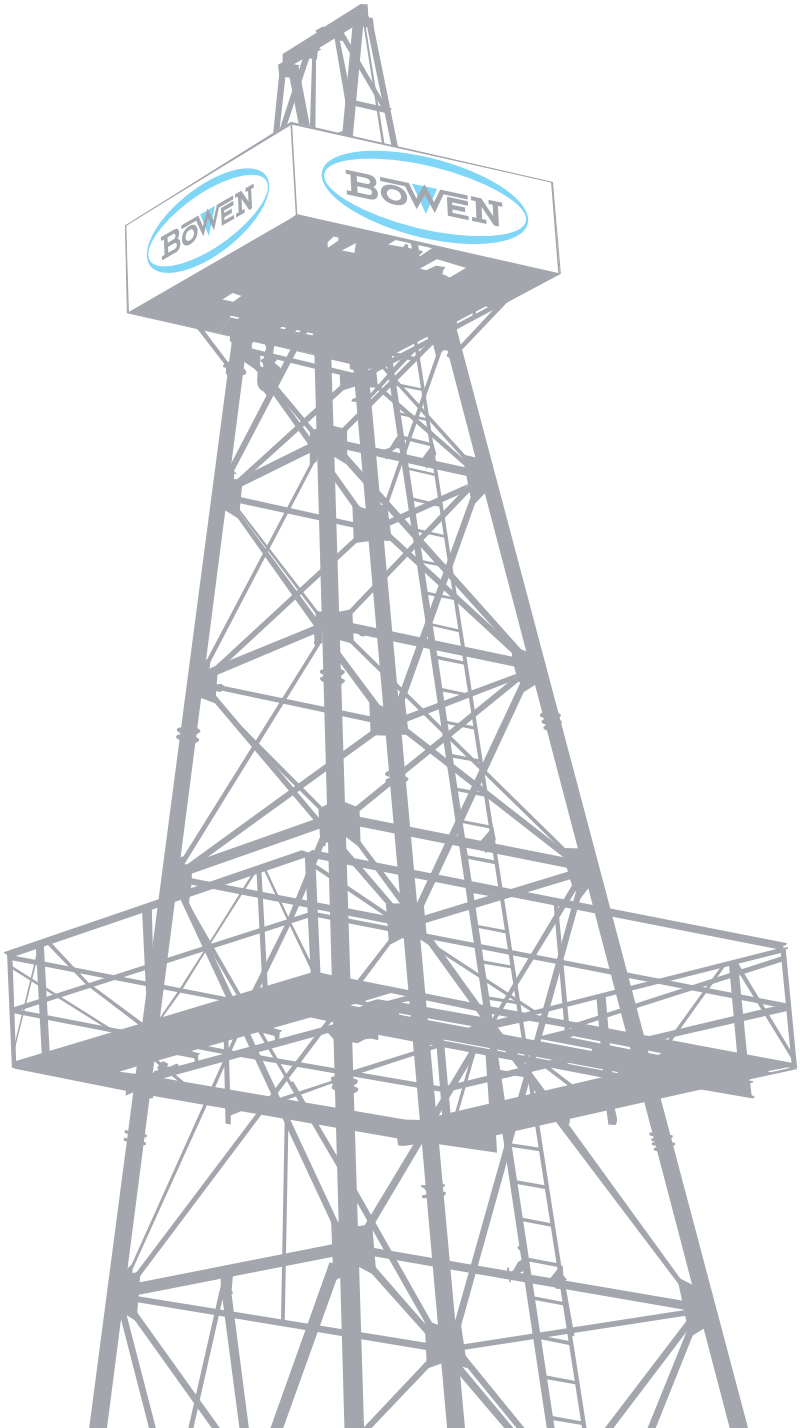
Bowen™ Full Circle Releasing Spears

Instruction Manual 2100



Downhole | NOV Wellbore Technologies

Fishing Tools
Spears

Bowen™ Full Circle Releasing Spears

Bowen™ Full Circle Releasing Spears

General Description

The Bowen™ full circle releasing spear is a patented fishing spear that ensures positive internal engagement over a long section of a fish. The design of the full circle slips and the effect of the tapers of the body upon the slips cause the expansion strain to be distributed evenly over a long vertical section and virtually over the entire inner circumference of a fish, permitting tremendous pulling and jarring strains with no danger of distorting the fish.

Use

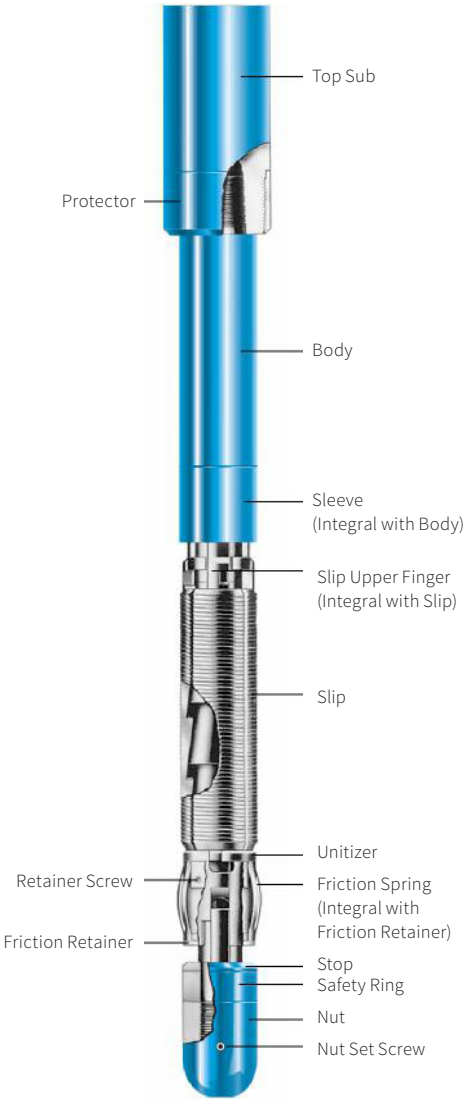
The Bowen full circle releasing spear internally engages and retrieves all sizes of tubing, drill pipe and casing. It may be used in conjunction with internal cutters to perform cut and pull operations, if desired.

Construction

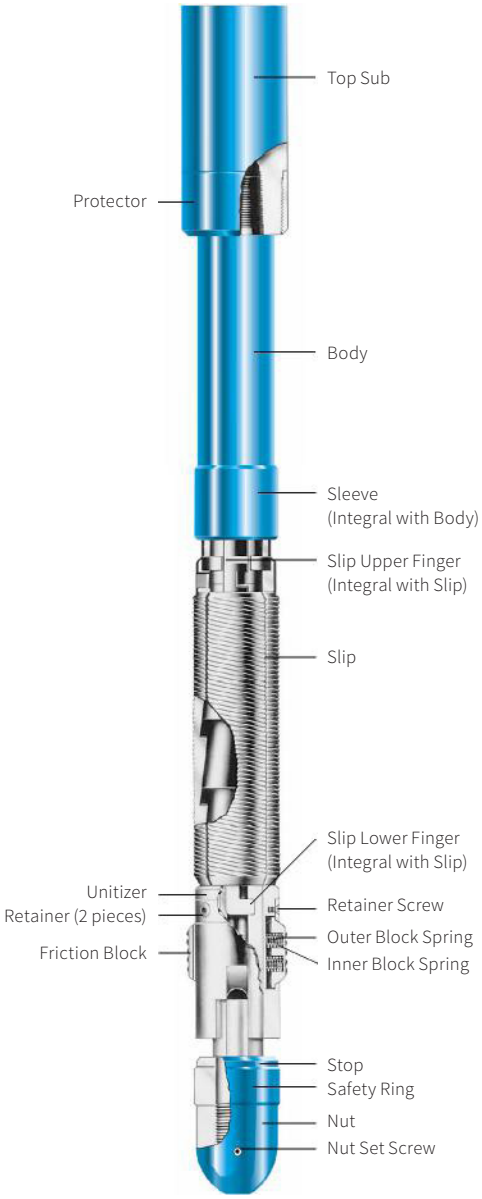
Construction of the Bowen full circle releasing spear varies slightly with size. The tubing and drill pipe size spear for all tubing and drill pipe through 3 ½ in. nominal, 4 in. O.D. tubing, use a friction spring assembly for a friction grip mechanism. All tubing and drill pipe size spears above 3 ½ in. nominal tubing and all casing size full circle spears use friction block assemblies for a friction grip mechanism.

All full circle spears for tubing and drill pipe are composed of a top sub, protector (when a skirt and guide are not used), body, slips, friction spring assembly or friction block assembly, stop, safety ring, nut, and nut set screw.

The friction block assembly includes a unitizer, retainer (2 pieces), friction blocks, retainer screws, outer block springs, and inner block springs.



Bowen Full Circle Releasing Spear with Friction Springs for 2 ⅜ in. thru 3 ½ in. Tubing



Bowen Full Circle Releasing Spear with Wiper Blocks for 4 in. DP thru 5 9/16 in. DP

Bowen™ Full Circle Releasing Spears

The friction spring assembly includes a unitizer, a friction retainer, friction springs (which are integral with the friction retainer), and friction retainer screws.

The top sub serves as a stop and has a suitable thread at the bottom for the option of using a skirt and guide. If a skirt and guide are not used, a thread protector will be provided.

The body has a series of large tapers on its outside diameter which match similar tapers on the inside diameters of the slips. The purpose of these tapers is to cause the slips to expand and contact the fish during operation. Lugs near the upper end of the body maintain the upper ends of the slips in position. The unitizer fits around the lower end of the body, keeping the lower ends of the slips in position. The unitizer is kept in position by the stop, safety ring (or safety ring pack-off), and nut at the lower end of the body.

The retainer holds the friction blocks on all assemblies for 3 ½ in. nominal tubing and above, including all casing sizes. Friction retainers for 3 ½ in. tubing and smaller have integral friction springs.

The full circle slips (3 or more depending on size of the spear) are designed to permit easy entry into or withdrawal from the fish. When retracted, the slips form almost a completely full diameter. As a result of this design, the full circle slips present from 30% to 450% more slip engagement than most other spears on the market. This reduces the tendency to distort or rupture the fish to an absolute minimum.

The purpose of the safety ring is to prevent the spear from entering any fish whose inside diameter is too small to allow entrance of the retracted slips. The nut guides the spear into the fish.

Operation

Determine first that the Bowen full circle releasing spear is the proper size for the fish to be caught, is properly assembled, and is in good working condition. Refer to both the specification table and to the range sheet. Note especially the slip size and the safety ring (or safety ring pack-off) size.

Connect the spear to the fishing string. Set the spear in its retracted position by ascertaining that the slip fingers are engaged with the lugs on the body and with the lugs on the unitizer. In this position the full circle slips are pressed inward and will not engage the pipe as the spear is run in.

To Engage and Pull the Fish

Lower the fishing string slowly until the spear has entered the fish to the desired depth.

Rotate the fishing string at least one-sixth (⅙) of a turn to the left and then pull on the fish by elevating the fishing string.

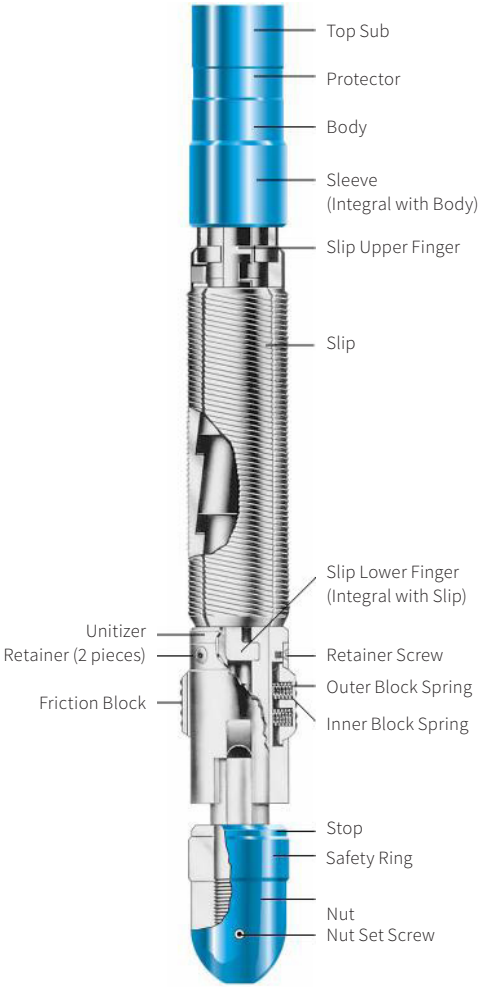
To Release from the Fish

Bump down the full weight of the fishing string, then rotate the fishing string at least one-sixth (⅙) of a turn* to the right and elevate the fishing string until it is clear of the fish.

If the spear will not pull from the fish, bump down; then simultaneously rotate to the right and slowly elevate the fishing string until the spear is clear of the fish. Combined rotation and elevation are important.

*Note:
In deep or crooked holes, it may be necessary to rotate more than one-sixth (⅙) of a turn. Additional rotation will not hinder the operation of the spear.

(To operate left-hand spears, observe the above instructions, except rotate to the right to engage and to the left to release from the fish.)



Bowen Full Circle Releasing Spear for Casing

Operation with Accessories

Safety Ring Pack-off

In order to circulate through the fish, install the proper safety ring pack-off in place of the safety ring. (See range sheets on pages 12-13.)

After the spear has entered and engaged the fish, start the circulation pumps while maintaining a heavy upward pull on the fish. The fluid passing through the spear backs up against the packer, causing a positive seal on the inside of the fish. This will add lifting power to the pulling force exerted on the fishing string while simultaneously starting a breakdown of the sediment or formation between the fish and the walls of the wellbore, freeing the fish.

Mill Type Nut

If the top of the fish is distorted or plugged in any manner that would prevent easy entry into the fish, install a mill type nut in place of the standard bullnose nut.

When the top of the fish is reached, rotate slowly to the right and slowly lower the spear into the fish to the desired depth.

Side Hill Type Nut

If the top of the fish is badly out of line with the wellbore or is imbedded in the sidewall, install a side hill type nut in place of the standard bullnose nut.

When the top of the fish is reached, the fishing string must be lowered, elevated, rotated a portion of a turn and lowered again repeatedly until the leading edge of the side hill type nut encounters the section of the top of the fish that overlaps the wellbore and directs the spear into the fish.

Sub Type Nut

If it is desired to run other tools below the spear, such as an internal cutter, install a sub type nut in place of the standard bullnose nut.

Extensions

Drill pipe and tubing size spears: If the fish has an unengageable upper end, install as many extensions between the top sub and the body of the spear as are required to penetrate the fish to the necessary depth. Standard extensions are 36 in. long and are bored for fluid circulation.

Skirts and Guides

Drill pipe and tubing size spears: If the hole size is so much greater than the fish size that it is possible for the spear to pass alongside the fish, install a proper size skirt on the top sub in place of the cap and, if necessary, install the proper oversize guide on the bottom of the skirt.

Stop Subs

Stop subs may be installed anywhere above the spear for the purpose of limiting the extent of penetration of the spear into the fish. Stop subs are also useful in locating the top of the fish and in bumping down against the fish.

Precautions

In deep or crooked holes, it is necessary to rotate the fishing string more than one-sixth (⅙) of a turn in order to set or to release the spear. Additional rotation does not hurt the operation of the spear.

When handling the fish and rotating to the right or left, it is important to always maintain a heavy upward strain on the fishing string.

Always bump down the full weight of the fishing string before starting releasing operations.

Explanation of Mechanism

Function of the Spear During Engaging Operations

After the spear has reached the top of the fish, slow lowering of the fishing string results in the following:

1. The nut will direct the spear into the fish.

2. The proper safety ring or safety ring pack-off will prevent the spear from entering any fish whose inside diameter is smaller than the outside diameter of the slips in their retracted position.

3. The friction springs or friction blocks will contact the inner wall of the fish and hold the unitizer, friction retainer, and slips stationary until the shoulders at the ends of the tapers on the downwardly traveling body contact the shoulders at the ends of the tapers of the slips and push the assembly into the fish to the desired depth.

4. The slips are now in their uppermost position relative to the body. Thereafter, when the fishing string is rotated to the left, the slips are held stationary by the friction springs or friction blocks until the lugs on the upper end of the body are disengaged from the slots in the upper fingers of the slips. At the same time, the keys on the stop are simultaneously disengaged from the recesses in the unitizer.

5. Then, when the fishing string is elevated, the slips are held stationary by the friction springs or friction blocks and the tapers on the upwardly traveling body expand the slips into tight full circle engagement with the fish.

Function of the Spear During Releasing Operations

1. When the fishing string is bumped down, the slips are held stationary by the friction springs or friction blocks and the body travels downwardly until the lugs on the upper end of the body are opposite the slots in the upper fingers of the slips and the recesses in the unitizer are opposite the tops of the keys on the stop.

2. Next, when the fishing string is rotated to the right, the slips are held stationary by the friction springs or friction blocks until the lugs on the body locate themselves within the slots in the upper fingers of the slips. At the same time, the keys on the stop will locate themselves within the recesses of the unitizer.

3. The spear can now be pulled up or down the fish because when in this position the slips cannot be expanded into the fish by the tapers on the body.

4. As a secondary releasing mechanism, left-hand wickers are cut on the full circle slips and the lugs on the body and the keys on the stop will force the slips to rotate with the spear. After bumping down to break the hold, combined right-hand rotation and slow elevation of the fishing string unscrews the spear from the fish.

Bowen™ Full Circle Releasing Spears

Explanation of Safety Rings and Safety Ring Pack-offs

The outside diameter of the proper safety ring or safety ring pack-off is slightly larger than the outside diameter of the slips in their retracted state. This will prevent the spear from entering any fish whose inside diameter is smaller than the outside diameter of the slips in their retracted state. This ensures the spear's ability to release from any fish that it has penetrated. Safety rings and safety ring pack-offs should, therefore, be selected carefully in accordance with the range sheet on pages 12 and 13 in order to obtain this important safety feature.

The packing elements in safety ring pack-offs are molded rubber rings bonded permanently in the steel bodies. The design of the rubber ring is such that circulation pressure will expand its lip into a leak-proof fit against the inner walls of the fish.

Maintenance

To guard against misruns and to prolong the life of the tool, the spear should be thoroughly serviced after use.

1. Disassemble the spear.
   a. Unscrew the retainer screws and slide the friction retainer down the unitizer.
   b. Lift the slips off the body.
   c. Release the set screws in the nut and unscrew the nut from the body.
   d. Slide off the safety ring (or safety ring pack-off), the stop and the unitizer.
2. Cleanse and carefully check all the parts.
   a. Replace worn or damaged parts.
   b. A damaged sleeve must be machined off the body and a new one welded on.
   c. A rubber portion of the safety ring pack-off can be replaced at the factory.
   d. When the slip fingers need replacement, they may be installed by any field welding shop using the body and the unitizer to ensure proper location of the fingers.
3. Oil or grease all parts.
4. Reassemble in reverse order. Before sliding the friction retainer on the unitizer, make sure that the lower fingers of the slips are engaged in the unitizer.
5. To prevent rust, either grease or paint the exterior of the tool, with the exception of the rubber portion of the safety ring pack-off.

Accessories

Safety Ring Pack-off

The safety ring pack-off is installed in place of the safety ring to pack off the fish. Packing elements are molded rubber rings bonded permanently in the steel bodies. The design of the rubber ring is such that circulation pressure will expand its lip into a leak-proof fit against the inner walls of the fish.

Safety Ring Pack-off

Mill Type Nut

The mill type nut is used in place of the standard bullnose nut to mill away the distorted end of a fish to ensure entrance of the spear into the fish. It is also effective for drilling out a sand-plugged fish.

Side Hill Type Nut

The side hill type nut is used in place of the standard bullnose nut to align the spear with a fish that is imbedded in the sidewall of a hole.

Sub Type Nut

The sub type nut is used in place of the standard bullnose nut to provide the connection required to utilize other tools below the spear such as internal cutters.

Mill Type Nut | **Side Hill Type Nut** | **Sub Type Nut**

Extensions

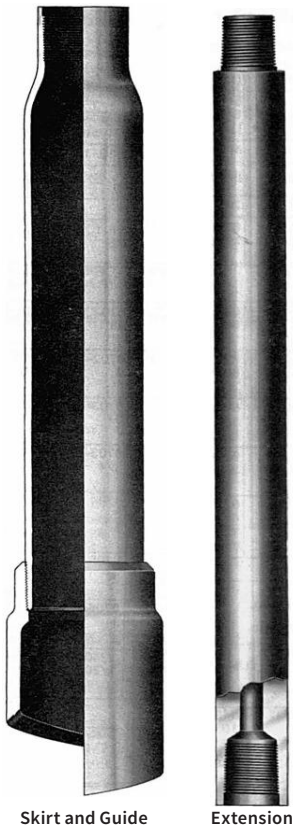
An extension may be installed between the top sub and the body (on drill pipe and tubing size spears only) so that the spear may be adapted to penetrate into a fish to the desired depth.

Skirts and Guides

When the hole size is so much greater than the fish size that it is possible for the spear to pass alongside of the fish, install a skirt on the top sub in place of the cap (on drill pipe and tubing size spears only); then install a guide on the bottom of the skirt. Oversize guides are available for all hole sizes. See page 11.

Stop Subs

Stop subs are useful in spear operations to locate the top of the fish, to control the penetration into the fish, and to bump against the fish. Stop subs may be installed anywhere above the spear without affecting the operating mechanism.



Skirt and Guide | **Extension**

Specifications and Replacement Parts

Specifications for Drill Pipe and Tubing Spears

Nominal Size		2 ⅜ in. D.P.	2 ⅜ in. Tbg.	2 ⅞ in. D.P.	2 ⅞ in. Tbg.	3 ½ in. D.P.	3 ½ in. Tbg.	4 in. D.P.	4 in. Tbg.	4 ½ in. D.P.	5 ½ in. D.P.
Recommended Catching Range		2 ⅜ in. D.P. All Weights	2 ⅜ in. Tbg. All Weights	2 ⅞ in. D.P. All Weights	2 ⅞ in. Tbg. All Weights	3 ½ in. D.P. All Weights	3 ½ in. Tbg. All Weights	4 in. D.P. All Weights	4 in. Tbg. All Weights	4 ½ in. D.P. or Tbg.	5 ½ in. and 5 9/16 in. D.P.
O.D. Smallest Slips Retracted		1 1/16 in.	1 29/32 in.	2 in.	2 5/16 in.	2 7/16 in.	2 13/16 in.	3 3/32 in.	3 5/16 in.	3 15/32 in.	4 ½ in.
Expansion Slips Over Safety Ring		1 1/32 in.	1 1/32 in.	⅜ in.	⅜ in.	13/32 in.	13/32 in.	15/32 in.	15/32 in.	½ in.	9/16 in.
Slip Engagement Area		55 Sq. in.	59 Sq. in.	74 Sq. in.	87 Sq. in.	95 Sq. in.	115 Sq. in.	126 Sq. in.	135 Sq. in.	178 Sq. in.	265 Sq. in.
Complete Assembly	Part No.	6175	6693	6246	6684	7640	6701	7648	6710	6715	6723
	Weight	32 lbs	40 lbs	55 lbs	60 lbs	71 lbs	92 lbs	107 lbs	127 lbs	180 lbs	270 lbs

Replacement Parts for Drill Pipe and Tubing Spears

Top Sub (including Protector)	Part No.	6176	5858	6247	5774	6263	6702	6676	5839	6270	6277
	Weight	20 lbs	20 lbs	27 lbs	19 lbs	28 lbs	28 lbs	50 lbs	35 lbs	52 lbs	80 lbs
Protector	Part No.	6176-1	5858-1	6247-1	5774-1	6263-1	6702-1	6676-1	5839-1	6270-1	6277-1
	Weight	1 lb	1 lb	4 lbs	1 lb	2 ½ lbs	2 lbs	3 ½ lbs	2 lbs	3 ½ lbs	5 ½ lbs
Body	Part No.	6177	6694	6248	6685	7641	6703	7649	6711	6716	6724
	Weight	12 lbs	15 lbs	19 lbs	21 lbs	27 lbs	31 lbs	36 lbs	43 lbs	60 lbs	100 lbs
Sleeve (Integral w/Body)	Part No.	6177-1	6694-1	6248-1	6685-1	7641-1	6703-1	7649-1	6711-1	6716-1	6724-1
	Weight	¼ lb	¼ lb	⅓ lb	½ lb	⅝ lb	¾ lb	⅞ lb	1 lb	1 ¾ lbs	3 lb
Slip (including Fingers)	Part No.	6178	6695	6249	6686	7642	6704	7650	6712	6717	6725
	No. Req'd.	3	3	3	3	3	3	3	3	3	4
	Weight	1 lbs	1 ¼ lbs	1 ⅜ lbs	1 ½ lbs	2 ½ lbs	5 lbs	6 lbs	7 lbs	9 lbs	12 lbs
Unitizer	Part No.	6179	6696	6250	6687	7643	6705	See Optional Accessories on Page 6			
	Weight	1 lb	1 ¼ lbs	1 ¾ lbs	2 lbs	3 lbs	4 lbs				
Friction Retainer (including Springs)	Part No.	6546F	6697F	6542F	6688F	7644F	6706F				
	Weight	½ lb	½ lb	⅝ lb	⅝ lb	1 lb	1 lb				
Friction Retainer Screws (4 Req'd.)	Part No.	6423	6623	6423	6423	6423	23508				
	Weight	1/100 lb	1/100 lb	1/100 lb	1/100 lb	1/100 lb	1/50 lb				
Friction Block Assembly (Includes the Following)	Part No.	2 ⅜ in. Drill Pipe To 3 ½ in. Tubing Spears Do Not Use Friction Block Assembly						14391	14901	14937	14838
	Weight							9 lbs	9 lbs	10 lbs	10 lbs
Unitizer	Part No.							14932	14902	14938	14839
	Weight							6 lbs	6 lbs	7 lbs	7 lbs
Retainer (2 Pieces)	Part No.							14933	14903	14939	14841
	Weight							1 lb	1 lb	1 ½ lbs	1 ½ lbs
Friction Block	Part No.							14934	14904	14940	14840
	No. Req'd.							2	2	2	4
	Weight							½ lb	½ lb	½ lb	½ lb
Retainer Screw	Part No.							15964	23108	15964	25214
	No. Req'd.							4	4	4	4
	Weight							⅛ lb	⅛ lb	⅛ lb	⅛ lb
Outer Block Spring	Part No.							14935	14919	14919	14842
	No. Req'd.							4	4	4	8
	Weight							⅜ lb	⅜ lb	⅜ lb	⅜ lb
Inner Block Spring	Part No.							14936	14920	14920	14837
	No. Req'd.							4	4	4	8
	Weight							¼ lb	¼ lb	¼ lb	¼ lb

Bowen™ Full Circle Releasing Spears

Specifications and Replacement Parts

Specifications for Drill Pipe and Tubing Spears

Nominal Size		2 ⅜ in. D.P.	2 ⅜ in. Tbg.	2 ⅞ in. D.P.	2 ⅞ in. Tbg.	3 ½ in. D.P.	3 ½ in. Tbg.	4 in. D.P.	4 in. Tbg.	4 ½ in. D.P.	5 ½ in. D.P.
Complete Assembly	Part No.	6175	6693	6246	6684	7640	6701	7648	6710	6715	6723

Replacement Parts for Drill Pipe and Tubing Spears

Stop	Part No.	7638	6961	7639	7452	7645	7647	7653	7654	7655	7454
	Weight	⅓ lb	½ lb	⅝ lb	¾ lb	1 lb	1 ½ lbs	2 lbs	2 ½ lbs	3 lbs	4 lbs
Safety Ring	Part No.	6547	6545	6543	6424	6541	6707	6681	6539	6720	6485
	Weight	¾ lb	⅘ lb	1 ½ lbs	1 ¾ lbs	2 lbs	2 ½ lbs	3 lbs	3 ½ lbs	4 ½ lbs	7 lbs
Nut	Part No.	6180	5864	6251	6345	6267	6708	6682	5729	6721	6483
	Weight	2 lbs	2 ½ lbs	3 lbs	4 lbs	4 ½ lbs	5 ½ lbs	7 lbs	9 lbs	12 lbs	28 lbs
Nut Screw (2 Req'd.)	Part No.	23330	23330	17762	17762	17762	23358	23345	23366	23368	23379

How to Order

Specify:
(1) Name and number of assembly or part
(2) Size and type of top connection
(3) Size and weight of pipe to be caught

Recommended Spare Parts:

(1) 2 sets slips for each size to be caught
(2) 1 unitizer (or 2 friction block assemblies)
(3) 2 friction retainers (or 2 friction block assemblies)
(4) 1 stop
(5) 1 safety ring for each size of slips

Accessories for Drill Pipe and Tubing Spears

Safety Ring Pack-off	Part No.	6181	6174	6252	5779	6268	6709	6683	5730	6722	6484
	Weight	⅝ lb	¾ lb	1 lb	1 ¼ lbs	1 ½ lbs	1 ¾ lbs	2 ½ lbs	2 ¾ lbs	3 ½ lbs	6 lbs
Extension (3 feet long)	Part No.	6176 - 6177	5858 - 6694	6247- 6248	5774 - 6685	6263 - 6264	6702 - 6703	6676 - 7649	5839 - 6711	6270 - 6716	6277 - 6724
	Weight	22 lbs	26 lbs	29 lbs	40 lbs	46 lbs	60 lbs	70 lbs	75 lbs	85 lbs	130 lbs
Mill Type Nut	Part No.	6180A	5864A	6251A	6345A	6267A	6708A	6682A	5729A	6721A	6483A
	Weight	1 ¾ lbs	2 lbs	2 ½ lbs	3 ¼ lbs	3 ¾ lbs	4 ½ lbs	6 lbs	8 lbs	11 lbs	26 lbs
Sub Type Nut	Part No.	6180B	5864B	6251B	6345B	6267B	6708B	6682B	5729B	6721B	6483B
	Weight	2 ½ lbs	3 lbs	3 ½ lbs	4 ¾ lbs	5 ½ lbs	6 ½ lbs	9 lbs	11 lbs	14 ½ lbs	31 lbs
Side Hill Type Nut	Part No.	6180C	5864C	6251C	6345C	6267C	6708C	6682C	5729C	6721C	6483C
	Weight	2 lbs	2 ½ lbs	3 lbs	4 lbs	4 ¾ lbs	5 ½ lbs	8 lbs	9 ½ lbs	13 lbs	29 lbs

How to Order

Specify:
(1) Size and type of required connection
(2) Weight or weights of pipe to be retrieved

Recommended Spare Parts:

(1) 3 safety rings for each size of slips

Optional Accessories

Unitizer	Part No.	—	—	—	—	—	—	7651	6713	6718	6726
	Weight	—	—	—	—	—	—	5 ½ lbs	7 lbs	8 ½ lbs	11 lbs
Friction Retainer	Part No.	—	—	—	—	—	—	7652F	6714F	6719F	6727F
	Weight	—	—	—	—	—	—	2 lbs	2 ½ lbs	3 lbs	4 ½ lbs
Friction Retainer Screws (4 Req'd.) (incl. Springs)	Part No.	—	—	—	—	—	—	7646	7646	7646	6373-1
	Weight	—	—	—	—	—	—	1/50 lb	1/50 lb	1/50 lb	1/50 lb

Recommended Spare Parts:

(1) Unitizer
(2) Friction retainer

Specifications and Replacement Parts

Specifications for Casing Spears

Nominal Catch Size		4 ½ in.	5 in.	5 ½ in.	6 in.	6 ⅝ in.	7 in.	7 ⅝ in.	8 ⅝ in.	9 ⅝ in.	10 ¾ in.	11 ¾ in.	13 ⅜ in.
Recommended Catching Range (for all weights)		4 ½ in., 4 ¾ in., 5 in. All Weights	5 in. All Weights	5 ½ in. All Weights	6 in. All Weights	6 ⅝ in. All Weights	7 in. All Weights	7 ⅝ in. All Weights	8 ⅝ in., 9 in. All Weights	9 ⅝ in., 10 in. All Weights	10 ¾ in. All Weights	11 ¾ in., 12 in. All Weights	13 in., 13 ⅜ in. All Weights
Expansion Slips Over Safety Ring		½ in.	½ in.	9/16 in.	9/16 in.	⅝ in.	⅝ in.	⅝ in.	11/16 in.	¾ in.	13/16 in.	13/16 in.	13/16 in.
O.D. Smallest Slips Retracted		3 25/32 in.	4 in.	4 ½ in.	5 1/8 in.	5 ½ in.	5 ¾ in.	6 7/16 in.	7 ¼ in.	8 3/16 in.	9 ½ in.	10 9/16 in.	12 in.
Slip Engagement Area		210 Sq. in.	217 Sq. in.	265 Sq. in.	315 Sq. in.	350 Sq. in.	365 Sq. in.	430 Sq. in.	485 Sq. in.	580 Sq. in.	690 Sq. in.	785 Sq. in.	890 Sq. in.
Complete Assembly	Part No.	10536	9337	9342	9347	9796	9352	10608	6318	10473	6067	6073	6081
	Weight	132 lbs	169 lbs	226 lbs	283 lbs	358 lbs	398 lbs	502 lbs	652 lbs	833 lbs	1240 lbs	1552 lbs	2017 lbs

Replacement Parts

Body	Part No.	10537	9338	9343	9348	9797	9353	10609	6319	10474	6068	6074	6082
	Weight	71 lbs	86 lbs	110 lbs	146 lbs	189 lbs	205 lbs	258 lbs	323 lbs	432 lbs	670 lbs	840 lbs	1100 lbs
Sleeve Integral with Body	Part No.	10537-1	9338-1	9343-1	9348-1	9797-1	9353-1	10609-1	6319-1	10474-1	6068-1	6074-1	6082-1
	Weight	2 ¼ lbs	2 ½ lbs	3 lbs	4 lbs	5 lbs	6 lbs	8 lbs	12 lbs	15 lbs	20 lbs	25 lbs	32 lbs
Slip (including Fingers)	Part No.	10538	9339	9344	9349	9798	9354	10610	6320	10475	6069	6075	6083
	Weight	10 lbs	11 lbs	12 lbs	14 lbs	17 lbs	20 lbs	24 lbs	29 lbs	36 lbs	44 lbs	55 lbs	72 lbs
	No. Req'd.	3	3	4	4	4	4	4	4	4	6	6	6
Friction Block Assembly (includes the following)	Part No.	14923	14943	14949	14950	14956	14958	14964	14970	14976	14981	14986	14991
	Weight	12 lbs	13 ½ lbs	17 ½ lbs	23 lbs	31 lbs	40 ½ lbs	50 lbs	60 ½ lbs	71 lbs	86 lbs	92 ½ lbs	138 lbs
Unitizer	Part No.	14924	14944	14962	14951	14957	14959	14965	14971	14977	14982	14987	14992
	Weight	8 lbs	9 lbs	11 lbs	14 lbs	18 lbs	23 lbs	30 lbs	38 lbs	48 lbs	60 lbs	74 lbs	89 lbs
Retainer (2 Pieces)	Part No.	14925	14945	14841	14952	14834	14960	14966	14972	14978	14983	14988	14993
	Weight	3/4 lbs	1 lbs	1 lbs	1 ½ lbs	2 lbs	2 ½ lbs	3 lbs	3 ½ lbs	4 lbs	5 lbs	5 ½ lbs	6 lbs
Friction Block	Part No.	14927	14946	14840	14953	14835	14961	14967	14973	14979	14984	14989	14994
	Weight	1 ¼ lbs	1 lbs	1 lbs	1 ½ lbs	2 lbs	2 ½ lbs	3 lbs	3 ½ lbs	4 lbs	4 ½ lbs	5 lbs	6 lbs
	No. Req'd.	2	2	4	4	4	4	4	4	4	4	6	6
Retainer Screw	Part No.	15964	25214	25214	23126	23108	23108	23109	25221	25221	25221	25221	25221
	Weight	1/32 lb	1/32 lb	1/32 lb	1/16 lb	1/16 lb	1/16 lb	⅛ lb	⅛ lb	⅛ lb	⅛ lb	⅛ lb	⅛ lb
	No. Req'd.	2	4	4	4	8	4	4	4	4	4	6	6
Outer Block Spring	Part No.	14926	14919	14842	14842	14836	14836	14836	14836	17694	17694	14990	14996
	Weight	¼ lb	¼ lb	¼ lb	¼ lb	⅜ lb	⅜ lb	⅜ lb	⅜ lb	½ lb	½ lb	½ lb	⅜ lb
	No. Req'd.	2	6	4	4	8	8	8	8	12	12	18	18
Block Spring Inner	Part No.	16589	14920	14837	14837	14837	14837	14837	14837	11816	11816	11816	11816
	Weight	⅛ lb	⅛ lb	⅛ lb	⅛ lb	¼ lb	¼ lb	¼ lb	¼ lb	⅜ lb	⅜ lb	⅜ lb	⅜ lb
	No. Req'd.	2	6	4	4	8	8	8	8	12	12	18	18
Stop	Part No.	A-7603	A-7580	A-7454	7597	B-6965	7609	7626	7494	7531	7627	7628	7629
	Weight	2 ¼ lbs	3 lbs	4 lbs	5 lbs	7 lbs	9 lbs	11 lbs	14 lbs	18 lbs	23 lbs	29 lbs	36 lbs
Safety Ring	Part No.	6733	7581	6485	6520	6488	6522	6524	6528	6531	6533	6535	6537
	Weight	5 lbs	6 lbs	7 lbs	8 ½ lbs	11 lbs	12 lbs	16 lbs	25 lbs	32 lbs	45 lbs	56 lbs	73 lbs
Nut	Part No.	6376	7582	6483	6040	6108	6046	6054	6321	6062	6071	6079	6087
	Weight	17 lbs	21 lbs	28 lbs	33 lbs	42 lbs	46 lbs	57 lbs	86 lbs	107 lbs	134 lbs	168 lbs	216 lbs
Nut Set Screw	Part No.	23368	23368	23379	23379	23379	23379	23386	23386	23386	41056	41056	41056
	Weight	2 lbs	2 lbs	2 lbs	2 lbs	2 lbs	2 lbs	2 lbs	2 lbs	2 lbs	2 lbs	2 lbs	2 lbs

How to Order

Specify:

(1) Name and number of assembly or parts
(2) Size and type of required connection
(3) Size and weight of pipe to be retrieved

Recommended Spare Parts:

(1) 2 sets slips for each size to be caught
(2) 2 friction block assemblies
(3) 1 Stop
(4) 1 Safety ring for each size of slips

Bowen™ Full Circle Releasing Spears

Specifications and Replacement Parts

Specifications for Drill Pipe and Tubing Spears

Nominal Size		4 ½ in.	5 in.	5 ½ in.	6 in.	6 ⅝ in.	7 in.	7 ⅝ in.	8 ⅝ in.	9 ⅝ in.	10 ¾ in.	11 ¾ in.	13 ⅜ in.
Complete Assembly	Part No.	10536	9337	9342	9347	9796	9352	10608	6318	10473	6067	6073	6081

Accessories

Safety Ring Pack-off	Part No.	6734	7583	6484	6041	6487	6047	6055	6529	6063	6072	6080	6088
	Weight	4 lbs	5 lbs	6 lbs	7 lbs	9 lbs	10 lbs	12 lbs	17 lbs	23 lbs	35 lbs	44 lbs	59 lbs
Mill Type Nut	Part No.	6376A	7582A	6483A	6040A	6108A	6046A	6054A	6321A	6062A	6071A	6079A	6087A
	Weight	16 lbs	20 lbs	26 lbs	30 lbs	39 lbs	43 lbs	53 lbs	81 lbs	102 lbs	128 lbs	160 lbs	205 lbs
Sub Type Nut	Part No.	6376B	7582B	6483B	6040B	6108B	6046B	6054B	6321B	6062B	6071B	6079B	6087B
	Weight	19 lbs	24 lbs	31 lbs	36 lbs	46 lbs	51 lbs	63 lbs	94 lbs	118 lbs	148 lbs	185 lbs	238 lbs
Side Hill Type Nut	Part No.	6376C	7582C	6483C	6040C	6108C	6046C	6054C	6321C	6062C	6071C	6079C	6087C
	Weight	18 lbs	23 lbs	28 lbs	33 lbs	42 lbs	47 lbs	58 lbs	88 lbs	110 lbs	138 lbs	172 lbs	221 lbs

Optional Accessories

Unitizer	Part No.	10539	9340	9345	9350	9799	9355	10611	7493	10476	6070	6078	6086
	Weight	8 lbs	9 lbs	11 lbs	14 lbs	18 lbs	23 lbs	30 lbs	38 lbs	48 lbs	60 lbs	74 lbs	89 lbs
Friction Retainer (Incl. Springs)	Part No.	10540	9341	9346	9351	9800	9356	10612	7495 F	10477	6532F	6534	6536F
	Weight	3 lbs	3 ¾ lbs	4 ½ lbs	6 lbs	7 ½ lbs	9 lbs	12 lbs	15 lbs	20 lbs	24 lbs	30 lbs	39 lbs
Friction Retainer Screws (2 Req'd.)	Part No.	6373-1	6373-1	6373-1	7596	6964	6964	7496	7496	7496	7496	7496	7496
	Weight	1/50 lb	1/50 lb	1/50 lb	1/30 lb	1/20 lb	1/20 lb	1/10 lb	1/10 lb	1/10 lb	1/10 lb	1/10 lb	1/10 lb

How to Order

Specify:
(1) Name and number of assembly or parts
(2) Size and type of required connection
(3) Size and weight of pipe to be retrieved

Recommended Spare Parts:

(1) 2 sets slips for each size to be caught
(2) 2 friction block assemblies
(2) 1 stop
(4) 1 safety ring for each size of slips

Specifications and Replacement Parts

Skirts for All Types of Spears

Size		2 3/8 in.	2 7/8 in.	3 1/2 in.	4 in.	4 1/2 in.	5 1/2 in.	6 5/8 in.
4 in. OD	Part No.	4644	4646	—	—	—	—	—
	Weight	17 lbs	17 lbs	—	—	—	—	—
4 1/2 in.	Part No.	4645	4647	4649	19446	—	—	—
	Weight	19 lbs	19 lbs	27 lbs	27 lbs	—	—	—
5 in. OD	Part No.	—	4648	4650	19447	—	—	—
	Weight	—	24 lbs	30 lbs	30 lbs	—	—	—
5 1/2 in. OD	Part No.	—	4778	4651	19448	4652	—	—
	Weight	—	32 lbs	34 lbs	34 lbs	41 lbs	—	—
6 in. OD	Part No.	—	—	19441	19449	19454	—	—
	Weight	—	—	46 lbs	46 lbs	48 lbs	—	—
6 5/8 in. OD	Part No.	—	—	5495	19450	4653	4655	—
	Weight	—	—	58 lbs	58 lbs	58 lbs	66 lbs	—
7 in. OD	Part No.	—	—	5494	19451	4654	5497	—
	Weight	—	—	64 lbs	64 lbs	64 lbs	64 lbs	—
7 5/8 in. OD	Part No.	—	—	4772	19452	4864	4656	4658
	Weight	—	—	78 lbs	78 lbs	78 lbs	78 lbs	78 lbs
8 5/8 in. OD	Part No.	—	—	4773	19453	5496	4657	4659
	Weight	—	—	87 lbs	87 lbs	87 lbs	87 lbs	87 lbs
9 in. OD	Part No.	—	—	—	—	—	4792	4660
	Weight	—	—	—	—	—	93 lbs	93 lbs
9 5/8 in. OD	Part No.	—	—	—	—	—	—	4661
	Weight	—	—	—	—	—	—	98 lbs

How to Order

Specify:

(1) Number of assembly

(2) Assembly number and size of taper tap or spear to be used with skirt

(3) Outside diameter of skirt

Skirt Guides for All Types of Spears

Skirt O.D.		4 in.	4 1/2 in.	5 in.	5 1/2 in.	6 in.	6 5/8 in.	7 in.	7 5/8 in.	8 5/8 in.	9 in.	9 5/8 in.
Over 5 in. to 6 5 in. OD	Part No.	4662	4663	4664	—	—	—	—	—	—	—	—
	Weight	27 lbs	30 lbs	34 lbs	—	—	—	—	—	—	—	—
Over 6 in. to 7 in. OD	Part No.	4662	4663	4664	4665	—	—	—	—	—	—	—
	Weight	34 lbs	38 lbs	42 lbs	49 lbs	—	—	—	—	—	—	
Over 7 in. to 8 in. OD	Part No.	—	4663	4664	4665	4685	—	—	—	—	—	—
	Weight	—	48 lbs	53 lbs	55 lbs	58 lbs	—	—	—	—	—	—
Over 8 in. to 9 in. OD	Part No.	—	4663	4664	4665	4685	4299	3824	—	—	—	—
	Weight	—	53 lbs	58 lbs	60 lbs	62 lbs	64 lbs	65 lbs	—	—	—	—
Over 9 in. to 10 in. OD	Part No.	—	—	—	4665	4685	4299	3824	4666	—	—	—
	Weight	—	—	—	65 lbs	67 lbs	70 lbs	72 lbs	74 lbs	—	—	—
Over 10 in. to 11 in. OD	Part No.	—	—	—	4665	4685	4299	3824	4666	4295	—	—
	Weight	—	—	—	70 lbs	76 lbs	79 lbs	82 lbs	82 lbs	84 lbs	—	—
Over 11 in. to 12 in. OD	Part No.	—	—	—	—	—	4299	3824	4666	4295	4667	4668
	Weight	—	—	—	—	—	79 lbs	82 lbs	84 lbs	87 lbs	89 lbs	91 lbs
Over 12 in. to 13 in. OD	Part No.	—	—	—	—	—	—	3824	4666	4295	4667	4668
	Weight	—	—	—	—	—	—	87 lbs	89 lbs	91 lbs	93 lbs	95 lbs

Bowen™ Full Circle Releasing Spears

Range Sheets

Range Sheet for Drill Pipe and Tubing

For Fish Size		Use Spear		Use Slip		Use Friction Block		Use Safety Ring Or Safety Ring Pack-off		
Drill Pipe or Tubing Size	Weight	Nominal Casing Size	Part No.	Size (Stamped)	Part No.	Size (Stamped)	Part No.	Size (Stamped)	SR Part No.	SRPO Part No.
2 ⅜ in. DP	6.65 lbs	2 ⅜ in. DP	6175	1 13/16 in.	6178	—	—	1 11/16 in.	6547	6181
2 ⅜ in. DP	4.80 lbs	2 ⅜ in. DP	6175	2 in.	6178	—	—	1 ⅞ in.	6547	6181
2 ⅜ in. Tubing	4.7 lbs, 4.6 lbs, and 4.0 lbs	2 ⅜ in. Tubing	6693	2 1/32 in.	6695	—	—	1 29/32 in.	6545	6174
2 ⅞ in. DP	10.40 lbs	2 ⅞ in. DP	6246	2 5/32 in.	C6249	—	—	2 in.	6543	6252
2 ⅞ in. DP	8.35 lbs	2 ⅞ in. DP	6246	2 1/32 in.	C6249	—	—	2 3/16 in.	6543	6252
2 ⅞ in. DP	6.45 lbs	2 ⅞ in. DP	6246	2 ½ in.	C6249	—	—	2 1/32 in.	6543	6252
2 ⅞ in. Tubing	8.7 lbs	2 ⅞ in. Tubing	6246	2 ¼ in.	C6249	—	—	2 ⅛ in.	6543	6252
2 ⅞ in. Tubing	8.7 lbs	2 ⅞ in. Tubing	6684	2 ¼ in.	6686	—	—	2 ⅛ in.	6424	5779
2 ⅞ in. Tubing	6.50 lbs and 6.40 lbs	2 ⅞ in. Tubing	6684	2 7/16 in.	6686	—	—	2 5/16 in.	6424	5779
3 ½ in. DP	15.5 lbs	3 ½ in. DP	7640	2 ⅝ in.	7642	—	—	2 7/16 in.	6541	6268
3 ½ in. DP	13.3 lbs	3 ½ in. DP	7640	2 25/32 in.	7642	—	—	2 19/32 in.	6541	6268
3 ½ in. DP	11.2 lbs	3 ½ in. DP	7640	2 15/16 in.	7642	—	—	2 ¾ in.	6541	6268
3 ½ in. DP	8.5 lbs	3 ½ in. DP	7640	3 3/32 in.	7642	—	—	2 29/32 in.	6541	6268
3 ½ in. Tubing	10.2 lbs, 9.3 lbs, and 9.2 lbs	3 ½ in. Tubing	6701	2 31/32 in.	6704	—	—	2 13/16 in.	6707	6709
3 ½ in. Tubing	7.70 lbs	3 ½ in. Tubing	6701	3 ⅛ in.	6704	—	—	2 15/16 in.	6707	6709
4 in. DP	15.7 lbs	4 in. DP	7648	3 9/32 in.	7650	—	14934	3 3/32 in.	6681	6683
4 in. DP	14.00 lbs	4 in. DP	7648	3 1/32 in.	7650	—	—	3 5/32 in.	6681	6683
4 in. Tubing	11.0 lbs	4 in. Tubing	6710	3 ½ in.	6712	3 ¼ in.	14904	3 5/16 in.	6539	5730
4 in. Tubing	9.5 lbs	4 in. Tubing	6710	3 19/32 in.	6712	—	—	3 13/32 in.	6539	5730
4 ½ in. DP	20 lbs	4 ½ in. DP	6715	3 1/16 in.	6717	3 ⅝ in.	14940	3 15/32 in.	6720	6722
4 ½ in. DP	18.1 lbs and 16.6 lbs	4 ½ in. DP	6715	3 ⅞ in.	6717	—	—	3 21/32 in.	6720	6722
4 ½ in. DP	13.75 lbs and 12.75 lbs	4 ½ in. DP	6715	4 1/32 in.	6717	—	—	3 13/16 in.	6720	6722
5 ½ in. DP	24.7 lbs and 21.9 lbs	5 ½ in. DP	6723	4 ¾ in.	6725	4 ¾ in.	14840	4 ½ in.	6485	6484
5 9/16 in. DP	25.25 lbs	5 ½ in. DP	6723	4 ¾ in.	6725	4 ¾ in.	14840	4 ½ in.	6485	6484
5 9/16 in. DP	22.2 lbs	5 ½ in. DP	6723	4 ⅞ in.	6725	—	—	4 ⅝ in.	6485	6484
5 9/16 in. DP	19.0 lbs	5 ½ in. DP	6723	5 1/16 in.	6725	—	—	4 13/16 in.	6485	6484

NOTE:
The spears for drill pipe listed above will pass through API, Reed, Spang, Hughes, and Hydril I.F. tool joints and through internal upset section on Spang double-seal external upset drill pipe.

NOTES: Caution.
1) 6684 dressed for 2 ⅞ in. 8.7 lb. will not go in completely. The top sub is 2 5/16 in. and will not go into tubing.
2) 6246 dressed for 2 ⅞ in. 8.7 lb. will not go in completely. The top sub is 3 ⅝ in. O.D. and will not go in completely.

Range Sheets

Range Sheet for Casing

For Fish Size		Use Spear		Use Slip		Use Friction Block		Use Safety Ring Or Safety Ring Pack-off		
Casing Size	Weight	Nominal Casing Size	Part No.	Size (Stamped)	Part No.	Size (Stamped)	Part No.	Size (Stamped)	SR Part No.	SRPO Part No.
4 ½ in.	13.5 lbs and 11.6 lbs	4 ½ in.	10536	4 in	10538	14927	4 ½ in.	3 25/32 in.	6733	6734
4 ½ in.	9.5 lbs	4 ½ in.	10536	4 5/32 in	10538	—	—	3 15/16 in.	6733	6734
4 ¾ in.	16.0 lbs	4 ½ in.	10536	4 5/32 in	10538	14927	4 ½ in.	3 15/16 in.	6733	6734
5 in.	21.0 lbs	5 in.	9337	4 7/32 in	9339	14946	4 5/8 in.	4 in.	7581	7583
5 in.	18.0 lbs and 17.7 lbs	5 in.	9337	4 11/32 in	9339	—	—	4 1/8 in.	7581	7583
5 in.*	15.0 lbs	5 in.	9337	4 15/32 in	9339	—	—	4 1/4 in.	7581	7583
5 in.	13.0 lbs and 11.5 lbs	5 in.	9337	4 19/32 in	9339	—	—	4 3/8 in.	7581	7583
5 ½ in.	23.0 lbs	5 ½ in.	9342	4 ¾ in	9344	14840	4 ¾ in	4 ½ in.	6485	6484
5 ½ in.	20.0 lbs and 17.0 lbs	5 ½ in.	9342	4 7/8 in	9344	—	—	4 5/8 in.	6485	6484
5 ½ in.	15.5 lbs, 14.0 lbs, and 13.0 lbs	5 ½ in.	9342	5 1/16 in	9344	—	—	4 13/16 in.	6485	6484
5 ¾ in †	22.5 lbs and 19.5 lbs	5 ½ in.	9342	5 1/16 in	9344	14840	5 1/16 in	4 13/16 in.	6485	6484
5 ¾ in †	17.0 lbs and 14.0 lbs	5 ½ in.	9342	5 5/16 in	9344	—	—	5 1/16 in.	6485	6484
6 in.	23.0 lbs	6 in.	9347	5 5/16 in	9349	14953	4 ¾ in	5 1/16 in.	6520	6041
6 in.	20.0 lbs and 18.0 lbs	6 in.	9347	5 7/16 in	9349	—	—	5 3/16 in.	6520	6041
6 in.	16.0 lbs and 15.0 lbs	6 in.	9347	5 19/32 in	9349	—	—	5 11/32 in.	6520	6041
6 5/8 in.	32.0 lbs, 29.0 lbs, and 28.0 lbs	6 5/8 in.	9796	5 ¾ in	9798	14835	5 ¾ in	5 ½ in.	6488	6487
6 5/8 in.	26.8 lbs, 26.0 lbs, 24.0 lbs, and 22.0 lbs	6 5/8 in.	9796	5 15/16 in	9798	—	—	5 11/16 in	6488	6487
6 5/8 in.	20.0 lbs and 17.0 lbs	6 5/8 in.	9796	6 1/8 in	9798	14835	6 1/8 in	5 7/8 in.	6488	6487
7 in.	40.0 lbs	6 5/8 in.	9796	5 15/16 in	9798	14835	6 1/8 in	5 11/16 in	6488	6487
7 in.	38.0 lbs and 35.0 lbs	7 in.	9352	6 in	9354	14961	5 ¾ in	5 ¾ in	6522	6047
7 in.	32.0 lbs, 30.0 lbs, 29.0 lbs, and 28.0 lbs	7 in.	9352	6 3/16 in	9354	—	—	5 15/16 in.	6522	6047
7 in.	26.0 lbs, 24.0 lbs, 23.0 lbs, and 22.0 lbs	7 in.	9352	6 3/8 in	9354	—	—	6 1/8 in	6522	6047
7 in.	20.0 lbs and 17.0 lbs	7 in.	9352	6 17/32 in	9354	—	—	6 9/32 in.	6522	6047
7 5/8 in.	39.0 lbs and 33.7 lbs	7 5/8 in.	10608	6 11/16 in	10610	14967	6 5/8 in.	6 7/16 in.	6524	6055
7 5/8 in.	29.7 lbs and 26.4 lbs	7 5/8 in.	10608	6 15/16 in	10610	—	—	6 11/16 in.	6524	6055
7 5/8 in.	24.0 lbs and 20.0 lbs	7 5/8 in.	10608	7 3/32 in	10610	—	—	6 27/32 in.	6524	6055
8 in.	26.0 lbs	7 5/8 in.	10608	7 7/16 in	10610	14967	6 7/8 in.	7 3/16 in.	6524	6055
8 1/8 in.	39.5 lbs and 35.5 lbs	7 5/8 in.	10608	7 1/4 in	10610	14967	6 7/8 in.	7 in.	6524	6055
8 1/8 in.	32.0 lbs and 28.0 lbs	7 5/8 in.	10608	7 7/16 in	10610	—	—	7 3/16 in.	6524	6055
8 5/8 in.	49.0 lbs and 44.0 lbs	8 5/8 in.	6318	7 9/16 in	6320	14973	7 ¾ in	7 1/4 in.	6528	6529
8 5/8 in.	43.0 lbs, 40.0 lbs, 38.0 lbs, and 36.0 lbs	8 5/8 in.	6318	7 13/16 in	6320	—	—	7 1/2 in.	6528	6529
8 5/8 in.*	32.0 lbs, 28.0 lbs and 24 lbs	8 5/8 in.	6318	8 1/16 in	6320	—	—	7 ¾ in	6528	6529
9 in.	55 lbs	8 5/8 in.	6318	7 13/16 in	6320	14973	7 ¾ in	7 1/2 in.	6528	6529
9 in.	45 lbs	8 5/8 in.	6318	8 1/16 in	6320	—	—	7 ¾ in	6528	6529
9 in.	40.0 lbs, 38.0 lbs, and 34.0 lbs	8 5/8 in.	6318	8 5/16 in	6320	—	—	8 in	6528	6529
9 5/8 in.	58.0 lbs, 53.5 lbs, and 47.0 lbs	9 5/8 in.	10473	8 1/2 in.	10475	14979	8 7/8 in	8 3/16 in	6531	6063
9 5/8 in.	43.5 lbs, 40.0 lbs, and 36.0 lbs	9 5/8 in.	10473	8 13/16 in.	10475	—	—	8 1/2 in	6531	6063
9 5/8 in.	32.3 lbs and 29.3 lbs	9 5/8 in.	10473	9 in	10475	—	—	8 11/16 in	6531	6063
10 in.	33.0 lbs	9 5/8 in.	10473	9 3/8 in	10475	14979	8 7/8 in	9 1/16 in	6531	6063
10 ¾ in	55.5 lbs, 54.0 lbs, 51.0 lbs, and 48.0 lbs	10 ¾ in	6067	9 13/16 in	6069	14984	10 in	9 1/2 in.	6533	6072
10 ¾ in	45.5 lbs, 45.0 lbs, 40.5 lbs, 40.0 lbs, and 32.75 lbs	10 ¾ in	6067	10 1/16 in.	6069	—	—	9 ¾ in	6533	6072
11 ¾ in	60.0 lbs and 54.0 lbs	11 ¾ in	6073	10 7/8 in	6075	14989	—	10 9/16 in	6535	6080
11 ¾ in	47.0 lbs, 42.0 lbs, and 38.0 lbs	11 ¾ in	6073	11 1/8 in	6075	—	—	10 13/16 in	6535	6080
12 in	40.0 lbs	11 ¾ in	6073	11 3/8 in	6075	14989	—	11 1/16 in	6535	6080
13 in	54.0 lbs, 50.0 lbs, 45.0 lbs, and 40 lbs	13 3/8 in	6081	12 3/8 in	6083	14994	12 1/4 in	12 in.	6537	6088
13 3/8 in	83.0 lbs, 72.0 lbs, 68.0 lbs, and 61.0 lbs	13 3/8 in	6081	12 3/8 in	6083	14994	12 1/4 in	12 in.	6537	6088
13 3/8 in	54.4 lbs and 48.0 lbs	13 3/8 in	6081	12 5/8 in.	6083	—	—	12 1/4 in	6537	6088
16 in	84.0 lbs, 75.0 lbs, 65.0 lbs, and 55.0 lbs	13 3/8 in	6081	15 3/16 in.	6083	14994	15 in	14 13/16 in	6537	6088

NOTE:
* If spear must pass through joint on 5 in. -15.0 lb Spang Extreme Line Casing or through joint on 8 5/8 in. - 32 lb Spang Extreme Line Casing, use next smaller size slip and safety ring, or safety ring pack-off.
† Requires oversize friction retainer, Part No. 9346-FO.

Bowen™ Full Circle Releasing Spears

Strength Chart

Full Circle Releasing Spear Strength Chart

Complete Assembly No.	Slip No.	Yield Strength of Body	Complete Assembly No.	Slip No.	Yield Strength of Body
6067	6069	3,300,000 lbs	6723	6725	628,000 lbs
6073	6075	4,300,000 lbs	7640	7642	172,000 lbs
6081	6083	5,961,000 lbs	7648	7650	296,000 lbs
6175	6178	56,400 lbs	9337	9339	454,000 lbs
6246	6249	110,400 lbs	9342	9344	628,000 lbs
6318	6320	1,761,000 lbs	9347	9349	945,000 lbs
6684	6686	134,000 lbs	9352	9354	1,228,000 lbs
6693	6695	71,500 lbs	9796	9798	1,060,000 lbs
6701	6704	224,000 lbs	10473	10475	2,324,000 lbs
6710	6712	275,000 lbs	10536	10538	376,000 lbs
6715	6717	318,000 lbs	10608	10610	1,414,000 lbs

NOTE:
All listed strengths are theoretical calculations based upon the yield strength of the material and are accurate within 20%. They refer to the tensile strength of the body and do not relate to the strength of the fish being engaged. Thin walled or old corroded pipe may allow the grapple to expand to the point where it can jump the mandrel spirals. Jarring may amplify the pull load by a factor of 3 to 10.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