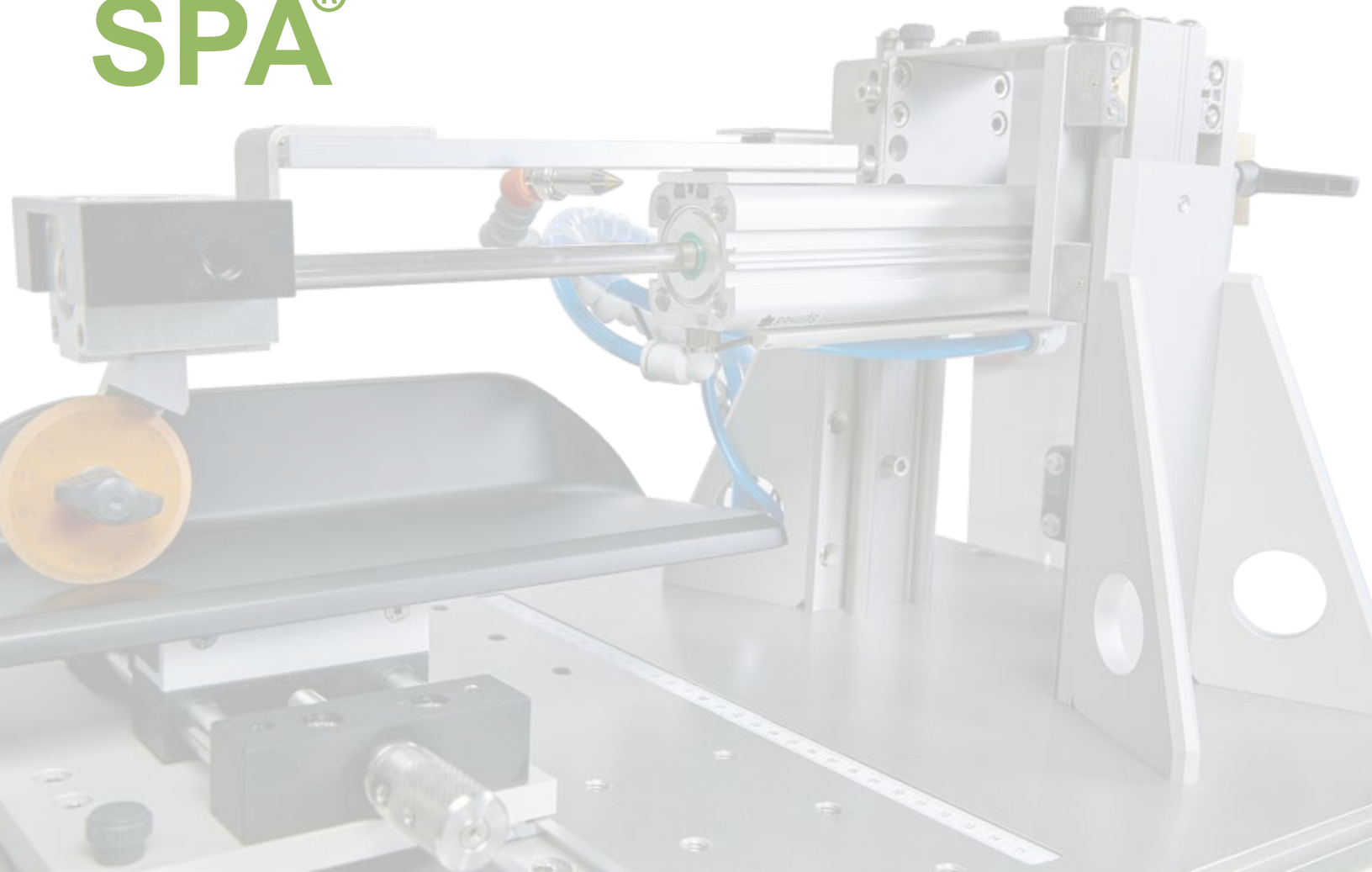
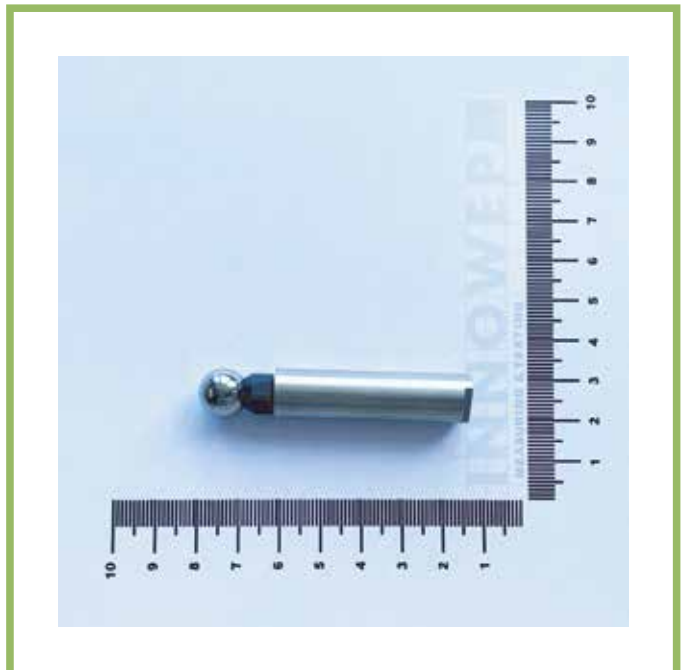
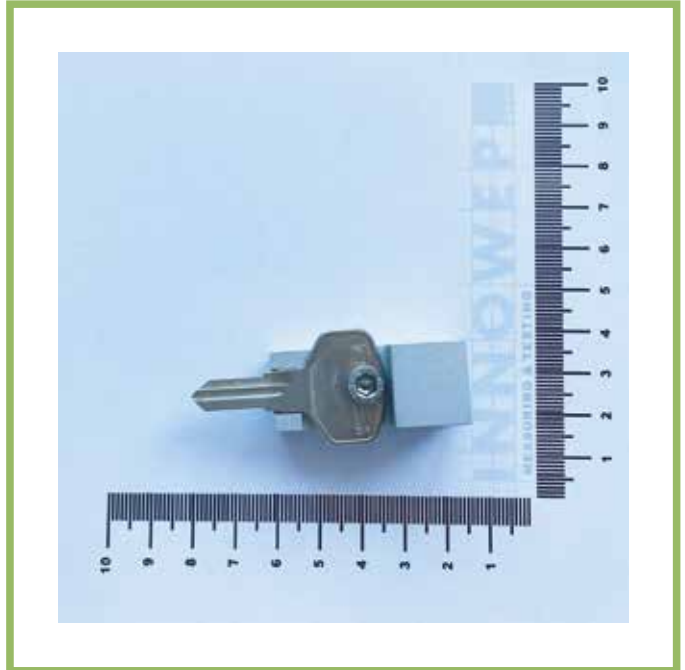
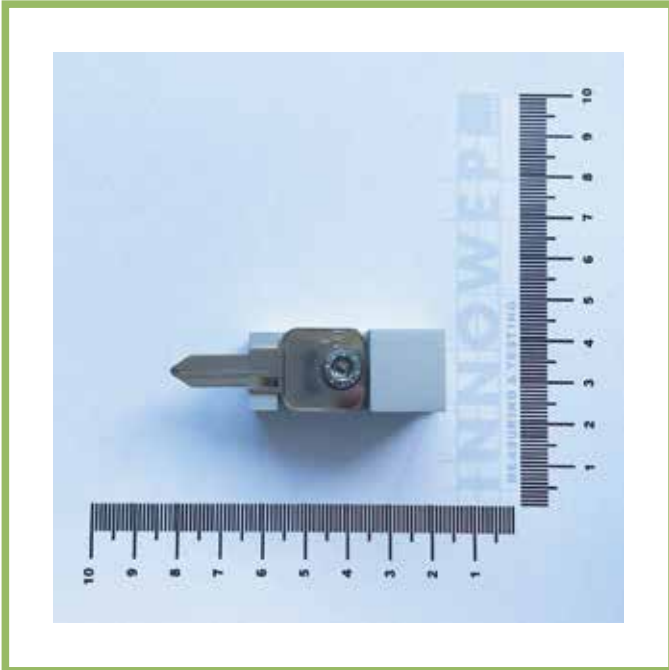


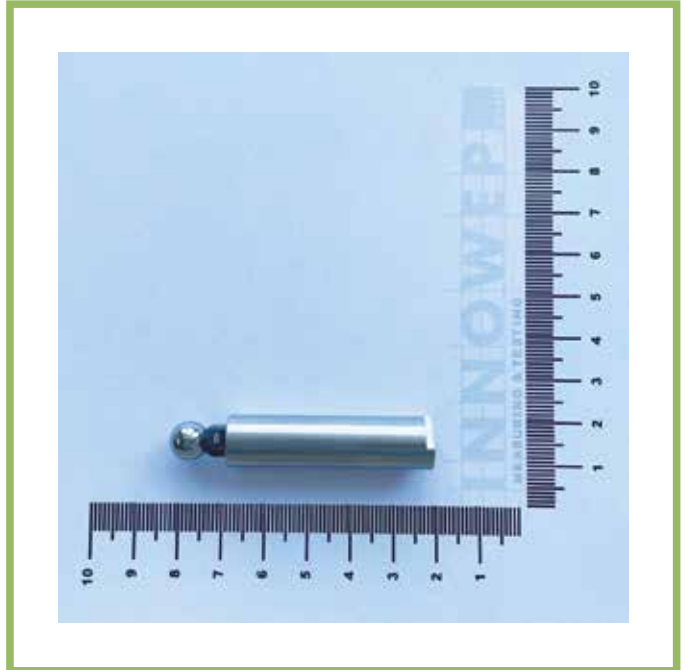
# *Dyna-* **SPA**<sup>®</sup>



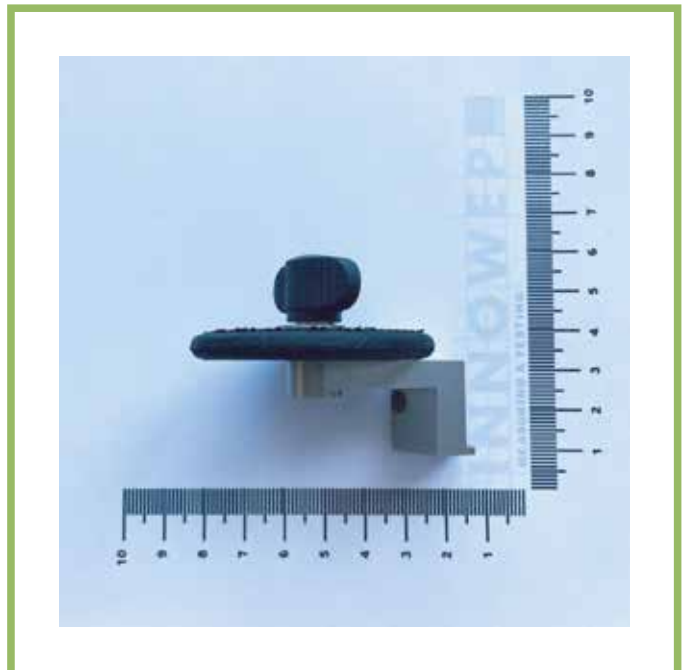
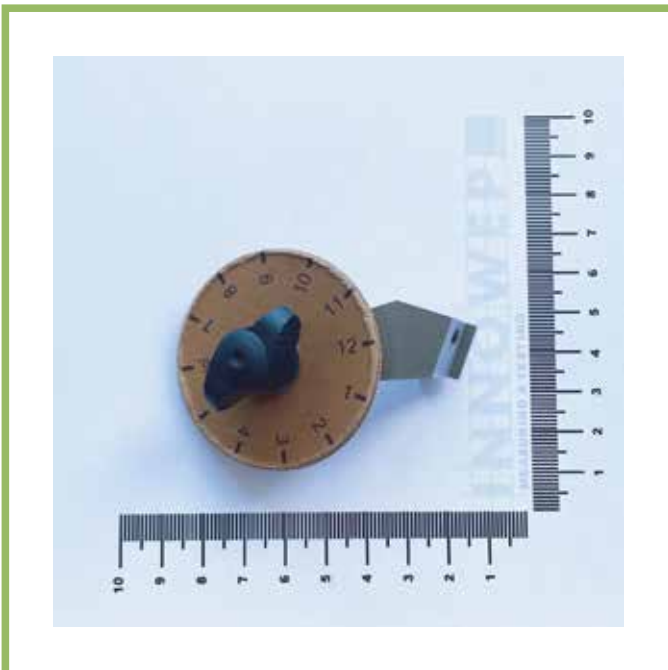
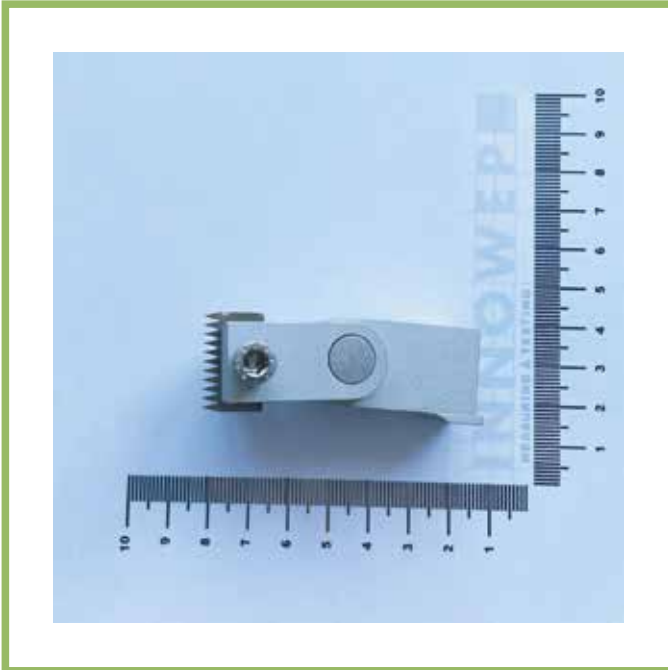
Highest Dynamic Speed with  
Longest Stroke for Simulation of:

- Universal Abrasion • Universal Scratch
- Universal Punch
- and many more









### KEY SCRATCH ADAPTER



- Standardised key scratch tip;
- Can be used for simulation of scratch/abrasion resistance of the magnetic stripe of the credit card.

### SHOE SOLE SCRATCH ADAPTER

- Standardised shoe sole tip;
- Leather or SBR material:
  - I. Shore-hardness ( $95 \pm 3$ ) Shore A
  - II. Spec. weight ( $1.23 \pm 0.20$ ) g/cm<sup>3</sup>
  - III. Tensile strength  $\geq 10$  N/mm<sup>2</sup>
  - IV. Elongation  $\geq 250$  %
  - V. Abrasion  $\leq 250$  mm<sup>3</sup> acc. to DIN ISO 4649



### SHOE SOLE ABRASION ADAPTER



- Standardised shoe sole tip;
- Specified shore hardness
- 20mm diameter
- for testing the floor abrasion resistance, car interior carpet abrasion resistance and many more

## TIP OPTIONS

A great choice of tips is supplied with each Dyna-SPA<sup>®</sup> tester along with necessary abrasands and liquid media. Each tip is standardised in many parameters including the size, shape and materials which permits the equivalent result. A detailed tip choice of Dyna-SPA<sup>®</sup> is described in details upon request.

## SAMPLE CLAMP OPTIONS



**Universal Sample Clamp for flat and curved samples with various height**



**Clamp for testing specific area**



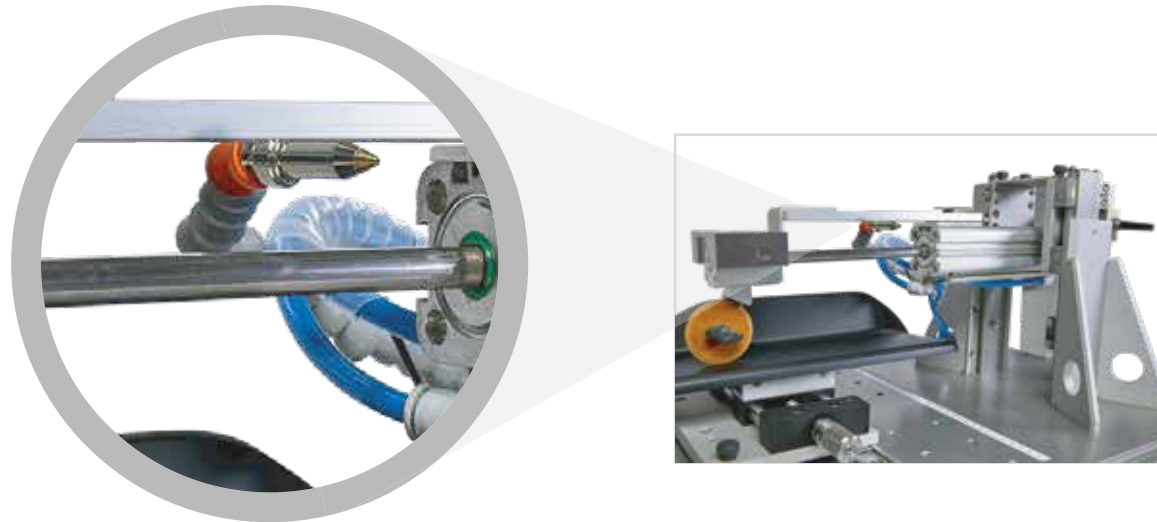
**Easy sample clamp with a X-table**

**OTHER CLAMP CHOICE IS AVAILABLE UPON REQUEST!**

## OTHER OPTIONS

### Pressurized Air Sample Cleaning

Automatically blowing the abrasion/scratch debris generated during the test.



### Easy Sample Moving Vice for Punch Test

An additional vice which holds the Dyna-SPA and easily moves the sample for punch test.





## TECHNICAL SPECIFICATION

<i>Dyna-SPA</i> <sup>®</sup>	
Static Load	1-30 N
Stroke Length	max. 120 mm (programmable)
Linear speed	up to 150 cm/s (higher speed upon request)
Cycles	10-1,000,000,000
Features	Scratch   Abrasion   Punch
Measurement delay (s)	programmable
Speed in & out	programmable
Power supply	230V / 50 Hz ; 110V / 60 Hz
Compressed air	6 bar, external, oil free, water free
Accessories included with the base unit	<p>3 different loads; 2 scratch tips; 1 punch tip (metal)</p> <p>1 universal clamp for abrasion test</p> <p>1 set of sample holding plate</p> <p>* All the above accessories will be packed in one box; the base unit will be packed in a wooden box acc. to international shipment.</p>
It is up to the user to determine a suitable adapter, tip or sample clamp appropriate to their products.	

## MAINTENANCE AND SERVICES

Dyna -SPA<sup>®</sup> should be inspected, maintained and calibrated minimum once a year. Some of the spare parts such as abrasants are required to be replaced frequently.

