KITZ

NEWS

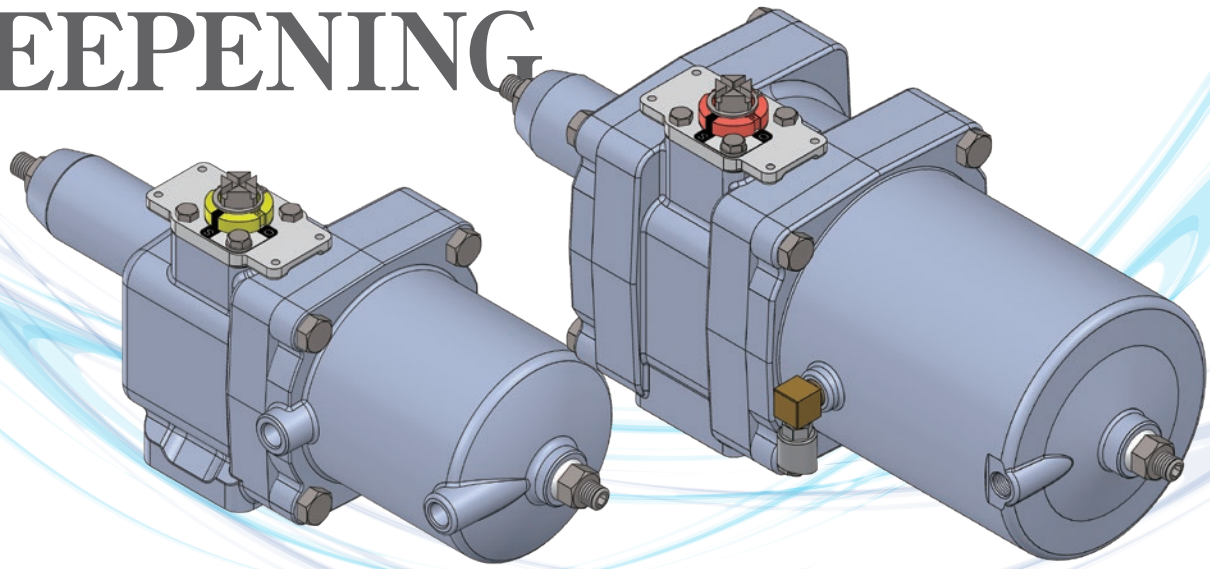
Patent and Design Pending

New Generation Pneumatic Actuator with Compact Design

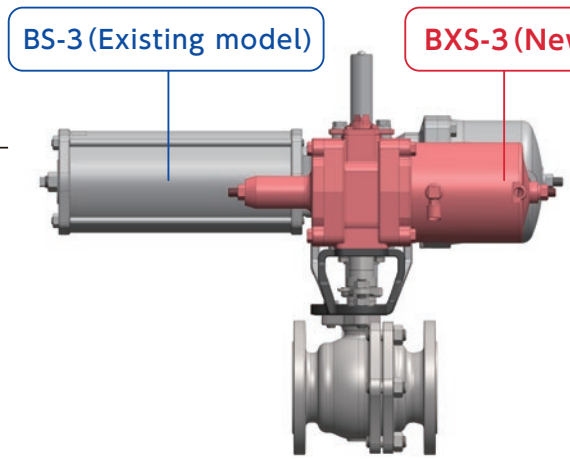
New Pneumatic Actuator

BX Series

EVOLUTION & DEEPENING



Double Acting : BX-3　　Single Acting : BXS-3



Size comparison (BS-10UTB80 vs BXS-10UTB80)※

※Not applicable to all combinations of actuators and valves as size comparison.

Features

- High durability actuator
- NAMUR standard shaft (Except size 0)
- Compact & Lightweight
- Optimal actuator sizing
- Prevent water entering from drive shaft

KITZ CORPORATION

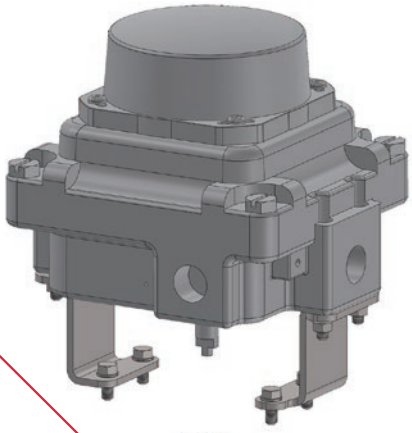
New Pneumatic Actuator BX Series

■Product Code

BXSW – 1
①　②

①Actuator type
BX　: Double acting
BXS　: Single acting (Spring return)
BXSW : Single acting with manual operator

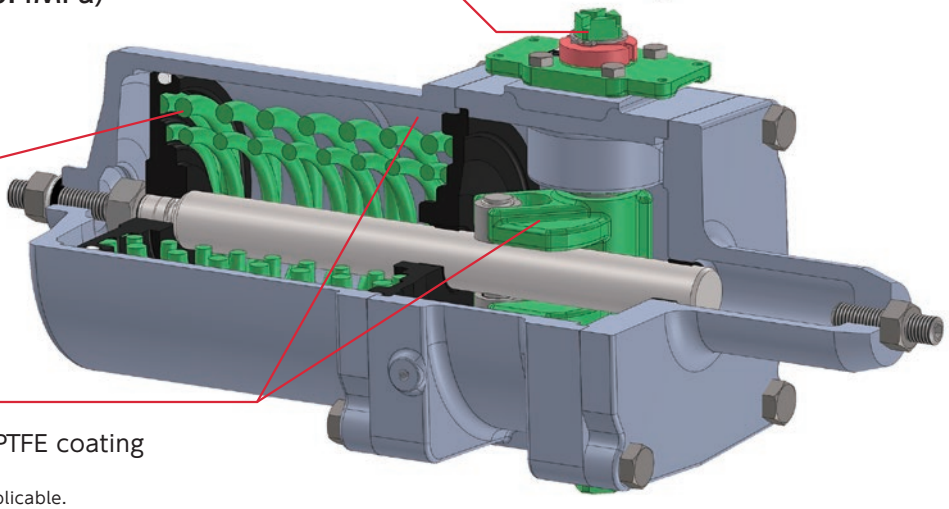
②Size
0 , 1 , 2 , 3 , 4 , 5 , 6 , 7 , 8 , 9



●NAMUR shaft ※
Compatible with switch boxes as standard

■Output Torque (Air supply : 0.4MPa)

BX　:14.0 ～ 4,047 N･m
BXS(W) :12.8 ～ 4,826 N･m



●Compact
Springs in the cylinder

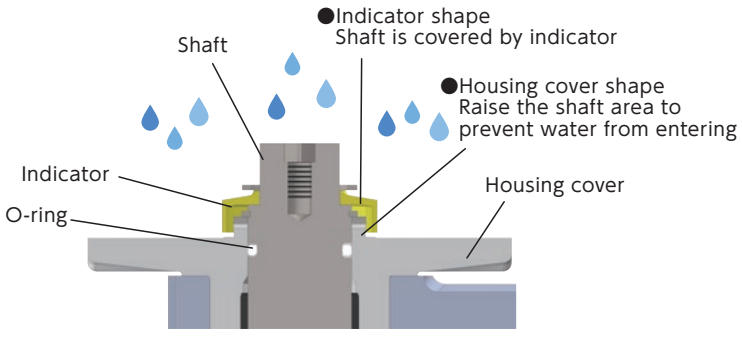
●High durability
Scotch yoke design & PTFE coating

※For BX-0, BXS-0 & BXSW-0, NAMUR shaft is not applicable.

■Features

●New design to prevent water entering from drive shaft

New structure to prevent water entering from shaft area by changing housing design & indicator design.



●High durability

Inherits the design concept of existing B series actuator for high durability. Scotch yoke design and internal coating achieve the same high durability level as B series.

Mounting bracket & connector is interchangeable from B series.※

Actuator material is gray iron & ductile iron and various kinds of painting is available.

※ Some sizes might be different from B series. Please ask us for details.

●NAMUR standard shaft

NAMUR standard switch box can be installed directly. Conventional limit switch, proximity switch or positioner also can be installed. More instrumentation selections are available.

※ Solenoid valve mounting is not applicable.

●Compact & Lightweight

Install springs into the cylinder to achieve compact design for single acting actuator. Reduce weight maximum 43% & volume maximum 64% compared with existing BS actuator.

●Optimal actuator sizing

Optimized actuator sizing by reviewing size range. The size range has been subdivided from 7 to 10 sizes, making it possible to select suitable actuator.

■Standard Specifications

Specifications \ Series	BX Series									
	0	1	2	3	4	5	6	7	8	9
Port size (Double) / (Single)	Rc1/8	Rc 1/4					Rc 1/2			
STD operating press.	0.4MPa									
Press. supply range	0.3 MPa～0.7 MPa									
Cylinder test press.	0.97MPa									
Mounting flange (ISO5211)	F05		F07		F10	F12	F16			KITZ original
Connection	Male shaft (4-square)									
Drive shaft rotation	90° ±5°									
Service temp. range	−20℃～+80℃									
Stem top design	N/A	NAMUR standard								
O-ring	NBR (Hardness : 70)									
Internal coating	PTFE coating									
External painting	Silver									

■ Actuator Sizing

- The operating torque of valve varies according to fluid conditions such as pressure, temperature, velocity, viscosity and density. Classified into A, B or C. according to the fluid conditions, and the size of the actuator can be checked at the selection table below.
- Service temperature range is -20℃ to +80℃.
- Standard material of O-ring in the actuator is NBR.
- Contact us for conditions listed below
  - ·Fluid flow rate and fluid velocity is extremely high.
  - ·Operational interval exceeds 3 months.
  - ·Operation pressure other than 0.4MPa.
  - ·Fluid pressure exceeds 2.5MPa.
  - ·Ball seat marerial is not standard.

Fluid Condition

Fluids \ Service Conditions	Light Load Service	Heavy Load Service
Water	Clean: A	Including rust, scale and ash: B
Air, steam and gases	Up to 0.7 MPa: A	Over 0.7 MPa: B
Highly viscous fluid	10000cP or less: A	50000cP or less: B
Kerosene, naphtha, alcohol, and other solvents	—	50000cP or less: B
Oil-free service	—	50000cP or less: B
Slurry and other liquids containing foreign objects	—	Up to 1.0 MPa: C*
Service temperature: Fluids temperature	See valve seat rating of “Ball Valves Catalog” (E-201)	

Contact us for fluids other than the above.
*Contact us for extremely heavy load service (powder, slurry, dehydrated cake, etc.) or fluids easy to solidify or polymerize.

BX series

BX-TB

Size TB	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A
Size TR	—	—	—	—	50A	65A	80A	100A	125A	150A	200A	250A	300A
Service condition	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C
Service pressure (MPa) 0.5													BX-8
1.0									BX-4				BX-8
1.5	BX-0				BX-2		BX-3			BX-5	BX-6	BX-7	
2.0				BX-1									BX-9
2.5													

BX-TDZ

Size TDZ	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A
Service condition	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C
Service pressure (MPa) 0.5													
1.0									BX-4			BX-7	
1.5	BX-0		BX-1		BX-2			BX-3		BX-5	BX-6		
2.0												BX-8	BX-9
2.5													

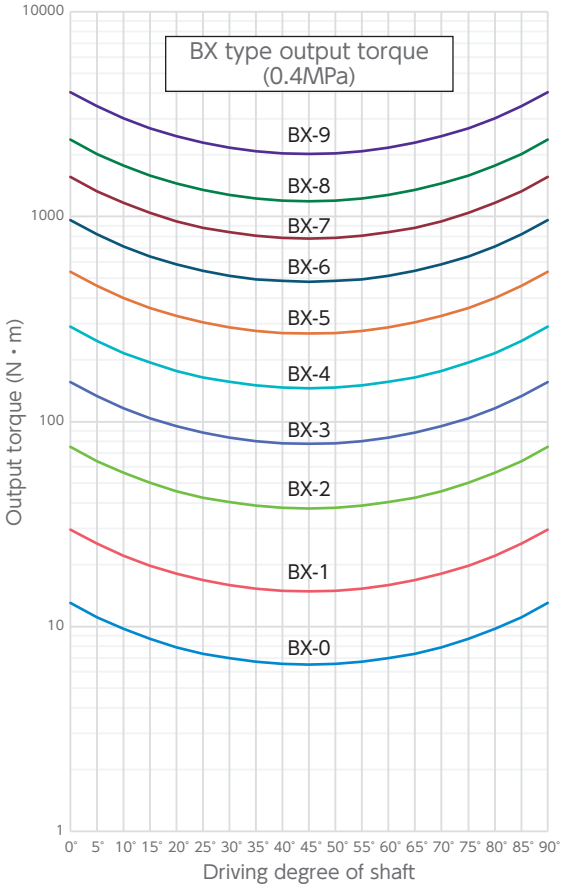
BX-TB4TA/4LA

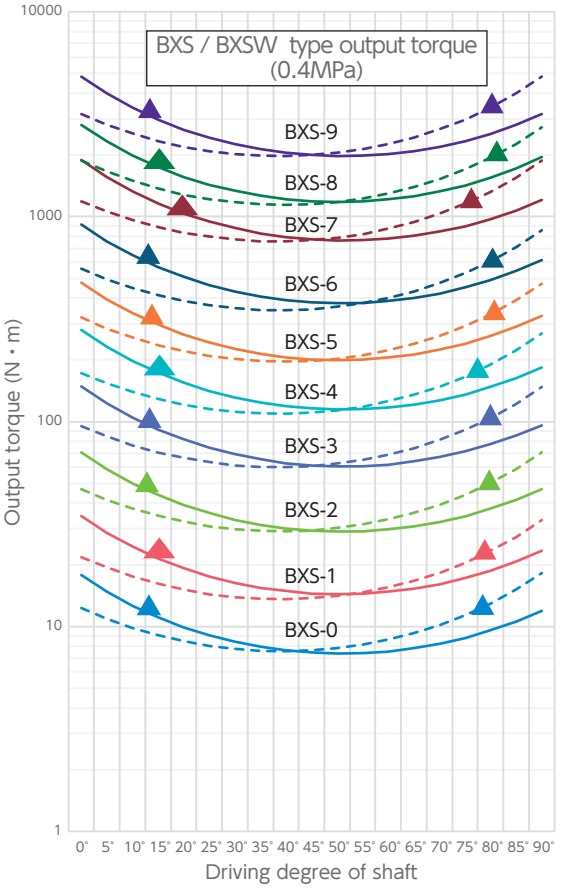
Size 3-way valve	15A	20A	25A	40A	50A	65A	80A	100A	125A	150A
Service condition	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C
Service pressure (MPa) 0.5										
1.0	BX-1		BX-2	BX-3	BX-4	BX-5		BX-6	BX-7	BX-8
1.5										

BX-UVC

Size UVC	25A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A	350A
Service condition	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C
Service pressure (MPa) 0.5	BX-1											
1.0		BX-2		BX-3	BX-4	BX-5		BX-6	BX-7	BX-8		BX-9
1.5												

■ 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

BXS series

BXS-TB

Size	TB	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A
	TR	—	—	—	—	50A	65A	80A	100A	125A	150A	200A	250A	300A
Service condition		A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C
Service pressure (MPa)	0.5													BXS-8
	1.0					BXS-2					BXS-5	BXS-6		
	1.5		BXS-0					BXS-3	BXS-4				BXS-7	
	2.0													BXS-9
	2.5				BXS-1									

BXS-TDZ

Size	TDZ	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A
Service condition		A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C
Service pressure (MPa)	0.5													BXS-8
	1.0										BXS-5	BXS-6		
	1.5	BXS-0		BXS-1		BXS-2		BXS-3					BXS-7	
	2.0								BXS-4					BXS-9
	2.5													

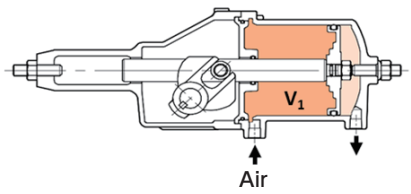
BXS-TB4TA/4LA

Size	3-way valve	15A	20A	25A	40A	50A	65A	80A	100A	125A	150A
Service condition		A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C
Service pressure (MPa)	0.5					BXS-4 BXS-5			BXS-6		BXS-8
	1.0	BXS-1		BXS-2	BXS-3					BXS-7	
	1.5										

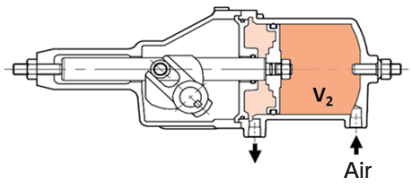
BXS-UVC

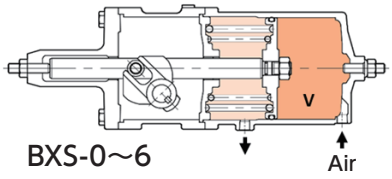
Size	UVC	25A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A	350A
Service condition		A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C	A B C
Service pressure (MPa)	0.5	BXS-1										BXS-8	
	1.0		BXS-2			BXS-4				BXS-7			BXS-9
	1.5			BXS-3			BXS-5	BXS-6					

■ Cylinder Volume

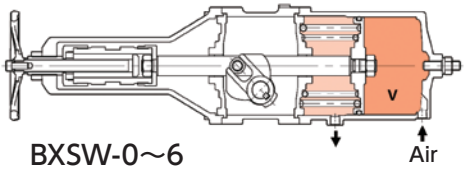


BX-0～9

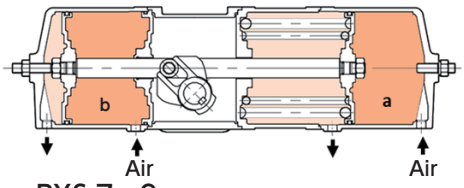




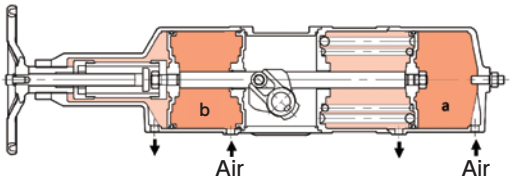
BXS-0～6



BXSW-0～6



BXS-7～9



BXSW-7～9

(L)

Type \ Cylinder	V1	V2
BX-0	0.05	0.07
BX-1	0.13	0.13
BX-2	0.33	0.32
BX-3	0.65	0.61
BX-4	1.25	1.15
BX-5	2.38	2.13
BX-6	4.28	3.86
BX-7	6.71	5.79
BX-8	9.61	8.74
BX-9	16.72	14.97

(L)

Type \ Cylinder	V
BXS-0、BXSW-0	0.15
BXS-1、BXSW-1	0.24
BXS-2、BXSW-2	0.48
BXS-3、BXSW-3	0.94
BXS-4、BXSW-4	1.79
BXS-5、BXSW-5	3.01
BXS-6、BXSW-6	5.48
BXS-7、BXSW-7※	12.55
BXS-8、BXSW-8※	18.35
BXS-9、BXSW-9※	31.69

※ BXS-7～9、BXSW-7～9 : Double cylinder type
※ Cylinder volume of BXS-7～9、BXSW-7～9 : a + b

■Air Supply Requirement (Flow Rate)

Actuators should be supplied with the air, sufficient to operate the valve through a full stroke from the open to closed position and vice versa in “t” seconds, as converted into flow rate per minute. The required air volume “Q” is calculated as follows.

$$Q = V\left(\frac{P+0.1013}{0.1013}\right) \times \frac{60}{t} (N\ell/min.)$$

Q= Air supply requirement per minute (Nℓ/min.)
V= Cylinder volume (liters)
V_1 or V_2, whichever larger, for Type BX actuators
P= Supply pressure (MPaG)
t = Time required per stroke (seconds)

All accessories to be mounted on the actuator such as solenoid valves, air filters, regulators, and air supply pipes, should have sufficient capacity to accommodate air flow rate (Q) calculated here.

■Air Consumption

Air consumption means the volume of air discharged into the atmosphere from actuator operation “n” cycles (double strokes) per hour as converted into volumes per minute. The value is calculated as follows.

Type BX actuator:

$$Q = (V_1+V_2)\left(\frac{P+0.1013}{0.1013}\right) n \times \frac{1}{60} (N\ell/min.)$$

Type BXS or BXSW actuator:

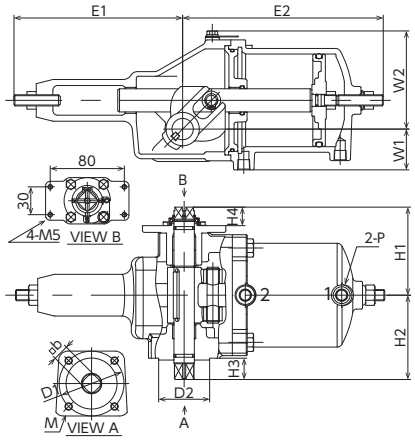
$$Q = V\left(\frac{P+0.1013}{0.1013}\right) n \times \frac{1}{60} (N\ell/min.)$$

For selecting compressors and air reservoirs for these actuators, determine the capacities based on the air consumption values obtained from the above calculations, adding an extra 30% as allowance for possible loss of air caused by solenoid valves, accessories, piping, etc.

NEWS

● Dimensions

BX type

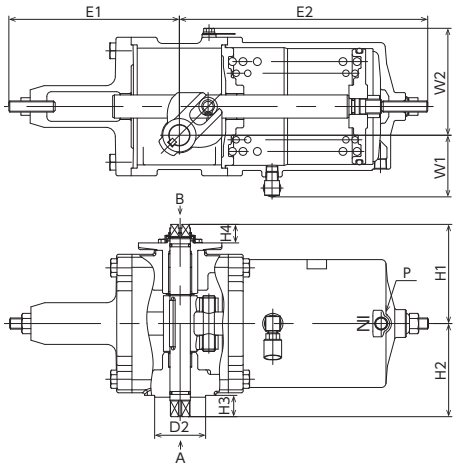


■ BX type

Unit:mm

Type	E1	E2	W1	W2	H1	H2	H3	H4	D1	D2	□b	M	P
BX-0	89	108	25	54	75	53	18	40	50	35	12	M6	Rc1/8
BX-1	115	140	36	68	69	60	18	20	50	35	12	M6	Rc1/4
BX-2	146	177	39	87	84	80	23	20	70	55	17	M8	Rc1/4
BX-3	182	217	44	106	95	91	23	20	70	55	17	M8	Rc1/4
BX-4	228	271	48	124	124	117	32	30	102	70	23	M10	Rc1/4
BX-5	265	315	67	151	138	148	43	30	125	85	32	M12	Rc1/4
BX-6	306	364	81	179	158	160	37	30	165	130	44	M20	Rc1/2
BX-7	315	377	81	190	167	167	37	30	165	130	44	M20	Rc1/2
BX-8	393	462	81	217	178	180	39	30	165	130	44	M20	Rc1/2
BX-9	444	526	130	255	202	219	51	30	220	130	55	M16	Rc1/2

BXS type

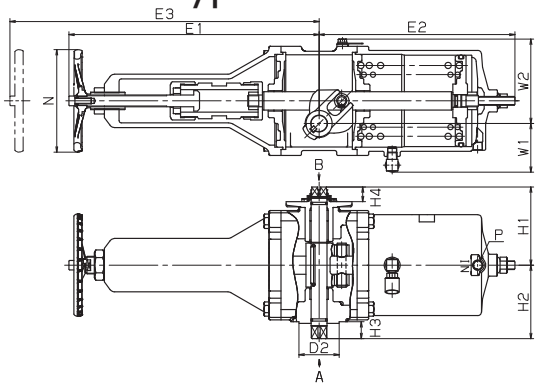


■ BXS type

Unit:mm

Type	E1	E2	W1	W2	H1	H2	H3	H4	D1	D2	□b	M	P
BXS-0	96	152	54	66	86	65	18	40	50	35	12	M6	Rc1/8
BXS-1	118	176	57	75	80	70	18	20	50	35	12	M6	Rc1/4
BXS-2	146	217	61	94	93	88	23	20	70	55	17	M8	Rc1/4
BXS-3	184	268	66	115	107	101	23	20	70	55	17	M8	Rc1/4
BXS-4	230	333	75	133	127	128	32	30	102	70	23	M10	Rc1/4
BXS-5	267	392	90	157	143	154	43	30	125	85	32	M12	Rc1/4
BXS-6	310	470	104	190	167	167	37	30	165	130	44	M20	Rc1/2
BXS-7	377	539	129	190	167	167	37	30	165	130	44	M20	Rc1/2×2
BXS-8	463	705	126	217	178	178	39	30	165	130	44	M20	Rc1/2×2
BXS-9	526	826	138	255	202	219	51	30	220	180	55	M16	Rc1/2×2

BXSW type



■ BXSW type

Unit:mm

Type	E1	E2	E3	W1	W2	H1	H2	H3	H4	D1	D2	□b	M	N	P
BXSW-0	188	152	228	54	66	86	65	18	40	50	35	12	M6	90	Rc1/8
BXSW-1	230	176	279	57	75	80	70	18	20	50	35	12	M6	90	Rc1/4
BXSW-2	272	217	336	61	94	93	88	23	20	70	55	17	M8	100	Rc1/4
BXSW-3	342	268	422	66	115	107	101	23	20	70	55	17	M8	140	Rc1/4
BXSW-4	414	333	511	75	133	127	128	32	30	102	70	23	M10	200	Rc1/4
BXSW-5	501	392	618	90	157	143	154	43	30	125	85	32	M12	310	Rc1/4
BXSW-6	563	470	700	104	190	167	167	37	30	165	130	44	M20	310	Rc1/2
BXSW-7	665	539	803	129	190	167	167	37	30	165	130	44	M20	360	Rc1/2×2
BXSW-8	812	705	987	126	217	178	178	39	30	165	130	44	M20	500	Rc1/2×2
BXSW-9	907	826	1116	138	255	202	219	51	30	220	180	55	M16	500	Rc1/2×2

※ BXS-7～9、BXSW-7～9 : Double cylinder type
※ Diagram is representative. The actual configuration may differ.
※ For detailed dimensions, please contact us

ISO 9001 certified since 1989
KITZ
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