

**ARBUG**<sup>®</sup>  
INDUSTRY

Arbug MGP  
Melt Gear Pump Series



Arbug MGP

# Melt Gear Pump Series

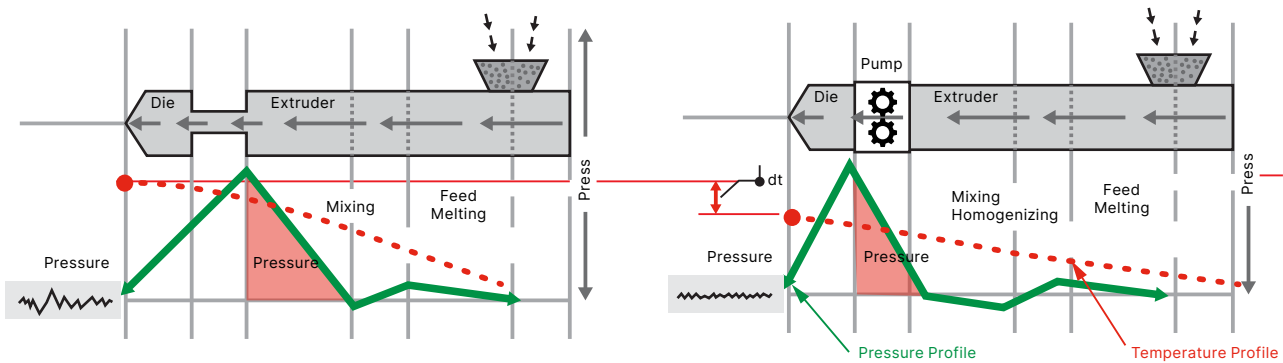
Enhance the homogeneity of your polymers and prevent accumulation and wear in your screws with the Arbug MGP series. Stand out in quality with its high geometric design and specialized distribution element design.

Add a seamless flow to your extruder lines with the reliable and high-quality partner, Arbug MGP pump series, and bring a new dimension to efficiency!

## What is a Melt Gear Pump and How Does It Work?

A Melt Gear Pump is a high-performance device that continuously transfers polymer melt

- /// It provides an excellent output volume at each revolution with two synchronized gears and a precision housing.
- /// Pump shafts are automatically lubricated with the melt flow inside the pump.
- /// Gear teeth easily transfer different types of melts by creating high pressure.



The Arbug MGP Pump series are special pumps used in the extrusion process. These pumps provide the necessary pressure for the distribution of molten thermoplastic material within the mold. Therefore, they reduce the pressure load on the extruder and enhance its efficiency.

The Arbug MGP Pump series is placed between the extruder and the mold (Die). The pressure at the inlet of the gear pump is equal to the screw output pressure of the extruder. The pressure at the outlet of the gear pump matches the pressure required by the mold (Die). If an extruder without a gear pump provides this pressure, it consumes a significant amount of energy and increases the temperature of the molten plastic material. This can lead to thermal degradation of the material and the acquisition of undesirable properties.

However, if the gear pump provides a portion of this pressure, the extruder consumes less energy and reduces the melt temperature of the plastic material, ultimately aiding in better preservation of material quality.

In conclusion, the role of gear pumps in extrusion processes is crucial for both improving energy efficiency and preserving the quality of the produced material.

## Criteria to Consider in the Selection of Melt Gear Pumps

- /// Flow Rate (minimum, maximum, normal)
- /// Inlet and Outlet Pressures (minimum, maximum, normal)
- /// Polymer Type and Viscosity (e.g., PP, PET, ABS, PS, HDPE, etc.)
- /// Temperature (minimum, maximum, normal)
- /// Filler Content (percentage and type of filler materials/solids)

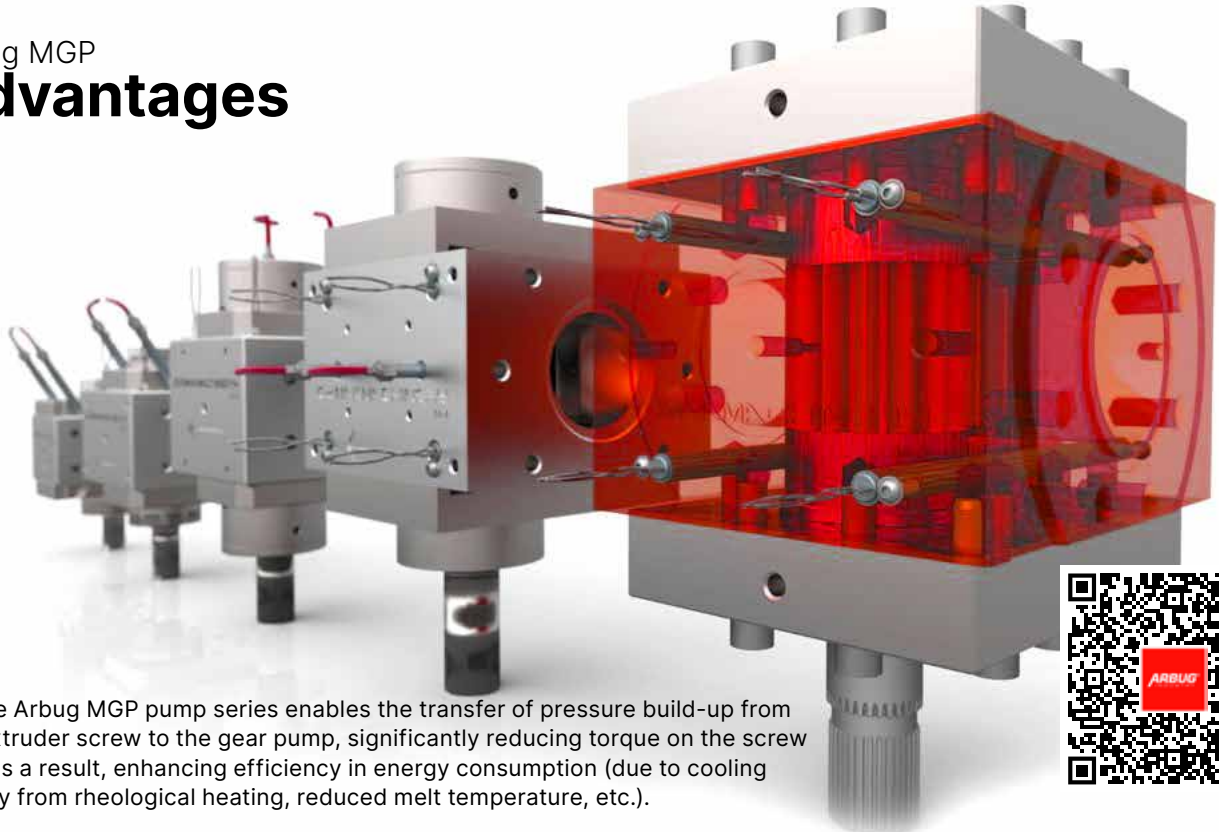
### Extrusion Mode

Pump inlet pressure is measured with a pressure sensor. The melt pump control compares the set pressure with the actual pressure and then adjusts the extruder screw speed.

### Compound Mode

Pump inlet pressure is measured with a pressure sensor. The melt pump control compares the set pressure with the actual pressure and then adjusts the melt gear pump speed.

# Arbug MGP Advantages



/// The Arbug MGP pump series enables the transfer of pressure build-up from the extruder screw to the gear pump, significantly reducing torque on the screw and, as a result, enhancing efficiency in energy consumption (due to cooling energy from rheological heating, reduced melt temperature, etc.).

/// The Arbug MGP pump series optimizes the performance of production facilities by mitigating pressure build-up in the extruder during the extrusion process, improving the quality of the final product with lower melt temperatures, and providing lower operational costs.

/// The Arbug MGP pump series reduces mechanical stress on the extruder by maintaining melt pressure. This prevents wear on critical components such as bearings, screws, and the grooved feeding section, extending the service life of the extruder and screw.

/// The Arbug MGP pump series simplifies the operator interface.

/// Easy start-up and closed-loop (PID) controls make extruder start-up and control processes easy to perform.

/// The Arbug Engineering team offers expert services for extrusion lines without melt gear pump applications, including on-site exploration, line synchronization, electrical connection, measurement revision, line height adjustment, remote access, and software updates, along with MGP melt gear pump training.

/// The length of the path between the melt gear pump's inlet and outlet is short. Additionally, the gear's geometric designs help reduce polymer heat generation. These factors indicate that the heat generated by the gear pump is lower compared to screw extruders that continuously generate heat in the screw channel, reducing the amount of viscous heating and shear heating in the polymer.

### Applications of the Arbug MGP Pump Series include:

Plastic sheet production, Mono-filament (brush bristles, etc.), Compound, Nonwoven fabric, Edgebanding, Lamination applications, Composite sheet, Cast lines, Cable and Pipe extrusion, etc.

## Arbug MGP Parameters and Specifications

Viscosite (Pa-S)	Temperatur (°C)	Inlet Pressure (Bar)	Output Pressure (Bar)	Differential Pressure (Bar)	Rotation Speed (Rpm)	Capacity (Kg/s)
30.000 As wide	350	120 (Max.)	350 (Max.)	250 (Max.)	73	150 - 5000

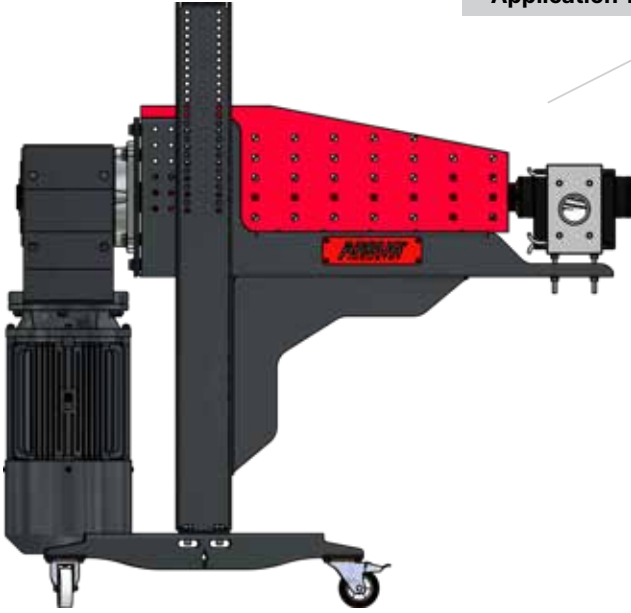
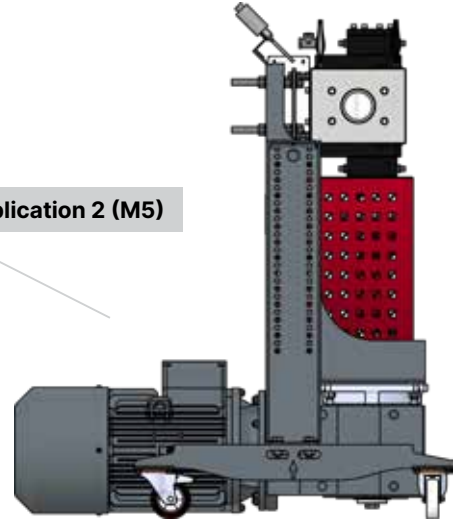
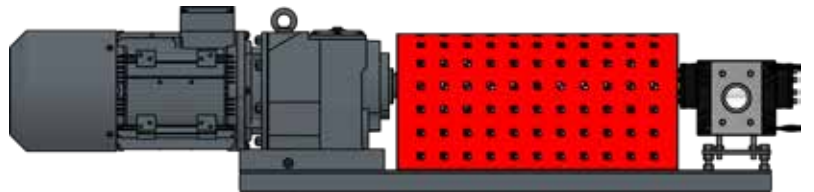
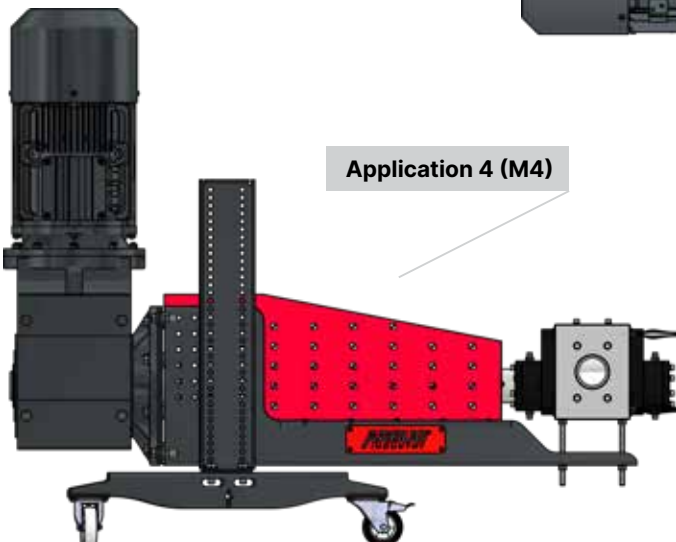
Operation Mode	Pump Drive (kW)	Electric Heat Zone	Screen	Language	Electric Panel Dimensions (mm)	Communication
Compound Mode Extruder Mode	5,5 - 35	1 Piece Pump Body 2 Adapter Zones	7" Touchscreen Panel	Multi-Language	400×600×1080	Profinet Mod-Bus TcpIP

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# Melt Gear Pumps

It is a system that offers optional mounting combinations on extruders of different brands.

The Arbug Engineering team provides services with its expert staff for extrusion lines that do not have melt gear pump applications, including on-site exploration, line synchronization, electrical connections, measurement revisions, line height adjustments, remote access, software updates, and molten gear pump training.

**Application 1 (M2)****Application 2 (M5)****Application 3 (M1)****Application 4 (M4)**

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