

Cfd Simulation Of Ejector In Steam Jet Refrigeration

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Cfd Simulation Of Ejector In

Ejector Performance Modelling with Computational Fluid Dynamics (CFD) Transvac ' s has the capability to carry out computational fluid dynamics (CFD) simulations on a range of different fluid-flow and industrial problems related to Ejector technologies. Transvac can offer customers CFD studies to demonstrate the performance of Ejector technology for their specific applications.

CFD Simulation for Ejector Performance Testing - Transvac

In this study CFD technique was employed to investigate the effect of divergent angle of primary nozzle, NXP (NXP = Distance between the nozzle exit to mixing chamber inlet) and throat of the...

(PDF) CFD Simulation of Ejector in Steam Jet Refrigeration

In the case of recirculation, the COMSOL Multiphysics® software can be used to compute the recirculation mass flows, as seen in the model documentation. The ejector problem discussed here can be solved using the High Mach Number Flow interface in the CFD Module, which is useful for accurately describing supersonic flows in gases.

Analyzing a Supersonic Ejector with CFD Simulation ...

Interest in supersonic ejectors has been rekindled by recent efforts to reduce energy consumption; ejector refrigeration systems can be powered by solar energy or by waste heat generated by another process. This paper presents the results of computational fluid dynamics (CFD) simulations of a supersonic ejector for use in a refrigeration system.

CFD Simulations of a Supersonic Ejector for Use in ...

Abstract In this study CFD technique was employed to investigate the effect of divergent angle of primary nozzle, NXP (NXP = Distance between the nozzle exit to mixing chamber inlet) and throat of the ejector on the performance of ejector using the steam jet refrigeration cycle.

CFD Simulation of Ejector in Steam Jet Refrigeration

Fluid flow through the ejector can be considered compressible, turbulent, steady-state and axisymmetric. The Navier-Stokes continuity, momentum and energy equations provide the foundation in CFD simulation of fluid motion. The average values of flow quantities including velocity are usually determined by time averaging over large intervals,

CFD Analysis of Supersonic Ejector in Ejector ...

Dynamics (CFD) simulation technique is considerably developed and extended scope of its application and began to provide more accurate results. In the modern applications with CFD gives sufficiently accurate results even in the strong shocks and the optimization of the gas ejectors [1],[2],[3]. The ejector is a device that transfers momentum

The Investigation of Gas Ejector Performance using CFD ...

By establishing a one-dimensional analysis model and CFD simulation analysis, it was concluded that adding a primary ejector not only improved the flow mixing of the ejector, but also reduced the influence of the vortexes and the energy loss during the fluid flow. Y. Bartosiewicz et al. also thought the boundary layer separation had a negative effect on the ejector performance and efficiency, as it reduced the entrainment ratio and may lead an external fluid from the condenser to flow back ...

CFD simulation on the boundary layer separation in the ...

The CFD simulation has revealed the flow structure in a Vortex ejector under the conditions of vacuum pressure at the outlet. It is shown that circumferential velocity component of swirling flow is

(PDF) CFD Simulation of a Vortex Ejector for Use in Vacuum ...

The two fluid streams then travel through the diffuser section of the Ejector, where velocity is decreased as a result of the diverging geometry and pressure is regained. Importantly, the low pressure suction stream experiences a pressure increase/compression, whilst the motive stream sees a decrease in pressure, as some of its energy has been used to 'do work' on the suction stream.

How An Ejector Works - Transvac

CFD provides detail insights on the flow characteristics, which allows accurately optimizing the ejector geometry. Since the ejector requires single point design for specific applications, using computer simulations early in the design process will significantly reduce the requirement of prototyping trials.

Performance Optimization of Steam Jet Ejector using CFD

This paper deals with comparisons between CFD and experiments for a super-sonic ejector. Good results are presented in terms of entrainment rate compared to home-made experimental data for an air ejector. Over the whole range of operating conditions, the overall deviation is below 10% for the k – model, while the results

CFD Analysis of a Supersonic Air Ejector. Part I ...

Automotive CFD; Turbomachinery CFD; Heat Transfer CFD; Validation Cases; Codes; Source Code Archive; FAQ's. Ansys; CHAM; CONVERGE; Fluent; Metaconp; MeteoDyn; Siemens; History of CFD; About CFD-Wiki. Help; FAQ; Getting Started; Community Portal; Donate Texts; Donated Texts; Links. What's New; Introduction; Modeling & Numerics. Turbulence; Combustion; Discretization Schemes; Solvers; Multigrid Methods

Single Phase simulation of an ejector -- CFD Online ...

CFD simulation of the ejector performance with the convergent-divergent nozzle with the cavities in the mixing chamber The ejector is a mechanical device that converts the pressure into kinetic energy to the secondary fluid suction by using the Venturi effect.

CFD simulation of the ejector performance with the ...

Effects of the primary nozzle shapes (exit diameter: throat diameter) of a steam ejector were investigated using CFD. Effects on the primary pressure, mass flow rate and Mach number were analyzed. Two turbulence viscosity models were applied for the simulation. Ejector performance is affected by shocking position of the mixed fluid. Ejector performance is affected by expansion angle of the primary fluid.

CFD simulation on the effect of primary nozzle geometries ...

In this project, two-phase flow of vapor and liquid ammonia in a two-phase ejector has been simulated by ANSYS Fluent software. This ANSYS Fluent project includes CFD simulation files and a training movie. There are some free products to check our service quality.

Ejector CFD Simulation, Two-Phase Flow | Mr CFD

I were doing simulation of real gas for supersonic ejector. But, the following message is appearing while starting the iterations. Error:

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