

FES

- Gravity **16.8 BLG**
- ABV **7.1 %**
- IBU **60**
- SRM **35.1**
- Style **Foreign Extra Stout**

Batch size

- Expected quantity of finished beer **12 liter(s)**
- Trub loss **5 %**
- Size with trub loss **13.2 liter(s)**
- Boil time **60 min**
- Evaporation rate **12 %/h**
- Boil size **16.4 liter(s)**

Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **14.2 liter(s)**
- Total mash volume **19 liter(s)**

Steps

- Temp **64 C**, Time **40 min**
- Temp **72 C**, Time **20 min**
- Temp **76 C**, Time **5 min**

Mash step by step

- Heat up **14.2 liter(s)** of strike water to **71.3C**
- Add grains
- Keep mash **40 min** at **64C**
- Keep mash **20 min** at **72C**
- Keep mash **5 min** at **76C**
- Sparge using **6.9 liter(s)** of **76C** water or to achieve **16.4 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	3.8 kg (80.2%)	80 %	5
Grain	Jęczmień niesłodowany	0.35 kg (7.4%)	75 %	2
Grain	Caraaroma	0.25 kg (5.3%)	78 %	400
Grain	Carafa III	0.1 kg (2.1%)	70 %	1034
Grain	Jęczmień palony	0.24 kg (5.1%)	55 %	985

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	East Kent Goldings	80 g	60 min	5.1 %