

ROLLED PRODUCTS



impol
Aluminium Industry





ON THE RIGHT PATH

The enterprise Impol prides itself upon an outstanding business tradition which goes all the way back to the year 1825. Aluminum has been processed since 1950.

Activity of the business group Impol is the processing of aluminum into rolled, pressed, drawn, forged and other kinds of products which ensure the customer the optimum quality. In its environment Impol is considered as an enterprise which sets itself high goals and tends to achieve them even better. All this provides us with the following virtues: high-quality, flexibility and speed, reliability and confidence, affiliation toward the enterprise, teamwork and constant training. We fulfill our goals and expectations of our business partners by use of the integrated system for the quality assurance. The business excellence is the foundation of the company and of the group which ensures a proper realization of our company's goal projection - to become a successful international enterprise.

In the year 2003 and as an upgrade of the standard ISO 9001:2000 we took all the necessary measures for the acquisition of the quality standard ISO TS 16964 for automobile industry. We at Impol are conscious of the fact that our orientation plays an important role regarding the environment. By the environmental standard system ISO 14001 the harmful effect of the emissions on the environment is thus prevented. In accordance with the certificate OHSAS 18001 Impol maintains a high level of security regarding the health and general safety of its workers.

We at Impol are proud to be a part of "aluminium story". Aluminium is a metal without which one can only hardly imagine the everyday life, and which will stronger still shape the future of mankind.

We're now living the
life that was once
dreamed of. Welcome
to the aluminium age!



ROLLED PRODUCTS

During all of its lives
it allows itself to be
rolled like dough or
extruded, and, ever
pliant, it fills a
mould to take on a
temporary meaning.

Rolled products with their wide range of use are the most important segment of products made of aluminium and aluminium alloys. Semi-products vary depending on the desired properties of finished products. The basic procedures are hot and cold rolling of aluminium and its alloys. The manufacturing process for hot and cold-rolled products includes all the operations that ensure the final quality of sheets and strips.

Hot rolled or cast strips are used as input material for cold rolling. Cast or hot-rolled strips are cold rolled in four-high rolling mills. Modern technology, appropriate technical equipment and good maintenance ensure results that can satisfy the most demanding world criteria.

Sheet is obtained by cutting strips to lengths on cutting lines with built-in roller straightener. The finally rolled coils are slit into various widths with modern rotating shears.

In addition to standard tempers and mechanical properties, entirely specific tempers, properties, and quality of rolled products can be achieved with controlled cold working and heat-treatments.



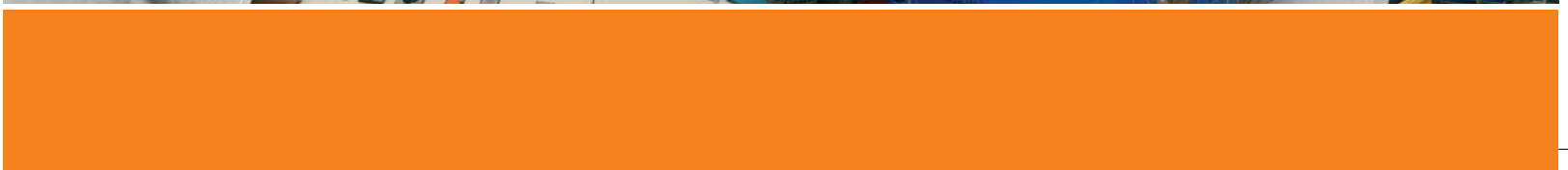
Next to the flexibility of production, the supply of small quantities is the main advantage of Impol over its competitors.

Rolled products that are not included in the brochure can be also supplied, but in previous agreement with the customer.

Main groups of rolled products:

- hot-rolled sheets,
- cold-rolled sheets,
- tread plate,
- circles,
- embossed sheets and coils,
- coloured sheets and coils,
- cold-rolled coils, including fin-stock,
- corrugated sheet.

I shall make you an aluminium statue. If you don't like it, I can change it into anything you desire, as often as you wish.

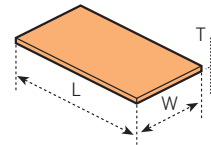


Remarkably light,
firm and strong.
Loves to beat
extreme challenges
like the expanse of
the sky and depths
of the oceans.

1. HOT-ROLLED SHEETS

Surface quality: not specified (as fabricated)

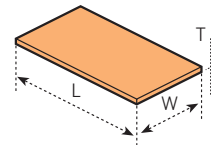
Dimensions: T = 10-70 mm
W = 980-1500 mm
L = 1000-3000 mm



2. COLD-ROLLED SHEETS

Surface quality: MILL-FINISH

Dimensions: T = 0,5-5,0 mm
W = 600-1500 mm
L = 600-6000 mm

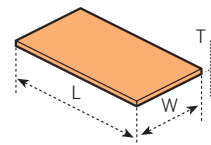


Sheets up to 2 mm are tension levelled. The sheet surface can be protected on one side with PVC foil or an interlayered paper. Protection foil: on customer's request.

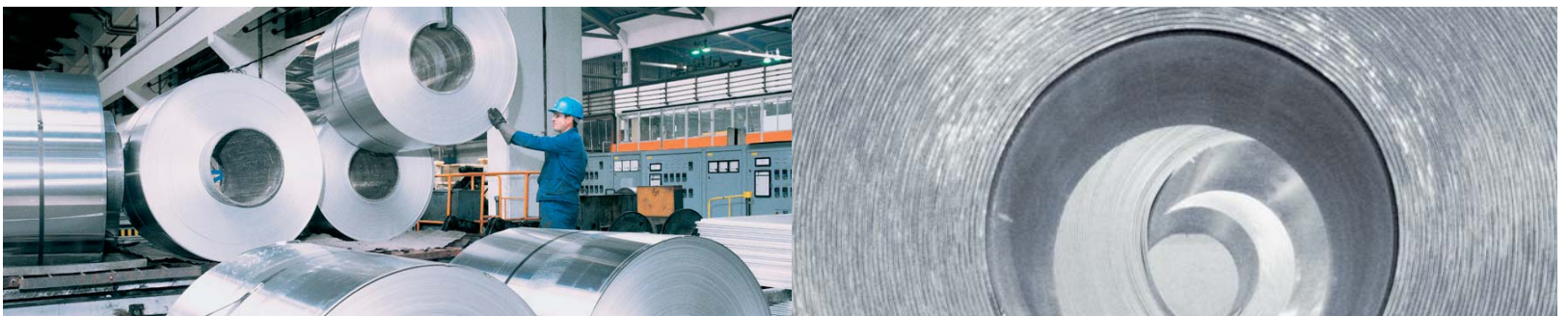
3. COLOURED SHEETS

Sheets can be coloured according to RAL colour chart, or any other chart on customer's request. Sheets are cold-rolled, trimmed and levelled.

Dimensions: T = 0,5-1,5 mm
W = 600-1500 mm
L = 600-6000 mm



The sheet surface can be protected on one side with PVC foil or an interlayered paper. Protection foil: on customer's request.



4. TREAD PLATES

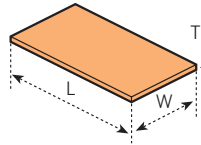
Usefulness (prevented sliding) and decorative appearance makes tread plates to offer a wide range of uses for various applications. It is mainly used in transport, in making staircases, in lining pools, in flooring and panelling, in chamber and shaft linings etc.

- Alloys of groups 5xxx, 1xxx and 3xxx are used for this purpose.

Dimensions: T = 1,5-5 mm

W = 600-1500 mm

L = 600-6000 mm



Max. height of pattern: 1,5 mm. Temper: soft, quarter-hard and half-hard.

In order to improve the decorative effect and to increase the adaptability of our products to fit their final purposes, DUET, QUINTETTE and DIAMOND patterns are available on customer's requirement.



Not all that shines is
silver: there's also
moonlight - and
aluminium.

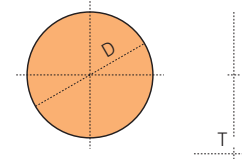
5. CIRCLES

The utilisation of advantages of aluminium and its alloys in various fields of applications is reflected in its increasingly greater use in household. Impol is a major supplier to the greatest European and overseas producers of household cookware. Circles are made of the highest-quality aluminium alloys using the stamping process. Alloys that are the most suitable for making cookware and for the other particular purposes are selected and analysed with a special care. Circles are used for further processing with single- or multiple stage deep-drawing, or for rotary metal forming process, respectively.

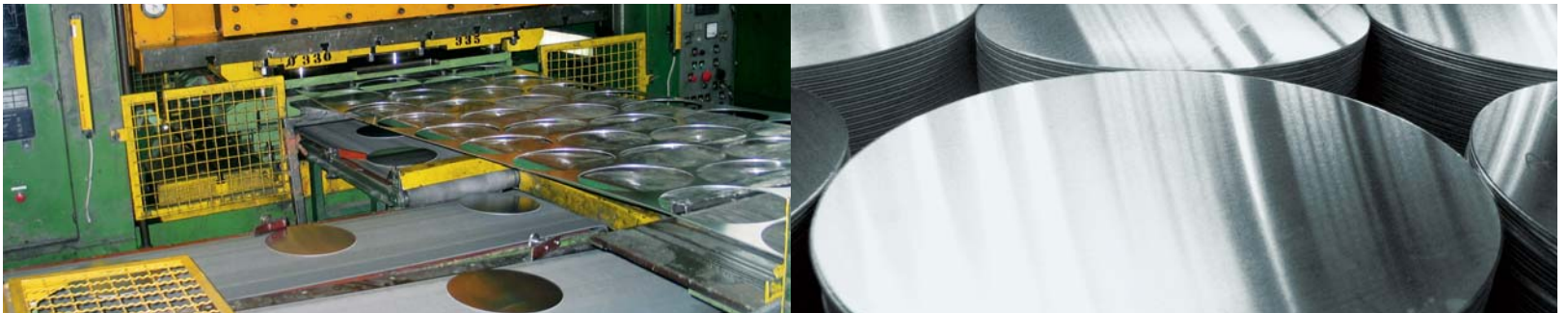
- Circles are manufactured from the following standard materials: 1xxx, 3xxx, 5xxx, 6xxx.

Stamped Circles $D = 80-940 \text{ mm}^*$

$T = 1,0-4,0 \text{ mm}$



* For diameters over 940 mm and up to 1260 mm a special agreement is recommended



6. EMBOSSED SHEETS AND COILS

Embossing the sheet and strips enables uniform decorative surface. This gives the sheet and strips their characteristic appearance, ensures better adhesion of insulation materials and lowers light reflection.

Sheets	Coil	
T = 0,5-1,2 mm	T = 0,1-0,4 mm;	W = max width 1000 mm
W = 600-1500 mm	0,4-1,2 mm;	W = max width 1500 mm
L = 600-6000 mm	T = 0,4-1,2	W = 20-1500 mm
	internal diameter D_i	thickness (mm)
	70,150 (Al core)	0,1-0,4
	500 (cardboard core - min. width 350 mm)	0,4-1,2
	300, 400, (cardboard core or without mandrel)	0,4-1,2
	500, 600	

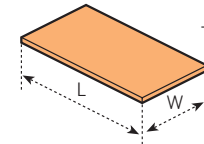
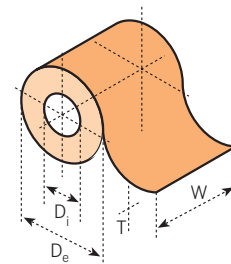
Material: alloys of group 1xxx; alloys 3004, 3005, 3105, 5049 and 5005.

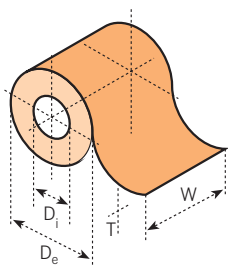
Other alloys are subject of agreement.

Coloured coils and sheets can also be embossed.

Possibility of selection between two patterns:

- D 2010 (coarse)
- D 2011 (fine)





7. COLD-ROLLED COILS

THICKNESS (mm)	WIDTH (mm)	INTERNAL DIAMETER (mm)	EXTERNAL DIAMETER (mm)	WEIGHT (kg/mm)	CORE
0,1-0,3	25-500	100	700	1,0	cardboard
		200	720	1,0	cardboard
		300	760	1,0	cardboard
0,1-0,3	75-1050	100	700	1,0	cardboard
		200	720	1,0	cardboard
		300	760	1,0	cardboard
		400	800	1,0	cardboard
		500	860	1,0	cardboard
		600	920	1,0	cardboard
0,1-0,3	300-1050	70	680	1,0	Al
		76	700	1,0	Al
		150	720	1,0	Al
0,3-0,8	75-1500	300	1240	3,0	cardboard
		400	1260	3,0	cardboard
		500	1300	3,0	cardboard
		600	1340	3,0	cardboard
0,3-1,5	20-300	400			none
		500	1300	3,0	none
		600	1340	3,0	none
0,8-1,5	300-1500	500	1300	3,0	none
		600	1340	3,0	none
1,5-3,0	300-1500	500	1300	3,0	none
		600	1340	3,0	none

The table gives standard coil diameters. Other options are possible on agreement with the customer. Strips of 0,5-2,5 mm thickness can be protected with the PVC foil.



Finstock

“Finstock” is a special-grade cold rolled strip suitable particularly for heat-exchanger applications.

For this purpose alloys 8006, 8014, 8079, 5754 and 5052 are used.

Coil dimensions are the same as with strips.

We take from nature
while returning to it
environment-friendly
products.

8. COLOURED COILS

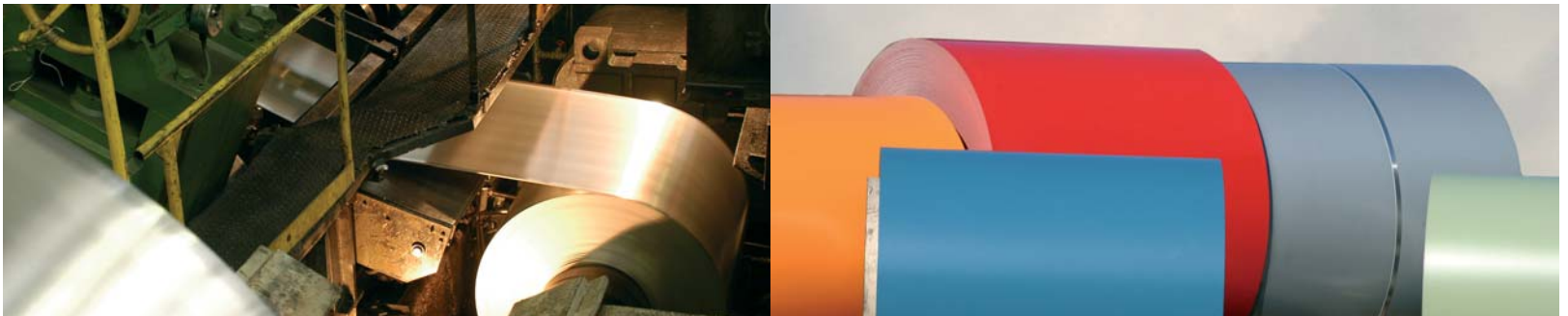
Cold rolled, trimmed, coloured, levelled, smooth or embossed.

T = 0,4-1,0 mm (max.width 1500 mm; for alloys 1xxx min. thickness 0,6 mm)

1,0-1,2 mm (max. width 1250 mm)

1,2-1,5 mm (widths 800-1000 mm)

Widths - the same as of cold-rolled coils.



COMPARATIVE TABLE OF MATERIALS

EN	ASTM	IMPOL	chemical composition	
			min % Al	alloying elements
EN AW 1200	1200	A20	99.0	
	1100	A21	99.0	Fe, Si, Cu
EN AW 1050 A	1050	A30	99.5	
	1350	A31	99.5	
EN AW 1070 A	1070	A40	99.7	
	1080	A50	99.8	
EN AW 3103	3103	M10		Mn
EN AW 3003	3003	M11		Mn, Cu
EN AW 3004	3004	M12		Mn, Mg
EN AW 3105	3105	M13		Mn, Mg
EN AW 3005	3005	M14		Mg, Mn
EN AW 3104		M16		Mn, Mg, Cu
EN AW 5005	5005	P10		Mg
EN AW 5051	5051	P12		Mg
		P20		Mg
EN AW 5251	5251	P21		Mg, Mn
EN AW 5049	5049	P23		Mg, Mn
EN AW 5454	5454	P24		Mg, Mn, Cr
EN AW 5050A	5050B	P25		Mg
EN AW 5040		P27		Mg, Mn, Cr
EN AW 5754	5754	P30		Mn, Mg
EN AW 5052	5052	P32		Mg, Cr
EN AW 5154 A		P34		Mg, Cr
EN AW 5086	5086	P38		Mg, Mn
EN AW 5182		P35		Mg, Mn
EN AW 5083	5083	P36		Mg, Mn
EN AW 5183		P37		Mg, Mn
EN AW 5019		P50		Mg
EN AW 6082	6082	AC30		Mg, Si, Mn
		AC33		Mg, Si, Mn
	1200	AF11	99.0	Si, Fe
EN AW 8079	8079	AF40		Fe, Si
EN AW 8014	8014	AF42		Fe, Mn
EN AW 8006		AF43		Fe, Mn, Si, Cu
		AF50	98.0	Fe, Si
	4006	AF51		Fe, Si
		AF52		Fe, Si
EN AW 8011 A	8011	AF60		Fe, Si
		AS10		Si, Mn
EN AW 8011 A		AF61		Fe, Si

ALLOYS FOR VARIOUS APPLICATIONS

Typical properties and application of rolled products

ASTM	MATERIAL DESIGNATION	CHARACTERISTIC PROPERTIES	APPLICATION
1200	A 20	Pure aluminium is used for products which require good corrosion resistance, high workability and weldability, and good electrical conductivity. Corrosion resistance increases with purity, strength increases slightly. Aluminium with purity from A20 to A30 is the most suitable for general purposes.	Packaging, bottle caps, pickle jar covers, decorative laths
1050	A 30		Large containers, appliances, cookware, inscription plates, bottle caps, pickle jar covers, insulation foil, automobile industry
1350	A 31		Electrical engineering
1070	A 40		Inscription plates, scales on measurement instruments
1080	A 50		Devices and apparatuses for chemical, pharmaceutical and food service industry, electrical engineering
3103	M 10	Good resistance to atmospheric and chemical influences, 15-25% better mechanical properties than those of pure aluminium, good workability.	Roofing, gutters, drain pipes, flashings, containers and devices for chemical and food industry, household containers, packaging, cups and caps (deep drawing quality)
3004	M 12	High strength, excellent chemical resistance, good cold workability	Medium-duty parts in shipbuilding and transport, welded pipes for irrigation applications
5005	P 10	Medium strength, good chemical resistance, very good workability, good polishability	Decorative laths, transport industry, housing for electrical devices, drug bottle caps
	P 20	High strength, excellent chemical resistance, very good workability, good polishability	Traffic signs, advertising tables, heavier-duty parts of household containers, ceiling frameworks
5454	P 24	High strength, chemical resistance corrosion resistance,	Low pressure gas tanks
5754	P 30	High strength, excellent chemical resistance (especially in sea water), good polishability	Heavy duty parts in shipbuilding and transport industry, containers and equipment in chemical industry, cans
6082	AC 30	High strength, excellent corrosion resistance, very good polishability, good workability, good weldability	Heavy duty parts of vehicles, shipbuilding, equipment, as soft enables deep drawing of demanding containers
8014	AF 42	High values of Erichsen tests	Heat exchangers
	AF 50		
8006	AF 43		
4006	AF 51		Especially suitable for making cookware

**Rolled products that are manufactured in Impol
to the requirements of customers are made according to the following standards:**

Properties / Standard	EN	ASTM
chemical composition	(DIN/BS) EN 573	B 209
mechanical properties	(DIN/BS) EN 485	B 209
tolerances	(DIN/BS) EN485	B 209

Designations of alloy tempers and surface qualities of rolled products:

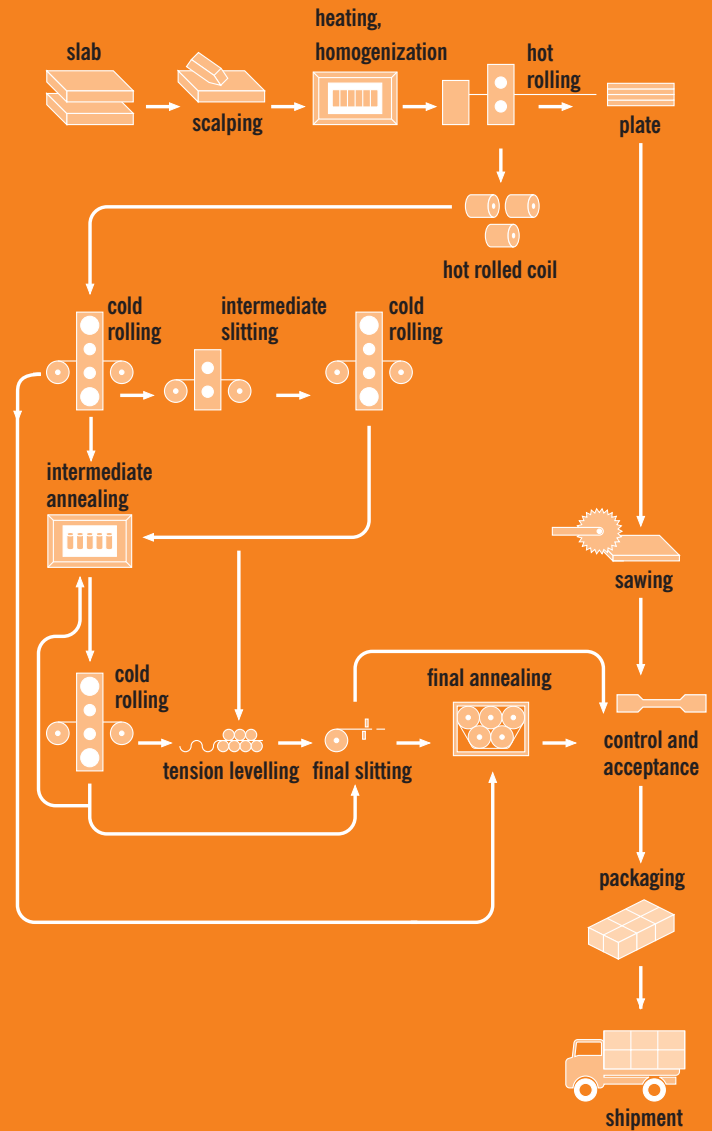
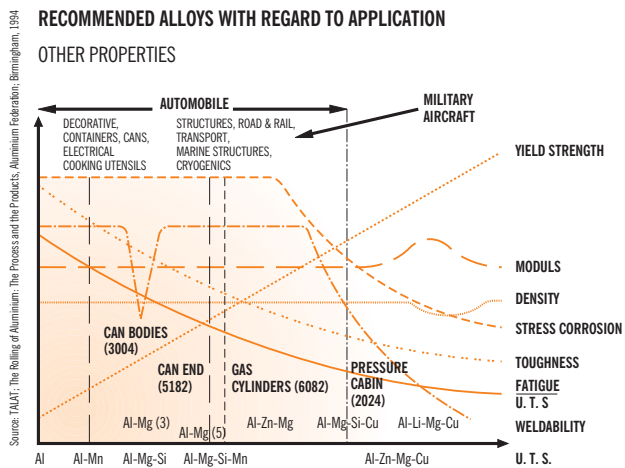
State Designation

FH	"as manufactured"; manufactured without prescribed mechanical properties; cold-worked - cold-rolled products
OH	soft - cold worked and soft annealed
H12	1/4 hard - cold worked
H22	1/4 hard - annealed
H32	1/4 hard - stabilized (peral)
H14	1/2 hard - cold-worked
H24	1/2 hard - annealed
H34	1/2 hard - stabilized (peral)
H16	3/4 hard - cold-worked
H26	3/4 hard - annealed
H36	3/4 hard - stabilized (peral)
H18	hard - cold-worked
H28	hard - tempered
H38	hard - stabilized (peral)
H19	extra hard - cold-worked
H42	1/4 hard - lacquered or painted
H44	1/2 hard - lacquered or painted
H46	3/4 hard - lacquered or painted
H48	hard - lacquered or painted
GOH	soft - for deep drawing
GH12	1/4 hard - cold-worked, for deep drawing
GH22	1/4 hard - annealed, for deep drawing
GH14	1/2 hard - cold-worked, for deep drawing
GH24	1/2 hard - annealed, for deep drawing
GH16	3/4 hard - cold-worked, for deep drawing
GH26	3/4 hard - annealed, for deep drawing
GH18	hard - for deep drawing
GH28	hard - tempered, for deep drawing
GH32	1/4 hard - stabilized (peral), for deep drawing

PRODUCTION IN IMPOL

In order to prevent misunderstandings, please state the following in your order:

- quantity,
- material and its temper,
- dimensions,
- coil size,
- required standards,
- purpose of use,
- type of packaging, and package size.





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