Sound Mixing & Economical Preparation of PVC Compounding

If mixing stops, factory output is **ZERO**....

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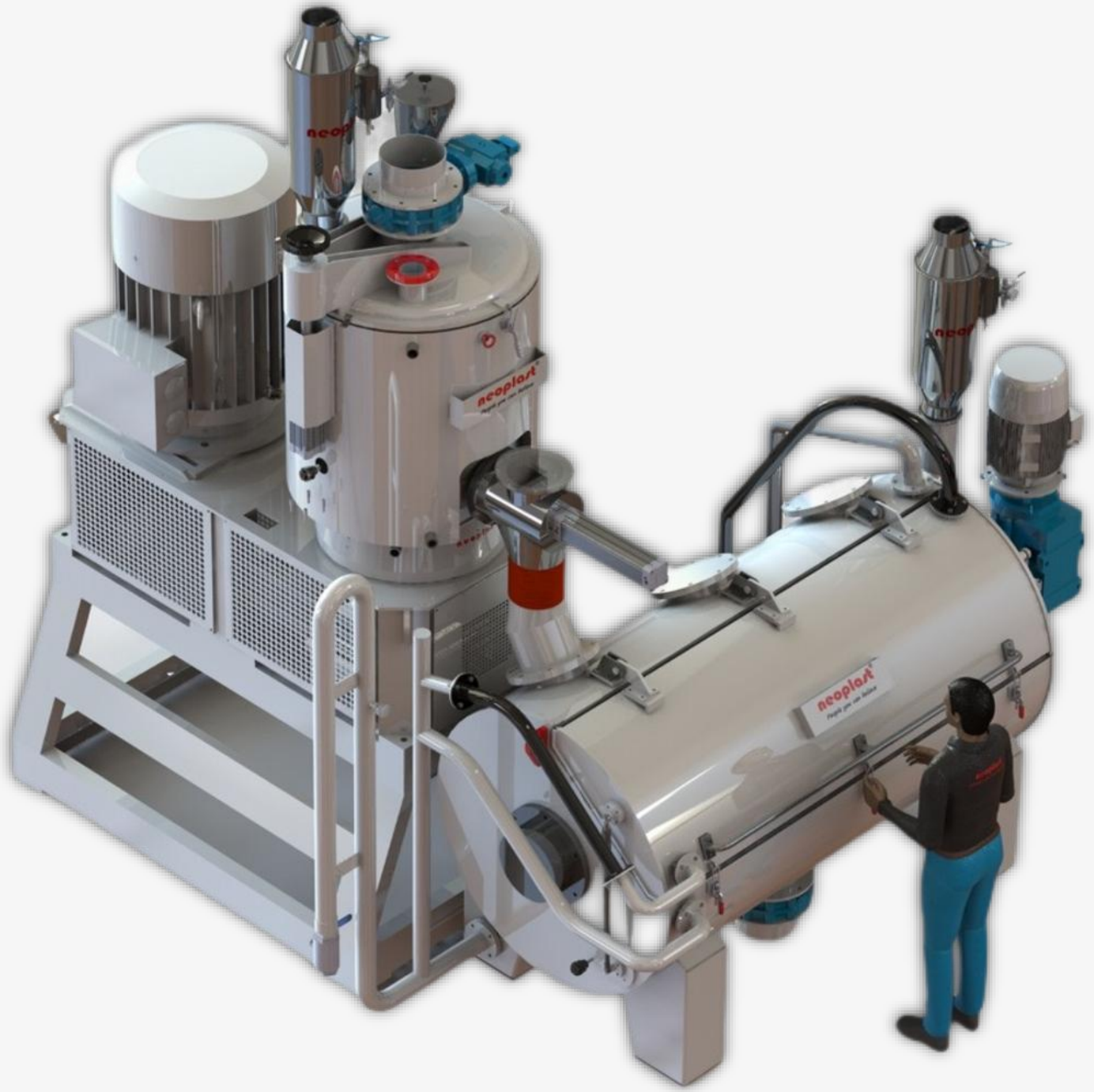
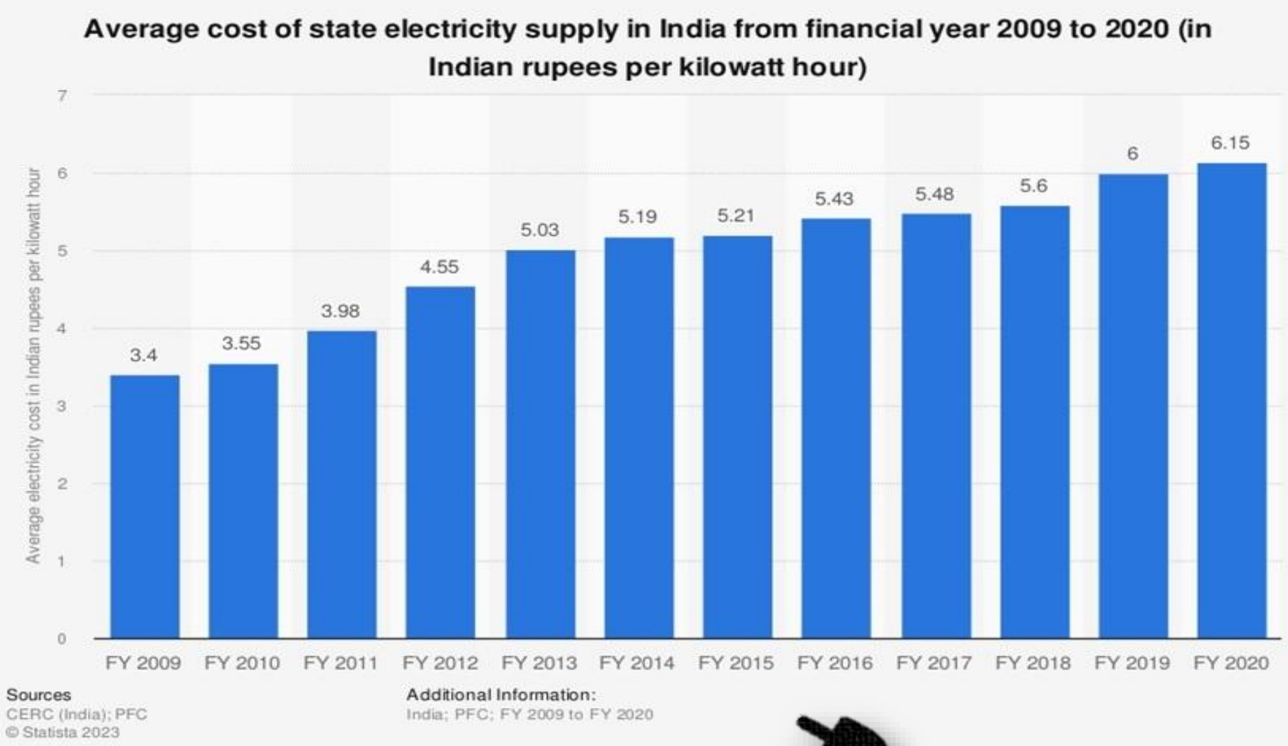
VERTICAL HEATING WITH HORIZONAL COOLING

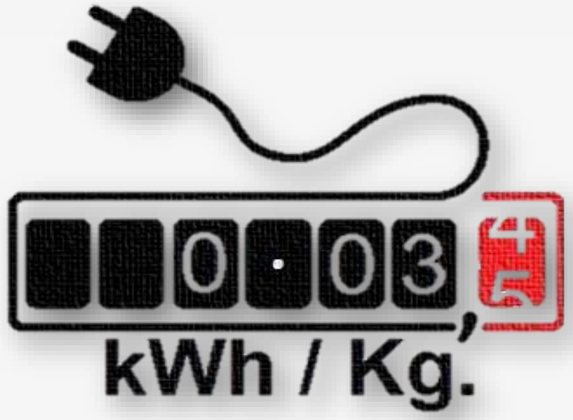


Energy Efficiency

- **Motor & Gearbox**



Goal # 1 is to achieve Lowest Compounding Cost (LCC) / Batch



- **Insulation on Vessels**
  - Heater Mixer
    - Avoid Frictional Heat Loss Rise
  - Cooler Mixer
    - Heat Dissipation (ΔT)

- **Feeding System**
  - Install batch feeding system
    - Avoid Frictional Heat Loss
    - Increases your mixer's Throughput

- **Check System Parameters**
  - Heater Mixer (Energy Saving)
    - Overall Mixing Cycle Time
  - Cooler Mixer (Water & Energy Saving)
    - Monitor your ΔT
    - Flow Rate ***Vs.*** Heat Transfer
    - Check Water Circulation Circuit

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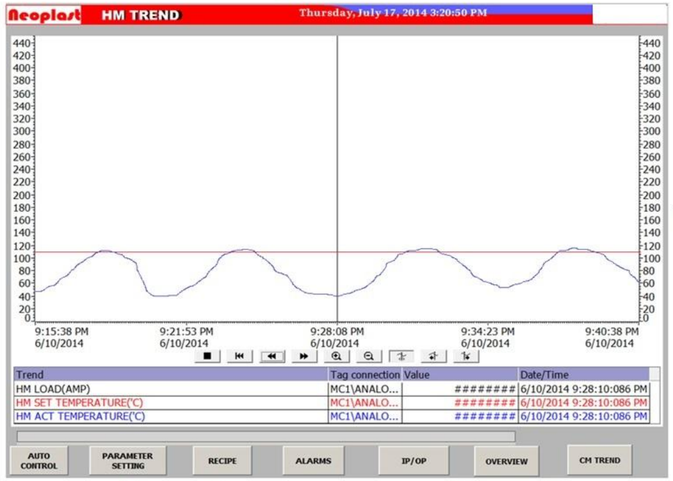
- Give Brain to your Mixing System by means of ***SCADA***
- Always Monitor - *Tool Speed* **Vs.** *Temperature* **Vs.** *Time*
- Batch Mixing **Vs.** Cooling Cycle Trend --- *Synchronization of both unit is important*

Typical Heater Mixer
Heating Cycle Trend



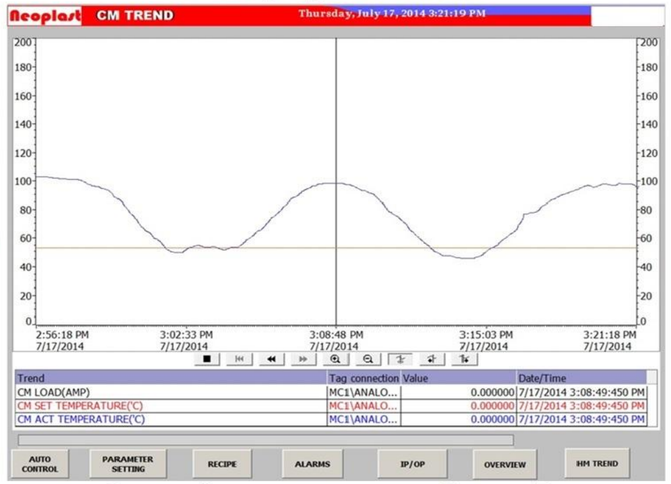
6 mins. per Cycle

From *40°C* **To** *115°C*

Temperature Rise

vs.

Typical Cooler Mixer
Cooling Cycle Trend



6 mins. per Cycle

From *115°C* **To** *45°C*

Temperature Drop

Goal # 2

- Stress Free Compound.
- Material stored at lower temperature has no inertia.



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Goal # 1 - To achieve Lowest Compounding Cost (LCC) / Batch

Our Solution in Mixing Technology

- Min. IE-3 Standards motors.
- Highly efficient G6.3 dynamically balanced power transmission.
- Shortest Mixing Cycle – Thanks to our Patented Aerodynamic Mixing Tool. (*Patent Reg. # 201621011484 A*)
- Powered Transmission through Direct Drive Helical Bevel Gearbox (95% energy efficiency compared to traditional worm gearboxes). Design accordance to Lowest parts per assembly (LPPA) resulting into minimal friction loss.
- Highest cooling efficiency through almost 100% utilization of the available cooling surface. A Constant Heat Exchange between Vessel Jacket Surface & Compound via multi-zone cooling paths delivers constant heat exchange & dissipation.

neoplast® Commitment

Lowest Compounding Cost per batch compared to any mixer manufacturers in the industry.

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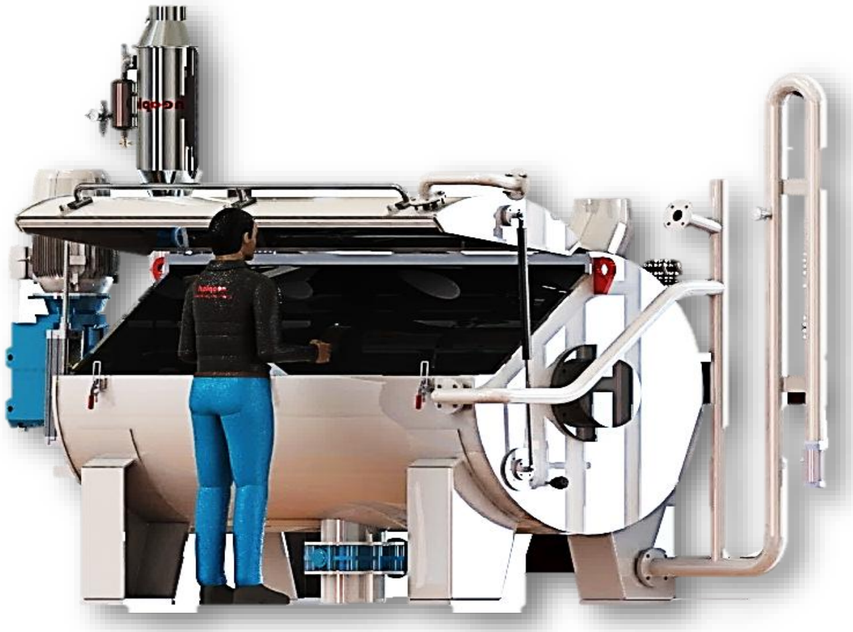
Goal # 2 - Homogeneal Mix with Stress Free Compound

Our Solution in Mixing Technology

- Introduction of our latest laterally mounted CONVEX BAFFLE PLATE concept generates a true 3-Dimensional Deep Vortex during mixing cycle resulting into an excellent mix of your precious compound.
- Mixing Geometry in accordance to Froude Number

  State-Of-Art Shovel arrangement with optimum Peripheral Tip Speed to achieve gentle treatment with 3-D Material Flow in Ring Layer. The complex Shovel***PRO***® geometry besides efficient cooling also delivers gentle blending of dry blend in optimum fashion. The Shovel Elements generates turbulence with constant product mobility preventing the formation of dead/static zones resulting in precision cooling in shortest possible time.



shovelPRO® MIXING GEOMETRY

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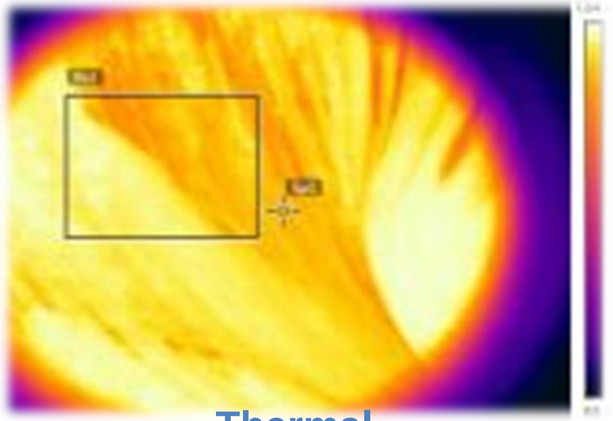
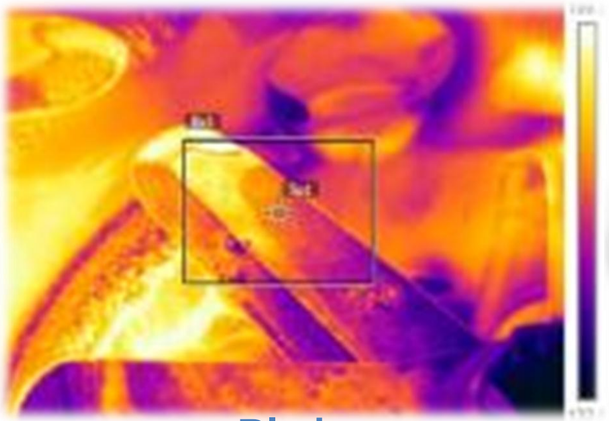
Our Solution in Heating Technology

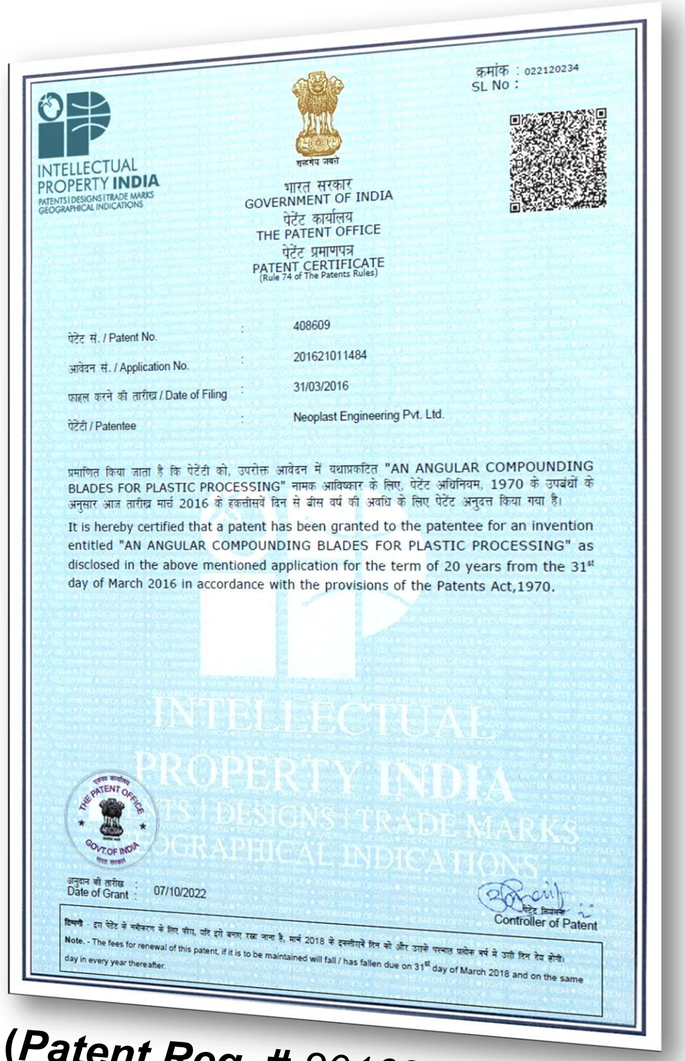


Thermal
Vortex Analysis



Blade
Friction Analysis





INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

भारत सरकार
GOVERNMENT OF INDIA
पेटेंट कार्यालय
THE PATENT OFFICE
पेटेंट प्रमाणपत्र
PATENT CERTIFICATE
(Rule 74 of The Patents Rules)

क्रमांक : 022120234
SL No :

पेटेंट सं. / Patent No.	:	408609
आवेदन सं. / Application No.	:	201621011484
फाइल करने की तारीख / Date of Filing	:	31/03/2016
पेटेंटी / Patentee	:	Neoplast Engineering Pvt. Ltd.

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाप्रकटित "AN ANGULAR COMPOUNDING BLADES FOR PLASTIC PROCESSING" नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख मार्च 2016 के इकतीसवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled "AN ANGULAR COMPOUNDING BLADES FOR PLASTIC PROCESSING" as disclosed in the above mentioned application for the term of 20 years from the 31st day of March 2016 in accordance with the provisions of the Patents Act,1970.

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

अनुदान की तारीख :
Date of Grant : 07/10/2022

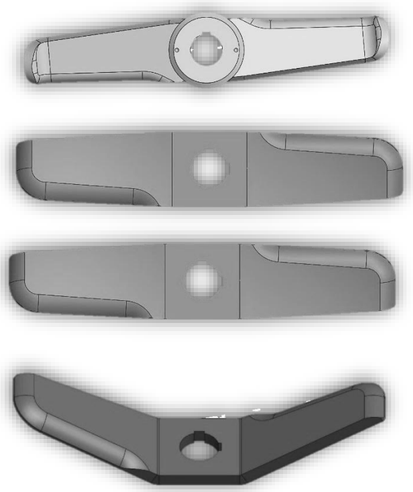
नियंत्रक
Controller of Patent

टिप्पणी :- इस पेटेंट के नवीकरण के लिए फीस, यदि देनी बनाए रखा जाना है, मार्च 2018 के इकतीसवें दिन को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।

Note. - The fees for renewal of this patent, if it is to be maintained will fall / has fallen due on 31st day of March 2018 and on the same day in every year thereafter.









(*Patent Reg. # 201621011484 A*)

ONLY FOUND IN
neo MIXERS

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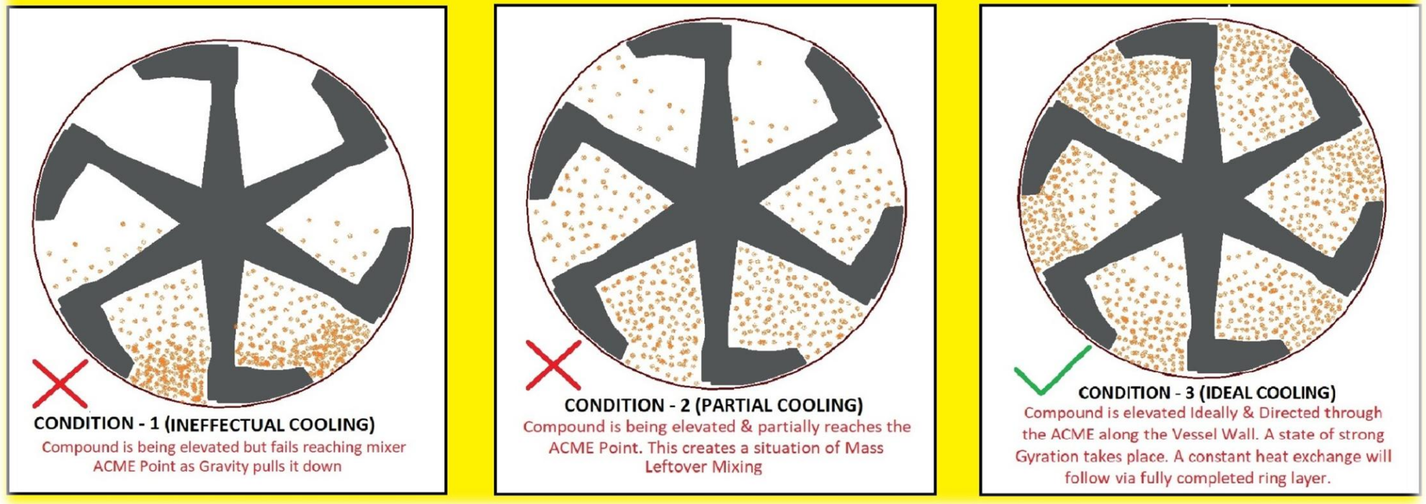
Our Solution in Cooling Technology

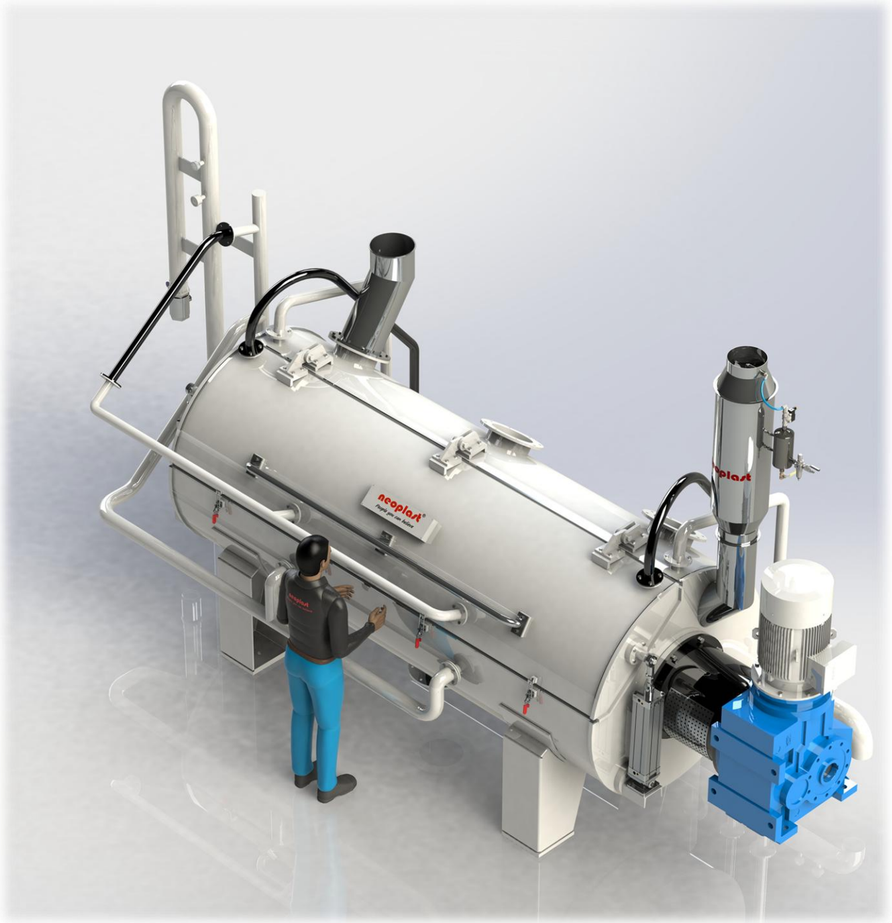
DIFFERENTIATION BETWEEN 3 CONDITIONS WITHIN HORIZONTAL COOLER MIXER



CONDITION - 1 (INEFFECTUAL COOLING)
Compound is being elevated but fails reaching mixer ACME Point as Gravity pulls it down

CONDITION - 2 (PARTIAL COOLING)
Compound is being elevated & partially reaches the ACME Point. This creates a situation of Mass Leftover Mixing

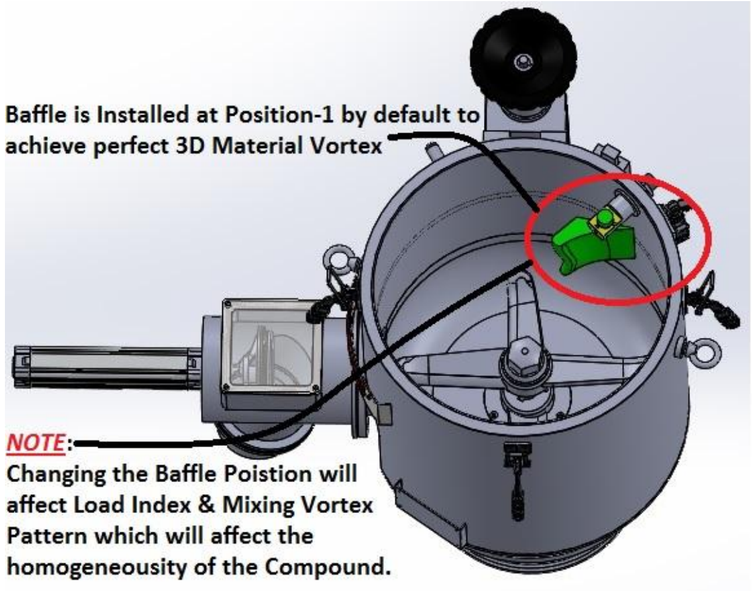
CONDITION - 3 (IDEAL COOLING)
Compound is elevated Ideally & Directed through the ACME along the Vessel Wall. A state of strong Gyration takes place. A constant heat exchange will follow via fully completed ring layer.



shovel PRO®

MIXING GEOMETRY

(*Patented Technology*)



Baffle is Installed at Position-1 by default to achieve perfect 3D Material Vortex

***NOTE*:**
Changing the Baffle Poistion will affect Load Index & Mixing Vortex Pattern which will affect the homogeneousity of the Compound.

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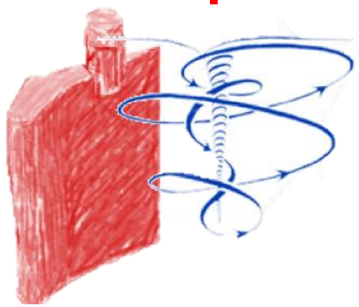

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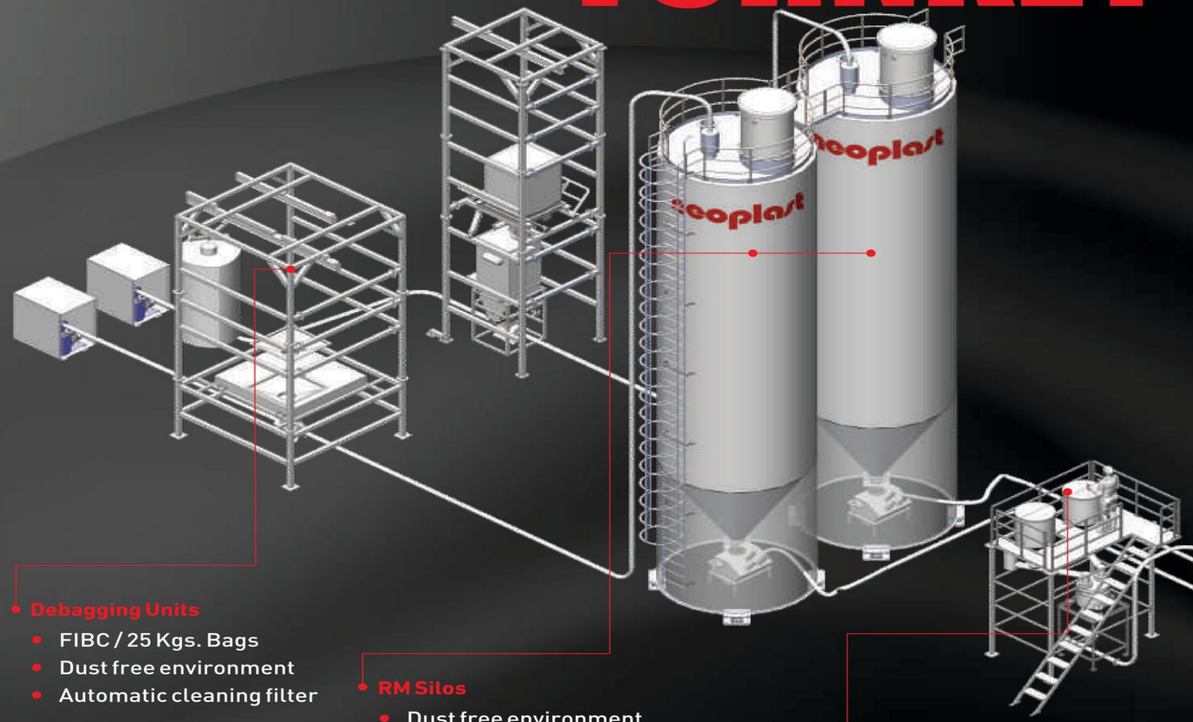
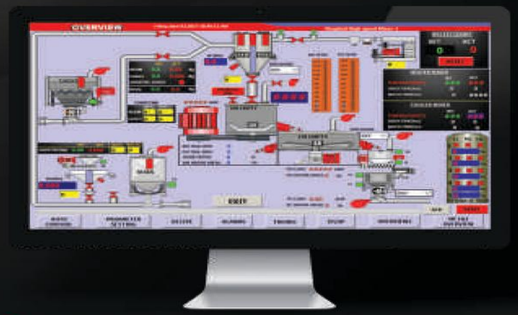
TURNKEY SOLUTIONS



Debagging Units
- FIBC / 25 Kgs. Bags
- Dust free environment
- Automatic cleaning filter

RM Silos
- Dust free environment
- Monolithic and Bolted
- Weigh System Provision
- Indoor / Outdoor Erection

Additives Weighing Station
- Dust free environment
- Accuracy 0.1%
- Modular System



Process Control
- User Friendly Process Operation
- Automated Daily Report Generation
- Key Parameter Analysis made Easy
- Instant Alarm Notification
- Remote Access for Instant Support
- Multi-Level Access Control
- Recipe Management

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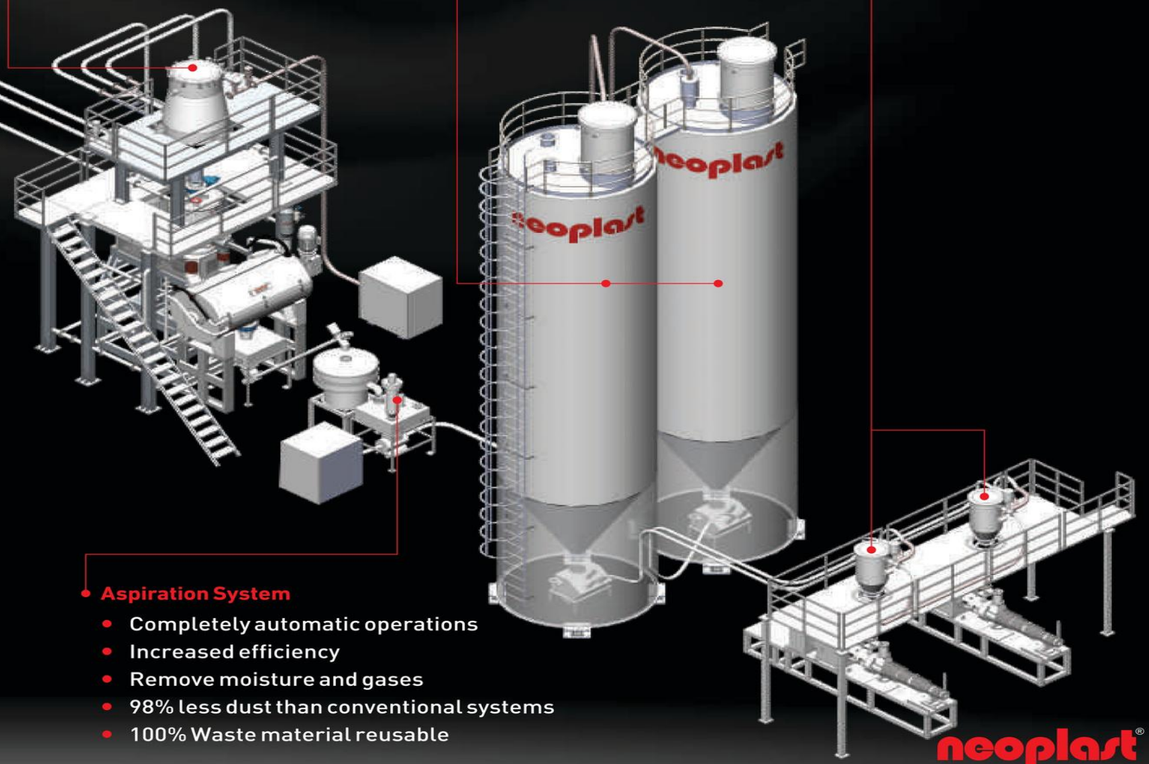
Recipe Silos
- Dust free environment
- Special extraction devices to avoid segregation
- Indoor / Outdoor construction

Hopper Loader
- Dust & Noise free environment
- Special extraction devices for low flowability products
- Completely automatic operations
- Isolated to Mixing system

Conveying and Weighing
- 99% Accuracy level
- Dust free environment
- Complete traceability of all production's data



Aspiration System
- Completely automatic operations
- Increased efficiency
- Remove moisture and gases
- 98% less dust than conventional systems
- 100% Waste material reusable

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