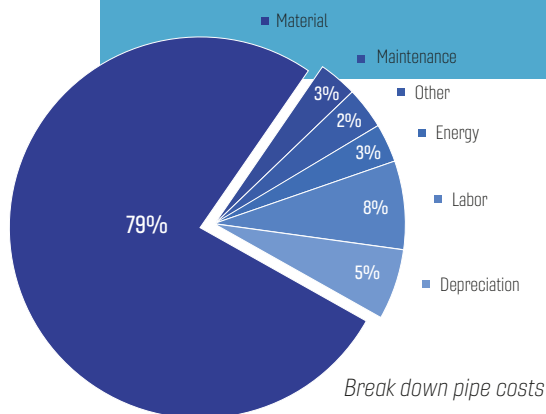


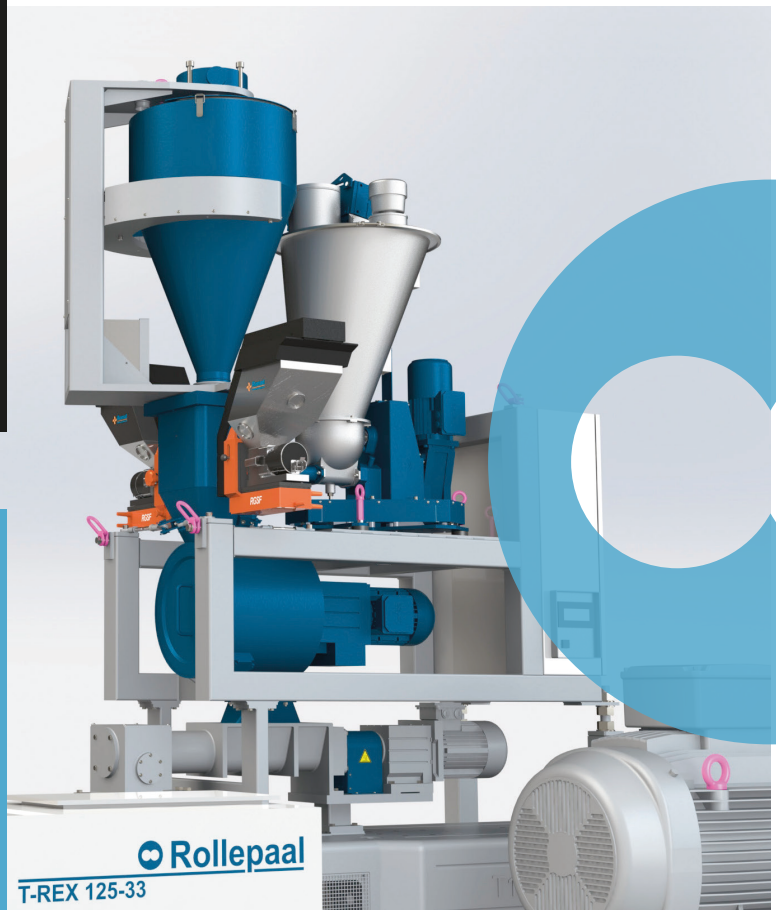
Cost Saving Solutions

Material is the largest cost component (around 80%) in the manufacturing of plastic pipe. This fact makes it worthwhile to reduce overweight and/or increase CaCO₃ content, while keeping the pipe in the required specifications. Rollepaal offers several types of cost saving solutions to control the quality of the pipe during production. These solutions are compatible with all existing brands of equipment.



Rollepaal Cost Saving Solutions:

- Rollepaal Direct Mixing (RDM)
- Rollepaal Direct Addition (RDA) - CaCO₃
- Wall control units (scanners)
- Automatic Thermal Centering (ATC)
- Gravimetric systems (RGS)

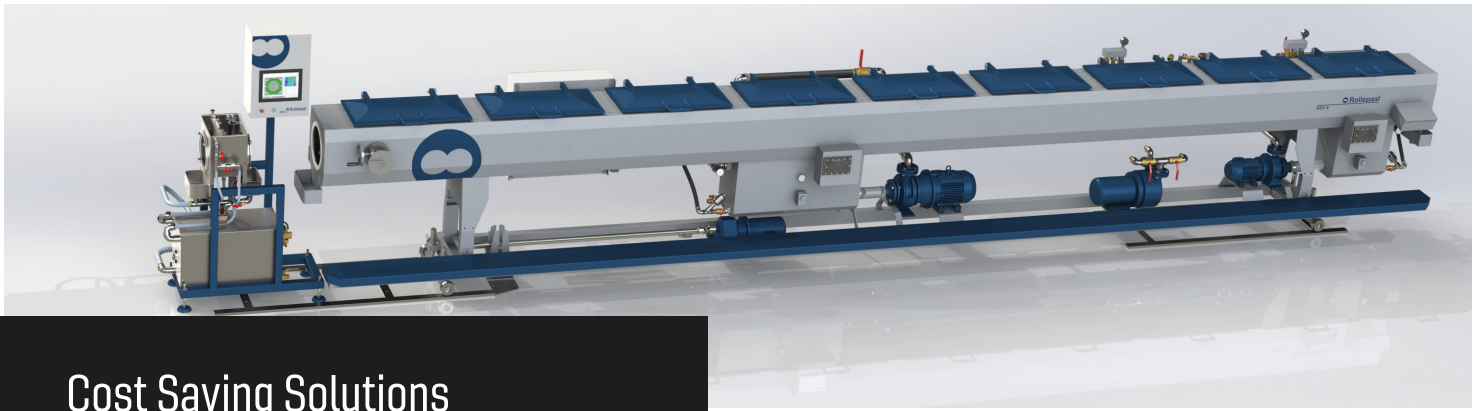


Rollepaal Direct Mixing - RDM

The RDM is the next step in processing, PVC resin with the necessary additives can be mixed directly on top of the extruder, without the need for a mixing plant. The RDM unit is mounted on the extruder for constant dosing and mixing of materials in an industrial environment. High amounts of CaCO₃ can also be added without the problem of segregation. At the same time this saves energy, as there is no need for hot mixing. Multiple dosing units for additives are mounted providing optimal flexibility for production.

Advantages of Rollepaal RDM systems:

- Unique formulation for every application
- Lower Carbon Footprint
- Instant Mixing
- Flexible production
- Low investment to begin PVC pipe production
- Quickly expand capacity
- No mixing plant required
- Reduce energy consumption
- A complete solution



Cost Saving Solutions

Rollepaal Direct Addition - RDA

The RDA makes sure that the addition of material to the PVC powder will be done in an exact and consistent way. The RDA unit is mounted on the extruder for constant dosing of hard to handle materials in an industrial environment. High amounts of CaCO₃ can be added without the problem of segregation. At the same time this saves energy, as it does not pass the hot mixer. Multiple dosing units for additives can be mounted providing optimal flexibility for production.

Advantages of Rollepaal RDA systems:

- ▷ No segregation of CaCO₃ and PVC during transport
- ▷ Smoother pipe
- ▷ Blending energy savings
- ▷ Increased flexibility of extrusion line (basis formulation)
- ▷ Gravimetric addition of additives
- ▷ High output at low reject rates

Wall control units - scanners

Controlling the dimensions of the pipe during production is an important factor to keep the pipe in the preferred specifications. Rollepaal scanners are able to measure the pipe wall thickness and diameter*. A range of scanners with various features is available, covering pipe sizes from 10-1600 mm (1/2" - 60") diameter.

Advantages of our scanners:

- ▷ Continuous in-line wall thickness and diameter* measurement
- ▷ Minimum wall thickness control (overweight reduction)

* Static scanners only

Automatic Thermal Centering - ATC

A Rollepaal ATC makes it possible to control the distribution of the wall thickness. The ATC can adjust differences in the wall thickness and thus reduce production line start-up time, overweight of the pipe and material scrap.

Rollepaal Gravimetric System - RGS

The core part of the RGS is the weighing hopper. After being filled, the material flows from the weighing hopper into the extruder. The loss in weight per unit of time is equal to the material intake of the extruder. The obtained extruder output is compared to a set reference value. A control system will adjust the extruder screw speed (or dosing speed) to bring the output to the desired level. This control keeps the extruder output stable in spite of fluctuations in bulk density of the raw material.

Instead of the output control, the output signal can also be used for control of the haul-off speed. In that case the pipe weight per meter is kept at a constant level. When the line incorporates an ultrasonic scanner, the measured output is used for automatic calibration of the ultrasonic measurement. This eliminates time consuming manual calibration procedures.

Process Control System - PCS II

The PCS II itself is a control system that can be combined with a scanner, ATC, RDA and RGS. The type of scanner, ATC and gravimetric system depends on the extrusion line.

Advantages of our cost saving solutions:

- ▷ Excellent return on investment
- ▷ Reduction of start-up time and scrap
- ▷ User-friendly interface for total extrusion line control
- ▷ Overweight reduction
- ▷ Can be used on existing equipment

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 PIPE EXTRUSION