

# Metso:Outotec Concentrate / Matte Burner - Octaburner



The Metso Outotec Octaburner is a concentrate/matte burner for Flash Smelting and Flash Converting furnaces. It improves the solids feed and process air distribution, intensifying the suspension reactions and resulting in improved metal recoveries and longer furnace campaign life.

#### Octaburner in a nutshell

Octaburner is a next-generation concentrate/matte burner with improved solids feed distribution and more even process air discharge compared to the previous-generation concentrate burner design. It has been developed based on extensive R&D work and full-scale pilot testing. It is a low-maintenance design that enables easier and safer burner access.

#### Technical Improvements

- New distributor, process air chamber, feed inlet, and velocity control designs
- Lower burner height
- Fewer, more durable wear parts

#### Full or stepwise upgrade available

To maximize the operational benefits, full replacement of the existing burner is recommended. Metso Outotec also offers upgrade packages that will enable gradual improvements in burner performance. These include upgrades for the central jet distributor, burner base, distributor, and servos, as well as integration of the Metso Outotec FlashGuard system.

#### Benefits

- Reduced metal losses in slag due to more even process air and feed distribution
- Less oxygen in the off-gas line due to improved oxygen efficiency
- Longer furnace campaign life due to more even heat load distribution to reaction shaft and settler
- Reduced risk for blockages
- Reduced maintenance needs
- Lower height requirement
- Easy to retrofit to existing furnaces
- Safe access for inspection and cleaning

# Equipment overview

The Metso Outotec Octaburner offers a wide range of improvements compared to the previous generation concentrate burner design.

## Central Jet Distributor (CJD)

Many of the CJD's parts, including the water-cooled shell and velocity control sleeve have been improved to create a more robust and stiffer construction. This increases operational stability and reduces maintenance needs.

The height reduction (approximately 0.5 m) reduces building heights for greenfield plants and provides space for additional capacity – for example, a larger loss-in-weight feeder or higher reaction shaft – for brownfield plants.

## Velocity control with servos

Linear servos allow a virtually maintenance-free solution with high accuracy control that does not degrade over time. Servo drives are directly connected to the velocity-adjusting sleeve rods. The only regular maintenance required for the servos is greasing approximately every two years. In addition to remote control from DCS, the system can be locally operated via a large touchscreen which provides access also to new advanced operation functions like home position calibration and driving to centering position.

## FlashGuard

Online centricity and buildup monitoring with the Metso Outotec FlashGuard system ensures that burner alignment is maintained, and buildups can be detected and removed in a timely manner, minimizing downtime. The system is based on camera technology and machine vision algorithms.

Read more at [mogroup.com/flashguard](http://mogroup.com/flashguard)

## Distributor

Solids feed distribution has been further improved through extensive pilot tests. Workshop tests with a full-size burner showed that the deviation in distribution around the discharge point was on average within +/- 1.2%. In operational tests the improved distributor design has demonstrated increased oxygen efficiency and improved metals recovery. Distribution is achieved by additional spreading means on the distributor body. As a result, the feed mixture is also directed more accurately towards the distributor cone, which spreads it more efficiently towards the sides in the reaction shaft. The additional outer pipe protects the water-cooled shell.

The design allows quicker and easier replacement of the bottom plate thanks to, for example, reusable threaded connections for water hoses. The bottom plate construction is more robust and has improved resistance to thermal shocks.

The top section of the distributor has no visible hoses, which reduces the risk of water leaks and minimizes maintenance needs.

## Feed inlet box

The improved feed inlet box is less prone to blockages. It allows foreign material to be "pushed" forward instead of blocking the feed sections. Material can easily be removed from the hatch above or "pushed" into the furnace with a rod from above. The distribution collision/wear plates have been integrated into the distributor to make changing them easier.

## Air Chamber

Process air distribution has been improved through optimized inner geometry, which provides an even process air discharge around the annulus outlet. The process air flow is further evened out at the discharge point, where the velocity and pressure loss is highest. The CFD modelling results for the discharge velocity showed that the deviation around the discharge was within only +/-1.1 %.

The air chamber has a strengthened support leg design which allows horizontal leveling if required. The octagonal shape provides easy access to the cleaning ports.

Larger hatch-type inspection windows make it easier to see the flame. The windows are compatible with the Metso Outotec FlashGuard system and can still be opened when the system is installed.



[Read more at mogroup.com/concentrate-burner](http://mogroup.com/concentrate-burner)

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