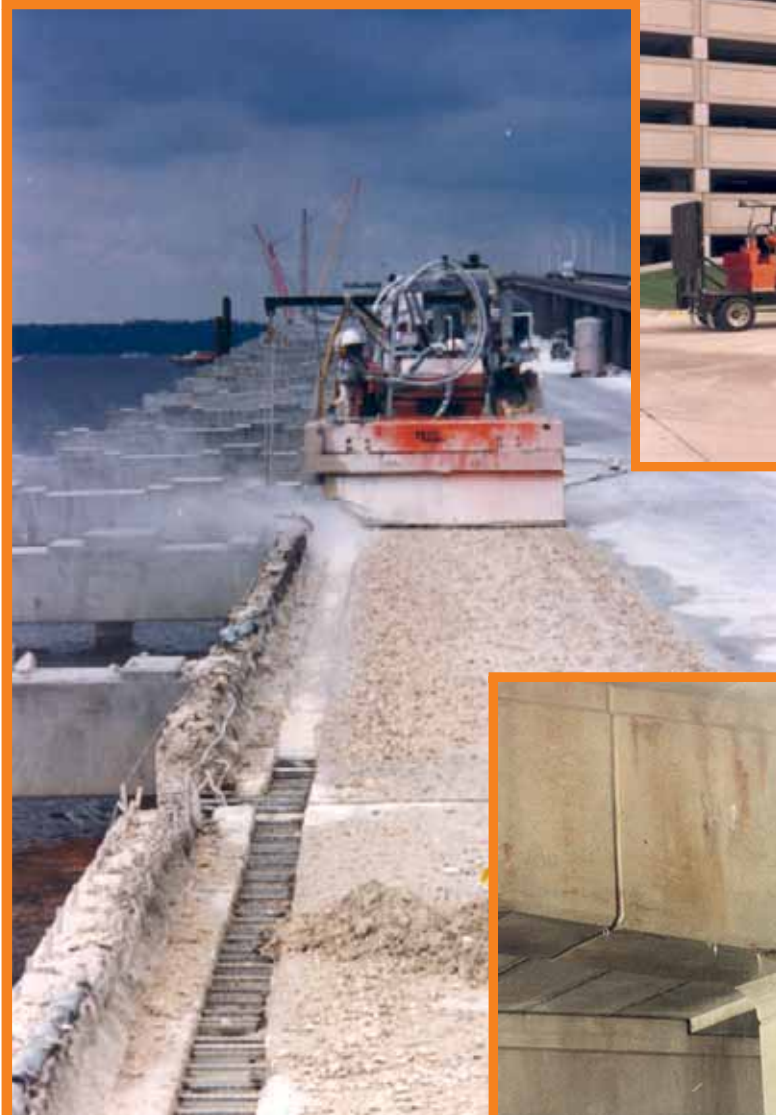


Water Jet Solutions for Concrete Restoration



*The Leader in High-Pressure
Water Jet Technology*

Paving the way to concrete removal and rehabilitation

It's no wonder why so many contractors and DOT's are switching to the power of water jetting for concrete demolition. NLB's heavy-duty Model 4400 Concrete Buster® and X-Y Axis Concrete Cutter make hydrodemolition the practical solution.

Conventional processes for concrete rehabilitation require removal of the deteriorated surface concrete below the reinforcing bars. This allows placement of a new concrete surface around the existing rebar.

Current removal methods most often involve breakers, saws, and jackhammers. **These techniques are costly, time consuming, and often do more harm than good:**

- Sound concrete is removed along with bad concrete
- Jackhammer impact damages rebar
- Vibration generates microfractures in sound concrete
- Excessive dust and noise
- Leaves poor bonding surface for new concrete
- Chlorides remain entrained in existing concrete

NLB's Concrete Buster system successfully removes deteriorated concrete and asphalt via NLB's patented SPIN-JET® technology. The unique design of the high-pressure nozzle rotation is the key to high productivity and efficiency. This device moves the nozzle within the SPIN-JET carriage in a circular path at high speeds while it traverses the desired programmed width. This method seeks out deteriorated concrete, blasting away the faulty material while leaving the sound concrete with a rough texture, perfect for new bonding. Water is supplied to the Concrete Buster from a 20,000 psi (1400 bar) high-pressure pump. For maximum efficiency, NLB Model 20600D or dual 20350D pumps are recommended with pressures of up to 20,000 psi and flows to 60 gpm (227 lpm).



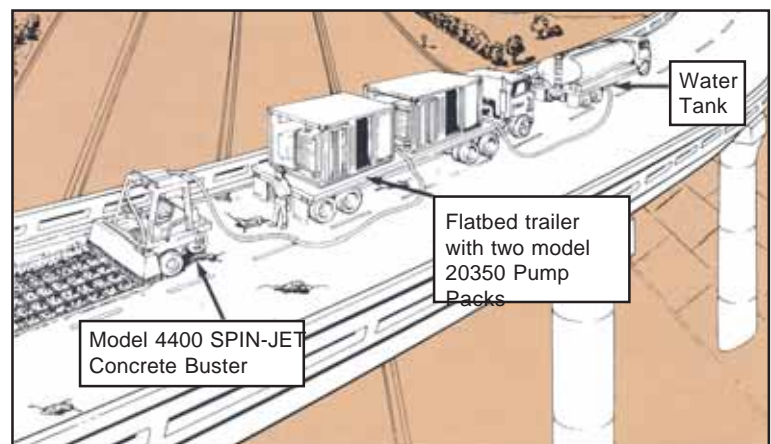
Damaged rebar grid on bridge deck after concrete removal with jackhammers.



Hydrodemolition leaves rebar free of damage and clean for ideal new overlay bonding.

Advantages of hydrodemolition include:

- No dust and noise greatly reduced
- Superior substrate bonding surface
- Does not create additional structural damage
- Selectively removes inferior concrete
- Rebar is cleaned, descaled, and undamaged
- Faster than mechanical removal methods
- Washes away entrained chlorides



Typical set up of NLB Concrete Buster system.

Model 4400 Concrete Buster

The NLB Model 4400 Concrete Buster is a self-propelled robot-like vehicle, which is designed and built exclusively for high production concrete hydrodemolition. The vehicle is powered by a 34 hp (25 kw) diesel engine and includes a hydrostatic positive traction drive. This drive allows the unit to operate in adverse traction conditions, such as potholes, exposed rebar, and slippery inclines. The Model 4400 features an adjustable traverse movement, which allows a cut from 3 inches (76.2 mm) to 78 inches (1.98 m) wide and 1/4 inch (6.4 mm) to 4 inches (101.6 mm) deep. The control system can be manually operated or programmed for automatic operation. The overall dimensions of the vehicle are 16 feet long x 12 feet wide x 8 feet tall (4.9 m x 3.7 m x 2.4 m).



NLB Model 4400 Concrete Buster

Model	Operating Pressure	Max. Flow	Surface Types
Concrete Buster 4400	20,000 psi (1400 bar)	60 gpm (230 lpm)	Horizontal
X-Y Cutter 4000	20,000 psi (1400 bar)	70 gpm (265 lpm)	Horizontal Vertical Ceilings

X-Y Axis Concrete Cutter

Hydrodemolition can also be performed on concrete substructures found under bridges, parking garages, and piers. The NLB Model 4000 SPIN-JET module is adaptable for vertical and overhead concrete removal by mounting the assembly to a variety of lifting mechanisms such as lift buckets, cranes, and back-hoes. The system can be calibrated to remove the desired amount of concrete by adjusting the speed and travel of the cutter head. The control system is semi-automated and has a cutting area of 36 inches (.9 m) wide and 43 inches (1.1 m) high. Because the Model 4000 is made from light weight aluminum, the module weighs only 400 lbs (181 kg), making the equipment less labor intensive. The overall dimensions of this system typically are 3'6" wide x 6'3" tall (1 m x 1.9 m).



NLB Model 4000 X-Y Concrete Cutter

The NLB Advantage

One of the greatest advantages for contractors operating hydrodemolition equipment is the versatility of the NLB system. Numerous construction related applications offer additional ways to make use of NLB high-pressure equipment while also providing contractor profit opportunities.

High-Pressure Lance

A hand-held high-pressure cleaning lance can be coupled to the high-pressure pump unit. The lance may be used for extremely accurate concrete removal or for the wash down of a hydrodemolition area.



High-Pressure Water Jetting System

The NLB high-pressure water jetting pump is the powerhouse of the Concrete Buster system. NLB pumps feature stainless steel fluid cylinder design and are built for continuous heavy-duty operation with minimal maintenance requirements.



NLB Model 350 Series water jetting system

Model	GPM	LPM	PSI	BAR
20350D	30	113	20,000	1,400
20300D	27	102	20,000	1,400
17350D	35	132	17,000	1,173
17300D	31	117	17,000	1,173

Membrane and Coating Removal

Numerous concrete surfaces are coated with materials to reduce moisture seepage and premature wear. These coatings, commonly called membranes or epoxy coatings, must periodically be removed so the concrete surface can be inspected, repaired, or recoated. The NLB SPIN-JET coating removal system delivers water at pressures of up to 20,000 psi to the surface to remove any stubborn coating.



Various levels of concrete scarification



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