

Salt free smelting of Aluminium scraps in the ALUmonte tilting rotary furnace

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Product Range of ALUmonte:

- **Rotary Tilting Furnaces**
- **Automatic Charging Machines**
- **Holding Furnaces, System**
StrikoWestofen
- **ALDROS Dross Processing System**
- **Design of Aluminium Melting Plants**
- **Bag Filter Plants**
- **Ingots Casting Machines**

Targets melting Al-Scrap

- Use of low cost scrap
- Reach the target alloy
- Low energy costs
- Low oxygen costs
- No / low costs for salt
- More yield, less oxidation
- Lower melting costs
- Low landfill costs
- Low emissions in environment

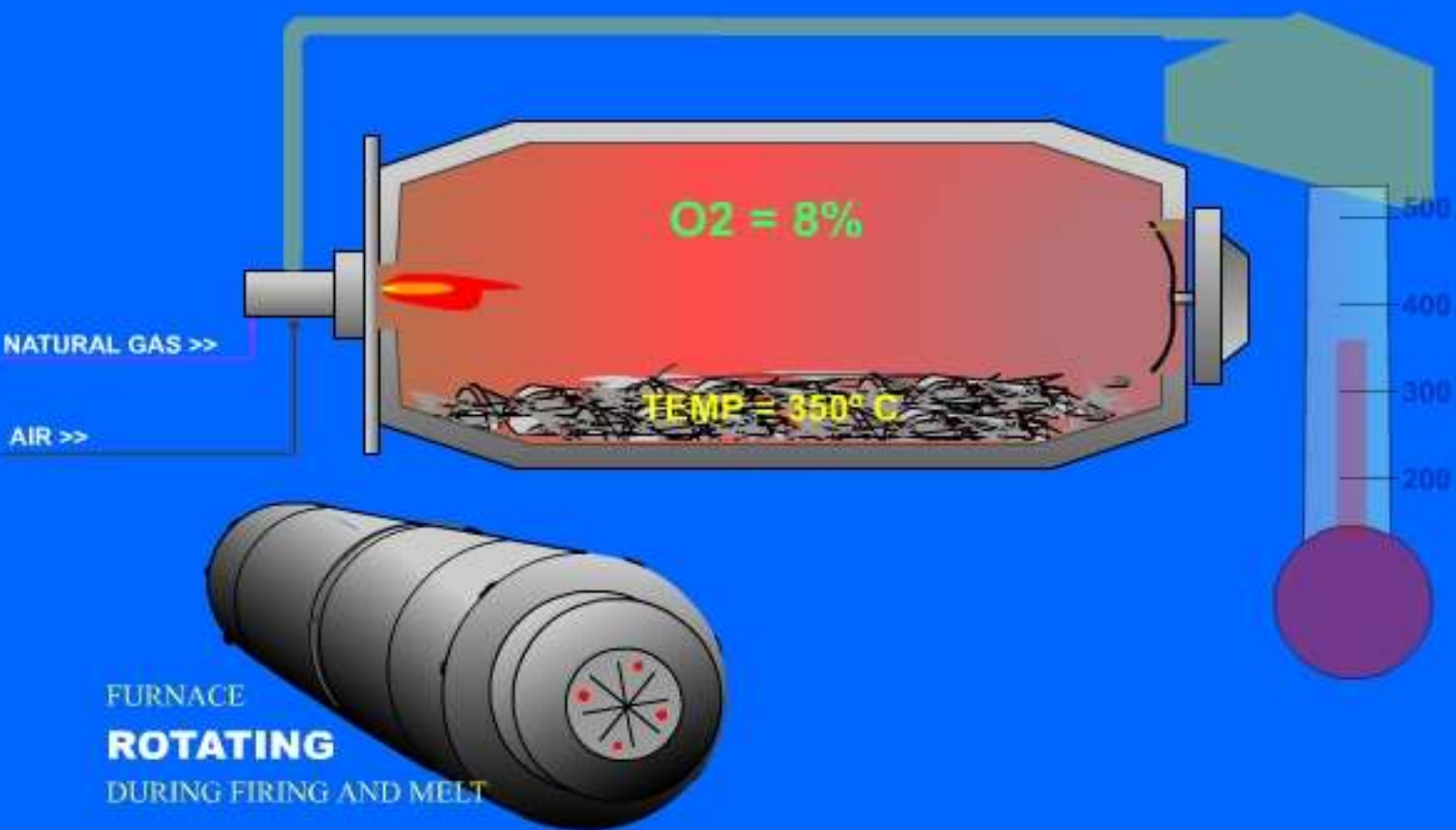
- **Problems with available aluminum scrap**
 - **Variety of 40 types with metal contents from 40 – 95%**
 - **Oil and grease**
 - **Impurities and coatings**
 - **Oxides**
 - **Biological contamination**
 - **Trace elements (iron inserts)**

How does ALUmonte handle these problems?

- Hydrocarbons provide additional energy input
- Iron inserts will not be dissolved
- Salt free / low salt melting by means of a patented process
- High yield even with poor scrap quality

Features

- Rotary furnace tilting to both sides
- Burner and charging door opposite
- Deflector plate for internal post combustion
- Operation under positive pressure
- Special gas / air – burner
- Tapping valve
- Permanent oxygen and carbon monoxide measurement of the furnace atmosphere by laser system
- Oxygen injection by lances
- Fully automatic operation by means of closed loop control
- Unique charging machine





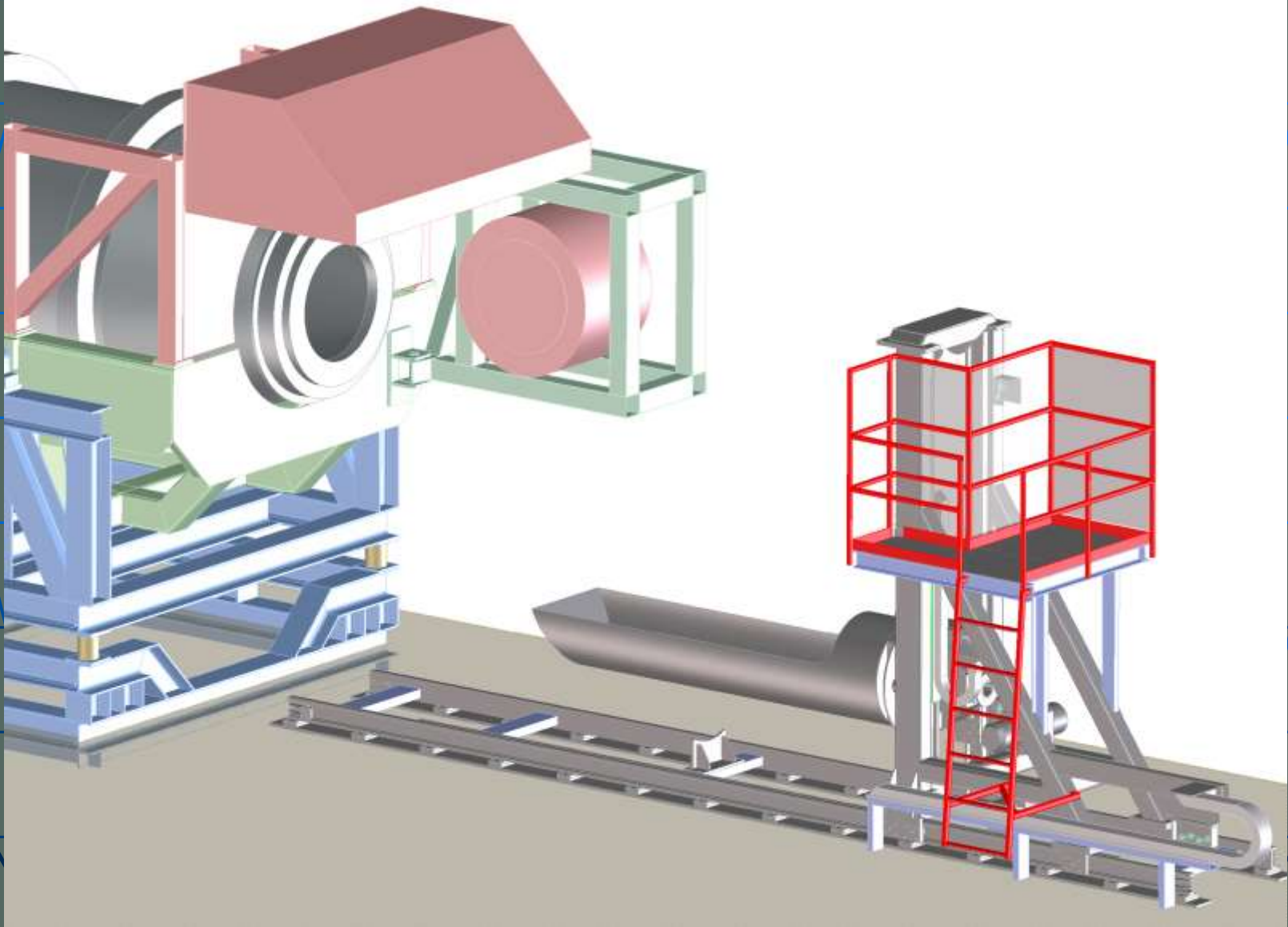
Spain, DELTA 3T12



Internal Combustion System



Automatic Charging Machine



Closed Loop Process Control



Oxygen content
Carbonmonoxide content
Furnace temperature
Furnace pressure

Burner setting
Oxygen injection
Deflector plate
position

Targets of the new Technology (1)

Performance data

Max. temperature up to ca. 1200°C

**Burner system: natural gas/air, with stepless power setting
Oxygen addition by lances**

Energy consumption approx. 30-40 m³ natural gas/ton input

Melting capacity up to 8.0 mt/h

Furnace capacity up to 25.0 tons

Rotation speed adjustable from 0 to 6.0 rpm

Targets of the new Technology (2)

Oxydation loss

Slightly contaminated scrap (1-2%)
< 1.0%

Heavily contaminated scrap
2.0 – 6.0%

- Fe (3 – 5%)

- Other contaminants (5-8%)

Targets of the new Technology (3)

Emission data		Measured value	Limit (NF Regulations)
	Chlorine compounds as HCl	15 mg/m ³	30 mg/m ³
	Fluorine compounds as HF	0.5 –1.5 mg/m ³	5 mg/m ³
	Nitrogen oxide NOx	250 mg/m ³	500 mg/m ³
	Sulphur dioxide	100 mg/m ³	300 mg/m ³
	Organic carbon	10-40 mg/m ³	50 mg/m ³
	Dust	Up to 400 mg/m ³	20 mg/m ³ Bag filter required

Advantages of the Process

	Conventional Technology	Alumonte Technology
Oxidation Loss	4,0 - 10%	1,0 – 6,0%
Input of Salt	Saltfactor < 1	Saltfactor < 0,4
Emissions	Depends on process	Within given EU laws
Energy	50 - 80 m ³ natural gas / mt	30 - 40 m ³ natural gas / mt

Advantages of the Process

	Conventional Technology	Alumonte Technology
Iron pick up	High risk	No enrichment
Oxide inclusions	High risk	Low risk

Granules:

Aluminium Content: 65%

Yield approx.: 60%

Saltfactor approx. 0,25



Foils:
Aluminium Content: 55%
Yield approx.: 49%
Saltfactor approx. 0,40



Chips:

Aluminium Content: 80%

Yield approx.: 75%

Saltfactor approx. 0,20 - 0.40



HPDC waste:

Aluminium Content: 60%

Yield approx.: 55%

Saltfactor approx. 0,25

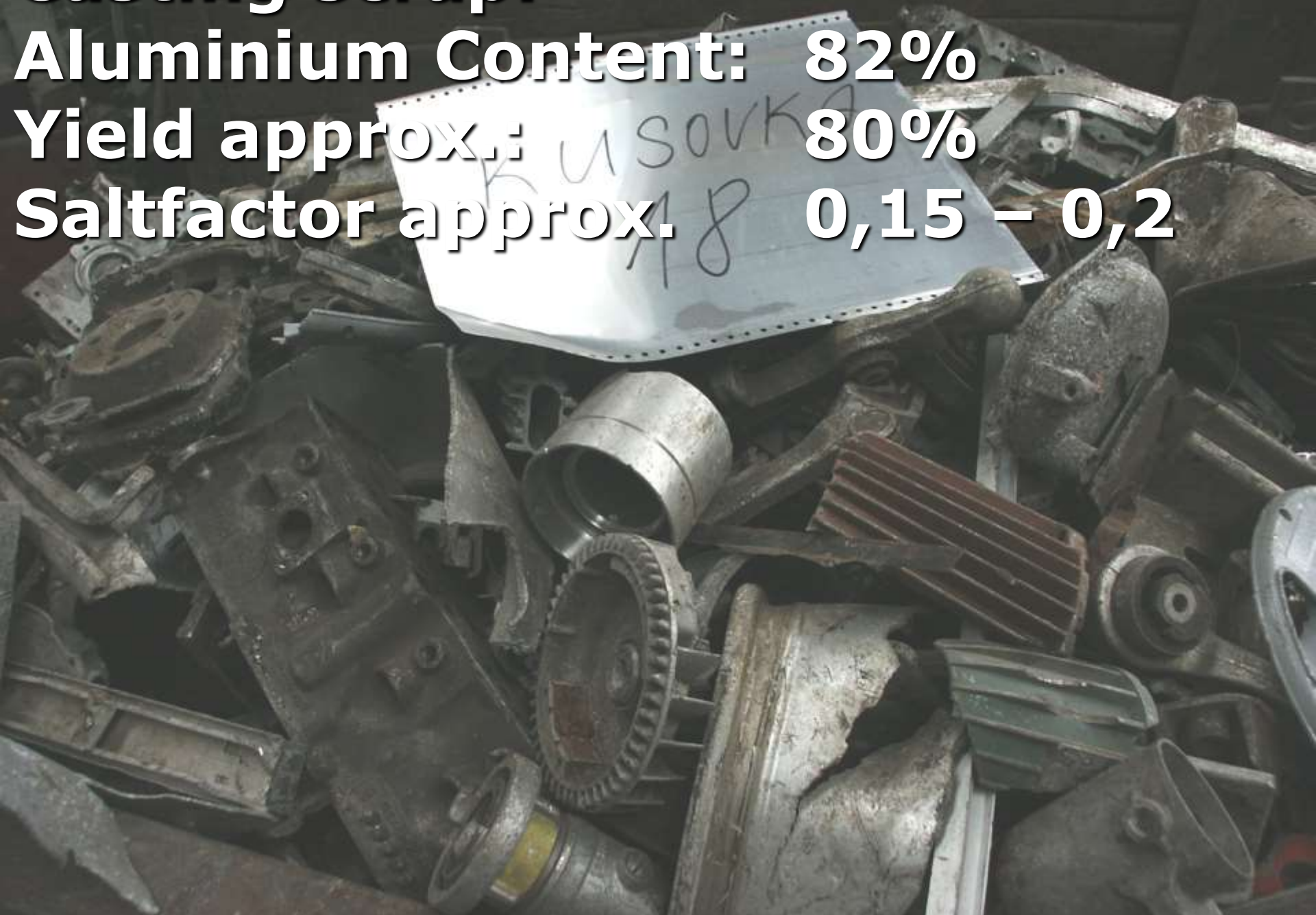


Casting scrap:

Aluminium Content: 82%

Yield approx.: 80%

Saltfactor approx. 0,15 – 0,2





Flotation scrap:
Aluminium Content: 93%
Yield approx.: 91%
Saltfactor approx. 0,15

Dross:

Aluminium Content: 70%

Yield approx.: 66%

Saltfactor approx. 0,4



Typical Installation, Slovakia



Typical installation, Hungary



Poland, DELTA 3T8



Czech Republic, Delta 3T12



Thank you
for your attention