

Lovejoy's L-LOC Spline Clamping Feature

Spline shaft wear, profile distortion, and fretting corrosion all are major concerns in spline shaft applications such as hydraulic pumps. We are pleased to state that Lovejoy has a solution. It's called the L-LOC.

It is common knowledge that typical manufacturing tolerances between spline shafts and mating coupling hubs create some unavoidable play or backlash. This backlash is defined as the minor movement between the shaft and hub, typically resulting in wear. This tolerance related movement and wear is often further compounded by misalignment and hammering forces common in power transmission. As a result, fretting wear and profile distortion can occur, even when shafts are manufactured with high quality hardened steel using tight tolerances. If not checked, abnormal stresses on seals, bearings, and other engine or pump components can occur. The results are costly 'down time'. A great deal of money is spent each year on maintenance caused by this premature wear and equipment failure.

The ideal solution to spline distortion and wear is to eliminate the backlash or clearance related to mating tolerances and assembly misalignment. There are many solutions available, but most are expensive, time consuming, and often unsuccessful causing additional damage.

Lovejoy coupling hubs with the L-LOC spline clamping feature have proven themselves successful by eliminating the backlash, clearance issues, and damage caused by the hammering effects of vibration, including torsional vibration. The result is longer lasting spline profiles in both shafts and couplings that decrease costly downtime.

The L-LOC feature is a remarkably simple, yet effective design, consisting of a unique 'dog bone' shaped slot that is placed slightly above and parallel to the spline bore. When these set screws are tightened, the hub becomes firmly locked in place, gripping the full diameter of the spline shaft and the set screws never come in contact with the spline. As a result, users will never see dents, gouges, or burrs on the shaft from mounting the hub. While in use the hub and shaft virtually become a single entity, yet when the set screws are loosened, the L-LOC releases its grip and the hub can be easily removed from the spline shaft.

Spline Identification and Selection

There are hundreds of combinations of splines used in industry today and, while Lovejoy does not stock all of these splines, many are maintained in inventory while a large variety can be quickly machined for your specific needs.

When identifying splines, it is important to know what Industry Standard the spline falls under such as ANSI B92.1A (SAE J744) or DIN5480. Manuals and data sheets provided by most original equipment manufacturers contain the necessary spine data for users to identify and order a hub with the proper spline.

Lovejoy's Customer Service and Technical Support teams can help pick out couplings or hubs containing most splines, but certain information will need to be provided prior to making the proper selection.

SAE Standard Involute splines are the most common spline in use in the United States and many are represented in the ANSI chart shown on the right. Information required to identify most ANSI (SAE) splines contains the number of teeth, the diametral pitch, and the major spline diameter. Lovejoy's ANSI splines are machined to meet the ANSI standard Class-5 fit.

When specifying DIN-5480 splines, it is necessary to provide the number of teeth, the major diameter in mm, and the DIN Module number, usually in format:

DIN 5480 x Major Dia x Module x Pressure angle (usually 30°) x number of teeth.

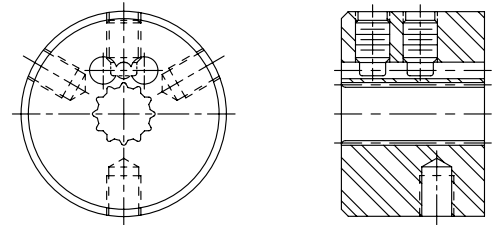
Lovejoy's DIN-5480 splines are machined to meet the DIN standard 9H fit.

DIN-5482 metric splines, JIS splines, and SAE J499 parallel side splines, can be quoted based on individual applications.



Features

- L-LOC eliminates premature spline shaft maintenance or replacement
- Reduces potentially damaging stress on equipment components
- Quick and easy to assemble and/or removal
- Improves the effectiveness of the connection between the hub and shaft
- Helps reduce equipment noise often related to couplings



SAE Splines ANSI B92.1A (SAE J744)

SAE Code	Number of Teeth	Diametral Pitch (DP)	Major Diameter in
A-A	9	20/40	0.500
A	9	16/32	0.625
—	11	16/32	0.750
B	13	16/32	0.875
B-B	15	16/32	1.000
C	14	12/24	1.250
—	21	16/32	1.375
C-C	17	12/24	1.500
—	23	16/32	1.500
D	13	8/16	1.750
E	13	8/16	1.750
—	20	12/24	1.750
—	27	16/32	1.750
F	15	8/16	2.000

Note: ■ Please contact Lovejoy Technical Support regarding additional spline sizes not included in this chart.