Liquip's exclusive swivel design results in a loading arm that is both user friendly and highly efficient.

Made from only high quality castings and raw material, Liquip swivel bodies are precision machined to exacting designs, ensuring consistent quality and smoothness of operation.

Several design features are included to ensure that our customers continue to be completely satisfied with the loading arms throughout their lifespan.

TWO OF THE MOST IMPORTANT DESIGN FEATURES ARE:

BEARINGS

Liquip swivels use a combination of ball and needle roller bearings for minimum friction and extended life. Using one row of needle roller bearing (for radial load) and one row of ball bearings (for axial load) eliminates the possibility of binding, as can occur with double rows of ball bearings. The end result is a loading arm which is easier to operate and more efficient.

LUBRICATION

Liquip swivels have a grease relief system which enables the expulsion of old grease, as new grease is added. This prevents over-pressurisation of the swivels with grease which will result in the swivel becoming difficult to rotate, product contamination with grease being forced past the main product seal and in extreme cases splitting of the swivel body when pneumatic grease guns are used.

Liquip's grease relief system prevents these problems by expelling old and contaminated grease as fresh grease is injected during regular maintenance, this results in extended swivel life and reduced maintenance expenditure.

VNS-A4 STRAIGHT SWIVEL

The VNS-A4 is a 100mm (4") straight single-plane cast aluminium swivel with cast TTMA flanged ends allowing 360° rotation. It may be used on any application where a single plane of rotation is required, for example it may be used instead of the VSS cast coupler spool to enable rotation of the API coupler.

A ball and needle bearing system provides optimum axial and radial load bearing with minimum friction. Liquip's grease relief system extends the life of the swivel by removing old grease and wear particles. Dual O-Rings for product sealing and dust sealing respectively.

PRESSURE RATING

1,000 kPa working pressure.

1,500 kPa test pressure.

WEIGHT

4.5 kg

MOUNTING

Flanges are 100mm (4") TTMA pattern.

MATERIAL OF CONSTRUCTION

Aluminium housings heat treated for hardness.

Hardened and chromed ball and needle bearings. Viton o-rings (teflon seals available on request).

Brass ball retainer.

VNC-A4 COUPLER SWIVEL

The VNC-A4 is a single-plane 100 mm (4") cast aluminium swivel allowing 360° rotation in the horizontal plane, with cast TTMA flanged ends and a maneuvering bar for use on the coupler end of bottom-loading arm. Standard on Liquip overhead bottom loading arms the swivel bolts on the bottom of the loading arm drop hose with the coupler (and spool-piece if required) on the outlet flange. The swivel provides the necessary movement and the bar with ball handle gives the operator necessary leverage to maneuver the arm into position.

A ball and needle bearing system provides optimum axial and radial load bearing with minimum friction. Liquip's grease relief system extends the life of the swivel by removing old grease and wear particles. Dual o-rings for product and dust seal respectively. The handle comes standard with a ball-type grip or a D-handle may be supplied upon request. The handle is welded-on for maximum strength and rigidity.

PRESSURE RATING

1,000 kPa working pressure.

1,500 kPa test pressure.

WEIGHT

6.0 kg

MOUNTING

Flanges are 100mm (4") TTMA pattern.

MATERIAL

Aluminium housings heat-treated for hardness.

Hardened and chromed ball and needle bearings.

Viton o-rings (teflon seal available on request).

Brass ball retainer.

VNI-A4 INTERMEDIATE SWIVEL

The VNI-A4 is a single plane cast aluminium swivel commonly mounted on outboard end of bottom loading arm, allowing movement of the drop hose and loading coupler relative to the tanker API adaptor. It has flanged 100 mm (4") TTMA ends.

The swivel bolts on to the outboard end of the horizontal pipe, above the drop hose, to provide a swing action to enhance the maneuverability of the loading coupler beyond what the hose can do on it's own.

A ball and needle bearing system provides optimum axial and radial load bearing with minimum friction. Liquip's grease relief system (grease nipple one side with relief valve mounted opposite for efficient removal of old grease and debris) extends the life of the swivel by removing old grease and wear particles. Dual o-rings for product seal and dust seal respectively.

PRESSURE RATING

1,000 kPa working pressure.

1,500 kPa test pressure.

WEIGHT

5.6 kg

MOUNTING

Flanges are 100mm (4") TTMA pattern.

MATERIAL

Aluminium housings heat-treated for hardness.

Hardened and chromed ball and needle bearings.

Viton o-rings (teflon available on request).

Brass ball retainer.

Note: A 80mm cast Aluminium intermediate swivel with butt weld ends is also available using the SJW swivel arrangement.

LCB4-1 BASE SWIVEL

The LCB4-1 is a heavy duty swivel with 100mm (4") ANSI150 raised face bottom flange and three bearings for high-load applications. Mainly used as the base swivel for extreme loads in Long Reach top loading arms where forces are too high for standard swivels, the LCB4-1 has a split-flange construction that provides an easily accessible fully sealed bearing pack. The main liquid seal may be replaced without stripping the bearings

As a straight swivel, vertical loads are absorbed by a double-row ball bearing with radial loading capability reinforced by a third row of needle roller bearings. Split-flange construction ensures that a product seal failure does not wash out any grease from the bearing pack, so preserving its integrity. Adjustment free, the LCB4-1 has a telltale weep indication hole between the product seal and bearing seal to show if the main seal is leaking and to relieve pressure build-up. The bearing pack incorporates Liquip's grease relief valve system to ensure proper re-greasing and debris removal.

PRESSURE RATING

1,000 kPa working pressure

1,500 kPa test pressure.

WEIGHT

25.0 kg

MOUNTING

100mm ANSI 150 raised face bottom flange.

Liquip supply nominated top flange which is 100mm ANSI 150 pattern with flat face machined for sealing.

MATERIAL

Hardened steel housings.

Hardened and chromed steel balls and needles.

Viton o-ring seals. Brass retainer plugs.

SJW SWIVELS

SJW swivel joints are designed for fabrication of loading arms and pipe work requiring up to 360° rotational joint.

They are available machined from steel or aluminium with pre-prepared ends 100mm (4") or 75 mm (3") for welding directly to pipe or tube. A cost-effective way of achieving a rotating joint, for loading arms or other machinery requiring swivelling joints.

This swivel incorporates the well-known high load, low wear Liquip principle of ball with needle bearing combination used exclusively throughout Liquip loading arms. Sealing is provided by a Viton or nitrile primary face V-seal, and two viton 'O"-Rings which isolate the bearing pack from the product.

Any ingress past a worn primary seal is contained by the secondary o-ring, before the product contacts the bearings. Any leak is also immediately visible from a telltale weep indicator hole (initially supplied with a plug fitted). The greasing system is the Liquip trademark grease relief system to ensure correct lubrication, by ejecting old grease and particles that can cause wear.

Liquip recommend re-grease at maximum six-month intervals depending on service environment.

VARIANTS

Hardened Steel or Aluminium body with Viton seals

WORKING PRESSURE

1,100 kPa, test 1,650 kPa.

DIAMETER

80mm or 100mm diameter bore throughout.

WEIGHT

4.3kg for Aluminium or 5.5kg for Steel versions

MOUNTING

If vertical, mount with female half above male half for water and dirt run-off.

MATERIALS

Steel bodies with hardened running faces

Aluminium body

Bearing quality balls and needle rollers

Viton seals

SJF SWIVEL JOINTS

SJF Swivel Joints provide 360° rotational movement of loading arm components.

Stainless Steel construction and available in 75 mm (3") and 100 mm (4") sizes with 100mm TTMA flanges on each end.

This swivel incorporates the well known high load, low wear Liquip principle of ball and needle bearing combination used in Liquip's extensive range of loading arms. Sealing is enhanced by the purpose designed, Viton primary face seal, and two Viton o-rings which isolate the bearing pack from product leaks. If the primary seal is compromised any contamination will be contained by an o-ring before damage to the bearings can occur. Any leak is also immediately visible from a telltale weep indicator hole, supplied with plug fitted. The greasing system also includes the Liquip trade-mark of a pressure relief outlet to ensure correct lubrication, by ejecting old grease and particles that can cause wear.

ADJUSTMENT OR SERVICE

Re-grease at maximum six-month intervals dependent on service conditions.

MATERIALS OF CONSTRUCTION

Bodies - Cast Stainless steel

Seals - Viton or Teflon

MOUNTING

Using M10 diameter bolts or studs. For high load applications high tensile bolts or studs must be used. If the unit is mounted vertically, the female component must be fitted on top to prevent water and dust ingress.

WEIGHT

SJF076L – 8.3 Kg.

SJF101L – 8.99 Kg.

TECHNICAL DATA

Working pressure – 900 kPa

Test pressure – 1500 kPa

PART NUMBERS

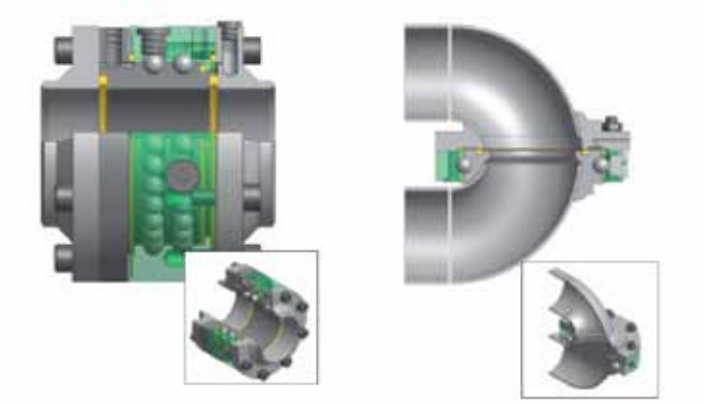
- SJF076L - 316L Grade Stainless Steel, Viton Seals, 75mm
- SJF101L - 316L Grade Stainless Steel, Viton Seals, 100mm

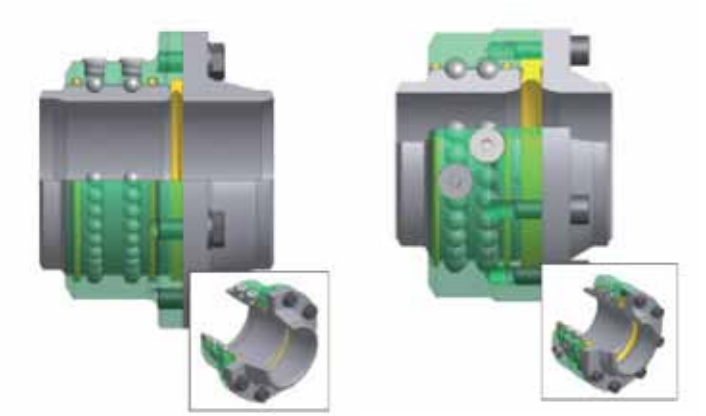
KANON BRAND SWIVELS

Liquip specify Kanon brand swivel joints in critical areas where extraordinarily high bending and axial load combinations may exist due to factors such as extended reach of the loading arm or wind forces.

Kanon swivel joints are developed to withstand all such loads without leaking. In fact regular maintenance is reduced to inspection only and seal replacement in extreme circumstances.

Contact Liquip Equipment Division for application advice, pricing and availability.





SPECIFIC FEATURES

- Swivel joints can withstand much higher loads than conventional designs due to the special shape of the ball races in combination with relatively large diameter ball bearings
- The ball race chamber is completely separated from the sealing part
- The product seal can be replaced without removing the ball bearings
- Swivel joints are provided with long life lubrication, so there is no need for regular maintenance
- Double or single ball race depending on application
- Jacketing and trace heating option
- Full size bore
- Tell tale leakage indicator

By using Kanon swivel joints it is possible to make all kinds of flexible connections using rigid pipes instead of using hoses. Kanon swivel joints are available in various materials, including:

- Carbon Steel
- Low Temperature Carbon Steel
- Stainless Steel
- Carbon Steel with PTFE, rubber and other linings
- Hastelloy
- Titanium
- Plastics

Temperature range of -200° C to +300°C

Pressure range up to 120 bar

Sizes from 1” up to 24”