

# T-12U UNIVERSAL BACK-TO-BACK GEAR TEST RIG

FOR TESTING OF SCUFFING,  
PITTING AND MICROPITTING  
OF LUBRICATED GEARS



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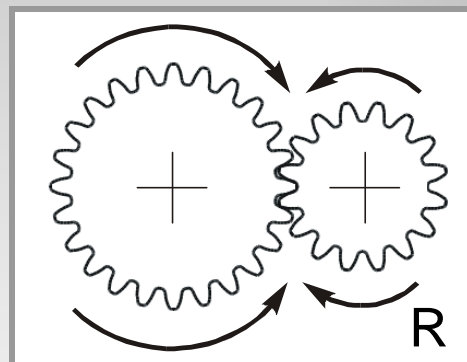
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## CHARACTERISTIC OF T-12U UNIVERSAL GEAR TEST RIG

T-12U Universal Gear Test Rig is intended for testing of an effect of lubricants on scuffing of gears, and optionally, pitting and micropitting.

The **basic version** of T-12U machine is intended for performing **FZG scuffing test methods**:

- **A/8.3/90** according to: ISO 14635-1, CEC L-07-A-95, DIN 51354, IP 334, ASTM D 5182, PN-78/C-04169.
- **A10/16.6R/120** for high EP oils according to ISO 14635-2 and CEC L-84-02.
- **S-A10/16.6R/110** for GL-4 and GL-5 gear oils according to FVA Information Sheet No. 243 (2000).
- **A/2.8/50** for semifluid gear greases according to ISO 14635-3.



The tribosystem consists of a pair of special gears (pinion and gear wheel), known as FZG type “A” gears, loaded at the required torque and rotating at the defined speed. The gears are case-hardened, Maag-Cross hatch ground. The effective tooth width of the pinion is either 20 mm (type “A”) or 10 mm (type “A10”). The motor rotates clockwise or anti-clockwise (reverse - “R”), depending on the test method performed. The test gears are inserted in the chamber equipped with the heater which enables to raise the temperature of the tested oil before the run.

T-12U Universal Gear Test Rig is equipped with a control-measuring system which consists of a set of measuring transducers and controller. During the tests the following quantities are measured: rotational speed, lubricant (oil) temperature, time and number of motor revolutions. The measured values are displayed on the controller. The motor of the tribotester is automatically stopped when the preset time elapses. It is possible to set the desired initial oil temperature, speed and to reverse the direction of rotation of the motor to perform the A10/16.6R/120 and S-A10/16.6R/110 test methods.

**Optional accessories** are available:

- for **pitting tests** (methods PT C/9/90 and PT C/10/90) according to FVA Information Sheet No. 2/IV (1997) - test chamber head with a cooler connected to a close-cycle deionised water cooling system,
- for **micropitting tests** (method GT - C/8.3/90) according to FVA Information Sheet No. 54/7 (1993) - test chamber head with an oil injector connected to a temperature-stabilised lubricating oil circulation system,
- for **low-speed wear tests** according to ASTM D 4998 - gear speed reducer.

For test methods which require weighing gears a weighing device (mass comparator) is available as an option.

## TECHNICAL SPECIFICATIONS

– test gear type	FZG, type A, A10, C-PT, or C/GF
– rotational speed of the motor	up to 3000 rpm (100 rpm possible with the gear speed reducer)
– direction of motor rotation	clockwise or anti-clockwise
– max. load stage	12 (refers to the torque on pinion of 534.5 N m)
– temperature of the tested oil	up to 120°C (stabilisation possible with the cooling system)
– type of oil lubrication	dip lubrication (spray lubrication possible with the oil circulation system)
– tribotester dimensions (W x H x D)	1300 x 1300 x 700 mm
– tribotester weight	150 kg (+1250 kg - weight of the base)
– power supply	380 V / 50 Hz (60 Hz possible)
– max. power consumption	11 kW (+3 kW for cooling and oil circulating systems)

