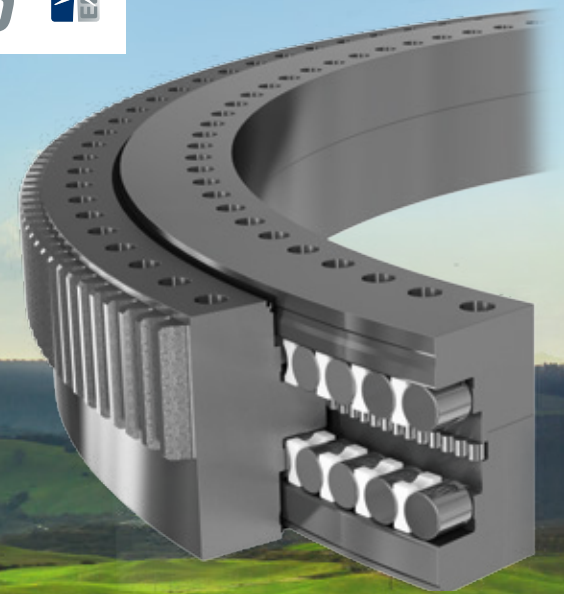




selected by **SENVION**  
for **3.4M<sub>140</sub>** 

NEXT  
LEVEL  
PITCH  
BEARING







### Characteristics

- three-ring-design: T-shaped solid blade mounted ring, split hub mounted ring
- two axial raceways, 90 deg roller contact angle
- single row radial raceway, 0 deg roller contact angle
- roller separation by spacers in axial raceways

### The Solution

#### T-Solid 4IPC, a 3-row roller bearing especially designed for

- individual pitch control (IPC)
- large rotors of 3 to 4 MW low wind-site turbines
- higher rated offshore turbines from 6 to 10 MW
- high turbulence environments
- high cyclic loads and load fluctuations

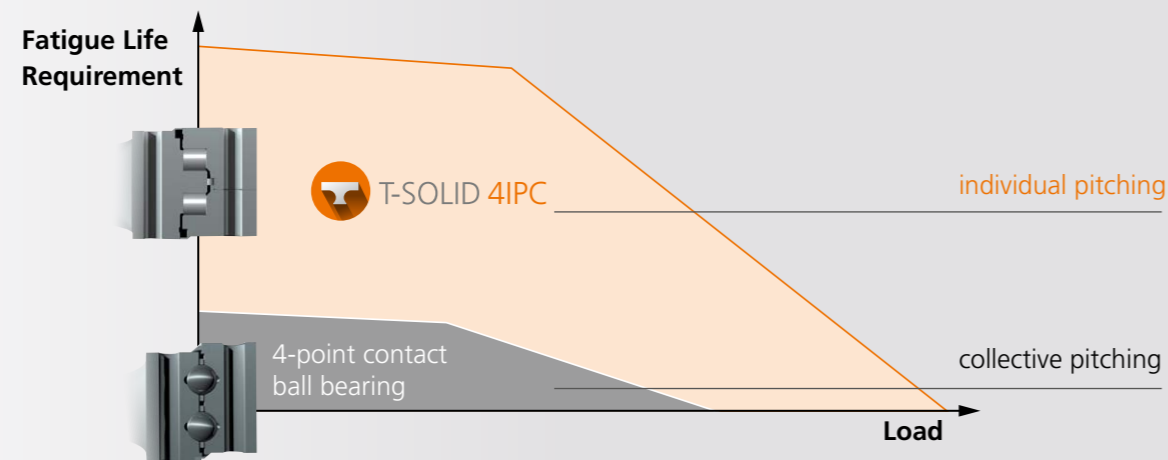
### What's the advantage potential?

#### Unsurpassed operational life

- fulfills IPC bearing life requirements
- satisfies extended service life of 25+ years
- 90 deg contact angle instead of 45 deg**
- no raceway edge loading
- less deformation under load, less leakage
- smooth running, no peaks
- less drive torque under load

### Fatigue Life Requirement

Individual pitch control (IPC) requires a much higher bearing fatigue life.



### T-Solid 4IPC unfolds new perspectives for reduced cost of ownership, ensuring your return on investment!

#### Superior turbine design-to-cost ratio

- enables individual pitch to reduce structural load
- less load, less tower top mass, slimmer tower
- increased Annual Electricity Production (AEP), better return (ROI)
- lower Levelized Cost of Energy (LCOE)

#### Risk reduction, reliability improvement

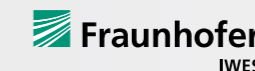
- less pitch errors, increased turbine availability
- proven and bankable design concept
- lower replacement risk in field
- no grease leakage, less environmental concern



IMO follows the technical guidelines set by leading certifying authorities when calculating the slewing ring performance and life capabilities.

IMO co-operates with Fraunhofer IWES and Leibniz Universität Hannover in the joint HAPT project (Highly Accelerated Pitch Bearing Test), where a test bench will cover the current and next generation offshore pitch bearings up to 10MW.

1000/20000753/ITS/GB/Sep16



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