DOA

Hydraulic Tools



General Catalogue





DOA

Hydraulic Tools


DOA
ITALIFTERS
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DOA name comes from the initials of **Dinamica Olio Acciai** (Dynamic Oil and Steel). The acronym synthetize the type of our products, DOA is a company specialized in the production of portable hydraulic tools. The engineering team developed a wide range of innovative, compact and versatile products by applying the latest technologies in this field. Our skills are the innovative spirit, the pursuit of quality and the close collaboration with the customers.

The **DOA** objective is to manufacture tools with superior features that can guarantee the maximum of safety, productivity and improve the working conditions of the operators. Our staff is made up of engineers with a passion of hydraulics and with consolidated experience in the field of engineering of power tools. This tools are used in different markets and environmental conditions and may have many different applications.

Our products are manufactured with the latest design technology, they incorporate the most modern solutions, some of wich are patented, allowing us to anticipate the customers and to overtake expectations. They are powerful, but low-noise, they have a long life, they are compact and so easy to transport.

The whole production process, from the design stage to the delivery, is very accurately controlled in every detail by our prepared staff made of formed technicians, who are always meticolous with the particulars of the products to assure the high standards of the company.

The production of the company is varied because of the different products and tools that are made: power packs, hydraulic tools and a special line of safe subsea tools.

The production also includes water pumps and flow control valves. The selection of the raw materials is oriented towards the highest quality available on the market. The use of the latest technologies allows us to maximize the value of our products and above all to improve safety.

OUR COMPANY

DOA

WHY HYDRAULIC TOOLS

POWER & PRODUCTIVITY



The power to weight ratio of hydraulic tools is unbeatable! A comparative test will immediately demonstrate this advantage that means increased productivity and less fatigue for the operators.

TRANSPORTABILITY & ECONOMY



Hydraulic tools are very compact and easy to transport verses air driven products. The power pack is much lighter than an air compressor and uses less fuel to operate giving better economy and impact on the environment. Tools can easily be transported by smaller vehicles and be positioned on job sites occupying minimal space and taking less time to set up.

A BETTER WAY TO WORK IN TOTAL SAFETY



No other equipment either electric, gasoline, or pneumatic can solve together all the problems related to urban maintenance and utility works. Modern utility organisations require powerful, productive, reliable and easily transportable equipment that must give the maximum guarantee of safety for operators. It is difficult to obtain all this from conventional equipment, hydraulics and the DOA range is the definitive point by point solution. Hydraulic equipment is free from electric shock hazards often associated with operators working inside trenches in water and mud, these are dangerous conditions prohibited by law and if using electric single phase tools it could be fatal. Hydraulic tools are designed can be totally immersed in water without effecting their performance or safety.

NO FROZEN MOISTURE IN WINTER - QUIETNESS



The absence of an open exhaust gives a quietness that is unrivalled by other tool types. In winter conditions and at lower temperatures hydraulic tools guarantee the absence of frozen moisture typical limiting the usage of the air tools. Hydraulics also gives the advantage of not having pressure accumulation due to the oil not being compressible so it cannot cause explosions of tanks and hoses etc.

MULTI POWER GROUPS FOR TRUCKS



DOA multi power solutions for vehicles: INTELLIPOWER, TRIDENT & HYDROBOX all significantly increase the use of trucks, vans & plant transforming them from normal vehicles into power solutions to drive hydraulic, electric and pneumatic energy from the engine plant of such vehicle. This means better utilisation of resources, less investment in equipment and less costs in transport.

VERSATILITY AND LONG OPERATIVE LIFE OF TOOLS



Hydraulic tools also offer greater durability and a longer life span than other tools often lasting up to 20 times longer, this is due to a smaller number of working components that are always bathed and lubricated by the oil that drives them.

THE RANGE



DOA is proud to bring you the best range of hydraulic tools on the market today and offers solutions for all your infrastructure and underwater tool requirements. We are constantly innovating and producing tools for the worlds demanding environment with ergonomic design, quality, and operator safety at the forefront of everything we do. **DOA IS ALWAYS A STEP AHEAD!**

PRODUCTS



POWER PACKS 8



HYDRAULIC TOOLS 30



WATER PUMPS 58



INDUSTRIAL LINE 84

POWER



PACKS



POWER PACKS

SCORPION

19 L/min @ 95 Bar - (12 L/min @ 160 Bar) Gasoline engine 6 Hp



- *Stainless steel frame*
- *All parts suspended on anti-vibration shock mounts*
- *Quick couplers installed on impact free swivel fitting*
- *High efficiency oil cooling system with centrifugal fan*
- *Central lifting hook*

SCORPION micro power pack with 6 Hp gasoline engine – recoil start is designed to guarantee the minimum weight and easy transportability. The machine is available in two configurations of hydraulic power: 20 L/min @ 95 Bar or 12 L/min @ 160 Bar. Agile and robust **SCORPION** is ideal in the utilities maintenance , in general applications with hydraulic tools and in all works where are needed power and transportability.

Available with different hydraulic power depending on request.

TECHNICAL CHARACTERISTICS	**SCORPION**
Weight (kg)	42
Dimension LxWxH (cm)	60x40x43
Flow L/min	20@95 Bar (12@ 160 Bar)
Pressure Bar	95-160
Engine	Briggs & Stratton 6hp - gasoline
Starter	recoil
Acceleration	manual
Hoses Length std	7 mt



GASOLINE

ASPID

20 L/min @ 140 Bar Engine 9 Hp - Recoil starter

- *Stainless steel frame*
- *All parts suspended on anti-vibration shock mounts*
- *Quick couplers installed on impact free swivel fitting*
- *High efficiency oil cooling system with centrifugal fan*
- *Central lifting hook*

SUPER ASPID

30 L/min @ 140 Bar Engine 13 Hp - Recoil starter

ASPID B

30 L/min @ 140 Bar Engine 14 Hp - Recoil and electric starter



ASPID is a three models power packs range with gasoline engine that have same size and minimal difference in weight due to the various engines installed and to the hydraulic output power. These machines have excellent transportability, robustness, quietness, reliability and a superior construction quality that guarantees the best performance in the more damaging applications. For these characteristics the **ASPID** range is the best selling and the more commonly power packs used in the maintenance of underground pipes, in rescue civil protection and in all application where is necessary a professional hydraulic power supply.
Available with different hydraulic power depending on request.

TECHNICAL CHARACTERISTICS	ASPID	SUPER ASPID	SUPER ASPID B
Weight (kg)	65	67	70
Dimension LxWxH (cm)	70x50x57	70x50x57	70x50x57
Flow L/min	20@140 Bar	30@140 Bar	30@140 Bar
Pressure Bar	140/210	140/210	140/210
Engine	Briggs & Stratton 9hp - gasoline	Honda 13 hp - gasoline	Briggs & Stratton 14hp - gasoline
Starter	recoil	recoil	recoil and electric
Acceleration	automatic	automatic	automatic
Hoses Length std	7 mt	7 mt	7 mt

POWER PACKS

MANTA

30 L/min @ 140 Bar - 2,2 Kva 115 - 230 Volt Engine 14hp - Recoil and electric starter

HYDRAULIC POWER PACK WITH GENERATOR



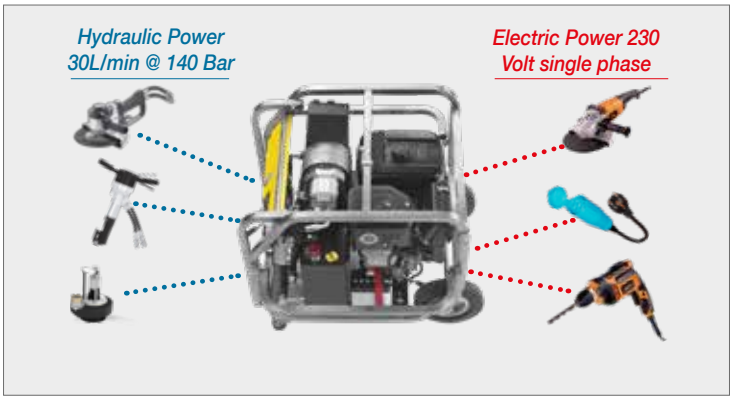
- *Electric generator 2.2kVA – 230V*
- *Stainless steel frame with large folding handles*
- *All parts suspended on anti-vibration shock mounts*
- *Quick couplers installed on impact free swivel fitting*
- *High efficiency oil cooling system with centrifugal fan*
- *Central lifting hook*

The double function makes **MANTA** the most versatile machine of its kind and adapts it to any situation being able to operate with most of the hydraulic and electrical tools. The hydraulic or electric functioning is selectable immediately by using a lever. Power sources can be used one at a time (not together). The efficient cooling system of the oil assures maximum performance even in hotter climates.

MANTA is for its construction and function the best machine in its kind. Its use is ideal for the maintenance of urban networks, for the civil protection and for all applications where are needed hydraulic and electric power

MANTA is the only hydraulic power pack on the market with electric generator 2.2 kva - 230 v

TECHNICAL CHARACTERISTICS	MANTA
Weight (kg)	95
Dimension LxWxH (cm)	85x60x65
Flow L/min	30@140 Bar
Pressure Bar	140 Kva
Generator	2.2 kwA - 230V
Engine	Briggs & Stratton 14Hp - gasoline
Starter	recoil - electric
Acceleration	manual
Hoses Length std	7 mt



GASOLINE

SUPER RAPTOR single

38 L/min @ 140 Bar - Gasoline engine 18 Hp - Recoil and electric starter

- *Stainless steel frame with large folding handles*
- *Central lifting hook*
- *All parts suspended on anti-vibration shock mounts*
- *Quick couplers installed on impact free swivel fitting*
- *High efficiency oil cooling system with double radiator*
- *Central lifting hook*



SUPER RAPTOR is an hydraulic power pack with 18 Hp twin cylinder gasoline engine, the machine is available on request with different flows (example 30 l/min at 180Bar with 9 cc hydraulic pump or 38l/min at 140Bar with 11 cc hydraulic pump) depending on the pump size installed (example 30 litres @175 Bar or 38 litres @ 140 Bar). **SUPER RAPTOR** is for function and construction one of the best machine on the market, for its characteristics it is ideal in the maintenance of underground pipes, in the civil protection, in powering high flow hydraulic tools and in all application where is necessary a professional hydraulic supply.
Available with different hydraulic power depending on request.

TECHNICAL CHARACTERISTICS	SUPER RAPTOR SINGLE
Weight (kg)	110
Dimension LxWxH (cm)	85x60x65
Flow L/min	30-38@140 Bar
Pressure Bar	140/180
Engine	Vanguard 18 hp - gasoline
Starter	recoil - electric
Acceleration	automatic (POD) or manual
Hoses Length std	7 mt



POWER PACKS

SUPER RAPTOR dual

Double parallel circuit at 19 L/min or single at 38 L/min Gasoline engine 18 Hp - Recoil and electric starter



- *Stainless steel frame with large folding handles*
- *All parts suspended on anti-vibration shock mounts*
- *Quick couplers installed on impact free swivel fitting*
- *High efficiency oil cooling system with centrifugal fan*
- *Central lifting hook*

SUPER RAPTOR DUAL is a twin tool hydraulic power pack with 18 Hp twin cylinder gasoline engine, with electric pull starter. The machine has double possibility of hydaulic supply: either two hydraulic circuit at 19 L/min each or combined in a single circuit at 38 L/min with a maximum pressure of 140 Bar. The engine acceleration can be fixed and also automatic with piston according to customer specifications. The selection of the type of flow and acceleration can be done in a while through comfortable levers.
Available with different hydraulic power depending on request.

TECHNICAL CHARACTERISTICS	SUPER RAPTOR DUAL
Weight (kg)	118
Dimension LxWxH (cm)	85x60x65
Flow L/min	30-38
Pressure Bar	140-180
Engine	Briggs & Stratton 18 HP twin - gasoline
Starter	recoil - electric
Acceleration	automatic - manual
Hoses Length std	7 mt



GASOLINE

SUPER RAPTOR 23 HP single

20-45 l/m - Gasoline engine 23Hp - Electric starter

- *Stainless steel frame with large folding handles*
- *All parts suspended on anti-vibration shock mounts*
- *Quick couplers installed on impact free swivel fitting*
- *High efficiency oil cooling system with centrifugal fan*
- *Central lifting hook*



SUPER RAPTOR 23 HP is an hydraulic power pack with 23 Hp twin cylinder gasoline engine, developed to provide a standard hydraulic circuit 20-45 l/min at 150 Bar, but available on request with different flow and pressure characteristics. **SUPER RAPTOR 23 HP** is for function and construction one of the best machine on the market, it is ideal in the maintenance of underground pipes, in the civil protection, in powering high-flow hydraulic tools and in all the applications where it is necessary a professional hydraulic supply.

Available with different hydraulic power on customer request.

TECHNICAL CHARACTERISTICS	SUPER RAPTOR 23 HP
Weight (kg)	130
Dimension LxWxH (cm)	85x60x65
Flow L/min	20-45
Pressure Bar	150
Engine	Vanguard 23 hp - gasoline
Starter	electric
Acceleration	manual
Hoses Length std	7 mt



POWER PACKS

SUPER RAPTOR 23 HP dual

Double parallel circuit at 20 L/min or single at 40 L/min Gasoline engine 23 Hp - Electric starter



- *Stainless steel frame with large folding handles*
- *All parts suspended on anti-vibration shock mounts*
- *Quick couplers installed on impact free swivel fitting*
- *High efficiency oil cooling system with centrifugal fan*
- *Central lifting hook*

SUPER RAPTOR DUAL is a hydraulic power unit with a 23hp gasoline engine with electric starter, developed with a double hydraulic circuit. The machine has a double possibility of hydraulic power supply: either two hydraulic circuits of 20 L/min each or combined in a single circuit at 40 L/min with a maximum pressure of 170 Bar. The engine acceleration is manual. The selection of the type of flow and acceleration can be done in a short time via solenoid valves.
Available with different hydraulic power on customer request.

TECHNICAL CHARACTERISTICS	SUPER RAPTOR 23 HP
Weight (kg)	130
Dimension LxWxH (cm)	85x60x65
Flow L/min	20-40
Pressure Bar	170
Engine	Vanguard 23 hp - gasoline
Starter	electric
Acceleration	manual
Hoses Length std	7 mt



GASOLINE

DINAMO 35 H

Double circuit power pack - Gasoline engine 35Hp - Electric starter

- *12V socket and hours counter*
- *Extremely robust chassis*
- *Large central wheels to facilitate movements on any ground*
- *Two Parallel oil coolers with centrifugal fan*
- *Manual engine acceleration allows to control the engine rpm and hydraulic flow*
- *Central lifting hook*



DINAMO 35H is a double circuit power pack with gasoline engine 35Hp available in two configurations with flow 30 l/min x 2 - 60l/min x1 at 180 Bar or flow 40 l/min x2 - 80l/min x1 at 140 Bar. This power pack is developed to power two hydraulic tools of category D or E of EHTMA standard or special tools and pumps than require high flow and pressure.
DINAMO 35H has a Gasoline tank of 30l than guarantee an activity of 100% of engine power for 3 hours in continues.

TECHNICAL CHARACTERISTICS	DINAMO 35 H dual
Weight (kg)	205
Dimension LxWxH (cm)	640x867x1090
Flow L/min	30L/min x 2 - 60L/min x1 or 40L/min x 2 - 80L/min x1
Pressure Bar	from 140Bar to max 210Bar
Engine	Vangard 35 Hp - gasoline
Starter	electric
Acceleration	manual
Hoses Length std	7 mt



POWER PACKS

SCORPION D

20 L/min @ 100 Bar - (12 L/min @ 160 Bar) Engine Diesel Kohler 7hp - Recoil starter



- *Stainless steel frame with large folding handles*
- *All parts suspended on anti-vibration shock mounts*
- *Quick couplers installed on impact free swivel fitting*
- *High efficiency oil cooling system with centrifugal fan*

SCORPION D is a hydraulic power pack with 7,5 Hp Diesel engine - recoil start, thanks to the compact dimension can be easily lifted and transported. The machine is available in two configurations of hydraulic power: - 20 L/min @ 100 Bar adjustable - 12 L/min @ 160 Bar, adjustable. Agile and robust **SCORPION D** is ideal in general hydraulic applications and in all works where are needed the hydraulic characteristics of the machine.

TECHNICAL CHARACTERISTICS	SCORPION D
Weight (kg)	70
Dimension LxWxH (cm)	70x50x57
Flow L/min	20@100 Bar (12@ 160 Bar)
Pressure Bar	100-160
Engine	Yanmar 7,5 HP - diesel
Starter	recoil
Acceleration	manual
Hoses Length std	7 mt
Gear pump	low noise helicoidal gears



DIESEL

RAPTOR D

30 L/min @ 140 Bar - Engine Diesel Kohler 10.5hp - Recoil and electric starter

- *Stainless steel frame with large folding handles*
- *Central lifting hook*
- *All parts suspended on anti-vibration shock mounts*
- *Quick couplers installed on impact free swivel fitting*
- *High efficiency oil cooling system with double radiator*



RAPTOR D is an hydraulic power pack with 10,5 Hp Diesel engine with electric and recoil start, it can supply an hydraulic flow from 20 to 30 L/min @ 130 Bar adjustable by the manual accelerator. **RAPTOR D** is an ideal power pack for long lasting application thanks the high efficiency oil cooling system and Diesel engine.

TECHNICAL CHARACTERISTICS	**RAPTOR D**
Weight (kg)	90
Dimension LxWxH (cm)	85x60x65
Flow L/min	20-30
Pressure Bar	130 (or 200 Bar@ 20 L/min)
Engine	Kohler Diesel engine 10.5hp - Stage V
Starter	recoil - electric
Acceleration	manual
Hoses Length std	7 mt



POWER PACKS

DINAMO D

DINAMO single circuit 15 - 40 L/min @ 150 Bar - DINAMO double circuit 20 + 20 or 40 L/min@ 150 Bar
Engine Kohler 21hp diesel - electric starter



- *Available with single or double circuit*
- *Extremely robust chassis*
- *Large central wheels to facilitate movements on any ground*
- *Two Parallel oil coolers with centrifugal fan*
- *Manual engine acceleration allows to control the engine rpm and hydraulic flow*
- *Central lifting hook*

DINAMO is an hydraulic power pack for heavy and prolonged application, cofigurated with Diesel engine 21 Hp Raywin twin-cylinder engine, the machine its also avaliable in two hydraulic configurations:
DINAMO SINGLE model with single circuit with only one pump, with flow 40 L / min @ 150 Bar
DINAMO DUAL model with two pumps and two parallel hydraulic circuits that can be connected in a single output, which adds the two flow rates, to provide:
•Two separate flow rates of 20 L / min - 150 Bar each.
•A range from 30 to 40 L / min @ 150 Bar

TECHNICAL CHARACTERISTICS	DINAMO single	DINAMO dual
Weight dray (kg)	227	236
Weight with liquids (kg)	250	259
Dimension LxWxH (cm)	100x65x85	100x65x85
Wheels diameter (mm)	380	380
Engine	Raywin	Raywin
Starter	electric	electric
Power	21 HP - 2 cilinders	21 HP - 2 cilinders
Fuel tank capacity	6 litres	6 litres
Flow L/min	15-40	20+20 or 40
Pressure Bar	150 - 200 adjustable	150 - 200 adjustable
Oil cooling	2 radiators in parallel	2 radiators in parallel
Quick couplers	1/2 flush face	1/2 flush face
Oil tank capacity	17 litres	17 litres
Gear pump	low noise helicoidal gears	low noise helicoidal gears





DIESEL

NITRO D

Special Power Pack

- *Available with single or double circuit*
- *Skid frame with central lifting kook*
- *50 L oil tank capacity*
- *All parts suspended on anti-vibration shock mounts*
- *Diesel engine water cooled Stage V/Tier 4*
- *30 L Diesel tank capacity*

DIESEL ENGINE 25 HP KUBOTA

The Hydraulic Valve Diversion On / Off Valves Are Electrically Operated By A 12 V Solenoid



NITRO is a heavy duty hydraulic power unit with a Diesel engine 25hp Kubota water cooled, designed to operate high-flow hydraulic tools and equipment. **NITRO** can be delivered with one or two parallel circuits or with different hydraulic power according to customer specifications, example: 50 L/ min @ 140 Bar, or 38 L/ min @ 200 Bar or two flows: one20 L/min and the second one 30 L/min that can be added having one single cicuit of 50 L/min. The large capacity oil tank and the double radiator cooling system guarantee ideal hydraulic conditions even in the more demanding applications. The typical use is to drive heavy duty hydraulic equipment like drilling equipment, big water pumps, powering underwater tools and in all applications where is need a professional hydraulic supply.

In the double circuit model the two flows and the pump size, can be changed according to application of customer specifications

TECHNICAL CHARACTERISTICS	NITRO D single	NITRO D dual
Weight (kg)	370	370
Dimension LxWxH (cm)	95x60x65	95x60x65
Flow L/min	20-60	On customer specifications
Pressure Bar	100-210	100-210
Engine	Kubota 25 HP water cooled - diesel	Kubota 25 HP water cooled - diesel
Starter	electric	electric
Acceleration	manual	manual
Oil tank	50 litres	50 litres
Quick coupler	3/4” flush face	3/4” flush face
Cylinder	3	3
Fuel tank capacity	30 litres	30 litres

POWER PACKS

LOTUS

Special Power Pack with Diesel engine

POWER PACK FOR HEAVY DUTY APPLICATION





control panel

Available with HVO (Hydrotreated Vegetable Oil) biofuel, with a reduction of CO2 emissions up to 90%.

LOTUS is a professional hydraulic power unit with a 56 hp, 75 hp or 140 hp Diesel engine, developed for heavy and prolonged use. **LOTUS HPU** is available in different hydraulic power packages and number of hydraulic circuits, the configuration must be specified when ordering. Power unit available with engine dimensions depending on the hydraulic characteristics required or with electric motor. The engines are available in different emission regulations depending on the geographical area of application.

- **Single hydraulic circuit or multiple hydraulic circuits available, with multiple hydraulic pumps for parallel use or for single use by adding multiple circuits.**
- **Different brands of engines available, with different declarations of emission conformity.**
- **Also available with electric motors.**
- **Configurable for activation via remote control.**

Technical characteristics may vary according to customer needs

DIESEL

LOTUS

Special Power Pack with Diesel engine

POWER PACK FOR HEAVY DUTY APPLICATION

- *Adjustable flow rate via motor speed control*
- *Real-time adjustable pressures*
- *Bottom base with safety catch tank in case of accidental spillage of liquids*
- *Extremely robust chassis in square tubes and sheet metal with forklifting-base*
- *High capacity battery with marine type detachment for prolonged storage*
- *Hydraulic oil tank with a large capacity of 140 L*
- *Available with piston pump for pressure over 210 Bar (310 Bar Max)*



TECHNICAL CHARACTERISTICS	LOTUS 56 Hp	LOTUS 75 Hp	LOTUS 140 Hp
Weight dray (kg)	1000	1000	1500 - 1900
Dimension LxWxH (cm)	160x90x130	160x90x130	220x120x197
Total Flow L/min (min/max)	60 - 150	60 - 200	100 - 300
Multiple Flow	1-6 circuits	1-6 circuits	1-6 circuits
Pressure Bar	130 - 350	130 - 450	130 - 450
Engine	Diesel / HVO	Diesel / HVO	Diesel / HVO
Emission Compliance	EU STAGE V - US TIER 4 FINAL; EU STAGE IIIB	EU STAGE V - US TIER 4 FINAL; EU STAGE IIIB	EU STAGE V - US TIER 4 FINAL; EU STAGE IIIB
Starter	electric	electric	electric
Acceleration	manual	manual	manual
Oil tank	120 litres	120 litres	250 litres
Fuel tank capacity	80 litres	80 litres	140 litres

POWER PACKS

SUPER RAPTOR E

30 - 42 L/min @ 210 Bar Engine triphase 400 V - 50 Hz power 9-11-15 Kw



- *Stainless steel frame with large frontal and lateral folding handles*
- *Central lifting hook*
- *All parts suspended on anti-vibration shock mounts*
- *Quick couplers installed on impact free swivel fitting*
- *High efficiency oil cooling system with double radiator*

Professional power pack with tri phase electric motor designed to power hydraulic tools and various hydraulic equipment, the motor power can be supplied with power 9 - 11 - 15 KW and the hydraulic power output can be with flow up to 42 L/min and pressures up to 210 Bar according to customer specifications. **SUPER RAPTOR E** is fabricated for heavy duty operations, the high efficiency oil cooling system with exclusive double radiator guarantees the best performances even in the hottest climate and with the more demanding applications. The electric control panel has all the needed defences to guarantee the operator safety and the machine integrity in all conditions. Thanks to the compact dimension and to the three bendable handles the operations of loading and movements are easy and swif.

The power of the electric motor depends on the hydraulic power required in pressure and flow, the values must be specified at the order.

TECHNICAL CHARACTERISTICS	SUPER RAPTOR E
Weight (kg)	120
Dimension LxWxH (cm)	85x60x65
Flow L/min (with pump)	26 (pump 9 cc) - 32(pump 11 cc) - 40 (pump 14 cc)
Pressure Bar	140-210
Engine	treephase 400V - 50 Hz
Motor power	9-11-15-Kw
Hoses Length std	7 mt



ELECTRIC

ENERGA

20-30-40 L/min - 210 Bar Engine triphase 11 Kw - 400 V - 50 Hz with INVERTER

- *Inverter with control motor speed and flow or proportionally or three step 20-30-40 L/min*
- *Stainless steel frame with large frontal and lateral folding handles*
- *Central lifting hook*
- *All parts suspended on anti-vibration shock mounts*
- *Quick couplers installed on impact free swivel fitting*
- *High efficiency oil cooling system with double radiator*

MULTI FLOW POWER PACK WITH INVERTER

ELECTRIC POWER PACK WITH INVERTER



Electro-hydraulic control unit equipped with **INVERTER** which allows to change the three-phase motor speed and to have three hydraulic flows of 20 - 30 - 40 L / min immediately available and selectable by means of an electric 3-position control. **ENERGA** is manufactured for heavy and prolonged uses, the exclusive double radiator oil cooling system ensures trouble-free operation even with the most demanding equipment. The electrical panel is equipped with all the necessary defenses to protect the safety of the operators and the integrity of the machine. Thanks to the compact dimensions and the comfortable handles the movement and the loading operations are easy and fast.

ENERGA can be supplied also with INVERTER with progressive variation of motor speed, so not with the three fixed flow/speed like the standard aversion

TECHNICAL CHARACTERISTICS	ENERGA
Weight (kg)	120
Dimension LxWxH (cm)	85x60x65
Flow L/min	20-30-40
Pressure Bar	140-210
Engine	treephase 400V - 50 Hz
Electric power	11 Kw
Hoses Length std	7 mt



POWER PACKS

ASPID GETZ

Hydraulic power 12 L/min @ 140 Bar



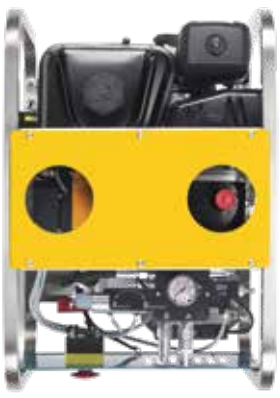
The electronic remote control with the start/stop function of the combustion engine of the power pack with acceleration control of the engine revolutions is available on request and at a higher price.

Hydraulic power pack designed to operate hydraulic equipment such as winches, capstans, rotary organs or double-acting cylinders that must be controlled remotely, the machine is equipped with a modern wireless remote control electronic system that, by means of a portable console, controls the hydraulic functions of the machine such as:

- **FOR HYDRAULIC MOTORS**
  the functions of clockwise/stop/anti clockwise rotation with speed control up to a distance of 80 meters from the control unit.
- **FOR HYDRAULIC CYLINDERS**
  the functions press/hold/retract with speed control up to a distance of 80 meters from the power pack.

In the event of a failure of the electronic remote control, the power pack allows normal use with manual control only hydraulic, can therefore be used with the same functions regardless of remote control, the pressure gauge indicates the load value allowing an accurate adjustment of the movements. The weight and the dimensions contained at the maximum guarantee excellent portability and mobility both on board the vehicles and on the ground. **ASPID GETZ** has an accurate build quality, is manufactured with the best materials and components to guarantee a long and trouble-free service.

TECHNICAL CHARACTERISTICS	**ASPID GEZT**
Weight (kg)	62
Dimension LxWxH (cm)	70x50x57
Flow L/min	12@140 Bar (togheter)
Pressure Bar	140 max@12 L/m
Engine	Briggs & Stratton 6HP - gasoline
Starter	recoil - electric
Acceleration	manual
Hoses Length std	10 mt - ø 3/8" - tread 3/8" BSP
Oil tank capacity	7 litres
Quick couplers	3/8" a flush face

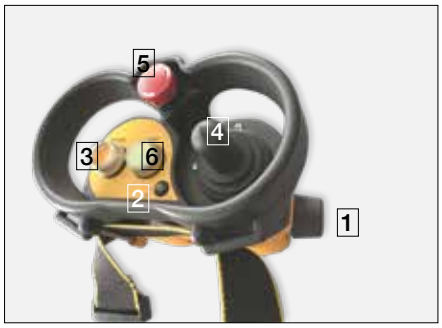


SPECIAL VERSION

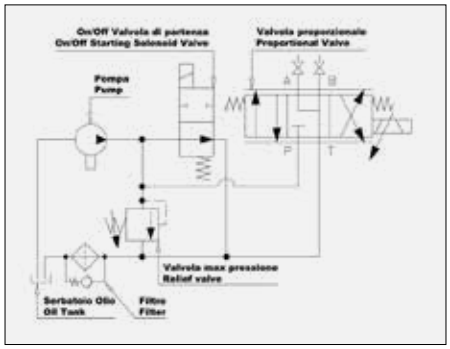
ASPID GETZ

Hydraulic power packs for special applications

HYDRAULIC CONTROL UNIT FOR MANEUVERING AND CONTROL OF ROTATING EQUIPMENT OR DOUBLE EFFECT CYLINDERS



*The **remote control** function and therefore the relative kit can also be installed on larger DOA control units to provide higher hydraulic pressure and flow capacities according to customer specifications.*



1 **General ON/OFF starting knob**
the same function as the key of a car, in the on position, allows all the functions to be started.

2 **Led light with green light**
indicates that the appliance is on and ready to use.

3 **Emergency safety button**
like "dead man" type, therefore to be kept pressed during operation, as soon as it is released, everything goes off (only the electronic part is turned off).

4 **Joystick for control of movements**
it controls the 3 functions of clockwise /stop/anticlockwise rotation, it is of a proportional type, thus allowing the regulation of the rotation speed.

5 **Emergency stop button**
if pressed, immediately cancels all the electronic parts functions, then press button 6 to reactivate.





HYDRAULIC GROUP FOR TRAINS

Hydraulic group for maneuver theupper deck of car transporting trains



Hydraulic group formed by a small power pack and a hydraulic motor with proportional control valve studied for the mechanical rotation of organs that are normally rotated manually by hands. The group is used for lifting and lowering the upper deck of trains that transport automobiles, use is ideal for avoiding prolonged and tiring manual operations, it is enough to insert the tool spindle in the organ to turn and acting control valve is possible to rotate rapidly and without fatigue the more hard and heavy devices.The tool control valve is proportional type and allow rotation in two senses with speed control. The strong rotation force do not has to be controlled by the operator but is contrasted by the adjustable arm that assure the operator safety. Powerful and practical the group eliminates fatigue and down time increasing the productivity.

TECHNICAL CHARACTERISTICS	**POWER PACKS**
Weight (kg)	98
Dimension LxWxH (cm)	130x50x90
Engine	Briggs & Stratton 14 Hp - gasoline
Starter	recoil - electric
Hydraulic power	20 L/min @ 180 Bar

TECHNICAL CHARACTERISTICS	**DH 80**
Weight (kg)	**12**
Torqued/Speed max	**35 Nm/120 rpm/min**
Hoses Lenght	**10 mt**

SPECIAL VERSION

HYDRAULIC GROUP FOR TRAINS

Hydraulic group for maneuver theupper deck of car transporting trains

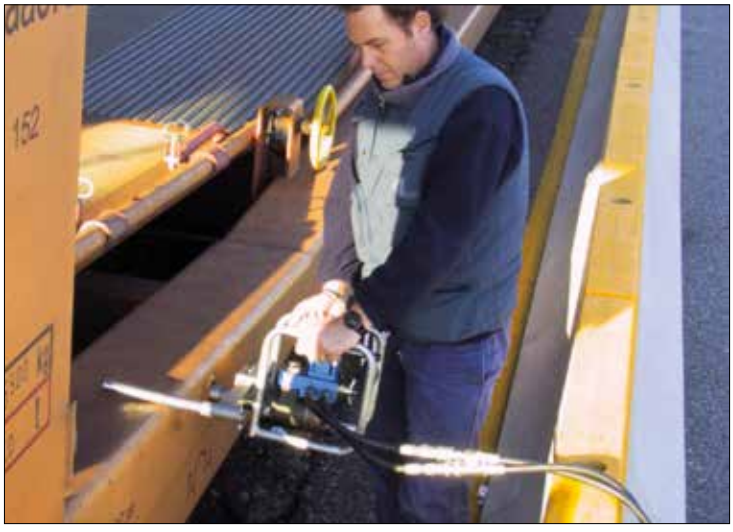
- *Robust frame in stainless steel with balanced handle to ease the transportability*
- *The upper plastic tray allow to conveniently put down tool after use*
- *High quality power pack with oil cooler to allow prolonged operations in tropical climates*
- *Large diameter wheels ease movements on rough terrains and ballast*
- *Tool can be used at a distance of 30 metres from the pack*
- *Hydraulic motor torque is adjustable*





DH 80





HYDRAULIC



TOOLS



BREAKER

KD 12

Breaker respects all safety CE norms and limits on noise, vibration level and defence against accidental starting

kg 14





Available in underwater version



- *Anti vibration handle according to the newest CE regulations allows operators comfort and safety*
- *Can work at flow 20 or 30 L/min*
- *Only one dynamic seal and few moving parts to assure maximum reliability and a unbeatable operative longevity*
- *High tolerance to back pressure allows to use it with very long oil hoses*

KD12 hydraulic breaker Kg14 with "D type" anti vibration handle, the tool is "operator friendly" and its use is ideal in general demolition works either in vertical and horizontal position against walls. **KD12** gives the best compromise between high power and manoeuvrability, can be powered by power packs or by the hydraulic circuit of mini excavators, trucks or other machines with sufficient hydraulic circuit. The hydraulic functioning assures quietness, productivity, fuel economy united with the excellent transportability of the group power pack/ breaker eliminating the typical problems of transport and movements of the bulky air compressors and pneumatic breakers.

TECHNICAL CHARACTERISTICS	**KD 12**
Weight (kg)	14
Dimension LxP (cm)	60x19
Tool bitz size mm	22x82 std (7/8"x3$^{3/4"}$)
Flow L/min	20-30
Ideal flow L/min	20
Pressure Bar	140
Blow frequency	1300-1500
Impact energy	5,5 KGM
Handle type	"D" anti vibration



BREAKER

KV 16

Breaker respects all safety CE norms and limits on noise, vibration level and defence against accidental starting

- *Anti vibration handles according to the newest CE regulations allow operators comfort and safety*
- *Can work at flow 20 or 30 L/min*
- *Only one dynamic seal and few moving parts to assure maximum reliability and a unbeatable operative longevity*
- *High tolerance to back pressure allows to use it with very long oil hoses*
- *No vulnerable plastic parts -Slim tool profile without side rods or sharp angles assures maximum ergonomics*
- *Available with special percussion heads configured to dig in electric earthing pickets or small poles*

kg 16



KV16 hydraulic breaker Kg16 with “T type” anti vibration handles suspended on springs, it is “operator friendly” and its use is ideal in general demolition works of concrete and asphalt cutting. **KV16** gives the best compromise between high power and manoeuvrability, can be powered by power packs or by the hydraulic circuit of mini excavators, trucks or other machines with sufficient hydraulic circuit. The hydraulic functioning assures quietness, productivity, fuel economy united with the excellent transportability of the group power pack/breaker eliminating the typical problems of transport and movements of the bulky air compressors and pneumatic breakers.

TECHNICAL CHARACTERISTICS	KV 16
Weight (kg)	16
Dimension LxP (cm)	60x45
Tool bitz size mm	22x82 std (7/8”x3$^{3/4”}$)
Flow L/min	20-30
Ideal flow L/min	20
Pressure Bar	140
Blow frequency	1300-1500
Impact energy	5,5 KGM
Handle type	“T” anti vibration



BREAKER

KV 19

Breaker respects all safety CE norms and limits on noise, vibration level and defence against accidental starting

kg 20



- *Anti vibration handle according to the newest CE regulations allows operators comfort and safety*
- *Can work at flow 20 or 30 L/min (to be specified at the order)*
- *Only one dynamic seal and few moving parts to assure maximum reliability and a unbeatable operative longevity*
- *High tolerance to back pressure allows to use tool with very long oil hoses*
- *No vulnerable plastic parts*
- *Slim tool profile without side rods or sharp angles assures maximum ergonomics*
- *Available special percussion heads configured to dig in electric earthing pickets or small poles*

KV19 hydraulic breaker Kg19 with “T type” anti vibration handles suspended on springs , it is “operator friendly” and its use is ideal in general demolition works of concrete and asphalt cutting. KV19gives the best compromise between high power and manoeuvrability, can be powered by power packs or by the hydraulic circuit of mini excavators, trucks or other machines with sufficient hydraulic circuit. The hydraulic functioning assures quietness , productivity , fuel economy united with the excellent transportability of the group power pack/ breaker eliminating the typical problems of transport and movements of the bulky air compressors and pneumatic breakers.

TECHNICAL CHARACTERISTICS	**KV 19**
Weight (kg)	20
Dimension LxWxH (cm)	72x45
Tool bit size mm	25x108 std (1”x4 1/4”)
Flow L/min	20-30
Ideal flow L/min	20
Pressure Bar	150
Blow frequency	1300-1500
Impact energy	7 KGM
Handle type	“T” anti vibration



BREAKER

KV 25

The KV25 conforms to all CE regulations for noise, vibration and safety trigger

- *Anti vibration handle according to the newest CE regulations allows operators comfort and safety*
- *Available in 20 LPM or 30 LPM versions, depending on application.*
- *Only one dynamic seal and few moving parts to assure maximum reliability and a unbeatable operative longevity*
- *High tolerance to back pressure allows peak performance even with extended hose lengths*
- *No vulnerable plastic parts*
- *Slim tool profile without side rods or sharp angles assures maximum ergonomics*
- *Available special percussion heads configured to dig in electric earthing pickets or small poles*



The **KV25** hydraulic breaker comes with “T type” anti-vibration handles suspended on springs and ergonomically designed for the comfort of the operator. It is well suited for general demolition works, the breaking of concrete and asphalt cutting. Our KV25 gives the best compromise between high power and maneuverability, it can be powered by a power pack or the hydraulic circuit of a mini excavator, SSL, truck/van, or other machines with a sufficient hydraulic circuit. The hydraulic system assures quietness and productivity, eliminating the typical problems associated with the transport and performance of bulky air compressors and pneumatic breakers.

TECHNICAL CHARACTERISTICS	KV 25
Weight (kg)	25
Dimension LxWxH (mm)	752x429x140
Tool bit size mm	Hex. 1-1/4”×6-1/4” (32 x 160mm)
Flow L/min	20-30
Ideal flow L/min	20
Pressure Bar	90-110
Blow frequency/min	1050 (20l/min)
Impact energy	113 J
Vibration m/s 2	7.79
Handle type	“T” anti vibration



HAMMER DRILL

HD 13

13 kg



- *The high frequency and impact force of the axial percussion on the bits ensures maximum drilling speed*
- *Few moving parts constantly lubricated by oil assure reliability and a unbeatable operative longevity*
- *Drill bits with SDS PLUS connection can also be used with the appropriate adapter*
- *The universal std bit attachment SDS MAX allows to use a big range of drilling bits and accessories of commercial type*

HD13 si an hydraulic hammer drill for concrete, masonry and natural stone. Powerful and light, its use is ideal where performance, maneuverability and safety are required. The bit attachment is of the universal standard type SDS MAX that allows to use a wide range of bits and accessories available anywhere. The hydraulic operation ensures power, long operating life, low noise and vibrations, minimum maintenance, robustness, implicit safety and impossibility electric shock failure, elimination of all the typical problems associated with the use of electric and pneumatic tools. **HD13** is irreplaceable for submarine use in drilling and tiling work.



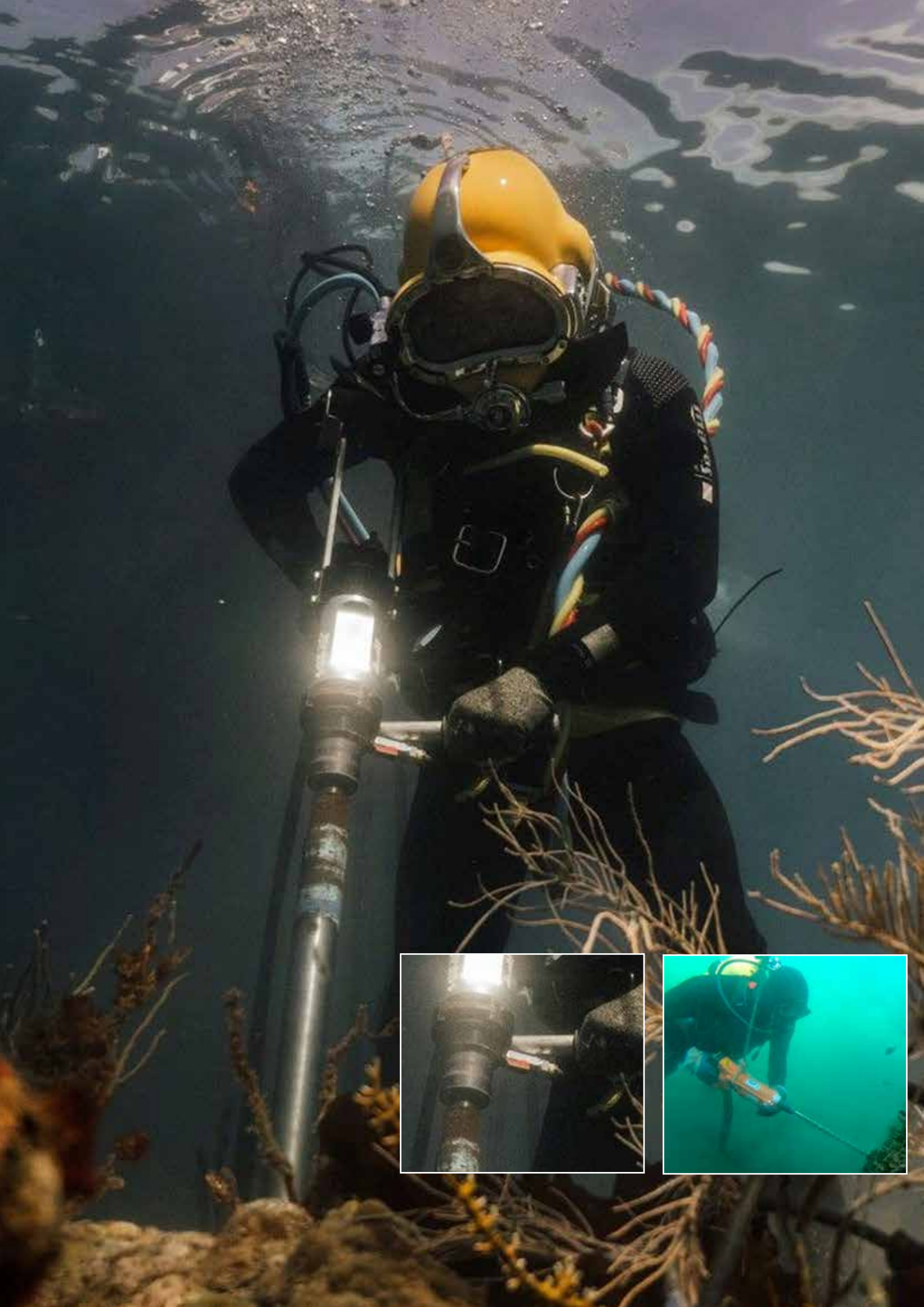
Available in underwater version







TECHNICAL CHARACTERISTICS	HD 13
Weight (kg)	13
Dimension LxP (cm)	50x19
Spindle type	SDS MAX
Tool bitz size mm	5 - 50mm
Flow L/min	20-30
Ideal flow L/min	20
Pressure Bar	140
Blow frequency	1200
Rotation RPM	900
Distance center hole/wall	55 mm



DISC SAW

DC 14 - DC 16 - DC 18

Disc diameter 350 - 400 mm

The three models have the same mechanics, weights, dimensions and appearance, they differ only for 3 different displacements of the hydraulic motor and therefore each for different requests of hydraulic flow to which correspond proper numbers of revolutions



Available in underwater version

- *Exclusive high performance DOA hydraulic motor with high performance even with high cutting load*
- *Direct transmission without vulnerable belts*
- *Saw is installable on the saw cart SC40 to become in few seconds a practical asphalt cutter*
- *Water is given to disc from center and without vulnerable external water hoses to give ideal cooling*
- *Lever to arrest water supply to disc*
- *Few moving parts, constantly lubricated, ensure reliability and unbeatable longevity*

Hydraulic disc saw with 400 mm disc capacity, can mount “black” abrasive discs for metal or diamond discs for cutting reinforced concrete and building materials in general. Ergonmic and lightweight has an unbeatable weight / power ratio, hydraulic operation is a guarantee of maximum safety, no electricity therefore impossible to cause electric shocks, no fumes and emissions, minimum noise, vibration and maintenance, reliability, long service life and possibility of work in any position or condition and can also be used in submarine work.

THE 3 MODELS REFERED TO THE FLOW REQUIREMENTS

DC16 is available in three sub models with different characteristics of hydraulic flow, so with different motor size and performance.

- **DC14ideal flow 20 L/min, can power discs with max diameter 350 mm (14”)**
- **DC16ideal flow 30 L/min, can power discs with diameter 400 mm (16”) and 350 mm (16”)**
- **DC18ideal flow 38 L/min, can power discs with diameter 400 mm (16”) and 350 mm (16”)**

TECHNICAL CHARACTERISTICS	DC 14	DC 16	DC 18
Weight (kg)	8,5	8,5	8,5
Dimension LxWxH (cm)	70x40	70x40	70x40
Flow L/min	20	30	40
Ideal flow L/min	20 - can power discs with max diam. 350 mm (14”)	30 - can power discs with max diam. 400 mm (16”) 350 mm (16”)	38 - can power discs with max diam. 400 mm (16”) 350 mm (16”)
Pressure Bar	140-180	140-180	140-180
Disc diameter (mm)	350	400	400
Shaft dimension (mm)	25,4 (1”)	25,4 (1”)	25,4 (1”)
Cutting capacity (mm)	120	145	145
Speed RPM max	4300 spm	4300 spm	4300 spm
Rotation	CW clockwise	CW clockwise	CW clockwise



DISC SAW

DC 20 - DC 22

Disc diameter 450 - 500 mm

- *Exclusive high performance DOA hydraulic motor with high performance even with high cutting load*
- *Direct transmission without vulnerable belts*
- *Saw is installable on the saw cart SC40 to become in few seconds a practical asphalt cutter*
- *Water is given to disc from center and without vulnerable external water hoses to give ideal cooling*
- *Lever to arrest water supply to disc*
- *Moving parts, constantly lubricated, ensure reliability and unbeatable longevity*



Possibility to be used as asphalt cutter saw installed on the SC40 cart



Available in underwater version



Engine detail of our production, capable of running up to 6000 rpm continuously







DC20 and **DC22** cut of saws with disc capacity with 450 and 500 mm, for cutting reinforced concrete asphalt and building materials in general. **DC20** and **DC22** are ergonimic and lightweight has an unbeatable weight/power ratio, hydraulic operation is a guarantee of maximum safety, no electricity therefore impossible to cause electric shocks, no fumes and emissions, minimum noise, vibration and maintenance, reliability, long service life and possibility of work in any position or condition and can also be used in submarine work.

TECHNICAL CHARACTERISTICS	DC 20	DC 22
Weight (kg)	11	13
Dimension LxWxH (cm)	70x40	70x40
Flow L/min	40	40
Ideal flow L/min	40 - can power discs with max diam. 450 mm (18")	40 - can power discs with max diam. 500 mm (20")
Pressure Bar	140-180	140-180
Disc diameter (mm)	450	500
Shaft dimension (mm)	25,4 (1")	25,4 (1")
Cutting capacity (mm)	187	202
Speed RPM max	3500 spm	2500 spm
Rotation	CW clockwise	CW clockwise





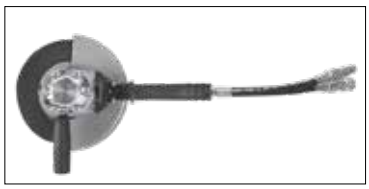
GRINDER

AS 23

Disc diameter 230 mm (9")



- *Unique, extremely robust DOA hydraulic motor with high efficiency, keeps the speed even with great effort on the disc*
- *Possibility of operating at 20 or 30 L/min of hydraulic flow (to be specified on order)*
- *A few moving parts, constantly lubricated, ensure reliability and unbeatable longevity of operation*
- *High counter pressure tolerance allows the use of long pipes*
- *Auxiliary handle and adjustable casing cover*







AS23 is a compact angular grinde/cut of saw, the hydraulic functioning assures power, quietness, long operative life and maximum safety thanks to the implicit impossibility of causing electric shocks. For these characteristics **AS23** is irreplaceable in external works with presence of water, in the maintenance of utilities networks, in metal brushing for preparation of welding , in works inside the excavation and in the UNDERWATER WORKS. Mounts standard discs with diameter 23 cm or metal brushes for scrubbing or cleaning ship hulls and propellers from marine formations. With cutting disc **AS23** becomes a precise cut off saw which manoeuvrability allows complete rotation around large pipes easing the cut in narrow spaces.

TECHNICAL CHARACTERISTICS	AS 23
Weight (kg)	5
Dimension LxPxH (cm)	32x25
Flow L/min	20-30 (specification at the order)
Pressure Bar	140-180
Disc mm	230 diameter - hole mm 22-23
Disc speed Land model	5500@ 30 L/min
Disc speed underwater model	2200@ 30 L/min
Disc cutting caoacity as saw	50 mm





DIAMOND CHAIN SAW

HDS 6

Hydraulic pressure 175 Bar

- *Deap cutting capacity*
- *Side handle rubbered for high confort*
- *High speed hydraulic motor 6600RPM*
- *Chain cooling water tap*
- *Water quick coupler*
- *Quick tension system for adjust chain tainsion (Patented)*
- *Full body in allyminium*
- *Bulle level*



Construction & work sites

Gas,oil &mining operations

Road maintenance



Available in underwater version



Engine detail of our production, capable of running up to 6000 rpm continuously QUICK TENSION system for fast chain pulling

HDS6 is a diamond chain saw suitable for precise cuts with edges or in flush cut mode in concrete and building materials. **HDS6** is also suitable for cuts on cast iron or iron pipes. The innovative patented system, Quick Tension, allows a smooth and fast management of the chain tension without disassembling the side casing and facilitating the operator in uncomfortable situations or in underwater applications.

TECHNICAL CHARACTERISTICS	HDS 6
Weight (kg)	13kg with bar & chain 40cm
Dimension LxH (cm)	62x30
Width (cm)	24
Ideal flow L/min	40
Hydraulic pressure Bar	175
Operator speed	5800 rpm free of load
Cutting capacity (cm)	up to 65





HYDRAULIC IMPACT WRENCH

DHW 3034 - DHW 301 - DHW 501

kg 7,6



cod.	DHW 3034	DHW 301	DHW 501
Anvil Length	113 mm	137 mm	137 mm
Weight	8,25 kg	8,7 kg	8,25 kg

- *Torque control: adjustable torque up to 3000-5000 Nm, for the hardest bolts.*
- *3-jaw hammer mechanism type*
- *Motor cover with heat dissipation*
- *Rotation inverter*
- *Handle entirely made in Ergal*
- *Ergonomic hamdle with integrated oil flow*
- *Mechanical trigger with safety lever*

Construction & work sites | *Gas,oil &mining operations* | *Construction site and shipyard* | *Rail mantenance*





Available in underwater version

Ideal for: mechanical and industrial workshops, infrastructures and railway applications, oil&gas, mining and cold workplaces when no air supply is available.

TECHNICAL CHARACTERISTICS	DHW 3034	DHW 301	DHW 501
Weight (kg)	7,6	7,7	8,8
Square drive	3/4”	1”	1”
Bolt range	M14 - M24	M18 - M33	M18 - M36
Max torque	3000 Nm	3000 Nm	5000 Nm
Free speed	2800 rpm	2800 rpm	1700 rpm
Max oil flow	10-20L/min	10-20L/min	10-20L/min
Length	421 mm	288,8 mm	323,4 mm
Side to center	62 mm	57 mm	57 mm



HYDRAULIC IMPACT WRENCH

DHW 9512 - DHW 17012

Torque control: adjustable torque up to 9500-17000 Nm, for the hardest bolts

- *3-jaw hammer mechanism type*
- *Motor cover with heat dissipation*
- *Manual inverter*
- *Handle entirely made in Ergal*
- *Ergonomic hamdle with integrated oil flow*
- *Mechanical lever with safety lever*

kg 13,6



T-handle model



Construction & work sites

Gas,oil &mining operations

Construction site and shipyard

Rail mantenance



Available in underwater version

Ideal for: mechanical and industrial workshops, infrastructures and railway applications, oil&gas, mining and cold workplaces when no air supply is available.

TECHNICAL CHARACTERISTICS	DHW 9512	DHW 17012
Weight (kg)	13,6	22,7
Square drive	1 1/2"	1 1/2"
Bolt range	M24 - M56	M30 - M80
Max torque	9500 Nm	17000 Nm
Free speed	1350 rpm	1200 rpm
Max oil flow	10-20L/min	10-20L/min
Length	363 mm	496 mm
Side to center	60 mm	88,7 mm



CORE DRILL

AK 46 S - AK 46 G

AK 46 S - core drill for holes ø 30 - 100 mm – AK 46 G - core drill for holes ø 80 - 160 mm

Irreplaceable in underwater works!





Available in underwater version



- *Safety valve that automatically cuts rotation in case of block of the core beat.*
- *ON/OFF trigger with "lock on" button for use of the tool on drill rigs*
- *Equipped with level gauge to show vertical/horizontal linearity of holes*
- *Construction in Ergal and stainless steel to guarantee lightness and durability*
- *Exclusive adjustable back handle allows feed pressure on the tool pushing with chest or knee*
- *Long side handle to allow secure rotation contrast*

AK46 is a hydraulic core drill designed for manual use or for use with drill rigs. The tool is available in two configurations:
• AK46 S for holes from ø 30 a 100 mm • AK46 G for holes from ø 80 a 160 mm.
The hydraulic functioning and the superior technical characteristics assure a series of advantages not obtainable from traditional electric core drill tools: - Impossibility to cause electric shocks, can work even in complete water immersion - Absence of vibration and noise - Unbeatable ratio weight/power/dimension - Long operative life and minimal maintenance needs - Hydraulic motor cannot be damaged even in case of prolonged block of rotation or overload *(condition that will damage electric tools)* **AK46** is in many conditions the unique alternative to traditional electric tools, it is ideal in the maintenance of gas, water, sewers networks, irreplaceable when is needed to creates a pipe passage through walls of historical buildings that cannot undergo to vibrations or in the use inside trenches with high water pres. ***Irreplaceable in underwater works!***

TECHNICAL CHARACTERISTICS	AK 46 S	AK 46 G
Weight (kg)	8 (without back handle)	8 (without back handle)
Dimension LxPxH (cm)	40x9x32	40x9x32
Cut capacity (mm)	30-100	80-160
Flow L/min min-max	20-30	20-30
N° speed@20 L/min	600	400
N° speed@30 L/min	1500	1000
Pressure Bar min-max	140-180	140-180
Distance crown flush with the wall (mm)	45	45
Attachment of core bit	External 1-1 / 4 "BSP Male Internal 1/2 "BSP Female	External 1-1 / 4 "BSP Male Internal 1/2 "BSP Female



AK46 installed on drill rig



CORE DRILL

AK 50

Hydraulic core drill for holes up to ø 700 mm









Available in underwater version



AK50 is an hydraulic core drilling tool for heavy duty drilling works for holes with diameter up to 70 cm. The tool is manufactured with the best components and materials to ensure high performance and maximum reliability. To have more speed and drilling capacity on the tool, you can install six different hydraulic motors, orbital type, which means high efficiency, zero maintenance and a long and trouble-free service life. The 20 cc motor for small diameters is gear type.



The list price of complete tool includeds: the tool body one motor/valve group to be choosen by customer depending on holes diameter. Other valve motor units available at more price.



Detail of the motor/valve group is available in 6 variants of displacement and number of revolutions.

TECHNICAL CHARACTERISTICS	AK 50
Weight (kg)	13
Dimension LxH (cm)	54x22
Attachment of core bit	1-1/4" (internal 1/2" BSP)
Flow L/min	30-38
Pressure Bar	120-200
Motor power	9KW (@38L/min 140 Bar)
Speed min/max	90-1750 rpm
Attachment of core bit	External 1-1 / 4 "BSP Male Internal 1/2 "BSP Female

MOTOR TYPE cubic centimetres	AK 50 speed/diameter chart - hydraulic motors range	
	speed @ 30 l/min hole ø mm	speed @ 38 l/min hole ø mm
20 cc - code k0283	**1400 rpm**-ø 40-100 hole	**1750 rpm**-ø 30-60 hole
50 cc - code k0116	**600 rpm**-ø 70-120 hole	**760 rpm**-ø 50-100hole
100 cc - code k0114	**300 rpm**-ø 130-250 hole	**380 rpm**-ø 130-180 hole
160 cc - code k0112	**180 rpm**-ø 300-360 hole	**220 rpm**-ø 250-310 hole
200 cc - code k0118	**150 rpm**-ø 400-600 hole	**190 rpm**-ø 250-400 hole
315 cc - code k0119	**90 rpm**-ø 500-700 hole	**120 rpm**-ø 450-600 hole

The drill rig is not supplied with the tool



VENTILATORS

VENTILATORS - ASPIRATORS

• HYDRAULIC • GASOLINE • ELECTRIC - MOTORS



CENTRIFUGAL VENTILATORS - ASPIRATORS

DOA produces a complete range of ventilators/aspirators powerful, effective and easily transportable , their use of ventilation and safety in closed space is mandatory and prescribed by law before, during and after works in environment that can be dangerous , toxic, flammable or explosive like tunnels, basements, manholes, silos, holds, tanks, petrochemical plants, wells, fuel stations, warehouses , mines, laboratories , confined space excavations, sewers ducts, gas distribution networks etc .The exclusive DOA system to fix the hoses on tools allows a quick installation on the mouth by simply “button up” the hose edge on pins only by hands without needing screw drivers or belts/clamp. The volute and air fan can be washed up without problems as are in polyetilene, maintenance necessity is minimal. Very robust thanks to the construction in polyetilene and stainless steel are invulnerable to impacts rust water and from the corrosion of the majority of acids and chemical agents.

NOTES ON SAFETY IN THE USE OF THE ASPIRATORS

- *For maximum safety, never use tool in aspiration if it is not known the nature of the fumes or if cannot exclude that the fumes to be sucked could be flammable or explosive, in such a case or in doubt tool must only be used as POSITIVE ventilator blowing into the ambient ventilating and making a sort of “air wash” of the ambient*
- *Aspiration and then centrifuging / pressurizing explosive gases makes them even more explosive in the event of a spark ignition.*
- *The hydraulic models, single-phase or electric single-phase, can only suck toxic or poisonous (but not explosive) fumes such as exhaust gas, welding fumes, CO2, powders etc.*
- *It occurred many times that in the attempt to help a victim stunned from gas also the rescuers remain victim from the gas as it was not realized the motive of the accident and the toxicity of the ambient.*
- *Some gas and even the lack of oxygen are odorless so can be fatal without giving suspects or signs of danger.*



Ventilation of manholes and closed ambients



Aspiration in manholes and closed ambients



Direct ventilation without air hose



Suction of welding fumes in indoor works



Aspiration and ventilation in a precise point



The fans can be positioned directly in the closed environment

ASPIRATORS

AV 28 H

Hydraulic ventilator/aspiratos

HYDRAULIC

- *High power thanks to the possibility given by hydraulic motors to give a high speed to the fan*
- *Hydraulic motor has no exhaust so can be placed directly in closed ambient*
- *Absence of electricity makes it implicitly safe, insensible to rain and high water presence*
- *Quiet, no vibration, minimal maintenance need*
- *Can be used in more positions or in the normal upward position or inclined on side or back to direct or suck air flow directly from manholes, sewers covers, hatches he volute and the air fan can be washed without problems*
- *Can be powered from hydraulic power packs or from the hydraulic circuit of trucks, mini excavators, etc.*
- *Hydraulic motor is equipped with safety valve to protect against excess of flow of hydraulic flow / fan speed*
- *Stainless steel frame with foldable handle and lifting hook for convenient handling*
- *The air hoses can be mounted on the inlets in just a few moments and without the need for tools thanks to the exclusive quick eyelet system*



Ventilation positive and negative



TECHNICAL CHARACTERISTICS	**AV 28 H** - HYDRAULIC
Weight (kg)	21
Dimension LxPxH (cm)	60x57x74
Mouth diameter	200 mm (8”)
Oil flow L/min	20-40
Oil pressure Bar	100-210
Volute and fan	polyetilene
Air flow	2100 m^2 x h @ 2900 fan speed
Inclination	yes, in 3 positions

Practical centrifugal ventilator/aspirator with hydraulic motor. Powerful and easy transportable its use is mandatory by law for putting in safety conditions an ambient before and during operations in closed environment that could be dangerous or explosive like tunnels, basements, manholes, silos, large tanks, holds, wells, petrochemical plants, gas stations, mines, laboratories, narrow trenches, sewers ducts, gas distribution networks, etc… Extremely light can be inclined and used in more positions, can be used with or without the flexible hose, flexible hoses are needed when the air has to be transported IN or FROM a precise point, without hoses can be used as positive ventilator blower to make a powerful and direct “air wall”. The volute and impeller are in robust polyetilene and polypropylene materials invulnerable to water, rust and corrosion, the frame is in indestructible stainless steel

VENTILATORS

AV 28 S

Ventilator/aspiratos gasoline engine

GASOLINE



Ventilation positive and negative



- *High power, can be used everywhere in autonomy*
- *Stainless steel frame with foldable handle and lifting hook for convenient handling*
- *The air hoses can be mounted on the inlets in just a few moments and without the need for tools thanks to the exclusive quick eyelet system*
- *The volute and the air fan can be washed without problems*

Practical centrifugal ventilator/aspirator with gasoline engine. Powerful and easy transportable its use is mandatory by law for putting in safety conditions an ambient before and during operations in closed environment that could be dangerous or explosive like tunnels, basements, manholes, silos, large tanks, holds, wells, petrochemical plants, gas stations, mines, laboratories, narrow trenches, sewers ducts, gas distribution networks, etc…Extremely light can be used with or without the flexible hose, flexible hoses are needed when the air has to be transported IN or FROM a precise point, without hoses can be used as positive ventilator blower to make a powerful and direct “air wall”. The volute and impeller are in robust polyetilene and polypropylene materials invulnerable to water, rust and corrosion, the frame is in indestructible stainless steel.

TECHNICAL CHARACTERISTICS	**AV 28 S** - GASOLINE ENGINE
Weight (kg)	21
Dimension LxPxH (cm)	60x57x74
Mouth diameter	200 mm (8”)
Engine power	3 Hp Honda
Volute and fan	polyetilene
Air flow	2100 m^3 xh @ 2900 fan turns
Inclination	no

Typical complete set



ASPIRATORS

AV 28 E

Ventilator/aspiratos electric

ELECTRIC

- *Can be power by common home electric sockets or from small generators*
- *Electric motor has no exhaust so can be placed directly in closed ambient*
- *Quiet, no vibration, minimal maintenance need*
- *Can be used in many positions or in the normal upward position or inclined on side or back to direct or suck air flow directly from manholes, sewers covers, hatches, etc.*
- *Stainless steel frame with foldable handle and lifting hook for convenient handling*
- *The air hoses can be mounted on the inlets in just a few moments and without the need for tools thanks to the exclusive quick eyelet system*

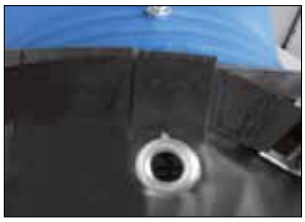


Ventilation positive and negative

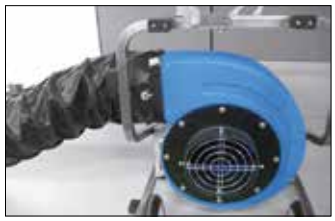




Folding handle with locking system







Detail of the quick installation system of the hoses on the tool mouth

TECHNICAL CHARACTERISTICS	**AV 28 E -** ELECTRIC
Weight (kg)	21
Dimension LxPxH (cm)	60x57x74
Mouth diameter	200 mm (8”)
Engine power	1,5 KW - 230 V 50 Hz
ON/OF Swicht	on the motor with emergency button
Volute and fan	polyetilene
Air flow	2100 m^3 x h @2900 fan speed
Inclination	yes, in 3 positions

Practical centrifugal ventilator/aspirator with 230 V electric motor. Powerful and easy transportable its use is mandatory by law for putting in safety conditions an ambient before and during operations in closed environment that could be dangerous or explosive like tunnels, basements, manholes, silos, large tanks, holds, wells, petrochemical plants, gas stations, mines, laboratories, narrow trenches, sewers ducts, gas distribution networks, ecc. Extremely light can be inclined and used in more positions, can be used with or without the flexible hose, flexible hoses are needed when the air has to be transported IN or FROM a precise point, without hoses can be used as positive ventilator blower to make a powerful and direct “air wall”. The volute and impeller are in robust polyetilene and polypropylene materials invulnerable to water, rust and corrosion, the frame is in indestructible stainless steel

AH 15

Hydraulic motor for driving pipe drilling/hot tapping equipment

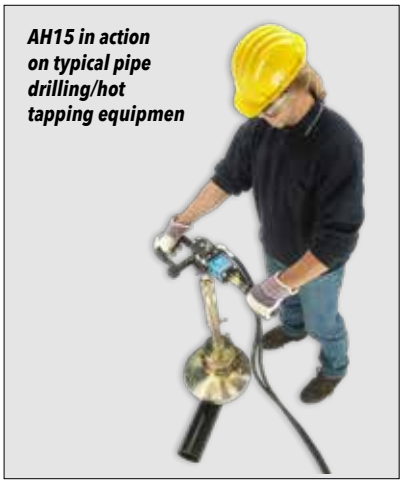
The tool performs in just 4 minutes and without effort the operation that manually performed requires at least 20





AH15 used in operating opening/closing the gates of irrigation canals





AH15 in action on typical pipe drilling/hot tapping equipmen



AH15 is a tool designed for the rotation in the two senses of pipe drilling machines for hot tapping connections operations normally necessary in the maintenance of gas and water networks. For its exclusive characteristics **AH15** can be used also for the rotation of other rotary devises like: gates irrigation canals, lifting/lowering of rail road devises, rotation of reductors, ecc. The tool features a “twist type“ control handle to turn clock wise and counter clock wise, ON/OFF control is proportional so can increase or reduce speed in both rotations modes, the torque force and the rotation speed can be adjusted by acting on the two valve that control these functions. The handle with spring return assures total safety, the rotation immediately stops when the operator releases the handle *(“dead man” action)* **AH15 eliminates the fatigue and increases the productivity.**

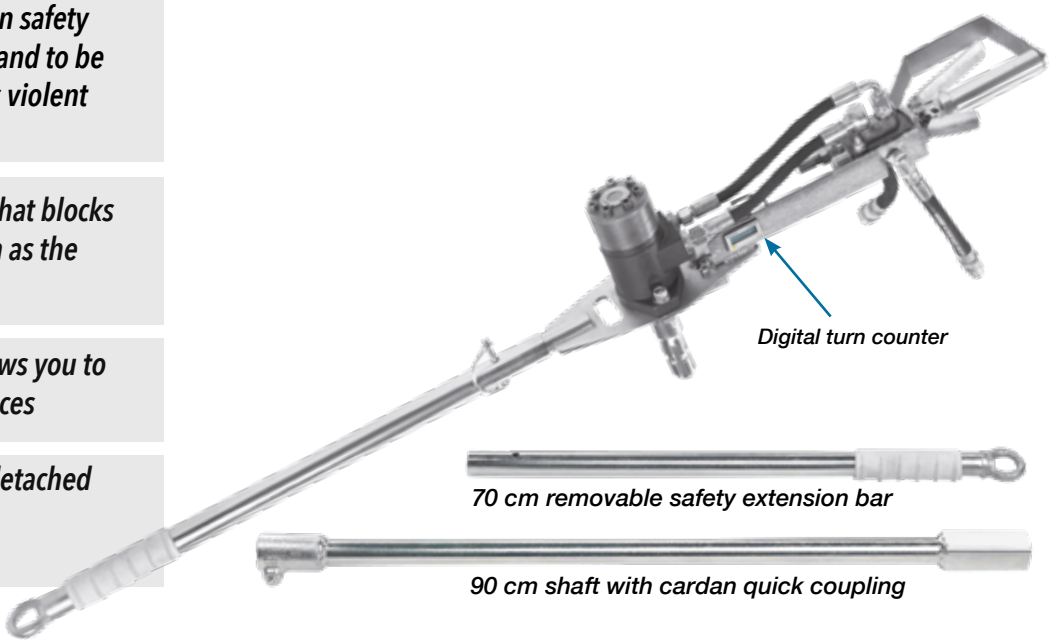
TECHNICAL CHARACTERISTICS	**AH 15**
Weight (kg)	5,5
Dimension LxH (cm)	18x56
Square drive size	12 mm - 1/2”
Pressure	140 Bar
Rotation speed	10-150 rpm adjustable
Torque force	55 Nm adjustable
Rotation	CW - CCW

PIPE MAINTENANCE

VO 31

For the maneuver of gates of water networks

- *Equipped with an anti-reaction safety bar for use with one operator and to be fixed to a fixed point, it avoids violent backlash from rotation stall*
- *"Dead man" rotation control that blocks rotation and function as soon as the command is left*
- *High rotational force that allows you to rotate even very blocked devices*
- *The 90 cm long shaft can be detached and connected thanks to the quick coupling*



Powerful and modern hydraulic tool designed for the maneuver of water valves of aqueducts, the use eliminates tiring and long manual operations.The long handle and the clockwise/ anticlockwise activation control guarantee an excellent control of the operations in all conditions, it can be used by one or two operators and operated by both hydraulic power packs and by the circuits of vans and mini excavators, its use guarantees safety and a great saving of time. Hydraulic operation means no noise, low vibration, robustness, long operating life, minimal maintenance requirements, implied impossibility of electric shock injuries. It can also be used for the mechanical rotation of other rotating devices such as machines for pipes and handling, gates of irrigation channels, various crank mechanisms. **VO31** increases productivity and simplifies operations, it can not be missing in the equipment of modernly equipped teams.

TECHNICAL CHARACTERISTICS	VO 31
Weight (kg)	16
Dimension LxPxH (cm)	95x33x21
Rotation	CW - CCW
N° turns a 20 L/min	0 -70 rpm
N° turns a 30 L/min	0 -100 rpm
Turns counter	yes - with digital display
Torque	400 Nm@140 Bar
Torque regulation	yes - with valve on the tool
Turns regulation	yes - can adjust speed /revs
Flow L/min	15-40
Pressure Bar	140-180











RS 80

Hydraulic reciprocating saw for metal and pe pipes



- *No electricity means total security*
- *Quick and precise cuts*
- *Blades of different leng ths for different materials are available for wet and dry cutting*
- *The reciprocating frequency of cut is adjustable in real-time without stopping the cut*
- *Cut pipes up to 16 with free blade without mounting the "arc guide"*
- *An accessory "arc guide" for long blades and pipe cutting over 16" is available*

RS80 is a powerful hydraulic reciprocating saw designed to cut pipes made of steel, cast iron, cement and PE with diameter up to 600 mm quickly and safely. It can also cut sections, girders and metal manufactured products in linear configuration. The hydraulic operation ensures low level of noise, no vibration, long using period, minimal maintenance, invulnerability to water and mud, and implicit impossibility of danger of electrical shock. Accurate and reliable tool significantly increases productivity and efficiency in the maintenance of gas and water networks.

TECHNICAL CHARACTERISTICS	**RS 80**
Weight (kg)	9
Dimension LxH (cm)	50x19
Cutting capacity	600 mm
Blade stroke	25 mm
Cut frequency	10 -200 for min adjustable
Flow	20-30 L/min
Pressure	100-200 Bar



RS 80

Hydraulic reciprocating saw for metal and pe pipes



Reciprocating saw





Locking group included in tool price



Blade guide arch

BLADES			
Blade length	**Material**	**Cutting capacity**	**Code**
300 mm	steel-cast iron-non-ferros	**170 mm**	A671121
400 mm	steel-cast iron-non-ferros	**260 mm**	A671122
500 mm	steel-cast iron-non-ferros	**350 mm**	A671123
600 mm	steel-cast iron-non-ferros	**440 mm**	A671124
800 mm	steel-cast iron-non-ferros	**650 mm**	A671125
900 mm	steel-cast iron-non-ferros	**750 mm**	A671126
200 mm	steel-cast iron-non-ferros	**120 mm**	A671127
400 mm	rigid plastic	**260 mm**	A671128
800 mm	rigid plastic	**700 mm**	A671129
300 mm	Polyetilene	**170 mm**	A671130
530 mm	Cement	**450 mm**	A671131

DIAMOND BLADES FOR ONLY DRY CUTTING			
Blade length	**Material**	**Cutting capacity**	**Code**
320 mm	Polyetilene-Cement	**200 mm**	A671132
490 mm	Polyetilene-Cement	**320 mm**	A671133
800 mm	Polyetilene-Cement	**700 mm**	A671134

ST 10

Pipe compressing tool for pe pipe up to 67 mm



- *Five rotating spacers anti stress of fibres immediately selectable*
- *Completely galvanised for protection against rust*
- *Bronze threaded bush avoids seizing and do not need lubrication*
- *The product configuration allows a contrast rod to be inserted between the stems to hold the jaws in position at 90° on the tube*
- *Lower bar with positioning grooves and fastened with flexible chain against losses*
- *The central panel has a 12 MA threaded hole that allows the insertion of a long screw (of any type) to create a contrast and hold the jaws to 90°*

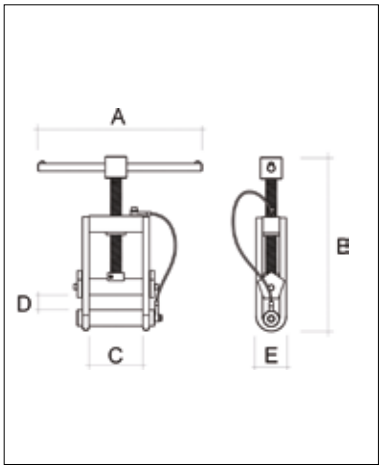
ST10 is manual pipe squeezing tool designed for compressing polyetilene pipes, of gas and water, with diameters up to mm 63. The vise is manufactured for guaranteeing the maximum of practicality and safety. The sliding lever assures easy and effortless operations in any position, the upper jaw features two rotating plates that have the function of gauges for avoiding excess of compression and material yielding. The five position indicator, allows instant selection of the gauge depending on pipe diameters. The lower jaw is self-positioning and is secured to the tool by a steel cord that prevents losses. **Fast, robust, easy to use, the tool does not require maintenance**.

Detail of calibers anti-yielding



TECHNICAL CHARACTERISTICS	ST 10
Weight (kg)	4,7
Pipe type	PE diameter 16-63 mm
Material	steel - bronze
Dimension (mm)	
A	300
B	390 open - 297 close
C	100
D	100 mouth open
E	54





PIPE MAINTENANCE

PC 105

Pipe compressing equipment for the arrest of flow on pipes in steel and polyetilene

- *The small dimension allows to operate in restricted spaces*
- *Fabrication with high resistance steel*
- *The set can be used to press the pipe end before welding "squeeze off" operation*



Pumping operation for pipe compressing



The cylinder/cross bar group can be detached from the clamp to leave it in compressed mode, the compression operation can be repetead in another point of the pipe with another clamp.





PC105 is a powerful hydraulic equipment designed for rapidly pressing pipes, in steel and polyetilene, with outside diameters up to 80 mm and wall thickness up to for 3 mm on steel pipes, and diameter 100 mm thickness 20 mm for polyetilene pipes. **NOTE** - the equipment can compress only ductile metals or plastics - **NO CAST IRON - NO FRAGILE PIPES**, the compression performances can vary depending on material tensile strength and upon the ratio diameter / thickness. The equipment is irreplaceable when in emergency situations, the flow coming from a damaged pipe must be arrested. The use is practical and simple; the main tool is an hydraulic cylinder that is screwed into a cross bar. A clamp formed by two rugged jaws sliding on threaded rods is installed around the pipe to press and fastened to the cylinder/cross bar assembly by the two rods, this group is now a strong hydraulic vice that the operator can power by an hydraulic hand pump. The cylinder will compress the pipe till the contact of the apposite walls. Once the wanted effect of flow arrest is achieved will be sufficient to hold in position the jaws, blocking the nuts, the pipe will remain locked and the flow arrested. The cross bar and the cylinder assembly can be removed from the clamp which can be left in position as long as necessary. The operation can be repeated with other clamps, in another point of pipe. Ideal for gas and water companies - military and naval sectors, rescue and civil protection, refineries, chemical and petrochemical industries, pipe lines, depurators, power stations, under water works.

TECHNICAL CHARACTERISTICS	**PC 105**
Weight (kg)	8
Compressable steel pipes	max 80 mm - thichness 4 mm
Compressable pe pipes	max 100 mm - thichness 20 mm
Cylinder stroke	100 mm
Cross bar width	125 mm
Hose lenght std	mt 4
Pressure	700 Bar
Hand pump type	manual with flexible hose and couplers

PC 49

Hydraulic emergency steel pipe compressing equipment



- *Power, and intervention speed, simple use*
- *Allows compression operations with the pipe flush to the wall*
- *Wide mouth aperture allows to engage pipes coated with tape protection*
- *Top quality foot pump assures easy operation without effort*
- *Operative longevity, no maintenance, tool is built in high tensile steel*

Tool designed for the emergency rapid compression of steel gas pipes damaged by car accidents or impacts on ascending pipes on walls and buildings. Operators know well the damages and dangers caused by vehicles that after accidents or wrong maneuvers against walls can tear off and cut the pipes, these damages require immediate emergency intervention to stop the gas leak and the imaginable risks. The high compression capacity gives maximum chocking, sometime till the total arrest of the pressurized leak. The retaining clamp (patented) can hold the tool in compressing positiong allowing the operator to stay at safe distance acting on pedal pump. The equipment is an hydraulic set composed of: pipe compressing tool pedal type, high pressure pump, 5 mt flexible high pressure hydraulic hose with swiveling action on the cylinder, retaning clamp metal box.

TECHNICAL CHARACTERISTICS	**PC 49**
Tool Weight (kg)	16
Weight complete set (kg)	42
Maximum steel pipe diameter	max Ø 65 mm - Thickness 3 mm
Mouth opening	67 mm
Hydraulic pump	pedal operated 700 Bar
Oil hose length	5 mt



PIPE MAINTENANCE

PC 49

Hydraulic emergency steel pipe compressing equipment

The equipment is a synthesis of effectiveness, practicality and function, a high quality product designed for safety of the city and of the staff that cannot miss in the equipment of modernly equipped teams







Allows the operator to operate remote in a safe position













WATER PUMPS



ATEX PUMPS



THE ADVANTAGE OF DOA HYDRAULIC PUMP



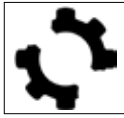
GREAT POWER WEIGHT AND DIMENSION RATIO



COMPACT AND EASY TO CARRY



OEM AND SPECIAL APPLICATIONS



CAN RUN DRY WITHOUT DAMAGE



CAN PUMP HIGH TEMERATURE LIQUIDS



NO ELECTRICITY



MINIMAL MAINTENANCE NEEDED



CAN PUMP AGGRESSIVE FLAMMABLE AND PETROLUEM BASED LIQUIDS

WATER PUMPS

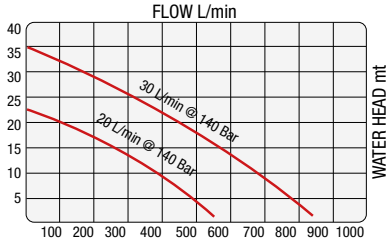
SP 20

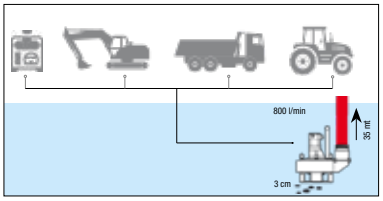
Hydraulic Trash Pump

- *Extremely robust and reliable*
- *Simplified construction that ensures reliability, long lasting life and minimal maintenance requirements*
- *Can run dry without damage*
- *The maximum cinrconference of only 22 cm allows easy insertion even in narrow manholes and very small excavation sites*
- *It can be operated by small power packs or by the hydraulic circuit of mini excavators, tractors, etc*
- *Hydraulic motor equipped with a one-way valve that prevents accidental oil leaks if connected in the wrong hydraulic port*
- *Available with "Viton" seals for pumping high temperature fluids*

mouth 2"







TECHNICAL CHARACTERISTICS	SP 20
Discharge mouth	2" bsp female
Dimension LxH (mm)	220x300
Weight	8 KG
Flow	800 l/min
Water head	35 mt max
Pumpable solids	3 cm
Impeller material	chromium cast iron
Pump body material	stainless steel
Impeller type	open centrifugal
Motor type	gears group 2
Oil flow	15 - 30 l/min
Ideal flow	20 l/min
Oil pressure	100 - 210 bar
Backpressure	17 bar max

SP20 is a compact and powerful immersion pump designed for handling trash, muddy waters and for heavy fluids in general.Compact and light provides a flow rate up to 800 L/min and maximum water head of 35 meters. Can pump solid particles with dimensions up to 3 cm. It can run dry without damage. Compact and safe, the **SP20** is ideal for emergency services, for the maintenance of urban gas and water networks, the field operators can work with their feet immersed in the same water in which the pump is operating.



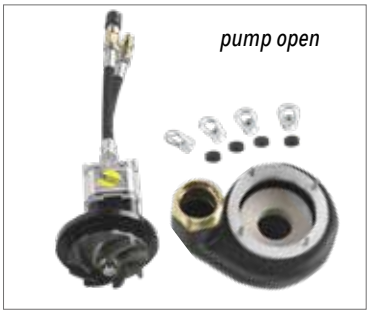
WATER PUMPS

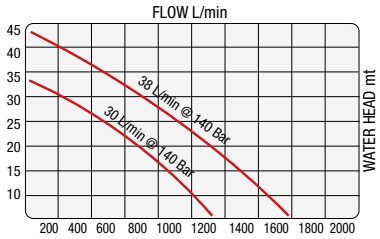
WP 25

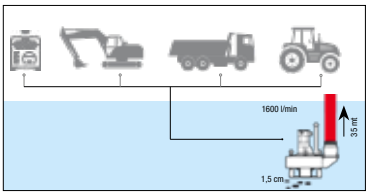
Hydraulic Pumps For Clear And Moderatly Muddy Waters

mouth 3"









- *Extrmely robust and reliable, minimal maintenance requirements, can run dry without damaging it*
- *The pump housing can be open in few minutes without tools for inspection of the impeller and the pumping chamber*
- *Can be operated by small power packs or by the hydraulic circuit of mini excavators, vans, tractors, work vehicles, etc*
- *The perforated round base allows pumping in just few cm deep of water, ideal in basements and tunnel floors*
- *Hydraulic motor equipped with a one-way valve that prevents accidental oil leaks in the wrong port*
- *Available with "Viton" seals for pumping of high temperature fluids*

WP25 is a professional hydraulic submersible pump designed for pumping clear water, excavation water or moderately muddy fluids, it can pump solid particles in suspension with dimensions up to 2 cm. High performances: 1.600 L/min flow rate and water head up to 45 meters. The hydraulic pumping operation guaranteed maximum safety for the field operators that can work with their feet immersed in the same water in which the pump is operating.
WP25 is ideal for maintenance work on urban networks, pumping large volumes of water, flooding, civil protection and forest fire protection services and road works in general.



TECHNICAL CHARACTERISTICS	WP 25
Discharge mouth	3" bsp female
Dimension LxH (mm)	300x300
Weight	13 KG
Flow	1600 l/min
Water head	45 mt max
Pumpable solids	1,5 cm
Impeller type	open centrifugal
Pump body material	hard aluminum alloy
Impeller material	chromium cast iron
Motor type	gears group 2
Oil flow	15 - 38 l/min
Ideal flow	30 l/min
Oil pressure	100 - 210 bar
Backpressure	17 bar max

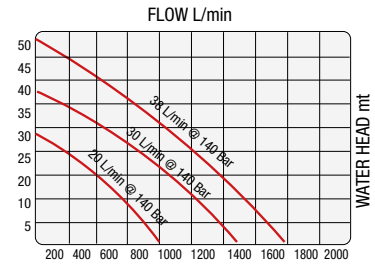
WATER PUMPS

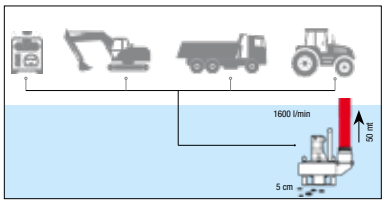
SP 35

Hydraulic Trash Pump

- *Extremely robust and reliable, minimum maintenance required, can run dry without damage indefinitely*
- *The pump housing can be open in few minutes without tools, for inspection of the impeller and the pumping chamber*
- *Can be operated by small power packs or by the hydraulic circuit of mini excavators, vans, tractors, work vehicles etc.*
- *Hydraulic motor equipped with a one-way valve that prevents accidental oil leaks if connected in the wrong hydraulic port*
- *Available with "Viton" hydraulic motor seals for pumping high-temperature fluids*
- *The single-channel impeller (without vanes) has a minimal mechanical effect on the fluid this limits the formation of emulsions and foams*
- *Important feature in pumping spills of oils and oil products from "skimmers" into the sea and lakes*







mouth 3"



TECHNICAL CHARACTERISTICS	SP 35
Discharge mouth	3" bsp female
Dimension LxH (mm)	350x370
Weight	17 KG
Flow	1600 l/min
Water head	50 mt max
Pumpable solids	5 cm
Impeller type	mono canal closed
Impeller material	stainless steel
Pump body material	stainless steel
Motor type	gears group 2
Oil flow	15 - 38 l/min
Ideal flow	30 l/min
Oil pressure	100 - 210 bar
Back pressure	17 bar max

SP35 is a 3 hydraulic waste pump for clear and heavily loaded liquids, impeller and shell are made in stainless steel. The pump produce high performance thanks to hydraulic power and the exclusive closed single channel impeller which allows very high efficiency with flow rates up to 1600 L / min, head up to 50 meters and the possibility of pumping dense or very muddy water with suspended solid bodies up to 50 mm in diameter. **SP35** is ideal for maintenance work urban networks, which pump very dense liquids, against floods in civil protection services and road works in general.



WATER PUMPS

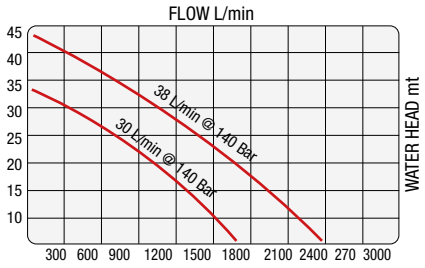
SP 45

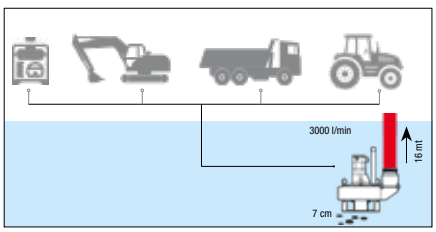
Hydraulic Trash Pump

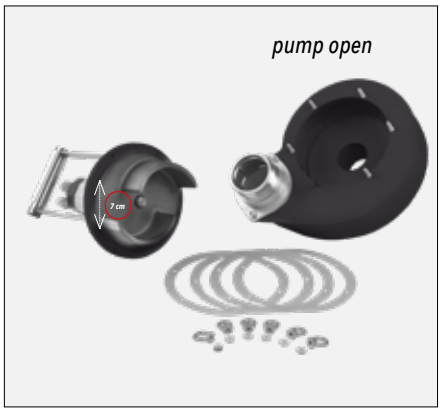
mouth 4"



- *Extremely robust and reliable, minimum maintenance required, can run dry without damage indefinitely*
- *The pump housing can be open in few minutes without tools for inspection of the impeller and the pumping chamber*
- *Can be operated by small power pack or by the hydraulic circuit mini excavators, vans, tractors, work vehicles etc.*
- *Hydraulic motor equipped with a one-way valve that prevents accidental oil leaks if connected in the wrong hydraulic port*
- *Available with "Viton" seals for pumping high-temperature fluids*
- *With the accessory "Dredging Kit" mounted on the volute base, act as a floor wacuum for directly suction of sand, light mud and solid melted suspended material*









*Possibility to install the **SG4** mixer accessory which makes it possible to make liquids that are very dense or with a dry surface more fluid and therefore pumpable.*

WATER PUMPS

SP 45

Hydraulic Trash Pump

mouth 4"

SP45 is a professional 4" trash pump designed for pumping trash or very loade fluids with a concentration of sludge in the liquid up to 20%, it can pump suspended solid bodies with dimensions of 70 mm. The performances are very high: flow rate up to 3000 L/min and a water head up to 16 meters. The pump body is constructed in stainless steel with polyurethane polyether shielding plates, materials that ensure unbeatable qualities of sturdiness, resistance to abrasion to impact and rust. Hydraulic function is an implicit guarantee of safety due to the impossibility of causing electric shock injuries. It can run dry without damage indefinitely. It is ideal for the pumping of large volumes of clear and dirty water, for the maintenance of underground gas and water networks, against flooding and natural disasters in the disposal of biological pits and manhole dewatering.





TECHNICAL CHARACTERISTICS	SP 45
Discharge mouth	4" bsp female
Dimension LxH (mm)	400x500
Weight	28 KG
Flow	3000 l/min
Water head	16 mt max
Pumpable solids	7 cm
Impeller type	open centrifugal
Impeller material	chromium cast iron
Pump body material	stainless steel
Motor type	gears group 2
Oil flow	30 - 40 l/min
Ideal flow	38 l/min
Oil pressure	140 - 210 bar
Backpressure	17 bar max



WATER PUMPS

SP 55

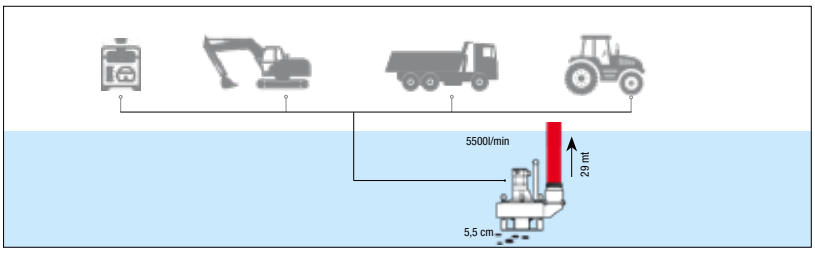
Heavy Duty Hydraulic Trash Pump

mouth 5"

Ideal response for emergencies from floods



- *Pump everything! The shearing impeller can shred and pump branches, algae, rags, ropes, bags and solid objects with dimensions up to 55 mm*
- *High performance, weight/size/power ratio unmatched by other types of pump - long working life, minimal maintenance*
- *No electricity means safety, it can be used while standing in the water close to the pump (a situation forbidden by law with electro pumps)*
- *The piston engine guarantees maximum efficiency and the possibility of running the pump dry without damaging it*
- *Possibility to install the SG6 mixer accessory whit the function of liquified liquids that are very dense or dry into more fluid liquids and therefore pumpable*

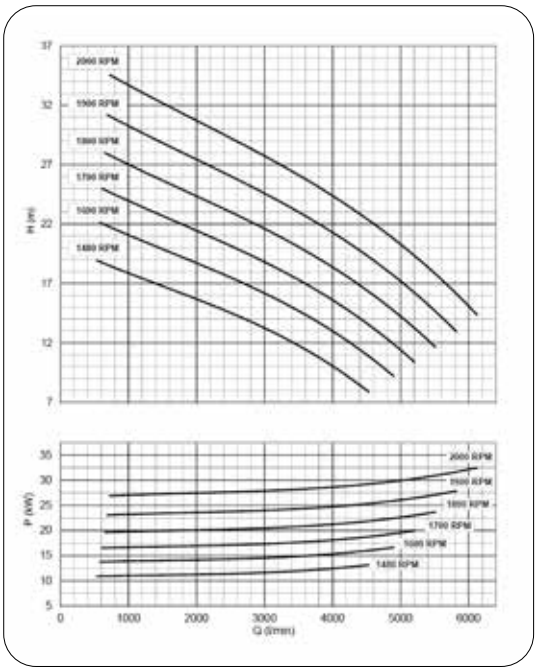




Shearing impeller



*Possibility to install the **SG4** mixer accessory which makes it possible to make liquids that are very dense or with a dry surface more fluid and therefore pumpable.*



WATER PUMPS

SP 55

Heavy Duty Hydraulic Trash Pump

mouth 5"

SP55 is a powerful submersible trash pump with hydraulic piston motor and a 5" discharge port, ideal for pumping large volumes of clear and dirty water, in emergency interventions in civil protection, in the military sector and in the movement of large volumes of charged fluids. The maximum capacity is 5500 L / min with water head up to 29 meters - pumpable solids 5.5 cm. The particular impeller with cutting knives allows cutting and pumping also of suspended solids such as leaves, branches, algae, ropes or even large linear fibers. The hydraulic powering offers a long series of safety, operational and performance advantages that can not be obtained from traditional priming or electropumps. A typical application is that the pump is mounted on the excavator arm instead of the bucket, transforms the excavators into very powerful water scoops.





TECHNICAL CHARACTERISTICS	SP 55
Discharge mouth	5" bsp female UNI 70
Dimension LxH (mm)	500x800
Weight	95 KG
Flow	5500 l/min
Water head	29 mt max
Pumpable solids	5,5 cm
Impeller type	open with shearing effect
Impeller material	high tensile steel
Pump body material	cast iron spheroidal
Motor type	piston type
Oil flow	50 - 100 l/min
Ideal flow	75 l/min
Oil pressure	150 - 350 bar
Back pressure	17 bar max
Oil house dimension	3/4" minimum size



WATER PUMPS

SP 65

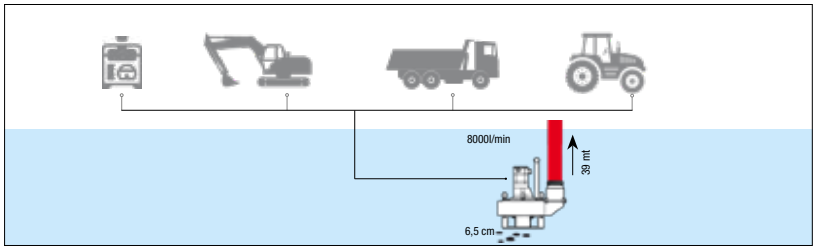
Heavy Duty Hydraulic Trash Pump

mouth 6"

Ideal response for emergencies from floods



- *Pump everything! The shearing impeller can shred and pump branches, algae, rags, ropes, bags and solid objects with dimensions up to 55 mm*
- *High performance, weight/size/power ratio unmatched by other types of pump - long working life, minimal maintenance*
- *No electricity means safety, it can be used while standing in the water close to the pump (a situation forbidden by law with electro pumps)*
- *The piston engine guarantees maximum efficiency and the possibility of running the pump dry without damaging it*
- *Possibility to install the SG6 mixer accessory whit the function of liquified liquids that are very dense or dry into more fluid liquids and therefore pumpable*

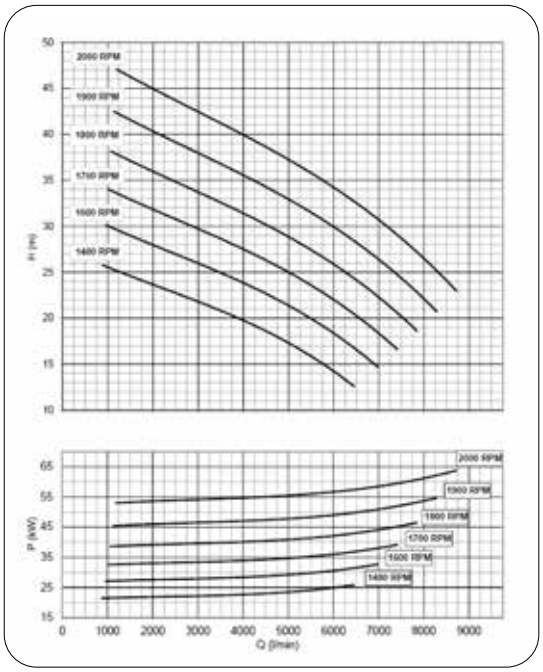




Shearing impeller



*Possibility to install the **SG4** mixer accessory which makes it possible to make liquids that are very dense or with a dry surface more fluid and therefore pumpable.*



WATER PUMPS

SP 65

Heavy Duty Hydraulic Trash Pump

mouth 6"

SP65 is a powerful immersion trash pump for sewage water with hydraulic piston motor and 6" discharge port, ideal for pumping clear and dirty water, in emergency interventions in civil protection, in the military sector and in the movement of large volumes of charged fluids. The maximum capacity is 8000 L / min with head up to 39 meters - pumpable solids 6.5 cm. The particular impeller with cutting knives allows cutting and pumping also suspended solids such as leaves, branches, rags, algae, ropes or even large linear fibers. The hydraulic operation offers a long series of safety, operational and performance advantages that can not be obtained from traditional priming or electropump pumps. A typical application is that of the pump mounted on the excavator arms instead of the bucket, transforms the excavators into very powerful water scoops.





TECHNICAL CHARACTERISTICS	SP 65
Discharge mouth	6" bsp female
Dimension LxH (mm)	550x900
Weight	135 KG
Flow	8000 l/min
Water head	39 mt max
Pumpable solids	6,5 cm
Impeller type	open with shearing effect
Impeller material	high tensile steel
Pump body material	cast iron spheroidal
Motor type	piston type
Oil flow	60 - 100 l/min
Ideal flow	80 l/min
Oil pressure	150 - 350 bar
Back pressure	17 bar max
Oil house dimension	3/4" minimum size



AP 80

High Performance Hydraulic Water Pump

mouth 8"

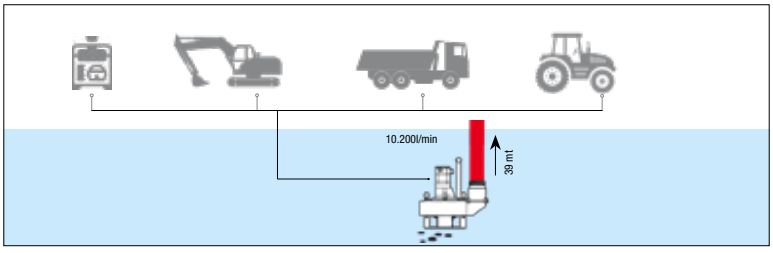


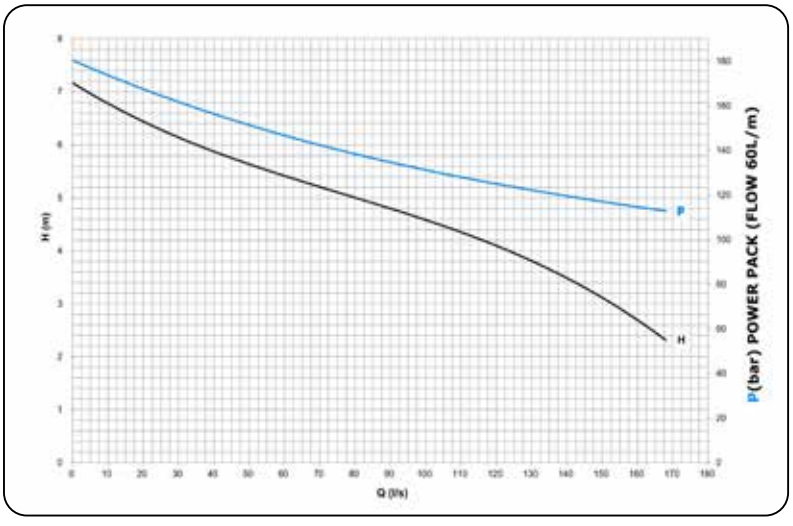
- *Unbeatable pumping power: The AP80 is a top outlet 8" submersible slurry pump that is designed for large pumping applications where is necessary to move large volumes of water quickly and efficiently, up to 170 l/s. AP80 is a concentration of high performance in a lightweight cast-iron body of only 50 kgs.*

- *Uniquely designed, the robust AP80 submersible slurry pump is built from a rugged lightweight cast iron material with chrome iron impeller, agitator, and wear plate that provides durability and impact resistance in rough conditions. These robust submersible slurry pumps serve a wide range of slurry transport applications like mining, quarrying, construction sites, and other demanding industries.*

- *No electricity means safety, it can be used while standing in the water close to the pump (a situation forbidden by law with electro pumps).*

- *The piston engine guarantees maximum efficiency and the possibility of running the pump dry without damaging it.*





2,5 cm solid handling capacity

Large pumping capacity

Innovative propeller

Low maintenance

WATER PUMPS

AP 80

High Performance Hydraulic Water Pump

mouth 8"

AP80 Submersible Slurry Pumps are rugged, reliable, and cost-effective pumps for transporting slurry, sand, and a variety of other abrasive materials. This dependable pump offers an open stand or strainer, and agitator that provides the highest suction and movement of solids up to 2,5 cm through an 8-inch discharge. The ergonomic **AP80** submersible slurry pumps transfer solids and liquids at a flow rate of up to 10,200 lpm and with a head of 8 metres MAX. The **AP80** is ideal in large dewatering works, rental activity, civil protection, the military sector and sewage treatment plants where it is necessary to quickly move large volumes of water and heavy loaded fluids





TECHNICAL CHARACTERISTICS	AP 80
Discharge mouth	8"
Dimension WxLxH (mm)	468x380x540
Weight	52 KG
Flow	10.200 l/min
Water head	8 mt max
Pumpable solids	2,5 cm
Impeller material	high-resistance Steel
Pump body material	ductile Iron
Impeller type	axial
Motor type	gears group 2
Oil flow	50 -70 l/min
Ideal flow	60 l/min
Oil pressure	150 - 200 bar
Backpressure	17 bar max



WATER PUMPS

SG4 - SG 6

Fluid mixer accessory for pumps SP45 - SP55 - SP65

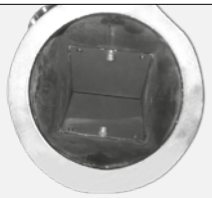
MIXING VALVE FOR FLUIDIFICATION OF VERY LOADED WATER



TECHNICAL CHARACTERISTICS	SG 4	SG 6
Weight dry	9 KG	12 KG
Fluid passage	equivalent at 4”	equivalent at 5”
Total high	370 mm	420 mm
Type cylinder	double effect	double effect
Hydraulic valve	3 positions, open center	3 positions, open center



3 position control valve for opening/closing windows of pump



The pump discharge mouth with windows closed

Slurry Gate is an accessory for trash **pumps DOA models SP45 - SP55 - SP65**. The accessory is a set formed by:

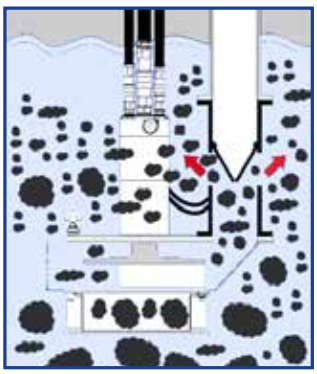
- **SG4 - SG6 body and cylinder, this element to be installed on the pump outlet mouth.**
- **Hydraulic control valve and hoses that can control the opening/ closing action of the slurry gate.**

The **Slurry Gate** is a “retrofit accessory” that can be installed on pumps, its action as mixer is necessary when the liquid to pump is very thick and have suspended solids (like sediments, mud balls or oil balls or other agglomerate of semi solid/ pasty liquids) the above must be disintegrated to become more fluid and pumped, is needed also to avoid choke at the pump inlet. After some minutes of this treatment the liquid can be pumped easyer and the pump will run in its natural function. The length of the hydraulic pipe that connects the three-position valve to the mixer body must be prepared by the customer or ordered at DOA at the time of purchase.

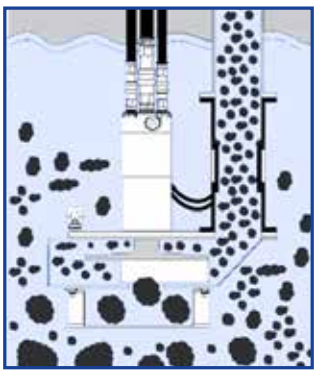
HOW IT WORKS

Action of **SG4** is very simple: it is a flow diverter placed on the out let mouth of the pumps, that can direct the fluid in its natural “upward” pumping direction or divert it aside bypassing from the two openings and repumped in its bed. Once the fluid is shaked and minced at more liquid state and can be pumped, will be enough to close the side openings *(by acting on the oil valve that is part of the set)* and the pump can be used in the normal pumping action.

WINDOWS OPEN
Pump impeller is mincing suspended solids



WINDOWS CLOSED
Fluid is pumped up from outlet passage



WATER PUMPS

TWP 40

Water pump for testing pressure holding capacity on water networks

- *High quality two diaphragm pump and engine speed reductor*
- *Water filter on suction line to prevent stone and particles to enter in pump*
- *High quality water tank with large filler aperture for loading and cleaning*
- *Quick bayonet tank connection for continuous refilling*
- *Can run dry without damage*
- *Stainless steel square tube frame*

Gasoline pump



TWP40 is a modern gasoline engine water pump with adjustable pressures up to 40 Bar and flow up to 60 L/min, pump is designed to make test and pressure drop related to time on new water networks. The pump characteristics and its versatility allow to perform the majority of test requested by the European norms. The construction quality, the rational position of components, the practical controls and regulation features makes its operations easy and intuitive to guarantee an use precise and problems free.

TECHNICAL CHARACTERISTICS	**TWP 40**
Weight dry (kg)	50
Dimension (LxH) (cm)	70x50x70
Engine	Briggs & Stratton 6 HP Gasoline
Starting	recoil
Water flow L/min	60 - max adjustable
Water pressure	40 Bar - max adjustable
Water tank (l)	30
Water outlet connection	fermale swivel 3/8” BSP



WATER PUMPS

WP 116

Self-Priming pump with hydraulic motor for evacuation from siphons of gas networks



- *Practical, robust and safe is irreplaceable in its application*
- *Fabricated in "spark free" anti explosive bronze*
- *Large water filter prevents dirt and metal chips to enter in the pump*
- *The water filter can be open in few seconds for cleaning and inspection*
- *Requires minimal and easy maintenance*

WP116 CAN BE USED FOR MOVEMENT OF HOT WATER FROM HEATING NETWORKS, FOR USE OF THE PUMP WITH HOT WATER UP TO 100 ° C. REQUEST THE CONSTRUCTION OF THE PUMP WITH VITON® GASKETS FOR HIGH TEMPERATURES (AT A HIGHER PRICE)

WP116 is a modern self priming water pump with hydraulic motor. The pump is designed for the suction and evacuation of water that accidentally entered in the collecting siphons located in the lower parts of gas networks. Water can enter into gas pipes after ruptures or maintenance interventions, this mass of water accumulated in the lower part of the network can fill up the siphons and also overflowing choking the pipes and preventing the normal free gas passage that inevitably flows away by "waves" causing water entering and damaging the gas meters and creating other problems that are well known by the gas maintenance crews. **WP116** is made in spark free bronze and with moving parts without metal/metal contacts so no possibility of creating localised overheated points. The hydraulic functioning (no electricity!) means implicit safety that has to be absolutely guaranteed in this delicate operation. For the use is enough to connect the suction mouth of pump with a flexible hoses to the siphon and then prime and pump out the mixture water/ gas / air, all in absolute safety and with the gas line in normal working condition. The fluid extracted has to be successively disposed according to local rules as it is a special waste. **WP116** is unique in its type, for characteristics, function and safety assurance cannot miss in the equipment of modern gas maintenance crews.

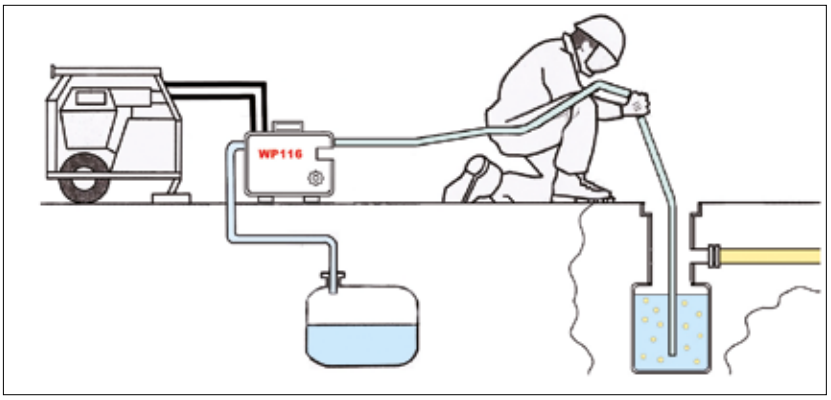
WATER PUMPS

WP 116

Self-Priming pump with hydraulic motor for evacuation from siphons of gas networks







WARNING The pump must not run completely dry for more than two minutes, this could damage the seals, if there is water in the siphon the pump will stick and pump after a few seconds. The pump can tolerate partially dry uses, as long as there is a minimum presence of water due to a small loss from a district heating network. A couple of minutes after the complete complete evacuation of the water must be interrupted.

TECHNICAL CHARACTERISTICS	WP 116
Weight (kg)	20
Dimension (LxH) (cm)	50x30x30
Water flow	110 L/min@1mt-25 L/min@20 mt
Water head	20 mt (2Bar)
Suction height	6 mt max from water level
Mouth dimension	diameter 40 mm both suction pressure
Suction diameter	ideal 25 mm
Pumpable fluid	only filtred water
Oil flow	20-30 L/min
Ideal oil flow	20 L/min
Oil pressure	100-210 Bar



ATEX PUMPS

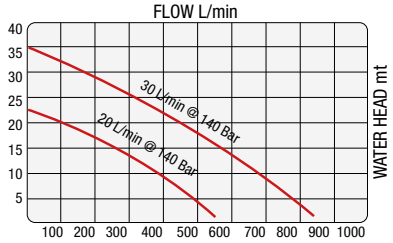
SP 21 ATEX

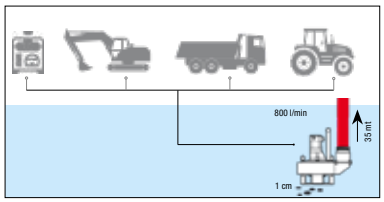
Hydraulic Trash Pump

mouth 2"



ATEX
II2G c IIB T5
X-20°≤Tamb≤+50°C





- *Extremely robust and reliable*
- *Simplified construction that ensures reliability, long lasting life and minimal maintenance requirements*
- *Can run dry without damage*
- *The maximum cinrconference of only 22 cm allows easy insertion even in narrow manholes and very small excavation sites*
- *It can be operated by small power packs or by the hydraulic circuit of mini excavators, tractors, etc*
- *Hydraulic motor equipped with a one-way valve that prevents accidental oil leaks if connected in the wrong hydraulic port*
- *Assembled with "Viton" seals for pumping high temperature fluids*

SP21 ATEX is a compact and powerful immersion pump designed for handling trash, muddy waters and for heavy fluids in general.Compact and light provides a flow rate up to 800 L/min and maximum water head of 35 meters. It can run dry without damage.



TECHNICAL CHARACTERISTICS	SP 21 ATEX
Discharge mouth	2" bsp female
Dimension LxH (mm)	220x300
Weight	8 KG
Flow	800 l/min
Water head	35 mt max
Pumpable solids	1 cm
Impeller material	chromium cast iron
Pump body material	stainless steel
Impeller type	open centrifugal
Motor type	gears group 2
Oil flow	15 - 30 l/min
Ideal flow	20 l/min
Oil pressure	100 - 210 bar
Backpressure	17 bar max

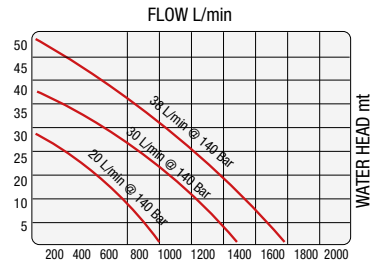
ATEX PUMPS

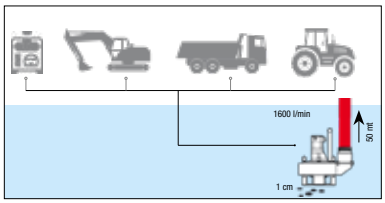
SP 36 ATEX

Hydraulic Trash Pump

- *Extremely robust and reliable, minimum maintenance required, can run dry without damage indefinitely*
- *The pump housing can be open in few minutes without tools, for inspection of the impeller and the pumping chamber*
- *Can be operated by small power packs or by the hydraulic circuit of mini excavators, vans, tractors, work vehicles etc.*
- *Hydraulic motor equipped with a one-way valve that prevents accidental oil leaks if connected in the wrong hydraulic port*
- *Assembled with "Viton" hydraulic motor seals for pumping high-temperature fluids*
- *The single-channel impeller (without vanes) has a minimal mechanical effect on the fluid this limits the formation of emulsions and foams*
- *Important feature in pumping spills of oils and oil products from "skimmers" into the sea and lakes*







mouth 3"

ATEX
II2G c IIB T5
X-20°≤Tamb≤+50°C



TECHNICAL CHARACTERISTICS	SP 36 ATEX
Discharge mouth	3" bsp female
Dimension LxH (mm)	350x370
Weight	17 KG
Flow	1600 l/min
Water head	50 mt max
Pumpable solids	1 cm
Impeller type	mono canal closed
Impeller material	stainless steel
Pump body material	stainless steel
Motor type	gears group 2
Oil flow	15 - 38 l/min
Ideal flow	30 l/min
Oil pressure	100 - 210 bar
Back pressure	17 bar max

SP36 ATEX is a 3" hydraulic waste pump for clear and heavily loaded liquids, impeller and shell are made in stainless steel. The pump produce high performance thanks to hydraulic power and the exclusive closed single channel impeller which allows very high efficiency with flow rates up to 1600 L / min, head up to 50 meters.



ATEX PUMPS

SP 46 ATEX

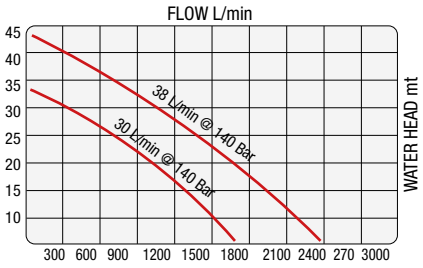
Hydraulic Trash Pump

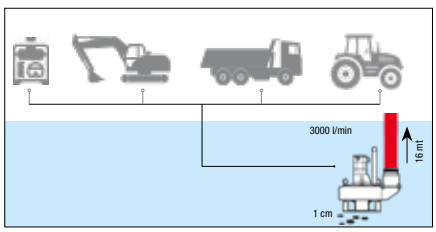
mouth 4"

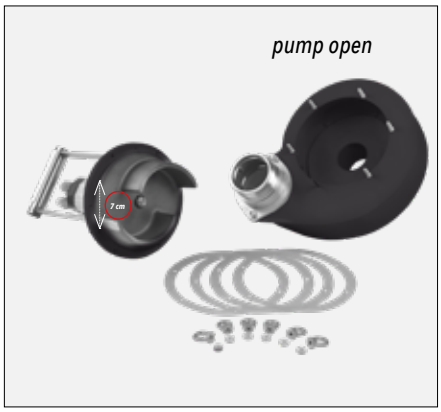
ATEX
II2G c IIB T5
X-20°≤Tamb≤+50°C



- *Extremely robust and reliable, minimum maintenance required, can run dry without damage indefinitely*
- *The pump housing can be open in few minutes without tools for inspection of the impeller and the pumping chamber*
- *Can be operated by small power pack or by the hydraulic circuit mini excavators, vans, tractors, work vehicles etc.*
- *Hydraulic motor equipped with a one-way valve that prevents accidental oil leaks if connected in the wrong hydraulic port*
- *Assembled with "Viton" seals for pumping high-temperature fluids*
- *With the accessory "Dredging Kit" mounted on the volute base, act as a floor wacuum for directly suction of sand, light mud and solid melted suspended material*









*Possibility to install the **SG4** mixer accessory which makes it possible to make liquids that are very dense or with a dry surface more fluid and therefore pumpable.*

ATEX PUMPS

SP 46 ATEX

Hydraulic Trash Pump

mouth 4"

SP46 ATEX is a professional 4" trash pump designed for pumping trash or very loade fluids with a concentration of sludge in the liquid up to 20%. The performances are very high: flow rate up to 3000 L/min and a water head up to 16 meters. The pump body is constructed in stainless steel with polyurethane polyether shielding plates, materials that ensure unbeatable qualities of sturdiness, resistance to abrasion to impact and rust. Hydraulic function is an implicit guarantee of safety due to the impossibility of causing electric shock injuries. It can run dry without damage indefinitely.





TECHNICAL CHARACTERISTICS	SP 46 ATEX
Discharge mouth	4" bsp female
Dimension LxH (mm)	400x500
Weight	28 KG
Flow	3000 l/min
Water head	16 mt max
Pumpable solids	1 cm
Impeller type	open centrifugal
Impeller material	chromium cast iron
Pump body material	stainless steel
Motor type	gears group 2
Oil flow	30 - 40 l/min
Ideal flow	38 l/min
Oil pressure	140 - 210 bar
Backpressure	17 bar max



FLOW CONTROL VALVE

RFP 50 - RFP 50V

Hydraulic valves for regulation flow pressure

Are supplyed with short hoses and couplers as shown in illustration

Hydraulic valve for the control of flow control of flow and pressure, assure that tools are supplied with the correct hydraulic values for safety and avoid damages to the equipment, the valves body is in laminated aluminium with anodised surface, the cartridge elements are of the best quality to assure a stabile and precise regulation.



RFP50 - FLOW/PRESSURE CONTROL VALE

The regulated flow is fixed and pre set at the factory and cannot be charged, this fix configuration of the output flow avoids manumission and errors.Customer must require the needed regulated flow at the order.
The valve can receive a maximum incoming flow at 60 L/min.
The valve can regulate the following fixed flows: 15-21-25-30-36 L/min.
The regulated pressure valve must be adjustable by the customer.

RFP50 V - FLOW/PRESSURE CONTROL VALVE

The output regulated flow is adjustable according to necessary in any moment..
The valve can receive a maximum incoming flow of 60 L/min.
The valve can regulate at maximum flow 38 L/min.
The regulated pressure valve must be adjustable by the customer.

TECHNICAL CHARACTERISTICS	RFP 50	RFP 50 V
Dimension (LxPxH) (cm)	13x10x5	13x10x5
Flow in	60 L/min	60 L/min
Flow reg	15-21-25-30-36 L/min	0-36 L/min
Pressure in	250 Bar max	250 Bar max
Pressure reg	10-200 Bar max	250 Bar max
Port thread in	3/4” BSP female	3/4” BSP female
Port thread reg	1/2” BSP female	1/2” BSP female

FLOW CONTROL VALVE

RFP 70

Hydraulic valves for regulation flow pressure

Valve is supplied bwith 1/2" flush face quick couplers only in the regulated side as shown in illustration

Hydraulic valve for the control of flow control of flow and pressure, assure that tools are supplied with the correct hydraulic values for safety and avoid damages to the equipment, the valves body is in laminated aluminium with anodised surface, the cartridge elements are of the best quality to assure a stable and precise regulation.



RFP70

Both threads in pressure and regulated side are 1" BSP. Hydraulic valve for the control of flow control of flow and pressure, assure that tools are supplied with the correct hydraulic values for safety and avoid damages to the equipment, the valves body is in laminated aluminium with anodised surface, the cartridge elements are of the best quality to assure a stabile and precise regulation. The valve can receive a maximum incoming flow of 90 L/min. The valve can regulate a maximum flow of 50 L/min. The output regulated flow is adjustable according to necessity in any moment. The regulated pressure valve must be adjustable by the customer.

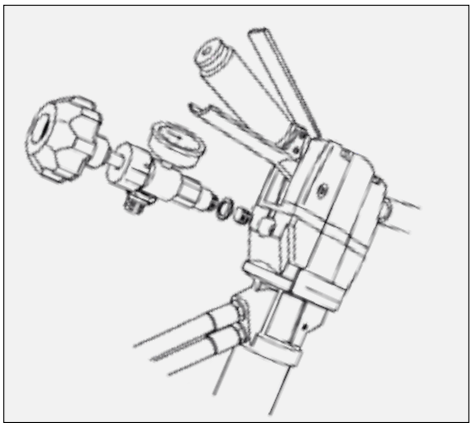
TECHNICAL CHARACTERISTICS	RFP 70
Dimension (LxPxH) (cm)	13x10x6,5
Flow in	90 L/min
Regulated flow	50 L/min
Pressure in	350 Bar max
Pressure adjustable	10-250 Bar max
Port thread in	1" BSP female
Port thread reg	1" BSP female

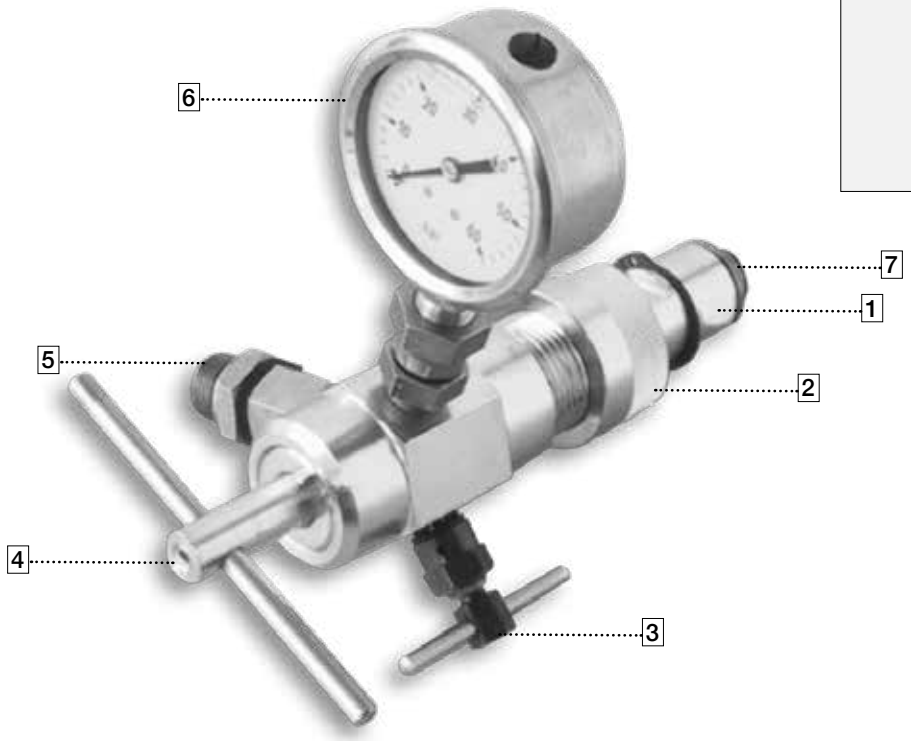
FLOW CONTROL VALVE

CT 100

For pressure and Flow

Service tool for control and charge nitrogen into DOA breakers accumulators





1 Adaptor the adaptor can be separated from the tester body
2 Ring nut of the adaptor
3 Valve for discharging the excess of pressure
4 Handle for opening closing the valve cap
5 Nitrogen inlet in the tester
6 Pressure gauge
7 Internal allen key that open/closes the valve cap acting on the handle

CT 100 tool is a service item necessary to make the service of DOA breakers, like all hydraulic breakers DOA hammers are equipped with a nitrogen accumulator that in case of failure has to be replaced and recharged with nitrogen at a preussure between 35-40 Bar. **CT100** allows to open up the check valve of the accumulator, to adjust the recharging nitrogen pressure and to close the check valve.

FLOW CONTROL VALVE

FLOW AND PRESS TESTER

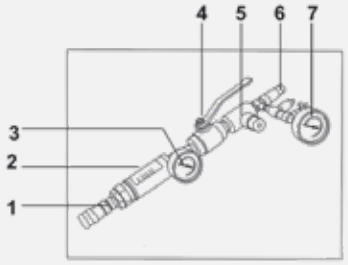
For pressure and Flow

- *It is possible to visualize the actual data of flow and the interaction between flow, pressure and back pressure closing progressively the tester restriction valve*
- *It is possible to take the maximum pressure of the circuit (static pressure) and the pressure value of the pre-opening of the relief valve (cracking pressure) that corresponds to the real relief valve setting, it is also possible to see the engines speed under load, like controlling revolution drop or raise etc.*
- *It is possible to create the necessary load on the circuit to simulate the operative condition of the tool and getting data to make a graph temperature/time*
- *Allows to make an accurate regulation of the hydraulic circuit of a power pack or mini excavator or any hydraulic machine and to control its real values.*



The tester is an indispensable measuring instrument for hydraulics that allows to visualize anywhere , precisely and in real time the maximum and relative values of: **flow-pressure-back pressure and the interaction of these values.**
The tester can control on the job site the hydraulic characteristics of power packs, trucks, excavators and earth moving equipment, street sweepers, and all hydraulic machines locating immediately the problems of the circuits that often are the causes of malfunctioning of the tools. The instrument is robust, light, easy to use and thanks to its mechanical functioning can be used also with high presence of water and dirt that are typical situations of the out door use. Surprising are also its precision and cost that is much lower if compared to the expensive and fragile electronic testers.

TECHNICAL CHARACTERISTICS	**Tester**
Weight (kg)	2,5
Length (cm)	50
Flow max L/min	60
Pressure max	210 Bar
Backpressure	max 60 Bar



1. Female quick coupler oil enters in the tester
2. Flow meter with scale either in litres and gpm
3. High pressure gauge
4. Fast restriction valve
5. Fine tuning restriction valve
6. Male quick couple oil exits the tester
7. Back pressure gauge

INDUSTRIAL LINE



OEM



HG 3000 - HG 7000

Single-Three-phase generators with hydraulic motor



HG 3000 - 5000



HG 7000 - 10000

Are compact hydraulic generators with power respectively of:
•**From 3 kVA to 40 kVA, 110 – 220V, 50-60Hz. Available in other configurations on demand.** They are ideal accessories of trucks, mini excavators, sky platforms, boats, mobile workshops and all machines equipped with sufficient hydraulic circuit. The connection to the machines is easy as the generators are hydraullically self regulated. Two flexible hoses are sufficient and in few minutes your machine becomes a powerful generator that can power electric tools of all types, electric spotlights and also welders, avoiding the presence of gasoline, engine generators with their associated problems of starting, maintenance, fuel availability, transport, exhaust fumes and noise. Our line is made with high quality products that increase significantly the equipment versatility improving productivity and providing anywhere is necessary low cost and low maintenance electricity.

TECHNICAL CHARACTERISTICS	HG 3000	HG 5000	HG 7000	HG 10000
Weight with base	25 Kg	28 Kg	41 Kg	55 Kg
Length	410 mm	410 mm	480 mm	510 mm
Width	210 mm	210 mm	240 mm	240 mm
Height	430 mm	430 mm	450 mm	450 mm
ELECTRIC CHARACTERISTICS				
n° phases	single	single	tri/single	tri/single
Power tri phase	-	-	7 KVA	10 KVA
Power single phase	3 KVA	5 KVA	4 KVA	5.5 KVA
Socket type	1 CEE - 1 Schuko	1 CEE - 1 Schuko	1 CEE - 1 Schuko	1 CEE - 1 Schuko
Ampere	230 V	230 V	400-230 V	400-230 V
Protection	IP 23	IP 23	IP 23	IP 23
Volt meter	YES	YES	YES	YES
Thermic protection	YES	YES	YES	YES
Alternator type	Electro mechanic rotary	Electro mechanic rotary	Electro mechanic rotary	Electro mechanic rotary
HYDRAULIC CHARACTERISTICS				
Hydraulic motor	gears group 2	gears group 2	gears group 2	gears group 2
Flow L/min	20-40	30-40	30-50	40-60
Pressure bar	140 - 210 Bar	140 - 210 Bar	140 - 210 Bar	140 - 210 Bar
Back pressure	max 17 Bar	max 17 Bar	max 17 Bar	max 17 Bar
Flow rate/speed adjustment	YES	YES	YES	YES

GENERATOR

HG 3000 - HG 7000

Single-Three-phase generators with hydraulic motor

• Depending on the available hydraulic capacity and pressure of the actuating machine, hydraulic motors with different displacements can be installed in order to have the ideal alternator revolutions, using the most suitable pressure or flow values as required. Contact DOA for more information.

• The pressures indicated in the table are to be considered real dynamic pressures, in fact the maximum pressure measured "in static condition" at zero flow corresponds to a real usable value of at least 10% lower than the static pressure.

• The alternator flow / rev control valve mounted on hydraulic motors is a safety feature that prevents the alternator from exceeding the revolutions necessary to provide the correct voltage and frequency values, the valve can bypass a limited excess of flow (maximum 10 liters above the minimum value necessary) for which it can not be entrusted with the function of regulating excessive hydraulic flows that can not be managed by the valve itself, so if the actuator sends, for example, a flow rate of more than 45 liters to the generator, the excess flow rate it must be regulated upstream in line by a real and larger flow control valve, this will also avoid harmful excesses of backpressure at the exhaust, unnecessary increases in operating pressure and increase in the temperature of the hydraulic oil.





MOTOR A



MOTOR B

The hydraulic generators can be supplied with two types of hydraulic motors.
MOTOR A equiped with regulation of flow/speed and with ON/OFF hydraulic activation only.

MOTOR B with ON/OFF activation by a integrated solenoid switch, thanks to the electric activation, the motor rotation can be started/stopped by a electric control.

CONTROLS regulation valve for flow rate/rpm alternator with hydraulic motor silenced and protected by a mono-directional valve that prevents reverse rotation and damage from "violent arrest" to give a natural rotation arrest when the flow is cut

TECHNICAL CHARACTERISTICS	HG 12000	HG 19000	HG 26000	HG 35000
Weight with base	60 Kg	120 Kg	120 Kg	175 Kg
Length	600 mm	600 mm	600 mm	750 mm
Width	300 mm	300 mm	300 mm	450 mm
Height	450 mm	450 mm	450 mm	450 mm
ELECTRIC CHARACTERISTICS				
n° phases	tri/single	tri/single	tri/single	tri/single
Power tri phase	12 KVA	19 KVA	26 KVA	35 KVA
Power single phase	7 KVA	11 KVA	15 KVA	20 KVA
Socket type	1 CEE - 1 Schuko	1 CEE - 1 Schuko	1 CEE - 1 Schuko	1 CEE - 1 Schuko
Ampere	400-230 V	400-230 V	400-230 V	400-230 V
Protection	IP 23	IP 23	IP 23	IP 23
Volt meter	YES	YES	YES	YES
Thermic protection	YES	YES	YES	YES
Alternator type	Electro mechanic rotary	Electro mechanic rotary	Electro mechanic rotary	Electro mechanic rotary
HYDRAULIC CHARACTERISTICS				
Hydraulic motor	gears group 2	gears group 2	gears group 2	gears group 2
Flow L/min	50-70	80-100	90-120	90-130
Pressure bar	140 - 210 Bar	140 - 210 Bar	140 - 210 Bar	140 - 210 Bar
Back pressure	max 17 Bar	max 17 Bar	max 17 Bar	max 17 Bar
Flow rate/speed adjustment	YES	YES	YES	YES

HW 220 - HW 300 - HW 400

With sockets for single-three-phase generators

Welders features low noise hydraulic motors with helicoidal gears



HW 220



HW 300

HW 220 - HW 300 - HW 400 are professional DC hydraulic welders with power respectively of 220, 300 and 400 amps standard, other configurations on demand. This products can also be used as tri / mono phase current generators. They can be powered by the hydraulic circuit of excavators, trucks, mobile workshops and by all machines equipped with a suitable hydraulic circuit. Hydraulic offers numerous advantages: quietness, safety, versatility, easy transportability, robustness, absence of vibrations, no exhaust or smokes and minimal maintenance requirements, thanks to these features the welding machines increase the versatility of the machines, improving their efficiency and productivity. Ideal in any welding work outdoors and where it is necessary to have electricity everywhere and at low cost. Welders features low noise hydraulic motors with helicoidal gears.

TECHNICAL CHARACTERISTICS	**HW 220**	**HW 300**	**HW 400**
Weight with base	55 Kg	95 Kg	150 Kg
Length	540 mm	670 mm	770 mm
Width	230 mm	230 mm	300 mm
Height	400 mm	470 mm	500 mm
ELECTRIC CHARACTERISTICS			
Welding power	220 a	300 a	400 a
Welder type	2 poles - direct current brushes rotating type welders	2 poles - direct currentbrushes rotating type welders	2 poles - direct current brushes rotating type welders
Elettrodes	all types included basic and cellulosic	all types included basic and cellulosic	all types included basic and cellulosic
Regulation	contineous	contineous - possibility remote control	contineous - possibility remote control
Power	3,5 KVA in 1 PHASE 6,5 KVA in 3 PHASE	4 KVA in 1 PHASE 10 KVA in 3 PHASE	4 KVA in 1 PHASE 10 KVA in 3 PHASE
Protection	IP 21 (IP 23 on request)	IP 21 (IP 23 on request)	IP 21 (IP 23 on request)
Sockets	1 CE 1 phase - 1 CE 3 phase	1 CE 1 phase - 1 CE 3 phase	1 CE 1 phase - 1 CE 3 phase
Volt meter	YES	YES	YES
Thermic protection	YES	YES	YES
HYDRAULIC CHARACTERISTICS			
Flow L/min	40-50	65-75	80-90
Pressure bar	34 - 45	36 - 45	36 - 45
Back pressure	140-210 Bar	140-210 Bar	140-210 Bar
Regulation flow/speed	YES	YES	YES

WELDERS

HW 220 - HW 300 - HW 400

With sockets for single-three-phase generators

- *Compact and easy to install*
- *Exclusive silenced hydraulic motors with helicoidal gears*
- *Hydraulic motor are protected by hydraulic valve against flow/rev limit, single directional valve that avoids reverse rotation and "water hammer" damage for a natural stop when the flow is removed*
- *Available hydraulic motors with different displacements for an ideal ratio of available flow of the driving machine and alternator revolutions*
- *Provided with a voltmeter that allows to display the correct regulation of the revolutions/volt/Hertz*



MOTOR A



MOTOR B

The hydraulic welders can be supplied with two types of hydraulic motors.
MOTOR A equiped with regulation of flow/speed and with ON/OFF hydraulic activation only.

MOTOR B with ON/OFF activation by a integrated solenoid switch, thanks to the electric activation, the motor rotation can be started/stopped by a electric control.









WHY 1520

Pressure washer pumps with hydraulic motor



WHY 1520

- *Quieteness, no vibrations, low maintenance needs*
- *Compact dimension allows an easy installation onboard machines*
- *With "canal jet" accessory can unblock obstructed ducts, sewers, drain pipes etc.*
- *Chemical injector for the suction of solvents, soaps and additive, is available on request*

TECHNICAL CHARACTERISTICS	WHY 1520	THY 2715	THY 4520
Weight with base	12 Kg	15 Kg	16 Kg
Length	260 mm	300 mm	300 mm
Width	220 mm	240 mm	240 mm
Height	290 mm	540 mm	540 mm
WATER			
Water flow	15 L/min	27L/min	45L/min
Water pressure	200 Bar	150 Bar	200 Bar
Pressure thread	3/8 BSP male	3/8 BSP male	3/8 BSP male
Fluid pumpable	filtered water	filtered water	filtered water
Pressure gauge	YES	YES	YES
Chemical injector	YES	YES	YES
Ejector of by pass water	YES	YES	YES
Suction filter	YES	YES	YES
OIL			
Hydraulic motor	gears group 2	gears group 2	gears group 2
Flow L/min	20-40	20-40	20-40
Ideal flow L/min	30 L/min	30 L/min	30 L/min
Pressure Bar	140 - 210 Bar	140 - 210 Bar	140 - 210 Bar
Back pressure	17 Bar	17 Bar	17 Bar
Possibility on/off electric	on request	on request	on request

WASHER PUMP

WHY 1520

Pressure washer pumps with hydraulic motor

Professional pressure washer pumps powered by gear hydraulic motor available in different configurations. Rotative water pumping part with three ceramic pistons to as sure as long reliable service.

Robust and incredibly powerful are ideal used from the hydraulic circuit of trucks, concrete pumps, street sweepers, fishing boats and various vehicles.

Hydraulic functioning is implicit safety, no current means no possibility of electric shock hazard. Standard hydraulic motor without regulations. Hydraulic motor with pre-regulated cartridge at the factory for control of oil flow/speed. Cartridge cannot be adjusted this to prevent wrong regulations of the cartridge itself. Hydraulic motor with adjustable control of: maximum flow/speed and pressure, with electric solenoid 12V or 24V to stop pump rotation when trigger of water gun is released



MOTOR A



MOTOR B

The washer pumps can be supplied with two types of hydraulic motors.
MOTOR A equiped with regulation of flow/speed and with ON/OFF hydraulic activation only.

MOTOR B with ON/OFF activation by a integrated solenoid switch, thanks to the electric activation, the motor rotation can be started/stopped by a electric control.









AIR COMPRESSOR

CH 75 OEM

Compressors with hydraulic motor



TECHNICAL CHARACTERISTICS	CH 45 OEM	CH 75 OEM	CH 95 OEM	CH 200 OEM
Weight with base	50 Kg	65 Kg	65 Kg	80 Kg
Length	600 mm	670 mm	670 mm	700 mm
Width	350 mm	400 mm	400 mm	400 mm
Height	490 mm	540 mm	540 mm	540 mm
PNEUMATIC CHARACTERISTICS				
Air flow output	450 l/min	600 L/min	950 L/min	2000 L/min
Air pressure	max 10,5 Bar	max 10,5 Bar	max 10,5 Bar	max 10,5 Bar
Head type	2 stage	2 stage	2 stage	2 stage
Air tank capacity	OEM models are formed by the compressor head and hydraulic motor, the installator has to provide regulations, air tank and pi-ping for installation on board machines	OEM models are formed by the compressor head and hydraulic motor, the installator has to provide regulations, air tank and pi-ping for installation on board machines	OEM models are formed by the compressor head and hydraulic motor, the installator has to provide regulations, air tank and pi-ping for installation on board machines	OEM models are formed by the compressor head and hydraulic motor, the installator has to provide regulations, air tank and pi-ping for installation on board machines
Pressure gauge				
Pressure regulation	yes	yes	yes	yes
Chassis type	steel base plate	steel base plate	steel base plate	steel base plate
HYDRAULIC CHARACTERISTICS				
Driving power	4 KW	5,5 KW	7,5 KW	15 KW
Flow L/min	20-45	30-45	34-45	40-60
Pressure bar	150 - 210 Bar	150 - 210 Bar	150 - 210 Bar	150 - 210 Bar
Back pressure	max 17 Bar	max 17 Bar	max 17 Bar	max 17 Bar
Motor type	gear type	gear type	gear type	gear type

AIR COMPRESSOR

CH 75 OEM

Compressors with hydraulic motor

Compact air compressor powered by hydraulic gear motor, the tool can work connected to the circuits of power packs, trucks, sky platforms, mobile workshops, excavators and all machines equipped with a suitable hydraulic circuit. The tools of the line can supplies air compressed with flow out put from 400 l/ min to 2000 l/min and pressure from 1 to 10 bar. The exclusive hydraulic motor has control valves integrated that assure protection against excess of flow / speed and other posible hydraulic abuses. This guarantees safety in case the tool is connected to machines with hydraulic values higher then what is necessary.

COMPRESSORS ARE COMPOSED OF 4 MAIN ELEMENTS:

1. *Compressor head with two stage pistons and air filters*
2. *Cooling unit with axial fan protected by safety grill*
3. *The base frame*
4. *The hydraulic motor. Low noise type with helicoidal gears*



MOTOR A



MOTOR B

The compressors can be supplied with two types of hydraulic motors.
MOTOR A equiped with regulation of flow/speed and with ON/OFF hydraulic activation only.

MOTOR B with ON/OFF activation by a integrated solenoid switch, thanks to the electric activation, the motor rotation can be started/stopped by a electric control.



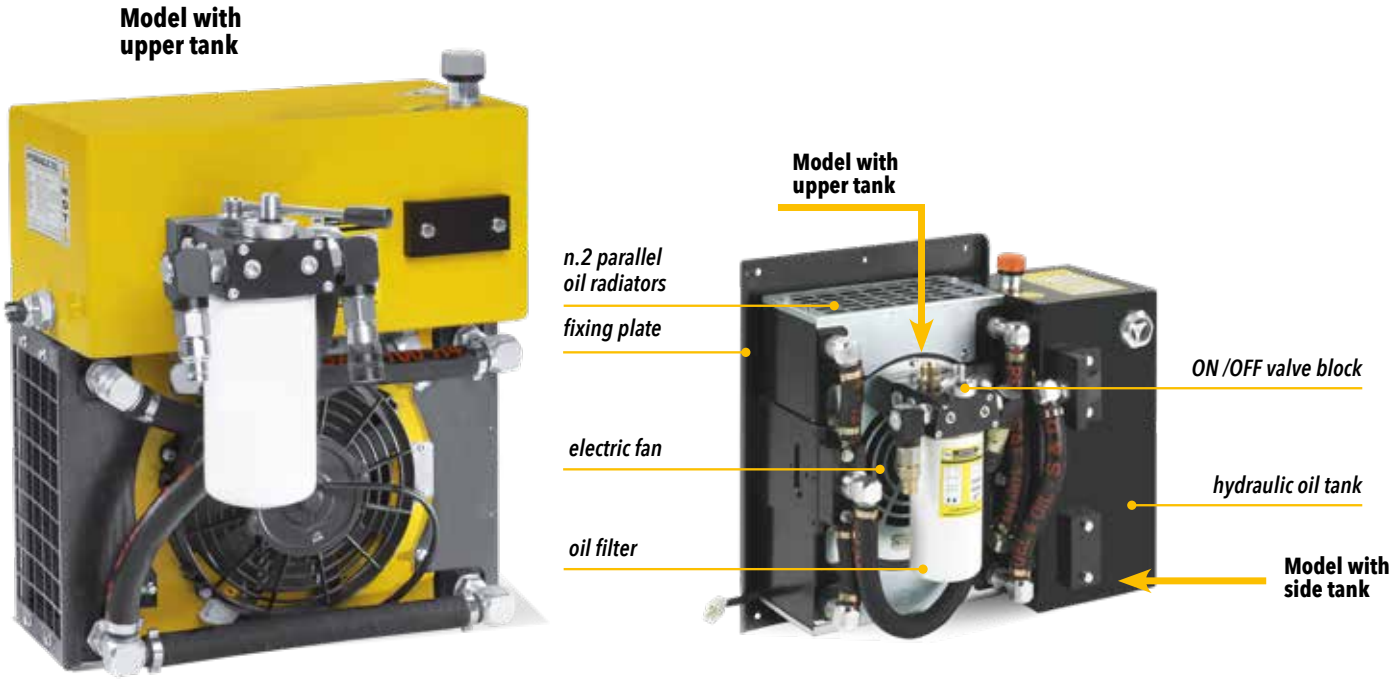




POWER PACK

HYDROBOX

For trucks and vans



HYDROBOX is a compact hydraulic accessory installable on trucks and vans, can be installed on all vehicles equipped with hydraulic pump or that have the possibility to install it, **HYDROBOX** transforms these vehicles in powerful and economical power sources of hydraulic tools and various hydraulic equipment such as winches, hydraulic generators, cranes, compressors, etc…

HYDROBOX is in substance a complete professional hydraulic power pack, the engine produces the hydraulic power, **HYDROBOX** manages the power, with **HYDROBOX** vehicles avoid to transport, tow, load and download the typical heavy and bulky electric generator or compressors, the vehicles can power in autonomy a wide range of tools and equipment normally used in external urban works, in the utilities line maintenance and also in operations for rescue and civil protection.

HYDROBOX is an accessory designed for professional use that occupies minimal space on board, can be installed also under the open loading platform of trucks (like a normal tool box) it does not require approvals. For the installation is just necessary to connect the **HYDROBOX** to the gear pump by two hoses *(suction and pressure)* and the vehicles will be transformed from a simple transporter item into a practical and versatile hydraulic autonomous power source “on wheels”.

TECHNICAL CHARACTERISTICS	HYDROBOX
Weight (kg)	38
Dimension LxWxH (cm)	48 x 30 x 45
Flow L/min	42 (flow max adjustable)
Pressure Bar	210 (pressure max adjustable)
Radiator	2 high efficency radiators with centrifugal fan 12 Volt ON/OFF
Valve	3 ways, open center with relief valve



POWER PACK

HYDROBOX

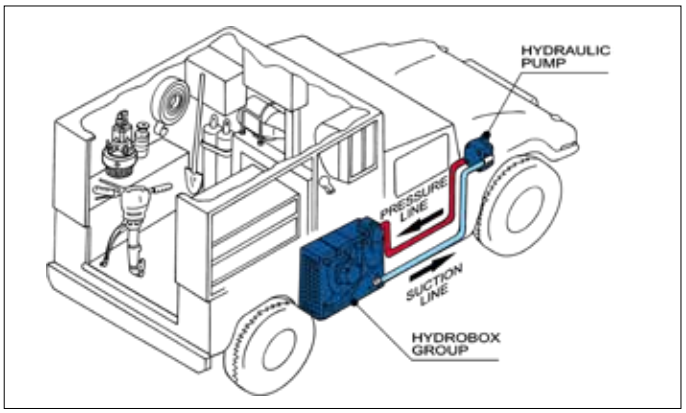
For trucks and vans

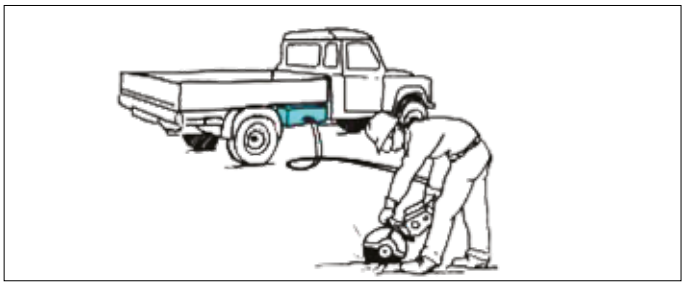
- *Safety and maximum quietness*
- *Power maximum running economy and practicality*
- *Versatility and total utilization of the vehiclel*
- *Avoids to transport, tow, load/download heavy bulky power units of other type*
- *Easy to install and use*
- *Minimal space and weight occupied on board*
- *Always ready to use with minimal maintenance need*

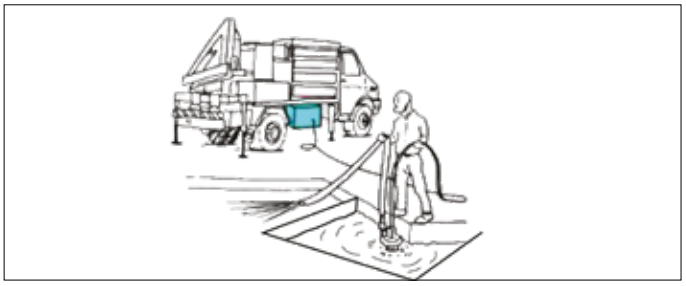


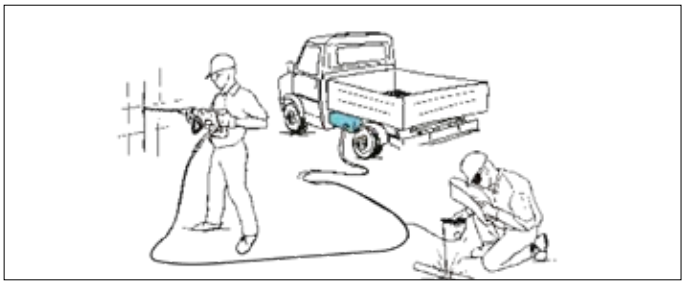


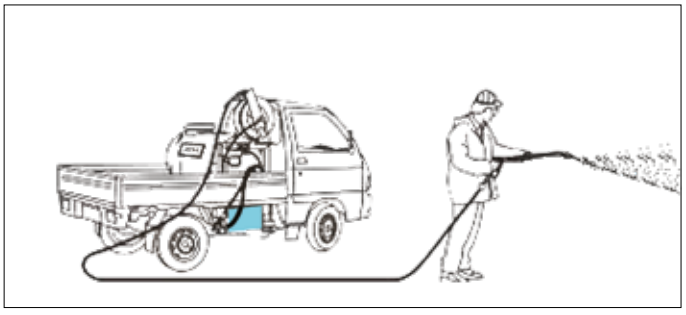












NIGHT DEFENDER

Tower light - Led lamps 12 - 24 volt







option: control wireless

- *Features a light, robust, telescopic mast in aeronautic grade light alloy, the lift up to cm180 assures the ideal height of the cone of light*
- *The two powerful rotating and inclinable lamps features 48 latest generation LED each one for a total of 96 cold light LED, is possible to operate one lamp only or both together to have full illumination.*
- *The mast movements are operated by four electric motors and one micro air compressor integrated in the group base, all operations are actually without noise.*
- *The opening and folding operations are fast , simple and intuitive, can be controlled at distance by 2 remote controllers, one wireless and one with cord and jack usable as back up unit to be connected directly in the group socket.*
- *The cross bar that hold the lamps can rotate by 360°, lamps can be inclined pointing the light cone in the topic point.*
- *The operations of opening / extending the mast and the mast repositioning in driving mode require a time of only 55 seconds.*
- *At the end of the intervention the mast repositioning to driving mode is completely automatic whatever would have been the latest lamps position.*
- *The group can be installed on the top of all vehicles without necessity of tests and traffic authority certifications.*
- *The installation kit supplied with group includes brackets, bars and various fastenings to reduce at minimum the adaptations necessity, the electric wiring connection is real basic (only two cables).*
- *Group is retrofittable and can easily be installed in few minutes on other vehicles*
- *Insensitive to rain, snow, wind, ALWAYS READY FOR USE!*

Lumionous flux is 12.000 LM.
The must height is adjustable up to 1,8 mt. The group is a synthesis of technology, effectivness, high illumination power, simplicity of installation and use, running and purchase economy.

NIGHT DEFENDER

NIGHT DEFENDER

Tower light - Led lamps 12 - 24 volt

- More available space on board, less transported weight and more loading capacity.
- No risks of accidents from electric shocks in case of rain or accidental contacts.
- No necessity of transporting other fuels or refilling, no noise, no smokes, no vibrations.
- No annoying operation of loading, down loading and positioning on ground.
- No typical engine starting problems in winter or after long inactivity.

NIGHT DEFENDER is a modern 12V or 24V illumination system for night operations designed as accessory and powered by the electric circuits of: trucks, 4WD vehicles, fire fighters, civil protection and surveillance vehicles, towing trucks, vans for maintenance of utilities networks, ambulances, mobile workshop, security and police vehicles. **Lumionous flux is 12.000 LM**. The must height is adjustable up to 1,8 mt. The group is a synthesis of technology, effectivness, high illumination power, simplicity of installation and use, running and purchase economy. The movements of extension, 360° rotation and lamps inclination are controlled by two wire less and wired remote controllers, 4 electric motors 12V or 24V and micro pneumatic air compressor integrated in the base. The mast is extensible in two phases, one with "book type" opening, a second one by a telescopic movement powered by two stage air cylinder. Both the lamps features 48 LED each a total of 96 LED that assures an exceptional illumination and a large light cone area. The 12V or 24V functioning means convenience and safety, the electic absorbtion is minimal thanks to the low consumption of leds. **NIGHT DEFENDER** weights only 45 Kg, can be easily removed and installed in few minutes on other vehicles of the same fleet, the maintenance necessity is easy and minimal, the quality of components, materials, and treatments is thought for military standard, this assure thousands of hours of use impeccable, precise and safe.

TECHNICAL CHARACTERISTICS	NIGHT DEFENDER
Weight (kg)	45
Dimension folded (LxWxH) (cm)	110x90x27
Dimension with max extended (cm)	180
Mast height	1,8 mt adjustable
Lumionous flux	12.000 lumen
Light power	12V or 24V
Electric absorpion	2 lamps with 48 led each - 96 led totally
Led type	Gen III 3W cold light
Lamp rotation	360°
Lamp inclinations	Adjustable 180° (from hour 12 to 6)
n°electric motor	4
Function	with vehicle engine ON or OFF
Remote controllers	2 (1 wireless+1wired with 3 mt cable and jack)
Mast material	Ergal/alu light alloy anodized
Mast movements	4 electric motors and 2 stage pneumatic telescopy cylinder
Pneumatic supply cylinder	12V or 24V micro air compressor
Mast folding	Automatic return from any left previous position
Lamps light ON/OF	Only when the first lower segmaent of the mast is vertical





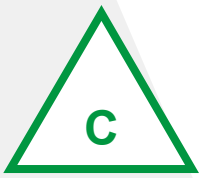




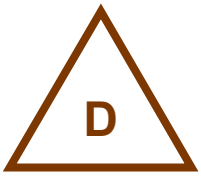
EHTMA SYMBOLS
TRIANGULAR LABELS
ON HYDRAULIC TOOLS AND POWER PACKS

The hydraulic tools produced by companies that are members of **EHTMA** are marked with triangular stickers showing an alphabetical letter that can be C, D, E or F. this denotes the functional hydraulic characteristics of the tool, making them visually evident. this classification has been planned and standardized by EHTMA, the European Hydraulic Tools Manufacturers Associations.

EHTMA has defined a number of functional standards for hydraulic tools and their circuits. the standards refer to the flow and pressure values that a tool must work on. This classification is represented by coloured triangular symbols with four different alphabetical letters in the centre: C, or D, or E, or F



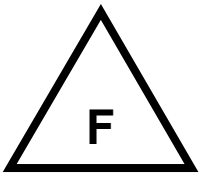
20 L/min -140 Bar
green



30 L/min - 140 Bar
brown



38 L/min - 140 Bar
red



50 L/min - 140 Bar
black

The above hydraulic characteristics applyes to all hydraulic tools of EHTMA standard, some DOA hydraulic tools that mount standard industrial hydraulic gear motor can work also with pressures above 140 Bar up to a maximum of 210 Bar, this means that developed output performances of DOA rotary tools can be higher if tool can use oil pressure higher then 140 Bar.

HYDRAULIC FUNCTION CHARACTERISTICS
OF TOOLS AND POWER PACKS

FLOW (min - max) — Category C -**15-24 L/min** Category D -**26-34 L/min** Category E -**35-45 L/min**

RELIEF VALVE SETTING — **150 - 165 Bar all categories**
TOOL OPERATING PRESSURE — **≤ 140 Bar lower or equal to 140 Bar**
(pressure load created by the tool while working)

MAXIMUM TOLLERABLE BACK PRESSURE — **17 Bar (250 PSI)**
ideal zero Bar Back pressure value on return line must be measured at the connecting point of the tool with the return hose and at the lower oil temperature

HYDRAULIC OIL TEMPERATURE
The circuit must be equiped with an oil radiator *that must limit temperature at max 60° C at the maximum expected ambient temperature even in the hottest climate.* — **MAXIMUM 60° C (140° F)**

OIL RADIATOR HEAT REJECTION CAPACITY — Category C -**3HP (2.24KW)** Category D -**5HP (3.73KW)** Category E -**7HP (5,22KW)**

At a temperature difference of 22 ° C between the ambient temperature and the maximum oil (delta T)

Do not operate tools at an oil temperature above 60° C; if tool is used at higher temperature this can cause skin burns and reduce the tool life.

HYDRAULIC OIL FILTER
Minimum filtration value required — **20 µ - micron**
Filter must be sized for flow of at least — **120 L / min**

HYDRAULIC OIL AND TABLE
OF EQUIVALENTS
BRAND AND TYPE

Viscosity at the lower expected ambient temperature
max 68 cSt (9° E)

Viscosity at the higher expected ambient temperature
min. 22 cSt (3.10° E)

(cSt = centistokes °E = gradi Engler)

OIL	Cold weather	Hot weather
AGIP	ARNICA **32**	ARNICA **46**
BP	ENERGOL SHF- HV **32**	ENERGOL SHF- HV **46**
CASTROL	HYSPIN AWH-M **32**	HYSPIN AWH-M **46**
TOTAL	EQUIVIS ZS **32**	EQUIVIS ZS **46**
ESSO	UNIVIS N **32**	UNIVIS N **46**
MOBIL	DTE EXCEL **32**	DTE EXCEL **46**
Q8	HANDEL **32**	HANDEL **46**
SHELL	TELLUS T **32**	TELLUS T **46**
GAZPROM NEFT	HYDRAULIC HDZ **32**	HYDRAULIC HDZ **46**
TEXACO	RANDO HDZ **32**	RANDO HDZ **46**

For arctic conditions ***(-30°- 0°c) use SHELL TELLUS ARCTIC 32.***
Indicated oils are intended for temperate climates, for extreme temperatures oils contact DOA.

Following chart shows common hydraulic oils - use these fluids or their equivalents

WARRANTY

All parts fabricated by DOA are guaranteed for a period of 12 MONTHS from the date of delivery to the customer only on defects of material, workmanship and assembly. The period of warranty coverage begins from the date of shipment-mailing of the warranty card supplied with the tools. The warranty card must be mailed to DOA within 10 days from delivery to customer. Costs of labour and transports are not covered by warranty and must be borne by the customer. The parts and components not produced by DOA such as engines, compressors, alternators, etc. are covered by the warranty of the manufacturers. The power pack batteries and wear out items such as: breakers chisels, drill bits, cut off discs, flexible hoses, quick couplers or accessories that are without an identification serial number are covered by a warranty limited at 3 months from the date of delivery or activation of the service.

DOA reserves the right to make improvements modification at any time without obligations at any time and without previous notice on units already sold.









The DOA policy is one of continuous improvement. The company reserves the right to modify the technical specifications and items described in this catalogue at any time and without notice for technical or commercial reasons. Product images are shown for information only



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