

NPM

Linear-type stepper motor

LINEARSTEP®

PFCL25 series

Fully threaded shaft

PFL35T series

Fully threaded shaft



PFCL25 series



PFL35T series

Features

1. Simple control
Because it is a stepper motor, it is simple to control.
2. Simple design
This motor is constructed by creating female threads inside the rotors of both bearing supports, and the male shaft is simply threaded through.
3. High efficiency
By employing a special type of thread, it offers high thread efficiency and a large driving force
4. Long life
Has a long life thanks to ball bearing support and low-friction threads.
5. Many lines of different series

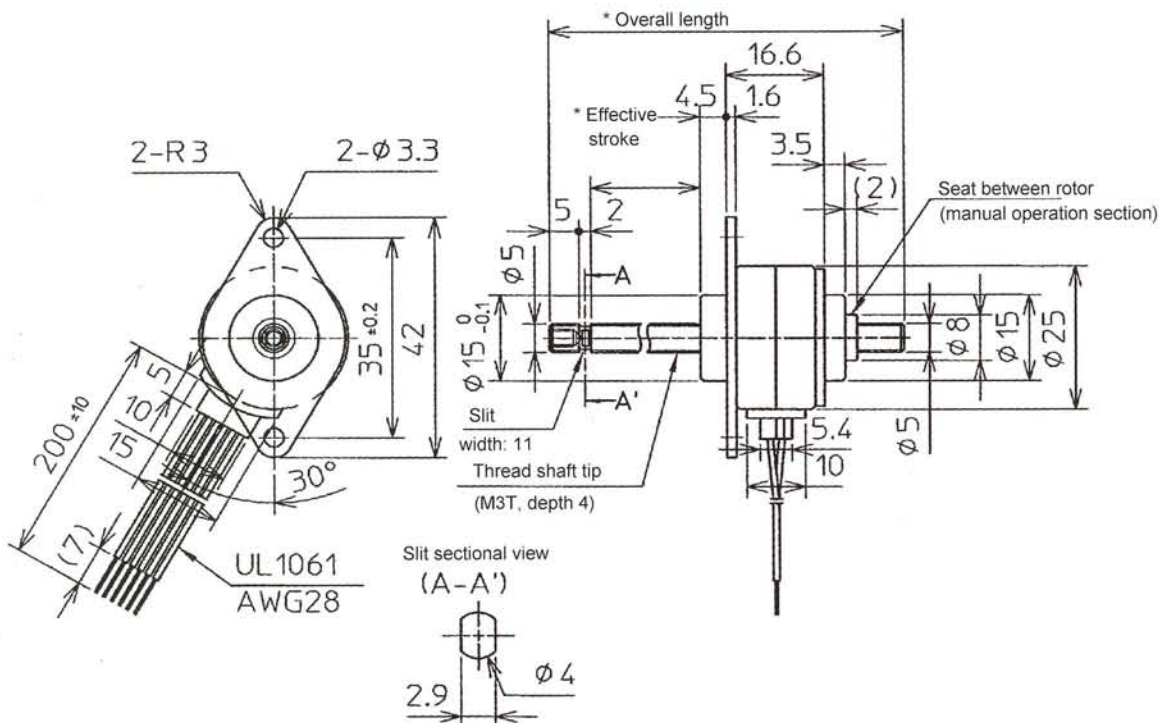
General specifications

No.	Item	PFCL25-48C4(xxx)			PFCL25-48D4(xxx)			PFCL25-24C4(xxx)		
1	Design and number of phases	PM (linear step), 2-phase			PM (linear step), 2-phase			PM (linear step), 2-phase		
2	Excitation system	2-2 phase			2-2 phase			2-2 phase		
3	Resolution (feed amount)	0.025 mm	0.020 mm	0.010 mm	0.025 mm	0.020 mm	0.010 mm	0.050 mm	0.040 mm	0.020 mm
	Thread lead pitch	1.20 mm	0.96 mm	0.48 mm	1.20 mm	0.96 mm	0.48 mm	1.20 mm	0.96 mm	0.48 mm
4	Operating temperature range	-10 to +50°C (ambient temperature)			-10 to +50°C (ambient temperature)			-10 to +50°C (ambient temperature)		
5	Insulation withstand voltage	500 VAC (for one minute)			500 VAC (for one minute)			500 VAC (for one minute)		
6	Insulation resistance	100 M-ohm (500 VDC)			100 M-ohm (500 VDC)			100 M-ohm (500 VDC)		
7	Insulation class	Class E (maximum coil temperature)			Class E (maximum coil temperature)			Class E (maximum coil temperature)		
8	Maximum motor temperature	+80°C or less (on the case)			+80°C or less (on the case)			+80°C or less (on the case)		
9	Coil resistance	120 ohm ±7%			16 ohm ±7%			120 ohm ±7%		
10	Coil inductance	33 mH (1 Vrms, 1 KHz)			4.5 mH (1 Vrms, 1 KHz)			30 mH (1 Vrms, 1 KHz)		
11	Max. pulse speed for self-starting	650 PPS (no load)			650 PPS (no load)			350 PPS (no load)		
12	Max. pulse speed for continuous response	700 PPS (no load)			700 PPS (no load)			450 PPS (no load)		
13	Temperature increase	70 K (0PPS, resistance method)			70 K (0PPS, resistance method)			70 K (0PPS, resistance method)		
14	Weight	60 g (standard)			60 g (standard)			60 g (standard)		
15	Warranted operating temperature	Same as the maximum motor temperature			Same as the maximum motor temperature			Same as the maximum motor temperature		
16	Warranted operating humidity	RH 85% (non-condensing)			RH 85% (non-condensing)			RH 85% (non-condensing)		
17	Warranted storage temperature	-30°C to +80°C			-30°C to +80°C			-30°C to +80°C		

Remarks: PCFL25 series

- The resolutions given in line No. 3 (feed amounts) are true at full step.
- The values in items 9 to 12 above are power line voltage values and correct at normal temperature (20°C±5°C) in the normal humidity range (RH65% ±20%).
- The value in line No. 13 is voltage at power lines and true when saturated.
- The driving characteristics are values measured with a force gauge.
- The drive circuit is a PS-1LD-42 (equivalent to a uni-polar 2SD633 driver) and a surge suppressor is not included.
- With model "C4," when the supply voltage is 13.3 V, the voltage between the motor terminals will be 12.5 V
- With model "D4," when the supply voltage is 5.4 V, the voltage between the motor terminals will be 4.6 V
- The standard effective stroke is 30 mm or 60 mm.
- When the effective stroke is 30 mm, the overall length will be 60 mm. When the effective stroke is 60 mm, the overall length will be 90 mm.

Outline drawings PFCL25-48, PFCL25-24



* When the effective stroke is 30 mm, the total length will be 60 mm.

* When the effective stroke is 60 mm, the total length will be 90 mm.

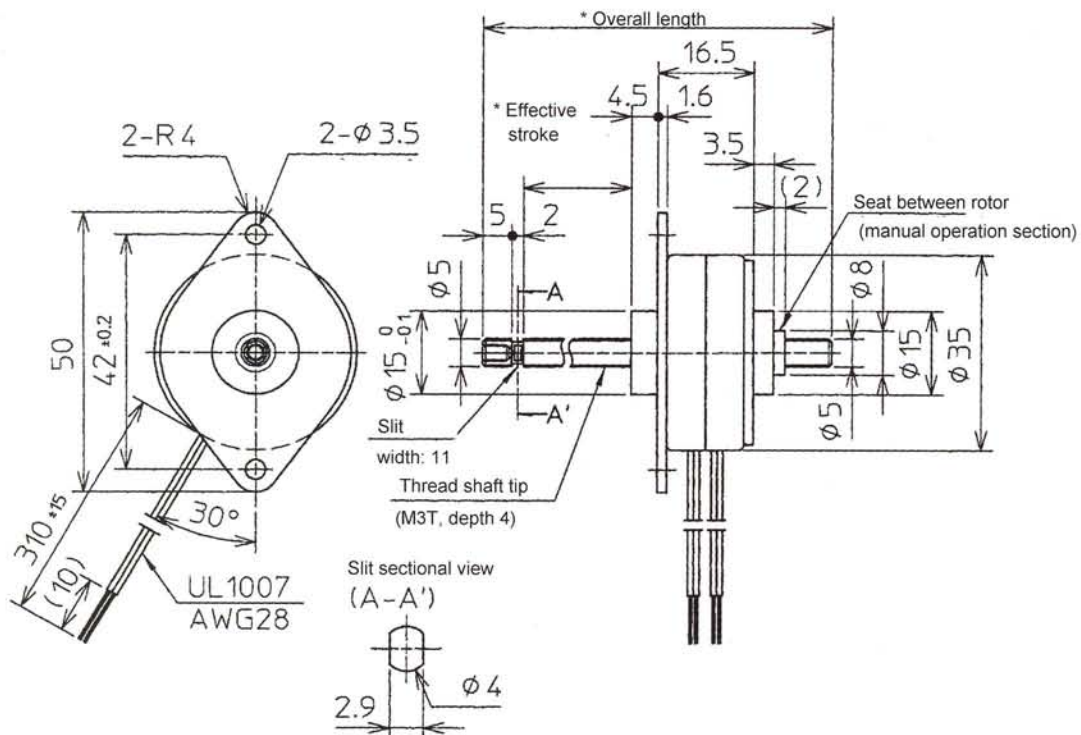
General specifications

PFCL25-24D4(xxx)	PFL35T-48C4(xxx)	PFL35T-48D4(xxx)	Item	No.
PM (linear step), 2-phase	PM (linear step), 2-phase	PM (linear step), 2-phase	Design and number of phases	1
2-2 phase	2-2 phase	2-2 phase	Excitation system	2
0.050 mm 0.040 mm 0.020 mm	0.025 mm 0.020 mm 0.010 mm	0.025 mm 0.020 mm 0.010 mm	Resolution (feed amount)	3
1.20 mm 0.96 mm 0.48 mm	1.20 mm 0.96 mm 0.48 mm	1.20 mm 0.96 mm 0.48 mm	Thread lead pitch	
-10 to +50°C (ambient temperature)	-10 to +50°C (ambient temperature)	-10 to +50°C (ambient temperature)	Operating temperature range	4
500 VAC (for one minute)	500 VAC (for one minute)	500 VAC (for one minute)	Insulation withstand voltage	5
100 M-ohm (500 VDC)	100 M-ohm (500 VDC)	100 M-ohm (500 VDC)	Insulation resistance	6
Class E (maximum coil temperature)	Class E (maximum coil temperature)	Class E (maximum coil temperature)	Insulation class	7
+80°C or less (on the case)	+80°C or less (on the case)	+80°C or less (on the case)	Maximum motor temperature	8
16 ohm ±7%	70 ohm ±7%	12 ohm ±7%	Coil resistance	9
4.1 mH (1 Vrms, 1 KHz)	26 mH (1 Vrms, 1 KHz)	4.8 mH (1 Vrms, 1 KHz)	Coil inductance	10
350 PPS (no load)	450 PPS (no load)	450 PPS (no load)	Max. pulse speed for self-starting	11
450 PPS (no load)	500 PPS (no load)	500 PPS (no load)	Max. pulse speed for continuous response	12
70 K (0PPS, resistance method)	70 K (0PPS, resistance method)	70 K (0PPS, resistance method)	Temperature increase	13
60 g (standard)	95 g (standard)	95 g (standard)	Weight	14
Same as the maximum motor temperature	Same as the maximum motor temperature	Same as the maximum motor temperature	Warranted operating temperature	15
RH 85% (non-condensing)	RH 85% (non-condensing)	RH 85% (non-condensing)	Warranted operating humidity	16
-30°C to +80°C	-30°C to +80°C	-30°C to +80°C	Warranted storage temperature	17

Remarks: PFL35T series

- The resolutions given in line No. 3 (feed amounts) are true at full step.
- The values in items 9 to 12 above are power line voltage values and correct normal temperature (20°C±5°C) in the normal humidity range (RH65% ±20%).
- The value in line No. 13 is value at power lines and true when saturated.
- The driving characteristics are values measured with a force gauge.
- The drive circuit is a PS-1LD-42 (equivalent to a uni-polar 2SD633 driver) and a surge suppressor is not included.
- With model "C4," rated voltage value is 11.2V at power line.
- With model "D4," rated voltage value is 4.6V between coil ends.
- The standard effective stroke is 30 mm or 60 mm.
- When the effective stroke is 30 mm, the overall length will be 60 mm. When the effective stroke is 60 mm, the overall length will be 90 mm.

Outline drawings PFL35T-48

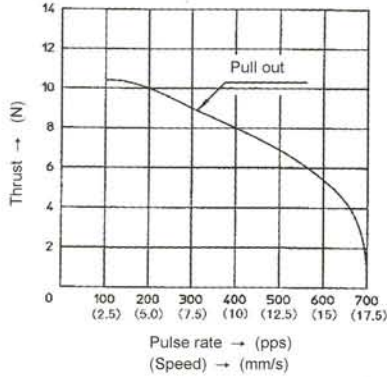


* When the effective stroke is 30 mm, the total length will be 60 mm.

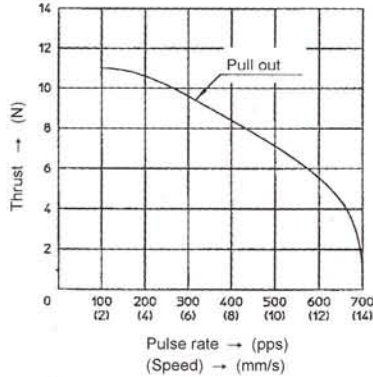
* When the effective stroke is 60 mm, the total length will be 90 mm.

Dynamic Thrust characteristics PFCL25-48

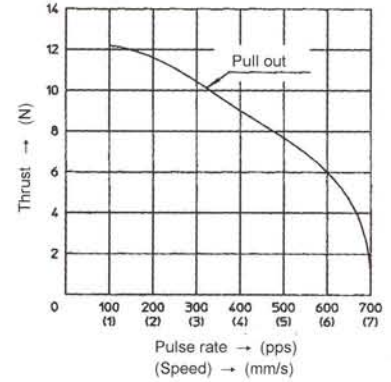
0.025 mm/pulse (1.20 mm/rev)



0.020 mm/pulse (0.96 mm/rev)

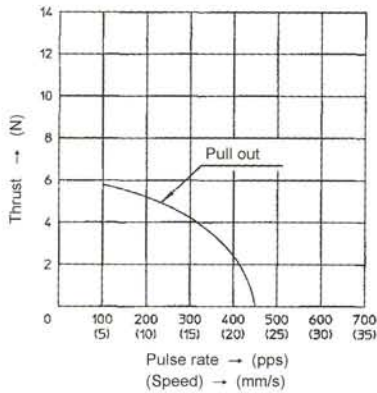


0.010 mm/pulse (0.48 mm/rev)

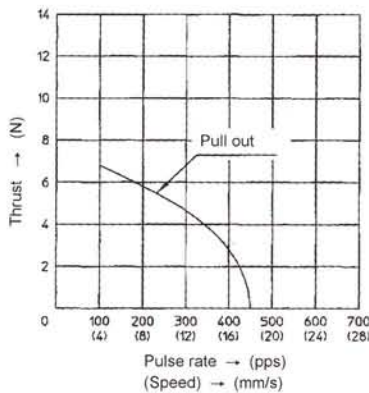


Dynamic Thrust characteristics PFCL25-24

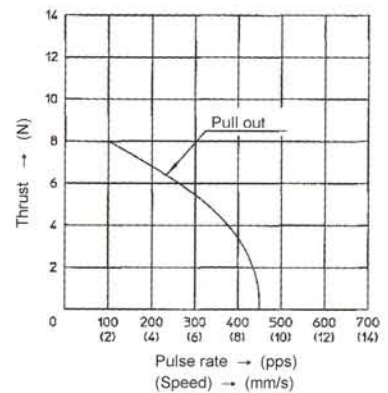
0.050 mm/pulse (1.20 mm/rev)



0.040 mm/pulse (0.96 mm/rev)

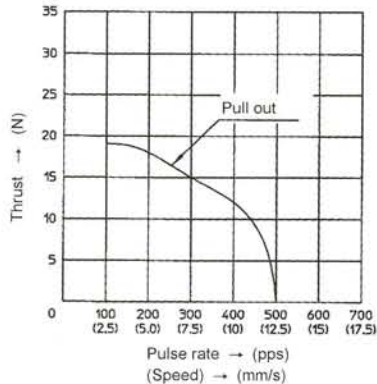


0.020 mm/pulse (0.48 mm/rev)

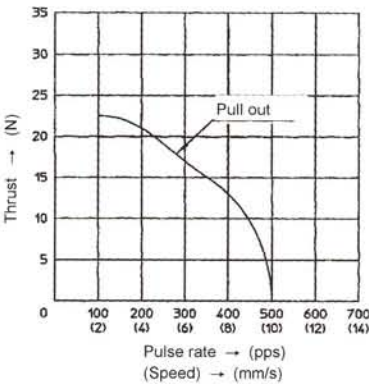


Dynamic Thrust characteristics PFL35T-48

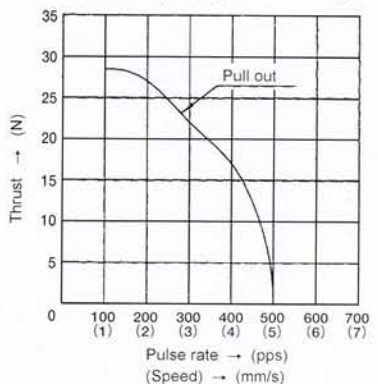
0.025 mm/pulse (1.20 mm/rev)



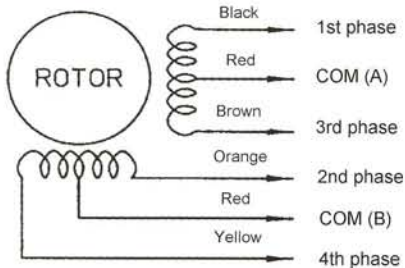
0.020 mm/pulse (0.96 mm/rev)



0.010 mm/pulse (0.48 mm/rev)



Connection diagram



Motion direction

Looking at flange of fitting side

Pulse No.	Looking at flange of fitting side				Pulse No.
	Black	Brown	Orange	Yellow	
1	ON	OFF	ON	OFF	4
2	OFF	ON	ON	OFF	3
3	OFF	ON	OFF	ON	2
4	ON	OFF	OFF	ON	1

Screw out (CW) ↓ ↑ Screw in (CCW)

* The specifications may be changed without prior notice.



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