

## double

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- Gravity **19.1 BLG**
- ABV **8.3 %**
- IBU **96**
- SRM **8.6**

### Batch size

- Expected quantity of finished beer **23 liter(s)**
- Trub loss **5 %**
- Size with trub loss **25.3 liter(s)**
- Boil time **60 min**
- Evaporation rate **12 %/h**
- Boil size **30.9 liter(s)**

### Mash information

- Mash efficiency **82 %**
- Liquor-to-grist ratio **3.3 liter(s) / kg**
- Mash size **28 liter(s)**
- Total mash volume **36.5 liter(s)**

### Steps

- Temp **63 C**, Time **60 min**

### Mash step by step

- Heat up **28 liter(s)** of strike water to **69.5C**
- Add grains
- Keep mash **60 min** at **63C**
- Sparge using **11.4 liter(s)** of **76C** water or to achieve **30.9 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	7.5 kg (88.2%)	80 %	5
Grain	Strzegom Karmel 300	0.2 kg (2.4%)	70 %	299
Grain	Weyermann - Carapils	0.3 kg (3.5%)	78 %	4
Grain	Pszeniczny	0.5 kg (5.9%)	85 %	4

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Columbus/Tomahawk/Zeus	70 g	60 min	12.6 %
Boil	ekuanot	15 g	30 min	13.6 %
Boil	Challenger	15 g	30 min	7 %
Boil	Simcoe	20 g	20 min	13.2 %
Boil	Centennial	20 g	10 min	10.5 %
Aroma (end of boil)	Citra	25 g	0 min	12 %
Aroma (end of boil)	Galaxy	25 g	0 min	15 %