

TRM型燃料立式辊磨

TRM SERIES COAL VERTICAL ROLLER MILL



主要技术优势

Main technical advantages

- 研磨部分采用水平磨盘加锥形磨辊。
- 分选部分采用动静态结合的组合式高效笼型选粉机。
- 每个磨辊相对独立的对磨盘上的物料进行施压。
- 磨辊润滑为稀油循环方式。
- 磨辊轴承密封采用三道氟橡胶骨架油封。
- 风环面积和挡料圈高度可以根据情况调整。
- 磨辊可以自行抬落，实现空载启动。
- 磨机操作简单，运行平稳，振动小。
- 燃料细度控制严格，调节灵敏。
- 设备运转率高，故障停机时间少。
- 磨辊可以靠油缸作用自动翻出机壳外，维修方便。
- 耐磨部件采用堆焊技术，维护方便。
- Flat grinding table and cone type grinding roller
- Using static and dynamic high efficiency cage type separator
- To pressurize grinding table independently
- Oil lubrication system for grinding roller
- Triple fluoro rubber framework oil seal for grinding roller
- Adjustable gas ring area and dam ring height
- Auto lift-up grinding roller and no load startup
- Simple and stable operation, less vibration
- Strict and flexible control of fineness of Coal
- High availability and less defect and shutoff time
- Auto swing out grinding roller and easy maintenance
- Hardfacing for wear part and easy maintenance

天津水泥工业设计研究院有限公司

Tianjin Cement Industry Design & Research Institute Co.,Ltd.

1 TRM型燃料辊磨的开发

DEVELOPMENT OF TRM COAL VERTICAL ROLLER MILL

TRM型燃料立式辊磨（简称“燃料辊磨”）是在TRM型原料辊磨基础上开发的专门用于燃料粉磨的新型设备，广泛应用于烟煤、无烟煤、褐煤、石油焦等燃料的粉磨。

TRM型燃料辊磨的开发经历了以下几个主要的阶段：

- 2004年，首台2500tpd水泥生产线配套烟煤辊磨投产。
- 2006年，首台4000tpd水泥生产线配套烟煤辊磨投产。
- 2009年，首台白水泥生产线配套石油焦辊磨投产。
- 2010年，首台5000tpd水泥生产线配套无烟煤辊磨投产。

TRM series coal vertical roller mill(hereinafter named as “Coal VRM”) is specialized in coal grinding and developed on basis of TRM series raw grinding vertical roller mill. It is widely used in grinding of bituminous coal, anthracite, lignite and petcoke. Followings are main stages of TRM Coal VRM development.

- In year of 2004, the first TRM Coal VRM equipped for 2500tpd cement production line put into operation
- In year of 2006, the first TRM Coal VRM equipped for 4000tpd cement production line put into operation
- In year of 2009, the first TRM Coal VRM (for petcoke grinding) equipped for white cement production line put into operation
- In year of 2010, the first TRM Coal VRM equipped for 5000tpd cement production line put into operation

2 TRM型燃料辊磨的特点

CHARACTERISTICS OF TRM COAL VERTICAL ROLLER MILL

TRM型燃料辊磨在结构、使用、维护等方面的特点主要有以下几点。

- 研磨部分采用水平磨盘加锥形磨辊。
- 分选部分采用动静态结合的组合式高效笼型选粉机。
- 每个磨辊相对独立的对磨盘上的物料进行施压。
- 磨辊润滑为稀油循环方式。
- 磨辊轴承密封采用三道氟橡胶骨架油封。
- 风环面积和挡料圈高度可以根据情况调整。
- 磨辊可以自行抬落，实现空载启动。
- 磨机操作简单，运行平稳，振动小。
- 燃料细度控制严格，调节灵敏。
- 设备运转率高，故障停机时间少。
- 磨辊可以靠油缸作用自动翻出机壳外，维修方便。
- 耐磨部件采用堆焊技术，维护方便。

TRM series Coal VRM has the following characteristics in structure, operation and maintenance.

- Flat grinding table and cone type grinding roller
- Using static and dynamic high efficiency cage type separator
- To pressurize grinding table independently
- Oil lubrication system for grinding roller
- Triple fluoro rubber framework oil seal for grinding roller
- Adjustable gas ring area and dam ring height
- Auto lift-up grinding roller and no load startup
- Simple and stable operation, less vibration
- Strict and flexible control of fineness of Coal
- High availability and less defect and shutoff time
- Auto swing out grinding roller and easy maintenance
- Hardfacing for wear part and easy maintenance

3 TRM型燃料辊磨系统

TRM COAL GRINDING SYSTEM

TRM型燃料辊磨系统的流程非常简单，属单风机的辊磨粉磨系统。

燃料由喂料皮带经三道锁风阀喂入辊磨，在辊磨中物料随着磨盘的旋转从其中心向边缘运动，同时受到磨辊的挤压而被粉碎。粉碎后的物料在磨盘边缘处被从风环进入的热气体带起，粗颗粒落回到磨盘再粉磨；较细颗粒被带到选粉机进行分选，粗粉也返回到磨盘再粉磨，合格细粉被带入袋式收尘器收集作为成品。部分难磨的大颗粒物料（包括铁渣）在风环处不能被热风带起，通过吐渣口进入外循环系统，在此经过除铁后再次进入辊磨与新喂物料一起粉磨。出收尘器的成品通过空气输送斜槽、提升机等设备送入到成品库中。

磨机通风和烘干需要的热空气由热风炉提供，热风通过管道进入磨机，出磨气体通过收尘器净化后由系统风机送出，一部分排入大气，另一部分循环入磨。

物料在磨内粉磨的同时被烘干，由于辊磨的通风量大，烘干能力很强，在不另外增加烘干设备的情况下可以烘干10-30%水分的燃料。

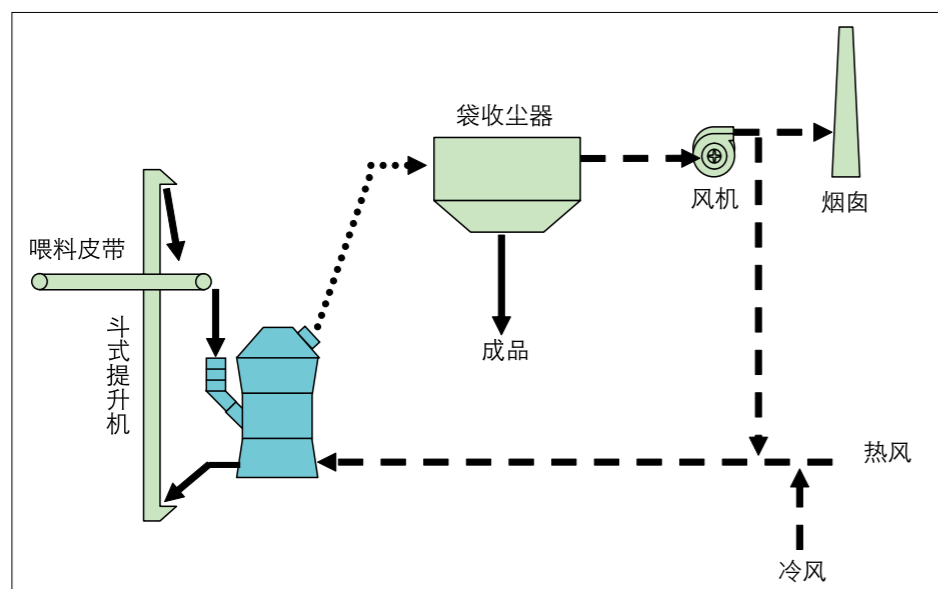
典型的TRM型燃料辊磨系统如下图所示。

TRM Coal grinding system is one fan grinding system. Coal is fed to vertical roller mill by belt conveyor and through three-layer air clock valve. With rotation of grinding table, Coal is brought from center to its edge, in the meanwhile it is pressed and crushed. Pressed Coal at the edge of grinding table is brought by hot gas from gas ring. Coarse Coal falls to grinding table for recirculation. Finer particles were brought to separator for classification. After it is classified, coarse one back to grinding table for recirculation. Qualified fine power went to bag filter. Partial hard to grinding material including iron residue which could not be brought at gas ring will be rejected to external circulation system. After metal separation, it will, together with new feed coal, be fed to vertical roller mill for grinding. Coal after bag filter will be conveyed by air slide and bucket elevator and send it to coalbin.

Hot gas for VRM ventilation and drying is supplied by hot gas generator. Hot gas is fed to VRM by gas duct. Gas at mill outlet will be purified by bag filter. Partial will be emitted out and others will recirculate in VRM grinding system.

Coal will be ground and dried in VRM. Owing to large gas volume for VRM ventilation, it is of strong capacity of drying. Without additional dryer, it can dry Coal with moisture of 10-30%.

Typical TRM Coal Grinding System Flowsheet



4 TRM型燃料辊磨的型谱

TYPE SPECTRUM of TRM COAL MILL

磨机规格	TRM20	TRM23	TRM28	TRM31	TRM36
磨盘直Do,mm	2000	2300	2800	3100	3600
配用功率kW	355	640	710	1000	1250
烟煤产量,t/h	20	32	40	50	60
无烟煤产量,t/h	16	25	32	40	48
系统电耗,kWh/t	25~35				

表中产量基于中等易磨性的物料，烟煤细度R80um=12%，无烟煤细度R80um=3%。

Model	TRM20	TRM23	TRM28	TRM31	TRM36
Diameter Do,mm	2000	2300	2800	3100	3600
Power kW	355	640	710	1000	1250
Capacity,t/h (bituminous coal)	20	32	40	50	60
Capacity,t/h (anthracite)	16	25	32	40	48
System Power Consumption,kWh/t	25~35				

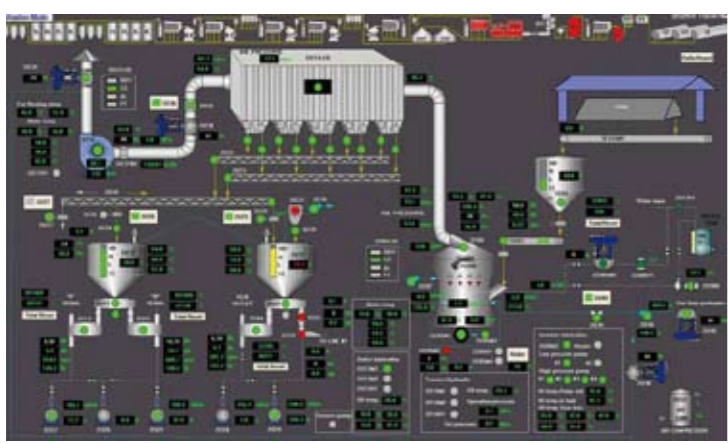
Material at the table above based on medium grindability, bituminous coal fineness R80um=12%, anthracite fineness R80um=3%.

5 TRM型燃料辊磨的应用

REFERENCE



拉法基三岔TRMC31.3磨机的外形
Sketch of TRMC31.3 at Lafarge Sancha project



台湾幸福水泥TRMC36.4中控操作画面
Operation Interface of TRMC36.4 at Vietnam Phuc Son Project

燃料辊磨销售业绩表
SALES REFERENCE LIST

序号	规格	规模	数量	使用厂家	煤质
1	TRM20	2500t/d	1	陕西社会水泥有限公司	烟煤
2	TRM20	2500t/d	1	重庆拉法基水泥有限公司	烟煤
3	TRM23	3200t/d	1	都江堰拉法基水泥有限公司	烟煤
4	TRM20	2500t/d	1	柬埔寨项目	褐煤
5	TRM36	5000t/d	1	台湾幸福水泥有限公司	无烟煤
6	TRM20	1300t/d	1	阿尔博水泥有限公司	石油焦
7	TRM23	5000t/d	1	TULA水泥有限公司	烟煤
8	TRM23	5000t/d	1	哈萨克斯坦CASPI水泥厂	烟煤
9	TRM31	5000t/d	1	都江堰拉法基水泥有限公司—三线	烟煤
10	TRM31	5000t/d	1	拉法基水泥有限公司—三岔	无烟煤
11	TRM20	2500t/d	1	中材汉江水泥有限公司	烟煤
12	TRM20	2500t/d	1	越南关潮水泥有限公司	烟煤
13	TRM31	5000t/d	1	马来西亚HUME Cement有限公司	烟煤
14	TRM31	5000t/d	1	陕西尧柏特种水泥集团有限公司蒲城分公司	烟煤
15	TRM23	4000t/d	1	和田尧柏水泥有限公司	烟煤
16	TRM31	5000t/d	1	印度拉法基 Chittaurgarh水泥厂	烟煤
17	TRM23	3200t/d	1	叙利亚UACC项目	烟煤
18	TRM23	4000t/d	1	和田鲁新建材有限公司	烟煤

NO	MODEL	CAPACITY	Q'TY	OWNER	Type of Coal
1	TRM20	2500t/d	1	Shaanxi Shehui Cement Co., Ltd	coal
2	TRM20	2500t/d	1	Lafarge Chongqing Cement Co., Ltd	coal
3	TRM23	3200t/d	1	Lafarge Dujiangyan Cement Co., Ltd	coal
4	TRM20	2500t/d	1	CombodiaKampotCement Co., Ltd	lignite
5	TRM36	5000t/d	1	Vietnam Phuc Son Cement Co., Ltd	anthracite
6	TRM20	1300t/d	1	Aalborg White AnqingCement Co., Ltd	petcoke
7	TRM23	5000t/d	1	HeidelbergTULACement Co., Ltd	coal
8	TRM23	5000t/d	1	KazakhstanCASPI Cement Co., Ltd	coal
9	TRM31	5000t/d	1	Lafarge Dujiangyan Cement Co., Ltd Line 3	coal
10	TRM31	5000t/d	1	Lafarge SanchaCement Co., Ltd	anthracite
11	TRM20	2500t/d	1	SinomaHanjiangCement Co., Ltd	coal
12	TRM20	2500t/d	1	Vietnam QientCement Co., Ltd	coal
13	TRM31	5000t/d	1	Malaysia HUME Cement Co., Ltd	coal
14	TRM31	5000t/d	1	Shaanxi Yaobai Special Cement Co., LtdPucheng Branch	coal
15	TRM23	4000t/d	1	HetianYaobaiCement Co., Ltd	coal
16	TRM31	5000t/d	1	Lafarge ChittaurgarhCement Co., Ltd	coal
17	TRM23	3200t/d	1	Syria UACC Cement Co., Ltd	coal
18	TRM23	4000t/d	1	Xinjiang HetianLuxin Building Material Co., Ltd	coal



VERTICAL ROLLER MILL
SERIES COAL VERTICAL
MILL TRM SERIES COAL
ICAL ROLLER MILL TRM

联系我们 Contact Us

天津

地址：天津市北辰区引河里北道1号

邮编：300400

电话：0086(22)26915233

传真：0086(22)26915452

网址：[Http://www.sinoma-tcdri.cn](http://www.sinoma-tcdri.cn)

Tianjin

Address: No.1, Yinheli Bei Road, Beichen District,
Tianjin P.R. China

Post code: 300400

Tel: 0086(22)26915233

Fax: 0086(22)26915452

Website: [Http://www.sinoma-tcdri.cn](http://www.sinoma-tcdri.cn)

北京

地址：北京市经济技术开发区隆庆街7号

邮编：100176

电话：0086(10) 67285071

传真：0086(10)67285001

网址：[Http://www.cbmi.com.cn](http://www.cbmi.com.cn)

Beijing

Address :7th, LONGQING Road, Beijing Economic and Technological
Development Area, P.R. China

Post code: 100176

Tel: 0086(10) 67285071

Fax: 0086(10)67285001

Website: [Http://www.cbmi.com.cn](http://www.cbmi.com.cn)