



PT. AREZDA PURNAMA LOKA
Extended Surface Tubing Division

**WELDED
STUDED TUBE**
Electric Resistance Welding

Produksi Dalam Negeri

**WELDED
FINNED TUBES**

*Helical High-Frequency
Electric Resistance Welding*

<INGI>®
Helical High-Frequency Electric Resistance
WELDED FINNED TUBES

The Only local company in Indonesia to manufacture various different kinds of *Extended Surface Tubing*, Arezda is proud to offer its **WELDED FINNED TUBES** for a wide range of applications. <INGI>® welded finned tubing includes

- **High-Frequency Electric Resistance Welded Finned Tubes** that may have either plain or serrated fins and
- **Studded Tubes**.

Helical High-Frequency Electric Resistance
WELDED FINNED TUBES



Electric Resistance
WELDED STUDED TUBES



*The Welding process employs a **high frequency electric current** that is applied by contacts on the fin and tube, and the resistance in this circuit produces heat necessary for welding. Maximum resistance and consequently maximum heating occur at the interface between the fin and the tube, and at this point of maximum heating, pressure is applied to forge the fin and the tube together.*

*This type of resistance welding results in **very localized heating** of the surface of the tube and the fin, yet producing a strong metallurgical bond between the fin and the tube while minimizing the heat affected zone (HAZ) in the tube.*

*By this welding technique, tube materials show **little change in grain structure** or physical properties, even heat treatment after welding is not necessary due to the fact of the superficial nature of the changes in the microstructure.*

and <INGI>®

Electric Resistance

WELDED STUDDED TUBES

Due to its strong nature this welded finned tube configuration can be used for practically in any heat transfer application and is particularly suited to **high** and **very high temperature** and **pressure applications** in the heat recovery connected with boilers, gas turbines, fired heaters, and furnace applications in the **petroleum, power, chemical, and petrochemical industries.**

Other types of <INGI>® welded finned tubing as per customer's requirement such as the **Longitudinal Finned Tubes**, U-Type, H-Type, etc. are available on special request. Our pre-eminence and extensive experience in this field enable us to welcome customized applications.

INDUSTRIES WE SERVE



Produksi Dalam Negeri

*"Maksimalisasi
penggunaan produksi dalam negeri
mempercepat industrialisasi
dan kemandirian bangsa,
sekaligus mendukung
program transfer teknologi"*



<INGI>® is our registered trade mark.

<INGI>®

Helical High-Frequency Electric Resistance

WELDED FINNED TUBES

PRODUCTION PROCESS

Tubes/Pipes & Metal Strip ready for welding
(materials prepared according to the required specifications)

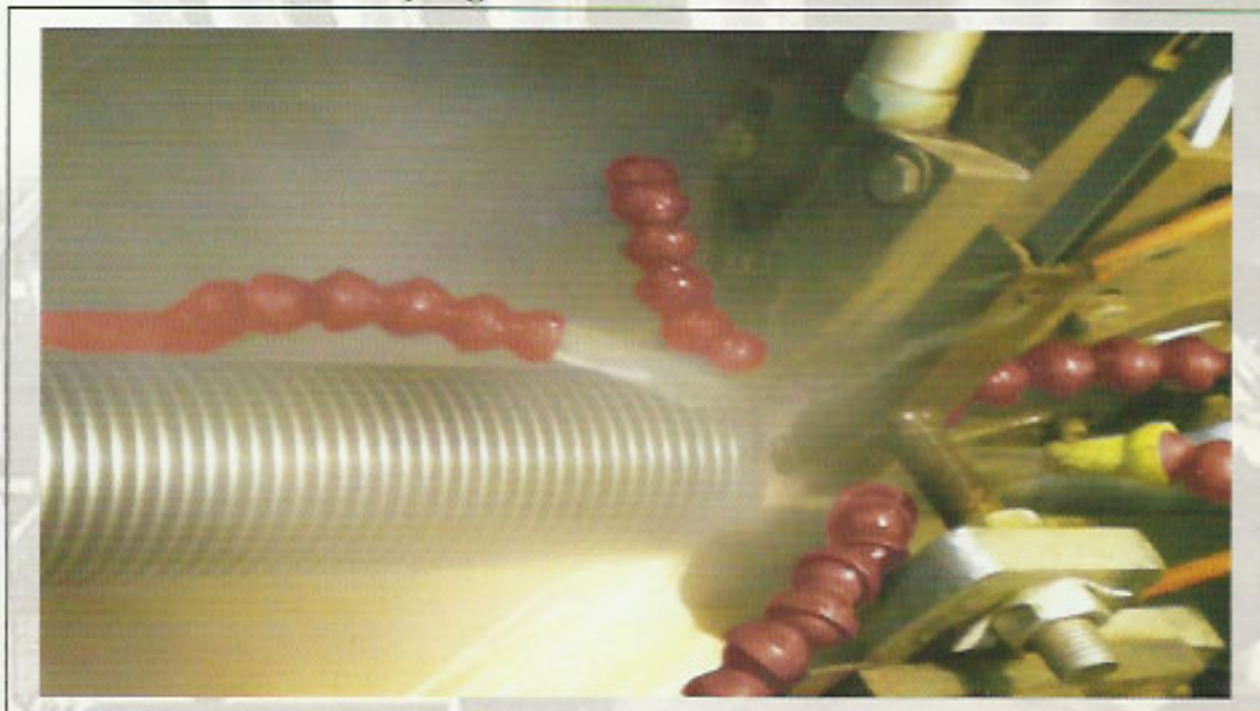
TUBES/PIPES



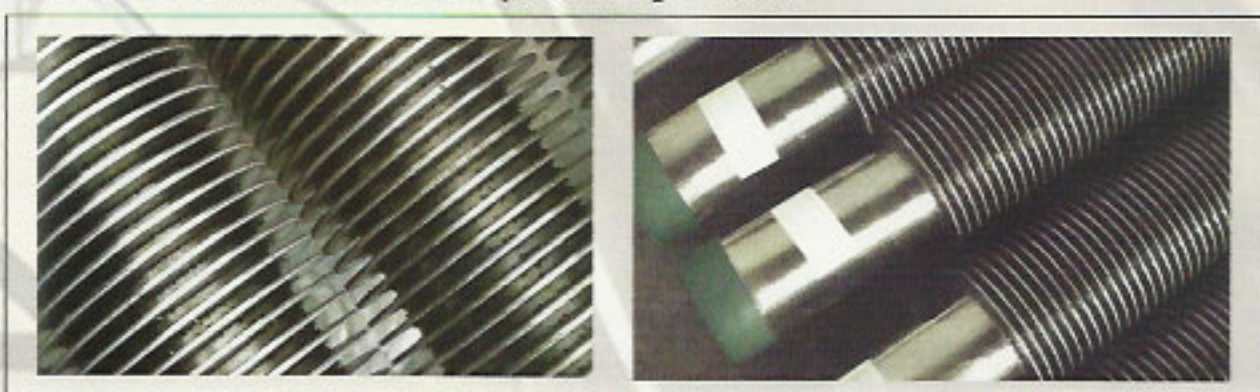
METAL STRIP



TUBE FINNING *in progress*



WELDED FINNED TUBES *finished products*



SPECIFICATIONS

Arezda's Manufacturing Capabilities
for Helical High-Frequency Electric Resistance **Welded Finned Tubes**
(Helical HF-ERW Finned Tubes)

TUBE/PIPE		FIN	
Tube/Pipe O.D.	1" to 8", even up to ± 13 "	Fin Height**	6mm to 25mm, even up to 38 mm
Tube Thickness	On request, and dependent on fin thickness and tube/pipe O.D.	Fin Thickness	1mm to 3mm, dependent on fin material, fin height, and tube O.D.
Tube Length	No practical limit	Fin Pitch	3mm to 25mm, or 1 to 7 fins/inch, or as per customer's requirement
Tube Material*	Carbon/Alloy/Stainless Steel/Nickel/High Nickel Alloy/Nickel Copper/ Nickel-Chrome-Iron/ Copper Alloy/etc.	Fin Type	Plain/Solid or Serrated
		Fin Material*	Carbon Steel, Stainless Steel, High Nickel Alloy, etc.

NOTE:

* Any fin & tube/pipe material combination that can be electric resistance welded.

** Fin Height is dependent on fin type, tube O.D., fin thickness, and material.

We welcome any discussion with our clients on other finned tube specifications.

INQUIRY

Please kindly specify the following for your inquiry

1) TUBE/PIPE

Diameter, Thickness, Overall Length, Material Spec. (weld prep. details if required).

2) FINS

Height, Thickness, Pitch/Spacing, Type (solid/serrated), Material Specification, Finned Length, Bare One End and Bare Opposite End (unfinned ends).

3) QUANTITY

4) DELIVERY TIME required.

<INGI>®

Electric Resistance

WELDED STUDDED TUBES

PRODUCTION PROCESS

Tubes/Pipes & Metal Studs ready for welding
(materials prepared according to the required specifications)

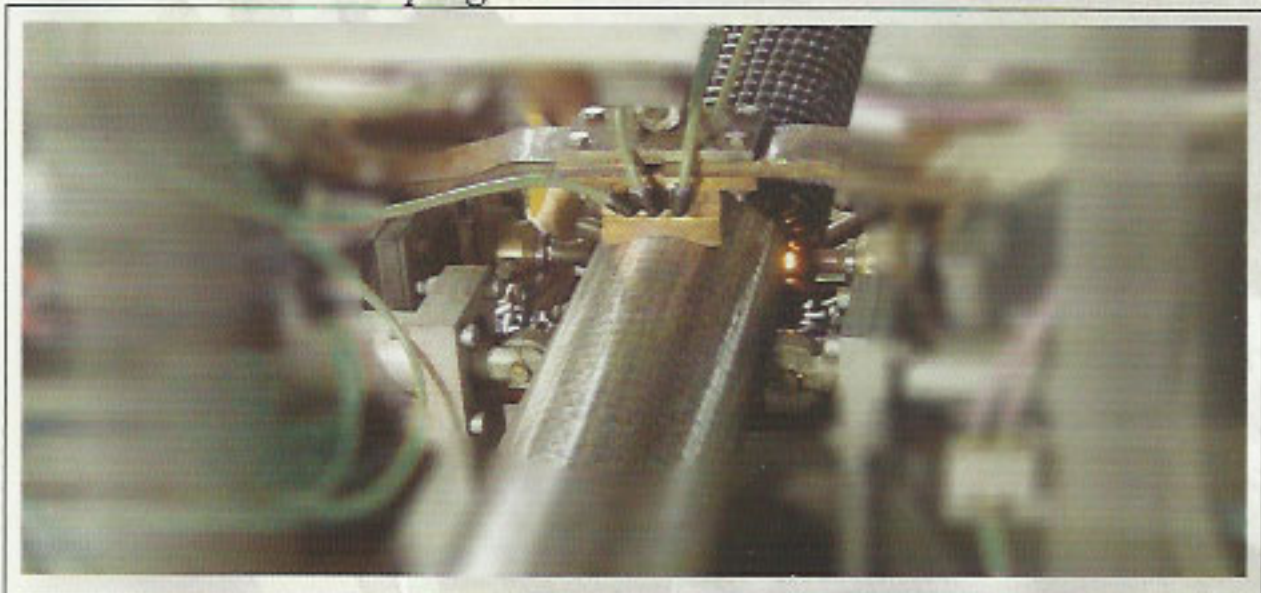
TUBES/PIPES



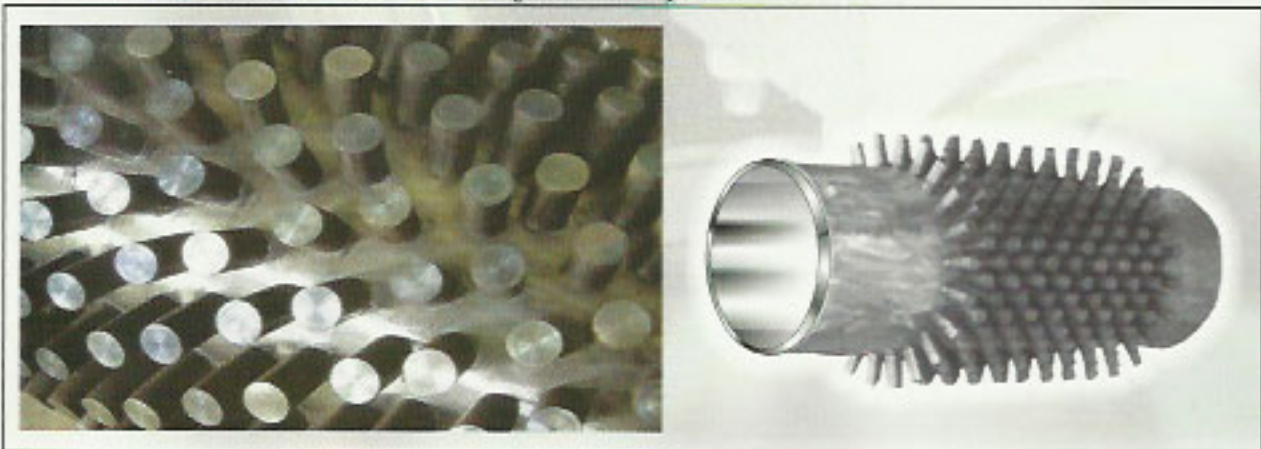
METAL STUDS



TUBE STUDDING *in progress*



WELDED STUDDED TUBES *finished products*



SPECIFICATIONS

Arezda's Manufacturing Capabilities
for Electric Resistance **Welded Studded Tubes**
(ERW Studded Tubes)

TUBE/PIPE		STUD	
Tube/Pipe O.D.	2" to 8", even up to ±13"	Stud Height	Regular 25mm to 30mm, or can be specified on an individual basis
Tube Thickness	As per requirement	Stud Diameter	Regular 12.7mm, even up to 18mm, or can be specified on an individual basis
Tube Length	No practical limit	Stud Pitch (Stud Spacing)	General 16mm (5/8")= 63 studs rows per meter, or can be specified on an individual basis
Tube Material*	Carbon/Alloy/Stainless Steel/Nickel/High Nickel Alloy/Nickel Cooper/ Nickel-Chrome-Iron/ Copper Alloy/etc.	Stud Type	Cylindrical, Elliptical, or Lens Type
		Stud Material*	Carbon Steel/Stainless Steel/Alloy Steel or others

NOTE:

*Any stud & tube/pipe material combination that can be electric resistance welded.

We welcome any discussion with our clients on other specifications for customized applications.

Studded Tubes are easy to clean.

Studded tubes/pipes are relatively easy to clean and is typically used wherever the process is such that rapid fouling of the service may occur.

Should fouling eventually reduce the process performance, studded tube/pipe can be cleaned relatively easy by shot blasting without damage to the materials.

INQUIRY

Please kindly specify the following for your inquiry

1) TUBE/PIPE

Diameter, Thickness, Overall Length, Material Spec. (weld prep. details if required).

2) STUDS

Height, Diameter, Pitch/Spacing, Type (cylindrical, elliptical, or lens type), Material Specification, Studded Length, Bare One End & Bare Opposite End (unstudded ends).

3) QUANTITY

4) DELIVERY TIME required.

Except **High-Frequency Electric Resistance Welded Finned Tubes** and **Studded Tubes** described in this catalogue, **Arezda** has been producing its **Helically Applied L, LL, KL, G Types** and **Extruded Finned Tubes** since nineteen nineties. Detailed specifications of these types of <INGI>® finned tubes are available on the separate catalogue, the description of which is as follows :

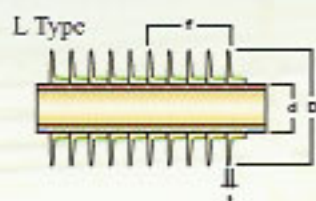
<INGI>® HELICAL APPLIED & EXTRUDED FINNED TUBES



TYPICAL APPLICATIONS

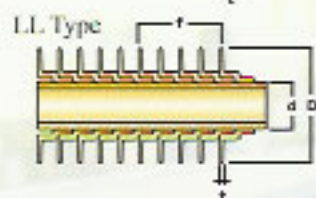
- Water Coolers/Heaters
- Overhead Condensers
- Oil Coolers/Heaters
- Steam Condensers
- Air Pre-Heaters
- Fin Fan Coolers
- Kiln Dryers
- Product Coolers:
Gas/Chemicals/Petrochemicals/Oil/ets.

Construction: Any metallic tube materials and aluminium fin. **Machine Capacity:** 5/8" to 2" Tube O.D., 1/4" to 1" Fin Height, 5 to 13 FPI (Fins Per Inch), and up to 60' Tube Length. **Others:** Serrated and Oval Finned Tubes are also in the selection.



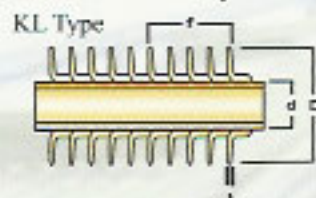
The "L-footed fin" is a circular fin wrapped under tension around the base tube. The feet of the fins cover the whole surface between fins. The L-foot provides a large contact area ensuring a good path for heat transfer from base tube surface to fin.

Max Temperature: 120°C



The "Overlapped L-footed Fin" is fabricated with a relatively greater amount of fin material in the foot, ensuring full coverage of the base tube and prohibiting any contact of the ambient with the base tube.

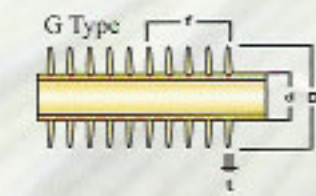
Max Temperature: 180°C



The "Knurled L-footed Fin" is similar to L-footed fin, unless with greater design temperature. The foot of the fin is knurled simultaneously with inner tube, ensuring a tight contact between the fins and the inner tube.

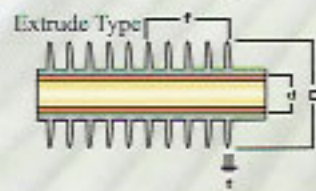
Max Temperature: 250°C

(KL is our Registered Trade Mark)



The embedded fin, also referred to as applied fin, is a helically tension wound fin embedded in the base material by first ploughing a groove, followed by stretching the fin material into the groove and rolling the base material against the base to achieve a good fin to tube bond.

Max Temperature: 400°C



The "Extruded Fin" is made by covering the base tube with another aluminium tube. The fin-tube contact is obtained by cold extrusion operation of the aluminium by way of finning machine.

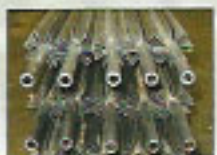
Max Temperature: 300°C

d = Tube O.D.

D = O.D. of Finned Tube

f = Fins Per Inch (FPI)

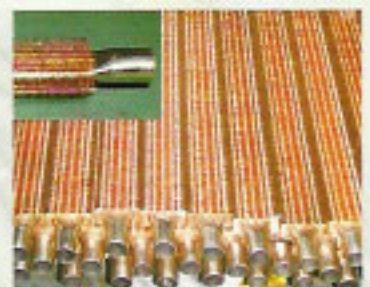
t = Fin Thickness



Other Types of Finned Tubes



Oval Finned Tubes



Serrated Fins



Which type of finned tube you require Arezda stands ready to provide any type of Finned Tube you need.

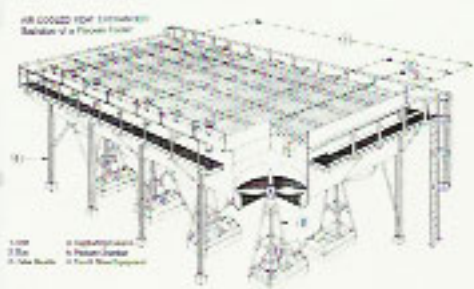
Furthermore, in addition to manufacturing extended surface tubing, at Arezda we can incorporate it into the heat recovery system and supply it as a complete heat exchanger unit. And as with our finned tube manufacturing processes, at this *Pressure Vessel Division* we work to international specifications including that of ASME quality standards, employing highly-skilled and experienced engineers and certified welders. We believe that operators, users, and customers will find our *expertise and experience* in this special field to be exceptional.

Activities in our

<INGI>®

PRESSURE VESSEL DIVISION

AIR-COOLED HEAT EXCHANGERS



Hydrostatic Test

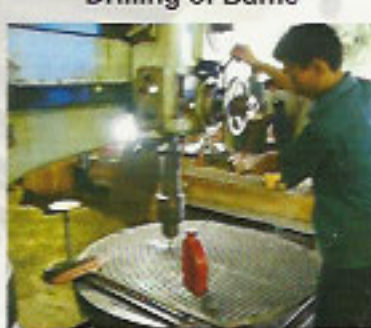


SHELL & TUBE HEAT EXCHANGERS

Skeleton of Tube Bundle



Drilling of Baffle



Heat Exchanger Gaskets



Straight-Tube Bundle



U-Tube Bundle



Just specify your requirements
and we at Arezda are looking forward to serving you.
Welcome ...

Let's see what we, at **Arezda** do in creating community-based shared value in the so called **CSR**, corporate social responsibility.

<INGI> PEDULI LINGKUNGAN

dalam beragam kegiatan sosial

<INGI>® *Care of Environment
in various social services*

Pembangunan Sekolah

dalam rangka ikut mencerdaskan bangsa

School Building

to participate in people education



Pembagian Sembako

dalam rangka berbagi kepada lingkungan

Distribution of basic needs

in sharing to the neighbourhood



Pembangunan Mushola dan Jalan Lingkungan

untuk masyarakat sekitar

Building of Musholla and roads in the surroundings



Kegiatan Bayi Sehat

dalam program pembagian susu bayi

Milk for infants in the Infant Health Program



PROGRAM BEASISWA DAN ORANGTUA ASUH BAGI SISWA CERDAS & KURANG MAMPU

*Scholarship and Foster Parenting Program
for talented, gifted, and needy students*



Peninjauan kelas oleh
Orangtua Asuh

Class visit by Foster Parents



Kegiatan belajar-mengajar di dalam kelas
Students class learning activities



PT. AREZDA PURNAMA LOKA
Sealing Technology & Engineering Products Manufacturing

Sealing Division



Extended-Surface Tubing Division



Pressure Vessel Division



Jointing Sheet Division



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■Gresik ■L.hokseumawe ■Medan ■Palembang ■Pangkalan Brundan ■Pekan Baru ■Semarang ■Sorong-Irja ■Surabaya