Optimization of a Mobile Unit for Secondary Crushing

Magnus Evertsson

Chalmers University of Technology

Objectives

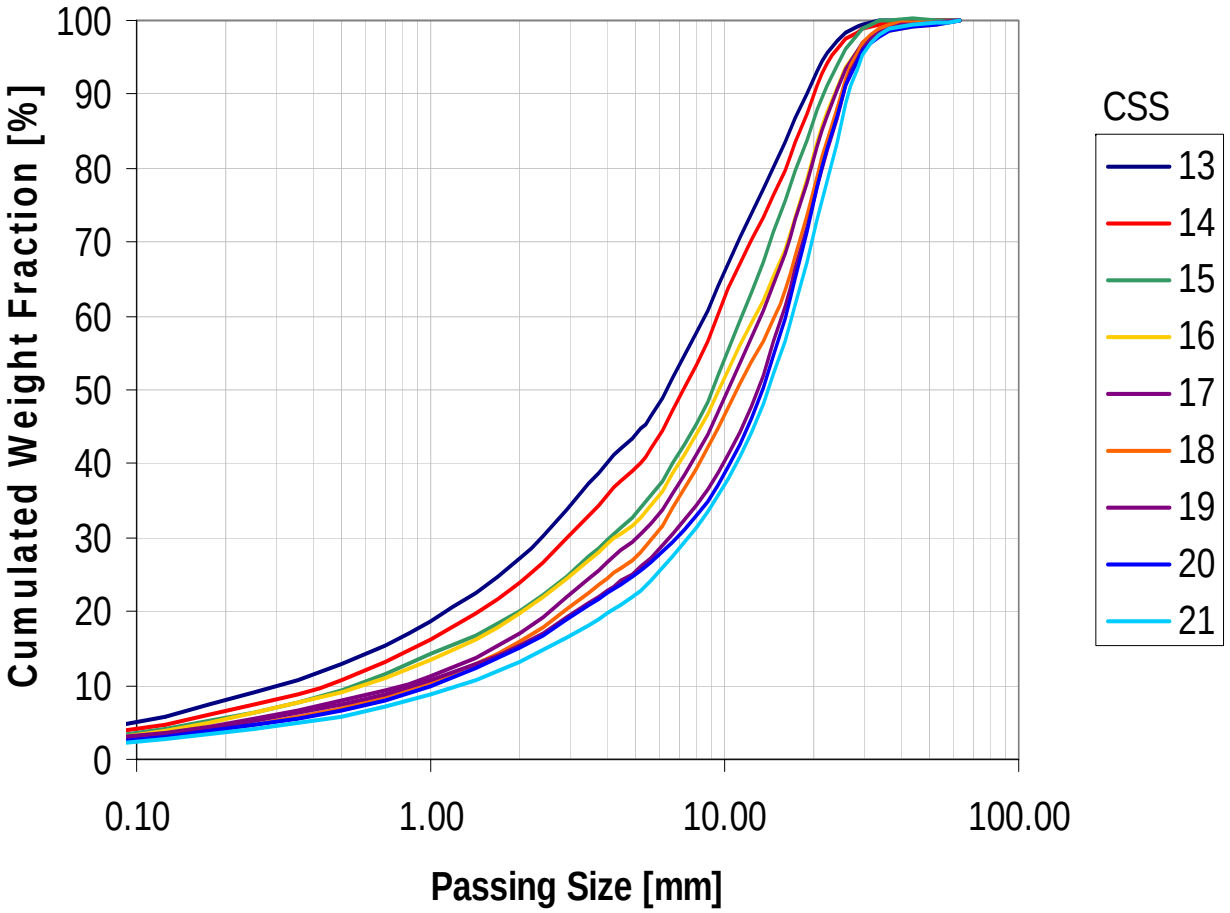
- Monitor crushing results
- Optimization

HJ H4000-C

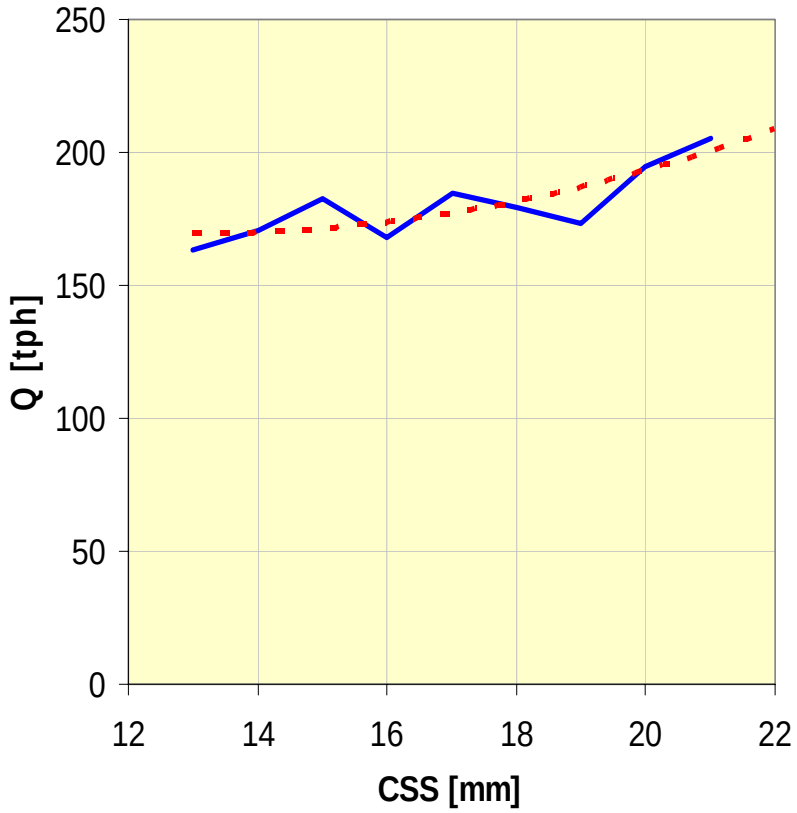
How did we do it?

- Calibration
- Nine (9) tests
  - CSS=13, 14, 15,...,21 mm
- Sieving
- Shape/flakiness index
- Ball mill index
- “Thougness” index

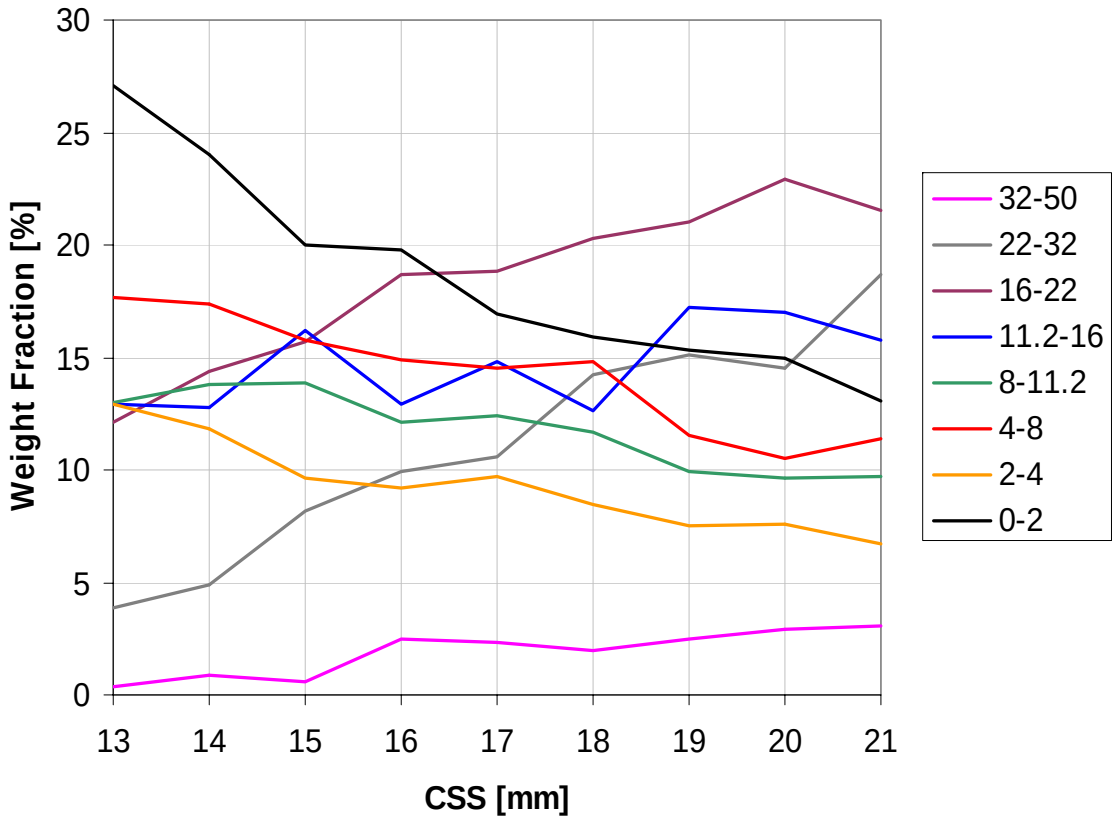
Particle Size Distributions



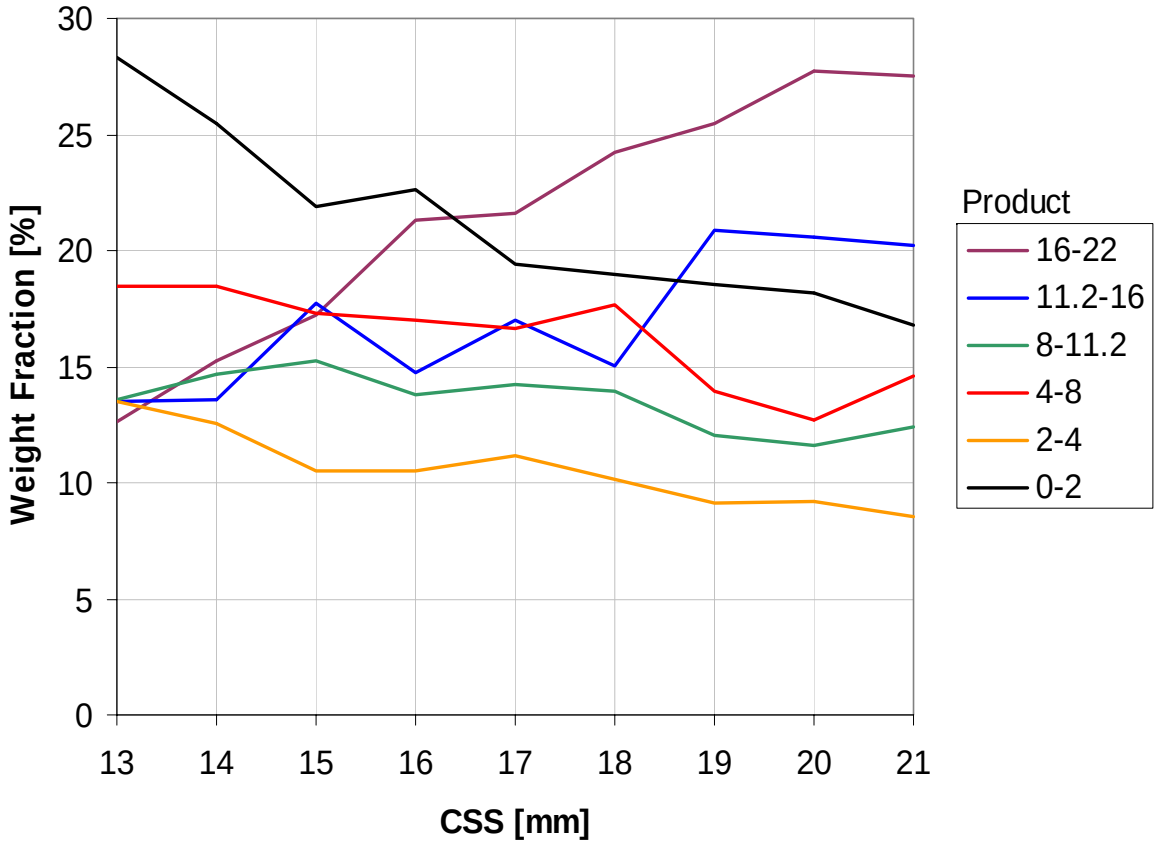
Capacity



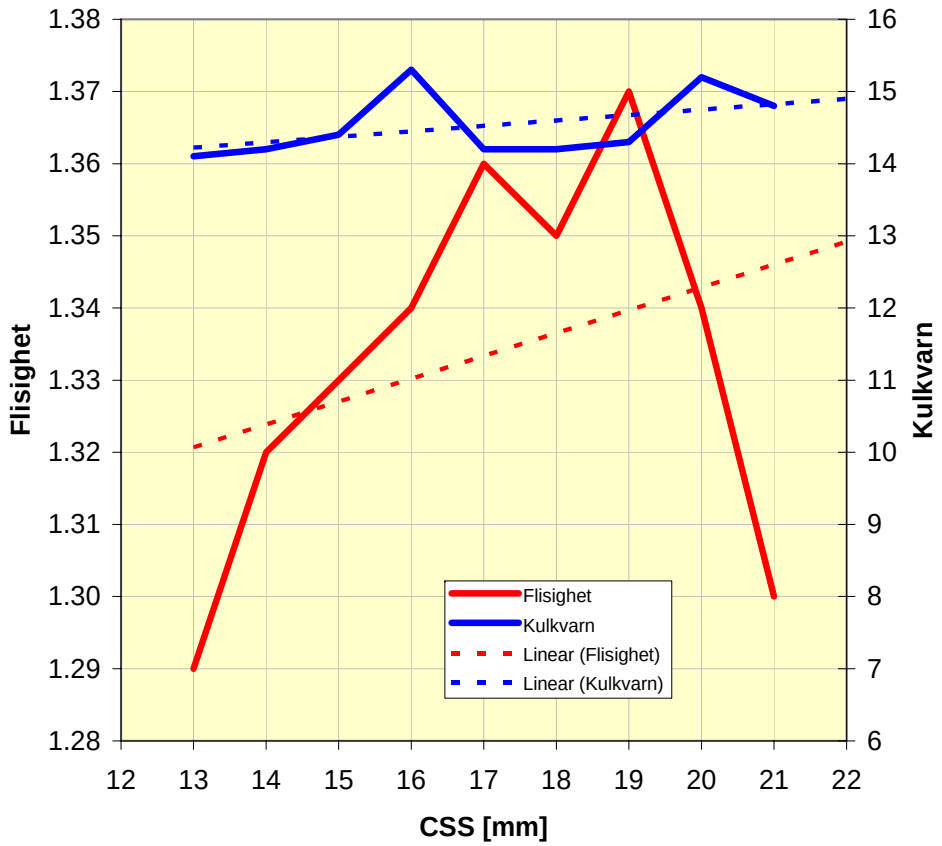
Yield from Crusher



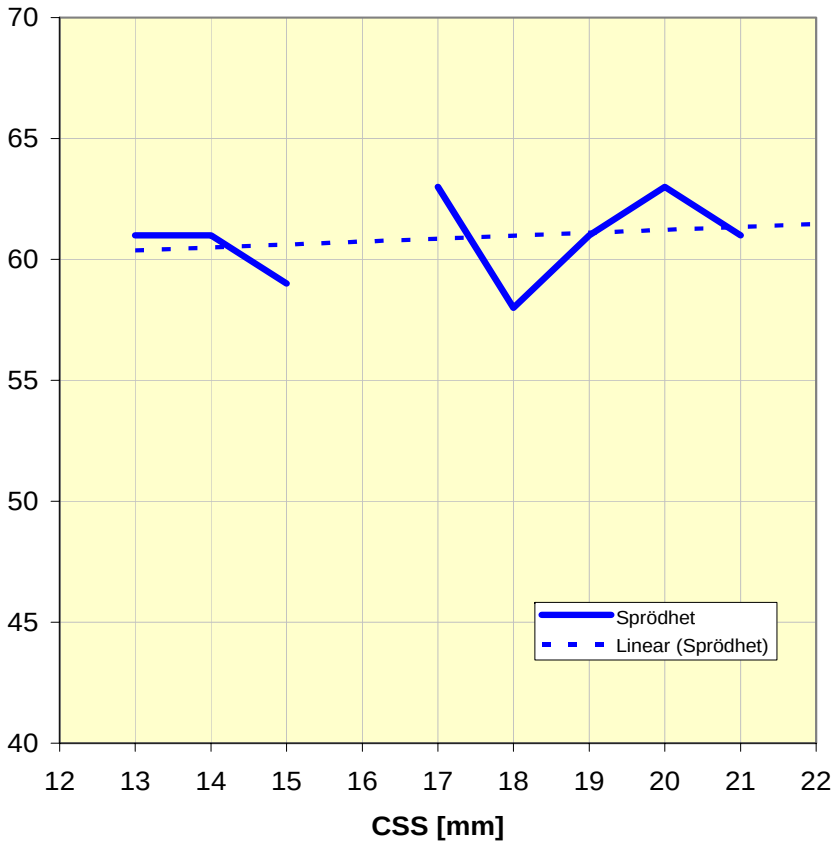
Yield from Mobile Unit



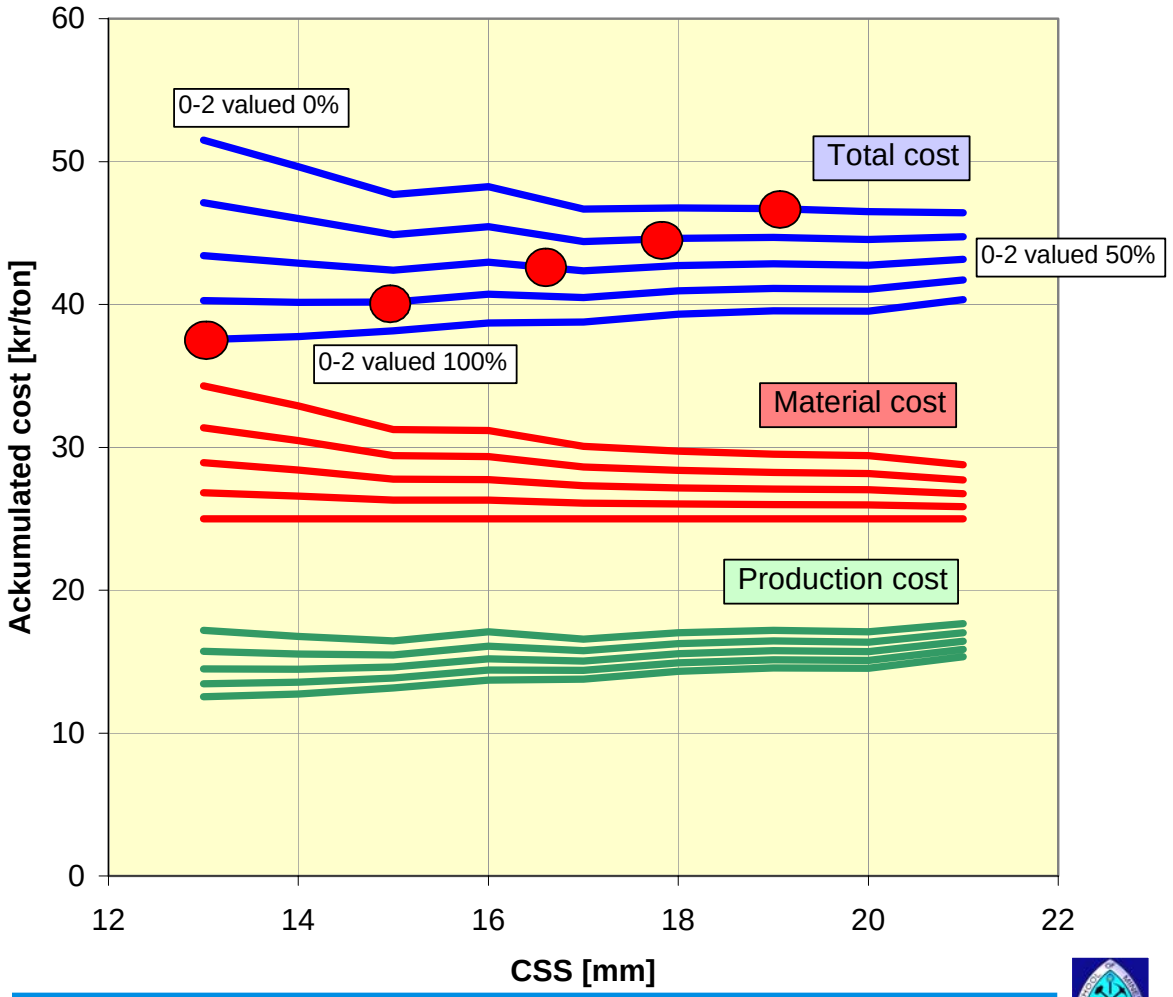
Quality


1.38
1.37
1.36
1.35
1.34
1.33
1.32
1.31
1.30
1.29
1.28
Flisighet
16
15
14
13
12
11
10
9
8
7
6
Kulkvarn
12
13
14
15
16
17
18
19
20
21
22
CSS [mm]
Flisighet
Kulkvarn
Linear (Flisighet)
Linear (Kulkvarn)

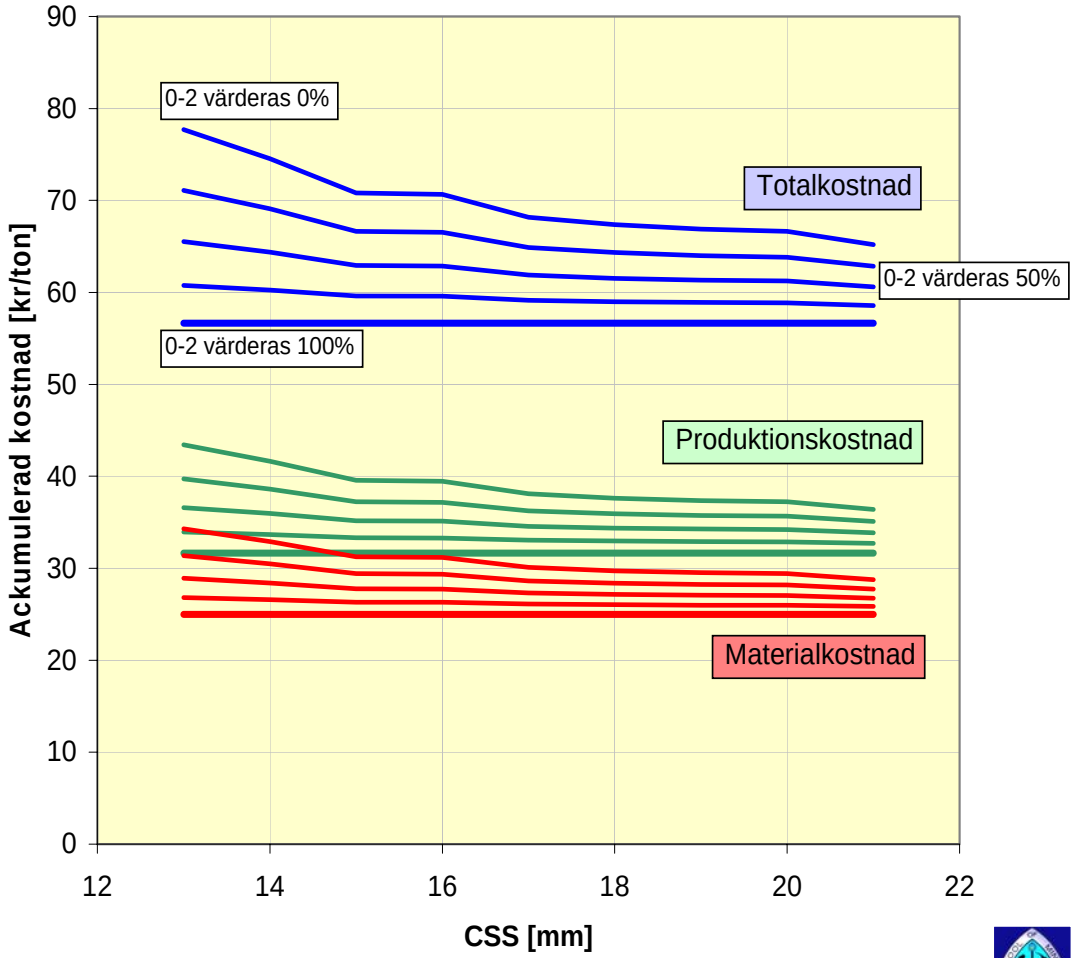
Quality


70
65
60
55
50
45
40
12
13
14
15
16
17
18
19
20
21
22
CSS [mm]
Sprödhet
Linear (Sprödhet)

“True” Costs


60
50
40
30
20
10
0
12
14
16
18
20
22
Ackumulated cost [kr/ton]
CSS [mm]
0-2 valued 0%
Total cost
0-2 valued 50%
0-2 valued 100%
Material cost
Production cost

Costs at fixed price



Misaligned feed

C or MC chamber?

Actions

- Frequent (daily) calibration
- Improved control
- Active choice of optimal CSS
- C or MC-chamber?
- 3rd stage?