

## FES

- Gravity **14.5 BLG**
- ABV **6 %**
- IBU **40**
- SRM **32.7**
- Style **Foreign Extra Stout**

### Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **21 liter(s)**
- Boil time **65 min**
- Evaporation rate **10 %/h**
- Boil size **25.5 liter(s)**

### Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **17.8 liter(s)**
- Total mash volume **23.8 liter(s)**

### Steps

- Temp **64 C**, Time **45 min**
- Temp **72 C**, Time **30 min**
- Temp **78 C**, Time **0 min**

### Mash step by step

- Heat up **17.8 liter(s)** of strike water to **71.4C**
- Add grains
- Keep mash **45 min** at **64C**
- Keep mash **30 min** at **72C**
- Keep mash **0 min** at **78C**
- Sparge using **13.7 liter(s)** of **76C** water or to achieve **25.5 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	Strzegom Pilzneński	5 kg (84%)	80 %	4
Grain	Karmelowy Jasny 30EBC	0.3 kg (5%)	75 %	30
Grain	Jęczmień palony	0.2 kg (3.4%)	55 %	1400
Grain	Weyermann - Carafa II	0.1 kg (1.7%)	70 %	837
Grain	Strzegom Barwiący	0.2 kg (3.4%)	68 %	1300
Grain	Weyermann pszeniczny jasny	0.1 kg (1.7%)	80 %	6
Grain	Jęczmień niestodowany	0.05 kg (0.8%)	75 %	2

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Styrian Golding	45 g	10 min	3.6 %
Boil	Marynka	35 g	50 min	10 %

### Yeasts

Name	Type	Form	Amount	Laboratory
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Wyeast - London Ale	Ale	Liquid	200 ml	Wyeast Labs
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