

The smart solution for unlimited runtime

PexTec<sup>®</sup>



voestalpine Tubulars GmbH & Co KG www.voestalpine.com/tubulars



# PERFORMANCE IN TUBULARS

Our world is based on high tech seamless pipes that can withstand the toughest conditions, day in, day out. We promise highest performance based on the core values customization, innovation and sustainability.



### PRODUCTION, R&D, SALES LOCATIONS AND LICENSEES

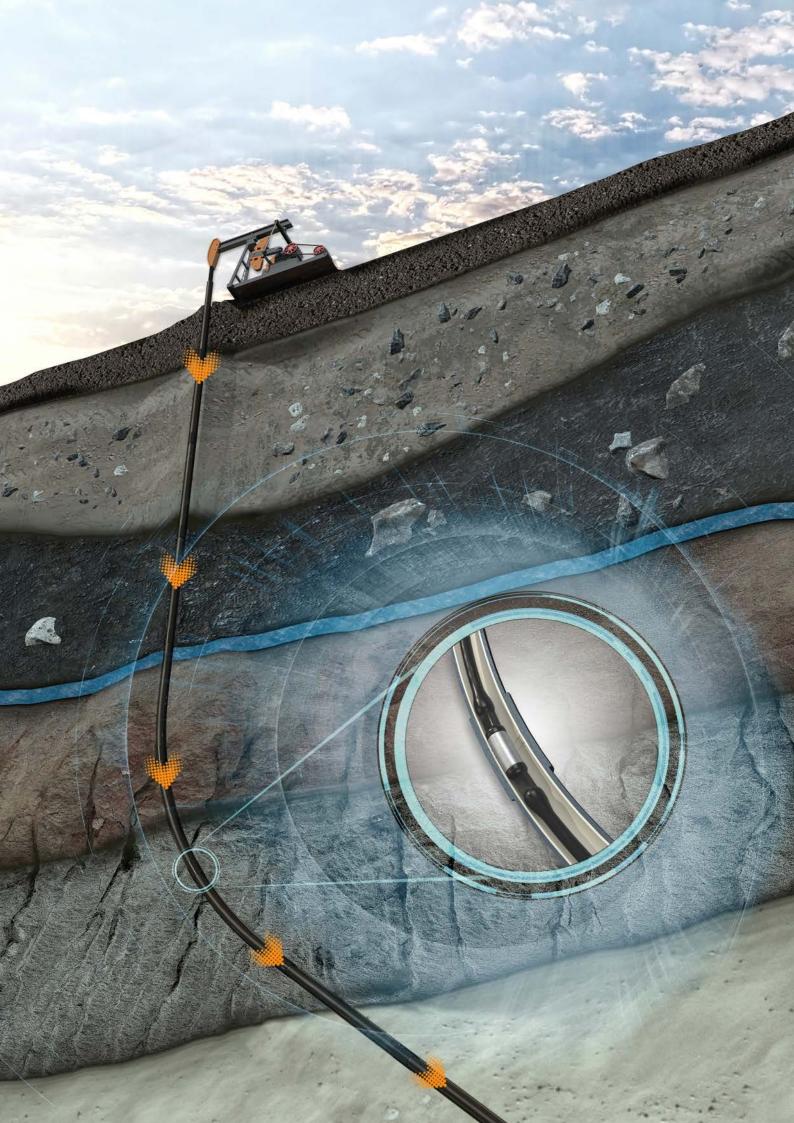




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# DESIGN CHARACTERISTICS

PexTec® offered by voestalpine Tubulars provides benefits exceeding the standards and surpassing alternative lining solutions for sucker rod or progressive cavity pumped wells currently available on the market.



## PRODUCT CHARACTERISTICS & CUSTOMER BENEFITS

#### INCREASED RUNTIME » SAVES WORKOVER COSTS

PexTec eleminates tribocorrosion by keeping abrasion, mainly caused by the sucker or PCP rod, away from the steel tubing, which increases the runtime between tubing-related workovers by up to 20 times, leading to a significant reduction of workover costs. If sucker rods are equipped with spray metal couplings, the run-time can be further improved.

#### SOLUTION FOR DIRECTIONAL WELLS » PROTECTS BENDED SECTIONS

PexTec is the smart solution for directional wells, protecting the tubing string especially in bended areas, where frictional forces of sucker and PCP rod strings have the highest impact.

#### SMOOTH INTERNAL SURFACE » REDUCES FRICTION AND ENERGY COSTS

The smooth inner surface reduces friction, easing the pumping operations and therefore reducing energy costs at the same time. The impact of the smaller inner diameter on the flow rate is compensated by a lower friction coefficient.

#### THERMAL INSULATION » REDUCES PARAFFIN IMPAIRMENT COSTS

The liner, acting as a thermal insulation, reduces the paraffin adherence in the pipe string.

# TECHNICAL DATA

Temperature resistance: Up to 100°C

Installation time:

Tubing dimensions:

Most wanted: 27%, 31/2" (other dimensions available upon request)

## COMPARISON OF PexTec® TO CONVENTIONAL TUBING

Same as for regular tubing

Below case studies compare the mean time between failures for tubing related interventions, all showing a clear advantage of PexTec® compared to conventional tubing due to a significantly higher runtime. Partially sucker rods had been equipped with spray metal couplings for further improvement of the runtime.

#### Project 1

Project location	Romania
Nr. of wells	533
Pumps	<ul> <li>&gt; 54 Sucker Rod Pumps</li> <li>&gt; 418 Progressive Cavity Pumps</li> <li>&gt; 61 Water Injection Wells</li> </ul>
Tubing sizes	2 7/8", 3 1/2"
Mean time – conventional tubing	230 days
Mean time – PexTec® tubing	1,400 days

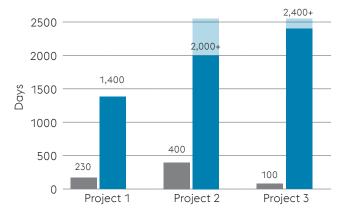
» Runtime 6 times longer with PexTec<sup>®</sup> than with conventional tubing (increased from 7,5 months to almost 4 years).

#### Project 2

Project location	Austria				
Nr. of wells	20				
Pumps	Sucker Rod Pumps				
Mean time – conventional tubing	400 days				
Mean time – PexTec® tubing	over 2,000 days (pumps still running at time of data evaluation)				

» Runtime more than 5 times longer with PexTec<sup>®</sup> than with conventional tubing (increased from 1 year to more than 5,5 years).

#### **Runtime Comparison**



Conventional tubing

PexTec<sup>®</sup> (+ still running at date of evaluation)

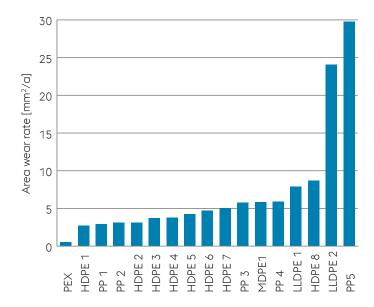
#### Project 3

Project location	Romania
Nr. of wells	20
Pumps	Sucker Rod Pumps
Mean time – conventional tubing	100 days
Mean time – PexTec® tubing	over 2,400 days (pumps still running at time of data evaluation)

» Runtime more than 24 times longer with PexTec<sup>®</sup> than with conventional tubing (increased from 3 months to more than 6,5 years).

## PERFORMANCE

### EXTRAORDINARY LOW WEAR RATE FOR LONG LIFETIME



A comparison of PexTec<sup>®</sup> with other lining solutions shows that the wear rate of Pex liners is substantially below the wear rates of alternative products. Test results achieved without spray metal couplings.

Source: Study about "Increased Tubing Lifetime with PE-X Liners" published in OIL GAS European Magazine

### SUBSTANTIALLY LONGER RUNTIME FOR MEASURABLE VALUE

Depending on the field requirements (workover interval, workover duration, well production, etc.) and cost structure (workover costs, pump costs, inhibitor costs, etc.), PexTec<sup>®</sup> could be the optimal choice for your upcoming project instead of conventional tubing.

For an easier comparison of conventional tubing and PexTec®, voestalpine Tubulars created a calculation tool.

Over a timeframe of 10 years, you get an overview about costs, possible savings, and the related break-even point.

	PexTec	Tubing String			Inhibition Costs	
Workover Interval	250 days	Length		2.500 m	Pump Costs	5.000 EU
Workover Duration	2 days				Inhibitor Costs	2,5 EUR/IN
Workover Costs	4.000 EUR/day	<b>Conventional Tubing Costs</b>			Water Cut	705
Well Production	30 BBL/day	Tubing Costs		20 EUR/m	Volume of Fluids to be inhibited	100 BBL/dd
OI Price	45 EUR/BBL	Costs		50.000 EUR		
Well Death Time	6 days				Inhibition Dosage Conventional	200 pp
Well Start-up Time Production Losses during Well Start-up	10 days 15%	Per/Tec Tubing Costs Tubing Costs		20 EUR/m	Inhibition Dosage with PexTec	0.0200 BBL/do
Production Losses during Well Start-up Share of replaced Tubing	15%	PEX-Liner Costs		20 EUR/m 20 EUR/m	Inhibitor Volume	0,0200 BBL/do 3.1800 Utar/do
Workover Costs per Intervention	35.825 EUR	Corts		100.000 EUR	and to any	5, 1000 Littli / dc
				100,400 100	Maintenance Costs	1.000 EUR/vec
Cost of Capital					Inhibition Costs Conventional	3.902 EUR/web
Discount Rate	8%				inhibition Costs with PaxTec	EUR/vec
300.000			250,000 200,000 5 150,000			
150,000	,		100.000 50.000			
50.000			-50.000	1 2	3 4 5 6 7	8 9 1
	4 5 6	7 8 9	1 -100.000			

Ask our sales team for a value analysis of your upcoming project!

Contact details available on our web page www.voestalpine.com/tubulars or in the free myTubulars App.



## SERVICES



### myTubulars APP PRODUCT DATASHEETS, FIELD SERVICE AND LICENSEES

myTubulars

Generate datasheets and load envelopes containing dimension and performance data for products provided by voestalpine Tubulars with our Datasheet Generator. You can quickly and easily check the product application against field requirements in advance also on your tablet or smartphone by using the myTubulars App.

myTubulars is available for all iOS and Android devices for free in the App stores.



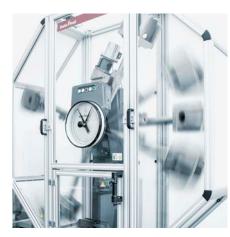
### **GET THE APP!**

Field Service during the installation can be provided upon request. Please visit the Customer Service site on our web page www.voestalpine.com/tubulars



# WHY voestalpine Tubulars?

Support from material and product selection, in-house material and product development, to final product and installation consulting from one source.



PRODUCT DEVELOPMENT



CONNECTION DEVELOPMENT



MATERIAL DEVELOPMENT



PROCESS DEVELOPMENT



**PRODUCT SELECTION** 



FIELD SERVICE

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