

Chain Drives



Installation Notes

Shafts must be parallel. Supporting structures must be of sufficient rigidity to maintain true alignment. Mount sprockets as close as possible to bearings.

Check correct alignment of each sprocket by use of a straight edge.

Roller chain can be used in practically any position provided the shafts are parallel. Where the slack strand is nearly vertical, or where torque variation causes waves or whip in the chain, an idler must be used to take up the excessive slack. The idler should preferably be near to the larger sprocket in the drive, located on the outside of the slack strand of the chain. Where layout makes this impossible it is permissible to locate the idler on the inside of the chain.

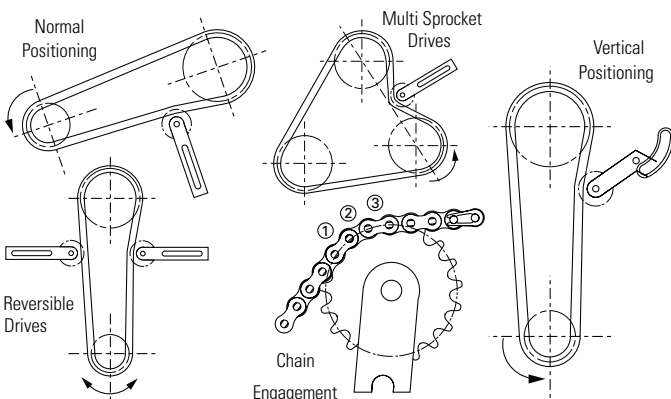
CHAIN TENSION

Chains should be fairly tight at installation with only a small amount of slack. With vertical drives the chain should be kept snug. After the first few weeks of operation, re-check chain tension and adjust if necessary.

FIXED CENTRE APPLICATIONS

An idler sprocket is generally recommended for fixed centre drives. It should be positioned on the slack side as close to the larger sprocket as feasible. The tensioning sprocket should have a minimum of three teeth engaged and be a minimum of four links away from the nearest sprocket.

Chain Tensioners



Lubrication

Effective lubrication is essential in order to ensure optimum wear life from any chain. To be effective it must form a film of lubricant between the wearing parts, (the pin and bush), of the chain. It has therefore to be of suitable viscosity and be delivered to the gap between the sideplates such that it can penetrate

into the space between the pin and bush. The viscosity, amount and type of lubricant is governed by the size of chain and the operating conditions involved. Oil will only penetrate into the bearing area of the chain when the chain is slack, therefore oil should be delivered to the slack strand just after the driver sprocket.

High speed drives are especially critical. These generally require a continuous stream of lubricant applied across the full chain width in order to act as a coolant as well as lubricating the bearing area. Three basic lubrication methods are recommended for use with Fenner roller chain.

Type 1 Drip Feed (for linear chain speeds up to 1 m/sec.)

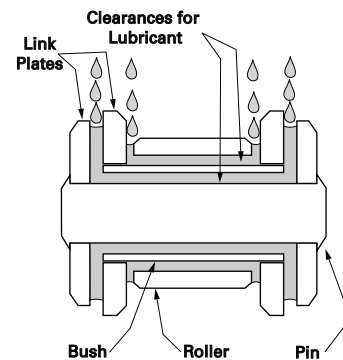
Oil drops directed between the side plate gaps with a drip feed lubricator. Brush applicators may also be used, provided they are positioned to ensure that the oil is correctly delivered to the gap between the side plates. Volume and frequency should be sufficient to prevent discolouration of the lubricant in the chain joints. Any discolouration of the lubricant or of the pin will indicate insufficient lubrication penetrating into the bearing area. Air movement, due to the motion of the drive, can disturb and mis-direct the oil drops, therefore, with due regard for safety, check the applicator while the drive is running.

Type 2 Oil Bath or Disc Lubricator (for linear chain speeds up to 6 m/sec.)

With oil bath lubrication the lower strand of chain runs through an oil sump. With the chain running, the oil level in the sump should immerse the chain at its lowest point. The oil level and condition of the oil should be checked periodically to ensure sufficient volume of oil is present and that it has not emulsified or become contaminated.

A disc or oil slinger may also be used. In which case the disc picks up oil from the sump and deposits it on the chain, usually through a trough. The chain operates above the oil level. The diameter of the disc should be sufficient to ensure a rim speed between 3 and 15 m/s.

Chain Lubrication



Type 3 Pump and Sump (for high speed drives).

Oil is pumped from the sump by a circulating pump capable of delivering a constant stream of oil, evenly distributed across the full width of the chain. The oil should be supplied on the inside of the chain loop and at the lower strand, when chain speeds exceed 10 m/s.

Volume and frequency should be sufficient to prevent discolouration of the lubricant in the chain joints. Any discolouration of the lubricant or of the pin will indicate insufficient lubrication penetrating into the bearing area. Air movement, due to the motion of the drive, can disturb and mis-direct the oil drops, therefore, with due regard for safety, check the applicator while the drive is running.