

**Pexgol** Piping Solutions

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# Oil & Gas

—  
2018

**PEXGOL**  
X-LINKED PIPING SOLUTIONS





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# Pipes and Pexgol solutions

**Pexgol**, a division of **Golan Plastic Products**, is a global producer of heavy duty PE-Xa pipes. Pexgol pipes are produced from a material enhancing the pipes' chemical durability and flexibility through creating chemically unbreakable cross-connection between polyethylene chains.

**Pexgol** cross-linked polyethylene pipe system is the result of a high stability molecular

network formation, with a unique and adaptable design that offers an excellent solution for the transport of liquids and other substances that require great chemical and mechanical resistance.

**Pexgol presents a wide range of products that respond to different needs and industrial applications.**



## Products

PEXGOL TECHNICA:



PEXGOL OPTIMUS:



PEXGOL TERRA:





# Applications

1.

## OIL & OILFIELD WATER-BASED FLUIDS

- **Complying with API 15-PX** for conveying oil and non-potable water in underground, aboveground and re-liner applications as well as complying with **ISO 14531** requirements.
- Pexgol is reliable, with **more than 30 years of experience** with installations all over the world.
- **High range temperature resistance:**  
-50°C/-58°F to 110°C/230°F
- **Excellent chemical and corrosion resistance.**
- **Superior abrasion resistance.**





## 2.

### NATURAL GAS, LIQUEFIED PETROL GAS (LPG) & LIQUID HYDROCARBONS

- **Complying with API 15-PX** for conveying gas in underground, aboveground and re-liner applications as well as complying with **ISO 14531** requirements.
- **High range working temperature:**
  - ISO 14531: -50°C up to 60°C (for exposed pipes)
  - ASTM F2818: -50°C up to 90°C
  - API 15-PX: 10°C to 95°C
- **Superior abrasion resistance.**
- **Resistant to slow crack growth.** Pexgol's molecular structure ensures resistance to stress and cracks, preventing the potentially dangerous leaks of gas.
- **No RCP failures.**
- **Long length pipe sections.**
- **No need for sand embedding.**



## 3.

### FIRE EXTINGUISHER SYSTEMS & HYDRANTS

**Pexgol** pipes are suitable for fire extinguisher systems for Oil & Gas treatment plants.

A must-have requirement for fire extinguisher piping systems in many countries is the ability to withstand earthquakes or other earth movements. Due to its exceptional strength and flexibility, Pexgol is an ideal solution for this application.

#### Pexgol Advantages:

- The pipes are **very resistant** and can be placed in a trench **without sand embedding**.
- **Working temperature ranges from -50°C up to 110°C.**
- **Long length pipe sections:** Continuous sections imply lower risk of leakage and uncoupling.
- **50 years operational lifetime.**





# Allowable Working Pressure (psi)

For conveying water in Pexgol pipes, with a safety factor C = 1.25

| Temperature |     | Class 6              | Class 8 | Class 10 | Class 12 | Class 15 | Class 19 | Class 24 | Class 30 |
|-------------|-----|----------------------|---------|----------|----------|----------|----------|----------|----------|
|             |     | Pipe Series (S)      |         |          |          |          |          |          |          |
|             |     | 12.5                 | 10      | 7.6      | 6.3      | 5        | 4        | 3.2      | 2.5      |
|             |     | Dimension Ratio (DR) |         |          |          |          |          |          |          |
| °C          | °F  | 26                   | 21      | 16.2     | 13.6     | 11       | 9        | 7.4      | 6        |
| 10          | 50  | 99                   | 123     | 162      | 196      | 247      | 310      | 390      | 491      |
| 21          | 70  | 83                   | 105     | 137      | 164      | 207      | 261      | 329      | 414      |
| 32          | 90  | 72                   | 91      | 120      | 144      | 181      | 228      | 287      | 361      |
| 38          | 100 | 72                   | 90      | 119      | 143      | 180      | 227      | 285      | 360      |
| 49          | 120 | 61                   | 77      | 104      | 123      | 155      | 195      | 247      | 311      |
| 60          | 140 | 55                   | 70      | 91       | 109      | 138      | 173      | 218      | 274      |
| 71          | 160 | 49                   | 61      | 80       | 96       | 122      | 153      | 192      | 241      |
| 82          | 180 | 42                   | 54      | 72       | 86       | 106      | 134      | 170      | 214      |
| 88          | 190 | 40                   | 50      | 67       | 80       | 101      | 128      | 162      | 204      |
| 93          | 200 | 39                   | 47      | 61       | 73       | 95       | 120      | 153      | 192      |
| 99          | 210 | 31                   | 40      | 51       | 62       | 81       | 103      | 132      | 164      |
| 105         | 220 | 26                   | 32      | 41       | 50       | 66       | 81       | 102      | 127      |
| 110         | 230 | 22                   | 28      | 35       | 42       | 55       | 68       | 86       | 108      |

# Maximum Working Pressure (psi)

Of PE-X pipes using the DIN 16892/3 method of design according to API 15-PX at various temperatures for multiphase fluids, wet natural gas, and liquid hydrocarbons.

| Temperature |                  | Maximum Working Pressures (psig) for the Indicated DR |       |       |         |
|-------------|------------------|---|-------|-------|---------|
| °C          | °F               | DR 7.4  | DR 9  | DR 11 | DR 13.6 |
| 10          | 50               | 197.9   | 157.3 | 124.7 | 99.3    |
| 20          | 68               | 175.5   | 139.2 | 110.2 | 87.7    |
| 30          | 86               | 155.2   | 123.3 | 97.9  | 77.6    |
| 40          | 104              | 138.5   | 109.5 | 87.0  | 68.9    |
| 50          | 122              | 123.3   | 97.9  | 77.6  | 61.6    |
| 60          | 140              | 110.2   | 87.0  | 68.9  | 55.1    |
| 70          | 158              | 98.6  | 78.3  | 61.6  | 49.3    |
| 80          | 176              | 87.7  | 69.6  | 55.1  | 44.2    |
| 90          | 194 <sup>1</sup> | 79.8  | 63.1  | 50.0  | 39.9    |
| 95          | 203 <sup>1</sup> | 76.1  | 60.2  | 47.9  | 37.7    |

<sup>1</sup> The DIN standard specifies that the service life of PE-X pipe is 15 years at 90°C and 10 years at 95°C at the indicated dimensions and pressures provided that there is additional regression data at 110°C for at least one year.

NOTE: Modern PE-X products have undergone extensive testing, and the supplier is usually able to provide evidence for a 20-year service life



# How Pexgol reduces **OPEX & CAPEX costs**

- **Lower installation costs versus steel pipes.** Less time, manpower and sophisticated tools.
- Pexgol pipes can be **supplied in long length coils**, reducing the number of joints, installation time and risk.
- **Lower maintenance costs.**
- Since no sand embedding is required, **Pexgol saves between 20-45 tons of sand per 100 meters.**

## Fittings & Connections

We offer a full piping solution that includes all kinds of fittings and accessories to provide and easy, cost-efficient and quick installation.



### PREFABRICATED ELBOWS

Prefabricated elbows are produced from **Pexgol** pipes of all classes according to a proprietary process. **Prefabricated elbows** with flared-ends are available in any length between 50 mm and 710 mm. Each part can be ordered with plain ends or with flared ends with or without flanges.

The length of each part can be different. The elbows are produced with a tolerance of up to +5 degrees and +/- 10 mm in length.

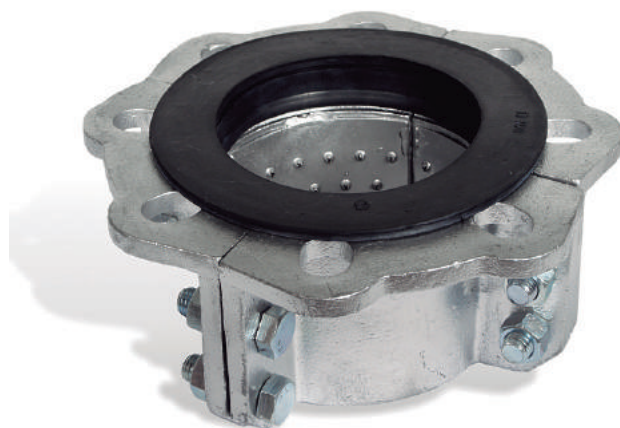




## FLANGED COUPLERS

Available sizes from diameters 63 mm to 710 mm. **The flange has oval holes designed to fit most international standards.** The couplers can be used for the full range of temperatures and pressures, the same as Pexgol pipes. Bolts are included.

**Pexgol** flanged couplers consist of either two halves or four quarters, depending on the pipe size.



## 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 Pex-2-Pex electrofusion couplers can be used.

**Pexgol** approves and supplies the following fittings systems and installation tools: Plas-son, Friatec, GF/Wavin.



## LINED FITTINGS

**PE-X lined steel fittings** consist of a steel flanged fitting lined with thick black PE-X coating which extends over the full face of the flanges. This type of fitting can be used as a standard fitting such as a Tee, an elbow, or a reducer. The fittings are supplied with an external epoxy coating. Standard fittings are supplied with wall thickness of PE-X layer: 3–5mm for corrosion resistance and up to 10 mm for abrasion resistance.

The fittings are usually supplied with weld-neck flanges. Loose flanges are supplied on request. Shorter fittings (with slip-on flanges instead of weld-neck flanges) are supplied on request.





# Available Diameters

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 Oil & Gas industry are available in diameters **from 63 mm (2") to 450 mm (18")**.

| Pipe                  |       | Maximum Length per coil (m) |
|-----------------------|-------|-----------------------------|
| Outside diameter (mm) | Class |                             |
| 63 (2")               | 12    | 4500                        |
| 63 (2")               | 15    | 4500                        |
| 63 (2")               | 19    | 4500                        |
| 63 (2")               | 24    | 4500                        |
| 63 (2")               | 30    | 4500                        |
| 75 (2,5")             | 10    | N/A                         |
| 75 (2,5")             | 12    | 3300                        |
| 75 (2,5")             | 15    | 3300                        |
| 75 (2,5")             | 19    | 3300                        |
| 75 (2,5")             | 24    | 3300                        |
| 75 (2,5")             | 30    | 3300                        |
| 90 (3")               | 10    | N/A                         |
| 90 (3")               | 12    | 2000                        |

| Pipe                  |       | Maximum Length per coil (m) |
|-----------------------|-------|-----------------------------|
| Outside diameter (mm) | Class |                             |
| 90 (3")               | 15    | 2000                        |
| 90 (3")               | 19    | 2000                        |
| 90 (3")               | 24    | 2000                        |
| 90 (3")               | 30    | 2000                        |
| 110 (4")              | 12    | 1300                        |
| 110 (4")              | 15    | 1300                        |
| 110 (4")              | 19    | 1300                        |
| 110 (4")              | 24    | 1300                        |
| 110 (4")              | 30    | 1300                        |
| 125 (4")              | 12    | 1000                        |
| 125 (4")              | 15    | 1150                        |
| 125 (4")              | 19    | 1150                        |
| 125 (4")              | 24    | 1150                        |
| 125 (4")              | 30    | 1150                        |
| 140 (6")              | 12    | 760                         |
| 140 (6")              | 15    | 800                         |
| 140 (6")              | 19    | 870                         |
| 140 (6")              | 24    | 870                         |
| 140 (6")              | 30    | 870                         |
| 160 (6")              | 12    | 500                         |
| 160 (6")              | 15    | 600                         |
| 160 (6")              | 19    | 600                         |
| 160 (6")              | 24    | 600                         |
| 160 (6")              | 30    | 600                         |
| 180 (6")              | 12    | 380                         |
| 180 (6")              | 15    | 450                         |
| 180 (6")              | 19    | 500                         |
| 180 (6")              | 24    | 500                         |
| 180 (6")              | 30    | 500                         |



| Pipe                  |       | Maximum Length per coil (m) |
|-----------------------|-------|-----------------------------|
| Outside diameter (mm) | Class |                             |
| 200 (8")              | 12    | 270                         |
| 200 (8")              | 15    | 300                         |
| 200 (8")              | 24    | 300                         |
| 200 (8")              | 30    | 300                         |
| 225 (8")              | 12    | 142                         |
| 225 (8")              | 15    | 230                         |
| 225 (8")              | 19    | 280                         |
| 225 (8")              | 24    | 280                         |
| 225 (8")              | 30    | 280                         |
| 250 (10")             | 15    | 135                         |
| 250 (10")             | 19    | 230                         |
| 250 (10")             | 24    | 230                         |
| 250 (10")             | 30    | 230                         |
| 280 (10")             | 15    | 108                         |
| 280 (10")             | 19    | 150                         |
| 280 (10")             | 24    | 160                         |
| 280 (10")             | 30    | 185                         |
| 315 (12")             | 15    | 55                          |
| 315 (12")             | 19    | 90                          |
| 315 (12")             | 24    | 90                          |
| 315 (12")             | 30    | 90                          |
| 355 (14")             | 19    | 50                          |
| 355 (14")             | 24    | 50                          |
| 355 (14")             | 30    | 50                          |
| 400 (16")             | 19    | 40                          |
| 400 (16")             | 24    | 40                          |
| 400 (16")             | 30    | 40                          |
| 450 (18")             | 24    | 34                          |
| 450 (18")             | 30    | 34                          |





## About Pexgol:

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Pexgol, a division of Golan Plastic Products, is the only worldwide manufacturer that specializes in large diameter, cross-linked polyethylene pipe systems, providing them to industrial, infrastructure, aquaculture and mining sectors throughout the world.

## Pexgol Material: PE-Xa

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Is a chemically unbreakable cross-connection between polyethylene chains. The result of this chemical reaction is the creation of a material which has extremely high structural integrity, combined with resistance to a wide variety of corrosive and weather conditions.



### GOLAN PLASTIC PRODUCTS

Kibbutz Shaar Hagolan 15145, Israel

+972 77 902 1000

[contact@pexgol.com](mailto:contact@pexgol.com)

**[Pexgol.com](http://Pexgol.com)**