

Coastal Powdercoating

JMS 16 F-Series Dust Collector & Blast Room



COASTAL
POWDER COATING
& BLASTING



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Abrasive blasting facility upgrade supports local manufacturing

Project Summary

Client	Coastal Powdercoating
Location	Queensland, Australia
Application	Abrasive Blasting - Sandblasting
Project Summary	<p>Design, Manufacture & Install:</p> <ul style="list-style-type: none">• 15m Abrasive Blast Room• Grydale JMS 16 F-Series Dust Collector• Pneumatic Recovery System



Client Overview

Established in 1985 Coastal Powdercoating is a family owned and operated Gold Coast business, renowned for their excellent workmanship and attention to detail. They have one of the biggest facilities on the Gold Coast offering paint stripping, (chemical and burning), aluminium pre-treatment and sandblasting. They have built a strong reputation as one of the Gold Coast's most trusted and versatile businesses.

Client Challenge

In 2020, Coastal Powdercoating decided to invest in a facilities upgrade programme to expand their operations. A core part of the programme was a larger blast room to enable larger powder coating projects to be undertaken more efficiently in-house, without affecting the quality of the end product.

A key part of the powder coating process is sandblasting, which etches the surface of metal ready for the powder coating application. The process involves firing fine sand or steel shot at a very high pressure through a blast hose and nozzle.

Sandblasting generates large volumes of dust that can be toxic and small enough to be inhaled into lungs and thus can be hazardous to workers. Sandblasting operations are therefore undertaken in dedicated blast rooms that are placed under negative pressure by a dust collection system to remove unsafe contaminants from the air and keep the workplace safe for operators.

Coastal Powdercoating were keen to support local manufacturing and to partner with a single provider for their new facilities, so approached Grydale with their requirements for a 15m long, 5m wide and 3m high blast room and dust collection and pneumatic recovery system.

Our Solution

In 2015, Grydale designed, manufactured and installed the existing blast room and dust collection system operating on site so were keen to continue to support the team at Coastal Powdercoating with their new facilities upgrade.

Grydale JMS F-Series (fixed unit) dust collectors are custom designed and offer a long term and cost-effective solution to dust and fume control for a wide range of industrial applications.

Sizing the dust collection system correctly is critical, as incorrect sizing can result in high emissions, lowered productivity, reduced filter life and a hazardous/unsafe working environment.

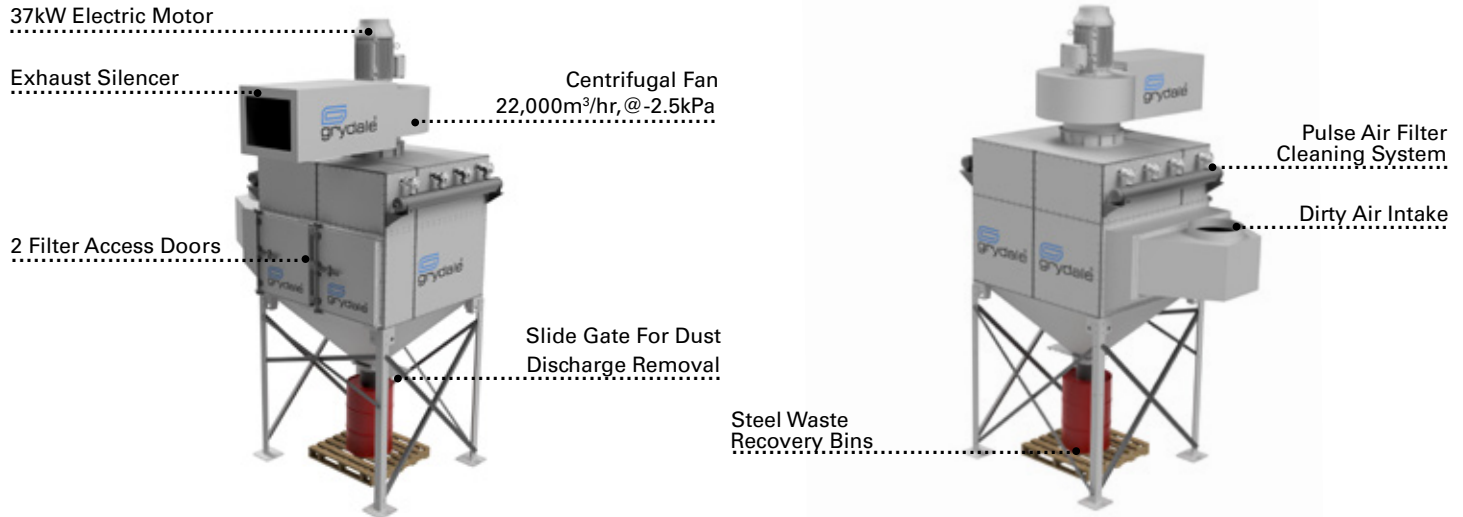
A combination of airflow, air velocity, pressure, resistance and air-to-cloth ratios help our in-house engineering team to determine the appropriate size and ducting design configuration of the dust collection system, ensuring the air from the room is filtered and particulate matter is prevented from escaping.

Our team calculated our **JMS 16 F-Series** dust collector, capable of pulling **22,000m³/hr of air @ -2.5kPa**, would provide the **0.5m³/s** air flow through the new blast room and meet their dust collection requirements.

The Centrifugal Fan pulls 'dirty air' from the blast room into the dust collector, dust is captured on the filters and it forms a 'cake'. Plant air is then used to pulse clean the filters and the heavy 'cake' particles drop into the hopper and are discharged into the steel drums via slide gate mechanisms.

Technical Specification

JMS-16 F-Series Dust Collector



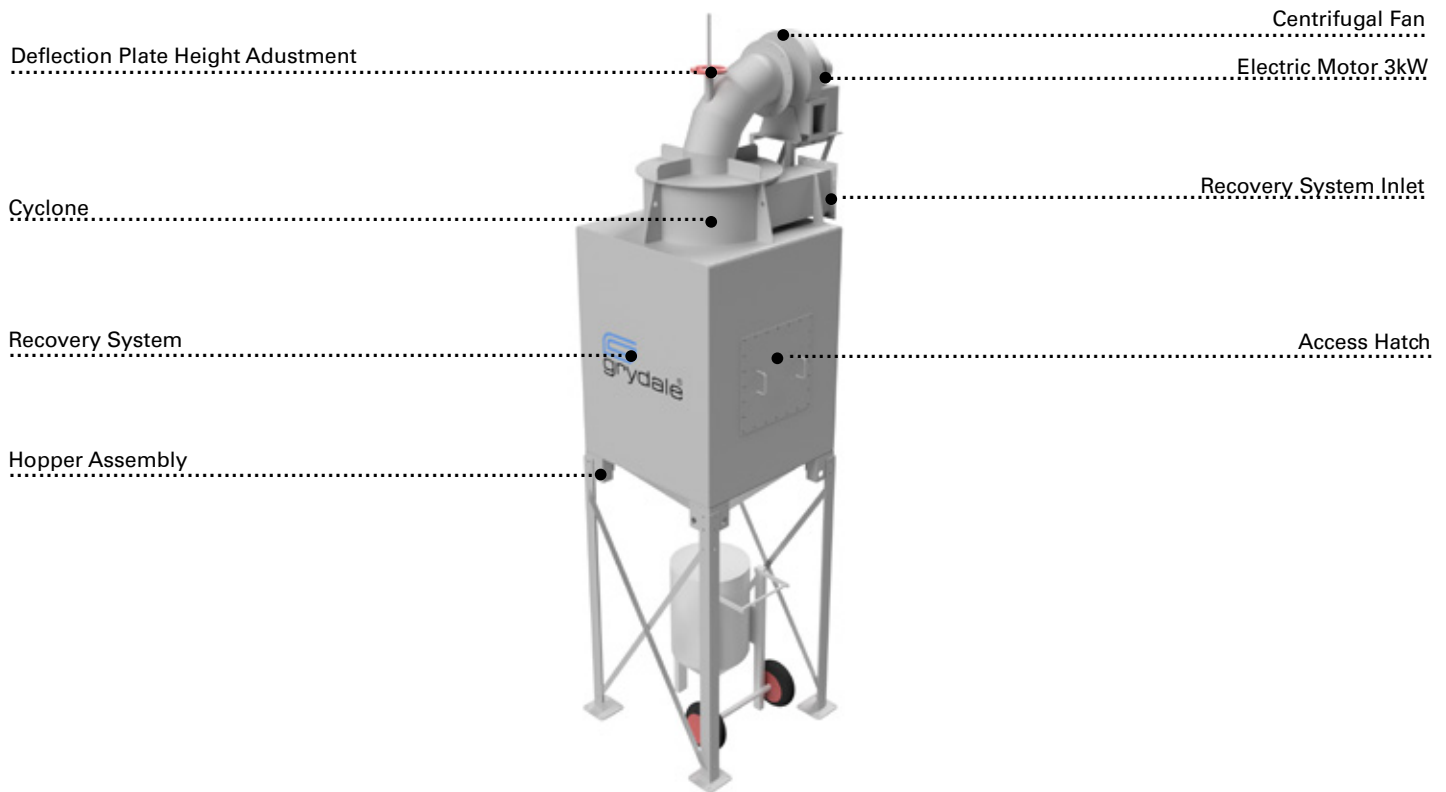
Key Dimensions	
Height	5440mm (includes roof mounted fan)
Length	2920mm
Width	3460mm
Centrifugal Fan	
Air Volume Pressure	22,000m ³ /hr @ -2.5kPa
Fan Power	37kW
Variable Air Flow Control	Yes
Air Intake ϕ	610mm ϕ
Floor Sweeps	2
VSD	Yes
Filter Technical Data	
High Efficiency Filters	16
Filter Cleaning Efficiency	99.99% at 0.067 micron
Individual Filter Surface Area	28m ²
Total Filter Surface Area	448m ²
Filter Temperature Limit	82°C (179.6°F)
Maximum Pressure Drop Across the Filters	1500 Pa
Method of Changing Filters	Via Filter Access Doors

Filter Access Doors	2
Reverse Pulse Filter Cleaning System	
Reverse Pulse Cleaning System	Yes
System Cleaning Pulsing Solenoids	8
Compressed Air	Fitted with plant air attachment
Adjustable Pressure and Frequency Rate	Yes
Auto Drains	Yes
Dust Discharge System	
Hopper Discharge	Single Pyramid Hopper
Discharge Mechanism	1. Slide Gate
Final Discharge	Steel Waste Recovery Bin(s)
Connection to Drum Discharge ϕ	250mm ϕ Flex Duct
Instrumentation	
Differential Pressure Gauge	Yes
Static Pressure Gauge	Yes
Key Safety Features	
Emergency Stops	1
Mains Isolator	Yes

* Alternative centrifugal fans can be utilised to optimise air volume and pressure to suit site conditions and specific applications.

Technical Specification

Pneumatic Recovery System



Key Dimensions

Height	5430mm
Width	1915mm
Length	1475mm

Centrifugal Fan

Air Intake ϕ	610mm ϕ
Air Volume & Pressure	1550m ³ /hr @ -2.5kPa
Fan Power	3kW
Variable Air Flow Control	No

Dust Discharge System

Hopper Discharge	Single, Pyramid Hopper
Slide Gate Mechanism	No
Final Discharge	200L Blast Pot
Connection to Drum Discharge ϕ	114mm ϕ

Additional Features

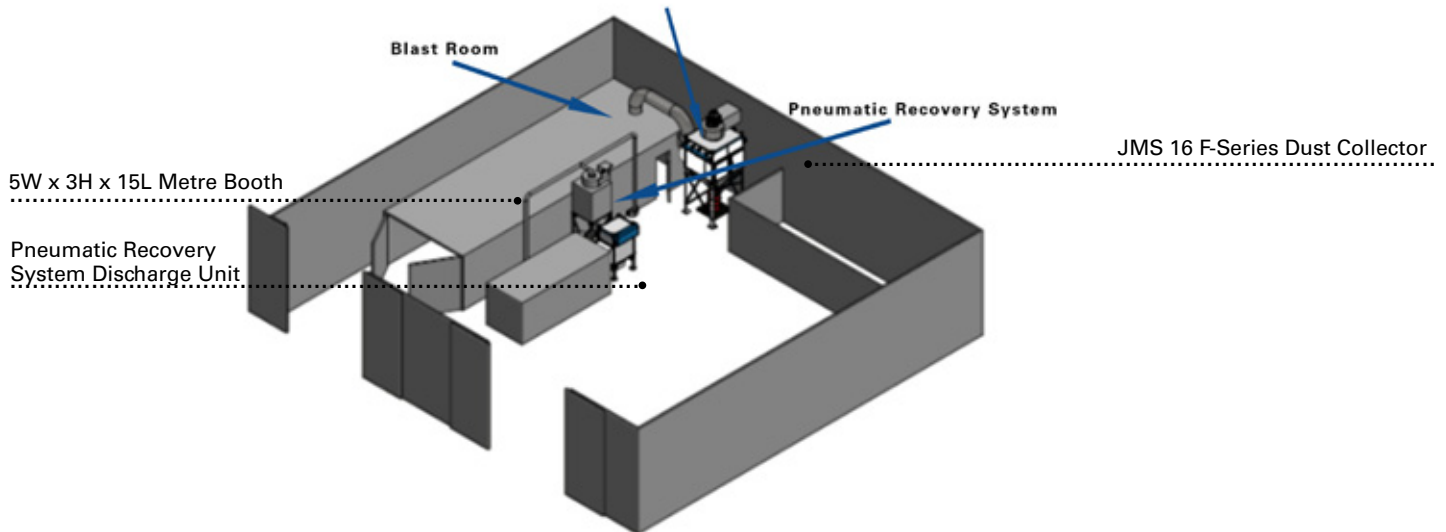
Access Hatch	Yes – for manual clean out of heavy particles
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Within the pneumatic recovery system, garnet is transported by dilute phase pneumatic conveying through thick-walled piping. Cyclonic action is used to separate the used garnet from the air stream, down the hopper, and back into the blast pots to be reused. There are no filters in the recovery system, so exhausted air is fed back into the JMS 16 F-Series dust collector to be filtered.

The recovery system is tuned on-site to ensure the maximum amount of garnet is recovered, and minimises how much garnet is filtered through the dust collector. It is also important to keep velocity through the recovery piping minimized to reduce the wear rate. All bends have a sacrificial wear plate that can be easily replaced when required.

Technical Specification

Blast Room



Key Dimensions

Height - Internal	3,000mm
Width - Internal	15,000mm
Length - Internal	5,000mm
Panel Thickness	100mm
Ceiling and Wall Panel Specification	Pre-painted White Steel skins (0.6mm thick) with zinc substrate. The skins are permanently bonded to a core of SL Grade Expanded Polystyrene Foam.
Steel Floor	6mm 250 grade plate
Floor Insulation	Channel base floor only. No insulation or underfloor heated cables.
Main Access Door	1 x 2895 x 4000 x 50mm Leaf - Bi Part Door - 3 x Truck Body Hinges To Each Leaf - 200mm Pad Bolt Supplied to Each Leaf
Personnel Door	1 x 2100 x 900 x 50mm Leaf - Wiper Sill
Window	1 x 400mm Dia View Window - Push / Pull Plates and Door Closer
Lights	12 x Ceiling Mounted LED Lights

The Results

Timing for the installation of the blast room and dust collection system was critical to get the new facilities operational quickly. All our products are manufactured in Australia and components are sourced from Australian Suppliers which helps us to achieve quick turnaround times. The installation went smoothly with everything installed and commissioned within 7 working days.

Coastal Powdercoating now have the ability to expand their business without the need for outsourcing.

"A month after the commissioning of our second Grydale blast room and dust collection system, we couldn't be happier, we got through 3 weeks backlog of work within the first week and are now a full end to end process in-house and are no longer outsourcing larger projects. We have been able to employ a second blaster to keep up with our workload.

"We couldn't be happier with the service of Grydale."

Nick McKenzie, Owner, Coastal Powdercoating



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