

# PBL® MULTIPLE ACTIVATION AUTOLOCK BYPASS SYSTEM



The PBL® Multiple Activation Bypass System is a simple, reliable tool that can assist you in reducing drilling costs associated with different types of hole conditions. Originally developed to enable the aggressive pumping of LCM materials and to increase circulation rates for enhanced hole cleaning, the PBL® has evolved to benefit many applications in the drilling, completion, and work over phases of a well such as:

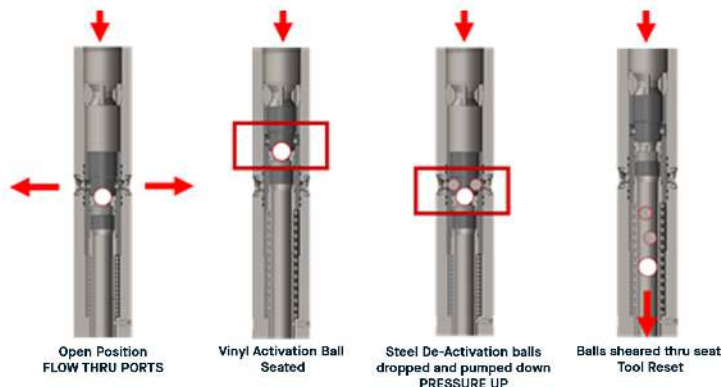
- Pumping all types of LCM pills, including aggressive pills and cement squeezes
- Increasing circulation rates for improved hole cleaning resulting in reduced torque and drag, thereby increasing ROP
- Increasing annular velocity in highly deviated and horizontal wellbores where removal of cutting beds and hole cleaning are problematic
- Fluid displacements
- Sub-sea riser/BOP jetting
- Acidizing and stimulation treatments
- Coring applications

## Unique Features:

- The PBL® tool will close when the pumps are shut down minimizing a U-tubing effect, or a possible well control issues that can occur in other tools
- The Auto-lock option, which allows for pulling a dry work-string or filling the drill-string while tripping in the hole. The Auto-lock option also provides an option to reverse circulate if necessary
- The PBL® can be cycled numerous times in a single trip
- The ball shearing pressure can be set to the operator's preference
- The main body and the catcher sub can be placed in different sections of the BHA to optimize work-string operations.



A COMPANY OF  
SCHOELLER-BLECKMANN



**DSI** A COMPANY OF  
**SCHOELLER-BLECKMANN**

# Technical Specification

Tool Sizes Inches	4 3/4	5 1/4	6 1/4	6 1/2	6 3/4 8	7	8	8 1/4 9	9 1/2	9 1/2 HF	12
<b>Number of Ports</b>	2	2	2	2	2	2	2	2	2	2	2
<b>Minimum tool I.D. (")</b> When no balls are in tool 1	1.27-1.40	1.27-1.40	1.27-1.80	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
<b>Drift I.D. (")</b> When balls are in tool	NO DRIFT	NO DRIFT	NO DRIFT	NO DRIFT	NO DRIFT	NO DRIFT	NO DRIFT	NO DRIFT	NO DRIFT	NO DRIFT	NO DRIFT
<b>Maximum O.D. (")</b>	4.75	5.25	5.25	6.5	6.75	7.0	8.0	8.25	9.5	9.5	12
<b>PBL tool end connections</b> (Box x Pin) 2	3 1/2 IF	XT 39	4 1/2 XH	4 1/2 IF / 4 1/2 XH	4 1/2 IF	XT57/XTM57	6 5/8 REG	6 5/8 REG	7 5/8 REG	7 5/8 REG	8 5/8 REG
<b>PBL tool mid connection 3</b>	3 1/2 IF	XT 43	4 1/2 XH	4 1/2 IF	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
<b>Activation ball size (")</b>	1 1/2	1 1/2	2	2	2	2	2 1/2	2 1/2	2 1/2	2 3/4	2 1/2
<b>Locking ball size (")</b>	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8
<b>Steel De-Activation ball size (")</b>	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4
<b>No. of balls needed to activate the tool</b>	1	1	1	1	1	1	1	1	1	1	1
<b>No. of balls needed to De-Activate the tool</b>	2	2	2	2	2	2	2	2	2	2	2
<b>Number of cycles 4</b>	5	4	5	5	5	5	5	5	5	5	5
<b>Number of cycles remaining w/ Fast Dart in tool</b>	3	2	3	3	3	3	3	3	3	3	4
<b>Flow area through tool (in<sup>2</sup>)</b>	1.67	1.67	2.92	2.92	2.92	2.92	4.6	4.6	4.6	5.85	4.6
<b>Port Diameter (in) 5</b>	1.10	1.10	1.10	1.10	1.10	1.10	1.35	1.35	1.35	1.35	1.35
<b>TFA when tool is open (in<sup>2</sup>)</b>	1.901	1.901	1.901	1.901	1.901	1.901	2.863	2.863	2.863	2.863	2.863
<b>Weight (lbs)</b>	380	380	800	880	880	900	1000	1525	1800	1800	2750
<b>Length (ft) 6</b>	10	9	10	10	10	10	10	10	10	10	10
<b>Tensile strength main body (lbs)</b>	1,000,000	667,600	1,900,000	2,500,000	3,100,100	1,208,700	3,500,000	3,700,000	6,000,000	6,000,000	10,450,000
<b>Torsional strength main body (ft-lbs)</b>	49,500	37,300	130,000	166,000	190,000	94,800	295,000	335,000	565,000	565,000	1,550,000
<b>Make-Up torque rig ends (ft-lbs)</b>	11,500	22,400	26,710	34,190	34,840	56,900	41,800	46,450	81,290	81,290	135,500
<b>Make-Up torque mid connection (ft-lbs) 3</b>	11,500	19,200	26,710	34,190	34,840	56,900	41,800	46,450	81,290	81,290	135,500

1 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

2 Alternative PBL tool end connections may be available on request  
3 Between main body and ball catcher sub  
4 Extended length cages may be available on request

5 Larger port diameter available on request  
6 The length could vary slightly according to any connection rework  
7 4 3/4" tool with smaller activation ball size (1 1/4") available on request

8 6 3/4" tool with smaller activation ball size (1 7/16") available on request  
9 8 1/4" HF tool with larger ID (2.65") available on request  
10 3 3/8" HF 3 port tool available on request