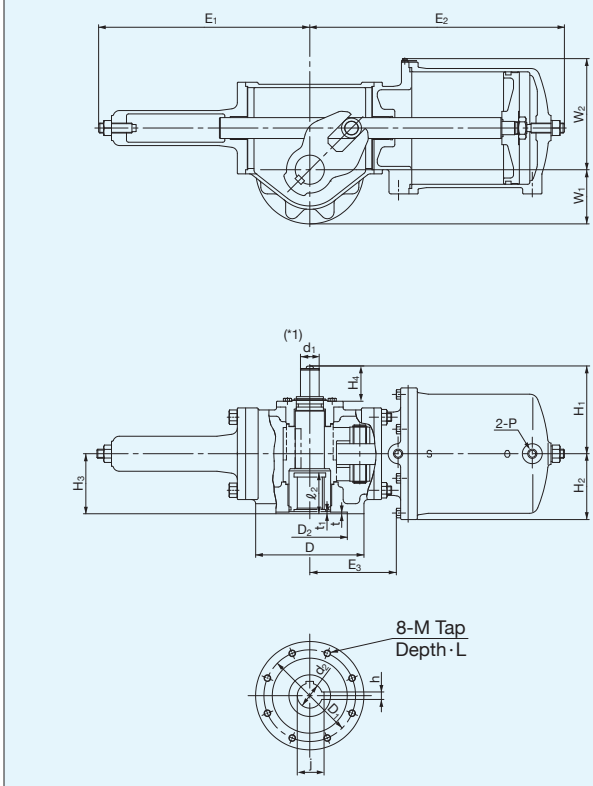
Operating media	:	Compressed instrument air
Standard operating pressure	:	0.4 MPa: factory preset pressure
Pressure supply range	:	0.3 MPa to 0.7 MPa
Output torque	:	Refer to Page 2
Standard durability	:	100,000 cycles under moderate service conditions
Housing test pressure	:	0.97 MPa
Drive shaft rotation	:	100° (when the stopper is fully relaxed)
Rotation adjustment range	:	5° at each end
Service temperature range	:	–20°C to +60°C (Supplied air should not be frozen.)
Safety Integrity Level (SIL)	:	IEC 61508-2010 SIL 2 or 3 capable

Type B (Double-Action)

Type B-0 to B-5



Type B-6



*1. The operating lever cannot be mounted on the drive shaft of Type B-5 and B-6 actuators.

Type B Actuator Dimensions

mm

Type	E_1	E_2	E_3	W_1	W_2	H_1	H_2	H_3	H_4	D	D_1	D_2	d_1	d_2	b_1	b_2	B	ℓ_1	ℓ_2	t	t_1	P	L	M	h	j
B-0	92	111	—	25	54	75	53	18	40	—	50	35	12	15	10	12	50	10	12	2	—	BSPT1/8	9	M6	—	—
B-1	128	154	—	25	81	140	60	18	94	—	50	35	16	15	12	12	50	12	12	2	—	BSPT1/4	9	M6	—	—
B-2	177	205	—	35	89	153	77	23	99	—	70	55	22	21	17	17	70	17	17	2	—	BSPT1/4	12	M8	—	—
B-3	235	272	—	48	116	180	104	32	104	—	102	70	30	28.5	23	23	95	23	23	3	—	BSPT1/4	15	M10	—	—
B-4	289	333	—	57	149	230	138	43	127	—	125	85	45	41	32	32	114	32	32	3	—	BSPT1/4	19	M12	—	—
B-5	372	428	—	81	203	225	167	34	91	—	165	130	45	46	—	—	162	63	63	3	—	BSPT1/2	32	M20	—	—
B-6	532	636	212	130	267	208	158	144	82	260	220	180	45	60	—	—	—	—	99	4	5	BSPT1/2	26	M16	18	64.4

Optional Accessories

The following optional accessories are recommended for KITZ B Series actuators.
For supply of other accessories, contact your local KITZ distributors.

Product code	Purpose	Specifications
Limit Switch **LS** Weather-proof **LS-F** Explosion-proof	For initiating electric signals to check open or close position of the valve: A separate limit switch is recommended for each of open and close indications.	**LS** AC: 10 A/125 V 10 A/250 V 10 A/480 V DC: 0.8 A/115 V 0.4 A/230 V **LS-F** AC: 5 A/125 V 5 A/250 V DC: 0.8 A/125 V 0.4 A/250 V Contact circuit: 2-Circuit double break
Solenoid Valve **SOV** Weather-proof **SOV-F** Explosion-proof	Flow switching over air flow by electric signal; 4-way solenoid valves for double-action actuators, 4-way solenoid valves for spring-return actuators, with one OUT port plugged, or 3-way solenoid valves used.	Connected pipe: BSPT1/4 Working pressure: 0~0.97 MPa Orifice diam: 6 mm Electric current: 100 V/50 Hz 100 V/60 Hz 110 V/60 Hz 200 V/50 Hz 200 V/60 Hz 220 V/60 Hz Supply source connection Weather-proof: DIN terminals or terminal boxes Explosion-proof: Electric wire pipe threading
Air Filter-Regulator **F + R** (With pressure gauge)	For removing moisture, water and other foreign objects from operating air and for regulating air pressure at a desire level.	Connected pipe: BSPT1/4, BSPT1/2 Working pressure: Max. inlet pressure; 0.97 MPa Setting pressure range: Max. outlet pressure; 0.04~0.83 MPa
Speed Controller **SP**	For reducing actuator operating speeds.	Connected pipe: BSPT1/8, BSPT1/4, BSPT1/2 Operation pressure: 0.97 MPa max.
Quick Exhaust Valve **QE**	For increasing actuator operation speed. This device can increase operation speed only when the actuator is operated by the spring. Positioners cannot be used together with a quick exhaust valves.	Connected pipe: BSPT1/4, BSPT1/2 Working pressure: 0.97 MPa max.
Valve Positioner **P** (Complete with pressure gauge)	For controlling the flow rate. A positioner can be mounted on either double-action or spring-return actuators. Operation mode, air-to-open or air-to-close, can be changed simply by reversing cam direction.	Connected pipe: BSPT1/4 (pressure gauge: BSPT1/8) Supply pressure: 0.3~0.7 MPa Signal pressure: 0.02~0.1 MPa or specified Signal Current: E/P: (input signal) 4~20 mA Air consumption: 20 Nℓ/min. max. (at supply pressure 0.5 MPa)
Silencer **K**	For reducing the air exhaust noise of solenoid valves. The device is installed at the exhaust port of a solenoid valve.	Connected pipe: BSPT1/8, BSPT1/4, BSPT1/2 Working pressure: 0.9 MPa max.
Air Filter **F**	For removing moisture, water and other foreign objects from operating air.	Connected pipe: BSPT1/4, BSPT1/2 Working pressure: 0.97 MPa max.
Pressure Equalizing Valve **C**	For equalizing the internal air pressure to the atmospheric level for manual operation of actuators.	Connected pipe: BSPT1/4 Working pressure: 1.37 MPa max.

Above specifications are KITZ standards. Different specifications are optionally available.