



LUSHUN

无锡陆顺钻探工具有限公司

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LUSHUN

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企业文化

诚信 质量 责任 服务 团队

价值观是企业的灵魂和精神所在，是构建企业竞争优势、稳健发展的支柱，它支撑企业赢得客户和未来。

价值观是陆顺文化的核心，它不仅是员工的共同信念，也是全体陆顺员工的承诺与实践。陆顺力求塑造“知行合一”的价值观，让价值观的内涵通过员工的所想、所行体现出来，形成一股精神的力量，深深熔铸在企业的凝聚力、竞争力、生命力之中。

在价值观的昭示下，我们希望让正确的处事态度渗透到公司每一位员工的心中，凝聚我们前进的合力，也希望通过员工的一言一行将企业价值观传递给客户，让客户感知陆顺内外一致的品牌形象，让陆顺在服务中改善、完美自己。

◆ 陆顺的愿景

- 成为最值得信赖和尊敬的钻具生产商
- 我们致力于为员工提供一份满意和值得自豪的工作
- 我们致力于快速、安全、精确地生产客户的产品
- 我们致力于成为钻具行业持续领先的公司
- 我们致力于承担更多的社会责任

◆ 陆顺的核心价值观

- 首先是一个诚信、正直的人
- 永远尊重人，信赖团队的力量
- 客户对我们来说是最重要的，奉献最好的服务
- 做事认真，勇于承担责任

Enterprise Culture

Faith Quality Responsibility Service Team

Values are the backbone of an enterprise which constitute a competitive advantage and drive sustainable development. They also support business growth, help win customers' trust and secure a promising future.

Values are the core of our company. It is not only common brief for workers, but also the promise & practice to our company. Our company strives to pursue the 'unity of knowledge and action' as part of its values. Employees are required to live out the true meaning through their daily actions which fuel our spirit and passion coming in the form of cohesiveness, competitiveness and vitality of our corporation.

Under the conduct of values, our company hopes every worker can always remember it and convey it to customers. Customers can know LUSHUN Brand gradually. We can improve and perfect during service.

◆ Core Values

- To be the Best Drilling Tools Manufacturer
- Gain trust by giving respect and treat people the way you want to be treated
- Develop trust and mutual support by demonstrating team spirit
- Earn recognition and new opportunities by devoting your time and efforts to your work

◆ Our Principles of Integrity

- Be honest and tell the truth
- Respect and believe team force forever
- Customers are most important to us and we need to provide our best service
- Work seriously and take responsibility



企业简介

无锡陆顺钻探工具有限公司是一家从事设计、加工、制造及销售各类钻杆、钻具的专业企业。作为国内非开挖钻具行业的开拓者，公司一直致力于提供先进可靠的技术和稳定的产品。

公司拥有630T和800T管端加厚线各1条，管螺纹数控机床8台、全自动钻杆表面抛丸处理线1条、超声波探伤设备2台，磁粉探伤机一台，拥有国内最先进的实时成像工业裂纹检测中心，建有光谱、硬度、抗拉、屈服和冲击理化实验室。

公司所有钢管原材料均来源于上海宝钢，从而在材料源头上进一步有效的控制产品质量。

公司产品在国内得到了广泛应用，并出口美国、俄罗斯、哈萨克斯坦、印度、东南亚、巴西、澳大利亚等地区，普遍使用良好，赢得用户的信赖。

优秀的员工团队，先进的加工设备，严格的质量管理体系，完善的销售网络，给予了客户最大的信心保证，让我们一起携手共创美好的明天。



Company Profile

Wuxi Lushun Drilling Tools Co., Ltd. is located in Wuxi City, Jiangsu Province. Convenient water, land, air transportation and close to Shanghai Airport (Port).

Lushun is a modern enterprise which is specializing in designing, machining and manufacturing all kinds of drilling pipes & drilling tools for horizontal directional drilling rig. Our company can provide products with good quality by advanced technology.

Lushun has 2 sets of 630T and 800T End Upsetting Machine, 8 sets of CNC Threading Lathes, 1 set of Automatic Shot-blasting Machine, 2 sets of Ultrasonic Inspection Equipments and 1 set of Magnetic Detection Machine. Besides, there are also equipped with advanced crack detection center with real-time imaging system and one lab for spectral analysis, hardness, tensile strength, yield & Impact test.

Raw materials are from Baosteel which can provide the best quality steel tubes in China. Therefore, we can strictly control products quality from the fountainhead. We have attained ISO9001 certification.

With high quality and competitive price, Lushun products have been well used by customers from Russia, Kazakhstan, India, Thailand, Brazil, Australia, Southeast Asia and so on.

Our company promises: reasonable price, short production time and satisfactory after-sales service. Buyers are welcome to contact us.





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高钢级整体钻杆生产工艺及其优势 Production Process and advantages of Forged Drill Pipe

纯净的宝钢原材料管体 High purity raw material from Baosteel

我们在源头把关，所有原材料均来自于上海宝钢专为石油天然气钻杆研发的热轧高强度石油合金结构管，成分均匀。硫、磷等有害元素极低。严格按照L2级探伤标准进行检测探伤，采用涡流+超声组合式探伤，保证原材料无缺陷。

To guarantee premium quality product, all raw material is sourced from Shanghai Baosteel speciall developed hot rolling high strength alloy structure tube for oil and gas drilling rods without considering about high cost. This material uses external refining and vacuum degassing technology with even composition and high purity. The lowest content of harmful chemical elements such as phosphorus and sulfur is reached. Non destructive test is performed according to NDT standard Level 2 with combination of eddy and ultrasonic to guarantee raw material quality without any defect.



精密的加厚的工艺

Precise Upsetting Process

加厚工艺经过反复绘图、软件模拟、试验。加热温度，加厚长度均由PLC程序控制，保证了钻杆批量生产的稳定性。加厚完钻杆长度公差均小于3mm。

Upsetting process is repeatedly by drawing, software simulation and trail upsetting. Heating temperature and length of upsetting are all controlled by PLC. That can promise the stability of producing. Pipe material length shortening amount precise is less than $\pm 3\text{mm}$.

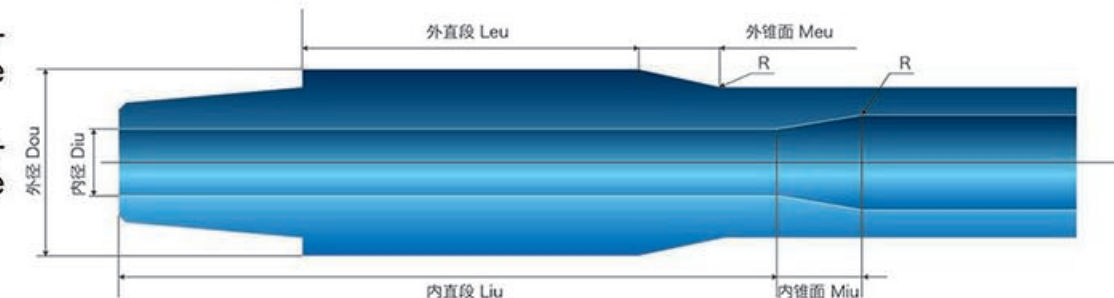


科学的内外加厚设计

Scientifically Designed Upset End

加厚端内外截面变化的横截面不重合，减少应力集中，提高疲劳使用寿命。

Internal and external cross section on upset end are not on the same cross section. That can reduce stress concentration and improve anti-fatigue service life.



公母扣双台肩设计

Double Shoulder Design for Pin and Box Connection

- 在内外螺纹接头小端增加一个副台肩
- 主台肩提供密封和承受较大扭矩
- 副台肩承受部分扭矩、过载保护
- 副台肩辅助密封、增强钻杆密封性能

Add a secondary shoulder on the pin and box thread connection end

Main shoulder with function of sealing and bearing more torque

Secondary shoulder with function of partial torque and overload protection

Secondary shoulder has function of complementary sealing

The whole drill pipe sealing ability is improved

副台肩止动台肩
Secondary shoulder
Locking shoulder

主台肩密封台肩
Main shoulder
Sealing shoulder



双台肩接头对力学性能改善

Mechanical Property Improvement by Double Shoulder Connection

Inc: 42
Time: 3.000e+000

LS 接头 LS joints



8.270e+002 7.443e+002 6.616e+002 5.789e+002 4.962e+002 4.135e+002 3.308e+002 2.481e+002 1.654e+002 8.271e+001 5.782e+000

双台肩接头应力分布图

Stress distribution diagram on double shoulder connection

Inc: 22
Time: 2.000e+000

API 接头 API joints



8.270e+002 7.443e+002 6.616e+002 5.789e+002 4.962e+002 4.135e+002 3.308e+002 2.481e+002 1.654e+002 8.271e+001 5.782e+000

普通单台肩接头应力分布图

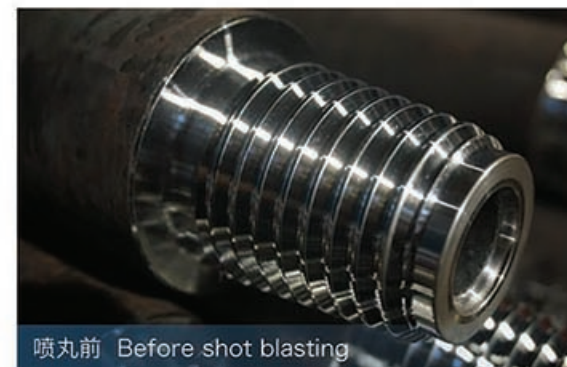
Stress distribution diagram on normal single shoulder connection

钻杆整体喷丸、氮化处理提高产品抗疲劳强度增加使用寿命

Shot blasting Treatment for Pipe Body and Thread Improve Product Anti-fatigue Service Life

每根钻杆均进行喷丸、氮化处理，喷丸处理会在钻杆管体表面和螺纹表面留下残余压应力，该压应力会提高钻杆的抗疲劳强度和使用寿命。螺纹表面的喷丸磨砂面有助于螺纹脂的粘附，延长螺纹的使用寿命，氮化处理能使氮化层渗透金属表面以下，大幅度提高了螺纹的表面硬度，减缓金属的磨损。

Each of drill pipe is treated by shot blasting and azotizing. After shot blasting treatment, surface of drill pipe and thread gets residual pressure stress. This stress can improve drill pipe anti-fatigue service life. Shot blasting treatment on thread can help thread compound adhere to thread. Thread service life is improved.



喷丸前 Before shot blasting



氮化后 After azotizing



喷丸后 After shot blasting

● 生产车间
Manufacturing scene



原材料（光管）
Material (seamless steel tube)



▲ 本公司采用一台630T和一台800T立柱式加厚机，合模采用双油缸，加热采用双工位，保证了工件的加厚尺寸和加厚端的成型。

We have two sets of 630T and 800T vertical hydraulic upsetting machine with two cylinders and two step major preheating furnace which promise the upsetting requirements and effectively for upsetting forming.



▲ 采用国内最先进的全长连续炉热处理线，钻杆加热采用封闭式步进炉，钻杆加热均匀，奥氏体化充分，淬火采用外喷内淋方法，淬透性好，变形量小，完全可以满足API标准对钢级的要求。



Using the most advanced heat treatment line, and closed-type step by step furnace, so the pipe is heated equally, fully Austenitization. For quenching, we use spraying outside and showing inside method, good hardenability and less deformation, completely meet the requirement of API standard.



质量控制

- 1、公司通过ISO9001 质量认证体系, 美国石油协会API SPEC5CT, API SPEC5D, API SPEC7, API SPEC7-1 认证。
- 2、公司配备了万能力学测试机, 冲击功试验机, 试样拉床, 低温槽, 试样投影仪等设备, 这些设备可按照国际标准对钢材做各种机械性能测试。
- 3、公司配备了洛氏、李氏、维氏硬度计、金相显微镜和光谱仪, 可对材料的硬度、组织成份等做精确的分析。
- 4、公司配备了超声波、磁粉等无损探伤设备, 可对钻杆内外的裂纹及缺陷进行检测。
- 5、公司配备了螺纹量规室, 螺纹单向仪等专用测量工具。

▼ 万能试验机 Universal testing machine



▶ 硬度检测 Hardness test



Quality Control

- 1、Lushun was ISO 9001 certified and also API certified to use API SPEC5CT, API SPEC 5D, API SPEC7 and API SPEC 7-1 monogram
- 2、Mechanical properties testing equipments can make sure that hardness, tensile and impact testing are in accordance with international standard.
- 3、We have set up testing laboratory with HRC, Leeb and Vicker hardness testers and metallographic microscope, spectrometer for structure & composition analysis.
- 4、MT&UT inspection method for non destructive testing
- 5、Professional thread measurement tools, such as thread gauge, micrometer, and etc.

▼ 金相分析 Metallographic microscope inspection



▼ 光谱分析 Spectrometer for structure & composition analysis



▼ 冲击实验 Impact test





▲ 去除接头表面氧化及脱碳层，去除接头余量，使钻杆在热处理时的淬透性增加。

Grind the oxidation and Decarburized layer of the joints surface, wipe out the allowance, and improve its ability for well Quenching Grind.

▲ 螺纹加工采用大孔径管螺纹数控机床，日本法拉克数控系统，保证螺纹加工后的光洁度及精度。

We use large macro-aperture tube CNC lathe with Japan FUNAC system for threading which promise the glossiness and accuracy of the thread



螺纹精度检测 Thread standoff inspection



钻杆超声波检测 Ultrasonic test for Drill pipe

Do building and creation together for mutual-benefit and win-win

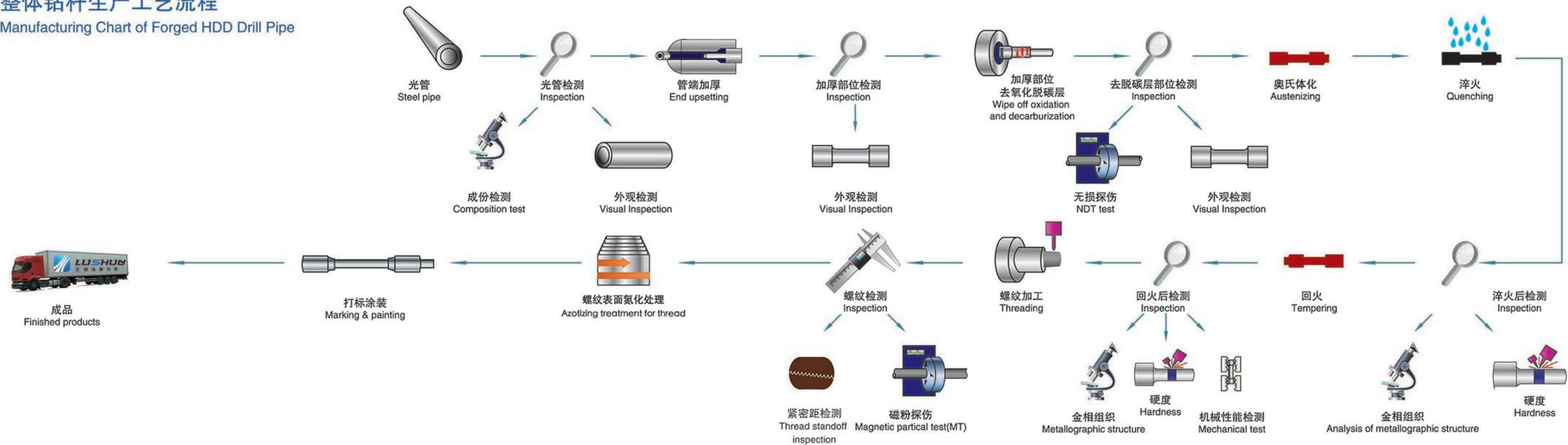
互建互创 · 互利双赢

Growing up together with its customers, Lushun has won their trust with quality products and efficient service. Lushun has an extensive and solid customer foundation thanks to its integrity and sincerity.

陆顺与客户共同成长，长期以来始终以高品质的产品，高效能的服务赢得了客户的信赖，以诚信、诚心奠定了广泛而坚实的客户基础。



• 整体钻杆生产工艺流程
Manufacturing Chart of Forged HDD Drill Pipe



中国钻机配套钻杆参数 Specification of Forged drill pipe for China HDD drilling rigs

规格尺寸 Model name	螺纹型号 Thread type	管体外径 OD of the tube mm	接头外径 OD of tool joint mm	接头内径 ID of tool joint mm	管体壁厚 Wall thickness of tube mm	长度 Length m	钢级 Grade	扭矩 Torque N.M	弯曲半径 m
50(2") 整体式	VM-D16	50	57	18	6.5	2	S135	4230	33.2
50(2") 整体式	VM-D16	50	57	18	6.5	2.5	S135	4230	33.2
60(2 3/8") 整体式	VM-D24	60	67	20	7.5	3	S135	8635	40
73(2 7/8") 整体式	NC23(76.2/85)	73	80	28	8	3	S135	15132	48.5
73(2 7/8") 整体式	NC26(85/76.2)	73	87	28	10	3	S135	19239	48.5
76(3") 整体式	NC26(85/76.2)	76	87	28	10	3	S135	19239	48.5
83(3 1/4") 整体式	VM-D80	83	92	36	9.19	3	S135	21267	55.1
83(3 1/4") 整体式	VM-D80	83	92	36	9.19	4.5	S135	21267	55.1
89(3 1/2") 整体式	NC31	88.9	104.8	42	10	4.5	S135	32898	59
89(3 1/2") 整体式	NC31	88.9	104.8	42	10	6	S135	32898	59

威猛钻机配套钻杆参数 Specification of Forged drill pipe for Vermeer HDD drilling rigs

机器型号 Model of HDD machine	螺纹型号 Thread type	管体外径 OD of the tube mm	接头外径 OD of tool joint mm	接头内径 ID of tool joint mm	管体壁厚 Wall thickness of tube mm	长度 Length mm	钢级 Grade	扭矩 Torque N.M	弯曲半径 m
D7x11, D10x15S3	FS1 #200	42	48	19	6	1829	S135	2040	29
D10x14, D10x15	FS1 #200	42	48	19	6	3048	S135	2040	29
D16x20A, D16x20Series II, D20x22S3	FS1 #250	50	54	19	6	3048	S135	2720	30
D20x22A, D20x22Series II, D20x22S3	FS1 #400	50	57	22	6.5	3048	S135	3536	31
D24x40, D24x40A, D24x40Series II D23x30S3, D24x40S3	FS1 #600	60	66.7	22	7.5	3048	S135	5440	33
D40x40	FS1 #600	60	66.7	22	7.5	4572	S135	5440	33
D33x44, D36x50, D36x50 Series II	FS1 #650	60	70	22	7.5	3048	S135	6800	33
D36x50, D40x55S3 D36x50 Series II	FS1 #700	67	79	28	10	3048	S135	6800	44.2
D36x50, D36x50 Series II	FS1 #700	67	79	28	10	4572	S135	6800	44.2
D50x100, Uni60x70	FS1 #900	73	82.55	30	10	3048	S135	12240	51.4
D50x100, D50x100A, D60x90	FS1 #900	73	82.55	30	10	4572	S135	12240	51.4
D50x100, D80x100Series II, D60x90	FS1 #800	88.9	92	38	10	4572	S135	13600	51.4
D100x120Series II, D130x150 D60x90, D60x90S3, D100x140, D100x140S3	FS1 #1000	89	111.5	57	12.1	6096	S135	20400	60.2
D33X44, D36x50, D36x50 Series II	FS2	60	70	30	7.5	3048	S135	6800	33
D33X44, D36x50, D36x50 Series II	FS2	60	70	30	7.5	4572	S135	6800	33
D100x120	FS2	88.9	104.8	57	10	6096	S135	24480	60.2
D36x50DR-Inner rod	FS1 #200	42.1	48	19	4.9	3048	S135	2040	29
D36x50DR-Outer rod	FS1 #750	66.7	84	52	7.1	3048	S135	6600	40

凯斯钻机配套钻杆参数 Specification of Forged drill pipe for Case HDD drilling rigs

机器型号 Model of HDD machine	螺纹型号 Thread type	管体外径 OD of the tube mm	接头外径 OD of tool joint mm	接头内径 ID of tool joint mm	管体壁厚 Wall thickness of tube mm	长度 Length mm	钢级 Grade	扭矩 Torque N.M	弯曲半径 m
Case 6010	Case 6010	50	57	18	6.5	3048	S135	30	30
Case 6030	Case 6030	60	66.7	21	7.5	3048	S135	33	33

机械性能表 Mechanical Property

钢级 Grade	屈服强度 Yield Strength				抗拉强度 Tensile Strength		延伸率 Extension Rate	冲击功 Impact Power AkV J
	最小 Min.		最大 Max.		最小 Min.	最大 Max.	最小 Min.	10x10
	Psi	Mpa	Psi	Mpa	Psi	Mpa	%	(-20 °C)
S135	135,000	931	165,000	1138	145,000	1000	13	≥ 54

便卸式导向钻头

Quick disconnect sonde housing with drill bits

连接方式：便卸式（带八方套结构）

信号棒装卸方式：后装式、侧装式

Connection: Octagonal connection

Loading the transmitter: back-load, side-load



侧开式导向钻头

Side-load sonde housing with drill bits



普通导向钻头

Sonde housing with drill bits

连接方式：直接式（与钻杆直接连接）

信号棒装卸方式：后装式

Connection: Direct connection with drill pipe

Loading the transmitter: Back-load

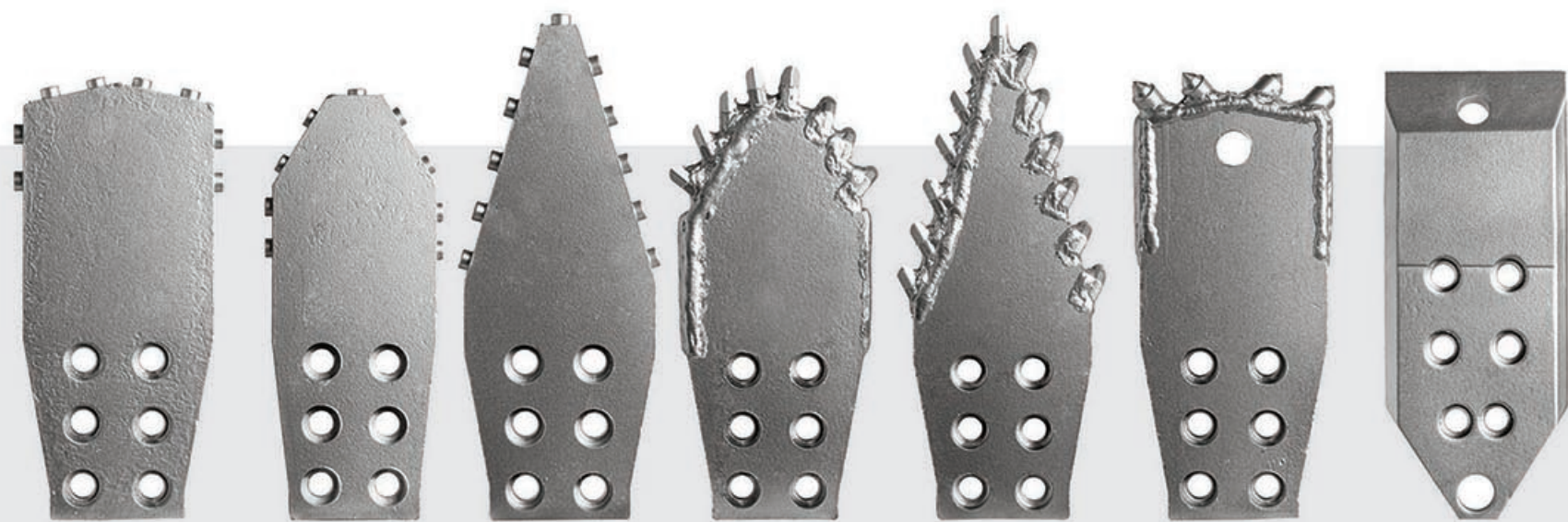


鹰爪导向钻头

Eagle claw drill head



可供选择的刀头 Cutter heads



导向板 Drill bits

根据不同土壤地质选择不同导向板以提高施工效率。
Choose suitable drill bits according to soil type and condition for improving projects efficiency.

各类接头 Various Connectors



分 动 器 Swivel

规格: 5T、15T、25T、30T、40T、60T、80T、100T、200T、300T、400T、500T、600T、700T、800T

我公司生产的分动器选用优质锻造合金结构钢, 采用国内外优质轴承, 例如: SKF、NSK。经久耐用, 便于拆卸维护。

Specification: 5T, 15T, 25T, 30T, 40T, 60T, 80T, 100T, 200T, 300T, 400T, 500T, 600T, 700T, 800T

We use the high quality forged alloy steel and the bearing with the superior quality in the world, such as SKF and NSK.

It is durable and easy to disassemble for maintenance.



挤扩式扩孔器 Barrel Reamer

规格: $\Phi 200 \sim 2000\text{mm}$

适用于较软土质地层。

与钻杆连接方式: 便卸式 (八方套结构)

直连式 (与钻杆直接连接)

与管道连接方式: 自带分动器、不带分动器

Size: $\Phi 200 \sim 2000\text{mm}$

Suitable for soft soil.

Connection with drill rod: Octagonal connection

Direct connection with drill rod

Connection with laid pipe: Within or without swivel



流道式扩孔器 Fluted reamer

规格: $\Phi 200\sim 1200\text{mm}$

用于流沙、沙土、回填土及多石块地层。

外壳结构: 铸钢件、结构件

与钻杆连接方式: 便卸式 (八方套结构)

直连式 (与钻杆直接连接)

与管道连接方式: 自带分动器、不带分动器

Size: $\Phi 200\sim 1200\text{mm}$

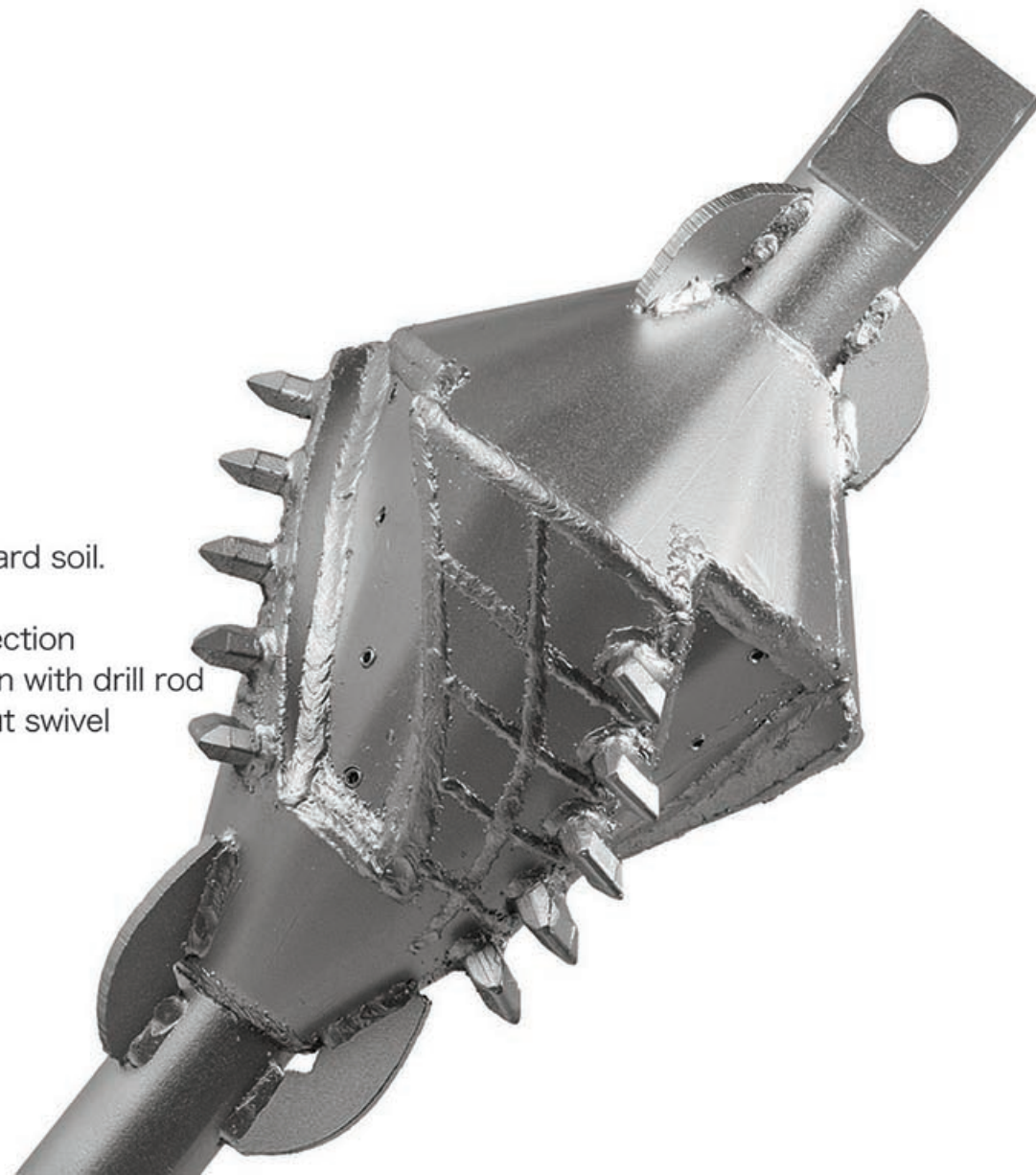
Suitable for sand and medium-to - very hard soil.

Structure: Steel Casting, welded

Connection with drill rod: Octagonal connection

Direct connection with drill rod

Connection with laid pipe: Within or without swivel



堆焊扩孔器 All Terrain Fluted reamer

规格: $\Phi 200\sim 1200\text{mm}$

用于流沙、沙土、回填土及多石块地层。

外壳结构: 实心钢板

与钻杆连接方式: 便卸式 (八方套结构)

直连式 (与钻杆直接连接)

与管道连接方式: 自带分动器、不带分动器

Size: $\Phi 200\sim 1200\text{mm}$

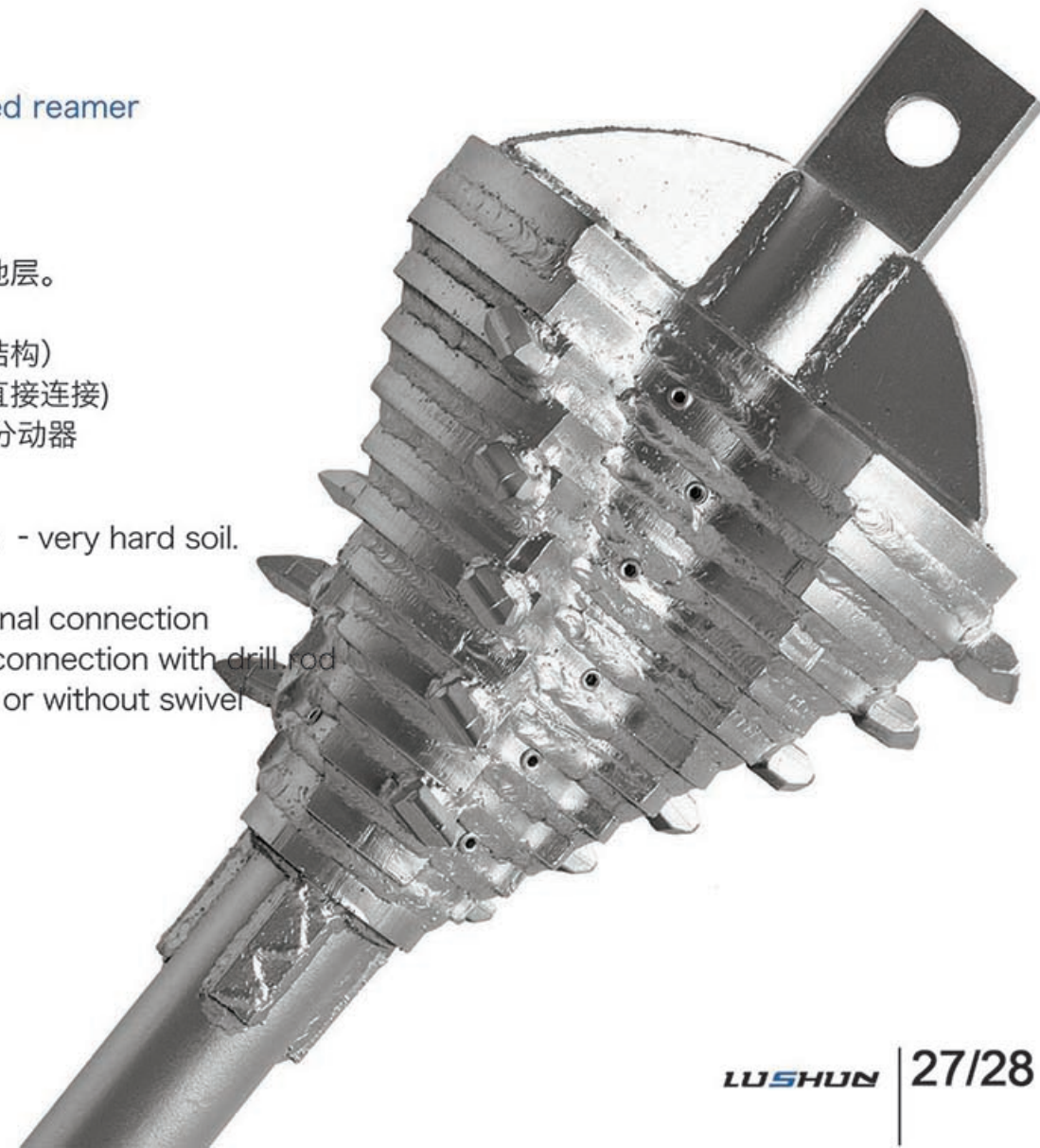
Suitable for sand and medium-to - very hard soil.

Structure: Alloy iron plate

Connection with drill rod: Octagonal connection

Direct connection with drill rod

Connection with laid pipe: Within or without swivel



叶片式扩孔器 Cyclone Reamer

规格: 200-1200mm

适用于沙土, 粘壤土和胶黏土。

Size: 200-1200mm

It suits for sands, loams and sticky clays



切扩式扩孔器 Fly Cutter reamer

规格: $\Phi 200 \sim 1200\text{mm}$

用于较硬土质地层及强风化岩层。

与钻杆连接方式: 便卸式 (八方套结构)

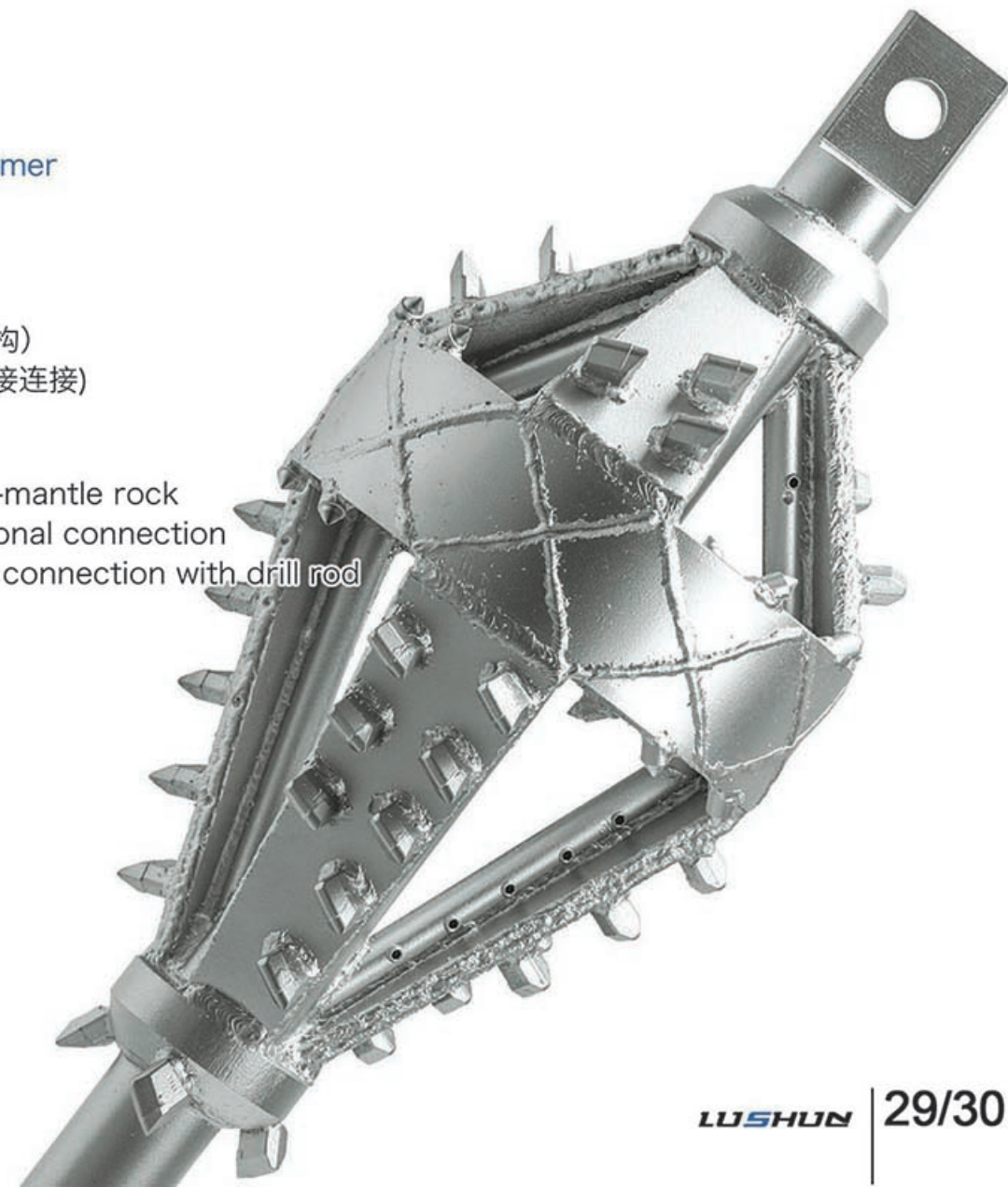
直连式 (与钻杆直接连接)

Size: $\Phi 200 \sim 1200\text{mm}$

Suitable for hard soil and strong-mantle rock

Connection with drill rod: Octagonal connection

Direct connection with drill rod



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