

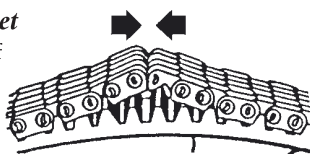
HV Chain Installation and Lubrication

HV Chain Installation

HV Chains can be furnished rivetted endless, or open ended for connection with a standard connecting pin set. In some case designs, bearing carriers are large enough to install sprockets and endless chain through the openings. Other designs employ housings which are split at the shaft centre to facilitate installation. If chain is installed open ended, the procedures below may be used.

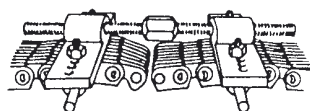
Connecting Chain using Sprocket

Bring ends of chain together on top of larger sprocket in mesh with sprocket teeth, and then insert connecting pin set.



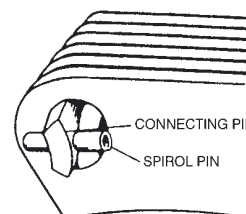
Connecting Chain between Sprocket

On pre-loaded, fixed centre distance drives a hook-up tool similar to that shown may be used to bring ends together.



Fitting Connecting Pin

When connecting the open ends with a pin set, it is important that the longer pin of the set must sit nearest to the outside flank of the guide plate. Spirol pin type connectors are normally used for connecting open ended chains. The spirol pin is driven into each end of the pin with a drift, for rivet type connectors. Washers are used on chains of $\frac{3}{4}$ " and above pitch of the original design 61-115 series chain.



Chain Case Structures

Morse HV Drives are normally on applications where high speed and/or high horsepower transmission is the requirement. The HV Drive should be installed in rigid housings of welded steel or cast construction, complete with shafts, bearings, seals and a proper lubrication system, in order to realise the full performance capability. There should be adequate clearance in chain case for chain to ride over sprockets (min. rad. = Spkt pitch rad + $\frac{1}{4}$ chain pitch); and for centrifugal expansion of chain midway between sprockets (allow 12% Centre Distance beyond chain path each side of chain case). Side clearance beyond width of the chain should be equal to or greater than chain pitch.

Lubrication

A proper lubrication system with clean oil of the correct type is necessary for long, quiet, trouble free life of HV Drives. The lubricant must penetrate the chain joints to dissipate frictional heat and flush out foreign particles, and lubricate the surfaces of chain and sprocket contact.

Pressure Lubrication

For chain speeds above 13M/sec, pressure lubrication is required. The lubrication system should supply filtered oil at 4.5 litres/min. per 25mm width of chain. Spray pipes of 9.5mm I.D. with 2.5mm dia. orifices every 25mm will provide adequate lubrication with oil of SAE 20W or less at pressure of 1.5 Bar. The spray pipe should be located to spray onto the inside of chain as slack strand enters sprocket. A replacement element full flow oil filter capable of removing particles larger than 25 microns, with a built in relief valve, should be installed between the oil pump and spray pipe. A low oil pressure switch with warning is recommended.

Additional components should include an oil sump strainer, oil fill/breather, magnetic drain plug and an oil level sight gauge. Lubrication should also be provided to the shaft bearings.

Bath Lubrication

At chain speeds below 13M/sec bath lubrication may be satisfactory. With bath lubrication, the dynamic oil level should be maintained at the lowest point of the chain pitch line, and for this purpose an oil level sight gauge is desirable.

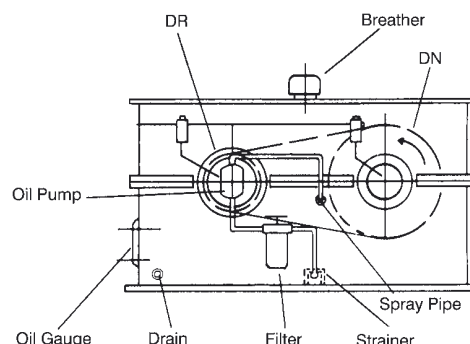
Lubrication Oil Specification

Satisfactory HV chain drive performance depends upon the use of well refined, high quality oil. The best lubricant is Automatic Transmission Fluid (ATF), but light detergent oils as used in Automotive Engines, and Turbine and Spindle Oils are also acceptable. Multiple viscosity oils, gear oils or EP compound oils should not be used. For maximum performance, use oils with SAE Grade related to operating temperature in chart.

Oil Viscosity Recommendations

Surrounding Ambient Temp.	SAE Grade Viscosity	Viscosity Saybolt Secs at 38 °C
Under 4 °C	SAE 5*	150 SSU
4 °C to 32 °C	SAE 10*	200 SSU
Over 32 °C	SAE 20	300 SSU

*Use Type A or B Automatic Transmission Fluid (ATF)



Where applications require oil in excess of SAE 20 Grade consult Morse Engineering

It is desirable to limit oil temperature to 80 °C to prevent rapid deterioration. If necessary external cooling fans or oil cooler should be used to achieve this. Generally HV Chains operate with a temperature rise of approx. 25 °C above ambient temperature.

Lubrication Changes

Oil should be kept clean to assure long trouble free service. If oil becomes dirty or appears to be contaminated it should be replaced. Good practice is to change oil every 1000 hours or 4 months whichever occurs first, but longer intervals are acceptable if operating conditions allow. When oil is changed, the case should be drained and flushed with suitable solvent. Inspection of lubrication piping, pump and spray pipe orifices should be made, and filter element replaced if dirty. The drive must be kept free of water and foreign material at all times.