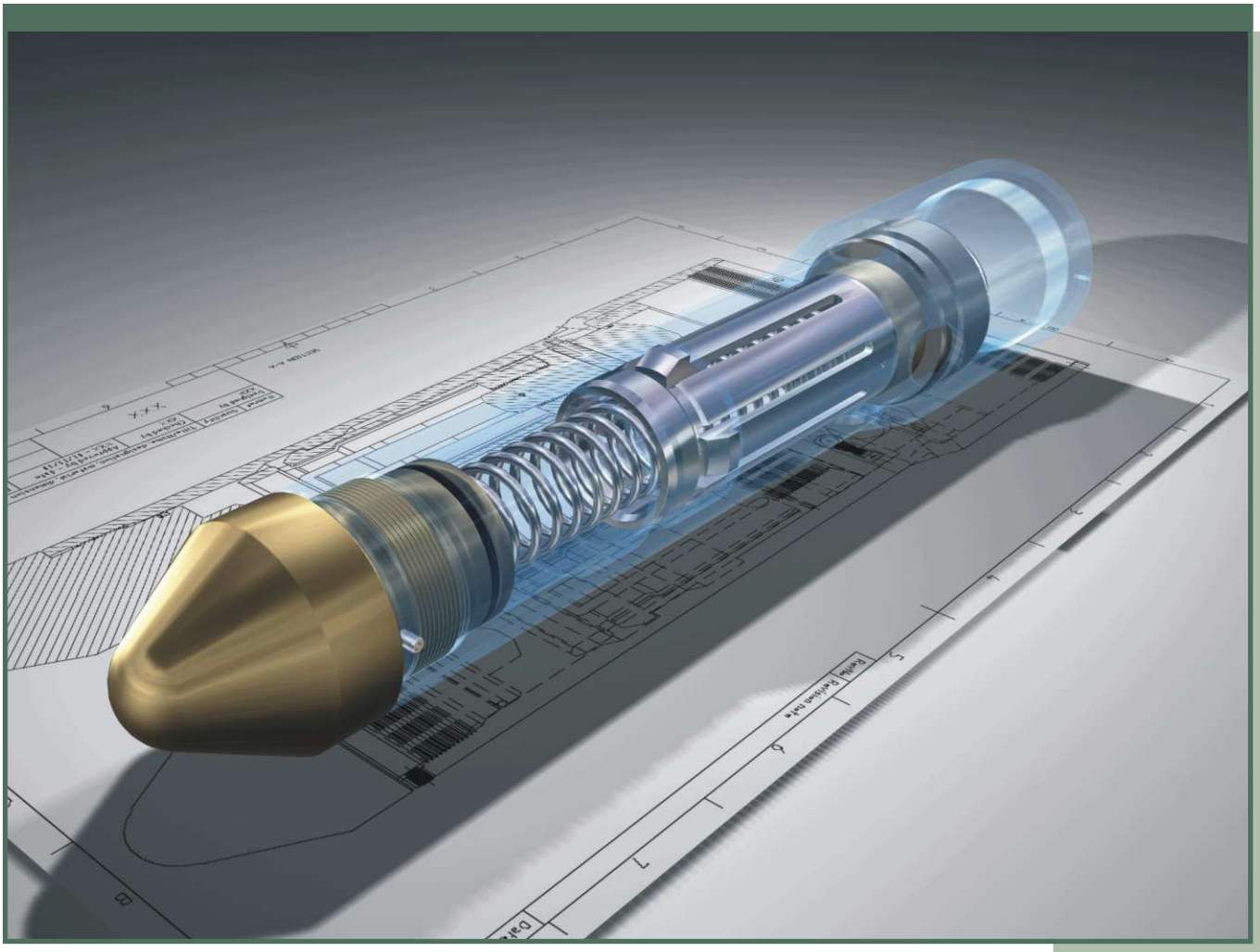
Weatherford®

Uniset® Flow Control System



Product Catalog

Contents

The products in this catalog may be covered by one or more United States and/or international patents. Address all inquiries concerning intellectual property to:

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About Weatherford

A Full Range of Completion Products and Services

- Packers
- Liners
- Inflatable Packers
- Safety Valves
- Expandable Technology
- Conventional Sand Screens
- Advanced Flow Control
- Intelligent Wells
- Downhole Control Valves

Weatherford International Ltd. is one of the largest global providers of innovative mechanical solutions, technology and services for the drilling and production sectors of the oil and gas industry. An industry leader for more than 55 years, Weatherford has built its reputation by providing high-quality products, responsive client service, and a commitment to safety in all aspects of operations. Our continued pledge to our clients is to provide production-enabling technologies and superior services that maximize production. Our vast global infrastructure—exceeding 400 sales and service locations throughout more than 100 countries—enables us to offer one of the industry's most diversified portfolios of products and services for evaluation, drilling, intervention, completion and production applications.

Since 1998 Weatherford has strategically combined an array of well-known brands from the completions sector with one goal in mind: making your reservoir recovery operations more productive.

Engineering Depth

Weatherford's product engineering resources are based around the world. We also employ a range of engineers, designers and technical support staff whose breadth and depth of experience includes mechanical and electrical engineering to highly specialized disciplines of optical science and metallurgy.

Industry-Leading Testing, R&D and Training Facilities

Weatherford has two of the largest research-and-development (R&D), testing and training facilities in the industry and in the world. Our Houston-based Technology & Training Center houses the world's most advanced safety valve engineering lab and three hot cells that simulate downhole conditions, including temperatures up to 500°F (260°C). Our Downhole Technology Ltd. (DTL) facility in Aberdeen is Europe's foremost research, testing and development center for offshore well services. The DTL facility includes two fully operational drilling rigs; test boreholes; Well Intervention Center; and RigTrain, the market leader in high-quality training services.

About Weatherford

Manufacturing Infrastructure

Weatherford's 84 certified manufacturing facilities are strategically located throughout the United States, Canada, South America, Europe and Asia. Since 2002 we have doubled our completions manufacturing capacity by adding new facilities, expanding existing ones, and investing significantly in the latest machining equipment. We put all of our manufacturing employees through internal apprenticeships and external training programs to ensure the highest level of quality control.

Building the Flow Control Toolbox

Over the past several years, **Weatherford's Flow Control Systems** business unit has brought together a broad product offering that includes premium flow control equipment, wireline and coiled-tubing tools, and standard flow controls. With each new product offering, we ensure that all components are enhanced as needed to meet stringent Weatherford standards. With a complete range of flow control products, our system offerings include:

- Flow controls
- Wireline tools
- Coiled-tubing tools
- Slickplug™ bridge plugs
- Tubing hanger plugs
- Horizontal tree plugs
- Rolling systems
- Surface pressure equipment

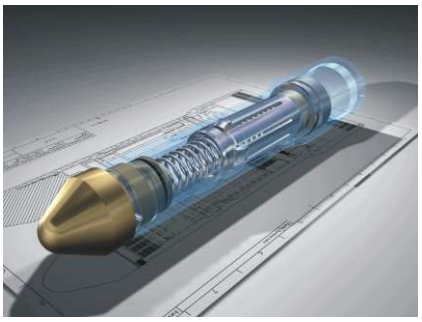
Having created such a diverse “toolbox” enables us to customize solutions for a broad range of intervention operations. Futhermore, our collective experience and strong technical expertise reassures our clients that we are prepared to take on their most challenging environments and well conditions. Our skilled engineers and technicians can actually help clients understand the functionality and operation of our most complex tools, moving their skill base beyond “just widgets.”

Enterprise Excellence Program

Weatherford's Enterprise Excellence Program (EEP) represents a global initiative to create a preventative culture with error-free performance in all aspects of our operations. The ultimate benefit to our clients is reduced nonconformance in delivery of products and services, which means greater efficiency, higher performance levels and long-term value. This focus on excellence also breeds increased discipline in capturing your requirements before, during and after installation.

Weatherford provides premium-quality products and services without compromising the health and safety of your workforce or ours. Committed to protecting the integrity of all our resources, Weatherford strictly complies with all safety and environmental laws and regulations. Health and safety are top priorities, strictly enforced under company-wide policy. Weatherford continually seeks and adopts work practices, services and materials to promote a safe and environmentally responsible workplace.

Uniset Flow Control



The Weatherford *Uniset* system was developed in response to operator requests to produce an improved lock mandrel design to suit existing completion nipple profiles. We developed an advanced no-go lock mandrel that addressed the deficiencies of existing products and a matching suite of flow control accessories. After several years of field-proving of retrofit *Uniset* lock mandrels, it became clear that the system could be optimized with the design of a new nipple profile. The QN profile nipple and the QX lock mandrel provide the basis for a highly developed, field-proven, premium flow control system. Every type of flow control accessory plugs, equalizing assemblies and standing valves has been integrated into an intervention system that will maximize the efficiency of every flow control deployment.

Completion Optimization

The core of the *Uniset* system is completion optimization. The *Uniset* QN nipple profile can be supplied in any seal bore size, with a matching QX lock mandrel to suit. This removes the limitations imposed by seal bore increments in catalog sizes only, allowing a truly optimized well design. We recommend consultation with a Weatherford representative when deciding upon completion architecture. The options can be reviewed to ensure that the well configuration offers the best life-of-field solution.

Uniset Flow Control

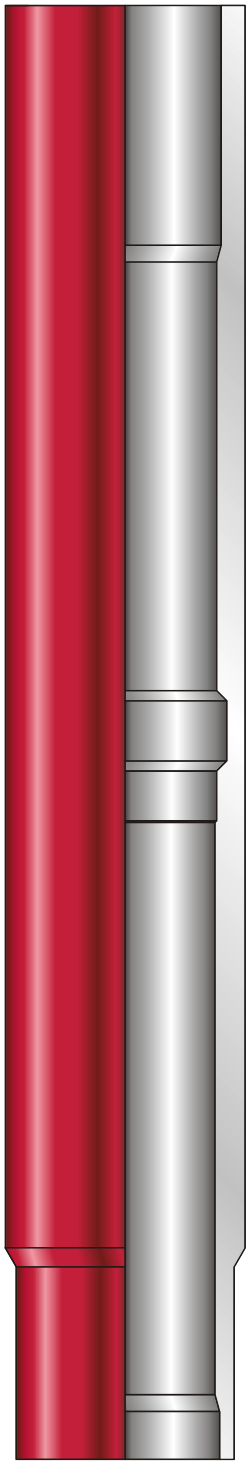
Flexible Working Monobore Design

In many cases Weatherford aims to produce a *Uniset* working monobore flow control completion design. The result is a well design that allows through-tubing retrievable mechanical bridge plugs to be run into the liner, yet still allows the use of landing nipples in the upper completion. The *Uniset* working monobore is a truly flexible design. It uses nipples for simple, reliable, low-cost well completion and servicing and bridge plugs for redundant well plugging later in field life.

Fundamental Nipple Sizing Rules

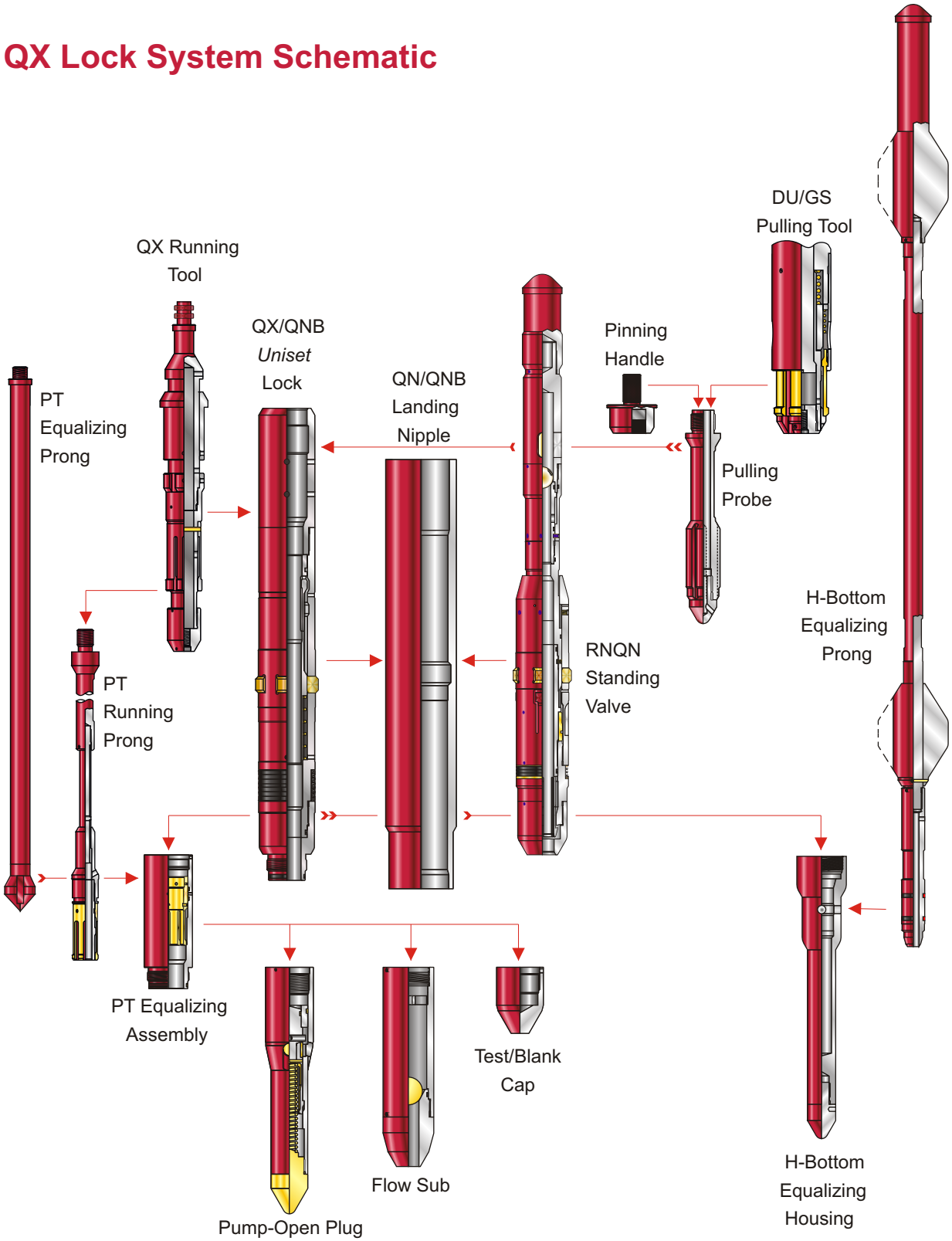
The fundamental nipple sizing required for completion optimization can be described with the following generic rules:

- The tubing hanger profile should not give an ID restriction over the tubing string run below it. For example, the tubing hanger profile should have a minimum ID greater than tubing drift. The tubing hanger plug should have a maximum OD less than the drift ID of the Christmas tree valves.
- The insert safety valve profile should be selected so that the lock that runs into it has an OD that results in the lock running at an OD equal to the drift of the tubing above. If necessary, run above tubing drift but only where special drifting of the tubing above tubing-retrievable, surface-controlled subsurface safety valve (TRSCSSV) is possible. We recommend that the QX lock mandrel itself (with keys removed) be used as the drift.
- All flow control devices (plugs and landing nipples) should be sized to give reasonable running clearances to enhance wireline installation success. Typical acceptable running clearances are 0.030 in. (0.762 mm), depending on well trajectory and depth. Tighter running clearances can be tolerated.
- Whenever possible the minimum restriction in the tubing should be such that a mechanical bridge plug can be run, set and retrieved in the liner section below.
- Whenever possible every major plugging point (landing nipple) should have the contingent ability to install a mechanical retrievable bridge plug above it. If necessary this should be accomplished with the use of short sections of heavier-walled tubing.
- Where physical depth control is required without a sealing or plugging requirement, an overdrift depth correlation sub (DCS) should be used in preference to a landing nipple. DCSs can be combined with controlled-ID pup joints for contingency bridge plug service.



System Components

QX Lock System Schematic



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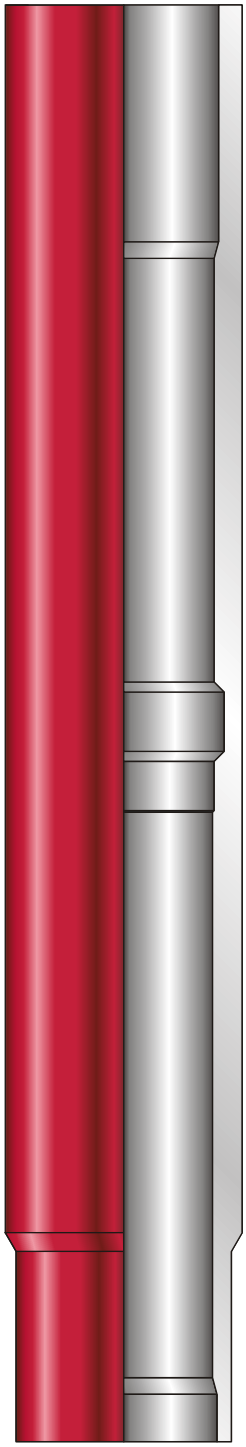
System Components



QN/QNB Landing Nipple

Weatherford's *Uniset* QN/QNB landing nipple is used to seat *Uniset* QX lock mandrels. By using a no-go principle, the QN/QNB eliminates the need for complex manipulation downhole. The landing nipple profile can also be used in conjunction with other completion components, such as tubing hangers, tubing-retrievable safety valves, downhole Venturi flowmeters, and sliding sleeves, as well with third-party manufacturers' equipment.

Features, Advantages and Benefits

- No-go design provides a positive locating shoulder for any flow control device deployed in the nipple profile. In addition, the QN/QNB no-go is smaller than conventional nipples, minimizing the taper effect in the completion architecture.
- Pressure loads on plugs or standing valves are taken at the key groove in the nipple profile, ensuring pressure system integrity for the life of the well.
- High-specification, honed seal bore minimizes scale deposits and prevents corrosion.
- Streamlined internal profile minimizes pressure losses and turbulence.
- 15° entry angle facilitates installation of flow controls in highly deviated wells.
- The QN/QNB landing nipple is available in either a top or a bottom no-go configuration to provide flexibility in the completion design.

System Components

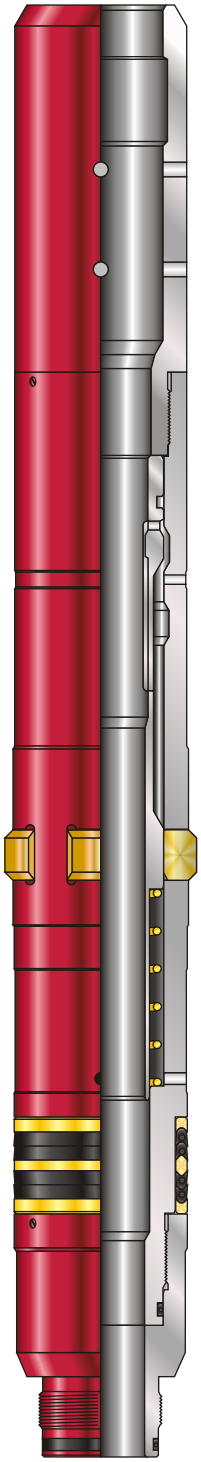
QN/QNB Landing Nipple

Specifications

Tubing Size		Seal Bore		No-Go Minimum ID				Maximum OD
				QN Top		QNB Bottom		
(in.)	*(mm)*	(in.)	*(mm)*	(in.)	*(mm)*	(in.)	*(mm)*	
2-3/8	*60.33*	1.781	*45.23*	1.781	*45.23*	1.716	*43.59*	Coupling OD
		1.813	*46.05*	1.813	*46.05*	1.748	*44.39*	
		1.875	*47.62*	1.875	*47.62*	1.810	*45.98*	
2-7/8	*73.02*	2.125	*53.98*	2.125	*53.98*	2.060	*52.32*	Coupling OD
		2.235	*56.77*	2.235	*56.77*	2.170	*55.12*	
		2.300	*58.42*	2.300	*58.42*	2.235	*56.77*	
3-1/2	*88.90*	2.480	*62.99*	2.480	*62.99*	2.415	*61.34*	Coupling OD
		2.550	*64.77*	2.550	*64.77*	2.485	*63.12*	
		2.562	*65.07*	2.562	*65.07*	2.497	*63.42*	
		2.635	*66.93*	2.635	*66.93*	2.570	*65.28*	
		2.650	*67.31*	2.650	*67.31*	2.585	*65.66*	
		2.680	*68.07*	2.680	*68.07*	2.615	*66.42*	
		2.750	*69.85*	2.750	*69.85*	2.685	*68.20*	
		2.813	*71.45*	2.813	*71.45*	2.748	*69.80*	
4	*101.60*	3.125	*79.37*	3.125	*79.37*	3.060	*77.72*	Coupling OD
		3.313	*84.15*	3.313	*84.15*	3.240	*82.30*	
4-1/2	*114.30*	3.437	*87.29*	3.437	*87.29*	3.367	*85.52*	Coupling OD
		3.562	*90.47*	3.562	*90.47*	3.592	*91.24*	
		3.625	*92.07*	3.625	*92.07*	3.555	*90.30*	
		3.658	*92.91*	3.658	*92.91*	3.588	*91.14*	
		3.688	*93.68*	3.688	*93.68*	3.618	*91.90*	
		3.735	*94.86*	3.735	*94.86*	3.665	*93.09*	
		3.750	*95.25*	3.750	*95.25*	3.680	*93.47*	
5	127.00	3.937	100.00	3.937	100.00	3.867	98.22	Coupling OD
		4.000	101.60	4.000	101.60	3.930	99.82	
		4.125	104.77	4.125	104.77	4.055	77.60	
		4.250	107.95	4.250	107.95	4.180	106.17	
5-1/2	139.7	4.313	109.55	4.313	109.55	4.243	107.77	Coupling OD
		4.375	111.13	4.375	111.13	4.305	109.35	
		4.437	112.70	4.437	112.70	4.367	110.92	
		4.562	115.87	4.562	115.87	4.492	114.10	
		4.625	117.48	4.625	117.48	4.555	115.70	
		4.688	119.08	4.688	119.08	4.618	117.30	
		4.750	120.65	4.750	120.65	4.680	118.88	
7	177.80	5.500	139.70	5.500	139.70	5.410	137.41	Coupling OD
		5.625	142.88	5.625	142.88	5.535	140.59	
		5.750	146.05	5.750	146.05	5.660	143.76	
		5.813	147.65	5.813	147.65	5.723	145.36	
		5.875	149.23	5.875	149.23	5.785	146.94	
		5.980	151.89	5.980	151.89	5.890	149.61	

Note: Specifications provided are typical, but seal bore sizes are routinely customized for QN/QNB landing nipples to optimize completion ID.
Consult an authorized Weatherford flow control representative.

System Components



QX/QXB Lock Mandrel

The *Uniset* QX lock mandrel is a top no-go lock mandrel used to locate and install flow controls and similar devices in *Uniset* QN landing nipple profiles. The *Uniset* QXB lock mandrel is a bottom no-go version of the QX lock mandrel. QX and QXB lock mandrels are equally effective in both flowing and non-flowing applications and can be customized to retrofit most third-party nipple profiles.

QX locks can be supplied in *any* seal bore size. Special-clearance QX locks are available in every size.

Applications

Installation of all downhole flow controls, including one- and two-run plugs, flow subs, and pump-open plugs

- Routine plugging for completion and workover operations
- Well suspension plugs
- Ported nipple and sleeve pack-offs
- Suspension of wireline-retrievable injection valves
- Venturi flowmeter installation
- Suspension of recording instruments
- Riser maintenance plugs

Features, Advantages and Benefits

- Minimal downward jarring is required to set the lock mandrel, making the design particularly effective for use in highly deviated wellbores (>70°).
- The inner mandrel moves in the direction of flow to lock out the keys, eliminating the need for secondary lock-down mechanisms to prevent flow-induced vibration from unseating the lock mandrel.
- Highly polished inner mandrel minimizes frictional pressure loss and scale adhesion.
- Rigid outer mandrel maximizes strength and impact resistance of the lock, ensuring exceptional reliability and recovery.

System Components

QX/QXB Lock Mandrel

Specifications

Nipple Size (in.)	Lock Seal OD (in./*mm*)	Top No-Go Lock Maximum OD (in./*mm*)	Minimum ID (in./*mm*)	Connection POP Pin (in.)	Minimum ID at POP Connection (in./*mm*)	Identifiers			
						Running Tool	Pinning Handle	Pulling Probe	DU and GS Pulling Tools (DU/GS)
1.813	1.813 *56.05*	1.868 *47.45*	0.847 *21.51*	1.81-in. 10K	0.937 *23.80*	1812	2000	1813	2000 *40 GS 18700*
1.875	1.875 *47.63*	1.930 *49.02*	0.847 *21.51*	1.81-in. 10K	0.937 *23.80*	1875	2000	1813	2000 *40 GS 18700*
2.125	2.125 *53.98*	2.180 *55.37*	0.984 *24.99*	1.81-in. 10K	0.937 *23.80*	2875	2000	2875	2000 *40 GS 18700*
2.235	2.235 *56.77*	2.290 *58.17*	0.984 *24.99*	1.81-in. 10K	0.937 *23.80*	2875	2000	2875	2000 *40 GS 18700*
2.300	2.300 *58.42*	2.355 *59.82*	0.984 *24.99*	1.81-in. 10K	0.937 *23.80*	2875	2000	2875	2000 *40 GS 18700*
2.480	2.480 *62.99*	2.535 *64.39*	1.150 *29.21*	2.25-in. 10K	1.142 *29.01*	2875	2000	2875	2000 *40 GS 18700*
2.550	2.550 *64.77*	2.605 *66.17*	1.150 *29.21*	2.25-in. 10K	1.142 *29.01*	3500	2500	3500	2500 *40 GS 23100*
2.562	2.562 *65.07*	2.617 *66.47*	1.150 *29.21*	2.25-in. 10K	1.142 *29.01*	3500	2500	3500	2500 *40 GS 23100*
2.635	2.635 *66.93*	2.690 *68.33*	1.150 *29.21*	2.25-in. 10K	1.142 *29.01*	3500	2500	3500	2500 *40 GS 23100*
2.650	2.650 *67.31*	2.705 *68.71*	1.150 *29.21*	2.25-in. 10K	1.142 *29.01*	3500	2500	3500	2500 *40 GS 23100*
2.680	2.680 *68.07*	2.735 *69.47*	1.150 *29.21*	2.25-in. 10K	1.142 *29.01*	3500	2500	3500	2500 *40 GS 23100*
2.750	2.750 *69.85*	2.805 *71.25*	1.591 *40.41*	2.75-in. 10K	1.496 *38.00*	3510	3000	3510	3000 *40 GS 27500*
2.813	2.813 *71.45*	2.868 *72.85*	1.591 *40.41*	2.75-in. 10K	1.496 *38.00*	3510	3000	3510	3000 *40 GS 27500*
3.125	3.125 *79.38*	3.180 *80.77*	1.799 *45.69*	2.75-in. 10K	1.496 *38.00*	3313	3500	4010	3500 *40 GS 31200*
3.313	3.313 *84.15*	3.373 *85.67*	1.862 *47.29*	3.31-in. 10K	1.850 *46.99*	4010	3500	4010	3500 *40 GS 31200*
3.437	3.437 *87.30*	3.497 *88.82*	1.862 *47.29*	3.31-in. 10K	1.850 *46.99*	4010	3500	4010	3500 *40 GS 31200*
3.562	3.562 *90.47*	3.622 *92.00*	1.862 *47.29*	3.31-in. 10K	1.850 *46.99*	4010	3500	4010	3500 *40 GS 31200*
3.625	3.625 *92.08*	3.685 *93.60*	1.862 *47.29*	3.31-in. 10K	1.850 *46.99*	4010	3500	4010	3500 *40 GS 31200*
3.658	3.658 *92.91*	3.718 *94.44*	1.862 *47.29*	3.31-in. 10K	1.850 *46.99*	4010	3500	4010	3500 *40 GS 31200*
3.688	3.688 *93.68*	3.748 *95.20*	2.203 *55.96*	3.31-in. 10K	1.850 *46.99*	4500	4000	4500	4000 *40 GS 36800*
3.735	3.735 *94.87*	3.795 *96.39*	2.203 *55.96*	3.31-in. 10K	1.850 *46.99*	4500	4000	4500	4000 *40 GS 36800*
3.750	3.750 *95.25*	3.810 *96.77*	2.203 *55.96*	3.31-in. 10K	1.850 *46.99*	4500	4000	4500	4000 *40 GS 36800*
3.937	3.937 *100.00*	3.997 *101.52*	2.441 *62.00*	4.00-in. 10K	2.362 *59.99*	4500	4000	4500	4000 *40 GS 36800*
4.000	4.000 *101.60*	4.060 *103.12*	2.441 *62.00*	4.00-in. 10K	2.362 *59.99*	5000	4000	5000	4000 *40 GS 36800*
4.125	4.125 *104.78*	4.185 *106.30*	2.441 *62.00*	4.00-in. 10K	2.362 *59.99*	5000	4000	5000	4000 *40 GS 36800*
4.250	4.250 *107.95*	4.310 *109.47*	2.441 *62.00*	4.00-in. 10K	2.362 *59.99*	5000	4000	5000	4000 *40 GS 36800*
4.313	4.313 *109.55*	4.373 *111.07*	2.441 *62.00*	4.00-in. 10K	2.362 *59.99*	5000	4000	5000	4000 *40 GS 36800*
4.375	4.375 *111.13*	4.435 *112.65*	2.441 *62.00*	4.00-in. 10K	2.362 *59.99*	5000	4000	5000	4000 *40 GS 36800*

Continued

Note: Specifications provided are typical, but seal bore sizes are routinely customized for QX/QXB lock mandrel to optimize completion ID. Consult an authorized Weatherford flow control representative.

System Components

QX/QXB Lock Mandrel

Specifications

(Continued from previous page)

Nipple Size (in.)	Lock Seal OD (in./*mm*)	Top No-Go Lock Maximum OD (in./*mm*)	Minimum ID (in./*mm*)	Connection POP Pin (in.)	Minimum ID at POP Connection (in./*mm*)	Identifiers			
						Running Tool	Pinning Handle	Pulling Probe	DU and GS Pulling Tools (DU/GS)
4.437	4.437 *112.70*	4.497 *114.22*	2.772 *70.41*	4.00-in. 10K	2.362 *59.99*	5500	4000	5500	4000 *40 GS 36800*
4.562	4.562 *115.87*	4.622 *117.40*	2.772 *70.41*	4.00-in. 10K	2.362 *59.99*	4578	5000	4578	5000 40 GS 45600
4.625	4.625 *117.48*	4.685 *119.00*	2.909 *73.89*	4.00-in. 10K	2.362 *59.99*	5510	5000	5510	5000 40 GS 45600
4.688	4.688 *119.08*	4.748 *120.60*	2.909 *73.89*	4.00-in. 10K	2.362 *59.99*	5510	5000	5510	5000 40 GS 45600
4.750	4.750 *120.65*	4.810 *122.17*	2.909 *73.89*	4.00-in. 10K	2.362 *59.99*	5510	5000	5510	5000 40 GS 45600
5.500	5.500 *139.70*	5.580 *141.73*	3.661 *92.99*	4.00-in. 10K	2.362 *59.99*	5625	6000	7000	5000 40 GS 45600
5.625	5.625 *142.88*	5.705 *144.91*	3.661 *92.99*	4.00-in. 10K	2.362 *59.99*	7000	6000	7000	6000 *40 GS 56200*
5.750	5.750 *146.05*	5.830 *148.08*	3.661 *92.99*	4.00-in. 10K	2.362 *59.99*	7000	6000	7000	6000 *40 GS 56200*
5.813	5.813 *147.65*	5.893 *149.68*	3.661 *92.99*	4.00-in. 10K	2.362 *59.99*	7000	6000	7000	6000 *40 GS 56200*
5.875	5.875 *149.23*	5.955 *151.26*	3.661 *92.99*	4.00-in. 10K	2.362 *59.99*	7000	6000	7000	6000 *40 GS 56200*
5.980	5.980 *151.89*	6.060 *153.92*	4.000 *101.60*	4.00-in. 10K	2.362 *59.99*	7000	6000	7000	6000 *40 GS 56200*

Note: Specifications provided are typical, but seal bore sizes are routinely customized for QX/QXB lock mandrel to optimize completion ID. Consult an authorized Weatherford flow control representative.

System Components

QX/QXB Lock Mandrel

Specifications

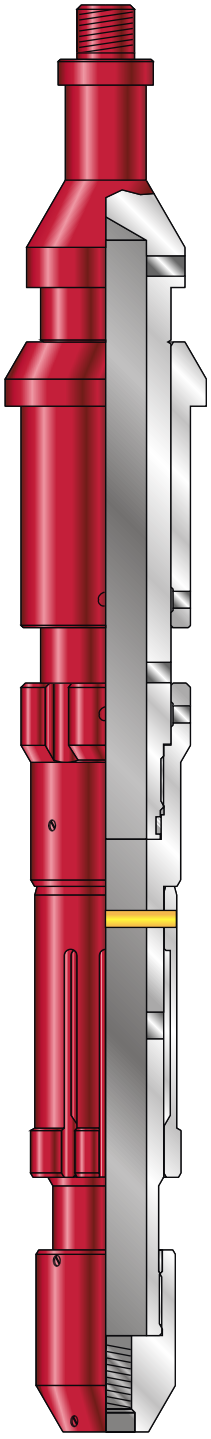
Lock Mandrel Maximum OD

Seal Bore Range (in./*mm*)	QX Standard No-Go (in./*mm*)	QX Special-Clearance No-Go (in./*mm*)	QXB Bottom No-Go (in./*mm*)
1.875 to 3.250 *47.63 to 82.55*	0.055 *1.40*	0.045 *1.14*	–0.010 *–0.25*
3.313 to 4.937 *84.15 to 125.40*	0.060 *1.52*	0.045 *1.14*	–0.010 *–0.25*
5.000 to 6.550 *127.00 to 166.37*	0.080 *2.03*	0.060 *1.52*	–0.010 *–0.25*

Note: Assumes 80,000-PSI (5,515.8-bar) yield at nipple no-go
Example: Maximum OD for 4.437-in. QX lock = 4.497 in. (standard)
= 4.482 in. (special clearance)

Part Number Identifiers	
QX/QXB locks	600-xxxx-00-xx
Running tools	650-xxxx-00-xx
Pinning handles	665-xxxx-00-xx
Pulling probes	675-xxxx-00-xx
DU pulling tools	435-xxxx-00-xx

System Components



QX Running Tool

Weatherford's *Uniset* QX running tool installs the QX series of lock mandrels into QN landing nipple profiles on slick line. Once the lock is correctly set, the tool provides positive indication of proper positioning. A hydraulic variant of the running tool allows deployment on coiled tubing or pipe.

Features, Advantages and Benefits

- The QX running tool is designed to release from the lock mandrel and return to the surface if problems with lock setting are encountered, eliminating the need for fishing operations to recover stuck tool string.
- The tool features a simple assembly and pinning mechanism.
- The tell-tale indicates correct functioning of lock mandrel's lockout keys.
- A single QX running tool can set a wide range of lock sizes, minimizing inventory.

System Components

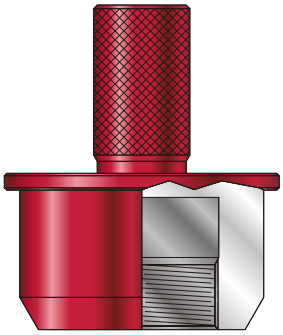
QX Running Tool

Specifications

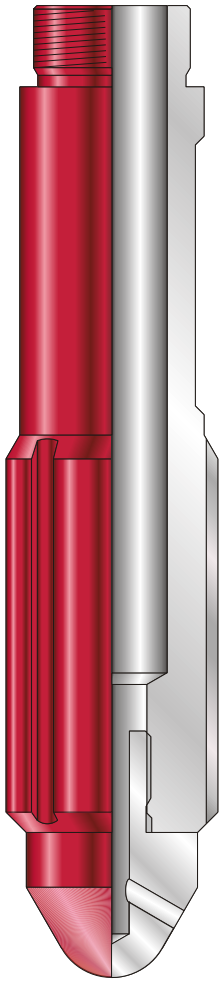
Running Tool Identifier	QX Lock Range (in.)	Top Connection	Bottom Connection	Material	Assembly Number
1812	1.813	1 1/2-in. QLS	3/8-in.-16	AISI 4140	651-1812-00-01
1875	1.875	1 1/2-in. QLS	3/8-in.-16	AISI 4140	651-1875-00-01
2875	2.000 to 2.480	1 1/2-in. QLS	1/2-in.-13	AISI 4140	650-2875-00-01
		15/16-in.-10			650-2875-00-02
		1 7/8-in. QLS			650-2875-00-03
3500	2.550 to 2.680	1 7/8-in. QLS	5/8-in.-11	AISI 4140	650-3500-00-01
		1 1/16-in.-10			650-3500-00-03
3510	2.750 to 2.813	1 7/8-in. QLS	1 1/16-in.-10	AISI 4140	650-3510-00-02
	3.125 to 3.250				650-4000-00-02
4010	3.313 to 3.658	1 7/8-in. QLS	1 1/16-in.-10	AISI 4140	650-4010-00-02
		1 1/16-in.-10			650-4010-00-04
4500	3.688 to 3.937	1 7/8-in. QLS	1 1/16-in.-10	AISI 4140	650-4500-00-03
					650-4500-00-04
		2 1/2-in. QLS			650-4500-00-05
		1 1/16-in.-10			650-4500-00-06
5000	4.000 to 4.375	1 7/8-in. QLS	1 1/16-in.-10	AISI 4140	650-5000-00-01
		2 1/2-in. QLS			650-5000-00-02
5500	4.437 to 4.500	1 1/16-in.-10	1 1/16-in.-10	AISI 4140	650-5500-00-01
		2 1/2-in. QLS			650-5500-00-02
		1 7/8-in. QLS			650-5500-00-03
5510	4.562 to 4.875	1 7/8-in. QLS	1 1/16-in.-10	AISI 4140	650-5510-00-01
		1 1/16-in.-10			650-5510-00-02
		2 1/2-in. QLS			650-5510-00-04
5625	5.500	1 7/8-in. QLS	1 1/16-in.-10	AISI 4140	650-5625-00-01
7000	5.625 to 5.750	2 1/2-in. QLS	1 1/16-in.-10	AISI 4140	650-7000-00-01
		1 7/8-in. QLS			650-7000-00-02
		19/16-in.-10			650-7000-00-03

Note: This table covers standard running tools only. Certain lock mandrel designs may require alternative running tools.

System Components



Pinning Handle



Pulling Probe

QX Pulling Probe and Pinning Handle

Weatherford's *Uniset* QX pulling probe and pinning handle are designed for use with Weatherford's QX lock mandrels. The unique combination of a pinning handle and a pulling probe quickly assembles the QX lock mandrel to its QX running tool. The QX pulling probe is also used in conjunction with DU or GS pulling tools to retrieve QX lock mandrels to the surface.

Specifications

Pinning Handle

Identifier	Lock Range	Material	Part Number
2000	1.813- to 2.480-in. QX	AISI 4140	665-2000-03-11
2500	2.550- to 2.680-in. QX	AISI 4140	665-2500-04-11
3000	2.750- to 2.813-in. QX	AISI 4140	665-3000-01-11
3500	3.125- to 3.658-in. QX	AISI 4145	665-3500-03-15
4000	3.688- to 4.500-in. QX	AISI 4145	665-4000-01-15
5000	4.562- to 5.500-in. QX	AISI 4145	665-5000-01-15
6000	5.625- to 5.980-in. QX	AISI 4145	665-6000-01-15

Pulling Probe

Identifier	Lock Range	Material	Part Number
1813	1.813-in. QX/QXSV	AISI 4140	675-1813-01-11
	1.875-in. QXSV		675-1875-01-11
2875	2.000- to 2.480-in. QX	AISI 4140	675-2875-00-01
3500	2.550- to 2.680-in. QX	AISI 4140	675-3500-00-01
3510	2.750- to 2.813-in. QX	AISI 4140	675-3510-00-01
4010	3.125- to 3.200-in. QX	AISI 4140	675-4010-00-03
	3.313- to 3.625-in. QX		675-4010-01-11
4500	3.688- to 3.875-in. QX	AISI 4145	675-4500-00-01
5000	4.000- to 4.375-in. QX	AISI 4145	675-5000-00-01
5500	4.437- to 4.500-in. QX	AISI 4145	675-5500-01-15
4578	4.562- to 4.688-in. QX	AISI 4145	675-4578-00-01
5510	4.750- to 5.000-in. QX	AISI 4145	675-5510-00-01
7000	5.500- to 5.980-in. QX	AISI 4145	675-7000-00-01

Pulling Probe (15K)

Identifier	Lock Range (15K)	Material	Part Number
3562	3.562-in. QX	AISI 4140	676-3562-00-01
3810	3.813-in. QX	AISI 4140	676-3810-00-01

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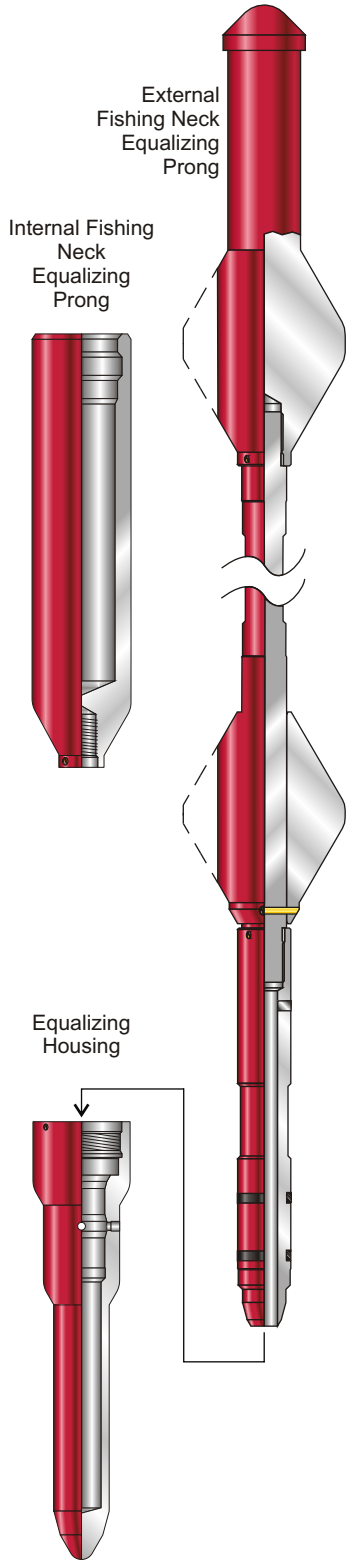
System Components



H Equalizing Assembly

Weatherford's *Uniset* H equalizing assembly is a conventional, two-run equalizing system consisting of a housing and an equalizing prong. When the equalizing assembly is combined with a *Uniset* QX lock mandrel and deployed into a matching *Uniset* QN landing nipple, a bi-directional plug barrier is created.

Applications

The H equalizing assembly is used for plugging operations in the following applications:

- Completion or workover operations
- Tubing integrity testing
- Well suspension
- Zone shutoff

Features, Advantages and Benefits

- Centralization of the equalizing prong protects the elastomeric seals from wear and damage as they are lowered into the wellbore, minimizing misruns.
- Sealing prongs have standard dummy rope socket or optional internal fish neck junk basket top subs with sucker rod threads, allowing insertion of spacer bars to extend the prongs to accommodate high-debris conditions.
- To further enhance debris management, the bottom housing can be extended on request.
- Large-bore equalization ports can also be specially ordered, enabling faster equalization in low-pressure applications.

System Components

H Equalizing Assembly

Specifications

10,000-PSI Assemblies[a]

Nominal Size (in./*mm*)	QX Lock Range (in./*mm*)	Pressure Rating (PSI/*kPa*)	Top Connection POP Box	Rope Socket Top for Prong[b] (in./*mm*)	Centralizer Maximum OD (in./*mm*)	Equalizing Area (in.^{2}/*cm*^{2})	Materials		Part Number
							Metallic	Elastomer	
1.810 *45.97*	1.813 to 1.915 *46.05 to 48.64*	10,000 *68,948*	1.800-in. 10K	1.375 *34.925*	1.732 *43.990*	0.110 *0.710*	17/4 PH	Viton®	222-1810-00-60
	2.000 to 2.313 *50.80 to 58.75*								222-1810-00-61
2.250 *57.15*	2.750 to 2.813 *69.85 to 71.45*	10,000 *68,948*	2.250-in. 10K	1.750 *44.450*	2.740 *69.596*	0.196 *1.265*	17/4 PH	Viton	222-2250-00-60
				1.375 *34.925*					222-2250-00-61
	2.300 to 2.725 *58.42 to 69.22*			1.375 *34.925*	2.290 *58.166*	0.200 *1.290*			222-2250-00-62
2.750 *69.85*	2.750 to 2.813 *69.85 to 71.45*	10,000 *68,948*	2.750-in. 10K	2.313 *58.750*	2.740 *69.596*	0.196 *1.265*	17/4 PH	Viton	222-2750-00-01
				1.375 *34.925*					222-2750-00-02
	2.750 to 3.250 *69.85 to 71.45*			1.750 *44.450*	2.740 *69.596*	0.196 *1.265*			222-2750-00-60
3.310 *96.77*	3.313 to 3.625 *84.15 to 92.08*	10,000 *68,948*	3.310-in. 10K	1.750 *44.450*	3.300 *83.820*	0.219 *1.413*	17/4 PH	Viton	222-3310-00-62
	3.688 to 4.500 *93.68 to 114.30*			2.313 *58.750*	3.678 *93.420*	0.196 *1.265*			222-3310-00-61
						0.219 *1.413*			222-3310-00-66
3.810 *96.77*	4.000 to 4.500 *101.60 to 114.30*	10,000 *68,948*	4.000-in. 10K	3.125 *79.375*	3.990 *101.350*	0.196 *1.265*	17/4 PH	Viton	222-3810-00-61
	4.562 to 4.875 *115.87 to 123.83*			3.125 *79.375*	4.552 *115.620*				222-3810-00-62
	5.625 to 5.980 *142.88 to 151.89*			3.125 *79.375*	5.615 *142.620*				222-3810-00-64
	4.562 to 4.875 *115.87 to 123.83*			2.313 *58.750*	4.552 *115.620*				222-3810-00-66

[a] H equalizing assemblies for 5,000-PSI service have a different 5K POP connection. Consult an authorized Weatherford flow control representative.
[b] Junk catchers with internal fishing necks can be substituted for rope socket tops on request.

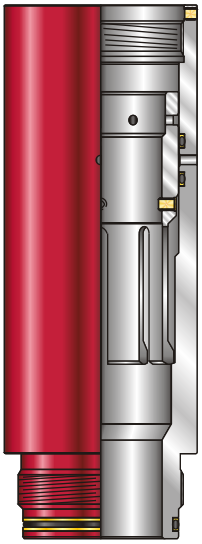
15,000-PSI Assemblies[a]

Nominal Size (in./*mm*)	QX Lock Range (in./*mm*)	Pressure Rating (PSI/*kPa*)	Top Connection POP Box	Rope Socket Top for Prong[b] (in./*mm*)	Centralizer Maximum OD (in./*mm*)	Equalizing Area (in.^{2}/*cm*^{2})	Materials		Part Number
							Metallic	Elastomer	
2.250 *57.15*	2.300 to 2.562 *58.42 to 65.07*	15,000 *103,421*	2.250-in. 15K	1.750 *44.450*	2.290 *58.166*	0.200 *1.290*	17/4 PH high yield	Aflas®	222-2250-00-70
							Alloy 718		222-2250-00-71
	2.750 to 3.250 *69.85 to 82.55*				2.740 *69.596*		17/4 PH high yield		222-2250-00-72
3.310 *84.07*	3.688 to 4.500 *93.68 to 114.30*	15,000 *103,421*	3.310-in 15K	2.313 *58.750*	3.678 *93.420*	0.786 *5.071*	Alloy 450	Viton/Teflon®	222-3310-00-76
	3.562 to 3.810 *90.47 to 96.77*				3.427 *87.046*	0.219 *1.413*	17/4 PH high yield	GFT/Aflas	222-3310-00-77
					3.552 *90.220*		Alloy 718		222-3310-00-78

[a] H equalizing assemblies for 5,000-PSI service have a different 5K POP connection. Consult an authorized Weatherford flow control representative.
[b] Junk catchers with internal fishing necks can be substituted for rope socket tops on request.

Viton, Aflas, and Teflon are registered trademarks of their respective companies.

System Components



PT Equalizing Assembly

Weatherford's *Uniset* PT equalizing assembly is a conventional, single-run equalizing system consisting of a housing with an equalizing melon. It is assembled with a *Uniset* QX lock mandrel and deployed to a *Uniset* QN landing nipple for barrier applications during completion, workover, or zonal isolation operations. The PT equalizing assembly can also be used in conjunction with QX lock mandrels and flow subs, formation surge tools, or any other device requiring equalization before retrieval.

Features, Advantages and Benefits

- The PT equalizing assembly saves time by allowing fluid bypass when installing QX lock mandrels into QX landing nipples.
- The PT equalizing assembly permits equalization above and below the QX lock mandrel before recovery to the surface.
- Design maintains seals in a controlled bore for all positions of the melon, extending the life of the seals.
- One size covers a range of lock mandrels, minimizing inventory.

PT Equalizing Assembly

Specifications

10,000-PSI for Standard *Uniset* Applications

Nominal Size (in./*mm*)	Pressure Rating (PSI/*kPa*)	Top Connection POP Box	Materials		Part Number
			Metallic	Elastomer	
1.81 *45.97*	10,000 *68,948*	1.81-in. 10K	17/4 PH	Viton®	220-1810-00-09
2.25 *57.15*	10,000 *68,948*	2.25-in. 10K	17/4 PH	Fluorotek	220-2250-00-24
2.75 *69.85*	10,000 *68,948*	2.75-in. 10K	17/4 PH	Viton	220-2750-000-038
3.31 *84.07*	10,000 *68,948*	3.31-in. 10K	17/4 PH	Viton	220-3310-00-14
				Aflas®	220-3310-00-25
3.81 (4.00) *96.77* *(101.6)*	10,000 *68,948*	4.00-in. 10K	17/4 PH	Viton	220-3810-00-01
			Alloy 450		220-3810-00-18

Alternative pressure ratings, elastomer, and connections available on request.
Assemblies to suit third-party lock mandrels available on request.

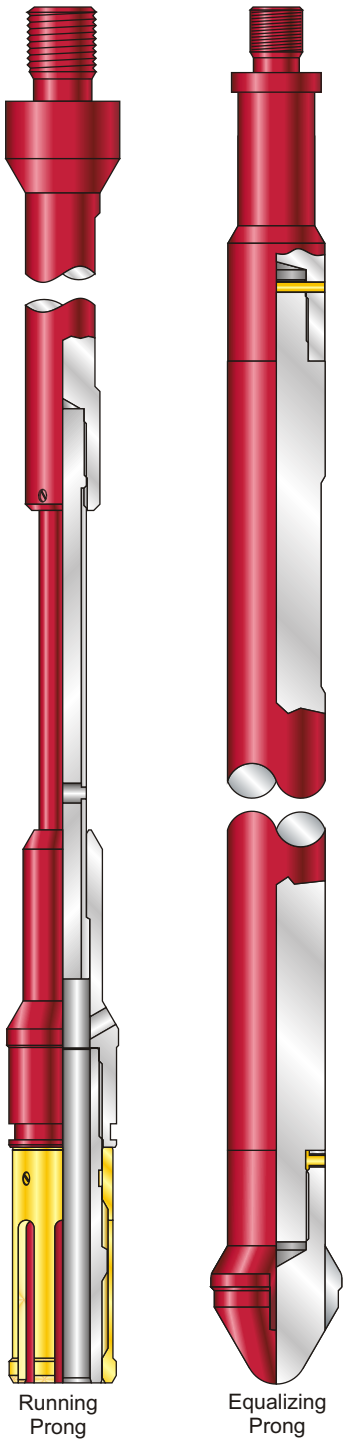
15,000-PSI for Standard *Uniset* Applications

Nominal Size (in./*mm*)	Pressure Rating (PSI/*kPa*)	Top Connection POP Box	Materials		Part Number
			Metallic	Elastomer	
1.81 *45.97*	15,000 *103,421*	1.81-in. 15K	17/4 PH	Aflas	On request
2.25 *57.15*	15,000 *103,421*	2.25-in. 15K	17/4 PH	Aflas	220-2250-00-28
2.75 *69.85*	15,000 *103,421*	2.75-in. 15K	17/4 PH	Aflas	On request
3.31 *84.07*	15,000 *103,421*	3.31-in. 15K	17/4 PH	Aflas	On request
3.81 (4.00) *96.77* *(101.6)*	15,000 *103,421*	4.00-in. 15K	17/4 PH high yield	Aflas	220-3810-00-26
				Viton	220-3810-00-31
5.70 *144.78*	15,000 *103,421*	5.70-in. 15K	17/4 PH	Viton	220-5700-000-001

Alternative pressure ratings, elastomer, and connections available on request.
Assemblies to suit third-party lock mandrels available on request.

Viton, Aflas, and Teflon are registered trademarks of their respective companies.

System Components



PT Running and Equalizing Prongs

Weatherford's *Uniset* PT running prong is used in conjunction with a *Uniset* PT equalizing assembly and a *Uniset* QX lock mandrel. When the PT running prong is attached to a *Uniset* QX running tool, it pulls the PT melon on seat as part of the setting operation for the QX lock.

The *Uniset* equalizing prong is designed to operate PT equalizing assemblies equipped with QX locks. The equalizing prong shifts the melon in the equalizing assembly to expose the ports, allowing pressure from above and below the plug to equalize before retrieval to surface.

Features, Advantages and Benefits

- The running prong is designed with a positive, tell-tale collet, providing surface confirmation that the PT melon is correctly set.
- One running prong may be used in a wide range of lock sizes, minimizing inventory.

System Components

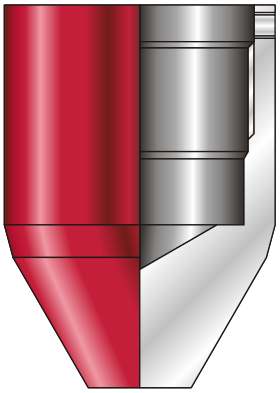
PT Running and Equalizing Prongs

Specifications

Range of QX Locks (in./*mm*)	PT Assembly Nominal Size (in./*mm*)	PT Running Prong		PT Equalizing Prong	
		Nominal Size Part Number	Upper Connection	Nominal Size Part Number	Upper Connection
1.813 to 1.875 *46.1 to 47.6*	1.550 *39.37*	220-1550-00-yy	3/8-in. - 10	220-1550-xx-xx	3/8-in. - 16
2.000 to 2.300 *50.8 to 58.4*	1.810 *45.90*	220-1810-00-yy	1/2-in. - 13	220-1810-xx-xx	1/2-in. - 13
2.550 to 2.680 *64.8 to 68.1*	2.250 *57.10*	220-2250-00-yy	15/16-in. - 10	220-2250-xx-xx	15/16-in. - 10
2.750 to 2.813 *69.8 to 71.4*	2.750 *69.80*	220-2750-00-yy	1 1/16-in. - 10	220-2750-xx-xx	1-1/16-in. - 10
3.125 to 3.250 *79.3 to 82.5*	2.750 *69.80*	220-2750-00-yy	1 1/16-in. - 10	220-2750-xx-xx	1-1/16-in. - 10
3.313 to 3.658 *84.1 to 92.9*	3.310 *84.10*	220-3310-00-yy	1 1/16-in. - 10	220-3310-xx-xx	1-1/16-in. - 10
3.688 to 3.875 *93.6 to 98.4*	3.310 *84.10*	220-3310-00-yy	1 1/16-in. - 10	220-3310-xx-xx	1-1/16-in. - 10
4.000 to 4.375 *101.6 to 111.1*	3.810 *96.80*	220-3810-00-yy	1 1/16-in. - 10	220-3810-xx-xx	1-1/16-in. - 10
4.437 to 4.500 *112.6 to 114.3*	3.810 *96.80*	220-3810-00-yy	1 1/16-in. - 10	220-3810-xx-xx or 220-4125-xx-xx	1-1/16-in. - 10
4.562 to 4.875 *115.8 to 123.8*	3.810 *96.80*	220-3810-00-yy	1 1/16-in. - 10	220-3810-xx-xx or 220-4125-xx-xx	1-1/16-in. - 10
5.250 to 5.500 *113.3 to 139.7*	3.810 *96.80*	220-3810-00-yy	1 1/16-in. - 10	220-3810-xx-xx or 220-4125-xx-xx	1-1/16-in. - 10
5.625 to 5.980 *142.8 to 151.9*	4.125 *104.80* (on request)	220-4125-00-yy (on request)	1 1/16-in. - 10	220-3810-xx-xx or 220-4125-xx-xx	1-1/16-in. - 10

PT running prong and equalizing prong lengths are dependent on lock mandrel size and PT equalizing assembly used.

System Components



Blank Caps

Weatherford's *Uniset* blank caps are typically used below QX locks fitted with PT equalizing assemblies to form a bi-directional plug. The caps can also be used below QX locks for workshop testing of completion modules or below QXT tubing hanger locks for stack-up testing of wellhead equipment.

Specifications

Nominal Size (in./*mm*)	Pressure Rating (PSI/*kPa*)	Top Connection POP Box	Material	Part Number
1.810 *46.0*	10,000 *68,947.6*	1.81-in. 10K	17/4 PH	207-1810-04-45
2.250 *57.2*		2.25-in. 10K		207-2250-13-45
2.750 *69.9*		2.75-in. 10K		207-2750-007-045
3.310 *84.1*		3.31-in. 10K		207-3310-07-45
4.000 *101.6*		4.00-in. 10K		207-4000-06-45

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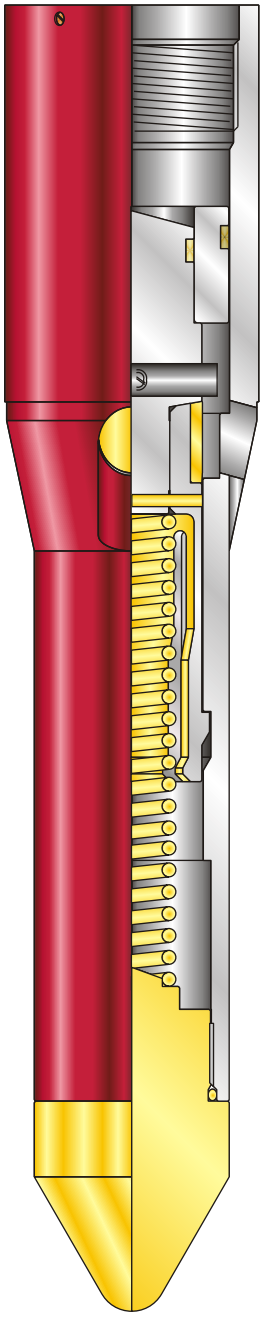
System Components



Pump-Open Plug

Weatherford's *Uniset* pump-open plug (POP) is designed to bring plugged wells back into production more safely and economically than conventional wireline plugs. Operated by applied differential pressure from above, the plug can be pumped open in the most severe debris conditions. Designed for use in conjunction with an equalizing assembly, the POP can be custom-built to complement any type of lock mandrel.

Features, Advantages and Benefits

- The POP restores production wells that have become plugged in high-debris environments in which equalization and retrieval of the plug would be prevented by fouling of the equalizing ports.
- Each plug is equipped with a high-accuracy shear pin to prevent premature opening.
- Once the plug is pumped open, a single-trip recovery is possible, eliminating equalization runs and/or bailing trips to clear equalization ports.
- Durable design withstands long-term, high-rate flow through the ports, allowing intervention for retrieval to be deferred indefinitely, if required.

System Components

Pump-Open Plug

Specifications

10,000-PSI for Standard *Uniset* Applications

Nominal Size (in./*mm*)	Pressure Rating (PSI/*kPa*)	Top Connection POP Box	Material		Part Number	Comment
			Metallic	Elastomer		
1.810 *45.9*	10,000 *68,948*	1.810-in 10K	17/4 PH	Viton®	On request	
2.250 *57.1*	10,000 *68,948*	2.250-in. 10K	17/4 PH	Viton	200-2250-00-15	Workover variant
					200-2250-00-16	
2.750 *69.8*	10,000 *68,948*	2.750-in. 10K	17/4 PH	Viton	200-2750-000-012	
3.310 *84.1*	10,000 *68,948*	3.310-in. 10K	17/4 PH	Viton	200-3310-00-32	
4.000 *101.6*	10,000 *68,948*	4.000-in. 10K	Alloy 450	Viton	200-4000-00-05	
			17/4 PH	Viton	200-4000-00-09	
				Aflas®	200-4000-00-12	
				Viton	200-4000-00-15	Workover variant
4.125 *104.8*	10,000 *68,948*	4.125-in. 10K*	17/4 PH	Viton	200-4125-00-06	

*Interchangeable with 4.125-in. 5K connection

System Components

Pump-Open Plug

Specifications

5,000-PSI for Slickplug™ and Third-Party Lock Applications

Nominal Size (in./*mm*)	Pressure Rating (PSI/*kPa*)	Top Connection POP Box	Material		Part Number	Comment
			Metallic	Elastomer		
1.555 *39.5*	5,000 *34,474*	1.555-in. 5K	17/4 PH	Viton®	200-1555-00-01	
1.810 *45.9*	5,000 *34,474*	1.810-in. 5K	17/4 PH	Viton	200-1810-00-04	
			Alloy 718	Chemraz®	200-1810-00-06	
				Viton	200-1810-00-09	
2.250 *57.1*	5,000 *34,474*	2.250-in. 5K	17/4 PH	Viton	200-2250-00-06	
					200-2250-00-09	Workover variant
2.750 *69.8*	5,000 *34,474*	2.750-in. 5K	17/4 PH	Viton	200-2750-00-07	
					200-2750-00-08	Workover variant
3.310 *84.1*	5,000 *34,474*	3.310-in. 5K	17/4 PH	Viton	200-3310-00-08	
					200-3310-00-19	Wth trip mechanism
			Alloy 718		200-3310-00-24	7,500 PSI *(51,710.7 kPa)* from below
			17/4 PH		200-3310-00-33	
4.000 *101.6*	5,000 *34,474*	4.000-in. 5K	17/4 PH	Viton	Not available	
4.125 *104.8*	5,000 *34,474*	4.125-in. 5K*	17/4 PH	Viton	200-4125-00-01	
			13% Cr		200-4125-000-009	

*Interchangeable with 4.125-in. 5K connection

Viton, Chemraz, and Aflas are registered trademarks of their respective companies.

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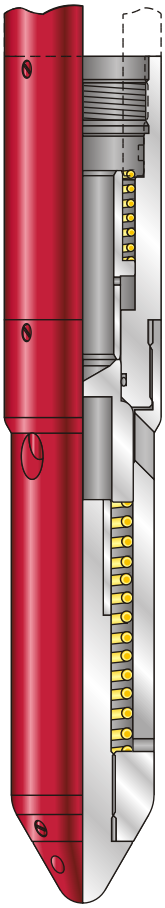
System Components



Back Pressure Valve

Weatherford's *Uniset* back pressure valve (BPV) holds pressure from below and allows pump-through from above, if required. The BPV is designed for use during well completion and workover operations and can also serve as a barrier during tree or wellhead maintenance.

Features, Advantages and Benefits

- Dual sealing capability with a metal-to-metal seal and elastomeric backup protects both seals and seal faces during pumping operations, preventing costly shutdowns.
- Large flow area is designed for use in high-volume pumping operations for more efficient well kill operations, if required.

System Components

Back Pressure Valve

Specifications

10,000-PSI for Standard *Uniset* Applications

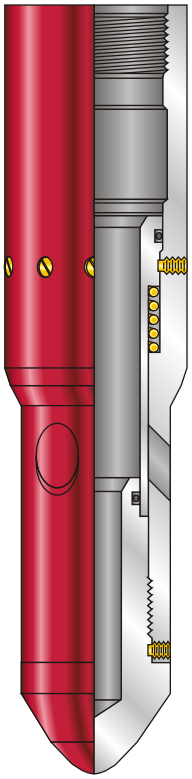
Nominal Size (in./*mm*)	Pressure Rating (PSI/*kPa*)	Top Connection POP Box	Flow Area (in.^{2}/*cm*^{2})	Material		Part Number
				Metallic	Elastomer	
1.810 *46.0*	10,000 *68,948*	1.810-in. 10K	Not available			
2.250 *57.2*	10,000 *68,948*	2.250-in. 10K	On request			
2.750 *69.9*	10,000 *68,948*	2.750-in. 10K	0.641 *4.14*	17/4 PH	Viton®	216-2750-000-001
3.31 *84.1*	10,000 *68,948*	3.310-in. 10K	0.691 *4.49*	17/4 PH	Viton	216-3310-000-001
3.810 (4.00) *96.770* *(101.6)*	10,000 *68,948*	4.00-in. 10K	2.160 *13.94*	17/4 PH	Viton	216-3810-000-010

15,000-PSI for Standard *Uniset* Applications

Nominal Size (in./*mm*)	Pressure Rating (PSI/*kPa*)	Top Connection POP Box	Flow Area (in.^{2}/*cm*^{2})	Material		Part Number
				Metallic	Elastomer	
5.700 *144.8*	15,000 *103,421*	5.700-in. 15K	4.890 *31.55*	17/4 PH	Viton	216-5700-000-001

Viton is a registered trademark of DuPont Dow Elastomers L.L.C.

System Components



Formation Surge Tool

Weatherford's *Uniset* formation surge tool (FST) assists with the removal of mud and debris from perforation tunnels by providing an instant drawdown across the formation. The tool is installed under a lock mandrel and melon-type equalizing assembly and is deployed to a landing nipple as close to the perforations as possible. Shear screws activate the tool at a predetermined drawdown pressure. The lock mandrel and FST are subsequently recovered to the surface.

Activation of the FST by drawdown pressure can be achieved in several ways:

- By bleeding off wellbore pressure above the tool
- By circulating out well contents to nitrogen above the tool
- By pre-pressuring the formation and bleeding off above the tool after installation

Features, Advantages and Benefits

- Easily deployed and recovered on slick line, the FST offers a cost-effective means of improving well productivity over short perforation intervals.
- The FST can be custom built to complement any type of lock mandrel.

System Components

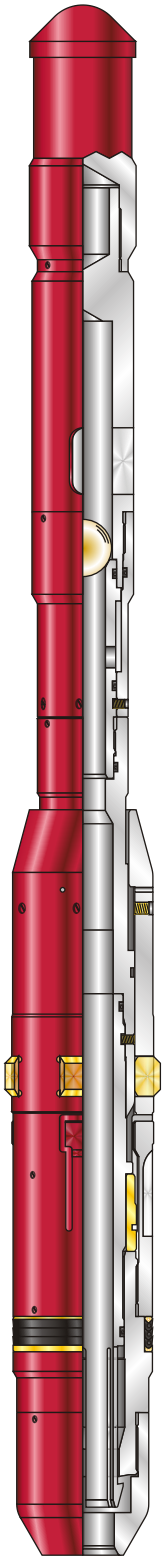
Formation Surge Tool

Specifications

Nominal Size (in./*mm*)	Pressure Rating (PSI/*kPa*)	Maximum Shear Rating (PSI/*kPa*)	Flow Area		Connection POP Box	Materials		Part Number	Assembly Tool
			($in.^2$)	(cm^2)		Metallic	Elastomer		
1.810 *45.97*	5,000 *34,473.8*	8 x 600 *55.2 x 4,136.9*	0.624	4.03	3.31-in. 5K	17/4 PH	Viton®	208-1810-00-01	208-1810-00-02
2.250 *57.15*		7,200 *49,642.25*	0.940	6.06	2.25-in. 5K			208-2250-00-01	208-2250-00-02
3.310 *84.07*	7,500 *51,710.7*		1.900	12.26	3.31-in. 10K			208-3310-00-01	208-3310-00-02
4.000 *101.60*	6,000 *41,368.5*	7,000 *48,263.30*			3.81-in. 10K			208-4000-00-01	208-4000-00-02

Viton is a registered trademark of DuPont Dow Elastomers L.L.C.

System Components



RNQN Standing Valve

Weatherford's *Uniset* RNQN standing valve is used to test tubing and to set hydraulic production packers. The RNQN uses a retractable no-go to locate the landing nipple and uses jar action to engage the keys. The RNQN can also be set hydraulically, making it ideal for high-angle wells.

Features, Advantages and Benefits

- Retractable no-go design accommodates high pressures of up to 15,000-PSI (103,421-kPa) loads on the keys.
- The RNQN is self-filling, reducing completion running time.
- The RNQN can be set, tested against, and retrieved with a single wireline run, reducing operating time.
- Design allows the valve to be set without downward jarring, ensuring operational effectiveness in high-angle situations or whenever jar action is compromised.
- Spring-loaded ball seat or dual-seal assembly enables use in high-angle applications.

System Components

RNQN Standing Valve

Specifications

10,000-PSI RNQN Standing Valve

Seal Bore Size		Maximum OD		Pressure Rating		Setting Pressure				Fishing Neck		Material		Part Number	Comments
						Maximum		Nominal							
(in.)	*(mm)*	(in.)	*(mm)*	(PSI)	*(kPa)*	(PSI)	*(kPa)*	(PSI)	*(kPa)*	(in.)	*(mm)*	Metallic	Chevron Material		
1.813	*46.050*	1.868	*47.447*	7,500	*51,710.7*	4,000	*27,579.00*	2,200	*15,168.50*	2.000 GS Type	*50.800 GS Type*	17/4 PH	Viton®/ Teflon®	625-1812-00-05	c/w Junk catcher
1.875	*47.625*	1.930	*49.022*	10,000	*68,947.6*	2,200	*15,168.50*	1,900	*13.100.00*	1.750	*44.450*	17/4 PH	Viton	Special order	
2.125	*53.975*	2.180	*55.372*	10,000	*68,947.6*	2,200	*15,168.50*	1,900	*13.100.00*	1.750	*44.450*	17/4 PH	Viton	625-2125-00-02	
2.235	*56.769*	2.290	*58.166*	10,000	*68,947.6*	2,200	*15,168.50*	1,900	*13.100.00*	1.750	*44.450*	17/4 PH	Viton	Special order	
2.300	*58.420*	2.355	*59.817*	10,000	*68,947.6*	2,200	*15,168.50*	1,900	*13.100.00*	1.750	*44.450*	17/4 PH	Viton	Special order	
2.480	*62.992*	2.535	*64.389*	10,000	*68,947.6*	2,200	*15,168.50*	1,900	*13.100.00*	1.750	*44.450*	17/4 PH	Viton	Special order	
2.550	*64.770*	2.605	*66.167*	10,000	*68,947.6*	2,200	*15,168.50*	1,900	*13.100.00*	1.750	*44.450*	17/4 PH	Viton	Special order	
2.562	*65.075*	2.617	*66.472*	10,000	*68,947.6*	2,200	*15,168.50*	1,900	*13.100.00*	1.750	*44.450*	17/4 PH	Viton	Special order	
2.635	*66.929*	2.690	*68.326*	10,000	*68,947.6*	2,200	*15,168.50*	1,900	*13.100.00*	1.750	*44.450*	17/4 PH	Viton	625-2635-00-02	
2.650	*67.310*	2.705	*68.707*	10,000	*68,947.6*	2,200	*15,168.50*	1,900	*13.100.00*	1.750	*44.450*	17/4 PH	Viton	625-2650-00-01	
2.680	*68.072*	2.735	*69.469*	10,000	*68,947.6*	2,200	*15,168.50*	1,900	*13.100.00*	1.750	*44.450*	17/4 PH	Viton	625-2680-000-001	
2.750	*70.079*	2.797	*71.044*	10,000	*68,947.6*	2,200	*15,168.50*	1,500	*10.342.10*	1.750	*44.450*	17/4 PH	Viton	625-2750-00-01	Special clearance
2.813	*71.450*	2.868	*72.847*	10,000	*68,947.6*	2,400	*16,547.40*	1,500	*10.342.10*	1.750	*44.450*	17/4 PH	Glass/ Moly Teflon	625-2813-00-03	
3.125	*79.375*	3.180	*80.772*	10,000	*68,947.6*	2,000	*13,789.50*	1,400	*9,652.70*	2.313	*58.750*	17/4 PH	Viton	Special order	
3.313	*84.150*	3.373	*85.674*	10,000	*68,947.6*	2,000	*13,789.50*	1,400	*9,652.70*	2.313	*58.750*	17/4 PH	Viton	625-3313-00-04	
3.437	*87.299*	3.497	*88.824*	10,000	*68,947.6*	1,950	*13,444.80*	1,400	*9,652.70*	2.313	*58.750*	17/4 PH	Viton	625-3437-00-03	
3.562	*90.475*	3.622	*91.999*	10,000	*68,947.6*	1,950	*13,444.80*	1,400	*9,652.70*	2.313	*58.750*	17/4 PH	Viton	Special order	
3.625	*92.075*	3.685	*93.599*	10,000	*68,947.6*	1,700	*11,721.10*	1,400	*9,652.70*	2.313	*58.750*	17/4 PH	Viton	625-3625-00-04	
3.658	*92.913*	3.718	*94.437*	10,000	*68,947.6*	1,700	*11,721.10*	1,400	*9,652.70*	2.313	*58.750*	17/4 PH	Viton	Special order	
3.688	*93.675*	3.748	*95.199*	10,000	*68,947.6*	1,500	*10,342.10*	1,100	*7,584.20*	2.313	*58.750*	17/4 PH	Viton	625-3688-00-01	
3.735	*94.869*	3.795	*96.393*	10,000	*68,947.6*	1,500	*10,342.10*	1,100	*7,584.20*	2.313	*58.750*	17/4 PH	Viton	625-3735-00-02	Spring on ball
3.750	*95.250*	3.795	*96.393*	10,000	*68,947.6*	1,500	*10,342.10*	1,100	*7,584.20*	2.313	*58.750*	17/4 PH	Viton	Special order	
3.937	*99.999*	3.997	*101.524*	10,000	*68,947.6*	2,000	*13,789.50*	1,100	*7,584.20*	2.313	*58.750*	17/4 PH	Aflas®	625-3937-000-001	Dual-seal eq assy
4.000	*101.600*	4.060	*103.124*	10,000	*68,947.6*	1,500	*10,342.10*	1,100	*7,584.20*	2.313	*58.750*	17/4 PH	Viton	Special order	
4.125	*104.775*	4.185	*106.299*	10,000	*68,947.6*	1,200	*8,273.70*	950	*6,550.00*	3.125	*79.375*	17/4 PH	Viton	625-4125-00-01	
4.250	*107.950*	4.310	*109.474*	10,000	*68,947.6*	1,300	*8,963.20*	950	*6,550.00*	3.125	*79.375*	17/4 PH	Viton GFT	625-4250-00-01	
4.313	*109.550*	4.373	*111.074*	10,000	*68,947.6*	1,500	*10,342.10*	950	*6,550.00*	3.125	*79.375*	17/4 PH	Viton	625-4313-00-02	
4.375	*111.125*	4.435	*112.649*	10,000	*68,947.6*	1,300	*8,963.20*	950	*6,550.00*	3.125	*79.375*	17/4 PH	Viton	625-4375-00-03	Spring on ball
4.437	*112.699*	4.497	*114.224*	10,000	*68,947.6*	1,700	*11,721.10*	1,000	*6,894.70*	3.125	*79.375*	17/4 PH	Viton/ Teflon	625-4437-00-08	
4.562	*115.875*	4.622	*117.399*	10,000	*68,947.6*	1,165	*8,032.40*	660	*4,550.50*	3.125	*79.375*	17/4 PH	Viton	625-4562-00-02	Spring on ball
4.625	*117.475*	4.685	*118.999*	10,000	*68,947.6*	1,450	*9,997.40*	1,260	*8,687.40*	2.313	*58.750*	17/4 PH	GFT	625-4625-00-01	
4.688	*119.075*	4.748	*120.599*	10,000	*68,947.6*	1,600	*11,031.60*	950	*6,550.00*	2.313	*58.750*	17/4 PH	Viton	625-4688-00-01	Spring on ball
4.750	*120.650*	4.810	*122.174*	10,000	*68,947.6*	1,600	*11,031.60*	1,000	*6,894.70*	3.125	*79.375*	17/4 PH	Viton	625-4750-00-04	Spring on ball
5.500	*139.700*	5.580	*141.732*	10,000	*68,947.6*	1,600	*11,031.60*	1,000	*6,894.70*	3.125	*79.375*	17/4 PH	Viton	Special order	
5.625	*142.875*	5.705	*144.907*	10,000	*68,947.6*	1,600	*11,031.60*	800	*5,515.80*	2.313	*58.750*	17/4 PH	Viton	625-5625-000-003	Spring on ball
5.750	*146.050*	5.830	*148.082*	10,000	*68,947.6*	1,600	*11,031.60*	800	*5,515.80*	2.313	*58.750*	17/4 PH	Viton	Special order	
5.813	*147.650*	5.893	*149.682*	10,000	*68,947.6*	1,700	*11,721.10*	930	*6,412.10*	3.125	*79.375*	17/4 PH	Viton	625-5810-000-001	
5.875	*149.225*	5.955	*151.257*	10,000	*68,947.6*	1,700	*11,721.10*	800	*5,515.80*	3.125	*79.375*	17/4 PH	Viton	Special order	
5.980	*151.892*	6.060	*153.924*	10,000	*68,947.6*	1,200	*8,273.70*	800	*5,515.80*	3.125	*79.375*	17/4 PH	Viton	625-5980-00-02	Spring on ball

System Components

RNQN Standing Valve

Specifications

15,000-PSI RNQN Standing Valve

Seal Bore Size	Maximum OD	Pressure Rating	Setting Pressure		Fishing Neck	Material		Part Number	Comments
			Maximum	Nominal		Metallic	Chevron Material		
(in./*mm*)	(in./*mm*)	(PSI/*kPa*)	(PSI/*kPa*)	(PSI/*kPa*)	(in./*mm*)				
3.437 *87.299*	3.497 *88.824*	15,000 *103,421*	2,950 *20,340*	1,400 *9,653*	*1.750* *44.450*	Alloy 718	Viton	625-3437-00-04	
3.735 *94.869*	3.780 *96.012*	15,000 *103,421*	1,500 *10,342*	1,100 *7,584*	2.313 *58.750*	17/4 PH	Viton/ Teflon	625-3735-00-01	Special clearance
4.437 *112.699*	4.482 *113.843*	15,000 *103,421*	1,000 *6,895*	850 *5,861*	3.125 *79.375*	17/4 PH HY	Aflas/ Teflon/ Peek®	626-4437-00-01	Special clearance

Consult Weatherford for special order availability.

RNQN Standing Valve Maximum OD (in./*mm*)

Seal Bore Range	Standard No-Go	Special-Clearance No-Go
1.875 to 3.250 *47.625 to 82.550*	0.055 *1.397*	0.045 *1.143*
3.313 to 4.937 *84.150 to 125.399*	0.060 *1.524*	0.045 *1.143*
5.000 to 6.550 *127.000 to 166.370*	0.080 *2.032*	0.060 *1.524*

Note: Assumes 80,000-PSI (551,580.6-kPa) yield at nipple no-go.
Example: Maximum OD for 4.437-in. RNQN standing valve = 4.497 in. (114.224 mm) (standard)
= 4.482 in. (113.843 mm) (special clearance)

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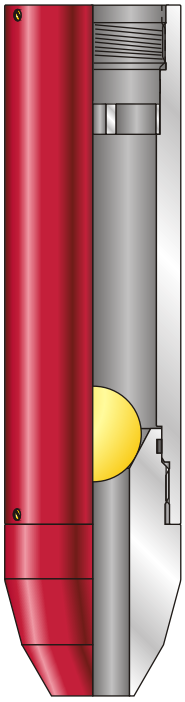
System Components



Flow Sub

Weatherford's *Uniset* flow sub is a one-way check valve, typically installed below a QX lock mandrel with a PT equalizing assembly or a Slickplug™ bridge plug. When used in this manner, the flow sub converts the lock mandrel or bridge plug into a standing valve. The resulting combined assembly is primarily used during completion or workover operations to test the tubing and set hydraulic production packers.

Features, Advantages and Benefits

- One size flow sub covers a wide range of lock sizes, minimizing inventory.
- For enhanced versatility, the flow sub can be customized with spring-assisted ball checks for use in highly deviated or horizontal applications. The flow sub is also available with an integral *Uniset* PT equalizing assembly.

System Components

Flow Sub

Specifications

10,000-PSI for Standard *Uniset* Applications

Nominal Size (in./*mm*)	Pressure Rating (PSI/*kPa*)	Top Connection POP Box	Flow Area ($in.^2/cm^2$)	Material		Part Number
				Metallic	Elastomer	
1.810 *45.97*	10,000 *68,948*	1.810-in. 10K	On request			
2.250 *57.15*	10,000 *68,948*	2.250-in. 10K	0.487 *3.14*	17/4 PH	Fluorotek	218-2250-00-03
2.750 *69.85*	10,000 *68,948*	2.750-in. 10K	1.060 *6.84*	17/4 PH	Viton® (API)	218-2750-000-005
						218-2750-000-007
3.310 *84.07*	10,000 *68,948*	3.310-in. 10K	1.300 *8.39*	17/4 PH	Viton	218-3310-00-06
					Viton (API)	218-3310-000-010
					Aflas®	218-3310-000-011
3.810 (4.000) *96.77 (101.6)*	10,000 *68,948*	4.000-in. 10K	3.000 *19.35*	17/4 PH	Viton	218-3810-00-03
4.125 *104.78*	10,000 *68,948*	4.125-in. 10K*	3.000 *19.35*	17/4 PH	Viton	218-4125-000-001

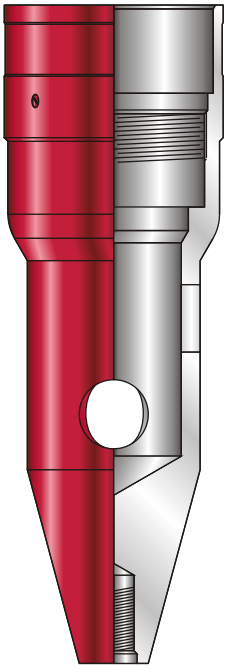
*Interchangeable with 4.125-in. 5K connection

15,000-PSI for Standard *Uniset* Applications

Nominal Size (in./*mm*)	Pressure Rating (PSI/*kPa*)	Top Connection POP Box	Flow Area ($in.^2/cm^2$)	Material		Part Number
				Metallic	Elastomer	
1.810 *45.97*	15,000 *103,421*	1.810-in. 15K	On request			
2.250 *57.15*	15,000 *103,421*	2.250-in. 15K	0.487 *3.14*	17/4 PH	Aflas	218-2250-00-01
2.750 *69.85*	15,000 *103,421*	2.750-in. 15K	On request			
3.310 *84.07*	15,000 *103,421*	3.310-in. 15K	1.300 *8.39*	17/4 PH	Fluoraz®	218-3310-00-07
3.810 (4.000) *96.77 (104.78)*	15,000 *103,421*	4.000-in. 15K	On request			

Viton, Aflas, and Fluoraz are registered trademarks of their respective companies.

System Components



Ported Instrument Hanger

Weatherford's *Uniset* ported instrument hanger allows installation of downhole pressure and temperature gauges on a lock mandrel in a wireline nipple situated within a wellbore. This hanger can be used for both flowing and static surveys.

Features, Advantages and Benefits

- Unique, extended skirt design protects the packing barrel from flow erosion and mechanical damage.
- The ported instrument hanger can be customized to complement any manufacturer's lock mandrel.

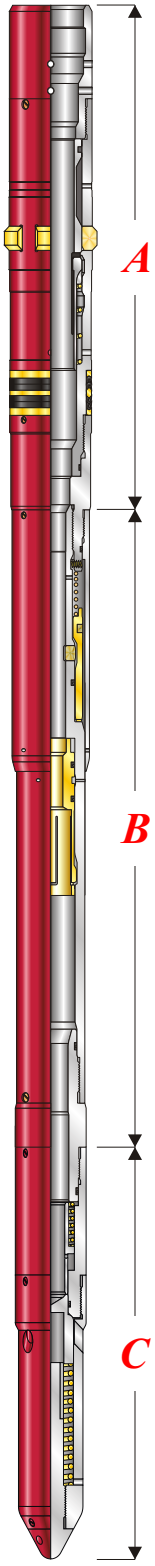
System Components

Ported Instrument Hanger

Specifications

For Lock Size/Type (in./*mm*)	Flow Area ($in.^2/cm^2$)	Top Connection	Bottom Connection	Material	Part Number
1.813 QX *46.05*	0.563 *3.63*	1.430-in. -12 pin	15/16-in. -10 box	17/4 PH	212-1813-01-45
1.915 QX *48.64*	0.563 *3.63*	1.430-in. -12 pin	15/16-in. -10 box	17/4 PH	212-1915-01-45
2.000 QX *50.80*	0.690 *4.45*	1 9/16-in. -12 box	15/16-in. -10 box	17/4 PH	212-2000-00-01
2.125 QX *53.90*	0.690 *4.45*	1 9/16-in. -12 box	15/16-in. -10 box	17/4 PH	212-2125-00-02
2.250 QX *57.15*	0.690 *4.45*	1 3/4-in. -12 box	15/16-in. -10 box	17/4 PH	212-2250-00-01
2.550 QX *64.80*	1.041 *6.72*	2-in. -12 box	15/16-in. -10 box	17/4 PH	212-2550-00-01
2.650 QX *67.30*	1.041 *6.72*	2-in. -12 box	15/16-in. -10 box	17/4 PH	212-2650-00-01
2.813 QX *71.45*	1.750 *11.29*	2.342-in. -12 box	15/16-in. -10 box	17/4 PH	212-2813-00-01
3.125 QX *79.40*	2.690 17.35	2 9/16-in. -12 box	1 7/8-in. QLS female	17/4 PH	212-3125-00-01
3.200 QX *81.30*	2.690 17.35	2 9/16-in. -12 box	15/16-in. -10 box	17/4 PH	212-3200-00-01
3.437 QX *87.30*	2.690 17.35	2 13/16-in. -12 box	15/16-in. -10 box	17/4 PH	212-3437-00-01
3.437 QXB *87.30*	2.690 17.35	2 13/16-in. -12 box	15/16-in. -10 box	17/4 PH	212-3437-00-02
3.500 QX *88.90*	2.690 17.35	2 13/16-in. -12 box	15/16-in. -10 box	17/4 PH	212-3500-00-01
3.555 QX *90.30*	2.690 17.35	2 13/16-in. -12 box	15/16-in. -10 box	17/4 PH	212-3555-00-01
3.562 QX *90.50*	2.690 17.35	2 13/16-in. -12 box	1 7/8-in. QLS female	17/4 PH	212-3562-00-01
3.658 QX *92.90*	2.690 17.35	2 13/16-in. -12 box	1 7/8-in. QLS female	17/4 PH	212-3658-00-01
			15/16-in. -10 box		212-3658-00-02
3.688 QX *93.80*	3.820 *24.65*	3 1/8-in. -12 box	15/16-in. -10 box	17/4 PH	212-3688-00-04
3.750 QX *95.25*	2.690 17.35	3 3/16-in. -14 box	15/16-in. -10 box	17/4 PH	212-3750-00-02
3.813 QX *96.85*	4.095 *26.42*	3 3/16-in. -14 box	15/16-in. -10 box	17/4 PH	212-3813-00-02
3.900 QX *99.06*	2.690 17.35	3 1/4-in. -12 box	15/16-in. -10 box	17/4 PH	212-3900-00-01
4.250 QX *107.95*	4.380 *28.26*	3 3/8-in. -12 box	15/16-in. -10 box	17/4 PH	212-4250-00-01
4.313 QX *109.50*	4.095 *26.42*	3 3/8-in. -12 box	15/16-in. -10 box	17/4 PH	212-4313-00-02
4.437 QX *112.70*	4.300 *27.74*	3 3/16-in. -12 box	15/16-in. -10 box	17/4 PH	212-4437-00-01
4.500 QX *114.30*	6.137 *39.59*	3 3/16-in. -12 box	15/16-in. -10 box	17/4 PH	212-4500-001-045
5.810 QX *147.60*	tbc	5-in. -12 box	15/16-in. -10 box	17/4 PH	212-5810-01-45
5.905 QX *149.99*	tbc	5-in. -12 box	15/16-in. -10 box	17/4 PH	212-5905-01-45

System Components



ABC Tubing Hanger Plug

Weatherford's *Uniset* ABC tubing hanger plug was designed to be set on wireline or polished rod, offering a much higher level of operational flexibility than possible with conventional devices of this type. The tool consists of three sections, each offering unique features and advantages.

Features, Advantages and Benefits

- The *Uniset* QXT lock mandrel is a variant of the standard *Uniset* lock mandrel, offering all the advantages of the standard system but with a revised geometry that is better suited to wellhead applications. The QXT lock mandrel uses low-friction ST seals in place of conventional Chevron or O-ring type devices.
- The *Uniset* AB equalizing device offers single-run setting/pulling capability with a much greater degree of intrinsic safety than other mechanisms. To reduce reliance on operator ability, the AB equalizing assembly incorporates a pressure sensing piston which, in the event of differential pressure being present below the device, prevents the lock mandrel from being latched but allows equalization.
- The *Uniset* Type C back pressure valve offers dual sealing with a primary metal-to-metal seal and backup elastomeric seal. In the event that it is necessary to pump through the device, the spring-loaded protector sleeve isolates the elastomeric backup, giving a higher degree of integrity than possible with similar devices without a secondary seal capability.

Note: Consult an authorized Weatherford flow control representative for information on additional tubing hanger plug systems.

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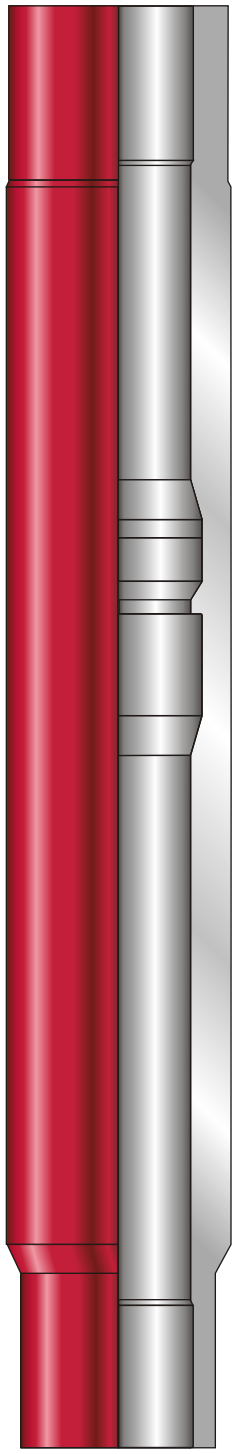
System Components



Depth-Correlation Sub

Weatherford's *Uniset* depth-correlation sub (DCS) enables mechanical depth control without the need for electric-line correlation. The DCS is installed with the completion liner, spaced at strategic intervals, and correlated with the post-completion gamma ray log. Subsequent interventions with conventional slick line or coiled tubing locate the DCS, allowing for the exact positioning of the intervention tools opposite specific reservoir intervals. A secondary use of the DCS is the precise positioning of chemical cutter tools severing the mandrels of cut-to-release packers. When used for this purpose, the DCS can be installed above or below the packer, without the need for a bore-restricting no-go.

Applications

The DCS offers positive depth correlation during the following applications:

- Zonal isolation
- Plugging or barrier operations
- Perforating operations
- Positioning of chemical cutters for packer release

Features, Advantages and Benefits

Superior tensile, burst, and collapse ratings protect the tubing/liner connection.

- Over-drift profile allows the passage of conventional cementing plugs so that cementing operations are not compromised.
- The DCS is available with a single or double profile and in any size, weight, or grade of tubing or liner.
- The DCS can be customized to suit specific packers.

Depth-Correlation Sub

Specifications

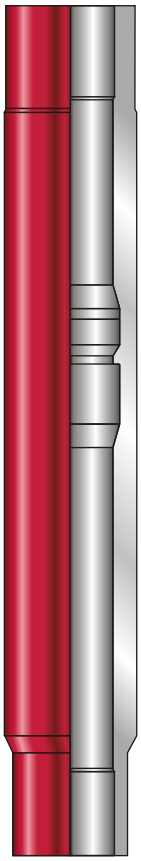
Nominal Size (in./*mm*)	Length (ft/*m*)	Thread Configuration	Connection	Connection Weight (lb/*kg*)	Material	Assembly Number
3-1/2 *88.9*	3 *0.914*	Box x pin	Hydril®	9.3 *4.22*	L-80 Carbon Steel	026-3500-002-012
4-1/2 *114.3*	6 *1.830*	Box x pin	Buttress	11.6 *5.26*	13% Cr	026-4500-015-020
			NEW VAM®	18.9 *8.57*		026-4500-04-20
				12.6 *5.72*		026-4500-06-20
			Buttress	11.6 *5.26*		026-4500-08-20
	3 *0.914*	Box x pin	VAM ACE®	12.6 *5.72*	13% Cr	026-4500-10-20
			Fox-H	15.1 *6.85*	Super 13% Cr	026-4500-14-70
5 *127.0*	2-1/2 *0.762*	Box x pin	Fox-H	18.0 *8.17*	Super 13% Cr	026-5000-07-70
5-1/2 *139.7*	3 *0.914*	Box x pin	HSC	20.0 *9.07*	Super 13% Cr	026-5500-016-070
	2-1/2 *0.762*		NSCC	26.0 *11.79*	13% Cr	026-5500-13-20
7 *177.8*	3 *0.914*	Box x pin	NEW VAM	32.0 *14.52*	C-95	026-7000-007-303

Alternative connections, materials, and lengths available on request.

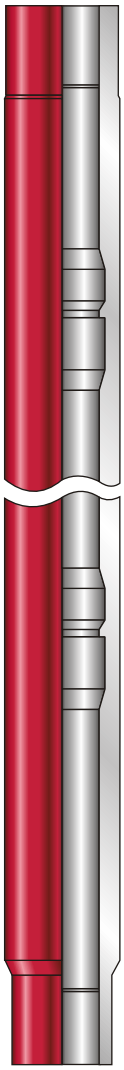
System Components

Depth-Correlation Sub

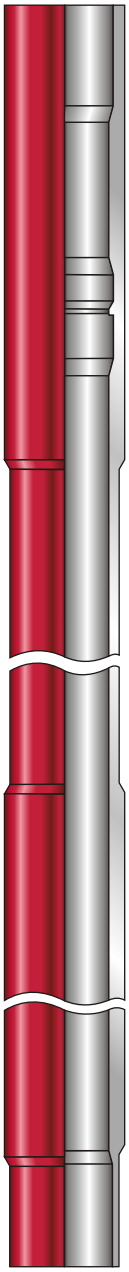
Options



DCS with Single Profile (3 ft/0.9 m)



DCS with Double Profile (6 ft/1.5 m)



SLJ with Single Profile (15 ft/4.6 m)

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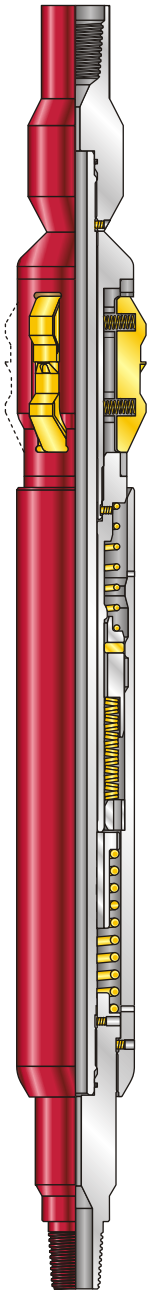
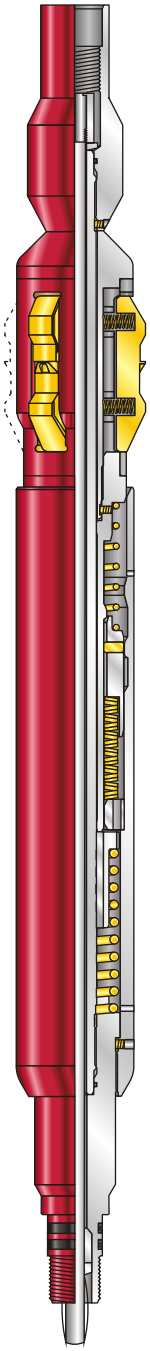
System Components



DCT with Coiled-Tubing Connections



DCT with GO Connections

Depth-Correlation Tool

Weatherford's *Uniset* depth-correlation tool (DCT) is designed to locate depth control subs (DCS), installed in the production tubing or liner, during well interventions. The tool's unique design provides positive depth location without requiring a gamma ray or casing collar log. The DCT is available in coiled-tubing, electric-line or slick-line configuration.

Applications

The DCS offers positive depth correlation during the following applications:

- Bridge plug setting for plugging
- Straddle setting for zonal isolation
- Perforating
- Chemical cutting of packer mandrels

Features, Advantages and Benefits

- Correlation is mechanical, eliminating the need for additional equipment.
- The DCT allows the operator to locate a specific DCS by upward movement only.
- The tool is designed to release from the DCS at a preset upstroke tension. Once clear of the DCS profile, the DCT re-cocks, enabling the operator to either confirm the current datum or engage an alternative DCS profile. This time-saving feature allows unlimited depth correlations to be performed without having to recover the tool to surface.
- The coiled-tubing version of the DCT is constructed with a ported core, allowing the passage of a drop ball and/or transmission of hydraulic pressure to activate perforating equipment or bridge plug setting tools.
- The electric-line version of the DCT is designed with standard e-line connections and insulated contact kits, enabling assembly into any position in the tool string from the cablehead down.
- The slick-line version of the DCT is equipped with a QLS® quick-lock system or sucker rod connections and a solid core, allowing for assembly into any position in the tool string from the rope socket down.

System Components

Depth-Correlation Tool

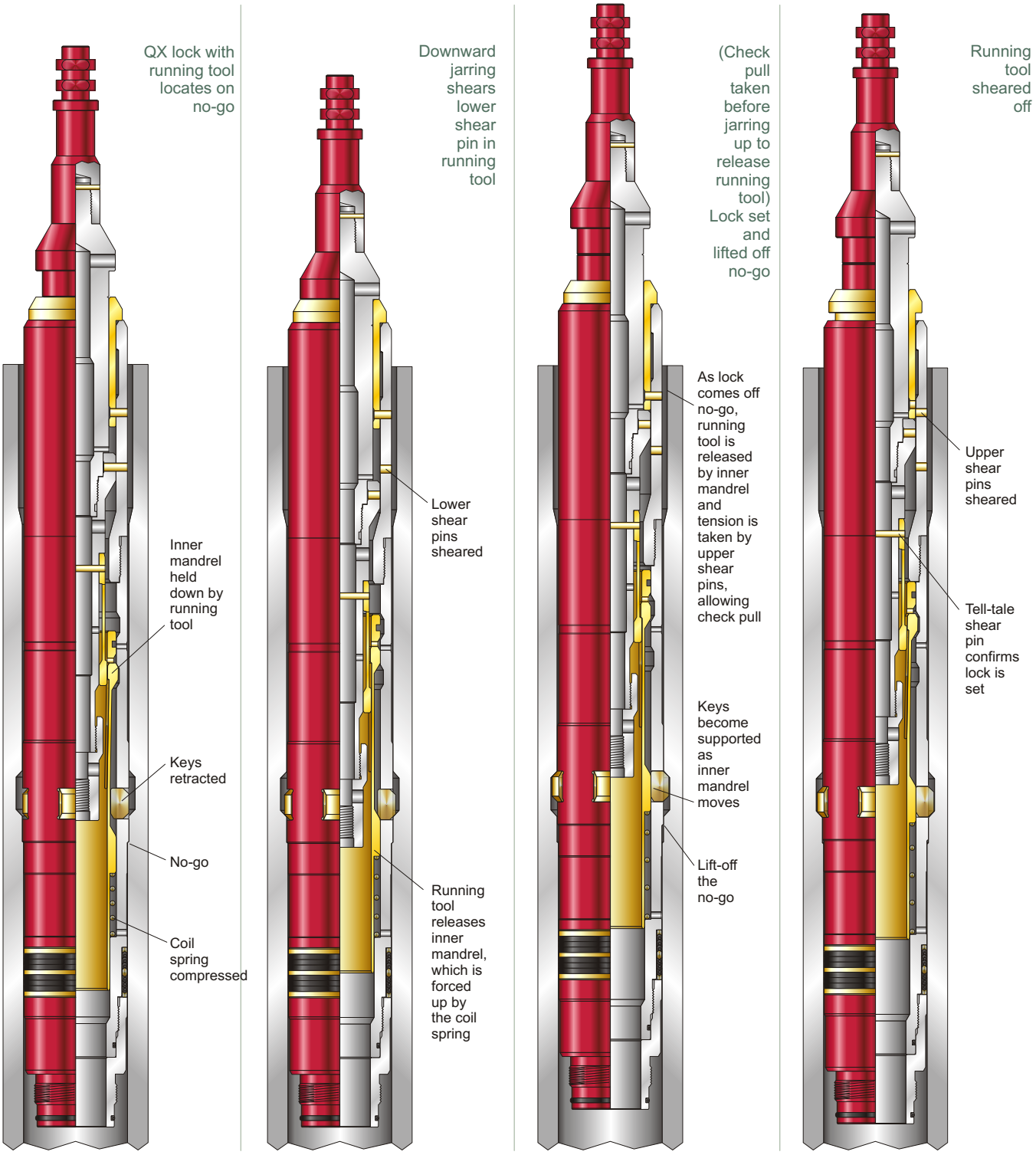
Specifications

Nominal Size (in./*mm*)	Running Method	Overpull Load (lb/*kg*)	Maximum OD		Length (in./*mm*)	Minimum ID (in./*mm*)	Connections		DCT Assembly Number
			Body (in./*mm*)	Keys (in./*mm*)			Upper	Lower	
2-7/8 *73.0*	Wireline or e-line	800 *363*	2.268 *57.61*	2.677 *68.00*	33.03 *838.90*	N/A	1 1/16-in. SR pin	Bullnose	492-2875-000-001
3-1/2 *88.9*	Coiled tubing	3,000 *1,361*	2.717 *69.01*	3.346 *84.99*	33.80 *858.50*	0.252 *6.40*	1 1/2-in. MT box	1 1/2-in. MT pin	492-3500-000-002
3-1/2 *88.9*	E-line	800 *363*	2.717 *69.01*	3.346 *84.99*	36.55 *928.40*	N/A	1 3/8-in. GO box	1 3/8-in. GO pin	492-3500-000-003
4-1/2 *114.3*	Coiled tubing	3,000 *1,361*	3.484 *88.49*	4.168 *105.87*	34.55 *877.57*	0.708 *17.98*	1 1/2-in. MT box	1 1/2-in. MT pin	492-4500-000-001
4-1/2 *114.3*	E-line	800 *363*	3.484 *88.49*	4.168 *105.87*	35.18 *893.60*	N/A	1 3/8-in. GO box	1 3/8-in. GO pin	492-4500-000-002

Metallic material AISI 4140/45 is standard.

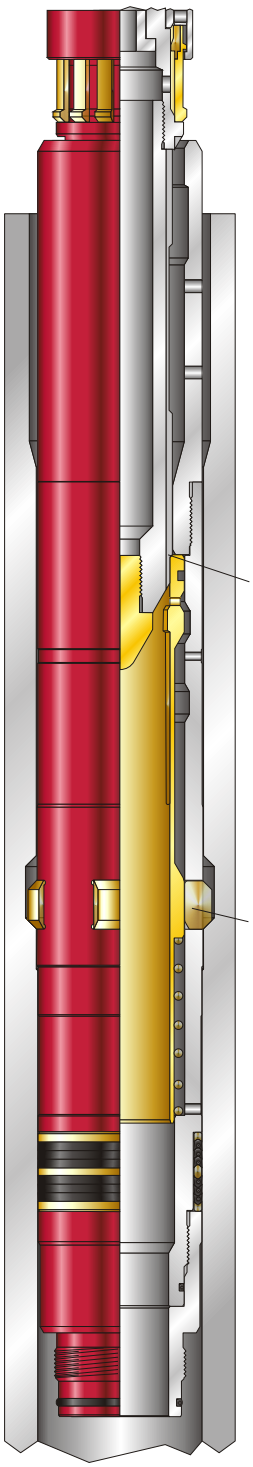
Setting and Pulling Procedures

Setting Procedure for QX Lock



Setting and Pulling Procedures

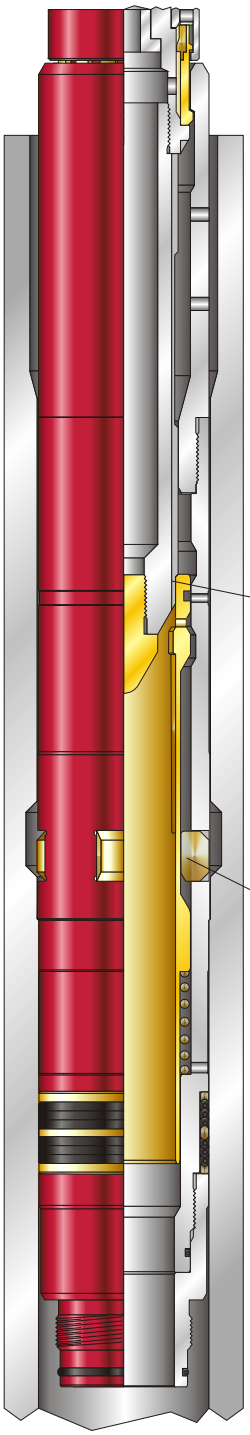
Pulling Procedure for QX Lock



GS/DU pulling tool with pulling prong enters lock

Pulling probe engages inner mandrel

Keys out and supported by inner mandrel



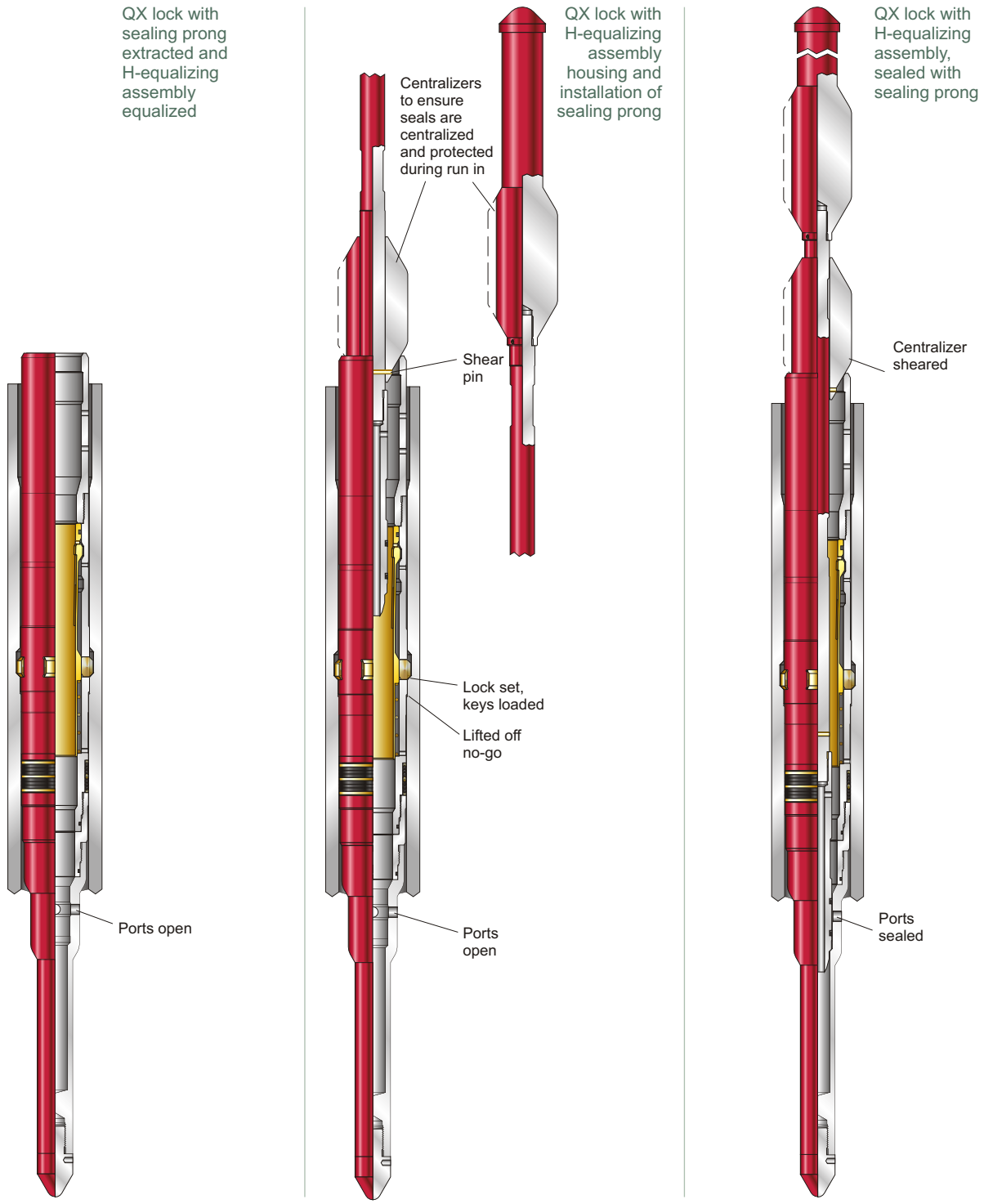
GS/DU latched, ready to pull lock

Pulling probe fully inserted

Keys become de-supported as inner mandrel moves down

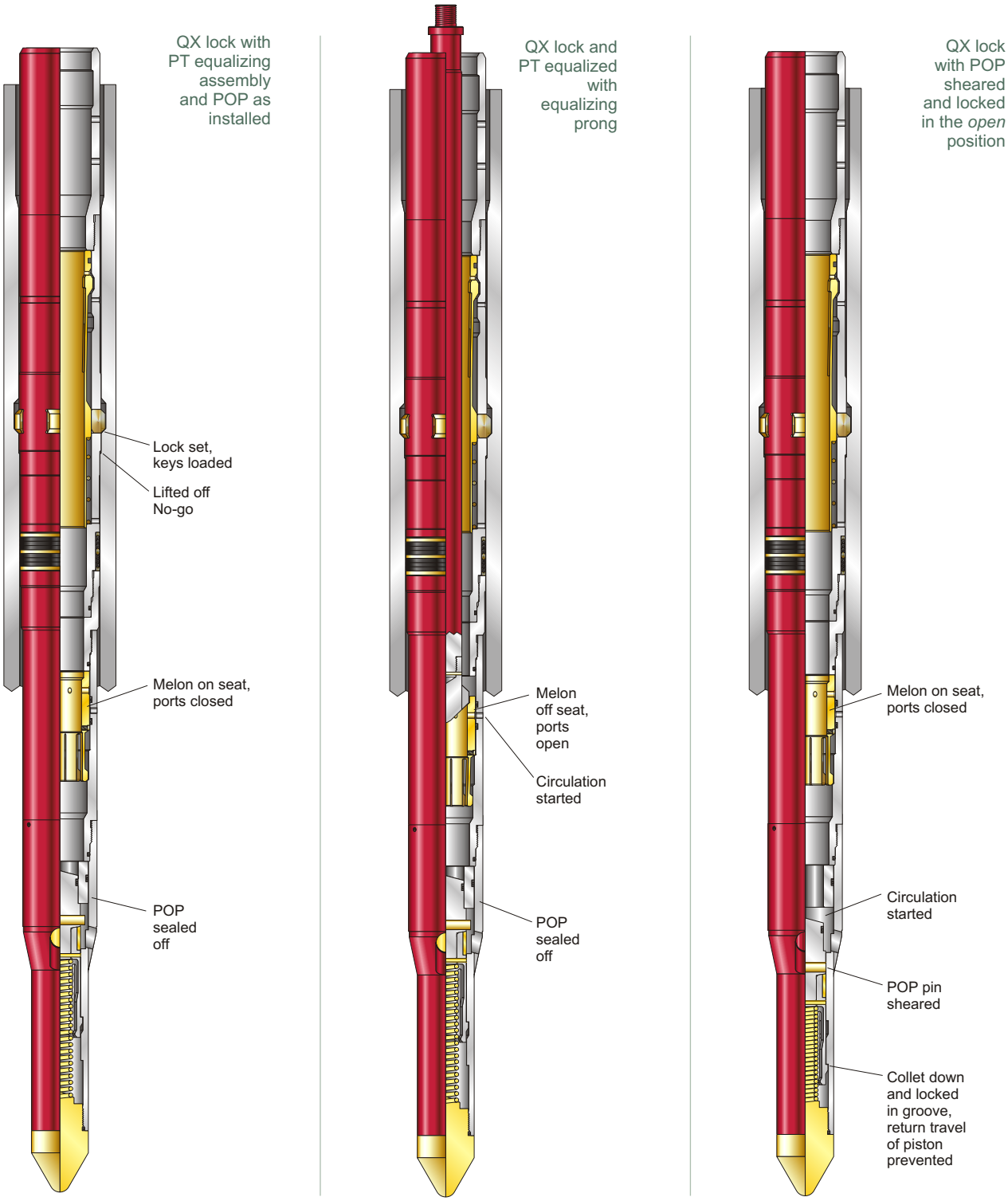
Setting and Pulling Procedures

Setting Procedure for QX Lock with H Equalizing Assembly



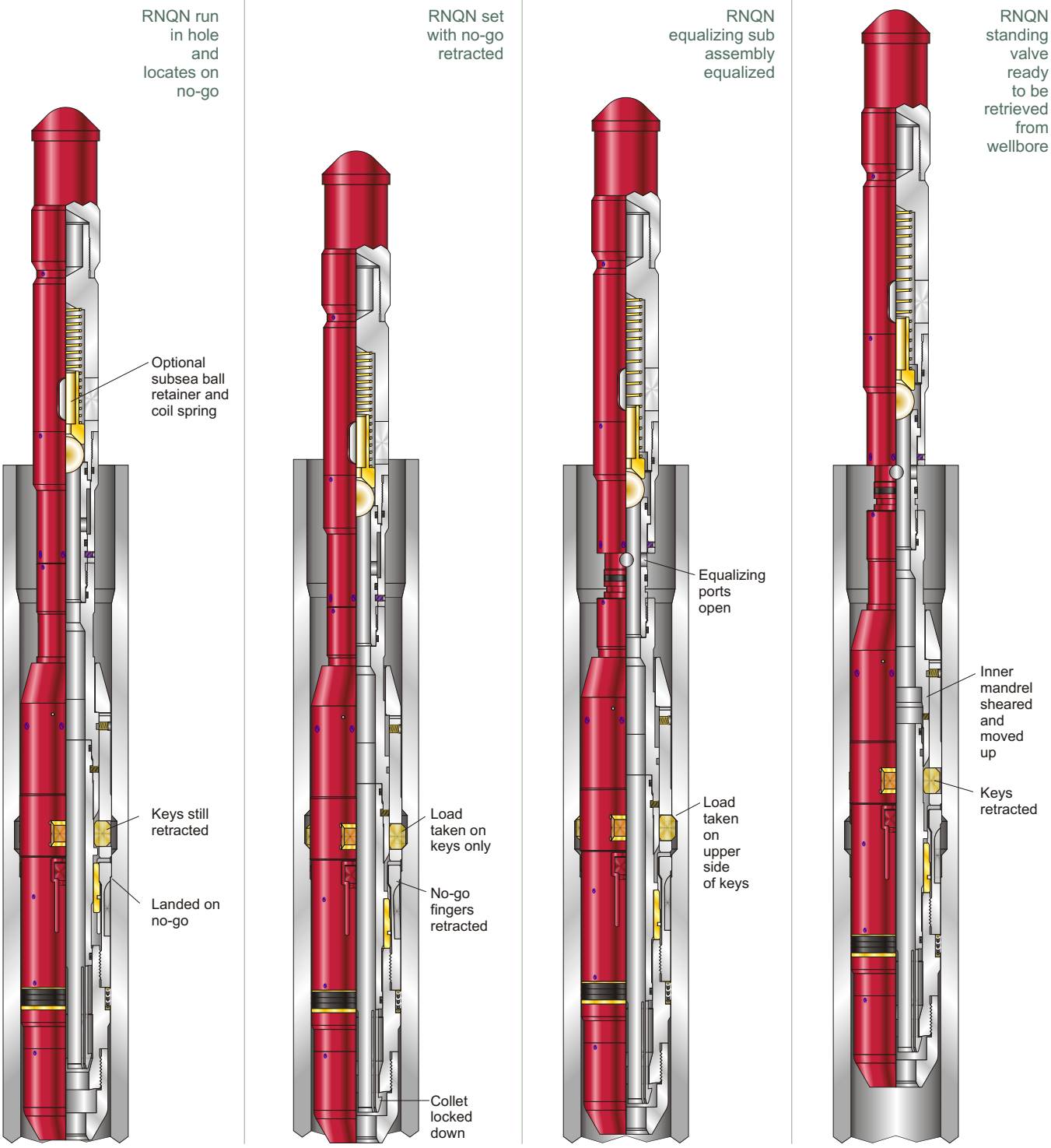
Setting and Pulling Procedures

Setting and Equalizing Procedure for QX Lock with PT and POP



Setting and Pulling Procedures

Setting and Equalizing Procedure for RNQN Standing Valve



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