



HYDRAULIC EXTERNAL CUTTERS

Overview

These quick, smooth operating tools allow for fast recovery of tubing or drill pipe. A hydraulically fed piston forces the knives of this cutter into the pipe to give the operator sensitive cutting control.

Construction

The tool consists of a top sub, segmented piston assembly, knives, knife pins, guide screw, body, and guide. The segmented piston assembly's feed ring has four interlocking conical piston segments. A heavy-duty rubber ring stretched around the top of the segments firmly holds them in place. A fluid jet hole in each piston segment restricts fluid to provide sufficient pump down force against the piston to feed the knives while allowing enough fluid to cool and lubricate the knives during the cut. Each piston assembly is designed for one particular pipe size.

Operation

Begin by assembling the cutter with the proper size piston assembly for the size of the pipe that will be cut. Run the cutter to the desired cutting depth and engage the mud pumps with all lines open. Slowly close the standpipe valve until sufficient pressure forces down the drill string and shears the shear pins. The amount of pressure required depends on the size of cutter and piston assembly being used. Open the standpipe valve to relieve the pressure going downhole. Begin rotating the drill string at 15 to 25 rpm. Gradually close the standpipe valve until sufficient pressure is exerted downhole to feed the piston assembly into the knives to begin making the cut.

Avoid pump surges during the cut. Contraction and expansion of the string during the cut will cause the cutter to move up and down the string. This motion will damage the knives.

Completion of the cut is signaled by initial rough chattering followed by smooth rotation.

When ordering, please specify:

- (1) Name and number of assembly or part
- (2) Size and type of top connection
- (3) Name and number of any desired options

HYDRAULIC EXTERNAL CUTTERS

PIPE SIZE TO CUT	1.315 to 2-1/16	1.315 to 2-3/8	1.900 to 2-7/8	1.900 to 2-7/8	1.900 to 2-7/8	2-1/16 to 4 FJ
MAXIMUM SIZE WILL PASS OVER	2-3/4	3-1/16	3-7/16	3-9/16	3-5/8	4-1/8
INSIDE DIAMETER (CUTTER)	2-7/8	3-3/16	3-5/8	3-13/16	3-7/8	4-5/16
OUTSIDE DIAMETER (CUTTER)	3-3/4	4-1/16	4-7/16	4-9/16	4-11/16	5-5/8
MINIMUM SIZE HOLE TO RUN IN	4	4-5/16	4-11/16	4-13/16	4-15/16	5-7/8
COMPLETE ASSEMBLY	Logan Part No. 411-375	411-406	411-444	411-456	411-468	411-563
	Bowen No. 70086	34415	70209	79215	41727	34551
TOP SUB	Logan Part No. N1001	N10027	N1002	N10025	N1003	N1004
	Bowen No. 70087	34416	70210	79271	33081	33574
BODY	Logan Part No. N2001	N2004	N2002	N20025	N2005	N2006
	Bowen No. 70088	34417	70211	79272	41728	34552
FEED RING	Logan Part No. N3001	N3004	N3002	N30025	N3005	N3006
	Bowen No. 70089	49819	70212	79273	49824	49829
SHEAR PIN	Logan Part No. P9000	P9000	P9000	N40015	P9000	N4006
	Bowen No. 33087	33087	33087	34420	33087	34555
	No. Req'd 2	2	2	2	2	2
KNIFE	Logan Part No. N5001	N5004	P10003	N50025	P10003	P10004
	Bowen No. 80147	34421	33088	79275	33088	34553
	No. Req'd 5	5	5	5	5	5
KNIFE PIN	Logan Part No. N6001	N6004	P11003	N60025	P11003	P11004
	Bowen No. 80148	34422	33089	A14348	33089	34554
	No. Req'd 5	5	5	5	5	5
KNIFE PIN SET SCREW	Logan Part No. N7001	N7002	N7002	...	N7002	P12004
	Bowen No. 23654	23666	23666	...	23666	23703
	No. Req'd 5	5	5	...	5	5
FEED RING O-RING	Logan Part No. 568-235	568-237	568-241	568-242	568-243	568-247
	Bowen No. 568235	568237	568241	568242	568243	568247
GUIDE	Logan Part No. N8001	N8004	N8002	N80025	P13003	N8006
	Bowen No. 70090	34424	70213	79274	33093	187
GUIDE SCREW	Logan Part No. N9001	N9001	N9001	N9001	N9001	N9006
	Bowen No. 34418	34418	34418	34418	34418	34556
	No. Req'd 2	2	2	2	2	2
PISTON ASSEMBLY (Consists of):	Logan Part No. 10000-010	10000-013	10000-011	10000-047	10000-014	10000-015
	Bowen No. 70091	34425	70232	79283	41733	34559
	Pipe Size 2-1/16	2-3/8	2-7/8	2-7/8	2-7/8	3-1/2
PISTON SEGMENT SET	Logan Part No. N10001	N10004	N10002	N100025	N10005	N10006
	Bowen No. 70092	49814	70233	79284	49825	49830
RUBBER RING	Logan Part No. N11002	N11001	N11001	N11001	N11001	N11006
	Bowen No. 70093	34564	34564	34564	34564	34561
PISTON O-RING	Logan Part No. 568-234	568-236	568-235	568-236	568-237	568-246
	Bowen No. 568234	568236	568235	568236	568237	568246

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When ordering, please specify:

- (1) Name and number of assembly or part
- (2) Size and type of top connection
- (3) Name and number of any desired options

Recommended Spare Parts:

- | | |
|-------------------------|--------------------------|
| (1) 2 Piston Assemblies | (6) 5 Pin Screws |
| (2) 1 Feed Ring | (7) 6 Rubber Rings |
| (3) 24 Shear Pins | (8) 6 Piston O-rings |
| (4) 30 Knives | (9) 6 Feed Rings O-rings |
| (5) 10 Knife Pins | |

HYDRAULIC EXTERNAL CUTTERS

PIPE SIZE TO CUT		1.315 to 2-1/16	1.315 to 2-3/8	1.900 to 2-7/8	1.900 to 2-7/8	1.900 to 2-7/8	2-1/16 to 4 FJ
MAXIMUM SIZE WILL PASS OVER		2-3/4	3-1/16	3-7/16	3-9/16	3-5/8	4-1/8
INSIDE DIAMETER (CUTTER)		2-7/8	3-3/16	3-5/8	3-13/16	3-7/8	4-5/16
OUTSIDE DIAMETER (CUTTER)		3-3/4	4-1/16	4-7/16	4-9/16	4-11/16	5-5/8
MINIMUM SIZE HOLE TO RUN IN		4	4-5/16	4-11/16	4-13/16	4-15/16	5-7/8
COMPLETE ASSEMBLY	Logan Part No.	411-375	411-406	411-444	411-456	411-468	411-563
	Bowen No.	70086	34415	70209	79215	41727	34551

OPTIONAL

PISTON ASSEMBLY	Logan Part No.	10000-019	10000-022	10000-020	10000-048	10000-023	10000-024
<i>Consists of.</i>	Bowen No.	70094	34427	70214	79281	41736	34562
	Pipe Size	1.900	2-1/16	2-3/8	2-3/8	2-3/8	2-7/8
PISTON SEGMENT SET	Logan Part No.	N12001	N12004	N12002	N120025	N12005	N12006
	Bowen No.	70095	49817	70215	79282	49828	49831
RUBBER RING	Logan Part No.	N13001	N13002	N13002	N11001	N13002	N11001
	Bowen No.	70096	34567	34567	34564	34567	34564
PISTON O-RING	Logan Part No.	568-234	568-236	568-235	568-236	568-237	568-246
	Bowen No.	568234	568236	568235	568236	568237	568246

PISTON ASSEMBLY	Logan Part No.	10000-028	10000-031	10000-029	10000-049	10000-032	10000-033
<i>Consists of.</i>	Bowen No.	70097	34429	70217	79279	41738	34565
	Pipe Size	1.660	1.900	2-1/16	2-1/16	2-1/16	2-3/8
PISTON SEGMENT SET	Logan Part No.	N14001	N14004	N14002	N140025	N14005	N14006
	Bowen No.	70098	49818	70218	79280	49826	49832
RUBBER RING	Logan Part No.	N13001	N13002	N13002	N13002	N13002	N11001
	Bowen No.	70096	34567	34567	34567	34567	34564
PISTON O-RING	Logan Part No.	568-234	568-236	568-235	568-236	568-237	568-246
	Bowen No.	568234	568236	568235	568236	568237	568246

PISTON ASSEMBLY	Logan Part No.	10000-037	10000-040	10000-038	10000-050	10000-041	10000-042
<i>Consists of.</i>	Bowen No.	70100	34432	70219	79277	41740	34568
	Pipe Size	1.315	1.600	1.900	1.900	1.900	2-1/16
PISTON SEGMENT SET	Logan Part No.	N16001	N16004	N16002	N160025	N16005	N16006
	Bowen No.	70101	49815	70220	79278	49827	49833
RUBBER RING	Logan Part No.	N17001	N17004	N13002	N13002	N13002	N13002
	Bowen No.	70102	34431	34567	34567	34567	34567
PISTON O-RING	Logan Part No.	568-234	568-236	568-235	568-236	568-237	568-246
	Bowen No.	568234	568236	568235	568236	568237	568246

PISTON ASSEMBLY	Logan Part No.	...	10000-045	...	...	...	10000-046
<i>Consists of.</i>	Bowen No.	...	34434	...	...	...	53881
	Pipe Size	...	1.315	...	...	...	4
PISTON SEGMENT SET	Logan Part No.	...	N18004	...	...	...	N18006
	Bowen No.	...	49816	...	...	...	53880
RUBBER RING	Logan Part No.	...	N19004	...	...	...	N19006
	Bowen No.	...	34436	51153
PISTON O-RING	Logan Part No.	...	568-236	568-246
	Bowen No.	...	568236	568246

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PIPE SIZE TO CUT	2-3/8 to 4	3-1/2 to 5
MAXIMUM SIZE WILL PASS OVER	4-13/16	6-3/8
INSIDE DIAMETER (CUTTER)	4-7/8	6-1/2
OUTSIDE DIAMETER (CUTTER)	6-1/16	8
MINIMUM SIZE HOLE TO RUN IN	6-1/4	8-1/2
COMPLETE ASSEMBLY	Logan Part No. 411-606	411-800
	Bowen No. 51148	35957
TOP SUB	Logan Part No. N1005	N1006
	Bowen No. 13177	35958
BODY	Logan Part No. N2007	N2008
	Bowen No. 56992	35959
FEED RING	Logan Part No. N3007	N3008
	Bowen No. 51150	49834
SHEAR PIN	Logan Part No. N4007	N4006
	Bowen No. 7227	34555
	No. Req'd 2	2
KNIFE	Logan Part No. N5007	N5008
	Bowen No. 12382	35960
	No. Req'd 5	5
KNIFE PIN	Logan Part No. N6007	P11004
	Bowen No. 37022	34554
	No. Req'd 5	5
KNIFE PIN SET SCREW	Logan Part No. ...	P12004
	Bowen No. ...	23703
	No. Req'd ...	5
FEED RING O-RING	Logan Part No. 568-251	568-438
	Bowen No. 568251	568438
GUIDE	Logan Part No. N8007	N8008
	Bowen No. 13412	35932
GUIDE SCREW	Logan Part No. N9007	N9006
	Bowen No. 51149	34556
	No. Req'd 2	2

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Recommended Spare Parts:

- (1) 2 Piston Assemblies
- (2) 1 Feed Ring
- (3) 24 Shear Pins
- (4) 30 Knives
- (5) 10 Knife Pins
- (6) 5 Pin Screws
- (7) 6 Rubber Rings
- (8) 6 Piston O-rings
- (9) 6 Feed Rings O-rings

PISTON ASSEMBLY	Logan Part No. 10000-025	10000-017
<i>(Consists of):</i>	Bowen No. 51230	35963
	Pipe Size 3-1/2	5
PISTON SEGMENT SET	Logan Part No. N12007	N10008
	Bowen No. 51231	49821
RUBBER RING	Logan Part No. N11006	N11008
	Bowen No. 34561	35965
PISTON O-RING	Logan Part No. 568-250	568-259
	Bowen No. 568250	568259

OPTIONAL

PISTON ASSEMBLY	Logan Part No. 10000-034	10000-026
<i>Consists of:</i>	Bowen No. 51345	35966
	Pipe Size 2-7/8	4-1/2
PISTON SEGMENT SET	Logan Part No. N14007	N12008
	Bowen No. 51346	49823
RUBBER RING	Logan Part No. N11001	N11008
	Bowen No. 34564	35965
PISTON O-RING	Logan Part No. 568-250	568-259
	Bowen No. 568250	568259

PISTON ASSEMBLY	Logan Part No. 10000-043	10000-035
<i>Consists of:</i>	Bowen No. 51344*	35968
	Pipe Size 2-3/8	4
PISTON SEGMENT SET	Logan Part No. N16007	N14008
	Bowen No. 51343	49822
RUBBER RING	Logan Part No. N11001	N15008
	Bowen No. 34564	35970
PISTON O-RING	Logan Part No. 568-250	568-259
	Bowen No. 568250	568259

PISTON ASSEMBLY	Logan Part No. 10000-016	10000-044
<i>Consists of:</i>	Bowen No. 51151	35971
	Pipe Size 4	3-1/2
PISTON SEGMENT SET	Logan Part No. N10007	N16008
	Bowen No. 51152	49820
RUBBER RING	Logan Part No. N11007	N11001
	Bowen No. 51153	34564
PISTON O-RING	Logan Part No. 568-250	568-259
	Bowen No. 568250	568259