



**Cryogenic
Deflashing
Quality – Economy**

Deflashing at extremely low temperatures



Parts before and after deflashing
by a **drum system (model ETM)**



Parts before and after deflashing by a **troughed belt jet deflashing machine (model MSA)** or a **drum jet deflashing machine (model TSA)**



Parts before and after deflashing by a **oscillating deflashing machine (model MPCD)**

The Process

In general, parts made from rubber, plastic, die-cast zinc or rubber-metal combinations must be deflashed after manufacture. The various stresses to which the parts are subjected and the functions they perform mean that deflashing processes of varying quality are required. Given that the parts to be deflashed come in different shapes and material mixtures, only a universal process can produce economic results.

A deflashing process using liquid nitrogen or carbon dioxide meets these requirements. Low temperatures cause the flashes on parts made from rubber, plastic and some types of metal to become temporarily so brittle that these break off when subjected to mechanical stress. Various types of machine are used to deflash a wide range of mouldings and in order to achieve a sound return on capital and to prevent production line problems analyses and tests are always carried out to ensure the right choice of machine.

Linde understands the problems faced by the manufacturers of moulded parts and has experienced consultant engineers who can carry out tests, either at the Linde Technology Centre or at the customer's premises.

The Refrigerants

For cryogenic deflashing Linde uses liquid nitrogen or CO₂ pellets. Over the last few years liquid nitrogen has largely replaced conventional refrigeration, having in its favour the following advantages:

- It is easier to handle
- It has greater operational reliability
- It has a wider range of applications
- It can operate at temperatures approaching -196 °C.

The Technical Equipment

In addition to liquid nitrogen and carbon dioxide, storage tanks and suitable pipes and fittings, Linde also offers a wide range of deflashing machines which operate on varying principles. CO₂ pellets can be supplied for special applications.

Please contact us for further details about our machines – product data sheets are available for the entire range.

◀ Picture on title page: **Linde tyre deflashing machine**

Deflashing Machines and Overview of Processes

Product range:

Standard machines:

Special machines:

Other accessories and equipment for standard and special machines on request.
Conversion of existing CO₂ and refrigeration unit plants to liquid nitrogen operation.

Deflashing machines	Machine model
Drum systems	ETM 90 ETM 120 ETM 280 ETM 420 ETM 600 ETM 820
Drum jet deflashing machine	TSA
Troughed belt jet deflashing machine	MSA
Oscillating deflashing machine	MPCD
Vibration machine	OV 200
Continuous jet deflashing machine	DSA
Tyre deflashing machine (half and full automatic)	CTD-M CTD-A

Comparison of processes (guidelines):

Type of machine	Capital investment	Personnel and operating costs	Troughput Unit costs	Thick flashes Thick laps	Thin flashes Thin laps	Sharp edges	Bellows, "O"-rings etc.	Small parts	Very small parts	Large parts (tyres), high individual weight
Drum system ETM	◆	◆◆	◆◆◆	◆◆	◆◆	◆◆	◆	◆	-	◆
Drum jet deflashing machine	◆	◆◆	◆◆◆	◆◆	◆◆	◆◆	◆◆	◆◆	◆◆	◆
Troughed belt jet deflashing machine	◆	◆◆	◆◆◆	◆	◆◆	◆	◆◆	◆◆	◆◆	-
Oscillating deflashing machine MPCD	◆	◆◆	◆◆◆	-	◆◆	-	◆	◆	◆◆	-
Vibration machine OV 200	◆	◆◆	◆	-	◆◆	◆	◆	◆	-	-
Continuous jet deflashing machine	◆	◆	◆◆◆	-	◆◆	◆	◆	-	-	◆◆
Manual deflashing	◆◆◆	-	-	◆◆	-	◆◆	-	-	-	-
Tyre deflashing machine	◆	◆◆	◆◆◆	◆	◆◆	-	-	-	-	◆◆

- = not recommended
◆ = very suitable
◆◆ = highly recommended