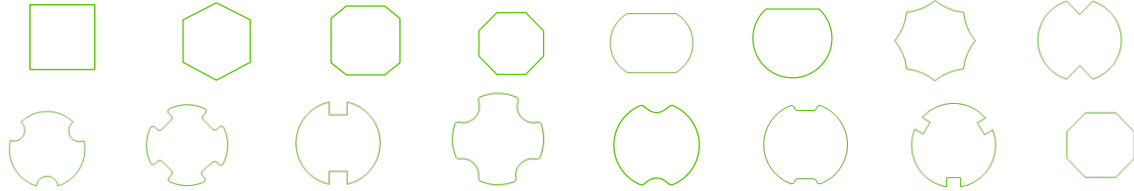


# Linecard Soft Magnetic Stainless Steels Precision Wire



Zapp is certified to ISO 9001



In the following you will get the most important information in regard of our soft magnetic stainless steels.

If there are any questions left, please do not hesitate to contact us under Phone +49 2304 79-7169.

## Delivery Forms and Finishes

Product Form/ Finishes	Round Bars	Profiles
Size Range	$\varnothing$ 6.0 - 34 mm < 6.0 mm and > 34 mm on request	5 - 30 mm four-, six- and eight-edge for further profile geometry, see diagram other sizes and special shapes on request
Tolerances	according to DIN standard, ISO standard or according to special specification	
Finish	drawn, annealed ground, polished crack detected acc. DIN ISO 10277 - class 1 to 4 US-tested on request unchecked ends removed on request	drawn to section, annealed crack detection acc. DIN ISO 10277 - Table 1 - class 1 on request - unchecked ends removed on request
Form of Delivery	bars up to 4,200 mm	bars up to 3,000 mm
Bar End Machining	chamfered/ pointed/ end-faced	chamfered/ end-faced
Surface Roughness	$R_{max} < 5 \mu m$	$R_{max} < 10 \mu m$

## Analysis of Solenoid Stainless Steels

Brand Name	Comparable Grades According to AISI/ SAE	Abbreviation EN 10027-1	Analysis *							
			C	Si	Mn	P	S	Cr	Mo	Others
Ergste® 1.4003 IA	-	X2CrNi12	< 0.03	< 1.00	< 1.50	< 0.040	0.015	10.5-12.5	-	Ni: 0.3-1.0
Ergste® 1.4005 IA	~AISI 416	X2CrS13*	< 0.02*	< 1.00	< 1.50	< 0.040	0.25-0.35	12.0-14.0	< 0.60	-
Ergste® 9.9013 IL	-	-	< 0.02	1.0-1.5	< 1.50	< 0.040	0.15-0.35	12.0-14.0	~ 0.4	-
Ergste® 1.4105 IL	AISI 430FR	X6CrMoS17	< 0.03	1.0-1.5	< 0.80	< 0.030	0.25-0.35	17.25-18.0	0.20-0.50	Ni < 0.6
Ergste® 1.4105 IM	AISI 430F	X5CrMoS17	< 0.05	< 1.00	< 1.50	< 0.040	0.20-0.35	16.0-18.0	0.20-0.60	-
Ergste® 1.4016 IM	AISI 430	X6Cr17	< 0.06	< 1.00	< 1.00	< 0.040	< 0.015	16.0-18.0	< 0.60	-
Ergste® 1.4113 IM	AISI 434 mod	X5CrMoS 17-1*	< 0.03	< 1.80*	< 1.00	< 0.040	0.20-0.35*	17.0-18.5*	1.5-2.5*	-
Ergste® 1.4113 IL	AISI 434	X5CrMoS17-1	< 0.05	< 1.00	< 1.50	< 0.040	< 0.03	16.0-18.0	0.90-1.40	-
Ergste® 1.4511 IA	-	X3CrNb17	< 0.02	< 1.00	< 1.00	< 0.040	< 0.015	16.0-18.0	-	Nb:0.2-0.5
Ergste® 1.4523 IM	-	X2CrMoTiS18-2	< 0.03	< 0.5	< 0.5	< 0.040	~ 0.25	17,5-18.5	2.0 - 2.5	Ti: ≤ 0.8

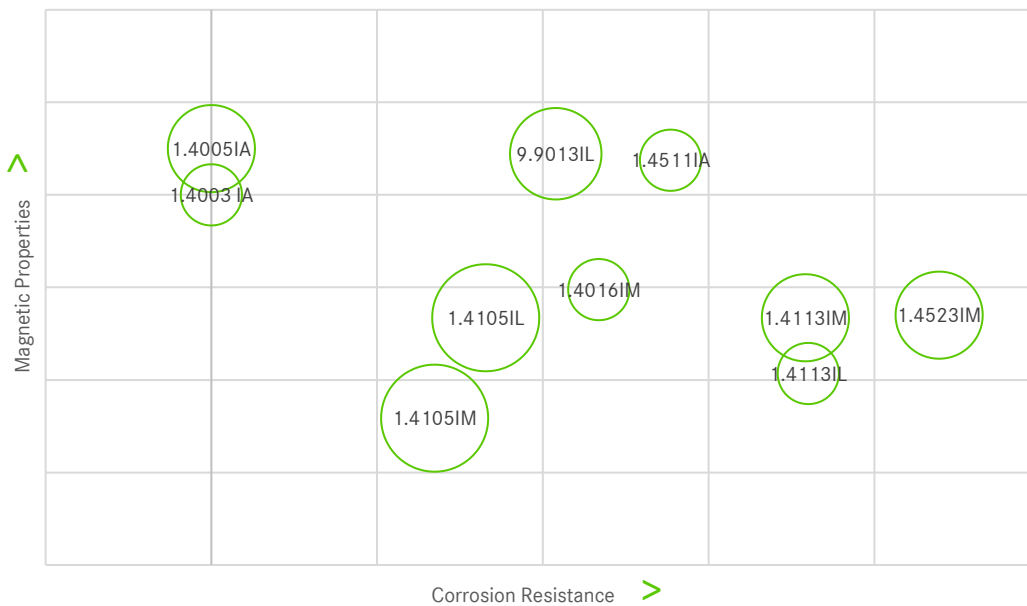
\* deviation from ISO

**Magnetic and Physical Properties – Round Bars (Ø 6 - 25 mm) \***

	Ergste® 1.0715	Ergste® 1.4003 IA ~AISI 414	Ergste® 1.4005 IA ~AISI 416	Ergste® 9.9013 IL	Ergste® 1.4105 IL AISI 430FR	Ergste® 1.4105 IM AISI 430F	Ergste® 1.4016 IM AISI 430	Ergste® 1.4113 IM AISI 434 mod	Ergste® 1.4113 IL AISI 434	Ergste® 1.4511 IA	Ergste® 1.4523 IM
Saturation Polarization Js [T]	> 0,2	> 1.70	> 1.70	~ 1.60	> 1.50	> 1.55	> 1.60	> 1.50	> 1.50	> 1.50	> 1.40
Remanance Br [T]	-	0.7 - 1.3	0.6 - 1.3	0.8 - 1.5	0.5 - 1.1	0.5 - 1.1	0.5 - 1.3	0.5 - 1.1	0.5 - 1.1	0.5 - 1.2	0.7-1.3
Max. Permeability $\mu_{rmax}$	> 1,200	> 1,700	> 1,700	> 2,000	> 1,500	> 1,200	> 1,500	> 1,500	> 1,300	> 2,000	> 1,500
Coercivity $H_c$ [A/m]	< 300	< 180	< 180	< 150	< 200	< 260	< 200	< 200	< 240	< 160	< 240
Specific el. Resistance $\rho$ [ $\mu\Omega m$ ]	-	> 0.55	> 0.63	> 0.60	> 0.79	> 0.62	> 0.53	> 0.82	> 0.64	> 0.56	> 0.60
Tensile Strength [MPa]	300 - 500	350 - 550	350 - 550	350 - 550	350 - 550	350 - 550	350 - 550	400 - 600	400 - 600	350 - 550	430-630

\* 1.4523 IM: Ø 6 - 20 mm, other sizes and shapes on request

**Magnetic Stainless Steel for all Applications**



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