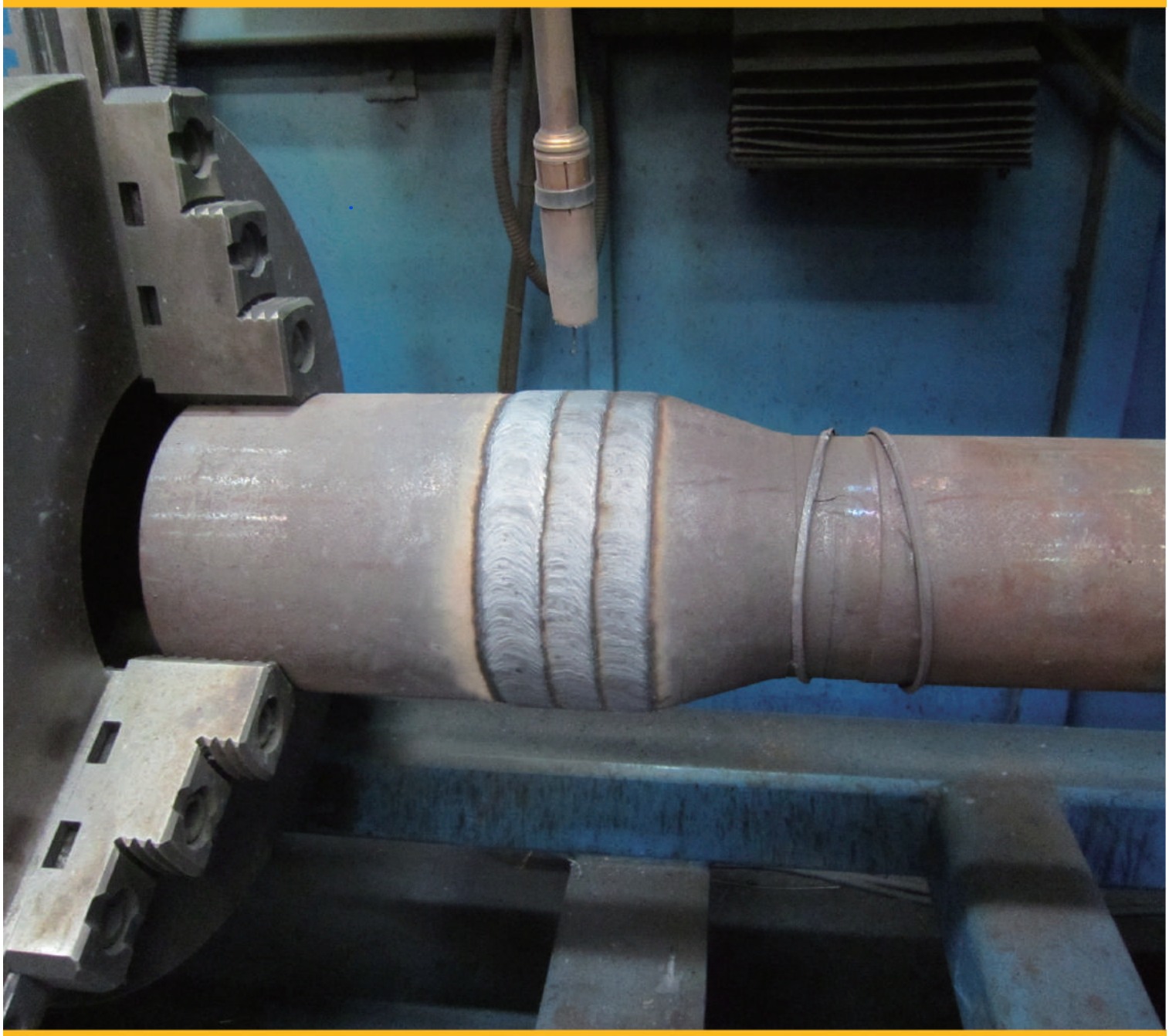


钻杆耐磨带焊丝

Hardbanding Wire



KOOBEN Kooben Technology
北京固本科技有限公司

P. 01



KOOBEN

10年来，北京固本的耐磨带焊丝已经累计在中国市场焊接了约100,000根钻杆。油田单位、管具站、钻杆制造商、现场修复单位，北京固本的耐磨带焊丝得到了用户的广泛认可。我们期待与您的合作。

In the past 10 years, Kooben hardbanding wires have been applied and reapplied on over 100,000 drilling pipes. Our customers include oilfield service companies, drilling contractors, pipe manufacturers, and on-site repair units. We are open to potential business opportunities and we look forward working with you in the future.

北京固本科技有限公司是一家专业从事耐磨金属材料研发、生产和销售的高新技术企业，在多位归国留学人员创始人的引领下，公司一直坚持“依技术为生存之本，靠技术助发展之力”的企业发展理念，努力将北京固本打造为国内顶尖、世界一流的新型金属材料企业。

公司是国家大学科技园企业，享受国家专项资金资助。北京固本先后荣获北京市海淀区创新企业、百家最具创业潜力企业，并3次获评为北京市中关村高新技术企业。技术团队成员发明耐磨金属相关国家发明专利100余项，发表耐磨金属相关学术文献300余篇，其中SCI/EI收录近百篇。公司成立至今，一直秉持技术至上的经营理念。长期跟踪学术和业界技术动态，数字化和软件化的合金配方设计，覆盖全球的原材料供应链，以及科学编制的企业标准体系，使得北京固本公司及产品在业界获得了良好的声誉。

针对石油行业的钻杆耐磨带应用，北京固本的专利产品包括KB100，KB150，KB300，KB350型等多个型号钻杆耐磨带焊丝。KB系列耐磨带焊丝具有套管友好、无裂纹、高硬度等特点，可用于钻杆接头、加重钻杆的堆焊和复焊工作。KB系列产品，全面兼容美国安科产品，可直接替换使用。此外，公司还提供美国Postle，LiquidMetal等公司的耐磨带焊丝国产化替代品，常见的可替代型号包括：Duraband（久固邦），Tuffband（强力邦），MStar等。用户单位的长期使用经验表明，北京固本耐磨带焊丝性能达到或超过进口产品，具有更高的性价比。

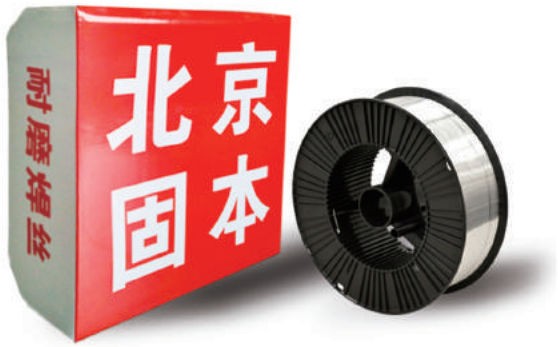
除耐磨带焊丝产品的直接销售、代理经销外，公司在石油行业也开展OEM贴牌生产、定向研发等多种服务。北京固科技有限公司热诚欢迎终端用户、技术单位、科研院所、代理经销等各界朋友交流合作，共创双赢。

Kooben Technology was established by a group of hardfacing experts, who have been pioneering leaders in the development of wear and corrosion-resistant materials for over 30 years. Under their leadership, one of the best R&D teams in the world was born and enabled Kooben to quickly become a leading manufacturer and supplier of hardfacing wire, arc spray, and 3D printing metal powder.

With its own manufacturing facilities and product development, Kooben also prides itself on the ability to customize products to fit customer needs, greatly reducing costs. It also is able to pass savings from low manufacturing costs on to its customers. Additionally, the company invests large amounts of funds and resources into research on the latest in industry developments and technologies, making the company an unmatched leader in cutting-edge product flexibility and research. By doing so, Kooben has gained recognition and awards by government agencies and academics across the globe. Its more than 100 grades of products are used in a wide range of industries including the oil and gas, mining, steel, cement, dredging, and machinery industries. Kooben is also ISO 9001 certified for quality management.

Kooben's KB series of hardbanding wire (KB 100, 150, 300, and 350) for drill pipes and heavy weight drill pipes is casing friendly, crack free, and highly wear resistant. The wires can also be re-applied over themselves or Arnco wires of the same grade. According to customers, KB series hardbanding is better in terms of both performance and value when compared to other wires.

These strengths and Kooben's identity as a new and forward-looking company give it the power to stay on top of industry trends and move at full speed towards a prosperous future together with its customers and partners.



// KB100耐磨带焊丝

- 100%无裂纹
  100% crack-free
- 套管友好，提供适当的耐磨性能
  Casing-friendly and wear-resistant
- 很高的性价比，可多次复焊
  Easy reapplication and high cost performance
- 兼容安科100XT
  Compatible with Arnco 100 XT

KB100是北京固本最早研发的耐磨带焊丝产品，55 HRC左右的洛氏硬度，优良的耐磨性能，是一种十分理想的耐磨带材料。很多用户非常满意KB100的焊接表现，其易用性和焊接工艺兼容性受到用户单位的肯定。

As one of the first hardbanding products from Kooben, KB100 provides solid protection for tool joints. With a hardness of about 55 HRC, KB100 has proved to be a capable option and has been well received by its users, particularly due to its weldability and tolerance to welding parameters.

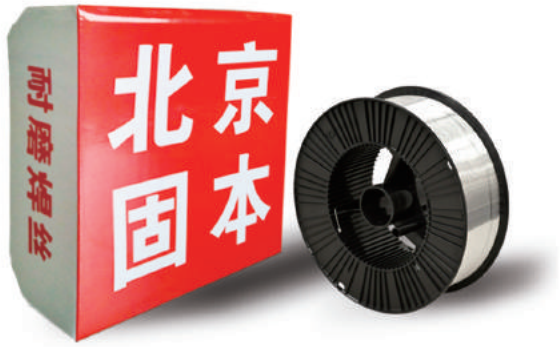
// KB150耐磨带焊丝

- 100%无裂纹
  100% crack-free
- 套管友好，优秀的耐磨性能
  Casing-friendly and excellent wear-resistant
- 可多次复焊
  Easy reapplication
- 可不预热使用，可无保护气体使用
  Welding without preheating or shielding gas
- 兼容安科150XT
  Compatible with Arnco 150 XT



KB150是北京固本继广受欢迎的KB100的全方面升级型号，具有更好的套管友好性能，更高的硬度，更好的耐磨性能表现。在没有预热，没有保护气体的工况下，KB150仍然可以进行焊接工作，并生成外观和性能优秀的堆焊耐磨层。

An upgrade to popular KB100, KB150 boosts higher hardness, better wear resistance, and is more casing friendly. KB150 is able to form consistent and high performing hardbanding layer even without proper pre-heating or shielding gas in place.



// KB300耐磨带焊丝

- 套管友好
  Casting-friendly
- 优秀的耐磨性能，适用于裸井
  Excellent wear resistant for bare well
- 类似于碳化钨合金的性能效果
  Performance similar as tungsten carbide
- 兼容安科300XT
  Compatible with Arnco 300 XT

特殊的合金配方设计，极大的增加了堆焊耐磨层的硬度和耐磨性能。KB300具有微小裂纹，这些裂纹是由于硬质相化合物在生成时发生应力释放所造成的。裂纹不会贯穿到基体，不影响堆焊耐磨层与接头的结合。

The new alloy design provides enhanced hardness and wear resistance over model KB100. Micro-cracks are present in the hardbanding deposits, which are the result of stress releasing during the formation of hard phase within welding layer. Micro-cracks do not prorogate into the substrate and do not affect bonding between hardbanding layer and tool joint.

// KB350耐磨带焊丝

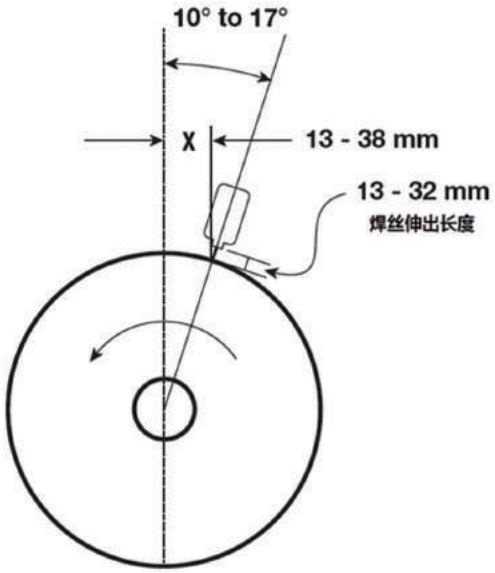
- 无裂纹
  100% crack-free
- 套管友好
  Casing-friendly
- 优秀的耐磨性能
  Excellent wear resistant performance
- 兼容安科350XT
  Compatible with Arnco 350 XT



KB350耐磨带焊丝的合金配方设计特点，是在具有一定硬度和韧性的基体上，生成大量紧致排列的细粒状硬质相化合物。通过将高硬度的硬质相化合物尺寸减小，降低生成时的应力，得到无裂纹的堆焊耐磨层。

The key for KB350 alloy design lies in forming high volume of closely knitted fine grain hard phase network imbedded in a hard and resilient matrix. By reducing the size of hard phase, which in turn alleviating in-situ stress during their formation, KB350 is able to achieve 100% crack-free hardbanding application.

// 推荐焊接参数



推荐焊接参数/Recommended Welding Parameters		
焊丝型号	Hardbanding Wire Grade	北京固本/Kooben KB 100/150/300/350
焊接工艺	Welding Process	气体保护熔化极电弧焊/GMAW
焊丝直径（mm）	Diameter	1.6
电源	Polarity	直流反接/DCEP
保护气体	Shielding Gas	100%二氧化碳/100% CO_2
气体流量（CFH）	Gas Follow	25-45
电流 （A）	Current	220-320
电压 （V）	Voltage	27-32
焊枪角度（°）	Torch Angle Offset	10-17
焊丝伸出长度（mm）	Stickout	13-32
最高层间温度（℃）	Maximum Interpass	320
焊后冷却	Post Welding	缓慢冷却至室温/Slow cool to room temperature
转速（mm/min）	Rotation Travel Speed	127-381
摇摆宽度（mm）	Oscillation Width	19-29
摇摆速度（SPM, 次/分钟）	Oscillation Speed	50-80

耐磨带焊丝用量估算表（公斤）

ESTIMATED USAGE OF HARDBANDING WIRE （Kg）

钻杆接头外径 Tool Joint Diameter		耐磨带宽度 Hardband Width					
		.750"	1.00"	2.00"	3.00"	3.750"	4.00"
in	mm	19.05mm	25.4mm	50.8mm	76.2mm	95.25mm	101.6mm
		窄焊道	单焊道	双焊道	三焊道		四焊道
4-1/2"	114.3	0.171	0.229	0.457	0.686	0.857	0.914
4-3/4"	120.65	0.181	0.241	0.482	0.723	0.903	0.963
5"	127	0.190	0.254	0.507	0.761	0.951	1.014
5-1/4"	133.35	0.200	0.266	0.532	0.797	0.997	1.063
5-1/2"	139.7	0.209	0.278	0.556	0.834	1.043	1.112
5-3/4"	146.05	0.218	0.291	0.582	0.872	1.090	1.163
6"	152.4	0.228	0.303	0.607	0.910	1.138	1.214
6-1/8"	155.575	0.233	0.310	0.621	0.931	1.163	1.241
6-1/4"	158.75	0.238	0.317	0.633	0.950	1.188	1.266
6-1/2"	165.1	0.248	0.330	0.660	0.991	1.240	1.321
6-5/8"	168.275	0.252	0.336	0.671	1.007	1.259	1.343
6-3/4"	171.45	0.256	0.342	0.683	1.025	1.281	1.366
7"	177.8	0.266	0.354	0.709	1.063	1.329	1.417
7-1/4"	184.15	0.275	0.367	0.734	1.101	1.376	1.468
7-1/2"	190.5	0.285	0.380	0.760	1.140	1.426	1.520
8"	203.2	0.304	0.406	0.811	1.217	1.521	1.622
8-1/4"	209.55	0.316	0.421	0.843	1.264	1.580	1.686
8-1/2"	215.9	0.328	0.437	0.875	1.312	1.640	1.749

注意：本表是基于使用北京固本耐磨带焊丝，耐磨带堆焊厚度为3.17mm情况下估算。

NOTE: Based on Kooben hardbanding wire and 4/32" (3,17mm) thickness.



耐磨带焊丝领导品牌

Leading hardbanding wire manufacturer

KOOBEN

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