PRECISION
MINI GEARBOX RD27

DESCRIPTION

Gearboxes applications in aerospace field behave many requirements which can be contradictory: low output backlash, low torque loss, significant safety margin on service torque, low dimensions…

Based on an architecture qualified according to aerospace applicable standards, Bodet Aero's reducing gears are designed to answer optimally to specific requirements of each application. An innovative backlash compensation disposal can be integrated if necessary.

This disposal is adjusted in order to meet the requirements of accuracy while limiting the torque loss on a defined operating range. Beyond this range, the gearbox keeps on operate reliably without any damage until a bigger ultimate torque.

Data hereafter are inspired from actual application examples. Thus, levels of performance can change significantly to fit with harshest specificities of a new application.

MAIN CHARACTERISTICS

- Dimensions:

Diameter: 27 mm
Housing length: 27 mm
Weight: 65 g
Input interface: Customer's toothed shaft engaged directly on the first gear in the gear box (This shaft may also be integrated to the gearbox)
Output: (toothed) shaft supported by ball bearings of the gearbox

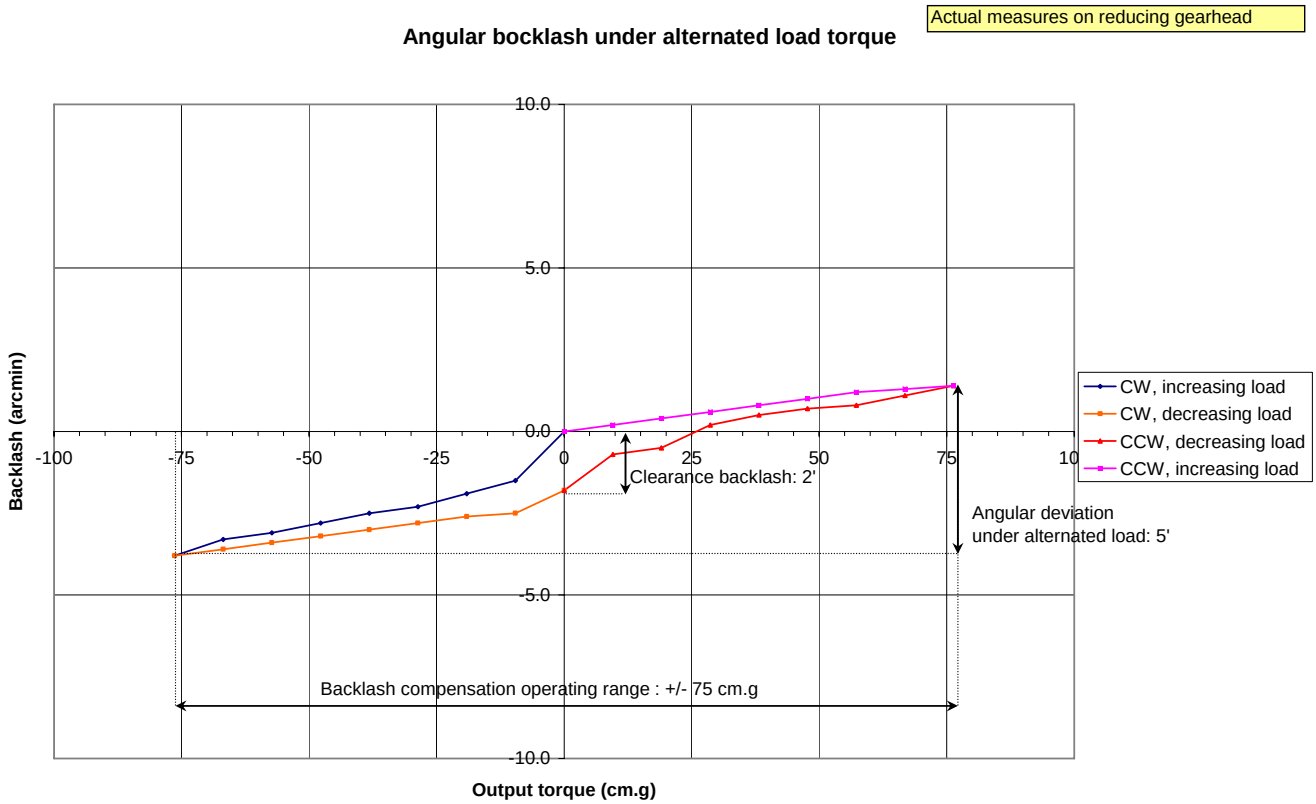
- Reduction ratio:

Up to ~ 1500 (within dimensions defined here above, and more with bigger dimensions)
Example of realization: 27, 94, 375

- Output backlash:

Without backlash compensation disposal:
Clearance angular backlash: from 20' to 30'
Torsional angular backlash measured under alternate torque of +/- 75 cm.g: from 25' to 35'

With backlash total compensation disposal:
Clearance angular backlash: 0'
Torsional angular backlash measured under alternate torque of +/- 75 cm.g: from 4' to 8'
(Caution: in this configuration the torque loss is often high)



- Maximum loss torque (without any input load, measured on input shaft:

1 to 3 cm.g

- Admissible loads:

Operating torque: 150 cm.g
Ultimate torque: 600 cm.g

- Maxium recommanded speed:

~ 10 000 rpm

- Material:

Housing: Stainless steel
Gears: Stainless steel

- Life expectancy:

> 30 000 000 rounds (Reliability: average failure rate: ~ 1 10^{-6} FH^{-1})

ENVIRONMENT

Operating temperature:	-55 to +90 °C
Environmental standards:	RTCA – DO160D

APPLICATIONS

Used on the feed-back device for the Horizontal Stabilization System of the Airbus A320, A330/340