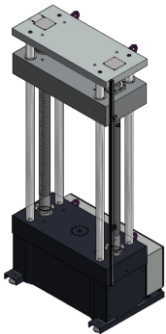




***1000 kN Electromechanical Universal Testing Machine with additional Side Test-Area 200 kN***

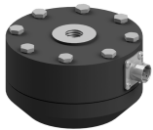
Item	Qty	Description	
		<p><b><i>General Information</i></b></p> <p><b>General statements:</b> All quoted equipment complied with the new machinery directive 2006/42/EG.</p> <p><b>Clarifications to 2006/42/EG if the testing machine is supplied without protection device:</b></p> <ul style="list-style-type: none"> <li>• The operator of the delivered testing machine agrees that during operation no danger occurs from his probes.</li> <li>• Danger of his probes can be (non-exhaustive enumeration): flying away, jumping out or falling down of probes or parts of it as well as quality and kind of stressing of the probes.</li> <li>• Excluded liability if operator integrates his own tools and fixtures and changes parts on testing machine without consultation (with written approval) of the manufacturer.</li> </ul>	


Item	Qty	Description	
24-3460-000  	1	<p><b>Electromechanical Universal Testing Machine LFM-1000</b>  in rigid 6-column-construction with high stiffness and precision aligned for virtually any static (monotonic) test including tension-, compression- or bending tests on different specimen and materials.  The LFM series is modular constructed and can be configured with a variety of grips and fixtures, extensometers, different software packages and other accessories to suite your specific testing needs.  Compression platens or bending/folding devices may be fixed directly onto wedge grips. Accuracy according to ISO 7500-1 etc. class 0.5 with high resolution and synchronized measurement of all channels.</p> <p>Features:</p> <ul style="list-style-type: none"> <li>• One test area with ergonomically working height</li> <li>• Rigid 6-Column machine frame with high stiffness providing superior axial and lateral stiffness and guarantees robust, durable and long-term operation</li> <li>• High machine stiffness and appropriate machine mass reduces shock at sample failure and provides smooth breaking</li> <li>• Two precise, backlash-free ball screw assembly provides high load capacity, high positioning accuracy and repeatability</li> <li>• Controlled by a brush-less high responsive, maintenance-free AC servomotor to drive the mobile traverse (crosshead) providing faster starts and stops, best control, and highest accuracy at extremely low noise level</li> <li>• AC servomotor provides continuous high test speed up to nominal force for continuously operation</li> <li>• Additional four (4) guiding columns for increased lateral stiffness</li> <li>• Spindles (ball-screws) with flange double-nut, sealed and greased for long maintenance intervals</li> <li>• Spindle, flange double-nut and ball-screw shaft grinded pairwise for reduced pitch error</li> <li>• On-point, in-service lubrication</li> <li>• Spindle protection over full travel through oil- and moisture-resistant, sealed bellows made from polyester fabric, coated with polyurethane inside and out</li> <li>• Precision strain gauge load cell mounted on (moveable) crosshead optional available alignment fixture mounted between crosshead and load cell with related alignment verification equipment</li> <li>• Digital movable crosshead encoder for high resolution, high accurate crosshead measurement and closed loop control</li> <li>• Standardizes mounting to mount grips</li> <li>• Adjustable stops in both (up/down) directions for the best protection of operator, test sample and machine</li> </ul>	Included

Item	Qty	Description	
		<ul style="list-style-type: none"> <li>• End stops for maximum travel protection</li> <li>• Electrical cabinet with complete power supply and control module, relays etc. mounted on rear side of machine's base</li> <li>• Durable structured coating (paint)</li> <li>• Use of high quality components and assemblies of reputable companies</li> <li>• Eye bolts for lifting the machine</li> <li>• Adjustable machine feet to level the testing machine</li> <li>• The machine is free-standing on shock absorbers, requiring no special foundations</li> <li>• Ergonomic working height</li> <li>• High efficiency helical-bevel gearbox (not a worm-type gearbox) provides with a high degree of efficiency of over 96% in both torque directions and at all input speeds. With performance designed to last – high-endurance gearing enables high-torque and wear-free operation, as well a long maintenance-free service life with reduced backlash.</li> <li>• Noise level of testing machine is less than 70 dBA.</li> </ul> <p>Technical data:</p> <ul style="list-style-type: none"> <li>• Static test load max. (FN) <math>\pm 1000 \text{ kN}</math></li> <li>• Test speed max. (VN) <math>0.0005 - 250 \text{ mm/min}</math></li> <li>• Accuracy according to ISO 7500-1, ASTM E4 <ul style="list-style-type: none"> <li>from 1 to 100% Cl. 0.5</li> <li>from 0.5 to 1% Cl. 1</li> </ul> </li> <li>• Force measuring resolution <math>\pm 8'338'600 \text{ points}</math></li> <li>• Crosshead measuring system <math>\pm 8'338'600 \text{ points}</math></li> <li>• Crosshead speed accuracy better 0.01% of VN</li> <li>• Height of test area 2130 mm</li> <li>• Test area width 1100 mm</li> <li>• Working height (lower platen) 918 mm</li> <li>• Frame stiffness (at 250 mm) 1300 kN/mm</li> <li>• Power requirements 3x 400V, 50 Hz, 8.1 kW</li> <li>• Colours RAL 7015, RAL 7035</li> <li>• Dimensions WxDxH 1680 x 1180 x 3718 mm</li> <li>• Weight 7550 kg</li> <li>• Scope 1 pc.</li> </ul>	

Item	Qty	Description											
		<p><b>Optional Lateral Extension for additional working rooms:</b></p> <p><b>Side Test-Area Extension</b> Machines with side test-area(s) features a 2nd area which is located on the left (optional available on the right side) of the frame. A key advantage to have the additional test area on the side it, that this solution offers an ergonomically work height and good access to all test areas. The side test-area design is available for all our electromechanical testing machines series. The capacity of the side test area(s) can be selected according to your requirements and accessories.</p> <p><b>Key Advantages of Additional Test Areas</b></p> <ul style="list-style-type: none"><li>• Increase our productivity as reconfiguration time is minimized or eliminated.</li><li>• Extends your application range across the spectrum.</li><li>• An additional test area will reduce the need of changing of heavy grips &amp; fixtures reducing your setup time and makes operation safer and easier.</li><li>• Your test accuracy and flexibility will increase as you can individually select for each test area the suitable load cell capacity, suitable clamps and accessories for suitable for your different materials or environmental conditions.</li><li>• Using the optimal force transducer capacity assures you have the highest possible output signal from your transducer.</li><li>• Maintaining the set alignment minimizing the bending strains that can invalidate your test results.</li><li>• Reduce the space required in your laboratory compared with two independent machines.</li><li>• Reduces your investment compared with two independent machines.</li><li>• Reduces your maintenance costs, calibration expenses and IT costs.</li></ul>											
LFM1000-200	1	<p><b>200 kN Side Test-Area to model LFM-1000</b> Extension of the base and crosshead to create two testing rooms:</p> <ul style="list-style-type: none"><li>• Load capacity up to 1000 kN in the central testing room</li><li>• Load capacity up to 200 kN in the lateral testing room</li></ul> <p>NOTE: optionally, the automatic extensometer can be used in both testing rooms with a special sliding arrangement (optional item).</p> <table><tr><td><b>Dimensional drawing:</b></td><td><b>59-5739-001</b></td></tr><tr><td>Overall dimensions WxDxH</td><td>1860 x 1100 x 3718 mm</td></tr><tr><td>Working height</td><td>918 mm</td></tr><tr><td>Testing room</td><td>2130 mm</td></tr><tr><td>Distance between grips</td><td>1200 mm</td></tr></table>	<b>Dimensional drawing:</b>	<b>59-5739-001</b>	Overall dimensions WxDxH	1860 x 1100 x 3718 mm	Working height	918 mm	Testing room	2130 mm	Distance between grips	1200 mm	
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Overall dimensions WxDxH	1860 x 1100 x 3718 mm												
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Item	Qty	Description	
30-1184-000 	1	<p><b>High Precision Flanged Tension/Compression Load Cell 1000 kN</b></p> <p>with extraordinary support effect in light-weight design suitable for accurate measurement and control of large forces.</p> <p>Features:</p> <ul style="list-style-type: none"> <li>• For static and dynamic tension and compression forces</li> <li>• Extremely robust against transverse forces and bending moments</li> <li>• Easy to mount, versatile adjustment options</li> <li>• Fatigue resistance up to <math>\pm 80\%</math> nominal load</li> <li>• Especially accommodating toward overloads</li> </ul> <p>Technical data:</p> <ul style="list-style-type: none"> <li>• Nominal force 1000 kN</li> <li>• Accuracy class 0.05</li> <li>• Reproducibility error <math>\pm 0.005\%</math></li> <li>• Linear error <math>\pm 0.05\%</math></li> <li>• Hysteresis <math>\pm 0.1\%</math></li> <li>• Rated characteristic value 2 mV/V</li> <li>• Influence of lateral forces <math>\pm 0.2\%</math> / 0.1F<sub>nom</sub></li> <li>• Maximum lateral load <math>\pm 80\%</math> (static)</li> <li>• Influence of torque F<sub>nom</sub> <math>\pm 0.005\%</math> per mm</li> <li>• Eccentricity influence <math>\pm 0.02\%</math> per mm</li> <li>• Overload safe 150%</li> <li>• Breaking force 300%</li> <li>• Spring rigidity 5000 kN/mm</li> <li>• Temperature effect on zero 0.05% /FS/10K</li> <li>• Operated temperature range -10° till +60°C</li> <li>• Dimensions ØxH 240 x 230 mm</li> <li>• Weight 19 kg</li> <li>• Scope 1 pc.</li> </ul> <p><u>Note:</u> Including cable, connector and suitable adapter (for main transducer).</p>	Included



Item	Qty	Description	
30-5531-000 	1	<p><b>High Precision Tension / Compression Load Cell 200 kN</b> in low-profile and low-mass design with precision base for accurate force measurement and control of static forces.</p> <p>Features:</p> <ul style="list-style-type: none"> <li>• Temperature compensated strain gages</li> <li>• High performance</li> <li>• High output value</li> <li>• Eccentric load is compensated</li> <li>• Very low temperature effect on output</li> <li>• Low deflection</li> <li>• Shunt calibration</li> <li>• Barometric compensation</li> <li>• Tension and compression</li> <li>• Compact size</li> </ul> <p>Technical data:</p> <ul style="list-style-type: none"> <li>• Nominal force <math>\pm 200</math> kN</li> <li>• Nonlinearity <math>\pm 0.04\%</math> FS</li> <li>• Hysteresis <math>\pm 0.05\%</math> FS</li> <li>• Non-repeatability <math>\pm 0.01\%</math></li> <li>• Creep in 20 min <math>\pm 0.025\%</math></li> <li>• Temperature effect on zero <math>\pm 0.0015\%</math> RO</li> <li>• Rated output 4 mV/V</li> <li>• Max. operating force <math>\pm 150\%</math></li> <li>• Material alloy steel</li> <li>• Natural frequency 6.5, 7.0 kHz</li> <li>• Cable length 3 m</li> <li>• Operating temperature range <math>-55^{\circ}</math> to <math>+90^{\circ}\text{C}</math></li> <li>• Dimensions <math>\varnothing \times H</math> 154 x 89 mm</li> <li>• Weight 4.3 kg</li> <li>• Scope 1 pc.</li> </ul> <p><u>Note:</u> Including cable, connector and suitable adapter (for main transducer).</p>	Included


Item	Qty	Description	
81-0001-002 	1	<p><b>Ultra-High-Speed High Resolution Digital Materials Testing Controller PCS8000 (V4)</b></p> <p>for static and dynamic material testing in closed loop load-, displacement-, deformation or external mode. The PCS system can be extended to accommodate multiple-channels of control, in connection with the free programmable software-package DION7. Real-time, multitasking control system with high resolution and high control and data acquisition rate with synchronization of all channels. This modular and versatile fully digital controller represents the latest generation of ultra-high-speed and high-resolution controller for the full spectrum of applications ranging from materials and component tests to complex multi-axis (multi-channel) simulation. The unit can control everything from monotonic electromechanical testing machines to electrodynamic or servohydraulic systems, single channel actuators to multi-channel test stands. This controller is the 4<sup>th</sup> generation of the multi-channel PCS digital controller family with consequent enhancement and continuous implementation of customers inputs and feedbacks and hundredfold successfully installations across the globe. As control channels, additionally to physical channels, there are available as well as virtual (calculated) channels that might open many new opportunities in testing applications. The versatile concept of the PCS8000 unit is based on latest technology and supports applications with virtually no limits.</p> <p>The PCS8000 is highly modular and allows an easy extension of control channels or stacking several PCS8000 units in a multi-channel control system. The controllers are reliably built and equally dedicated for severe conditions and industrial operation, are as well flexible, feature-rich, and simple to use. This controller is the foundation of a powerful and scalable testing environment of any laboratories. The PCS system can be extended to accommodate multiple-channels of control, in connection with the free programmable software-package DION7.</p> <p>Features:</p> <ul style="list-style-type: none"> <li>• Adaptive peak control</li> <li>• Adaptive algorithmic control and PID, PIDT, PIDM parameter modification and compensation of sample stiffness gradient</li> <li>• Interaction of a second control loop (like deformation control in correlation of target setting of force)</li> <li>• All installed sensors are available as measuring and/or control channel.</li> <li>• Stable data acquisition rate of 20 kHz overall channels</li> <li>• Resolution of 24 Bit overall channel</li> <li>• Programmable sequencer (almost unlimited possibilities in using loops, determined and absolute ramifications, triggers, variables, etc.)</li> </ul>	Included

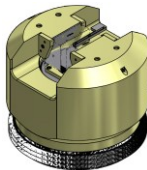
Item	Qty	Description	
		<ul style="list-style-type: none"> <li>• All data channels are available for calculations.</li> <li>• Synchronization with more digital controllers for multi-channel applications, programming in XML, graphic programming via DION software, post-testing procedures over Wave data, etc.</li> <li>• Display of operating status for hardware on the controller front panel, self-test modus, system monitoring, as well control loop</li> <li>• Ethernet plug with self-monitoring LED for high-speed link and emergency stop circuit, valid signal for high-speed link, Display during communication.</li> <li>• Control signal exit for servovalves or servodrives with 24V (2.5A) for servovalves with integrated driver electronic. Adjustable (20 mA to 300 mA) current driver, as well <math>\pm 10V</math> signal.</li> <li>• Transducer coding (SGS) with automatic recognitions of transducer and calibration.</li> <li>• Control modes any connected input (load, stroke, strain, etc., or calculated variables with dumpless transfer).</li> <li>• Conditioners up to 12 extendable, including two integrated channels on board (SSI/LVDT and strain gauge signals), selectable according to sensors A/D inputs and D/A outputs.</li> <li>• The electronics of digital controller possesses galvanic isolation from ground. Likewise, the high-speed link is isolated. Based on this design, these digital controllers are also isolated in a multi-channel system. The advantage is a very high reliability even of fluent ground current or potential differences. Programmable limit values for each sensor and sample protection are available.</li> <li>• Linear correction or polynomial of 3<sup>rd</sup> to 10<sup>th</sup> order with separate polynomial for positive and negative measuring values are available.</li> <li>• Highly modular with the possibility of extension up to 10 units of PCS8000 controller in one system.</li> <li>• Onboard amplifier cards for one main load channel (strain gauge signal) and one stroke channel (digital signal) integrated in each unit.</li> <li>• Control modes of any connected input load, stroke, strain, etc. or calculated.</li> <li>• Selectable filter on each channel.</li> <li>• RS485 interface to environmental chambers, furnaces, and other devices. The interface allows the reading up to 10 temperatures simultaneously for data acquisition.</li> </ul>	

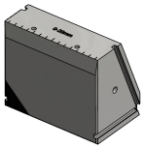
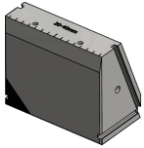
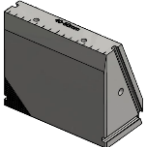



Item	Qty	Description	
		<p><b>Technical data:</b></p> <ul style="list-style-type: none"> <li>• Control channels 1 (extendable)</li> <li>• Number of extendable channels 12</li> <li>• Number of virtual channels max. 32</li> <li>• Number of digital output / inputs 12 / 12</li> <li>• Close loop control rate max. 20 kHz</li> <li>• Data transfer max. 20 kHz</li> <li>• Internal data sampling rate max. 2 MHz</li> <li>• Data acquisition / signal conditioners 24 bit</li> <li>• Linearity error 0.001%</li> <li>• Measurement bandwidth without filter 3 MHz</li> <li>• Control processor GP 64 bit</li> <li>• Controller version 4</li> <li>• Serial connections RS232 and RS422/485</li> <li>• Interfaces to PC Ethernet 10/100 Mbit</li> <li>• Electric power 90-260V, 47-63Hz, 2A</li> <li>• Dimensions WxDxH 430 x 320 x 88 mm</li> <li>• Weight 10.9 kg</li> <li>• Scope 1 pc.</li> </ul> <p><u>Note:</u> Set of cables of max. 5 meters length to the employed sensors or according to the layout drawing, are included into a standard delivery of PCS-control system with testing machine.</p> <p><b>Scope of supply consists of:</b></p> <ul style="list-style-type: none"> <li>• <b>PCS8000</b> digital controller</li> <li>• Per each digital controller: Two (2) On-Board measuring amplifier one (1) for Strain Gage signals (for example force or torque) and one (1) for LVDT or Digital signal (for example piston/spindle strokes/displacement or rotational angle transducer, encoder etc).</li> <li>• 12 digital outputs</li> <li>• 8 digital inputs</li> </ul> <p>RS-485 interface to environmental chambers, furnaces and other devices. The interface allows to read up to 10 temperatures for data acquisition through <b>PCS8000</b> / <b>DION7</b>.</p> <p>Remark: <b>PCS8000</b>/ <b>DION7</b> allows to temperature acquisition as well as control of environmental chambers, furnaces and other devices by sending set-values as temperature(s), heating speed etc. Programmable in <b>DION7<sub>FPI</sub></b>, <b>DION7<sub>STAT</sub></b>, <b>DION7<sub>LOW</sub></b> etc</p>	Included 1x for force and 1x spindle stroke


Item	Qty	Description																					
81-0009-000	1	<div></div> <p><b>Handset</b> <b>The PCS8000 Handset is a multifunctional remote-control handset with touchscreen (5.7") that provides another interface (in addition to the Dion7 software) where you can control the testing machine. The Remote-Control Handset with LCD Touchscreen offers convenient Test Set-up and Operation of the Testing Machine and its accessories</b></p> <p>Some Handset functions are:</p> <ul style="list-style-type: none"><li>• Touchscreen size 5.7"</li><li>• Digital Display of Force / Displacement / Deformation (if extensometer is connected) or other channels</li><li>• Zeroing of all channels</li><li>• Move the piston or crosshead up and down with different selectable speeds. The fine job lets you set an accurate zero extension point or set a precise grip position for loading specimens.</li><li>• Crosshead Unclamping and Positioning (rise or lower)</li><li>• Opening and closing of pneumatic, motorized or hydraulic grips</li><li>• Emergency Button</li><li>• Start / Stop the test</li><li>• Key-Switch to activate the setting mode according to the new CE Machine directive for testing machines or actuators without safety guard.</li></ul>	Included																				
81-0020-000	1	<div></div> <p><b>UNI Data Acquisition Module</b> <b>Sensor Conditioning Module for Strain-Gage Transducers</b> for PCS8000 digital controller. Universal module is dedicated for both DC and strain gauge inputs, and can be employed for analogue input signal from strain gauge based sensors, load cells, as well as for analogue input signal of <math>\pm 10V</math> of direct current, used for extensometers, displacement transducers and all other devices that work with 10V.</p> <p>Technical data</p> <table><tr><td>• Resolution</td><td>24 Bit</td></tr><tr><td>• Non-linearity</td><td>0.001%</td></tr><tr><td>• Sample rate</td><td>8.1/10.4/12.4/14.4 kHz</td></tr><tr><td>• Differential DC input</td><td>not galvanically isolated</td></tr><tr><td>• Input ranges (DC)</td><td><math>\pm 10, 5, 2.5, 1.25 V</math></td></tr><tr><td>• Input ranges (DMS)</td><td><math>\pm 0.5, 1, 2, 4, 8 mV/V</math></td></tr><tr><td>• Input voltage max. (DC)</td><td><math>\pm 11 V</math></td></tr><tr><td>• Input voltage max. (DMS)</td><td><math>\pm 104 mV/V</math></td></tr><tr><td>• Common mode range</td><td><math>\pm 10 V</math></td></tr><tr><td>• Connector</td><td>15 pins</td></tr></table>	• Resolution	24 Bit	• Non-linearity	0.001%	• Sample rate	8.1/10.4/12.4/14.4 kHz	• Differential DC input	not galvanically isolated	• Input ranges (DC)	$\pm 10, 5, 2.5, 1.25 V$	• Input ranges (DMS)	$\pm 0.5, 1, 2, 4, 8 mV/V$	• Input voltage max. (DC)	$\pm 11 V$	• Input voltage max. (DMS)	$\pm 104 mV/V$	• Common mode range	$\pm 10 V$	• Connector	15 pins	Included (1 x additional load cell)
• Resolution	24 Bit																						
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• Common mode range	$\pm 10 V$																						
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Item	Qty	Description	
81-0006-000 	3	<p><b>System Plug with EEPROM for analogue VDC, Strain-Gauge, LVDT or digital signal</b></p> <p>System plug PCS8000.SENS for connecting sensors and measuring signals to the amplifier cards PCS8000.DC, PCS8000.DMS, PCS8000.LVDT und PCS8000.ENCOD.</p> <p>The system plug features an integrated memory (16kBitEEPROM), what allows to store all necessary data as calibrations data of connected sensor.</p> <p>Once a sensor is configured and calibrated, it can be used on each controller PCS-8000 without any kind of additional settings.</p> <p>Technical data</p> <ul style="list-style-type: none"> <li>Connector D-Sub 15-pin</li> <li>Memory EEPROM 16 kBit</li> <li>Size of optional available resistance Minimelf MM0204</li> </ul>	<p><b>Included</b> (2 x for force and 1x displacement sensors)</p>

Item	Qty	Description																							
22-6066-000	1	<div></div> <p><b>Set of Dynamic Rated Hydraulic Non-shift Wedge Grips WGR-1000-H</b></p> <p>The hydraulic wedge grips WGR-H series are general-purpose wedge grips for static, pseudo-static and dynamic (through-zero) testing which provides excellent sample grip on a variety of materials. The open-front construction affords the quick and easy insert of a specimen. This enables to reduce time for sample mounting and alignment, and thus to perform more tests.</p> <p>WGR series allow also the proper clamping of short specimens. The wedge inserts remain stationary at the same vertical position when applying initial gripping force to sample, while the body of the grip is moving. This feature minimises the preload applied to the sample by the grips and avoids a compressive force being applied prior to testing.</p> <p>Features:</p> <ul style="list-style-type: none"><li>• Side-loading hydraulic wedge grips</li><li>• Precisely aligned</li><li>• Open-front construction with symmetrical housing design for easy change of inserts, front loading of specimens, preventing ingress of scale and dust etc.</li><li>• Suitable also for short specimens</li><li>• Including adjustable centring plate for flat specimens</li><li>• Including grip control system mounted direct on the machine. The system allows an independent control of the grips (independently upper and lower grip).</li><li>• The desired clamping force can be easily pre-selected and is measured and displayed on a digital readout.</li><li>• Including hydraulic power pack</li><li>• Including connecting adapter to the existing machine</li></ul> <p>Technical data:</p> <table><tr><td>• Static load max.</td><td>± 1000 kN</td></tr><tr><td>• Dynamic rating (through zero) max.</td><td>± 1000 kN</td></tr><tr><td>• Clamping force range</td><td>0 – 1300 kN</td></tr><tr><td>• Sample diameter max.</td><td>70 mm</td></tr><tr><td>• Flat sample thickness max.</td><td>60 mm</td></tr><tr><td>• Clamping length</td><td>130 mm</td></tr><tr><td>• Clamping area max. WxH</td><td>150 x 130 mm</td></tr><tr><td>• Temperature range</td><td>-40° to +100°C</td></tr><tr><td>• Dimension ØxH</td><td>470 x 340 mm</td></tr><tr><td>• Weight each</td><td>343 kg</td></tr><tr><td>• Scope</td><td>2 pcs.</td></tr></table>	• Static load max.	± 1000 kN	• Dynamic rating (through zero) max.	± 1000 kN	• Clamping force range	0 – 1300 kN	• Sample diameter max.	70 mm	• Flat sample thickness max.	60 mm	• Clamping length	130 mm	• Clamping area max. WxH	150 x 130 mm	• Temperature range	-40° to +100°C	• Dimension ØxH	470 x 340 mm	• Weight each	343 kg	• Scope	2 pcs.	Included
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• Scope	2 pcs.																								

Item	Qty	Description	
22-3057-000 	1	<b>Set of Jaws for Flat Specimen 0 – 20 mm</b> for WGR-1000/-1500 grips <ul style="list-style-type: none"> <li>Clamping area WxH 150 x 130 mm</li> <li>Serration Pyramidal</li> <li>Hardness 60 HRc</li> <li>Temperature range -40° to +100°C</li> <li>Dimensions WxDxH 150 x 90 x 130 mm</li> <li>Weight each 11.4 kg</li> <li>Scope 4 pcs.</li> </ul>	Included
22-3058-000 	1	<b>Set of Jaws for Flat Specimen 20 – 40 mm</b> for WGR-1000/-1500 grips <ul style="list-style-type: none"> <li>Clamping area WxH 150 x 130 mm</li> <li>Serration Pyramidal</li> <li>Hardness 60 HRc</li> <li>Temperature range -40° to +100°C</li> <li>Dimensions WxDxH 150 x 80 x 130 mm</li> <li>Weight each 9.9 kg</li> <li>Scope 4 pcs.</li> </ul>	Included
22-3059-000 	1	<b>Set of Jaws for Flat Specimen 40 – 60 mm</b> for WGR-1000/-1500 grips <ul style="list-style-type: none"> <li>Clamping area WxH 150 x 130 mm</li> <li>Serration Pyramidal</li> <li>Hardness 60 HRc</li> <li>Temperature range -40° to +100°C</li> <li>Dimensions WxDxH 150 x 70 x 130 mm</li> <li>Weight each 8.3 kg</li> <li>Scope 4 pcs.</li> </ul>	Included

Item	Qty	Description	
26-3580-000 	1	<p><b>Standalone Hydraulic Grip Supply System PAC-9.7</b> for WGR-300/-630/-1000/-1500-H, SPG-600-H hydraulic grips. This grip supply unit incorporates an integrated high pressure hydraulic power pack so that the unit works without intensifier to supply a uniform and consistent clamping pressure to grips that in turn provides uniform clamping forces to a test specimen. The integrated compact hydraulic power pack includes an electric drive which runs in oil. Hydraulic components like pressure-limiting valve, functional valves like pressure, directional seated valves etc. are mounted on the power pack. The power supply includes also oil-filter, oil-filler, oil-level gauge and is integrated in the console. The directional seated valves are cone valves which are tightly sealed without leakage in the closed.</p> <p>Features:</p> <ul style="list-style-type: none"> <li>• Oil level gauge is integrated</li> <li>• Digital oil pressure manometer on front panel</li> <li>• Electrical operated directional control valves, operated by the handset for independent opening and closing of the upper and lower grips;</li> <li>• Oil filter;</li> <li>• Oil filtration 10 micron;</li> <li>• Meets CE requirements.</li> </ul> <p>Technical data:</p> <ul style="list-style-type: none"> <li>• Pump delivery constant 9.7 l/min</li> <li>• System pressure max. 400 bar</li> <li>• Tank capacity 11.2 litres</li> <li>• Connector oil (internal thread) G3/8"</li> <li>• Oil temperature 45° – 50°C</li> <li>• Sound level 68 dBA</li> <li>• Cable length 5 m</li> <li>• Power Supply 3x 400V, 50 Hz, 3.6 A</li> <li>• Dimensions WxDxH 400 x 850 x 745 mm</li> <li>• Weight 60 kg</li> <li>• Scope 1 pc.</li> </ul>	Included
17-3924-000	1	<p><b>Set of Hydraulic Hoses with Couplings 5 m</b> for a set of WGR-300/-630/-1000/-1500-H, SPG-600-H hydraulic grips, to connect them with a hydraulic power pack.</p> <ul style="list-style-type: none"> <li>• Length 5 m</li> <li>• Pressure max. 400 bar</li> <li>• Inner diameter 6.3 mm</li> <li>• Temperature range -40° to +100°C</li> <li>• Scope 4 pcs.</li> </ul>	Included

Item	Qty	Description	
43-3284-000 	1	<p><b>Set of Mechanical Wedge Grips Type 109-250</b> Open-front wedge grips for employing inserts for round and flat specimens. This wedge grips series provides quick operation for rapid and productive tests, combined with simple and quick exchange of inserts. The opening and closing of the 109 series grips is made through manually operated crank on the front side of the grip.</p> <p>Technical data:</p> <ul style="list-style-type: none"> <li>• Test load max. 250 kN</li> <li>• Specimen thickness max. 50 mm flat</li> <li>• Specimen diameter max. 50 mm</li> <li>• Sample width max. 50 mm</li> <li>• Length of inserts 110 mm</li> <li>• Adaptation Af 60/30 mm</li> <li>• Temperature range 0° to +70°C</li> <li>• Dimensions WxDxH 246 x 246 x 256 mm</li> <li>• Weight each 70 kg</li> <li>• Scope 2 pcs.</li> </ul>	Included
22-5448-000	1	<b>Set of jaws for flat specimens 0 – 30 mm</b>	Included
Art-wb	1	<b>Rod bar to fix the grips type 109 on the lateral testing room at the same height of the grips WGR-1000 of the main testing room</b>	Included
10-4522-000	1	<p><b>3-Point Bending Device BT-250</b> consists of lower bending beam for introducing upper anvils and support adapters of corresponding type. The bending radii are set either by means of rollers of various diameters or by supports with different milled radii.</p> <ul style="list-style-type: none"> <li>• Test force max. 250 kN</li> <li>• Specimen width 0 – 100 mm</li> <li>• Distance between supports 20 – 300 mm</li> <li>• Adaptation Af 60/30 mm</li> <li>• Material steel</li> <li>• Temperature -70° to +280°C</li> <li>• Dimensions WxDxH 360 x 100 x 186 mm</li> <li>• Weight 22 kg</li> <li>• Scope 1 pc.</li> </ul> <p><u>Note:</u> The rollers, anvils and supports are not included in the scope.</p>	Included

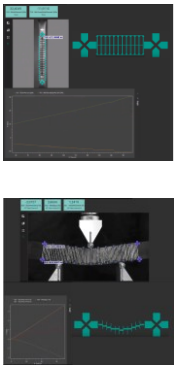

Item	Qty	Description	
30-4080-000	1	<p><b><i>NON-CONTACT EXTENSOMETER</i></b></p> <p><b>High Accuracy Video Extensometer Type VEX-ONE-1M9</b></p> <p>is a new version of video extensometer based on the latest digital image correlation technology with state-of-art implementations and in new ergonomic execution. The unit is designed for measurement of various strain types, and combines high-precision measurement algorithm together with user-friendly graphic interface that does not scatter user attention, and facilitates a focus on the mechanical experiment during tensile, compression, bending, shear, torsion and fatigue tests, in static and dynamic modes.</p> <p>Deformation measurement on samples during materials testing with the use of video extensometer allows the application of multiple virtual probes on markers and advanced image features to be tracked, including the natural pattern of the sample surfaces.</p> <p>The measurement and subsequent strain computation are performed in real-time, and the computed values are transferred to a control unit of testing system either via digital or analogue outputs.</p> <p>Features:</p> <ul style="list-style-type: none"> <li>• Contactless and wear-free strain measurements</li> <li>• Simultaneous determination of longitudinal and transversal strain (optional)</li> <li>• Very high measuring accuracy</li> <li>• The digital strain data are transferred in real time to testing machine</li> <li>• Selectable single or multiple gauge lengths</li> <li>• Axial and optionally radial neck detection</li> <li>• Unique torsion testing (optional)</li> <li>• Integrated monochromatic light with auto-switching function - single wavelength hitting the peak of quantum efficiency of the camera chip</li> <li>• One calibration grid for 50, 100, or 200 mm field of view</li> <li>• Including data cable and power cables, and power supply</li> <li>• Including axial software module</li> </ul> <p>Axial software module:</p> <ul style="list-style-type: none"> <li>• User friendly graphic interface</li> <li>• Admin and operator use modes</li> <li>• Wide range of digital outputs and protocols</li> <li>• Advantech DAQ systems support</li> <li>• Dongle key software protection</li> <li>• Easily upgradeable system</li> <li>• Point probe</li> <li>• Line probe</li> </ul>	Included







Item	Qty	Description	
		<ul style="list-style-type: none"> <li>• Extreme line probe - axial neck detection probe, also for simultaneous measurement of A5 and A10, possibility to average multiple LO during the elastic phase to obtain smooth E modulus reading</li> <li>• Precise software definition of gauge length</li> <li>• LiteView or simplified graphical user interface for operators - for routine measurement methods are opened as "read only"</li> <li>• Password secured admin mode - for calibration and methods creation and adjustment</li> <li>• Simplified calibration process - the calibration and lens distortion correction are done within one process</li> <li>• Wizard based calibration and method creation. Wizard helps the guide the user throughout the process.</li> <li>• Merged mode through extension of field of view by using multiple cameras (up to 3 units) – several cameras are stitched into one extended field of view</li> <li>• Multi camera mode, i.e. use of multiple mono cameras - separate mono cameras, e.g. measurement from two sides of the specimen</li> <li>• Automatic coordinate system definition based on grids</li> <li>• Perspective correction allows the measurement under angle - camera does not have to be absolutely perpendicular to the measurement plane.</li> <li>• Coordinate system offset, based on specimen thickness or diameter - automatically calculated</li> <li>• Correction of camera lens distortion</li> <li>• ROI/AOI - High FPS at smaller width</li> <li>• Image viewing functions, i.e. zoom, over/under exposed indication, rotation</li> <li>• Scale compensation factor - possibility of correcting the calibration based on known strain or displacement - extensometer calibration</li> <li>• One slot for recording - possibility of recording one test with purpose to adjust method parameters</li> <li>• Output to digital RS232 or TCP/IP and optionally to analogue using a D/A converter</li> <li>• API functions for remoter control through RS232 and TCP/IP</li> <li>• Unlimited virtual measurement tools - limited only by PC performance</li> <li>• CPU usage selection - possibility of determining the number of CPU cores dedicated for measurement software</li> </ul>	

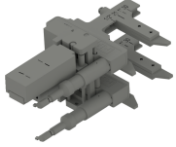
Item	Qty	Description	
		<p>Technical data:</p> <ul style="list-style-type: none"> <li>• Classification ISO 9513/ASTM E83 Class 0.5 / B-1</li> <li>• Measuring accuracy for strain according to ISO 9513 &lt; 0.002%</li> <li>• Resolution 0.5 to 1 <math>\mu\text{m}</math></li> <li>• Dynamic measurement max. 5 – 7 Hz</li> <li>• Measuring rate &gt; 30 Hz</li> <li>• Number of cameras 1 (2D representation)</li> <li>• Camera resolution 9 MPx</li> <li>• Lens focal length 25 mm</li> <li>• Standard working distance (Class 0.5) 420 mm</li> <li>• Field of view WxH 125 x 240 mm (Cl. 0.5)</li> <li>• Field of view WxH 250 x 480 mm (Cl. 1)</li> <li>• LED light orange</li> <li>• Electrical power 24V DC, 1 A, 24 W</li> <li>• Operating temperature 10° to 40°C</li> <li>• Operating humidity 30% to 70%</li> <li>• Dimensions WxDxH 186 x 80 x 220 mm</li> <li>• Weight 1.4 kg</li> <li>• Scope 1 pc.</li> </ul> <p><u>Note:</u> The videoextensometer is delivered without calibration certificate. A videoextensometer requires a separate PC and a monitor, which should be ordered, i.e. additionally to that of testing machine.</p>	
ART-WB	1	<p><b>Attachment Kit for Multiple Testing Rooms</b></p> <p>for VEX-ONE / HT-VEX type video extensometer, and its stable positioning on testing machine. The installation allows the swivel of extensometer out of the testing space and also the adjustment of extensometer position in all three dimensions, also the translation of the extensometer from one test space to another (designed for machines with several testing rooms).</p> <ul style="list-style-type: none"> <li>• Scope 1 pc.</li> </ul>	Included

Item	Qty	Description	
49-3023-000	1	<p><b>Transversal and Bending Strain Software Module</b> for VEX-ONE / HT-VEX type video extensometer. The transversal strain software module allows the measurement of transversal deformation in real time. Besides the elementary measurement probes such as point or line, the transversal strain module includes a Trans Line with edge detection feature that divides a free length (or gauge length) of the specimen into specified number of cross sections and detects the area of necking. This gives an advantage over mechanical clip-on transversal devices as the measurement is conducted in multiple positions along the specimen and only the highest negative strain is recorded as the outcome. This module comprises also a Bend Line - a measurement probe designed for 3 and 4 point bending testing. This probe has measurement point along the main line to track the specimen during the deformation.</p>  <p><b>Alternative: <u>AUTOMATIC CONTACT</u> EXTENSOMETERS</b></p>	
81-0020-000	2	<p><b>UNI Data Acquisition Module</b> <b>Sensor Conditioning Module for Strain-Gage Transducers</b> for PCS8000 digital controller. Universal module is dedicated for both DC and strain gauge inputs, and can be employed for analogue input signal from strain gauge based sensors, load cells, as well as for analogue input signal of <math>\pm 10V</math> of direct current, used for extensometers, displacement transducers and all other devices that work with 10V.</p> <p>Technical data</p> <ul style="list-style-type: none"> <li>Resolution 24 Bit</li> <li>Non-linearity 0.001%</li> <li>Sample rate 8.1/10.4/12.4/14.4 kHz</li> <li>Differential DC input not galvanically isolated</li> <li>Input ranges (DC) <math>\pm 10, 5, 2.5, 1.25 V</math></li> <li>Input ranges (DMS) <math>\pm 0.5, 1, 2, 4, 8 mV/V</math></li> <li>Input voltage max. (DC) <math>\pm 11 V</math></li> <li>Input voltage max. (DMS) <math>\pm 104 mV/V</math></li> <li>Common mode range <math>\pm 10 V</math></li> <li>Connector 15 pins</li> </ul> 	<p><b>Included</b></p> <p>Required 2 numbers (2x extensometers)</p>

Item	Qty	Description	
81-0006-000 	2	<p><b>System Plug with EEPROM for analogue VDC, Strain-Gauge, LVDT or digital signal</b></p> <p>System plug PCS8000.SENS for connecting sensors and measuring signals to the amplifier cards PCS8000.DC, PCS8000.DMS, PCS8000.LVDT und PCS8000.ENCOD.</p> <p>The system plug features an integrated memory (16kBitEEPROM), what allows to store all necessary data as calibrations data of connected sensor.</p> <p>Once a sensor is configurated and calibrated, it can be used on each controller PCS-8000 without any kind of additional settings.</p> <p>Technical data</p> <ul style="list-style-type: none"> <li>Connector D-Sub 15-pin</li> <li>Memory EEPROM 16 kBit</li> <li>Size of optional available resistance Minimelf MM0204</li> </ul>	<b>Included</b> Required 2 numbers (2x extensometers)



Item	Qty	Description	
43-0580-000 	1	<p><b>Automatic Extensometer MFL-300</b></p> <p>is fully digital, high precision and high resolution, fully automatic extensometer allows the measurement and closed-loop control the tensile strain of round or flat specimen until failure according to ISO 6892, EN 10002, ASTM and other international standards. The unit is well suited to perform tensile tests on metallic materials in accordance with ISO 6892-1, Test Method A (testing rate based on strain rate) and Test Method B (testing rate based on stress rate).</p> <p>This extensometer is suitable for almost all samples of an initial gauge length from 10 mm. Its low clamping forces combined with high measurement accuracy makes it highly suitable even for small, notch sensitive test samples. This fully automatic unit also is suitable to be connected to partly or fully automatic testing machines. The strain can be measured from the elastic range to fracture for almost all types of samples. When used in combination with the MFQ-A, the MFL is highly suitable for testing the deep-drawing properties (vertical anisotropy r) of thin sheets.</p> <p>Each one of the four measuring arms has a measuring spring bonded with a full bridge strain gauge. The measuring springs of a right and left arm pair are connected in parallel to obtain an average value which is important if the sample deforms none homogeneously.</p> <p>DC motors compensate the changes in the measuring spring signal initiated through the sample elongation by a ball-bearing gear ensuring that the measuring heads move according to the sample elongation and make the measuring heads follow the sample extension. The elongation is recorded by an opto-incremental measuring system. The measuring heads mounted on the measuring arms show an exact parallel movement which is achieved through a zero-backlash linear guidance system. Using this principle avoids errors which occur for measuring sensors with fixed points of rotation through angle changes and also errors due to tilting of the knife edges on the sample. The measuring heads and arms can be separated from the linear guidance system as well as they can be changed easily and quickly. It is possible to change the arms by just one screw fitting, ensuring the simplicity of maintenance.</p> <p>Features:</p> <ul style="list-style-type: none"> <li>• Accuracy class 0.5 (EN ISO 9513)</li> <li>• High resolution over the whole measuring range (0.1 <math>\mu\text{m}</math>)</li> <li>• The gauge length (Le) is adjusted automatically set through the Application Software and the measuring levers are automatically open and closed</li> </ul>	Included

Item	Qty	Description																																			
		<ul style="list-style-type: none"><li>• Measuring until sample failure or to a reference load, stress, strain or drop of a load or stress</li><li>• Automatic returning to initial position and adjustment of Lo ready for the next test</li><li>• The measuring springs of a right and left arm pair are connected in parallel to obtain an average value which is important if the sample deforms none homogeneously</li><li>• Double-sided measurement via 4 sensors</li><li>• Initial gauge length from 10 mm</li><li>• Automatic movement to the position and gauge length</li><li>• Automatic attachment to specimen</li><li>• Very low clamping forces (ca. 0.5 N)</li><li>• Measuring displacement of 300 (MFL-300), 500 (MFL-500) or 800 mm (MFL-800) mm minus gauge length</li><li>• Lowest activating forces ( &lt; 1 cN)</li></ul> <p>Technical data:</p> <table><tr><td>• Measuring range</td><td>300 mm (minus Le)</td></tr><tr><td>• Measuring direction</td><td>upwards</td></tr><tr><td>• Measuring accuracy after ISO 9513</td><td>Grade 0.5</td></tr><tr><td>• Measuring resolution</td><td>0.1 μm</td></tr><tr><td>• Linearity error</td><td>0.005%</td></tr><tr><td>• Gage length setting</td><td>10...300 mm</td></tr><tr><td>• Length of lever arms</td><td>218 mm</td></tr><tr><td>• Gage length setting accuracy</td><td>better ±0.5% GL</td></tr><tr><td>• Clamping force</td><td>approx. 0.5 cN</td></tr><tr><td>• Activating force</td><td>&lt; 1 cN</td></tr><tr><td>• Operating temperature</td><td>0 – 50°C</td></tr><tr><td>• Flat specimen dimensions WxD max.</td><td>50/30 mm</td></tr><tr><td>• Round specimen dimensions Ø max.</td><td>80 mm</td></tr><tr><td>• Cable length</td><td>5 m</td></tr><tr><td>• Dimensions WxDxH</td><td>452 x 151 x 823 mm</td></tr><tr><td>• Weight</td><td>26 kg</td></tr><tr><td>• Scope</td><td>1 pc.</td></tr></table> <p><u>Note:</u> Requires (Not Supplied):</p> <ul style="list-style-type: none"><li>- Amplifier card for digital signal - either 2INC (PCS1000), or 4INC (PCS5000), or ENCOD (PCS8000), and system plug 7IL1 (PCS1000/5000) or SENS (PCS8000).</li><li>- Calibration certificate.</li></ul>	• Measuring range	300 mm (minus Le)	• Measuring direction	upwards	• Measuring accuracy after ISO 9513	Grade 0.5	• Measuring resolution	0.1 μm	• Linearity error	0.005%	• Gage length setting	10...300 mm	• Length of lever arms	218 mm	• Gage length setting accuracy	better ±0.5% GL	• Clamping force	approx. 0.5 cN	• Activating force	< 1 cN	• Operating temperature	0 – 50°C	• Flat specimen dimensions WxD max.	50/30 mm	• Round specimen dimensions Ø max.	80 mm	• Cable length	5 m	• Dimensions WxDxH	452 x 151 x 823 mm	• Weight	26 kg	• Scope	1 pc.	
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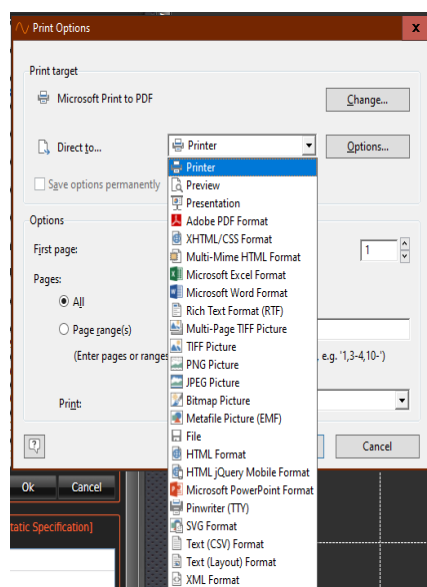
Item	Qty	Description	
30-5870-000	1	<b>Universal Mounting Bracket for Multiple Test Rooms</b> for MFL/MFE/MFX extensometers, and their installation on all testing machines. The bracket allows the swivel of the extensometer out of the testing space, and also to adjust the height of an extensometer manually by a corresponding crank located below. <ul style="list-style-type: none"> <li>• Vertical displacement max. 250 mm</li> <li>• Dimensions WxDxH ca. 800 x 500 x 500 mm</li> <li>• Weight ca. 22 kg</li> <li>• Scope 1 pc.</li> </ul>	Included
30-1720-000 	1	<b>Automatic Transverse Extensometer MFO-A</b> is high precision and high-resolution automatic transverse extensometer and is very well suitable for the determination of the r-value (vertical anisotropy) of fine sheet metal specimens, especially when combined with other axial automatic extensometers such as MFL, MFX and MFN models. The dedicated universal attachment system allows its combination with almost any axial measuring probe (of any producer) or with a testing machine itself. The transverse extensometer is equipped with two measuring clamps forming the average value of two separate measuring locations. They are weight-compensated and mounted on smooth-running guides. The distance of the measuring clamps is 30 mm at the start of the measurement. Optionally this distance can be reduced to a minimum of 12.5 mm. The two measuring arms apply the lateral change to the measuring springs with their integrated full bridge strain gauges. Pneumatic cylinders allow to retract and swing them out of the way. The position of the measuring arms remains constant during the equally applied extension of the specimen. The position of the measuring arms remains stationary relative to the specimen during the uniform elongation. The measuring arms are always dragged together with the specimen so that neither parallel errors nor surface roughness will spoil the measurement. The pressing force of the measuring arms is very faint and a hinge mechanism with all degrees of freedom lines itself up very gently. Therefore, very thin sheet metal down to 0.2 mm can be measured. The MFO-A is automatically brought into contact with the specimen utilising a pneumatic sled. When uniform stretching is completed, this movement is reversed to swing the unit out of the way.	Included

Item	Qty	Description	
		<p><b>Technical data:</b></p> <ul style="list-style-type: none"> <li>• Measuring range 4 mm</li> <li>• Specimen widths 12.5, 20, 25, 30 mm</li> <li>• Measuring accuracy after ISO 9513 Grade 0.2</li> <li>• Indication error rel. <math>\pm 0.2\%</math></li> <li>• Measuring error <math>0.6 \mu\text{m}</math></li> <li>• Sensitivity 2 mV/V</li> <li>• Pressure of measuring pins 6 N</li> <li>• Travel of measuring heads max. 20 mm</li> <li>• Compressed air consumption 1 l/min</li> <li>• Pneumatic working pressure 5 – 6 bar</li> <li>• Flat specimen thickness 0.2 – 10 mm</li> <li>• Specimen dimensional tolerance <math>\pm 0.2 \text{ mm}</math></li> <li>• Voltage supply max. DC 14V</li> <li>• Cable length 5 m</li> <li>• Operating temperature 0 – 50°C</li> <li>• Dimensions WxDxH 143 x 90 x 60 mm</li> <li>• Weight 2 kg</li> <li>• Scope 1 pc.</li> </ul> <p><u>Note:</u> Requires (Not Supplied):</p> <ul style="list-style-type: none"> <li>- Amplifier cards for analogue signal UNI (PCS8000), and a system plug SENS (PCS8000).</li> <li>- Calibration certificate.</li> </ul>	
ART-WB	1	<p><b>Mounting Bracket for multiple testing rooms</b> for MFQ-A transverse extensometer, enables the installation of the unit on another axial extensometer and allows its vertical translation and alignment. The unit provides with a horizontal linear translation of the mounted transverse extensometer along in the sample thickness direction.</p> <p><b>MODEL FOR MULTIPLE TESTING ROOM</b></p> <ul style="list-style-type: none"> <li>• Translation horizontally max. 80 mm</li> <li>• Dimensions WxDxH 460 x 155 x 377 mm</li> <li>• Weight 3 kg</li> <li>• Scope 1 pc.</li> </ul>	Included

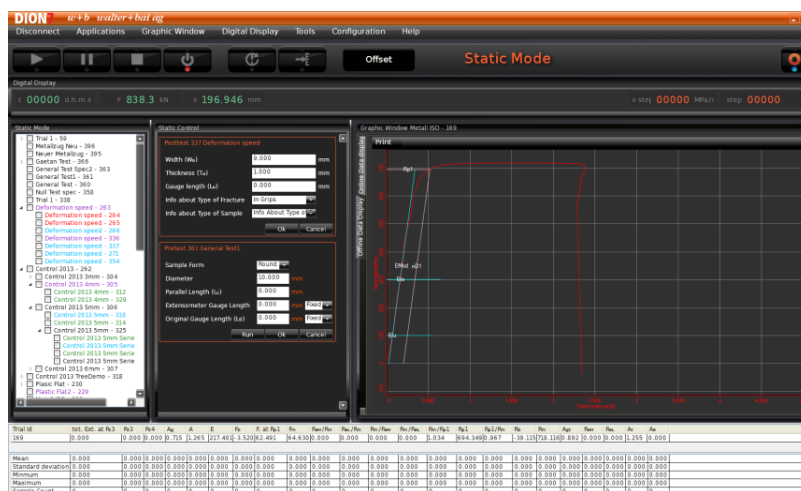




Item	Qty	Description
		<p>Software packages <b>DION7</b> for static / monotonic, creep or relaxation, low cycle fatigue, fracture toughness, fatigue-crack-growth, high cycle fatigue to complex multi-axial, multi-channel tests and fully-automatic test systems in the field of materials and component tests and simulation.</p>  <p>The Dion Software Packages are result of 35 years of enhancements with continuous implementation of customers input and feedback.</p> <p>This application software has many advantages to offer in the field of materials &amp; components testing. Control and evaluation has never been as user-friendly as it is now when using the <b>DION7</b> application software.</p> <p>The <b>DION7</b> Software Family consists of modules and applications used to run standard tests for materials testing, simple-to-use fatigue tests, free programmable single-to-multi-channel tests for components or structures testing as well as analysing and reporting tools.</p> <p><b>DION7</b> supports a variety of different devices, including electromechanical testing machines or actuators, servohydraulic test systems or servohydraulic actuators, electrodynamic systems, pneumatic drives as well as Eurotherm drives and controllers used in environmental chambers, high temperature furnaces or inductive heating systems.</p>

Item	Qty	Description	
		<p><b>Real Time Testing with DION7 &amp; PCS8000</b></p> <p>Test programs which are run from <b>DION7</b> application software are sent first via interpreter to the <b>PCS8000</b> controller(s). The digital controller(s) runs the test direct and independent and sends the data acquisition data to the application software for data acquisition. The advantage is, that the controller is able to react much quicker to program steps, events (for example appeal of a limit) etc. that makes the test control real-time and much safer. Intervention during the test via <b>DION7</b> application is provided to adjust limits or change test parameters. For visualization, evaluation and storage the data transfer from PCS8000 to Dion7 application software is via high-speed-Ethernet.</p> <p><b>Import - Export Data</b></p> <p><b>DION7</b> Application Software offers beside of data import which can be made from all data-bases with ADO-Net driver, CSV files, Zip files (including XML files) several options for exporting test results and raw data. Export files which contain results or raw data in either CSV, DIAdem, XML, ZIP and to all or to all databases with ADO-Net driver other data bases or customized text file format can be exported for users to develop and format their own reports or import the test results directly into an existing laboratory information management system (LIMS) or SAFD (Statistical Analysis of Fatigue Data). To avoid manual data entry, customers that manage results and reports with an existing LIMS or other business system often prefer to automatically transfer test results directly into their own software.</p> <p><b>DION7</b> allows to export designated test parameters and results to an external file, which can then be imported directly into the existing LIMS. The file used for transfer can live either on the local test system or on a network server. Further it's possible to configure to execute a program to initiate a post-export pull of data into the LIMS system. Once the data are imported to the LIMS, the file can be wiped clean and the process will continue without any demand on the test technician.</p> <p><a href="https://www.walterbai.com/documents/ImportExportSpecification-v3.pdf">https://www.walterbai.com/documents/ImportExportSpecification-v3.pdf</a></p> <p>If you have any other requirements for import – export, please contact us for clarification.</p>	



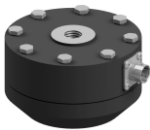
Item	Qty	Description	
49-3001-000	1	<p><b>DION7STAT (STAT – Static) Application software.</b>  This package offers the environment designed to run static (monotonic) Tensile Tests on metallic materials according to ISO 6892-1 and ASTM E8</p> <p><b>Standard tensile tests with the determination of yield stress, proof stress, UTS, modulus of elasticity, tensile strength Rm, upper yield strength Reh, lower yield strength ReL, non-proportional elongation Rpx, 0.2% elongation strength, non-proportional Rp0.2, x% elongation strength, elongation, final length Lo, % plastic elongation, elongation at rupture A, total elongation at rupture At, elongation at max. load Agt, highest load Fm, total elongation Rtx, %0.5 elongation, total elongation Rt0.5, x% elongation strength Rtx, 0.2 elongation strength Rt0.2, stress-%elongation diagram, etc.</b></p> <p><b>For Standard tensile of metallic materials, tests of metallic materials in accordance with ISO 6892-1, (methods A1, A2, B and annex F)</b></p> <p><b>With pre-defined template, protocol and statistical calculations.</b></p> <p><b>Including universal 3- and 4-Point bending and compression modules.</b></p> <p><b>The software allows to the user to develop any other template according any static testing standard</b></p>	Included





Item	Qty	Description	
98-0041-010 	1	<b>Desktop PC, HP G9 i7-12700, Windows 10</b> for operation with W + B digital controllers and video extensometers. <ul style="list-style-type: none"> <li>• Model HP EliteDesk 800 G9-Tower</li> <li>• Processor Intel Core i7-12700</li> <li>• Base frequency 2.1 GHz</li> <li>• RAM 8 GB DDR5</li> <li>• SSD hard drive 256 GB 4x4 2280 PCIe</li> <li>• SATA hard drive 1TB 7200 RPM</li> <li>• Graphic card integrated Intel UHD Graphics 630</li> <li>• Optical drive DVD-RW</li> <li>• Form factor Tower</li> <li>• Operating system Windows 10 Pro 64 Bit</li> <li>• Included accessories keyboard, optical mouse</li> <li>• Electrical power 230V, 50 Hz, 0.26 kW</li> <li>• Dimensions WxDxH 370 x 308 x 168 mm</li> <li>• Weight 9.9 kg</li> <li>• Scope 1 pc.</li> </ul>	Included
98-0053-002 	1	<b>27" Monitor</b> with remarkable colour accuracy in precise quad HD resolution. <ul style="list-style-type: none"> <li>• Model HP Z27q G3 QHD</li> <li>• Display size 27"</li> <li>• Display type IPS</li> <li>• Display area 597 x 336 mm</li> <li>• Resolution QHD 2560 x 1440</li> <li>• Electrical power 230V, 50 Hz, 0.069 kW</li> <li>• Dimensions WxDxH 612 x 39 x 356 mm</li> <li>• Weight 5.8 kg</li> <li>• Scope 1 pc.</li> </ul>	Included


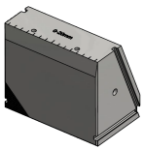
Item	Qty	Description	
SM	1	<b>Service and Maintenance of Testing Equipment min. 10 years</b> through the engineers and specialists of our representatives located in your region.	<b>Included</b>
SUP	1	<b>Complete Materials Testing Software Update During 18 Months After Installation</b>	<b>Included</b>
87-3011-000	1	<b>Calibration prior to shipping and delivery of calibration certificates</b> from our accredited calibration laboratory acc.to ISO/IEC 17025 (formerly EN 45001) which is accepted through the WECC (Western European Calibration Corporation) <b>Calibration certificates for:</b> <ul style="list-style-type: none"> <li>• Force (ISO 7500-1)</li> <li>• Piston Stroke (ISO EN 9513)</li> <li>• Extensometers (ISO EN 9513)</li> </ul> <b>Certificates include determination of measuring uncertainties.</b>	<b>Included</b>
69-3022-000	1	<b>Complete Set of Operating Manuals and Documentation in English – Soft Copy</b> as a PDF-file via a provided link, contains the following: <ul style="list-style-type: none"> <li>• Full operating and maintenance instructions and technical description</li> <li>• Operation and maintenance instructions</li> <li>• General arrangement drawings</li> <li>• Circuit diagrams and tool kits etc.</li> <li>• Main parts of the manual, as electric drawings, maintenance handbook, safety handbook, controller and software manual.</li> </ul>	<b>Included</b>

Item	Qty	Description	
30-1184-000	1	<p><b><u>Spare Parts</u></b></p> <p><b>High Precision Flanged Tension/Compression Load Cell 1000 kN</b> with extraordinary support effect in light-weight design suitable for accurate measurement and control of large forces.</p> <p>Features:</p> <ul style="list-style-type: none"> <li>• For static and dynamic tension and compression forces</li> <li>• Extremely robust against transverse forces and bending moments</li> <li>• Easy to mount, versatile adjustment options</li> <li>• Fatigue resistance up to <math>\pm 80\%</math> nominal load</li> <li>• Especially accommodating toward overloads</li> </ul> <p>Technical data:</p> <ul style="list-style-type: none"> <li>• Nominal force 1000 kN</li> <li>• Accuracy class 0.05</li> <li>• Reproducibility error <math>\pm 0.005\%</math></li> <li>• Linear error <math>\pm 0.05\%</math></li> <li>• Hysteresis <math>\pm 0.1\%</math></li> <li>• Rated characteristic value 2 mV/V</li> <li>• Influence of lateral forces <math>\pm 0.2\%</math> / 0.1F<sub>nom</sub></li> <li>• Maximum lateral load <math>\pm 80\%</math> (static)</li> <li>• Influence of torque F<sub>nom</sub> <math>\pm 0.005\%</math> per mm</li> <li>• Eccentricity influence <math>\pm 0.02\%</math> per mm</li> <li>• Overload safe 150%</li> <li>• Breaking force 300%</li> <li>• Spring rigidity 5000 kN/mm</li> <li>• Temperature effect on zero 0.05% /FS/10K</li> <li>• Operated temperature range -10° till +60°C</li> <li>• Dimensions <math>\varnothing \times H</math> 240 x 230 mm</li> <li>• Weight 19 kg</li> <li>• Scope 1 pc.</li> </ul> <p><u>Note:</u> Including cable, connector and suitable adapter (for main transducer).</p>	Included

Item	Qty	Description	
30-5531-000 	1	<p><b>High Precision Tension / Compression Load Cell 200 kN</b> in low-profile and low-mass design with precision base for accurate force measurement and control of static forces.</p> <p>Features:</p> <ul style="list-style-type: none"> <li>• Temperature compensated strain gages</li> <li>• High performance</li> <li>• High output value</li> <li>• Eccentric load is compensated</li> <li>• Very low temperature effect on output</li> <li>• Low deflection</li> <li>• Shunt calibration</li> <li>• Barometric compensation</li> <li>• Tension and compression</li> <li>• Compact size</li> </ul> <p>Technical data:</p> <ul style="list-style-type: none"> <li>• Nominal force <math>\pm 200 \text{ kN}</math></li> <li>• Nonlinearity <math>\pm 0.04\% \text{ FS}</math></li> <li>• Hysteresis <math>\pm 0.05\% \text{ FS}</math></li> <li>• Non-repeatability <math>\pm 0.01\%</math></li> <li>• Creep in 20 min <math>\pm 0.025\%</math></li> <li>• Temperature effect on zero <math>\pm 0.0015\% \text{ RO}</math></li> <li>• Rated output <math>4 \text{ mV/V}</math></li> <li>• Max. operating force <math>\pm 150\%</math></li> <li>• Material alloy steel</li> <li>• Natural frequency <math>6.5, 7.0 \text{ kHz}</math></li> <li>• Cable length <math>3 \text{ m}</math></li> <li>• Operating temperature range <math>-55^\circ \text{ to } +90^\circ \text{C}</math></li> <li>• Dimensions <math>\varnothing \times H</math> <math>154 \times 89 \text{ mm}</math></li> <li>• Weight <math>4.3 \text{ kg}</math></li> <li>• Scope <math>1 \text{ pc.}</math></li> </ul> <p><u>Note:</u> Including cable, connector and suitable adapter (for main transducer).</p>	Included

Item	Qty	Description	
81-0012-000 	1	<p><b>ENCOD Data Acquisition Module</b>            for PCS8000 digital controller, and designed for digital quadrature encoders or SSI sensors. The unit is typically employed for digital input signal from all digital devices such as, displacement transducers, MFL and MFE extensometers.</p> <p><b>Technical data:</b></p> <ul style="list-style-type: none"> <li>- Virtual resolution of input signal 64 Bit</li> <li>- Frequency limit 5 MHz</li> <li>- Digital input type RS422 (sym.), TTL (5V)</li> <li>- Transfer clock 250/500/750/1000 kHz</li> <li>- Reduction of readout rate 1 – 10</li> <li>- Sensor supplies 5/24 V, 200/100 mA</li> <li>- Connector 15 pins</li> <li>- Dimensions WxD 84 x 55 mm</li> <li>- Weight 0.05 kg</li> <li>- Scope 1 pc.</li> </ul>	Included
81-0020-000 	1	<p><b>UNI Data Acquisition Module</b>  <b>Sensor Conditioning Module for Strain-Gage Transducers</b>            for PCS8000 digital controller. Universal module is dedicated for both DC and strain gauge inputs, and can be employed for analogue input signal from strain gauge based sensors, load cells, as well as for analogue input signal of <math>\pm 10V</math> of direct current, used for extensometers, displacement transducers and all other devices that work with 10V.</p> <p><b>Technical data:</b></p> <ul style="list-style-type: none"> <li>• Resolution 24 Bit</li> <li>• Non-linearity 0.001%</li> <li>• Sample rate 8.1/10.4/12.4/14.4 kHz</li> <li>• Differential DC input not galvanically isolated</li> <li>• Input ranges (DC) <math>\pm 10, 5, 2.5, 1.25 V</math></li> <li>• Input ranges (DMS) <math>\pm 0.5, 1, 2, 4, 8 mV/V</math></li> <li>• Input voltage max. (DC) <math>\pm 11 V</math></li> <li>• Input voltage max. (DMS) <math>\pm 104 mV/V</math></li> <li>• Common mode range <math>\pm 10 V</math></li> <li>• Connector 15 pins</li> <li>• Dimensions WxDxH 84 x 55 x 15 mm</li> <li>• Weight 0.1 kg</li> <li>• Scope 1 pc.</li> </ul>	Included



Item	Qty	Description	
81-0009-000 	1	<b>Handset</b> <b>The PCS8000 Handset is a multifunctional remote-control handset with touchscreen (5.7") that provides another interface (in addition to the Dion7 software) where you can control the testing machine.</b> The Remote-Control Handset with LCD Touchscreen offers convenient Test Set-up and Operation of the Testing Machine and its accessories  Some Handset functions are: <ul style="list-style-type: none"> <li>• Touchscreen size 5.7"</li> <li>• Digital Display of Force / Displacement / Deformation (if extensometer is connected) or other channels</li> <li>• Zeroing of all channels</li> <li>• Move the piston or crosshead up and down with different selectable speeds. The fine job lets you set an accurate zero extension point or set a precise grip position for loading specimens.</li> <li>• Crosshead Unclamping and Positioning (rise or lower)</li> <li>• Opening and closing of pneumatic, motorized or hydraulic grips</li> <li>• Emergency Button</li> <li>• Start / Stop the test</li> <li>• Key-Switch to activate the setting mode according to the new CE Machine directive for testing machines or actuators without safety guard.</li> </ul>	Included
22-3057-000 	1	<b>Set of Jaws for Flat Specimen 0 – 20 mm</b> for WGR-1000/-1500 grips <ul style="list-style-type: none"> <li>• Clamping area WxH 150 x 130 mm</li> <li>• Serration Pyramidal</li> <li>• Hardness 60 HRc</li> <li>• Temperature range -40° to + 100°C</li> <li>• Dimensions WxDxH 150 x 90 x 130 mm</li> <li>• Weight each 11.4 kg</li> <li>• Scope 4 pcs.</li> </ul>	Included
22-5448-000	1	<b>Set of jaws for flat specimens 0 – 30 mm</b>	Included
ART-WB	1	<b>*Set of spare knife</b> (for Automatic Extensometer MFL-300)	Included
ART-WB	1	<b>*Set of spare arms</b> (for Automatic Extensometer MFL-300)	Included

Item	Qty	Description	
87-3027-000	1	<b>Packing for Export in Box</b>	<b>Included</b>
87-3018-000	1	<b>Transport CPT Tehran, excl. VAT</b>	<b>Included</b>
87-3000-000	1	<b>Factory Acceptance Tests (FAT), Instruction and Training (3 days)</b> for one of customers engineer for 2 days, including board, lodging and transfer from Zurich Airport and back, <b>air tickets are not included.</b>	<b>Included</b>
87-3001-000	1	<b>Commissioning, system test and training at site through service engineers from walter+bai AG and TOPCO (our exclusive representative in Iran).</b> The load frame shall be placed on its final position through customer before arriving of the engineers. General understanding of the system, training of the material testing software, training on the digital controller, maintenance-training on the hydraulic system, calibration at site, etc.	<b>Included</b>