



Services for the Civil Engineering Industry

Concrete Surface Preparation with UHP Water Jetting



GIVING WATER THE CUTTING EDGE

RGL



On-site set up: jetting unit, VAC power pack & hopper

Concrete floor preparation robot

Powerful vacuum recovers waste water & debris

CONCRETE SURFACE PREPARATION WITH UHP WATER JETTING

Overview

With over 35 years' experience, RGL are the experts in providing concrete scabbling and surface preparation.

We provide a unique combination of specialist skills, technical knowledge, excellent working practices and project management capabilities. We offer a turnkey solution and ensure each stage of the process is subject to the highest quality standards.

This end-to-end capability provides clients with major advantages in project planning/cost control and quality management – ensuring that RGL meet all specifications and environmental constraints and works are completed on time and within budget.

Advantage of working with RGL

- Simple procurement
- Industry leading technology
- Total project management for the complete process
- Adherence to Institute of Corrosion, WJA and CRA guidelines
- High level technical know-how and expertise
- Highly competent, multi-disciplined qualified crews

Handheld and Robotic Concrete Scabbling and Surface Preparation

RGL offers both handheld and robotic concrete scabbling, using 40,000 PSI ultra high-pressure water jets which can remove a range of coatings, as well as keying, smoothing and levelling of surfaces ready for application of coatings.

On concrete we use our Limpet blast head which incorporates powerful vacuum recovery of waste water and debris. It can be used on surfaces such as bridge decks and tunnels, providing a clean, dust-free finish without any percussive vibration associated with mechanical preparation techniques that can create micro cracks. This finish is perfect for laying new concrete, or coatings (such as waterproofing) as all chemical traces and debris are removed as part of the process.

Concrete scabbling is used to expose the aggregate, creating a roughened surface on the concrete on which further concrete may



Robotic concrete bridge deck surface preparation



Powerful vacuum reduces noise and enables containment and recovery of waste water and concrete



Surface preparation head with brush type vacuum skirt



84 dB achieved at 5 metres



Hand held treatment with spinning UHP water jet



Hand held lance finishing around edges & columns

be poured or protective coatings or wear courses applied. A surface prepared by water jet is dust free, chemically clean and free from micro cracks which can cause premature bond failure.

The roughness of the scabbled finish can be varied by adjusting nozzle rotation speed and standoff distance. The robotic semi automatic unit gives excellent control and a consistent finish.

Concrete scabbling by hand held lance is fairly quick to set up and quicker for smaller surface areas and harder to reach places. The operator can control the standoff so they can be reactive to uneven surfaces and varying material hardness.

Key Benefits of Handheld Surface Preparation

- Vibration free method (no micro cracking of Substrate)
- Noise mitigation with acoustic protection for the public
- Chemically clean surface
- Local containment and management of resultant debris and wastewater

Robotic Scabbling with Vacuum Recovery of Water

Robotic concrete scabbling is used for large surface areas. A skilled operator is able to maintain very close control of nozzle stand off distance and traverse speed.

With robotic concrete scabbling and surface preparation Limpet heads are used with vacuum recovery. As a surface is prepared the system simultaneously recovers the waste and water. This is an advantage with regards to environmental control and additionally if clear up is an issue, such as when working in public spaces. Noise is also vastly reduced.

Key Benefits of Robotic Scabbling

- Most suitable for larger areas
- 3 x faster than the handheld lance method
- Remote controlled robotic application
- Keeps people away from the blast area, ensuring minimal chance of on-site injury
- No requirement for a fully enclosed area
- Local containment and management of resultant debris and wastewater
- A consistent, uniform finish



Robotic water jet scabbling for the London Crossrail Tunnel project



Producing a light scabbled finish on the pre-cast tunnel lining



Pre cast tunnel section scabbled finish close up

RGL Emergency Solutions

Despite your best efforts, regular maintenance routines may not always be sufficient to prevent unexpected process failures - and for which retained service suppliers cannot offer viable solutions. You can rely on RGL to make our crews available at short notice to speedily and efficiently devise and implement solutions to overcome even the most technical challenges.

Comparison of UHP Water Jetting, Abrasive Blasting and Percussive Tools for Concrete Surface Preparation

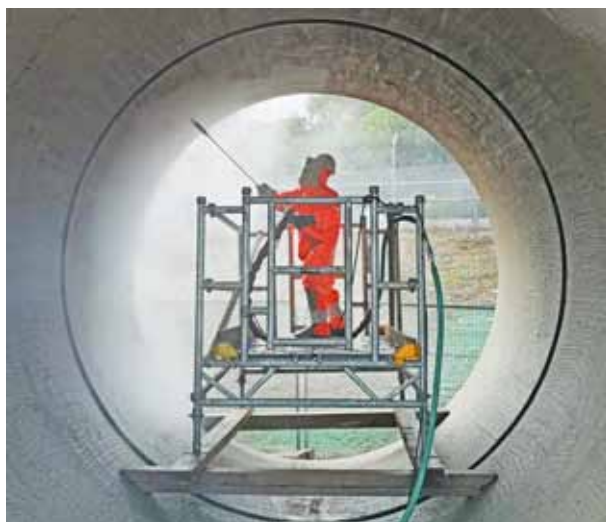
	Ultra High Pressure (UHP) Water Jetting	Abrasive Blasting	Mechanical Hammering
Vibration transfer to structure/other structures	None	None	Yes - leading to possible micro-cracks in substrate
Vibration - Operator	None	None	HVAC Concerns
Dust Exposure	None	Yes - volume depends on abrasive used	Yes - intrusive hammering sound and transmitted noise through structure and into other adjacent structures
Productivity	Up to 200 square metres per shift	150 square metres per shift	25 square metres per shift
Waste Products	Removed concrete material, plus 14000 litres of filtered waste water returned to environment	Removed concrete material plus 1200 - 1800kg spent abrasive media	Removed concrete material
Bond failure rate for applied coatings or concrete	Excellent results - non visual chemical contamination also removed	Mixed Results	Poor Results



Preparing different types of concrete surfaces



Surface preparation on a bridge Soffit



Hand held water jetting for concrete pipe line preparation



“What we say
....we do”

In summary, we will do our utmost to deliver complete satisfaction to you by:

- responding quickly to your enquiries
- working with you to fully understand your requirements
- providing you with the benefit of our experience
- preparing detailed site safety, quality and environmental plans, including method statements and risk assessments
- providing competitive quotations
- delivering on what we promise for project start and duration
- deploying experienced crews and proven, correctly maintained equipment
- working within site safety rules and regulations
- managing the project environment including waste water treatment and filtration
- managing each project through to completion
- COSHH Assessment and measures to avoid adverse environmental impact

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