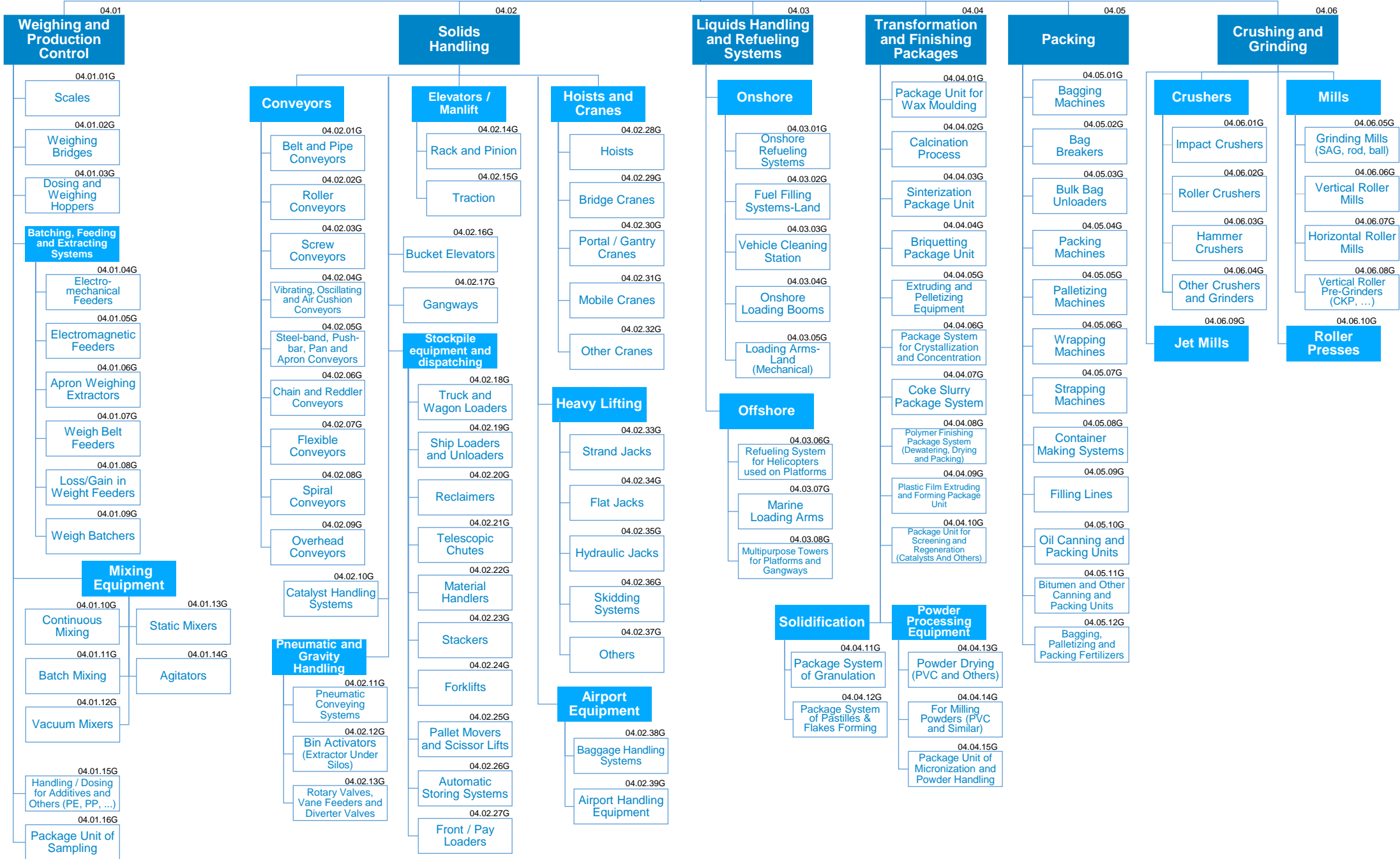


Handling Systems



Handling Systems

Handling Systems are packages that have the specific function of moving solids and liquids for short distances and more generally “handling” (weighing, crushing, packing, ...) them.

Handling Systems are utilized in production lines, warehousing, and other logistics operations.

The Oil&Gas industry in particular requires a wide range of Handling Systems that go from Onshore and Offshore liquids handling to Packing Systems (e.g. Package Unit for Steel Drum Manufacturing).

MAIN RATIONALES BEHIND THE STANDARD CATEGORIZATION

Weighing and Production Control

- The family consists of equipment for weighing, extracting and mixing for industrial production lines and logistics centers
- Belt weighing systems and weighing bridges were differentiated from other industrial scales as they are manufactured by different vendors (requiring different competences)
 - Their applications are different as well, for example weighing bridges are commonly used to weigh trucks and other vehicles, while belt weighing systems are utilized in production lines
- Extraction packages are often also coupled with a weighing functionality, and are differentiated by type of technology (belt, paddle, ...)
- At a high level, mixing can be divided into continuous and by batch. Vacuum Mixing was added as a third category as it is delivered by specific players and is applied to specific industrial processes (e.g. for sensitive chemical materials)

Solids Handling

- At a conceptual level, solids can be handled through a continuous process (conveyors, belts, ...) or through a discrete process (hoists, cranes, elevators, ...). However, there is a wide range of products and players within these two broad types
- Conveyors technology varies based on the type of material handled, for example Pipe Conveyors handle powder and/or materials that behave similarly to liquids
- There are two main types of elevators, which are based on different technologies and supplied by different vendors: Rack and Pinion and Traction. Vendor that can deliver both are rather uncommon
- Stockpile equipment is typical of logistics operations. Some examples are forklifts, stackers, etc.
- Hoists and Cranes include both material for plant and port operations, as well as other cranes (e.g. for construction)
 - Vendors tend to specialize in a specific type of cranes e.g. Bridge Cranes
- Heavy Lifting equipment is used to lift very heavy loads for construction and engineering purposes. It can be delivered through different types of Jacks, Skidding Systems or special Cranes
- The Airport Equipment node refers to equipment used for airport logistics operations, as baggage handling

Liquids Handling and Refueling Systems

- Liquids Handling and Refueling can be needed for either Onshore or Offshore activities, with some very specific applications / technologies that are very relevant to the Oil&Gas industry, such as Refueling System for Helicopters used on Platforms.

Transformation and Finishing Packages

- Transformation and Finishing Packages include miscellaneous packages that either close a production process, or transform a product, for example by sintering or calcination

Packing

- Packing machines include both those used to produce / store packing materials (e.g. Package Unit for Plastic Drums Manufacturing), as well as those used to operate the packing process (Oil Canning and Packing Units, Bagging Machines, Wrapping Machines, Bag Breakers, etc.)
 - The technologies and producers behind these type of machines are highly differentiated

Crushing and Grinding

- Crushing and Grinding Systems are typical of the energy-intensive operations of cement plants
 - They are two steps of the cement production process: crushing is a first step, which is used to break limestones, clays and other materials used for cement production into smaller particles. The grinding process is then used to further reduce them to a proper size that meets the hydration and hardening requirements
 - Once again, for crushing and grinding systems the technology drives the competition and was used as a base for this categorization