MARCEGAGLIA
FAGERSTA STAINLESS

WIRE ROD IN DUPLEX

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.

OUR DUPLEX STEEL GRADES

We offer a wide range of Duplex grades for many different applications i.e. cold heading, welding and bright wire for general applications. Our grades have tight chemistries and therefore equal properties from delivery to delivery.

CHARACTERISTIC PROPERTIES FOR DUPLEX STEEL

Duplex steel is often characterized by:

- Good corrosion properties
- Good mechanical properties
- Good fatigue properties
- High resistance against abrasion
- Good welding properties

Grade family	Marcegaglia name	Fagersta	EN	ASTM		PRE	Typical chemical composition, % by mass					
				TYPE / AWS	UNS		C	Cr	Ni	Mo	N	Others
D	2101/4162	R 617.10	1.4162	2101	-	28	0.030	21.50	1.50	0.30	0.220	0.7 Si 5.0Mn
D	2304/4362	R 630.21	1.4362	2304	-	26	0.015	22.50	4.70	0.25	0.110	0.45Si 0.95 Mn
D	2209/4662	R 646.21	1.4662	2209	-	37	0.01	23.00	8.75	3.15	0.160	Al
D	2205/4462	R 647.70	1.4462	2205	-	37	0.017	22.20	5.20	3.20	0.180	Al
D	312	R 656.70	-	312 / 29-9	-	32	0.100	30.35	9.20	-	0.055	Al

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 our Duplex grades.

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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