HYDRODEMOLITION

THE SUPERIOR METHOD FOR LONG-LASTING, HIGH-QUALITY CONCRETE REPAIRS.

WHAT IS HYDRODEMOLITION?

Hydrodemolition is a concrete removal technology that employs high-pressure water to remove damaged concrete, as well as asphalt and grout. This method creates a great bonding surface for repair and new coating applications.

Conjet's concrete hydrodemolition robots use a high-pressure water jet, which travels over the concrete surface at a constant speed, taking advantage of the concrete's permeability to create an overpressure that breaks it apart. The automation of the hydrodemolition robots allow operators to easily execute both selective and non-selective removals.

Selective removal is the preferred method when only the deteriorated concrete needs to be removed. Our concrete hydrodemolition robots use high-pressure water up to 22,000 psi (1500 bar) to selectively remove concrete at a predetermined quality level.

Non-selective removal (also known as “hydro-milling”) is the preferred method when concrete needs to be removed to a predetermined depth, independent of the quality of the concrete. The ACR™ robot uses high-pressure water above 22,000 psi (1500 bar).

No matter what option you choose, the high-pressure water jet technology will create a rough surface optimal for bonding of new concrete without creating any micro-cracks or damage to the remaining structure. At the same time, the hydro demolition technique leaves the rebar intact and cleaned from rust and corrosion.

With Conjet ACR™ robots, you control the end result, always ensuring you meet the customer’s specifications.
HOW DOES HYDRODEMOLITION WORK?

Our ACR™ robots remove concrete by moving a high-pressure water jet over the surface in a predetermined pattern at a predetermined speed until the desired depth is reached. This is repeated over the entire surface in order to guarantee the same quality depth over the entire structure.

The remaining surface is free from delaminated or otherwise damaged concrete leaving a perfect surface for the new concrete to bond to.

In the process of hydrodemolition, no micro cracks are introduced to the structure. Neither does hydrodemolition cut the rebars. If there is corrosion on the rebars, it is removed in the hydrodemolition process.

ADVANTAGES

• Does not cause micro-cracks in the remaining structure, which ensures that the repair will be long-lasting with a high quality.
• Worker health & safety: creates no vibrations, and noise and dust are dramatically reduced.
• Allows selective and non-selective removal.
• Keeps the rebars clean and intact.
• Prepares a surface ideal for bonding between old and new concrete.
• Improved efficiency – more than 25 x faster than mechanical jackhammering.

WHY CHOOSE HYDRODEMOLITION?

Hydrodemolition technology removes concrete using water pressure of up to 3000 bar, for long-lasting, high quality repairs. It creates no micro-cracks and leaves an ideal bonding surface for the fresh concrete.
THE IDEAL AREAS OF APPLICATION FOR HYDRODEMOLITION EQUIPMENT

Hydrodemolition equipment enables a versatile, safe, and precise way to repair concrete for a wide variety of large-scale, small, and hard-to-reach projects ranging from concrete structure repair and removal, to surface repair and many more. Whether you need simple surface preparation or a complete concrete excavation and removal, our ACR™ robots can help. Conjet’s hydrodemolition equipment is utilized within several industries to help restore and repair structures and infrastructure such as, but not limited to:

- Roads, bridges, and runways
- Ports and quays
- Parking decks
- Canals and locks
- Dams, spillways, and turbines
- Pillars, piles, and columns
- Tunnels, aqueducts, and pipes
- Nuclear power plants
- Water treatment facilities
- Stadiums and warehouses
**BENEFITS OF HYDRODEMOLITION**

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<th>OPTIMIZED RESULTS</th>
<th>AUTOMATED</th>
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<td>Hydrodemolition ensures high quality, long-lasting repairs by creating a surface ideal for bonding as well as preserves and cleans rebars. This results in a longer useful life, lower maintenance costs for the concrete structure, and reduced risk of warranty claims for the contractor.</td>
<td>Automation leads to efficiency and ease-of-use. One ACR™ hydrodemolition robot can do the work of 20 mechanical jackhammers. Intelligent, wireless communication between operator, robot and pump enables unified startup and emergency shutdown.</td>
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<th>SUSTAINABLE</th>
<th>SUPERIOR BONDING</th>
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<td>Noise and dust pollution as well as vibrations are dramatically reduced using hydrodemolition. It extends the useful life of the structure and due to the increased lifespan of structures that have been rehabilitated with hydrodemolition, less maintenance will be necessary in the future.</td>
<td>Hydrodemolition does not create any micro-cracks in the remaining structure, which ensures that the repair will be long and lasting and high quality. It removes all unsound concrete, leaving a clean and roughened surface, improving the quality and performance of newly applied coating.</td>
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<th>SELECTIVE &amp; NONSELECTIVE REMOVAL</th>
<th>SAFETY</th>
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<td>By selecting the proper pressure level and flow, selective removal can be achieved. Below a certain pressure level, the water will not cut the aggregate, only the paste bonding the aggregate together. Since the water follows the laws of hydraulics: easiest way out, the less competent concrete will be removed, and the stronger will remain. By increasing pressure, you can also achieve nonselective removal whenever you need to remove both the aggregate and paste.</td>
<td>The biggest challenge on all work sites where concrete is being removed, or even demolished, is to secure work and health safety for the operators. Due to the fact that our hydrodemolition ACR™ robots are able to operate from a distance to the concrete removal location, greatly reduces dust and noise pollution, and eliminates vibrations, they are among the safest concrete removal methods in the industry.</td>
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**HYDRODEMOLITION VS. HYDRAULIC BREAKERS AND JACKHAMMERS**

Repairing a large surface with hydraulic breakers or jackhammers is simply ineffective and causes damage to the remaining structure, requiring extra work to repair.

Hydraulic breakers or jackhammers do not give the operator the control needed for optimal and precise concrete removal.

One Conjet ACR™ robot can do the work of up to 25 jackhammer operators, reducing cost and increasing productivity and safety. Noise is greatly reduced, and silica dust exposure and "white-fingers syndrome" (caused by vibrations from jackhammers) are completely avoided using Conjet ACR™ robots.