

# THE AMAZING SENSATIONS OF GREAT BEER

## AN ILLUSTRATED GLOSSARY

Craft beer is a delightfully varied and complex beverage. Here are some things to consider the next time you have a favorite beer in your hand.

### AROMA

Just what it says—the many different scents coming out of the liquid.

### TASTE

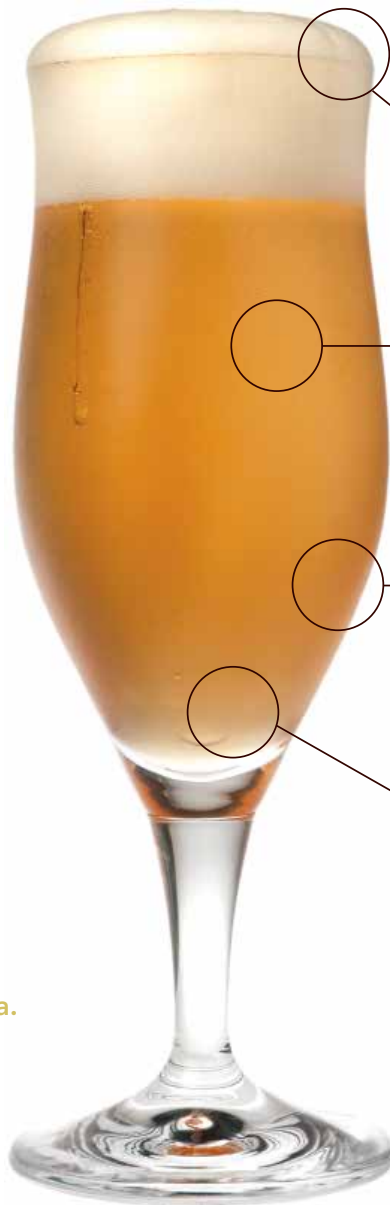
These are the flavors on your tongue: sweet, sour, bitter, salty, umami.

### FLAVOR

A term encompassing both taste and aroma.

### MOUTHFEEL

Various textures: fullness, creaminess, astringency.



### HEAD

Tiny bubbles filled with carbon dioxide, held together by malt proteins.

### CLARITY

Some beers are best presented clear, but other types are purposefully hazy or cloudy.

### COLOR

From pale straw to inky black, beer color comes from various shades of kilned or roasted malt.

### CARBONATION

Fizziness from carbon dioxide gas given off by yeast during fermentation.

### BALANCE

Interplay between malt sweetness, hop bitterness, roastiness and other flavors.

## BEER BY THE NUMBERS

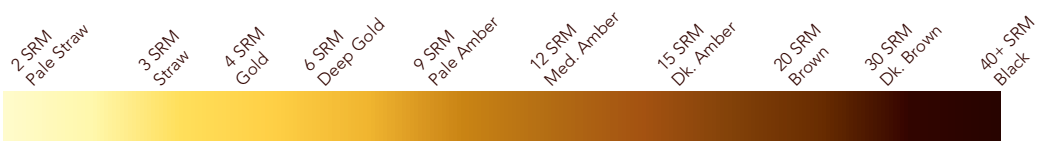
Various characteristics of beer can be summarized numerically. As these are sometimes used on labels and other sources of information, it is helpful to understand the more common ones.

**ALCOHOL** Measured in percent by volume, alcohol content varies from 2 percent to more than 25 percent, with the majority of craft beer in the 4 percent to 6 percent range.

**GRAVITY** The amount of dissolved malt sugars and other solids in the liquid before it is fermented into beer. Two systems: Degrees (°)Plato, which indicates a percentage (most beers are between 10 and 16 °P); and Original Gravity (OG), which is the English system that is a ratio compared to pure water (most beers are between 1.040 and 1.065 OG). Final Gravity (FG) is the measurement, after fermentation, indicating residual sugar still present in the finished product.

**BITTERNESS** Expressed in International Bittering Units. Beer ranges from 6 to over 100 IBU, with most beers in the 15–50 range. Most of the time, hops provide the bitterness.

**COLOR** In the US; measurements are expressed on a scale called SRM (Standard Reference Method). For most enthusiast purposes, verbal descriptions are sufficient.



# CRAFTBEER.COM

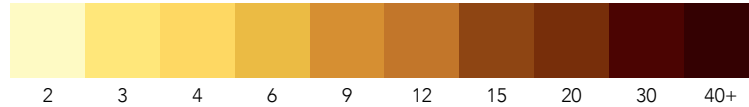
## Tasting Sheet

Beer Style / Brand / Name: \_\_\_\_\_

Circle what is detected in each section below

- **Appearance**

Color (SRM): Very Light (1-1.5), Straw (2-3), Pale (4), Gold (5-6), Light Amber (7), Amber (8), Medium Amber (9), Copper/Garnet (10-12), Light Brown (13-15), Brown/Reddish Brown/Chestnut Brown (16-17), Dark Brown (18-24), Very Dark (25-39), Black (40+)



Clarity: Brilliant, clear, slight haze, hazy, opaque

Collar of Foam & Head Retention/Texture: None, poor (up to 15 seconds), moderate (15 to 60 seconds), good (more than 60 seconds)

Texture: Thin, interrupted, foamy, fluffy, rocky, mousse-like

Carbonation (Visual): None, slow, medium, fast rising bubbles

- **Aroma**

Hops: Citrus, fruity, floral, green, herbal, onion-garlic, pine, resinous, spruce, sweaty, spicy, tropical, woody, other (\_\_\_\_\_)

Malt: Bread flour, grainy, biscuit, bready, toast, caramel, pruny, roast, chocolate, coffee, smoky, acrid, other (\_\_\_\_\_)

Esters: Apple, apricot, banana, blackcurrant, cherry, fig, grapefruit, kiwi, peach, pear, pineapple, plum, raisin, raspberry, strawberry, other (\_\_\_\_\_)

Phenol: Clove, cinnamon, vanilla, smoky, white pepper, other (\_\_\_\_\_)

Other: \_\_\_\_\_

- **Flavor and Aftertaste**

Alcohol: Not detectible, mild, noticeable, harsh, hot

Hop Flavor: Citrus, fruity, floral, green, herbal, onion-garlic, pine, resinous, spruce, sweaty, spicy, tropical, woody, other (\_\_\_\_\_)

Hop Bitterness: Restrained, moderate, aggressive, harsh

Malt Flavor: Bread flour, grainy, biscuit, bready, toast, caramel, pruny, roast, chocolate, coffee, smoky, acrid, other (\_\_\_\_\_)

Malt Sweetness: Low, medium, high, cloying

Other: \_\_\_\_\_

- **Palate**

Astringency: Low, medium, high

Body: Drying, soft, mouth-coating, sticky

Palate Carbonation: Low, medium, high

Length/Finish: Short (up to 15 seconds), medium (15 to 60 seconds), long (more than 60 seconds)

- **Oxidative/Aged Qualities**

Almond, blackcurrant, E-2-nonanal (papery/cardboard), honey, metallic, sherry, sweat socks, other (\_\_\_\_\_)

Desirable / Undesirable

- **Balance and Drinkability**

Desirable / Undesirable

- **Style**

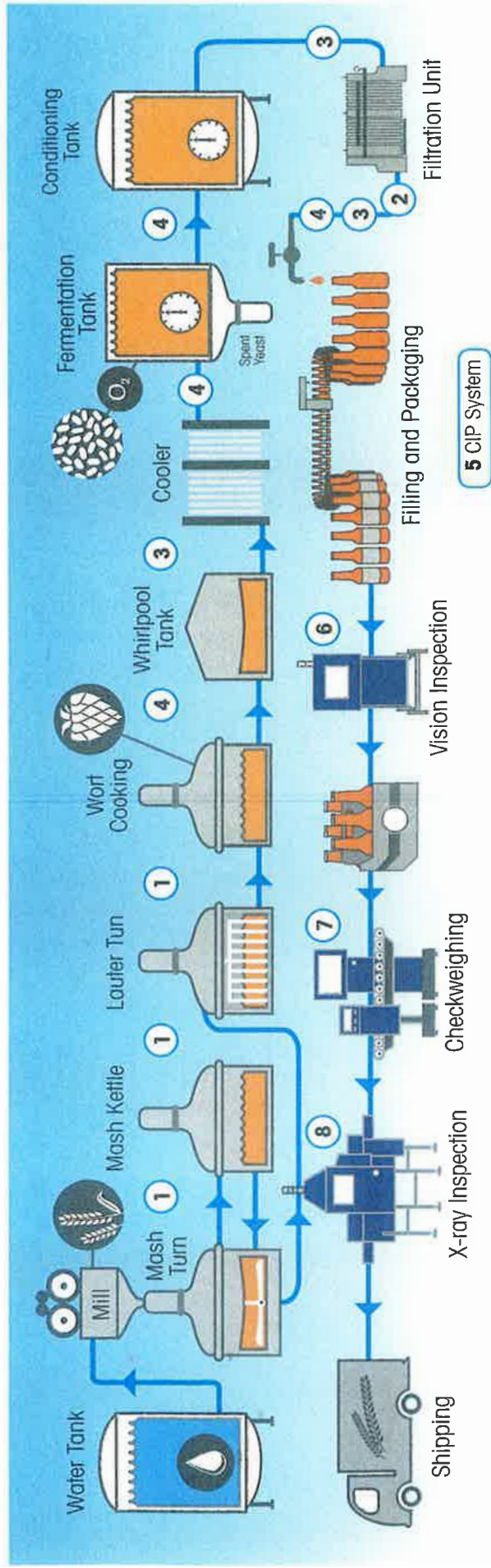
Appropriate / Out of Style

- **Pairing Notes:** \_\_\_\_\_

- **Other Comments:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

# The Brewing Process



## THE STAGES OF BREWING



### MALTING

Turns raw barley (or wheat) into malt by sprouting and then drying. Malt is available in dozens of different shades and flavors, which differ depending on the degree to which the malt is kilned or roasted.



### MASHING

A cooking process that uses enzymes in malt to convert starches into fermentable sugars. The sugar-rich liquid, called "wort," is run off into the brew kettle.



### BOILING

This sterilizes the sugary wort, and allows bitterness from the hops to be incorporated. After about an hour it is chilled quickly and moved to the fermenter.



### FERMENTATION

Yeast is added and begins vigorously consuming sugar and making alcohol and carbon dioxide gas. This stage can take anywhere from a few days to several weeks.



### CONDITIONING

The fermented beer undergoes aging to reduce unwanted byproducts of fermentation and acquire a smooth, mature flavor. Beyond this, most beer is not meant to age.



### PACKAGING

The finished beer is packaged in bottles, cans, kegs or casks. Carbonation may be natural or forced.



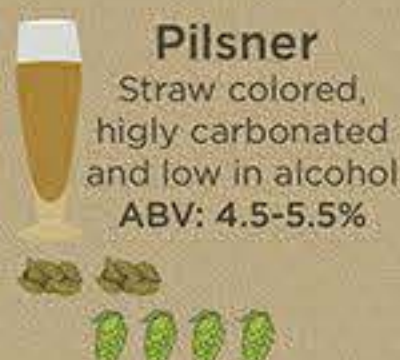
# Beer Expert

Drop that Keystone Light for something that actually tastes good

## Types of beer

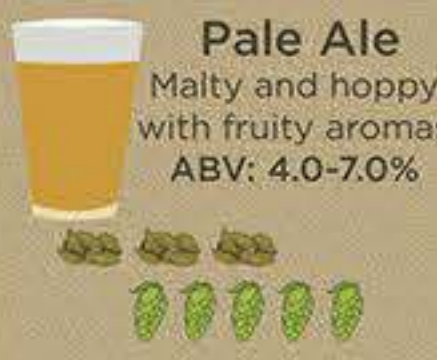
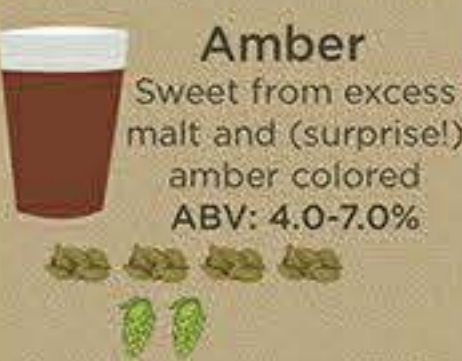
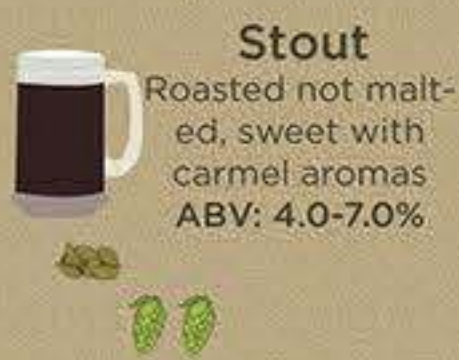
### Lagers

Lagers have a crisper taste due to their fermentation process. They are fermented for longer at lower temperatures, mellowing the beer and creating a smoother taste.

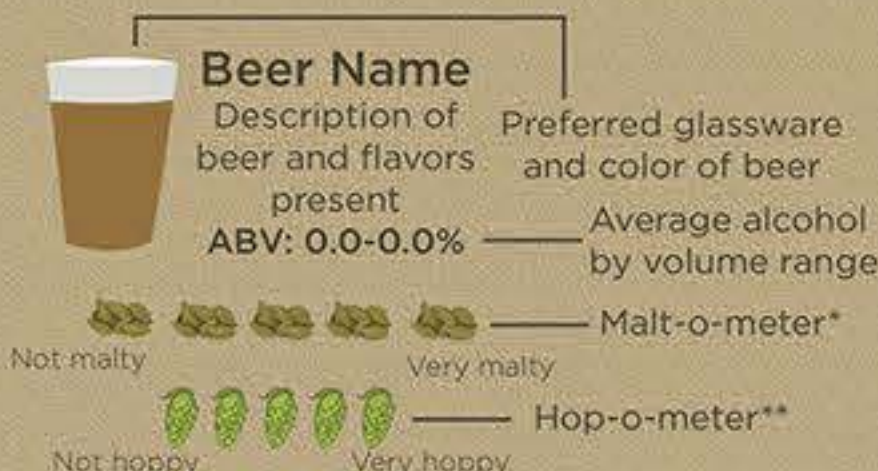


### Ales

Ales are sweet, full-bodied and vary in color depending on the grains used during brewing. Many ales contain hops, which add a bitter flavor to counteract sweetness.



### Key



\*Malt-o-meter rates basic malted flavor, however, malted grains are present in most beers and vary widely

\*\*Hop-o-meter rates basic bitterness due to hops

## What is "malty"?

"**Malty**" flavor is provided by malted cereal grains, which are sugars that are fermented to create the CO<sub>2</sub> and alcohol content. Malt contributes to beer color, flavor and mouthfeel. Malts make beer **sweet**, but depending on the grain used can also make the beer **darker** and **heavier**. Malts also include richer flavors like caramel and espresso. Porters are known for their malty taste.



## What is "hoppy"?

"**Hoppy**" flavor is provided by—you guessed it—hops. This flower is the **bitterness** that balances the malt's sweetness. The flavor depends on where the hops are grown, but most have a **fruity**, **herbal** or **citrus** flavors. Beers with strong hoppy flavors come from hops being left in the barrel longer. The IPA specifically began with leaving hops in the barrel as beer was shipped from India to England.



## Glass Guide



## What to try

Like Budweiser?

Like Guinness?

Like Blue Moon?

Like Heineken?







# ALL ABOUT BEER

MAGAZINE

## THE COMPLETE WORLD OF BEER Styles





Table 1

Flavor Note	Descriptor	Notes
Acetaldehyde	Green apples, bruised apples, grassy, latex paint.	Associated with overly fresh “green beer” but also an indicator of oxidation with very old beer. Also from bacterial infection. (Zymomonas, Acetobacter, Gluconobacter - some organisms described in more detail in Table 2.)
Caproic Acid	Stale, goaty, cheesy, sour, tallowy, dull.	Produced as beer ages. Associated with the breakdown of fatty acids.
Catty, Ribes	Catty, cat-box, or tomato plant (leaves), blackcurrant leaves.	Sometimes noted – distinct cat-urine note in old oxidized beer. Often not a big taste issue once initial aroma perception is overcome. Some newer hop varieties can convey this note (along with onion-like notes and hints of garlic).
<b>Diacetyl</b> - Listed here as an aging flavor based on heat conversion of precursors BUT see also Table 2 – Other beer off flavors and their causes.	Butter, butterscotch – roundness or slickness on the palate.	Acceptable in some levels in English ales but coming under scrutiny as an undesirable food component. May arise from precursors remaining in finished beer if beer is subjected to high temperatures with some oxygen contact.
<b>DMS</b> (Dimethyl sulfide) - Can possibly diminish over time by forming complexes with other compounds or staling components such as phenyl ethanol (a rose-like flavor)	Cooked corn, veggie-like, tomato juice, oysters and the ocean (spray) (nuances in the overall flavor perception arise, from left to right, as the concentration rises).	May be produced from insufficient boil time in the kettle, excessive oxygen/ pasteurization, or from bacterial spoilage. Not typically an aging flavor as such but diminishes in intensity in lagers with age.
Honey	Clover honey, sweet notes.	Oxidation of lager beer.
<b>Meaty, Bouillon, Marmite</b> (Yeast Extract Spread) (Strong beers with yeast present.)	Salty, MSG-like, soy sauce notes.	From the autolysis of yeast. A component of barley wines but also a potential issue with any bottle or cask conditioned beer.
<b>Older (stale) Beer, Bready</b> <i>See “Oxidation” – these are complex issues but stale notes are different (more cooked like) than the papery/cardboard-like dryness of “true” oxidation. Derived from complex chemistry taking place during malting, brewing and aging.</i>	Oxidized, stale toast, cooked flavors.	From beer subjected to high extremes of heat. Pasteurized beers can also show these flavor notes. Time and age factors also at play.
<b>Papery, Oxidized</b> <i>As noted above under “Older (Stale) beer” these notes are different and arise through different mechanisms than “typical” thermally-induced staling reactions. Again derived through complex chemical reactions.</i>	Paper, wet cardboard, lipstick, fatty acid-like.	High oxygen levels can cause this, especially during packaging, unless the displacement gases are carbon dioxide, nitrogen or a mixture.
Skunky, Lightstruck	Skunk-like sulfury notes.	Hop acids (bittering compounds) react with sulfur compounds in the presence of light (sunlight and fluorescent lights). Brown glass is somewhat protective; beer packaged in green or clear glass particularly susceptible. Bottled beer in any color glass should not be exposed to bright light such as store shelves. Maintain in outer packaging boxes, etc., in the dark and cool as much as possible.
Stale Hops, Isovaleic Acid	Cheesy (Asiago), sweaty socks.	From use of old hops or possible staling of highly dry hopped beers.
Sufidic	Rotten eggs, hard-boiled eggs, hair permanent solution.	Possibly arising from yeast in bottle conditioned beers if appropriate refermentation takes place. Lager yeasts produce more sulfur than ale yeasts. Pectinatus or Megasphaera bacterial infections of beer can also produce sulfur notes.

Other Notes:

Leathery	Older beer flavors.	See text.
Metallic	Older beer flavors.	See text.
Toffee, Syrupy	Toffees, candy-like notes, etc. (See Figure 1.)	Oxidation or associated with diacetyl.

# CRAFT BEER & FOOD PAIRING GUIDE

FOOD COMPONENTS	BEER FLAVORS	INTERACTIONS	EXAMPLE DISHES
<b>GRAIN</b>  Farro, Arborio, Wild Rice, Polenta	<b>CLEAN &amp; CRISP</b>  American Amber Lager  Bohemian-Style Pilsner	Complementary grain flavors balance hops while remaining light on the palate.	Creamy Risotto
<b>BEANS &amp; LEGUMES</b>  Lentils, Fava, Chickpea, Green Beans	<b>MALTY &amp; SWEET</b>  English-Style Brown Ale  German-Style Hefeweizen	Food adds richness to the beer while balancing salt and acidity.	Grilled Halibut with Pole Beans
<b>SHELLFISH</b>  Clams, Scallops, Lobster, Crab	<b>FRUITY &amp; SPICY</b>  Belgian-Style Saison  German-Style Hefeweizen	Beer brings out salinity and natural sweetness while cleansing the palate.	Mussels with Garlic, Parsley and Butter
<b>RICH MEATS &amp; ROOT VEGETABLES</b>  Parsnips, Carrots, Beef Strip Loin, Lamb	<b>SOUR, TART &amp; FUNKY</b>  American Brett  Belgian-Style Flanders	Combining these flavors brings out umami and adds earthy notes that rest on the center of the palate.	Grilled Ribeye and Root Vegetables
<b>GAME BIRDS &amp; GRAINS</b>  Duck, Quail, Quinoa, Farro	<b>HOPPY &amp; BITTER</b>  American Pale Ale  American Brown Ale	Complements roastiness (Maillard reaction) while fat coats to neutralize hop bitterness.	Roasted Quail with Farrotto
<b>FATS</b>  Butter, Olive Oil, Duck/Pork Fat, Dairy	<b>HOPPY &amp; BITTER   DARK &amp; ROASTY</b>  American Black Ale  English-Style Brown Porter	Beer cuts through, balances strong flavors and allows for a complex finish.	Cashew Butter and Red Pepper Jelly on Toast
<b>VEGETABLES (GRILLED)</b>  Carrots, Mild Peppers, Onions, Mushrooms	<b>DARK &amp; ROASTY</b>  Irish-Style Dry Stout  German-Style Schwarzbier	Brings out umami and balances sweetness and richness.	Green Chili-Stuffed Portobello
<b>CHEESE</b>  Brie (Fruity & Spicy), Gouda (Malty & Sweet), Aged Cheddar (Hoppy & Bitter), Blue (Dark & Roasty), Mozzarella (Clean & Crisp)	<b>VARIES</b>  Belgian-Style Tripel  English-Style Pale Ale	Beer complements the natural flavors and textures while cutting through fat, cleansing the palate.	Brie and Fruit
<b>BRAISED MEATS &amp; CHOCOLATE</b>  Beef Short-Rib, Pork Shoulder, <50% Cacao (Malty & Sweet), >55% Cacao (Dark & Roasty)	<b>MALTY &amp; SWEET   DARK &amp; ROASTY</b>  German-Style Bock  Baltic-Style Porter	Highlights the roasted character (Maillard reaction).	Milk Chocolate Bread Pudding
<b>PORK</b>  Sausage, Tenderloin, Terrine	<b>HOPPY &amp; BITTER   FRUITY &amp; SWEET</b>  Imperial India Pale Ale  Belgian-Style Dubbel	The intensity of the pork fat stands up to the strong beer characteristics.	Pork Chops and Apple Relish
<b>CREAMY DESSERTS</b>  Cheesecake, Ice Cream, Creme Brûlée, Mousse Cake	<b>VARIES</b>  British-Style Barley Wine  Belgian-Style Fruit Lambic	Balances richness on the palate so the dessert doesn't finish cloyingly.	Butterscotch Mousse with Dark Chocolate



**Key to Symbols:**

Color approximates actual beer  
Shaded circles = range of variation

Alcohol/volume: 3%

Hop Bitterness: 15 IBU

Flavor impact: Delicate

10%+

70+

Intense

Flavor impact includes: original gravity, sweetness, bitterness, maltiness, roastiness and fermentation character. Glassware symbols may be found on page 10.

Beer Type	Alcohol	Flavor Impact	Bitterness	Color	Suggested Foods	Cheese	Dessert	Glassware	Serving Temp
1. Kölsch, Cream Ale, Blonde Ale	3%	Delicate	15 IBU	Light	Lighter food: chicken, salads, salmon, bratwurst; Monterey jack cheese.	Monterey Jack, brick or similar light, nutty cheese.	Light apricot or mandarin cake, lemon custard tart.	1	4–5 °C 40–45 °F
2. British-Style Bitter	3%	Delicate	15 IBU	Light	Wide range of food: roast chicken or pork, fish & chips; mild cheese.	Mild English cheese such as Lancashire or Leicester.	Oatmeal-raisin-walnut cookies or some other satisfyingly basic dish.	1	10–13 °C 50–55 °F
3. Pale Ale	3%	Delicate	15 IBU	Light	Wide range of food: meat pie, English cheese; great with a burger!	English cheese such as cheddar or Derby with sage.	Pumpkin flan, maple bread pudding, bananas Foster.	1	10–13 °C 50–55 °F
4. India Pale Ale	3%	Delicate	15 IBU	Light	Strong, spicy food (classic with curry!); bold, sweet desserts like carrot cake.	Milder blue such as Gorgonzola or Cambozola.	Caramel apple tart, ginger spice cake, persimmon rice pudding.	1	10–13 °C 50–55 °F
5. Double/Imperial IPA	3%	Delicate	15 IBU	Light	Smoked beef brisket, grilled lamb; Southern chicken-fried steak.	Sharp and rich American artisanal blue.	Very sweet desserts like carrot cake, caramel cheesecake or crème brûlée.	1	10–13 °C 50–55 °F
6. Amber/Red Ale	3%	Delicate	15 IBU	Light	Wide range of food: chicken, seafood, burgers; great with spicy cuisine.	Port-Salut or other lightly tangy cheese.	Poached pears with dulce de leche, banana pound cake, pecan lace cookies.	1	10–13 °C 50–55 °F
7. Scotch Ale/Wee Heavy	3%	Delicate	15 IBU	Light	Roasted or grilled beef, lamb, game, smoked salmon.	Aged sheep cheese: Mizithra or Idiazabal (smoked!).	Brilliant with sticky toffee pudding or chocolate chip shortbread.	1	10–13 °C 50–55 °F
8. Brown Ale, Altbier	3%	Delicate	15 IBU	Light	Hearty foods: roast pork, smoked sausage, grilled salmon.	Aged Gouda or a crumbly Cheshire.	Almond or maple-walnut cake, pear fritters, cashew brittle.	1	10–13 °C 50–55 °F
9. Abbey Dubbel	3%	Delicate	15 IBU	Light	Barbecue, meat stews, or a nice thick steak or smoked rib roast.	Washed-rind abbey-type cheese or French Morbier.	Heavenly with milk chocolate; butter truffles, chocolate bread pudding.	1	10–13 °C 50–55 °F
10. Abbey Tripel, Strong Golden Ale	3%	Delicate	15 IBU	Light	Spicy Cajun food, crab cakes, pheasant or roast turkey.	Triple-crème such as St. Andre or Explorateur.	Non-chocolate desserts: apricot-amaretto tart, baklava, Linzer torte.	1	4–5 °C 40–45 °F
11. Old or Strong Ale	3%	Delicate	15 IBU	Light	Big, intense dishes such as roast beef, lamb or game, grilled or roasted.	Double Gloucester or other rich, moderately aged cheese.	Spiced plum-walnut tart, classic canoli, toffee apple crisp.	1	10–13 °C 50–55 °F
12. Barley Wine	3%	Delicate	15 IBU	Light	Easily overpowers most main dishes. Best with strong cheese or dessert.	Stilton and walnuts is a classic updated. Who needs port?	Rich, sweet desserts: chocolate hazelnut torte, toffee caramel cheesecake.	1	10–13 °C 50–55 °F
13. Porter	3%	Delicate	15 IBU	Light	Roasted or smoked food: barbecue, sausages, roasted meat, blackened fish.	Cow milk such as Tilsit or Gruyère.	Chocolate peanut butter cookies, toasted coconut cookie bars.	1	10–13 °C 50–55 °F
14. Dry Stout	3%	Delicate	15 IBU	Light	Hearty, rich food: steak, meat pie; a classic with raw oysters.	Irish-type cheese like a Dubliner cheddar.	Chocolate soufflé, tiramisu, mocha mascarpone mousse.	1	10–13 °C 50–55 °F
15. Sweet or Oatmeal Stout	3%	Delicate	15 IBU	Light	Rich, spicy food like barbecued beef, Oaxacan mole or hearty Szechuan dishes.	Great with very buttery, well-aged cheddar.	Chocolate espresso cake, cream puffs, profiteroles.	1	10–13 °C 50–55 °F
16. Imperial Stout	3%	Delicate	15 IBU	Light	Easily overpowers most main dishes, but stands up to foie gras, smoked goose.	Long-aged cheese: Gouda, Parmesan or cheddar.	Dark chocolate truffles, chocolate raspberry mousse cake.	1	10–13 °C 50–55 °F
17. Hefeweizen	3%	Delicate	15 IBU	Light	Great with lighter food: salads, seafood, sushi; classic with weisswurst	Simple chèvre goat cheese or herbed spread such as Boursin.	Strawberry shortcake, fruit trifle or other very light dessert; key lime pie.	1	4–5 °C 40–45 °F
18. American Wheat Ale	3%	Delicate	15 IBU	Light	Best with very light foods: salads, sushi, vegetable dishes.	Buffalo mozzarella or Wisconsin brick.	Generally too light for dessert, but could pair with fresh berries or a fruit soup.	1	4–5 °C 40–45 °F
19. Witbier	3%	Delicate	15 IBU	Light	Great with lighter seafood dishes—classic with steamed mussels.	Mascarpone or herb cheese spread on crackers.	Banana orange crêpes, blood orange sorbet, panna cotta with lemon.	1	4–5 °C 40–45 °F
20. Dunkelweizen	3%	Delicate	15 IBU	Light	Substantial salads; roast chicken or pork; excellent with hearty sausage.	Soft-ripened goat or smoked Gouda.	Sweet potato tart, peach pecan strudel, banana cream pie.	1	7–10 °C 45–50 °F
21. Weizenbock	3%	Delicate	15 IBU	Light	Roast pork, beef, smoked ham or game dishes.	Aged provolone or Spanish Manchego.	Tarte tatin (caramelized apple), pine nut torta with dried fruit, banana soufflée.	1	7–10 °C 45–50 °F
22. Classic Pilsener	3%	Delicate	15 IBU	Light	Great with lighter food: chicken, salads, salmon, bratwurst.	Mild white Vermont cheddar.	Light desserts: lemon shortbread, fresh berries with sabayon.	1	4–5 °C 40–45 °F
23. Helles, Dortmunder	3%	Delicate	15 IBU	Light	Lighter food: salads, seafood, pork; works with spicy Asian, Cajun, Latin.	Wisconsin butterkäse or other soft and mild cheese.	Light desserts: blueberry trifle, cranberry-apple cobbler.	1	4–5 °C 40–45 °F
24. Oktoberfest, Märzen, Vienna	3%	Delicate	15 IBU	Light	Mexican or any hearty, spicy food; chicken, sausage, pork.	The perfect beer for spicy jalapeño jack.	Mango or coconut flan, almond biscotti, spice cake with pine nuts.	1	7–10 °C 45–50 °F
25. Amber Lager	3%	Delicate	15 IBU	Light	Hearty, spicy food: barbecue, hamburgers, chili.	White cheddar, jack, brick.	Passionfruit bread pudding, pears poached in doppelbock.	1	7–10 °C 45–50 °F
26. Dark Lager, Dunkel, Schwarzbier	3%	Delicate	15 IBU	Light	Hearty, spicy food: barbecue, sausages, roasted meat.	Authentic washed-rind Münster.	Pomegranate tart with walnuts, candied ginger pear cake.	1	7–10 °C 45–50 °F
27. Maibock/Pale Bock	3%	Delicate	15 IBU	Light	Spicy food like Thai or Korean barbecue; great with fried chicken, too.	Classic Emmenthal Swiss cheese.	Apple almond strudel, white chocolate cheesecake, honey-walnut soufflée.	1	7–10 °C 45–50 °F
28. Doppelbock	3%	Delicate	15 IBU	Light	Rich roasty foods like duck or roasted pork shanks; great with cured meats.	Limburger is a classic!	German chocolate cake, Black Forest cake, dried fruit (rumtopf) rum tart.	1	7–10 °C 45–50 °F












## CLASSIC ENGLISH, IRISH AND SCOTTISH STYLE ALES

Ale has been brewed in the British Isles for at least 2,000 years. Today the focus is on quaffable session beers, although stronger styles exist. Top-fermentation gives spicy and fruity aromas; nutty, woody notes are also common. Hop character comes through in paler beers; English hops may add grassy, spicy or floral notes.

### THE PALE ALE FAMILY

Pale is a relative term. When these beers emerged long ago, they were pale relative to the common black beers then widely drunk.

STYLE	ABOUT	ABV	QUALITIES	FLAVORS
<b>PALE ALE</b>	A large family of golden-to-amber ales; traditionally applied to bottled beer, but may be draught.	3.5-4.2	  	Brisk English hop nose with some fruitiness on top of bready, nutty or lightly caramelly malt. Bitter; dry, crisp, often mineral finish.
<ul style="list-style-type: none"> <li>• <b>ORDINARY BITTER</b></li> <li>• <b>BEST BITTER</b></li> <li>• <b>ESB</b></li> </ul>	Terms for draught (Real Ale) versions of pale ale, but may be bottled. Often made in several strengths.	3.0-5.8	  	Soft to serious hop aromas plus fruitiness on top of malty, nutty woody flavors. Often light-bodied, with a dry, crisp finish.
<b>INDIA PALE ALE</b>	Originally an exported type of pale ale, generally stronger, paler and hoppier than those above.	5.0-7.0	  	Moderately to massively hoppy. Bready, caramelly malt character with fruity and/or nutty flavors. Crisp, bitter finish.


### BROWN AND BLACK ALES

Brown beers are the descendants of the ancient English unhopped ales featuring toasted and/or roasted malts and hopping that varies from light to fairly bitter.

<b>MILD ALE</b>	Lower alcohol session beer.	3.2-4.0	  	Crisp and dry with delicate roasty/malty aroma.
<b>BROWN ALE</b>	Amber-to-brown beers with malty personalities.	4.0-5.5	  	Light nutty maltiness with hints of toast. Crisp to medium-bodied. Lightly hopped.
<b>PORTER</b>	The original black beer of England, of which stout was a stronger variation.	4.5-6.5	  	Soft roastiness in nose. Lightly or firmly hopped, dryish or slightly rich. Paler than stout.
<b>STOUT</b>	Varieties include: dry Irish stout, sweet London stout and oatmeal stout.	4.0-5.0	  	Roasted malt always dominates the nose. Flavor may be sweet, creamy, dry and/or bitter.
<b>RUSSIAN IMPERIAL STOUT</b>	High-gravity black beer once popular in the Imperial court of Russia.	7.0-12.0	  	Massively roasty, often with considerable hopping. Intense, sipping-style beer.

### STRONG BRITISH-STYLE ALES

Varying in strength, bitterness and color, these are all rich, full-bodied and suitable for fireside sipping.

<b>STRONG ALE</b>	A loosely defined group of strong amber-to-brown ales.	7.0-11.0	  	Light to strong caramel, often with hints of toast, leather, wood. Varying hoppiness.
<b>OLD ALE</b>	Strong beers that have been aged, often in wood, then blended with fresh beer.	6.0-9.0	  	Like the style above, but possibly with wood-aged character that may be earthy, barnyard, even a touch tart.
<b>BARLEY WINE</b>	Broad term for very strong ale. Intense, sippable.	8.4-12.0	  	Plenty of caramel, dried fruit, nuts, toast, leather, and usually, hops.

### SCOTTISH AND IRISH ALE




























<b>IRISH RED ALE</b>	Very malt focused with less emphasis on bitterness.	4.0-6.0	  	Caramel and toffee notes common. Roasted barley addition will create dryer finish.
<b>SCOTCH ALE (WEE HEAVY)</b>	This strong mahogany-colored beer is the Scots' unique specialty.	6.2-8.0	  	A huge malty nose, often with hints of roastiness. A full, sweet palate with very little hops.



## AMERICAN CRAFT-BREWED ALES

Although originally inspired by European—especially British—ales, American craft brewed ales have become very much their own thing. Compared to their European cousins, they are usually maltier and more aggressively hopped. Hop aroma character in US versions is also untraditional, featuring citrus, pine and floral notes.




STYLE	ABOUT	ABV	QUALITIES	FLAVORS
<b>AMERICAN PALE ALE</b>	Robust, amber colored ales, usually with a generous dose of a classic American hop like Cascade.	4.5-5.5	  	Lightly to strongly malty (toasted caramel), more than counter balanced by the citrusy, resiny, floral character of American hops.
<b>AMERICAN INDIA PALE ALE (IPA)</b>	Another pale ale, this one invariably stronger, paler and more hoppy than its pale ale cousin.	6.3-7.5	  	Light-to-moderate maltiness nearly overwhelmed by resiny, grapefruity American hops.
<b>AMBER ALE</b>	Moderate strength ale, not consciously based on any particular classic style. A wide range of interpretations are possible.	4.5-6.0	  	Usually a fair amount of a caramelly maltiness. May be lightly to moderately hopped, usually with American hop varieties.
<b>RED ALE</b>	A deep amber style that has become stronger and more bitter in the last few years.	4.5-6.0	  	Usually a burnt sugar quality, from crystal malt, which may be balanced with discreet or enthusiastic amounts of hops.
<b>AMERICAN BROWN ALE</b>	Deeper, richer, and generally far more hoppy than its English inspiration.	4.0-6.4	  	Very rich caramelliness with a fair amount of toasty, even lightly roasty aromas. May be moderately to highly hopped.
<b>AMERICAN PORTER &amp; STOUT</b>	Parker ales that feature varying degrees of color (brown to black porter) (brown to black stout) and varying degrees of roast and bitterness.	4.5-8.8	  	Lots of variety, but always plenty of roastiness, sometimes a touch caramelly, and balanced to one degree or another by American hops.
<b>IMPERIAL OR DOUBLE INDIA PALE ALE</b>	Although the original meaning was connected to stout, "Imperial" has been used for more than a century to designate a strong, bold beer.	7.5-10.5	  	Simple idea. Just take an IPA and brew it a good deal stronger. Breath-takingly bitter, dripping with resiny hop aromas and highly alcoholic, these are beers for special occasions.
<b>OTHER IMPERIALS</b>	See above.	7.5-11.0	  	Craft brewers have adapted the idea to red, porter, pilsener, brown ale, blonde ale and just about everything else.
<b>AMERICAN BARLEY WINE</b>	A showcase of malt and American hops delivering maximum flavor and aroma impact.	8.0-12+	  	Massive quantities of caramelly, burnt-sugar malt more than balanced by fresh, citrusy resiny American hops.


### KEY

 **COLOR/GLASSWARE** The range is shown by graduated color in the shape of the preferred glassware.



 **HOP IMPACT** The color of the green circle indicates the intensity of hop bitterness and/or aroma.

Less Bitter    More Bitter

 **BODY** The color of the brown circle indicates fullness and/or sweetness.

Less Bold    More Bold












## BELGIAN & FRENCH-INSPIRED ALES

These brewing traditions offer a huge range of strengths, colors and flavors, and many beers do not fit any preconceived style. Strong or weak, light or dark, sour or sweet, there are always highly distinctive yeasts adding aromas of pepper, fruit, spice and much more. Spices such as orange peel and coriander may be used.










### CLASSIC BELGIAN-STYLE ALES

Complex, yet approachable ales featuring high alcohol combined with a high degree of drinkability.

STYLE	ABOUT	ABV	QUALITIES	FLAVORS
<b>ABBEY DUBBEL</b>	A slightly strong reddish-brown ale, whose body is thinned by the use of sugar in the recipe.	6.5-7.5	  	A strong, lightly hopped, deep amber ale with a dry to modest body. Complex caramel, raisin, fruity flavors. Crisp finish.
<b>ABBEY TRIPEL (AND STRONG GOLDEN)</b>	A strong and sophisticated group of beers with Trappist origins in the mid-twentieth century.	7.0-11.0	  	Strong golden ales with sugar added for drinkability. Lightly to moderately hopped, with fruity, honeyish aromas. Lighter in color than dubbel.
<b>BELGIAN STRONG DARK</b>	Wide category defined simply by its title, often with monastic connections.	7.0-11.0	  	A wide variety of deep rich flavors: Chocolate, raisins, caramel, burnt sugar. Rarely any hop character.







### WITBIER & FARMHOUSE ALES

Belgium and Northern France have a long tradition of simple, earthy beers, sometimes brewed in small breweries in remote villages or farms, but often (especially with witbier) on a larger scale as well. Some contain wheat and other unmalted adjunct grains.

<b>WITBIER WHITE ALE</b>	An ancient type of white ale made from malt, oats and a large proportion of unmalted wheat.	4.8-5.2	  	Witbier is light, but elegantly fruity, with a creamy milkshake texture. Spiced with coriander, orange peel and other spices. Low bitterness.
<b>SAISON</b>	A softly hazy ale said to originate from farmhouse breweries of Northwest Belgium.	4.5-8.0	  	Dry, crisp, and complex with plenty of fruitiness, hints of earth, and often refreshing hop aroma and bitterness.
<b>BIÈRE DE GARDE</b>	Rustic interpretations of blondes and bocks originating in Northern France. Earthy and more malt than saison.	4.5-8.0	  	Blonde to amber in color, these are well-balanced beers, a bit malty and slightly sweet, with low to moderate hopping.

### SOUR & WILD-FERMENTED ALES

Although the classics are limited to a certain areas of Belgium, adventurous craft brewers are working with yeasts and other microbes to produce beers with many of the same characteristics.

<b>LAMBIC (SPONTANEOUSLY-FERMENTED ALE) GUEUZE</b>	An ancient family of sour beers fermented with wild yeasts and bacteria. Gueuze, the most common form, is a bottled blend of young and old lambics. Fruit is often added.	5.0-6.3	  	Pale, often hazy and unbelievably aromatic with earthy, fruity and barnyard notes and almost no hop bitterness or aroma. Lambics are always bone dry and very refreshing, although they vary from softly to seriously sour.
<b>FLEMISH OUD BRUIN SOUR RED AND BROWN ALES</b>	Classic ruby-colored ales aged up to two years in oak then blended with unaged beer.	4.8-5.2	  	Fully tart or sweet-and-sour, often with vinegary aromas on top of caramelly, burnt sugar flavors and profound fruitiness.

### AMERICAN BELGO STYLE ALES

While some Belgian-inspired beers clearly do fit into neat categories, many do not. It is an almost defining characteristic of Belgian brewing that its brewers do not want to be constrained by the boundaries of what they see as arbitrary style definitions. Look for boundary-breaking reinterpretations of styles like witbier and saison, or creatively constructed beers in any shade, strength or approach brewed to suit the season, the mood or for absolutely no reason at all.

















## OTHER ALES & HYBRIDS

These beers come from several different traditions. Despite their focus on lagers, the German tradition does encompass a few top-fermented styles. Many of them are justly famous. As with all the other traditional styles, American craft brewers have created their own unique versions of these classics, and they are well worth seeking out.

### WHEAT BASED ALES

Wheat, in malted form is used in 40 – 60 percent of the recipe. This adds a smooth, slight citrusy tang, a dry palate and a very creamy texture.

STYLE	ABOUT	ABV	QUALITIES	FLAVORS
<b>BAVARIAN HEFEWEISSE WEIZEN/WEISSBIER</b>	Pale or amber, weissbier is almost always packaged with yeast (Hefe) in the bottle, although filtered (Kristal) versions exist.	4.9-5.5	  	This classic from Southern Germany features a unique yeast that adds fruity bubblegum and banana notes along with characteristic clove aromas. No hop character. Dark versions available.
<b>WEIZENBOCK</b>	Strong deep-amber version of hefeweisse.	6.9-9.3	  	Smooth and rich, with a spicy banana bread aroma and toasted caramel finish. No hop character.
<b>BERLINER WEISSE</b>	A light session beer once drunk in huge quantities in Berlin, and still brewed there.	2.8-3.4	  	Very crisp and tart, with some creaminess from the wheat. Usually served with flavored syrup added.
<b>AMERICAN WHEAT ALE</b>	Originating in the Pacific Northwest, these hazy, wheat ales are fermented with normal ale yeast.	3.5-5.5	  	Crisp and refreshing, with light to moderate hopping. Wheat adds a soft, creamy texture. Fruit versions are also popular.







### RHINE VALLEY ALES

This pair of crisp, everyday session beers attests to the diversity and ancient brewing traditions in the North of Germany. There are top-fermented warm, then cold-conditioned, which makes them intermediate between ales and lagers.

<b>KÖLSCH</b>	A highly drinkable golden-colored ale from the German city of Cologne (Köln).	4.8-5.3	  	Kölsch is a well-balanced beer with a delicate, fruity aroma, clean, soft maltiness and subtle hopping.
<b>DÜSSELDORFER ALTBIER</b>	A darker session ale from Düsseldorf. "Alt" means "old," a reference to the antiquity of top-fermenting beers in Germany.	4.3-5.5	  	A refreshing copper colored beer. May be more or less malty, but Alt is always assertively hopped. The stronger seasonal version is called <i>Sticke</i> .

### NORTH AMERICAN HYBRID ALES


Hybrid ales are those that share lager and ale characteristics and include a couple of beers that were popular a century ago, although new creations continue to appear on the scene.

<b>CREAM ALE</b>	Originally a blend of stock (pale) ale and lager popular in the Eastern US, cream ale usually offers more flavor than mass-market lagers.	4.8-5.3	  	A very light bodied ale, usually with a touch of sweetness and a kiss of hops. Craft versions offer a slightly more robust flavor than mainstream versions.
<b>CALIFORNIA COMMON BEER</b> (originally known as "Steam Beer")	"Steam" is now the trademark of the Anchor Brewing Company, the last surviving maker of the style that was once widespread in the West.	4.3-5.5	  	A hybrid fermented with lager yeast, but at warmer ale temperatures. It has a rich, lightly caramelly maltiness balanced by firm hopping. It is topped off with soft, fruity aromas.


### KEY

 **COLOR/GLASSWARE** The range is shown by graduated color in the shape of the preferred glassware.



 **HOP IMPACT** The color of the green circle indicates the intensity of hop bitterness and/or aroma.

Less Bitter    More Bitter

 **BODY** The color of the brown circle indicates fullness and/or sweetness.

Less Bold    More Bold







## CLASSIC LAGER STYLES

Lager beer developed in Southern Germany about the sixteenth century. A particular yeast adapted to cold temperatures, working on the bottom of the beer gave rise to the term "bottom fermented." Extended cold-aging gives a smooth, clean flavor profile and emphasizes the malt and hops that are the traditional ingredients.

### PALE LAGERS

This is a family of beers that share a pale color and lager heritage, but that differ in their hop/malt balance and in the personalities of the aroma hops used. US craft versions tend to stick pretty close to the original models, but are often slightly bolder in all their flavor aspects.

STYLE	ABOUT	ABV	QUALITIES	FLAVORS
<b>BOHEMIAN (CZECH) PILSENER</b>	The first pale lager, now widely imitated around the world.	4.0-5.0	  	Fresh maltiness, hints of caramel, plus plenty of aroma and bitterness from the spicy Czech hop, Saaz.
<b>GERMAN PILSENER/ PILS</b>	Crisp, austere pale lagers widespread across Germany and now worldwide.	4.0-5.0	  	Clean, bready maltiness balanced and perfumed with German noble hops like the herbal Hallertau.
<b>DORTMUNDER EXPORT</b>	A slightly stronger pale lager now all but vanished in its homeland.	5.0-6.0	  	Clean maltiness evenly balanced by dry hoppiness. Crisp finish, sometimes with mineral notes.

### AMBER LAGERS

A category encompassing a number of specialties, mostly with the emphasis on malt. Amber lagers tend to be especially versatile beers to pair with food.

<b>OKTOBERFEST</b>	Common Fall season for many of today's U.S. Craft Brewers. Growing paler in recent years, per public taste.	5.0-6.0	  	Clean malt, modestly caramelly, just barely balanced by a touch of noble hops. Some Oktoberfests are still authentic Märzens (darker, heavier).
<b>MÄRZEN</b>	Originally a Bavarian copper-colored export-strength lager from Germany.	5.3-5.9	  	Rich, creamy maltiness barely balanced by hops, with a smooth but slightly toasty finish.
<b>VIENNA</b>	The original amber-colored lager, created in Austria, but uncommon there now.	4.8-5.4	  	Malty aroma with modest body and clean crisp finish, hints of hops. Lighter than Oktoberfest/Märzen.
<b>AMERICAN AMBER LAGER</b>	Craft-brewed versions of classic full-flavored all-malt lagers.	4.8-5.4	  	Big, caramel-accented flavor balanced by plenty of noble hop aroma.


### DARK LAGERS


A small family of malty beers with varying caramel/toasty/roasty profiles and subtle hopping. Dark lagers were much more popular a hundred years ago, although they still have their following.

<b>MUNICH DUNKEL</b>	The original Bavarian-style lager beer. Dunkel simply means "dark."	4.5-5.0	  	Smooth, soft and malty lager, with a big, sweetish body and a gentle roasty finish, with very little hops.
<b>SCHWARZBIER</b>	Famed in the towns of Kulmbach and Köstritz, this roasty-malty lager is in many respects a German version of Porter.	3.8-5.0	  	Nice roasty-malty nose, moderate body and an enjoyable chocolatey bittersweet finish.

### KEY

 **COLOR/GLASSWARE** The range is shown by graduated color in the shape of the preferred glassware.

 **HOP IMPACT** The color of the green circle indicates the intensity of hop bitterness and/or aroma.

 **BODY** The color of the brown circle indicates fullness and/or sweetness.










Less Bitter    More Bitter

Less Bold    More Bold



## BOCK (STRONG LAGERS)

These strong, springtime lagers were originally conceived as a dodge around the fasting rules of Lent, the traditional Christian penance period, or so the story goes. Bocks are always strong and malty, and the stronger, darker ones are often fairly sweet.

STYLE	ABOUT	ABV	QUALITIES	FLAVORS
<b>HELLER BOCK OR MAIBOCK</b>	An amber-colored strong lager, now the most common form of bock.	6.0-8.0	  	Strong amber lagers with a smooth malty flavor profile, and sometimes a hint of hops as well.
<b>BOCK (DARK)</b>	A deep ruby-colored strong lager.	6.3-7.5	  	Super malty aroma and flavor nearly balanced by roastiness and a tiny touch of hops. Rich caramel malt.
<b>DOPPELBOCK</b>	An extra-strong dark lager (although blonde versions exist).	6.5-8.0	  	Massive caramel aroma, often with a gentle toasty bittersweet finish.



## SPECIALTY BEERS

Beyond the classic style categories is a whole other range of possibilities. Some are based on historical rarities, but most are just examples of pure American ingenuity. These go beyond the range of familiar flavors and aromas in beer and forge off into unexplored territory. Despite their boldness, they can be as subtle and enjoyable as any beers.

### FRUIT BEER

This is a variable style, which can be whatever the brewer wants it to be. Raspberries, cherries, apricots and blueberries are the most common, but many variations are possible.

### HONEY BEER

Honey is added to the wort, which somewhat counter-intuitively creates a dry, crisp beer with honey aromas.

### PUMPKIN BEER

A popular fall seasonal, pumpkin is added in the mash, but most of the flavor is from the familiar mix of spices found in pie.

### CHILE BEER

From subtle tickle to a serious burn, there are many ways to make a chile beer, but all include peppers in the brew or fermenter.

### HERB/SPICE BEER

This includes a whole spice cupboard of possibilities. Perhaps the most popular is the spiced holiday beer, often loosely based on English "wassail" traditions. These are typically strong, dark and have a complex, "spice cake" nose.

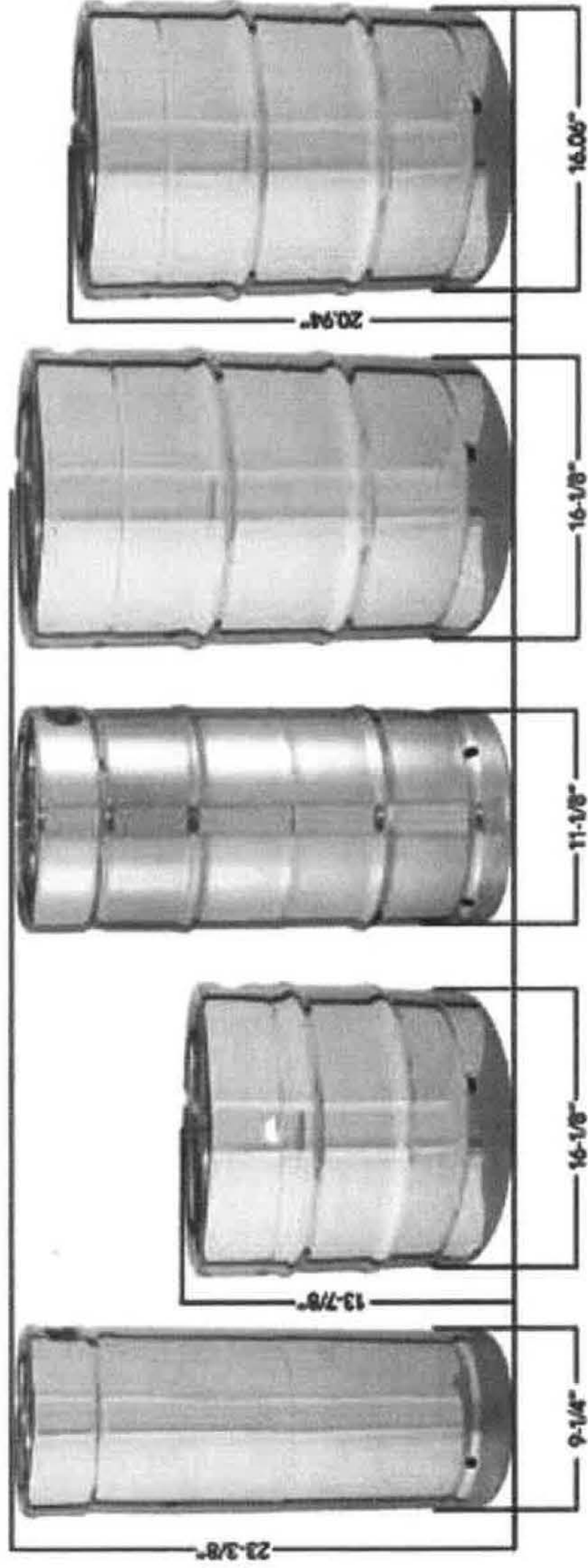
### SMOKED BEER

In ages past, most beer had some smokiness and the tradition continues in the Franconia region of Northern Bavaria. American craft brewers have their own ideas, including smoked porter and Scotch ale made with peat-smoked malt.

### BARREL-AGED BEERS

Most typically, a barley wine or strong stout is aged for a few months in a spirit, wine or new Bourbon barrel, where it picks up delicious, creamy vanilla and toasted coconut aromas. The beer also may be influenced by resident microflora existing in the barrel. Many other possibilities exist.





Capacity	1/6 Barrel or Cylinder	Pony Keg (1/4 Barrel)	1/4 Barrel	Full-Size Keg (1/2 Barrel)	Euro Keg
Gallons	5- 5.16	7.75	7.75	15.50	13.2
Ounces	661	992	992	1984	1690
# of 12 oz. beers	55	82	82	165	140
Weight (Full)	58 Pounds	87 Pounds	87 Pounds	161 Pounds	137 pounds



## Pouring Draught Beer

Proper serving of draught beer is intended to have a “controlled” release of carbonation to give a better tasting and sensory experience. The evolution of CO<sub>2</sub> gas during pouring builds the foam head and releases desirable flavors and aromas.



### Technique

1. Hold glass at a 45° angle, open faucet fully.
2. Gradually tilt glass upright once beer has reached about the halfway point in the glass.
3. Pour beer straight down into the glass, working the glass to form a one-inch collar of foam (“head”). This is for visual appeal as well as carbonation release.
4. Close faucet quickly to avoid wasteful overflow.

### Pouring Hygiene

- In no instance should a faucet nozzle touch the inside of the glass.
  - Nozzles can cause glassware breakage; nozzles can transfer contamination from dried beer to glassware.
- In no instance should the faucet nozzle become immersed in the consumer’s beer.
  - Nozzles dipped in beer become a breeding ground for microorganisms.
- Importance of one-inch foam collar:
  - While retailers struggle with customers who demand their beer “filled to the rim,” brewers

prefer beer poured with about a one-inch collar of foam (“head”).

- A one-inch head maximizes retailer profit, as foam is 25% beer. Filling glass to the rim is really over-pouring.



- A proper head on a draught beer delivers the total sensory experience, including the following sensory benefits:
    - o Visual appeal of a good pour
    - o Aromatic volatiles in beer released
    - o Palate-cleansing effect of carbonation enhanced
  - Textural and sensorial qualities of beer better presented to consumer
- ### Free-Flow Pouring
- Beer pours best from a fully open faucet.
  - To control the faucet during operation, hold the handle firmly at the base.
  - Partially open faucets cause inefficiency and poor quality, namely:
    - Turbulent flow
    - Excessive foaming
    - Waste (inefficiency)