

# The latest evaluated design data from Engineering Sciences Data Unit....

## Can you afford not to use them?

Engineering Sciences Data Unit (ESDU) is a unique organisation that provides authoritative evaluated data for designers working in aeronautical, chemical, mechanical, structural and other engineering fields. These data are produced as *Data Items*, each of which is the result of a critical evaluation of the

world's foremost source data and is presented in graphical and tabular hard copy format. Data Items are concise, easy to use (through worked examples) and, above all, highly accurate and reliable.

The latest ESDU Data Items to be issued are :

Data Item No.	Title
76001	The response of flexible structures to atmospheric turbulence.
76003	Geometric properties of cranked and straight tapered wing planforms.
76004	Vapour pressures and critical points of liquids. VII: halogenated ethanes and ethylenes.
76005	Kinematic and dynamic data for crank-rocker and slider-crank linkages.
76006	Vapour pressures and critical points of liquids. VIII: additional halogenated ethanes and ethylenes.
76007	Fatigue strength of longitudinal fillet weld attachments and joints in steels under axial loading.
76008	Drag of transverse rows of spherically-headed rivets immersed in a turbulent boundary layer at subsonic and supersonic speeds.
76009	Thermal conductivity of liquid halogenated aliphatic hydrocarbons.
76010	Heat capacity and enthalpy of liquids. II: halogenated methanes.
76011	First approximation to take-off field length of multi-engined transport aeroplanes.
76012	Thermodynamic properties of isopropyl alcohol.
76013	Elastic stresses and deflections under uniform pressure of flat rectangular sandwich panels, all edges simply supported (isotropic face plates and orthotropic cores of zero flexural stiffness).
76014	Estimation of end endurance and construction of constant amplitude SN curves from related data corrected for notch and mean stress effects.
76015	Aerodynamic centre of wing-fuselage combinations.
76016	Generalisation of smooth continuous stress-strain curves for metallic materials.
76017	Thermal conductivity of liquid n-alkyl esters of monobasic n-alkanoic acids.
76018	The friction component of pressure gradient for two-phase gas or vapour/liquid flow through straight pipes.
76019	Estimation of fatigue crack growth rates and residual strength of components using linear elastic fracture mechanics.
76020	Estimation of peak values of discrete frequency noise from isolated rotors and propellers.
76021	Dynamic viscosity of carbon dioxide gas and liquid.
76022	Elastic stresses and deflections under uniform pressure of flat rectangular

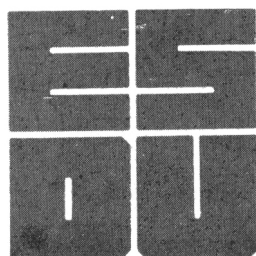
Data Item No.	Title
	sandwich panels; long edges clamped, short edges simply supported (isotropic face plates and orthotropic cores of zero flexural stiffness).
76023	Buckling of struts. Lipped and unlipped channel sections.
76024	Vapour pressures and critical points of liquids. IX: C <sub>2</sub> to C <sub>11</sub> aliphatic ethers and three aromatic ethers.
76025	Vapour pressures and critical points of liquids. X: C <sub>1</sub> to C <sub>18</sub> aliphatic amines.
76026	Lift and drag due to spoiler operation in the ground run.
76027	Introduction to design and performance data for diffusers.
76028	Lift-interference and blockage corrections for two-dimensional subsonic flow in ventilated and closed wind-tunnels.
76029	A guide on the design and selection of dry rubbing bearings.
76030	Thermal conductivity of carbon dioxide gas and liquid.
76031	Fatigue crack propagation in low and medium strength low alloy steel plate, bar and forgings.
76032	Fatigue strength of longitudinal welded joints. Symmetrical section I-beams, web to flange welds and T-sections.
76033	Subsonic base drag of cylindrical bodies with conical boat-tails.
76034	Estimation of thrust for take-off performance calculations: turbo-jet and turbo-fan engines.
77001	Effect of intake total pressure loss on net thrust at take-off: turbo-jet and turbo-fan engines.
77002	Design of parallel axis spur and helical gears – geometric design.
77003	Elastic stresses and deflections under uniform pressure of flat rectangular sandwich panels; all edges clamped (isotropic face plates and orthotropic cores of zero flexural stiffness).
77004	Fatigue life estimation under variable amplitude loading. (To be used in conjunction with Item Nos 76014 and 76016.)
77005	Fatigue crack propagation in high strength low alloy steel plate, bar and forgings.
77006	Thermal conductivity of liquid dialkyl ethers.
77007	Heat capacity and enthalpy of liquids. III: halogenated ethanes and ethylenes.
77008	Pressure losses in curved ducts: single bends.
77009	Pressure losses in curved ducts: interaction factors for two bends in series.

### ESDU service

Users of ESDU's Data Items also benefit by having access to a comprehensive back-up service, provided by the company's permanent staff of qualified engineers.

### Designed to save time and money

Access to reliable and accurate data saves time and money. ESDU data help engineers to optimise their designs quickly, accurately – and cost-effectively. You can find out more by using the journal's free reply service, or by contacting us direct:



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# DECCA AVIONICS

The British Ministry of Defence has chosen the new Decca Doppler 80 system and Automatic Chart Display to be the navigation system for British Army Westland/Aerospatiale Gazelle helicopters.

The contract, which has recently been signed, is worth over £2 million and provides for the equipping of more than 190 aircraft.

A number of overseas governments are showing keen interest in the Doppler 80 system and it is

believed that there is considerable export potential for it.

The basic Decca Doppler 80 system comprises a lightweight Doppler Radar with Position Bearing and Distance Indicator (PBDI). The Automatic Chart Display chosen by MOD is an additional system option.

The choice of the new Doppler 80 system follows the success of the Decca Doppler 70 series. Production of the 70 series Doppler now exceeds 1,000 units. The equipment has been

fitted to some 86 different types of fixed and rotary winged aircraft and is used by 45 different nations.

The Doppler 80 system has been designed specifically as a complementary system to the 70 series and will meet the operational requirements of small helicopters where cost, size, ease of installation and light weight are of paramount importance.



A Decca Doppler 80 equipped Westland/Aerospatiale Gazelle helicopter.



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