

# ERD-SCRUBBER: DRYER EXHAUST HEAT RECOVERY UNIT

Energy awareness is an essential boundary condition for production optimization, contributing to successful businesses, both from an economic and social responsibility perspective. The generation of electricity and steam are important cost factors in production processes and key focus for reducing the factory carbon dioxide footprint. Dryers such as FTD's require significant energy. The exhaust gases from these units contain high levels of enthalpy, providing a great opportunity for energy recovery, cost savings and carbon dioxide reduction.



For this application JOA has developed the ERD™ Energy Recovery Skid; combining exhaust gas/steam cleaning with direct hot water or steam generation.

The ERD™ Energy Recovery Skid has been standardized between the following ranges:

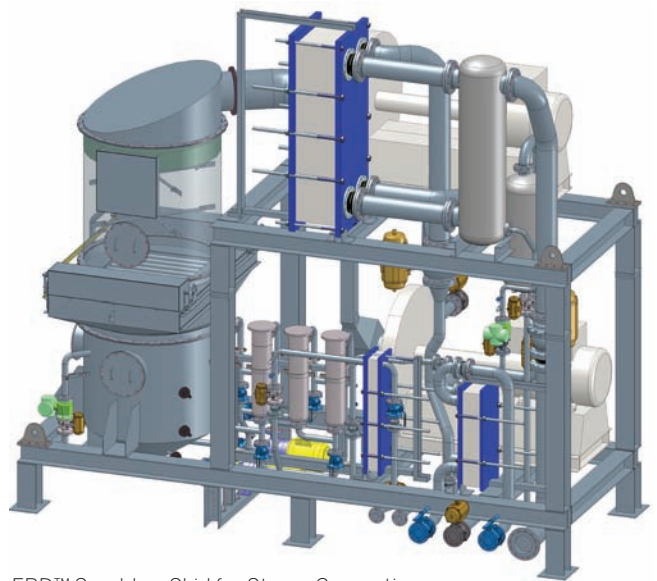
- Mass flows of 1.000 kg/h: recovered energy 0,5 MW
- Mass flows of 4.000 kg/h: recovered energy 2,8 MW

The recovered energy can be used for:

1. Direct steam generation
2. Hot water generation

## Direct Steam Generation

The ERD™ Skid contains an Inline-Venturi™, directly integrated with a MVC unit. In this application, the Inline-Venturi™ cleans the exhaust stream while operating above the boiling point of the scrubbing water (phase transition advantage). The applied Mechanical Vapor Compression (MVC) Heat Pump increases the pressure of the water vapor, exhausting from the Inline-Venturi™.



ERD™ Scrubber Skid for Steam Generation

The specially designed plate heat exchangers will generate fresh steam for the process in which the energy was recovered from. For example, steam recovered from a FTD, will be regenerated for direct reuse in the Dryer by closed loop. The theoretical energy recovery efficiency ranges from 70-85%.

Interested in a quotation? Ask for the Questionnaire Flash Dryer Tail gas Exhaust!



SUSTAINABLE SOLUTIONS

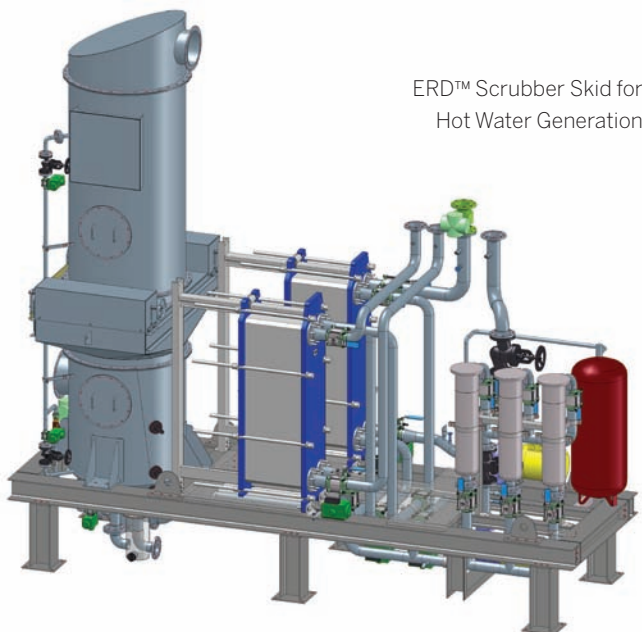
### Hot Water Generation

This design option is primarily used for heating purposes in offices, buildings and process water streams. This solution can be beneficial for plants in colder areas where hot water is essential. Optionally, a hybrid dry cooler (combination of air dry cooler and closed circuit evaporative cooler) can eliminate the energy surplus during the summer.

### Benefits ERD™ Energy Recovery Skid

The ERD™ provides the following benefits:

- Efficient dust removal with self-cleaning Inline-Venturi beds
- High energy recovery opportunities by direct Hot Water or Steam Generation
- Replaces high maintenance risk condensers (no fouling & freezing risk)
- Enabling of second stage odor removal
- Standardized skid mounted unit and automation
- Low energy and consumable requirements



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