

PART 1: LOG-IMM (log-imm.com)

1A. New Glossary Terms to Add (injection molding specific)

Your current glossary already covers injection unit, clamping unit, barrel, screw, nozzle, hopper, tie bars, platen, cycle time, shot size, clamping force, back pressure, recovery time, cushion, sprue, gate, runner, flash, ejector pins, cooling time, resin, thermoplastic, thermoset, sink marks, short shot, warping, burn marks, and jetting. Add the following so the page captures more long-tail search traffic.

Machine Specification Terms

- **Tonnage (Clamping Tonnage)** The rated clamping force of an injection molding machine, expressed in US tons or kilonewtons, that holds the mold closed against injection pressure. LOG machines range from 90 to 650 tons.
- **Tie Bar Distance (Tie Bar Spacing)** The clear horizontal and vertical space between the tie bars, which limits the maximum mold size the machine can accept.
- **Mold Daylight (Maximum Opening Daylight)** The maximum distance the platens open, determining how tall a molded part the machine can release.
- **Mold Height (Minimum and Maximum)** The range of mold thicknesses the clamp can accommodate between the platens.
- **Injection Pressure** The pressure applied by the screw to force molten resin into the mold cavity, measured in bar or psi.
- **Injection Rate (Injection Speed)** The volume or distance of plastic injected per unit of time, controlling fill behavior and surface finish.
- **Plasticizing Capacity** The maximum weight of resin the screw and barrel can melt per hour, usually rated in polystyrene.
- **Screw L/D Ratio** The ratio of screw length to screw diameter, which influences melt quality, mixing, and residence time.
- **Screw Diameter** The bore size of the screw, selected to balance shot size, plasticizing rate, and pressure for a given application.
- **Holding Pressure (Pack and Hold)** The pressure maintained after fill to compensate for shrinkage as the part cools.
- **Hold Time** The duration holding pressure is applied before the gate freezes off.
- **Dry Cycle Time** The machine's clamp open, close, and ejector cycle measured with no injection, used to compare base machine speed.
- **Clamp Stroke** The total travel distance of the moving platen during open and close.
- **Ejection Stroke and Force** The distance and pressure the ejector system uses to push parts off the core.

Servo and Drive Terms

- **Servo Motor Drive** A closed loop electric drive that powers the hydraulic pump only on demand, cutting energy use compared to a fixed displacement pump running continuously.

- **Servo Hydraulic System** The LOG S8 and S9 architecture that pairs hydraulic clamping force with servo controlled pump output for energy savings and precise repeatability.
- **Energy Consumption per Kilogram (kWh/kg)** The electricity used to process one kilogram of plastic, a key efficiency benchmark for servo versus standard hydraulic machines.
- **Variable Displacement Pump** A hydraulic pump that adjusts output to match demand, related to but distinct from servo pump control.
- **Closed Loop Control** Feedback based control of position, pressure, and speed that improves shot to shot consistency.
- **Repeatability (Shot to Shot Consistency)** The machine's ability to reproduce the same part dimensions across cycles, often expressed as a percentage variation.

Process and Quality Terms

- **Mold Cavity and Core** The two halves of the tooling that form the outside and inside surfaces of the part.
- **Number of Cavities (Cavitation)** The count of identical parts produced per cycle in a multi cavity mold.
- **Hot Runner System** A heated manifold that keeps resin molten in the runners, eliminating runner scrap.
- **Cold Runner System** An unheated runner that solidifies with the part and is trimmed or reground.
- **Regrind** Reprocessed scrap from sprues, runners, and rejects, blended back into virgin resin at a controlled ratio.
- **Melt Temperature** The actual temperature of the molten resin, distinct from the barrel set point.
- **Mold Temperature** The controlled surface temperature of the tooling, which affects cooling, finish, and warpage.
- **Residence Time** How long resin stays molten in the barrel, important for heat sensitive materials.
- **Venting** Small channels that let trapped air escape the cavity to prevent burns and short shots.
- **Draft Angle** The slight taper on part walls that allows clean ejection from the mold.
- **Gate Freeze Off** The point when the gate solidifies and no more material can pack into the cavity.
- **Weld Line (Knit Line)** A visible line where two melt flow fronts meet, often a strength weak point.
- **Delamination** Layer separation in a molded part, usually from contamination or incompatible materials.
- **Splay (Silver Streaking)** Surface streaks caused by moisture or gas in the melt.

Material Terms

- **Hygroscopic Resin** A material such as nylon, PET, or polycarbonate that absorbs moisture and must be dried before molding.

- **Melt Flow Index (MFI / MFR)** A measure of how easily a molten resin flows, guiding gate, runner, and pressure selection.
- **Shrinkage Rate** The percentage a part contracts as it cools, which must be designed into the mold.
- **Filler and Reinforcement** Additives such as glass fiber or talc that change strength, stiffness, and shrinkage.
- **Masterbatch** A concentrated color or additive carrier blended with natural resin during molding.

1B. Machine-Specific Terminology (S8 vs S9)

- **LOG S8 Series** A servo driven hydraulic injection molding platform built for energy efficient, precision general purpose molding across 90 to 650 tons.
- **LOG S9 Series** A high end servo precision platform aimed at tighter tolerance and higher performance molding across the same 90 to 650 ton range.
- **Tonnage Class** The clamping force rating that defines each model, for example LOG S8 250T or LOG S9 320T, where the number is the rated tons.

1C. New FAQs to Add (machine-level and platform-level)

Your current FAQ covers what an injection molding machine is, the leading USA manufacturer claim, servo versus hydraulic basics, industrial supply, advantages, how to choose, global support, and how to pick a dealer. Add the questions below.

S8 and S9 Platform Questions

What is the difference between the LOG S8 and S9 Series? Both are servo driven and span 90 to 650 tons. The S8 is the energy efficient general purpose platform for everyday production molding. The S9 is the higher end precision platform for applications that demand tighter tolerances and faster, more repeatable performance. The right choice depends on your part tolerances, cycle targets, and budget rather than tonnage alone.

How much energy does a LOG servo injection molding machine save? Servo systems power the hydraulic pump only on demand instead of running continuously, which can reduce electricity use significantly compared with a standard fixed pump hydraulic machine. Actual savings depend on cycle time, shot size, idle ratio, and how the machine is run. Energy use is best compared in kilowatt hours per kilogram of processed plastic.

What tonnage range does LOG offer? LOG offers both the S8 and S9 Series from 90 tons up to 650 tons, so most small to large part applications can be matched to a model without overspending on clamp force you do not need.

Tonnage and Sizing Questions

How do I calculate the clamping tonnage I need? A common starting method multiplies the projected part and runner area in square inches by a material specific factor, typically 2 to 5 tons per square inch, then adds a safety margin. Too little tonnage causes flash. Too much wastes energy and stresses the mold. Share your part footprint and resin and our team will help confirm the model.

What happens if I use too much or too little clamping force? Too little force lets the mold open slightly during injection, producing flash and dimensional problems. Too much force raises energy cost, accelerates tooling wear, and can damage delicate molds. Matching tonnage to the projected area and material is the goal.

Will my existing mold fit a LOG machine? Fit is determined by tie bar spacing, minimum and maximum mold height, platen size, and required daylight. Send your mold dimensions and we will confirm which S8 or S9 model accepts it.

Operation and Material Questions

What plastics can LOG injection molding machines process? The S8 and S9 process common thermoplastics including polypropylene, polyethylene, ABS, polystyrene, nylon, polycarbonate, and PET, along with filled and reinforced grades. Hygroscopic resins such as nylon, PET, and polycarbonate should be dried before molding.

Do I need to dry my resin before molding? Hygroscopic materials such as nylon, PET, PBT, and polycarbonate absorb moisture from the air and must be dried to the supplier's specification, or you risk splay, brittleness, and surface defects. Non hygroscopic resins such as polypropylene and polyethylene usually do not require drying.

What maintenance does a LOG injection molding machine need? Routine care includes checking and changing hydraulic oil and filters, inspecting the screw and barrel for wear, lubricating the toggle or tie bar areas, verifying clamp and ejector function, and keeping cooling lines clear. A consistent preventive maintenance schedule protects cycle time and part quality.

What is regrind and can I run it on a LOG machine? Regrind is reprocessed in house scrap such as sprues, runners, and rejected parts that is granulated and blended back with virgin resin at a controlled ratio. LOG machines run regrind blends well, and pairing a LOG molding machine with a ZERMA or Virtus granulator lets you reclaim scrap on site.

How long does an injection molding machine last? With proper maintenance, an industrial injection molding machine commonly delivers many years of productive service. Lifespan depends on duty cycle, materials processed, and maintenance discipline. Servo systems also tend to run cooler and quieter, which can support longevity.

Does LOG provide parts, service, and training for these machines? Yes. LOG supports the S8 and S9 with spare parts, certified field service engineers, operator and maintenance training, and processing assistance including mold trials and optimization for difficult resins.

PART 2: ZERMA AMERICA (zerma-america.com)

2A. New Glossary Terms to Add (size reduction specific)

Your current terminology page already covers cutting chamber, rotor, fixed blade, screen, hopper, shaft, drive system, feed rollers, grates, infeed and discharge conveyor, overload protection, flywheel, blade gap, hydraulic ram, cutting angle, counter knife, wear plate, cutter block, torque limiter, baffle plate, hydraulic power pack, bed knife, screen basket, pulley system, chipper rotor, claw cutter, reversible blades, material feed sensor, dust extraction, auto reverse, knife holder, edge hardening, and magnetic separator. Add the terms below to capture more granulator and shredder search intent.

Granulator-Specific Terms

- **Open Rotor** A granulator rotor with knives mounted on an open frame, giving good airflow and cooling for film and light bulky scrap.
- **Closed Rotor (Solid Rotor)** A heavy solid bodied rotor with high mass for thick walled parts, purgings, and heat sensitive materials.
- **Staggered Rotor** A rotor with knives offset along its length for a continuous scissor like cut, lower noise, and smoother feeding.
- **Segmented Rotor** A rotor built with replaceable knife segments to simplify maintenance and reduce wear cost.
- **Three Blade and Five Blade Rotor** Common rotor knife counts, where more blades give finer, more uniform regrind at the cost of throughput.
- **Cutting Circle Diameter** The diameter swept by the rotor knife tips, a primary indicator of granulator capacity.
- **Rotor Width** The working length of the rotor, which together with cutting circle sets throughput.
- **Tangential Feed (Tangential Hopper)** A feed geometry where material enters at an angle to the rotor, improving intake of long or bulky parts without a pusher.
- **Beside the Press Granulator** A compact granulator placed next to a molding machine to reclaim sprues and runners immediately.
- **Central Granulator** A larger granulator that serves multiple machines or a whole plant from one location.
- **Soundproofed Enclosure (Sound Dampening)** Acoustic housing and hoppers that lower operating noise for in plant placement.
- **Slow Speed Granulator** A low rpm, high torque granulator that produces less dust and noise and reduces fines.
- **Fines** Undersized dust like particles in the regrind that can hurt downstream processing and are minimized by slow speed cutting.

- **Bulk Density** The weight per unit volume of the regrind, which affects conveying and downstream feeding.

Shredder-Specific Terms

- **Single Shaft Shredder** A shredder with one cutting rotor working against fixed counter knives, fed by a hydraulic ram, used across most ZERMA shredder models.
- **Dual Shaft (Twin Shaft) Shredder** Two intermeshing shafts that grip and tear tough or bulky material with high torque at low speed.
- **Swing Ram (Two Speed Swing Ram)** A pivoting hydraulic pusher that feeds material into the rotor and reverses to clear jams, used on ZSS and ZXS designs.
- **Hydraulic Pusher System** The ram and power pack assembly that forces material against the rotor for consistent shredding.
- **Ram Cycle** The forward and reverse motion pattern of the pusher that maintains feed and prevents bridging.
- **Internal Volume (Cutting Chamber Volume)** The usable feed space above the rotor, larger on big volume models such as the ZIS for bulky parts.
- **Pre Cutting** A first stage size reduction step before granulating, often the role of a shredder in a two stage system.
- **Throughput (Capacity)** The weight of material a machine processes per hour, driven by rotor size, power, screen, and material type.
- **Output Particle Size** The final flake or chip size, set primarily by the screen perforation diameter.
- **Screen Perforation Size** The hole diameter in the discharge screen that controls maximum output particle size.
- **Knife Steel Grade** The tool steel used for blades, selected for hardness and wear resistance against abrasive or filled materials.
- **Rockwell Hardness (HRC)** The hardness rating of cutting knives, where higher values resist wear on abrasive feedstock.

System and Process Terms

- **Two Stage Size Reduction** A layout that shreds bulky material first, then granulates it to a uniform regrind size.
- **Shredder Granulator Combination** A single integrated unit that pre shreds and then granulates in one footprint, the ZCS concept.
- **Pulverizing (Pulverization)** Reducing plastic to a fine powder, typically for rotomolding or PVC, the role of the PM disc pulverizer.
- **Disc Pulverizer** A pulverizer using rotating and stationary grinding discs to produce powder from chips or flakes.
- **Conveying System** Belt or screw conveyors that feed material in and move regrind out of the size reduction line.
- **Air Separation (Cyclone Separation)** Using airflow and a cyclone to separate regrind from dust and convey it to storage.
- **Metal Separation (Metal Detection)** Magnets and detectors that remove ferrous and non ferrous metal to protect the rotor and screen.

- **Closed Loop Recycling** Reclaiming and reusing in house scrap on site to reduce virgin material purchases and waste.

2B. Machine-Specific Terminology (per ZERMA model)

Shredders

- **ZSS General Purpose Shredder** Single shaft shredder with a two speed swing ram for everyday plastics recycling of rejects, runners, and purgings.
- **ZCS Shredder Granulator Combination** A combined pre shredder and granulator in one machine for single pass size reduction.
- **ZBS Lump and Purge Shredder** A single shaft shredder with a tangential infeed that handles lumps and purge blocks without a hydraulic feed system.
- **ZIS Big Volume Shredder** A single shaft shredder with a large internal volume and redesigned pusher for bulky, low density material.
- **ZHS Horizontal Shredder** A single shaft shredder with an angled hydraulic ram suited to varied material shapes and sizes.
- **ZRS Pipe Profile Shredder** A single shaft shredder able to take large diameter pipe up to 1200 mm without pre cutting.
- **ZXS Heavy Duty Shredder** A heavy duty single shaft shredder with a two speed swing ram that resists blocking and guide rail wear.
- **ZXS-T Tire Recycling Shredder** A single shaft shredder configured for whole or pre shredded tires.

Granulators

- **GSL Slow Speed Granulator** A low speed, low noise, low dust granulator with a staggered rotor for clean regrind.
- **GSC Compact Soundproofed Granulator** A beside the press granulator with a full soundproof enclosure for quiet in plant operation.
- **GST Tangential Granulator** A compact soundproofed granulator with a tangential feed and sound dampening hoppers for bulky parts.
- **GSE Economical Granulator** A value central granulator with multiple rotor designs in 300 to 700 mm diameters and 300 to 1400 mm widths.
- **GSH Heavy Duty Granulator** A central granulator with a wide range of rotor and hopper options for demanding size reduction.
- **GSP Pipe and Profile Granulator** A granulator built for pipe and profile, with rotor widths up to 1400 mm and 560 to 700 mm diameters.
- **PM Plastics Pulverizer** A high speed disc pulverizer in 300 to 800 mm disc diameters that produces fine powder.

2C. New FAQs to Add (general plus machine-specific)

Your current FAQ already covers the role of machines in recycling, sorting methods, equipment lifespan, automation, innovations, how waste becomes new material, the purpose of shredders

and granulators, how they differ, materials handled, e waste, selection factors, how granulators help plastic recycling, dual shaft shredders, maintenance, safety features, and particle size effects. Add the questions below.

Shredder vs Granulator Selection

Do I need a shredder, a granulator, or both? Use a shredder to break down bulky, thick, or tough material such as purge blocks, pipe, lumps, and large parts. Use a granulator to produce uniform regrind flake ready for reprocessing. For bulky feedstock that must end up as clean regrind, a two stage system or a ZCS shredder granulator combination does both.

What is the difference between an open rotor and a closed rotor granulator? An open rotor has knives on an open frame for good airflow, which suits film and light bulky scrap. A closed or solid rotor has high mass that suits thick walled parts, purgings, and heat sensitive materials where a cooler, steadier cut matters.

What is a slow speed granulator and when should I use one? A slow speed granulator runs at low rpm with high torque to cut with less noise, less dust, and fewer fines. It is a strong choice near molding machines, for noise sensitive plants, and where clean low fines regrind is important.

Sizing and Output

How do I choose the right output particle size? Output size is set mainly by the discharge screen perforation diameter. Smaller holes give finer, more uniform regrind but lower throughput. Larger holes increase throughput with a coarser flake. Match the screen to what your downstream extruder or molding process needs.

How is shredder and granulator throughput determined? Throughput depends on rotor diameter and width, drive power, screen size, knife configuration, and the material itself. Bulk density, hardness, and shape all change the rate. Share your material and target volume and we will size the machine.

What size machine do I need for my volume? The right model balances your hourly volume, material type, part size, and available space. ZERMA spans beside the press granulators up to big volume shredders, so the line can be matched to anything from a single press to a full plant. Use the recycling application worksheet to start.

Material-Specific Questions

Can ZERMA machines shred plastic pipe without pre cutting? Yes. The ZRS Pipe Profile Shredder is designed to take large diameter pipe up to 1200 mm directly, removing the manual pre cutting step that many systems require.

Can I recycle tires with a ZERMA shredder? Yes. The ZXS-T Tire Recycling Shredder is configured to process whole or pre shredded tires as a single shaft heavy duty machine.

What materials can ZERMA machines process? ZERMA equipment handles injection molding scrap, extrusion and blow molding rejects, runners, sprues, purgings, pipe, profiles, film, fiber, bottles, buckets, tubs, containers, drums, and IBCs, plus rubber and wood on the appropriate models.

How do I reclaim and reuse my own scrap on site? Pair a granulator or shredder with your molding or extrusion line to granulate runners, sprues, and rejects into regrind, then blend that regrind back with virgin resin. This closed loop approach cuts virgin material spend and landfill waste.

Maintenance and Wear Parts

How often do shredder and granulator knives need sharpening or replacement? Knife life depends on material abrasiveness, contamination, throughput, and knife steel grade. Reversible blades extend life by allowing a second cutting edge. A regular inspection schedule, correct blade gap, and metal separation upstream all extend knife life.

What spare and wear parts should I keep on hand? Common wear items include rotor and fixed knives, screens, wear plates, bearings, belts, and seals. Keeping critical wear parts in stock reduces downtime. ZERMA spare parts are available directly through the online store.

How do I keep regrind quality consistent? Consistent regrind comes from sharp knives, a correctly set blade gap, the right screen for your target size, clean infeed free of metal and contamination, and a slow speed rotor where fines must be minimized.

PART 3: VIRTUS EQUIPMENT (virtus-equipment.com)

Note: the live homepage currently shows placeholder Lorem ipsum text under each series and only three FAQ entries. The content below gives you real series descriptions, a full terminology set, and an expanded FAQ. Virtus uses letter series names that correspond to the ZERMA models, so the term and FAQ logic from Part 2 applies, rewritten here as unique Virtus copy to avoid duplicate content penalties between the two sites.

3A. Series Descriptions to Replace Lorem Ipsum

Shredders

- **G Series General Purpose Industrial Shredder** A single shaft shredder for everyday plastics size reduction of rejects, runners, and purgings, fed by a two speed swing ram for steady intake.

- **SG Series Shredder Granulator Combination** A single machine that pre shreds bulky feedstock and granulates it to uniform regrind in one pass and one footprint.
- **L Series Plastics Lump and Purge Shredder** A single shaft shredder with tangential infeed that takes lumps and purge blocks without a separate hydraulic feed system.
- **P Series Pipe Profile Industrial Shredder** A single shaft shredder built to process large diameter pipe and profile without manual pre cutting.
- **T Series Industrial Tire Recycling Shredder** A heavy duty single shaft shredder configured for whole or pre shredded tires.
- **V Series Big Volume Industrial Shredder** A single shaft shredder with a large cutting chamber and high capacity pusher for bulky, low density material.
- **VHS Series Industrial Horizontal Shredder** A single shaft shredder with an angled hydraulic ram suited to a wide variety of material shapes and sizes.
- **X Series Heavy Duty Industrial Shredder** A heavy duty single shaft shredder with a two speed swing ram that resists blocking and internal guide rail wear.

Granulators

- **A Series Slow Speed Plastics Granulator** A low speed, high torque granulator that cuts with less noise, less dust, and fewer fines for clean regrind.
- **C Series Compact Soundproofed Granulator** A beside the press granulator with a full acoustic enclosure for quiet operation next to molding machines.
- **C Series Tangential Granulator** A compact soundproofed granulator with tangential feed and sound dampening hoppers for bulky parts.
- **E Series Economical Plastics Granulator** A value central granulator offered in multiple rotor designs and a range of diameters and widths.
- **H Series Heavy Duty Granulator** A central granulator with a wide selection of rotor and hopper options for demanding applications.
- **P Series Pipe and Profile Granulator** A granulator engineered for pipe and profile scrap with wide rotor options.
- **PM Series Plastics Pulverizer** A high speed disc pulverizer that reduces flake or chip into fine powder for rotomolding and PVC applications.

3B. Terminology Page Content (new page or section)

Virtus does not appear to have a dedicated terminology page yet. Use the size reduction glossary below, which mirrors the technical depth of the ZERMA page but is written as unique Virtus copy.

Core Components

- **Cutting Chamber** The enclosed space where the rotor and fixed knives meet and reduce material.
- **Rotor** The rotating shaft and knife assembly that does the cutting, available in open, closed, or staggered designs.
- **Rotor Knives (Fly Knives)** The moving blades mounted on the rotor that shear material against the fixed knives.

- **Fixed Knives (Bed Knives)** The stationary blades the rotor cuts against to create the shearing action.
- **Blade Gap** The precise clearance between rotor and fixed knives that controls cut quality and particle size.
- **Screen** The perforated plate beneath the rotor that holds material in the cut zone until it is small enough to pass through.
- **Screen Perforation Size** The hole diameter that sets the maximum output particle size.
- **Hopper** The intake opening that guides material into the cutting chamber.
- **Hydraulic Ram (Pusher)** The powered ram that forces bulky material against the rotor in single shaft shredders.
- **Swing Ram** A pivoting two speed pusher that feeds material and reverses to clear jams.
- **Drive System** The motor, belts, and pulleys or direct drive that turn the rotor.
- **Flywheel** The rotating mass that smooths cutting energy for steadier operation.

Process and Output

- **Single Shaft Shredder** One cutting rotor working against fixed counter knives, ram fed, used across most Virtus shredders.
- **Dual Shaft Shredder** Two intermeshing shafts that tear tough or bulky material at high torque and low speed.
- **Granulation** Reducing material to uniform flake suitable for reprocessing.
- **Pulverization** Reducing flake or chip to a fine powder.
- **Regrind** Granulated scrap blended back with virgin resin at a controlled ratio.
- **Fines** Undersized dust like particles, minimized by slow speed cutting and correct screening.
- **Throughput** The weight processed per hour, set by rotor size, power, screen, knives, and material.
- **Output Particle Size** The final flake or chip dimension, controlled by the screen.
- **Two Stage Size Reduction** Shredding bulky material first, then granulating it to uniform regrind.
- **Closed Loop Recycling** Reclaiming and reusing in house scrap on site to cut virgin material purchases.

Wear and Maintenance

- **Wear Plate** A replaceable liner that protects the chamber from abrasion.
- **Reversible Blades** Knives usable on two edges to extend service life.
- **Knife Steel Grade and Hardness (HRC)** The tool steel and Rockwell hardness selected to resist wear on abrasive or filled material.
- **Overload Protection** A control that stops the machine if it is overfed to prevent damage.
- **Auto Reverse** A function that reverses the rotor to clear a jam automatically.
- **Metal Separation** Magnets and detectors that remove metal before it reaches the rotor.

3C. FAQ Page Expansion

The homepage currently shows only three FAQ answers. Add a full FAQ section or page with the questions below, written as unique Virtus copy.

What is the purpose of shredders and granulators in recycling? They reduce the size of waste material so it can be sorted, cleaned, and reprocessed. Shredders break down bulky or tough feedstock into manageable pieces, and granulators turn that material into uniform flake that can be melted and reformed.

How do shredders and granulators differ? Shredders produce larger pieces and excel at bulky, thick, or tough material using high torque at low speed. Granulators produce smaller, uniform flake that is ready to feed back into manufacturing. Many plants use both in sequence.

What materials can Virtus machines process? Virtus equipment handles injection molding and extrusion scrap, runners, sprues, purgings, rejected parts, pipe, profiles, film, fiber, bottles, buckets, tubs, containers, drums, and IBCs, with tire and heavy duty models for tougher feedstock.

Do I need a shredder, a granulator, or both? For bulky, thick, or tough material, start with a shredder. For uniform regrind ready to reprocess, use a granulator. To go from bulky scrap straight to clean regrind in one pass, the SG Series shredder granulator combination does both.

How do I choose the right machine for my operation? Match the model to your material type, part size, hourly volume, target output size, and floor space. Virtus spans beside the press granulators up to big volume shredders, so the line scales from a single press to a full plant. Our team can size it from a short application questionnaire.

What determines the output particle size? The discharge screen perforation diameter is the main control. Smaller holes give finer, more uniform regrind at lower throughput. Larger holes raise throughput with coarser flake. The screen is matched to your downstream process.

How is throughput calculated? Throughput depends on rotor diameter and width, drive power, screen size, knife setup, and the material's hardness, shape, and bulk density. Share your material and target volume for an accurate recommendation.

Can Virtus machines shred plastic pipe or profile? Yes. The P Series Pipe Profile Industrial Shredder is built to take large diameter pipe and profile without manual pre cutting.

Can I recycle tires with Virtus equipment? Yes. The T Series Industrial Tire Recycling Shredder is configured for whole or pre shredded tires.

What maintenance do these machines need? Routine care includes inspecting and rotating or replacing knives, setting the correct blade gap, checking screens and wear plates, monitoring belts and bearings, and keeping metal out of the infeed. A regular schedule protects throughput and regrind quality.

What wear parts should I keep in stock? Common items are rotor and fixed knives, screens, wear plates, bearings, belts, and seals. Stocking critical wear parts reduces downtime. Parts can be ordered directly through the online store.

How long does industrial recycling equipment last? With proper maintenance and correct sizing for the material, these machines deliver many years of service. Lifespan depends on duty cycle, material abrasiveness, and maintenance discipline.

What safety features are included? Typical features include emergency stop controls, interlocked guards and hoppers, overload protection, and auto reverse to clear jams, all aimed at protecting the operator and the machine.

How can recycling equipment reduce my material costs? Reclaiming runners, sprues, and rejects on site as regrind reduces how much virgin resin you buy and how much scrap you pay to dispose of, which improves both cost and sustainability.

IMPLEMENTATION NOTES

1. **Avoid duplicate content between ZERMA and Virtus.** The two catalogs are the same machines under different names. The copy above is deliberately reworded for each site. Do not paste ZERMA text onto Virtus or the reverse, since near identical pages on two domains can dilute rankings.
2. **Add FAQ schema markup.** For every FAQ section, wrap the questions and answers in FAQPage structured data (JSON-LD) so they are eligible for rich results in search. This is one of the highest value SEO moves for these pages.
3. **Internal linking.** In each new glossary term and FAQ answer, link to the relevant machine page where natural, for example link "slow speed granulator" to the GSL or A Series page. This spreads ranking signal and helps users navigate.
4. **Target long-tail keywords.** The new terms and questions are built around phrases people actually search, such as "how to calculate clamping tonnage," "open rotor vs closed rotor granulator," "shred plastic pipe without pre cutting," and "slow speed granulator fines." Keep that question based phrasing.
5. **Keep one canonical source per concept.** Since LOG, ZERMA, and Virtus share an umbrella, decide which site owns which topic so you are not competing against yourself. Injection molding terms belong on LOG. Size reduction terms split between ZERMA and Virtus with reworded copy.