



## PRESS RELEASE – DECEMBER 09, 2020

### DSI PBL® DXM-Series®

#### DSI launches PBL® DXM-Series® Multiple Activation Bypass System

**PBL DXM-Series®** is DSI's Dart Activated, Multi-Cycle, circulating tool developed on the back of DSI's world renowned and extremely reliable PBL Multiple Activation Bypass System.

The use of Darts to activate PBL Bypass System is nothing new. Operating Companies world-wide have successfully utilized PBL Fast Dart (SD) and Split Flow Dart (SFD) systems for many years. What is new, is the combination of these proven PBL Dart Activation technologies with our recently developed Universal Split Flow Dart (USFD) System into a single tool package, the PBL DXM-Series® Bypass System.

USFD System achieves split flow in the same way as the SFD system but, has the added advantage that it can be used to act as the SD System to achieve 100% bypass for the purpose of pumping aggressive LCM without the need to deactivate the tool or POOH.

All three dart systems are available with PBL DXM-Series® hence, this tool offers the most effective and efficient way to pump aggressive LCM, boost circulation, or achieve optimized split flow all during a single run whether drilling, back-reaming or simply spot hole cleaning.

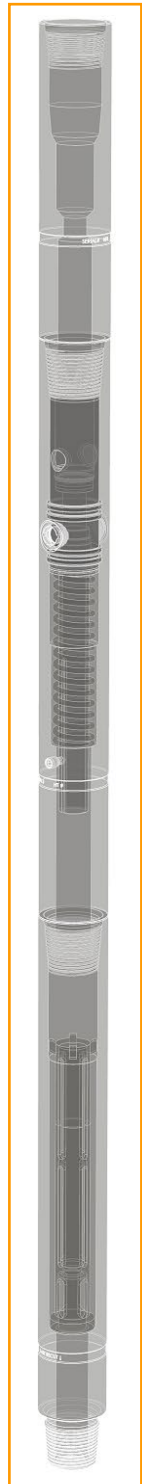
#### Features and Benefits:

- Multiple Activation capabilities,
- Ability to drop the Gyro,
- All Dart Activation Capabilities,
- 100% Bypass and Split-Flow Capabilities,
- Ability to Activate or De-activate at any angle,
- High Pressure / High Temperature Capabilities,
- Ability to re-establish circulation at zero circulation,
- Ability to have different size activation dart with same size tool,
- Ability to be run in conjunction with third party ball activated devices,
- Full five cycles as standard. Extended cycle tools available on request.

PBL DXM-Series® is offered with a range of especially designed activation systems to cater for our clients' specific needs. Three categories of activation systems are available whereby, individually or in combination, these can provide solutions to multitude of challenges faced by our clients in Drilling, Completion and Workover operations.

PBL SD (Standard Dart) activation system is recommended where the main objective is to achieve 100% flow bypass through tool ports. Hence making the tool ideal for aggressive pumping of LCM and to increase circulation rates for enhanced hole cleaning.

PBL SFD (Split Flow Dart) activation system facilitates a split flow configuration to allow a pre-calculated amount of drilling or completion fluid to pass through the tool and on to the BHA below, and the remaining fluid to bypass through the tool ports. This system offers the operator more control over available hydraulics and hole cleaning parameters.

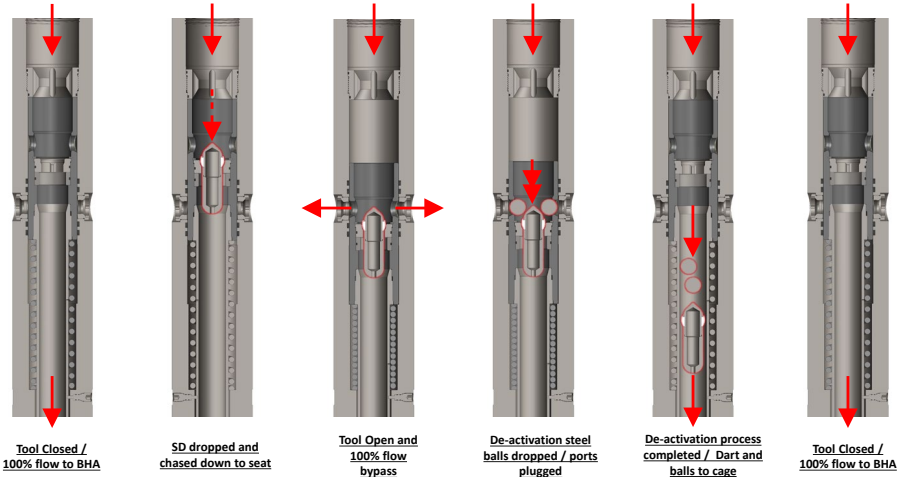


**BYPASS SYSTEMS  
BY DSI**

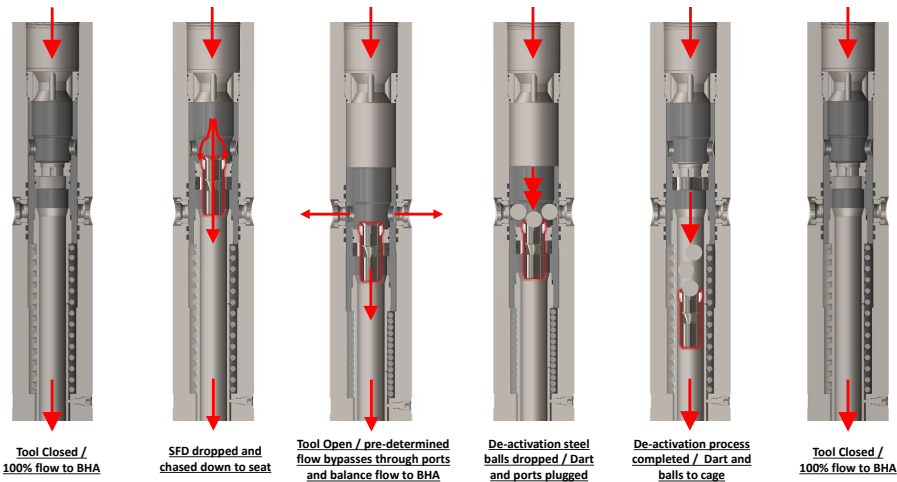


PBL USFD (Universal Split Flow Dart) activation system enables the operator to enjoy all the benefits that the SFD System provides, plus the ability to switch to 100% bypass rendering the same tool suitable for pumping aggressive LCM without the need to deactivate the tool, or to POOH to change the tool.

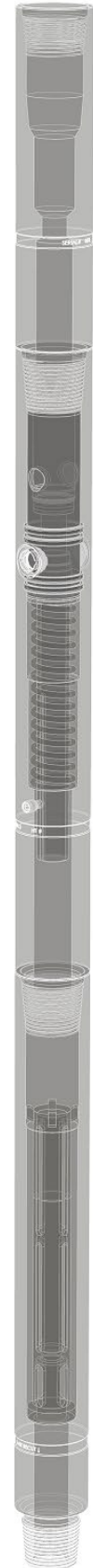
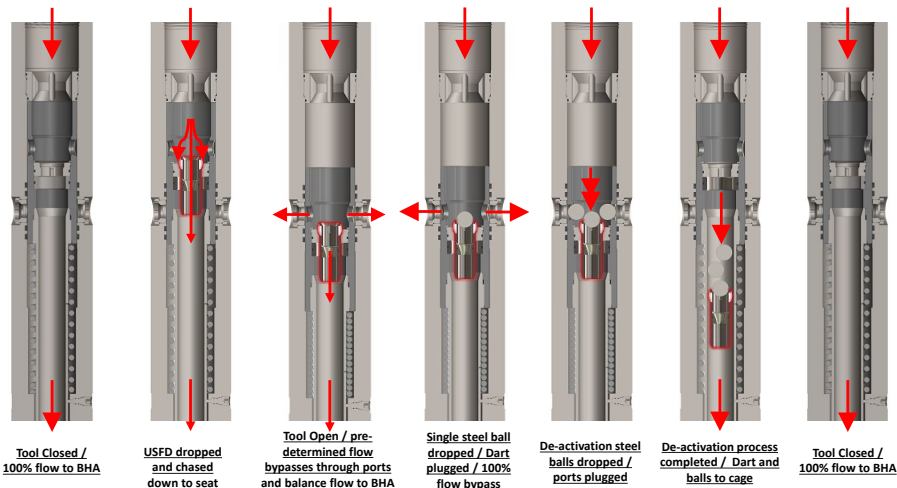
**DSI PBL DXM-Series® Standard Dart (SD) System**



**DSI PBL DXM-Series® Split Flow Dart (SFD) System**



**DSI PBL DXM-Series® Universal Split Flow Dart (USFD) System**





## TECHNICAL SPECIFICATIONS

Tool Sizes Inches	4 3/4" <sup>7</sup>	5 1/4"	6 1/4"	6 3/8"	7	8	8 1/2" <sup>9</sup>	9 1/4"	9 1/2" HF	12
Number of Ports	2	2	2	2	2	2	2	2	2	2
Minimum tool I.D. (")	1.27-1.40	1.27-1.40	1.27-1.80	1.27-1.80	1.27-1.80	1.50-2.27	1.50-2.27	1.50-2.27	1.50-2.65	1.50-2.27
When no balls are in tool <sup>1</sup>										
Drift I.D. (")	NO DRIFT	NO DRIFT	NO DRIFT	NO DRIFT	NO DRIFT	NO DRIFT	NO DRIFT	NO DRIFT	NO DRIFT	NO DRIFT
When darts/balls are in tool										
Maximum O.D. (")	4.75	5.25	5.25	6.5	7.0	8.0	8.25	9.5	9.5	12
PBL tool end connections (Box x Pin) <sup>2</sup>	3 1/2 IF	XT 39	4 1/2 XH	4 1/2 IF / 4 1/2 XH	XT57/XTM57	6 5/8 REG	6 5/8 REG	7 5/8 REG	7 5/8 REG	8 5/8 REG
PBL tool mid connection <sup>3</sup>	3 1/2 IF	XT 43	4 1/2 XH	4 1/2 IF	XT57	6 5/8 REG	6 5/8 REG	7 5/8 REG	7 5/8 REG	8 5/8 REG
Activation dart/ball size (")	1 1/2	1 1/2	2	2	2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2
Locking ball size (")	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
Steel De-Activation ball size (")	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
No. of darts/balls needed to activate the tool	1	1	1	1	1	1	1	1	1	1
No. of balls needed to De-Activate tool SD (SFD/USFD) <sup>10</sup>	2 (3)	2 (3)	2 (3)	2 (3)	2 (3)	2 (3)	2 (3)	2 (3)	2 (3)	2 (3)
Number of cycles	5 (8)	5 (8)	5 (8)	5 (8)	5 (8)	5 (8)	5 (8)	5 (8)	5 (8)	5 (8)
Standard Cage (Extended length cage) <sup>4</sup>										
Activation dart length (")	6 (5.18)	6 (5.18)	6 (4.92-5.92)	6 (4.92-5.92)	6 (4.92-5.92)	7 (6.53)	7 (6.53)	7 (6.53)	7 (6.53)	7 (6.53)
SD (SFD/USFD) <sup>10</sup>	1.67	1.67	2.92	2.92	2.92	4.6	4.6	4.6	5.85	4.6
Flow area through tool (in <sup>2</sup> )	1.10	1.10	1.10	1.10	1.10	1.35	1.35	1.35	1.35	1.35
Port Diameter (in) <sup>5</sup>	1.901	1.901	1.901	1.901	1.901	2.863	2.863	2.863	2.863	2.863
TFA when tool is open (100% bypass) (in <sup>2</sup> )	420	450	960	1,050	1,100	1,285	1,525	2,185	2,185	3,300
Weight (lbs)	11	11	12	12	12	12	12	12	12	12
Length (ft) <sup>6</sup>										
Tensile strength main body (lbs)	1,000,000	667,600	1,900,000	2,500,000	3,100,100	3,500,000	3,700,000	6,000,000	6,000,000	10,450,000
Torsional strength main body (ft-lbs)	49,500	37,300	130,000	166,000	190,000	295,000	335,000	565,000	565,000	1,550,000
Make-Up torque rig ends (ft-lbs)	11,500	22,400	26,710	34,190	34,840	41,800	46,450	81,290	81,290	135,500
Make-Up torque mid connection (ft-lbs) <sup>3</sup>	11,500	19,200	26,710	34,190	34,840	56,900	56,900	81,290	81,290	135,500

<sup>1</sup> Standard ID listed, larger ID's are available to accommodate coring balls, reamer balls and wireline accessories. Minimum tool ID could vary if Activation ball or Dart is used

<sup>2</sup> Alternative PBL tool end connections may be available on request

<sup>3</sup> Between main body and catcher sub

<sup>4</sup> Longer extended length cages may be available on request

<sup>5</sup> Larger port diameter available on request

<sup>6</sup> The length could vary slightly according to any connection re-work

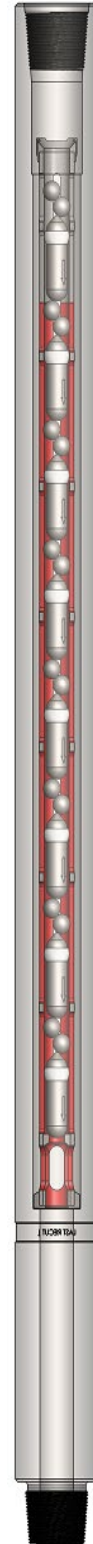
<sup>7</sup> 4 3/4" tool with smaller activation dart/ball size (1 1/2") available on request

<sup>8</sup> 5 1/4" tool with smaller activation dart/ball size (1 1/2") available on request

<sup>9</sup> 8 1/2" HF tool with larger ID (2.65") available on request

<sup>10</sup> SD (Standard Dart), SFD (Split Flow Dart) & USFD (Universal Split Flow Dart)

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