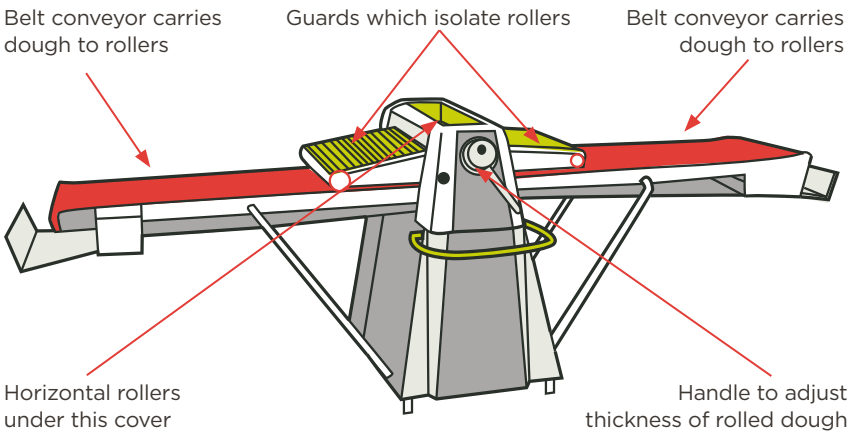
WORKSAFE
NEW ZEALAND | MAHI HAUMARU AOTEAROA

FACT SHEET

DOUGH BRAKES

Sometimes called a dough sheeter, a dough brake is used in bakeries to roll dough or pastry to sheets of consistent thickness. Two horizontal steel rollers roll the dough or pastry between them, and then roll it again after the rotation is reversed. Between reversals, the distance between rollers is reduced to bring the dough or pastry to the required thickness.

FIGURE 1: DOUGH BRAKE



HAZARDS:

- Trapping between dough rollers
- Entanglement with turning parts
- Slips, trips & falls
- Entanglement from unexpected movement (during maintenance, cleaning & repairs)

TASK – FEED DOUGH TO MACHINE/ROLL DOUGH

Hazard	Harm	Controls
Trapping between dough rollers Entanglement with turning parts	> Crushing > Bruising > Fractures > Amputation between rollers or between rollers and conveyors	> DO NOT wear loose clothing or jewellery. > FIX guarding to prevent reach into moving parts: ✓ Static fixed guard ✓ Adjustable fixed guard ✓ Automatic guard > Prime movers and transmissions MUST be guarded. > TEST SAFETY FEATURES at the start of each shift.

Some dough brakes have a smooth table rather than a belt conveyor, where operator's hands will reach closer to the nip, and may become entangled while feeding dough or during cleaning.

A nip is measured from where rollers close within 19 mm. 19 mm is the distance where fingers are caught.

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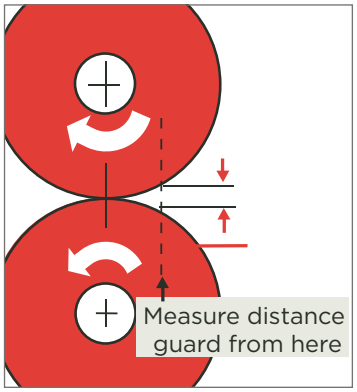
FIGURE 2



GUARDS

A **static fixed guard** has a feed opening at a safe distance from the nip.

An **adjustable fixed guard** moves up to increase the size of the opening as the distance between rollers increases. While fingers and even hands can reach between rollers, the opening is limited to prevent reach which can cause harm. As the rollers are closed to roll dough or pastry thinner, the guard moves down to decrease the size of the opening.

An **automatic guard** includes a switching arrangement that reverses the motion of the rollers when the guard opening increases 6 mm above the set amount. Interlocked with the guard, an interlock switch reverses power to the motor which drives the rollers when the guard is pushed up.

Slips trips and falls	> Injuries from falls or entanglement: > Bruising > Fractures > Concussion	> KEEP up-to-date housekeeping procedures. > KEEP the area around dough brakes clean and clear of slip and trip hazards.

TASK – MAINTENANCE, CLEANING & REPAIRS

Hazard	Harm	Controls
Entanglement from unexpected movement	> Trapped hands or fingers > Crush injuries	> LOCK-OUT all power before maintenance, cleaning and repairs. > TEST emergency stops at the start of each shift.

Instructions MUST be in a language understood by the operators.

TABLE 1: SEPARATION DISTANCES (MM) USING FIXED GUARDS

Maximum size of feed opening	Minimum separation between opening and trapping point
20	140
30	240
40	340
50	440
60	540
70	640
80	740
83	840

OPERATION WITH FIXED GUARDS

> Guard is secured to the dough moulder and is fixed in position.

> Guard cannot be moved without using tools.

FIGURE 3: OPERATION OF AN ADJUSTABLE FIXED GUARD

Separation distances (mm) using adjustable fixed guards

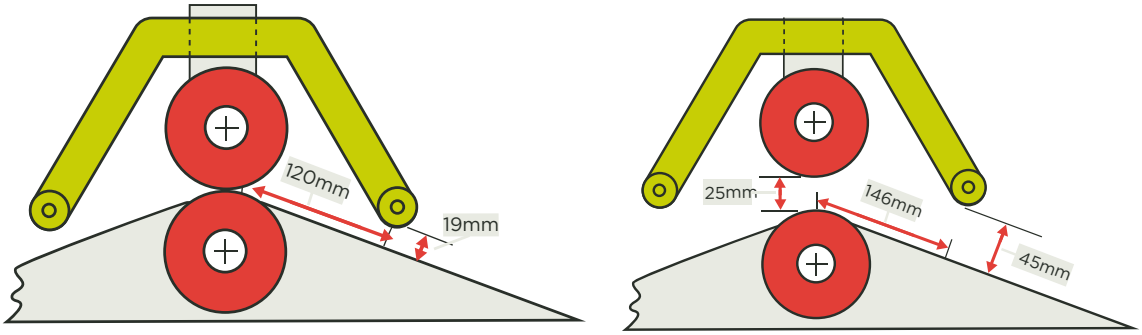


FIGURE 4: SEPARATION DISTANCES USING ADJUSTABLE FIXED GUARDS

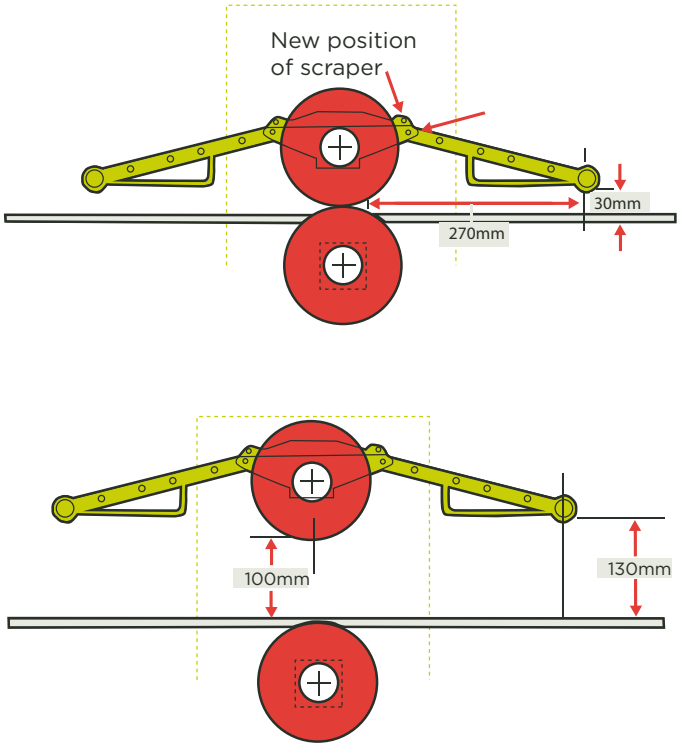


TABLE 2: SEPARATION DISTANCES (MM) USING AUTOMATIC GUARDS

Maximum size of feed opening	Minimum separation between opening and trapping point
25	150
38	255
52	330
64	380
76	435
89	470
102	510
114	535
127	560
152	610
178	660

FIGURE 5: OPERATION OF AN AUTOMATIC GUARD

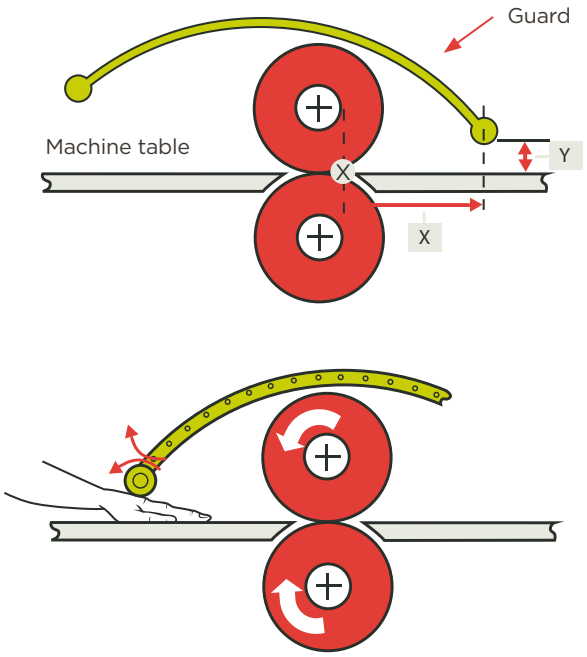
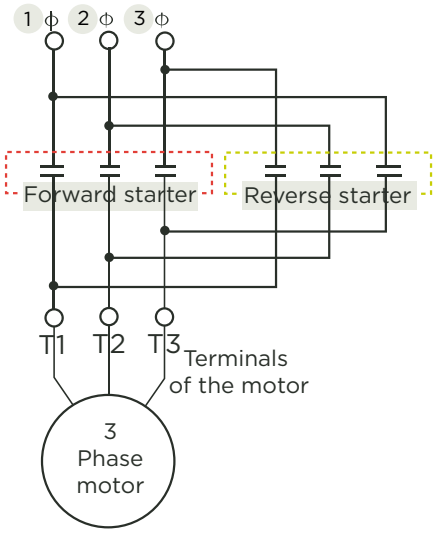


FIGURE 6: PHASES OF THE ELECTRICAL SUPPLY



Electric reverse starter circuit (there are more components needed for a working circuit).

OPERATION WITH AUTOMATIC GUARDS

- An automatic guard moves freely to reverse the rollers of the dough moulder when the guard is raised to increase the size of the feed opening more than specified.
- The guard must be interlocked with motor controls.
- Table 2 measures opening sizes on the feed side of the rollers.
- Table 2 is from measurements agreed between representatives of the baking industry and what was the Department of Labour.
- The trapping point is where the rollers close to 19 mm (explained on page 2).

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

PUBLISHED: APRIL 2014. CURRENT UNTIL REVIEW IN 2017