Product Manual

I. Application Field

Mobile phone electronic equipment, robot joints, winding machine equipment, stripping machine equipment, printing machinery, medical machinery, laser industry and other automation fields. The products sell well all over the country and are deeply trusted by users.

The company will continue to introduce new technologies and processes, and constantly reform and innovate to meet market demand. We always regard product quality as the life of the enterprise. With strong technical force and perfect company system, we provide stable and high-quality products, create benefits for customers, create opportunities for employees and create value for society. We warmly welcome customers to cooperate with each other and create the future together!

II. Selection Guide for Electric Cylinder

Electric Cylinder Principle

The electric cylinder converts the rotary motion of the motor into the linear motion of the push rod through the screw rod and the screw rod pair. By using the closed-loop control of the servo motor, the thrust, speed and position can be precisely controlled, the programmed and bus control can be realized, and the precise motion control which can not be realized by the air cylinder and the hydraulic cylinder can be completed.

Type of Electric Cylinder

1. The direct-connected electric cylinder (BC) features compact structure, small inertia, fast response, low noise and long service life; the servo motor is directly connected with the screw rod, reducing the clearance, improving the control accuracy, easy installation and high reliability.

2. The folding electric cylinder (BR) is short in overall length and suitable for occasions with narrow installation space; it adopts imported synchronous belt with high strength, small clearance, long service life and flexible motor collocation.

Calculation Formula of Rated Thrust/speed

1. Rated thrust (KN) = rated torque of motor (N · m) × transmission coefficient of screw rod ÷ lead of screw rod × reduction ratio

2. Rated speed (mm/s) = rated speed of motor ÷ 60 × lead of screw rod ÷ reduction ratio
3. Actual thrust = rated thrust X 85%
4. Check the rated torque of reducer for model selection

Drive Efficiency of Screw

- Ball screw: 5.338
- T-screw: 3.14

Model Identification Rules of Electric Cylinder

YC60 - T05 - L100 - BC - FA - N -P

- YC: Company Code
- 60: cylinder bore
- T05: Lead of lead screw
- L100: Travel
- BC: In-line/BR: Folding
- FA: front flange/FB: rear flange/LB: side flange/FC: non-standard customization

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III. Specification Summary of Electric Cylinder

Form

Electric cylinder series	Cylinder size (mm)	Lead of screw rod (mm)	Maximum thrust (KN)	Maximum speed (mm/s)
YC40	Square 39 × 39	2/4	0.15/0.46	100/200
YC50	Square 52 × 52	4/5/10	1.2	200/250/500
YC60	Square 61 × 61	4/5/10/20	5	200/250/500/1000

YC80	Square 80 × 80	5/10/25	15	250/500/1250
YC94	Square 93 × 93	10/20/32	30	400/800/1000
YC110	Square 110 × 110	10/20	45	200/400
YC134	Square 138 × 138	10/20	60	200/400
YC160	Circular 160 × 140	20	150	150
YC280	Circular 273 × 220	20	500	50

Note: The above technical parameters are for reference only, and the exclusive parameters and dimensions are actually issued according to the customer's data.

IV. Installation Method of Electric Cylinder

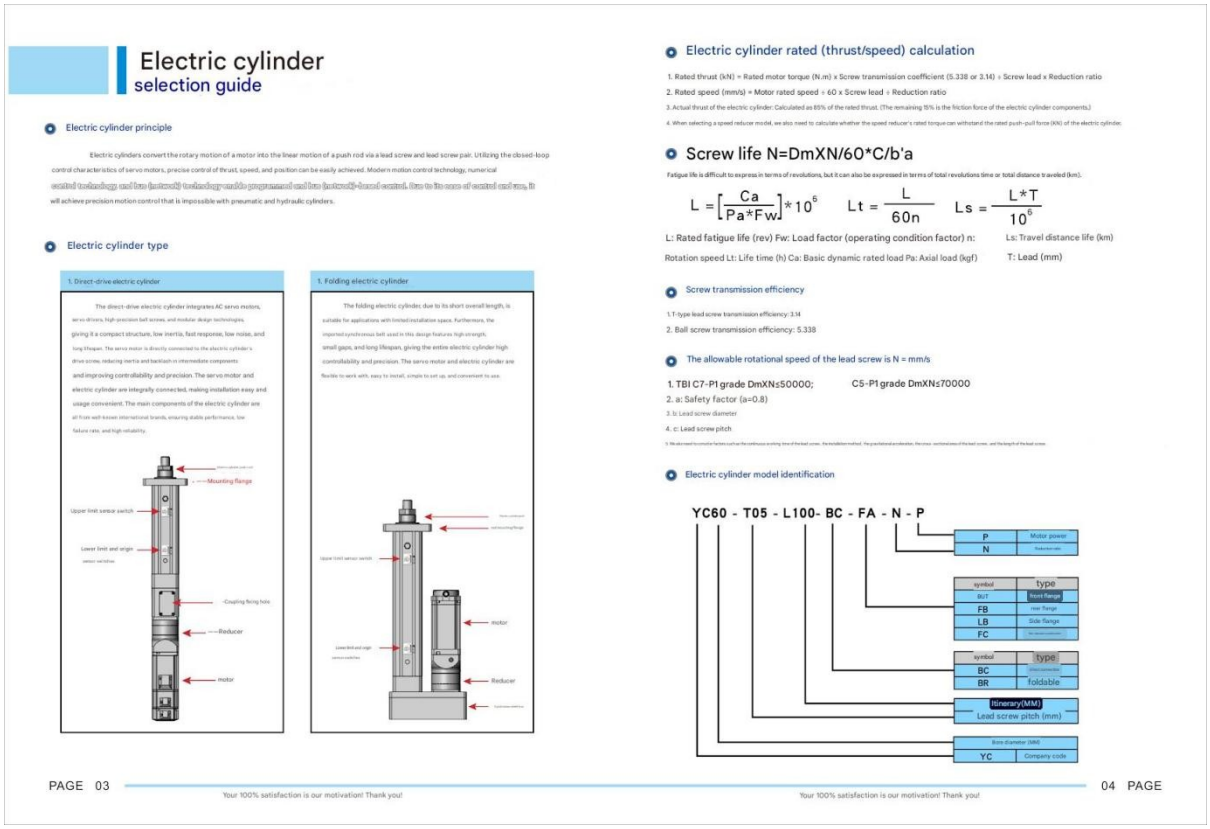
Support: direct connection type/folding type, front flange/rear flange/side flange, trunnion installation, horizontal installation, pressure sensor installation, fish-eye/twisted lug installation, guide pillar installation, etc., all support non-standard customization.

Front End Connector

I joint, Y joint, standard internal and external thread, floating joint, flange floating joint, cylinder earring, fisheye joint.

Tail End Base

Standard Rear Lever, Rear Single Lever, Universal Joint, Bearing Housing, Rear Fisheye, Single and Double Lug Housing, Trunnion Base.



Electric cylinder selection guide

Electric cylinder principle

Electric cylinders convert the rotary motion of a motor into the linear motion of a push rod via a lead screw and lead screw pair. Utilizing the closed-loop control characteristics of servo motors, precise control of thrust, speed, and position can be easily achieved. Modern motion control technology, numerical control technology, and bus (network) technology, such as programmable bus (network) based control, line by line or even of control and use, it will achieve precision motion control that is impossible with pneumatic and hydraulic cylinders.

Electric cylinder type

1. Direct-drive electric cylinder

The direct-drive electric cylinder integrates AC servo motors, servo drivers, high-precision ball screws, and modular design technologies, giving it a compact structure, low inertia, fast response, low noise, and long lifespan. The servo motor is directly connected to the electric cylinder's drive screw, reducing inertia and backlash in intermediate components and improving controllability and precision. The servo motor and electric cylinder are integrally connected, making installation easy and usage convenient. The main components of the electric cylinder are all from well-known international brands, ensuring stable performance, low failure rate, and high reliability.

1. Folding electric cylinder

The folding electric cylinder, due to its short overall length, is suitable for applications with limited installation space. Furthermore, the imported synchronous belt used in this design features high strength, small gaps, and long lifespan, giving the entire electric cylinder high controllability and precision. The servo motor and electric cylinder are flexible to work with, easy to install, simple to set up, and convenient to use.

Electric cylinder rated (thrust/speed) calculation

1. Rated thrust (kN) = Rated motor torque (N.m) x Screw transmission coefficient (5.338 or 3.14) ÷ Screw lead x Reduction ratio
2. Rated speed (mm/s) = Motor rated speed ÷ 60 x Screw lead ÷ Reduction ratio
3. Actual thrust of the electric cylinder: Calculated as 85% of the rated thrust. (The remaining 15% is the friction force of the electric cylinder components.)
4. When selecting a speed reducer model, we also need to calculate whether the speed reducer's rated torque can withstand the rated push-pull force (KN) of the electric cylinder.

Screw life N=DmXN/60*C/b'a

Fatigue life is difficult to express in terms of revolutions, but it can also be expressed in terms of total revolutions time or total distance traveled (km).

$$L = \left[\frac{Ca}{Pa*Fw}\right]^{*}10^{6} \qquad Lt = \frac{L}{60n} \qquad Ls = \frac{L*T}{10^{6}}$$

L: Rated fatigue life (rev) Fw: Load factor (operating condition factor) n: Ls: Travel distance life (km)
Rotation speed Lt: Life time (h) Ca: Basic dynamic rated load Pa: Axial load (kgf) T: Lead (mm)

Screw transmission efficiency

1. T-type lead screw transmission efficiency: 3.14
2. Ball screw transmission efficiency: 5.338

The allowable rotational speed of the lead screw is N = mm/s

1. TBI C7-P1 grade DmXN≤50000; C5-P1 grade DmXN≤70000
2. a: Safety factor (a=0.8)
3. b: Lead screw diameter
4. c: Lead screw pitch

1. We also need to consider factors such as the continuous working time of the lead screw, the installation method, the gravitational acceleration, the cross-sectional area of the lead screw, and the length of the lead screw.

Electric cylinder model identification

YC60 - T05 - L100- BC - FA - N - P

P	Motor power
N	

symbol	type
FA	front flange
FB	rear flange
LB	Side flange
FC	

symbol	type
BC	
BR	foldable

Itinerary(MM)
Lead screw pitch (mm)

	Boss diameter (MM)
YC	Company code

Electric Cylinder Specifications

Electric Cylinder Series	Cylinder Size (mm)	Screw Lead (mm)	Max Thrust (kn)	Max Speed (mm/s)
YC40	Square 39×39	2	0.15	100
		4	0.46	200
YC50	Square 52×52	4	1.2	200
		5		250
		10		500
YC60	Square 61×61	4	5	200
		5	5	250
		10	5	500
		20	0.8	1000
YC80	Square 80×80	5	7	250
		10	15	500
		25	10	1250
YC94	Square 93x93	10	30	400
		20	8	800
		32	20	1000
YC110	Square 110×110	10	45	200
		20	30	400
YC134	Square 138×138	10	50	200
		20	60	400
YC120	Round 120*100	10	45	200
		20	30	400
YC135	Round 135*115	10	50	200
		20	75	400
YC160	Round 160*140	20	150	150
YC220	Round 218*190	20	300	50
YC280	Round 273*220	20	500	50

Note: The above technical parameters are for reference only. Actual technical parameters and dimensions will be provided based on the data provided by the customer.

Electric cylinder standard installation methods (supports non-standard)

◎Electric cylinder front-end mounting joint display (customization available)

◎Electric cylinder rear-end mounting base display (customization available)

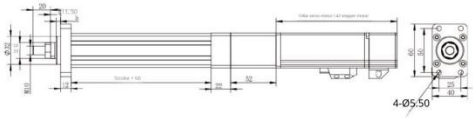
◎ Product display

| YC40 Electric Cylinder Parameters

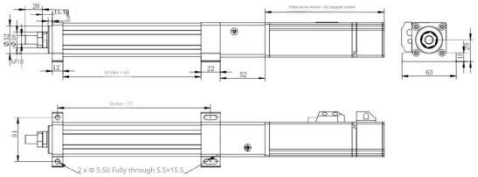
Series Model	YC40	
Screw lead (mm)	4	2
Electric cylinder thrust range (KN)	0-0.46	0-0.15
Electric cylinder stroke (mm)	10-400	
Motor rated power (w)	100	42 Stepper
Motor rated torque (K.N)	0.32	0.26
Motor rated speed (rpm)	3000	400
Electric cylinder rated thrust (KN)	0.46	0.15
Electric cylinder rated speed (mm/s)	200	10

Note: The above technical parameters are for reference only, the actual technical parameters and dimensions will be provided based on the data provided by the customer.

YC40-T-L-BC-FA-P: Directly connected front flange

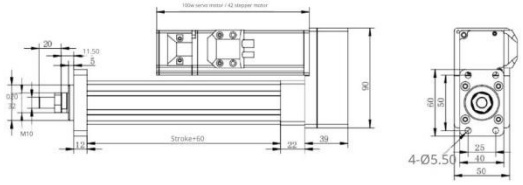


YC40-T-L-BC-LB-P: Directly connected side flange

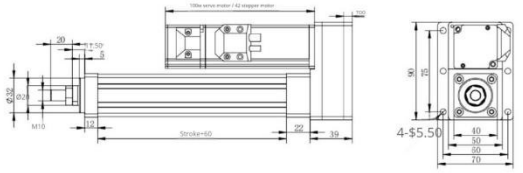


YC40 Electric Cylinder Parameters

YC40-T-L-BR-FA-P: Front folding flange

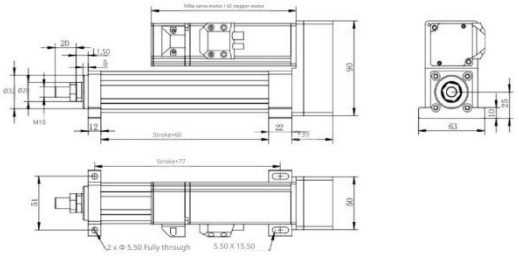


YC40-T-L-BR-FB-P: Rear folding flange

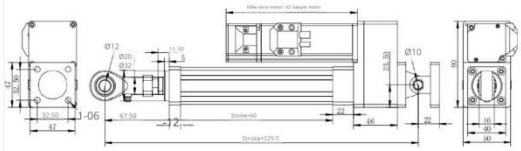


YC40 Electric Cylinder Parameters

YC40-T-L-BR-LB-P: Folding side flange



YC40-T-L-BR-FC-P: Front and rear hinge ear flange



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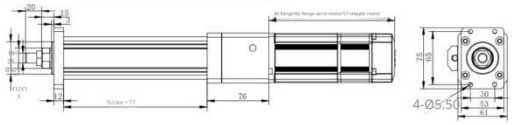
YC50 Electric Cylinder Parameters

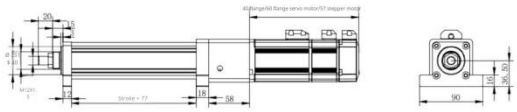
Series Model	YC50								
Screw Lead (mm)	4			5			10		
Electric Cylinder Thrust Range (KN)	0.01-1.2								
Electric Cylinder Stroke (mm)	10-400								
Motor Rated Power (w)	100	200	400	100	200	400	100	200	400
Motor Rated Torque (K.N)	0.32	0.64	1.27	0.32	0.64	1.27	0.32	0.64	1.27
Motor Rated Speed (rpm)	3000								
Electric Cylinder Rated Thrust (KN)	0.4	0.8	1.2	0.3	0.65	1.2	0.15	0.3	0.65
Electric Cylinder Rated Speed (mm/s)	200	200	200	250	250	250	500	500	500

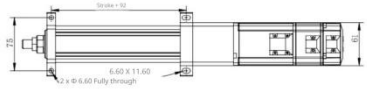
Note: The above technical parameters are for reference only. The actual technical parameters and dimensions will be provided based on the data provided by the customer.

YC50-T-L-BC-FA-P: Direct connection front flange



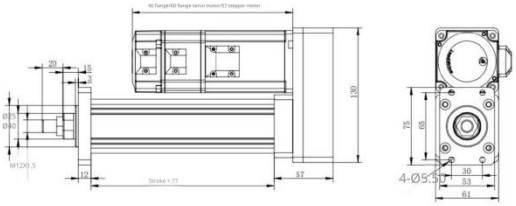
YC50-T-L-BC-LB-P: Direct connection side flange



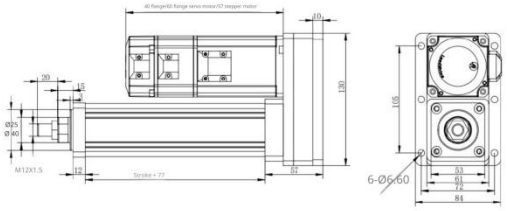


| YC50 Electric Cylinder Parameters

YC50-T-L-BR-FA-P: Folded front flange



YC50-T-L-BR-FB-P: Folded rear flange



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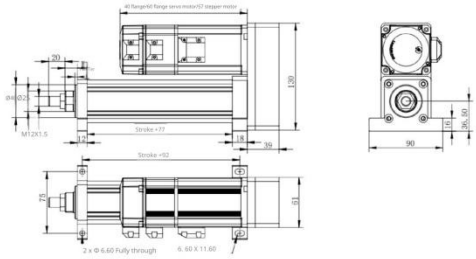
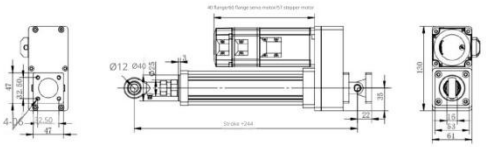
YC50

Electric cylinder parameters

YC50-T-L-BR-LB-P: Folding side flange



YC50-T-L-BR-FC-P: Front and rear hinged flange



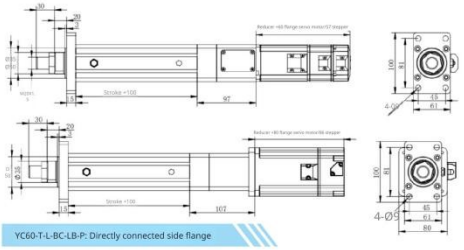
YC60

Electric cylinder parameters

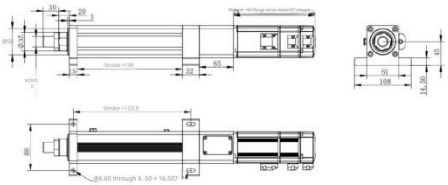
Series model	YC60								
Screw lead (mm)	5			10			20		
Thrust range of electric cylinder (KN)	0.01-6			0.01-4			0.01-0.8		
Electric cylinder stroke (mm)	10-1000								
Motor rated power (w)	400	750	1000	400	750	1000	400	750	1000
Motor rated torque (K.N)	1.27	2.39	3.18	1.27	2.39	3.18	1.27	2.39	3.18
Motor rated speed (rpm)	3000								
Electric cylinder rated thrust (KN)	1.25	2.55	3.39	0.67	1.25	1.69	0.31	0.67	0.8
Electric cylinder rated speed (mm/s)	250	250	250	500	500	500	1000	1000	1000

Note: The above technical parameters are for reference only. The actual technical parameters and dimensions will be provided based on the data provided by the customer.

YC60-T-L-BC-FA-P: Directly connected front flange

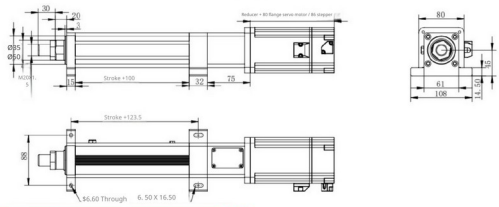


YC60-T-L-BC-LB-P: Directly connected side flange

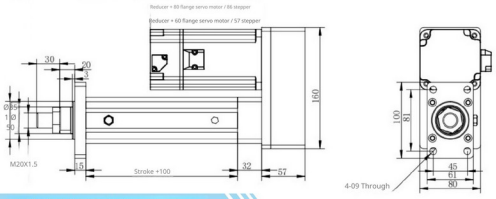


YC60 Electric cylinder parameters

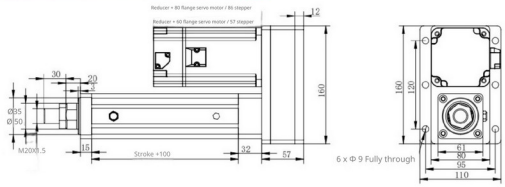
YC60-T-L-BC-LB-P: Direct connection side flange



YC60-T-L-BR-FA-P: Folded front flange

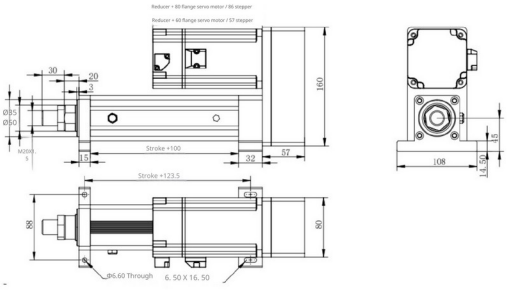


YC60-T-L-BR-FB-P: Folded rear flange

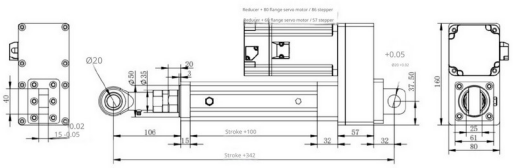


YC60 Electric cylinder parameters

YC60-T-L-BR-LB-P: Folded side flange



YC60-T-L-BR-FC-P: Front and rear hinged flange



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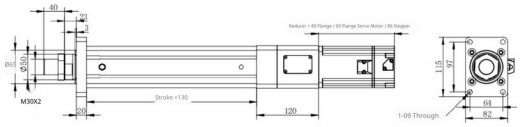
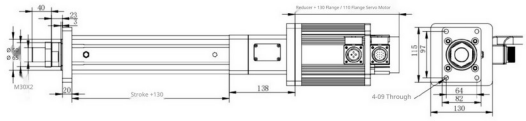
I YC80 Electric Cylinder Parameters

Series Model	YC80						
Screw Lead (mm)	5			10			
Electric Cylinder Thrust Range (KN)	0.01-8			0.01-20			
Electric Cylinder Stroke (mm)	10-1500						
Motor Rated Power (w)	750	1000	1500	750	1000	1500	2000
Motor Rated Torque (K.N)	2.39	3.18	7.16	2.39	3.18	7.16	9.55
Motor Rated Speed (rpm)	3000		2000	3000		2000	
Electric Cylinder Rated Thrust (KN)	2.55	3.4	7.64	1.27	1.7	3.8	5.1
Electric Cylinder Rated Speed (mm/s)	250	250	166	500	500	332	332

Note: The above technical parameters are for reference only. The actual technical parameters and dimensions will be provided based on the data provided by the customer.

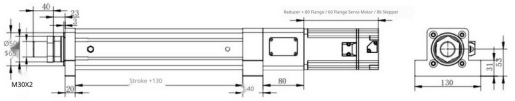
YC80-T-L-BC-FA-P: Direct Connection Front Flange

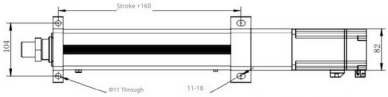


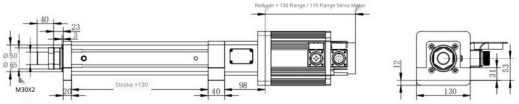


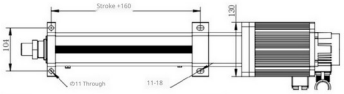
|YC80 Electric Cylinder Parameters

YC80-T-L-BC-LB-P: Direct Connection Side Flange

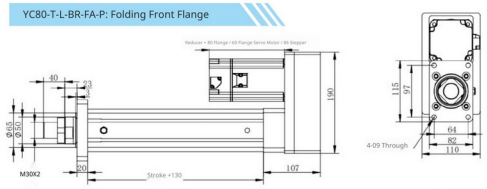






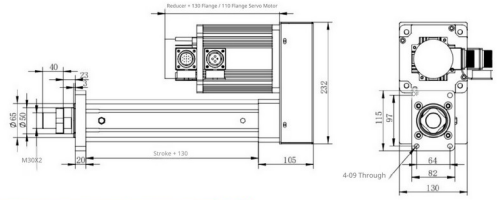


YC80-T-L-BR-FA-P: Folding Front Flange

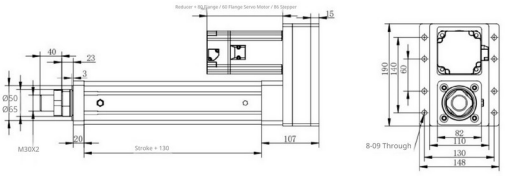


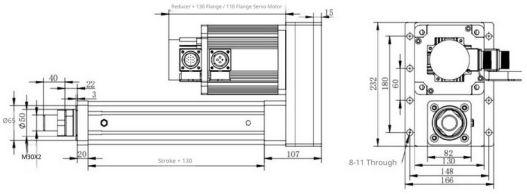
YC80 Electric Cylinder Parameters

YC80-T-L-BR-FA-P: Folding Front Flange



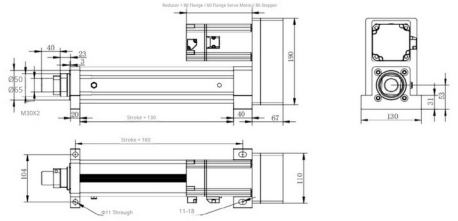
YC80-T-L-BR-FB-P: Folding Rear Flange

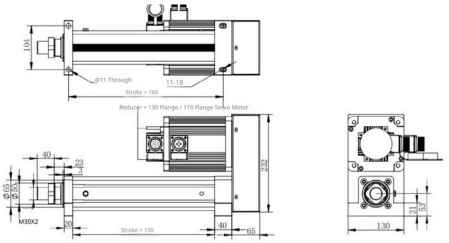




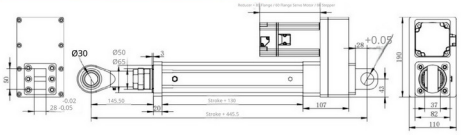
YC80 Electric Cylinder Parameters

YC80-T-L-BR-LB-P: Folding Side Flange



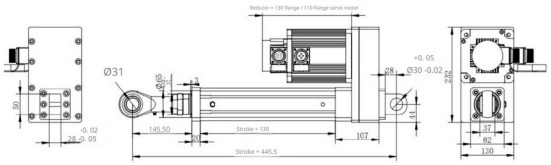


YC80-T-L-BR-FC-P: Front and Rear Hinged Ear Flange



YC80 Electric cylinder parameters

YC80-T-L-BR-FC-P: Front and rear hinged flange

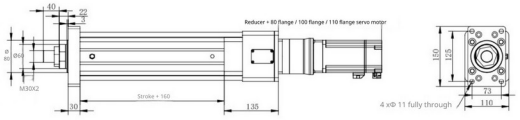


YC94 Electric cylinder parameters

Series model	YC94										
Screw lead (mm)	5			10				32			
Electric cylinder thrust range (KN)	0.01-8			0.01-30				0.01-8			
Electric cylinder stroke (mm)	10-2000										
Motor rated power (w)	750	1000	1500	750	1000	1500	2000	750	1000	1500	2000
Motor rated torque (K.N)	2.39	3.18	7.16	2.39	3.18	7.16	9.55	2.39	3.18	7.16	9.55
Motor rated speed (rpm)	3000		2000	3000		2000		3000		2000	
Electric cylinder rated thrust (KN)	2.55	3.4	7.64	1.27	1.7	3.8	5.1	0.39	0.53	1.19	1.59
Electric cylinder rated speed (mm/s)	250	250	166	500	500	332	332	1600	1600	1066	1066

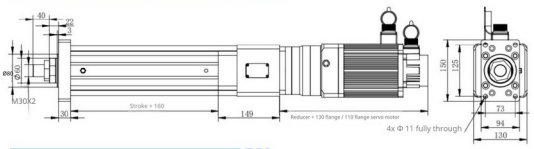
Note: The above technical parameters are for reference only. The actual technical parameters and dimensions will be provided according to the data provided by the customer.

YC94-T-L-BC-FA-P: Direct-connect front flange

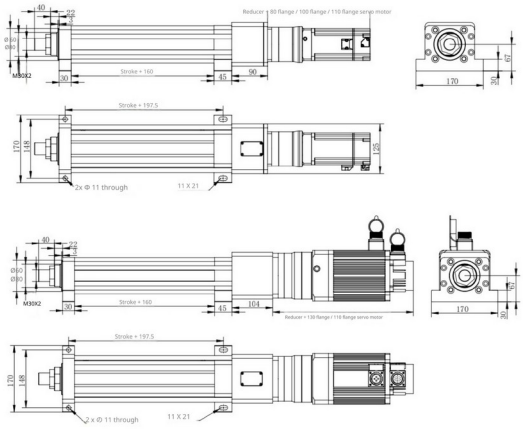


YC94 Electric cylinder parameters

YC94-T-L-BC-FA-P: Direct-connect front flange



YC94-T-L-BC-LB-P: Direct-connect side flange



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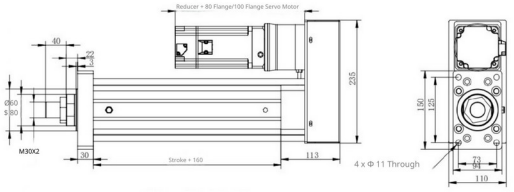
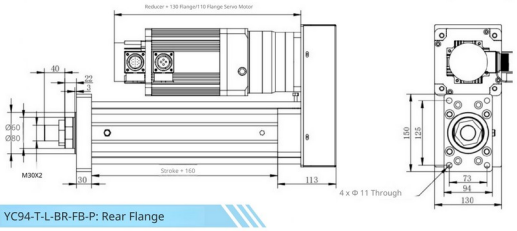
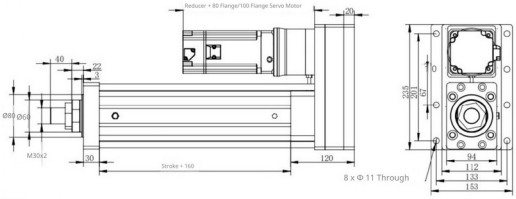
YC94 Electric Cylinder Parameters

YC94-T-L-BR-FA-P: Front Flange



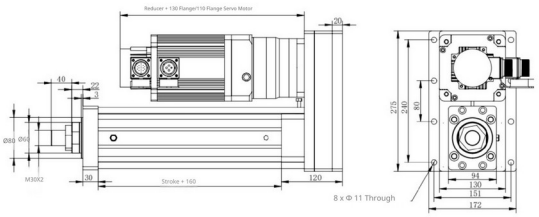


YC94-T-L-BR-FB-P: Rear Flange

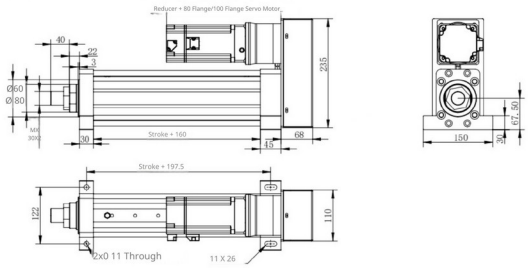


YC94 Electric Cylinder Parameters

YC94-T-L-BR-FB-P: Rear Flange

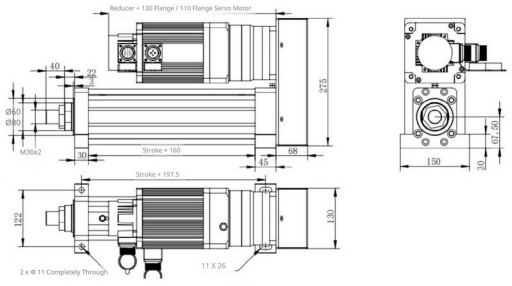


YC94-T-L-BR-LB-P: Side Flange

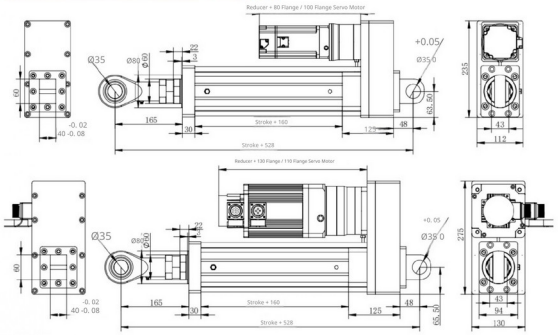


YC94 Electric Cylinder Parameters

YC94-T-L-BR-LB-P: Folding Side Flange



YC94-T-L-BR-FC-P: Front and Rear Clevis Flange

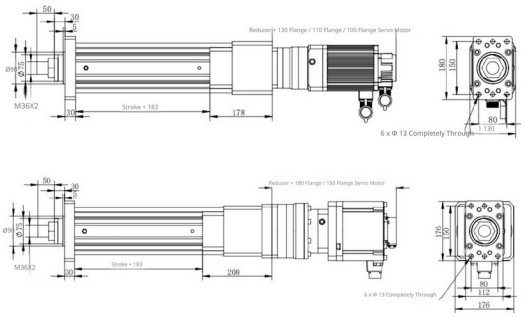


YC110 Electric Cylinder Parameters

Series Model	YC110				
Screw Lead (mm)	10				
Electric Cylinder Thrust Range (KN)	0.01-40				
Electric Cylinder Stroke (mm)	10-2000				
Motor Rated Power (w)	1500	2000	4.4	5.5	7.5
Motor Rated Torque (K.N)	7.16	9.55	28.4	35	48
Motor Rated Speed (rpm)	2000		1500		
Electric Cylinder Rated Thrust (KN)	3.8	5.1	15.1	18.6	25.6
Electric Cylinder Rated Speed (mm/s)	332	332	250	250	250

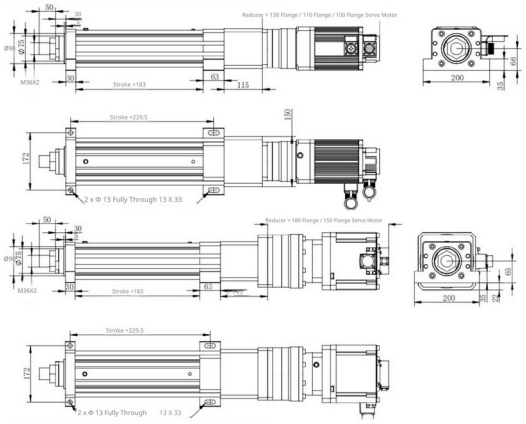
Note: The above technical parameters are for reference only. The actual technical parameters and dimensions will be provided based on the data provided by the customer.

YC110-T-L-BC-FA-P: Direct Connection Front Flange

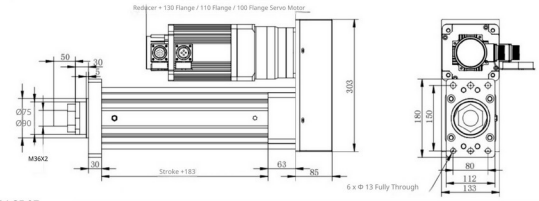


YC110 Electric Cylinder Parameters

YC110-T-L-BC-LB-P: Direct Connection Side Flange

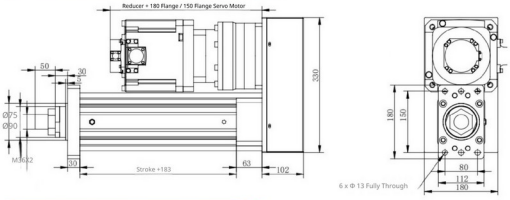


YC110-T-L-BR-FA-P: Folding Front Flange

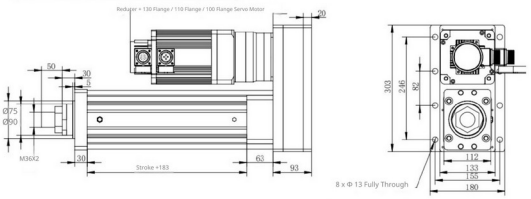


YC110 Electric Cylinder Parameters

YC110-T-L-BR-FA-P: Folding Front Flange

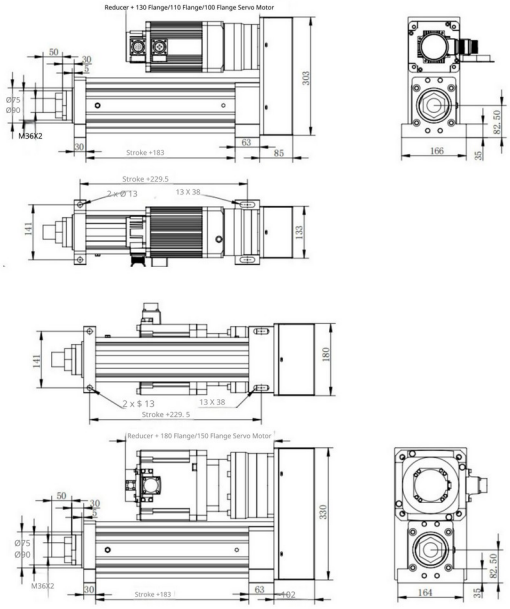


YC110-T-L-BR-FB-P: Folding Rear Flange



|YC110 Electric Cylinder Parameters

YC110-T-L-BR-LB-P: Folding Side Flange

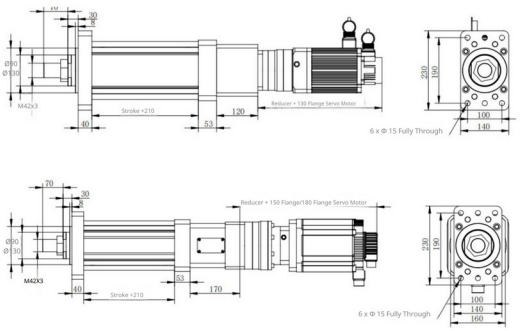


YC134 Electric Cylinder Parameters

Series Model	YC134									
Screw Lead (mm)	10					20				
Electric Cylinder Thrust Range (KN)	0.01-50					0.01-55				
Electric Cylinder Stroke (mm)	10-2000									
Motor Rated Power (w)	1500	2000	4.4	5.5	7.5	1500	2000	4.4	5.5	7.5
Motor Rated Torque (K.N)	7.16	9.55	28.4	35	48	7.16	9.55	28.4	35	48
Motor Rated Speed (rpm)	2000		1500			1500		1500		
Electric Cylinder Rated Thrust (KN)	3.8	5.1	15.1	18.6	25.6	1.6	2.65	7.55	9.3	12.8
Electric Cylinder Rated Speed (mm/s)	332	332	250	250	250	666	666	500	500	500

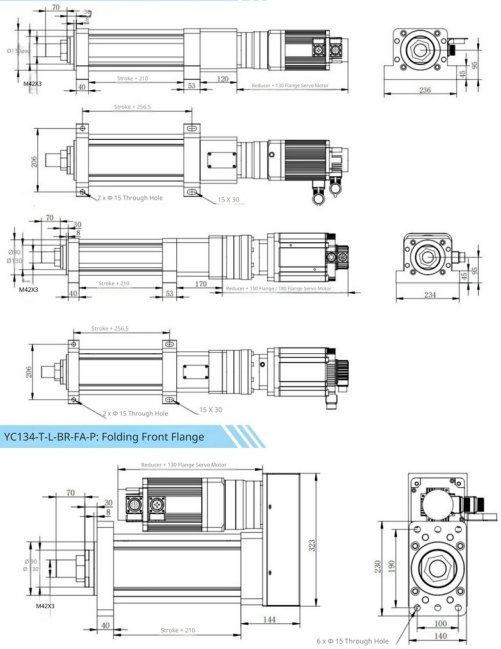
Note: The above technical parameters are for reference only. Actual technical parameters and dimensions will be provided based on the data provided by the customer.

YC134-T-L-BC-FA-P: Direct Connection Front Flange



YC134 Electric Cylinder Parameters

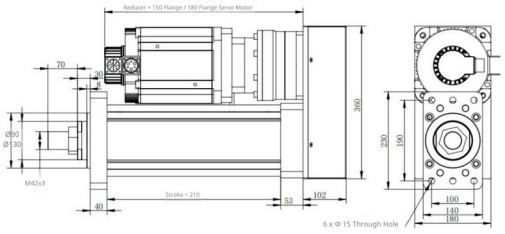
YC134-T-L-BC-LB-P: Direct Connection Side Flange



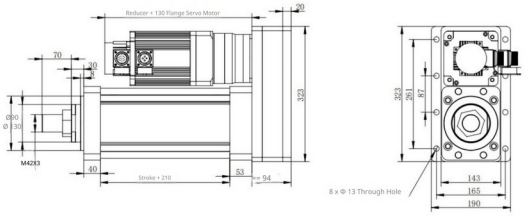
YC134-T-L-BR-FA-P: Folding Front Flange

YC134 Electric Cylinder Parameters

YC134-T-L-BR-FA-P: Folding Front Flange

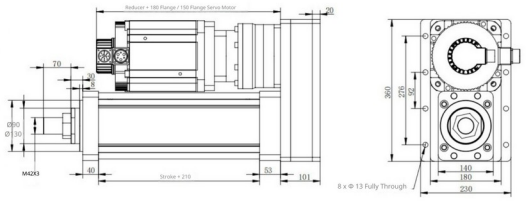


YC134-T-L-BR-FB-P: Folding Rear Flange

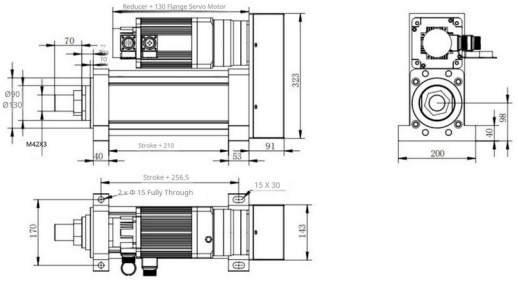


YC134 Electric Cylinder Parameters

YC134-T-L-BR-FB-P: Folded Rear Flange

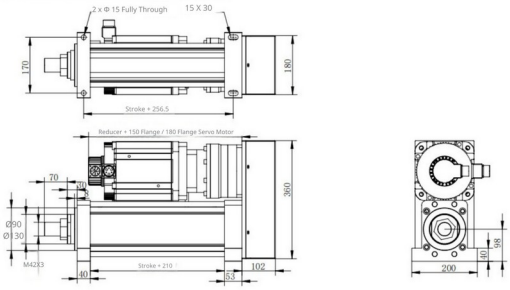


YC134-T-L-BR-LB-P: Folded Side Flange



YC134 Electric Cylinder Parameters

YC134-T-L-BR-LB-P: Folded Side Flange



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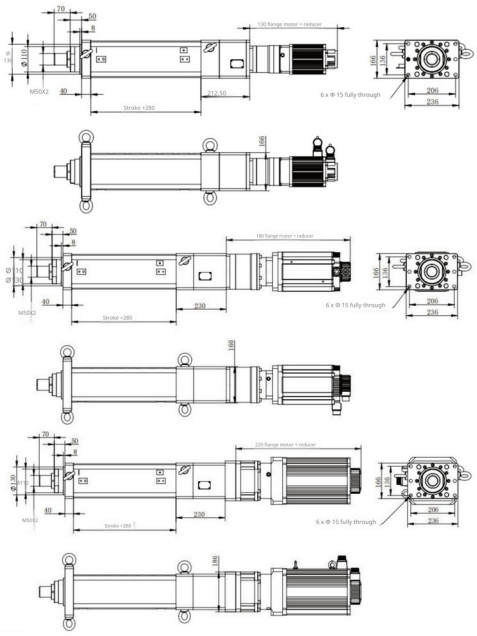
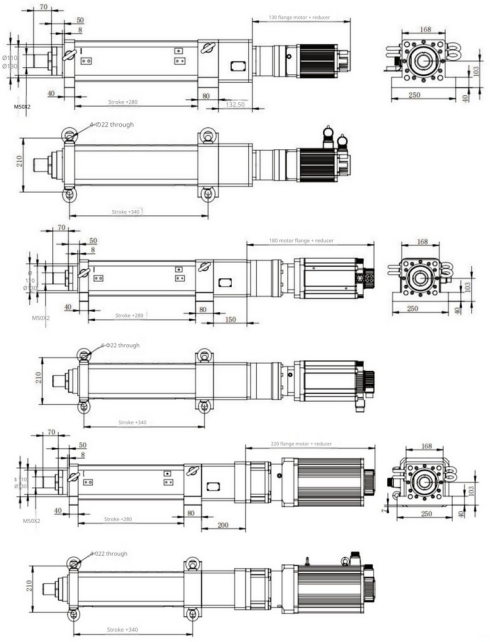
YC160 electric cylinder parameters

YC160-T-L-BC-FA-P: Directly connected front flange



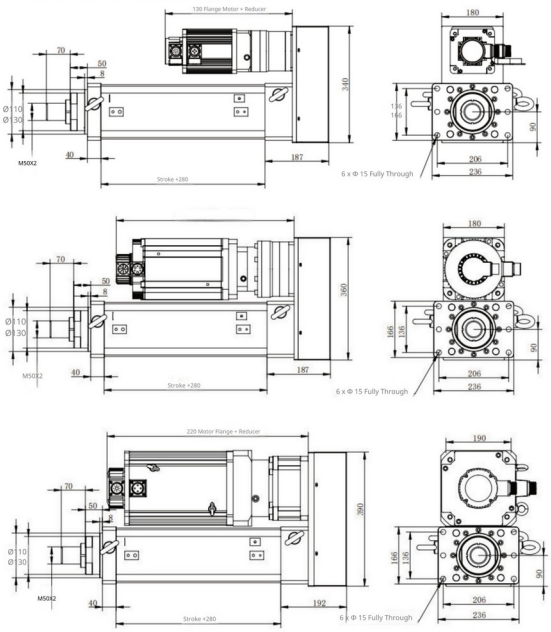
YC160 electric cylinder parameters

YC160-T-L-BC -LB-P: Directly connected side flange



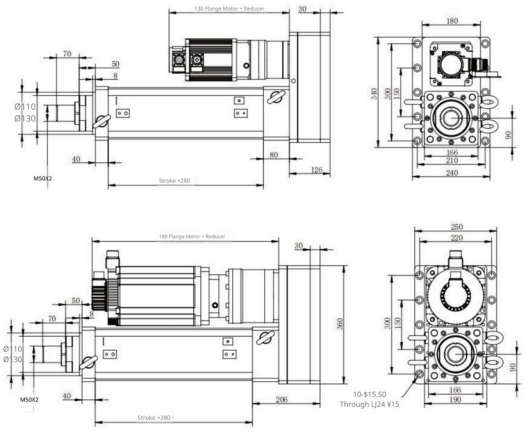
YC160 Electric Cylinder Parameters

YC160-T-L-BR-FA-P: Front Folding Flange



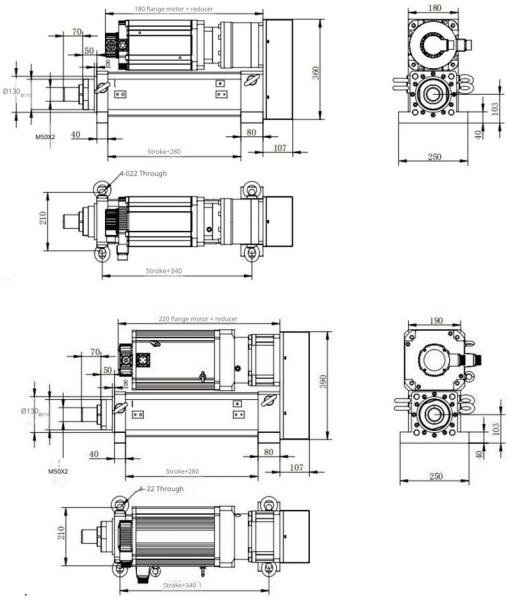
YC160 Electric Cylinder Parameters

YC160-T-L-BR-LB-P: Rear Folding Flange



|YC160 Electric Cylinder Parameters

YC160-T-L-BR-FA-P: Folding side flange



Precision servo press parameters

◎ Introduction to Servo Press

Servo press (referred to as servo press), also known as high-precision servo press fitting machine (referred to as servo press fitting machine) or electronic press fitting machine. Its working principle is driven by a servo motor, and the force is output through a high-precision ball screw to implement pressure assembly operations. The servo press is equipped with a precision pressure sensor and encoder, which can accurately measure displacement speed, pressure value, and position. The professionally developed control software can ensure precise control of parameters such as press-fitting force, stop position, press-fitting speed, and holding time throughout the entire process, achieving full process numerical control management.

◎ Equipment Advantages

The high-precision characteristics of the servo press that realize precise pressure and displacement full closed-loop control are unmatched by other types of presses; compared with the traditional pneumatic and hydraulic presses, the energy saving effect is more than 80%, and it is more environmentally friendly, safe, and can meet the equipment use requirements in dust-free workshops; The press-fitting force and displacement full process curve diagram can be displayed on the LCD touch screen, and the full process control can automatically determine whether the product is qualified at any stage of the operation, 100% Real-time removal of defective products, thereby realizing online quality management. Press-fitting force, press-in depth, press-fitting speed, holding time, etc. can all be entered numerically on the operation panel. The interface is easy to understand and the operation is simple; 100 sets of press-fitting programs can be customized, stored, and called; three press-fitting modes are available for selection, meeting different process requirements; press-fitting data can be stored in a flash drive through the USB interface to ensure the traceability of product processing data and facilitate production quality control management; Because the machine itself has precise pressure and displacement control functions, there is no need to add hard limits to the tooling. When processing products of different specifications, you only need to call different press-fitting programs, so it is easy to achieve multiple uses for one machine and flexible line assembly.

◎ Application Fields

Automotive industry: Engine component press-fitting (cylinder head, cylinder liner, oil seal, etc.) Steering gear component press-fitting (gear, pin shaft, etc.) Drive shaft component press-fitting, Gearbox component press-fitting, Brake disc component press-fitting, etc;

Motor industry: Micro motor component press-fitting (spindle, housing, etc.), Motor component press-fitting (bearing, spindle, etc.); Electronic industry: Circuit board component press-fitting (plug-in, etc.), Electronic component press-fitting;

Home appliance industry: Home appliance accessory press-fitting, Home appliance accessory riveting, etc;

Mechanical industry: Mechanical component press-fitting, Automated assembly line, Wearable parts life testing, etc;

Other industries: Other occasions that require precise control of press-fitting displacement and press-fitting force.

. Servo press model identification

YCY-C1-60-T05 - L100 - BC - FA - N- P

① ② ③

① Product code	
YC	Electric cylinder
YCY	Servo press

② Product type	
C1	C-type table type
C2	C-type floor type
F1	Four-column table type
F2	Four-column floor type

③ Electric cylinder parameters
Refer to electric cylinder model identification

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