



PRODUCT CATALOGUE

HARRALD
PIFHL
AB

SPECIAL ALLOYS AND TITANIUM

HARALD PIHL AB

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HARALD PIHL AB, founded in 1912

Harald Pihl is today a more than 100 year old family company, which is run by the fourth generation. The company was founded by Harald Pihl in 1912, in order to sell copper, zink and nickel to the Swedish industry.

Nickel became the main product already in the 1920s, when stainless steel was introduced on the market. This led to even bigger nickel deliveries to different Swedish manufacturers.

With the development of the Swedish industry and the increasing demand in the 1940s, Harald Pihl began to deliver nickel-alloys to various companies. In the 1950s titanium was added to the product range.

In the 1970s copper was also added to the product range and the company took a big step in starting to stockhold its materials.

Today Harald Pihl is the leading supplier of special metals and alloys to the European market. The company have more than 2000 different items in stock; plate, bar, pipe/tube, wire and strip.

Harald Pihl has recently put a lot of effort in growth on the European market. In addition to their main office in Stockholm, they have local presence in Denmark, Finland, Germany, United Kingdom, Italy and France.

Harald Pihl's board: Johan Pihl, David Pihl, Managing director Jonas Pihl and Klas Pihl.



CORROSION RESISTANT ALLOYS

Nickel 200 / 201

UNS N02200, W.Nr. 2.4060, W.Nr. 2.4066 /
UNS N02201, W.Nr. 2.4061, W.Nr. 2.4068

Commercially pure (99.6%) wrought nickel with good mechanical properties and resistance to a range of corrosive media.

Monel 400 (66Ni/34Cu)

UNS N04400, W.Nr. 2.4360 / 2.4366

A nickel-copper alloy with high strength and excellent corrosion resistance in a range of media including sea water, hydrofluoric acid, sulphuric acid and alkalis.

Monel K-500 (66Ni/32Cu/2Al)

UNS N05500, W.Nr. 2.4375

A precipitation-hardenable nickel-copper alloy that combines the corrosion resistance of MONEL 400 with greater strength and hardness. It also has low permeability and is non-magnetic to temperatures as low as -101°C .

Inconel 625 (61Ni/22Cr/9Mo)

UNS N06625, W.Nr. 2.4856

A nickel-chromium alloy with an addition of molybdenum and niobium. These additions give the alloy better mechanical properties and better corrosion resistance without having to harden the material. It is used in offshore and aerospace industries, but also in pollution control equipment.



Incoloy 825 (42Ni/22Cr/3Mo)

UNS N08825, W.Nr. 2.4858

The alloy's chemical composition is designed to provide exceptional resistance to many corrosive environments.

Inconel C-276, "Hastelloy" (55Ni/15Cr/16Mo)

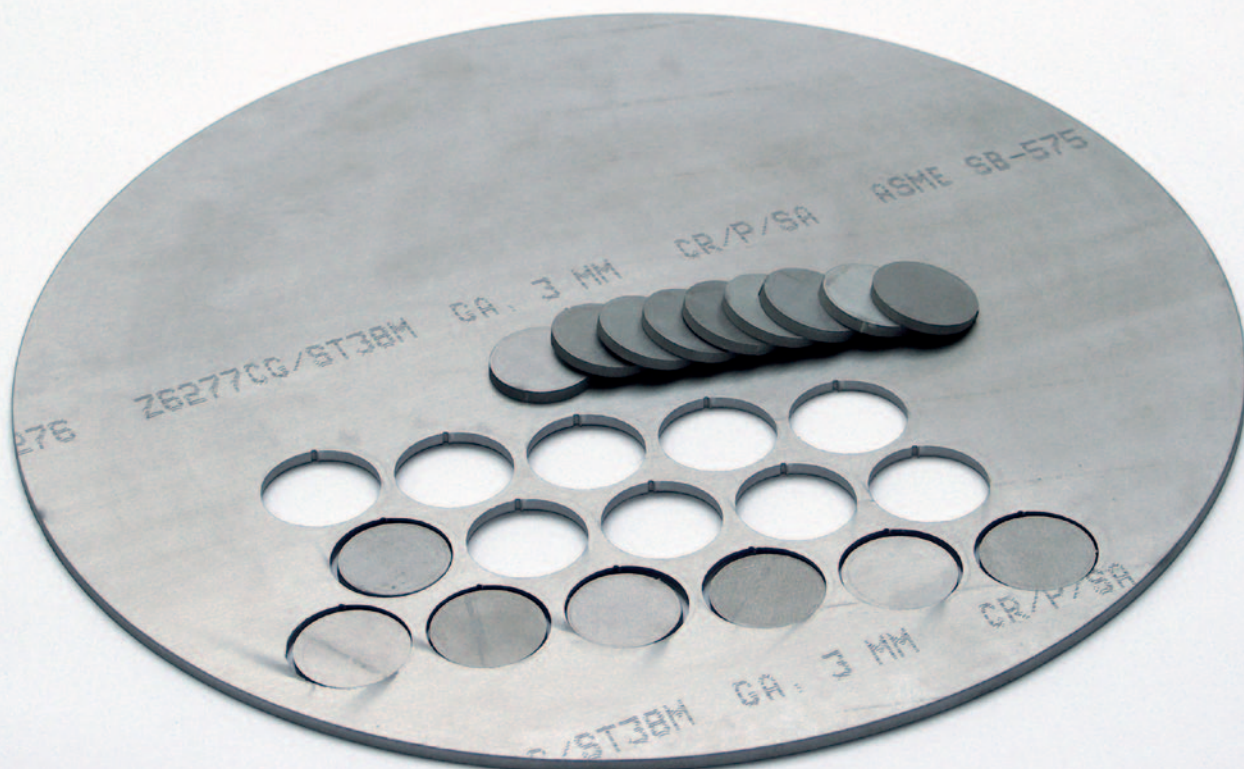
UNS N10276, W.Nr. 2.4819

Excellent corrosion resistance in specially chloride environments. Very common alloy used by paper and pulp industry.

ALLOY 20 (34Ni/20Cr/2Mo/3Cu)

UNS N08020, W.Nr. 2.4660

Designed to specially resist sulphuric acid.





HEAT RESISTANT ALLOYS

Inconel 600 (75Ni/16Cr)

UNS N06600, W.Nr. 2.4816

A standard alloy for applications which require heat resistance up to 1200° C.

Inconel 601 (61Ni/23Cr/1,5 Al)

UNS N06601, W.Nr. 2.4851

High resistance to heat and oxidation up to 1200°C.

Inconel 718 (53Ni/19Cr/5Nb)

UNS N07718, W.Nr. 2.4668

Good heat and creep resistance up to 700° C. It's commonly delivered as aged hardened or solution annealed.

Incoloy DS (37Ni/18Cr/2,3Si)

W.Nr. 1.4862

Material used for furnaces and furnace parts.

Incoloy 800 / 800 HT (32Ni/21Cr)

UNS N08800, W.Nr. 1.4876/

UNS N08811, W.Nr. 1.4959 & 1.4876

An alloy with good combination of heat and corrosion resistance.

Nimonic 75 (80Ni/20Cr)

UNS N06075, W.Nr. 2.4630/2.4951

High heat and creep resistance.



CREEP RESISTANT ALLOYS

Inconel 718 (53Ni/19Cr/5Nb)

UNS N07718, W.Nr. 2.4668

Good heat and creep resistance up to 700° C. It's commonly delivered as aged hardened or solution annealed.

Nimonic 75 (80Ni/20Cr)

UNS N06075, W.Nr. 2.4630/2.4951

High heat and creep resistance.

Nimonic 80 A (70Ni/20Cr/2Co)

UNS N07080 W.Nr. 2.4631/2.4952

A wrought, age-hardenable nickel-chromium alloy. It is mainly used for gas turbine components (blades, rings and discs), bolts, nuclear boiler tube supports, die casting inserts and cores, and for automobile exhaust valves.

Nimonic 90 (55Ni/20Cr/17Co)

UNS N07090, W.Nr. 2.4632/2.4969

Has a very high heat and wear resistance. Very common in turbine applications. A very good spring material.

Nimonic 263 / 901

UNS N07263, W.Nr. 2.4650

A very strong alloy used for turbine applications.

TITANIUM AND TITANIUM ALLOYS

Titanium is mainly used in applications where you need good corrosion resistance or good material strength vs. weight.

Grade 1

- Pure Titanium, the most pure and softest grade
- Lowest strength, but has the best elongation of all grades
- Good weldability and good cold forming abilities

Grade 2

- Pure Titanium, the most common on the market.
- Very good combination of strength, formability and weldability.

Grade 1 and Grade 2 are very similar to each other in terms of corrosion resistance, machinability and weldability.

Grade 3

- Pure Titanium, which is stronger than GR1 and GR2.
- Used when you need good formability, strength, weldability and corrosion resistance. Availability is not so good.

Grade 4

- Highest strength of all pure Titanium grades
- Good formability and high corrosion resistance combined with a higher material strength. Availability is not so good.

Grade 5 (Ti6Al4V)

- Titanium alloy with 6 % Aluminium and 4 % Vanadium
- Very high strength, yield strength even up to 1000 MPa
- Very common in medical and aerospace applications

Grade 7

- Very close to Grade 2 but with added Palladium 0.12–0.25 %.
- Middle strength but very good corrosion resistance.

Grade 9 (Ti-3Al-2)

- Titanium alloy with 3 % Aluminium and 2.5 % Vanadium
- Can be used in higher temperatures than the pure Titanium grades
- High strength and corrosion resistance.

Grade 12

- Titanium alloy with 0.3 % Molybdenum and 0.8 % Nickel
- Good combination of strength, corrosion and wear resistance.





STAINLESS STEEL ALLOYS

Nitronic 50

UNS S20910

An austenitic stainless steel alloy that combines corrosion resistance with very high strength. The resistance to corrosion is better than plain stainless steel 316, but the yield strength is twice as high at room temperature. Unlike other stainless steel alloys this remains non-magnetic after cold working.

Nitronic 60

UNS S21800

An austenitic stainless steel alloy that is good in many areas. The alloy has good mechanical properties at high temperatures up to 980° C. Corrosion resistance compared to 304 and 316 is in between, but the yield strength is double. The addition of silicon and manganese makes the material resistant to abrasion and wear.

Duplex Alloys

W.Nr. 1.4462, 1.4410

Alloys which have better mechanical properties compared to austenitic stainless grades.

High alloyed stainless

W.Nr. 1.4539 (904L), W.Nr. 1.4547 (SMO254)

Used in Phosphorus and sulphuric acid environments.





SPECIAL ALLOYS

Stellite 6B (CoCrW)

A cobalt alloy which has a low friction and a high wear resistance in high temperatures. Good in applications where the use of lubricant is difficult due to high temperatures.

Nilomag-77 $M\mu$ -metall (70Ni/16Fe)

An alloy with extremely high level of initial permeability. It is used in transformers, inductors, magnetic amplifiers, switching devices, magnetic shields, tape recorder heads, and memory storage devices.

Nilok - Kovar (30Ni/17Co 53Fe)

Has a thermal expansion which is comparable to glass. It is very suitable as glass to metal seals.

Nilok 36 - Invar (36Ni/63Fe)

UNS K93600 / W.Nr. 1.3912

A low-expansion alloy containing 36 % Nickel. The alloy maintains nearly constant dimension over the range of normal atmospheric temperatures and has a low coefficient of expansion from cryogenic temperatures to about 260° C.

Nilok 42 (42Ni/57Fe)

UNS K94610 W.Nr. 1.3981

A binary nickel-iron alloy containing 42 % nickel. It has a low, and nominally constant, coefficient of expansion in the range of 20-300° C.

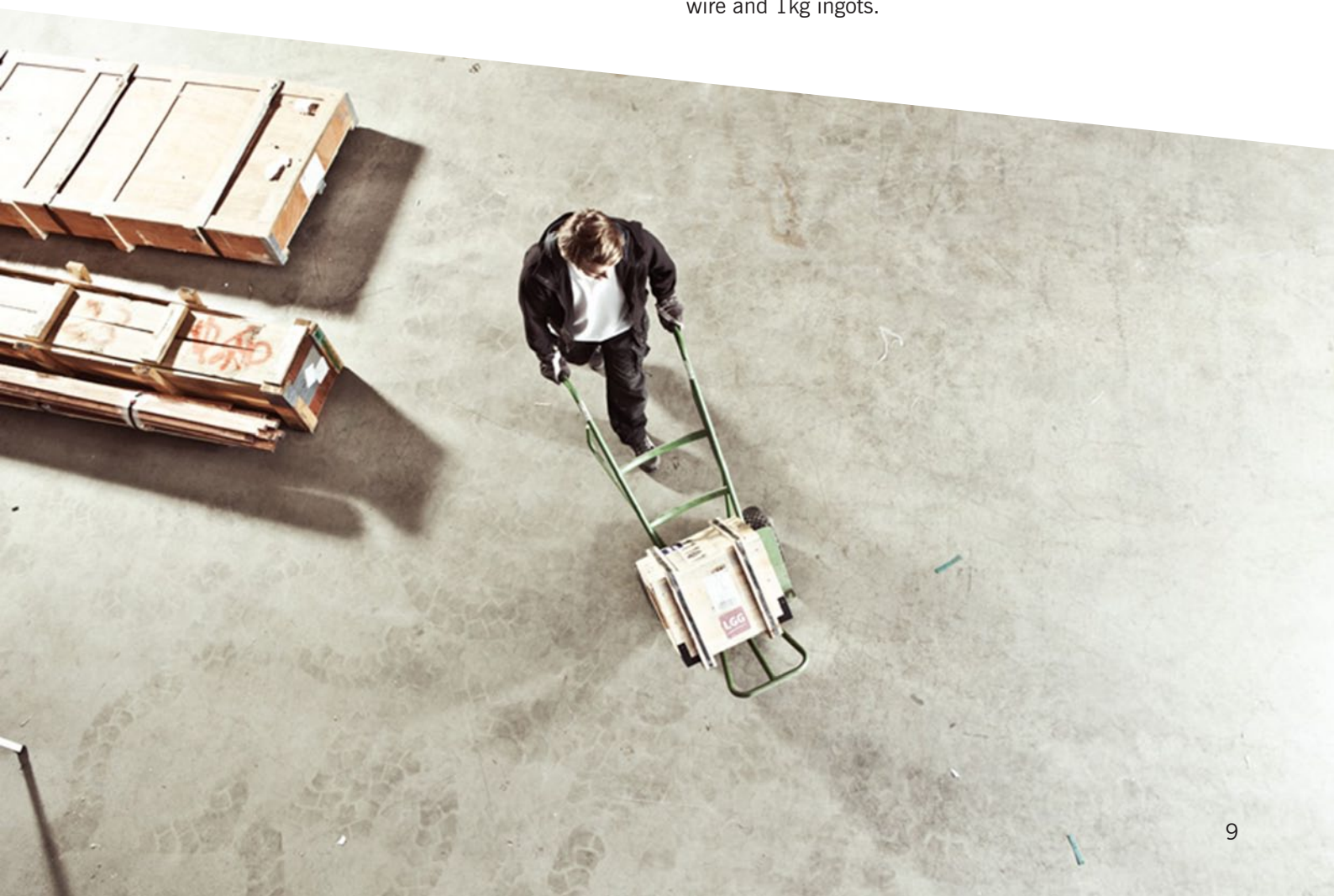
Molybdenum

As wire and bar.

Tungsten

LMPA – Low melting point alloys

Melting temperatures between 47 – 220° C. In stock as wire and 1kg ingots.





COPPER ALLOYS

Hovadur CCZ, Zirconium copper alloy (0.7Cr/0.1Zr/Cu)

A Copper alloy with small contents of Chrome and Zirconium to increase the hardness compared to pure Copper. The alloy is hard with excellent electrical and thermal conductivity. Mainly used for spot and seam welding of Carbon and stainless steel.

Hovadur CCNB, Beryllium copper alloy (0.5Be/1Ni/Co/Cu)

A very hard Copper Beryllium alloy with good electrical conductivity. Mainly used for spot and seam welding of stainless steel, but also for hot, projection and resistance welding. It is also used for pistons when die casting Aluminium and for mould cores.

Tin bronze

Good spring material

Beryllium copper alloy 25 1/2 H

Spring and contact material. High abrasive wear and corrosion resistance and with good thermal conductivity. Easy to punch and form. HV 200 in half hard condition, but HV 400 after solution annealing.

Other copper alloys

Tellurium copper and Tungsten copper.





WELDING MATERIALS (MIG, TIG AND ELECTRODES)

- Titanium and Titanium alloys
- Nickel alloys
- Copper alloys

OTHER PRODUCTS, NON-STANDARD PRODUCTS, CUSTOMER MADE PRODUCTS

Castings – heat and corrosion resistant materials as normal or centrifugal castings

Forgings – Nickel, copper, stainless and in titanium

Copper products – different electrodes (also as machined) and forgings

Spring materials – Beryllium copper alloys, tin bronze, phosphor bronze, tungsten bronze, and nickel alloys.

Fasteners – bolts, nuts – Titanium, Monel, Nimonic, (heat-, creep- and corrosion resistant alloys)

Fittings – Stub ends, elbows and reducers

Demisters – as filters and separators

Hollow bars – as machined or centrifugal cast

WE CAN ALSO MANUFACTURE HEAT RESISTANT FURNACE PARTS

Radiation pipes – welded from plate

Welding jigs – according to drawing

Baskets – castings or welded

Muffles and retorts – castings or welded

Conveyor belts – according to drawing

Fixtures – according to drawing

OUR SERVICE CENTER IN TÄBY (STOCKHOLM)

Water jet cutting 2.5 × 4 m

- Plates 0.4–50 mm from our own stock
- According to drawing
- Short lead time



Cutting

- For bars and pipes
- Up to diameter Ø450 mm



Plate and sheet cutter

- Up to thickness 8 mm
- Max width 3 m



Coil machine

- Max thickness up to 1.6 m
- Cuts sheet to desired length
- Recoiling
- Slitting



QUALITY CERTIFICATES

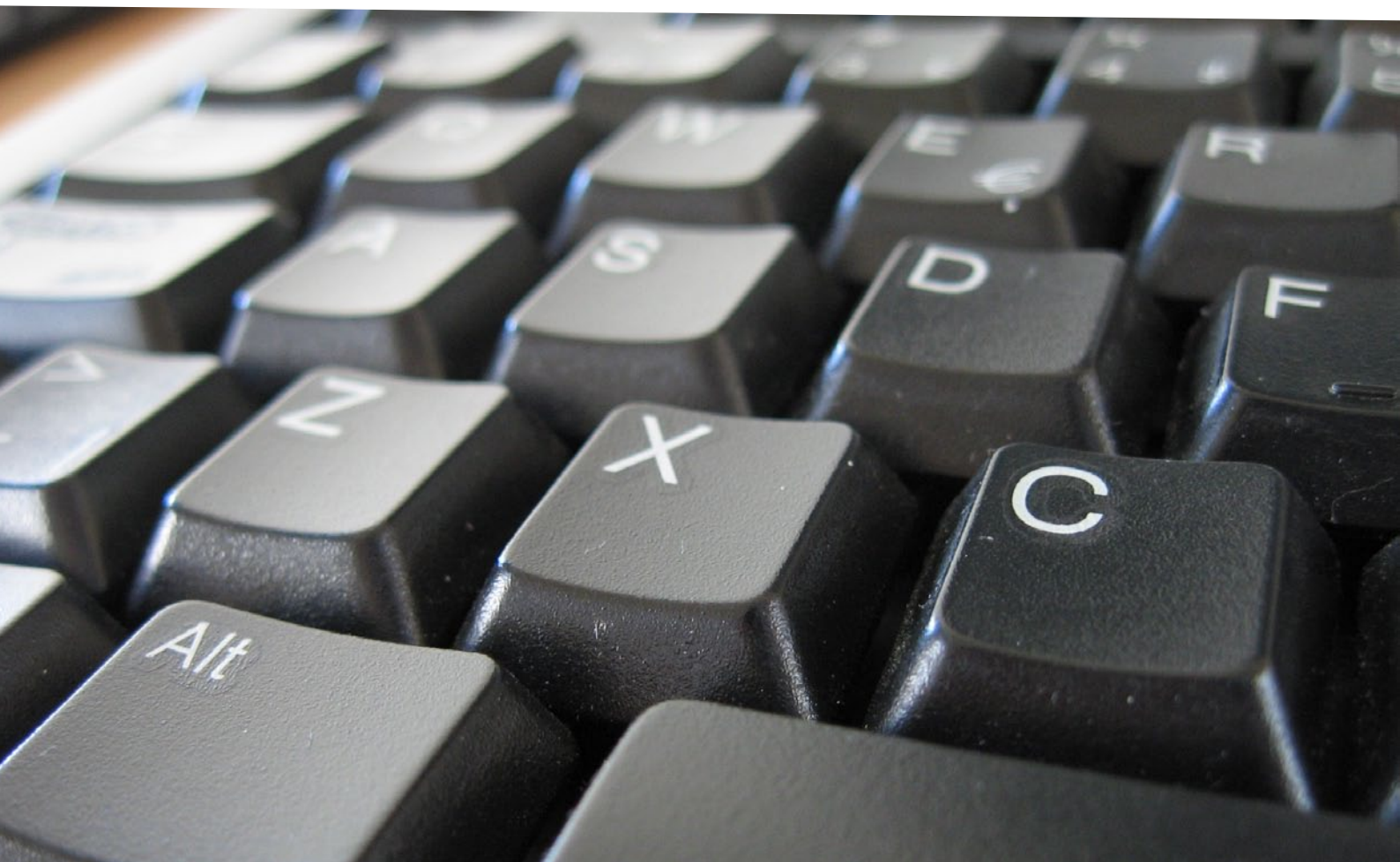
We have quality approval according to ISO 9001 and we are an approved supplier for the aerospace industry according to AS/EN 9210.



HARALD PIHL ON THE INTERNET

Please check our daily updated stock list at www.haraldpihl.com/stock-list/

You will also find lots of technical information about our alloys and materials. We recommend you to visit us at www.haraldpihl.com



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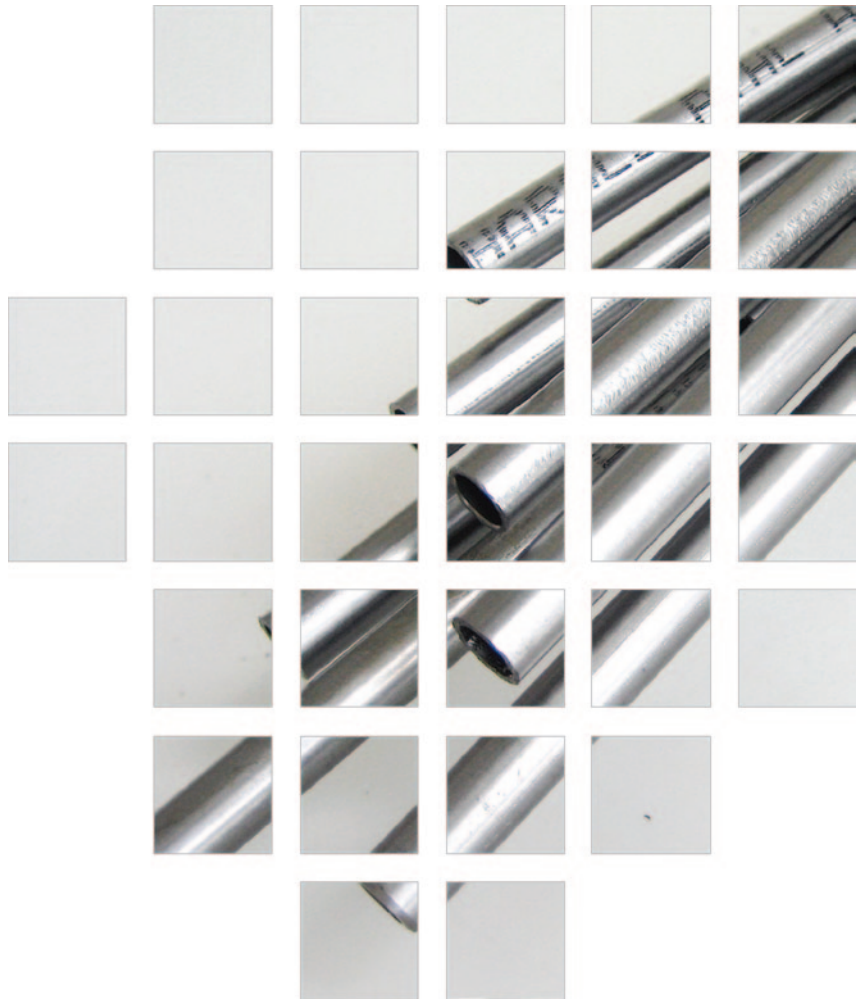
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