Junk Mills

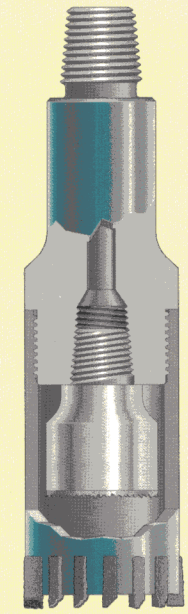
Gotco junk mills are produced for high strength heat treated alloy. All mills are available as bit type or with optional fishing neck and hard surface wear pads. Large circulation ports and ample fluid channels provide cooling and efficient removal of cuttings. Gotco mills are available dressed with super tough Gotcoloy (crushed, sintered tungsten carbide.) For those customers who prefer to dress their own mill, Gotco offers a complete line of mills without carbide dressing at a substantial savings. To further increase the versatility of Gotco mills, the API connection can be left blank as well. Gotco mills are available in standard sizes as well as special orders in any length or diameter.

Junk Mills

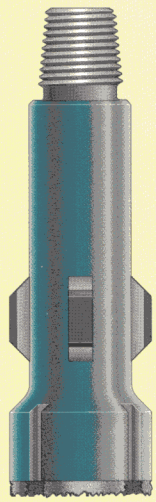
Rugged Gotco junk mills make milling jobs easy even when cutting the toughest fish such as alloy-steel packers, squeeze tools, perforating guns, drill pipe, tool joints, reamers, reamer blades, and rock bits. Gotco junk mills are available with concave, convex, or flat bottoms in various combinations of fishing necks and stabilizers. Any specific length neck, stabilizer, or combination of both may also be ordered. Available in O.D.'s from 1¾ to 18½ inches with 4 to 8 blades in 10 to 64 inch lengths with bladed, concave, flat bottom, or offset design. Gotco junk mills are also offered with a skirt as an option.

Skirted Junk Mills

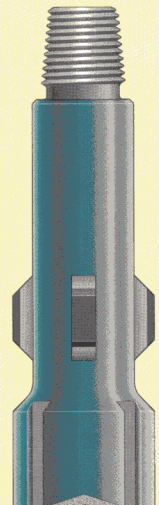
The Gotco Skirted Mill is a three piece assembly used to mill junk or tubular inside casing. The assembly consists of a top sub, skirt, and flat bottom junk mill. An optional bladed type junk mill is also available. The mill and skirt are both made up to the lower end of the top sub. The skirt surrounds the mill and extends suitably beyond the mill face to act as a guide and centralizes the junk to be milled. The skirt has hard metal ribs to increase wear resistance but does not contain any carbide which could damage the casing. The carbide dressing on the mill face will assure fast efficient milling while the skirt protects the casing from the milling operation.



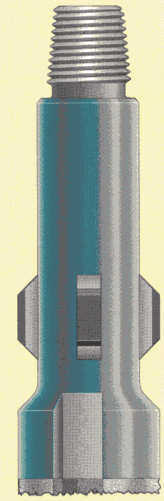
Skirted Junk Mill



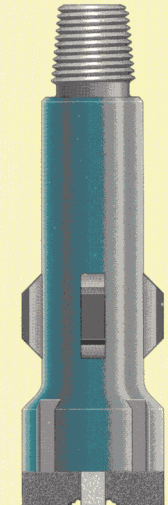
Flat Bottom Junk Mill



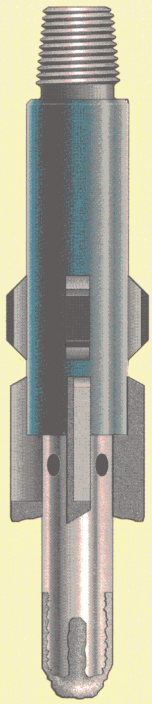
Concave Junk Mill



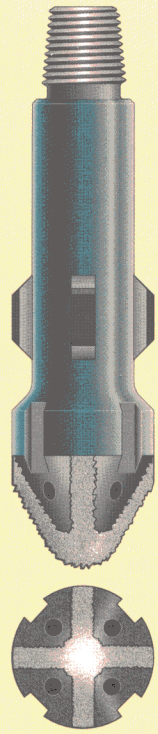
Offset Junk Mill



Bladed Junk Mill



Standard Pilot Mill



Round Nose Mill

Pilot Mills

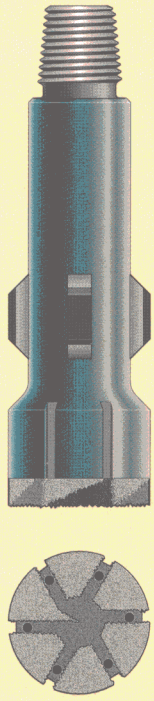
Gotco Pilot Mills are commonly used to mill casing, liners, washover pipe, drill pipe, and tubing. The pilot mill is available in a standard configuration or can be designed to customer specifications. For extra long mill runs, the blade length may be increased to almost any desired length. For those who wish to dress their own mills, these mills are available without dressing at a considerable savings to the customer.

Combination Mills

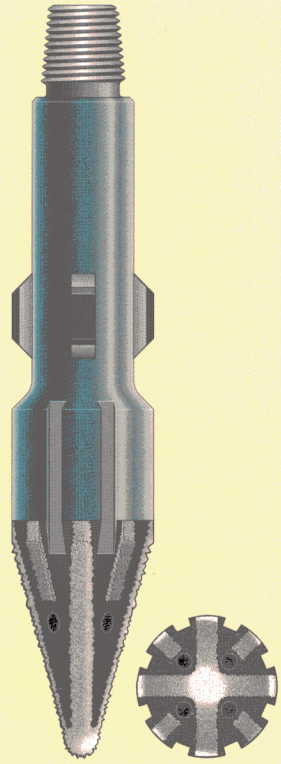
The Gotco Combination Mill is used to mill cement and small junk items. Some applications include the milling of bridge plugs, under-reamer arms, reamer blades, slips and other small items that are lost in the well. The large relief angle allows for superior penetration. The predominant feature of this mill is that one mill tooth extends to the center of the mill in order to prevent coring.

Taper Mills

The Gotco Taper Mill is used to establish gage diameter. It is used primarily to mill collapsed casing. It may also be used in conjunction with other mills to prepare a fish for internal engagement. Another useful application is deburring the window after a whipstock operation is completed. Tapered mills come in three common configurations. The 60 degree mill has an included taper of 60 degrees (30 degrees per side.) The 30 degree mill has an included taper of 30 degrees (15 degrees per side.) The 15 degree mill has an included taper of 15 degrees (7½ degrees per side.)



Combination Mill



Taper Mill

How to Order Gotco Junk Mills

When ordering, please specify:

- Name and part number of assembly.
- O.D. of mill.
- Top connection.
- Bottom configuration.
- Style of dressing.

Mills can be ordered with fishing neck and wear pads on request.

How to Order Gotco Pilot Mills

When ordering, please specify:

- Name and part number of assembly.
- O.D. of mill.
- Top connection.
- Pilot diameter.
- Style of dressing.

Mills can be ordered with fishing neck and wear pads on request.

GOTCO INTERNATIONAL

Gotco Milling Tools

Mill Size (OD)	2 1/4 - 2 1/2	2 5/8 - 2 3/4	2 7/8 - 3 1/8	3 1/4 - 3 5/8	3 3/4 - 4 1/4	4 3/8 - 4 1/2	4 5/8 - 4 3/4	4 7/8 - 5	5 1/8 - 5 1/4	5 3/8 - 5 1/2	5 5/8 - 5 3/4
Top Conn.-Pin	1 13/16	1 1/4	1 1/4	2 3/8	2 3/8	2 7/8	2 7/8	2 7/8	3 1/2	3 1/2	3 1/2
Gotco Junk Mill[1] Part No.	JM-1	JM-2	JM-3	JM-4	JM-5	JM-6	JM-7	JM-8	JM-9	JM-10	JM-11
Gotco Junk Mill[2] Part No.	JMB-1	JMB-2	JMB-3	JMB-4	JMB-5	JMB-6	JMB-7	JMB-8	JMB-9	JMB-10	JMB-11
Gotco Round Nose Mill Part No.	RM-1	RM-2	RM-3	RM-4	RM-5	RM-6	RM-7	RM-8	RM-9	RM-10	RM-11
Gotco Taper Mill Part No.					TM-5	TM-6	TM-7	TM-8	TM-9	TM-10	TM-11
Gotco Skirted Junk Mill Part No.					SJM-5	SJM-6	SJM-7	SJM-8	SJM-9	SJM-10	SJM-11
Gotco Pilot Mill Part No.			PM-3	PM-4	PM-5	PM-6	PM-7	PM-8	PM-9	PM-10	PM-11
Fishing Neck O.D.					3 1/8	3 3/4	3 3/4	3 3/4	4 1/4	4 1/4	4 1/4

Gotco Milling Tools

Mill Size (OD)	5 7/8 - 6	6 1/8 - 6 1/4	6 3/8 - 6 1/2	6 5/8 - 6 3/4	6 7/8 - 7	7 1/8 - 7 1/4	7 3/8 - 7 1/2	7 5/8 - 7 3/4	7 7/8 - 8	8 1/8 - 8 1/4	8 3/8 - 8 1/2
Top Conn.-Pin	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2
Gotco Junk Mill[1] Part No.	JM-12	JM-13	JM-14	JM-15	JM-16	JM-17	JM-18	JM-19	JM-20	JM-21	JM-22
Gotco Junk Mill[2] Part No.	JMB-12	JMB-13	JMB-14	JMB-15	JMB-16	JMB-17	JMB-18	JMB-19	JMB-20	JMB-21	JMB-22
Gotco Round Nose Mill Part No.	RM-12	RM-13	RM-14	RM-15	RM-16	RM-17	RM-18	RM-19	RM-20	RM-21	RM-22
Gotco Taper Mill Part No.	TM-12	TM-13	TM-14	TM-15	TM-16	TM-17	TM-18	TM-19	TM-20	TM-21	TM-22
Gotco Skirted Junk Mill Part No.	SJM-12	SJM-13	SJM-14	SJM-15	SJM-16	SJM-17	SJM-18	SJM-19	SJM-20	SJM-21	SJM-22
Gotco Pilot Mill Part No.	PM-12	PM-13	PM-14	PM-15	PM-16	PM-17	PM-18	PM-19	PM-20	PM-21	PM-22
Fishing Neck O.D.	4 1/4	4 1/4	4 1/4	4 1/4	4 1/4	4 1/4	5 3/4	5 3/4	5 3/4	5 3/4	5 3/4

Gotco Milling Tools

Mill Size (OD)	8 5/8 - 8 3/4	8 7/8 - 9	9 1/8 - 9 1/4	9 3/8 - 9 1/2	9 5/8 - 9 3/4	9 7/8 - 10	10 1/8 - 10 1/4	10 3/8 - 10 1/2	10 5/8 - 10 3/4	10 7/8 - 11	11 1/8 - 11 1/4
Top Conn.-Pin	4 1/2	4 1/2	4 1/2	4 1/2	6 5/8	6 5/8	6 5/8	6 5/8	6 5/8	6 5/8	6 5/8
Gotco Junk Mill[1] Part No.	JM-23	JM-24	JM-25	JM-26	JM-27	JM-28	JM-29	JM-30	JM-31	JM-32	JM-33
Gotco Junk Mill[2] Part No.	JMB-23	JMB-24	JMB-25	JMB-26	JMB-27	JMB-28	JMB-29	JMB-30	JMB-31	JMB-32	JMB-33
Gotco Round Nose Mill Part No.	RM-23	RM-24	RM-25	RM-26	RM-27	RM-28	RM-29	RM-30	RM-31	RM-32	RM-33
Gotco Taper Mill Part No.	TM-23	TM-24	TM-25	TM-26	TM-27	TM-28	TM-29	TM-30	TM-31	TM-32	TM-33
Gotco Skirted Junk Mill Part No.	SJM-23	SJM-24	SJM-25	SJM-26	SJM-27	SJM-28	SJM-29	SJM-30	SJM-31	SJM-32	SJM-33
Gotco Pilot Mill Part No.	PM-23	PM-24	PM-25	PM-26	PM-27	PM-28	PM-29	PM-30	PM-31	PM-32	PM-33
Fishing Neck O.D.	5 3/4	5 3/4	5 3/4	5 3/4	7 3/4	7 3/4	7 3/4	7 3/4	7 3/4	7 3/4	7 3/4

Gotco Milling Tools

Mill Size (OD)	11 3/8 - 11 1/2	11 5/8 - 11 3/4	11 7/8 - 12	12 1/8 - 12 1/4	12 3/8 - 12 1/2	12 5/8 - 13 1/2	13 5/8 - 14 1/2	14 5/8 - 15 1/2	15 5/8 - 16 1/2	16 5/8 - 17 1/2	17 5/8 - 18 1/2
Top Conn.-Pin	6 5/8	6 5/8	6 5/8	6 5/8	6 5/8	6 5/8	7 5/8	7 5/8	7 5/8	8 5/8	8 5/8
Gotco Junk Mill[1] Part No.	JM-34	JM-35	JM-36	JM-37	JM-38	JM-39	JM-40	JM-41	JM-42	JM-43	JM-44
Gotco Junk Mill[2] Part No.	JMB-34	JMB-35	JMB-36	JMB-37	JMB-38	JMB-39	JMB-40	JMB-41	JMB-42	JMB-43	JMB-44
Gotco Round Nose Mill Part No.	RM-34	RM-35	RM-36	RM-37	RM-38	RM-39	RM-40	RM-41	RM-42	RM-43	RM-44
Gotco Taper Mill Part No.	TM-34	TM-35	TM-36	TM-37	TM-38	TM-39	TM-40	TM-41	TM-42	TM-43	TM-44
Gotco Skirted Junk Mill Part No.	SJM-34	SJM-35	SJM-36	SJM-37	SJM-38	SJM-39	SJM-40	SJM-41	SJM-42	SJM-43	SJM-44
Gotco Pilot Mill Part No.	PM-34	PM-35	PM-36	PM-37	PM-38	PM-39	PM-40	PM-41	PM-42	PM-43	PM-44
Fishing Neck O.D.	7 3/4	7 3/4	7 3/4	7 3/4	7 3/4	7 3/4	8 7/8	8 7/8	8 7/8	10	10

[1] Flat Bottom, Concave or offset [2] Standard Bladed or Combination

How to Order Gotco Combination Mills

When ordering, please specify:

- Name and part number of assembly.
- O.D. of mill.
- Top connection.
- Style of dressing.

Mills can be ordered with fishing neck and wear pads on request.

How to Order Gotco Taper Mills

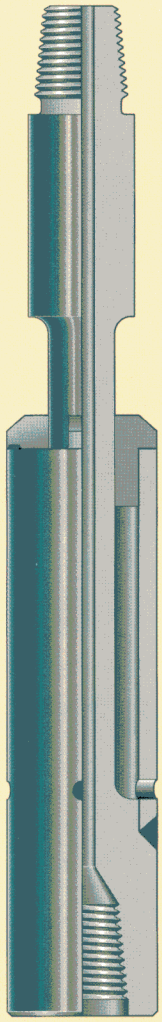
When ordering, please specify:

- Name and part number of assembly.
- O.D. of mill.
- Top connection.
- Taper range.
- Sytle of dressing.

Mills can be ordered with fishing neck and wear pads on request.

Boot Basket (Junk Sub)

The Gotco Boot Basket (Junk Sub) is an accessory tool used in milling or drilling operations. It is designed to prevent cuttings that are too heavy to be circulated from settling to the bottom of the hole.



Boot Basket (Junk Sub)

Construction

Boot baskets are manufactured from high-strength heat treated alloy steel to withstand wear. Heavy-duty ribs are attached to the cup to prevent it from being crushed and to guide the tool through tight places while tripping out of the hole. These ribs are not welded to the main body of the tool, further enhancing its strength.

Assembly and Operation

Boot baskets are used directly above the mill or drill bit. On severe milling jobs, it is customary to run two or three baskets in tandem above the mill. This tandem running not only increases the capacity to remove the cuttings, but also provides extra stabilization for the mill. Boot baskets can be run in either open hole or inside casing. When the basket is working inside a casing, hard-faced pads, dressed to the same O.D. as the mill or bit, should be used.

Optional Components and Accessories

The standard boot basket is a welded assembly with a 10 inch deep cup. Long and extra long baskets are available; these provide a 20 or 30 inch deep cup.

Gotco Boot Basket (Junk Sub)

Hole Size		4 1/4 - 4 5/8	4 5/8 - 4 7/8	5 1/8 - 5 7/8	6 - 6 3/8	6 1/2 - 7 1/2
API Connection		2 3/8	2 7/8	3 1/2	3 1/2	3 1/2
Body OD (Top Conn.)		3 1/8	3 3/4	4 1/4	4 1/4	4 1/4
Body OD (Under Cup)		2	2 5/8	3 1/8	3 1/4	3 1/4
Cup OD		3 11/16	4	4 1/2	5	5 1/2
Cup ID		3 5/8	3 5/8	4 1/4	4 9/16	4 7/8
Diam. of Bore		3/4	1 1/4	1 1/2	1 1/2	1 1/2
Standard-Type Boot Basket						
Gotco Assembly	Part No.	BB-1	BB-2	BB-3	BB-4	BB-5
	XRef. No.	20340	15450	15455	15460	15465
Length of Cup		10	10	10	10	10
Total Length		29	29 1/2	30 1/2	30 1/2	30 1/2
Long-Type Boot Basket						
Gotco Assembly	Part No.	BBL-1	BBL-2	BBL-3	BBL-4	BBL-5
	XRef. No.	20345	17060	17065	17070	17075
Length of Cup		20	20	20	20	20
Total Length		43 1/2	44	45	45	45
Extra-Long-Type Boot Basket						
Gotco Assembly	Part No.	BBXL-1	BBXL-2	BBXL-3	BBXL-4	BBXL-5
	XRef. No.	20295	20300	20305	20310	20315
Length of Cup		30	30	30	30	30
Total Length		53 1/2	54	55	55	55

Gotco Boot Basket (Junk Sub)

Hole Size		7 1/2-8 1/2	8 5/8-9 5/8	9 5/8-11 3/8	11 1/2-13	14 3/4-17 1/2
API Connection		4 1/2	4 1/2	6 5/8	6 5/8	7 5/8
Body OD (Top Conn.)		5 1/2	5 1/2	7 3/4	7 3/4	8 7/8
Body OD (Under Cup)		4 1/2	4 1/2	5 3/4	5 3/4	7 5/8
Cup OD		6 5/8	7	8 5/8	9 5/8	12 7/8
Cup ID		5 5/16	6 9/32	7 15/16	8 17/32	11 5/8
Diam. of Bore		2 1/4	2 1/4	3 1/2	3 1/2	4
Standard-Type Boot Basket						
Gotco Assembly	Part No.	BB-6	BB-7	BB-8	BB-9	BB-10
	XRef. No.	15470	15475	15480	15485	55306
Length of Cup		10	10	10	10	10
Total Length		31 1/2	31 1/2	33	33	36
Long-Type Boot Basket						
Gotco Assembly	Part No.	BBL-6	BBL-7	BBL-8	BBL-9	BBL-10
	XRef. No.	17080	17085	17090	17095	
Length of Cup		20	20	20	20	20
Total Length		46	46	48	48	50
Extra-Long-Type Boot Basket						
Gotco Assembly	Part No.	BBXL-6	BBXL-7	BBXL-8	BBXL-9	BBXL-10
	XRef. No.	20320	20325	20330	20335	
Length of Cup		30	30	30	30	30
Total Length		56	56	58	58	60

How to Order Gotco Boot Basket (Junk Sub)

When ordering, please specify:

- Name and part of assembly number.
- Connection, if nonstandard.

Special sizes are available upon customer's request.

Washover Equipment

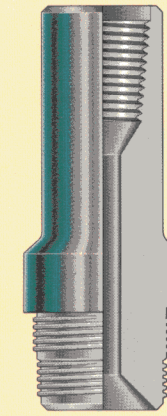
- Washover Pipe • Washover Safety Joint • Lift Plugs
- Drive Subs • Rotary Shoes

Gotco Washover Pipe

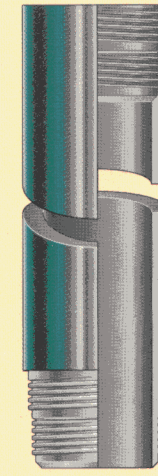
Size	Weight	ID	Wall	Yield Torque	Min. Hole Size	Max. Fish OD
3 1/2	9.2	2.992	.254	3,000	3 1/4	2 11/16
3 3/4	9.5	3.25	.250	3,000	4 1/8	3 1/8
4	11.0	3.476	.262	3,500	4 1/2	3 11/32
4	11.6	3.428	.286	4,000	4 1/2	3 5/16
4	14.0	3.340	.330	5,000	4 1/2	3 1/4
4	15.7	3.240	.380	6,000	4 1/2	3 1/16
4 1/2	13.5	3.920	.290	5,000	4 3/4	3 3/4
4 1/2	15.1	3.826	.337	7,000	4 3/4	3 11/16
4 3/4	16.0	4.082	.334	7,000	5 1/4	3 15/16
5	15.0	4.408	.296	7,000	5 3/4	4 1/8
5	18.0	4.276	.362	9,000	5 3/4	4 1/8
5 3/8	19.5	4.669	.353	10,000	6	4 1/2
5 1/2	17.0	4.892	.304	9,000	6 1/8	4 3/4
5 1/2	20.0	4.778	.361	11,000	6 1/8	4 5/8
5 1/2	23.0	4.670	.415	13,000	6 1/8	4 1/2
5 1/2	26.0	4.548	.476	16,000	6 1/8	4 3/8
5 3/4	18.0	5.126	.312	11,000	6 7/8	5
6	20.0	5.352	.324	12,000	7	5 1/4
6	23.0	5.240	.380	14,000	7	5 1/8
6 1/4	20.0	5.626	.312	12,000	7	5 1/2
6 3/8	24.0	5.625	.375	16,000	7	5 1/2
6 3/8	28.0	5.499	.438	20,000	7	5 3/8
6 5/8	24.0	5.921	.352	16,000	7 3/8	5 3/4
6 5/8	28.0	5.791	.417	29,000	7 3/8	5 5/8
6 3/4	35.0	5.710	.520	25,000	7 1/2	5 1/2
7	26.0	6.276	.362	18,000	7 7/8	6 1/8
7	29.0	6.184	.408	21,000	7 7/8	6
7	32.0	6.094	.453	23,000	7 7/8	5 7/8
7 3/8	29.0	6.625	.375	20,000	7 7/8	6 1/2
7 5/8	26.4	6.969	.328	20,000	8 5/8	6 7/8
7 5/8	29.7	6.875	.375	23,000	8 5/8	6 3/4
7 5/8	33.7	6.765	.430	27,000	8 5/8	6 5/8
7 5/8	39.0	6.625	.500	32,000	8 5/8	6 1/2
7 5/8	45.3	6.435	.595	39,000	8 1/2	6 1/4
8	31.0	7.25	.375	24,000	8 1/2	7 1/8
8 1/8	32.0	7.385	.370	24,000	8 5/8	7 1/4
8 1/8	32.5	7.375	.375	25,000	8 5/8	7 1/4
8 1/8	35.5	7.285	.420	30,000	8 5/8	7 1/8
8 1/8	39.5	7.185	.470	35,000	8 5/8	7 1/16
8 7/16	35.5	7.626	.406	30,000	9 1/2	7 1/2
8 5/8	36.0	7.825	.400	30,000	9 5/8	7 5/8
8 5/8	40.0	7.725	.450	35,000	9 5/8	7 11/16
8 5/8	44.0	7.625	.500	40,000	9 5/8	7 9/16
9	40.0	8.150	.425	35,000	9 7/8	8
9 3/16	31.0	8.532	.326	26,000	10	8 3/8
9 5/16	38.0	8.535	.389	35,000	10	8 3/8
9 1/2	47.0	8.537	.483	48,000	10	8 3/8
9 5/8	40.0	8.835	.395	40,000	10 1/2	8 3/4
9 5/8	43.5	8.755	.435	45,000	10 1/2	8 1/2
9 5/8	47.0	8.861	.472	50,000	10 1/2	8 5/8
9 5/8	53.5	8.535	.545	60,000	10 1/2	8 3/8
10 3/4	45.5	9.950	.400	50,000	11 3/4	9 3/4
10 3/4	51.0	9.850	.450	60,000	11 3/4	9 5/8
10 3/4	55.0	9.760	.495	65,000	11 3/4	9 1/2
11 3/4	54.0	10.880	.435	65,000	12 3/4	10 5/8
11 3/4	60.0	10.772	.489	80,000	12 3/4	10 1/2
13 3/8	72.0	12.347	.514	110,000	14 3/8	12
16	109.0	14.688	.656	188,000	17 1/2	14 3/8

Washover Pipe

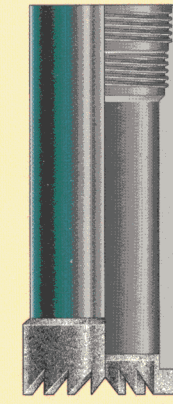
Gotco offers one of the largest selections of washover tubulars in the industry. All washover pipe has a two-step, double-shouldered thread joint with flush outside and inside diameters. This buttress-type thread assures quick make-up and high torsion strength. A wide assortment of sizes is available ranging in outside diameters from 3½ to 20 inches. Consult the table for available sizes and washover string design considerations.



Drive Sub



Washpipe

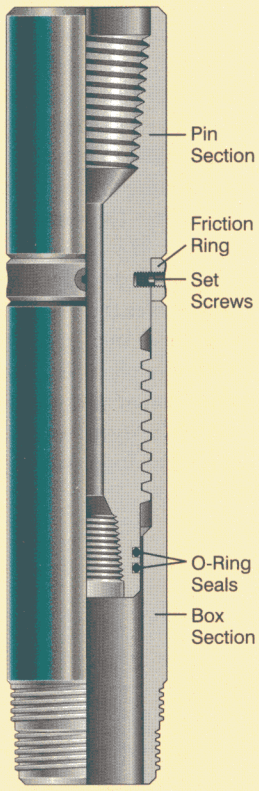


Washover Shoe

How to Order Gotco Washover Pipe

When ordering, please specify:

- O.D.
- Weight.
- Grade.
- Range.



Washover Safety Joint

Washover Safety Joint

The Gotco Washover Safety Joint is manufactured to provide safe and easy release and make-up whenever disengagement from the washover string becomes necessary. This dependable, field-tough tool is designed to transmit torque in either direction when placed in the washover string.

Construction – The Gotco Washover Safety Joint consists of a pin section, a box section, and a friction ring. The internal connection of the safety joint is a coarse acme thread used to facilitate easy pack-off and re-engagement. A knurled release ring between the box and pin sections maintains torsion integrity until back-off procedure is initiated. An O-ring seal contains pressure while the safety joint is made up.

Assembly – To assemble, install the safety joint in the drill string and make up the service connection to a torque of approximately 60 to 75% of the string connections.

In washover strings, the safety joint should be located between the drill pipe and the washover pipe. Gotco Washover Safety Joints are provided with a tool joint box thread up and a washover pipe pin thread down.

To disengage the safety joint while down-hole, place pipe in tension and apply left-hand torque. Hold torque while slowly lowering pipe until safety joint breaks. Continue to unscrew safety joint to the left. To re-engage the safety joint, lower pipe until pin section of safety joint lands on box section. Apply one point of weight. Rotate to the left one or two turns. Then rotate to the right until torque builds up, indicating safety joint is made up.

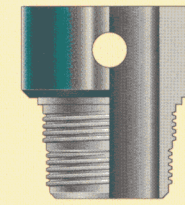
Gotco Washover Safety Joint

Pipe Size	Part No.	Pipe Size	Part No.
3 1/2	WSJ-350	3 3/4	WSJ-375
4	WSJ-400	4 1/2	WSJ-450
4 3/4	WSJ-475	5	WSJ-500
5 3/8	WSJ-537	5 1/2	WSJ-550
5 3/4	WSJ-575	6	WSJ-600
6 1/4	WSJ-625	6 3/8	WSJ-637
6 5/8	WSJ-662	6 3/4	WSJ-675
7	WSJ-700	7 3/8	WSJ-737
7 5/8	WSJ-762	8	WSJ-800
8 1/8	WSJ-812	8 5/8	WSJ-862
9	WSJ-900	9 9/16	WSJ-918
9 5/16	WSJ-931	9 1/2	WSJ-950
9 5/8	WSJ-962	10 3/4	WSJ-1075
11 3/4	WSJ-1175	13 3/8	WSJ-1337
16	WSJ-1600		

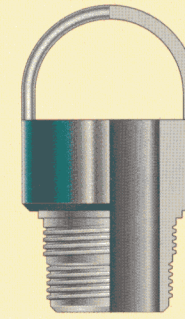
Lift Plugs

Gotco Lift Plugs are designed to provide an economical method of handling washover strings. They are available in all thread types and sizes, have sufficient shoulder diameter to support handling the washover string, and can be ordered with or without lifting bail.

Elevator Lift Subs – Gotco Elevator Lift Subs are used to handle the washover string and have an upper shoulder as well as reduced neck for securing in the elevator.



Lift Plug



Lift Plug with Bail

Gotco Lift Plugs

Washpipe	4 1/2	4 3/4	5	5 1/2	5 3/4	6
Plain Length	6	6	6	6	6	6
With Bail Length	12	12 1/2	13	13 1/2	13 3/4	14
Plain Lift Plug Part No.	LP-44	LP-46	LP-5	LP-54	LP-56	LP-6
Lift Plug with Bail Part No.	LPB-44	LPB-46	LPB-5	LPB-54	LPB-56	LPB-6
Shoulder F.J.W.P	5	5 3/8	5 9/16	6 1/8	6 1/2	6 5/8
Maximum I.D.	3 7/8	4	4	4 5/8	4 7/8	5 1/8

Gotco Lift Plugs

Washpipe	6 5/8	7	7 5/8	8 1/8	8 5/8	9
Plain Length	6	6	6	6	7	7
With Bail Length	14 1/2	14 13/16	17	18	19	19 1/2
Plain Lift Plug Part No.	LP-65	LP-7	LP-75	LP-81	LP-85	LP-9
Lift Plug with Bail Part No.	LPB-65	LPB-7	LPB-75	LPB-81	LPB-85	LPB-9
Shoulder F.J.W.P	7 7/16	8	8 5/8	9 3/32	9 5/8	10
Maximum I.D.	5 5/8	6	6 5/8	7 1/8	7 5/8	8

Gotco Lift Plugs

Washpipe	9 5/8	10 3/4	11 3/4	13 3/8
Plain Length	7	7	7	
With Bail Length	20	21	21	
Plain Lift Plug Part No.	LP-95	LP-106	LP-116	LP-133
Lift Plug with Bail Part No.	LPB-95	LPB-106	LPB-116	LPB-133
Shoulder F.J.W.P	10 5/8	11 3/4	12 3/4	
Maximum I.D.	8 5/8	9 5/8		

How to Order Gotco Washover Safety Joints

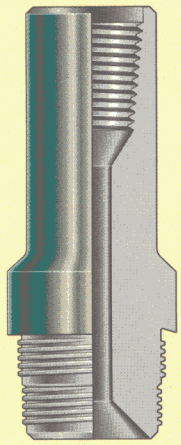
When ordering, please specify:

- Name and part number of assembly.
- Connections.
- O.D. and I.D., if nonstandard.

How to Order Gotco Lift Plugs

When ordering, please specify:

- Lower pin connection (washover pipe O.D. and weight).
- With or without lifting bail.



Drive Sub

Drive Subs

Gotco Drive Subs provide the crossover connection between the drill pipe string and the washover string. Each is machined from high-grade alloy steel and heat treated to provide maximum strength and durability.

Construction – Drive subs are provided with a box connection up, cut to customer specifications, for make-up with the fishing string. A pin connection down is also cut to customer specification and will match the washover string connections. A fishing neck is provided for ease of handling. A long type drive sub with extra long fishing neck is also available.

Rotary Shoes

Gotco Rotary Shoes are manufactured from specially heat treated alloy to provide the ultimate in toughness and durability. They are used to cut a clearance between the fish and the wall of the well bore. Each shoe is designed to fit a particular downhole need and is run on the bottom of the washover string. Shoe design is dictated by whether it cuts on the bottom, on the O.D., on the I.D., or on any combination of these. When hole size permits, additional clearances can be cut by using side ribs to enable greater circulation.

Two basic types are available. The tooth-type shoe (Type A) is utilized when the bulk of the work entails removing formation to free a drill string. The tooth-type shoe is also used to washover stuck drill collars, drill pipe, and tubing whenever the fish does not require milling. The burning-type shoe (Type B), dressed with Gotcoloy sintered tungsten carbide, cuts blades from stabilizers, mills subs to a smaller diameter for overshot catch, mills out a collapsed section of pipe, mills cutters off of roller-type reamers, and breaks up junk lodged in the bottom of the hole.

Gotco Drive Subs

Washpipe Size	4 1/2	4 3/4	5	5 1/2	5 3/4	6
Gotco Part No.	DS-44	DS-46	DS-5	DS-54	DS-56	DS-6
XRef No.	16330	16331	16332	16333	16334	16335
Short Type Length, in.	16	16	16	16	18	18
Long Type Length, in.	46	46	46	46	46	46

Gotco Drive Subs

Washpipe Size	6 5/8	7	7 5/8	8 1/8	8 5/8	9
Gotco Part No.	DS-65	DS-7	DS-75	DS-81	DS-85	DS-9
XRef No.	16336	16337	16338	16339	16340	16341
Short Type Length, in.	18	19	19	19	20	20
Long Type Length, in.	46	48	48	48	50	50

Gotco Drive Subs

Washpipe Size	9 5/8	10 3/4	11 3/4	13 3/8
Gotco Part No.	DS-95	DS-106	DS-116	DS-133
XRef No.	16342	16343	49673	49674
Short Type Length, in.	20	20	20	
Long Type Length, in.	50	54		

How to Order Gotco Drive Subs

When ordering , please specify:

- Top (box) connection.
- Lower pin connection (washover pipe O.D. and weight).
- Length, if nonstandard.

Gotco Rotary Shoe Blanks

No. of Teeth	6	6	6	6	6	6
FJWP Connection	4	4 1/2	4 3/4	5	5 1/2	5 3/4
Std. O.D. of Body, in.	4	4 1/2	4 3/4	5	5 1/2	5 3/4
Min. I.D. of Body, in.	3 1/4	3 3/4	4 1/16	4 3/16	4 5/8	5
Length, in.	16	16	16	16	16	16
Weight, lb.	18	20	28	23	30	26
Tooth Type, Part No.	RST-40	RST-44	RST-46	RST-50	RST-54	RST-56
Wavy/Flat Bottom Part No.	RSW-40	RSW-44	RSW-46	RSW-50	RSW-54	RSW-56

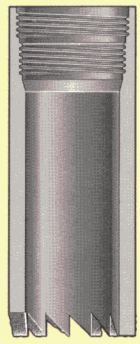
Gotco Rotary Shoe Blanks

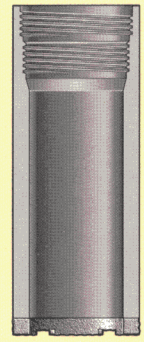
No. of Teeth	6	6	6	8	8	8
FJWP Connection	6	6 5/8	7	7 5/8	8 1/8	8 5/8
Std. O.D. of Body, in.	6	6 5/8	7	7 5/8	8 1/8	8 5/8
Min. I.D. of Body, in.	5 3/16	5 11/16	5 13/16	6 5/8	7 1/8	7 1/2
Length, in.	16	16	16	16	16	16
Weight, lb.	28	41	47	47	50	60
Tooth Type, Part No.	RST-60	RST-65	RST-70	RST-75	RST-81	RST-85
Wavy/Flat Bottom Part No.	RSW-60	RSW-65	RSW-70	RSW-75	RSW-81	RSW-85

Gotco Rotary Shoe Blanks

No. of Teeth	10	10	10	10	10	10
FJWP Connection	9	9 5/8	10 3/4	11 3/4	13 3/8	16
Std. O.D. of Body, in.	9	9 5/8	10 3/4	11 3/4	13 3/8	16
Min. I.D. of Body, in.	7 13/16	8 1/2	9 3/4	10 3/4	12 3/8	15
Length, in.	16	16	16	16	16	16
Weight, lb.	56	68	68	160	190	190
Tooth Type, Part No.	RST-90	RST-95	RST-106	RST-116	RST-136	RST-160
Wavy/Flat Bottom Part No.	RSW-90	RSW-95	RSW-106	RSW-116	RSW-136	RSW-160

Rotary Shoes


Type A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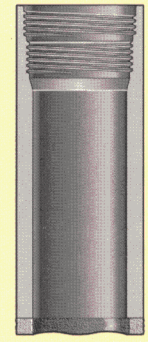
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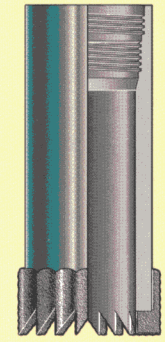
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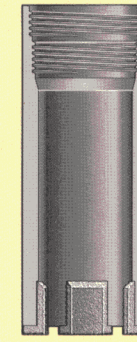
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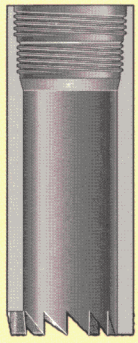
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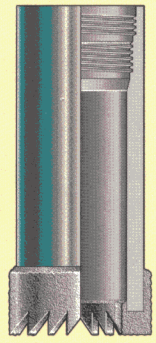
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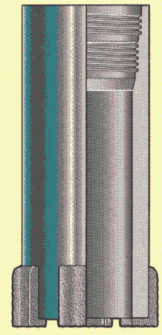
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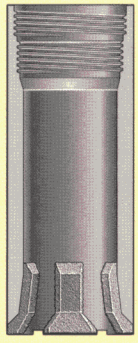
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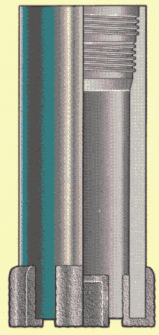
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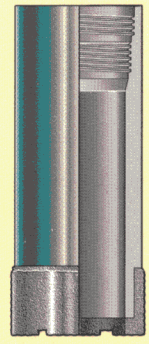
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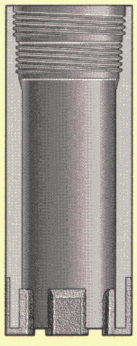
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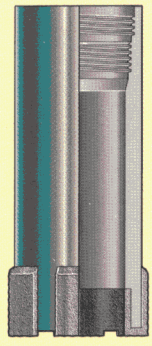
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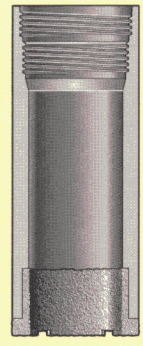
Type Z

Type A rotary shoe is a drag type shoe used to cut soft formations and only cuts on the bottom.

Type B rotary shoe is used inside casings to washover on a fish without damaging the casing. It cuts on the bottom only.

Type C rotary shoe is used inside casing and cuts on the bottom only. It is designed not to damage the casing or the fish.

Type D rotary shoe is designed to cut formation only. It only cuts on the O.D. and bottom.

Type E rotary shoe is designed to use inside casing and to cut metal on a fish. It cuts on the I.D. and bottom.

Type F rotary shoe is designed to use inside casing and to cut soft formations as it only cuts on the bottom.

Type G rotary shoe is designed for use in an open hole and is used to cut formations, cement, and metal. It cuts on the O.D., I.D., and bottom.

Type M rotary shoe is designed for use in an open hole to cut formation, cement, and metal where clearances inside the hole are limited. It cuts on the O.D. and bottom.

Type N rotary shoe is designed for use inside casing to dress and size the fish. It cuts on the I.D. and bottom.

Type P rotary shoe is designed to cut formations, metal, and cement. It cuts on the O.D., I.D. and bottom.

Type R rotary shoe is designed for use in an open hole to cut formation, cement, and metal. It cuts on the O.D. and bottom.

Type S rotary shoe is designed to cut metal in the fish without damage to the casing. It cuts on the I.D. and bottom.

Type T rotary shoe is designed for use in an open hole to cut metal, cement, and formation. It cuts on the O.D., I.D., and bottom.

Type Z rotary shoe is designed for use inside casing to cut metal on the fish. It cuts on the I.D. and bottom.

How to Order Gotco Rotary Shoes

When ordering, please specify:

- Pipe O.D. and weight
- Shoe type
- Dressed O.D. and/or I.D. as required in shoe description