



Tiltable short shaft melting furnace

- ➔ Melting and holding furnace
- ➔ Energy efficient (regenerative burners)
- ➔ Flexible (quick alloy change)
- ➔ Clean (minimised burn-off losses)

EcoMelter[®] Type WSO

Tiltable short shaft melting furnace



- 1 Short shaft melting furnace WSO
- 2 Short shaft melting furnace WSO
- 3 Regenerative burners in the shaft

The EcoMelter[®] Type WSO is a melting and holding furnace with proven furnace geometry. It has a large melting zone despite its extremely short shaft. The established Jasper design can be applied to every furnace capacity using standard components. This enables us to precisely align our system to your requirements.

Applications

This type of furnace is particularly well suited to melting ingots and in-house scrap, like it is arising in the automotive industry. It is also well suited for use in a re-melting and refining plant for piece goods. It can be used as a highly flexible melting furnace without salt, e.g. as a parallel melting unit for a rotating drum furnace, or as a melting and alloying furnace for a special molten metal alloy. Currently there are furnaces in operation with a bath capacity of 25 t and a melting capacity of 0.5 t per hour. The furnace can be tilted by approx. 30° to remove the molten metal.

Easy charging using a forklift or a lifting/tipping unit

Due to its low charging height of 3.60 m the EcoMelter[®] Type WSO can be charged from above with a forklift.

Separate melting and holding furnace

The melting and the holding zones are separated by a wall. This allows the melting and holding processes to be performed independently from each other. Only molten mass enters the holding area, which means that there is almost no waiting time. The smelt in the holding zone is then kept at the desired bath temperature by the controllable regenerative burner.

Regenerator burner system PulsReg[®] Zentral

For the EcoMelter[®] Type WSO we prefer to use the PulsReg[®] Zentral regenerator burner system fired with gas or oil. It is based on an innovative firing concept in which the exhaust gas temperature never exceeds 250 °C. The excess heat energy is supplied

directly to the regenerators installed on top of the furnace. This system, which transfers the heat energy contained in the exhaust gas to the combustion air, offers excellent efficiency – regardless of the filling level and the temperature of the shaft.

Greater efficiency

The efficiency with respect to the flue gas inlet temperature is about 85%. The waste gases from the regenerator (heat-exchange principle) have a temperature of only 140 °C–230 °C, which is usually only achieved by boilers.

Combustion efficiency 86%–93%. Fuel consumption/CO₂ reductions: Approximately 25% compared to a burner system using cold air and typical exhaust gas temperatures of conventional shaft furnaces.

Electronic control

The EcoMelter[®] system uses an electronic control system to regulate the burner and the fuel-air ratio. With regard to the fuel-air ratio, the control system ensures a minimum excess of air to prevent oxidation of the aluminium melt. The heat supply is controlled as required under all operating conditions. The metal yield is approximately 98%.

Control and visualisation

The furnace is conveniently controlled via a PC. All required data is acquired and visualised.

Advantages:

- > Waste gas temperature under all operating conditions ≤ 250 °C
- > Lower overall energy consumption
 - with a bath temperature of 720 °C approximately 0.50 kWh per kg of aluminium from charging up to removal
- > Typical waste gas composition:
 - Waste gas temperature < 200 °C
 - Dust content < 5 mg/Nm³
 - NO_x < 350 mg/Nm³
 - CO < 20 mg/Nm³
- > Optimal energy distribution inside the furnace by using a “short flame”
- > Clean start in a cold furnace

An overview of our industrial furnace products:

- MultiMelter[®]
- EcoMelter[®] WSO / MSO / HSO
- Casting furnace GO
- Rotary drum furnace DKO
- Charging
- Alu-Treat[®]

More information at:
www.jasper-gmbh.de

