



VM-105 DP SS

a VAM Drilling Sour Service solution

“Sour Service” refers to a well environment containing Hydrogen Sulfide (H₂S), which is hazardous to human health and could impact significantly on steel drill pipe performance.

VAM Drilling has developed proprietary grades conforming to industry standards and maximizing safety and performance for sour drilling. **VM-105 DP SS** is one of those proprietary grades and is fully compliant with IRP 1.8 recommendation.

▷ Product added value

A specific steel chemistry

Grade	%	C	Si	Mn	P	S	Cr	Mo	Ni	Cu
VM-105 DP SS	Min						0.80	0.25		
	Max	0.38	0.40	1.20	0.020	0.010	1.50	1.00	0.27	0.37

Technical Name		VM-105 DP SS	
Sour Domain		Severe Sour	
Pipe Body			
Yield Strength (Min - Max)	724 - 828 MPa	105 - 120 ksi	
Tensile Strength (Min - Max)	794 - 966 MPa	115 - 140 ksi	
Elongation (Min)	17%	17%	
Controlled Hardness (Average Max)	28 HRC	28 HRC	
Controlled Hardness (Single Min - Max)	21-29 HRC	21-29 HRC	
Charpy Impact Value (Single Min at room temperature, sub size 7.5 x 10 mm ²)	80 J	59 ft-lbs	
NACE Tests	Tested @85% SMYS	Tested @85% SMYS	
Tests Frequency	1/200 pipes/heat	1/200 pipes/heat	

Tool joint			
Yield Strength (Min - Max)	758 - 862 MPa	110 - 125 ksi	
Tensile Strength (Min - Max)	862 - 1001 MPa	125 - 145 ksi	
Elongation (Min)	15%	15%	
Controlled Hardness (Average Max)	30 HRC	30 HRC	
Controlled Hardness (Single Max)	32 HRC	32 HRC	
Charpy Impact Value (Average Min at room temperature, standard size 10 x 10 mm ²)	89 J	66 ft-lbs	
NACE Tests	Tested @65% SMYS	Tested @65% SMYS	
Tests Frequency	1/200 sets/heat	1/200 sets/heat	

Weld area			
Charpy Impact Value (Average Min at room temperature, standard size 10 x 10 mm ²)	27 J	20 ft-lbs	
NACE Tests	None	None	

Controlled heat treatment

To achieve good performance, pipes are heated to a suitable austenitizing temperature, followed by an adjusted quenching. Pipes are then properly tempered to provide homogeneous properties and a specific fine grain microstructure ensuring an excellent resistance to Sulfide Stress Cracking (SSC).

▷ VM-105 DP SS specification

VM-105 DP SS characteristics are more restricted than API grades.

VM-105 DP SS is fully compliant with IRP 1.8 recommendations and provides high safety margins thanks to a strong H₂S resistance.

It suits severe sour environments. NACE tests A are done on tube and tool-joint.

