

Black skull

- Gravity **11.7 BLG**
- ABV **4.7 %**
- IBU **62**
- SRM **28.2**
- Style **American Stout**

Batch size

- Expected quantity of finished beer **21 liter(s)**
- Trub loss **5 %**
- Size with trub loss **23.1 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **27.7 liter(s)**

Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **16.8 liter(s)**
- Total mash volume **22.4 liter(s)**

Steps

- Temp **67 C**, Time **60 min**

Mash step by step

- Heat up **16.8 liter(s)** of strike water to **74.8C**
- Add grains
- Keep mash **60 min** at **67C**
- Sparge using **16.5 liter(s)** of **76C** water or to achieve **27.7 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|-------|------------------------------|----------------|-------|-----|
| Grain | Briess - Pale Ale Malt | 4.5 kg (80.4%) | 80 % | 7 |
| Grain | Oats, Malted | 0.5 kg (8.9%) | 80 % | 2 |
| Grain | Briess - Dark Chocolate Malt | 0.3 kg (5.4%) | 60 % | 827 |
| Grain | Black Barley (Roast Barley) | 0.3 kg (5.4%) | 55 % | 985 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------------------|--------|--------|--------|------------|
| Boil | Galena | 50 g | 60 min | 12 % |
| Aroma (end of boil) | Galena | 50 g | 0 min | 12 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|--------------|------|------|--------|------------|
| Safale US-05 | Ale | Dry | 11.5 g | Fermentis |