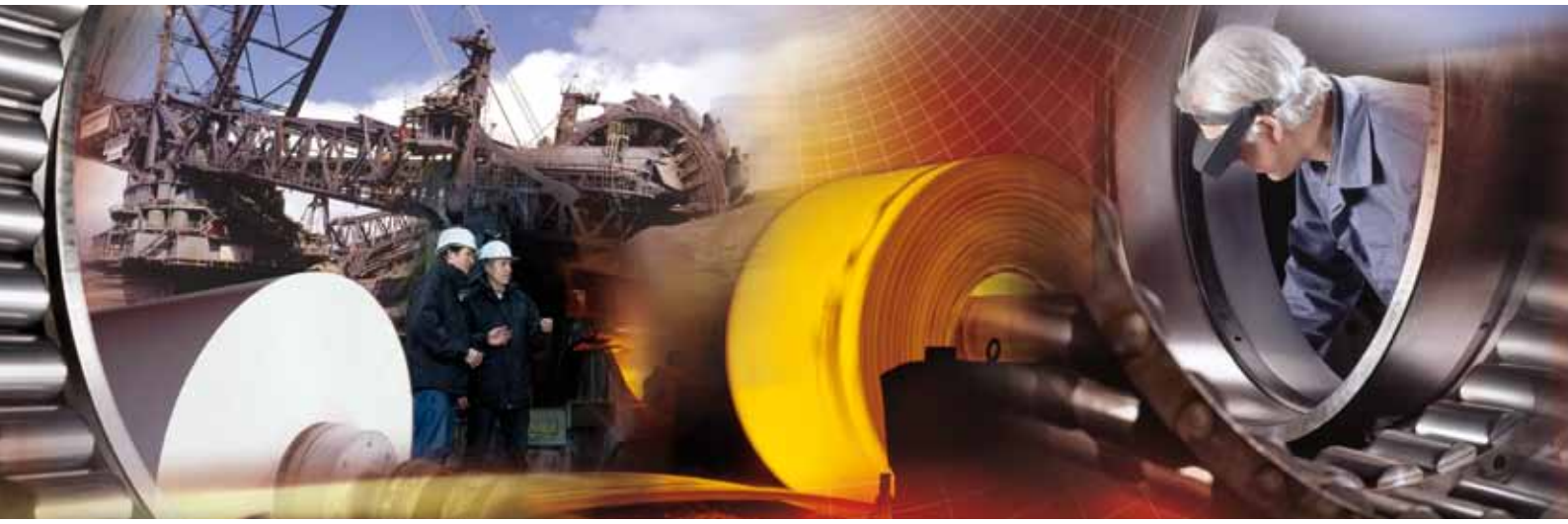
Smart Performance Program



Cost-Efficient Balancing of Aircraft Propellers

Industry: Aerospace

Customer

The customer is a famous air racing team with several aircrafts.

Challenge for Schaeffler

Aircraft propellers often generate vibrations, which are caused by dynamic unbalance. These vibrations influence not only the flight comfort but also lead to an increased wear of the engine. The official acceptance of the propeller may only be done by certified companies using appropriate equipment. As only a few companies offer this service, the control and acceptance measurements are often connected with high travel and labor costs. For safety reasons the air racing team wanted to check its propellers every two or three months, that means more often than required. To keep the costs for these additional measurements as low as possible, the air racing team was looking for a device that allowed them to conduct the control measurements on their own.

Technical Information about the Aircrafts

Aircraft type:	E.g. North American T-28B
Wingspread:	12.22 m
Motor power:	1,425 Hp
Speed:	550 km/h
Weight:	2,914 kg

Schaeffler Solution

The FAG Detector III fully met the requirements of the air racing team. The competitive all-rounder allows the vibration measurement as well as the propeller balancing. Due to its simple handling the FAG Detector III is well suitable for users without previous knowledge.

Customer Benefit

By performing the control measurements on their own following time and cost savings can be realized:

Costs for external control measurement of one propeller:

Average control duration/costs :	approx. 1 h/ € 350
Average duration/costs of balancing:	approx. 2 hrs. / € 700
Balancing frequency:	every 2 months
Travelling costs:	€ 360

Annual external costs for six control measurements and one balancing activity:

1 propeller:	6 x € 350 + 1 x € 700 + 6 x € 360	**€ 4,960**
5 propellers:	(30 x € 350 + 5 x € 700) x 5 + 6 x € 360	**€ 16,160**

In contrast the costs for six self-performed measurements and one external balancing measurement – based on an internal hourly rate of 40 Euro:

1 propeller:	6 x € 40 + 1 x € 700 + 1 x € 360	**€ 1,300**
5 propellers:	(6 x € 40 + 1 x € 700) x 5 + 1 x € 360	**€ 5,060**

Savings for one propeller:	**€ 3,660**
Savings for five propellers:	**€ 11,100**

Single investment for one FAG Detector III with Balancing Kit: € 6,099

What's special

With the FAG Detector III the air racing team has found a cost-efficient device to measure the propellers' condition on their own and thus reduce the aircrafts' vibrations. This way the risk of follow-up costs is reduced enormously and the flight comfort rises. The solution is transferrable to all aircrafts with propeller drive.

Technical Information about the Solution

Vibration measuring device:
FAG Detector III with Balancing Kit

Contact details for worldwide contact persons as well as further ***Smart Performance Solutions*** can be found on our homepage

www.smartperformanceprogram.com

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