



# EOLUS

BEDDING HANDLING SYSTEM



A

WASTE DISPOSAL STATION

B

WASTE COLLECTION SYSTEM

C

TECHNICAL COMPARTMENT

EOLUS Bedding Handling System is designed for continuous handling, transportation, storage and disposing of dirty bedding material used in laboratory animal facilities.

The EOLUS system is designed to fit every specific customer requirements, regardless the distances involved, the animal model or the cage count.

EOLUS is a highly reliable automated system with the objective of maximizing the working efficiency and cutting down operators' efforts and allergen exposure. The EOLUS system is composed by three main elements:

**A. the Waste Disposal Station (WDS)**

**B. the Waste Collection System**

**C. the Technical Compartment.**

The dirty bedding material and environmental enrichments are dumped by operator or automated system into the **Waste Disposal Station (WDS)**

which is situated into the washing area. Then, the material is automatically transported via a conveyor belt into the hopper shredder. The central vacuum unit pneumatically draws the dirty bedding material from the shredder into the **Waste Collection System** which can be installed in different locations based on specific customers' layout. The **Technical Compartment**, composed by pump(s), filtration unit and system control, generates vacuum for material transportation.



**EOLUS**  
BEDDING HANDLING SYSTEM

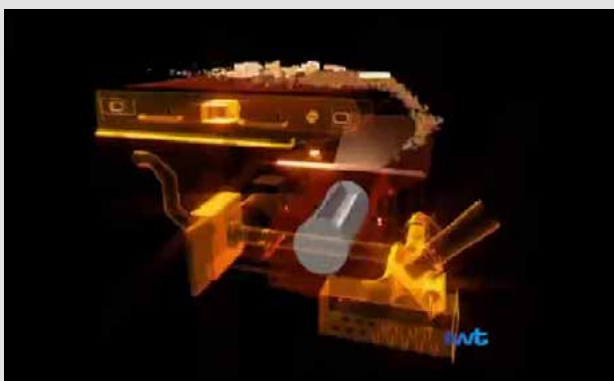


WASTE DISPOSAL STATION

The Waste Disposal Station (WDS) is the point where the operator dumps the dirty bedding material which is then automatically and safely transported into the shredder via a conveyor belt. The conveyor belt controls the flow of material dumped and operators' safety. Enrichment processability is guaranteed without any extra operations, such as grids or protections removal. The unit works with all common types of bedding and enrichments currently available in the market.

Thanks to its unique features, the WDS guarantees:

- **operator safety**, by the presence of the conveyor belt and the enclosures designed to prevent operator contact with the shredder
- **easy system management**, via a wall-mounted panel inclusive of a 4" color touchscreen for system monitoring and controlling (start&stop, alarms&warnings, manual commands)
- **efficient material transportation** thanks to the controlled material flow managed by the conveyor belt and the presence of a perforated grid for fine grinding of material before entering the vacuum piping.



▶ MATERIAL TRANSPORTATION



WASTE DISPOSAL STATION

## OPTIONS

### ▶ ALLERGEN PROTECTION SYSTEM

The WDS can be equipped with two alternative options for operator high level safety:

**Back-draft hood**, based on laminar flow technology, it has a dedicated ventilation fan with recirculated air system. It is equipped with washable pre-filter and a combination of G4+F7+H14 filters

**Canopy hood** which uses the main pump airflow and filtration to minimize operator exposure

### ▶ CLEANING POINTS

Wall-mounted **cleaning points** inclusive of 7m hose (23ft) and cleaning accessories (*up to #3 Cleaning Points*).



WASHABLE PRE-FILTER

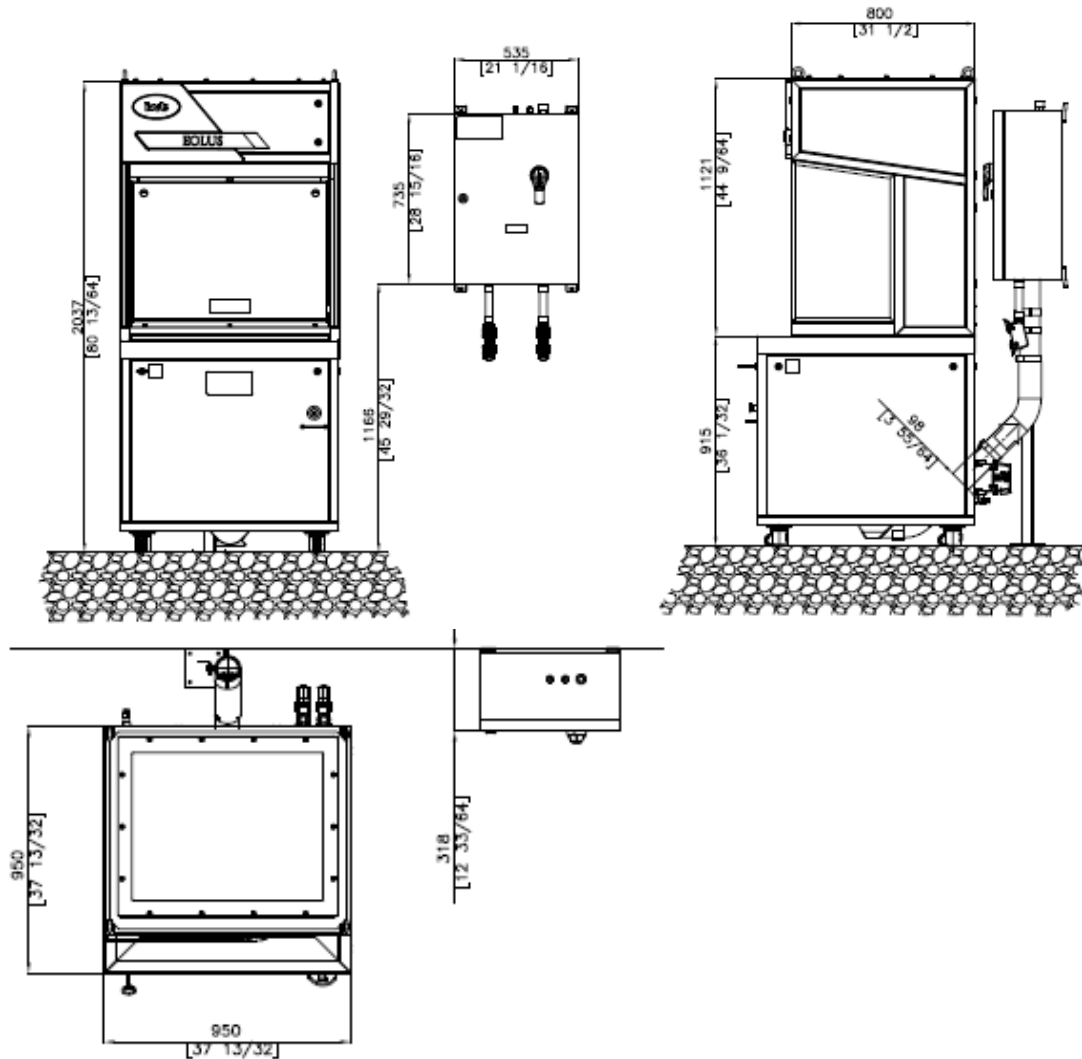


**EOLUS**  
BEDDING HANDLING SYSTEM



**A WASTE DISPOSAL STATION**

## TECHNICAL DATA AND SERVICE REQUIREMENTS



	SERVICE	CONNECTION	SERVICE REQUIREMENTS		
				METRIC UNIT	US IMPERIAL UNIT
E	Electrical supply	Electrical Box	Voltage and frequency: Type: Power required: FLA: On board disconnected fuse: Suggested Line Fuse:	400V / 50Hz Three phases + earth 3.6 kW 6.5A 10A 16A	480V / 60Hz Three phases + ground 3.6 kW 6.5A 10A 15A
A	Compressed Air	Ø 6mm	Dynamic pressure: Quality: Min flow rate:	6 bar Filtered, dried and oil free 84 l/min @ 6 bar	87 PSI Filtered, dried and oil free 22 Gallons/min @ 87 PSI
<b>WEIGHT</b>					
Electrical cabinet			20 kg	44 lbs	
Waste Disposal Station			442 kg	974 lbs	
Total			462 kg	1018 lbs	

\*System configuration: Waste Disposal Station for vacuum system with back-draft hood. Utility requirements may change depending on final product configuration. Please consult with your local representatives for further details.

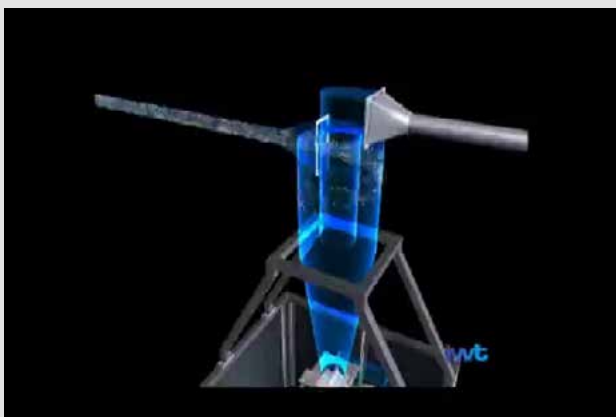


Once the material passes the WDS shredder, the central vacuum system moves it via pneumatic transportation into a waste collection point which can be located wherever the customer prefers. IWT can offer different waste collection solutions, depending on customers' needs and local regulatory standards.

► **BIN SOLUTION WITH CYCLONE SEPARATOR**

*(for four wheeled mobile bin applications)*

The cyclone separator has a S/S construction designed to make it flexible to fit different scenarios. The cyclone separates the bedding material from the air: the bedding material passes through a rotary valve and goes directly into the bin while the air is pneumatically driven toward the technical compartment. The system is equipped with a **max level sensor** to give information regarding the maximum bag filling level and with a **discharge chute with bag clamp** to make the bag changing process easier and safer for the operator. This solution can include **up to 3 cyclones**.



► CYCLONE SEPARATOR

► **BIN-CONTAINER SOLUTION WITH CYCLONE SEPARATOR**

*(for four wheeled mobile bin applications)*

The cyclone separator has a standardized S/S construction design with reduced height dimension in order to fit into **small facility rooms**. Therefore, this solution is for those scenarios with a minimum room height of 2,6m (9ft). The cyclone separates the bedding material from the air: the bedding material goes directly into the bag contained in the bin-container while the air is pneumatically driven toward the technical compartment.

A **max level sensor** (a no-contact radar sensor) is integrated to give information regarding the maximum bag filling level. The sealed bin-container with negative pressure is provided with a **slide-off tray with bag clamp** in order to reduce dust and allergens operators' exposure. This solution can include **up to 3 cyclones**.

► **SEALED CONTAINER SOLUTION**

The solution includes a sealed container under negative pressure. The transported bedding material enters the container via a dedicated connection, while the air is pneumatically driven toward the technical compartment. The negative container is provided with **quick easy fitting camlock connections**. Their proper positioning is verified by a **dedicated vacuum sensor** which continuously monitors the internal container depression to ensure the proper system functioning. The solution has integrated a **maximum level sensor** in order to give information regarding the container filling level (the total filling volume corresponds to the 80% of the total nominal volume). The negative container can have **different sizes** and **two different set-ups**.



BIN-CONTAINER SOLUTION

► **OPEN DUMPSTERS SOLUTION**

This solution can be integrated with all open dumpsters available in the market. The material is transported into a S/S construction cyclone separator and it goes through a rotary valve directly into the open container. It is equipped with a **flexible discharge chute** and a **max level sensor** to give information regarding the maximum filling level.



## OPTIONS

### ► BIN SOLUTION WITH CYCLONE SEPARATOR

*(for four wheeled mobile bin applications)*

**Increased rotary valve size**, needed in case of large animal applications and/or LARGE pump

**Pre-filtration system** for enrichment and fibrous bedding applications, including a stirrer to break bridge effect

**Suction ring** technology to protect operator from dust and allergens during the bag change process

Wall-mounted **cleaning points** inclusive of hose 7m hose (23ft) and cleaning accessories *(up to #3 Cleaning Points)*.

### ► BIN-CONTAINER SOLUTION WITH CYCLONE SEPARATOR *(for four wheeled mobile bin applications)*

**Pre-filtration system** for enrichment and fibrous bedding applications

**Suction ring** technology to protect operator from dust and allergens during the bag change process

Wall-mounted **cleaning points** inclusive of hose 7m hose (23ft) and cleaning accessories *(up to #3 Cleaning Points)*.

### ► SEALED CONTAINER SOLUTION

**Warning level sensor** which indicates when the container is almost full for a proper waste planning

**Pre-filtration system** for enrichment and fibrous bedding applications

### ► OPEN DUMPSTERS SOLUTION

**Increased rotary valve size**, needed in case of large animal applications and/or LARGE pump

**Pre-filtration system** for enrichment and fibrous bedding applications, including a stirrer to break bridge effect



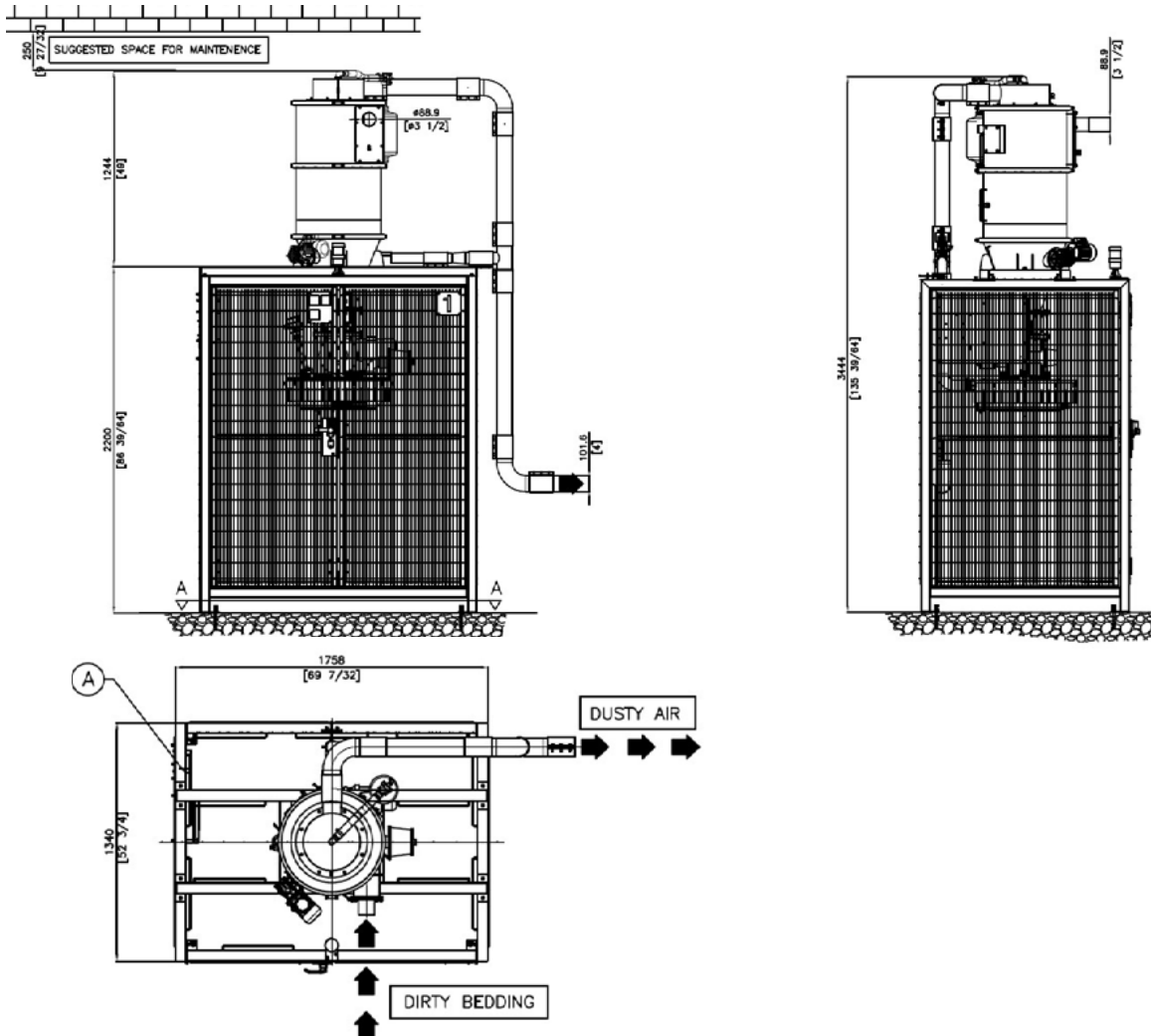


**EOLUS**  
BEDDING HANDLING SYSTEM



**WASTE COLLECTION SYSTEM**

## TECHNICAL DATA AND SERVICE REQUIREMENTS



SERVICE	CONNECTION	SERVICE REQUIREMENTS			
			METRIC UNIT	US IMPERIAL UNIT	
E3	Electrical supply	Electrical Box	Voltage and frequency: Type: Power required: FLA: On board disconnected fuse: Suggested Line Fuse:	380V - 400V / 50Hz Three phases + earth 1.85 kW 4.9A 10A 16A	480V / 60Hz Three phases + earth 1.85 kW 4.1A 10A 12A
A	Compressed Air	Ø 12mm Ø 0.5"	Dynamic pressure: Quality: Min flow rate: Consumptions:	6 bar Filtered, dried and oil free 80 l/min @ 6 bar 5 l/min	87 PSI Filtered, dried and oil free 21 Gallons/min @ 87 PSI 1.3 Gallons/min
<b>WEIGHT</b>					
APPROXIMATE OPERATING WEIGHT			360 kg	794 lbs	

\*System configuration: single cyclone separator with safety enclosures. Utility requirements may change depending on final product configuration. Please consult with your local representatives for further details.



**EOLUS**  
BEDDING HANDLING SYSTEM



TECHNICAL COMPARTMENT

The EOLUS system is characterized by a very compact all-in-one technical compartment which guarantees reduced space requirements, easier installation and great efficiency. The technical compartment is composed by three main elements: the vacuum pump(s), the filtration unit and the control box.

The **Technical Compartment size** depends on the final pump(s) dimensioning, the WDS number and the filtering unit surface.

#### COMPACT

- total footprint: 1460x890mm - 57,5x35 inch
- for a single SMALL pump management
- up to #1WDS
- filtering surface of 7,5m<sup>2</sup> (80,8 ft<sup>2</sup>)

#### REGULAR

- total footprint: 2230x1050mm - 87,8x41 inch
- for a single MEDIUM or LARGE pump management
- up to #1WDS
- filtering surface of 15m<sup>2</sup> (161,5 ft<sup>2</sup>)

#### DOUBLE

- total footprint: 2950x1050mm - 116x41 inch
- for a double SMALL, MEDIUM or LARGE pumps management
- up to #2WDS
- filtering surface of 28m<sup>2</sup> (301,4 ft<sup>2</sup>)

#### ► THE VACUUM PUMP(S)

The pump(s) are **managed by an inverter** which allows the system to work at the real on-site conditions. This contributes to increase the **system flexibility** and energy efficiency resulting in optimal consumptions. The pump(s) are mounted on **anti-vibration pads** in order to reduce eventual floor vibrations. The type of pump depends from the overall system dimensioning in terms of horizontal and vertical piping, the number of bends as well as the number of WDS needed. The final vacuum pump needs to be sized in order to generate the required vacuum to transport material from the washing area to the waste collection point. Its final dimensioning is based on the customer layout.

#### SMALL PUMP SIZE

- max 30m (98ft) horizontal piping
- max 10m (33ft) vertical piping
- max 5 bends

#### MEDIUM PUMP SIZE

- max 60m (197ft) horizontal piping
- max 16m (53ft) vertical piping
- max 8 bends

#### LARGE PUMP SIZE

- max 90m (295ft) horizontal piping
- max 24m (79ft) vertical piping
- max 10 bends

*Please contact IWT Sales representative for specific configuration or longer distances involved.*



VACUUM PUMP



#### ► THE FILTRATION UNIT

The filtration unit is designed to separate air-borne dust from the air going back to the vacuum pump: dust must remain outside the filtering element and clean air must be drawn inside the filters. The filter unit has a **modular design** in order to be easily adapt to different customers' layout. The filter unit is featuring a **self-cleaning process** performed by compressed air reverse pulse: the removed dust falls directly into a bin positioned below the filter tower. This is equipped with an **easy-sealing bags system** in order to minimize allergen operator exposure and make the bag changing safer.



EASY-SEALING BAG SYSTEM

#### ► THE CONTROL BOX

The control box includes a PLC system and a 7" touch-screen for an **easy system monitoring and controlling** with the following features:

- **LiteView**, web-based monitoring system available on smart-phone and tablet app for remote monitoring inclusive of a "blackboard" to send messages to the screen;
- **Teleservice**, remote connectivity via internet (on customer's permission) for troubleshooting and software upgrades directly from the factory without stepping in your facility;
- **eMeter**, data collection on system consumptions.

## OPTIONS

**HEPA filter** class H14

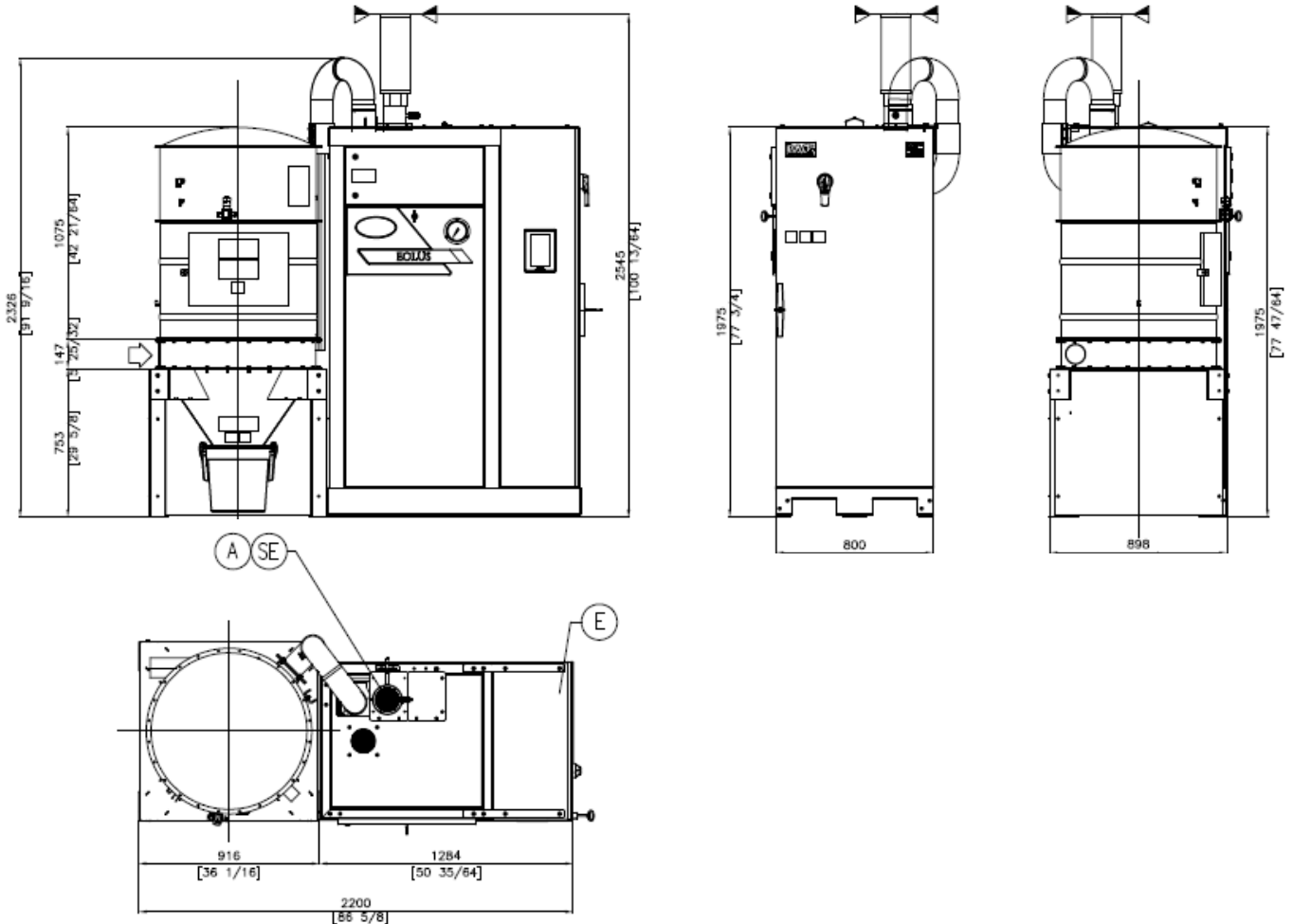
**Suction point** for dust removal directly from the Filtering Unit canister

Wall-mounted **cleaning points** inclusive of 7m hose (23ft) and cleaning accessories (*up to #3 Cleaning Points*).





## TECHNICAL DATA AND SERVICE REQUIREMENTS



	SERVICE	CONNECTION	SERVICE REQUIREMENTS		
				METRIC UNIT	US IMPERIAL UNIT
E3	Electrical supply	Electrical Box	Voltage and frequency: Type: Power required: FLA: On board disconnected fuse: Suggested Line Fuse:	380V - 400V / 50Hz – 60Hz Three phases + earth 37.2 kW 69.6A 100A 125A	480V / 60Hz Three phases + ground 37.2 kW 57.6A 125A 150A
A	Compressed Air	$\varnothing$ 12mm $\varnothing$ 0.5"	Dynamic pressure: Quality: Min flow rate:	6 <u>bar</u> Filtered, dried and oil free 80 l/min @ 6 bar	87 PSI Filtered, dried and oil free 21 Gallons/min @ 87 PSI
SE	Exhaust	$\varnothing$ 114.3mm $\varnothing$ 4.5"	Max air flow: Max temperature:	1500 m <sup>3</sup> /h 110 °C	882 CFM 230 °F
<b>WEIGHT</b>					
BHS REGULAR + DUST RECOVERY + HEPA FILTER			350 kg	770 lbs	
LARGE PUMP SIZE			1115 kg	2460 lbs	

\*System configuration: Regular Technical compartment, large pump and right version. Utility requirements may change depending on final product configuration. Please consult with your local representatives for further details.

## EQUIPMENT CONFIGURATION

### ► WDS QUANTITY

- 1
- 2

### ► WASTE COLLECTION SYSTEM

#### BIN SOLUTION WITH CYCLONE SEPARATOR

- **Quantity**

- 1
- 2
- 3

- **Safety system**

**s/s support frame** and enclosures with safety doors included (total cyclone height 3,5m - 11,5ft)  
**discharge chute extension with bag clamp** (total cyclone height 4,5m - 14,8 ft)

#### BIN-CONTAINER SOLUTION WITH CYCLONE SEPARATOR

- **Quantity**

- 1
- 2
- 3

#### SEALED CONTAINER SOLUTION

- **Container sizes**

- 8m<sup>3</sup>
- 10m<sup>3</sup>
- 12m<sup>3</sup>
- 15m<sup>3</sup>
- 20m<sup>3</sup>
- 30m<sup>3</sup>

- **Container set-up**

Roll-off (available for all container sizes)  
Lugger lift (available for 8m<sup>3</sup>, 10m<sup>3</sup>, 12m<sup>3</sup> containers)

### ► TECHNICAL COMPARTMENT SIZE

- Compact
- Regular
- Double

### ■ VACUUM PUMP(S) SIZE

- Small pump
- Medium pump
- Large pump

### ■ FILTRATION UNIT LAYOUT (additional option available only for Regular and Double Technical Compartment size)

- Mounted on the **right side** of the pump
- Mounted on the **left side** of the pump
- Remoted position** (up to 5m-16.5ft)

### ► POWER REQUIREMENTS

- 400V-50Hz** (three-phases + neutral + earth)
- 380V-60Hz** (three-phases + neutral + earth)
- 480V-60Hz** (three-phases + earth)
- Others

*For different configuration please consult us.*

## VALIDATION AND QUALIFICATION

A set of tests and protocols are available as optional to verify the system performance:

- FACTORY ACCEPTANCE TEST (FAT)**
- SITE ACCEPTANCE TEST (SAT)** - inclusive of IQ, OQ, PQ



## COMPLIANCE TO DIRECTIVE AND STANDARDS

<b>2006/42/EC</b>	Machinery Directive
<b>2014/30/UE</b>	EMC Directive
<b>2014/35/UE</b>	Low Voltage Directive
<b>CEI EN 60204-1:2016</b>	Safety of machinery. Electrical equipment of machines. General requirements
<b>UNI EN ISO 12100:2010</b>	Safety of machinery. General principles for design. Risk assessment and risk reduction.

## DOCUMENTATION

The EOLUS system comes in with the following standard documentation:

- User and Maintenance Manual
- P&ID
- Wiring diagram
- Pneumatic diagram
- Spare part list
- EC conformity declaration - UL/CSA listing.