SUPERNOVA 316®

UNS S31600 | WN 1.4401
PRE: 23.5 - 27

NOVAMETAL Wire UK Ltd

Supernova 316®

With its combination of high break loads and good pitting and crevice corrosion resistance, Supernova 316® is a cost-effective solution for less corrosive oil and gas wells with zero H_2S.

Manufactured in Switzerland and certified to 9001: 2008 all Supernova Slicklines are fully traceable, 100% Weld Free, 100% Eddy Current Tested and Wrap Tested.

All are produced with a consistent, tightly controlled surface finish, wire helix and wire cast for optimal spooling and in-service performance.

Supernova 316® is a proven alternative to GD316™, Sandvik 59R0, UGI© Slick B29 and Alloy 316.

Key Characteristics

- Good general corrosion resistance in wells with medium concentrations of CO_2 (up to 30%) and low chlorides (up to 2.5%) with both moderate Bottom Hole Temperatures and Pressures and no H_2S
- Excellent resistance to general corrosion
- High break loads due to high tensile strength
- May be used in temperatures up to 150°C in less corrosive environments
- Subject to pitting and crevice corrosion in warm chloride environments and to stress corrosion cracking above 60°C
- An economical option where carbon (plow) slicklines may fail due to corrosion
- Not recommended for wells containing H_2S

Key Data

Standard Diameter[1]	Min Breaking Load	Min Tensile		Nominal Weight	Minimum Slickline Stretch[2]	Minimum Sheave Diameter
Inches	lbf	N/mm²	Ksi	lbs/ 1000ft	Inch/100ft/ 100lb	Inches
0.092	1420	1460	214	22.64	0.83	11
0.108	1940	1440	212	31.20	0.60	13
0.125	2530	1420	206	41.80	0.45	15
0.140	3130	1410	203	53.00	0.36	17
0.160	4050	1380	202	69.00	0.22	20

[1] Tolerance +/-0.001" - other diameters are available on request. [2] Weight of tool string plus weight of wire of the drum.

Standard Lengths	15,000ft	18,000ft	6,000m	20,000ft	7,000m	25,000ft	8,000m	30,000ft

Other lengths are available on request.

Chemical Composition

Element		C	Si	Mn	P	S	Cr	Mo	Cu	Ni	N
Weight %	Min	-	-	-	-	-	16.50	2.00	-	10.00	0.03
	Max	0.08	1.00	2.00	0.045	0.030	18.00	2.60	-	13.80	0.06

Corrosion Resistance

PRE Number (PRE)

PRE: 23.5 - 27

PRE = Cr + 3.3 x Mo + 16 x N

Pitting Resistance Equivalent numbers (PRE) are a way of comparing the pitting corrosion resistance of various stainless steels based on the levels of chromium, molybdenum and nitrogen they contain with the most frequently used formula and Novametal's preferred method for calculating PRE numbers being :

PRE = Chromium + 3.3 x Molybdenum + 16 x Nitrogen.

Some suppliers may use a factor of 30 x N, resulting in a marginally inflated PRE Number.

Grade Selection

To ensure you obtain the optimal slickline for your requirements we will be pleased to make a recommendation on the most cost-effective material selection. Well environment details may be sent by email to **slickline@novametal.co.uk**

Physical Properties

Density	g/cm^3	7.95
Coefficient of Linear Expansion	µm/m/°C	15.5
Thermal Conductivity	W/m.K	14.47

Specific Heat	j/kg.K	491
Resistivity	µOhm Cm	74
Magnetic Permeability		1.003

Safe Working Loads (SWL)

Novametal recommends a maximum safe working load of 60% based on the published Minimum Break Load.

Where permitted by operating procedures and contractual constraints, the SWL may be set at 60% of the certified Actual Breaking Load.

Anyone wishing to operate with a higher SWL is encouraged to contact Novametal Techwire direct before doing so.

Other Mechanical Properties

Yield Strength	(0.2% P.S.)	80 - 90% UTS
Elastic Strength		22 - 28% UTS
Minimum Wraps		8

Certification & Packaging

Reel specific Test Certificates are issued for all slicklines giving alloy chemistry, breaking load and key mechanical properties. All Supernova Slicklines are supplied on metal reels in individual treated timber crates for easy handling and safe storage.

Other Slickline Grades Available

ZERON® 100 SUPERNOVA 400® SUPERNOVA 700® SUPERNOVA 750®

SUPERNOVA 400®

UNS S32205 | S31803 | WN 1.4462
PRE: 31.7 - 37

NOVAMETAL Wire UK Ltd

Supernova 400®

Supernova 400® is a tried and tested cost-effective solution for service in corrosive oil and gas wells with medium concentrations of CO_2, Chlorides and H_2S.

Manufactured in Switzerland and certified to 9001: 2008 all Supernova Slicklines are fully traceable, 100% Weld Free, 100% Eddy Current Tested and Wrap Tested.

All are produced with a consistent, tightly controlled surface finish, wire helix and wire cast for optimal spooling and in-service performance.

Supernova 400® is a proven alternative to GD22™, SUPA40®, SAF 2205, UGI® Slick D44 and Alloy 2205

Key Characteristics

- Suitable for service in wells with a maximum H_2S partial pressure of 3 psi
- Very good in high CO_2 of up to 30% with zero H_2S
- Very good corrosion resistance in concentrations of CO_2 up to 35% with no H_2S
- Excellent in high Chloride concentrations of up to 30%
- High tensile strength providing high break loads
- High resistance to pitting and stress corrosion cracking (SCC) in environments with chloride and CO_2.
- Can be used in High Temperatures up to 280°C

Key Data

Standard Diameter[1]	Min Breaking Load	Min Tensile		Nominal Weight	Minimum Slickline Stretch[2]	Minimum Sheave Diameter
Inches	lbf	N/mm^2	Ksi	lbs/ 1000ft	Inch/100ft/ 100lb	Inches
0.092	1630	1690	245	22.48	0.78	11
0.108	2240	1620	239	30.95	0.57	13
0.125	2850	1550	232	41.49	0.42	15
0.140	3500	1530	227	52.10	0.34	17
0.160	4200	1480	209	68.03	0.26	20

[1] Tolerance +/-0.001" - other diameters are available on request.

Standard Lengths	15,000ft	18,000ft	6,000m	20,000ft	7,000m	25,000ft	8,000m	30,000ft

Other lengths are available on request.

Chemical Composition

Element		C	Si	Mn	P	S	Cr	Mo	Cu	Ni	N
Weight %	Min	-	-	-	-	-	21.00	2.50	-	4.50	0.15
	Max	0.03	1.00	2.00	0.035	0.015	23.00	3.40	-	6.00	0.20

Corrosion Resistance

PRE Number (PRE)

PRE: 31.7-37

PRE = Cr + 3.3 x Mo + 16 x N

Pitting Resistance Equivalent numbers (PRE) are a way of comparing the pitting corrosion resistance of various stainless steels based on the levels of chromium, molybdenum and nitrogen they contain with the most frequently used formula and Novametal's preferred method for calculating PRE numbers being :

PRE = Chromium + 3.3 x Molybdenum + 16 x Nitrogen.

Some suppliers may use a factor of 30 x N, resulting in a marginally inflated PRE Number.

Grade Selection

To ensure you obtain the optimal slickline for your requirements we will be pleased to make a recommendation on the most cost-effective material selection. Well environment details may be sent by email to **slickline@novametal.co.uk**

Physical Properties

Density	g/cm^3	7.8
Coefficient of Linear Expansion	µm/m/°C	13.0
Thermal Conductivity	W/m.K	14.0

Specific Heat	j/kg.K	470
Resistivity	µOhm Cm	85
Magnetic Permeability		>25

Safe Working Loads (SWL)

Novametal recommends a maximum safe working load of 60% based on the published Minimum Break Load.

Where permitted by operating procedures and contractual constraints, the SWL may be set at 60% of the certified Actual Breaking Load.

Anyone wishing to operate with a higher SWL is encouraged to contact Novametal Techwire direct before doing so.

Other Mechanical Properties

Yield Strength	(0.2% P.S.)	80 - 90% UTS
Elastic Strength		22 – 28% UTS
Minimum Wraps		8

Certification & Packaging

Reel specific Test Certificates are issued for all slicklines giving alloy chemistry, breaking load and key mechanical properties. All Supernova Slicklines are supplied on metal reels in individual treated timber crates for easy handling and safe storage.

Other Slickline Grades Available

ZERON® 100 SUPERNOVA 316® SUPERNOVA 700® SUPERNOVA 750®

SUPERNOVA 700®

UNS S31254 | WN 1.4547

PRE: 42-46

NOVAMETAL Wire UK Ltd

Supernova 700®

Developed for service in high-chloride environments, Supernova 700® provides good tensile strength and excellent resistance to pitting as well as very good resistance to crevice corrosion and chloride stress corrosion cracking.

Manufactured in Switzerland and certified to 9001: 2008 all Supernova Slicklines are fully traceable, 100% Weld Free, 100% Eddy Current Tested and Wrap Tested.

All are produced with a consistent, tightly controlled surface finish, wire helix and wire cast for optimal spooling and in-service performance.

Supernova 700® is unique to Novametal SA, in many environments Supernova 700® may provide a cost-effective alternative to Supernova 750® and superior corrosion resistance than Supernova 400®.

Key Characteristics

- Excellent resistance to pitting (highly localised corrosion)
- High resistance to crevice corrosion
- High resistance to chloride stress corrosion cracking (SCC)
- Service temperature up to 250°C
- High ductility and impact strength
- High resistance to general corrosion
- Low Magnetic Permeability

Key Data

Standard Diameter[1]	Min Breaking Load	Min Tensile		Nominal Weight	Minimum Slickline Stretch[2]	Minimum Sheave Diameter
Inches	lbf	N/mm^2	Ksi	lbs/ 1000ft	Inch/100ft/ 100lb	Inches
0.092	1610	1650	242	23.30	0.79	11
0.108	2120	1600	232	32.00	0.58	13
0.125	2650	1490	216	42.90	0.43	15
0.140	3130	1410	203	54.10	0.34	17
0.160	3920	1380	195	70.00	0.26	20

[1] Tolerance +/-0.001" - other diameters are available on request.

Standard Lengths	15,000ft	18,000ft	6,000m	20,000ft	7,000m	25,000ft	8,000m	30,000ft

Other lengths are available on request.

Chemical Composition

Element		C	Si	Mn	P	S	Cr	Mo	Cu	Ni	N
Weight %	Min	-	-	-	-	-	19.50	6.00	0.50	17.50	0.15
	Max	0.02	0.80	1.00	0.04	0.005	21.00	6.50	1.00	18.50	0.25

Corrosion Resistance

PRE Number (PRE)

PRE: 42 - 46

PRE = Cr + 3.3 x Mo + 16 x N

Pitting Resistance Equivalent numbers (PRE) are a way of comparing the pitting corrosion resistance of various stainless steels based on the levels of chromium, molybdenum and nitrogen they contain with the most frequently used formula and Novametal's preferred method for calculating PRE numbers being :

PRE = Chromium + 3.3 x Molybdenum + 16 x Nitrogen.

Some suppliers may use a factor of 30 x N

Grade Selection

To ensure you obtain the optimal slickline for your requirements we will be pleased to make a recommendation on the most cost-effective material selection. Well environment details may be sent by email to **slickline@novametal.co.uk**

Physical Properties

Density	g/cm^3	8.1
Coefficient of Linear Expansion	µm/m/°C	17.0
Thermal Conductivity	W/m.K	13.50

Safe Working Loads (SWL)

Novametal recommends a maximum safe working load of 60% based on the published Minimum Break Load.

Where permitted by operating procedures and contractual constraints, the SWL may be set at 60% of the certified Actual Breaking Load.

Anyone wishing to operate with a higher SWL is encouraged to contact Novametal Techwire direct before doing so.

Other Mechanical Properties

Yield Strength	(0.2% P.S.)	80 - 90% UTS
Elastic Strength		22 – 28% UTS
Minimum Wraps		8

Certification & Packaging

Reel specific Test Certificates are issued for all slicklines giving alloy chemistry, breaking load and key mechanical properties. All Supernova Slicklines are supplied on metal reels in individual treated timber crates for easy handling and safe storage.

Specific Heat	j/kg.K	500
Resistivity	µOhm Cm	85
Magnetic Permeability		1.010

Other Slickline Grades Available

ZERON® 100 SUPERNOVA 316® SUPERNOVA 400® SUPERNOVA 750®

SUPERNOVA 750®

NOVAMETAL Wire UK Ltd

UNS N08926 | WN 1.4529

PRE: 43-46

Supernova 750®

Supernova 750® is a tried and tested cost-effective solution for extremely sour gas and oil well conditions with high concentrations of CO_2, H_2S and chloride.

Manufactured in Switzerland and certified to 9001: 2008 all Supernova Slicklines are fully traceable, 100% Weld Free, 100% Eddy Current Tested and Wrap Tested.

All are produced with a consistent, tightly controlled surface finish, wire helix and wire cast for optimal spooling and in-service performance.

Suitable for service in Oil, Gas and Geothermal wells, Supernova 750® is a proven alternative to GD31Mo^{TD}, SUPA75©, Sanicro 26Mo, UGI© Slick B26 and Alloy 26-6Mo.

Key Characteristics

- High mechanical strength providing high breaking loads
- Very good resistance to crevice and stress corrosion cracking (SCC) in high concentrations of H_2S, Chloride and CO_2 environments (H_2S partial pressure up to 100 psi, CO_2 partial pressure up to 500 psi)
- Outstanding resistance to chloride induced stress corrosion cracking
- Very good resistance to pitting in aggressive chloride-containing environments and to general corrosion
- Good resistance to abrasion and erosion
- Able to operate in service temperatures of up to 250°C
- Excellent ductility and impact strength
- Listed in NACE MR-01-75 for sour service
- Non magnetic

Key Data

Standard Diameter[1]	Min Breaking Load	Min Tensile		Nominal Weight	Minimum Slickline Stretch[2]	Minimum Sheave Diameter
Inches	lbf	N/mm^2	Ksi	lbs/ 1000ft	Inch/100ft/ 100lb	Inches
0.092	1580	1640	238	23.31	0.79	11
0.108	2170	1635	237	32.00	0.58	13
0.125	2950	1630	236	42.90	0.43	15
0.140	3480	1560	226	54.10	0.34	17
0.160	4440	1530	221	70.00	0.26	20

[1] Tolerance +/-0.001" - other diameters are available on request. [2] Weight of tool string plus weight of wire of the drum.

Standard Lengths	15,000ft	18,000ft	6,000m	20,000ft	7,000m	25,000ft	8,000m	30,000ft

Other lengths are available on request.

Chemical Composition

Element		C	Si	Mn	P	S	Cr	Mo	Cu	Ni	N
Weight %	Min	-	-	-	-	-	19.50	6.00	0.85	24.50	0.12
	Max	0.02	0.80	1.00	0.03	0.005	21.00	6.70	1.00	26.00	0.20

Corrosion Resistance

PRE Number (PRE)

PRE: 43 - 46

PRE = Cr + 3.3 x Mo + 16 x N

Pitting Resistance Equivalent numbers (PRE) are a way of comparing the pitting corrosion resistance of various stainless steels based on the levels of chromium, molybdenum and nitrogen they contain with the most frequently used formula and Novametal's preferred method for calculating PRE numbers being :

PRE = Chromium + 3.3 x Molybdenum + 16 x Nitrogen.

Some suppliers may use a factor of 30 x N, resulting in a marginally inflated PRE Number.

Grade Selection

To ensure you obtain the optimal slickline for your requirements we will be pleased to make a recommendation on the most cost-effective material selection. Well environment details may be sent by email to **slickline@novametal.co.uk**

Physical Properties

Density	g/cm^3	8.1
Coefficient of Linear Expansion	µm/m/°C	15.0
Thermal Conductivity	W/m.K	12.0

Specific Heat	j/kg.K	415
Resistivity	µOhm Cm	96
Magnetic Permeability		1.01

Safe Working Loads (SWL)

Novametal recommends a maximum safe working load of 60% based on the published Minimum Break Load.

Where permitted by operating procedures and contractual constraints, the SWL may be set at 60% of the certified Actual Breaking Load.

Anyone wishing to operate with a higher SWL is encouraged to contact Novametal Techwire direct before doing so.

Other Mechanical Properties

Yield Strength	(0.2% P.S.)	80 -90% UTS
Elastic Strength		22 – 28% UTS
Minimum Wraps		8

Certification & Packaging

Reel specific Test Certificates are issued for all slicklines giving alloy chemistry, breaking load and key mechanical properties. All Supernova Slicklines are supplied on metal reels in individual treated timber crates for easy handling and safe storage.

Other Slickline Grades Available

ZERON® 100 SUPERNOVA 316® SUPERNOVA 400® SUPERNOVA 700®

ZERON® 100

UNS S32760 | WN 1.4501

PRE: >41

ZERON® 100

In addition to excellent mechanical properties, ZERON® 100 slicklines have exceptional resistance to chloride and sulphide stress corrosion cracking, acid corrosion and crevice corrosion making it suitable for a wide range of corrosive sour well environments.

Manufactured in Switzerland and certified to 9001: 2008 all Supernova Slicklines are fully traceable, 100% Weld Free, 100% Eddy Current Tested and Wrap Tested.

All are produced with a consistent, tightly controlled surface finish, wire helix and wire cast for optimal spooling and in-service performance.

Key Characteristics

- Outstanding resistance to chloride-induced stress corrosion cracking (SCC) and sulphide-stress cracking (SSC) in sour-gas conditions
- Resistant to SSC in sour, condensed waters with 0.4 bar partial pressure of H_2S
- Outstanding corrosion resistance under warm seawater conditions, along with superior pitting resistance
- High break loads with good ductility
- May be used in temperatures up to 300°C
- Good atmospheric corrosion enabling safe marine / offshore storage
- High resistance to abrasion, fatigue and corrosion fatigue
- Very resistant in sweet wells, to corrosion by CO_2

Key Data

Standard Diameter[1]	Minimum Breaking Load*	Min Tensile		Nominal Weight	Minimum Sheave Diameter
Inches	lbf	N/mm^2	Ksi	lbs/ 1000ft	Inches
0.092	1750 - 1800	1805	263	22.10	11
0.108	2350 - 2400	1800	260	30.55	13
0.125	3150 - 3200	1820	263	41.03	15
0.140	3950 - 4050	1810	263	51.54	17
0.160	5050 - 5150	1760	256	67.45	20

[1] Tolerance +/-0.001" - other diameters are available on request.
* When using a portable wire tester expect a MBL figure up to 25% less than the true figure obtained on our in-house calibrated equipment.

Standard Lengths	15,000ft	18,000ft	6,000m	20,000ft	7,000m	25,000ft	8,000m	30,000ft

Other lengths are available on request.

Chemical Composition

Element		C	Si	Mn	P	S	Cr	Mo	Cu	Ni	N	W
Weight %	Min	-	-	-	-	-	24.50	3.00	0.50	6.00	0.20	0.50
	Max	0.03	1.00	1.00	0.03	0.015	26.00	4.00	1.00	8.00	0.30	1.00

Corrosion Resistance

PRE Number (PRE)

PRE: >41

PRE = Cr + 3.3 x Mo + 16 x N

Pitting Resistance Equivalent numbers (PRE) are a way of comparing the pitting corrosion resistance of various stainless steels based on the levels of chromium, molybdenum and nitrogen they contain with the most frequently used formula and Novametal's preferred method for calculating PRE numbers being :

PRE = Chromium + 3.3 x Molybdenum + 16 x Nitrogen.

Some suppliers may use a factor of 30 x N, resulting in a marginally inflated PRE Number.

Grade Selection

To ensure you obtain the optimal slickline for your requirements we will be pleased to make a recommendation on the most cost-effective material selection. Well environment details may be sent by email to **slickline@novametal.co.uk**

Physical Properties

Density	g/cm^3	784
Coefficient of Linear Expansion	µm/m/°C	12.8 - 13.8
Thermal Conductivity	W/m.K	12.90

Specific Heat	j/kg.K	482
Resistivity	µOhm Cm	0.85
Magnetic Permeability		29

Safe Working Loads (SWL)

Novametal recommends a maximum safe working load of 60% based on the published Minimum Break Load.

Where permitted by operating procedures and contractual constraints, the SWL may be set at 60% of the certified Actual Breaking Load.

Anyone wishing to operate with a higher SWL is encouraged to contact Novametal Techwire direct before doing so.

Other Mechanical Properties

Yield Strength	(0.2% P.S.)	75 - 90% UTS
Elastic Strength		35 - 50% UTS
Minimum Wraps		8

Certification & Packaging

Reel specific Test Certificates are issued for all slicklines giving alloy chemistry, breaking load and key mechanical properties. All Supernova Slicklines are supplied on metal reels in individual treated timber crates for easy handling and safe storage.

Other Slickline Grades Available

SUPERNOVA 316® SUPERNOVA 400® SUPERNOVA 700® SUPERNOVA 750®