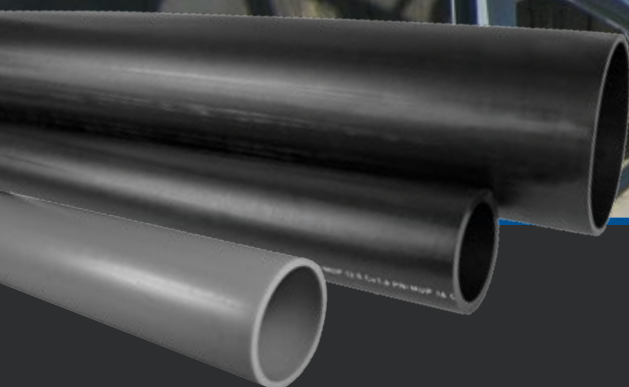


INDUSTRIAL

PIPING SYSTEMS FOR
INDUSTRIAL APPLICATIONS



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PIPING SYSTEMS FOR INDUSTRIAL APPLICATIONS



The Plastics Experts.

AGRU Kunststofftechnik GmbH is a family-owned, highly productive enterprise, headquartered in Austria with worldwide activities in production and sales of high-quality thermoplastic polymer products. The product group Industrial Piping Systems offers a wide range of pipes, fittings, valves and special components for the transport of aggressive media. In order to cover the various operating conditions in industrial applications, a range of materials such as PE, PP, PVDF and ECTFE are offered. Beside the variety of piping materials, a wide choice of piping products enables the construction of pipelines in a wide range of dimensions and flow rates. Especially for the transport of aggressive and acidic media, the excellent properties of plastic piping systems ensure high durability for many years and offer the user a sustainable solution.

The installation of Industrial Piping Systems can be performed by means of established welding technologies such as heating element butt, heating element socket, infrared and electrofusion welding. Accessories simplify the assembling - welding machines complete the extensive supply programme of AGRU.



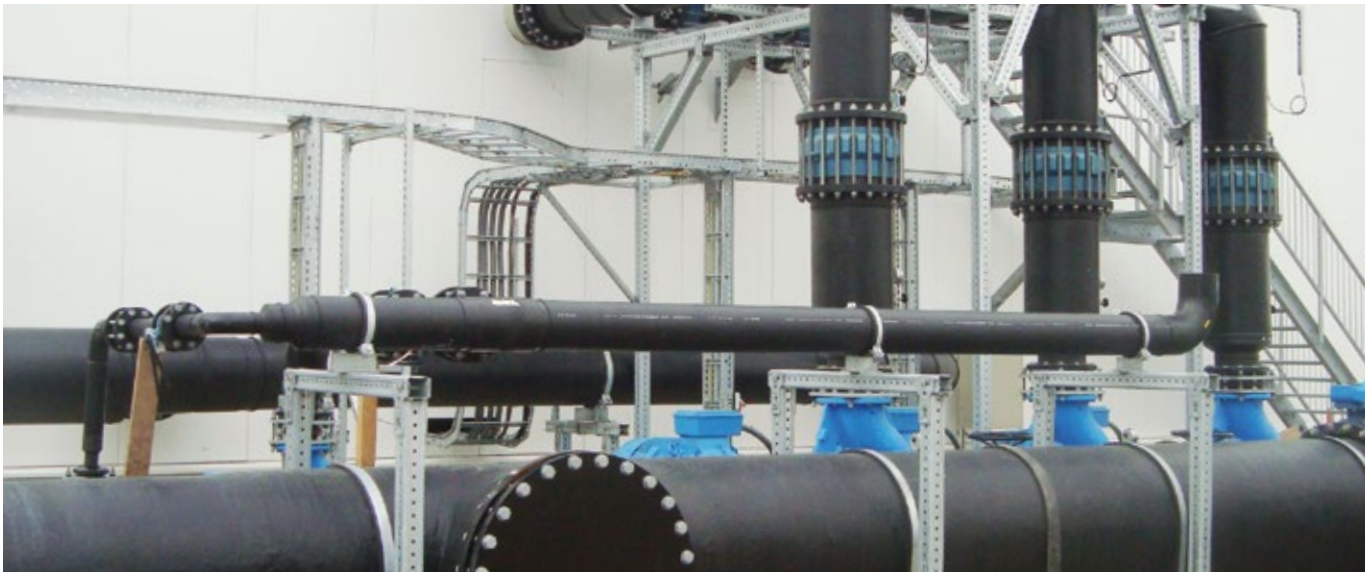
Quality

AGRU operates a quality management system according to ISO 9001:2008, as well as ISO 14001:2004. AGRU products comply with the requirements of international standards. Continuous third party inspections confirm the high quality standard.



ISO 14001:2004





High-grade piping systems made of plastic

Polyethylene and polypropylene are very important materials for industrial piping systems. The high chemical resistance, the large temperature range and the easy installation are only a few essential advantages of this system.

Applications

- Cooling water piping systems
- Pressure piping in processing plants
- Pressure piping systems for the transport of aggressive media
- Piping systems for the transport of contaminated waste water
- Exhaust and waste gas piping systems
- Piping systems for apparatus and tank building industry



SUPPLY RANGE (available up to MOP 16 bar)

| Product | Dimension |
|--------------------------------------|--------------------|
| Pipes | OD 10 mm - 2500 mm |
| Fittings, injection moulded | OD 20 mm - 630 mm |
| Fittings, segmented | up to OD 2400 mm |
| Electrofusion couplers | OD 20 mm - 1400 mm |
| Socket welding fittings | OD 20 mm - 110 mm |
| Valves, accessories | OD 20 mm - 225 mm |
| Flanges & gaskets (DIN / ANSI / JIS) | OD 20 mm - 630 mm |
| Welding machines & assembly tools | |





Modified material grades - the perfect solution for special demands

In order to comply with numerous specific requirements for chemical piping and apparatus engineering, the flame retardant and electroconductive materials **PP-s**, **PP-s-el** and **HDPE-el** are offered.

During the operation of thermoplastic piping systems, electrostatic charging can be caused by transport of media and gases. Piping systems made of antistatic plastic materials provide a durable and safe solution in such applications. AGRU piping systems and semi-finished products made of electroconductive plastics comply with the ATEX guidelines and can be applied in explosion protected (EX) areas. Flame retardant piping products are offered and used especially for applications in exhaust and ventilation systems.

Applications

- Intake and exhaust piping for ventilation systems in the industry
- Piping systems for the transport of media with solid content
- Piping systems and tanks in explosion protected areas
- Degassing systems for waste disposals
- Lining of containers and tanks
- Slurry and degassing piping in the mining industry
- Process piping systems and tank linings in biogas plants



SUPPLY RANGE (available up to MOP 10 bar)

| Product | Dimension |
|-----------------------------------|--------------------|
| Pipes | OD 20 mm - 1200 mm |
| Fittings, injection moulded | OD 20 mm - 500 mm |
| Fittings, segmented | up to OD 1200 mm |
| Accessories (flanges) | OD 32 mm - 315 mm |
| Welding machines & assembly tools | |



Fluoropolymers - for highest demands

To meet the high demands for pipeline constructions in process plants, AGRU offers a complete range of pressure piping components made of high-grade fluorinated thermoplastics. PVDF (Polyvinylidene fluoride) is a thermoplastic material which distinguishes itself from other fluoropolymers due to its wide temperature range, pressure resistance and cleanness. ECTFE (Ethylene chlorotrifluoroethylene) provides excellent high chemical resistance in combination with high temperature stability. The excellent properties of both product types PVDF and ECTFE are achieved without adding any additives such as stabilisers or colorants.

Applications

- Process lines in the chemical and petrochemical industry
- Washing towers, reactors, agitators and centrifuges
- Lining of tanks and pipes for durable corrosion protection
- Piping systems for ultrapure water transportation in the semiconductor industry
- Process piping in the food and Life Science industry
- Heat exchanger

SUPPLY RANGE (available up to MOP 16 bar)

| Product | Dimension |
|-----------------------------------|-----------------------|
| Pipes | OD 20 mm - 400 mm |
| Fittings, injection moulded | OD 20 mm - 315 mm |
| Socket welding fittings | OD 20 mm - 110 mm |
| Valves, accessories | OD 20 mm - 280 mm |
| Accessories (flanges) | OD 20 mm up to 400 mm |
| Welding machines & assembly tools | |



Piping system with double safety

The AGRU double containment pipes have been used very successfully in a wide range of applications for many years. They fulfil today's high requirements in the field of chemical process engineering. For leak detection in the double containment piping different leak detection methods are offered and they are installed in the space between inner and outer pipe. The heating element butt welding method (simultaneous welding) is the most used connection type for piping components and ensures an easy and cost effective installation. Beside this method also other connection technologies are available in the supply range from AGRU.

AGRU double containment piping systems ensure a system which is perfectly designed and adapted for the application (high pressure resistance of the media pipe, materials which are resistant to the transported media). Furthermore, space-saving options with reduced space for the leak detection are available.

Applications

- Transport systems in the nuclear, natural gas, oil and chemical industry
- Waste water transport systems in the semiconductor, pharmaceutical and biotech industry
- Transport lines of hazardous and corrosive media in ground water protected areas
- Transport of aggressive media inside buildings for the protection of equipment, building and people
- Underground piping in hardly accessible areas (e.g.: airports)

SUPPLY RANGE (Available up to MOP 16 bar)

Product

| |
|---|
| Pipes |
| Tees, bends, reducers, end caps |
| Dog bones |
| Support discs, spider clips |
| Valves |
| Accessories (flanges, pipe clips...) |
| Welding technology, welding machines & assembly tools |
| Poly-Flo system |



Product features

- Various material combinations of media pipe and cover pipe are available
- Highly corrosion resistant materials such as HDPE, PP, PVDF, and ECTFE are available
- Detailed localisation of possible leakages through an electronic detection system - ensure low repair and maintenance costs
- Prevention of secondary damage (e.g. environmental pollution, ground water contamination, human protection)
- The system can be divided into different safety zones - providing higher operation flexibility
- Easy installation and handling
- System complies with the requirements of DIBt (German Institute for Building Technology)

Double containment prefabricated

Factory fabricated double containment piping components are available in the standard supply range from: OD 90/32 mm - OD 355/250 mm. Special combinations are designed and produced project based.



1 For the installation with simultaneous welding

PE/PE - PP/PP OD 90/32 mm - OD 355/250 mm

2 For the installation with cascade welding

PE/PP - PE/PVDF - PP/PVDF OD 90/32 mm - OD 280/160 mm

Poly-Flo double containment

The Poly-Flo double containment pipes are extruded seamless in one production step. The Poly-Flo double containment fittings are produced by injection moulding. This new double containment system is a cost-effective alternative to the standard fabricated double containment piping system.



Poly-Flo - PE 100-RC/PE 100-RC - PPR/PPR

50/32 - 90/63 - 160/110 SDR17/11



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