

CL-XDF-400 type Micro pulling down single crystal furnace

DESCRIPTION

CL-XDF series single crystal furnace is the equipment for making high quality oxide solid single crystal materials (such as LN, LT, YAG, YSO, LYSO, sapphire, etc.) by micro pull down method. It can be operated under various atmosphere conditions.

This series of equipment realizes the growth of tiny crystal rods by growing crystals downward. The motion system of this series of equipment adopts high-precision stepping motor drive control to directly drive the stepping motor, which can realize a wide range of variable speed adjustment and ultra-low speed operation. This series of equipment can well ensure the smoothness, uniformity and reliability of the operation, no crawling for a long time running, small vibration.



EQUIPMENT PARAMETERS ("√" IS STANDARD, "○" IS OPTIONAL)

Modle	Unit	CL-XDF-400	
Effective Puller travel distance	mm	550	√
Pulling rate	mm/h	0.1-6000	√
Pulling system jump (pulling rate 1mm/h)	mm	0.001	√
Rotating rate	rpm	\	
Weight measurement range	kg	1	√
Scale display resolution	mg	10	√
Power	Kw	0-20	√
Power accuracy		1‰	√
Air filling pressure	Mpa	0-0.05	√
Vacuum	Pa	≤10	√
Vacuum	Pa	≤5×10 ⁻³	○
Chamber size	mm	Φ400×400	√
Overall size (L×W×H)	mm	2600×1100×2300	
Overall weight	Kg	600	



CL-XDF-400 type Micro pulling down single crystal furnace

ENVIRONMENT REQUIREMENT

1. Power supply: Power supply: three-phase five-wire 50Hz 380V±10%, 25Kw and 10Kw circuit breaker each group; Two groups of 220V 10A power bars;
2. Mounting space height: ≥2.6m;
3. The main body of this equipment should be installed on a vibration-isolated foundation and surrounded by anti-vibration trenches. The vibration transmitted to the device from the outside should not exceed 5µm;
4. Equipment cooling water: deionized water, water flow rate is not less than 40L/min, water pressure is not less than 0.3MPa, temperature 22±1.5°C, temperature fluctuation speed is not more than 1°C/H;
5. The ambient temperature of the equipment is 22±1.5°C, the temperature fluctuation rate is not greater than 1°C/H, and the ambient humidity is less than 70%.
6. Equipment unpacking and handling requirements: The buyer shall prepare forklifts and manual hydraulic trucks with a load of 1 tons.

EQUIPMENT CONFIGURATION ("√" IS STANDARD, "○" IS OPTIONAL)

	CL-XDF-400	√
Furnace chamber size	Φ400×400	√
Control cabinet	CRY-K- I	√
Power supply	ATECD20	√
Pulling mechanism	CRY-TL-550	√
Frame	CRY-LJ-500	√
VMB	CRY-Q- I	√
Weighing platform	CRY-CZ-1	√
Vacuum gauge	ZDF series	√
Bellows	KF series	√
Pulling motor and driver	86HS45	√
Encoder	ZKH58	√
IPC	IPC820 series	√
UPS power supply for control	C1LKRS	√
Welded bellow	XT70×50-620	√
Seed rod	Ø8	√
Mechanical pump	RVP-9	√
CCD		
Warm up		
Crucible	Φ16	√



CL-XDF-400 type Micro pulling down single crystal furnace

ACCEPTANCE

	Item	Projected Spec	Measurement	Remark
Basic Specification	Effective travel distance of upper puller	550 mm		
	Effective stroke of crucible lifting	\		
	IF generator power	20Kw, 6-16KHz		
	Scale measurement range	1Kg		
	Furnace chamber size	φ400mm×400mm		
	Mechanical pump	9L/S		
	Pulling rate	0.1-6000mm/h		
	Crucible lifting speed	\		
	Rotating rate	\		
	Crucible rotation rate	\		
	Grating/encoder	1μm		
	Other	As specified in Contract		
Accuracy	Pulling system jump	1μm		as per jump value measured with dial indicator (at 1mm/h pulling rate)
	IF resolution	1‰		The fluctuation of fixed power shall prevail
	Scale display	10mg		
	Vacuum limit	10Pa		Vacuum gauge measurement as standard
	Min. pulling rate	0.1mm/h		
	Min. crucible pulling rate	\		
Process control index	Use Party B's sapphire or pure YAG material and temperature field to pull A-direction Φ2×100mm crystals. The error between the crystal and set sizes is not greater than 0.1mm, the internal quality is not used as an assessment index.			In case of any conflict between the contract and this provision, the contract shall prevail

ACCEPTANCE

Equipment acceptance is divided into pre-acceptance and final acceptance. Each acceptance is divided into equipment index acceptance and process performance acceptance.



CL-XDF-400 type Micro pulling down single crystal furnace

TECHNICAL SUPPORT

1. Offer training courses on equipment operation and installation to operator and maintenance personnel;
2. Offer equipment control and structural principle training, software training;
3. Offer necessary text materials such as equipment instruction manuals and qualification certificates;
4. Offer training on the troubleshooting of common equipment failures and special failures;
5. One year warranty and 5 years free software upgrade.
6. Other requirements are subject to the contract;
7. Provide life-long maintenance service (on-site service location is within mainland China).



CL-XDF-500 type Micro pulling down single crystal furnace

DESCRIPTION

CL-XDF series single crystal furnace is the equipment for making high quality oxide solid single crystal materials (such as LN, LT, YAG, YSO, LYSO, sapphire, etc.) by micro pull down method. It can be operated under various atmosphere conditions.

This series of equipment realizes the growth of tiny crystal rods by growing crystals downward. The motion system of this series of equipment adopts high-precision stepping motor drive control to directly drive the stepping motor, which can realize a wide range of variable speed adjustment and ultra-low speed operation. This series of equipment can well ensure the smoothness, uniformity and reliability of the operation, no crawling for a long time running, small vibration.



EQUIPMENT PARAMETERS ("√" IS STANDARD, "○" IS OPTIONAL)

Modle	Unit	CL-XDF-500	
Effective Puller travel distance	mm	550	√
Pulling rate	mm/h	0.1-6000	√
Pulling system jump (pulling rate 1mm/h)	mm	0.001	√
Rotating rate	rpm		√
Weight measurement range	kg	1	√
Scale display resolution	mg	10	√
Power	Kw	0-20	√
Power accuracy		1‰	√
Air filling pressure	Mpa	0-0.05	√
Vacuum	Pa	≤10	√
Vacuum	Pa	≤5×10 ⁻³	○
Crucible travel	mm		○
Crucible lifting speed	mm/min		○
Crucible rotation rate	rpm		○
Chamber size	mm	Φ500×600	√
Overall size (L×W×H)	mm	2600×1100×2500	
Overall weight	Kg	600	

Note: Installation dimensions do not include optional systems



CL-XDF-500 type Micro pulling down single crystal furnace

ENVIRONMENT REQUIREMENT

1. Power supply: Power supply: three-phase five-wire 50Hz 380V±10%, 25Kw and 10Kw circuit breaker each group; Two groups of 220V 10A power bars;
2. Mounting space height: ≥2.6m;
3. The main body of this equipment should be installed on a vibration-isolated foundation and surrounded by anti-vibration trenches. The vibration transmitted to the device from the outside should not exceed 5µm;
4. Equipment cooling water: deionized water, water flow rate is not less than 40L/min, water pressure is not less than 0.3MPa, temperature 22±1.5°C, temperature fluctuation speed is not more than 1°C/H;
5. The ambient temperature of the equipment is 22±1.5°C, the temperature fluctuation rate is not greater than 1°C/H, and the ambient humidity is less than 70%.
6. Equipment unpacking and handling requirements: The buyer shall prepare forklifts and manual hydraulic trucks with a load of 1 tons.

EQUIPMENT CONFIGURATION ("√" "IS STANDARD, "○" "IS OPTIONAL)

	CL-XDF-500	√
Furnace chamber size	Φ500×600	√
Control cabinet	CRY-K- I	√
Power supply	ATECD20	√
Pulling mechanism	CRY-TL-550	√
Frame	CRY-LJ-500	√
VMB	CRY-Q- I	√
Weighing platform	CRY-CZ-1	√
Vacuum gauge	ZDF series	√
Bellows	KF series	√
Pulling motor and driver	86HS45	√
Encoder	ZKH58	√
IPC	IPC820 series	√
UPS power supply for control	C1LKRS	√
Welded bellow	XT70×50-620	√
Seed rod	Ø8	√
Mechanical pump	RVP-9	√
CCD		
Warm up		
Crucible	Φ16	√



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	Item	Projected Spec	Measurement	Remark
Basic Specification	Effective travel distance of upper puller	550 mm		
	Effective stroke of crucible lifting	\		
	IF generator power	20Kw, 6-16KHz		
	Scale measurement range	1Kg		
	Furnace chamber size	φ500mm×600mm		
	Mechanical pump	9L/S		
	Pulling rate	0.1-6000mm/h		
	Crucible lifting speed	\		
	Rotating rate	\		
	Crucible rotation rate	\		
	Grating/encoder	1μm		
	Other	As specified in Contract		
Accuracy	Pulling system jump	1μm		as per jump value measured with dial indicator (at 1mm/h pulling rate)
	IF resolution	1‰		The fluctuation of fixed power shall prevail
	Scale display	10mg		
	Vacuum limit	10Pa		Vacuum gauge measurement as standard
	Min. pulling rate	0.1mm/h		
	Min. crucible pulling rate	\		
Process control index	Use Party B's sapphire or pure YAG material and temperature field to pull A-direction Φ50×100mm crystals. The error between the crystal and set sizes is not greater than 1mm, and the internal quality is not used as an assessment index.			In case of any conflict between the contract and this provision, the contract shall prevail

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