Express FES

- Gravity **14 BLG**
- ABV **5.8 %**
- IBU **51**
- SRM **35.9**
- Style **Foreign Extra Stout**

Batch size

- Expected quantity of finished beer **12 liter(s)**
- Trub loss **5 %**
- Size with trub loss **12.6 liter(s)**
- Boil time **60 min**
- Evaporation rate **15 %/h**
- Boil size **15.9 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **12.1 liter(s)**
- Total mash volume **15.5 liter(s)**

Steps

- Temp **64 C**, Time **40 min**
- Temp **72 C**, Time **30 min**
- Temp **78 C**, Time **1 min**

Mash step by step

- Heat up **12.1 liter(s)** of strike water to **70.3C**
- Add grains
- Keep mash **40 min** at **64C**
- Keep mash **30 min** at **72C**
- Keep mash **1 min** at **78C**
- Sparge using **7.3 liter(s)** of **76C** water or to achieve **15.9 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Viking Pale Ale malt	2.35 kg *(68.1%)*	80 %	5
Grain	Płatki owsiane	0.3 kg *(8.7%)*	85 %	3
Grain	VM Pale Cookie	0.15 kg *(4.3%)*	70 %	30
Grain	Special X Malt	0.15 kg *(4.3%)*	65.2 %	315
Grain	Carafa III Special	0.35 kg *(10.1%)*	70 %	1034
Grain	VM Caramel Sweet	0.15 kg *(4.3%)*	70 %	160

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Magnum	22 g	60 min	13.3 %

Yeasts

Name	Type	Form	Amount	Laboratory
OYL-057	Ale	Liquid	1 ml	Fermentis