

ES6003 Inlet air filtration system

Multiple filter options to prolong operational life and increase air flow



Engineered solution purpose

This engineered solution offers a range of filters to improve filtration efficiency and extend operational life. Increased air flow can be provided to allow gas turbine upgrade upgrades. Replacement units for normal unit attrition are available along with enhanced systems to cope with rapid contamination from harsh environments.

Applicability

All packages with Rolls-Royce gas turbines.

Technical description

General instrumentation will include differential pressure transmitters (with alarm and shutdown) and local differential pressure indication. Rolls-Royce can provide either a multi-stage barrier filter or a self cleaning filter for combustion air and enclosure ventilation air (if required).

Multi-stage barrier filters:

Multi-stage barrier inlet filters are normally used in marine and coastal environments. The multi-stage barrier inlet filter includes the following:

- First stage moisture eliminator
- Second stage pre-filter
- Third stage high efficiency filter
- Final stage moisture eliminator (optional)

Self cleaning filters:

A self cleaning (single stage) inlet filter is provided with a set of cartridge elements that are cleaned by pulses of compressed air. Typically used in non-coastal on-shore applications. An optional high efficiency final stage filter element is available.

Housings:

The filters are normally housed in painted carbon steel housing. The following items can be provided as options:

Stainless steel filter housing (recommended for marine environment).

Stainless steel filter element framework

Insect screen (available in carbon steel or stainless steel)

Weather hood (available in carbon steel or stainless steel)

Galvanized walk ways and ladders (if applicable)

Benefits

Provides additional protection from fine particles and extends unit performance by preventing environmental deposits on the inlet housing and compressor rotor. Turbine protection is gained at low cost whilst compressor fouling and erosion is reduced, which increases availability and mean time between overhaul.



Scope of work

New filter and support structure will be designed per project specifications.

Bill of materials

Filter housing
Filter and coalescer elements
Instrumentation

Undertaken

At site

Bundling opportunities

Inlet cooling system [ES6002]
Controls upgrade [ES6006]
Instrumentation upgrade [ES6007]
Conduit upgrade [ES6008]
Fire and gas detection / suppression detection system [ES6009]
Inlet plenum ventilation system