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IP-*plus*©

THE INNOVATIVE WELDING SYSTEM FOR THE ACARO PIPE SYSTEM PP SN 12/16

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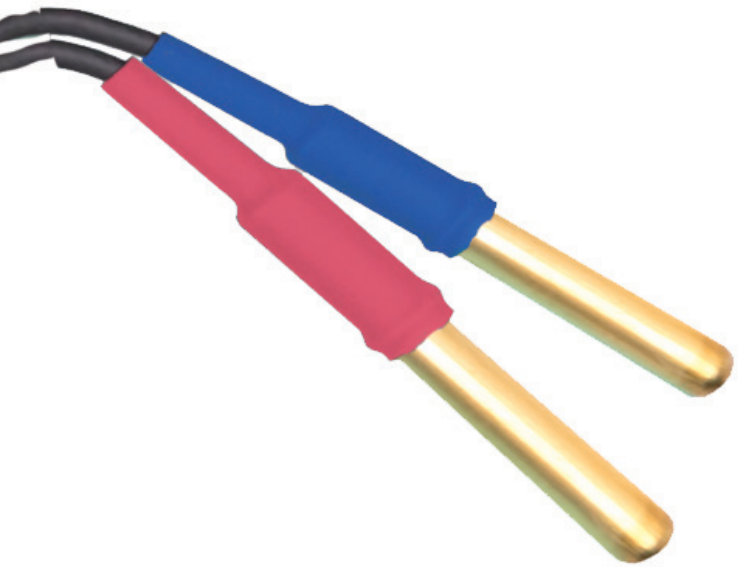
Plastic pipelines with rubber sealing rings are used in many areas of wastewater technology today. However, due to legal regulations or special requirements, these rubber-sealed systems do not cover all the necessary safety requirements. Many areas have much higher safety requirements.

The patented IP-plus welding system offers the possibility to increase the safety of the ACARO PP SN 12/16 pipe system of FA. Wavin GmbH in a simple way. The IP-plus welding system has been further developed to weld together socketed ACARO wastewater pipes and the associated fittings. This means that these pipe systems can now also be used in areas where otherwise only expensive, complex systems with special electrofusion sockets could be welded.
In addition to welding the pipes together, it is also possible to efficiently connect e.g. Wavin manhole systems or commercially available street drains.

ADVANTAGES

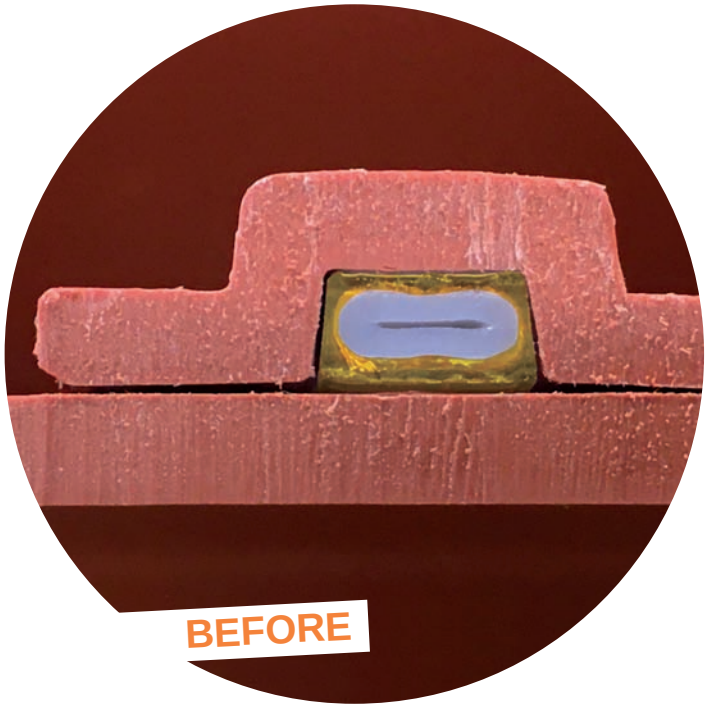
- ✓ Root resistant material and axially force-locking joint
- ✓ Uniformly high chemical resistance of pipes and joints
- ✓ Certified by DIBt (Z-42.5-553)
- ✓ Conforms to AwSV 08.2017
- ✓ Successful LAU and JGS inspections!
- ✓ Temperature application range -20°C to +95°C
- ✓ High temperature resistant (up to 60-70°C continuous, 95°C in peak)
- ✓ Highly resistant to high pressure flushing
- ✓ Significantly increased safety compared to rubber-sealed push-in joint systems
- ✓ Significant cost savings compared to PE-HD welding systems
- ✓ Simple assembly process
- ✓ Electronic data documentation

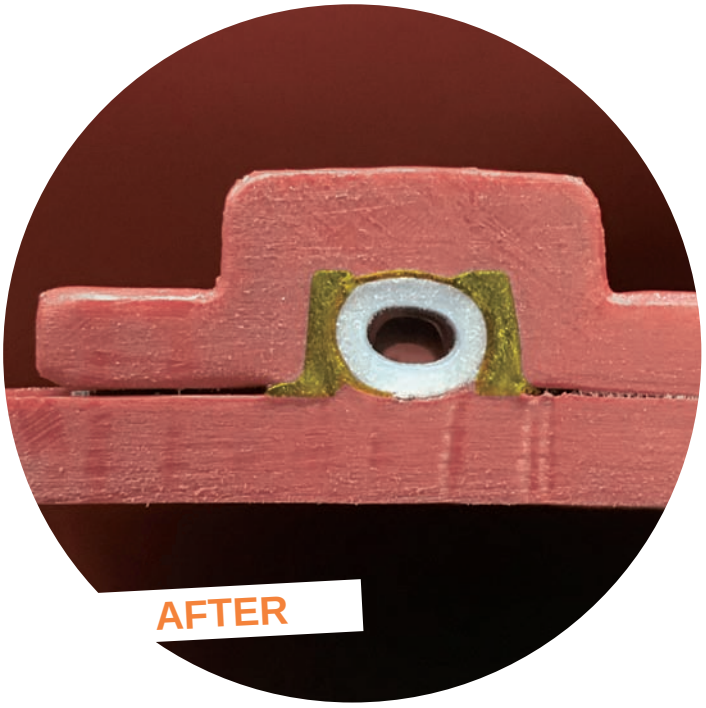


Functional description:

The function of the IP-plus welding system differs from the systems of conventional processes with electrofusion sockets. The axial expansion of the IP-plus welding ring during the welding process generates the joining pressure required for welding itself. This also compensates for larger tolerances and ovality of the pipe system. Round clamps and retaining clamps are thus completely unnecessary.

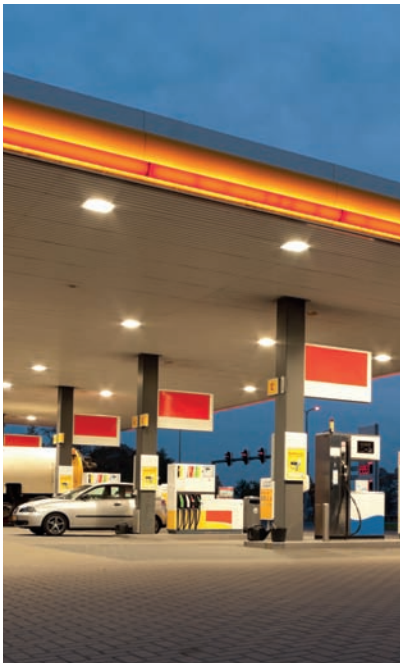
Another advantage: The movement pressure inside the welding ring eliminates the need for mechanical removal of the oxide layer (Scraping).





The function and quality of the IP-plus welding system has been confirmed by many independent testing laboratories and, of course, by the German Institute for Building Technology DIBt (Z- 42. 5-553).

Application areas



- Drinking water protection areas
- Industrial facilities with chemically and thermally highly contaminated wastewater
- Facilities according to the new AwSV and TRwS 2017
- Airfields, shipping ports
- Car washes - Car wash sites - Recycling centers - Car recycling facilities
- Fuel stations and fuel depots
- Foundation lines of hospitals - large kitchens - canteens etc.
- Gas-tight municipal sewage pipes
- Agricultural wastewater disposal
- Pipe routing in Downhill sections with axial loads
- Safety requiring facilities

QUALITY SABUG ...einfach bessere Technik! CONCEPT

Concept:„SABUG-Q“

The „SABUG-Q“ concept is a comprehensive quality assurance program that accompanies the IP-plus welding system in its entirety. The quality of the welding ring is monitored by us from the selection of the base material and determination of the producer, through production, to welding and acceptance at the construction site.

„SABUG-Q“ Quality line

– Production monitoring	– External monitoring DIBt – Batch number (approx. 20 pieces) – Manufacturer date – Traceability of all material and staff
– Packaging	– Packaging unit with seal
– Construction site support	– Technician on site – Extensive training
– Welding documentation	– Welding seam form – USB interface – Caldersafe system

QUALITY SABUG ...einfach bessere Technik! CONCEPT

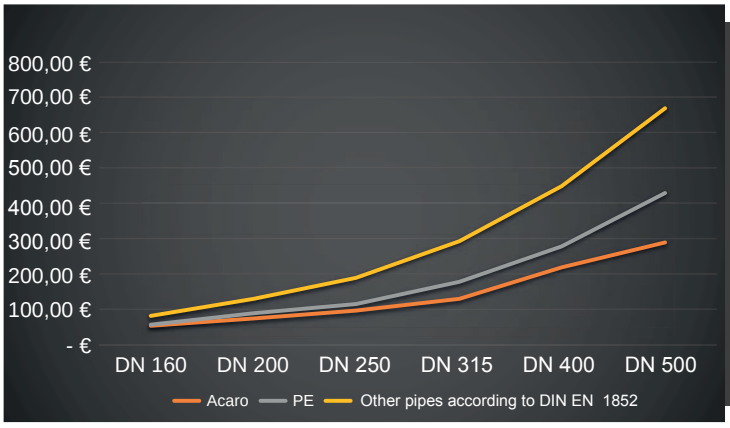
All the mechanisms for constantly checking the results will ultimately lead to the desired outcome:

A sealed, long term stable welded joint that will serve for many years to come!

Cost Consideration

The economic analysis shows that the use of the IP-plus welding system offers significant cost savings compared to comparable welded pipe systems, if only by taking into account the significantly shorter installation times.

In addition, one should not ignore the logistical circumstance offered by a pipe system kept in stock. If necessary, it is possible to obtain missing and unscheduled components quickly and without further delay from the local building materials dealer. Please ask us for the brochure „Business economics of the IP-plus welding system“.



Sample cost comparison: ACARO PP SN 12 pipes welded according to DIN EN 1852 with IP-plus welding system, compared to other PP sewer pipes and welded PE-HD sewer pipes of the same ring stiffness. Here, the clear cost saving of 15-40% can be seen in the total cost consideration.

Testing and Certification

The IP-plus welding system had to prove many times during the development process and through multiple functional tests that it meets the high requirements. This made it possible to develop an extremely safe and stable welding process. Of course, the general building authority approval of the German Institute for Building Technology was also granted for this - DIBt (Z-42. 5-553).

The IP-plus welding system naturally meets the serviceability requirements of DIN EN 14758 (KG 2000) and DIN EN 1852, as well as the material requirements of DIN EN ISO 1167-1 (internal creep pressure test).

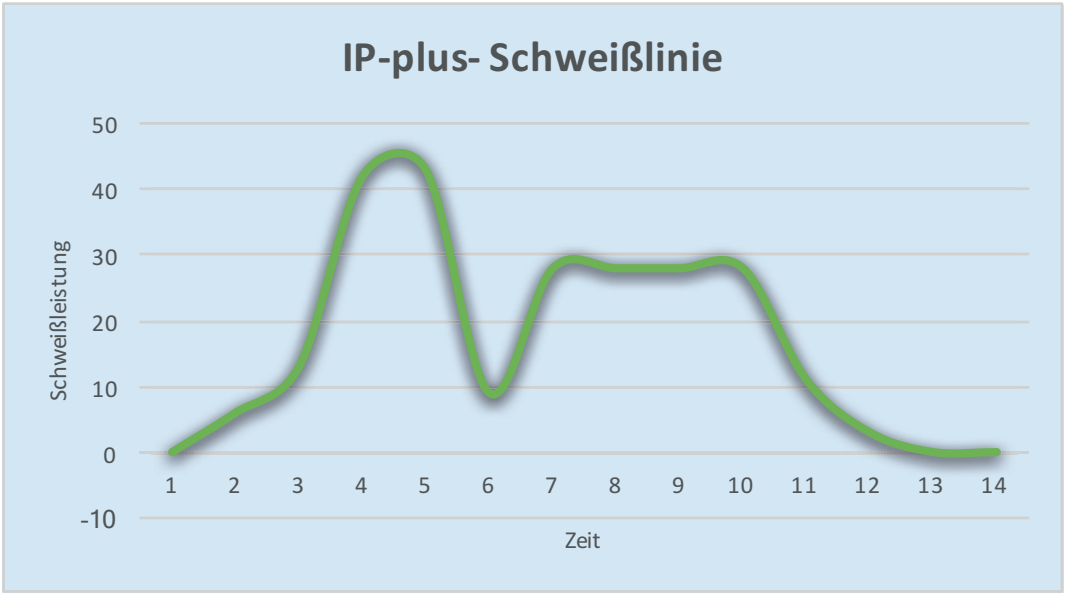
We will be happy to provide further evidence from independent test institutes regarding JGS and LAU systems as well as the results of meaningful bursting pressure tests - just ask us!

Requirements	Proof of tightness / leak test	Leak test drinking water protection zone	Verification of the serviceability for the pipe system	Verification of the internal creep pressure behavior	Deformation resistance under pressure
Norm	DIN EN 1610	DWA A-A 142	Verification for AC-ARO pipe system according to DIN EN 1852	Verification for AC-ARO pipe system according to DIN EN 1852	Angle: 2° and deformation 15%/20 % in the socket area
			EN 1277	DIN EN ISO 1167-1	EN 1277
Presure / Tension	0,2 bar (Luft) 0,5 bar (Wasser)	2,5 bar	+0,5 bar bis -0,3 bar	bis 12 bar	1,0 bar
Temperature	20°C	23°C	23°C	20°C	23°C
Time	15 min.	15 min.	15 min.		15 min.
Verification	DIBt-certificate Z-42.5-553	Certificate Envisafe	DIBt-certificate Z-42.5-553	certificate Eurofis	certificate VTT
Evaluation	**OK**	**OK**	**OK**	**OK**	**OK**

Das Schweissverfahren

For perfect control of the welding, the execution of the welding process is carried out by means of the multi-voltage welding process (MVS). In order to obtain a homogeneous and perfect welded joint, as well as to reduce the welding and cooling times, the temperature control is constantly adjusted during welding. This is achieved with a defined modulation of the applied voltage over time.

The melting of the PP materials and the thermal activation of the carrier ring are specifically controlled depending on the ambient temperature. Welding is possible in ambient temperatures from -10°C to + 40°C. This also permits use in winter, when other methods may no longer can be used.



Assembly

The IP-plus welding ring is so simply designed that it can be installed professionally in just a few steps. The existing rubber sealing ring is replaced by the IP-plus welding ring and then welded with an SABUG- electric welder.

For more information, please refer to the current assembly instructions on our homepage!
www.sabug.de


»The innovative welding system for ACARO PP-Kanalrohre after DIN EN 1852«
wavin

Municipal Drainage

Many municipalities and wastewater associations have already opted for welded pipe systems in the area of wastewater drainage. ***And for a good reason.***

Damaged socket joints characterize the picture of pipeline damage. Root ingrowth, pressing groundwater, socket misalignments, axial displacement and seals that no longer operate properly often led to leaks in the pipelines in the past. Today, infiltrations of groundwater into the wastewater system have to be handled at high cost in the treatment plant. Exfiltrations also pose an enormous risk to our groundwater.

The IP-plus welding system offers a real alternative to the PE-HD pipe systems in connection with socketed standard PP sewer pipes. The costs for the PP pipe material, for assembly and welding are lower than for the PE-HD alternative.

Furthermore, it is possible to weld almost all PP pipe systems to each other. All manholes and road gullies made of PP or concrete manholes with PP manhole sleeves can be easily welded on. This opens up an extremely wide range of possible applications on the construction site.

The ideal combination for solving demanding drainage tasks
- Welding ring IP-plus
- ACARO PP according to DIN EN 1852
- Welding saddle

SABUG IP-*plus* welding ring

SABUG IP-*plus* Welding ring for the ACARO SN 12 pipe system according to DIN EN 1852:
Due to different shapes of the sealing bead, two different IP-plus welding rings are used for fittings and pipe sockets from DN 160 to DN 315.
The IP-plus welding rings are color-coded:

IP-plus welding ring for
Injection molded parts

IP-plus welding ring for
Moulded pipe sockets

Dimensions IP-*plus* welding ring	Art.-Nr. Molded part “F”	Art.-Nr. Molded part “R”
DN 160	34160	34161
DN 200	34200	34201
DN 250	34250	34251
DN 315	34300	34301
DN 400	34400	
DN 500	34500	
DN 630	34600	

SABUG Electric welder IP-plus V 2

The welding device, specially developed for the IP-plus welding system, enables the welding of polypropylene pipe systems. The delivery includes hand scanner and bag.

Description	Art.-Nr.	Einheit
Welding machine for sale	30000	per unit
Rent welding machine		
Basic fee	30100	once
Tagesmiete	30101	per unit
Monthly rent	30102	flat rate

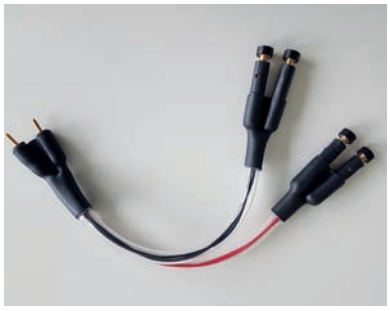
SABUG Assembly box IP-plus

The necessary equipment for professional welding. The box compiles appropriate cleaning agents, covering material, installation aids and tools, so that the assembly can be started right away.

Description	Art.-Nr.	Unit
Assembly box IP-*plus*	30104	per unit

SABUG Twin-Welding cable

Enables the simultaneous welding of two welded joints.



Description	Art.-Nr.	Unit
Twin-Kabel	30110	per unit

Accessories

Description	Art.-Nr.	Unit
Mounting shoe	30112	per unit
PP cleaner	30113	per unit
Cutter knife	30114	per unit
Marking pen	30115	per unit
Adhesive tape	30117	per unit
Slotted sander	30105	per unit

ACARO pipes DN/OD 160-630 fittings and welding saddles

To be obtained from Warvin

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49767 Twist

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F: +49 (0) 5936 – 12 – 211
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IP-*plus*©

THE INNOVATIVE
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welding system by:

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