



Power slips fit to meet harsh offshore challenges

B+V assembly centre based in Germany, Hamburg

Top representatives from German company Blohm + Voss Oil Tools GmbH talk to Petroleum & Offshore Technology about pipe handling tools for ultra-deepwater applications, how to improve slip crushing capacity in harsh offshore plays and the world's first 1250 tons power slip in mass production, the PS-1250

POT: Blohm + Voss describes the creation of its oil tools division as a "brilliant idea". Could you please start by giving us an outlook of how Blohm + Voss Oil Tools came into existence?

Robert Bichel: Blohm + Voss initially began as a shipyard, which is now 135 years old, and until 30 years ago they were also known for building drilling rigs. They even had their own forge for building anchor chains and propeller shafts for ships. However, this company couldn't get hold of the elevator links necessary to connect to the top-drives that you lift the elevators with.

By what one could perhaps describe as a fortunate mishap, Blohm + Voss used

this forge to produce the required elevator links for two drilling rigs and that's how the oil tools division came into being,



New B+V Solid Body Elevator, SBE-1250 for 1250 tons

starting off with elevator links and manual pipe handling equipment such as elevators. Blohm + Voss Oil Tools has been around for approximately 45 years and we now operate as an independent and separate company.

POT: What is the core line of your business?

RB: We are a leading manufacturer of pipe handling equipment for both onshore and offshore applications. You could say that for equipment higher than 750 tons our focus is mainly offshore, while onshore dominates everything below that figure.

Our 'bread and butter' business, as we like to call it, involves providing manual elevators to onshore customers in for example Russia and the U.S. and handling tools to offshore

customers worldwide. So we have a very broad stake in the market – covering from the very smallest safety pieces you can get to the ultra-deepwater equipment.

Currently, we are looking to deliver the world's first power slip in mass production for ultra-deepwater drilling, further handling tools for deep drilling activities and high capacity tools, with of course a high offshore focus. What we mean by ultra-deepwater is any depth beyond 5,000 ft. So we're venturing into some pretty harsh environments.

POT: Could you extrapolate on that and tell us a bit more about your company's product range?

RB: Our product range can be broken down into three main fronts: holding, screwing and lifting pipes. There are different types of equipment for each of these sectors.

We have power slips for holding the pipes, ranging from 250 to 1250 tons; manual tongs or hydraulic tongs make-up or break out connections, with a range of capacity from 25,000 up to 160,000 ft-lbs; and elevators for lifting the pipes of up to 1250 tons and more.

The latest development in our line of wrench spinner combination tools is the new B+V Floorhand 100. The FH-100 is designed for an ease of operation with the highest safety standard and has an extended pipe range and torque rating. The tool has a specially designed manipulator which allows it to extend out 131" from its mounting point to both well centre and the mouse hole. It can be controlled on the tool or remotely through a stand-alone console or drillers' panel.

POT: Blohm + Voss Oil Tools puts a high focus on the development of power slips for both offshore and onshore applications. What are this technology's main specifications?

Andre Vierke: In terms of the power slips, we cover the range from 250 to 1250 tons with different types. We have for example one power slip for 1250 tons, which is a new piece of equipment that we have recently released.

Basically, all power slips of course differ in terms of capacity and the overall dimensions also vary. The PS-250/350

ranges from 2 3/8" up to 14" and is for small rotary tables of 27.1/2". The equipment is usually applied on land rigs.

The PS-500 power slip, which ranges from 2 3/8" up to 14" can be applied both onshore and offshore. This piece of equipment is designed for 37.1/2" rotary tables. The PS-750 and PS-1000 are mainly used for offshore activities and have almost the same body. The main difference is that the PS-1000 is 7,8" longer, but both are applicable to 49.1/2" rotary tables.

Finally, we have the power slip for

1250 tons, the PS-1250, which fits into 49.1/2" rotary tables and only purposed for offshore applications (i.e. drillships) and heavyweight landing strings.

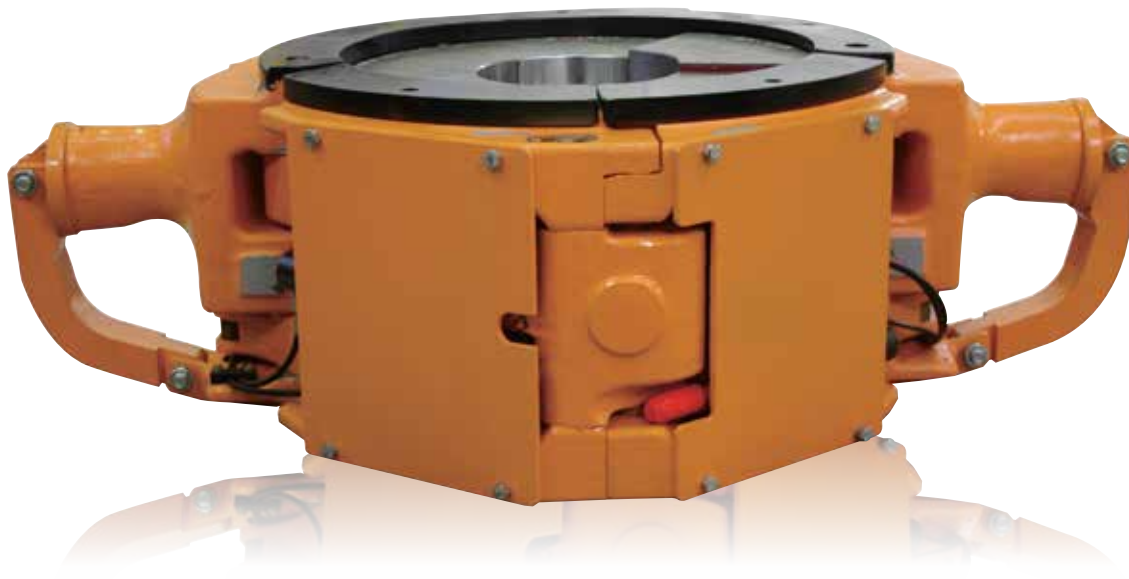
POT: What makes the PS-1250 unique? How can it shape the offshore industry as it explores new areas?

AV: Basically, we are the only ones in the world to have this specific kind of power slip. We put out the 1250-ton power slip in April this year and supply it to the offshore market.

The whole industry has developed into



New B+V Power Slip for 1250 tons, PS1250/1 for 3.1/2" to 14"



New B+V 1250/1500 tons AMP Elevator

1250 tons or even higher for a considerable amount of time, so there are different suppliers of 1250-ton equipment – but no power slip and pipe handling equipment as we produce it.

A curious point to be made is that there are already drillships out there in the Gulf of Mexico with several pieces of equipment fit for 1250 tons, such as topdrives for instance, but they are not able to handle 1250-ton equipment because they do not have the power slips required for that capacity yet.

POT: How have you managed to reduce such issues as pipe stresses and improve stress distribution to the body with the PS-1250?

AV: Compared to our standard equipment in power slips, the PS-1250 has now been used with four instead of three slips inside the body, because we want to reduce the stresses to the pipe. We are also now using extra-long slips.

As we have mentioned, the PS-1250 is designed for heavyweight landing strings and this is usually for a 6.5/8" drill pipe with a 6,906" slip proof section. To handle this kind of drill pipe, we've developed a special slip carrier, a piece which enhances stress distribution to the body. For all different pipe sizes, from 3.5" up to 14" we have the

standard slip-carrier system. This means that you can run all pipe sizes within the 3.5"-14" range in one body.

POT: As the offshore industry ventures into increasingly challenging environments and deeper waters, so must all gear and equipment used be both reliable and efficient. What kind of technology for landing heavy loads are you putting forth?

AV: In order to be able to set and run larger and heavier strings with hook loads approaching or exceeding 2.5 million lbs, an innovative heavy duty landing system has been developed and put on the market.

Such systems must be capable of landing heavy loads while ensuring slip crush resistance. It includes an extended slip with enhanced design (i.e. a new central greasing system), a pipe with a thick walled high strength material section, a light weight tube, and a rotary shouldered connection.

POT: What do you see as one of the current main operational challenges for these heavy duty landing strings?

AV: One of the challenges is linked to the positioning of the slips, in particular when using extended slip designs. The limited length of the slips area requires additional

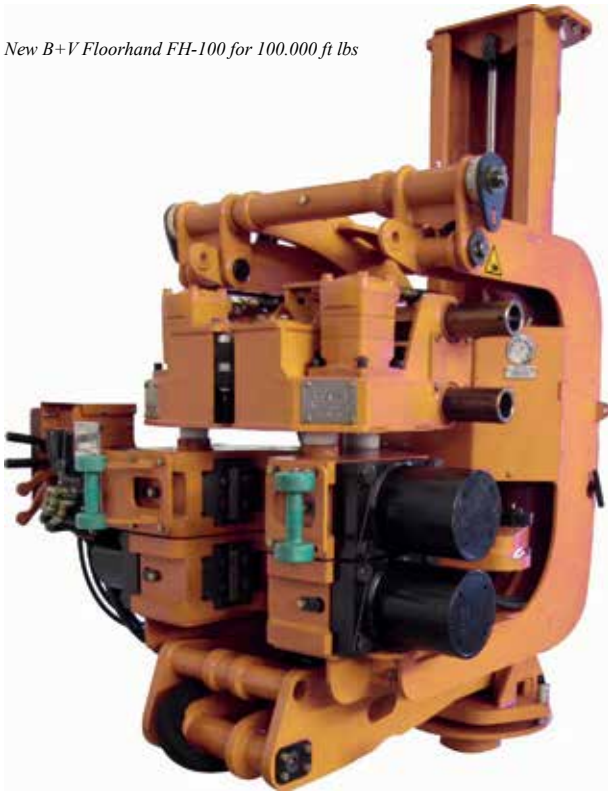
time for proper positioning and set up. To address these issues, a new slip proof section design has been developed: the combination of an extended crush proof section and the absence of a heat affected zone in that particular area decreases running time while completely eliminating the risk of setting the slips on a weak point.

The "Spiri-Reinhold pipe crushing" formula has also been used to design this system. However, considering the approximation of this theoretical model's results, crushing performance has been assessed using the Finite Element Analysis, as well as physical tests performed with a specifically designed pulling unit. These full scale test results have been compared to the ones obtained with both the finite element analysis and the standard "Spiri-Reinhold pipe crushing" formula for getting the deepest view of details concerning pipe crushing issues.

POT: Where is the bulk of your equipment manufactured?

RB: All our pipe handling equipment is made in Germany – German engineering, German foundries, German forges, all is completely built here. And the advantages that our equipment has in relation to other power slips are their easy, safe and

New B+V Floorhand FH-100 for 100.000 ft lbs

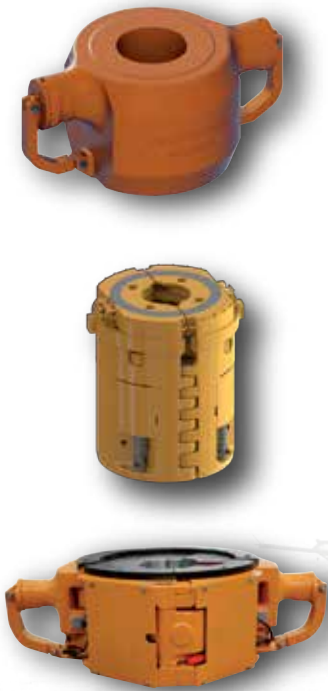


fast changeability. The power slips offer a maximum in safety and automation. Our range of wrench spinner combination tools is manufactured in Houston, Texas.

POT: Where do you see the company going in the next few years?

Jens Lutzhöft: We would like to see further growth in the ultra-deepwater market in the future, so we will strive for a lot of emphasis on offshore and ultra-heavy equipment of 1250 tons and above. We want to fulfil our commitment to and expand our presence in the existing markets within which we operate. We definitely focus on the safety and automation of our tools, since these two features are so important now everywhere in the industry. ■

This interview was conducted with the help of several representatives from Blohm + Voss Oil Tools GmbH, including Robert Bichel, general sales manager, Andre Vierke Dipl.-Ing. (FH), project manager and Jens Lutzhöft, CEO.



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