ESDU – What's New

Release Updates
January 2017 – May 2022

S&P Global
Engineering Solutions

ESDU has over 1,600 Data Items and approximately 200 ESDUpacs

ESDU provides companies and academia with engineering insight to explore and optimize design solutions quickly and easily; minimize design/production lead times and costs; apply methods and data recognised by leading regulatory organisations; and mitigate design risk.

Listed are Data Items and ESDUpacs (Computer Programs) issued and amended from January 2017 – May 2022.

Release 2022-02 (May 2022)

11003
Cyclic stress-strain and strain-life properties for metallic materials.
Activity: New.
Series: Fatigue - Endurance Data.

22001
Definitions of terms used in Vibration and Acoustic Fatigue.
Activity: New.
Series: Vibration and Acoustic Fatigue.

ASTEROID
Aircraft Surface Tolerances for Enhanced Repair, Operations and Design.
Activity: New.
Series: Transonic Aerodynamics, Performance, Aerodynamics.

15002
Definitions for runway contaminants and the classification and distribution of hard runway Surfaces.
Activity: Updated to Amendment A.
Series: Performance.

74036
Drag due to a circular cavity in a plate with a turbulent boundary layer at subsonic, transonic, and supersonic speeds.
Activity: New/Modified Toolbox App.
Series: Aerodynamics.

75028
Drag due to grooves in a flat plate with a turbulent boundary layer, at subsonic and supersonic speeds.
Activity: New/Modified Toolbox App.
Series: Aerodynamics.

75031
Drag of two-dimensional steps and ridges immersed in a turbulent boundary layer for Mach numbers up to 3.
Activity: New/Modified ESDUpac program. New/Modified Toolbox App.
Series: Aerodynamics.

99031
Computer program for estimation of lift curve to maximum lift for wing-fuselage combinations with high-lift devices at low speeds.
Activity: New/Modified ESDUpac program.
Series: Aerodynamics.

MMPDS 16	CHAPTER 1 - INTRODUCTION
MMPDS 16	CHAPTER 2 - STEEL ALLOYS
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Release 2022-01 (January 2022)

21005
Summary of Data Items on Controls.
Activity: New.
Series: Aerodynamics.

TM 207
ESDU TECHNICAL MEMORANDUM Concept and preliminary design Examples of applying rapid aerodynamic analysis tools to three classic historical configurations designed to similar requirement.
Activity: New.
Series: Transonic Aerodynamics.

TM 211
ESDU TECHNICAL MEMORANDUM Pressures under wet footprint.
Activity: New.
Series: Performance.

07001
Noise transmission into aircraft cabins.
Activity: Updated to Amendment A. New/Modified ESDUpac program.
Series: Aircraft Noise.

AERO W.S.02.03.02
Theoretical lift-dependent drag of wings at supersonic speeds.
Activity: Updated to Amendment C.
Series: Aerodynamics.

Release 2021-04 (Oct 2021)

21004 — The statistical analysis of fatigue data using the Weibull distribution
Activity: New.
Series: Fatigue Endurance Data.

00012 — The acoustic attenuation of absorbent linings in cylindrical flow ducts.
Activity: Updated to Amendment D. New/Modified VIEWpac program.
Series: Aircraft Noise.

05001 — Prediction of combustor noise from gas turbine engines.
Activity: Updated to Amendment B. New/Modified VIEWpac program.
Series: Aircraft Noise.

08018 — Combination of spectra in Common Data Files from ESDU Aircraft Noise Data Items.
Activity: Updated to Amendment B. New/Modified VIEWpac program.
Series: Aircraft Noise.

89047 — In-plane forces and moments on installed inclined propellers at low forward speeds.
Activity: Updated to Amendment E.
Series: Aerodynamics.

98019 — Computer-based estimation procedure for single-stream jet noise. Including far-field, static jet mixing noise database for circular nozzles.
Activity: Updated to Amendment E. New/Modified VIEWpac program. New/ESDUpac program.
Series: Aircraft Noise.

Release 2021-03 (Jul 2021)

21001 — Guidance on the selection of aerodynamic methods to use at different stages of civil aircraft design.
Activity: New.
Series: Transonic Aerodynamics.

21002 — Viscous full-potential (VFP) method for three dimensional wings and wing-body combinations.
Part 4: VFP analysis programs for flow breakdown and forces and loads
Activity: New.
Series: Transonic Aerodynamics.

21003 — Decibel scales and definitions of levels.
Activity: New. New Interactive Graphs.
Series: Vibration and Acoustic Fatigue.

15011 — Acoustics of reverberation chambers.
Activity: Updated to Amendment A.
Series: Vibration and Acoustic Fatigue.

19004 — Guide to the effect of shot peening on fatigue strength.
Activity: Updated to Amendment A.
Series: Fatigue – Endurance Data, Stress and Strength.

90034 — Computer program for the calculation of normal force and pitching moment of forebody-cylinder combinations at angles of attack up to 90 degrees and Mach numbers up to 5, including the effects of conical boat-tailing.
Activity: New/Modified ESDUpac program.
Series: Aerodynamics.

Release 2021-02 (April 2021)

14002 — Lock nuts and other thread locking devices.
Activity: Updated to Amendment A.
Series: Stress and Strength.

16004 — Aerodynamics and aero-acoustics of rectangular planform cavities.
Part V: Bibliography (up to 2020).
Activity: Updated to Amendment A.
Series: Aerodynamics.

AERO A.02.03.02 — Optimum area distribution and associated minimum theoretical transonic drag-rise for aircraft at zero lift.
Activity: Updated to Amendment B. New/Modified ESDUpac program. New/Modified Toolbox App.
Series: Aerodynamics.

AERO — Explanatory notes on transonic and supersonic area rules.
Activity: Updated to Amendment C.
Series: Aerodynamics.

01008 — Computer program for wind speeds and turbulence properties: flat or hilly sites in terrain with roughness changes.
Activity: New/Modified VIEWpac program.
Series: Wind Engineering.

Release 2021-01 (Jan 2021)

20006 — Aircraft performance from flight test. Part 4: Calibration of pressure air data systems, Sub-part i: subsonic flight
Activity: New.
Series: Performance.

13012 — Viscous full-potential (VFP) method for three-dimensional wings and wing-body combinations. Part 2: Use of VFP and related programs.
Activity: Updated to Amendment A. New/Modified VIEWpac program.
Series: Transonic Aerodynamics

18005 Drag due to a leak into a plenum from an external stream.
Activity: New.
Series: Aerodynamics.

18006 Viscous full-potential (VFP) method for three dimensional wings and wing-body combinations.
Part 4: VFP analysis programs for flow breakdown and forces and loads
Activity: New.
Series: Transonic Aerodynamics.

20005 Introduction and guide to ESDU data on acoustic fatigue.
Activity: New.
Series: Vibration and Acoustic Fatigue.

20007 Aircraft performance from flight test. Part 4: calibration of pressure air data systems, Sub-part ii: GPS methods for determining true airspeed and wind speeds.
Activity: Updated to Amendment A.
Series: Performance.

TM 193 ESDU TECHNICAL MEMORANDUM: Example of procedure in calculation of effects of propeller slipstream on horizontal tailplane flow-field.
Activity: New.
Series: Aerodynamics.

TM 198 ESDU TECHNICAL MEMORANDUM: Estimating the reflection effects for the jet noise of under-wing engines.
Activity: New.
Series: Aircraft Noise.

TM 199 ESDU TECHNICAL MEMORANDUM AIRCRAFT PERFORMANCE FROM FLIGHT TEST Derivations applicable to ESDU 20007 on the GPS methods for determining true airspeed and wind speeds.
Activity: New.
Series: Performance.

TM 200 ESDU TECHNICAL MEMORANDUM: Estimation of nacelle and flap effects on low-speed aerodynamic centre and zero-lift pitching moment of transport aircraft (tail-off).
Activity: New.
Series: Aerodynamics.

88040 Program for calculation of aileron rolling moment and yawing moment coefficients at subsonic speeds.
Activity: Updated to Amendment D. New/Modified ESDUpac program.
Series: Aerodynamics.

97002 Information for the use of Data Items on high-lift devices.
Activity: Updated to Amendment E.
Series: Aerodynamics.

AERO C.04.01.00 Introduction to Data Items on control C hinge moments.
Activity: Updated to Amendment D.
Series: Aerodynamics.

MMPDS-15 CHAPTER 1 - INTRODUCTION

MMPDS-15 CHAPTER 2 - STEEL ALLOYS

MMPDS-15 CHAPTER 3 - ALUMINUM ALLOYS

MMPDS-15 CHAPTER 4 - MAGNESIUM ALLOYS

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MMPDS-15 CHAPTER 7 - MISCELLANEOUS ALLOYS AND HYBRID MATERIALS

MMPDS-15 CHAPTER 8 - STRUCTURAL JOINTS

MMPDS-15 CHAPTER 9 - GUIDELINES

77028 Geometrical characteristics of typical bodies.
Activity: New/Modified ESDUpac program.
Series: Aerodynamics.

80020 Average downwash at the tailplane at low angles of attack and subsonic speeds.
Activity: New/Modified ESDUpac program.
Series: Aerodynamics.

87008 Rudder sideforce, yawing moment and rolling moment control derivatives at low speeds:$Y\zeta$, $N\zeta$ and $L\zeta$.
Activity: New/Modified ESDUpac program.
Series: Aerodynamics.

97021 Effect of trailing-edge flap deployment on average downwash at the tailplane at low speeds.
Activity: New/Modified ESDUpac program.
Series: Aerodynamics.

Release 2020-03 (July 2020)

19006　Force limited random vibration testing – The computation of the semi-empirical constant C2 for the test article and supporting structure.
Activity: New.
Series: Vibration and Acoustic Fat.

20003　Crack resistance curves.
Activity: New. New/Modified Toolbox app.
Series: Fatigue - Fracture Mechanics.

20004　Guide to fatigue data available in Stress and Strength of Components Series.
Activity: New.
Series: Stress and Strength.

Release 2020-02 (Apr 2020)

19003　Fatigue strength of shot peened helical tension and compression steel springs.
Activity: New.
Series: Stress and Strength.

AFFDL-TR-75-34　Prediction of the Pressure Oscillations in Cavities Exposed to Aerodynamic Flow.
Activity: New.
Series: Vibration and Acoustic Fatigue.

NASA-CR-4587　Review of Sonic Fatigue Technology.
Activity: New.
Series: Transonic Aerodynamics.

18011　Cavity oscillations.
Activity: New.
Series: Vibration and Acoustic Fatigue.

04022　An introduction to low-cycle fatigue phenomena.
Activity: Updated to Amendment A.
Series: Fatigue - Endurance Data, Stress and Strength.

Release 2020-01 (Jan 2020)

19001　Fatigue of wrought and cast titanium alloys in bending and under axial loading.
Activity: New. New/Modified VIEWpac program.
Series: Fatigue - Endurance Data.

19002　Fatigue of wrought and cast Ti-6Al-4V alloys.
Activity: New. New/Modified VIEWpac program.
Series: Fatigue - Endurance Data.

19004　Guide to the effect of shot peening on fatigue strength.
Activity: New.
Series: Fatigue - Endurance Data, Stress and Strength.

08018　Combination of spectra in Common Data Files from ESDU Aircraft Noise Data Items Updated to Amendment A.
Activity: New/Modified VIEWpac program.
Series: Aircraft Noise.

75020　Estimation of far-field sound pressure levels due to buzz-saw noise supersonic fan or compressor.
Activity: Updated to Amendment D. New/Modified VIEWpac program.
Series: Aircraft Noise, Vibration and Acoustic Fatigue.

75021　Estimation of the surface pressure fluctuations in the turbulent boundary layer of a flight vehicle.
Activity: Updated to Amendment E. New/Modified VIEWpac program.
Series: Vibration and Acoustic Fatigue, Aircraft Noise.

78002　Evaluation of the attenuation of sound by a uniform atmosphere. Updated to Amendment D.
Activity: New/Modified VIEWpac program.
Series: Aircraft Noise.

78003　Evaluation of the attenuation of broad-band sound by a non-uniform still atmosphere.
Activity: Updated to Amendment D. New/Modified VIEWpac program.
Series: Aircraft Noise.

79011　Estimation of noise shielding by barriers.
Activity: Updated to Amendment D. New/Modified VIEWpac program.
Series: Aircraft Noise.

88023　Jet-by-jet shielding of noise. Updated to Amendment C.
Activity: New/Modified VIEWpac program.
Series: Aircraft Noise.

94035　The correction of measured noise spectra for the effects of ground reflection.
Activity: Updated to Amendment D. New/Modified ESDUpac program.
Series: Aircraft Noise.

MMPDS-14　CHAPTER 1 - INTRODUCTION

MMPDS-14　CHAPTER 2 - STEEL ALLOYS

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MMPDS-14　CHAPTER 4 - MAGNESIUM ALLOYS

MMPDS-14　CHAPTER 5 - TITANIUM ALLOYS

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MMPDS-14	CHAPTER 7 - MISCELLANEOUS ALLOYS AND HYBRID MATERIALS
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74036	Drag due to a circular cavity in a plate with a turbulent boundary layer at subsonic, transonic and supersonic speeds. **Activity:** New/Modified ESDUpac program. New/Modified Toolbox App. **Series:** Aerodynamics.
75028	Drag due to grooves in a flat plate with a turbulent boundary layer, at subsonic and supersonic speeds. **Activity:** New/Modified ESDUpac program. New/Modified Toolbox App. **Series:** Aerodynamics.
75031	Drag of two-dimensional steps and ridges immersed in a turbulent boundary layer for Mach numbers up to 3. **Activity:** New/Modified ESDUpac program. New/Modified Toolbox App. **Series:** Aerodynamics.

Release 2019-04 (Oct 2019)

19005	Accumulation of water on runway. **Activity:** New. **Series:** Performance.

Release 2019-03 (Jul 2019)

17004	Guide to the use of Data Items in the design of bonded joints. **Activity:** New. **Series:** Composites, Stress and Strength, Structures.
18008	An overview of bonded joint design. **Activity:** New. **Series:** Stress and Strength.
18009	The estimation of turbulent boundary layer power-law velocity and q profiles from shape factor and momentum thickness. **Activity:** New. New/Modified VIEWpac program. **Series:** Transonic Aerodynamics.
18011	Cavity oscillations. **Activity:** New. **Series:** Vibration and Acoustic Fatigue.

00024	The acoustic attenuation of absorbent linings in rectangular flow ducts with application to annular flow ducts. **Activity:** Updated to Amendment A. New/Modified VIEWpac program. New/Modified ESDUpac program. **Series:** Aircraft Noise.
01015	Far-field sound radiation from circular ducts. **Activity:** Updated to Amendment A. New/Modified VIEWpac program. **Series:** Aircraft Noise.
04011	Prediction of sound attenuation in a refracting turbulent atmosphere with a Fast Field Program. **Activity:** Updated to Amendment A. New/Modified VIEWpac program. New/Modified ESDUpac program. **Series:** Aircraft Noise.
MMPDS-13	CHAPTER 1 - INTRODUCTION
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MMPDS-13	CHAPTER 7 - MISCELLANEOUS ALLOYS AND HYBRID MATERIALS
MMPDS-13	CHAPTER 8 - STRUCTURAL JOINTS
MMPDS-13	CHAPTER 9 - GUIDELINES
75028	Drag due to grooves in a flat plate with a turbulent boundary layer, at subsonic and supersonic speeds. **Activity:** New/Modified ESDUpac program. **Series:** Aerodynamics.
75031	Drag of two-dimensional steps and ridges immersed in a turbulent boundary layer for Mach numbers up to 3. **Activity:** New/Modified ESDUpac program. **Series:** Aerodynamics.

Release 2019-02 (Apr 2019)

09001	Aerodynamics and aero-acoustics of rectangular planform cavities. Part IIIC: Alleviation of unsteady flow effects - acoustic suppression using active devices. **Activity:** New. **Series:** Aerodynamics.

09002   Aerodynamics and aero-acoustics of rectangular planform cavities.
Part IIID: Alleviation of unsteady flow effects - Store deployment.
Activity: New.
Series: Aerodynamics.

16004   Aerodynamics and aero-acoustics of rectangular planform cavities.
Part V: Bibliography (up to 2016)
Activity: New.
Series: Aerodynamics.

18001   Information on the use of ESDU 18002, ESDU 18003 and ESDU 18004.
Activity: New.
Series: Structures.

18002   Form factors for circular sections under combined bending and axial load.
Activity: New. New Interactive Graphs.
Series: Structures.

18003   Form factors for flanged sections under combined bending and axial load.
Activity: New.
Series: Structures.

18004   Form factors for angle, tee and channel sections under combined bending and axial load.
Activity: New.
Series: Structures.

18010   Information on the use of Data Items on powerplant/airframe interactions for propeller-powered aircraft.
Activity: New.
Series: Aerodynamics.

06013   Propeller slipstream modelling for incidence and sideslip.
Activity: Updated to Amendment B.
Series: Aerodynamics.

80025   Mean forces, pressures and flow field velocities for circular cylindrical structures: single cylinder with two-dimensional flow.
Activity: Updated to Amendment D.
Series: Wind Engineering, Aerodynamics.

90034   Computer program for the calculation of normal force and pitching moment of forebody-cylinder combinations at angles of attack up to 90 degrees and Mach numbers up to 5, including the effects of conical boat-tailing.
Activity: Updated to Amendment D. New/Modified ESDUpac program.
Series: Aerodynamics.

AW.05.01.01   Kinetic pressure in the wake behind a wing.
Activity: Updated to Amendment B.
Series: Aerodynamics.

74036   Drag due to a circular cavity in a plate with a turbulent boundary layer at subsonic, transonic and supersonic speeds.
Activity: New/Modified ESDUpac program. New/Modified Toolbox App.
Series: Aerodynamics.

75028   Drag due to grooves in a flat plate with a turbulent boundary layer, at subsonic and supersonic speeds.
Activity: New/Modified Toolbox App.
Series: Aerodynamics.

75031   Drag of two-dimensional steps and ridges immersed in a turbulent boundary layer for Mach numbers up to 3.
Activity: New/Modified Toolbox App.
Series: Aerodynamics.

Release 2019-01 (Jan 2019)

TM 190   ESDU TECHNICAL MEMORANDUM
Aircraft performance from flight test:
An example of the use of manoeuvring flight.
Activity: New.
Series: Performance.

00012   The acoustic attenuation of absorbent linings in cylindrical flow ducts.
Activity: Updated to Amendment C. New/Modified VIEWpac program. New/Modified ESDUpac program.
Series: Aircraft Noise.

02020   An introduction to aircraft noise.
Activity: Updated to Amendment C.
Series: Aircraft Noise.

85031   Crack resistance curves.
Activity: New/Modified Toolbox App.
Series: Fatigue - Fracture Mechanics.

Release 2018-04 (Oct 2018)

TM 192   ESDU TECHNICAL MEMORANDUM
Analysis of aircraft tests on flooded runways: an empirical approach.
Activity: New.
Series: Performance.

11005   Prediction of near-field and far-field harmonic noise from subsonic Propellers with non-axial inflow.
Activity: Updated to Amendment B. New/Modified ESDUpac program.
Series: Vibration and Acoustic Fatigue, Aircraft Noise.

99006
Computer-based estimation procedure for near-field single-stream jet noise.
Activity: Updated to Amendment C. New/Modified VIEWpac program.
Series: Vibration and Acoustic Fatigue, Aircraft Noise.

TM 165
ESDU TECHNICAL MEMORANDUM
Analysis of ground-rolling tests through water with a Canberra aircraft.
Activity: Updated to Amendment A.
Series: Performance.

Release 2018-03 (Jul 2018)

16001
A practical guide to turbulence and flow measurement by thermal anemometry (CTA), laser-Doppler anemometry (LDA) and particle-image velocimetry (PIV)
Part 1: Overview and Selection of Measurement Technique.
Activity: New.
Series: Transonic Aerodynamics.

16002
A practical guide to turbulence and flow measurement by thermal anemometry (CTA) laser-Doppler anemometry (LDA) and particle-image velocimetry (PIV)
Part 2: constant-temperature anemometry.
Activity: New.
Series: Transonic Aerodynamics.

17008
A practical guide to turbulence and flow measurement by thermal anemometry (CTA), laser-Doppler anemometry (LDA) and particle-image velocimetry (PIV)
Part 3: laser-Doppler anemometry.
Activity: New.
Series: Transonic Aerodynamics.

17009
A practical guide to turbulence and flow measurement by thermal anemometry (CTA), laser-Doppler anemometry (LDA) and particle-image velocimetry (PIV)
Part 4: particle-image velocimetry.
Activity: New.
Series: Transonic Aerodynamics.

17011
Power spectral density and bandwidth correction of spectrum level.
Activity: New.
Series: Vibration and Acoustic Fatigue, Aircraft Noise.

TM 188
Air and ground temperature.
Activity: New.
Series: Performance.

TM 189
Analysis of tests on a convergent nozzle in an altitude test facility.
Activity: New.
Series: Performance.

68020
The compressible two-dimensional turbulent boundary layer, both with and without heat transfer, on a smooth flat plate, with application to wedges, cylinders, and cones.
Activity: New/Modified Toolbox App.
Series: Aerodynamics.

74036
Drag due to a circular cavity in a plate with a turbulent boundary layer at subsonic, transonic and supersonic speeds.
Activity: New/Modified Toolbox App.
Series: Aerodynamics.

75028
Drag due to grooves in a flat plate with a turbulent boundary layer, at subsonic and supersonic speeds.
Activity: New/Modified Toolbox App.
Series: Aerodynamics.

75031
Drag of two-dimensional steps and ridges immersed in a turbulent boundary layer for Mach numbers up to 3.
Activity: New/Modified Toolbox App.
Series: Aerodynamics.

76016
Generalisation of smooth continuous stress-strain curves for metallic materials.
Activity: New/Modified Toolbox App.
Series: Structures.

77021
Properties of a standard atmosphere.
Activity: New/Modified Toolbox App.
Series: Aerodynamics.

78008
Physical properties of design atmospheres.
Activity: New/Modified Toolbox App.
Series: Aerodynamics.

89052
Construction of inelastic stress-strain curves from minimal materials data (computer program).
Activity: New/Modified Toolbox App.
Series: Stress and Strength.

TM 169
ESDU TECHNICAL MEMORANDUM
Wing lift-curve slope in inviscid subsonic flow: Improvements to the Helmbold-Diederich equation and comparison with data from ESDU 70011.
Activity: New/Modified Toolbox App.
Series: Aerodynamics.

Release 2018-02a (Jun 2018)

13009 Computer program for calculation of aerodynamic centre of wing-fuselage-nacelle combinations.
Activity: Updated to Amendment A.
Series: Aerodynamics.

74036 Drag due to a circular cavity in a plate with a turbulent boundary layer at subsonic, transonic and supersonic speeds.
Activity: New/Modified ESDUpac program.
Series: Aerodynamics.

75028 Drag due to grooves in a flat plate with a turbulent boundary layer, at subsonic and supersonic speeds.
Activity: New/Modified ESDUpac program.
Series: Aerodynamics.

75031 Drag of two-dimensional steps and ridges immersed in a turbulent boundary layer for Mach numbers up to 3.
Activity: New/Modified ESDUpac program.
Series: Aerodynamics.

Release 2018-02 (Apr 2018)

TM 185 Air data calibration using a GPS/INS (EGI).
Activity: New.
Series: Performance.

11005 Prediction of near-field and far-field harmonic noise from subsonic propellers with non-axial inflow.
Activity: Updated to Amendment A.
New/Modified VIEWpac program.
New/Modified ESDUpac program.
Series: Vibration and Acoustic Fatigue, Aircraft Noise.

14014 A theoretically-based method for predicting static-to-flight effects on coaxial jet noise.
Activity: Re-issue 2. New/Modified ESDUpac program.
Series: Aircraft Noise.

76020 Estimation of the maximum discrete frequency noise from isolated rotors and propellers.
Activity: Updated to Amendment B.
New/Modified VIEWpac program.
Series: Aircraft Noise.

Release 2018-01a (Mar 2018)

MMPDS-12 Chapter 1: INTRODUCTION
Activity: Re-issue 12.

MMPDS-12 Chapter 2: STEEL ALLOYS
Activity: Re-issue 12.

MMPDS-12 Chapter 3: ALUMINUM ALLOYS
Activity: Re-issue 12.

MMPDS-12 Chapter 4: MAGNESIUM ALLOYS
Activity: Re-issue 12.

MMPDS-12 Chapter 5: TITANIUM ALLOYS
Activity: Re-issue 12.

MMPDS-12 Chapter 6: HEAT-RESISTANT ALLOYS
Activity: Re-issue 12.

MMPDS-12 Chapter 7: MISCELLANEOUS ALLOYS AND HYBRID MATERIALS
Activity: Re-issue 12.

MMPDS-12 Chapter 8: STRUCTURAL JOINTS
Activity: Re-issue 12.

MMPDS-12 Chapter 9: GUIDELINES
Activity: Re-issue 12.

Release 2018-01 (Jan 2018)

14006 Prediction of loads in shear cleat attachments.
Activity: New.
Series: Structures.

16005 Mass flow rate of a leak into an external stream.
Activity: New.
Series: Aerodynamics.

16006 Drag due to a leak discharging into an external stream.
Activity: New.
Series: Aerodynamics.

17002 Octave and fractional-octave band filters.
Activity: New.
Series: Vibration and Acoustic Fatigue.

17003 Fatigue crack propagation rates and threshold stress intensity factors in high strength low alloy steel plate, bar and forgings.
Activity: New.
Series: Stress and Strength.

17012 Combination of levels in dB.
Activity: New.
Series: Vibration and Acoustic Fatigue, Aircraft Noise.

17013 Aircraft performance from flight test. Part 3: in-flight calibration of an angle of attack sensor.
Activity: New.
Series: Performance.

TM 184 Effects of rear-mounted engine nacelles on sidewash at fin.
Activity: New.
Series: Aerodynamics.

15001   Aircraft performance from flight test
Part 1: derivation of a mathematical model.
Activity: Updated to Amendment A.
Series: Performance.

64001   Guide to stress concentration data.
Activity: Updated to Amendment K.
Series: Structures, Stress and Strength,
Fatigue – Endurance Data.

71006   Low-speed longitudinal aerodynamic
characteristics of slender wings.
Activity: Updated to Amendment A.
New/Modified ESDUpac program.
Series: Aerodynamics.

71007   Low-speed normal force and pitching moment
of slender wings in ground effect.
Activity: Updated to Amendment A.
New/Modified ESDUpac program.
Series: Aerodynamics.

72019   Buckling of flat isotropic plates under uniaxial
and biaxial loading.
Activity: Updated to Amendment C.
New Interactive Graphs.
Series: Structures.

77028   Geometrical characteristics of typical bodies.
Activity: Updated to Amendment G.
New Interactive Graphs.
New/Modified ESDUpac program.
Series: Aerodynamics.

90005   Frequencies of resonance in wind tunnels
with ventilated walls and plenum chamber.
Activity: Updated to Amendment C.
New/Modified ESDUpac program.
Series: Aerodynamics.

94035   The correction of measured noise spectra for
the effects of ground reflection.
Activity: Updated to Amendment C.
New/Modified VIEWpac program.
Series: Aircraft Noise.

Release 2017-12 (Dec 2017)

No new or amended documents. Organisational and/or
cosmetic changes only.

Release 2017-11 (Nov 2017)

No new or amended documents. Organisational and/or
cosmetic changes only.

Release 2017-10 (Oct 2017)

No new or amended documents. Organisational and/or
cosmetic changes only.

Release 2017-09 (Sep 2017)

69026   Airspeed data for performance calculations.
Activity: New Interactive Graphs.
Series: Performance.

84009   Nonlinear systems: an introduction to
Describing Functions.
Activity: New Interactive Graphs.
Series: Dynamics.

84017   Contact phenomena. II: stress fields and failure
criteria in concentrated elastic contacts under
combined normal and tangential loading.
Activity: New Interactive Graphs.
Series: Mechanisms, Tribology,
Stress and Strength.

88019   Calculation methods for along-wind loading.
Part 3: Response of buildings and plate-like
structures to atmospheric turbulence.
Activity: New Interactive Graphs.
Series: Wind Engineering.

90036   Structures of non-circular cross section:
dynamic response due to vortex shedding.
Activity: New Interactive Graphs.
Series: Wind Engineering.

92003   Forced convection heat transfer in straight
tubes. Part 1: turbulent flow.
Activity: New Interactive Graphs.
Series: Heat Transfer.

98005   Design and performance evaluation of heat
exchangers: the effectiveness-NTU method.
Part 3: graphical and analytical data.
Activity: New Interactive Graphs.
Series: Heat Transfer.

Release 2017-08 (Aug 2017)

TM 183   ESDU TECHNICAL MEMORANDUM
Compendium of vibration damping data for
aerospace structures.
Activity: New.
Series: Vibration and Acoustic Fatigue.

77021   Properties of a standard atmosphere.
Activity: New Interactive Graphs.
Series: Aerodynamics.

80020   Average downwash at the tailplane at low
angles of attack and subsonic speeds.
Activity: New Interactive Graphs.
Series: Aerodynamics.

85015   Introduction to installation effects on thrust
and drag for propeller-driven aircraft.
Activity: New Interactive Graphs.
Series: Aerodynamics.

86002 Drag and pressure recovery characteristics of auxiliary air inlets at subsonic speeds.
Activity: New Interactive Graphs.
Series: Aerodynamics.

92003 Forced convection heat transfer in straight tubes. Part 1: turbulent flow.
Activity: New Interactive Graphs.
Series: Heat Transfer.

94042 Selection and costing of heat exchangers. Shell-and-tube type.
Activity: New Interactive Graphs.
Series: Heat Transfer.

98005 Design and performance evaluation of heat exchangers: the effectiveness-NTU method. Part 3: graphical and analytical data.
Activity: New Interactive Graphs.
Series: Heat Transfer.

AERO A.06.01.03 Stability derivative(Lv) Contribution of full-span dihedral to rolling moment due to sideslip.
Activity: New Interactive Graphs.
Series: Aerodynamics.

Release 2017-07 (Jul 2017)

90023 Airframe noise prediction.
Activity: Updated to Amendment E. New/Modified VIEWpac program.
Series: Aircraft Noise.

77031 Heat transfer by free convection and radiation - simply shaped bodies in air and other fluids.
Activity: New Interactive Graphs.
Series: Heat Transfer.

80024 Blockage corrections for bluff bodies in confined flows.
Activity: New Interactive Graphs.
Series: Wind Engineering, Aerodynamics.

81017 Mean forces, pressures, and moments for circular cylindrical structures: finite-length cylinders in uniform and shear flow.
Activity: New Interactive Graphs.
Series: Wind Engineering, Aerodynamics.

82026 Strong winds in the atmospheric boundary layer.
Part 1: hourly-mean wind speeds.
Activity: New Interactive Graphs.
Series: Wind Engineering, Aerodynamics.

87035 Calculation methods for along-wind loading. Part 2. Response of line-like structures to atmospheric turbulence.
Activity: New Interactive Graphs.
Series: Wind Engineering, Aerodynamics.

88019 Calculation methods for along-wind loading. Part 3. Response of buildings and plate-like structures to atmospheric turbulence.
Activity: New Interactive Graphs.
Series: Wind Engineering.

90036 Structures of non-circular cross section: dynamic response due to vortex shedding.
Activity: New Interactive Graphs.
Series: Wind Engineering.

92013 Selection and costing of heat exchangers.
Activity: New Interactive Graphs.
Series: Heat Transfer.

Release 2017-06 (Jun 2017)

TM 182 Octave and One-third Octave Filters.
Activity: New.
Series: Vibration and Acoustic Fatigue.

Release 2017-05 (May 2017)

00006 Drag of rectangular planform cavity in a flat plate with a turbulent boundary layer for Mach numbers up to 3.
Part I: Closed flow.
Activity: New Interactive Graphs.
Series: Aerodynamics.

00007 Drag of a rectangular planform cavity in a flat plate with a turbulent boundary layer for Mach numbers up to 3.
Part II: Open and transitional flows.
Activity: New Interactive Graphs.
Series: Aerodynamics.

05024 Flow through sudden contractions of duct area: pressure losses and flow characteristics.
Activity: New Interactive Graphs.
Series: Fluid Mechanics, Internal Flow (Aerospace), Fluid Mechanics, Internal Flow.

66030 Pressure losses in flow metering device.
Activity: New Interactive Graphs.
Series: Fluid Mechanics, Internal Flow (Aerospace), Fluid Mechanics, Internal Flow.

67019 Static strength of screwed fasteners.
Activity: New Interactive Graphs.
Series: Stress and Strength.

69004 Convective heat transfer during forced crossflow of fluids over a circular cylinder including free convection effects.
Activity: New Interactive Graphs.
Series: Heat Transfer.

69005 The response of first- and second-order systems.
Activity: New Interactive Graphs.
Series: Dynamics.

69022

Pressure losses in valves.
Activity: New Interactive Graphs.
Series: Fluid Mechanics, Internal Flow (Aerospace), Fluid Mechanics, Internal Flow.

71016

Fluid forces, pressures and moments on rectangular blocks.
Activity: New Interactive Graphs.
Series: Wind Engineering, Aerodynamics.

78019

Profile drag of axisymmetric bodies at zero incidence for subcritical Mach numbers.
Activity: New Interactive Graphs.
Series: Aerodynamics.

Release 2017-04 (Apr 2017)

10023

Computer program for calculation of equivalent straight-tapered wing planform.
Activity: Updated to Amendment B. New/Modified ESDUpac program.
Series: Aerodynamics.

74036

Drag due to a circular cavity in a plate with a turbulent boundary layer at subsonic, transonic and supersonic speeds.
Activity: Updated to Amendment C. New/Modified ESDUpac program.
Series: Aerodynamics.

75028

Drag due to grooves in a flat plate with a turbulent boundary layer, at subsonic and supersonic speeds.
Activity: Updated to Amendment A. New/Modified ESDUpac program.
Series: Aerodynamics.

75031

Drag of two-dimensional steps and ridges immersed in a turbulent boundary layer for Mach numbers up to 3.
Activity: Updated to Amendment D. New/Modified ESDUpac program.
Series: Aerodynamics.

78019

Profile drag of axisymmetric bodies at zero incidence for subcritical Mach numbers.
Activity: Updated to Amendment D. New/Modified ESDUpac program.
Series: Aerodynamics.

82010

Contribution of fin to sideforce, yawing moment and rolling moment derivatives due to sideslip, $(Yv)F$, $(Nv)F$, $(Lv)F$, in the presence of body, wing and tailplane.
Activity: Updated to Amendment D.
Series: Aerodynamics.

82034

Aircraft forces due to interference between a jet efflux and a slotted flap.
Activity: Updated to Amendment B. New/Modified ESDUpac program.
Series: Aerodynamics.

89047

In-plane forces and moments on installed inclined propellers at low forward speeds.
Activity: Updated to Amendment D.
Series: Aerodynamics.

90029

An introduction to aircraft excrescence drag.
Activity: Updated to Amendment C.
Series: Aerodynamics.

96012

Subsonic and transonic base and boat-tail pressure drag of cylindrical bodies with circular-arc boat-tails.
Activity: Updated to Amendment B. New Interactive Graphs.
Series: Aerodynamics.

AERO C.04.01.04

Effect of Irving internal balance on hinge-moment coefficient in two-dimensional flow.
Activity: Updated to Amendment D. New Interactive Graphs.
Series: Aerodynamics.

06021

Strength of lugs under transverse load.
Activity: New Interactive Graphs.
Series: Structures.

66016

Bandwidth correction.
Activity: New Interactive Graphs.
Series: Vibration and Acoustic Fatigue, Aircraft Noise.

66017

Combination of levels in dB.
Activity: New Interactive Graphs.
Series: Vibration and Acoustic Fatigue, Aircraft Noise.

66018

The relation between sound pressure level and r.m.s. fluctuating pressure.
Activity: New Interactive Graphs.
Series: Vibration and Acoustic Fatigue.

67023

Geometric stress concentrations. Two equal unreinforced circular holes in infinite flat plates.
Activity: New Interactive Graphs.
Series: Structures, Stress and Strength, Fatigue - Endurance Data.

69023

Average gust frequencies. Subsonic transport aircraft.
Activity: New Interactive Graphs.
Series: Fatigue - Endurance Data.

69026	Airspeed data for performance calculations. **Activity:** New Interactive Graphs. **Series:** Performance.
70011	Lift-curve slope and aerodynamic centre position of wings in inviscid subsonic flow. **Activity:** New Interactive Graphs. **Series:** Aerodynamics.
70015	Fluid forces and moments on flat plates. **Activity:** New Interactive Graphs. **Series:** Aerodynamics.
71004	Flange efficiency factors for curved beams under bending in the plane of curvature. **Activity:** New Interactive Graphs. **Series:** Stress and Strength, Structures.
71005	Buckling of flat plates in shear. **Activity:** New Interactive Graphs. **Series:** Structures.
71011	Stresses due to interference-fit pins and bushes in plates, strips or lugs. **Activity:** New Interactive Graphs. **Series:** Structures, Fatigue - Endurance Data, Stress and Strength.
72005	The estimation of r.m.s. stress in stiffened skin panels subjected to random acoustic loading. **Activity:** New Interactive Graphs. **Series:** Vibration and Acoustic Fatigue.
72015	Endurance of aluminium alloy structural elements subjected to simulated acoustic loading. **Activity:** New Interactive Graphs. **Series:** Vibration and Acoustic Fatigue.
72023	Low-speed longitudinal aerodynamic characteristics of aircraft in ground effect. **Activity:** New Interactive Graphs. **Series:** Aerodynamics.
72024	Aerodynamic characteristics of aerofoils in compressible inviscid airflow at subcritical Mach numbers. **Activity:** New Interactive Graphs. **Series:** Aerodynamics.
75030	Natural frequencies of rectangular flat plates with various edge conditions. **Activity:** New Interactive Graphs. **Series:** Vibration and Acoustic Fatigue.
76015	Aerodynamic centre of wing-fuselage combinations. **Activity:** New Interactive Graphs. **Series:** Aerodynamics.
79037	A guide to fan selection and performance. **Activity:** New Interactive Graphs. **Series:** Fluid Mechanics, Internal Flow.
83040	Method for the rapid estimation of spanwise loading of wings with camber and twist in subsonic attached flow. **Activity:** New Interactive Graphs. **Series:** Aerodynamics.
84026	Aerofoil maximum lift coefficient for Mach numbers up to 0.4. **Activity:** New Interactive Graphs. **Series:** Aerodynamics.
84027	Endurance of fibre-reinforced composite, laminated structural elements subjected to simulated random acoustic loading. **Activity:** New Interactive Graphs. **Series:** Vibration and Acoustic Fatigue, Composites.
85020	Characteristics of atmospheric turbulence near the ground. Part II: single point data for strong winds (neutral atmosphere). **Activity:** New Interactive Graphs. **Series:** Wind Engineering, Aerodynamics.
85029	Calculation of ground performance in take-off and landing. **Activity:** New Interactive Graphs. **Series:** Performance.
88025	Derivation of primary air-data parameters for hypersonic flight. **Activity:** New Interactive Graphs. **Series:** Performance.
89008	Normal-force-curve and pitching-moment-curve slopes of forebody-cylinder combinations at zero angle of attack for Mach numbers up to 5. **Activity:** New Interactive Graphs. **Series:** Aerodynamics.
92042	Ejectors and jet pumps: computer program for design and performance for compressible gas flow. **Activity:** New Interactive Graphs. **Series:** Fluid Mechanics, Internal Flow (Aerospace), Fluid Mechanics, Internal Flow.

94044   Excrescence drag levels on aircraft.
Activity: New Interactive Graphs.
Series: Performance.

AERO C.01.01.03   Rate of change of lift coefficient with control deflection in incompressible two-dimensional flow, (a2)0.
Activity: New Interactive Graphs.
Series: Aerodynamics.

AERO C.04.01.03   Effect of nose balance on two-dimensional control hinge-moment coefficients.
Activity: New Interactive Graphs.
Series: Aerodynamics.

AERO W.01.01.05   Slope of lift curve for two-dimensional flow.
Activity: New Interactive Graphs.
Series: Aerodynamics.

Release 2017-03 (Mar 2017)

TM 181   An assessment of methods for estimation of turbulent boundary-layer profiles.
Activity: New.
Series: Transonic Aerodynamics.

12001   Prediction of turbine noise from aero-engines.
Activity: New/Modified VIEWpac program.
Series: Aircraft Noise.

13001   The prediction of shock noise from supersonic jets including the near-field.
Activity: New/Modified VIEWpac program.
Series: Aircraft Noise.

94036   The prediction of sound attenuation as a result of propagation close to the ground.
Activity: New/Modified VIEWpac program.
Series: Aircraft Noise.

98008   Prediction of noise generated by fans and compressors in turbojet and turbofan engines.
Activity: New/Modified VIEWpac program.
Series: Aircraft Noise.

Release 2017-02 (Feb 2017)

16008   Frictional and retarding forces on aircraft tyres - Introduction to the ESDU methods.
Activity: New.
Series: Performance.

Release 2017-01 (Jan 2017)

No new or amended documents. Organisational and/or cosmetic changes only.