

COLD HEADING WIRE

Thanks to a company history starting already 1873, Fagersta Stainless belongs to one of the world leading producers of stainless wire rod and wire. With customized chemistries the products fulfill everything from simple to high demanding applications.

IMPORTANT PROPERTIES FOR COLD HEADING

To get best possible properties for cold heading, these parameters are important:

- Tight chemistry for identical properties
- Mechanical properties and deformation hardening
- Corrosion properties
- Surfaces and lubricants
- Dimension tolerances



STANDARD STEEL GRADES FOR COLD HEADING

Due to a close cooperation with our meltshop, we have the possibility to offer customized chemistries on top of the grades we have in our standard range. Our grades have tight chemistries and low slag concentrations and therefore equal properties from delivery to delivery. We recommend following standard grades:

Grade family	Marcegaglia name	Fagersta	EN	ASTM		PRE	CWH	Typical chemical composition, % by mass						
				TYPE	UNS			C	Cr	Ni	Mo	N	Others	
F	409/4512	R108.10	-	409Cb	-	11	-	0.03	11.3	0.35	-	-	-	Nb
F	409Ti/4512	R109.11	1.4512	409Ti	-	11	-	0.02	11.3	-	-	-	-	-
F	430/4016	R250.11	1.4016	430	S43000	16	-	0.01	16.4	-	-	-	-	-
F	430L/4016	R250.11	1.4016	430	S43000	16	-	0.01	16.4	-	-	-	-	-
F	430L/4016	R258.10	18 LNB	-	-	18	-	0.01	18.2	-	-	-	-	Nb
A	304/4301	R320.14	1.4301	302/304	30200	19	120	0.05	17.8	8.6	0.3	0.035	-	-
A	304L/4306	R350.11	1.4306	304L	S30403	18	93	0.02	18.2	10.1	-	-	-	-
A	304/4301	R350.19	1.4301	304	S30400	18	108	0.02	17.6	11.1	-	0.007	-	-
A	304L/4307	R350.43	1.4307	304L	S30403	20	93	0.02	17	10.1	2.1	-	-	-
A	305/4303	R390.21	1.4303	305	S30500	20	91	0.015	17.2	12.1	2.1	-	-	-
A	316L/4404	R425.10	1.4404	316L	S31603	24	92	0.04	16.9	10.7	2.6	-	-	-
A	316L/4404	R425.20	1.4404	316L	S31603	27	94	0.02	16.7	10.1	2.1	0.050	-	Cu<0.70
A	316L/4436	R440.10	1.4436	316	S31600	25	91	0.02	16.6	10.1	2.1	-	-	3.20Cu
A	316Cu/4578	R545.11	1.4578	316Cu	-	24	-	0.05	14.6	24.7	1.2	-	-	Ti
PH	Alloy 286/4980	R569.10	1.4980	A-286	S66286	18	-	0.05	14.6	24.7	1.2	-	-	Ti
PH	Alloy 286/4980	R569.60	1.4980	A-286	S66286	18	-	0.02	18.1	8.1	-	-	-	0.03S
PH	Nimonic 80A	R969.80	2.4952	Nim 80A	-	-	-	0.050	19.5	>65.0	0.2	0.02	-	Al, Ti
A	304Cu/4567	R575.21	1.4567	304Cu	S30430	19	-	0.02	17.2	10.1	2.1	-	-	0.03S
A	Alloy 926	R840.77	1.4529	Alloy 926	N08904	45	-	0.010	20.5	25.0	6.3	0.19	-	Cu, Al

Grade families: F = ferritic, A = austenitic, PH = precipitation hardening

MECHANICAL PROPERTIES

We can control mechanical properties by choosing a specific grade and how we process it in production:

Tensile strength: Customized levels

Max 40 N/mm² variation within a coil - Max 100 N/mm² variation from delivery to delivery

Elongation: With customized chemistries we can control elongation in relation to tensile strength.

CORROSION

PRE (Pitting Resistance Equivalent = Cr + 3.1 x Mo + 25 x N) is a factor comparing properties of different chemistries with regards to pitting and crevice corrosion in corrosive environments. A higher value means better resistance. In the table above, PRE is shown for the grades we recommend for cold heading.

SURFACES AND LUBRICANTS

Different end treatments of wire rod combined with various processes during the drawing operations, we can reach the surface smoothness needed for different applications. With our collection of lubricants we can adjust the wire to the customers requirements regarding tool wear, product geometries etc:

Stearate:	<ul style="list-style-type: none"> • FAGERSTA XFK-coating • FAGERSTA XFT-coating • FAGERSTA XFN-coating • FAGERSTA XF-coating 	<ul style="list-style-type: none"> Na and K based Synthetic Na based Synthetic and Ca based
Oil / Grease:	<ul style="list-style-type: none"> • FAGERSTA XFO-coating • FAGERSTA XFH-coating 	<ul style="list-style-type: none"> Oil Grease
Metal:	<ul style="list-style-type: none"> • FAGERSTA Cu-coating • FAGERSTA Ni-coating 	<ul style="list-style-type: none"> Copper Nickel

DIMENSIONS

Standard: 1.50-16.00 mm (.059" - .630")

Tolerance: h9 according to EN 10278

1.50 - 3.00 + 0 / - 0.025

3.01 - 6.00 + 0 / - 0.030

6.01 - 10.00 + 0 / - 0.036

10.01 - 16.00 + 0 / - 0.043

Ovality: max 50% of the total tolerance span

PACKAGING METHODS

The wire is supplied in various packagings depending on the needs of the customer. See separate leaflet.