



山东赛高石化设备有限公司

Shandong Saigao Group Corporation.

地址: 山东省济南市历下区经十路 12111 号中润世纪中心

Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

邮编(Postcode): 250001

电话(Tel): 86-531-69959201

传真(Fax): 86-531-69959201

Website: www.saigaogroup.com

SERIES 150 OVERSHOT

Series 150 Releasing and Circulating Overshot is an external fishing tool for engage, pack off and retrieve tubular fish, especially for fishing drill collar and drill pipe. The grapple of the overshot can be designed for different sizes of fish, so one overshot can be dressed with different size of grapple components for fishing different sizes of fish.

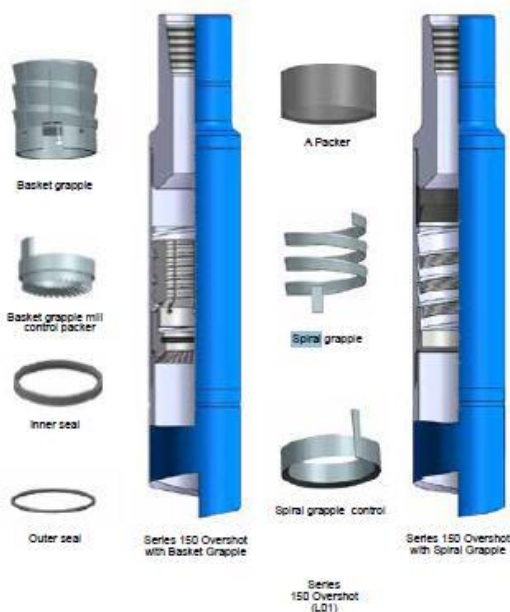
Construction

Series 150 Overshot consists of three outside parts: Top Sub, Bowl, and Standard Guide. The Basic Overshot may be dressed with either of two sets of internal parts, if the fish diameter is near the maximum catch of the Overshot, a Spiral Grapple, Spiral Grapple Control, and Type "A" Packer are used. If the fish diameter is considerably below maximum catch size ($\frac{1}{2}$ " or more) a Basket Grapple and a Mill Control Packer are used.

When ordering please specify:

- The model of the overshot
- The hole, casing size or O.D. of overshot
- Top connection
- O.D. of the fish

FS = Full Strength
SH = Slim Hole



Specifications - Series 150 Overshot

Model	Product Code	O.D (mm)	Max.Catch Size(mm)		API Connection	Model	Product Code	O.D. (mm)	Max.Catch Size(mm)		API Connection
			Spiral Grapple	Basket Grapple					Spiral Grapple	Basket Grapple	
LT-T89	L01-1100	89	60.3	47.6	NC26	LT-T194	L01-2400	194	159	141	NC50
LT-T92	L01-1200	92	73	63.5	NC26	LT-T200	L01-2500	200	159	141	NC50
LT-T95	L01-5100	95	76.2	66.6	NC26	LT-T206	L01-2600	206	178	163	NC50
LT-T102	L01-1300	102	73	60.3	NC26	LT-T206A	L01-2700	206	168	152	NC50
LT-T105	L01-1400	105	85.7	73	NC31	LT-T219	L01-2900	219	178	159	NC50
LT-T114	L01-1500	114	89	75	NC31	LT-T232	L01-3000	232	203	187	NC50
LT-T117	L01-3800	117	89	78	NC31	LT-T244	L01-3100	244	203	184	6 5/8 REG
LT-T127	L01-1600	127	95	80	NC38	LT-T260	L01-3200	260	219	200	6 5/8 REG
LT-T143	L01-1700	143	120.6	108	NC38	LT-T270	L01-3300	270	228.6	209.6	6 5/8 REG
LT-T152	L01-2000	152	128	114	NC38	LT-T273	L01-3400	273	241.3	216	6 5/8 REG
LT-T168	L01-2100	168	127	114	NC50	LT-T286	L01-3500	286	244.5	225.4	6 5/8 REG
LT-T168B	L01-2200	168	139.7	120.6	NC50	LT-T298A	L01-3600	298	257	238.1	6 5/8 REG
LT-T181	L01-2300	181	146	127	NC50	LT-T340	L01-3700	340	286	263	6 5/8 REG



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SERIES 150 OVERSHOT ACCESSORIES

Series 150 Releasing and Circulating Overshot can be equipped with a wide range of accessories to meet a variety of complex fishing environmental.

Extension Sub

An extension sub is assembled between the top sub and the bowl. It is used when the upper portion of the fish is damaged or cannot be engaged. This accessory will permit the overshot to be lowered far enough over the fish to ensure secure engagement and pack off. They are available in lengths from 24 to 60 inches. When ordering, specify overshot O.D. Unless otherwise specified Extension Subs will be furnished in a standard 36-inch length.

Wall Hook Guide

If the fish is positioned in a washed out section of the hole, it may be difficult to engage the top of the fish using a conventional overshot guide. A wall hook guide can be used to capture the neck of the fish, centralize it, and then properly guide the fish into the bowl.

Oversize Guide

Oversized Guide properly guides the fish into the overshot when the hole size is considerably larger than the diameter of the fish and the overshot may pass alongside the fish without engaging it. Installation of an oversized guide instead of a standard guide will ensure alignment of the fish with the overshot.

Mill Extension

Overshot Mill Extension interiors are faced with Incoloy to a size that will mill away a flared or jagged fish to enable it to pass up into and be engaged by the Grapple in the Bowl. Mill Extensions are installed between the Bowl and the standard, oversized or wall hook guides.

Mill Guide

Overshot Mill Guides are designed to remove badly flared or jagged metal from the top of the fish. Mill Guides are used in place of the Standard or Oversized Guide to trim the fish so it can enter the overshot.



Extension Sub



Wall Hook Guide



Mill Guide



Mill Extension



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SERIES 70 SHORT CATCH OVERSHOT

Series 70 Short Catch Overshot is an external fishing tool designed to retrieve tubular fish when the top of the fish is too short to be engaged with other overshot. The Grapple Control is positioned above the Basket Grapple rather than below it to allow the Basket Grapple to occupy the lowest position in the Bowl. This enables the overshot to firmly engage and retrieve a very short fish.

Construction

Series 70 Short Catch Overshot assembly consists of a Top Sub, Bowl, Basket Grapple Control, and a Basket Grapple. Although the Series 70 Overshot has no Guide, the components function in the same manner as the standard Series 150 Releasing and Circulating Overshot.

Catching the Fish

Attach the Overshot to the bottom end of the fishing string and run it into the hole. Series 70 Overshot assembly is rotated to the right and lowered as the fish enters the expandable grapple. With the fish in the grapple, stop right-hand rotation and exert an upward pull to fully capture the fish.

Releasing the Fish

A sharp downward force (bump) is applied to the Overshot to break the hold of the grapple within the bowl. The Overshot is then rotated to the right while it is slowly elevated to release the grapple from the fish.

When ordering please specify:

The model of the overshot.

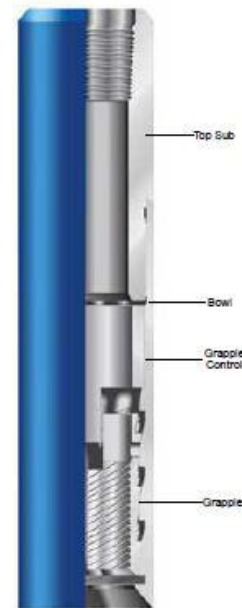
The hole, casing size or O.D. of overshot

Top connection

O.D of the fish

Note: We can design Overshot according to customers' request

Specifications - Series 70 Short Catch Overshot



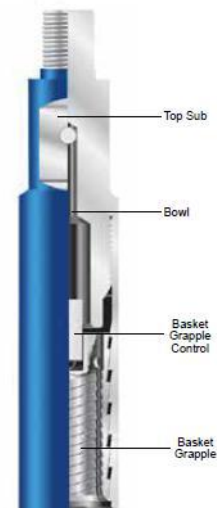
Series 70 Short Catch Overshot (LD4)

SERIES 20 OVERSHOT

TIANHE Series 20 Short Catch Sucker Rod Overshots are designed for conditions when sucker rods, couplings, and other portions of a fish are too short for retrieval with a standard overshot.

The TIANHE Series 20 Short Catch Sucker Rod Overshot consists of a Top Sub, Bowl, Basket Grapple Control, and a Basket Grapple. The Grapple Control is located at the top end of the tool between the Top Sub and the Basket Grapple. The position of the Grapple Control above the Basket Grapple rather than below it allows the Basket Grapple to occupy the lowest position in the bowl.

This permits the exposed part of the fish to enter the Basket Grapple where it can be firmly and securely grasped. Operation of the TIANHE Series 20 Short Catch Sucker Rod Overshot is the same as the TIANHE Series 10 Sucker Rod Overshot.



Series 20 Overshot (L22)



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DLT-T RELEASING AND REVERSING OVERSHOT

Type DLT-T Releasable Reversing Overshot, a new type of fishing tool, has many advantages owned by various overshot, box tap and the like. Its distinguishing features are as follows: to unscrew and recover the stuck fish; To release the fish down hole if necessary; to circulate the washing fluid as one of the accessories for reversing tools. It is widely used in well servicing.

Structure and Application

Consisting of top sub, spring, bowl, retaining seat, slip, control key, seal ring, seal seat, guide and so on. The upper end of top sub is connected with other tools and drill tool. The lower end of top sub is connected with bowl equipped with spring in the interior. There are three control keys uniformly distributed in the inner wall of the upper end of bowl. The control keys are used to control the position of retaining seat. Three keys are inserted separately in three grooves in the tapered interior section of lower end in bowl where three keys are used to transmit torque. The tapered interior section produces a pinch force against the slip to trigger the fishing operation. The inclined angle among three control keys play an important role in retaining conformance of the slip with the bowl to ensure that the tools can be released easily from the fish.

The retaining seat is installed at the upper end of the external bowl where the three keys are placed. The retaining seat not only can slide axially, but also rotates round the axial line moving with the slip which is installed in the internal circular recess.



Releasing and Reversing
Overshot
(L07)

(L07)

Specifications - Table 1 Releasing and Reversing Overshot Connection LH

Model	O.D. (mm)	Max. Fishing Size (mm)	Allowed Pull (KN)	Releasing Pull & Allowed Torque		Connection (Box LH)	Product Code
				Pull (KN)	Torque (N.m)		
DLT-T95×48	95	48.3	250	120	3100	2 7/8 REG	L07-4800
DLT-T105×60	105	63.5	350	150	5750	NC31	L07-6000
DLT-T114×73	114	78.6	420	180	7750	NC31	L07-7300
DLT-T134×89	134	93.2	500	180	10250	NC38	L07-8900
DLT-T145×102	145	101.6	700	200	11050	NC38	L07-10200
DLT-T160×114	160	114.3	900	200	12150	NC38	L07-11400
						2 7/8 REG	L07-11410
DLT-T185×127	185	127	1200	240	13500	NC50	L07-12700
DLT-T200×140	200	139.7	1500	240	15300	NC50	L07-14000

Specifications - Table 2 Releasing and Reversing Overshot connection RH

Model	O.D. (mm)	Max. Fishing Size (mm)	Allowed Pull (KN)	Releasing Pull & Allowed Torque		Connection (Box LH)	Product Code
				Pull (KN)	Torque (N.m)		
DLT-T105×60F	105	63.5	350	150	5750	NC31	L07-6010
DLT-T114×73F	114	78.6	420	180	7750	NC31	L07-7310
DLT-T134×89F	134	93.2	500	180	10250	NC38	L07-8910
						NC31	L07-8920
DLT-T160×114F	160	114.3	900	200	12150	NC38	L07-11420



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LIFTING-LOWERING AND RELEASING OVERSHOT

Lifting-Lower and releasing overshot is a fish tool in the casing which fishes fractured tubing and drill string. If fish drill string is stuck heavily and hard to complete fishing work, while need to release fish, may get back the tool by bumping drill string down and lift directly.

The product is excellent for fishing operations as it does not require rotation. Fishes can be caught or released through simple lifting or lowering of the tool.

Structure

Lifting-Lower and Releasing Overshot is composed of top sub, bowl, guide pin, guide sleeve, joint sleeve, plug, roller pin, slip, guide, as shown in the figure. The box thread of top sub is connected with drill stem and the pin thread is connected with the bowl. The bottom of bowl is connected to the guide. An inner cone in the bowl matches the slip. Box thread of guide sleeve is connected with joint sleeve, track trenches are milled on another outer surface: three long trenches and three short trenches act as guiding and reversing. When guide pin locates in long trench is in the condition of fish. When guide pin locates in short trench is in the condition of release. Joint sleeve is two petals formation. It makes slip and guide sleeve connection and by roller pin act as bearing. The inner surface of slip has fish thread, guide is on the bottom and can make fish introduce into slip successfully.

Working Principle

The tool complete fishing and releasing fish through long, short track trenches. When the tool reaches the top of fish, it is lowered and is in contact with the fish. Through lifting and lowering, guide pin is in the position of long or short trench, slip is in the situation of fishing or releasing, in the condition of non-rotating complete fishing and releasing fish.



Lifting-Lowering and Releasing Overshot (L05)

Specifications - Lifting-Lowering and Releasing Overshot

Model	Product Code	O.D.(mm)	Connection	Catch Size (in)
TFLT48	L05-4800	95	NC26	1.9
TFLT60	L05-6000	105	NC31	2 3/8
TFLT73	L05-7300	115	NC31	2 7/8
TFLT89	L05-8900	134	NC38	3 1/2
TFLT114	L05-11400	150	NC38	4 1/2



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Lifting-Lowering and Releasing Overshot (L05)

Specifications - Lifting-Lowering and Releasing Overshot

Model	Product Code	O.D.(mm)	Connection	Catch Size (in)
TFLT48	L05-4800	95	NC26	1.9
TFLT80	L05-8000	105	NC31	2 3/8
TFLT73	L05-7300	115	NC31	2 7/8
TFLT89	L05-8900	134	NC38	3 1/2
TFLT114	L05-11400	150	NC38	4 1/2



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RELEASING SPEAR

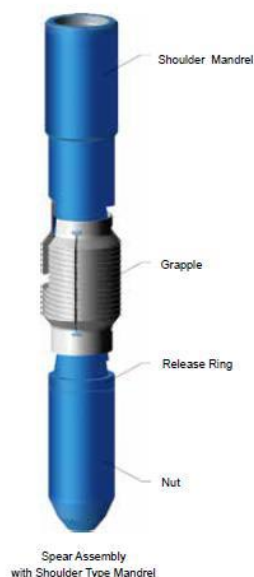
Releasing Spear provide a more effective means to engage and retrieve an internal fish from the well. It is ruggedly built to withstand severe jarring and pulling strains. It engages the fish over a large area without damaging of the fish. The simple design prevent small parts being lost or damaged in the hole during operation. It may be used with other equipment such as pack-off assemblies and internal cutters. If the fish cannot be pulled, the spear can be easily be released and disengaged.

Construction

The Releasing Spear consists of a mandrel, grapple, releasing ring, and a bull nose nut. The mandrel is made of specially heat treated high strength alloy steel; and may be ordered either as a flush type to enter completely into a fish or as a shoulder type to provide a positive landing position on top of the fish. Size and type of the upper box connection can be customised provide according to customer's exact specification.

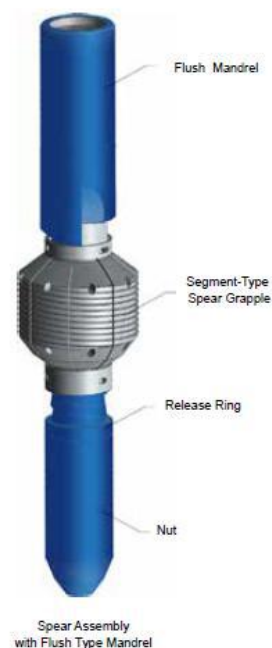
When ordering please specify:

- The model of the releasing spear.
- Top connection
- The exact size and weight of the fish
- Flush or shoulder type mandrel



Specifications - Releasing Spear

Model	Product Code	Mandrel O.D (mm)	Catch Size (mm)	Thread Conn.	Allowed Load (KN)
LM-T60	L02-110	86	47.4-51.8	NC26	270
LM-T73	L02-120	105	57.4-62	NC31	380
LM-T89	L02-130	121	70-77.8	NC38	650
LM-T102	L02-140	121	82-90.1	NC38	800
LM-T114	L02-150	121	92.4-103.9	NC38	1000
LM-T127	L02-160	165	102-115.8	NC50	1300
LM-T140	L02-170	165	118.6-127.3	NC50	1500
LM-T168	L02-180	165	140-153.7	NC50	2200
LM-T178	L02-190	165	150.4-166.1	NC50	2200
LM-T194	L02-200	165	168.3-178.5	NC50	2300
LM-T219	L02-210	197	190.8-205.7	6 5/8 REG	2300
LM-T245	L02-220	197	216.8-228.7	6 5/8 REG	2500
LM-T273	L02-230	197	240-258.9	6 5/8 REG	2500
LM-T340	L02-240	197	313.6-323	6 5/8 REG	2500





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RELEASING SPEAR ACCESSORYS

Segment-Type Spear Grapple

The Segment-Type Spear Grapple enhances the spear's effectiveness by providing an extended catching range beyond the maximum range of the standard one-piece grapple. Segment-Type Spear Grapple is used in place of the standard one-piece Grapple on the 9 5/8" Spears. This enhances the spear's capability of engaging up to 20".

Segment-Type Spear Grapple consists of a grapple body, eight grapple segments, two retainer rings, six retainer ring screws, six retainer ring spacers, and sixteen grapple segment screws.

Pack-off Assembly

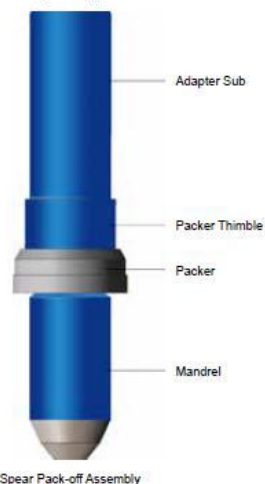
Pack-off Assembly is available for all TIANHE Spear Assemblies and is designed to efficiently pack-off all sizes of tubing and casing. Circulation through the fish is enabled by attaching the Spear Pack-off Assembly to the bottom of the spear with a sub type nut.

Spear Stop Sub

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



Segment-Type
Spear Grapple



Spear Pack-off Assembly



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threads.

Optional Nuts

Mill Type to mill away burrs, Sub Type to connect and run other tools below the Spear, and Sidehill Type to center the spear in greatly oversize holes to assure entry of the Spear into the fish.



Sub Type Nut



Mill Type Nut



Sidehill Type Nut



Stop Sub



Stop Ring

REVERSING SUB

The reversing subs is also called reversing spear which is a special tool for reversing stuck drill stem above stuck point in drilling and workover operation. In treatment of stuck drill stem, it can work as a fishing pin tap in reversing operation. When fish is stuck or cannot be reversed in fishing or reversing operation, the fish can be reversed from reversing sub and the fishing drill tool is tripped out.

Specifications - Reversing Sub

Model	O.D (mm)	I.D. (mm)	Thread Conn (LH)	Catch Thread (RH)	Product Code
DKJ105	105	14	NC31	NC31	L08-10500
DKJ105	105	18	NC31	2 7/8 NU	L08-10510
DKJ121	121	20	NC38	NC38	L08-12100
DKJ140	140	20	NC40	NC40	L08-14000
DKJ159	159	28	NC46	NC46	L08-15900
DKJ165	165	28	NC50	NC46	L08-16500
DKJ165	165	28	NC50	NC50	L08-16510
DKJ165	165	32	NC50	5 1/2 FH	L08-16520
DKJ178	178	32	5 1/2 FH	5 1/2 FH	L08-17800
DKJ190	190	32	NC50	6 5/8 REG	L08-19000
DKJ203	203	32	NC50	NC61	L08-20300
DKJ203	203	32	NC50	6 5/8 FH	L08-20310
DKJ203	203	32	NC50	7 5/8 REG	L08-20320



Reversing Sub (L08)



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Specifications - Reversing Sub

Model	O.D (mm)	I.D. (mm)	Thread Conn (RH)	Catch Thread (LH)	Product Code
DKJ105A	105	14	NC31	NC31	L08-10520
DKJ121A	121	20	NC38	NC38	L08-12110
DKJ146A	146	25	4 1/2 FH	4 1/2 FH	L08-14600
DKJ168A	168	28	NC50	NC50	L08-16800
DKJ168A	168	28	NC50	NC46	L08-16810
DKJ178A	178	32	5 1/2 FH	5 1/2 FH	L08-17810
DKJ178A	178	32	NC50	NC56	L08-17820

Specifications - Reversing Sub

Model	O.D (mm)	I.D. (mm)	Thread Conn (RH)	Catch Thread (RH)	Product Code
DKJ93B	93	18	2 7/8 EU	2 7/8 EU	L08-9300
DKJ105B	105	14	NC31	NC31	L08-10530
DKJ114B	114	28	3 1/2 EU	3 1/2 EU	L08-11400
DKJ121B	121	18	NC38	NC38	L08-12120
DKJ140B	140	20	NC40	NC40	L08-14010
DKJ165B	165	28	NC50	NC46	L08-16530
DKJ165B	165	28	NC50	NC50	L08-16540
DKJ178B	178	32	5 1/2 FH	5 1/2 FH	L08-17830
DKJ178B	178	32	NC50	NC56	L08-17840
DKJ210B	210	32	6 5/8 FH	6 5/8 FH	L08-21000

REVERSING SPEAR

In drilling and workover operation, the reversing spear is a tool mainly used for fishing of drill pipe, oil pipe and casing from fish hole. It can be used with internal cutter, bumper jar, etc.



山东赛高石化设备有限公司

Shandong Saigao Group Corporation.

地址: 山东省济南市历下区经十路 12111 号中润世纪中心

Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

邮编(Postcode): 250001

电话(Tel): 86-531-69959201

传真(Fax): 86-531-69959201

Website: www.saigaogroup.com

Specifications - Reversing Spear

Model	O.D. (mm)	Connection Box LH	ID (mm)	Min. Fishing Size (mm)	Lead-in Diameter of Spear Rod (mm)	Product Code
DLM-T48	95	NC26	7	39.7	37	L10-4800
	86					L10-4810
DLM-T60	105	NC31	8	49.7	46.5	L10-6000
	95.3	2 7/8 REG				L10-6010
DLM-T73	105	NC31	8	62	56	L10-7300
	127	NC38				L10-7310
	95.3	2 7/8 REG				L10-7320
DLM-T89	105	NC31	16	75	71	L10-8900
DLM-T102	121	NC38	16	88.2	83	L10-10200
	105	NC31				L10-10210
DLM-T114	121	NC38	16	99.8	93	L10-11400
DLM-T127	127	NC38	20	107	98	L10-12700
		NC31				L10-12710
DLM-T140	140	NC31	25	118	107	L10-14000
		NC38				L10-14010
	160	NC50				L10-14020
DLM-T178	178	NC50	30	150.4	142	L10-17800
		NC38				L10-17810
DLM-T245	245	6 5/8 REG	70	213.5	205	L10-24500
DLM-T273	273	6 5/8 REG	70	232.6	215	L10-27300
		NC50				L10-27310
DLM-T340	344	6 5/8 REG	76	313.6	253	L10-34000
		NC50				L10-34010



Reversing Spear
(L10)

CABLE FISHING HOOK



山东赛高石化设备有限公司

Shandong Saigao Group Corporation.

地址: 山东省济南市历下区经十路 12111 号中润世纪中心

Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

邮编(Postcode): 250001

电话(Tel): 86-531-69959201

传真(Fax): 86-531-69959201

Website: www.saigaogroup.com

The Cable Fishing Hook is generally used to catch electric pump cables or wirelines and broken pieces of the bent sucker rods in casing.

Specifications - Cable Fishhook

Outside size (mm)	Product Code	Connection	Catch	For Casing size (in)
Φ 120 x 1800	L16-14000	NC31	Electric cables	5 1/2 Casing
Φ 140 x 1800	L16-16800	NC31	Electric cables	6 5/8 Casing
Φ 150 x 1800	L16-17800	NC38	Electric cables	7 Casing



Cable Fishhook (L16)

SLIDING BLOCK SPEAR

The Sliding Block Spear is an internal fishing tool used for fishing fallen objects that are generally used in oil perforation process, such as drill pipe, tubing, wash pipe, liner, packer, water distributor, etc. It can also be used for the reversing of stuck fallen objects and it can be used in conjunction with other tools such as jar and back-off tool.

Specifications - Sliding Block Spear

Model	Product Code	O.D. (mm)	Connection (Box)	I.D. (mm)	Dia. of spear rod (mm)	I.D. of fish (mm)	O.D. of fish (in)	Length (mm)
HLM-SS80	L12-4600	121	NC38	12(Side bore)	46	49.66	2 3/8	1200
	L12-4610	89	NC26	12(Side bore)	46	49.66		800
	L12-4700	79	2 3/8 REG	12(Side bore)	47	50.7		1000
HLM-SS73	L12-5100	105	NC31	12(Side bore)	51	54.6	2 7/8	1200
	L12-5500	79	2 3/8 REG	12(Side bore)	55	62		2800
	L12-5700	121	NC38	12(Side bore)	57	62		1200
	L12-5710	105	NC31	12(Side bore)	57	62		1200
	L12-5720	89	NC26	12(Side bore)	57	62		1000
HLM-SS89	L12-6500	121	NC38	15(Side bore)	65	70.2	3 1/2	1200
	L12-6510	105	NC31	15(Side bore)	65	70.2		1200
	L12-7000	121	NC38	15(Side bore)	70	76.2		1200
	L12-7010	105	NC31	15(Side bore)	70	76.2		1200
HLM-SS114	L12-8600	122	NC31	18(Side bore)	86	90.95	4 1/2	1200
	L12-8800	168	NC50	18(Side bore)	88	92.5-97.2		1200
	L12-9100	122	NC31	18(Side bore)	91	97.2-103.9		1200
	L12-9110	122	NC31	18(Side bore)	91	97.2-103.9		1500
	L12-9120	168	NC50	18(Side bore)	91	97.2-103.9		1200
HLM-SS127	L12-9700	168	NC50	18	97	101.6-116	5	1200
HLM-SS140	L12-10800	141	NC31	18	108	114.3-121.4	5 1/2	1200
	L12-11200	168	NC38	20	112	118.6-124.3		1265

Note: Unless required specially, the length is 1200mm.



Sliding Block Spear (L12)



山东赛高石化设备有限公司

Shandong Saigao Group Corporation.

地址: 山东省济南市历下区经十路 12111 号中润世纪中心

Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

邮编(Postcode): 250001

电话(Tel): 86-531-69959201

传真(Fax): 86-531-69959201

Website: www.saigaogroup.com

TAPER TAP

The Taper Tap is a special internal catch fishing tool that engages with dropped tubular objects such as drill pipes and tubes by tapping threads on the object surfaces. It is a highly effective tool in the fishing of dropped tubular objects with couplings especially when the tapered threads engaged with the fish couplings. The taper tap can be used for different fishing operations when equipped with left hand threaded or right hand threaded drill pipes and tools. The taper tap is made from high strength alloy steel, heat treated for maximum strength and ruggedness. The cutting threads are hardened (wicked) with cutting grooves to ensure proper tapping of threads on the fishes.

Specifications - Taper Tap

Model	Product Code	Fishing OD of big end (mm)	Fishing OD of small end (mm)	ID (mm)	OD (mm)	Overall length (mm)	Overall length (in)
GZ47×28-NC26	L19-02000	47	28	10	86	565	1.9 Tubing
GZ60×38-NC26	L19-02001	60	38	12	86	635	2 3/8 Tubing
GZ70×45-NC26	L19-02002	70	45	16	86	680	2 7/8 Tubing
GZ86×56-NC31	L19-03000	86	56	20	105	760	3 1/2 Tubing
GZ98×65-NC38	L19-05000	98	65	25	121	810	4 Tubing
GZ110×77-NC50	L19-09000	110	77	25	168	810	4 1/2 Tubing
GZ62×40-NC26	L19-02003	62	40	16	86	635	2 3/8 Drill pipe 2 7/8 Drill pipe
GZ85×60-NC31	L19-03001	85	60	25	105	680	3 1/2 Drill pipe
GZ109×79-NC50	L19-09001	109	79	25	168	760	4 Drill pipe 4 1/2 Drill pipe
GZ130×95-NC50	L19-09002	130	95	38	168	840	5 Drill pipe 5 1/2 Drill pipe
GZ160×145-NC50	L19-09003	160	145	51	168	520	6 5/8 Drill pipe
GZ122×92-NC50	L19-09004	122	92	38	168	760	4 1/2 Casing 5 Casing
GZ135×109-NC50	L19-09005	135	109	51	168	700	5 1/2 Casing
GZ162×137-NC50	L19-09006	162	137	51	168	680	6 5/8 Casing
GZ172×147-6 5/8 REG	L19-19000	172	147	51	197	680	7 Casing
GZ187×161-6 5/8 REG	L19-19001	187	161	51	197	700	7 5/8 Casing 7 3/4 Casing
GZ215×185-7 5/8 REG	L19-20000	215	185	51	229	760	8 5/8 Casing
GZ237×211-75/8 REG	L19-20001	237	211	51	229	700	9 5/8 Casing
GZ85×52-NC31	L19-03002	85	52	20	105	810	Φ76.2-Φ57.2(mm)





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Shandong Saigao Group Corporation.

地址: 山东省济南市历下区经十路 12111 号中润世纪中心

Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

邮编(Postcode): 250001

电话(Tel): 86-531-69959201

传真(Fax): 86-531-69959201

Website: www.saigaogroup.com

DIE COLLAR

The die collar, also known as skirted taper tap, is a special external fishing tool that engages with the dropped tubular objects such as drill pipes and oil tubing, by tapping on the external wall of the objects. It can be used in fishing cylindrical objects without inner bore or stuck inner bore.

The die collar is a long cylindrical integral structure composed of a Sub, a Tap body with cutter threads in the cone shaped interior. The die collar is made of high strength alloy with cutting grooves in the fishing threads.



Die Collar
(L19)

Specifications - Die Collar

Model	Product Code	Fishing OD of big end (mm)	Fishing OD of small end (mm)	Max. OD (mm)	OD of joint (mm)	Overall length (mm)	Catch size (mm)
MZ55×40-NC26	L20-02000	55	40	86	86	410	48
MZ68×50-NC26	L20-02001	68	50	95	86	550	60
MZ80×62-NC26	L20-02002	80	62	114	86	560	73
MZ96×74-NC31	L20-03000	96	74	127	105	640	89
MZ110×90-NC38	L20-05000	110	90	143	121	610	102
MZ122×102-NC38	L20-05001	122	102	162	121	620	114
MZ135×110-NC50	L20-09000	135	110	175	168	690	121 127
MZ148×128-NC50	L20-09001	148	128	190	168	630	140
MZ167×140-NC50	L20-09002	167	140	203	168	740	152 159
MZ178×153-6 5/8 REG	L20-19000	178	153	211	203	720	165 168 172
MZ190×166-6 5/8 REG	L20-19001	190	166	219	203	720	178
MZ210×185-6 5/8 REG	L20-19002	210	185	247	203	760	197 203
MZ239×216-7 5/8 REG	L20-20000	239	216	280	241	720	228
MZ251×229-7 5/8 REG	L20-20001	251	229	290	241	720	241



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Lixia District, Jinan City, Shandong Province, P.R. China

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传真(Fax): 86-531-69959201

Website: www.saigaogroup.com

INTERNAL HOOK & EXTERNAL HOOK

The internal hook is a fishing tool generally used inside casings and oil tubings for fishing ropes and other fishes such as wire-lines, cables, logging wire-lines and paraffin cutters.

There are two types of internal hooks for different fishing applications: Dead (fixed) hook and Live (adjustable) hook.

Specifications - Internal Hook

Model	Product Code	O.D.(mm)	Connection	For Casing/Tubing Size(in)
NG73	L23-7300	73	2 3/8 Tubing coupling	3 1/2 Tubing
NG95	L23-9500	95	NC26	4 1/2 Tubing
NG114	L23-11400	114	NC31	5 1/2 Casing
NG136	L23-13600	136	NC31	6 5/8 Casing
NG150	L23-15000	150	NC38	7 Casing
NG176	L23-17600	176	NC38	8 5/8 Casing
NG190	L23-19000	190	NC38	9 5/8 Casing



Internal Hook
(L23)

The External Hook is used inside casings and tubings to catch all kinds of ropes, lifting bails, hollow short cylinders, short rope slings such as wire-lines, logging steel pieces, cables, etc.

Specifications - External Hook

Model	Product Code	O.D.(mm)	Connection	For Casing/Tubing Size(in)
WG73	L24-7300	73	2 3/8 Tubing coupling	3 1/2 Tubing
WG95	L24-9500	95	NC26	4 1/2 Tubing
WG114	L24-11400	114	NC31	5 1/2 Casing
WG136	L24-13600	136	NC31	6 5/8 Casing
WG150	L24-15000	150	NC38	7 Casing
WG176	L24-17600	176	NC38	8 5/8 Casing
WG190	L24-19000	190	NC38	9 5/8 Casing



External Hook
(L24)



山东赛高石化设备有限公司

Shandong Saigao Group Corporation.

地址: 山东省济南市历下区经十路 12111 号中润世纪中心

Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

邮编(Postcode): 250001

电话(Tel): 86-531-69959201

传真(Fax): 86-531-69959201

Website: www.saigaogroup.com

REVERSING CIRCULATION JUNK BASKET

Reverse Circulation Junk Basket (RCJB) is designed to remove all types of small junk objects from the well hole. The tool's main feature is that it eliminates the possibility of pulling a wet string during fishing operation with its reverse drainage design. The RCJB can also be used as a fish magnet when fitted with a magnet insert, while maintaining its reverse fluid circulation feature.

Operation

RCJB is normally attached at the bottom of the fishing string, lowered to a point several feet from the bottom of the well. Begin circulation of the junk basket to wash the hole. Stop circulation and drop the steel ball. (When the steel ball is dropped into the valve seat, reverse fluid circulation is activated. The fluid travels outward and downward through the inner passage of the barrel and out through the vents in the lower end. The fluid is then deflected to the center of the tool and up through the return holes in the upper end of the barrel. The reverse fluid circulation carries the junk into the barrel above the junk catcher. Restart the circulation; slowly rotate the junk basket while lowering the tool until a 10-inch core has been cut. Stop rotation and circulation and pull the tool and junk from the hole.



Type B Mill Shoe



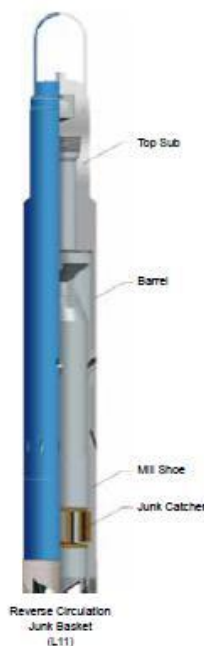
Type C Mill Shoe



Magnet Insert



Finger Shoe



Specifications - Reverse Circulation Junk Basket

Model	OD of barrel (mm)	Max. fishing size (mm)	OD of steel ball (mm)	Connection (Box)	Hole size (mm)	Product Code
LL-F381	381	279	57	6 5/8 REG	406-444	L11-381000
LL-F330	330	249	57	6 5/8 REG	349-406	L11-330000
LL-F301	301	216	57	6 5/8 REG	320-346	L11-301000
LL-F279	279	211	57	6 5/8 REG	298-317	L11-279000
LL-F257	257	194	57	6 5/8 REG	273-295	L11-257000
LL-F232A	232	179	57	NC50	244-270	L11-232000
				6 5/8 REG		L11-232100
LL-F206	206	157	45	NC50	216-241	L11-206000
LL-F200A	200	154	42	NC50	212-241	L11-200000
				4 1/2 REG		L11-200100
LL-F200	200	147	42	NC50	212-241	L11-200200
LL-F178	178	130	42	NC50	190-210	L11-178000
				4 1/2 REG		L11-178100
LL-F159	159	120.6	34	4 1/2 REG	168-187	L11-159000
LL-F146A	146	111	34	NC38	155-165	L11-146000
				3 1/2 REG		L11-146100
LL-F146	146	105	40	NC38	155-165	L11-146200
LL-F130	130	95.2	34	NC31	143-152	L11-130000
				3 1/2 REG		L11-130100
LL-F123	123	90.5	28	NC31	130-140	L11-123000
				2 7/8 REG		L11-123100
LL-F121	121	90	34	NC31	130-140	L11-121000
LL-F114	114	77.8	28	NC31	117.5-127	L11-114000
				2 7/8 REG		L11-114100
LL-F102	102	63.5	23	NC26	105-114	L11-102000
				2 3/8 REG		L11-102100
LL-F97	97	62	30	NC26	108-114	L11-97000
LL-F92	92	57	23	NC26	95.2-102	L11-92000
				2 3/8 REG		L11-92100
LL-F89	89	57	23	NC26	95-102	L11-89000



山东赛高石化设备有限公司

Shandong Saigao Group Corporation.

地址: 山东省济南市历下区经十路 12111 号中润世纪中心
Address: Zhongrun Century Center, No 12111, Jingshi Road,
Lixia District, Jinan City, Shandong Province, P.R. China
Email: sales@saigaogroup.com

邮编(Postcode): 250001
电话(Tel): 86-531-69959201
传真(Fax): 86-531-69959201
Website: www.saigaogroup.com

STANDARD FISHING MAGNET

S-Fishing Magnet is a junk retrieval tool designed to retrieve small metal, odd-shaped objects such as mill metal shavings, bit cones, cutters, bearings, slips, tong pins, and hand tools from the bottom of the well bore. Typically, these damaging junk objects are the result of bit failures, mill cuttings, and fallen un-drillable objects which can only be removed by magnetic attraction. The tool is designed with many fluid circulation ports that wash away cuttings and other debris to prevent any interference with the magnetic contact. A variety of guides are available to aid in different retrieval situation.

Construction

S-Fishing Magnet consists of a top sub, housing, magnet element, pole plate, and standard flush guide. The body is manufactured from high strength alloy steel. The magnet element is a powerful permanent magnet that will not lose its charge when handled properly. The magnet body, housing, and pole plate are threaded and welded together during assembly with the magnet element in place. The standard flush bottom guide is threaded and can be easily removed.

Operation

S-Fishing Magnets are usually run on tubing and drill pipes. With wireline adaptors, it can also be run on wireline. The S-Fishing Magnet is attached at the bottom of the fishing string and lowered until it is six to twelve inches within the fish. Circulate to wash the fish. Reduce circulation and lower the fishing magnet to the fish. Slowly rotate to ensure positive contact. Upon positive contact, stop the circulation and lift the fishing magnet from the hole to retrieve the junk.



Optional Accessories

A flush guide is standard. Lipped guides and mill guides are also available. The lipped guide centralizes the fish to ensure proper direct contact with the magnet. The mill guide enables milling of any soft formation or settling to free debris at the bottom of the hole.



Cut-Lipped Guide



Mill-Type Guide



Wireline Adapter



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Shandong Saigao Group Corporation.

地址: 山东省济南市历下区经十路 12111 号中润世纪中心

Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

邮编(Postcode): 250001

电话(Tel): 86-531-69959201

传真(Fax): 86-531-69959201

Website: www.saigaogroup.com

REVERSE CIRCULATION FISHING MAGNET

Reverse Circulation Fishing Magnet is a new fishing tool designed based on Standard Fishing Magnet. It combines advantages of Reverse Circulation Fishing Basket and Fishing Magnet. Its unique reverse-circulation design enhances its cleaning performance at the bottom of well bore.

Construction

Reverse Circulation Fishing Magnet comprises of lifting bail, top sub, housing, magnet element, pole plate, standard flush guide, and steel ball. Other optional guides are available for different fishing operations.

Operation

Lower the fishing magnet to a depth, approximately 40 inches from the bottom of the well bore. Circulate to wash the fish, reduce circulation and lower the fishing magnet to the bottom of hole to attract the fish. Slowly rotate to ensure positive contact between the fish and the magnet. Lift up 10 to 20 inches, drop the steel ball into the fishing string, and pump the steel ball into the valve seat. Rotate and circulate for a moment, discontinue circulation and lift the fishing magnet from the hole.

Optional Accessories

A flush guide is standard. Lipped guides and mill guides are also available.



(LD9)

Specifications - Reverse Circulation Fishing Magnet

Model	Product Code	O.D. (mm)	Thread Connection	Attracted Weight (kg/cm ²)	Temperature In well (°C)	Hole Size (mm)
CLF89	L0903100	89	NC26	9.8	210	95~110
CLF100	L0905100	100	NC26	9.8	210	110~135
CLF125	L0912100	125	NC38	9.8	210	135~165
CLF140	L0914100	140	NC38	8.5	210	150~175
CLF146	L0915100	146	NC38	8.5	210	160~185
CLF152	L0916100	152	NC38	8.5	210	160~185
CLF178	L0918100	178	NC50	7.8	210	185~210
CLF190	L0919100	190	NC50	7.8	210	200~225
CLF200	L0920100	200	NC50	7.6	210	210~235
CLF203	L0921100	203	NC50	7.6	210	215~240
CLF225	L0923100	225	NC50	7.5	210	235~270
CLF254	L0927100	254	6 5/8 REG	7.0	210	265~311
CLF265	L0928100	265	6 5/8 REG	6.9	210	275~330
CLF292	L0933100	292	6 5/8 REG	6.9	210	300~442
CLF317	L0935100	317	7 5/8 REG	6.9	210	340~375
CLF356	L0937100	356	7 5/8 REG	6.9	210	444.5
CLF406	L0940100	406	7 5/8 REG	6.9	210	444.5~660



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Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

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电话(Tel): 86-531-69959201

传真(Fax): 86-531-69959201

Website: www.saigaogroup.com

DITCH MAGNET

The ditch magnet is the most effective means of trapping and removing metal particles from the drilling mud that are not filtered by the shale shaker. This unit will capture all metals through magnetic attraction and hold them until they can be removed from the mud stream. The magnet is particularly valuable and useful during milling operations. Removal of mill cuttings and debris reduces wear of mud pumps, drill bit and other equipment. It eliminates problems caused by the harmful debris that are returned to the downhole with the drilling mud. They are equally effective during washover and fishing operations.

Structure

The ditch magnet is made of a high performance magnet with strong magnetic field. It is simple, rugged and has high power to weight ratio.

Operation

Ditch magnet is easy to operate. It is most effective when suspended by soft line in the mud ditch or shaker discharge. When the cuttings or debris attached are full, it should be removed and cleaned. Remove the magnet from the mud ditch and open the inserting plate from the end with the pull rod. When the magnetic pole body is pulled out, all cuttings and debris will drop off. The magnet body shall be cleaned with fresh water and assemble again for use.

Maintenance

Frequency of cleaning for the unit per day is directly dependent on the milling rate. Higher milling rate will mean high cleaning frequency. To clean the unit, remove the Magnet and clean it with fresh or salt water hose. Wipe all cuttings from the unit and assemble it back for normal operation. During other operations when there are less return cuttings or metal shavings, the unit need not be cleaned so frequently.



Ditch Magnet
(L26)

Specifications - Ditch Magnet

Outside Dimension (mm)	Magnetic Effective Area (mm)	Strength In Magnetic Pole Surface Gs	Strength From 10mm To Magnet Pole Surface Gs	Weight Kg	Product Code
200×620	L260200	125×500	1400	700	L260200



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Address: Zhongrun Century Center, No 12111, Jingshi Road,

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邮编(Postcode): 250001

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传真(Fax): 86-531-69959201

Website: www.saigaogroup.com

JUNK MILLS

Flat Bottom Junk Mill

The Flat Bottom Junk Mill is the most commonly used milling tool. It is designed to mill a wide variety of junk such as squeeze tools, packers, tubing, bridge plugs and similar objects.



Flat bottom Junk mill
(M08)

Tapered Mills

The Tapered Mill is designed for milling through various types of downhole obstructions, and reaming out liners and whipstock windows. It works well in collapsed casing as well as tight spots.



Tapered Mill
(M11)

Concave Junk Mills

The Concave Mill is designed for milling bit cones and other loose objects. It keeps the fish in a centralized fix location under the mill for greater milling effectiveness.



Concave Bottom
Junk Mill
(M04)

Economill

The Economill is an effective tool for light duty milling jobs such as packers, bridge plug, and cement. This mill can be easily make-up and break-out with standard bit breakers.



Economill
(M25)

Bladed Junk Mill

Bladed Junk Mill is dressed with high-quality tungsten carbide to ensure optimal performance in all applications. They are suitable for all types of general junk milling, as well as for removing packers, retainers, and squeeze tools.



Bladed Junk Mill
(M26)

String Junk Mill

The String Mill is designed to clean casing and whipstock windows. Its short leading and trailing angles, allow the mill to clean "bird nest" and other obstructions in the string, while the bottomhole tool is milling. This string mill assures that the milled section maintains full gage.



String Junk Mill
(M27)

Pilot Mill

The Pilot Mill is best used for milling stuck tubular tools, such as liner, liner hanger, wash pipe, rotary shoe or drill pipe. The pilot assembly keeps the tubular tools in a centered position, while the milling blades mill the product away.



Pilot Mill
(M12)

Skirted Junk Mill

The Skirted Junk Mill is designed for milling tubular fish, either inside casing or in open hole. Should the fish be plugged, it is far better to use a shoe-type guide with a flat mill to avoid sidetracking.



Skirted Junk Mill
(M22)



山东赛高石化设备有限公司

Shandong Saigao Group Corporation.

地址: 山东省济南市历下区经十路 12111 号中润世纪中心

Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

邮编(Postcode): 250001

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JUNK SUB

Junk Sub (Fishing Cup) is normally used to catch and remove junks that are too heavy to be circulated preventing them from settling at the bottom of the well-bore. Typical junks are shivers and fallen objects such as carbide tooth, drill bit and bearings which are too heavy to be removed from the well-hole through conventional fluid circulation. Junk Sub's main function is to keep well bottom clean to increase bit service life, reduce and prevent drill bit from unexpected damage.

Structure

As the outer diameter of the external bowl is bigger, the space between the external bowl and the well hole is reduced guiding most of the fluid through the cup. The mandrel diameter at the cup mouth is bigger with larger annular space. Thus, the fluid forms a swirl at the cup mouth as the fluid flows down through the cup with a sudden reduction in capacity at the bottom. Through this working principle, some heavy objects will drop in the cup and be fished out, ensuring that the well-bore bottom is cleaned.



Junk Sub
(L14)

Specifications - Junk Sub

Model	OD of lower end × OD of upper end (mm)	Bottom Conn. × Top Conn.	ID (mm)	L of cup (mm)	OAL (mm)	Hole size (mm)	Product Code
LB79	79×79	2 3/8 REG B"P	19	250	845	88.9-98.4	L14-7900
LB89	89×78	2 3/8 REG B"P	19	250	845	108-117.5	L14-8900
LB94	94×79	2 3/8 REG B"P	19	250	850	108-117.5	L14-9400
LB102	102×93	2 7/8 REG B"P	31.8	250	850	117.5-124	L14-10200
LB114	115×105	3 1/2 REG B"P	38.1	250	915	130-149	L14-11400
LB118	118×105	3 1/2 REG B"P	38.1	250	875	139.7-149	L14-11800
LB127	127×108	3 1/2 REG B"B	38.1	250	850	152.4-162	L14-12700
LB127	127×108	3 1/2 REG B"P	38.1	250	915	152.4-162	L14-12710
LB133	133×121	3 1/2 REG B"NC38 B	38.1	250	775	152.4-162	L14-13300
LB133	133×108	3 1/2 REG B"P	38.1	250	915	152.4-162	L14-13310
LB133	133×121	3 1/2 REG B"NC38 P	38.1	250	875	152.4-162	L14-13320
LB133	133×121	NC38 P"B	38.1	250	875	152.4-162	L14-13330
LB140	140×121	3 1/2 REG B"NC38 B	38.1	250	775	165-190.5	L14-14000
LB140	140×108	3 1/2 REG B"P	38.1	250	850	165-190.5	L14-14010
LB140	140×121	NC38 B"P	50.8	250	915	165-190.5	L14-14020
LB146	146×121	3 1/2 REG B"NC38 B	38.1	250	915	166-190.5	L14-14600
LB146	146×108	3 1/2 REG B"P	38.1	250	875	168-190.5	L14-14610
LB165	165×152	4 1/2 REG B"NC46 B	57.2	250	915	190.5-216	L14-16500
LB165	165×140	4 1/2 REG B"P	57.2	250	915	190.5-216	L14-16510
LB168	168×146	4 1/2 REG B"B	57.2	250	915	190.5-216	L14-16800
LB168	168×152	4 1/2 REG B"NC46 B	57.2	250	915	190.5-216	L14-16810
LB168	168×140	4 1/2 REG B"P	57.2	250	915	190.5-216	L14-16820
LB178	178×159	4 1/2 REG B"NC50 B	57.2	250	915	219-244.5	L14-17800
LB178	178×165	4 1/2 REG B"NC50 B	57.2	250	915	219-244.5	L14-17810
LB178	178×159	4 1/2 REG B"NC46 B	57.2	250	915	219-244.5	L14-17820
LB178	178×146	4 1/2 REG B"P	57.2	250	915	219-244.5	L14-17830
LB178	178×165	NC50 P"B	57.2	250	940	219-244.5	L14-17840
LB194	194×165	4 1/2 REG B"NC50 P	71.4	250	950	229-273	L14-19400
LB219	219×178	6 5/8 REG B"NC50 B	76.2	250	915	244-289	L14-21900
LB219	219×197	6 5/8 REG B"P	76.2	250	915	244-289	L14-21910
LB219	219×203	6 5/8 REG B"P	76.2	250	915	244-289	L14-21920
LB241	241×203	6 5/8 REG B"P	76.2	250	950	292-330	L14-24100
LB245	245×203	6 5/8 REG B"B	76.2	250	915	292-330	L14-24500
LB245	245×203	6 5/8 REG B"P	76.2	250	950	292-330	L14-24510
LB245	245×203	6 5/8 REG P"B	76.2	250	940	292-330	L14-24520
LB273	273×203	6 5/8 REG B"P	76.2	250	945	330-375	L14-27300
LB327	327×241	7 5/8 REG B"B	76.2	250	950	375-444.5	L14-32700
LB327	327×241	7 5/8 REG B"P	76.2	250	965	375-444.5	L14-32710
LB327	327×241	7 5/8 REG P"B	76.2	250	1040	375-444.5	L14-32720



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Shandong Saigao Group Corporation.

地址: 山东省济南市历下区经十路 12111 号中润世纪中心

Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

邮编(Postcode): 250001

电话(Tel): 86-531-69959201

传真(Fax): 86-531-69959201

Website: www.saigaogroup.com

Specifications - Washover Pipe

Model	Product Code	O.D	I.D	Wall Thickness	Min. Hole Size	Max. Mill Size	Max. Tensile Load kN	Connection Field Torque N.m	Seal Pressure MPa.
		mm							
TXG114.30-8.56	L21-190	114.30	97.18	8.56	120.65	80.90	390	9490	20
TXG127-9.19	L21-230	127.00	108.62	9.19	146.05	101.60	440	12202	20
TXG139.70-9.17	L21-270	139.70	121.36	9.17	152.4	117.48	500	14914	20
TXG146.05-7.92	L21-300	146.05	130.21	7.92	161.93	127.00	500	14914	20
TXG146.05-9.00	L21-320	146.05	128.05	9.00	161.93	120.65	560	16269	20
TXG168.28-8.94	L21-380	168.28	150.39	8.94	187.33	142.88	600	21693	15
TXG177.80-9.19	L21-420	177.80	159.42	9.19	200.03	152.40	640	24404	15
TXG193.68-9.53	L21-490	193.68	174.63	9.53	212.73	168.28	700	31183	15
TXG193.68-10.92	L21-500	193.68	171.83	10.92	212.73	165.10	810	36607	15
TXG193.68-12.70	L21-510	193.68	168.28	12.70	212.73	161.93	1060	43386	15
TXG203.20-9.53	L21-530	203.20	184.15	9.53	215.90	177.00	820	32539	15
TXG206.38-9.40	L21-540	206.38	187.58	9.40	215.90	177.80	830	32539	15
TXG219.07-11.43	L21-600	219.07	196.21	11.43	244.48	187.33	1100	47453	15
TXG219.07-12.70	L21-610	219.07	193.67	12.70	244.48	184.15	1220	54232	15
TXG228.60-10.80	L21-620	228.60	207.01	10.80	250.83	200.03	1260	47453	15
TXG244.48-11.99	L21-690	244.48	220.50	11.99	266.70	212.73	1460	67791	15
TXG244.48-13.84	L21-700	244.48	216.80	13.84	266.70	206.37	1560	81349	15
TXG273.05-11.43	L21-720	273.05	250.19	11.43	290.45	238.13	1620	81349	15
TXG273.05-12.57	L21-730	273.05	247.91	12.57	298.45	234.95	1640	88128	15
TXG298.44-12.42	L21-750	298.44	273.60	12.42	323.85	263.53	1800	108465	10
TXG339.72-13.06	L21-760	339.72	313.60	13.06	365.13	301.62	2020	149140	10
TXG406.40-16.66	L21-770	406.40	373.08	16.66	444.50	355.60	2500	254894	7.0



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地址: 山东省济南市历下区经十路 12111 号中润世纪中心

Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

邮编(Postcode): 250001

电话(Tel): 86-531-69959201

传真(Fax): 86-531-69959201

Website: www.saigaogroup.com

WASHOVER PIPE ACCESSORIES

Drive Sub

Drive Sub provides the crossover connection between fishing string and the washover pipe. Each sub is machined from high-grade alloy steel and heat treated to provide maximum strength and durability.



Drive Sub

Lift Plug

Lift Plug is designed to provide an economical method of handling washover strings. It is available in all thread types and sizes to support all connections. In addition, it has sufficient shoulder diameter to support and ensure proper handling of the washover string.



Lift Plug

Washover Safety Joint

Washover safety joint is manufactured to provide safe and easy make-up and release of washover tools whenever disengagement of washover string is necessary. This dependable, rugged tool is designed for tough field applications to transmit torque in either direction when placed in the washover string.



Washover Safety Joint

Rotary Shoes

Rotary Shoes are manufactured from specially heat treated alloy to provide ultimate toughness and durability. They are used to cut and create a clearance between the fish and the wall of the well bore.



Rotary Shoe



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Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

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电话(Tel): 86-531-69959201

传真(Fax): 86-531-69959201

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MECHANICAL INTERNAL CUTTER

The ND-J type internal cutter is a down-hole mechanical cutting tool designed to cut casings, tubings and drill pipes. The main advantages are its simple structure, reliable performance and high cutting efficiency. In order not to cut the casing and tubing couplings, the cutter shall be kept away from these couplings during operation. Depending on drilling conditions, it can be used in conjunction with coupling locator to locate the position of the nearest coupling from the cutter. When the internal cutter is used with the releasing spear, it can cut and remove the cut tubing in one fishing operation. Alternatively, a separate fishing tool can be used to remove cut pieces.

Working Principle

Lower the internal cutter to a designated cutting depth, rotate (3 rounds) the cutter mandrel in the clockwise direction to separate the sliding sleeve and the sliding sheet. At this instance, with the spring effect, the friction block will be pressed against the pipe wall. In addition, due to the engagement of the sliding sleeve and sheet, the main center body and the slip portion is pushed upwards along the tapered slip cone, expanding the slip diameter. As the slip diameter expands, it bites on the internal wall of the drill pipe. At this moment, anchor the cutter on the pipe wall and lift the cutter mandrel by 10mm. After which, slowly lower and rotate mandrel, as the cutters (3 pcs) move down the tapered cutter block, it opens up radially to cut the pipe wall.

The cutting operation is completed when the mandrel pressed against the end of the thrust ring. Lift the mandrel to release and reposition the cutters via its own weight and the function of the blade spring. As the mandrel is lifted, the sliding sleeve and sheet re-engage back to its original position. In addition, as the tapered slip cone moves upwards, the slip loses its grip on the pipe wall and the cutter releases its anchor on the wall. Continue to lift mandrel until the locating ring engages with the guide nut before pulling the tool out.

When ordering please specify:

- Pipe size and weight to be cut.
- Top connection.



Mechanical Internal Cutter (X04)

(X04)

Specifications - Mechanical Internal Cutter

Model	Product Code	O.D. (mm)	Connection Box	ID (mm)	ID of cut pipe (mm)	OD of cut pipe (in)
ND-J73x55	X04-73000	55	1.9 NU	8	50-62	2 7/8
ND-J89x67	X04-89000	67	1.9 EU	13	70-78	3 1/2
ND-J114x91	X04-114000	91	NC26	16	97-104	4 1/2
ND-J127x102	X04-127000	102	NC26	18	107-115	5
	X04-127100		2 7/8 REG			
ND-J140x112	X04-140000	112	NC31	15	118-128	5 1/2
	X04-140100		2 7/8 REG			
ND-J178x145	X04-178000	145	NC38	38	150-166	7
	X04-178100		NC31			
	X04-178200		3 1/2 REG			
ND-J245x210	X04-245000	210	NC50	50	216-228	9 5/8



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地址: 山东省济南市历下区经十路 12111 号中润世纪中心

Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

邮编(Postcode): 250001

电话(Tel): 86-531-69959201

传真(Fax): 86-531-69959201

Website: www.saigaogroup.com

MECHANICAL EXTERNAL CUTTER

WD-J type mechanical external cutter is an automatic spring-fed cutter that provides fast, efficient, smooth external cutting and recovery of long sections of tubing, drill pipe and casing. The spring-fed feature prevents excessive strain on the knives which could have caused the knives to burn or break when the cutter is being applied on the rig floor.

Work Principle

Connect the tool with the washover pipe and lower it to the predetermined cutting position. Lift the cutter, the circlip above the clamping sleeve inside the cutter holds the shoulder of the drill pipe (fish) sub. As we continue to lift the cutter, through the shear pin, the body pushes the feed ring upwards, compressing the spring. When the lifting force exceeds the shear pin out-off load, the shear pin cuts off, releasing the compressed spring. The spring repels, moving the feed ring in a downward direction, guiding the knives to rotate towards the cutter center. At this instance, rotate the tool, the release of spring's elastic potential energy gradually pushes the feed ring and knives downward until the drill pipe (fish) is cut. After cutting, the clamping sleeve clamps on to the cut tool joint, allowing it to be extracted with the cutter.

When ordering please specify:

- Hole size;
- Pipe O.D to be cut;
- Top connection.



Mechanical
External Cutter
(X05)

Specifications - Mechanical External Cutter

Model	Product Code	O.D. (mm)	Dimension of cutting fish (mm)	Max. joint O.D. of cutting fish (mm)	Recommend connection Box	Lifting fish capacity KN	Shear force of shear pin KN	Axial force of push knife KN
WD-J102×154	X05-102100	154	101.6	121	5 1/2 LCSG	20	10-20	10-30
WD-J140×206	X05-140100	206	139.7	165	Users homemade	20	10-20	10-30

MULTI-STRING CUTTER



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Shandong Saigao Group Corporation.

地址: 山东省济南市历下区经十路 12111 号中润世纪中心

Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

邮编(Postcode): 250001

电话(Tel): 86-531-69959201

传真(Fax): 86-531-69959201

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Multi-string Cutter is built to withstand extreme shock encountered while cutting multiple strings of un-centralized conductor pipes. The unique construction of this tool enables the rugged cutter arms to expand outward up to 5 times the diameter of the tool body. The cutter can achieve maximum stability under all types of adverse cutting conditions, including hard spots, eccentricity, interrupted cuts, etc.

For example, a 13 3/8" casing cutter, the diameter is only 11 3/4". However it can handle and cut a wide range of pipes with varying weights up to a 60" diameter.

Features and Benefits

- Cuts multiple strings smoothly, even when the strings are not concentric;
- Support maximum expansion of blades, up to 5 times body diameter;
- Rugged 3-bladed construction provides fast cut at high speed;
- Cutter arms can be changed on rig floor.

When ordering please specify:

- Casing size or range to be cut;
- Top connection;
- Body OD.



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地址: 山东省济南市历下区经十路 12111 号中润世纪中心

Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

邮编(Postcode): 250001

电话(Tel): 86-531-69959201

传真(Fax): 86-531-69959201

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SECTION MILL

Section mills are primarily used to milling sections in the casing (for side tracking, gravel packing) and perforation zones. section mill is available in a variety of Casing sizes, ranging from 4 1/2" to 13 3/8". The blades are all dressed to enable simultaneously milling of the casing. The milling rate is usually limited by the ability of the fluid in removing the cuttings.

When ordering please specify:

- Tool model
- Size and weight of Casing to be milled
- Top connection



Section Mill

Specifications - Section Mill



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地址: 山东省济南市历下区经十路 12111 号中润世纪中心

Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

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传真(Fax): 86-531-69959201

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Specifications - Section Mill

Model	DXG114	DXG127	DXG140	DXG168	DXG178
Product Code	D111400	D112700	D114000	D116800	D117800
Casing Size (in)	4 1/2	5	5 1/2	6 5/8	7
Body O.D (in)	3 3/4	4 1/8	4 1/2	5 1/2	6
Fishing Neck O.D (in)	2-3/8 REG	2-7/8 REG	2-7/8 REG	3-1/2 REG	3-1/2 REG

Model	DXG194	DXG219	DXG245	DXG273	DXG298	DXG340
Product Code	D119400	D121900	D124500	D127300	D129800	D134000
Casing Size (in)	7 5/8	8 5/8	9 5/8	10 3/4	11 3/4	13 3/8
Body O.D (in)	6 1/2	7 3/8	8 1/4	9 1/4	10	11 1/2
Fishing Neck O.D (in)	3-1/2 REG	4-1/2 REG	4-1/2 REG	6-5/8 REG	6-5/8 REG	6-5/8 REG

TYPE H SAFETY JOINT

H type safety joint, is an essential safety tool for sub-surface drilling. It is built to withstand all kinds of loads (axial pulling or pressing) and it aid in torque transmission. In downhole operations, safety joints are normally added to the drill string as a precaution to support any tool recovery emergencies. The safety joint allows quick release and disengagement of the tool should they become stuck, so that the drill stem above can be removed. On top of that, while resuming the downhole operation, the safety joint ensures quick and easy reconnection of drill stem.

Specifications - H Type Safety Joint

Model	Product Code	O.D. (mm)	I.D. (mm)	Thread Connection
HAJ89	A020890	89	15	NC26
HAJ95	A020950	95	20	NC26
HAJ105	A021050	105	30	NC31
HAJ121	A021210	121	38	NC38
HAJ159	A021590	159	50	NC46 , NC50
HAJ165	A021650	165	50	NC46 , NC50
HAJ178	A021780	178	57	NC50 , 5 1/2 FH
HAJ203	A022030	203	71.4	6 5/8 REG



Type H Safety Joint
(A02)



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Shandong Saigao Group Corporation.

地址: 山东省济南市历下区经十路 12111 号中润世纪中心

Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

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传真(Fax): 86-531-69959201

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TYPE AJ SAFETY JOINT

AJ type safety joint is a specialized joint consisting of two parts. This specialized joint protects the drilling stem during drilling, fishing, repairing and testing operations. It is used to handle and manage well bottom accident. During drilling and coring operations, it is connected to the required position of drilling stem to protect the drilling stem without any influence on the normal working of drilling tool.

Specifications - AJ Type Safety Joint

Model	Product Code	O.D. (mm)	I.D. (mm)	Thread Connection
AJ-C86	A010860	86	38	NC26
AJ-C95	A010950	95	44	NC26
AJ-C105	A011050	105	51	NC31, 2 7/8 NU, 2 7/8 EUE
AJ-C121	A011210	121	57	NC38
AJ-C159	A011590	159	71.4	NC46, NC50
AJ-C165	A011650	165	71.4	NC50
AJ-C178	A011780	178	71.4	NC50, 5 1/2 FH
AJ-C203	A012030	203	76	6 5/8 REG
AJ-C228	A012280	228	76	7 5/8 REG



Type AJ Safety Joint
(A01)



山东赛高石化设备有限公司

Shandong Saigao Group Corporation.

地址: 山东省济南市历下区经十路 12111 号中润世纪中心

Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

邮编(Postcode): 250001

电话(Tel): 86-531-69959201

传真(Fax): 86-531-69959201

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Specifications - Multi-String Cutter

Model	Product Code	Body O.D (in)	Connection	Casing Range	Optional knives
GD127	G01 127 00	4"	2-7/8 REG	5"-9 5/8"	5"
					5"-7"
					5"-9 5/8"
GD140	G01 140 00	4 3/8"	3-1/2 REG	5 1/2"-9 5/8"	5 1/2"
					5 1/2"-7"
					5 1/2"-9 5/8"
GD178	G01 178 00	5 3/4"	NC38	7"-16"	7"
					7 5/8"-8 5/8"
					8 5/8"-11 3/4"
					11 3/4"-16"
GD210	G01 210 00	8 1/4"	6 5/8 REG	9 5/8"-30"	9 5/8"
					10 3/4"-13 3/8"
					10 3/4"-16"
					13 3/8"-20"
GD298	G01 298 00	11 3/4"	6 5/8 REG	13 3/8"-60"	20"-30"
					13 3/8"-16"
					13 3/8"-20"
					13 3/8"-30"
					20"-30"
					20"-36"
					30"-60"



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Shandong Saigao Group Corporation.

地址: 山东省济南市历下区经十路 12111 号中润世纪中心

Address: Zhongrun Century Center, No 12111, Jingshi Road,

Lixia District, Jinan City, Shandong Province, P.R. China

Email: sales@saigaogroup.com

邮编(Postcode): 250001

电话(Tel): 86-531-69959201

传真(Fax): 86-531-69959201

Website: www.saigaogroup.com

TYPE AJ SAFETY JOINT

AJ type safety joint is a specialized joint consisting of two parts. This specialized joint protects the drilling stem during drilling, fishing, repairing and testing operations. It is used to handle and manage well bottom accident. During drilling and coring operations, it is connected to the required position of drilling stem to protect the drilling stem without any influence on the normal working of drilling tool.

Specifications - AJ Type Safety Joint

Model	Product Code	O.D. (mm)	I.D. (mm)	Thread Connection
AJ-C86	A010860	86	38	NC26
AJ-C95	A010950	95	44	NC26
AJ-C105	A011050	105	51	NC31, 2 7/8 NU, 2 7/8 EUE
AJ-C121	A011210	121	57	NC38
AJ-C159	A011590	159	71.4	NC46, NC50
AJ-C165	A011650	165	71.4	NC50
AJ-C178	A011780	178	71.4	NC50, 5 1/2 FH
AJ-C203	A012030	203	76	6 5/8 REG
AJ-C228	A012280	228	76	7 5/8 REG



Type AJ Safety Joint
(AJ1)



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IMPRESSION BLOCK

Impression Block is an effective tool used to determine the dimensions, configuration, condition, and location of the top end of a fish in the hole.

Construction

Impression Blocks are manufactured with a high strength alloy steel body and a soft lead insert at the lower end. All impression blocks come with a watercourse that allows flushing of the fish top before the tool is lowered against it. Impression blocks without a watercourse can be furnished upon request.

Operation

Attach the impression block to the bottom of the fishing string and lower into the well-hole. Do not rotate the tool, slowly lower the impression block to the point of contact with the fish. Apply weight on the impression block to make an imprint of the fish on the soft lead insert and lift it from the hole.

When ordering, please specify:

- Complete assembly or part number
- Top connection
- Lead O.D.



Impression Block
(X03)

Specifications - Impression Blocks

Specification	Product Code	Thread Connection		I.D. of Lead Die	Total Length
		O.D.	Thread Model (in)		
270	X03-27000	203	6 5/8 REG	40	380
225	X03-22500	165	4 1/2 IF	40	380
195	X03-19500	159	4 IF	30	370
170	X03-17000	121	3 1/2 IF	30	370
120	X03-12000	105	2 7/8 IF	20	350
100	X03-10000	89	2 3/8 IF	20	350