KEYWORDS IN FLUID DYNAMICS

Occurrence of keywords in individual articles according to their number in the List of articles. If the article number is in bold, it means that the keyword is already mentioned on the first page of the article (i.e. in the title of the article and chapters and in the description of the problems).

Note: Articles 2, 6 and 7 have not yet been translated into English.

Aerodynamics

Aerodynamics	–	**2.**	–	–	–	–	–
Aerodynamics data	–	2.	–	–	–	–	–

Air

Air	–	–	–	4.	–	–	–

Airfoil

Aerodynamic characteristics of airfoil	–	2.	–	–	–	–	–
Airfoils for high velocities	–	–	**3.**	–	–	–	–
Base airfoil	–	2.	–	–	–	–	–
Laminar airfoil	–	–	3.	–	–	–	–

Angle

Angle of attack	–	2.	3.	–	–	–	–
Deviation angle	–	**2.**	–	4.	–	–	–
Diffuser angle	–	–	–	–	5.	–	–
Glide angle	–	2.	–	–	–	–	–
Mach angle	–	–	3.	–	–	–	–

Balance

Energy balance of diffusers	–	–	–	–	**5.**	–	–

Calculation

Analytical calculation	–	–	3.	–	–	–	–

Channel

Diffuser channel	–	–	–	–	5.	–	–

Characteristics

	1	2	3	4	5	6	7
Characteristics of Laval nozzle	–	–	–	**4.**	–	–	–
Characteristics pipeline	**1.**	–	–	–	–	–	–

Chord

	1	2	3	4	5	6	7
Chord	–	–	–	–	–	–	7.

Cleaner

	1	2	3	4	5	6	7
Vacuum cleaner	–	–	–	–	5.	–	–

Coefficient

	1	2	3	4	5	6	7
Drag coefficient	–	2.	3.	–	–	–	–
Entrance length coefficients	–	–	–	–	–	–	7.
Flow coefficient of valve	–	–	–	–	–	6.	–
Flow meter coefficient	–	–	–	–	–	6.	–
Friction coefficient	**1.**	–	–	–	–	–	–
Lift coefficient	–	2.	3.	–	–	–	–
Loss coefficient	**1.**	–	–	–	–	–	–
Nozzle flow coefficient	–	–	–	4.	–	–	–
Outlet coefficient	–	–	–	4.	–	–	–
Pressure coefficient	–	2.	3.	–	–	–	–
Velocity coefficient	–	–	–	4.	–	–	–

Compression

	1	2	3	4	5	6	7
Isoentropic compression	–	–	–	–	5.	–	–

Compressor

	1	2	3	4	5	6	7
Supersonic compressor	–	–	–	–	5.	–	–

Cone

	1	2	3	4	5	6	7
Flow cone of nozzle	–	–	–	4.	–	–	–

Condition

	1	2	3	4	5	6	7
Non-design diffuser condition	–	–	–	–	**5.**	6.	–
Non-design nozzle condition	–	–	–	**4.**	–	–	–

Constant

	1	2	3	4	5	6	7
Pipeline system constant	**1.**	–	–	–	–	–	–

Contraction

Flow contraction	–	–	–	**4.**	–	–	–

Coordinates

Logarithmic coordinate system	1.	–	–	–	–	–	–

Cost

Acquisition cost	1.	–	–	–	–	–	–
Operating costs	1.	–	–	–	–	–	–

Curve

Inversion curve	–	–	–	–	–	6.	–

Density

Density	**1.**	–	–	–	–	–	–

Diagram

h-s diagram of diffuser	–	–	–	–	5.	–	–
h-s diagram of nozzle	–	–	–	4.	–	–	–
h-s diagram of throttling	–	–	–	–	–	6.	–
Moody diagram	1.	–	–	–	–	–	–
Nikuradse diagram	1.	–	–	–	–	–	–

Diameter

Equivalent diameter	see Characteristic dimension

Diffuser

Cone diffusers	–	–	–	–	**5.**	–	–
Cornut diffusers	–	–	–	–	**5.**	–	–
Diffuser	1.	–	–	–	**5.**	–	–
Short diffusers	–	–	–	–	5.	–	–
Stepped diffusers	–	–	–	–	5.	–	–
Subsonic diffuser	–	–	–	–	5.	–	–
Supersonic diffuser	–	–	3.	–	**5.**	–	–

Dimension

Characteristic dimension	–	–	–	–	–	–	7.

Drag

Drag	–	**2.**	–	–	–	–	–

Point of drag	–	–	3.	–	–	–	–
Shape drag	–	2.	–	–	–	–	–

Effect

Joule–Thomson effect	–	–	–	–	–	6.	–

Efficiency

Hydraulic diffuser efficiency	–	–	–	–	5.	–	–
Diffuser efficiency	–	–	–	–	5.	–	–

Ejector

Ejector	–	–	–	–	5.	–	–

Element

Laminar flow element	–	–	–	–	–	–	7.

Ellipse

Bendemann ellipse	–	–	–	4.	–	–	–

Energy

Internal thermal energy	–	–	–	–	5.	–	–
Kinetic energy	–	–	–	–	–	6.	–

Engine

Rocket engine backpressure	–	–	–	4.	–	–	–

Enthalpy

Enthalpy	–	–	–	–	–	6.	–
Stagnation enthalpy	–	–	–	–	–	6.	–

Entropy

Entropy	–	–	–	–	–	6.	–

Equation

Bell nozzle equation	–	–	–	4.	–	–	–
Colebrook equation	1.	–	–	–	–	–	–
Cone nozzle equation	–	–	–	4.	–	–	–
Darcy-Weisbach equation	**1.**	–	–	–	–	–	–
Euler equations	–	–	–	–	–	–	**7.**

	1	2	3	4	5	6	7
Equation for outlet velocity	–	–	–	**4.**	–	–	–
Fanno equation	1.	–	–	–	–	–	–
Navier–Stokes equation	–	–	–	–	–	–	**7.**
Rankine-Hugoniot equations	–	–	3.	–	–	–	–

Exponent

	1	2	3	4	5	6	7
Polytropic exponent	–	–	–	4.	–	–	–

Fitting

	1	2	3	4	5	6	7
Fitting	1.	–	–	–	–	–	–

Flight

	1	2	3	4	5	6	7
Supersonic flight	–	–	–	–	5.	–	–

Flow

	1	2	3	4	5	6	7
Critical flow	–	–	–	4.	–	6.	–
Flow between plates	–	–	–	–	–	–	**7.**
Flow deflection	–	–	3.	–	–	–	–
Flow in beveled nozzle	–	–	–	**4.**	–	–	–
Flow separation	–	**2.**	3.	–	**5.**	–	7.
Laminar flow	1.	–	3.	–	5.	–	**7.**
Mass flow through diffuser	–	–	–	–	5.	–	–
Mass flow through group of nozzles	–	–	–	**4.**	–	–	–
Mass flow through nozzle	–	–	–	**4.**	–	–	–
Mass flow through turbine	–	–	–	4.	–	–	–
Maximum flow deflection	–	–	3.	–	–	–	–
Potential flow	–	–	–	–	–	–	7.
Sonic flow	–	–	**3.**	–	–	–	–
Subsonic flow	–	–	**3.**	–	–	–	–
Supersonic flow	–	–	**3.**	–	–	–	–
Supersonic flow at outlet Laval nozzle	–	–	–	4.	–	–	–
Transonic flow	–	–	**3.**	–	–	–	–
Turbulent flow	1.	–	3.	–	5.	–	**7.**

Fluid

	1	2	3	4	5	6	7
Compressible fluid	–	–	3.	–	–	–	–
Ideal fluid	–	–	–	–	–	–	7.
Incompressible fluid	–	2.	–	–	–	–	–

Newtonian fluid	–	–	–	–	–	–	7.
Non-Newtonian fluid	–	–	3.	–	–	–	7.
Viscous fluid	–	–	–	–	–	–	7.

Force

Force on profile	–	**2.**	–	–	–	–	–
Friction force	1.	–	–	–	–	–	–

Fouling

Biofouling	1.	–	–	–	–	–	–
Particles fouling	1.	–	–	–	–	–	–

Friction

Friction	–	**2.**	–	–	–	–	–
Internal friction	1.	**2.**	–	–	5.	–	**7.**
Internal friction in nozzle	–	–	–	**4.**	–	–	–

Function

Prandtl-Meyer function	–	–	3.	–	–	–	–

Heat

Loss heat	1.	–	–	–	–	–	7.
Re-usable heat	–	–	–	–	–	–	7.

Helium

Liquid helium	–	–	–	–	–	–	7.

Hydrogen

Hydrogen	–	–	–	4.	–	–	–

Impulse

Specific impulse	–	–	–	4.	–	–	–

Injector

Injector	–	–	–	–	**5.**	–	–

Insert

Throttling insert	–	–	–	–	–	6.	–

Interferogram

Interferogram	–	–	3.	–	–	–	–

Law

Newton's viscosity law	–	–	–	–	–	–	7.
Poiseuille's Law	–	–	–	–	–	–	**7.**
Stodola's law	–	–	–	**4.**	–	–	–

Layer

Boundary layer	–	**2.**	–	–	–	–	**7.**
Displacement thickness of boundary layer	–	–	–	–	–	–	**7.**
Energy thickness of boundary layer	–	–	–	–	–	–	**7.**
Momentum thickness of boundary layer	–	–	–	–	–	–	**7.**
Laminar boundary layer	–	–	–	–	–	–	7.
Thickness of boundary layer	–	–	3.	–	–	–	**7.**

Lemniscate

Lemniscate	–	–	–	4.	–	–	–

Lift

Lift	–	**2.**	–	–	–	–	–
Point of lift	–	–	3.	–	–	–	–

Line

Fanno lines	1.	–	–	–	–	6.	–
Mach line	–	–	3.	–	–	–	–

Liquid

Throttling liquids	–	–	–	–	–	6.	–

Loss

Diffuser losses	–	–	–	–	5.	–	–
Flow through nozzle with losses	–	–	–	**4.**	–	–	–
Pressure loss	**1.**	–	–	–	5.	**6.**	7.
Pressure loss per unit	**1.**	–	–	–	–	–	–
Shock wave losses	–	–	**3.**	–	–	–	–
Valve pressure loss	–	–	–	–	–	6.	–

Machine

Jet machine	–	–	–	–	5.	–	–

Meter

Differential pressure flow meter	–	–	–	–	–	**6.**	–
Flow meter location	–	–	–	–	–	6.	–
Venturi flowmeter	–	–	–	–	–	6.	–

Method

Method of characteristics	–	–	–	4.	5.	–	–

Mineral

Crystallization of minerals	1.	–	–	–	–	–	–

N$_2$O$_4$

N$_2$O$_4$	–	–	3.	–	–	–	–

Nozzle

Beveled nozzle	–	–	3.	**4.**	–	–	–
Convergent nozzle	–	–	–	**4.**	–	–	–
Convergent-divergent nozzle	see Laval nozzle						
Laval nozzle	–	–	**3.**	**4.**	–	–	–
Nozzle	1.	–	–	**4.**	–	6.	–
Nozzles in series	–	–	–	4.	–	–	–
Nozzle theory	–	–	–	**4.**	–	–	–
Overexpanded nozzle	–	–	–	4.	–	–	–
Supersonic nozzle	–	–	3.	–	–	–	–
Underexpanded nozzle	–	–	–	4.	–	–	–

Number

Critical Mach number	–	–	3.	–	–	–	–
Critical Reynolds number	–	–	–	–	–	–	7.
Mach number	–	2.	**3.**	–	–	–	–
Marginal Reynolds number	1.	–	–	–	–	–	–
Reynolds number	–	–	–	–	–	–	**7.**
Upper critical Reynolds number	–	–	–	–	–	–	7.

Oxygen

Oxygen	–	–	–	4.	–	–	–

Passage

Blade passage	–	–	–	**4.**	–	–	–

Perimeter

Wetted perimeter	–	–	–	–	–	–	7.

Pipe

Equivalent pipe length	1.	–	–	–	–	–	–
Hydraulic pipe balancing	–	–	–	–	–	**6.**	–
Hydrodynamic entrance length of pipe	–	–	–	–	–	–	7.
Pipe	**1.**	–	–	–	–	–	7.
Pipe corrosion	**1.**	–	–	–	–	–	–
Pipe diameter	1.	–	–	–	–	–	–
Pipe fittings	1.	–	–	–	–	–	–
Pipe fouling	**1.**	–	–	–	–	–	–
Pipe network	**1.**	–	–	–	–	–	–
Relative pipe roughness	1.	–	–	–	–	–	–
Rough pipe	1.	–	–	–	–	–	–
Smooth pipe	1.	–	–	–	–	–	–

Pipeline

Gas pipeline	1.	–	–	–	–	–	–
Pipeline shutdown time	1.	–	–	–	–	–	–

Plate

Orifice plate	–	–	–	–	–	**6.**	–

Pressure

Constant pressure gradient	–	–	–	–	5.	–	–
Cross pressure gradient	–	–	–	–	5.	–	–
Linear pressure gradient	–	–	–	–	5.	–	–
Pressure	–	**2.**	–	–	–	–	–
Pressure disturbance	–	–	**3.**	–	–	–	–
Pressure gradient in diffuser	–	–	–	–	**5.**	–	–

Profile

Aerodynamics of profile	–	–	**3.**	–	–	–	–

Diffuser profile cascades	–	–	–	–	**5.**	–	–
Pressure surface of profile	–	2.	–	–	–	–	–
Profile	–	**2.**	–	–	–	–	7.
Profile cascade	–	–	**3.**	–	–	–	–
Suction surface of profile	–	2.	–	–	–	–	–

Pump

Fluid-dynamic pump	–	–	–	–	**5.**	–	–
Mining pump	–	–	–	–	5.	–	–

Ramjet

Ramjet	–	–	–	–	**5.**	–	–

Ratio

Critical pressure ratio	–	–	–	4.	–	–	–
Ejection ratio	–	–	–	–	5.	–	–

Resistance

Frictional resistance	–	2.	–	–	–	–	–
Local resistance	**1.**	–	–	–	–	–	–

Rule

Glauert-Prandtl rule	–	–	**3.**	–	–	–	–

Scramjet

Scramjet	–	–	–	–	**5.**	–	–

Seal

Abrasive damage to seals	–	–	–	–	–	6.	–
Brush seals	–	–	–	–	–	6.	–
Calculation of labyrinth seal	–	–	–	–	–	**6.**	–
Design of labyrinth seal	–	–	–	–	–	**6.**	–
Gas suction from seal	–	–	–	–	–	6.	–
Honeycomb seal	–	–	–	–	–	6.	–
Interconnection of labyrinth seals	–	–	–	–	–	**6.**	–
Labyrinth seals	–	–	–	–	–	**6.**	–
Material of seals	–	–	–	–	–	6.	–

Seal	1.	–	–	–	5.	–	–
Steam injection in seal	–	–	–	–	–	6.	–

Shape

Convergent nozzle shapes	–	–	–	**4.**	–	–	–
Diffuser shapes	–	–	–	–	**5.**	–	–
Divergent nozzle shapes	–	–	–	**4.**	–	–	–

Shuttle

Space shuttle	–	–	3.	–	–	–	–

Sound

Sound intensity gradient	–	–	3.	–	–	–	–
Sound intensity	–	–	3.	–	–	–	–

Speed

Speed of sound	–	2.	**3.**	4.	–	–	–
Speed sensor	–	2.	–	–	–	–	–

Stress

Stress tensor	–	–	–	–	–	–	**7.**

Sucking

Sucking	–	–	–	–	5.	–	–

Superfluidity

Superfluidity	–	–	–	–	–	–	7.

Theorem

Hugoniot's theorem	–	–	**3.**	–	–	–	–

Theory

Diffuser theory	–	–	–	–	**5.**	–	–

Throat

Throat	–	–	–	–	5.	–	–

Throttling

Throttling	1.	–	–	–	5.	**6.**	–
Throttling steam	–	–	–	–	–	**6.**	–

Tube

Draft tube	–	–	–	–	5.	–	–

Tunel

Wind tunnel	–	–	–	4.	–	–	–

Turbine

Mass flow through group of nozzles	–	–	–	**4.**	–	–	–
Turbine stage	–	–	–	4.	–	–	–

Turboexpander

Turboexpander	–	–	–	–	–	6.	–

Turbulence

Turbulence	–	–	–	–	–	–	**7.**

Turbulizer

Turbulizer	–	–	–	–	5.	–	7.

Unit

Multistage reduction unit	–	–	–	–	–	6.	–
Reduction and cooling unit	–	–	–	–	–	6.	–
Reduction unit	–	–	–	–	–	**6.**	–

Valve

Balancing valves	–	–	–	–	–	6.	–
Control valve	–	–	–	–	–	**6.**	–
Diaphragm reducing valve	–	–	–	–	–	6.	–
Diaphragm safety relief valve	–	–	–	–	–	6.	–
Double seat valves	–	–	–	–	–	**6.**	–
Flow through valve	–	–	–	–	–	**6.**	–
Reducing valves	–	–	–	–	–	**6.**	–
Single seat valves	–	–	–	–	–	**6.**	–
Stop valve	1.	–	–	–	–	–	–
Throttle valve	–	–	–	–	–	6.	–
Valve	1.	–	–	–	–	–	–
Valve characteristics	–	–	–	–	–	6.	–
Valve with diffuser	–	–	–	–	5.	**6.**	–

Velocity

Attack velocity	–	–	–	–	–	–	7.
Compressible fluid velocity	–	–	3.	–	–	–	–
Critical laminar velocity	–	–	–	–	–	–	7.
Critical velocity	–	–	3.	4.	5.	–	–
Economic velocity	**1.**	–	–	–	–	–	–
Flow velocity	–	**2.**	–	–	–	–	–
Marginal velocity	1.	–	–	–	–	–	–
Mean energy velocity	–	–	–	–	–	–	7.
Mean fluid momentum velocity	–	–	–	–	–	–	7.
Mean mass flow velocity	–	–	–	–	–	–	7.
Mean profile velocity	–	–	–	–	–	–	7.
Mean velocity	1.	–	–	–	–	–	**7.**
Tangetial velocity	–	–	–	–	5.	–	–
Velocity profile	–	–	–	–	5.	–	7.

Viscometer

Viscometer	–	–	–	–	–	–	7.

Viscosity

Critical viscosity	–	–	–	–	–	–	7.
Dynamic viscosity	–	–	–	–	–	–	7.
Kinematic viscosity	–	–	–	–	–	–	7.
Reduced viscosity	–	–	–	–	–	–	7.
Viscosity	–	–	–	–	–	–	**7.**
Viscosity of air	–	–	–	–	–	–	7.
Viscosity of gas mixture	–	–	–	–	–	–	7.
Viscosity of water	–	–	–	–	–	–	7.
Viscosity values	–	–	–	–	5.	–	**7.**

Volume

Specific volume	–	–	–	4.	–	–	–

Vortex

Corner vortex	–	–	–	–	–	6.	–
Vortex	–	–	–	–	–	6.	–

Water

Water steam	–	–	–	4.	–	–	–

Wave

Compression waves	–	–	**3.**	–	–	–	–
Crossed shock waves	–	–	3.	–	–	–	–
Expansion waves	–	–	**3.**	4.	–	–	–
Formation of expansion waves	–	–	3.	–	–	–	–
Formation of oblique shock wave	–	–	3.	–	–	–	–
Formation of λ-schock wave	–	–	3.	–	–	–	–
Normal shock wave	–	–	**3.**	–	–	–	–
Oblique shock wave	–	–	**3.**	–	5.	–	–
Position of shock wave in nozzle	–	–	–	**4.**	–	–	–
Shock wave	–	–	**3.**	–	–	–	–
Shock wave angle	–	–	3.	–	–	–	–
Shock wave division	–	–	3.	–	–	–	–
Sound wave	–	–	3.	–	–	–	–
λ-shock wave	–	–	**3.**	–	5.	–	–

Xfoil

Xfoil	–	2.	–	–	–	–	–