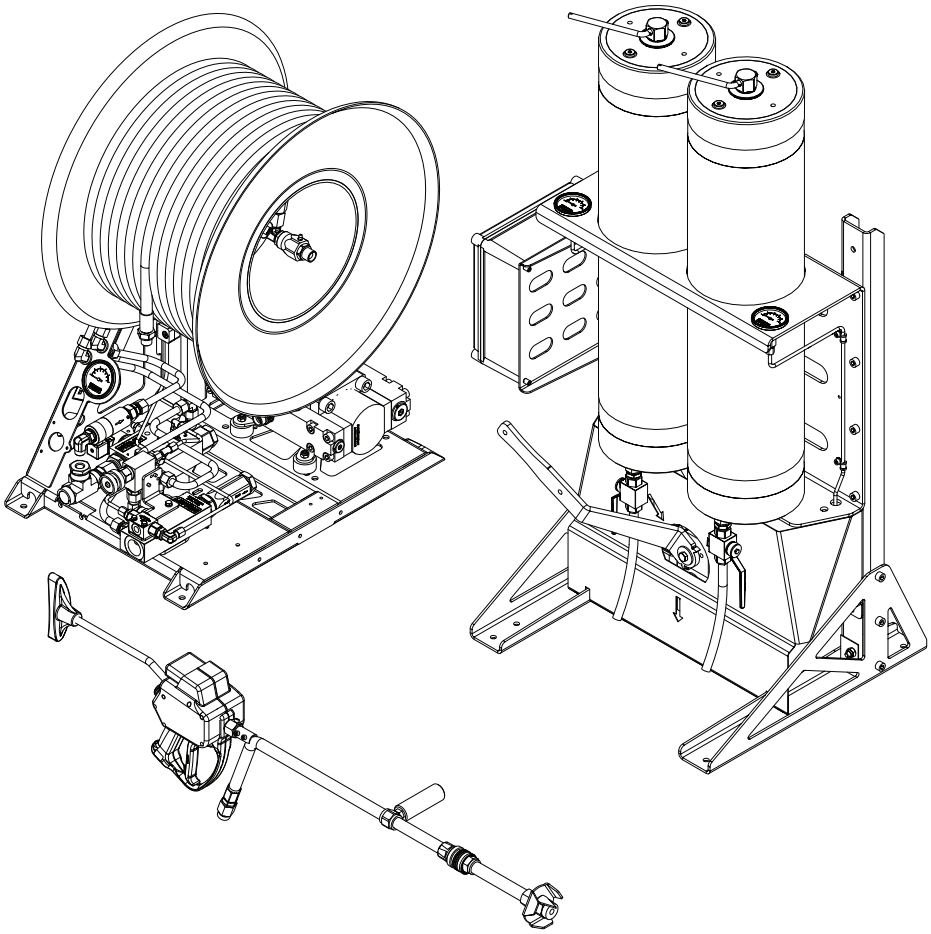
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DYNASET
POWERED BY HYDRAULICS



USER MANUAL

HAC HYDRAULIC ABRASSIVE CUTTING SYSTEM

HAC-2x20

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1. GENERAL

This manual contains general information about assembly, installation, operation and maintenance of the DYNASET equipment.



WARNING

Read this user manual before the installation, use or maintenance of the DYNASET product to ensure proper handling, operation and maintenance right from the beginning. Pay attention to warnings and safety instructions, READ CHAPTER "2 Safety".

1.1 PRODUCT INFORMATION

DYNASET HAC Hydraulic Abrassive Cutting System is designed for continuous cutting purposes in demolition, constructions sites and also for firefighting and rescue use. It uses the base machines hydraulic system for power.

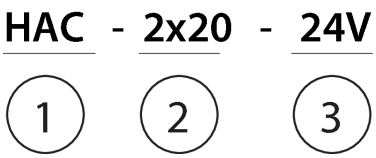
HAC system has lower pressure level than other abrasive cutting systems. It has two abrasive sand containers for continuos use.

HAC system is also meant for firefighting and rescue situations, where it can be used to condense the fire in a closed room and lower the room temperature for safer entry for the firefighters.

The system is also available with a foaming option for firefighters.

Read chapter " TECHNICAL SPECIFICATIONS" for specific characteristics of the HAC unit.

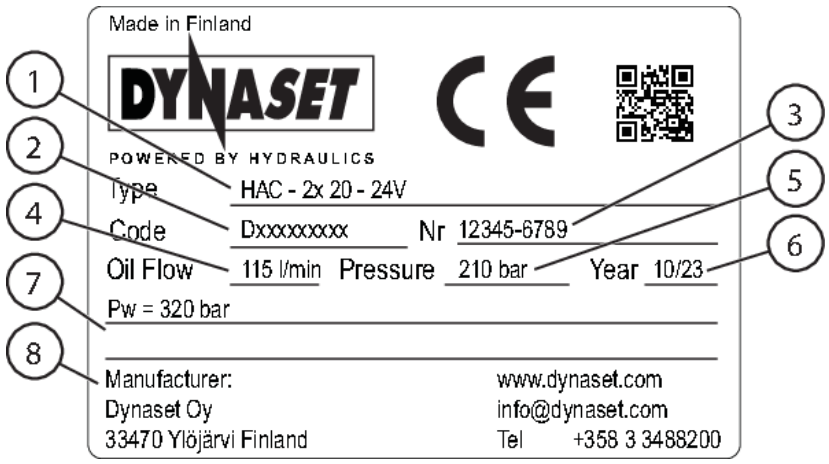
1.2 PRODUCT IDENTIFICATION KEY



Picture 1: Identification key for HPW pumps

1. Product Group HAC Hydraulic Abrasive Cutting Systems
2. Abrasive container amount and volume in litres, 2x20 l.
3. Voltage system

1.3 TYPE PLATE

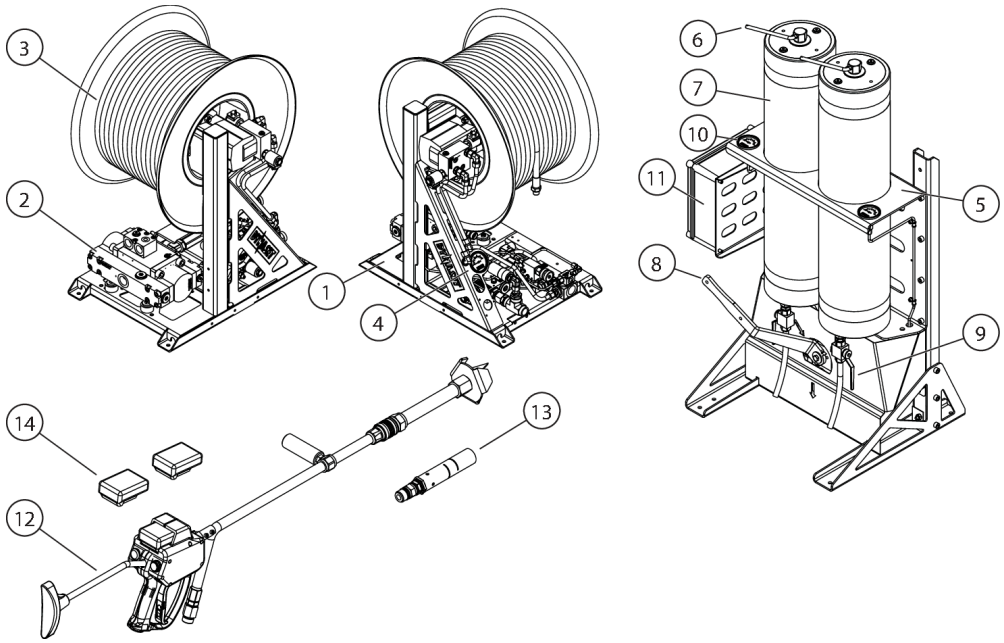


Picture 2: Type plate

The products type plate shows the following information.

1	Product identification key	7	Output water pressure
2	Product code	8	Manufacturers contact information
3	Serial number		
4	Maximum hydraulic flow		
5	Maximum hydraulic pressure		
6	Production month / year		

1.4 MAIN COMPONENTS OF HAC



Picture 3: Main components of HAC

1	Type Plate PPL	9	Container Drain Valve
2	HPW Pump	10	Pressure Gauge
3	PPL Hose Reel	11	Electric Central
4	PPL Water Pressure Gauge	12	Cutting Pistol
5	Type Plate HAC	13	Foaming adapter
6	HAC Container Hatch	14	2x Battery, 2Ah 12V
7	HAC Container		Battery Charger (not in the picture)
8	Container Selector Lever		

NOTE!

Optional foaming system does not come with foam container. The foaming input can be attached to a pressurized input line.

NOTE!

The water pistol and HAC unit paired and numbered, and they cannot be used with other HAC units.

2. SAFETY

2.1 SAFETY PRECAUTIONS

⚠ WARNING

Operators and maintenance personnel must always comply with local safety regulations and precautions in order to close out the possibility of damages and accidents.

The pressure in both hydraulic oil and water circuits of HAC unit is considerably high. Keep the condition of your equipment and hydraulic system under constant observation.



⚠ WARNING

High pressure water and oil. In case of hose or pipe blowout the high pressure oil and water jet, can cause severe injuries. Always wear appropriate clothing and safety equipment.

Couplings, valves and hoses need to be kept tight and clean to avoid possible leakages. Leaks in the hydraulic system must be repaired immediately to avoid injuries caused by high pressure blowouts.

In order to avoid accidents, it is not allowed to add abrasive sand, clean or inspect HAC unit when hydraulic fluid circuit is pressurized.

Prior to adding abrasive sand, any cleaning, inspection and service, hydraulic system of your base machine must be stopped, and all hydraulic fluid circuits must be depressurized.

Prevent nozzles, water circuit and pipeline from freezing. Draining and air flushing of the water circuit have to performed before ambient temperature reaches 0 (32) °C(°F) or lower.

⚠ WARNING

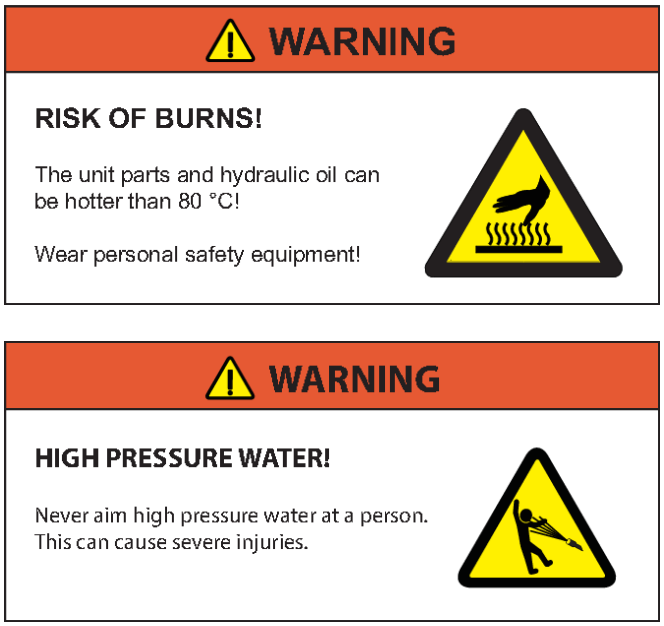
Do not use seawater for the unit. Using seawater or other similar liquid may damage the unit.

2.2 SAFETY EQUIPMENT

Always wear appropriate safety overall and safety equipment such as safety goggles, safety shoes and ear protection when operating the HAC unit.



2.3 OPERATING SAFETY



WARNING

Never aim high pressure water jet at a person. This can cause severe injuries.

WARNING

Risk of burns! The unit and hydraulic oil can be hotter than 80 (176) °C(°F). Wear personal safety equipment!

WARNING

Do not open the HAC container hatch, the container must be depressurized before opening. Opening the hatch pressurized can cause severe damage or death. Pressure can be released by changing the container selector valve off from the container. Check the pressure from the containers own pressure gauge next to the containers.

WARNING

Do not use regular sand! It will get stuck to the system. Only use abrasive sand. Make sure the abrasive sand size is between 0.6-0.8 (0.02-0.03) mm (in) / 1 (0.04) mm (in). Using bigger sand size might get stuck to the HAC container valves or nozzle. Smaller sand size will decrease the impact of the abrasive cutting power.

WARNING

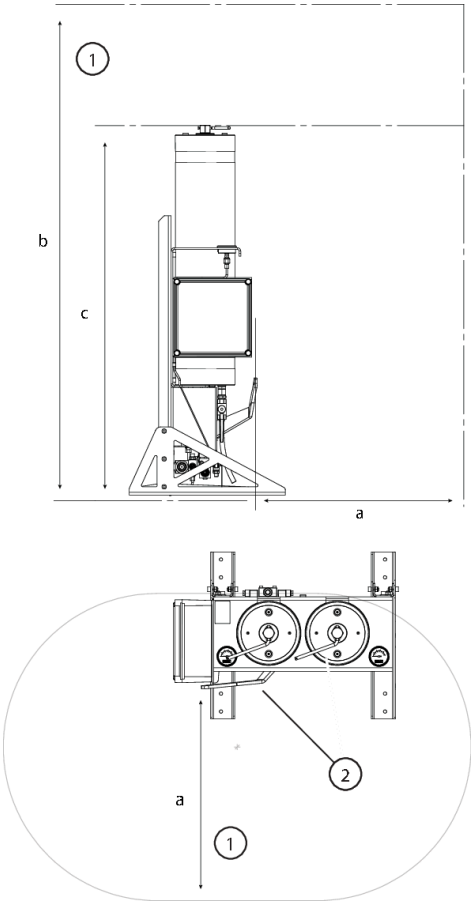
Do not exceed the maximum pressure, temperature or load.

WARNING

Always keep the safe distance clear from people. Safety distance is 10 (33) m (ft)

WARNING

Always keep the operator area clear for safe operation.



Model	Dimensions, mm (in)		
	a, min	b, min	c
HAC-2x20	800 (31.5)	1,900 (74.8)	1,328 (52.3)

Picture 4: Operator area

2.4 MAINTENANCE SAFETY

WARNING

The HAC units' containers and hydraulic system must be depressurized before opening and doing any maintenance to it. Doing maintenance to pressurized system can cause severe damage or death.

WARNING

Installation and service of hydraulic equipment must be performed by qualified and experienced personnel only.

NOTE!

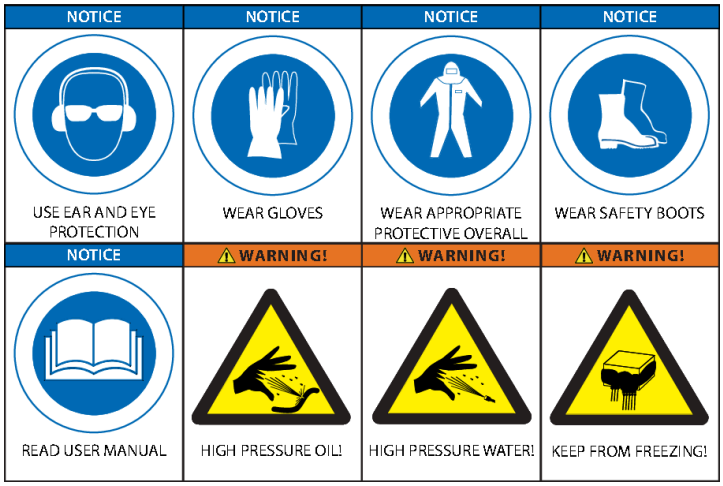
When carrying out any maintenance to HAC keep the components of the system clean. This is to ensure safe, reliable and longlife operation of your equipment.

Hydraulic system of the base machine should be maintained according to the service program.

2.5 WARNING LABELS

Product recipient is obligated to place warning labels on the DYNASET product.Attach labels to visible and appropriate place onto or close to DYNASET product where it's easily seen.

Clean surface with solvent detergent before attaching labels.



3. OPERATION PRINCIPLES

3.1 OPERATING DESCRIPTION

HAC Hydraulic Abrassive Cutting System utilizes the base machines hydraulic system for power. The HAC has a HPW Hydraulic High Pressure Pump that provides the high pressure water flow and pressure for the cutter.

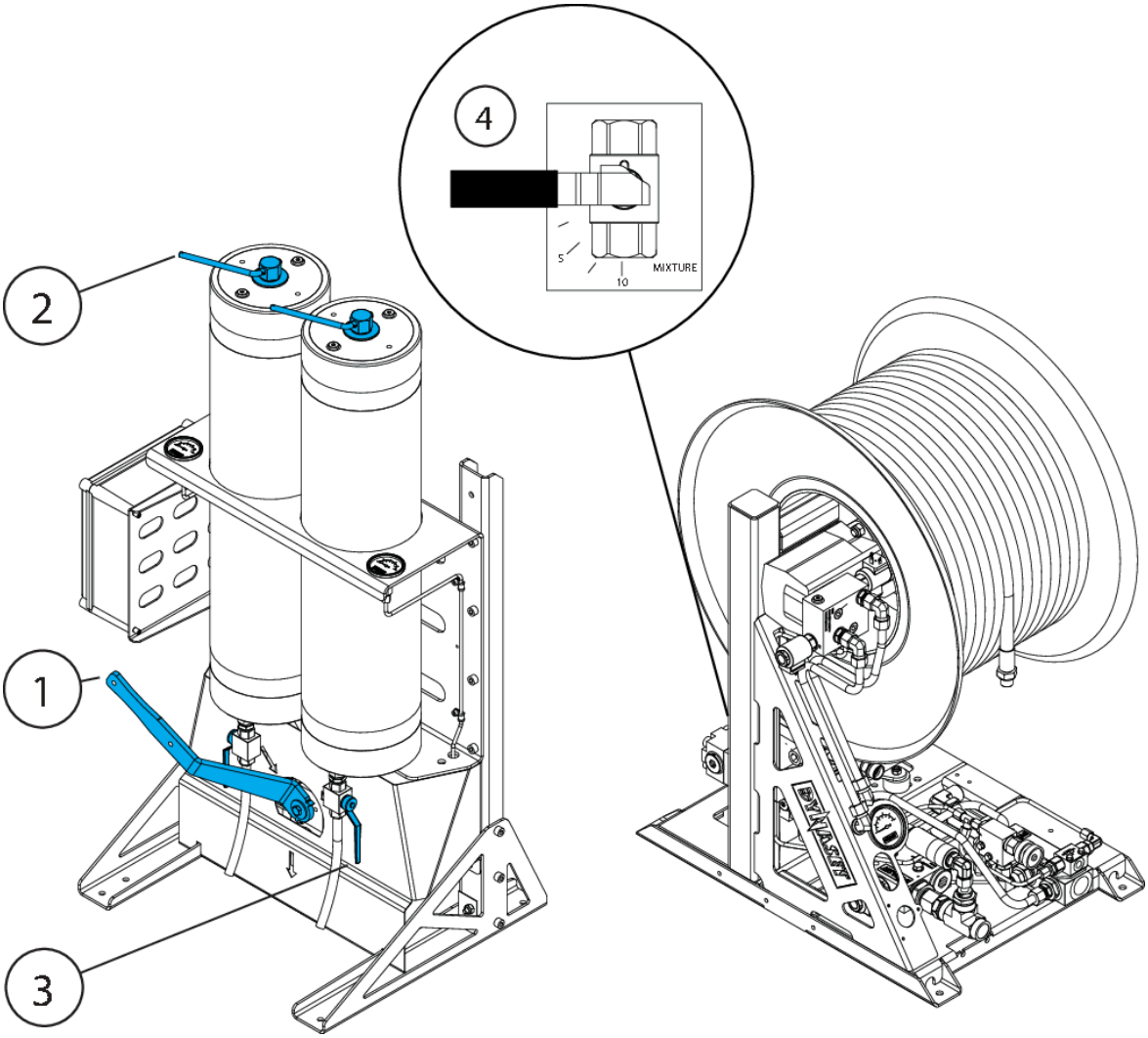
The high pressure water is directed to the abrasive containers where it mixes with the sand, when the pistol lever is pulled. The sand and high pressure water mix is directed to the pistol and the flow quickly cuts through material the pistol is directed to.

The HAC also has an optional foaming adapter for the pistol available. For the foaming application, the sand input must be turned off, the sand cleared from the pistol hose and the foaming option selected.

The foam spreading starts right away when the pistol handle is pulled. Same way as the abrasive cutting sequence.

3.2 HAC UNIT CONTROLS

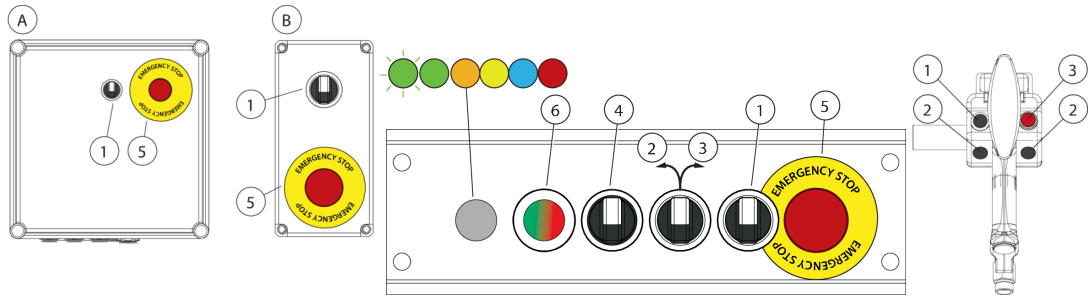
HAC unit has the following controls and levers to operate the sand - water mix or foaming.



1. Container selector to select which container to use for sand insertion
2. Container hatch for sand refill
3. Drain levers, for draining the containers of water
4. Foam level adjuster

3.3 HAC UNIT REMOTE AND PISTOL CONTROLS

HAC-unit has the following controls on the remote, on the pistol handle and on the mainswitch. The current state of the HAC-unit can be seen from the remote. When the device is powered the LED on the left of the remote will blink green.



A = Standard Electric box that is on the side of the HAC unit

B = Optional electric box that can be placed separately from HAC unit. The separate box is not part of standard delivery.

1. Hydraulics On / Off switch. The switch will start the hydraulic flow to the HAC units. After switching on, the LED turns green and the HPW turns on.
2. Sand inclusion. The switch must be turned all the time for the sand to be mixed into the water. On the pistol handle there are buttons for both left and right-hand use, only one button needs to be pressed. The LED on the remote turns orange when the sand inclusion is on and to yellow when the valve for sand usage is closing.
3. The switch for foaming option. The abrasive sand and foaming option can't be used simultaneously. After pressing the button the LED turns blue.
4. Hose reel in/out. The selector switch to extend or retract the hose. To retract the hose, the switch needs to be turned all the time.
5. Emergency stop. Pressing the button will instantly turn the HAC unit off. Button resets when pulled. After pressing the button the LED turns red.
6. Tank reset. The button illuminates the calculated amount of sand switching color from green to red as the tank empties. Pressing the button resets the state of the tank.

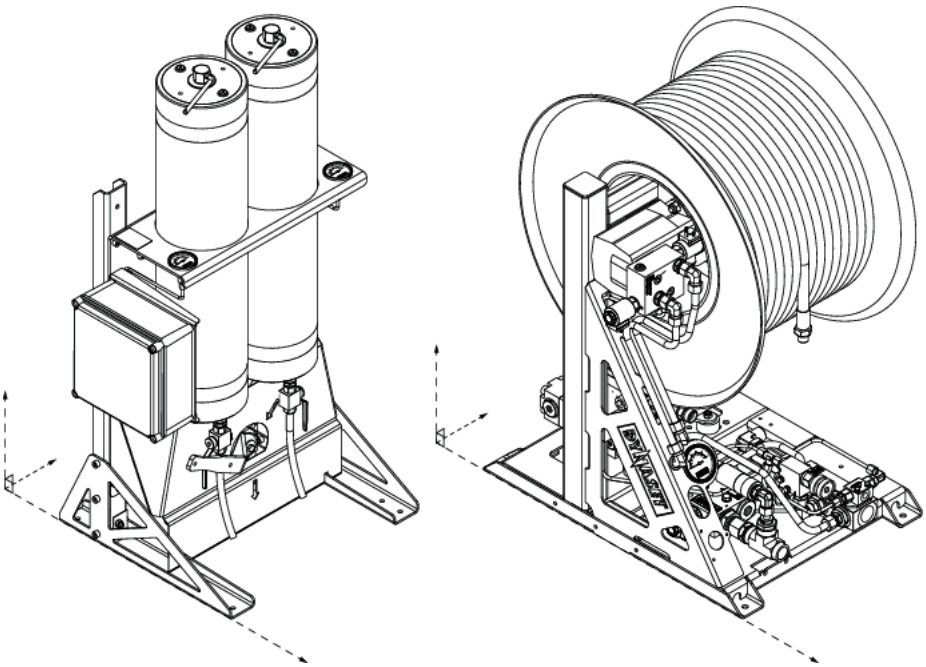
There are two 2Ah 12V batteries for the pistol and charger. The batteries operational time is 8h.

4. INSTALLATION

4.1 INSTALLING HAC SYSTEM

4.1.1 UNIT INCLINATIONS

The HAC units should be mounted on horizontal surface to enable proper working of the system.

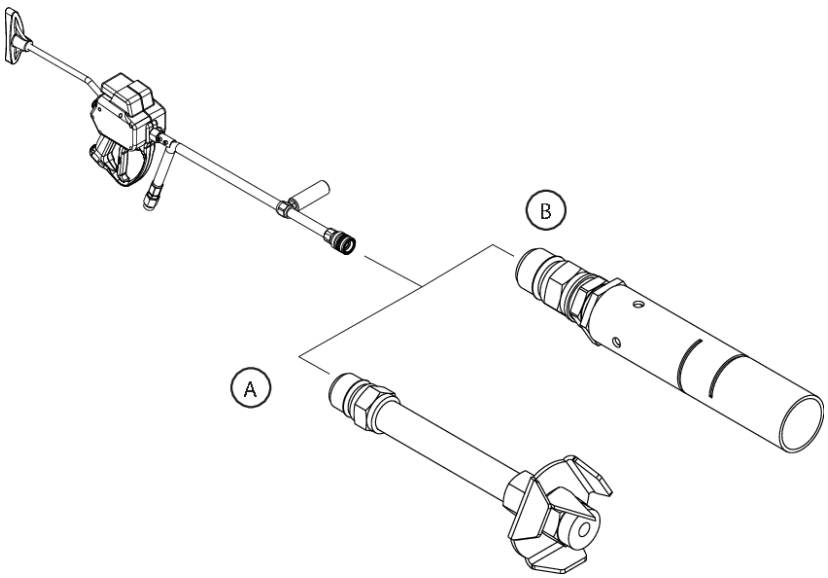


4.1.2 CONNECTIONS TO THE SYSTEM AND BETWEEN SYSTEM COMPONENTS

Connect the hydraulic and water lines properly to their corresponding ports and connections. Check the chapter 10 technical Specifications for detailed connections and sizes.

4.1.2.1 Options

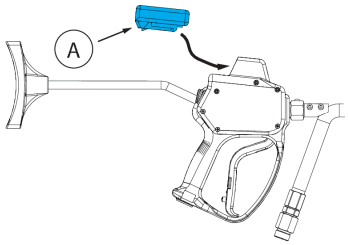
HAC has an optional quick coupling foam pistol head



A = Abrasive Cutting head
B = Foaming head, includes a foaming valve to the HAC unit

4.1.3 PREPARING THE WATER JET PISTOL FOR USE

The water jet pistol comes with two 2Ah 12V batteries for the operations. The pistol uses one battery at a time. The battery needs to be charged with the charger provided with the HAC unit. Connect the full battery to the pistols' battery holder.



A = Battery release button

Picture 5: Battery installation

5. OPERATION

5.1 USING THE HAC FOR ABRASIVE CUTTING

WARNING

Check all hoses and couplings in hydraulic and water circuits before use to ensure there are no leaks or damages.

WARNING

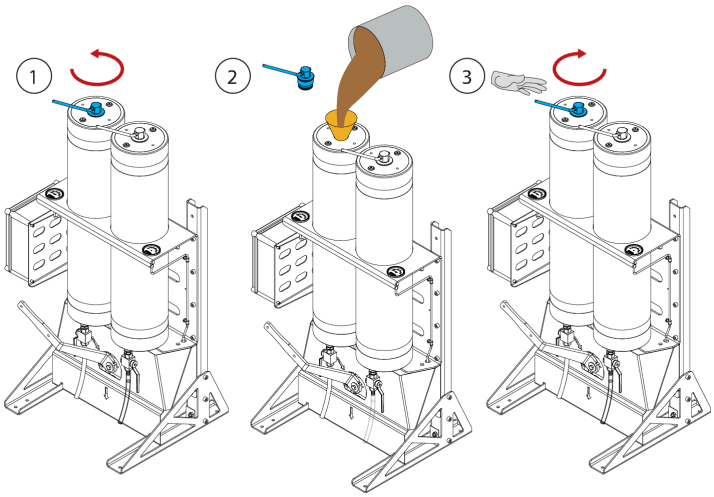
Never put your hand, fingers or body directly in front of the spray nozzle!

⚠ WARNING

Do not use regular sand! It will get stuck to the system. Only use abrasive sand. Make sure the abrasive sand size is between 0.6-0.8 (0.02-0.03) mm (in) / 1 (0.04) mm (in). Using bigger sand size might get stuck to the HAC container valves or nozzle. Smaller sand size will decrease the impact of the abrasive cutting power.

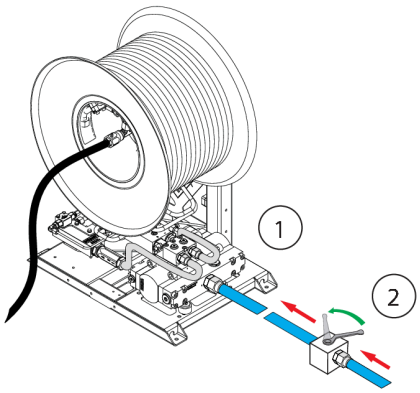
Before starting the system, fill the containers with abrasive sand :

1. Open the hatch
2. Add the abrasive sand
3. Close the hatch firmly by hand



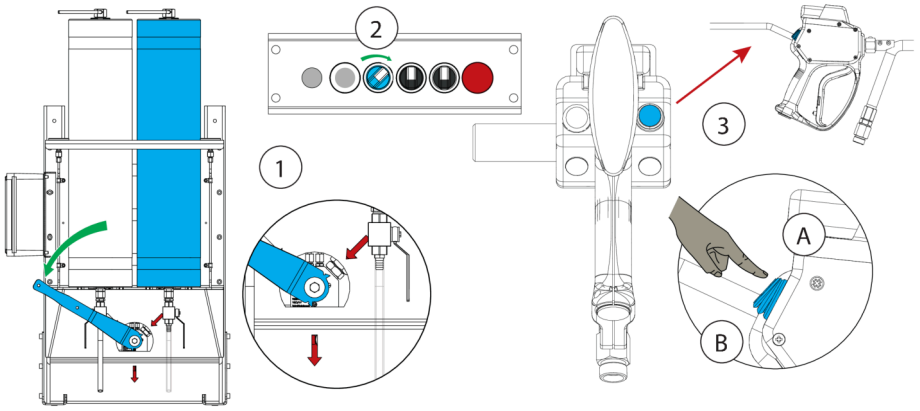
Ensure that there is water available for the system:

1. Connect the water line to the pumps suction line
2. Open the water flow to the unit



Select the system for abrasive cutting:

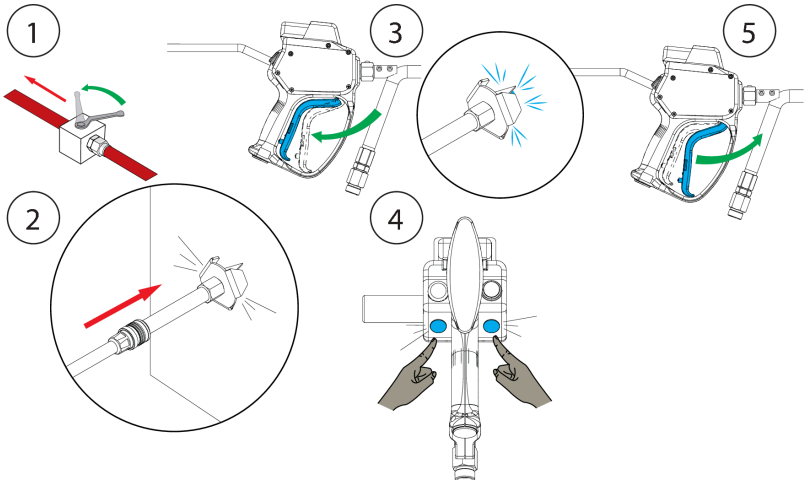
1. Ensure that the container selector is fully turned to either side. The arrows will show which side of the tank is in use.
2. Reel the hose out from the hose reel
3. Turn the selector switch from the pistol handle to the abrasive cutting



A. Abrasive cutting B. Foaming

Start the cutting:

1. Start the hydraulic flow to the HAC unit
2. Aim and place the cutting pistol to the surface you want to cut
3. Pull the handle lever and the HPW pump starts. The water jet flows now through the nozzle.
4. While holding the lever, activate the sand inclusion by pushing the sand button continuously on the pistol handle or on the remote. Pistol has buttons for right hand and left hand operation.
5. When the lever is released the HAC unit stops automatically



5.2 PUMPING FLUIDS

HAC unit is designed for water use only.

WARNING

Do not use seawater for the unit. Using seawater or other similar liquid may damage the unit

NOTE!

HAC units HPW pump can be run dry unlimited time without any harm, because self-lubricating sealing and circulating hydraulic oil prevent the pump from overheating.

NOTE!

Maximum pumping fluid temperature is 70 (158) °C(°F) in standard models. Do not exceed the maximum temperature.

NOTE!

Maximum pumping fluid temperature in self-priming is 45 (113) °C(°F). Temperatures over 45 (113) °C(°F) requires feed.

5.3 ADDING THE ABRASIVE SAND

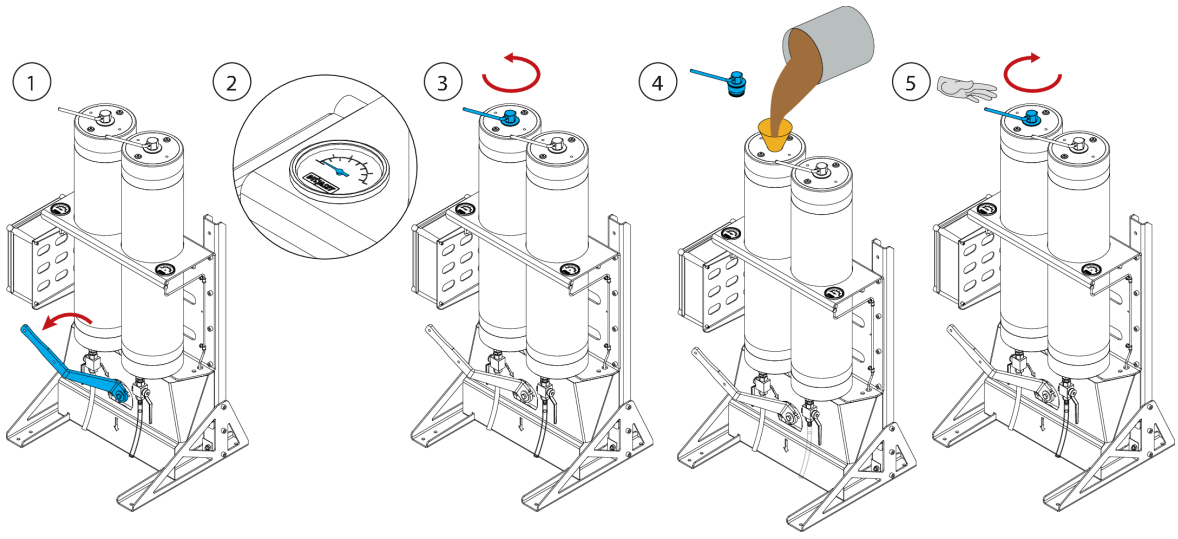
⚠ WARNING

The container must be depressurized before opening the container. Opening the hatch pressurized can cause severe damage or death. Pressure can be checked from the containers own pressure gauge.

⚠ WARNING

Do not use regular sand! It will get stuck to the system. Only use abrasive sand. Make sure the abrasive sand size is between 0.6-0.8 (0.02-0.03) mm (in) / 1 (0.04) mm (in). Using bigger sand size might get stuck to the HAC container valves or nozzle. Smaller sand size will decrease the impact of the abrasive cutting power.

1. Depressurize the empty container by turning the selector lever to the other container.
2. Check the pressure gauge from the containers side that the container is depressurized.
3. Open the hatch.
4. Fill the container full of abrasive sand.
5. Close the hatch firmly by hand



5.4 USING THE HAC FOR FOAMING

WARNING

Check all hoses and couplings in hydraulic and water circuits before use to ensure there are no leaks or damages.

WARNING

Never put your hand, fingers or body directly in front of the spray nozzle!

WARNING

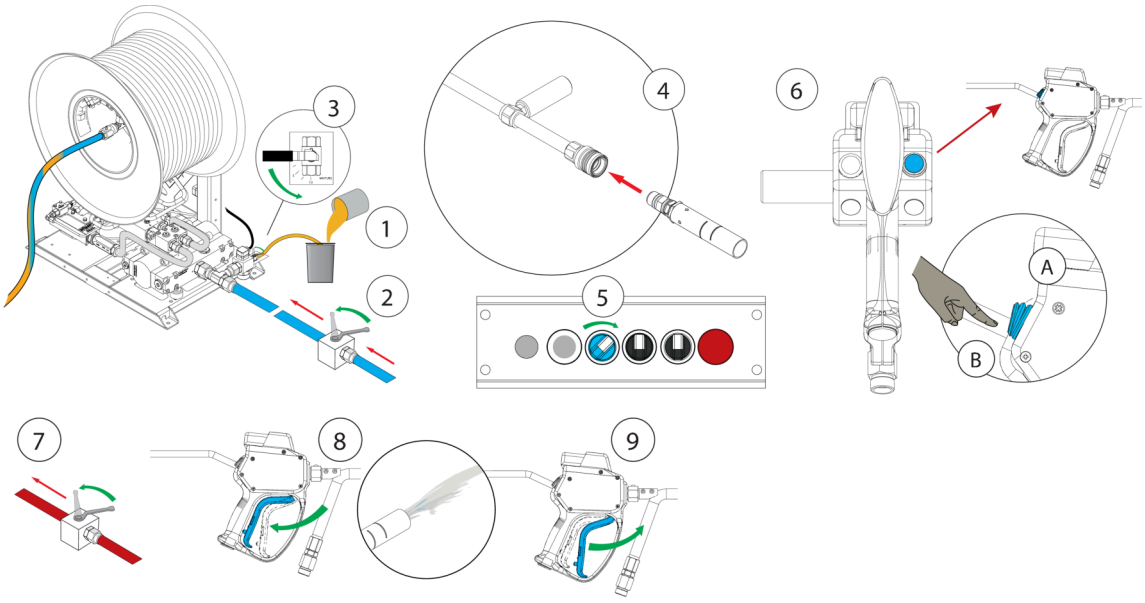
Make sure there is no sand in the pistol hose before starting the foaming. The system will get stuck otherwise. Empty the hose and pistol from sand by using the water jet without sand until there is no sand in the water.

NOTE!

The abrasive sand mode and the foaming can't be used simultaneously.

Start the foaming by following these steps:

1. Before starting the system, fill the foam container with proper foaming liquid.
2. Ensure that there is water available
3. Adjust the foam level with the lever
4. Attach the foam injector to the HAC water pistol
5. Reel the hose out from the hose reel
6. Select the foaming function from the remote or from pistol handle.
7. Start the hydraulic flow to the HAC unit.
8. Aim the pistol to the area to foam and pull the handle lever. The HPW pump starts and the foam spray flows through the nozzle.
9. When the lever is released the HAC unit stops automatically



Picture 6: Using the foaming

5.5 WORKING IN COLD TEMPERATURES

To prevent pipes and HAC unit from freezing in cold season, pump and pumping fluid output line should be dewatered after working. Detach the intake hose from HPW pump and run it dry for a while until all water is removed from water circuit. You can assist the emptying process by using compressed air to the HPW pump intake.

⚠ WARNING

Drain the sytem from sand before draining the system from water. Otherwise the drain valves might get clogged with the sand.

5.6 STOPPING THE HAC UNIT

HAC unit is stopped by releasing the pistol lever and shutting off the hydraulic flow to the unit.

High pressure can remain in closed pressure circuit. Release water pressure to avoid unexpected water discharges and injuries. Pull the trigger for some time after the pump has been stopped and hydraulic flow cut to it. This will release the pressure in the hose.

5.7 STORAGING THE HAC UNIT

To prevent the HAC unit from rusting in storage conditions, pump and pumping fluid output line should be dewatered before storing the unit. Detach the intake hose from HPW pump and run it dry with pressured air for a while until all water is removed from water circuit.

6. MAINTENANCE

6.1 GENERAL

WARNING

All installations and maintenance must be done according to this manual. All installations and maintenance that is not shown in this manual should only be done by a qualified mechanic or electrician depending on the jobs requirements.

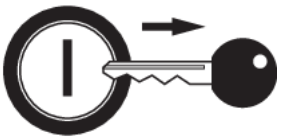
WARNING

Before you do any maintenance or repair, always make sure that the hydraulic system is turned off and depressurized. Make sure that the system does not turn on while doing maintenance.

WARNING

All installation and maintenance of electric equipment must be done by qualified electrician only.





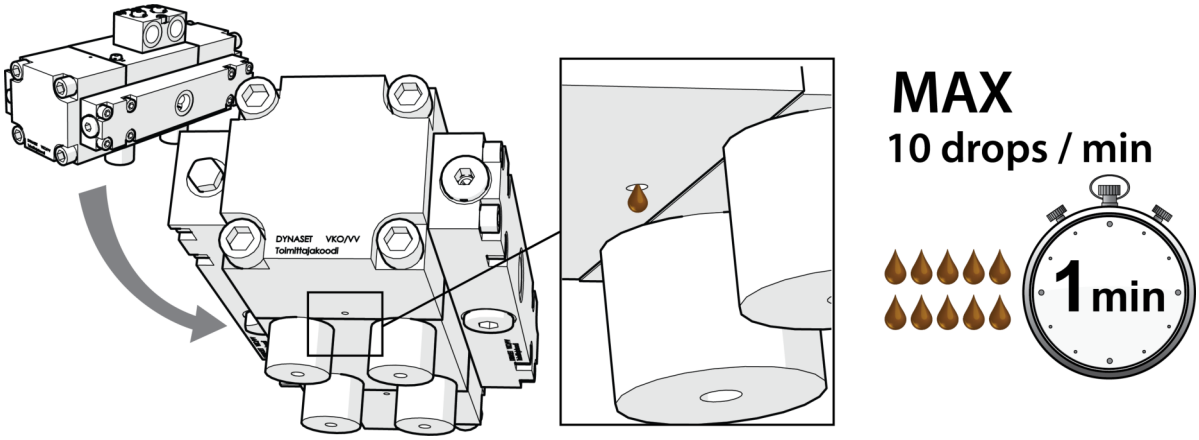
6.2 MAINTENANCE INTERVAL

All maintenance must be complied with as they are scheduled in this manual.

The following table provides maintenance schedule for DYNASET HAC units.

CHECK POINTS	Daily	After daily use	Every 3 months	Every 1500 hours or if necessary
Observe leakage detectors of HPW pump	x			
Check HAC nozzle condition	x			
Clean HAC unit		x		
Change water intake filter			x	
Change pump sealings				x

Check constantly whether the fluid dropping from pump's leakage detectors is growing. Replace sealing in proper time to exclude intermixing of hydraulic oil and pumping fluid.



6.3 HYDRAULIC FLUIDS

A wide range of standard hydraulic fluids can be used with the DYNASET hydraulic equipment. Depending on the operating temperature, the following mineral hydraulic oils are recommended:

Mineral hydraulic oil	Operation temperature up to
ISO VG 32S	60°C (140°F)
ISO VG 46S	70°C (158°F)
ISO VG 68S	80°C (176°F)

WARNING

Recommended oil viscosity is between 10 and 35 cSt when operating at normal operating temperature.

Synthetic and bio-oils can also be used if their viscosity characteristics and lubricating efficiency are similar to mineral oils. Automatic transmission fluids and even engine oils can be used, provided that they are allowed to be used in hydraulic system of your base machine.

For the hydraulic fluid change interval, obey the base machine's maintenance instructions.

To use special hydraulic fluids with DYNASET equipment, contact the nearest DYNASET representative for more information.

6.4 CLEANING THE HAC UNIT

WARNING

Keep the HAC clean to enable its safe and longlife operation. Check and clean your HAC unit after every work shift.

6.5 TROUBLESHOOTING

Performing the maintenance tasks requires a qualified hydraulic mechanic. Please, contact DYNASET authorized workshop or dealer for more maintenance information.

FAILURE	REASON	CORRECTIVE ACTION
HAC unit does not work.	Hydraulic flow is not sufficient or no hydraulic flow at all.	Enable or adjust the hydraulic flow.
	Hydraulic pressure too low.	Adjust the hydraulic pressure.
	Hydraulic flow reversed.	Check and reconnect hydraulic hoses. Pressure hose should be connected to P-port and return hose to T-port.
	Hydraulic piston damaged mechanically.	Replace damaged part.

FAILURE	REASON	CORRECTIVE ACTION
HAC unit works, but does not deliver water flow.	Water intake and pressure valves are open (jammed with debris) or damaged.	Check water valves and clean them thoroughly or replace when damaged.

FAILURE	REASON	CORRECTIVE ACTION
HAC unit does not receive pumping fluid	Intake hose detached or hose breathes.	Check and fix the hose and connectors.
	Water supply line clogged.	Check strainer or water filter and clean thoroughly.
	Suction head to high.	Check the performance with pressurized water supply when possible.

FAILURE	REASON	CORRECTIVE ACTION
Water pressure line blocked.	Nozzle clogged.	Check the nozzle and clean thoroughly.

FAILURE	REASON	CORRECTIVE ACTION
Water flow rate too small	Insufficient hydraulic flow or pressure.	Adjust the hydraulic flow to the demanded level at required pressure.

FAILURE	REASON	CORRECTIVE ACTION
	Nozzle of your pressure tool undersized.	Verify the nozzle sizing and replace with proper one.
	Pressure loss in delivery hose.	Verify the hose sizing and replace with proper one.

FAILURE	REASON	CORRECTIVE ACTION
Water pressure too low	Insufficient hydraulic flow or pressure.	Adjust the hydraulic pressure to the demanded level at required hydraulic oil flow. Pressure loss should be minimized - Do not use hoses of too small diameter or/and of an excessive length.
	Nozzle of pressure tool oversized.	Verify the nozzle sizing and replace with proper one.
	Wear-out of nozzle.	Replace the nozzle.
	Insufficient water supply.	Check and fix the problem. Use pressurized water supply if available.

FAILURE	REASON	CORRECTIVE ACTION
Intense pulsating of water pressure.	Some water intake and pressure valves are open or damaged.	Check water valves, clean thoroughly or repair.
	Water intake line breathes causing pump cavitation.	Check water intake line and fix the problem.
	Water intake line's diameter to small, resulting in pump cavitation.	Verify the hose sizing and replace with proper one.
	Excessive hydraulic flow, when HPW-pump runs too fast.	Adjust the hydraulic flow to the demanded level.
	Filter clogged or too small.	Clean filter or replace filter of correct size.

FAILURE	REASON	CORRECTIVE ACTION
Sealings and water pistons wear off repeatedly.	Broken filter.	Check and replace filter.
	Filter missing totally.	Install filter. Always must use filter, even with clear tap water.

FAILURE	REASON	CORRECTIVE ACTION
Leakages.	Hydraulic oil leakages.	Check the tightness of component mating, tighten screws.
		Replace sealings of pumps mated surfaces if necessary.
		Check and tighten couplings. Replace if necessary.
	Pumping fluid leakages.	Check the tightness of component mating, tighten screws.
		Replace sealings of pumps mated surfaces if necessary.
		Check and tighten couplings. Replace if necessary.
	Hydraulic oil-pumping fluid leakage.	If the draining from leakage detectors exceeds rate of 10 drops per minute, pump's sealings should be replaced. The rule applies to dropping of hydraulic fluid, pumping fluid and their commissure.

7. MANUFACTURER'S LIMITED WARRANTY

7.1 WARRANTY COVERAGE

All hydraulic accessories manufactured by DYNASET OY are subject to the terms and conditions of this limited warranty. Products are warranted to the original purchaser to be free from defects in materials or workmanship. Exclusions from warranty are explained in item Exclusions from warranty.

7.2 BEGINNING OF WARRANTY PERIOD

Warranty period begins from the delivery date of the product. Delivery is considered to be done on the date when installation has been accomplished or purchaser has taken the product in use. Product is considered as taken in use at the date when DYNASET OY has delivered the product to purchaser, unless separately agreed otherwise by written agreement.

7.3 WARRANTY PERIOD

Warranty period is twenty-four (24) months based on maximum of 2000 hours usage during this time period. In cases where the system is provided complete with certain special components (e.g. drive unit), those components are considered as a subject to their manufacturer's warranty.

7.4 WARRANTY PROCEDURES

Immediately upon identifying a problem which purchaser believes to be a failure subject to the product's limited warranty, purchaser must contact primary to the seller of the product. Contact must be made as soon as possible, the latest thirty (30) days after the problem was identified. Seller and/or manufacturer technical staff determines the nature of the problem primarily by phone or e-mail. Purchaser commits to give necessary information and to perform routine diagnostic procedures in order to determine the nature of the problem and necessary procedures.

7.5 WARRANTY REPAIRS

If the product is found to be defective during the warranty period, DYNASET OY will, at its option, either repair the product, author it to be repaired at its authorized workshop or exchange the defective product. If the product must be repaired elsewhere than premises of DYNASET OY or authorized workshop, all costs excluded from this warranty (travelling and waiting hours, daily allowance, travelling expenses and uninstallation/ reinstallation costs) will be charged from the purchaser. If the problem is not covered by this limited warranty, DYNASET OY has the right to charge purchaser of troubleshooting and repairing.

7.6 DELIVERY TERMS OF WARRANTY REPAIR

If the product is found possible to be defective under this limited warranty, and it needs to be repaired, DYNASET OY gives Warranty Return Number (WRN). Items being returned must be shipped, at the purchaser's cost, adequately packed for shipment, to the DYNASET OY or to other location authored by DYNASET OY.

Shipment documents must contain:

- Purchaser's name and contact information
- Receipt of original purchase
- WRN code
- Problem description

7.7 WARRANTY OF REPAIRED PRODUCT

Warranty period of the product repaired under this limited warranty continues to the end of original warranty period.

7.8 EXCLUSIONS FROM WARRANTY

This warranty shall not apply to:

- Failures due to normal wear and tear, improper installation, misuse, abuse, negligence, purchaser selection of improper product to intended use, accident, improper filtration of hydraulic oil or intake water or lack of maintenance.
- Cost of maintenance, adjustments, installation or startup.
- Coating, hydraulic oil, quick couplings and interconnection hoses (internal or external to system assemblies).
- Products altered or modified in a manner not authorized by DYNASET OY in writing.
- Products which have been repaired during warranty period by others than DYNASET OY or its authorized workshop.
- Costs of any other damage or loss, whether direct, indirect, incidental, special or consequential, arising out of the use of, or the inability to use, the product.
- Telephone or other communications expense.
- Product that is used in exceptional conditions, considered to cause excessive wear and tear.
- Faults caused by nature phenomenon like flood, thunder, etc.

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8. PRODUCT DISPOSAL

Dispose and recycle all DYNASET products and their packaging environmentally responsible way.

Do not dispose used oils, electrical components, batteries or any other hazardous waste with normal waste. They are harmful for the environment and can be recycled for re-use.

Contact your local waste recycling facility for more information about recycling hazardous waste.

NOTE!

Always act according to the waste legislation, regulations and recommendations in waste disposal and waste recycling issued by your local authorities.

9. DECLARATION OF CONFORMITY

We hereby declare that the design and manufacture of the product stated below are in conformity with the provisions of the European Parliament and Councils on the harmonization of the laws of Member States on the safety of machines.

Machine directive 2006/42/EC

LVD directive 2014/35/EU

EMC directive 2014/30/EU

Applied conformity standards:

EN ISO 4413:2010 Hydraulic fluid power - General rules and safety requirements for systems and their components.

EN60204-1:2018 Safety of machinery – Electrical equipment of machines.

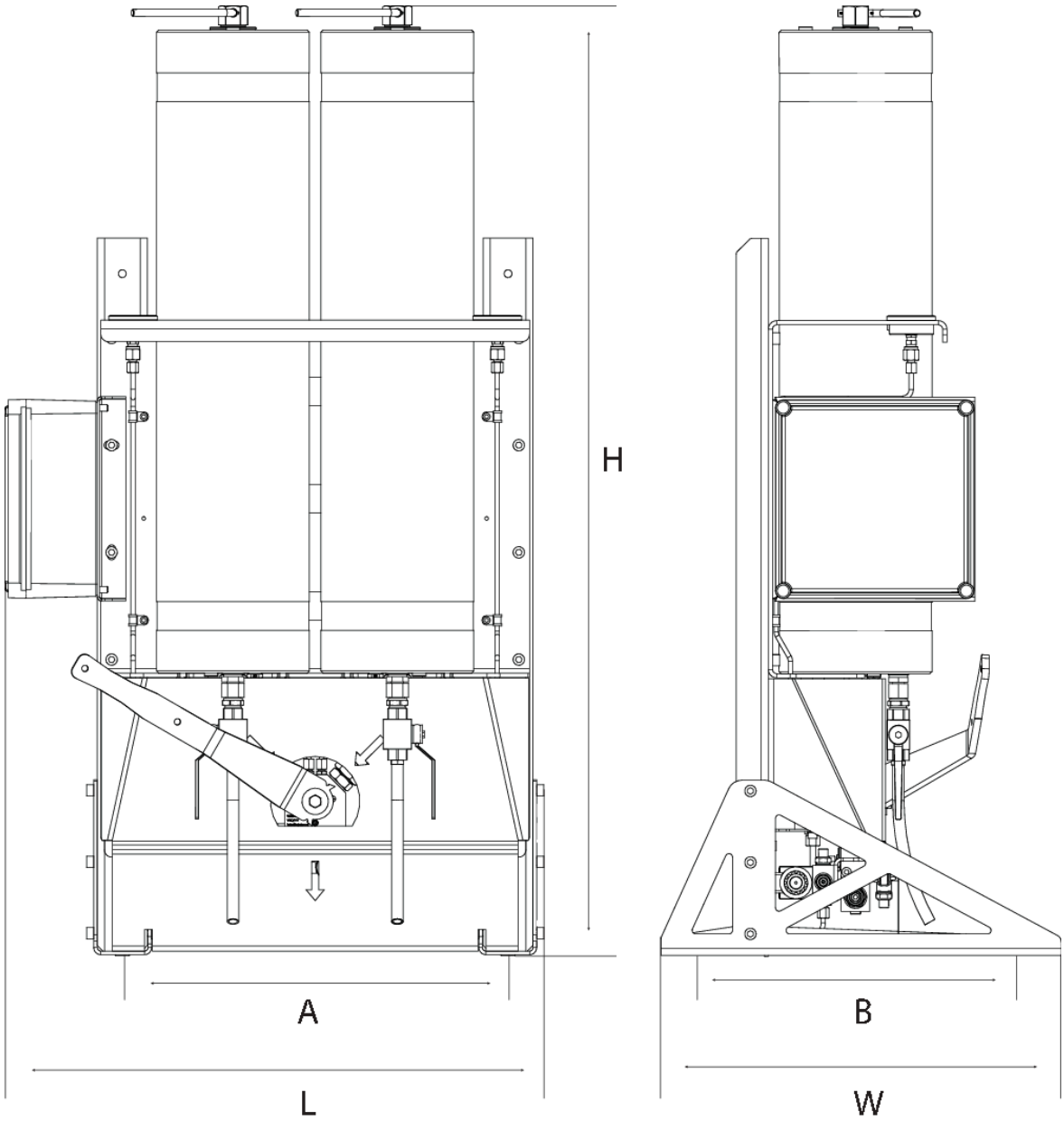
Manufacturer:	DYNASET Oy Menotie 3, FI-33470 Ylöjärvi, Finland
Product group:	HAC HYDRAULIC ABRASSIVE CUTTING SYSTEM
Product:	HAC Hydraulic Abrassive Cutting System

If the device has been modified by someone other than the manufacturer or without the manufacturer's permission, this declaration is not valid.

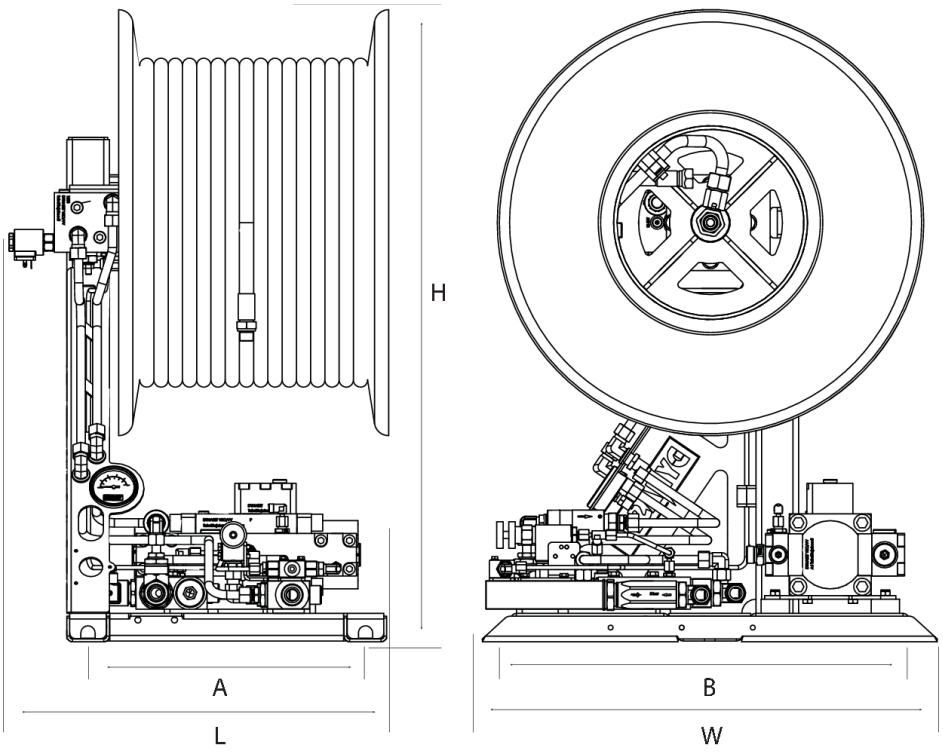
Pasi Yli-Kätkä
R&D Manager
Menotie 3, 33470
Ylöjärvi, Finland 21.08.2023

10. TECHNICAL SPECIFICATIONS

10.1 DIMENSIONS

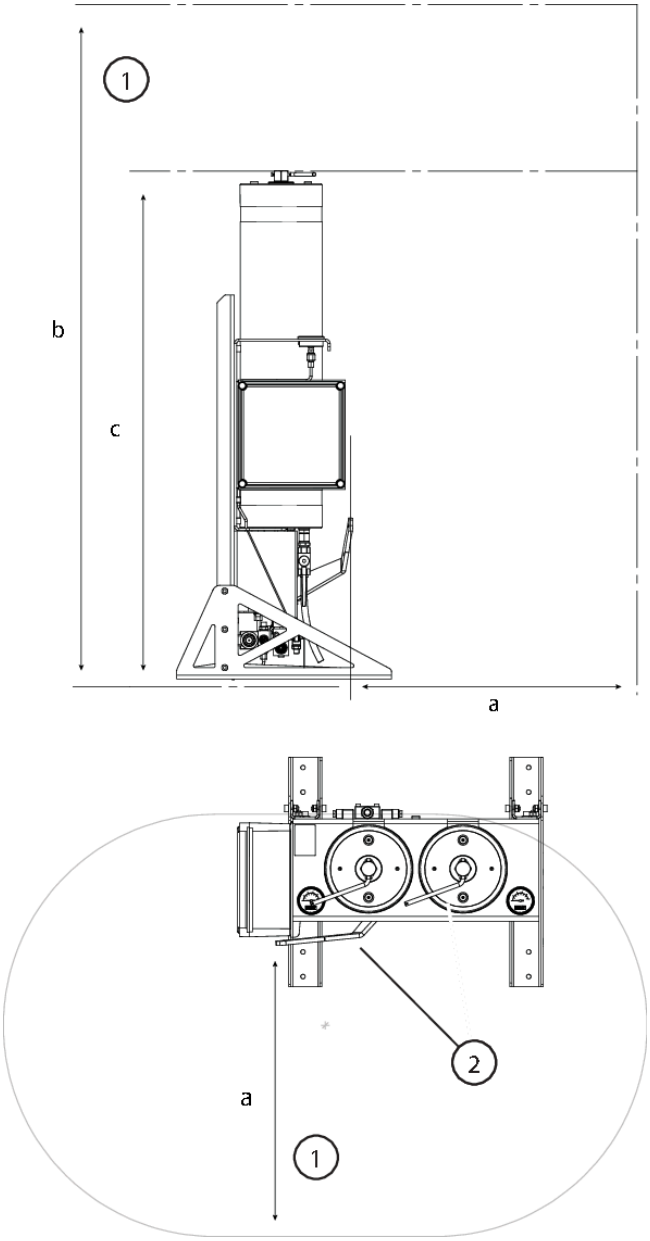


Model	Dimensions, mm (in)					Weight
	Length	Width	Height	A	B	kg (lbs)
HAC-2x20	810 (31.9)	560 (22.0)	1,328 (52.3)	550 (21.7)	510 (20.1)	250 (552)



Model	Dimensions, mm (in)					Weight
	Length	Width	Height	A	B	kg (lbs)
HAC-PPL	531 (20.9)	640 (25.2)	890 (35.0)	390 (15.4)	600 (23.6)	207 (457)

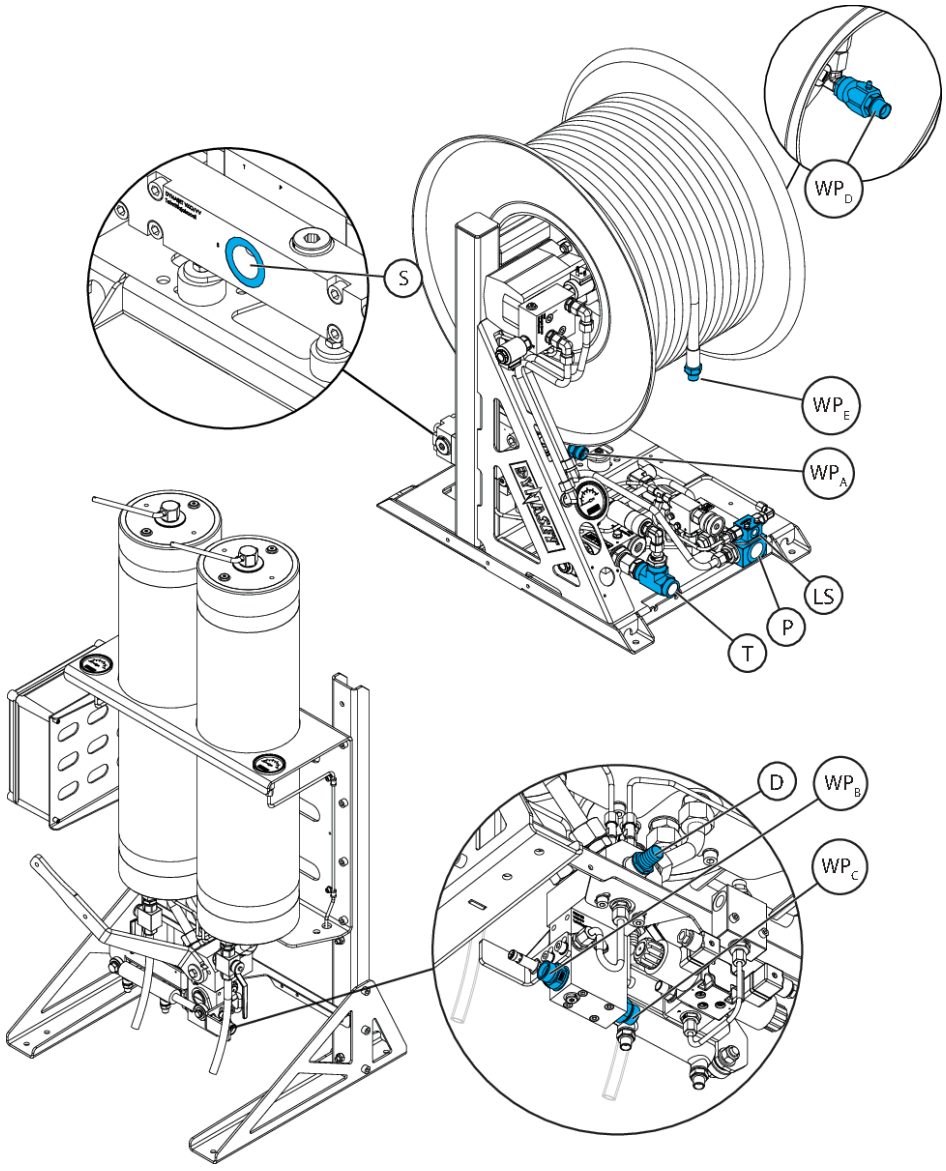
OPERATOR AREA



1 = Keep the operator area clear!
2 = Operating lever: choose container to fill up/abrasive feed. Operator fill up the the containers.

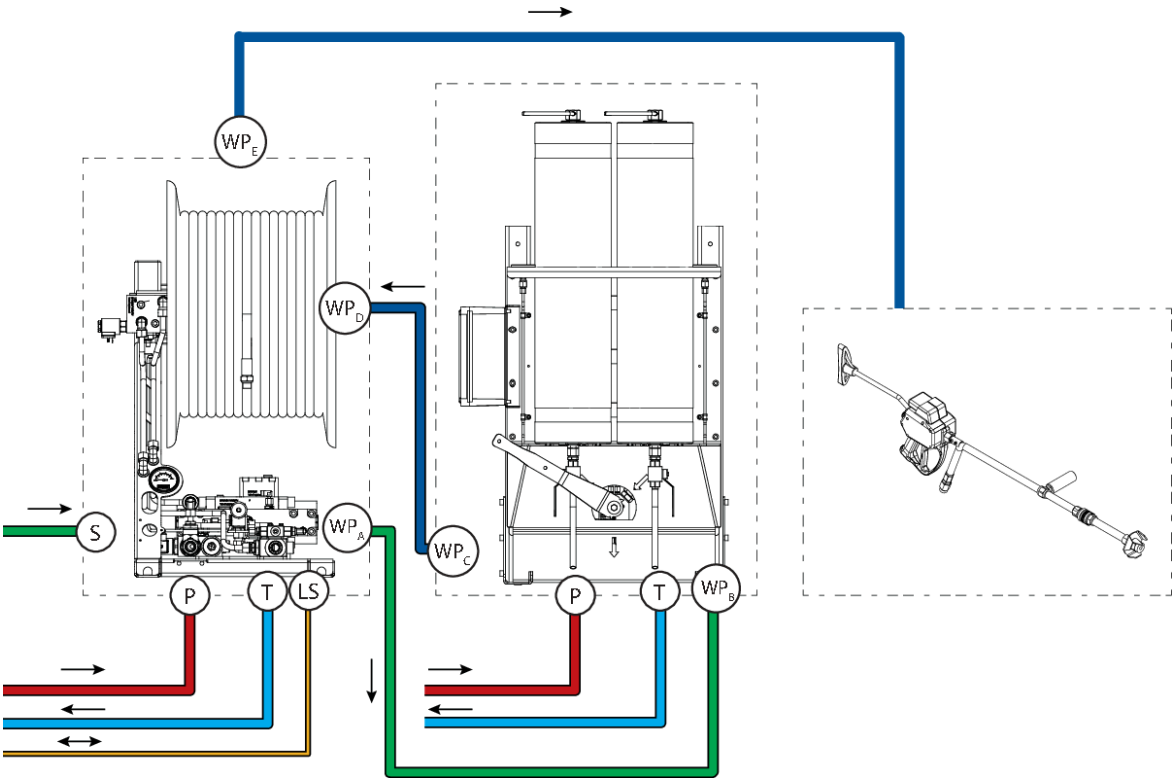
Model	Dimensions, mm (in)		
	a, min	b, min	c
HAC-2x20	800 (31.5)	1,900 (74.8)	1,328 (52.3)

10.2 CONNECTIONS



Model	Hydraulic Connections		
	Pressure line, P	Return line, T	LS line, LS
HAC-2x20	BSPP 3/4	BSPP 1	BSPP 1/4

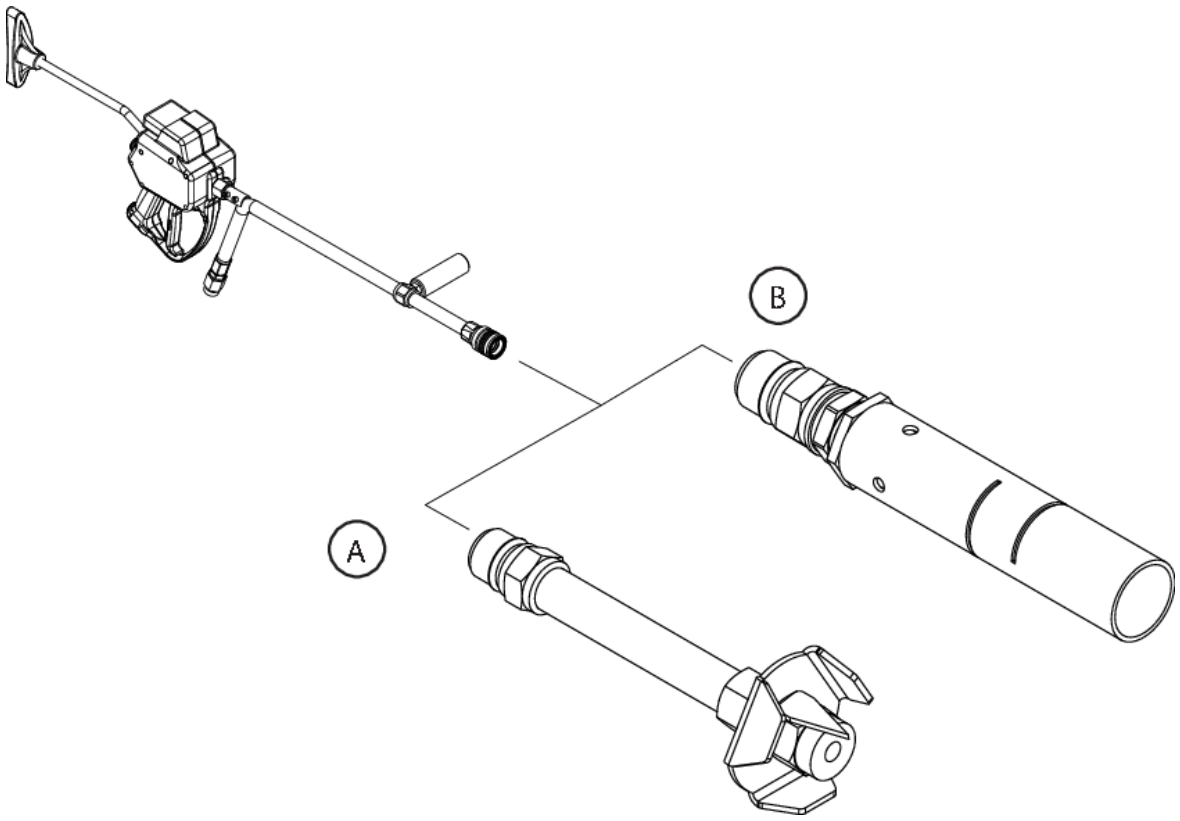
Model	Water Connections						
	Input, S	Output, WP_A	Output, WP_B	Output, WP_C	Output, WP_D	Output, WP_E	Drain line, D
HAC-2x20	BSPP 1	BSPP 1/2	BSPP 1/2	BSPP 1/2	BSPP 1/2	BSPP 1/2	R3/4-19



Model	Hydraulic Connections		
	Pressure line, P	Return line, T	LS line, LS
HAC-2x20	BSPP 3/4	BSPP 1	BSPP 1/4

Model	Water Connections						
	Input, S	Output, WP_A	Output, WP_B	Output, WP_C	Output, WP_D	Output, WP_E	Drain line, D
HAC-2x20	BSPP 1	BSPP 1/2	BSPP 1/2	BSPP 1/2	BSPP 1/2	BSPP 1/2	R3/4-19

10.2.1 OPTIONS



A = Abrasive Cutting head
B = Foaming head, includes a foaming valve to the HAC unit

10.3 TECHNICAL SPECIFICATIONS

		HAC-2x20
DISCHARGE CHARACTERISTICS		
Cutting time steel, 16 (0.6) mm (in)	**s**	18-20
Cutting time wood, 60 (2.4) mm (in)	**s**	2-3
Cutting time concrete, 110 (4.3) mm (in)	**s**	80
Fluid flow max.	**l/min (gpm)**	50 (13.21)
Pressure max.	**bar (psi)**	320 (4,641)
Abrasive sand size Recomended / Max	**mm (in)**	0.6-0.8 (0.02-0.03) / 1 (0.04)
Abrasive tank size	**liter (gal.)**	2 x 20 (5.28)
Hose length	**m (ft)**	100 (328)
Power	**kW**	38
Pistol voltage (2 Ah)	**V**	12V
System voltage	**V**	24V
HYDRAULIC POWER REQUIREMENTS		
Flow max.	**l/min (gpm)**	115 (30.38)
Flow min.	**l/min (gpm)**	70 (18.49)
Operating pressure	**Δp. bar (psi)**	210 (55.48)
Pressure max.	**bar (psi)**	240 (63.41)
HYDRAULIC FLUID REQUIREMENTS		
Viscosity	**cSt**	10-200 / optimum 25-35
Temperature max.	**°C(°F)**	70 (158)
Filter ratio	**µm**	< 25
Cooling capacity requirement	**kW**	5
PUMPING FLUID REQUIREMENTS		
Suction head max	**m (ft)**	3 (10)
Feed pressure max.	**bar (psi)**	16 (232)
Water filter	**mesh**	80

Picture 1: Identification key for HPW pumps 6
Picture 2: Type plate 6
Picture 3: Main components of HAC 7
Picture 4: Operator area 11
Picture 5: Battery installation 17
Picture 6: Using the foaming 24

DYNASET

POWERED BY HYDRAULICS

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tel: +358 3 3488 200
info@DYNASET.com

ELECTRICITY

HG Hydraulic Generator
HGV POWER BOX Variable Hydraulic Generator System
HGV Variable Hydraulic Generator System
HWG Hydraulic Welding Generator
HGG Hydraulic Ground Power Generator

HIGH PRESSURE WATER

HPW Hydraulic High Pressure Water Pump
HPW Hydraulic Power Washer
KPL High Pressure Street Washing Unit
KPL-WEED Weed Killing Unit
SCU Surface Cleaning Unit
HPW-DUST High Pressure Dust Suppression System
PPL High Pressure Pipe Cleaning Unit
HPW-FIRE High Pressure Firefighting System
FP Fire Fighting Piercing Kit
HDF Hydraulic Drilling Fluid Pump
JPL High Pressure Bin Washing System
HSP Hydraulic Submersible Pump

COMPRESSED AIR

HK Hydraulic Piston Compressor
HKL Hydraulic Rotary Vane Compressor
HKR Hydraulic Screw Compressor

MAGNET POWER

HMG PRO Hydraulic Magnet Generator
MAG Lift Magnet
HMAG PRO Hydraulic Magnet

VIBRATION

HVB Hydraulic Vibration Pump
HVD Hydraulic Directional Vibra
HRC Hydraulic Reversal Cylinder

POWER BOOSTING

HPI Hydraulic Pressure Intensifier
HPI-C Hydraulic Pressure Intensifier for Cylinder

VACUUM

HCF Hydraulic Centrifugal Fan
HRVB Hydraulic Recycling Vacuum Bucket

KNOW-HOW

Hydraulic Power Take-off (PTO)
Hydraulic Power Unit Technology
HEU Hydraulic Expansion Unit
HRU Hydraulic Rescue Unis
De-Icing Technology
Installation Valves
HHK Hydraulic Grinder
HV/HVY Hydraulic Winch / Winch Unit

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