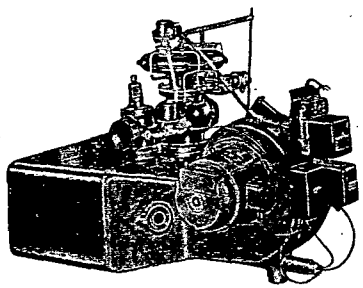
# THE METTLER CO., Inc.

**1101 Buchanan St., Rockford, Ill.**

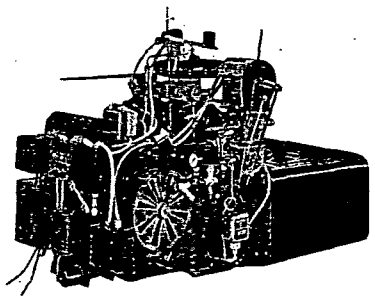
**Division of Eclipse Fuel Engineering Company**



Packaged burners for gas or combination gas-oil firing rated up to 800 bhp output have been designed and built by Mettler for more than 35 years.

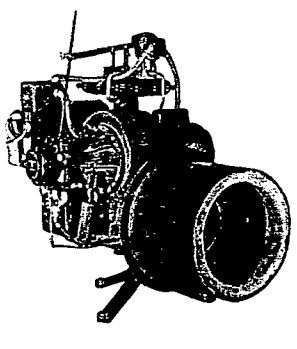
## FAN-AIR GAS BURNERS

For forced, induced or natural draft operation in large and small power plants with capacities from 1,300,000 to 35,000,000 Btu input. Eight largest standard size burners are equipped with enclosed control cabinets. *Details in Bulletin G-200-B.*



## FAN-AIR COMBINATION GAS-OIL BURNERS

With output ratings of 25 to 800 bhp, change fuel at the flick of a switch located either on burner or at remote station. Oil-gas internal assembly combines gas pilot, oil nozzles, spark rods, flame rod, photo-cell and stainless steel Turbo-Fins in a single compact unit for adjustment or cleaning. *Details in Bulletin GO-200-B.*



## TURBO-FLAME BURNER

Is a single port nozzle mixing burner for gas, oil, or gas-oil combination firing. Designed for use on Scotch marine boilers where back pressure or positive pressure exists or is likely. Capacity ranges from 500,000 to 5,000,000 Btu/hr depending on back pressure. *Details in Bulletin GO-300-B.*

Other standard Mettler burner lines include the Series "C" entrained combustion gas burners and Mettler junior "Fan-Air" burners rated at 150,000 to 1,400,000 Btu input. Literature on both lines available.



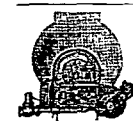
# RAY BURNER COMPANY

Since 1872

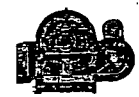
**1301 San Jose Avenue; San Francisco 12, California**

Atlantic Seaboard Div.; 629 Grove St., Jersey City 2, N. J. Distributors in All Principal Cities of the World

## RAY FORCED DRAFT PACKAGED BURNERS



*Scotch Marine application*

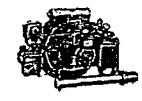


*Type for water tube boilers*

A factory assembled unit readily applied to any type of boiler designed for forced draft operation. Fully automatic operation on oil, gas or combination gas-oil. The combination gas-oil unit includes a rotary oil burner, integrated ring type gas burner, secondary air control with a forced draft fan, windbox, refractory support ring, completely wired control cabinet and pre-piping completely factory assembled for quick and easy installation to the boiler.
Oil components may be selected to burn any grade of oil with the secondary air control providing increased efficiency even with the difficult-to-burn catalytic residual #6 fuel oils. Sizes 1 to 10. From 40 to 750 developed output horsepower.

## RAY COMBINATION OIL-GAS BURNERS

ARC-MODEL 550. Consists of a rotary type oil burner of Ray conventional design coupled with a gas housing for low pressure gas. The gas burner parts provide for the introduction of gas in a manner which fully utilizes the energy in the high pressure air supplied by the rotary burner fan. Gas and primary air are intimately combined, in two stages, before mixing with the secondary air which is introduced through a vaned annular opening concentric with the nozzle. Change-over requires less than one minute. Available to burn any grade of oil; 9 sizes with capacities to 31,500,000 Btu/hr. Gravity type to 48,000,000 Btu/hr.
TYPE PCP. Fully automatic combination gas-oil burner of the pressure atomizing type. Available in three sizes with capacities from 560,000 to 4,200,000, Btu/hr. High speed 3450 rpm models available for forced draft operation. Also available for straight gas operation, as type PG.



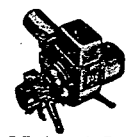
*ARC-144 Model 550 for heavy oil and Low Pressure Gas*



*Type PCP for #2 oil or lighter and Low Pressure Gas*

## RAY DOMESTIC AND STEAM TURBINE BURNERS

**RAY PRESSURE ATOMIZING OIL BURNERS.** Fully automatic for #2 oil or lighter. 4 sizes with capacities from 1 to 30 gph. Pedestal or Flange mounting. All types have electric ignition interrupted or constant. AC or DC. Electronic controls are standard on all models above 7 gph capacity. High speed 3450 rpm models available for forced draft operation.



*Fully Automatic, Type IP, #2 or lighter oil*



*Steam Turbine Drive, Type TC, all grades oil. Tested and approved for U. S. Navy Service*

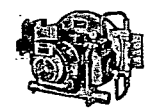
## RAY INSHOT GAS BURNERS

Multi-jet atmospheric type gas burners with high flexibility in nozzle number, arrangement and capacity, permitting high input ratings in limited space. For commercial and industrial application with natural or induced draft. Available in 36 different jet arrangements with capacities from 99 to 7512 cfh.

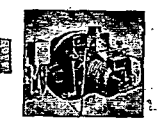


*Size 2, IC-29*

## RAY HORIZONTAL ROTARY OIL BURNERS



*Type AR-144 Size 10 for No. 6 oil, Available in 10 sizes from 2 to 210 gph. Fully automatic.*



*Fully Automatic Type AR-134, for No. 5 oil*



*Type BR-144, Belt Drive, Fully Automatic, Available in 8 sizes. Capacities from 2 to 110 gph.*



*Type ARIP, Fully Automatic for heavy oil where gas for ignition not available*

Built in fully automatic, semi-automatic and manual types; in sizes from 7 to 1000 Boiler hp, 230 to 37,000 lbs/hr, to burn all grades of fuel oil.
Standard models include both direct and belt drives—the latter being recommended for use where other than 50 or 60 cycles AC, or only DC is available. Types for diesel electric or gas electric ignition; pump or gravity feeds. Direct drive types include a steam turbine driven model.
Most fully automatic types for heavy oil incorporate the Ray Dual Pump and Reservoir, with the Ray VISCOSITY Valve, a patented, exclusive feature which automatically meters the correct amount of fuel at all times, regardless of changes in viscosity of the oil due to temperature variations. All larger sizes employ dual ignition system, consisting of dual high-voltage transformers, dual electric ignitors and dual gas valves. Fully automatic burners include as standard equipment electronic pilot and flame failure control as required by code.

## RAY BURNER HOURLY CAPACITY RATINGS

| Burner Size | Motor hp | Oil Capacity U. S. Gallons | | Equivalent Boiler HP | | Equivalent Lbs. Steam Generated† | | Heat Capacity Input Thos. Btu Oil or 1000 Btu Gas | | Equivalent Sq. Ft Steam Radiation | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. |
| JP | ¼ | 1 | 2 | 3 | 9 | 110 | 323 | 140 | 420 | 448 | 1300 |
| 1-P | ½ | 4 | 7 | 12 | 23 | 420 | 755 | 560 | 1000 | 1750 | 3060 |
| 2-P †† | ¾ | 7 | 18 | 23 | 55 | 755 | 1950 | 1000 | 2500 | 3060 | 7900 |
| 3-P | 1½ | 14 | 30 | 45 | 95 | 1510 | 3340 | 1960 | 4200 | 6130 | 13140 |
| 0 | ¼* | 2 | 5 | 7 | 16 | 230 | 580 | 300 | 750 | 938 | 2340 |
| 1 | ½ | 4 | 11 | 13 | 35 | 460 | 1270 | 600 | 1650 | 1880 | 5180 |
| 2 | ¾** | 6 | 15 | 17 | 50 | 580 | 1740 | 750 | 2250 | 2340 | 7030 |
| 3 | 1½** | 8 | 25 | 27 | 83 | 920 | 2900 | 1200 | 3750 | 3750 | 11720 |
| 5 | 1 | 10 | 35 | 33 | 116 | 1105 | 4050 | 1500 | 5250 | 4690 | 16400 |
| 6 | 1¼ | 12 | 50 | 40 | 165 | 1400 | 5800 | 1800 | 7500 | 5630 | 23500 |
| 7 | 2 | 15 | 70 | 50 | 230 | 1740 | 8100 | 2250 | 10500 | 7030 | 32800 |
| 8 | 3 | 25 | 110 | 83 | 365 | 2900 | 12700 | 3750 | 16500 | 11700 | 51500 |
| 9 | 5 | 35 | 150 | 115 | 500 | 4050 | 17400 | 5250 | 22500 | 16400 | 70500 |
| 10 | 7½ | 50 | 210 | 165 | 700 | 5800 | 24400 | 7500 | 31500 | 23400 | 98300 |
| 12 | 7½ | 75 | 320 | 250 | 1000 | 8700 | 37000 | 11250 | 48000 | 35100 | 149200 |

NOTE: These ratings are predicated upon specific conditions of draft and furnace volume. It may be permissible, under desirable conditions, to operate at higher rates, or advisable under restricted conditions, to operate at reduced rates. Heating capacities are based upon 150,000 Btu per gal of oil for rotary burners and 140,000 Btu per gal of oil for pressure atomizing burners and upon an overall boiler efficiency of 75 percent.
† Steam capacity based on steam F and A 212 F. * ½ hp on belt driven models.
** ¾ hp on belt driven models. †† Motor hp may be increased for forced draft operation.