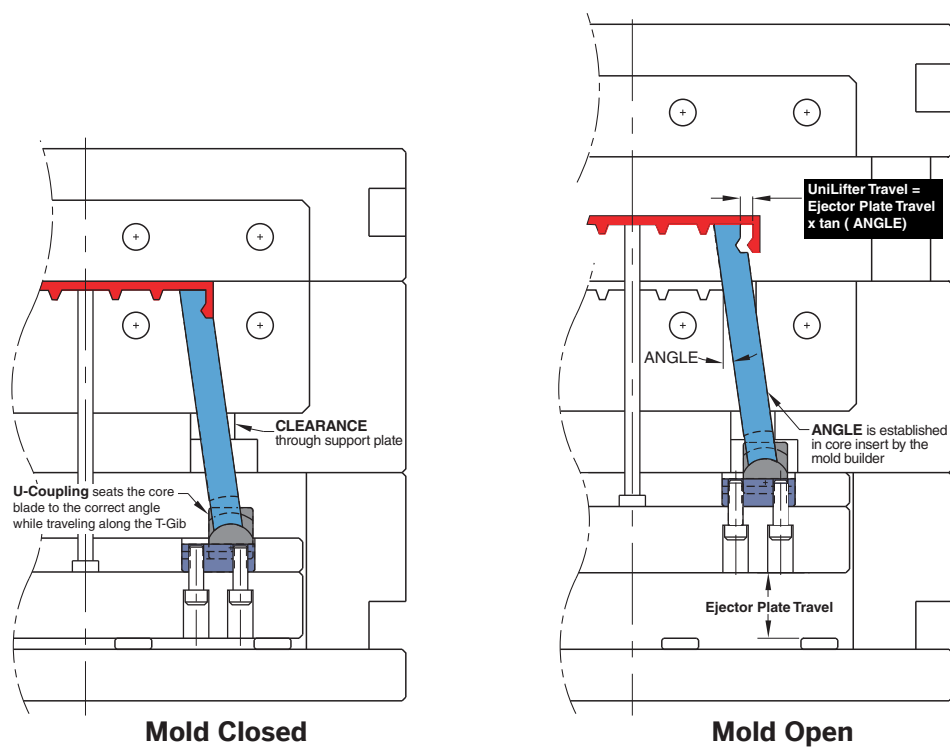




UNILIFTER® UNDERCUT RELEASE SYSTEM



The UniLifter undercut release system incorporates a three piece set: Core Blade, U-Coupling, and T-Gib.



Application Guidelines:

- Typical angle is 5-10°, though users report success at greater angles with guides installed. Contact Engineering for application review.
- Guided Ejection is recommended, and if there is less than half of the Core Blade bearing in the insert, lifter guide plates should be added.
- Recommended clearance is .001"-.0015" (.025-.038 mm) where permissible.
- Core insert material should be at least 10 HRC higher in hardness than the Core Blade, and for maximum longevity consider coatings or treatments for increased lubricity or hardness.
- Locking angles can be designed to accept molding pressure, and non-standard sizes or pre-roughed Core Blades can be provided by accessing www.procomps.com.

MINILIFTER® SERIES

Flat Core Blades - Inch Standard

M H-13 **H** 38-42 HRC

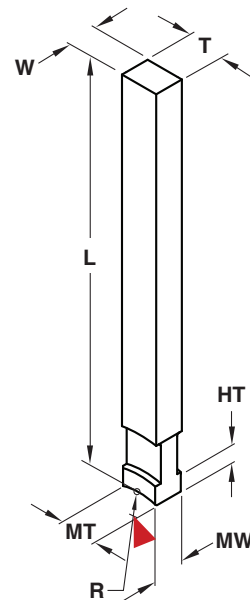
MW	R	HT	CATALOG NUMBER	T +.000 -.001	W +.000 -.001	L +.06 -.00	MT MIN. THK.
.250	.250	.156	CBS37X25L8	.385	.260	8	.25
			CBS50X25L8	.510	.260	8	.31
			CBS75X37L8	.760	.385	8	.31

Flat Core Blades - Metric Standard

M H-13 **H** 48-50 HRC
M DC53 **H** 58-60 HRC

MW	R	HT	H-13 MATERIAL CATALOG NUMBER	DC53 MATERIAL CATALOG NUMBER	T -.005 -.015	W -.005 -.015	L +2 +1	MT MIN. THK.
6	12	4	CBMMH6X6L200	CBMMP6X6L200	6.00	6.00	200	6
			CBMMH6X10L200	CBMMP6X10L200	6.00	10.00		
			CBMMH8X6L200	CBMMP8X6L200	8.00	6.00		
			CBMMH8X8L200	CBMMP8X8L200	8.00	8.00		
			CBMMH10X8L200	CBMMP10X8L200	10.00	8.00		

▶ CAD insertion point



Round Core Blades - Inch Standard

M H-13 **H** 38-42 HRC

MW	R	HT	CATALOG NUMBER	D +.000 -.001	L +.06 -.00	MT MIN. THK.
.250	.250	.156	CBS43DL8	.437	8	.31

Round Core Blades - Metric Standard

M H-13 **H** 48-50 HRC
M DC53 **H** 58-60 HRC

MW	R	HT	H-13 MATERIAL CATALOG NUMBER	DC53 MATERIAL CATALOG NUMBER	D -.005 -.014	L +2 -0	MT MIN. THK.
6	12	4	CBMMH8DL200	CBMMP8DL200	8.00	200	6



U-Couplings - Inch Standard

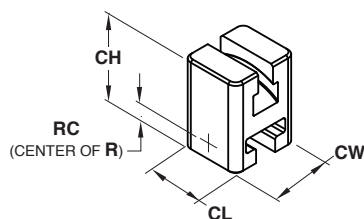
M H-13 **S** Salt Bath Nitride

R	RC	CATALOG NUMBER	CW	CL	CH
.250	.125	UCM50	.50	.44	.62

U-Coupling - Metric Standard

M H-13 **S** Salt Bath Nitride

R	RC	CATALOG NUMBER	CW	CL	CH
12	2	UCMM16	16	14	21



T-Gibs - Inch Standard

M H-13 **H** 28-32 **S** Salt Bath Nitride

TW +.000 -.001	TH +.010 -.000	TD* +.010 -.000	TR	SHCS (INCLUDED)	CATALOG NUMBER	TS	TL +.000 -.010	TRAVEL ALLOWED
.500	.500	.344	.093	#10-32x1	TGM31	-	.750	.312
					TGM100	.500	1.50	1.000

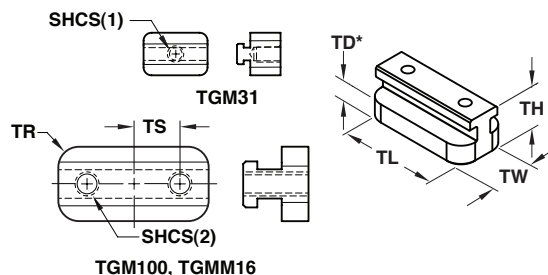
*TD Includes fitting stock for final adjustments.

T-Gib - Metric Standard

M H-13 **H** 28-32 **S** Salt Bath Nitride

TW +.00 -.05	TH +.25 -.00	TD* +.25 -.00	TR	SHCS (INCLUDED)	CATALOG NUMBER	TS	TL +.00 -.10	TRAVEL ALLOWED
16	13	6	2.5	M4-.7x20	TGMM16	10	33	18

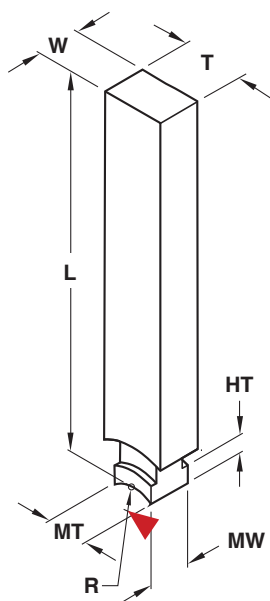
*TD Includes fitting stock for final adjustments.



For core blades in different materials or mold-ready sizes refer to templates in section X.

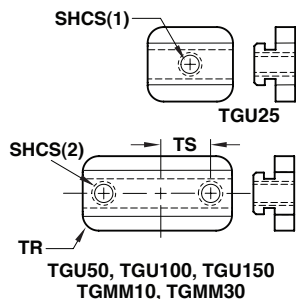
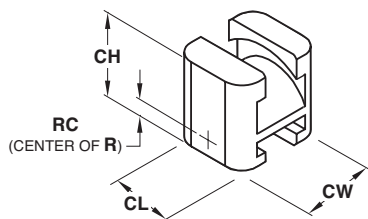


UNILIFTER® SERIES



▶ CAD insertion point

The UniLifter Series (MW=.500) is also available in aluminum bronze in 14" and 18" lengths only. To order, replace "CBS" with "CBA" in the catalog number as shown: CBA50X50L14.



*TD Includes fitting stock for final adjustments.

For core blades in different materials or mold-ready sizes refer to templates in section X.

M H-13 H 38-42 HRC

Flat Core Blades - Inch Standard

MW	R	HT	CATALOG NUMBER	T +.000 -.001	W +.000 -.001	L +.06 -.00	MT MIN. THK.
.500	.406	.187	CBS50X50L8	.510	.510	8	.49
			CBS50X50L14	.510	.510	14	.49
			CBS50X100L8	.510	1.010	8	.49
			CBS50X100L14	.510	1.010	14	.49
			CBS50X150L14	.510	1.510	14	.49
			CBS75X50L14	.760	.510	14	.62
			CBS75X150L8	.760	1.510	8	.62
			CBS75X150L14	.760	1.510	14	.62
			CBS100X50L8	1.010	.510	8	.62
			CBS100X50L14	1.010	.510	14	.62
			CBS150X50L8	1.510	.510	8	.62
			CBS150X50L14	1.510	.510	14	.62
			CBS150X75L8	1.510	.760	8	.62
			CBS150X75L14	1.510	.760	14	.62

M H-13 H 38-42 HRC

Flat Core Blades - Metric Standard

MW	R	HT	CATALOG NUMBER	T +.000 -.025	W +.000 -.025	L +2 -0	MT MIN. THK.
10	10	5	CBMM10X10L250	10.25	10.25	250	10.0
			CBMM10X20L250	10.25	20.25	250	10.0
			CBMM15X15L250	15.25	15.25	250	15.0
			CBMM15X30L400	15.25	30.25	400	15.0
			CBMM20X10L250	20.25	10.25	250	15.0
			CBMM20X20L400	20.25	20.25	400	15.0
			CBMM30X15L400	30.25	15.25	400	15.0

M H-13 H 38-42 HRC

Round Core Blades - Inch Standard

MW	R	HT	CATALOG NUMBER	D +.000 -.001	L +.06 -.00	MT MIN. THK.
.500	.406	.187	CBS75DL8	.750	8	.62
			CBS75DL14	.750	14	.62
			CBS75DL18	.750	18	.62

M H-13 H 38-42 HRC

Round Core Blades - Metric Standard

MW	R	HT	CATALOG NUMBER	D +.000 -.025	L +2 -0	MT MIN. THK.
10	10	5	CBMM10DL250	10.00	250	10.0
			CBMM15DL250	15.00	250	10.0

M H-13 S Salt Bath Nitride

U-Couplings - Inch Standard

R	RC	CATALOG NUMBER	CW	CL	CH
.406	.187	UCU87	.87	.75	.87

M H-13 S Salt Bath Nitride

U-Couplings - Metric Standard

R	RC	CATALOG NUMBER	CW	CL	CH
10	6	UCMM22	22	18	25

M H-13 H 28-32 S Salt Bath Nitride

T-Gibs - Inch Standard

TW +.000 -.001	TH +.010 -.000	TD* +.010 -.000	TR	SHCS (INCLUDED)	CATALOG NUMBER	TS	TL +.000 -.010	TRAVEL ALLOWED
.875	.468	.219	.187	1/4-20x3/4	TGU25	-	1.00	.250
					TGU50	.375	1.25	.500
					TGU100	.625	1.75	1.000
					TGU150	.750	2.25	1.500

M H-13 H 28-32 S Salt Bath Nitride

T-Gibs - Metric Standard

TW +.000 -.025	TH +.25 -.00	TD* +.25 -.00	TR	SHCS (INCLUDED)	CATALOG NUMBER	TS	TL +.00 -.25	TRAVEL ALLOWED
22	13	6	5	M-5x20	TGMM10	10	33	10
					TGMM30	15	52	30

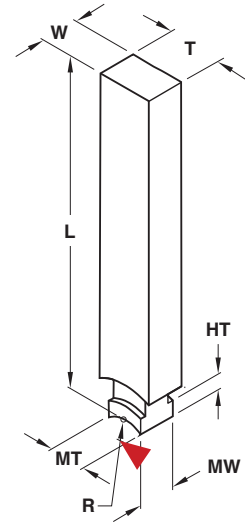
UNILIFTER® XL SERIES

Flat Core Blades - Inch Standard

M H-13 **H** 38-42 HRC

MW	R	HT	CATALOG NUMBER	T +.000 -.001	W +.000 -.001	L +.06 -.00	MT MIN. THK.
1.000	.875	.375	CBS100X100L10	1.010	1.010	10	1.00
			CBS100X100L18	1.010	1.010	18	1.00
			CBS100X150L10	1.010	1.510	10	1.00
			CBS100X150L18	1.010	1.510	18	1.00
			CBS150X100L10	1.510	1.010	10	1.00
			CBS150X100L18	1.510	1.010	18	1.00

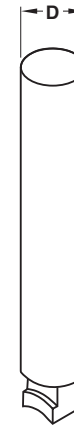
▶ CAD insertion point



Round Core Blades - Inch Standard

M H-13 **H** 38-42 HRC

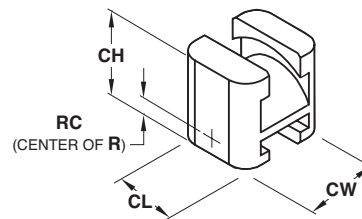
MW	R	HT	CATALOG NUMBER	D +.000 -.001	L +.06 -.00	MT MIN. THK.
1.000	.875	.375	CBS125DL10	1.250	10	1.00
			CBS125DL18	1.250	18	1.00



U-Couplings - Inch Standard

M H-13 **S** Salt Bath Nitride

R	RC	CATALOG NUMBER	CW	CL	CH
.875	.125	UCX175	1.75	1.50	1.65

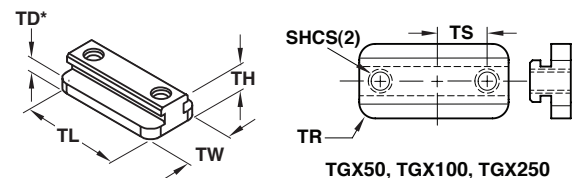


T-Gibs - Inch Standard

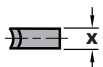
M H-13 **H** 28-32 **S** Salt Bath Nitride

TW +.000 -.001	TH +.010 -.000	TD* +.010 -.000	TR	SHCS (INCLUDED)	CATALOG NUMBER	TS	TL +.000 -.010	TRAVEL ALLOWED
1.750	.615	.250	.312	3/8-16x1-1/4	TGX50	.625	2.00	.500
					TGX100	.875	2.50	1.000
					TGX250	1.375	4.00	2.500

*TD Includes fitting stock for final adjustments.



TGX50, TGX100, TGX250



For core blades in different materials or mold-ready sizes refer to templates in section X.

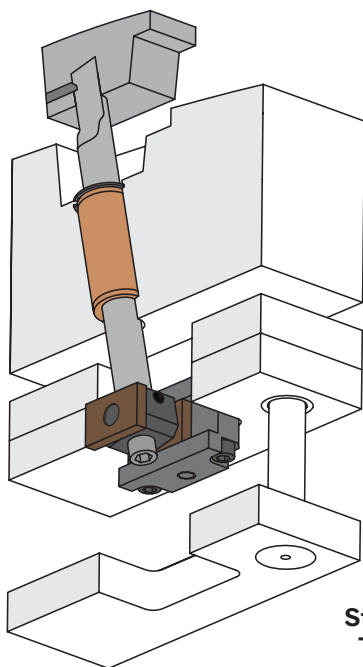


MODULIFTER™

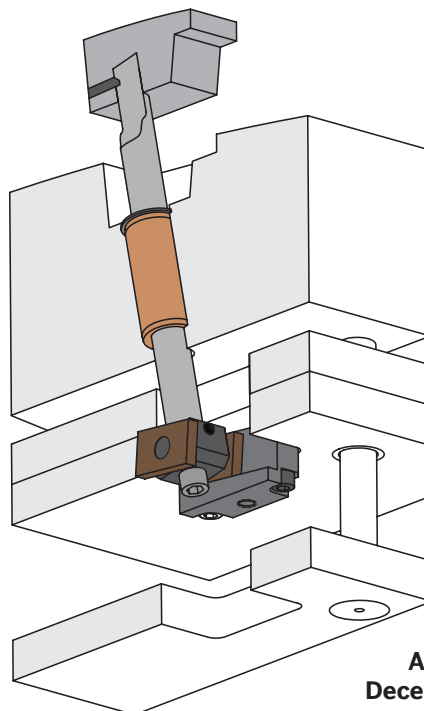
UNDERCUT RELEASE SYSTEM

A standardized modular lifter assembly simplifies undercut release:

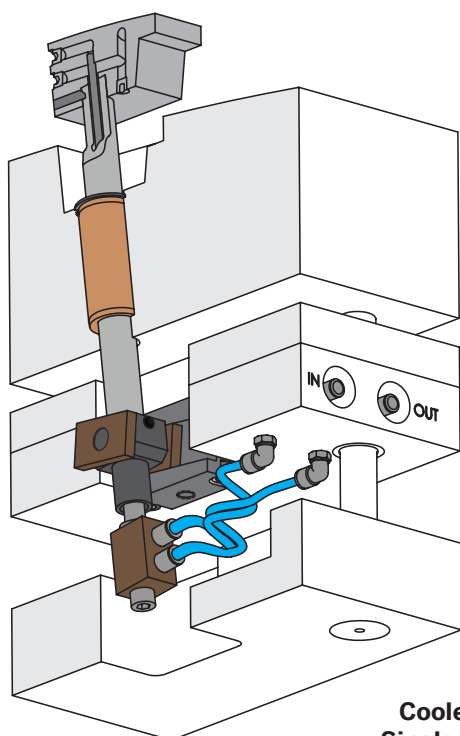
- Specialized design for accelerated and decelerated applications.
- Additional lifter cooling options and components available.



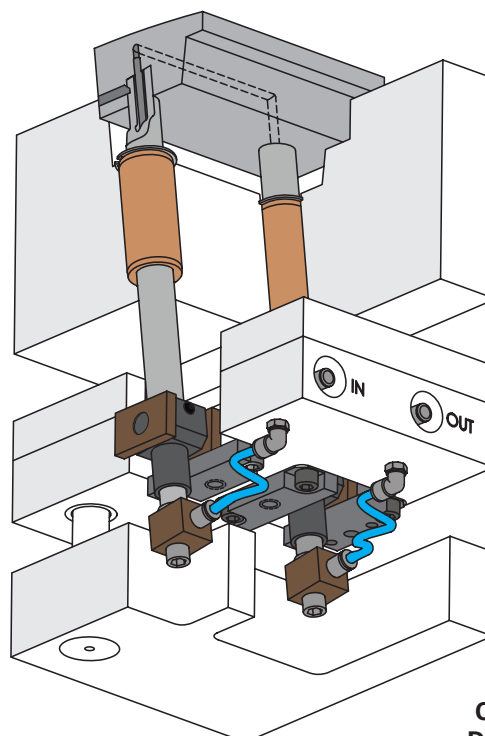
**Straight
Travel**



**Accelerated/
Decelerated Options**



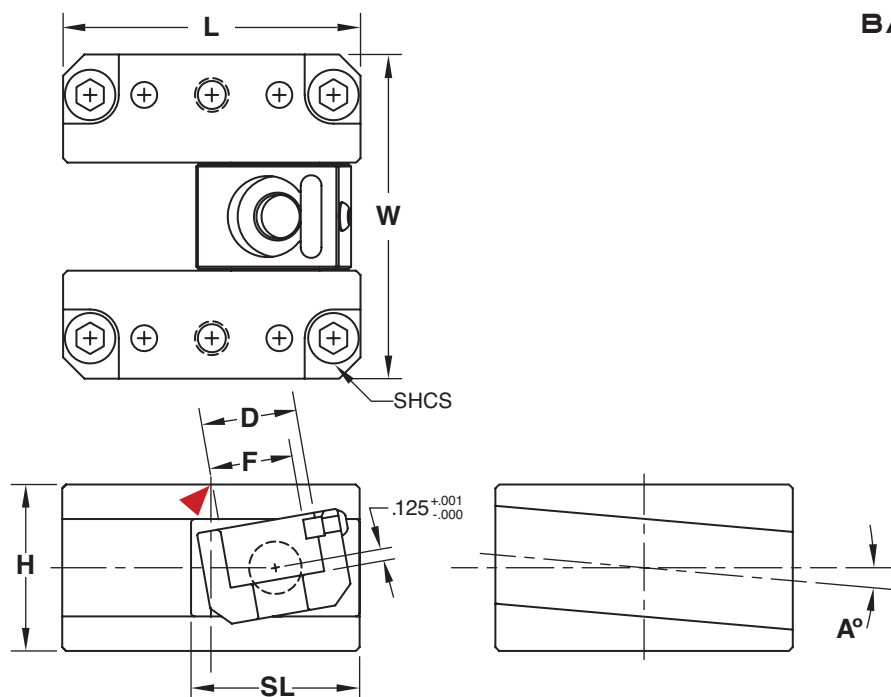
**Cooled:
Single Rod
In/Out**



**Cooled:
Dual Rod
In/Out**



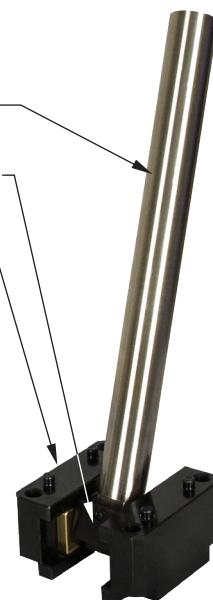
MODULIFTER™ BASE ASSEMBLY/LIFTER ROD



Rod (sold separately)

Base Assembly includes:

- Rod Coupling Assembly
- Gibs (2)
- Mounting Screws (4)
- Dowels installed



BASE ASSEMBLY

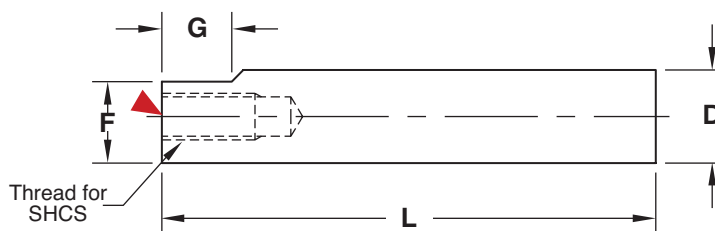
Gibs/Coupling: **M** 1045 **H** 28-32 HRC **S** Nitride

Slides: **M** C86300 (Graphite Plugs if specified)

NOMINAL ROD DIAMETER Ø	CATALOG NUMBER			L +.000 -.015	W +.000 -.002	H +.000 -.001	D +.0003 -.0000	F +.0015 -.0000	SHCS	SL	TRAVEL (L-SL)
	A = 0°	A = 5°	A = 10°								
1/2	MLBA050	MLBA050-5	MLBA050-10	2.250	2.250	1.375	.5003	.4505	1/4-20 x 1-1/2	1.38	.87
5/8	MLBA063	MLBA063-5	MLBA063-10	2.625	2.500	1.375	.6253	.5905	1/4-20 x 1-1/2	1.57	1.06
3/4	MLBA075	MLBA075-5	MLBA075-10	2.750	3.000	1.750	.7503	.6905	5/16-18 x 2	1.57	1.18
1	MLBA100	MLBA100-5	MLBA100-10	3.125	3.250	1.750	1.0003	.8755	5/16-18 x 2	1.77	1.35
1-1/4	MLBA125	MLBA125-5	MLBA125-10	3.875	4.000	2.250	1.2503	1.1605	3/8-16 x 2-1/2	2.76	1.12
1-1/2	MLBA150	MLBA150-5	MLBA150-10	4.750	4.250	2.500	1.5003	1.4005	3/8-16 x 2-3/4	3.15	1.60

Note: Includes (4) SHCS and (4) Dowels. For ModuLifter Base Assemblies with different Gib angles, contact tech@procomps.com.
To order with Graphite Plugged Base, add GP to the part number as shown, Ex: MLBAGPxxx.

▶ CAD insertion point



LIFTER ROD



M 1045 **H** Core: 28-32 HRC, Surface: 56-58 HRC

D +.0000 -.0003	CATALOG NUMBER	L +.13 -.00	F +.000 -.001	G +.03 -.00	SHCS
.500	MLR050L14	14	.450	.50	1/4-20 x 5/8
.625	MLR063L14	14	.590	.56	5/16-18 x 3/4
.750	MLR075L16	16	.690	.68	3/8-16 x 7/8
1.000	MLR100L16	16	.875	.75	1/2-13 x 1
1.250	MLR125L18	18	1.160	.94	5/8-11 x 1-1/2
1.500	MLR150L18	18	1.400	1.00	5/8-11 x 1-1/2

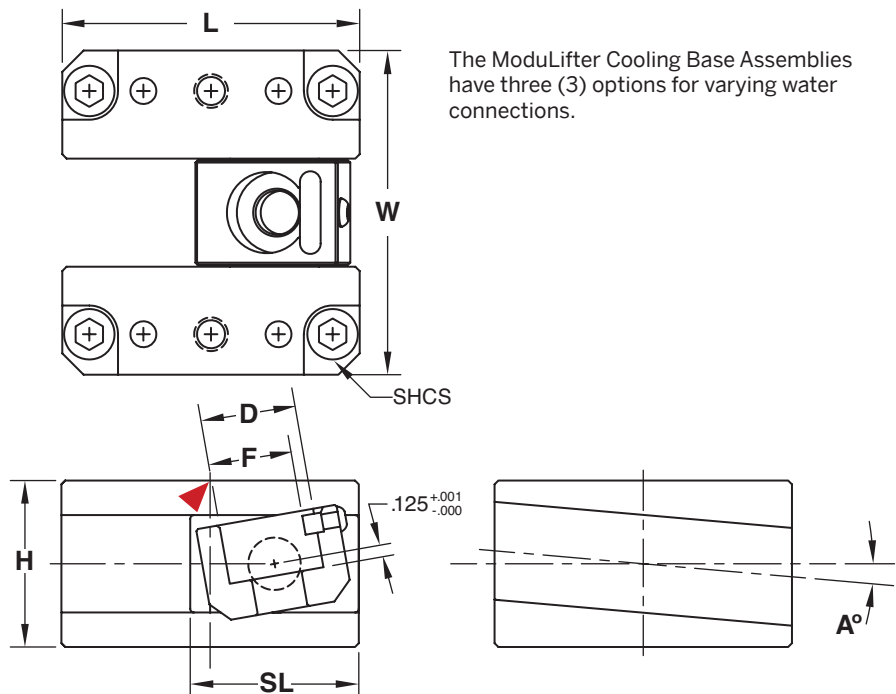
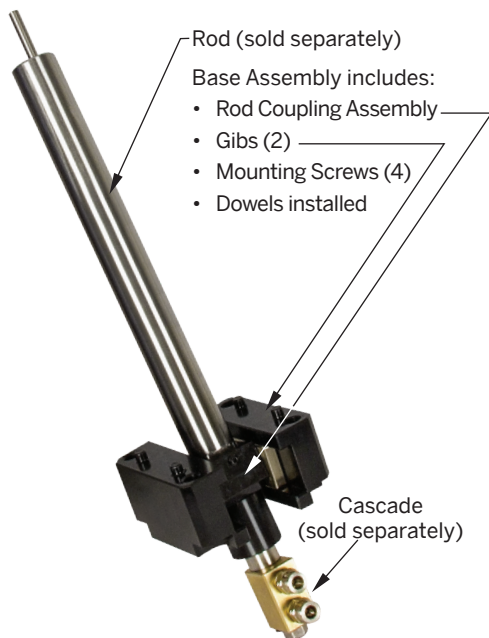
Note: Includes (1) screw for installation.

For additional Lifter Rod lengths, contact tech@procomps.com.

▶ CAD insertion point

MODULIFTER™

COOLED BASE ASSEMBLY/LIFTER ROD



The ModuLifter Cooling Base Assemblies have three (3) options for varying water connections.

COOLED BASE ASSEMBLY

Gibs/Coupling: **M** 1045 **H** 28-32 HRC **S** Nitride

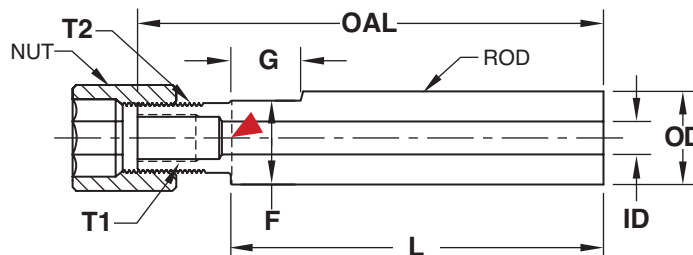
Slides: **M** C86300 (Graphite Plugs if specified)

NOMINAL ROD DIAMETER	CATALOG NUMBER			L +.000 -.015	W +.000 -.002	H +.000 -.001	D +.0003 -.0000	F +.0015 -.0000	SHCS	SL	TRAVEL (L-SL)
	A = 0°	A = 5°	A = 10°								
5/8	MLCBA063	MLCBA063-5	MLCBA063-10	2.625	2.500	1.375	.6253	.5905	1/4-20 x 1-1/2	1.57	1.06
3/4	MLCBA075	MLCBA075-5	MLCBA075-10	2.750	3.000	1.750	.7503	.6905	5/16-18 x 2	1.57	1.18
1	MLCBA100	MLCBA100-5	MLCBA100-10	3.125	3.250	1.750	1.0003	.8755	5/16-18 x 2	1.77	1.35
1-1/4	MLCBA125	MLCBA125-5	MLCBA125-10	3.875	4.000	2.250	1.2503	1.1605	3/8-16 x 2-1/2	2.76	1.12
1-1/2	MLCBA150	MLCBA150-5	MLCBA150-10	4.750	4.250	2.500	1.5003	1.4005	3/8-16 x 2-3/4	3.15	1.60

Note: Includes (4) SHCS and (4) Dowels. For ModuLifter Base Assemblies with different Gib angles, contact tech@procomps.com.
To order with Graphite Plugged Base, add GP to the part number as shown, Ex. MLCBAGPxxx.

▶ CAD insertion point

COOLED LIFTER ROD



M 1045 **H** Core: 28-32 HRC, Surface: 56-58 HRC

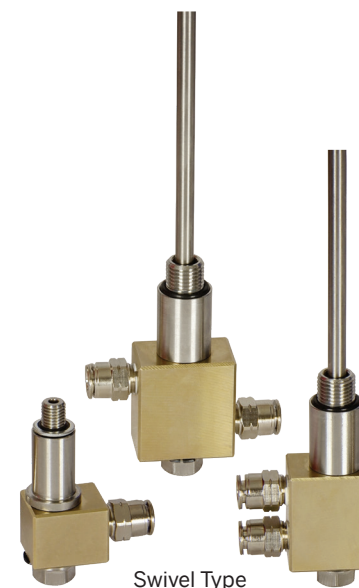
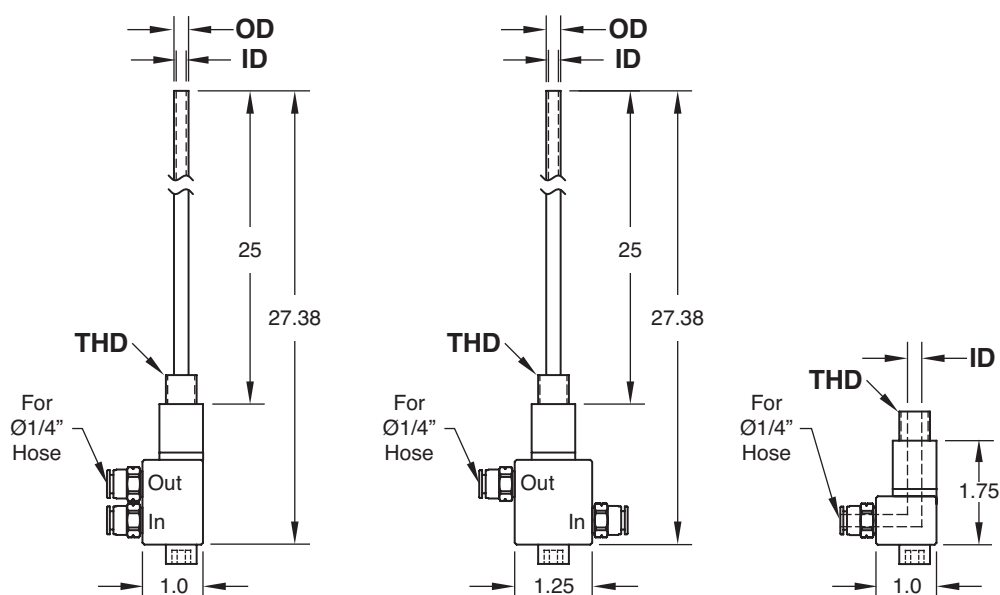
OD +.000 -.0003	CATALOG NUMBER	ID	OAL	L +.13 -.00	T1 Internal Thread	T2 External Thread	G +.03 -.00	F +.000 -.001
.625	MLCR063L14	.250	14.75	14	5/16-24	1/2-20	.56	.590
.750	MLCR075L16	.250	16.88	16	5/16-24	1/2-20	.68	.690
1.000	MLCR100L16	.375	17.00	16	1/2-20	3/4-20	.75	.875
1.250	MLCR125L18	.375	19.25	18	1/2-20	7/8-20	.94	1.160
1.500	MLCR150L18	.375	19.38	18	1/2-20	7/8-20	1.00	1.400

Note: Includes (1) Installation Nut. Replacement nuts are available; refer to the price list.
For additional Cooled Lifter Rod lengths, contact tech@procomps.com.

▶ CAD insertion point



MODULIFTER™ COOLING CASCADES

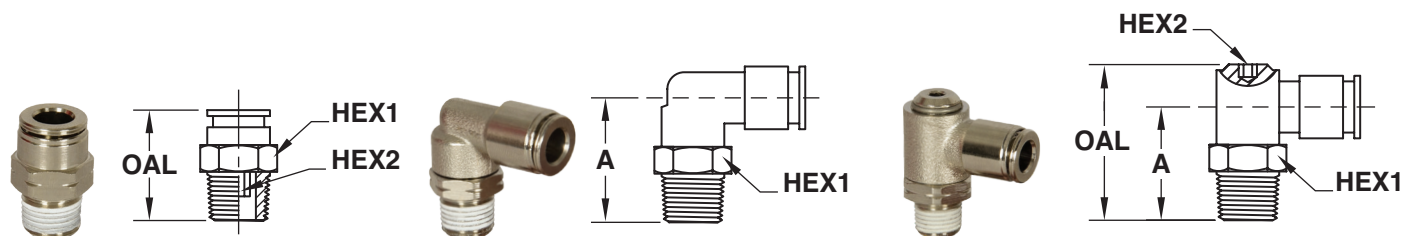


M C86300 and Stainless Steel. Fittings: Nickel Plated Brass.

Parallel (In & Out)			Series (In & Out)			Single (In Only)		THD	MAX TORQUE	NOMINAL ROD DIAMETER Ø
OD	ID	CATALOG NUMBER	OD	ID	CATALOG NUMBER	ID	CATALOG NUMBER			
.157	.12	MLCP16L25	.157	.12	MLCS16L25	.12	MLC12	5/16-24	75 in-lbs	5/8, 3/4
.236	.20	MLCP23L25	.236	.20	MLCS23L25	.20	MLC20	1/2-20	20 ft-lbs	1, 1-1/4, 1-1/2

Note: Straight Fittings included with Cooling Cascades.

PUSH-TO-CONNECT HOSE FITTINGS



FITTING TYPE	CATALOG NUMBER	HOSE OD	THD (NPT)	HEX1	HEX2	A	OAL
Straight	MLFS25	1/4	1/8	1/2	5/32	—	.87
Elbow	MLFE25	1/4	1/8	1/2	—	.83	—
Banjo	MLFB25	1/4	1/8	9/16	1/8	.81	1.22

M Nickel Plated Brass with Sealant

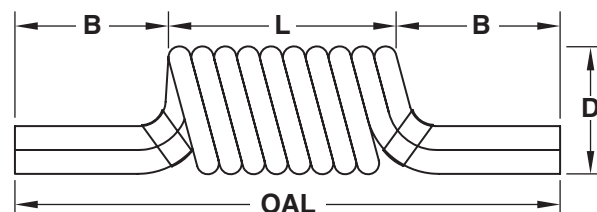
Note: Maximum Operating Temperature 160° F.

PUSH-TO-CONNECT SPIRAL AND STRAIGHT HOSES

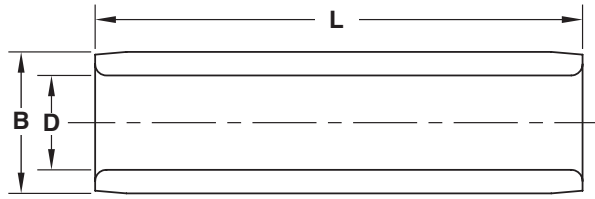
M Polyurethane

CATALOG NUMBER	HOSE OD	HOSE ID	TURNS	OAL	L	B	D
MLH25-5	1/4	5/32	5	10.5 in	2.5	4	1.5
MLH25-10	1/4	5/32	10	13.0 in	5.0	4	1.5
MLH25-25	1/4	5/32	Straight	25.0 ft	—	—	—

Note: Maximum Operating Temperature 160° F.



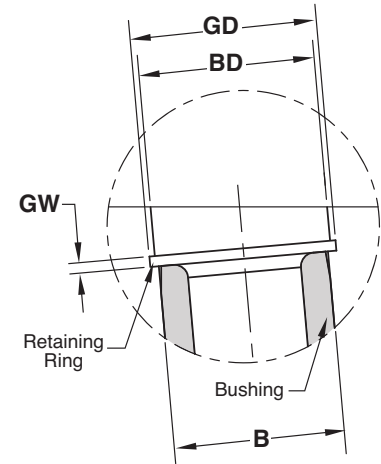
MODULIFTER™ LIFTER ROD BUSHING



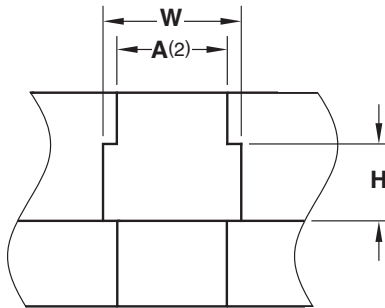
Bushings: **M** C95400 Retaining Ring: **M** Steel **S** Black Oxide

CATALOG NUMBER	D +.001 -.000	B +.0005 -.0000	L +.00 -.01	GD +.005 -.000	GW +.005 -.000	BD ±.002
MLBSH50L1.37	.5005	.750	1.375	.862	.046	.813
MLBSH63L1.37	.6255	.875	1.375	1.000	.046	.934
MLBSH75L3.37	.7505	1.125	3.375	1.262	.056	1.188
MLBSH100L4.37	1.0005	1.375	4.375	1.528	.056	1.438
MLBSH125L4.87	1.2505	1.625	4.875	1.792	.068	1.688
MLBSH150L5.87	1.5005	2.000	5.875	2.186	.086	2.063

Note: Includes (1) Retaining Ring. Replacement rings are available with pricing listed in the price list.



ROD COUPLING ASSEMBLY PLATE MACHINING OPTION



Coupling: **M** 1045 **H** 28-32 HRC **S** Nitride

Slides: **M** C86300 (Graphite Plugs if specified)

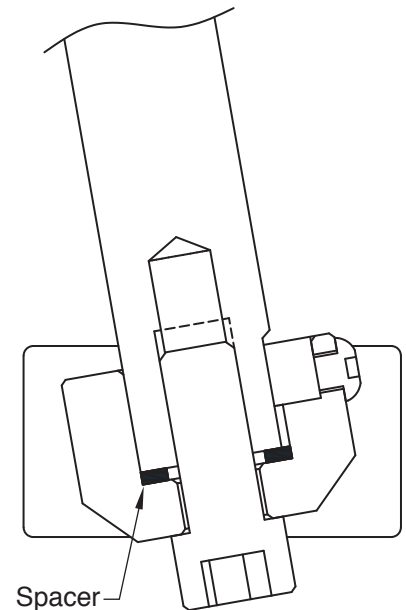
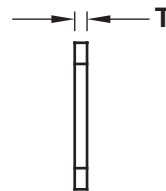
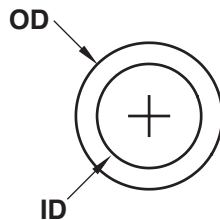
NOMINAL ROD DIA. Ø	CATALOG NUMBER		W +.002 -.000	H ±.001	A +.010 -.000
	Non-Cooled	Cooled			
1/2	RC050	—	1.187	.788	.66
5/8	RC063	RCC063	1.310	.788	.78
3/4	RC075	RCC075	1.500	.946	.97
1	RC100	RCC100	1.781	1.024	1.21
1-1/4	RC125	RCC125	2.375	1.340	1.64
1-1/2	RC150	RCC150	2.656	1.498	1.84

Note: To order slides with Graphite Plugs, add GP to the part number as shown, Ex: RCGP050 or RCCGP125.

LIFTER ROD SPACER

M D-2 **H** 58-60 HRC

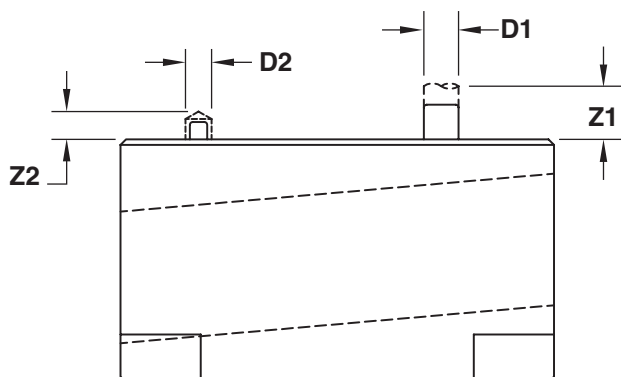
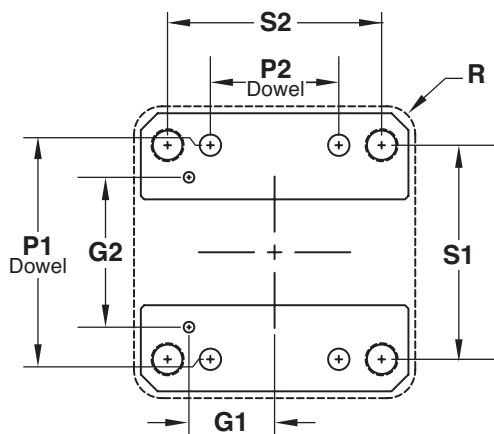
CATALOG NUMBER	OD +.00 -.01	ID +.000 -.005	T +.000 -.001
MLRS050	.500	.30	.063
MLRS063	.625	.53	
MLRS075	.750	.53	
MLRS100	1.000	.80	
MLRS125	1.250	.93	
MLRS150	1.500	.93	





MODULIFTER™

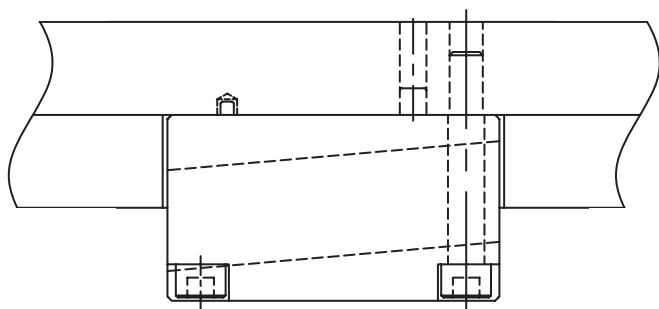
INSTALLATION GUIDELINES FOR BASE ASSEMBLIES



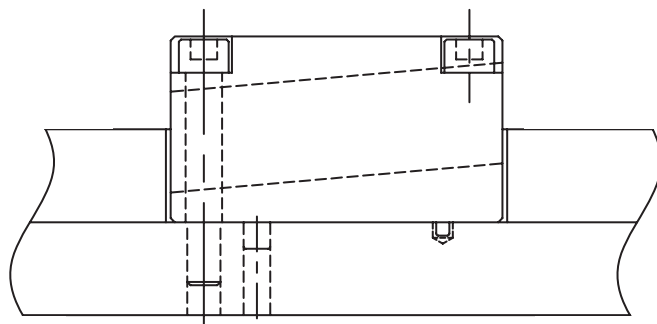
Installation Dimensions							
NOMINAL ROD DIAMETER Ø	S1 ±.005	S2 ±.005	P1 Dowel ±.0005	P2 Dowel ±.0005	R Pocket Max	D1 +.0005 -.0000	Z1 +.03 -.00
1/2	1.750	1.750	1.750	.750	.19	.2500	.28
5/8	2.000	2.000	2.000	1.000			
3/4	2.250	2.250	2.250	1.250			
1	2.500	2.500	2.500	1.500			
1-1/4	3.250	3.250	3.250	1.750	.25	.3750	.41
1-1/2	3.500	4.000	3.500	2.500			

Accel./Decel. Keying Dowel			
G1 ±.005	G2 ±.005	D2 Drill Ø	Z2 Drill Depth +.03/-0.00
.75	1.00	.125	.19
.75	1.25		
.75	1.50		
1.00	1.75		
1.25	2.25	.188	
1.50	2.50		

INSTALLATION METHODS



Bottom Mount



Top Mount

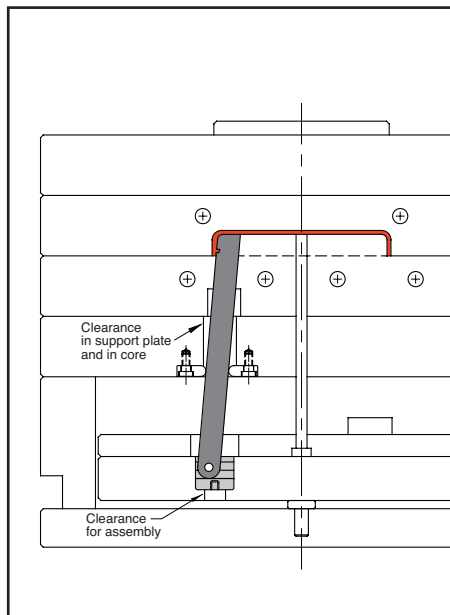
VERSA-LIFTER™

UNDERCUT RELEASE SYSTEM

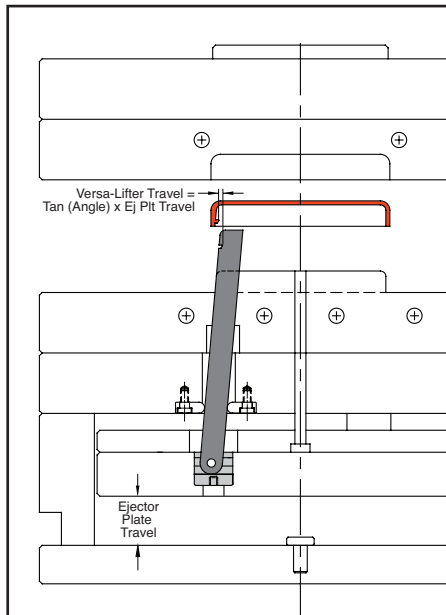
Gib Coupling retains the Core Blade and supports vertical movement.

Core Blades are manufactured from A-10 material, ready for molding detail

Lifter Support Guides are available for when support plate alignment is required.



Mold Closed



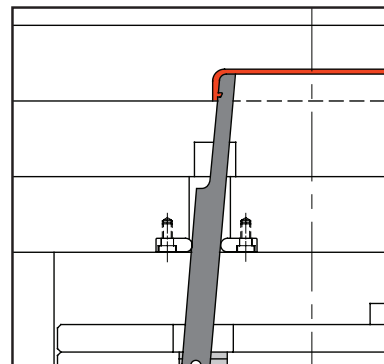
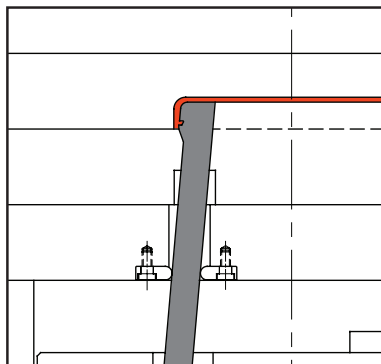
Mold Open

Design Guidelines:

- Typical angles are 5-15°, but users have reported success at larger angles for unique applications with greater bearing, such as cavity side core pulls. Contact Engineering for an application review.
- Guided Ejection is required, and the Lifter Support Guides are recommended in all applications.
- Recommended total clearance is .001"-.0015" (.025-.038mm) where permissible.
- Core material should be at least 10 HRC different than the Core Blade material.
- Locking angles can be designed to counter molding pressure.
- Non-standard sizes or mold-ready Core Blades can be provided by sending a request to tech@procomps.com.

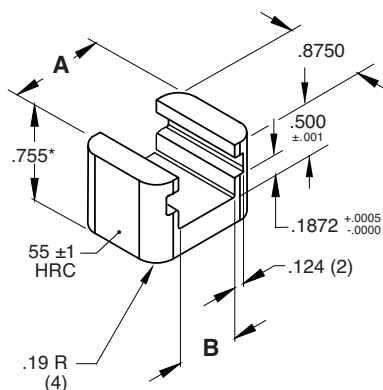
Design Options:

- For positive return, a locking angle can be designed into the Core Blade as shown at right.
- In addition, if space is limited at parting line, the Core Blade can be stepped.





GIB COUPLINGS

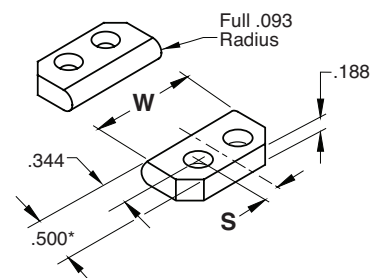


M S-7 **H** 54-56 HRC **S** Salt Bath Nitride

CATALOG NUMBER	A Central	B +.001 -.000	Compatible Core Blade Widths (W)	Omni Catalog Number
UGV68	.6860	.190	.1875 & .4375	LG-10
UGV87	.8735	.377	.6250	LG-20
UGV112	1.1235	.627	.8750	LG-30
UGV137	1.3735	.877	1.1250	LG-40

*.005" stock is included on the bottom for fitting.

VERSA-LIFTER™ LIFTER SUPPORT GUIDES



M S-7 **H** 54-56 HRC

CATALOG NUMBER	W	S	Omni Catalog Number
SGV43	.436	On Center	SG-10
SGV62	.624	On Center	SG-20
SGV87	.874	.187	SG-30
SGV112	1.124	.312	SG-40

Notes:

- *Includes .005" fit stock on flat side.
- The Lifter Support Guides are sold in pairs.
- Four (4) #6-32 LHCS are included.

VERSA-LIFTER™ CORE BLADES

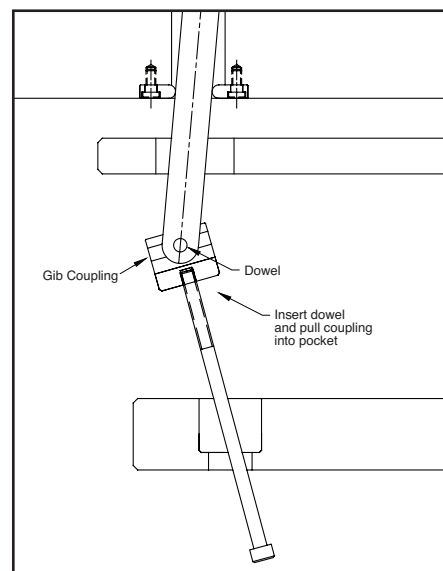
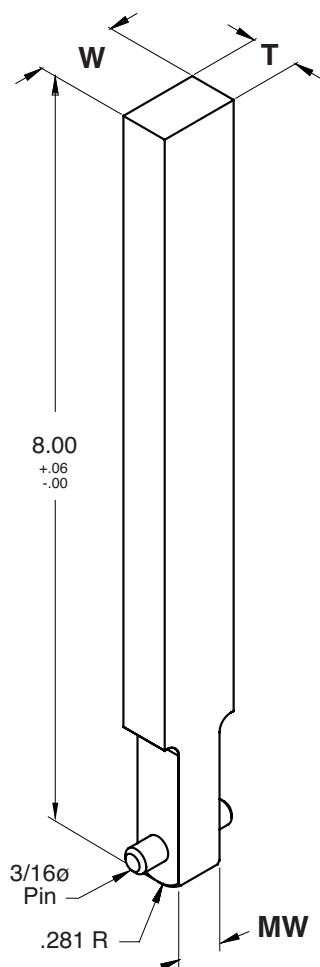
M Bohler K340 **H** 58-60 HRC

T +.0000 -.0003	CATALOG NUMBER	W +.0000 -.0003	MW +.000 -.001
.5000	CBV50X18L8	.1875	.188
	CBV50X43L8	.4375	.188
	CBV50X62L8	.6250	.375
	CBV50X87L8	.8750	.625
	CBV50X112L8	1.1250	.875

Pre-engineered pin is included.

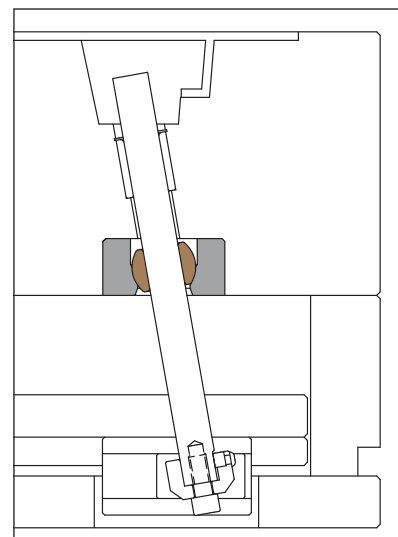
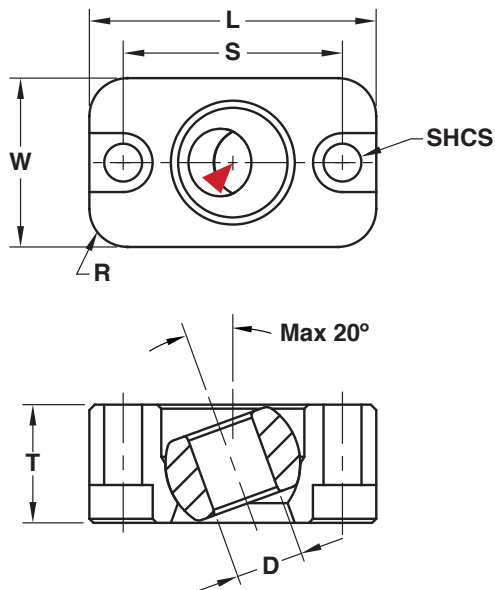
Assembly Guidelines:

- Assembly length (4") cap screw (#10-32) is included with each lifter.
- Install the assembly screw in the Gib Coupling as shown.
- Connect the lifter pin and pull unit into pocket in ejector plate, removing the screw afterwards.



LIFTER GUIDES

SPHERICAL BUSHINGS



Design Notes:

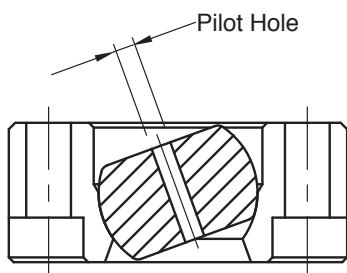
- Machine pocket with clearance on length and width
- Tighten bolts after inserting lifter rod

M Housing: 1045 18-22 HRC, Bushing: C86300 Bronze

CAD insertion point

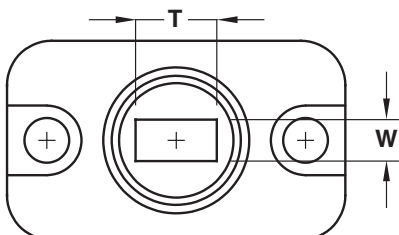
CATALOG NUMBER	D +.001 -.000	L +.000 -.002	W +.000 -.002	T +.000 -.002	S ±.005	R Pocket Radius	SHCS
LSB050	.5005	2.000	1.250	.875	1.500	.250	1/4-20 x 1.00"
LSB063	.6255	2.250	1.500	1.125	1.750	.250	1/4-20 x 1.25"
LSB075	.7505	2.625	1.750	1.375	2.125	.375	5/16-18 x 1.50"
LSB100	1.0005	2.875	2.125	1.500	2.375	.375	5/16-18 x 1.75"
LSB125	1.2505	4.000	2.750	2.000	3.250	.500	3/8-16 x 2.25"
LSB150	1.5005	4.250	3.000	2.375	3.500	.500	3/8-16 x 2.75"

Screws included.



Blank Spherical Bushings

To order: Add a "-B" to the end of the part number. Ex: LSB100-B
 Sizes 075-B and smaller have a .23 Pilot Hole.
 Sizes 100-B and larger have a .47 Pilot Hole.

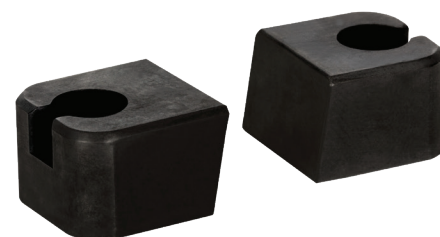
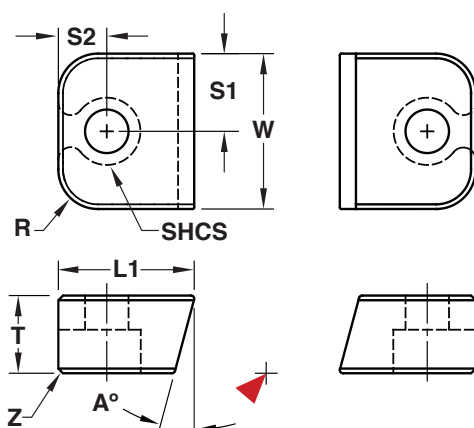


Use the blank bushing to cut alternative core blade sizes. See chart for recommended sizing.

Spherical Bushing Size	Lifter T x W (MAX)	UniLifter Size Chart
LSB050	1/2 X 1/2	CBS37X25, CBS50X25, CBS50X50, CBS43D, CBV50X18, CBV50X43, CBMM10D, CBMM10X10
LSB063	5/8 X 5/8	CBV50X62, CBMM15D, CBMM15X15
LSB075	3/4 X 3/4	CBS75X37, CBMM20X10, CBMM20X20
LSB100	1 X 1	CBS100X50, CBS100X100, CBS75D, CBV50X87
LSB125	1-1/4 X 1-1/4	CBS125D, CBV50X112, CBMM30X15
LSB150	1-1/2 X 1-1/2	CBS150X150, CBS150X75, CBS150X100



LIFTER GUIDES

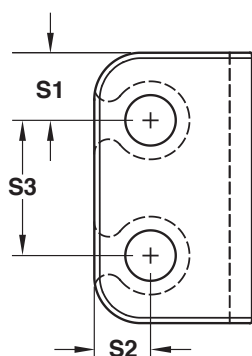


M O-1 **H** 58-60 HRC **S** Black Oxide

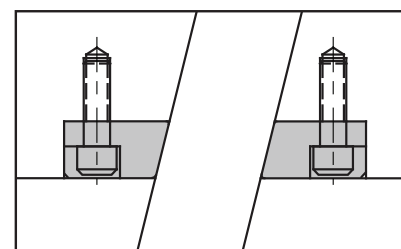
CAD insertion point

W +.000 -.001	CATALOG NUMBER			T ±.015	L1	S1 ±.005	S2 ±.005	S3 ±.005	R Pocket Radius	Z Chamfer	SHCS
	A = 5°	A = 10°	A = 15°								
.375	LG37-5	LG37-10	LG37-15	.375	.500	.188	.188	--	.125	.02	#6-32 x 1/2"
.500	LG50-5	LG50-10	LG50-15	.500	.750	.250	.250	--	.187	.03	#10-32 x 3/4"
.750	LG75-5	LG75-10	LG75-15			.375		--			
1.000	LG100-5	LG100-10	LG100-15			.500		--			
1.500	LG150-5	LG150-10	LG150-15		.875	.375	.312	.750	.250		1/4-20 x 3/4"

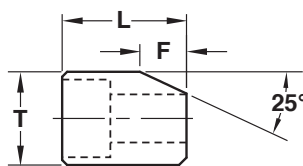
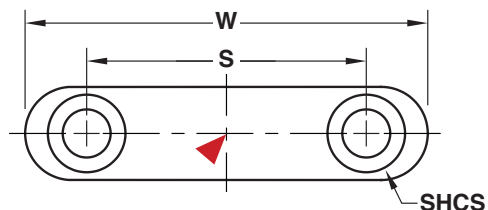
Lifter Guides are sold in sets with Socket Head Cap Screws included. LG150 items have 4 screws as shown in the locations below.



Size of Guide	Can Be Used with UniLifter Core Blade Size	Max Blade Width (For Other Systems)
LG37	37X25 50X25 75X37	.385
LG50	50X50 75X50 100X50 150X50	.510
LG75	150X75	.760
LG100	100x100 150x100	1.010
LG150	50X150 75X150 100X150	1.510



LIFTER HEAD KEY

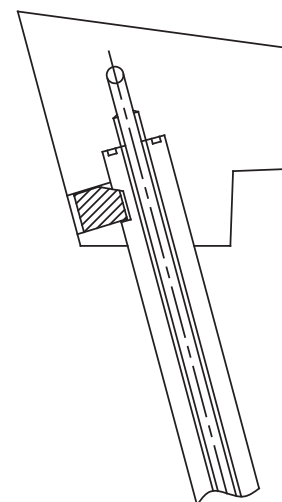


M 4140 **H** 28-32 HRC

CAD insertion point

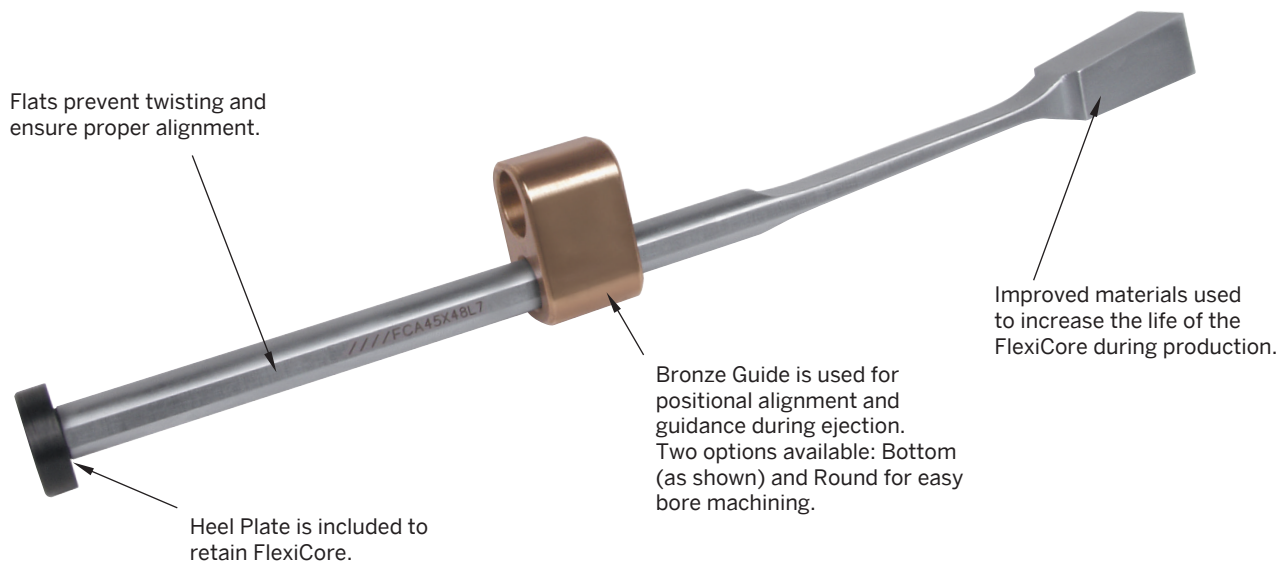
NOMINAL ROD DIAMETER Ø	CATALOG NUMBER	W +.00 -.01	L ±.005	T +.000 -.005	F	S	SHCS
1/2	LHK050	1.370	.500	.375	.19	.875	#6-32 x 1/2"
5/8	LHK063	1.495	.500	.375	.19	1.000	#6-32 x 1/2"
3/4	LHK075	1.620	.500	.500	.19	1.125	#8-32 x 1/2"
1	LHK100	1.870	.500	.500	.19	1.375	#8-32 x 1/2"
1-1/4	LHK125	2.620	.750	.625	.25	2.000	1/4-20 x 7/8
1-1/2	LHK150	2.870	.750	.625	.25	2.250	1/4-20 x 7/8

Screws included.

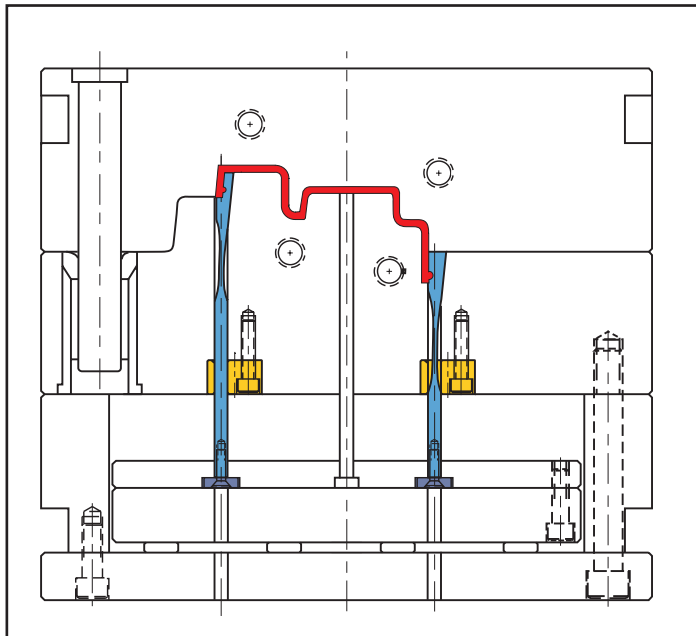


FLEXICORE™

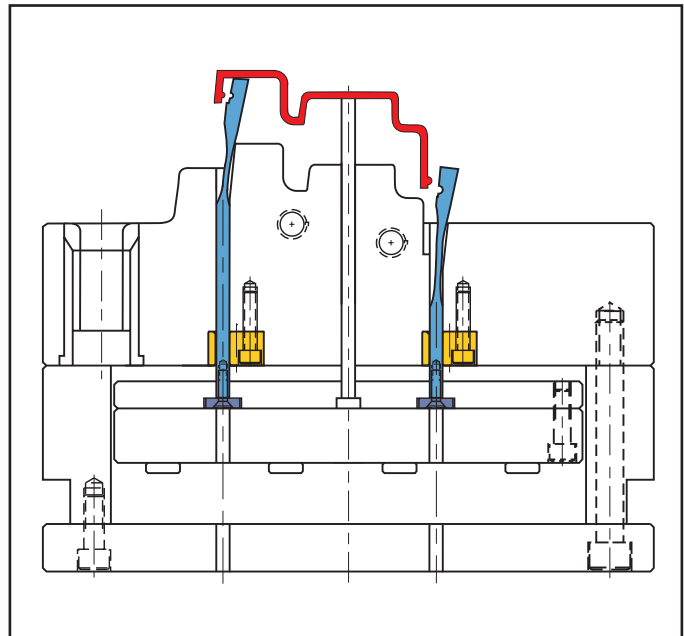
UNDERCUT RELEASE SYSTEM



FlexiCore Assembly includes: FlexiCore, Bronze Guide (Bottom or Round), Heel Plate, and Flat Head Cap Screw.



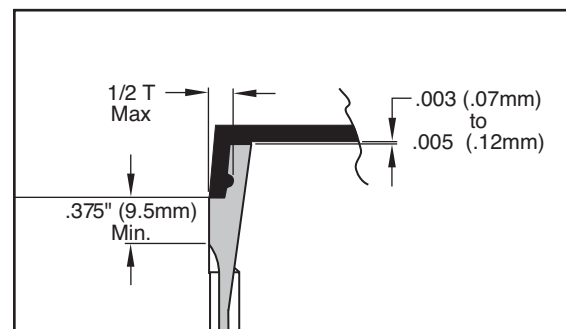
Mold Closed



Mold Open

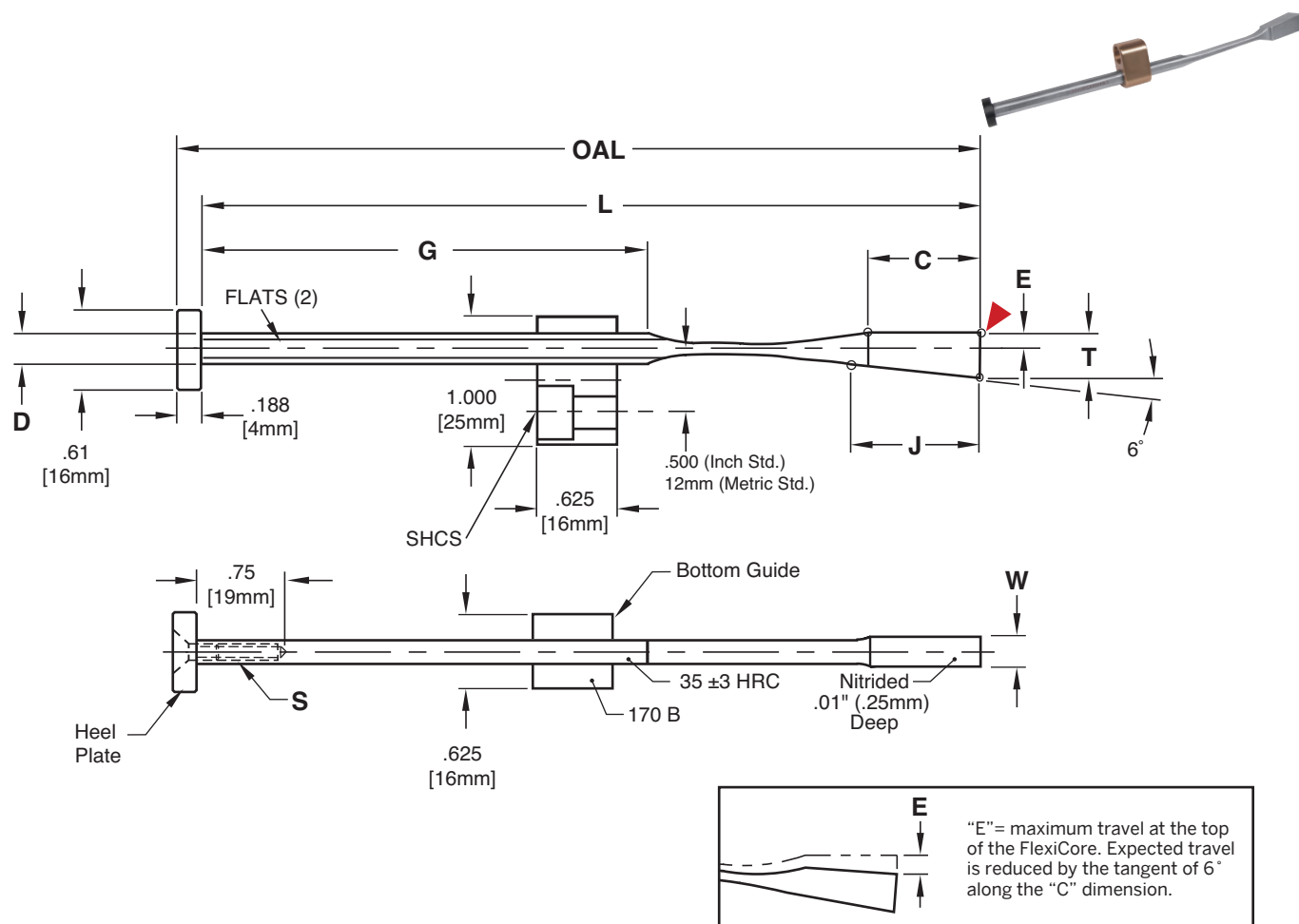
Application Guidelines:

- The FlexiCore diameter (D) must be within the Guide prior to ejection as shown above.
- Only surface treatments applied at low temperatures such as Electroless Nickel-based or chromium deposition treatments are permitted.
- Maximum temperature is 250° F (125° C).
- Please contact Engineering to review any designs if questions arise or if your application differs from the examples shown.





FLEXICORE™ BOTTOM GUIDE ASSEMBLY



Inch Standard

M FlexiCore: AISI 4340 with thin, dense Chromium treatment, Guide: CA954 Solid Bronze, Heel Plate: AISI 1018

CAD insertion point

CATALOG NUMBER	T +.002 -.000	W +.002 -.000	L +.010 -.000	OAL REF	D +.000 -.001	C ± .015	E	G +.01 -.00	J	S	SHCS
FCA35X24L6	.354	.244	6.400	6.588	.234	.875	.137	3.49	.957	#8-32	1/4-20
FCA35X32L6	.354	.322	6.400	6.588	.250	.875	.137	3.48	.957	#8-32	1/4-20
FCA45X40L7	.453	.401	7.875	8.062	.312	1.000	.177	4.38	1.025	#10-24	1/4-20
FCA45X48L7	.453	.480	7.875	8.062	.312	1.000	.177	4.38	1.025	#10-24	1/4-20

Metric Standard

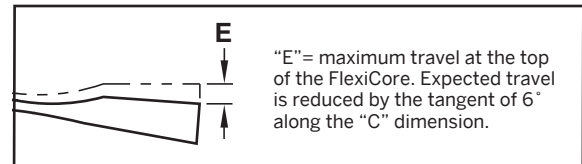
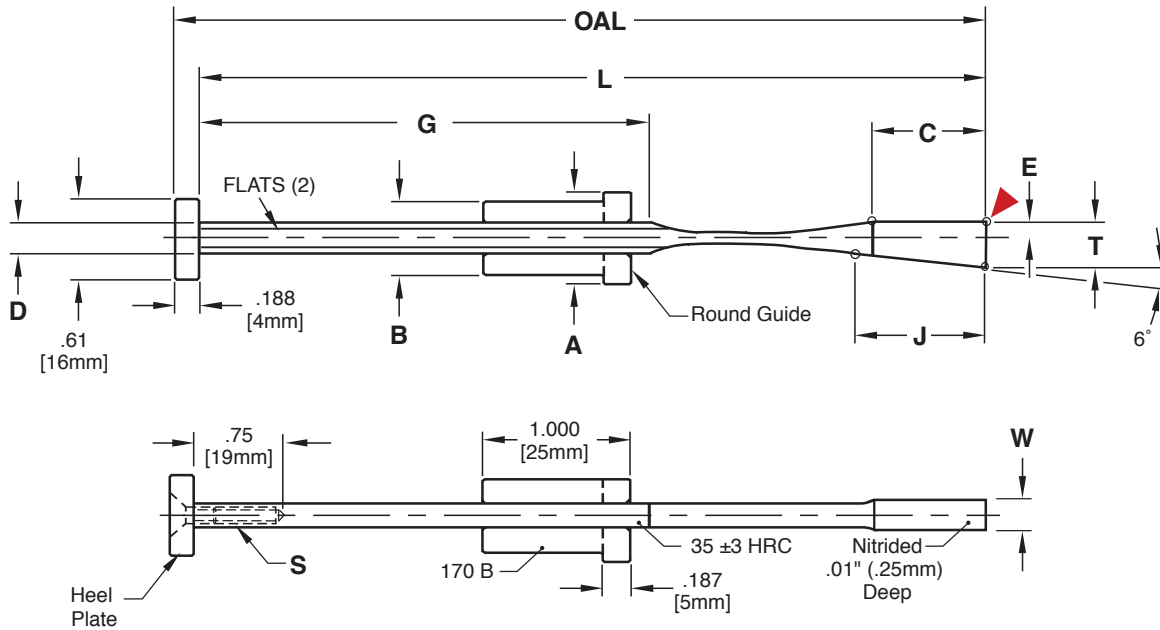
CATALOG NUMBER	T +.05 -.00	W +.05 -.00	L +.25 -.00	OAL REF	D +.000 -.025	C ± .35	E	G +.25 -.00	J	S	SHCS
FCA9X6L160	9	6.2	162.5	166.5	5.94	22	3.5	88.6	24.3	M4-.7 x 20	M6-1
FCA9X8L160	9	8.2	162.5	166.5	6.35	22	3.5	88.4	24.3	M4-.7 x 20	M6-1
FCA11X10L200	11.5	10.2	200.0	204.0	7.92	26	4.5	111.2	26.0	M5-.8 x 20	M6-1
FCA11X12L200	11.5	12.2	200.0	204.0	7.92	26	4.5	111.2	26.0	M5-.8 x 20	M6-1
FCA12X14L200	12.5	14.2	200.0	204.0	7.92	30	4.5	107.2	28.5	M5-.8 x 20	M6-1
FCA12X16L200	12.5	16.2	200.0	204.0	7.92	30	4.5	107.2	28.5	M5-.8 x 20	M6-1

Assemblies include: FlexiCore, Bottom Guide, Heel Plate, and Flat Head Cap Screw.

Assembly components also sold individually on page H-19.

FLEXICORE™

ROUND GUIDE ASSEMBLY



Inch Standard

M FlexiCore: AISI 4340 with thin, dense Chromium treatment, Guide: CA954 Solid Bronze, Heel Plate: AISI 1018

CATALOG NUMBER	T +.002 -.000	W +.002 -.000	L +.010 -.000	OAL REF	D +.000 -.001	C ± .015	E	G +.01 -.00	J	S	A	B
FCR35X24L6	.354	.244	6.400	6.588	.234	.875	.137	3.49	.957	#8-32	.625	.500
FCR35X32L6	.354	.322	6.400	6.588	.250	.875	.137	3.48	.957	#8-32	.625	.500
FCR45X40L7	.453	.401	7.875	8.062	.312	1.000	.177	4.38	1.025	#10-24	.750	.625
FCR45X48L7	.453	.480	7.875	8.062	.312	1.000	.177	4.38	1.025	#10-24	.750	.625

CAD insertion point

Metric Standard

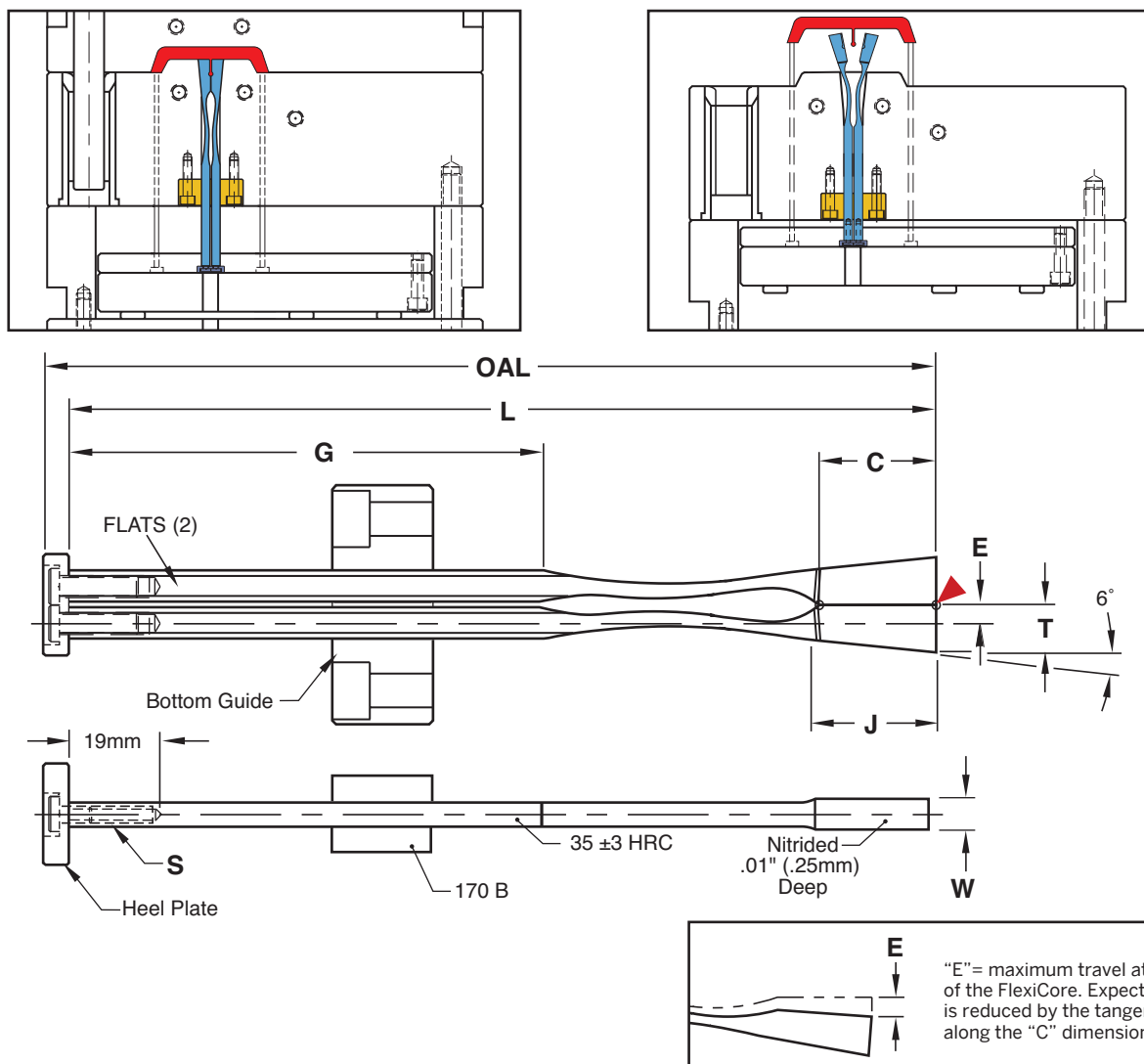
CATALOG NUMBER	T +.05 -.00	W +.05 -.00	L +.25 -.00	OAL REF	D +.000 -.025	C ± .35	E	G +.25 -.00	J	S	A	B
FCR9X6L160	9	6.2	162.5	166.5	5.94	22	3.5	88.6	24.3	M4-.7 x 20	16	12
FCR9X8L160	9	8.2	162.5	166.5	6.35	22	3.5	88.4	24.3	M4-.7 x 20	16	12
FCR11X10L200	11.5	10.2	200.0	204.0	7.92	26	4.5	111.2	26.0	M5-.8 x 20	20	16
FCR11X12L200	11.5	12.2	200.0	204.0	7.92	26	4.5	111.2	26.0	M5-.8 x 20	20	16
FCR12X14L200	12.5	14.2	200.0	204.0	7.92	30	4.5	107.2	28.5	M5-.8 x 20	20	16
FCR12X16L200	12.5	16.2	200.0	204.0	7.92	30	4.5	107.2	28.5	M5-.8 x 20	20	16

Assemblies include: FlexiCore, Round Guide, Heel plate, and Flat head Cap Screw.
Assembly components also sold individually. Refer to page H-19 for information.



FLEXICORE™ DOUBLE ACTUATION

The double action bottom guide allows for the FlexiCore System to be used to release boss details with undercuts. FlexiCore Double Assembly (FCDA) includes: two FlexiCores, one Bottom Guide, one Heel Plate, and two Low Head Cap Screws.



Inch Standard

M FlexiCore: AISI 4340 with thin, dense Chromium treatment, Guide: CA954 Solid Bronze, Heel Plate: AISI 1018

CATALOG NUMBER	T +.002 -.000	W +.002 -.000	L +.010 -.000	OAL REF	D +.000 -.001	C ±.015	E .015	G +.01 -.00	J +.01 -.00	S +.000 -.025
FCDA35X24L6	.354	.244	6.400	6.588	.234	.875	.137	3.49	.957	#8-32
FCDA45X48L7	.453	.480	7.875	8.062	.312	1.000	.177	4.38	1.025	#10-24

Metric Standard

CATALOG NUMBER	T +.05 -.00	W +.05 -.00	L +.25 -.00	OAL REF	D +.000 -.025	C ±.035	E .015	G +.25 -.00	J +.01 -.00	S +.000 -.025
FCDA9X6L160	9	6.2	162.5	166.5	5.94	22	3.5	88.6	24.3	M4-.7 x 20
FCDA11X12L200	11.5	12.2	200.0	204.0	7.92	26	4.5	111.2	26.0	M5-.8 x 20
FCDA12X14L200	12.5	14.2	200.0	204.0	7.92	30	4.5	107.2	28.5	M5-.8 x 20
FCDA12X16L200	12.5	16.2	200.0	204.0	7.92	30	4.5	107.2	28.5	M5-.8 x 20

CAD insertion point

FLEXICORE™ ACCESSORIES

WEAR BLOCKS

Inch Standard

M P-20 Pre-Hard **H** Nitrided .005" Deep

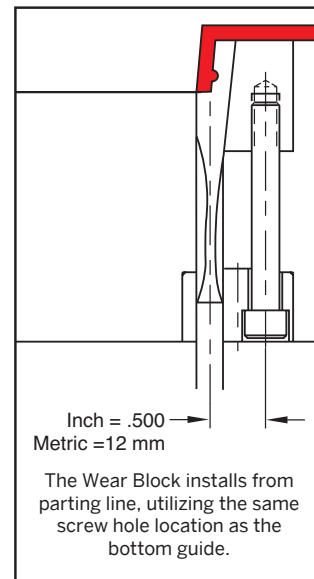
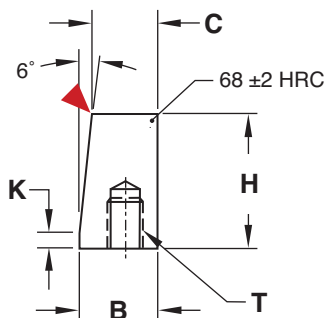
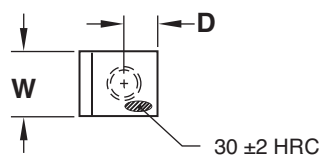
CATALOG NUMBER	W +.002 -.000	D ±.01	B +.001 -.000	C +.001 -.000	H	K	T Thread
FCWB-24	.244	.250	.626	.533	1.000	.115	#10-24
FCWB-32	.322	.250	.626	.533	1.000	.115	1/4-20
FCWB-40	.401	.250	.567	.474	1.000	.115	1/4-20
FCWB-48	.480	.250	.567	.474	1.000	.115	1/4-20

Note: FCWB-24 is designed for use with a 1/4ø shoulder bolt.

Metric Standard

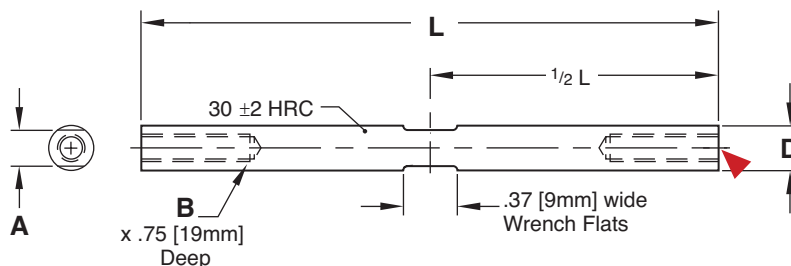
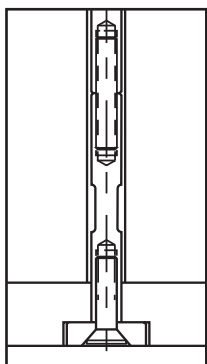
CATALOG NUMBER	W +.05 -.00	D ±.25	B +.025 -.000	C +.025 -.000	H	K	T Thread
FCWBM-6	6.2	7.2	15.9	13.55	25.4	2.9	M5-.8
FCWBM-8	8.2	7.2	15.9	13.55	25.4	2.9	M6-1
FCWBM-10	10.2	7.2	14.4	12.05	25.4	2.9	M6-1
FCWBM-12	12.2	7.2	14.4	12.05	25.4	2.9	M6-1
FCWBM-14	14.2	8.0	15.2	12.11	33.2	3.5	M6-1
FCWBM-16	16.2	8.0	15.2	12.11	33.2	3.5	M6-1

► CAD insertion point



FLEXICORE™ ACCESSORIES

EXTENSIONS



Inch Standard

M 4140 Pre-Hard

D +.000 -.005	B	A	L +.01 -.00	
			2"	4"
.232	#8-32	.187	FCX8L2	FCX8L4
.310	#10-24	.250	FCX10L2	FCX10L4

Includes threaded stud for attachment to FlexiCore.

Metric Standard

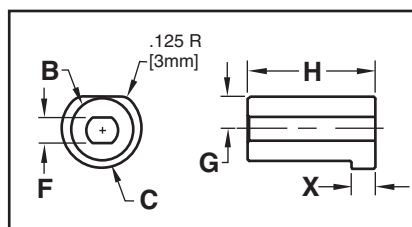
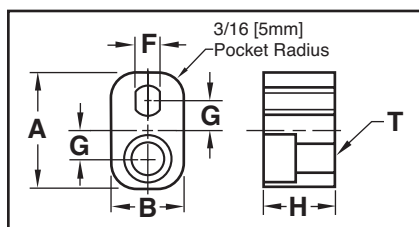
D +.00 -.12	B	A	L +.25 -.00	
			50mm	100mm
6	M4-.7	4.8	FCXM4L50	FCXM4L100
8	M5-.8	6.3	FCXM5L50	FCXM5L100

► CAD insertion point



FLEXICORE™ ACCESSORIES

REPLACEMENT GUIDES



Inch/Metric Standard

M CA954 Solid Bronze

CATALOG NUMBER	A	B	H	F	G	T
FCBG-24	1.000	.625	.625	.190	.250	1/4-20
FCBG-32	1.000	.625	.625	.200	.250	1/4-20
FCBG-40	1.000	.625	.625	.290	.250	1/4-20
FCBG-6	25	16	16	4.8	6	M6-1
FCBG-8	25	16	16	5.0	6	M6-1
FCBG-10	25	16	16	7.3	6	M6-1

Inch/Metric Standard

M CA954 Solid Bronze

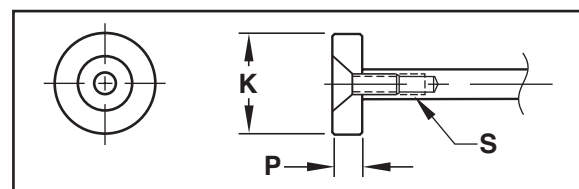
CATALOG NUMBER	B	C	H	F	X	G
FCRG-24	.5000	.625	1.000	.190	.187	.250
FCRG-32	.5000	.625	1.000	.200	.187	.250
FCRG-40	.6250	.750	1.000	.290	.187	.312
FCRG-6	12	16	25	4.8	5	6
FCRG-8	12	16	25	5.0	5	6
FCRG-10	16	20	25	7.3	5	8

Inch/Metric Standard

M 4140 Pre-Hard **S** Black Oxided

CATALOG NUMBER	K	P	S
FCHP-8	.61	.188	#8-32
FCHP-10	.61	.188	#10-24
FCHP-4	16	4	M4-.7
FCHP-5	16	4	M5-.8

REPLACEMENT HEEL PLATES

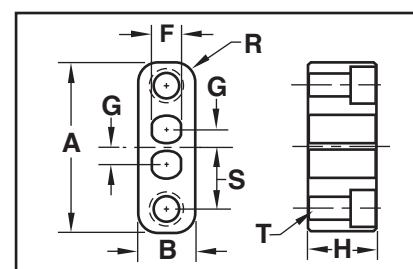


Screw included.

Inch/Metric Standard

M CA954 Solid Bronze

CATALOG NUMBER	A	B	H	F	G	R	S	T
FCDBG-24	1.750	.625	.750	.190	.136	.218	.636	1/4-20
FCDBG-48	1.875	.625	.750	.290	.176	.218	.676	1/4-20
FCDBG-6	45	16	20	4.8	3.5	5	15.5	M6-1
FCDBG-12	48	16	20	7.3	4.5	5	16.5	M6-1

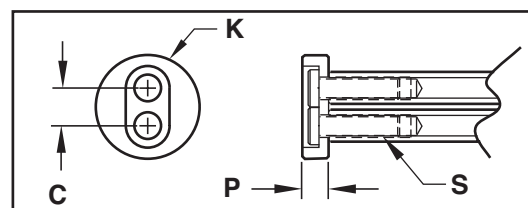


Inch/Metric Standard

M 4140 Pre-Hard **S** Black Oxided

CATALOG NUMBER	C	K	P	S
FCDHP-8	.272	.750	.188	#8-32
FCDHP-10	.352	.875	.188	#10-24
FCDHP-4	7	20	6	M4-.7
FCDHP-5	9	22	6	M5-.8

REPLACEMENT HEEL PLATES: DOUBLE ACTUATION



Screws included.

LIFTER BLADES & CORES

UNDERCUT RELEASE SYSTEM



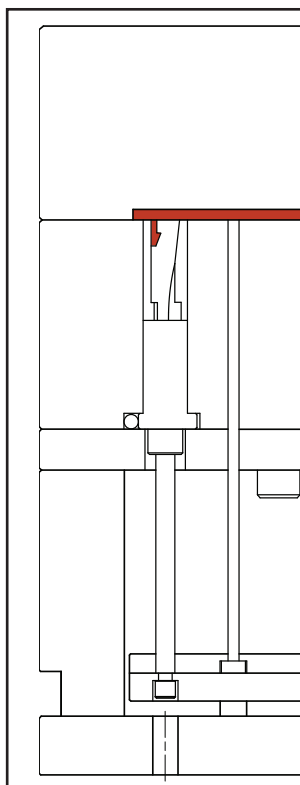
Lifter Blades™
for details 1.8mm-4.2mm wide.



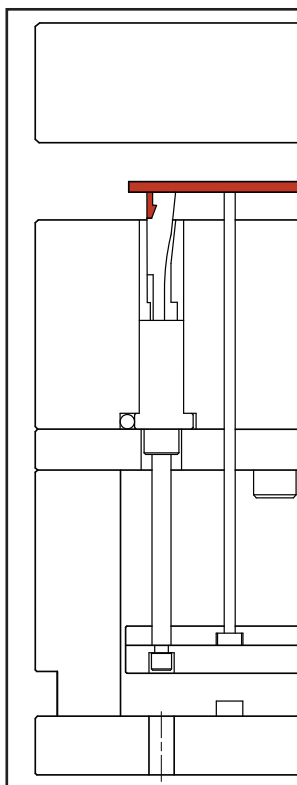
Lifter Cores™
for details 6mm-12mm wide.

Lifter Blades and Cores offer unique advantages for undercut release:

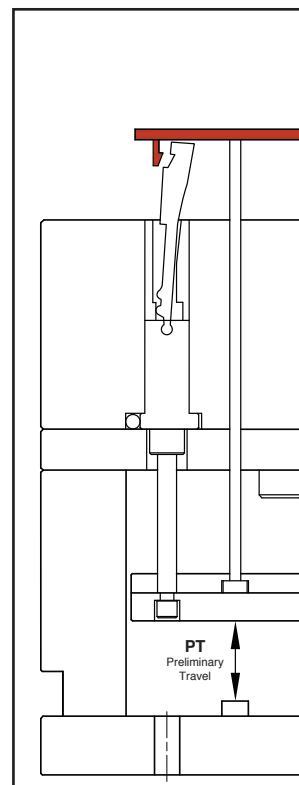
- The "up, then over" motion assists part ejection, for addressing small parts prone to sticking to lifters.
- With the lifter traveling radially away from the undercut, the top of the blade can be flush with the core, requiring no standing pad on molded part that may interfere with snap function.
- Compact, no angled machining, with blades beginning as thin as .070" / 1.8mm.



Ejection Retracted
Lifter seated within bushing to prevent molding pressure movement.



Initial Ejection
Ejector plates move forward 7mm with part remaining on lifter.



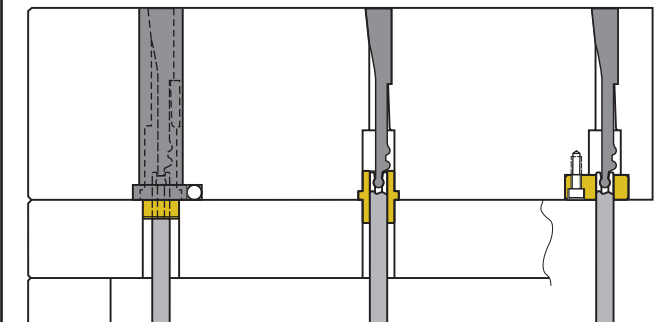
Release Point
The Lifter is mechanically forced away from the undercut

Installation Options:

Parting Line Bushing:
Reduces machining in the core half.

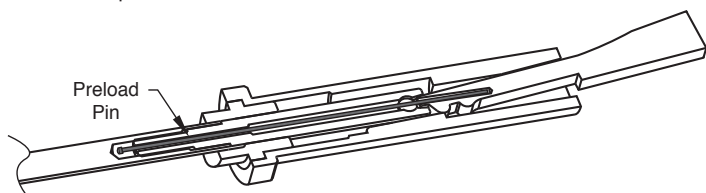
Guide Bushing:
Best for applications when space is limited.

Guide Plate:
Used when the design does not require a support plate.



Preload Pin Use:

Use the provided preload pin to prevent the lifter from falling back on the part.

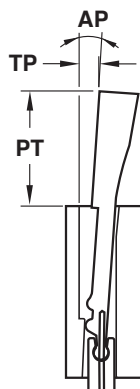
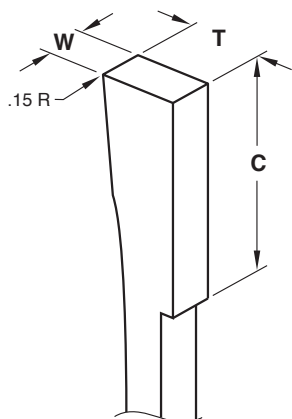




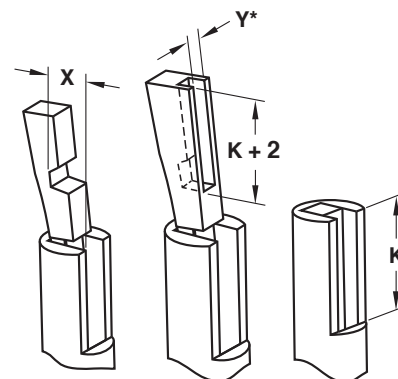
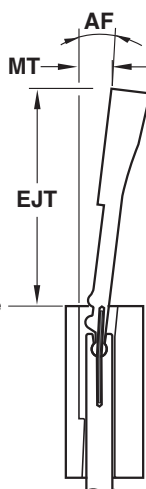
LIFTER BLADES & CORES

Preliminary Travel

For mechanical activation, removal of the pin will achieve the travel shown below, using any Bushing or Guide Plate installation.



Maximum Travel
With the preload pin installed, the lifter arcs away from the undercut.



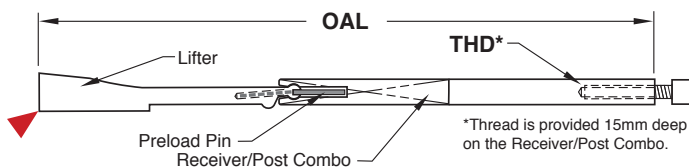
Machining guidelines shown above for all Lifter Assemblies when using the Parting Line Bushing or machining the detail in the core insert. Refer to the Undercut Limits in the chart below.

*Note: On all Lifter Blades (LBA), the undercut must go through the Lifter; "Y" is not applicable.

	CATALOG NUMBER	T -.004 -.009	W -.004 -.009	C ±.005	OAL Ref	TP Horiz. Prelim Travel	PT Prelim Ejection Length	AP Prelim Travel Angle	MT Max. Travel	EJT Full Ejection Length	AF Full Ejection Angle	S Maximum Stroke for Removal	THD Thread Size	Undercut Limits		
														X	Y	K
BLADES	LBA08X018	8	1.8	20	162	3	17	4.0°	6	38	8°	50	M4	3.0	N/A	15
	LBA08X024	8	2.4	20	162	3	17	4.0°	6	38	8°	50	M4	3.0	N/A	15
	LBA08X032	8	3.2	20	162	3	17	4.0°	6	38	8°	50	M4	3.0	N/A	15
	LBA08X042	8	4.2	20	162	3	17	4.0°	6	38	8°	50	M4	3.0	N/A	15
CORES	LCA09X06	9	6	26	246	6	26	6.0°	9	56	9°	65	M4	3.5	4	21
	LCA10X08	10	8	26	246	6	26	6.0°	9	56	9°	65	M4	4.0	6	21
	LCA12X10	12	10	30	256	8	32	6.5°	10	66	8°	75	M5	5.0	8	25
	LCA12X12	12	12	30	256	8	32	6.5°	10	66	8°	75	M5	5.0	10	25

Lifter Blade Assemblies:

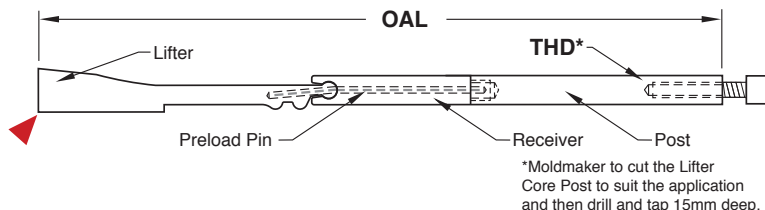
Widths 1.8mm to 4.2mm



*Thread is provided 15mm deep on the Receiver/Post Combo.

Lifter Core Assemblies:

Widths 6mm to 12mm



*Moldmaker to cut the Lifter Core Post to suit the application and then drill and tap 15mm deep.

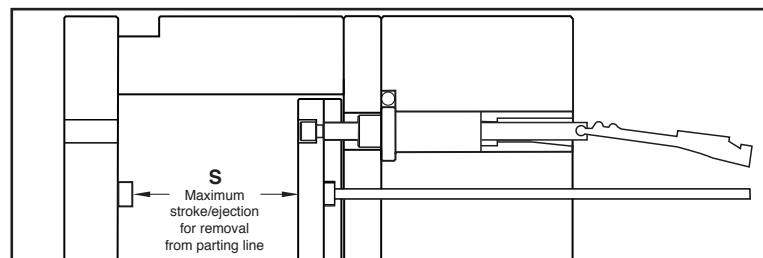
Assembly Part Information:

PART NAME	MATERIAL/TREATMENT
Lifter	H-13, 50-52 HRC Nitride .25 Deep
Receiver	H-13, 50-52 HRC, Titanium Nitride
Post	P-20 Pre-Hard, Black Oxided
Preload Pin	M-2, 62-64 HRC

Note: On the Lifter Blade Assemblies (LBA), the Post and Receiver are a single piece, made from pre-hardened P-20 and TiN coated.

Replacement items are available. Contact Customer Service for pricing and delivery.

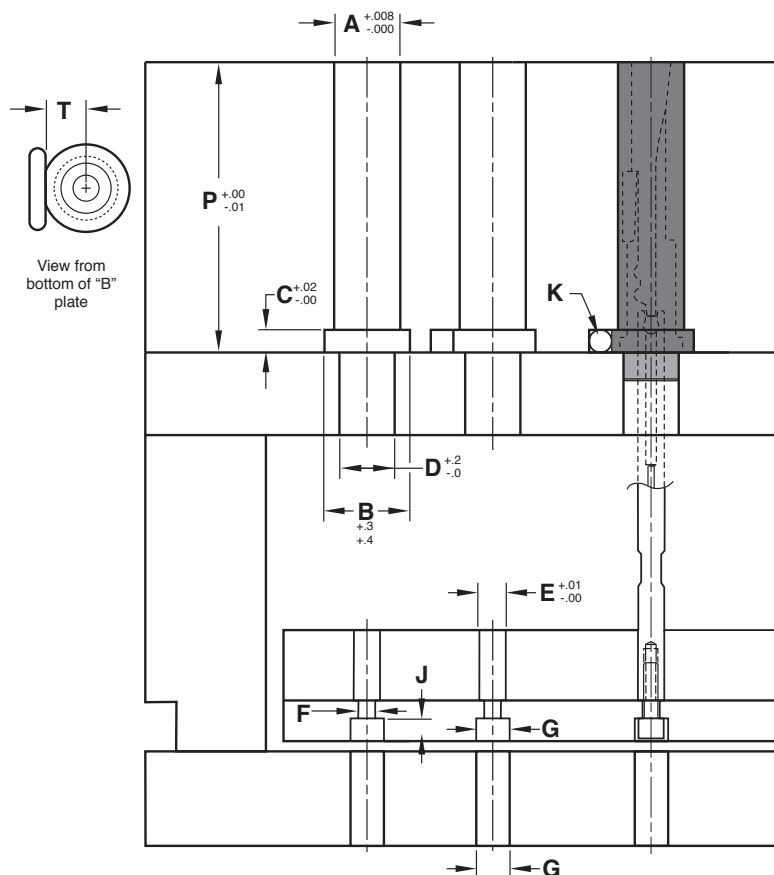
Removability from Parting Line:



With ejector stops removed, the ejector plates can be moved forward to expose the Lifter Blade Assembly, and then the Lifter and the Preload Pin can slide sideways out of the Receiver/Post Combo. On the Lifter Cores, the Receiver can be unscrewed from the Post and then removed from parting line.

LIFTER BLADES & CORES

PARTING LINE BUSHING INSTALLATION

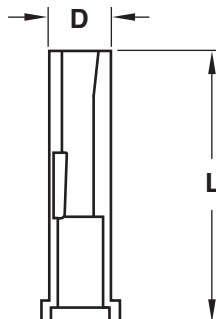


ASSEMBLY REF	A Diam.	B Diam.	C	D Diam.	E Diam.	F Diam.	G Diam.	J	K Dowel Size	T	P
LBA08X018	12	16	5	9.6	6	4.5	8	4.5	5	7	56
LBA08X024	12	16	5	9.6	6	4.5	8	4.5	5	7	56
LBA08X032	12	16	5	9.6	6	4.5	8	4.5	5	7	56
LBA08X042	12	16	5	9.6	6	4.5	8	4.5	5	7	56
LCA09X06	14	20	5	11	6	4.5	8	4.5	5	8.5	66
LCA10X08	16	22	5	13	6	4.5	8	4.5	5	9.5	66
LCA12X10	20	26	6	15	8	5.5	10	5.5	6	11	76
LCA12X12	20	26	6	15	8	5.5	10	5.5	6	11	76

PARTING LINE BUSHINGS

Features:

- Use of the Parting Line Bushing simplifies machining in the mold base.
- Each bushing assembly incorporates a wedge that creates a stop for the Lifter to avoid push back due to molding pressure.
- The Guide Bushing should be utilized with the Parting Line Bushings to locate and guide the Lifter Blade/Core Assembly in the support plate. The bushings, along with Guide Plates, are sold separately on page H-15.



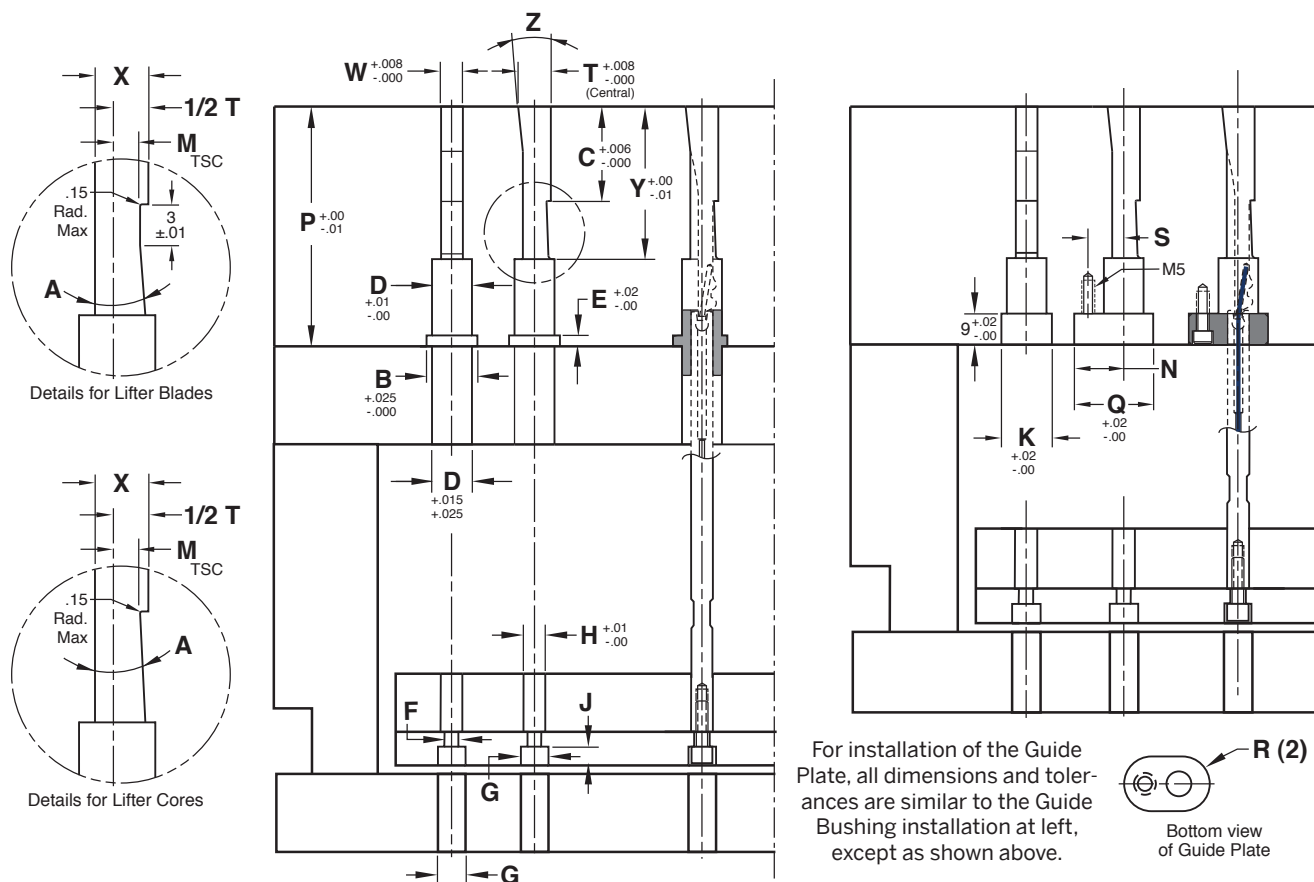
M A-2 **S** 58-60 HRC

CATALOG NUMBER	For Lifter Widths	D -.003 -.008	L ± .010
LBB018	1.8	12	56
LBB024	2.4	12	56
LBB032	3.2	12	56
LBB042	4.2	12	56
LCB06	6	14	66
LCB08	8	16	66
LCB10	10	20	76
LCB12	12	20	76



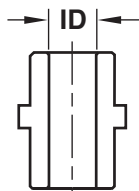
LIFTER BLADES & CORES

GUIDE BUSHING & GUIDE PLATE INSTALLATION



ASSEMBLY REF	T	W	X	C	Y	M	Z	A	D Diam.	B Diam.	E	F Diam.	G Diam.	H	J	K	N	Q	S	R	P
LBA08X018	8	1.8	7.3	20	28	3.1	5°	13.5°	9.6	12.8	3	4.5	8	6	4.5	12	18	24	12	6	56
LBA08X024	8	2.4	7.3	20	28	3.1	5°	13.5°	9.6	12.8	3	4.5	8	6	4.5	12	18	24	12	6	56
LBA08X032	8	3.2	7.3	20	28	3.1	5°	13.5°	9.6	12.8	3	4.5	8	6	4.5	12	18	24	12	6	56
LBA08X042	8	4.2	7.3	20	28	3.1	5°	13.5°	9.6	12.8	3	4.5	8	6	4.5	12	18	24	12	6	56
LCA09X06	9	6	7.7	26	46	3.3	6°	2°	11	14	3	4.5	8	6	4.5	14	18.5	26	12	7	66
LCA10X08	10	8	8.5	26	46	3.6	8°	2°	13	16	4	4.5	8	6	4.5	16	19.5	28	12	8	66
LCA12X10	12	10	10.1	30	55	4.2	8°	2°	15	20	4	5.5	10	8	5.5	18	20.5	30	13	9	76
LCA12X12	12	12	10.1	30	55	4.2	8°	2°	15	20	4	5.5	10	8	5.5	18	20.5	30	13	9	76

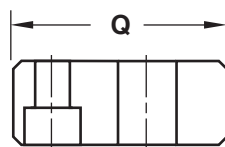
GUIDE BUSHINGS



M CA954 Bronze **H** 170 Brinell

CATALOG NUMBER	For Lifter Widths	ID
LBGB0696	1.8-4.2	6
LCGB0611	6	6
LCGB0613	8	6
LCGB0817	10 & 12	8

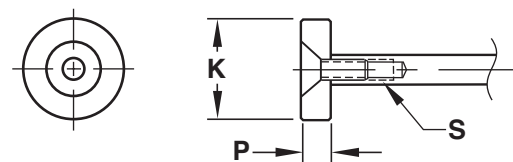
GUIDE PLATES



M CA954 Bronze **H** 170 Brinell

CATALOG NUMBER	For Lifter Widths	Q
LBGP1212	1.8-4.2	24
LCGP1426	6	26
LCGP1628	8	28
LCGP1830	10 & 12	30

ALTERNATIVE HEEL PLATES



M 4140 Pre-Hard **S** Black Oxided

CATALOG NUMBER	K	P	S
FCHP-4	16	4	M4 -.7
FCHP-5	16	4	M5 -.8

