



# Product Catalog



**ENDEAVOUR**

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Russian company Endeavor specializes in oil and gas services, as well as the development and production of casing accessories for cementing wells.

The high quality of the company's services is provided by employees who have behind them a wealth of practical experience in drilling wells and special, specialized education, many of them previously were representatives of large Russian and foreign companies. Therefore, having in its staff a large number of highly qualified specialists and engineers in almost all areas of drilling and well workover, we are able to successfully cope with the management of projects on well workouts and drilling of any complexity. Endeavour offers a wide range of high-quality equipment for primary cementing of casing strings with the quality level of leading Western manufacturers and meets all the requirements of companies engaged in drilling and exploitation of oil and gas wells of any category of complexity.

The manufacturing of equipment was organized at its own production facilities in Volgograd with the involvement of foreign specialists with 30 years of experience in organizing and manufacturing similar equipment.

The production facilities are equipped with equipment for high-precision machining of parts (CNC machines), equipment for thermal and technological processing of components, special equipment for testing and quality control in accordance with the API and ISO standards, as well as storage areas for warehousing finished products and materials.

Company departments: design, production, quality control, and testing, allow Endeavour to timely produce products in compliance with the customer's technical specifications according to the procedures and requirements of the API and ISO standards.



The company Endeavour undertakes to ensure the production of reliable casing accessories for casing and well cementing. To achieve this, the company works according to a quality management system.

The main goals in the field of quality are fixed in the company policy:

- Endeavour is committed to continuous improvement of the supplied products and services to ensure the satisfaction of the requirements and expectations of the Consumer.

- The company Endeavour involves all company employees in the process of creating and improving the Quality Management System.

- The company Endeavour agrees to comply with the requirements of international standards and specifications API Q1 9th ed., API Specification 5CT 9th; API Specification 10D 10th ed and other mandatory requirements and constantly improve the company's QMS.

- The QMS policy is reviewed annually to continuously assess suitability, compliance, and effectiveness.



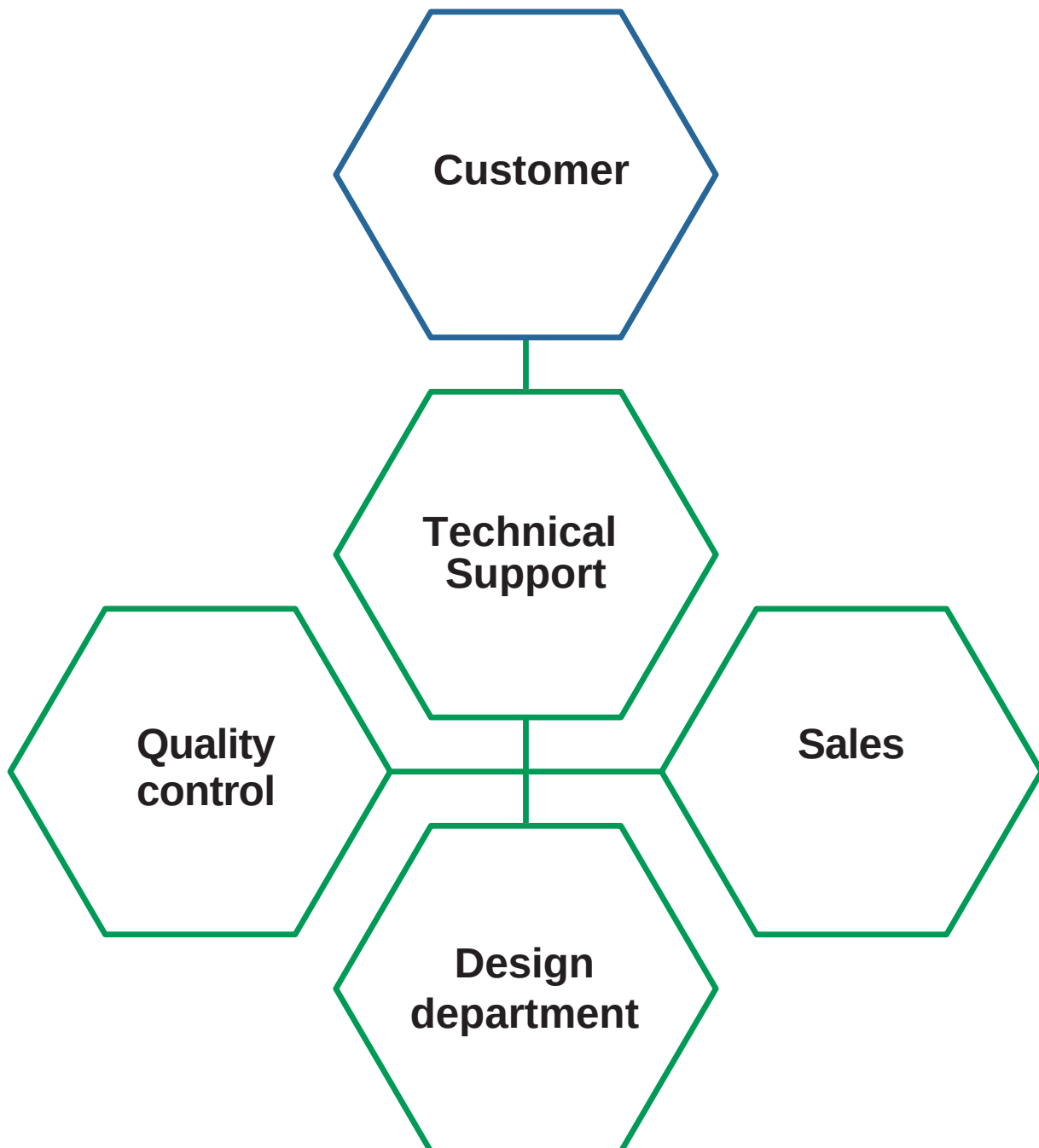
In the process of using the equipment, the customer has technical questions, timely answers to which often can significantly reduce technical and financial risks.

In order to provide response timely Technical Support is implemented in the company.

In addition, Technical Support conducts a direct dialogue with users of products and, as a result, accumulates experience that allows, together with the quality management system, to improve the manufactured products.

The company has equipment for conducting testing in a wide range and is constantly expanding the range of design testing areas to reduce the likelihood of incidents at the field and assess the impact of various factors acting in well conditions.

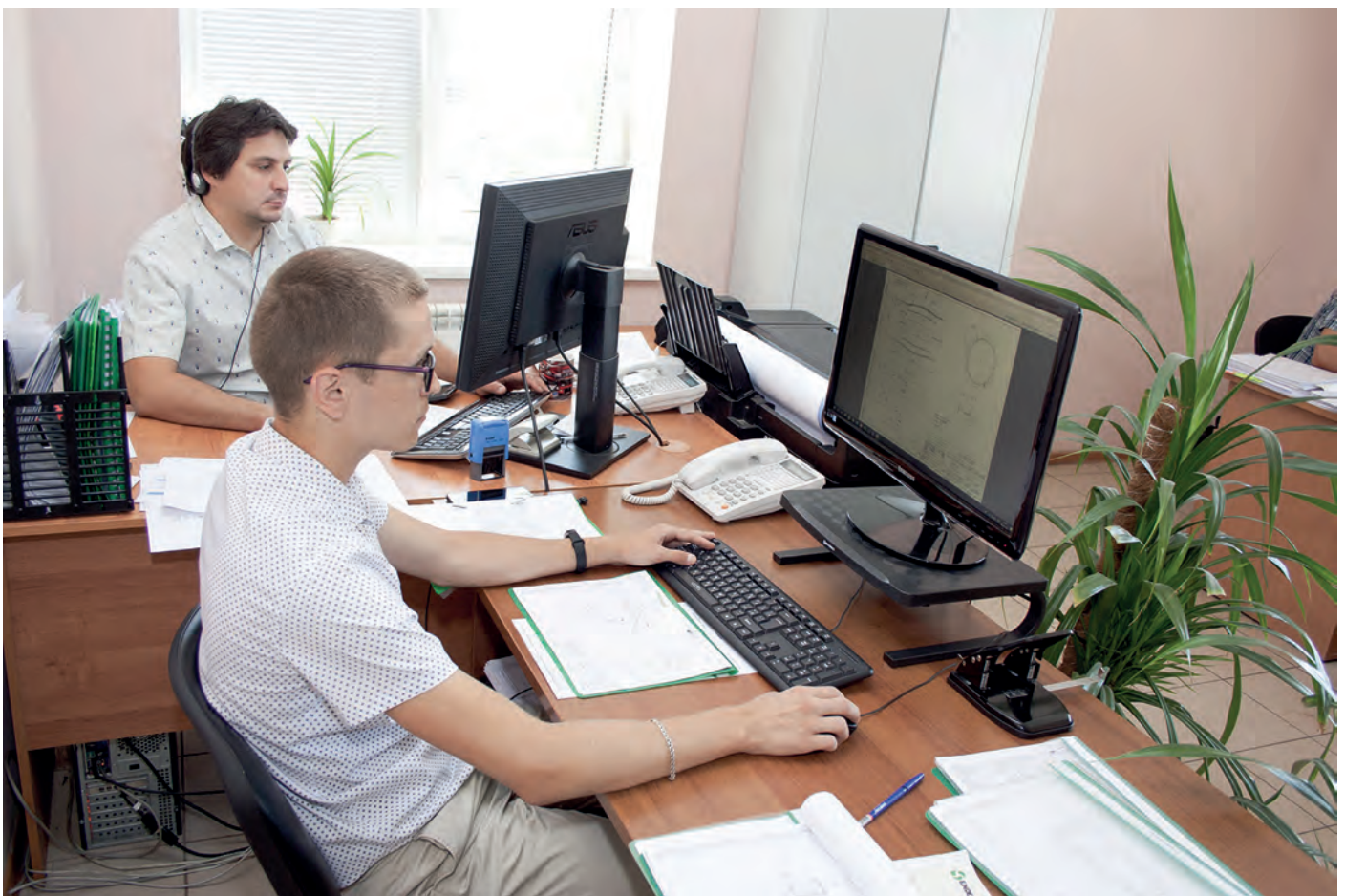
In the event of incidents, technical support responds promptly to messages from the consumer and gives explanations, recommendations or advice regarding the possible causes of incidents.



In the company, experienced engineers using CAD systems to design and develop innovative products and specific customer components. In the calculations, modern computational methods are used and the requirements of domestic and international standards of the oil and gas industry are taken into account.

The design department works in direct contact with production, which allows the most efficient implementation of new products and improves existing ones.

Our company not only produces products but also provides services with its application. Therefore, we greatly appreciate the convenience of its use, which was initially laid down at the design and development stages.



Casing Shoes are designed to equip the bottom of the casing and direction along the wellbore, stiffen and protect against damage to the casing when running into the well.

The use of a valve allows cement and drilling fluid to be pumped through the shoe in one direction and prevents backflow.

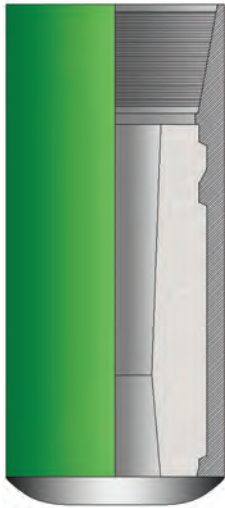
## Features and benefits

- High-quality cement filler
- Easy drilling out with PDC bits
- Autofill feature available



Size	4-1/2 " (114,3 mm) - 20" (508 mm)
Thread type	GOST, API or as requested
Max operational temperature	150 °C
Options	Additional circulation ports

# Casing Shoes modifications



## **Series 101 - Casing shoe with no valve, standard**

The simplest shoe design without a valve.

It is used to protect the bottom of the casing during a casing running in an open hole.



## **Series 102 - Casing shoe with free rotating eccentric composite nose**

The nose, due to its shape and free rotation, facilitates the passage of trouble intervals with or without rotation.

*The nose may be non-rotating - Series 112.*



## **Series 103 - Casing shoe with free rotating eccentric aluminium nose**

The nose, due to its shape and free rotation, facilitates the passage of trouble intervals with or without rotation.

*The nose may be non-rotating - Series 113.*



## **Series 114 - Casing shoe with non-rotating bullet shaped composite nose**

The nose, due to its shape, facilitates the passage of trouble intervals.

Composite plastic is easy to drill and it provides the required level of strength.



## **Series 115. Casing shoe with non-rotating bullet shaped aluminium nose**

The nose, due to its shape, facilitates the passage of trouble intervals.

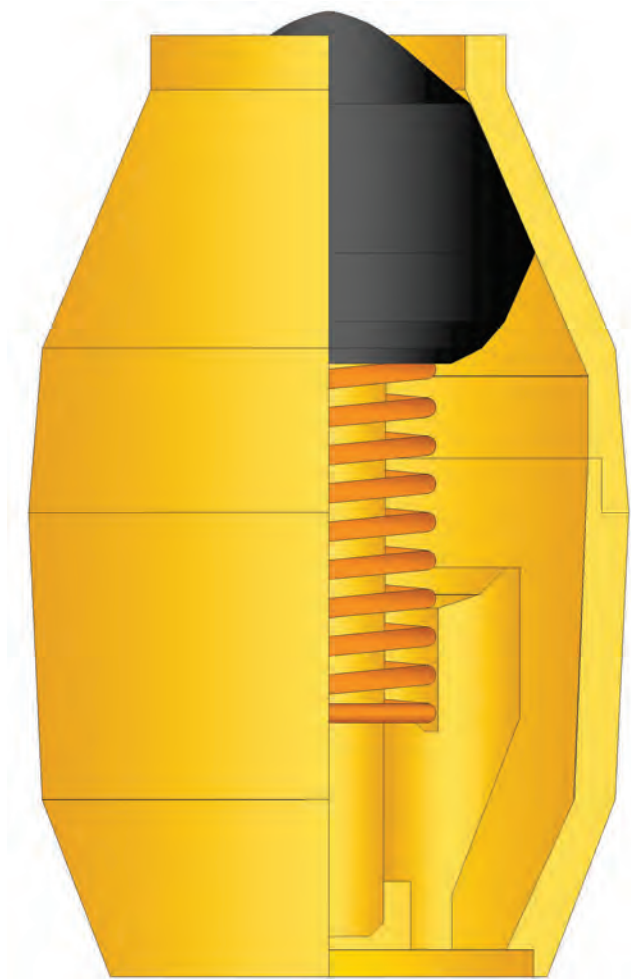
# Float equipment Valve

The Valve is casing accessories element. Depending on the size of the equipment, the valve can be of two sizes: 2.5 " (small) and 3.5 " (large).

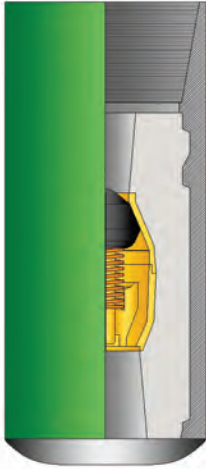
Valves of float equipment are subject to high loads, especially high impact loads, which are manifested at high pumping rates of drilling and cement fluids. With an increase in the pump in rate of the fluid, the flow rate increases, which leads to an increase in the shock load on the valve. When solid particles are added to drilling or cement fluids to increase the performance of these fluids, the impact resistance of the valve becomes a critical parameter.

## Features and benefits

- Easy drilling out with PDC bits
- Autofill feature available
- In terms of temperature range and permissible pressures, it complies with the requirements of the standard API RP 10F (III C), API RP 10D.

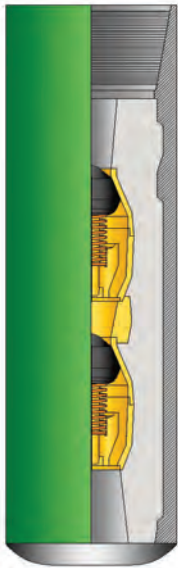


Size	2.5 " (small) and 3.5 " (large).
Max operational temperature	150 °C



## **Series 101 - Casing shoe with single valve, standard**

The design of the Shoe with valve allows you to take advantage of the floating column for light weight. The valve prevents the backflow of fluid and allows you to hold the liquid cement in the annulus.



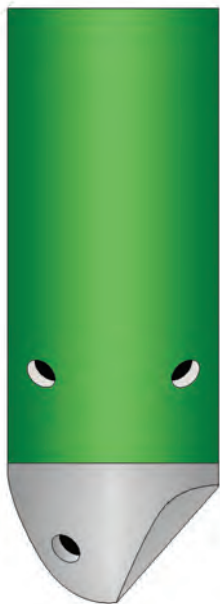
## **Series 101 - Casing shoe with double valve, standard**

The use of double valves improves the reliability of the equipment. Recommended for use in wells where long flushing is expected.



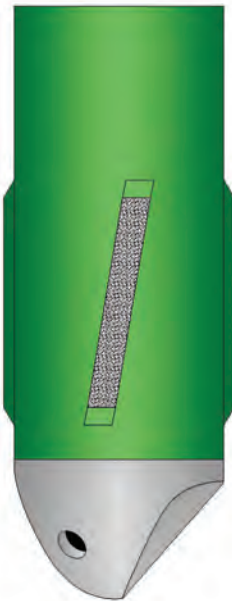
## **Jetting shoe**

The shoe is designed to go through trouble intervals. The positive effect is achieved by rotating the jetting nose with a hydraulic motor. The internal of device combines the necessary strength and the possibility of easy drilling out.



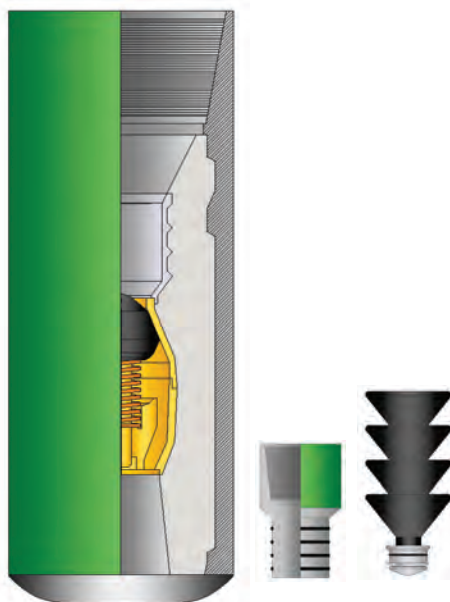
### **With additional jets on the body**

The direction of the jets can be either downward or upward. This option facilitates the circulation of liquids, and also allows you to continue working when the lower circulation jets are blocked.



### **With reaming blades**

The Shoe is used for complex well profiles. Reinforcement is carried out using carbide materials, which allows to obtain increased strength of the blades.



### **With stab-in cementing insert**

The stub-in shoe is used when cementing a casing through a drill pipes, and the volume of displacing fluid is significantly reduced. Recommended for use on large diameter columns, on offshore projects.

The Float Collar is casing accessories element designed to prevent the backflow of fluid, cement during well cementing operations. Allows you to get the "STOP" pressure to indicate the end of the pumping volumes.

The valve can be two sizes 2.5 " (small) for columns up to 7" (177.8 mm) and 3.5 "(large) for columns from 7" (177.8 mm).

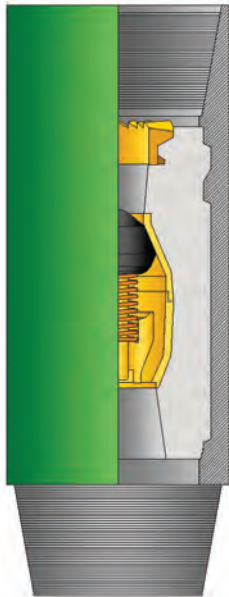
The cement filler and valve are made of a material that can be easily drilled out with conventional three-cone or PDC bits.

### Features and benefits

- High-quality cement filler
- Easy drilling out with PDC bits
- Autofill feature available (can be deactivated if necessary)
- Complete with non-rotating plate
- Installation of several valves is possible

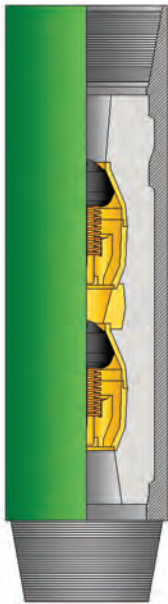


<i>Size</i>	4-1/2 " (114,3 mm) - 20" (508 mm)
<i>Thread type</i>	GOST, API or as requested
<i>Max operational temperature</i>	150 °C



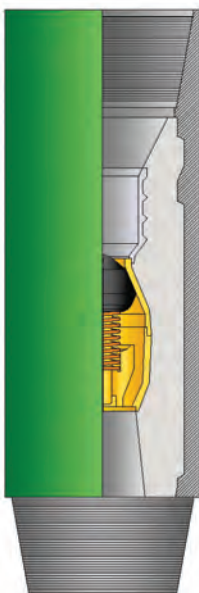
### **Series 202 - Float collar with single valve with non-rotating plate**

The non-rotating plate reduces the risk of rotation of the cement plug when drilling out casing accessories.



### **Series 201 - Float collar with double valve**

The reliability of the collar is improved by use of the double valve.



### **Series 204 - Float collar with single valve, with stab-in cementing insert**

It is used for cementing large diameter columns, which can significantly reduce the volume of displacement fluid.

# Cementing Plugs

## Series 303 - Top (black) cementing plug



The Top (black) cementing plug consists of a base made of composite plastic and ribs made of NBR rubber.

It can be equipped with a non-rotating mechanism. The Non-rotating plate is installed at the bottom of the plug, and plugs with this design must be used with special float equipment, with receiving plates for landing plugs. Rubber coating allows the use of plugs with drilling fluid in both water and oil based.

The maximum temperature for using plugs is 150 degrees Celsius for 6 hours. When using plugs at temperatures above 150 degrees Celsius, the rubber will become harder and lose its sealing properties.



### Features and benefits

- Easy drilling out with PDC bits
- Complete with non-rotating plate

<i>Size</i>	4-1/2 " (114,3 mm) - 20" (508 mm)
<i>Max operational temperature</i>	150 °C

# Cementing Plugs

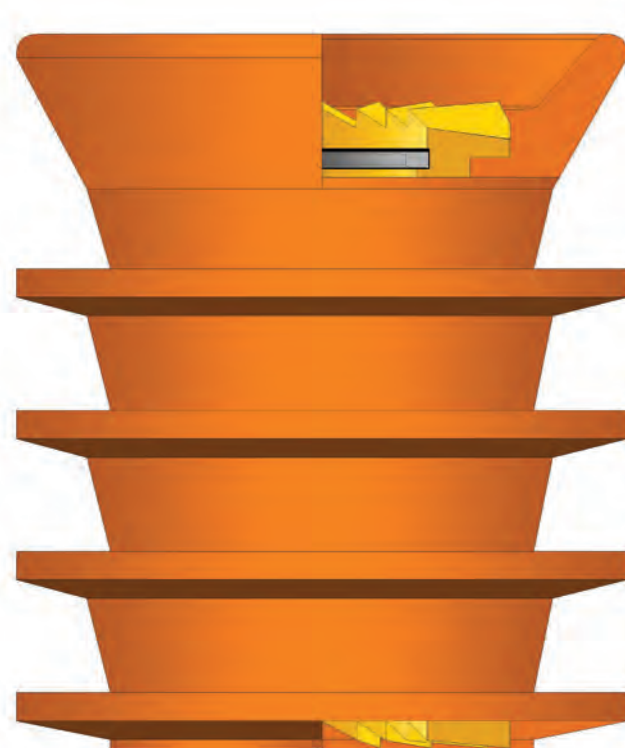
## Series 304 - Bottom (orange) cementing plug

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The Bottom (orange) cementing plug consists of a base made of composite plastic and ribs made of NBR rubber.

It can be equipped with a non-rotating mechanism. The Non-rotating plate is installed at the bottom of the plug, and plugs with this design must be used with special float equipment, with receiving plates for landing plugs. Rubber coating allows the use of plugs with drilling fluid in both water and oil based.

The maximum temperature for using plugs is 150 degrees Celsius for 6 hours. When using plugs at temperatures above 150 degrees Celsius, the rubber will become harder and lose its sealing properties.

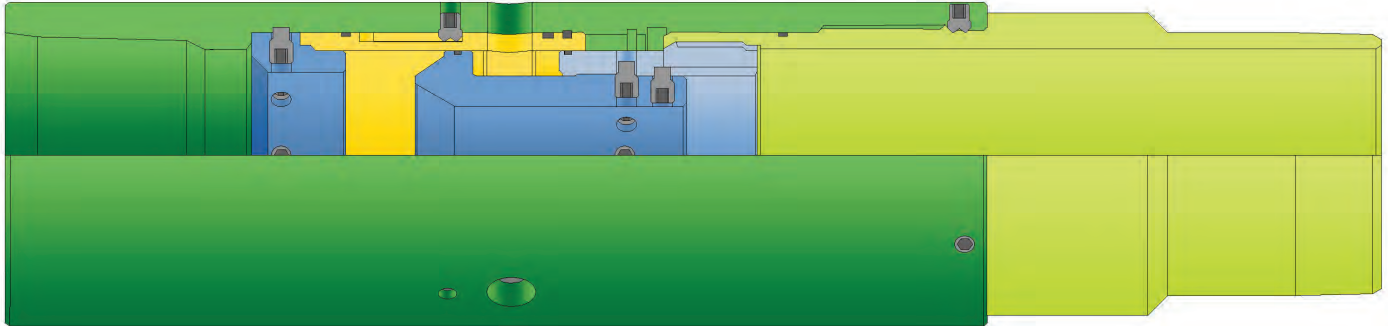


### Features and benefits

- Easy drilling out with PDC bits
- Complete with non-rotation plate

Size	4-1/2 " (114,3 mm) - 20" (508 mm)
Max operational temperature	150 °C

# Series 401 - Hydraulic opening stage tool

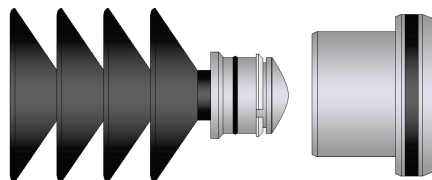


Size		PPF/wall thickness		Outside dia. (OD)		Maximum drill out internal dia. (ID)		Overall length	
in	mm	pound/feet	mm	in	mm	in	mm	in	mm
4 1/2"	114.3	9.5-11.6	5.2-6.35	5.562	141.3	3.975	101.0	25.0	635
		11.6-15.1	6.35-8.56			3.89	98.8		
5 1/2"	139.7	14.0	5.69	6.63	168.4	4.897	124.4	25.2	641
		15.5-17.0	6.69-7.72			4.835	122.8		
		17.0-23.0	7.72-10.54			4.77	121.3		
6 5/8"	168.3	17.0	6.22	7.88	200	6.0	152.0	26	662
		24.0-32.0	8.94-12.07			5.625	142.8		
7"	177.8	23.0-26.0	8.05-9.19	8.15	207	6.251	158.7	26	662
		26.0-32.0	9.19-11.51			6.161	156.5		
9 5/8"	244.5	32.3	7.92-10.03	11.25	282.6	8.855	224.9	28.9	732
		40.0-47.00	10.03-11.99			8.689	220.7		
		43.5-53.5	11.05-13.84			8.609	218.7		
10 3/4"	273.1	32.7-40.5	7.09-8.89	12.0	305	8.855	224.9	30	761
		40.5-45.5	8.89-10.16			8.689	220.7		
		45.5-55.5	10.16-12.57			8.609	218.7		
13 3/8"	340	61.0-72.0	10.92-13.06	15.0	381	12.25	311.1	35.13	892.3

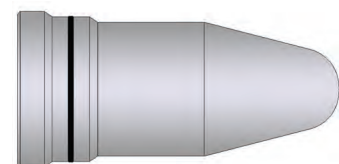
**Closing plug**



**1st stage plug (opening plug)**

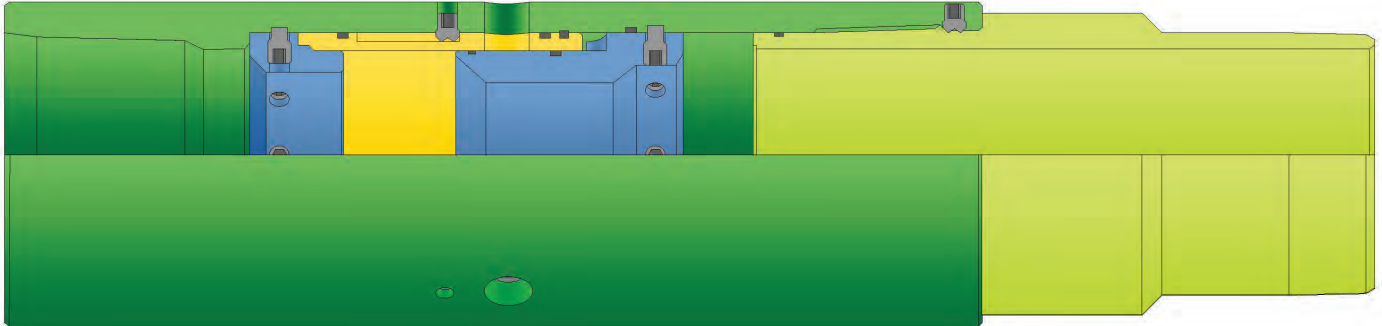


**Free fall opening device (optional)**



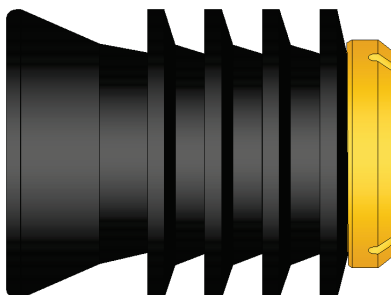
\* Information for review and subject to change by decision of Endeavour without notice.

# Series 402 -Mechanical opening Stage Tool

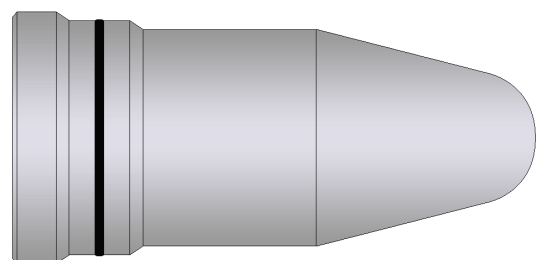


Size		PPF/wall thickness		Outside dia. (OD)		Maximum drill out internal dia. (ID)		Overall length	
in	mm	pound/feet	mm	In	mm	in	mm	in	mm
4 1/2"	114.3	9.5-11.6	5.2-6.35	5.562	141.3	3.975	101.0	25.0	635
		11.6-15.1	6.35-8.56			3.89	98.8		
5 1/2"	139.7	14.0	5.69	6.63	168.4	4.897	124.4	25.2	641
		15.5-17.0	6.69-7.72			4.835	122.8		
		17.0-23.0	7.72-10.54			4.77	121.3		
6 5/8"	168.3	17.0	6.22	7.88	200	6.0	152.0	26	662
		24.0-32.0	8.94-12.07			5.625	142.8		
7"	177.8	23.0-26.0	8.05-9.19	8.15	207	6.251	158.7	26	662
		26.0-32.0	9.19-11.51			6.161	156.5		
9 5/8"	244.5	32.3	7.92-10.03	11.25	282.6	8.855	224.9	28.9	732
		40.0-47.00	10.03-11.99			8.689	220.7		
		43.5-53.5	11.05-13.84			8.609	218.7		
10 3/4"	273.1	32.7-40.5	7.09-8.89	12.0	305	8.855	224.9	30	761
		40.5-45.5	8.89-10.16			8.689	220.7		
		45.5-55.5	10.16-12.57			8.609	218.7		
13 3/8"	340	61.0-72.0	10.92-13.06	15.0	381	12.25	311.1	35.13	892.3

## Closing Plug



## Free fall opening device (optional)



\* Information for review and subject to change by decision of Endeavour without notice.

Centralizers of various types, including solid bodies, and Stop Collars are used to center the casing in the wellbore.

Centering the casing is highly desirable to ensure that cement is evenly placed around the casing. The use of centralizers correctly set to the recommended position will improve the process of cement replacement and contribute to the formation of high-quality cement stone.

Testing of starting and restoring forces confirms that the manufactured centralizers exceed API 10D requirements.

A wide range of sizes of centralizers is produced, which allow achieving starting and restoring forces that satisfy the needs in the construction of modern wells.

For complex well conditions that are encountered when drilling deviated and horizontal wells, the use of welded centering products is highly recommended. The limit of the short-term tensile strength of such centralizers is on average 3-4 times higher than that of non-welded centralizer products.

Stop Collar is installed on the casing and use to locate the centralizers.

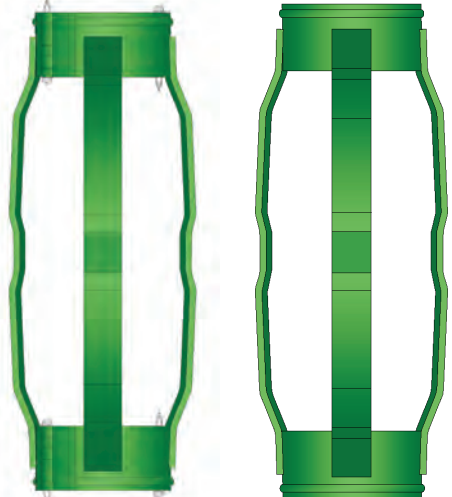


<i>Size</i>	4-1/2 " (114,3 mm) - 20" (508 mm)
<i>Manufacturing material</i>	High carbon steels and alloy steels
<i>Max operational temperature</i>	300 °C



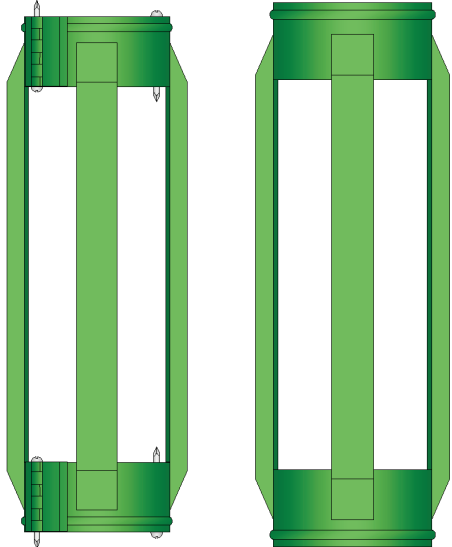
**Latch-on bow spring welded centralizer (series 501) / Slip-on bow spring welded centralizer (series 503)**

Standard centralizers for normal downhole conditions.



**Latch-on semi rigid bow spring welded centralizer (series 502) / Slip-on semi rigid bow spring welded centralizer (series 504)**

Use for complicated conditions, have a greater restoring force compared to standard centralizers.



**Latch-on rigid welded centralizer (series 506) / Slip-on rigid welded centralizer (series 507)**

The most durable type of centralizer, providing forced centering of the column.



**Solid body centralizer (series 505)**

They are used for centering columns with a small annular space where low pulling force is important and recovery force is not important.



## **Series 602 - Latch-on bolt lock stop collar**

A single bolt is used to secure the Stop Collar on the column. This design allows you to securely lock the stop collar.

The latch-on design is convenient to install and more compact when transporting.



## **Series 601 - Heavy duty slip on set screw lock stop collar**

Tightening bolts are used to secure the Stop Collar on the column. This design allows securely lock the Stop Collar.

Recommended centralizer installation is between pipe couplings, where their greatest bend is observed. There are many ways to place centralizers for various conditions:

**Over the stop collars (A)**, this installation is most preferable since it allows its free movement both up and down and ensures optimal centering of the column. With this installation, the locking ring pulls the centralizer, which reduces the running force. In addition, centralizers can be pre-installed to save time and money.

**Over couplings (B)** – despite the fact that such placement allows working without the use of stop collars, we do not recommend it, because in this case

running force increase is expected. This placement is acceptable if there is significant clearance in the annular space. Installation of the centralizer according to this scheme is possible only on the rig floor and will not save time due to pre-installation.

**Between stop collars (C)** – this installation is suitable for rigid centralizers. With this placement, the stop collars will push the centralizers. For other types of centralizers, such placement is not recommended. Centralizers can be preinstalled.

**Between couplings and stop collars (D)** – similar to the previous option, but allows to save on reducing the use of one of the stop collars. Will not allow to pre-install before the running.



**A**



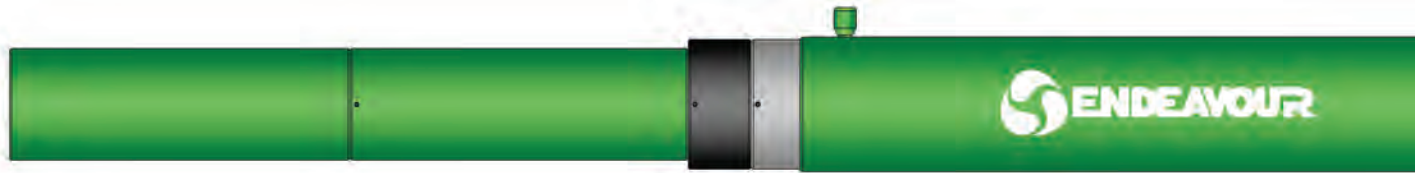
**B**



**C**



**D**



HY-FACT tool

## Fill Up and circulation Tool (FACT)

Fill Up and circulation Tool, manufactured by Endeavour, is designed to reduce the time during filling up and flushing required to run the casing strings, and also allows to run without interruption, which reduces the chances of sticking under the influence of pressure drop, and also helps to achieve the running of the casing to the bottom when meeting most challenging downhole conditions.

### Technical specification:

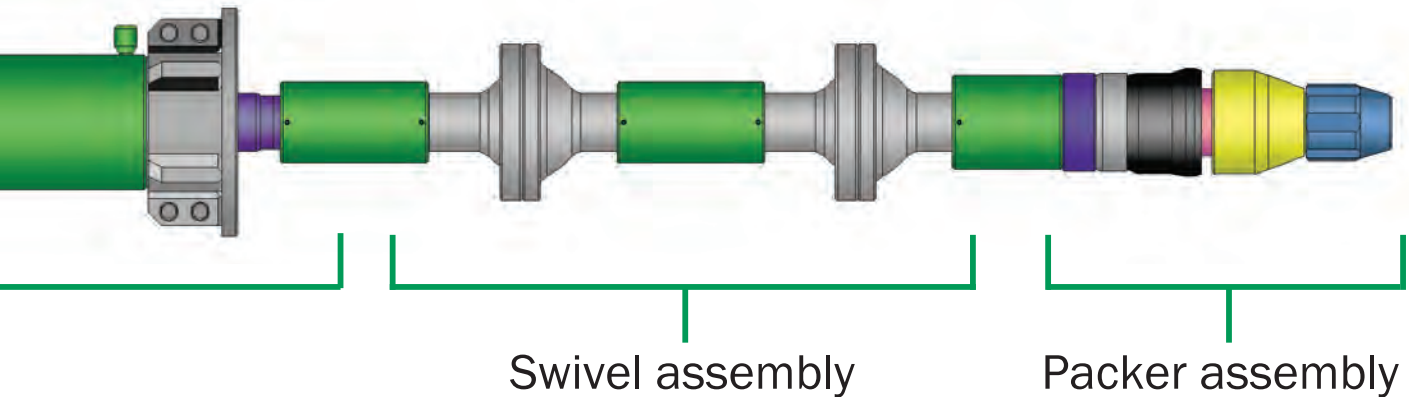
- Working pressure - 41MPa
- Casing string diameter - 6-5/8" to 13-3/8" (168-340 mm)
- The maximum flow rate - 2100 l / m
- Operating temperature, from -40°C to + 80 °C
- Working environment - Drilling fluids, including hydrocarbon-based mud
- Connection to the top drive - NC50



FACT tool

Packer assembly

# Hydraulic Fill Up and circulation Tool (HY-FACT)

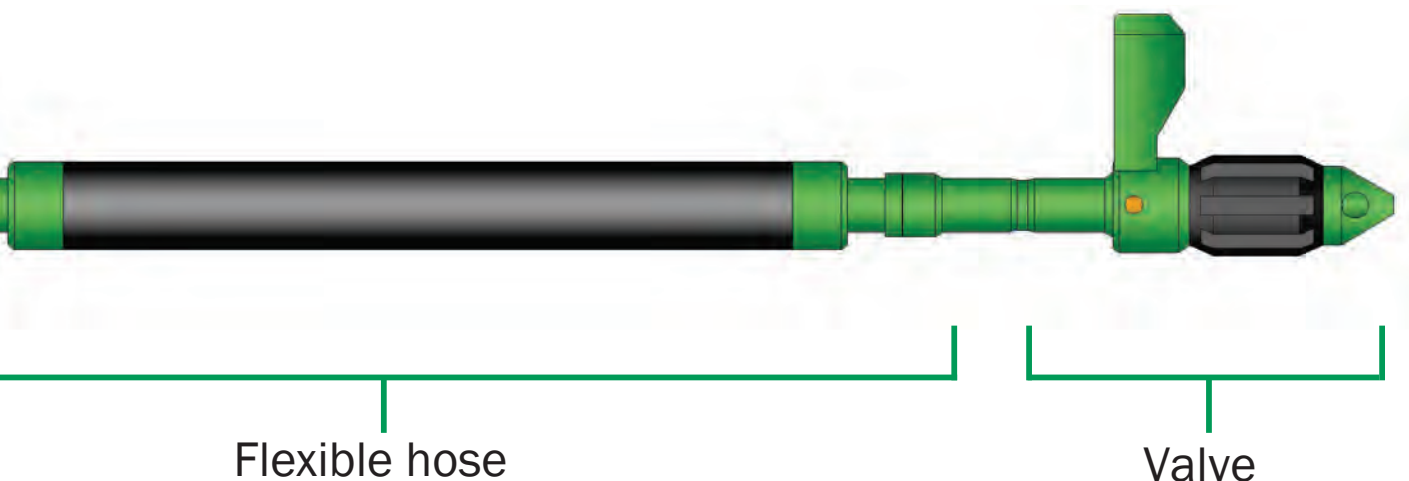


## Hydraulic Fill Up and circulation Tool

Hydraulic Fill Up and circulation Tool, manufactured by Endeavour, is designed to reduce the time during filling up and flushing required to run the casing strings, and also allows to run without interruption, which reduces the chances of sticking under the influence of pressure drop, and also helps to achieve the running of the casing to the bottom when meeting most challenging downhole conditions.

### Technical specification:

- Working pressure - 41MPa
- Casing string diameter - 6-5/8" to 13-3/8" (168-340 mm)
- The maximum flow rate - 2100 l / m
- The internal diameter of the tool (min.) is 2-1/4" (57mm.)
- Operating temperature, from -40°C to + 80 °C
- Working environment - Drilling fluids, including hydrocarbon-based mud
- Connection to the top drive - NC50



# Thread lock EN-LOCK



**EN-LOCK** – new generation two-component thread lock. Designed for secure fastening of threaded connections without the use of a traditional welding process. Increases work safety.

Provides tightness and prevents connection breakout. It is supplied as a kit of the main base component, activator and applicator.

Thread lock sets in 70 minutes, solidification in 24 hours.

For loosening, when completely solidified, it is necessary to heat the joint to 260-320 °C



## Packedge:

Weight of one can	Box weight	QTY of cans
226,8 g	2,7 kg	12

## Application chart:

Casing OD	Number of applications
4-1/2" (114 mm)	10
5-1/2" (140 mm)	6
6-5/8" (168 mm)	4
7-5/8" to 9-5/8" (194 - 244 mm)	3
10-3/4" to 13-5/8" (273 - 346 mm)	2

## Friction factor:

Type	Friction coefficient
Shouldered connection	0,9 - 1,0
Non-shouldered connection	1,3 - 2,0

# Compliance of steel grades GOST R 53366, ISO 11960 and GOST 632-80, GOST 633-80



GOST R 53366					ISO 11960: 2004					GOST 632-80 and GOST 633-80			
Grade	Type	Yield strength, MPa		Tensile strength, MPa	Grade	Type	Yield strength, MPa		Tensile strength, MPa	Grade	Yield strength, MPa		Tensile strength, MPa
		min.	max.	min.			min.	max.	min.		min.	max.	min.
<b>H40</b>	-	276	552	414	<b>H40</b>	-	276	552	414	-	-	-	-
<b>J55</b>	-	379	552	517	<b>J55</b>	-	379	552	517	-	-	-	-
<b>K55</b>	-	379	552	655	<b>K55</b>	-	379	552	655	<b>A</b>	379	552	655
<b>K72</b>	-	490	-	687	-	-	-	-	-	<b>K</b>	490	-	687
<b>N80</b>	1	552	758	689	<b>N80</b>	1	552	758	689	-	-	-	-
<b>N80</b>	Q	552	758	689	<b>N80</b>	Q	552	758	689	<b>E</b>	552	758	689
<b>M65</b>	-	448	586	586	<b>M65</b>	-	448	586	586	-	-	-	-
<b>L80</b>	Bc	552	655	655	<b>L80</b>	Bce	552	655	655	-	-	-	-
<b>C90</b>	1 и 2	621	724	689	<b>C90</b>	1 и 2	621	724	689	-	-	-	-
<b>C95</b>	-	655	862	758	<b>C95</b>	-	655	758	724	<b>A</b>	655	862	758
<b>T95</b>	1 и 2	655	758	724	<b>T95</b>	1 и 2	655	758	724	-	-	-	-
<b>P110</b>	-	758	965	862	<b>P110</b>	-	758	965	862	<b>M</b>	758	965	862
<b>Q125</b>	1-4	862	1034	931	<b>Q125</b>	1-4	862	1034	931	-	-	-	-
<b>Q135</b>	-	930	1137	1000	-	-	-	-	-	<b>P</b>	930	1137	1000

## Length

1 inch = 25.4 mm  
1 feet = 30.48 sm  
1 feet= 12 inches  
1 yard = 91.44 sm  
1 mile = 1609 km  
1 m = 1.09 yards  
1 m = 3.281 feets  
1 km = 0.62 mile

## Weight

1 ounce = 28.35 grams  
1 pound = 453.59 grams  
1 pound = 0.454 kg  
1 long ton UK = 1016 kg (2240 pounds)  
1 short ton US = 907 kg (2000 pounds)  
1 kg = 2.205 pounds

## Weight per unit length

1 pound/feet (PPF) = 1.488 kg/m

## Fluid volume

1 gallon US = 3.785 liters  
1 barrel = 42 gallon US  
1 barrel = 158.99 liters

## Pressure

1 000 PSI = 68.04 atm  
1 000 PSI = 68.95 bar  
1 atm = 1.013 bar  
3 000 PSI = 204.14 atm  
5 000 PSI = 340.23 atm  
1 kg/sm<sup>2</sup> = 14,22 PSI  
1 atm = 14.7 PSI  
1 bar = 14.5 PSI  
1 MPa = 10 bar  
1 MPa = 9.87 atm

## Torque

1 pound x feet = 1.3558 N x m  
1 N x m = 0.7376 pound x feet  
1 pound x feet = 0.1383 kgf x m  
1 N x m = 0.1020 kgf x m

## Temperature

$^{\circ}\text{F} = (^{\circ}\text{C} \times 9) / 5 + 32$   
 $^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times 5 / 9$   
0  $^{\circ}\text{C}$  = 32  $^{\circ}\text{F}$   
20  $^{\circ}\text{C}$  = 68  $^{\circ}\text{F}$   
100  $^{\circ}\text{C}$  = 212  $^{\circ}\text{F}$

## Volume

1 cubic sm = 0.061 cubic inch  
1 cubic inch = 16.39 cubic sm  
1 cubic feet = 0.029 cubic m

## Area

1 sq inch = 6.45 sq sm  
1 sq feet = 0.09 sq m  
1 acre = 4 047 sq m  
1 hectare = 2.471 acres  
1 sq km = 0.3861 sq mile  
1 acre = 4 840 sq yards  
1 sq mile = 640 acres

# Casing sizes chart

Casing outside diameter		Nominal weight		Wall thickness		Internal diameter		Coupling outside diameter		Bit size		Casing outside diameter		Nominal weight		Wall thickness		Internal diameter		Coupling outside diameter		Bit size	
inch	mm	pound/feet	kg/m	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	pound/feet	kg/m	inch	mm	inch	mm	inch	mm	inch	mm
4 1/2	114.3	9,5	14,14	0,205	5,21	4,090	103,89	5,000	127,00	3 7/8	98,43	9 5/8	244,5	29,3	43,60	0,281	7,14	9,063	230,20	10,625	269,88	8 3/4	222,25
		10,5	15,62	0,224	5,69	4,052	102,92	5,000	127,00	3 7/8	98,43			32,3	48,06	0,312	7,92	9,001	228,63	10,625	269,88	8 3/4	222,25
		11,6	17,26	0,250	6,35	4,000	101,60	5,000	127,00	3 3/4	95,25			36,0	53,57	0,352	8,94	8,921	226,59	10,625	269,88	8 3/4	222,25
		13,5	20,09	0,290	7,37	3,920	99,57	5,000	127,00	3 3/4	95,25			40,0	59,52	0,395	10,03	8,835	224,41	10,625	269,88	8 5/8	219,08
		15,1	22,47	0,337	8,56	3,826	97,18	5,000	127,00	3 3/4	95,25			43,5	64,73	0,435	11,05	8,755	222,38	10,625	269,88	8 5/8	219,08
5	127,0	11,5	17,11	0,220	5,59	4,560	115,82	5,563	141,30	4 1/4	107,95	10 3/4	273,1	47,0	69,94	0,472	11,99	8,681	220,50	10,625	269,88	8 1/2	215,90
		13,0	19,34	0,253	6,43	4,494	114,15	5,563	141,30	4 1/4	107,95			53,5	79,61	0,545	13,84	8,535	216,79	10,625	269,88	8 3/8	212,73
		15,0	22,32	0,296	7,52	4,408	111,96	5,563	141,30	4 1/4	107,95			58,4	86,90	0,595	15,11	8,435	214,25	10,625	269,88	7 7/8	200,03
		18,0	26,78	0,362	9,19	4,276	108,61	5,563	141,30	4 1/8	104,78			59,4	88,39	0,609	15,47	8,407	213,54	10,625	269,88	7 7/8	200,03
		21,4	31,84	0,437	11,10	4,126	104,80	5,563	141,30	3 7/8	98,43			64,9	96,57	0,672	17,07	8,281	210,34	10,625	269,88	7 7/8	200,03
		23,2	34,52	0,478	12,14	4,044	102,72	5,563	141,30	3 7/8	98,43			70,3	104,61	0,734	18,64	8,157	207,19	10,625	269,88	7 7/8	200,03
		24,1	35,86	0,500	12,70	4,000	101,60	5,563	141,30	3 3/4	95,25			75,6	112,49	0,797	20,24	8,031	203,99	10,625	269,88	7 7/8	200,03
5 1/2	139,7	14,0	20,83	0,224	5,69	5,052	128,32	6,050	153,67	4 3/4	120,65	11 3/4	298,5	32,8	48,81	0,279	7,09	10,192	258,88	11,750	298,45	9 7/8	250,83
		15,5	23,06	0,275	6,99	4,950	125,73	6,050	153,67	4 3/4	120,65			40,5	60,26	0,350	8,89	10,050	255,27	11,750	298,45	9 7/8	250,83
		17,0	25,30	0,304	7,72	4,892	124,26	6,050	153,67	4 3/4	120,65			45,5	67,70	0,400	10,16	9,950	252,73	11,750	298,45	9 3/4	247,65
		20,0	29,76	0,361	9,17	4,778	121,36	6,050	153,67	4 3/4	120,65			51,0	75,89	0,450	11,43	9,850	250,19	11,750	298,45	9 5/8	244,48
		23,0	34,22	0,415	10,54	4,670	118,62	6,050	153,67	4 1/8	104,78			55,5	82,58	0,495	12,57	9,760	247,90	11,750	298,45	9 5/8	244,48
		26,8	39,88	0,500	12,70	4,500	114,30	6,050	153,67	4 1/8	104,78			60,7	90,32	0,545	13,84	9,660	245,36	11,750	298,45	8 3/4	222,25
		29,7	44,19	0,562	14,27	4,376	111,15	6,050	153,67	4 1/8	104,78			65,7	97,76	0,595	15,11	9,560	242,82	11,750	298,45	8 3/4	222,25
		32,6	48,51	0,625	15,88	4,250	107,95	6,050	153,67	4 1/8	104,78			73,2	108,92	0,672	17,07	9,406	238,91	11,750	298,45	8 3/4	222,25
		35,3	52,53	0,687	17,45	4,126	104,80	6,050	153,67	3 7/8	98,43			79,2	117,85	0,734	18,64	9,282	235,76	11,750	298,45	8 3/4	222,25
		38,0	56,54	0,750	19,05	4,000	101,60	6,050	153,67	3 3/4	95,25			85,3	126,93	0,797	20,24	9,156	232,56	11,750	298,45	8 3/4	222,25
5 3/4	146,1	40,5	60,26	0,812	20,62	3,876	98,45	6,050	153,67	3 3/4	95,25	12 3/4	323,9	38,0	56,54	0,300	7,62	11,150	283,21	12,750	323,85	11	279,40
		43,1	64,13	0,875	22,23	3,750	95,25	6,050	153,67	-	-			42,0	62,50	0,333	8,46	11,084	281,53	12,750	323,85	10 3/4	273,05
		18,0	26,78	0,303	7,70	5,144	130,66	6,535	165,99	4 3/4	120,65			47,0	69,94	0,375	9,53	11,000	279,40	12,750	323,85	10 3/4	273,05
		19,7	29,31	0,335	8,51	5,081	129,06	6,535	165,99	4 3/4	120,65			54,0	80,35	0,435	11,05	10,880	276,35	12,750	323,85	10 5/8	269,88
		21,9	32,59	0,374	9,50	5,002	127,05	6,535	165,99	4 5/8	117,48			60,0	89,28	0,489	12,42	10,772	273,61	12,750	323,85	10 5/8	269,88
6 5/8	168,3	24,4	36,31	0,421	10,69	4,907	124,64	6,535	165,99	4 5/8	117,48	13 3/8	339,7	65,0	96,72	0,534	13,56	10,682	271,32	12,750	323,85	9 7/8	250,83
		17,0	25,30	0,245	6,22	6,135	155,83	7,390	187,71	6	152,40			71,0	105,65	0,582	14,78	10,586	268,88	12,750	323,85	9 7/8	250,83
		20,0	29,76	0,288	7,32	6,049	153,64	7,390	187,71	5 7/8	149,23			45,2	67,26	0,335	8,51	12,081	306,86	13,819	351,00	11 3/4	298,45
7	177,8	24,0	35,71	0,352	8,94	5,921	150,39	7,390	187,71	5 5/8	142,88	16	406,4	50,4	75,00	0,374	9,50	12,002	304,85	13,819	351,00	11 3/4	298,45
		28,0	41,66	0,417	10,59	5,791	147,09	7,390	187,71	5 5/8	142,88			58,6	87,20	0,437	11,10	11,876	301,65	13,819	351,00	11 5/8	295,28
		32,0	47,62	0,475	12,07	5,675	144,15	7,390	187,71	5 3/8	136,53			65,2	97,02	0,488	12,40	11,774	299,06	13,819	351,00	11 5/8	295,28
		17,0	25,30	0,231	5,87	6,538	166,07	7,875	200,03	6 1/4	158,75			77,2	114,87	0,583	14,81	11,585	294,26	13,819	351,00	10 5/8	269,88
		20,0	29,76	0,272	6,91	6,456	163,98	7,875	200,03	6 1/4	158,75			48,0	71,42	0,330	8,38	12,715	322,96	14,375	365,13	12 1/4	311,15
		23,0	34,22	0,317	8,05	6,366	161,70	7,875	200,03	6 1/4	158,75			54,5	81,10	0,380	9,65	12,615	320,42	14,375	365,13	12 1/4	311,15
		26,0	38,69	0,362	9,19	6,276	159,41	7,875	200,03	6 1/8	155,58			61,0	90,77	0,430	10,92	12,515	317,88	14,375	365,13	12 1/4	311,15
		29,0	43,15	0,408	10,36	6,184	157,07	7,875	200,03	6	152,40			68,0	101,18	0,480	12,19	12,415	315,34	14,375	365,13	12 1/4	311,15
		32,0	47,62	0,453	11,51	6,094	154,79	7,875	200,03	6	152,40			72,0	107,14	0,514	13,06	12,347	313,61	14,375	365,13	12	304,80
		35,0	52,08	0,498	12,65	6,004	152,50	7,875	200,03	5 7/8	149,23			55,0	81,84	0,313	7,95	15,374	390,50	17,000	431,80	15	381,00
7 5/8	193,7	38,0	56,54	0,540	13,72	5,920	150,37	7,875	200,03	5 3/4	146,05	16 3/4	425,5	65,0	96,72	0,375	9,53	15,250	387,35	17,000	431,80	15	381,00
		42,7	63,54	0,626	15,90	5,748	146,00	7,875	200,03	5 5/8	142,88			70,1	104,31	0,394	10,01	15,963	405,46	17,756	451,00	15 1/2	393,70
		46,6	69,34	0,687	17,45	5,626	142,90	7,875	200,03	5 3/8	136,53			76,9	114,43	0,433	11,00	15,884	403,45	17,756	451,00	15 1/2	393,70
		50,1	74,55	0,750	19,05	5,500	139,70	7,875	200,03	5 1/8	130,18			83,7	124,55	0,472	11,99	15,805	401,45	17,756	451,00	15 1/2	393,70
		53,6	79,76	0,812	20,62	5,376	136,55	7,875	200,03	5 1/8	130,18			87,5	130,20	0,435	11,05	17,755	450,98	20,000	508,00	15 1/2	393,70
		57,1	84,96	0,875	22,23	5,250	133,35	7,875	200,03	4 3/4	120,65			94,0	139,87	0,438	11,13	19,124	485,75	21,000	533,40	17 1/2	444,50
		20,0	29,76	0,250	6,35	7,125	180,98	8,500	215,90	6 3/4	171,45			106,5	158,47	0,500	12,70	19,000	482,60	21,000	533,40	17 1/2	444,50
		24,0	35,71	0,300	7,62	7,025	178,44	8,500	215,90	6 3/4	171,45			133,0	197,90	0,635	16,13	18,730	475,74	21,000	533,40	17 1/2	444,50
		26,4	39,28	0,328	8,33	6,969	177,01	8,500	215,90	6 3/4	171,45			125,5	186,74	0,500	12,70	23,000	584,20	N/A	N/A	22 7/8	581,03
		29,7	44,19	0,375	9,53	6,875	174,63	8,500	215,90	6 3/4	171,45			158,5	235,85	0,635	16,13	22,730	577,34	N/A	N/A	22 7/8	581,03



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