

# Laifual Drive ROBOT JOINT



Build the robot faster

# I series specification

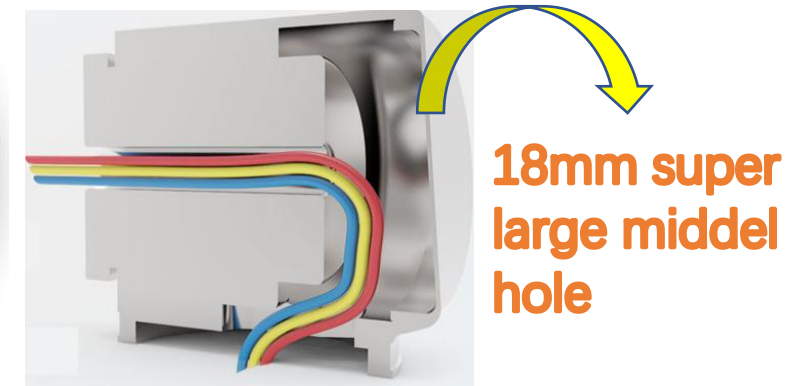


<p><b>LFRob70I</b>                  Outer dia: 70mm                  Length: 81mm                  Weight: 0.98kg                  Rated. torque: 10Nm                  Max. speed: 60RPM</p>	<p><b>LFRob80I</b>                  Outer dia: 80mm                  Length: 95mm                  Weight: 1.4kg                  Rated. torque: 31Nm                  Max. speed: 60RPM</p>	<p><b>LFRob90I</b>                  Outer dia: 90mm                  Length: 102mm                  Weight: 2.1kg                  Rated. torque: 52Nm                  Max. speed: 60RPM</p>	<p><b>LFRob110I</b>                  Outer dia: 110mm                  Length: 127mm                  Weight: 3.3kg                  Rated. torque: 87Nm                  Max. speed: 40RPM</p>	<p><b>LFRob142I</b>                  Outer dia: 142mm                  Length: 137mm                  Weight: 6.7kg                  Rated. torque: 178Nm                  Max. speed: 40RPM</p>	<p><b>LFRob170I</b>                  Outer Dia: 170mm                  Length: 145mm                  Weight: 9.5kg                  Rated. torque: 382Nm                  Max. speed: 40RPM</p>
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**Makes robot development more easier, faster and safer!**

**Saves hundreds of components' selection, design, procurement, assembly and time costs.**

# T series specification



## LFRob70T

Outer dia: 73mm  
Length: 99mm  
Weight: 1.3kg  
Max. torque: 10Nm  
Max. speed: 60RPM

## LFRob80T

Outer dia: 85mm  
Length: 111.8mm  
Weight: 2.0kg  
Max. torque: 31Nm  
Max. speed: 60RPM

## LFRob90T

Outer dia: 96mm  
Length: 120.8mm  
Weight: 2.7kg  
Max. torque: 52Nm  
Max. speed: 60RPM

## LFRob110T

Outer dia: 116mm  
Length: 147.5mm  
Weight: 4.8kg  
Max. torque: 87Nm  
Max. speed: 40RPM

## LFRob142T

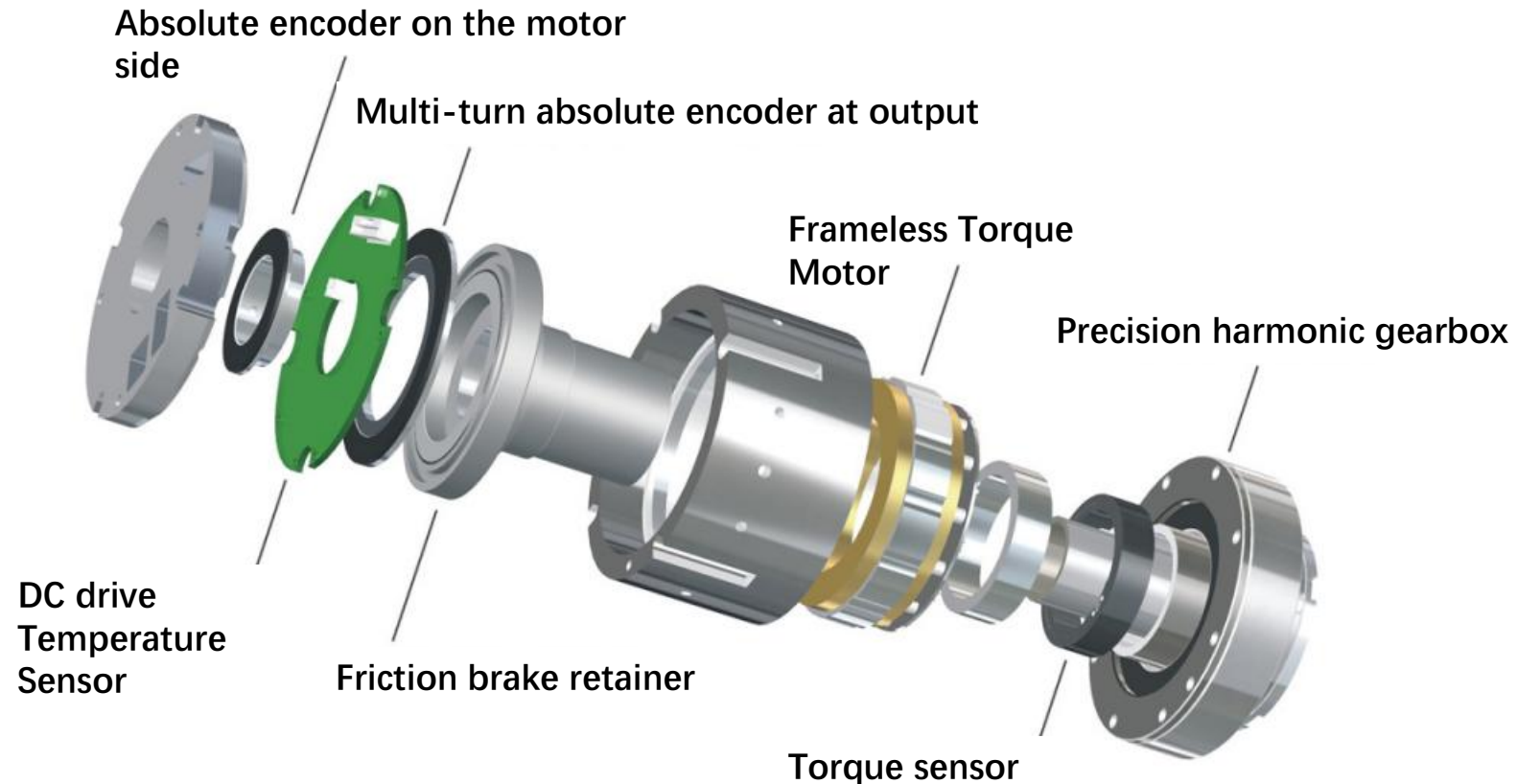
Outer dia: 152mm  
Length: 163mm  
Weight: 8.3kg  
Max. torque: 178Nm  
Max. speed: 40RPM

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# 8 core components

Small and precise



LFRob70I outer dimension is only 70mm, height 81mm, 18mm through hole.  
980g Ultra light weight, torque to weight ratio up to 50N.m/kg.

Support multiple communication protocols

EtherCAT<sup>®</sup>

CANopen<sup>®</sup>

With EtherCAT, CANopen communication, open position loop, speed loop, current loop, PID real-time adjustment, suitable for dynamic variable load and variable inertia robot applications.



### Built-in servo drive

Embedded servo driver, very small installation volume. The outer diameter is 54mm, 18mm through hole, only 18.5mm thick. The input voltage is 48VDC, the peak current is 80A, and the output power is up to 3KW. Two sets of outlet plugs are convenient for series connection. Anti-loose plug, safe and reliable.



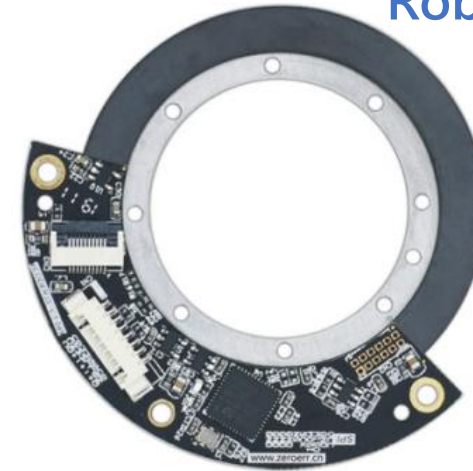
eDriver3Ring

## Built-in double absolute encoder Fully closed loop control

Output 19-bit absolute value multi-turn encoder,  
Repeat positioning accuracy up to +/-10 arc seconds,  
Absolute positioning accuracy up to +/-45 arc seconds,  
Can memorize single-turn and multi-turn power-off positions,  
Fully closed loop control, no wear accuracy.



eCoder20



eCoder35

Friction brake



## Friction brake

Adopt friction type damping brake retainer,  
Stop without shaking,  
No jitter at boot,  
It can start at zero speed at full load.

## I series Parameters Table

### Robot joint

Model No	LFRob70			LFRob80			LFRob90			LFRob110				LFRob142				LFRob170			
Ratio	14-50	14-80	14-100	17-50	17-80	17-100	20-50	20-80	20-100	25-50	25-80	25-100	25-120	32-50	32-80	32-100	32-120	40-50	40-80	40-100	40-120
Start-stop peak torque(Nm)	18/23	23/30	28/36	34/44	43/56	54/70	56/73	74/96	82/107	98/127	137/178	157/204	167/217	216/281	304/395	333/433	353/459	402/523	519/675	568/738	617/802
Rated torque(Nm)	5.4/7	7.8/10	7.8/10	16/21	22/29	24/31	25/33	34/44	40/52	39/51	63/82	67/87	67/87	76/99	118/153	137/178	137/178	137/178	206/268	265/345	294/382
Instantaneous allowable maximum torque(Nm)	35/46	47/61	54/70	70/91	87/113	110/143	98/127	127/165	147/191	186/242	255/332	284/369	304/395	382/497	568/738	647/841	686/892	686/892	980/1270	1080/1400	1180/1530
Output peak speed(RPM)	60	37.5	30	60	37.5	30	60	37.5	30	40	25	20	16.7	40	25	20	16.7	40	25	20	16.7
Motor watt(W)	100			200			400			750				1000							
Voltage(V)	48(±10%)																				
Rated current(A)	3.3			6.9			11			20				26							
Peak current(A)	11			16.8			29			40				56							
Output encoder resolution	19Bit																				
Repeat/absolute positioning accuracy	±10/45 arcsecond																				
Communication bus	EtherCAT/CANopen																				
Outer diameter x length x through hole (mm)	70x81x18			80x95x18			90x102x18			110x127x18				142x137x18				170x145x18			
Weight (kg)	0.98			1.4			2.1			3.3				6.7				9.5			
Interface design	Fully differential interface design, strong anti-interference ability, two sets of loose plugs, can be connected in series.																				
Brake	Friction damping brake																				
IP rating	IP54																				

Note: The two values of the torque parameter in this table with "/" are the corresponding values when equipped with medium rigidity/high rigidity joints.

## T series Parameters Table

### Robot joint

Model No	LFRob70			LFRob80			LFRob90			LFRob110				LFRob142			
Ratio	14-50	14-80	14-100	17-50	17-80	17-100	20-50	20-80	20-100	25-50	25-80	25-100	25-120	32-50	32-80	32-100	32-120
Start-stop peak torque(Nm)	18/23	23/30	28/36	34/44	43/56	54/70	56/73	74/96	82/107	98/127	137/178	157/204	167/217	216/281	304/395	333/433	353/459
Rated torque(Nm)	5.4/7	7.8/10	7.8/10	16/21	22/29	24/31	25/33	34/44	40/52	39/51	63/82	67/87	67/87	76/99	118/153	137/178	137/178
Instantaneous allowable maximum torque(Nm)	35/46	47/61	54/70	70/91	87/113	110/143	98/127	127/165	147/191	186/242	255/332	284/369	304/395	382/497	568/738	647/841	686/892
Output peak speed(RPM)	60	37.5	30	60	37.5	30	60	37.5	30	40	25	20	16.7	40	25	20	16.7
Motor watt(W)	100			200			400			750				1000			
Voltage(V)	48(±10%)																
Rated current(A)	3.3			6.9			11			20				26			
Peak current(A)	11			16.8			29			40				56			
Output encoder resolution	19Bit																
Repeat/absolute positioning accuracy	±10/45 arcsecond																
Communication bus	EtherCAT/CANopen																
Outer diameter x length x through hole (mm)	70x81x18			80x95x18			90x102x18			110x127x18				142x137x18			
Weight (kg)	0.98			1.4			2.1			3.3				6.7			
Interface design	Fully differential interface design, strong anti-interference ability, two sets of loose plugs, can be connected in series.																
Brake	Friction damping brake																
IP rating	IP54																

Note: The two values of the torque parameter in this table with "/" are the corresponding values when equipped with medium rigidity/high rigidity joints.



## LFRob series selection table

	Series	Outer diameter	Load capacity	Ratio	Installation	Brake	Output encoder	Through hole diameter	Communication	Torque sensor
	<b>LFRob</b>	<b>80</b>	<b>H</b>	<b>100</b>	<b>I</b>	<b>- B</b>	<b>M</b>	<b>- 18</b>	<b>E</b>	<b>N</b>
<b>Laifual Robot joint</b>	70	Outer dia 70mm	H	50	I	B	M	18mm	E	T
	80	Outer dia 80mm	N	80	T	F	S		C	N
	90	Outer dia 90mm		100						
	110	Outer dia 110mm		120						
	142	Outer dia 142mm								

Robot joint model: LFRob70H80I-BS-18E

More information, please don't hesitate to contact with us.  
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