



# VM-95 DP S

## a VAM Drilling Sour Service solution

“Sour Service” refers to a well environment containing Hydrogen Sulfide (H<sub>2</sub>S), 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-95 DP S** is one of those proprietary grades.

### ▷ Product added value

#### A specific steel chemistry

Grade	%	C	Si	Mn	P	S	Cr	Mo	Ni	Cu
VM-95 DP S	Min						0.70	0.25		
	Max	0.38	0.40	1.20	0.020	0.010	1.40	0.85	0.27	0.37

#### 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).

Technical Name		VM-95 DP S	
Sour Domain		Severe Sour	
<b>Pipe Body</b>			
Yield Strength (Min - Max)	655 - 758 MPa	95 - 110 ksi	
Tensile Strength (Min - Max)	725 - 897 MPa	105 - 130 ksi	
Elongation (Min)	17%	17%	
Controlled Hardness (Average Max)	25 HRC	25 HRC	
Controlled Hardness (Single Max)	27 HRC	27 HRC	
Charpy Impact Value (Single Min at room temperature, sub size 7.5 x 10 mm <sup>2</sup> )	80 J	59 ft-lbs	
NACE Tests	Tested @70% SMYS	Tested @70% SMYS	
Tests Frequency	1/heat	1/heat	

<b>Tool joint</b>			
Yield Strength (Min - Max)	724 - 828 MPa	105 - 120 ksi	
Tensile Strength (Min - Max)	794 MPa	115 ksi	
Elongation (Min)	15%	15%	
Controlled Hardness (Average Max)	30 HRC	30 HRC	
Controlled Hardness (Single Max)	32 HRC	32 HRC	
Charpy Impact Value (Single Min at room temperature, standard size 10 x 10 mm <sup>2</sup> )	54 J	40 ft-lbs	
NACE Tests	Tested @50% SMYS	Tested @50% SMYS	
Tests Frequency	1/heat	1/heat	

### ▷ VM-95 DP S specification

VM-95 DP S characteristics are more restricted than API grades and provide high safety margins thanks to a stronger H<sub>2</sub>S resistance than G-105.

It suits intermediate and severe sour environments.

NACE tests A are done on both tube and tool-joint.

