

Accualign Design Guide/Installation Instructions

DME Accualign lifters are a 3D Self Aligning Lifter that will compensate for any misalignment in the corresponding mold plates and inserts. Using its modular components (dove tail end, adaptor ball, keeper key, rod bushing, bar guide and lifter shoe) the lifter consistently self-aligns itself into its required position. The lifters are available in Metric and Imperial rod and bar sizes, ranging from ¼" – 1.000" and 6mm – 25mm. Providing multiple tooling solutions.

General Installation Guidelines

1. Determine angle and stroke requirement
2. Lifter travel = the ejector stroke x the tangent of the lifter angle
3. Select the lifter type to be used (rod or bar)
4. Designs using 5 to 10-degree angles work best
5. Angles up to 15 degrees should use lifter guides
6. It is recommended to use the bar guides when using the bars style lifter. These guides were made to support the lifter bar and assist with a smooth action.
7. Lifter guides are recommended when less than half of the lifter blade is bearing in the mold insert or long ejector strokes.
8. Lifter shoes can be mounted on top of or recessed into the ejector plate
9. Positive stops or a locking angle can be designed onto the lifter to assure proper lifter position during the molding process.
10. Recommended clearance for the lifter rod or bar guide bearing surface is +0.001 to +0.0015" (0.025 to 0.038 mm)
11. 0.005 (0.127 mm) per side rod diameter clearance in the lifter head is recommended to allow the lifter to float (self-align) into the lifter pocket.
12. Lifter shoe pockets can have +0.002 to +0.005 clearance
13. After the top of the lifter is properly fitted into mold, the shoe height can be adjusted by grinding the bottom of the shoe for proper lifter fit. Note: the lifter does not require preload
14. It is recommended that guided ejection be used in the mold design

Lifter Rod and Keeper Key Extractions

Extraction for the keeper key and the correct rod length with gasket compression into lifter head.

The reference guideline for proper gasket compression is 18% of gasket thickness.

The minimum length of the rod pocket that telescopes into the lifter from the bottom of the keeper key pocket is calculated at 1.5 times the diameter of the rod plus the thickness of the gasket minus (the compression ratio of 18%) minus ½ of the thickness of the keeper key. (See Fig. 1)

Rod depth calculation:

Rod diameter x 1.5 + (gasket thickness – 18% of the gasket thickness) minus ½ of the thickness of the keeper key = rod length into lifter head.

Example: (Rod Diameter) .500 x 1.5 = .750 (Gasket thickness) .156 - .028 = .128 (Keeper Key thickness) .336/2 = .168

.750 + .128 = .878 (minus .168) = .710 (Rod pocket depth into lifter head from bottom of keeper key pocket) This allows for 18% rod gasket compression

Depending on the lifter application, the lifter rod and gasket can telescope deeper for more bearing surface into the lifter head.

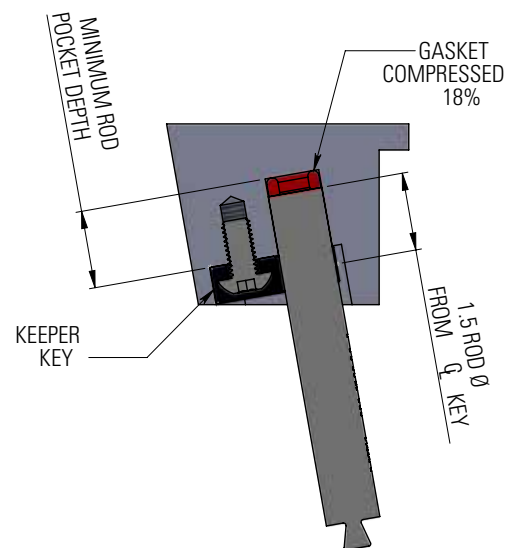
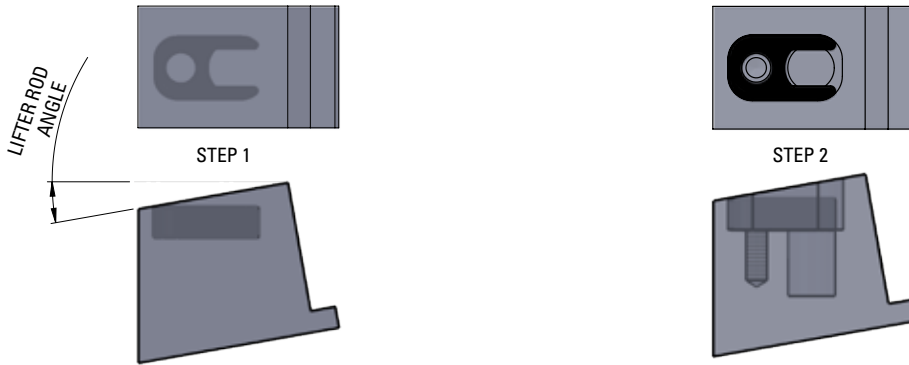


FIG. 1

Keeper Key and Rod Extraction Setup

1. Place the keeper key model on desired angle and position into the bottom of lifter (0.005 below bottom of lifter) (STEP 1)
2. Extract the keeper key pocket into the bottom of the lifter (pockets can have +0.010 to +0.015 per side wall clearance)
3. Using the keeper key model for hole locations, create screw threads and the lifter rod pocket per the guidelines (STEP 2)



4. Install the lifter rod in adapter ball (that is in the lifter shoe track) and set the rod into the rod pocket.
5. With the lifter and components installed into the mold base design and allowing for the compressed gasket, measure the length of the lifter rod (FIG. 2)
6. Using this dimension, cut the lifter rod
7. Set the gasket and lifter rod into the hole to check to see if the compression is correct
8. Insert the keeper key into the keeper key pocket along with the button head screw
9. Using the Keeper key as the Extraction model, extract the keeper key slots on to the lifter rod. (Note: this is to insure the correct orientation of the dovetail) (FIG. 3)

Accualign Lifter Rod

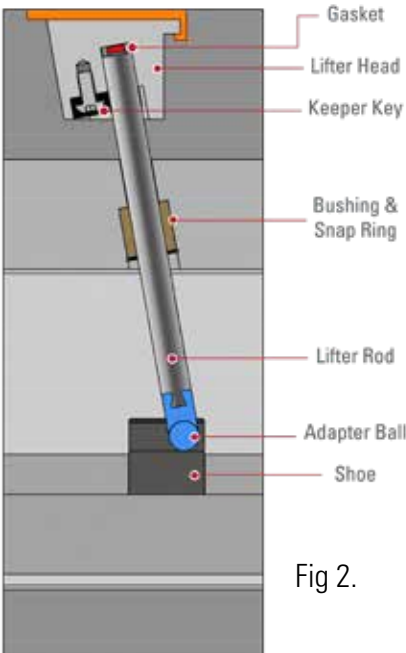


Fig 2.

Rod Gaskets

PART NUMBER	SIZE	THICKNESS	MINUS 18% OF THICKNESS
LRGK0250	0250	0.100	$0.100 - 0.018 = 0.082$
LRGK0375	0375	0.125	$0.125 - 0.023 = 0.102$
LRGK0500	0500	0.156	$0.156 - 0.028 = 0.128$
LRGK0750	0750	0.200	$0.200 - 0.036 = 0.164$
LRGK1000	1000	0.266	$0.266 - 0.048 = 0.218$

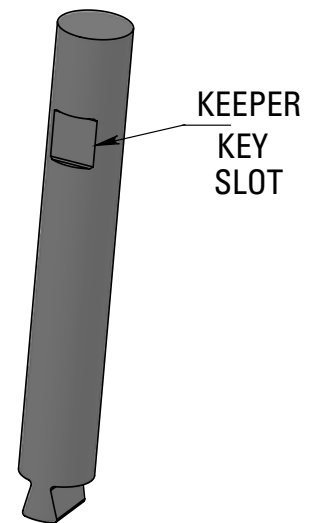
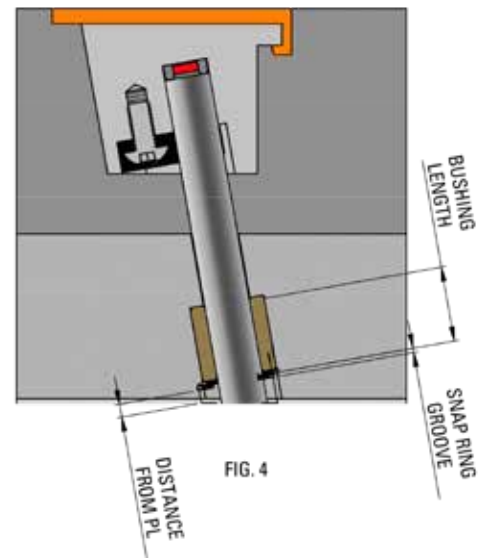


FIG. 3

Lifter Rod Bushing and Snap Ring Extraction

1. Locate the rod bushing and snap ring in the proper location
2. Referring to snap ring chart, cut snap ring groove into tool
(FIG. 4 & Chart)



PART NUMBER	RING Ø	GROOVE Ø	RING THICKNESS	MIN. GROOVE WIDTH	BUSHING OD	GROOVE DEPTH	DISTANCE FROM PL
EH-10	10.62mm	10.52mm ±.05	0.64mm ±.05	0.74mm +.08/-0.00	10mm	0.26mm	2.50mm
EH-14	15.07mm	14.85mm ±.05	0.89mm ±.05	1.00mm +.08/-0.00	14mm	0.425mm	3.50mm
EH-20	21.51mm	21.22mm ±.075	0.89mm ±.05	1.00mm +.08/-0.00	20mm	0.61mm	3.00mm
EH-28	30.10mm	29.87mm ±.075	1.27mm ±.05	1.40mm +.1/-0.00	28mm	0.935mm	4.00mm
DNH-33	35.05mm	34.70mm +.25/-0.00	1.14mm ±.05	1.30mm +.14/-0.00	33mm	0.85mm	4.00mm
WH-50	0.532	0.526 ±.002	0.025 ±.002	0.030 +.003/-0.000	0.500	0.013	0.090
WH-62	0.658	0.651 ±.002	0.025 ±.002	0.030 +.003/-0.000	0.625	0.013	0.090
WH-75	0.790	0.782 ±.002	0.031 ±.002	0.036 +.003/-0.000	0.75	0.016	0.110
WHT-112	1.195	1.185 ±.004	.050 ±.002	0.056 +.004/-0.000	1.125	0.030	0.180
WHT-137	1.461	1.450 ±.004	.050 ±.002	0.056 +.004/-0.000	1.375	0.0375	0.180

Cut a section view through the center of the lifter rod (FIG. 2) and check the dimensions to make of sure the following:

- correct gasket compression
- .005 clearance on the bottom of the keeper key
- lifter rod bushing is on the correct angle
- snap ring distance from the bottom is not over the recommended distance

Accualign Lifter Rod

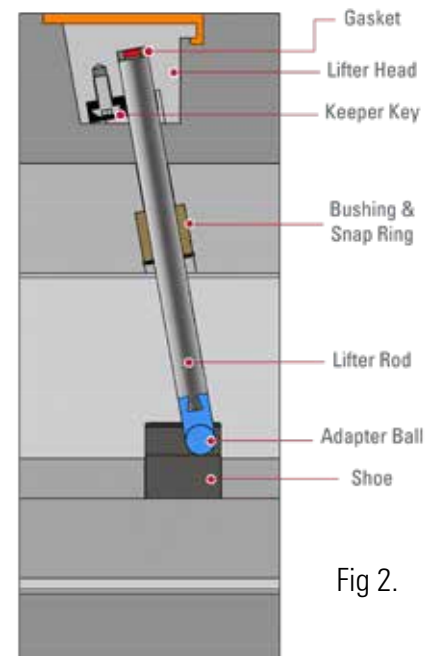


Fig 2.

Lifter Bar Design

1. Choose lifter bar size and add part shape
2. For lifters requiring a positive stop, use the no dovetail lifter bar
3. Design the required lifter shape with the positive stop (*FIG. 1*)
4. Position the lifter bar, put adaptor ball dovetail on centerline and lifter shoe into proper location of mold design
5. Using the adaptor ball or dovetail subtraction model
6. Subtract the dovetail shape onto the positive stop lifter bar (*FIG. 2*)
7. Lifter guides are recommended when less than half of the lifter blade is bearing in the mold insert or long ejector strokes.

