

# German Pils

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- Gravity **11.7 BLG**
- ABV **4.7 %**
- IBU **45**
- SRM **3.5**
- Style **German Pilsner (Pils)**

## Batch size

- Expected quantity of finished beer **22 liter(s)**
- Trub loss **5 %**
- Size with trub loss **23.1 liter(s)**
- Boil time **90 min**
- Evaporation rate **15 %/h**
- Boil size **32.3 liter(s)**

## Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **16 liter(s)**
- Total mash volume **21.4 liter(s)**

## Steps

- Temp **52 C**, Time **7 min**
- Temp **64 C**, Time **20 min**
- Temp **72 C**, Time **40 min**
- Temp **78 C**, Time **0 min**

## Mash step by step

- Heat up **16 liter(s)** of strike water to **57.4C**
- Add grains
- Keep mash **7 min** at **52C**
- Keep mash **20 min** at **64C**
- Keep mash **40 min** at **72C**
- Keep mash **0 min** at **78C**
- Sparge using **21.7 liter(s)** of **76C** water or to achieve **32.3 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Strzegom Pilzneński	5 kg (93.5%)	80 %	4
Grain	Castlemalting - Cara Clair	0.3 kg (5.6%)	78 %	4
Grain	Acid Malt	0.05 kg (0.9%)	58.7 %	6

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Polaris	20 g	40 min	18.5 %
Aroma (end of boil)	Hallertau Spalt Select	25 g	30 min	3.4 %
Aroma (end of boil)	Hallertau	35 g	7 min	6.5 %

## Yeasts

Name	Type	Form	Amount	Laboratory
FM31 Bawarska Dolina	Lager	Liquid	600 ml	Fermentum Mobile

## Extras

Type	Name	Amount	Use for	Time
Water Agent	fhirlfloc t	1.5 g	Boil	10 min
Water Agent	chlorek wapnia	5 g	Mash	0 min