



**Soon Strong Machinery
Works Co.,Ltd**
申川機械工廠股份
有限公司

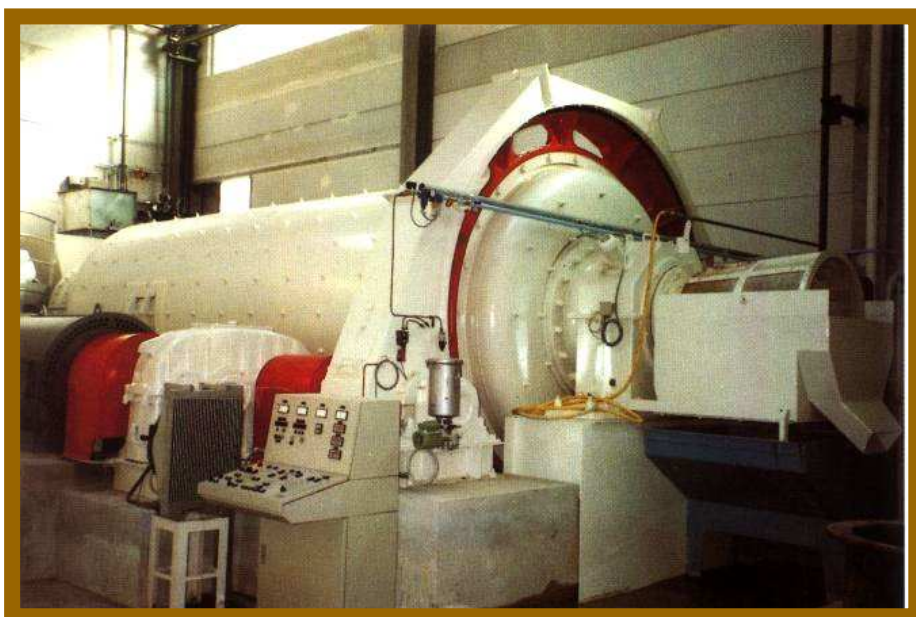


Ball Mill of SBM series

- High capacity
- Low wearing use
- Robust structure design

申川球磨機系列

- 高效能
- 低磨耗
- 強健機體設計



Work Principle

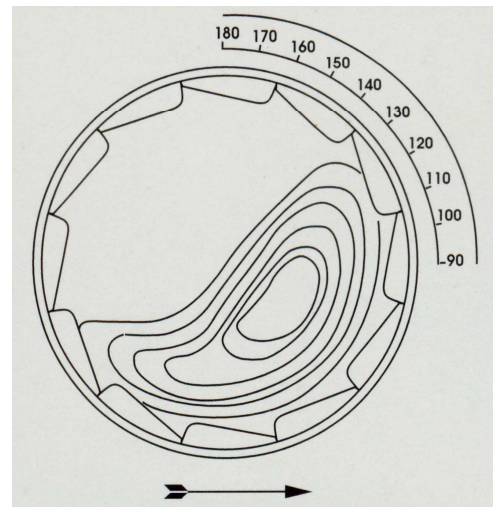
Soon Strong Ball mill is a grinder for reducing hard materials to powder. The grinding is carried out by the pounding and rolling of a charge of steel or ceramic making balls、liners carried within the cylinder. The cylinder rotates at a relatively slow speed, allowing the balls to cascade mixing through the mill liner base, thus grinding or dispersing the materials.

Type of ball mills, centrifugal and planetary mills, are devices used to rapidly grind materials to colloidal fineness (approximately $75\text{ }\mu\text{m}$ and below) by developing high grinding energy via centrifugal and/or planetary action.

工作原理

申川球磨機是用來處理堅硬的原料至粉狀，本體內裝有鐵製或陶瓷製球狀物及平襯板，低速旋轉使球體與原料互相混合形成瀑布狀混和體，進而相互撞擊且亦與本體耐磨內襯板形成相對低速撞擊運動，相互研磨直至帶出球磨機本體

球磨機大體來說是一種利用中間軸旋轉產生離心方式帶動並研磨物體，產品細度可達 $75\text{ }\mu\text{m}$ 以下，是一種高研磨能力機型。



Material requirement

- *Inlet size: Dia.under 10mm
- *Hardness: Under Morhs 7 for reference
- *Product size range: $d_{97}=40\sim75\text{ }\mu\text{m}$ (350~238 mesh)

■Calcium carbonate

Limestone Marble Calcite Dolomite

■Ceramic Materials

Feldspar Quartz Kaolin clay

■Industrial Minerals

Barite Bentonite Coal Cokes Graphite Gypsum
Rock phosphate Slaked lime Talc Zeolite

原料研磨條件

- *進料大小:直徑10mm以下
- *硬度: 建議小於莫氏硬度7
- *產品顆粒大小: $d_{97}=40\sim75\text{ }\mu\text{m}$ (238~350 mesh)

■碳酸鈣鹽

石灰石 大理石 方解石 白雲石

■水泥材料

長石 石英 陶瓷黏土

■工業用礦石

重晶石 火山黏土 煤炭 焦炭 石墨 石膏
磷酸鹽石 熟石灰石 滑石 沸石

Soon Strong unique design

- Special liner design for up the efficiency of ball mill and reduce weight to low down the power use. The liner material could be high Cr, Mn or ceramic for satisfied customer needs (See Fig.1)
- Design & manufacture the liner cannellure to fit the material property. Let the material be more efficiency in milling
- Robust gear ring and main body to fit any situation use.
- Middle screen (See Fig.3) design could avoid material jam and separate two chamber to keep material in best efficiency. Extend the coarse material mill time.
- Belt or gear box transmission choice by ball mill size
- Whole ball mill is in negative pressure design that prevent dust pollution
- Inlet & outlet adapted inner screw design to keep away material jam (See Fig.2)

Liner cannellure
襯板溝槽

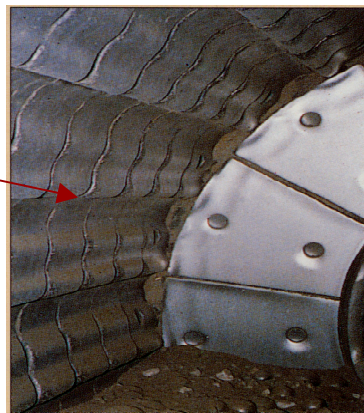
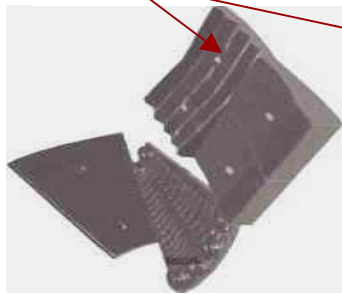


Fig.1

申川獨特設計

- 特殊襯板設計能有效利用球磨機性能及減輕襯板重量降低動力需求，並且材質有高鉻、高錳或陶瓷規格滿足客戶的需求(見 Fig.1)
- 根據物料性質來製作設計襯板溝槽(見 Fig.1)，使物料更有效率在球磨機內研磨
- 強壯齒輪及本體設計能適用於各種環境條件
- 中間篩板設計(見 Fig.3)能防止卡料及分隔兩室原料能有效率研磨，延長粗料研磨時間
- 根據機型大小提供皮帶或齒輪箱傳動方式
- 整台球磨機負壓設計能防止粉塵外洩污染
- 進出料採內部螺旋設計，防止堵料(見 Fig.2)

Inner screw
內部螺旋

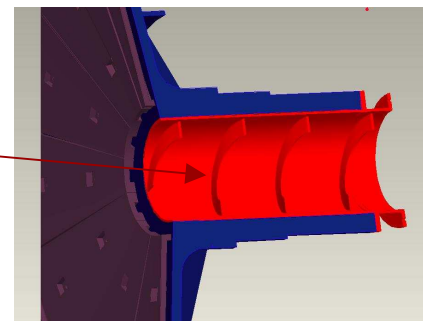


Fig.2

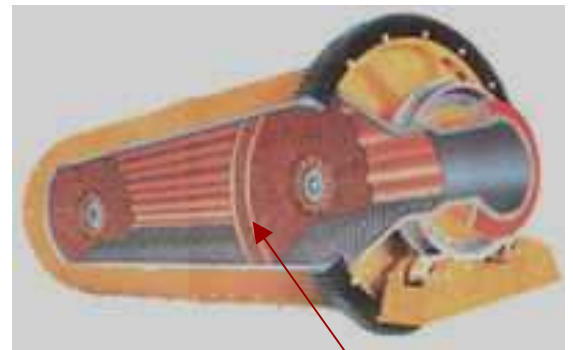
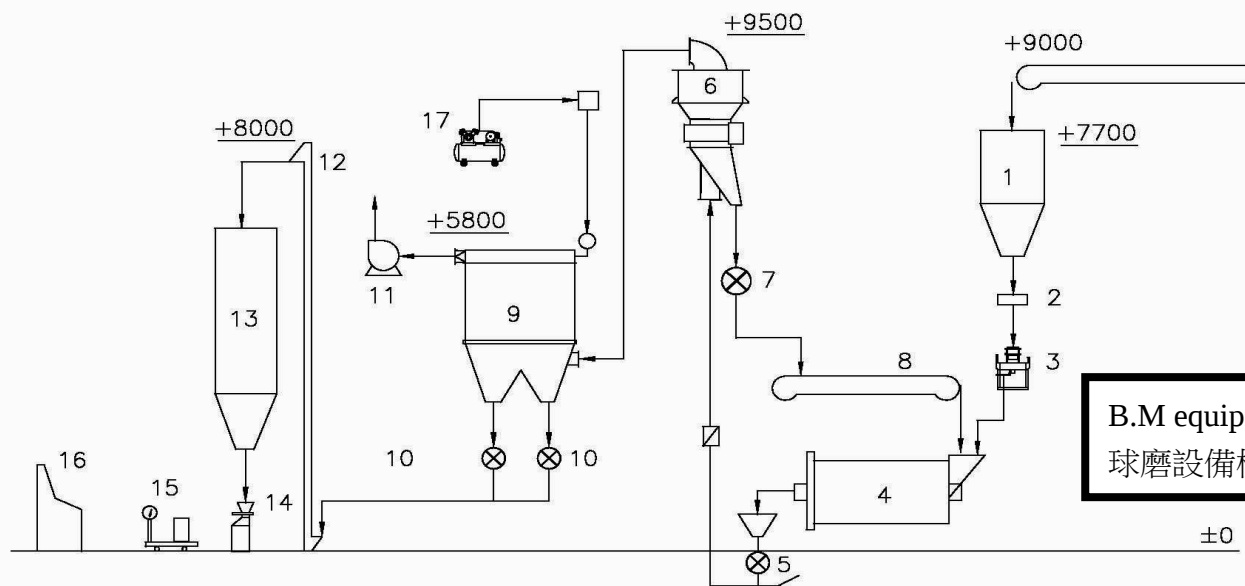


Fig.3
Middle screen
中間篩板

Model 型號 (Dia.xL)	Rotary speed 轉速 (R.P.M.)	High Cr stee ball weight 高鉻鋼球重量 (Ton)	Weight of ball mill main-body 球磨機身重量 (Ton)	Grinding size of production 出料細度 (μ m)	Capacity 產量 (Ton/h)	Power 動力(HP)
SBM-0616 ($\varnothing 6' \times 16'$)	24	15	25	35~125	2.0~4.5	150~250
SBM-0624D ($\varnothing 6' \times 24'$)		23	36		3.0~6.5	250~300
SBM-0716 ($\varnothing 7' \times 16'$)	21	27	38		3.0~7.0	300~375
SBM-0724D ($\varnothing 7' \times 24'$)		40	55		5.0~10.0	325~400

*Production capacity is depended on grinding size of production & production status

*產量依產品細度與現場實際狀況而定



- | | | | |
|-----------------------|---------------------|------------|---------|
| 1. Service tank | 11. Fan | 1. 中間桶 | 11. 風車 |
| 2. Slide gate | 12. Bucket elevator | 2. 閘刀閥 | 12. 斗昇機 |
| 3. Table feeder | 13. Storage bin | 3. 平面定量供給機 | 13. 儲料桶 |
| 4. Ball mill | 14. Package machine | 4. 球磨主機 | 14. 包裝機 |
| 5. Rotary feeder | 15. Scales | 5. 迴轉閥 | 15. 磅秤 |
| 6. Air classifier | 16. Control panel | 6. 分級機 | 16. 控制盤 |
| 7. Rotary valve | | 7. 迴轉閥 | |
| 8. Belt conveyor | | 8. 皮帶輸送機 | |
| 9. Pulsaire collector | | 9. 脈衝式袋濾機 | |
| 10. Rotary valve | | 10. 迴轉閥 | |

- Recycle the coarse particle from classifier to re-mill on ball mill. It could maintain the product size quality
- Product transportation is by pneumatic conveyor. It could reduce maintain cost & setting up land area requirement
- Product grinding size could be adjusted without stop machine & arrange any kinds of separator
- Auto or semi-auto production line could be chosen
- Graph control could be easy & clear in management
- 可回收分級機粗料，送進球磨機再研磨，維持產品規格品質
- 產品氣體輸送，減少維修成本與土地需求面積
- 產品分級細度可自由調整而不需停機，亦可搭配各種分級機
- 可選擇自動或半自動生產流程
- 圖形介面控管，讓生產易管理



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