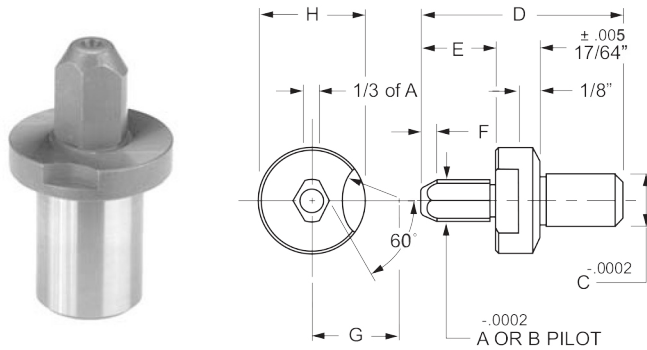


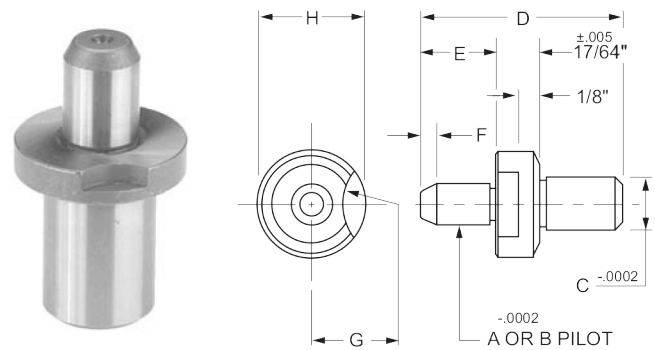
LOCATING PINS

Use lock screw #1 for all sizes.

These precision locating pins are offered with a choice of "A" or "B" pilot diameters. "B" pilot diameters are .001 smaller than "A" diameters for easier but less critical alignment.



RELIEVED LOCKING SCREW PIN



ROUND LOCKING SCREW PIN

LOCK SCREW LOCATING PINS

Slip Fit - Round and Relieved - Case Hardened

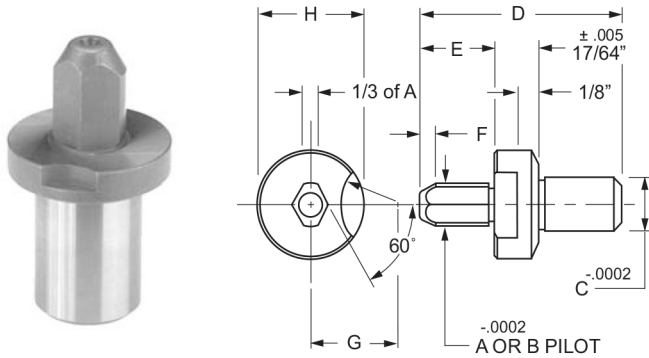
A - PILOT DIAMETER		DIMENSIONS							
RELIEVED PIN P/N	ROUND PIN P/N	A	C	D	E	F*	G	H	USED WITH RETAINER NUMBER
420-00	421-00	.1245	.3125	1-3/16	7/16	3/32	33/64	5/8	410-00 or 408-00
420-01	421-01	.1870	.3125	1-3/16	7/16	3/32	33/64	5/8	410-00 or 408-00
420-02	421-02	.2183	.3125	1-3/16	7/16	3/32	33/64	5/8	410-00 or 408-00
420-03	421-03	.2495	.3125	1-3/16	7/16	3/32	33/64	5/8	410-00 or 408-00
420-04	421-04	.2808	.3125	1-3/16	7/16	3/32	33/64	5/8	410-00 or 408-00
420-05	421-05	.3120	.3125	1-3/16	7/16	3/32	33/64	5/8	410-00 or 408-00
420-06	421-06	.3115	.5000	1-1/2	1/2	1/8	41/64	7/8	410-05 or 408-05
420-07	421-07	.3428	.5000	1-1/2	1/2	1/8	41/64	7/8	410-05 or 408-05
420-08	421-08	.3740	.5000	1-1/2	1/2	1/8	41/64	7/8	410-05 or 408-05
420-09	421-09	.4053	.5000	1-1/2	1/2	1/8	41/64	7/8	410-05 or 408-05
420-10	421-10	.4365	.5000	1-1/2	1/2	1/8	41/64	7/8	410-05 or 408-05
420-11	421-11	.4678	.5000	1-1/2	1/2	1/8	41/64	7/8	410-05 or 408-05
420-12	421-12	.4990	.5000	1-1/2	1/2	1/8	41/64	7/8	410-05 or 408-05
420-13	421-13	.4990	.7500	1-15/16	11/16	3/16	49/64	1-1/8	410-10 or 408-10
420-14	421-14	.5303	.7500	1-15/16	11/16	3/16	49/64	1-1/8	410-10 or 408-10
420-15	421-15	.5615	.7500	1-15/16	11/16	3/16	49/64	1-1/8	410-10 or 408-10
420-16	421-16	.5928	.7500	1-15/16	11/16	3/16	49/64	1-1/8	410-10 or 408-10
420-17	421-17	.6240	.7500	1-15/16	11/16	3/16	49/64	1-1/8	410-10 or 408-10
420-18	421-18	.6553	.7500	1-15/16	11/16	3/16	49/64	1-1/8	410-10 or 408-10
420-19	421-19	.6865	.7500	1-15/16	11/16	3/16	49/64	1-1/8	410-10 or 408-10
420-20	421-20	.7940	.7500	1-15/16	11/16	3/16	49/64	1-1/8	410-10 or 408-10
420-21	421-21	.7940	1.0000	2-5/8	1	9/32	61/64	1-1/2	410-15 or 408-15
420-22	421-22	.9990	1.0000	2-5/8	1	9/32	61/64	1-1/2	410-15 or 408-15

* F dim. is not maintained on small pilot diameters.

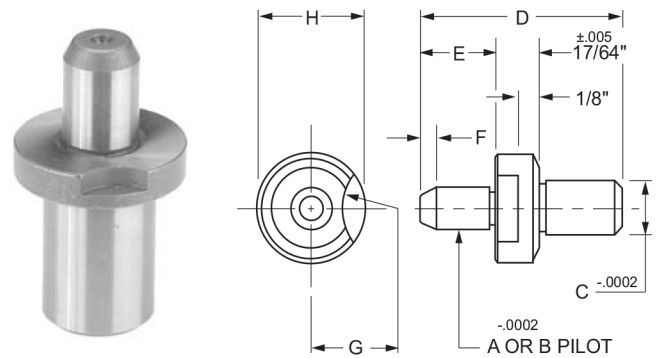
LOCATING PINS

Use lock screw #1 for all sizes.

These precision locating pins are offered with a choice of "A" or "B" pilot diameters. "B" pilot diameters are .001 smaller than "A" diameters for easier but less critical alignment.



RELIEVED LOCKING SCREW PIN

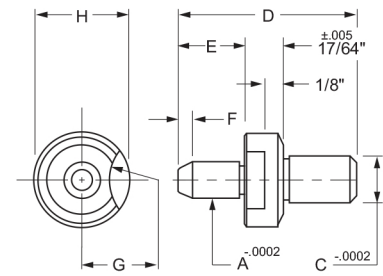
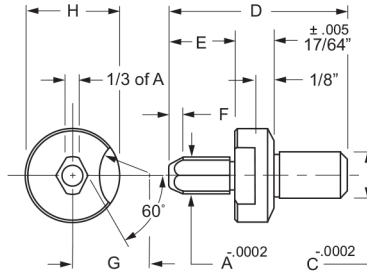


ROUND LOCKING SCREW PIN

LOCK SCREW LOCATING PINS									
Slip Fit - Round and Relieved - Case Hardened									
B - PILOT DIAMETER		DIMENSIONS							
RELIEVED PIN P/N	ROUND PIN P/N	B	C	D	E	F*	G	H	USED WITH RETAINER NUMBER
422-00	423-00	.1235	.3125	1-3/16	7/16	3/32	33/64	5/8	410-00 or 408-00
422-01	423-01	.1860	.3125	1-3/16	7/16	3/32	33/64	5/8	410-00 or 408-00
422-02	423-02	.2173	6.35	1-3/16	7/16	3/32	33/64	5/8	410-00 or 408-00
422-03	423-03	.2485	.3125	1-3/16	7/16	3/32	33/64	5/8	410-00 or 408-00
422-04	423-04	.2798	.3125	1-3/16	7/16	3/32	33/64	5/8	410-00 or 408-00
422-05	423-05	.3110	.3125	1-3/16	7/16	3/32	33/64	5/8	410-00 or 408-00
422-06	423-06	.3105	.5000	1-1/2	1/2	1/8	41/64	7/8	410-05 or 408-05
422-07	423-07	.3418	.5000	1-1/2	1/2	1/8	41/64	7/8	410-05 or 408-05
422-08	423-08	.3730	.5000	1-1/2	1/2	1/8	41/64	7/8	410-05 or 408-05
422-09	423-09	.4043	.5000	1-1/2	1/2	1/8	41/64	7/8	410-05 or 408-05
422-10	423-10	.4355	.5000	1-1/2	1/2	1/8	41/64	7/8	410-05 or 408-05
422-11	423-11	.4668	.5000	1-1/2	1/2	1/8	41/64	7/8	410-05 or 408-05
422-12	423-12	.4980	.5000	1-1/2	1/2	1/8	41/64	7/8	410-05 or 408-05
422-13	423-13	.4980	.7500	1-15/16	11/16	3/16	49/64	1-1/8	410-10 or 408-10
422-14	423-14	.5293	.7500	1-15/16	11/16	3/16	49/64	1-1/8	410-10 or 408-10
422-15	423-15	.5605	.7500	1-15/16	11/16	3/16	49/64	1-1/8	410-10 or 408-10
422-16	423-16	.5918	.7500	1-15/16	11/16	3/16	49/64	1-1/8	410-10 or 408-10
422-17	423-17	.6230	.7500	1-15/16	11/16	3/16	49/64	1-1/8	410-10 or 408-10
422-18	423-18	.6543	.7500	1-15/16	11/16	3/16	49/64	1-1/8	410-10 or 408-10
422-19	423-19	.6855	.7500	1-15/16	11/16	3/16	49/64	1-1/8	410-10 or 408-10
422-20	423-20	.7480	.7500	1-15/16	11/16	3/16	49/64	1-1/8	410-10 or 408-10
422-21	423-21	.7480	1.0000	2-5/8	1	9/32	61/64	1-1/2	410-15 or 408-15
422-22	423-22	.9980	1.0000	2-5/8	1	9/32	61/64	1-1/2	410-15 or 408-15

* F dim. is not maintained on small pilot diameters.

LOCATING PINS



Note: Refer to the Bushing Retainers for these slip type pins.

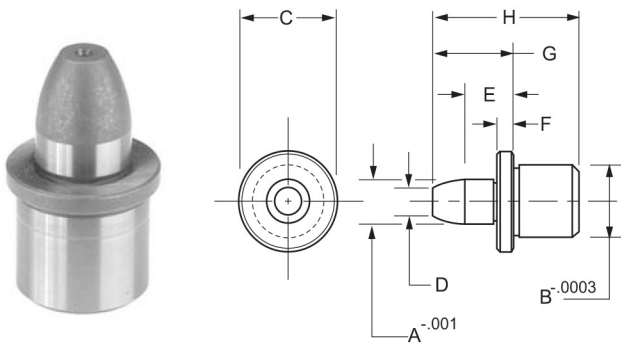
METRIC LOCK SCREW LOCATING PINS

Slip Fit - Round and Relieved - Case Hardened

		DIMENSIONS							
RELIEVED PIN P/N	ROUND PIN P/N	NOMINAL	A	C	D	E	F*	G	H
422-31	423-31	6mm	5.961mm .2347	7.938mm .3125	30mm 1-3/16	11mm 7/16	2.5mm 3/32	13mm 33/64	16mm 5/8
422-32	423-32	6mm	5.987mm .2357	7.938mm .3125	30mm 1-3/16	11mm 7/16	2.5mm 3/32	13mm 33/64	16mm 5/8
422-33	423-33	8mm	7.950mm .3130	12.7mm .5000	38mm 1-1/2	12.5mm 1/2	3.18mm 1/8	16.25mm 41/64	22mm 7/8
422-34	423-34	8mm	7.976mm .3140	12.7mm .5000	38mm 1-1/2	12.5mm 1/2	3.18mm 1/8	16.25mm 41/64	22mm 7/8
422-35	423-35	10mm	9.949mm .3917	12.7mm .5000	38mm 1-1/2	12.5mm 1/2	3.18mm 1/8	16.25mm 41/64	22mm 7/8
422-36	423-36	10mm	9.975mm .3927	12.7mm .5000	38mm 1-1/2	12.5mm 1/2	3.18mm 1/8	16.25mm 41/64	22mm 7/8
422-37	423-37	12mm	11.948mm .4704	12.7mm .5000	38mm 1-1/2	12.5mm 1/2	3.18mm 1/8	16.25mm 41/64	22mm 7/8
422-38	423-38	12mm	11.974mm .4717	12.7mm .5000	38mm 1-1/2	12.5mm 1/2	3.18mm 1/8	16.25mm 41/64	22mm 7/8
422-39	423-39	14mm	13.950mm .5492	19.05mm .7500	50mm 1-15/16	17.5mm 11/16	4.75mm 3/16	19.5mm 49/64	28.5mm 1-1/8
422-40	423-40	14mm	13.975mm .5502	19.05mm .7500	50mm 1-15/16	17.5mm 11/16	4.75mm 3/16	19.5mm 49/64	28.5mm 1-1/8
422-41	423-41	16mm	15.949mm .6279	19.05mm .7500	50mm 1-15/16	17.5mm 11/16	4.75mm 3/16	19.5mm 49/64	28.5mm 1-1/8
422-42	423-42	16mm	15.974mm .6289	19.05mm .7500	50mm 1-15/16	17.5mm 11/16	4.75mm 3/16	19.5mm 49/64	28.5mm 1-1/8
422-43	423-43	18mm	17.950mm .7067	19.05mm .7500	50mm 1-15/16	17.5mm 11/16	4.75mm 3/16	19.5mm 49/64	28.5mm 1-1/8
422-44	423-44	18mm	17.975mm .7077	19.05mm .7500	50mm 1-15/16	17.5mm 11/16	4.75mm 3/16	19.5mm 49/64	28.5mm 1-1/8
422-45	423-45	20mm	19.949mm .7854	25.4mm 1.0000	66mm 2-5/8	25.4mm 1	7.1mm 9/32	24.2mm 61/64	38mm 1-1/2
422-46	423-46	20mm	19.975mm .7864	25.4mm 1.0000	66mm 2-5/8	25.4mm 1	7.1mm 9/32	24.2mm 61/64	38mm 1-1/2

* F dim. is not maintained on small pilot diameters.

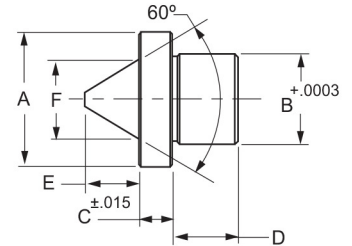
LOCATING PINS



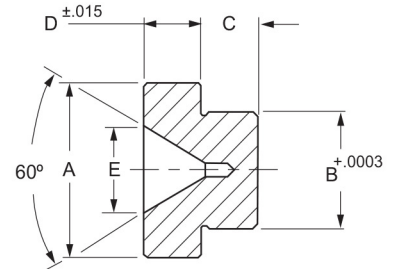
Cone locator pins and bushings offering medium accuracy, these pins and bushings compensate for misalignment to allow quick assembly of two fixture plates.



PILOT LOCATOR PINS								
Case Hardened								
P/N	DIMENSIONS							
	A	B	C	D	E	F	G	H
425-00	.249	.4078	9/16	5/32	9/32	3/32	15/35	27/32
425-05	.312	.5017	5/8	3/16	9/32	3/32	15/35	27/32
425-10	.624	.8768	1	5/16	3/8	1/8	7/8	1-5/8



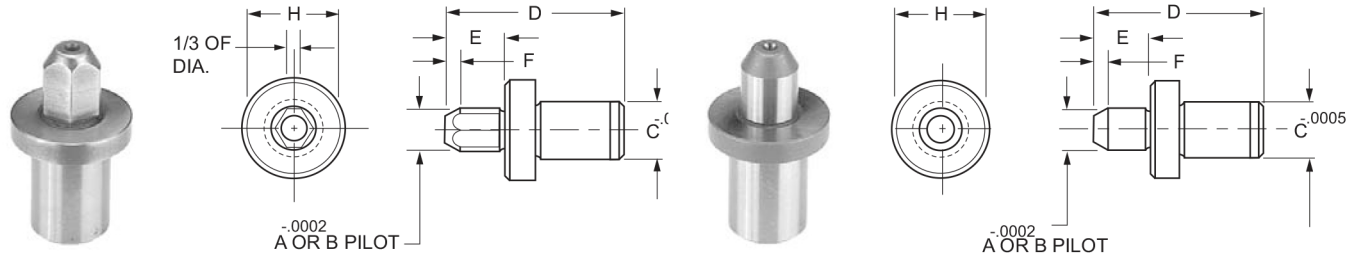
CONE LOCATOR PINS						
Case Hardened - Black Oxide Finish						
P/N	DIMENSIONS					
	A	B	C	D	E	F
425-25	3/4	.5014	3/16	3/8	5/16	.438
425-30	1	.7515	3/16	9/16	1/2	.676



CONE LOCATOR BUSHINGS						
Case Hardened - Black Oxide Finish						
P/N	DIMENSIONS					GAP BETWEEN THE HEADS WITH THE PINS AND BUSHINGS ASSEMBLED
	A	B	C	D	E	
425-35	3/4	.5014	1/4	1/4	.370	.050 - .068
425-40	1	.7515	3/8	3/8	.616	.043 - .061

LOCATING PINS

These precision locating pins are offered with a choice of "A" or "B" pilot diameters. "B" pilot diameters are .001 smaller than "A" diameters for easier but less critical alignment.



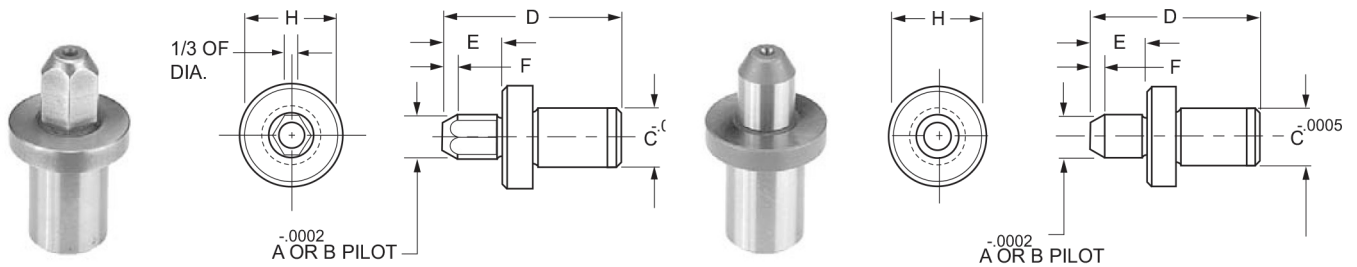
LOCATING PINS						
A-Pilot Diameter - Press Fit - Relieved - Case Hardened						
P/N	DIMENSIONS					
	A	C	D	E	F*	H
430-00	.1870	.3135	1-3/16	7/16	3/32	5/8
430-01	.2183	.3135	1-3/16	7/16	3/32	5/8
430-02	.2495	.3135	1-3/16	7/16	3/32	5/8
430-03	.2808	.3135	1-3/16	7/16	3/32	5/8
430-04	.3120	.3135	1-3/16	7/16	3/32	5/8
430-05	.3115	.5010	1-1/2	1/2	1/8	7/8
430-06	.3428	.5010	1-1/2	1/2	1/8	7/8
430-07	.3740	.5010	1-1/2	1/2	1/8	7/8
430-08	.4053	.5010	1-1/2	1/2	1/8	7/8
430-09	.4365	.5010	1-1/2	1/2	1/8	7/8
430-10	.4678	.5010	1-1/2	1/2	1/8	7/8
430-11	.4990	.5010	1-1/2	1/2	1/8	7/8
430-12	.4990	.7510	1-15/16	11/16	3/16	1-1/8
430-13	.5303	.7510	1-15/16	11/16	3/16	1-1/8
430-14	.5615	.7510	1-15/16	11/16	3/16	1-1/8
430-15	.6240	.7510	1-15/16	11/16	3/16	1-1/8
430-16	.6553	.7510	1-15/16	11/16	3/16	1-1/8
430-17	.6865	.7510	1-15/16	11/16	3/16	1-1/8
430-18	.7490	.7510	1-15/16	11/16	3/16	1-1/8
430-19	.7490	1.0010	2-5/8	1	9/32	1-1/2
430-20	.9990	1.0010	2-5/8	1	9/32	1-1/2

LOCATING PINS						
A-Pilot Diameter - Press Fit - Round - Case Hardened						
P/N	DIMENSIONS					
	A	C	D	E	F*	H
431-00	.1870	.3135	1-3/16	7/16	3/32	5/8
431-01	.2183	.3135	1-3/16	7/16	3/32	5/8
431-02	.2495	.3135	1-3/16	7/16	3/32	5/8
431-03	.2808	.3135	1-3/16	7/16	3/32	5/8
431-04	.3120	.3135	1-3/16	7/16	3/32	5/8
431-05	.3115	.5010	1-1/2	1/2	1/8	7/8
431-06	.3428	.5010	1-1/2	1/2	1/8	7/8
431-07	.3740	.5010	1-1/2	1/2	1/8	7/8
431-08	.4053	.5010	1-1/2	1/2	1/8	7/8
431-09	.4365	.5010	1-1/2	1/2	1/8	7/8
431-10	.4678	.5010	1-1/2	1/2	1/8	7/8
431-11	.4990	.5010	1-1/2	1/2	1/8	7/8
431-12	.4990	.7510	1-15/16	11/16	3/16	1-1/8
431-13	.5303	.7510	1-15/16	11/16	3/16	1-1/8
431-14	.5615	.7510	1-15/16	11/16	3/16	1-1/8
431-15	.6240	.7510	1-15/16	11/16	3/16	1-1/8
431-16	.6553	.7510	1-15/16	11/16	3/16	1-1/8
431-17	.6865	.7510	1-15/16	11/16	3/16	1-1/8
431-18	.7490	.7510	1-15/16	11/16	3/16	1-1/8
431-19	.7490	1.0010	2-5/8	1	9/32	1-1/2
431-20	.9990	1.0010	2-5/8	1	9/32	1-1/2

* F dim. is not maintained on small pilot diameters.

LOCATING PINS

These precision locating pins are offered with a choice of "A" or "B" pilot diameters. "B" pilot diameters are .001 smaller than "A" diameters for easier but less critical alignment.

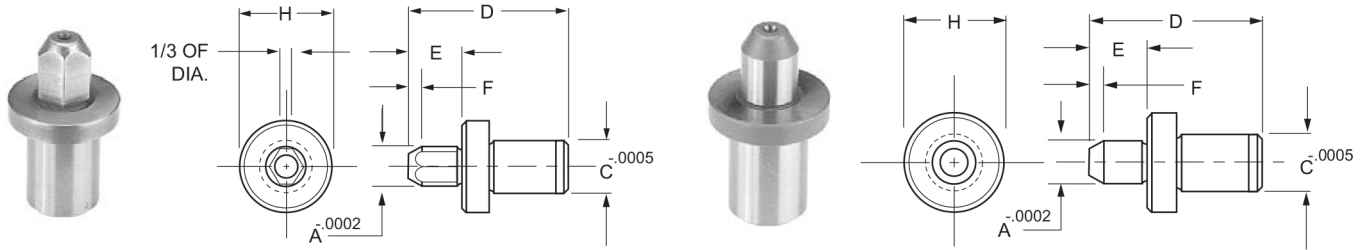


LOCATING PINS						
B-Pilot Diameter - Press Fit - Relieved - Case Hardened						
P/N	DIMENSIONS					
	B	C	D	E	F*	H
432-00	.1860	.3135	1-3/16	7/16	3/32	5/8
432-01	.2173	.3135	1-3/16	7/16	3/32	5/8
432-02	.2485	.3135	1-3/16	7/16	3/32	5/8
432-03	.2798	.3135	1-3/16	7/16	3/32	5/8
432-04	.3110	.3135	1-3/16	7/16	3/32	5/8
432-05	.3105	.5010	1-1/2	1/2	1/8	7/8
432-06	.3418	.5010	1-1/2	1/2	1/8	7/8
432-07	.3730	.5010	1-1/2	1/2	1/8	7/8
432-08	.4043	.5010	1-1/2	1/2	1/8	7/8
432-09	.4355	.5010	1-1/2	1/2	1/8	7/8
432-10	.4668	.5010	1-1/2	1/2	1/8	7/8
432-11	.4980	.5010	1-1/2	1/2	1/8	7/8
432-12	.4980	.7510	1-15/16	11/16	3/16	1-1/8
432-13	.5293	.7510	1-15/16	11/16	3/16	1-1/8
432-14	.5605	.7510	1-15/16	11/16	3/16	1-1/8
432-15	.6230	.7510	1-15/16	11/16	3/16	1-1/8
432-16	.6543	.7510	1-15/16	11/16	3/16	1-1/8
432-17	.6855	.7510	1-15/16	11/16	3/16	1-1/8
432-18	.7480	.7510	1-15/16	11/16	3/16	1-1/8
432-19	.7480	1.0010	2-5/8	1	9/32	1-1/2
432-20	.9980	1.0010	2-5/8	1	9/32	1-1/2

LOCATING PINS						
B-Pilot Diameter - Press Fit - Round - Case Hardened						
P/N	DIMENSIONS					
	B	C	D	E	F*	H
433-00	.1860	.3135	1-3/16	7/16	3/32	5/8
433-01	.2173	.3135	1-3/16	7/16	3/32	5/8
433-02	.2485	.3135	1-3/16	7/16	3/32	5/8
433-03	.2798	.3135	1-3/16	7/16	3/32	5/8
433-04	.3110	.3135	1-3/16	7/16	3/32	5/8
433-05	.3105	.5010	1-1/2	1/2	1/8	7/8
433-06	.3418	.5010	1-1/2	1/2	1/8	7/8
433-07	.3730	.5010	1-1/2	1/2	1/8	7/8
433-08	.4043	.5010	1-1/2	1/2	1/8	7/8
433-09	.4355	.5010	1-1/2	1/2	1/8	7/8
433-10	.4668	.5010	1-1/2	1/2	1/8	7/8
433-11	.4980	.5010	1-1/2	1/2	1/8	7/8
433-12	.4980	.7510	1-15/16	11/16	3/16	1-1/8
433-13	.5293	.7510	1-15/16	11/16	3/16	1-1/8
433-14	.5605	.7510	1-15/16	11/16	3/16	1-1/8
433-15	.6230	.7510	1-15/16	11/16	3/16	1-1/8
433-16	.6543	.7510	1-15/16	11/16	3/16	1-1/8
433-17	.6855	.7510	1-15/16	11/16	3/16	1-1/8
433-18	.7480	.7510	1-15/16	11/16	3/16	1-1/8
433-19	.7480	1.0010	2-5/8	1	9/32	1-1/2
433-20	.9980	1.0010	2-5/8	1	9/32	1-1/2

* F dim. is not maintained on small pilot diameters.

LOCATING PINS



METRIC LOCATING PINS

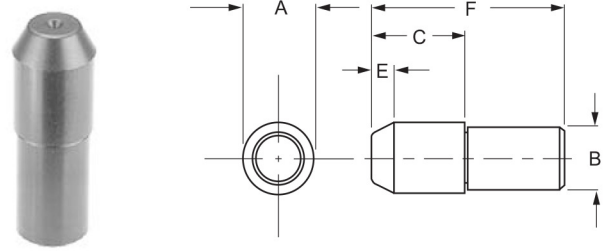
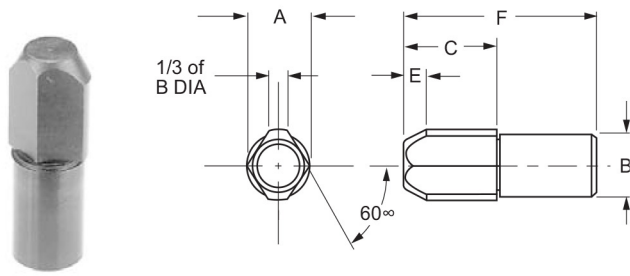
Press Fit - Round and Relieved - Case Hardened

DIMENSIONS

RELIEVED PIN P/N	ROUND PIN P/N	NOMINAL	A	C	D	E	F*	H
432-31	432-61	6mm	5.961mm .2347	7.963mm .3135	30mm 1-3/16	11mm 7/16	3.18mm 1/8	16mm 5/8
432-32	432-62	6mm	5.987mm .2357	7.963mm .3135	30mm 1-3/16	11mm 7/16	3.18mm 1/8	16mm 5/8
432-33	432-63	8mm	7.950mm .3130	12.725mm .5010	38mm 1-1/2	12.5mm 1/2	3.18mm 1/8	22mm 7/8
432-34	432-64	8mm	7.976mm .3140	12.725mm .5010	38mm 1-1/2	12.5mm 1/2	3.18mm 1/8	22mm 7/8
432-35	432-65	10mm	9.949mm .3917	12.725mm .5010	38mm 1-1/2	12.5mm 1/2	3.18mm 1/8	22mm 7/8
432-36	432-66	10mm	9.975mm .3927	12.725mm .5010	38mm 1-1/2	12.5mm 1/2	3.18mm 1/8	22mm 7/8
432-37	432-67	12mm	11.948mm .4704	12.725mm .5010	38mm 1-1/2	12.5mm 1/2	3.18mm 1/8	22mm 7/8
432-38	432-68	12mm	11.974mm .4717	12.725mm .5010	38mm 1-1/2	12.5mm 1/2	3.18mm 1/8	22mm 7/8
432-39	432-69	14mm	13.950mm .5492	12.725mm .5010	38mm 1-1/2	17.5mm 11/16	4.75mm 3/16	28.5mm 1-1/8
432-40	432-70	14mm	13.975mm .5502	12.725mm .5010	38mm 1-1/2	17.5mm 11/16	4.75mm 3/16	28.5mm 1-1/8
432-41	432-71	16mm	15.949mm .6279	19.075mm .7510	50mm 1-15/16	17.5mm 11/16	4.75mm 3/16	28.5mm 1-1/8
432-42	432-72	16mm	15.974mm .6289	19.075mm .7510	50mm 1-15/16	17.5mm 11/16	4.75mm 3/16	28.5mm 1-1/8
432-43	432-73	18mm	17.950mm .7067	19.075mm .7510	50mm 1-15/16	17.5mm 11/16	4.75mm 3/16	28.5mm 1-1/8
432-44	432-74	18mm	17.976mm .7077	19.075mm .7510	50mm 1-15/16	17.5mm 11/16	4.75mm 3/16	28.5mm 1-1/8
432-45	432-75	20mm	19.949mm .7854	25.425mm 1.001	66mm 2-5/8	25.4mm 1	7.1mm 9/32	38mm 1-1/2
432-46	432-76	20mm	19.975mm .7864	25.425mm 1.001	66mm 2-5/8	25.4mm 1	7.1mm 9/32	38mm 1-1/2

* F dim. is not maintained on small pilot diameters.

LOCATING PINS



LOCATING PINS FLANGELESS

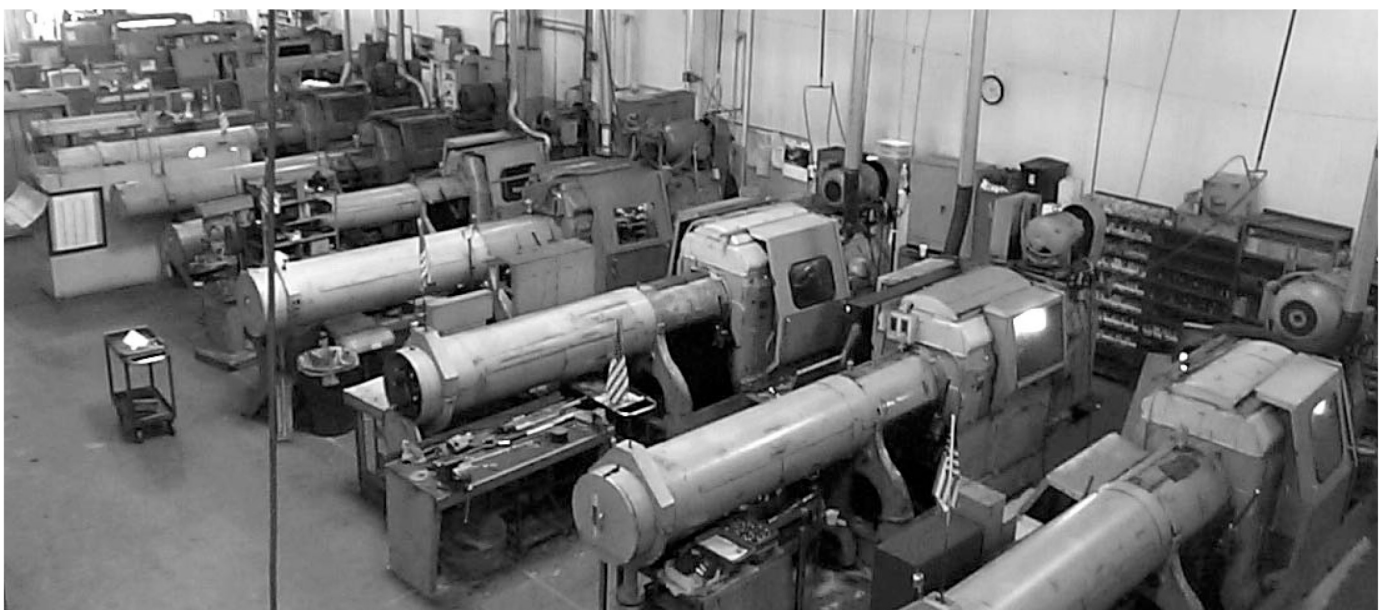
Press Fit - Relieved - Case Hardened - Black Oxide Finish

P/N	DIMENSIONS					
	A	B	C	E	F	HOLE SIZE
433-25	.2493/.2490	.1878/.1876	11/32	3/32	3/4	1/4
433-26	.3118/.3115	.2503/.2501	13/32	3/32	7/8	5/16
433-27	.3743/.3740	.3128/.3126	1/2	1/8	1	3/8
433-28	.4368/.4365	.3753/.3751	19/32	5/32	1-1/4	7/16
433-29	.4993/.4990	.4378/.4376	21/32	5/32	1-3/8	1/2
433-30	.5615/.5610	.5003/.5001	3/4	3/16	1-1/2	9/16
433-31	.6240/.6235	.5628/.5626	27/32	7/32	1-3/4	5/8
433-32	.6865/.6860	.6253/.6251	29/32	7/32	2	11/16
433-33	.7490/.7485	.6885/.6880	1	1/4	2-1/8	3/4
433-34	.8115/.8110	.7510/.7505	1-3/32	9/32	2-1/4	13/16
433-35	.8740/.8735	.8135/.8130	1-5/32	9/32	2-1/2	7/8
433-36	.9365/.9360	.8760/.8755	1-1/4	5/16	2-3/4	15/16
433-37	.9980/.9972	.9385/.9380	1-5/16	5/16	2-7/8	1

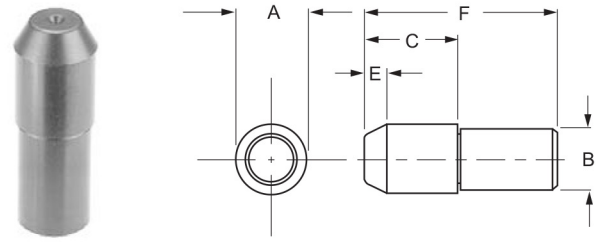
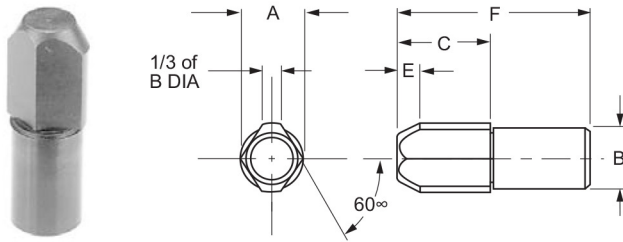
LOCATING PINS FLANGELESS

Press Fit - Round - Case Hardened - Black Oxide Finish

P/N	DIMENSIONS					
	A	B	C	E	F	HOLE SIZE
433-50	.2495/.2492	.1878/.1876	11/32	3/32	3/4	1/4
433-51	.3120/.3117	.2503/.2501	13/32	3/32	7/8	5/16
433-52	.3745/.3742	.3128/.3126	1/2	1/8	1	3/8
433-53	.4370/.4367	.3753/.3751	19/32	5/32	1-1/4	7/16
433-54	.4995/.4992	.4378/.4376	21/32	5/32	1-3/8	1/2
433-55	.5620/.5617	.5003/.5001	3/4	3/16	1-1/2	9/16
433-56	.6240/.6237	.5628/.5626	27/32	7/32	1-3/4	5/8
433-57	.6865/.6862	.6253/.6251	29/32	7/32	2	11/16
433-58	.7490/.7487	.6885/.6880	1	1/4	2-1/8	3/4
433-59	.8115/.8112	.7510/.7505	1-3/32	9/32	2-1/4	13/16
433-60	.8740/.8737	.8135/.8130	1-5/32	9/32	2-1/2	7/8
433-61	.9365/.9362	.8760/.8755	1-1/4	5/16	2-3/4	15/16
433-62	.9985/.9980	.9385/.9380	1-5/16	5/16	2-7/8	1



LOCATING PINS

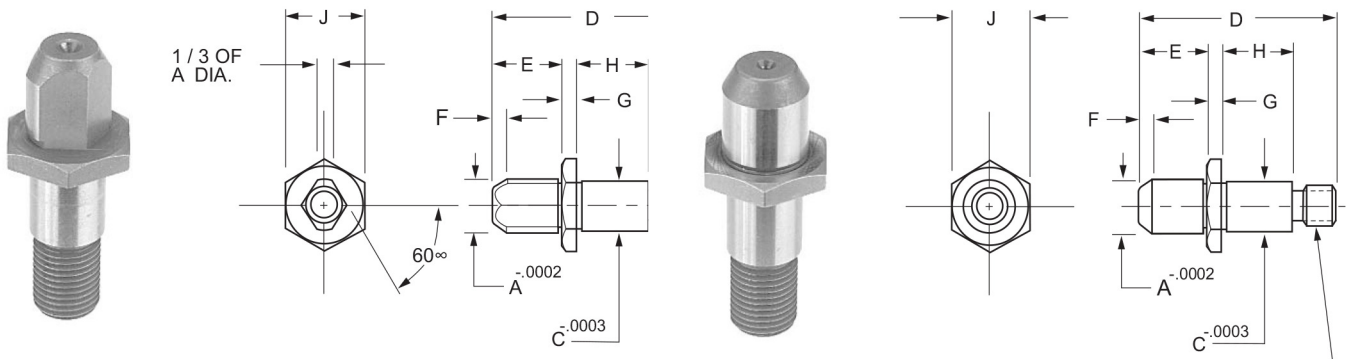


METRIC LOCATING PINS FLANGELESS							
Pre Fit - Relieved - Case Hardened - Black Oxide Finish							
P/N	DIMENSIONS						
	A		B		C	E	F
	NOM	ACTUAL	NOM	ACTUAL			
433-65	6mm	.2355/.2352	5mm	.1972/.1970	11/32	3/32	3/4
433-66	6mm	.2347/.2344	5mm	.1972/.1970	11/32	3/32	3/4
433-67	6mm	.2332/.2329	5mm	.1972/.1970	11/32	3/32	3/4
433-68	8mm	.3143/.3140	6mm	.2365/.2363	13/32	3/32	7/8
433-69	8mm	.3135/.3132	6mm	.2365/.2363	13/32	3/32	7/8
433-70	8mm	.3120/.3117	6mm	.2365/.2363	13/32	3/32	7/8
433-71	10mm	.3930/.3927	8mm	.3153/.3151	1/2	1/8	1
433-72	10mm	.3922/.3919	8mm	.3153/.3151	1/2	1/8	1
433-73	10mm	.3907/.3904	8mm	.3153/.3151	1/2	1/8	1
433-74	12mm	.4717/.4714	10mm	.3940/.3938	21/32	5/32	1-3/8
433-75	12mm	.4709/.4706	10mm	.3940/.3938	21/32	5/32	1-3/8
433-76	12mm	.4694/.4691	10mm	.3940/.3938	21/32	5/32	1-3/8
433-77	14mm	.5502/.5497	12mm	.4727/.4725	3/4	3/16	1-1/2
433-78	14mm	.5482/.5477	12mm	.4727/.4725	3/4	3/16	1-1/2
433-79	14mm	.5462/.5457	12mm	.4727/.4725	3/4	3/16	1-1/2
433-80	16mm	.6289/.6284	14mm	.5515/.5513	27/32	7/32	1-3/4
433-81	16mm	.6269/.6264	14mm	.5515/.5513	27/32	7/32	1-3/4
433-82	16mm	.6249/.6244	14mm	.5515/.5513	27/32	7/32	1-3/4
433-83	18mm	.7077/.7072	16mm	.6302/.6300	29/32	7/32	2
433-84	18mm	.7057/.7052	16mm	.6302/.6300	29/32	7/32	2
433-85	18mm	.7037/.7032	16mm	.6302/.6300	29/32	7/32	2
433-86	20mm	.7864/.7859	18mm	.7097/.7092	2-31/32	9/32	2-1/4
433-87	20mm	.7844/.7839	18mm	.7097/.7092	2-31/32	9/32	2-1/4
433-88	20mm	.7824/.7819	18mm	.7097/.7092	2-31/32	9/32	2-1/4

METRIC LOCATING PINS FLANGELESS							
Press Fit - Round - Case Hardened - Black Oxide Finish							
P/N	DIMENSIONS						
	A		B		C	E	F
	NOM	ACTUAL	NOM	ACTUAL			
433-90	6mm	.2357/.2354	5mm	.1972/.1970	11/32	3/32	3/4
433-91	8mm	.3145/.3142	6mm	.2365/.2363	13/32	3/32	7/8
433-92	10mm	.3932/.3929	8mm	.3153/.3151	1/2	1/8	1
433-93	12mm	.4719/.4716	10mm	.3940/.3938	21/32	5/32	1-3/8
433-94	14mm	.5507/.5504	12mm	.4727/.4725	3/4	3/16	1-1/2
433-95	16mm	.6289/.6286	14mm	.5515/.5513	27/32	7/32	1-3/4
433-96	18mm	.7077/.7074	16mm	.6302/.6300	29/32	7/32	2
433-97	20mm	.7864/.7861	18mm	.7097/.7092	1-3/32	9/23	2-1/4

LOCATING PINS

These precision locating pins are offered with choice of "A" or "B" pilot diameters. "B" pilot diameters are nominally .001 inch smaller than "A" pilot diameters for applications requiring less critical registration. This type of locating pin is designed for threaded hole mounting and should be used with threaded retainers. If bushings to fit pilot diameters are required, mating headless or head press fit bushings of corresponding sizes may be selected.



THREADED LOCATING PINS

A Pilot Diameter - Round and Relieved - Slip Fit - Case Hardened

RELIEVED PIN P/N	ROUND PIN P/N	DIMENSIONS									USED W/ THREADED RETAINER NUMBER
		A	C	D	E	F*	G	H	J	K	
434-00	434-15	.1870	.3125	1-1/4	7/16	3/32	3/32	7/16	1/2	1/4-28	405-00 or 405-25
434-01	434-16	.2495	.3125	1-1/4	7/16	3/32	3/32	7/16	1/2	1/4-28	405-00 or 405-25
434-02	434-17	.3120	.3125	1-1/4	7/16	3/32	3/32	7/16	1/2	1/4-28	405-00 or 405-25
434-03	434-18	.3115	.4375	1-19/32	1/2	1/8	1/8	1/2	5/8	3/8-24	405-05 or 405-30
434-04	434-19	.3740	.4375	1-19/32	1/2	1/8	1/8	1/2	5/8	3/8-24	405-05 or 405-30
434-05	434-20	.4365	.4375	1-19/32	1/2	1/8	1/8	1/2	5/8	3/8-24	405-05 or 405-30
434-06	434-21	.4990	.5625	2-1/8	11/16	3/16	5/32	5/8	7/8	1/2-20	405-10 or 405-35
434-07	434-22	.5615	.5625	2-1/8	11/16	3/16	5/32	5/8	7/8	1/2-20	405-10 or 405-35
434-08	434-23	.6240	.5625	2-1/8	11/16	3/16	5/32	5/8	7/8	1/2-20	405-10 or 405-35
434-09	434-24	.6240	.8750	2-31/32	1	9/32	1/4	1	1-1/4	3/4-16	405-15 or 405-40
434-10	434-25	.7490	.8750	2-31/32	1	9/32	1/4	1	1-1/4	3/4-16	405-15 or 405-40
434-11	434-26	.9990	.8750	2-31/32	1	9/32	1/4	1	1-1/4	3/4-16	405-15 or 405-40

* F dim. is not maintained on small pilot diameters.

LOCATING PINS

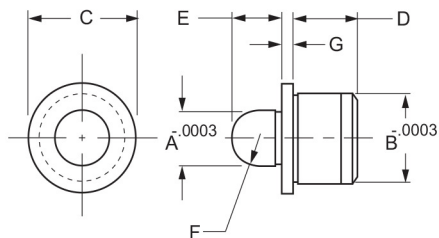
THREADED LOCATING PINS

B - Pilot Diameter - Round and Relieved - Slip Fit - Case Hardened

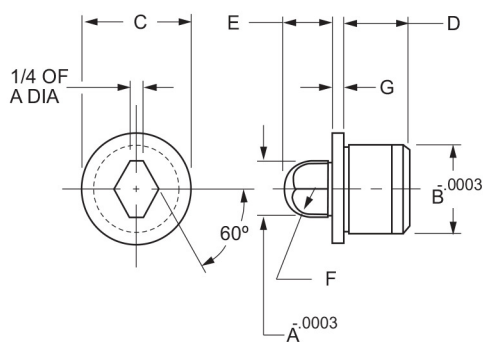
RELIEVED PIN P/N	ROUND PIN P/N	DIMENSIONS									USED W/ THREADED RETAINER NUMBER
		B	C	D	E	F*	G	H	J	K	
434-27	434-39	.1860	.3125	1-1/4	7/16	3/32	3/32	7/16	1/2	1/4-28	405-00 or 405-25
434-28	434-40	.2485	.3125	1-1/4	7/16	3/32	3/32	7/16	1/2	1/4-28	405-00 or 405-25
434-29	434-41	.3110	.3125	1-1/4	7/16	3/32	3/32	7/16	1/2	1/4-28	405-00 or 405-25
434-30	434-42	.3105	.4375	1-19/32	1/2	1/8	1/8	1/2	5/8	3/8-24	405-05 or 405-30
434-31	434-43	.3730	.4375	1-19/32	1/2	1/8	1/8	1/2	5/8	3/8-24	405-05 or 405-30
434-32	434-44	.4355	.4375	1-19/32	1/2	1/8	1/8	1/2	5/8	3/8-24	405-05 or 405-30
434-33	434-45	.4980	.5625	2-1/8	11/16	3/16	5/32	5/8	7/8	1/2-20	405-10 or 405-35
434-34	434-46	.5605	.5625	2-1/8	11/16	3/16	5/32	5/8	7/8	1/2-20	405-10 or 405-35
434-35	434-47	.6230	.5625	2-1/8	11/16	3/16	5/32	5/8	7/8	1/2-20	405-10 or 405-35
434-36	434-48	.6230	.8750	2-31/32	1	9/32	1/4	1	1-1/4	3/4-16	405-15 or 405-40
434-37	434-49	.7480	.8750	2-31/32	1	9/32	1/4	1	1-1/4	3/4-16	405-15 or 405-40
434-38	434-50	.9980	.8750	2-31/32	1	9/32	1/4	1	1-1/4	3/4-16	405-15 or 405-40



BULLET NOSE PINS



BULLET NOSE PINS Round - Case Hardened - Black Oxide Finish								
P/N	DIMENSIONS							USED W/ LINER P/N
	A	B	C	D	E	F	G	
440-00	.2499	.4078	9/16	3/8	7/32	1/8	1/16	442-00
440-05	.3124	.5017	5/8	3/8	9/32	5/32	1/16	442-05
440-10	.3748	.6267	3/4	1/2	11/32	3/16	1/16	442-10
440-15	.4998	.7518	7/8	1/2	13/32	1/4	1/16	442-15
440-20	.7500	1.0018	1-1/4	1/2	1/2	3/8	1/8	442-20
440-25	.7498	1.0018	1-1/8	3/4	9/16	3/8	1/8	442-25
440-30	.9998	1.3771	1-1/2	3/4	3/4	1/2	1/8	442-30

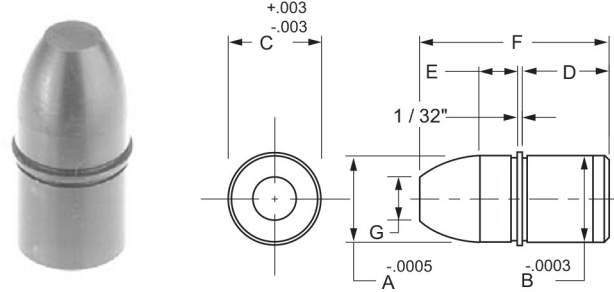
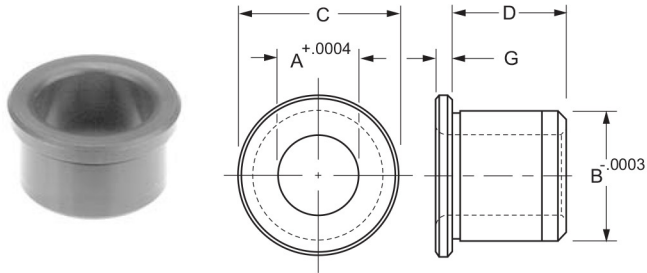


BULLET NOSE PINS Relieved - Case Hardened - Black Oxide Finish								
P/N	DIMENSIONS							USED W/ LINER P/N
	A	B	C	D	E	F	G	
441-00	.2499	.4078	9/16	3/8	7/32	1/8	1/16	442-00
441-05	.3124	.5017	5/8	3/8	9/32	5/32	1/16	442-05
441-10	.3748	.6267	3/4	1/2	11/32	3/16	1/16	442-10
441-15	.4998	.7518	7/8	1/2	13/32	1/4	1/16	442-15
441-20	.7500	1.0018	1-1/4	1/2	1/2	3/8	1/8	442-20
441-25	.7498	1.0018	1-1/8	3/4	9/16	3/8	1/8	442-25
441-30	.9998	1.3771	1-1/2	3/4	3/4	1/2	1/8	442-30

METRIC BULLET NOSE PINS Round - Case Hardened - Black Oxide Finish								
P/N	DIMENSIONS							USED W/ LINER P/N
	A	B	C	D	E	F	G	
440-50	6mm	10mm	13mm	9mm	6mm	3mm	2mm	442-50
440-55	8mm	12mm	15mm	9mm	7mm	4mm	2mm	442-55
440-60	10mm	15mm	18mm	11mm	9mm	5mm	2mm	442-60
440-65	12mm	18mm	22mm	11mm	10mm	6mm	2mm	442-65

METRIC BULLET NOSE PINS Relieved - Case Hardened - Black Oxide Finish								
P/N	DIMENSIONS							USED W/ LINER P/N
	A	B	C	D	E	F	G	
441-50	6mm	10mm	13mm	9mm	6mm	3mm	2mm	442-50
441-55	8mm	12mm	15mm	9mm	7mm	4mm	2mm	442-55
441-60	10mm	15mm	18mm	11mm	9mm	5mm	2mm	442-60
441-65	12mm	18mm	22mm	11mm	10mm	6mm	2mm	442-65

BULLET NOSE LINERS AND DOWELS



LINERS FOR BULLET NOSE PINS

Case Hardened - Black Oxide Finish

P/N	DIMENSIONS				
	A	B	C	D	G
442-00	.2501	.4078	9/16	7/16	1/16
442-05	.3126	.5017	5/8	7/16	1/16
442-10	.3751	.6267	3/4	7/16	1/16
442-15	.5001	.7518	7/8	1/2	1/16
442-20	.7502	1.0018	1-1/4	1/2	1/8
442-25	.7502	1.0018	1-1/8	1/2	1/8
442-30	1.0002	1.3771	1-1/2	11/16	1/8

BULLET NOSE DOWELS

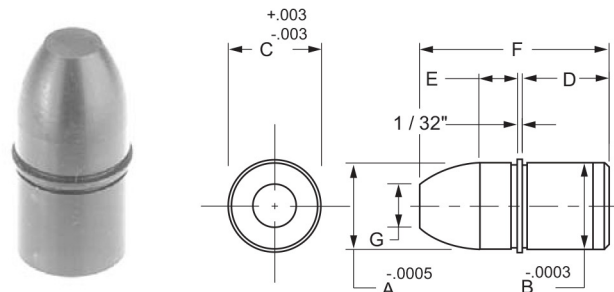
Case Hardened - Black Oxide Finish

P/N	DIMENSIONS							USE WITH LINER P/N
	A	B	C	D	E	F	G	
443-00	.2499	.2516	.280	1/2	.125	.907	1/8	444-00
443-05	.3124	.3141	.344	1/2	.157	.939	5/32	444-05
443-10	.3749	.3766	.407	1/2	.187	1.032	3/16	444-10
443-15	.4999	.5017	.532	1/2	.187	1.094	1/4	444-15

METRIC LINERS FOR BULLET NOSE PINS

Case Hardened - Black Oxide Finish

P/N	DIMENSIONS				
	A	B	C	D	G
442-50	6mm .2363	10mm .3953	13mm .512	8mm .315	2mm .079
442-55	8mm .3151	12mm .4741	15mm .591	8mm .315	2mm .079
442-60	10mm .3938	15mm .5924	18mm .709	10mm .393	2mm .079
442-65	12mm .4725	18mm .7105	22mm .866	10mm .393	2mm .079

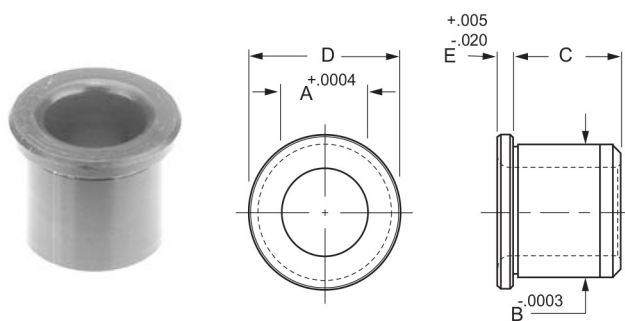


METRIC BULLET NOSE DOWELS

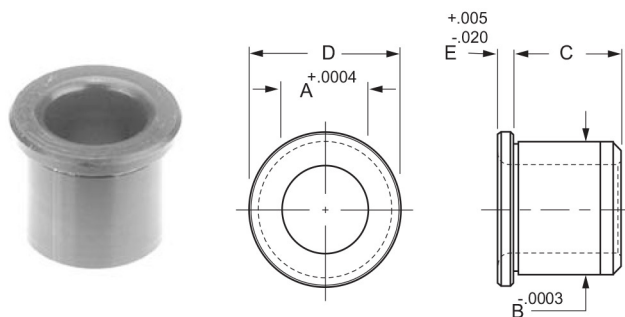
Case hardened - Black Oxide Finish

P/N	DIMENSIONS							Use with liner P/N
	A	B	C	D	E	F	G	
443-20	6mm .2361	6mm .2382	7mm .276	12mm .47	3mm .12	22mm .86	3mm .12	444-20
443-25	8mm .3149	8mm .3170	9mm .354	12mm .47	4mm .15	23mm .91	4mm .15	444-25
443-30	10mm .3936	10mm .3957	11mm .433	12mm .47	5mm .19	25mm .98	5mm .19	444-30
443-35	12mm .4723	12mm .4744	15mm .512	12mm .47	5mm .19	27mm 1.06	6mm .24	444-35

BULLET NOSE LINERS & LOCATING PINS



LINERS FOR BULLET NOSE DOWELS					
Case Hardened - Black Oxide Finish					
P/N	DIMENSIONS				
	A	B	C	D	E
444-00	.2501	.5017	3/8	.625	.100
444-05	.3626	.5017	3/8	.625	.100
444-10	.3751	.6267	1/2	.750	.100
444-15	.5001	.7518	5/8	.875	.100



METRIC LINERS FOR BULLET NOSE DOWELS					
Case Hardened - Black Oxide Finish					
P/N	DIMENSIONS				
	A	B	C	D	E
444-20	6mm	10mm	7mm	13mm	3mm
	.2363	.3939	.276	.512	.118
444-25	8mm	12mm	7mm	15mm	3mm
	.3151	.4726	.276	.591	.118
444-30	10mm	15mm	9mm	18mm	3mm
	.3938	.5909	.354	.709	.118
444-35	12mm	18mm	12mm	22mm	4mm
	.4725	.7091	.472	.866	.157

Floating Locator Pin Bushings use precise location on one axis while having a floating location on the opposite axis. These are usually used with a fixed locator pin to locate from two holes in a workpiece. Floating Locator Pin Bushings can replace relieved locator pin.

FEATURES & BENEFITS

- Hold fixture location to within ± 0.050 .
- Ideal for mastertool coordination.
- Eliminate jig boring.
- Numerical control tooling.

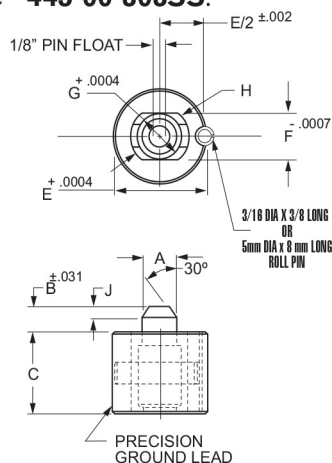
INSTALLATION

- Drill and ream a 3/16 hole, 5mm for metric sizes, for the roll pin.
- Bore mounting hole to provide minimum diametral interference, 0.0003 to 0.0005 inch, .0076 to .0127 mm, is generally adequate.
- Press slotted locator bushing and roll pin together until flush with top of plate. The roll pin sets a precise alignment between slotted hole and layout axis.

MATERIAL

Floating Locator Pin Bushings are available in steel and stainless steel (303, 316, 420, 440, 17-4PH.) For ordering purposes add 303SS, 316SS, 420SS, 440SS or 17-4PH for stainless steel on the end of the part number.

Example - **445-00-303SS**.



FLOATING LOCATOR PIN BUSHINGS									
Case Hardened and Ground - Black Oxide Finish									
P/N	DIMENSIONS								
	A	B	C	D	E	F	G	H	J
445-00	.2500/.2495	.300	.400	.500	1.00	.500	.500	.625	1/8
445-05	.3125/.3120	.300	.400	.500	1.00	.500	.500	.625	1/8
445-10	.3750/.3745	.300	.400	.500	1.00	.500	.500	.625	1/8
445-15	.5000/.4995	.300	.400	.500	1.00	.500	.500	.625	1/8
445-20	.6250/.6245	.310	.400	.500	1.00	.500	.500	.625	1/8
445-25	.2500/.2495	.300	.900	.500	1.00	.500	.500	.625	1/8
445-30	.3125/.3120	.300	.900	.500	1.00	.500	.500	.625	1/8
445-35	.3750/.3745	.300	.900	.500	1.00	.500	.500	.625	1/8
445-40	.5000/.4995	.300	.900	.500	1.00	.500	.500	.625	1/8
445-45	.6250/.6245	.310	.900	.500	1.00	.500	.500	.625	1/8