

Commercial Cooking Equipment

Summary¹

Food preparation is an energy intensive activity. When performed on a large scale, the type of equipment used and small efficiency gains can result in substantial dollar savings. However, nothing will be done that affects food QUALITY which will always take priority over efficiency and energy savings.

There continues to be strong 'rivalry' between gas and electric equipment for cooking. It is probably mostly continued by utility companies, as most equipment manufacturers make both gas and electric versions of the same equipment. Gas tends to be predominate in large, professional chef kitchens, and electric tends to dominate the fast food industry.

There are literally hundreds of types of commercial cooking equipment available, with thousands of options. Below is a sample of the most common gas equipment with typical specifications found at many commercial kitchens. This very abbreviated guide is meant to be only a primer; see the Cooking For Profit Catalog for a complete listing of available gas equipment.

Market Niches

- Commercial Kitchens
- Food Processing

Competition

- Electric
- Propane

Manufacturers

See FoodService Gas Equipment Catalog 2004-2005.

Broiler

Summary/Principles of Operation²

Gas-fired broilers are among the most prevalent type of cooking equipment used in contemporary commercial kitchens. They are commonly used for preparation of meats, poultry, seafood and certain vegetables. They may also be used to heat plated foods, brown, melt toppings or add a quick distinctive final touch to foods.

There are two types: underfired (char) and overfired (heavy-duty upright or hotel)

¹ Technology Profiles by DTE Energy

² FoodService Gas Equipment Catalog 2004-2005

I. Charbroiler (Underfired)

Gas charbroilers attract attention lending themselves to display cooking installations. They serve as a marketing tool to stimulate customer appetites and attract attention.

Charbroilers have the gas burners installed beneath the cooking grate and send heat up toward the product. As food begins to cook, the hot juices drip through the open grate. This process creates the flames, flavors and aromas associated with char broiling.

Typical Costs (not installed)³

BTU	COST (\$)
35,000	960
70,000	1,240
105,000	1,890
140,000	2,260
210,000	3,580
280,000	4,960

II. Overfired (Heavy-Duty or Hotel)

Handle high production needs. The gas burners are located at the top and their heat is radiated downward to the foods being cooked. Adjustable broiling grates allow the cooking time and temperature to be controlled by moving up or down and sliding out.

Typical Costs (not installed)⁴

BTU	COST (\$)
46,000	4,290
69,000	4,860
92,000	5,400
115,000	6,690
138,000	7,000

³ www.americanrange.com 9/17/04 AECEB unit

⁴ www.americanrange.com 9/17/04 AROB unit

Cheese Melter

Summary/Principles of Operation⁵

Gas cheesemelters are primarily designed to heat plated foods, melt toppings, toast breads, keep serving dishes warm, heat pastries and finish cook certain foods.

Typical Costs (not installed)⁶

Specifics	BTU	COST (\$)
ARCM-24, 1 burner	20,000	1,750
ARCM-36, 1 burner	55,000	2,495
ARCM-48, 2 burners	40,000	2,990
ARCM-60, 2 burners	50,000	3,690
ARCM-72, 3 burners	60,000	4,480
ARCM-84, 4 burners	80,000	5,490

Griddle/Grill

Summary/Principles of Operation⁷

Gas-fired griddles have been a hard-working mainstay of kitchens for years. They are typically used to prepare a variety of breakfast, lunch and dinner foods for foodservice operations, ranging from fine dining to fast food to institutional service. Gas griddles are available to fit most production needs and deliver substantial energy cost savings, when compared to electric equipment. Gas griddles are available in countertop and floor models, in combination with open burners or hot plates, in a multitude of gas range configurations.

Typical Costs (not installed)⁸

Specifics	BTU	COST (\$)
ARMG-12, ¾" thick plate, manual, 1 burner	30,000	1,095
ARMG-12, ¾" thick plate, manual, 2 burners	60,000	1,335
ARMG-12, ¾" thick plate, thermostat, 2 burners	60,000	1,995
ARMG-112, 1" thick plate, manual, 1 burner	30,000	1,250
ARMG-112, 1" thick plate, thermostat, 1 burner	30,000	1,990
AR24-12G20B, open burner, manual	94,000	1,990
AR24-12G20B, open burner, thermostat	94,000	2,790

Go to www.americanrange.com for more options and prices.

⁵ FoodService Gas Equipment Catalog 2004-2005

⁶ www.americanrange.com 9/17/04

⁷ FoodService Gas Equipment Catalog 2004-2005

⁸ www.americanrange.com 9/17/04

Gas Combi-Oven

Summary/Principles of Operation⁹

The gas combination oven is the result of blending several cooking technologies into one versatile piece of equipment. It uses the air movement of forced convection ovens, the steam heat transfer system of pressureless steamers and the dry heat of conventional gas ovens.

In the convection mode, food is prepared through the rapid circulation of hot air, and effective choice for foods requiring short cook times or extensive browning such as hamburgers, steaks, baked goods and au gratin foods. In the steam mode, a combination oven functions as a fan-forced pressureless gas compartment steamer suitable for vegetables, seafood and most foods that can be poached or boiled. This mode can also reheat prepared foods without drying them out. The combination mode utilizes steam and forced-air convection. They may be used simultaneously or at selected intervals. At temperatures above 212° F, food products are in effect being cooked by “superheated steam” which can provide even faster cook times and increase meat product yields due to more moisture retention and less shrinkage. This mode is ideal for large roasts, poultry, casseroles, and many baked goods that require browned crust and a fluffy or tender interior.

Typical Costs (not installed)¹⁰

Model	BTU	COST (\$)
24 CCG210X	85,500	\$33,280

Convection Oven

Summary/Principles of Operation¹¹

The popularity of gas convection ovens stems from their baking and roasting versatility and speed of production. They are competitive in initial cost, user-friendly and energy efficient. The basic concept of gas convection ovens is simple: single or multiple gas burners provide heat to the oven cavity and one or more mechanical blowers circulate the heated air quickly and evenly throughout the oven.

Most meat products benefit from fast, low-temperature convection roasting. They retain more of their natural juices, are more flavorful and offer higher yields per pound. the mechanical circulation of the heated air and the even temperatures achieved in the cavity also enhance the quality, consistency and eye appeal of many baked goods.

⁹ FoodService Gas Equipment Catalog 2004-2005

¹⁰ Cleveland Range 10/6/04

¹¹ FoodService Gas Equipment Catalog 2004-2005

Typical Costs (not installed)¹²

BTU	COST (\$)
90,000	5,990
180,000	11,980

Conveyor Oven

Summary/Principles of Operation¹³

Today’s gas conveyor ovens are among the most energy efficient and labor efficient cooking technologies available to foodservice operations. They can be best described as motorized, automatic horizontal cooking chambers with openings at each end. A wire mesh, continuous loop stainless steel conveyor belt moves products through the chamber. Products are simply placed on the belt at one end and removed when finished at the other.

They may be used to bake or roast a wide array of items, from pizza and pans of frozen entrées, to casseroles, meats, breads and pastries. Generally, conveyor ovens will bake, reheat and finish food products two to four times faster than conventional ovens.

Typical Costs (not installed)¹⁴

BTU	COST (\$)
52,000	7,200

Deck Oven

Summary/Principles of Operation¹⁵

Gas deck pizza ovens are designed to reduce labor and operating costs while increasing baking efficiency and production capabilities. Models can generally be divided into four primary classifications: standard or full-size, countertop, vaulted cavity and motorized convection.

Standard or full-size- designed for higher volume operations, well-insulated to increase operational efficiency and minimize kitchen heat gain

Countertop- ideal for gourmet pizza in full-service restaurants

Motorized- feature motorized blower systems that control and force heat flow evenly throughout the entire cavity, heat is recycled to enhance energy efficiency and baking performance.

¹² www.americanrange.com 9/17/04 MA-1 unit with manual controls

¹³ FoodService Gas Equipment Catalog 2004-2005

¹⁴ www.foodservicedirect.com 9/20/04 Doyon FC18G model

¹⁵ FoodService Gas Equipment Catalog 2004-2005

Vaulted cavity- designed to be the centerpiece of an operation; brick/stone/masonry enclosures give the operator many options when “showcasing” this oven.

Typical Costs (not installed)¹⁶

Specifics	BTU	COST (\$)
3 deck	70,000	7,400

Combination Oven/Proofer

Summary/Principles of Operation¹⁷

Primarily used for baking. It offers high production in a compact, space-saving unit. The oven features a hot recycled reverse fan air system to assure even baking, reaching baking temperature in 15 minutes. Other standard features include steam injection system, full-view glass doors, all stainless steel interior and exterior. Proofer features adjustable shelving and automatic water system.

Typical Costs (not installed)¹⁸

Specifics	BTU	COST (\$)
3 pan	52,000	7,200
6 pan	65,000	8,200
10 pan	65,000	9,400

Fryers

Summary/Principles of Operation¹⁹

Gas-fired open fryers, a foodservice industry mainstay, continue to be among the most popular of all commercial cooking appliances. They are used to produce entrée and sandwich food favorites such as chicken and fish as well as popular companion products like French fries and onion rings. There is an endless array of gas floor and counter fryer models, sizes, configurations, features and price ranges from which to select.

¹⁶ www.foodequipmentdirect.com 9/20/04 Doyon PIZ6

¹⁷ FoodService Gas Equipment Catalog 2004-2005

¹⁸ www.foodequipmentdirect.com 9/20/04 Doyon models

¹⁹ FoodService Gas Equipment Catalog 2004-2005

Typical Costs (not installed)²⁰

BTU	COST (\$)
80,000	2,350
160,000	4,590

Range

Summary/Principles of Operation²¹

The range is most commonly used for sautéing, pan broiling, stewing and stock pot work. It can also function as a steamer or kettle for vegetables, seafood, poultry and meats. A variety of sizes and design options are available. Range tops can include open burners, a broiler, griddle or fry top, hot top or French top. It can have conventional or convection ovens or provide storage compartments or refrigeration without taking up additional kitchen floor space. They can be divided into two categories-heavy-duty and restaurant.

Heavy-Duty- Commonly installed in a battery of several heavy-duty ranges with various cooktop configurations and can include battery-compatible ovens, fryers and broilers. They are frequently found in large restaurants, hotels, hospitals and educational facilities.

Restaurant- Frequently purchased as an all-in-one, multipurpose cooking unit for lower volume operations. They are typically found in medium-duty commercial applications such as smaller restaurants, sandwich shops, churches and social clubs.

Typical Costs (not installed)²²

Specifics	BTU	COST (\$)
24" range, 4 burners	155,000	2,490
36" range, 6 burners	227,000	2,850
48" range, 8 burners	310,000	4,990
60" range, 10 burners	390,000	5,250

Skillet

Summary/Principles of Operation²³

This versatile piece of equipment is used to braise, sauté, stew, simmer, boil, steam , pan fry, grill, roast, or proof dough.

²⁰ www.americanrange.com 9/17/04 Deep Fat Fryer Series AF25 & AF2525

²¹ FoodService Gas Equipment Catalog 2004-2005

²² www.bigtray.com 9/20/04 models AR-4, AR-6, AR-8, AR-10

²³ FoodService Gas Equipment Catalog 2004-2005

Commercial Cooking Fact Sheet

Typical Costs (not installed)²⁴

Specifics	BTU	COST (\$)
30-STGL, 30 gallon, open leg	108,750	14,177
30-STGM, 30 gallon, closed base	108,750	16,930
40-STGL, 40 gallon, open leg	145,000	14,650
40-STGL, 40 gallon, closed base	145,000	16,540

Steamer

Summary/Principles of Operation²⁵

This equipment is used to defrost and cook a variety of food by direct contact with steam.

Typical Costs (not installed)²⁶

Specifics	BTU	COST (\$)
Model 24CGM200: 6 pan convection, two compartment pressureless steam generator	200,000	20,900
Model 24CGA10: 2 compartment pressureless steam generator floor model	125,000	17,400
Model 36CGM16300: 8 pan convection, two compartment pressureless steam generator	300,000	28,920

²⁴ www.mfi.com/products/MarketForgePriceList2003.pdf

²⁵ Let the Gas Flow by Richard Karg, pg 240

²⁶ www.clevelandrange.com 10/06/04