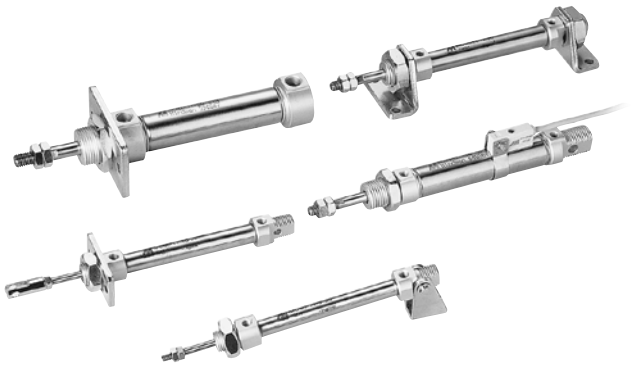
ISO-6432 **MINIATURE CYLINDER**



Features

- **Non lubrication**
  Special housing and bushing enables self lubrication of piston rod.
- **High quality long service life**
  Hard anodised stainless steel cylinder tubes offer a high resistance to corrosion and low internal friction.
- **Cylinder mountings**
  Available with a comprehensive range of accessories for rigid or flexible mounting.
- **ISO-6432 standard** (ø8~ø25)
  Enables world-wide inter-changeability.
- **Port thread Rc. NPT. are also available**
- **Magnetic as standard**

Table for standard stroke

	Tube I.D.	Stroke (mm)
Single acting	ø16	15,25,50,75,100
	ø20,25	15,25,50,75,100,125,150
Double acting	ø8,10	10,25,40,50,80,100
	ø12	10,25,40,50,80,100,125,160,200
	ø16,20,25 ø32,40	15,25,50,75,100,125,150,200,250, 300,350,400,450,500

* Stroke out of specification is also available.
* Please consult us if stroke out of specification.

Specification

Model		HZ02							
Tube I.D. (mm)		8	10	12	16	20	25	32	40
Port size		M5×0.8				G1/8			G1/4
Medium		Air							
Max. operating perssure		7 Bar							
Min. operating perssure (Bar)	Double acting	1	0.8		0.6				
	Single acting Extended	—			0.23			—	
	Single acting Returned	—			0.18			—	
Proof pressure		10 Bar							
Lubricator		Not required							
Ambient temperature		-5~+60°C (No freezing)							
Available speed range		50~750 mm/sec							
Max. allowable kinetic energy (J)	Cushion pad	0.02	0.03	0.04	0.09	0.27	0.4	0.65	1.2
	Cushion air	—	—	—	0.4	0.66	0.97	1.27	2.35
Sensor switch (*)		RCM (Please refer to page 8-15)							
Sensor switch (band)		BM8	BM10	BM12	BM16	BM20	BM25	BM32	BM40

* For precautions, please refer to page 3-2.

Tightening torque

Tube I.D.	Rod thread	Tightening torque (kgf·cm)
ø8	M4×0.7	11.8
ø10	M4×0.7	11.8
ø12	M6×1.0	41
ø16	M6×1.0	41
ø20	M8×1.25	170
ø25	M10×1.25	340
ø32	M10×1.5	340
ø40	M12×1.75	590

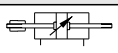
* Make sure the tightening torque of rod thread does not exceed the value above. The tolerance of tightening torque is ±5%.

Order example

HZ02 — 11 — 16 — 100 — A — NC

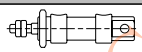
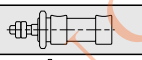
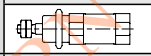
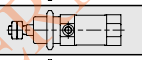
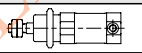
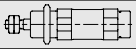
- MODEL
- **1**: Single rod, **2**: Double rod
- TUBE I.D.
- STROKE
- Blank: Cushion pad (Unadjustable), **A**: Cushion air (Adjustable) ⚠ (*)
  * ø8~12 not applicable.

STYLE

Code		Symbol	Description	Tube I.D.
1	1		Double acting / Male thread	ø8~ø40
1	3		Single acting / Normally extended male thread	ø16~ø25
1	5		Single acting / Normally returned male thread	
2	1		Double rod / Male thread	
2	7		Double rod / Adjustable male thread Please mark "adjustable distance(mm)" at order list	

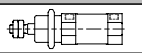
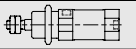
* Single acting type, please consult us.
* Order example for special specification, refer to page 0-7.

END COVER TYPE

Code	Symbol	Description	Tube I.D.
–		Standard type	ø8~ø25
N		Non-pivot type	
		Non-pivot type	ø32~ø40
R		Rod clevis	
H		Head clevis	
F		Head foot type	

* (R), (H) not suitable for (A) cushion air.

PORT POSITION

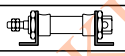
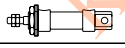
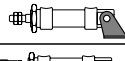
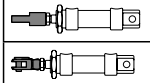
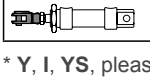
Code	Symbol	Description	Tube I.D.	Suitable end cover
–		Standard type	ø8~ø40	All end cover
C		Axial port	ø32~ø40	N, R

Mounting accessories

LB — HZ02 — 16

- MODEL
- TUBE I.D.

MOUNTING TYPE

	LB
	FA
	FB
	SDB
	Y
	I
	YS (Y+Floating pin)

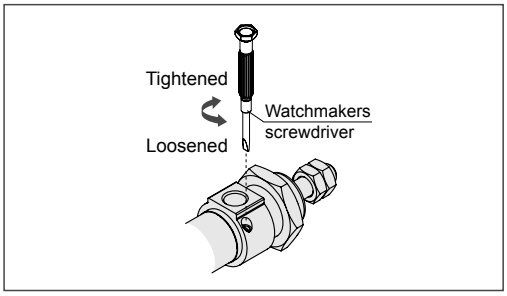
Only for ø8~ø25

* **Y**, **I**, **YS**, please refer to page 3-14.

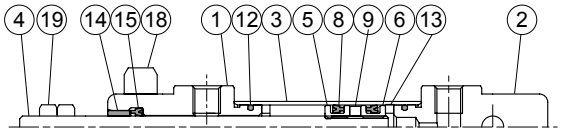
⚠ Caution

For (**A**) Cushion air (Adjustable)

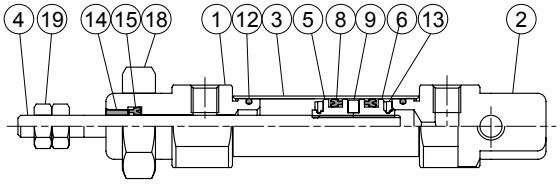
1. To adjust a cushion needle, please slowly turn the needle valve from the fully closed status to the required status whose turns need to be within 2.5 circles.
2. If the needle valve loosen excessively, the buffer can't take effect and the lifetime of cylinder can shorten.



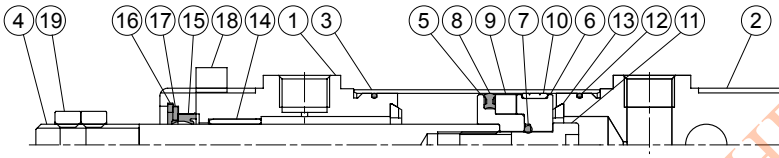
ø8, ø12



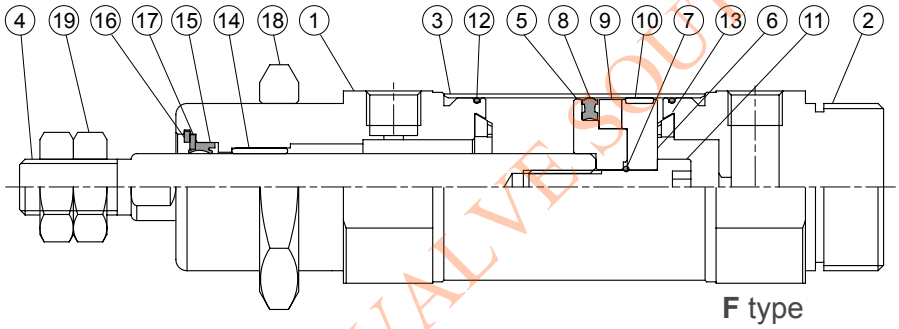
ø10



ø16~ø25

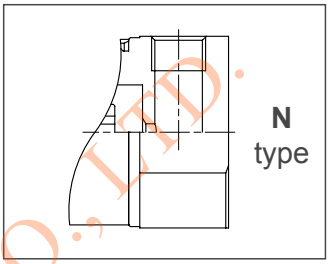


ø32, ø40



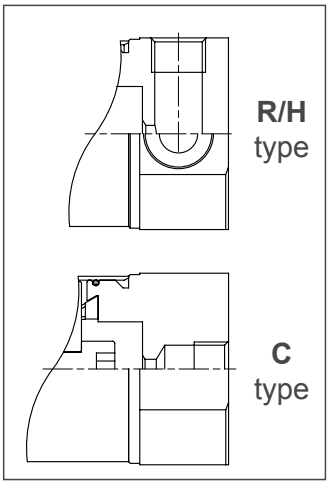
F type

ø8~ø40



N type

ø32, ø40



R/H type

C type

Material

* Style 21 is not applicable in cylinder bore ø8~ø12.

No.	Tube I.D. / Part name	8	10	12	16	20	25	32	40	Q'y 11 type	Q'y 21 type	Component parts (inclusion) 11 type	Component parts (inclusion) 21 type
1	Rod cover	Aluminum alloy								1	2	●	●
2	Head cover	Aluminum alloy								1	–	●	
3	Tube	Stainless steel								1	1		
4	Piston rod	Stainless steel				Carbon steel				1	1		
5	Piston-R	Aluminum alloy								1	1	●	●
6	Piston-H	Aluminum alloy								1	1	●	●
7	Piston gasket	–		NBR						1	1	●	●
8	Piston packing	NBR								1*1	1*1	●	●
9	Magnet ring	Magnet material								1	1	●	●
10	Wear ring	–		POM						1	1	●	●
11	Piston bolt	–		SCM						1	–	●	
12	Cover ring	NBR								2	2	●	●
13	Cushion gasket	NBR								2	2	●	●
14	Rod bush	Bearing alloy								1	2	●	●
15	Rod packing *2	NBR								1	2	●	●
16	Snap ring	–		Spring steel						1	2	●	●
17	Washer	–		Carbon steel						1	2	●	●
18	Tie nut	Carbon steel								1	2	●	●
19	Rod front nut	Carbon steel								2	2	●	●

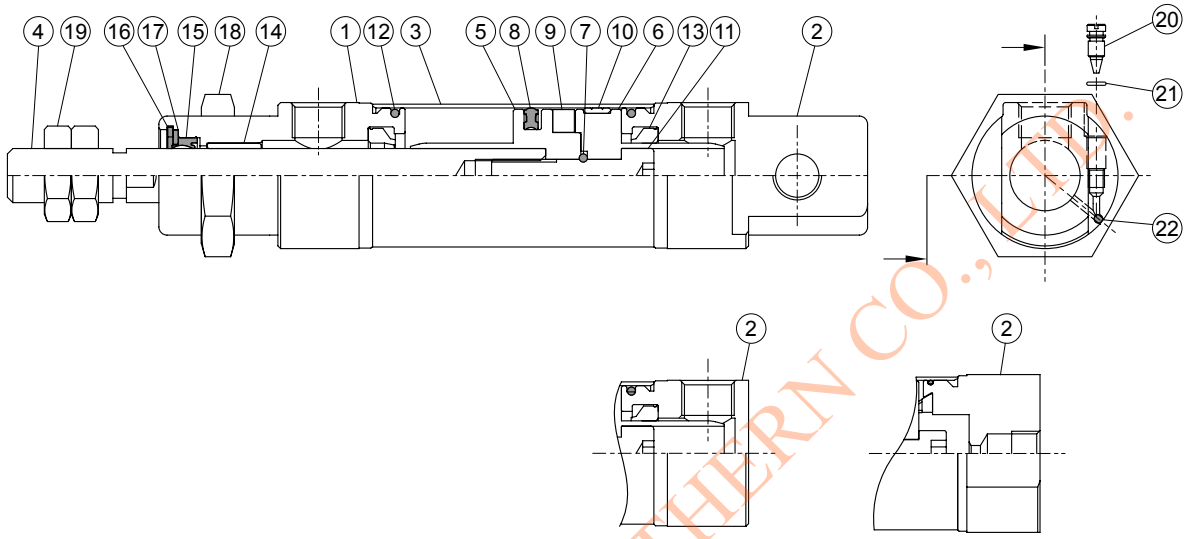
*1. ø8~ø12 (Q'y: 2 psc)
*2. Only the rod packing is repairable, please contact our sales if needed.

Order example of Component parts

Tube I.D.	Component parts
ø8	**CP-HZ02-8**
ø10	**CP-HZ02-10**
ø12	**CP-HZ02-12**
ø16	**CP-HZ02-16**
ø20	**CP-HZ02-20**
ø25	**CP-HZ02-25**

End cover type

Tube I.D.	Component parts	N	R	H	F
ø8	**CP-HZ02-8**	**-N**			
ø10	**CP-HZ02-10**	**-N**			
ø12	**CP-HZ02-12**	**-N**			
ø16	**CP-HZ02-16**	**-N**		–	
ø20	**CP-HZ02-20**	**-N**			
ø25	**CP-HZ02-25**	**-N**			
ø32	**CP-HZ02-32**	**-N**	**-R**	**-H**	**-F**
ø40	**CP-HZ02-40**	**-N**	**-R**	**-H**	**-F**



N type: ø16~ø40 **C** type: ø32~ø40

Material

* Cylinder bore ø8~12 is not applicable.

No.	Tube I.D. / Part name	16	20	25	32	40	Q'y 11 type	Q'y 21 type	Component parts (inclusion) 11 type	Component parts (inclusion) 21 type
1	Rod cover	Aluminum alloy					1	2	●	●
2	Head cover	Aluminum alloy					1	–	●	
3	Tube	Stainless steel					1	1		
4	Piston rod	*1	Carbon steel				1	1		
5	Piston-R	Aluminum alloy					1	1	●	●
6	Piston-H	Aluminum alloy					1	1	●	●
7	Piston gasket	NBR					1	1	●	●
8	Piston packing	NBR					1*2	1*2	●	●
9	Magnet ring	Magnet material					1	1	●	●
10	Wear ring	POM					1	1	●	●
11	Piston bolt	SCM					1	–	●	
12	Cover ring	NBR					2	2	●	●
13	Cushion packing	NBR					2	2	●	●
14	Rod bush	Bearing alloy					1	2	●	●
15	Rod packing *3	NBR					1	2	●	●
16	Snap ring	Spring steel					1	2	●	●
17	Washer	Carbon steel					1	2	●	●
18	Tie nut	Carbon steel					1	2	●	●
19	Rod front nut	Carbon steel					2	2	●	●
20	Needle valve	Stainless steel					2	2	●	●
21	Needle valve packing	NBR					2	2	●	●
22	Steel ball	Stainless steel					2	2	●	●

*1. Stainless steel
*2. ø8~ø12 (Q'y: 2 psc)
*3. Only the rod packing is repairable, please contact our sales if needed.

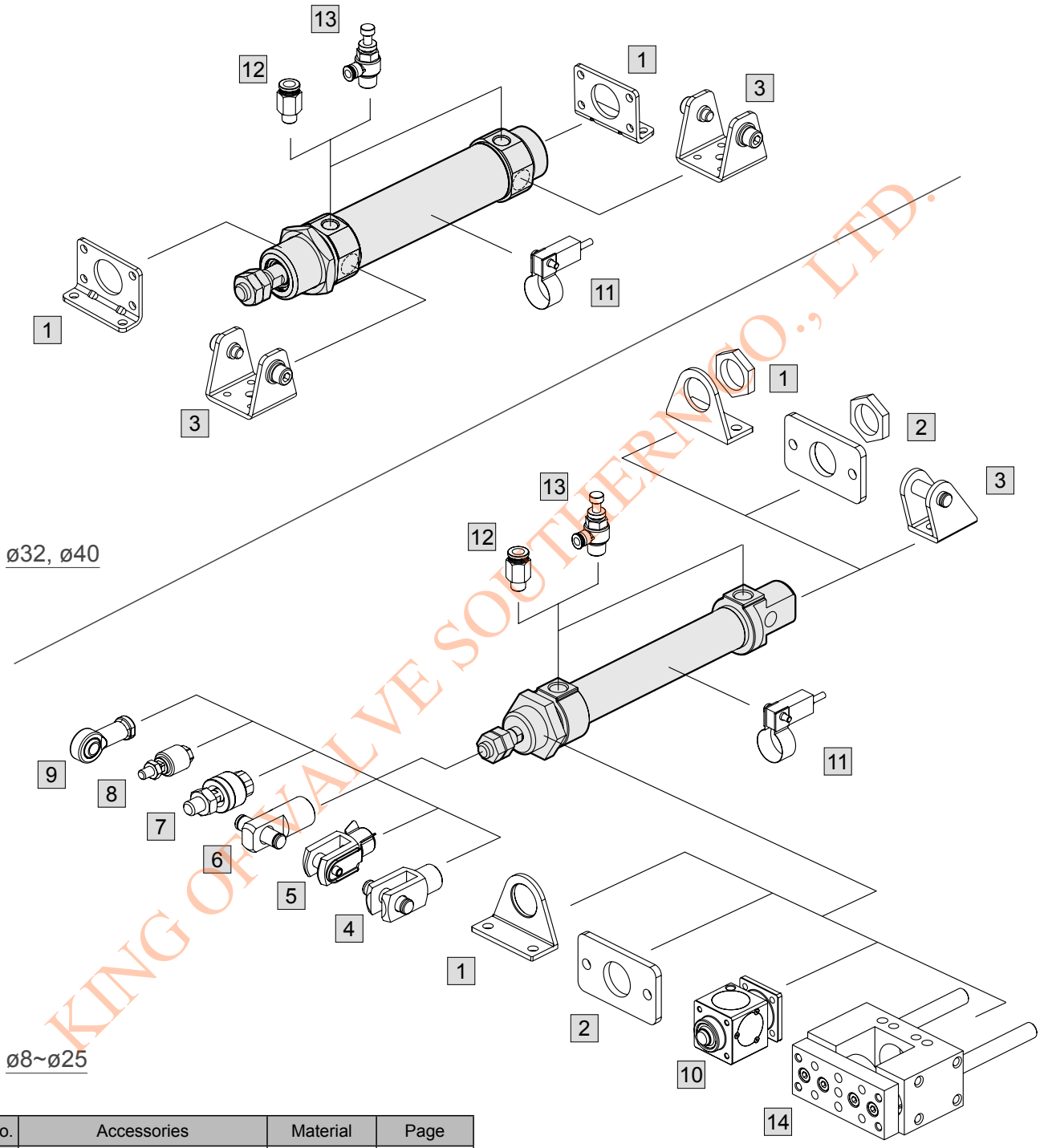
Order example of

Component parts

Tube I.D.	Component parts
ø16	**CP-HZ02-16A**
ø20	**CP-HZ02-20A**
ø25	**CP-HZ02-25A**
ø32	–
ø40	–

End cover type

Tube I.D.	Component parts	N	R	H	F
ø16	**CP-HZ02-16A**	**-N**	–		
ø20	**CP-HZ02-20A**	**-N**			
ø25	**CP-HZ02-25A**	**-N**			
ø32	**CP-HZ02-32A**	**-N**	**-R**	**-H**	**-F**
ø40	**CP-HZ02-40A**	**-N**	**-R**	**-H**	**-F**



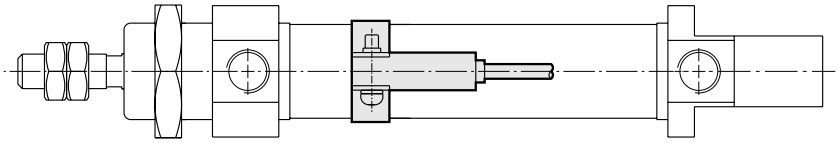
No.	Accessories	Material	Page
1	Mounting accessories LB	Carbon steel	3-49, 51
2	Mounting accessories FA/FB	Carbon steel	3-48, 49
3	Mounting accessories SDB+PIN	Carbon steel	3-48, 51, 14
4	Accessories Y+PIN	Carbon steel	3-14
5	Accessories YS (Y+Floating pin)	Carbon steel	3-14
6	Accessories I+PIN	Carbon steel	3-14
7	Floating joint MFC	Carbon steel	8-2
8	Floating joint MFCS	Carbon steel	8-5

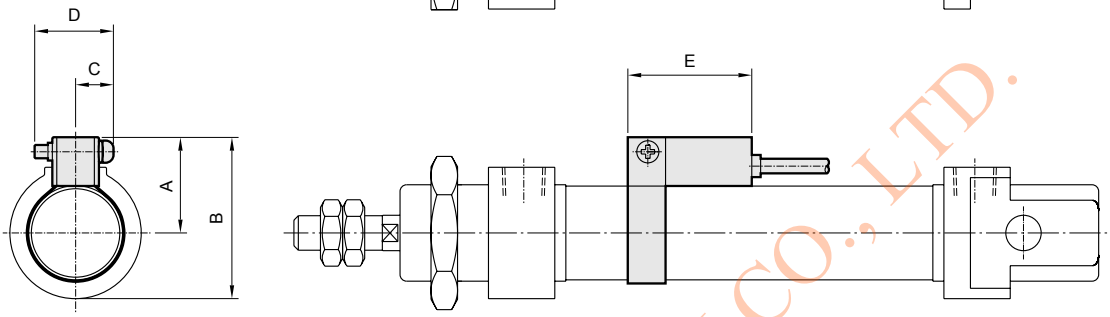
* Aluminum alloy + copper alloy

No.	Accessories	Material	Page
9	Female rod ends PHS	Carbon steel	8-6
10	Locking unit MCBMI	(*)	1-77
11	Sensor switch RCM+BM**	–	8-15
12	Fitting PC	–	7-3 (Vol.1)
13	Fitting JSC	–	7-15 (Vol.1)
14	Twin-guide cylinders MGTB/TK/TU	–	4-33

Installation of sensor switch

Sensor switch: RCM
Sensor switch band: BM**



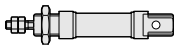
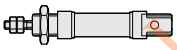
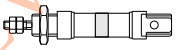
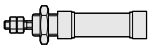
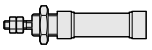
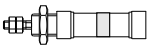


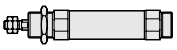
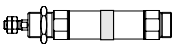
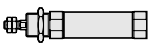
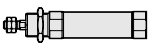
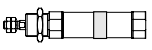
Code / Tube I.D.	A	B	C	D	E
8	16	23.5	10	16	28
10	17	24.5	10	16	28
12	18	28	10	16	28
16	20	30	10	16	28
20	22	35.5	10	16	28
25	25	38.5	10	16	28
32	28	45.5	10	16	28
40	32	54	10	16	28

Cylinder & accessories weight

Cylinder weight

Unit: g

Model	Basic weight **HZ02-11**	Basic weight **HZ02-11-A**	Stroke 25 mm **HZ02-11**	Basic weight **HZ02-11-N**	Basic weight **HZ02-11-A-N**	Stroke 25 mm **HZ02-11-***
Tube I.D.						
ø8	36	–	6	32	–	6
ø10	38	–	8	35	–	8
ø12	78	–	11	69	–	11
ø16	95	93	13	88	85	13
ø20	162	190	18	151	179	18
ø25	206	229	28	191	214	28

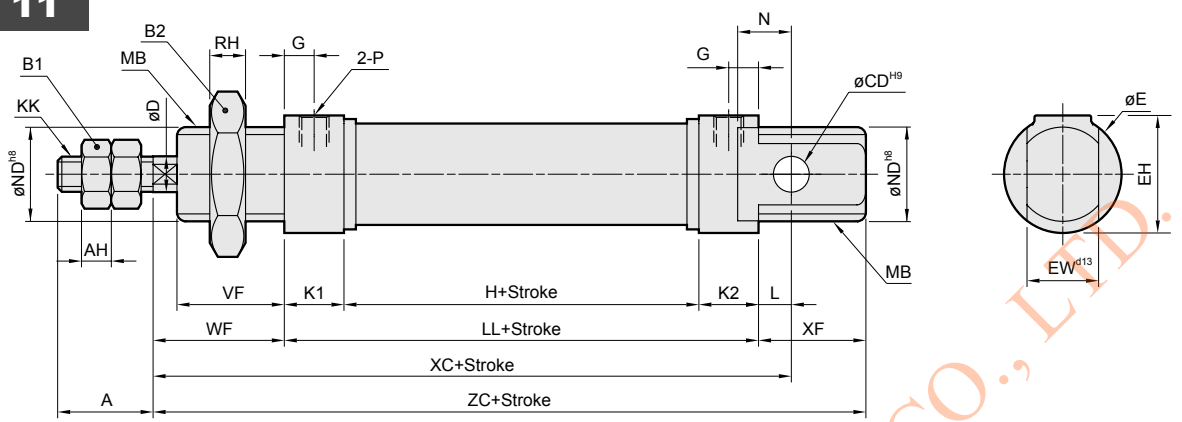
Model	Basic weight **HZ02-11-F**	Basic weight **HZ02-11-A-F**	Stroke 25 mm **HZ02-11-F**	Basic weight **HZ02-11-N/C/R/H**	Basic weight **HZ02-11-A-N/C**	Stroke 25 mm **HZ02-11-***
Tube I.D.						
ø32	334	402	39	307	375	39
ø40	591	601	60	639	649	60

Accessories weight

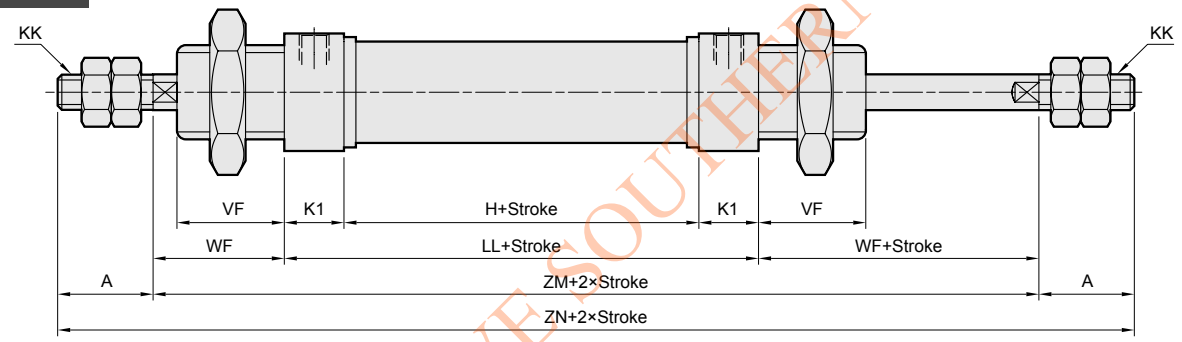
Unit: g

Model	LB	FA/FB	SDB	Y	I	Pin	Rod nut	Cover nut
Tube I.D.								
ø8	42	16	16	4	–	2	1	8
ø10	42	16	16	4	–	2	1	8
ø12	65	25	24	13	15	4	2	16
ø16	65	25	24	13	15	5	2	11
ø20	103	67	103	40	42	10	4	20
ø25	103	67	103	72	82	19	8	20
ø32	160	–	111	–	–	–	8	28
ø40	246	–	164	–	–	–	10	41

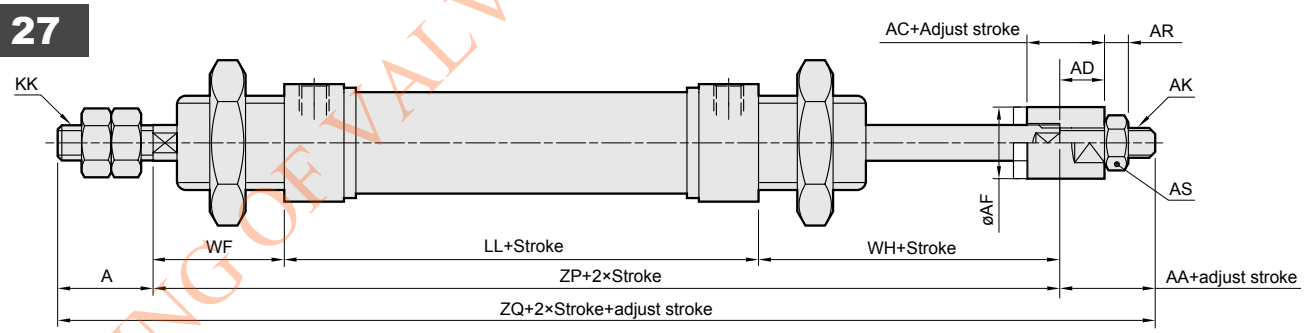
11



21



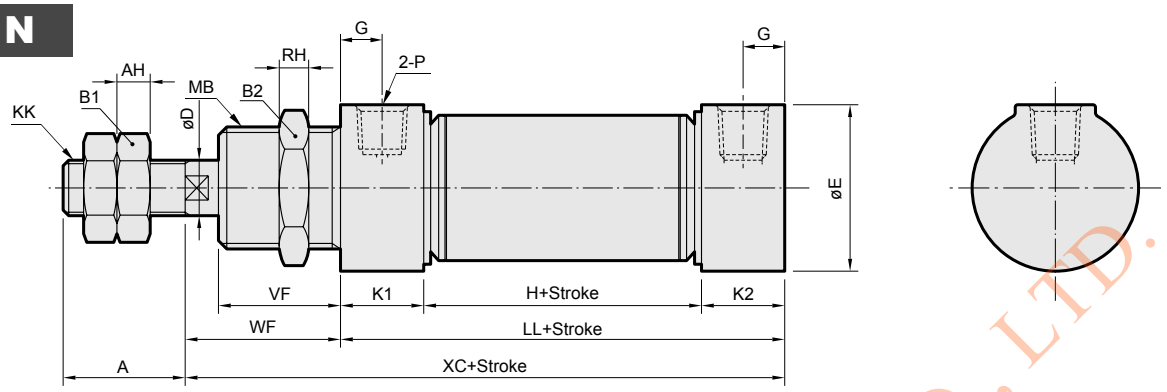
27



Code / Tube I.D.	A	AA	AC	AD	AF	AH	AK	AR	AS	B1	B2	CD	D	E	EH	EW	G	H	KK	K1	K2	L	LL
8	12	–	–	–	–	3.2	–	–	–	7	19	4	4	15	15	8	6	24	M4×0.7	11	11	2	46
10	12	–	–	–	–	3.2	–	–	–	7	19	4	4	15	15	8	6	24	M4×0.7	11	11	2	46
12	16	–	–	–	–	5	–	–	–	10	24	6	6	20	20	12	6	28	M6×1.0	11	11	3	50
16	16	16	13	7.5	12	5	M5×0.8	4	8	10	22	6	6	20	20	12	5	34.5	M6×1.0	10	10	5.5	54.5
20	20	19	15	9.5	16	5	M8×1.25	5	13	13	30	8	8	27	27	16	8	38	M8×1.25	15	15	3	68
25	22	19	15	9.5	16	6	M8×1.25	5	13	17	30	8	10	27	27	16	7.5	37	M10×1.25	15	15	9	67

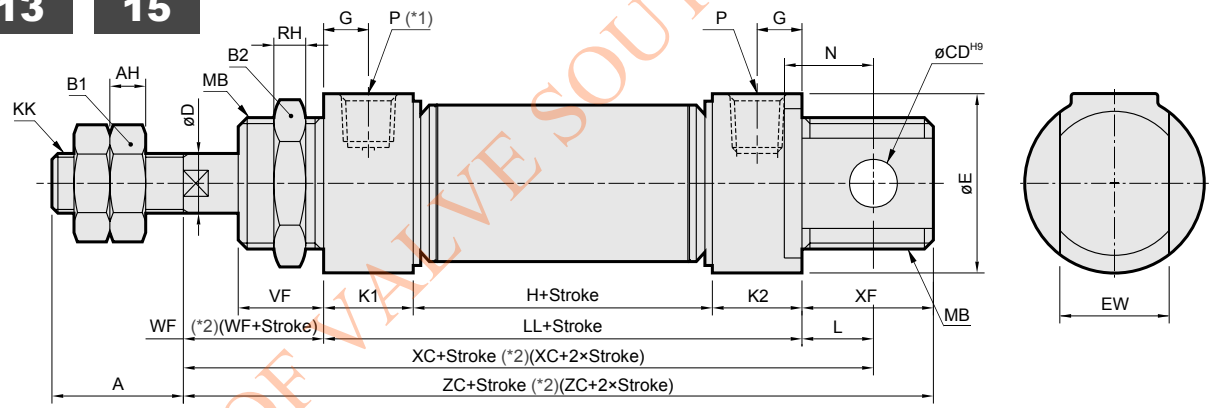
Code / Tube I.D.	MB	N	ND	P	RH	VF	WF	WH	XC	XF	ZC	ZM	ZN	ZP	ZQ
8	M12×1.25	6	12	M5×0.8	6	12	16	–	64	12	74	–	–	–	–
10	M12×1.25	6	12	M5×0.8	6	12	16	–	64	12	74	–	–	–	–
12	M16×1.5	9	16	M5×0.8	8	17	22	–	75	17	89	–	–	–	–
16	M16×1.5	9	16	M5×0.8	6	18	22	25.5	82	18	94.5	98.5	130.5	102	134
20	M22×1.5	12	22	G1/8	6	20	24	27	95	20	112	116	156	119	158
25	M22×1.5	12	22	G1/8	6	22	28	29.5	104	22	117	123	167	124.5	165.5

N



Code / Tube I.D.	A	AH	B1	B2	D	E	G	H	KK	K1	K2	LL	MB	P	RH	VF	WF	XC
8	12	3.2	7	19	4	16.7	6	24	M4×0.7	11	11	46	M12×1.25	M5×0.8	6	12	16	62
10	12	3.2	7	19	4	16.7	6	24	M4×0.7	11	11	46	M12×1.25	M5×0.8	6	12	16	62
12	16	5	10	24	6	19.7	6	28	M6×1.0	11	11	50	M16×1.5	M5×0.8	8	17	22	72
16	16	5	10	22	6	20	5	34.5	M6×1.0	10	10	54.5	M16×1.5	M5×0.8	6	18	22	76.5
20	20	5	13	30	8	27	8	38	M8×1.25	15	15	68	M22×1.5	G1/8	6	20	24	92
25	22	6	17	30	10	27	7.5	37	M10×1.25	15	15	67	M22×1.5	G1/8	6	22	28	95

13 15



*1. 15 type ø16 without this air port.
*2. ( ) Dimension for 13 type.

Code / Tube I.D.	A	AH	B1	B2	CD	D	E	EW	G	KK	K1	K2	L	LA	MB	N	P	RH	VF	WF	XF	ZM	ZN	ZP	ZQ
16	16	5	10	22	6	6	20	12 $^{-0.05}_{-0.4}$	5	M6×1.0	10	10	5.5	54.5	M16×1.5	9	M5×0.8	6	18	22	18	98.5	130.5	96	134
20	20	5	13	30	8	8	27	16 $^{-0.05}_{-0.4}$	8	M8×1.25	15	15	3	68	M22×1.5	12	G1/8	6	20	24	20	116	156	119	158
25	22	6	17	30	8	10	27	16 $^{-0.05}_{-0.4}$	7.5	M10×1.25	15	15	9	67	M22×1.5	12	G1/8	6	22	28	22	123	167	124.5	165.5

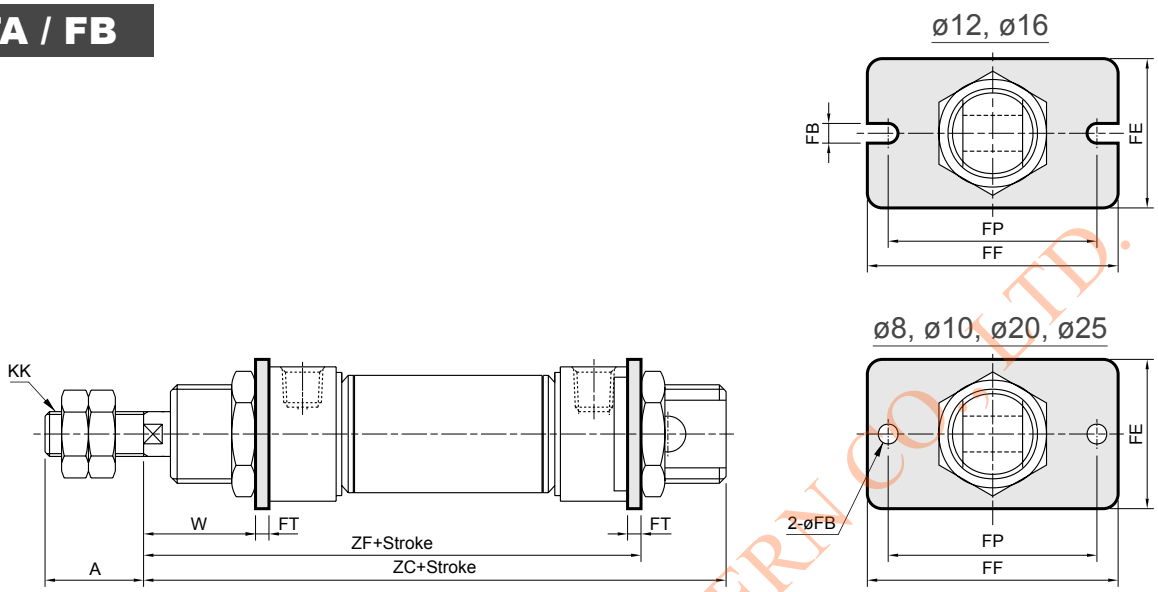
HZ02-13

Code / Stroke / Tube I.D.	H			LL			XC			ZC		
	1~50	51~100	101~150	1~50	51~100	101~150	1~50	51~100	101~150	1~50	51~100	101~150
16	53.5	79.5	105.5	73.5	99.5	125.5	101	127	153	113.5	139.5	165.5
20	63	88	113	93	118	143	120	145	170	137	162	187
25	60.5	85.5	110.5	90.5	115.5	140.5	127.5	152.5	177.5	140.5	165.5	190.5

HZ02-15

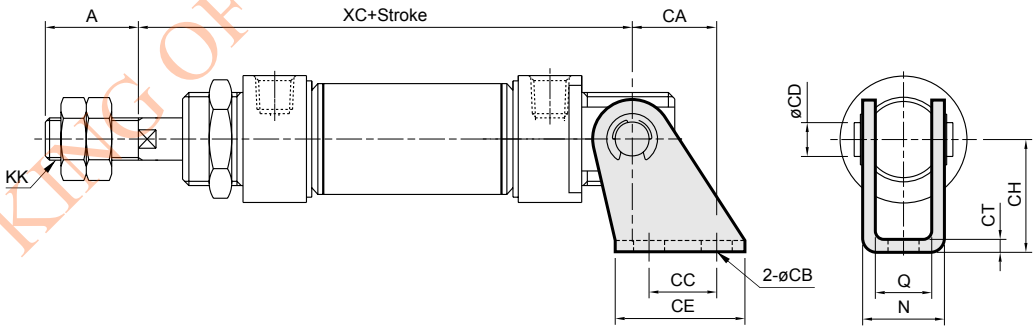
Code / Stroke / Tube I.D.	H			LL			XC			ZC		
	1~50	51~100	101~150	1~50	51~100	101~150	1~50	51~100	101~150	1~50	51~100	101~150
16	34.5	50	65.5	54.5	70	85.5	82	97.5	113	94.5	110	125.5
20	38	88	113	68	118	143	95	145	170	112	162	187
25	37	85.5	110.5	67	115.5	140.5	104	152.5	177.5	117	165.5	190.5

FA / FB



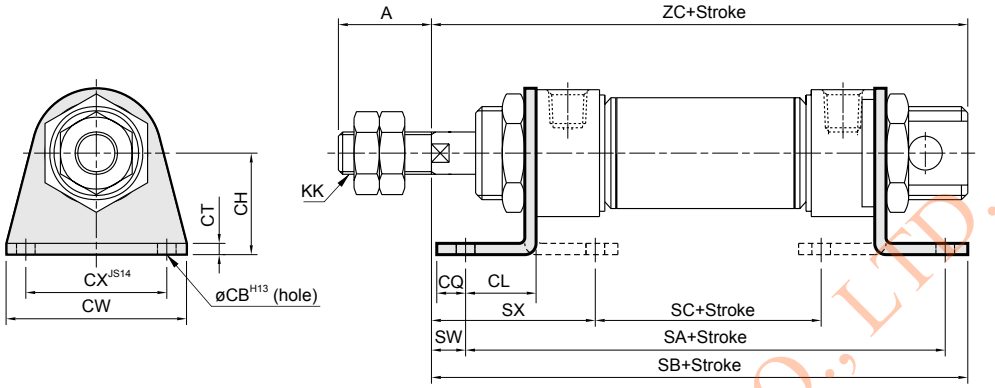
Code / Tube I.D.	A	FB	FE	FF	FP	FT	KK	W	ZC	ZF
8	12	4.5	22	40	30	3.2	M4×0.7	12.8	74	65.2
10	12	4.5	22	40	30	3.2	M4×0.7	12.8	74	65.2
12	16	5.5	26	52	40	3.2	M6×1.0	18.8	89	75.2
16	16	5.5	26	52	40	3.2	M6×1.0	18.8	94.5	79.7
20	20	6.6	38	64	50	4.5	M8×1.25	19.5	112	96.5
25	22	6.6	38	64	50	4.5	M10×1.25	23.5	117	99.5

SDB



Code / Tube I.D.	A	CA	CB	CC	CD	CE	CH	CT	KK	N	Q	XC
8	12	11	4.5	12.5	4	20	24	2.5	M4×0.7	13.1	8.1	64
10	12	11	4.5	12.5	4	20	24	2.5	M4×0.7	13.1	8.1	64
12	16	13	5.5	15	6	25	27	3.2	M6×1.0	18.5	12.1	75
16	16	13	5.5	15	6	25	27	3.2	M6×1.0	18.5	12.1	82
20	20	16	6.6	20	8	32	30	3.2	M8×1.25	22.5	16.1	95
25	22	16	6.6	20	8	32	30	3.2	M10×1.25	22.5	16.1	104

LB



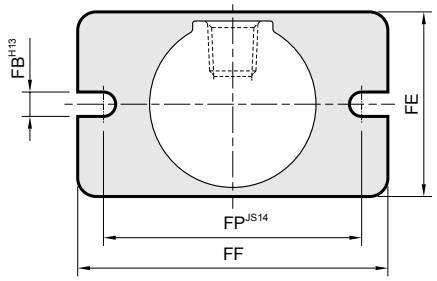
Code / Tube I.D.	A	CB	CH	CL	CQ	CT	CW	CX	KK	SA	SB	SC	SW	SX	ZC
8	12	4.5	16	11	5	3.2	35	25	M4×0.7	68	78	30.4	5	23.8	74
10	12	4.5	16	11	5	3.2	35	25	M4×0.7	68	78	30.4	5	23.8	74
12	16	5.5	20	14	6	4	42	32	M6×1.0	78	92	30	8	32	89
16	16	5.5	20	14	6	4	42	32	M6×1.0	82.5	96.5	34.5	8	32	94.5
20	20	6.6	25	15	8	3.2	54	40	M8×1.25	98	115	44.4	9	35.8	112
25	22	6.6	25	15	8	3.2	54	40	M10×1.25	97	118	43.4	13	39.8	117

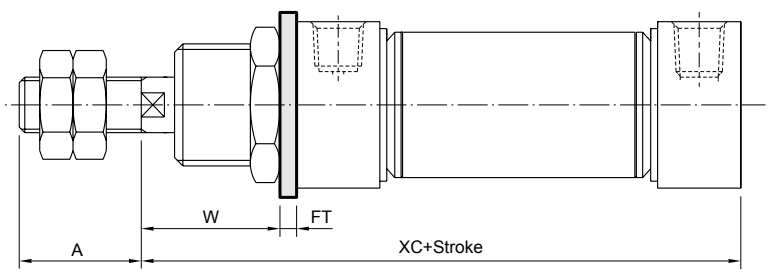
FA

N Non-pivot type

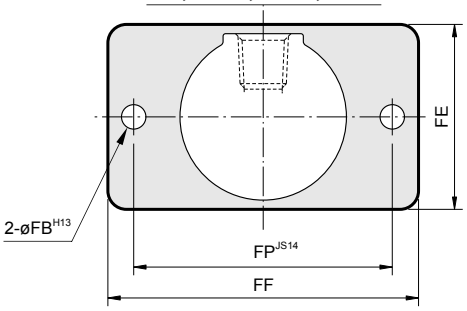
Code / Tube I.D.	A	FB	FE	FF	FP	FT	W	XC
8	12	4.5	22	40	30	3.2	12.8	62
10	12	4.5	22	40	30	3.2	12.8	62
12	16	5.5	26	52	40	3.2	18.8	72
16	16	5.5	26	52	40	3.2	18.8	76.5
20	20	6.6	38	64	50	4.5	19.5	92
25	22	6.6	38	64	50	4.5	23.5	96

ø12, ø16

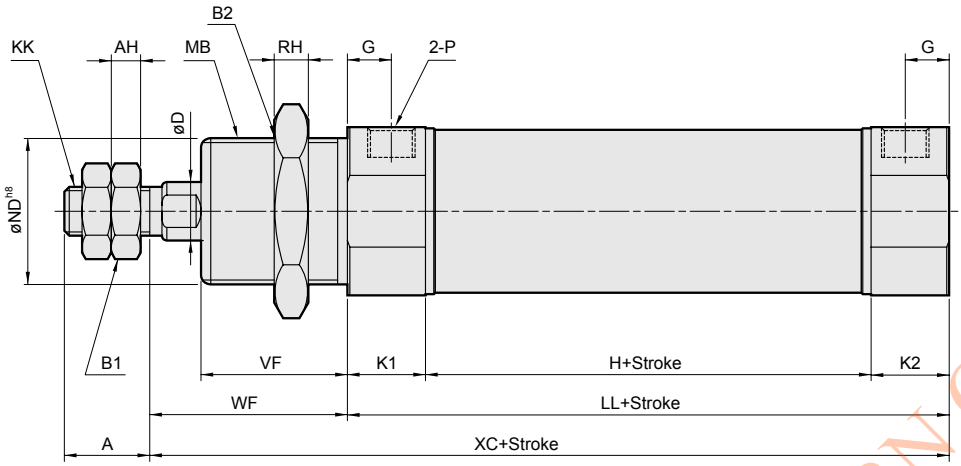




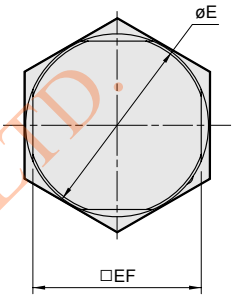
ø8, ø10, ø20, ø25

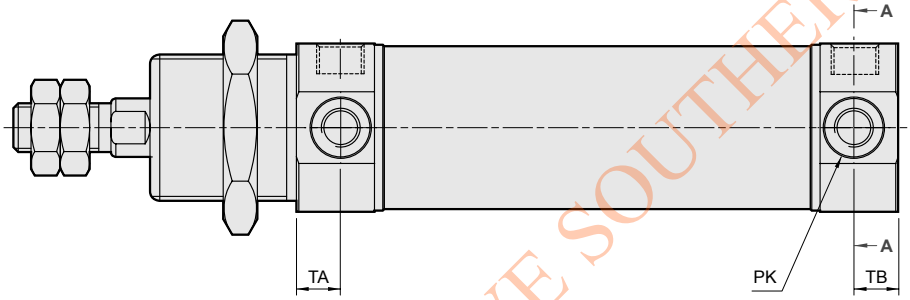


11

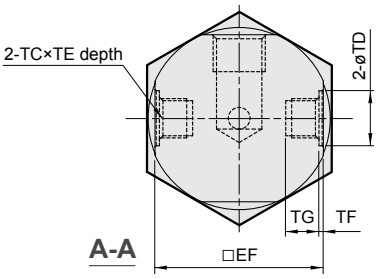


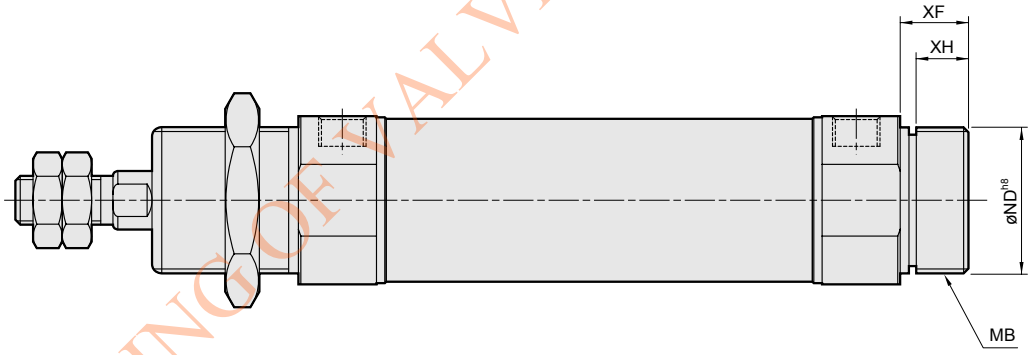
N
Non-pivot type



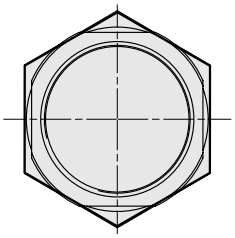


R **H**
Rod / Head clevis type

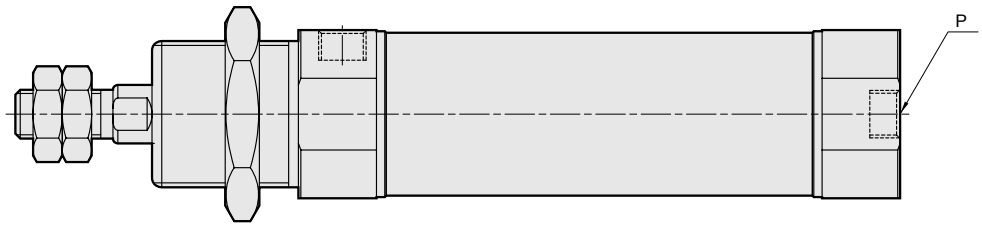


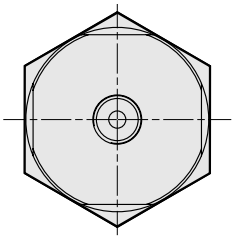


F
Head foot type



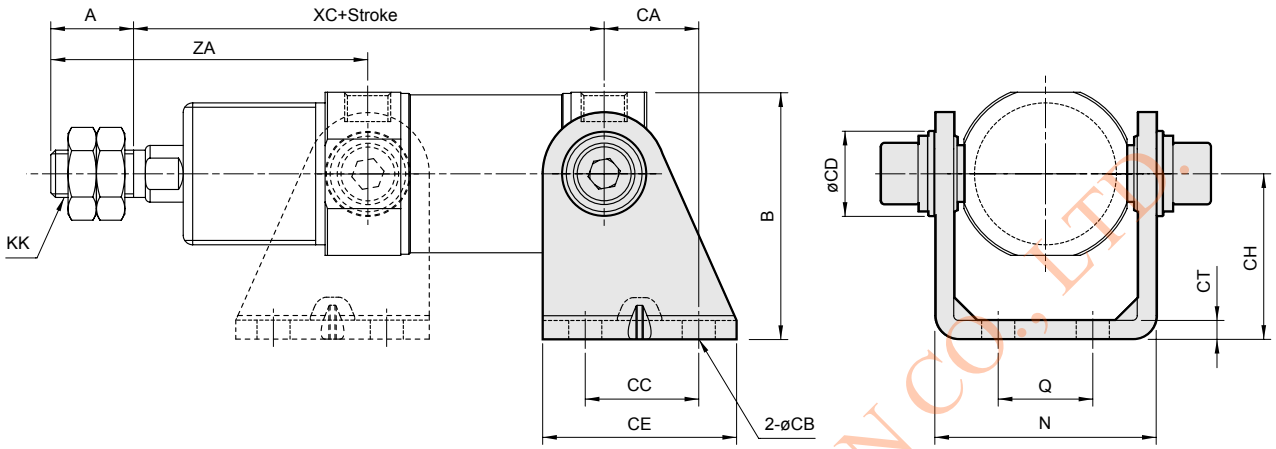
C
Axis port





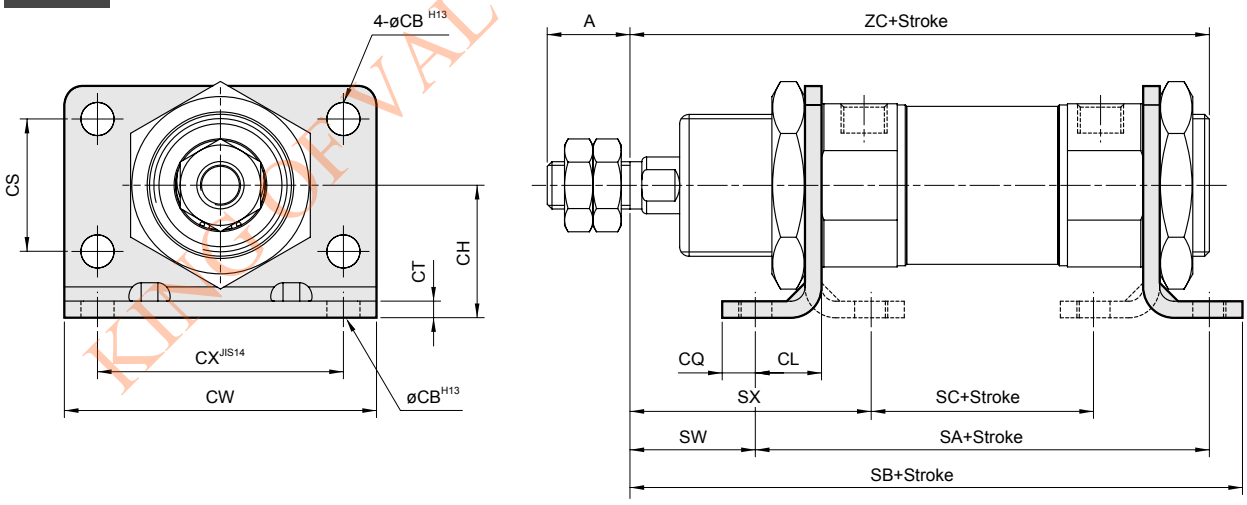
Code / Tube I.D.	A	AH	B1	B2	D	E	EF	G	H	KK	K1	K2	LL	MB	ND	P	PK	RH	TA	TB	TC	TD	TE	VF	WF	XC	XF	XH
32	17.5	6	17	38	12	37.5	34.5	9	36	M10×1.5	16	16	68	M30×1.5	30	G1/8	M8×1	7	9	9	M8×1	12	6.5	30	40.5	108.5	14	10.7
40	21	7	19	46	14	46.5	42.5	12	45	M12×1.75	22	22	89	M38×1.5	38	G1/4	M10×1	8	12	12	M10×1	14	8	35	48	137	16	12.2

SDB



Code / Tube I.D.	A	B	CA	CB	CC	CD	CE	CH	CT	KK	N	Q	XC	ZA
32	17.5	52.3	20	7	24	18	41	35	4	M10×1.5	46.8	20	99.5	67
40	21	61.3	27	9	30	22	52	40	4	M12×1.75	58.2	28	125	81

LB



Code / Tube I.D.	A	CB	CH	CL	CQ	CT	CW	CX	CS	KK	SA	SB	SC	SW	SX	ZC
32	17.5	7	28	14	7	3.5	66	52	28	M10×1.5	96	129.5	47	26.5	51	122.5
40	21	9	33	20	10	3.5	80	60	30	M12×1.75	129	167	56	28	64.5	153