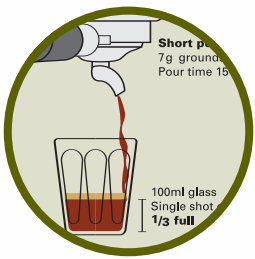
THE ILLUSTRATED

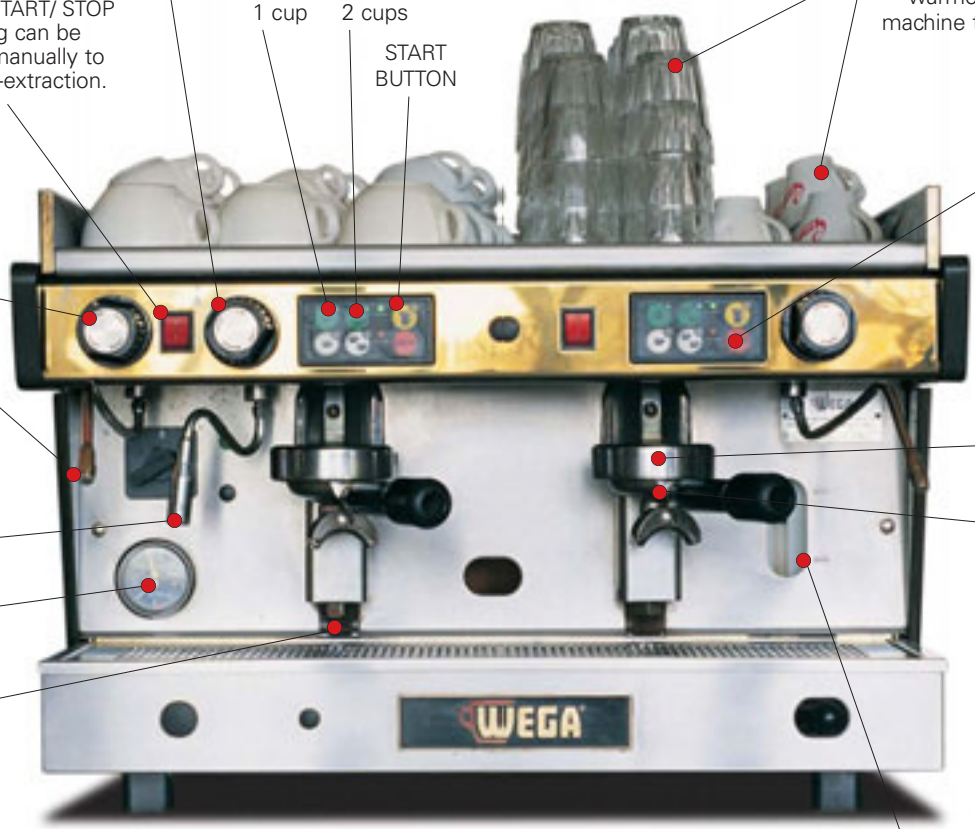
Coffee

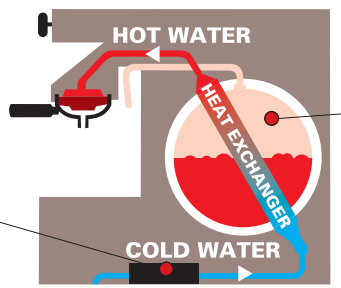
DRINKER'S



HANDBOOK


GO TO
Roasting (pages 42–53)
Machines
Bean characteristics
Blending
Regional characteristics
about roasting beans…





Water passes through the HEAT EXCHANGER, exchanging its coldness for the heat of the BOILER water, which is used separately to supply steam. Brass boilers retain heat better than stainless steel or aluminium boilers.

A PUMP regulates water pressure forcing fresh cold mains water up a copper tube.

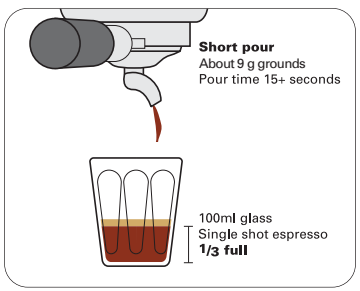
- Fit and twist the filter holder into the brewing position.
- At the start of the day, before brewing, flush hot water through the group head several times (with the handle in place). This heats the group and flushes away any remaining grinds (which would taint the flavour of a fresh brew), as well as refreshing the water in the heat exchanger.

- Place a 50 mL cup or glass under the spout.
- Press the button to start brewing and the pump goes to work—in a lever machine, pull the lever down.
- One writer describes the ensuing chemistry in the following way:

  As the hot water is forced through, it causes about ten percent of the grounds' soluble oils to emulsify. The bean's aromas then attach to these oils.

  An espresso is simultaneously an emulsion of oils and colloids, a solution of sugars, caffeine, acids and proteins, and a suspension of coffee particles and gas bubbles. The crèmas carbon dioxide bubbles help minimise heat and aroma loss.

Espresso

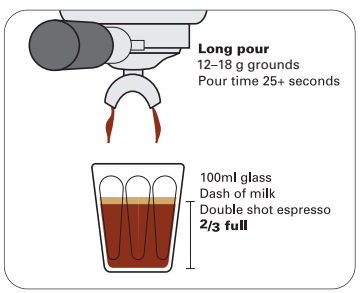


A true, single shot of espresso, with its distinctive crèma, is made from approximately nine grams of grounds. A pour of 15 or more seconds, fills ⅓ of a 100 mL glass or cup. In practice the volume can vary widely—the longer the pour the greater the overextraction and bitterness.

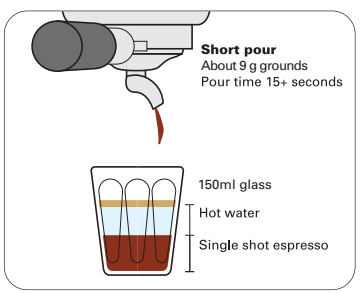
To make a RISTRETTO, brewing is stopped after only ½ to ¾ of the volume of an espresso is poured.

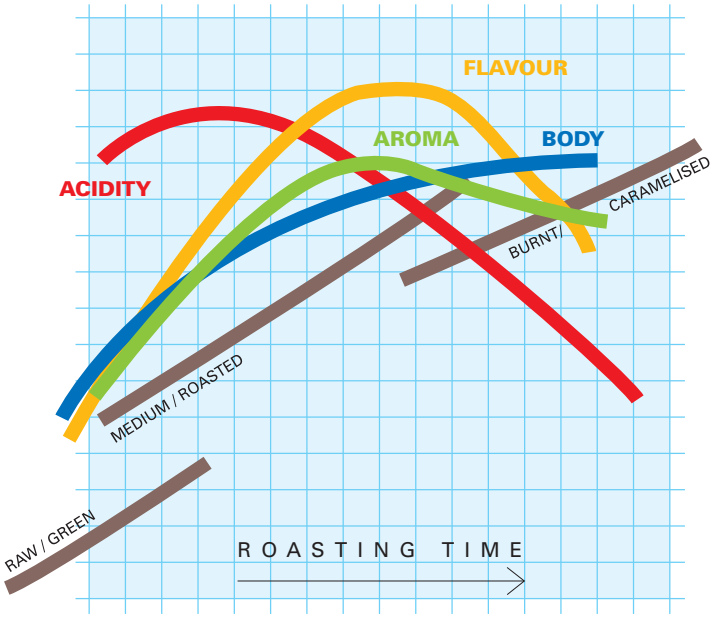
Double espresso

A double shot of espresso is 12–18 g of grounds brewed through a two-spout filter holder with a pour, of around 25 seconds or more, into a 100 mL cup.



A LONG BLACK is a single shot of espresso diluted with hot water (about 90 mL), while retaining the crèma, in a 150 mL cup.



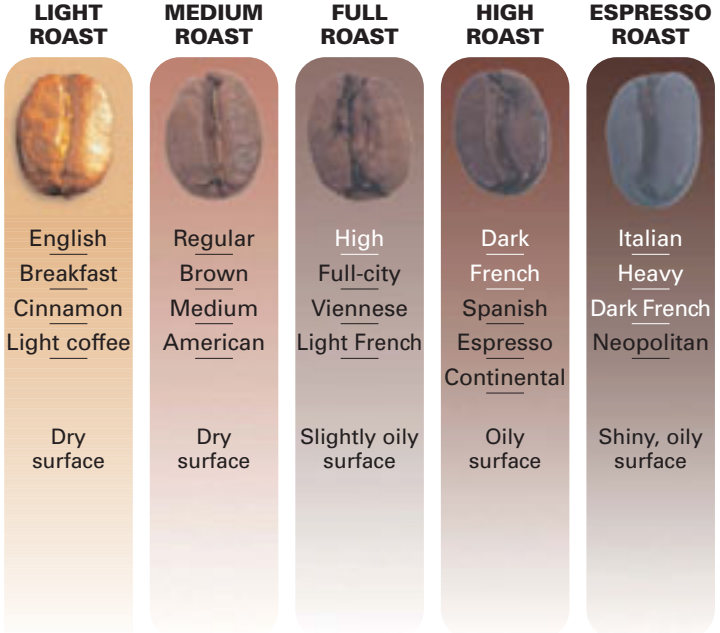


Changing bean characteristics

During roasting the temperature of the air and the bean, the bean colour, and the sounds emitted are all monitored as chemical and physical changes occur in the bean. The graph above plots changes in **AROMA**, **BODY**, **ACIDITY** and **FLAVOUR** during roasting.

As the green beans are heated the moisture dries off and the beans begin to increase in size. The wrinkled outer skin 'pops' off leaving a shiny polished bean. The heat releases the bean's volatile oils.

▲ INCREASE
Size
Fats
▼ DECREASE
Soluble oils
Weight
Water
Caffeine



Toward the end of the roasting process a second 'pop' and hissing noise signals the breakdown of the cell walls in the bean. By the end of roasting for espresso brewing, after 15–20 minutes, the beans are dry and a dark brown colour (although optimal colour depends on bean type).

When the beans are the correct colour, quick cooling reduces the loss of essential oils. Cooling with fine sprays of water increases moisture in the bean and makes a <wet roast>. Cooling with jets of air makes a <dry roast>.

The flavour of roasted beans, if stored in a cool, dark, dry and air-tight place, keeps for up to **3 WEEKS**. Refrigerated roasted beans collect condensation each time they're taken from the fridge.

Regional characteristics

Country
Best bean

AROMA	
BODY	
ACIDITY	
FLAVOUR	
ROAST	
PROCESS	

Even though no two roasted beans display the same characteristics, beans grown within the same region have broad similarities.

A study of the **AROMA**, **BODY**, **ACIDITY**, and **FLAVOUR** of a selection of quality wet and dry processed beans from the world's three main coffee-producing regions can reveal these similarities.

Words like 'pointed' and 'earthy', used to describe these characteristics, are explained on pages 34–37, where you'll also find out how we smell **AROMA**, feel **BODY** and taste **ACIDITY** and **FLAVOUR**.

Latin American beans

LIGHTER BODY
BRIGHT BRISK ACIDITY

Guatemala
Antigua
La Tacita

Strictly Hard Bean (SHB) grown above 1500 metres in nitrogen rich soil with regular light rain and sun.

AROMA	FLORAL
BODY	FULL
ACIDITY	MILD
FLAVOUR	SMOKY
ROAST	MEDIUM
PROCESS	WET

Costa Rica
La Minita Tarrazu

Grown without artificial pesticides and fertilisers and hand sorted. Also: Bella Vista and La Magnolia from Tres Rios region.

AROMA	SWEET
BODY	MEDIUM
ACIDITY	CITRUS
FLAVOUR	CHOCOLATE
ROAST	LIGHT
PROCESS	WET

El Salvador
Itzalco Premium

Hand picked from shade grown trees from a co-operative of farms including Pacas, El Borbollón and Los Ausoles.

AROMA	BALANCED
BODY	MEDIUM
ACIDITY	POINTED
FLAVOUR	BITTERSWEET
ROAST	FULL CITY
PROCESS	WET

Brazil
Vista Allegre

Grown in the south east from old Bourbon plants and best drunk young. Also: Capim Branco.

AROMA	VANILLA
BODY	CREAMY
ACIDITY	LOW
FLAVOUR	SPICY
ROAST	LIGHT
PROCESS	DRY

Inside the cherry

SKIN

PULP

MUCILAGE

PARCHMENT

BEAN

Arabica

The processed Arabica bean is about 10 mm long, flat, dark green and has an s-shaped groove or cleft with pointed tips. It weighs around 0.15 g, and has high acidity, wine, sour, lemon, ash, chocolatey, flowery, fruity and blackcurrant flavour characteristics. Three quarters of coffee grown throughout the world is Arabica. It has less caffeine (1.1–1.7 percent by weight) than Robusta beans.

Robusta

The processed Robusta bean is lighter green, and has a deeper, more rounded shape. It has low acidity, motor oil and rubber flavour characteristics, a woody taste, two to four-and-a-half percent caffeine, more body, and is more disease resistant than the Arabica bean. It forms the basis of instant coffee, and contributes to many espresso blends.