

## czarne

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- Gravity **15 BLG**
- ABV **6.2 %**
- IBU **33**
- SRM **25.8**
- Style **Dry Stout**

### Batch size

- Expected quantity of finished beer **19.2 liter(s)**
- Trub loss **5 %**
- Size with trub loss **20.2 liter(s)**
- Boil time **70 min**
- Evaporation rate **10 %/h**
- Boil size **24.7 liter(s)**

### Mash information

- Mash efficiency **68 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **22.8 liter(s)**
- Total mash volume **29.3 liter(s)**

### Steps

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

### Mash step by step

- Heat up **22.8 liter(s)** of strike water to **69.1C**
- Add grains
- Keep mash **60 min** at **63C**
- Sparge using **8.4 liter(s)** of **76C** water or to achieve **24.7 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	Briess - Pale Ale Malt	6 kg (92.3%)	80 %	7
Grain	Strzegom Czekoladowy ciemny	0.25 kg (3.8%)	68 %	1200
Grain	Strzegom Czekoladowy jasny	0.25 kg (3.8%)	68 %	400

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Marynka	30 g	60 min	7.1 %
Aroma (end of boil)	Magnum	25 g	5 min	12 %
Boil	Magnum	5 g	30 min	12 %