

# DRILLING COMPLETION TOOLS

Great Expectations ,Empower people







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# OCTG

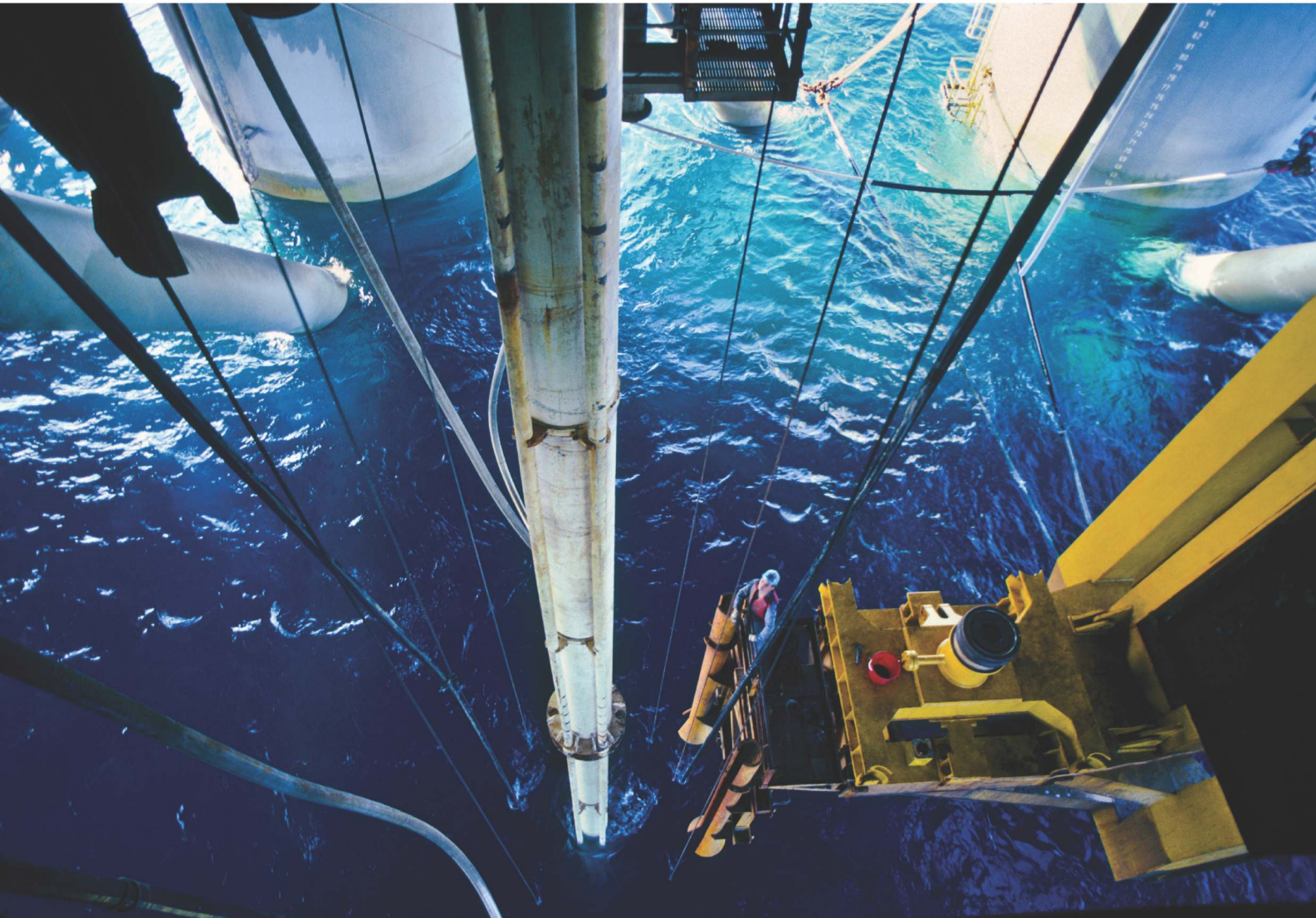
## CASING

Casings are large diameter pipes which are run into the wellbore and cemented to isolate some zones of interest and protect the wellbore integrity.

Casing that is cemented in place, aids the drilling process in several ways:


- Prevent contamination of fresh water well zones.
- Prevent unstable upper formations from caving in and sticking the drill string or forming large caverns.
- Provides a strong upper foundation to use high-density drilling fluid to continue drilling deeper.


All API 5CT grades can be provided including H40, J55, K55, M65, L80, C95, N80 Type 1, Q, C90, T95, P110, Q125 with API 4B certification threading.  
Casing has 3 ranges: Range 16.0) 1 to 25.0), Range 25.0) 2 to 34.0) and Range 34.0) 3 to 48.0)





### Following connections are available:

All threads are provided with proper external surface treatment like phosphate coating, abrasive blasting, copper plating, cold rolling and complete of related thread protectors.  
CRA Types casing and tubing based on %13 and %28 Cr are also available.

	
VAM® 21	DINO VAM®
VAM® 21 HT	VAM® FJL
VAM® TOP	VAM® ACE
VAM® TOP HT	VAM® EIS
VAM® TOP HC	VAM® EXPRESS
VAM® SLIJ- II	VAM® CDS

	
Blue™	PJD™ (tubing)
ER™	CS®
MS™	CS®- CB
MS™ SR	PH4™
MS XT/XC™	PH4™ - CB
MS28™	PH6™
MS28 XT/XC™	PH6™ - CB

	
Hi Torque (HT™)	
Extreme Torque (XT™)	
Turo Torque (TT™)	

			
LTC	STC	BTC	EU
NU	LP	NPT	NC
	FH	H90	REG



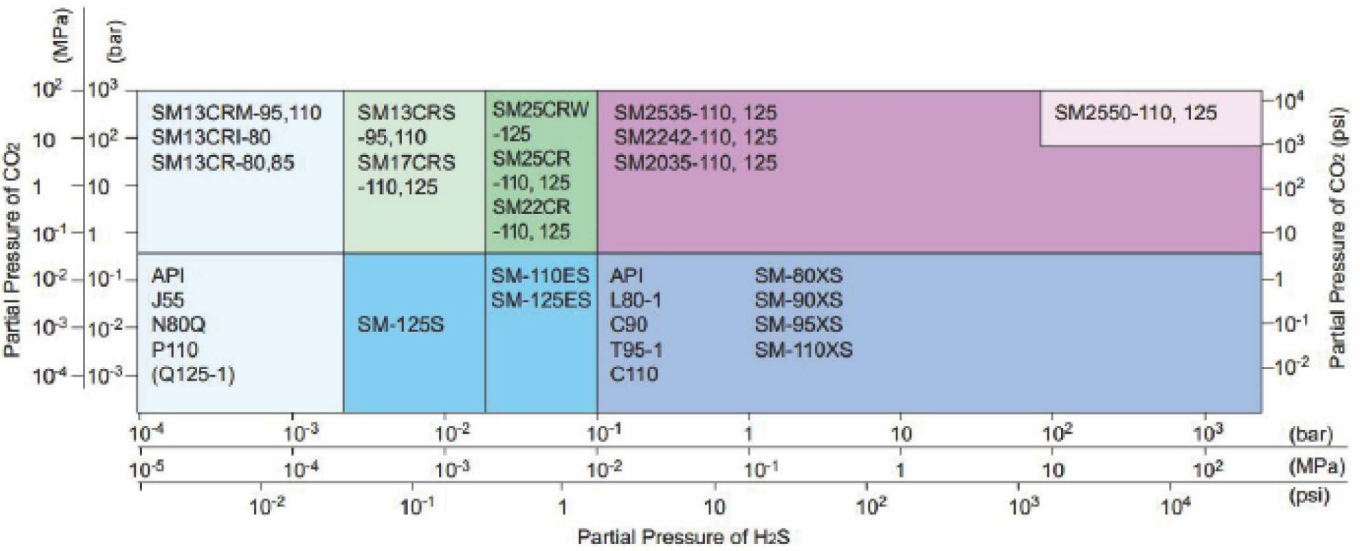
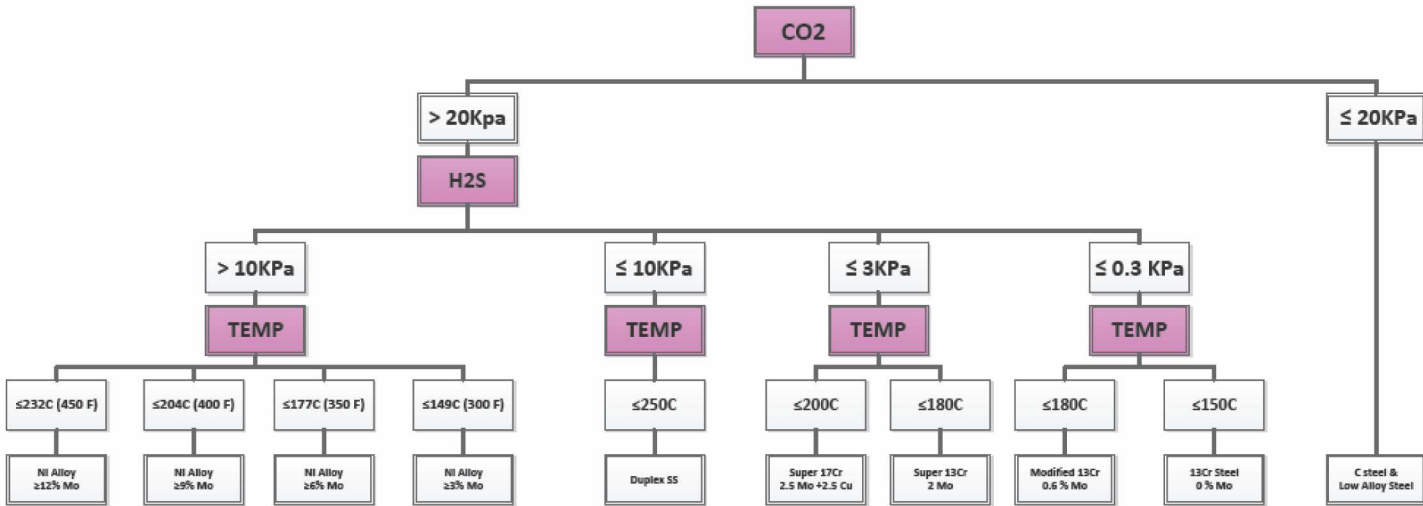
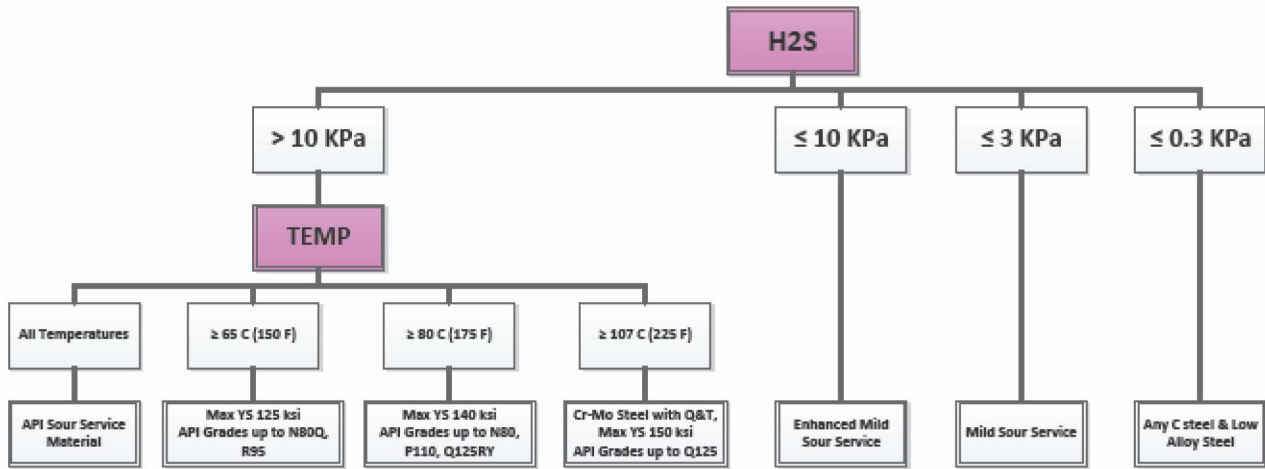
# MATERIAL SELECTION GUIDE



## TUBING

Tubing is a string used as a conduit for fluid flow from reservoir formations to surface. There are many factors in manufacturing and application of tubing including pressure and temperature conditions of down hole, type of fluid to be produced, corrosion and erosion considerations of the working environment, planned or expected rate of production etc. Petrosadid offers its tubing based on API 5CT specifications. API and Premium connections are also available up to customer's request. External and Internal coating can be taken care of based on customer needs and proposed specifications.

Size	OD	Wall Thickness	Weight	Grade	Upset Type	Connection
8/3 2	2.375	0.28	6.65	E, X, G	EU	NC26
8/7 2	2.875	0.362	10.4	E, X, G, S	EU/IU	NC31
2/1 3	3.5	0.254	9.5	E	EU/IU	NC38
2/1 3	3.5	0.368	13.3	E, X, G, S	EU/IU	NC38
2/1 3	3.5	0.449	15.5	E, X, G	EU/IU	NC38
2/1 3	3.5	0.449	15.5	S	EU/IU	NC40
4	4	0.33	14	E, X, G, S	IU	NC40
4	4	0.33	14	E, X, G, S	EU	NC46
2/1 4	4.5	0.271	13.75	E	EU	NC50
2/1 4	4.5	0.337	16.6	E, X, G, S	EU	NC50
2/1 4	4.5	0.43	20	E, X, G, S	EU	NC50
2/1 4	4.5	0.337	16.6	E, X, G, S	IEU	NC46
2/1 4	4.5	0.43	20	E, X, G, S	IEU	NC46
5	5	0.362	19.5	E, X, G, S	IEU	NC50
5	5	0.362	19.5	E, X, G, S	IEU	2/1 5 FH
5	5	0.5	25.6	E, X, G	IEU	NC50
5	5	0.5	25.6	E, X, G, S	IEU	2/1 5 FH
2/1 5	5.5	0.361	21.9	E, X, G, S	IEU	2/1 5 FH
2/1 5	5.5	0.415	24.7	E, X, G, S	IEU	2/1 5 FH
8/5 6	6.625	0.33	25.2	E, X, G, S	IEU	8/5 6 FH
8/5 6	6.625	0.362	27.7	E, X, G, S	IEU	8/5 6 FH







Drill Pipe

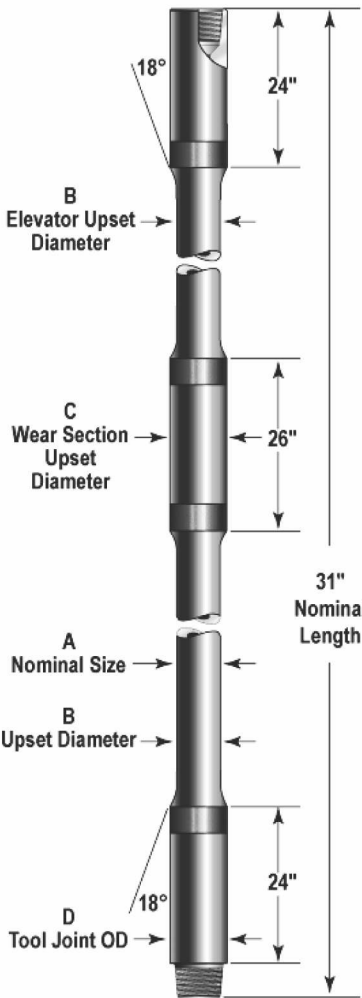
It is a pipe that connects bottom hole assembly to surface drilling equipments and act as a flow passage for drilling mud and a transmitter of rotary motion to the bit. Drill pipe makes for the most of the drill string. According to API SPEC 5DP/ISO 11961 standards:

Drill pipes are available in sizes of 2/1-3 ,8/7-2 ,8/3-2, 2/1-5 ,5 ,2/1-4 ,4, and 8/5-6”.

Tool joints: NC26, NC31, NC38, NC40, NC46, NC50, NC5 ,56 œ FH, 8/5 -6 FH and HLDS26 to HLDS50, HLDS 5 œ to HLDS 8/5 -6, others available on request.

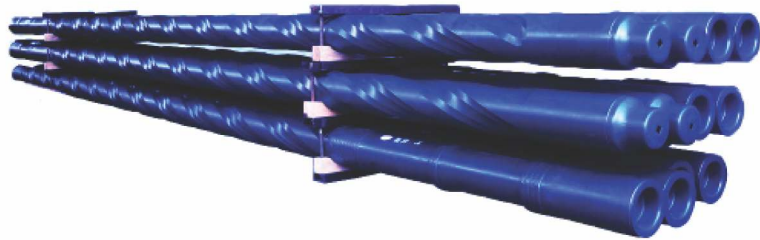
Drill pipes are offered in below API grades :

Grade E	75000-105000
Grade X	95000-125000
Grade G	105000-135000
Grade S	135000-165000
Tool Joint	120000 -165000



Drill Collar

Drill collar is a thick walled pipe that is an important part of drill string which provides weight on bit for drilling operations. Drill collar is used in conjunction with drill pipe but unlike drill pipe which make up most of the drill string, is responsible for a small amount of drill string length. Drill collar specifications are based on API 7-1 and NS-1



HEAVY WEIGHT DRILL PIPE (HWDP)

Heavy weight drill 0 pipe is a thick-walled pipe which has more tensile strength compared to drill pipe. Heavy-weight drill pipe is another component of the drill string and is used in conjunction with the drill pipe and drill collars In some applications, heavy-weight also can be used instead of the drill collars. Heavy weight drill pipe specifications are based on API 7.

size	Plain-End Weight Wipe		Outside Diameter		Wall Thickness		Grade	Upset Ends for Weld-on Joints
	lb/ft	kg/m	in	mm	in	mm		
8/3 2	6.27	9.33	2.375	60.3	0.28	7.11	E, X, G, S	EU
8/7 2	9.72	14.47	2.875	73	0.362	9.19	E, X, G, S	IU, EU
2/1 3	8.81	13.12	3.5	88.9	0.254	6.45	E	IU, EU
2/1 3	12.32	18.34	3.5	88.9	0.368	9.35	E, X, G, S	IU, EU
2/1 3	14.64	21.79	3.5	88.9	0.449	11.4	E	IU, EU
2/1 3	14.64	21.79	3.5	88.9	0.449	11.4	X, G, S	EU, IEU
4	12.95	19.27	4	101.6	0.33	8.38	E, X, G, S	IU, EU
2/1 4	12.25	18.23	4.5	114.3	0.271	6.88	E	IU, EU
2/1 4	15	22.32	4.5	114.3	0.337	8.56	E, X, G, S	EU, IEU
2/1 4	18.71	27.84	4.5	114.3	0.43	10.92	E, X, G, S	EU, IEU
5	14.88	22.16	5	127	0.296	7.52	X, G, S	IU, EU
5	17.95	26.7	5	127	0.362	9.19	E	IEU
5	17.95	26.7	5	127	0.362	9.19	X, G, S	EU, IEU
5	24.05	35.8	5	127	0.5	12.7	E	IEU
5	24.05	35.8	5	127	0.5	12.7	X, G, S	EU, IEU
2/1 5	19.83	29.52	5.5	139.7	0.361	9.17	E, X, G, S	IEU
2/1 5	22.56	33.57	5.5	139.7	0.415	10.54	E, X, G, S	IEU
8/5 6	22.21	33.04	6.625	168.3	0.33	8.38	E, X, G, S	IEU
5 6/8	24.24	36.06	6.625	168.3	0.362	9.19	E, X, G, S	IEU

Size(in)	O.D.	I.D.	Tool Joint	Tool Joint	Connection	Max.elevator	Central upset dia.	Min.drift dia. size
	(in)	(in)	O.D.	I.D.		diameter	(in)	(in)
			(in)	(in)		(in)		
2/1 3	3 2/1	4/1 2	4/3 4	4/1 2	NC38	8/7 3	4	2
		16/1 2	(5 ,8/7 4)	16/1 2				16/13 1
4	4	2/1 2	4/1 5	2/1 2	NC40	16/3 4	2/1 4	4/1 2
		16/9 2		16/9 2				16/5 2
2/1 4	2/1 4	16/11 2	4/1 6	16/11 2	NC46	16/11 4	5	16/7 2
		4/3 2		4/3 2				2/1 2
		16/13 2		16/13 2				16/9 2
5	5	3	8/5 6	3	NC50	8/1 5	2/1 5	4/3 2
2/1 5	2/1 5	4/1 3	7	4/1 3	2/1 5 FH	33	6	3
		8/3 3	4/1 7,	8/3 3				8/1 3
		8/7 3	2/1 7	8/7 3				8/5 3
		4		4				4/3 3
8/5 6	8/5 6	4	8	4	8/5 6 FH	16/15 6	8/1 7	4/3 3
		2/1 4	2/1 8					4/1 4
		5	8 2/1	5				4/3 4



# API 5CT Products

Equipment is provided in customized configuration and manufactured either in standard or special alloys, such as API grades, Super 13 Cr, Duplex, Inconel, etc.

## Typical items include :

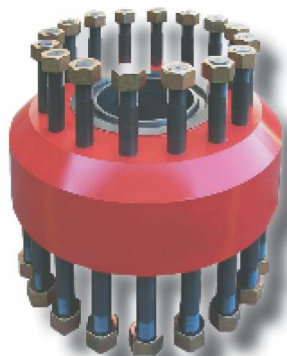
- Pup joints
- Blast Joints
- Flow Couplings
- Blank Pipes
- Casing/Tubing Subs
- Circulating Heads
- Milled Blade Centralizers
- Casing/Tubing Drifts
- Crossovers
- Wire Line Entry Guide
- Bull Plugs
- 3 Way Subs
- Injection Subs
- Protection Sleeves
- PBR's
- Locator Subs
- Pulling Tools
- Retrieving Tools
- Completion Tool



# API 6A Products

All products are subject to %100 inspection, including NDT (MPI-DP) and are provided with proper external surface treatments like Phosphate Coating and/or Paint. All threaded connections and RJ grooves are provided with relevant Protectors. CE Mark and PED may also be provided upon request.

## Typical items include:



- Flanges / Adapter Flanges
- Segmented Adapter Flanges
- Spacer Spools
- Block Crosses and Tees
- DSA
- Spacer Spools
- Tubing/Casing Heads
- Tubing/Casing Hanger
- Shooting Nipples
- Flow Line Pipes
- Riser Spools
- W/L Lubricators

# API 7 -1 Products

Equipment are manufactured either in standard or high strength alloys, including Non-Mag materials. Cold Rolling is performed on premium connections and on standard API threads as optional. Break-In on connections and Specific Load Test may also be provided upon request.

- Bit Subs
- Cross Over Subs
- Float Subs
- Saver Subs
- Centralizer Subs
- Pup Joints
- Circulating Swage
- Lifting Subs
- Lifting Plugs
- Clamps
- Pony Collars
- Reverse Circulation DP
- Milled Blade Stabilizers
- Milling Tool Bodies
- Stingers



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# BITS

## Roller cutter bit



This type of bit has several cones covered by steel or Tungsten Carbide teeth. Roller cone bits are made up of three equal sized cone and three identical legs which are attached together with a pin connection. Two popular types of these bits are MILLED TOOTH BITS AND INSERT BITS. Milled tooth bit: the cuttings structure is milled from the steel making up the cones. Insert bits: the cutting structure is a series of inserts pressed into the cones. Tri-cone bits are named according to IADC code which consists of 3 digits and one letter.

## MATRIX BODY PDC BIT

This type is made of Tungsten Carbide which provides better resistance against weariness and erosion and is suitable for limestone and dolomite formations. Longer life and multiple runs are benefits of matrix body bits.

## STEEL BODY PDC BIT

This type is a more economic choice which is used in softer formations like sandstone.



## PDC

This kind of bits uses synthetic diamond (polycrystalline diamond compact) cutter. PDC simply means Polycrystalline Diamond: PDC are normally made by sintering many micro-size single diamond crystals at high temperature and high pressure. PDC has good fracture toughness and good thermal stability, and is used in making geological drill bits. PDC has the advantages of diamond's high wear resistance with carbide's good toughness. These bits are classified in two main types: matrix body and steel body.

Formation Classification	Compress (Strength (psi	Formation Description	Rock Sample	IADC Code of Rock Bit	IADC Code of Diamond Bit	Recommended Standard Diamond Bit
1	4000>	Very soft	Clay, Silts, Sands	124-111	M/S 112 to M/S223	S1942, S1952, M1952, M1953
2	8000>	Soft	Clay stone, Marl, Lignite, Sandstone, Tuff	437-116	M/S222 to M/S333	S1953, S1954, M51963, M1953, M1954, M1964, M1654
3	12000>	Medium soft	Clay stone, Marl, Lignite, Sandstone, Anhydrite, Tuff	527-437	M/S323 to M/S433	S1965, S1976, M1965, M1976, M1665, M1676, M1355, M1366, M1377
4	16000>	Medium	Mudstone, Limestone, Anhydrite, Calcareous	537-517	M333 to M443	M1366, M1378, M1389, M0852, M0865
5	24000>	Medium hard	Limestone, Anhydrite, Dolomite	617-537	M432 to M444	P325, P326, P327
6	32000>	Hard	Calcareous shale, Siliceous, Sandstone, Siltstone	637-627	M611 to M734	N833, N626, N628, N637
7	32000<	Very hard	Quartzite, Igneous rock	837 ,737 ,627	M711 to M844	I1036, I2034, I3027



# HANDLING TOOL

## Cathead

Cathead is hydraulically powered and used to lift and carry heavy weight tools in a drilling rig. Cat head is joined to draw works and can be used to spin pipes too. One of the most common applications of cathead is for making up and breaking out of tubular. It also can be used to lift heavy tools near the drilling or work-over rig.

## Cat walk

Picking up and laying down of tubular during drilling can be implemented using cat walk which is a automatic system that obviates the needs for human interaction. Automated cat walk reduces cost, time and risk of accidents and consequently enhances efficiency of tubular handling processes.

## Crown block

Crown block is placed on the top of the rig and changes the direction of force from the draw work. By set of cables, it is combined with travelling block and used for lifting tools and drill string.

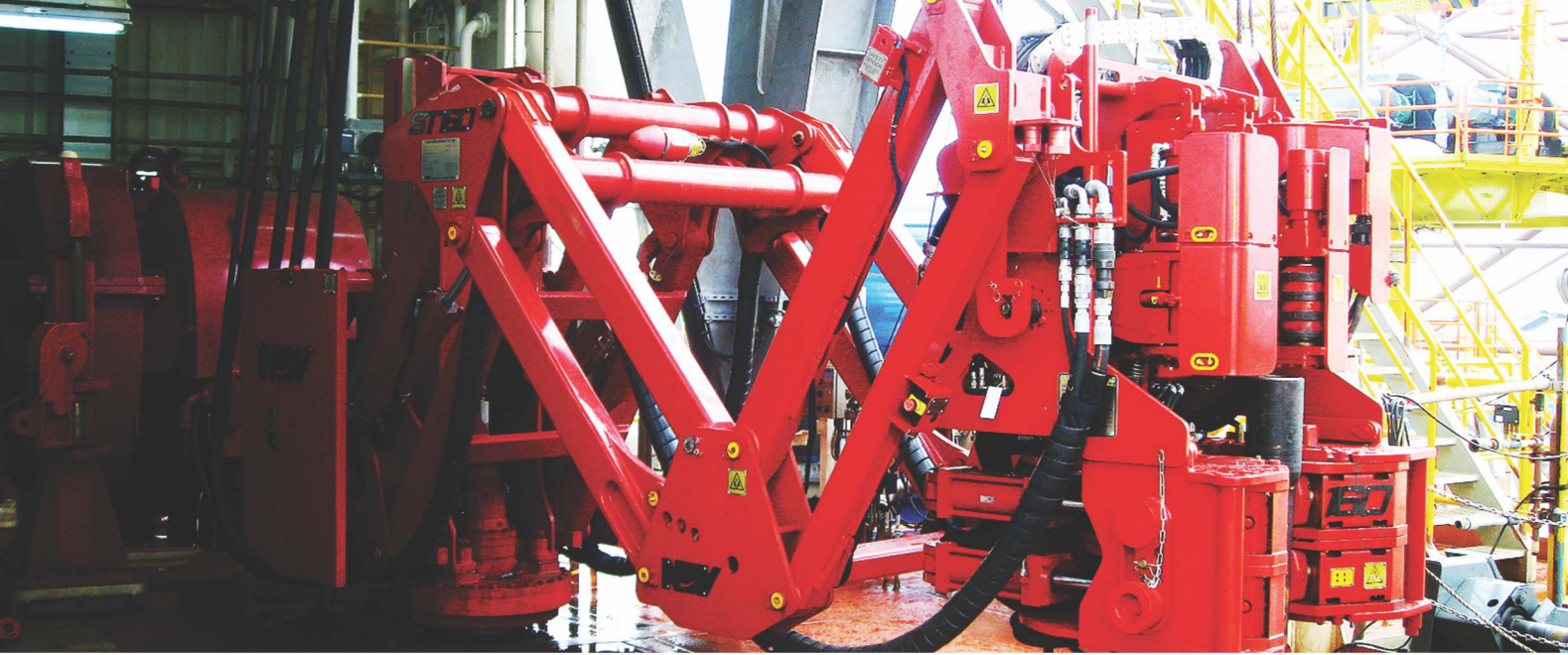
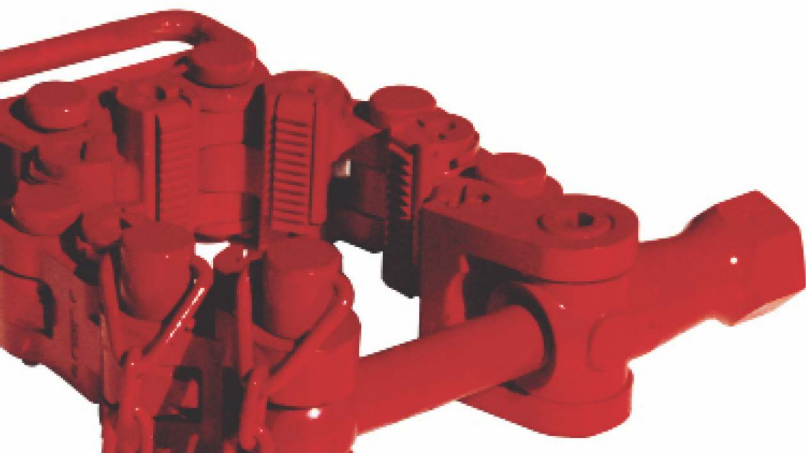
## Travelling block

It is connected to the crown block by means of several lines for lifting and lowering drill string and reduces the force that should be supported from draw works. It is designed and manufactured according to API 8C.

	Traveling Block	Crown Block
Max Hook Load	100-650	150-650
.Sheave O.D	30-60	36-60
Sheave Quantity	7 ,6 ,5 ,4	8 ,7 ,6 ,5

## Elevator

Elevator is a tool for lifting and pulling of drill string during trip operations. A hinged mechanism that may be closed around drill pipe or other drill string components to facilitate lowering them into the wellbore or lifting them out of the wellbore. In the closed position, the elevator arms are latched together to form a load-bearing ring around the component. A shoulder or taper on the component to be lifted is larger in size than the inside diameter of the closed elevator. In the open position, the device splits roughly into two halves and may be swung away from the drill string component.



## Iron roughneck

Iron roughneck is an automatic pneumatic or hydraulic wrench system that serves as breakout and make up tongs to make or break tubular on the drilling rig floor.

It is automatically fed pipe, clamps around tool joints and uses spinning cylinders to turn the tubular. This replaces pipe and Kelly spinners. Pipe torque can be set automatically. It is suspended from the derrick or mast by wire line and is controlled by driller, who can operate it from a driller's cabin. An Iron Roughneck eliminates the need for some of the roughneck's work on the drill floor and makes pipe handling faster

size range	mm	216-88.9
	in	2/1 8 - 2/1 3
Speed	rpm	80
Spin torque	N.m	3050
	ft.lbs	2250
Make up torque	N.m	81350
	ft.lbs	60000
Break out torque	N.m	108456
	ft.lbs	80000
Weight	kg	3450
	lb	7600

## Draw works

Draw work is an essential part of a rig which does the running of equipment in and out of the hole and making up and breaking out of joints and tubular. The drawworks is a part of the system that rotary drilling rigs use for hoisting, or lifting, the drill stem and casing out of the hole. A compounding transmission, or compound, sends power from the engines to the drawworks, the rotary table, and the mud pumps. This training manual gives an overview of both these pieces of machinery and how they are used together



Rotary Tables

A rotary table is a mechanical device on a drilling rig that provides clockwise rotational force to the drill string to facilitate the process of drilling a borehole. It is designed and manufactured according to API 7K.

(max static load(ton	650	500	350	150
bore diameter	2/1 37	2/1 27	2/1 20	2/1 17
(.size (in	28x71x97	27x66x94	26x58x90	23x50x76
(weight(lb	17694	13680	12190	8572

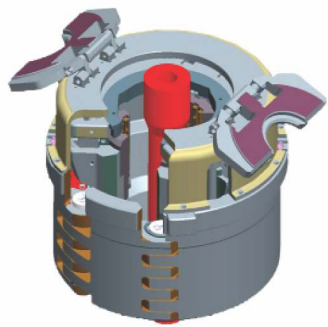
Slip

Slip grabs the drill string and sits inside rotary bushing for suspending drill string in the wellbore.

Slips hold the string weight in place, acting as a wedge. The slips and inserts are easily changed. To set slips, position the string above the rotary and let it stop completely. Put the slips into the bowl and gradually shift the string weight from the elevator to the slips.

If the pipe is quickly dropped into the slips, the slips will be overloaded and damaged. The slips can also be damaged by side to side pipe movement.

The load causes the slips to set and wedge into the bowl, gripping the pipe. To remove slips, hold up the slip handles as the pipe is raised, letting the slips stay on the raised pipe. When slips are above the bowl, push the handles down or pull rear handle, removing slips



Power tong

The large wrenches used for turning when making up or breaking out drill pipe, casing, tubing are called casing tongs, rotary tongs. Power tongs are pneumatically or hydraulically operated tools that spin the pipe up and, in some instances, apply the final makeup torque.

Applicable Range (in)	2/1 3-8/3 2	2/1 4-8/7 2	2/1 5-8/7 2	2/51~1.9
Applicable range backup tong (in)	8/41~8/27	8/51~8/27	8/61~8/27	8/61~8/23
Hi-gear rated torque (ft.lbf)	811	1106	1918	1918
Low-gear rated torque(ft.lbf)	2213	4425	8851	8851
Rated pressure (psi)	1450	1595	1740	1740
Size (in)	21.7x16.9x25.6	23.6x19.7x29.5	21.2x22.9x40.3	35.4x24.4x41.3
Weight (lb)	348	485	1060	1060



SPECIAL UNITS

Hydraulic Power Unit

We supply different sizes of hydraulic power units to supply hydraulic power to line of portable-drills, drifters and rotary heads, Power Tong, BOP, etc. These power units are built to high standards and use only the best components to provide a power unit that will be reliable for years.

Coiled Tubing Unit

A cost- and time-effective solution for well intervention operations employs coiled tubing. Instead of removing the tubing from the well to fix a problem like a work over rig, coiled tubing is inserted into the tubing against the pressure of the well and during production. We offer truck mounted and skid mounted Coiled tubing.

BOP Control Unit

BOP Control Unit is a complete electrohydraulic system designed for the control and the operation of a BOP stack  
The BOP Control Unit is in accordance with API Specification 16D.  
CE conform according machinery directive 42/2006/EG  
One (480 (1 liter fluid reservoir  
Five (50 (5 liter hydropneumatic accumulators acc. PED  
Two (2) electric motor driven pumps with automatic pressure switch for start / stop  
One (1) air operated double acting piston pump with automatic air pressure switch for start / stop

Wire line Logging Tool

We supply a wide range of wire line/logging units:  
Truck-mounted Wire line / Logging Units (24 ,15ft)  
Wire line Skid Units (3-2 split offshore wire line unit, slick line unit)  
Wire line Container Unit  
Wire line Spooling Stand, Wire line Spooling Unit





# DRILLING RIG

Drilling rigs can be described using any of the following attributes:

- By power used (Mechanical, Electric, Hydraulic, Pneumatic, Steam)
- By pipe used (Cable, Conventional, Coil tubing)
- By height (Single, Double, Triple, Quadri)  
(Rigs are differentiated by height based on how many connected pipe they are able to «stand» in the derrick when needing to temporarily remove the drill pipe from the hole. Typically this is done when changing a drill bit or when «logging» the well.)
- By method of rotation or drilling (No-rotation, Rotary table, Top drive, Sonic, Hammer)
- By position of derrick (Conventional, Slant)

Petrosadid supplys high efficiency drilling and servicing rigs from 5 to 340 tons. Custom rigs and accessories will be available too up to request.



Capacity	DRILLING RIG 205 TON		DRILLING RIG 205 TON		DRILLING RIG 205 TON	
	DP size	Dept	DP Size	Dept	DP Size	Depth
	"5	6.800m – 22.310ft	"5	4.000m – 13.120ft	"5	3200m – 10500 ft
			4 "2/1	5.000m – 16.400ft	4 "2/1	3650m – 12000 ft
Mast			3 "2/1	6.800m – 22.310ft	3 "2/1	6100m – 20000 ft
	Top Drive Stroke	Capacity	Top Drive max stroke	Capacity	Top Drive max stroke	Capacity
	32m – 105 ft	short tons – 375 340MT	16m – 52.5 ft	short tons – 275 250MT	16m – 52.5 ft	short tons 225
Max Pull Up	short tons 375		short tons 275		short tons 225	
Max Pull Down	MT 30		MT 25		MT 25	
Power swiwe!	daNm – 38.400 ftlb 0 – 100 °, 100 ° Max Torque RPM		daNm – 28.400 ftlb 180 – 0 RPM Max torque		Max torque 3.900 daNm – 28.400 ftlb 100 – 0 RPM	
	daNm – 21.300 ftlb 0 – 180 RPM 2.940		5.000daN – 11.240lbs – 5 MT		MT 5	
Jib crane	10.000daN – 22.480lbs – 10 MT		Diesel 950 HP x 2 a 1800 rpm		Diesel 630 HP x 2 a 1800 rpm	
Rig power unit	Diesel 1125 HP x 2 a 1800 rpm					



# RIG ACCESSORIES

## Automated ELEVATOR

Composed by external body with inside tapered surface with expandable die tongs and centering pipe ring, rotating device mounted on bearing with lubrication system. Release with hydraulic cylinder controlled by driller console. The elevator is connected to the top drive saver sub and blocked by two pins. The upper part is equipped with autorotation arm. The inner die tongs catch the pipe under the tool joint or coupling, and the engagement is realized by gravity. The die tongs permit also the make-up and break out of the connection. Available sizes from 2 -3/8" DP to 5" DP from 7" to 13 3/8" CSG and DP. Special die tongs sizes are available under request SWL up to 350 metric Ton. The elevator is equipped with internal packer for mud circulation during handling. Different sizes are available from 5" to 13 -3/8" CSG. The circulation system is applied to internal adapter connected to the top drive saver sub. The mud pressure energizes the backer gasket allowing the mud circulation into casing. Simply and heavy duty construction long life design with quick maintenance operations needed.

## Pipe Loader

A Pipe Loader improves safety with less crew around the rig. Features include connected to the thrust frame with pins for easy attachment and removal, can of drill pipe and has processor controlled extension cylinders for accurate a positioning. High levels of safety and performance are priorities in the oil field. The availability of a reliable, hands-free, pipe-and-casing handling system will have a major impact on enhancing efficiency and performance during the drilling process. Automatic Pipe Loader (APL) is a stand-alone, hands-free system that can handle a wide range of tubular. APL is a skid-mounted load that is simple to mobilize and rig up. A control module and hands-free operation reduce manual labor, enhance efficiency and reduce pipe-handling time and cost. APL is supplied ready to go to work with its own hydraulic power unit.



## Mud Pump

A mud pump is a reciprocating piston/plunger device designed to circulate drilling fluid under high pressure up to 7,500 psi (52,000 kPa) down the drill string and back up the annulus.

Mud pumps come in a variety of sizes and configurations but for the typical petroleum drilling rig, the triplex (three piston/plunger) mud pump is the pump of choice. Duplex mud pumps (two piston/plungers) have generally been replaced by the triplex pump, but are still common in developing countries.

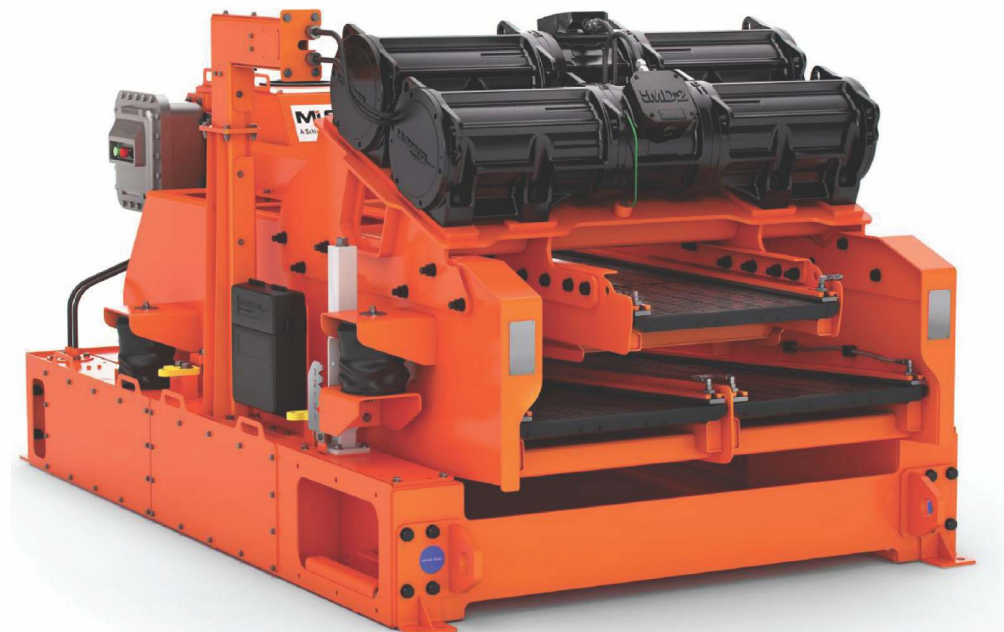
Two later developments are the hex pump with six vertical pistons/plungers, and various quintuplex with five horizontal piston/plungers. The advantages that these new pumps have over convention triplex pumps are a lower mud noise which assists with better MWD and LWD retrieval.

## Blowout Preventers

Blowout preventer or simply BOP as the name suggest is used to control or prevent unfavorable and possibly dangerous outflow from wellbore. These devices can be seen as large valves that can be operated remotely. Annular (spherical) and ram Bops are two most common types of BOP. A general BOP stack consists of one annular one on top of the stack and a number of ram type BOPs below that. Number of ram type BOP in stack usually ranges between 1 to 4. In case of emergency the annular BOP is closed by the operator and the remaining ram type BOPs are used as a back up when failure occurs. Ram type BOP is come usually in 4 types: pipe ram, blind ram, shear ram and blind shear ram.

BOP Specification	
Working Pressure Range	15000-2000
Hydraulic Connection NPT	1 in.
Top Connection	Flanged/Studded
Bottom Connection	Flanged/Studded





### Shale Shaker

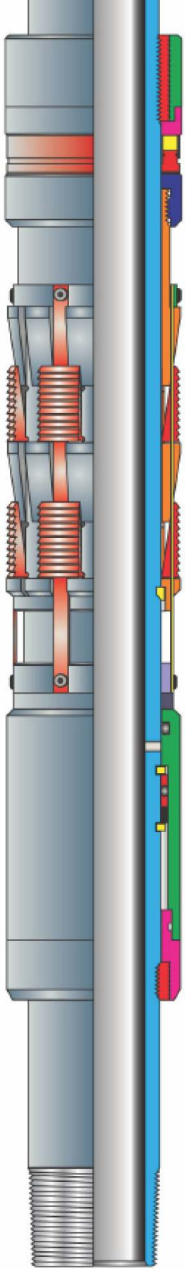
Shale shakers are components of drilling equipment used in many industries, such as coal cleaning, mining, oil and gas drilling. They are the first phase of a solids control system on a drilling rig, and are used to remove large solids (cuttings) from the drilling fluid («Mud»).

### 5’ x 4’ SHALE SHAKER

5’ x 4’ Shale shaker with tilting adjustment features is the product of many years spent studying and experimenting water and oil drilling mud treatment. Our shale shaker newest technology feature is changing the shaking basket tilting, simply by operating a hydraulic distributor from the control board, taking into account mud specific weight, viscosity and type of inserts to separate. Mud flow regulation upper gates and lower open gate are also hydraulically operated. Thanks to our newest shale shaker, maintenance operations and breakdowns have totally been eliminated; there is not belting, no main shaft, no bearings and no outer cams

### 2’ x 2/3.1’ DOUBLE SCREEN SHALE SHAKER

The MINI 2’ x 3 ½’ shale shaker with changeable sloping is mainly designed for water drilling medium-delivery pumps. The MINI main feature is its shake basket changeable sloping (by a hand operated pump on the basket) to optimize mud separation according to mud specific weight and viscosity. THIS TYPE DO NOT BREAK DOWN, as there is no belting, no main shafts, no bearings and no supports. Vibrations are provided by a motor placed onto the shake basket upper body. The stainless steel screen is adjusted from turnbuckles, as in ordinary shale shakers. Our MINI’s size, simple design and low cost make it suitable for low depth drills on low capacity mud rigs



## COMPLETION TOOL

### Liner hanger

Liner hanger systems provide multiple benefits in well construction, ranging from enhancing well integrity to reducing costs.

Liner	casing Size
3 1/2	5 1/2
4 1/2	7
4 1/2	7
4 1/2	7
5	7
5	7
5	7
5	7 5/8
5	7 5/8
5	7 5/8
7	9 5/8
7	9 5/8
7	9 5/8
7	9 5/8
9 5/8	13 3/8
9 5/8	13 3/8
10 3/4	13 3/8
10 3/4	13 3/8

### Packer

A packer is a tool used to form an annular seal between two concentric strings of pipe or between the pipe and the wall of the open hole. A packer is usually set just above the producing zone to isolate the producing interval from the casing annulus or from producing zones elsewhere in the wellbore. Separates fluid types (or ownership), protects against pressures and corrosion. Tubing and packer used to isolate zone of interest - can be removed for repair.

- Packers act as down hole valve for press control.
- Packer can be a temporary plug to seal off the zone while work is done up the hole.
- Subsurface safety valves used with packers for down hole shut-in.
- Focus flow
- Isolate between zones

Based on the life time, packers are divided into two main groups: permanent and retrievable packers







For further information, please visit our website:

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