



ARTICLE

“Do solutions to complicated problems need to also be complicated?”

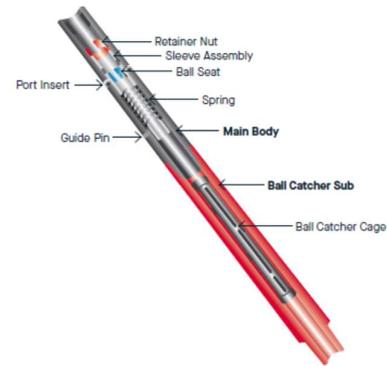
Introduction

Let us have a show of hands from those of you who believe a complicated problem can only be resolved by a complicated solution. We sure hope there are not many of you who believe in this! Why do we need to introduce more complications to the already complicated problem? Instead, we suggest that, we ought to be exploring simple and proven methods that can effectively reduce the level of complication by a few notches otherwise, these cannot really be considered as SOLUTIONS.



Argument

We at DSI do not claim that we have a panacea for all the Drilling and Completion ailments but, we do believe that we have a simple, reliable, and well-proven solution to lost circulation and limited circulating rates for effective hole cleaning operations. We do not offer “Magic Balls” or complicated electronic systems that require “Activation / Deactivation Flakes” or “pulses” nor do we offer “Complicated” and “Fragile” Dart systems that should not be unpackaged or else the customer pays for them. We offer a simple technology which has proven itself time and again over the past 2 decades. A System that is simple and, an Activation / Deactivation method that is reliable and easily detectable at the surface every time. We offer a system with proven operational efficiency rating of 99.7% world-wide. We offer simple solutions to, often complicated, problems. We offer PBL Multiple Activation Bypass Systems.



Justification and Conclusion

Now let us identify the problems and see if DSI-PBL Bypass Systems offer solutions to any of these problems. In other words, let us see whether our products **tick all the correct boxes**.

Lost Circulation: First Generation DSI PBL Ball / Dart Drop System provides the capability to bypass 100% of fluid through the side ports hence facilitating the safe pumping of aggressive LCM through the large side ports without risking any damage to or blockage of BHA components below. This tool has the safety feature of returning to port-closed cycle any time the pumps are switched off. ✓

On-Demand Split Flow Feature: First Generation DSI PBL System can be activated using our Split Flow Dart or the revolutionary USFD thereby offering a predetermined split ratio between the flow through the tool and to the bit and the flow through the side ports into the annulus. This feature is used for boosting circulation while drilling or while back-reaming. The beauty of this system is that at any point if the Operator decides to switch to 100% bypass through the ports, this can be achieved without the need to POOH, instead, they simply deactivate the tool and reactivate by dropping an activation ball. This configuration still maintains the safety feature of returning to port-closed cycle any time the pumps are switched off. ✓

Permanent Split Flow Feature: DSI-PBL Booster Bypass System was developed to maintain flow through the BHA while achieving higher annular flow rates than our standard on-demand split flow system. The tool features a 3-nozzle or 4-nozzle configuration to increase the TFA. Tool activation and deactivation is achieved by





dropping a single vinyl ball and once activated, the tool will be locked in open position until such time that a deactivation ball is dropped to cycle the tool in ports-closed position. Like all other PBL Bypass Systems, the Booster Bypass System is a Multiple Activation device. ✓

Ability to perform fishing / retrieval operations through the PBL tool: DSI PBL “SSBB” tools offer the large through bore to perform such operations and can be cycled indefinitely by way of a wireline retrievable activation dart. If the wireline retrieval is not possible or desirable, the recently developed Second Generation DSI PBL Ball / Dart Drop System can be deployed. This system provides the same capabilities of First Generation PBL system but it incorporates a “By-Pass Cage” Ball Catcher system capable of capturing the deactivated balls / darts in By-Pass cage hence providing a TRULY clear through bore at all times to perform the fishing / retrieval operations through the PBL Tool. Both SSBB and the Second Generation PBL Bypass Systems still maintain the safety feature of returning to port-closed cycle any time the pumps are switched off. ✓



Ability to re-establish circulation at zero circulation: DSI-PBL Bypass Systems with Burt Disc Feature offers a sure way to enable Operators re-establish circulation even with Bit nozzles totally plugged. ✓

Ability to alter activation ball size for same size tool: Generally, the Activation Ball / Dart OD's for DSI PBL tools are suitable for the drift diameter of the string above it. However, in certain instances whereby an Operator wishes to use a float sub above the PBL Tool with restricted ID, DSI-PBL tool can be dressed with, reduced ID seat whereby a smaller OD Activation Ball / Dart can be used to activate the PBL tool. ✓

Ability to run with other ball or dart activated devices: First Generation PBL Tools and Booster Bypass Tools can be supplied with Modified Ball Catcher Cages so to accommodate passage of Activation Balls or Darts to activate a third-party tool positioned below PBL Tool. Second Generation PBL Tools with By-Pass Cage design is ideal for such application as no pre-job modification is needed. ✓

Ability to run with Pipe Severance tools such as HyPR HoleSaver: DSI-PBL Bypass System placed below the Severance tool can be activated on demand since the Activation Ball / Dart diameter is always less than the drift diameter of the severance tool sub placed in the string. If for special applications, the drift diameter of the severance sub is smaller than the standard PBL activation Ball or Dart, then a DSI-PBL tool with reduced ID ball seat may be deployed. ✓

Ability to run multiple circulating tools in a string: DSI-PBL Bypass Systems may be run in tandem if needed. The Operator has the flexibility to run different size PBL tools whether First or, Second Generation tools, or even Booster Bypass Tools in tandem. It is also possible to run same size First or, Second Generation tools, or even Booster Bypass Tools in tandem with PBL SSBB tool. ✓

Ability to have different density activation mediums based on the mud weight: DSI-PBL tool run in hole can be activated with Balls or Darts of varied density corresponding to the mud weight used, without the need for any modification to the tool or the seat. Hence, no requirement to POOH to re-adjust tool if the Operator decides to change mud properties mid-way during drilling operations. ✓

Ability to drop the Gyro: Depending on the OD of the Gyro probe, it can either be dropped through the PBL Sub, dropped and captured in the Ball Catcher Sub, placed above Retainer Nut, or in a short collar positioned between PBL Main Body and Ball Catcher Sub. ✓

Ability to clean BOP stack without rotating the pipe: DSI-PBL Bypass Systems of any kind can be used to clean BOP stack however the effectiveness of using these tools will be diminished if pipe does not rotate. In such cases, DSI-PBL Multiple Activation Jetting Tools are recommended. ✓

So, it is clear that DSI-PBL Bypass Systems tick all the boxes in terms of addressing major issues relating to drilling, completion and workover operations with versatile, reliable and simple to operate tools that work for you time and again without adding further complications to your already complicated operations.

DSI-PBL offers the Operator a quite simple yet safe and reliable way to resolve a multitude of complicated problems. DSI-PBL Multiple Activation Bypass Systems offer a new definition to “KISS” principle.



THE KISS PRINCIPLE
**KEEP
IT
SIMPLE &
SAFE**