



**Petronich**  
Pipe Solutions

**2025**

# **PRODUCT DATA SHEET**









Based in Melbourne, Australia, Petronich Pipe Solutions is the exclusive distributor of Shandong Ocean Pipe Technology's advanced composite piping systems across Australia and the Middle East & North Africa (MENA regions). We specialise in GRE (Glass-fibre Reinforced Epoxy) and GRP (Glass-fibre Reinforced Plastic) pipes and fittings, engineered for demanding applications - from high-pressure process lines and fire-water mains to marine, LNG and chemical services. Our services also extend to the supply of other piping systems including HDPE and Carbon Steel pipes and fittings - available upon request. A dedicated technical supervisor is also available on request to join you on site for installation, support and training.

With decades of logistics experience, our expertise spans the complete supply chain - from specification and sourcing to support and service - ensuring tailored, reliable solutions that meet the highest standards.

**Product Assurance** - GRE/GRP pipe systems main materials include high strength fibre-glass rovings from PPG company, speciality fibre reinforcements from Owens Corning & premium epoxy resins from American DOW company.

**Process Control** - Pipes and fittings are manufactured using computer-controlled equipment - certified with ISO 9001.

**Acceptance Control** - Each pipe undergoes pressure testing using automatic press machinery to ensure all pipes and fittings are qualified.

## OUR VALUES

### QUALITY

We prioritise excellence in every pipe we supply, ensuring long-term reliability & performance.

### INNOVATION

We embrace cutting-edge technology to deliver the best products to our clients.

### SUSTAINABILITY

We are committed to eco-friendly practices in manufacturing and product design.

### INTEGRITY

We uphold honesty & transparency in all our business dealings.

### CUSTOMER FOCUS

We aim to exceed customer expectations through tailored solutions & exceptional service.



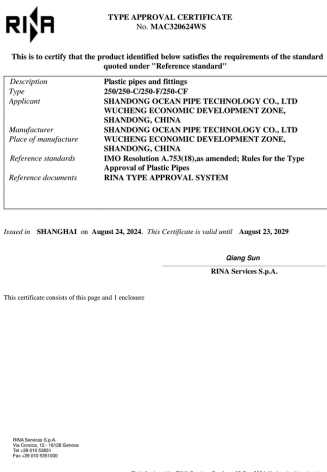
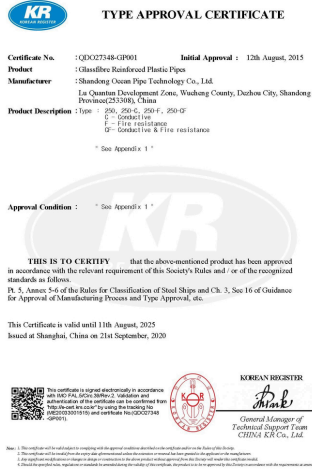
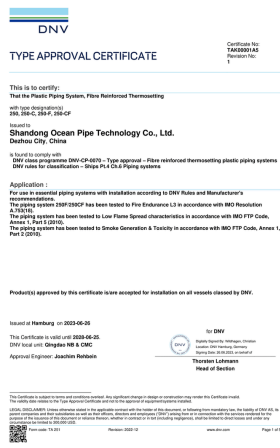
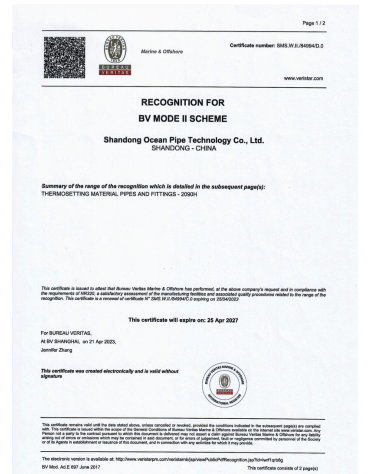
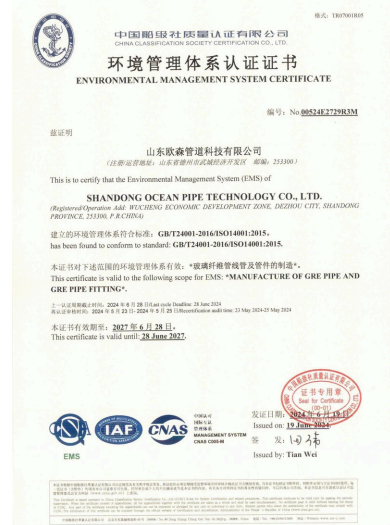
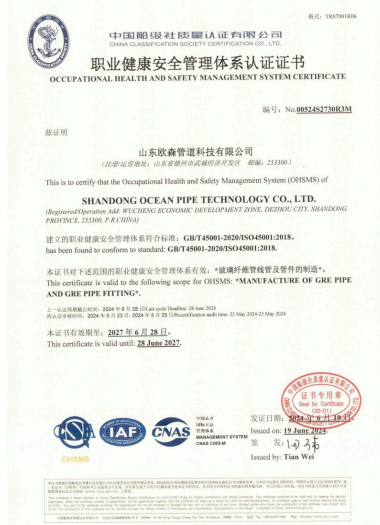
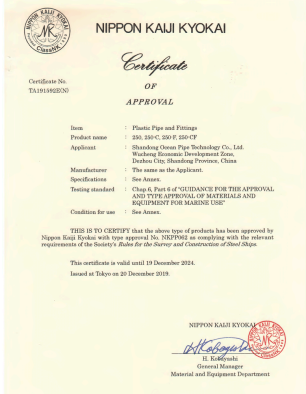


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# Glassfiber Reinforced Epoxy

# GRE

GRE pipes are high-performance composite pipes manufactured using epoxy resin reinforced with continuous glassfibers. This combination provides exceptional strength, durability, and resistance to harsh environmental conditions.

Diameter Range	Pressure Tolerance	Temperature Range
25 mm – 1000 mm	Up to 25 MPa	Up to 93 °C (200 °F)

## Key Features



High Strength-to-Weight Ratio



Thermal Stability



Low Maintenance



Corrosion Resistance

## LIMITATIONS



Pressure  $\leq$  spec  
Temperature  $\leq$  limit  
Proper installation required

## Main Connections



Socket Adhesive Bonded



Lamination Joint



Flange Connection



Rubber Seal Ball and Spigot Locked Joint



Threaded Connection  
API SPEC 5B

## Applications



### Oil & Gas

Onshore/offshore facilities, flowlines, injection systems



### Petrochemical Plants

Transport of corrosive chemicals and fluids



### Civil Infrastructure

Water distribution, sewage, firewater pipelines



### Marine

Desalination ballast water, seawater handling



## Available GRE Pipe Sizes & Pressure Ratings

Diameter Inch/mm	1" 25	2" 50	3" 80	4" 100	5" 125	6" 150	8" 200	10" 250	12" 300	14" 350	16" 400	18" 450	20" 500	22" 550	24" 600	26" 650	28" 700	30" 750	32" 800	36" 900	40" 1000
Pressure MPa																					
1	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
1.6	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
2	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
2.5	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√					
2.5	√	√	√	√	√	√	√	√	√	√	√	√	√								
4	√	√	√	√	√	√	√	√	√	√	√	√	√								
5	√	√	√	√	√	√	√	√	√	√	√	√	√								
5.5	√	√	√	√	√	√	√	√	√	√	√	√	√								
7	√	√	√	√	√	√	√	√	√												
8.5	√	√	√	√	√	√	√	√	√												
10	√	√	√	√	√	√	√														
12	√	√	√	√	√	√	√														
14	√	√	√	√	√	√	√														
16	√	√	√	√	√	√															
17	√	√	√	√	√																
18	√	√	√	√	√																
20	√	√	√	√	√																
22	√	√	√	√	√																
25	√	√	√	√																	

*For additional pressure & diameter options, please consult our sales team.*





# GRE Pipe Physical & Chemical Characteristics

	( psi ) characteristic value		( Mpa ) characteristic value	
	75 °F	200 °F	24 °C	93°C
ASTM D2105 Axial tensile-ASTMD2105				
limit stress	10,300	7,680	71	52.9
design stress	2,575	1,920	17.8	13.2
Gave quantity elasticity	1.61×10 <sup>6</sup>	1,16×10 <sup>6</sup>	12411	7997
Poisson's ratio	0.38		0.38	
ASTM D695 Axial compression-ASTMD695				
limit stress	33,300	20,383	230.0	140.5
design stress	8,300	5,090	57.4	35.1
Gave quantity elasticity	1.26×10 <sup>6</sup>	0.66×10 <sup>6</sup>	8687	4550
ASTM D2925				
Bending beam-ASTMD2925 limit stress	23,000	17,166	159	118.3
limit stress	2,900	2,145	20.0	14.8
design stress	2.18×10 <sup>6</sup>	1.29×10 <sup>6</sup>	15031	8894
Elastic modulus (long-term)				
ASTM D1599				
Static pressure blasting test-ASTMD1599	46,300	47,990	319	330
ASTM D2992				
Method A hoop tensile stress		6,090		41.9
150 x10 <sup>6</sup> Cycles LTHS	8,850		61.0	
Method B hoop tensile stress LTHS		16,945		116.8
		14,654		101.0
200 ° F, the static pressure 20 years LCL				
ASTM D696				
coefficient of linear expansion -ASTM D696	1.26×10-5in/in/ °F		2.27×10-5mm/mm/ °C	
ASTM D177				
Wire coefficient -ASTM D177	0.23BTU/(ft)(hr)( °F )		0.14W/(m)(°C )	
ASTM D792				
	1.8		1.8	
SF Flow coefficient -SF				
Hacen williams coefficient	150		150	



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# HIGH PRESSURE PIPE/ FITTING SYSTEMS

# GRE

High-pressure (HP) GRE pipes and fittings are designed and developed with the application of oilfields in mind. These HP pipe systems are made of high-strength fibreglass and epoxy resin using innovative winding technology.

Diameter Range	Pressure Tolerance	Temperature Range
38 mm – 200 mm (1.5" - 8")	Up to 25 MPa	Up to 93 °C (200 °F)

## Key Features



High Pressure  
Resistance



Corrosion  
Resistance



Lightweight  
& Easy Transport



Long Service  
Life



Thread Joint  
Sealing



Low Friction  
& No Fouling

## Standards



### API 15LR

American Petroleum Institute  
15LR Standards



### SY/T6266-2004

Petroleum and Natural Gas  
Industry Standards



### IMO A.753

International Maritime  
Organization A.753 Standards



### ANSI B16.5

American Society of  
Mechanical Engineers B16.5  
Standards



### ASTM F1173

American Society for Testing  
and Materials F1173 Standards

## Fittings



Threaded fittings matched  
by size and pressure,  
manufactured by  
winding process.

## Pipe-Connecting Series



Bell &  
Spigot  
Joint



Double  
"O"-Ring  
Joint



Flange  
Joint



**IMO LEVEL 3  
FIRE ENDURANCE**

Reinforced Fire Jacket



**Excellent  
Hydraulic  
Characteristic**



## Conductive Pipe

Supplied with conductive carbon  
fibers and carbon powder to  
meet high anti-static requirements.





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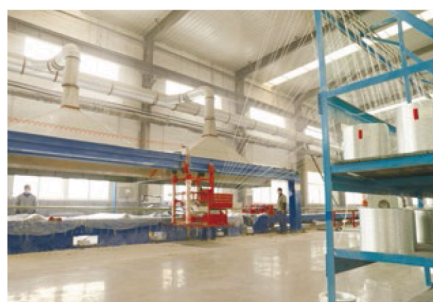
# HP GRE PIPES & FITTINGS

## Applications

 Crude oil & natural gas lines	 Oil gathering line	 Petroleum chemical and gas lines	 Process lines
 Waste lines	 Pipeline connected to a tank or other systems	 Mixed water line	 Ballast piping
 Salt water supply lines	 Cooling water	 Potable water	 Fresh water lines
 Firewater systems	 Desalted water equipment	 Sounding tubes	 Vent lines
 Sanitary liners	 Scuppers	 Conduit	 Drains

## HP GRE PIPE/FITTING PERFORMANCE

Epoxy resin pipe system	Blue pipe	Red pipe
ASTM D2310 RTRP (Reinforced thermosetting resin pipe), classified according to ASTM D2310	RTRP-11AX	RTRP-11AF
Diameter range	38-200mm	38-200mm
Circulating pressure Mpa	5.5-27.6	5.5-24.2
Curing system	Acid anhydride cured epoxy pipe	Amine cured epoxy pipe
The highest working temperature °C	80 °C	100 °C
Thickness of inner liner	No inner liner	No inner liner
Joint method	API 8 API 8 RND thread	API 8 API 8 RND thread
Application	Transporting crude oil, natural gas, injecting water or gathering oil; salt water or fresh water, CO <sub>2</sub>	



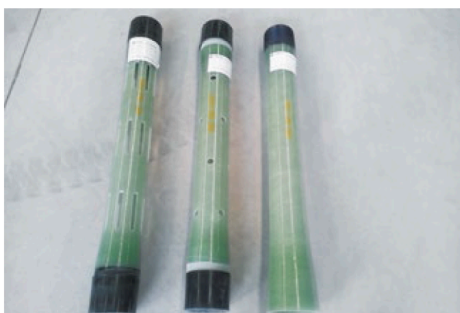


## HP GRE PIPE DIAMETRE & PRESSURE

Diameter	Pressure
1.5" (40mm)	3.5MPa
2" (50mm)	
2.5" (65mm)	
3" (80mm)	
4" (100mm)	
6" (150mm)	
8" (200mm)	
1.5" (40mm)	5.5MPa
2" (50mm)	
2.5" (65mm)	
3" (80mm)	
4" (100mm)	
6" (150mm)	
8" (200mm)	
1.5" (40mm)	7MPa
2" (50mm)	
2.5" (65mm)	
3" (80mm)	
4" (100mm)	
6" (150mm)	
8" (200mm)	

Diameter	Pressure
1.5" (40mm)	8.5MPa
2" (50mm)	
2.5" (65mm)	
3" (80mm)	
4" (100mm)	
6" (150mm)	
8" (200mm)	
1.5" (40mm)	10MPa
2" (50mm)	
2.5" (65mm)	
3" (80mm)	
4" (100mm)	
6" (150mm)	
8" (200mm)	
1.5" (40mm)	14MPa
2" (50mm)	
2.5" (65mm)	
3" (80mm)	
4" (100mm)	
6" (150mm)	
8" (200mm)	

Diameter	Pressure
1.5" (40mm)	17MPa
2" (50mm)	
2.5" (65mm)	
3" (80mm)	
4" (100mm)	
6" (150mm)	
1.5" (40mm)	21MPa
2" (50mm)	
2.5" (65mm)	
3" (80mm)	
4" (100mm)	
1.5" (40mm)	25MPa
2" (50mm)	
2.5" (65mm)	
3" (80mm)	
4" (100mm)	

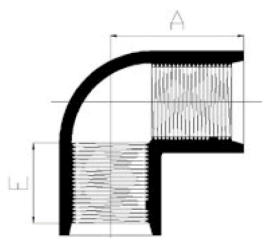




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# HP GRE FITTINGS - 90 DEGREE ELBOWS

**90**  
90 Deg Elbow



API SPEC 5B  
Inside thread standard: API SPEC 5B

Diameter		Pressure (MPa)	A		E	
			(in)	(mm)	(in)	(mm)
1 1/2	40	7	4.50	114.3	2.25	57.2
1 1/2		8.5~14	4.50	114.3	2.25	57.2
1 1/2		17	4.50	114.3	2.25	57.2
1 1/2		18~20	4.50	114.3	2.25	57.2
1 1/2		22~25	4.50	114.3	2.25	57.2
2	50	7	5.00	127.0	2.69	68.3
2		8.5	5.00	127.0	2.69	68.3
2		10~14	5.00	127.0	2.69	68.3
2		17	5.00	127.0	2.69	68.3
2		18~20	5.00	127.0	2.69	68.3
2		22~25	5.00	127.0	2.69	68.3
2 1/2	65	7	5.75	146.1	3.00	76.2
2 1/2		8.5	5.75	146.1	3.00	76.2
2 1/2		10~14	5.75	146.1	3.00	76.2
2 1/2		17	5.75	146.1	3.00	76.2
2 1/2		18~20	5.75	146.1	3.00	76.2
2 1/2		22~25	5.75	146.1	3.00	76.2
3	80	7	6.50	165.1	3.25	82.6
3		8.5	6.50	165.1	3.25	82.6
3		10~14	6.50	165.1	3.25	82.6
3		17	6.50	165.1	3.25	82.6
3		18~20	6.50	165.1	3.25	82.6
3		22~25	6.50	165.1	3.25	82.6
4	100	7	8.00	203.2	4.13	104.9
4		8.5	8.00	203.2	4.13	104.9
4		10~14	8.00	203.2	4.13	104.9
4		17	8.00	203.2	4.13	104.9
4		18~20	8.00	203.2	4.13	104.9
4		22~25	8.00	203.2	4.13	104.9
6	150	5.5	9.75	247.7	4.00	101.6
6		8.5	9.75	247.7	4.00	101.6
6		10	9.75	247.7	4.00	101.6
6		12~14	9.75	247.7	4.63	117.6
6		17	9.75	247.7	4.63	117.6
8(8 5/8)	200	5.5	9.00	228.6	4.50	114.3
8(8 5/8)		8.5	9.00	228.6	4.50	114.3
8(8 5/8)		10	9.00	228.6	4.50	114.3
8(9 5/8)		10	11.00	279.4	4.88	124.0
8(9 5/8)		12~14	11.00	279.4	4.88	124.0

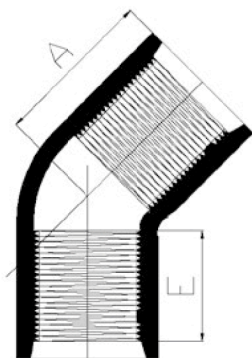




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# HP GRE FITTINGS - 45 DEGREE ELBOWS

**45**  
45 Deg Elbow



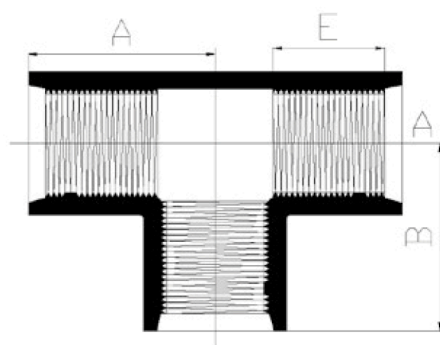
API SPEC 5B  
Inside thread standard: API SPEC 5B

Diameter		Pressure (MPa)	A		E	
			(in)	(mm)	(in)	(mm)
1 1/2	40	7	3.125	79.4	2.25	57.2
1 1/2		8.5~14	3.125	79.4	2.25	57.2
1 1/2		17	3.125	79.4	2.25	57.2
1 1/2		18~20	3.125	79.4	2.25	57.2
1 1/2		22~25	3.125	79.4	2.25	57.2
2	50	7	4.250	108.0	2.69	68.3
2		8.5	4.250	108.0	2.69	68.3
2		10~14	4.250	108.0	2.69	68.3
2		17	4.250	108.0	2.69	68.3
2		18~20	4.250	108.0	2.69	68.3
2		22~25	4.250	108.0	2.69	68.3
2 1/2	65	7	4.625	117.5	3.00	76.2
2 1/2		8.5	4.625	117.5	3.00	76.2
2 1/2		10~14	4.625	117.5	3.00	76.2
2 1/2		17	4.625	117.5	3.00	76.2
2 1/2		18~20	4.625	117.5	3.00	76.2
2 1/2		22~25	4.625	117.5	3.00	76.2
3	80	7	5.500	139.7	3.25	82.6
3		8.5	5.500	139.7	3.25	82.6
3		10~14	5.500	139.7	3.25	82.6
3		17	5.500	139.7	3.25	82.6
3		18~20	5.500	139.7	3.25	82.6
3		22~25	5.500	139.7	3.25	82.6
4	100	7	6.000	152.4	4.13	104.9
4		8.5	6.000	152.4	4.13	104.9
4		10~14	6.000	152.4	4.13	104.9
4		17	6.000	152.4	4.13	104.9
4		18~20	6.000	152.4	4.13	104.9
4		22~25	6.000	152.4	4.13	104.9
6	150	5.5	7.625	193.7	4.00	101.6
6		8.5	7.625	193.7	4.00	101.6
6		10	7.625	193.7	4.00	101.6
6		12~14	7.625	193.7	4.63	117.6
6		17	7.625	193.7	4.63	117.6
8(8 5/8)	200	5.5	7.250	184.2	4.50	114.3
8(8 5/8)		8.5	7.250	184.2	4.50	114.3
8(8 5/8)		10	7.250	184.2	4.50	114.3
8(9 5/8)		10	7.375	187.3	4.88	124.0
8(9 5/8)		12~14	7.375	187.3	4.88	124.0



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# HP GRE FITTINGS - TEES



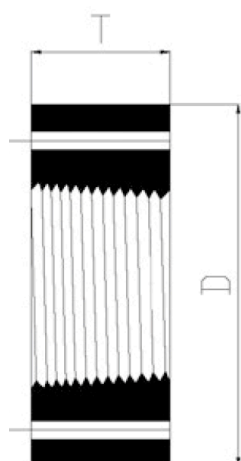
API SPEC 5B  
Inside thread standard: API SPEC 5B

Diameter		Pressure (MPa)	A		B		E	
(in)	(mm)		(in)	(mm)	(in)	(mm)	(in)	(mm)
1 1/2	40	7~14	4.375	111.1	4.875	123.8	2.25	57.2
1 1/2		17	4.375	111.1	4.875	123.8	2.25	57.2
1 1/2		18~20	4.375	111.1	4.875	123.8	2.25	57.2
1 1/2		22~25	4.375	111.1	4.875	123.8	2.25	57.2
2	50	8.5	5.250	133.4	5.75	146.1	2.69	68.3
2		12~14	5.250	133.4	5.75	146.1	2.69	68.3
2		17	5.250	133.4	5.75	146.1	2.69	68.3
2		18~20	5.250	133.4	5.75	146.1	2.69	68.3
2		22~25	5.250	133.4	5.75	146.1	2.69	68.3
2 1/2	65	5.5~8.5	5.750	146.1	6.50	165.1	3.00	76.2
2 1/2		10	5.750	146.1	6.50	165.1	3.00	76.2
2 1/2		12~17	5.750	146.1	6.50	165.1	3.00	76.2
2 1/2		18~20	5.750	146.1	6.50	165.1	3.00	76.2
2 1/2		22~25	5.750	146.1	6.50	165.1	3.00	76.2
3	80	3.5~8.5	6.50	165.1	7.25	184.2	3.25	82.6
3		12~14	6.50	165.1	7.25	184.2	3.25	82.6
3		17	6.50	165.1	7.25	184.2	3.25	82.6
3		18~20	6.50	165.1	7.25	184.2	3.25	82.6
3		22~25	6.50	165.1	7.25	184.2	3.25	82.6
4	100	3.5~8.5	7.25	184.2	8.25	209.6	4.13	104.9
4		12~14	7.25	184.2	8.25	209.6	4.13	104.9
4		17	7.25	184.2	8.25	209.6	4.13	104.9
4		18~20	7.25	184.2	8.25	209.6	4.13	104.9
4		22~25	7.25	184.2	8.25	209.6	4.13	104.9
6	150	3.5~5.5	9.75	247.7	10.5	266.7	4.63	117.6
6		8.5	9.75	247.7	10.5	266.7	4.63	117.6
6		12~14	9.75	247.7	10.5	266.7	4.63	117.6
6		17	9.75	247.7	10.5	266.7	4.63	117.6
8(8 5/8)	200	3.5~5.5	10.00	254.0	11.0	279.4	4.50	114.3
8(8 5/8)		7~8.5	10.00	254.0	11.0	279.4	4.50	114.3
8(8 5/8)		10	10.00	254.0	11.0	279.4	4.50	114.3
8(9 5/8)		10	10.50	266.7	13.0	330.2	4.88	124.0
8(9 5/8)		12~14	10.50	266.7	13.0	330.2	4.88	124.0





# HP GRE FITTINGS - FLANGE



API SPEC 5B  
read standard: API SPEC 5B

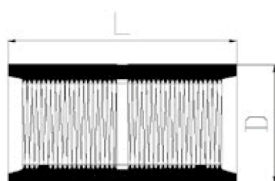
Diameter		Pressure (MPa)	(ANSI)	D <sub>1</sub>		Bolt hole Qty	Size of bolt hole		D		T	
(in)	(mm)			(in)	(mm)		(in)	(mm)	(in)	(mm)	(in)	(mm)
1½	40	7~10	600	4.50	114.3	4	7/8	22	6.125	155.6	2.56	65.0
1½		12~25	1500	4.875	123.8	4	1⅛	29	7.00	177.8	2.56	65.0
2	50	5.5~10	600	5.00	127.0	8	¾	19	6.50	165.1	3.06	77.7
2		12~25	1500	6.50	165.1	8	1.0	25	8.50	215.9	3.06	77.7
2½	65	5.5~10	600	5.875	149.2	8	7/8	22	7.50	190.5	3.38	85.9
2½		12~25	1500	7.50	190.5	8	1⅛	29	9.625	244.5	3.38	85.9
3	80	3.5~10	600	6.625	168.3	8	7/8	22	8.25	209.6	3.63	92.2
3		12~14	900	7.50	190.5	8	1.0	25	9.50	241.3	3.63	92.2
3		17~25	1500	8.00	203.2	8	1¼	32	10.50	266.7	3.63	92.2
4	100	3.5	300	7.875	200.0	8	7/8	22	10.00	254.0	4.50	114.3
4		5.5~10	600	8.50	215.9	8	1.0	25	10.75	273.1	4.50	114.3
4		12~14	900	9.25	235.0	8	1¼	32	11.50	292.1	4.50	114.3
4*		17~25	1500	9.50	241.3	8	1⅜	35	12.25	311.2	4.50	114.3
6	150	3.5	300	10.625	269.9	12	7/8	22	12.50	317.5	5.00	127.0
6		5.5~10	600	11.50	292.1	12	1⅛	28.6	14.00	355.6	5.00	127.0
6*		12~14	900	12.50	317.5	12	1¼	32	15.00	381.0	5.00	127.0
6		17	1500	12.50	317.5	12	1½	38	15.50	393.7	5.00	127.0
8(8⅝)	200	3.5	300	13.00	330.2	12	1.0	25	15.00	381.0	5.00	127.0
8(8⅝)		5.5~10	600	13.75	349.3	12	1¼	32	16.50	419.1	5.00	127.0
8(9⅝)		3.5	300	13.00	330.2	12	1.0	25	15.00	381.0	5.25	133.4
8(9⅝)		10	600	13.75	349.3	12	1¾	32	16.50	419.1	5.25	133.4
8(9⅝)*		12~14	900	15.50	393.7	12	1½	38	18.50	469.9	5.25	133.4

\* Those flanges should be added with the steel back, isolating ring and metal gasket.



**Petronich**  
Pipe Solutions

# HP GRE FITTINGS - COUPLING



API SPEC 5B  
Inside thread standard: API SPEC 5B

Diameter		Pressure (MPa)	Length of Coupling		OD of Coupling	
(in)	(mm)		(in)	(mm)	(in)	(mm)
1 1/2	40	12~14	5.125	130.2	2.80	71.1
1 1/2		17	5.125	130.2	2.90	73.7
1 1/2		20	5.125	130.2	3.05	77.5
1 1/2		22	5.125	130.2	3.15	80.0
1 1/2		25	5.125	130.2	3.30	83.8
2	50	10	6.126	155.6	3.25	82.6
2		12~14	6.126	155.6	3.40	86.4
2		17	6.126	155.6	3.60	91.4
2		20	6.126	155.6	3.70	94.0
2		22	6.126	155.6	3.90	99.1
2		25	6.126	155.6	4.10	104.1
2 1/2	65	10	6.750	171.5	3.80	96.5
2 1/2		12~14	6.750	171.5	4.00	101.6
2 1/2		17	6.750	171.5	4.20	106.7
2 1/2		20	6.750	171.5	4.40	111.8
2 1/2		22	6.750	171.5	4.60	116.8
2 1/2		25	6.750	171.5	4.80	121.9
3	80	10	7.250	184.2	4.60	116.8
3		12~14	7.250	184.2	4.80	121.9
3		17	7.250	184.2	5.10	129.5
3		20	7.250	184.2	5.25	133.4
3		22	7.250	184.2	5.50	139.7
3		25	7.250	184.2	5.75	146.1
4	100	10	9.000	228.6	5.80	147.3
4		12~14	9.000	228.6	6.10	154.9
4		17	9.000	228.6	6.40	162.6
4		20	9.000	228.6	6.70	170.2
4		22	9.000	228.6	7.00	177.8
4		25	9.000	228.6	7.20	182.9
6	150	5.5	10.00	254.0	7.85	199.4
6		7	10.00	254.0	8.00	203.2
6		8.5	10.00	254.0	8.20	208.3
6		10	10.00	254.0	8.40	213.4
6		12~14	10.00	254.0	8.75	222.3
6		17	10.00	254.0	9.20	233.7
8(8 5/8)	200	5.5	10.00	254.0	9.50	241.3
8(8 5/8)		7	10.00	254.0	9.70	246.4
8(8 5/8)		8.5	10.00	254.0	10.00	254.0
8(8 5/8)		10	10.00	254.0	10.20	259.1
8(9 5/8)		5.5	10.50	266.7	10.70	271.8
8(9 5/8)		7	10.50	266.7	10.90	276.9
8(9 5/8)		8.5	10.50	266.7	11.10	281.9
8(9 5/8)		10	10.50	266.7	11.50	292.1
8(9 5/8)		12~14	10.50	266.7	11.90	302.3
8(9 5/8)						

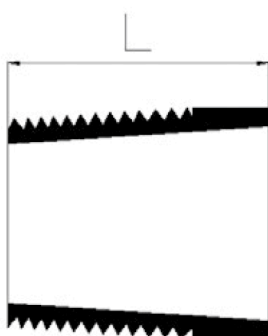




**Petronich**  
Pipe Solutions

# HP GRE FITTINGS - THREAD FOR REPAIR

Thread for repair



API SPEC 5B

Inside thread standard: API SPEC 5B

Diameter		Type	Length	
(in)	(mm)		(in)	(mm)
1 1/2	40	A	3.0	76
1 1/2		B	3.0	76
1 1/2		C	3.0	76
1 1/2		D1	3.0	76
1 1/2		D	3.0	76
1 1/2		E	3.0	76
1 1/2		F	3.0	76
2	50	A	3.8	95
2		B	3.5	95
2		B1	3.5	95
2		C	3.5	95
2		C1	3.5	95
2		D1	3.5	95
2		D	3.5	95
2 1/2	65	A	4.0	102
2 1/2		B	4.0	102
2 1/2		B1	4.0	102
2 1/2		C	4.0	102
2 1/2		C1	4.0	102
2 1/2		D1	4.0	102
2 1/2		D	4.0	102
3	80	A	4.3	108
3		B	4.3	108
3		C	4.3	108
3		C2	4.3	108
3		C1	4.3	108
3		D	4.3	108
3		D1	4.3	108
3		E2	4.3	108
3		E	4.3	108
3		E1	4.3	108
3		F	4.3	108
4	100	A	4.4	110
4		B	4.4	110
4		B1	4.4	110
4		C	4.4	110
4		C1	4.4	110
4		D	4.4	110
4		D1	4.4	110
4		D3	4.4	110
4		E	4.4	110
4		D2	4.4	110
4		F	4.4	110
6	150	A	4.3	108
6		B	4.3	108
6		B1	4.3	108
6		C	4.3	108
6		C1	4.3	108
6		D	4.3	108
6		D1	4.3	108
6		E	4.3	108
6		E1	4.3	108
6		F	4.3	108
8	200	A	5.6	142
8		B	5.6	142
8		C	5.6	142
8		D	5.6	142
8		E	5.6	142
8		F	5.6	142
8		G	5.6	142
8		H	5.6	142

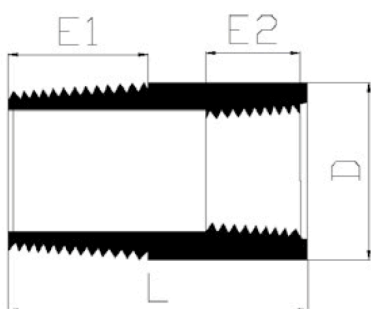
Diameter		Pressure (MPa)	Type
(in)	(mm)		
3	80	3.5	C
4	100	3.5	C
6	150	3.5	B1
8	200	3.5	H
2	50	5.5	B1
2.5	65	5.5	C1
3	80	5.5	C
4	100	5.5	C
6	150	5.5	C1
1 1/2	40	7	F
2	50	7	B1
2 1/2	65	7	C1
3	80	7	C
4	100	7	C,B1
6	150	7	C
8	200	7	F
1 1/2	40	8.5	F
2	50	8.5	B1
2 1/2	65	8.5	C1
3	80	8.5	C
4	100	8.5	B
6	150	8.5	B1
8	200	8.5	E
1 1/2	40	10	F
2	50	10	D1
2 1/2	65	10	C1
3	80	10	D,D1
4	100	10	C
6	150	10	E1
8	200	10	D
1 1/2	40	12	F
2	50	12	D1
2 1/2	65	12	C
3	80	12	C1
4	100	12	B1
6	150	12	E
8	200	12	C
1 1/2	40	14	F
2	50	14	C1
2 1/2	65	14	B1
3	80	14	C2
4	100	14	D
6	150	14	F
8	200	14	B
1 1/2	40	17	E
2	50	17	C1
2 1/2	65	17	D
3	80	17	E,E1
4	100	17	F
6	150	17	D1
1 1/2	40	18	E
2	50	18	C,C1
2 1/2	65	18	D1
3	80	18	E2,D1
4	100	18	D2
1 1/2	40	20	D
2	50	20	C1
2 1/2	65	20	C1
3	80	20	D1,D
4	100	20	E
1 1/2	40	22	D1
2	50	22	C,C1
2 1/2	65	22	C,B1
3	80	22	C1
4	100	22	D3
1 1/2	40	25	C
2	50	25	B1,B
2 1/2	65	25	B
3	80	25	C

All kind of threads are used for the pipe. Eg. Type A thread can be used as outside thread or end thicker part.



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Pipe Solutions

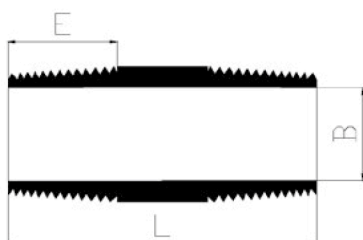
## HP GRE FITTINGS - REDUCER WITH OUTSIDE & INSIDE THREADS



API SPEC 5B  
Inside thread standard: API SPEC 5B

Diameter		Pressure (MPa)	D		E <sub>1</sub>		E <sub>2</sub>		L	
(in)	(mm)		(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)
2×1½	50×40	25	2.6	66	2.7	68	2.4	61	7.0	178
2½×1½	65×40	25	3.1	78.7	3.00	76.2	2.11	53.6	9.0	229
2½×2	65×50	25	3.25	82.6	3.25	82.6	2.69	68.3	9.0	229
3×1½	80×40	25	3.75	95.3	3.25	82.6	2.11	53.6	9.0	229
3×2	80×50	25	3.75	95.3	3.25	82.6	2.69	68.3	9.0	229
3×2½	80×65	25	3.88	98.6	3.50	88.9	3.00	76.2	10.0	254
4×2	100×50	25	4.80	121.9	4.13	104.9	2.69	68.3	10.0	254
4×2½	100×65	25	4.80	121.9	4.13	104.9	3.00	76.2	10.0	254
4×3	100×80	25	4.88	124.0	3.75	95.3	3.25	82.6	11.0	279
6×4	150×100	17	7.05	179.1	4.63	117.6	4.13	104.9	11.0	279
8(8⅝)	200	14	9.65	245.1	4.88	124.0	3.25	82.6	12.0	305

## HP GRE FITTINGS - NIPPLE



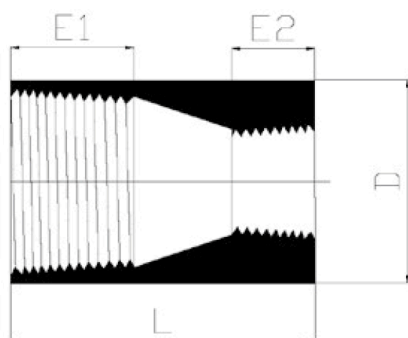
API SPEC 5B  
Inside thread standard: API SPEC 5B

Diameter		Pressure (MPa)	Standard length (mm)	Thread length		ID	
(in)	(mm)			(in)	(mm)	(in)	(mm)
1½	40	7~25	400	2.25	57.2	1.50	38.1
2	50	5.5~8.5	400	2.69	68.3	2.16	54.9
2		10~25	400	2.69	68.3	1.95	49.5
2½	65	5.5~14	400	3.00	76.2	2.43	61.7
2½		17~25	400	3.00	76.2	2.43	56.6
3	80	3.5~8.5	400	3.00	76.2	3.19	81.0
3		10~14	400	3.00	76.2	3.00	76.2
3		17~25	400	3.25	82.6	2.72	69.1
4	100	3.5~8.5	400	4.13	104.9	4.15	105.4
4		10~12	400	4.13	104.9	4.00	101.6
4		14	400	4.13	104.9	3.75	95.3
4		17~22	400	4.13	104.9	3.35	85.1
6	150	3.5	400	4.63	117.6	6.43	163.1
6		5.5~8.5	400	4.63	117.6	6.19	157.3
6		10~17	400	4.63	117.6	5.43	137.9
8	200	3.5~10	400	4.63	117.6	7.50	190.5
8(8⅝)		12~14	400	4.88	124.0	7.50	190.5

We have different sizes and pressures of the nipples.

The standard length of the nipple is 400mm, other length of nipple can be also obtained.

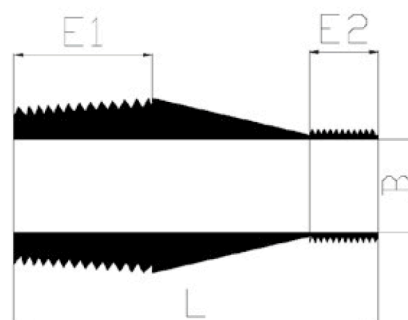
## HP GRE FITTINGS - REDUCER WITH BOTH INSIDE THREADS



API SPEC 5B  
Inside thread standard: API SPEC 5B

Diameter		Pressure (MPa)	D		E <sub>1</sub>		E <sub>2</sub>		L	
(in)	(mm)		(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)
2×1½	50×40	25	4.25	108.0	2.69	68.3	2.11	53.6	6.625	168.3
2½×1½	65×40	25	5.25	133.4	3.00	76.2	2.11	53.6	6.80	172.7
2½×2	65×50	25	5.25	133.4	3.00	76.2	2.69	68.3	6.80	172.7
3×1½	80×40	25	6.00	152.4	3.25	82.6	2.11	53.6	8.00	203.2
3×2	80×50	25	6.00	152.4	3.25	82.6	2.69	68.3	8.00	203.2
3×2½	80×65	25	6.00	152.4	3.25	82.6	3.00	76.2	8.00	203.2
4×1½	100×40	22	7.45	189.2	4.13	104.9	2.11	53.6	10.125	257.2
4×2	100×50	22	7.45	189.2	4.13	104.9	2.69	68.3	10.125	257.2
4×2½	100×65	22	7.45	189.2	4.13	104.9	3.00	76.2	10.125	257.2
4×3	100×80	25	7.45	189.2	4.13	104.9	3.25	82.6	10.125	257.2
6×4	150×100	17	9.50	241.3	4.63	117.6	4.13	104.9	15.00	381.0
8(8⅝)×4	200×100	10	10.30	261.6	4.50	114.3	4.13	104.9	15.00	381.0
8(8⅝)×6	200×150	10	10.30	261.6	4.50	114.3	4.63	117.6	15.00	381.0
8(9⅝)×4	200×100	12~14	12.20	309.9	4.88	124.0	4.13	104.9	15.00	381.0
8(9⅝)×6	200×150	12~14	12.20	309.9	4.88	124.0	4.63	117.6	15.00	381.0

## HP GRE FITTINGS- REDUCER WITH OUTSIDE THREADS



API SPEC 5B  
Inside thread standard: API SPEC 5B

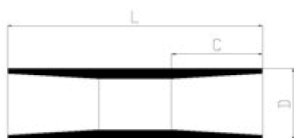
Diameter		Pressure (MPa)	D		E <sub>1</sub>		E <sub>2</sub>		L	
(in)	(mm)		(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)
		17	1.50	38.1	2.69	68.3	2.11	53.6	12.00	304.8
		25	1.50	38.1	3.00	76.2	2.11	53.6	12.00	304.8
		25	1.95	49.5	3.00	76.2	2.69	68.3	12.00	304.8
3×1½	80×40	25	1.50	38.1	3.25	82.6	2.11	53.6	12.00	304.8
3×2	80×50	25	1.95	49.5	3.25	82.6	2.69	68.3	12.00	304.8
3×2½	80×65	25	2.37	60.2	3.25	82.6	3.00	76.2	12.00	304.8
		22	1.50	38.1	4.13	104.9	2.11	53.6	14.00	355.6
		22	1.95	49.5	4.13	104.9	2.69	68.3	14.00	355.6
		20	2.37	60.2	4.13	104.9	3.00	76.2	14.00	355.6
		20	2.94	74.7	4.13	104.9	3.25	82.6	14.00	355.6
6×2	150×50	12~14	1.50	38.1	4.63	117.6	2.69	68.3	16.00	406.4
6×2½	150×65	12~14	2.37	60.2	4.63	117.6	3.00	76.2	16.00	406.4
6×3	150×80	12~14	2.94	74.7	4.63	117.6	3.25	82.6	16.00	406.4
6×4	150×100	12~14	3.92	99.6	4.63	117.6	4.13	104.9	16.00	406.4
		10	2.94	74.7	4.50	114.3	3.25	82.6	17.00	431.8
		10	3.92	99.6	4.50	114.3	4.13	104.9	17.00	431.8
		10	5.93	150.6	4.50	114.3	4.63	117.6	17.00	431.8





**Petronich**  
Pipe Solutions

# HP GRE FITTINGS - COUPLING FOR REPAIR



Bells for both ends

Diameter		Pressure (MPa)	Type	Bell length		OD		Coupling length	
(in)	(mm)			(in)	(mm)	(in)	(mm)	(in)	(mm)
1½	40	7~10	A	3.220	81.8	2.20	55.9	18.0	457.2
		12~14	B	3.460	87.9				
		17	C	4.260	108.2				
		18	D	4.580	116.3				
2	50	5.5~8.5	A	3.220	81.8	3.00	76.2	18.0	457.2
		10~12	B	4.020	102.1				
		14~17	C	4.500	114.3				
		18	D	5.150	130.8				
2½	65	5.5~8.5	A	3.220	81.3	3.7	92.7	18.0	457.2
		10~12	B	4.380	122.7				
		14	C	5.470	138.9				
		17~18	D	6.760	171.7				
3	80	3.5~8.5	A	5.000	127.0	4.50	114.3	18.0	457.2
		10	B	4.830	122.7				
		12~14	C	6.900	175.3				
		17~18	D	8.200	208.3				
4	100	3.5~8.5	A	5.600	142.2	5.75	148.3	18.0	457.2
		10~12	B	7.000	177.8				
		14	C	8.800	223.5				
6	150	3.5	A	4.500	114.3	8.00	203.2	18.0	457.2
		5.5~8.5	B	8.080	205.3				
		10	C	9.000	228.6				
8	200	3.5~7	A	8.160	207.3	10.00	254.0	18.0	457.2
		8.5	B	6.744	171.3				

## PRODUCT TYPICAL PHYSICAL PROPERTY

Longitudinal tensile strength	MPa	90
Longitudinal tensile modulus	MPa	10440
Longitudinal compression strength	MPa	130
Hoop tensile strength	MPa	340
Hoop tensile modulus	MPa	21500
Heat expansi. coefficient	mm/mm/°C	$2.27 \times 10^{-5}$
Heat conductive coefficient	W/(m)(°C )	0.14
Density	Kg/m <sup>3</sup>	$1.9 \sim 2.0 \times 10^3$
Poisson's ratio	/	0.4
Hacen Williams coefficient	/	150

## PRODUCT TYPICAL CHEMICAL RESISTANCE

Chemical environment	Recommended highest temperature
100% Ethane	24
10% Hydrochloric acid	NR
Sulfureted hydrogen (dry) 100%	66
Sulfureted hydrogen ( wet and saturation)	52
Coal oil	66
20% Carbinol	38
Mineral alcohol	24
Petrolic alcohol	38
3% Sulphuric acid	24
100% Toluene	NR
100ppm Chloridized water	77
Distilled water	93
Hard water	80
Seawater	80

## PRODUCT TYPICAL CHEMICAL RESISTANCE (CONT.)

Chemical environment	°C Recommended highest temperature
Acetum 20%	NR
Benzene 10%	21
Citric acid 25%	66
Crude oil (with and without sulphur )	77
Ethanol 100%	24
Combustible oil	66
Hcptane 100%	52
3% Hydrochloric acid	24
Hydrofluorid acid	NR
10% Pyruvic acid 3%	38
Aeromautic oil 100%	66
Methane	60
Chloromethane 10%	NR
5% Inorganic mud acid	38
(Exposure endurance under 8 hours)	
5–50% Sodium hydroxide	NR
10% Sulphuic acid 100%	NR
100% Alcoholic amine	NR
Soft water	93
Haloid water	80
Brine	80
toluene	NR
Amine hydroxide 28%	NR
( 1 ) CO2 (dry)	80
( 2 ) CO2 (wet)	66
Diesel oil 100%	66
Ethanol (all)	80
100% Gasoline	60

### Note:

- 'NR' indicates an inadvisable application.
- In the non-critical state, FRP pipe is not suitable for transporting supercritical CO<sub>2</sub>.
- This table provides reference values for application and common chemical-resistance index of high-pressure FRP pipe.
- It does not take into account specific chemical compounds, thermodynamics, mechanical loading or stress. Maximum temperatures are based on recent laboratory experiments, practical oil-field trials, and data from raw-material suppliers.





**Petronich**  
Pipe Solutions

# SPECIALTY - LNG, MARINE & CHEMICAL INDUSTRY

# GRE

Diameter Range	Pressure Tolerance	Temperature Range
40 mm – 1000 mm	Up to 25 MPa	Up to 93 °C (200 °F)

## Key Features



High Pressure  
Resistance



Corrosion  
Resistance



Lightweight  
& Easy Transport



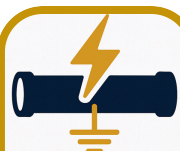
Long Service  
Life



Excellent  
Hydraulic  
Characteristic



Low Friction  
& No Fouling



**Antistatic**

## Curing Series

- Acid Anhydride-cured system
- Aromatic Amine-cured system



**IMO LEVEL 3  
FIRE ENDURANCE**

Reinforced Fire Jacket

## Pipe-connecting Series

Bell & Spigot Joint



Double “O-ring” Joint



API 8 RND Thread Joint



## Applications



Fire water  
pipeline for  
LNG Terminal



Sea water  
pipeline



Bittern water  
pipeline



Potable water  
and sewage  
pipeline

## Standards



**API 15LR**  
American Petroleum Institute  
15LR Standards



**SY/T6266-2004**  
Petroleum and Natural Gas  
Industry Standards



**IMO A.753**  
International Maritime  
Organization A.753 Standards



**ASTM F1173**  
American Society for Testing  
and Materials F1173 Standards

## Type Approval

- API 15LR – American Petroleum Institute 15LR Certification
- Manufacture License of Special Equipment Certification
- ABS Certification
- CCS Certification
- DNV.GL Certification
- BV Certification
- KR Certification



**Petronich**  
Pipe Solutions

## SPECIALTY GRE PIPE SIZE & RATED PRESSURE

Specification in mm		(Mpa) Rated Pressure											
		1.0	1.6	2.0	2.5	3.5	4	5.5	6	8	10	12	
1½ "	40	√	√	√	√	√	√	√	√	√	√	√	
2 "	50	√	√	√	√	√	√	√	√	√	√	√	
3 "	80	√	√	√	√	√	√	√	√	√	√	√	
4 "	100	√	√	√	√	√	√	√	√	√	√	√	
6 "	150	√	√	√	√	√	√	√	√	√	√	√	
8 "	200	√	√	√	√	√	√	√	√	√	√	√	
10 "	250	√	√	√	√	√	√	√	√	√	√	√	
12 "	300	√	√	√	√	√	√	√	√	√	√	√	
16 "	400	√	√	√	√	√	√	√	√	√	√	√	
20 "	500	√	√	√	√	√	√	√	√	√	√	√	
24 "	600	√	√	√	√	√	√	√	√	√	√	√	
32 "	800	√	√	√	√	√	√	√	√	√	√	√	
36 "	900	√	√	√	√	√	√	√	√	√	√	√	
40 "	1000	√	√	√	√	√	√	√	√	√	√	√	

Note: "√" means our company's existing pipe production capacity.

## SPECIALTY GRE PIPE SIZE AND WEIGHT (Mpa 1.6)

Specification		ID	OD	W.T.	AVG Weight	Rated Pressure
mm	in	mm	mm	mm	Kg/m	Mpa
40	1½	38	44	3.0	1.3	1.6
50	2	48	54.2	3.1	1.3	1.6
80	3	76	82.2	3.1	1.8	1.6
100	4	98	106.2	4.1	3.1	1.6
125	5	123	131.2	4.1	3.5	1.6
150	6	148	156.2	4.1	4.6	1.6
200	8	193	204	5.5	7.4	1.6
250	10	250	264	7.0	12	1.6
300	12	300	316.6	8.3	17	1.6
350	14	350	368	9.0	19	1.6
400	16	400	420.6	10.3	25	1.6
450	18	450	473	11.5	32	1.6
500	20	500	525.6	12.8	29	1.6
600	24	600	630.8	15.4	56	1.6
700	28	700	737.4	18.7	75	1.6
750	30	750	790	20.0	93	1.6
800	32	800	842.8	21.4	102	1.6
900	36	900	948	24.0	132	1.6
1000	40	1000	1053.8	26.9	165	1.6

# SPECIALTY GRE PIPE SIZE AND WEIGHT (Mpa 2.0)

Specification		ID	OD	W.T.	AVG Weight	Rated Pressure
mm	in	mm	mm	mm	Kg/m	Mpa
40	1½	38	44	3	1.3	2.0
50	2	48	54.2	3.1	1.3	2.0
80	3	76	82.2	3.1	1.8	2.0
100	4	98	106.2	4.1	3.1	2.0
125	5	123	131.2	4.4	3.76	2.0
150	6	148	158.6	5.3	5.87	2.0
200	8	193	207	7	9.48	2.0
250	10	250	267.6	8.8	15.2	2.0
300	12	300	318.4	9.2	18.9	2.0
350	14	350	372	11	23.5	2.0
400	16	400	425	12.5	30.7	2.0
450	18	450	476	13	36.5	2.0
500	20	500	528	14	43.1	2.0
600	24	600	634	17	62.6	2.0
700	28	700	740	20	82.9	2.0
750	30	750	793	21.5	101.5	2.0
800	32	800	845	22.5	109.8	2.0
900	36	900	950	25	140	2.0
1000	40	1000	1055	27.5	171.5	2.0

Fittings: Fittings related to pipe under the pressure of 1.6MPa~2.0MPa, include flange, elbow, tee, reducer and so on. Those fittings are manufactured through the mechanical winding or composite molding. Its performance is same as the pipe in pressure, temperature, and resistance to chemical corrosion, and its joint matches with the pipe of the same specification.



# SPECIALTY GRE PIPE ENGINEERING DATA SHEET

Nominal pipe size		pressure rating		Vacuum and the pressure level at room temperature			
				limiting pressure		rated pressure	
in	mm	psig	Mpa	psig	Mpa	psig	Mpa
1½	40	230	1.6	> 3000	> 210	> 1000	> 70
2	50	230	1.6	> 1700	> 117	> 563	> 38.8
2 ½	65	230	1.6	1500	100	500	34.5
3	80	230	1.6	855	59	210	14.5
4	100	230	1.6	305	21	96	6.6
5	125	230	1.6	380	26.2	55	3.8
6	150	230	1.6	175	12.1	55	3.8
8	200	230	1.6	85	5.9	28	1.9
10	250	230	1.6	80	5.5	26	1.8
12	300	230	1.6	75	5.2	24	1.7
14	350	230	1.6	75	5.2	23	1.6
16	400	230	1.6	70	4.8	23	1.6
18	450	230	1.6	70	4.8	22	1.5
20	500	230	1.6	70	4.8	22	1.5
24	600	230	1.6	70	4.8	22	1.5
26	650	230	1.6	70	4.8	22	1.5
28	700	230	1.6	70	4.8	22	1.5
30	750	230	1.6	70	4.8	22	1.5
32	800	230	1.6	70	4.8	22	1.5
36	900	230	1.6	70	4.8	22	1.5
40	1000	230	1.6	70	4.8	22	1.5

Nominal pipe size		pressure rating		Vacuum and the pressure level at room temperature			
				limiting pressure		rated pressure	
in	mm	psig	Mpa	psig	Mpa	psig	Mpa
1½	40	285	2.0	> 3000	> 210	> 1000	> 70
2	50	285	2.0	> 1700	> 117	> 563	> 38.8
2 ½	65	285	2.0	1500	100	500	34.5
3	80	285	2.0	855	59	210	14.5
4	100	285	2.0	305	21	96	6.6
5	125	285	2.0	380	26.2	55	3.8
6	150	285	2.0	175	12.1	55	3.8
8	200	285	2.0	175	12.1	55	3.8
10	250	285	2.0	175	12.1	55	3.8
12	300	285	2.0	175	12.1	55	3.8
14	350	285	2.0	175	12.1	55	3.8
16	400	285	2.0	175	12.1	55	3.8
18	450	285	2.0	175	12.1	55	3.8
20	500	285	2.0	175	12.1	55	3.8
24	600	285	2.0	175	12.1	55	3.8
26	650	285	2.0	150	10.3	50	3.4
28	700	285	2.0	150	10.3	50	3.4
30	750	285	2.0	150	10.3	50	3.4
32	800	285	2.0	150	10.3	50	3.4
36	900	285	2.0	150	10.3	50	3.4
40	1000	285	2.0	150	10.3	50	3.4

# ENGINEERING DATA SHEET (CONT.)

## 1.2、1.2-C、1.2-F、1.2-CF

Nominal pipe size		pressure rating		Vacuum and the pressure level at room temperature			
				limiting pressure		rated pressure	
in	mm	psig	Mpa	psig	Mpa	psig	Mpa
1	25	175	1.2	> 3000	> 21	> 1000	> 7.0
1.5	40	175	1.2	> 3000	> 21	> 1000	> 7.0
2	50	175	1.2	>1700	>11.7	>563	>3.88
2.5	65	175	1.2	1500	10.0	500	3.45
3	80	175	1.2	855	5.9	210	1.45
4	100	175	1.2	305	2.1	96	0.66
5	125	175	1.2	380	2.62	55	0.38
6	150	175	1.2	175	1.21	55	0.38
8	200	175	1.2	85	0.59	28	0.19
10	250	175	1.2	80	0.55	26	0.18
12	300	175	1.2	75	0.52	24	0.17
14	350	175	1.2	75	0.52	23	0.16
16	400	175	1.2	70	0.48	23	0.16
18	450	175	1.2	70	0.48	22	0.15
20	500	175	1.2	70	0.48	22	0.15
24	600	175	1.2	70	0.48	22	0.15
26	650	175	1.2	70	0.48	22	0.15
28	700	175	1.2	70	0.48	22	0.15
30	750	175	1.2	70	0.48	22	0.15
32	800	175	1.2	70	0.48	22	0.15
36	900	175	1.2	70	0.48	22	0.15
40	1000	175	1.2	70	0.48	22	0.15

## 1.8、1.8-C、1.8-F、1.8-CF

Nominal pipe size		pressure rating		Vacuum and the pressure level at room temperature			
				limiting pressure		rated pressure	
in	mm	psig	Mpa	psig	Mpa	psig	Mpa
1	25	250	1.8	>3000	>21.0	>1000	>7.0
1.5	40	250	1.8	>3000	>21.0	>1000	>7.0
2	50	250	1.8	>1700	>11.7	>563	>3.88
2.5	65	250	1.8	1500	10.0	500	3.45
3	80	250	1.8	855	5.90	210	1.45
4	100	250	1.8	305	2.10	96	0.66
5	125	250	1.8	380	2.62	55	0.38
6	150	250	1.8	175	1.21	55	0.38
8	200	250	1.8	175	1.21	55	0.38
10	250	250	1.8	175	1.21	55	0.38
12	300	250	1.8	175	1.21	55	0.38
14	350	250	1.8	175	1.21	55	0.38
16	400	250	1.8	175	1.21	55	0.38
18	450	250	1.8	175	1.21	55	0.38
20	500	250	1.8	175	1.21	55	0.38
24	600	250	1.8	175	1.21	55	0.38
26	650	250	1.8	150	1.03	50	0.34
28	700	250	1.8	150	1.03	50	0.34
30	750	250	1.8	150	1.03	50	0.34
32	800	250	1.8	150	1.03	50	0.34
36	900	250	1.8	150	1.03	50	0.34
40	1000	250	1.8	150	1.03	50	0.34

Note: C-Antistatic Pipe ; F-Fire Endurance Pipe ; CF-Antistatic and Fire Endurance Pipe.



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# SPECIALTY GRE PIPE CHEMICAL CORROSION RESISTANCE

Chemical environment	Recommended highest temperature °C
Ethane100%	24
Hydrochloric acid10%	NR
Sulfureted hydrogen (dry)100%	66
Sulfureted hydrogen ( wet and saturation)	52
Coal oil	66
Carbinol 20%	38
Mineral alcohol	24
Petrolic alcohol	38
3% Sulphuric acid	24
Toluene100%	NR
Chloridized water 100 ppm	77
Distilled water	93
Hard water	80
Sea water	80
Acetum 20%	NR
Benzene 10%	21
Citric acid 25%	66
Crude oil (with and without sulphur )	77
Ethanol 100%	24
Combustible oil	66
Heptane 100%	52
Hydrochloric acid 3%	24
Hydrofluorid acid	NR
10% Pyruvic acid 3%	38
Aeromautic oil 100%	66
Methane	60
Chloromethane 10%	NR
5% Inorganic mud acid	38
(Exposure endurance under 8 hours)	
5-50% Sodium hydroxide	NR
10% Sulphuric acid 100%	NR
Alcoholic amine 100%	NR
Soft water	93
Haloid water	80
Brine	80
toluene	NR
Amine hydroxide 28%	NR
( 1 ) CO2 (dry)	80
( 2 ) CO2(wet)	66
Diesel oil 100%	66
Ethanol (all)	80
100% Gasoline	60





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# SPECIALTY GRE PIPE SIZE & WEIGHT

Nominal Dia		Inside Dia	Outside Dia.	Nominal W/T.	Avg. Weight	Rated pressure
(mm)	(in)	(mm)	(mm)	(mm)	(kg/m)	(Mpa)
40	1½	38	44	3.0	1.3	1.2
50	2	53	59.2	3.1	1.3	1.2
80	3	81.8	88	3.1	1.8	1.2
100	4	105.2	113.4	4.1	3.1	1.2
125	5	131.9	140.1	4.1	3.5	1.2
150	6	148	156.2	4.1	4.6	1.2
200	8	193	204	5.5	7.4	1.2
250	10	250	264	7.0	12	1.2
300	12	300	316.6	8.3	17	1.2
350	14	350	368	9.0	19	1.2
400	16	400	420.6	10.3	25	1.2
450	18	450	473	11.5	32	1.2
500	20	500	525.6	12.8	29	1.2
600	24	600	630.8	15.4	56	1.2
700	28	700	737.4	18.7	75	1.2
750	30	750	790	20.0	93	1.2
800	32	800	842.8	21.4	102	1.2
900	36	900	948	24.0	132	1.2
1000	40	1000	1053.8	26.9	165	1.2

(Mpa 1.2)

(Mpa 1.8)

Nominal Dia		Inside Dia	Outside Dia.	Nominal W/T.	Avg. Weight	Rated pressure
(mm)	(in)	(mm)	(mm)	(mm)	(kg/m)	(Mpa)
40	1½	38	44	3	1.3	1.8
50	2	53	59.2	3.1	1.3	1.8
80	3	81.8	88	3.1	1.8	1.8
100	4	105.2	113.4	4.1	3.1	1.8
125	5	131.9	140.9	4.4	3.76	1.8
150	6	148	158.6	5.3	5.87	1.8
200	8	193	207	7	9.48	1.8
250	10	250	267.6	8.8	15.2	1.8
300	12	300	318.4	9.2	18.9	1.8
350	14	350	372	11	23.5	1.8
400	16	400	425	12.5	30.7	1.8
450	18	450	476	13	36.5	1.8
500	20	500	528	14	43.1	1.8
600	24	600	634	17	62.6	1.8
700	28	700	740	20	82.9	1.8
750	30	750	793	21.5	101.5	1.8
800	32	800	845	22.5	109.8	1.8
900	36	900	950	25	140	1.8
1000	40	1000	1055	27.5	171.5	1.8



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## SPECIALTY GRE PIPE MAXIMUM SPAN LENGTH

		70°F				200°F			
		1.2MPa		1.8MPa		1.2MPa		1.8MPa	
(in.)	(mm)	(ft.)	(m)	(ft.)	(m)	(ft.)	(m)	(ft.)	(m)
1	25	12.8	3.9	12.8	3.9	11.2	3.4	11.2	3.4
1½	40	15.2	4.6	15.2	4.6	13.3	4.1	13.3	4.1
2	50	16.2	5.0	16.2	5.0	14.2	4.3	14.2	4.3
2½	65	17.2	5.2	17.2	5.2	15.0	4.6	15.0	4.6
3	80	18.6	5.7	18.6	5.7	16.3	5.0	16.3	5.0
4	100	20.0	6.1	20.0	6.1	17.5	5.3	17.5	5.3
5	125	22.0	6.7	22.0	6.7	19.0	5.8	19.0	5.8
6	150	23.1	7.0	23.1	7.0	20.2	6.2	20.2	6.2
8	200	25.4	7.7	26.6	8.1	22.3	6.8	23.4	7.1
10	250	28.0	8.5	29.5	9.0	24.5	7.5	25.9	7.9
12	300	30.1	9.2	32.0	9.8	26.4	8.1	28.1	8.6
14	350	32.0	9.8	34.1	10.4	28.1	8.6	29.9	9.1
16	400	34.1	10.4	36.4	11.1	29.9	9.1	31.9	9.7
18	450	35.8	10.9	38.3	11.7	31.4	9.6	33.6	10.2
20	500	37.7	11.5	40.4	12.3	33.1	10.1	35.4	10.8
24	600	41.2	12.6	44.2	13.5	36.1	11.0	38.7	11.8
26	650	38.9	11.9	44.6	13.6	35.3	10.8	37.7	11.5
28	700	43.4	13.2	45.9	14.0	36.6	11.2	38.8	11.8
30	750	44.8	13.7	47.5	14.5	37.9	11.6	40.1	12.2
32	800	46.3	14.1	49.0	14.9	39.1	11.9	41.4	12.6
36	900	49.0	14.9	52.0	15.8	41.5	12.6	43.9	13.4
40	1000	50.5	15.4	54.1	16.5	43.6	13.3	45.3	13.8



**Petronich**  
Pipe Solutions

## Powered by Proven Partnerships

At Petronich, we proudly leverage the global partnerships of Ocean Pipe Technology - working with some of the world's most respected energy, engineering, and infrastructure companies. These collaborations are a testament to the proven performance and reliability of our GRE and FRP piping systems across the most demanding environments.



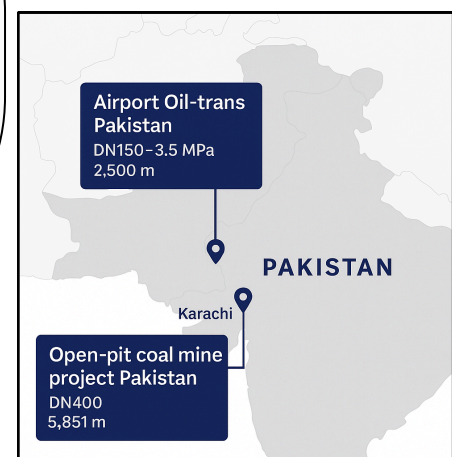
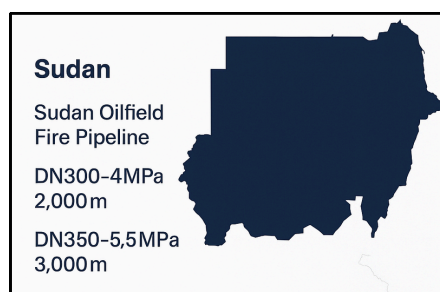
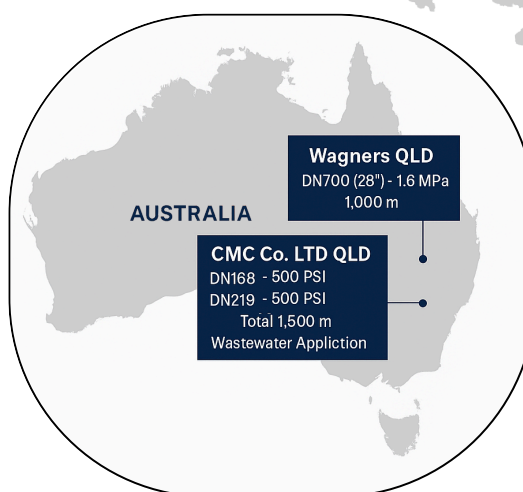
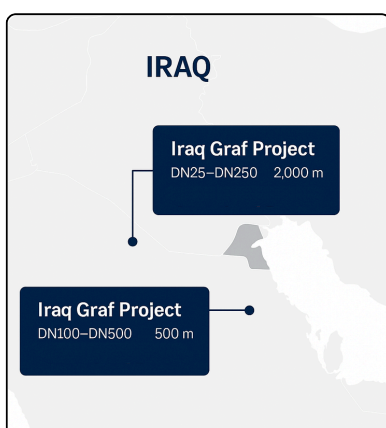
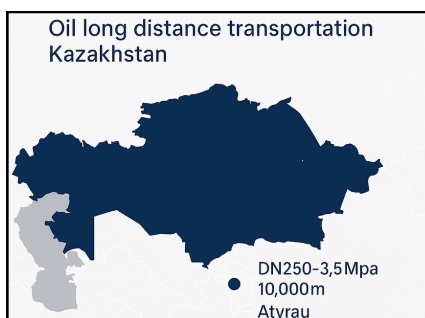
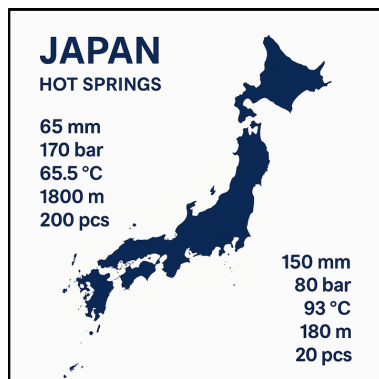
**Pakistan Petroleum Limited**

## CASE HISTORY

Leveraging Ocean Pipe Technology's extensive project history, Petronich Pipe Solutions delivers field-proven piping solutions tailored to your toughest industrial challenges.

Ocean Technology's clientele includes leading Engineering, Procurement, and Construction (EPC) contractors, government infrastructure bodies, and global energy operators. Their systems have been successfully deployed in high-stakes environments - from offshore oil platforms and petrochemical plants, to municipal water systems, mining operations, and industrial facilities requiring non-corrosive, long-life pipeline solutions.

With projects delivered across Asia, the Middle East, Africa, Europe, and Australia, Ocean Technology is known not just for its product excellence but for its ability to support large-scale installations with dependable logistics, on-site technical supervision, and full compliance documentation. Their reputation for quality and performance has made them a preferred supplier to clients who demand engineering precision and operational resilience.







**Petronich**  
Pipe Solutions

## CASE HISTORY

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Pump Skid Integration Pipe System for Oil Field



Fire Pipe in LNG Station



## CASE HISTORY

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Salt Chemical Pipeline



Offshore Oil Field Cooling Water Line for Oil & Gas Pot



Ningbo ship ballast piping



Hot Spring Pipe



Recovery platforms water supply system



Acid Gas Exhaust System of Drilling Unit Platform





**Petronich**  
Pipe Solutions



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