

TEKNIKUM®

Steel Top Mill Linings



Teknikum® Steel Top Mill Linings are manufactured from wear resistant rubber material with wear resistant steel or cast steel on wearing surface to give additional wear life for mill lining.

The steel top with wear resistant steel are best suited for primary and secondary stage AG/SAG and ball mills. Cast Steel Top liners are best suited for secondary and tertiary stage grinding processes.

All Steel Top Mill Linings are moulded and tailor made for the customer mills and processes.

The quality and thickness of rubber and wear steel of liner will be chosen for every purpose differently from Teknikum® Mill Lining rubber compounds and different steel qualities. Rubber and shape mill lining must be chosen according to grinding and process parameter.

The mill lining can be all Steel Top type of liners or combination of steel top and rubber liners to give a best performance value.

ADVANTAGES

- Steel Top gives additional wear life vs. rubber liner

- Thickness of steel can be modified according to specific mill and process values
- Excellent wear resistance
- Easy installation with dedicated fixing system
- Light weight vs. full steel liner
- Liner can be equipped with lifting points for easy installation and handling

TECHNICAL PROPERTIES

Wear resistant steel top

The liners have a wear resistance steel or cast steel on wearing surface the Steel Top gives excellent protection against abrasive wear and heavy hits. Steel quality and hardness are chosen according to mill and process parameters. Thickness range of steel 10-80 mm on products.

Rubber compound

The liners are made of wear resistant Teknikum® TRL rubber compound depending on the application.

Attachment system for steel Top mill liners

Teknikum® Mill Liner Attachment is system, based on fixing profile (aluminum or steel) on lifter bar and clamp blocks or T-bolt type fixing system. Range from M16 to M36.

Liner type selection

The liners type can be selected depending on the process, lining type, mill loads and chemical conditions. The liner: lifter, shell plate or head plate can be Steel top or rubber liner depending of mill and conditions and component wear life needs.

Combining Steel Top and rubber mill liner components and attachments system, all components for full mill lining are available

for delivery to various types of overflow and grate discharge mills.

Steel Top Liner components for grinding mills:

- **Steel top Lifters** for mill heads and shell
- **Steel top Shell plates** for mill shell
- **Steel top Head plates** for mill heads
- **Attachments system** for mill heads and shell clamp block or T- bolt based system.

COMPLIANCY

Suitable for:

- Overflow- , grate discharge mills
- Ball- , AG-, SAG-, Rod-, Pebble mills
- Primary / Secondary / Tertiary grinding
- Grinding medias: balls, pebble, cylpebs...

- Ore materials: gold, copper, phosphate...
- Minerals: Lime, Talc...

MANUFACTURER

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PROPERTY & RECOMMENDATION CHART FOR STEEL TOP SELECTION

Version	Hardness	Abrasive wear resistance (1-5)	Tear & impact wear resistance (1-5)	Grinding stage (primary,secondary tertiary)	Grinding media size (mm)
WS	400-600 HB	3-5	4-5	primary / secondary / tertiary	40-125
CSL	55-60 HRC	5	3	secondary / tertiary	20-60
CSH	55-60 HRC	5	3	secondary / tertiary	20-60
CSHD	55-60 HRC	5	4	secondary / tertiary	20-80

WS (Wear resistant Steel) Steel Top is available for mill lifters bars, shell plates and head plates on various thickness, hardness and shape variants. The WS steel top is mainly used in primary and secondary grinding applications. The thickness of Steel top is customizable from 10-80mm also hardness can be selected by application.

CSL (Cast Steel Light) Steel top is available for mill lifters bars mainly used in secondary and tertiary grinding applications. The thickness of Steel top is approx. 35mm.

CSH (Cast Steel Heavy) available for mill lifters bars mainly used in secondary and tertiary grinding applications. The thickness of Steel top is approx. 100mm.

CSHD (Cast Steel Heavy Duty) available for mill lifters bars mainly used in primary grinding applications. The thickness of Steel top is approx. 110mm.

PROPERTY & RECOMMENDATION CHART FOR RUBBER SELECTION

Version	Hardness	Abrasive wear resistance (1-5)	Tear & impact wear resistance (1-5)	Grinding stage (primary,secondary tertiary)	Maxium operation temperature (°C)
TRL11	60 ± 5	4	4,5	primary / secondary	+70°C
TRL17	60 ± 5	4	4	secondary	+70°C
TRL18	60 ± 5	4	5	primary	+70°C
TRL20	65 ± 5	5	3	secondary / tertiary	+80°C
TRL21	60 ± 5	4	3	secondary / tertiary (dry grinding)	+100 °C (120 °C short terms)

**See detailed description at compound data sheet.

REFERENCE IMAGES

Feed and discharge head liners for overflow and grate discharge mills:



Shell liners for overflow and grate discharge mills:



Rubber pulp lifter discharge systems for grate discharge mills:

