

FLOWSTRONG® YELLOWBOX®

Light Weight
Corrosion Resistant
High Pressure

RTR Line Pipe Solutions
for Sour Hydrocarbon
Service With High
Water-Cut and for
Water Injection Lines

Applications

- Crude oil (containing H₂S and CO₂), as well as gathering systems
- Salt water injection lines
- Medium to high pressure transmission lines
- CO₂ injection and recovery lines
- Chemical effluent and waste disposal lines
- Water distribution systems
- Multiphase flow lines



Product Introduction

Flowstrong® YellowBox® line pipe is a machine-made composite material produced by the filament winding method combining high strength continuous glass fiber filaments and corrosion resistant epoxy resin onto a steel mandrel.

The material is specially formulated to result in a structurally and chemically optimized product. The resin system employed is a Bisphenol-A based epoxy resin heat cured with an aromatic amine based hardener; this formulation produces the highest mechanical strength, thermal resistance and corrosion resistance of all commercially available resin systems used in fabrication of fiberglass piping.



Flowstrong® YellowBox® pipe systems incorporate threaded joints which utilize the reliable, time-proven 8 round (8RD) threads made as per API specification 5B. Joint sealing is obtained with fiberglass material itself; sealing strength is enhanced by means of high-performance Composite Molded Threads. Steel threaded molds are utilized during production with a benefit of increasing reliability, repeatability and performance over traditional machined threads.

Success story: More than 60KM of high pressure Flowstrong® YellowBox® line pipe installed in ADCO with Zero-Leakage during testing, commissioning and in-service.

Design Summary

Flowstrong® YellowBox® line pipe is designed as per API specification 15HR, and further enhanced to satisfy requirements of Saudi Aramco specification 01-SAMSS-042 for temperature resistance of up to 95°C (203°F).

All of the below given parameters of Flowstrong® YellowBox® line pipe systems comply with the requirements stated in API 15HR (specification for high pressure fiberglass line pipe):

- Pipe inside diameter
- Pressure rating and pipeline design methodology
- Service life
- Long term & short term hydrostatic and mechanical strength
- Raw material control
- Manufacturing process
- Process control and quality control
- Visual and dimensional control
- Marking
- Performance verification testing
- Handling, packaging, storing and shipping
- Minimum bending radius of pipeline
- Handling, packaging, storing and shipping
- Minimum bending radius of pipeline





Product Range (Pressure vs. Diameter)

Applicable Aramco specification: 01-SAMSS-042

Applicable international specification: API SPEC 15HR

Nominal pipe size	Inside Diameter	500 PSI	750 PSI	1000 PSI	1250 PSI	1500 PSI	1750 PSI	2000 PSI	2250 PSI
		34.5 bar	51.7 bar	69 bar	86.2 bar	103.4 bar	120.7 bar	137.9 bar	155.1 bar
3"	76 mm	✓	✓	✓	✓	✓	✓	✓	✓
4"	100 mm	✓	✓	✓	✓	✓	✓	✓	✓
6"	138 mm	✓	✓	✓	✓	✓	✓		
8"	200 mm	✓	✓	✓	✓	✓			
10"	225 mm	✓	✓	✓	✓	✓			
12"	300 mm	✓	✓	✓					
14"	350 mm	✓	✓	✓*					

Notes:

✓: Product is available; maximum site hydro test pressure = 1.25 x Pressure rating

✓*: Product offering under study

Overview of Installation Method

Flowstrong® YellowBox® pipe systems incorporate threaded joints wherein the male end (pin) is carefully inserted into the female end (box). After ensuring correct alignment, the pin is rotated into the box until a pre-defined torque or a pre-defined depth of penetration is achieved. Joint sealing is obtained with fiberglass material itself, assisted by the use of a thread compound or a thread sealant at the interface of pin and box.



Reference List

Flowstrong® YellowBox® line pipe has more than 20 years of case histories, only an extract of those installations inside the GCC is shown below:

Reference List for High Pressure API Threaded YELLOW BOX® Line Pipe in the GCC

Order Date	Product	Business Partner	Item Description	Unit	Order Qty
2016	Yellow Box	Kinder Morgan Production Co	10", 14", 3", 4", 6", 8"	ft	85395
2016	Yellow Box	XTO Energy	10"	ft	600
2016	Yellow Box	EOG Resources, Inc.	16.5"	ft	26400
2016	Yellow Box	Pintail Oil and Gas	3"	ft	1050
2016	Yellow Box	Weatherford Gemoco	3" & 4"	ft	4470
2016	Yellow Box	City Pipe & Supply Corp	4" & 8"	ft	7218
2017	Yellow Box	Kinder Morgan Production Co	4", 10" & 12"	ft	24800
2017	Yellow Box	EOG Resources, Inc.	10"	ft	6000
2017	Yellow Box	Sheridan Production Co LLC	10"	ft	14000
2017	Yellow Box	Apache	3", 4", 6", 8", 10"	ft	91550
2017	Yellow Box	Weatherford Gemoco	3" & 4"	ft	300
2017	Yellow Box	City Pipe & Supply Corp	2", 3", 4", 6", 8"	ft	178330
2017	Yellow Box	Great Western	4" & 6"	ft	7400
2017	Yellow Box	Trinity EOR LLC	6"	ft	400
2017	Yellow Box	Surge Operating LLC	6"	ft	33100
2017	Yellow Box	A&B Valve and Piping	6"	ft	900
2017	Yellow Box	Hunt Oil Company	6"	ft	5000
2018	Yellow Box	Kinder Morgan Production Co	6", 10", 12"	ft	22660
2018	Yellow Box	COG Operating LLC	12" YB TC 1000	ft	94000
2018	Yellow Box	Rhame Pump Repair & Supply	3"	ft	2900
2018	Yellow Box	Weatherford Gemoco	3" & 4"	pc	70
2018	Yellow Box	Trinidad Resources LLC	3"	ft	5083
2018	Yellow Box - API Mono-gram	Maersk Oil Kazakhstan	3" & 8"	pc	256
2018	Yellow Box	City Pipe & Supply Corp	4"	ft	62,000
2018	Yellow Box	Trinidad Resources LLC	4"	ft	2000



Order Date	Product	Business Partner	Item Description	Unit	Order Qty
2018	Yellow Box	Goodnight Midstream	6"	ft	121900
2018	Yellow Box	L. F. Manufacturing Inc	8"	ft	699
2018	Yellow Box	Excelsior Mining Arizona Inc	8"	ft	2160
2018	Yellow Box - API Design	ACCEL Energy Canada Limited	4" & 8"	m	5427
2018	Yellow Box	Steward Energy II	6"	ft	7000
2019	Yellow Box	Goodnight Midstream	6"	pc	10000
2019	Yellow Box	EOG Resources	4"	ft	500
2019	Yellow Box	Weatherford / Columbia Oilfield Supply	3" & 4"	pc	78
2019	Yellow Box	Weatherford Gemoco	3"	pc	10
2019	Yellow Box	Sweetwater Events Complex	4.5"	ft	800
2019	Yellow Box	Kinder Morgan	3", 6", 10", 12", 16"	ft	69010
2019	Yellow Box	Apache Corporation	12"	ft	23000
2019	Yellow Box	COG Operating LLC	12"	ft	510
2019	Yellow Box	Spirit Oilfield Supply, Inc.	3"	ft	2000
2019	Yellow Box	BDS Constructors / MK Constructors	2", 3", 6"	ft	1275
2020	Yellow Box	Weatherford/Columbia Oilfield Supply	3"	Pcs	12
2020	Yellow Box	Cressman Tubumars	4"	LF	3000
2020	Yellow Box	XTO Energy	6"	LF	4710
2020	Yellow Box	Colgate Energy	12"	ft	5500
2020	Yellow Box	Industrial Hose & Supply	6"	Pcs	2
2020	Yellow Box	Kinder Morgan	6", 10", 12"	Pcs	5





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