

HP120

# **Dry Ice Pelletizer**

# **Operating Manual**

# WARNING: Please read carefully before proceeding

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#### Preface

We thank you for purchasing this machine. This manual covers the safety, installation, operation and maintenance of the machine and other information. This manual should be available to the operator for reference. The operator should read this manual carefully before operating to ensure safe and stable operation of the machine. If the machine has any improper operation or maintenance, will not apply to the following commitments.

When you buy this machine, check the model, all the parts listed on the packing list and check if there are any transport process damaged parts. If any parts are missing or found damaged, please immediately contact the dealer or machine manufacturer. Once again, we thank you for your purchase.

#### Promise

If any parts within one year from the date of purchase found to be defective, the manufacturer or distributor of this part shall be repaired or replaced, the premise is this part immediately returned. If these components are due to operator carelessness, misuse or lack of lubrication, cleaning is not complete, incorrect operating environment and other causes of failure, the manufacturer or dealer is not responsible for repair or replacement.

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# **Chapter 1** Safety Instructions

#### 1.1 Safety Rules



#### 1.1.1 General Safety Rules

(1) Know Your Machine.

For your personal safety, read the manual. Familiar with the machine's applications and limitations, as well as the potential danger associated with the machine.

(2) Keep working area clean.

Messy area can cause accidents.

(3) Do not use in hazardous environments.

Do not place in wet or rainy use, or expose it to rain. Maintain a good work area.

(4) Non-professionals do not close.

All visitors in the work area must be kept a safe distance.

- (5) Do not operate the machine forcibly.
- (6) Under the implementation of the speed of the machine to its design safety.

(7) Do not use the right tools to perform the work force so that the machine or attachment.

(8) Wear appropriate clothing.

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Wear gloves, earplugs, wear non-slip shoes.

(9) Do maintenance machine in working condition.

The machine should be properly maintained, such as lubrication, adjustment.

<sup>(1)</sup> Before servicing, replacement parts, or assembly and re-assembly of the motor must be disconnected from the power supply at the machine.

(1) Recommendations of the parts, accessories, on recommendation of the inspection manual.

(12) Do not let the machine run unattended under.

#### 1. 1. 2 Additional safety rules of dry ice pelletizer

(1) Do not understand the machine structure, performance and operational procedures, and is not allowed to start the machine.

(2) Dry ice pelletizer in the work process is prohibited overhaul.

(3) When dry ice pelletizer abnormal (such as action is not reliable, powerful vibration, etc.), must be shut down relief overhaul is not allowed to work sick.

(4) When the machine is working, is strictly prohibited hand, head of the effective area extends into the work area.

(5) Prohibited when working with high-pressure dry ice pelletizer head pipe and tighten the nut.

(6)Regularly check the limit switch, safety devices, in order to ensure reliable operation.

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(6) When replacing parts or repair, not the boot, to avoid causing accidents.

#### 1.2 Warning signs

There is shown below the warning sign on the machine to ensure proper and safe operation.

Sign of the machine used to point out there is a particular danger to the operator position and examples.

Do not remove the machine safety signs.

Electric shock

Dangerous area

Caution









connected



#### 1.3 Machine name plate



# **Chapter 2 Description of the basic properties of the machine**



# 2. 1The main technical parameter

MODEL	CURRENT	VOLTSA	HYDRAULI	FREQ	POWER	SIZE	WORK	WEIGHT
	А	GE	С	Hz	KW	mm	SPEED	KG
		v	PRESSURE				LB/H	
			KG/cm2					
HP120	20	400/44	200	50/60	8.2	1086*1804*1672	1500	1000
		0V						

# Note: The size and design characteristics shownin this table, to

change without notice!

# 2.2 Machine features

HP series is mainly used for the production of dry

ice(1.5mm/3mm/6mm/8mmpellets), for industrial cleaning,

refrigeration and other insurance purposes.

# **Chapter 3 Installation and commissioning**

#### 3. 1Lifting machinery safety regulations

- 1. When lifting, pay attention to the balance of the machine.
- 2. Use enough tonnage to the crane lifting machine.
- 3. Another assistant on doctor needs to assistance when lifting machine.
- 4. Crane lifting hand must extend into the bottom of the machine.
- 5. The crane must be operated by the skilled person.
- 6. Contact with the part of the rope should be lifted when the liner.

#### 3. 2Select a location

	The ambient	$5^{\circ}C \sim 40^{\circ}C$ (Not freeze)					
	temperature						
Environment	The ambient						
	humidity	9070KII Below (Non-condensing)					
	Storage	-20°C~+65°C					
	Temperature						
	Environment	Indoors (no corrosive gas, flammable gas, oil					
	Liiviioiiiieitt	mist, etc.)					
	Altitude	1000m altitude Below					

#### 3. 3Lifting machine

This machine can be used to transport cranes

Crane's hand movements must into the bottom of the machine

When handling, attention to the balance of the machine

Weight of the machine in Table 2.1the machine parameters

#### 3. 4Installation the machine

1. By appearance Fig. Hydraulic diagram connected lines.

2. By electrical schematics connect the power lines.

3. Before commissioning the operator needs to learn more about hydraulic, electrical works, understand the whole machine works.

4. By injecting fuel tank air filter inlet fluid clarification to gauge 2/3, totaling about 50 liters of oil.

5. Strict checks various parts of the machine, requires the installation of correct, reliable connection, electrical grounding and reliable.

6. Turn on the power, start the servo drive, click the manual operation, click the cylinder forward command, pay attention to whether the steering of the motor matches the arrow on the pump body, if it does not match, change the phase line of the motor.

7. The machine should be installed for the first time for 10 minutes to allow the air in the oil pump and cylinder to drain.

8. Check the action according to process requirements.

9. Check whether the brightest joints and seals the oil spill in the test, and if the oil spill and abnormal situation should immediately stop checks.

10. Proofing each operation dry ice pelletizer work again.

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#### **Chapter 4 Operation**

#### 4.1 Safety instructions

WARNING: Please read the instructions carefully before operating this machine.

1. The machine is sub-manual, automatic two ways.

2. Work processes to fully automated, for example:

 cylinder power-reset phase—1cylinder cleaning phase—1 cylinder cooling stage—1cylinder production stage—Shutdown Reset.

#### 4.2 Controlling

1. The power station by the pump motor valve. Tank piping and other components. Allocation for delivering liquid to achieve desired action work.

2. Fuel tank to the rack chassis, the effective capacity of 50 liters, the rear side of the tank there unloading port, remove the plug on the oil tank can be replaced periodically. There is a cleaning tank cover on the side; you can remove it to clean the inside of the tank.Tank equipped with grease filters, oil suction pump to get the filter.

3. The oil pump is Denison T7BS-E05-1R03-A1-M0.

4. The electrical control box: The main electrical components installed in the control box.

5. Voltage replacement



变压电压 A1 端为 400V 输入,A2 端为 440V, 输出端 230

Remarks: Customers need to confirm the voltage used when using the device, and then select A1, A2 ports accordingly

When the input power is 400V, L-4 is connected to port A1;

When the input power is 440V, L-4 is connected to port A2.

#### 4.3 Control Panel

#### 4. 3. 1 Control Panel show



Control panel physical map

Power: Power indicator light, green light on behalf of the power is turned

Run: Run indicator

Start: Start button, power on the drive

Stop: Cut off the drive power

Emergency: Instantly stops all the machine actions.

Pressure gauge 1: Oil pressure indicator

Pressure gauge 2: Liquid CO2 indicator

Pressure gauge 3: Gaseous CO2 indicator

Pressure gauge 4: 1-cylinder cavity pressure indicator

Pressure gauge 5: 2-cylinder cavity pressure indicator

4.3.2 Mode selection

The machine is divided into two kinds of manual and automatic mode,

manual mode of operation when used for the maintenance of equipment.



#### 4. 3. 3 Emergency Stop

During the operation of the equipment, if any failure occurs, press this

button to stop all actions.

After stopping the machine, please give priority to eliminating emergency situations.

#### 4.3.4 Preparation before operation

Before operating the machine, please wear gloves and ear plugs, and placed in dry ice at the outlet of the refrigerator.

#### 4.3.5 Operation

1. This operation only fully automatic mode of operation, for example, manually operated only for maintenance equipment.

2. Clockwise rotation of the main power switch knob.

3. Press the start button to power on the servo drive before performing the following steps.

4. Touch screen control panel operation:

5. Each interface diagram of the following indicate internal operations are required to operate under the guidance of the relevant staff.

11/03/2020 08:47:58	7	Version 2	HP120 ice maker					pressu oil temper	re ature	0 0	bər °C
								Disco	nnect th	ne al	arm
Electronic ruler	ctronic Front ruler limit		Posterior limit		Running light		Cle	Cleaning		lce iakir	ng
0		$\bigcirc$	(	$\bigcirc$			0	(	С	)	
Injection tin	пе	Automatic mode	Cle	eaning mode	Stop mode CO2 a empt		CO2 air emptyir	- liquic Ig mod			
0.0	s	start-up		skip	Shutdoy	wn	Gas emj	otying	CO2 ga st	aseo ate	ous
					Li		Liquid en	nptying	CO2	liqu	id
home		Manua mode	il P	failure warning			I/O bit		Alai awa	rm arii	

#### Main operation interface diagram (automatic mode)

Start operation: press the 1 cylinder "start" button on the touch screen panel, and the 1 cylinder executes the work instruction; after finishing the work, press the corresponding "shutdown" button to stop the equipment. The specific content and operation process on the touch screen should be guided by relevant staff before

operation.

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Disarm the alar	arm State indication							Sys	tem pressuri:	atio	n	
Electronic ruler	Front limit	Rear limit	Push forward	Pus bac	h %k	Gas main valve	Liquid main valve	Spra Valv	ay ve	Cleaning valve	С	utting
D	$\bigcirc$	$\bigcirc$	$\bigcirc$	C	)	$\bigcirc$	$\bigcirc$	C	)	$\bigcirc$	(	$\bigcirc$
origin	0		Extrusion	Taki bac	e k	Gaseous or ening	) Liquid stərt	Spri Stə	əy rt	Cleaning	с	utting
Cylinder forward pressure setting				bər	bar Cylinder fallback pressure settin			ing [		0		bər
Cylinder forward spec	ed setting	0	0		Cyli	ylinder fallback speed setting		, [		0		rmp
Cavity press	ure	0	0.0		Dangerous pressure setting value		]	0.0			bər	
pressure 0			bər		Exhaust valve opening			g Drain valve open				
home Manual mode		failure warning I/O t		bit		Alaı awa	:m arii					

#### Manual mode operation interface diagram



# Action display interface diagram

	input and output point										
Name	Input address	state	Name	Output address	state	Name	address	state	Name	address	state
Power signal	XO	$\bigcirc$	Servo enable	YO	$\bigcirc$	Extrusion	Y20	$\bigcirc$	Warning red ight	Y33	$\bigcirc$
Servo alarm	X1	$\bigcirc$	Servo deactiv ation alarm	¥1	$\bigcirc$	return	Y21	$\bigcirc$	Warning gre en light	Y34	$\bigcirc$
Filter plug	X2	$\bigcirc$	Gas evacuati on valve	¥2	$\bigcirc$	Clean	Y22	$\bigcirc$	Warning yell ow light	Y35	$\bigcirc$
stop	Х3	$\bigcirc$	iquid evacua tion valve	Y3	$\bigcirc$	lce spraying v alve	Y23	$\bigcirc$	Oil tank air c ooler	Y36	$\bigcirc$
Motor start co mpletion signal	X4	$\bigcirc$	Start the motor	¥4	$\bigcirc$	Gaseous CO2	Y24	$\bigcirc$	Oil temperat ure cooling	¥37	$\bigcirc$
The oil return fi Iter element is blocked	X5	$\bigcirc$	te Signal light	¥5	$\bigcirc$	Liquid CO2	Y25	$\bigcirc$	Front limit	M78	$\bigcirc$
Cutting stop	X6	$\bigcirc$				Cutting operation	Y26	$\bigcirc$	Rear limit	M77	$\bigcirc$
Note: when servo alarm, X1 signal is off; when servo alarm is not, X1 signal is input.											
home Manual failure I/O bit Alarm awarii							i				

# I/O display interface diagram

	Curr	ent fault alarm			History fault alarm	n record
No Trigger	ſ	Message		Trigger	Message	F =
	Nur	nber of alarm				
Trigger	Mes	age	•			
00:00:00 00/00.						
00:00:00 00/00.						
00:00:00 00/00.						
00:00:00 00/00.						
home		Manual mode	fail war	ure ning	I/O bit	Alarm awarii

Fault recording interface map

#### **Chapter 5 Repair and maintenance**

Proper use of dry ice pelletizer, earnestly implement the maintenance and compliance with safety procedures, failure to reduce dry ice pelletizer, dry ice pelletizer extend the life of dry ice to ensure the necessary conditions for safe production. So dry ice pelletizer operator and maintenance personnel must understand the structure ofdry ice pelletizer, performance, maintenance and operating procedures.

# A WARNING

Note: Before any repair work must be turned off the main power switch and lock to prevent unintentional start-up

5.1 Repair and maintenance

Warning: once a month on the the machine's proper maintenance every six months a proper overhaul.

- Dry ice pelletizer oil used to be rigorously filtered before injection of the fuel tank. Use 46 # hydraulic oils.
- When the oil temperature inside the tank between 10-60 degrees Celsius.
- 3. The fluid must be kept clean and replaced once every other year, if oil is not bad, after a fine filter can continue to use. Filter inside the tank should be cleaned regularly.
- 4. Check the daily high-pressure line, if the oil spill should be

immediately removed, if they are not normally work should stop and check for repairs.

- 5. Regularly check whether the pumps, valves, gauges, filters and other work.
- 6. When servicing the servo drive, you must read the servo drive operation manual.

Serial	Failure	Cause of issue	Method of exclusion		
number	phenomenon				
			1. Check and		
		1. Electrical failure	exclude		
	1.1 Extrusion	2. Oil pump reverse	2. Correct the motor		
		3. The oil level in the	rotation		
1	work	tank is too low	3. Add oil.		
1	1 2 Deer limit	4. The solenoid	4. Take apart and		
	1.2 Kear minit	overflow valve is stuck	wash, check		
	timeout	5. The electronic ruler	electrical		
		is damaged	5. Replace the		
			electronic ruler		

#### 5.2 Common Faults and exclusion

		1. The sealing ring in	
2	0.11 .11	the cylinder is	1. Replace
2	Oil spill	damaged	2. Tighten
		2. The joint of the	C
		tubing is loose	
		1. The electrical	
3		appliance is	1. Check and
	Ice cutter	malfunctioning	exclude
	motor stalls	2. The ice cutter is	2. Check and clean
		stuck by dry ice	dry ice
		powder	
		1. The liquid CO2	
		solenoid valve is stuck	1. Replace the
		2. The hydraulic	solenoid valve
4	Dangerous	pressure of liquid CO2	2. Reduce liquid co2
4	pressure	exceeds the safety	liquid pressure
		pressure	3. Replace the
		3. The pressure sensor	pressure sensor
		is damaged	

5	Servo failure		1. Elimi	inate the
			problem	according
		Read the servo manual	to	the
			troublesho	oting code
			of the serv	o manual

# 5.3 Wearing parts list

# Warning: Please use the recommended accessories

Serial	Name	Specifications	Quantity	Remarks
number				
1.	UPE sealing ring	146.4*155	2	Piston ring
2.				
3.				
4.	O type rubber	132*3.55	4	Piston seal
5.	sealing ring			
6.				

# 5.4 Hydraulic schematic diagram



Hydraulic schematic diagram

# 5.5 Hydraulic Components Table





# 5.6 Product Structure Dimensions

Outline dimension drawing of dry ice pelletizer

#### Chapter 6 Electrical System

6.1 Electric control system safety rules

1. Only through formal training and have professional knowledge of the available electrical maintenance and troubleshooting.

2. Do not modify or omit protective interlocks.

3. Before you start, read and pay attention to warning signs in detail.

4. When troubleshooting to determine, you must cut off the power supply, the main switch must be locked.

5. Note humid areas, in order to prevent electrical shock.

6. Before any of the power to the equipment, personnel must headroom.

7. Do not open the electrical box, unless required inspection of electrical equipment.

8. Do not modify the circuit, unless authorized by a qualified manufacturer.

9. When replacing electrical components, you must first determine whether they meet the specifications, including color-coded wires.

10. When operating electrical equipment. Do not wear metallic glasses, necklaces and so on. Also do not wear rings, watches, bracelets.

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# 6.2 Circuit diagrams

See attachment (HP120Electrical schematic diagram)

#### 6.3 Electrical Components Table

Warning: Please use the recommendations of the components, if as a result of damage to their own replacement parts and machinery of accidents, the consequences borne by them.

Serial number	Name	Model	Specifications	Certification
A1	Programma ble Controllers	DVP-20SX21 1T	24V	CE
A2-A3	I/O module	DVP-16SP	24V	CE
QF1	Breaker	EZD100M304 0N	380V/40A	CE
QF2	Breaker ABB	MS132T	AC220V	CE
QF3	Breaker ABB	MS132T	AC220V	CE
G9SE-201	Safety Relays	G9SE-201	24V	CE
WDR-480- 24	Emergency stop switch	WDR-480-24	480W	CE
K1-K17	Relay	HF-41F-024-Z S DC24	6A	CE
KM1	Contactor	LC1-N3210M 5N	32A	CCC
KM2	Contactor	LC1-E1210M 5N	12A	ссс
DOP	Delta touch screen	DOP-107EG	24V	CE
KM5,KM13	OMRON Intermediate relay	LY2N-J DC24 BY	12A	CE
T1	Dry-type power transformer	SP-25005-1KI 1B-400230	AC400-440V/AC230 V	CE