

GUSTAV WOLF



RAW MATERIAL REPORT

STEEL

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Who's the speaker ?
Some facts about GUSTAV WOLF

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Some facts about the steel market in Europe and
Germany

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Making of: wire

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Questions



RAW MATERIAL REPORT

STEEL

Holger Kruse, sales, wire division of GUSTAV WOLF GmbH



The success story



1887
Founding of the Gustav Wolf Company

1924
Founding of a steel wire drawing plant



1987
Development of production of high-tensile brass-plated wire



1995
Acquisition of the steel wire drawing mill STAL (Reichshoffen, France)



2002
Logistic Centre Herzebrock



2004
Joint Venture Brunton-Wolf Dubai



2010
Logistic Centre Roßleben



TODAY
7 locations and numerous distribution partners



1912
Relocation from Bielefeld to Gütersloh



1955
Development of bead wire production



From 1998
Development of the distribution network



2003
Start of Gustav Wolf India



2007
Opening of Gustav Wolf Wire Rope Co. Ltd. in Suzhou (China).



From 1945
Reconstruction of the German economy



1991
Opening and development of a rope plant in the new Federal States.



2003
Building of new Head Office



2012
Start of Gustav Wolf Miskolci Drótgár Kft. (Hungary)

Products

Wire



- Bead Wire for Tires
- Upholstery Spring Wire
- Mesh Wires
- Brush Wires
- Spring Steel Wire
- Zic Zac Springs
- Technical Springs
- Hose- and Hose Reinforcement Wires
- Special Uses of Steel Wires

Rope



- Elevator Ropes
- Crane Ropes
- Special Ropes with electrical conductors
- Door lock Wires
- Ropes for the automobile industry
- Special Uses of Wire Rope

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TOP 20 steel producers WORLD 2015

Tonnage is expressed in million tonnes (Mt).

RANK	COMPANY	TONNAGE 2015
1	ArcelorMittal *	97.136
2	Hesteel Group *	47.745
3	Nippon Steel and Sumitomo Metal Corporation (NSSMC) *	46.374
4	POSCO *	41.975
5	Baosteel Group *	34.938
6	Shagang Group	34.214
7	Ansteel Group *	32.502
8	JFE Steel Corporation *	29.825
9	Shougang Group *	28.553
10	Tata Steel Group *	26.314
11	Wuhan Steel Group *	25.776
12	Shandong Steel Group	21.692
13	HYUNDAI Steel Company *	20.481
14	Nucor Corporation *	19.624
15	Maanshan Steel *	18.820
16	thyssenkrupp AG *	17.339
17	Gerdau S.A. *	17.033
18	Tianjin Bohai Steel	16.269
19	Novolipetsk Steel (NLMK) *	16.049
20	Jianlong Group	15.141

Total: 610 Mio tons

TOP 20 steel producers WORLD 2014

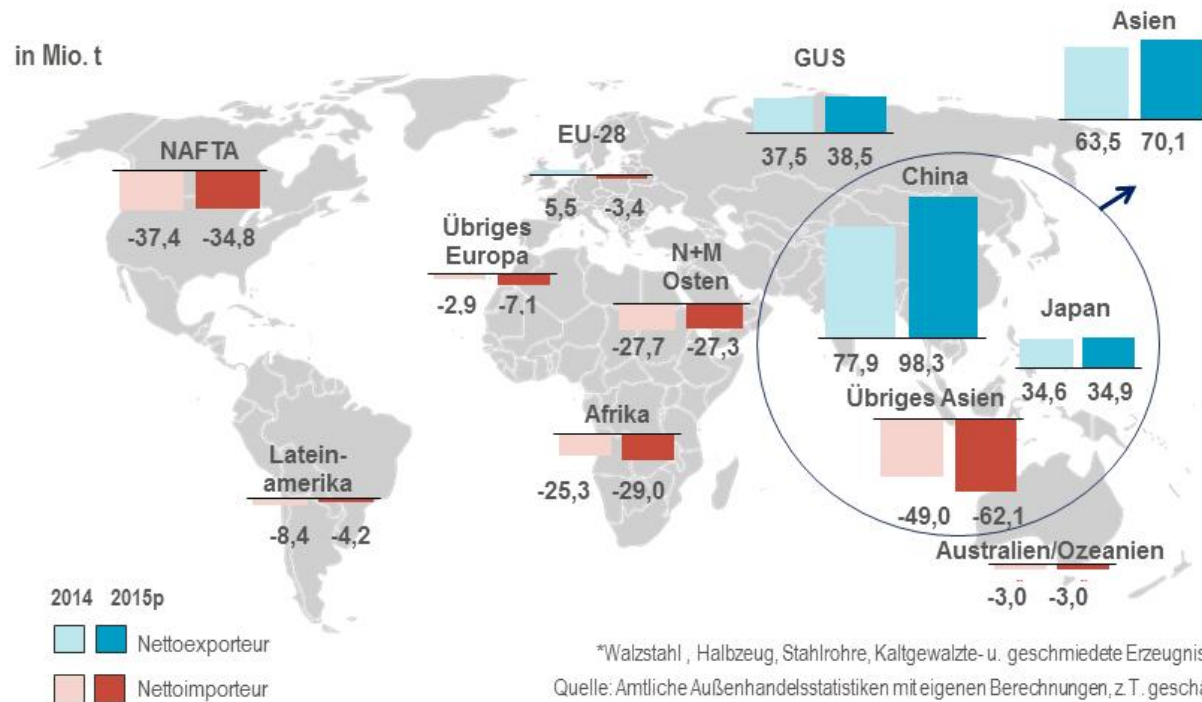
RANK IN 2014	COMPANY	TONNAGE
1	ArcelorMittal *	98.088
2	Nippon Steel and Sumitomo Metal Corporation *	49.300
3	Hebei Steel Group *	47.094
4	Baosteel Group *	43.347
5	POSCO *	41.428
6	Shagang Group	35.332
7	Ansteel Group *	34.348
8	Wuhan Steel Group *	33.053
9	JFE Steel Corporation *	31.406
10	Shougang Group *	30.777
11	Tata Steel Group *	26.202
12	Shandong Steel Group	23.336
13	Nucor Corporation *	21.411
14	HYUNDAI Steel Company *	20.576
15	United States Steel Corporation *	19.732
16	Gerdau S.A. *	19.001
17	Maanshan Steel *	18.903
18	Tianjin Bohai Steel	18.488
19	ThyssenKrupp AG *	16.271
20	Benxi Steel	16.261

In mio tons

Total: 641 Mio tons

Global steel trade : Import – Export

Welt-Stahlhandel*: Import-Export-Bilanz 2014/2015

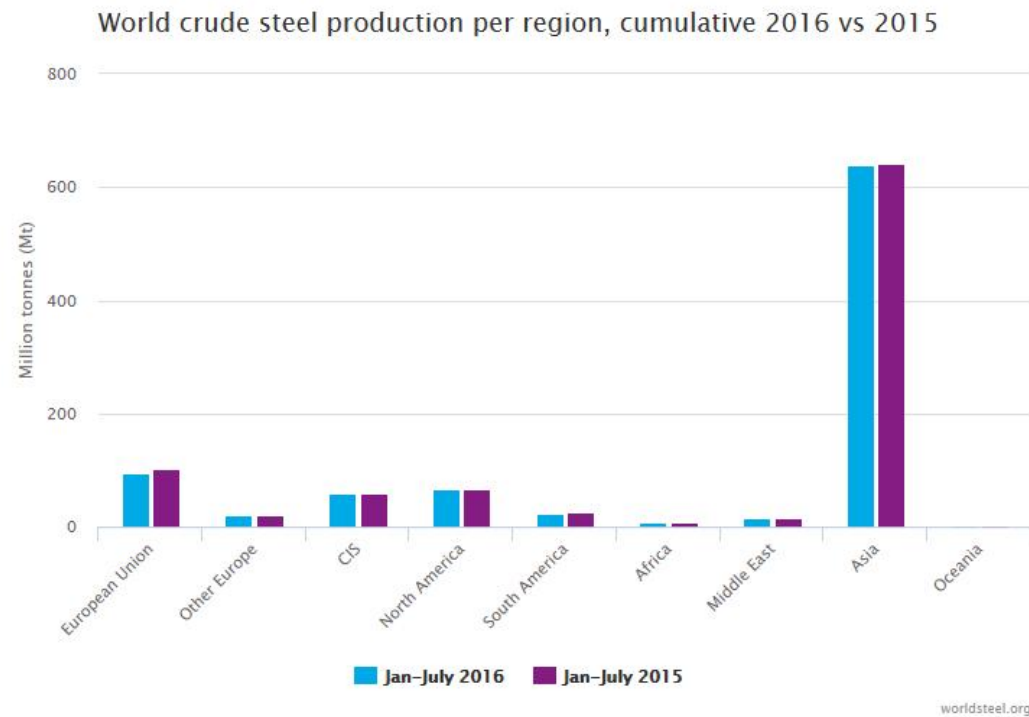


Top steel producing countries

Top 10 steel-producing countries				
Rank	Country	2015 (Mt)	2014 (Mt)	%2015/2014
1	China	803.8	822.8	-2.3
2	Japan	105.2	110.7	-5.0
3	India	89.6	87.3	2.6
4	United States	78.9	88.2	-10.5
5	Russia (a)	71.1	71.5	-0.5
6	South Korea	69.7	71.5	-2.6
7	Germany	42.7	42.9	-0.6
8	Brazil	33.2	33.9	-1.9
9	Turkey	31.5	34.0	-7.4
10	Ukraine (a)	22.9	27.2	-15.6

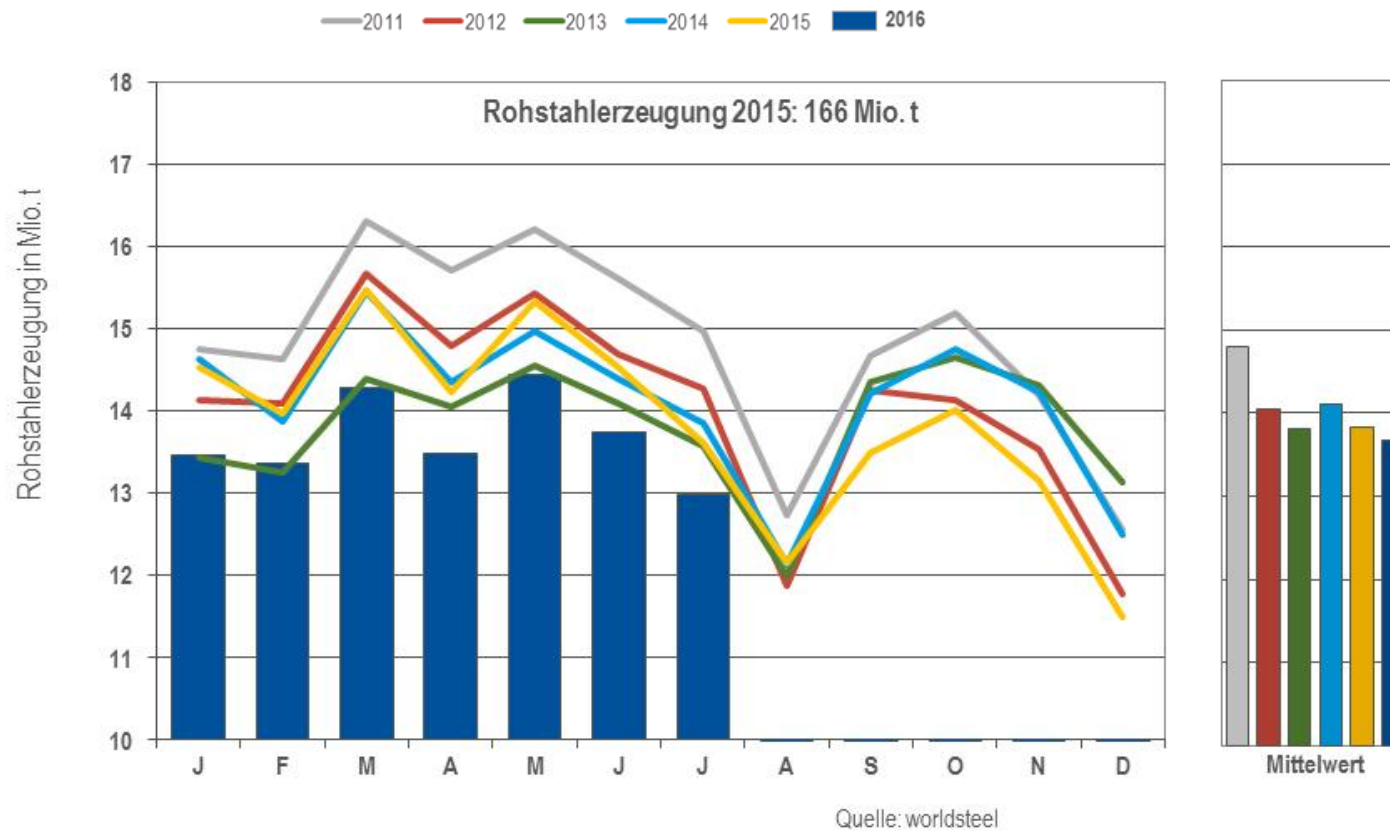
Source: worldsteel

Steel production until 07 / 2016 - regions



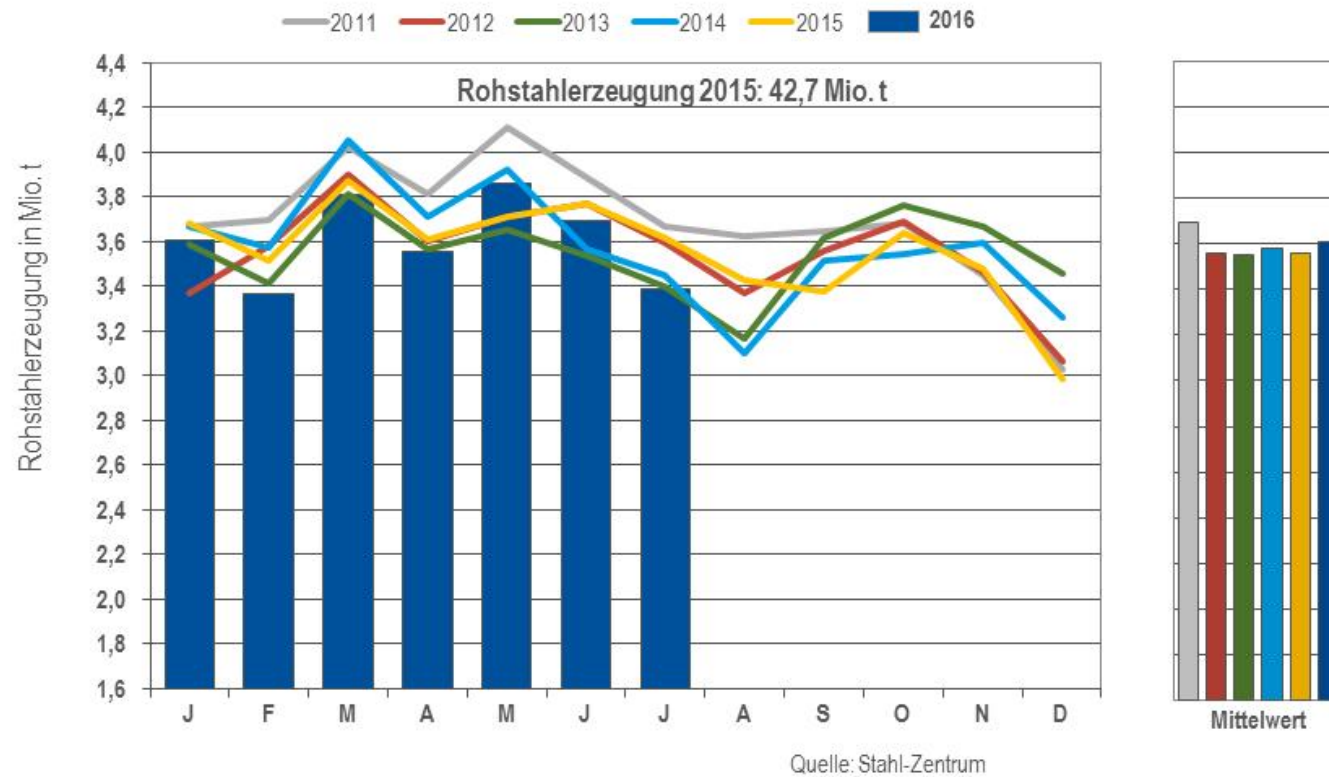
European steel production per month 2011 - 2016

Monatliche Rohstahlerzeugung in der EU-28



German steel production per month, 2011 - 2016

Monatliche Rohstahlerzeugung in Deutschland



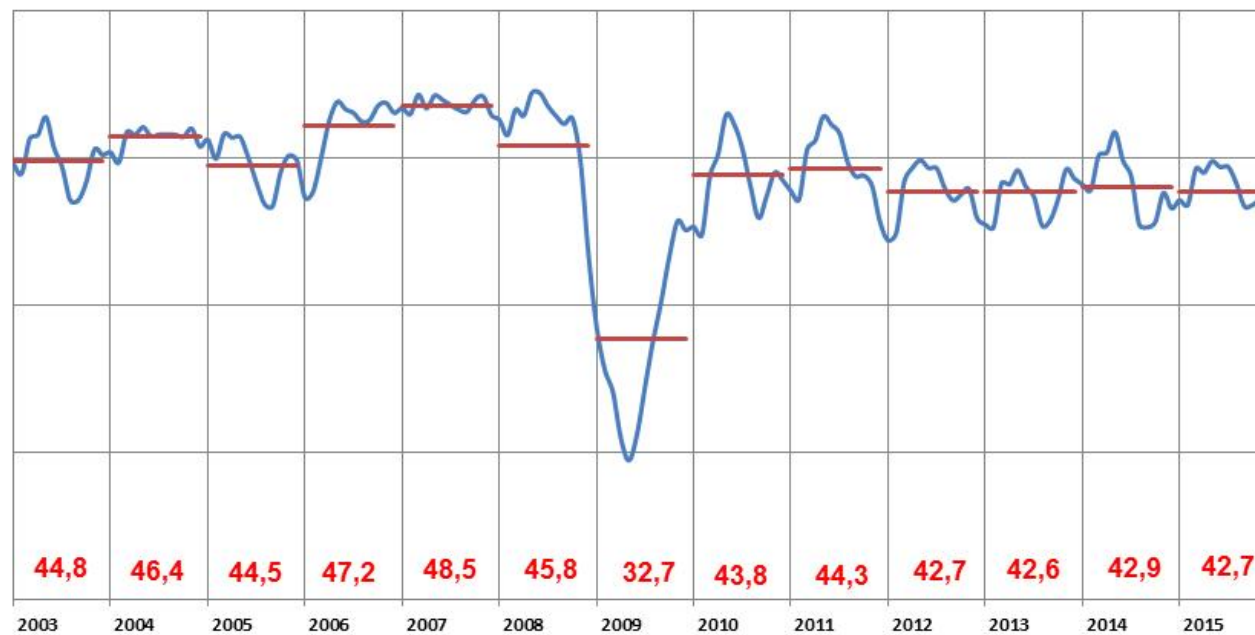
German steel production per year 2003 - 2015

Wirtschaftsvereinigung Stahl



Rohstahlproduktion in Deutschland

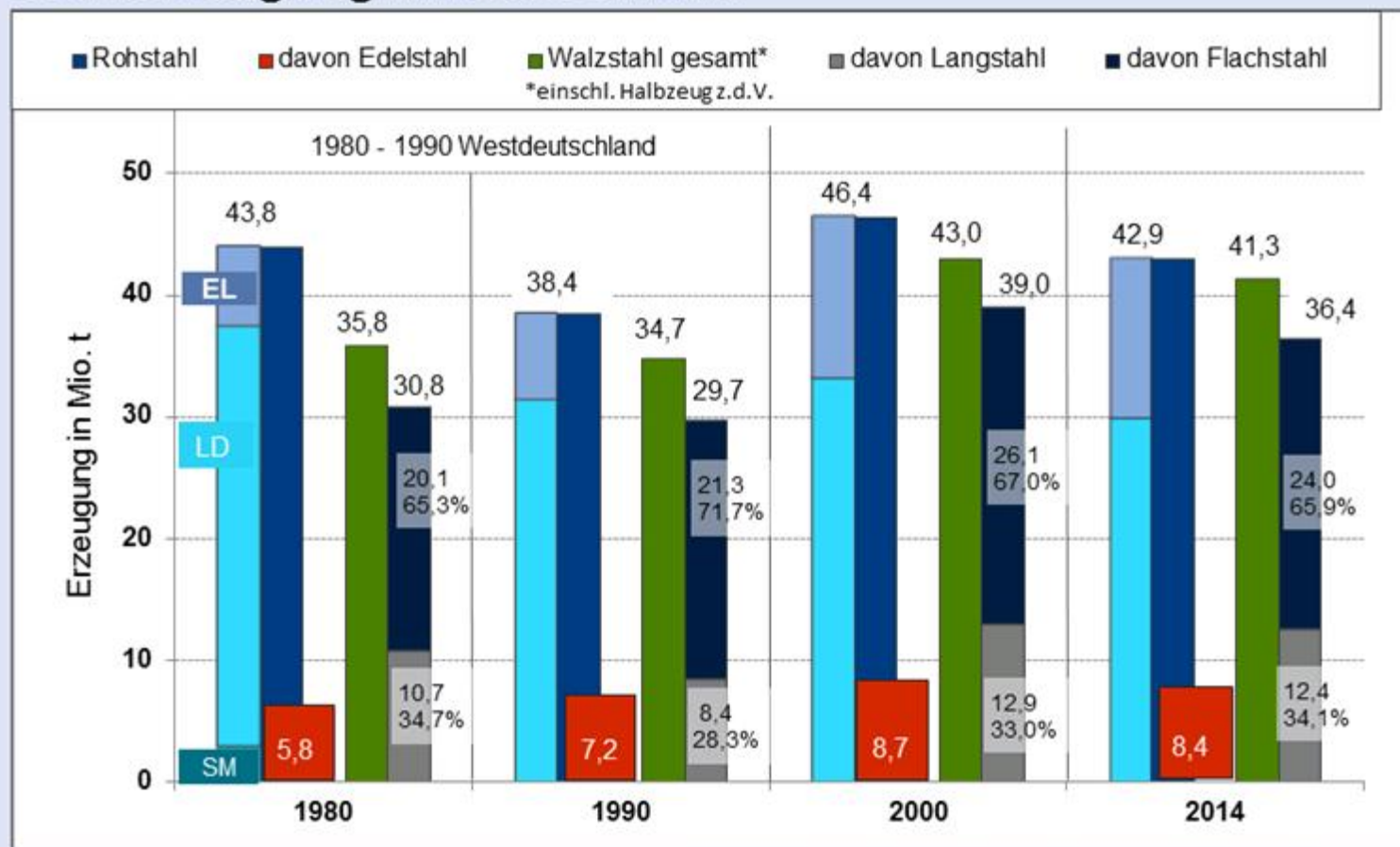
Mio. t, gleitende 3-MD, annualisiert



Quelle: WV Stahl

Distribution of steel production and products

Stahlerzeugung in Deutschland



Quelle: Statistisches Jahrbuch der Stahlindustrie, eigene Berechnungen

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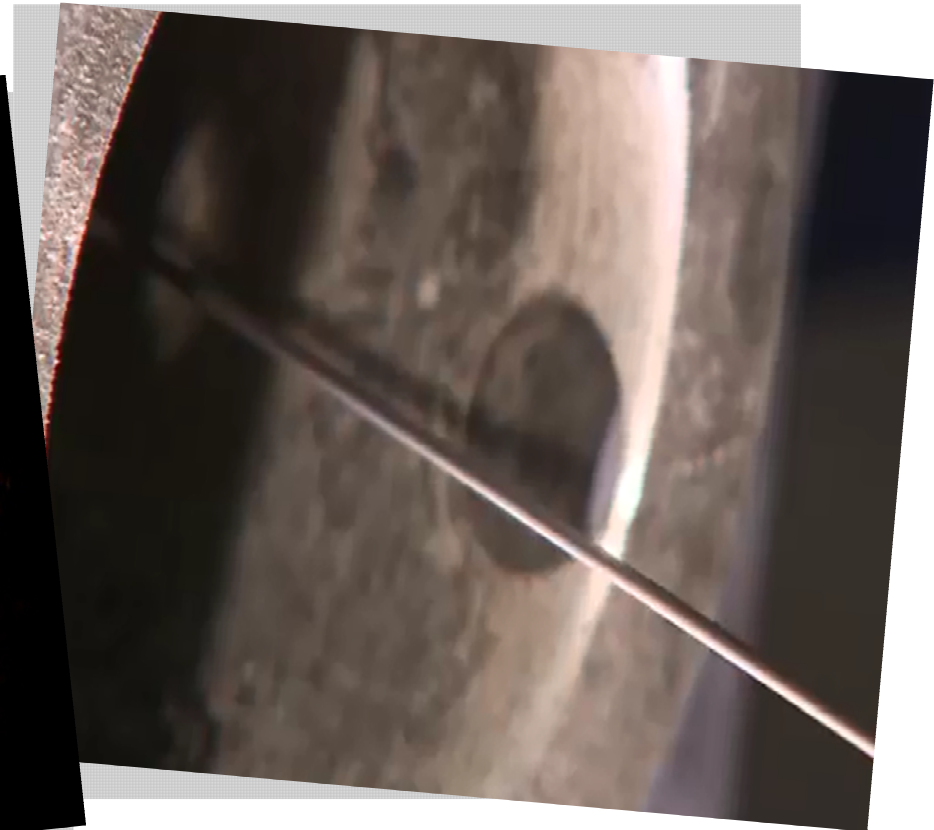
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Questions

RAW MATERIAL REPORT: STEEL

“HOW IT’S MADE”

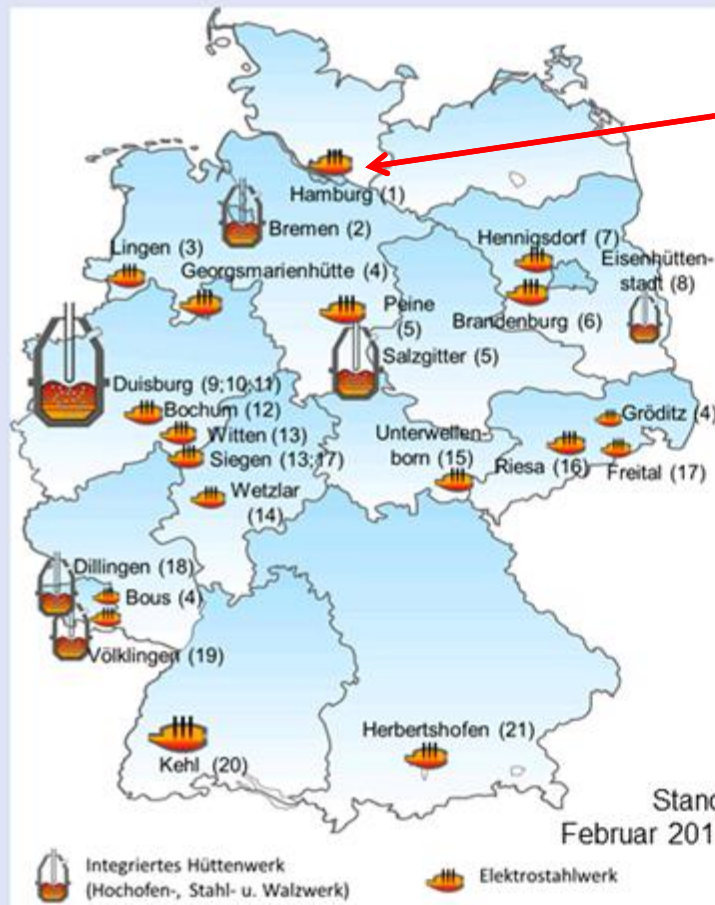
From hot, fluid steel



To hard drawn steel wire.

Steel mills in Germany

Die bedeutendsten Standorte der Stahlerzeugung in Deutschland



Unternehmen	Rohstahlerzeugung 2014 in Mio.t
(1) ArcelorMittal Hamburg	1,0
(2) ArcelorMittal Bremen	3,3
(3) Benteler	0,6
(4) Georgsmarienhütte Holding	1,2
(5) Salzgitter	5,7
(6) Brandenburger Elektrostahlw.	1,4
(7) Hennigsdorfer Elektrostahlw.	0,8
(8) ArcelorMittal Eisenhüttenstadt	2,0
(9) ThyssenKrupp Steel Europe	8,8
(10) HKM	5,1
(11) ArcelorMittal Ruhrort	1,0
(12) Outokumpu Nirosta	0,4
(13) Deutsche Edelstahlwerke	1,0
(14) Buderus Edelstahl	0,4
(15) Stahlwerk Thüringen	0,8
(16) ESF Elbe-Stahlwerke Feralpi	0,9
(17) BGH Edelstahl	0,2
(18) Dillinger Hüttenwerke	2,3
(19) Saarstahl	2,7
(20) Badische Stahlwerke	1,9
(21) Lech-Stahlwerke	1,1



Raw Material: Wire rod

Hot shaping in rod factory



Wire rod



Gustav Wolf
wire rod depot



Wire – Reception control wire rod

Assessment of the texture



Carbon analysis





Wire – Preparation for start production



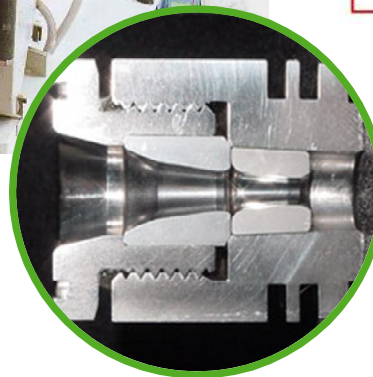
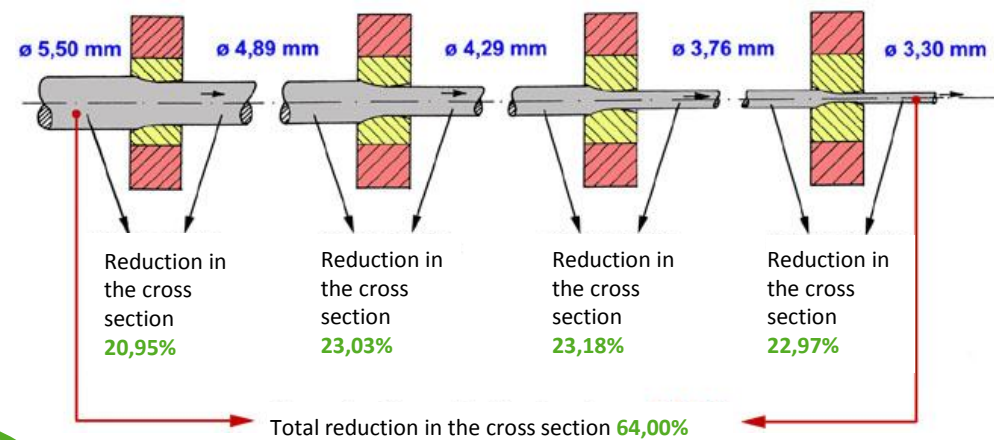


Wire – 2nd wire drawing step

Drawing machine



Drawing process



Drawing tool



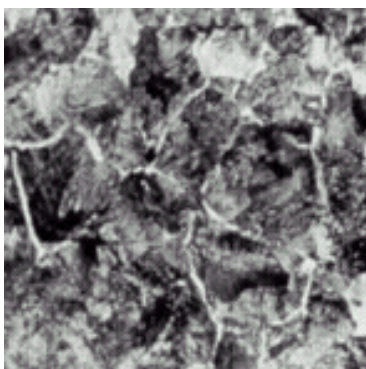
Wire – Heat treatment

Heat treatment (patenting)

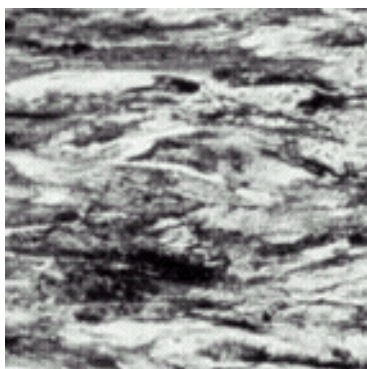




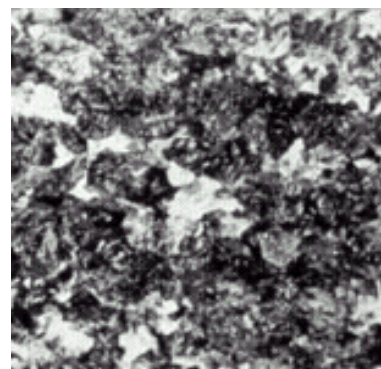
Wire – Draw texture



Wire rod on
delivery



Pre-drawn with
66.5 % decrease in
cross section



After patenting



Completely drawn
with 89.5 %
decrease in cross
section



Gustav Wolf Know-how

Gustav Wolf products are technically very sophisticated. To ensure quality to the most demanding requirements, qualified employees work in various facilities within the Gustav Wolf Group for adherence to these standards:

Physical Laboratory:

- General testing processes for steel wire according to DIN ISO 10218-1 for example: tensile, torsion and bending tests
- Testing of rubber-metal adhesion according to American Society for Testing Materials (ASTM) methods or customer requirements.
- General testing processes for rope according to DIN EN 12385: diameter and breaking strength as well as lay ratio, fat content, extension testing

Chemical Laboratory:

- Wet-chemical proportion analysis
- Surface residue analysis
- Spectroscopy: Atom Absorption Spectrometry (AAS), Ultraviolet-Visible Spectrophotometer (UV VIS)

Testing laboratory:

- Bending stress fatigue tests on ropes

Material testing:

- Micrographic investigations
- Corrosion protection tests





Rope – Quality testing

Livetime

Fatigue bending machines





Gustav Wolf Know-how

Meeting the highest expectations - that is the goal of the quality management systems at Gustav Wolf.

Our QM und environmental certificates DIN EN ISO 9001 and DIN EN ISO 14001 are a symbol of the consciousness that every single Gustav Wolf employee has when it comes to quality and responsibility.

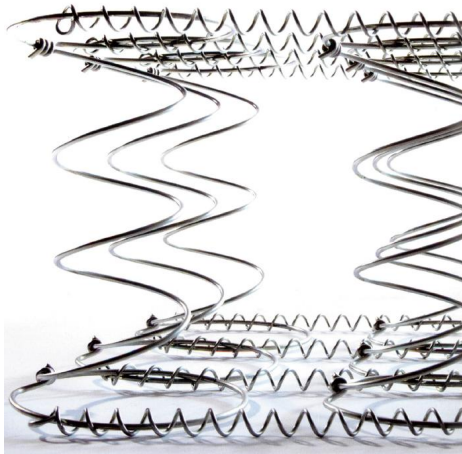


ISO 9001



ISO 14001

GUSTAV WOLF WIRE PRODUCTS



GUSTAV WOLF



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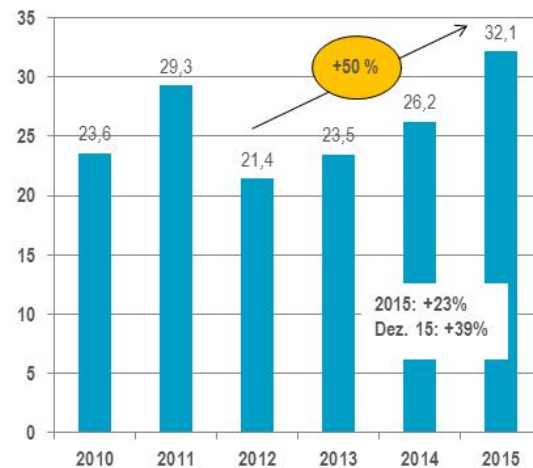
Questions

Steel – imports into EU

Einfuhrdruck in die Europäische Union:
Dramatische Zunahme der Importe



EU-Stahlimporte aus Dritten Ländern
(Millionen Tonnen Walzstahl)



EU-Stahlimporte aus China
(Millionen Tonnen Walzstahl)



Quelle: Amtl. Außenhandelsstatistik, WV Stahl



Welcome to the
**58th FEIBP
Congress**

EDINBURGH
Radisson Blu Hotel
7-9 September 2016

GUSTAV WOLF



Thank you for your attention!

