

# OPERATING MANUAL

**TWIN SCREW EXTRUDER TYPE ARGOS 72P-28D**

**with EXcPRO-XP control unit**

**IDENT No: 6401764/6402350**

**Machine no. 2800159/10**



Every machine is identified by the type plate which states the type designation, the machine number and the year of construction.

In case of a problem, please state type designation, machine number and the year of construction.

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The persons name below are responsible for the listed domains:

System control: \_\_\_\_\_

Maintenance:

Electrical maintenance: \_\_\_\_\_

Mechanical maintenance: \_\_\_\_\_

Troubleshooting: \_\_\_\_\_

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# 1

## Foreword

This operating manual is designed to familiarize the user with the machine/plant and its designated use.

The operating manual contains important directions for operating the machine/plant safely, properly and most efficiently. Observing these directions helps to avoid risks, minimize repair costs and downtime and extend the reliability and useful life of the machine/plant.

Some illustrations are shown without the cladding or protective coverings. This allows details to be seen more clearly. However, all coverings must be in place at all times during operation.

This operating manual also describes modules which are not delivered with the machine.

Instructions arising from any national regulations regarding accident prevention and environmental protection should be considered part of this operating manual.

The operating manual must always be available wherever the machine/plant is in use.

The operating manual should be read and followed by all persons who are assigned tasks involving the machine/plant, including for example the following:

- **Operation**, including rigging, elimination of faults in running, removal of production waste products, care, disposal of fuels and auxiliary materials
- **Maintenance** (servicing, inspection, repair)
- **Transportation**

The generally recognized rules for working safely and correctly with machines of this kind must be observed, alongside these operating instructions and the mandatory regulations for accident prevention applicable to the machine's usage in the country of operation.

Ensure that the machine/plant is only used for the purposes for which it was intended. Any usage other than this or which goes beyond this will be considered contrary to the designated use of the machine. The manufacturer/supplier cannot be held liable for any damage resulting from such use. Such use is entirely at the user's own risk.

The following terms and signs are used in the operating manual to designate instructions of particular importance.

**Important!**

Refers to special instructions for using the plant/machine most efficiently

**Warning!**

Refers to special instructions and/or prohibitions for preventing damage

**Danger!**

Refers to special instructions and/or prohibitions for preventing injury or extensive damage

# 2 Safety instructions

## 2.1 Basics

- The machine/plant has been constructed according to the latest technology and according to the generally recognized rules for safety. Nonetheless, risks to the life and health of the user or a third party can arise during its use, and damage can be caused to the machine and other material property.
- Only use the machine/plant when it is in technically perfect condition and in accordance with its designated use and the instructions in the operating manual, being aware at all times of safety issues and possible risks.

In particular, faults which could impair machine safety must be eliminated without delay.

- Operating personnel may not wear jewellery, including rings; garments must be close fitting, and long hair must be tied back. Injury may result, for example from parts of clothing, hair etc. being caught up by or pulled into the machine.
- Use protective equipment wherever required by the circumstances or by law.
- Observe all safety instructions and warnings on the machine/plant.
- Maintain all safety instructions and warnings on the machine/plant in legible condition, without exception.
- In the event of safety-relevant changes in the machine/plant or in its operating behaviour, shut down the machine/plant immediately and report the fault to the responsible authority/individual.
- Never make any modifications, additions or conversions to the machine/plant that may impair its safety without obtaining the supplier's approval. This also applies to the installation and adjustment of safety devices and valves, as well as to welding work on load-bearing elements.

## 2.2 During maintenance and inspection

- Adjustment, servicing and inspection activities may be executed by skilled personnel only.
- Ensure that the maintenance area is adequately secured.
- If the machine/plant has been completely switched off for maintenance and repair work, it must be secured to prevent it being switched back on again unexpectedly.



- Lock the principal control elements and remove the key and/or attach a warning sign to the main switch.
- To avoid risk of accidents, individual parts and large assemblies being moved for replacement purposes should be carefully attached to lifting tackle and secured. Use only suitable and technically perfect lifting gear and suspension systems with adequate lifting capacity. Never work or stand under suspended loads.
- The fastening of loads and the instructing of crane operators should be entrusted to experienced persons only! The person giving the instructions must be within sight or sound of the operator.
- For carrying out overhead assembly work always use the safety-oriented ladders and working platforms provided for that purpose. Never use machine parts as a climbing aid!

Wear a safety harness when carrying out maintenance work at greater heights.

Keep all handles, steps, handrails, platforms, landings and ladders free from dirt.

- Clean the machine, especially connections and screw joints before carrying out maintenance/repair. Never use aggressive detergents. Use lint-free cleaning cloths.
- Wear the prescribed hearing protection.
- Before cleaning the machine, cover or tape up all openings.
- After cleaning, remove all covers and tapes applied for that purpose.
- After cleaning, examine all water, compressed air and hydraulic fluid lines for leaks, loose connections and areas of chafing or damage.

Any defects found must be rectified without delay.

- Always tighten any screwed connections that have been loosened during maintenance and repair.
- Any safety devices removed for setup, maintenance or repair purposes must be refitted and checked immediately upon completion of the maintenance and repair work.
- Ensure that all fuels, consumables and replaced parts are disposed of safely and with minimum environmental impact.

## 2.3 Information on special sources of risk

### 2.3.1 Electrical energy

- Only use original fuses with the current rating specified. Switch off the machine/plant immediately in the event of faults in the electrical supply.
- Work on electrical systems or fittings may only be carried out by a skilled electrician or by specially instructed personnel under the control and supervision of an electrician and in accordance with the rules of electrical work.
- Where stipulated, the power supply must be cut off from machine and plant parts on which inspection, maintenance and repair work is carried out.

First check the de-energized parts to ensure absence of current, then earth and short-circuit them and isolate adjacent live parts.

- The electrical fittings of a machine/plant must be regularly inspected/checked. Defects such as loose connections or scorched cables must be rectified immediately.
- If work must be carried out on live parts, do so with the aid of a second person who can cut off the power supply in case of emergency by activating the emergency stop or the main switch. Secure the working area with a red and white safety chain and a warning sign. Use insulated tools only.
- For work on high voltage assemblies, earth the supply cable after cutting off the power supply, and use an earthing rod to short-circuit the components, e.g. capacitors.

### 2.3.2 Gas, dust, steam and smoke

- Only carry out welding, flame-cutting and grinding work on the machine/plant if this has been expressly authorized, as there may be a risk of explosion and fire.
- Before carrying out the welding, flame-cutting and grinding, clean the machine/plant and its surroundings from dust and flammable substances and ensure adequate ventilation (risk of explosion).
- Observe any national regulations if work is to be carried out in narrowly enclosed spaces.

### **2.3.3 Hydraulic and pneumatic equipment**

- Work on hydraulic fittings may only be carried out by persons with special knowledge and experience in hydraulic systems.
- Before beginning repair work, depressurize all system sections and pressure pipes that are to be opened (hydraulic system, compressed air) in accordance with the instructions for the assembly concerned.
- Hydraulic and compressed-air lines must be laid and fitted properly.

Do not mix up connections. The fittings, length and quality of the the hoses must comply with the technical requirements.

### **2.3.4 Noise**

- Wear the prescribed hearing protection.

### **2.3.5 Oils, greases and other chemical substances**

- When handling oils, greases and other chemical substances, observe the safety regulations applicable to the product.
- Be careful when handling hot fuels and consumables (risk of burning or scalding).

## 2.4 Machine-specific safety information

### 2.4.1 Safety equipment

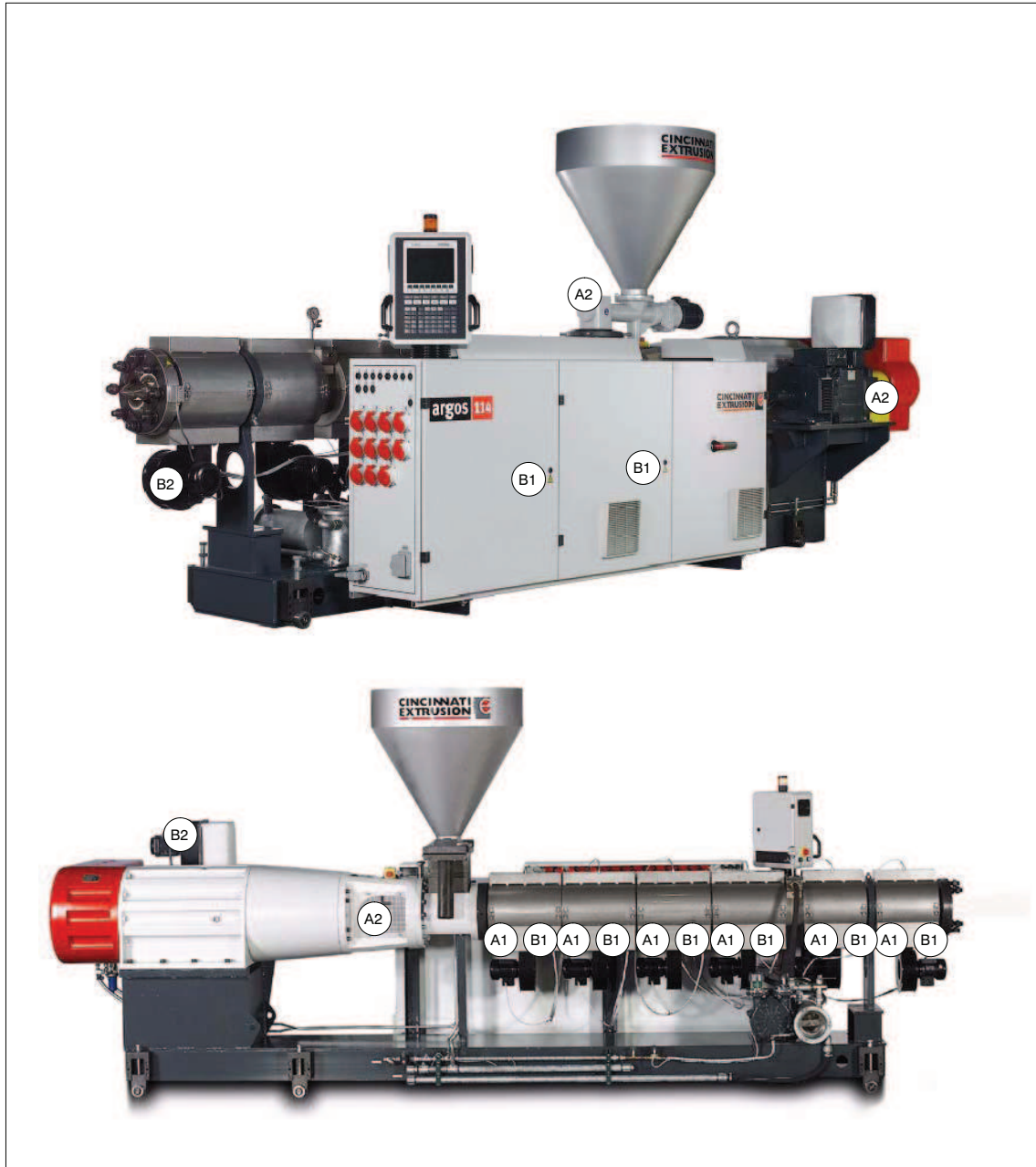
- 1) Wire mesh in the cooling plate
- 2) EMERGENCY OFF switch on operating station and on the side opposite the operator's side

Fig. 1

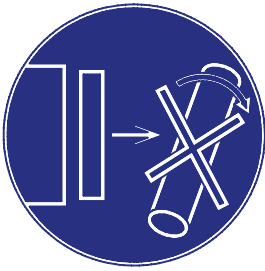


### 2.4.2 Position and meaning of warning signs

Fig. 2



**A1=Caution, hot surface**



**A2=Remove cover only when machine is at standstill**



**B1=Caution, risk of electric shock**



**B2=Sense of direction arrow**

### 2.4.3 Other dangers for the user

Users of the extruder observing the operating instructions and the operation in accordance with its designated use should still be aware of the following dangers:

- Hot plastic melt

Hot melt escapes from the barrel and the die during trial or evacuation operation.

The material can burn during down times, as a result of which hazardous vapors may escape.

Allow small quantities of this melt to flow onto a wooden block and cool. Do not collect hot melt in a container. Risk of decomposition with separation of poisonous and corrosive vapors. Avoid breathing in, use respiratory equipment.

- Danger due to hot barrel front and screw runout after die has been removed.

## 2.5 During operation

- Main switch



### **Danger!**

The extruder may not remain unattended while the main switch is switched on in order to avoid a possible overheating of a temperature control zone due to a defective solid state relay or contactor.

- Switching-off in case of overload

At 100% load =>warning

From 105% load => load control (= automatic reduction of speed until load is smaller than 105% (for the start 115% load are admitted for 20 secs.)

At 120% load => immediate switching-off

## 2.6 Designated use

The ARGOS extruder was developed/designed for processing thermoplastic synthetic materials.

The ARGOS extruder is not suitable for use in the Ex zones specified in 1999/92/EC Annex 1.

Any other use is considered contrary to the designated use and requires written approval by Cincinnati Extrusion GmbH.

For safety reasons, unauthorized modifications and conversions carried out on the extruder are prohibited.

The manufacturer is not liable for any damages due to modifications/conversions – the risk lies solely with the operator.

### 2.6.1 Declaration of conformity

The machine shall not be set into operation until it is ascertained that the machine correspond to the regulation of the 98/37/EC directive of the European Union on machines.

In order to establish a state corresponding to the directive on machines, the machine shall be completed with the following components:

- The main loading opening must be secured in accordance with EN1114-1, section 5.1.3., taking into account the standards named therein. Only loading systems that have been designed in accordance with EN1114-1, section 5.1.4. and the standards referred to therein, are permitted.
- The overpressure protection shall be realized in accordance with EN1114-1, section 5.1.5. and the standards referred to therein.
- The screw point shall be covered by one of the following measures of the EN1114-1 directive taking into account the standards referred to therein:
  - sieve exchange unit according to 5.1.6.
  - melting/gear pump according to 5.1.7.
  - melting line according to 5.1.8.
  - extruder head according to 5.1.12.
- Machine control designed in accordance with EN1114-1, section 5.9., taking into account the standards referred to therein.

The completion of a state corresponding to the directive on machines shall be documented according to item (22) and article 8 of the 98/37/EC directive of the European Community on machines.