



VAwizard®

The magic connection



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

voestalpine

ONE STEP AHEAD.



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, sustainability and responsibility.



CUSTOMIZATION



INNOVATION



SUSTAINABILITY



RESPONSIBILITY

PRODUCTION, R&D, SALES LOCATIONS AND LICENSEES



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ME 262

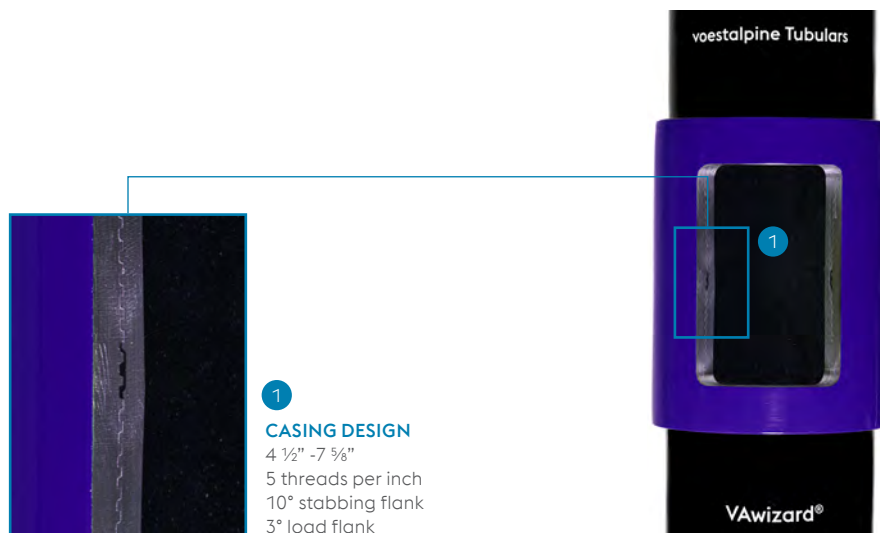
MEMMERT
HOUSTON, TEXAS
MP-2000 SERIES
PAT. NO. 4,524,924

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ME 981

DESIGN CHARACTERISTICS

voestalpine Tubulars Proprietary Connections like VAwizard® offer benefits which are not addressed by the API specification or exceed the API standards.



PRODUCT CHARACTERISTICS & CUSTOMER BENEFITS

LOWEST HOOP STRESS & HIGHEST YIELD TORQUE

» ENSURES WELL INTEGRITY

With its low hoop stress combined with high torque capability, VAwizard® is the connection of choice for multi-fractured horizontal wells. The connection performance is fit for purpose tested for this area of applications.

MINIMIZED RISK OF JUMP-OUT

» AVOIDS FAILURES UNDER BENDING LOADS

The connection design minimizes the risk of jump out failures under bending loads.

INTERCHANGEABLE WITH API BUTTRESS

» SAVES COSTS

VAwizard® is fully interchangeable with API Buttress, allowing greater flexibility in string design.

ROTATION DURING INSTALLATION

» IMPROVES QUALITY OF CEMENT BOND

The thread design offers the opportunity to rotate the casing string during installation. Due to the thread profile, the connection is able to handle axial loads without inducing high radial forces to pin and box.



GRADES

VAwizard® is available in API standard and proprietary grades. Also tailor-made customer specifications can be fulfilled upon request.

Our tools in manufacturing the VA series include but are not limited to

- » Steel with special chemical composition
- » Unique melting, refining and casting practices
- » Controlled processes in the pipe rolling, heat treatment, straightening and end finishing operations
- » Tighter tolerances
- » Restricted mechanical properties
- » Special testing and inspection methods

Some of the product names explain the application, e.g. deep well, sour service, low temperature.

The applications for other grades are defined as follows:

- » **VA-High Collapse-Series**
for use in high external pressure environments
- » **VA-Mild Sweet Gas-Series**
for mildly corrosive environments where – in combination with an adequate inhibition program – a higher corrosion resistance can be expected compared to regular API grades

Specified Minimum Yield Strength [psi]	Grade API Spec 5CT	HIGH COLLAPSE	ENHANCED PROPERTIES
55,000	J55		
	K55		
75,000			
80,000	N80-Q	VA-HC-N80-Q	VA-EP-N80-Q
	L80-1	VA-HC-L80-1	VA-EP-L80-1
	L80-13Cr		
90,000	C90-1	VA-HC-C90-1	VA-EP-C90-1
95,000	R95	VA-HC-R95	VA-EP-R95
	T95-1	VA-HC-T95-1	VA-EP-T95-1
110,000	C110	VA-HC-C110	VA-EP-C110
	P110	VA-HC-P110	VA-EP-P110
125,000	Q125-1	VA-HC-Q125-1	VA-EP-Q125-1
140,000			
150,000			

On request in combination with:



PROPRIETARY GRADES – THE VA SERIES

EXTREME PROPERTIES	SOUR SERVICE			DEEP WELL		LOW TEMPERATURE	MILD SWEET GAS	MILD SWEET GAS	SWEET GAS
		with High Collapse	with Enhanced Properties		with High Collapse		Ferrite Pearlite	Quenched & Tempered	
						VA-LT-J55	VA-FP-55-1CR		
						VA-LT-K55			
							VA-FP-75-1CR		
VA-XP-N80-Q						VA-LT-N80-Q	VA-FP-80-1CR	VA-N80-Q-1CR/ VA-N80-Q-3CR	
VA-XP-L80-1						VA-LT-L80-1		VA-L80-1-1CR/ VA-L80-1-3CR	
	VA-SS-80	VA-SS-80-HC	VA-SS-80-EP						
VA-XP-C90-1						VA-LT-C90-1			
	VA-SS-90	VA-SS-90-HC	VA-SS-90-EP						
VA-XP-R95						VA-LT-R95		VA-R95-1CR/ VA-R95-3CR	
VA-XP-T95-1						VA-LT-T95-1			
	VA-SS-95	VA-SS-95-HC	VA-SS-95-EP						VA-95-13CR
						VA-LT-C110			
	VA-SS-110	VA-SS-110-HC	VA-SS-110-EP						
	VA-S-110	VA-S-110-HC	VA-S-110-EP						
VA-XP-P110						VA-LT-P110		VA-P110-1CR/ VA-P110-3CR	
VA-XP-Q125-1						VA-LT-Q125-1			
	VA-S-125	VA-S-125-HC	VA-S-125-EP	VA-D-125	VA-D-125-HC				
				VA-D-140	VA-D-140-HC				
				VA-D-150	VA-D-150-HC				

LOW TEMPERATURE

EP/XP

EP/XP

HC

DIMENSIONS

PIPE OUTSIDE DIAMETER		NOMINAL WEIGHT		WALL THICKNESS		INSIDE DIAMETER		DRIFT DIAMETER	
inch	mm	lb/ft	kg/m	inch	mm	inch	mm	inch	mm
4 ½	114.30	11.60	17.46	0.250	6.35	4.000	101.60	3.875	98.42
		12.60	18.78	0.271	6.88	3.958	100.54	3.833	97.36
		13.50	19.99	0.290	7.37	3.920	99.56	3.794	96.38
		15.10	22.88	0.337	8.56	3.826	97.18	3.701	94.00
5	127.00	15.00	22.84	0.296	7.52	4.408	111.96	4.283	108.79
		18.00	26.70	0.362	9.19	4.276	108.62	4.151	105.44
		21.40	32.64	0.437	11.10	4.126	104.80	4.001	101.63
		23.20	35.30	0.478	12.14	4.044	102.72	3.919	99.54
		24.10	36.71	0.500	12.70	4.000	101.60	3.875	98.43
5 ½	139.70	17.00	25.88	0.304	7.72	4.892	124.26	4.767	121.08
		20.00	30.27	0.361	9.17	4.778	121.36	4.653	118.19
		23.00	34.33	0.415	10.54	4.670	118.62	4.545	115.44
		26.00	39.04	0.476	12.09	4.548	115.52	4.423	112.34

COUPLING LENGTH		COUPLING OUTSIDE DIAMETER		VOLUME				MAKE UP LOSS	
				DISPLACEMENT		PRODUCTION			
inch	mm	inch	mm	us gal/ft	lit/m	us gal/ft	lit/m	inch	mm
7.520	191.00	5.250	133.35	0.832	10.33	0.653	8.11	3.652	92.75
7.520	191.00	5.250	133.35	0.832	10.33	0.639	7.94	3.652	92.75
7.520	191.00	5.250	133.35	0.832	10.33	0.627	7.79	3.652	92.75
7.520	191.00	5.250	133.35	0.832	10.33	0.597	7.42	3.652	92.75
7.795	198.00	5.800	147.32	1.027	12.75	0.793	9.84	3.789	96.25
7.795	198.00	5.800	147.32	1.027	12.75	0.746	9.27	3.789	96.25
7.795	198.00	6.051	153.70	1.029	12.78	0.695	8.63	3.789	96.25
7.795	198.00	6.051	153.70	1.029	12.78	0.667	8.29	3.789	96.25
7.795	198.00	6.051	153.70	1.029	12.78	0.653	8.11	3.789	96.25
7.913	201.00	6.300	160.02	1.242	15.42	0.977	12.13	3.848	97.75
7.913	201.00	6.300	160.02	1.242	15.42	0.932	11.57	3.848	97.75
7.913	201.00	6.300	160.02	1.242	15.42	0.890	11.05	3.848	97.75
7.913	201.00	6.535	166.00	1.244	15.45	0.844	10.48	3.848	97.75

VAwizard® accessories are available on request.

The values shown are based on T&C pipe lengths of L = 10.0 m (32.81 ft). Other dimensions and 20° beveled couplings available on request.

Blanking dimensions for accessories are available as a download on our web page www.voestalpine.com/tubulars

PERFORMANCE PROPERTIES

(METRIC UNITS)

PIPE OUTSIDE DIAMETER		NOMINAL WEIGHT		WALL THICKNESS		GRADE 80						
						P _i	P _c	S _y	S _u	L	B	T _y
inch	mm	lb/ft	kg/m	inch	mm	MPa	MPa	kN	kN	kN	°/30.48m	Nm
4 ½	114.30	11.60	17.46	0.250	6.35	53.70	43.80	1190	1290	1470	72	10900
		12.60	18.78	0.271	6.88	58.10	51.70	1280	1390	1470		12100
		13.50	19.99	0.290	7.37	62.30	58.90	1370	1490	1470		13300
		15.10	22.88	0.337	8.56	72.30	76.40	1570	1710	1470		16000
5	127.00	15.00	22.84	0.296	7.52	57.20	50.00	1560	1690	1811	65	17100
		18.00	26.70	0.362	9.19	69.90	72.30	1880	2030	1811		21800
		21.40	32.64	0.437	11.10	84.40	88.00	2230	2420	2640		27300
		23.20	35.30	0.478	12.14	92.30	95.40	2420	2620	2640		30000
		24.10	36.71	0.500	12.70	96.60	99.30	2520	2730	2640		31500
5 ½	139.70	17.00	25.88	0.304	7.72	53.40	43.40	1770	1900	1940	59	21800
		20.00	30.27	0.361	9.17	63.40	60.90	2080	2240	1940		26800
		23.00	34.33	0.415	10.54	72.90	77.00	2360	2540	1940		31500
		26.00	39.04	0.476	12.09	83.60	87.20	2680	2880	2780		36900

PIPE OUTSIDE DIAMETER		NOMINAL WEIGHT		WALL THICKNESS		GRADE 110						
						P _i	P _c	S _y	S _u	L	B	T _y
inch	mm	lb/ft	kg/m	inch	mm	MPa	MPa	kN	kN	kN	°/30.48m	Nm
4 ½	114.30	11.60	17.46	0.250	6.35	73.70	52.30	1630	1710	2020	81	14500
		12.60	18.78	0.271	6.88	79.80	63.50	1760	1850	2020		16200
		13.50	19.99	0.290	7.37	85.50	73.70	1880	1970	2020		17700
		15.10	22.88	0.337	8.56	99.30	98.90	2160	2260	2020		21400
5	127.00	15.00	22.84	0.296	7.52	78.50	61.00	2140	2240	2440	89	22400
		18.00	26.70	0.362	9.19	96.00	92.90	2580	2700	2440		28600
		21.40	32.64	0.437	11.10	115.90	121.00	3060	3200	3580		35800
		23.20	35.30	0.478	12.14	126.80	131.10	3320	3470	3580		39400
		24.10	36.71	0.500	12.70	132.70	136.50	3460	3610	3580		41400
5 ½	139.70	17.00	25.88	0.304	7.72	73.30	51.60	2430	2530	2670	81	28600
		20.00	30.27	0.361	9.17	87.10	76.50	2850	2970	2670		35300
		23.00	34.33	0.415	10.54	100.10	100.30	3240	3380	2670		41400
		26.00	39.04	0.476	12.09	114.80	119.90	3670	3830	3820		48600

Performance properties for proprietary and other grades or for special clearance couplings on request.

P_i ... internal yield pressure

P_c ... collapse pressure

S_y ... joint yield strength

S_u ... joint ultimate strength - API joint strength
(calculation according to API 5C3)

L ... max. load on coupling face

B ... max. bending (uniaxial)

T_y ... connection yield torque

Other grades on request.

GRADE 90							GRADE 95						
P _I	P _C	S _Y	S _U	L	B	T _Y	P _I	P _C	S _Y	S _U	L	B	T _Y
MPa	MPa	kN	kN	kN	%/30.48m	Nm	MPa	MPa	kN	kN	kN	%/30.48m	Nm
60.40	47.00	1340	1380	1650	81	12100	63.70	48.50	1410	1450	1740	86	12700
65.40	56.00	1440	1480	1650		13500	69.00	58.00	1520	1560	1740		14200
70.10	64.10	1540	1580	1650		14800	73.90	66.60	1620	1660	1740		15500
81.40	84.30	1770	1820	1650		17900	85.80	88.00	1860	1910	1740		18800
64.30	54.00	1750	1800	2000	73	18900	67.90	55.90	1850	1890	2110	77	19800
78.60	79.40	2110	2160	2000		24100	82.90	82.90	2230	2280	2110		25200
95.00	99.00	2510	2570	2930		30200	100.20	104.50	2650	2700	3090		31600
103.90	107.30	2720	2790	2930		33200	109.60	113.30	2870	2930	3090		34800
108.70	111.70	2830	2900	2930		34800	114.60	117.90	2990	3050	3090		36500
60.10	46.50	1990	2030	2190	67	24100	63.30	47.90	2100	2130	2300	70	25200
71.30	66.40	2340	2380	2190		29700	75.20	69.00	2460	2510	2300		31100
82.00	85.40	2660	2710	2190		34800	86.50	89.20	2800	2850	2300		36500
94.10	98.20	3010	3070	3130		40900	99.20	103.60	3170	3230	3300		42800

GRADE 125						
P _I	P _C	S _Y	S _U	L	B	T _Y
MPa	MPa	kN	kN	kN	%/30.48m	Nm
83.80	55.20	1860	1870	2300	113	16300
90.80	68.20	2000	2010	2300		18200
97.30	80.00	2130	2150	2300		19900
113.00	109.10	2450	2460	2300		24100
89.30	65.40	2430	2440	2780	102	24900
109.20	102.20	2930	2940	2780		31900
131.80	137.50	3480	3490	4070		40000
144.20	149.10	3780	3780	4070		44000
150.90	155.10	3930	3940	4070		46200
83.40	54.40	2760	2760	3030	92	31900
99.00	83.30	3240	3240	3030		39400
113.80	110.70	3690	3680	3030		46300
130.50	136.30	4180	4170	4340		54400

PERFORMANCE PROPERTIES

(US CUSTOMARY-UNITS)

PIPE OUTSIDE DIAMETER		NOMINAL WEIGHT		WALL THICKNESS		GRADE 80						
						P _i	P _c	S _y	S _u	L	B	T _y
inch	mm	lb/ft	kg/m	inch	mm	psi	psi	1000lb	1000lb	1000lb	%/100ft	ft.lb
4 ½	114.30	11.60	17.46	0.250	6.35	7790	6350	267	291	330	72	8040
		12.60	18.78	0.271	6.88	8430	7500	288	313	330		8920
		13.50	19.99	0.290	7.37	9040	8540	307	334	330		9810
		15.10	22.88	0.337	8.56	10490	11080	353	384	330		11800
5	127.00	15.00	22.84	0.296	7.52	8300	7250	350	379	407	65	12610
		18.00	26.70	0.362	9.19	10140	10490	422	457	407		16080
		21.40	32.64	0.437	11.10	12240	12760	502	543	593		20140
		23.20	35.30	0.478	12.14	13390	13830	544	589	593		22130
		24.10	36.71	0.500	12.70	14010	14400	566	613	593		23230
5 ½	139.70	17.00	25.88	0.304	7.72	7750	6290	397	428	437	59	16080
		20.00	30.27	0.361	9.17	9200	8830	467	503	437		19770
		23.00	34.33	0.415	10.54	10570	11170	531	572	437		23230
		26.00	39.04	0.476	12.09	12130	12650	601	648	625		27220

PIPE OUTSIDE DIAMETER		NOMINAL WEIGHT		WALL THICKNESS		GRADE 110						
						P _i	P _c	S _y	S _u	L	B	T _y
inch	mm	lb/ft	kg/m	inch	mm	psi	psi	1000lb	1000lb	1000lb	%/100ft	ft.lb
4 ½	114.30	11.60	17.46	0.250	6.35	10690	7590	367	385	454	99	10690
		12.60	18.78	0.271	6.88	11570	9210	396	415	454		11950
		13.50	19.99	0.290	7.37	12400	10690	422	443	454		13050
		15.10	22.88	0.337	8.56	14400	14340	485	509	454		15780
5	127.00	15.00	22.84	0.296	7.52	11390	8850	481	503	549	89	16520
		18.00	26.70	0.362	9.19	13920	13470	580	606	549		21090
		21.40	32.64	0.437	11.10	16810	17550	689	720	805		26400
		23.20	35.30	0.478	12.14	18390	19020	746	780	805		29060
		24.10	36.71	0.500	12.70	19250	19800	777	812	805		30540
5 ½	139.70	17.00	25.88	0.304	7.72	10630	7480	545	568	600	81	21090
		20.00	30.27	0.361	9.17	12630	11110	641	667	600		26040
		23.00	34.33	0.415	10.54	14520	14540	729	759	600		30540
		26.00	39.04	0.476	12.09	16650	17390	826	860	859		35850

Performance properties for proprietary and other grades or for special clearance couplings on request.

P_i ... internal yield pressure

P_c ... collapse pressure

S_y ... joint yield strength

S_u ... joint ultimate strength - API joint strength
(calculation according to API 5C3)

L ... max. load on coupling face

B ... max. bending (uniaxial)

T_y ... connection yield torque

Other grades on request.

GRADE 90								GRADE 95						
P _I	P _C	S _V	S _U	L	B	T _V	P _I	P _C	S _V	S _U	L	B	T _V	
psi	psi	1000lb	1000lb	1000lb	°/100ft	ft.lb	psi	psi	1000lb	1000lb	1000lb	°/100ft	ft.lb	
8760	6820	301	309	371	81	8920	9240	7030	317	325	391	86	9370	
9490	8120	324	333	371		9960	10010	8410	342	350	391		10470	
10170	9300	346	355	371		10920	10720	9660	365	374	391		11430	
11810	12230	397	408	371		13200	12440	12760	419	429	391		13870	
9330	7830	394	404	450	73	13940	9850	8110	416	425	474	77	14600	
11400	11520	475	486	450		17780	12020	12030	501	512	474		18590	
13780	14360	564	578	659		22270	14530	15150	595	608	695		23310	
15070	15560	612	627	659		24490	15900	16430	645	659	695		25670	
15770	16200	637	652	659		25670	16620	17100	672	686	695		26920	
8720	6740	447	456	491	67	17780	9180	6940	471	480	518	70	18590	
10340	9630	525	536	491		21910	10910	10020	554	564	518		22940	
11890	12380	597	609	491		25670	12550	12940	630	641	518		26920	
13650	14230	677	691	704		30170	14390	15030	714	726	742		31570	

GRADE 125							
P _I	P _C	S _V	S _U	L	B	T _V	
psi	psi	1000lb	1000lb	1000lb	°/100ft	ft.lb	
12150	8010	417	420	517	113	12020	
13170	9890	450	452	517		13420	
14110	11600	480	482	517		14680	
16390	15830	551	554	517		17780	
12950	9480	547	548	625	102	18370	
15840	14820	659	661	625		23530	
19120	19940	783	785	915		29500	
20910	21620	849	851	915		32450	
21890	22500	884	886	915		34080	
12100	7890	620	620	682	92	23530	
14360	12080	728	728	682		29060	
16510	16060	829	828	682		34150	
18930	19750	939	938	977		40120	

MAKE UP TORQUE

RECOMMENDED OPTIMUM MAKE-UP TORQUE FOR REGULAR COUPLINGS

PIPE OUTSIDE DIAMETER		NOMINAL WEIGHT		WALL THICKNESS		GRADE 80		GRADE 90		GRADE 95		GRADE 110		GRADE 125	
inch	mm	lb/ft	kg/m	inch	mm	Nm	ft.lb	Nm	ft.lb	Nm	ft.lb	Nm	ft.lb	Nm	ft.lb
4 ½	114.30	11.60	17.46	0.250	6.35	9600	7100	10400	7650	10800	7950	11900	8800	12600	9300
		12.60	18.78	0.271	6.88	10300	7600	11100	8200	11600	8550	12800	9450	13500	9950
		13.50	19.99	0.290	7.37	11400	8400	12400	9150	12900	9500	14200	10450	15100	11150
		15.10	22.88	0.337	8.56	14000	10350	15300	11300	16000	11800	17600	13000	18700	13800
5	127.00	15.00	22.84	0.296	7.52	11040	8140	12160	8970	12720	9380	14240	10500	15200	11210
		18.00	26.70	0.362	9.19	14320	10560	15760	11620	16560	12210	18560	13690	19840	14630
		21.40	32.64	0.437	11.10	18640	13750	20480	15110	21520	15870	24160	17820	25920	19120
		23.20	35.30	0.478	12.14	20880	15400	22960	16930	24080	17760	27040	19940	29040	21420
		24.10	36.71	0.500	12.70	22000	16230	24240	17880	25440	18760	28480	21010	30640	22600
5 ½	139.70	17.00	25.88	0.304	7.72	14480	10680	15760	11620	16480	12160	18240	13450	19360	14280
		20.00	30.27	0.361	9.17	18160	13390	19840	14630	20720	15280	22960	16930	24400	18000
		23.00	34.33	0.415	10.54	21280	15700	23280	17170	24320	17940	26960	19880	28720	21180
		26.00	39.04	0.476	12.09	25680	18940	28000	20650	29280	21600	32480	23960	34640	25550

This table shows the values at printing date of this brochure. Actual values available in the Datasheet Generator on our Web Page or in the myTubulars App.

Recommended make-up-torque using a thread compound with a friction factor of 1.0.

Maximum torque: optimum + 10 %

Minimum torque: optimum - 10 %

Special clearance and 20° beveled couplings have a lower load on coupling face.







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