



Company Profile

China Vigor is an integral oilfield manufacturer, supplier and technical service company with professional expertise in supplying the superior quality downhole drilling tools and fishing equipment which including the Drill Collar, Drill Pipe, HWDP, Downhole Motor, Roller Reamer, etc. as well as services for the heavy oil production.

We are dedicated to offer high quality Drilling Tools and Equipment with competitive price and benefit our customers and the industry in a long run.

With years of hard working, we passed the ISO qualification and our factories are honored to use API monograms. Today, Vigor obeys these specifications strictly when controlling the quality, from the raw material till the final packing and transportation. All is to guarantee that products from China Vigor are of the highest quality.

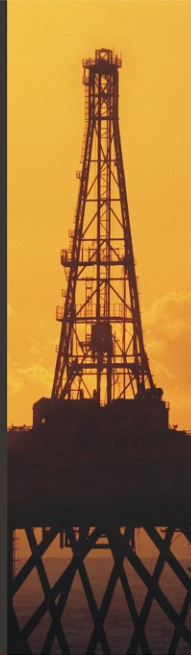
We strive for continuous improvement in our performance, measuring results carefully and ensuring that integrity and respect for people are never comprised. More than 600 employees are working on engineering investigation, production, quality control, and logistic service. 20 international sales specialists are devoted themselves to satisfying global requirement and delivering the right tools and equipments to the filed requests. With Vigor's diligence and improving, Vigor established a broad working relationship with clients from US, Europe, Canada, Middle East and Africa.



We are committed to meeting the demand of our customers and constantly focus on customer satisfaction. We are following closely on the continuous innovations on technology, catering to the diversified requirements. With the solid background, Vigor is ready to supply a comprehensive products line, ranging from the top of Derrick down to the Drill Bits. They are including:



- > [Drilling String](#)
- > [Down Hole Fishing Tools](#)
- > [Ground Equipment](#)
- > [Rig Floor and Rig components](#)
- > [Workover Equipment](#)
- > [Well Control Equipment](#)
- > [Beam Pump and Sucker Rod](#)
- > [Foundry Products and Mechanical Components](#)
- > [Marine and Offshore Equipment](#)
- > [Services for Heavy Oil](#)



Mission

Vigor aims to be an integral one stop shop in the area of Drilling, Completion and Workover for oil and gas industry.

Specialty

With years of experience in processing Castings, Forgings and high precise Machining products, we are capable of producing customized machinery components which are widely used in Mining, Construction, and Automobile, Aviation, Electrical, Vessel and Metallurgy industries.

Our End User



Certification



Your One Stop Shop in Drilling



Stabilizer

API 7-1 Spec. and NS-1 Standard

Vigor's STABILIZER body made from AISI 4145HMOD Alloy Steel. Fully heat treated to 285-341 Brinell hardness, 52 joules min. Impact strength.

All connections cold rolled and phosphates coated according to NS-1 if required.

API stress relief groove Pin & bore back on Box coated with API thread compound and lifting bail thread protectors on both ends are available.

Category

Integral spiral blade stabilizer(String type and Near bit type)

Replaceable Sleeve type stabilizer

Float valve type stabilizer

Non-rotating stabilizer(rubber sleeve stabilizer)

Spherical stabilizer

Non-magnetic type stabilizer

Material

AISI 4145H Mod

Non-magnetic

Hard Facing

HF1000 Hard facing with Crushed carbide

HF2000 Hard facing with Crushed carbide with Trapezoidal insert

HF3000 Hard facing with Tungsten carbide insert set in a powder spray deposit

HF4000 Hard facing with Tungsten carbide insert

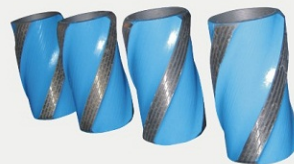
HF5000 Hard facing with Fused Tungsten carbide in nickle chrome boron matrix

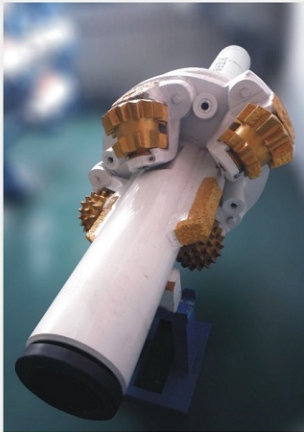
Special Feature

Stabilizer Forging is available

SRG and BB box on connection

Cold rolled and phosphated





Hole Opener

Material AISI 4145H fully heat-treated alloy steel

Hole Opener is used to enlarge the diameter of a pre-drilled hole or connected with a bit on front end to drill pilot hole and enlarge hole simultaneously.

Vigor's Hole openers are available with carbide-milled teeth and insert cutters. Arms and cutters are hardfaced for protection in three different designs for varying conditions and rock formations. The design of the hole opener allows for field-changing cutters.

Special size is also available with detail well condition.

Technical Specifications And Parameters

Hole open diameter (in)	Qty of cutters	Min. Pilot hole (in)	Fishing neck diameter (in)	ID (in)	Top connection (pin)	Bottom connection (Box)	Overall length (in)
12 1/4	3	8 1/2	8	1 1/2	6 5/8 REG	6 5/8 REG	55
16	3	10	9 1/2	2 1/4	7 5/8 REG	6 5/8 REG	59
17 1/2	3	10	9 1/2	2 1/4	7 5/8 REG	6 5/8 REG	59
22	3	12 3/4	9 1/2	2 1/3	7 5/8 REG	6 5/8 REG	69
23	3	12 3/4	9 1/2	3	7 5/8 REG	6 5/8 REG	69
24	3	14	10	3	7 5/8 REG	7 5/8 REG	69
26	3	17 1/2	10	3	7 5/8 REG	7 5/8 REG	69
36	4	26	10	3 1/2	7 5/8 REG	7 5/8 REG	87



Roller Reamer



Specifications

Roller Reamers are designed for reaming and stabilization in any type of formation. All parts of the tools are made of special alloy steel and heat treated for hardness. Drilling crews can easily replace any part in the field without the use of special tools.

China Vigor Drilling offer three types of cutters for different type of formation.

When ordering please specify:

- Hole size;
- String type or near bit type;
- Drill collar size;
- Top and bottom connection;
- Cutter types.

Model	O.D (mm)	I.D.(mm)	connection	Hole Size(in)
GL155	155	31.7	NC38	6 1/8
GL200	200	38	NC46	7 7/8
GL212	212	44	NC50	8 3/8
GL215	215	44	NC50	8 1/2
GL244	244	57	NC50	9 5/8
GL311	311	71	6 5/8 REG	12 1/4
GL444	444	76	7 5/8 REG	17 1/2
GL558	558	76	7 5/8 REG	22
GL660	660	76	7 5/8 REG	26
GL711	711	76	7 5/8 REG	28
GL914	914	76	7 5/8 REG	36

Drill Pipe Size

Size (Inch)	Nominal Weight	Calculated Weight Wpe		Grade	Wall Thickness		Upset Ends. For Weld-on Tools Joint
		Lb/ft	kg/m		In	mm	
2 3/8	6.65	6.26	9.32	E, X, G, S	0.280	7.11	EU
2 7/8	10.40	9.72	14.48	E, X, G, S	0.362	9.19	IU or EU
3 1/2	9.50	8.81	13.12	E	0.254	6.45	IU or EU
3 1/2	13.30	12.31	18.34	E, X, G, S	0.368	9.35	IU or EU
3 1/2	15.50	14.63	21.79	E	0.449	11.40	IU or EU
3 1/2	15.50	14.63	21.79	E, X, G, S	0.449	11.40	EU or IEU
4	14.00	12.93	19.26	E, X, G, S	0.330	8.38	IU or EU
4 1/2	13.75	12.24	18.23	E	0.271	6.88	IU or EU
4 1/2	16.60	14.98	22.31	E, X, G, S	0.337	8.56	EU or IEU
4 1/2	20.00	18.69	27.84	E, X, G, S	0.430	10.92	EU or IEU
5	16.25	14.87	22.15	E, X, G, S	0.296	7.52	IU
5	19.50	17.93	26.71	E	0.362	9.19	IEU
5	19.50	17.93	26.71	E, X, G, S	0.362	9.19	EU or IEU
5	25.60	24.03	35.79	E	0.500	12.70	IEU
5	25.60	24.03	35.79	E, X, G, S	0.500	12.70	EU or IEU
5 1/2	21.90	19.81	29.51	E, X, G, S	0.361	9.17	IEU
5 1/2	24.70	22.54	33.57	E, X, G, S	0.415	10.54	IEU
6 5/8	25.20	22.19	33.05	E, X, G, S	0.330	8.38	IEU
6 5/8	27.70	24.21	36.06	E, X, G, S	0.362	9.19	IEU

Mechanical Properties

Steel Grade	Yield Strength				Tensile Strength	
	Min.		Max.		Min.	
	Psi	Mpa	Psi	Mpa	Psi	Mpa
E-75	75000	517	105000	724	100000	689
X-95	95000	655	125000	862	105000	724
G-105	105000	724	135000	931	115000	793
S-135	135000	931	165000	1138	145000	1000

Drill Pipe

Vigor's Drill Pipe produced according to API 5DP (DS-1 and NS -1 specification if the customer required)

Speciality: Vigor's Double Shoulder connection has a higher torque than API standard, fully interchangeable with API tool joint, suitable for Sour environment, deep well drilling or horizontal well drilling.

Hard Banding Type

Arnc-100XT
Arnc-200XT
Arnc-300XT
AMRMACO M
TCS 8000

Internal Coating

TK34
TK34P
TC2000



Drill Collar

Vigor's Drill Collar is made from forged solid steel bar, in material AISI 4145H and modified alloy steel, heat treated to API standards, mechanical properties guaranteed 1" below surface. End connection is done by CNC machines, thread roots are cold rolled to improve fatigue resistance. Pin relief groove and Box bore back feature is available. All connections are equipped with pressed steel thread protectors.

Standard

API Spec.7-1 and NS-1

Material

AISI 4145H

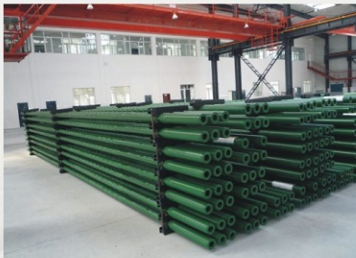
Non-magnetic material

Type

Slick Drill Collar
Spiral Drill Collar
Short Drill Collar

Special Feature

Threads Cold rolled
Pin relief Groove and Box Bore back
Benchmark
Slip and Elevator Recess
Hardbanding



Specification

OD		ID		Length mm	Style of connection	Bevel diameter mm	Bending strength ratio
mm	in	mm	in				
79.4	3 1/8	31.8	1 1/4	9150	NC23-31	76.2	2.57:1
88.9	3 1/2	38.1	1 1/2	9150	NC26-35(2 3/8 IF)	82.9	2.42:1
104.8	4 1/8	50.8	2	9150	NC31-41(2 7/8 IF)	100.4	2.43:1
120.7	4 3/4	50.8	2	9150	NC35-47	114.7	2.58:1
127.0	5	57.2	2 1/4	9150	NC38-50(3 1/2 IF)	121.0	2.38:1
152.4	6	57.2	2 1/4	9150 or 9450	NC44-60	144.5	2.49:1
158.8	6 1/4	57.2	2 1/4	9150 or 9450	NC44-62	149.2	2.91:1
158.8	6 1/4	71.4	2 13/16	9150 or 9450	NC46-62(4 IF)	150.0	2.63:1
165.1	6 1/2	57.2	2 1/4	9150 or 9450	NC46-65(4 IF)	154.8	2.76:1
165.1	6 1/2	71.4	2 13/16	9150 or 9450	NC46-65(4 IF)	154.8	3.05:1
171.4	6 3/4	57.2	2 1/4	9150 or 9450	NC46-67(4 IF)	159.5	3.18:1
171.4	6 3/4	71.4	2 13/16	9150 or 9450	NC50-67(4 1/2 IF)	159.5	2.37:1
177.8	7	57.2	2 1/4	9150 or 9450	NC50-70(4 1/2 IF)	164.7	2.54:1
177.8	7	71.4	2 13/16	9150 or 9450	NC50-70(4 1/2 IF)	164.7	2.73:1
184.2	7 1/4	71.4	2 13/16	9150 or 9450	NC50-72(4 1/2 IF)	169.5	3.12:1
196.8	7 3/4	71.4	2 13/16	9150 or 9450	NC50-77	185.3	2.70:1
203.2	8	71.4	2 13/16	9150 or 9450	NC50-80	190.1	3.02:1
209.6	8 1/4	71.4	2 13/16	9150 or 9450	6 5/8 REG	195.7	2.93:1
228.6	9	71.4	2 13/16	9150 or 9450	NC61-90	212.7	3.17:1
241.3	9 1/2	76.2	3	9150 or 9450	7 5/8 REG	223.8	2.81:1
247.6	9 3/4	76.2	3	9150 or 9450	NC70-97	232.6	2.57:1
254.0	10	76.2	3	9150 or 9450	NC70-100	237.3	2.81:1
279.4	11	76.2	3	9150 or 9450	8 5/8 REG	266.7	2.84:1

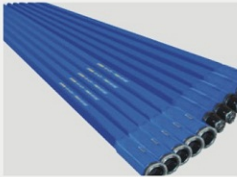
Mechanical Property

Mechanical Property of Slick and Spiral drill collars made of AISI 4145H

OD Range		Yield Strength (Mpa)	Tensile Strength (Mpa)	Elongation (%)	Hardness (HB)	Impact Test(J)
mm	in					
79.4-171.4	3 1/8- 6 3/4	≥ 758	≥ 965	≥ 13	285 - 341	≥ 54
177.8-279.4	7-11	≥ 689	≥ 930	≥ 13	285 - 341	≥ 54

Kelly

API 7-1 Spec. and NS-1 Standard



Kelly is the drive part of the whole drill string, is transmitting the torsional energy from the rotary table to the bit in the bottom of the hole. The precision machined Kelly is a heavy square or hexagonal steel bar supported by the swivel through the rotary table and connected to the first joint of drill pipe in the drill string.

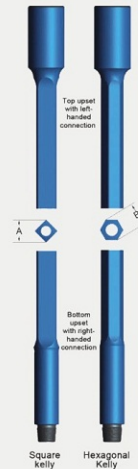
Vigor's Kelly is manufactured from AISI 4145H, fully heat treated alloy steel with a Brinell hardness range of 285-341HB and a minimum average Charpy impact value of 40ft-lbs. Full length is inspected by ultrasonic test.

Flats are precision milled to a strict tolerance surpassed API Specification. Straightness is fully controlled during each Process. Finished kelly protected in the steel scabbard for Delivery.

Type: Square and Hexagonal
Material: AISI 4145H

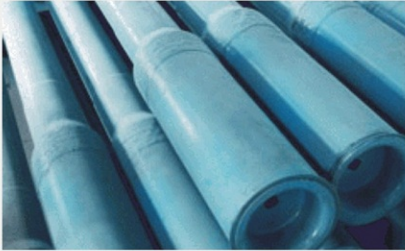
When ordering, please specify:

- 1、 Square type or Hexagonal type
- 2、 Size and Overall length
- 3、 Upper and Bottom connection



Specifications—Rotary Kelly

Nom size (in)	Top Connection(LH)		Bottom Connection		I.D.(in)		Drive Section(in)	
	Standard O.D.(in)	Optional O.D.(in)	Square O.D.(in)	Hex. O.D.(in)	Square	Hex.	A	B
2 1/2	6 5/8 REG 7 3/4	4 1/2 REG 5 3/4	NC26 85.7		1 1/4		3 2/7	
3	6 5/8 REG 7 3/4	4 1/2 REG 5 3/4	NC31 4 1/8	NC26 3 3/8	1 3/4	1 1/4	4	3 3/8
3 1/2	6 5/8 REG 7 3/4	4 1/2 REG 5 3/4	NC38 4 3/4	NC31 4 1/8	2 1/4	1 3/4	4 1/2	4
4 1/4	6 5/8 REG 7 3/4	4 1/2 REG 5 3/4	NC46 6 1/4	NC38 4 3/4	2 4/5	2 1/4	5 4/7	4 4/5
	6 5/8 REG 7 3/4	4 1/2 REG 5 3/4	NC50 6 3/8	NC38 4 3/4	2 4/5	2 1/4	5 4/7	4 4/5
5 1/4	6 5/8 REG 7 3/4		5 1/2 FH 7	NC46 6 1/4	3 1/4	3	7	6
	6 5/8 REG 7 3/4		NC56 7	NC50 6 3/8	3 1/4	3 1/4	7	6
6	6 5/8 REG 7 3/4			5 1/2 FH 7		3 1/2		6 4/5
	6 5/8 REG 7 3/4			NC56 7		3 1/2		6 4/5



Heavy Weight Drill Pipe

Heavy Weight Drill Pipe(HWDP) is made from AISI 4145H Alloy steel, fully heat treated, all physical properties conform with API Spec 7-1 latest edition.

Non-API standard type of drill collars are also available as per specification

Cold-rolled thread roots

Integral forging and welded type for options

Hard banding and internal coating can be done as per client's request

Material: AISI 4145H and Non-magnetic Material

Standard: API SPEC 7-1 and NS-1



Technical specifications and parameters

Size (in)	OD (in)	ID (in)	Tool joint OD (in)	Tool joint ID (in)	Connection	Max. Elevator diameter (in)	Central upset Dia. (In)	Min. drift dia. Size (in)
3 1/2	3 1/2	2 1/4	4 3/4 (4 7/8, 5)	2 1/4	NC38	3 7/8	4	2
		2 1/16		2 1/16				1 13/16
4	4	2 1/2	5 1/4	2 1/2	NC40	4 3/16	4 1/2	2 1/4
		2 9/16		2 9/16				2 5/16
4 1/2	4 1/2	2 11/16	6 1/4	2 11/16	NC46	4 11/16	5	2 7/16
		2 3/4		2 3/4				2 1/2
		2 13/16		2 13/16				2 9/16
5	5	3	6 5/8	3	NC50	5 1/8	5 1/2	2 3/4
5 1/2	5 1/2	3 1/4	7 (7 1/4, 7 1/2)	3 1/4	5 1/2 FH	5 11/16	6	3
		3 3/8		3 3/8				3 1/8
		3 7/8		3 7/8				3 5/8
		4		4				3 3/4
6 5/8	6 5/8	4	8 (8 1/4, 8 1/2)	4	6 5/8 FH	6 15/16	7 1/8	3 3/4
		4 1/2		4 1/2				4 1/4
		5		5				



Jars and Absorbers

Drilling Jar is connected with drilling tool and worked with drill string, is a downhole stuck freeing tool in drilling operation.



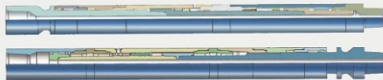
Double Acting Hydraulic Drilling Jar



Mechanical Drilling Jar



Double Acting Hydraulic-Mechanical Drilling Jar



Hydraulic & Mechanical



Double-Way Shock Absorber



ONE-Way Shock Absorber



Z Oil Jar



Surface Bumper Jar



Super Fishing Jar



Jar Intensifier



Fishing Bumper Sub



Lubricated Fishing Bumper Sub

Casing and Tubing

Casing and Tubing are used to line the hole in oil and gas well drilling. Vigor supplies a full range of high quality casing and tubing which are all manufactured according to API 5CT and API 5B. Our oil casing includes seamless casing and ERW casing.

OD: 1.9"–20"

Standard: API SPEC 5CT & API SPEC 5B

Length: R1/R2/R3

Material: J55, K55, N80, L80, L80 13Cr, C90, T95, P110, Q125

Speciality

- 1、L80 9Cr, 13Cr Casing available
- 2、Premium connection available
- 3、20" Casing are available with both Seamless pipe and ERW pipe

Chemical Composition

Standard codes	Steel Grade	Chemical compositions (%)											
		C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	Als	
API SPEC 5CT	J55K55 (37Mn5)	0.34 ~ 0.39	0.20 ~ 0.35	1.25 ~ 1.50	≤0.020	≤0.015	≤0.15	≤0.20	≤0.20				≤0.020
	N80(36 Mn2V)	0.34 ~ 0.38	0.20 ~ 0.35	1.45 ~ 1.70	≤0.020	≤0.015	≤0.15				0.11 ~ 0.16	≤0.020	
	L80 (13Cr)	0.15 ~ 0.22	≤1.00	0.25 ~ 1.00	≤0.020	≤0.010	12.0 ~ 14.0	≤0.20	≤0.20			≤0.020	
	P110 (30CrMo)	0.26 ~ 0.35	0.17 ~ 0.37	0.40 ~ 0.70	≤0.020	≤0.010	0.80 ~ 1.10	≤0.20	≤0.20	0.15 ~ 0.25	≤0.08	≤0.020	



Mechanical Properties

Standard codes	Steel Grade	Tensile strength(MPa)	Yield strength (Mpa)	Elongation (%)	Hardness
API SPEC 5CT	J55	≥ 517	379 ~ 552	Check the table	
	K55	≥ 517	≥ 655		
	N80	≥ 689	552 ~ 758		
	L80(13Cr)	≥ 655	552 ~ 655		≤ 241HB
	P110	≥ 862	758 ~ 965		

Your One Stop Shop in Drilling

Line Pipe

Line Pipe is used as oxygen, water, and oil delivery pipe in oil and natural gas industry.
Standard: API 5L

OD: 21.3mm-355.6mm

Wall thickness: 2.77mm-18.26mm

Length: Random Length, Certain Length

Material: Grade A, B, X42, X46, X52, X56, X60, X65, X70, X80

3PE Coating is available by request.



Mechanical performance and composition of PSL1

Grade	Composition				Mechanical performance		
	C (Max)	Mn (Max)	P (Max)	S (Max)	(Mpa) Yield strength \geq	(Mpa) Tensile strength \geq	Elongation(%)
A	0.22	0.9	0.030	0.030	210	335	See Table 6 of API 5L
B	0.28	1.20	0.030	0.030	245	415	
X42	0.28	1.30	0.030	0.030	290	415	
X46	0.28	1.40	0.030	0.030	320	435	-
X52	0.28	1.40	0.030	0.030	360	460	-
X56	0.28	1.40	0.030	0.030	360	490	-
X60	0.28	1.40	0.030	0.030	415	520	-

Mechanical performance and composition

Chemical Composition of PSL2

Grade	Mechanical performance					Ratio	Elongation(%)
	Yield strength (Mpa)		Tensile strength (Mpa)		Max		
	Min	Max	Min	Max			
B	245	450	415	760	0.93	See Table 6 of API 5L	
X42	290	495	415	760	0.93		
X46	320	525	435	760	0.93		
X52	360	530	460	760	0.93		
X56	360	545	490	760	0.93		
X60	415	565	520	760	0.93		

Specification

Item	Specification		OD (mm)	WT (mm)
	Steel Grade	Standard		
Line Pipe	48-1200	3.9-57	10# 20# Q295 Q345	GB/T8163
			L245 L290 L320 L360 L390 L415	GB/T9711.1GB/T9711.2 ISO3183-2
			A/B/X42/X46/X52/X56/X60/X65	API SPEC. 5L
			B	ASTMA53/ASTMA106

Your One Stop Shop in Drilling

Tubing, Casing Pup Joint & Drill Pipe Pup Joint



Tubing Pup Joint



Tubing Pup Joint



Drill Pipe Pup Joint

	Casing, Tubing Pup Joints, X-overs	Drill Pipe Pup Joints, X-overs, Lifting Subs
Standard	API 5CT and 5B	API 7-1 and NS-1
Material	J55, K55, L80, N80, P110	S135, AISI 4145H
Size of OD	2 3/8" to 20" Acc.to API 5CT	3 1/2", 5 1/2"
Length	2' 4' 6' 8' 10' or any customized size	Customized Size
Connection	Pin x Pin(with Coupling)	Pin x Pin, Pin x Box, Box x Box

Various Sub



Straight Sub



Reduce Sub



Saver Sub



Lift Sub



Circulating Sub



Oriented Bent Sub



Wear Sub



Float Valve Sub



By-Pass Valve



Kelly Valve



Cup Tester

Float Collar and Float Shoe

Float Collar and Float Shoe are used to guide the casing to put into the hole. They can adjust the floating power of the casing when the casing been laid in. That can certify the qualification of the cementing. The Float Collar and Float Shoe Vigor supplied use the Spring Driving back-pressure valve type which has a high reliability.



Technical Specifications and Parameters

Specification (in)	O.D. (mm)	Total Length (mm)	I.D. (mm)	Min. Dia. (mm)	Connection	Affordable strength of back-pressure	
Float Collar	5	141.30	500	110	50	5 BCSG	35
	5 1/2	153.67	530	112	55	5 1/2 BCSG	35
	7	194.46	586	162.5	77	7 BCSG	35
	9 5/8	270	720	225	77	9 5/8 BCSG	35
	13 3/8	365	720	319	77	13 3/8 BCSG	35
	20	534	720	475	77	20 BCSG	35
Float Shoe	5	140.30	495	110	50	5 BCSG	35
	5 1/2	153.67	514	122	55	5 1/2 BCSG	35
	7	194.48	533	162.5	77	7 BCSG	35
	9 5/8	270	550	225	77	9 5/8 BCSG	35
	13 3/8	365	550	319	77	13 3/8 BCSG	35
	20	534	652	475	77	20 BCSG	35

Available Thread

API Casing Threads, BTC, STC, LTC

Features

PDC Drillable

Available Size in 4 1/2" to 20"

Design is available to follow customers' requirement and drawings

Casing Centralizers

Casing Centralizer is an auxiliary tool for casing operations. It is clamped on casing outside to protect it from wellbore damages and reduce the friction. We have two types of Casing Centralizers: Bow-spring Centralizers and Rigid Centralizers (some are installed with rollers). Non Welded Spring Bow Centralizer specifications: 4 1/2"–20"



Series 150 Overshot

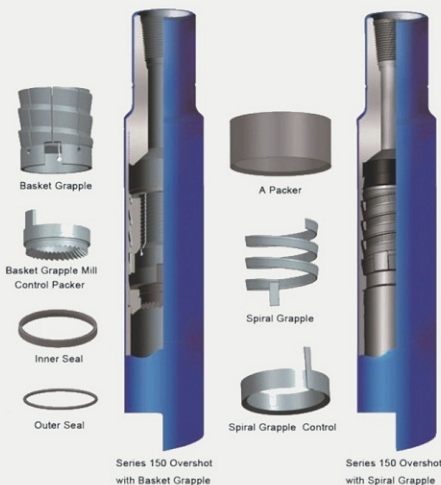
Series 150 Releasing and Circulating Overshot is an external fishing tool for engage, pack off and retrieve tubular fish, especially for fishing drill collar and drill pipe. The grapple of the overshot can be designed for different sizes of fish, so one overshot can be dressed with different size of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

Construction

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

When order please specify

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



FS = Full Strength
 SH = Slim Hole

Specifications—Series 150 Overshot

Type	O.D.(mm)	Max.catch size(mm)		API Connection	Type	O.D.(mm)	Max.catch size(mm)		API Connection
		Spiral grapple	Basket grapple				Spiral grapple	Basket grapple	
VG89	89	60.3	47.6	NC26	VG194	194	159	141	NC50
VG92	92	73	63.5	NC26	VG200	200	159	141	NC50
VG95	95	76.2	66.6	NC26	VG206	206	178	163	NC50
VG102	102	73	60.3	NC26	VG206A	206	168	152	NC50
VG105	105	85.7	73	NC31	VG219	219	178	159	NC50
VG114	114	89	75	NC31	VG232	232	203	187	NC50
VG117	117	89	78	NC31	VG224	244	206	184	6 5/8 REG
VG127	127	95	80	NC38	VG260	260	219	200	6 5/8 REG
VG143	143	120.6	102	NC38	VG270	270	228.6	209.6	6 5/8 REG
VG152	152	128	111	NC38	VG273	273	241.3	216	6 5/8 REG
VG168	168	127	114	NC50	VG286	286	244.5	225.4	6 5/8 REG
VG168B	168	139.7	120.6	NC50	VG298A	298	257	238.1	6 5/8 REG
VG181	181	146	127	NC50	VG340	340	286	260	6 5/8 REG

Reverse Circulating Fishing Magnet

Vigor's Fishing Magnet is a junk retrieval designed to catch small metal, oddly shaped objects in the down hole. Typically, these objects are the result of bit failures that leave cones and cutters in the hole, or an accumulation of mill cuttings, or simply accidental droppings of the fallen objects which can't be milled. With some of advantages such as simple structure, easy to operate, reliable performance, small size and weight, it is equipped with permanent magnet to attract small objects such as teeth wheel, palm, tong teeth and tool so that small objects in downhole are fished and the well bottom is cleaned up.



Technical Specifications and Parameters

Type	O.D. (mm)	Connection	Attracted Weight (kg/cm ²)	Temperature in Well (°C)	Hole size (mm)
VG89	89	NC26	9.8	210	95-110
VG100	100	NC26	9.8	210	110-135
VG125	125	NC38	9.8	210	135-165
VG140	140	NC38	8.5	210	150-175
VG146	146	NC38	8.5	210	160-185
VG150	150	NC38	8.5	210	160-185
VG175	175	NC50	7.9	210	185-210
VG178	178	NC50	7.8	210	185-210
VG190	190	NC50	7.8	210	200-225
VG200	200	NC50	7.6	210	210-235
VG203	203	NC50	7.6	210	215-240
VG225	225	6 5/8 REG	7.5	210	235-270
VG254	254	6 5/8 REG	7.0	210	265-311
VG265	265	6 5/8 REG	6.9	210	275-330
VG292	292	6 5/8 REG	6.9	210	340-375
VG317	317	7 5/8 REG	6.9	210	340-375
VG356	356	7 5/8 REG	6.9	210	444.5

Reverse Circulation Junk Baskets

Vigor's Reverse Circulation Junk Basket is designed to catch all kinds of small junk objects such as cones, cutters, hand tools from bottom well. During drilling operation, it produces a local reverse circulation of fluid at well core so as to effect a complete recovery of junk in the junk basket.

Technical Specifications and Parameters

Type	Barrel O.D. (mm)	Mill Shoe O.D. (mm)	Fish Max. O.D. (mm)	Ball Dia. (mm)	Connection	Hole Size (mm)
VG-381	381	386	282	55	7 5/8 REG	406-444
VG-318	318	324	248	55	6 5/8 REG	349-406
VG-F286	286	292	217	55	6 5/8 REG	320-346
VG-F279	279	286	211	55	6 5/8 REG	300-341
VG-F254	254	260	195	55	6 5/8 REG	275-295
VG-F245	245	252	192	50	NC50	275-295
VG-F232	232	239	179	50	NC50	255-270
VG-F206	206	210	159	45	NC50	223-241
VG-F195	195	202	149	42	NC50	215-241
VG-F178	178	184	130	42	NC50	198-209
VG-F168	168	174	123	42	NC50	190-209
VG-F130	130	136	94	40	NC31	155-165
VG-F121	121	126	90	35	NC31	142-152
VG-F114	114	121	82	35	NC31	130-140
VG-F97	97	103	62	30	NC26	117-127
VG-F89	89	94	55	30	NC26	108-114

When ordering, Please specify

Complete assembly or spare parts
Top Sub Connection
OD and Type of the mill shoe
Special requirement if any



Sucker Rod

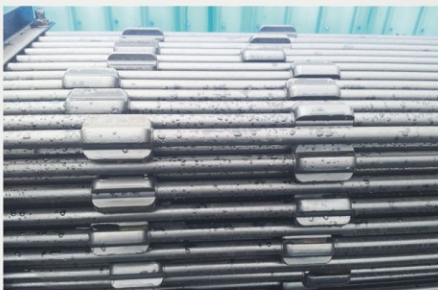
Sucker Rod, as one of the key component of rod pumping equipment, serves to transmit surface power or motion to downhole sucker rod pumps.

Vigor's Sucker Rod production line strictly complies with API 11B and Q1 quality specification. It is 100% controlled and inspected from the raw material, non-destructive test to ensure the fine inner quality.

Production flow: Raw material-straighten-forging-polishing-heat treatment-Threading-inspection-packing-delivery.

In each process, we have the quality control card for its quality condition and stage inspection.

In order to meet the diversified well condition, our special alloy steel designed for moderate to heavy loads in corrosive environment. And tungsten alloy coating strengthen the rod for more severe wells.



Material

Type	75	78	90	96	97
AISI Series	A-4330-M	A-4142-M	A-4320-M	A-4138-M	A-4330-M
API Grade	D Special	D Alloy	D Special	Special	Special
Aluminum	0.035 Max.	0.035 Max.	0.035 Max.	0.035 Max.	0.035 Max.
Carbon	0.3/0.34	0.38/0.45	0.18/0.24	0.36/0.45	0.28/0.35
Chromium	0.8/1.0	0.8/1.1	0.70/0.9	0.52/0.88	0.7/1.0
Columbium (Niobium)				0.02/0.045	
Copper	0.35 Max.	0.35 Max.	0.35 Max.	0.35 Max.	0.35 Max.
Manganese	0.8/1.0	0.8/1.0	0.8/1.0	0.88/1.52	0.7/1.0
Molybdenum	0.2/0.3	0.15/0.25	0.2/0.3	0.25/0.35	0.2/0.3
Nickel	1.65/2.0	0.45 Max.	1.15/1.5	0.3 Max.	1.65/2.0
Phosphorus	0.035 Max.	0.035 Max.	0.025 Max.	0.035 Max.	0.035 Max.
Silicon	0.15/0.35	0.15/0.35	0.15/0.35	0.2/0.35	0.15/0.35
Sulfur	0.04 Max.	0.035 Max.	0.025 Max.	0.04 Max.	0.04 Max.
Vanadium	0.04/0.09	0.02/0.07	0.04/0.09	0.04/0.09	0.04/0.09

Physical Properties As Normalized & Tempered	75	78	90	96	97
Tensile					
Ksi	125/140	120/140	120/140	140/150	140/150
Mpa	861/965	827/965	827/965	965/1034	965/1034
Yield, 2% Offset					
Ksi	100 Min.	95 Min.	95 Min.	115 Min.	115 Min.
Mpa	689 Min.	655 Min.	655 Min.	792 Min.	792 Min.
Elongation, 8" (203.2mm)	10 Min.	10 Min.	10 Min.	10 Min.	10 Min.
Reduction, %	45 Min.	45 Min.	45 Min.	45 Min.	45 Min.
Rockwell, HRC	25/31	23/31	23/31	30/34	30/34

PHYSICAL PROPERTY OF SUCKER ROD

Grade	Tensile Strength Rm Mpa	Min Yield Strength MPa	Min Elongation 200mm%	Min Reduction of Area %	Impact Energy (J)
C	620~795	≥415	≥13	≥50	≥80
K	620~795	≥415	≥13	≥60	≥115
D	795~965	≥590	≥10	≥50	≥60
KD	795~965	≥590	≥10	≥50	≥60
HL	965~1195	≥795	≥10	≥45	≥60
HY	965~1195	With surface hardness ≥42, core hardness ≥24 and hardening depth accounting for 5% to 13% of rod diameter.			



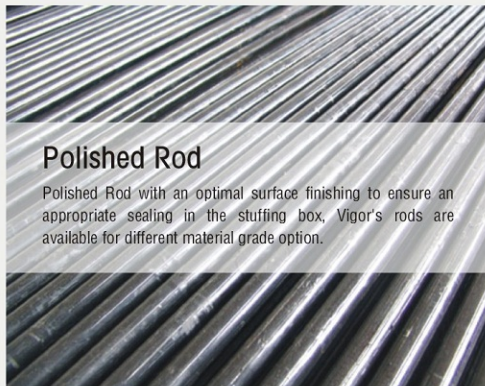
Rod Guide

We have a wide range of Rod Guides for options, the rod guides are molded onto rods, the necessary grip for decreasing the displacement probability, thus becoming a real tubing and rod protection. When combined with the use of rod rotators, they also permit an effective paraffin control. It has been proved that its use in wells significantly increase rod run life and reduces their wear, consequently diminishing pulling interventions and other operating cost.



Drive Rod

1. Specially designed to withstand the high torque levels experienced in progressing cavity pump applications.
2. Furnished with modified pins to maximize their torque capacity.
3. Modified pins provide a minimum 50% increase in torque over conventional API thread connections.
4. 1", 1 1/4", 1 1/2" body diameter.



Polished Rod

Polished Rod with an optimal surface finishing to ensure an appropriate sealing in the stuffing box, Vigor's rods are available for different material grade option.



Class T and Spray Metal Coupling—UHS

Couplings are manufactured from top quality steel with a cold rolled thread that increases fatigue resistance. Type T couplings are recommended for installation where abrasion or corrosion are not a problem. Spray Metal couplings are designed with a 0.010" / 0.015" thick nickel-chromium coating on the OD for abrasion and corrosion resistance.

1. Box X box, Pin X Pin, Box X Pin style couplings available in all sucker rod size.
2. Full size, slimhole, and two size of oversize style coupling available.
3. Polished Rod Coupling and sub couplings are available in box and box styles in all sucker rod sizes.
4. Polished Rod Coupling with the nine-degree cone pine.

Beam Pump

Type: API C, API B, A PI F and API R series Pumping Units

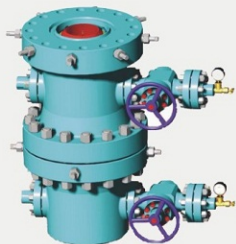
All the Beam Pump and Gear Reducer conform to API Spec.11E and other relative API standards, authorized to use Official API Monogram.



API C Series Main Technical Parameter

No	Type	Polished Rod Capacity (lbs)	Stroke Length (in)	Rated Torque (in.lbs)
1	C-912D-470-240	47,000	240, 211, 181	912,000
2	C-912D-427-216	42,700	216, 185, 155	912,000
3	C-912D-427-192	42,700	192, 165, 138	912,000
4	C-912D-305-192	30,500	192, 165, 138	912,000
5	C-912D-365-168	36,500	168, 144, 121	912,000
6	C-912D-305-168	30,500	168, 144, 121	912,000
7	C-912D-427-144	42,700	144, 123, 102	912,000
8	C-640D-305-192	30,500	192, 165, 138	640,000
9	C-640D-305-168	30,500	168, 144, 121	640,000
10	C-640D-365-144	36,500	144, 123, 102	640,000
11	C-640D-305-144	30,500	144, 123, 102	640,000
12	C-640D-256-144	25,600	144, 123, 102	640,000
13	C-640D-305-120	30,500	120, 102, 84	640,000
14	C-456D-305-168	30,500	168, 144, 121	456,000
15	C-456D-305-144	30,500	144, 123, 102	456,000
16	C-456D-256-144	25,600	144, 123, 102	456,000
17	C-456D-365-120	36,500	120, 102, 84	456,000
18	C-456D-305-120	30,500	120, 102, 84	456,000
19	C-456D-256-120	25,600	120, 102, 84	456,000
20	C-320D-256-144	25,600	144, 123, 102	320,000
21	C-320D-256-120	25,600	120, 102, 84	320,000
22	C-320D-213-120	21,300	120, 102, 84	320,000
23	C-320D-305-100	30,500	100, 85, 70	320,000
24	C-320D-256-100	25,600	100, 85, 70	320,000
25	C-320D-213-86	21,300	86, 71, 56	320,000
26	C-228D-213-120	21,300	120, 102, 84	228,000
27	C-228D-173-100	17,300	100, 86, 72	228,000
28	C-228D-246-86	24,600	86, 71, 56	228,000
29	C-228D-213-86	21,300	86, 71, 56	228,000

30	C-228D-200-74	20,000	74, 64, 54	228,000
31	C-228D-173-74	17,300	74, 64, 54	228,000
32	C-160D-173-86	17,300	86, 74, 62	160,000
33	C-160D-200-74	20,000	74, 64, 54	160,000
34	C-160D-173-74	17,300	74, 64, 54	160,000
35	C-160D-143-74	14,300	74, 64, 54	160,000
36	C-160D-173-64	17,300	64, 54, 44	160,000
37	C-114D-119-86	11,900	86, 72, 59	114,000
38	C-114D-143-74	14,300	74, 62, 51	114,000
39	C-114D-173-64	17,300	64, 54, 44	114,000
40	C-114D-143-64	14,300	64, 52, 40	114,000
41	C-114D-133-54	13,300	54, 45, 36	114,000
42	C-80D-119-64	11,900	64, 53, 42	80,000
43	C-80D-133-54	13,300	54, 45, 36	80,000
44	C-80D-119-54	11,900	54, 45, 36	80,000
45	C-80D-133-48	13,300	48, 40, 32	80,000
46	C-80D-109-48	10,900	48, 37, 25	80,000
47	C-57D-76-54	7,600	54, 41, 28	57,000
48	C-57D-109-48	10,900	48, 37, 25	57,000
49	C-57D-95-48	9,500	48, 37, 25	57,000
50	C-57D-89-42	8,900	42, 33, 23	57,000
51	C-57D-76-42	7,600	42, 33, 23	57,000
52	C-40D-76-48	7,600	48, 37, 27	40,000
53	C-40D-89-42	8,900	42, 33, 23	40,000
54	C-40D-76-42	7,600	42, 33, 23	40,000
55	C-40D-89-36	8,900	36, 28, 20	40,000
56	C-25D-67-36	6,700	36, 28, 20	25,000
57	C-25D-56-36	5,600	36, 28, 20	25,000
58	C-25D-53-30	5,300	30, 20	25,000



Casing Head

According to API 6A

The Casing Head is a kind of part of connecting casings and wellheads. It is used to support the weight of technical casing and intermediate casing and seal the annular space between the casings, which provides a transition joint for the installation of the tubing head, Christmas tree and other wellheads. The two-side-outlet design allows the casing head to supply cement, monitor and control well's sinking, and inject balance liquids etc.

Casing Head Housing type: Threaded Bottom, Slip Bottom and Welded Bottom.



Tubing Head

According to API 6A

Tubing Head is usually a spool with both flanged ends. It is set on the top flange of casing head to hang tubing hanger and seal the annular space between the tubing string and intermediate casing, consisting of tubing head spool and tubing hanger.

Gate Valve, Choke Valve, Check Valve, Plug Valve

According to API 6A

Product Specification Level (PSL) for gate valve :1-3, for all other products: 1-4

Material Class: AA-FF

Performance Requirement (PR) 1.2.

Working Pressure: 2000PSI-15000PSI



Vigor offers a wide range of annular and ram type Blowout Preventers, which is used on surface and subsea drilling in H₂S filed services.

The Blowout Preventers are manufactured in accordance with API Spec. 16A latest edition and NACE MR01-75.



Annular BOP

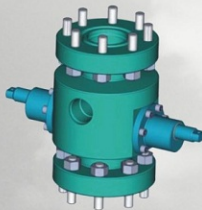
Bore size: 7 1/16" - 29 1/2"
Working Pressure: 105Mpa(15000PSI) Max.



Ram BOP

Single and Double Ram BOP with compact design suitable for operation onshore and offshore. Major components are forged for uniform strength and impact resistance.

Bore size: 7 1/16" - 26 3/4"
Working Pressure: 105Mpa(15000PSI) Max.
Body type: Single, Double, Triple
Connections: Flanged, Studded, Hb



Rod BOP

The Rod BOP is typically selected for mounting between a tubing head and a flanged wellhead drive in a new well installation, provides studded flanged connection for rigid and safe support of the wellhead drive. The flow-tee includes two side ports, typically one for the production fluids and the other to gauge pressure, take sample fluids, flush the well etc. The top studded flange connecting includes a box thread LP port to be used when servicing the rod string.

Ram Bore: 1 1/8" to 2 3/4"
Flange size: 2 9/16"-11"
Working Pressure: 2,000PSI-3,000PSI
Side Outlets: 2" LP or 3" LP



X'mas Tree

According to API 6A

The Christmas Tree is an assembly of valves, spools and fittings for oil well, designed to direct and control formation fluids from the well. Vigor's X'mas Trees can be used for oil production, gas production, water injection, thermal recovery, fracturing, and acidizing services.

Scope of supply

Working Pressure: 2,000PSI~20,000PSI

Working Temperature: -46℃~+121℃

Material Class: AA BB CC DD EE FF

Performance Requirement: 1-2

Nominal Diameter: 2 1/16" to 5 1/8"

Working Medium: Crude oil, gas, drilling fluid, gas contained H₂S, CO₂.

Choke Manifold

Fabrication of Choke Manifold is according to API Spec 16C.

Choke Manifold is necessary device to control the well kick successfully and execute the pressure control technology on oil/gas well in the course of drilling. The Choke Manifold consists of choke valves, gate valves, line pipes, fittings, pressure gauges and other components.

Working Pressure: 2,000PSI - 15,000PSI

Nominal Bore size: 2 1/16" to 4 1/16"

The Kill Manifold is available in pressure ratings of 14MPa, 21MPa, 35MPa, 70MPa and 105MPa, and also can be available upon customer request.



Kill Manifold

Fabrication of Kill Manifold is according to API Spec 16C.

In case of increase of the well head pressure, the Kill Manifold can provide a means of pumping heavy drilling fluid into the well to balance bottom hole pressure so that well kick and blowout can be prevented. The Kill Manifold consists of check valves, gate valves, pressure gauges and line pipes. The one end of the Kill Manifold is connected to the drilling spool and the other end is connected to the pump.

The Kill Manifold is available in pressure ratings of 14MPa, 21MPa, 35MPa and 70MPa.

Elevator



Type-TA Elevator



Type-DD Elevator



Type-DDZ Elevator



Type-CDZ Drill Pipe Elevator



Type-Y Elevator



Type-SP Elevator



Type-SLX Elevator



Type-CD Elevator



Type-SJ Elevator

Slip



UC-3 Casing Slip



Type PS Pneumatic Slip



Safety Clamp



Safety Clamp



Casing Slip



Drill Collar Slip



Rotary Slip



Type QW Pneumatic Slip



Type DU Slip

Manual Tong


Type SB Tong



Type DB Tong



Type C Tong



Type B Tong


 Type AAX
Manual Tong

 Type WWB
Manual Tong

 Well Servicing
Tong

 Type LF
Manual
Tong

 13 3/8in
Casing
Tong

 13 3/8-30in
Casing
Tong

 Big Diameter
Casing Tong

 Type SDD
Tong

Power Tong and Spinning Wrench

Power Tong and Spinning Wrench



IQ Series of Casing Tong

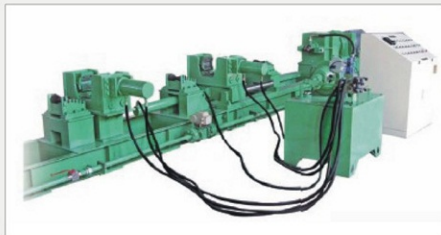

 XQ Series Hydraulic
Power Tong

 Q Series Hydraulic
Spinning Wrench

 ZQ Series of Drill
Pipe Power Tong

 XQ Series
Hydraulic
Power Tong

 Q Series Pneumatic
Spinning Wrench



Downhole Motor Tester

The Downhole Motor Tester we manufactured is a special equipment for testing sealing performance of new or repaired downhole motor so as to provide features of downhole motor and scientific evidence which will decide the possibility for downhole motor to be run in hole. The tester is consisting of body, water supplying system, hydraulic system and control system. The Downhole Motor Tester is designed on basis of advanced features of same equipment abroad and integrates with the actual situation in China. With some advantages such as high automatization, easy operation, wide range of use, the downhole motor tester has already obtained favorable comment from the customers.

Technical Parameters for LMST-II Downhole Motor Tester

- 1 Body motor power : 75KW
- 2 Motor power for hydraulic pump : 11KW
- 3 Driving rotation speed : 40 r/min
- 4 Applicable drill tool size : 89-245
- 5 Water supply system working pressure : 8Mpa
- 6 Max. working pressure for hydraulic system : 20Mpa



Hydraulic Breakout Unit



The Hydraulic Breakout Unit is an important tool used for disassembling/assembling, maintaining of all kinds of drill tools, pipe strings and thread connections for all kinds of downhole equipments in petroleum exploration and geological prospecting. It has the following functions such as :

high automatic level; large torque of screwing on/screwing out; wide diameter range for tubing fittings; without slippage or biting the working surface; quick-tightening screw thread; provide push-pull force for work

Special Feature

1. 360° Continuous Rotation Headstock is optional
2. We can design according to customer's requirement

Parameter Size	Motor por (kw)	Pipe dia.	Max. Make-up torque	Max. break-out torque	Pipe dia. for quick make-up/breakout(mm)	Motor speed (rpm)	Max. Working pressure (Mpa)	Quick make-up/break-out torque (KN.m)	Max. tons for push/pull cylinder (KN)	Stroke for push/pull cylinder (mm)
VG16II-320	15	73-310	115	168	73-340	1500	12	2.5-4.0	150	1500
VG16II-400	15	73-330	150	180	73-340	1500	12	2.5-4.0	150	1500

Your One Stop
Shop in Drilling

Contact Information

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High-Tech Zone, Xi'an, China. P.C.710065
E-mail: info@vigordrilling.com Website: www.vigordrilling.com



China Vigor Drilling Oil
Tools and Equipment Co.,Ltd.