



## DRAMITUFF

FROM ROOM  
TEMPERATURE UP TO  
1250°C

EROSION RESISTANCE  
ABRASION PROTECTION

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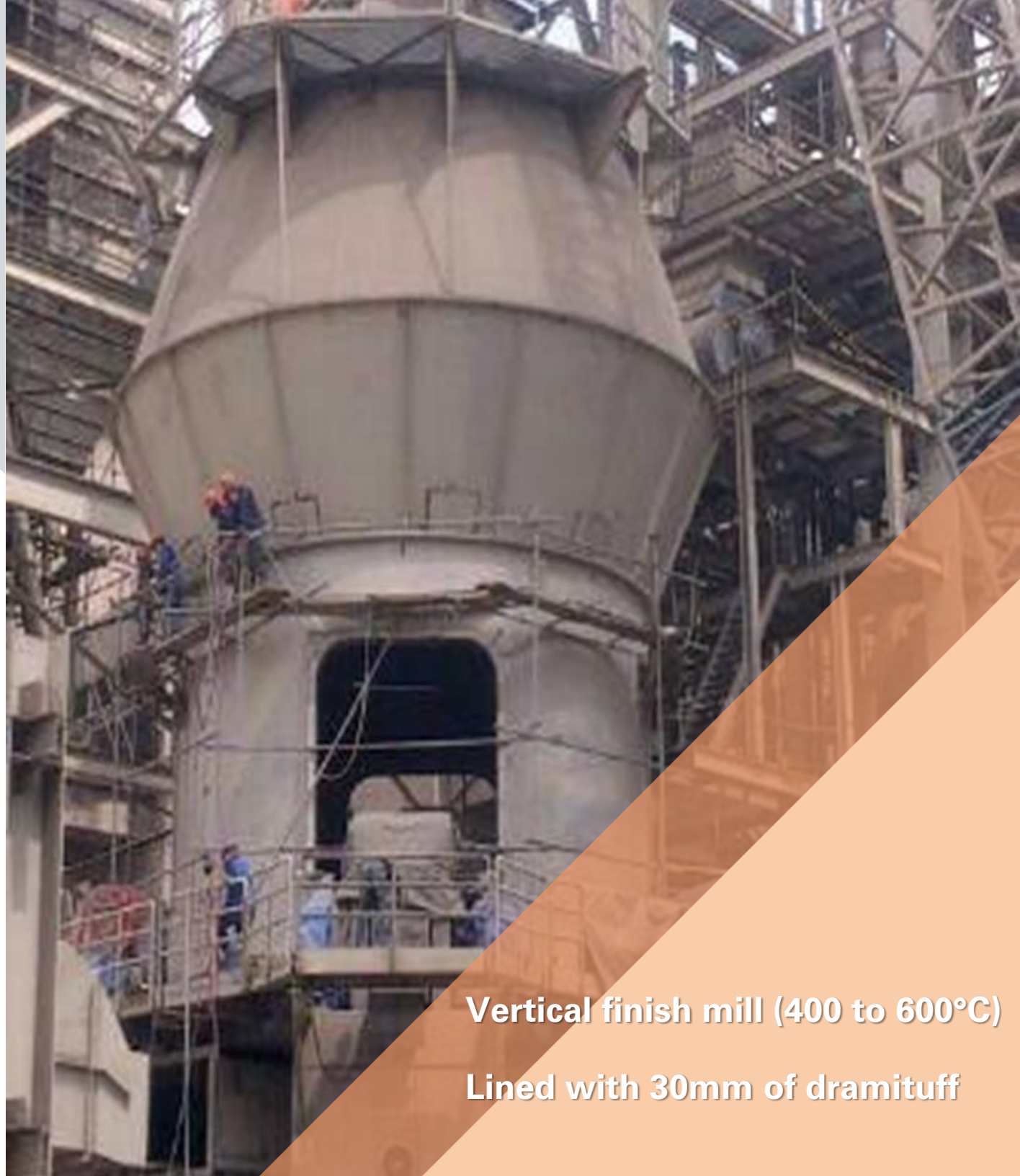
## DRAMITUFF FOR

CEMENT INCINERATION DAMS

COAL HEATED POWER PLANTS

PNEUMATIC TRANSPORT ALUMINIUM

CIRCULATING FLUIDISED BED BOILERS



**Vertical finish mill (400 to 600°C)**

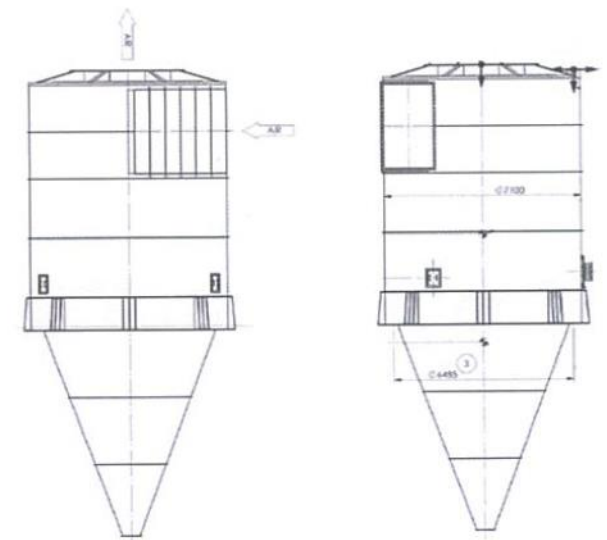
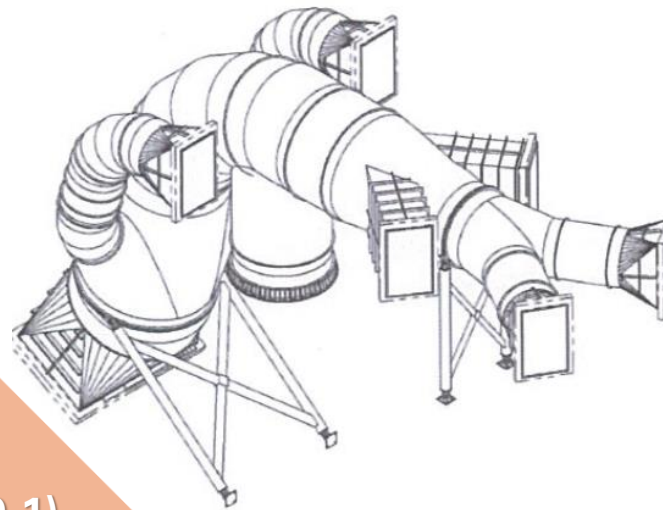
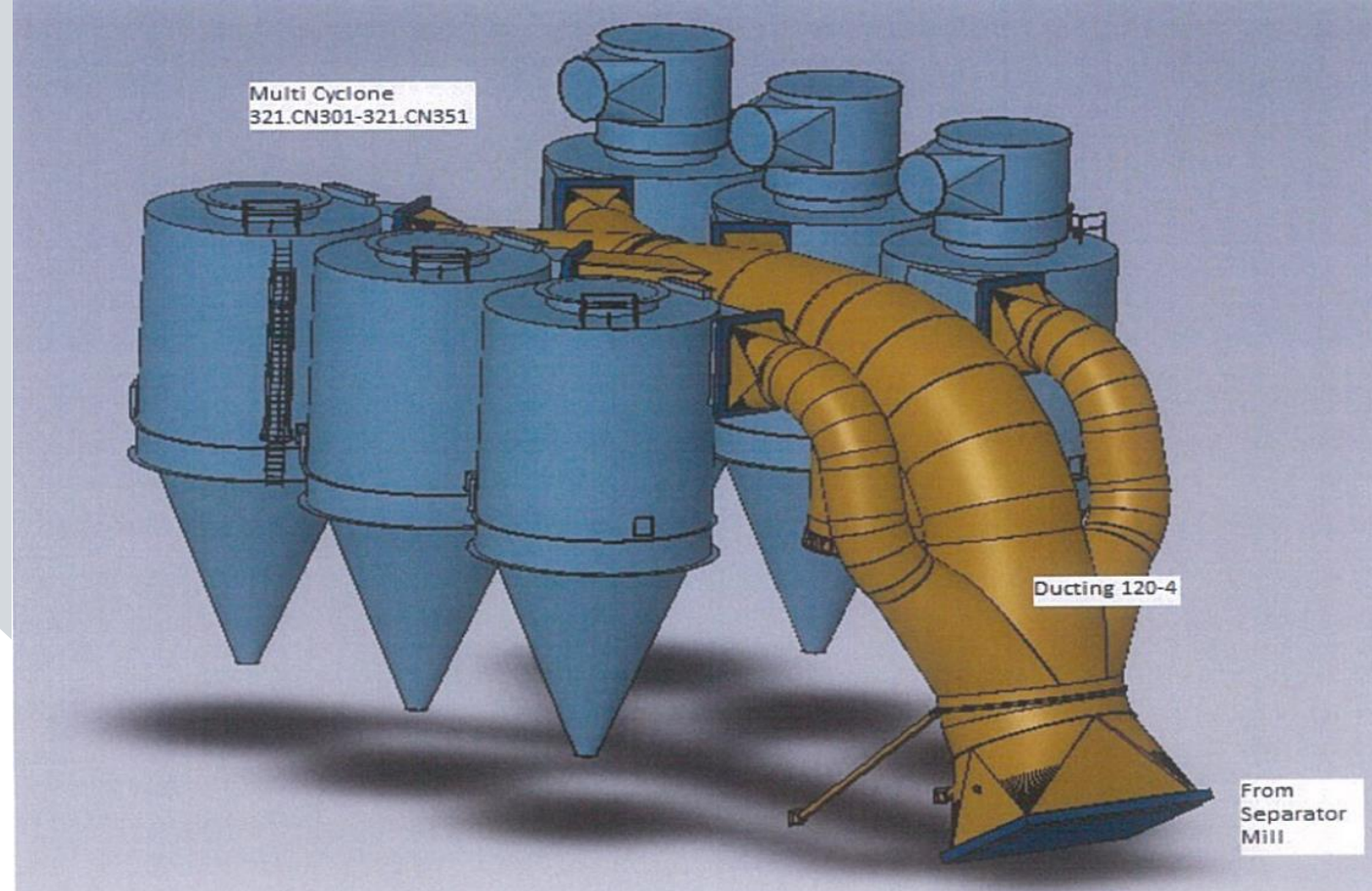
**Lined with 30mm of dramituff**





DUCT COOLER  
TO EP





Gambar 1.1 Ruang Lingkup  
Pekerjaan Pemasangan Wear  
protection ducting Raw Mill (120-1)  
& Multi Cyclone





## DRAMITUFF

### TYPICAL APPLICATIONS:

GRINDING MILLS FOR CLINKER,  
CEMENT, SLAGS AND COAL

PNEUMATIC TRANSPORT SYSTEMS  
FOR CEMENT, SLAGS AND COAL

DUST EXTRACTION SYSTEMS

DYNAMIC AND STATIC  
SEPARATORS

CYCLONES

FLASH DRYER

LAUNDERS

CIRCULATING FLUIDISED BED  
BOILER BURNING COAL





## DRAMITUFF STANDARD VERSION For Troweling, plastering, hand placing, guniting

DENSITY	2.76
COLD CRUSHING STRENGTH C.C.S. - N/mm <sup>2</sup> (ASTM C133)	
After firing at 350°C	150
After firing at 815°C	150-170
ABRASION LOSS – cc (ASTM C704)	< 3
M.O.R. – N/mm <sup>2</sup> (ASTM)	
After firing at 350°C	30-35
After firing at 815°C	35
MIXING WATER - %	4 to 7
Mixing Time – Minutes (important to respect)	5
Shelf Time – Year (to be stored in a dry, clean warehouse)	1
Thermal conductivity @ 815°C - W/M.k	1.50 – 1.70
Workability	60 minutes
Maximum Service Temperature	1250°C

## Chemical analysis

Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub>	TiO <sub>2</sub>	CaO	Other
76.2	15.1	1.1	2.79	2.53	2.28

## Packaging details

1 BAG = 20KGS  
1 PALLET = 50BAGS= 1 TON

DRAMITUFF is also available for VIBRO CASTING (QUALITY VC) or FOR SELF FLOWING (QUALITY TF)





## MIXING INSTRUCTIONS

The mixing of DRAMITUFF is critical to its performance, and particular attention should be paid to the following procedures.



### ♠ 1. EQUIPMENT - HOBART TYPE MIXER

- 1.1. Only mixers in good, clean, working order are permitted for use.
- 1.2. Bowls and paddles must show no wear and be clean.
- 1.3. Mixer capacity should be the correct size to mix a fixed batch weight.
- 1.4. Mixer should operate at medium setting.





## 2. LARGE POWERFUL MIXER



## 3. OTHER EQUIPMENT :

- 3.1. Proper dust masks and eye protection should be used by all mixing and installing personnel.
- 3.2. An accurate water measuring device is required, with precise gradations clearly shown.
- 3.3. Trowels, for cutting level, for finishing the surface shall be used when possible.
- 3.4. Clocks to measure mixing times, one per mixer.
- 3.5. Rubber gloves are required for installing the product.

## 4. MIXING PROCEDURE :

- 4.1. Initial Dry Mixing - Place the whole contents of the bag into the mixing bowl and dry mix for two minutes at lowest speed to reduce loss of fine powders.
- 4.2. Water Content is important to achieve the best installation material consistency. Use the same water content as shown on the PRE QUALIFICATION data sheets, for the first mix. 4% if no data sheets are available. Thereafter, water contents should be adjusted to suit the local conditions, i.e. Humidity, Ambient Temperature, Steel fibres etc.



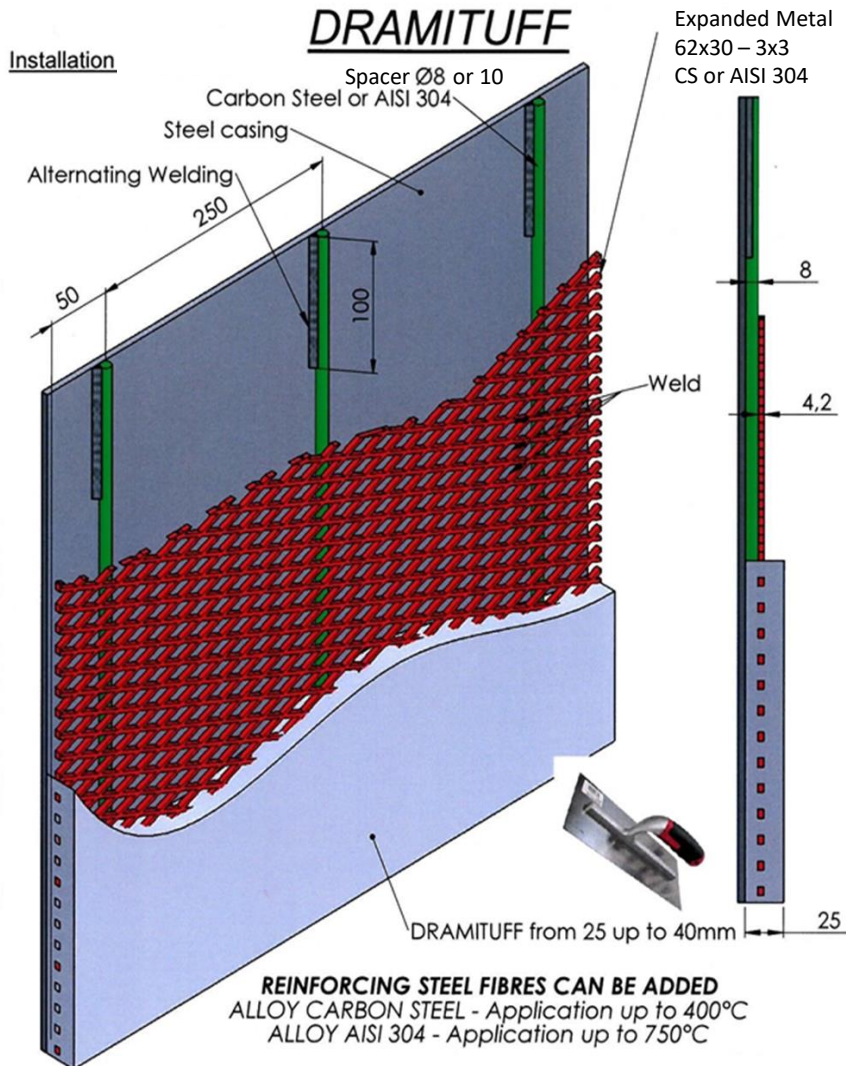


## 4. MIXING PROCEDURE :

**4.2.** Adjustments in water contents should be in gradations of no more than 0.1 % each time, with additional mixing times of at least two minutes. Over mixing should be avoided as this creates too much heat friction in the mix, which can cause premature setting times.

**4.3** Mixing times are critical. **The minimum mixing time is five minutes.** It is advised to initially mix at a low speed setting, to reduce fine powder loss, and then switch the mixer to medium speed. The mix will firstly look dry, at 1.5 - 2.0 minutes a distinct change will occur, the mix will start to mix together. At 3.5 minutes the mix will still look too dry and have a gravel like appearance. At 3.5 - 5.0 minutes, the material will knit together to form distinct big lumps with smooth tops, and a dense putty consistency. After 5 minutes stop the mixer and feel the workability by hand; if it sticks to your hand, too much water was added, adjust as required for future batches. **Never** add more water until the mixing times have expired.

**4.4** Water temperature shall be between 10 and 20°C. Use only clean drinkable water with a PH between 6 and 8. DRAMITUFF is not water sensitive, and the objective is to achieve good installation plasticity, rather than low water contents.



## ♠ 4.0 INSTALLATION:

### 4.1 Plastering, trowelling Dramituff (most common)

Please check that the anchorage system is installed according to specification and is cleaned, free from grease (as well as steel casing).

Plaster the Dramituff.

The Dramituff should not be subjected to water contact during 24 hours after installation (this could affect the binding process of Dramituff)

### 4.2 Guniting Dramituff (rare)

DRAMITUFF can be installed by gunning technique. The material should be dry blended in a clean, powerful, paddle mixer for two minutes. 2 % pre-dampening water should be added through a very fine spray during mixing.

The material should then be removed from the mixer and allowed to pre-set for 30 minutes before placing it into the gunning machine. The gunning nozzle water control should be by a needle valve for fine water adjustments, only enough additional water should be added at the nozzle to achieve the lowest rebound loss.



## DRAMITUFF HEATING SCHEDULE

**1°)** For all linings that are **less than 50 mm thick**: Ambient operating temperature at 50 °C per hour up to required temperature. No hold points.

**2°)** For all linings that are **more than 50 mm thick**: 2-1: Air dry for 48 hours.

**2-2:** Heat the linings at a maximum rate of 50 °C per hour to 110 °C, hold at this temperature 1 hour for each 25 mm lining thickness.

**2-3:** Heat the linings at a maximum rate of 50 °C per hour to 350 °C, hold at this temperature 1 hour for each 25 mm lining thickness.

**2-4:** If required, continue heating schedule at 50 °C per hour to desired final temperature and hold at this temperature as described above.

**It is recommended that there is no flame impingement onto the linings during drying / heat curing and the work be carried out by a qualified engineer.**





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