

TABLE OF CONTENT



Mechanical Production Packers

Model R-3 Double Grip Packer
Model R-3 Double Grip Packer (Large Bore)
Model R-3 Single Grip Packer
Specification Guide

Model AD-1 Tension Packer
Model G Set-Down Packer
Specification Guide

Type B Tubing Anchor Catcher

Arrowset I-X Retreivable Packer
Arrowset I-X 10k Retreivable Packer
Specification Guide

Tubing Pressure Packer and Casing Packer
Specification Guide

Cup Packer

TABLE OF CONTENT



Circulating Sleeves

Model XO Circulating (Sliding) Sleeve

Model XA Circulating (Sliding) Sleeve

Accessories

Landing Nipples:

Type X

Type XN

Type F

Type R

Flow Couplings - 2 3/8, 2 7/8

Pup Joints - J55, N80, L80

Blast Joints - 2 3/8, 2 7/8

Seating Nipples

Tubing Collars

Re-entry Guide

Pump-Out Plug

Service Tools & Accessories

Casing Scrapers - 4 1/2", 5", 5 1/2", 7", 7 5/8"

Bit Subs

Walker McDonald Rock Bits & Drag Bits

Type MC Retrievable Bridge Plugs

MECHANICAL PRODUCTION PACKERS

M&G
DOWNHOLE TOOLS
ALICE, TX

"R-3" DOUBLE GRIP PACKER

The "R-3" is a double grip, compression set, retrievable packer.

Applications include: most production, stimulation and testing operations.

FEATURES

- Differential lock helps keep the by-pass closed and locked to the mandrel during high pressure operations
- Automatically returns to run-in position when moved up the hole
- Hydraulic hold-down for differential pressure from below
- Long stroke mandrel simplifies circulation of fluids without releasing the packer
- Large by-pass allows speedy equalization of fluids
- Rocker type slips
- Standard right hand set, optional left hand set
- Parts interchangeable with other manufacturers

SETTING PROCEDURE

The "R-3" Double Grip Packer is run in with the by-pass valve in the open position to permit free circulation both through and around the packer. The packer should be run one foot below setting depth. To set the Double Grip Packer, pick-up the tubing to the desired setting position, rotate to the right, and then slack-off. The j-pin will move clear of the j-slot and the cone will move under the slips. Application of set-down weight, for standard of packing element system (7,000 lbs. for sizes 4-1/2 thru 5-1/2, 9,000 lbs. for size 7", 11,000 lbs. for size 8-5/8, and 15,000 lbs. for size 9-5/8), closes and seals the by-pass valve, sets the slips, and packs-off the packing elements. The formation below the packer, which is now completely isolated from the annulus above, is accessible only through the tubing string.

RELEASING PROCEDURE

To release the packer, raise the tubing string the full length of the packer. When the j-pin of the bottom sub engages, the slip stop ring (jay housing), one of the pins is automatically moved into the running position. This allows the tool to be moved up or down the well bore as necessary.

When the tubing is raised to release the packer, the by-pass valve opens to permit circulation through and around the packer.



MECHANICAL PRODUCTION PACKERS

M&G
DOWNHOLE TOOLS

ALICE, TX

"R-3" DOUBLE GRIP PACKER (LARGE BORE)

The Large Bore "R-3" is a double grip, compression set, retrievable packer.

Applications include: most production, stimulation and testing operations.

FEATURES

- Differential lock helps keep the by-pass closed and locked to the mandrel during high pressure operations
- Automatically returns to run-in position when moved up the hole
- Hydraulic hold-down for differential pressure from below
- Long stroke mandrel simplifies circulation of fluids without releasing the packer
- Large by-pass allows speedy equalization of fluids
- Rocker type slips
- Standard right hand set, optional left hand set
- Large bore
- Parts interchangeable with other manufacturers

SETTING PROCEDURE

The Large Bore "R-3" double grip, Packer is run in with the by-pass valve in the open position to permit free circulation both through and around the packer. The packer should be run one foot below setting depth. To set the M&G Oil Tools "R-3", pick-up the tubing to the desired setting position, rotate to the right, and then slack-off. The j-pin will move clear of the j-slot and the cone will move under the slips. Application of set-down weight, for standard hardness of packing element system (5,000 lbs. for size 5-1/2 x 2-7/8), closes and seals the by-pass valve, sets the slips, and packs-off the packing elements. The formation below the packer, which is now completely isolated from the annulus above, is accessible only through the tubing string.

RELEASING PROCEDURE

To release the packer, raise the tubing string the full length of the packer. When the j-pin of the bottom sub engages, the slip stop ring (jay housing), one of the pins is automatically moved into the running position. This allows the tool to be moved up or down the well bore as necessary.

When the tubing is raised to release the packer, the by-pass valve opens to permit circulation through and around the packer.



LARGE BORE
"R-3" DOUBLE GRIP PACKER

SPECIFICATION GUIDE



"R-3" DOUBLE GRIP PACKER

CASING				PACKER		
O.D. in/mm	WEIGHT lb/ft	MIN. I.D. in/mm	MAX. I.D. in/mm	SIZE	MAX O.D. in/mm	STANDARD THREAD CONNECTIONS
4-1/2 114,30	9.5 - 13.5	3.910 99,31	4.090 103,89	43A	3.771 95,78	
5 127,00	15 - 18	4.250 107,95	4.408 111,96	43B	4.125 104,78	2-3/8 EU 8 RD
	11.5 - 15	4.408 111,96	4.560 115,82	43C	4.250 107,95	
5-1/2 139,70	26					
	20 - 23	4.625 117,48	4.778 121,36	45A2	4.500 114,30	
	15.5 - 20	4.778 121,36	4.950 125,73	45A4	4.641 117,88	
	13 - 15.5					
5-3/4 146,05	22.5	4.950 125,73	5.190 131,83	45B	4.781 121,44	
6 152,40	26					
	20 - 23	5.191 131,85	5.390 136,91	45C	5.062 128,57	
	15 - 18	5.391 136,93	5.560 141,22	45D	5.156 130,96	
6-5/8 168,28	34	5.561 141,25	5.609 142,47	45E	5.406 137,31	
	28 - 32	5.610 142,49	5.921 150,39	45F	5.484 139,29	
	24 - 28	5.992 150,42	6.135 155,83	45G	5.781 146,84	
7 177,80	24	5.830 148,08	5.937 150,80	47A2	5.656 143,66	2-7/8 EU 8 RD
	17 - 20	5.938 150,83	6.135 155,83	47A4	5.812 147,62	
	38	5.830 148,08	5.937 150,80	47A2	5.656 143,66	
	32 - 35	5.938 150,83	6.135 155,83	47A4	5.812 147,82	
	26 - 29	6.136 155,85	6.276 159,41	47B2	5.968 151,59	
	20 - 26	6.276 159,41	6.366 161,70	47B4	6.078 154,38	
	17 - 20	6.456 163,98	6.578 167,08	47C2	6.266 159,16	
7-5/8 193,68	33.7 - 39	6.579 167,11	6.797 172,64	47C4	6.453 163,91	
	24 - 29.7	6.798 172,67	7.025 178,44	47D2	6.672 169,47	
	20 - 24	7.025 178,44	7.125 180,98	47D4	6.812 173,02	
8-5/8 219,08	44 - 49	7.511 190,78	7.687 195,28	49A2	7.312 185,72	3-1/2 EU 8 RD
	32 - 40	7.688 195,28	7.921 201,19	49A4	7.531 191,29	
	20 - 28	7.922 201,22	8.191 208,05	49B	7.781 197,64	
9-5/8 244,48	47 - 53.5	8.343 211,91	8.681 220,50	51A2	8.218 208,74	
	40 - 47	8.681 220,50	8.835 224,41	51A4	8.437 214,30	
	29.3 - 36	8.836 224,43	9.063 230,20	51B	8.593 218,26	

MECHANICAL PRODUCTION PACKERS

M&G
DOWNHOLE TOOLS

ALICE, TX

"AD-1" TENSION PACKER

The "AD-1" is a tension set, retrievable packer.

Applications include: waterflood, shallow or low fluid level wells with insufficient tubing weight to set compression packers.

FEATURES

- Compact
- J-slot control for normal set and release
- Shear ring secondary release
- Right-hand safety joint emergency release
- Rocker type slips
- Inexpensive
- Parts interchangeable with other manufacturers

SETTING PROCEDURE

Run the packer to desired setting depth, making the last movement downward. Rotate the tubing to the left one-quarter turn at the tool. Pick-up tubing to apply desired tension and maintain pack-off.

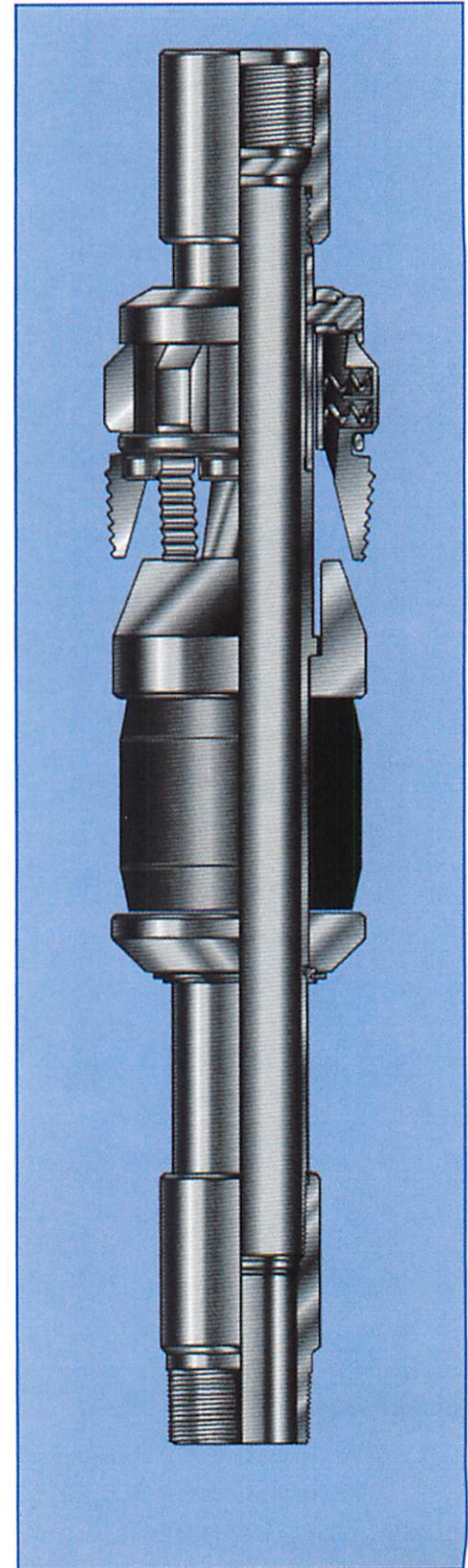
RELEASING PROCEDURE

Lower the tubing at least one foot more than is needed to remove applied tension so that the j-pin will move fully to the top of the j-slot.

Rotate the tubing to the right one-quarter turn at the packer so slips will now be in the running position. Packer can be moved to a new position and reset or it can be retrieved.

As an alternate release method, the "AD-1" Tension Packer has shear rings designed to part at tension varying from 13,000-100,000 lbs. The cone, packing element and guide drop down and are carried out of the hole by the bottom sub.

If normal release is not possible, left-hand square threads on the top sub of the packer allow the tubing to be retrieved when the packer will not otherwise release.



SPECIFICATION GUIDE

"AD-1" TENSION PACKER



CASING				PACKER		
O.D. in/mm	WEIGHT	MIN. I.D. in/mm	MAX. I.D. in/mm	SIZE	MAX O.D. in/mm	STANDARD THREAD CONNECTIONS
4 101,60	9.5 - 11.6	3.428 87,07	3.548 90,12	41A	3.281 83,34	2-3/8 EU 8 RD
4-1/2 114,30	9.5 - 13.5	3.910 99,31	4.160 105,66	43A	3.771 95,78	
5 127,00	15 - 18	4.161 105,69	4.408 111,96	43B	4.125 104,78	
	11.5 - 15	4.408 111,96	4.560 115,82	43C	4.250 107,95	
5-1/2 139,70	26	4.625 117,48	4.778 121,36	45A2	4.500 114,30	
	20 - 23	4.778 121,36	4.950 125,73	45A4	4.641 117,88	
	15.5 - 20	4.950 125,73	5.190 131,83	45B	4.781 121,44	
	13 - 15.5	5.190 131,83	5.390 136,91	45C	5.062 128,57	
5-3/4 146,05	22.5	5.391 136,93	5.560 141,22	45D	5.156 130,96	
6 152,40	26	5.561 141,25	5.595 142,11	45E2	5.406 137,31	
	20 - 23	5.596 142,14	5.791 147,09	45E4	5.484 139,29	
6-5/8 168,28	34	5.830 148,08	5.921 150,39	47A2	5.656 143,66	2-7/8 EU 8 RD
	28 - 32	5.922 150,42	6.135 155,83	47A4	5.812 147,62	
	24	6.136 155,85	6.276 159,41	47B2	5.968 151,59	
7 177,80	17 - 20	6.276 159,41	6.456 163,98	47B4	6.078 154,38	
	38	6.456 163,98	6.538 166,07	47C2	6.266 159,16	
	32 - 35	6.539 166,09	6.765 171,83	47C4	6.453 163,91	
	26 - 29	6.766 171,86	7.025 178,44	47D2	6.672 169,47	
7-5/8 193,68	20 - 24	7.025 178,44	7.125 180,98	47D4	6.812 173,02	
8-5/8 219,08	40 - 49	7.125 180,98	7.225 186,22	49A2	7.312 185,72	3-1/2 EU 8 RD
	32 - 40	7.225 186,22	7.921 201,19	49A4	7.531 191,29	
	20 - 28	7.922 201,22	8.191 208,05	49B	7.781 197,64	
9-5/8 244,48	47 - 53.5	8.300 210,82	8.681 220,50	51A2	8.218 208,74	4-1/2 LTC 8 RD
	40 - 47	8.681 220,50	8.835 224,41	51A4	8.437 214,30	
	29.3 - 36	8.836 224,43	9.063 230,20	51B	8.593 218,26	
10-3/4 273,05	32.7 - 55.5	9.625 244,48	10.192 258,88	53A	9.500 241,30	4-1/2 LTC X 4-1/2 STC

MECHANICAL PRODUCTION PACKERS



"G" SET-DOWN PACKER

The "G" is a compression set, retrievable packer.

Applications include: most low pressure production applications. When combined with an unloader and hold down mechanism it can be used for well stimulation, testing and other pressuring operations and then left in the well as a production packer.

FEATURES

- Rocker type slips
- Inexpensive
- J-slot control for normal set and release
- Right-hand safety joint emergency release
- Compact
- Parts interchangeable with other manufacturers

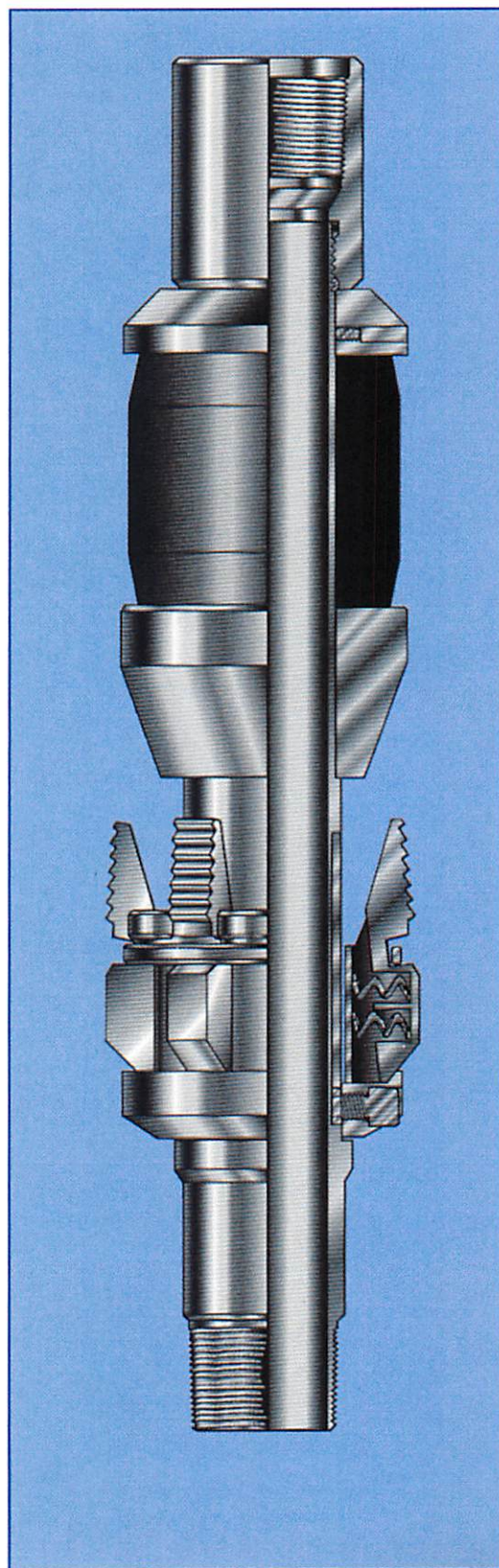
SETTING PROCEDURE

The "G" Set-down Packer is run to a position about one foot below the desired setting depth, pick-up to the setting point. Rotate the tubing 1/4 turn to the right, at the tool, and set-down weight (6,000 lbs. for sizes 4-1/2 thru 5-1/2, 10,000 lbs. for size 7", and 15,000 lbs. for sizes 8-5/8 thru 10-3/4) is applied to set to pack-off the tool.

RELEASING PROCEDURE

To release the packer, the tubing is simply picked up. If the packer is to be moved down-hole and reset, the tubing is rotated to the left 1/4 turn at the tool.

The "G" Set-down Packer also features a safety joint that permits removal of the tubing string if it should become necessary to do so. To remove the tubing string from the packer, rotate the tubing string (under slight tension) at least seven turns to the right. The left-hand thread that connects the top sub to the mandrel will unscrew, permitting the removal of the tubing string and the top sub from the well.



TUBING ANCHOR CATCHERS

M&G

DOWNHOLE TOOLS

ALICE, TX

"B" TUBING ANCHOR CATCHER

The M&G Oil Tools "B" acts as a tubing anchor to maintain tension in the tubing string and as a tubing catcher to prevent parted pipe from falling to the bottom of the well.

Applications include: most rod pumping applications where it is important to maintain tension in the tubing.

FEATURES

- Rotate left to set, right to release
- Straight pull emergency shear release
- Increases pump efficiency
- Improves operating costs by reducing maintenance and down time caused by tubing or sucker rod wear
- Parts interchangeable with other manufacturers

SETTING PROCEDURE

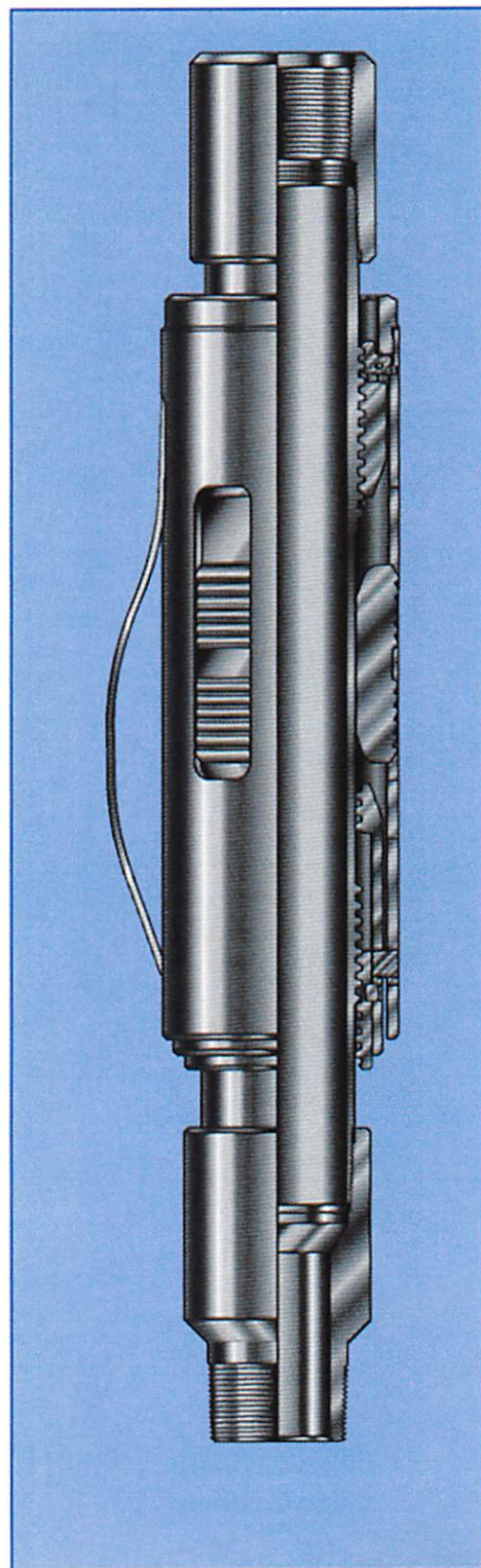
At the desired setting depth, rotate the tubing to the left with hand wrenches until the slips contact the casing (approximately 5 to 8 turns). Maintain left-hand torque while alternately pulling strain and setting down several times to work all the slack out of the tool.

RELEASING PROCEDURE

With tubing in slight compression, rotate the tubing to the right (5 to 8 turns at the tool) to retract the cones from the slips and allow the slips to move back into the housing. To insure a complete release, reciprocate the tubing string a few feet while rotating a few more turns to the right before starting out of the hole. If normal release is not possible, an upstrain greater than the total shear strength of the shear pins plus the weight of the tubing.

SPECIFICATION GUIDE

CASING				ANCHOR		
O.D. in/mm	WEIGHT lb/ft	MIN. I.D. in/mm	MAX. I.D. in/mm	SIZE	MAX O.D. in/mm	STANDARD THREAD CONNECTIONS
4 101.60	9.5 - 12.6	3.250 82.55	3.562 90.47	41	2.875 73.03	2-3/8 EU 8 RD
4-1/2 114.30	9.5 - 13.5	3.826 97.18	4.090 103.89	43A	3.750 95.25	
5 127.00	11.5 - 18	4.276 108.61	4.560 115.82	43B	4.000 101.60	
5-1/2 139.70	13 - 23	4.670 118.62	5.044 128.12	45A	4.500 114.30	2-3/8 EU 8 RD
6 152.40	18 - 23	5.240 133.10	5.424 137.77	45B	4.812 122.22	
6-5/8 168.28	17 - 32	5.675 144.15	6.456 163.98	47A	5.500 139.70	
7 177.80	20 - 38	6.413 162.89	7.125 180.98	47B	6.250 158.75	or 2-7/8 EU 8 RD
7-5/8 193.68	17 - 20					3-1/2 EU 8 RD
6-5/8 168.28	20 - 39					
7 177.80	17 - 38	5.675 144.15	6.538 166.07	47 X 3.00	5.500 139.70	
8-5/8 219.08	24 - 49	7.250 184.15	8.093 205.56	49	7.000 177.80	3-1/2 EU 8 RD
9-5/8 244.48	32.3 - 47	8.681 220.50	9.001 228.63	51	8.000 203.20	



MECHANICAL PRODUCTION PACKERS



ARROWSET I-X

The ARROWSET I-X Retrievable Production Packer effectively meets several requirements for zone isolation, injection, pumping and production. Full opening gives unrestricted flow and allows the passage of wireline tools and other accessories. The ARROWSET I-X can be left in tension, compression, or neutral and will hold pressure from above or below. A large internal by-pass reduces the swabbing effect during run-in and retrieving. The by-pass closes upon setting the packer. During releasing, the by-pass opens first allowing the pressure to equalize before releasing the upper slips. The ARROWSET I-X also features the patented upper slip releasing system that reduces the force required to release the packer. A non-directional slip is released first which makes it easier to release the other slips. The ARROWSET I-X has optional safety release features available upon request.

The ARROWSET I-X can be run with an On/Off Tool which adds to the versatility of this packer.

FEATURES

- Holds pressure differentials from above or below
- Only 1/4 right rotation to set and release
- Can be left in neutral, compression or tension
- Field proven releasing system
- Versatility of design for most production, stimulation, and injection needs
- Can be set using tension or compression

SETTING PROCEDURE

Tension Set

Run to setting depth, pick up on the tubing and rotate 1/4 turn to the right, at the packer, then lower the tubing. As the packer starts to take weight, hold left hand torque then pick up on tubing. The upper slips will begin biting into the casing. Further pick up will set the upper slips, expand the element and set the lower slips. After setting, the tubing can be landed in tension, compression or neutral.

Compression Set

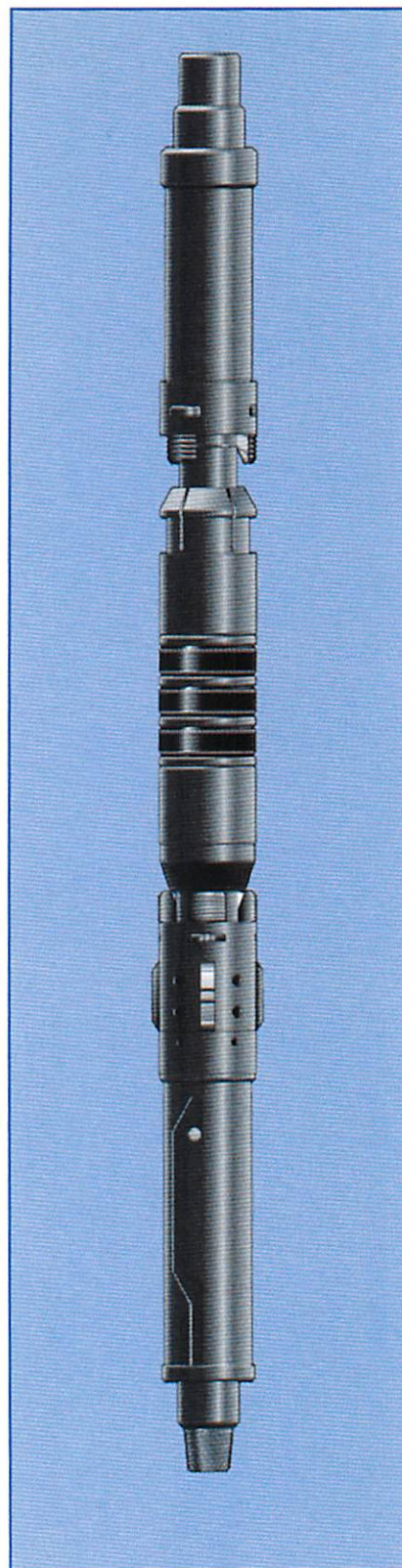
Run to setting depth, pick up on the tubing and rotate 1/4 turn to the right, at the packer, then lower the tubing. The lower slips will set, the elements will expand, and the upper slips will set. Pull tension to make sure the upper slips are set. After setting the packer, the tubing can be landed in compression, tension, or neutral.

RELEASING PROCEDURE

The releasing procedures are the same whether the packer has been tension or compression set. Set down weight on the packer and rotate the tubing 1/4 turn right at the packer, then pick up holding the right hand torque. The internal by-pass will open, allowing pressure to equalize. Further pick up releases the patented sequential releasing slip system, relaxing the elements, allowing the packer to be moved and reset or removed from the well.

ARROWSET I-X 10K packers incorporate all the features of the ARROWSET I-X, with the ability to withstand differential pressures of 10,000 psi from above or below.

ARROWSET I-X HP packers incorporate all the features of the ARROWSET I-X, with the ability to withstand differential pressures of 7,500 psi from above or below.



SPECIFICATION GUIDE

ARROWSET I-X (2-7/8" - 5-1/2")



CASING SIZE		O.D. OF TOOL (in/mm)	NOMINAL CASING I.D. RANGE		MINIMUM TOOL I.D. (in/mm)	STANDARD THREAD CONNECTIONS	BASE PRODUCT NUMBER
(in/mm)	WEIGHT		MIN. (in-mm)	MAX. (in/mm)			
2-7/8 73.0	6.4 - 6.5	2.250 57.15	2.376 60.35	2.441 62.00	0.625 15.88	1.050 EU 10RD	600-25
3-1/2 88.9	7.7 - 10.2	2.781 70.64	2.922 74.22	3.068 77.93	1.250 31.75	1.900 NU 10RD	600-30
4 101.6	9.5 - 11.0	3.250 82.55	3.476 88.29	3.548 90.12	1.500 38.10	1.900 NU 10 RD	602-40
4-1/2 114.3	15.1 - 16.6	3.594 91.29	3.754 95.35	3.826 97.18	1.500 38.10	1.900 NU 10 RD	602-41
	9.5 - 13.5	3.750 95.25	3.920 99.57	4.090 103.89	1.938 49.23	2.375 EU 8RD	603-45
	13.5 - 15.1	3.680 93.47	3.826 97.18	3.920 99.57	1.938 49.23		603-46
5 127.0	18 - 20.8	4.000 101.60	4.156 105.56	4.276 108.61	1.938 49.23	2.375 EU 8RD	603-52
	11.5 - 15	4.125 104.78	4.408 111.96	4.560 115.82			603-50
5-1/2 139.7	20 - 23	4.500 114.30	4.670 118.62	4.778 121.36	1.938 49.23	2.375 EU 8RD	603-57
	13 - 17	4.625/4.750 120.65	4.892 124.26	5.044 128.12			603-55
	14.0 - 20.0	4.625 117.48	4.778 121.36	5.012 127.31			603-55
	20.0 - 23.0	4.500 114.30	4.670 118.62	4.778 121.36	2.375 60.33	2.875 EU 8RD	603-59
	15.5 - 20.0	4.625 117.48	4.778 121.36	4.950 125.73			603-56
	9.0 - 13.0	4.875 123.83	5.044 128.12	5.192 131.88			603-62

*MAXIMUM O.D. IS ACROSS RETRACTED DRAG BLOCKS

MECHANICAL PRODUCTION PACKERS

TUBING PRESSURE PACKER AND CASING PACKER



TUBING PRESSURE PACKER

The Arrow Tubing Pressure Packer is designed to handle a variety of downhole needs in slim hole casing. It is used for acidizing, fracturing, and water injection where moderate pressure is expected. The packer may be run in either tension or compression.

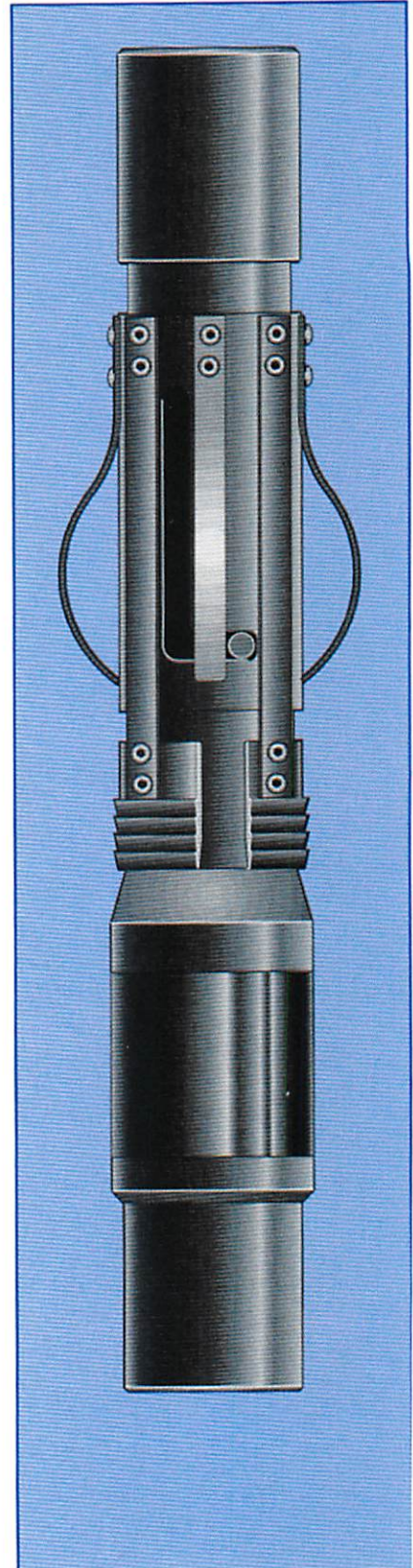
CASING PACKER

The Arrow Casing Packer can be set in open hole or in the casing string. It is often run beneath casing holes to isolate water so the well can be pumped or gas vented. The packer can be set in tension or compression for shutting of water, for injection, or for various cementing procedures. When run in compression and in conjunction with special release sub, the packer can be used as a liner hanger.

Deeply cut, widely spaced wickers allow the packer to set, whether it is in open hole or in corroded casing. The Arrow Casing Packer is also available for open holes with a softer dual packing element system. This system provides a more reliable pack-off in irregular formations and a trouble free release without swabbing.

FEATURES

- Full opening casing size
- Deep cut wickers
- Compression or tension set
- Casing can be run below packer
- Can be used as a liner hanger
- Available in open hole version



SPECIFICATION GUIDE



TUBING PRESSURE PACKER (2-3/8" - 3-1/2")

CASING SIZE		O.D. OF TOOL	NOMINAL CASING I.D. RANGE		MINIMUM TOOL I.D.	STANDARD THREAD CONNECTION	BASE PRODUCT NUMBER	
(in/mm)	WEIGHT	(in/mm)	MIN. (in/mm)	MAX. (in/mm)	(in/mm)		SGL. ELEM.	DBL. ELEM.
2-3/8 60,3	4.0 - 4.7	1.813 46,05	1.995 50,67	2.041 51,84	0.750 19,05	1.00 11-1/2V or .75 NPT	445-20	N/A
2-7/8 73,0	8.6 - 8.7	2.062 52,38	2.165 54,99	2.259 57,38	1.125 28,58	1.660 NU 10RD	445-26	
	6.4 - 6.5	2.250 57,15	2.375 60,33	2.441 62,00	0.750 19,0	1.00 11-1/2V or .75 NPT	445-27	
							445-25	
3-1/2 88,9	12.950	2.625 66,68	2.750 69,85	2.750 69,85	1.125 28,58	1.900 or 1.660 NU 10RD	445-31	
	7.7 - 10.2	2.750 69,85	2.922 74,22	3.068 77,93			445-30	

CASING PACKER (4-1/2" - 7")

CASING SIZE		O.D. OF TOOL	NOMINAL CASING I.D. RANGE		MINIMUM TOOL I.D.	STANDARD THREAD CONNECTION	BASE PRODUCT NUMBER	
(in/mm)	WEIGHT	(in/mm)	MIN. (in/mm)	MAX. (in/mm)	(in/mm)		SGL. ELEM.	DBL. ELEM.
4-1/2 114,3	15.1	3.500 88,90	3.750 95,25	4.000 101,60	1.938 49,23	2.375 EU 8RD	440-35	N/A
	9.5 - 13.5	3.750 95,25	3.920 99,57	4.090 103,89	2.500 63,50	2.875 EU 8RD	440-45	
							440-45	
5 127,0	11.5 - 18.0	4.125 104,78	4.276 108,61	4.560 115,82	2.500 63,50	2.875 EU 8RD	440-50	
5-1/2 139,7	20.0 - 23.0	4.500 114,30	4.670 118,62	4.778 121,36	3.000 76,20	3.500 EU 8RD	440-54	440-55
	13.0 - 17.0	4.625 117,48	4.892 124,26	5.044 128,12	3.000 76,20	3.500 NU 10RD	440-55	
						3.500 EU 8RD	440-55	
6 152,4	18.0 - 20.0	5.188 131,78	5.352 135,94	5.524 140,31	3.500 88,90	4.000 NU 8RD	445-60	N/A
6-5/8 168,2	20.0 - 28.0	5.625 142,88	5.791 147,09	6.049 153,65	3.500 88,90	4.000 NU 8RD	440-64	
					4.000 101,60	4.500 LTC 8RD	440-65	
7 177,8	17.0 - 38.0	5.750 146,05	5.920 150,37	6.538 166,07	4.000 101,60	4.500 LTC 8RD	440-70	440-70
	20.0 - 26.0	6.125 155,58	6.276 159,41	6.456 163,98	4.500 114,30	5.000 LTC 8RD	440-74	440-72
	17.0 - 23.0	6.188 156,25	6.366 161,25	6.538 166,07				

MECHANICAL PRODUCTION PACKERS



CUP PACKERS

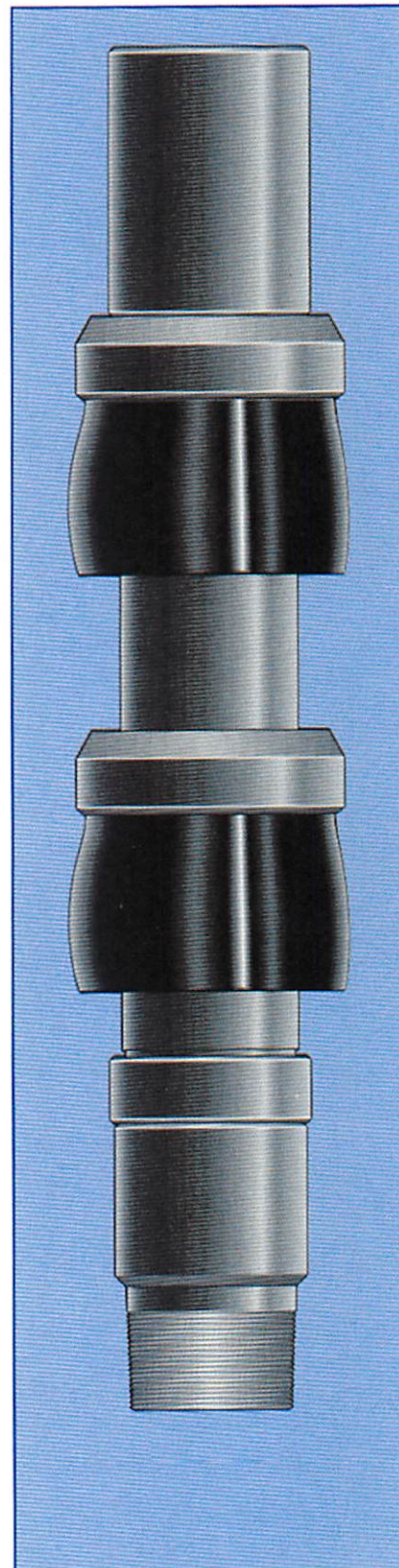
The Arrow Cup Packers are available in single and double cup designs. They provide a simple and inexpensive method of isolating casing leaks as well as for use between zones in single string, multiple zone injection installations.

Either the single or double cup packers can be installed, usually in multiples of two, with the cups facing toward the center or away from the center, depending on the particular needs.

The double cup packer can be used with opposed cups to simultaneously isolate pressure from either direction.

SPECIFICATION GUIDE

CASING SIZE		THREAD CONNECTION	BASE PRODUCT NUMBER
(in/mm)	WEIGHT		
2.875 73.03	6.4 - 6.5	1.660 NU 10RD	439-25
3.500 88.9	9.3 - 10.2	1.900 NU 10RD	439-35
4.500 114.3	9.5 - 11.6	2.375 EU 8RD	439-45
		2.875 EU 8RD	
	15.1 - 16.6	2.375 EU 8RD	439-46
5.500 139.7	13.0 - 17.0	2.375 EU 8RD	439-55
		2.875 EU 8RD	439-56
	20.0 - 23.0	2.375 EU 8RD	439-57
		2.875 EU 8RD	439-59
6.625 168.2	20.0 - 28.0	2.875 EU 8RD	439-65
7.000 177.8	17.0 - 29.0	2.875 EU 8RD	439-70
	26.0 - 29.0		439-71
	17.0 - 29.0	4.500 NU 8RD	439-73
		3.500 EU 8RD	439-74
7.625 193.6	24.0 - 29.7	2.875 EU 8RD	439-75
8.625 219.0	28.0 - 36.0	3.500 EU 8RD	439-85



CIRCULATING SLEEVES

“XO” CIRCULATING SLEEVE

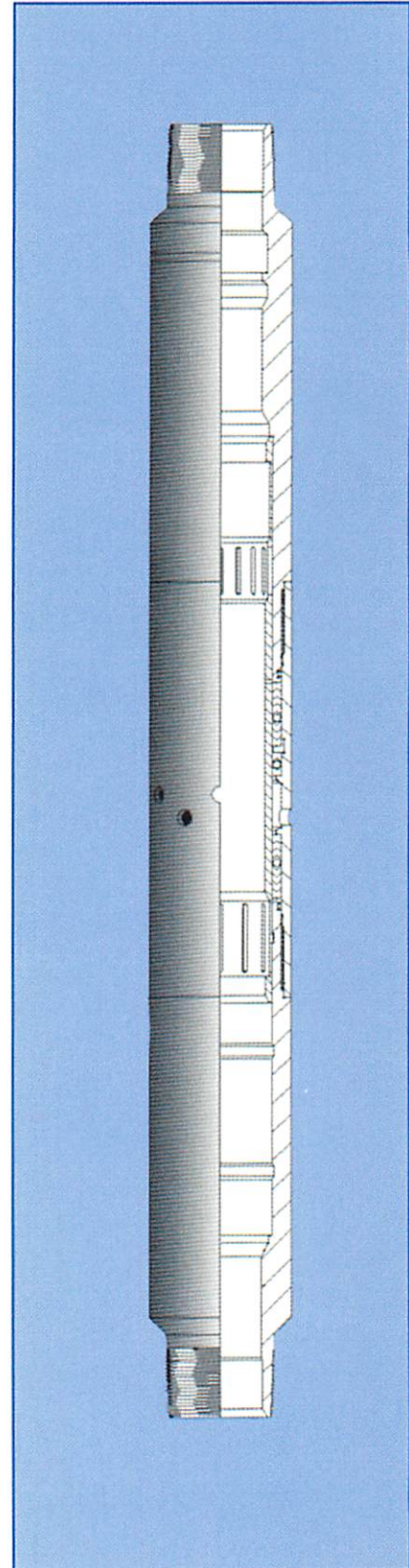
The XO Circulation Sleeve is a downhole flow control device mounted in the production tubing. It effectively controls the flow between the tubing and the casing annulus by means of an internal sleeve that is opened and closed by standard wireline methods.

FEATURES

- Dependable, Simple, Quick
- Features a nipple profile above and a packing bore above and below the communication ports
- Ports can be closed without leaving any obstructions in the tubing once the shifting operation is completed
- The Model “B” Shifting Tool is used to open (jarring down) or close (jarring up) the XO Circulating Sleeve
- All premium threads available

SPECIFICATION GUIDE

TUBING SIZE (in/mm)	SEAL BORE (in/mm)	MAX. O.D. (in/mm)
2-3/8 60,33	1.875 47,63	3.093 78,56
2-7/8 73,03	2.313 58,75	3.750 95,25
3-1/2 88,90	2.750 69,85	4.500 114,30
3-1/2 88,90	2.812 71,42	4.500 114,30



CIRCULATING SLEEVES

M&G
DOWNHOLE TOOLS

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"XA" CIRCULATING SLEEVE

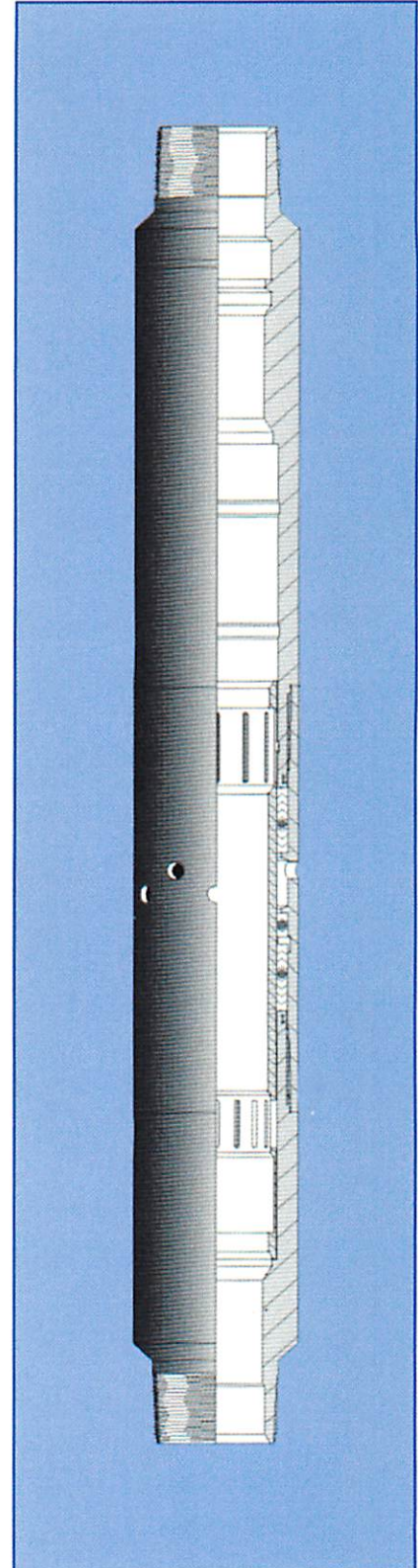
The XA Circulating Sleeve is a downhole flow control device mounted in the production tubing. It effectively controls the flow between the tubing and the casing annulus by means of an internal sleeve that is opened and closed by standard wireline methods.

FEATURES

- Dependable, Simple, Quick
- Features a nipple profile above and a packing bore above and below the communication ports
- Ports can be closed without leaving any obstructions in the tubing once the shifting operation is completed
- The Model Type "B" Shifting Tool is used to open (jarring up) or close (jarring down) the XA sleeve
- All premium threads available

SPECIFICATION GUIDE

TUBING SIZE (in/mm)	SEAL BORE (in/mm)	MAX. O.D. (in/mm)
2-3/8 60,33	1.875 47,63	3.093 78,56
2-7/8 73,03	2.312 58,72	3.750 95,25
3-1/2 88,90	2.750 69,85	4.500 114,30
3-1/2 88,90	2.812 71,42	4.500 114,30



ACCESSORIES



LANDING NIPPLE ACCESSORIES

FLOW COUPLINGS

2 3/8 EUE or 2 7/8 EUE 8rd Flow Couplings are available to be used in conjunction with Landing Nipples. When a Flow Control Accessory is to be placed in the nipple for long duration, we recommend using a Flow Coupling. Flow Couplings come in 18", 24", 36", and 48" lengths and usually are Box X Pin, with the OD of the Flow Coupling being the coupling OD of the thread ordered.

PUP JOINTS

All size N-80 and J-55 Pup Joints and Collars are available. The L-80 and the C-75 are also available on request. All are manufactured to API Specifications.

COMBINATION SUBS

All Combination Subs are made of 4140 Alloy Steel 28-32 Rockwell C Scale and are available Box/Pin, Box/Box and Pin/Pin. Alloy steel subs are available on request.

LANDING NIPPLES

M&G
DOWNHOLE TOOLS

ALICE, TX

"X" NIPPLE

The X Nipple offers an expanded versatility to downhole selection. Any desired number of X Nipples can be placed in the production string, thereby offering an unlimited number of positions for setting and locking surface controls.

May be used in the following applications:

- Land blanking plugs to shut in well or to test the production tubing
- Land velocity type safety valves
- Land equalizing check valves
- Land circulating blanking plugs
- Land chokes to reduce surface flowing pressures
- Land instrument hangers with geophysical devices such as pressure and temperature recorders

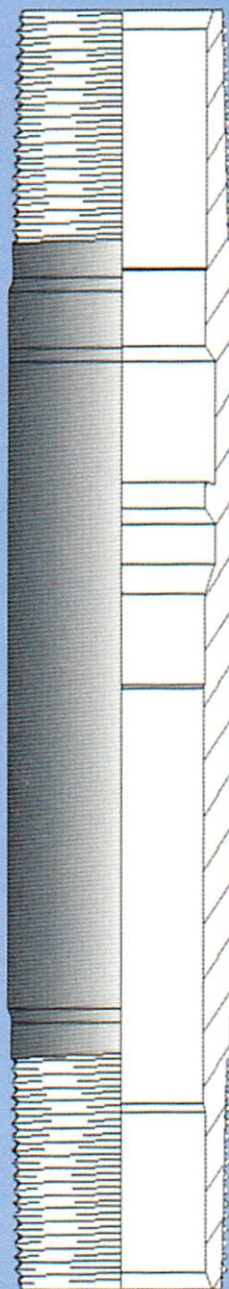
FEATURES

- Versatility to reduce completion and production costs
- Nipple bore compatible with tubing size and weight to permit maximum flow capacity
- Designed for standard tubing weight
- All premium threads available

SPECIFICATION GUIDE

TUBING SIZE (in/mm)	MINIMUM NIPPLE I.D. (in/mm)	PACKING BORE (in/mm)
1.900 48.26	1.500 38.10	1.500 38.10
2-1/16 52.39	1.625 41.28	1.625 41.28
2-3/8 60.33	1.875 47.63	1.875 47.63
2-7/8 73.03	2.313 58.75	2.313 58.75
3-1/2 88.90	2.750 69.85	2.750 69.85
3-1/2 88.90	2.812 71.42	2.812 71.42
3-1/2 88.90	2.875 73.03	2.875 73.03

Downhole controls for all size nipples are available.
Additional sizes available.



LANDING NIPPLES

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DOWNHOLE TOOLS

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"XN" NIPPLE

The XN Nipple is designed for use in single nipple installations or as the bottom nipple when placed in a series of Type X or S Landing Nipples.

May be used in the following applications:

- Land blanking plugs to shut in well or to test the production tubing
- Land Velocity Type Safety Valves
- Land equalizing check valves
- Land circulating blanking plugs
- Land chokes to reduce surface flowing pressures
- Land instrument hangers with geophysical devices such as pressure and temperature recorders
- Restricted I.D. catches tools dropped during wireline work

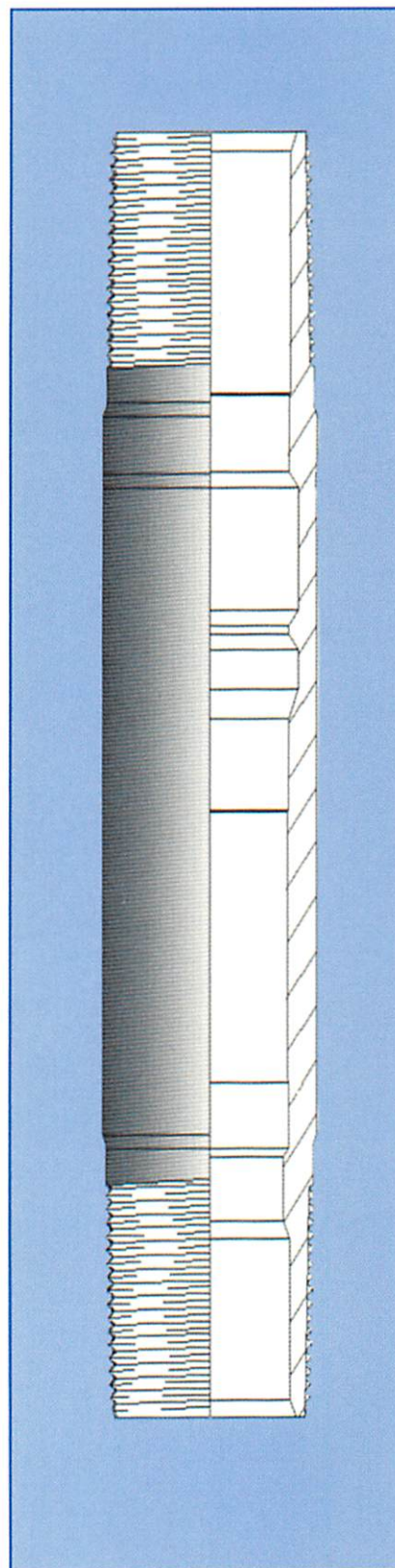
FEATURES

- Full-opening packing bore, with a locking recess at the top of the nipple and slightly restricted No-Go at the bottom to prevent wireline tools from dropping out of the tubing string and being lost
- All premium threads available

SPECIFICATION GUIDE

TUBING SIZE (in/mm)	MINIMUM NIPPLE I.D. (in/mm)	PACKING BORE (in/mm)
1.900 48.26	1.448 (No-Go) 36.78	1.500 38.10
2-1/16 52.39	1.536 (No-Go) 39.01	1.625 41.28
2-3/8 60.33	1.791 (No-Go) 45.49	1.875 47.63
2-7/8 73.03	2.205 (No-Go) 56.01	2.313 58.75
3-1/2 88.90	2.635 (No-Go) 66.93	2.750 69.85
3-1/2 88.90	2.666 (No-Go) 67.72	2.813 71.45
3-1/2 88.90	2.760 (No-Go) 70.10	2.875 73.03

Downhole controls for all size nipples are available.
Additional sizes available.



LANDING NIPPLES

"F" NIPPLE

The F Nipple is a Top No-Go or Selective Seating Nipple which provides for the location of various wireline flow control devices in the production string.

Be sure to consider carefully the location and number of the model F seating nipple to provide maximum versatility in the positioning of the various flow control accessories.

May be used in the following applications:

- Land blanking plugs to shut in well or to test the production tubing
- Land velocity type safety valves
- Land equalizing check valves
- Land circulating blanking plugs
- Land chokes to reduce surface flowing pressures
- Land instrument hangers with geophysical devices such as pressure and temperature recorders

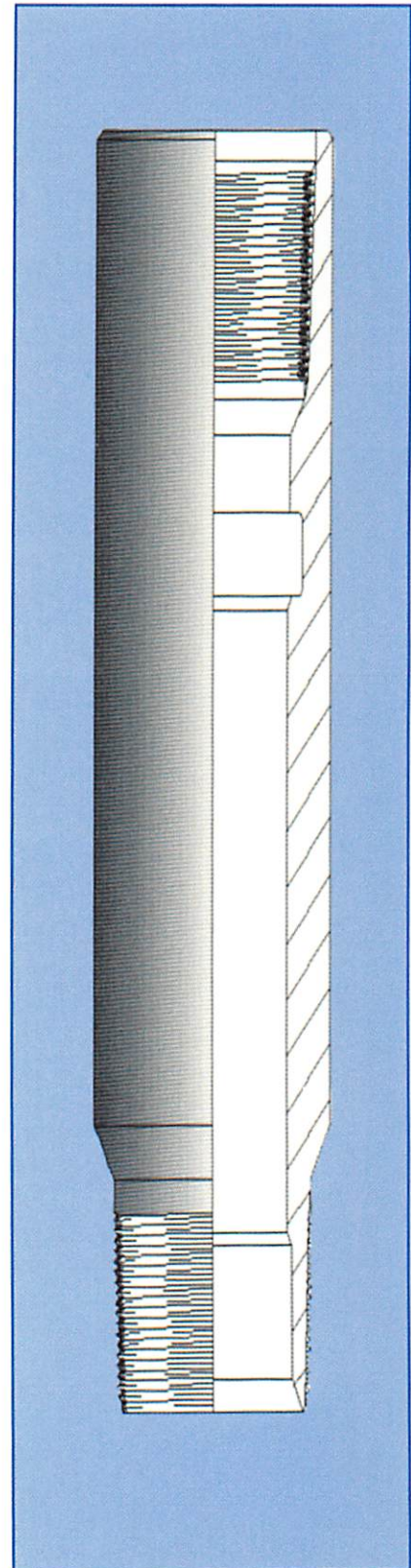
FEATURES

- Accepts selective or top No-Go locks
- Honed internal sealing bores for maximum sealing capabilities
- Locking groove/No-Go shoulder combination above seal bore
- All premium threads available

SPECIFICATION GUIDE

TUBING SIZE (in/mm)	MINIMUM NIPPLE I.D. (in/mm)	PACKING BORE (in/mm)
1.900 48,26	1.500 38,10	1.500 38,10
2-3/8 60,33	1.781 45,24	1.781 45,24
	1.810 45,97	1.810 45,97
	1.870 47,50	1.870 47,50
	1.870 47,50	1.870 47,50
2-7/8 73,03	2.250 57,15	2.250 57,15
	2.312 58,72	2.312 58,72
3-1/2 88,90	2.750 69,85	2.750 69,85
	2.812 71,42	2.812 71,42

Downhole controls for all size nipples are available.
Larger sizes available.



LANDING NIPPLES

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DOWNHOLE TOOLS

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"R" NIPPLE

The R Nipple is a Bottom No-Go Seating Nipple which allows for the location of various flow control devices in the production string.

May be used in the following applications:

- Land blanking plugs to shut in well or to test the production tubing.
- Land velocity type safety valves
- Land equalizing check valves
- Land circulating blanking plugs
- Land chokes to reduce surface flowing pressures
- Land instrument hangers with geophysical devices such as pressure and temperature recorders
- Restricted I.D. catches tools dropped during wireline work

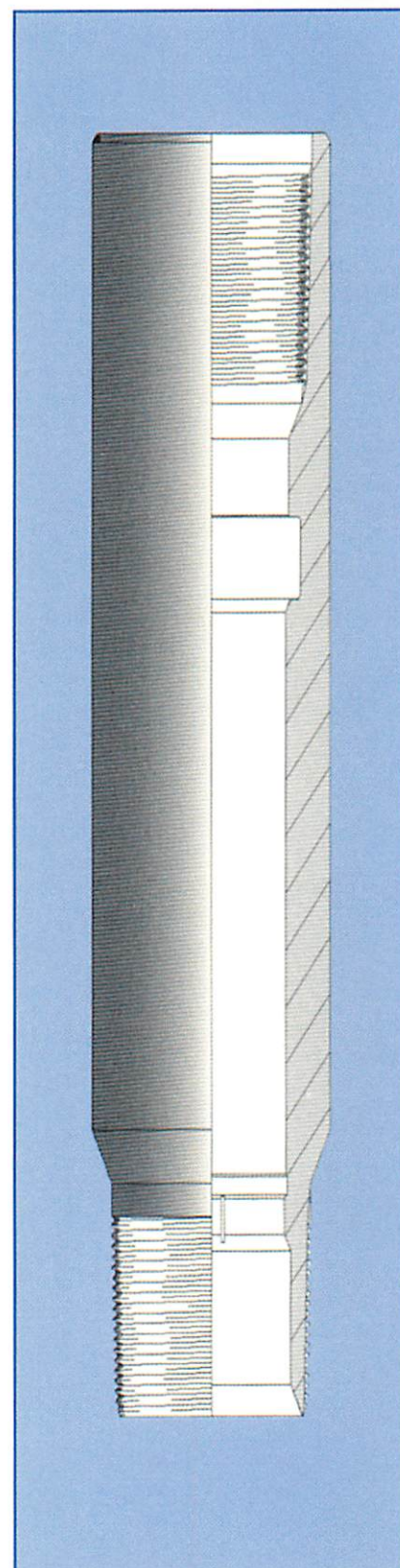
FEATURES

- Honed internal sealing bores for maximum sealing performance
- Locking-groove/ Bottom No-Go shoulder combination accepts Bottom No-Go locks
- All premium threads available

SPECIFICATION GUIDE

TUBING SIZE (in/mm)	MINIMUM NIPPLE I.D. (in/mm)	PACKING BORE (in/mm)
1.900 48.26	1.447 (No-Go) 36.75	1.500 38.10
2-3/8 60.33	1.728 (No-Go) 43.89	1.781 45.24
	1.760 (No-Go) 44.70	1.812 46.02
	1.822 (No-Go) 46.28	1.875 47.63
2-7/8 73.03	2.197 (No-Go) 55.80	2.250 57.15
3-1/2 88.90	2.697 (No-Go) 68.50	2.750 69.85

Downhole controls for all size nipples are available.
Larger sizes available.



PRODUCTION TOOLS' ACCESSORIES

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DOWNHOLE TOOLS

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WIRELINE RE-ENTRY GUIDE

The Wireline Re-Entry Guide provides assurance that wireline tools that have passed out the bottom of the tubing string may re-enter without hanging up.

PUMP-OUT PLUG

The Pump-Out Plug provides a means of temporarily plugging the bottom of a tubing string to avoid fluid flow up the tubing while tripping in the hole, or to pressure against while setting hydraulic packers.

PUMP-OUT BALL SEAT

The Pump-out Ball Seat is intended for use as a temporary bridging device used to set a hydraulic packer or hydraulically test the tubing string.

SPECIFICATION GUIDE

SIZE	MAX O.D. in/mm	NOM. I.D. in/mm	STANDARD THREAD CONNECTIONS
2-3/8 60,33	3.094 78,59	1.93 49,02	2-3/8 EU 8 RD
2-7/8 73,03	3.719 94,46	2.44 61,98	2-7/8 EU 8 RD
3-1/2 88,90	4.500 114,30	3.00 76,20	3-1/2 EU 10 RD
4-1/2 114,30	5.031 127,79	3.90 99,06	4-1/2 LTC 8 RD



WIRELINE
RE-ENTRY GUIDE



PUMP-OUT
PLUG



PUMP-OUT
BALL SEAT

CASING SCRAPER

The casing scraper is a tubing conveyed cleaning device for well bores.

Applications include: removal of scale, mud cake, cement sheath and other foreign material from the casing wall.

FEATURES

- Safe, no bolts prevents lose of block
- Rugged tool joint connections

SPECIFICATION GUIDE

CASING		TOOL CONNECTION					
O.D. in/mm	WEIGHT lb/ft	MAX. O.D. in/mm	COLLAPSED O.D. in/mm	I.D. in/mm	STANDARD THREAD CONNECTIONS		
4 101.60	5.6 - 12.6	3.300 83.82	3.730 94.74	3/4 19.05	2-3/8 EU 8 RD		
4-1/2 114.30	9.5 - 16.6	3.656 92.86	4.135 105.03	1" 25.40	2-3/8*		
5 127.00	21				4.130 104.90	4.575 116.21	2-3/8* or 2-7/8*
	15 - 18						
	11.5 - 15						
5-1/2 139.70	14 - 23	4.445 112.90	5.070 128.78		1-1/2 38.10	2-7/8* or 3-1/2*	
	13 - 17	4.770 121.16	5.360 136.14				
6 152.40	10.5 - 23	5.010 127.10	5.910 150.11	1-1/2 38.10	2-7/8* or 3-1/2*		
6-5/8 168.28	32						
	12 - 28	5.630 143.00	6.300 160.02				3-1/2*
7 177.80	26 - 38	6.000 152.40	6.570 166.88			3-1/2*	
	17 - 29						
7-5/8 193.68	24 - 39	6.500 165.10	7.060 179.32	2-1/4 57.15	4-1/2*		
8-5/8 219.08	24 - 49	7.335 186.31	8.275 210.19				
9-5/8 244.48	29.3 - 53.5	8.400 213.36	9.330 236.98				
10-3/4 273.05	32.75 - 55.5	9.500 241.30	11.250 285.75	3" 76.20	6-5/8* 2-7/8 EU 8 RD		
11-3/4 298.45	42 - 60						
13-3/8 339.73	48 - 72						

* API THREAD

