SCHENCK

Precise measurement, high repeatability and large weight range

Maintenance free electronics with large non-reflective 7-segment digital display

Robust design with overload protection

Easy operation and change over

Connecting rod scales
400 MBPP

Application

Determination of the reciprocating and rotating partial weights as well as the total weight of connecting rods for cars or trucks.
Measurement of the actual weights, deviation from the specified weights (master) as well as classification of the partial weights. The scales can be used for development, inspection and for checking in production. In connection with a commercial grinding or milling unit it can be also used in the production of small series.

Layout

Electronic twin-scales with independently acting weighing cells. Robust design with overload protection, therefore insensitive to shocks occurring during loading. The conrod fixture is designed for the task: Locator shafts on guide bars for frequently changing conrods for research and test areas. Adjustable frames of different sizes for finish-machined and unmachined conrods for use in production.
Connection between scales and adaptor is free of friction, ensuring high measuring accuracy and repeatability. Modular design allows system extension.

Possible optional units:

- V24 (RS 232) interface for connection of a printer or a host computer. Measuring data can be printed out and processed for documentation or statistical purposes.
- Data input and classification module for additional evaluation programs and memory of setup data for up to 200 conrod types.
- Printer

Operation

After switching on, the conrod fixture is tared by depressing just one button (zero indication). Now the following tests can be performed:

- Actual partial weights:
  After loading the test conrod the reciprocating and rotating partial weights relative to the centerline of the bores are displayed immediately. Recalculation for other reference positions, e.g. weight boss, by the operator.
- Weight deviations:
  Load master conrod to obtain an indication of the partial weights. Depress a further button to set the indication to zero, the specified partial weight values are stored. Unload master conrod and load test conrod to obtain an indication of the weight deviations from the master.
- Partial and total weight:
  After loading the test conrod one partial weight relative to the centerline of the respective bore and total weight are indicated separately.

Using the optional data input module the above mentioned and the following types of indication can be selected:

- Classification of the partial weights:
  Load test conrod to obtain a separate indication of weight classes for the pin end and the crank end. Up to 20 classes can be set, with adjustable class width.
- Classification of a partial weight, indication of the actual total weight. As above, however indication of a partial weight class (either pin or crank end weight) as well as the actual total weight.
- Classification of a partial weight, indication of the other actual partial weight:
  As above, however indication of a partial weight class (either pin or crank end weight) as well as the actual partial weight of the other end.

- Plane calculation:
  As above, however indication of partial weights recalculated for their effect in other planes. Permits, e.g., direct indication of the weights at the mass correction location.

- Maintenance free electronics.

- Large non-reflective 7-segment luminous digital display for indication of measuring data.

- Additional status indication depending on the operation status: "OL" upon overload, "UL" upon underload, "g" (gram) when the system is at rest and upon correct display of the weight, "clas" when weight classes are indicated.

- Plane calculation and classification:
  As above, however with separate indication of up to 20 classes, after recalcuation to the bore center of the conrod for measurement in arbitrary planes

- Quick and simple conversion to other conrods with locating shafts, adjustable or interchangeable adapter frames.

Special features

Adapter frame for finish-machined conrods can be adjusted with a gauge for different centerline distances and bore diameters. Friction-free knife edge bearings. Particularly suited for inspection in series production. Advantage for series production: Resetting with gauges can be avoided with the use of interchangeable adapter frames.

Adapter frame for unmachined conrods, also adjustable for different sizes. Suitable for production checks in forges and foundries as well as for receiving inspection.

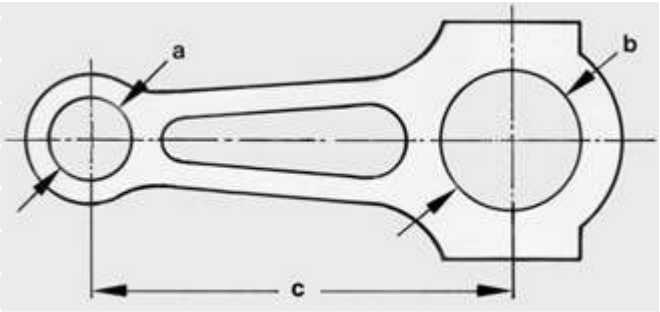
AP11 extension module for data input, classification and additional evaluation programs as well as for memory of setup data for up to 200 conrod types. Selection of mode of operation and input of classification parameters via key pad. Operation instructions on LCD-display.

Important data at a glance

Connecting rod scales		400 MBPP	401 MBPP	402 MBPP
Basic layout with adaptor frame		•	•	•
V24- (RS232-) interface			•	•
Data input, classification and memory module				•
Repeatability [1]	g	± 0,2 ... ± 0,4		
Sensitivity drift [2]	g/° K	± 0,04		
Resolution, alternatively	g	1,0 / 0,1		
Linearity	g	± 0,15		
Measuring time	sec	2		
Ambient temperature, permissible	° C	+ 10 ... 40		
Line voltage, switchable		115/230 V, 50/60 Hz		
Power consumption	W	7,5		

Connecting rod 3)		Unmashined rod on fixture	Finished rod on fixture	Finished rod on locator shafts
Diameter a	mm	16 ... 40 or 35 ... 70	16 ... 40 or 35 ... 70	16 ... 70
Diameter b	mm	40 ... 80 or 60 ... 120	40 ... 80 or 60 ... 120	40 ... 120
Centerline distance c	mm	110 ... 250 or 180 ... 350	110 ... 250 or 180 ... 350	110 ... 350
Total weight, max.	kg	9,0	10,0	10,0
Partial weight crank end, max.	kg	6,0	7,0	7,0

1) incl. loading error depending on the conrod weight
2) in the temperature range + 10 ... 40° C
3) Variations for other sizes can be provided as special designs.



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Balancing and Diagnostic Systems

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