

Blast Furnace

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A **blast furnace** is a block that smelts ores, raw metals, and metal armor and tools twice as quickly as a furnace, but cannot use smelting recipes or cook food. It also serves as an armorer's job site block.

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Obtaining

Breaking

A blast furnace can be picked up using any [pickaxe](#). If mined without a pickaxe, it does not drop itself.

Blast furnaces drop their contents when broken.

Block	 Blast Furnace
Hardness	3.5
Tool	
Breaking time (sec) ^[A]	
Default	17.5
 Wooden	2.65
 Stone	1.35
 Copper	1.05
 Iron	0.9
 Diamond	0.7
 Netherite	0.6
 Golden	0.45

Legend

- incorrect tool, drops nothing
- correct tool, drops nothing or something other than the block itself
- correct tool, drops the block itself
- *italicized* can be instant mined

1. These durations ignore other influential factors (e.g., [Mining Fatigue](#)) and are measured in seconds. For more information, see [Breaking § Speed](#).

 Blast Furnace	
Inactive	
Lit	
View all renders	
Renewable	Yes
Stackable	Yes (64)
Tool	
Blast resistance	3.5
Hardness	3.5
Luminous	Yes (13) (when active)
Transparent	Partial (when active)
Flammable	No
Catches fire from lava	No
Map color (JE)	<input type="checkbox"/> 11 STONE

Natural generation

Blast furnaces can generate in any armorer house; these can be found in a [village](#). Blast furnaces can also generate in [trail ruins](#).

Crafting

Ingredients	Crafting recipe	[hide]
Iron Ingot + Furnace + Smooth Stone		

Usage

Blast furnaces can be pushed by pistons. [Bedrock Edition only]

Smelting

Main article: Smelting

Blast furnaces are similar to furnaces, but can smelt only raw metal, ore blocks and tools/armor made of iron, gold, chainmail, or copper. Blast furnaces serve as the counterpart to smokers, which are used mainly to cook food faster. Smelting equipment yields one iron or gold nugget from their respective materials. Once an item and a fuel are placed into the blast furnace, the block state changes to lit and the item is smelted twice as fast as a regular furnace. Fuel is also used at double the rate of regular furnaces, so the number of items smelted per fuel stays the same. The product can then be collected by [using the output](#). Like normal [furnaces](#), a [hopper](#) can be used to feed items into or collect items from a blast furnace.



The GUI for the blast furnace, same as the ordinary furnace's.

Profession

Main article: Job site block

If a blast furnace has not been claimed by a [villager](#), any nearby unemployed villager has a chance to change their profession to armorer and claim the blast furnace as their [job site block](#).

Light source

Blast furnaces emit a [light level](#) of 13 when active, similar to normal [furnaces](#).

Custom name

By default, the interface of a blast furnace is labeled "Blast Furnace", but this name can be customized by naming it in an [anvil](#) before placing it, or by changing the [CustomName](#) tag using the [/data](#) command. [Java Edition only]

Lock

In [Java Edition](#), a blast furnace can be "locked" by setting its [lock](#) tag using the [/data](#) command. If a blast furnace's lock tag is not blank, the blast furnace cannot be opened unless the player is holding an item with the same name as the lock tag's text. For example, to lock a blast furnace at (0,64,0) so that the blast furnace cannot be opened unless the player is holding an item named "Blast Furnace Key", use `/data merge block 0 64 0 {lock:{components:[{"custom_name":"Blast Furnace Key"}]}`.

Note blocks

Blast furnace can be placed under [note blocks](#) to produce "bass drum" sounds.

Sounds

Generic

Java Edition:

stone sound type									[hide]
Sound	Closed captions	Source	Description	Identifier	Translation key	Volume	Pitch	Attenuation distance	
	Block broken	Blocks	Once the block has broken	block.stone.break	subtitles.block.generic.break	1.0	0.8	16	
	Block placed	Blocks	When the block is placed	block.stone.place	subtitles.block.generic.place	1.0	0.8	16	
	Block breaking	Blocks	While the block is in the process of being broken	block.stone.hit	subtitles.block.generic.hit	0.25	0.5	16	
	Something falls on a block	Entity-Dependent	Falling on the block with fall damage	block.stone.fall	subtitles.block.generic.fall	0.5	0.75	16	
	Footsteps	Entity-Dependent	Walking on the block	block.stone.step	subtitles.block.generic.footsteps	0.15	1.0	16	

Bedrock Edition:

█ stone sound type [hide]							
Sound	Closed captions [upcoming: BE 26.0]	Source	Description	Identifier	Translation key [upcoming: BE 26.0]	Volume	Pitch
	Block broken	Blocks	Once the block has broken	dig.stone	subtitles.block.generic.break	1.0	0.8-1.0
	Block broken	Blocks	When the block is placed	dig.stone	subtitles.block.generic.break	1.0	0.8-1.0
	Block breaking	Blocks	While the block is in the process of being broken	hit.stone	subtitles.block.generic.hit	0.37	0.5
	Footsteps	Players	Falling on the block with fall damage	fall.stone	subtitles.block.generic.footsteps	0.4	1.0
	Footsteps	Players	Walking on the block	step.stone	subtitles.block.generic.footsteps	0.3	1.0
	Footsteps	Blocks	Jumping from the block	jump.stone	subtitles.block.generic.footsteps	0.12	1.0
	Footsteps	Blocks	Falling on the block without fall damage	land.stone	subtitles.block.generic.footsteps	0.22	1.0

Unique

Java Edition:

Sounds [hide]								
Sound	Closed captions	Source	Description	Identifier	Translation key	Volume	Pitch	Attenuation distance
	Blast furnace crackles	Blocks	Randomly while lit	block.blastfurnace.fire_crackle[sound 1]	subtitles.block.blastfurnace.fire_crackle[sound 1]	1.0	1.0	16
	Arborer works	Friendly Mobs	Randomly while an arborer is working	entity.villager.work_arborer	subtitles.entity.villager.work_arborer	1.0	0.8-1.2	16
	Chest locked[sound 2]	Blocks	When a player attempts to open a blast furnace locked using the lock tag	block.chest.locked[sound 2]	subtitles.block.chest.locked[sound 2]	1.0	1.0	16

1. MC-179832
2. MC-98316 — Wrong subtitles caused by missing distinction

Bedrock Edition:

Sounds [hide]							
Sound	Closed captions [upcoming: BE 26.0]	Source	Description	Identifier	Translation key [upcoming: BE 26.0]	Volume	Pitch
	?	Blocks	Randomly while lit	block.blastfurnace.fire_crackle	?	3.0	0.6
	?	Blocks	Randomly while an arborer is working	block.blastfurnace.fire_crackle	?	3.0	0.6

Data values

ID

Java Edition:

Name	Identifier	Form	Translation key [hide]
▀ Blast Furnace	blast_furnace	Block & Item	block.minecraft.blast_furnace
Name	Identifier [hide]		
▀ Block entity	blast_furnace		

Bedrock Edition:

Name	Identifier	Numeric ID	Form	Item ID ^[i 1]	Translation key [hide]
▀ Unlit block	blast_furnace	451	Block & Giveable Item ^[i 2]	Identical ^[i 3] (Numeric: -196)	tile.blast_furnace.name
▀ Lit block	lit_blast_furnace	469	Block & Ungiveable Item ^[i 4]	Identical ^[i 3] (Numeric: -214)	—

1. ID of block's direct item form, which is used in savegame files and addons.
2. Available with /give command.
3. The block's direct item form has the same ID as the block.
4. Unavailable with /give command

Name	Savegame ID [hide]
▀ Block entity	BlastFurnace

Block states

See also: [Block states](#)

Java Edition:

Name	Default value	Allowed values	Description	[hide]
facing	north	east north south west	The direction the blast furnace's opening faces. The opposite from the direction the player faces while placing the blast furnace.	
lit	false	false true	If the blast furnace is lit.	

Bedrock Edition:

Name	Metadata Bits	Default value	Allowed values	Values for Metadata Bits	Description	[hide]
minecraft:cardinal_direction	Not Supported	south	east north south west	Unsupported	The direction the blast furnace's opening faces. The opposite from the direction the player faces while placing the blast furnace.	

Block data

A blast furnace has a block entity associated with it that holds additional data about the block.

Java Edition:

See also: [Block entity format](#)

Block entity data**Tags common to all block entities**

- **lit_time_remaining**: Number of ticks left before the current fuel runs out.
- **cooking_time_spent**: Number of ticks the item has been smelting for. The item finishes smelting when this value reaches 200 (10 seconds). Is reset to 0 if lit_time_remaining reaches 0.
- **cooking_total_time**: Number of ticks it takes for the item to be smelted.
- **lit_total_time**: Represent the total time the furnace should be lit.

Tags common to all objects that can be renamed

- **Items**: List of items in this container.
 - └ : An item in the blast furnace, including the slot tag:
Slot 0: The item(s) being smelted.
Slot 1: The item(s) to use as the next fuel source.
Slot 2: The item(s) in the result slot.

An item**Tags common to all containers that can be locked**

- **RecipesUsed**: Recipes that have been used since the last time a recipe result item was manually removed from the GUI. Used to calculate experience given to the player when taking out the resulting item. Is not preserved when removed.
 - └ **recipe ID**: How many times this specific recipe has been used. The *recipe ID* is the identifier of the smelting [recipe](#), as a [resource location](#), as used in the / recipe command.

Bedrock Edition:

See [Bedrock Edition level format/Block entity format](#).

Videos**History**

There is an associated [technical blocks](#) page for the internal item form of this block; see [Technical blocks/Lit Blast Furnace](#).

Java Edition

<i>Java Edition</i>		
[hide]		
1.14	18w44a	 Added blast furnaces.
		Blast furnaces are currently obtainable only through the Creative inventory and the GUI can be accessed only through Spectator mode.
	18w48a	Blast furnaces now generate in the updated villages in plains.
	18w49a	Blast furnaces now generate in the updated villages in <u>savannas</u> and the new villages in <u>snowy tundras</u> .
	18w50a	Blast furnaces now generate in the updated villages in <u>deserts</u> and <u>taigas</u> .
		Blast furnaces are now functional and craftable.
	19w03a	Sounds have been added for blast furnaces.
	19w11a	Blast furnaces now serve as armorer villagers' job site block.
1.16	20w06a	Added ancient debris, which can be smelted in blast furnaces.
1.17	21w14a	Added raw metals, which can be smelted in blast furnaces.
1.20	23w12a	Blast furnaces now generate in trail ruins.

Bedrock Edition

<i>Bedrock Edition</i>		
[hide]		
1.9.0 Experiment <u>Experimental Gameplay</u>	beta 1.9.0.2	 Added blast furnaces as part of Experimental Gameplay.
1.10.0 Experiment <u>Experimental Gameplay</u>	beta 1.10.0.3	A crafting recipe has been added for the blast furnace. Blast furnaces now generate in the new <u>village</u> armorer houses.
1.11.0	beta 1.11.0.1	 Blast furnaces are now functional. They are no longer available only behind Experimental Gameplay.
1.21.50	Preview 1.21.50.24	Blast furnaces drop themselves only if mined using a pickaxe, matching <i>Java Edition</i> .

PlayStation 4 Edition

<i>PlayStation 4 Edition</i>		
[hide]		
1.91	 Added blast furnaces.	Blast furnaces can smelt sand and red sand.

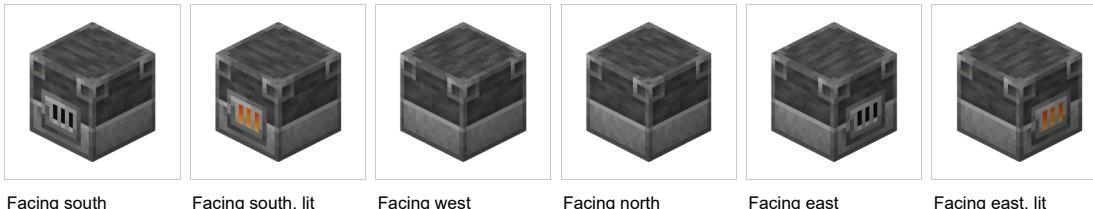
Data history

<i>Bedrock Edition</i>		
[hide]		
1.20.30	Preview 1.20.30.20	Blast furnaces now use the <code>minecraft:cardinal_direction</code> block state instead of <code>facing_direction</code> .

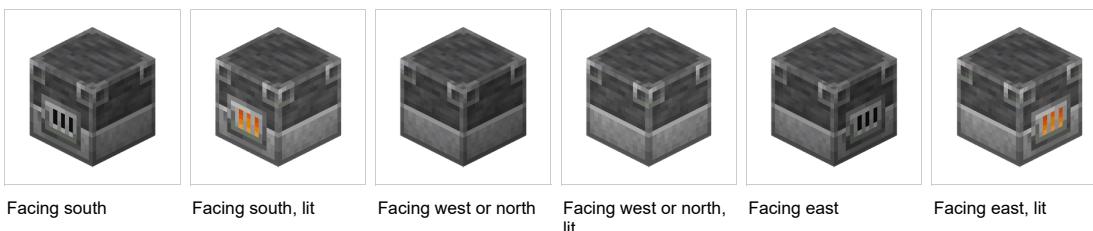
Gallery

Renders

Java Edition



Bedrock Edition



Screenshots



A blast furnace,
smoker and barrel.

In other media



Zuri resting on top of
a blast furnace.



Blast furnaces as
seen in [A Minecraft
Movie](#).

Issues

Issues relating to "Blast Furnace" are maintained on the bug tracker. Issues should be reported and viewed there (<https://bugs.mojang.com/issues/?jql=project%20in%20%28MC%2C%20MCPE%29%20AND%20%28resolution%20is%20EMPTY%20OR%20resolution%20in%20%281%2C%202%2C%206%29%29%20AND%20%28summary%20~%20%22Blast%20Furnace%22%29%20ORDER%20BY%20resolution%20DESC>).

See also

- [Furnace](#)
- [Smoker](#)

External links

- Block of the Week: Blast Furnace (<https://www.minecraft.net/en-us/article/block-week--blast-furnace>) – Minecraft.net on September 10, 2020

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Utilizable	█ Banners (Ominous) █ Beehive █ Beds █ Bell █ Bookshelf █ Cake (with Candle) █ Campfire (Soul) █ Cauldron █ Chiseled Bookshelf █ Composter █ Conduit █ Copper Golem Statue █ Decorated Pot █ End Gateway █ End Portal █ End Portal Frame █ Farmland █ Fletching Table █ Flower Pot █ Frosted Ice █ Heads (Skeleton Wither Skeleton Zombie) █ Creeper █ Piglin █ Dragon) █ Heavy Core █ Jukebox █ Ladder █ Lodestone █ Monster Spawner █ Nether Portal █ Respawn Anchor █ Scaffolding █ Shelf █ Sponge (Wet) █ Suspicious Gravel █ Suspicious Sand █ TNT █ Trial Spawner (Ominous) █ Vault (Ominous)
Redstone/ Mechanical	█ Buttons (Wooden Stone Polished Blackstone) █ Copper Bulb █ Crafter █ Daylight Detector █ Dispenser █ Dropper █ Doors (Copper Iron Wooden) █ Honey Block █ Hopper █ Lever █ Lightning Rod █ Note Block █ Observer █ Piston (Sticky) █ Pressure Plates (Wooden Stone Polished Blackstone Heavy Weighted Light Weighted) █ Rail (Activator Detector) █ Powered █ Redstone Lamp █ Redstone Wire (Comparitor Repeater Torch) █ Slime Block █ Target █ Trapped Chest █ Trapdoors (Copper Iron Wooden) █ Fence Gates █ Tripwire Hook (Tripwire)
BE & edu only	█ Allow █ Border █ Chalkboard █ Compound Creator █ Deny █ Element Constructor █ Heat Block █ Item Frame (Glow) █ Lab Table █ Material Reducer █ Underwater TNT █ Underwater Torch
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