

CHELIC[®]

Ver. 1-1

CAT-1908

AUTOMATION

氣立可 自動化元件

氣動執行器

PNEUMATIC ACTUATOR



The Keystone of Industrial 4.0

產品特色

FEATURE



鋁壓鑄 (CTY) 缸體, 產品輕巧、外觀優美, 內表面細磨精加工, 內部和外部均採用高級防腐技術, 氣缸摩擦係數小, 使用壽命長, 抗腐蝕性能強。

雙活塞齒輪齒條式設計, 結構緊湊、安裝位置對稱、改變輸出軸轉向方便, 使用壽命長、動作迅速。活塞齒條背面裝有復合軸承及導向環, 動作精確、摩擦係數小、使用壽命延長。

組合式預負荷鍍層彈簧, 工作壽命長。

高精度齒輪和齒條, 嚙合間隙小、精度高, 輸出功率大。不銹鋼緊固件, 安全美觀, 抗腐蝕性強。

Die casting aluminum CTY body with both internal and external corrosion protection having honed cylinder surface for longer life and low coefficient of friction.

Dual piston rack and pinion design for compact onstruction, symmetric mounting position, high-cycle life and fast operation, reverse rotation can be accomplished in the field by simply inverting the pistons.

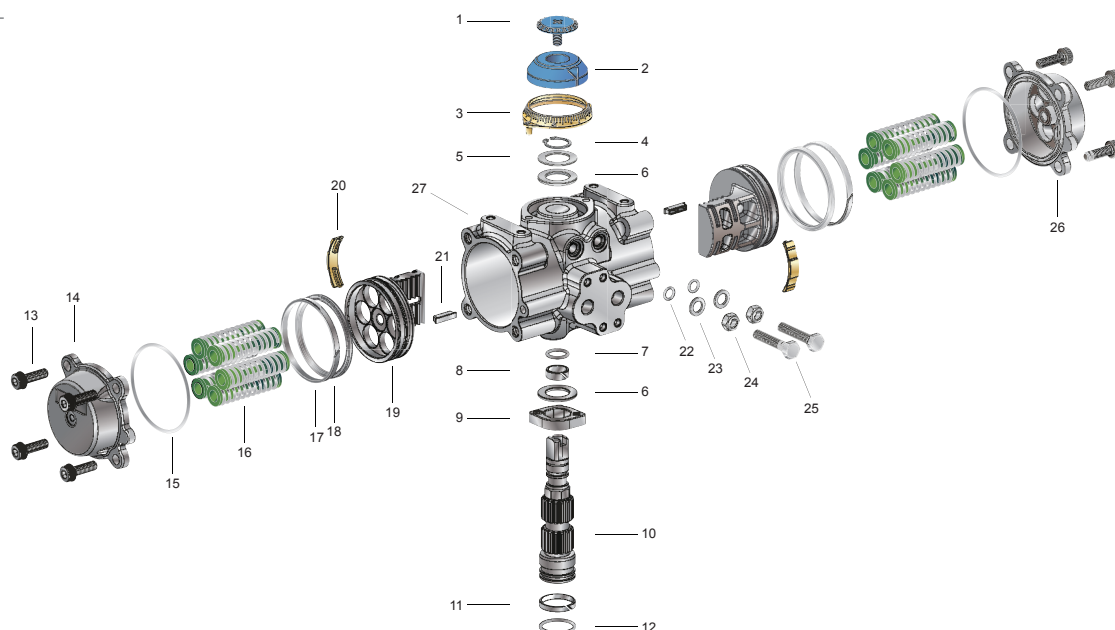
Multiple bearings and guides on racks and pistons, low friction, high cycle life and prevent shaft blowout.

Modular preloaded spring cartridge design, with coated spring for simple versatile range, greater safety and corrosion resistance, longer cycle life.

Fully machined teeth on piston and pinion for accurate low backlash rack and pinion engagement, maximum efficiency, stainless steel fasteners for long term corrosion resistance.

零件材質

MATERIAL



NO.	Part Name	零件名稱	Quantity 數量	Material 材質
1	Indicator Nut	指示螺帽	1	ABS
2	Indicator	指示器	1	ABS
3	Indicator	指示表	1	ABS
4	Elastic Ring	彈性擋圈	1	SS301
5	Shim	墊片	1	POM
6	Wear Pad	耐磨墊片	2	POM
7	Shaft Type O Ring	軸上O型圈	1	NBR
8	Wear Resistant Ring	耐磨環	1	POM
9	Adjusting Cam	調節凸輪	1	WCB
10	Output Shaft	輸出軸	1	C45
11	Wear Resistant Ring	耐磨環	1	POM
12	Shaft Under the O Ring	軸下O型圈	1	NBR
13	End Cap Bolt	端蓋螺栓	8	SS301
14	Left End Cover	左端蓋	1	Die casting Alu
15	Spring Set	彈簧組	12	55CrSi
16	End Cover Type O Ring	端蓋O型圈	2	NBR
17	Wear Resistant Ring	耐磨環	2	POM
18	Piston Seal Ring	活塞密封圈	2	NBR
19	Piston	活塞	2	Die casting Alu
20	Piston Guide Shoe	活塞導向瓦	2	POM
21	Guide Block	導向塊	2	PA66
22	Bolt with O Ring	調節螺栓O型圈	2	NBR
23	Shim	墊片	2	SS301
24	Nut	螺帽	2	SS301
25	Adjusting Bolt	調節螺栓	2	SS301
26	Right End Cover	右端蓋	1	Die casting Alu
27	Cylinder Body	缸體	1	Die casting Alu

產品特色 FEATURE



鋁擠型 (CT) 缸體, 內表面細磨精加工, 內部和外部均採用高級防腐技術, 氣缸摩擦係數小, 使用壽命長, 抗腐蝕性能強。

雙活塞齒輪齒條式設計, 結構緊湊、安裝位置對稱、改變輸出軸轉向方便, 使用壽命長、動作迅速。活塞齒條背面裝有復合軸承及導向環, 動作精確、摩擦係數小、使用壽命延長。

組合式預負荷鍍層彈簧, 工作壽命長。

高精度齒輪和齒條, 嚙合間隙小、精度高, 輸出功率大。不銹鋼緊固件, 安全美觀, 抗腐蝕性強。

Extruded aluminum CT body with both internal and external corrosion protection having honed cylinder surface for longer life and low coefficient of friction.

Dual piston rack and pinion design for compact construction, symmetric mounting position, high-cycle life and fast operation, reverse rotation can be accomplished in the field by simply inverting the pistons.

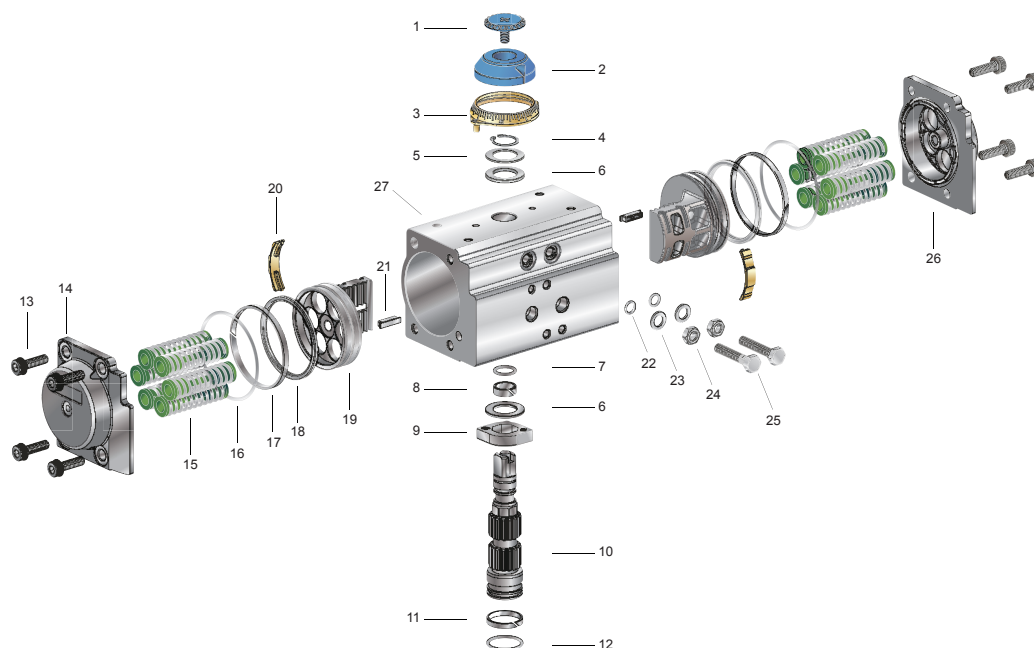
Multiple bearings and guides on racks and pistons, low friction, high cycle life and prevent shaft blowout.

Modular preloaded spring cartridge design, with coated spring for simple versatile range, greater safety and corrosion resistance, longer cycle life.

Fully machined teeth on piston and pinion for accurate low backlash rack and pinion engagement, maximum efficiency, stainless steel fasteners for long term corrosion resistance.

零件材質

MATERIAL



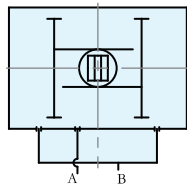
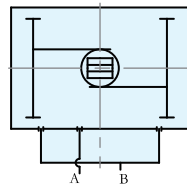
NO.	Part Name	零件名稱	Quantity 數量	Material 材質
1	Indicator Nut	指示螺帽	1	ABS
2	Indicator	指示器	1	ABS
3	Indicator	指示表	1	ABS
4	Elastic Ring	彈性擋圈	1	SS301
5	Shim	墊片	1	POM
6	Wear Pad	耐磨墊片	2	POM
7	Shaft Type O Ring	軸上O型圈	1	NBR
8	Wear Resistant Ring	耐磨環	1	POM
9	Adjusting Cam	調節凸輪	1	WCB
10	Output Shaft	輸出軸	1	C45
11	Wear Resistant Ring	耐磨環	1	POM
12	Shaft Under the O Ring	軸下O型圈	1	NBR
13	End Cap Bolt	端蓋螺栓	8	SS301
14	Left End Cover	左端蓋	1	Die casting Alu
15	Spring Set	彈簧組	12	55CrSi
16	End Cover Type O Ring	端蓋O型圈	2	NBR
17	Wear Resistant Ring	耐磨環	2	POM
18	Piston Seal Ring	活塞密封圈	2	NBR
19	Piston	活塞	2	Die casting Alu
20	Piston Guide Shoe	活塞導向瓦	2	POM
21	Guide Block	導向塊	2	PA66
22	Bolt with O Ring	調節螺栓O型圈	2	NBR
23	Shim	墊片	2	SS301
24	Nut	螺帽	2	SS301
25	Adjusting Bolt	調節螺栓	2	SS301
26	Right End Cover	右端蓋	1	Die casting Alu
27	Cylinder Body	缸體	1	6005-T5

雙作用執行器

DOUBLE ACTING ACTUATORS

工作原理

OPERATION PRINCIPLE

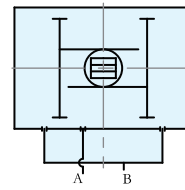
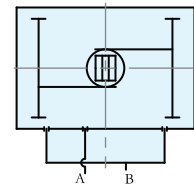
CHELIC®**0°****90°****CCW**

A口進氣，壓縮空氣推動活塞向外運動，使執行器輸出軸逆時針旋轉 (0°-90°)，B口排氣

B口進氣，壓縮空氣推動活塞向內運動，使執行器輸出軸順時針旋轉 (90°-0°)，A口排氣

Air to port A forces the pistons outwards, causing the pinion to turn counterclockwise while the air is being exhausted from port B

Air to port B forces the pistons inwards, causing the pinion to turn clockwise while the air is being exhausted from port A

**0°****90°****CW**

A口進氣，壓縮空氣推動活塞向外運動，使執行器輸出軸順時針旋轉 (0°-90°)，B口排氣

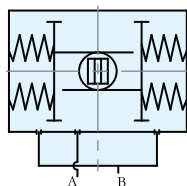
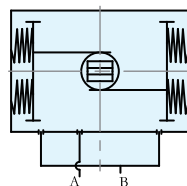
B口進氣，壓縮空氣推動活塞向內運動，使執行器輸出軸逆時針旋轉 (90°-0°)，A口排氣

Air to port A forces the pistons outwards, causing the pinion to turn clockwise while the air is being exhausted from port B

Air to port B forces the pistons inwards, causing the pinion to turn counterclockwise while the air is being exhausted from port A

單作用執行器

SPRING RETURN ACTUATORS

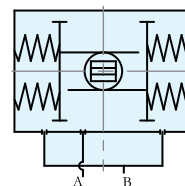
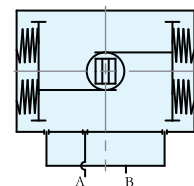
**0°****90°****CCW**

A口進氣，壓縮空氣推動活塞向外運動，使執行器輸出軸逆時針旋轉 (0°-90°)，B口排氣

B口進氣，壓縮空氣推動活塞向內運動，使執行器輸出軸順時針旋轉 (90°-0°)，A口排氣

Air to port A forces the pistons outwards, causing the spring to compress, the pinion turns counterclockwise while air is being exhausted from port B

Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns clockwise while air is being exhausted from port A

**0°****90°****CW**

A口進氣，壓縮空氣推動活塞向外運動，使執行器輸出軸順時針旋轉 (0°-90°)，B口排氣

B口進氣，壓縮空氣推動活塞向內運動，使執行器輸出軸逆時針旋轉 (90°-0°)，A口排氣

Air to port A forces the pistons outwards, causing the spring to compress, the pinion turns clockwise while air is being exhausted from port B

Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns counterclockwise while air is being exhausted from port A

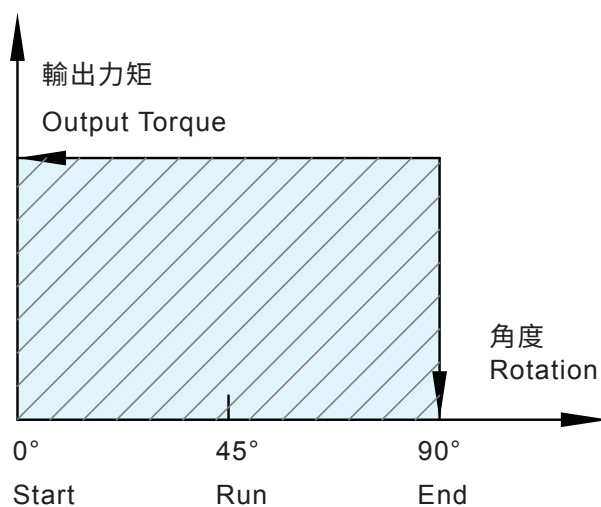
雙作用輸出力矩

OUTPUT TORQUE OF DOUBLE ACTING ACTUATORS

工作原理

OPERATION PRINCIPLE

CHELIC



氣源壓力

AIR SUPPLY PRESSURE (UNIT: BAR)

氣壓輸出扭矩 Output Torque Of Air To Spring (Bar)										
Model	2	2.5	3	4	4.5	5	5.5	6	7	8
CT-52DA	7.4	9.2	11	14.7	16.6	18.4	20.3	22.1	25.8	29.5
CTY-52DA										
CT-63DA CTY-63DA	12	15.1	18.1	24.1	27.1	30.1	33.1	36.1	42.1	48.2
CT-75DA	20.1	25.2	30.2	40.3	45.3	50.3	55.4	60.4	70.5	80.5
CT-83DA	30.8	38.5	46.2	61.6	69.4	77.1	84.8	92.5	107.9	123.3
CT-92DA	45.4	56.8	68.2	90.9	102.3	113.6	125.0	136.3	159.1	181.8
CT-105DA	65.8	82.2	98.7	131.6	148.0	164.4	180.9	197.3	230.2	263.1
CT-125DA	103	128	154	205	231	256	282	308	359	410
CT-140DA	175	219	263	351	395	439	482	526	614	702
CT-160DA	267	334	401	535	601	668	735	802	935	1069
CT-190DA	431	538	646	861	969	1077	1185	1292	1508	1723
CT-210DA	526	658	789	1052	1184	1316	1447	1579	1842	2105

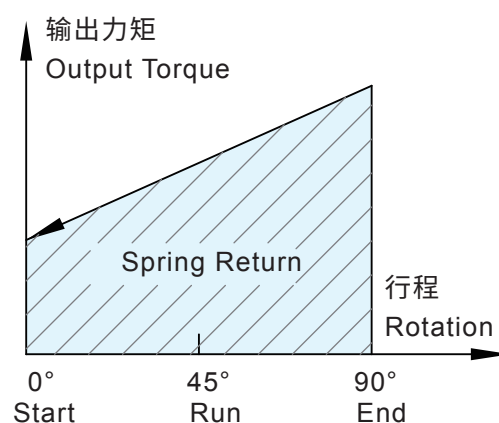
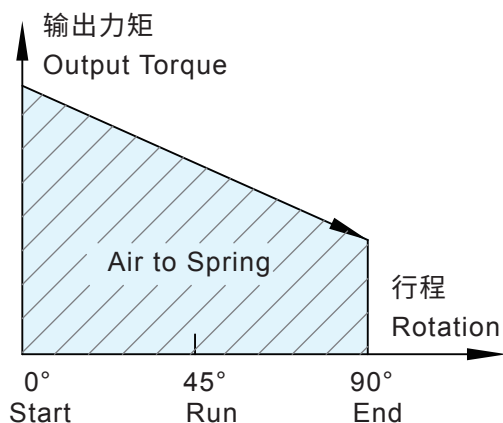
單作用輸出力矩

OUTPUT TORQUE OF SPRING RETURN ACTUATORS

工作原理

OPERATION PRINCIPLE

CHELIC®



氣源壓力

AIR SUPPLY PRESSURE (UNIT: BAR)

氣壓輸出扭矩 Output Torque Of Air To Spring (Bar)																	彈簧輸出 扭矩 Springs' Output	
氣壓 Air Pressure		2.5		3		4		5		6		7		8				
型號 Model	彈簧數量 Spring(Qty)	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°	
CT-52SR CTY-52SR	5	5.4	3.7													5.5	3.8	
	6	4.7	2.5	6.5	4.3											6.7	4.5	
	7	3.9	1.4	5.7	3.2	9.4	6.9									7.8	5.3	
	8			5	2.1	8.7	5.8	12.4	9.5							8.9	6	
	9					7.9	4.7	11.6	8.4	15.3	12.1					10	6.8	
	10					7.2	3.6	10.9	7.3	14.6	11	18.3	14.7	22	18.4	11.1	7.5	
	11							10.1	6.2	13.8	9.9	17.5	13.6	21.2	17.3	12.2	8.3	
	12							9.4	5.1	13.1	8.8	16.8	12.5	20.5	16.2	13.3	9	
CT-63SR CTY-63SR	5	9.3	6.6													8.5	5.8	
	6	8.2	4.9	11.2	7.9											10.2	6.9	
	7	7	3.2	10	6.2	16	12.2									11.9	8.1	
	8			8.9	4.5	14.9	10.5	20.9	16.5							13.6	9.2	
	9					13.7	8.7	19.7	14.7	25.7	20.7					15.4	10.4	
	10					12.6	7	18.6	13	24.6	19	30.6	25	36.7	31.1	17.1	11.5	
	11							17.4	11.3	23.4	17.3	29.4	23.3	35.5	29.4	18.8	12.7	
	12							16.3	9.6	22.3	15.6	28.3	21.6	34.4	27.7	20.5	13.8	
CT-75SR	5	14.1	10.0													14.5	10.5	
	6	11.9	6.9	16.9	11.9											17.4	12.7	
	7	9.7	3.9	14.7	8.9	24.8	19.0									20.3	14.8	
	8			12.4	5.8	22.5	15.9	32.5	25.9							23.2	16.9	
	9					20.3	12.9	30.3	22.9	40.4	33					26.1	19.0	
	10					18.1	9.8	28.1	19.8	38.2	29.9	48.3	40.0	58.3	50.0	29.0	21.1	
	11							25.9	16.8	36.0	26.9	46.1	37.0	56.1	47.0	31.9	23.2	
	12							23.7	13.7	33.8	23.8	43.9	33.9	53.9	43.9	34.7	25.3	

		氣壓輸出扭矩 Output Torque Of Air To Spring (Bar)														彈簧輸出 扭矩 Springs' Output	
氣壓 Air Pressure		2.5		3		4		5		6		7		8			
型號 Model	彈簧數量 Spring(Qty)	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°
CT-83SR	5	21.9	14.3													23.0	15.8
	6	18.5	9.4	26.2	17.1											27.6	19.0
	7	15.2	4.6	22.9	12.3	38.3	27.7									32.2	22.1
	8			19.6	7.4	35.0	22.8	50.5	38.3							36.8	25.3
	9					31.6	18.0	47.1	33.5	62.5	48.9					41.4	28.5
	10					28.3	13.2	43.8	28.7	59.2	44.1	74.6	59.5	90.0	74.9	46.0	31.6
	11							40.5	23.8	55.9	39.2	71.3	54.6	86.7	70.0	50.6	34.8
	12							37.1	19.0	52.5	34.4	67.9	49.8	83.3	65.2	55.2	38.0
CT-92SR	5	32.2	20.6													34.4	23.3
	6	27.3	13.4	38.7	24.8											41.2	28.0
	7	22.4	6.1	33.8	17.5	56.5	40.2									48.1	32.7
	8			28.9	10.3	51.6	33.0	74.3	55.7							55.0	37.3
	9					46.7	25.8	69.4	48.5	92.1	71.2					61.9	42.0
	10					41.8	18.5	64.5	41.2	87.2	63.9	110.0	86.7	132.7	109.4	68.7	46.7
	11							59.5	34.0	82.2	56.7	105.0	79.5	127.7	102.2	75.6	51.4
	12							54.6	26.8	77.3	49.5	100.1	72.3	122.8	95.0	82.5	56.0
CT-105SR	5	48.9	30.4													49.2	31.6
	6	42.2	20.0	58.7	36.5											59.1	38.0
	7	35.6	9.7	52.1	26.2	85.0	59.1									68.9	44.3
	8			45.4	15.8	78.3	48.7	111.1	81.5							78.7	50.6
	9					71.7	38.4	104.5	71.2	137.4	104.1					88.6	56.9
	10					65.0	28.0	97.8	60.8	130.7	93.7	163.6	126.6	196.5	159.5	98.4	63.3
	11							91.1	50.4	124.0	83.3	156.9	116.2	189.8	149.1	108.3	69.6
	12							84.5	40.1	117.4	73.0	150.3	105.9	183.2	138.8	118.1	75.9
CT-125SR	5	72.9	45.5													78.4	52.4
	6	61.9	29.0	87.9	55.0											94.1	62.8
	7	50.8	12.5	76.8	38.5	127.8	89.5									109.7	73.3
	8			65.8	22.0	116.8	73.0	167.8	124.0							125.4	83.8
	9					105.8	56.5	156.8	107.5	208.8	159.5					141.1	94.2
	10					94.8	40.0	145.8	91.0	197.8	143.0	248.8	194.0	299.8	245.0	156.8	104.7
	11							134.8	74.5	186.8	126.5	237.8	177.5	288.8	228.5	172.4	115.2
	12							123.7	58.0	175.7	110.0	226.7	161.0	277.7	212.0	188.1	125.7
CT-140SR	5	128.7	83.3													129.0	85.8
	6	110.6	56.1	154.6	100.1											154.8	102.9
	7	92.6	29.0	136.6	73.0	224.6	161.0									180.5	120.1
	8			118.5	45.8	206.5	133.8	294.5	221.8							206.3	137.3
	9					188.5	106.7	276.5	194.7	363.5	281.7					232.1	154.4
	10					170.4	79.5	258.4	167.5	345.4	254.5	433.4	342.5	521.4	430.5	257.9	171.6
	11							240.3	140.4	327.3	227.4	415.3	315.4	503.3	403.4	283.7	188.7
	12							222.3	113.2	309.3	200.2	397.3	288.2	485.3	376.2	309.5	205.9

																彈簧輸出 扭矩 Springs' Output	
氣壓 Air Pressure		2.5		3		4		5		6		7		8			
型號 Model	彈簧數量 Spring(Qty)	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°
CT-160SR	5	187.0	114.7													208.3	139.7
	6	157.6	70.9	224.6	137.9											250	168
	7	128.2	27.0	195.2	94.0	329.2	228.0									292	196
	8			165.8	50.2	299.8	184.2	432.8	317.2							333	223
	9					270.4	140.3	403.4	273.3	537.4	407.3					375	251
	10					241.0	96.4	374.0	229.5	508.0	363.5	641.0	496.5	775.0	630.5	417	279
	11							344.6	185.6	478.6	319.6	611.6	452.6	745.6	586.6	458	307
	12							315.2	141.7	449.2	275.7	582.2	408.7	716.2	542.7	500	335
CT-190SR	5	327	212													293	190
	6	285	147	393	255											352	227
	7	243	82	351	190	566	405									410	265
	8			309	125	524	340	740	556							469	303
	9					482	275	698	491	913	706					527	341
	10					440	210	656	426	871	641	1087	857	1302	1072	586	379
	11							614	361	829	576	1045	792	1260	1007	645	417
	12							572	296	787	511	1003	727	1218	942	703	455
CT-210SR	5	369	258													360	260
	6	311	178	442	309											432	313
	7	253	99	384	230	647	493									503	365
	8			326	150	589	413	853	677							575	417
	9					531	333	795	597	1058	860					647	469
	10					473	253	737	517	1000	780	1263	1043	1526	1306	719	521
	11							679	437	942	700	1205	963	1468	1226	791	573
	12							621	357	884	620	1147	883	1410	1146	863	625

選型規格: 雙作用

SELECTION MODEL: DOUBLE ACTING

CTY + BORE + DA

系列 Series	缸徑 Bore	類型 Type (DA)
CTY	52-63	雙作用 Double Acting

CT + BORE + DA

系列 Series	缸徑 Bore	類型 Type (DA)
CT	52-210	雙作用 Double Acting

鋁壓鑄 CTY - Die casting aluminum

Sizing: Double Acting Actuator

The suggested safety factor for double acting actuators under normal working conditions is 20% - 30%

Example:

- The torque needed by valve= 100 Nm
- The torque considered safety factor (1+30%)= 130 Nm
- Air supply= 5 Bar

According to the above table, we can choose the minimum model is CTY-105DA

鋁擠型 CT - Extruded aluminum

雙作用執行器的選型:

在正常操作條件下, 雙作用執行器考慮的安全係數為 20% - 30%

示例:

- 閥門力矩= 100 Nm
- 安全力矩= 100 x (1+30%)=130 Nm
- 氣源壓力= 5 Bar

對照雙作用力矩表, 選配雙作用執行器最小規格為 CTY-105DA

選型規格: 單作用

SELECTION MODEL: SPRING RETURN

CTY + BORE + SR + X

系列 Series	缸徑 Bore	類型 Type (SR)	彈簧數量 (X)
CTY	52-63	單作用 Spring Return	5 - 12

CT + BORE + SR + X

系列 Series	缸徑 Bore	類型 Type (SR)	彈簧數量 (X)
CT	52-210	單作用 Spring Return	5 - 12

鋁壓鑄 CTY - Die casting aluminum

Sizing: Spring Return Actuators

The suggested safety factor for spring return actuator under normal working conditions is 30% - 50%

Example:

- The torque needed by valve= 80 N.m
- The torque consider safety factor (1+30%)= 104 N.m
- Air supply= 5 Bar

According to the table of spring return actuator's output, we find output torque of SR140 S7 is:

- Air stroke 0°= 308 N.m
- Air stroke 90°= 247 N.m
- Spring stroke 90°= 181 N.m
- Spring stroke 0°= 120 N.m

All the output torque is larger than we needed.

鋁擠型 CT - Extruded aluminum

單作用執行器的選型:

在正常操作條件下, 單作用執行器考慮的安全係數為 30% - 50%

示例:

- 閥門力矩= 80 Nm
- 安全力矩= 80 x (1+30%)= 104 Nm
- 氣源壓力= 5 Bar

對照單作用執行器輸出力矩表, 可查到SR140 S7輸出力矩為

- 空氣行程0°= 308 N.m
- 空氣行程90°= 247 N.m
- 彈簧行程90°= 181 N.m
- 彈簧行程0°= 120 N.m

所有輸出力矩均大於我們需求

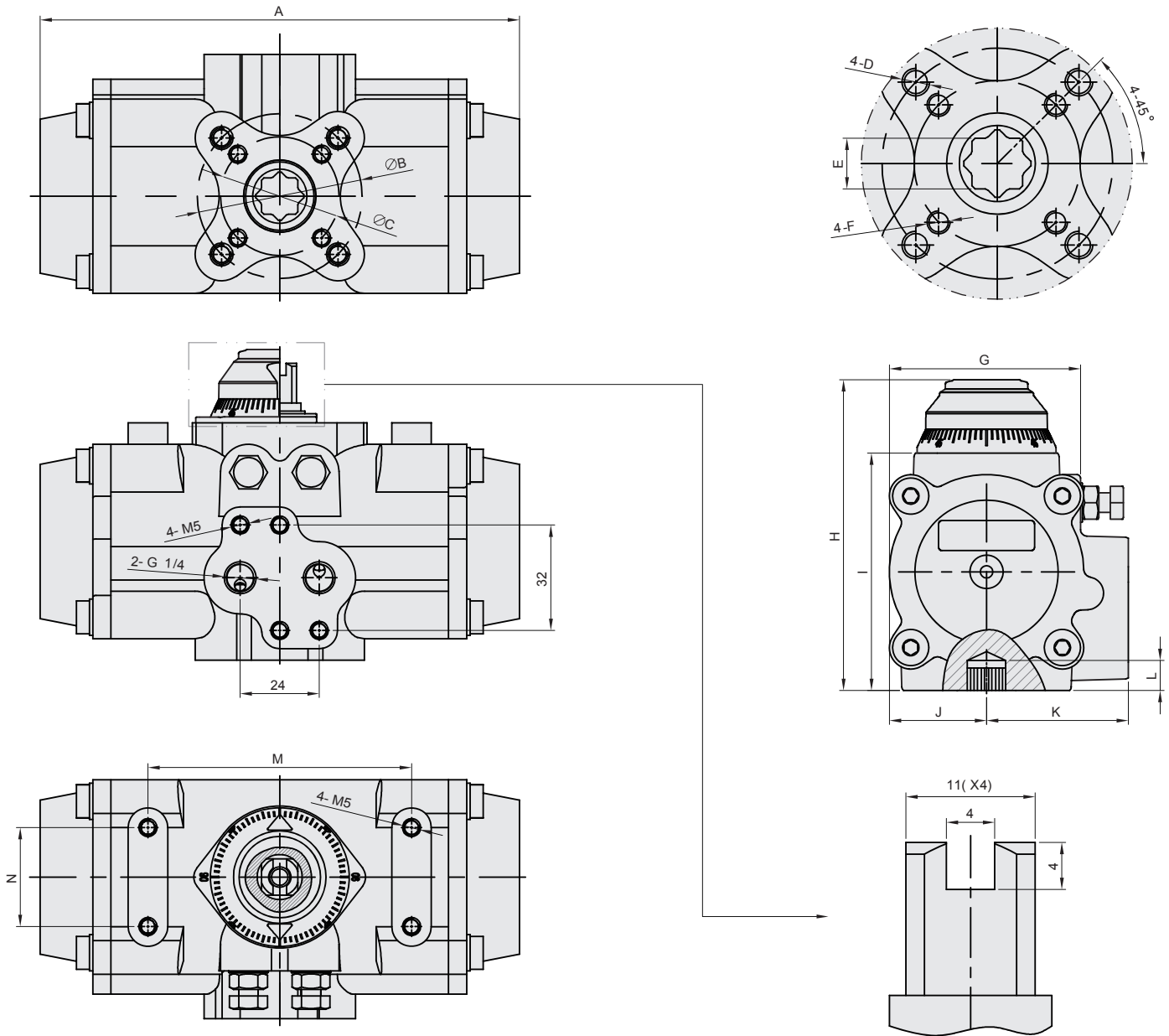
型號 CTY

TYPE CTY



安裝尺寸

DIMENSIONS



Ø [MM]	A	ØB	ØC	D	E	F	G	H	I	J	K	L	M	N
52	145.5	50	36	M6	11	M5	58	94	72	29.5	43	13	80	30
63	153.5	70	50	M8	14	M6	66.5	110	88	35	48.5	16	80	30

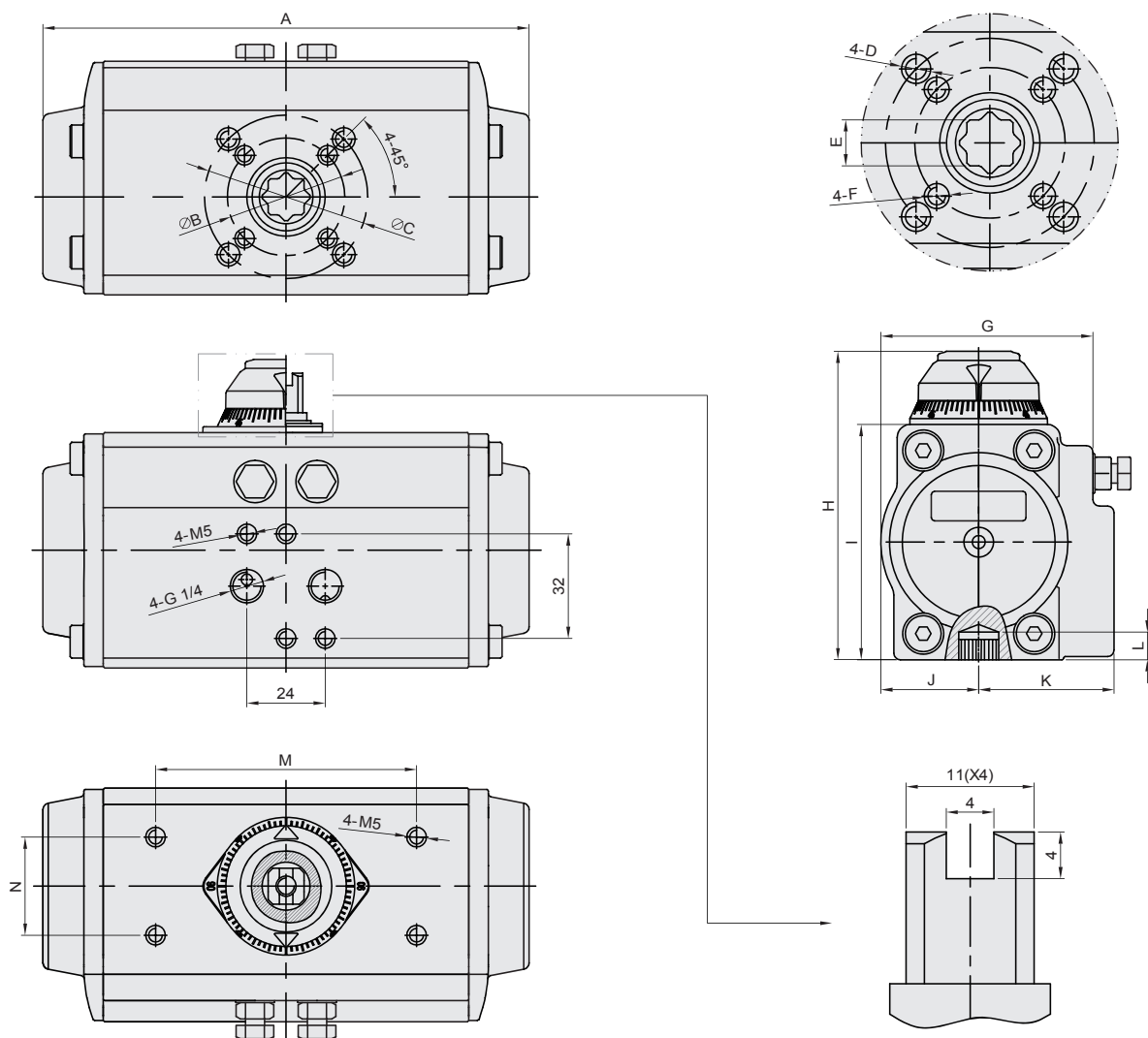
型號 CT

TYPE CT

CHELIC

安裝尺寸

DIMENSIONS



Ø [MM]	A	ØB	ØC	D	E	F	G	H	I	J	K	L	M	N
52	149	36	50	M6*10	11	M5*8	65	94.5	72	30	41.5	13	80	30
63	162	50	70	M8*13	14	M6*10	72	110	87.5	36	47	18	80	30
75	185	50	70	M8*13	14	M6*10	81	119.5	99.5	42	53	18	80	30
83	211	50	70	M8*13	17	M6*10	88	128.8	108.8	46	57	21	80	30
92	262	50	70	M8*13	17	M6*10	98	136.5	116.5	50	61	21	80	30
105	270	70	102	M10*16	22	M8*13	109.5	153	133	57.5	64	26	80	30
125	303	70	102	M10*16	22	M8*13	127.5	175	155	67.5	74.5	26	80	30
140	394	102	125	M12*20	27	M10*16	137.5	192	172	75	77	31	80	30
160	458	102	125	M12*20	27	M10*16	158	217	197	87	87	31	80	30
190	528		140	M16*25	36		189	260	230	103	103	36	80	30
210	532		140	M16*25	36		211	285	255	114	114	36	80	30

This image shows a full page of blank graph paper. The grid consists of thin, light gray horizontal and vertical lines that intersect to form small squares across the entire surface. There are no margins, text, or other markings on the paper.

This image shows a full page of blank graph paper. The grid consists of thin, light gray horizontal and vertical lines that intersect to form small squares across the entire surface. There are no margins, text, or other markings on the paper.

TAIWAN CHELIC CO., LTD.
www.chelic.com



 本公司有保留變更規格之權利，恕不另行通知，請與業務單位保持聯繫，以便更新版本。

 The specification are subject to change without advance notice.