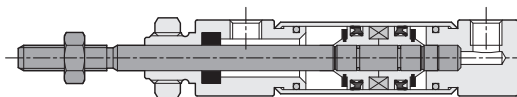


SBA series - Pen cylinder

Operating specification and Ordering expression

CHELIC PNEUMATIC

Internal structure



Specification

Unit : mm

Item	Bore size	Ø6	Ø10	Ø16
Operation		Double / Single acting		
Fluid		Air		
Mounting type		FA, LB, CA, Y, I		
Min. operating pressure	kgf/cm ² (kpa)	0.12 MPa	0.06 MPa	
Max. operating pressure	kgf/cm ² (kpa)	7 (700)		
Operating ambient temperature range	°C	- 10°C ~ + 60°C		
Range of service speed	mm/sec	50 ~ 700		
Lubrication		Lubrication free		
Port size		M5 x 0.8		
Sensing device		With magnet		

Standard stroke

Unit : mm

Bore size	Stroke for double acting	Stroke for single acting
Ø6	15、30、45、60	15、30、45、60
Ø10	15、30、45、60、75、100、125、150	15、30、45、60
Ø16	15、30、45、60、75、100、125、150、175、200	15、30、45、60

How to order

SBA — **10** × **30** — **SA 2** — **FA**

Model Bore size Stroke Sensor switch Mounting type

SBA : Double acting standard type

SBB : Double acting standard type

SBD : Double acting and rod type

SBR : Double acting type (Air supply from empennage)

SBAI : Single acting (Normal in)

SBRi : Single acting (Normal in and air supply from empennage)

SBBi : Single acting (Normal in)

SBRO : Single acting (Normal out and air supply from empennage)

SBBO : Single acting (Normal out)

CS-120 **SA 2**

None: Without sensor switch
SA : Sensor switch code (CS-120)
2 : Number of sensor switch (Suitable for : Ø6 - Ø10)

CS-130 **SB 2**

None: Without sensor switch
SB : Sensor switch code (CS-130)
2 : Number of sensor switch
 1 = 1 PCS
 2 = 2 PCS
 (Suitable for : Ø16)

FA : Front flange mounting

LB : Foot mounting

CA : Single clevis Suitable for : SBB

Y : Y Joint

I : I Joint

SBA
Pen
Cylinder

SDA
Miniature
cylinder

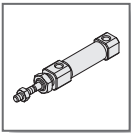
SDX
Miniature
cylinder

DBS2
Block
cylinder

DBF2
Block
cylinder

DBT
Block
cylinder

FDA
Miniature
Cylinder



SBA series - Pen cylinder

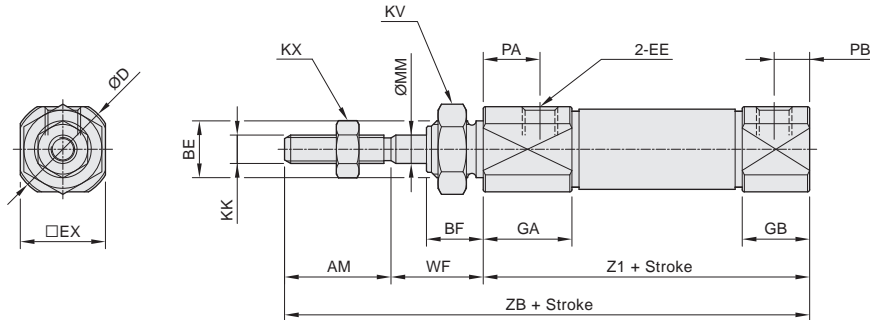
External dimension

CHELIC PNEUMATIC

Double acting (Standard) - SBA



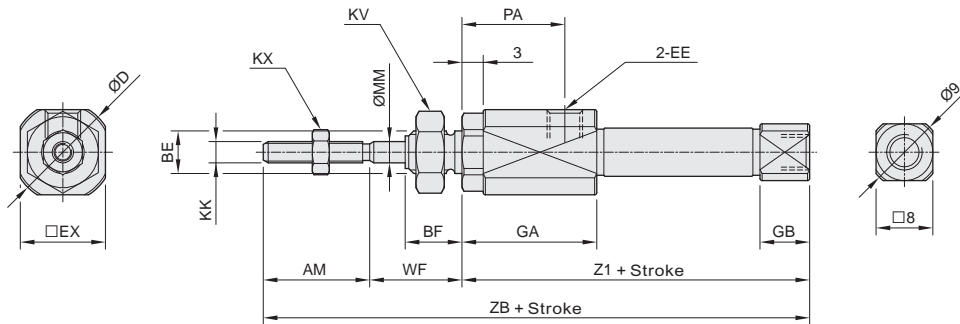
● SBA Ø10、Ø16



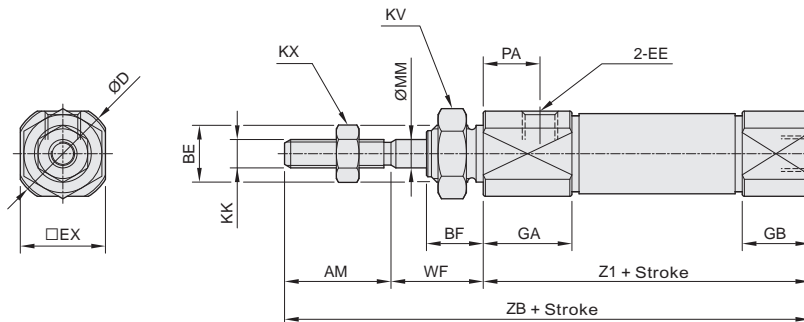
Double acting type (Air supply from empennage) - SBR



● SBR Ø6

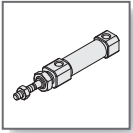


● SBR Ø10、Ø16



Dimension

Bore size (mm)	AM	BE	BF	D	EE	EX	GA	GB	KK	KV	KX	MM	PA	PB	WF	Z1	ZB
Ø6	15	M6x1.0P	8	14	M5x0.8P	12	19	7	M3x0.5P	8	5.5	3	14.5	-	13	49	77
Ø10	15	M8x1.0P	8	14	M5x0.8P	12	12.5	9.5	M4x0.7P	13	7	4	8	5	13	46	74
Ø16	15	M10x1.0P	8	20	M5x0.8P	18	12.5	9.5	M5x0.8P	15	8	5	8	5	13	47	75



SBA series - Pen cylinder

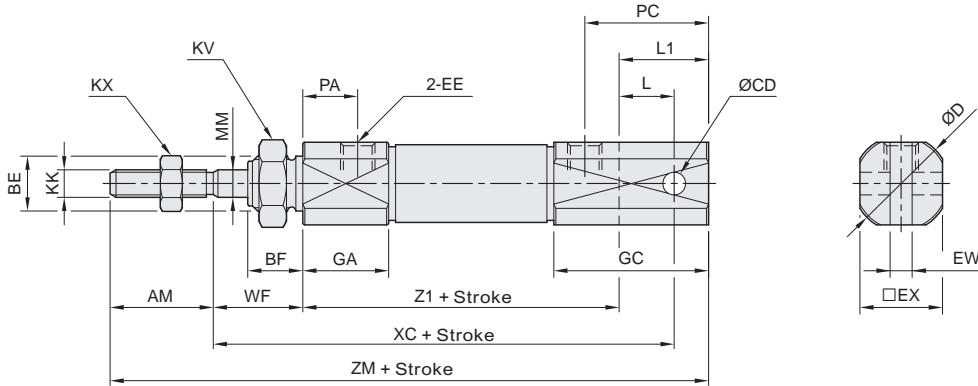
External dimension - SBB - SBD

CHELIC PNEUMATIC

Double acting (Standard) - SBB



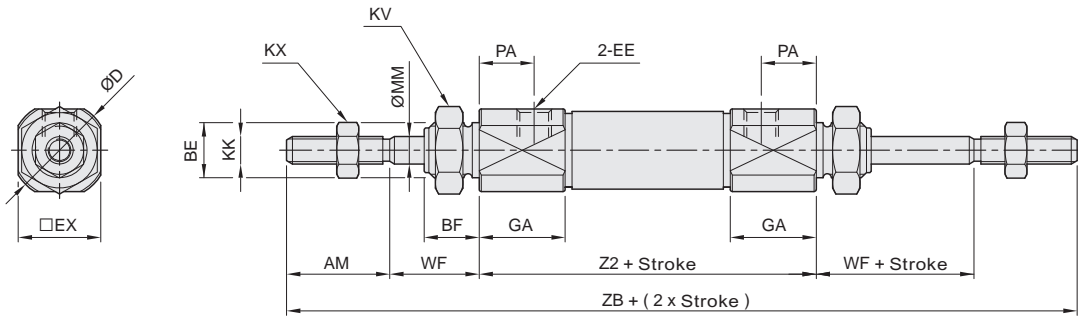
● SBB Ø10、Ø16



Double acting and Rod type - SBD



● SBD Ø10、Ø16



SBA
Pen
Cylinder

SDA
Miniature
cylinder

SDX
Miniature
cylinder

DBS2
Block
cylinder

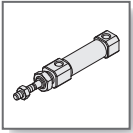
DBF2
Block
cylinder

DBT
Block
cylinder

FDA
Miniature
Cylinder

Dimension

Bore size (mm)	AM	BE	BF	CD	D	EE	EX	EW	GA	GC	KK	KV	KX	L	L1	MM	PA	PC	WF	XC	Z1	Z2	ZB	ZM
Ø10	15	M8x1.0P	8	3.3	14	M5x0.8P	12	3.2	12.5	22.5	M4x0.7P	13	7	8	13	4	8	18	13	67	46	49	105	87
Ø16	15	M10x1.0P	8	5	20	M5x0.8P	18	6.5	12.5	27.5	M5x0.8P	15	8	10	18	5	8	23	13	70	47	50	106	93

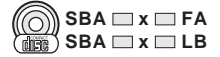


SBA series - Pen cylinder

Accessory bracket dimensions-double acting (Standard)
and double acting type (Air supply from empennage)

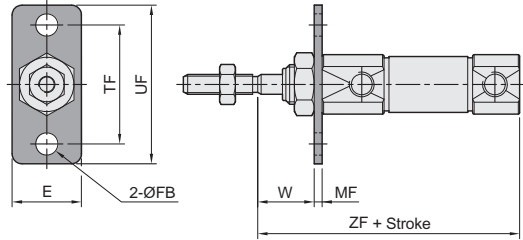
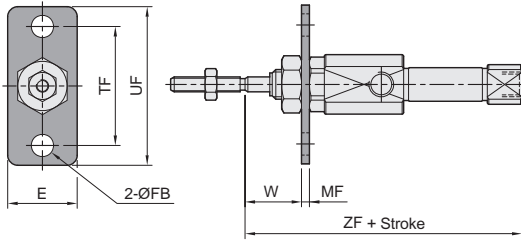
CHELIC PNEUMATIC

Flange mounting type — FA



● SBR Ø6

● SBA, SBR Ø10、Ø16

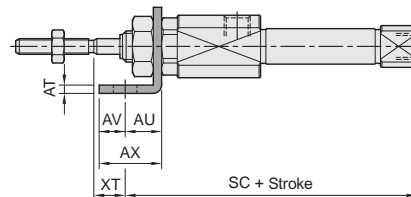
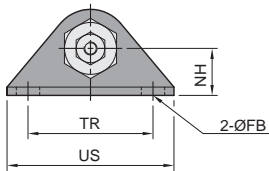


Dimension

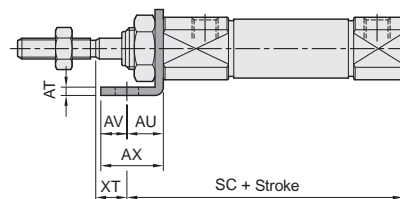
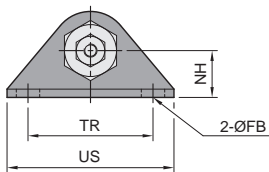
Bore size (mm)	E	FB	MF	TF	UF	W	ZF
Ø6	14	4.5	1.6	24	32	11.4	62
Ø10	14	4.5	1.6	24	32	11.4	59
Ø16	20	5.5	2.3	33	42	10.7	60

Foot mounting type — LB

● SBR Ø6

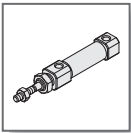


● SBA, SBR Ø10、Ø16



Dimension

Bore size (mm)	AT	AU	AV	AX	FB	NH	SC	TR	US	XT
Ø6	1.6	7	5	12	4.5	9	56	24	32	6
Ø10	1.6	7	5	12	4.5	9	53	24	32	6
Ø16	2.3	9	6	15	5.5	14	56	33	42	4



SBA series - Pen cylinder

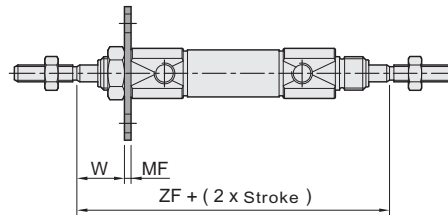
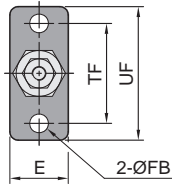
Accessory dimension - Double acting and Rod type

CHELIC PNEUMATIC

Flange mounting type — FA



● SBD Ø10、Ø16

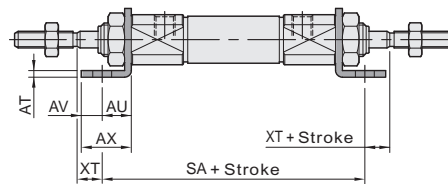
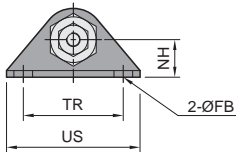


Dimension

Bore size (mm)	E	FB	MF	TF	UF	W	ZF
Ø10	14	4.5	1.6	24	32	11.4	75
Ø16	20	5.5	2.3	33	42	10.7	76

Foot mounting type — LB

● SBD Ø10、Ø16



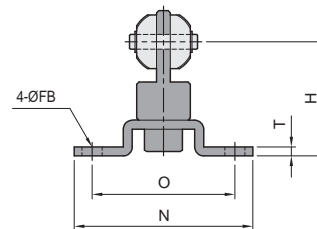
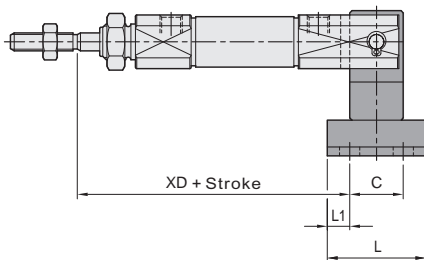
Dimension

Bore size (mm)	AT	AU	AV	AX	FB	NH	SA	TR	US	XT
Ø10	1.6	7	5	12	4.5	9	63	24	32	6
Ø16	2.3	9	6	15	5.5	14	68	33	42	4

T type mounting — CA



● SBB Ø10、Ø16



Dimension

Bore size (mm)	C	FB	H	L	L1	N	O	T	XD
Ø10	12	4.5	29	22	5	40	32	2	61
Ø16	16	5.5	35	28	6	48	38	2.3	62

SBA
Pen
Cylinder

SDA
Miniature
cylinder

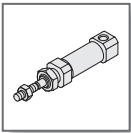
SDX
Miniature
cylinder

DBS2
Block
cylinder

DBF2
Block
cylinder

DBT
Block
cylinder

FDA
Miniature
Cylinder



SBAI series - Pen cylinder (Single acting - Normal in)

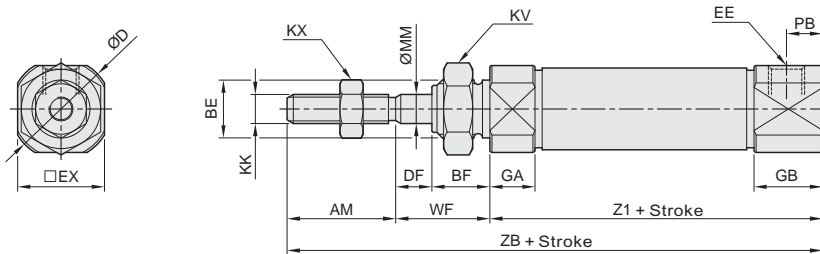
External dimension - SBAI \ SBRI

CHELIC PNEUMATIC

Single acting - Normal in — SBAI



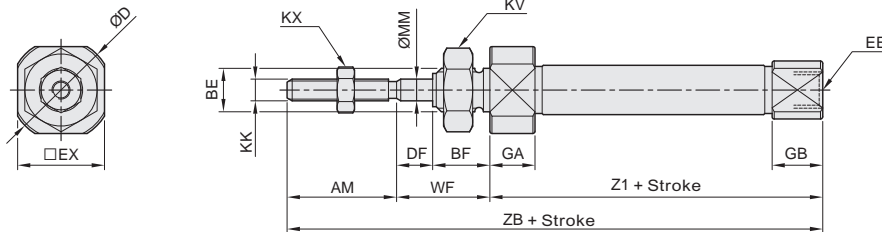
● SBAI Ø10 \ Ø16



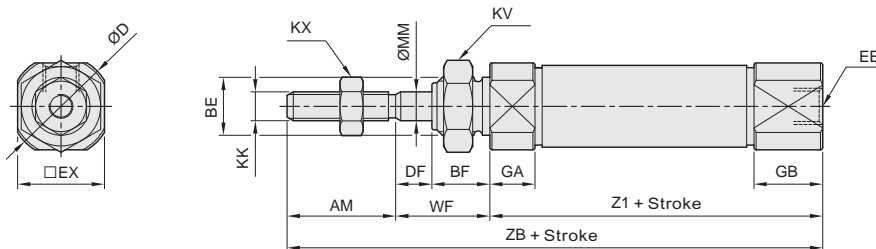
Single acting - Normal out and Air supply from empennage — SBRI



● SBRI Ø6

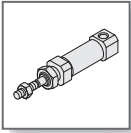


● SBRI Ø10 \ Ø16



Dimension

Bore size (mm)	AM	BE	BF	D	DF	EE	EX	GA	GB	KK	KV	KX	MM	PB	WF	5~15st		16~30st		31~45st		46~60st	
																Z1	ZB	Z1	ZB	Z1	ZB	Z1	ZB
Ø6	15	M6x1.0P	8	9	5	M5x0.8P	8	3	7	M3x0.5P	8	5.5	3	—	13	39.5	67.5	48.5	76.5	52.5	80.5	66.5	94.5
Ø10	15	M8x1.0P	8	14	5	M5x0.8P	12	5.5	9.5	M4x0.7P	13	7	4	5	13	45.5	73.5	53	81	65	93	77	105
Ø16	15	M10x1.0P	8	20	5	M5x0.8P	18	5.5	9.5	M5x0.8P	15	8	5	5	13	45.5	73.5	54	82	65	94	78	106



SBAI series - Pen cylinder (Single acting - Normal in)

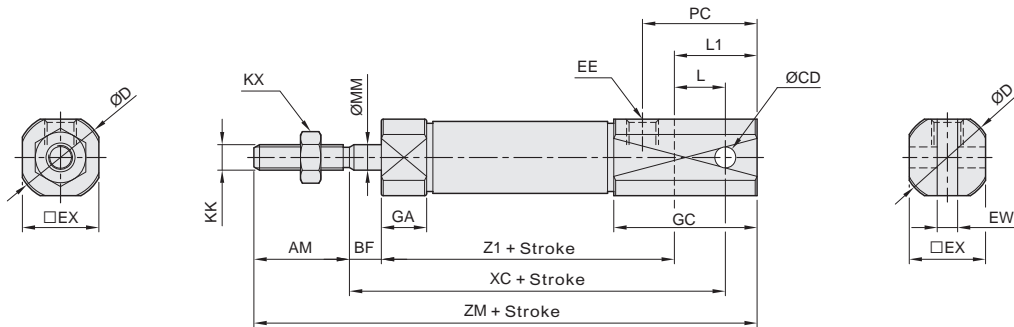
External dimension - SBBI

CHELIC PNEUMATIC

Single acting - Normal in – SBBI



● SBBI Ø10 \ Ø16



Dimension

Bore size (mm)	AM	BF	CD	D	EE	EW	EX	GA	GC	KK	KX	MM	PC	L	L1	5-15st			16-30st			31-45st			46-60st		
																XC	Z1	ZM	XC	Z1	ZM	XC	Z1	ZM	XC	Z1	ZM
Ø10	15	5	3.3	14	M5x0.8P	3.2	12	5.5	22.5	M4x0.7P	7	4	18	8	13	58.5	45.5	78.5	66	53	86	78	65	98	90	77	110
Ø16	15	5	5	20	M5x0.8P	6.5	18	5.5	27.5	M5x0.8P	8	5	23	10	18	60.5	45.5	83.5	69	54	92	81	66	104	93	78	116

SBA
Pen
Cylinder

SDA
Miniature
cylinder

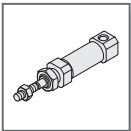
SDX
Miniature
cylinder

DBS2
Block
cylinder

DBF2
Block
cylinder

DBT
Block
cylinder

FDA
Miniature
Cylinder



SBAI series - Pen cylinder (Single acting - Normal in)

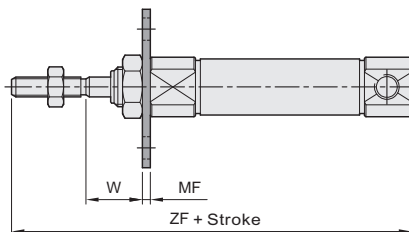
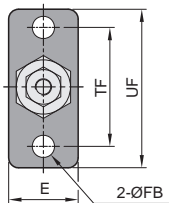
Accessory bracket dimensions - double acting type (Air supply from empennage)

CHELIC PNEUMATIC

Flange mounting type — FA



● SBAI, SBRI Ø6 ~ Ø16

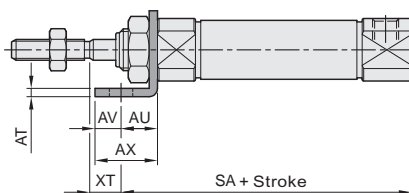
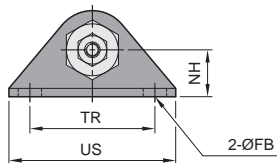


Dimension

Bore size (mm)	E	FB	MF	TF	UF	W	5-15st	16-30st	31-45st	46-60st
							ZF	ZF	ZF	ZF
Ø6	14	4.5	1.6	24	32	11.4	67.5	76.5	80.5	94.5
Ø10	14	4.5	1.6	24	32	11.4	73.5	81	93	105
Ø16	20	5.5	2.3	33	42	10.7	73.5	82	94	106

Foot mounting type — LB

● SBAI, SBRI Ø6 ~ Ø16

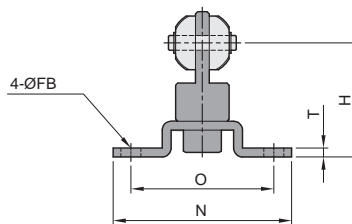
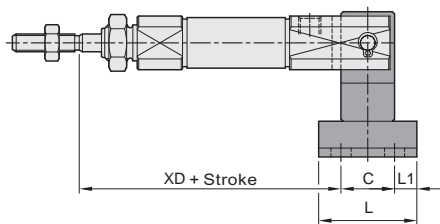


Dimension

Bore size (mm)	AT	AU	AV	AX	FB	NH	TR	US	XT	5-15st	16-30st	31-45st	46-60st
										SA	SA	SA	SA
Ø6	1.6	7	5	12	4.5	9	24	32	6	46.5	55.5	59.5	73.5
Ø10	1.6	7	5	12	4.5	9	24	32	6	52.5	60	72	84
Ø16	2.3	9	6	15	5.5	14	33	42	4	54.5	63	75	87

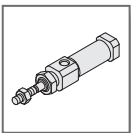
T type mounting — CA

● SBBI Ø10、Ø16



Dimension

Bore size (mm)	C	FB	H	L	L1	N	O	T	5-15st	16-30st	31-45st	46-60st
									XD	XD	XD	XD
Ø10	12	4.5	29	22	5	40	32	2	52.5	60	72	84
Ø16	16	5.5	35	28	6	48	38	2.3	52.5	61	73	85



SBRO series - Pen cylinder (Single acting - Normal out)

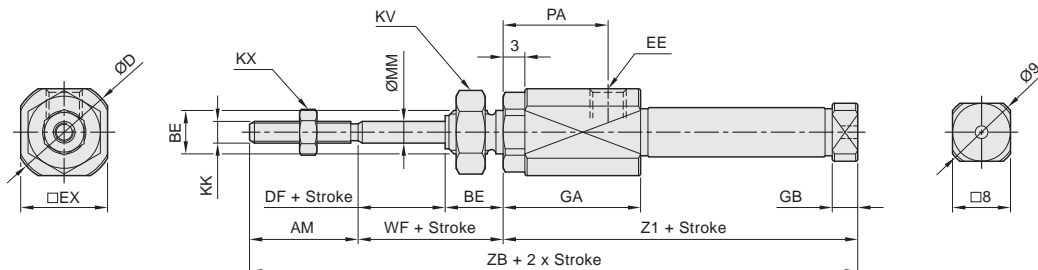
External dimension - SBRO 、 SBBO

CHELIC PNEUMATIC

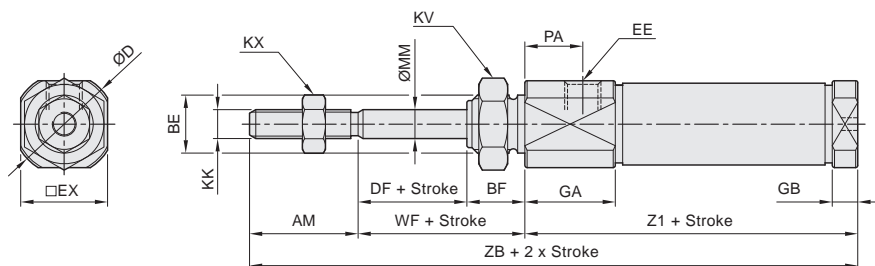
Single acting - Normal out — SBRO



SBRO Ø6



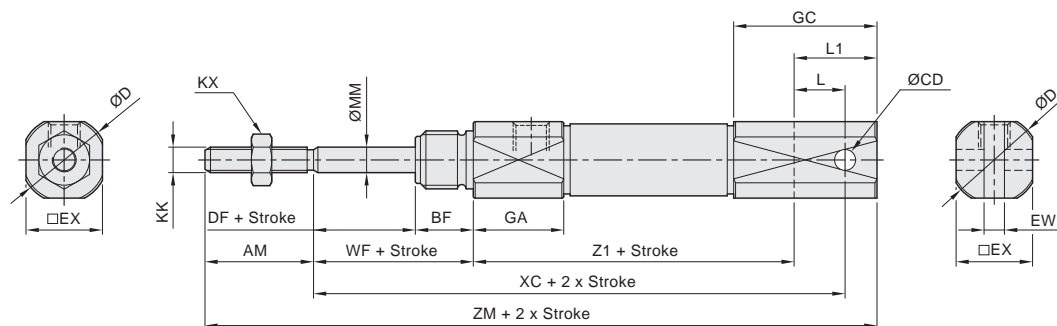
SBRO Ø10 、 Ø16



Single acting - Normal out — SBBO



SBBO Ø10 、 Ø16



Dimension

Unit : mm

Bore size	AM	BE	BF	CD	D	DF	EE	DW	EX	GA	GB	GC	KK	KV	KX	MM	PA	WF	L	L1
Ø6	15	M6x1.0P	8	—	14	5	M5x0.8P	—	12	19	3	—	M3x0.5P	8	5.5	3	14.5	13	—	—
Ø10	15	M8x1.0P	8	3.3	14	5	M5x0.8P	3.2	12	12.5	5.5	18.5	M4x0.7P	11	7	4	8	13	8	13
Ø16	15	M10x1.0P	8	5	20	5	M5x0.8P	6.5	18	12.5	5.5	23.5	M5x0.8P	14	8	5	8	13	10	18

Bore size	5-15st			16-30st				31-45st				46-60st				
	XC	Z1	ZB	ZM	XC	Z1	ZB	ZM	XC	Z1	ZB	ZM	XC	Z1	ZB	ZM
Ø6	—	51.5	79.5	—	—	60.5	88.5	—	—	64.5	92.5	—	—	78.5	106.5	—
Ø10	69.5	48.5	76.5	89.5	77	56	84	97	89	68	96	109	101	80	108	121
Ø16	71.5	48.5	76.5	94.5	80	57	85	103	92	69	97	115	104	81	109	127

SBA
Pen
Cylinder

SDA
Miniature
cylinder

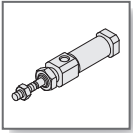
SDX
Miniature
cylinder

DBS2
Block
cylinder

DBF2
Block
cylinder

DBT
Block
cylinder

FDA
Miniature
Cylinder



SBRO series - Pen cylinder (Single acting - Normal out)

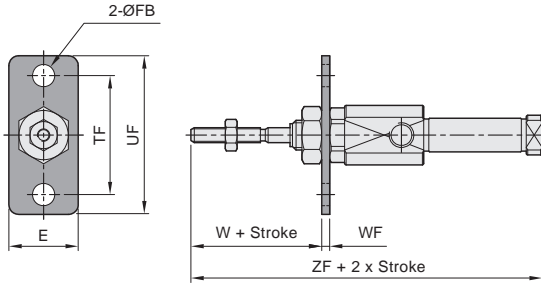
Mounting type dimensions - SBRO

CHELIC PNEUMATIC

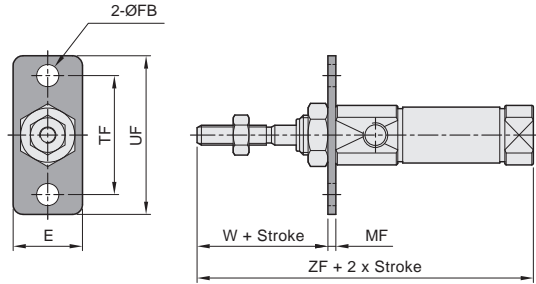
Flange mounting type — FA



SBRO Ø6



SBRO Ø10、Ø16

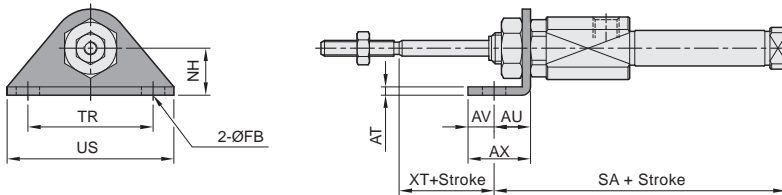


Dimension

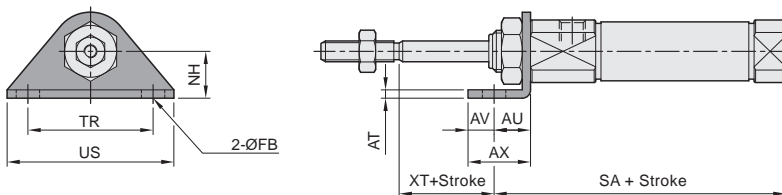
Bore size (mm)	E	FB	MF	TF	UF	W	5~15st	16~30st	31~45st	46~60st
							ZF	ZF	ZF	ZF
Ø6	14	4.5	1.6	24	32	11.4	64.5	73.5	77.5	91.5
Ø10	14	4.5	1.6	24	32	11.4	61.5	69	81	93
Ø16	20	5.5	2.3	33	42	10.7	61.5	70	82	94

Foot mounting type — LB

SBRO Ø6

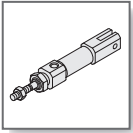


SBRO Ø10、Ø16



Dimension

Bore size (mm)	AT	AU	AV	AX	FB	NH	TR	US	XT	5~15st	16~30st	31~45st	46~60st
										SA	SA	SA	SA
Ø6	1.6	7	5	12	4.5	9	24	32	6	58.5	67.5	71.5	85.5
Ø10	1.6	7	5	12	4.5	9	24	32	6	55.5	63	75	87
Ø16	2.3	9	6	15	5.5	14	33	42	4	57.5	66	78	90



SBBO series - Pen cylinder (Single acting - Normal out)

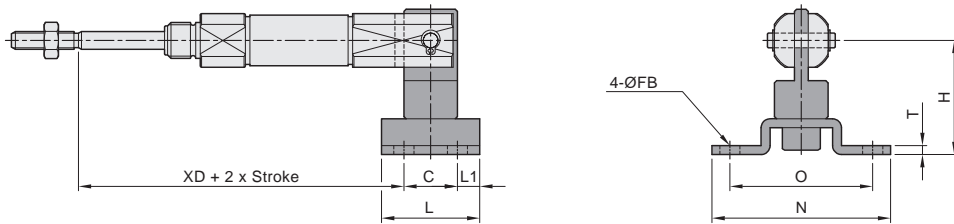
External dimension - SBBO

CHELIC PNEUMATIC

T type mounting — CA



● SBBO Ø10、Ø16



Dimension

Bore size (mm)	C	FB	H	L	L1	N	O	T	5~15st	16~30st	31~45st	46~60st
									XD	XD	XD	XD
Ø10	12	4.5	29	22	5	40	32	2	63.5	71	83	95
Ø16	16	5.5	35	28	6	48	38	2.3	63.5	72	84	96

SBA
Pen
Cylinder

SDA
Miniature
cylinder

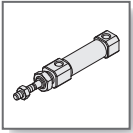
SDX
Miniature
cylinder

DBS2
Block
cylinder

DBF2
Block
cylinder

DBT
Block
cylinder

FDA
Miniature
Cylinder



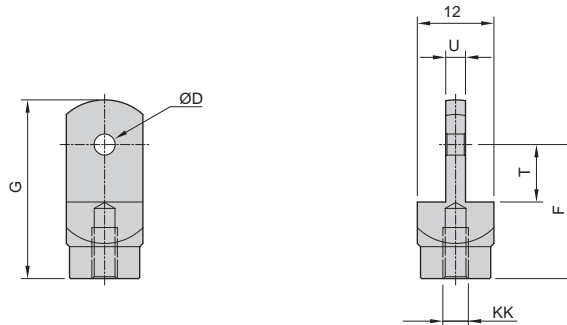
SBA series - Pen cylinder

Accessories dimensions

CHELIC PNEUMATIC

Accessories dimensions

- I Joint

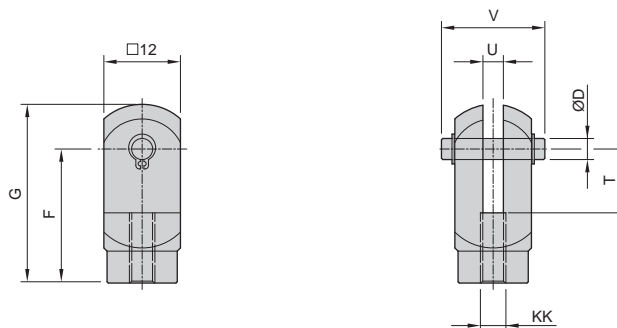


Dimension

Model	Bore size (mm)	D	F	G	KK	T	U
I - M4x0.7	Ø10	3.3	21	28	M4 x 0.7	9	3.1
I - M5x0.8	Ø16	5	25	32	M5 x 0.8	14	6.4

Accessories dimensions

- Y Joint

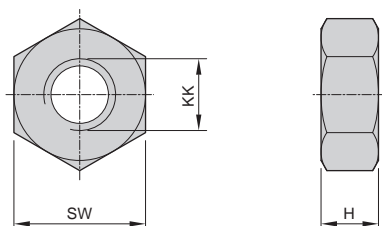


Dimension

Model	Bore size (mm)	D	F	G	KK	T	U	V
Y - M4x0.7	Ø10	3.3	21	28	M4 x 0.7	10	3.2	16.2
Y - M5x0.8	Ø16	5	21	28	M5 x 0.8	10	6.5	16.6

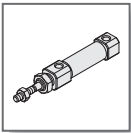
Accessories dimensions

- Mounting nut



Dimension

Model	Bore size (mm)	H	KK	SW
N - M3x0.5	Ø6	2.4	M3 x 0.5	5.5
N - M4x0.7	Ø10	3.2	M4 x 0.7	7
N - M5x0.8	Ø16	4	M5 x 0.8	8
N - M6x1.0	Ø6	4	M6 x 1.0	8
N - M8x1.0	Ø10	4	M8 x 1.0	11
N - M10x1.0	Ø16	4	M10 x 1.0	14



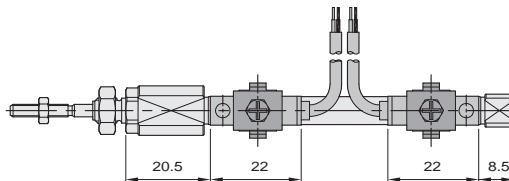
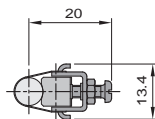
SBA / SBAI(O) series - Pen cylinder

Sensor switch installation and Operated setting

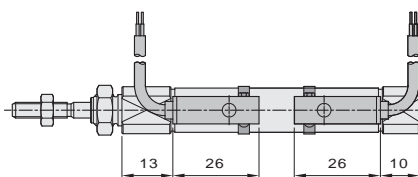
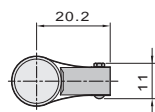
CHELIC PNEUMATIC

Sensor switch installation position and Dimension (Reference)

- SBR Ø6
SBRI(O) Ø6



- SBA Ø10 ~ Ø16
SBAI(O) Ø10 ~ Ø16



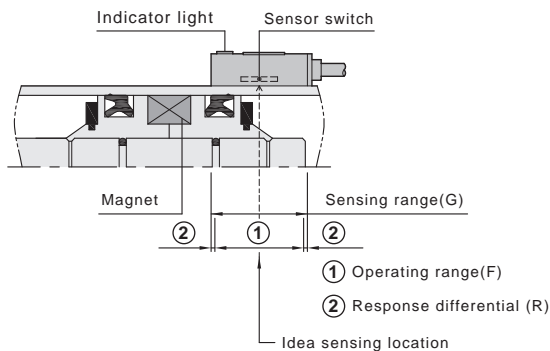
- Please install sensor switch at front and rear sides of cylinder, it is better to make same direction as line of visible at easy visible position of indicator light.
- Electric wire is arranged following cylinder and fixed to avoid any pulling and dragging affecting the reception of signal.

Sensing range

Sensor switch is fixed on the cylinder body. The magnetic piston head will activate the sensor switch when it enters the operating range. It has 0.5mm differential.

Operating range

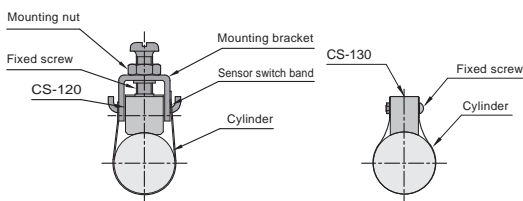
When piston head moves the switch setting and adjustment will be based on the responding range generated by the magnetic field and the switch. (Please refer to the below table)



Unit : mm

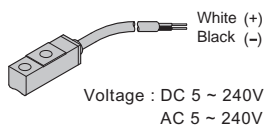
Model	CS-120		CS-130	
	Operating range (F)	Response differential(R)	Operating range (F)	Response differential(R)
Ø 6	6	1	6	1
Ø 10	6	1	6	1
Ø 16	7	1	7	1

Accessory and Assembly

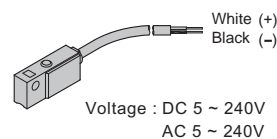


Connection type

- CS-120
(Suitble for : Ø6 · Ø10)



- CS-130
(Suitble for : Ø16)



SBA
Pen
Cylinder

SDA
Miniature
cylinder

SDX
Miniature
cylinder

DBS2
Block
cylinder

DBF2
Block
cylinder

DBT
Block
cylinder

FDA
Miniature
Cylinder