

# PRODUCT SPECIFICATION & EVALUATION



Product: High Temperature Pressure Evaporating Dryer (HyperX® HPXs Series)

Reviewed By: SOLTECK Engineering Dept

## DESCRIPTION & SPECIFICATIONS

The High Temperature Pressure Evaporating Dryer (HyperX® HPXs Series) is a patented solution utilizing Combines ESGS\* (Energy Smart Grid System) and Nano-technology to dry sludge efficiently. ESGS technology enables self-diagnosis of energy input requirements, thereby optimizing energy usage and associated energy costs.

- Hyper-X, the world's first proven integrated sludge treatment system, with applied nano-technology and ESGS [Energy-Efficient, self-diagnosis, energy smart grid system] combining dewatering and evaporating processes into a single machine.
- Hyper-X is an indirect contact evaporating dryer and combines filtering belt and heating roller technology. The belt compresses sludge against the heating roller wall, destroys cell membrane and evaporates free water and absorbed water into vapor rapidly. The heating medium and sludge are separated during the drying process, therefore only reheating of heating medium to replenish the energy lost, increase drying efficiency. Unlike standard thermal dryers, the heating medium is mixed with the moisture and discharge into atmosphere. An external force to compress sludge against hot drum surface, accelerates the evaporation rate from 1.5 to 3 times than without compression.

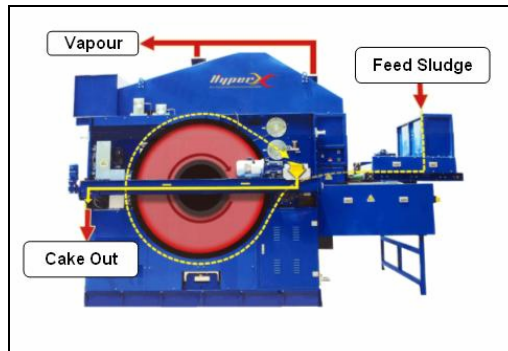
### Key features of the product

- High Performance drying process (Cost / Benefit ratio), compared to other technologies.
- Multi-industry application
- High Energy Efficiency
- Low Carbon Footprint
- Ease of Installation
- Compact and Modular configuration
- Highly Automated Operation and Ease of Operation

Fig 1 – HyperX® Series HPXs-2090



Fig 2 – Material Process Flow:



**TECHNICAL SPECIFICATIONS & STANDARDS**

- Capacity: 650–860 kg/h. 20%ds input / 90%ds output (Further performance statistics available for industry test scenarios)
- Footprint: 5.31m x 5.47m = 29 m<sup>2</sup> - Internal Heating Version: Dryer + Control Panel (see fig.2 and fig. 3).  
 Note: Footprint for LNG Boiler Version: Dryer + Control Panel + Boiler + Piping is approx 80 m<sup>2</sup>. (Overall Weight : 13.8 ton (Dryer + Control Panel))

Fig.3 - Footprint: Dryer Open with Control Panel

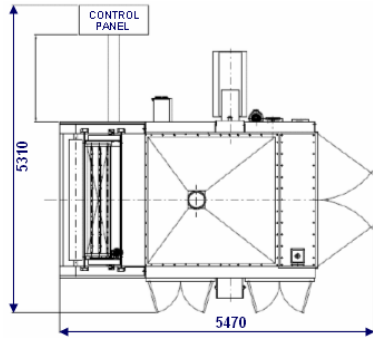
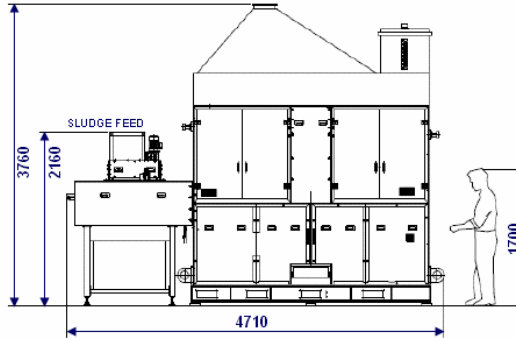


Fig.4 - Vertical Dimensions



Quality Assurance: ISO 9001 and ISO 14001. CE Certification 2011: CE mark (AM 50201560 0001 and AM 50192512 001)

Registered Patents: 10-2011-24022, 10-0976243, 10-1005086, Patents Pending /PCT/KR2011/5912 and /PCT/KR2011/5912)

**STRENGTHS:**

- Significant reduction of weight and volume 90% plus
- Nutrient value of material is unaffected
- Pathogen destruction
- Can produce Class A, Exceptional Quality Bio solids and is recognized by the USEPA (and in Europe)
- Energy efficient 0.65Kw per 1kg water removed
- Heating of material is volumetric
- No dust control or air permits required
- Minimal maintenance required
- Easily added to existing dewatered waste processing streams
- Systems sized for specific throughput needs

**LIMITATIONS OF USE:**

- Mobile operation (except for on-site performance testing, for specific limited time periods)
- Volumes below 100 kg per hour should be bulked up, for planned continuous processing

**RECOMMENDED DEPLOYMENT SCENARIOS:**

- Volumes between “250 and up to 4,000 kg per hour” are feasible with appropriate sizing of assemble units.
- Suited for Food, brewing, public water utilities, paper mill sludge and other.

**PERFORMANCE RESULTS IN LIVE OPERATION:**

- Municipal Sludge 20% input 92% output
- Dairy Waste 21% input 90% output
- Alum Sludge 17% input 85 % output
- Food Sludge 21% input 92% output

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