

## fes 2017

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- Gravity **17.3 BLG**
- ABV ---
- IBU **59**
- SRM **52.4**
- Style **Foreign Extra Stout**

### Batch size

- Expected quantity of finished beer **21 liter(s)**
- Trub loss **6 %**
- Size with trub loss **22.3 liter(s)**
- Boil time **60 min**
- Evaporation rate **13 %/h**
- Boil size **27.6 liter(s)**

### Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **19.8 liter(s)**
- Total mash volume **26.4 liter(s)**

### Steps

- Temp **66 C**, Time **40 min**
- Temp **64 C**, Time **20 min**
- Temp **72 C**, Time **5 min**

### Mash step by step

- Heat up **19.8 liter(s)** of strike water to **71.3C**
- Add grains
- Keep mash **20 min** at **64C**
- Keep mash **40 min** at **66C**
- Keep mash **5 min** at **72C**
- Sparge using **14.4 liter(s)** of **76C** water or to achieve **27.6 liter(s)** of wort

### Fermentables

Type	Name	Amount	Yield	EBC
Grain	Strzegom Pale Ale	4.3 kg (65.2%)	79 %	6
Grain	Strzegom Monachijski typ I	0.7 kg (10.6%)	79 %	16
Grain	Płatki owsiane	0.5 kg (7.6%)	85 %	3
Grain	Strzegom Czekoladowy 400	0.4 kg (6.1%)	68 %	400
Grain	Strzegom Czekoladowy 1200	0.3 kg (4.5%)	68 %	1202
Grain	Castelmalt crystal	0.2 kg (3%)	75 %	150
Grain	Jęczmień palony	0.2 kg (3%)	55 %	985

### Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Marynka	50 g	60 min	8.4 %
Boil	lunga	20 g	15 min	12.9 %
Boil	lunga	30 g	5 min	12.9 %

### Yeasts

<b>Name</b>	<b>Type</b>	<b>Form</b>	<b>Amount</b>	<b>Laboratory</b>
Safale S-04	Ale	Slant	200 ml	Safale