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Standard Releasing Spear

Manual B215

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NOTES

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LEGAL NOTICE

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OVERVIEW

Logan Standard Releasing Spears provide a positive means to internally engage and retrieve a fish from the well. The design of this rugged, dependable, and inexpensive internal catch fishing tool ensures positive engagement, easy release, and re-engagement.

USE

The Logan Standard Releasing Spear can engage and retrieve tubing, casing, and drill pipe of all sizes. It may be used with other equipment such as spear pack-off assemblies and internal cutters.

CONSTRUCTION

The Logan Standard Releasing Spear consists of a mandrel, grapple, releasing ring, and a bull nose nut. The size and type of the upper box connection is furnished according to customer specification.

Mandrel

The mandrel type may be specified as either flush or shoulder. Flush-type mandrels are designed to completely enter the fish. Shoulder-type mandrels provide a positive landing position on top of the fish. The mandrel is made of high strength, specially heat-treated alloy steel. The lower end is threaded to accept a bull nose nut, or the optional sub, mill, and sidehill type nuts.

Standard Spear Grapple

One-piece spear grapples are designed and manufactured to engage a specific size and weight of tubing, casing, or drill pipe to ensure maximum surface engagement and minimum fish distortion.

Segment-Type Spear Grapple

The segment-type spear grapple enhances the spear's usefulness by providing an extended catching range beyond the maximum range of the standard one-piece grapple. The Logan Segment-Type Spear Grapple consists of a grapple body, eight grapple segments, two retainer rings, four retainer ring screws, six retainer ring spacers, and sixteen grapple segment screws. *Refer to the illustration on page 12.*

Release Ring

The cammed release ring matches the cammed nut ensuring a positive locking device that will not freeze or jam. It is a standard component of the releasing spear.

Nut

The standard bottom nut is a bull nose nut. Optional nut types — sub, mill, and sidehill — are available. *Refer to the illustrations on page 3.*

When other tools, such as a spear pack-off assembly or internal cutters, will be utilized below the releasing spear, the sub type nut replaces the standard bull nose nut to provide the required connection.

The mill type nut mills away jagged ends of a fish to ensure entry into the fish. It can also effectively drill out sand from a plugged fish.

A sidehill type nut is used to align the Releasing Spear with a fish that is imbedded in the side wall of the hole.

Heavy Duty Releasing Spears

Logan Heavy Duty Releasing Spears (assemblies designated as "HD" in the parts lists) are used in situations where a swelling of the fish presents a problem. These assemblies have relatively longer mandrels and grapples than standard (STD) spears resulting in more supported wickered area to engage the fish. The longer mandrel and grapple distribute the swelling forces over a greater area, thereby substantially reducing those forces.

Heavy Duty Releasing Spears are less prone to damage from swelling of the fish and are actually stronger than a Standard Releasing Spear even though the tensile strength of the mandrels are the same.

Stop Sub Assembly

The Logan Releasing Spear Stop Sub Assembly is an accessory designed to convert a releasing spear with a flush-type mandrel into a shouldered type spear. It is installed in the box connection at the top of the mandrel when the use of a positive stop is desired or required.

A stop ring can be added to increase shoulder diameter. All stop rings are furnished with left-hand threads. *See page 32 for more information.*

Spear Pack-off Assembly

Pack-off assemblies are available for all Logan Standard Releasing Spear Assemblies and are designed to efficiently pack off all sizes of drill pipe, tubing and casing. Circulation through the fish is enabled by attaching the Spear Pack-off Assembly to the bottom of the spear with a sub type nut. *See pages 28 – 31 for more information.*

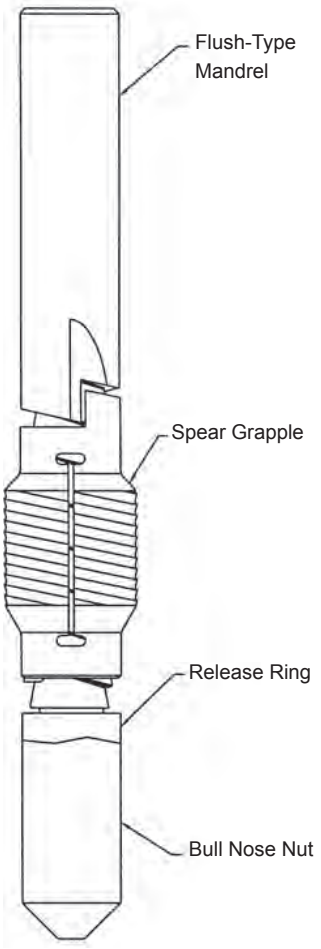
OPERATION

Precautions

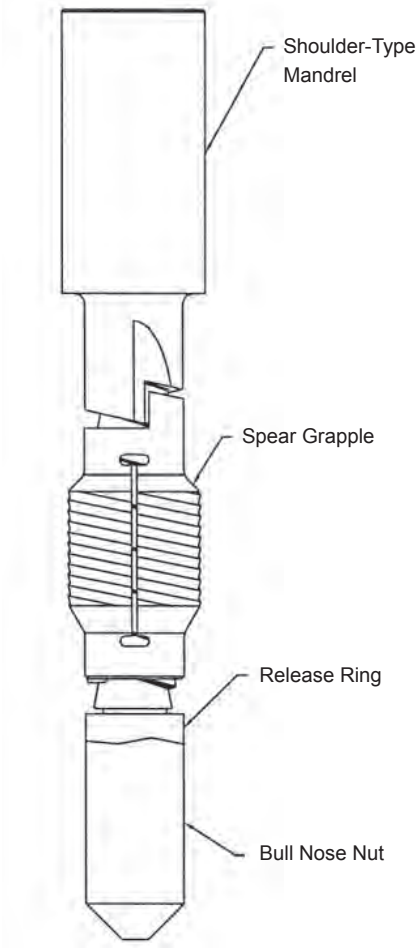
Always maintain a moderate upward strain on the fishing string when rotating either to the left or right during operation.

It may be necessary to rotate the fishing string more than a full turn to set or release the Releasing Spear in deep or crooked holes. Additional moderate rotation does not harm the Releasing Spear or the operation.

Always bump down the full weight of the fishing string before beginning the releasing operation.

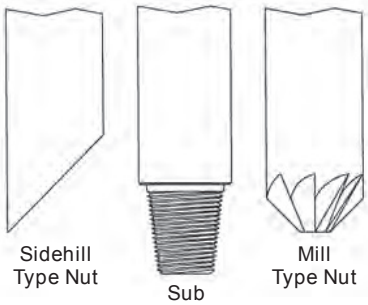


Spear Assembly
with Flush Type Mandrel



Spear Assembly
with Shoulder Type Mandrel

Optional Nuts



Sidehill
Type Nut

Sub
Type Nut

Mill
Type Nut

Internal Cutting

When running an internal cutter below the releasing Spear, replace the bull-nose nut with a sub type nut. Pipe between the internal cutter and Releasing Spear enables the Spear to remain above the fish during the cutting operation. The Spear is lowered into the cut-off section to retrieve it after the cut has been completed.

Engaging a Fish

The Logan Releasing Spear is made up to the bottom of the fishing string and lowered to the desired depth into the fish. Rotate the mandrel one full rotation to the left to turn the mandrel through the spear grapple and move the spear grapple into engaging position. Pulling straight up will cause the tapers on the mandrel to expand the spear grapple and allow it to positively engage the fish.

Releasing a Fish

To release the fish, bump down and make two to three rotations to the right. This right-hand rotation allows the mandrel to move up through the spear grapple thereby placing the spear grapple against the release ring and putting the spear in release position. Combined right-hand rotation with straight upward pull will release the spear from the fish. Continue with slow, right-hand rotation until the Releasing Spear is clear of the fish.

ASSEMBLY

Assembly of Releasing Spear

The Logan Standard Releasing Spear can easily be assembled at the rig site where it will be used.

Check all parts to ensure that they are in good working condition before beginning assembly. Make sure the Releasing Spear is the proper size for the operation. (*Refer to the Releasing Spear Grapple Range Charts on pages 15 – 23.)*

Thoroughly clean and lubricate parts. If the tool will be stored for a long period, paint or lubricate the exterior surfaces to prevent corrosion.

Refer to the illustration on page 3 and proceed with assembly as follows:

1. Clamp the Releasing Spear horizontally into a suitable vise, securing the upper mandrel joint end.

CAUTION: Use only enough gripping action in the vise to break the connections. Avoid making heavy tool marks.

2. Heavily grease the helix of the mandrel.
3. Install the spear grapple on the lower pin end of the mandrel, screwing it on with left-hand (counter-clockwise) rotation. Grease the interior of the grapple if it is large.
4. Slip the release ring onto the mandrel with the cams facing downward towards the nut.
5. Apply thread dope or lubricant to the threads on the lower end of the mandrel. Install the nut and tighten.
6. Screw the grapple down the helix until it rests against the release ring and nut. Hand tighten.
7. Paint or lubricate exterior surfaces to prevent corrosion.
8. Tighten all connections to the recommended torque before running the Standard Releasing Spear in the hole. Refer to the Recommended Tightening Torque tables on page 12.

Assembly is now complete and the tool is ready for service.

Assembly of Spear Pack-off

Refer to the illustration on page 5 and proceed with assembly as follows:

1. Clamp the assembly horizontally into a suitable vise, securing the lower end of the pack-off mandrel.

CAUTION: Use only enough gripping action in the vise to break the connections. Avoid making heavy tool marks.

2. Slide the stabilizer onto the mandrel.
3. Slide the packing cup onto the mandrel with the large open end facing downward. Make sure it is seated properly on the mandrel shoulder.
4. Slide the thimble onto the mandrel and onto the packing cup. Force it down tightly around the upper end of the packing cup.
5. Apply thread dope or grease to the mandrel threads. Install the adapter sub onto the mandrel and tighten.
6. Paint or lubricate the exterior metal surfaces of the assembly.

NOTE: Do not paint or lubricate the packing cup. Paint, sunlight, solvents, and most lubricants are harmful to rubber products.

Assembly is now complete.

MAINTENANCE

Maintenance of the Standard Releasing Spear and Spear Pack-off Assembly is simple, but important.

After each use, the tools should be completely disassembled, thoroughly inspected, and repaired as required.

Before reassembling, inspect all parts, especially the grapple. Check the wickers for damage and wear to ensure safe operation. Clean and lubricate parts as they are reassembled. Grease or paint the exterior to prevent corrosion.

Examine the packing cup of the Releasing Spear Pack-off Assembly for wear or damage. Replace the packing cup if necessary. *(Refer to pages 29 – 32 for packing cup and thimble part numbers.)*

NOTE: Do not paint or lubricate the packing cup. Paint, sunlight, solvents, and most lubricants are harmful to rubber products.

Disassembly of Releasing Spear
Refer to the illustration at right and proceed with disassembly as follows:

1. Clamp the Releasing Spear horizontally into a suitable vise and secure the upper mandrel joint end.

CAUTION: Use only enough gripping action in the vise to break the connections. Avoid making heavy tool marks.

2. Loosen and remove the nut or spear pack-off-assembly.
3. Slide the release ring from the mandrel.
4. Remove the spear grapple by screwing it down the helix with right-hand (clockwise) rotation.

Disassembly is now complete.

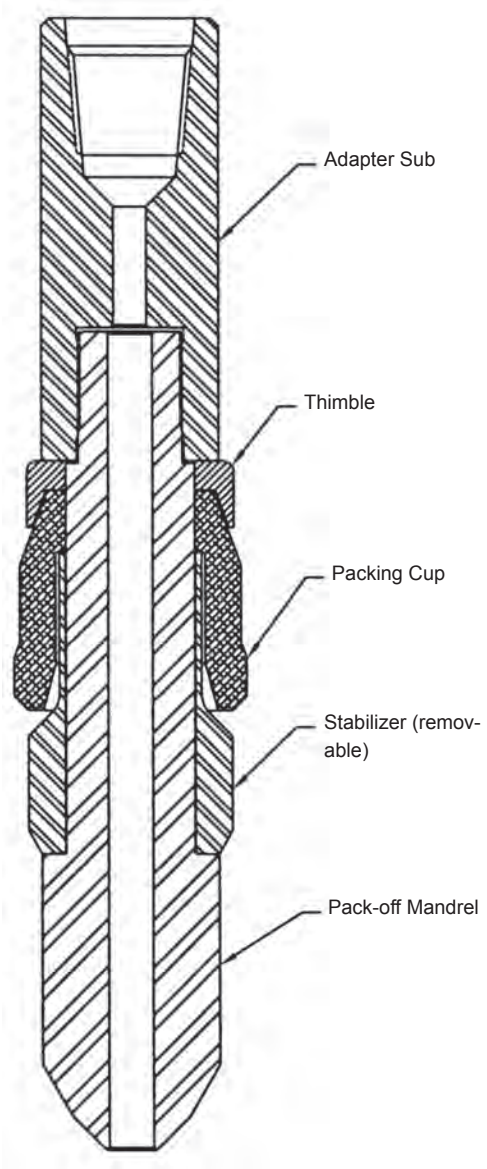
Disassembly of Spear Pack-off
Refer to illustration at right and proceed with disassembly as follows:

1. Clamp the assembly horizontally into a suitable vise and secure the lower end of the pack-off mandrel.

CAUTION: Use only enough gripping action in the vise to break the connections. Avoid making heavy tool marks.

2. Loosen and remove the adapter sub.
3. Slide off the thimble.
4. Remove the packing cup.
5. Remove the stabilizer.

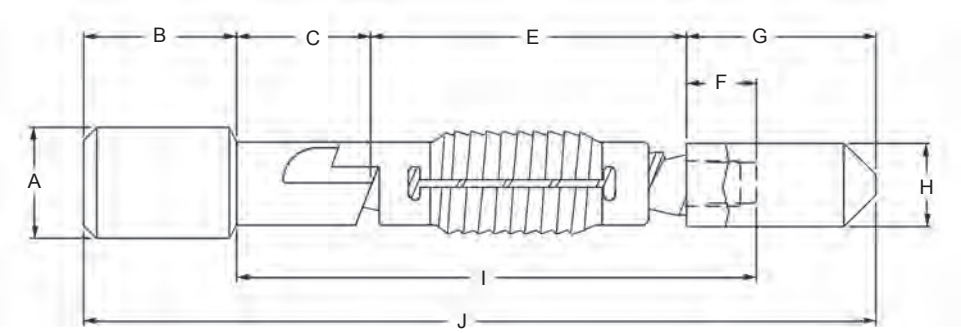
Disassembly is now complete.



Logan Releasing Spear
Pack-off Assembly

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STANDARD RELEASING SPEARS PRINCIPAL DIMENSIONS



SHOULDER TYPE

SPEAR MANDREL	SPEAR SIZE	CLASS	ID	A	B	SHOULDER TYPE ONLY C	FLUSH TYPE ONLY D	E
F1000	1.050 OD Pipe	Standard	…	1-1/2	4-1/8	6	…	2-3/8
F1001	1.313 OD Pipe	Standard	…	1-5/8	3	3	…	3-5/16
F1002	1.660 OD Tubing	Standard	…	1-13/16	3	3	3-25/32	3-5/16
F1004	1.900 OD Tubing	Standard	…	2-1/2	5	3	7	5-1/16
F1005	2-3/8 OD Drill Pipe	Standard	…	3-1/8	7	3	7	5-29/32
F1007	2-3/8 OD Tubing	Standard	3/8	3-1/8	7	3	7	6-3/4
F1008	2-3/8 OD Tubing	Standard	3/8	3-1/8	7	3	7	9
F1009	2-7/8 OD Tubing	Standard	3/8	3-3/4	7	3	7-1/4	6-3/4
F1010	2-7/8 OD Tubing	Heavy Duty	3/8	3-3/4	7	3	7-1/4	9
F1012	3-1/2 OD Tubing	Standard	1/2	3-3/4	7	3-1/2	10-1/2	12
F1013	3-1/2 OD Drill Pipe	Heavy Duty	1/2	3-3/8	7	3-1/2	10-1/2	9-3/4
F1014	4 OD Tubing	Light Duty	3/4	3-3/4	7-1/2	3	10-3/8	8-1/8
F1015	4 OD Tubing	Standard	3/4	4-1/8	7-1/2	3	10-1/2	12
F1016	4-1/2 OD Tubing	Light Duty	3/4	4-1/2	8	3-1/2	3-3/4	9-3/4
F1017	4-1/2 OD Tubing	Standard	3/4	4-1/2	8	3-1/2	9-1/2	14-1/4
F1018	5 OD Casing	Light Duty	7/8	4-3/8	8	3-1/2	9-1/2	9-3/4
F1019	5 OD Casing	Standard	7/8	5	8	3-1/2	12	14-1/4
F1022	6 OD Casing	Light Duty	1	6	8	5-1/2	12	13
F1023	6 OD Casing	Standard	1	6	8	5-1/2	12	13
F1024	7 OD Casing	Standard	2	7	10	6-1/2	16-1/2	14-5/8
F1026	7 OD Casing	Heavy Duty	2	7	10	6-1/2	13-1/2	21-3/8
F1029	8-5/8 OD Casing	Standard	2-3/4	8-5/8	14	7	20-7/8	14-5/8
F1030	8-5/8 OD Casing	Heavy Duty	2-3/4	8-5/8	…	…	20-7/8	21-3/8
F1032	9-5/8 OD Casing	Standard	2-13/16	9-5/8	15-3/8	7	20-7/8	14-5/8
F1034	9-5/8 OD Casing	Standard	2-13/16	9-5/8	…	…	20-7/8	21-3/8
F1035	13-3/8 OD Casing	Standard	3-1/2	13-3/8	17-7/8	7	22-3/8	16-7/8

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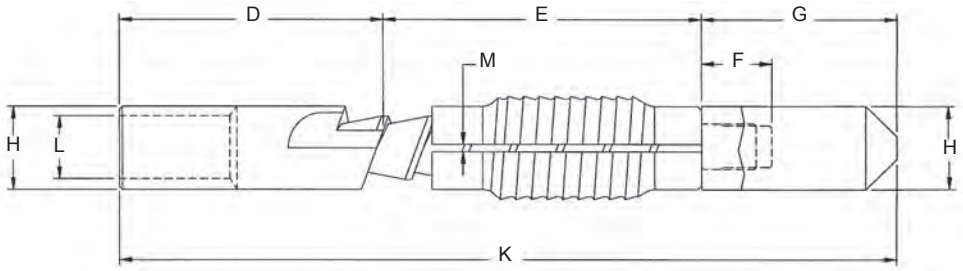
Notes:

1) For Flush or Shoulder type, specify O.D. of shoulder, "A"

2) Mandrel length desired, "C"

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STANDARD RELEASING SPEARS PRINCIPAL DIMENSIONS



FLUSH TYPE

SPEAR MANDREL	F	G	H	I	J	SHOULDER TYPE ONLY K	FLUSH TYPE ONLY L	M
F1000	7/8	2-3/8	11/16	9-5/8	15-1/4	…	…	3/16
F1001	1-3/8	2-1/2	15/16	7-11/16	11-13/16	…	…	1/4
F1002	1-3/8	2-1/2	1-1/8	7-11/16	11-13/16	…	…	3/8
F1004	2-1/4	5-5/8	1-3/8	10-5/16	18-11/16	…	…	7/16
F1005	2-1/4	6-17/32	1-11/16	…	…	19-7/16	…	5/8
F1007	2-1/4	6-5/8	1-7/8	12	23-3/8	23-3/8	…	5/8
F1008	2-1/4	6-5/8	1-7/8	14-1/4	25-5/8	22-5/8	…	5/8
F1009	2-1/2	7	2-5/16	12-1/4	23-3/4	21	…	5/8
F1010	2-1/2	7	2-5/16	14-1/2	26	23-1/4	…	5/8
F1012	3-1/2	9	2-13/16	19	31-1/2	32-1/2	…	5/8
F1013	3-5/8	8-1/8	2-1/2	16-5/8	31-1/8	…	…	5/8
F1014	2-1/2	8	3-1/4	13-5/8	26-5/8	26-1/2	…	5/8
F1015	3-1/2	9	3-1/4	18-1/2	31-1/2	31-1/2	…	5/8
F1016	3-1/2	10-3/4	3-5/8	16-3/4	32	32	…	1
F1017	3-1/2	10	3-5/8	21-1/4	35-3/4	33-3/4	…	3/4
F1018	3-1/2	10-5/8	4-1/32	16-3/4	31-7/8	29-7/8	…	13/16
F1019	3-1/2	10-5/8	4-1/32	21-1/4	36-3/8	36-7/8	…	13/16
F1022	3-1/2	12	5	16-3/8	39-3/16	37-11/16	3-5/16	1-1/4
F1023	3-1/2	12	5	16-3/8	…	43	3-5/16	1-1/4
F1024	3-1/2	12-3/4	5-11/16	…	…	40-1/4	3-1/2	1-5/8
F1026	3-1/2	12-3/4	5-11/16	31-3/8	53-3/8	47	3-1/2	1-5/8
F1029	4-1/2	13-3/4	7-1/4	26-1/8	53-7/8	49-1/4	5	1-5/8
F1030	4-1/2	13-3/4	7-1/4	…	…	56	5-3/4	1-5/8
F1032	3-1/2	14	8-1/4	25-1/8	51	49-1/4	6-1/4	1-5/8
F1034	3-1/2	13-3/4	8-1/4	…	…	56	6-1/4	1-5/8
F1035	3-1/2	12	11-3/4	27-3/8	53-3/4	51-1/4	7-3/4	1-5/8

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Notes:

1) For Flush or Shoulder type, specify O.D. of shoulder, "A"

2) Mandrel length desired, "C"

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LOGAN STANDARD RELEASING SPEAR

NOMINAL CATCH SIZE O.D.		1.050	1.313	1.660	1.900	2-3/8	2-3/8	2-3/8
SPEAR O.D.		11/16	7/8 NOM	1-1/8	1-3/8	1-11/16	1-7/8	1-7/8
SPEAR I.D.		…	…	…	…	…	3/8	3/8
DUTY CLASS		STD	STD	STD	STD	STD	STD	STD
COMPLETE ASSEMBLY	Logan Part No.	202-001	202-002	202-003	202-004	202-036	202-005	202-006
	Bowen No.	16455	19350	11195	9915	9645	1344	17228

REPLACEMENT PARTS

TOP SUB	Logan Part No.	F1000-A	F1001-A	F1002-A	…	…	…	…
	Bowen No.	16456A	19351A	11196A	…	…	…	…
MANDREL (FLUSH TYPE)	Logan Part No.	F1000	F1001	F1002	F1004	F1005	F1007	F1008
	Bowen No.	16456B	19351B	11196B	9916	9646	1345	17229
GRAPPLE*	Logan Part No.	F3000	F3001	F3002	F3004	F3005	F3007	F3008
	Bowen No.	16457	19352	11197	9917	9647	1348	17230
RELEASE RING	Logan Part No.	F4000	F4001	F4002	F4004	F4005	F4007	F4007
	Bowen No.	16458	19353	11198	9918	9649	1347	1347
BULL NOSE NUT	Logan Part No.	F5000	F5001	F5002	F5004	F5005	F5007	F5007
	Bowen No.	16459	19354	11199	9919	9648	1346	1346

OPTIONAL PARTS

MANDREL (SHOULDER TYPE)	Logan Part No.	F1000	F1001	F1002	F1004	F1005	F1007	F1008
	Bowen No.	16456	19351	11196	9916	9646	1345	17229
MANDREL EXTRA LENGTH PER INCH (C & D)								

ACCESSORIES

MILL TYPE NUT	Logan Part No.	F5000-A	F5001-A	F5002-A	F5004-A	F5005-A	F5007-A	F5007-A
	Bowen No.	16459-A	19354-A	11199-A	9919-A	9648-A	1346-A	1346-A
SUB TYPE NUT	Logan Part No.	F5000-B	F5001-B	F5002-B	F5004-B	F5005-B	F5007-B	F5007-B
	Bowen No.	16459-B	19354-B	11199-B	9919-B	9648-B	1346-B	1346-B
SIDE HILL NUT	Logan Part No.	F5000-C	F5001-C	F5002-C	F5004-C	F5005-C	F5007-C	F5007-C
	Bowen No.	16459-C	19354-C	11199-C	9919-C	9648-C	1346-C	1346-C

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When ordering, please specify:
(1) Name and part number of assembly or part
(2) Size and type of top connection
(3) Size and weight(s) of pipe to catch
(4) Flush or Shoulder type (specify O.D. of shoulder, “A”)
(5) Mandrel length desired “C”
(6) Thread size and type of nut, if wanted

Recommended Spare Parts:
(1) 2 Grapples for each catch size

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LOGAN STANDARD RELEASING SPEAR

NOMINAL CATCH SIZE O.D.		2-7/8	2-7/8	2-7/8	3-1/2	3-1/2	4	4
SPEAR O.D.		2-5/16	2-5/16	2-5/16	2-13/16	2-1/2	3-1/4	3-1/4
SPEAR I.D.		3/8	3/8	3/8	1/2	1/2	3/4	3/4
DUTY CLASS		STD	STD LH	HD	STD	HD	LD	STD
COMPLETE ASSEMBLY	Logan Part No.	202-007	202-022	202-008	202-009	202-010	202-024	202-011
	Bowen No.	1227	62198	17231	9410	9945	530	9485

REPLACEMENT PARTS

TOP SUB	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
MANDREL (FLUSH TYPE)	Logan Part No.	F1009	F10095	F1010	F1012	F1013	F1014	F1015
	Bowen No.	1231	62199	17232	9411	9946	531	9486
GRAPPLE *	Logan Part No.	F3009	F30095	F3010	F3012	F3013	F3014	F3015
	Bowen No.	1230	49888	17233	9412	9947	532	9487
RELEASE RING	Logan Part No.	F4009	F4009	F4009	F4012	F4013	F4015	F4015
	Bowen No.	1229	1229	1229	1584	9948	534	534
BULL NOSE NUT	Logan Part No.	F5009	F50095	F5009	F5012	F5013	F5014	F5015
	Bowen No.	1228	62200	1228	9413	9949	533	9488

OPTIONAL

MANDREL (SHOULDER TYPE)	Logan Part No.	F1009	F10095	F1010	F1012	F1013	F1014	F1015
	Bowen No.	1231	62199	17232	9411	9946	531	9486
MANDREL EXTRA LENGTH PER INCH (C & D)								

ACCESSORIES

MILL TYPE NUT	Logan Part No.	F5009-A	F50095-A	F5010-A	F5012-A	F5013-A	F5014-A	F5015-A
	Bowen No.	1228-A	…	1228-A	9413-A	…	533-A	9488-A
SUB TYPE NUT	Logan Part No.	F5009-B	F50095-B	F5009-B	F5012-B	F5013-B	F5014-B	F5015-B
	Bowen No.	1228-B	…	1228-B	9413-B	…	533-B	9488-B
SIDE HILL NUT	Logan Part No.	F5009-C	F50095-C	F5009-C	F5012-C	F5013-C	F5014-C	F5015-A
	Bowen No.	1228-C	…	1228-C	9413-C	…	533-C	9488-C

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(2) Size and type of top connection
(3) Size and weight(s) of pipe to catch
(4) Flush or Shoulder type (specify O.D. of shoulder, “A”)
(5) Mandrel length desired “C”
(6) Thread size and type of nut, if wanted

Recommended Spare Parts:
(1) 2 Grapples for each catch size

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LOGAN
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LOGAN STANDARD RELEASING SPEAR

NOMINAL CATCH SIZE O.D.		4-1/2	4-1/2	5	5	6	6	7
SPEAR O.D.		3-5/8	3-5/8	4-1/32	4-1/32	5	5	5-3/4
SPEAR I.D.		3/4	3/4	7/8	1	1	1	2
DUTY CLASS		LD	STD	LD	STD	LD	STD	STD
COMPLETE ASSEMBLY	Logan Part No.	202-017	202-012	202-035	202-013	202-023	202-014	202-015
	Bowen No.	13200	17475	1332	9680	9715	17234	9266

REPLACEMENT PARTS

TOP SUB	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
MANDREL (FLUSH TYPE)	Logan Part No.	F1016	F1017	F1018	F1019	F1022	F1023	F1024
	Bowen No.	13201	17476	1333	9681	9716	17235	9267
GRAPPLE *	Logan Part No.	F3016	F3017	F3018	F3019	F3022	F3023	F3024
	Bowen No.	13202	17477	1334	9682	9717	17236	9268
RELEASE RING	Logan Part No.	F4017	F4017	F4019	F4019	F4023	F4023	F4024
	Bowen No.	13183	13183	1336	1336	9718	9718	9279
BULL NOSE NUT	Logan Part No.	F5017	F5017	F5019	F5019	F5023	F5023	F5024
	Bowen No.	13184	13184	1335	1335	9719	9719	9269

OPTIONAL PARTS

MANDREL (SHOULDER TYPE)	Logan Part No.	F1016	F1017	F1018	F1019	F1022	F1023	F1024
	Bowen No.	13201	17476	1333	9681	9716	17235	9267
MANDREL EXTRA LENGTH	Logan Part No.	…	…	…	…	…	…	…
PER INCH (C & D)	Bowen No.	…	…	…	…	…	…	…

ACCESSORIES

MILL TYPE NUT	Logan Part No.	F5017-A	F5017-A	F5019-A	F5019-A	F5023-A	F5023-A	F5024-A
	Bowen No.	13184-A	13184-A	1335-A	1335-A	9719-A	9719-A	9269-A
SUB TYPE NUT	Logan Part No.	F5017-B	F5017-B	F5019-B	F5019-B	F5023-B	F5023-B	F5024-B
	Bowen No.	13184-B	13184-B	1335-B	1335-B	9719-B	9719-B	9269-B
SIDE HILL NUT	Logan Part No.	F5017-C	F5017-C	F5019-C	F5019-C	F5023-C	F5023-C	F5024-C
	Bowen No.	13184-C	13184-C	1335-C	1335-C	9719-C	9719-C	9269-C

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(3) Size and weight(s) of pipe to catch
(4) Flush or Shoulder type (specify O.D. of shoulder, “A”)
(5) Mandrel length desired “C”
(6) Thread size and type of nut, if wanted

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(1) 2 Grapples for each catch size

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LOGAN STANDARD RELEASING SPEAR

NOMINAL CATCH SIZE O.D.		7	8-5/8	8-5/8	9-5/8	9-5/8	13-3/8
SPEAR O.D.		5-3/4	7-1/4	7-1/4	8-1/4	8-1/4	11-3/4
SPEAR I.D.		2	2-3/4	2-3/4	2-13/16	2-13/16	3-1/2
DUTY CLASS		HD	STD	HD	STD	HD	STD
COMPLETE ASSEMBLY	Logan Part No.	202-016	202-025	202-018	202-019	202-020	202-021
	Bowen No.	17237	9380	17243	9281	17246	27780

REPLACEMENT PARTS

TOP SUB	Logan Part No.	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…
MANDREL (FLUSH TYPE)	Logan Part No.	F1026	F1029	F1030	F1032	F1034	F1035
	Bowen No.	17238	9381	17244	9282	17247	27781
GRAPPLE *	Logan Part No.	F3026	F3029	F3030	F3032	F3034	F3035
	Bowen No.	17239	9382	17245	9283	17248	27782
RELEASE RING	Loagn Part No.	F4024	F4029	F4029	F4032	F4032	F4033
	Bowen No.	9279	9383	9383	9286	9286	27783
BULL NOSE NUT	Logan Part No.	F5024	F5029	F5029	F5032	F5032	F5033
	Bowen No.	9269	9384	9384	9284	9284	27784

OPTIONAL PARTS

MANDREL (SHOULDER TYPE)	Logan Part No.	F1026	F1029	F1030	F1032	F1034	F1035
	Bowen No.	17238	9381	17244	9282	17247	27781
MANDREL EXTRA LENGTH PER INCH (C & D)							

ACCESSORIES

MILL TYPE NUT	Logan Part No.	F5024-A	F5029-A	F5029-A	F5032-A	F5032-A	F5035-A
	Bowen No.	9269-A	9384-A	9384-A	9284-A	9284-A	27784-A
SUB TYPE NUT	Logan Part No.	F5024-B	F5029-B	F5029-B	F5032-B	F5032-B	F5035-B
	Bowen No.	9269-B	9384-B	9384-B	9284-B	9284-B	27784-B
SIDE HILL NUT	Logan Part No.	F5024-C	F5029-C	F5029-C	F5032-C	F5032-C	F5035-C
	Bowen No.	9269-C	9384-C	9384-C	9284-C	9284-C	27784-C

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(2) Size and type of top connection
(3) Size and weight(s) of pipe to catch
(4) Flush or Shoulder type (specify O.D. of shoulder, “A”)
(5) Mandrel length desired “C”
(6) Thread size and type of nut, if wanted

Recommended Spare Parts:
(1) 2 Grapples for each catch size

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LOGAN STANDARD RELEASING SPEAR

NOMINAL CATCH SIZE O.D.		7	8-5/8	8-5/8	9-5/8	9-5/8	13-3/8
SPEAR O.D.		5-3/4	7-1/4	7-1/4	8-1/4	8-1/4	11-3/4
SPEAR I.D.		2	2-3/4	2-3/4	2-13/16	2-13/16	3-1/2
DUTY CLASS		HD	STD	HD	STD	HD	STD
COMPLETE ASSEMBLY	Logan Part No.	202-016	202-025	202-018	202-019	202-020	202-021
	Bowen No.	17237	9380	17243	9281	17246	27780

REPLACEMENT PARTS

TOP SUB	Logan Part No.	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…
MANDREL (FLUSH TYPE)	Logan Part No.	F1026	F1029	F1030	F1032	F1034	F1035
	Bowen No.	17238	9381	17244	9282	17247	27781
GRAPPLE *	Logan Part No.	F3026	F3029	F3030	F3032	F3034	F3035
	Bowen No.	17239	9382	17245	9283	17248	27782
RELEASE RING	Loagn Part No.	F4024	F4029	F4029	F4032	F4032	F4033
	Bowen No.	9279	9383	9383	9286	9286	27783
BULL NOSE NUT	Logan Part No.	F5024	F5029	F5029	F5032	F5032	F5033
	Bowen No.	9269	9384	9384	9284	9284	27784

OPTIONAL PARTS

MANDREL (SHOULDER TYPE)	Logan Part No.	F1026	F1029	F1030	F1032	F1034	F1035
	Bowen No.	17238	9381	17244	9282	17247	27781
MANDREL EXTRA LENGTH PER INCH (C & D)							

ACCESSORIES

MILL TYPE NUT	Logan Part No.	F5024-A	F5029-A	F5029-A	F5032-A	F5032-A	F5035-A
	Bowen No.	9269-A	9384-A	9384-A	9284-A	9284-A	27784-A
SUB TYPE NUT	Logan Part No.	F5024-B	F5029-B	F5029-B	F5032-B	F5032-B	F5035-B
	Bowen No.	9269-B	9384-B	9384-B	9284-B	9284-B	27784-B
SIDE HILL NUT	Logan Part No.	F5024-C	F5029-C	F5029-C	F5032-C	F5032-C	F5035-C
	Bowen No.	9269-C	9384-C	9384-C	9284-C	9284-C	27784-C

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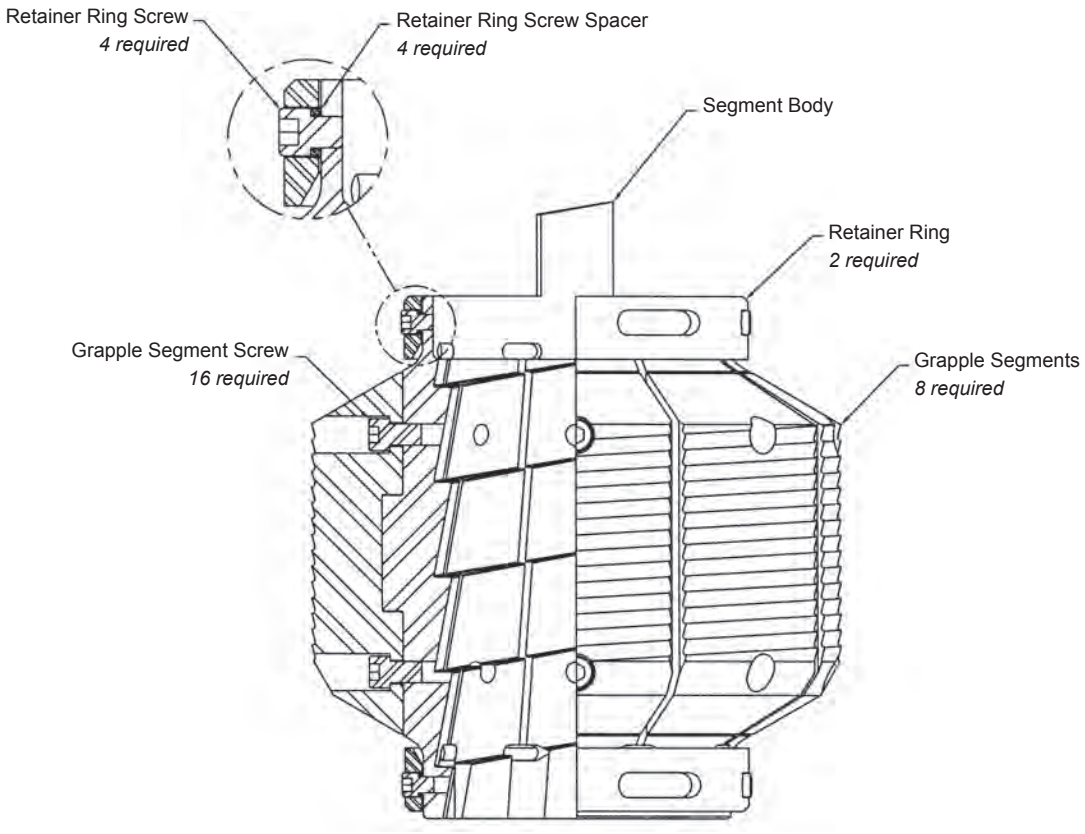
When ordering, please specify:
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(2) Size and type of top connection
(3) Size and weight(s) of pipe to catch
(4) Flush or Shoulder type (specify O.D. of shoulder, “A”)
(5) Mandrel length desired “C”
(6) Thread size and type of nut, if wanted

Recommended Spare Parts:
(1) 2 Grapples for each catch size

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LOGAN SEGMENTED SPEAR GRAPPLE ASSEMBLY

ASSEMBLES TO SPEAR	Logan Part No.			202-025				202-018	
	Bowen No.			9380				17243	
CATCH SIZE (PIPE SIZE)		10-3/4	11-3/4	12-3/4	13-3/8	10-3/4	11-3/4	12-3/4	13-3/8
PIPE WEIGHT		32.75	38.00	45.45	48.00	32.75	38.00	45.45	48.60
		48.00	54.00	66.72	68.00	48.00	54.00	66.72	68.00
		40.00	47.00	…	61.00	40.00	47.00	…	61.00
		55.50	60.00	…	85.00	55.50	60.00	…	85.00
COMPLETE ASSEMBLY	Logan Part No.			205-000				205-001	
	Bowen No.			9382				17245	
GRAPPLE BODY	Logan Part No.			F3029-A				F3030-A	
	Bowen No.			9382-A				17245-A	
GRAPPLE SEGMENT	Logan Part No.			F3029-B				F3030-B	
(8 per 1 set)	Bowen No.			9382-B				17245-B	
SEGMENT SCREW	Logan Part No.			T3000				T3000	
	Bowen No.			12198				12198	
	No. Req'd			16				16	
RETAINER RING	Logan Part No.			T4000				T4000	
	Bowen No.			56855				56855	
	No. Req'd			2				2	
RETAINER RING SCREW	Logan Part No.			T5000				T5000	
	Bowen No.			23535				23535	
	No. Req'd			4				4	
RETAINER RING SCREW	Logan Part No.			T6000				T6000	
SPACER	Bowen No.			56979				56979	
	No. Req'd			4				4	

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LOGAN SEGMENTED SPEAR GRAPPLE ASSEMBLY

ASSEMBLES TO SPEAR	Logan Part No.			202-019				202-020		
	Bowen No.			9281				17246		
CATCH SIZE (PIPE SIZE)		13-3/8	14	16	18-5/8	20	13-3/8	14	16	18-5/8	20
PIPE WEIGHT		48.00	42.00	55.00	90.00	90.00	48.00	42.00	55.00	…	90.00
		68.00	57.00	65.00	106.50	94.00	68.00	57.00	65.00	…	94.00
		61.00	…	84.00	…	106.00	61.00	…	84.00	…	133.00
		85.00	…	109.00	…	133.00	85.00	…	…	…	…
COMPLETE ASSEMBLY	Logan Part No.			205-002				205-003		
	Bowen No.			9283				17248		
GRAPPLE BODY	Logan Part No.			F3032-A				F3034-A		
	Bowen No.			9283-A				17248-A		
GRAPPLE SEGMENT	Logan Part No.			F3032-B				F3034-B		
(8 per 1 set)	Bowen No.			9283-B				17248-B		
SEGMENT SCREW	Logan Part No.			T3001				T3001		
	Bowen No.			23020				23020		
	No. Req'd			16				16		
RETAINER RING	Logan Part No.			T4001				T4001		
	Bowen No.			56409				56409		
	No. Req'd			2				2		
RETAINER RING SCREW	Logan Part No.			T5001				T5001		
	Bowen No.			56813				56813		
	No. Req'd			4				4		
RETAINER RING	Logan Part No.			T6000				T6000		
SCREW SPACER	Bowen No.			56979				56979		
	No. Req'd			4				4		

LOGAN SEGMENTED SPEAR GRAPPLE ASSEMBLY

ASSEMBLES TO SPEAR	Logan Part No.		202-021	
	Bowen No.		27780	
CATCH SIZE (PIPE SIZE)		16	18-5/8	20
PIPE WEIGHT		55.00	…	90.00
		65.00	…	94.00
		84.00	…	133.00
COMPLETE ASSEMBLY	Logan Part No.		205-004	
	Bowen No.		27782	
GRAPPLE BODY	Logan Part No.		F3035-A	
	Bowen No.		27782A	
GRAPPLE SEGMENT	Logan Part No.		F3035-B	
(8 per 1 set)	Bowen No.		27782B	
SEGMENT SCREW	Logan Part No.		T3002	
	Bowen No.		12019	
	No. Req'd		16	
RETAINER RING	Logan Part No.		T4002	
	Bowen No.		56858	
	No. Req'd		2	
RETAINER	Logan Part No.		T5002	
RING SCREW	Bowen No.		56859	
	No. Req'd		4	
RETAINER RING	Logan Part No.		T6000	
SCREW SPACER	Bowen No.		56979	
	No. Req'd		4	

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LOGAN RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE	Logan Part No.	F3000	F3000	F3000	F3000	F3000	F3000	F3000
	Bowen No.	16457	16457	16457	16457	16457	16457	16457
ACTUAL CATCHING RANGE:								
MINIMUM ID		.725		.799		.850	.912	.932
NOMINAL CATCH SIZE		.742		.813		.864	.924	.944
MAXIMUM ID		.750		.824		.875	.937	.957
OLD NOMINAL SIZE (INCHES)		3/4 ID & 3/4 X-STG		3/4 Std Pipe .824 ID		.875 to .864 ID 1.0 to 2.25#	.937 ID	.957 ID 1" X-STG
	Pipe				CS Hydril		Pipe	

LOGAN SPEAR GRAPPLE	Logan Part No.	F3000	F3000	F3000	F3000	F3001	F3001	F3001
	Bowen No.	16457	16457	16457	16457	19352	19352	19352
ACTUAL CATCHING RANGE:								
MINIMUM ID		.955	.975	1.033	1.100	.913	.956	1.005
NOMINAL CATCH SIZE		.967	.987	1.049	1.112	.937	.978	1.027
MAXIMUM ID		.982	1.000	1.058	1.125	.957	1.000	1.049
OLD NOMINAL SIZE (INCHES)		.982 ID	1" ID	1" Std Pipe 1.049 ID	1-1/8 ID	.957 ID 1" X-STG Pipe	1" ID	1.045 ID 1" Std Pipe

LOGAN SPEAR GRAPPLE	Logan Part No.	F3001	F3001	F3002	F3002	F3002	F3002	F3002
	Bowen No.	19352	19352	11197	11197	11197	11197	11197
ACTUAL CATCHING RANGE:								
MINIMUM ID		1.050	1.081	1.137	1.180	1.211	1.242	1.273
NOMINAL CATCH SIZE		1.072	1.103	1.170	1.215	1.246	1.277	1.308
MAXIMUM ID		1.093	1.125	1.207	1.250	1.281	1.312	1.342
OLD NOMINAL SIZE (INCHES)		1.093 ID	1.250 ID	1.187 ID	1.250 to 1.219 ID	1.281 to 1.250 ID	1.312 to 1.281 ID	1.343 to 1.312 ID

LOGAN SPEAR GRAPPLE	Logan Part No.	F3002	F3002	F3002	F3002	F3002	F3002	F3002
	Bowen No.	11197	11197	11197	11197	11197	11197	11197
ACTUAL CATCHING RANGE:								
MINIMUM ID		1.332	1.394	1.430	1.580	1.481	1.519	1.650
NOMINAL CATCH SIZE		1.367	1.429	1.465	1.615	1.516	1.554	1.687
MAXIMUM ID		1.402	1.464	1.500	1.652	1.551	1.589	1.720
OLD NOMINAL SIZE (INCHES)		1-3/8 ID 1-1/4 Tbg	1.438 ID	1.500 to 1.469 ID	1-1/2 Std Pipe & 1-5/8 ID	1.531 ID	1 9/16 ID	1.687 to 1.700 ID

LOGAN SPEAR GRAPPLE	Logan Part No.	F3002	F3002	F3002	F3002	F3002	F3002	F3004
	Bowen No.	11197	11197	11197	11197	11197	11197	9917
ACTUAL CATCHING RANGE:								
MINIMUM ID		1.722	1.771	1.836	1.895	1.957	2.024	1.441
NOMINAL CATCH SIZE		1.757	1.806	1.875	1.930	1.992	2.061	1.470
MAXIMUM ID		1.792	1.841	1.906	1.965	2.027	2.094	1.500
OLD NOMINAL SIZE (INCHES)		1-3/4 to 1-25/32 ID	1.815 ID	1-7/8 to 1-29/32	1-15/16 ID	2 ID	2.067 ID Pipe	1.500 ID to 1-1/2 X-STG

Note: Grapples are stenciled with nominal catch size.

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LOGAN RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE	Logan Part No.	F3004	F3004	F3004	F3004	F3004	F3004	F3004
	Bowen No.	9917	9917	9917	9917	9917	9917	9917
ACTUAL CATCHING RANGE:								
MINIMUM ID		1.470	1.472	1.553	1.566	1.598	1.612	1.673
NOMINAL CATCH SIZE		1.500	1.502	1.583	1.596	1.628	1.642	1.700
MAXIMUM ID		1.527	1.529	1.610	1.625	1.657	1.670	1.750
OLD NOMINAL SIZE (INCHES)			to 1.610 ID	1-1/2 Std Pipe	1-5/8 ID	1.657 ID	1.670 ID 1.700 ID	1-3/4

LOGAN SPEAR GRAPPLE	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
	Price	…	…	…	…	…	…	…
LOGAN SPEAR GRAPPLE	Logan Part No.	F3004	F3004	F3004	F3004	F3004	F3005	F3005
	Bowen No.	9917	9917	9917	9917	9917	9647	9647
ACTUAL CATCHING RANGE:								
MINIMUM ID		1.707	1.742	1.817	1.881	1.942	1.677	1.742
NOMINAL CATCH SIZE		1.737	1.772	1.847	1.911	1.972	1.719	1.778
MAXIMUM ID		1.781	1.800	1.875	1.939	2.000	1.750	1.815
OLD NOMINAL SIZE (INCHES)		1.781 ID	1.800 ID	1-7/8 ID	1.939 ID	2 ID	1.719 to 1.750 ID	2-3/8 Drill Pipe, 65.5#

LOGAN SPEAR GRAPPLE	Logan Part No.	…	…	…	F3007	F3007	F3007	F3007
	Bowen No.	…	…	…	1348	1348	1348	1348
LOGAN SPEAR GRAPPLE	Logan Part No.	F3005	F3005	F3005	F3008	F3008	F3008	F3008
	Bowen No.	9647	9647	9647	17230	17230	17230	17230
ACTUAL CATCHING RANGE:								
MINIMUM ID		1.802	1.864	1.968	1.788	1.796	1.889	1.952
NOMINAL CATCH SIZE		1.838	1.900	2.004	1.828	1.836	1.929	1.992
MAXIMUM ID		1.875	1.937	2.041	1.867	1.876	1.968	2.041
OLD NOMINAL SIZE (INCHES)		1-7/8 & 1-27/32 ID	1.875 to 1.937 ID	2-3/8 Tbg, 4 to 4.7# Down	1.867 ID Turn Body Down	1.875 ID Turn Body	1.937 to 1.968 ID	2-3/8 Tbg, 4 to 4.7#

LOGAN SPEAR GRAPPLE	Logan Part No.	F3007	F3007	F3007	F3007	F3007	F3007	F3007
	Bowen No.	1348	1348	1348	1348	1348	1348	1348
LOGAN SPEAR GRAPPLE	Logan Part No.	F3008	F3008	F3008	F3008	F3008	F3008	F3008
	Bowen No.	17230	17230	17230	17230	17230	17230	17230
ACTUAL CATCHING RANGE:								
MINIMUM ID		1.983	2.045	2.091	2.170	2.186	2.233	2.249
NOMINAL CATCH SIZE		2.023	2.085	2.131	2.211	2.226	2.273	2.289
MAXIMUM ID		2.062	2.125	2.172	2.250	2.266	2.312	2.329
OLD NOMINAL SIZE (INCHES)		2.000 to 2.062 ID	2-1/8 ID	2-7/8 DP, 9.75 to 10.4#	2-1/4 to 2-3/16 ID	2-17/64 ID	2-5/16 ID	2-7/8 OD 7.8 to 8.35# DP

Note: Grapples are stenciled with nominal catch size.

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LOGAN RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE	Logan Part No.	F3007	F3007	F3007	F3007	F3007	F3007	F3007
	Bowen No.	1348	1348	1348	1348	1348	1348	1348
LOGAN SPEAR GRAPPLE	Logan Part No.	F3008	F3008	F3008	F3008	F3008	F3008	F3008
	Bowen No.	17230	17230	17230	17230	17230	17230	17230
ACTUAL CATCHING RANGE:								
MINIMUM ID		2.295	2.358	2.390	2.420	2.556	2.608	2.670
NOMINAL CATCH SIZE		2.335	2.398	2.430	2.460	2.596	2.648	2.710
MAXIMUM ID		2.375	2.438	2.469	2.500	2.625	2.688	2.750
OLD NOMINAL SIZE (INCHES)		2-3/8 ID NX 1/2 Rod	2-3/8 ID 2-7/16 ID	2-7/8 Tbg 6.25-6.5#, 2-7/8 OD	2-7/16 ID 2-1/2 ID	2-5/8 ID & 2-9/16 ID	2-5/8 ID & 2-11/16 ID	2-3/4 ID

LOGAN SPEAR GRAPPLE	Logan Part No.	F3007	F3007	F3007	F3007	F3009	F3009	F3009
	Bowen No.	1348	1348	1348	1348	1230	1230	1230
LOGAN SPEAR GRAPPLE	Logan Part No.	F3008	F3008	F3008	F3008	F3010	F3010	F3010
	Bowen No.	17230	17230	17230	17230	17233	17233	17233
ACTUAL CATCHING RANGE:								
MINIMUM ID		2.921	3.046	3.170	3.264	2.280	2.351	2.390
NOMINAL CATCH SIZE		2.961	3.086	3.210	3.304	2.328	2.399	2.438
MAXIMUM ID		3.000	3.126	3.250	3.344	2.375	2.446	2.487
OLD NOMINAL SIZE (INCHES)		3 ID & 2-15/16 ID - NX DRIVE	3-1/16 ID & 3-1/8 ID	3-1/4 ID & 3-3/16 ID	3-11/32 ID & 3-9/32 ID	2-3/8 ID	2-3/8 to 2-7/16 ID	2-7/8 Tbg 6.25-6.5#, 2-7/8 OD

LOGAN SPEAR GRAPPLE	Logan Part No.	F3009	F3009	F3009	F3009	F3009	F3009	F3009
	Bowen No.	1230	1230	1230	1230	1230	1230	1230
LOGAN SPEAR GRAPPLE	Logan Part No.	F3010	F3010	F3010	F3010	F3010	F3010	F3010
	Bowen No.	17233	17233	17233	17233	17233	17233	17233
ACTUAL CATCHING RANGE:								
MINIMUM ID		2.468	2.515	2.593	2.671	2.700	2.827	2.843
NOMINAL CATCH SIZE		2.516	2.562	2.641	2.718	2.748	2.875	2.891
MAXIMUM ID		2.563	2.610	2.688	2.766	2.813	2.922	2.938
OLD NOMINAL SIZE (INCHES)		2.562 to 2-15/32 ID Pipe	3-1/2 OD 15.5# Drill	2-11/16 2-5/8 ID Drill Pipe	3-1/2 OD 12.4 to 13.3#	2-13/16 ID & 2-3/4 ID Drill Pipe	3-1/2 OD 10.2 to 11.2#	2-7/8 to 2-15/16 ID

Note: Grapples are stenciled with nominal catch size.

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LOGAN RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE	Logan Part No.	F3009	F3009	F3009	F3009	F3009	F3009	…
	Bowen No.	1230	1230	1230	1230	1230	1230	…
LOGAN SPEAR GRAPPLE	Logan Part No.	F3010	F3010	F3010	F3010	F3010	F3010	F3012
	Bowen No.	17233	17233	17233	17233	17233	17233	9412
ACTUAL CATCHING RANGE:								
MINIMUM ID		2.890	2.984	3.030	3.155	3.297	3.437	2.881
NOMINAL CATCH SIZE		2.938	3.032	3.078	3.203	3.345	3.485	2.933
MAXIMUM ID		2.992	3.079	3.125	3.250	3.392	3.532	2.992
OLD NOMINAL SIZE (INCHES)		3-1/2 OD 9.2-10.2# Tbg	3-1/2 OD 7.7# Tbg	3-1/8 3-1/16 ID	3-1/4 3-3/16 ID	3.340 to 3.382 ID	3-1/2 ID	3-1/2 OD 9.2-10.2# Tbg

LOGAN SPEAR GRAPPLE	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
LOGAN SPEAR GRAPPLE	Logan Part No.	F3012	F3012	F3012	F3012	F3012	F3012	F3012
	Bowen No.	9412	9412	9412	9412	9412	9412	9412
ACTUAL CATCHING RANGE:								
MINIMUM ID		2.949	3.021	3.146	3.256	3.365	3.444	3.522
NOMINAL CATCH SIZE		3.001	3.073	3.198	3.308	3.417	3.496	3.574
MAXIMUM ID		3.068	3.125	3.250	3.364	3.476	3.548	3.625
OLD NOMINAL SIZE (INCHES)		3-1/2 OD 7.7 to 9.2#	3-1/8 ID	3-1/4 ID 3-3/16 ID	4 OD 12.5 to 14.0# Drill Pipe	4 OD 11.0 to 11.6#	4 OD 9.5 to 11.0#	3.500 to 3.625 ID

LOGAN SPEAR GRAPPLE	Logan Part No.	…	…	F3014	F3014	F3014	F3014	F3014
	Bowen No.	…	…	532	532	532	532	532
LOGAN SPEAR GRAPPLE	Logan Part No.	F3012	F3012	F3015	F3015	F3015	F3015	F3015
	Bowen No.	9412	9412	9487	9487	9487	9487	9487
ACTUAL CATCHING RANGE:								
MINIMUM ID		3.584	3.646	3.218	3.327	3.406	3.484	3.608
NOMINAL CATCH SIZE		3.636	3.698	3.291	3.400	3.479	3.557	3.681
MAXIMUM ID		3.687	3.750	3.364	3.476	3.548	3.625	3.754
OLD NOMINAL SIZE (INCHES)		3-11/16 ID	3-3/4 ID 14.0 Tbg	4 OD 12.5 to 11.6# Tbg	4 OD 11.0 to 11.0# Tbg	4 OD 9.5 to	3-5/8 ID & 3-9/16 ID 22.0# Tbg	4-1/2 OD 18.1 to

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LOGAN RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE	Logan Part No.	F3014	F3014	F3014	F3014	F3014	F3014	F3014
	Bowen No.	532	532	532	532	532	532	532
LOGAN SPEAR GRAPPLE	Logan Part No.	F3015	F3015	F3015	F3015	F3015	F3015	F3015
	Bowen No.	9487	9487	9487	9487	9487	9487	9487
ACTUAL CATCHING RANGE:								
MINIMUM ID		3.671	3.812	3.874	3.937	4.134	4.155	4.358
NOMINAL CATCH SIZE		3.744	3.885	3.947	4.010	4.207	4.228	4.431
MAXIMUM ID		3.826	3.958	4.026	4.090	4.276	4.300	4.506
OLD NOMINAL SIZE (INCHES)		4-1/2 OD 15.3 to 18.1# Tbg	4-1/2 OD 13.7 to 15.3# Tbg	4-1/2 OD 11.0 to 13.7# Tbg	4-1/2 OD 9.5 to 11.6# Tbg	5 OD 18.0 to 21.0# Tbg	5 OD 17.7 to 18.0# Tbg	5 Tbg 12.6 to15.0# (4.408 ID)

LOGAN SPEAR GRAPPLE	Logan Part No.	F3014	F3014	F3016	F3016	F3016	F3016	F3016
	Bowen No.	532	532	13202	13202	13202	13202	13202
LOGAN SPEAR GRAPPLE	Logan Part No.	F3015	F3015	F3017	F3017	F3017	F3017	F3017
	Bowen No.	9487	9487	17477	17477	17477	17477	17477
ACTUAL CATCHING RANGE:								
MINIMUM ID		4.406	4.874	3.682	3.761	3.823	3.886	4.073
NOMINAL CATCH SIZE		4.479	4.947	3.782	3.861	3.923	3.986	4.173
MAXIMUM ID		4.560	5.012	3.881	3.958	4.026	4.090	4.276
OLD NOMINAL SIZE (INCHES)		5 OD 11.5# Tbg	5-1/2 OD 14.0 to 17.0# Tbg	4-1/2 OD 15.3 to 18.1# Tbg	4-1/2 OD 13.7 to 15.3# Tbg	4-1/2 OD 11.0 to 13.7# Tbg	4-1/2 OD 9.5 to 11.6# Csg	5 OD 18.0 to 21.0# Csg

LOGAN SPEAR GRAPPLE	Logan Part No.	F3016	F3016	F3018	F3018	F3018	F3018	F3018
	Bowen No.	13202	13202	1334	1334	1334	1334	1334
LOGAN SPEAR GRAPPLE	Logan Part No.	F3017	F3017	F3019	F3019	F3019	F3019	F3019
	Bowen No.	17477	17477	9682	9682	9682	9682	9682
ACTUAL CATCHING RANGE:								
MINIMUM ID		4.214	4.307	4.093	4.234	4.390	4.469	4.515
NOMINAL CATCH SIZE		4.314	4.407	4.179	4.320	4.476	4.555	4.601
MAXIMUM ID		4.408	4.506	4.276	4.408	4.562	4.642	4.696
OLD NOMINAL SIZE (INCHES)		5 OD 15.0 to 18.0# Csg	5 OD 12.6 to 15.0# Csg	5 OD 18.0 to 21.0# Csg	5 OD 15.0 to 18.0# Csg	5 OD 11.5 to 15.0# Csg	5 OD 9.0 to 13.0# Csg	5 OD, 8# 5-1/2 OD 23 to 25# Csg

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LOGAN RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE	Logan Part No.	F3018	F3018	F3018	F3018	F3018	F3018	F3018
	Bowen No.	1334	1334	1334	1334	1334	1334	1334
LOGAN SPEAR GRAPPLE	Logan Part No.	F3019	F3019	F3019	F3019	F3019	F3019	F3019
	Bowen No.	9682	9682	9682	9682	9682	9682	9682
ACTUAL CATCHING RANGE:								
MINIMUM ID		4.609	4.719	4.875	4.922	5.015	5.124	5.218
NOMINAL CATCH SIZE		4.695	4.805	4.961	5.008	5.101	5.210	5.304
MAXIMUM ID		4.782	4.892	5.048	5.095	5.192	5.297	5.390
OLD NOMINAL SIZE (INCHES)		5 1/2 OD 20.0 to 23.0# Csg	5-1/2 OD 17.0 to 20.0# Csg	5-1/2 OD 14.0 to 17.0# Csg	5-3/4 OD 19.5 to 22.5# Csg 9.0 to	5-3/4, 17-19.5# 5 1/2 OD 13.0# Csg	5-3/4 OD 14.0 to 17.0 Csg	6 OD 20.0# Csg to 23.0# Csg

LOGAN SPEAR GRAPPLE	Logan Part No.	F3018	F3018	F3018	F3022	F3022	F3022	F3022
	Bowen No.	1334	1334	1334	9717	9717	9717	9717
LOGAN SPEAR GRAPPLE	Logan Part No.	F3019	F3019	F3019	F3023	F3023	F3023	F3023
	Bowen No.	9682	9682	9682	17236	17236	17236	17236
ACTUAL CATCHING RANGE:								
MINIMUM ID		5.281	5.375	5.500	5.000	5.093	5.187	5.280
NOMINAL CATCH SIZE		5.367	5.461	5.586	5.134	5.227	5.321	5.414
MAXIMUM ID		5.454	5.552	5.675	5.266	5.360	5.454	5.547
OLD NOMINAL SIZE (INCHES)		6 OD 17.0 to	6 OD 14.0 to	6-5/8 OD 32.0 to	6 OD 23.0 to	6 OD 20.0 to	6 OD 17.0 to	6 OD 14.0 to
	20.0# Csg	17.0# Csg	34.0# Csg	26.0# Csg	23.0# Csg	20.0# Csg	17.0# Csg	

LOGAN SPEAR GRAPPLE	Logan Part No.	F3022	F3022	F3022	F3022	F3022	F3022	F3022
	Bowen No.	9717	9717	9717	9717	9717	9717	9717
LOGAN SPEAR GRAPPLE	Logan Part No.	F3023	F3023	F3023	F3023	F3023	F3023	F3023
	Bowen No.	17236	17236	17236	17236	17236	17236	17236
ACTUAL CATCHING RANGE:								
MINIMUM ID		5.406	5.530	5.593	5.656	5.671	5.781	5.796
NOMINAL CATCH SIZE		5.540	5.664	5.727	5.790	5.805	5.915	5.930
MAXIMUM ID		5.675	5.797	5.860	5.923	5.938	6.049	6.063
OLD NOMINAL SIZE (INCHES)		6 OD 10.5 to 14.0# Csg	6-5/8 OD 28.0 to 32.0# Csg	6-5/8 OD 26.0 to 29.0# Csg	6-5/8 OD 24.0 to 28.0# Csg	7 OD 38.0 to 40.0# Csg	6-5/8 OD 20.0 to 24.0# Csg	7 OD 33.7 to 38.0# Csg

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LOGAN RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE	Logan Part No.	F3022	F3022	F3022	F3022	F3022	F3022	F3024
	Bowen No.	9717	9717	9717	9717	9717	9717	9268
LOGAN SPEAR GRAPPLE	Logan Part No.	F3023	F3023	F3023	F3023	F3023	F3023	F3026
	Bowen No.	17236	17236	17236	17236	17236	17236	17239
ACTUAL CATCHING RANGE:								
MINIMUM ID		5.875	5.937	6.015	6.140	6.202	6.281	5.770
NOMINAL CATCH SIZE		6.009	6.071	6.149	6.274	6.335	6.415	5.970
MAXIMUM ID		6.142	6.204	6.282	6.407	6.469	6.548	6.173
OLD NOMINAL SIZE (INCHES)		6-5/8 OD 17.0 to 22.0# Csg	7 OD 29.0 to 33.7# Csg	7 OD 26.0 to 29.0# Csg	7 OD 22.0 to 26.0# Csg	7 OD 20.0 to 23.0# Csg	7 OD 17.0 to 20.0# Csg	7" 30.0-40.0# & 6-5/8 24.0# Csg

LOGAN SPEAR GRAPPLE	Logan Part No.	F3024	F3024	F3024	F3024	F3024	F3024	F3024
	Bowen No.	9268	9268	9268	9268	9268	9268	9268
LOGAN SPEAR GRAPPLE	Logan Part No.	F3026	F3026	F3026	F3026	F3026	F3026	F3026
	Bowen No.	17239	17239	17239	17239	17239	17239	17239
ACTUAL CATCHING RANGE:								
MINIMUM ID		5.895	6.020	6.270	6.364	6.567	6.864	6.987
NOMINAL CATCH SIZE		6.095	6.220	6.470	6.564	6.767	7.064	7.187
MAXIMUM ID		6.297	6.423	6.673	6.765	6.969	7.263	7.391
OLD NOMINAL SIZE (INCHES)		7 OD 26.0 to 35.0# Csg	7 OD 22.0 to 33.7# Csg	7 OD 13.0 to 24.0# Csg	7-5/8 OD 33.7 to 45.0# Csg	7-5/8 OD 26.4 to 39.0# Csg	7-5/8 OD 14.7 to 26.4# Csg	8-1/8 OD 32.0 to 42.0#Csg

LOGAN SPEAR GRAPPLE	Logan Part No.	F3024	F3024	F3024	F3024	F3024	F3024	F3024
	Bowen No.	9268	9268	9268	9268	9268	9268	9268
LOGAN SPEAR GRAPPLE	Logan Part No.	F3026	F3026	F3026	F3026	F3026	F3026	F3026
	Bowen No.	17239	17239	17239	17239	17239	17239	17239
ACTUAL CATCHING RANGE:								
MINIMUM ID		7.225	7.239	7.489	7.755	7.911	7.958	8.692
NOMINAL CATCH SIZE		7.425	7.439	7.689	7.955	8.111	8.158	8.892
MAXIMUM ID		7.628	7.642	7.892	8.157	8.313	8.360	9.094
OLD NOMINAL SIZE (INCHES)		8 OD 16.0 to 26.0# Csg	7-9/16 ID	8-5/8 OD 34.0 to 48.0# Csg	8-5/8 24.0-38.0#, 9" 55# Csg	8-5/8 OD 17.6 to 29.3# Csg	9 OD 34.0 to 45.0# Csg	9-5/8 OD 29.3 to 42.0# Csg

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LOGAN RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE	Logan Part No.	F3024	F3029	F3029	F3029	F3029	F3029	F3029
	Bowen No.	9268	9382	9382	9382	9382	9382	9382
LOGAN SPEAR GRAPPLE	Logan Part No.	F3026	F3030	F3030	F3030	F3030	F3030	F3030
	Bowen No.	17239	17245	17245	17245	17245	17245	17245
ACTUAL CATCHING RANGE:								
MINIMUM ID		8.442	7.537	7.729	7.981	8.435	8.535	8.760
NOMINAL CATCH SIZE		8.642	7.690	7.882	8.134	8.588	8.688	8.913
MAXIMUM ID		8.884	7.846	8.034	8.315	8.755	8.846	9.065
OLD NOMINAL SIZE (INCHES)		9-5/8 OD 43.5 to 53.5# Csg	8-5/8 OD 36.0 to 48.0# Csg	8-5/8 28.0 to 38.0#, 9 OD 34.0 to 45.0 to 55.0# Csg	8-5/8 17.5 to 29.3#, 9 OD 43.5 to 45.0# Csg	9 OD 19.0# & 9-5/8 OD 53.5# Csg 58.0# Csg	9-5/8 OD 40.0 to 42.0# Csg	9-5/8 OD 29.3 to

LOGAN SPEAR GRAPPLE	Logan Part No.	F3029	205-000 *	205-000 *	205-000 *	205-000 *	205-000 *	205-000 *
	Bowen No.	9382	9382	9382	9382	9382	9382	9382
LOGAN SPEAR GRAPPLE	Logan Part No.	205-001 *	205-001 *	205-001 *	205-001 *	205-001 *	205-001 *	205-001 *
	Bowen No.	17245	17245	17245	17245	17245	17245	17245
ACTUAL CATCHING RANGE:								
MINIMUM ID		9.479	9.760	9.885	10.729	10.854	12.228	12.415
NOMINAL CATCH SIZE		9.632	9.913	10.038	10.882	11.007	12.381	12.568
MAXIMUM ID		9.784	10.065	10.192	11.034	11.159	12.534	12.721
OLD NOMINAL SIZE (INCHES)		10-3/4 OD 55.5 to 65.7# Csg	10-3/4 OD 40.0 to 55.5# Csg	10-3/4 OD 32.7 to 48.0# Csg	11-3/4 OD 47.0 to 60.0# Csg	11-3/4 OD 38.0 to 54.0# Csg	13-3/8 OD 61.0 to 85.0# Csg	13-3/8 OD 48.0 to 68.0# Csg

LOGAN SPEAR GRAPPLE	Logan Part No.	F3032	F3032	F3032	F3032	F3032	F3032	F3032
	Bowen No.	9283	9283	9283	9283	9283	9283	9283
LOGAN SPEAR GRAPPLE	Logan Part No.	F3034	F3034	F3034	F3034	F3034	F3034	F3034
	Bowen No.	17248	17248	17248	17248	17248	17248	17248
ACTUAL CATCHING RANGE:								
MINIMUM ID		8.435	8.519	8.596	8.738	9.738	9.867	9.225
NOMINAL CATCH SIZE		8.597	8.681	8.758	8.900	9.900	10.029	9.387
MAXIMUM ID		8.755	8.844	8.921	9.063	10.063	10.192	9.550
OLD NOMINAL SIZE (INCHES)		9-5/8 OD 43.5 to 58.0# Csg	9-5/8 OD 40.0 to 53.5# Csg	9-5/8 OD 36.0 to 43.5# Csg	9-5/8 OD 29.3 to 40.0# Csg	10-3/4 OD 40.0 to 55.5# Csg	10-3/4 OD 32.7 to 48.0# Csg	10-3/4 OD 71.0 to 76.0# Csg

Note: Grapples are stenciled with nominal catch size

** Segmented grapples.*

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LOGAN
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LOGAN RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE	Logan Part No.	205-002 *	F3032	F3032	F3032	F3032	205-002 *	205-002 *
	Bowen No.	9283	9283	9283	9283	9283	9283	9283
LOGAN SPEAR GRAPPLE	Logan Part No.	205-003 *	F3034	F3034	F3034	F3034	205-003 *	205-003 *
	Bowen No.	17248	17248	17248	17248	17248	17248	17248
ACTUAL CATCHING RANGE:								
MINIMUM ID		11.206	10.581	10.832	10.612	10.675	11.643	11.674
NOMINAL CATCH SIZE		11.369	10.743	10.994	10.774	10.837	11.805	11.837
MAXIMUM ID		11.531	10.906	11.157	10.937	11.000	11.968	12.000
OLD NOMINAL SIZE (INCHES)		11.5 ID	11-3/4 OD 54.0 to 65.0# Csg	11-3/4 OD 38.0 to 54.0# Csg	11-3/4 OD 60.0# Csg	11-3/4 OD 47.0 to 60.0# Csg	13-3/8 OD 11.937 ID Csg	13-3/8 OD 96.0#, 11.975 ID Csg

LOGAN SPEAR GRAPPLE	Logan Part No.	205-002 *	205-002 *	205-002 *	205-002 *	205-002 *	205-002 *	205-002 *
	Bowen No.	9283	9283	9283	9283	9283	9283	9283
LOGAN SPEAR GRAPPLE	Logan Part No.	205-003 *	205-003 *	205-003 *	205-003 *	205-003 *	205-003 *	205-003 *
	Bowen No.	17248	17248	17248	17248	17248	17248	17248
ACTUAL CATCHING RANGE:								
MINIMUM ID		12.022	12.393	12.455	13.143	13.312	13.330	15.112
NOMINAL CATCH SIZE		12.184	12.555	12.617	13.305	13.474	13.492	15.274
MAXIMUM ID		12.347	12.718	12.780	13.468	13.637	13.655	15.437
OLD NOMINAL SIZE (INCHES)		13-3/8 OD 72.0 to 85.0# Csg	13-3/8 OD 48.0 to 68.0# Csg	12-3/4 OD 12-3/4 ID	14 OD 42.0 to 57.0# Csg	13.599 to 13.609 ID	13-5/8 ID	16 OD 55.0 to 75.0# Csg

LOGAN SPEAR GRAPPLE	Logan Part No.	205-002 *	205-002 *	205-002 *	205-002 *			
	Bowen No.	9283	9283	9283	9283			
LOGAN SPEAR GRAPPLE	Logan Part No.	205-003 *	205-003 *	205-003 *	205-003 *			
	Bowen No.	17248	17248	17248	17248			
ACTUAL CATCHING RANGE:								
MINIMUM ID		14.925	17.331	18.862	17.487			
NOMINAL CATCH SIZE		15.087	17.493	19.024	17.650			
MAXIMUM ID		15.250	17.656	19.187	17.812			
OLD NOMINAL SIZE (INCHES)		16 OD 65.0 to 84.0# Csg	17-1/2 ID	20 OD 90.0 to 106.5# Csg	18-5/8 OD 87.0# Csg			

Note: Grapples are stenciled with nominal catch size

** Segmented grapples.*

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CALCULATED STRENGTHS

LOGAN ASSY. NO.	BOWEN NO.	ACTUAL CATCHING RANGE MIN. I.D.	NOMINAL CATCH SIZE	MAX. I.D.	OLD NOMINAL SIZE (INCHES) *	GRAPPLE O.D. – .000 / + .005	TENSILE STRENGTH OF BODY YIELD STRENGTH (lbs)
		0.725	0.742	0.750	3/4 ID & 3/4 X-STG Pipe	0.770	
		0.799	0.813	0.824	3/4 Std Pipe, .824 ID	0.844	
		0.850	0.864	0.875	.875 to .864 ID, 1 to 2.25# CS Hydril	0.895	
		0.912	0.924	0.937	.937 ID	0.957	
F3000	16457	0.932	0.944	0.957	.957 ID, 1" X-STG Pipe	0.977	20,800
		0.955	0.967	0.982	.982 ID	1.000	
		0.975	0.987	1.000	1 ID	1.020	
		1.033	1.049	1.058	1.049 ID, 1" Std Pipe	1.078	
		1.100	1.112	1.125	1-1/8 ID	1.145	
		0.913	0.937	0.957	.957 ID – 1" X-STG Pipe	0.988	
		0.956	0.978	1.000	1 ID	1.031	
F3001	19352	1.005	1.027	1.049	1.045 ID, 1" Std Pipe	1.080	29,400
		1.050	1.072	1.093	1.093 ID	1.125	
		1.081	1.103	1.125	1.250 ID	1.156	
		1.137	1.170	1.207	1.187 ID	1.227	
		1.180	1.215	1.250	1.250 to 1.219 ID	1.270	
		1.211	1.246	1.281	1.281 to 1.250 ID	1.301	
		1.242	1.277	1.312	1.312 to 1.281 ID	1.332	
		1.273	1.308	1.342	1.343 to 1.312 ID	1.363	
		1.332	1.367	1.402	1-3/8 ID, 1-1/4 Tbg	1.422	
		1.394	1.429	1.464	1.438 ID	1.484	
		1.430	1.465	1.500	1.500 to 1.469 ID	1.520	
F3002	11197	1.580	1.615	1.652	1-1/2 Std Pipe & 1-5/8 ID	1.672	
		1.481	1.516	1.551	1.531 ID	1.571	43,600
		1.519	1.554	1.589	1-9/16 ID	1.609	
		1.650	1.687	1.720	1.687 to 1.700 ID	1.740	
		1.722	1.757	1.792	1-3/4 to 1-25/32 ID	1.812	
		1.771	1.806	1.841	1.815 ID	1.861	
		1.836	1.875	1.906	1-7/8 to 1-29/32 ID	1.936	
		1.895	1.930	1.965	1-15/16 ID	1.985	
		1.957	1.992	2.027	2 ID	2.047	
		2.024	2.061	2.094	2.067 ID	2.114	
		1.441	1.470	1.500	1.500 ID to 1-1/2 X-STG Pipe	1.546	
		1.470	1.500	1.527	…	…	
		1.472	1.502	1.529	…	…	
		1.553	1.583	1.610	1-1/2 Std Pipe to 1.610 ID	1.658	
		1.566	1.596	1.625	1-5/8 ID	1.671	
		1.598	1.628	1.657	1.657 ID	1.703	
F3004	9917	1.612	1.642	1.670	1.670 ID	1.717	62,000
		1.673	1.700	1.734	1-3/4 1.700 ID	1.781	
		1.707	1.737	1.765	1.781 ID	1.812	
		1.742	1.772	1.800	1.800 ID	1.847	
		1.817	1.847	1.875	1.7/8 ID	1.922	
		1.881	1.911	1.939	1.939 ID	1.986	
		1.942	1.972	2.000	2 ID	2.047	

** Grapples were marked with this description.*

The strengths shown are theoretical calculations based on yield strength of the material used in each case. The strengths shown are therefore accurate, plus or minus 20% of the figures shown, only.

These figures do not constitute a guarantee, actual or implied. They are meant to serve only as a guide and appropriate safety factor allowance must be made in use.

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LOGAN ASSY. NO.	BOWEN NO.	ACTUAL CATCHING RANGE MIN. I.D.	NOMINAL CATCH SIZE	MAX. I.D.	OLD NOMINAL SIZE (INCHES) *	GRAPPLE O.D. – .000 / + .005	TENSILE STRENGTH OF BODY YIELD STRENGTH (lbs)
		1.677	1.719	1.750	1.719 to 1.750 ID	1.781	
		1.742	1.778	1.815	2-3/8 Drill Pipe, 6.65#	1.846	
F3005	9647	1.802	1.838	1.875	1-7/8 & 1-27/32 ID	1.906	116,400
		1.864	1.900	1.937	1.875 to 1.937 ID	1.968	
		1.968	2.004	2.041	2-3/8 Tbg, 4.0 to 4.7#	2.072	
		1.788	1.828	1.867	1.867 ID, Turn Body Down **	1.898	
		1.796	1.836	1.876	1.875 ID, Turn Body Down **	1.922	
		1.889	1.929	1.968	1.937 to 1.968 ID	2.015	
		1.952	1.992	2.041	2-3/8 OD, 4.0 to 4.7# Tbg	2.078	
		1.983	2.023	2.062	2.000 to 2.062 ID	2.109	
	2.045	2.085	2.125	2-1/8 ID	2.171		
		2.091	2.131	2.172	2-7/8 ID, 9.75 to 10.4# Drill Pipe	2.218	
		2.170	2.211	2.250	2-1/4 to 2-3/16 ID	2.296	
		2.186	2.226	2.266	2-17/64 ID	2.312	
		2.233	2.273	2.312	2-5/16 ID	2.359	
F3007	1348	2.249	2.289	2.329	2-7/8 OD, 7.8 to 8.35# Drill Pipe	2.375	132,000
F3008	17230	2.295	2.335	2.375	2-3/8 ID NX 1/2 Rod	2.421	
		2.358	2.398	2.438	2-3/8 ID & 2-7/16 ID	2.484	
		2.390	2.430	2.469	2-7/8 OD, 6.25 to 6.5# Tbg	2.515	
		2.420	2.460	2.500	2-7/16 ID & 2-1/2 ID	2.546	
		2.556	2.596	2.625	2-5/8 ID & 2-9/16 ID	2.671	
		2.608	2.648	2.688	2-5/8 ID & 2-11/16 ID	2.734	
		2.670	2.710	2.750	2-3/4 ID	2.796	
		2.921	2.961	3.000	3 ID & 2-15/16 ID NX Drive Csg	3.046	
		3.046	3.086	3.126	3-1/16 ID & 3-1/8 ID	3.171	
		3.170	3.210	3.250	3-1/4 ID & 3-3/16 ID	3.296	
		3.264	3.304	3.344	3-11/32 ID & 3-9/32 ID	3.390	
		2.280	2.328	2.375	2-3/8 ID	2.421	
		2.351	2.399	2.446	2-3/8 to 2-7/16 ID	2.490	
		2.390	2.438	2.487	2-7/8 OD, 6.25 to 6.5# Tbg	2.531	
		2.468	2.516	2.563	2.562 to 2-15/32 ID	2.609	
		2.515	2.562	2.610	3-1/2 OD, 15.5# Drill Pipe	2.656	
		2.593	2.641	2.688	2-11/16 to 2-5/8 ID	2.734	
		2.671	2.718	2.766	3-1/2 OD, 12.4 to 12.4# Drill Pipe	2.812	
F3009	1230	2.700	2.748	2.813	2-13/16 ID & 2-3/4 ID	2.859	270,000
F3010	17233	2.827	2.875	2.922	3-1/2 OD, 10.2 to 11.2# Drill Pipe	2.968	
		2.843	2.891	2.938	2-7/8 to 2-15/16 ID	2.984	
		2.890	2.938	2.992	3-1/2 OD, 9.20# to 10.2# Tbg	3.031	
		2.984	3.032	3.079	3-1/2 OD, 7.70# Tbg	3.125	
		3.030	3.078	3.125	3-1/8 to 3-1/16 ID	3.171	
		3.155	3.203	3.250	3-1/4 to 3-3/16 ID	3.296	
		3.297	3.345	3.392	3.340 to 3.382 ID	3.437	
		3.437	3.485	3.532	3-1/2 ID	3.578	
		2.881	2.933	2.992	3-1/2 OD, 9.2 to 10.2# Tbg	3.031	
		2.949	3.001	3.068	3-1/2 OD, 7.7 to 9.2#	3.109	
		3.021	3.073	3.125	3-1/8 ID	3.171	
		3.146	3.198	3.250	3-1/4 to 3-3/16 ID	3.296	
F3012	9412	3.256	3.308	3.364	4 OD, 12.50 to 14.0# Drill Pipe	3.406	357,000
		3.365	3.417	3.476	4 OD, 11.0 to 11.6#	3.515	
		3.444	3.496	3.548	4 OD, 9.5 to 11.0#	3.593	
		3.522	3.574	3.625	3.500 to 3.625 ID	3.671	
		3.584	3.636	3.687	3-11/16 I.D	3.734	
		3.646	3.698	3.750	3-3/4 ID	3.796	

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CALCULATED STRENGTHS

LOGAN ASSY. NO.	BOWEN NO.	ACTUAL CATCHING RANGE MIN. I.D.	NOMINAL CATCH SIZE	MAX. I.D.	OLD NOMINAL SIZE (INCHES) *	GRAPPLE O.D. – .000 / + .005	TENSILE STRENGTH OF BODY YIELD STRENGTH (lbs)
		3.218	3.291	3.364	4 OD, 12.5 to 14.0# Tbg	3.406	
		3.327	3.400	3.476	4 OD, 11.0 to 11.6# Tbg	3.515	
		3.406	3.479	3.548	4 OD, 9.5 to 11.0# Tbg	3.593	
		3.484	3.557	3.625	3-5/8 ID & 3-9/16 ID	3.671	
		3.608	3.681	3.754	4-1/2 OD, 18.1 to 22.0# Tbg	3.796	
		3.671	3.744	3.826	4-1/2 OD, 15.35 to 18.1# Tbg	3.859	
F3014	532	3.812	3.885	3.958	4-1/2 OD,13.75 to 15.35# Tbg	4.000	530,000
F3015	9487	3.874	3.947	4.026	4-1/2 OD, 11.0 to 13.75# Tbg	4.062	
		3.937	4.010	4.090	4-1/2 OD, 9.5 to 11.6# Tbg	4.125	
		4.134	4.207	4.276	5 OD, 18.0 to 21.0# Tbg	4.312	
		4.155	4.228	4.300	5 OD, 17.7 to 18.0# Tbg	4.343	
		4.358	4.431	4.506	5 OD (4.408 ID), 12.04 to 15.0# Tbg	4.546	
		4.406	4.479	4.560	5 OD, 11.5# Tbg	4.593	
		4.874	4.947	5.012	5-1/2 OD, 14.0 to 17.0# Tbg	5.062	
		3.682	3.782	3.881	4-1/2 OD, 15.35 to 18.1# Tbg	3.921	
		3.761	3.861	3.958	4-1/2 OD, 13.75 to 15.35# Tbg	4.000	
F3016	13202	3.823	3.923	4.026	4-1/2 OD, 11.0 to 13.75# Tbg	4.062	
F3017	17477	3.886	3.986	4.090	4-1/2 OD, 9.5 to 11.6# Csg	4.125	725,000
		4.073	4.173	4.276	5 OD, 18.0 to 21.0# Csg	4.312	
		4.214	4.314	4.408	5 OD, 15.0 to 18.0# Csg	4.453	
		4.307	4.407	4.506	5 OD, 12.64 to 15.0# Csg	4.547	
		4.093	4.179	4.276	5 OD, 18.0 to 21.0# Csg	4.312	
		4.234	4.320	4.408	5 OD, 15.0 to 18.0# Csg	4.453	
		4.390	4.476	4.562	5 OD, 11.5 to 15.0# Csg	4.609	
		4.469	4.555	4.642	5 OD, 9.0 to 13.0# Csg	4.687	
		4.515	4.601	4.696	5 OD, 8#	4.734	
					5-1/2 OD, 23.0 to 25.00# Csg		
		4.609	4.695	4.782	5-1/2 OD, 20.0 to 23.0# Csg	4.828	
F3018	1334	4.719	4.805	4.892	5-1/2 OD, 17.0 to 20.0# Csg	4.937	920,000
F3019	9682	4.875	4.961	5.048	5-1/2 OD, 14.0 to 17.0# Csg	5.093	
		4.922	5.008	5.095	5-3/4 OD, 19.50 to 22.50# Csg	5.140	
		5.015	5.101	5.192	5-3/4 OD, 17.0 to 19.50# Csg		
					5-1/2 OD 9 to 13# Csg	5.234	
		5.124	5.210	5.297	5-3/4 OD, 14.0 to17.0# Csg	5.343	
		5.218	5.304	5.390	6 OD, 20.0 to 23.0# Csg	5.437	
		5.281	5.367	5.454	6 OD, 17.0 to 20.0# Csg	5.500	
		5.375	5.461	5.552	6 OD, 14.0 to 17.0# Csg	5.593	
		5.500	5.586	5.675	6-5/8 OD, 32.0 to 34.0# Csg	5.718	

** Grapples were marked with this description.*

The strengths shown are theoretical calculations based on yield strength of the material used in each case. The strengths shown are therefore accurate, plus or minus 20% of the figures shown, only.

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LOGAN
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CALCULATED STRENGTHS

LOGAN ASSY. NO.	BOWEN NO.	ACTUAL CATCHING RANGE MIN. I.D.	NOMINAL CATCH SIZE	MAX. I.D.	OLD NOMINAL SIZE (INCHES) *	GRAPPLE O.D. – .000 / + .005	TENSILE STRENGTH OF BODY YIELD STRENGTH (lbs)
		5.000	5.134	5.266	6 OD, 23.0 to 26.0# Csg	5.312	
		5.093	5.227	5.360	6 OD, 20.0 to 23.0# Csg	5.406	
		5.187	5.321	5.454	6 OD, 17.0 to 20.0# Csg	5.500	
		5.280	5.414	5.547	6 OD, 14.0 to 17.0# Csg	5.593	
		5.406	5.540	5.675	6 OD, 10.5 to 14.0# Csg	5.718	
		5.530	5.664	5.797	6-5/8 OD, 28.0 to 32.0# Csg	5.843	
		5.593	5.727	5.860	6-5/8 OD, 26.0 to 29.0# Csg	5.906	
F3022	9717	5.656	5.790	5.923	6-5/8 OD, 24.0 to 28.0# Csg	5.968	1,175,000
F3023	17236	5.671	5.805	5.938	7 OD, 38.0 to 40.0# Csg	5.984	
		5.781	5.915	6.049	6-5/8 OD, 20.0 to 24.0# Csg	6.093	
		5.796	5.930	6.063	7 OD, 33.7 to 38.0# Csg	6.109	
		5.875	6.009	6.142	6-5/8 OD, 17.0 to 22.0# Csg	6.187	
		5.937	6.071	6.204	7 OD, 29.0 to 33.7# Csg	6.250	
		6.015	6.149	6.282	7 OD, 26.0 to 29.0# Csg	6.328	
		6.140	6.274	6.407	7 OD, 22.0 to 26.0# Csg	6.453	
		6.202	6.335	6.469	7 OD, 20.0 to 23.0# Csg	6.515	
		6.281	6.415	6.548	7 OD, 17.0 to 20.0# Csg	6.593	
		5.770	5.970	6.173	7 OD, 30.0 to 40.0# & 6-5/8 OD, 24.0# Csg	6.218	
		5.895	6.095	6.297	7 OD, 26.0 to 35.0# Csg	6.343	
		6.020	6.220	6.423	7 OD, 22.0 to 33.7# Csg	6.468	
		6.270	6.470	6.673	7 OD, 13.0 to 24.0# Csg	6.718	
		6.364	6.564	6.765	7-5/8 OD, 33.7 to 45.0# Csg	6.812	
		6.567	6.767	6.969	7-5/8 OD, 26.4 to 39.0# Csg	7.015	
		6.864	7.064	7.263	7-5/8 OD, 14.75 to 26.4# Csg	7.312	
F3024	9268	6.987	7.187	7.391	8-1/8 OD, 32.0 to 42.0# Csg	7.437	972,000
F3026	17329	7.225	7.425	7.628	8 OD, 16.0 to 26.0# Csg	7.673	
		7.239	7.439	7.642	7-9/16 ID Csg	7.687	
		7.489	7.689	7.892	8-5/8 OD, 34.0 to 48.0# Csg	7.937	
		7.755	7.955	8.157	8-5/8 OD, 24.0 to 38.0# Csg & 9 OD, 40.0 to 55.0# Csg	8.203	
		7.911	8.111	8.313	8-5/8 OD, 17.6 to 29.35# Csg	8.359	
		7.958	8.158	8.360	9 OD, 34.0 to 45.0# Csg	8.406	
		8.692	8.892	9.094	9-5/8 OD, 29.3 to 42.0# Csg	9.140	
		8.442	8.642	8.844	9-5/8 OD, 43.5 to 53.5# Csg	8.890	

** Grapples were marked with this description.*

*** Segmented grapples*

The strengths shown are theoretical calculations based on yield strength of the material used in each case. The strengths shown are therefore accurate, plus or minus 20% of the figures shown, only.

These figures do not constitute a guarantee, actual or implied. They are meant to serve only as a guide and appropriate safety factor allowance must be made in use.

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“Bowen” is a registered trademark of National Oilwell Varco.

CALCULATED STRENGTHS

LOGAN ASSY. NO.	BOWEN NO.	ACTUAL CATCHING RANGE MIN. I.D.	NOMINAL CATCH SIZE	MAX. I.D.	OLD NOMINAL SIZE (INCHES) *	GRAPPLE O.D. – .000 / + .005	TENSILE STRENGTH OF BODY YIELD STRENGTH (lbs)
		7.537	7.690	7.846	8-5/8 OD, 36.0 to 48.0# Csg	7.906	
		7.729	7.882	8.034	8-5/8 OD, 28.0 to 38.0# & 9 OD, 45.0 to 55.0# Csg	8.093	
		7.981	8.134	8.315	8-5/8 OD, 17.5 to 29.35# & 9 OD, 34.0 to 45# Csg	8.375	
F3029	9382	8.435	8.588	8.755	9 OD, 19.0# &	8.813	
F3030	17245				9-5/8 OD, 43.5 to 58.0# Csg		
F3032	9283	8.535	8.688	8.846	9-5/8 OD, 40.0 to 53.5# Csg	8.906	1,946,000
F3034	17248	8.760	8.913	9.065	9-5/8 OD, 29.3 to 42.0# Csg	9.125	
205-000 **	9382	9.479	9.632	9.784	10-3/4 OD, 55.5 to 65.7# Csg	9.843	
205-001 **	17245	9.760	9.913	10.065	10-3/4 OD, 40.0 to 55.5# Csg	10.125	
		9.885	10.038	10.192	10-3/4 OD, 32.75 to 48.0# Csg	10.250	
		10.729	10.882	11.034	11-3/4 OD, 47.0 to 60.0# Csg	11.093	
		10.854	11.007	11.159	11-3/4 OD, 38.0 to 54.0# Csg	11.218	
		12.228	12.381	12.534	13-3/8 OD, 61.0 to 85.0# Csg	12.593	
		12.415	12.568	12.721	13-3/8 OD, 48.0 to 68.0# Csg	12.781	
		8.435	8.597	8.755	9-5/8 OD, 43.5 to 58.0# Csg	8.812	
		8.519	8.681	8.844	9-5/8 OD, 40.0 to 53.5# Csg	8.906	
		8.596	8.758	8.921	9-5/8 OD, 36.0 to 43.5# Csg	8.984	
		8.738	8.900	9.063	9-5/8 OD, 29.3 to 40.0# Csg	9.125	
		9.738	9.900	10.063	10-3/4 OD, 40.0 to 55.5# Csg	10.125	
		9.867	10.029	10.192	10-3/4 OD, 32.75 to 48.0# Csg	10.250	
		9.225	9.387	9.550	10-3/4 OD, 71.0 to 76.0# Csg	9.612	
		11.206	11.369	11.531	11-1/2 ID Csg	11.594	
		10.581	10.743	10.906	11-3/4 OD, 54.0 to 65.0# Csg	10.968	
		10.832	10.994	11.157	11-3/4 OD, 38.0 to 54.0# Csg	11.219	
		10.612	10.774	10.937	11-3/4 OD, 60.0# Csg	11.000	
F3032	9283	10.675	10.837	11.000	11-3/4 OD, 47.0 to 60.0# Csg	11.062	
F3034	17248	11.643	11.805	11.968	13-3/8 OD & 11.937 ID Csg	12.031	2,700,000
205-002 **	9283	11.674	11.837	12.000	13-3/8 OD, 96.0# & 11.975 ID Csg	12.062	
205-003 **	17248	12.022	12.184	12.347	13-3/8 OD, 72.0 to 92.0# Csg	12.406	
		12.393	12.555	12.718	13-3/8 OD, 48.0 to 68.0# Csg	12.781	
		12.455	12.617	12.780	12-3/4 OD & 12-3/4 ID Csg	12.834	
		13.143	13.305	13.468	14 OD, 42.0 to 57.0# Csg	13.531	
		13.312	13.474	13.637	13.599 ID to 13.609 ID Csg	13.700	
		13.330	13.492	13.655	13-5/8 ID Csg	13.718	
		15.112	15.274	15.437	16 OD, 55.0 to 75.0# Csg	15.500	
		14.925	15.087	15.250	16 OD, 65.0 to 84.0# Csg	15.312	
		17.331	17.493	17.656	17-1/2 ID Csg	17.718	
		18.862	19.024	19.187	20 OD, 90.0 to 106.5# Csg	19.250	
		17.487	17.650	17.812	18-5/8 OD, 87.0# Csg	…	

** Grapples were marked with this description.*

*** Segmented grapples*

The strengths shown are theoretical calculations based on yield strength of the material used in each case. The strengths shown are therefore accurate, plus or minus 20% of the figures shown, only.

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LOGAN OIL TOOLS
A RUBICON PRODUCT BRAND

LOGAN RELEASING SPEAR PACK-OFF ASSEMBLY

CASING SIZE TO PACK OFF		1-1/2 Tbg	2-3/8 Tbg	2-3/8 Tbg 4.6#	2-7/8 Tbg	2-7/8 Tbg 6.5#	3-1/2 Tbg …	3-1/2 Tbg 8.5–10.2#
OD ADAPTER SUB (INCHES)		1-3/8	1-7/8	1-7/8	1-13/16	1-13/16	2-1/2	2-1/2
PACK-OFF ASSEMBLY	Logan Part No.	400-036	400-037	400-037	400-038	400-038	400-039	400-039
MANDREL	Logan Part No.	F6000	F6001	F6001	F6002	F6002	F6003	F6003
OD of Mandrel Stem (Inches)		…	1.063	1.063	1.327	1.327	1.250	1.250
ADAPTER SUB	Logan Part No.	F7000	F7001	F7001	F7002	F7002	F7003	F7003
PACKING CUP	Logan Part No.	F8000	F8001	F8001-001	F8002	F8002-001	F8003	F8003-001
	Reference No.	…	…	10716	…	10047	…	14960
THIMBLE	Logan Part No.	F9000	F9001	F9001-001	F9002	F9002-001	F9003	F9003-001
ID of Packing Cup & Thimble (Inches)		…	…	1.094	…	1.344	…	1.344
STABILIZER	Logan Part No.	F10000	F10001	F10001-001	F10002	F10002-001	F10003	F10003-001

CASING SIZE TO PACK OFF		3-1/2 Tbg 12.8–13.7#	4 Tbg	4 Tbg 9.5–11.6#	4-1/2 Tbg, 1/2 Csg & 3/4 Csg	4-1/2 Tbg 9.5–12.6#	4-1/2 Tbg 13.5–18.1#	5 Csg & 4-3/4 16#
OD ADAPTER SUB (INCHES)		2-1/2	3-1/4	3-1/4	3-1/2	3-1/2	3-1/2	4
PACK-OFF ASSEMBLY	Logan Part No.	400-039	400-040	400-040	400-041	400-041	400-041	400-042
MANDREL	Logan Part No.	F6003	F6004	F6004	F6005	F6005	F6005	F6006
OD of Mandrel Stem (Inches)		1.250	1.906	1.906	2.375	2.375	2.375	2.375
ADAPTER SUB	Logan Part No.	F7003	F7004	F7004	F7005	F7005	F7005	F7006
PACKING CUP	Logan Part No.	F8003-001	F8004	F8004-001	F8005	F8005-001	F8005-002	F8006
	Reference No.	14082	…	14036	…	30509	10430	…
THIMBLE	Logan Part No.	F9003-001	F9004	F9004-001	F9005	F9005-001	F9005-002	F9006
ID of Packing Cup & Thimble (Inches)		1.344	…	1.94	…	2.41	2.41	…
STABILIZER	Logan Part No.	F10003	F10004	F10004-001	F10005	F10005-001	F10005-002	F10006

CASING SIZE TO PACK OFF		5 Csg 13–15#	5 Csg 18–21#	5-1/2 & 5-3/4 Csg	5-1/2 Csg 13–15# & 5-3/4 Csg	5-1/2 Csg 15.5–17#	5-1/2 Csg 17–23#	5-3/4 Csg 14–18# & 6 Csg 20# 19.5–22.5#
OD ADAPTER SUB (INCHES)		4	4	4	4	4	4	4
PACK-OFF ASSEMBLY	Logan Part No.	400-042	400-042	400-043	400-043	400-043	400-043	400-043
MANDREL	Logan Part No.	F6006	F6006	F6007	F6007	F6007	F6007	F6007
OD of Mandrel Stem (Inches)		2.375	2.375	2.900	2.900	2.900	2.900	..
ADAPTER SUB	Logan Part No.	F7006	F7006	F7006	F7006	F7006	F7006	F7006
PACKING CUP	Logan Part No.	F8006-002	F8006-001	F8007	F8007-001	F8007-003	F8007-002	F8007-005
	Reference No.	25389	17831	…	22624	22626	19710	14714
THIMBLE	Logan Part No.	F9006-***	F9006-001	F9007	F9007-001	F9007-001	F9007-001	F9007-003
ID of Packing Cup & Thimble (Inches)		2.41	2.41	…	2.91	2.91	2.91	2.91
STABILIZER	Logan Part No.	F10006	F10006-001	F10007	F10007 *	F10007-002	F10007-002	F10007-002

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** Sequence number to be determined*

When ordering, please specify:
(1) Name and part number of assembly or part
(2) Size and type of top connection
(3) Size and weight of pipe to be run in

Recommended Spare Parts:
(1) 2 Packers for each size
(2) 1 Thimble for each size

LOGAN
OIL TOOLS
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LOGAN RELEASING SPEAR PACK-OFF ASSEMBLY

CASING SIZE TO PACK OFF		6 Csg	6 Csg 14–18#	6-5/8, 7 & 7-5/8 Csg	6-5/8 Csg 20–22# & 7 Csg 32–35.3#	6-5/8 Csg 24–29# & 7 Csg 38#	6-5/8 32#	7 Csg 17–20#
OD ADAPTER SUB (INCHES)		4-3/4	4-3/4	4-3/4	4-3/4	4-3/4	4-3/4	4-3/4
PACK-OFF ASSEMBLY	Logan Part No.	400-044	400-044	400-045	400-045	400-045	400-045	400-045
MANDREL	Logan Part No.	F6008	F6008	F6009	F6009	F6009	F6009	F6009
OD of Mandrel Stem (Inches)		…	…	3.500	3.500	3.500	3.500	3.500
ADAPTER SUB	Logan Part No.	F7007	F7007	F7007	F7007	F7007	F7007	F7007
PACKING CUP	Logan Part No.	F8008	F8008-002	F8009	F8009-002	F8009-003	F8009-017	F8009-009
	Reference No.	…	14721	…	19389	19277	19278	17819
THIMBLE	Logan Part No.	F9008	F9008-001	F9009	F9009-001	F9009-001	F9009-001	F9009-004
ID of Packing Cup & Thimble (Inches)		…	2.91	…	3.53	3.53	3.53	3.53
STABILIZER	Logan Part No.	F10008	F10007-003	F10009	F10009-002	F10009-002	F10009-002	F10009-002

CASING SIZE TO PACK OFF		7 Csg 22–24#	7 Csg 26–30#	7-5/8 Csg 26.4–29.7#	7-5/8 Csg 29.7–33.7#	7-5/8 Csg 39–42.8#	8-1/8 Csg 35.5# WP	8-1/8 Csg 39.5# WP
OD ADAPTER SUB (INCHES)		4-3/4	4-3/4	4-3/4	4-3/4	4-3/4	4-3/4	4-3/4
PACK-OFF ASSEMBLY	Logan Part No.	400-045	400-045	400-045	400-045	400-045	400-045	400-045
MANDREL	Logan Part No.	F6009	F6009	F6009	F6009	F6009	F6009	F6009
OD of Mandrel Stem (Inches)		3.500	3.500	3.500	3.500	3.500	3.500	3.500
ADAPTER SUB	Logan Part No.	F7007	F7007	F7007	F7007	F7007	F7007	F7007
PACKING CUP	Logan Part No.	F8009-008	F8009-001	F8009-004	F8009-005	F8009-006	F8009-011	F8009-018
	Reference No.	17461	17356	13931	21293	23051	…	E107581 WR35318
THIMBLE	Logan Part No.	F9009-004	F9009-002	F9009-003	F9009-003	F9009-003	F9009-006	F9009-006
ID of Packing Cup & Thimble (Inches)		3.53	3.53	3.53	3.53	3.53	3.53	3.53
STABILIZER	Logan Part No.	F10009-002	F10009	F10009-003	F10009-003	F10009-003	F10009-004	F10009 *

CASING SIZE TO PACK OFF		8-5/8 Csg 20–24#	8, 8-5/8 & 9 Csg	8-5/8 Csg 28–36#	8-5/8 Csg 36–40#	8-5/8 Csg 40–49#	9-5/8 Csg	9-5/8 Csg 36–43.5# & 10-3/4 Csg 99.5#
OD ADAPTER SUB (INCHES)		4-3/4	6-1/8	6-1/8	6-1/8	6-1/8	6-3/8	6-3/8
PACK-OFF ASSEMBLY	Logan Part No.	400-045	400-046	400-046	400-046	400-046	400-047	400-047
MANDREL	Logan Part No.	F6009	F6011	F6011	F6011	F6011	F6011	F6011
OD of Mandrel Stem (Inches)		3.500	4.500	4.500	4.500	4.500	4.500	4.500
ADAPTER SUB	Logan Part No.	F7007	F7009	F7009	F7009	F7009	F7009	F7009
PACKING CUP	Logan Part No.	F8009-010	F8010	F8009-014-001	F8009-019	F8009-013	F8011	F8011-001
	Reference No.	…	…	16111	16113	16115	…	10354
THIMBLE	Logan Part No.	F9009-006	F9010	F9010	F9010	F9009-007	F9011	F9011-001
ID of Packing Cup & Thimble (Inches)		3.53	4.53	4.53	4.53	4.53	4.53	4.53
STABILIZER	Logan Part No.	F10009 *	F10011	F10011	F10011	F10011	F10011	F10011-001

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When ordering, please specify:
(1) Name and part number of assembly or part
(2) Size and type of top connection
(3) Size and weight of pipe to be run in

Recommended Spare Parts:
(1) 2 Packers for each size
(2) 1 Thimble for each size

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LOGAN RELEASING SPEAR PACK-OFF ASSEMBLY

CASING SIZE TO PACK OFF		9-5/8 Csg 47–59.4# & 9-7/8 Csg 62.8#	10-3/4 Csg	10-3/4 Csg 32.75–55.5#	10-3/4 Csg 55.5–65.7#	11-3/4 Csg	11-3/4 Csg 38–60#	11-3/4 Csg 65#
OD ADAPTER SUB (INCHES)		6-3/8	8	8	8	8	8	8
PACK-OFF ASSEMBLY	Logan Part No.	400-047	400-048	400-048	400-048	400-055	400-055	400-055
MANDREL	Logan Part No.	F6011	F6013	F6013	F6013	F6013	F6013	F6013
OD of Mandrel Stem (Inches)		4.500	4.500	4.500	4.500	4.500	4.500	4.500
ADAPTER SUB	Logan Part No.	F7009	F7009	F7009	F7009	F7009	F7009	F7009
PACKING CUP	Logan Part No.	F8011-002	F8012	F8012-001	F8012-002	F80125	F80125-001	F80125-002
	Reference No.	33850	…	13197	13198	…	14246	E111751 WR45318
THIMBLE	Logan Part No.	F9011-002	F9012	F9012-001	F9012-002	F90125	F90125-001	F90125-001
ID of Packing Cup & Thimble (Inches)		4.53	4.53	4.53	4.53	4.53	4.53	4.53
STABILIZER	Logan Part No.	F10011-001	F10012	F10012-001	F10012-003	F100125	F100125-001	F100125 *

CASING SIZE TO PACK OFF		11-3/4 Csg 71#	11-7/8 Csg 71.8#	13-3/8 & 13-5/8 Csg	13-3/8 Csg 48–72# & 13-5/8 88.2#	13-3/8 Csg 72–85#	14 Csg 101#	16 Csg
OD ADAPTER SUB (INCHES)		8	8	8	8	8	8	8
PACK-OFF ASSEMBLY	Logan Part No.	400-055	400-055	400-049	400-049	400-049	400-049	400-066
MANDREL	Logan Part No.	F6013	F6013	F6013	F6013	F6013	F6013	F6013
OD of Mandrel Stem (Inches)		4.500	4.500	4.500	4.500	4.500	4.500	4.500
ADAPTER SUB	Logan Part No.	F7009	F7009	F7009	F7009	F7009	F7009	F7009
PACKING CUP	Logan Part No.	F80125-004	F80125-003	F8013	F8013-001	F8013-002	F8013-003	F8014
	Reference No.	E111751 WR45318	E111783 ECP45318	…	16298	*	*	E116065 45318
THIMBLE	Logan Part No.	F90125-001	F90125-001	F9013	F9013-001	F9013-001	F90013-001	*Not Req'd*
ID of Packing Cup & Thimble (Inches)		4.53	4.53	4.53	4.53	4.53	4.53	…
STABILIZER	Logan Part No.	F100125 *	F100125 *	F10013	F10013-001	F10013 *	F10013 *	F10014

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(2) Size and type of top connection
(3) Size and weight of pipe to be run in

Recommended Spare Parts:
(1) 2 Packers for each size
(2) 1 Thimble for each size

LOGAN
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LOGAN RELEASING SPEAR PACK-OFF ASSEMBLY

CASING SIZE TO PACK OFF		16 Csg 65#	16 Csg 84#	16 Csg 97#	16 Csg 109#	18-5/8 Csg	18-5/8 Csg 87.5#	20 Csg
OD ADAPTER SUB (INCHES)		8	8	8	8	8	8	8
PACK-OFF ASSEMBLY	Logan Part No.	400-066	400-066	400-066	400-066	400-067	400-067	400-068
MANDREL	Logan Part No.	F6013	F6013	F6013	F6013	F6013	F6013	F6013
OD of Mandrel Stem (Inches)		4.500	4.500	4.500	4.500	4.500	4.500	4.500
ADAPTER SUB	Logan Part No.	F7009	F7009	F7009	F7009	F7009	F7009	F7009
PACKING CUP	Logan Part No.	F8014-002	F8014-001	F8014-004	F8014-003	F8015	F8015-001	F8016
	Reference No.	E116065 45318	E116084 45318	*	*	…	…	*
THIMBLE	Logan Part No.	*Not Req'd*	*Not Req'd*	*Not Req'd*	*Not Req'd*	*Not Req'd*	*Not Req'd*	*Not Req'd*
ID of Packing Cup & Thimble (Inches)		…	…	…	…	…	…	…
STABILIZER	Logan Part No.	F10014 *	F10014-001	F10014 *	F10014 *	F10015	F10015-001	F10016

CASING SIZE TO PACK OFF		20 Csg 94#	20 Csg 106#	20 Csg 133#	20 Csg 203.11#			
OD ADAPTER SUB (INCHES)		8	8	8	8			
PACK-OFF ASSEMBLY	Logan Part No.	400-068	400-068	400-068	400-068			
MANDREL	Logan Part No.	F6013	F6013	F6013	F6013			
OD of Mandrel Stem (Inches)		4.500	4.500	4.500	4.500			
ADAPTER SUB	Logan Part No.	F7009	F7009	F7009	F7009			
PACKING CUP	Logan Part No.	F8016-002	F8016-001	F8016-003	F8016-004			
	Reference No.	*	*	*	*			
THIMBLE	Logan Part No.	*Not Req'd*	*Not Req'd*	*Not Req'd*	*Not Req'd*			
ID of Packing Cup & Thimble (Inches)		…	…	…	…			
STABILIZER	Logan Part No.	F10016-001	F10016-001	F10016-001	F10016 *			

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(1) 2 Packers for each size
(2) 1 Thimble for each size

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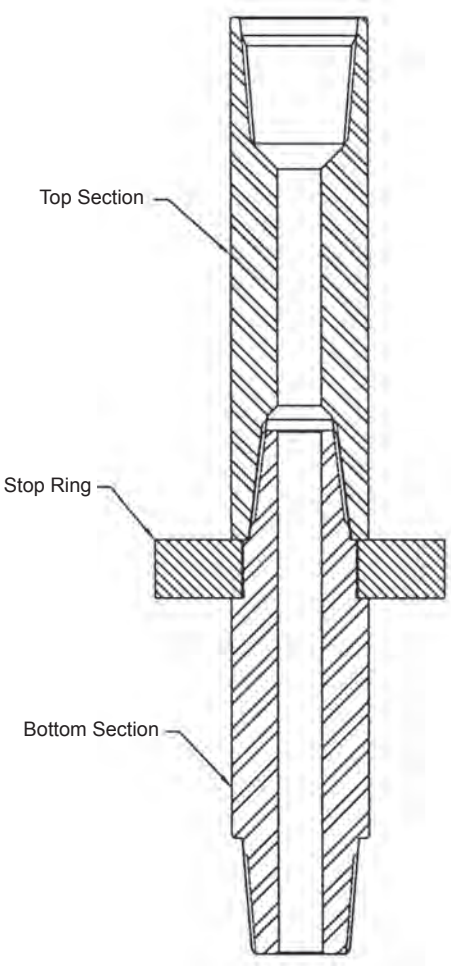
RELEASING SPEAR STOP SUB ASSEMBLY

OVERVIEW

The Logan Releasing Spear Stop Sub Assembly is an accessory designed to convert a releasing spear with a flush-type mandrel into a shouldered type spear. It is installed in the box connection at the top of the mandrel when the use of a positive stop is desired or required.

A stop ring can be added to increase shoulder diameter. All stop rings are furnished with left-hand threads.

When ordering, please specify:
(1) O.D. of Stop Sub
(2) Length from stop to threaded connection
(3) Top and bottom connection desired
(4) Assembly number of spear on which the stop sub will be run
(5) O.D. of Stop Ring



STANDARD STOP SUB & FLUSH MANDREL OD		3-1/8	3-1/4	3-5/8	4-1/32	5
STOP SUB ASSEMBLY	Logan Part No.	400-064	400-063	400-050	400-051	400-052
STOP SUB (2 PCS. REQ'D)						
UPPER SECTION 18" LENGTH	Logan Part No.	F110002-A	F110005-A	F11000-A	F11001-A	F11002-A
LOWER SECTION 12" LENGTH	Logan Part No.	F110002-B	F110005-B	F11000-B	F11001-B	F11002-B
STOP RING	Logan Part No.	F120002	F120005	F12000	F12001	F12002
	Minimum O.D.	4-1/8	4-1/8	4-1/2	5	6

STANDARD STOP SUB & FLUSH MANDREL O.D.		5-3/4	7-1/4	7-3/4	8-1/4	11-3/4
STOP SUB ASSEMBLY	Logan Part No.	400-053	400-054	400-062	400-065	400-056
STOP SUB (2 PCS. REQ'D)						
UPPER SECTION 18" LENGTH	Logan Part No.	F11003-A	F11004-A	F11005-A	F11015-A	F11006-A
LOWER SECTION 12" LENGTH	Logan Part No.	F11003-B	F11004-B	F11005-B	F11015-B	F11006-B
STOP RING	Logan Part No.	F12003	F12004	F12005	F12015	F12006
	Minimum O.D.	7	8-5/8	9-5/8	9-5/8	13-3/8

Logan Oil Tools reserves the right to change or discontinue designs without notice.

LOGAN
OIL TOOLS

A **RUBICON** PRODUCT BRAND

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