



MOVING WATER
any way you want it

BALLAST OPERATIONS

Load-outs, float-overs and salvage operations

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BALLAST AND SALVAGE OPERATIONS

Van Heck helps, supports and guides its clients through their water control and displacement issues. Van Heck complements this water-control expertise with its innovative Sea Trophy, the first complete mobile pump system facilitating controlled, contained and fast (fuel)oil recovery. We offer our clients global assistance at any time, 24/7, with our wide range of equipment and experience. Alongside customised water control and displacement solutions, Van Heck offers a complete package of equipment for ballast and salvage operations. The company has achieved an excellent reputation in performing the most complex ballast and salvage operations, having successfully completed various ranges of contracts worldwide.

A ballast or salvage operation is far more than just pumping. It requires precision, safety and speed. Van Heck monitors every project situation continuously to ensure operations are completed without risk, and with minimal tolerances to avoid unacceptable stresses and damage to a pontoon's structure. Execution is always flawless.

Van Heck designs every ballast (load-out, float-over), salvage or wreck removal operation to the client's wishes, in strict accordance with the specific project requirements. The complexity of the project dictates Van Heck's total package, comprising layout drawings and calculations, equipment and specialist staff, coordination and supervision of an entire load-out or float-over operation. All this ensures a smooth and supremely accurate process. Van Heck helps to determine which equipment is most suited for your operation, beginning with the engineering process.



ENGINEERING FOR BALLAST OPERATIONS (LOAD-OUTS AND FLOAT-OVERS)

Van Heck performs all the engineering and ballast calculations needed for any load-out or float-over operation, including the personnel to supervise it. Van Heck combines the transfer of the structure with the ballast operation sequence for load-outs or float-overs. Every load-out or float-over operation begins with a detailed process of ballast calculations and engineering. Drawings and layouts of the entire system are created. A specified list of trials is performed prior to ballast operations, in cooperation with the client and/or contractor.

Float-over Baku

Ballast operations are conducted according to a multiple-stage time schedule, to adapt minor situation changes and adjustments in good time, all depending on the project. Van Heck ensures that ballast operations are performed with supreme accuracy, regardless of the weight, volume or size of the structures, and major tidal differences.

Van Heck undertakes entire projects or parts of them, using only its own equipment. Depending on the complexity of the project, Van Heck also offers rental equipment with coordination and supervision of the entire operation (including (load) transfer), all to ensure a smooth and professional process.



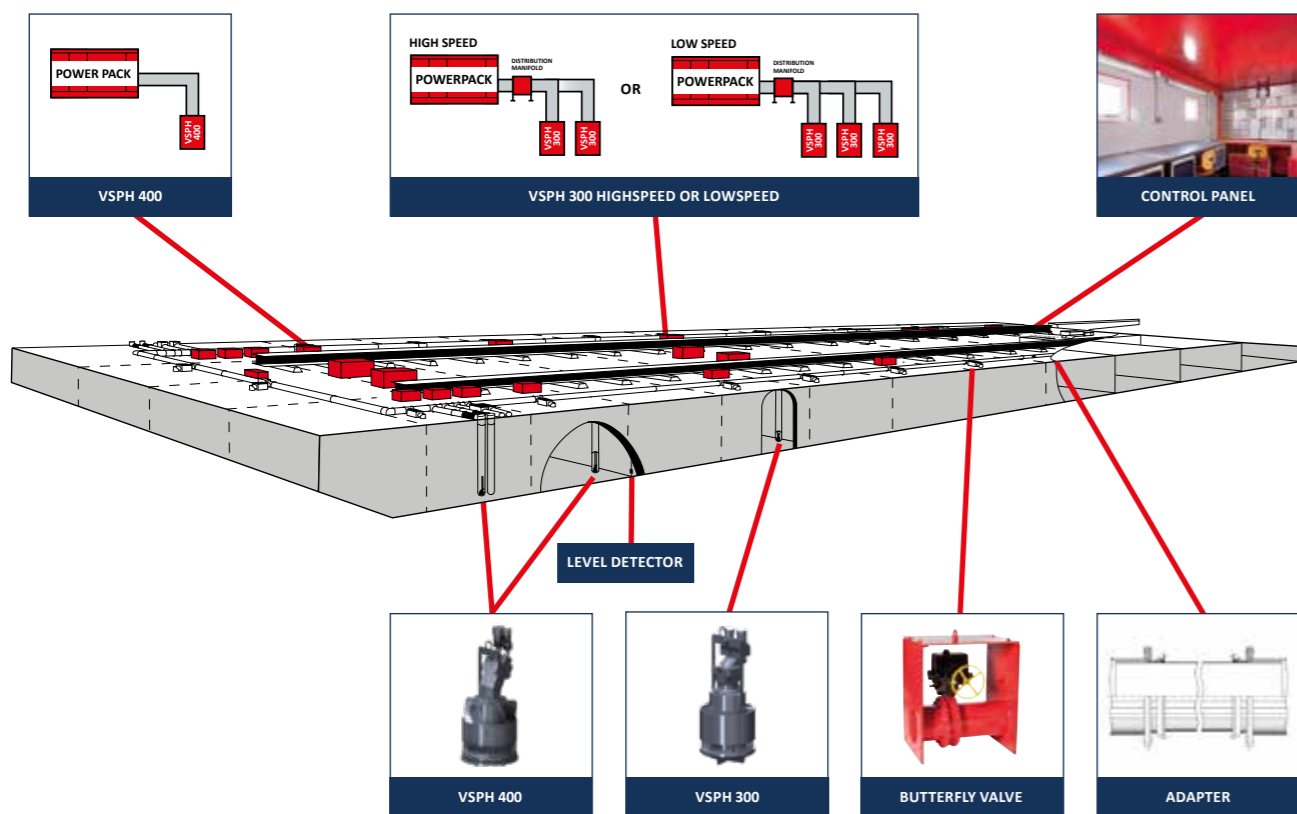


ENGINEERING FOR SALVAGE AND WRECK REMOVAL OPERATIONS

Immediate response and action is a prerequisite for any salvage operation. Clients recognise Van Heck as a knowledgeable and reliable partner when emergencies need global assistance. Van Heck is used to acting quickly and effectively. Van Heck provides capacity and flow calculations, installation drawings and the engineering of specific equipment for salvage operations. It also has the resources to manufacture specific tailor-made solutions in-house. To perform the salvage, the client can choose whether to use a Central Control Container or a (custom-made) remote control for handling the operation.

EQUIPMENT FOR BALLAST AND SALVAGE OPERATIONS

Van Heck has performed ballast and salvage operations since 1980, giving it some four decades of in-house expertise in using the most reliable ballast equipment. Specially designed, this equipment is entirely suited to salvage and wreck removal operations, load-outs and float-overs. The self-supporting ballast and de-ballast installation, with a total capacity over 40,000 t/hr, is run from the Van Heck Central Control Container. The ballast system includes vertical submersible pumps with hydraulic drive (VSPH), distribution manifolds, switchblocks, electrical butterfly valves and the Van Heck power packs.



The VSPH pumps are positioned freely in a steel riser pipe with a diameter of 395 or 325 mm, allowing them to fit through any standard manhole on a vessel or barge. They are sealed with an O-ring on the bottom flange of the riser pipe. This construction allows swift manual replacement. Pump replacement causes no interference to the contingency of the installation, as each riser pipe is separated from the ring main by a non-return valve. This distinguishes Van Heck's pumps from other systems that require partial piping dismantling before a pump can be replaced.

The power pack supplies hydraulic power to drive the water pump, with a single power pack able to drive one VSPH400 or VSPH150 pump, up to three VSPH300 pumps and up to two Sea Trophies. The ballast system configuration is flexible and is tailored to the customer's needs. Van Heck has also equipped a series of power packs with organic oil, to meet the demand for green hydraulic solutions.

THE SEA TROPHY FOR FUEL RECOVERY

Alongside the ballast system, Van Heck also provides an innovative oil pump for fuel recovery: the Sea Trophy. This small but strong pump can be operated by the same power pack as the ballast system. The Sea Trophy enables fast oil recovery from fuel or cargo tanks if a ship is in distress or if incorrect fuelling has occurred. The Sea Trophy aims to give the ship the ability to recover the fuel or cargo tank's content in case of an emergency when no other on-board equipment can help. For further information please visit our website www.seatrophy.com, contact us, or take a look at our Sea Trophy leaflet or booklet.

SEATROPHY



Float-over Baku



Sea Trophy test facilities in Noordwolde

NEXT-GENERATION POWER PACKS

One of Van Heck's values is continuous innovation. In line with that philosophy, Van Heck has developed a next-generation of power packs with increased capabilities.

This (silenced) power pack can execute all previous configurations and is able to power the operation of three VSPH300s at high speed, one VSPH400 or one VSPH150 with increased performance, or two Sea Trophys. This new power pack will be an integral part of the Van Heck ballast system, and is compatible with all Van Heck Ballast equipment.

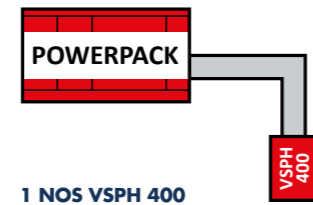
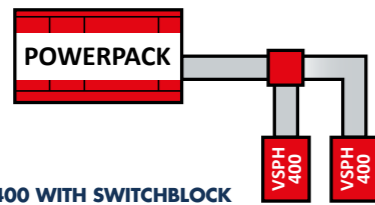
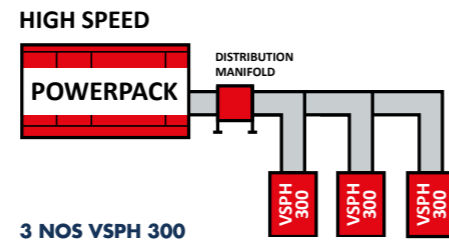
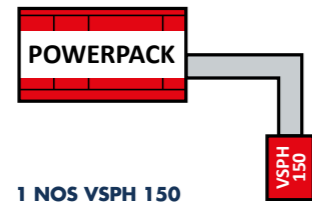
Please contact Van Heck for more information on its Next-Generation Power Packs.

DIESEL ENGINE

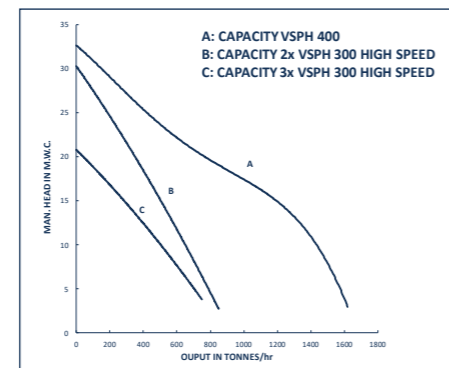
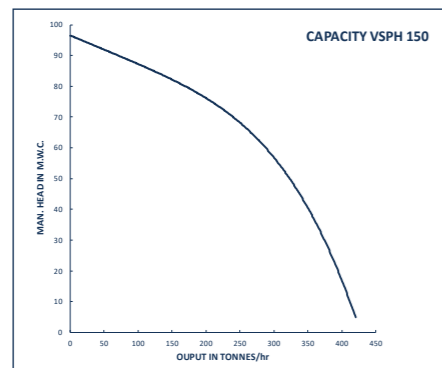
Make John Deere
Output 132 kW

HYDRAULIC PUMP

Max flow rate 170 l/min
Pressure 350 bar



All our power packs generate 230 V.A.C. electricity to operate the valves, and 24 V.D.C. for the control system.



Capacity with Next Generation Powerpack

SMART-DESIGNED CENTRAL CONTROL SYSTEM

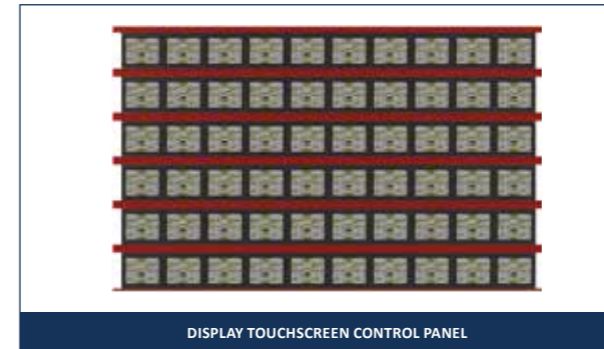
The Central Control System is equipped with the latest state-of-the-art touchscreen systems and has many extra features. The client can visualise and witness the entire ballast operation when an external monitor is connected.

Panels are also interchangeable; if a panel malfunctions it can quickly be replaced. An extra advantage is that it uses fewer and far thinner cables across the pontoon. Extra redundancy is achieved in this new configuration by using both ring and star network topology.

The Central Control Container, which has proven itself over many years, is the workplace of the ballast engineer. He or she can see at a glance which pumps are in operation or which valves are open or closed. Each segment of the pontoon containing a tank has its own code, matching one instrument panel in the central control room. The Central Control Panel features a full representation of the entire pontoon. Each screen displays the status, allowing the ballast engineer to see:

- which pumps are in operation or idle
- which valves are open or closed
- the pressure in a discharge line
- whether or not there are failures
- the levels in all tanks
- how many tons of water have been pumped per tank
- draught, bow SB/PS and stern SB/PS
- measurements of heel and trim
- the tide level (where applicable).

A pump can be started and stopped from the touchscreen, or a valve can be opened or closed. Needless to say the industrial PC logs this information.



MINI BALLAST EQUIPMENT

TECHNICAL SPECIFICATIONS BALLAST AND SALVAGE EQUIPMENT

Beside the tried-and-tested, fully self-supporting and complete centrally-controlled ballast system, designed for the most comprehensive ballast operations, Van Heck also makes manually-controlled mini ballast equipment available for less complicated situations.

Clients can configure their own containerised, mini ballast system to suit their requirements and save on mobilisation costs. Van Heck provides standard sets, making the system flexible and easily to install. This system is equipped with hydraulically-driven submersible pumps and the same power packs powering our

centrally-controlled system. The piping, valves and joints are adjusted, making it easy to install in a short period of time. A mini ballast container has standard 20ft measurements for easy packing and unpacking. The container holds two power packs three mini containers with smaller items and a pipe rack.



- 1 Power pack
- 2 Hydraulic manifold
- 3 Pump type VSPH 300
- 4 T-branche and cover for riser pipe Ø 325 mm
- 5 Mini pipe racks with discharge pipes Ø 250 mm length 2, 3 and 5 m
- 6 Adaptor Ø 325-250 mm
- 7 T-branches Ø 250 mm and Ø 159 mm with quick action joints
- 8 Butterfly valves Ø 250 mm and Ø 159 mm
- 9 Hand winch
- 10 Mini container



VERTICAL SUBMERSIBLE PUMP – HYDRAULICALLY DRIVEN (VSPH)

HYDRAULIC MOTOR

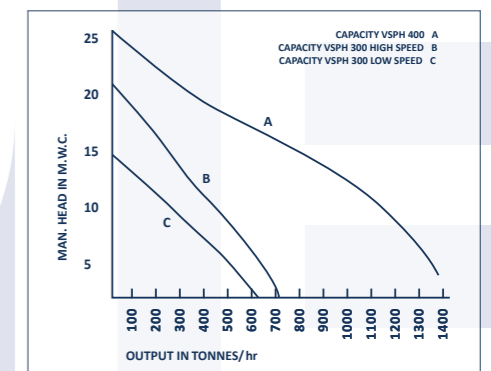
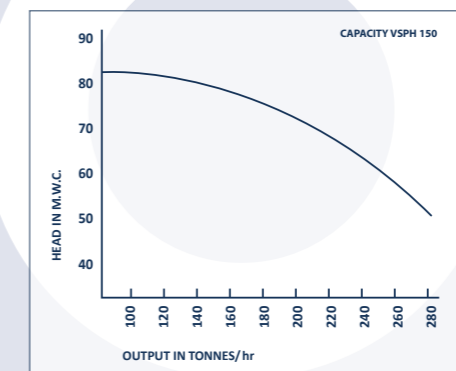
	VSPH 150	VSPH 300	VSPH 400
Type	Constant plunger motor	Constant plunger motor	Constant plunger motor
Speed	2900 r.p.m.	1445-1605 r.p.m.	1680 r.p.m. max
Flow rate	145 liter	42-47 l/min	126 l/m max
Discharge pressure	300 bar	350 bar max	350 bar max
Return	10 bar max	10 bar max	10 bar max
Hydr. oil	Shell Tellus T 37	Shell Tellus T 37	Shell Tellus T 37
Hose connection	Discharge: 25 mm dia. Return: 32 mm dia. Leak-off oil: internal drain	Discharge: 20 mm dia. Return: 25 mm dia. Leak-off oil: internal drain	Discharge: 25 mm dia. Return: 32 mm dia. Leak-off oil: internal drain

PUMP

	Van Heck VSPH 150	Van Heck VSPH 300	Van Heck VSPH 400
Make	Van Heck	Van Heck	Van Heck
Type	VSPH 150	VSPH 300	VSPH 400
Max Pressure	80 mwc	15.8-21 mwc	25 mwc
Speed	2900 r.p.m.	1445-1605 r.p.m.	1680 r.p.m. max
Impeller	Centrifugal	Mixed flow	Mixed flow
Discharge	350 mm dia./alt 150 mm dia.	290 mm dia.	350 mm dia.
Suction	150 mm dia.	200 mm dia.	270 mm dia.
Bearings	2 ball bearings, bearings in oil bath	2 ball bearings and 1 axial bearing in oil bath	2 ball bearings and 1 axial bearing in oil bath
Seal type	Mech. seal (10 bar)	Mech. seal (10 bar)	Mech. seal (10 bar)
Max flow rate	290 tonnes/hr	620-710 tonnes/hr	1350 tonnes/hr

MATERIALS

	Van Heck VSPH 150	Van Heck VSPH 300	Van Heck VSPH 400
Pump casing	Ni-resist type D 2 (Material no. 7660)	Ni-resist type D 2 (Material no. 7660)	Ni-resist type D 2 (Material no. 7660)
Suction nozzle	Stainless steel X 90 Cr Mo V 18 (Material no. 14112)	Stainless steel X 90 Cr Mo V 18 (Material no. 14112)	Stainless steel X 90 Cr Mo V 18 (Material no. 14112)
Impeller	80 kg	80 kg	120 kg
Pump shaft	300 mm dia.	300 mm dia.	395 mm dia.
Weight	300 mm dia.	300 mm dia.	395 mm dia.
Dimensions	Height 600 mm	Height 750 (400) mm	Height 920 (440) mm



Pump Curves VSPH's

TECHNICAL SPECIFICATIONS POWERPACK

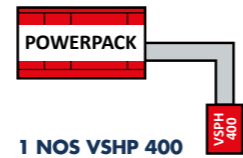


DIESEL ENGINE	
Make	Deutz
Type	F5L 413FR or BF6M 1013
Output	75 kW DIN 6270 A blocked or 95 kW DIN 150 3046 IV ICFN
Speed	2050 or 2100 r.p.m.
Ambient temperature	45 or 50°C
Cooling system	Air or water
Safety devices	Temperature of cylinder head Lubricating oil pressure V-belt failure Hydraulic fluid level
Integrated fuel tank	200 litres diesel oil (min. 10 hours' operation)
Lubricating oil	Shell Rimula Super 15W40

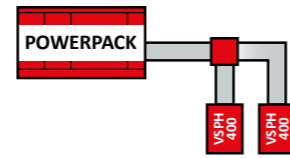
HYDRAULIC PUMP	
Type	Pressure-dependent flow rate control
Speed	2050 or 2100 r.p.m.
Max flow rate	127 l/min
Pressure	350 or 422 bar
Constant pressure control system	300 or 244 bar
Max pressure load sensing	325 or 275 bar
System	Open circuit
Hydraulic fluid	280 litres Shell Tellus T 32

ELECTRICAL SYSTEM	
Operating voltage	24V DC
Hydraulic generator	Output 2400 Watt Voltage 230V Frequency 50 Hz

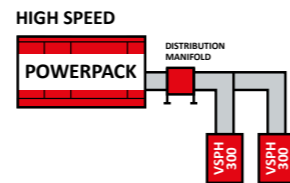
MISCELLANEOUS	
Dimensions	Length 220 cm; Width 110 cm; Height 120 cm Weight 2500 kg (incl. fuel and hydraulic fluid)



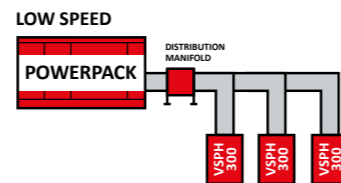
1 NOS VSPH 400



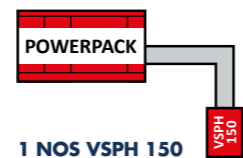
2 NOS VSPH 400 WITH SWITCHBLOCK



2 NOS VSPH 300 HIGH SPEED

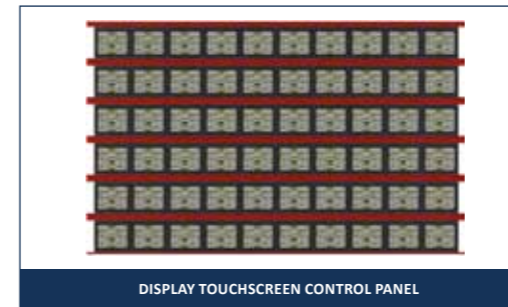


3 NOS VSPH 300 LOW SPEED



1 NOS VSPH 150

TECHNICAL SPECIFICATIONS CENTRAL CONTROL SYSTEM



DISPLAY TOUCHSCREEN CONTROL PANEL

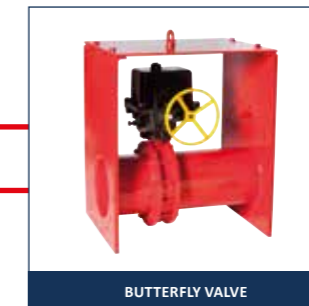
CENTRAL CONTROL SYSTEM

The Central Control Panel of the barge features a full representation of the pontoon deck. Each tank is given its own instrument panel with corresponding code number. From this central position the ballast engineer can operate and check the entire ballast installation, see whether pumps are in operation, valves are open or closed and he can immediately detect any failure.

To measure water, draft and tide levels
Range: 0-12 mwc | Accuracy: +/- 0,03 mwc



POWERPACK



BUTTERFLY VALVE



VERTICAL SUBMERSIBLE PUMP WITH HYDRAULIC DRIVE

THE DISTRIBUTION MANIFOLD

The distribution manifold is designed to operate 2 or 3 nos VSPH 300 pumps by 1 powerpack.

Flowrate in	126 l/min max
Flowrate out	2 x 47 l/min or 3 x 42 l/min
Pressure	350 bar
Operation	Electric 24V DC

SWITCHBLOCK

The switchblock makes it possible to connect 2 nos VSPH 400 pumps to 1 powerpack.

Flowrate	126 l/min
Pressure	350 bar
Operation	Electric, 24V DC

BUTTERFLY VALVE

Type	Fig. 10/STD, annular type
Drive system	Electric
Output	0.1 kW
Voltage	220V (1 -phase), 50 Hz
Control	24V DC
Diameters	250 mm and 450 mm
Dimensions	Length 750 mm Width 600 mm Height 900 mm
Weight	260 kg



