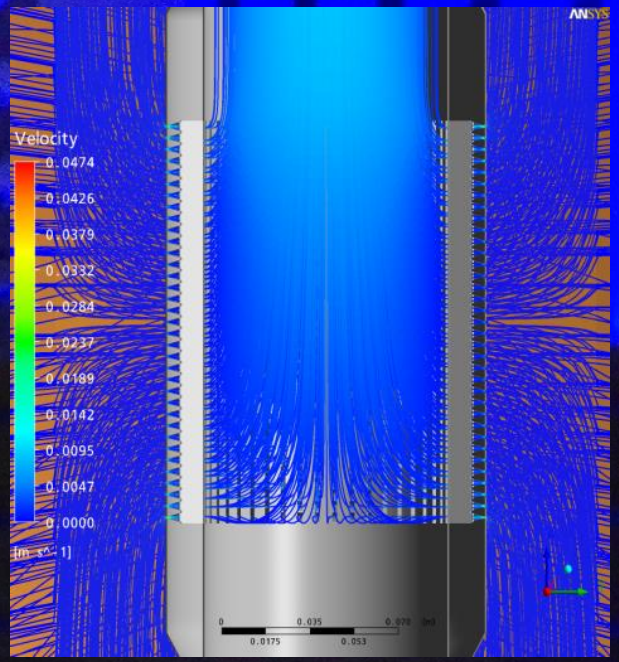
Numerical calculation of the flow conditions of Screen geometries

Results AP1 und AP2



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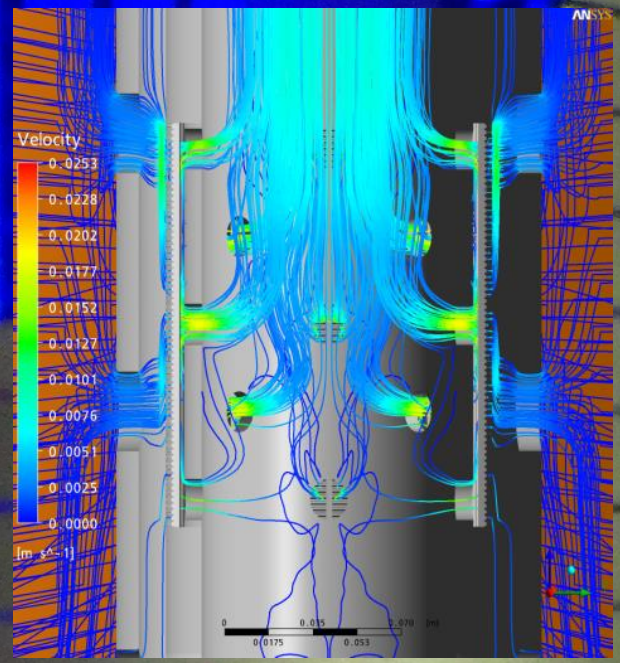
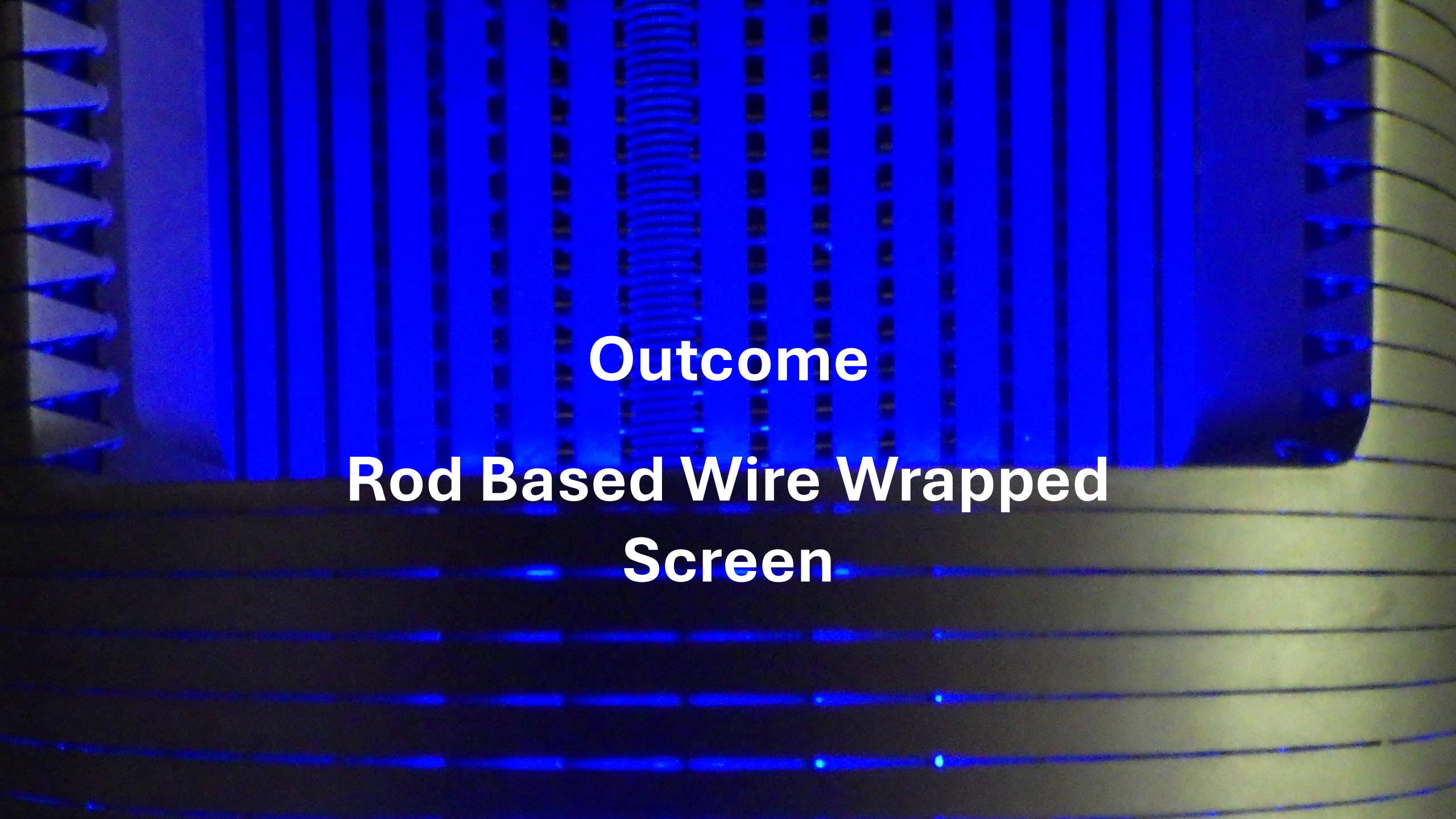
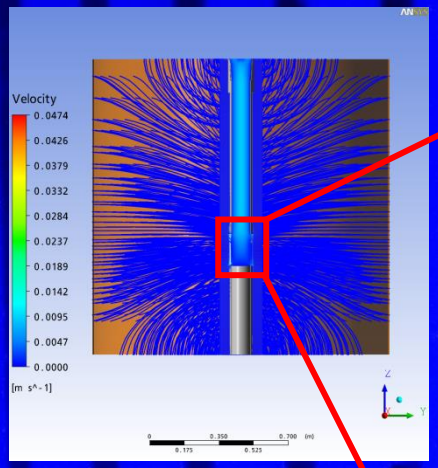
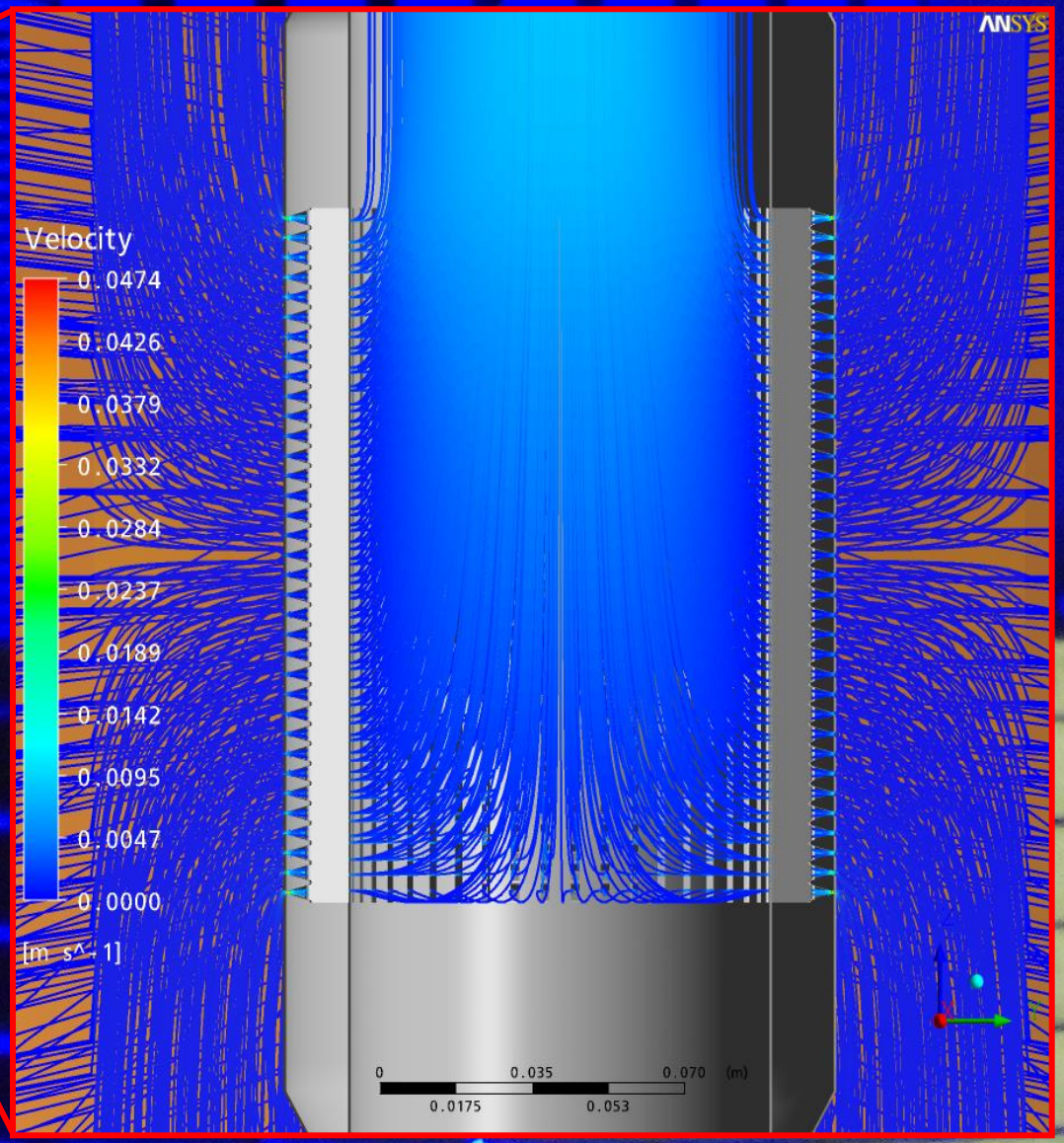
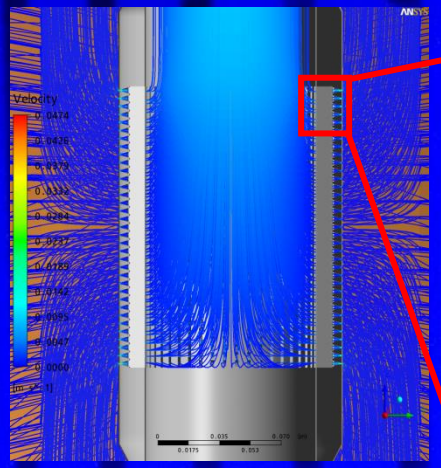



Outcome
Rod Based Wire Wrapped Screen

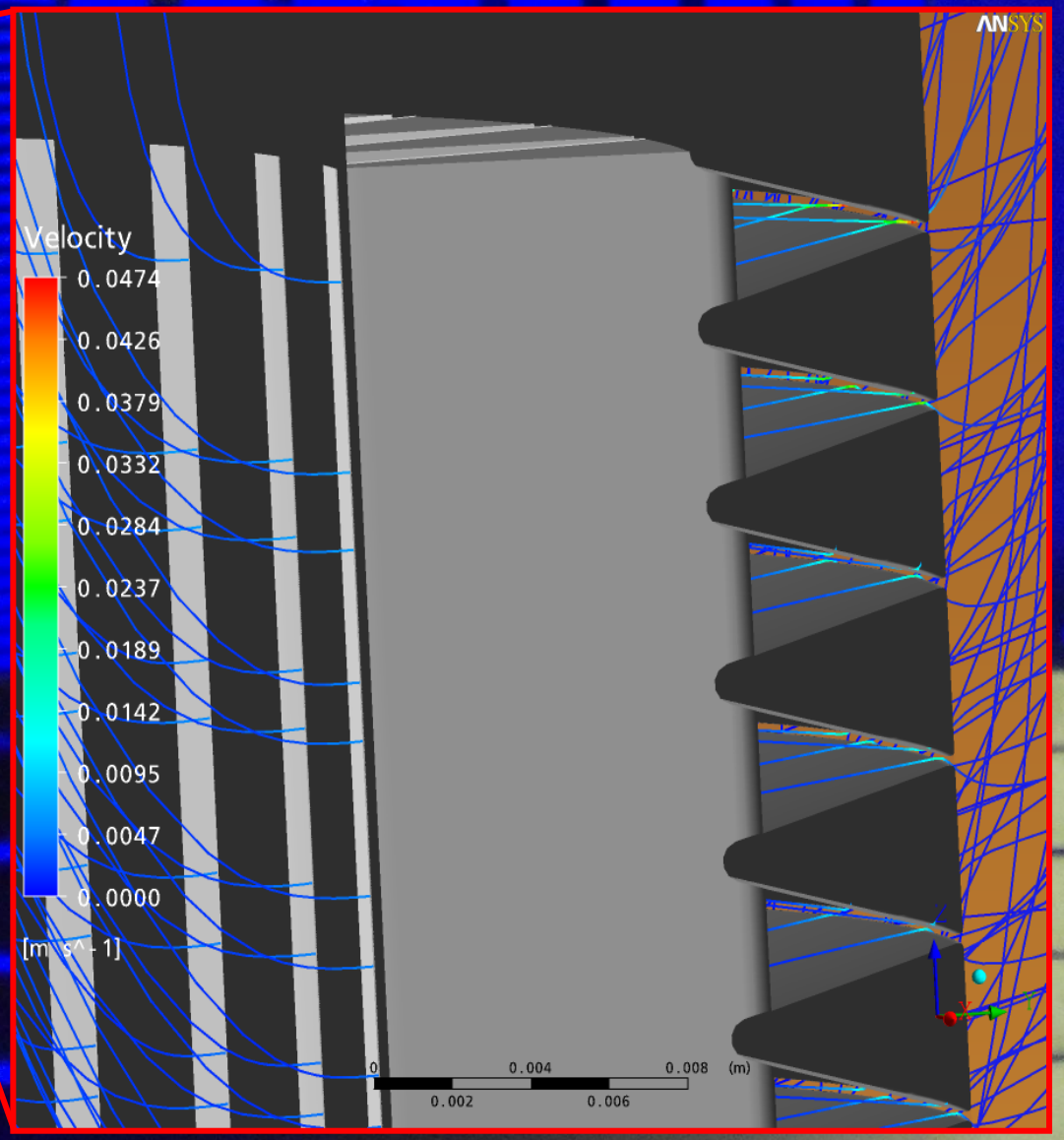


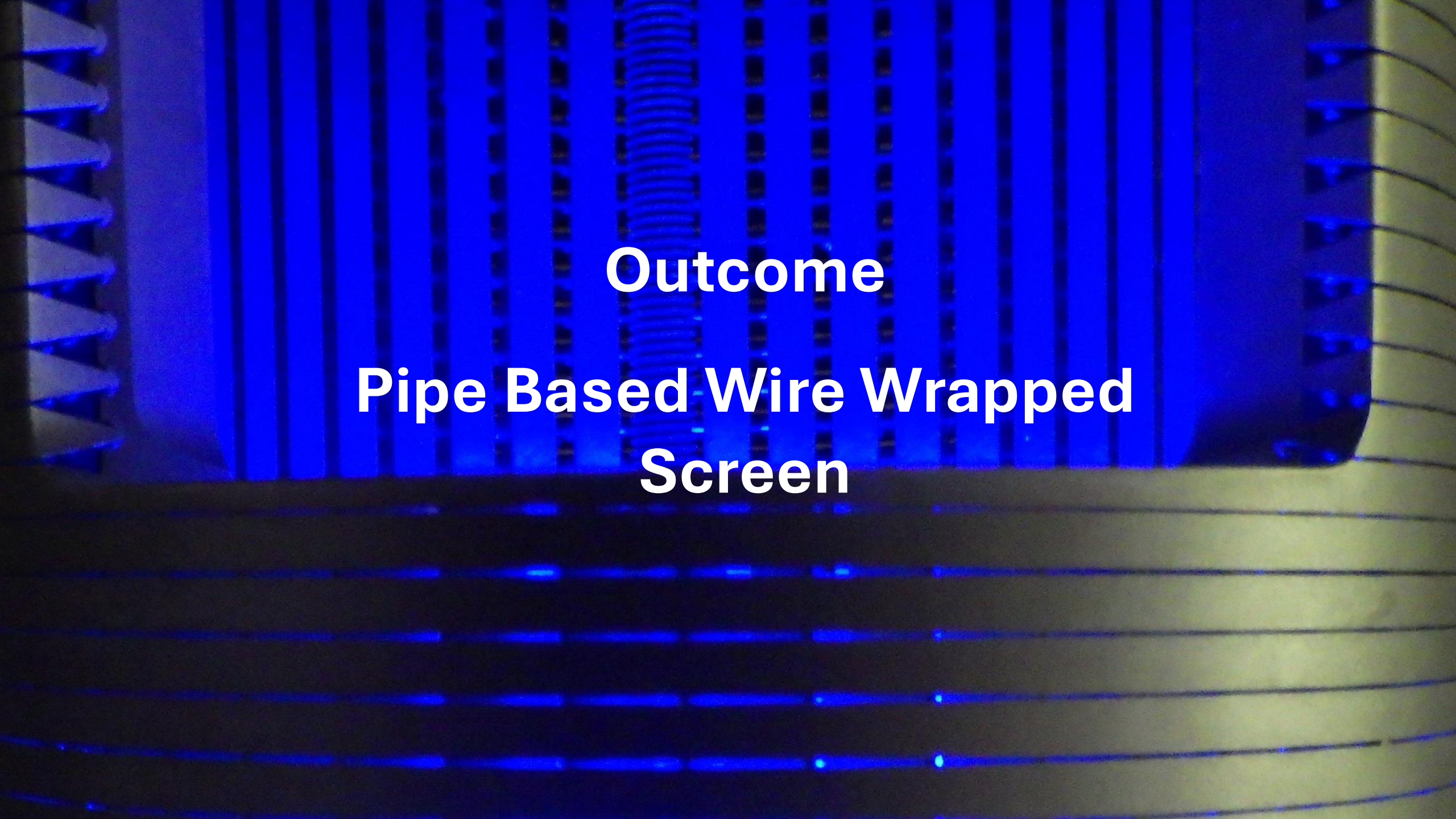
- Flow lines colored according to the velocity





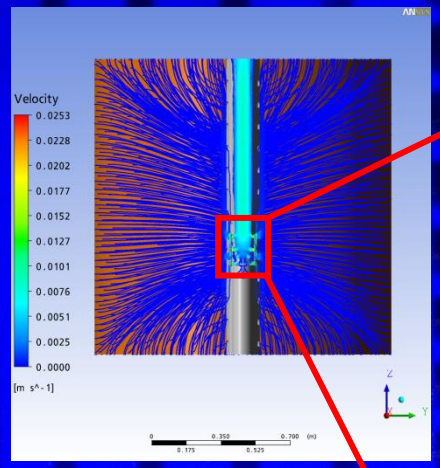
- Flow lines colored according to the velocity



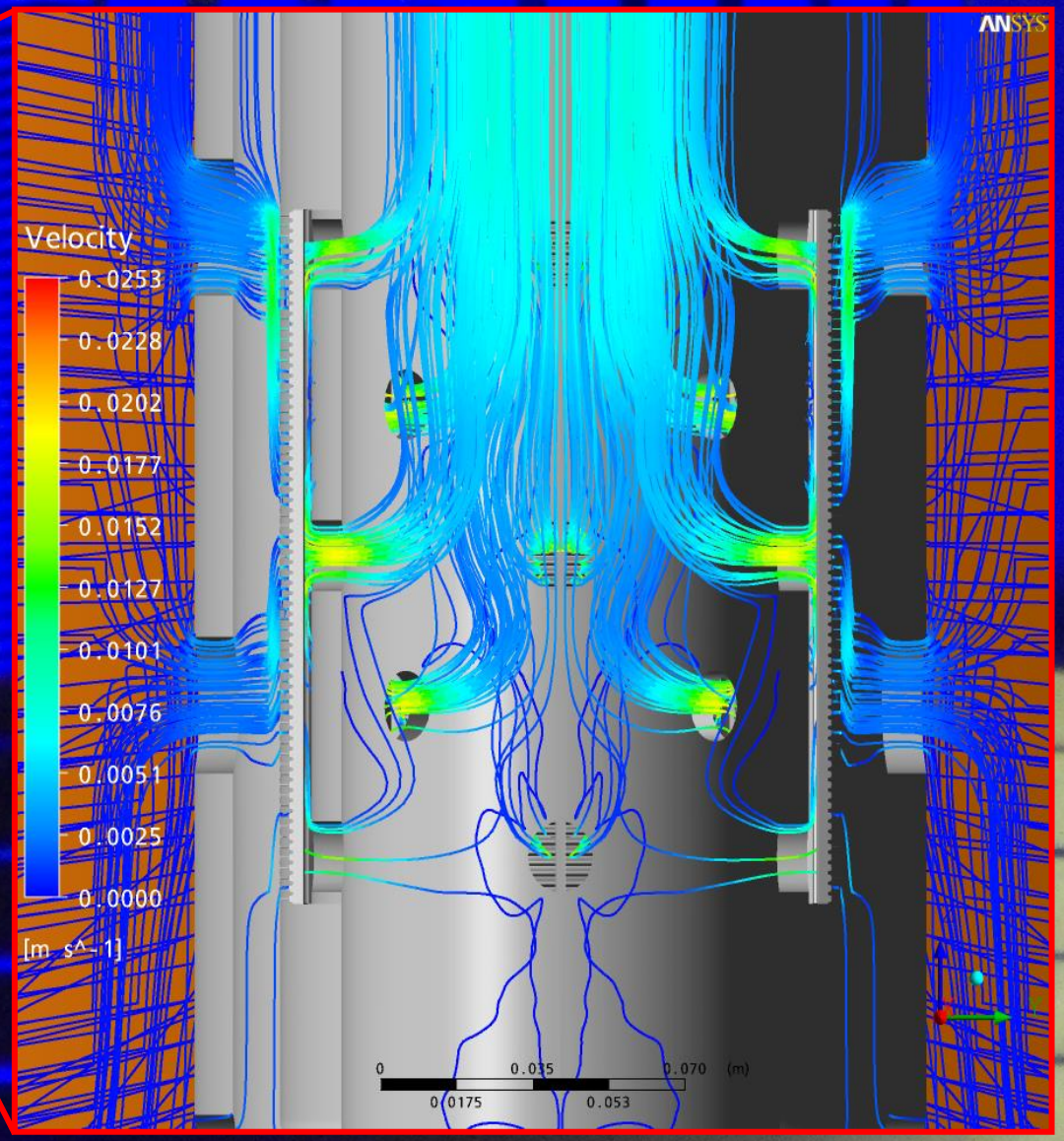


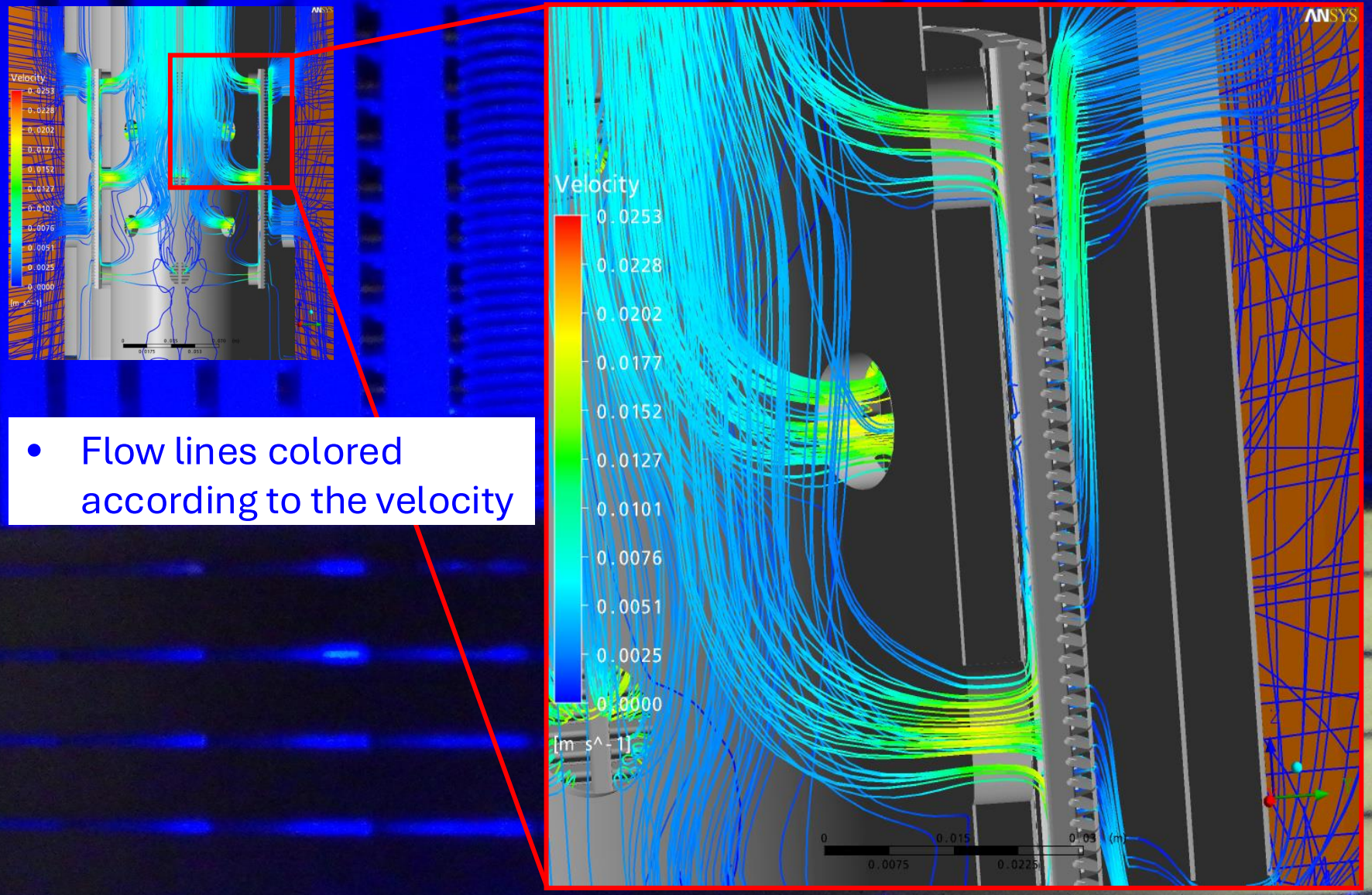
Outcome

Pipe Based Wire Wrapped Screen

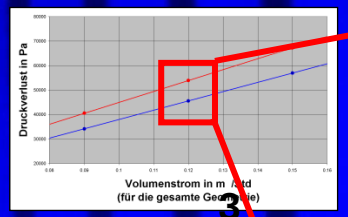


- Flow lines colored according to the velocity

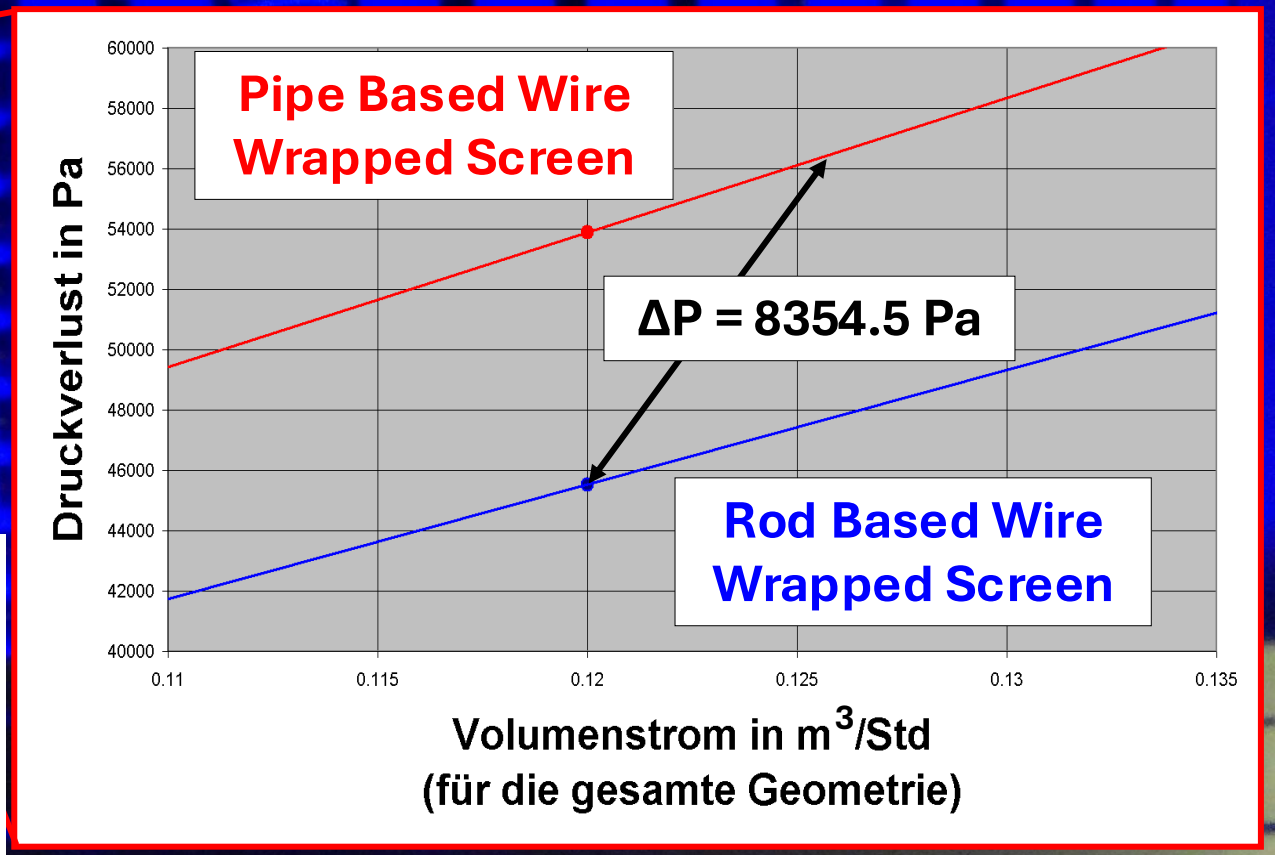




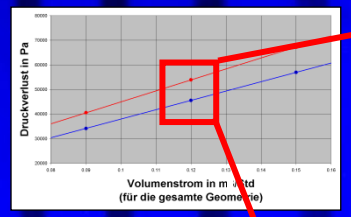
- Flow lines colored according to the velocity



Pressure Loss

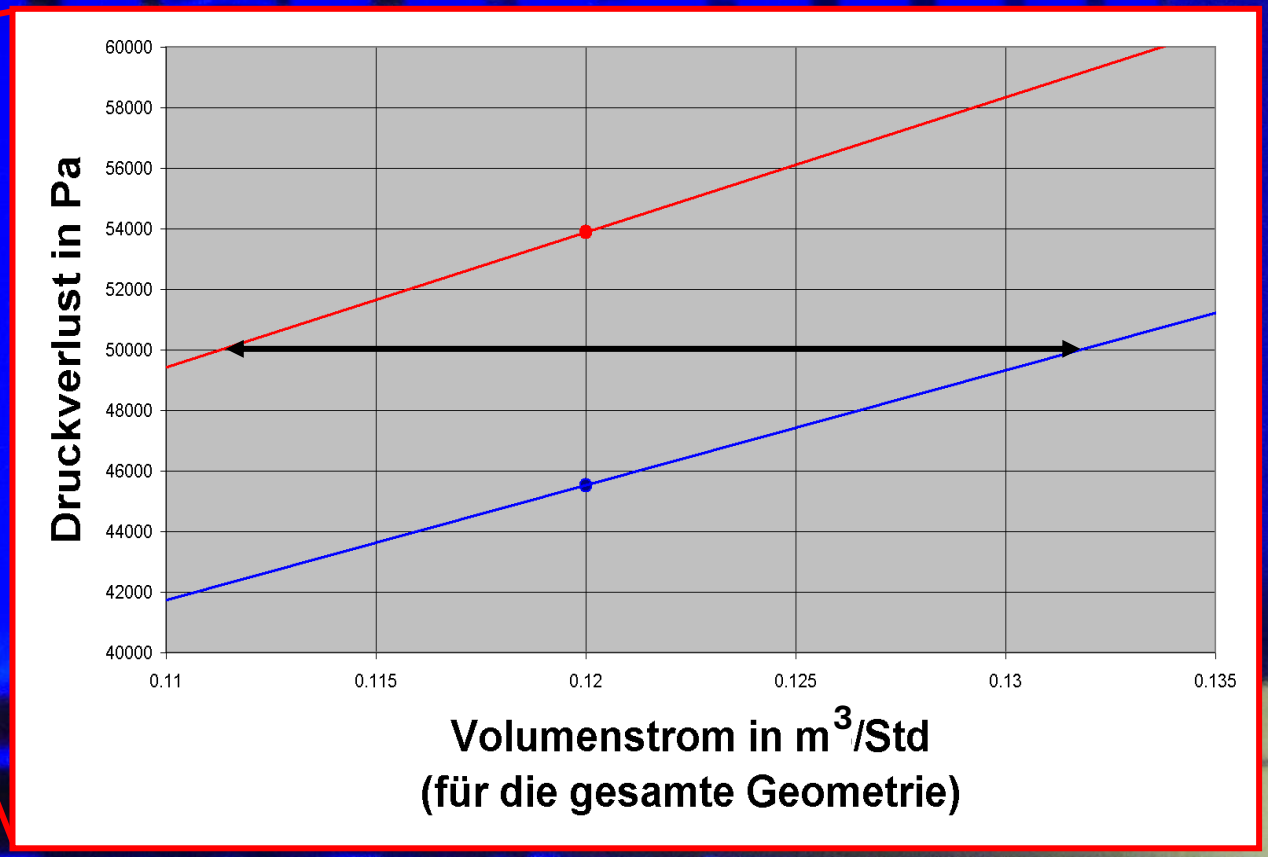


For a complete flow of 0.12 m^3/h the pressure drop of the Rod Based Wire Wrapped Screen is reduced by 8354.5 Pa, compared to a Pipe Based Wire Wrapped Screen (corresponds to an **improvement of 15%).**



Pressure Loss

At a pressure drop of 50 000 Pa the Rod Based Wire Wrapped Screen is capable to allow a higher flow of 0.021 m^3/h compared to a Pipe Based Wire Wrapped Screen corresponds to an **improvement of 19%**).



Conclusions

- Flow calculations at two different Screen geometries were conducted, a Rod Based Wire Wrapped Screen and a Pipe Based Wire Wrapped Screen.
- Comparing the outcome, a more uniform flow (velocity distribution) for a Rod Based Wire Wrapped Screen was determined.
- The Geometry of a Pipe Based Wire Wrapped Screen shows an approx. 15% increased Pressure drop compared to a Rod Based Wire Wrapped Screen.
- At the same pressure conditions, a 19% higher flow for a Rod Based Wire Wrapped Screen can be determined.
- The unsteady velocity distribution of a Pipe Based Wire Wrapped Screen lets to:
  - Increased Pressure drops (turbulences) and
  - increases the risk of deposits („Dead water“ areas).