

GENERAL SPECIFICATION

NR2-46mm (Mod.5)
Pelletizing Machine

FREESIA MACROSS CORPORATION

Ver. 2013

Freesia Macross Corporation

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Factory: 17-9, Shono, Kazo-shi, Saitama, JAPAN

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1 Component of machine

1-0. Specification

Model	:	NRII-46mm (Model 5) Twin screw extruder
Type	:	Co-rotated, Deep channel, high torque, Vent type
Output Capacity (ABS)	:	250kg/h (55kw motor) 430kg/h (90kw motor)
Dimension		
Center height	:	800mm
Length	:	3,400mm
Width	:	1,800mm
Height	:	1,600mm
Wieight	:	2.8 ton
Power Supply		
Voltage:	:	AC380-440V, 50-60Hz, 3 phase (standard) AC200-220V, 50-60Hz, 3 phase (option)
Capacity	:	88KVA (AC 55kw motor/Standard) 123KVA(AC 90kw motor/option)
Standard (option)	:	UL / CE / JIS / Rohs / CCC

1-1. Barrel

1-1-1	Material	:	SACM645 Nitrided steel (standard) Hardness over HRC63
		:	SKD 61(Anti-Abrasion barrel) (option) Whole barrel quenched
	L/D	:	40 (Standard) 24~48(option)
	Quantity of barrel	:	10 pieces
			Feed barrel x 1 pieces
			Standard barrel x 7 pieces
			Vent barrel x 2 pieces
			Side feed barrel (option)
			Adding Liquid injection hole on the vent pot plug (option)
	The Number of Vent	:	2 vent (standard) 1 vent 3 vent Vent plug with heater (option)
1-1-2	Barrel Heating		
	Heater	:	Brass casted heater
	Temperature control zone:	:	9 zone (standard)
	Capacity of heater	:	29.5kw
	Control	:	PID temperature control
1-1-3	Barrel Cooling		
	Method	:	Water cooling
	Control	:	PID temperature control
	Feed zone	:	Independently cooled
	Solenoid valve	:	9 pieces(standard)

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1-2. Screw

Type	:	Segment Type
Shaft	:	Involute spline
L/D	:	40(standard) 24~48(option)
Diameter	:	φ 46.5mm
Material	:	Hardening SKD
	:	Hardness over HRC 63
	:	Nitriding after quenched (option)
RPM	:	MAX440 rpm (standard)
	:	MAX700 rpm (main motor 90kw) (option)
Screw element	:	5 types
Kneading blocks	:	4 types
Screw set	:	Master batch set
	:	Compound set
	:	Filler set
	:	Side feed GF set
	:	Side feed filler set
	:	PVC set
	:	PET set

1-3. Gear box

Model	:	Model 5
Material of casing	:	FC 300
Bearings	:	Roller or ball type (by NTN/NSK, and etc)
Gears	:	Heat treated and polished
Material of gears	:	SNCM 616
Lubrication	:	Circulated by pump (oil pump by NOP)

1-4. Twin screw feeder

1-4-1

Screw	:	
Screw diameter	:	φ 63mm
Material of screw	:	S45C,hard chromium-plated
RPM	:	0-182 rpm
Rotation	:	Co-rotation, twin screw

1-4-2

Motor	:	
Capacity of motor	:	AC380-440V(Standard) AC200-220V 1.5kw-4P
Control	:	Inverter (variable speed)

1-4-3

Hopper	:	
Material	:	SUS 304
Capacity	:	25L
Type	:	Square type

1-5. Adaptor, Die (standard type)

Type	:	Strand die
	:	Square flange, 2 eye bolts (Standard)
	:	Square flange, 4 eye bolts (Option)
Diameter of nozzle	:	φ 5.0 mm
The number of nozzles	:	21 (standard)
Heater	:	Band heater, Space heater, Pipe heater
Capacity of heater	:	1.9kw for a heater at adapter
Temperature control	:	PID controlled
Voltage of power supply in heater	:	380-440V (standard)
Breaker	:	Breaker plate(standard) Breaker ring(option)

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- 1-6. **Main motor** (by TOSHIBA/MITSUBISHI/YASUKAWA/other)
- Capacity : 55kw(standard)
90kw(option)
- Voltage of power supply : AC380-440V(standard) AC200-220V
- Motor Speed : Max 1750 rpm
- Type : Inverter Controlled
- Efficiency : IE1 IE2 IE3
- Insulation : Class F
- Index of Protection : IP22(standard) IP55
- 1-7. **Control panel**
- 1-7-1 PID temperature controllers : 11 zone(standard)
- For barrel x 9 zone
- For adapter x 1 zone
- For adapter x 1 zone
- OMRON
- 1-7-2 Indicator
- Digital Indicator : Screw RPM
- : Main motor ammeter,
- : Feed screw RPM
- Display Indicator : Power On
- : Main Motor ON
- Alarm Indicator : Main Motor Overload
- : Barrel Temperature Error
- : Heater Snapping
- : Lubrication Oil Pressure Down
- : Shortage of Cooling water, etc.
- 1-7-3 Electromagnetic Switch & Breaker Switch
- 1-7-4 Programable logic controller : OMRON
- 1-8 **Cooling water circulation system**
- Primary cooling water : Supplied by user
- Secondary cooling water : Pure water (circulated by pump)
- Solenoid valve : 9 pieces
- (controlled by PID temperature controller) (by CKD)
- 1-9 **Side feeder (option)** :
- Screw diameter : ϕ 63 mm
- Material of screw : Special tool steel SKS
- Speed : MAX 700 rpm
- Rotation : Co-rotation, twin screw inter-meshing
- Motor : AC200-220V AC380V-440V
- 1.5Kw-4P
- Control : Inverter controlled
- Hopper Material : SUS304
- Capacity : 4 L
- Type : Square type
- ※Twin Screw Feeder "1-4" can be mounted on the side feeder (option)
- 1-10. **Standard tools**
- screw removing tools : 1 set
- Special tool set : 1 set

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1-11. Other options

1-11-1 Resin pressure gauge

Display : Digital display on the control panel
Alarm : Displayed on the control panel
Sensor : On the adapter
Range : 0-500kg / f/cm²(0-5MPa)

1-11-2 Resin thermometer

Display : Digital display on the control panel
Alarm : Capable to output
Sensor : On the adapter
Range: : 0-500 °C

1-11-3 Safety clutch

Spring type, easily reset

Safety clutch between main motor and main shaft

When the main motor is over torque, the shaft will be separated so that the damage of screw and barrel will be reduced

Alarm : Displayed on the control panel

1-11-4 Screen Changer

Auto screen changer attached to the die

Hydraulic cylinder, with hydraulic unit

Manual operate to valve

Breaker : 2 packs type

Hydraulic unit : 1.5kw - 4P

2 Down stream equipment (cold cut system)

2-1 2.25m cooling water bath

Dimension : L 2,250 x W 360 x D 220 mm

Material : SUS 304

Guide roller : MC nylon

: 3 pieces (2 pcs downward / 1 pcs upward)

4.5m cooling water bath

Dimension : L 4,500 x W 360 x D 220 mm

Material : SUS 304

Guide roller : MC nylon

: 6 pieces (4 pcs downward / 2 pcs upward)

2-2 1 tower type drier (vacuum type)

The number of sucking nozzle : 18 x 1 towers

Sucking blower

Type : Turbo blower

Wind volume : xxxxm³/min

Static pressure : xxxx Aq (xxx kPa)

Motor : AC200-220V AC380V-440V
1.5kw-2P

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2 tower type drier (vacuum type)

The number of sucking nozzle	:	31x 2 towers
Sucking blower		
Type	:	Turbo blower
Wind volume	:	30.2m ³ /min
Static pressure	:	325 Aq (3.1 kPa)
Motor	:	AC200-220V AC380V-440V 1.5kw-2P

2-3 ST-SG3.0 Pelletizer

Main motor	:	AC200-220V AC380V-440V 2.2kw-4P controlled by inverter
Length of pellet	:	3mm
Stand	:	Angle, with caster
Rotary brade	:	SUS base with cemented carbide tips φ 100mm (diameter) 150m (width) 18 pieces of blade, single herical All in one piece on stainless steel base
Fixed blade	:	SUS base with cemented carbide tip (both side)
Take-up roller	:	Rubber lining roller x 1 piece Knuring roller x 1 piece
Take-up speed	:	Max62 m/min

G-SG7.5 Pelletizer

Main motor	:	AC200-220V AC380V-440V 5.5kw-4P controlled by inverter (Option) Separate Control of Takeup roller and Rotary blade
Length of pellet	:	3mm
Stand	:	Angle, with caster
Rotary brade	:	SUS base with cemented carbide tips φ 120mm (diameter) 200m (width) 20 pieces of blade, single herical All in one piece on stainless steel base
Fixed blade	:	SUS base with cemented carbide tip (both side)
Take-up roller	:	Rubber lining roller x 1 piece Knuring roller x 1 piece
Take-up speed	:	Max 83 m/min

2-4 550kg/h classifier,pneumatic blower unit

Vibrator	:	AC200-220V AC380V-440V 0.2kw-4P
Classifier screen	:	φ 7mm round hole φ 5mm(option) 1.5 x 12.5 mm slit
Material	:	SUS 304 (contacting part with pellets) SS 400 (frame)
Pneumatic blower	:	AC200-220V AC380V-440V 2.2kw/3.0kw-4P

*Includes: Dust box, Filter element, Ejector

*The hose between blower and catcher tank is 5m long (option)

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2-5 1000 L (500kg) catcher tank

Material : SUS 304 (Tank)
SS400 (stand)
Capacity : 1000L (approximately 500Kg)
With door for cleaning. SUS butterfly valve and castors

2000 L (1000kg) catcher tank

Material : SUS 304 (Tank)
SS400 (stand)
Capacity : 2000L (approximately 1000Kg)
With door for cleaning. SUS butterfly valve and castors

2-6 Vacuum pump

Type : FM-150B Water sealed type
Motor : AC200-220V AC380V-440V
5.5Kw-4P
Pumping speed : 2100/2500L/min
Ultimate pressure : 2.3 kPA
Dimension : 1453mmx713mmx625mm

3 Spare parts (option)

3-1 spare parts for extruder

3-1-1	Screw set (complete)	0	Set (s)
3-1-2	Screw elements		
	S150-100	0	Piece(s)
	S150-75	0	Piece(s)
	S150-50	0	Piece(s)
	S100-100	0	Piece(s)
	S50-50L	0	Piece(s)
	R75550	0	Piece(s)
	N75550	0	Piece(s)
	W75150	0	Piece(s)
	L75550	0	Piece(s)
3-1-3	Screw related parts		
	Joint	0	Piece(s)
	Adjusting plastes	0	Piece(s)
	Fixsing lock nuts	0	Piece(s)
	Half collars	0	Piece(s)
	Screw shafts	0	Piece(s)
	Screw caps	0	Piece(s)
3-1-4	Barel related parts		
	plug for vent port	0	Piece(s)
	vent port chamber	0	Piece(s)
3-1-5	Jig		
	Jig for barrel assembly	0	Piece(s)
	Jig for adjusting phase of shafts	0	Piece(s)
3-1-6	Breaker plate	0	Piece(s)
	Breaker ring	0	Piece(s)
3-1-7	Heater set for extruder (each type, 1 pce)	0	Set(s)
	heater set for screen changer (cach type, 1 pce)	0	Set(s)
3-1-8	Temperaturer controller for barrel	0	Piece(s)
	Temperature contoller for adaptor and die	0	Piece(s)
	Thermocouple	0	Piece(s)

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Solenoid valve	0	Piece(s)
Resin pressure sensor	0	Piece(s)
Resin thermosensor	0	Piece(s)

3-2 **Spare part for Downstream equipment**

3-2-1 **For ST-SG3.0 & G-SG7.5 Pelletizer**

Rotary blade	0	Piece(s)
Fixed blade	0	Piece(s)
Rubber roller	0	Piece(s)
Knurling roller	0	Piece(s)
Nylon gear	0	Piece(s)