

# DUAL SEALING A.F.O.<sup>®</sup> PLUG

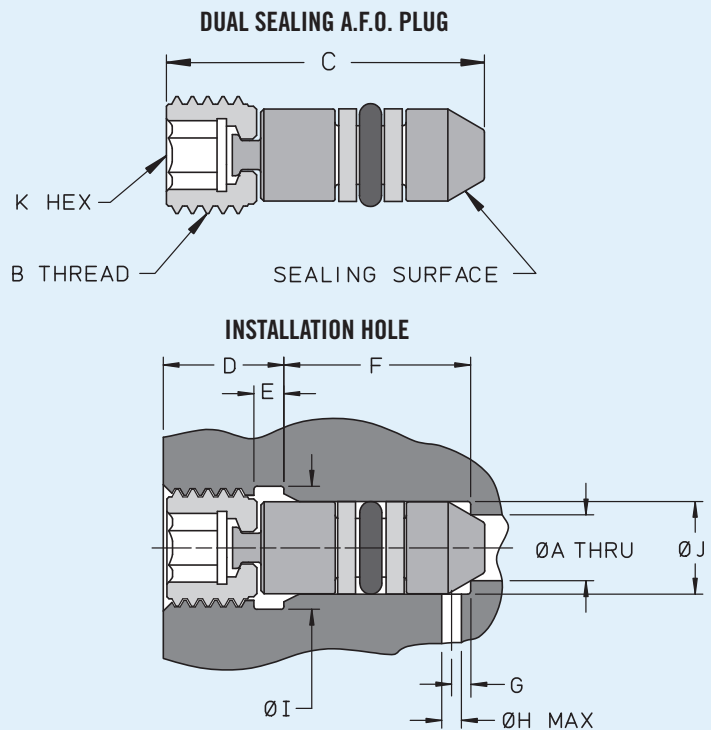
The Lee Dual Sealing A.F.O. (Axial Force Only) Plug offers a leaktight, metal to metal seal for high pressure applications and also incorporates an O-ring with backup rings for venting or charging. Pressure can be vented out of a side port to remove air from a hydraulic system or safely release trapped high pressure gas.

With two backup rings, the Dual Sealing A.F.O. can handle high pressure from either end while in the open position. Machined from materials compliant with NACE specification MR0175, the plug can easily handle a wide range of aggressive wellbore fluids.

Dual Sealing A.F.O. Plugs are designed to be both removable and reusable, featuring a unique floating seal that self-aligns to allow for threaded holes that are not perfectly concentric with the thru-hole. Also, the sealing elements resist rotation during installation, which prevents galling of the seat. Incorporating threaded retention, Dual Sealing A.F.O. Plugs only impart axial force on the housing, allowing for minimal wall thickness.

For additional information and technical assistance, please visit our website to contact a local Lee Sales Engineer.

- Seals to 50,000 psi closed
- Rated to 15,000 psi open
- Reusable – allows easy access to sealed passageways
- 400°F temperature rating
- NACE compliant materials
- Floating seal self aligns – prevents galling
- O-ring and backup rings included and installed



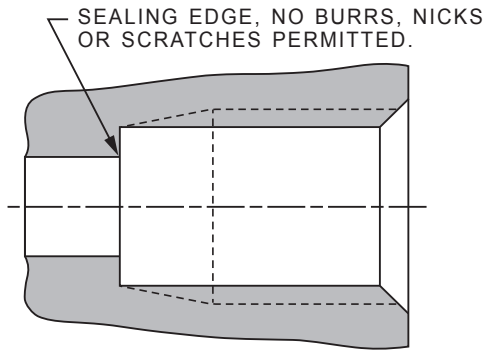
LEE PART NUMBER	DIMENSIONS (inches)										
	A	B	C	D	E	F	G	H (max.)	I	J	K
PLAA3124220A	.132 - .186	.3125-24	.981	.440	.095	.600	.060	.062	.343	.230 - .231	.156
PLAA3724220A	.187 - .230	.375-24	.993	.440	.095	.591	.060	.062	.390	.293 - .294	.187
PLAA5020220A	.250 - .290	.500-20	1.122	.460	.095	.656	.100	.070	.530	.357 - .358	.250

LEE PART NUMBER	PROOF PRESSURE (psi)		COINING TOOL PART NUMBER
	OPEN	CLOSED	
PLAA3124220A	15,000	50,000	CUTA3120363A
PLAA3724220A	15,000	50,000	CUTA3750363A
PLAA5020220A	15,000	50,000	CUTA5000363A

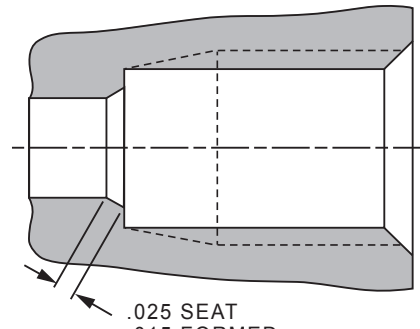
MATERIALS	
PART	MATERIAL
Body and Nose	MP35N Chemistry, Heat Treat per NACE MR0175
O-Ring	FKM, 90 Durometer
Backup Rings	PEEK

## SEAT COINING

Coin the sealing seat using the appropriate tool called out in the table below. The following figures depict a cross section of an installation hole before and after the coining operation.



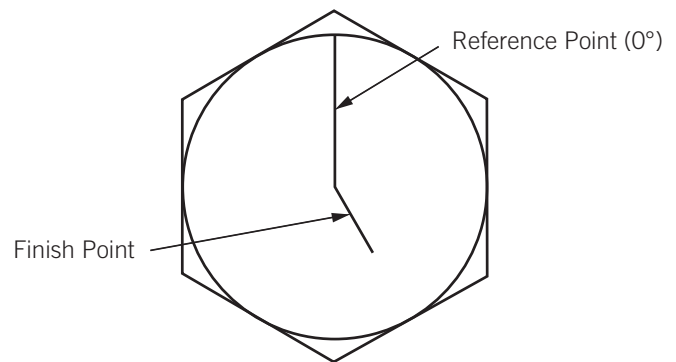
INSTALLATION HOLE BEFORE COINING



INSTALLATION HOLE AFTER COINING

Coining the seat is accomplished by rotating the coining tool to an appropriate angle. The angle has been calculated to correspond to an even chamfer within the acceptable width. Proper angles of rotation for Lee coining tools are listed in the table to the right.

Coining tools are marked with two lines on the top face to aid in the measurement of the rotation, as shown in the figure to the right. The longer line represents the reference point (0°) and the shorter line indicates the finish point.



## SEAT COINING PROCEDURE

Thread the tool by hand into the installation hole until the nose bottoms out on the edge to be coined. Mark a line at the finish point on the housing manifold and use a wrench to rotate the tool until the reference line is parallel with the manifold marking. In tougher materials that are difficult to coin, the nose and threads may be coated with a high film strength oil to prevent galling during the coining operation. The Lee Company recommends using Mobilgrease 28.

COINING ROTATIONS			
A.F.O. PLUG PART NUMBER	COINING TOOL	THREAD SIZE	REQUIRED TOOL ROTATION
PLAA3124220A	CUTA3120363A	0.312-24	150° ± 30°
PLAA3724220A	CUTA3750363A	0.375-24	150° ± 30°
PLAA5020220A	CUTA5000363A	0.500-20	125° ± 25°

## DUAL SEALING A.F.O.® PLUG INSTALLATION

After the installation hole is manufactured to the proper dimensions and the seat is coined, the O-ring should be lightly coated with lubrication to give it added protection during installation. The Lee Company recommends using Super Lube O-ring Silicone Grease. The A.F.O. Plug may be coated with a high film strength oil on the nose piece and the area between the body and nose. The Lee Company recommends using Mobilgrease 28.

Install the A.F.O. Plug by hand until the nose piece is seated against the sealing surface. Tighten the A.F.O. Plug to the installation torque as described in the table to the right.

INSTALLATION TORQUES			
HOUSING MATERIAL	A.F.O. PLUG PART NUMBER		
	PLAA3124220A	PLAA3724220A	PLAA5020220A
2024-T4 Al	75 in·lbs	100 in·lbs	25 ft·lbs
416 SS	90 in·lbs	220 in·lbs	30 ft·lbs
AISI 8630	90 in·lbs	220 in·lbs	30 ft·lbs

The torque values listed are for installing an A.F.O. Plug against no pressure. For systems where the O-ring is sealing pressure before the plug is seated at the nose seal, additional torque is required to properly install the part. The additional torque needed will be equal to the force necessary to overcome the pressure being sealed by the O-ring.