Pexgol

Mining & Mineral Processing Piping Solutions

Innovative Piping for Advanced Mining

Pexgol's PE-X (crosslinked polyethylene) pipes represent a breakthrough in piping technology, specifically tailored for the rigorous demands of the mining industry. These pipes are crafted from high-density polyethylene, which undergoes a unique **crosslinking** process. This process forms a r**esilient three-dimensional molecular network**, endowing the pipes with unparalleled strength and durability.

Superior Mechanical and Abrasion Resistance

The molecular structure of PE-X grants these pipes exceptional resistance to a wide range of chemicals, making them ideal for transporting various abrasive fluids, chemical agents, slurries, and even toxic or radioactive materials encountered in mining operations.

Temperature Resilience

Designed to withstand extreme temperature variations, Pexgol pipes operate efficiently in environments ranging from -50°C (-58°F) to 110°C (230°F), ensuring consistent performance under diverse conditions.

Energy-Efficient Fluid Transport

The smooth internal surface of Pexgol pipes reduces frictional losses, leading to more efficient fluid transport and significant energy savings: Up to 4.5% less than HDPE and up to 12% less than Steel.

Eco-Friendly and Cost-Effective

The robustness of PE-X reduces the need for frequent replacements, aligning with sustainable mining practices and reducing operational costs.

Adaptable and Flexible Design

The inherent flexibility of Pexgol pipes, combined with their availability in long coil lengths, facilitates easy handling and installation, even in challenging mining environments. Fewer joints are required, which minimizes installation time and risks, streamlining the entire process.

Allowable Working Pressures

Allowable working pressures [psi] for water conveyance in Pexgol pipes, with a safety factor C = 1.25

Design Temperature°C	Design Temperature °F	Series (S)					
		8	6.25	5	4	3.15	2.5
		SDR					
		17	13.5	11	9	7.3	6
10	50	154	197	247	308	391	493
20	68	138	176	220	276	350	441
30	86	121	154	193	241	306	386
40	104	107	137	171	214	272	342
50	122	95	122	152	190	242	305
60	140	87	111	139	174	221	278
70	158	77	99	123	154	196	247
80	176	68	87	109	136	173	218
90	194	61	78	97	121	154	194
95	203	58	74	93	116	147	186
100	212	50	64	80	100	127	160
105	221	41	52	65	82	104	131
110	230	37	47	59	73	93	117

Allowed Pressures

For closed valve: 1.25 times the nominal pressure.
For water hammer: 2.5 times the nominal pressure.
Vacuum resistance: 100% from class 15 onwards.

Roughness Coefficient

- Absolute roughness: 0.0006mm
- C factor in Hazen-Williams formula: C=155

Natural Bending Radius

Pipe	SDR					
	17	13.5	11	9	7.3	6
4"	10.0D	8.5D	6.5D	5.5D	4.5D	3.5D
6"	10.0D	8.5D	6.5D	5.5D	4.5D	3.5D
8"	10.0D	8.5D	6.5D	5.5D	4.5D	3.5D
10"	12.0D	10.0D	8.0D	6.5D	5.0D	4.0D
12"	16.0D	13.5D	11.0D	8.5D	7.0D	5.5D
14"	16.0D	13.5D	11.0D	8.5D	7.0D	5.5D
16"	20.0D	17.0D	13.0D	10.5D	8.5D	7.0D
18"	20.0D	17.0D	13.0D	10.5D	8.5D	7.0D
20"	24.0D	20.0D	16.0D	13.0D	10.0D	8.0D

Applications in Mining with Pexgol Solutions

Slurries

- **Efficient Slurry Transport:** Pexgol pipes are expertly designed for the transport of tailings and mineral concentrates. Their robust construction makes them ideal for the harsh conditions often encountered in slurry transport.
- **Resilient Against Wear and Corrosion:** These pipes exhibit exceptional resistance to abrasion (three times more than HDPE and twice that of steel) and a wide range of chemical agents, slurries, toxic, and radioactive materials. This ensures longevity and reliability in demanding environments.
- **Temperature and Energy Efficiency:** With a high-temperature resistance range and low energy losses, Pexgol pipes optimize the transport process, reducing operating expenses significantly.

Service Lines for Mines

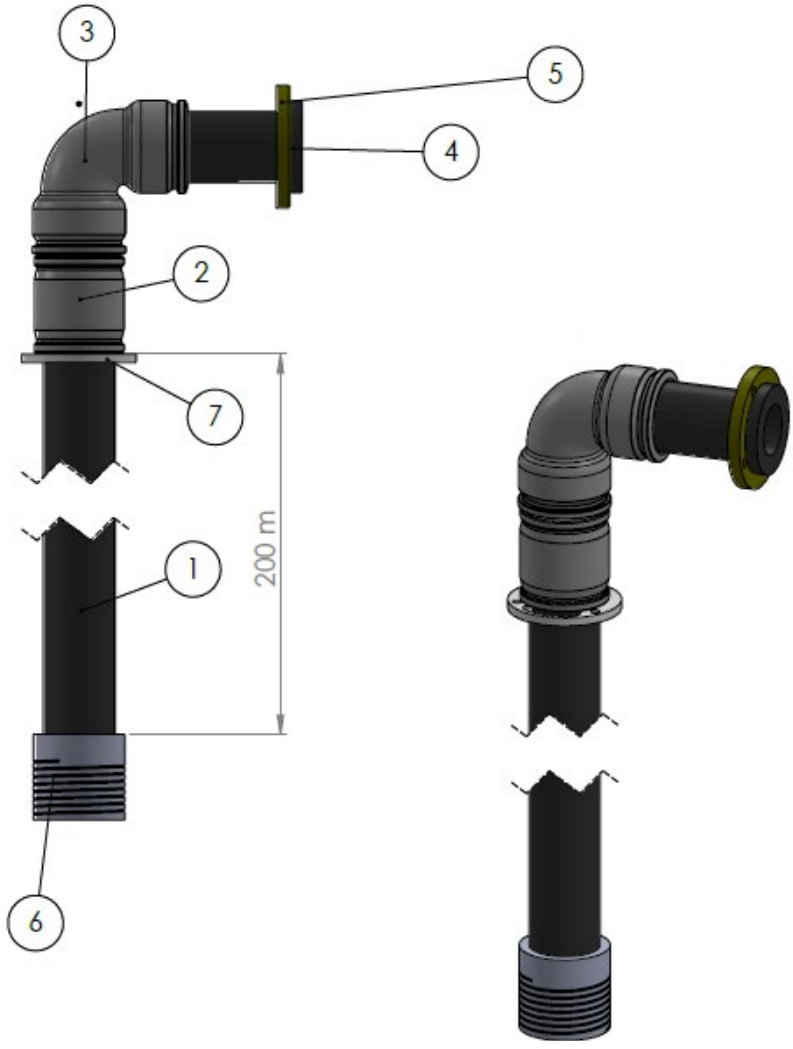
In underground mining, installing pipes for essential functions like **drainage, compressed air supply, and transporting cement slurries and paste** is challenging. The complexity increases with materials that require frequent joints, raising costs and necessitating steel cables to support the pipe column's weight.

Pexgol pipes offer an efficient solution with their high tensile strength, allowing for continuous pipe installation, **making the process safer, quicker, and more cost-effective**. This feature reduces the need for frequent joints, significantly cutting installation and operational costs, and is designed to withstand the demanding conditions of underground mines, ensuring efficient material transport.

Boreholes

- **Versatile Usage:** Specifically designed for underground mines, Pexgol pipes efficiently transport various materials.
- **Reduced Installation and Operational Costs:** The long coil lengths of Pexgol pipes minimize the need for joints, thereby facilitating quicker, safer, and more cost-effective installations. This feature also contributes to reduced maintenance and equipment costs.
- **Available in a single piece:** Up to 300 m with electrofusion and mechanical connectors ensuring leakage-free use.
- **Supports total system weight:** heavy pump, motor, water column, cables and its own weight.
- Pexgol doesn't require threaded connections.
- 50 years operational lifetime.

Typical Layout & Connections



References

1. Pexgol Pipe
2. Electrofusion coupler
3. Electrofusion elbow
4. Flared End
5. Flanged connection ASA 150
6. Threaded connection NPT
7. Discharge head support plate

The Pexgol water well system is compatible with all major pump manufacturers:

- DAB
- EMU
- EMS
- Grundfos
- K.S.B.
- Pleuger
- Wilo-Salmson

Dewatering

- **Tailored for Challenging Conditions:** Pexgol pipes are particularly suited for dewatering in less-than-ideal field conditions, offering high pressure tolerance in a lightweight design.
- **Mechanical Strength and Flexibility:** Their inherent flexibility and resistance to strain and water hammer make them resistant to failure, while their corrosion resistance ensures long-term integrity without the need for extensive maintenance.
- Can be used multiple times.
- Does not require supports.

Processing Plants

- **Ideal for Hydrometallurgy:** Pexgol pipes meet the demands of various hydrometallurgy processes such as leaching and metal recovery. They offer corrosion resistance to substances like H_2SO_4 and H_2S, good wear resistance, and low adherence, which is essential for scale-forming solutions.
- **Operational Advantages:** Their ability to handle high temperatures (up to 130°C), flexibility, and mechanical strength make them suitable for most conditions in plant pipelines.
- Low adherence due to low superficial roughness (ideal for scale forming solutions).
- **Good flexibility and mechanical resistance** (impact, scratching).
- Can be supplied in lengths longer than any other pipe type.
- Internal abrasion can be monitored by standard ultrasonic devices..
- **Efficient fittings and easy to install.**

Compressed Air

- **Enhanced Air Delivery Systems:** In underground mining, Pexgol pipes ensure safe and efficient compressed air transportation. Their long coils and resistance to high temperatures and impact make them ideal for deep underground applications.
- **Installation and Operational Benefits:** The inherent flexibility and high strain resistance of Pexgol pipes reduce the risk of air leaks and enhance installation security, contributing to overall mine safety.

Brine Processing (Non-Metallic Mining)

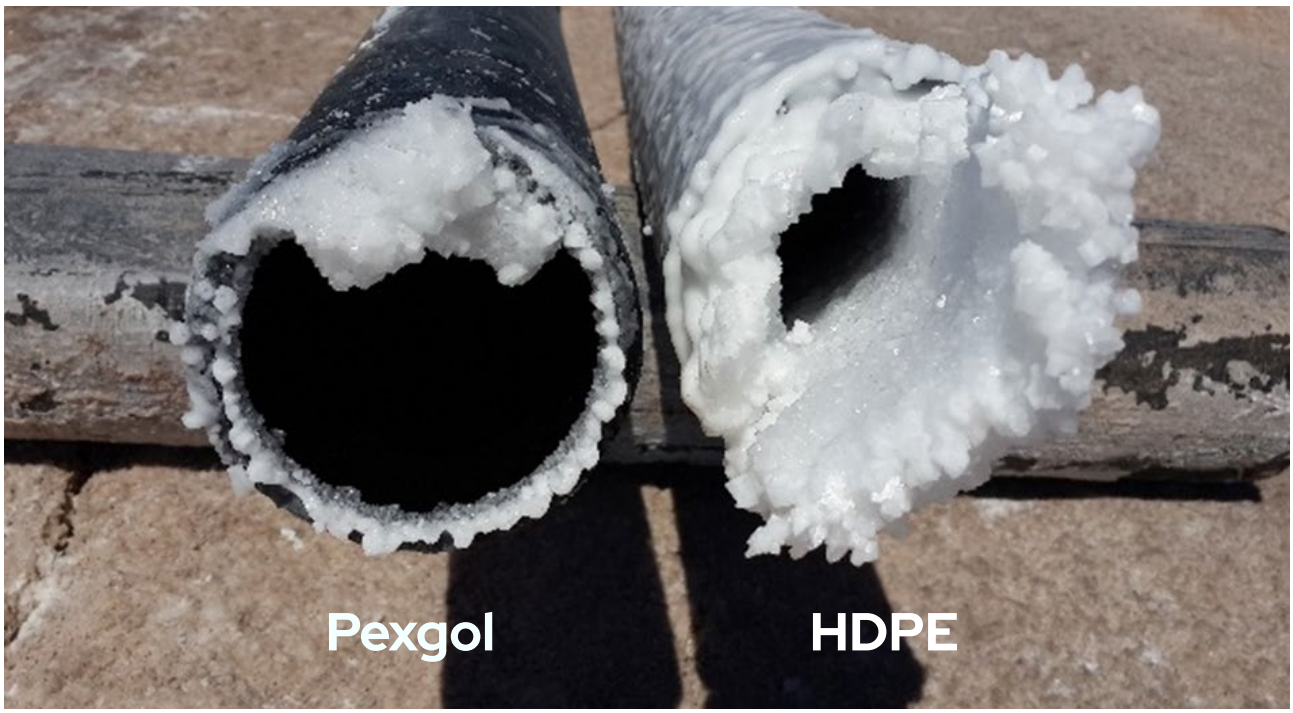
Pexgol can enhance the production process of lithium, magnesium, potash and table salt. Pexgol's unique pipes, with their smooth internal surface, broad range of working temperatures, and enhanced wear resistance, emerge as the superior choice for these challenging applications.

Plant Applications: Streamlining Operations

- **Preventing Material Buildup:** Pexgol pipes effectively reduce or even eliminate internal material buildup, maintaining a clear flow channel and reducing maintenance needs.
- **Cost-Effective Material Choice:** Offering a more economical alternative to exotic alloys and RLCS, Pexgol pipes reduce upfront material costs without compromising quality.
- **Resilience to Acidic Environments:** These pipes exhibit long-term corrosion resistance in acidic conditions, ensuring durability and longevity.
- **Ease of Maintenance and Repair:** As solid wall pipes, Pexgol solutions simplify the repair process, avoiding the complexities often associated with rubber-lined pipes.

Field Applications: Boosting Productivity

- **Significant Energy Savings:** Pexgol pipes can lead to up to 20% energy savings compared to other pipe materials, significantly enhancing overall system productivity.
- **Simplified Cleaning Processes:** The design of Pexgol pipes allows for faster and easier cleaning, minimizing downtime and maintenance efforts.



Advantages Unique to Pexgol in Brine Processing

- **Temperature Adaptability:** Capable of functioning efficiently in temperatures ranging from -50°C to 110°C.
- **Ultra-Smooth Internal Surface:** This feature reduces maintenance, lowers costs, and prevents brine from sticking to the pipe walls.
- **UV Resistance and Long Length Sections:** Pexgol pipes offer UV resistance and are available in continuous sections, reducing the likelihood of leaks and coupling issues.
- **High Abrasion Resistance:** Their greater abrasion resistance minimizes the risk of fissures and leaks, crucial in the brine processing environment.

Pexgol Sustainability in Mining Operations

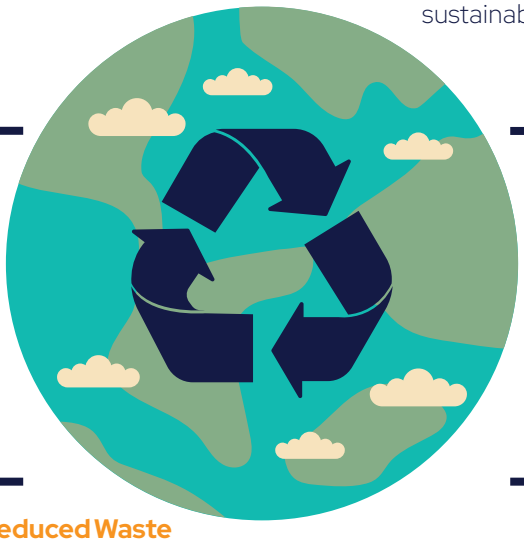
Pexgol's commitment to sustainability is deeply embedded in our innovative pipe solutions, designed to support **eco-friendly and efficient mining practices**. Our crosslinked polyethylene (PE-X) pipes play a crucial role in minimizing environmental impact while maximizing operational **efficiency**.

Reduced Material and Maintenance Costs

The unique properties of Pexgol pipes, including their resistance to corrosion and abrasion, result in lower material costs over time compared to exotic alloys and RLCS. Additionally, the reduced need for maintenance contributes to a lower overall environmental footprint.

Eco-Friendly Installation and Operation

Pexgol pipes can be installed quickly and efficiently, requiring fewer resources and less energy. This eco-friendly installation process, combined with the pipes' ability to withstand harsh mining environments, ensures a sustainable operation from start to finish.



Long-Term Durability and Reduced Waste

Pexgol pipes are engineered for a lifespan of over 50 years, significantly reducing the need for frequent replacements and minimizing waste. This longevity is a testament to our commitment to sustainable mining practices.

Energy Efficiency

Our pipes offer up to 20% energy savings compared to traditional pipe materials. This efficiency is crucial in large-scale mining operations, where energy consumption has a direct impact on the environment.

Minimizing Environmental Disruption

The flexibility and resilience of Pexgol pipes allow for installation in diverse and challenging terrains, reducing the need for extensive land alteration and preserving the natural environment.

Resource Conservation

By preventing internal material buildup and offering superior wear resistance, Pexgol pipes ensure the efficient use of resources, reducing wastage and promoting sustainable resource management in mining operations.

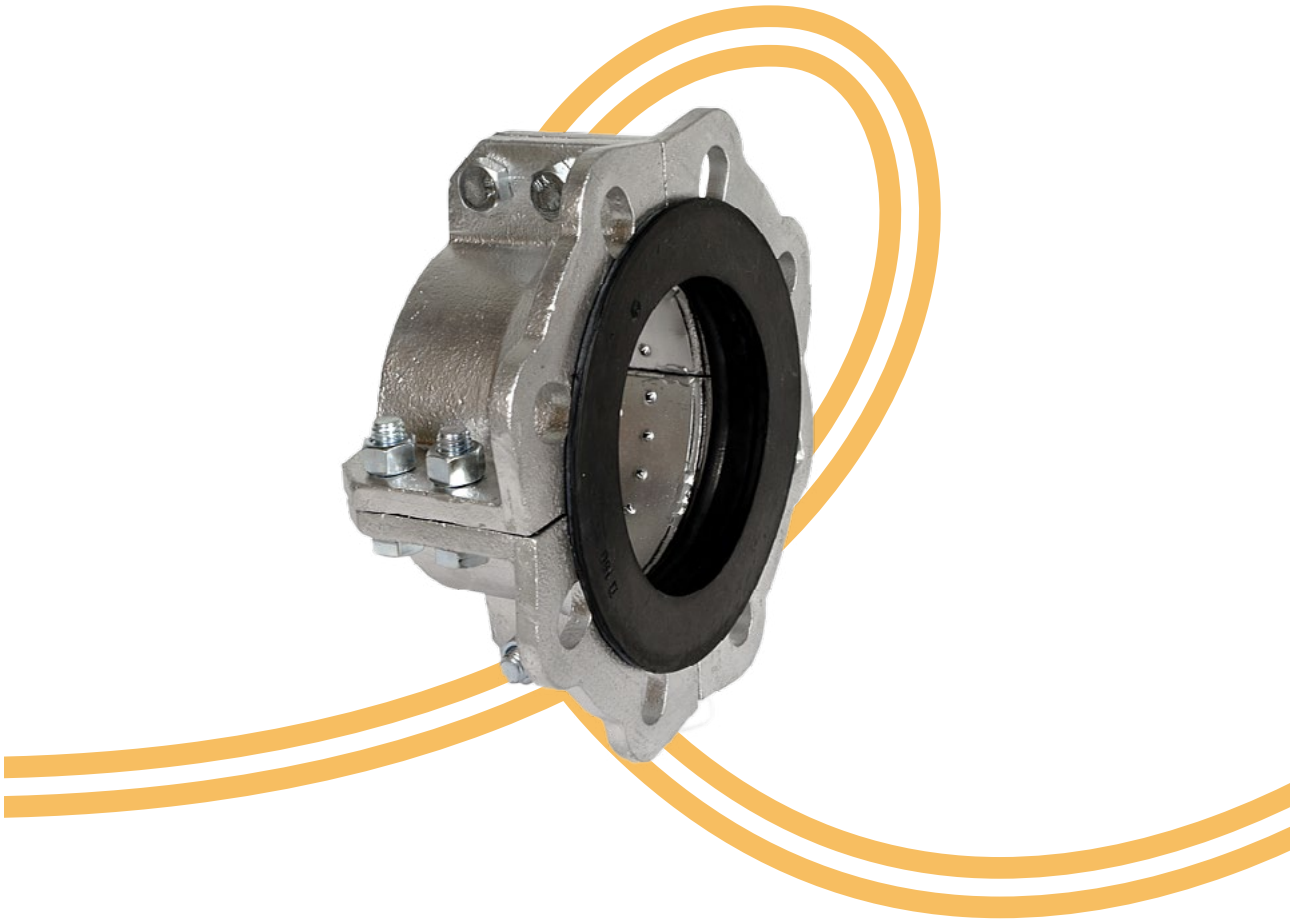
Fittings & Connections

We offer a full piping solution that includes a wide range of fittings and accessories for easy, cost-efficient and quick installations.

GP Flanged Couplers

Available sizes from diameters 63 mm to 710 mm. The flange are ANSI150 compatible and have oval holes designed to fit other international standards. The couplers can be used for the full range of temperatures and pressures, as Pexgol pipes from class 10 to 30.

The GP flanged couplers are supplied as two halves or four quarters, depending on the pipe size and include an EPDM gasket.



Electrofusion Fittings

Electrofusion fittings are used to connect Pexgol cross-linked polyethylene pipes. The pipes and fitting are joined by electrofusion welding, creating a leak-proof seal. During the electrofusion process, a current is transported through a heating wire.

The surrounding material (around the wire) is melted, welding the pipe to the fitting.

Service temperature for the PE 100 electrofusion fittings is limited to 40°C. For higher temperatures reinforced electrofusion couplers "series 1" (up to 70°C) and "series 2" (up to 90°C) can be used according to temperature requirement .

Pexgol approves and supplies the following fittings systems and installation tools: Plasson, Friatec, GF/Wavin.

Victaulic 905 Double Connector

Designed for flat-end HDPE pipes (SDR 7 - SDR 26).
Sizes from 2 to 14" IPS.
The nominal pressure meets or exceeds the performance capabilities of the pipe.

Transportation

An outstanding feature of the Pexgol pipe is its flexibility, due to the cross-linked structure. This structure enables the pipe to return to its original diameter after de-coiling. As a result, Pexgol is able to supply longer lengths of pipe, compared to other suppliers and types of pipes. Pexgol pipes can be shipped in coils, coils with cores and straight sections.

Pexgol pipes for the mining industry are available in diameters **from 63 mm (2") to 355 mm (14") as coils** or as **straight section of 11.8 m** for all diameter **up to 710 mm**.

Pexgol pipes in roll with maximum dimension, external diameter up to = 3.95 meters.

Pipe		Maximum Length per coil (m)	Maximum Length per coil (ft)
Outside diameter (mm + in)	Class		
63 (2")	12	4,500	14,760
63 (2")	15	4,500	14,760
63 (2")	19	4,500	14,760
63 (2")	24	4,500	14,760
63 (2")	30	4,500	14,760
75 (2,5")	10	NA	NA
75 (2,5")	12	3,300	10,824
75 (2,5")	15	3,300	10,824
75 (2,5")	19	3,300	10,824
75 (2,5")	24	3,300	10,824
75 (2,5")	30	3,300	10,824
90 (3")	10	NA	NA
90 (3")	12	2,000	6,560

Pipe		Maximum Length per coil (m)	Maximum Length per coil (ft)
Outside diameter (mm + in)	Class		
90 (3″)	15	2,000	6,560
90 (3″)	19	2,000	6,560
90 (3″)	24	1,300	4,264
90 (3″)	30	1,300	4,264
110 (4″)	12	1,300	4,264
110 (4″)	15	1,300	4,264
110 (4″)	19	1,300	4,264
110 (4″)	24	1,000	3,280
110 (4″)	30	1,000	3,280
125 (4″)	12	1,000	3,280
125 (4″)	15	1,000	3,280
125 (4″)	19	1,000	3,280
125 (4″)	24	760	2,493
125 (4″)	30	900	2,952
140 (6″)	12	900	2,952
140 (6″)	15	900	2,952
140 (6″)	19	900	2,952
140 (6″)	24	450	1,476
140 (6″)	30	620	2,034
160 (6″)	12	620	2,034
160 (6″)	15	620	2,034
160 (6″)	19	620	2,034
160 (6″)	24	400	1,312
160 (6″)	30	450	1,476
180 (6″)	12	500	1,640
180 (6″)	15	500	1,640
180 (6″)	19	500	1,640
180 (6″)	24	500	1,640
180 (6″)	30	500	1,640

Pipe		Maximum Length per coil (m)	Maximum Length per coil (ft)
Outside diameter (mm + in)	Class		
200 (8″)	12	270	886
200 (8″)	15	350	1,148
200 (8″)	24	350	1,148
200 (8″)	30	350	1,148
225 (8″)	12	176	577
225 (8″)	15	245	804
225 (8″)	19	245	804
225 (8″)	24	300	984
225 (8″)	30	300	984
250 (10″)	15	150	492
250 (10″)	19	200	656
250 (10″)	24	250	820
250 (10″)	30	230	754
280 (10″)	15	125	410
280 (10″)	19	170	558
280 (10″)	24	170	558
280 (10″)	30	170	558
315 (12″)	15	65 (with core)	213 (with core)
315 (12″)	19	100	328
315 (12″)	24	150	492
315 (12″)	30	150	492
355 (14″)	19	57 (with core)	187 (with core)
355 (14″)	24	100	328
355 (14″)	30	100	328

Pexgol | Golan Plastic Products Ltd.
Kibbutz Shaar HaGolan, 1514500, Israel
T. +972-77-9021040
F. +972-77-9021010
contact@pexgol.com
www.pexgol.com

ArgPex
Auxiliar Ruta 40, Lote 2
Parque Industrial Las Heras (5543)
Las Heras, Mendoza, Argentina
info@argpex.com
www.argpex.com

Crosspipe Systems
Av. Héctor Gómez Cobo Nº910,
Sector La Negra, Antofagasta
Chile
contacto@crosspipe.cl
www.crosspipe.cl

Golan Pipes Scandinavia
Lollandsvej 16 - DK-5500
Middelfart, Denmark
info@golan.dk
www.golan.dk

Quickpipes Systems
Paseo de los Industriales Poniente 306
Parque Industrial Silao FIPASI
36100, Silao de la Victoria
Guanajuato, México
contacto@quickpipes.com.mx
www.quickpipes.com.mx

Pexgol PE-Xa Pipes

Pexgol PE-Xa cross-linked polyethylene line pipe has many features that make it an excellent, cost-effective alternative to other pipe materials:

- Excellent chemical and corrosion resistance (chemical agents, slurries, toxic materials, radioactive materials).
- Reduced installation costs with long-length coils/spools.
- Improved flow capacity due to smooth interior surface.
- High resistance to abrasion and UV exposure.
- Wide working temperature range.