

# FES

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- Gravity **19.8 BLG**
- ABV **8.7 %**
- IBU **56**
- SRM **37.7**
- 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 **90 min**
- Evaporation rate **10 %/h**
- Boil size **26.4 liter(s)**

## Mash information

- Mash efficiency **83 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **22.5 liter(s)**
- Total mash volume **30 liter(s)**

## Steps

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

## Mash step by step

- Heat up **22.5 liter(s)** of strike water to **71.3C**
- Add grains
- Keep mash **40 min** at **64C**
- Keep mash **30 min** at **72C**
- Sparge using **11.4 liter(s)** of **76C** water or to achieve **26.4 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Strzegom Monachijski typ II	1 kg (13.3%)	79 %	22
Grain	Strzegom Pale Ale	5 kg (66.7%)	79 %	6
Grain	Oats, Flaked	0.5 kg (6.7%)	80 %	2
Grain	castle malting kawowy	0.5 kg (6.7%)	65 %	500
Grain	Fawcett - Pszeniczny Czekoladowy	0.5 kg (6.7%)	73 %	1001

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Polaris	25 g	60 min	20.8 %
Aroma (end of boil)	Polaris	15 g	15 min	20.8 %

## Yeasts

Name	Type	Form	Amount	Laboratory
Safale S-04	Ale	Dry	11.5 g	Safale