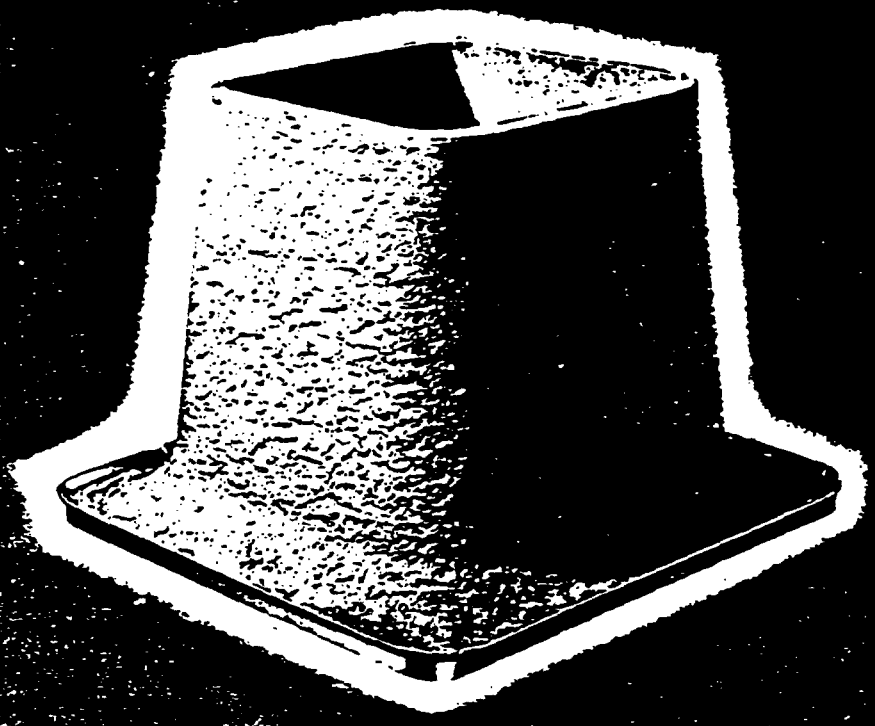
ANOTHER NEW IDEA FROM FOSECO, INNOVATORS TO THE STEEL INDUSTRY

PLAINTIFF'S EXHIBIT FOS-136



Foseco®

PROFAX® EXPENDABLE, ONE-PIECE, LOW VOLUME HOT TOP SYSTEM

- PRODUCES CONSISTENT, HIGH QUALITY INGOTS
- ASSURES MAXIMUM INGOT YIELD
- SAVES LABOR
- SAVES TIME
- LOWERS COSTS
- INCREASES EQUIPMENT USE
- CUSTOM ENGINEERED TO YOUR PLANT'S SPECIFIC NEEDS

FOSECO 0187

* U. S. Patent Numbers Re 25,915-Re 25,905, 3,297,296 and other patents pending.

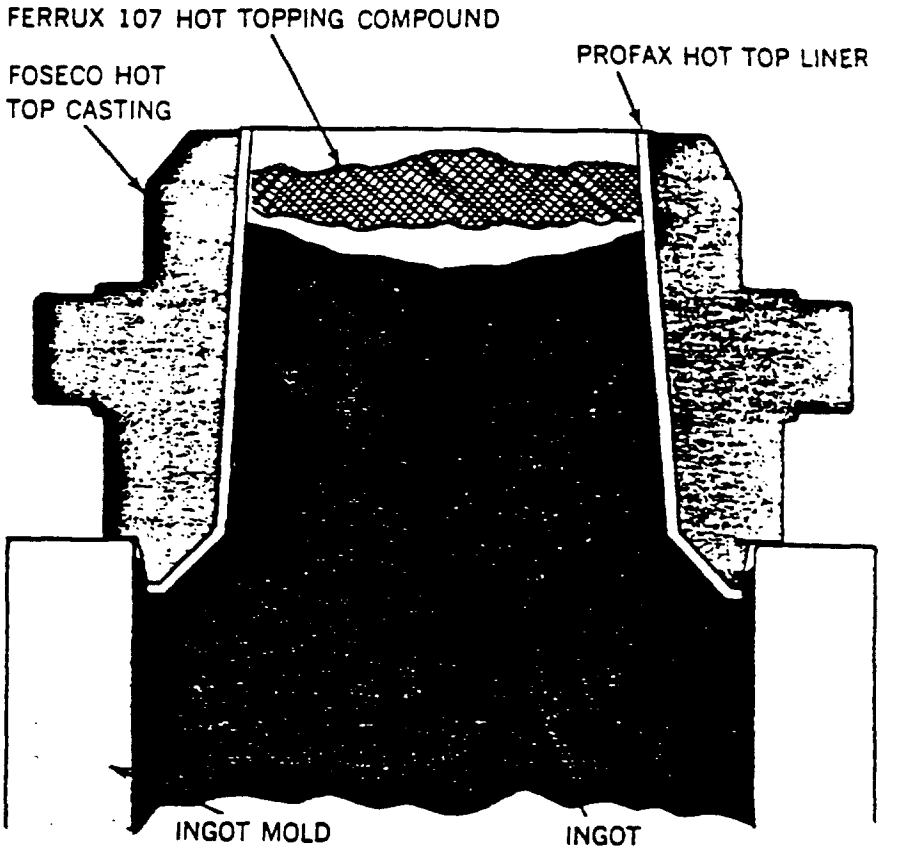
FOSECO, INC. 1967

PRINTED IN U.S.A. 467

THE PROFAX® HOT TOP SYSTEM FOR B.E.U. INGOTS

The unique, one-piece, FOSECO Profax Hot Topping System is a simplified, economical, highly efficient method of achieving greater benefits from the practice of hot topping big end up ingot molds. It consists of:

1. An expendable, light weight, one-piece, Profax insulating liner.
2. A permanent casting into which the Profax hot top is fitted and which requires no other refractory lining or treatment of any sort . . . NO BACK-UP REFRACTORY! . . . NO SLURRY! . . . NO SAND RING!
3. Ferrux® 107 exothermic-insulating hot topping compound added to the mold after teeming.



A cross sectional view of a big end up ingot mold equipped with the Profax hot top system.

PROFAX PRODUCES CONSISTENT, HIGH QUALITY INGOTS

The prefabricated, FOSECO one-piece hot top is manufactured of the same efficient materials made famous throughout the steel making world as Profax insulating hot top boards for B.E.D. ingots.

The thin wall, one-piece B.E.U. Profax hot top liner is produced on precision machines to tolerances impossible with conventional refractories. Engineered with an integral base flange and steel wiper strip that assures a positive seal at the hot top junction, the Profax liner ELIMINATES THE SAND RING.

When Profax hot topped ingots are stripped, residual material falls away as a powder avoiding any carry-over of refractory into soaking pits or rolling mill.

The FOSECO one-piece hot top is designed without ledges or recesses into which molten steel could penetrate thus reducing the hazard of hanger cracks in the ingot.

FOSECO's Profax hot top system is TOTALLY DRY . . . eliminating all dangers resulting from the residual moisture present in other hot topping systems during pouring.

PROFAX ASSURES MAXIMUM YIELD

Because of its excellent insulating properties, the Profax liner does not require any back-up refractory material. The thin Profax wall alone provides the high thermal efficiency needed for a *low volume* hot top.

The base of the Profax liner has a sloping shoulder instead of the conventional, wide, flat shoulder produced by a sand ring. This slope provides an improved rolling shape to the ingot and substantially reduces the extent of shoulder over-roll.

The Profax liner's flared base provides an approximate 80% feed area. Other B.E.U. hot tops have wide flat base shoulders with a feed area of less than 50%. The improved feeding characteristics of FOSECO's Profax liner enhances the segregation characteristics of the ingot and assures maximum product yield.

Profax is non-friable . . . has no spalling tendency . . . eliminates rejections from nonmetallic inclusions during pouring.

FOSECO's Profax material *will not* adhere to the ingot shoulder . . . unlike sand rings which can leave a residue to become entrapped during rolling and result in product loss. The Profax system assures a minimum top discard from the rolled ingot without endangering metallurgical quality.

PROFAX SAVES TIME

Use of the one-piece Profax hot top invariably results in sizable savings of time.

Assembly of the hot top is an easy, rapid, one-man operation. The lightweight Profax liner is simply placed in the casting and secured with wire clips. That's all there is to it!

Assembling twenty tops per hour/per man is a common accomplishment. The Profax one-piece liner is compact, moisture resistant, has good handling strength and is not easily damaged under steelworks conditions. No skilled labor is required and there is no need for special tools or handling equipment.

PROFAX SAVES LABOR

At all stages of hot topping procedures, the Profax system produces significant savings in labor.

With Profax, there is no tedious, costly, time-consuming re-bricking, patching, or application of slurry between pours . . . and no drying operation.

The expended Profax material does not adhere to the hot top casting or ingot mold eliminating the need for cleaning after each use.

The rugged FOSECO hot top casting is designed for longer life with proportionately lower cost per pour. It is engineered with smooth contours, both inside and out, for easy cleaning of steel splashes. Turning trunnions are located at the point of balance to insure simple one-man manipulation on the hot top assembly stand.

PROFAX INCREASES EQUIPMENT USE

The absence of semi-permanent back-up refractory allows the hot top casting to cool much more rapidly after use. It also eliminates time spent on patching and drying. These facts, coupled with the rapid assembly of the Profax hot top, result in a great improvement in turn around time. Three to four uses a day can be easily attained, which, in turn, permits a lower inventory of hot top castings.

PROFAX REDUCES COSTS

Use of the Profax one-piece hot top system invariably results in worthwhile reductions in the costs of finished product tonnage as a result of:

- Low cost per ingot ton
- Savings in time and labor
- Economies effected in equipment use
- Consistently high-quality product
- Maximum yield



Installation of the lightweight Profax liner into the FOSECO casting is quickly and easily accomplished by one man. A 25" x 27" hot top liner weighs only 38 pounds.

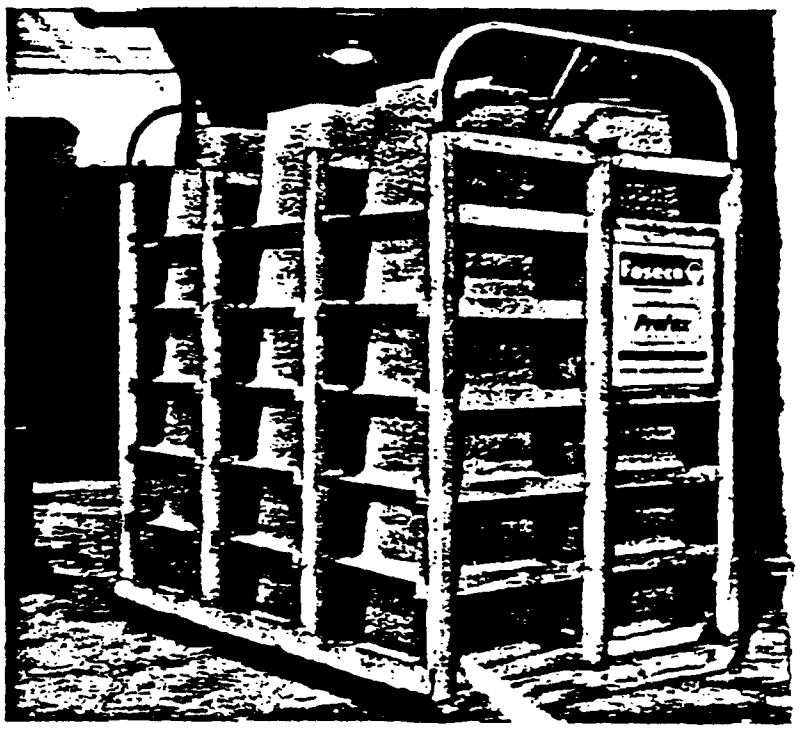


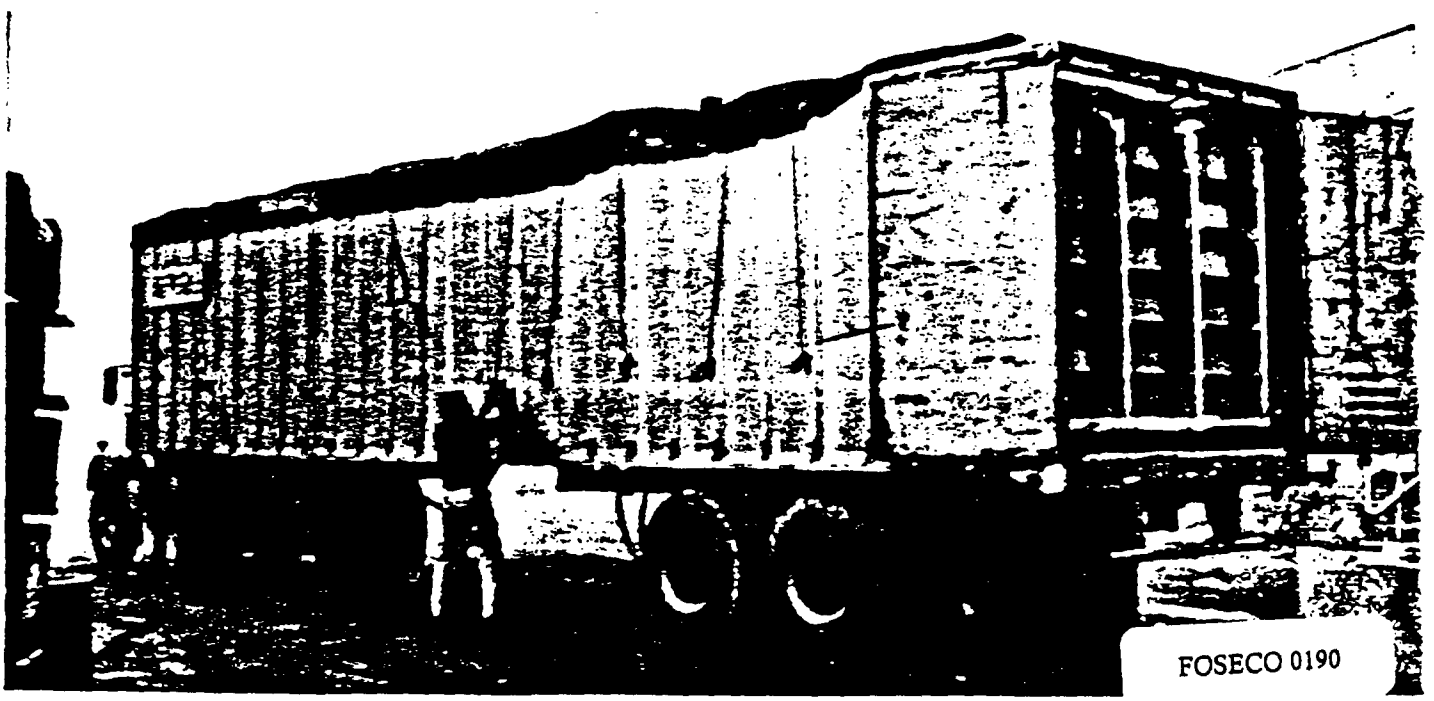
Securing the liner in the casting is accomplished with wire clips. The assembly is then inverted and is ready for placement on the B.E.U. ingot mold.

FOSECO Profax hot top liners are produced on FOSECO-developed automatic machines. The precision and performance of the finished product is assured by careful quality control measures enforced throughout each stage of manufacture.



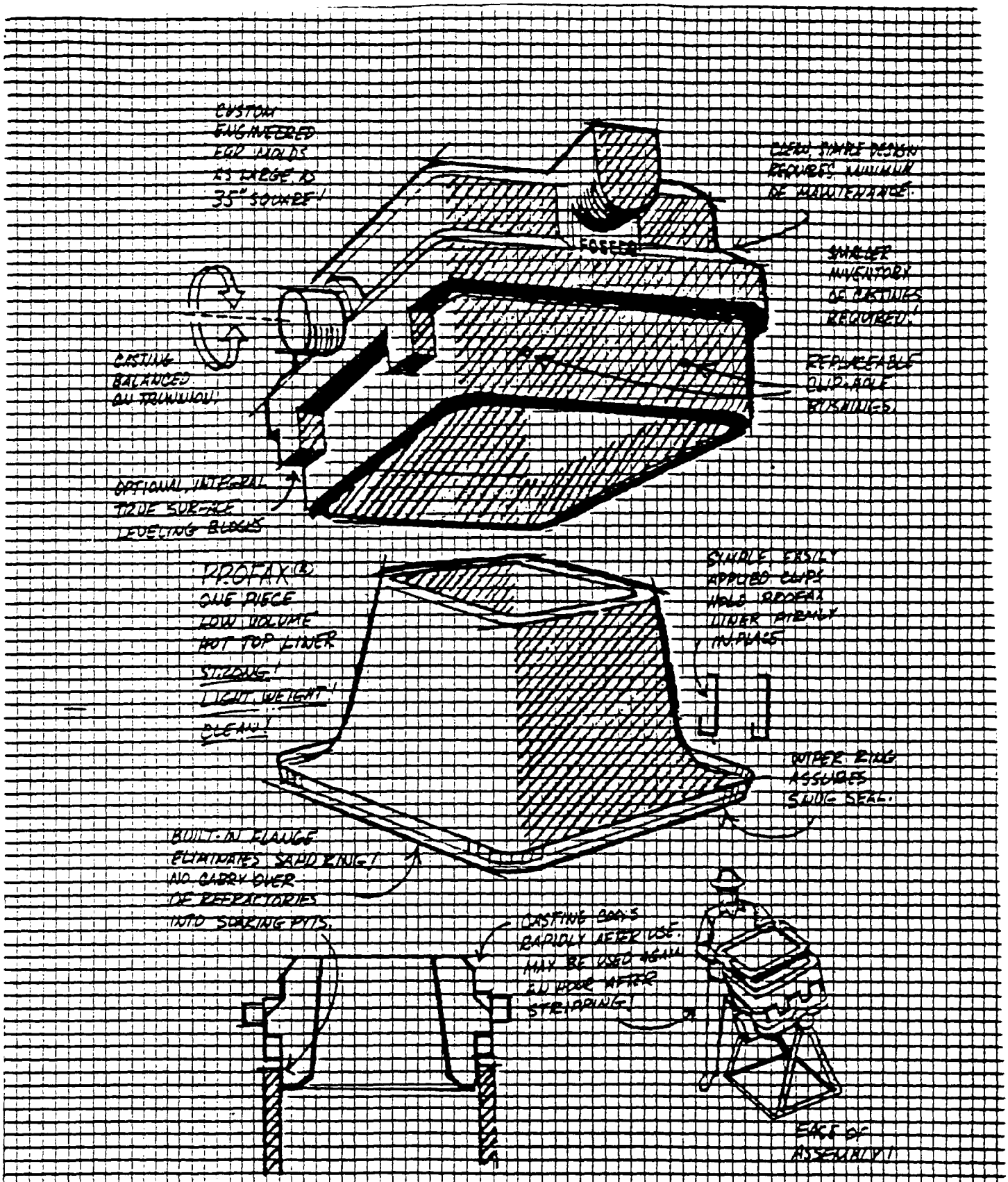
Finished Profax one-piece liners are nested on rugged steel cradles. Protected in this fashion, they will be shipped to the steel mill for which they were custom engineered and manufactured. They may also be shipped on expendable pallets.



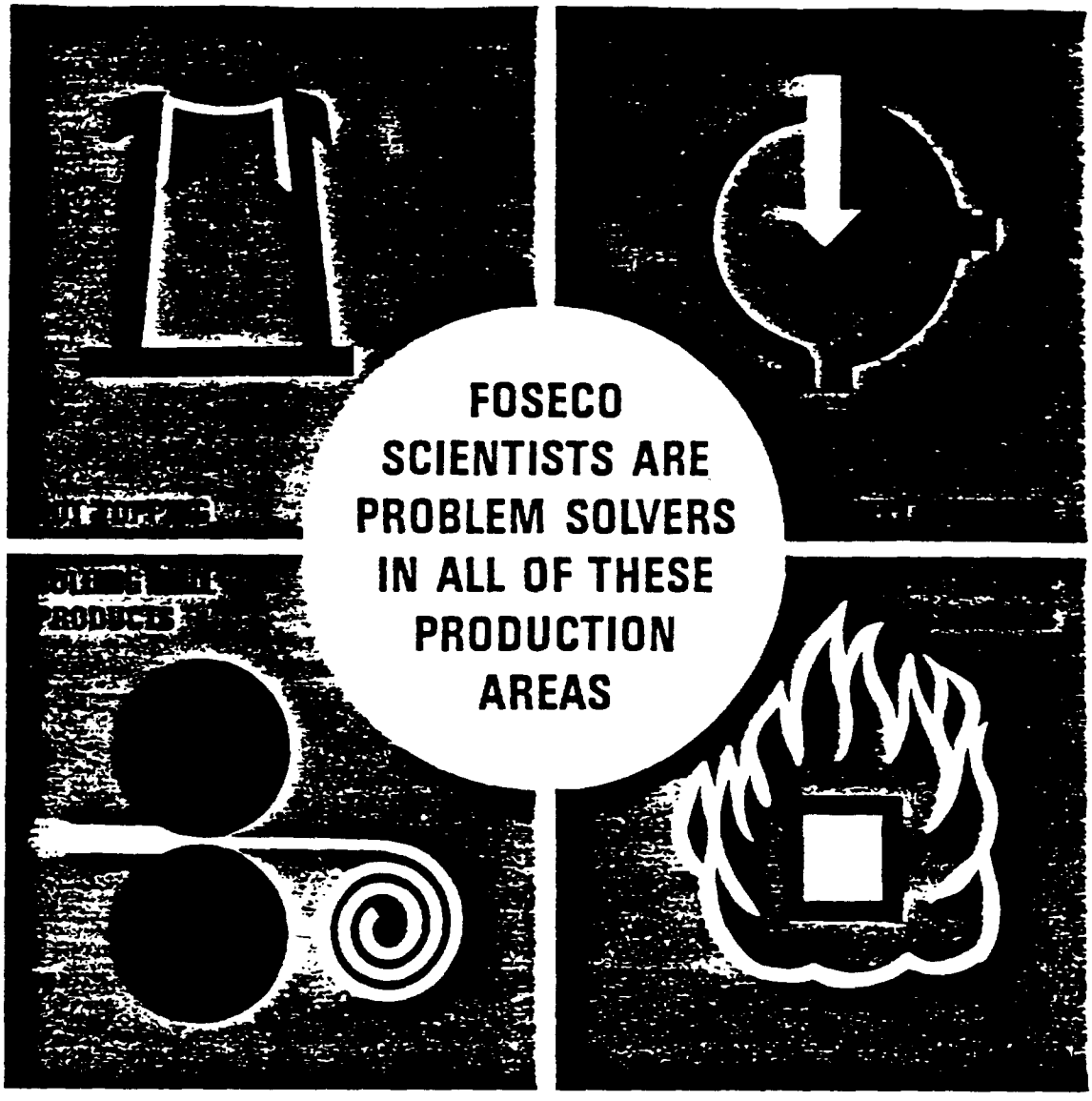


FOSECO 0190

Supplies of Profax one-piece hot top liners are trucked to steel mills at a rate matching mill production schedules. Stand-by supplies of Profax liners at the mill insure against an inadvertent shortage of hot tops when needed. Empty racks from previous deliveries will be brought to the FOSECO plant on the truck's return trip.


CUSTOM ENGINEERED FOR MOLDS AS LARGE AS 35" SQUARE!
CLEAN, SIMPLE DESIGN REQUIRES MINIMUM OF MAINTENANCE.
FOSECO
SMALLER INVENTORY OF CASTINGS REQUIRED!
CASTING BALANCED ON TRUNNION.
REPLACEABLE CLIP-HOLE BUSHINGS.
OPTIONAL, INTEGRAL TRUE SURFACE LEVELING BLOCKS
PROFAX®
ONE PIECE LOW VOLUME HOT TOP LINER
STRONG!
LIGHT WEIGHT!
CLEAN!
SIMPLE, EASILY APPLIED CLIPS HOLD PROFAX LINER FIRMLY IN PLACE.
WIPER RING ASSURES SNUG SEAL.
BUILT-IN FLANGE ELIMINATES SAND RING! NO CARRY OVER OF REFRACTORIES INTO SOARING PITS.
CASTING COOLS RAPIDLY AFTER USE. MAY BE USED AGAIN AN HOUR AFTER STRIPPING!
EASE OF ASSEMBLY!

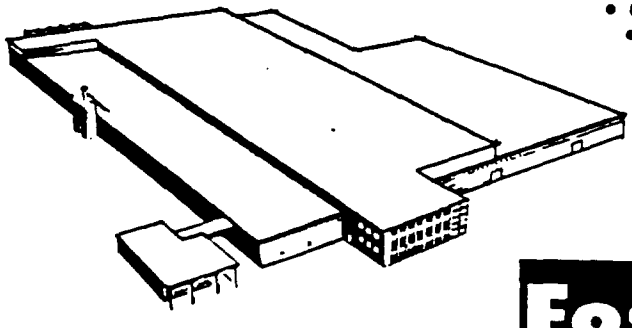
FOSECO 0191



FOSECO SCIENTISTS ARE PROBLEM SOLVERS IN ALL OF THESE PRODUCTION AREAS

FOSECO MANUFACTURING PLANTS ARE LOCATED IN:

- Buenos Aires, Argentina
- Salzburg, Austria
- Padstow, New South Wales, Australia
- Brussels, Belgium
- Sao Paulo, Brazil
- Guelph, Ontario, Canada
- Chelles (S. & M.), France
- Borken/Westf., Germany
- Woerden, Holland
- Bombay, India
- Milan, Italy
- Osaka, Japan
- Mexico City, Mexico
- Johannesburg, South Africa
- Barcelona, Spain
- Zug, Switzerland
- Tamworth, England
- Cleveland, Ohio, U.S.A.
- Mt. Braddock, Pa., U.S.A. (Eureka Fire Brick Works, Inc.)



CENTRAL RESEARCH:

- Birmingham, England

Foseco®

FOSECO, INC.
P.O. Box 8728
Cleveland, Ohio 44135
234-3551