

# AGRULINE

THE  
USER-FRIENDLY  
PE 100-RC PIPING SYSTEM



# The Plastics Experts.

The AGRULINE product group offers a complete, high-quality product range of pipes, fittings, valves and customized components made from polyethylene for safe and environmentally friendly supply of gas, potable water and wastewater disposal. Years of experience, a highly knowledgeable staff and state-of-the-art manufacturing equipment are the cornerstones for our high quality products.

The AGRU success story has been unfolding now for around seven decades. Founded back in 1948 by Alois Gruber senior, nowadays the company is one of the world's most important single-source suppliers for piping systems, semi-finished products, concrete protection liners and lining systems made from engineering plastics. Our ability to supply everything from a single source sets us apart. We use only top-grade thermoplastic polymers as our raw materials. When it comes to application-technical consulting, we are your best partner in the field.



## Quality

At AGRU, customer satisfaction comes first. Technical consultations, training courses, welding instruction and expert supervision on site are essential parts. The AGRU quality assurance system is compliant with ISO 9001:2015 and its environmental management system fulfils ISO 14001:2015. This in turn ensures that the products comply with international norms, as monitored and evaluated on an ongoing basis by independent testing agencies standards.

The start-to-finish attention to quality ensures that the products meet and beat the strictest technical specifications, providing safe operation within gas, water and wastewater infrastructures.

# AGRULINE

## Pipes, fittings and customized solutions perfectly harmonised

**AGRULINE involves an ingenious piping system comprised of ultra-robust PE 100 and PE 100-RC materials for use in gas and water supply as well as wastewater disposal. Decades of product optimisation have turned AGRULINE into a perfect highly cost-effective piping system unlike any other.**

### One stop shopping

**Pipes and fittings from one factory for maximum accuracy of fit**

One stop shopping

- all components are designed to fit perfectly with one another
- personal technical consulting is included
- reliable on-time delivery supports your work site logistics
- all components for pipeline construction are available in sizes from OD 20 mm to OD 2500 mm

### Maintenance free pipework

**Welded joints and PE 100-RC ensure high operational reliability**

Welded PE pipework is leak-tighter than inserted connections

- AGRULINE pipework is homogenous, longitudinally force-locked and leak-tight
- the best welding system is selected based on the specific application
- no expensive supports are needed to lay the pipework into the ground
- intact pipelines, still in operation 50 years after installation – a testament to their reliability

### High economic efficiency

**Simple assembly, high quality and long service lives**

Saves time and money

- the flexibility of PE often allows for direction changes without fittings
- dimensionally accurate pipes and fittings keep the installation time short
- the investment interval for PE pipes is calculated in terms of several decades
- smooth inner surfaces prevent adhesion and offer perfect flow characteristics

### Certified materials

**Raw materials in accordance to PE 100+ Association guidelines**

Outstanding material properties ensure

- high rupture strength
- extreme resistance to slow crack growth
- insensitive to pressure surges and seismic activity

### Outstanding expertise in the field of plastics processing

**Decades of on-site experience and R&D**

55 years of experience mean

- flexible, solution-oriented service from knowledgeable employees
- state-of-the-art production machines and processes
- ingenious and well-engineered pipework components
- strong ability to tailor to application through in-house toolmaking
- products certified based on EN 12201 / EN 1555, ÖVGW, DVGW and PAS 1075



## AGRULINE fittings for perfect connections

### AGRULINE fittings from PE 100-RC

The AGRULINE system of pipework products encompasses a broad range of electrofusion fittings such as couplers, bends, tees, reducers and end caps, all produced from PE 100-RC

- enormous stress crack resistance thanks to robust PE 100-RC
- no sand embedding required, saving costs during laying
- perfectly harmonised for all AGRULINE pipes
- permanently leak-tight connections through butt, socket or electro-socket welding
- simple assembly of the electro-socket fittings thanks to chamfered inlets and long insertion depths
- simple to weld, even where little space is available or terrain is difficult



## Multi-bends - multi-functional

- stable bends suitable for butt and electro-socket welding
- top flexibility – can be used as a long-spigot or, when cut, as a short-spigot fitting



### PRODUCT RANGE

#### Dimensions

SDR 17	OD 63mm - 315mm
SDR 11	OD 20mm - 315mm



## Elongated fittings - improved flexibility when welding

- compatible with butt welding and electro-socket welding for flexibility in applications
- low-stress thanks to optimised gate system



### PRODUCT RANGE

#### Dimensions

SDR 17	OD 63mm - 500mm*
SDR 11	OD 20mm - 500mm*

\*Stub flanges up to OD 710mm



## Short-spigot fittings - for heated tool butt welded pipelines

- outstanding rupture strength thanks to cutting-edge injection moulding technique
- for pipeline installations with serious space restrictions
- easy to handle on-site thanks to low weight and compact component dimensions



### PRODUCT RANGE

#### Dimensions

SDR 33	OD 110mm - 500mm
SDR 17	OD 63mm - 500mm*
SDR 11	OD 20mm - 500mm*

\*Stub flanges up to OD 710mm





### Heated tool socket fittings - in small dimensions

- compact fittings for fast connections using heated tool socket welding
- easy to handle, even at limited space conditions
- affordable solution and affordable welding equipment



#### PRODUCT RANGE

##### Dimensions

OD 20 mm - 110 mm



### Sweep bends - low flow resistance

- unimpeded flow of media thanks to smooth inner surface and large radius
- bent but stable pipes - available in many dimensions and angles
- full pressure resistance
- for gas and potable water
- suitable for heated tool butt welding and electro-socket welding



#### PRODUCT RANGE

##### Dimensions

SDR 17 OD 90 mm - 800 mm

SDR 11 OD 90 mm - 800 mm

11°, 22°, 30°, 45°, 60°, 90°



### FM 1613 approved pipes and fittings - for reliable underground fire protection lines

- FM 1613 approved for top reliability in emergency situations
- corrosion-free, eliminating threat of sprinkler clogging
- subject to 3,2x maximum pressure during certification to ensure top safety



#### PRODUCT RANGE

##### Dimensions

218 psi OD 63 mm - 500 mm

250 psi OD 63 mm - 500 mm

## AGRU SDR 7.4 pipes and fittings - for high-pressure applications

- thick walls can handle water pressure up to 25 bar
- extensive range of products, including injection-moulded fittings
- strong static ratings for maximum safety in practical applications
- fits SDR 7.4 pipes in dimensions from 63 – 500 mm



### PRODUCT RANGE

#### Dimensions

SDR 7.4	OD 63 mm - 500 mm
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## Segmented fittings - also available in special dimensions

- segmented fittings are available in dimensions up to OD 2500 mm and are designed and harmonised to the customer's specific specifications
- solutions with or without de-rating factor for pressure available
- top flexibility, as pieces are produced to meet the customer's requirements
- expert workmanship and strict QA ensure identical performance to standard fittings



### PRODUCT RANGE

#### Dimensions

SDR 41	OD 560 mm - 2500 mm
SDR 33	OD 560 mm - 2500 mm
SDR 26	OD 560 mm - 2500 mm
SDR 17	OD 560 mm - 2500 mm
SDR 11	OD 560 mm - 1600 mm



## Customized fittings - in accordance with your needs

- customized fittings are available in dimensions up to OD 2500
- designed according to customer requirements to ensure a perfect fit
- reduced overall costs through perfect integration in any construction plans
- pressure-rated versions available by request



### PRODUCT RANGE

#### Dimensions

Available in various pressure ratings up to OD 2500 mm, by request





# AGRULINE fittings for electro-socket welding

## Electro-socket fittings - injection moulded

- extensive product range from PE 100-RC
- perfect welding results through fully embedded heating wire
- gentle thermal distribution and easy-to-clean interior
- can be welded using universal welding equipment, even where little space is available or terrain is difficult
- automated production processes with barcode and resistance check ensures origin of components can be traced at all times
- removable centre guide, ideal for repair applications
- E-couplers in SDR 11 up to OD 315 tested and approved for maximum operating pressures of up to 25 bar



### PRODUCT RANGE

#### Dimensions

SDR 17	OD 90 mm - 500 mm
SDR 11	OD 20 mm - 500 mm
Adaptor fittings: SDR 11	20 x 1/2 - 63 x 2





## Machined E-couplers

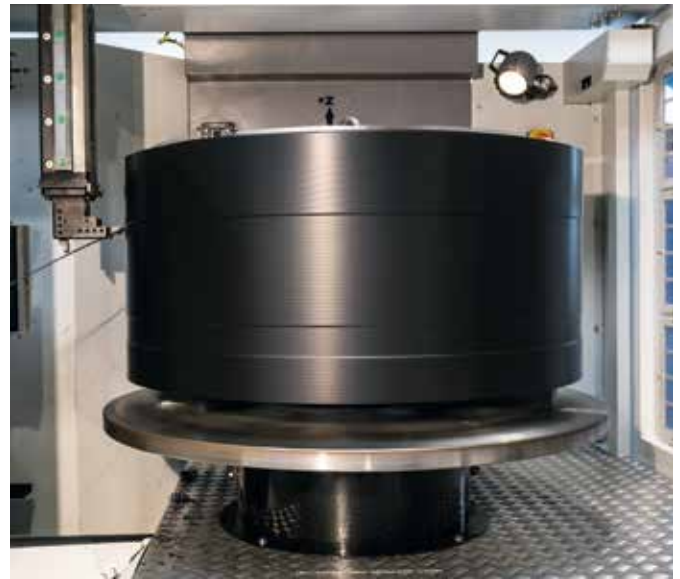
- in dimensions from 560 – 1400 mm
- maximum safety thanks to completely embedded heating wire
- bifilar welding system allows the E-coupler to be welded to the pipe outside the trench
- available in SDR 11 and 17
- Ideal for pipe bonding and connecting of pre-cast pipe runs
- can be welded with pipe walls of thicknesses SDR 33 to SDR 11 (depending on dimensions)



### PRODUCT RANGE

#### Machined E-couplers

SDR 17	OD 560 mm - 1400 mm
SDR 11	OD 560 mm - 900 mm



## Application E-couplers

Machined E-couples from AGRU offer decisive benefits. They are produced from PE 100-RC, a crack-resistant material, and contain a bifilar welding system that allows for them to be welded on the pipe outside the narrow confines of the trench.



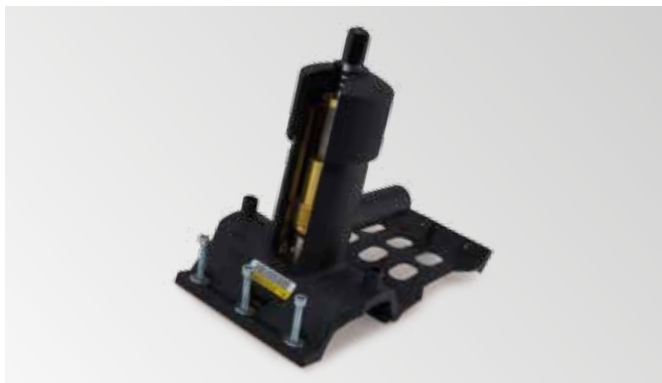


## AGRULINE fittings for saddle welding & valves



### Tapping saddles - creating branches by hot tapping

- rapid creation of pressurised house connections and discharges
- quick and easy installation through mounting belt
- Gas-tight through patented telescoping tapping system
- clean, leak-free tapping without chips or residues
- extra long spigots for 2x electrofusion
- tapping system ensures compatibility with pressure test
- can be combined with gas applications with a gas flow guard



### Pressure tapping valves - opening and closing of pressurised branches

- rapid opening and closing with maximum 10.5 rotations
- reduced flow loss thanks to optimised component design
- enduring quality thanks to PE 100-RC material and integrated valve components made of lead-free brass and stainless steel
- extra long spigots for repeated electrofusion



#### PRODUCT RANGE SPIGOT SADDLES

Dimension of main [mm]	Dimensions of spigots [mm]
90	20, 32, 40, 63
110	20, 32, 40, 63
125	20, 32, 40, 63
160	32, 40, 50, 63, 90, 110
180	32, 40, 50, 63, 90, 110
200	20, 32, 40, 63
225	32, 40, 50, 63, 90, 110
250	50, 63, 75, 90, 110
280	50, 63, 90, 110
315	63, 90, 110
355	63, 90, 110
355-1400*	90, 110, 125, 160, 180, 200, 225
450-1400*	250, 280
450-2500*	315
710-2500*	355, 400, 450, 500
1600-2500*	560, 630, 710, 800, 900, 1000, 1200

### Spigot saddles - an affordable alternative even under pressure

- affordable solution for installation of branches on main lines
- installation of pressurised branches possible using special tool
- simplified installation through flexible alignment on main pipe
- machined „Topload“ version for primary diameter of 355 – 2500 mm
- simplified installation of the „Topload“ system through specially engineered clamping system

\* Version Topload, machined



#### PRODUCT RANGE TAPPING SADDLES

Dimension of main [mm]	Dimensions of spigots [mm]
40	20, 25, 32
63	20, 25, 32, 40, 63
90	25, 32, 40, 63
110	20, 25, 32, 40, 63
125	20, 25, 32, 40, 63
160	20, 25, 32, 40, 63
180	25, 32, 63
200	20, 25, 32, 40, 63
225	25, 32, 63
315	25, 63



#### PRODUCT RANGE PRESSURE TAPPING VALVES

Dimension of main [mm]	Dimensions of spigots [mm]
63	32, 40, 50, 63
90	32, 40, 50, 63
110	32, 40, 50, 63
125	32, 40, 50, 63
160	32, 40, 50, 63
180	32, 40, 50, 63
225	32, 40, 50, 63
250, 280, 315, 355	63



### Ball valves - maintenance-free valves

- robust, light-weight monoblock design
- simple and homogenous integration into pipe system using heated tool butt welding or electro-socket welding
- inlet matches pipe without diameter reduction (piggable)
- variants with or without gears available for flexible deployment
- optimal and secure for underground lines



#### PRODUCT RANGE BALL VALVES in black and orange

##### Dimensions

Without gear:

SDR 11 OD 32 mm - 125 mm

With gear:

SDR 11 OD 63 mm - 225 mm



## AGRULINE pipes



### PE 100 (-RC) pipes - the reliable classic

- PE 100 (-RC) pipes satisfying all applicable norms for potable water, gas and wastewater
- pipes are black or with coloured stripes running axially for clear identification of the application area
- orange gas pipe with solid-coloured pipe wall
- flexible and light, ensuring broad range of applications
- available coiled in dimensions up to OD 125 mm
- ideal for the installation with sandbed



#### PRODUCT RANGE

##### Dimensions

SDR 41	OD 110 mm - 2250 mm
SDR 33	OD 75 mm - 2500 mm
SDR 26	OD 90 mm - 2500 mm
SDR 17	OD 32 mm - 2500 mm
SDR 11	OD 20 mm - 1600 mm

## Sureline pipes - for top safety

- PE 100-RC pipes for potable water, gas and wastewater
- clear labelling of application through coloured signal layer
- flexible and light, ensuring broad range of applications
- strong resistance to point loads and slow crack growth for top safety during installation and operations
- no sand embedding required, translating into high potential savings through reducing construction costs
- suitable for alternative trenchless laying methods, such as milling, ploughing, relining, pipe bursting, sublining, swageling and soil displacement hammer



### PRODUCT RANGE

#### Dimensions for water, wastewater

SDR 17 / SDR 11	OD 75 mm - 1200 mm
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#### Dimensions for gas

SDR 17 / SDR 11	OD 75 mm - 400 mm
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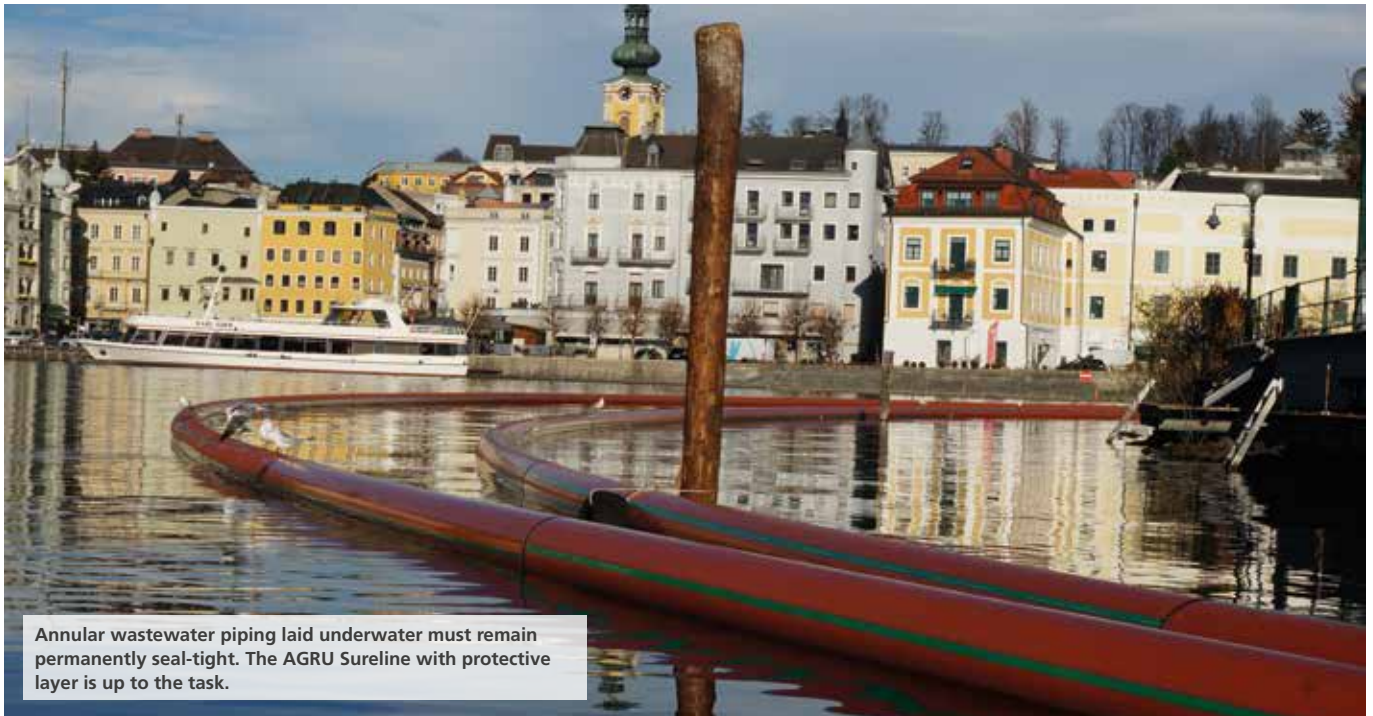
## Applications Sureline pipes

Lower construction costs thanks to flexible laying options, including alternative methods without sand embedding - saving money on fittings on direction changes.



The coloured signal layer denotes the application - here a potable water line.





Annular wastewater piping laid underwater must remain permanently seal-tight. The AGRU Sureline with protective layer is up to the task.

## Sureline pipes with protective layer - twice the safety

- PE 100-RC inner pipe with additional protective layer of PP
- twice the safety for extreme applications such as pipe bursting and horizontal directional drilling
- scratch-proof PP protective layer prevents significant damage to inner lining during installation and improves operational reliability
- rapid heated tool butt welding thanks to factory-stripped ends



### PRODUCT RANGE

#### Dimensions for gas: orange protective layer

SDR 17 / SDR 11	OD 63 mm - 225 mm*
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#### Dimensions for potable water: blue protective layer

SDR 17 / SDR 11	OD 63 mm - 1200 mm
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#### Dimensions for wastewater: brown protective layer

SDR 17 / SDR 11	OD 63 mm - 1200 mm
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## Application

During pipe bursting, the pipe being inserted is subjected to especially strong loads. AGRU Sureline with protective layer offers twice the safety.



## SurePEX pipes - top safety

- impact insensitive pipes from crosslinked polyethylene (PE-Xa)
- uncompromising quality for top safety at temperatures ranging from – 50 °C to + 95 °C
- the outstanding stress crack resistance ensures permanent leak-tight house connections
- also ideal for hot water lines, district heating and geothermal heating in the sanitary and industrial fields



### PRODUCT RANGE

#### Dimensions

SDR 11	OD 25 mm - 125 mm*
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## AGRU SureFIT - Relining without annular gap

- diameter reduction through factory-side pipe preparation
- rapid, affordable laying using winch dragging
- pressure and steam are applied, with „memory effect“ causing pipe to resume its previous round shape
- perfect flow characteristics and full pressure resistance
- interior diameter reduced through relining is compensated through outstanding flow characteristics



### PRODUCT RANGE

#### Dimensions for gas and potable water

SDR 17	OD 150 mm - 400 mm
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#### Dimensions for wastewater

SDR 26	OD 150 mm - 400 mm
SDR 32	OD 350 mm - 400 mm





## AGRULINE PE 100 (-RC) piping system References



### Sureline with protective layer, E-couplers and sweep bends

Extension of a water supply network and establishment/ connection of a water tower. Trenched and trenchless installation of three pipelines underneath a motorway using horizontal directional drilling.

Selected products:  
Sureline with protective layer DIM 560 SDR17, electrofusion fittings and sweep bends.



### Sureline with protective layer

Reconditioning of old, damaged potable water line made of asbestos cement using pipe bursting. Insertion of multiple sections of up to 175 m in length. Expansion of the existing pipe dimension from OD 150 to OD 160 mm. Traffic could continue to flow.

Selected products:

Sureline with protective layer OD 160 SDR 17, fittings with short spigots.



### PE 100-RC pipes and E-couplers

Renewal of an old, corroded steel line using PE 100-RC in an alpine setting for a reservoir power station. Delivery of pipes and fittings via helicopter. Connection using E-couplers and laying without sand embedding. Dim 500 SDR17.



### Large-scale pipes of up to Ø 2500 mm

AGRU large-diameter pipes from PE 100 or PE 100-RC are the affordable solution for high-volume applications. The durable hydraulic properties are based on the strong resistance to corrosion, wear and UV light, which in turn reduces operating costs. Beyond this, they install quickly and easily, making AGRU large-diameter piping systems suitable for onshore and offshore deployment.





### PE 100-RC protective layer pipes

Trenchless renewal of a potable water line in Slovakia using pipe bursting. To handle the heavy strains involved in laying and operation, AGRU PE 100-RC pipes with protective layers were selected.

### Long-spigot and electro-socket fittings

To expand the gas distribution network in Vorarlberg, AGRULINE pipes, long-spigot and electro-socket fittings were selected.



### E-couplers OD 1000 mm

Repair of a damaged wastewater line. A new pipe segment is fit and welded to the existing pipeline using 2 E-coupler pieces of 1000 mm each.

### Sureline with protective layer

When it was time to construct a wastewater discharge line at the Wiesbadener Army Airfield, the choice fell to an AGRULINE Sureline with protective layer pipe.





### AGRULINE in high alpine environments

Tapping a spring in high alpine terrain is never an easy task. AGRULINE protective layer pipes ensure operational reliability even in extreme temperatures.



# AGRULINE Flange connections

## Backing ring and blind flange

Flange connections are primarily needed for material transitions, integrating valves and separable connections. Backing rings and V-collars are used to create leakproof but separable connections between AGRULINE piping systems. Blind flanges are used as covers at the end of a pipeline.

The contact pressure of the circular sealing surfaces on the seal between them is crucial for ensuring the joint is leakproof. The pressure is built up by screws inserted through holes drilled in the backing ring/blind flanges. The drilling pattern is laid down by various standards (PN in the DIN standard and Class in the ANSI standard).

The benefits of AGRULINE backing ring and blind flanges:

- steel core encapsulated in glass-fibre-reinforced PP
- very stiff and therefore dimensionally stable and permanently leakproof
- corrosion-resistant and thus maintenance-free
- it is easy to create transitions to other materials
- suitable for integrating valves
- designs comply with EN 1092 (PN 10 or PN 16) and ASME B 16.5 (class 150)



### PRODUCT RANGE

#### Backing ring DIN

PN 10	OD 20 mm - 630 mm
PN 16	OD 20 mm - 400 mm

#### Blind flange DIN

PN 10	OD 20 mm - 400 mm
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#### Backing ring ANSI

class 150	OD 20 mm - 315 mm
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#### Blind flange ANSI

class 150	OD 20 mm - 315 mm
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Separable flange connections facilitate maintenance work.

## Full-faced flange

AGRULINE Full-faced flanges are often used for connecting hydrants or water tanks to water pipes. They offer the best possible connection between metallic components and PE pipelines.

The benefits:

- separable flange joint
- drilled as per PN 10 (in line with DIN 2501)
- suitable for potable water
- long arms for heating wire or heated element butt welding
- easy installation without loose parts. Assembly aid (the drill holes are numbered for tightening the screws)
- injection-moulded reinforcement ribs



### PRODUCT RANGE

#### Full-faced flange

PN 10/16

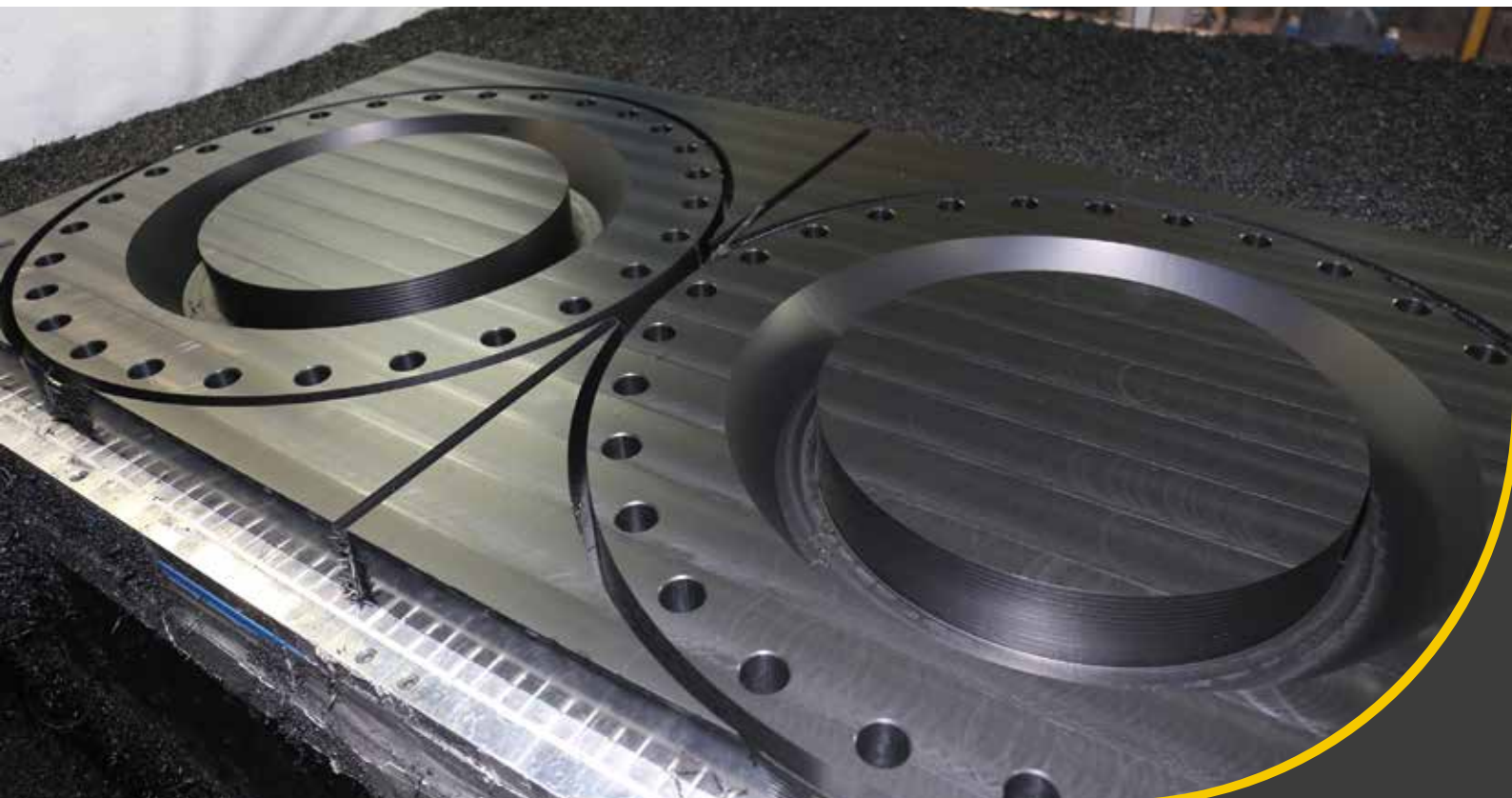
OD 90 mm - 180 mm



Full-faced flanges are often used to connect metallic components and PE pipelines.

## SPECIAL DIMENSIONS

AGRU is happy to mechanically produce flanges for special projects in virtually any dimension. The image shows the machining of custom-made flanges from a PE 100-RC panel.





# AGRULINE

## Concrete connection socket

### Concrete connection socket

AGRULINE concrete connection sockets ensure that PE pipes in shafts and walls are fed through and anchored in a manner that is watertight and safe. This is how pipes are safely installed in buildings or shafts and connected to one another.

The AGRULINE concrete connection socket, which is made of the high-quality material PE 100-RC, can be used to create a welded, tension-resistant joint thanks to its integrated heating wires. The heating wires ensure that the energy is applied gently. All AGRU concrete connection sockets come with an EPDM puddle flange.

The concrete connection socket has many benefits:

- made from the crack-resistant material PE 100-RC
- EPDM puddle flange ensures connections are permanently leakproof
- optimised anchoring in concrete thanks to a prefabricated groove
- electro-socket welding with PE pipes
- suitable for SDR levels between 33 and 11
- root penetration not possible



#### PRODUCT RANGE

##### Concrete connection socket

SDR 11 - SDR 33

OD 160 mm - 560 mm



The concrete connection socket is mounted flush with the formwork and grouted in with concrete. A prefabricated groove guarantees safe anchoring and the puddle flange acts as a seal.

## Concrete connection socket type 2

This type does not have integrated heating wires like the concrete connection socket, but has an external electro-socket fitting. The benefits of a typical concrete connection socket, such as protection of potable water and groundwater, are combined with even more flexible installation. The constructional separation of the concrete connection socket and the electro-socket fitting increases the range of applications the sleeve can be used for and prevents the heating wire from being soiled when the concrete is being poured in. There is also another benefit: AGRUSAFE concrete protection plates can be homogeneously welded with the concrete connection socket on the face side.



### PRODUCT RANGE

#### Concrete connection socket type 2

SDR 11

OD 110 mm - 400 mm



The concrete connection socket type 2 has an external electro-socket fitting.

### WELDING

Integrated heating wires in the Concrete connection socket ensure heat is applied to the pipe and fitting gently. The shaft and piping system are connected by a joint that is leakproof and cannot be pulled out.





The Plastics Experts.

Your distributor

Subject to errors of typesetting, misprints and modifications.  
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