

Wire products
for cold heading



UGITECH

Providing special steel solutions





UGITECH production plants

Bars

UGITECH
Avenue Paul Girod
73403 UGINE Cedex
FRANCE
Tel. +33 (0)4 79 89 30 30
Fax: +33 (0)4 79 89 34 34

UGITECH Italia
Via G. Di Vittorio, 34/36
20068 PESCHIERA BORROMEO
(MI)
ITALY
Tel. +39 02 54 74 34 14
Fax: +39 02 54 74 34 30

Wire rod

UGITECH
Avenue Paul Girod
73403 UGINE Cedex
FRANCE
Tel. +33 (0)4 79 89 30 30
Fax: +33 (0)4 79 89 34 34

Drawn wire

UGITECH
BP 33
58160 IMPHY
FRANCE
Tel. +33 (0)3 86 21 37 98
Fax: +33 (0)3 86 21 31 03

UGITECH
Petite Rue Volais
BP 115
27800 BRIONNE
FRANCE
Tel. +33 (0)2 32 47 33 37
Fax: +33 (0)2 32 44 96 39

UGITECH
3, Chemin de Majornas
BP 1109
01009 BOURG-EN-BRESSE
FRANCE
Tel. +33 (0)4 74 50 55 00
Fax: +33 (0)4 74 50 55 10

SPRINT METAL
Edelstahlziehereien GmbH
Eckenhagener Strasse 2
51580 REICHSHOF - Pochwerk
GERMANY
Tel. +49 (0)22 61 54 06 23
Fax: +49 (0)22 61 54 06 55

SPRINT METAL
Edelstahlziehereien GmbH
Gewerbegebiet West
39240 BRUMBY
GERMANY
Tel. +49 (0)39 291 46 51 0
Fax: +49 (0)39 291 46 51 55



UGITECH

a team of 2000 working together for you around the world



www.ugitech.com

”

Quality & Innovation
adapted to
cold heading

“

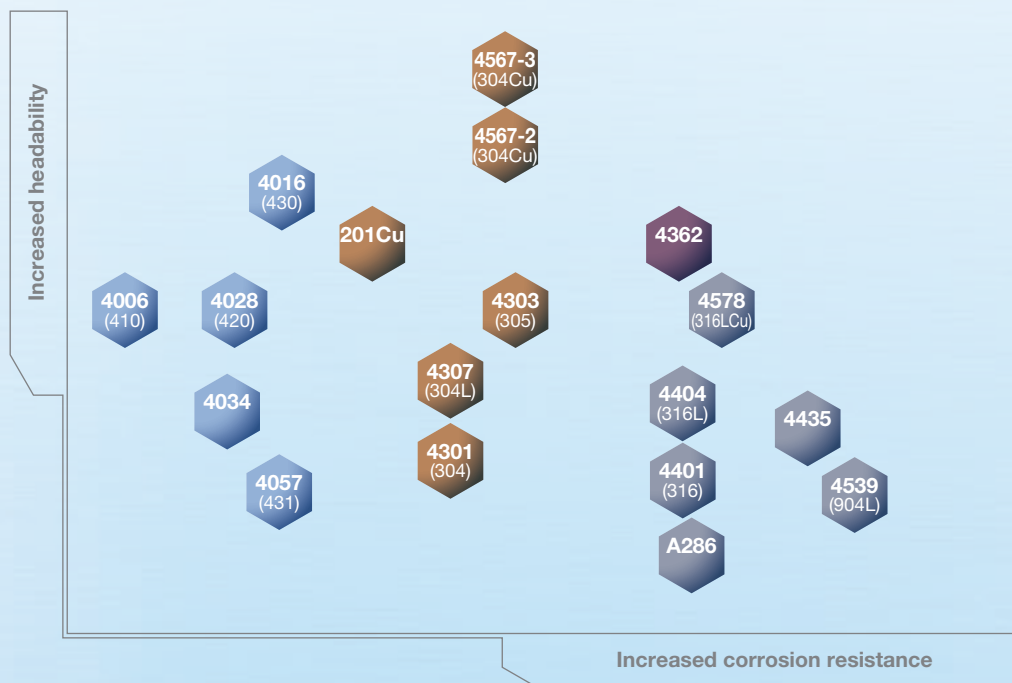
An extensive choice of sizes

We can offer diameters from 5 to 32 mm for wire rod and from 1.5 to 13 mm for drawn wire.

Continuous quality control

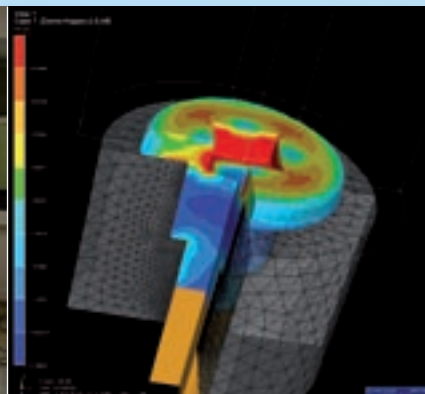
Tests are performed throughout the manufacturing process - a test to check the deforming of the wire rod, torsion tests for drawn wire, tensile, E0,2% Proof Stress, etc. - and specific thermal treatments ensure that you receive the right quality for your application..

A wide range of grades



Dedicated technical assistance

Our R&D Center boasts equipment ranging from digital simulation tools to industrial machines. Digital simulation is used both to study the behavior of our grades during the cold heading process and to provide technical assistance to customers.



Wire Rod

Technical characteristics

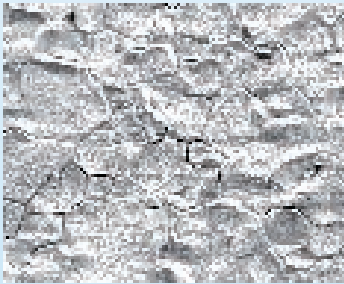
	Dimensions and tolerances					
	Round			Hexagonal		
Ø in mm	5 to 7,5	8 to 14	15 to 32	12,4 & 13,2	14 to 20	21 to 28
Manufacturing possibilities	At 0.5mm intervals		Every mm		Every mm	
Tolerances in Ø	-0,1/+0,2 mm	± 0,20 mm	± 0,25 mm	+0,3 /-0,2 mm	+0,3 /-0,2 mm	± 0,30 mm

Mechanical characteristics

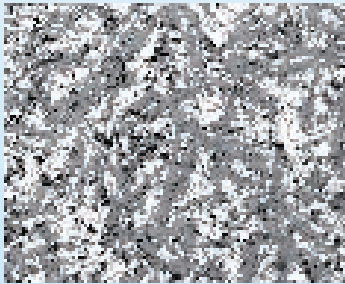
The maximum tensile strength (RM) guaranteed is indicated in the "RM" column in the analysis tables on the following pages.

Surface finish

The wire rod can be delivered either as-pickled, or coated with a specific coating designed for cold heading. The purpose of this coating is mainly to create an artificial surface roughness in order to guide the lubricant (oil, grease, soap) at the metal-tool interface.



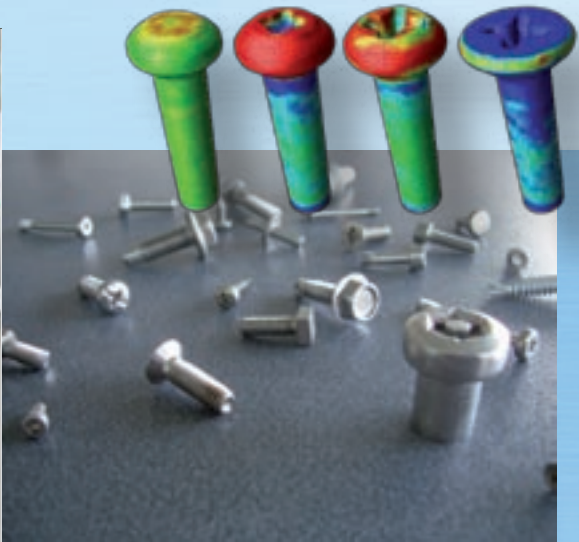
Without coating



With coating

Packaging

- 1,000 kg coils
- Special packaging on request: fabric sleeving



Stainless steel grades for cold heading

This includes grades for standard applications, but also for very specific applications (high temperatures, aggressive environments requiring high corrosion resistance, etc.)

Our main grades are indicated below, but please contact us with any specific requests.

Austenitic grades

Wire Rod
Drawn Wire

BRAND NAME	STANDARDS		Chemical Composition										RM	Comments
			C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Others	maxi	
UGI HQ201CU		Min	-	-	7.5	5.0	14.5	-	3.0	-	-	-	520	Economical grade
H201Cu		Max	0.03	0.5	8.5	5.5	15.5	0.5	3.5	0.005	0.04	-	*	
UGI HQ4301-3	EN 1.4301	Min	0.02	0.2	1.0	9.0	18.0	-	0.50	-	-	-	590	Basic A2 grade
H4301	AISI 304	Max	0.04	0.6	1.5	10.0	19.0	0.5	0.75	0.015	0.04	-	*	
UGI HQ4307	EN 1.4307	Min	-	-	1.0	9.2	18.0	-	-	-	-	-	590	Basic low carbon - A2 grade
H4307	AISI 304L	Max	0.03	1.0	1.5	10.0	19.0	0.5	0.75	0.015	0.04	-	*	
UGI HQ4306	EN 1.4306	Min	-	-	0.5	10.0	18.0	-	-	-	-	-	560	Low carbon - A2 grade for difficult cold heading
H4306	AISI 304L	Max	0.03	1.0	1.0	11.0	19.0	0.5	0.5	0.015	0.04	-	*	
UGI HQ4303	EN 1.4303	Min	-	-	-	11.0	18.0	-	-	-	-	-	560	Low carbon - A2 grade for severe cold heading - clamps
H4303	AISI 305	Max	0.03	0.75	1.5	12.0	19.0	0.5	0.7	0.015	0.035	-	*	
UGI HQ305-2	EN 1.4303	Min	0.04	0.3	1.3	12.0	17.0	-	-	-	-	-	560	Low carbon - A2 grade for very severe cold heading - non-magnetism
H4303-2	AISI 305	Max	0.06	0.6	1.7	12.5	18.0	0.5	0.5	0.01	0.04	-	*	
UGI HQ4560	EN 1.4560	Min	-	-	1.5	8.3	18.0	-	1.5	-	-	-	580	Basic Cu - A2 grade
		Max	0.03	1.0	2.0	9.0	19.0	0.3	2.0	0.015	0.04	-		
UGI HQ4567-2	EN 1.4567	Min	-	-	-	9.0	17.0	-	3.0	-	-	-	510	Cu - A2 grade for severe cold heading
HFRAP+	302HQ	Max	0.03	0.75	2.0	10.0	18.0	0.5	3.5	0.01	0.04	-	*	
UGI HQ4567-3	EN 1.4567	Min	-	0.4	1.0	9.5	17.0	-	3.3	-	-	-	510	Cu - A2 grade for very severe cold heading
HFRAP1	302HQ	Max	0.025	0.75	2.0	10.0	19.0	0.5	4.0	0.01	0.04	-	*	
UGI HQ4541	1.4541	Min				9.5	17.0					Ti 5xC	570	Basic stabilized A2 grade
		Max	0.06	1.0	2.0	10.5	18.0	0.5	0.5	0.015	0.040	0.60		
UGI HQ4401	EN 1.4401	Min	0.04	-	-	10.5	16.5	2.0	-	-	-	-	600	Basic A4 grade
H316	AISI 316	Max	0.07	1.0	2.0	11.5	17.5	2.5	0.5	0.015	0.04	-		
UGI HQ4404	EN 1.4404	Min	-	-	-	11.0	16.5	2.0	-	-	-	-	590	Basic low carbon - A4 grade
H316L	AISI 316L	Max	0.03	1.0	2.0	12.0	17.5	2.5	0.5	0.015	0.04	-		
UGI HQ4404X4	EN 1.4404	Min	-	-	1.5	11.0	16.5	2.0		-	-	-	590	Low carbon - A4 grade for difficult heading
	AISI 316L	Max	0.025	0.8	2.0	12.0	17.0	2.5	1.0	0.010	0.03	-		
UGI HQ4435	EN 1.4435	Min	-	-	1.25	12.5	16.75	2.5	-	-	-	-	570	Low carbon - A2 grade for severe cold heading
H4435		Max	0.025	0.75	2.00	13.5	17.75	3.0	0.5	0.01	0.03	-	*	
UGI HQ317L	EN 1.4438	Min	-	0.3	1.5	14.0	18.5	3.5	-	-	-	-	660	Excellent corrosion resistance
	AISI 317L	Max	0.02	0.6	2.0	15.0	19.5	4.0	0.5	0.015	0.025	-		
UGIPURE HQ4441	EN 1.4441	Min	-	-	1.0	13.5	17.5	2.5	-	-	-	-	590	ESR-R – surgical implants
		Max	0.03	1.0	2.0	15.0	19.0	3.0	0.5	0.010	0.025	-		
UGI HQ4571	EN 1.4571	Min	-	-	-	11.0	16.5	2.0	-	-	-	Ti 5xC	550	Stabilized basic A4 grade
H4571	316Ti	Max	0.05	1.0	2.0	12.0	17.5	2.5	0.5	0.015	0.04	0.60	*	
UGI HQ4578	EN 1.4578	Min	-	-	-	10.0	16.5	2.0	3.0	-	-	-	530	Basic A4 grade with Cu
FRAPM		Max	0.025	0.8	1.0	11.0	17.5	2.5	3.5	0.01	0.04	-	*	
UGI HQ309-1	EN 1.4833	Min	0.07	0.3	1.5	13.00	23.5	-	-	-	-	-	695	Heat resisting for temp. <=1000°C, industrial furnaces
	AISI 309	Max	0.1	0.6	2.0	13.75	24.5	-	0.15	0.01	0.02	-		
UGI HQ4841	EN 1.4841	Min	-	2.0		19.0	24.0						620	High corrosion and rust resistance
	AISI 314	Max	0.08	2.5	2.0	21.0	26.0			0.015	0.040			
UGI HQ4845	EN 1.4845	Min	0.05	-	-	19.0	24	-	-	-	-	-	550	High corrosion and rust resistance
	AISI 310S	Max	0.10	1.0	2.0	21.0	26	-	-	0.015	0.04	-		
UGIHQ4539	EN 1.4539	Min				24.0	19	4.0	1.2				640	Excellent resistance to acids
H904L	AISI 904L	Max	0.02	0.7	2.0	25.0	20	5.0	2.0	0.010	0.030		*	
UGI HQ4828	EN 1.4828	Min	0.04	1.6		11.0	19.0						630	Rust resistance
		Max	0.07	2.0	2.0	12.0	20.0			0.015	0.04			

* For drawn wire mechanical properties (UTS, etc), refer to the chapter on "Drawn Wire".

Martensitic grades



BRAND NAME	STANDARDS		Chemical Composition										RM	Comments
			C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Others	maxi	
UGI HQ4000	EN 1.4000	Min	-	-	-	-	12.5	-	-	-	-	-	560	Very low Mechanical Properties Normal fasteners
H4000	AISI 410S	Max	0.03	0.5	1.0	0.5	13.5	-	-	0.015	0.03	-	*	
UGI HQ4006-1	EN 1.4006	Min	0.09	-	-	-	13.0	-	-	-	-	-	610	Low Mechanical Properties Clamp fasteners
H4006		Max	0.12	0.5	0.6	0.6	13.5	0.75	0.75	0.015	0.03	-	*	
UGI HQ4006-3	EN 1.4006	Min	0.10	-	0.25	-	11.5	-	-	-	-	-	570	Low Mechanical Properties Self-drilling screws
	AISI 410	Max	0.13	0.75	0.75	0.75	12.0	0.5	0.5	0.015	0.04	Al<0.03		
UGI HQ4021	EN 1.4021	Min	0.18	-	-	-	13.0	-	-	-	-	-	670	Average Mechanical Properties
H4021	AISI 420	Max	0.21	0.7	1.0	0.5	14.0	0.5	-	0.015	0.03	-	*	
UGI HQ4034	EN 1.4034	Min	0.43	-	-	-	13.0	-	-	-	-	-	750	High Mechanical Properties Balls
H4034	AISI 420	Max	0.47	0.7	1.0	0.5	14.0	-	0.5	0.015	0.04	-	*	
UGI HQ4542	EN 1.4542	Min		-	-	4.5	15.5	-	3.0	0.01	-	Nb	980	Very high Mechanical Properties
		Max	0.06	0.6	1.0	5	16.5	0.5	4.0	0.025	0.03	5xC/0.45		
UGI HQ4913	EN 1.4913	Min	0.18	-	0.3	0.3	10.0	0.5	-	-	-	V 0.10/0.15 Nb	620	Heat resistance
H4913		Max	0.22	0.5	0.8	0.8	11.5	1.0	-	0.010	0.02	0.25/0.50	*	
UGI HQ4922	EN 1.4922	Min	0.18	-	-	0.3	11.0	0.8	-	-	-	V >0.25	640	Heat resistance
		Max	0.22	0.8	1.0	0.8	12.0	1.2	0.3	0.020	0.03	0.35		
UGI HQ4923	EN 1.4923	Min	0.18	-	-	0.3	11.0	0.8	-	-	-	V >0.25	640	Heat resistance
H4923		Max	0.22	0.8	1.0	0.8	12.0	1.2	0.3	0.020	0.03	0.35	*	

Ferritic grades

BRAND NAME	STANDARDS		Chemical Composition										RM	Comments
			C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Nb	maxi	
UGI HQ4016	EN 1.4016	Min	-	-	-	-	16.0	-	-	-	-	-	490	Basic grade Normal fasteners
H4016L	AISI 430	Max	0.03	0.5	0.6	0.3	17.0	0.5	0.2	0.015	0.03	-	*	
UGI HQ4113	EN 1.4113	Min	-	-	-	-	16.0	0.9	-	-	-	-	570	Grade with Moly Corrosion resistance
H4113	AISI 434	Max	0.05	1.0	0.8	0.5	17.0	1.2	-	0.025	0.04	-	*	
UGI HQ4511	EN 1.4511	Min	-	-	-	-	16.0	-	-	-	-	12XC et 7(C+N)	470	Grade stabilized with Nb Hooks for exhaust lines
	-	Max	0.02	0.5	0.6	0.3	17.0	0.5	0.2	0.015	0.04	0.3		
UGI HQ4601-1	EN 1.4601	Min	-	0.3	0.3	0.2	11.0	-	-	-	-	10 X C	530	Grade stabilized with Nb Hooks for exhaust lines
	AISI 409Cb	Max	0.05	0.7	0.8	0.5	12.0	0.5	-	0.010	0.025	0.6		
UGI HQ4601-2	EN 1.4601	Min	0.025	0.5	0.4	-	11.00	-	-	-	-	10 X C	490	Grade stabilized with Nb Hooks for exhaust lines
	AISI 409Cb	Max	0.050	0.75	0.75	0.5	11.75	0.5	-	0.015	0.025	0.6		

Duplex grades

BRAND NAME	STANDARDS		Chemical Composition										RM	Comments
			C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Others	maxi	
UGI HQ4362	EN 1.4362	Min			1.0	3.5	22.0	0.1	0.1			N 0.10	760	Eco grade to replace 4401/4404
H4362		Max	0.03	1.0	2.0	5.5	24.0	0.6	0.6	0.01	0.035	0.2	*	
UGI HQ4462	EN 1.4462	Min			1.0	5	22.0	2.5				N 0.12	830	
H4462		Max	0.03	0.75	2.0	6	23.0	3.5	0.5	0.01	0.035	0.2	*	

Alloys

BRAND NAME	STANDARDS		Chemical Composition										RM	Comments
			C	Si	Mn	Ni	Cr	Mo	Cu	S	P	Al	maxi	
286	EN 1.4944	Min	-	-	1.25	24.0	13.5	1.0	-	-	-	0.15		Up to 700°C
HT286	AISI 660	Max	0.08	1.0	2.0	27.0	16.0	1.5	0.5	0.005	0.025	0.35		

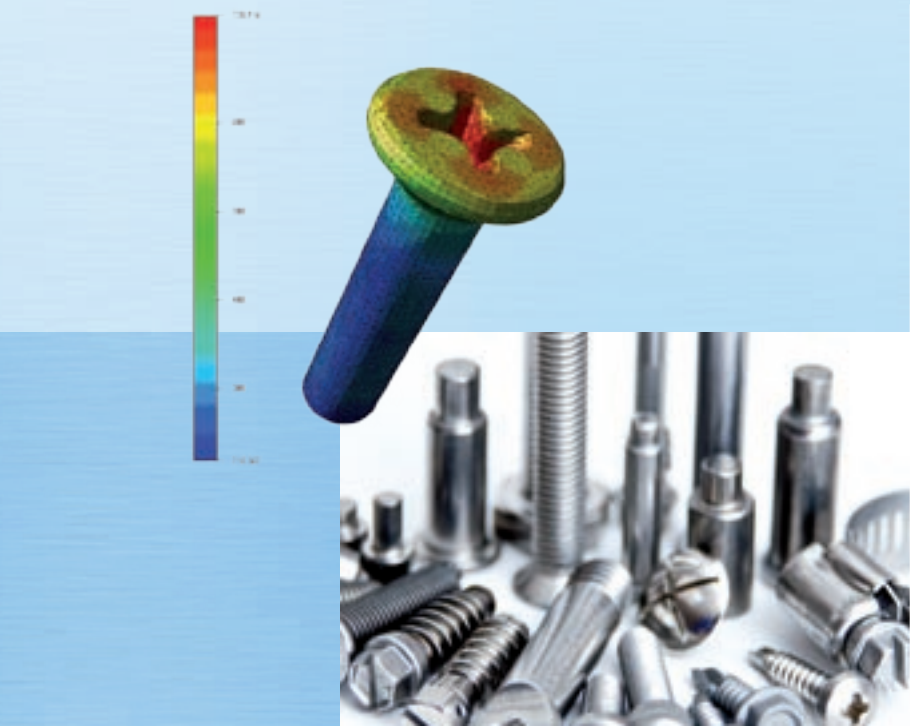
Drawn Wires

Technical characteristics

	Dimensions and tolerances			
Ø in mm	1,5 to 3,0	3,0 to 6,0	6,0 to 10,0	10,0 to 13
Tolerances in Ø	+0/-0 ,025	+0/0,030	+0/0,030	+0/0,043

Metallurgical conditions and mechanical properties of the main grades

UGITECH Brand Name	Euro Standard	Annealed		Skin passed	
		Ø<3 Rm (N/mm²)	Ø>3 Rm (N/mm²)	Ø<3 Rm (N/mm²)	Ø>3 Rm (N/mm²)
Ferritic grades					
H430L	1.4016	max 550	max 550	550-650	500-600
Austenitic grades					
H4307	1.4307	max 700	max 680	650-750	600-700
H4301	1.4301	max 700	max 680	650-750	700-800
H4303	1.4303	max 650	max 630	600-700	550-650
HFrap1	1.4567	max 600	max 580	600-700	600-700
H4404	1.4404	max 700	max 680	650-750	600-700
HFrapM	1.4578	max 650	max 650	600-700	600-700
Heat resisting grades					
HT 286	1.4980	max 750	max 730	≤ 800	≤ 750

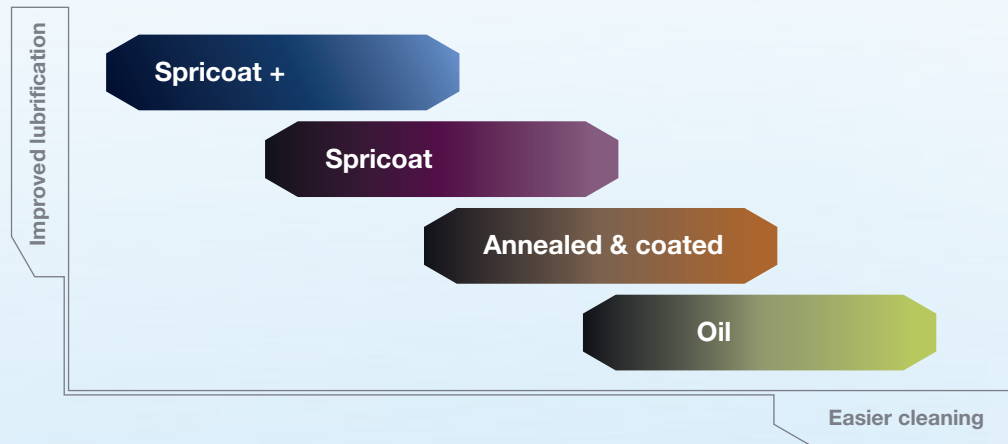


Coatings

For drawn wires to be used for cold heading,
Ugitech proposes the appropriate coatings for different applications:

- difficult cold deformation
- complex tools
- high mechanical properties
- corrosion and temperature resistance

This means 4 types of coatings designed to meet your needs.



Packaging

- Packaged coils (350 kg max)
- Coils on formers (700 kg max)
- Drawn wire on formers (700 kg max)
- Drawn wire on formers (500 kg max)
- Formers on pallet
- Layer wound coil



Layer wound coil



Drawn wire on formers

