

Pexgol Piping Solutions

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 leader of heavy duty PE-Xa pipes. Pexgol pipes are produced from a special high density polyethylene (HDPE) with a very high molecular weight. During production the raw material is pressed under high temperatures and pressures while the pipe is being extruded the material crosslinks resulting in an unbreakable chemical cross-connection between polyethylene chains.

Pexgol cross-linked polyethylene system with its unique and adaptable design 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 applications for the Oil & Gas industry.



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 ¹	79.8	63.1	50.0	39.9
95	203 ¹	76.1	60.2	47.9	37.7

¹ 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:

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

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

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