

# COUPLINGS

## Universal Joints

### HU & HNU Cardan Joints

#### Determining the joint size:

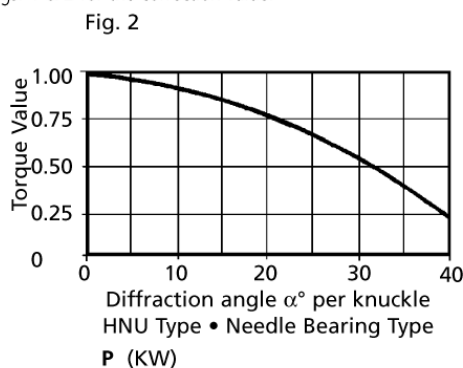
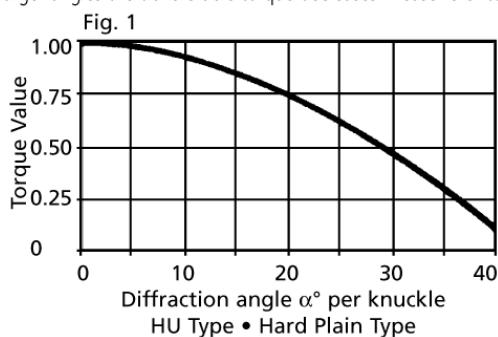
Cardan joints are particularly suitable for transmission of power in the case of higher number of revolutions. The limit of revolutions depends on the operating angle. The greatest operating angle for all types of joint is 45° for single joints and 90° for double joints. For angles over 20° (single joints) or 40° (double joints) only very low revolutions should be used. Standard cardan joints can be used up to 2000 rpm, joints with needle roller bearings up to 4000 rpm. Joints with needle bearings are usually only used for revolutions above 1000 rpm. The ultimate torques given as well as the mechanical characteristics are to be used for determining joint size.

1) If the joint rpm x operating angle is less than 300, please use the figures given for static ultimate torque. For every degree of the operating angle deduct a percentage from that amount. (For 18° angle therefore 18%). This gives you the permissible torque, by taking 1/5 in the case of short operation joints, 1/6 for continuous operating joints, of the maximum value reduced by the angle measurement.

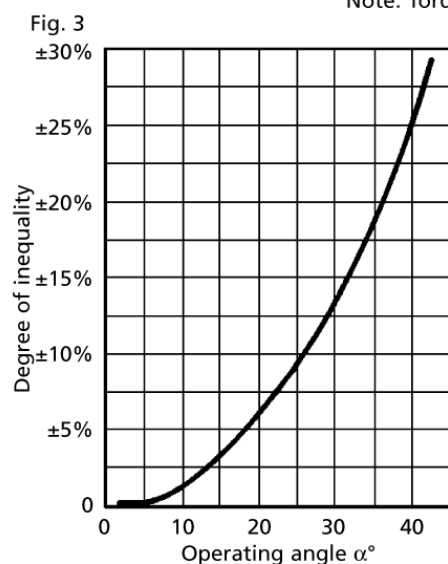
**Example:** HU813A Ultimate Static Torque 25 Nm : 10 Rpm x 5° = 50 (<300) : 25 Nm - 5% = 23.75 Nm  
Continuous Duty (1/6) = 4.75 Nm, Intermittent Duty (1/5) = 5.70 Nm

2) For driving where the rpm x operating angle is greater than 300 the torque mechanical characteristics given in Table HU - A/C and Table HNU - A/C are to be used for determining the joint size. These show the transferable torque dependent on number of revolutions and operating angle. They apply to joints in sustained continuous operation. For joints in short operation the values for permissible torque are 20% higher.

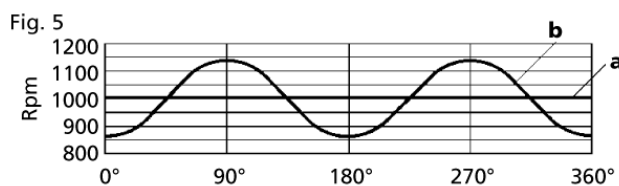
The values given in Table HU-A and Table HNU-A are applicable to a single universal joint operating up to an angle of 5°. With larger angles the transferable torque decreases. Please refer to figs. 1 & 2 for the correction value.



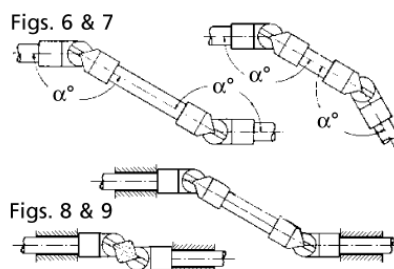
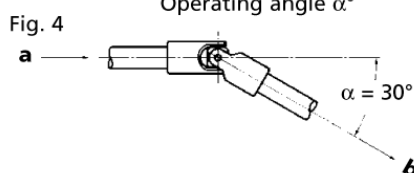
Note: Torque M (Nm) =  $9550 \times \frac{P \text{ (KW)}}{n \text{ Rpm}}$



The simple joints transfer the initial uniform motion unequally. The rotation between the driving shaft and the driven shaft constitutes a double acceleration and deceleration. The size of the inequality depends upon the operating angle (see fig. 3 & 4)



To get a regular motion two single or one double ended joint has to be used. If small inequalities of the rotation can be tolerated a single joint can be used. For uniform transmission the angular displacement of both the input and output shafts to the intermediate connecting shaft must be equal (see fig. 6 & 7)



Please note that the bearings have to be installed as close as possible to the joints (see fig. 8 & 9). If used in continuous operation, the joints should be lubricated at least once a day. We recommend enclosing the joints with protective covers.