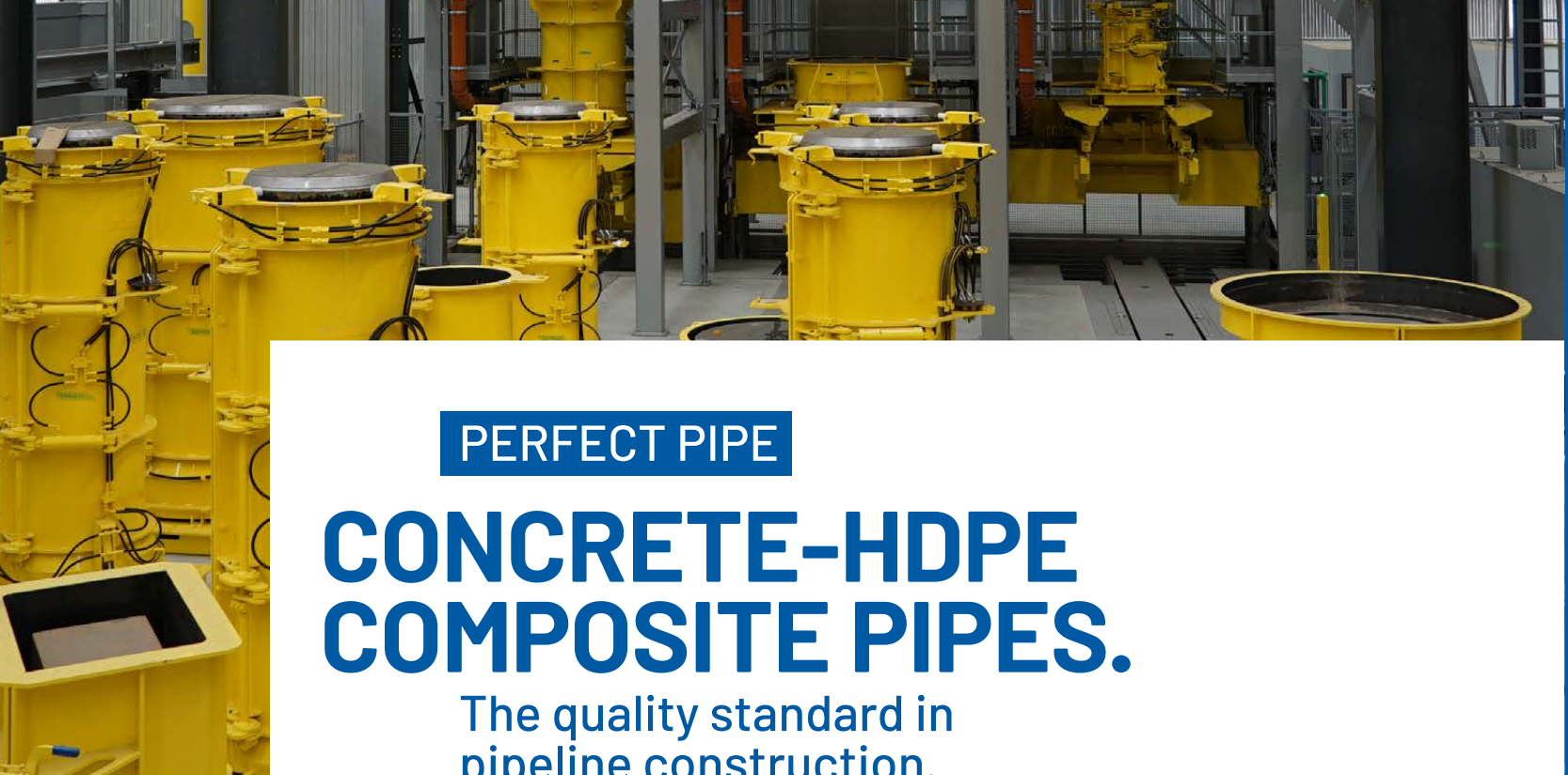


# PIPE PRODUCTION

PERFECT PIPE  
EXACT 2500  
EXACT XL  
PRECISE  
MAGIC 1501  
PRESSURE PIPE







## PERFECT PIPE

# CONCRETE-HDPE COMPOSITE PIPES.

The quality standard in pipeline construction.

### Product parameters PERFECT PIPE

Ø 12–60 inches (300–1500 mm)

### Standard construction lengths

40, 120 inches (1000, 3000 mm)

### Construction length of distance pipe/spacers

Variable

### Product parameters concrete pipe

From Ø 12 inches (300 mm)

### Standard construction length

Length up to 120 inches (3000 mm)

### Construction length of distance pipe/spacers

Variable

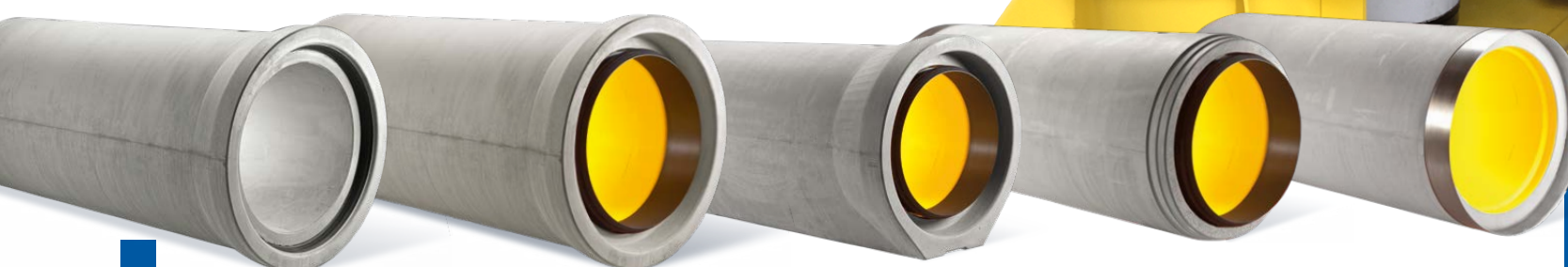
### Product parameters jacking pipe

Project based

The use of **PERFECT PIPE** is the first step towards a new dimension of wastewater systems.

The concrete-HDPE composite pipes lined with the **PERFECT Liner** give you a decisive advantage for handling our resources in a sustainable way.

**PERFECT PIPE** combines product benefits of robust concrete pipe and durable synthetic material.



## The right solution for every REQUIREMENT

### ▪ The Stationary Version

The individual moulds do not move, all materials are brought to the moulds. The hardened product is demoulded in the same position. The worker decides on the appropriate sequence of work steps.



### ▪ Simple Scheduled Production

The moulds are scheduled and move through production in a defined process. This results in a clear division of tasks and a comprehensible production sequence.



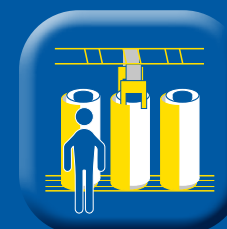
### ▪ Simple Scheduled Production with Automated Mould Handling

From demoulding to refilling, the moulds follow the pre-determined schedule. The system manages the hardening area, including storage and removal.



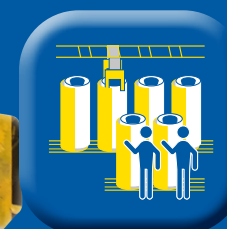
### ▪ The Fully Automated Production Process

The version with the highest degree of automation is designed for standard products. Skilled employees have more of a supervisory function.



### ▪ Combination of Part and Full Automation

Mass-produced and custom products combined in one production cycle: Here, skilled employees are sometimes responsible for supervisory functions and sometimes individual work steps, depending on the daily production program.



## AUTOMATION

**PERFECT PIPE** enables economical production of highly resistant pipe in customized production systems.



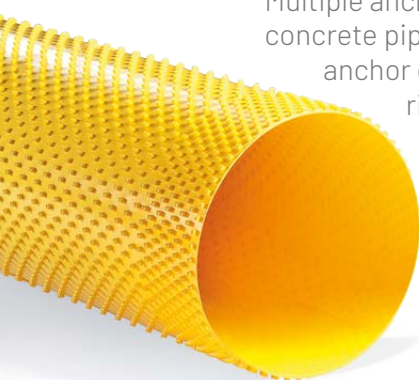


# PERFECT PIPE

## The robust concrete pipe. HDPE liner. The perfect leakproof connection via the connector.

The **PERFECT Liner** is made of high-density polyethylene (HDPE). This material is resistant to chemical attacks up to a pH-value of 1, abrasion-resistant and weldable.

Multiple anchoring points are used to connect the liner tightly to the surrounding concrete pipe. High density anchors lock to the pipe sections, and the optimum anchor geometry developed for **PERFECT PIPE** facilitates a reliable connection right through to the joint. Around the pipe joint, an increased number of anchors on the liner provide a reliable, permanent connection to the concrete pipe.



The pull-out strength of each anchor is more than 250 N (56 lbs.); the entire liner can safely withstand permanent groundwater pressure of at least 1.5 bar (22 psi). Even large temperature fluctuations will not cause the liner to separate from the surrounding concrete. Liners can be produced in varying material thicknesses 1.65 to 3 mm (0.065 to 0.12 inches) to accommodate different regional, standard- or project-specific requirements.

Technical Data PERFECT Liner	
Material	Polyethelene, PE-HD
Minimum thickness (mm)	1.65
Maximum thickness (mm)	3
Standard widths (mm)	980 / 2980
Standard colour	Yellow
Anchor length	7.5
Delivery unit/length	80
Weight (kg pro coil 1.65/2980 mm)	510

Corrosion resistant.  
High static load capacity.  
Simple to Install.  
Durable.  
Leakproof.

## Use of the Perfect Liner Involves the Following Procedural Steps

- Trimming the liner track according to the internal diameter of the pipe.
- Automatic welding of the liner track to the circumferential inner pipe lining.
- Shaping of the liner ends to joints for the required pipe connection.
- Setting-up the cast mould with a fixed **PERFECT Liner**.



## PERFECT Connector

A robust concrete pipe with **PERFECT HDPE Liner** requires the perfect connection. The pipe-to-pipe connection is sealed via the connector which is pre-installed at the factory. Plastic plug pipe connector is used to ensure that the corrosion-resistant properties of the liner remain intact, along the entire length of the pipe run. Tilting lip gaskets are used to create a permanent seal.



## Low Pipe Production Maintenance

Cast production permits an environmentally sound production process for all components – liners, moulds, and cores. The process used for SCC liner cast production is far more reliable than traditional pipe production methods.

Thanks to ongoing innovations in concrete technology and integration of HDPE liners, **PERFECT PIPE** will continue to provide permanent and reliable discharge for a wide range of sewerage systems lasting hundreds of years.



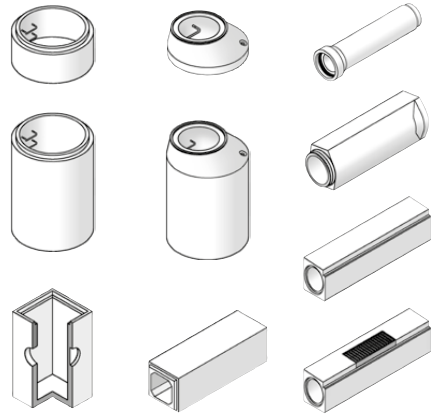




Modular, fully automatic production system for concrete pipe and manhole components

Product parameters
Up to Ø 32 inches (820 mm) external dimension, double production
Up to Ø 74 inches (1900 mm) or up to 54 x 54 inches (1340 x 1340 mm) external dimension, single production
Up to 8 ft. (2500 mm) building height
Up to 13200 lbs. (6000 kg) product weight

- Range of Products**
- Reinforced and non-reinforced pipe in single or double production
  - Pipe connection pieces
  - Manhole components (manhole rings, cones, pipes)
  - Non-circular diameter concrete products
  - Special products upon request



- Plant Concept**
- EXACT 2500 as sole production machine with manual product transport.
  - EXACT 2500 as fully automatic production system. Including production, transport, testing, and storage of the products, as well as cleaning, oiling, and manipulation of the headers and pallets.



- Performance Profile**
- Single and twin production possible
  - Production with or without headers, with the EXACT-mode for top product quality
  - "Just-in-time" production due to the automatic mould-quick-change system.
  - Minimal staff requirement (One-man-operation possible).







## EXACT XL

Versatile machine for manufacturing concrete products in large dimensions in a single-step production



## PRECISE

Production machine for reinforced and non-reinforced pipe, roadside drainage channels, pipe connection parts and manhole components



## MAGIC 1501

Flexible production machine for concrete pipe with rebated joints up to a maximum length of 5 ft. (1500 mm) and manhole components such as risers and cones



### Range of Products

- Reinforced and non-reinforced concrete pipes
- Manhole components (manhole rings, cones, manhole pipes)
- Non-circular diameter concrete products
- Custom products upon request

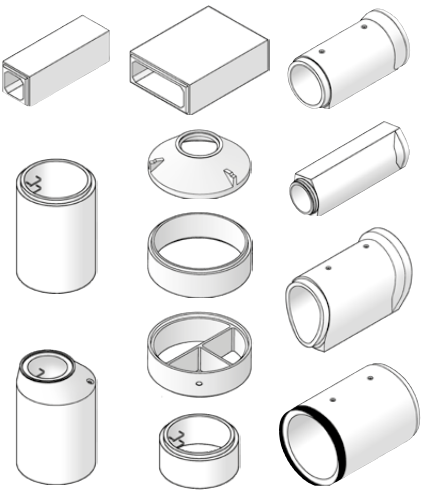
### Plant Concept

- EXACT XL** as sole production machine with manual product transport.
- EXACT XL** as fully automatic production system. Including production, transport, testing, and storage of the products, as well as cleaning, oiling and manipulation of the headers and pallets.

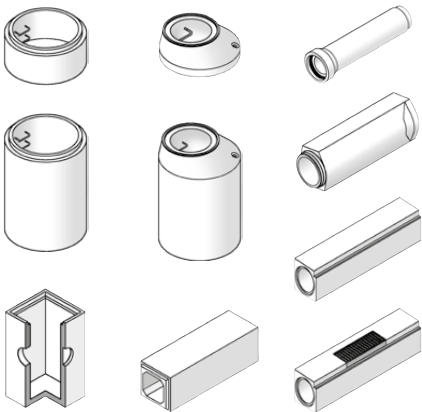
### Performance Profile

- Single production with one station or operation as a multiple-station plant.
- Production with optional use of top pallets.
- Optional use of **TRANSEXACT** automated crane for alternating transport of fresh and cured products, headers and pallets.

Product parameters
Up to Ø 168 inches (4200 mm) or up to 118 x 118 inches (2970 x 2970 mm) external dimension, single production
Up to 12 ft. (3600 mm) building height
Up to 66000 lbs. (30000 kg) product weight



Product parameters
Up to Ø 32 inches (820 mm) external dimension, double production
Up to Ø 72 inches (1800 mm) or up to 50 x 50 inches (1270 x 1270 mm) external dimension, single production
Up to 8 ft. (2500 mm) building height
Up to 8500 lbs. (3900 kg) product weight



### Range of Products

- Reinforced and non-reinforced pipe in single or double production
- Pipe connection pieces
- Manhole components (manhole rings, cones, manhole pipes)
- Road side channels
- Non-circular diameter concrete products
- Special products upon request

### Plant Concept

- PRECISE** as sole production machine with manual product transport.
- PRECISE** as fully automatic production system. Including production, transport, testing, and storage of the products, as well as cleaning, oiling, and manipulation of the pallets.

### Performance Profile

- Single and twin production possible
- One-man operation possible
- Automatic mould-quick-change system enables short change-over times for just-in-time production
- Modular plant concept.

### Range of Products

- Concrete pipe with rebated joints
- OGEE pipes
- Pipe connection pieces
- Catch basins
- Road side channels and half-shells
- Manhole rings and manhole cones
- Non-circular diameter concrete products
- Cover plates
- Palisades
- Roadside foundations
- Other products upon request

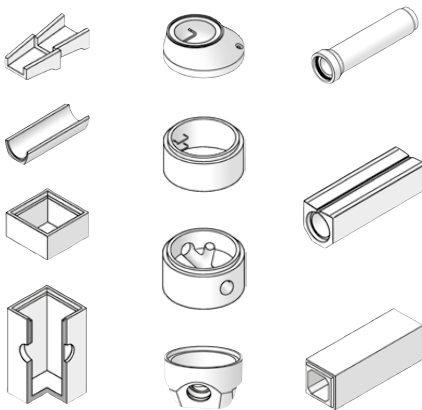
### Plant Concept

- MAGIC 1501** as sole production machine with manual product transport
- MAGIC 1501** as fully automatic production system. Including production, transport and storage of the products, as well as cleaning, oiling, testing, and manipulation of the headers and pallets.

### Performance Profile

- Single and multiple production possible
- One-man operation possible
- Automatic mould-quick-change system enables short change-over times for just-in-time production.
- Modular plant concept

Product parameters
Up to 32 inches (820 mm) external dimension in double production
Up to 72 inches (1800mm) or up to 72 x 72 inches (1800 x 1800 mm) external dimension, single production
Up to 5 ft. (1500 mm) building height
Up to 8800 lbs. (4000 kg) product weight







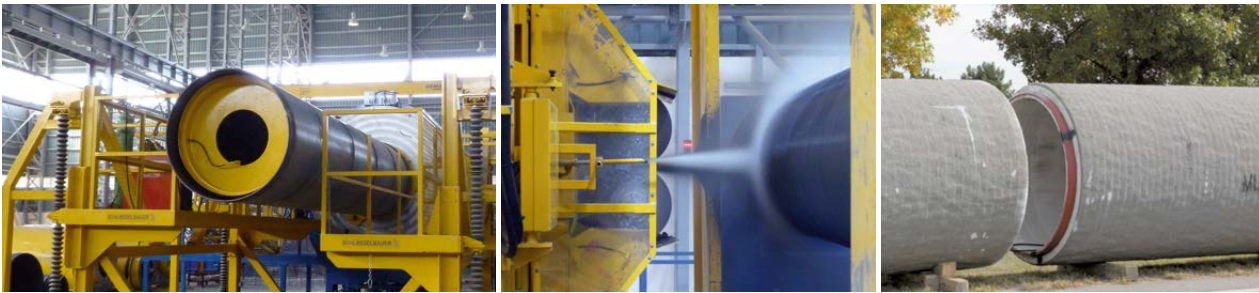
# PRESSURE PIPE

Prestressed concrete cylinder pipes (PCCPs) have been used since the mid-20th century for water mains and drinking water in all industrialized countries, especially in Europe and North America.

In North America, around 90% of all major water suppliers use concrete pressure pipe. This is an engineered product that combines the best features of cement and steel to create a robust structure for transporting liquids within a wide range of external and internal pressure. Pressure pipe with a diameter range of 400 mm to 3000 mm are used for drinking water transmission and distribution, in addition to sewer mains, industrial lines, chilled water lines, power plant cooling systems, and underwater inlets and outlets etc.

Typical of PCCPs produced by **SCHLUESSELBAUER's production technology** is the welded spiral steel cylinder. The hydrostatically tested waterproof steel cylinder guarantees the tightness of each pipe.

**SCHLUESSELBAUER** is the leading supplier of pressure pipe production technology in line with U.S. standards AWWA C301 and 304, and the European standard EN642, for prestressed concrete steel cylinder pipe (LCP) or prestressed concrete embedded steel cylinder pipe (ECP).



## Joint Ring and Steel Cylinder Fabrication / Testing

Profiled steel rings are cut, rolled, welded, and expanded to form joint rings. The coil is uncoiled and welded to form a watertight cylinder. Using the MIG process, joint rings are welded to the steel cylinder; the cylinders are then pressurized and water-tested for weld strength and defects. Any defects are repaired to ensure water tightness of the finished product.

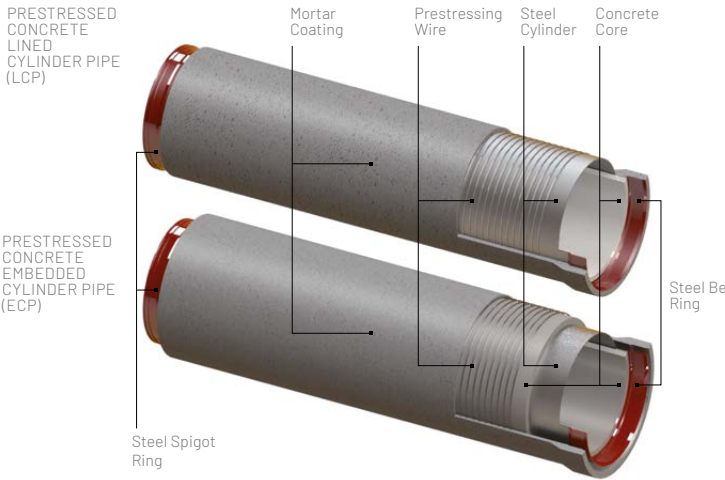
## Casting / Prestressing / Coating

The concrete pressure pipe's steel cylinder is either lined inside using a vertical dry cat process (LCP) or it is embedded in concrete in a wet cast process (ECP). After curing, the pipe is wrapped with prestressing steel wire and is coated with a special mortar.

## Automation

The production of PCCPs requires extensive expertise and well engineered production technology throughout the entire pipe manufacturing process, but especially in the areas of steel processing and concrete technology. The level of customization can be adapted to each customer, providing a balance between cycle time and overall capacity when fitting the system, while reducing the handling work required and optimizing the work flows.

## TYPES OF CONCRETE PRESSURE PIPE



Product parameters:	
Up to 20 ft. (6000 mm) product length	
Operating pressure up to 25 bar	
Up to 65 kN wire prestressing force with up to 6 m/s wrapping speed	
LCP 16 inches (400 mm) to 60 inches (1500 mm) nominal diameter	
ECP 24 inches (600 mm) to 120 inches (3000 mm) nominal diameter	



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TECHNOLOGY

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