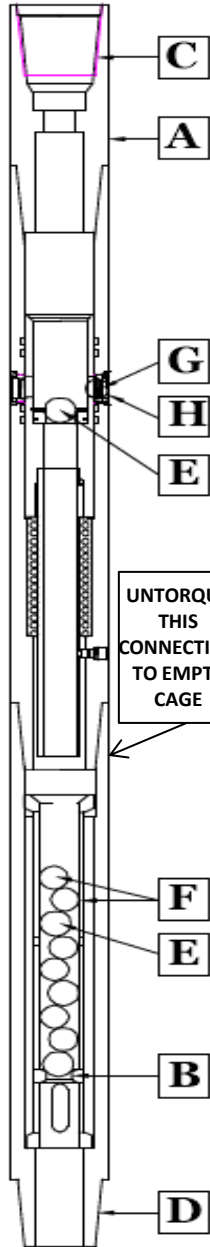


**1 11/16" PBL BALL LOCK BYPASS SYSTEM
TECHNICAL SHEET**



- SERIAL #
- A - TOOL O.D.
- B - TOOL I.D.
- FLOW AREA THROUGH TOOL (E)
- C - BOX CONNECTION
- D - PIN CONNECTION
- G - LOCKING BALL/# TO LOCK OPEN
- E - ACTIVATION BALL/# TO ACTIVATE
- H - SIZE OF PORT
- F - DEACTIVATION BALL/# TO DEACT.
- E - ACTIVATION BALL/# TO ACTIVATE
- G - LOCKING BALL/# TO LOCK OPEN
- H - SIZE OF PORT
- NUMBER OF PORTS
- TFA WHEN TOOL IS OPEN
- NUMBER OF CYCLES
- OVERALL LENGTH
- WEIGHT
- TENSILE STRENGTH MAIN BODY
- TENSILE STRENGTH CONNECTION
- TORSIONAL STRENGTH MAIN BODY
- TORSIONAL STRENGTH CONNECTION
- MAKE UP TORQUE

UNTORQUE THIS CONNECTION TO EMPTY CAGE

SERIAL #	
A - TOOL O.D.	1.69"
B - TOOL I.D.	5/16"
FLOW AREA THROUGH TOOL (E)	0.13 SQ.IN.
C - BOX CONNECTION	1.00 AMMT
D - PIN CONNECTION	1.00 AMMT
G - LOCKING BALL/# TO LOCK OPEN	1
E - ACTIVATION BALL/# TO ACTIVATE	13/32" / Torlon
H - SIZE OF PORT	
F - DEACTIVATION BALL/# TO DEACT.	2
E - ACTIVATION BALL/# TO ACTIVATE	3/8" / Steel
G - LOCKING BALL/# TO LOCK OPEN	1
H - SIZE OF PORT	5/16" / Torlon
NUMBER OF PORTS	0.31"
TFA WHEN TOOL IS OPEN	2
NUMBER OF CYCLES	0.14 SQ.IN.
OVERALL LENGTH	8
WEIGHT	3 FT
TENSILE STRENGTH MAIN BODY	20 LBS
TENSILE STRENGTH CONNECTION	100,000 LBS
TORSIONAL STRENGTH MAIN BODY	TBD
TORSIONAL STRENGTH CONNECTION	3,425 FT/LBS
MAKE UP TORQUE	TBD
	400 FT/LBS

NOTES

- * NO THRU DRIFT WHEN BALLS ARE IN TOOL
- * Tool is rated to operate in temp up to 420 degrees F
- * Internal Connection Make Up Torque = 625 FT/LBS

Maximum Flow Rate after Activation is XX BPM