



COLUMN NAIL ROLLER

柱钉辊



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TO SAVE YOUR TIME ,
YOUR EFFORT AND YOUR INVESTMENT
HAND IN LVSSN, WIN WITH YOU
携手绿森共创价值
省事省心更省力

 LVSSN GROUP

公司介绍 COMPANY PROFILE

LVSSN GROUP, 一个以技术为驱动力, 专注一带一路、俄语系国家和拉美市场的工业品跨境销售与综合服务方案解决商。

LVSSN深耕于建材行业多年, 在水泥、钢铁、矿山、轴承、电气、耐火材料等行业有着丰富经验。我们与全球知名的制造业供应商建立了紧密的合作关系, 可以提供广泛的产品选择, 严格把关产品质量确保稳定可靠; 我们依托多年工程设计总包能力, 配备技术团队为客户提供全面的售后服务与专业的解决方案。LVSSN优势在于集工业品跨境销售、设计研发及工程服务为一体, 为客户提供一站式采购解决方案。

LVSSN的客户辐射东南亚、中东、中非、中亚等几十个国家和地区, 与超过10000家国外深度合作客户, 超过20000家国内先进制造业供应商保持长期合作关系; LVSSN将进一步聚焦战略目标, 将跨国B2B电子商务作为公司的全球战略, 结合自身品牌运作和设计研发能力进一步强化行业优势地位。



LVSSN GROUP is a technology-driven company specializing in cross-border sales of industrial products and providing comprehensive service solutions focused on the Belt and Road Initiative, Russian-speaking countries, and the Latin American market.

LVSSN has been deeply involved in the building materials industry for many years and has extensive experience in industries such as cement, steel, mining, bearings, electrical, and refractory materials. We have established close partnerships with globally renowned manufacturing suppliers, allowing us to offer a wide range of product choices while ensuring strict quality control for stable and reliable performance. Leveraging our years of experience in engineering project management, we have a dedicated technical team that provides comprehensive after-sales service and professional solutions to our clients. The strength of LVSSN lies in its integrated approach of cross-border sales of industrial products, design and development, and engineering services, offering customers a one-stop procurement solution.

LVSSN's customer base extends to dozens of countries and regions in Southeast Asia, the Middle East, Central Africa, and Central Asia. We have established deep partnerships with over 10,000 international clients and maintain long-term cooperative relationships with over 20,000 domestic advanced manufacturing suppliers. Looking ahead, LVSSN will continue to focus on its strategic goals and position cross-border B2B e-commerce as a global strategy for the company. Leveraging our brand operations and design and development capabilities, we aim to further strengthen our position and industry advantage.

10000

WITH MORE THAN 10,000 FOREIGN DEEP COOPERATION CUSTOMERS.

20000

MORE THAN 20,000 DOMESTIC ADVANCED MANUFACTURING SUPPLIERS HAVE MAINTAINED LONG-TERM COOPERATIVE RELATIONS

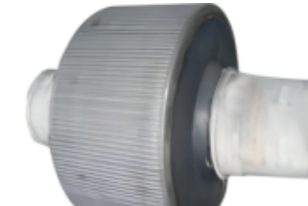
NO.1 ROLLER TYPE 辊子类型

可根据物料特性, 提供堆焊、离心复合、柱钉的耐磨辊面

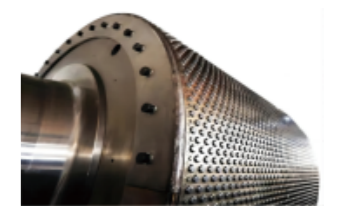
According to the material characteristics, wear-resistant roller surfaces for surfacing, centrifugal composite, and column nails can be provided



复合辊
Composite roller



堆焊辊
Surfacing roller



柱钉辊
Column nail roller

NO.2 COMPARISON OF VARIOUS TYPES OF ROLLERS 各类型辊子对比

对比类别	堆焊辊	复合辊	柱钉辊
制作工艺	42CrMo-A钢一次性锻造而成+堆焊耐磨层	42CrMo-A锻造辊轴+辊套堆焊耐磨层	42CrMo-A锻造辊轴+辊套+镶嵌柱钉
耐磨层	辊面耐磨层通过2+3+2方式堆焊, 耐磨层厚度可达20mm	辊套耐磨层(厚度为60~80mm)+堆焊耐磨层	辊套耐磨层(厚度为60~80mm)+镶嵌柱钉(柱钉: 钨钴硬质合金压力烧结, 硬度>HRA85)
维护方式	现场对辊体进行加热保温, 进行堆焊过渡层+硬化层+条纹, 需要离线修复	打磨焊接条纹, 无需离线修复	当有柱钉损坏时可现场在线更换, 无需返厂修复
维护费用	焊接工艺复杂, 焊丝用量大停机时间长, 维护费用高	焊接工艺简单, 维护时间短, 焊材用量少, 停机时间短, 维护费用低	在线更换柱钉, 维护费用低, 停机时间短
用于水泥行业的正常使用寿命	<ul style="list-style-type: none"> 一次性整体维护后≤6000h; 可整体修复次数≤5次; 每次维护会损伤基体, 一般现场修复寿命3至5年后需离线或报废 	<ul style="list-style-type: none"> 第一次条纹整体维护后≥8000h; 定期正确维护, 无维护次数限制; 正常使用寿命>5年 	水泥生熟料辊压使用寿命≥20000h
质保期	质保8000h	辊套质保20000h	辊套质保20000h

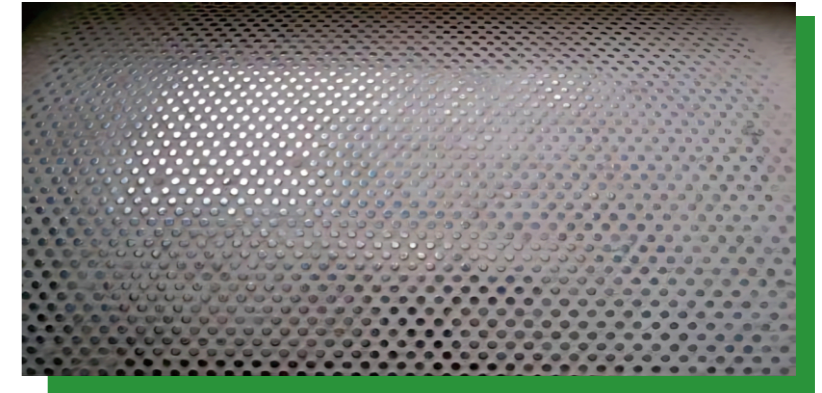
Compare categories	Surfacing roller	Composite roller	Column nail roller
Manufacturing process	42CrMo-A steel forged in one piece with overlay welding wear-resistant layer.	42CrMo-A forged roll shaft + roller sleeve + overlay welding wear-resistant stripes.	42CrMo-A forged roll shaft + roller sleeve + embedded dowels.
Technology	The roll surface wear-resistant layer is overlay welded using a 2+3+2 method, and the thickness of the wear-resistant layer can reach 20mm.	The roller sleeve wear-resistant layer (with a thickness of 60-80mm) + overlay welded wear-resistant stripe layer.	The roller sleeve wear-resistant layer (with a thickness of 60-80mm) + embedded dowels (dowels: tungsten cobalt hard alloy pressure sintered, hardness > HRA85.)
Maintenance method	On-site heating and insulation of the roller body, followed by overlay welding transition layer + hardening layer + stripes. Offline repair is required.	Grind welding stripes without the need for offline repair	When there is damage to the column nails, they can be replaced online on site without the need to return to the factory for repair
Maintenance cost	The welding process is complex, requiring a large amount of welding wire, long downtime, and high maintenance costs.	The welding process is simple, maintenance time is short, welding material usage is small, downtime is short, and maintenance costs are low	Online replacement of studs, low maintenance costs, and short downtime
Normal service life for the cement industry	<ul style="list-style-type: none"> After one-time overall maintenance, the interval is ≤ 6000 hours. The number of overall repairs is ≤ 5 times. Each maintenance will damage the base material, and generally, on-site repairs need to be taken offline or scrapped after 3 to 5 years of service life. 	<ul style="list-style-type: none"> After the first stripe's overall maintenance, the interval is ≥ 8000 hours. Regular proper maintenance has no limit on the number of maintenance times. Normal service life is >5 years. 	Cement raw clinker rolling service life ≥ 20000 h
Warranty period	Warranty 8000h	Roll sleeve warranty of 20000h	Roll sleeve warranty of 20000h

NO.3 WEAR-RESISTANT TECHNOLOGY FOR COLUMN NAIL ROLLER SURFACE

柱钉辊面耐磨技术

显著优势:

- ※ 水泥专用柱钉设计优势
- ※ 独有的辊磨同步耐磨技术
- ※ 水泥柱钉排布设计优势
- ※ 水泥柱钉可更换优势
- ※ 辊面基材优势
- ※ 享誉行业的业绩表现



Significant advantages:

- ※ Special design advantages for cement pillar pins
- ※ Unique roll grinding and synchronous wear-resistant technology
- ※ Design advantages in the arrangement of cement pillar pins
- ※ Advantages of replaceable cement pillar pins
- ※ Advantages of roll surface base material
- ※ Industry-renowned performance achievements

NO.4 CHARACTERISTICS OF COLUMN NAIL ROLLER

柱钉辊的特点



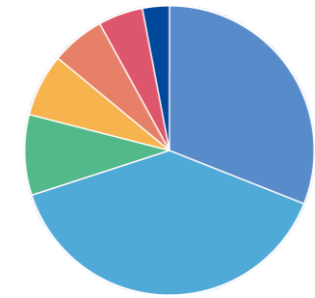
柱钉辊由锻造轴芯、特种合金复合辊套、耐磨硬质合金柱钉构成，其特点为：

- **整体耐磨性大幅提升：**柱钉由碳化钨和钴通过粉末冶金方法压力烧结及加工制造而成，具有高硬度与强韧性，具备“耐磨与抗折弯”的特点。合理的菱形点阵布局，让柱钉之间形成密实的“自生料垫耐磨层”，有效保护辊体不受磨损，大幅度提高辊套的使用寿命。
- **各种物料适应性好：**合理的布局方式能够死死卡住物料，不会导致物料翻滚磨损辊面，不会因水分、粒度、硬度等变化导致设备运行不稳定。
- **带料能力强，提升产量：**在物料挤压过程中，柱钉露头卡住物料，切断物料间的相对滑动，物料被快速带到挤压区，提升粉磨系统中的循环量与成品率。
- **检修方便，维护成本低：**在使用过程中，若不慎柱钉断裂、破裂，满足更换柱钉条件时，维护人员仅需简单培训掌握技巧，既可利用设备停机间隙进行更换，从而保持辊面的正常使用状态，获得最大使用寿命。
- **性能稳定，使用寿命最长的专用技术：**柱钉辊采用复合材料作为柱钉辊套母体材质的柱钉辊，通过大量现场运行和实践数据，不断对柱钉进行优化排布，使辊面与物料的摩擦力和咬合力得到改善，相比其他材质和排布的柱钉辊性能更加稳定，使用寿命长。更加稳定和大大提高了辊面的带料能力，在料配不变的情况下，进一步稳定和提高产量，增加经济效益。
- **全面广泛的行业应用业绩：**我司已有一百多枚柱钉辊在各类现场使用多年，包括水泥、铁矿、铜矿、铝矿、钨矿、锰矿、钛矿、铝土矿、金矿.....，具有明显的技术和经验优势。
- **售后服务优势：**我司有专业的辊面维护服务团队，能够做到及时动态跟踪客户辊面使用情况，定期主动回访，确保辊面达到最佳使用效果。

The column pin roller consists of a forged shaft core, a special alloy composite roller sleeve, and wear-resistant hard alloy column pins. Its characteristics are as follows:

- **Significantly improved overall wear resistance:** The column pins are made of tungsten carbide and cobalt through powder metallurgy, with high hardness and toughness, and possess the characteristics of "wear resistance and resistance to bending and breakage". The reasonable diamond lattice layout allows the formation of a dense "self-generating material cushion wear layer" between the column pins, effectively protecting the roller body from wear and greatly improving the service life of the roller sleeve.
- **Good adaptability to various materials:** The reasonable layout can firmly hold the materials and prevent material rolling and wearing of the roller surface. It will not cause equipment instability due to changes in moisture, particle size, hardness, etc.
- **Strong material conveying capacity, increased production output:** During the material extrusion process, the exposed column pins grip the material, cut off the relative sliding between materials, and rapidly convey the material to the extrusion zone, increasing the circulating volume and product yield in the grinding system.
- **Convenient maintenance, low maintenance cost:** During use, if a column pin accidentally fractures or breaks, maintenance personnel only need simple training to master the skills. They can replace the pin during equipment downtime to maintain the normal use of the roller surface and achieve maximum service life.
- **Stable performance, the longest service life specialized technology:** The column pin roller adopts a composite material as the base material for the roller sleeve, which is optimized through extensive on-site operation and practical data. The layout of the column pins is continuously improved to enhance the friction and engagement forces between the roller surface and the material. Compared to other materials and layouts, the column pin roller has more stable performance and a longer service life. It achieves greater stability and significantly improves the material conveying capacity of the roller surface. Under unchanged material distribution, it further stabilizes and increases production output, enhancing economic benefits.
- **Comprehensive and extensive industry application performance:** Our company has over a hundred column pin rollers that have been used in various fields for many years, including cement, iron ore, copper ore, molybdenum ore, tungsten ore, manganese ore, titanium ore, bauxite, gold ore, etc. We have evident technological and experiential advantages.
- **After-sales service advantages:** Our company has a professional roller surface maintenance service team that can dynamically track the customer's roller surface usage, conduct regular proactive follow-ups, and ensure that the roller surface achieves optimal performance.

NO.5 APPLICATION OF COLUMN NAIL ROLLER 柱钉辊的应用



NO.6 OPERATING COST OF STUD ROLLER 柱钉辊的使用成本

堆焊辊、复合辊、柱钉辊累计维修成本比价表（单位：万元）						
类别	使用1年	使用2年	使用3年	使用4年	使用5年	备注
堆焊辊	50	100	150	200	250	累计停机维护>100天
复合辊	20	50	80	110	150	累计停机维护>70天
柱钉辊	0	0	0	<5	<5	极少维护不影响生产

堆焊辊、复合辊、柱钉辊生产成本比价表（单位：万元）				
类别	新辊产量	磨损后产量	平均产量	使用柱钉辊运行成本下降50-80万/年
堆焊辊	240t/h	200t/h	220~230	堆焊辊条纹磨损后产量下降，电耗增加
柱钉辊	240t/h	240t/h	240	柱钉辊磨损极小且产量和电耗稳定

Comparison table of accumulated maintenance costs for overlay welded rolls, composite rolls, and embedded dowel rolls (Unit: RMB ten thousand)						
Category	1 year of use	2 year of use	3 year of use	4 year of use	5 year of use	Remarks
Overlay Welded Roll	50	100	150	200	250	Accumulated downtime maintenance > 100 days
Composite roll	20	50	80	110	150	Accumulated downtime maintenance > 70 days
Embedded Dowel Roll	0	0	0	<5	<5	Minimal maintenance with no impact on production

Comparison table of production costs for overlay welded rolls, composite rolls, and embedded dowel rolls (Unit: RMB ten thousand)				
Category	New roll production	Production after wear	Average production	Operating costs reduced by 500,000 to 800,000 RMB per year with the use of embedded dowel rolls.
Overlay Welded Roll	240t/h	200t/h	220~230	After the wear of overlay welded rolls, the production decreases and the power consumption increases.
Embedded Dowel Roll	240t/h	240t/h	240	The embedded dowel rolls experience minimal wear and maintain stable production and power consumption.

由于柱钉辊全部为精加工零部件，颠覆了传统焊接的辊面技术的尺寸不稳定性，辊子整体圆度和尺寸精度非常高，最大误差 < 0.5mm,设备运行稳定性达到最佳效果，在系统状态下辊压机轴承和减速机、液压系统寿命的故障率也会下降。

综上所述，相比堆焊辊柱钉辊一次投入5年内可节约维护费250万（不含堆焊辊换套成本），运行成本下降250万~400万，减少停机时间100天，综合优势明显。

Due to the fact that all the components of the pillar-pin roll are precision machined, it subverts the size instability of the traditional welded roll surface technology. The overall roundness and dimensional accuracy of the roll are extremely high, with a maximum error of <0.5mm. This ensures optimal stability of equipment operation and reduces the failure rate of roller press bearings, reducers, and hydraulic systems during system operation.

In summary, compared to overlay welding rolls, the pillar-pin roll can save maintenance costs of 2.5 million yuan within 5 years (excluding the cost of roll sleeve replacement). The operating costs can be reduced by 2.5 to 4 million yuan, and downtime can be reduced by 100 days. The comprehensive advantages are significant.

NO.7 UPGRADE PLAN FOR COLUMN NAIL ROLLER

柱钉辊的升级方案

	方案一：购买全新辊类别	方案二：旧辊轴以旧换新类别
方案说明	购买一对全新柱钉（轴+套+柱钉，旧辊维修后作为备用，此方案的优点是新辊的轴、套、及钉子都由我公司整体设计、生产，质量可靠有保证。	将旧辊运到我公司进行换套，我公司会对原旧辊进行全面的检测和修复，并配装全新的辊套和柱钉，确保安装尺寸和使用无任何问题。
生产周期	4个月·使用寿命≥5年·质保3年·	生产周期为3.5个月，使用寿命≥5年·质保3年·
装配方案	新辊到达现场后，我公司安排技术人员现场指导现场拆卸后新辊组装工作。	待我公司将辊套生产完成后，贵公司将旧辊或者辊系返回我公司，我公司进行专业的拆卸和检测和组装，返厂后20天即可完成组装发货新辊（系）到达现场后，我公司安排技术人员现场指导现场拆卸后新辊组装工作。

	Option 1: Purchase brand-new rolls.	Option 2: Exchange old roll shafts for new ones.
Plan description	The advantages of this option are that a new set of embedded dowels (shaft + sleeve + dowels) will be purchased, while the repaired old rolls will serve as backups. The axis, sleeve, and dowels of the new rolls are all designed and manufactured by our company, ensuring reliable and guaranteed quality.	"The old rolls will be transported to our company for sleeve replacement. We will conduct a comprehensive inspection and repair of the original old rolls, and install brand-new roller sleeves and dowels to ensure precise installation dimensions and trouble-free operation.
Production cycle	4 months production cycle, service life ≥ 5 years, 3-year warranty.	Production cycle of 3.5 months, service life ≥ 5 years, 3-year warranty.
Assembly plan	After the new rolls arrive at the site, our company will arrange technical personnel to provide on-site guidance for the assembly of the new rolls after the dismantling process.	After our company completes the production of roller sleeves, your company will return the old rolls or roller systems to our company. We will carry out professional dismantling, inspection, and assembly. Upon returning to the factory, it will take 20 days to complete the assembly and shipment. Once the new rolls or roller systems arrive at the site, our company will arrange technical personnel to provide on-site guidance for the assembly of the new rolls after the dismantling process.

NO.8 SERVICE 品牌服务



我司提供一站式品牌服务：

数千家客户现场技术积累，十几年始终如一的专业精神，强大的技术和售后服务团队，只需一个电话，就可以为客户提供全方位服务，包括售前技术交流、现场考察、方案定制服务体系安装、系统调试、运行监测、培训、生产管理、设备维护和备件服务，解决您所有的问题。

Our company provides a one-stop brand service:

With accumulated technical expertise from thousands of customer sites and consistent professionalism for over a decade, we have a strong technical team and after-sales service team. With just one phone call, we can provide customers with comprehensive services, including pre-sales technical communication, on-site inspections, customized service system installation, system debugging, operation monitoring, training, production management, equipment maintenance, and spare parts services. We are here to solve all your problems.

滕州中联 Zhonglian in Tengzhou	200160	6years	无维护 No maintenance	中联集团 CUCC
鲁南中联 Zhonglian in Lunan	180100	6years	无维护 No maintenance	中联集团 CUCC
苏州天山 Tianshan in Suzhou	180120	5years	无维护 No maintenance	中材集团 CNBM
太行金隅 Jinyu in Taihang	180100	6years	无维护 No maintenance	金隅集团 BBMG
甘肃永固 Yonggu in Gansu	180100	4years	无维护 No maintenance	祁连山集团 Gansu Qilianshan Cement
松滋葛洲坝 Gezhouba in Songzi	200160	3years	无维护 No maintenance	葛洲坝集团 CGGC
中材安徽 Anhui Zhongcai	200160	4years	无维护 No maintenance	中材集团 CNBM
昆明海螺 Hailuo in Kunming	CLF180120	1years	项目名称 Project name	海螺集团 CONCH
西藏高争 Gaozheng in Tibet	CLF200160	3years	项目名称 Project name	高争水泥 GaoZheng Cement
徐州陇山 Longshan in Xuzhou	180120	6years	无维护 No maintenance	徐州水泥 XuZhou Cement

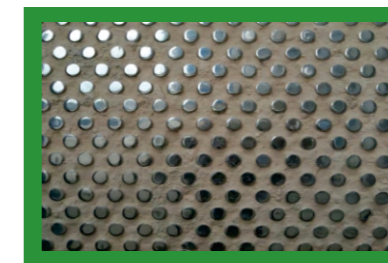
NO.9 PERFORMANCE OF COLUMN NAIL ROLLER 柱钉辊业绩

Customer case study of cement embedded dowel rolls				
项目名称 Project name	机型 Machine model	已使用年限 Years of service	维护状况 Maintenance condition	备注 Remarks
泰安中联 Zhonglian in Tai'an	200160	3 years	无维护 No maintenance	中联集团 CUCC
东平中联 Zhonglian in Dongpin	200160	6years	无维护 No maintenance	中联集团 CUCC



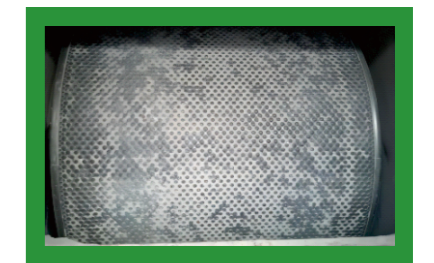
松滋葛洲坝使用2年，柱钉磨损0.8mm

Gezhouba in Songzi has been in use for 2 years, with a wear of 0.8mm on the embedded dowels.



局部近距离照片，柱钉磨损0.8mm

Close-up photos of localized areas showing 0.8mm wear on the embedded dowels.



滕州中联使用6年，柱钉磨损1.8mm

Zhonglian in Tengzhou has been in use for 6 years, with a wear of 1.8mm on the embedded dowels