

BARMAG

Extrusion Pumps

Gear metering pump solutions for
polymer processing applications



Barmag Is One of the Leading Gear Metering Pumps Manufacturers of the World

Since 1922, Barmag gear metering pumps have been used worldwide as process engineering components in applications involving chemicals, plastics, paints and dyes as well as PUR. The company's gear metering pumps portfolio was expanded with extrusion pumps in 1975. Today, Barmag extrusion pumps are frequently used in both extrusion systems within the plastics processing industry as well as in polymer plants. Customers benefit from tailor-made solutions and comprehensive consultation.

Why Polymer Processing With Us?

- The process** From discharge, extrusion and spinning pumps all the way through to spin-finish pumps, our customers benefit from the latest metering and conveying technology allowing them to compete successfully within the global market.
- The concept** Leading technology, tailor-made gear metering pumps and customized project design, efficient and easy solutions for an economical operation.
- The benefit** Comprehensive competence and decades of experience, extreme durability and reliability, state-of-the-art technologies, solutions provider for special applications, customer proximity as a result of global network.

Polymer Extrusion Applications

Barmag extrusion pumps are used in applications such as:

- Manmade Fibers
- Pipe Extrusion
- Granulation
- Film Extrusion
- Profile Extrusion
- Recycling Lines
- Sheet Extrusion
- Compounding

For materials such as:

- Acrylic
- Lyocell PE
- Cellulosic
- Hot Melt
- Adhesive
- PE
- PC
- PMMA
- PS
- PB
- PP
- PA
- PET
- PBT
- PUR
- PVA
- ABS
- SAN
- PVB
- TPE
- TPU
- Other polymers upon request

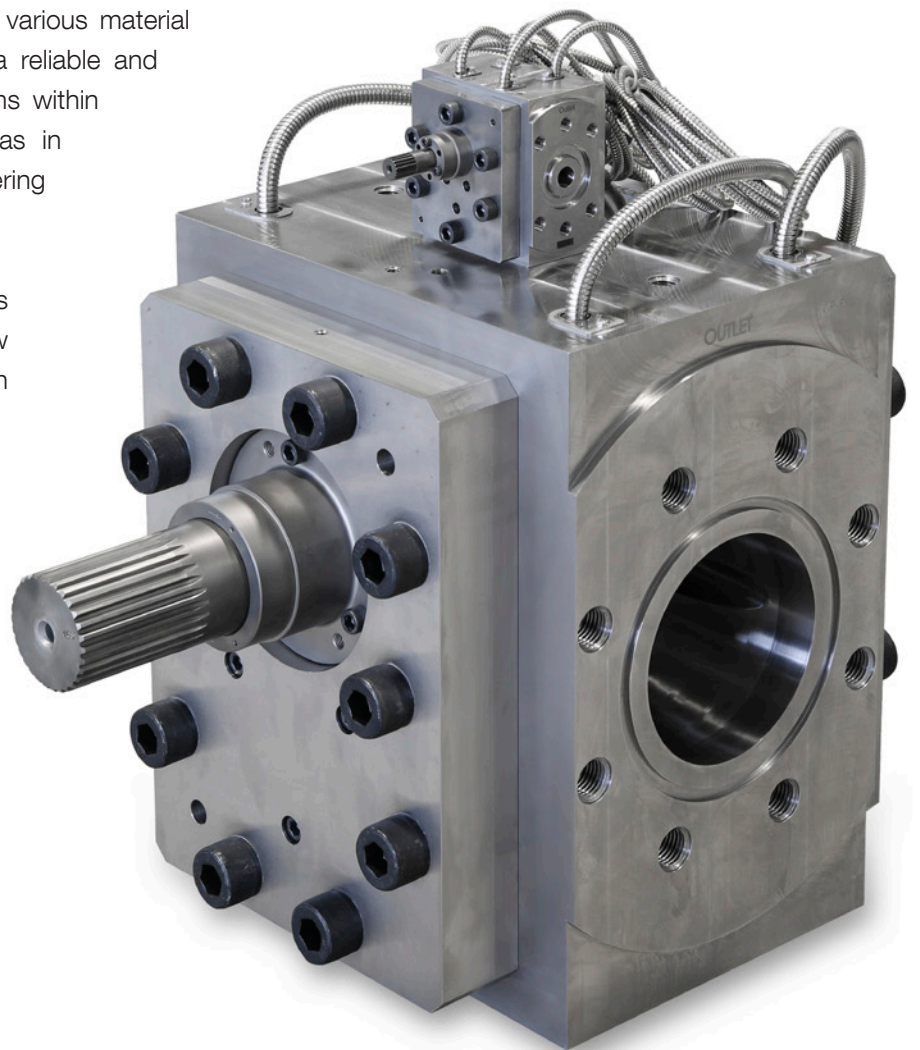
Our Advanced Pump Solutions for Your Polymer Processing Applications

Barmag extrusion pumps allow throughput increases in existing systems. Pressure fluctuations are compensated, thus reducing wear on the extruder.

Ever smaller product tolerances characterize the development, i.e. for capacitor foils, packaging films, high-end monofilaments, drawn tapes, gas pipes, window profiles, etc. Our extrusion pumps optimize the polymer processing process allowing for precise pressure build-up and metering of polymer in extrusion lines. The use of extrusion pumps is particularly advantageous wherever recycled materials are processed.

Extruders are relieved and are therefore subject to less wear-and-tear. Extrusion pumps offset the impact of various material viscosities. Barmag extrusion pumps are a reliable and durable solution for many extrusion systems within the plastics processing industry as well as in polymer plants for throughput increase, metering and compensation of pressure fluctuations.

The use of gear metering pumps turns conventional single-screw and twin-screw extruders into extrusion systems with optimized metering accuracy, a wider operation window and increased cost-effectiveness.



Barmag Extrusion Pumps

Barmag offers a comprehensive extrusion pumps portfolio from a single source with capacities ranging between 4,7 and 12 800 cc/rev.

GC Series

Standard extrusion pumps



- Maximized uniformity of volumetric flow rate.
- High volumetric efficiency due to maximized sealing area at the gearing.

GE Series

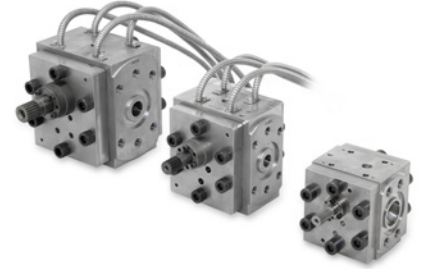
High speed extrusion pumps



- Improved gear design with minimized friction surfaces result in lower melt temperature increase and less energy consumption compared to the GC series.
- Smaller GE Series pumps can be used while maintaining the same throughput as similar GC Series pumps.

GE1M Series

Extrusion pumps for easy interchangeability



- Easy interchangeability and compatibility for various extrusion lines thanks to common industry gear metering pumps design and with all the technical advantages of the GE series.
- Gear metering pumps design with heating cartridges.

Technical data

- Viscosity up to 100 000 Pas
- Temperature up to 300 °C (up to 400 °C as special design option)
- Inlet pressure up to 100 bar
- Outlet pressure up to 350 bar (even higher for special design option)
- Capacities ranging between 4,7 and 12 800 cc/rev

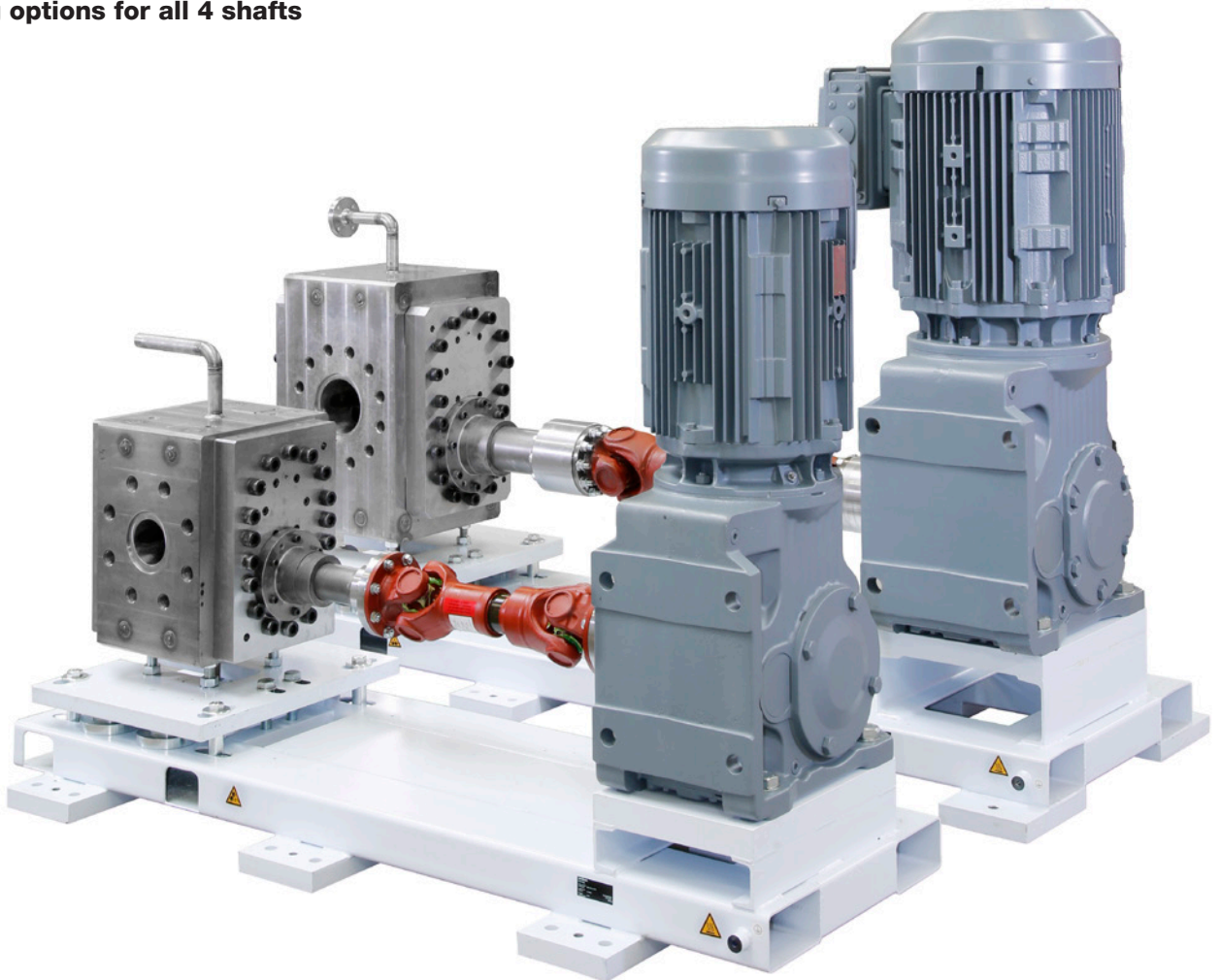
Make Your Choice – These Are Our Options for You

Design options

- **Housing / plates:** Carbon steel, alloy steel, stainless steel, tool steel | wear protection coating
- **Pinion shaft / pinion:** Carbon steel, alloy steel, tool steel, ceramics | wear protection coating | spur and helical gears
- **Bearings:** Carbon steel, alloy steel, stainless steel, tool steel, ceramics | wear protection coating
- **Sealing:** Thread sealing (cooled / uncooled) | stuffing box | double mechanical seal | PolyVac
- **Heating:** Electrical (cartridge / heating plates) | liquid

Additional options

- **Pressure and temperature sensor in housing**
- **Flanges**
- **Mechanical support for pumps**
- **Individually designed drive unit**
- **Terminal box**
- **ATEX Zone 2**
- **Sealing options for all 4 shafts**

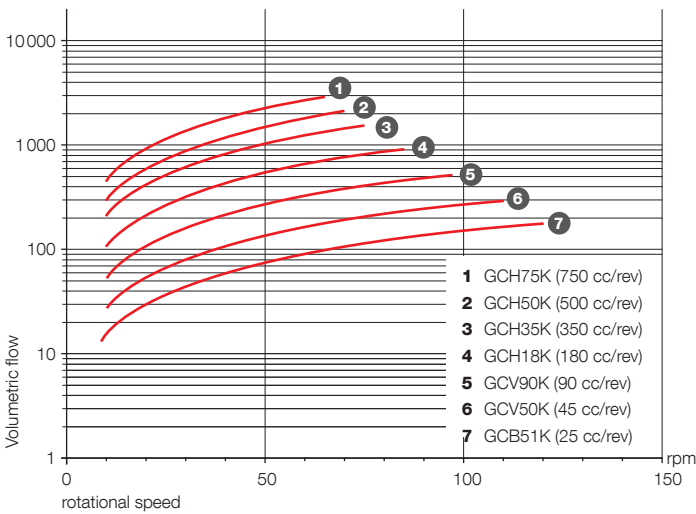


Comparison

The following charts illustrate the volumetric flow as a function of rotational speed for various pump sizes (capacities) within each pump series (GE1M Series, GE Series, GC Series).

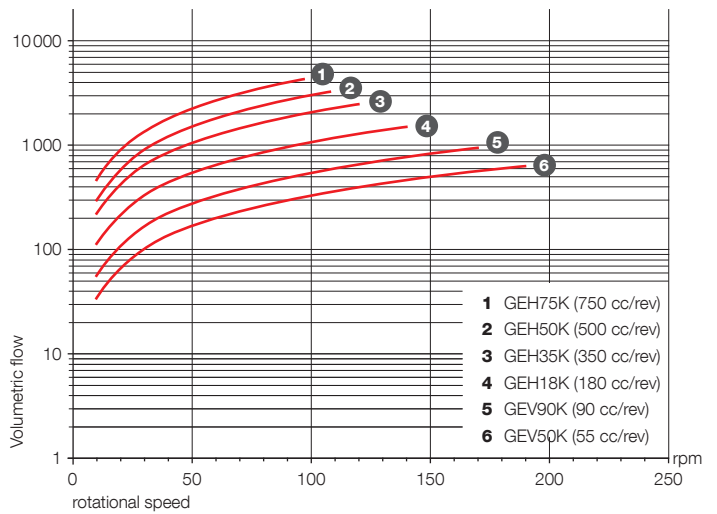
GC Series

Standard extrusion pumps



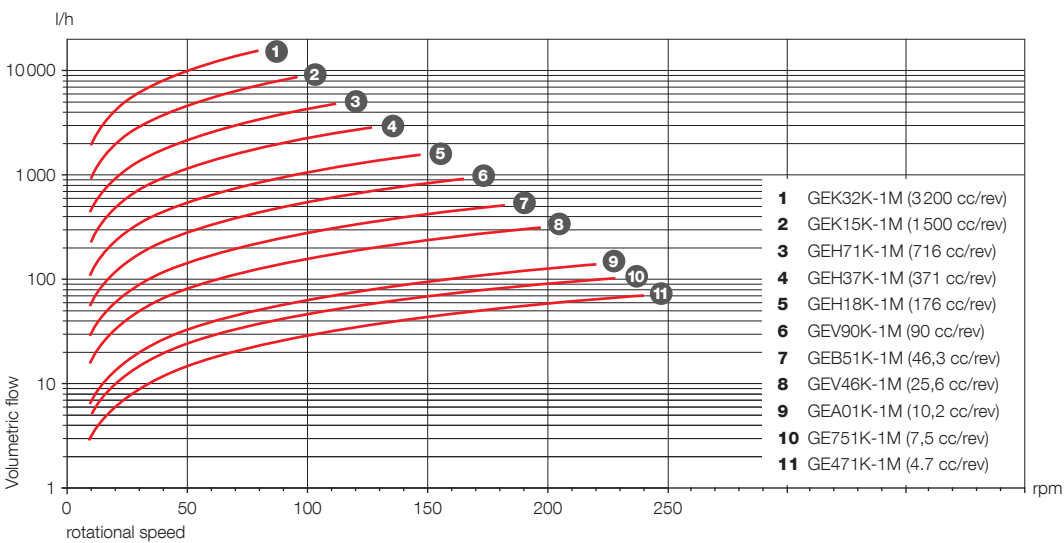
GE Series

High speed extrusion pumps



GE1M Series

Extrusion pumps for easyinterchangeability

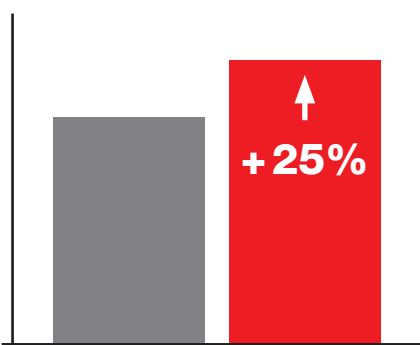


Pump size and specifications are designed accordingly depending on processes material and operation conditions.

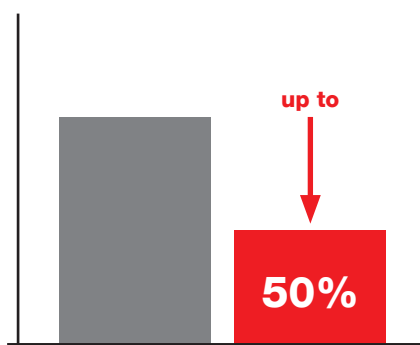
We Offer Extraordinary Benefits for Your Production

- **High volumetric efficiency:** Our solutions ensure a reduction of pressure fluctuations to as little as 1/10 of the original pressure fluctuations upstream of the gear metering pumps.
- **Improved performance:** A gear metering pump is a common technology to decrease the discharge pressure from the extruder and therefore increasing the specific rate.
- **Increase of extrusion throughput:** Without any risk being incurred because of fluctuations in the operational parameters. Therefore, increase in productivity by up to 25%. (Diagram 1)
- **Up to 50% waste reduction as well as higher utilization of plant capacity:** The start-up time until stable production or the changeover time to a different batch can be reduced. This time saving results from fast, reproducible settings and from the constant throughput with our gear metering pumps. (Diagram 2)
- **Reduction in material costs by up to 30%:** A high proportion of recycled material can be processed which would otherwise result in reduced product quality because of viscosity fluctuations and inaccurate throughput in the extruder. (Diagram 3)
- **Low-shear production and therefore enhanced quality in the finished product:** Polymer shear in the extruder can be reduced, and the extruder is subjected to far lower mechanical stresses than without a gear pump.
- **The special geometry of the melt inlet and outlet areas:** This ensures both optimal filling of the gears while eliminating potential dead zones and also minimizing radial strain on the pinion shafts.
- **The teeth:** The straight teeth with an optimized tooth-base ensure low-pulsation and low-wear operation as well as a high level of efficiency and hence lower power consumption (helical gear option available upon request).
- **The drive shaft seal:** The polymer seal (reverse thread in the seal bushing) offers high accessibility and low maintenance costs. It is also available in a coolable design. Alternatively, a stuffing box seal is the preferred solution for low melt viscosities (other design options available upon request).
- **The steel quality:** Using proven and tested special steel qualities considerably extends the service life of Barmag extrusion pumps.

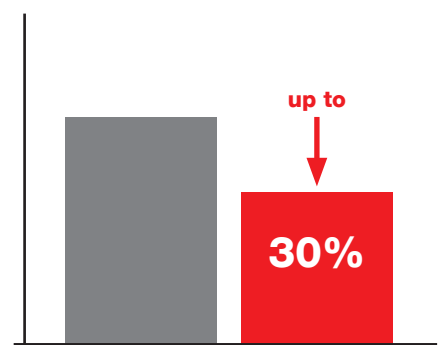
1. Increase of productivity



2. Reduction of waste



3. Reduction in material costs



■ without extrusion pumps ■ with Barmag extrusion pumps

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