



# WESMAN

INDUSTRIAL FURNACES DIVISION



## BATCH TEMPERING AND PREHEATING FURNACE

### TF AND PF SERIES

#### WESMAN BATCH TEMPERING AND PREHEATING FURNACES

type TF and PF respectively are manufactured on the basis of Wesman's experience and expertise in manufacturing and supplying these equipment successfully for more than two and a half decades coupled with additional technical inputs and accumulating advanced furnace techniques with new outcomes generated from various industrial fields, the technology involved is distinguished by its simple design, ease of operation and maintenance as well as low running costs

The furnaces are suitable for higher operating temperature up to 700° C and perform the most uniform and efficient process batch tempering or preheating operations. Designed primarily as a companion unit for the main batch type heat treating system or the Sealed Quench Furnace, the built-in flexibility allows them to be used independently for other application. These furnaces offer wide range of applications with excellent price- performance ratio, are cost effective and ensure reliable long term operation and are especially suited to perform a variety of tasks and have maximum flexibility.

Loading and unloading is carried out by external charge cars.

#### DESIGN CONSIDERATION

Since the Preheating Furnace is used for preheating the charge before processing in the Sealed Quench Furnace and the Tempering Furnace is used to temper the charge after processing in the main furnace, the most important design considerations which went into the making of the furnace were uniform air circulation and heat transfer to the charge. The Design and construction techniques ensure problem free operation and long furnace service life together with excellent price/ performance terms, high flexibility and most importantly in today's age and time is extremely energy efficient and environment friendly.

To meet this criteria, the most important aspect are the furnace interiors. The heating chamber is lined with special high alumina heating element support bricks which are extremely durable but at the same time keep the furnace skin temperature on the lower side. The arched roof is self supporting with an opening for the re-circulation fan assembly.

The furnace hearth comprises of large diameter rollers which ensures uniform penetration of the charge by the furnace atmosphere and provided with baffle plates on sides and top to promote uniform temperature distribution throughout the charge.



For a Two Door Sealed Quench Furnace, to prevent heat loss, the Preheating Furnace is placed next to the main furnace and is provided with an electro-mechanical unloading chain drive mechanism to unload the charge as loading is carried out by the loading machine. The Tempering Furnace is normally placed next to the Washing machine and charge loading and unloading is carried out by the external charge car.



PHOTOGRAPH FOR ILLUSTRATIVE PURPOSE ONLY

# STANDARD AVAILABLE AND POPULAR SIZES ARE GIVEN BELOW

\* BUT OTHER SIZES MAY BE AVAILABLE ON REQUEST

| SERIAL NUMBER | FURNACE MODEL PF and TF | CHARGE LENGTH in mm | CHARGE WIDTH in mm | CHARGE HEIGHT in mm | GROSS CAPACITY in kg |
|---------------|-------------------------|---------------------|--------------------|---------------------|----------------------|
| 1.            | TYPE 1/1                | 900                 | 600                | 500                 | 400                  |
| 2.            | TYPE 2/1                | 1200                | 750                | 6010                | 600                  |
| 3.            | TYPE 2/2                | 1200                | 750                | 750                 | 1000                 |
| 4.            | TYPE 3/2                | 1200                | 900                | 750                 | 1000                 |
| 5.            | TYPE 3/3                | 1200                | 900                | 900                 | 1500                 |

## KEY CONSTRUCTION FEATURES AND ADVANTAGES OF WESMAN TEMPERING AND PREHEATING FURNACES

- Fabricated out of heavy duty structural steel plates, reinforced and welded.
- Pneumatically operated brick lined door with wedge locking mechanism for maximum sealing.
- Furnace roof, walls and hearth are brick lined with special high insulation refractory bricks minimizing heat loss and low skin temperature.
- Low watt density coiled heating elements arranged on retainer bricks on the two sides, gives uniform heating, long life and easy maintenance as well as replacement.
- Excellent and optimum temperature uniformity by means of a high speed and volume re-circulation fan fitted on the roof and stainless steel baffle.
- The hearth construction is by means of a stainless steel roller table which features large diameter divided rollers providing improved circulation and flexibility.
- Elements connected in star-delta which reduces energy consumption and temperature overshoot, simultaneously increasing heating element life.
- Fully automatic operation with control panel fitted on the side wall of the furnace for trouble free and long life operation.
- Tempering furnace can be provided with Nitrogen Gas flushing system to carry out heat treatment under inert atmosphere.
- Can be provided with thyristor controller for power supply to heating elements to achieve high degree of temperature uniformity.
- All elements easily approachable for ease of maintenance.
- Safe and simple in operation as well as easy to maintain.
- Use of best make of bought out components.

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