

The Floveyor Hygienic Aero-Mechanical Conveyor – setting the benchmark for industry safety standards

Floveyor's hygienic Aero-Mechanical Conveyor (AMC) has been designed in accordance with the European Hygienic Engineering & Design Group (EHEDG) guidelines as well as all applicable EU legislation.

The Aero-Mechanical Conveyor, which Floveyor **invented in the 1950's, patented in Australia in 1962 (No. 13208- 62) and in Europe in 1981 (EP0022360 A1)**, is listed in "EHEDG Guideline No. 36 – Transfer Systems" as *one of only five recommended mechanical transfer systems for food products*.

The AMC's key hygienic features include:

- Optional stainless steel 304 or 316 construction
- All contact surfaces finished to Ra < 0.8, non-contact surfaces to Ra < 1.2
- FDA & EC certified polyurethane-sleeved conveying element (the **Rope**)
- Conveying element detectable by x-ray or tramp metal detector
- Complete batch transfer, with negligible residue
- Tri- clamp connections for contact surfaces
- Air purged bearings
- Free of welling points, flat surfaces, or internal catch points within the product contact zone.
- ATEX or IEC Ex zoning suitability (optional inclusion)
- Toolfree quick release access to maintenance areas
- Suitable for both Clean-In-Place (CIP) and Clean-Out- of-Place (COP) Systems

Capabilities

The AMC handles a wide range of powdered and granular materials. This fully enclosed conveyor handles dusty powdered products such as flour or milk powder without contaminating the environment. Product particle size may vary from 20 nm to 6 mm, with up to 5% w/w oversize particles (16 mm on a single axis, max. 6 mm on both other axes).



Figure 1: Reference Bulk Materials currently handled by Floveyor's AMCs

The AMC is optimally suited to handling dry products. However, it routinely conveys materials with a wide range of handling properties, from wet corn to grated cheese. For challenging products, particularly hygroscopic or sticky materials, Floveyor conducts product flow tests to confirm the AMC's suitability for the application prior to accepting an order. Its fluidising technology protects fragile and friable materials from damage and ensures zero separation for blended materials.

For potentially explosive materials, Floveyor offers optional ATEX/IECEx compliant equipment suitable for Zone 21/22 environments.

Floveyor's Hygienic AMC is designed for wet or dry cleaning. It is supplied complete with a fixed base for Clean-In-Place (CIP) systems as standard but may be fitted with an optional mobile base for Clean-Out-of-Place (COP) systems.

The Hygienic AMC is an extremely simply conveying device. Once installed and run in, it needs very little maintenance. Scheduled maintenance primarily involves inspecting the rope for wear and stretch and adjusting the tension as needed.

Hygienic Design Compliance

The hygienic elements of the equipment are designed and constructed in accordance with the following standards:

- o ISO 14159 Safety of Machinery – Hygiene Requirements for the Design of Machinery
- o EHEDG No. 8 Hygienic Equipment Design Criteria
- o EHEDG No. 9 Welding Stainless Steel to meet Hygienic Requirements
- o EHEDG No. 17 Passivation of Stainless Steel
- o EHEDG No. 22 General Hygienic Design Criteria for the Safe Processing of Dry Particulate Materials
- o EHEDG No. 25 Design of Mechanical Seals for Hygienic and Aseptic Applications
- o EHEDG No. 30 Guidelines on Air Handling in the Food Industry
- o EHEDG No. 35 Hygienic Welding of Stainless Steel Tubing in the Food Processing Industry
- o EHEDG No. 36 Hygienic Engineering of Transfer Systems for Dry Particulate Materials
- o EHEDG No. 38 Hygienic Engineering of Rotary Valves in Process Lines for Dry Particulate Materials

Health and Safety - Australia

The equipment is designed and constructed in accordance with the following standards:

- o Occupational Safety and Health Act 1984
- o Occupational Safety and Health Regulations 1996
- o MIAC Code of Practice -Safeguarding of Machinery and Plant 2009
- o AS 4024.1 Safety of Machinery Series
- o AS 1755 Conveyors – Safety Requirements

Health and Safety - Europe

The equipment is designed and constructed in accordance with the following standards:

- o 2004/108/EC Electromagnetic Compatibility Directive
- o 2006/42/EC Machinery Directive
- o 2006/95/EC Low-Voltage Directive
- o 2014/34/EU ATEX Directive
- o EN 618 Continuous Handling Equipment and System
- o EN 953 Guarding
- o EN 954-1 Safety Related Parts of Control Systems
- o EN 1672-1 Food Processing Machinery
- o EN ISO 13857 Safety Distances
- o EN 60204-1 Electrical Equipment of Industrial Machines
- o EN 62061 Functional Safety of Safety Related Equipment [...]
- o ISO 31000 Principles of Risk Assessment