



PIPES MANILA INC.

GERMAN TECHNOLOGY, FILIPINO INGENUITY



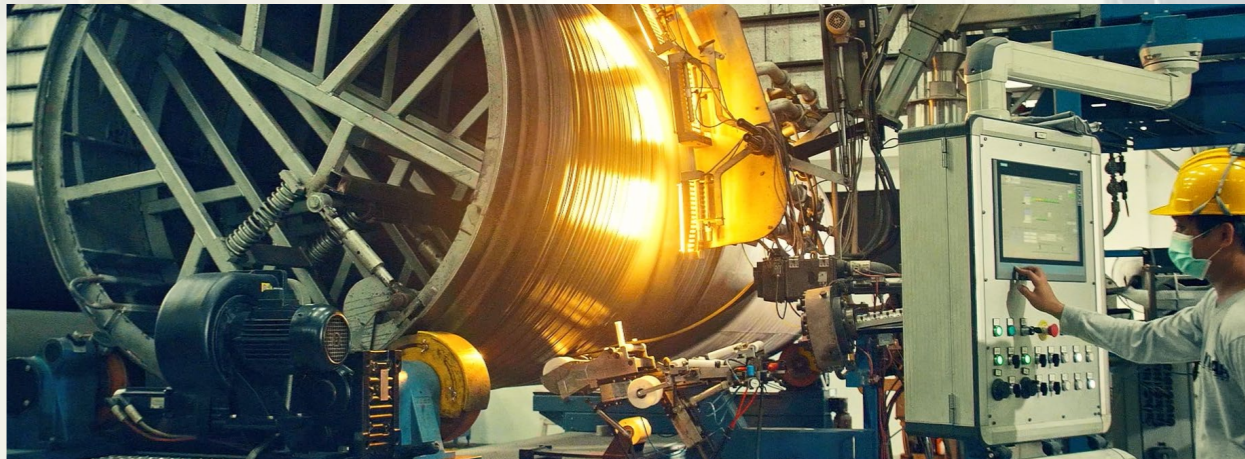
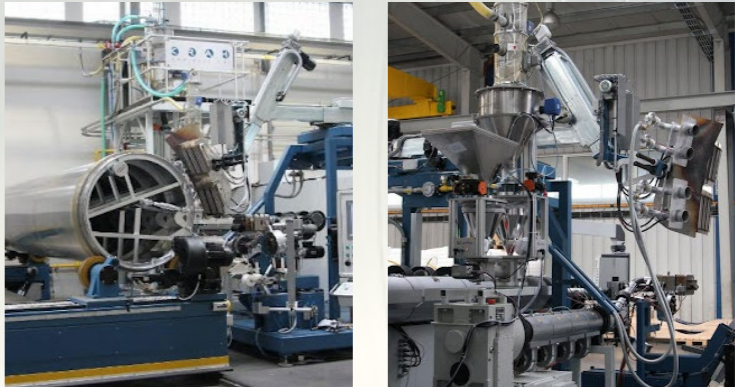
**THE LEADING MANUFACTURER OF
LARGE-DIAMETER HDPE PIPING
SYSTEMS DN/ID 400MM-3500MM**



KRAH TECHNOLOGY

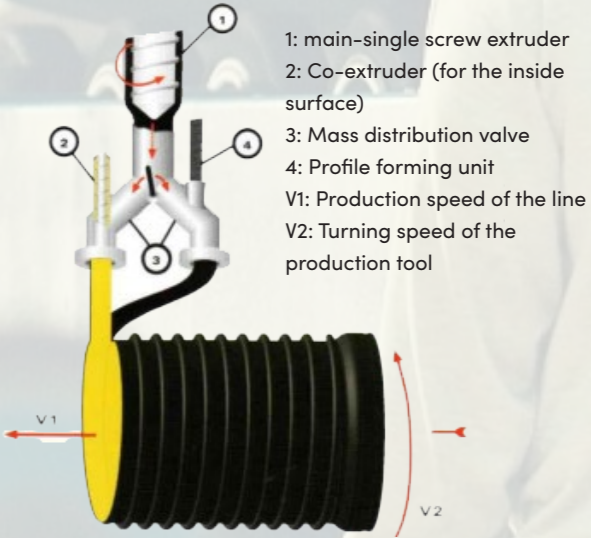


KRAH Germany, a company with more than 50 years of design, development, and manufacturing experience, is the manufacturer of the machines. Among their products are extruders with a 1000 kg per hour capacity.



Today, a single machine can produce pipes with diameters ranging from DN/ID 400 to DN/ID 3500, lengths of up to 6 meters, and a variety of stiffnesses, pressure classes, and profile options.

A profile is being extruded by an extruder or compounder. This heated profile is helical wound on a turning and foldable mandrel. Without using any welding, the heated profile, which may be either a solid or structured wall, is melted together. The mandrel size determines the pipe diameter, so the pipe is always measured by its inside diameter. The pipe wall is always completely homogeneous, and the inner surface is very smooth.



HIGH PERFORMANCE, HIGH SUPERIORITY



FEATURES



100 YEARS LIFE SPAN
The operating costs are reduced by the low initial investment costs and a service life of over 100 years.



TAILOR-MADE DESIGN
According to your specific project requirements.



UV RESISTANT
Resistant to atmospheric corrosion and UV radiation.



HIGH IMPACT STRENGTH
Strong pipes that can withstand impacts throughout shipment, installation and the entirety of their service lives are ensured by high impact resistance, even at low temperatures.



EARTHQUAKE PROOF
Even in the event of earth movement, the pipes are secure against damage.



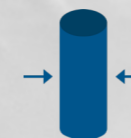
FLEXIBILITY
What bends does not break.



SMOOTH INTERIOR
Minimize fluid friction and flow resistance.



HYDRAULICS
In comparison to current traditional pipe materials, smaller pipe diameters can be used because of their excellent hydraulic properties.



TIGHTNESS
100% tight joints, no infiltration and exfiltration. 100% leak-free.



LIGHTWEIGHT
Easy to handle, easy to transport.

We take great pride in offering the best services and large-diameter pipes, and we firmly believe that this can only be done by hiring the most skilled and seasoned professionals.

- ✓ Trained by Germans
- ✓ A+ service philosophy

SPECIFICATIONS AND PROPERTIES

Thermoplastics like polyethylene and polypropylene have great (PE100) qualities for the construction of containers for solid and liquid substances as well as their use as water sewers.

All of the materials are eco-friendly

- High-Density Polyethylene (PE100)
- Polypropylene Block Copolymer (PP-B)

These materials feature the properties mentioned in the table.

PIPE DIAMETER

Krah pipes are available in internal diameters (ID) ranging from 400mm to 3500mm. The D/N is the same as the I/D. In the event of a change, the wall thickness can be increased or decreased while the I/D remains constant.

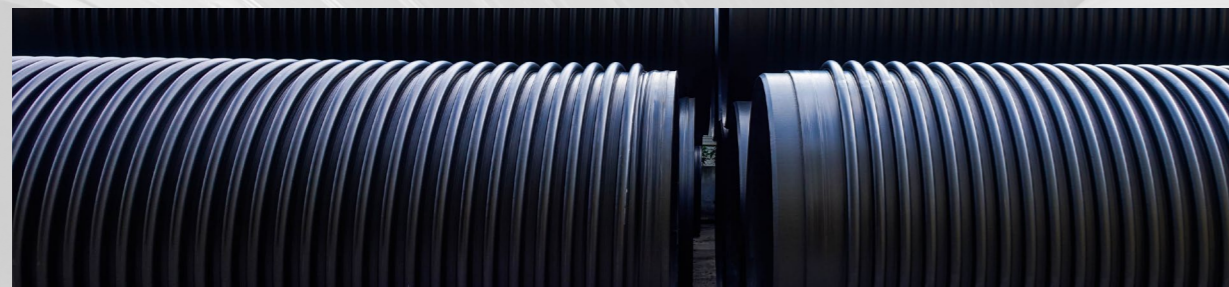
This ensures that the designated hydraulic capacity for the installation is maintained.



MATERIAL SPECIFICATION

PROPERTY	STANDARD	UNIT	PE 100	PP-B
DENSITY	DIN 53479 ISO 1183	g/cm ³	0.96	.9
Melt index			0.45	.3
MFR 190/5	Code T	g/10	6.6	-
MFR 190/21.6	Code V	min	-	.3
MFR 230/5	Code V			
Tensile Modulus			1200	-
Short-time	ISO 178	N/mm ²	700	-
Long-time 50yrs				
Yield stress	DIN 53495	N/mm ²	25	-
Tensile strength	DIN 53495	N/mm ²	38	-
Elongation at break	DIN 53495	%	>600	-
ball indentation hardness	ISO 2039	N/mm ²	46	-
coefficient of linear thermal expansion	DIN 53752	1/°C	1.8x10 ⁴	-
Colour			Black/ yellow	White

STANDARD ASTM F894



Krah pipes have a typical lay length of six meters. Additionally, any length between one and six meters can be produced continuously. Fewer joints are required when a pipe is longer, which is advantageous for installation. Also, it is ideal to deliver the pipes already joined, which can significantly shorten the time required for installation on site. Flatbed delivery trucks typically have a length of 40 feet and can hold loads up to 12 meters.



ANY LENGTH UP TO 6M IS AVAILABLE

DN/ID	DN/OD range
400mm	410-560mm
500mm	510-660mm
600mm	610-760mm
800mm	810-960mm
1000mm	1010-1160mm
1200mm	1210-1360mm
1400mm	1410-1560mm
1500mm	1510-1660mm
1600mm	1210-1360mm
1800mm	1410-1560mm
1900mm	1910-2060mm
2000mm	1610-1760mm
2100mm	2110-2260mm
3000mm	2210-2360mm



STANDARD : ISO 9969

Available in various Ring Stiffness Class: SN2, SN4, SN6, SN8, SN10, SN12, SN14, SN16

We also manufacture lower stiffnesses that are not specified above:

- Tailor-made

TEST REQUIREMENT	STANDARDS
RING STIFFNESS	DIN EN ISO 9969
CREEP MODULUS	DIN EN ISO 899-2
MELT MASS-FLOW RATE (MFR)	DIN EN ISO 1133
WALL THICKNESS	DIN 16917
OVALITY/DIAMETER	DIN 16917, ISO 3126
FLATTENING TEST	ASTM F894-07



LARGE-DIAMETER STRUCTURED WALL PIPE



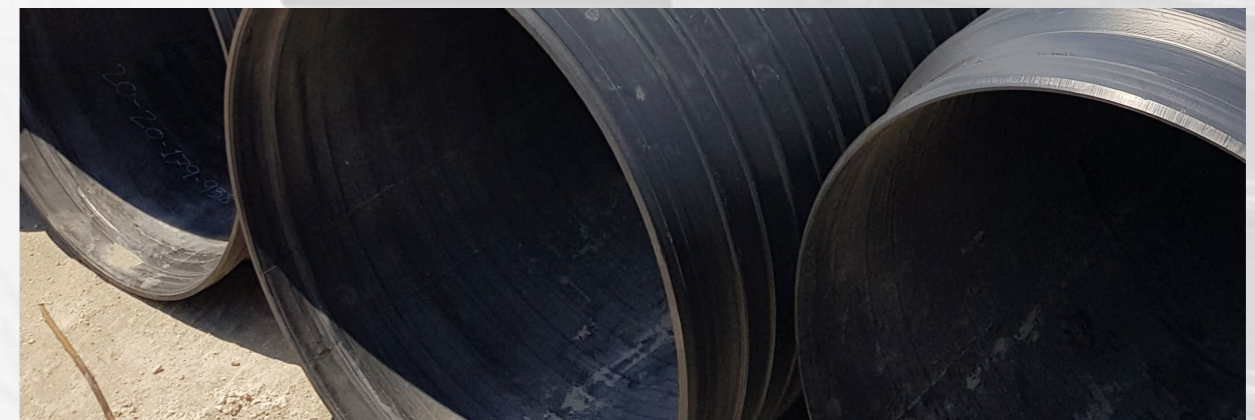
STRUCTURED WALL PIPE/ PROFILED WALL PIPE (PR)

- For Low Ring Stiffness: Class SN2, SN3, SN4, SN5
- Diameter sizes below 1000mm (900mm-400mm)



COVERED PROFILE WALL PIPE (CPR)

- For Medium Ring Stiffness- Class: SN6, SN8, SN10, SN12, SN13 Diameter sizes above 1000mm-2000mm



SOLID WALL PIPE

- For pressurized application
- Class: 1 BAR, 2 BAR, 3 BAR, 4 BAR
- Also to fabricate different fittings such as bends, reducers, and manholes

FITTINGS AND MANHOLES



MANHOLES

Standard

Used when the manhole shaft is larger than the pipelines' inlet and outlet.

Tangential

Used when the manhole shaft is smaller than the pipelines' inlet and outlet.

Special

Custom-made manholes for the client.



FITTINGS

Bends

The bend's related radius to the pipe diameter can be chosen independently, and it can be manufactured and segmented at various angles.

- Any bending ratios
- In different sizes
- Different degrees



Branches

Each angle, ranging from 15° to 90°, as well as the endpoints and corresponding segment lengths, can be customized.

- In different sizes
- Y Branch
- T Branch
- Customizable with mechanical joints

a	number of segments
15°	2
30°	2
45°	3
60°	3
75°	4
90°	4

Reducers

Each angle, ranging from 15° to 90°, as well as the endpoints and corresponding segment lengths, can be customized.

- In different sizes
- Y Branch
- T Branch
- Customizable with mechanical joints



Flanges

Can be manufactured in accordance with particular PN Standard project specifications.



JOINTING TECHNOLOGY

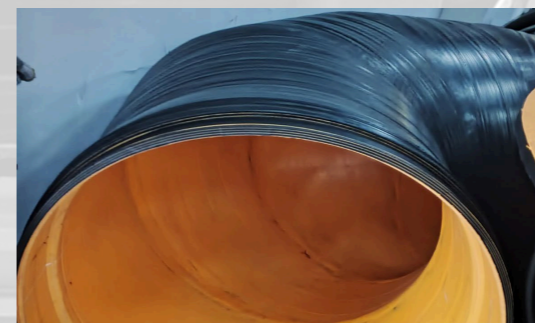
This jointing technology eliminates your concerns by guaranteeing a solid, homogeneous pipeline.

- ✓ 100% tightness
- ✓ 100% leak-free

1+170



INTEGRATED ELECTRO-FUSION



The wire is heated with the help of a fusion device whereby the two pipe ends (the socket and the spigot) are welded together.



Pipe can be installed quickly thanks to this single welding device.

Shorter installation times mean faster project completion.

“LIGHTWEIGHT, FLEXIBLE, EASY TO INSTALL!”



Additional advantages include the ability to install in small trenches without the use of heavy equipment and quick piping installation due to the simultaneous use of numerous fusion devices. The final joint is a tight one that is permanently attached.



TAILOR-MADE TO YOUR PROJECT'S REQUIREMENTS

Due to their adaptability and variety of profiles, Krah pipes are suitable for a wide range of application fields, including:

LARGE PIPE APPLICATION:



SEWERAGE

DPWH - Baseco Compound Sewer Interceptor, Metro Manila



IRRIGATION

NIA - Masaya Sur Communal Irrigation Project (MSCIP), San Agustin Isabela



POWER PLANT

14.5MW Siguil Hydro Power Plant, Maasim Sarangani Province



WATER SYSTEM

MWSI - Quezon City Rehabilitation of Lamesa Water Treatment Plant 1, Quezon city



DRAINAGE

DPWH - Baguio City Marcos Highway Pipe Culverts & Drainage, Baguio City



SEA OUTFALL

DPWH - Roxas Boulevard Manila Bay Outfall, Metro Manila



LAND DEVELOPMENT

Private Developer - Project NuVista, San Jose Bulacan



WATER STORAGE SYSTEM

NSCR project-water tank HDPE 2000mm Guiguinto, Bulacan

ADVANTAGES OF KRAH PIPES:

- ✓ Our HDPE pipes are 10x lighter than RCP
- ✓ 15% reduced project cost versus RCP
- ✓ 50% reduced project cost versus steel
- ✓ 100 years serviceability
- ✓ 100% quality assured
- ✓ Zero leak issue

MANUFACTURING EXCELLENCE SINCE 2015



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