

FES I

- Gravity **15 BLG**
- ABV ---
- IBU **33**
- SRM **40**
- Style **Foreign Extra Stout**

Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **10 %**
- Size with trub loss **22 liter(s)**
- Boil time **75 min**
- Evaporation rate **15 %/h**
- Boil size **26.1 liter(s)**

Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **16.4 liter(s)**
- Total mash volume **21.9 liter(s)**

Steps

- Temp **68 C**, Time **0 min**
- Temp **65 C**, Time **40 min**
- Temp **72 C**, Time **30 min**
- Temp **76 C**, Time **5 min**

Mash step by step

- Heat up **16.4 liter(s)** of strike water to **72.5C**
- Add grains
- Keep mash **40 min** at **65C**
- Keep mash **0 min** at **68C**
- Keep mash **30 min** at **72C**
- Keep mash **5 min** at **76C**
- Sparge using **15.2 liter(s)** of **76C** water or to achieve **26.1 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Pilzneński	4 kg (73.1%)	81 %	4
Grain	Strzegom Monachijski typ I	0.4 kg (7.3%)	79 %	16
Grain	Briess Cherry	0.2 kg (3.7%)	80.5 %	10
Grain	Pszeniczny ciemny	0.25 kg (4.6%)	82 %	20
Grain	Carahell	0.14 kg (2.6%)	77 %	26
Grain	Czekoladowy	0.25 kg (4.6%)	60 %	1000
Grain	Jęczmień palony	0.08 kg (1.5%)	55 %	1300
Grain	Black of Black	0.15 kg (2.7%)	72 %	1500

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Magnum	20 g	60 min	13.5 %
Boil	Kent Goldings	11 g	10 min	6 %
Boil	Brewers Gold	5 g	10 min	8.8 %

Yeasts

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

Extras

Type	Name	Amount	Use for	Time
Fining	Mech Irlandzki	5 g	Boil	15 min
Other	Odżywka	2 g	Boil	15 min