

TGC series Standard Cylinder



Theoretical calculation of the cylinder output

$$F = P \times A$$

- F : cylinder theoretical output
- P : Working pressure
- A : Piston force area

Designed with new seal material and buffer structure, with a simple structure, light weight, low starting pressure, running balance, good sealing performance, long life, easy maintenance, etc., are widely used in light industry, chemical industry, gold, mechanical, electronics and other industries automation equipment, there are a varieties of components options to attend different installation requirements.

Cylinder installation instructions

- 1、 Before installation, be sure if the cylinder was not damaged during transportation. Check if connecting parts were loose, etc.
- 2、 When installation, the cylinder piston rod shall not withstand eccentric or radial loads, the load must be consistent with the direction of piston rod axis.
- 3、 When cylinder installation, especially for long stroke cylinder, it must use level instrument for three-point position calibration.
- 4、 Before the pipe connects into air intake, it should clear pipe's burrs, pipeline without corrosion, after cleaning up and checked, can be installation.
- 5、 Speed adjustment: firstly adjusting speed control valve (one-way throttle) in the middle, gradually adjusting the output pressure of regulator, when cylinder speed is close to pre-determine speed, it can ascertain working pressure, and then using speed control valve for fine tuning. Finally adjusting the buffer speed (usually adjustable needle is adjusted at the factory)
- 6、 After cylinder installation, in working pressure range, to operate 2-3 times without load, checking the cylinder before if is working normally.
- 7、 At high temperature or corrosive conditions, it should use the appropriate temperature or corrosion resistance cylinders
- 8、 In the occasions of humidity, dust or water drop, oil, dust, welding slag, the cylinder should be protected with devices.
- 9、 In low-temperature environment, it should take antifreeze measure to prevent water freezing of the system.
- 10、 If the cylinder is not used for a long time, pay attention to the surface oxidation, the intake and exhaust ports should be added plug dust protection.

Theoretical force sheet

Cylinder inside diameter	32		40		50		63		80		100		125		160		200		250		
External diameter of piston rod	12		16		20		20		25		25		32		40		40		50		
Action Type	Double action		Double action		Double action		Double action		Double action		Double action		Double action		Double action		Double action		Double action		
	Push	Pluk	Push	Pluk	Push	Pluk	Push	Pluk	Push	Pluk	Push	Pluk	Push	Pluk	Push	Pluk	Push	Pluk	Push	Pluk	
Compression area cm <sup>2</sup>	8.04	6.90	12.56	10.55	19.63	16.49	31.17	28.03	50.26	45.36	78.53	73.62	122.7	114.6	201.0	188.4	314	301	490	410	
Air pressure Kgf/cm <sup>2</sup>	1	08.04	06.90	12.56	10.55	19.63	16.49	31.17	28.03	50.26	45.36	78.53	73.62	122	114	210	188	314	301	490	410
	2	16.08	13.80	25.12	21.10	39.26	32.98	62.34	56.06	100.52	90.72	157.06	147.24	245	229	402	377	628	603	980	820
	3	24.12	20.70	37.68	31.65	58.89	49.47	93.51	84.09	150.78	136.08	235.59	220.86	368	344	603	565	942	904	1470	1230
	4	32.16	27.60	50.24	42.20	78.52	65.96	124.68	112.12	201.04	181.44	314.12	294.48	491	458	804	754	1257	1206	1960	1640
	5	40.20	34.50	62.80	52.75	98.15	82.45	155.85	140.15	251.30	226.80	392.65	368.10	615	573	1005	942	1570	1507	2450	2050
	6	48.24	41.40	75.36	63.30	117.78	98.94	187.02	168.18	301.56	272.16	471.18	441.72	736	688	1206	1130	1885	1808	2940	2460
	7	56.28	48.30	87.92	73.85	137.41	115.43	218.19	196.21	351.82	317.52	549.71	515.34	859	802	1407	1319	2199	2110	3430	2870
	8	64.32	55.20	100.48	84.40	157.04	131.92	249.36	224.24	402.08	362.88	628.24	588.96	982	917	1608	1507	2513	2411	3920	3280
	9	72.36	62.10	113.04	94.95	176.67	148.41	280.53	252.27	452.34	408.24	706.77	662.58	1104	1031	1809	1696	2826	2713	4410	3690

TGC series Standard Cylinder



● Product characteristics

Without lubricating: Needn't lubricating on piston rod for using oiled bearing.

Cushion: Besides mounted cushion, there is adjustable buffer at the terminal of the cylinder to act smoothly.

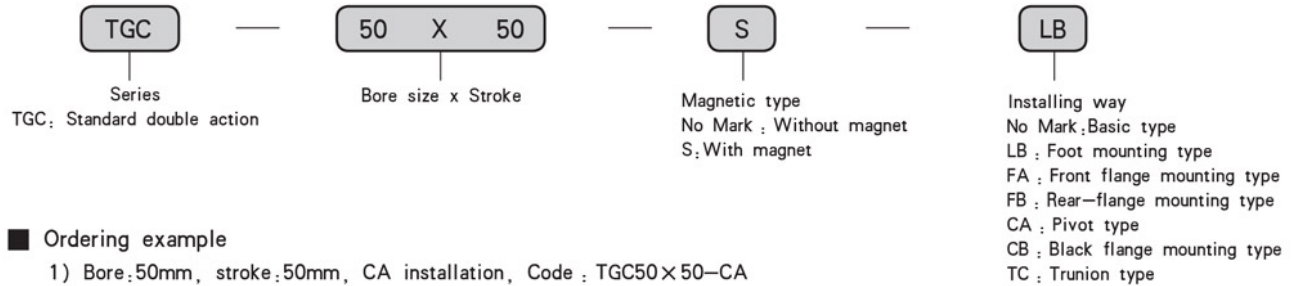
Kinds of mounting: Have kinds of auxiliary components to choose.

With magnet: With permanent magnet on piston, it can touch the magnet switch to track cylinder's action.

■ Graphics Sign



● Ordering Code



■ Ordering example

- 1) Bore: 50mm, stroke: 50mm, CA installation, Code : TGC50×50—CA
- 2) Bore: 32mm, stroke: 100mm, LB installation, Code : TGC32×100—LB

■ Standard Specification

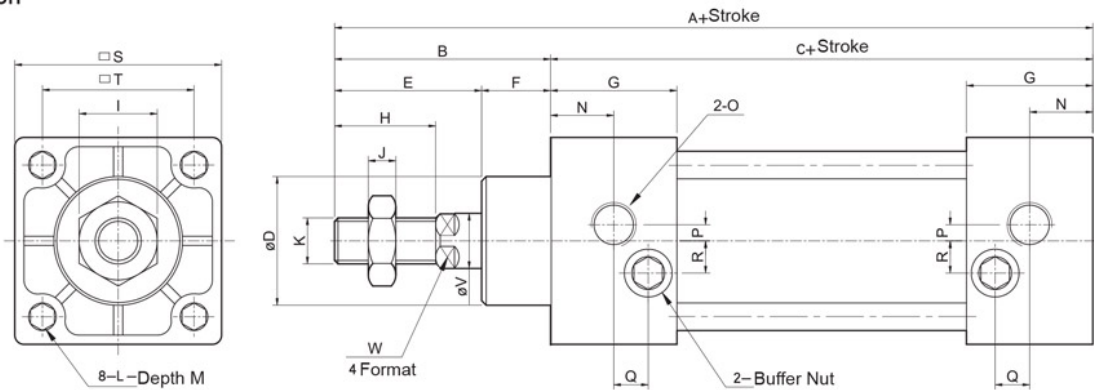
Bore (mm)	32	40	50	63	80	100	125	160	200	250
Action	Double Action Type									
Applicable	Air									
Pressure Range	0.1 ~ 0.9 MPa									
Proof Pressure	1.35MPa									
Temperature Range	-10 ~ 60°C									
Speed Range	50 ~ 800mm/s									
Cushion Type	Adjustable Cushion									
Cushion Stroke	24mm			32mm			35mm		42mm	
Prot Size	G1/8	G1/4		G3/8		G1/2		G3/4		G1

Stroke

Bore (mm)	Standard Stroke	Max. Stroke	Permissible Stroke
32	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500	1000	2000
40	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500 600 700 800	1200	2000
50	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500 600 700 800 900 1000	1200	2000
63	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500 600 700 800 900 1000	1500	2000
80	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500 600 700 800 900 1000	1500	2000
100	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500 600 700 800 900 1000	1500	2000
125	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500 600 700 800 900 1000	1500	2000
160	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500 600 700 800 900 1000	1500	2000
200	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500 600 700 800 900 1000	1500	2000
250	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500 600 700 800 900 1000	1500	2000

Figure Dimension

●  $\phi 32 \sim \phi 250$



Bore	A	B	C	D	E	F	G	H	I	J	K	L
32	140	47	93	28	32	15	27.5	22	17	6	M10x1.25	M6x1
40	145	49	96	32	34	15	27.5	24	17	7	M12x1.25	M6x1
50	153	57	96	38	42	15	27.5	32	23	8	M16x1.5	M6x1
63	156	57	99	38	42	15	27.5	32	23	8	M16x1.5	M8x1.25
80	188	75	113	47	54	21	33	40	26	10	M20x1.5	M10x1.5
100	191	75	116	47	54	21	33	40	26	10	M20x1.5	M10x1.5
125	205	88	117	52	68	20	38	54	41	13.5	M27x2	M12x1.75
160	245	113	132	62	88	25	38	72	55	18	M36x2	M16x2
200	251	118	133	67	88	30	38	72	55	18	M36x2	M16x2
250	306	141	165	86	106	35	48	84	65	21	M42x2	M20x2.5

Bore	M	N	O	P	Q	R	S	T	V	W
32	9.5	13.7	G1/8	3.5	7.5	7	45	33	12	10
40	9.5	13.5	G1/4	6	8.2	9	50	37	16	14
50	9.5	13.5	G1/4	7	8.2	9	62	47	20	17
63	9.5	13.5	G3/8	7	8.2	8.5	75	56	20	17
80	11	16.5	G3/8	10	9.5	14	94	70	25	22
100	11	16.5	G1/2	11	9.5	14	112	84	25	22
125	18.5	20	G1/2	14	6.5	14	136	104	32	27
160	18.5	20	G3/4	15	5	15	174	134	40	36
200	18.5	20	G3/4	15	5	15	214	163	40	36
250	21	26	G1	22	8	20	267	202	50	46

TGCD series Standard Cylinder



● Product characteristics

Without lubricating: Needn't lubricating on piston rod for using oiled bearing.

Cushion: Besides mounted cushion, there is adjustable buffer at the terminal of the cylinder to act smoothly.

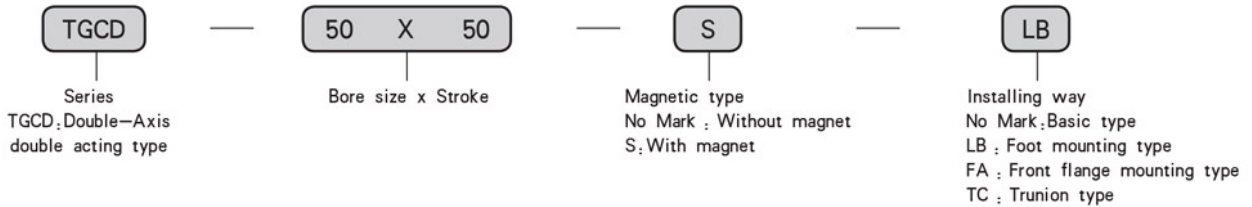
Kinds of mounting: Have kinds of auxiliary components to choose.

With magnet: With permanent magnet on piston, it can touch the magnet switch to track cylinder's action.

■ Graphics Sign



● Ordering Code



■ Example

- 1) Bore: 63mm, stroke: 50mm, LB installation, Code : TGCD63×50-LB
- 2) Bore: 32mm, stroke: 100mm, FA installation, Code : TGCD32×100-FA

■ Standard Specification

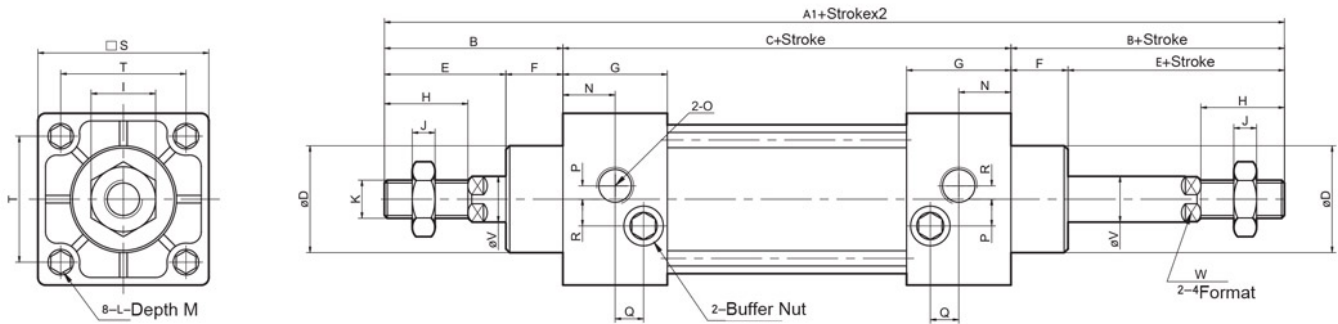
Bore (mm)	32	40	50	63	80	100	125	160	200	250
Action	Double Action Type									
Applicable	Air									
Pressure Range	0.1 ~ 0.9 MPa									
Proof Pressure	1.35MPa									
Temperature Range	-10 ~ 60°C									
Speed Range	50 ~ 800mm/s									
Cushion Type	Adjustable Cushion									
Cushion Stroke	24mm			32mm			35mm		42mm	
Prot Size	G1/8	G1/4		G3/8		G1/2		G3/4		G1

Stroke

Bore (mm)	Standard Stroke	Max. Stroke	Permissible Stroke
32	25 50 75 80 100 125 150 160 175 200 250 300	200	300
40	25 50 75 80 100 125 150 160 175 200 250 300	200	300
50	25 50 75 80 100 125 150 160 175 200 250 300	200	300
63	25 50 75 80 100 125 150 160 175 200 250 300	200	300
80	25 50 75 80 100 125 150 160 175 200 250 300	300	400
100	25 50 75 80 100 125 150 160 175 200 250 300	300	400
125	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500 600 700 800 900 1000	1500	2000
160	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500 600 700 800 900 1000	1500	2000
200	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500 600 700 800 900 1000	1500	2000
250	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500 600 700 800 900 1000	1500	2000

Figure Dimension

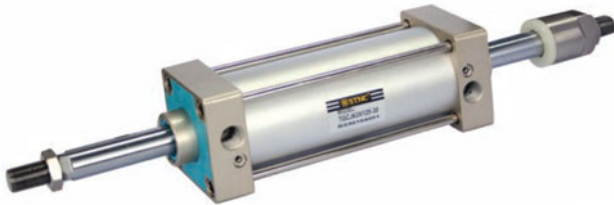
●  $\phi 32 \sim \phi 250$



Bore	A1	B	C	D	E	F	G	H	I	J	K	L
32	187	47	93	28	32	15	27,5	22	17	6	M10x1,25	M6x1
40	194	49	96	32	34	15	27,5	24	17	7	M12x1,25	M6x1
50	210	57	96	38	42	15	27,5	32	23	8	M16x1,5	M6x1
63	213	57	99	38	42	15	27,5	32	23	8	M16x1,5	M8x1,25
80	263	75	113	47	54	21	33	40	26	10	M20x1,5	M10x1,5
100	266	75	116	47	54	21	33	40	26	10	M20x1,5	M10x1,5
125	293	88	117	52	68	20	38	54	41	13,5	M27x2	M12x1,75
160	358	113	132	62	88	25	38	72	55	18	M36x2	M16x2
200	369	118	133	67	88	30	38	72	55	18	M36x2	M16x2
250	447	141	165	86	106	35	48	84	65	21	M42x2	M20x2,5

Bore	M	N	O	P	Q	R	S	T	V	W
32	9,5	13,7	G1/8	3,5	7,5	7	45	33	12	10
40	9,5	13,5	G1/4	6	8,2	9	50	37	16	14
50	9,5	13,5	G1/4	7	8,2	9	62	47	20	17
63	9,5	13,5	G3/8	7	8,2	8,5	75	56	20	17
80	11	16,5	G3/8	10	9,5	14	94	70	25	22
100	11	16,5	G1/2	11	9,5	14	112	84	25	22
125	—	—	G1/2	—	—	—	136	104	32	27
160	—	—	G3/4	—	—	—	174	134	40	36
200	—	—	G3/4	—	—	—	214	163	40	36
250	—	—	G1	—	—	—	267	202	50	46

TGCJ series Standard Cylinder



● Product characteristics

Without lubricating: Needn't lubricating on piston rod for using oiled bearing.

Cushion: Besides mounted cushion, there is adjustable buffer at the terminal of the cylinder to act smoothly.

Kinds of mounting: Have kinds of auxiliary components to choose.

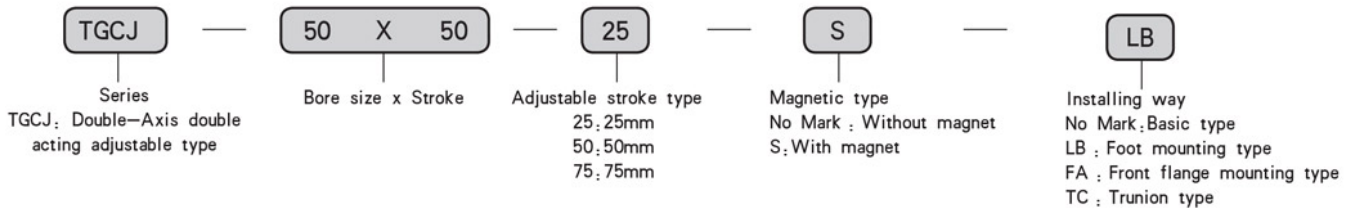
With magnet: With permanent magnet on piston, it can touch the magnet switch to track cylinder's action.

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

■ Graphics Sign



● Ordering Code



■ Example

- 1) Bore: 50mm, stroke: 50mm, adjustable stroke: 25, LB installation, Code: TGCJ50 X 50-25-LB
- 2) Bore: 32mm, stroke: 100mm, adjustable stroke: 25, FA installation, Code: TGCJ32 X 100-25-FA

■ Standard Specification

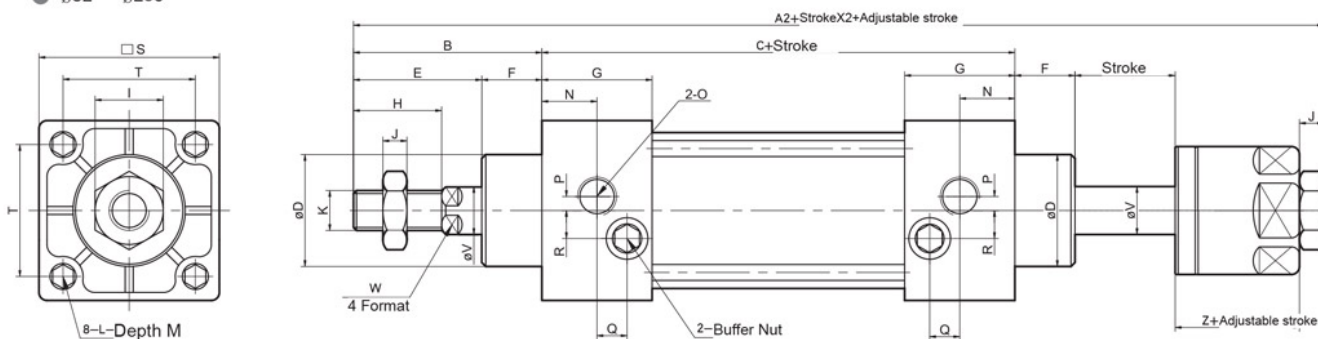
Bore (mm)	32	40	50	63	80	100	125	160	200	250
Action	Double Action Type									
Applicable	Air									
Pressure Range	0.1 ~ 0.9 MPa									
Proof Pressure	1.35MPa									
Temperature Range	-10 ~ 60°C									
Speed Range	50 ~ 800mm/s									
Cushion Type	Adjustable Cushion									
Cushion Stroke	24mm			32mm			35mm		42mm	
Prot Size	G1/8	G1/4		G3/8		G1/2		G3/4		G1

Stroke

Bore (mm)	Standard Stroke	Max. Stroke	Premissible Stroke
32	25 50 75 80 100 125 150 160 175 200	200	300
40	25 50 75 80 100 125 150 160 175 200	200	300
50	25 50 75 80 100 125 150 160 175 200	200	300
63	25 50 75 80 100 125 150 160 175 200	200	300
80	25 50 75 80 100 125 150 160 175 200 250 300	300	400
100	25 50 75 80 100 125 150 160 175 200 250 300	300	400
125	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500 600 700 800 900 1000	1500	2000
160	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500 600 700 800 900 1000	1500	2000
200	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500 600 700 800 900 1000	1500	2000
250	25 50 75 80 100 125 150 160 175 200 250 300 350 400 500 600 700 800 900 1000	1500	2000

Figure Dimension

●  $\varnothing 32 \sim \varnothing 250$



Bore	A2	B	C	D	E	F	G	H	I	J	K	L
32	182	47	93	28	32	15	27.5	22	17	6	M10x1.25	M6x1
40	188	49	96	32	34	15	27.5	24	17	7	M12x1.25	M6x1
50	199	57	96	38	42	15	27.5	32	23	8	M16x1.5	M6x1
63	202	57	99	38	42	15	27.5	32	23	8	M16x1.5	M8x1.25
80	244	75	109	47	54	21	33	40	26	10	M20x1.5	M10x1.5
100	251	75	116	47	54	21	33	40	26	10	M20x1.5	M10x1.5
125	273.5	88	117	52	68	20	38	54	41	13.5	M27x2	M12x1.75
160	328	113	132	62	88	25	38	72	55	18	M36x2	M16x2
200	339	118	133	67	88	30	38	72	55	18	M36x2	M16x2
250	—	141	165	86	106	35	48	84	65	21	M42x2	M20x2.5

Bore	M	N	O	P	Q	R	S	T	V	W	Z
32	9.5	13.7	G1/8	3.5	7.5	7	45	33	12	10	21
40	9.5	13.5	G1/4	6	8.2	9	50	37	16	14	21
50	9.5	13.5	G1/4	7	8.2	9	62	47	20	17	23
63	9.5	13.5	G3/8	7	8.2	8.5	75	56	20	17	23
80	11	16.5	G3/8	10	9.5	14	94	70	25	22	29
100	11	16.5	G1/2	11	9.5	14	112	84	25	22	29
125	—	—	G1/2	—	—	—	136	104	32	27	35
160	—	—	G3/4	—	—	—	174	134	40	36	40
200	—	—	G3/4	—	—	—	214	163	40	36	40
250	—	—	G1	—	—	—	267	202	50	46	—