

// Website research infrastructure

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Experimental facilities & analysis capacity



Data & information management and computing infrastructure

Infrastructure Categories		Infrastructure	
	Overview		
	Type of laboratory / analysis	Soete laboratory offers research collaboration and industrial services in component design, material characterisation, testing and consultancy. Our strength lies in the fields of tribological investigation of friction and wear analysis, fracture mechanics and fatigue. Both experimental and computational expertise is available to provide professional and in-depth analysis. ^{2,3}	
	Marine land-based facilities for engineering	<p>Universal multi-purpose test rigs with load range from kN to MN</p> <ul style="list-style-type: none"> Tension, compression, quasi-static, fatigue (up to 25 Hz) ^{2,3} Modular test floor (components up to 20 x 4 x 3 m³) ^{2,3} <p>Tribological test rigs in N to MN range Standard test rigs: High Temperature Tribometer, Pin-on-disc tester, Plate-on-plate clutch tester ^{2,3}</p> <p>In-house developed and customised equipment:</p> <ul style="list-style-type: none"> Large-scale reciprocating bearing test rig ^{2,3} (inner bearing diameter up to 400 mm) ^{2,3} Medium- to large-scale flat on flat tribometer ^{2,3} (samples up to 200x300mm²) ^{2,3} Torque Machine up to 5000 Nm ^{2,3} Modified FZG tester ^{2,3} Plint reciprocating stick-slip tester ^{2,3} Conveyor chain wear test rig ^{2,3} Shackle chain wear test rig ^{2,3} <p>Fatigue Testing</p> <ul style="list-style-type: none"> Resonant bending fatigue setup for pipelines and risers (up to 14 inch, up to 30 Hz) ^{2,3} Three/Four point bending of beams and girders up to 1000 kN ^{2,3} Internal pressure up to 210 bar ^{2,3} 	<p>Fracture Mechanics Testing</p> <ul style="list-style-type: none"> Curved Wide Plate Tensile test setup up to 8 MN ^{2,3} Charpy impact pendulum test setup up to 400 J ^{2,3} CTOD, SENT, DENT, CT test capabilities ^{2,3} Tensile testing of standardized and non-conventional components ^{2,3} <p>Advanced measurement and monitoring techniques</p> <ul style="list-style-type: none"> 3D Dynamic high speed optical displacement measurement system (PONTOS) ^{2,3} 3D Optical full-field deformation, strain and profile measurement system (VIC-3D) ^{2,3} Direct Current Potential Drop for e.g. on-line crack growth measurement ^{2,3} High accuracy infrared thermography ^{2,3} Vickers hardness with automatic mapping functionality ^{2,3} Various roughness testers ^{2,3} 3D surface characterisation using white light interferometry (down to 0.1 µm) ^{2,3} High speed multi channel (>64) strain gauge measurement ^{2,3} In situ condition monitoring ^{2,3} <p>Soete laboratory is specialised to tailor equipment for harsh, including marine, environments</p>
	Num. models, spec. software and comp. IR	<p>Finite Element Software</p> <ul style="list-style-type: none"> Abaqus, Ansys ^{2,3} <p>Numerical and analytical calculations</p> <ul style="list-style-type: none"> Matlab, Maple, Python ^{2,3} Computational Fluid Dynamics ^{2,3} CAD/CAE: SolidWorks ^{2,3} 	<p>Data acquisition software</p> <ul style="list-style-type: none"> LabVIEW, Python ^{2,3} Access to High-Performance-Computing (HPC) infrastructure ^{2,3} In-house software development and automated execution of parametric studies ^{2,3}