

Top Performance for Challenging Tasks.

Henschel Mixing Technology



Innovation.
Tradition.

Zeppelin 2010 –
engineering your success.



Zeppelin plant engineering – 2010 business areas

Polymer Plants

Plants for plastics manufacturers and hauliers

Plastics Processing & Rubber Plants

Plants for plastics processing and rubber industries

Food Technology

Turn-key plants for the food industry

Henschel Mixing Technology

Mixers, mixing systems and compounders

Liquids Processing

Turn-key plants for the beverages and pharmaceuticals industries

Silos & Filters

Silo technology and filters

Components

Diverter valves, feeders, separators ...

Zeppelin – our name stands for willpower, innovation, proven technology and the quest for new challenges. As Count Ferdinand von Zeppelin conquered the sky more than 100 years ago with his legendary airships, the enterprise displayed above all one thing: the conviction that excellence can only be achieved by allowing visions and uniting all forces.

Share your visions with us – the global Zeppelin team will do its very best to meet your challenges. Because your success is our success.

To master processes, develop systems and know exactly what the needs of the customers are: these are the requirements for an optimal design and manufacturing of plants. Our objective is to lead in every field of business we deal with by always exhibiting top performance.

We are determined to meet your needs and expectations by developing technologically advanced and efficient systems.

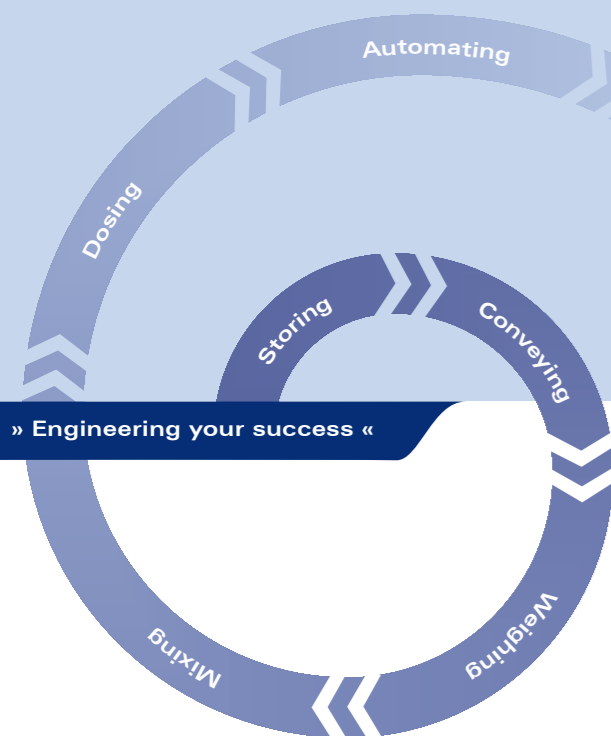
This is why a product, a plant or a complex system designed by Zeppelin will always be one thing – engineered for your success.

Solutions by knowing the process.

The Center of Engineering Excellence

Knowledge of only single elements of a chain can mean danger of not understanding interfaces and their effects.

Zeppelin Reimelt offers the complete material handling and material processing from A to Z.



- » Storage silos for bulk materials
- » Emptying stations for bags and big bags
- » Pneumatic suction and pressure conveying, secondary air conveying
- » Mechanical conveyers
- » Weighing and suction weighing systems, LIW feeders
- » Liquid dosing and weighing systems
- » Mixers and compounders
- » Feeding of downstream equipment
- » Filling stations

Zeppelin Reimelt has control over the whole process of raw material handling. This is why we can integrate our mixing and compounding systems into an existing plant or even provide you with a complete plant from one single source. All essential key components have been developed and manufactured by us:



In order to achieve considerable improvements to our customers' products, it is not enough to only adjust technical details to the production parameters. Together with our customers, we develop completely new methods of processing and manufacturing of sensitive raw materials.

Our Technology Center – Center of Engineering Excellence – holds all essential processes of mechanical process engineering – particularly those used in mixing technology – for the plastics processing and chemical industries.

Preliminary results can be verified directly at our state of the art laboratory.

Without our Technology Center, many innovations would not even have seen the light of day. Several standard mixing and preparation processes still in use today were invented here. Without the expertise of the Technology Center, processing resin and soft PVC in today's quality would be unimaginable. Our consistent research efforts ensure our customers a competitive edge in the field of products such as metallic powder coatings, Masterbatches, battery production and ceramic powders.

Our Technology Center doors are open – come in and talk to our experienced engineers.



Great minds build great plants.

Before a plant goes into operation, many Zeppelin Reimelt experts were involved in the realization. All of them reliable specialists in their field of work. During process automation, for example, our IT professionals are responsible for a perfect and individual configuration, customized to your operational processes. From establishing requirement specifications and software programming to training your staff.

If desired, we can also carry out the assembly work and the start of operation – and that world-wide! We train your staff during installation and commissioning with competent instructions of processing and maintenance as well as safe operation procedures of the control technology. We are also there for developing the safety standards.

Maintenance work, carrying out inspections and repairs as well as a 24-hour spare parts delivery are also naturally part of our procedures or services.

Do you need to rent a mixer, are you looking for second-hand machines or do you need to expand your capacity due to increased demands? We can help you here as well. Whatever your needs, we've got the solution. So don't hesitate to contact us!

The mixers need to be installed, integrated into the process, operated, maintained and occasionally repaired. In any case, our qualified staff will provide you with outstanding services.

The complete range of Henschel expertise

To achieve efficient production lines with high availability and consistent product quality one should apply an appropriate system technology and a process tailored to the specific needs of the particular product. Our plants and mixers meet these requirements in system solutions for continuous and batchwise processing. Please refer to the chart for a quick overview of our main core competencies.

Do not hesitate to ask our qualified personnel for information on our other products and processes. Our well-equipped Technology Center is also available for tests and trials.

		Plastics							Colors, paints, pigments					Chemicals				
		PVC-U, PVC-P	Natural fiber composites	Duroplastics	PTFE	ABS	Technical plastics	Polyolefins	EPS	Pigments	Powder coatings and bondings	Color concentrates	Toner	Masterbatch	Interior and exterior wall paints	Organic and inorganic chemicals	Additive compounds	Minerals
Handling	Storing, discharging																	
	Conveying																	
	» mechanical																	
	» pneumatic																	
	» container																	
	Dosing																	
	» volumetric																	
	» gravimetric																	
	Weighing																	
	Feeding, filling																	
Process	Mixing																	
	Dispensing																	
	Coating																	
	Agglomeration																	
	Compounding																	
	Granulation																	
	Conditioning																	
	Degassing																	
	Heating / cooling																	
	Sifting																	

Intelligent solutions for complex tasks.



We have been setting standards for more than 50 years and have proven expertise in processing of colors, paints and pigments, toners, chemicals, plastic compounds and minerals. We know what's important and we have the skills to process and handle sensitive materials. No wonder our solutions are in such high demand.

A few exemplary solutions

Solutions for PVC-P films, cables

Features you can rely on:

- » Exact consistency of end product characteristics
- » Elimination of defects (fish-eyes) by adding the exact quantity of ingredients and with high dispersing capacity
- » Intelligent system layout for a large variety of formulas

We know the optimal raw material handling and mixing process, even for the most demanding formulas and tasks.

Solutions for PVC-U window profiles, pipes, sheets

Features you can rely on:

- » Minimal extrusion scrap rate due to consistent characteristics of the dryblend
- » Compact, space-saving construction with high specific throughput of up to 10 batches per hour
- » Long service life of conveying lines despite abrasive characteristics of raw materials and dryblend
- » Safe operation in compliance with the ATEX directive for handling additives

Consistent good dryblend characteristics with constant bulk density, color and particle size distribution are the decisive factors for manufacturing high-quality window profiles. Our turn-key concepts, from raw materials intake up to extruder feeding by including the mixing technology and its control system lead to a successful production.

Solutions for wood plastic compounds

Features you can rely on:

- » Suitable for various formulas, i.e. polymer type, fiber type and level of humidity, mixing ratio of the raw materials
- » Drying and compounding in one process step ensures cost-effective operation
- » Fully automatic operation ensures a highly efficient material handling process

We supply specifically designed complete systems according to the desired throughput and the type of mixer feeding. From semi-automatic feeding of components to fully automatic systems.

Solutions for EPS coating

Features you can rely on:

- » Direct further processing without intermediate storage
- » Highly precise dosing – even with the smallest concentration of powder or liquid additives
- » Constant and uniform wetting of the polymers up to 99.97%
- » Constant feeding of the Turbo Mixer – up to throughput rates of 7 t/h
- » Guaranteed polymer coating up to 99.97%

Solutions for manufacturing and processing technical Compounds (ABS, PC, PBT, etc)

Features you can rely on:

- » Suitable for all types of formulas
- » Variable processes for dosing / weighing, and the quantity and number of additives
- » Individual addition of ingredients at defined sequences or temperatures
- » Processing of recycled materials



Solutions for powder coatings

Features you can rely on:

- » Production free from cross-contamination
- » Intelligent plant layout for large variety of formulas
- » Container system prevents demixing during transport
- » Batch tracing to ensure highest product control
- » Special explosion protection for maximum safety in day-to-day operations

Zeppelin Reimelt has set standards in the industry by perfecting the bonding process for the production of metallic powder coatings. With high efforts on tests and trials, we have developed a process technology adapted to the specific requirements of these temperature-sensitive products. This innovation guarantees brilliant, consistent color powder coatings without demixing and ensures our customers a competitive edge on the international markets.

Solutions for stabilizers

Features you can rely on:

- » High efficiency even with difficult product characteristics
- » Safe operation due to explosion protection
- » Compliance with hygiene guidelines
- » Consistent product quality
- » Flexible systems engineering for a large variety of processes

Dosing and weighing accuracy of 0.1 – 0.05% ensures an optimal product quality when processing powdery or granulated stabilizers.

Solutions for the glass industry

Features you can rely on:

- » Consistent melt quality obtained through perfect mixtures
- » Efficient operation at a high specific throughput
- » High process safety with the Pneuma Mixer

Reliably fulfilling the specific processing requirements of special and quality glass would not be possible without our Pneuma Mixer. In addition to its excellent mixing quality, and because of its design, the Pneuma Mixer can also be used as a pressure vessel for conveying the product to the downstream hoppers of the dosing units without demixing.

Other applications

- » Bio-Polymers
- » Epoxy resin
- » EPDM
- » Pencil and color pencil compounds
- » Flame retardants
- » Fertilizers
- » Glass fibers
- » Rubber flours
- » Filled polymer compounds
- » Stearic acid and aluminum hydroxide
- » Magnetic compounds
- » Masterbatch
- » Melamine resins
- » MIM/CIM compounds
- » Minerals
- » Nitrile rubber
- » Phenol resins
- » Polyamides
- » Polycarbonate
- » Polyethylenes
- » Polypropylenes
- » PTFE
- » Rubber powders
- » TPE
- » Toner
- » Stabilizing compounds
- » Detergents
- » Cosmetic products
- » Battery compounds
- » WPC / natural fiber composites (PO and PVC based)

Mixing completed.

Our systems have led the mixing technology for more than 50 years. Innovative detail solutions and numerous patents are proof of our competence in machine development.



Many processing techniques would not have been possible without the specific new features in mixing and control systems. The mixers' technical requirements are constantly redefined and adapted to the individual tasks in order to optimize our customers' products.

By choosing optional features, the Henschel-Mixers® and compounders can be tailored to the customers' production specifications.

The following features are only an excerpt of the options available. Please refer to the individual product descriptions for more details.

Safety features

- » Explosion protection according to ATEX
- » Nitrogen inerting
- » Oxygen measurement
- » Available as pressure or pressure containment vessel
- » Explosion suppression systems
- » Safety housing and light barrier systems

Cleaning and handling

- » Wall and lid scraper
- » CIP Systems
- » Non-stick coating for mixing tools
- » Aspiration systems
- » Mixer lid and discharge cylinder for easy access

Process optimizing

- » Drive variations
- » Modified mixing tools
- » Application-specific safety features
- » Vacuum equipment
- » Moisture measurement
- » Chopper

Wear protection

- » Mixing tools with wear protection
- » Tungsten carbide coated mixing bowl
- » Use of special steels
- » Ceramic coatings and linings
- » Air purged shaft seals

Control system

- » Fully automatic mixer controls
- » Program memory for various processing steps
- » Formula management, security control, quality control
- » Batch tracing



Twin-Screw Compounder



High Intensity Mixer FM/MB



Horizontal Mixer HM



Universal Cooler Mixer KM



Container Mixer CM

Laboratory Mixer FML

- » Universal use for mixing, coating, granulating and heating
- » Development of new applications and scale-up to the production machine

High Intensity Mixer FM/MB

- » Universal use for mixing, coating, granulating and heating
- » Also used for homogenizing and coloring

Universal Cooler Mixer KM

- » For cooling processes and homogenizing of bulk materials

Horizontal Mixer HM

- » Product cooling and mixing processes with high throughput rates in batch operation

Masterbatch Mixer MB

- » Friction mixer with water-cooled mixing tools for temperature-sensitive products

Container Mixer CM

- » Mixing system for a wide range of applications, with transport containers for optimized handling and minimal cleaning efforts

Continuous Turbo Mixer CTM

- » Continuous mixing and coating process with friction at a high throughput

Container Mixer Inliner CMI

- » Enhancement of the „Container Mixer“ concept into mixing within an inliner for outstanding mixing qualities and minimized maintenance

Horizontal HCE

- » Enhancement of the HM series
- » Higher throughput
- » Small size design
- » Optimized wear protection
- » Higher operating safety

Horizontal Mixer Food HMF

- » Designed to suit the specific requirements of the food industry
- » Easy cleaning, GMP compliant
- » Flexible tool kit with plough-shape or throwing paddle

Synchronized compounding.

Simple. Good.

The requirements for compounding systems keep getting more demanding. We provide the solutions. Our latest development of screw elements can compound even the most sensitive materials. Specific mixing elements designed to work with minimal shear forces enable a unique processing technique for gentle compounding of all types of thermoplastics and filler materials



These newly developed and patent pending screw elements are part of the RHC series co-rotating twin screw compounders. This system solution boosts even more innovations.

Large capacity screw elements with innovative configuration of heating cartridges ensure ideal process conditions. The machine base modular design and the standard construction of the heating-cooling system facilitate cleaning and reduce maintenance work considerably.

The secret of significantly reduced power consumption lies in the use of non-contacting running twin-screw side feeders. The new fastening modules also save time when exchanging the screws. The vacuum venting system can be positioned in various places and is another good example of our flexibility in meeting our customers' individual requirements.

To ensure perfectly gentle processing and to prevent damage to the materials, we mostly avoid using kneading elements in the process.

By combining our unique technology with innovative mechanical concepts, we can achieve highest product quality and still reduce power consumption considerably.

As an extension to the twin-screw compounders, we offer a single screw used as a discharge extruder, for example when compounding highly filled or very shear sensitive plastics. Using minimal space, its displacement of 8D process length provides continuous pressure build-up before granulation without temperature increase. Similar to the Henschel compounder RHC, effective heating performance through innovative heating cartridge configuration in combination with the efficient multi-stage cooling system keep the temperature level extremely stable during the entire compounding process.

Features you can rely on:

- » Superior product quality even with the most demanding materials and compounding tasks
- » Consistent process conditions with constant capacity even when reaching wear conditions
- » Minimum cost of operation and energy savings of up to 30%
- » High availability due to low wear technology
- » Safe investment as the system can be adjusted to future requirements
- » Highest flexibility in compounding with a wide range of formulations

Global Presence.

- » Belgium
- » Brasil
- » China
- » Germany
- » France
- » United Kingdom
- » India
- » Italy
- » Korea
- » Russia
- » Kingdom of Saudi Arabia
- » Singapore
- » Turkey
- » USA

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