

● Character

It is in compact cylinder type, with small axial size, less space, light structure and handsome shape. All kinds of fixture and special machinery can be compactly designed with it. It can bear large transverse load and can be installed directly without accessories.

■ Theoretical Force Sheet

Cylinder inside diameter	External diameter of piston rod	Action Type	Compression area cm ²	Air pressure Kg/cm ²							
				1.0	2.0	3.0	4.0	5.0	6.0	7.0	
12	6	Extrusion Single action	1.13	—	0.70	1.83	2.96	4.09	5.22	6.35	
		Single action drawing-in	0.85	—	0.14	0.99	1.84	2.69	3.54	4.39	
		Double action	Push	1.13	—	2.26	3.39	4.52	5.65	6.78	7.91
			Pluk	0.85	—	1.70	2.55	3.40	4.25	5.10	5.95
16	6	Extrusion Single action	2.01	—	1.36	3.37	5.38	7.39	9.40	11.41	
		Single action drawing-in	1.73	—	0.80	2.53	4.26	5.99	7.72	9.45	
		Double action	Push	2.01	—	4.02	6.03	8.04	10.05	12.06	14.07
			Pluk	1.73	—	3.46	5.19	6.92	8.65	10.38	12.11
20	8	Extrusion Single action	3.14	—	2.87	6.01	9.15	12.29	15.43	18.57	
		Single action drawing-in	2.64	—	1.87	4.51	7.15	9.79	12.43	15.07	
		Double action	Push	3.14	—	6.28	9.42	12.56	15.70	18.84	21.98
			Pluk	2.64	—	5.28	7.92	10.56	13.20	15.84	18.48
25	10	Extrusion Single action	4.90	—	5.80	10.70	15.60	20.50	25.40	30.30	
		Single action drawing-in	4.12	—	4.24	8.36	12.48	16.60	20.72	24.84	
		Double action	Push	4.90	—	9.80	14.70	19.60	24.50	29.40	34.30
			Pluk	4.12	—	8.24	12.36	16.48	20.60	24.72	28.84
32	12	Extrusion Single action	8.04	—	11.21	19.25	27.29	35.33	43.37	51.41	
		Single action drawing-in	6.90	—	8.93	15.83	22.73	29.63	36.53	43.43	
		Double action	Push	8.04	—	16.08	24.12	32.16	40.20	48.24	56.28
			Pluk	6.90	—	13.80	20.70	27.60	34.50	41.40	48.30
40	16	Extrusion Single action	12.56	—	20.08	32.64	45.20	57.76	70.32	82.88	
		Single action drawing-in	10.55	—	16.06	26.61	37.16	47.71	58.26	68.81	
		Double action	Push	12.56	12.56	25.12	37.68	50.24	62.80	75.36	87.92
			Pluk	10.55	10.55	21.10	31.65	42.20	52.75	63.30	73.85
50	20	Double action	Push	19.63	19.63	39.26	58.89	78.52	98.15	117.78	137.41
		Pluk	16.49	16.49	32.98	49.47	65.96	82.45	98.94	115.43	
63	20	Double action	Push	31.17	31.17	62.34	93.51	124.68	155.85	187.02	218.19
		Pluk	28.03	28.03	56.06	84.09	112.12	140.15	168.18	196.21	
80	25	Double action	Push	50.26	50.26	100.52	150.78	201.04	251.30	301.56	351.82
		Pluk	45.36	45.36	90.72	136.08	181.44	226.80	272.16	317.52	
100	32	Double action	Push	78.53	78.53	157.06	235.59	314.12	392.65	471.18	549.71
		Pluk	70.49	70.49	140.98	211.47	281.96	352.45	422.94	493.43	

III

● Calculation of cylinder's theoretic force

$$F = P \times A - F_0$$

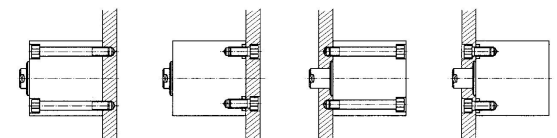
F: Theoretical force

P: Pressure

A: Piston area

F₀: Regain power of spring

● Mounting Type

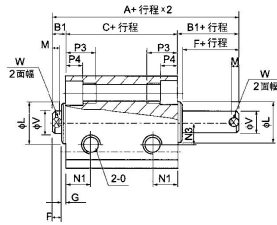
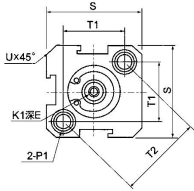


Compact Cylinder

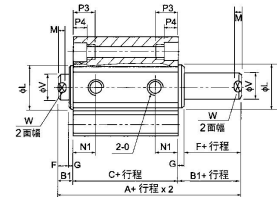
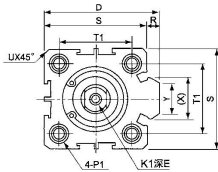
Figure Dimension

● TGNJ, TGNDS

● ø12 ~ ø16



● ø20 ~ ø100



Type	Without magnet			With magnet			D	Stroke ≤ 10	Stroke > 10	F	G	K1	L	M	N1
	A	B1	C	A	B1	C		E							
12	27	5	17	37	5	27	—	6	4	1	M3x0.5	10	2.8	6.3	
16	29.5	5.5	18.5	39.5	5.5	28.5	—	6	4	1.5	M3x0.5	11	2.8	7.3	
20	30.5	5.5	19.5	40.5	5.5	29.5	36	8 (Stroke=5时为6.5)	4	1.5	M4x0.7	14	2.8	7.5	
25	33	6	21	43	6	31	42	10 (Stroke=5时为7)	4	2	M5x0.8	16	2.8	8	
32	38.5	7	24.5	48.5	7	34.5	50	8	4	3	M6x1	20	2.8	9	
40	40	7	26	50	7	36	58.5	9	4	3	M8x1.25	26	2.8	10	
50	46	9	28	56	9	38	71.5	11	15	5	M10x1.5	33	2.8	10.5	
63	50	9	32	60	9	42	84.5	11	15	5	M10x1.5	35	2.8	11.8	
80	63	11	41	73	11	51	104	14	20	6	M14x1.5	45	4	14.5	
100	75	12	51	85	12	61	124	18	20	7	M18x1.5	55	4	20.5	

Bore	N3	O	P1	P3	P4	R	S	T1	T2	U	V	W	X	Y
12	6	M5x0.8	Double side, Φ6.5 Cog M5x0.8 Through hole, Φ4.2	12	4.5	—	25	16.2	23	1.6	6	5	—	—
16	6.5	M5x0.8	Double side, Φ6.5 Cog M5x0.8 Through hole, Φ4.2	12	4.5	—	29	19.8	28	1.6	6	5	—	—
20	—	M5x0.8	Double side, Φ6.5 Cog M5x0.8 Through hole, Φ4.2	14	4.5	2	34	24	—	2.1	8	6	11.3	10
25	—	M5x0.8	Double side, Φ8.2 Cog M5x1.0 Through hole, Φ4.6	15	5.5	2	40	28	—	3.1	10	8	12	10
32	—	G1/8	Double side, Φ8.2 Cog M5x1.0 Through hole, Φ4.6	16	5.5	6	44	34	—	2.15	12	10	18.3	15
40	—	G1/8	Double side, Φ10 Cog M8x1.25 Through hole, Φ6.5	20	7.5	6.5	52	40	—	2.25	16	14	21.3	16
50	—	G1/4	Double side, Φ11 Cog M8x1.25 Through hole, Φ6.5	25	8.5	9.5	62	48	—	4.15	20	17	30	20
63	—	G1/4	Double side, Φ11 Cog M8x1.25 Through hole, Φ6.5	25	8.5	9.5	75	60	—	3.15	20	17	28.7	20
80	—	G3/8	Double side, Φ14 Cog M12x1.75 Through hole, Φ9.2	25	10.5	10	94	74	—	3.65	25	22	36	26
100	—	G3/8	Double side, Φ17.5 Cog M14x2 Through hole, Φ11.3	30	13	10	114	90	—	3.65	32	27	35	26

* Special stroke please contact with us

Compact Cylinder

● Character

Thin and light: In possession of the precision of action and service life, the length is only 1/2 ~ 1/3 of normal cylinder.

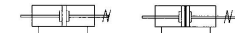
Easy to install: With the embedding type of mounting, need nothing and save room.

Easy to maintain: With simple design to assemble, install and repair easily.

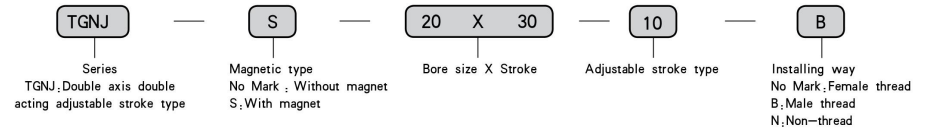
Magnet switch: Around the body, leave room for the magnet switch in advance to install and adjust the magnet position more easily.

Adjustable stroke: Attached with adjustable nut, cylinder can adjust the stroke within its stroke range.

■ Graphics Sign



● Ordering Code



■ Example

- Bore: 20mm, stroke: 30mm, adjustable stroke: 10, With magnet, Code : TGNJ-S-20×30-10-B
- Bore: 32mm, stroke: 100mm, adjustable stroke: 10, no thread, Code : TGNJ-32×100-10-N

■ Specification

Bore (mm)	12	16	20	25	32	40	50	63	80	100
Action	Double acting type									
Applicable medium	Air									
Pressure range	0.1 ~ 0.9 MPa									
Proof pressure	1.35 MPa									
Temperature range	-10 ~ 60°C (No Freeze)									
Speed range	30 ~ 50 mm/s			30 ~ 35 mm/s			30 ~ 250 mm/s			
Cushion type	Mounted Cushion									
Port size	M5x0.8			G1/8			G1/4		G3/8	

■ Stroke

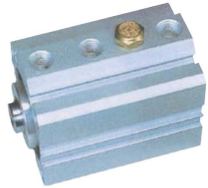
Bore (mm)	12	16	20	25	32	40	50	63	80	100
Without magnet	5 ~ 60mm 5mm / grade	5 ~ 85mm 5mm / grade	5 ~ 90mm 5mm / grade	100 ~ 110mm 10mm / grade	5 ~ 90mm 5mm / grade	100 ~ 130mm 10mm / grade	5 ~ 90mm 5mm / grade	100 ~ 130mm 10mm / grade	100 ~ 130mm 10mm / grade	100 ~ 130mm 10mm / grade
With magnet	5 ~ 50mm 5mm / grade	5 ~ 75mm 5mm / grade	5 ~ 90mm 5mm / grade	100mm	5 ~ 90mm 5mm / grade	100 ~ 120mm 10mm / grade	5 ~ 90mm 5mm / grade	100 ~ 120mm 10mm / grade	100 ~ 120mm 10mm / grade	100 ~ 120mm 10mm / grade
Max. stroke	60mm	100mm	120mm	120mm	120mm	120mm	130mm	130mm	130mm	130mm

* Special stroke please contact with us

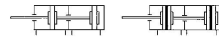
Compact Cylinder

Product characteristic

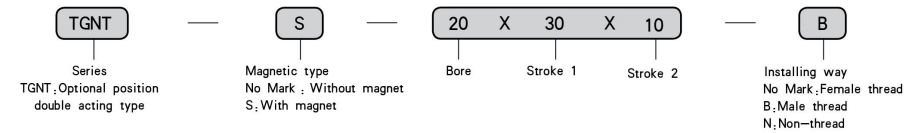
- Thin and light: In possession of the precision of action and service life, the length is only 1/2 ~ 1/3 of normal cylinder.
- Easy to install: With the embedding type of mounting, need nothing and save room.
- Easy to maintain: With simple design to assemble, install and repair easily.
- Magnet switch: Around the body, leave room for the magnet switch in advance to install and adjust the magnet position more easily.
- Optional Position: With two cylinders linked and different valve to control, cylinder has optional working positions in the stroke.



Graphics Sign



Ordering Code



Example

- Bore: 20mm, stroke 1: 30mm, stroke 2: 10mm, with magnet the pistonrod with malescrew, high pressure cylinder, Code: TGNT-S-20X30X10-B

Specification

Bore(mm)	12	16	20	25	32	40	50	63	80	100
Action	Double acting type									
Applicable medium	Air									
Pressure range	0.1 ~ 0.9 MPa									
Proof pressure	1.35 MPa									
Temperature range	-10 ~ 60°C (No Freeze)									
Speed range	30 ~ 500 mm/s			30 ~ 350 mm/s			30 ~ 250 mm/s			
Cushion type	Mounted Cushion									
Port size	M5x0.8			G1/8		G1/4		G3/8		

Stroke

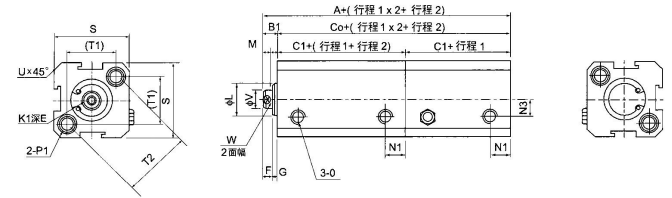
Bore(mm)	12	16	20	25	32	40	50	63	80	100
Without magnet	5 ~ 60mm 5mm/grade	5 ~ 85mm 5mm/grade	5 ~ 90mm 5mm/grade	100 ~ 110mm 10mm/grade	5 ~ 90mm 5mm/grade	100 ~ 130mm 10mm/grade				
With magnet	5 ~ 50mm 5mm/grade	5 ~ 75mm 5mm/grade	5 ~ 90mm 5mm/grade	100mm	5 ~ 90mm 5mm/grade	100 ~ 120mm 10mm/grade				
Max. stroke	60mm	100mm	120mm		130mm					

Compact Cylinder

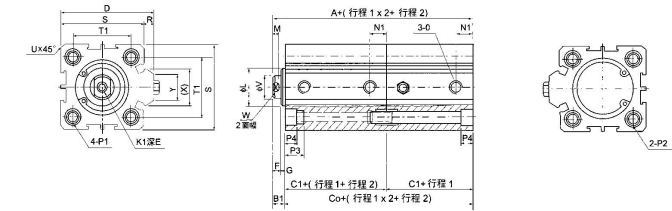
Figure Dimension

TGNT, TGNTS

• $\phi 12 \sim \phi 16$



• $\phi 20 \sim \phi 100$



Type	Without magnet			With magnet			D	E		F	G	K1	L	M	N1	N3	
	A	B1	C0	A	B1	C0		C1	Stroke ≤ 10								Stroke > 10
Bore																	
12	39	5	34	17	59	5	54	27	—	6	4	1	M3x0.5	10	2.8	6.3	6
16	42.5	5.5	37	18.5	62.5	5.5	57	28.5	—	6	4	1.5	M3x0.5	11	2.8	7.3	6.5
20	44.5	5.5	39	19.5	64.5	5.5	59	29.5	36	8	4	1.5	M4x0.7	14	2.8	7.5	—
25	48	6	42	21	68	6	62	31	42	10	4	2	M5x0.8	16	2.8	8	—
32	56	7	49	24.5	76	7	69	34.5	50	12	4	3	M6x1	20	2.8	9	—
40	59	7	52	26	79	7	72	36	58.5	12	4	3	M8x1.25	26	2.8	10	—
50	65	9	5	28	85	9	76	38	71.5	15	5	4	M10x1.5	33	2.8	10.5	—
63	73	9	64	32	93	9	84	42	84.5	15	5	4	M10x1.5	35	2.8	11.8	—
80	93	11	82	41	113	11	102	51	104	15	6	5	M14x1.5	45	4	14.5	—
100	114	12	102	51	134	12	122	61	124	18	7	5	M18x1.5	55	4	20.5	—

Bore	O	P1				P2				P3	P4	R	S	T1	T2	U	V	W	X	Y	
		Through hole	Through hole	Through hole	Through hole	Through hole	Through hole	Through hole	Through hole												
12	M5x0.8	φ6.5 Cog	M5x0.8	Through hole: φ4.2							12	4.5	—	25	16.2	23	1.6	6	5	—	—
16	M5x0.8	φ6.5 Cog	M5x0.8	Through hole: φ4.2							12	4.5	—	29	19.8	28	1.6	6	5	—	—
20	M5x0.8	Double side: φ6.5 Cog	M5x0.8	Through hole: φ4.2	Double side: φ6.5	Through hole: φ5.2					14	4.5	2	34	24	—	2.1	8	6	11.3	10
25	M5x0.8	Double side: φ8.2 Cog	M6x1.0	Through hole: φ4.6	Double side: φ8.2	Through hole: φ6.2					15	5.5	2	40	28	—	3.1	10	8	12	10
32	G1/8	Double side: φ8.2 Cog	M6x1.0	Through hole: φ4.6	Double side: φ8.2	Through hole: φ6.2					16	5.5	6	44	34	—	2.15	12	10	18.3	15
40	G1/8	Double side: φ10 Cog	M8x1.25	Through hole: φ6.5	Double side: φ10	Through hole: φ8.2					20	7.5	6.5	52	40	—	2.25	16	14	21.3	16
50	G1/4	Double side: φ11 Cog	M8x1.25	Through hole: φ6.5	Double side: φ11	Through hole: φ8.5					25	8.5	9.5	62	48	—	4.15	20	17	30	20
63	G1/4	Double side: φ11 Cog	M8x1.25	Through hole: φ6.5	Double side: φ11	Through hole: φ8.5					25	8.5	9.5	75	60	—	3.15	20	17	28.7	20
80	G3/8	Double side: φ14 Cog	M12x1.75	Through hole: φ9.2	Double side: φ14	Through hole: φ12.3					25	10.5	10	94	74	—	3.65	25	22	36	26
100	G3/8	Double side: φ17.5 Cog	M14x2	Through hole: φ11.3	Double side: φ17.5	Through hole: φ14.2					30	13	10	114	90	—	3.65	32	27	35	26

Compact Cylinder

Product characteristic

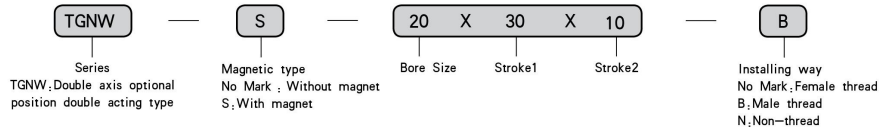
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- Optional Position: With two cylinders linked and different valve to control, cylinder has optional working positions in the stroke.



Graphics Sign



Ordering Code



Example

1) Bore:20mm, stroke1:30mm, stroke2:10mm, male thread, magnet type
 Code : TGNW-S-20 X 30 X 10-B

Specification

Bore(mm)	12	16	20	25	32	40	50	63	80	100
Action	Double acting type									
Applicable medium	Air									
Pressure range	0.1 ~ 0.9 MPa									
Proof pressure	1.35 MPa									
Temperature range	-10 ~ 60°C (No Freeze)									
Speed range	30 ~ 500 mm/s			30 ~ 350 mm/s			30 ~ 250 mm/s			
Cushion type	Mounted Cushion									
Port size	M5x0.8			G1/8		G1/4		G3/8		

Stroke

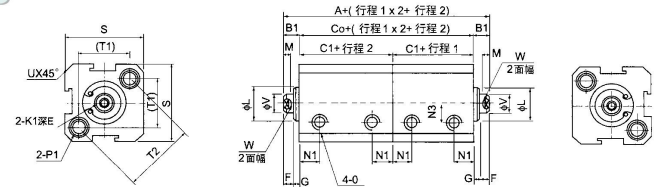
Bore(mm)	12	16	20	25	32	40	50	63	80	100
Without magnet	5 ~ 60mm 5mm/grade	5 ~ 85mm 5mm/grade	5 ~ 90mm 5mm/grade	100 ~ 110mm 10mm/grade	5 ~ 90mm 5mm/grade	100 ~ 130mm 10mm/grade				
With magnet	5 ~ 50mm 5mm/grade	5 ~ 75mm 5mm/grade	5 ~ 90mm 5mm/grade	100mm	5 ~ 90mm 5mm/grade	100 ~ 120mm 10mm/grade				
Max. stroke	60mm	100mm	120mm		130mm					

Compact Cylinder

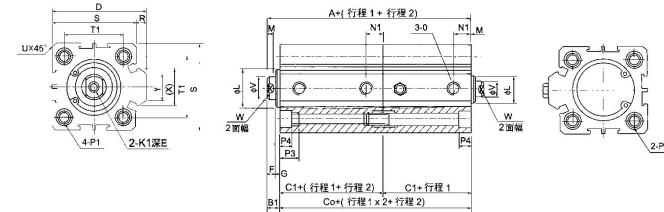
Figure Dimension

TGNW, TGNWS

● $\phi 12 \sim \phi 16$



● $\phi 20 \sim \phi 100$



Type	Without magnet				With magnet				D	E		F	G	K1	L	M	N1	N3
	A	B1	C0	C1	A	B1	C0	C1		Stroke ≤ 10	Stroke > 10							
12	44	5	34	17	64	5	54	27	—	6	4	1	M3x0.5	10	2.8	6.3	6	
16	48	5.5	37	18.5	68	5.5	57	28.5	—	6	4	1.5	M3x0.5	11	2.8	7.3	6.5	
20	50	5.5	39	19.5	70	5.5	59	29.5	36	8	4	1.5	M4x0.7	14	2.8	7.5	—	
25	54	6	42	21	74	6	62	31	42	10	4	2	M5x0.8	16	2.8	8	—	
32	63	7	49	24.5	83	7	69	34.5	50	12	4	3	M6x1	20	2.8	9	—	
40	66	7	52	26	86	7	72	36	58.5	12	4	3	M8x1.25	26	2.8	10	—	
50	74	9	56	28	94	9	76	38	71.5	15	5	4	M10x1.5	33	2.8	10.5	—	
63	82	9	64	32	102	9	84	42	84.5	15	5	4	M10x1.5	35	2.8	11.8	—	
80	104	11	82	41	124	11	102	51	104	15	6	5	M14x1.5	45	4	14.5	—	
100	126	12	102	51	146	12	122	61	124	18	7	5	M18x1.5	55	4	20.5	—	

Bore	O	P1				P2				P3	P4	R	S	T1	T2	U	V	W	X	Y
		Through hole	Through hole	Through hole	Through hole	Through hole	Through hole	Through hole	Through hole											
12	M5x0.8	φ6.5 Cog	M5x0.8	Through hole: φ4.2	—	—	—	—	—	12	4.5	—	25	16.2	23	1.6	6	5	—	—
16	M5x0.8	φ6.5 Cog	M5x0.8	Through hole: φ4.2	—	—	—	—	—	12	4.5	—	29	19.8	28	1.6	6	5	—	—
20	M5x0.8	Double side, φ6.5 Cog	M5x0.8	Through hole: φ4.2	Double side, φ6.5	Through hole: φ5.2	—	—	—	14	4.5	2	34	24	—	2.1	8	6	11.3	10
25	M5x0.8	Double side, φ8.2 Cog	M6x1.0	Through hole: φ4.6	Double side, φ8.2	Through hole: φ6.2	—	—	—	15	5.5	2	40	28	—	3.1	10	8	12	10
32	G1/8	Double side, φ8.2 Cog	M6x1.0	Through hole: φ4.6	Double side, φ8.2	Through hole: φ6.2	—	—	—	16	5.5	6	44	34	—	2.15	12	10	18.3	15
40	G1/8	Double side, φ10 Cog	M8x1.25	Through hole: φ6.5	Double side, φ10	Through hole: φ8.2	—	—	—	20	7.5	6.5	52	40	—	2.25	16	14	21.3	16
50	G1/4	Double side, φ11 Cog	M8x1.25	Through hole: φ6.5	Double side, φ11	Through hole: φ8.5	—	—	—	25	8.5	9.5	62	48	—	4.15	20	17	30	20
63	G1/4	Double side, φ11 Cog	M8x1.25	Through hole: φ6.5	Double side, φ11	Through hole: φ8.5	—	—	—	25	8.5	9.5	75	60	—	3.15	20	17	28.7	20
80	G3/8	Double side, φ14 Cog	M12x1.75	Through hole: φ9.2	Double side, φ14	Through hole: φ12.3	—	—	—	25	10.5	10	94	74	—	3.65	25	22	36	26
100	G3/8	Double side, φ17.5 Cog	M14x2	Through hole: φ11.3	Double side, φ17.5	Through hole: φ14.2	—	—	—	30	13	10	114	90	—	3.65	32	27	35	26