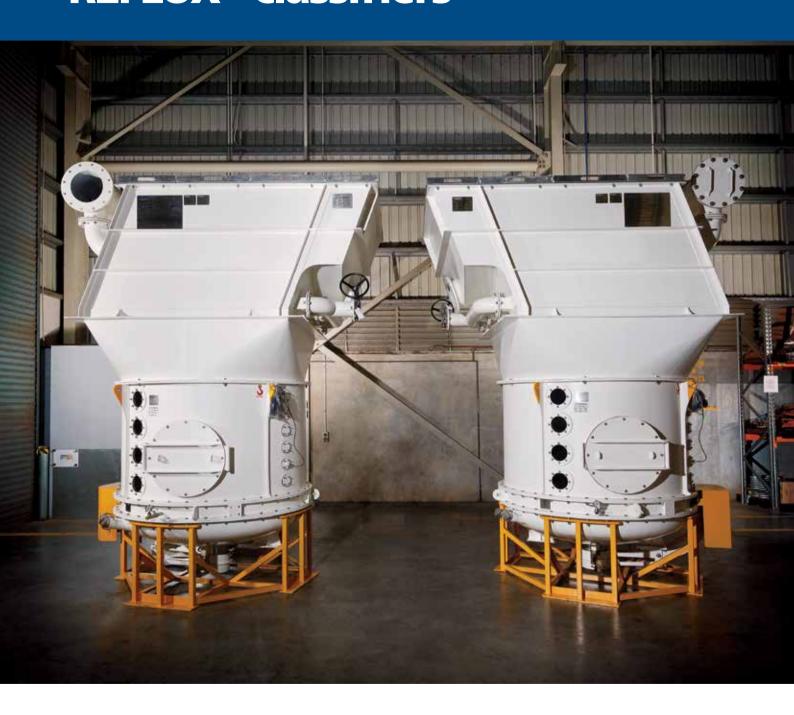# REFLUX™ classifiers

FLSmidth

REFLUX™ classifier

FLSmidth's Ludowici® REFLUX™ classifier units are state of the art fine particle technology (gravity based separation) and offer significant advantages in capacity, adaptability and efficiency. The REFLUX classifier incorporates the new 'laminar high shear rate' mechanism - the latest in fine particle gravity based separation technology. This, along with advancements in channel spacing and width mean that REFLUX classifiers are more efficient and more compact than competing fine coal and mineral processing equipment.

How it works

A REFLUX classifier separates small particles based on a difference in density or particle size. The feed distributor delivers the slurry into the REFLUX classifer mixing chamber. The slurry inside the REFLUX classifier then undergoes a sorting process due to the force of gravity and the up flow of fluidisation water.

At the bottom of the mixing chamber, a higher density bed of settling solids is formed. The high density bed is kept in suspension by jets of incoming fluidisation water at the base of the chamber. The coarse and fine low density particles that may be trapped in the dense fluidised bed tend to be sorted upward due to the turbulent motion created by the fluidisation water injected from below. The high density particles sink to the bottom of the fluidised bed due to gravity and migrate to the central underflow valve.

Ideal For	Features and Benefits
Gravity based separation of: • Coal (typically -2.0 mm Wedge Wire) • Minerals (typically -2.0 mm)	**Easy transport and installation** • Specifically designed for ease of transport, site assembly and installation • Smaller units up to RC™2000 size fit a in a single standard 20' open top shipping container • Larger units fit in 40' open top shipping containers **Compact and easy to operate** • High capacity and compact design accommodates any plant layout (RC2000 requires less than 2.4m x 2.1m of floor space) • Minimal operator input with only one operational control required **Pilot scale testing available** • Pilot scale RC300 units available for rental • The RC300 is designed for in-plant test work in coal and mineral applications (typical throughput is in the order of 1 to 5 t/hr dependant on the type and size of feed material)

The improved REFLUX™ classifer offers the latest features enhancing all functionality

The density of the middle section of the mixing chamber is measured and used to determine when to allow high density solids to be discharged from the bottom of the REFLUX™ classifier fluidisation chamber via the central underflow valve.

The low density particles are held in the slurry suspension and migrate to the lamella section of the REFLUX classifier. The lamella channels enhance the settling rate of any misplaced fine high density solids, which slide down the plates and slowly re-circulate back into the feed zone of the mixing chamber. This forms a slightly higher density zone under the lamella plates.

The low density and small particles tend to overflow from the REFLUX classifier Lamellas in their first pass, whereas the slightly denser and larger particles will require the autogenous process density within the vessel to rise to enable them to be displaced to overflow. The overflow from the REFLUX classifier contains most of the process water, the low density solids and any misplaced slimes in the feed.

The FLSmidth service promise – all products are supported by expert staff to ensure they are custom designed, manufactured and installed to your needs. FLSmidth also offer spares backup services and contracted maintenance schedules to maintain the highest operational efficiency of your products.

Unit capacity

FLSmidth has commercial units from RC™850 up the RC™3000 unit. Actual unit capacities are related to the type and size of feed material.

Typical capacities for a RC™ treating –1.0 mm +0.250 mm coal are:

Unit	RC850	RC1400	RC1750	RC2000 (RC2020)	RC2350	RC3000
Nominal Capacity (tonnes/hour)	20	50	70	90	130	200

Typical capacities for a RC™ treating –0.5 mm +0.125 mm iron ore are:

Unit	RC850	RC1400	RC1750	RC2000 (RC2020)	RC2350	RC3000
Nominal Capacity (tonnes/hour)	25	55	75	100	140	225

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