INSTRUCTION MANUAL

Tumaker

PELLET FEEDER





Designed and assembled by:

INDART 3D

Original Manual - Version 1.0

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Introduction and Purpose of the Manual

This manual provides all relevant information regarding the use of the Tumaker pellet feeder, with the clear aim of informing and addressing potential user queries.

For any other matters related to technical support, you can contact us at:

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Gabiria Kalea, 88

20305 Irun, Gipuzkoa

Email: soporte@indart3d.com

Phone: +34 943 943 855

Additionally, please remember that apart from this manual, you can also consult our technical documentation, which includes explanatory videos and more, on our website.

Product Description

The Tumaker pellet feeder is designed to supply pellets with specific characteristics to large-format 3D printing systems. It uses Venturi technology with compressed air to transport the pellets to the print head, capable of automatically controlling the material flow.

Applications

- Large-format 3D printers.
- Continuous plastic extrusion systems using pellet format.

Feeder Components

Included

- Feeder Tank.



- 1x Power Cable.



- 1x ø8 mm Air Tube (L1000 mm).



- Hopper.
  - 1x Push-in fitting
  - 1x Capacitive PNP NC Sensor:
    - Sensitivity regulator to adjust detection based on the material.
    - Built-in LED to indicate material detection.



- 3x Loading Hoses
  Outer diameter: 16 mm, inner diameter: 12 mm.
  - Head Tube: L120 mm
  - Chain Tube: L1150 mm
  - Feeder Tube: L1500 mm



- 2x Push-in fittings



- 1x Elbow Push-in fitting



Technical Specifications

- Feeder Dimensions
  - 204 x 450 mm
- Capacity
  - Tank: 10L
  - Hopper: 0.08L
- Supported Material
  - Maximum pellet size: 5 mm
  - Maximum pellet density: 8 g/cm^3
- Pneumatic Requirements
  - Operating pressure: 7-8 bar
  - Connection: ø8 mm air hose
  - Air consumption: 128 L/min
- Compressed Air Conditions
  - Dry, moisture-free air
- Electrical Specifications
  - Voltage: 24V
  - Jack connector: 5.5 x 2.5 mm
  - Nominal power: 6W
- Capacitive Sensor Dimensions
  - 102 x 50 x 35 mm

Safety

Measures Taken Against Identified Hazards

1. Always use clean and dry air.
2. Do not operate the feeder with materials outside the previously defined specifications (Technical Specifications).
3. Do not disassemble the feeding system without consulting technical support.

Handling

Unpacking

The feeder is protected by a cardboard box, which can be opened by removing the sealing adhesive. Inside, you will find the feeder assembly along with the additional components that complete it.

Transport

For convenient and safe transport, regardless of the load inside, one person can simply grip the feeder from the base and move it ergonomically as desired.

For external transport using a vehicle, to prevent any damage, the feeder should be protected in its original packaging, within its own box.

Storage

For storage, to protect the feeder and extend its service life, it should be disconnected from the power supply and stored in its original box. If the original box is unavailable, ensure the feeder is covered and kept free from dust and impacts.

Installation

Initial Preparation

1. Verify that all parts are present and in good condition.
2. Ensure the printer is ready to connect the feeder:
    a. Proper head configuration.
    b. Allocate space to position the feeder.

Step-by-Step mounting

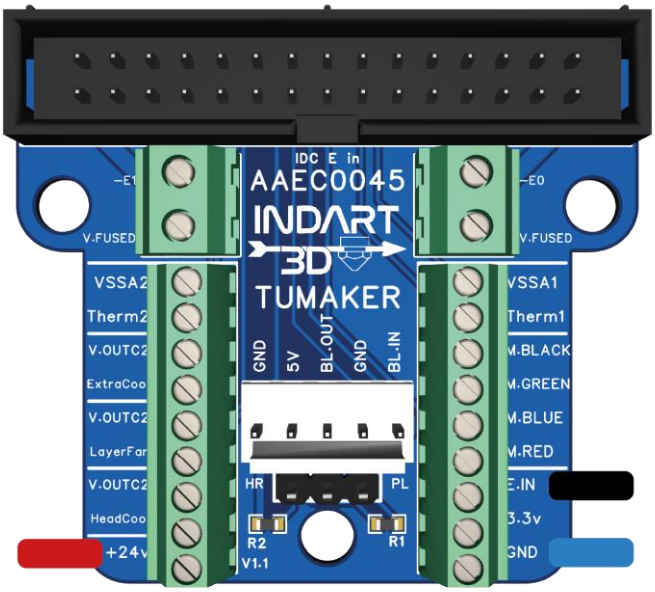
1. Place the feeder next to the machine on the side of the head to be used.
    1.1. It is recommended to keep it at the same height as the printer.



2. Connect the air supply hose to the coupling located at the base of the feeder.



3. With the head removed from the machine, install the new hopper:
   3.1. Unscrew the hopper supplied with the head.
   3.2. Use the same screws to attach the new hopper.
   3.3. Using the included screwdriver, connect the 3 pins of the sensor wiring to the electronics at the back of the head as shown below.



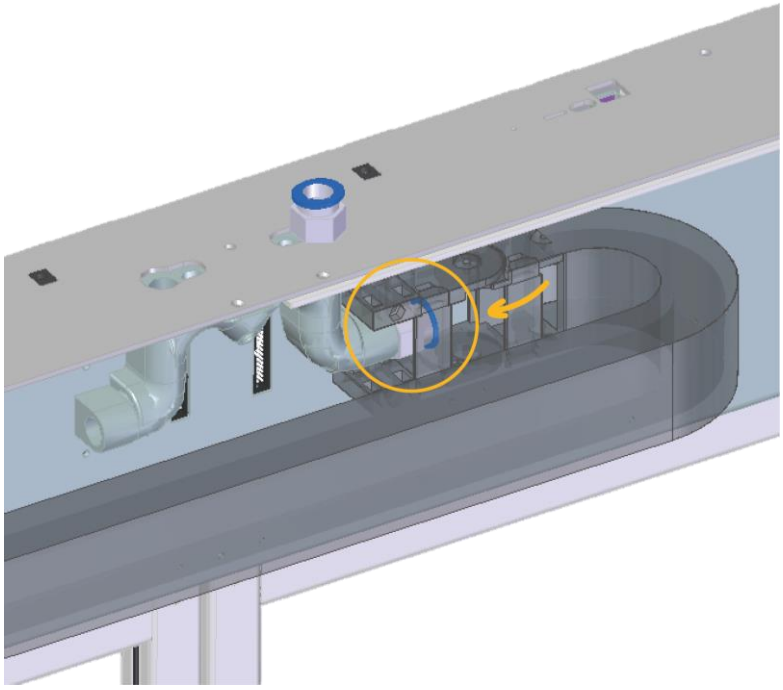
4. Position the head on the carriage.
   4.1. ATTENTION! Don't forget the wear plate between the headstock and carriage.
5. Install the loading hoses.
   5.1. Insert the L1500mm hose into the upper fitting of the feeder and screw the fitting into the hole located at the top of the machine.



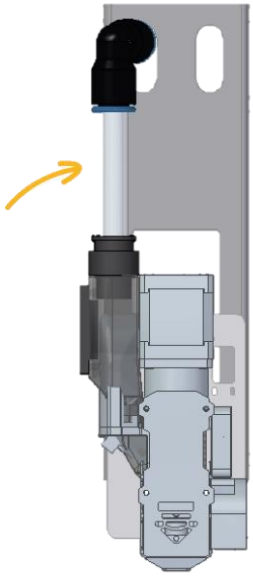
5.2. Screw the fitting of the L1150mm hose into the inner hole of the same previous part and thread the tube through the chain, opening its tabs, until it reaches the carriage slot.

5.2.1. To screw the fitting, remove the first link of the chain by unscrewing the two screws holding it with a 3mm Allen key.

* For NX MODULAR, make a cut in the designated area of the hose.



5.3. Insert the L120mm hose between the fitting of the head and the elbow of the tube that appears through the carriage.



6. Connect the feeder to the machine using the Jack power cable.



Recommendations

1. Always use compressed air at the specified pressure.
2. Install in a clean, dust-free area.

Operation

Activating the Feeder from the Machine

The system automatically manages the closure of the built-in solenoid valve. To activate the automatic loading of the feeder during a print:

1. Navigate to Macros/Others/Pellets Feeder.
2. Select Enable Feeder T0 or Enable Feeder T1, depending on the head being used.
3. Confirm that the capacitive sensor is operational:
    a. The LED will illuminate when material is detected.

Deactivating the Feeder

The system automatically manages the closure of the built-in solenoid valve. To deactivate the automatic loading of the feeder during a print:

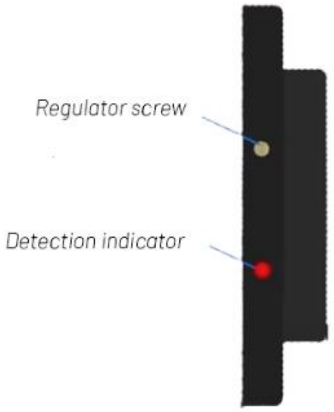
1. Navigate to Macros/Others/Pellets Feeder.
2. Select Disable Feeder to stop the system.

Manual Semi-Automatic Loading

1. Navigate to Macros/Others/Pellets Feeder.
2. Select Manual Load to start a manual loading process.
3. Monitor the process and stop it if necessary.

Adjusting the Capacitive Sensor

1. Locate the sensor's adjustment dial.
2. Adjust the sensitivity according to the material:
    a. Turning in either direction increases or decreases the sensor's sensitivity.
    b. Use the integrated screwdriver for precise control.
3. Observe the built-in LED:
    a. The LED will illuminate when the sensor detects material.



Preventive Maintenance

Preventive maintenance is crucial to ensure optimal performance and extend the lifespan of the machines. Below are the key points of a preventive maintenance plan, keeping in mind that it will depend on both the usage time and material. For more detailed information, please consult the support documentation on our website.

Regular Cleaning

- Clean the hopper and tubes to prevent the accumulation of residues.
- Ensure the capacitive sensor is clean.

Solenoid Valve Inspection

- Check that the solenoid valve closes and opens correctly.
- Verify pneumatic connections for leaks.

Capacitive Sensor Adjustments

- Perform periodic adjustments of the regulator based on the material used.
- Check that the LED is functioning correctly.

Fault Localization and Repairs

Problem: The feeder does not activate the pellet flow.

- Cause: Insufficient air pressure, moisture in the air, or an issue with the solenoid valve.
- Solution:
    - Check the air pressure and ensure dry air is used.
    - Inspect the solenoid valve and connections.

Problem: The capacitive sensor does not detect material.

- Cause: Incorrect sensitivity setting or material out of range.
- Solution:
    - Adjust the sensitivity regulator.
    - Verify that the material meets the specifications.

Problem: The capacitive sensor LED is always on or off.

- Cause: Obstruction in the sensor or incorrect adjustment.
- Solution:
    - Clean the sensor.
    - Adjust the sensitivity.

Warranty

INDART3D S. COOP. ("Indart3D") provides this Limited Warranty to purchasers of Tumaker product(s) included in the sales package ("Product"). Indart3D guarantees that, during the warranty period, Indart3D or a service company authorised by Indart3D will remedy, within a commercially reasonable timeframe, any defects in materials, design, or manufacturing by repair or, if deemed necessary by Indart3D at its sole discretion, replacement of the Product in accordance with this Limited Warranty (unless otherwise provided by law).

This Limited Warranty is valid and enforceable only in the country where the Product was purchased, provided that Indart3D has designated the Product for sale in that country. However, if the Product was purchased in a European Union member state, this Limited Warranty will be valid and enforceable across the EU.

Certain limitations on the warranty service may apply due to country-specific elements in the Products.

Indart3D's obligation under this warranty is limited to replacing parts or repairing the Product at its discretion, either at Indart3D's facilities or those of an authorised reseller. If parts replacement at the customer's location is required, this will be performed subject to acceptance of a cost estimate for travel and labour.

Products and accessories that require assembly, configuration, or handling by the purchaser are not covered under this warranty.

Warranty Period

The warranty period begins at the time of the original purchase of the Product by the first end user.

Tumaker products are not consumables but are designed for professional and industrial use. Indart3D offers a warranty period of one year, provided the product has not been misused or neglected in terms of the periodic maintenance and inspections required for proper operation. This warranty will be void under the conditions outlined in the section "What Does the Limited Warranty Not Cover?".

To the extent permitted by the laws of your country, the Warranty Period will not be extended, renewed, or otherwise affected by the subsequent resale, repair, or replacement of the Product authorised by Indart3D. However, repaired parts or replacement products provided during the Warranty Period will remain covered for the remainder of the original Warranty Period.

Optional "warranty extensions" are available, providing additional warranty coverage for the purchaser.

How to Obtain Warranty Service

If you wish to make a claim under this Limited Warranty, please send your Product (or the affected part if it is not the entire Product) to a service company authorised by Indart3D. For more information on how to make a claim, visit https://indart3d.com/contacto/.

Information about customer service centres and service companies authorised by Indart3D can also be found in the sales package or on Indart3D's local websites, where available.

Any claim made under this Limited Warranty is subject to notifying Indart3D or an authorised service company of the alleged defect within a reasonable timeframe after its discovery and, in any case, no later than the expiration date of the Warranty Period.

When making a claim under this Limited Warranty, you must provide:

a) The Product (or the affected part).

b) The original proof of purchase, clearly indicating the seller's name and address, the date and location of the purchase, the type of product, and the serial number.

What Is NOT Covered by the Limited Warranty

1. This warranty does not cover user manuals, software, content, third-party data, configurations, or links included or downloaded on the Product or during installation, assembly, or shipping. This includes any of these incorporated at any stage of delivery or obtained by you in any other way. Indart3D does not warrant that its software will meet your needs, function in combination with third-party hardware or software, or remain unaffected by resale, repair, or replacement authorised by Indart3D.
2. Normal wear and tear.This includes, but is not limited to, wear on moving parts. Defects caused by improper handling (e.g., sharp objects, bending, compression, or falls) or by misuse, including any use contrary to Indart3D's instructions.
3. Defects caused by using the Product with or in relation to any product, equipment, software, or service not manufactured or supplied by Indart3D or by using the Product outside its intended purpose.
4. Deterioration caused by exposure to unsuitable environmental conditions, including moisture, extreme atmospheric or thermal conditions, rapid temperature changes, corrosion, oxidation, spilled food or liquids, or chemical influence.
5. Use of firmware not provided by Indart3D or a printing base different from the recommended one.
6. Direct or indirect damage caused by using non-Indart3D materials or consumables in improper conditions (e.g., materials with adhered debris, grease residues, or other similar issues).
7. Deterioration caused by transportation in non-original packaging.
8. Connection to a voltage different from that configured by the manufacturer.
9. Repairs or alterations performed by individuals other than Indart3D personnel or those not authorised by Indart3D.
10. Failure to present the required documentation and information requested by Indart3D.
11. Deterioration of components requiring periodic maintenance when such maintenance has not been performed.
12. Functional issues resulting from the purchaser's lack of knowledge or proper training.

Returns Policy

You have 7 business days to return a Tumaker product. This period begins on the day you receive your order, and the postal or courier service stamp will serve as proof of the return date.

Return Conditions:

- Original Packaging. The product must be returned in its original packaging, in new and complete condition (with all accessories, manuals, cables, etc.), and accompanied by the invoice or delivery note.
- Condition of the Product. The merchandise must be returned in perfect condition. Items that are incomplete, damaged, or deteriorated upon return will not be accepted.
- Responsibility During Transit. The customer is responsible for any loss or damage that occurs during shipping. It is recommended to return items via certified mail or a courier service with insurance covering the product's value.

Refund Process:

If all the conditions are met, the item's price will be refunded through the same payment method used for the purchase. Excluded Costs:

- Shipping costs for the return.
- Fees paid for training, installation, or other services.

If the returned product has any damage, the repair cost will be deducted from the refund amount.

Inspection and Timeline:

In cases where a technical analysis of the product is conducted as part of the right of withdrawal, Indart3D will strive to refund the amount to the customer as soon as possible.

Responsibility

Indart3D shall not be held responsible for any failure or inability of Tumaker products to function properly, nor for any losses, damages, injuries, or expenses of any kind or nature caused directly or indirectly by Tumaker products. If it becomes necessary to send the product to Indart3D's facilities, it is recommended to ship the product with insurance to cover potential losses or damages during transit. Any transportation-related incidents will remain the responsibility of the buyer. Additionally, Indart3D disclaims responsibility for situations where its stations cannot print geometries that have not been pre-analyzed by its technical support service.

Exempt Elements

The following list includes some components that are not covered by the limited warranty of the Pellet Feeder.

Consumable Items:

- Sensor

Waste Disposal

It is mandatory to comply with the applicable legislation in the country of use regarding waste and substances disposal. Users must follow the safety measures provided in the safety data sheets for the materials used in the machine, both during operation and for cleaning, maintenance, and disposal. Users must also be provided with instructions on preventive measures, including, when applicable, the necessary personal protective equipment (PPE).

Decommissioning, Disposal, and Recycling

If the machine is permanently decommissioned, it is recommended to take it directly to a designated recycling center where it can be properly recycled. Additionally, if components are to be disposed of separately, the machine can be divided into the following types of materials: steel sheets, electronic components, and plastics.



Disassembly for Recycling Centers

A critical part of machinery recycling involves the manual disassembly of each product. This process removes hazardous components and sorts reusable parts. Procedures vary depending on the type of device, and the extent of hazardous components that can be removed also depends on the device type. Low rates of hazardous component removal can reduce the recyclability of valuable materials. Each type of device has its own unique characteristics and components, making proper classification and separation crucial. Tumaker products are designed with consideration for every stage of their lifecycle, including disposal.

Required Tools and Instructions for Disassembly:

To separate the different components of the feeder, only simple tools are needed. Ensure sufficient space and make sure all connections are fully disconnected. The following tools will suffice:

- Phillips screwdriver
- Scissors
- 3mm Allen key

With these, all elements can be separated efficiently.

For further inquiries or assistance, contact the support team at soporte@indart3d.com.