



# TSAI series with guide frame cylinder

## Compendium of TSAI series

**A new type of cylinder combined with guide frame and standard cylinder.**

**Double-rod guide unit**  
Brass bearing or linear bearing guide, which can bear high torque and lateral load.

**Can be matched with multi bore sizes cylinder**  
Bore size: 32、40、50、63、80、100

**Sensor holder optional**  
According to the actual use requirements, combined with sensor holder can to change the sensor installation location.  
The options are as follows:

Bore size	Sensor holder	Sensor
32	F-TSAI32E	CMSE DMSE
40		
50	F-TSAI50E	
63	F-TSAI80E	
80		
100		

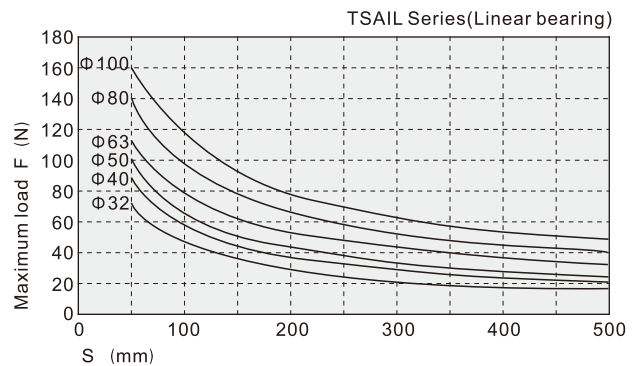
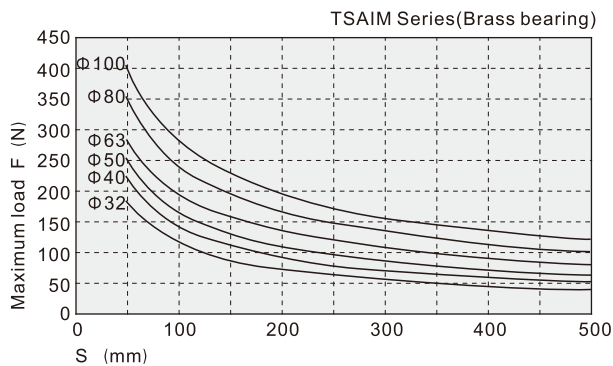
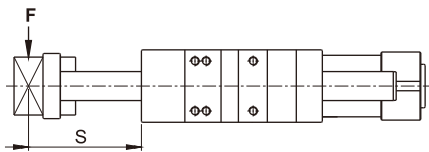
**Multi-directional installation and fixing**

## Criteria for selection: Cylinder thrust

Unit: Newton(N)

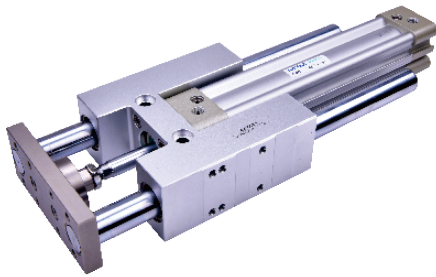
Bore size	Rod size	Acting type		Pressure area(mm <sup>2</sup> )	Operating pressure(MPa)								
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
32	12	Double acting	Push side	804	80.4	160.8	241.2	321.6	402.0	482.4	562.8	643.2	723.6
			Pull side	690	69.0	138.0	207.0	276.0	345.0	414.0	483.0	552.0	621.0
40	16	Double acting	Push side	1256	125.6	251.2	376.8	502.4	628.0	753.6	879.2	1002.4	1130.4
			Pull side	1055	105.5	211.0	316.5	422.0	527.5	633.0	738.5	844.0	949.5
50	20	Double acting	Push side	1963	196.3	392.6	588.9	785.2	981.5	1177.8	1374.1	1570.4	1766.7
			Pull side	1649	164.9	329.8	494.7	659.6	824.5	989.4	1154.3	1319.2	1484.1
63	20	Double acting	Push side	3117	311.7	623.4	935.1	1246.8	1558.5	1870.2	2181.9	2493.6	2805.3
			Pull side	2803	280.3	560.6	840.9	1121.2	1401.5	1681.8	1962.1	2242.4	2522.7
80	25	Double acting	Push side	5026	502.6	1005.2	1507.8	2010.4	2513.0	3015.6	3518.2	4020.8	4523.4
			Pull side	4536	453.6	907.2	1360.8	1814.4	2268.0	2721.6	3175.2	3628.8	4082.4
100	25	Double acting	Push side	7853	785.3	1570.6	2355.9	3141.2	3926.5	4711.8	5497.1	6282.4	7067.7
			Pull side	7362	736.2	1472.4	2208.6	2948.8	3681.0	4417.2	5153.4	5889.6	6625.8

## Maximum load relationship curve

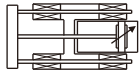


# With guide frame cylinder

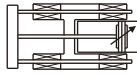
## TSAI Series



### Symbol



TSAI



TSAI-S

### Product feature

1. A new type of cylinder combined with guide frame and standard cylinder.
2. Brass bearing: It is suitable for the action that has radial load resistance, with greater torsion stiffness.  
Linear bearing: It is suitable for push-up action, or where high precision and high load capacity are required, especially for occasions requiring low friction.
3. The special design of the guide frame body provides a multi-directional mounting.
4. The buffer adjustment of cylinder is smooth and steady.
5. According to the actual use requirements, combined with sensor holder can to change the sensor installation location.

### Ordering code

**TSAI M 40 X 100 S** □

① ② ③ ④ ⑤ ⑥

① <b>Model</b>	TSAI: With guide frame cylinder
② <b>Bearing type</b>	M: Brass bearing L: Linear bearing
③ <b>Bore size</b>	32 40 50 63 80 100
④ <b>Stroke</b>	Refer to stroke table for details
⑤ <b>Magnet</b> [Note 1]	Blank: Without magnet S: With magnet
⑥ <b>Thread type</b>	Blank: PT G: G

[Note 1] With magnet cylinders are equipped with 2 pcs sensor holders.

### Ordering code(for guide frame)

**F - TSAI M 40 X 100**

① ② ③ ④ ⑤

① <b>Accessory code</b>	F: Accessory
② <b>Model</b>	TSAI: With guide frame cylinder
③ <b>Bearing type</b>	M: Brass bearing L: Linear bearing
④ <b>Bore size</b>	32 40 50 63 80 100
⑤ <b>Stroke</b>	Refer to stroke table for details

[ Note ] When ordering the guide frames separately, 2 pcs sensor holders are equipped. The matching relationship between the sensor holder and the bore size is shown in the following table.

Sensor holder type\Bore size	32	40	50	63	80	100
F-TSAI32E	●	●				
F-TSAI50E			●	●		
F-TSAI80E					●	●

### Specification

Bore size(mm)	32	40	50	63	80	100
Acting type	Double acting					
Fluid	Air(to be filtered by 40 μ m filter element)					
Operating pressure	0.15~1.0MPa(22~145psi)(1.5~10.0bar)					
Proof pressure	1.5MPa(215psi)(15bar)					
Temperature °C	-20~70					
Speed range mm/s	30~500					
Stroke tolerance	0~250 <sup>+1.0</sup> <sub>0</sub> >250 <sup>+1.5</sup> <sub>0</sub>					
Cushion type	Variable cushion					
Port size [Note]	1/8"	1/4"		3/8"		1/2"

[Note] PT thread, G thread are available.

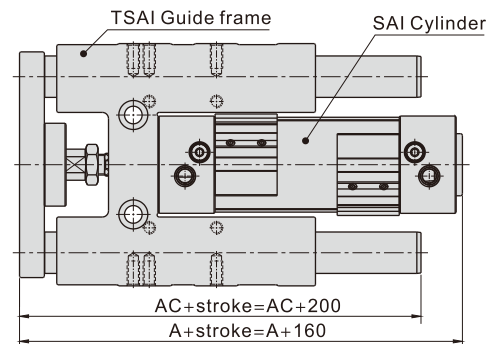
### Stroke

Bore size(mm)	Standard stroke (mm)										Max.std stroke(mm)
32	50	100	150	200	250	300	350	400	450	500	500
40	50	100	150	200	250	300	350	400	450	500	500
50	50	100	150	200	250	300	350	400	450	500	500
63	50	100	150	200	250	300	350	400	450	500	500
80	50	100	150	200	250	300	350	400	450	500	500
100	50	100	150	200	250	300	350	400	450	500	500

[Note] Consult us for non-standard stroke.

### Ordering instructions:

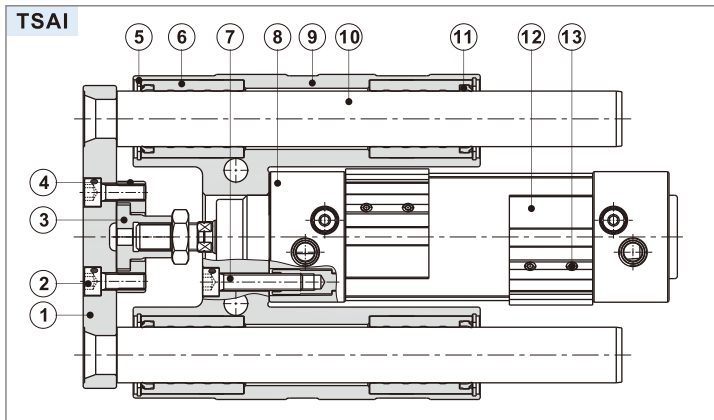
1. When ordering guide frame separately, only standard strokes from the stroke list can be ordered. (Other stroke can only be ordered by non-standard)
2. To order non-standard stroke cylinders with guide frame, the combination is as follows:  
Non-standard stroke cylinder  
+ guide frame of the upper standard stroke.  
Example: SA132X160 (non-standard stroke cylinder)  
+F-TSAIM32X200(Standard stroke guide frame).  
The dimension is as follows:



# With guide frame cylinder

## TSAI Series

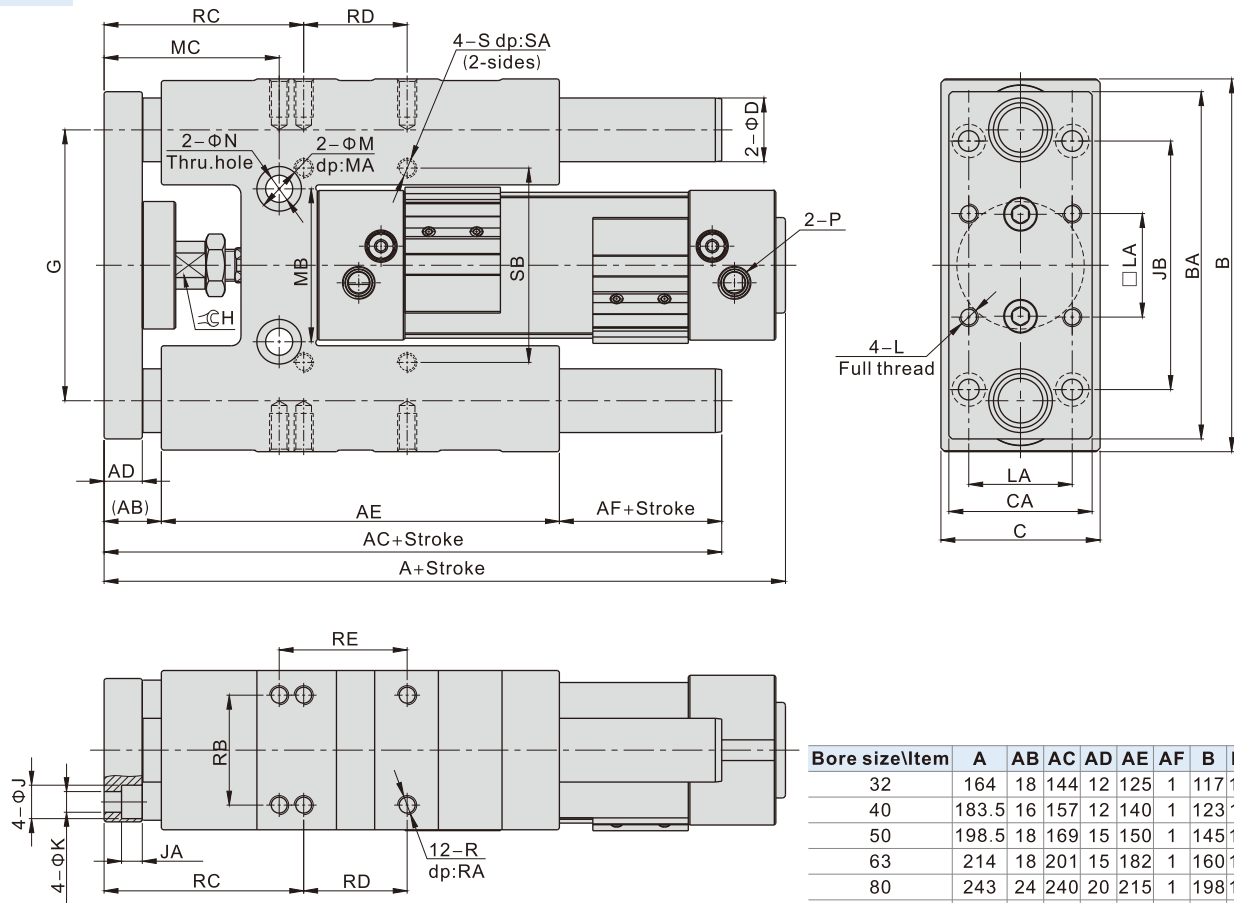
### Inner structure and material of major parts



NO.	Item	Material
1	Fixed plate	Ductile iron
2	Bolt	Carbon steel
3	Floating nut	Carbon steel
4	Floating baffle	Carbon steel
5	C clip	Spring steel
6	Linear bearing	-
	Brass bearing	Brass
7	Bolt	Carbon steel
8	SAI Cylinder	Unit
9	Guide frame	Aluminum alloy
10	Guider (Linear)	Alloy steel
	Guider (Brass)	Carbon steel
11	Dust ring	Plastic
12	Sensor holder	Aluminum alloy
13	Screw	Alloy steel

### Dimensions

#### TSAIM/TSAIL



Bore size\Item	A	AB	AC	AD	AE	AF	B	BA	C	CA
32	164	18	144	12	125	1	117	109	50	45
40	183.5	16	157	12	140	1	123	115	58	54
50	198.5	18	169	15	150	1	145	135	70	63
63	214	18	201	15	182	1	160	150	85	80
80	243	24	240	20	215	1	198	189	105	100
100	258	24	245	20	220	1	221	210	130	120

Bore size\Item	D	G	H	J	JA	JB	K	L	LA	M	MA	MB	MC	N	P	R	RA	RB	RC	RD	RE	S	SA	SB
32	20(16)	85	15	10.5	6.5	78	6.5	M6X1.0	32.5	14	4.5	48	55	8.5	1/8"	M6X1.0	12	34.5	62.7	32.5	40.2	M6X1.0	12	61
40	20(16)	91	15	10.5	6.5	84	6.5	M6X1.0	38	14	6	54	61	8.5	1/4"	M6X1.0	14	38	64	38	51	M6X1.0	14	69
50	20	108	19	14	8.5	100	8.5	M8X1.25	46.5	17	7	66	72	10.5	1/4"	M8X1.25	16	46.5	70.2	46.5	64.7	M8X1.25	16	85
63	20	123	19	14	8.5	105	8.5	M8X1.25	56.5	17	10	79	72	10.5	3/8"	M8X1.25	16	56.5	73.7	56.5	76.5	M8X1.25	16	100
80	30(25)	150	27	17	10.5	130	10.5	M10X1.5	72	-	-	-	-	3/8"	M10X1.5	20	72	90	72	90	M10X1.5	20	130	
100	30(25)	172	27	17	10.5	150	10.5	M10X1.5	89	-	-	-	-	1/2"	M10X1.5	20	89	91.5	89	113	M10X1.5	20	150	

[Note] The values in "( )" in the above table are TSAIL series sizes.