Ferritic stainless steels

MAGNETISM
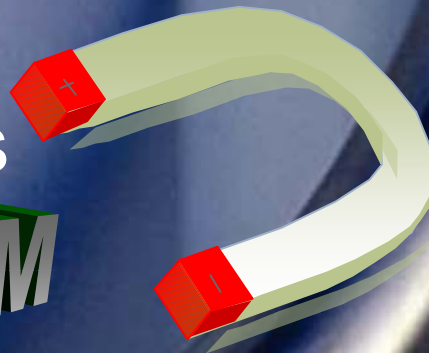
F. HAEGELI
October 2008

Magnetism : a simple question of atoms !

Ferritics

Austenitics

Iron & Chromium atoms

Magnetic
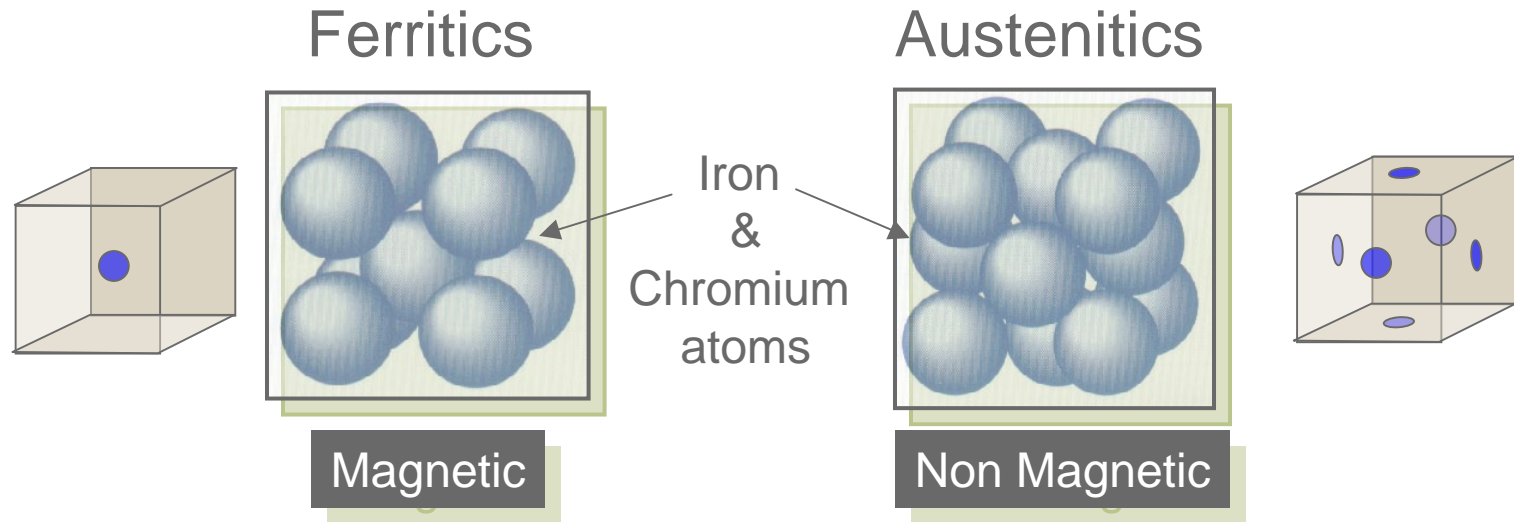
Non Magnetic

➡ Physical properties will be different
(nothing to do with corrosion resistance)
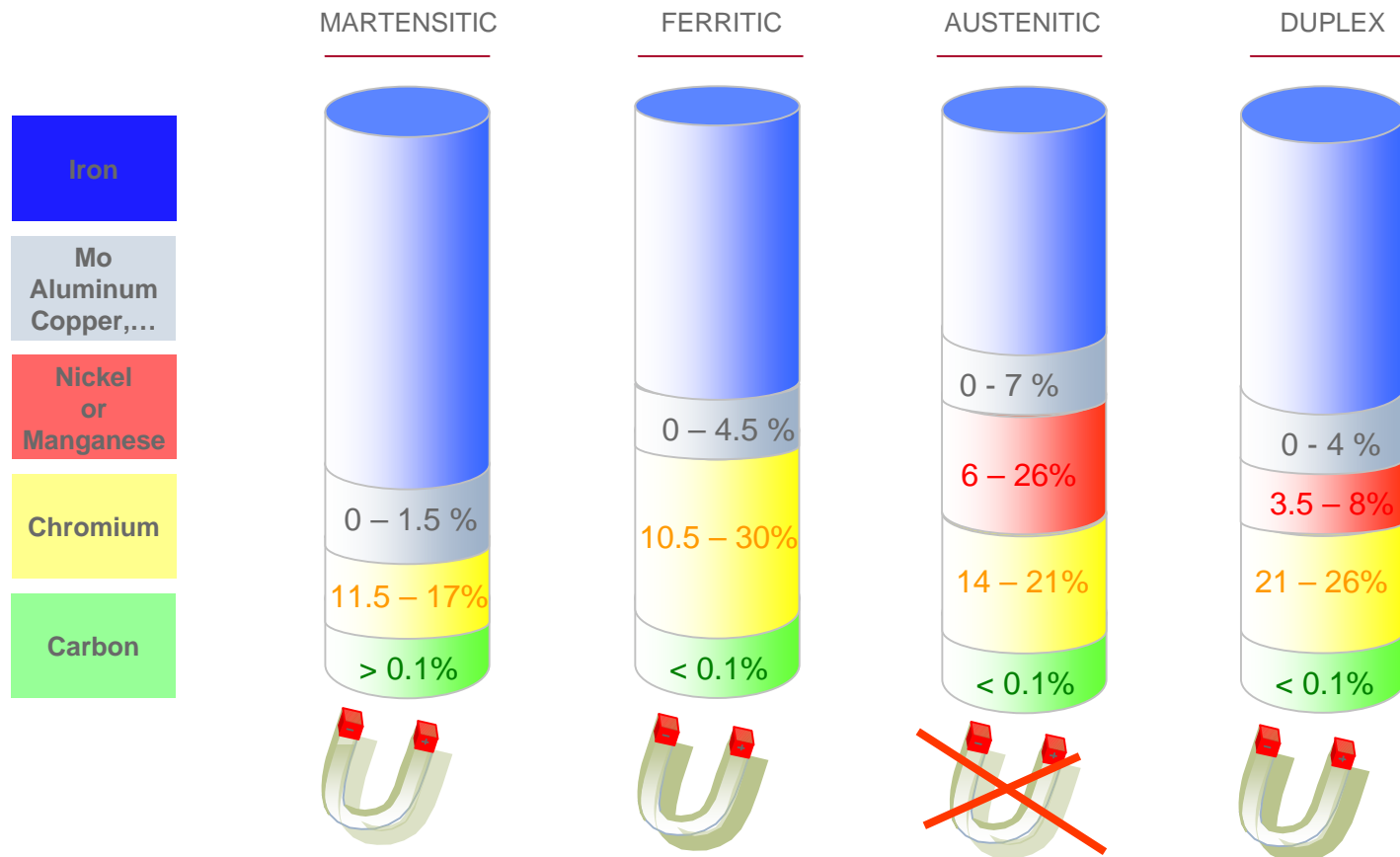
The same difference between   and   with carbon atoms

All stainless steels are magnetic, except Austenitics…

MARTENSITIC | FERRITIC | AUSTENITIC | DUPLEX

Legend:
- Iron
- Mo Aluminum Copper,…
- Nickel or Manganese
- Chromium
- Carbon

MARTENSITIC:
- 0 – 1.5 %
- 11.5 – 17%
- > 0.1%

FERRITIC:
- 0 – 4.5 %
- 10.5 – 30%
- < 0.1%

AUSTENITIC:
- 0 - 7 %
- 6 – 26%
- 14 – 21%
- < 0.1%

DUPLEX:
- 0 - 4 %
- 3.5 – 8%
- 21 – 26%
- < 0.1%

Magnetism = nothing to do with corrosion resistance
A proof : super duplex stainless steels used for chemical and offshore applications

But even Austenitics could be magnetic…

It is possible for the magnetic permeability of austenitic steels to be changed during processing. For example, **cold work and welding** are liable to increase the amount of martensite and ferrite respectively in the steel.

 A familiar example is in a stainless steel **sink** where the flat drainer has little magnetic response whereas the pressed bowl has a higher response due to the formation of martensite particularly in the corners.

Be innovative, use magnetic properties

An opportunity to create
 new products !!!

Temporary fixation…

Maintenance

XXX Seminar

Menu
of the
day
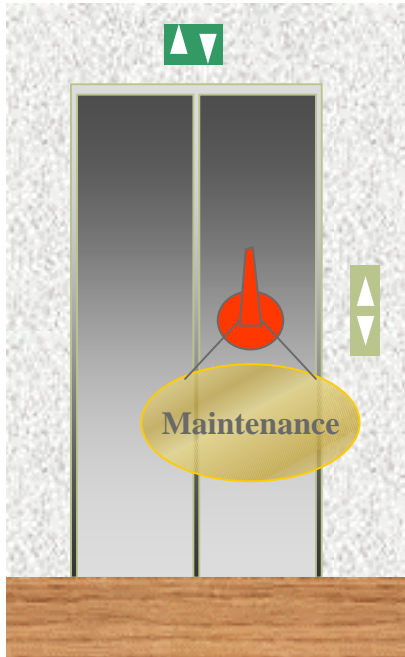
Induction

Traditional and well known application….induction **cooking**

Ex : Bourgeat

Or **cooling**….

Other application : Blanco

Docking bay **with induction technology for food regeneration**

Open and close…

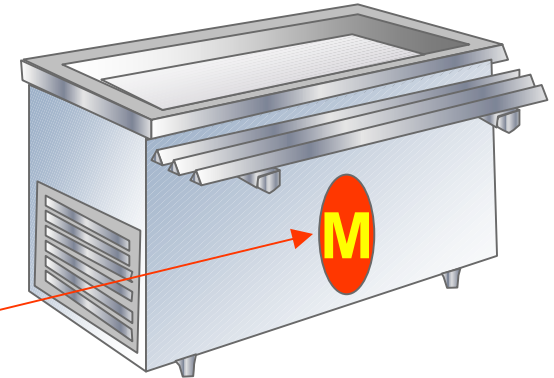A simple and economic way to open or close **a door**…

using only one hand

A door **or …**

Temporary fixation…

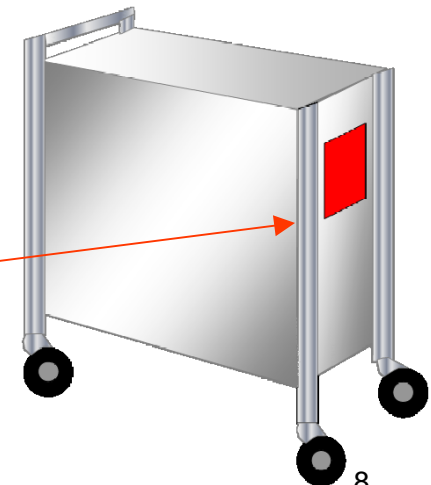Name of end users or patients (hospital)
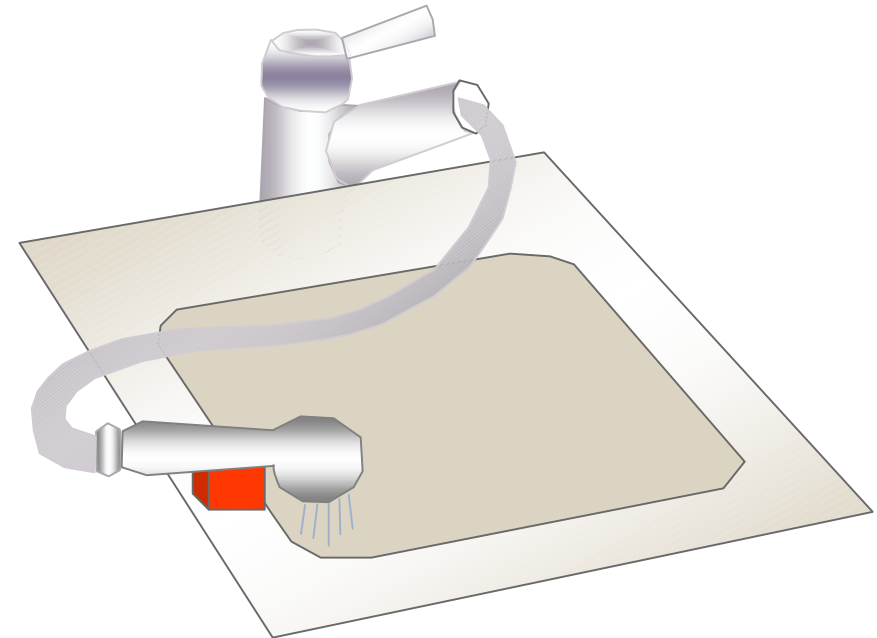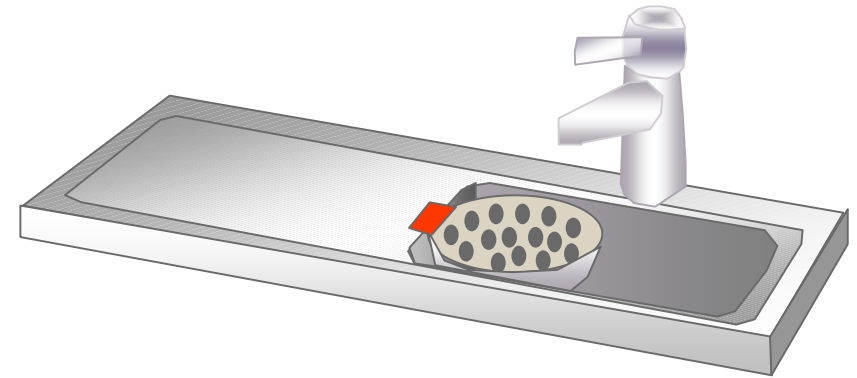
Name, Logo of company,

Danger !

Hot !

Modified each day…
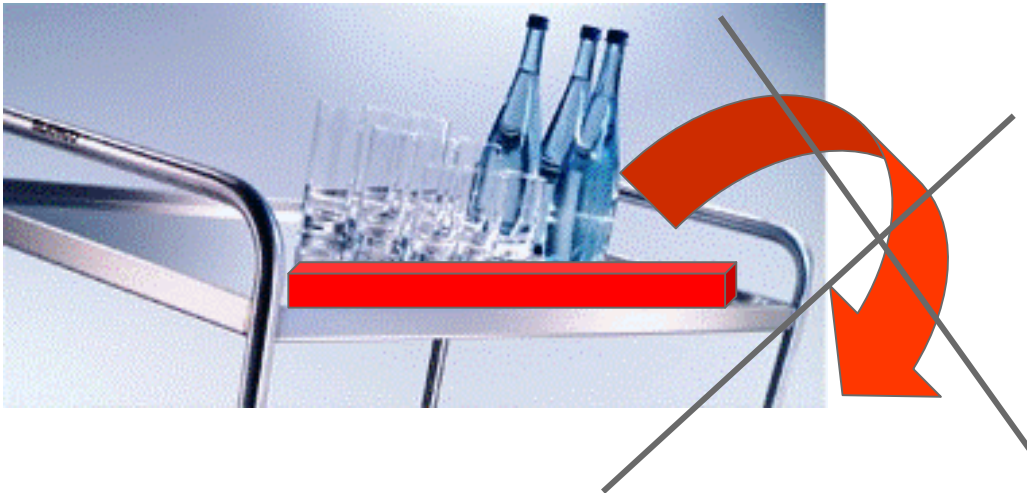
Italy
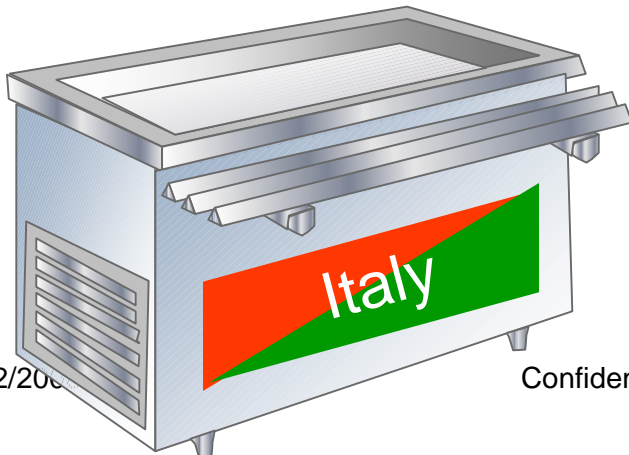
N° of the building, address, menu, …
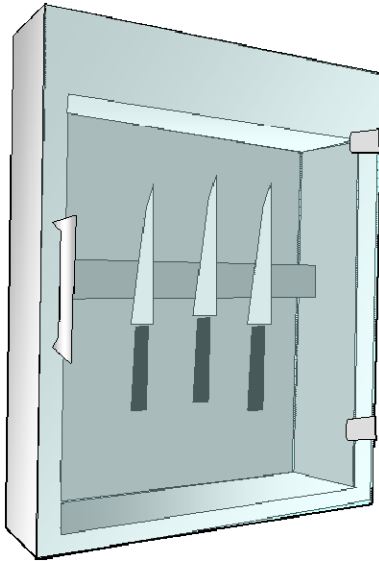
Temporary fixation ...

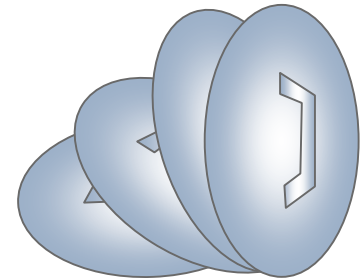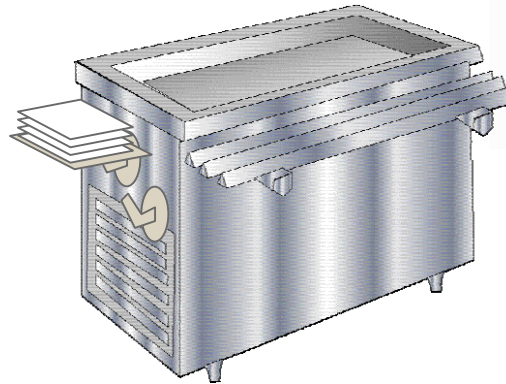Or ....

Temporary fixation

Or a simple solution
easy to remove, easy to clean…

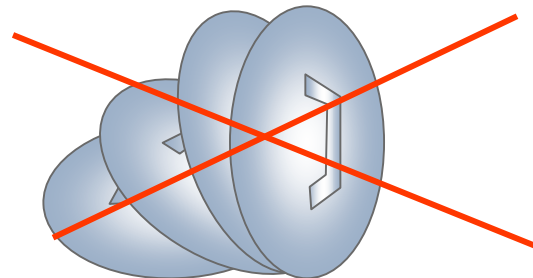# Temporary storage …

Ozone cupboard

Soap

Temporary holding…

A way to avoid hot handle

**LID WITHOUT HANDLE
FLAT LID FOR COMPLETE
FILLING.
Easier to store**

And a lot of other functionalities :
Ex.. Security functionalities

Hot or cold

Open - Close

Limit level of water…

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