



Finarvedi is the holding company of the Arvedi Group, whose "core business" comprises steelmaking activities with volumes of about 2 million tpy of high quality products for the most demanding markets.

The Arvedi Group, founded in 1963 by Giovanni Arvedi, employs more than 1,800 people and has a consolidated turnover of approximately 1.3 billion Euros.

Four manufacturing plants, located in Northern Italy and operating in three specific sectors, form the steel-

making nucleus of the Arvedi Group. Acciaieria Arvedi SpA (Cremona) is the first example in Europe of a mini-mill for hot rolled carbon steel flat products.

Arvedi Tubi Acciaio SpA (Cremona) and Iltà Inox SpA (Robecco d'Oglio - Cremona) operate in the area of carbon steel and stainless steel tube production.

Arinox SpA (Sestri Levante - Genoa), manufactures precision stainless steel strip.

All the Arvedi Group companies,

thanks to their production, organizational and logistical structures, have acquired a leading role in the industrial panorama both at an Italian and international level. In fact, a considerable share of production (on average over 40% with peaks of up to 80%) is destined for foreign markets.

Finarvedi SpA

Carbon steel

Stainless steel

Acciaieria Arvedi SpA

Arvedi Tubi Acciaio SpA

iltainox SpA

Arinox SpA



*Hot rolled pickled
and galvanized
carbon steel coils*

*Black, galvanized
and coated carbon
steel welded tubes*

*Stainless steel
welded tubes*

*Cold rolling of
stainless steel
precision strip*

Acciaieria Arvedi SpA

26100 Cremona / Italy
Via Acquaviva, 18
Tel. + 39 0372 478.1
Fax + 39 0372 478.259

sales@ast.arvedi.it

Arvedi Tubi Acciaio SpA

26100 Cremona / Italy
Via Acquaviva, 3
Tel. + 39 0372 409.1
Fax + 39 0372 41.31.70

sales@ata.arvedi.it

iltainox SpA

26010 Robecco d'Oglio
Cremona / Italy
Strada Statale 45 bis
Tel. + 39 0372 9801
Fax + 39 0372 980.262

sales@ilta.arvedi.it

Arinox SpA

16039 Sestri Levante
Genova / Italy
Via Gramsci, 41/a
Tel. + 39 0185 3661
Fax + 39 0185 366.320

sales@arinox.arvedi.it

www.arvedi.it

Arvedi



Sky view of the plant in Sestri Levante (Genoa)



High-Tech Precision Stainless Steel Strip



Advanced technology, supply flexibility in the market and constant quality research, all geared towards customer satisfaction, are the key points of Arinox S.p.A., a key player in the international stainless steel precision strip market.

With a production capacity of over 50,000 tonnes/year, Arinox S.p.A. located in Sestri Levante are **the only Italian stainless steel precision strip manufacturer**, and one of the few companies in the international market that can cater for the needs of diverse industries such as automotive, precision engineering, electronic and high technology components. The continued investment in new technology means that Arinox S.p.A. is the only company that can currently offer precision strip at a width of 1270mm.

With over 200 skilled employees, from the production staff through the quality and commercial functions, our mission is to identify and deliver the concepts of quality and **flexibility**, values that have, over the years, determined Arinox success within the most important European markets.

Arinox seeks to satisfy the most diverse applications using innovative solutions in the fields of cold rolling, bright annealing, tension levelling, precision slitting and the exclusive **SUT**[®] (Surface Ultra-cleaning Treatment) line.



Precision rolling mill SUNDWIG 1270 mm wide



Bright Annealing with in-line tension leveling 1270 mm wide

Arinox expertise, modern plant with the capability of narrow 650mm and wide 1270 mm precision production routes and technology allow flexibility in production to meet constant requirements for excellent quality.

Three cold rolling mills, three bright annealing lines and tension levelling, guarantee precise dimensional tolerances throughout the production range - with thickness down to 0.05mm and width from 1270 mm down to 2.5mm.

Our product range includes material that can be supplied in the bright annealed form or we also offer temper rolled products, allowing a wide range of materials suitable for the manufacture of many different components, all products with precision dimensional tolerances.

Our patented **SUT**[®] line (Surface Ultra-cleaning Treatment) represents Arinox strength in the processing and treatment of the versatile materials required for use within the press - working market.



Precision Rolling mill 20-HI



Tension Levelling line UNGERER



Precision slitter SUNDWIG 1270 mm wide





Our mill follows the continuous evolution in the precision strip market. From the beginning to the end of the production cycle, Arinox are equipped with a structure capable of the controls required that guarantee the quality of the raw material and the quality of the finished product right through to the final slitting operation.

Our many slitting lines, two of which have a capability up to 1270 mm, guarantee high precision, achieved through both the equipment and the operators' skill and flexibility.

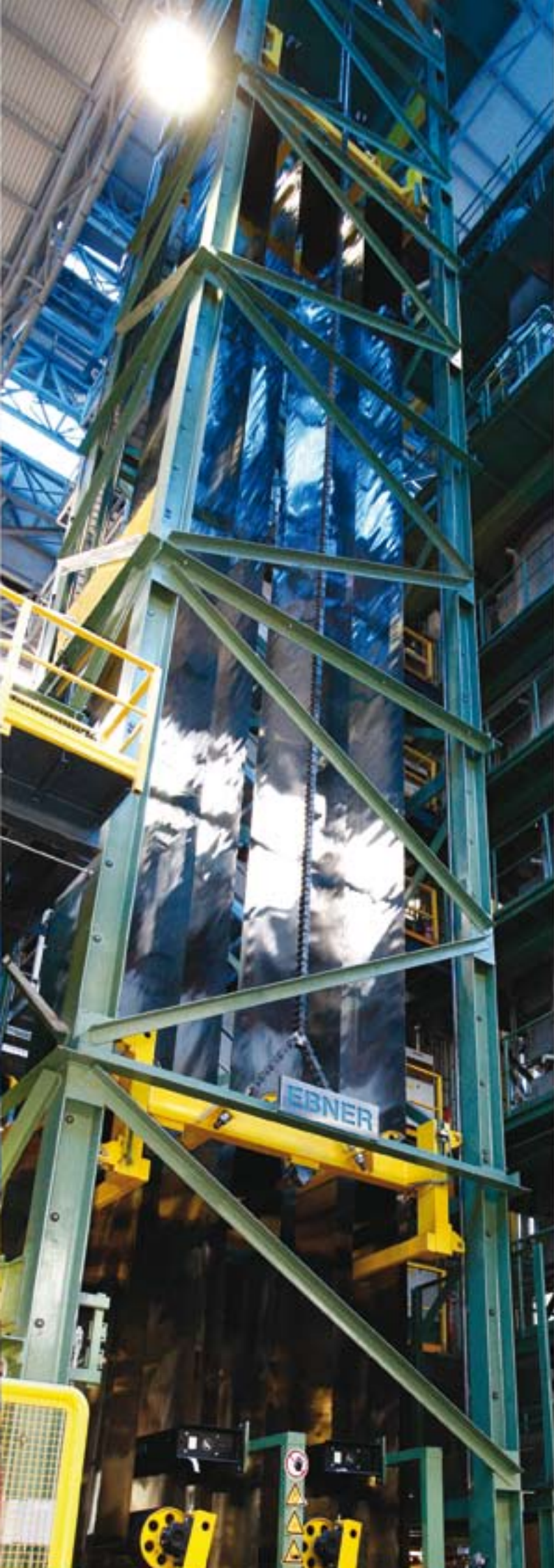
At the end of the production cycle, 2 fully automated packing lines complete the narrow and wide production process.

Automatic packing line



Precision rolling mill
SUNDWIG 1270 mm wide





Bright Annealing lines

SUT[®]

**Arinox technology developed col-
laboration with the main metallurgic
Research Centres and the Italian
university.**

SUT[®] is a patented Arinox process in surface treatment, which provides a high quality surface particularly suitable for deep drawing applications. Materials treated with the **SUT[®]** process offer peerless performance ideal for sophisticated drawing processes used by many of our clients in their production.



The standard of Arinox mill is known as one of the most technologically advanced in Europe.

Our production facilities are of modern design and recently installed, they guarantee a level of efficiency that leads to us being not only competitive but also translates into an optimal service to the customer.

Our three precision rolling mills represent one of the strengths of our Sestri Levante plant: completely automated, they guarantee tolerances in thin strip production (down to 0.05mm) maintaining stable and regular characteristics throughout the coil.

The continuous annealing lines work with a controlled atmosphere of 100% Hydrogen. The environmental conditions within the lines ensures an optimal thermal treatment and safeguards the homogeneity of the strip during the annealing process.

The tension leveller produces coils with perfect flatness essential for obtaining the final accurate precision slitting operation.



Quality products, quality and efficient services

The high-standard of Arinox technology provides a product of excellent quality and extraordinary flexibility.

The production of precision stainless steel strip requires an extremely accurate and complex industrial approach.

Arinox is one of the few European companies who have the high level of qualified personnel and the production technology to guarantee the satisfaction of the diverse range of needs in today's market on a daily basis.

Flexibility is a key point in our strategy which means that our clients consider Arinox their partner in their supply chain management.

We meet the day to day challenge of aggressive competition which has seen the business develop in the Italian market (30% of our output) and in the European and International markets (70% of our production).

The Arinox sales force is international in character, understanding customer needs which are an additional guarantee of the quality of the products, but also and above all, the service level our clients expect.





Technical Characteristics of our products

Arinox production is divided in three main categories:

- extra-thin strip (thickness 0,05 - 0,35 mm)
- precision strip (thickness 0,35 - 1,50 mm)
- temper cold-rolled strip (production range: 0,10 - 1,00 mm)

Our material is certified according to the most important international standards: ASTM; BS; DIN; EN; ISO; AFNOR; SIS.

Austenitic alloys

Type of Alloy	Chemical composition						Mechanical characteristics				
	C % max	Cr %	Ni %	Mn % max	Mo %	Ti	Finish	Rm (N/mm ²)	Rp0,2 (N/mm ²)	A% 80	HV (indication)
AR 301	0,12	16,50 - 17,80	6,35 - 7,60	2,00	< 0,80		2R / SUT®	< 930	< 350	45	< 190
							1/4 HD	850 - 1000	500 - 700	28	230 - 300
							1/2 HD	1000 - 1150	750 - 900	20	300 - 350
							3/4 HD	1150 - 1300	850 - 1150	15	350 - 400
							4/4 HD	1300 - 1500	1000 - 1300	8	400 - 460
							HHD	1500 - 1750	1250 - 1550	3	460 - 520
AR 201	0,15	16,00 - 18,00	3,50 - 5,50	5,50 - 7,50			XHD	> 1750	> 1550	1	> 520
							2R / SUT®	< 900	< 350	45	< 190
							1/4 HD	850 - 1000	450 - 750	25	230 - 300
							1/2 HD	1000 - 1150	750 - 900	15	300 - 350
							3/4 HD	1150 - 1300	850 - 1150	12	350 - 400
							4/4 HD	1300 - 1500	1000 - 1300	8	400 - 460
AR 304	0,05	17,50 - 18,50	8,00 - 10,50	2,00	-	-	HHD	1500 - 1750	1250 - 1550	3	460 - 520
AR 304PS	0,05	18,00 - 18,75	9,00 - 10,50	2,00	-	-	XHD	> 1750	> 1550	1	> 520
AR 304L	0,03	18,00 - 19,00	10,00 - 11,00	2,00	-	-	2R / SUT®	< 700	< 310	45	< 170
AR 1.4307	0,03	17,50 - 19,00	8,00 - 10,50	2,00	-	-	2R / SUT®	< 670	< 310	48	< 165
AR 305	0,06	17,50 - 19,00	12,00 - 13,00	2,00	-	-	2R / SUT®	< 670	< 310	48	< 165
AR 321	0,05	17,00 - 19,00	9,00 - 12,00	2,00	-	5 x C - 0,70	2R / SUT®	< 650	< 300	50	< 165
AR 316	0,07	16,50 - 18,00	10,00 - 13,00	2,00	2,00 - 2,50	-	2R / SUT®	< 680	< 300	45	< 165
AR 316L	0,03	16,50 - 18,00	10,00 - 13,00	2,00	2,00 - 2,50	-	2R / SUT®	< 670	< 330	45	< 170
AR 316SL	0,03	17,00 - 18,50	12,50 - 15,00	2,00	2,50 - 3,00	-	2R / SUT®	< 670	< 330	45	< 170
AR 316Ti	0,05	16,50 - 17,50	10,50 - 12,50	2,00	2,00 - 2,50	5 x C - 0,70	2R / SUT®	< 670	< 330	45	< 170
AR 317L	0,03	18,00 - 20,00	11,00 - 15,00	2,00	3,00 - 4,00	-	2R / SUT®	< 670	< 330	45	< 170
AR 309	0,06	19,00 - 21,00	11,00 - 13,00	2,00	-	-	2R / SUT®	< 700	< 340	45	< 170
AR 309S	0,06	21,00 - 23,00	12,00 - 15,00	2,00	-	-	2R / SUT®	< 700	< 340	45	< 170
AR 310S	0,06	24,00 - 26,00	19,00 - 22,00	2,00	-	-	2R / SUT®	< 670	< 310	45	< 170
AR 904L	0,02	19,00 - 23,00	23,00 - 28,00	2,00	4,00 - 5,00	-	2R / SUT®	< 670	< 330	45	< 170

Austenitic-Ferritic alloys

Type of Alloy	Chemical composition						Mechanical characteristics				
	C % max	Cr %	Ni %	Mn % max	Mo %	N %	Finish	Rm (N/mm ²)	Rp0,2 (N/mm ²)	A% 80	HV (indication)
AR 4462	0,03	21,00 - 23,00	4,50 - 6,50	2,00	2,50 - 3,50	0,10 - 0,22	2R / SUT®	< 900	< 600	20	< 230

Ferritic alloys

Type of Alloy	Chemical composition						Mechanical characteristics				
	C % max	Cr %	Mn % max	Mo %	Ti %	Nb %	Finish	Rm (N/mm ²)	Rp0,2 (N/mm ²)	A% 80	HV (indication)
AR 430	0,05	16,00 - 17,50	1,00	-	-	-	2R / SUT®	< 600	< 390	22	< 165
							1/4 HD	550 - 650	500 - 600	5	160 - 200
							1/2 HD	650 - 750	600 - 700	3	200 - 240
							3/4 HD	750 - 850	680 - 830	2	240 - 280
							4/4 HD	> 850	> 800	1	280 - 330
AR 410S	0,08	12,00 - 13,00	1,00	-	-	-	2R / SUT®	< 600	< 380	20	< 165
AR 441Li	0,03	17,50 - 18,50	1,00	-	0,10 - 0,60	[3xC+0,3] · 1	2R / SUT®	< 600	< 380	20	< 165
AR 444	0,025	17,00 - 20,00	1,00	1,80 - 2,50	[4x(C+N)+0,15]·0,8	-	2R / SUT®	< 600	< 380	20	< 165
AR 409	0,03	10,50 - 12,50	1,00	-	6x(C+N)-0,65	-	2R / SUT®	< 550	< 300	25	< 150

Finish types and surface condition

2R (BA) - Bright Annealed – standard finish for subsequent forming process.

2H - Temper rolled in order to achieve higher tensile strengths.

SUT® - bright annealed; surface treated for strip used in deep drawing processing.

Production tolerances

Width tolerances (+) in mm for sheared edges													
Thickness		Width											
		L < 40 mm			40 mm ≤ L < 125 mm			125 mm ≤ L < 250 mm			250 mm ≤ L < 1250 mm		
≥	<	Standard	Fine	Precision	Standard	Fine	Precision	Standard	Fine	Precision	Standard	Fine	Precision
	0,250	0,17	0,13	0,10	0,20	0,15	0,12	0,25	0,20	0,15	0,50	0,50	0,40
0,250	0,500	0,20	0,15	0,12	0,25	0,20	0,15	0,30	0,22	0,17	0,60	0,50	0,40
0,500	1,000	0,25	0,20	0,15	0,25	0,22	0,17	0,40	0,25	0,20	0,70	0,60	0,50
1,000	1,500	0,25	0,22	0,15	0,30	0,25	0,20	0,50	0,30	0,22	1,00	0,70	0,60

Thickness tolerances (±) in mm										
Thickness		Width								
		L < 125 mm			125 mm ≤ L < 250 mm			250 mm ≤ L < 1250 mm		
≥	<	Standard	Fine	Precision	Standard	Fine	Precision	Standard	Fine	Precision
	0,100	0,1 x S	0,05 x S	0,04 x S	0,12 x S	0,10 x S	0,08 x S	0,15 x S	0,10 x S	0,08 x S
0,100	0,150	0,010	0,008	0,005	0,015	0,012	0,008	0,020	0,015	0,010
0,150	0,200	0,015	0,010	0,008	0,020	0,012	0,010	0,025	0,015	0,012
0,200	0,250	0,015	0,012	0,008	0,020	0,015	0,010	0,025	0,020	0,012
0,250	0,300	0,017	0,012	0,009	0,025	0,015	0,012	0,030	0,020	0,015
0,300	0,400	0,020	0,015	0,010	0,025	0,020	0,012	0,030	0,025	0,015
0,400	0,500	0,025	0,020	0,012	0,030	0,020	0,015	0,035	0,025	0,018
0,500	0,600	0,030	0,020	0,012	0,030	0,025	0,015	0,040	0,030	0,020
0,600	0,800	0,030	0,025	0,015	0,035	0,030	0,018	0,040	0,035	0,025
0,800	1,000	0,030	0,025	0,015	0,040	0,030	0,020	0,050	0,035	0,025
1,000	1,250	0,035	0,030	0,020	0,045	0,035	0,025	0,050	0,040	0,030
1,250	1,500	0,040	0,030	0,020	0,050	0,035	0,025	0,060	0,045	0,030

Length tolerances (+) in mm								
Thickness		Width		Length		Length tol. (mm)		Diagonal differences
		≥	≤	≥	≤	+	-	mm
0,200	1,000	130	1000	200	3000	2	0	1
0,200	1,000	130	1000	3000	4000	*	*	*

* To be agreed, as well as narrower tolerances than indicated

Above tables values are to be considered as an indication and therefore may vary upon customers requests.
All alloys can be supplied in temper rolled finish.

The extra thin stainless steel for automobile industry

Taken overall, automobile technology is one of the best examples of engineering evolution.

We might say that the cars of today are like great puzzles produced to respond to the innumerable needs represented by the ever more demanding motorist.

The car of today is called upon to embody appealing design, reliability, comfort, performance, safety, environmental friendliness and lots more still. In all of this, each piece of the puzzle must respond to the most selective design requirements that, in the case of Arinox, are represented by the steel used to produce for example: the engine head gaskets, the components of the catalytic converter, the airbag opening system, the movement of the rear-view mirrors or parts of the braking system.

Details perhaps, but fundamental details that, as in all good puzzles, can make a difference to the end result.

Arinox are present in the automotive industry with special ultra thin stainless steels used to produce:

- **Single-layer, multilayer cylinder head gaskets and those with a perforated core;**
- **Engine gaskets, exhaust gas manifolds and exhaust system manifolds;**
- **Gaskets for auxiliaries;**
- **Welded corrugated tube for exhaust systems;**
- **Springs;**
- **Injectors;**
- **Particulate filters;**
- **Airbag devices;**
- **Lighting devices;**
- **Braking systems.**



The extra thin stainless steel for **petrochemical and process industry**

In the sector for the application of precision strip for the process and petrochemical industry, Arinox are present with high-quality steels particularly suitable for the production of:

- **Structured packing for distillation columns;**
- **Random packing for distillation columns;**
- **Spiral metallic gaskets used by the process industry as sealing elements for piping lines in the presence of aggressive fluids that have to flow with high heat cycles and strong pressure and vibrations.**



The extra thin stainless steel for heat exchangers and finned pipes

“Heat exchange” is a process or a fundamental step for very widely differing applications:

From the production and the distribution of heat for domestic and industrial uses, to refrigeration in the widest sense (evaporators and condensers), from the cooling of fluids used in manufacturing processes to heating for domestic uses.

Arinox produce a wide range of stainless steel strip, which is particularly suitable for the production of:

- **Plate heat exchangers consisting of corrugated stainless steel plates coupled using braze welding, or with gaskets (in this case the pack of plates is mounted on a frame and assembled with tie rods).**
- **Heat exchangers with finned pipes. In this case the stainless steel fins are pressed with a particular undulation for the purpose of increasing the heat exchange and then wrapped in a spiral along the tube to permit the load drop to be contained.**
- **Heat exchange batteries for air conditioning and heating. In this case the stainless steel plates that make up the finned pack are pressed and holed for later welding to the pipes.**



The extra thin stainless steel for precision pressing

The hot rolling process and the impurities in the hydrogen used as a protective gas in the “Bright Annealing” annealing lines can generate micro particles on the surface of the precision strip which are excessively hard.

During the later pressing stage, these often interfere with the smooth flowing of the material (in the press) and can therefore reduce the efficiency of the tools used for working the strip, over time.

Arinox have overcome these matters once and for all with the exclusive process: **SUT®** (Surface Ultra-cleaning Treatment). Through an electrochemical treatment, this process makes it possible to remove the initial surface layers of the material and therefore enables a totally clean and impurity-free surface to be obtained.

SUT® technology is particularly indicated for applications with deep drawing and anyway in all those cases where a lower tool wear is required such as for components in the electronics and precision engineering industries.



SUT® for electronics and the biomedical industry

Arinox **SUT®** treatment applied to stainless steel precision strip therefore allows the following to be achieved:

- a significant increase of the life of the tools
- a considerable increase in productivity.

The **SUT®** process can be applied to all alloys and its efficacy integrates other great requirements that must characterise production of stainless steel precision strip such as:

- Controlled roughness and total absence of surface defects
- A high edge quality so as to reduce friction against sliding guides.

Arinox work in production cycles aimed at various types of product (pressing, expended mesh, electronics), with final slit widths in accordance with the different feeding needs of the customers' equipment.

Arinox also propose **SUT®** technology for applications in the electronics and biomedical field. This technology makes it possible to obtain the maximum evenness of the stainless steel strip surface metal and chemical characteristics. For these extremely delicate production industries, Arinox supply strip of great precision particularly suitable for the **production of fluid/fluid exchangers, electron guns, components for the telecommunications sector and the electrical contact components for land and sea wiring.**



The extra thin stainless steel for chimney liners and flexible tubes

Arinox manufacture steels of high workability destined for the production of flexible tubes used in the evacuation of combustion residue in civil and industrial boiler plants, domestic boilers fed with natural gas, diesel oil and fuel oil such as:

- Double wall tubes with smooth inside used in the restructuring of piping already in existence and in the connection of thermal devices to flues, with particular temperature resistance and corrosion requirements.
- Simple flexible wall tubes produced for the heating, ventilation and plumbing sectors in general.

Arinox strips are produced with different treatment to meet the widest required uses in tube production such as:

- Stainless steel flexible tubes with parallel windings with lengthwise welding from end to end for the carrying of aggressive fluids (in the presence of vibrations) or for the connection between the manifold and exhaust pipe in the automobile industry;
- Stainless steel flexible tubes with coiled windings welded by superimposition into crest of a wave form destined for carrying all the fluids compatible with stainless steel;
- Stainless steel flexible tubes for heating and plumbing uses;
- Flexible tubes with single or double hemming used for the protection of electrical cables, telephone wires, flexible coverings and dust extraction;
- Expansions joints for pipelines (petrochemical, shipbuilding industries etc.).



Temper rolled extra thin steels by cold rolling

The temper rolled strips by cold rolling are produced using different technologies connected to as many different uses. These uses usually exploit the high resistance typical of temper rolled strip

For the purposes of giving the finished product particular characteristics of robustness, Arinox have, over the years, honed its skills in the design and production of these particular types of strip.

The considerable expertise of the technicians overseeing this particular process ensures the choice of the most suitable materials as well as cycles for the production of stainless steel strip able to meet all the requirements for the following production:

- **Strip springs that are shaped or pressed, made by automatic pressing machines in various shapes and sizes for applications in industrial sectors (instruments, automotive) and civil sectors (furniture, windows), also with rounded edges to prevent strain breaks;**
- **Small metal precision items, mechanical items pressed from temper rolled strips, electrical contacts, car lighting components and fine components;**
- **Objects for the kitchen, paper clips, furnishing complements and their details, parts of equipment for industrial systems used in the food processing industries and their components, tooling parts for industrial systems used in the food processing and chemical sectors;**
- **Lamellar joints for the transmission of motion, where particular characteristics of torque, speed, misalignment and axial thrusts are required;**
- **Soles for safety footwear;**
- **Working tools, trowels, spatulas;**
- **Hose clamps.**



Quality. Since 1998 our guiding concept

Arinox is a company certified in accordance with the ISO 9002:1994 standard of 1998 and the ISO 9001:2000 standard of 2003. Continuous development and attention to the requirements of the markets has stimulated us to make considerable achievements including the product: certification

AD 2000-Merkblatt W0 – TRD100, not to forget the implementation of the Quality Assurance System in accordance with European Directive 97/23/EC (PED).

Our aim is closely bound up with the continuing improvement in the processes, products and services they are related to. The aim: to achieve customer satisfaction.

Certifications, approvals and licenses for specific types of product have been awarded to us by leading international institutes.



Quality system certification:

Type of certification	Date of first issue	Body
UNI EN ISO 9002:1994	04.03.1998	TÜV
ISO 9001:2000	28.03.2003	TÜV

Licences, approvals and certifications of the product:

Type of approval	Field of application	Body
AD 2000 Merkblatt W0 TRD 100	Coils strip	TÜV SÜD
Pressure Equipment Directive 97/23/EC (PED) Annex 1, Paragr, 4.3	Coils, strips cut from coils and welded tubes of austenitic steels	TÜV SÜD



Arinox SpA Head office

Via Gramsci, 41/a
16039 Sestri Levante
Genova / Italy
Tel. + 39 0185 3661
Fax + 39 0185 366.320
e-mail: sales@arinox.arvedi.it

Arinox Deutschland GmbH

Raiffeisenstrasse, 17
D-47506 Neukirchen
Vluyn / Germany
Tel. +49(0)2845.98140.0
Fax. +49(0)2845.98140.99
e-mail: sales@arinox.arvedi.it

Arinox UK

Brincliffe House
59 Wostenholm Road
S7 1LE Sheffield / United Kingdom
Tel. +44(0)114.2551931
Fax. +44(0)114.2551936
e-mail: sales@arinox.arvedi.it





Arinox SpA

Via Gramsci, 41/a
16039 Sestri Levante
Genova / Italy
Tel. + 39 0185 3661
Fax + 39 0185 366.320

e-mail: sales@arinox.arvedi.it
www.arvedi.it

Art Concept and graphic project: Testa Consulenti & Creativi Pubblicitari

Photo: Art Photo

Digital execution and optimization: Service Lito (Persico Dosimo - Cremona)

Printed by: Fantigrafica (Cremona)

NOTE:

This catalogue is published only as an advertisement. Arinox reserves the right to amend its content without notice. The sales department is at your disposal to supply any information on the product.