

Universal joints: mounting and maintenance

Universal joints:

Universal joints are used for mechanical power transmission at high speeds. The speed limit is dependent on the working angle. The widest working angle is 45° for all joint types (90° for double joint). Lower speeds should be used at angles over 20° (40° for double joint). Standard universal joints can be used up to 2000 rpm and joints with needle bearings up to 4000 rpm. Needle bearing mounted joints are normally only used at speeds over 1000 rpm.

Movement progression

Single joints transfer uniform induced movement irregularly because by one revolution of the driving shaft, the driven shaft is accelerated twice and retarded twice. The degree of irregularity depends on the working angle (see Figures 1 and 2).

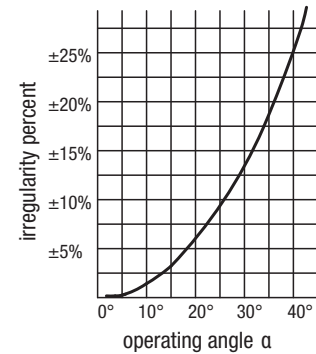


Fig 1

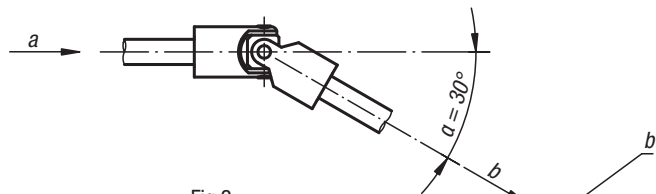
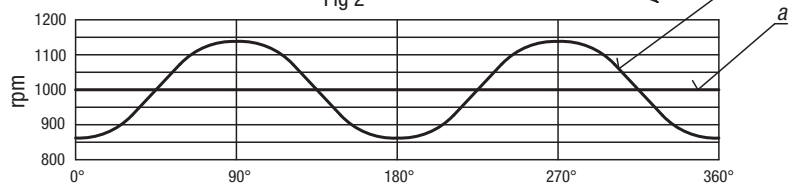
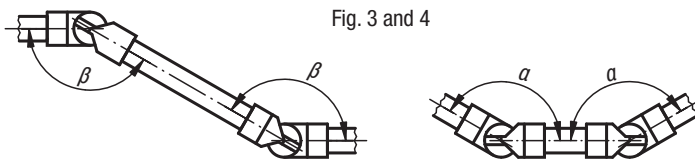


Fig 2



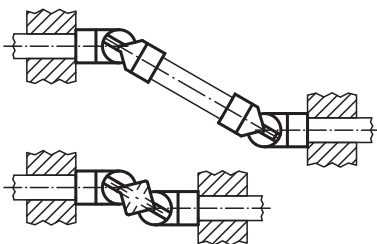
To achieve uniform movement 2 single or one double joint must be used. Where slight irregularities in rotation can be accepted or only small angles of diffraction are concerned, a single joint may be used. Furthermore, for universal rotation transfer the diffraction angle at both ends of the intermediate shaft must be the same (Figures 3 and 4).

Fig. 3 and 4



Note:

It should be ensured that the bearing is located as closely as possible to the joint.



Maintenance

The joints should be lubricated at least once per day where they are in uninterrupted use. In dirty conditions we recommend covering the joints with a protective rubber sheath.

Where mounting is questionable, please consult our technical sales staff.