

Black Hole FES

- Gravity **16.9 BLG**
- ABV ---
- IBU **73**
- SRM **40**
- Style **Foreign Extra Stout**

Batch size

- Expected quantity of finished beer **21.5 liter(s)**
- Trub loss **10 %**
- Size with trub loss **23.6 liter(s)**
- Boil time **60 min**
- Evaporation rate **15 %/h**
- Boil size **29.7 liter(s)**

Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **20.7 liter(s)**
- Total mash volume **27.6 liter(s)**

Steps

- Temp **66 C**, Time **70 min**
- Temp **75 C**, Time **15 min**

Mash step by step

- Heat up **20.7 liter(s)** of strike water to **73.7C**
- Add grains
- Keep mash **70 min** at **66C**
- Keep mash **15 min** at **75C**
- Sparge using **15.9 liter(s)** of **76C** water or to achieve **29.7 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Strzegom Pale Ale	5 kg (72.5%)	79 %	6
Grain	Strzegom Czekoladowy ciemny	0.5 kg (7.2%)	68 %	1200
Grain	Caraaroma	0.5 kg (7.2%)	68 %	400
Grain	Extra black	0.5 kg (7.2%)	65 %	1400
Grain	Oats, Flaked	0.4 kg (5.8%)	80 %	2

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Iunga	35 g	60 min	11 %
Boil	Magnum	35 g	60 min	12 %

Yeasts

Name	Type	Form	Amount	Laboratory
Mangrove Jack's M07 British Ale	Ale	Dry	11 g	---

Extras

Type	Name	Amount	Use for	Time
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Water Agent	Chlorek wapnia	5 g	Mash	---
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