MARCEGAGLIA
FAGERSTA STAINLESS

WIRE ROD FOR HIGH TEMPERATURE

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.

STANDARD STEEL GRADES FOR HIGH TEMPERATURE

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

OPTIMUM WIRE ROD FOR HIGH TEMPERATURE

To get best possible properties for high temperatures, these parameters are important:

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

Grade family	Marcegaglia name	Fagersta	EN	ASTM		Typical chemical composition, % by mass					
				TYPE	UNS	C	Cr	Ni	Mo	N	Others
F	409/4512	R108.10	-	409CB	-	0.03	11.3	-	-	-	Nb
F	409Ti/4512	R109.11	1.4512	409TI	-	0.015	11.3	-	-	-	Ti
A	4828	R323.10	1.4828	-	-	0.045	19.3	11.7	-	0.03	-
A	4835	R327.10	1.4835	-	S30815	0.075	21	10.2	-	0.16	REM
PH	Alloy 286 / 4980	R569.60	1.498	A–286	S66286	0.05	14.6	24.7	1.2	-	Al, Ti, V
A	310S/4845	R820.10	1.4845	310S	S31008	0.045	24.7	19.4	-	-	-
A	314/4841	R823.11	-	314	S31400	0.03	23.5	19.4	-	-	-
A	314/4841	R823.13	1.4841	314	S31400	0.01	24.3	20.7	-	-	-
A	310S/4845	R826.70	25 20 310	-	-	0.12	25.9	20.8	-	-	-
A	904L	R840.70	1.4539	904L	N08904	0.01	20	25	4.5	0.05	Cu
A	330/4886	R860.13	1.4886	330	N08330	0.01	18.5	34.5	-	-	-
A	330Nb	R868.11	1.4864	330Cb	N08330	0.015	19.5	34.5	-	-	Nb

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

MECHANICAL PROPERTIES AND DEFORMATION HARDENING

Depending on end-product's shape and required tensile strength, the wire rod should have specific ductility (formability) for the cold heading process and 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 high temperatures.

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

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

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