

FACT SHEET

PLASTICS EXTRUSION PRESSES

Plastic granules are poured into the extrusion press' hopper, and heated by friction as the screw applies pressure. Additional external heating helps to raise the temperature.

Plastic granules are loaded from the hopper into a closed auger which passes them through a heater. The heat melts the granules which enables molten (melted) plastic to be forced through a breaker plate, then through

a die. The flight of the screw decreases to increase pressure and temperature as plastic nears the breaker plate.

Plastic is extruded through a die, and shaped into either profile or film. Profile could be window frames, rods, pipes or sheet. Plastic is cooled after leaving the die, and processed either by cutting profiles of standard length, or cut to film of standard width.

FIGURE 1: PLASTIC EXTRUSION PRESS

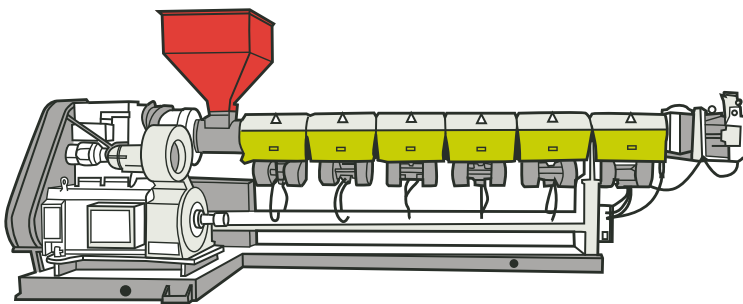
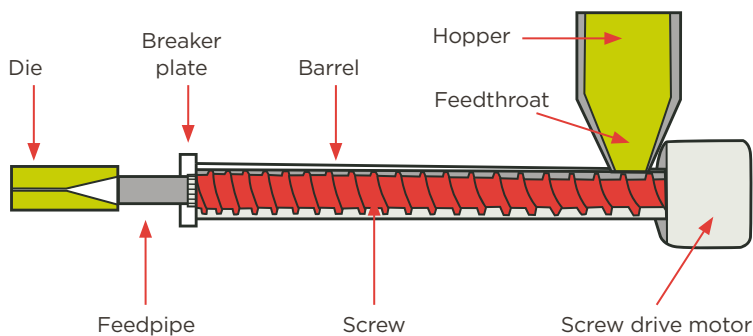


FIGURE 2: PLASTIC EXTRUSION PRESS KEY PARTS



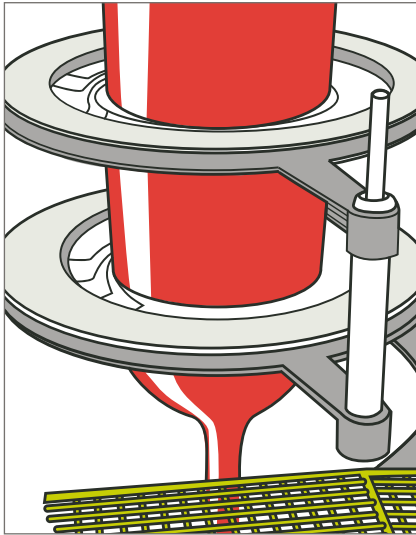
HAZARDS:

- > Heavy lifting
- > Pouring granules into hopper
- > Molten plastic/heat
- > Contact, impact or trapping
- > Entanglement
- > Hazardous substances
- > Noise
- > Slips, trips & falls
- > Contact, impact or entanglement from unexpected movement (during maintenance, cleaning & repairs)

PPE:



FIGURE 3: FILM FORMING AT EXTRUSION PRESS



TASK - LOAD & UNLOAD

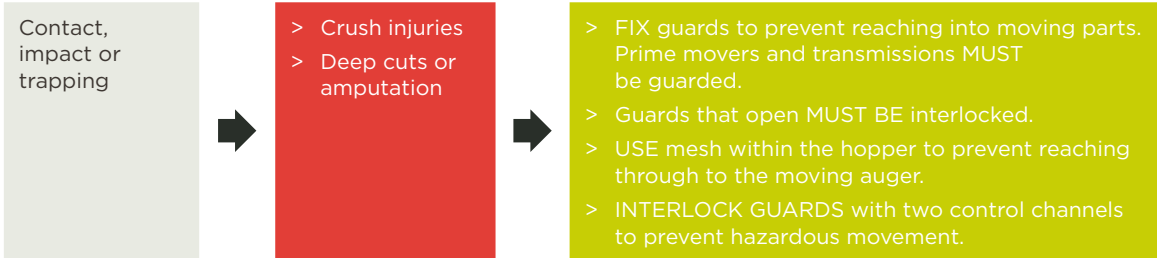
Hazard	Harm	Controls
Heavy lifting	> Strain injury	<ul style="list-style-type: none"> > LIFT loads in quantities that will reduce the chance of strain. > USE mechanical lifting aids when necessary.
Pouring granules into hopper	> Risk of cuts to hands	> WEAR hand protection.

Manual lifting of granules into the hopper. Mould parts can weigh up to several kgs.

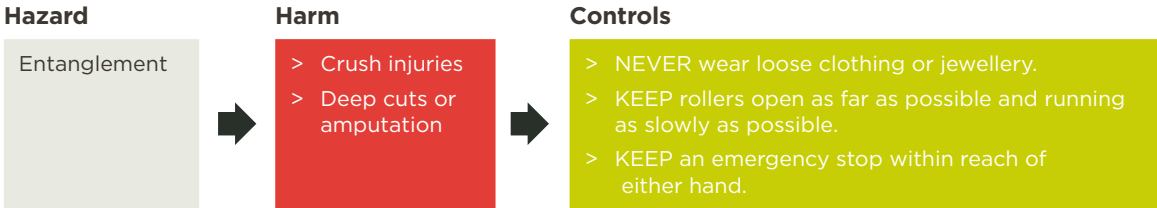
TASK - EXTRUSION PROCESS OPERATION

Hazard	Harm	Controls
Molten Plastic/heat	> Risk of burns	<ul style="list-style-type: none"> > GUARD auger and heating devices from contact. > GUARD the nozzle where the end of the auger connects to the die, to prevent melted plastic from squirting beyond the press if there is a leak. > ISOLATE any heating, cutting or sealing processes that follow extrusion. > WEAR PPE (personal protective equipment) to cover face, hands, and body.

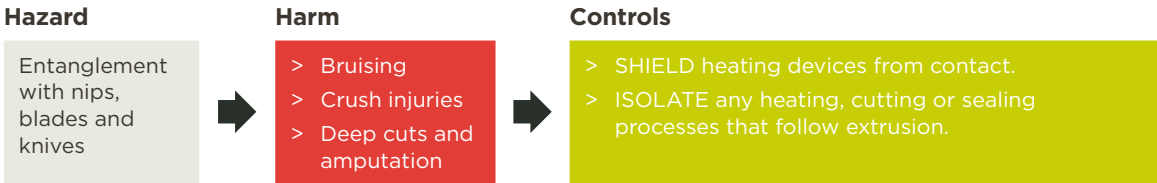
Plastic becomes liquid at about 200°C. Plastic is forced into dies under high pressure, so any leak between the auger and the die may squirt out jets of melted plastic. During servicing, release of melted plastic from a blockage may result in hot plastic squirting out under pressure.



TASK - THREADING FILM

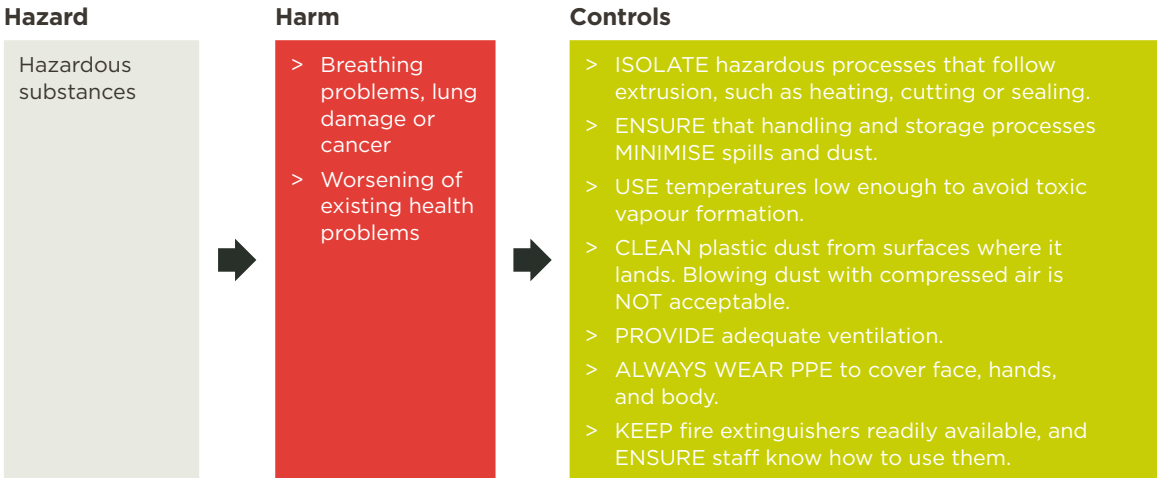


TASK - COOLING AND CUTTING



Cooling and cutting operations can present hazards, like entanglement in nips where plastic web passes around rollers. Contact with knives used for slitting webs, and contact with blades used for cutting products to length, can be hazardous.

OTHER (NON-MECHANICAL) HAZARDS



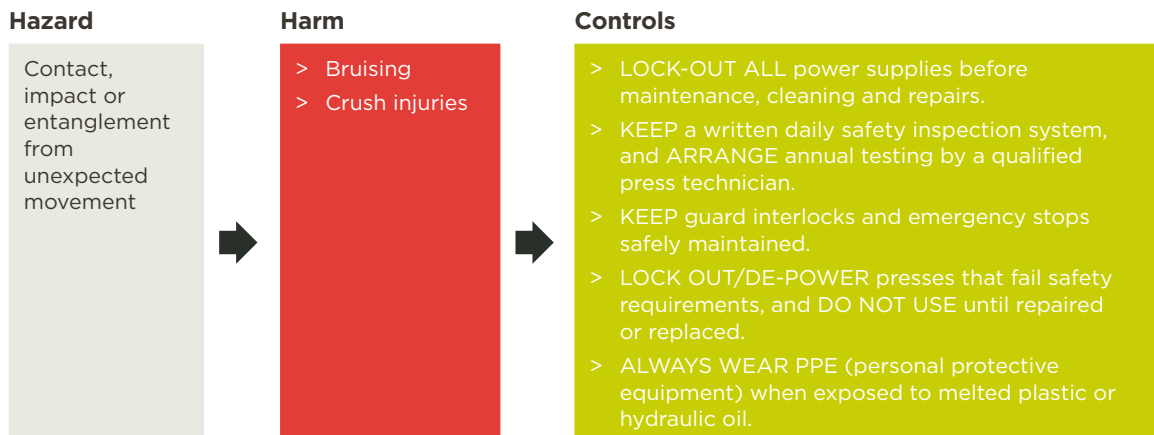
Plastics dust can form explosive clouds.



A safe noise level over an eight hour day is 85dB(A). A plastics extrusion press may exceed this noise intensity.



TASK - MAINTENANCE, CLEANING & REPAIRS



If additional safeguards are required, they MUST be fitted by competent suppliers, working to recognised safety standards. Instructions MUST be provided in a language understood by operators.

References, current standards and further information can be found on the Safe Use of Machinery project page at: www.worksafe.govt.nz

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