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(54) Title (EN): VERTICAL SUPPORT DEVICE WITH REDUCED ENERGY DISSIPATION FOR ROTATING SHAFTS

(54) Title (FR): DISPOSITIF DE SUPPORT VERTICAL À DISSIPATION D'ÉNERGIE RÉDUITE POUR ARBRES ROTATIFS

(57) Abstract:

(EN): A vertical support device with reduced energy dissipation for rotating shafts comprising a spherical end portion (2) having radius (r), adapted to be rigidly constrained to a rotating vertical shaft, coupled with a rotating and floating plate (3) bearing a hemispherical cap (4), which identifies a complementary concave seat having radius (r) for the spherical end portion (2), also comprising a bearing track (5) for bearing a load (K) that rests on the rotating and floating plate (3), wherein the rotating and floating plate (3), the hemispherical cap (4) and the bearing track (5) are arranged coaxial to a housing hollow body (9) and have an axial hole (33, 51) for the passage of pressurised feed oil for the hydrostatic bearing of the spherical end portion (2), an oil separating film being arranged between the conjugated tracks arranged between the rotating and floating plate (3) and the bearing track (5) as well as between the hemispherical cap (4) and the spherical end portion (2), wherein the rotating and floating plate (3) has maximum outer radius (de/2) greater than the radius of curvature (r) of the spherical end portion (2), the support device also comprising at least one cooling circuit for cooling the bearing track (5).

(FR): L'invention concerne un dispositif de support vertical à dissipation d'énergie réduite pour des arbres rotatifs, comprenant une partie d'extrémité sphérique (2) ayant un rayon (r), conçue pour être fixée de manière rigide à un arbre vertical rotatif, accouplée à une plaque rotative et flottante (3) portant un capuchon hémisphérique (4), qui identifie un siège concave complémentaire ayant un rayon (r) pour la partie d'extrémité sphérique (2), comprenant également une piste de palier (5) pour supporter une charge (K) qui repose sur la plaque rotative et flottante (3), la plaque rotative et flottante (3), le capuchon hémisphérique (4) et la piste de palier (5) étant agencés de manière coaxiale par rapport à un corps creux de boîtier (9) et ayant un trou axial (33, 51) pour le passage d'huile d'alimentation sous pression pour le palier hydrostatique de la partie d'extrémité sphérique (2), un film de séparation d'huile étant disposé entre les pistes conjuguées agencées entre la plaque rotative et flottante (3) et la piste de palier (5) ainsi qu'entre le capuchon hémisphérique (4) et la partie d'extrémité sphérique (2), la plaque rotative et flottante (3) ayant un rayon externe maximal (de/2) supérieur au rayon de courbure (r) de la partie d'extrémité sphérique (2), le dispositif de support comprenant en outre au moins un circuit de refroidissement pour refroidir la piste de palier (5).

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