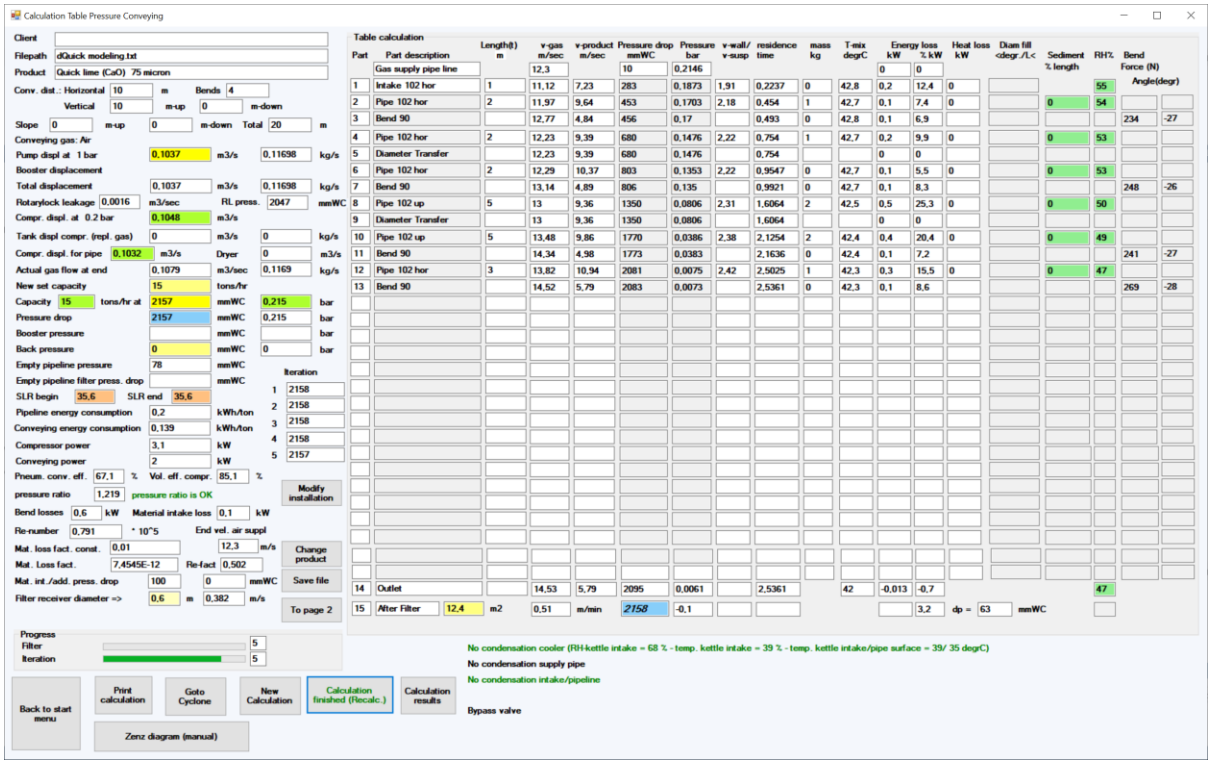
Calculation Table Pressure Conveying
Client
Filepath dQuick modeling.txt
Product Quick lime (CaO) 75 micron
Conv. dist.: Horizontal 10 m Bends 4
Vertical 10 m-up 0 m-down
Slope 0 m-up 0 m-down Total 20 m
Conveying gas: Air
Pump displ at 1 bar 0,1037 m3/s 0,11698 kg/s
Booster displacement
Total displacement 0,1037 m3/s 0,11698 kg/s
Rotarylock leakage 0,0016 m3/sec RL press. 2047 mmWC
Compr. displ. at 0.2 bar 0,1048 m3/s
Tank displ compr. (repl. gas) 0 m3/s 0 kg/s
Compr. displ. for pipe 0,1032 m3/s Dryer 0 m3/s
Actual gas flow at end 0,1079 m3/sec 0,1169 kg/s
New set capacity 15 tons/hr
Capacity 15 tons/hr at 2157 mmWC 0,215 bar
Pressure drop 2157 mmWC 0,215 bar
Booster pressure mmWC bar
Back pressure 0 mmWC 0 bar
Empty pipeline pressure 78 mmWC
Empty pipeline filter press. drop mmWC
SLR begin 35,6 SLR end 35,6
Pipeline energy consumption 0,2 kWh/ton
Conveying energy consumption 0,139 kWh/ton
Compressor power 3,1 kW
Conveying power 2 kW
Pneum. conv. eff. 67,1 % Vol. eff. compr. 85,1 %
pressure ratio 1,219 pressure ratio is OK
Bend losses 0,6 kW Material intake loss 0,1 kW
Re-number 0,791 * 10^5 End vel. air suppl
Mat. loss fact. const. 0,01 12,3 m/s
Mat. Loss fact. 7,4545E-12 Re-fact 0,502
Mat. int./add. press. drop 100 0 mmWC
Filter receiver diameter => 0,6 m 0,382 m/s
Iteration
1 2158
2 2158
3 2158
4 2158
5 2157
Modify installation
Change product
Save file
To page 2
Progress
Filter 5
Iteration 5
Table calculation
Part | Part description | Length(t) m | v-gas m/sec | v-product m/sec | Pressure drop mmWC | Pressure bar | v-wall/ v-susp | residence time | mass kg | T-mix degrC | Energy loss kW | Energy loss % kW | Heat loss kW | Diam fill <degr./L< | Sediment % length | RH% | Bend Force (N) | Bend Angle(degr)
Gas supply pipe line 12,3 10 0,2146 0 0
1 Intake 102 hor 1 11,12 7,23 283 0,1873 1,91 0,2237 0 42,8 0,2 12,4 0 55
2 Pipe 102 hor 2 11,97 9,64 453 0,1703 2,18 0,454 1 42,7 0,1 7,4 0 0 54
3 Bend 90 12,77 4,84 456 0,17 0,493 0 42,8 0,1 6,9 234 -27
4 Pipe 102 hor 2 12,23 9,39 680 0,1476 2,22 0,754 1 42,7 0,2 9,9 0 0 53
5 Diameter Transfer 12,23 9,39 680 0,1476 0,754 0 0
6 Pipe 102 hor 2 12,29 10,37 803 0,1353 2,22 0,9547 0 42,7 0,1 5,5 0 0 53
7 Bend 90 13,14 4,89 806 0,135 0,9921 0 42,7 0,1 8,3 248 -26
8 Pipe 102 up 5 13 9,36 1350 0,0806 2,31 1,6064 2 42,5 0,5 25,3 0 0 50
9 Diameter Transfer 13 9,36 1350 0,0806 1,6064 0 0
10 Pipe 102 up 5 13,48 9,86 1770 0,0386 2,38 2,1254 2 42,4 0,4 20,4 0 0 49
11 Bend 90 14,34 4,98 1773 0,0383 2,1636 0 42,4 0,1 7,2 241 -27
12 Pipe 102 hor 3 13,82 10,94 2081 0,0075 2,42 2,5025 1 42,3 0,3 15,5 0 0 47
13 Bend 90 14,52 5,79 2083 0,0073 2,5361 0 42,3 0,1 8,6 269 -28
14 Outlet 14,53 5,79 2095 0,0061 2,5361 42 -0,013 -0,7 47
15 After Filter 12,4 m2 0,51 m/min 2158 -0,1 3,2 dp = 63 mmWC
No condensation cooler (RH-kettle intake = 68 % - temp. kettle intake = 39 % - temp. kettle intake/pipe surface = 39/ 35 degrC)
No condensation supply pipe
No condensation intake/pipeline
Bypass valve
Back to start menu
Print calculation
Goto Cyclone
New Calculation
Calculation finished (Recalc.)
Calculation results
Zenz diagram (manual)