EJR, EJS, EJU, EJh

Balancing and Diagnostic System for Complete Passenger Vehicle Engine Cooling Fans

- Work-piece mounting in original installation frame or transporter frame
- Parameter identification
- Signal analysis of the motor current
- Vibro-acoustic diagnosis
- Semi- or fully automatic test sequence
- Flexible application, easy change over for various motor types, and tandem-fans

Design
One or two-station machine with manual or fully automatic loading, automatic test sequence and manual unbalance correction.

Machine frame with unbalance measurement and test equipment, protective housing with wide loading or maintenance doors, measurement and control cabinet with test computer and power unit for the test object.

Clamping of the fan to the casement or motor is possible, position of the motor either vertical or horizontal.

The work-pieces can be delivered to the machine on pallets, by transfer conveyor, or in boxes.

Measuring systems built into the control cabinet, essentially consisting of industrial PC with signal processor, TFT touch-screen and test software.

Range of application
Performance and objective noise tests in the production of complete passenger vehicle engine cooling fans.
Measurement of dynamic and static unbalance in the fan plane for optimum unbalance correction.

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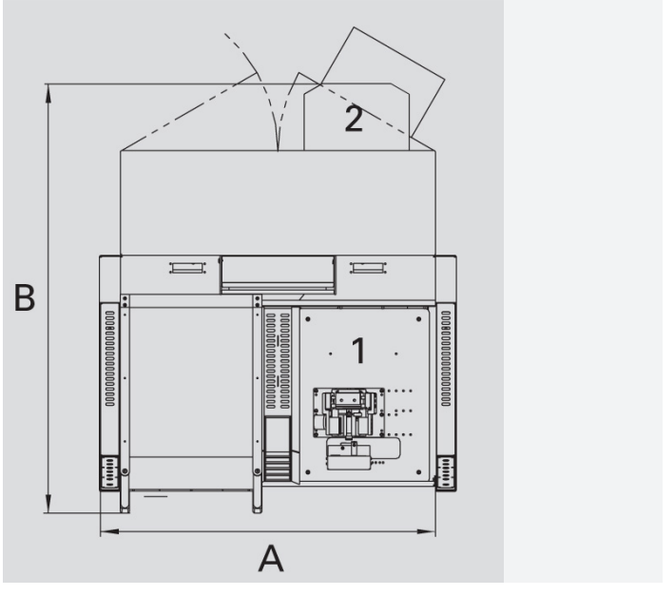
The horizontal arrangement of the test object in this semi-automatic machine is ergonomically designed for manual handling of the fan. Test requirements such as workload, complexity and cost are reduced by using trainable and adaptive test software. The system delivers an objective diagnosis based on pre-classified data and identification of statistical distribution in an interactive learning process. The experience of the user in detecting typical manufacturing errors can have some influence on the learning process. Through optimization of the tolerance limits the precision of the diagnostic evaluation can be improved.

In this fully automatic diagnostic test stand with direct linking to the manufacturing line fan, motors are tested with respect to their mechanical and electrical properties.A special feature is the non-contacting noise measurement by laser for vibro-acoustic diagnosis.



1 Testing table with sliding protective hood2 Switch cabinet

Plan view (non-binding example: dimensions of the switch cabinet depend on the relevant application)

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Technical data at a glance		EJS	EJS - TWIN	EJR	EJH	EJU
Measuring unit		PC, MCP700 with signal processor	PC, MCP700 with signal processor	PC, MCP700 with signal processor	PC, MCP700 with signal processor	PC, MCP700 with signal processor
Range of application		fan with frame	fan with frame	fan with frame	fan with frame	fan with frame
Number of test stations		1	2	1	1	1
Semi-automatic test sequence		•	•		•	
Fully automatic test sequence				•		•
Analysis of motor current		•	•	•		•
Measurement of speed and current		•	•	•	•	•
Measurement of unbalance (static and dynamic)		•	•	•	•	•
Unbalance correction calculation		•	•	•	•	•
Passenger-vehicle engine-cooling fan						
Nominal voltage, max.	[V]	30/60/250	30/60/250	30/60/250	30/60/250	30/60/250
Run-up current, max.	[A]	150/100/20	150/100/20	150/100/20	150/100/20	150/100/20
Speed, max.	[min -1]	6000	6000	6000	6000	6000
Machine						
Width A	[mm]	2200	2700	2600	2600	2600
Depth B	[mm]	2000	2000	2000	2000	2000
Height C	[mm]	2200	2200	2200	2200	2200
Measurement uncertainty	[gmm]	2	2	2	2	2
Cycle time	[s]	15	15	15	15	15
Change over time	[min]	0 - 5	0 - 5	0 - 5	0 - 5	0 - 5

	Order No.	R0520100.01	R0520200.01	R0510100.01	R0550100.01	R0530100.01

	Order No.	R0520101.01	R0520201.01	R0510101.01	R0550101.01	R0530101.01
HV test AC 5000V	Order No.	R0520102.01	R0520202.01	R0510102.01	R0550102.01	R0530102.01
Rotational direction test	Order No.	R0520103.01	R0520203.01	R0510103.01	R0550103.01	R0530103.01
Noise check	Order No.	R0520104.01	R0520204.01	R0510104.01	R0550100.01	R0530104.01
Transition test	Order No.	R0520105.01	R0520205.01	R0510105.01	R0550104.01	R0530105.01
Network coupling	Order No.	R0520106.01	R0520206.01	R0510106.01	R0550105.01	R0530106.01
Tele-service	Order No.	R0520107.01	R0520207.01	R0510107.01	R0550106.01	R0530107.01
Transfer of measured values to external PC	Order No.	R0520108.01	R0520208.01	R0510108.01	R0550107.01	R0530108.01
Printer	Order No.	R0520109.01	R0520209.01	R0510109.01	R0550108.01	R0530109.01
Control of EC fans through PWM signal	Order No.	R0520110.01	R0520210.01	R0510110.01	R0550109.01	R0530110.01

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Measurement of the axial run-out	Order No.	R0520111.01	R0520211.01	R0510112.01	R0550110.01	R0530111.01

2) data non-binding, dependent on the respective equipment supplied

3) Dependent on the extent of test and fan properties

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