

**PRECITEX**

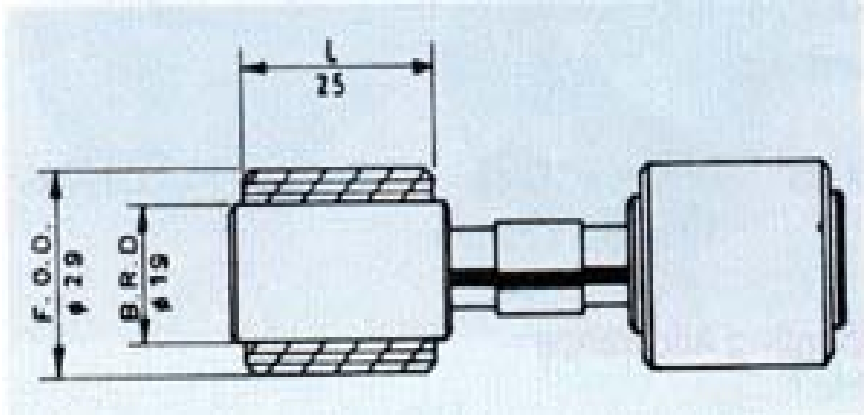
TECHNICAL DIARY



## COTS

### How to order “PRECITEX” cots

Sometimes, we receive orders for cots with incorrect dimensions due to which a cot can either slip off or burst. It is, therefore, very important to give correct dimensions of the shell or roller and not merely the inside diameter of the cot when placing your order with us. The schematic diagram in figure



**1st dimension :** BRD; Bare Roller Diameter means the diameter of the shell on which the cot is to be mounted.

**2nd dimension :** FOD : Finished Outside Diameter means the final diameter after mounting and grinding.

**3rd dimension :** L : Length means the length of the cot after fitting on

**Example**

BRD \* FOD \* L

19 \* 28.5 \* 25 mm

In addition to the dimension, please indicate the following :

1. Quality & Hardness
2. Straight edge or beveled

**Example**

Quality & Size Edge Quality Hardness

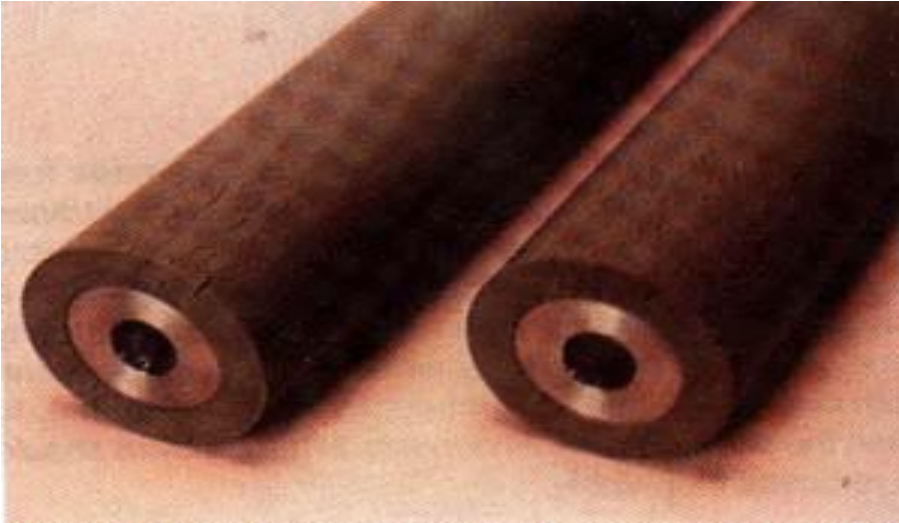
PX-83 BRD \* FOD \* L Straight 10,000 Nos.

19 \* 28.5 \* 25 mm

**Mounting Allowance**

A mounting allowance of 5 to 10% is given on the cot bore depending on hardness of the cot, that is, the inside diameter of the cot is manufactured lower than the shell. If the pre-tension is excessive, the cot

Laboratory tests indicate that pre-tension in excess of 10 accelerates the ageing of rubber and can lead to surface cracking, as shown in figure 2



### Excess Dimensions

The extra length of cot provided will shrink to the required length after mounting. Outside diameter of the cot is 1 to 1.5 mm greater after mounting so as to get the correct finished diameter after grinding.

### COT MOUNTING

Most textile mills have a well equipped cot mounting and grinding shop. The person in charge of mounting and

grinding should be familiar with the problem which result from incorrect mounting and grinding of cots. We consider the job of Maintenance Engineer and Mounting & grinding in charge of great importance since they contribute to production of quality yarn and minimize the problems of spinning technicians.

## **1. Preparing the shells**

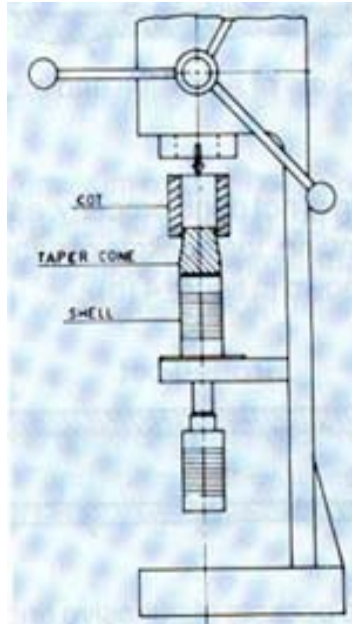
The shells must be thoroughly cleaned and made free from oil, grease and dirt; previous adhesive or any traces of old rubber must be removed. The non- detachable assemblies fitted with ball bearings should not be put any pressure on the ball bearings while cleaned. Use a clean cloth damped with a solvent e.g.. M>E>K> or Acetone, to clean the shell. Adhesive deposits in the grooves should be removed thoroughly.

## **2. Mounting of cots**

With higher top- arm pressure and increase in spindle speed, several mills face cot slippage problem by use of single component adhesive. We therefore, recommend “PRECITEX” 2 Component Harder & Resin for mounting of cots to avoid cot slippage.

Instructions for use of “PRECITEX” 2 Component Harder & Resin are supplied along with the adhesive.

The cot mounting can be conveniently done on a vertical mounting machine using a taper cone as shown in figure 3.

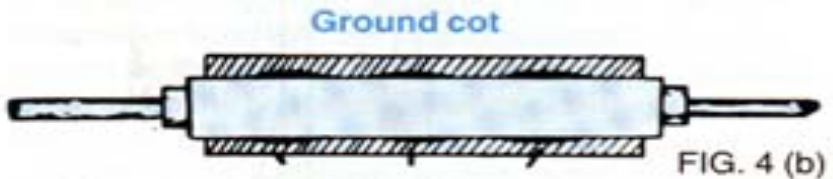


### 3. Fitting long cots

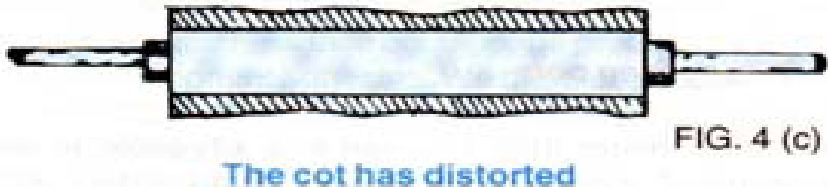
for cots longer than 100 mm it is advisable to use pneumatic mounting equipment. Immediately after mounting while the adhesive is still wet, the cot should be calendered under pressure, to remove the trapped air as shown in figure 4(a).



If the calendaring is not done properly, as shown in figure 4, after grinding, the pocket of adhesive and air will remain, as shown in figure 4(b).



After grinding, the pockets of adhesive and air remain. The cot can collapse and become concave or wavy, as shown in figure 4(c)

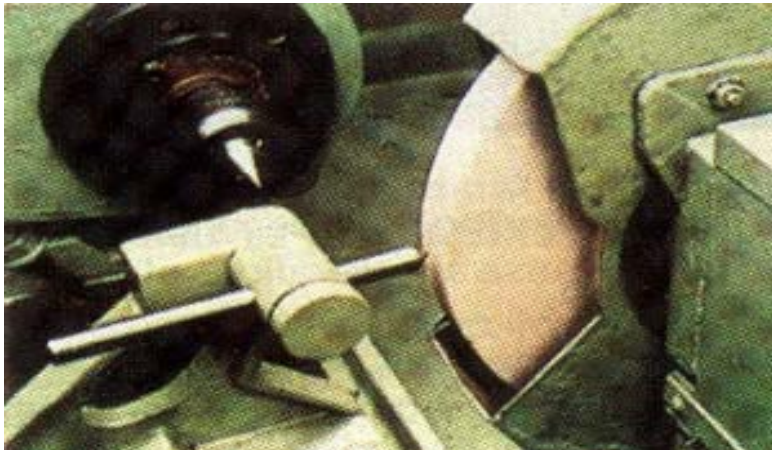


## GRINDING THE COTS

A fine ground, taper- free surface of the cot is absolutely essential for yarn quality.

The following hints will help you to achieve the desired results:

1. Use a white aluminum oxide wheel having 60 or 80 grit and medium hardness (j or k ) eg. 38 a 60 j 8 VBE. A gray wheel may cause burning of the cot. In case of machines fitted with emery cloth tape, use extra fine 180-220 grit.
2. Use a diamond dresser firmly fixed in the holder on the traverse table and dress the wheel forward and backward 2 to 3 times. (figure 5)



When the surface of the grinding wheel is perfect, the edges must also be chamfered carefully by holding the diamond dresser in hand. Finally, with a piece of broken hacksaw blade, touch the wheel. Now check the grinding wheel in running condition with a light touch of your thumb on the wheel to get the velvet feeling. Hold the thumb in the direction of rotation of the wheel keeping your hand firmly on the cover as shown in figure 6.



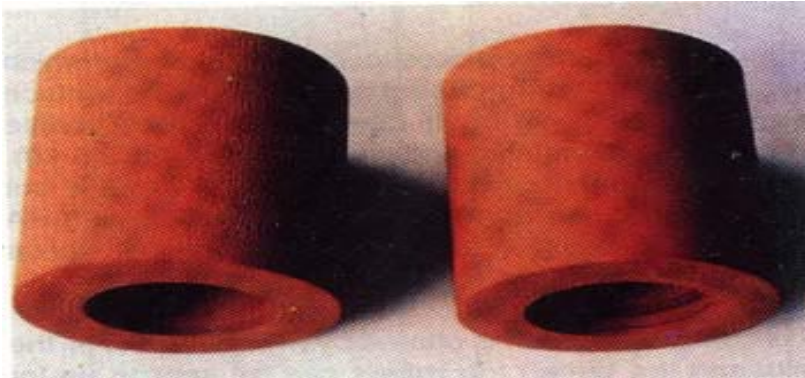
3. Make sure that the grinding head bearing are in good condition and do not cause any vibrations of the wheel.

4. Now grind the cots to the required FOD. For regrinding old cots, a cut of 0.25 mm should be taken. Check for taper grinding and adjust the machine if necessary. The surface finish of the ground cot should be 0.6 to 10.  $\mu\text{m}$ (0.001 mm).

The traverse speed must be adjusted to get this surface finish.

Write to us for a sample of ground cot as a comparative specimen.

### **Rough & fine ground cots**



**A badly ground cot can result in roller lapping and in turn may lead to yarn breaks.**

Yarn breaks can however result from various other factors such as faults in roving, unsuitable ring travelers, rings or tapes, humidity, etc.

### **When to regrind the cots**

A cot needs re-grinding when you notice:

1. Wear or grooving in traverse area.
2. Knife cuts on surface.
3. Glazing of surface which can result in loss of fibre control.

## CHECKING THE SURFACE FINISH

### Perthometer Analysis

Perthometer is a microprocessor based instrument which measures the 'Average Roughness' (RA) of the surface in micron ( $\mu\text{m}$ ) (fig.80). It gives the surface profile characteristics in tabular and graphical form (fig.9&10). When RA measures between 0.6 to 1.0  $\mu\text{m}$  the cot surface is considered to be good & acceptable. If RA reading exceeds 1.0  $\mu\text{m}$  grinding of the cot needs improvement to minimize lapping.

This customer service is offered by PRECITEX to all the mills and the buffed top rollers can be sent to us for PERTHOMETER ANALYSIS.



Surface Profile characteristics

Though Perthometer analysis we get to know the surface profile characteristics of the cot.

*Improperly buffed cot*

RA = 2.96  $\mu$ M



*Well buffed cot*

RA = 0.7  $\mu$ M



## BUFFING CYCLE

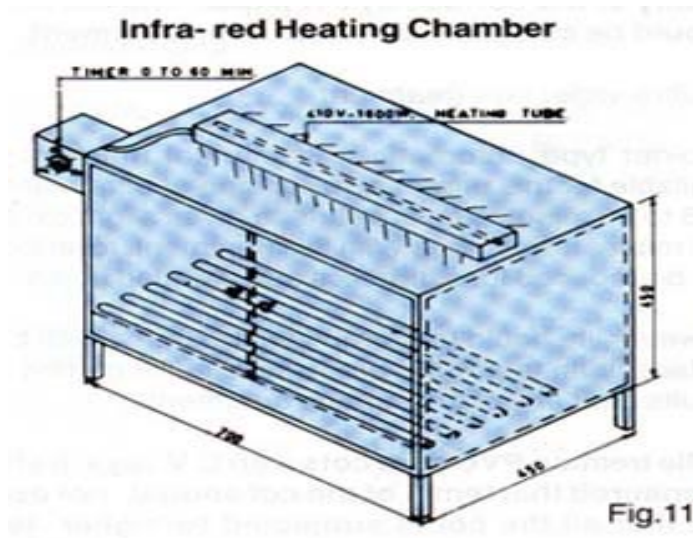
Depending on working condition of each mill, by checking the yarn quality and breakage rate, the buffing cycle of cots can be determined. The following recommendation can be considered as a guideline:

<b>MACHINE</b>	<b>BUFFING CYCLE</b>
a. High speed drawing	Once in 15 days
b. Silver lap/ ribbon lap machines.	Once in a month
c. High Speed Combers	Once in a month
d. Other Combers	Once in two months
e. Ring Frames	
OG 65 & LG 70	Once in 45-60 days depending on count and type of material.
PX 83 & G 83	Once in 3months
GN 85 & GY 90	Once in 3 months & depending on the condition of cot due to cut marks and chipoffs resulted by use of knife.

## SURFACE TREATMENT OF COTS

### 1. Heating of cots (after buffing)

A chamber with infra red heating tube as shown in fig.11 be kept near the grinding machine. Freshly buffed cots may be heated at a temperature of about 100° c for 15 to 20 minutes to remove the moisture. This will increase the cot hardness by 1 to 2°s and thus improve the performance of cots.



## 2. Acid treatment

It is one of the oldest which can help reduce lapping. Semi automatic acid treatment machine are preferred to laborious manual method which can be hazardous. The cot surface is treated with concentrated sulphuric acid for a few seconds, rinsed with water, neutralized with alkaline and again with and dried.

**The cots after acid treatment should be checked for acidity of the surface by PH paper. The cot surface should be completely neutral after treatment.**

## 3. Ultra - violet rays treatment

Cabinet type automatic and manual machines are available for this process. Irradiation of ultraviolet rays for 5 to 10 minutes on cot surface gives slight oxidation and makes it smoother. With this treatment, roller lapping can be reduced for synthetics and blended fibers.

However, it should be borne in mind that a well buffed surface is an important pre-requisite for getting good result after any of the surface treatments.

**While treating PVC core cots with U.V. rays, it should be ensured that temp. of the cot should not exceed 70° . If at all the cot is subjected to higher temp., care should be taken that cot position on arbour is not disturbed.**

“PRECITEX” synthetic rubber aprons and cots should be periodically cleaned with a solvent such as M.E.K. or Acetone. Any chemical treatment which is impractical, cumbersome, hazardous or corrosive is not recommended.

### Selection by end use

The table shows “PRECITEX” qualities of cots which can be use for different operations and yarns:

#### Recommendations

NO.	OPERATION	COTTON	WOOL	SYNTHETIC BLENDS
1.	Comber detaching rools	OG-65	G-83	
	draw box rools	G-83	G-83	
2.	Drawing	G-83	G-83	G-83
3.	Simplex/ Roving	PX-83	PX-83	GR-83S PX-83
	4. Spinning			
(a)	Back Roller	PX-83	PX-83	PX-83
(b)	Front roller			
(i)	Coarse Counts	PX-83	GY-90	GN-85
(II)	Fine Counts	OG-65	PX-83	PX-83
	&Hoisery	LG-70		
5.	Twisting	OG-65	PX-	PX-83

\*For better quality yarn and longer buffing cycles MJ 65 or DBX 73 quality is recommended (especially for 100% E.O.U's and quality conscious spinning mills).

To identify front and back line cots, the use of different color cots if technically feasible is recommended.



## Synthetic Rubber Aprons & Cots

Manufactured & Marketed by  
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*An ISO 9002 Company*

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