天津杰鳌合金材料有限公司

Tianjin Jeo Alloy Materials Co., Ltd.

Professional Teams Doing Professional Things

CONTENTS

Top Quality and Excellent Services.
This is not only a heavy responsibility,
but also a commitment from the heart. We are dedicated and professional enough, and we will win the trust of more customers.

Your success, our mission.

COMPANY PROFILE

Tianjin Jeo Alloy Materials Co., Ltd, is a company specialized in the R&D, design and manufacture of bare or encapsulated capillary tube, control line, chemical injection line, TEC (Tubing Encapsulated Cable), and flat packs, which is made of various alloy materials such as stainless steel, nickel-based alloys, and other corrosion-resistant alloys.

With mature technologies and high-end equipment, the company deeply explores customer needs and customizes exclusive products for customers. The products are widely used in chemical, oil & gas extraction, aviation, navigation, medical and other environmental fields with strict requirements on materials.

In the professional field customer needs are our most important guiding principle, our solutions are Customercentric,Aiming to help customers create more valuable products.

We bear the responsibility for environmental protec-tion and committed to social contribution. We bringmore sustainable solutions to the oil productionand create greater values for society through a varietyof innovative technologies.

QUALITY MANAGEMENT SYSTEMS CERTIFICATION

Certificate No. : 17325Q20434R0S

This is to certify that

Tianjin Jeo Alloy Materials Co., Ltd

Unified social credit code: 91120221MAE8L55R0X

Registered address: West of Zaojiacheng Village (The factory building within the compound of Tianjin Tianjiao Electric Furnace Manufacturing Co., Ltd.), Zaojiacheng Town, Ninghe District, Tianjin, China

Operating address: West of Zaojiacheng Village (The factory building within the compound of Tianjin Tianjiao Electric Furnace Manufacturing Co., Ltd.), Zaojiacheng Town, Ninghe District, Tianjin, China

is in conformity with

GB/T 19001-2016/ISO 9001:2015 standard

for the scope of

Manufacturing of downhole oil tools(Capillary Tube, Tubing Encapsulated Cable, Flat Pack)

Issue Date:Apr.21, 2025 Reissue Date:Apr.21, 2025 Valid Until:Apr.20, 2028

IAF CNAS

Beijing Zhongjiaoyuanhang Certification Co., Ltd.

R1205, 1st building, NO.248 Guanganmenwai Street, Xicheng District, Beijing

The company has a team experienced and professional in the stringent source control of raw material procurement, excellent production technologies, meticulous process inspections, strict quality control, full guarantee of equipment ability, and the effective operation of the ISO management system. The team has a meticulous attitude to lay a solid foundation for the manufacture of high-quality products and provide all-round protection.

Quality Oriented — Customer First — Courage to Innovation — Dare to be the First

MAIN PRODUCTS

- Capillary Tube (Hydraulic Control Line, Chemical Injection Line)
- PDC (Permanent Downhole Cable)
  TEC (Tubing Encapsulated Cable)
- Flat Pack

ABOUT PRODUCTS

CAPILLARY TUBE: HYDRAULIC CONTROL LINE, CHEMICAL INJECTION LINE

Materials: austenitic stainless steel, duplex stainless steel, nickel-based alloys, Monel alloys, titanium alloys.

Outer Diameter (OD) Range: 1/8" to 5/8" (0.125" to 0.625")

Standard Length: up to 10KM (nearly 33,000ft).

Customization: Lengths exceeding 10 km can be tailored to meet specific client requirements

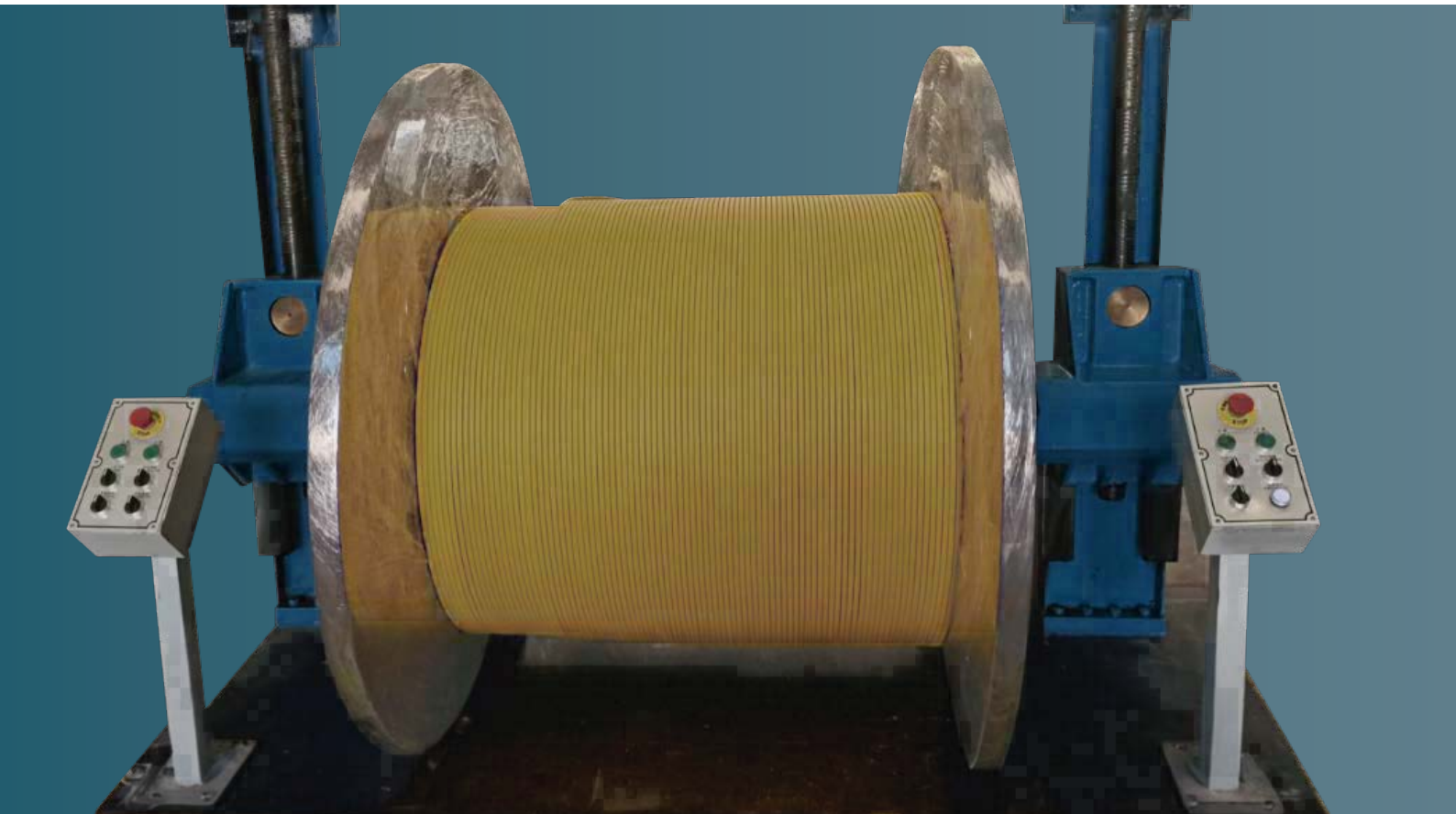
FEATURES:

Austenitic stainless steel has strong rust and corrosion resistance, as well as excellent forming and welding properties.

Duplex stainless steel has a better resistance to uniform corrosion, stress corrosion, pitting corrosion, and crevice corrosion than Austenitic.

Stainless steel also has good corrosion resistance, fatigue resistance and wear resistance.

Nickel-based alloys and Monel alloys have high corrosion resistance and high temperature strength and can be used in high temperature, high pressure and high corrosion environments.



PDC/TEC

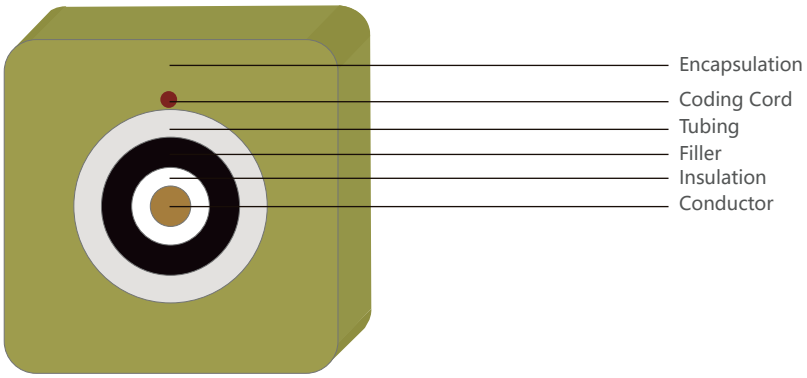
FEATURES OF TEC ARMOR

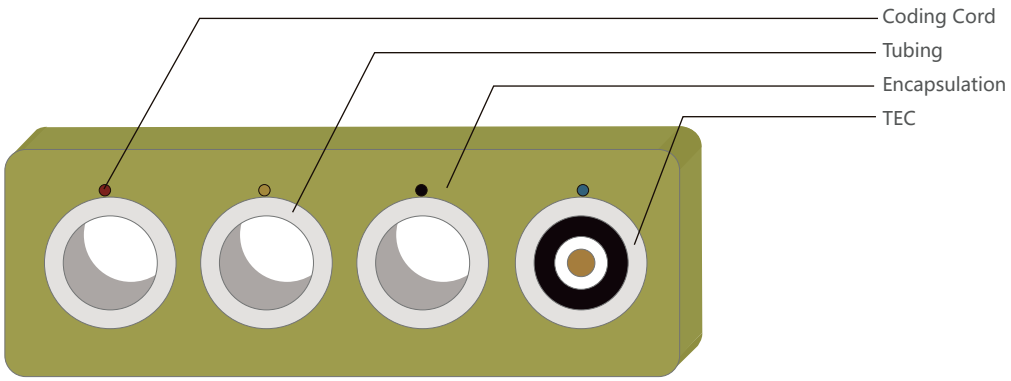
- 316L has strong anti-rust and corrosion resistance, and also has excellent forming and welding characteristics.
- Incoloy 825 can be used in high temperature, high pressure and high corrosion environments.

FLAT PACK

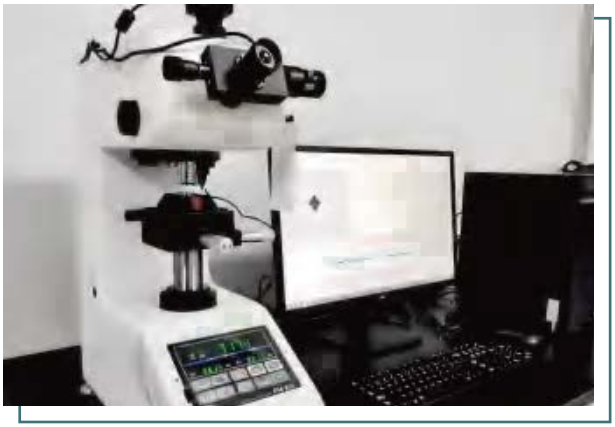
FEATURES OF FLAT PACK:

- Flat Pack is a single encapsulated cable which could possibly have dual, triple, quad, quint or even more TECs, Injection Lines or Hydraulic Control Lines as components for ease RIH (Running in Hole). Bumpers bars or wire ropes could also be included for strengthening. For more info, please refer to the selection tables of capillary tube and TEC.





TEST MACHINE



Microhardness Tester

Metallurgical Microscope

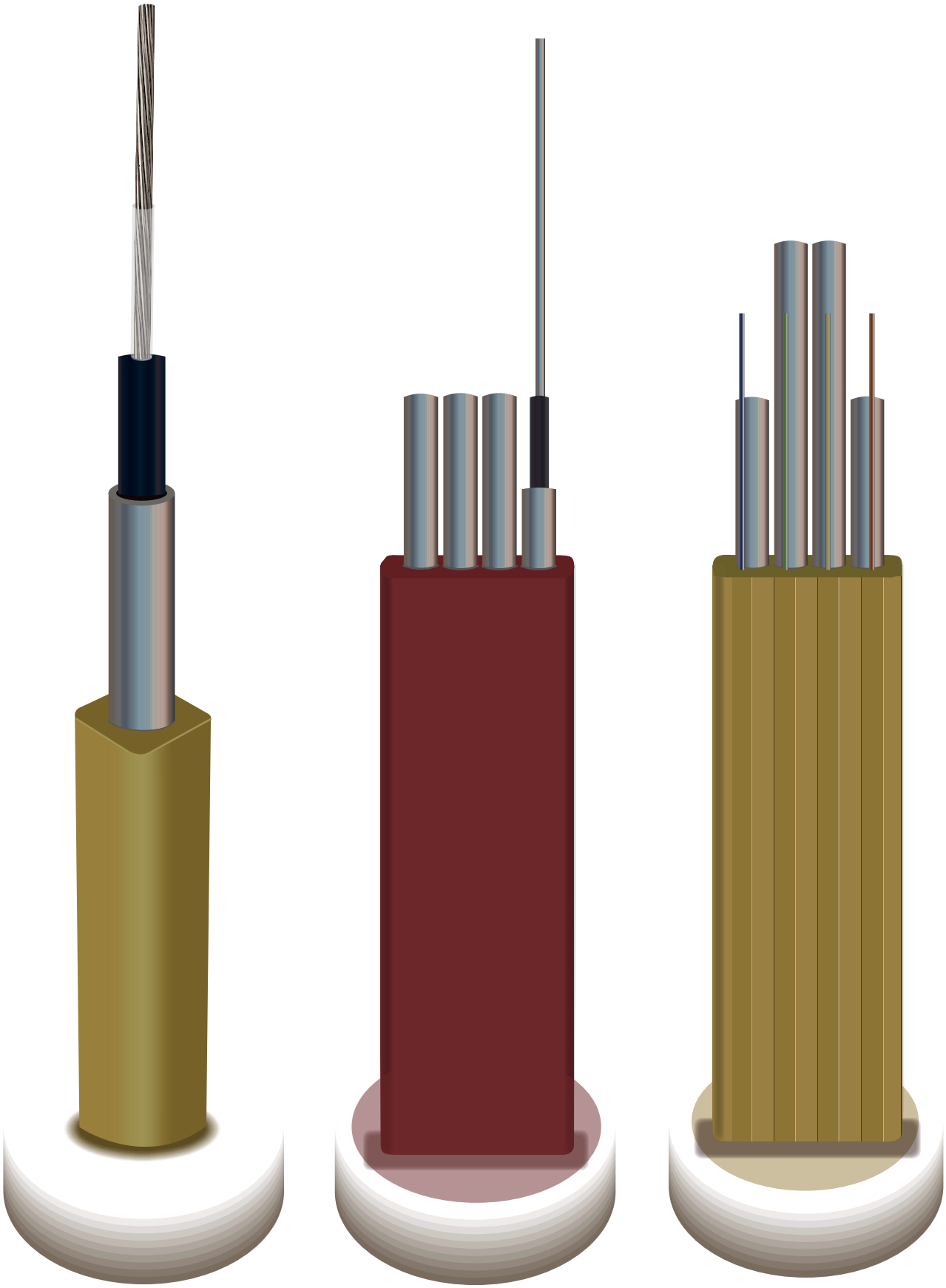
Universal Testing Machine(UTM)

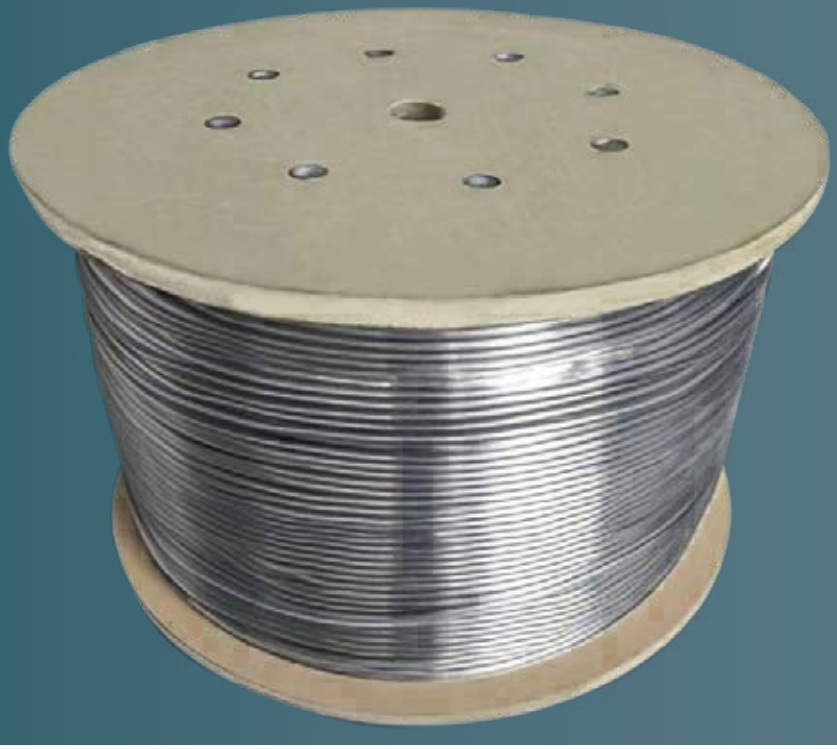
Spectrometer

Eddy Current Flaw Detector

X-ray Flaw Detector

PRODUCT PICTURES





CAPILLARY TUBE CHEMICAL COMPOSITION

	C	Mn	P	S	Si	Cr	Ni	Mo	Cu	Fe
	max	max	max	max	max	rng	rng	rng	rng	max
CT40~316L	0.030	2.000	0.045	0.030	0.75	16.0~18.0	10.0~14.0	2.00~3.00	/	/
CT80~2205	0.030	2.000	0.030	0.020	1.0	22.0~23.0	4.50~6.50	3.00~3.50	/	/
CT90~2205	0.030	1.200	0.035	0.020	0.8	24.0~26.0	6.00~8.00	3.00~5.00	/	/
CT90~2507	0.050	1.000	/	0.030	0.5	19.5~23.5	38.0~46.0	2.50~3.50	/	/
CT40~825	0.100	0.500	0.015	0.015	0.5	20.0~23.0	58.0	8.00~10.0	/	/
CT40~625	0.300	2.000	/	0.024	0.5	/	63.0	/	28.0~34.0	2.60

Capillary Tube Selection Table

CT40-316L

yield strength	tensle strength	OD	wall thickness		weight per foot	minimum tube body yield load	minimum tube body tensle load	hydro test pressure	internal yield pressure	external yield pressure
psi	psi	in.	spec.(in.)	min.(in.)	lbs/ft	lbs	lbs	psig	psig	psig
40000	70000	0.25	0.028	0.025	0.068	700	1,200	7,200	8,000	7,200
		0.25	0.035	0.032	0.082	800	1,500	9,200	10,200	8,900
		0.25	0.049	0.044	0.107	1,100	2,000	12,600	14,000	11,600
		0.25	0.065	0.059	0.131	1,400	2,400	17,000	18,800	14,400
		0.375	0.028	0.025	0.106	1,100	1,900	4,800	5,300	4,900
		0.375	0.035	0.032	0.129	1,300	2,400	6,100	6,800	6,200
		0.375	0.049	0.044	0.174	1,800	3,200	8,400	9,300	8,200
		0.375	0.065	0.059	0.219	2,300	4,100	11,300	12,500	10,600

CT80-2205

yield strength	tensle strength	OD	wall thickness		weight per foot	minimum tube body yield load	minimum tube body tensle load	hydro test pressure	internal yield pressure	external yield pressure
psi	psi	in.	spec.(in.)	min.(in.)	lbs/ft	lbs	lbs	psig	psig	psig
80000	95000	0.25	0.028	0.025	0.067	1400	1600	14,400	16,000	14,400
		0.25	0.035	0.032	0.081	1700	2000	18,000	20,400	17,800
		0.25	0.049	0.044	0.106	2200	2700	18,000	28,100	23,200
		0.25	0.065	0.059	0.129	2800	3300	18,000	37,700	28,800
		0.375	0.028	0.025	0.105	2200	2600	9,600	10,600	9,900
		0.375	0.035	0.032	0.128	2700	3200	12,200	13,600	12,400
		0.375	0.049	0.044	0.172	3600	4300	16,800	18,700	16,500
		0.375	0.065	0.059	0.217	4600	5500	18,000	25,100	21,200

CT90-2507

yield strength	tensle strength	OD	wall thickness		weight per foot	minimum tube body yield load	minimum tube body tensle load	hydro test pressure	internal yield pressure	external yield pressure
psi	psi	in.	spec.(in.)	min.(in.)	lbs/ft	lbs	lbs	psig	psig	psig
90000	116000	0.25	0.028	0.025	0.068	1500	2000	16,200	18,000	16,200
		0.25	0.035	0.032	0.082	1900	2500	18,000	23,000	20,000
		0.25	0.049	0.044	0.107	2500	3300	18,000	31,600	26,100
		0.25	0.065	0.059	0.131	3100	4100	18,000	42,400	32,400
		0.375	0.028	0.025	0.106	2400	3100	10,800	12,000	11,200
		0.375	0.035	0.032	0.130	3100	4000	13,800	15,300	14,000
		0.375	0.049	0.044	0.174	4100	5300	18,000	21,100	18,600
		0.375	0.065	0.059	0.220	5200	6800	18,000	28,300	23,800

CT40-825

yield strength	tensle strength	OD	wall thickness		weight per foot	minimum tube body yield load	minimum tube body tensle load	hydro test pressure	internal yield pressure	external yield pressure
psi	psi	in.	spec.(in.)	min.(in.)	lbs/ft	lbs	lbs	psig	psig	psig
40000	85000	0.25	0.028	0.025	0.069	700	1500	7,200	8,000	7,200
		0.25	0.035	0.032	0.083	800	1800	9,200	10,200	8,900
		0.25	0.049	0.044	0.109	1,100	2400	12,600	14,000	11,600
		0.25	0.065	0.059	0.133	1,400	3000	17,000	18,800	14,400
		0.375	0.028	0.025	0.108	1,100	2300	4,800	5,300	4,900
		0.375	0.035	0.032	0.132	1,300	2900	6,100	6,800	6,200
		0.375	0.049	0.044	0.177	1,800	3800	8,400	9,300	8,200
		0.375	0.065	0.059	0.223	2,300	4900	11,300	12,500	10,600

CT40-625

yield strength	tensle strength	OD	wall thickness		weight per foot	minimum tube body yield load	minimum tube body tensle load	hydro test pressure	internal yield pressure	external yield pressure
psi	psi	in.	spec.(in.)	min.(in.)	lbs/ft	lbs	lbs	psig	psig	psig
40000	100000	0.25	0.028	0.025	0.071	700	1700	7,200	8,000	7,200
		0.25	0.035	0.032	0.086	800	2100	9,200	10,200	8,900
		0.25	0.049	0.044	0.113	1,100	2800	12,600	14,000	11,600
		0.25	0.065	0.059	0.138	1,400	3500	17,000	18,800	14,400
		0.375	0.028	0.025	0.111	1,100	2700	4,800	5,300	4,900
		0.375	0.035	0.032	0.136	1,300	3400	6,100	6,800	6,200
		0.375	0.049	0.044	0.183	1,800	4500	8,400	9,300	8,200
		0.375	0.065	0.059	0.230	2,300	5800	11,300	12,500	10,600

CT40-MONEL400

yield strength	tensle strength	OD	wall thickness		weight per foot	minimum tube body yield load	minimum tube body tensle load	hydro test pressure	internal yield pressure	external yield pressure
psi	psi	in.	spec.(in.)	min.(in.)	lbs/ft	lbs	lbs	psig	psig	psig
40000	70000	0.25	0.028	0.025	0.074	700	1,200	7,200	8,000	7,200
		0.25	0.035	0.032	0.090	800	1,500	9,200	10,200	8,900
		0.25	0.049	0.044	0.118	1,100	2,000	12,600	14,000	11,600
		0.25	0.065	0.059	0.144	1,400	2,400	17,000	18,800	14,400
		0.375	0.028	0.025	0.116	1,100	1,900	4,800	5,300	4,900
		0.375	0.035	0.032	0.143	1,300	2,400	6,100	6,800	6,200
		0.375	0.049	0.044	0.191	1,800	3,200	8,400	9,300	8,200
		0.375	0.065	0.059	0.241	2,300	4,100	11,300	12,500	10,600

TEC TECHNICAL PARAMETERS

Temp.	Pressure	Tube Wall Thickness	Insulation	Filler	Encapsulation	Conductor
150℃	10,000 PSI	0.028"	ETFE / FEP	PP / FEP	PP / TPV / NYLON 11 / PVDF / ETFE	Mostly 14, 16, 18AWG, or 2*20AWG, Tin or Silver coated, solid core or 7 stranded.
150℃	15,000 PSI	0.035"	ETFE / FEP	PP / FEP	PP / TPV / NYLON 11 / PVDF / ETFE	
150℃	20,000 PSI	0.049"	ETFE / FEP	PP / FEP	PP / TPV / NYLON 11 / PVDF / ETFE	
200℃	10,000 PSI	0.028	FEP	FEP	FEP	Mostly 14, 16, 18AWG, or 2*20AWG, Nickel or Silver coated, solid core or 7 stranded.
200℃	15,000 PSI	0.035	FEP	FEP	FEP	
200℃	20,000 PSI	0.049	FEP	FEP	FEP	

ENCAPSULATION MATERIAL TEMPERATURE

Material Name Abbr.	Full Name	Temp. Rating	Annulus Fluids
PA11	Polyamide 11 (Rilsan® Nylon 11)	-40 ~ 120℃	Oil/diesel
PP	Polypropylene	-30 ~ 150℃	Sewater
TPV	Thermoplastic Vulcanizates	-40 ~ 150℃	Sewater and oil/diesel
PVDF	Polyvinylidene Fluoride	-40 ~ 150℃	Sewater and oil/diesel
ETFE	Ethylene Tetrafluoroethylene	-60 ~ 155℃	Sewater and oil/diesel
FEP	Fluorinated Ethylene Propylene	-80 ~ 205℃	Sewater and oil/diesel
PFA	Perfluoroalkoxy	-80 ~ 260℃	Sewater and oil/diesel

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