Sandlager
Simuleringer

Simuleringer sandlager ”Cylinder”

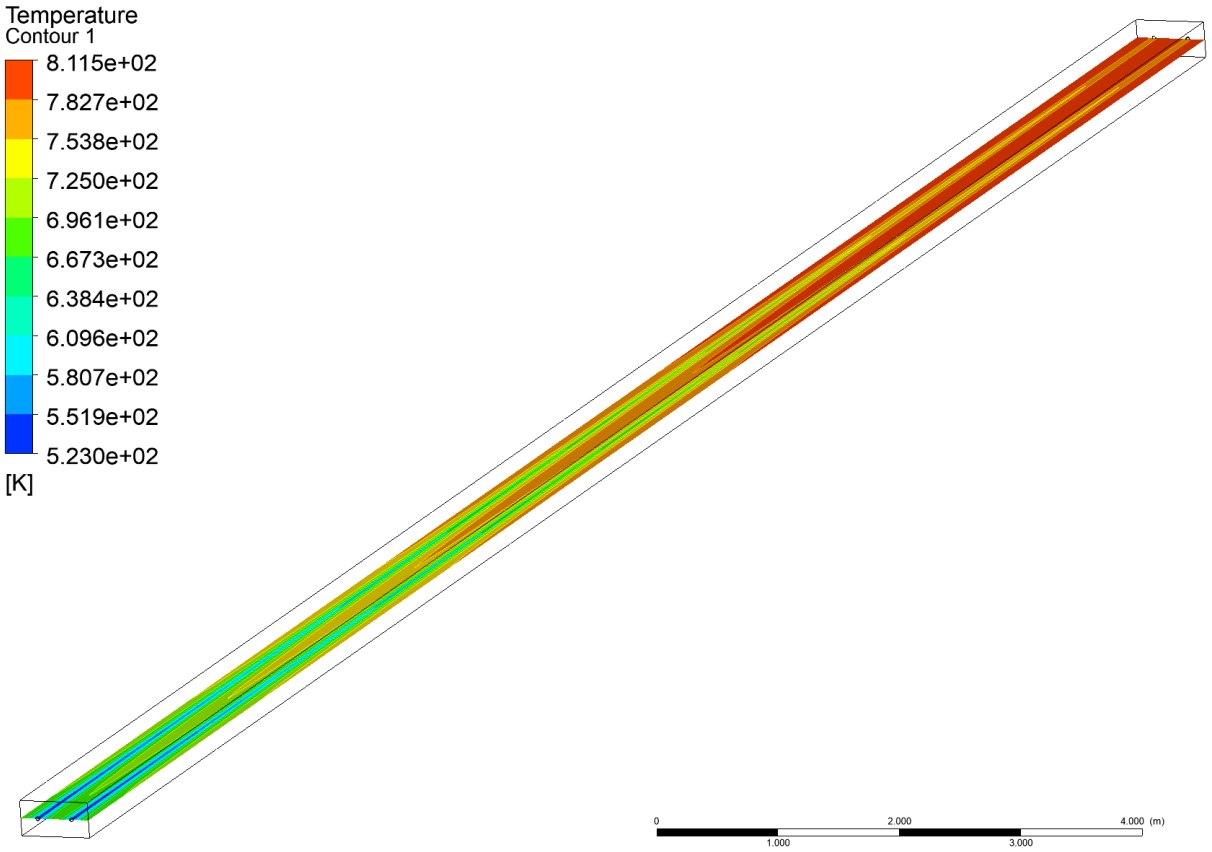
Diameter	Spacing (s)	Hastighed (v)
27mm	300mm	0,005m/s 0,01m/s 0,015m/s 0,05m/s
27mm	200mm 300mm 400mm 500mm	0,05m/s
13mm 16mm 22mm 27mm	300mm	0,015m/s
Jern plade 200 Jernplade 250mm	300mm	0,015m/s

			Wall thickness						
NPS	DN	D out	Sch 5	Sch 10	Sch 30	Sch 40	Sch 80		D in
1/8"	6	10,29	0,889	1,245	1,1448	1,727	2,413		6,836
1/4"	8	13,72	1,245	1,651	1,854	2,235	3,023		9,25
3/8"	10	17,15	1,651	1,651	1,854	2,311	3,2		12,528
1/2"	15	21,34	1,651	2,108	2,413	2,769	3,734		15,802
3/4"	20	26,67	1,651	2,108	2,413	2,87	3,912		20,93
1"	25	33,4	1,651	2,769	2,896	3,378	4,547		26,644
1 1/4"	32	42,16	1,651	2,769	2,972	3,556	4,851		35,048
1 1/2"	40	48,26	1,651	2,769	3,175	3,683	5,08		40,894

Sandlager

Resultater –V=0.005m/s

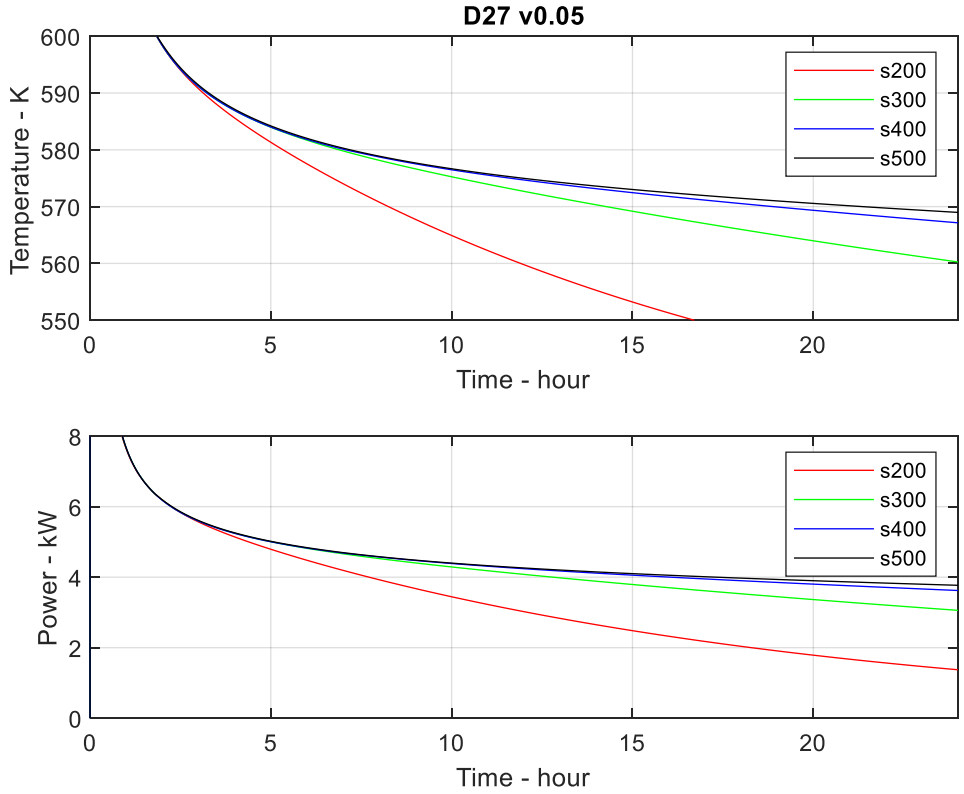
- Model parametre
  - Rør: Jern, d_i 27mm, længde 25m
  - Fluid: Yara Most, 0,2 kg/s, T_i 523K
  - Lager: Sand, dimension 2 x spacing, T_s 823K
  - Simuleringen udføres som 3D transient, tidsstep 10s, 8640 tidsstep
  - Simuleringen udføres med conjugate heat transfer



Sandlager

Resultater – D27mm, V=0.05m/s

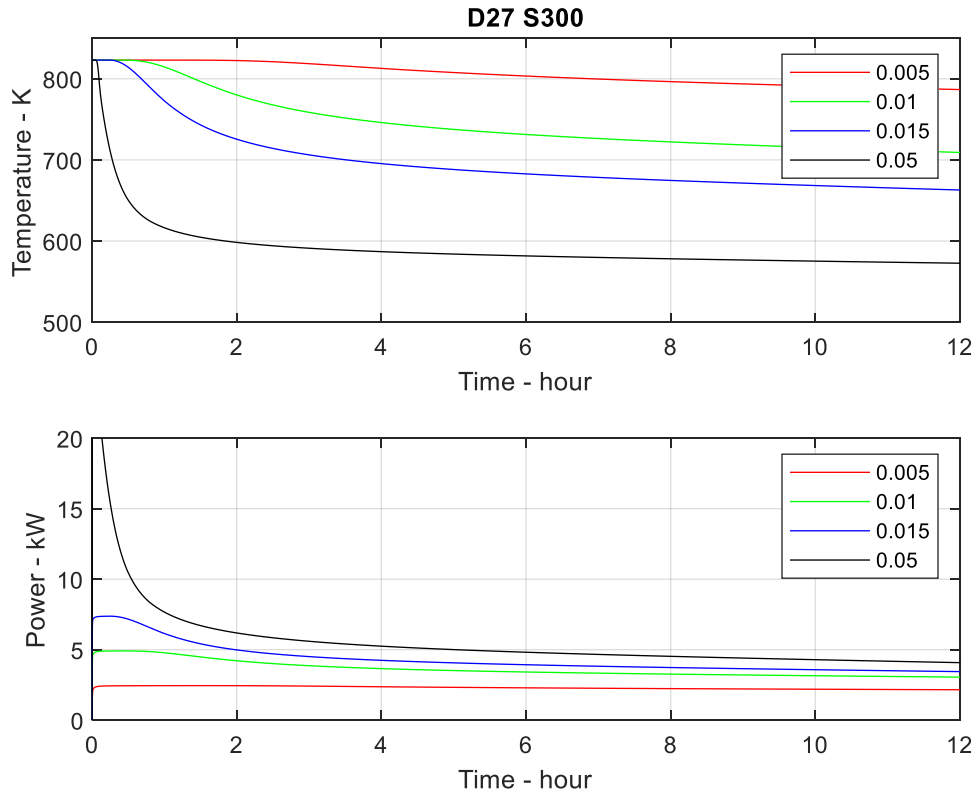
- Model parametre
  - Rør: Jern, d_i 27mm, længde 25m
  - Fluid: Yara Most, 0,2 kg/s, T_i 523K
  - Lager: Sand, dimension 2 x spacing, T_s 823K
  - Simuleringen udføres som 3D transient, tidsstep 10s, 8640 tidsstep
  - Simuleringen udføres med conjugate heat transfer



Sandlager

Resultater – D27mm, S=300mm

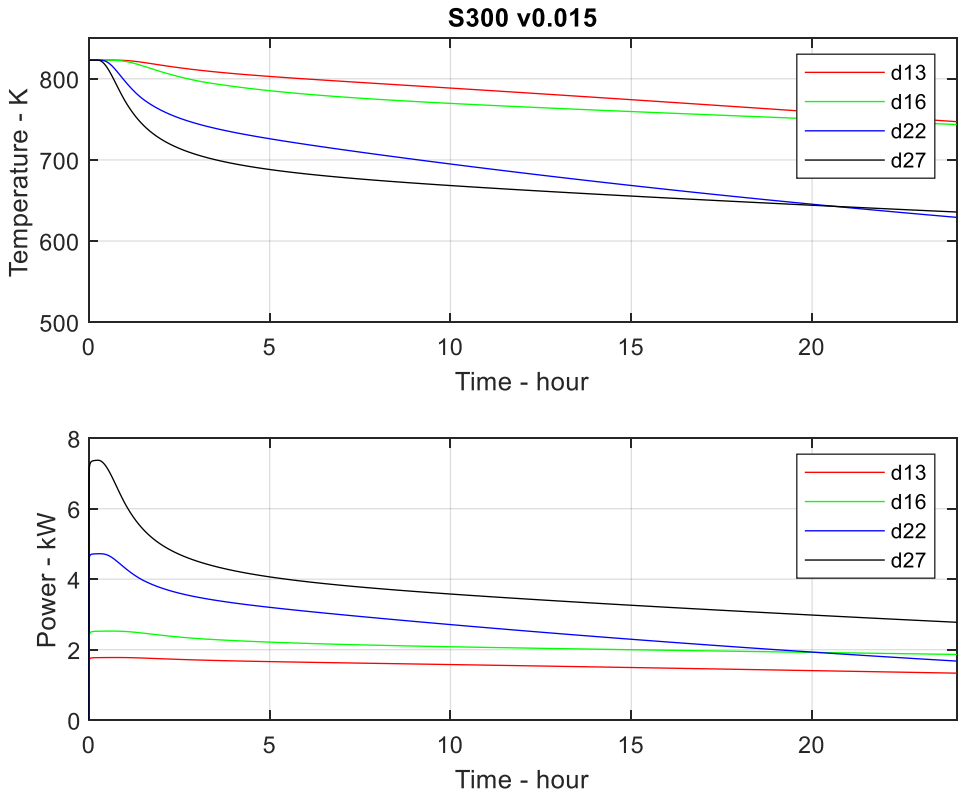
- Model parametre
  - Rør: Jern, d_i 27mm, længde 25m
  - Fluid: Yara Most, 0,2 kg/s, T_i 523K
  - Lager: Sand, dimension 2 x spacing, T_s 823K
  - Simuleringen udføres som 3D transient, tidsstep 10s, 8640 tidsstep
  - Simuleringen udføres med conjugate heat transfer



Sandlager

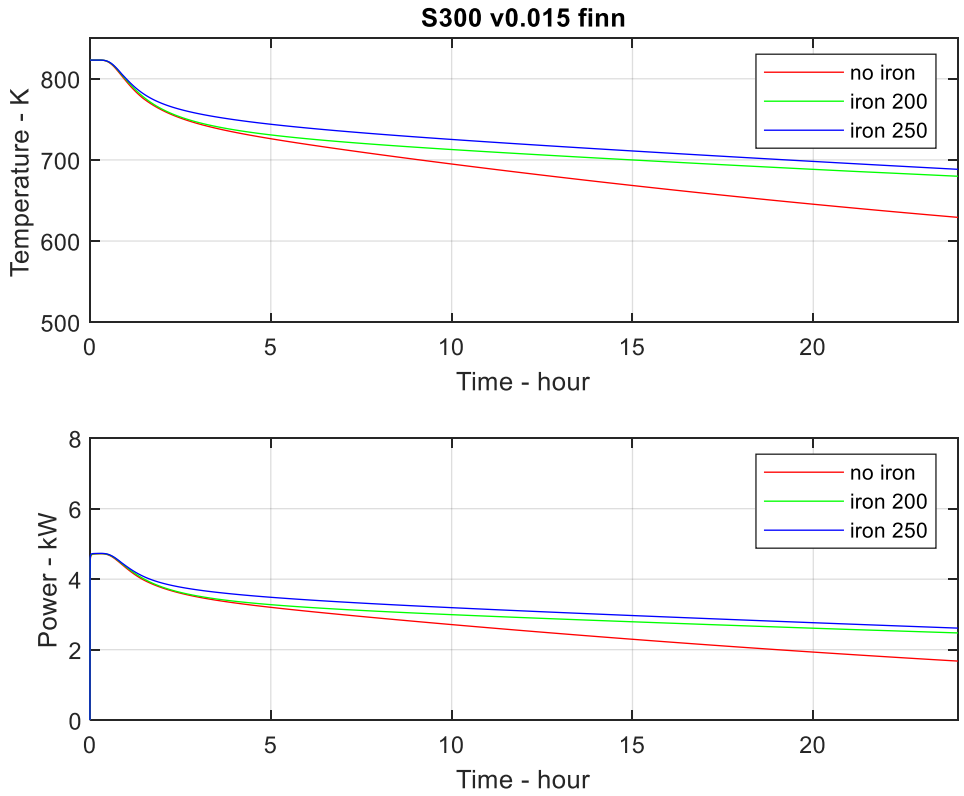
Resultater – S=300mm, V=0.05m/s

- Model parametre
  - Rør: Jern, d_i 13/16/22/27mm, længde 25m
  - Fluid: Yara Most, 0,2 kg/s, T_i 523K
  - Lager: Sand, dimension 2 x spacing, T_s 823K
  - Simuleringen udføres som 3D transient, tidsstep 10s, 8640 tidsstep
  - Simuleringen udføres med conjugate heat transfer

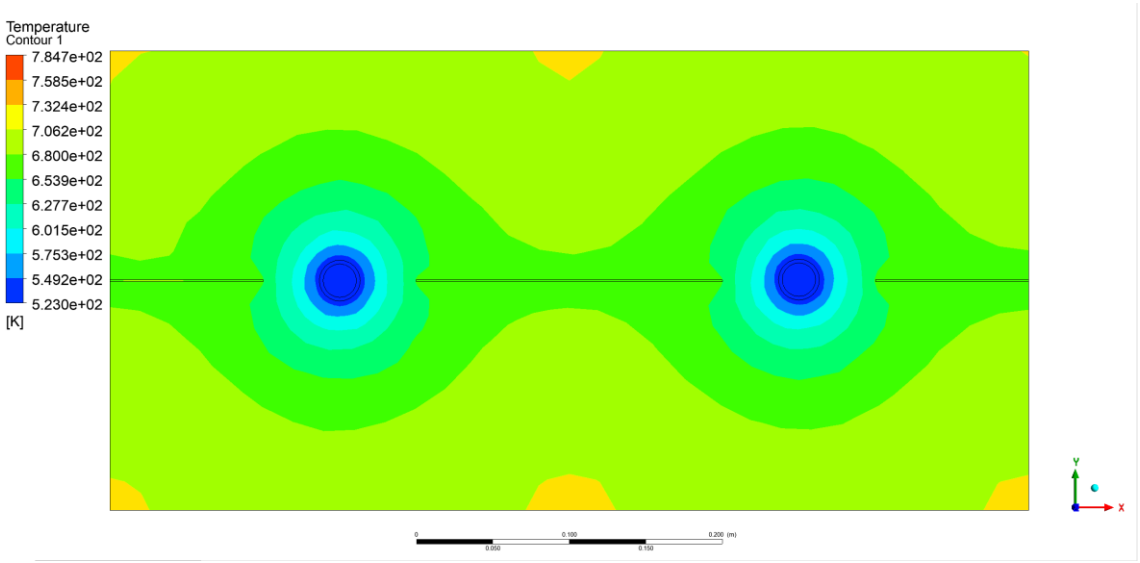


Sandlager
Resultater – jernstrimmel

- Model parametre
  - Rør: Jern, d_i 13/16/22/27mm, længde 25m
  - Fluid: Yara Most, 0,2 kg/s, T_i 523K
  - Lager: Sand, dimension 2 x spacing, T_s 823K
  - Simuleringen udføres som 3D transient, tidsstep 10s, 8640 tidsstep
  - Simuleringen udføres med conjugate heat transfer

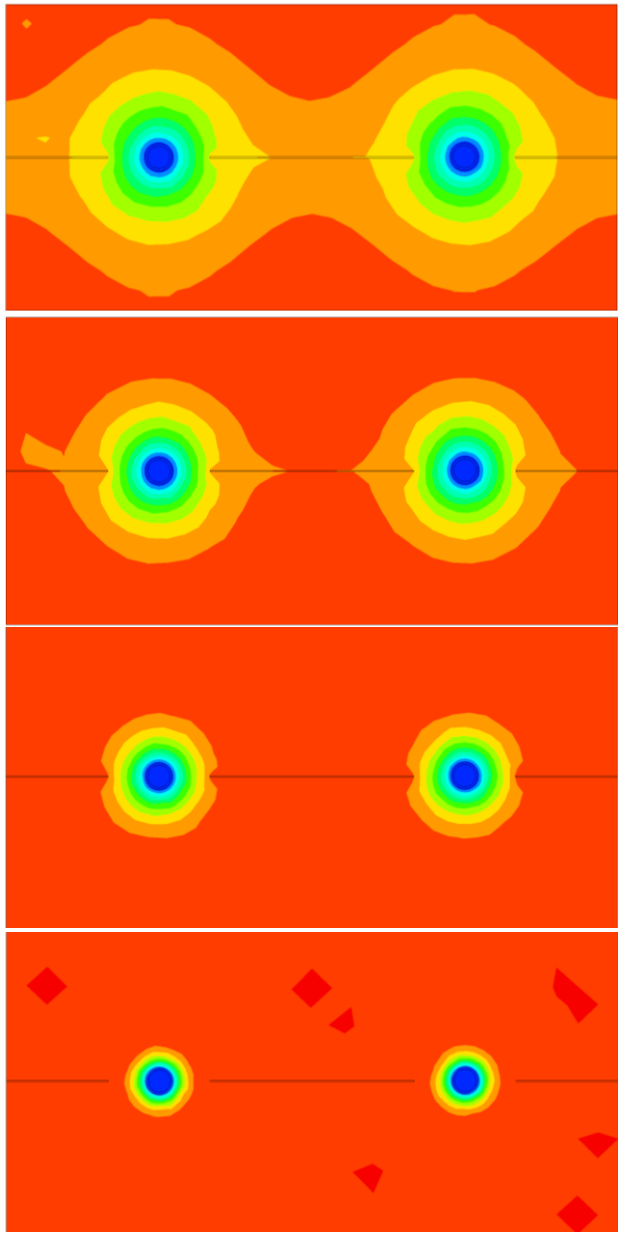


Jernplade placeret mellem rør (200mm)



- Z = 0.01, t = 86400 (24timer)
- Z = 0.01, t = 21600 (6timer)
- Z = 0.01, t = 10800 (3timer)
- Z = 0.01, t = 3600 (1time)
- Z = 0.01, t = 600 (10min)

Z angiver afstand fra indløb i rørets længderetning



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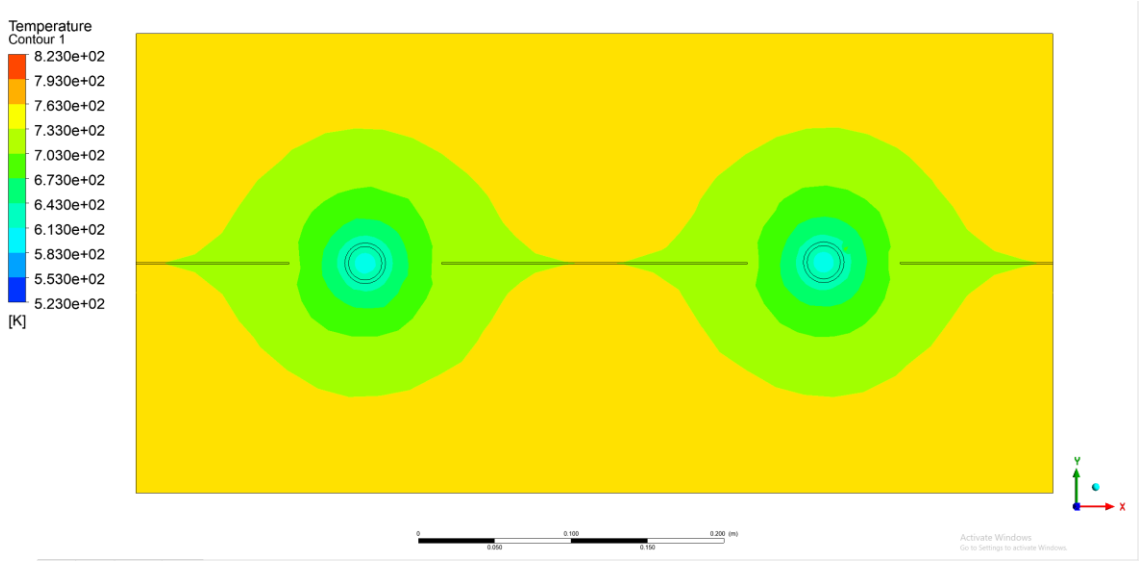
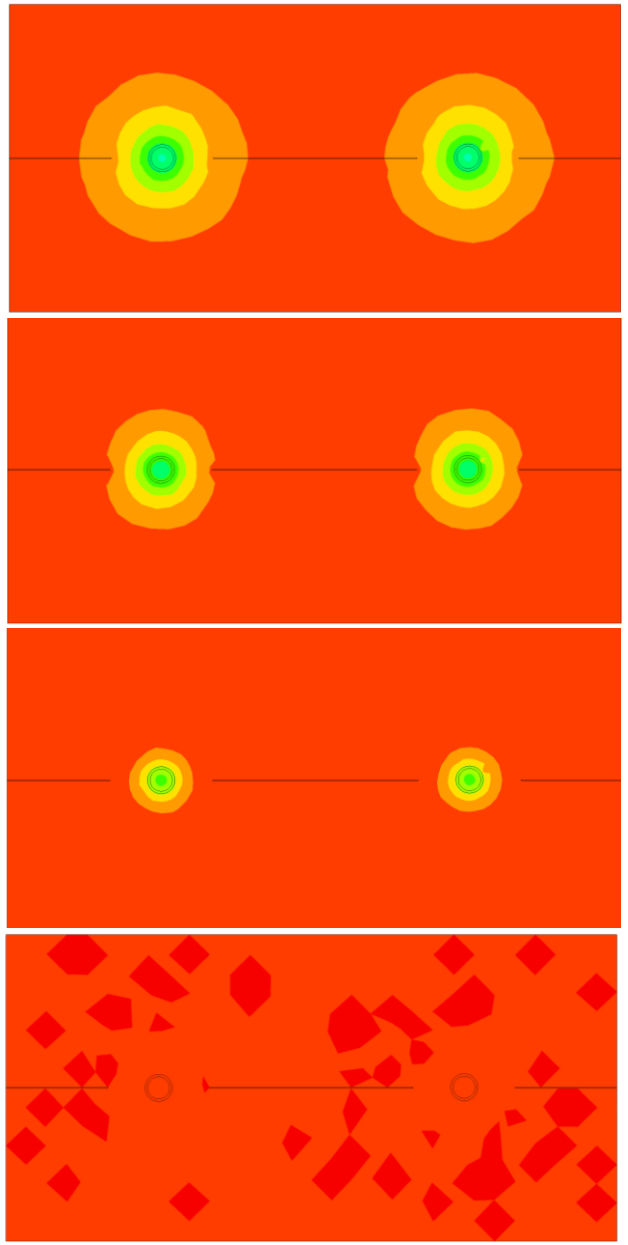
Jernplade placeret mellem rør (200mm)



- Z = 12.5, t = 86400 (24timer)
- Z = 12.5, t = 21600 (6timer)
- Z = 12.5, t = 10800 (3timer)
- Z = 12.5, t = 3600 (1time)
- Z = 12.5, t = 600 (10min)

Z angiver afstand fra indløb i rørets længderetning



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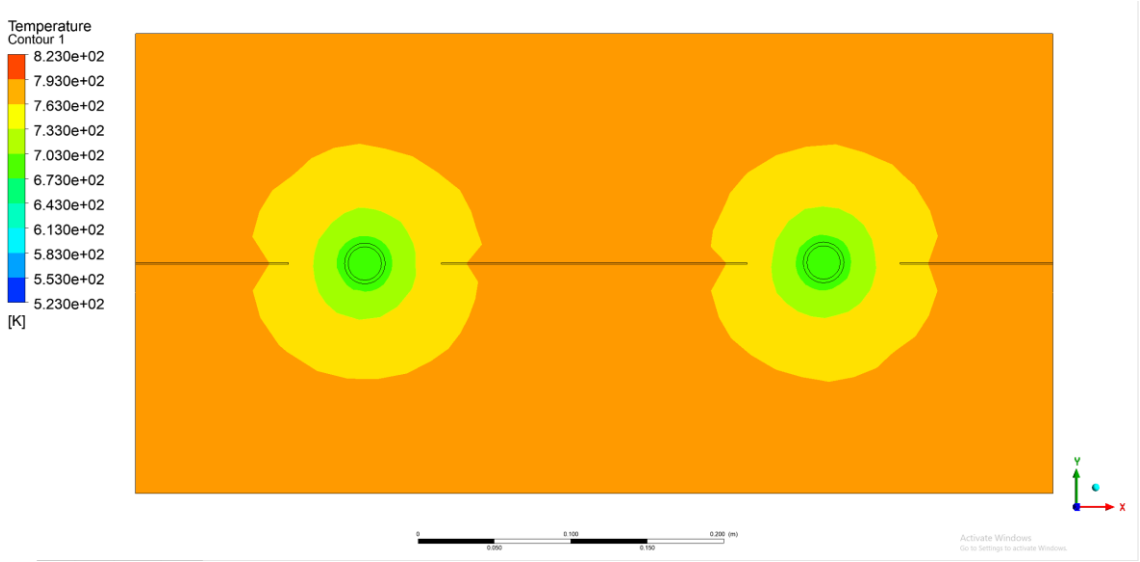
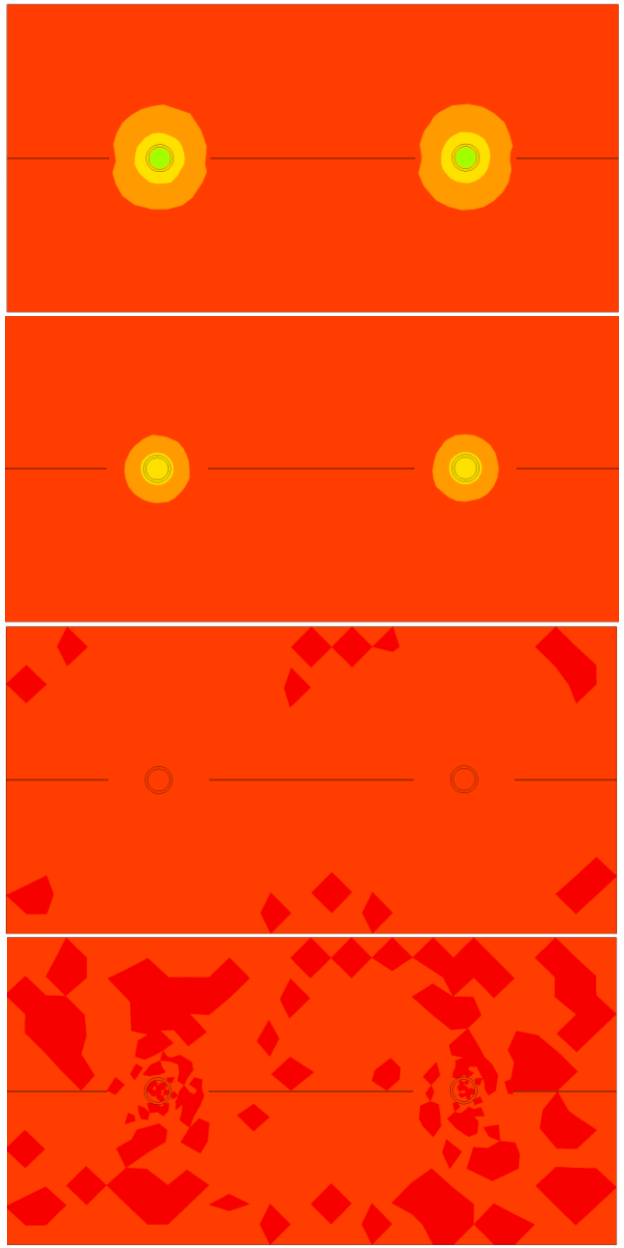
Jernplade placeret mellem rør (200mm)



- Z = 25, t = 86400 (24timer)
- Z = 25, t = 21600 (6timer)
- Z = 25, t = 10800 (3timer)
- Z = 25, t = 3600 (1time)
- Z = 25, t = 600 (10min)

Z angiver afstand fra indløb i rørets længderetning



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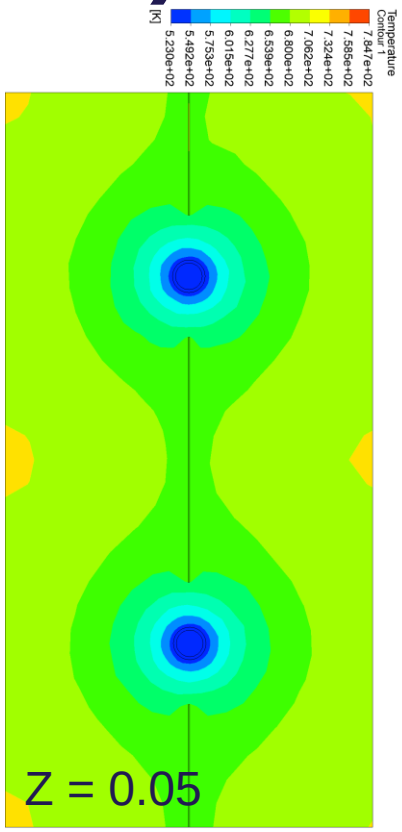
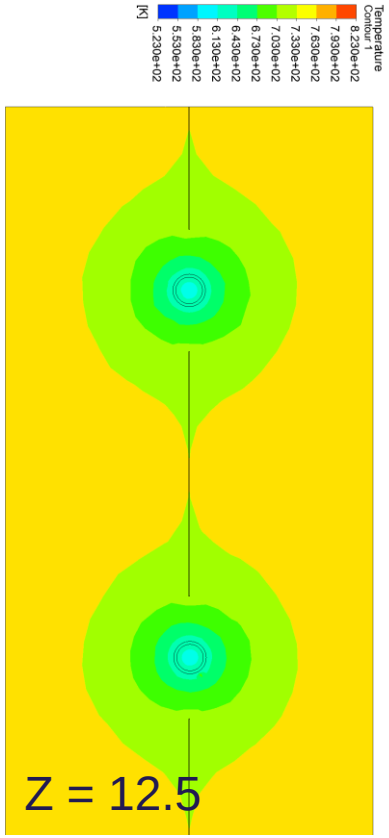
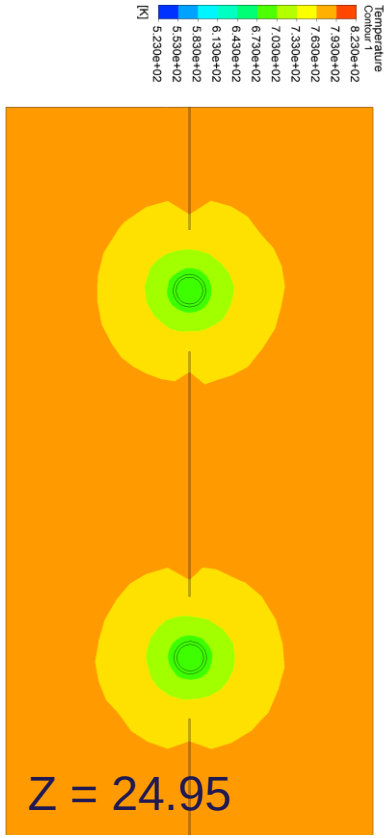
Jernplade placeret mellem rør (200mm)

- t=86400 (24timer)



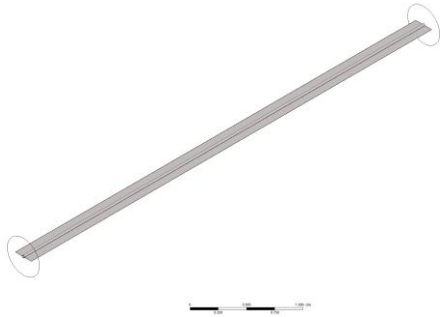


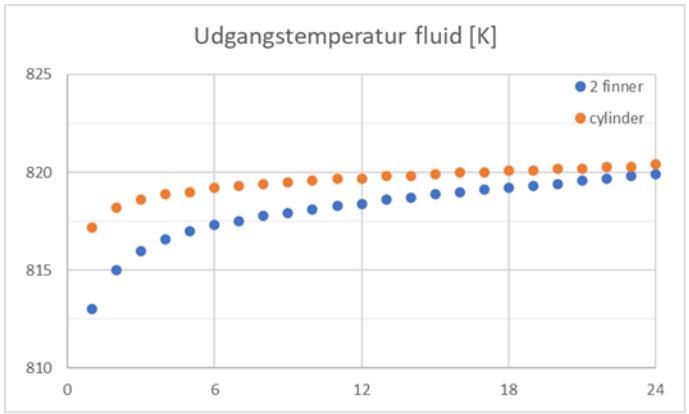


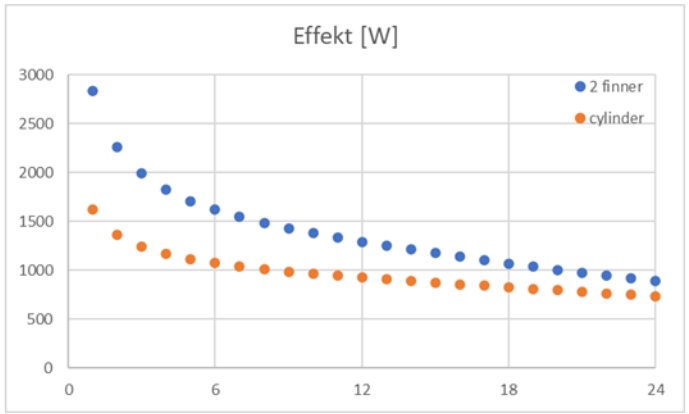
Z angiver afstand fra indløb i rørets længderetning

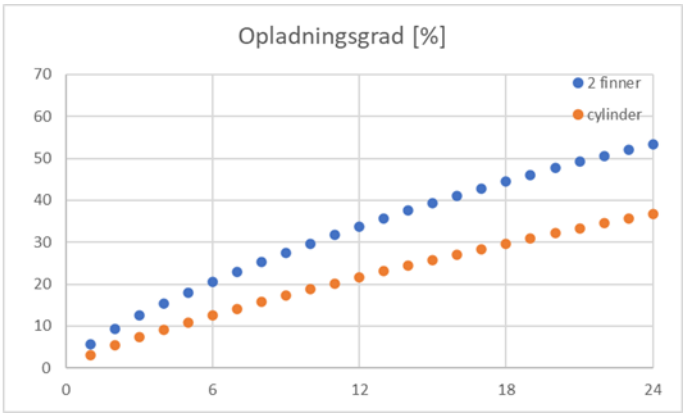
Simulering med finner

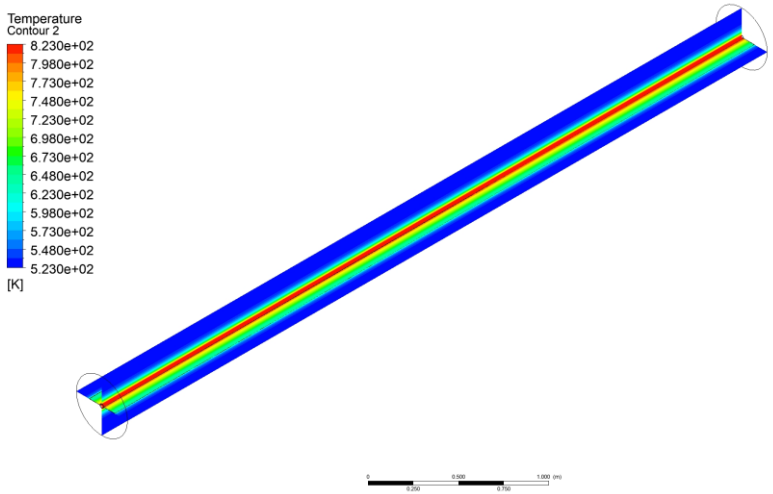
(opladning – rør 5m, finner 200mm, 40mm/s)

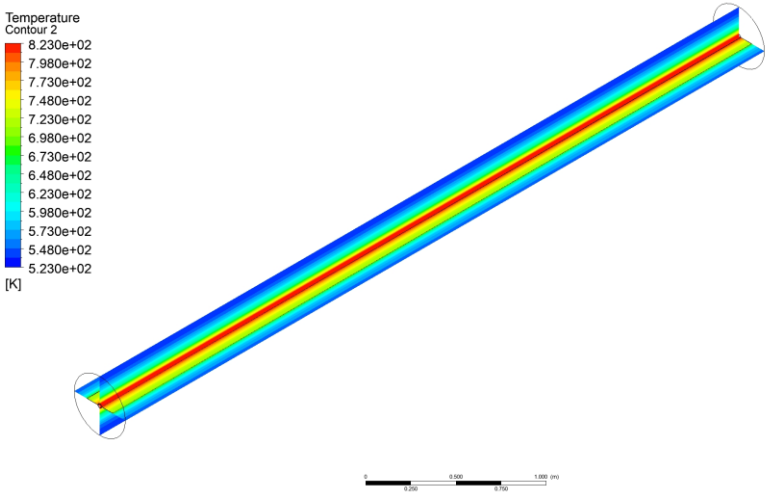












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