MARIS
Technological Company

RUBBER DEVULCANIZATION

- ELTs - PCR / TBR / OTR
- ACM - POLYACRILIC RUBBER
- BR - BUTADIENE RUBBER
- EPDM - ETHYLENE PROPYLENE DIENE MONOMER
- FKM - FLUOROELASTOMERS
- IIR - BUTYL RUBBER
- IR - ISOPRENIC RUBBER
- NR - NATURAL RUBBER
- Q - SILICONE RUBBER
- SBR - STYRENE BUTADIENE RUBBER

PATENTED PROCESS

DEVULCANIZATION FEATURES

- THERMO-MECHANICAL PROCESS
- NO DEVULCANIZING AGENTS OR SOLVENTS
- DIFFERENT RUBBER CURING SYSTEM
- MINIMUM MAIN CHAIN SCISSION AND MAXIMUM CROSSLINK SCISSION

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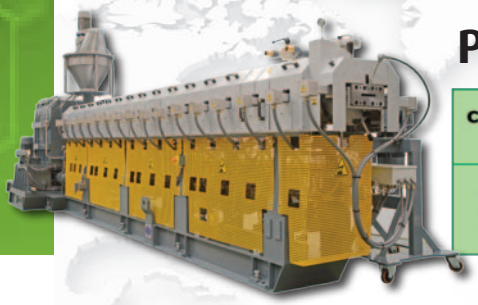


EVOREC RUBBER

PRODUCTION RATE

c-TSE size (mm)	20	30	40	50	58	70	80	92	112	133
OUTPUT (kg/h)*	5 10	20 30	50 80	80 100	100 150	150 250	250 400	400 500	550 700	800 1000

*THE DATA STRONGLY DEPEND ON THE FEEDSTOCK TYPE AND QUALITY

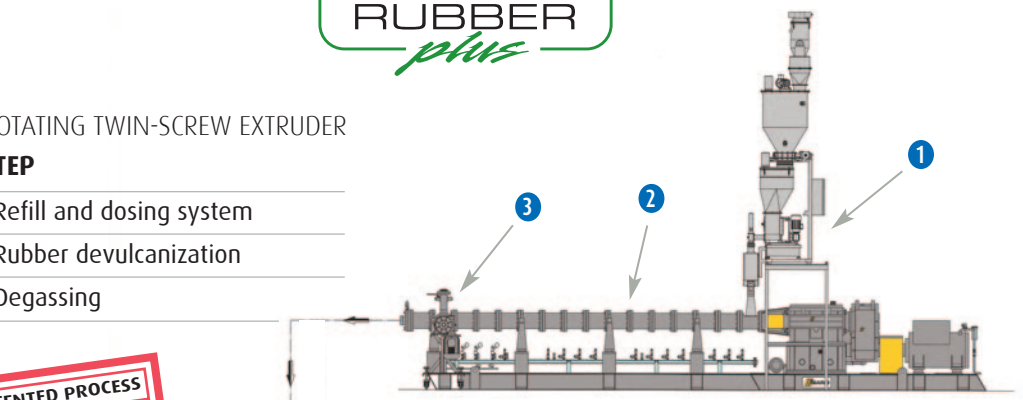
EVOREC RUBBER *plus*

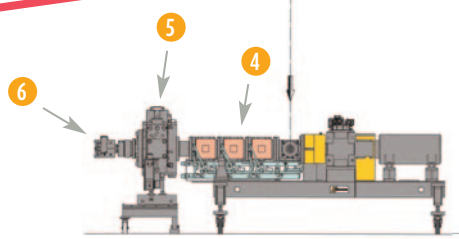
COROTATING TWIN-SCREW EXTRUDER

1st STEP

1. Refill and dosing system
2. Rubber devulcanization
3. Degassing

PATENTED PROCESS





SINGLE-SCREW EXTRUDER

2nd STEP

4. Cooling of the devulcanized rubber
5. Filtering
6. Strip extrusion

HIGHER QUALITY devulcanized rubber → **FAST COOLING** of the rubber → **FILTRATION** of contaminants

HIGHLIGHTS

- THE ACHIEVED DEVULCANIZATION YIELD IS 50-90%
- FROM 15 TO 50% OF RECYCLED MATERIAL CAN BE REUSED WITH VIRGIN MATERIAL FOR THE SAME APPLICATION
- ACCORDING TO THE FINAL PRODUCT PROPERTIES IT IS POSSIBLE TO INCREASE THE % OF RECYCLED MATERIAL
- PRODUCT QUALITY STRONGLY DEPENDS ON THE FEEDSTOCK QUALITY AND THE PROCESS PARAMETERS

Read the article published on the Journal of Cleaner Production.

Title: "Environmental assessment of rubber recycling through an innovative thermo-mechanical devulcanization process using a co-rotating twin-screw extruder."
https://doi.org/10.1016/j.jclepro.2022.131352