

Servo SYNCLAMPS®

*The only quick-release
Servo clamps with
instant nulling.*

- SYNCLAMPS®
- MICRO-SYNCLAMPS®
- MINI-SYNCLAMPS®
- MS-SYNCLAMPS®
- REVER-SYNCLAMPS®
- SUPER-SYNCLAMPS®



TIMBER-TOP, INC.

P.O. Box 517
Watertown, CT 06795
Fax (203) 274-8041
Tel (203) 274-6706
(FSC No. 06773)



*Featured on Aerospace
projects Galileo, Mars Viking
Landers, Voyagers1 & 2, Lunar Modules*

Clamp, Rim Clenching (Fed. Item Description)

* Catalog Number	Fig. No.	Mtg. Method	"C" ±.003 (Note 2)	"E" ±.003	"F" Ref. †	"G" +0 -1/32	MS Dash No.	"L" Ref. See Applications	List ** Price	National Stock Number
103054-331	1	A&C	.031	.040	.071	5/16	-14			5340-00-922-6304
106054-331	1	A	.062	.040	.102	5/16	-14			5340-00-021-9741
106064-337	1	A	.062	.050	.112	3/8	-15			5340-00-787-8674
106074-337	1	A	.062	.063	.125	3/8	-15			5340-01-033-3335
107074-337	1	A	.078	.063	.141	3/8	-15			5340-00-088-6375
109054-337	1	A	.093	.040	.133	3/8	-15			5340-00-790-4679
109064-337	1	A	.093	.050	.143	3/8	-15		.135	5340-01-052-1464
109074-337	1	A	.093	.063	.156	3/8	-15			5340-00-710-3784
112064-337	1	B	.125	.050	.175	3/8	-15			5340-00-445-0188
115054-337	1	B	.156	.040	.196	3/8	-15			5340-00-874-7450
122074-343	1	B	.225	.063	.288	7/16	-16			5340-00-571-7599
125074-362	1	A	.250	.063	.312	5/8	-18			5340-00-015-6300
203052-325	2	A&C	.031	.040	.071	1/4	-3			5340-00-004-7252
204052-325	2	A	.047	.040	.087	1/4	-3			5340-00-758-4901
206052-325	2	A	.062	.040	.102	1/4	-3			5340-00-974-4763
209052-331	2	A	.093	.040	.133	5/16	-4			5340-00-460-3090
212052-331	2	B	.125	.040	.165	5/16	-4			5340-00-073-2431
325001-387	3	A	†.250	†.187	.437	7/8	-66		.203	5340-00-933-8095
406074†	4	D	.062	.063	.125	-	-			5340-00-561-2858
409074†	4	D	.093	.063	.156	-	-			5340-00-056-5429
412074†	4	D	.125	.063	.125	-	-			
503042-325	5	A&C	.031	.031	.062	1/4	-3			5340-01-047-0222
504042-325	5	A	.046	.031	.078	1/4	-3		.096	5340-00-375-0344
506042-325	5	A	.062	.031	.093	1/4	-3			5340-00-129-9411
606054-331 (MS17183-1) (note3)	6	A	.062	.037	.099	5/16	MS 35234 -14		.115	
609054-331 (MS17183-2) (note3)	6	A	.093	.037	.130	5/16	MS 35234 -14		.115	5340-00-477-1405

**Check TTI For Current Prices
No Minimum Order Required**

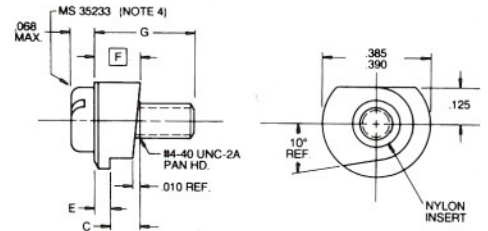


Fig. 1: SYNCLAMP (1/2 Turn)

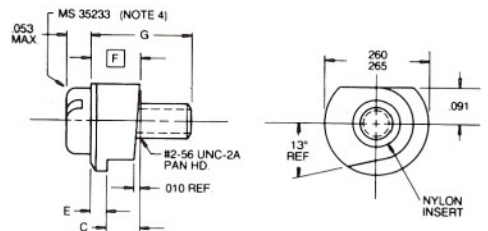


Fig. 2: MINI-SYNCLAMP (1/2 Turn)

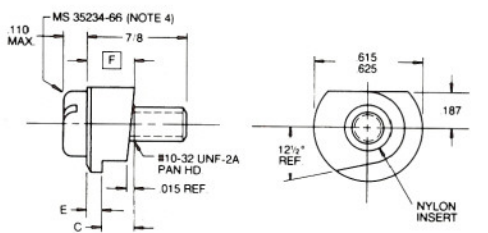


Fig. 3: SUPER-SYNCLAMP (1/2 Turn)

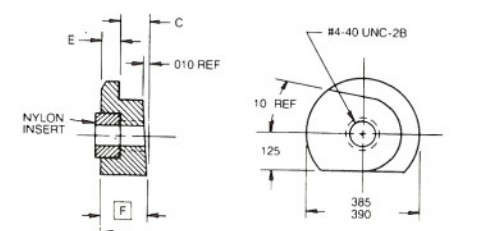


Fig. 4: REVER-SYNCLAMP (No Screw Supplied - 1/2 Turn)

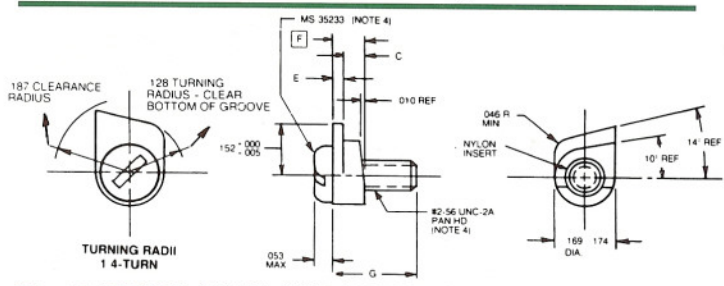


Fig. 5: MICRO-SYNCLAMP (1/4 Turn)

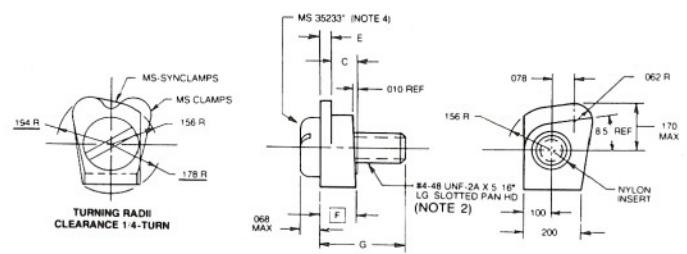


Fig. 6: MS-SYNCLAMP (1/4 Turn - see note 3)

Dimensional Data

Notes:

- CRITICAL:** First assembly and instant nulling instructions (shipped with each part number) must be forwarded to the mechanical assembly and electrical test departments for proper utilization of Synclamps.
- "C" dimension **MUST** be equal to component's flange thickness. To accommodate odd "grips" (greater than ± .010"), call for information.
- The MS-SYNCLAMPS are dimensional substitutes for MS17183-1 & 2 only if the turning radii can be accommodated on quarter turns. Supplied with #4-48 or #4-40 screws.
- MS35233/MS35234 screws have been superseded by MS51957/MS51958 Pan Head (Philips) cross-recessed screws. Change first digit of dash number from 3 to 5: -337 to -537. No price difference.

• National Stock Numbers (NSN) have also been assigned to many non-catalog Synclamps having different screw lengths and/or head styles. List available.

* LAST TWO DIGITS of the dash number indicate the screw length in hundredths: -325 = 1/4" lg.

** Discounts start at 100. Other screw lengths and/or head styles are available on special order. Check with TTI. No minimum order requirement on standard Synclamps.

±.005 †Screw not supplied- Length and/or head style according to customer application.

Ref. Dim. ±.005

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The only quick-release Servo clamps with instant nulling. For frame sizes mini 05 to Navord 7g.

Features:

- Quick-releasing
- Self-locking
- Instant Nulling
- Simple screw rotation – Half-Turn Locks/Unlocks
- No special tools, no manual manipulation or visual observation required.
- Lowest out-the-door cost: 4 minutes total time in first assembly and nulling
- Integral Stops
- Line-to-line clamping
- Radial Clamping
- Permit Gear Mesh Adjustment
- Designed for maintainability
- Mounted before the component
- Captive to equipment
- Corrosion resistant

Materials:

Clamp: Sintered stainless steel AISI-316, ASTM B783-90, SS-315N1-25, 6.6 Min. Density (Non Magnetic)

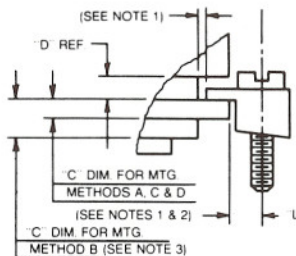
Screw: Slotted Pan Head CRES, per MS-35233 and MS-35234

Insert: Nylon (Polyamide) as specified in ASTM# 4066, PA-121, Natural color (HI-TEMP ZYTEL 103)

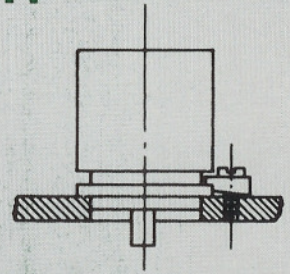
Finish: Screw - Treated per MIL-S-5002, Clamp - As cast and tumbled

Operating Temperature:

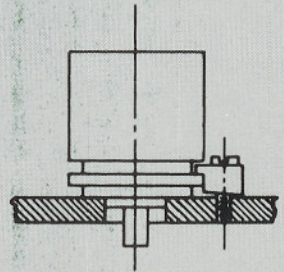
-55°C to +177°C



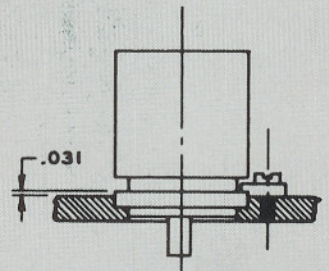
Application Data



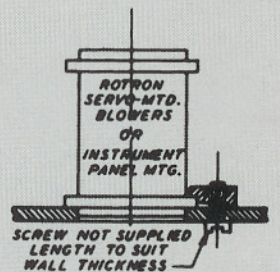
MOUNTING METHOD A



MOUNTING METHOD B



MOUNTING METHOD C



MOUNTING METHOD D

Synclamp Selection Chart (see note 2)

Grip "C" (Note 3)	Groove "D"	Mtg. Method	Micro-Mini Synclamp	Synclamp	Rever-Synclamp	MS-Synclamp
.031	.040	A	503042-325	—	—	—
	.050	A&C	203052-325	103054-331	—	—
.046	.040	A	504042-325	—	—	—
	.050	A	204052-325	—	—	—
.062	.050	A	506042-325	106054-331	—	606054-331
	.050	A	206052-325	106054-331	—	606054-331
	.062	A	206052-325	106064-337	—	606054-331
	.078	A or D	206052-325	106074-337	406074	606054-331
.078	.078	A	—	107074-337	—	—
.093	.050	A	209052-331	109054-337	—	609054-331
	.062	A	209052-331	109064-337	—	609054-331
	.078	A or D	209052-331	109074-337	409074	609054-331
.125	.062	B	212052-331	112064-337	412074	—
.156	.050	B	—	115054-337	—	—
.225	.078	B	—	122074-343	—	—
.250	.078	A	—	125074-362	—	SUPER
.250	*	A	—	—	—	325001-387

* Size 23 and larger with external flange.

Notes:

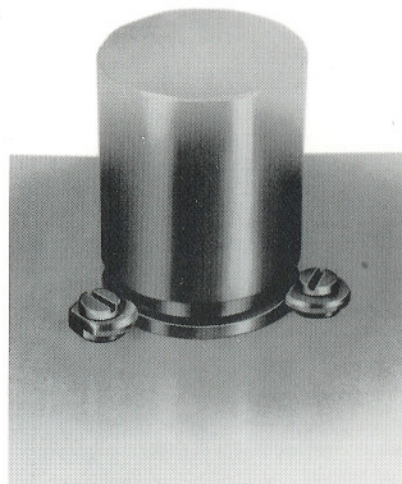
- 1. Bolt Circles** Use the larger of 2 test bolt circles:

 - Mini- & Micro Add .192" (2 x "L") to max. flange dia., or Add .275" to max. dia. of base of groove
 - MS-Synclamp Add .230" (2 x "L") to max. flange dia., or Add .342" to max. dia. of base of groove
 - Synclamp & Rever-Synclamp Add .270" (2 x "L") to max. flange dia., or Add .400" to max. dia. of base of groove
 - Super-Synclamp Add .406" (2 x "L") to max. of external Flange Diameter
- 2. CRITICAL:** First assembly and instant nulling instructions (shipped with each part number) must be forwarded to the mechanical assembly and electrical test departments for proper utilization of Synclamps.
- 3. The grip "C" dimension** Must be chosen equal to the components flange thickness. Odd dimensions can be accommodated.

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Variety & Applications

Catalog Standard Clamps

Part numbers ranging from the MICRO's (#2 screw) to the SUPER (#10 screw) constitute the largest and most complete line of SERVO CLAMPS on the market. Complete with National Stock Numbers, a size and style for each component size and application with "GRIPS" ranging from .031" to .250". SYNCLAMPS are direct substitutes for "PIC" type clamps, as are MS-SYNCLAMPS (Fig. 6) for the outmoded BuOrd clamps.

Applications

For more than 35 years: their unique assembly of non-magnetic clamp and MIL screw held together with a Hi-Temp nylon insert, has served to improve servo designs and performances in many fields including:

- **Missiles**
 - Hawk (since 1960's), Tomahawk
 - Pershing, Patriot and their
 - Ground Support Equipments
- **Aircraft**
- **Space Instrumentation**
- **Computers**
- **Machine Tools**
- **Position Sensors**
- **Robotics**

In The Field

Time Study: "By substituting your SYNCLAMPS for the conventional screw and clamp methods, we were able to reduce assembly and alignment time by the average 75%. This enabled us to reduce our prices to enhance competitive position on SERVO and SERVO components product lines in a tight market." – (Orbit)

Micro-Synclamps: Holding a Size 8 Servo/gearhead through 3 axes - .06" excursion, double amplitude 20g's, range 10-2,000 cps - 2 shocks 200g's for 11 ms in each of 3 axes - No mechanical damage. (Grayhill)

Mini-Synclamps: Holding Size 8 Servomotor mounted and dismounted 50 times, no deleterious effects - 16 hours of shaker time 10,200 cycles - applied acceleration of 15 to 30g's - to 50g's short periods of time. (General Inst.)

Synclamps: Holding a Size 15 Servomotor/Size 15 Potentiometer Position Indicator passed all phases of MIL-S-901 Hi-Impact 2,000 ft.lb. shock 3 times without any SYNCLAMP failures. – (Orbit)

