

Spring customized solution



Ugitech is one of the world’s leading players in stainless steel and alloy long products for spring applications

Our strengths

- Development and innovation of our products by application and market.
- Close collaboration with customers, partners and specifiers with our technical support department.
- A complete range of wires and profiles.
- Reactivity and adaptability with 2 production plants: Ugitech Imphy (France), Ugitech San Vendemiano (Italy).
- Competitiveness of our offer by a complete integration of the industrial chain (Upstream/Downstream).

Range of sizes and shapes

Round wires

- Mat 0.18 to 16 mm
- Mechanical bright finish 1.00 to 6 mm
- For other dimensions, please contact us.
- Straightened wire on request.

Profiled wires

- Flat edges, round edges, square edges, oval edges...
- Bright finish 2 to 60 mm²

Our specialty - C10 Quality

Special quality with low dispersion of mechanical characteristics.

The advantages

- Consistency of geometrical properties (max. dispersion of 2µm on diam. 0.3 to 1.8 mm)
- Consistency of mechanical properties (max dispersion on UTS: 40 N/mm² on a reel)
- Consistency of slide properties

This quality is particularly recommended for springs:

- with high coil ratio and large pitch (conical springs)
- with tight tolerances
- large and very large production runs (Aerosols, Automotive)

Exclusive to Ugitech - HFS Quality

HFS (High Fatigue Strength) grade for springs subjected to high cyclic loading. This grade with improved cleanliness is drawn from shaved wire rod.

Example of use:

“Sleeve” type extension spring used under the following conditions:

- Frequency of operation > 5 Hz

Sinusoidal stresses

- σ mini 0.23 x Rm
- σ max 0.50 x Rm
- Breaking rate 0.015%

Compliance with standards

Compliance with standards: EN 10088-3, ISO 6931-1 (EN-10270-3), JIS G4314, ASTM A313, AMS 5678, AMS 5688...

Compliance with regulations: REACH, RoHS, GADSL, IMDS...

Coating

Ugitech uses special lubricants which reduces friction during the drawing process to a minimum, producing a perfectly smooth and well lubricated surface to allow optimal coiling. The lubricant, composed mainly of calcium and sodium, contains no metallic parts or chlorine, is non-toxic, and does not absorb humidity (if stored properly). It can be easily removed with an alkaline agent prior to heat treatment of springs.

Chromium VI

To ensure corrosion protection, stainless steels have a passive layer on their surface that naturally contains trivalent chromium. To avoid the transformation of trivalent chromium into hexavalent chromium during the stabilization heat treatment, we recommend to clean the springs before heat treatment or using an inert or reducing atmosphere during the heat treatment.

Spring with bending

In order to avoid breakage in these highly stressed areas, the following points should be observed:

- The bending radius (neutral fiber) must not be smaller than the wire diameter.
- After bending, the wire surface must be free of tool marks. Any imperfection on the wire surface can lead to spring breakage even in case of large bending radius.

Spring corrosion test

The corrosion resistance of springs is influenced by the quality of the wire but also by the quality of all the manufacturing steps of the spring. It is therefore recommended to pay particular attention to:

- Wire coiling and cutting to ensure an unmarked wire surface.
- Cleaning, pickling and passivation of the springs to ensure an optimal passive layer of the stainless steel, which may have been damaged during the manufacturing and heat treatment of the springs.
- Joined coils/closed end and wire cuts are generally areas of greatest risk for localized corrosion, especially in the so-called L’Oréal corrosion test.

Forming with high mechanical characteristics

For this application Ugitech is able to offer specific products on request.

Wave spring

For this application Ugitech is able to offer half hard round wire for precision flat wire process.

Storage condition

The spring wires are coated with a lubricant that allows the coiling of spring. This lubricant does not absorb humidity if the wire is stored in a heated and humidity controlled room.

The surface layer of lubricant, although not hygroscopic, can be severely damaged if exposed to direct contact with liquid products, even in aerosol form. This condition can have a significant impact on the final use.

In the delivery condition, UGI® S4568 has a high proportion of work hardening martensite which makes the wire unstable until the precipitation heat treatment. This instability can lead to the formation of cracks. To limit this risk, the wire must be stored at a temperature close to room temperature and protected from thermal shocks. It is therefore preferable to limit the storage time of this grade.

The precipitation heat treatment should be carried out immediately after the springs are formed.

Diameter and tolerances

Our standard production is in accordance with ISO 6931-1 (EN-10270-3) quality T14. On request, we can deliver products with tighter tolerances.

Ovalization

In accordance with ISO 6931-1 (EN-10270-3), i.e. half the tolerance on the diameter.

Helix and cast

Ugitech pays particular attention to this aspect and respects the tolerances given by the ISO 6931-1 standard (EN-10270-3). The control is carried out at the beginning and end of each unit with the coil placed vertically.

- The cast: diameter of a turn in the free state.
- The pitch: the distance f_a between the departure of a turn and its return. It can be of 2 kinds, step to the left or step to the right.

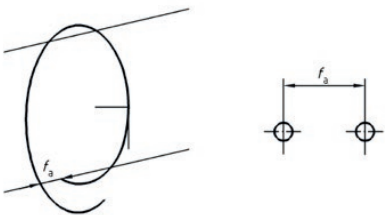


Figure 1 - Spiral wire

Services adapted to your needs

A quality system adapted to the highest requirements and recognized by the certifications:

ISO 9001, ISO 14001, ISO TS 16949, ISO 9100 for the Imply site and BS OHSAS 18001 and EMAS for the San Vendemiano site.



Product quality

Our equipment allows us to ensure the following measurements and controls to certify our wire.

- **Mechanics:** Tensile strength, yield strength, elongation.
- **Elastics:** Torsion, coiling, bending, wrapping, alternate bending
- **Physico-chemical:** Coating control
- **X-Ray Fluorescence:** Chemical Analysis
- **Optical micrography and electron microscopy:** Structure, surface quality of wire

Before shipment, each coil, reel or plastic spool is subjected to all the normative controls.

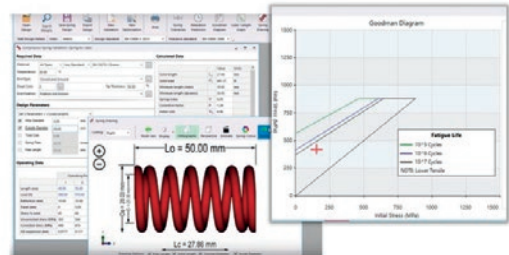


Ugitech is actively involved in the search for operational excellence inspired by the EFQM® (European Foundation for Quality Management) approach.

Reliable technical support is at your disposal, consultants and experts will accompany you in the development of your spring projects.

Non-destructive testing

Ugitech has the possibility to control 100% of the surface of the drawn wire by Eddy Current, allowing to eliminate or to mark the most critical surface defects. This control is recommended for springs subjected to high cyclic loading.



Corrosion resistance of drawn wire for spring production*

			Duration in hours before visual appearance of corrosion pitting in neutral salt spray ISO 9227							Sensitivity to stress corrosion				
Shades			200h	400h	600h	800h	1000h	1200h	1400h	1600h				
Austenitic	UGI® S4310	1.4310NS	No pits				Some pits	Significant corrosion with rust			Very sensitive			
	SPRINOX®	1.4310HS												
	UGI® S304H	1.4301												
	UGI® S4568	1.4568												
	UGI® S4401	1.4401												
	UGI® S4404	1.4404												
	UGI® S4571	1.4571												
Super austenitic	UGI® S4539	1.4539	No pits				Significant corrosion with rust			Sensitive				
	UGI® S4062	1.4062					Significant corrosion with rust							
Duplex	UGI® S4362	1.4362					No pits				Significant corrosion with rust			Not very sensitive
	UGI® S4462	1.4462									Significant corrosion with rust			
	UGI® S4410	1.4410									Significant corrosion with rust			
Austenitic non-magnetic	UGI® S209	1.4681					No pits				Significant corrosion with rust			Sensitive
	UGI® GRAD1	1.4374	Significant corrosion with rust			Very sensitive								

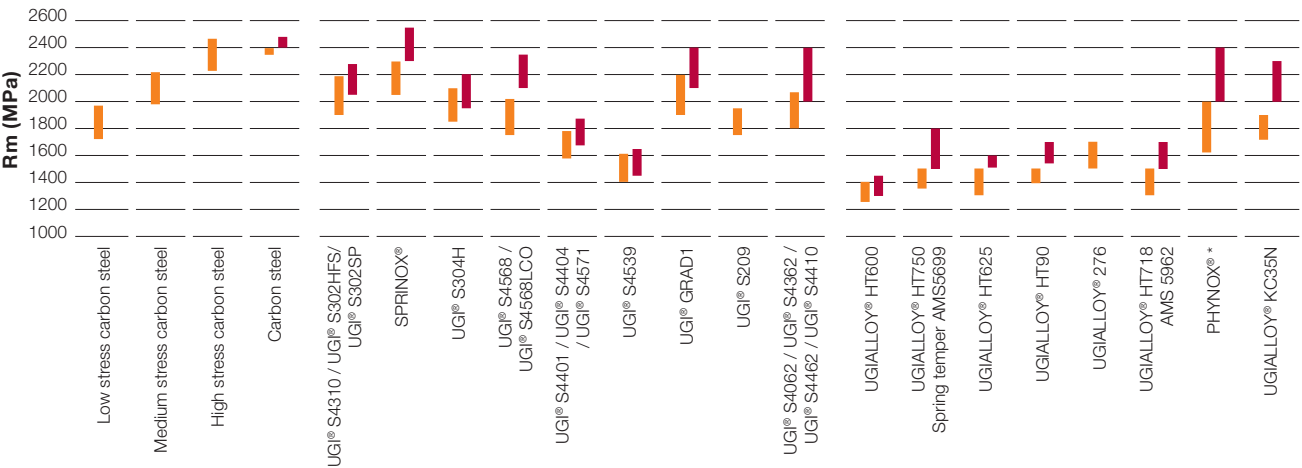
*Certain parameters of the spring manufacturing process can have a negative influence on the corrosion resistance, for example during heat treatment or pickling/passivation steps.

Resistance to aqueous corrosion		EN designation	Sulfuric acid	Hydrochloric acid	Hydrofluoric acid	Phosphoric acid	Nitric acid	Organic acid	Alkaline & salt	Sea water
Pure Nickel	UGIALLOY® 200	2.4066	•	•	••	•	-	••	••	•
	UGIALLOY® 201	2.4068	•	•	••	•	-	••	••	•
Nickel copper alloy	UGIALLOY® HT400	2.4360	••	•	••	••	-	••	••	••
	UGIALLOY® HT500	2.4375	••	•	••	••	-	••	••	••
Nickel chrome iron alloy	UGIALLOY® HT600	2.4816	•	-	•	•	•	••	••	•
	UGIALLOY® HT750	2.4669	•	-	•	•	•	••	••	•
Nickel chrome molybdenum alloy	UGIALLOY® HT625	2.4856	••	••	••	••	••	••	••	••
	UGIALLOY® HT4	2.4610	••	••	••	••	••	••	••	••
	UGIALLOY® HT22	2.4602	••	••	••	••	••	••	••	••
	UGIALLOY® 276	2.4819	••	••	••	••	•	••	••	••
	UGIALLOY® HT825	2.4858	••	••	••	••	••	••	••	••
Cobalt base alloy	PHYNEX® *	2.4711	-	-	•	•	•	••	••	•
	UGIALLOY® KC35N	2.4999	•	•	•	•	•	••	••	••

••: good to excellent / •: acceptable / -: not recommended

Mechanical characteristics

Mechanical characteristics measured on a Ø 1 mm wire



*Phynox® is a registered trademark of APERAM.

Delivery condition (hardened) Heat treated condition

Our packaging

Diam.	Plastic spool				Reels						Coils with cardboard insert		Carrier	Coils
	D35 (IY)	D390 (TFA)	SH 460 (IY)	D460 (TFA)	T2 (IY)	DIN 600 (TFA)	T3 (IY)	DIN 760 J (TFA)	T4 (IY)	DIN 760 F (TFA)	Imphy	TFA	Imphy	Imphy and TFA
0.18	35 kg	17 kg	20 kg	40 kg	150 kg	150 kg	350 kg	300 kg	480 kg	400 kg	500 to 1000 kg depending on the wire diameter	300 - 1,000 kg	1,000 kg maximum	Maximum weight of the coils to be confirmed according to the wire diameter
0.25			35 kg											
0.30														
0.35														
0.40														
0.50														
0.60														
0.70														
0.80														
1.00														
1.15														
1.20														
1.30														
1.40														
1.90														
2.00														
3.20														
3.50														
3.60														
4.50														
5.50														
5.60														
8.00														
13.00														
16.00														

(IY) Imphy plant (France) - (TFA) San Vendemiano Veneto plant (Italy)

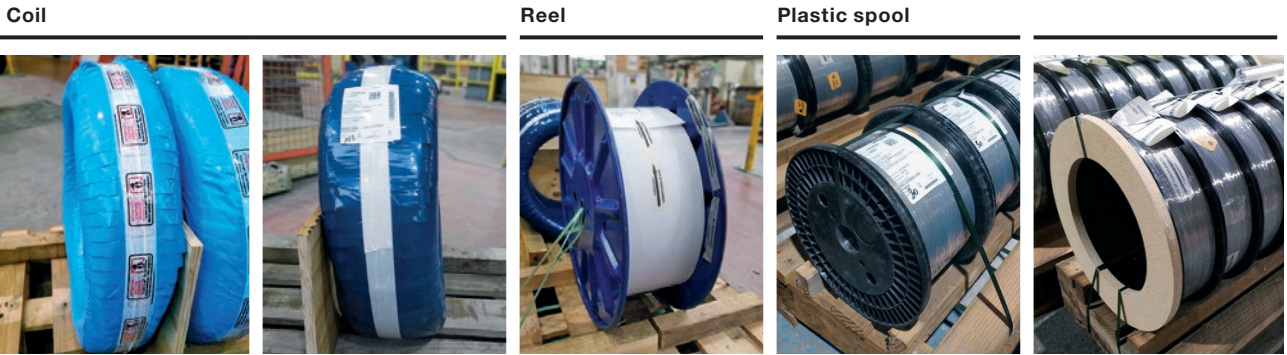


Table of grades for springs

Ugitech has developed a wide range of stainless steel grades and alloys that meet the most severe demands and uses (chemical, high temperature, nuclear, medical, aerospace, oil and gas industries, etc.)

- Grades with high mechanical properties: SPRINOX®, UGI® S4362, PHYNOX®.
- High fatigue grades: UGI® S302HFS, UGI® S4568HFS.
- Grades for special applications:
Medical: PHYNOX®, UGIALLOY® KC35N.
Cryogenics / non-magnetism: UGI® GRAD1, UGI® S209, UGI® S4539.
- High wet corrosion resistant grades: UGI® S4362, UGI® S4462, UGI® S4404.
- Stress corrosion resistant grades: UGI® S4362, UGI® S4462, UGI® S4062, UGI® S209, UGI® S4539, UGIALLOY® 276, acid resistant: UGIALLOY® HT4...
- High temperature corrosion resistant grades: UGI® S4568, UGIALLOY® HT750, UGIALLOY® HT90.
- Remelted grades: UGI® 4568HP, UGI® 4362HP, UGI®209HP, UGI® 4462HP.



Table of grades for springs

Commercial designation	EN / ISO	ASTM	UNS	JIS*	Other*	Chemical analysis							Maximum service temperature**	Magnetic permeability (hardened)	Recommended heat treatment	Description of the grade	Applications
						C	Si	Mn	Cr	Mo	Ni	Other					
Austenitic																	
UGI® S4310	1.4310 (NS) 4310-301-00-I (4325-302-00-E)	302	S30200	SUS302	AMS5688 X10CrNi18–8	0.08	0.6	1.0	18.0	0.3	8.5	-	250 °C		350/425°C 0.5 to 4h	UGI® S4310 is the commonly used grade for the manufacture of stainless springs. This grade offers good corrosion resistance and can be used at temperature levels close to 250°C. UGI® S4310 springs have good fatigue life and low relaxation compared to carbon steels.	
SPRINOX®	1.4310 (HS) 4310-301-00-I	-	-	Équivalent au SUS 302WPB	X10CrNi18–8	0.10	1.8	1.3	17.5	0.7	7.5	-	300 °C		350/425°C 0.5 to 4h	Derived from the standard UGI® S4310 grade, thanks to the presence of the Si and Mo elements, SPRINOX® achieves levels of mechanical properties significantly higher than those obtained with standard stainless steels. These elements also improve the corrosion resistance and temperature resistance of SPRINOX®. SPRINOX® springs have good fatigue resistance and low relaxation compared to carbon steel grades.	
UGI® S302HFS	1.4310 (NS) 4310-301-00-I 4325-302-00-E	302	S30200	SUS302	AMS5688 X10CrNi18–8	0.07	0.8	0.8	18.0	0.3	8.5	-	250 °C		350/425°C 0.5 to 4h	For applications requiring high dynamic fatigue performance, HFS quality is produced from shaved wire rod with improved inclusion cleanliness. Examples of use: weaving machine harness springs, engine injection valve springs.	
UGI® S302SP	1.4307 4301-304-00-I	302 / 304L	S30200	SUS302/ SUS304	AMS5688 X2CrNi18–9	0.02	0.4	1.0	18.0	0.4	9.5	-	250 °C		350/425°C 0.5 to 4h	Low carbon version of the UGI® S302SP grade, limiting the sensitivity to intergranular corrosion.	
UGI® S304H	1.4301 (NS) 4301-304-00-I	304	S30400	SUS304	AMS5688 X5CrNi18–10	0.06	0.4	0.7	18.0	0.3	8.0	-	250 °C		350/425°C 0.5 to 4h	Stainless steel wire with characteristics similar to UGI® S4310, normally used for the construction of bent elastic elements and cables. The use of this grade is not recommended in marine and highly oxidizing chemical environments.	
UGI® S4568	1.4568 4568-177-00-I	631	S17700	SUS631J1	AMS5678F X7CrNiAl17–7	0.08	0.5	0.9	16.5	0.1	7.5	Al = 0.9	350 °C		450/480°C 0.5 to 1h	A semi-austenitic structural hardening (PH) stainless steel wire offering an alternative to austenitic stainless steels when high corrosion resistance and high mechanical properties are required. UGI® S4568 offers superior temperature resistance to UGI® S4310. UGI® S4568 has lower mechanical properties in the delivered condition than UGI® S4310, allowing the production of complex spring shapes (high wire ductility). After precipitation heat treatment, the springs have much better mechanical properties than those obtained with UGI® S4310.	
UGI® S4568LCO	1.4568 4568-177-00-I	631	S17700	SUS631J1	X7CrNiAl17–7	0.08	0.5	0.9	16.5	0.1	7.5	Al = 0.9 / Co < 0.050	350 °C		450/480°C 0.5 to 1h	Grade 1.4568 low cobalt for the nuclear sector.	
UGI® S4401	1.4401 4401-316-00-I	316	S31600	SUS316	X5CrNiMo17–12–2	0.06	0.4	1.4	17.5	2.0	11.0	-	300 °C		350/425°C 0.5 to 4h	An austenitic molybdenum grade that offers better corrosion resistance than UGI® S4310, particularly in marine and aggressive industrial environments. Good corrosion resistance which allows it to be used at higher temperature levels than those recommended for UGI® S4310. The UGI® S4401 grade is practically non-magnetic even after a significant work hardening and more than 80% reduction of section.	
UGI® S4404	1.4404 4401-316-00-I 4404 - 316-01-I	316L	S31603	SUS316	X2CrNiMo17–12–2	0.02	0.5	0.8	16.5	2.0	11.0	-	300 °C		350/425°C 0.5 to 4h	Low carbon version of the UGI® S4401 grade improving corrosion resistance in chlorinated environments. Available in a remelted grade: UGI® 4909 (particularly suitable for medical applications).	
UGI® S4571	1.4571	316Ti	S31635	-	X6CrNiMoTi17–12–2	0.02	0.6	1.5	17.0	2.1	11.0	Ti: 5 x C - 0.7	300 °C		350/425°C 0.5 to 4h	316L titanium stabilized grade, improving corrosion resistance. Excellent corrosion resistance: - in natural environments (water, rural and urban atmospheres, industrial and even in the presence of moderate concentrations of chlorides and acids) - in food and agri-food environments - in many acids (sulfuric, phosphoric, organic) and chlorinated chemical media, under certain temperature and concentration conditions.	
UGI® S4539	1.4539 4539-089-04-I	904L	N08904	-	X1NiCrMoCu25–20–5	0.01	0.6	1.0	19.0	4.1	24.0	Cu = 1.3 / N = 0.05	300 °C		350/425°C 0.5 to 4h	UGI® S904L “super austenitic” grade, which is the reference in highly chlorinated environments (brines, seawater treatment), sulfuric acid, where the risks of localized corrosion - by pitting or crevice corrosion - are important.	
UGI® GRAD1	1.4374	(202N)	-	-	X8CrMnNiN18–9-5	0.08	0.5	9.5	18.0	0.2	5.5	N = 0.28	300 °C		350/450°C 0.5 to 1h	UGI® GRAD1 is a high-manganese grade with very low magnetic permeability (virtually non-magnetic), which it retains at low temperatures. The grade is recommended for use in cryogenic applications (down to -150°C) and in environments sensitive to electromagnetic waves (magnetic video and audio media, etc.). The corrosion resistance of UGI® GRAD1 is identical to that of UGI® 302.	
UGI® S209	1.4455	-	S20910	XM-19	NACE MR0175 X2CrNiMnMoN20-16	0.02	0.7	5.0	21.5	2.1	12.0	N = 0.30	-		-	Austenitic stainless steel with high corrosion resistance and high mechanical performance. UGI® S209 is a high yield strength austenitic stainless steel for use in very severe corrosive environments. This grade also has excellent cryogenic properties.	

(*) The wires can be delivered on request in accordance with the Japanese JIS and AMS aerospace standards
*Phynox® is a registered trademark of APERAM.
**The maximum service temperature is indicative (refer to the standards concerned by the application of the spring)

Non-magnetic

Weakly magnetic

Magnetic

Strongly magnetic

Aerospace

Aerosol

Automotive

Watchmaking

Industry

Chemical industry

Marine industry

Medical

Nuclear

Oil and gas

Table of grades for springs

Commercial designation	IN	ASTM	UNS	JIS*	Other*	Chemical analysis							Maximum service temperature**	Magnetic permeability (hardened)	Recommended heat treatment	Description of the shade	Applications					
						C	Si	Mn	Cr	Mo	Ni	Other										
Duplex/Superduplex																						
UGI® S4062	1.4062	-	S32202	-	X2CrNiN22-2	0.02	0.5	2.0	23.0	0.1	2.5	N = 0.20	300 °C		250/425°C 0.5 to 3 hours	UGI® S4062 is an austenitic-ferritic or duplex stainless steel containing a minimum of 22% chromium and 2% nickel, specifically designed to be a cost-effective alternative to grades 1.4301/1.4307 (AISI 304/304L) and 1.4310 (AISI 302). This grade with high mechanical properties has a corrosion resistance comparable to that of 1.4301/1.4310.						
UGI® S4362	1.4362	-	S32304	-	X2CrNiN23-4	0.02	0.4	1.0	23.0	0.3	4.0	N = 0.15	300 °C		250/425°C 0.5 to 3 hours	UGI® 4362 is an austenitic-ferritic or duplex stainless steel that can be substituted for UGI® S4404 in most applications known to date. In particular, substitution is possible: for the building market for exposure to marine or urban atmospheres, for the paper market, for the chemical market, for the production of sulfuric acid for example.						
UGI® S4462	1.4462 (NS)	-	S31803 S32205	-	NACE MR0175 X2CrNiMoN22-5-3	0.02	0.4	1.5	23.0	3.0	5.0	N = 0.15	300 °C		250/425°C 0.5 to 3 hours	Austenitic-ferritic duplex stainless steel, this grade has high mechanical characteristics and excellent corrosion resistance, particularly in environments exposed to marine or urban atmospheres as well as industrial environments.						
UGI® S4410	1.4410	-	S32750	-	NACE MR0175 X2CrNiMoN25-7-4	0.02	0.5	1.3	26	3.7	7.0	N = 0.27	300 °C		250/425°C 0.5 to 3 hours	UGI® S4410 is a super-duplex stainless steel for applications in highly corrosive environments. UGI® S4410 is intended for applications requiring very good corrosion resistance in aggressive environments in the presence of chlorides, combined with high mechanical properties. Examples are the chemical, petrochemical, seawater desalination, offshore and pulp and paper industries.						
Alloys																						
UGIALLOY® HT600	2.4816	B166	N06600	-	AMS5687 AMS7732 AMS5665	≤0.1	≤0.5	≤1.0	15.5	-	≥72	Fe = 8.0	400 °C		425/480°C	For applications requiring corrosion and heat resistance. The alloy also has excellent mechanical properties. The versatility of UGIALLOY® HT600 alloy makes it useful in a wide range of applications, at temperatures ranging from cryogenic to over 1095°C.						
UGIALLOY® HT750	2.4669	B637	N07750	-	AMS5698 / AMS5699 NACE MR0175	0.08	≤0.5	≤1.0	15	-	Ni+Cr ≥70	Al = 0.7 / Co ≤1.0 Fe = 7.0 / Ti = 2.5 Nb+Ta = 1.0	550 °C		See standard	UGIALLOY® HT750 is an austenitic nickel-chromium based alloy hardened with titanium, aluminum and niobium additions. UGIALLOY® HT750 has a good resistance to wet corrosion in acids and organic compounds (oil industry: downhole valves and wellheads), hot corrosion (oxidizing sulfurous atmosphere, gases: air, ammonia, nitrogen, hydrogen, dry hydrochloric, fluorine).						
UGIALLOY® HT625	2.4856	-	N06625	-	AMS 5837	≤0.1	≤0.5	≤0.5	21.5	9	≥58	Fe ≤5.0 / Co ≤1.0	400 °C		425/480°C 1 hour	A grade with excellent corrosion resistance in a range of corrosive environments, including particular resistance to pitting and crevice corrosion. Suitable for salt water applications Good H2S resistance up to 150°C.						
UGIALLOY® HT90	2.4632 2.4969	-	N07090	-	AMS 5829 NACE MR0175	≤0.13	≤1.0	≤1.0	20	-	Balance	Co = 18.0 / Ti = 2.5 Al = 0.7 Nb+Ta = 1.0	550 °C		See standard	A super refractory austenitic alloy with high nickel and cobalt content hardened by titanium and aluminum additions. It has good mechanical properties and good oxidation resistance up to 900°C. It also resists well to thermal shocks and some corrosions. For its different qualities, UGIALLOY® HT90 is used for turbo-machine parts subject to high stresses at high temperatures. Not recommended for use in sulfurous atmospheres.						
UGIALLOY® 276	2.4819	B574	N10276	-	NACE MR0175	≤0.01	0.08	1	15.5	16	-	W = 3.5 / Fe = 5.5	400 °C			UGIALLOY® 276 is known for its corrosion resistance in a wide range of aggressive environments. Its high molybdenum content provides resistance to localized corrosion, such as pitting.						
UGIALLOY® HT718	2.4668	B637	N07718		AMS5962 NACE MR0175	0.05	0.1	-	17	3	53	Fe = bal. / Al = 0.4 Ti = 0.9 / Nb = 5.0	550 °C		See standard	Good creep resistance at high temperatures. Higher strength than UGIALLOY® HT750. Better low temperature mechanical properties than UGIALLOY® HT750. High temperature dynamic applications.						
PHYNOX®	2.4711	F1058	R30003 R30008	-	AMS5833 AMS5834 NACE MR0175	≤0.15	≤1.2	2	20	7	16	Co = 40.0 Fe = 15.0 other ≤1.0	400 °C		520°C 3 hours	PHYNOX® is an austenitic cobalt-based alloy with a high yield point that offers multiple properties: - Outstanding resistance to corrosion, stress corrosion and hydrogen embrittlement - High fatigue resistance and without relaxation. Can be used in a wide temperature range: from liquid helium to 500°C. Perfectly biocompatible, it is used in surgical implants.						
UGIALLOY® KC35N	2.4999	F562	R30035	-	AMS5758 AMS5844 AMS5845 NACE MR0175	0.01	-	-	20	9.7	35	Co = 35	400 °C		540/600°C 4 hours	UGI® KC35N is a non-magnetic nickel - cobalt - chromium - molybdenum alloy from the multi-phase system family of alloys that possesses an amazing combination of very high mechanical properties, good ductility and toughness, and excellent corrosion resistance. In addition, this alloy demonstrates exceptional resistance to H ₂ S environment, to high temperature oxidation and hydrogen embrittlement.						

(*) The wires can be delivered on request in accordance with the Japanese JIS and AMS aerospace standards
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**The maximum operating temperature is indicative (refer to the standards concerned by the application of the spring)

 Non-magnetic

 Weakly magnetic

 Magnetic

 Strongly magnetic

 Aerospace

 Aerosol

 Automotive

 Watchmaking

 Industry

 Chemical industry

 Marine industry

 Medical

 Nuclear

 Oil and gas



Swiss Steel Group

Production sites: Ugitech SA, Ugitech TFA Srl

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Applications specifically suggested for material described herein are made for the purpose of illustration only to enable the reader to make its own evaluation and are not intended as warranties, either express or implied, of fitness for any purposes.