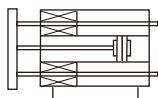




Product feature

1. JIS standard is implemented.
2. Two guides of special bearing steel and linear bearing or bronze bearing guide are used to prevent rotating. They can bear high torque and radial load.
 - ★Note: Steel ball linear bearing: It is suitable for elevation action of cylinder or the situation requiring high precision and high bearing ability, especially for the situation requiring low friction action process.
 - Bronze sliding bearing: it is suitable for the action that has radial load resistance. Compared with normal cylinder of same use, the horizontal impact resistance is doubled and it has stronger torsion rigidity.
3. Drive unit and guide unit are in the same barrel that no additional accessories are needed with minimal space required. The air intake is optional and it is convenient to install.
4. The bottom, back side and fixing plate of main body respectively has two exact orientation orifices (See Φ PA orifice and the orifice in XX point), which can provide orientation installation with high precision for the special situation.
5. Options of switch mounting with provision 4 mounting slots.
6. Special design of main body provides multi-mount;

Symbol



Specification

Bore size(mm)		6	10	12	16	20	25	32	40	50	63	80	100
Acting type		Double acting											
Fluid		Air(to be filtered by 40 μ m filter element)											
Operating pressure		0.15~0.7MPa(22~100psi)						0.15~1.0MPa(22~145psi)					
Proof pressure		1.2MPa(175psi)						1.5MPa(215psi)					
Temperature $^{\circ}$ C		-20~70											
Speed range mm/s		50~500						30~500				50~400	
Stroke tolerance								$\leq 100^{+1.0}_0$		$> 100^{+1.5}_0$			
Cushion type		Bumper											
Non-rotating tolerance [Note1]	TCL	-		$\pm 0.08^{\circ}$		$\pm 0.07^{\circ}$		$\pm 0.06^{\circ}$		$\pm 0.05^{\circ}$		$\pm 0.04^{\circ}$	
	TCM	$\pm 0.1^{\circ}$		$\pm 0.10^{\circ}$		$\pm 0.09^{\circ}$		$\pm 0.08^{\circ}$		$\pm 0.06^{\circ}$		$\pm 0.05^{\circ}$	
Port size [Note2]		M3 \times 0.5		M5 \times 0.8		1/8"		1/4"		3/8"			

[Note1] Retract position.

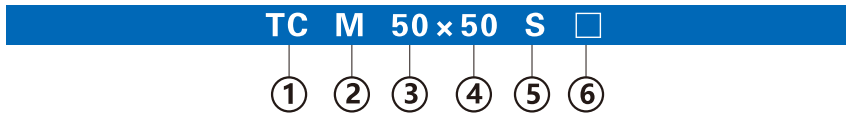
[Note2]PT thread, G thread and NPT thread are available.

Standard Stroke

Bore size (mm)	Standard stroke (mm)	Max.std stroke
6	5 10 15 20	20
10	5 10 15 20 25 30	30
12	10 20 25 30 40 50 60 70 75 80 90 100 125 150	150
16	10 20 25 30 40 50 60 70 75 80 90 100 125 150 175 200	200
20 25	20 25 30 40 50 60 70 75 80 90 100 125 150 175 200 225 250	250
32 40 50 63	25 30 40 50 60 70 75 80 90 100 125 150 175 200 225 250	250
80 100	25 30 40 50 60 70 75 80 90 100 125 150 175 200 225 250	250

[Note] When the discrepancy between non-standard stroke and standard stroke is 1~5mm, The dimensions of non-std stroke cylinder has the same dimensions as the next longer stroke std. stroke cylinder. e.g. 86mm stroke cylinder has the same dimensions of 90 std. stroke cylinder. But 84mm stroke cylinder should be ordered by non-standard stroke.

Ordering code



③ Bore size	Bearing type
6, 10	M: Bronze bearing
10	
12, 16, 20, 25, 32, 40	L: Linear bearing
50, 63, 80, 100	M: Bronze bearing

① Model
TC: Tri-rod cylinder
(Double acting type)

② Bearing type
M: Bronze bearing
L: Linear bearing
M: Bronze bearing

④ Stroke
Refer to stroke table
for details

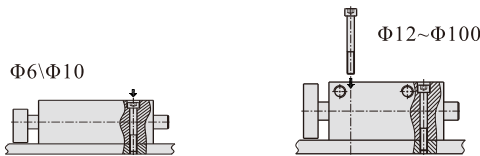
⑤ Magnet [Note1]
S: With magnet

⑥ Thread type [Note 2]
Blank: PT
G: G
T: NPT

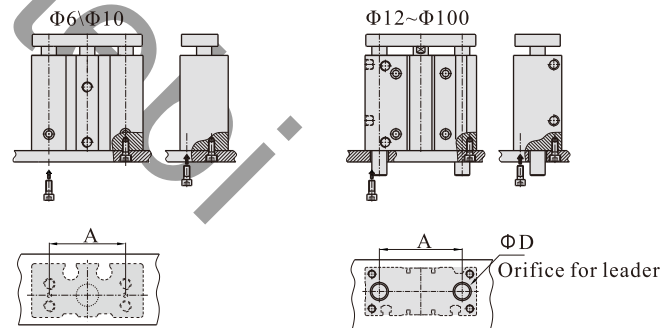
[Note1] TC Series are all with magnet.
[Note2] When the thread is standard, the code is blank.

How to mount

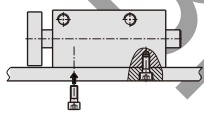
Fixation of screw on top surface(Φ6~Φ100)



Fixation of screw at back side(Φ6~Φ100)



Fixation of screw at bottom surface(Φ12~Φ100)



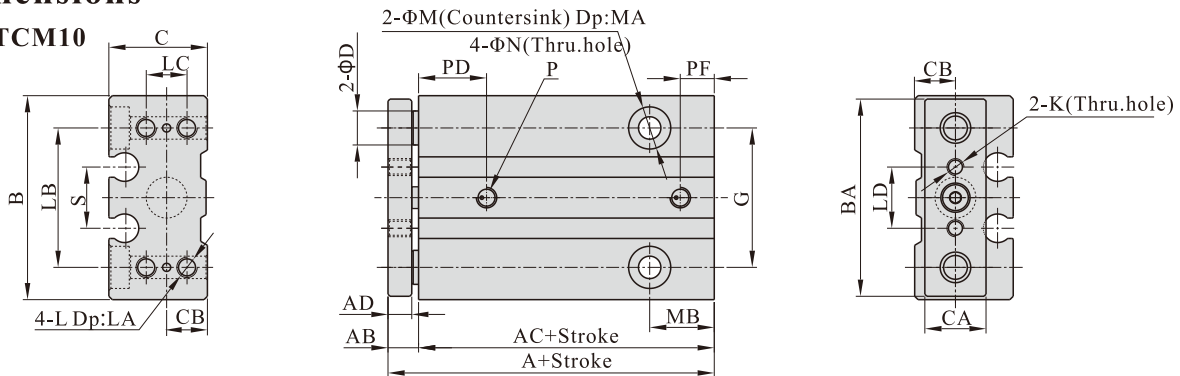
Fixation of T slot at bottom(Φ12~Φ100)



Bore size\Item	6	10	12	16	20	25	32	40	50	63	80	100
A	20.5	23	41	46	54	64	78	86	110	124	156	188
D (Min)	TCM	X	X	10	12	13	20	20	20	20	30	-
	TCL	-	-	8	10	10	13	20	20	20	-	30

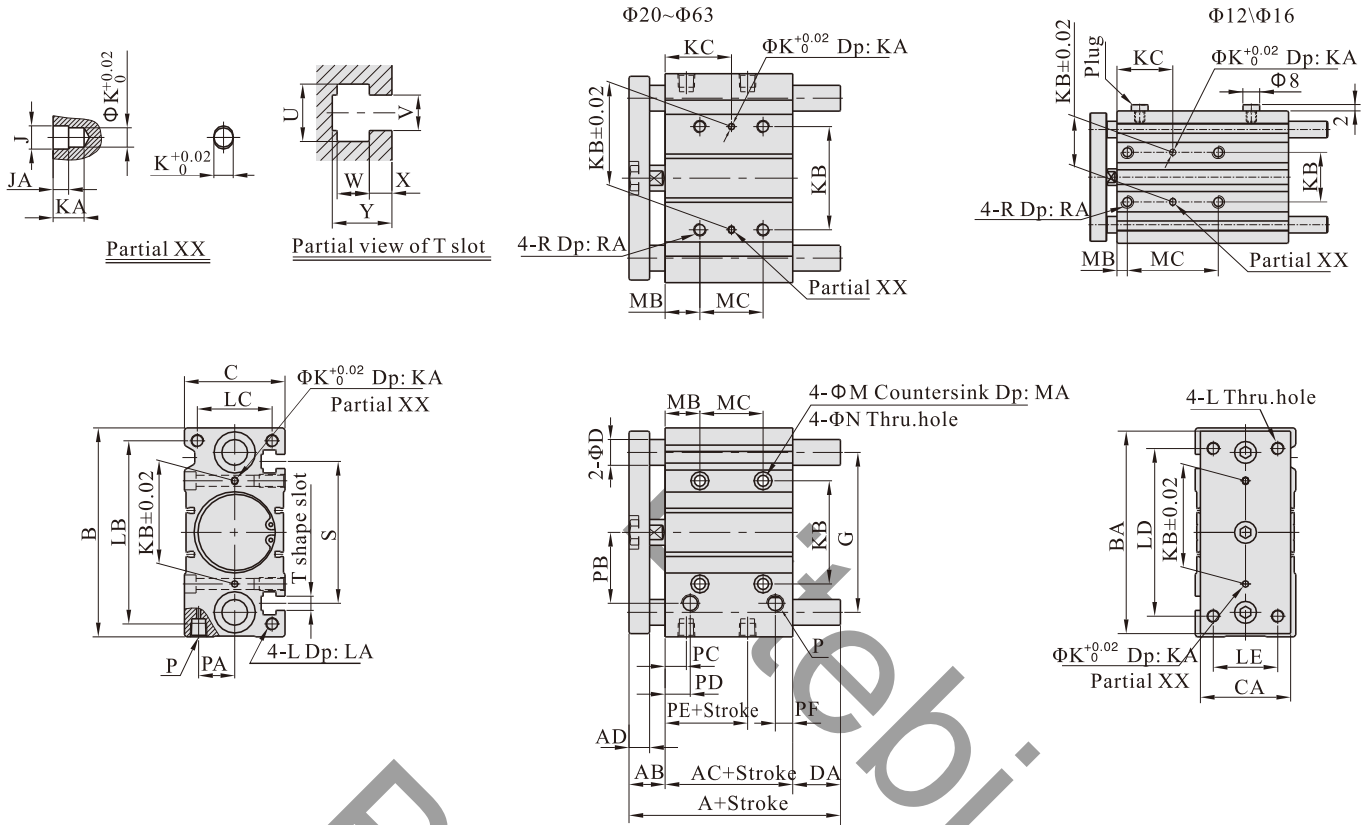
Dimensions

TCM6/TCM10



Bore size\Item	A	AB	AC	AD	B	BA	C	CA	CB	D	G	K	L	LA	LB	LC	LD	M	MA	MB	N	P	PD	PF
6	29.5	6	23.5	5	30	29	14.5	9	6	5	20.5	M2.5X0.45	M3X0.5	5	20.5	6	9	6	3	9.5	3.5	M3X0.5	9.5	5.5
10	32	6	26	5	34	33	18	10	7.5	6	23	M3X0.5	M4X0.7	5	23	8	11	8	4	8.5	4.5	M3X0.5	11.5	5

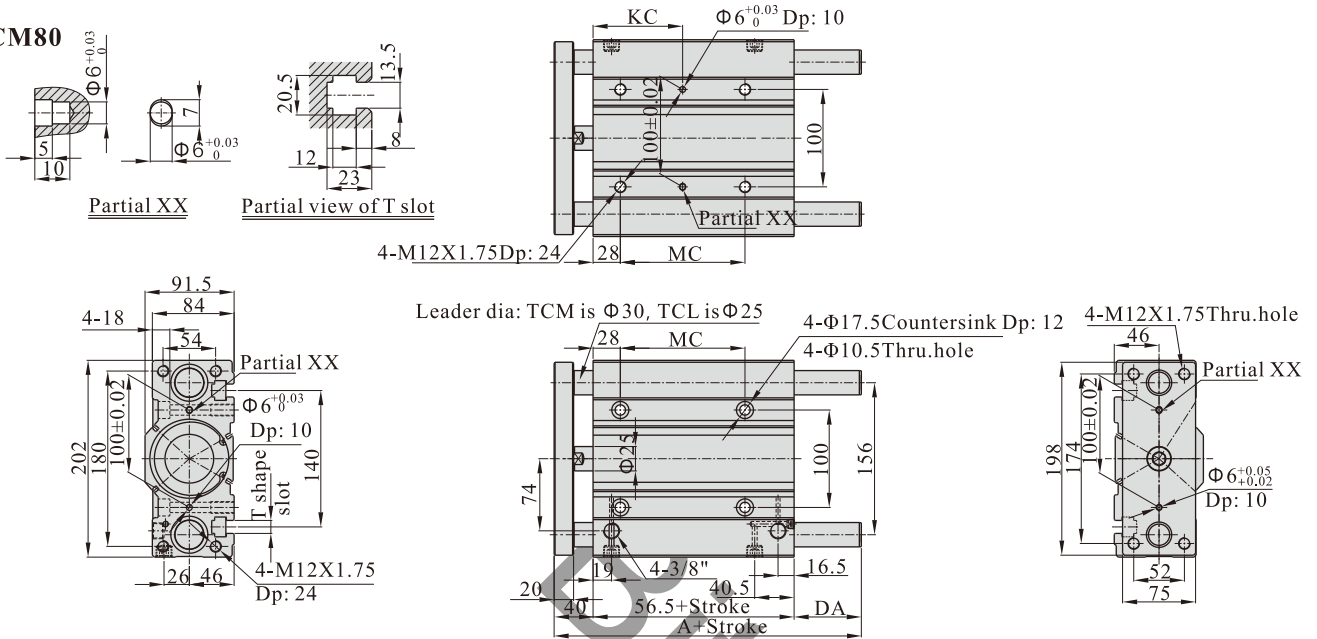
TCL/TCM12~63



Bore size\Item	A					DA								MC				KC			
	TCL/TCM	TCL/TCM				TCL				TCM				MC				KC			
Stroke	≤30	≤50	31(51)~100	101~200	>200	≤30	31~100	101~200	>200	≤50	51~100	101~200	>200	≤30	31~100	101~200	>200	≤30	31~100	101~200	>200
12	42	55	85	-	0	13	43	-	0	13	43	-	20	40	110	-	15	25	60	-	
16	46	65	95	-	0	19	49	-	0	19	49	-	24	44	110	-	17	27	60	-	
20	53	80	104	122	0	27	51	69	0	27	51	69	24	44	120	200	29	39	77	117	
25	53.5	82	104.5	122	0	28.5	51	68.5	0	28.5	51	68.5	24	44	120	200	29	39	77	117	
Stroke	≤50	≤50	51~100	101~200	>200	≤50	51~100	101~200	>200	≤50	51~100	101~200	>200	≤40	41~100	101~200	>200	≤40	41~100	101~200	>200
32	65	78	102	118	140	5.5	42.5	58.5	80.5	18.5	42.5	58.5	80.5	24	48	124	200	33	45	83	121
40	66	78	102	118	140	0	36	52	74	12	36	52	74	24	48	124	200	34	46	84	122
50	76	89	118	134	161	4	46	62	89	17	46	62	89	24	48	124	200	36	48	86	124
63	77	89	118	134	161	0	41	57	84	12	41	57	84	28	52	128	200	38	50	88	124
Bore size\Item	AB	AC	AD	B	BA	C	CA	D(TCL)	D(TCM)	G	J	JA	K	KA	KB	L	LA	LB	LC	LD	
12	13	29	8	58	56	26	22	6	8	41	3.5	3	3	6	23	M4×0.7	10	50	18	48	
16	13	33	8	64	62	30	25	8	10	46	3.5	3	3	6	24	M5×0.8	12	56	22	54	
20	16	37	10	83	81	36	30	10	12	54	3.5	3	3	6	28	M5×0.8	13	72	24	70	
25	16	37.5	10	93	91	42	38	12	16	64	4.5	3	4	6	34	M6×1.0	15	82	30	78	
32	22	37.5	12	112	110	48	44	16	20	78	4.5	3	4	6	42	M8×1.25	20	98	34	96	
40	22	44	12	120	118	54	44	16	20	86	4.5	3	4	6	50	M8×1.25	20	106	40	104	
50	28	44	16	148	146	64	60	20	20	110	6	4	5	8	66	M10×1.5	22	130	46	130	
63	28	49	16	162	158	78	70	20	20	124	6	4	5	8	80	M10×1.5	22	142	58	130	
Bore size\Item	LE	M	MA	MB	N	P	PA	PB	PC	PD	PE	PF	R	RA	S	U	V	W	X	Y	
12	14	8	4.5	5	4.5	M5×0.8	8	18	11	11	13	7.5	M5×0.8	12	37	7.5	4.5	4	2	6.5	
16	16	8	4.5	5	4.5	M5×0.8	10	19	11	11	15	8	M5×0.8	10	38	7.5	4.5	4	2.5	7	
20	18	9.5	5.5	17	5.5	1/8"	10.5	25	10.5	10.5	12.5	9	M6×1.0	12	44	8.5	5.5	4.5	3	8	
25	26	9.5	5.5	17	5.5	1/8"	13.5	28.5	11.5	11.5	12.5	9	M6×1.0	12	50	8.5	5.5	4.5	3	8.5	
32	30	11	7.5	21	6.5	1/8"	16	34	12.5	12.5	7	9	M8×1.25	16	63	10.5	6.5	5.5	3.5	9.5	
40	30	11	7.5	22	6.5	1/8"	18	38	14	14	13	10	M8×1.25	16	72	10.5	6.5	5.5	4	11	
50	40	14	9	24	8.5	1/4"	21.5	47	12	14	9	11	M10×1.5	20	92	13.5	8.5	7.5	4.5	13.5	
63	50	14	9	24	8.5	1/4"	28	55	16.5	16.5	14	13.5	M10×1.5	20	110	18	11	10	7	18.5	

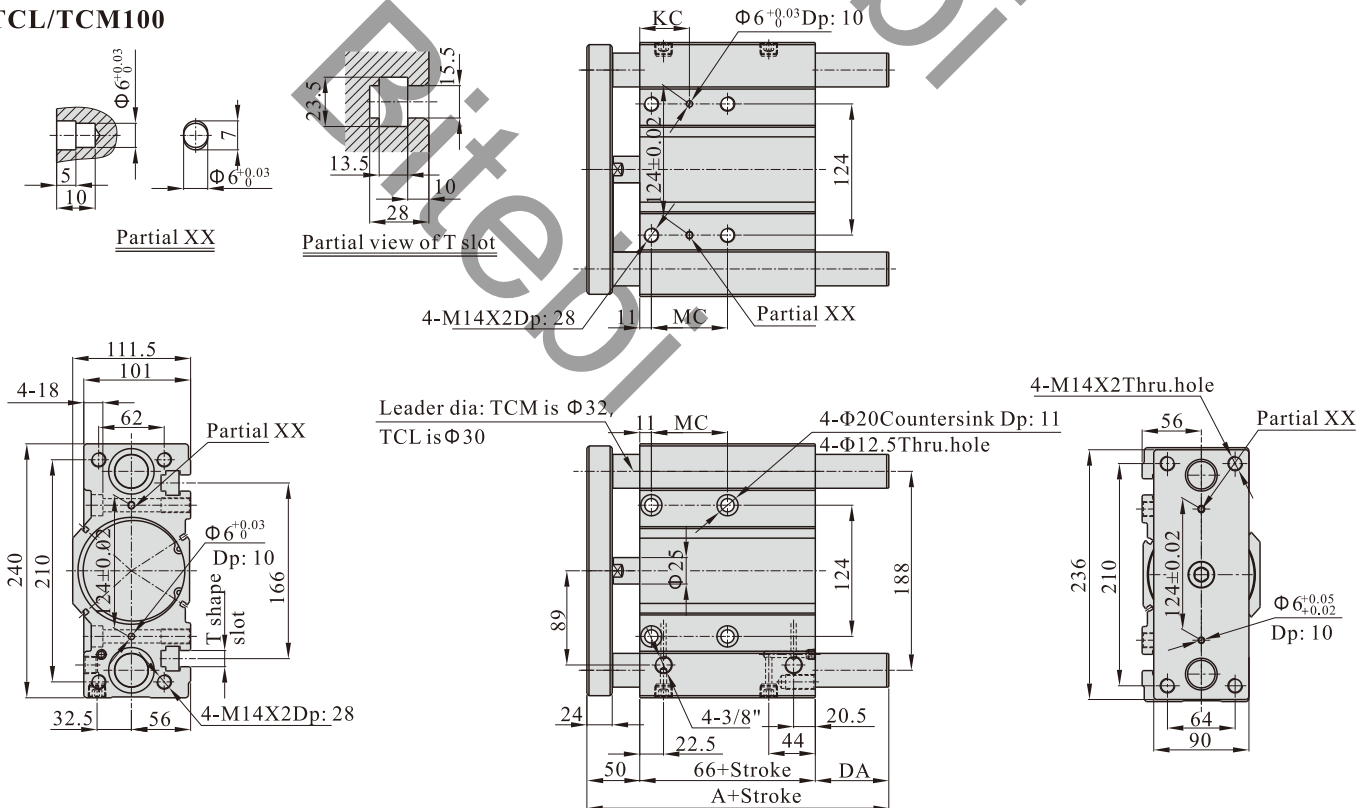
Tri-rod cylinder——TCL,TCM Series

TCL/TCM80



Item\Stroke	25	30	40	50	60	70	75	80	100	125	150	175	200	225	250	
A	TCM=112.5/TCL=106.5								165.5		187.5					
DA	TCM=16/TCL=10								69		91					
KC					54				92				128			
MC	28				52				128				200			

TCL/TCM100



Item\Stroke	25	30	40	50	60	70	75	80	100	125	150	175	200	225	250	
A	TCM=128/TCL=122								186		208					
DA	TCM=12/TCL=6								70		92					
KC	35				47				85				121			
MC	48				72				148				220			

Safe load and torque

Bore size	Type	Stroke(mm)																			
		5	10	15	20	25	30	40	50	60	70	75	80	90	100	125	150	175	200	225	250
Max. safe load		Unit: Newton(N)																			
6	TCM	0.4	0.3	0.18	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	TCM	1.5	1.2	0.8	0.5	0.25	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	TCM	-	3	-	3	3	3	3	3	3	3	3	3	3	2	2	-	-	-	-	-
	TCL	-	2	-	2	2	2	2	2	2	1	1	1	1	1	1	1	-	-	-	-
16	TCM	-	7	-	7	7	7	7	7	7	7	7	7	6	6	6	6	5	5	-	-
	TCL	-	4	-	4	4	4	4	4	4	3	3	3	3	3	3	3	3	2	-	-
20	TCM	-	-	-	14	14	14	13	12	12	12	12	12	12	11	10	10	9	8	7	7
	TCL	-	-	-	7	7	7	7	6	6	6	6	6	6	5	5	5	5	5	4	4
25	TCM	-	-	-	20	20	20	18	16	19	19	19	19	19	18	17	16	15	14	13	13
	TCL	-	-	-	10	10	10	9	8	10	10	10	10	10	9	9	8	8	7	7	7
32	TCM	-	-	-	-	37	37	37	36	35	35	34	34	34	33	33	31	29	27	26	24
	TCL	-	-	-	-	19	19	19	18	17	17	17	17	17	17	16	15	15	14	13	12
40	TCM	-	-	-	-	37	37	37	36	35	35	34	34	34	33	33	31	29	27	26	24
	TCL	-	-	-	-	19	19	19	18	17	17	17	17	17	16	15	15	14	13	12	12
50	TCM	-	-	-	-	140	130	120	105	165	160	155	155	150	145	130	115	100	80	70	60
	TCL	-	-	-	-	70	65	60	50	80	80	75	75	75	70	65	55	50	40	35	30
63	TCM	-	-	-	-	140	130	120	105	165	160	155	155	150	145	130	115	100	80	70	60
	TCL	-	-	-	-	70	65	60	50	80	80	75	75	75	70	65	55	50	40	35	30
80	TCM	-	-	-	-	220	210	200	190	180	220	210	205	195	185	165	155	135	120	105	80
	TCL	-	-	-	-	110	105	100	95	90	110	105	100	100	95	85	80	70	60	55	40
100	TCM	-	-	-	-	280	265	250	235	220	280	270	260	250	240	230	210	180	160	140	120
	TCL	-	-	-	-	140	130	125	120	110	140	135	130	125	120	115	105	90	80	70	60
Max. safe torque		Unit: Newton · Meter(N · m)																			
6	TCM	0.008	0.007	0.006	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	TCM	0.045	0.039	0.033	0.028	0.024	0.021	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	TCM	-	0.90	-	0.79	0.71	0.65	0.77	0.72	0.65	0.53	0.50	0.47	0.41	0.36	0.31	0.27	-	-	-	-
	TCL	-	0.61	-	0.45	0.40	0.35	0.58	0.50	0.44	0.39	0.37	0.35	0.32	0.29	0.24	0.20	-	-	-	-
16	TCM	-	1.21	-	1.04	0.94	0.88	1.23	1.11	0.99	0.72	0.69	0.65	0.61	0.58	0.50	0.44	0.40	0.36	-	-
	TCL	-	0.99	-	0.74	0.66	0.59	0.99	0.86	0.77	0.69	0.65	0.61	0.57	0.52	0.43	0.37	0.32	0.28	-	-
20	TCM	-	-	-	1.57	1.42	1.31	2.39	2.15	1.97	1.90	1.88	1.86	1.72	1.63	1.44	1.28	1.16	1.06	1.01	0.90
	TCL	-	-	-	1.26	1.14	1.03	2.17	1.94	1.79	1.59	1.52	1.46	1.33	1.25	1.34	1.17	1.03	0.93	0.88	0.76
25	TCM	-	-	-	2.40	2.22	2.01	3.66	3.35	3.17	3.06	2.96	2.91	2.77	2.57	2.26	2.02	1.83	1.67	1.57	1.42
	TCL	-	-	-	2.11	1.96	1.75	3.37	3.02	2.71	2.42	2.38	2.33	2.19	1.97	2.05	1.78	1.58	1.41	1.22	1.16
32	TCM	-	-	-	-	6.35	6.00	5.73	5.13	5.98	5.74	5.69	5.62	5.11	4.97	4.42	3.98	3.61	3.31	2.97	2.84
	TCL	-	-	-	-	5.95	5.73	5.44	4.89	5.43	5.15	5.11	5.02	4.70	4.51	6.34	5.79	5.33	4.93	4.33	4.29
40	TCM	-	-	-	-	7.00	6.60	6.11	5.66	6.66	6.31	6.27	6.23	5.86	5.48	4.78	4.38	3.98	3.65	3.34	3.13
	TCL	-	-	-	-	6.55	6.21	5.77	5.39	6.17	5.67	5.62	5.58	5.33	4.96	6.98	6.38	5.87	5.43	5.00	4.72
50	TCM	-	-	-	-	13.00	12.60	11.00	10.80	13.70	12.70	12.00	11.80	11.10	10.80	9.50	8.60	7.86	7.24	6.80	6.24
	TCL	-	-	-	-	9.17	8.75	8.30	7.62	10.30	9.94	9.83	9.77	8.82	8.74	11.60	10.70	9.83	9.12	8.95	7.95
63	TCM	-	-	-	-	14.70	13.60	12.90	12.10	19.40	16.20	13.50	12.70	12.10	11.90	10.70	9.69	8.86	8.16	7.52	7.04
	TCL	-	-	-	-	10.20	9.74	9.20	8.48	17.50	14.00	11.00	10.60	10.20	9.74	13.00	11.90	11.00	10.20	9.63	8.84
80	TCM	-	-	-	-	21.9	20.8	19.7	18.6	15.8	24	22.9	21.7	21	20.5	18.6	17	15.6	14.5	13.5	12.6
	TCL	-	-	-	-	15.1	14.3	13.6	12.9	12.2	23.8	22.7	21.6	21	20.6	18.9	17.3	16	14.8	13.5	12.9
100	TCM	-	-	-	-	38.8	36.8	35.0	33.5	28.5	39.4	37.5	35.6	34.5	33.8	30.9	28.4	26.2	24.4	22.5	21.4
	TCL	-	-	-	-	27.1	25.7	24.4	30.6	26	39.8	37.9	36	35.2	34.6	31.8	29.3	27.2	25.3	23.5	22.1