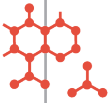




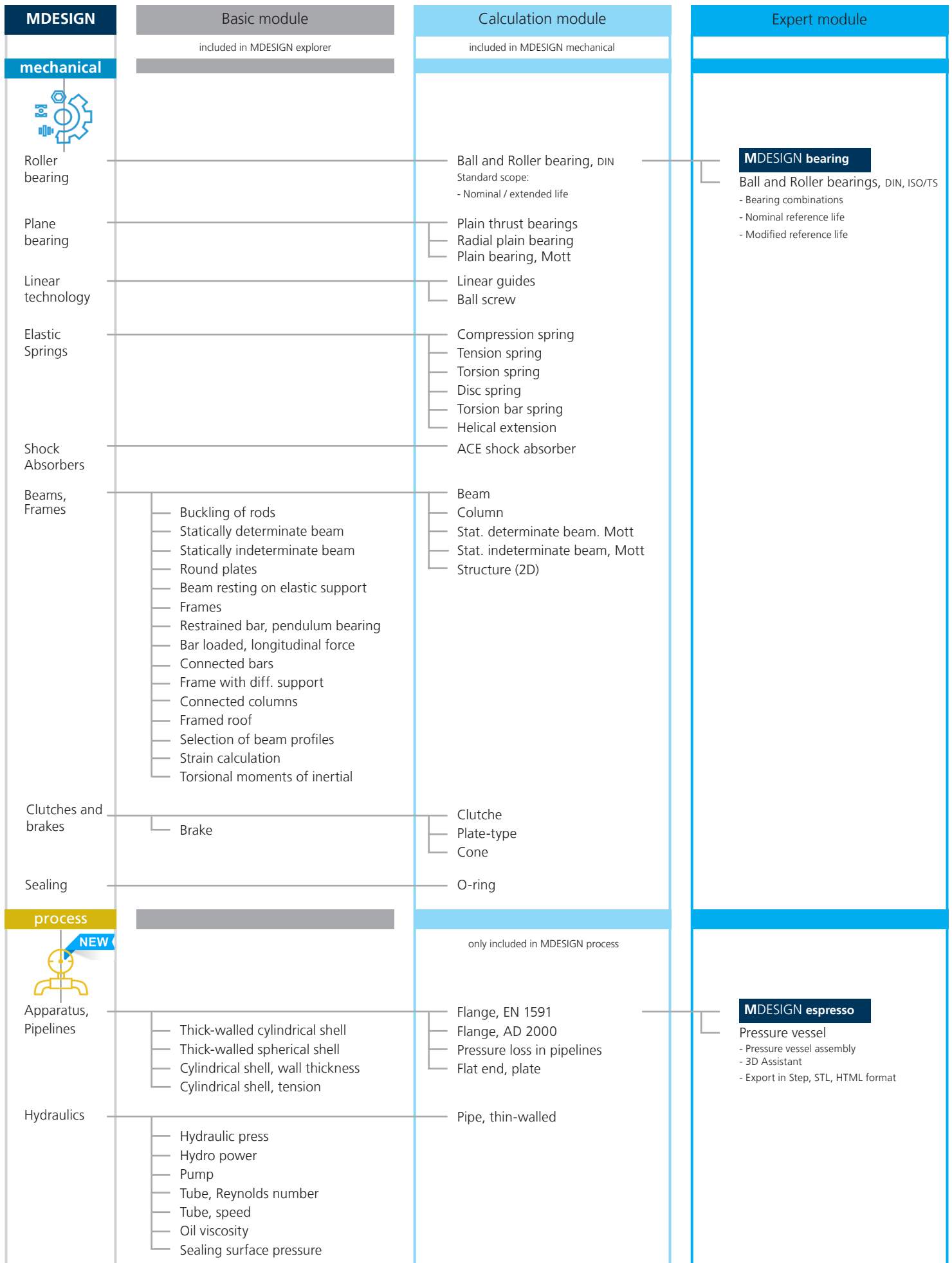
MODULEOVERVIEW

MDESIGN 2022



MDESIGN	Basic module	Calculation module	Expert module
technology	included in MDESIGN explorer	included in MDESIGN mechanical	
	- Hertzian pressure - Equivalent stress - Hardness values - Stress concentration - General tolerance - Thermal expansion - ISO-Fit system - Tolerance calculation - Pressure between bodies - Efficiency factor - Surface pressure - Cylindrical shell - Conical shell - Spherical shell - Rotationally symmetrical shell - Toroidal shell, membrane stress - Pipe - Long conical shell - Cylindrical shell with ends - Bending and membrane tension - Spherical shell	Material data - temperature-dependent value calculation	MDESIGN technology General strength assessment - according to FKM guideline - dynamic and static strength - welded/non-welded components
mechanical			
			
Shaft, Axles	- Parallel key notches - Grooved shafts - Splined shaft notches - Crosed bored shafts - Snap rings for shafts - Reduced shafts - Friction on bearing/ring pin - Design diameter for axes - Stresses in a beam - Recesses DIN 509 - Combined stress, Mohr's circle - Shaft, ANSI	Shaft, DIN 743 Standard scope: - Up to 8 fillets - Up to 2 bearing units	MDESIGN shaft Shaft, DIN 743 extended calculations: - Up to 100 fillets, also conical - Up to 12 bearing units - Individual notch factors - Bearing stiffnesses - Bending-critical speeds - Hollow shaft, vertical shaft - Use of own materials - Geometry import in step format - Export in step, STL, HTML format Shaft, FKM - Strength verification, FKM guideline - Use of FE data - Integrated solver - Dynamic and static strength - Export in Step, STL, HTML format
Shaft-hub connections	- Surface press. con. press-fit joints - Surface press. serrated profile	- Splined shaft connection - Parallel key connection - Split hub - Split lever hub - Tapered connection - Clamping device joint - Axial bracing - Cylindrical press-fit connection - Serrated shaft - Polygonprofile, P3G and P4C - Parallel key, Mott - Woodruff key, Mott	
Welded connections		Weld, standard Standard scope: - Calculation according to DVS Weldet Joint, AISC	MDESIGN weld Weld - Calculation according to Eurocode 3 - Calculation according to FKM guideline

MDESIGN	Basic module	Calculation module	Expert module
	included in MDESIGN explorer	included in MDESIGN mechanical	
mechanical			
			
Screw-connections	- Forces on the bolt - Design of prestressed boltings - Bolt sizes	- Bolted joint, VDI 2230 - Standard scope: - Centric load - Standard bolts - 2 braced components - Material database - Power screws - Power Screws, Mott - Moment loaded joints - Bracket joints - Bolted connections	MDESIGN bolt - Bolted joint, VDI 2230 - advanced calculations: - Eccentric load case - Factory bolt geometries - Hollow bolts, flange bolts, stud bolts - Bolts with inch diam. (UNC, UNF, UNEF) - Up to 10 braced components / plates - Temperature consideration - Use of own materials - Use of own bolt dimensions - Extended material database according FKM - Clamping washers / self-locking nuts - Transfer of forces from FE results - Extended plate detailing - Dynamic stressing diagrams - Bolted connection, Eurocode 3 - Load ratios MDESIGN multibolt - Multi-bolt connection - Calculation according to VDI 2230 sheet 2 - Load distribution / multi bolted connection - Integrated solver - Free flange and adjacent construction - Bolt patterns / arbitrary arrangements - Determination of the highest loaded bolt - Strength verification, VDI 2230 sheet 1 - Export in Step, STL, HTML format
Bondet joints		- Bondet joint, tensile load - Bondet joint, tangential load - Bondet joint, torsional load	
Riveted, soldering joints	- Soldering joint - Riveted joint		
Bolts, Pins	Shearing strain	- Crossbolt - Guiding pin - Longitudinal pin - Transverse pin	
Gearing	Layout of gear pair	- Cylindrical gear, standard DIN - Cylindrical gear, gear rack - Bevel gear, hypoid gear DIN - Cylindrical worm gear - Splines, US standard - Worm gear, US standard - Bevel gear, US standard - Helical gear, US standard - Spur gear, US standard	MDESIGN gear - Cylindrical gear, AGMA, ISO - Cylindrical gear, tooth flank fract. - Cylindrical gear, micropitting - Cylindrical gear, plastic - Bevel-, hypoid gear AGMA, DNVL - Crown gear - Ring gear, rim influence
Gears			MDESIGN gearbox - Gearbox assembly MDESIGN lvr - Tooth contact analysis, spur gear MDESIGN lvr^{planet} - Tooth contact analysis, planetary gear
Belt-, chain drives		- Synchronous belt - Belt contact - Normal V-belts - Narrow V-belt - Roller chain - V-belt, Mott	



MDESIGN	Basic module	Calculation module	Expert module
	included in MDESIGN explorer		
nature			
	- Physics - Mechanics of deformable bodies - Hydrostatics and hydrodynamics - Kinematics - Dynamics - Gravity - Rotat. movement of rigid bodies - Damped mechanic oscillation - Superposition of mec. oscillations - Undamped mech. oscillation - Calculation of elongation - Mass moments of inertia - Moments of inertia of the area - Axial mass moments of inertia - Axial moments of inertia of area - Compression load, buoyancy		
Geometry	- Geometry data (2D) - Geometry data (3D) - Calculation of triangle - Cross-section properties - Partitions of lengths		
Dynamics	- Torsional stress in a shaft - Dynamic stress in a tightrope - Forces on hoisting devices - Mech. Power at rotary motion - Inclined plane - Stress of a beam/shock loading		
manufacture			
	- Main machine time, cutting speed - Full forward extrusion - Metal-cutting - Deep drawing - Bending forming - Appr. calculation roughness dim. - Manufacturing technique, surface roughness		
control			
	- Materials, springs - Dimensions, beam - Dimensions, bolted joint - Materials, bolted joint - Plastics - Lubricants - Materials, plant - Characteristic values, gasket - Reference profiles, gears - Materials, shaft		MDESIGN MDESIGN GmbH - Sales Department Koenigsallee 45 D-44789 Bochum - Germany phone +49 234 30703-60 fax +49 234 30703-69 email info@mdesign.de web www.mdesign.de/en powered by TEDATA