

 **SCHENCK**



**NEW**



**The most effective balancing machine for small and medium sized crankshafts**  
Accurate, fully automatic, compact



## CENO

### *Efficiency is the concept*

*This also means innovation: what is conceived in the development departments have a direct effect on your production process and you have to keep up. The key word is "downsizing", the trend towards more fuel efficient engines with smaller parts demands new and more suitable machines in order to keep pace with these changes. This is, however, a challenge which also presents opportunities, because optimised concepts can significantly and permanently reduce your production costs.*

*As the specialist for balancing machines, we are making our contribution to this development in the form of the CENO. This is the name of our solution for the important operation of "balancing": a new compact, effective balancing machine for smaller and medium sized crankshafts up to 20 kg.*





### The benefits at a glance

#### High flexibility

- A wide range of crankshafts – from the single cylinder up to V6 types
- Optional manual or automatic loading
- Mono block machine
- Replaces 2 – 4 manual balancing machines

#### Greater efficiency

- Low investment costs – high performance capability
- Reduced energy consumption
- Significantly reduced space requirement

#### Ergonomic overall concept

- Multi function button
- Easy loading and unloading
- Very good accessibility to all components



# CENO

*As flexible as you*

Whatever production strategy you operate, the CENO will be perfect for balancing crankshafts up to 20 kg. The machine is designed for manual loading – but also for full automation. The CENO is the perfect accompaniment for your first steps towards automation. Depending on the crankshaft type, the CENO replaces 2 to 4 manual machines and of course with improved process reliability. Whether you load the CENO manually or use a robot or loading gantry the CENO is optimised for both methods.

### **Technology that plays along**

Easy to adjust roller bearings, the versatile drive spindle, and thrust stops extend the application range the CENO simply outperforms other machines. From 1, 2 and 3 cylinder crankshafts up to 4 cylinder or V6 shafts: All crankshafts up to 20 kg and maximum 500 mm length can be perfectly balanced on the CENO. Short change over times also improve the economy. Even with smaller batch sizes, it is well worth automating the balancing process.

### Precision pays off

Many small optimisation steps – one great advantage: we have increased the precision for you, so that you can now maintain and document even the closest tolerance specifications.

Your complete process benefits from this. Together with the improved correction calculation of the CAB 950, the number of correction holes are reduced to a minimum. This increases the service life of the tools and significantly reduces the number of rejected parts.



*High precision balancing unit*

### More efficiency – lower costs

Our CENO is significantly more effective than any other crankshaft balancing machine available on the market. This has been achieved by the use of economic drives, dispensing with ineffective hydraulics and cooling equipment, and consistently light construction. The use of minimum quantity lubrication and a high performance, energy optimised drill unit also reduce your costs and improve the return on investment.

By the way, in the manufacture of the CENO, we have used the latest modern materials, such as mineral casting, in order to save valuable resources.

Effectiveness is also a question of space. The CENO is the most compact solution for the balancing of crankshafts in series production requiring less than 4 m<sup>2</sup> of space, it is only half the size of comparable solutions. For you, this means that the CENO can be integrated into any production line, and also saves valuable manufacturing space.



### Plug & play

As a mono block machine, the CENO is quick to install and commission – wherever you move, the CENO goes with you!

# CENO

*Everything under control*



*Manual loading of a crankshaft*

This is what a sophisticated and consistent operating concept looks like: simple set-up of the mechanical components, self explanatory measurement and control technology with versatile operating aids, and good accessibility to all components.

The CENO offers all of these. We have also reduced the non productive times by easy loading, fast tool change and simple swarf removal – so that every move is economical.





*Easy tool change*

**CAB950 – everything as standard for production**

For unbalance measurement and correction calculation, the CENO is equipped with our multi function CAB 950 measuring unit. This offers you all the functions you need for production,

from the optimum correction calculation to precision correction control and on to statistical process control. The modern operating concept – with touch screen – enables the easy and reliable handling of even the most complex operations.



*LED line provides clear information on the status of the machine and the crankshaft*



*CAB 950 with measuring screen*

## Rotor dimensions

Crankshaft weight	20 kg
Overall length	500 mm
Distance from shaft centre to drive end	100...240 mm
Main bearing spacing, max.	(120) 170...500 mm
Correction plane spacing	max. 400 mm
Main bearing diameter	40...70 mm
Rotor diameter	max. 180
Drill capacity	VHM up to 12 mm, HSS up to 16 mm

## Machine

Width, Depth, Height	1260 mm, 3040 mm, 2090 mm
Overall weight	3000 kg
Power supply	400V / 3 Ph / 50 Hz
Balancing speed, stepless up to	450 rpm
Measurement uncertainty <sup>1)</sup>	5...25 gmm
Drive type	End drive
Colour	RAL 7035 (light grey), RAL 7024 (graphite grey)

## Measuring unit

CAB 950 with touch screen operation

## Options

Contact protection for automatic loading

Filling level display for swarf bin

Master shafts with test weights

1) depending on the relevant crankshaft, determined using the master shaft, evaluated according to DIN1319 Part 3, with 95% of the probability distribution, statistically two-dimensional



Balancing and  
Diagnostic Systems

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