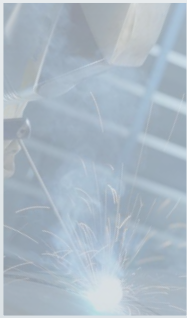




Thanks to a company history starting already 1873, Fagersta Stainless belongs to one of the world leading producers of stainless wire rod and wire. With customized chemistries the products fulfill everything from simple to high demanding applications.

Wire Rod

Welding

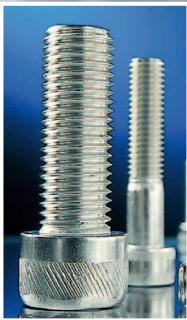


OPTIMUM WIRE ROD FOR COLD HEADING

To get best possible properties for cold heading wire rod, following parameters are important:

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

Cold Heading



STANDARD STEEL GRADES FOR COLD HEADING

Our grades have tight chemistries and therefore equal properties from delivery to delivery. We recommend following of our standard grades:

EN. Nr	TYPE / AWS	FAGERSTA	C	Si	Mn	Cr	Ni	Mo	N	TS	CWH	Md30	PRE	
			%	%	%	%	%	%	%	N/mm ²		Nohara		
1.4512	409 Ti	R 109.11	0.030*	0.50	0.55	11.30	0.50*	0.10*	0.040*	360-460			12	
1.4016	430	R 250.11	0.020*	0.30	0.70	16.40	0.30*	0.10*	0.030*	420-520			17	
1.4016	430	R 250.30	0.020*	0.30	0.70	16.40	0.30*	0.10*	0.050	430-530			17	
1.4301	302	R 320.14	0.050	0.40	0.75	17.80	8.60	0.60*	0.035	580-680	120	-1	19	
1.4301	304	R 350.19	0.030	0.40	1.50	18.20	8.20	0.60*	0.050*	550-650	108	9	20	
1.4303	305	R 390.21	0.015*	0.40	0.55	17.70	11.20	0.60*	0.030*	490-590	91	-47	19	
1.4307	304 L	R 350.20	0.025*	0.45	1.20	18.50	9.75	0.60*	0.030*	500-600	90	-25	20	
1.4307	304 L	R 350.43	0.020*	0.50	1.15	18.30	8.50	0.60*	0.060*	530-630	93	2	20	
1.4404	316 L	R 425.10	0.020*	0.35	1.55	16.80	11.20	2.10	0.050*	520-620	92	-90	24	
1.4436	316 L	R 440.10	0.030*	0.50	1.55	16.80	11.60	2.60	0.050*	520-620	91	-103	26	
1.4567	304 Cu	302 HQ	0.015*	0.40	0.55	17.90	9.70	0.40*	0.025*	450-550			19	
1.4578	316 Cu	R 545.11	0.030*	0.35	0.55	17.00	10.80	2.20	0.040*	460-560			25	
	660	A286 VAR	R 569.60	0.050	0.20	1.00	14.60	24.70	1.20	0.020*	530-630			19

(Other grades from our standard range are displayed on the reverse side)

Spring



MECHANICAL PROPERTIES AND DEFORMATION HARDENING

Depending on what shape and wished tensile strength an end product shall have, the wire rod should have a specific ductility (formability) for the cold heading process and that it reaches a specific level of deformation hardening. Following methods of measurement are used regarding deformation hardening:

CWH-factor "Cold Work Hardening Factor", a matrix consisting of C, Cr and Ni contents. The factor varies between 80 – 150 and increases with increasing deformation hardening in the steel.

Md30 The temperature (°C) at which 30% true elongation (about 25% area reduction) makes 50% of the austenitic phase transform to deformation martensite. A higher temperature means higher deformation hardening in the steel.

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

Direct cooling (DK) ASTM 10-13
 "In line"-annealing (DST) ASTM 5-8
 Pit furnace (SG) ASTM 3-6

Our standard procedure is to supply the wire rod in pickled condition.

DIMENSIONS

5.0

18.0

Standard: 5 – 18 mm (.197" - .709") in increments of 0.5 mm (.020")
 (MOQ:s for some dimensions)

Tolerance: 5.0 – 10.0 +/-0.15
 >10.0 – 18.0 +/-0.20

Ovality: Max 60% of the total tolerance span.

Surface classes: Class 3 is the standard class which has a max defect depth of 0.10 mm for dimensions ≤ 10 mm and 1% of the diameter for dimensions > 10 mm. Welding rod has class 2 (max 0.20).

PACKAGING METHODS

Coil weight: Appr. 1000 kg

Outer diameter: Max 1250 mm

Inner diameter: Max 950 mm

