



Rotating Deck Cleaner on flat horizontal surfaces is fast & efficient

ULTIMATE WATER JETTING SOLUTION



Key benefits when using the Rotating Deck Cleaner

- Fast & effect removal of paint, rust & cement from large flat horizontal surfaces.
- Rotating movement of the nozzle carrier & piecing sapphire nozzles provides a consistent cleaning result.
- Operating from 10,000 up to 36 Kpsi (2500 Bar) pressure.
- Ergonomically design & adjustable handle reduces operator fatigue while increasing productivity.
- Small & compact design enables cleaning almost all flat surfaces, corners & under deck piping.
- Nozzle height can be adjusted to remove 100% of all surface coatings or raised further to remove only top layers of paint leaving base coats & primer in tact ready for recoating resulting in lower paint costs & man hours.



Technical Data:
 Effective working width: 305mm.
 Weight: 36.5 Kg.
 No of nozzles: Max 6 pcs.
 Rotating speed of nozzle carrier: 1875 rpm.
 Maximum working pressure: 36 Kpsi, 2500 bar.
 Air flow required: 550 L/min.



ULTIMATE WATER JETTING SOLUTION

Under Water Cleaning, removal of marine growth, anti corrosion coatings & cement ballast



For effective removal of marine growth, cement, concrete ballast on pipelines & mastic coatings on boat landings and from underwater structures.

DEN-SIN's unique **Zero thrust underwater divers gun** offers :

- Functional Ergonomical design to reduce diver fatigue, increasing mobility & productivity.
- Large nozzle carrier which is not easily damaged during deployment.
- Large diameter, heavy wall tubes, front & rear do not vibrate or bend.
- Quick connect screw coupling & swivels.
- Safety trigger to protect against accidental triggering.
- Easy service trigger valve.
- DEN-SIN equipment can be adapted to underwater grit blasting & underwater metal cutting tools.





ULTIMATE WATER JETTING SOLUTION

Accessories



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ULTIMATE WATER JETTING SOLUTION

Electric & Diesel Powered High & Ultra High Preassure Water Blasting Equipment





ULTIMATE WATER JETTING SOLUTION

SIGNIFICANT COST SAVINGS...

SIGNIFICANT COST SAVINGS ... when using High & Ultra High Pressure Water Blasting as oppose to dry abrasive grit blasting.

THE WINNING TOOL...

Mechanical and pneumatic tools damage steel surfaces locking in salt deposits, dirt, grease, oil & other contaminants. Dry abrasive sand blasting is known to create harmful dust, damage to the ecosystem, disrupting other activities & create large amounts of waste material. Therefore the best **COST** efficient solution to prepare a surface at sea, during a voyage or in the shipyard is with **HYDRO BLASTING**.

Hydro Blasting provides fast and effective removal of paint, rust, cement and other surface coatings or contaminants from ballast tanks, decks, cargo holds, top side tanks, hatch covers and piping.

Any ship, anywhere: DEN-SIN Hydro Blasting equipment is easily used on-board vessels with space limitations and around hazardous cargo. With the DEN-SIN unit located in a secure area any part of the ship can be reached with extension hoses and accessories to complete the job on time. Any space constraint problem on container vessels has been solved with our narrow profile units!

Zero salt deposits: Using high pressure water has many advantages, removing oil and grease from the surface along with salt deposits from within the steel – the No 1. Enemy.

Zero dust contamination – better environment: In principle abrasives are not used in hydro blasting systems, hence, the problems caused by dust pollution and by the disposal of spent abrasives is eliminated.

Optimal profile: Flash rust develops immediately after hydro blasting. Studies show that this thin film consists mainly of ferric oxide, which is an inert material, which does not present a contamination problem. In-depth research proves that modified epoxy paint adheres tightly to surfaces which have been water hydro blasted, protecting the steel for longer.

Surface Coatings: Marine paint manufacturers have been producing marine coatings for application after hydro blasting for decades and the results are clear. Steel surfaces which have been hydro blasted and coated with modified epoxy paints designed for application after hydro blasting, last longer providing better protection than other forms of surface preparation.

Safety concerns: Safety can be compromised when water tight doors & hatch covers no longer seal, due to corroded sealing surfaces. Regular cleaning and spot maintenance is a great preventive method.



ULTIMATE WATER JETTING SOLUTION

The Advantages of Ultra High Pressure Water Blasting for surface preparation

Ultra high pressure water blasting has replaced dry abrasive blasting in major shipyards around the world due to the cost efficiency & envirometaly benifits.

New and improved technologies have improved high & ultra high pressure water blasting performance and equipment durability.

Performance of ultra high pressure water blasting can now be compared to dry abrasive blasting without the additional cost of setting up, cost of abrasives and clean up costs.

Ultra high pressure water blasting offers improved paint adhesion while reducing salt content within the steel substrate.

Major benefits include improved health of operators and the local communities through improved air quality and improvements in water ecology on land and at sea.

- Surface coatings and rust are easily removed as high pressure water penetrates surface coatings without bouncing off the surface and enters between layers of RUST. While flushing out salt and contaminants.
- High pressure water cleans out cracks & crevices without covering them over allowing for close visual inspection.
- When the high pressure water is adjusted correctly, selected top layers of paint can be removed leaving the underlaying base coats & primers intact. New surface coatings can be applied directly over existng coatings thus reducing time & paint cost.
- High pressure water allows for other work to continue in near proximity without disruption.
- Paint manufacturers offer proven paints for various marine & offshore applications often with several years guarantee. Modified epoxy paints can be applied over flash rust and surfaces that are 90% dry.
- Onboard blasting and painting crews now sail with ships preforming valuable maintainece of vesels protective coating above and below decks.



NACE International. The Corrosion Society under article No. 21076, the Joint Surface Preparation Standards, section 2.1.7 describes ULTRA HIGH PRESSURE WATER JETTING (UHP WJ) water jetting performance at pressures above 210 mpa (30,000 psig).

Table 1: Visual Surface Preparation definitions, WJ-1. Clean to Bare Substrate: WJ-1 surface shall be cleaned to a finish which, when viewed without magnification, is free of all visible rust, dirt, previous coatings and foreign matter. Discoloration of the surface may be light grey to dark brown/black.



ULTIMATE WATER JETTING SOLUTION

High & Ultra High Pressure Electrical Powered Water Blasting Units



Design designed for heavy
Marine & Shipyard use

FEATURES :

- Non corrosive materials are used in the pump, fittings & pipes.
- Large high flow stainless steel water filter suitable for shipyard water supply, with the benefit of reduced cavitation through even liner water flow.
- Triplex pump with tungsten carbide plungers.
- Floating plunger system with water cooling and lubrication.
- In-line valves.
- Built-in reduction gearbox.
- Extremely service friendly pump design.
- Seamless 316 stainless steel water tank, 250 liters, rubber mounted.
- Low water level and low supply pressure cut-off system.
- Four leg isolators, full frame protection.
- Lifting eyes & forklift slots.
- Back flush primary inlet water filter system.
- Galvanized & powder coated box section steel frame.



Technical Data		C-650D/80E	C-800/53E	C-1000/48E	C-1000/53E	C-1400/38E	C-2070/26E	C-2500/25E
Motor	Hp	125	125	125	150	125	125	150
	Kw	93	93	93	111	93	93	111
Motor Speed	Rpm	1400/1750	1400/1750	1400/1750	1400/1750	1450/1750	1450/1750	1450/1750
	50/60Hz							
Working pressure	Bar	650	800	1000	1000	20000	30000	36000
	Psi	9425	11600	14500	14500	1400	2070	2500
Flow Capacity	l/min	80	63	48	63	38	26	25
	Gpm	21.1	16.7	12.7	16.7	10	6.8	6.6
Power Supply	380-415/3Ph/50Hz	380-415/3Ph/50Hz	380-415/3Ph/50Hz	380-415/3Ph/50Hz	380-415/3Ph/50Hz	380-415/3Ph/50Hz	380-415/3Ph/50Hz	380-415/3Ph/50Hz
	440V/3Ph/60Hz	440V/3Ph/60Hz	440V/3Ph/60Hz	440V/3Ph/60Hz	440V/3Ph/60Hz	440V/3Ph/60Hz	440V/3Ph/60Hz	440V/3Ph/60Hz
Weight	kg	1700	1700	1700	1700	1700	1700	1700
Dimension L x W x H	cm	238x140x185	238x140x185	238x140x185	238x140x185	238x140x185	238x140x185	238x140x185

Accessories optional

- Hand held dump gun
- Self rotating four nozzle carrier.
- Air driven pneumatic gun.
- Pneumatic tumble box/actuator valve.
- Rotating deck cleaner.
- High pressure hoses in 20 m lengths.
- Boiler tube cleaning accessories.

Safety features include

- Twin Rupture disc protection against over pressurization.
- Automatic motor shut down system.
- Hour meter for service intervals.



ULTIMATE WATER JETTING SOLUTION

Surface Preparation & Water Blasting in Shipyards



Water flow through sea water inlets & sea chests can become restricted due to marine growth build up resulting in machinery overheating. Marine growth on chains, mooring systems, floating & permanent structures adds weight & increases drag in tidal currents. In heavy seas wave drag is increased adding unwanted stress to floating & subsea structures. High pressure water jetting can effectively remove marine growth from underwater hulls & anodes quickly & effectively without damaging protective surface coatings, while increasing fuel efficiency & decreasing sailing time on motor vessels.



ULTIMATE WATER JETTING SOLUTION

Surface Preparation & Water Blasting in Navy Shipyards



DEN-SIN UHP can remove 100% of all surface coatings and rust to international water jetting standards "Water Jetting 1". Motor vessels, barges, bridges & offshore structures are exposed to harsh marine conditions, heavy sea swells, mechanical abrasion & corrosive substances resulting in structural degradation & stress.

The Ultra High Pressure Water Jetting systems offered by DEN-SIN allows for effective removal of all surface coatings & flushing away of salts deposits while maintaining structural integrity & safety allowing for close inspection of surfaces in there natural state.



ULTIMATE WATER JETTING SOLUTION

High & Ultra High Pressure Diesel Powered Water Blasting Units



Fully enclosed unit Danish designed for heavy Marine & Shipyard use.

FEATURES :

- Non corrosive materials are used in the pump, fittings & pipes.
- Large high flow stainless steel water filter suitable for shipyard water supply with the benefit of reduced cavitation through even liner water flow.
- Triplex pump with tungsten carbide plungers.
- Floating plunger system with water cooling and lubrication.
- In-line valves.
- Built-in reduction gearbox.
- Extremely service friendly pump design.
- Seamless 316 stainless steel water tank, 250 liters, rubber mounted.
- Low water level and low supply pressure cut-off system.
- Four leg isolators, full frame protection.
- Lifting eyes & forklift slots.
- Back flush primary inlet water filter system.
- Galvanized & powder coated box section steel frame.



Technical Data		C-650/80D	C-800/63D	C-1000/48D	C-1000/63D	C-1400/38D	C-2070/26D	C-2500/25D
Pressure	bar/psi	650/9425	800/11600	1000/14500	1000/14500	1400/20000	2070/30000	2500/36000
Flow	L/min/ USgpm	80/21.1	63/16.7	48/12.7	63/16.7	38/10.0	25.0/6.6	25.0/6.6
Power consumption	Kw/Hp	112/150	112/150	112/150	112/150	112/150	112/150	112/150
Engine		Deutz 6 Cyl. Turbo Charged w/ Intercooler Air Cooled Diesel	Deutz 6 Cyl. Turbo Charged w/ Intercooler Air Cooled Diesel	Deutz 6 Cyl. Turbo Charged w/ Intercooler Air Cooled Diesel	Deutz 6 Cyl. Turbo Charged w/ Intercooler Air Cooled Diesel	Deutz 6 Cyl. Turbo Charged w/ Intercooler Air Cooled Diesel	Deutz 6 Cyl. Turbo Charged w/ Intercooler Air Cooled Diesel	Deutz 6 Cyl. Turbo Charged w/ Intercooler Air Cooled Diesel
Engine speed	Rpm	1800	1800	1800	1800	1800	1800	1800
Pump speed	Rpm	510	510	510	510	510	510	510
High pressure hose	m	20	20	20	20	20	20+7	20+7
Fuel tank capacity	L	140	140	140	140	140	140	140
Weight	kg	1800	1800	1800	1950	1800	1950	1950
Dryweight	kg	1500	1500	1500	1500	1500	1500	1500
Dimension L x W x H	cm	260x145x190	260x145x180	260x145x180	260x145x180	260x145x180	260x145x180	260x145x180

Optional

- Complete enclosed side covers.

Accessories optional

- Hand held dump gun.
- Self rotating four nozzle carrier.
- Air driven pneumatic gun.
- Pneumatic tumble box/actuator valve.

- Rotating deck cleaner.
- High pressure hoses in 20 m lengths.
- Boiler tube cleaning accessories.

Safety Features optional

- Twin Rupture disc protection against over pressurization.
- Automatic motor shut down system.
- Hour meter for service intervals.



ULTIMATE WATER JETTING SOLUTION

Concrete restoration & demolition



ULTIMATE WATER JETTING SOLUTION

Surface Preparation & Water Blasting on Land Rigs, Offshore Rigs & Platforms



DEN-SIN UHP REMOVES CONCRETE from bridges & concrete structures exposing reinforcing steel rod without damage, allowing for restoration, structural repairs or complete concrete demolition without dust and noise.

Effective removal of marine growth, cleaning of water inlets & sea chests, cleaning of anodes, anchor chains, bollards, hatch covers, mast & ballast tanks. The DEN-SIN UHP is designed for the riggers of heavy shipyard, marine and offshore use.

The cost of oil has inflated the price of new oil rigs & drilling platforms. Older rigs are now kept in service longer and require additional on the job maintenance to keep corrosion and structural degradation in check.



ULTIMATE WATER JETTING SOLUTION

Cargo holds & ballast tank cleaning, removal of coatings & heavy rust



ULTIMATE WATER JETTING SOLUTION

Automotive Cleaning, removal of paint from dollies, jigs, clamps & gratings with UHP Blasting



Environmentally safe, fast and effective.
Cleaning rates far exceed those of other methods.



A vessel's stability and structural integrity can be compromised in rough weather and heavy seas. Regular inspection & maintenance of holds & ballast tanks is a must to ensure safety. Ballast water, condensation and changing temperatures accelerate corrosion. Some older vessels contain large amounts of loose rust weighing many tons, which moves in heavy seas causing instability to the vessel and abrasion to any remaining surface coatings, resulting in accelerated corrosion and structural degradation of load bearing members. Regular inspection and maintenance is required and this poses many different challenges. Surface coatings must be maintained, rust & sediment must be removed in the most economical way & new coatings applied. The most effective method employed today is through the use of hydro blasting.



Boiler Tube & Heat Exchanger Cleaning

ULTIMATE WATER JETTING SOLUTION



Rotating Deck Cleaner on flat horizontal surfaces is fast & efficient

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DEN-SIN offers a range of tools for cleaning drill pipe, boiler tubes, heat exchangers & cleaning of large diameter pipes.

One such accessory is the single lance pneumatic tube cleaner offering fast effective tube cleaning, increased productivity while reducing plant down time.

Top coat can be removed effectively to expose structural defects