

Lock Pins and Bushings

Lock Pin Threaded Clamp Pins & Pin & Bushing Assemblies

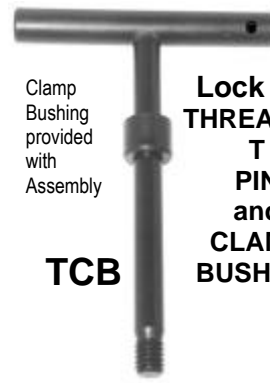
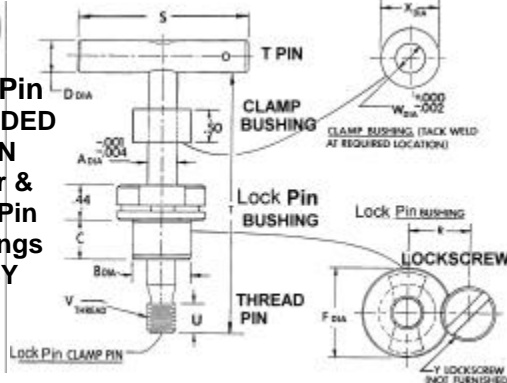
ACCURATE - TOUGH - HARDENED and GROUND - BLACK OXIDE FINISH



Clamp Bushing provided with Assembly

TCBA

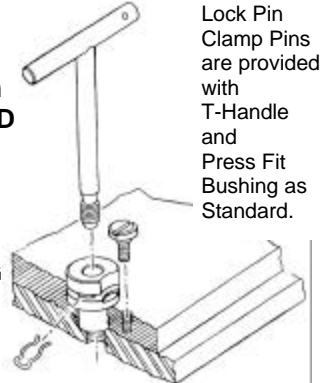
Lock Pin THREADED T PIN Collar & Lock Pin Bushings ASSY



Clamp Bushing provided with Assembly

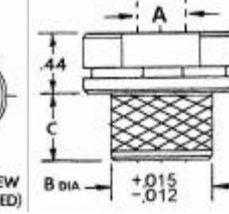
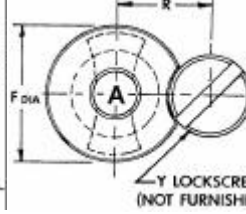
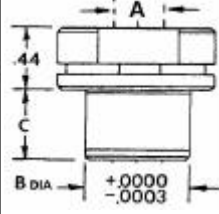
TCB

Lock Pin THREADED T PIN and CLAMP BUSHING



Lock Pin Clamp Pins are provided with T-Handle and Press Fit Bushing as Standard.

Lock Pin CLAMP PINS			PIN DIA.	BUSH. O.D.	BUSH HLE	HANDLE DIA.	BUSH HD	DIM RA-	HANDLE LEN	PIN LEN	CLAMP BUSH O.D.	NC THD	THRD LEN	SPRIN G	LOCK SCRE	
T PIN THREAD	T PIN & CLAMP	LOCK PIN-	A NOM. .001	B +.0000	C	D	F	R	S	T	X	W	V	U	X	Y NOT
UDB-939802-TCBA	UDB-939802-TCB	UDB-936559-B	.2500	.4078	.31	.38	.812	.62	2.5	4.0	.50	.252	1/4-20	.25	SR-2	LS-1
UDB-939806-TCBA	UDB-939806-TCB	UDB-936561-B			.50											
UDB-939812-TCBA	UDB-939812-TCB	UDB-936569-B			.31											
UDB-939814-TCBA	UDB-939814-TCB	UDB-936571-B	.3125	.5017	.38	.43	.812	.62	3.0	4.0	.56	.315	5/16-18	.31	SR-3	LS-1
UDB-939816-TCBA	UDB-939816-TCB	UDB-936573-B			.50											
UDB-939822-TCBA	UDB-939822-TCB	UDB-936579-B	.3750	.6267	.31	.50	.812	.62	3.5	4.5	.62	.378	3/8-16	.38	SR-4	LS-1
UDB-939826-TCBA	UDB-939826-TCB	UDB-936581-B			.50											
UDB-939834-TCBA	UDB-939834-TCB	UDB-936587-B	.5000	.7518	.50	.62	1.060	.75	3.5	5.0	.75	.503	1/2-13	.50	SR-5	LS-1
UDB-939836-TCBA	UDB-939836-TCB	UDB-936589-B			.75											



Lock Pin- 'BN' BUSHINGS are KNURLED for PLASTIC ADD 'N' to BUSHING for KNURLED O.D. for PLASTIC TOOLING

Lock Pin - 'B' BUSHINGS are STANDARD PRESS FIT

Lock Pin T PIN & BUSHING ASSY FEATURES:

- Positive Pin retention even when inverted
- No chains or cables required
- Component parts easily replaced if worn or broken
- The Pin End positioned inside the bushing clears the work piece when loading or unloading.

Lock Pin BUSHINGS: 'B' PRESS FIT — 'BN' for PLASTIC, POTTED
ALL BUSHINGS PROVIDED WITH SPRING RETAINERS

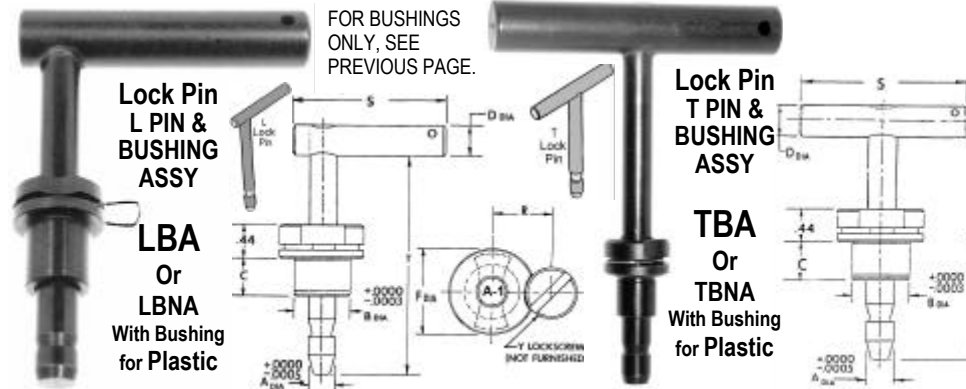
NOM PIN	ACTUAL PIN	BUSHING PART NO.	A I.D. +.0004 .0000	B O.D. +.0000 .0003	C LEN	F HD O.D.	R DIM	NOM PIN	ACTUAL PIN	BUSHING PART NO.	A I.D. +.0004 .0000	B O.D. +.0000 .0003	C LEN	F HD O.D.	R DIM
3/16	.1865	UDB-936551-B	.1868	.4078	.31	.81	.62	3/8	.3740	UDB-936575-B	.3743	.6267	.31	.81	.62
3/16	.1875	UDB-936553-B	.1878					3/8	.3740	UDB-936577-B			.50		
1/4	.2490	UDB-936555-B	.2493	.4078	.31	.81	.62	3/8	.3750	UDB-936579-B	.3753	.6267	.31	.81	.62
1/4	.2490	UDB-936557-B			.50			3/8	.3750	UDB-936581-B			.50		
1/4	.2500	UDB-936559-B	.2503	.4078	.31	.81	.62	1/2	.4990	UDB-936583-B	.4993	.7518	.50	1.06	.75
1/4	.2500	UDB-936561-B			.50			1/2	.4990	UDB-936585-B			.75		
5/16	.3115	UDB-936563-B			.31			1/2	.5000	UDB-936587-B	.5003	.7518	.50	1.06	.75
5/16	.3115	UDB-936565-B	.3118	.5017	.38	.81	.62	1/2	.5000	UDB-936589-B			.75		
5/16	.3115	UDB-936567-B			.50			3/4	.7480	UDB-936591-B	.7483	1.0018	.75	1.42	.92
5/16	.3125	UDB-936569-B			.31			3/4	.7490	UDB-936593-B	.7493		.75		
5/16	.3125	UDB-936571-B	.3128	.5017	.38	.81	.62	1	.9980	UDB-936595-B	.9983	1.3772	1.00	1.81	1.11
5/16	.3125	UDB-936573-B			.50			1	.9990	UDB-936597-B	.9993		1.00		

If Slip Fit Bushings (nominal -.0002) are required, specify 'B-SF' with Part Number.

Clamp Pins and Assemblies

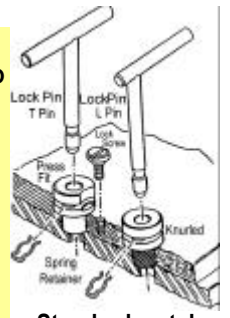
Lock Pin Assemblies

When Lock Pins are retracted inside the Lock Pin Bushing, the Spring Retainer positively locks in the pin's groove. The Lock Pin stays in fixture and can't get lost! Lock Pins hold position without cables or chains until they are changed. Special two-action Lock Pins are available on request.



Lock Pins and Bushings conform to nearly every standard from Boeing UT-7039E-G-H to MDC-TD CTS-110C-D and Lockheed-GD DS-613-614.

Manufactured from high quality heat treated steel with corrosion resistant black oxide finish.



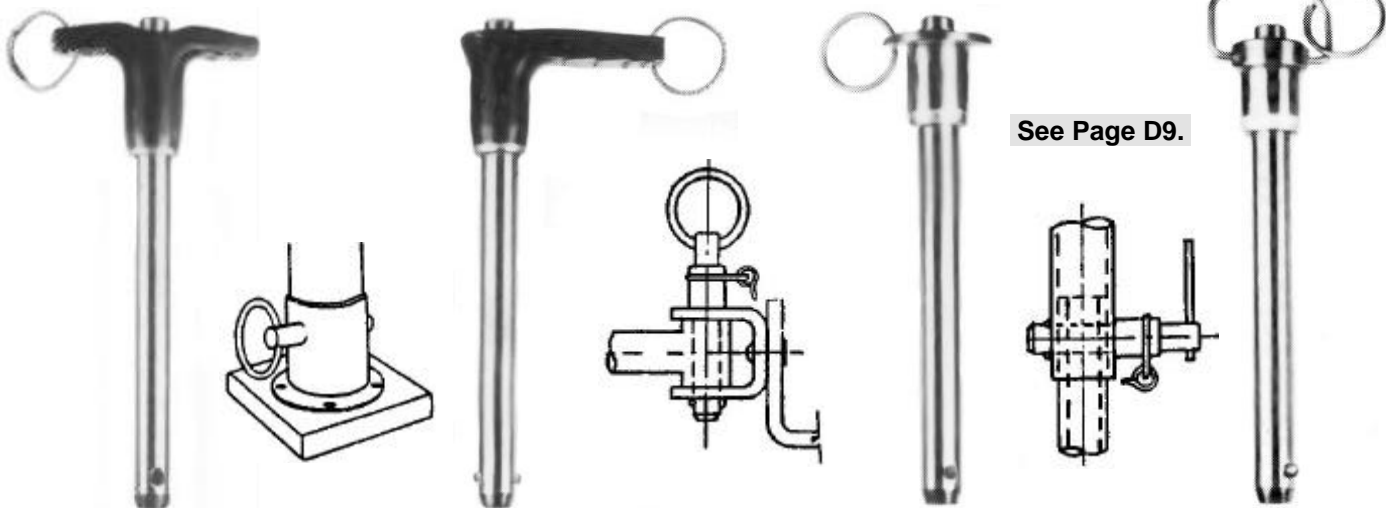
Standard metal tooling bushing is Press Fit. Slip Fit available on request. Bushing I.D.s are +.0001 +.0005 (A-1).

L PIN & BUSH ASSEMBLY (ADD BUSHING LENGTH)	L LOCK PIN ONLY	T PIN & BUSH ASSEMBLY (ADD BUSHING LENGTH)	T LOCK PIN ONLY	(SAME FOR L or T) BUSHING ONLY (ADD N FOR PLASTIC)	PIN O.D. .0005 A	BUSH I.D. +.0004 A-1	BUSH O.D. B +.0000 .0003	BUSH LENGTH C	HANDLE O.D. D	HEAD DIA F	RADIUS R	HANDLE LENGTH S	PIN LENGTH T	SPRING RET X	LOCK SCREW Y
UDB-938806-LBA	UDB-938806-L	UDB-939006-TBA	UDB-939006-T	ADD BUSHING LENGTH TO ASSEMBLY NUMBER								1.5			
UDB-938808-LBA	UDB-938808-L	UDB-939008-TBA	UDB-939008-T	UDB-936551-B	.1865	.1868	.4078	.31	.31	.81	.62	2.5	3.0	SR-1	LS-1
UDB-938810-LBA	UDB-938810-L	UDB-939010-TBA	UDB-939010-T										6.0		
UDB-938812-LBA	UDB-938812-L	UDB-939012-TBA	UDB-939012-T	UDB-936553-B	.1875	.1878	.4078	.31	.31	.81	.62	2.5	2.0	SR-1	LS-1
UDB-938814-LBA	UDB-938814-L	UDB-939014-TBA	UDB-939014-T										4.0		
UDB-938820-LBA	UDB-938820-L	UDB-939020-TBA	UDB-939020-T										2.0		
UDB-938822-LBA	UDB-938822-L	UDB-939022-TBA	UDB-939022-T	UDB-936555-B	.2490	.2493	.4078	.31	.38	.81	.62	2.5	3.0	SR-2	LS-1
UDB-938824-LBA	UDB-938824-L	UDB-939024-TBA	UDB-939024-T	UDB-936557-B				.50					4.0		
UDB-938826-LBA	UDB-938826-L	UDB-939026-TBA	UDB-939026-T										6.0		
UDB-938828-LBA	UDB-938828-L	UDB-939028-TBA	UDB-939028-T	UDB-936559-B	.2500	.2503	.4078	.31	.38	.81	.62	2.5	2.0	SR-2	LS-1
UDB-938830-LBA	UDB-938830-L	UDB-939030-TBA	UDB-939030-T	UDB-936561-B				.50					4.0		
UDB-938836-LBA	UDB-938836-L	UDB-939036-TBA	UDB-939036-T										2.0		
UDB-938838-LBA	UDB-938838-L	UDB-939038-TBA	UDB-939038-T	UDB-936563-B				.31					3.5		
UDB-938840-LBA	UDB-938840-L	UDB-939040-TBA	UDB-939040-T	UDB-936565-B	.3115	.3118	.5017	.38	.44	.81	.62	2.5	4.0	SR-3	LS-1
UDB-938842-LBA	UDB-938842-L	UDB-939042-TBA	UDB-939042-T	UDB-936567-B				.50					6.0		
UDB-938844-LBA	UDB-938844-L	UDB-939044-TBA	UDB-939044-T										7.0		
UDB-938846-LBA	UDB-938846-L	UDB-939046-TBA	UDB-939046-T	UDB-936569-B	.3125	.3128	.5017	.31	.44	.81	.62	2.5	2.0	SR-3	LS-1
UDB-938848-LBA	UDB-938848-L	UDB-939048-TBA	UDB-939048-T	UDB-936571-B				.38					4.0		
UDB-938854-LBA	UDB-938854-L	UDB-939054-TBA	UDB-939054-T	UDB-936575-B				.31					2.0		
UDB-938856-LBA	UDB-938856-L	UDB-939056-TBA	UDB-939056-T	UDB-936577-B	.3740	.3743	.6267	.50	.50	.81	.62	3.5	4.0	SR-5	LS-1
UDB-938858-LBA	UDB-938858-L	UDB-939058-TBA	UDB-939058-T										6.0		
UDB-938860-LBA	UDB-938860-L	UDB-939060-TBA	UDB-939060-T	UDB-936579-B	.3750	.3753	.6267	.31	.50	.81	.62	3.5	2.0	SR-5	LS-1
UDB-938862-LBA	UDB-938862-L	UDB-939062-TBA	UDB-939062-T	UDB-936581-B				.50					4.0		
UDB-938868-LBA	UDB-938868-L	UDB-939068-TBA	UDB-939068-T	UDB-936583-B				.50					2.0		
UDB-938870-LBA	UDB-938870-L	UDB-939070-TBA	UDB-939070-T	UDB-936585-B	.4990	.4993	.7518	.75	.63	1.06	.75	3.5	4.0	SR-6	LS-1
UDB-938872-LBA	UDB-938872-L	UDB-939072-TBA	UDB-939072-T										6.0		
UDB-938874-LBA	UDB-938874-L	UDB-939074-TBA	UDB-939074-T	UDB-936587-B	.5000	.5003	.7518	.50	.63	1.06	.75	3.5	4.0	SR-6	LS-1
UDB-938880-LBA	UDB-938880-L	UDB-939080-TBA	UDB-939080-T	UDB-936591-B	.7480	.7483	1.0018	.75	1.00	1.42	.92	3.5	6.0	SR-7	LS-1
UDB-938882-LBA	UDB-938882-L	UDB-939082-TBA	UDB-939082-T	UDB-936593-B	.7490	.7493	1.0018	.75	1.00	1.42	.92	3.5	4.0	SR-7	LS-1
UDB-938884-LBA	UDB-938884-L	UDB-939084-TBA	UDB-939084-T										6.0		
UDB-938890-LBA	UDB-938890-L	UDB-939090-TBA	UDB-939090-T	UDB-936595-B	.9980	.9983	1.3772	1.00	1.25	1.81	1.11	4.0	8.0	SR-8	LS-1
UDB-938892-LBA	UDB-938892-L	UDB-939092-TBA	UDB-939092-T	UDB-936597-B	.9990	.9993	1.3772	1.00	1.25	1.81	1.11	4.0	6.0	SR-8	LS-1
UDB-938894-LBA	UDB-938894-L	UDB-939094-TBA	UDB-939094-T										8.0		

Ball Lock Pins

UNITED Single Acting Pins

BALL LOCK PINS



T-HANDLE

L-HANDLE

B-BUTTON HANDLE

R-RING HANDLE

UNITED'S STRONGER QUICK RELEASE BALL LOCK PINS
Features:

- Simple
- Safe
- Economical
- Tough
- Fast
- Positive Locking
- Available in 3/16" to 1" sizes
- Eliminate Nuts and Bolts
- Meets all Military Specs
- Cast Aluminum Alloy Handles
- 4130 Heat Treated Alloy Steel Spindles and Shanks

L = L-Handle **T** = T-Handle
R = Ring Handle **B** = Button Handle

BALL LOCK PINS are used to temporarily replace nut and bolt combinations in high tensile strength applications. They are a *must* where fast assembly and take-down is required.

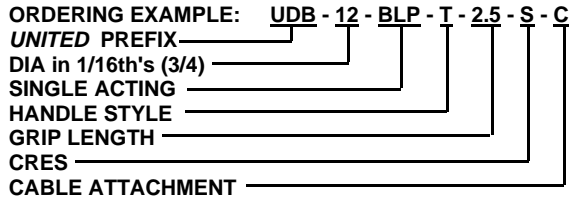
Tools are unnecessary for insertion and/or removal.

Styles T, L and B are inventoried with tough cast aluminum handles.

Style R ring handles are stocked in carbon steel.

AVAILABLE IN STAINLESS STEEL.
TO ORDER, SPECIFY **S** IN PART NO.

AVAILABLE WITH 1, 2 OR 4 BALLS.
STANDARD HAS 2 BALLS.
OTHERS ARE SPECIALS.

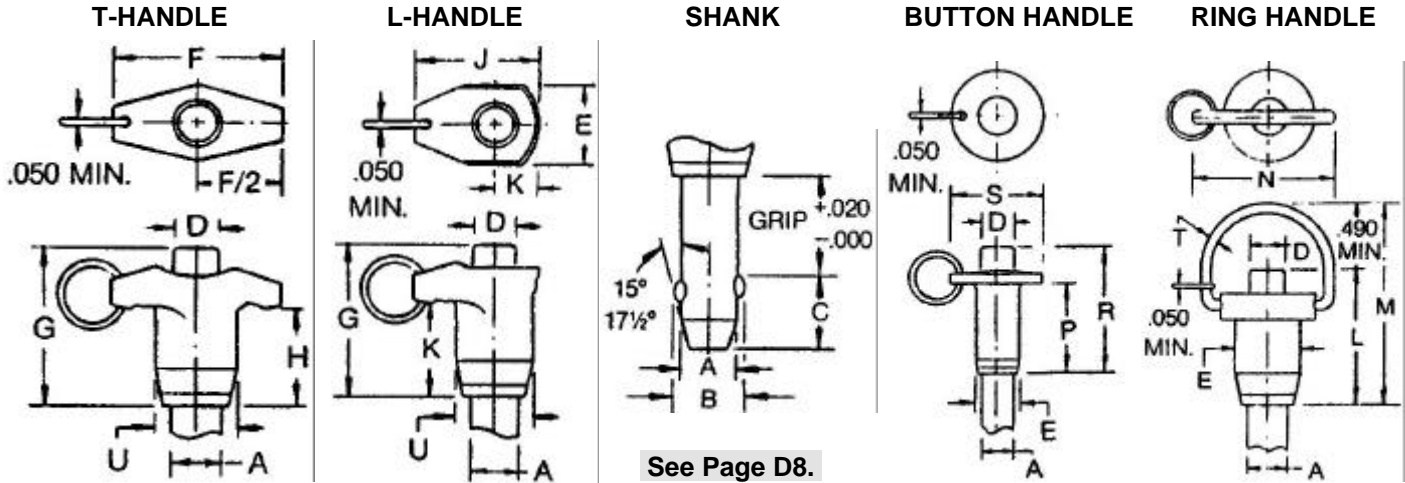


UNITED PART NO.	NOM. PIN DIA.	GRIP LENGTH IN INCHES — FOR PART NO. SUFFIX ABOVE — SEE ALSO PAGE D9.											
		1/2	1"	1-1/2	2"	2-1/2	3"	3-1/2	4"	4-1/2	5"	5-1/2	6"
UDB-3-BLP	3/16		-1.0		-2.0		-3.0		-4.0		-5.0		-6.0
UDB-4-BLP	1/4	-0.5	-1.0	-1.5	-2.0	-2.5	-3.0	-3.5	-4.0				
UDB-5-BLP	5/16		-1.0	-1.5	-2.0	-2.5	-3.0	-3.5	-4.0	-4.5	-5.0	-5.5	-6.0
UDB-6-BLP	3/8	-0.5	-1.0	-1.5	-2.0	-2.5	-3.0	-3.5	-4.0	-4.5	-5.0	-5.5	-6.0
UDB-7-BLP	7/16		-1.0		-2.0		-3.0		-4.0		-5.0		-6.0
UDB-8-BLP	1/2	-0.5	-1.0	-1.5	-2.0	-2.5	-3.0	-3.5	-4.0	-4.5	-5.0	-5.5	-6.0
UDB-9-BLP	9/16				-2.0		-3.0		-4.0		-5.0		-6.0
UDB-10-BLP	5/8				-2.0	-2.5	-3.0	-3.5	-4.0	-4.5	-5.0	-5.5	-6.0
UDB-12-BLP	3/4				-2.0	-2.5	-3.0	-3.5	-4.0	-4.5	-5.0	-5.5	-6.0
UDB-14-BLP	7/8						-3.0		-4.0		-5.0		-6.0
UDB-16-BLP	1"						-3.0		-4.0		-5.0		-6.0

UNITED Single Acting Pins

Ball Lock Pins

BALL LOCK PIN DIMENSIONS



NOM. PIN DIA.	A		B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	DOUBLE SHEAR IN POUNDS	
	MAX.	MIN.	±.005	MAX	MIN	MIN	MAX	MAX	MIN	MAX	MIN	MIN	MAX	MIN	MIN	MAX	MIN	MIN	MIN	STL	CRES
3/16	.1885	.1870	.220	.260	.250	.310	1.815	1.270	.800	1.800	.760	.730	1.450	1.060	.480	.830	.720	.105	.380	4,600	5,150
1/4	.2485	.2470	.289	.290	.250	.310	1.815	1.270	.800	1.800	.760	.730	1.500	1.060	.480	.830	.720	.105	.380	8,200	9,200
5/16	.3110	.3095	.375	.330	.250	.410	1.815	1.270	.800	1.800	.760	.830	1.650	1.060	.480	.930	.810	.105	.380	12,800	14,400
3/8	.3735	.3720	.440	.365	.300	.450	2.065	1.450	.850	2.030	.850	.940	1.650	1.060	.620	1.040	.875	.134	.510	18,400	20,600
7/16	.4360	.4345	.509	.380	.300	.550	2.065	1.470	.850	2.030	.850	.980	1.850	1.090	.620	1.160	.940	.134	.510	25,000	28,000
1/2	.4985	.4970	.594	.460	.435	.600	2.345	1.600	.885	2.360	.850	1.140	1.850	1.160	.720	1.190	1.300	.200	.630	32,800	36,800
9/16	.5610	.5595	.666	.510	.435	.680	2.345	1.600	.885	2.360	.850	1.140	2.030	1.160	.950	1.410	1.340	.200	.630	41,200	46,000
5/8	.6235	.6220	.750	.580	.450	.750	3.100	1.700	.980	3.070	.905	1.400	2.250	1.240	.950	1.500	1.530	.231	.810	51,200	57,000
3/4	.7485	.7470	.887	.670	.570	.865	3.100	1.720	1.030	3.070	.980	1.625	2.650	1.640	1.140	1.680	1.790	.231	.810	73,600	82,500
7/8	.8735	.8720	1.046	.760	.700	.980	3.520	2.170	1.310	3.700	1.200	1.875	3.000	1.640	1.270	1.985	2.120	.231	1.120	100,000	112,500
1"	.9985	.9970	1.219	.890	.750	1.175	3.520	2.170	1.310	3.700	1.200	2.000	3.100	1.640	1.490	2.140	2.120	.231	1.180	131,000	147,500

MATERIALS AND SPECIFICATIONS

PART	ALLOY STEEL	CORROSION RESISTANT
SHANK and SPINDLE	4130 Alloy Steel per MIL-T-6736 & MIL-S-6758	Corrosion resistant steel 17-4 PH per AMS 5643 or PH 15-7 MO per AMS 5657 or equivalent
BALLS	Corrosion resistant steel 440-C per QQ-S-763, Rc 58-62	Corrosion resistant steel 440-C per QQ-S-763, Rc 58-62
BUTTON	Carbon steel per QQ-S-637 or 2024 Aluminum alloy per QQ-A-225/5	Corrosion resistant steel 303 per ASTM-A581 or aluminum alloy 2024 per QQ-A-225/5
'B' BUTTON HANDLE	Steel per QQ-S-637 or 2024 Aluminum alloy per QQ-A-225/5	Corrosion resistant steel 303 per ASTM-A581 or aluminum alloy 2024 per QQ-A-225/5
'T' HANDLE	Aluminum alloy casting per QQ-A-591	Aluminum alloy casting per QQ-A-591
'L' HANDLE	Aluminum alloy casting per QQ-A-591	Aluminum alloy casting per QQ-A-591
'R' HANDLE RING	Corrosion resistant steel 302 per QQ-W-423 or music wire per QQ-W-470	Corrosion resistant steel 302 per QQ-W-423
'R' HANDLE (HEAD) SPRING	Steel per QQ-S-637 or 2024 Aluminum alloy per QQ-A-225/5 Music wire per QQ-W-470	Corrosion resistant steel 303 per ASTM-A582 aluminum alloy 2024 per QQ-A-225/5 Corrosion resistant steel type 302 per QQ-W-423
Attaching LINK	Carbon steel wire per QQ-W-428 or corrosion resistant steel 302 per QQ-W-423	Corrosion resistant steel 302 per QQ-W-423

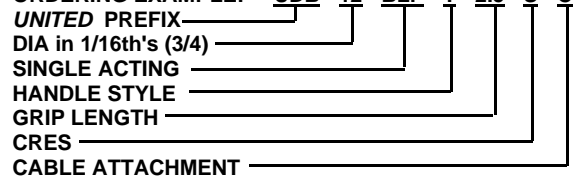
HEAT TREATMENT

Alloy Steel	Shank & spindle 160/000/180,000 PSI per MIL-H-6875
Corrosion Resistant Steel	Shank & spindle 17-4 PH, 190,000 PSI. Min per AMS 5643; PH 15-7 MO, 180,000 PSI Min per AMS 5657

PROTECTIVE TREATMENT

Carbon & Alloy steel	Cadmium plate per QQ-P-416, Type II, Class 2
Corrosion Resistant Steel	Passivate per QQ-P-35
Aluminum Alloy	Anodize per MIL-A-8625

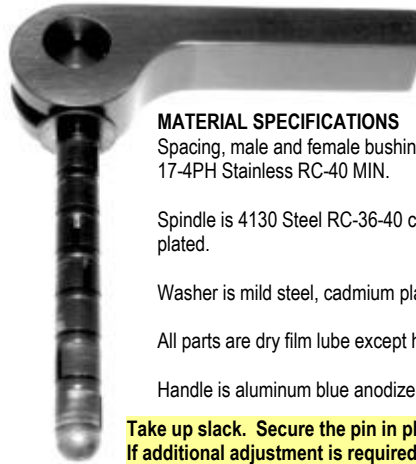
ORDERING EXAMPLE: UDB - 12 - BLP - T - 2.5 - S - C



Expanding Pins Adjustable Bushings

Adjustable Bushings Expanding Diameter Pins

EXPANDING DIAMETER PINS



MATERIAL SPECIFICATIONS

Spacing, male and female bushings are 17-4PH Stainless RC-40 MIN.

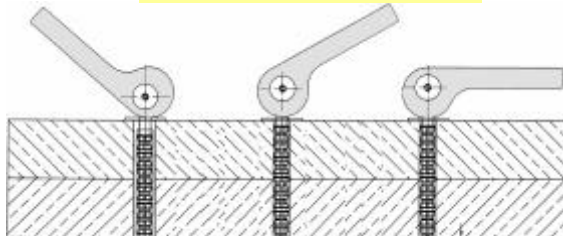
Spindle is 4130 Steel RC-36-40 cadmium plated.

Washer is mild steel, cadmium plated.

All parts are dry film lube except hex nut.

Handle is aluminum blue anodized.

Take up slack. Secure the pin in place. If additional adjustment is required, remove set screw and turn cam handle.



- 1 LOCATE**
Install loose to max length.
- 2 ADJUST**
Spindle to protrude max thru hole.
- 3 LOCK**
Tighten and secure in place.

UNITED EXPANDING PINS and **ADJUSTABLE BUSHINGS** will expand up to .006 inches to tighten the hole into which it is inserted.

This is an assembly of split male and female bushings and spacers on a central spindle. They expand and contract together as the handle depresses and/or retracts.

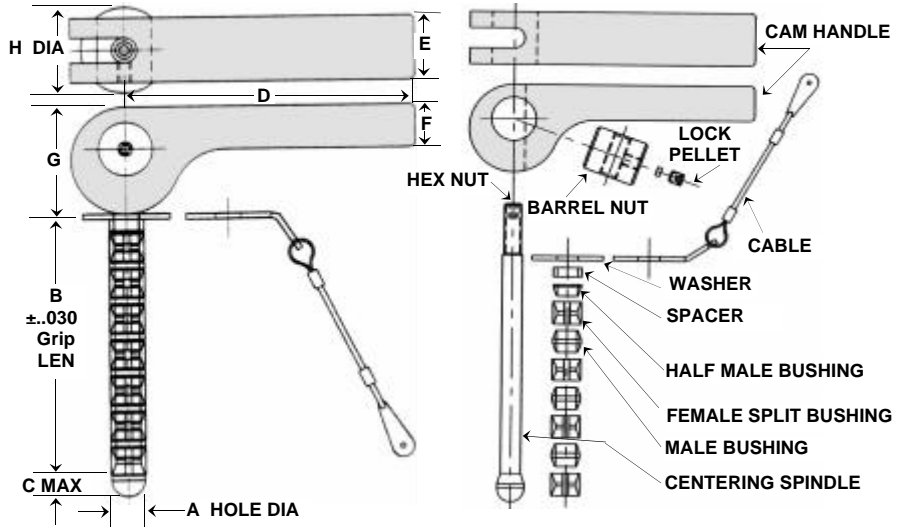
Expanding Pin has excellent shear strength. It is comparable to a solid pin.

Diameters of 1/4 to 1 inches are available from 1/2 to 4 inches in length. They install easily in blind or thru holes.

Socket in hex pin is for adjustment. Maximum length is total expanded bushing

All Split Bushings must be contained inside the hole before tightening.

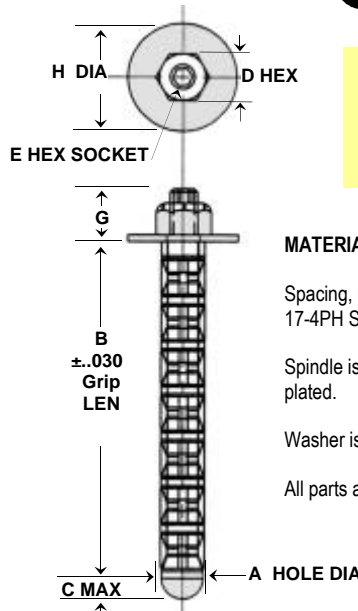
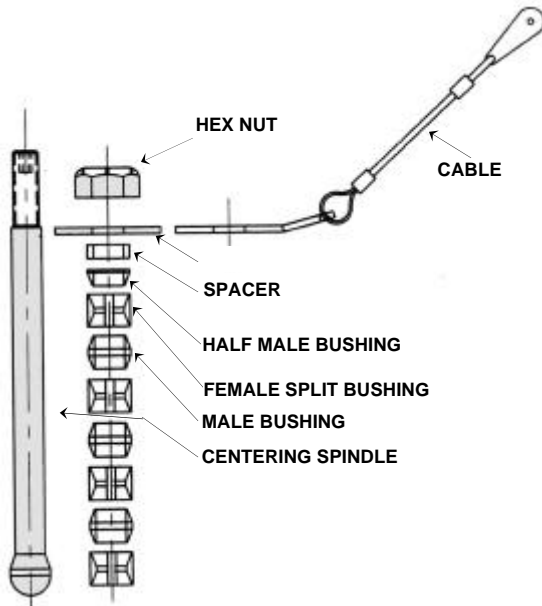
CONFORMS TO UT-7043



UNITED PART NO.	A DIA O.D NOM	A DIA MIN	A DIA MAX	B LEN	C PRO-TRUSION	D WIDTH	E	F	G	H DIA	DOUBLE SHEAR STRENGTH IN LBS.
UDB-EP-16-08				.50							
UDB-EP-16-12				.75							
UDB-EP-16-16	1/4	.250	.254	1.00	1/4	2-3/8	1/2	5/16	13/16	1/2	4,000
UDB-EP-16-24				1.50							
UDB-EP-16-32				2.00							
UDB-EP-16-48				3.00							
UDB-EP-20-16				1.00							
UDB-EP-20-32	5/16	.312	.317	2.00	5/16	3-1/4	5/8	1/2	1.31	7/8	6,300
UDB-EP-20-48				3.00							
UDB-EP-24-08				.50							
UDB-EP-24-12				.75							
UDB-EP-24-16	3/8	.375	.380	1.00	3/8	4-1/2	3/4	1/2	1.31	7/8	9,000
UDB-EP-24-24				1.50							
UDB-EP-24-32				2.00							
UDB-EP-24-48				3.00							
UDB-EP-32-08				.50							
UDB-EP-32-16				1.00							
UDB-EP-32-24	1/2	.500	.505	1.50	1/2	4-1/2	7/8	1/2	1.31	1"	16,100
UDB-EP-32-32				2.00							
UDB-EP-32-48				3.00							
UDB-EP-40-08				.50							
UDB-EP-40-16				1.00							
UDB-EP-40-24	5/8	.625	.630	1.50	5/8	4-1/2	1"	1/2	1.31	1-1/4	25,100
UDB-EP-40-32				2.00							
UDB-EP-40-48				3.00							
UDB-EP-48-16				1.00							
UDB-EP-48-32	3/4	.750	.757	2.00	3/4	6"	1-1/16	3/4	2.09	1-3/8	36,200
UDB-EP-48-48				3.00							
UDB-EP-48-64				4.00							
UDB-EP-64-16				1.00							
UDB-EP-64-32	1"	1.000	1.010	2.00	1"	8"	1-1/4	3/4	2.09	1-5/8	64,300
UDB-EP-64-48				3.00							
UDB-EP-64-64				4.00							

Hex Head Expanding Pins with Adjustable Dia. Bushings

UDB-EPH Expanding Pin Hex Head



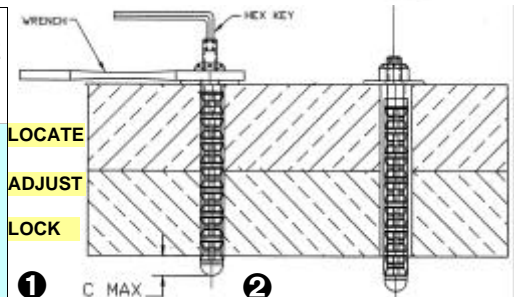
EXPANDING PIN

MATERIAL SPECIFICATIONS

Spacing, male and female bushings are 17-4PH Stainless RC-40 MIN.
 Spindle is 4130 Steel RC-36-40 cadmium plated.
 Washer is mild steel, cadmium plated.
 All parts are dry film lube except hex nut.



UNITED PART NO.	A DIA O.D NOM	A DIA MIN	A DIA MAX	B LEN	C PRO-TRUSION	D HEX NUT	E HEX SOCKET	G HEAD	H DIA WASHER	DOUBLE SHEAR STRENGTH IN LBS.	INSTALL TORQUE FT/LBS
UDB-EPH-16-08				.50							
UDB-EPH-16-12				.75							
UDB-EPH-16-16	1/4	.250	.254	1.00	1/4	7/16	3/32	.39	.67	4,000	3
UDB-EPH-16-24				1.50							
UDB-EPH-16-32				2.00							
UDB-EPH-16-48				3.00							
UDB-EPH-20-16				1.00							
UDB-EPH-20-32	5/16	.312	.317	2.00	5/16	1/2	3/32	.40	.67	6,300	3
UDB-EPH-20-48				3.00							
UDB-EPH-24-08				.50							
UDB-EPH-24-12				.75							
UDB-EPH-24-16	3/8	.375	.380	1.00	3/8	9/16	3/16	.49	.67	9,000	7.5
UDB-EPH-24-24				1.50							
UDB-EPH-24-32				2.00							
UDB-EPH-24-48				3.00							
UDB-EPH-32-08				.50							
UDB-EPH-32-16				1.00							
UDB-EPH-32-24	1/2	.500	.505	1.50	1/2	3/4	7/8	.71	.92	16,100	29
UDB-EPH-32-32				2.00							
UDB-EPH-32-48				3.00							
UDB-EPH-40-08				.50							
UDB-EPH-40-16				1.00							
UDB-EPH-40-24	5/8	.625	.630	1.50	5/8	15/16	1/4	.90	1.22	25,100	83
UDB-EPH-40-32				2.00							
UDB-EPH-40-48				3.00							
UDB-EPH-48-16				1.00							
UDB-EPH-48-32	3/4	.750	.757	2.00	3/4	1-1/16	1/4	1.02	1.35	36,200	121
UDB-EPH-48-48				3.00							
UDB-EPH-48-64				4.00							
UDB-EPH-64-16				1.00							
UDB-EPH-64-32	1"	1.000	1.010	2.00	1"	1-7/16	1/4	1.23	1.47	64,300	375
UDB-EPH-64-48				3.00							
UDB-EPH-64-64				4.00							



1 Install loose. Insert to max length. Adjust to pre-tighten position.
2 Hold Hex Key stationary in socket to tighten Hex Nut. Secure and expand up to .006.

UNITED HEX HEAD EXPANDING PINS with ADJUSTABLE DIAMETER BUSHINGS will expand up to .006 inches to tighten the hole into which it

This is an assembly of split male and female bushings and spacers on a central spindle. They expand and contract together as the handle depresses and

Expanding Pin has excellent shear strength. It is comparable to a solid

Diameters of 1/4 to 1 inches are available from 1/2 to 4 inches in length .

Socket in hex pin is for adjustment. Maximum length is total expanded

All Split Bushings must be contained inside the hole before tightening.

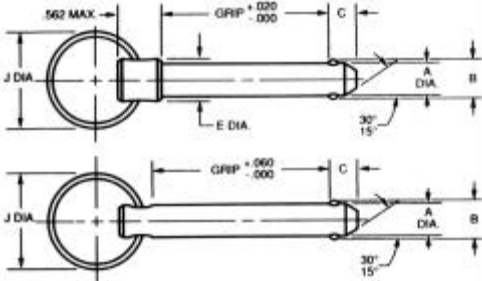
Detent Rings Cable Rings

Ball Lock Detent Pins Spring Loaded, Shoulder & Plain

DETENT PINS



Two balls for safety. The 3/16 Pin has 1 ball.



- SHANKS: A-4130 CRM ALLOY STEEL PER MIL-8-6758 OR EQUAL M.T. TO 160-180,000 PSI
B-STRESSPROOF STEEL 125,000 PSI
S-303 STAINLESS STEEL 90,000 PSI
- RINGS-302 STAINLESS STEEL
- BALLS-440C STAINLESS STEEL PER QQ-S-763 RC 58-62
- ACTUATOR-(300 SERIES CRES PER QQ-W-423 STD) ADD "R" FOR SILICONE RUBBER
- CAD. PLATE ALL STEEL PARTS PER QQ-P-416 TYPE I OR II CLASS 3
- #3 DIAMETER PIN HAS ONE BALL ONLY
- SUBSTITUTE STYLES, MATERIALS, AND OR DIMENSIONS ON REQUEST

SAMPLE CALLOUT

UDB-4-BLP-4.1-S-R



AVAILABLE WITH ONE OR TWO BALLS-TWO BALLS STANDARD
SPRING LOADED BALLS ALLOW PIN TO BE INSERTED IN HOLE. BUT PREVENT PIN FROM FALLING OUT EVEN IN INVERTED POSITION.
AVAILABLE WITH DIAMETERS UP TO 40
STAINLESS STEEL PRICED AS SPECIAL

'DEP' SUFFIXES: D FOR DETENT RING; S FOR SHOULDER; P FOR PLAIN

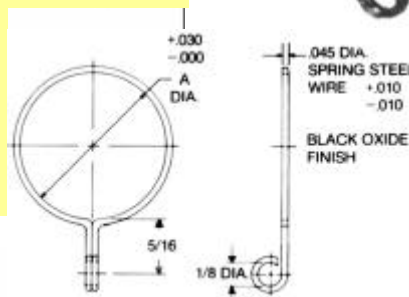
UNITED 'DEP' PART NO.	NOMINAL DIAMETER	A	+0.000 -0.003	B MIN	C MAX	D NOM	E NOM	F NOM
UDB-3DEPX-XX	3/16	.1885		.200	.329	.312	1.000	.080
UDB-4DEPX-XX	1/4	.2480		.280	.344	.375	1.000	.080
UDB-5DEPX-XX	5/16	.3105		.360	.359	.438	1.000	.080
UDB-6DEPX-XX	3/8	.3735		.430	.390	.500	1.120	.093
UDB-7DEPX-XX	7/16	.4355		.495	.469	.563	1.120	.093
UDB-8DEPX-XX	1/2	.4980		.570	.516	.625	1.120	.093
UDB-9DEPX-XX	9/16	.5605		.645	.593	.688	1.120	.093
UDB-10DEPX-XX	5/8	.6230		.720	.762	.750	1.120	.093
UDB-12DEPX-XX	3/4	.7480		.860	.750	.875	1.620	.125
UDB-14DEPX-XX	7/8	.8730		1.100	.859	1.000	1.620	.125
UDB-16DEPX-XX	1"	.9980		1.160	.984	1.125	1.620	.125

CABLE RINGS

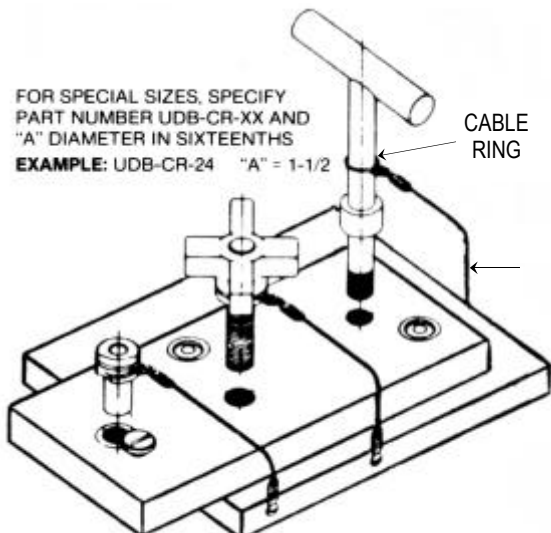


UNITED PART NO. (16ths)	A INCH DIAMETER	A METRIC DIAMETER
UDB-CR02	1/8	3 mm
UDB-CR03	3/16	4 & 5 mm
UDB-CR04	1/4	6 & 7 mm
UDB-CR05	5/16	8 mm
UDB-CR06	3/8	9 & 10 mm
UDB-CR07	7/16	11 mm
UDB-CR08	1/2	12 & 13 mm
UDB-CR09	9/16	14 & 15 mm
UDB-CR10	5/8	16 mm
UDB-CR11	11/16	17 & 18 mm
UDB-CR12	3/4	19 & 20 mm
UDB-CR13	13/16	21 mm

UNITED PART NO. (16ths)	A INCH DIAMETER	A METRIC DIAMETER
UDB-CR14	7/8	22 or 23 mm
UDB-CR15	15/16	24 mm
UDB-CR16	1"	25 & 26 mm
UDB-CR17	1-1/16	27 mm
UDB-CR18	1-1/8	28 & 29 mm
UDB-CR19	1-3/16	30 & 31 mm
UDB-CR20	1-1/4	32 mm
UDB-CR21	1-5/16	33 & 34 mm
UDB-CR22	1-3/8	35 mm
UDB-CR23	1-7/16	36 & 37 mm
UDB-CR24	1-1/2	38 mm

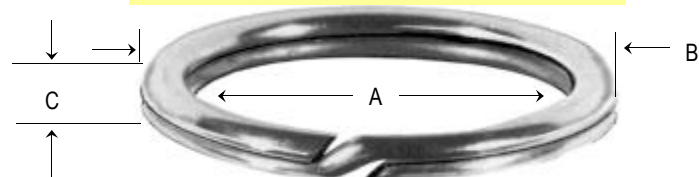


FOR SPECIAL SIZES, SPECIFY PART NUMBER UDB-CR-XX AND "A" DIAMETER IN SIXTEENTHS
EXAMPLE: UDB-CR-24 "A" = 1-1/2



TYPICAL APPLICATION CABLE AND CABLE RINGS

SPLIT KEY/TAG RINGS

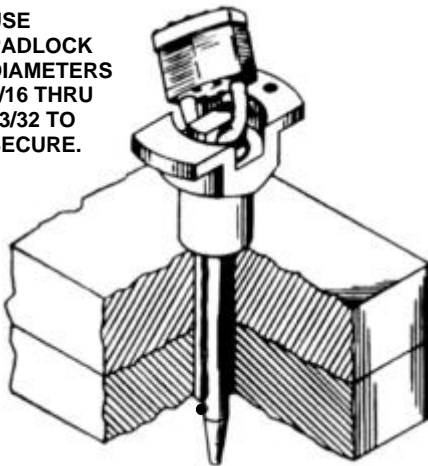


UNITED PART NO. ALLOY STEEL	UNITED PART NO. STAINLESS	A I. D.	B O. D.	C THICKNESS	WIRE SIZE
UDB-SR-08-AS	UDB-SR-08-SS	.526	.670	.105	.072
UDB-SR-12-AS	UDB-SR-12-SS	.802	.970	.110	.084
UDB-SR-16-AS	UDB-SR-16-SS	1.062	1.250	.130	.094
UDB-SR-20-AS	UDB-SR-20-SS	1.264	1.480	.142	.108
UDB-SR-26-AS	UDB-SR-26-SS	1.6355	1.865	.175	.115

UNITED Ball Lock Key Pin Assemblies



USE
PADLOCK
DIAMETERS
5/16 THRU
13/32 TO
SECURE.



QUICK RELEASE SAFETY BALL LOCK KEY PINS

STAINLESS 300 SERIES BALLS, PIN, SPINDLE and
BUTTON. ALUMINUM HANDLE.

UDB-754400 Series

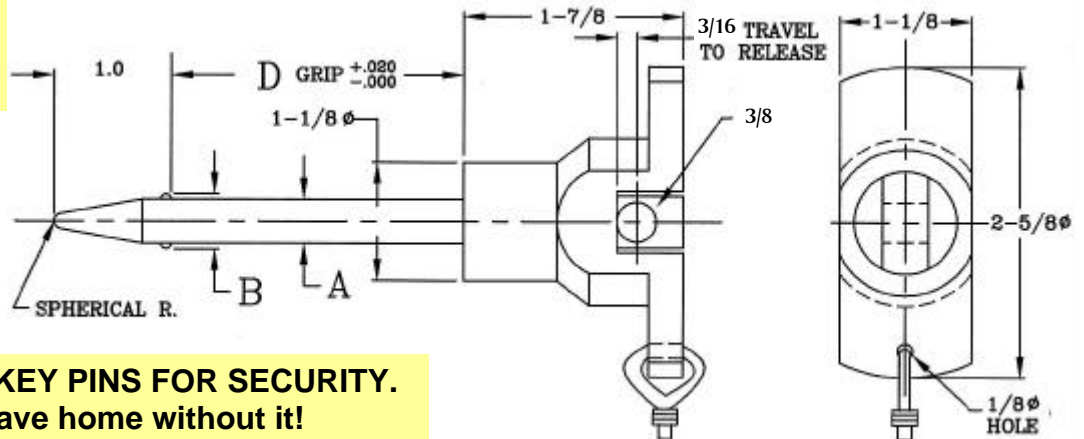
LOCKS IN PLACE WITH PAD LOCK AND KEY.
PREVENTS UNAUTHORIZED REMOVAL.

Shouldered Handle prevents accidental



Important!
Use 5/16 Ø MIN to 13/32
Ø MAX of Padlock
Diameter.

Refer to Section D,
Pages D18 and D19,
For specifications of
Cables, Rings, Tabs,
Flags and other
Accessories.



USE BALL LOCK KEY PINS FOR SECURITY.
You can't leave home without it!

Designed for holding fixtures in Transportation Racks, for Landing Gear Lock Down when the aircraft is grounded, and for their maintenance or storage.

For vehicle and automotive transport racking.

Used in boat security. Perfect for fence and gate security.

Used extensively for securing plant, motor and electric carts and multi-carts.

UNITED Quick Release Safety Ball Lock Key Pins provide industrial maintenance security.

ADD 'D' LENGTH TO PART NO. EXAMPLE: UDB-754406-4

Seven Diameters Available		Add 'D' Length to Part No.			D LENGTH +.020 INCHES XXX Standard Stocked Sizes. Other sizes available on request.									
BALL LOCK KEY PIN PART NO.	A DIA NOM.	A DIA ACTUAL MAX	A DIA ACTUAL MIN	B +.015	2	2-1/2	3	3-1/2	4	4-1/2	5	5-1/2	6	6-1/2
UDB-754406-xxx	3/8	.3745	.3730	.438	X		X		X		X		X	
UDB 754407-	7/16	.4360		.508	X		X		X		X		X	
UDB- -xxx	1/2		.4970	.592										
-754409 xxx		.5610	.5695		X		X		X		X		X	
UDB 754410-	5/8	.6235		.750										
-754412 xxx		.7485	.7470				X		X		X		X	
UDB- -xxx	7/8		.8720	1.044			X		X		X		X	