

# BREADBOARD COMPONENTS

## Table of Contents

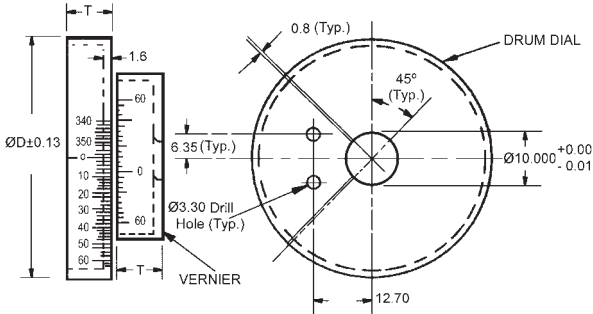
DIALS		
Drum Dials.....	MD 2 - MD 3	KNURLED HANDWHEELS..... MD 8, MD 10
Flat Dials.....	MD 4	KNURLED HAND CRANKS..... MD 9, MD 11
Engraved Flat Disks.....	MD 5	
Flat Dial Index.....	MD 6	KNOBS..... MD 12
Drum Dial Index.....	MD 6	
Engraved Index.....	MD 7	SYNCRO MOUNT CLAMPS..... MD 13 - MD 16

D

*For inch options, please see our inch catalog.*

# DRUM DIALS

DIAMETER	TYPE	MATERIAL
38 TO 76	SETS, DIALS OR VERNIERS	ALUMINUM BLACK ANODIZED



SET STOCK NO.	DIAL STOCK NO.	VERNIER STOCK NO.	ØD DIAL DIA.	T WIDTH	VERNIER READING	GRADUATIONS
A1M-1*	A1M-1-D	A1M-1-V	37.84	9.5	12 MIN.	180 IN 2° STEPS
A1M-2*	A1M-2-D	A1M-2-V	50.54	9.5	12 MIN.	180 IN 2° STEPS
A1M-3	A1M-3-D	A1M-3-V	63.25	12.7	6 MIN.	360 IN 1° STEPS
A1M-4	A1M-4-D	A1M-4-V	75.95	12.7	6 MIN.	360 IN 1° STEPS

\* Dials and Verniers are numbered every 20°.

Engraving filled with white.  
Range of Graduations - 0 to 360°

Available on request:

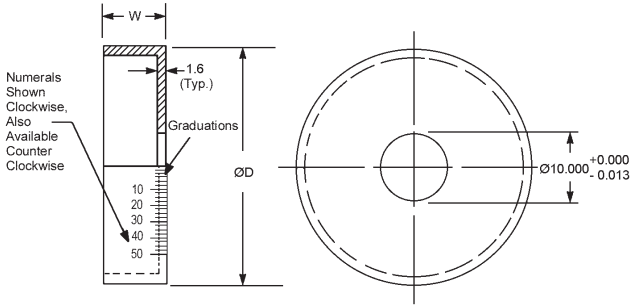
- Pin or Clamp Hubs assembled to drum
- Counter Clockwise numbering
- Special Engraving

For Pin and Clamp Hubs see index.



# DRUM DIALS

DIAMETER	MATERIAL
25 TO 76	ALUMINUM BLACK ANODIZED



STOCK NO.	W WIDTH	ØD DIAL DIA.	DIRECTION OF NUMBERING	GRADUATIONS RANGE	NO. OF GRAD.S	STEPS IN DEGREES
A3M-1 A3M-2* A3M-3	9.5	25.0	BLANK CW CW	- 0 TO 360 0 TO 100	- 180 100	- 2° 3°-36'
A4M-1 A4M-2* A4M-3 A4M-4	9.5	38.0	BLANK CW CW CW	- 0 TO 360 0 TO 100 0 TO 60	- 180 100 60	- 2° 3°-36' 6°
A5M-1 A5M-2* A5M-3 A5M-4	9.5	50.5	BLANK CW CW CW	- 0 TO 360 0 TO 50 0 TO 25	- 180 50 25	- 2° 7°-12' 14°-24'
A6M-1 A6M-2* A6M-3 A6M-4	12.5	63.0	BLANK CW CW CCW	- 0 TO 360 0 TO 100 0 TO 360	- 360 100 360	- 1° 3°-36' 1°
A7M-1 A7M-2* A7M-3 A7M-4 A7M-5	12.5	76.0	BLANK CW CW CW CCW	- 0 TO 360 0 TO 360 0 TO 100 0 TO 360	- 360 180 100 360	- 1° 2° 3°-36' 1°

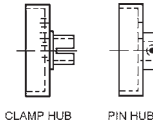
\* Dials are numbered every 20°.

Engraving filled with white.  
Range of Graduations - 0 to 360°

Available on request:

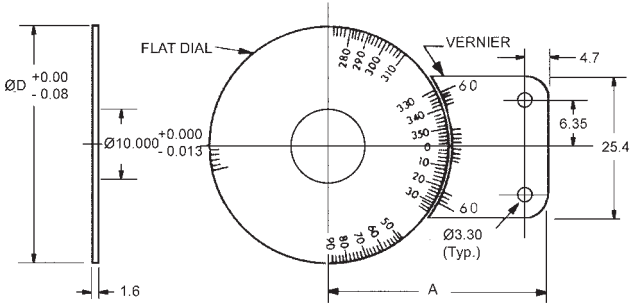
- Pin or Clamp Hubs assembled to drum
- Special Engraving

For Pin and Clamp Hubs see index.



# FLAT DIALS

DIAMETER	TYPE	MATERIAL
38 TO 101	SETS, DIALS OR VERNIERS	ALUMINUM BLACK ANODIZED



SET STOCK NO.	DIAL STOCK NO.	VERNIER STOCK NO.	A	ØD DIAL DIA.	VERNIER READING	GRADUATIONS
A2M-1*	A2M-1-D	A2M-1-V	44.70	38.10	12 MIN.	180 IN 2° STEPS
A2M-2*	A2M-2-D	A2M-2-V	51.40	50.80	12 MIN.	180 IN 2° STEPS
A2M-3	A2M-3-D	A2M-3-V	63.75	76.20	6 MIN.	360 IN 1° STEPS
A2M-4	A2M-4-D	A2M-4-V	76.46	101.60	6 MIN.	360 IN 1° STEPS

\* Dials and Verniers are numbered every 20°.

Engraving filled with white.  
Range of Graduations - 0 to 360°

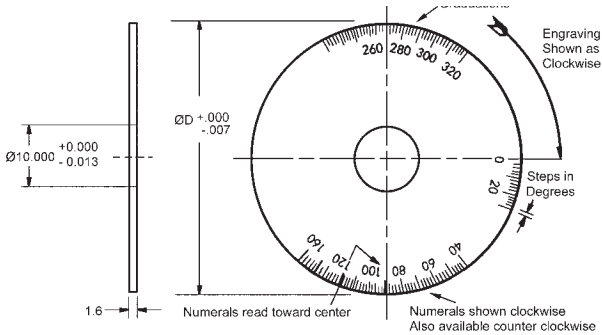
Available on request:

- Pin or Clamp Hubs assembled to drum
- Read at 12 o'clock
- Counter Clockwise numbering
- Special Engraving

For Pin and Clamp Hubs see index.

# ENGRAVED FLAT DISKS

DIAMETER	MATERIAL
38 TO 101	ALUMINUM BLACK ANODIZED



STOCK NO.	ØD DIAL DIA.	DIRECTION OF NUMBERING	GRADUATIONS RANGE	NO. OF GRAD.S	STEPS IN DEGREES
A8M-1	38.0	BLANK	-	-	-
A8M-2*		CW	0 TO 360	180	2°
A8M-3		CW	0 TO 100	100	3°-36'
A8M-4		CW	0 TO 50	50	7°-12'
A8M-5		CW	0 TO 10	10	36°
A9M-1	51.0	BLANK	-	-	-
A9M-2*		CW	0 TO 360	180	2°
A9M-3*		CCW	0 TO 360	180	2°
A9M-4		CW	0 TO 100	100	3°-36'
A9M-5		CCW	0 TO 100	100	3°-36'
A9M-6		CW	0 TO 72	72	5°
A9M-7		CW	0 TO 60	60	6°
A9M-8		CW	0 TO 50	50	7°-12'
A10M-1	76.0	BLANK	-	-	-
A10M-2		CW	0 TO 360	360	1°
A10M-3*		CW	0 TO 360	180	2°
A10M-4		CW	0 TO 200	200	1°-48'
A10M-5		CW	0 TO 120	120	3°
A10M-6		CW	0 TO 100	100	3°-36'
A10M-7		CW	0 TO 72	72	5°
A10M-8		CCW	0 TO 360	360	1°
A10M-9		CCW	0 TO 100	100	3°-36'
A11M-1	101.5	BLANK	-	-	-
A11M-2		CW	0 TO 360	360	1°
A11M-3*		CW	0 TO 360	180	2°
A11M-4		CW	0 TO 200	200	1°-48'
A11M-5		CW	0 TO 100	100	3°-36'
A11M-6		CW	0 TO 1000	500	43°-12'
A11M-7		CCW	0 TO 360	360	1°
A11M-8*		CCW	0 TO 360	180	2°

\* Dials are numbered every 20°.

Engraving filled with white.

Range of Graduations - 0 to 1000°

Available on request:

- Pin or Clamp Hubs assembled to drum
- Special Engraving

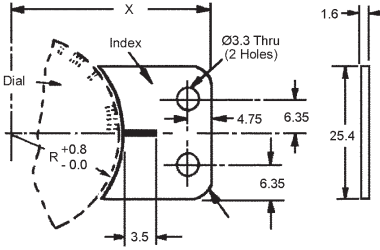
For Pin and Clamp Hubs see index.



# FLAT DIAL INDEX

MATERIAL

ALUMINUM BLACK ANODIZED



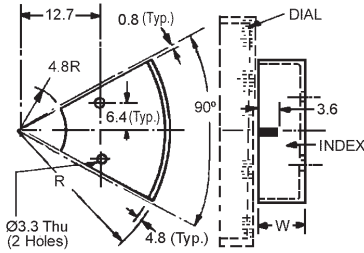
STOCK NO.	X	R
A13-1	44	18.9
A13-2	51	25.4
A13-3	64	38.1
A13-4	76	50.8



# DRUM DIAL INDEX

MATERIAL

ALUMINUM BLACK ANODIZED

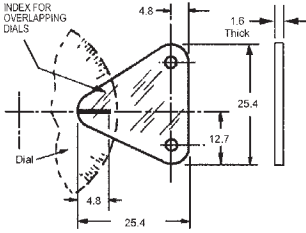


STOCK NO.	X	R
A14-1	18.9	9.5
A14-2	25.3	9.5
A14-3	31.6	12.7
A14-4	38.0	12.7

# ENGRAVED INDEX

MATERIAL

PLEXIGLASS

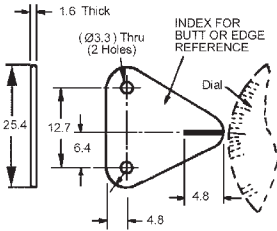


STOCK NO.	MATERIAL & FINISH
A12-1	PLEXIGLASS (CLEAR) MIL-P-5425



MATERIAL

ALUMINUM BLACK ANODIZED



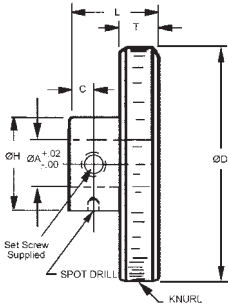
STOCK NO.	MATERIAL & FINISH
A12-2	DIN 3.1355 ALUMINUM, BLACK ANODIZED

D

# KNURLED HANDWHEELS

MATERIAL

STAINLESS STEEL DIN 1.4305



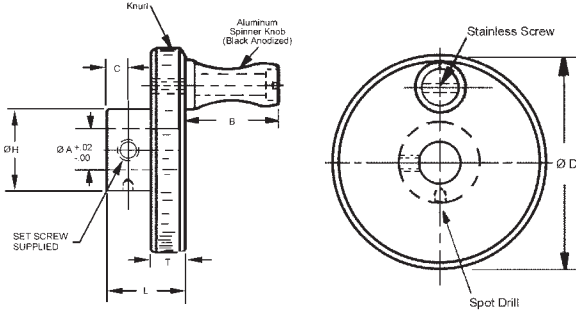
STOCK NO.	$\text{ØA}$	$\text{ØD}$	$\text{ØH}$	T	L	C	B
CN1M-1	3.00	25	10	3	10	3	19
CN1M-2		38					
CN1M-3		50					
CN1M-4	5.00	25	10	5	12	3	19
CN1M-5		38					
CN1M-6		50					
CN1M-7-X	8.00	25	12	5	12	3	19
CN1M-8-X		38					
CN1M-9-X		50					
CN1M-10	10.00	50	20	10	20	5	25
CN1M-11		62					
CN1M-12		75					
CN1M-13	12.00	62	20	10	20	5	25
CN1M-14		75					
CN1M-15		100					



# KNURLED HAND CRANKS

MATERIAL

STAINLESS STEEL DIN 1.4305



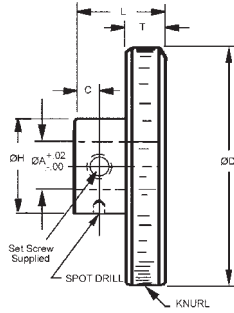
STOCK NO.	ØA	ØD	ØH	T	L	C	B
CN2M-1	3.000	25	10	3	10	3	19
CN2M-2		38					
CN2M-3		50					
CN2M-4	5.000	25	10	5	12	3	19
CN2M-5		38					
CN2M-6		50					
CN2M-7-X	8.000	25	12	5	12	3	19
CN2M-8-X		38					
CN2M-9-X		50					
CN2M-10	10.000	50	20	10	20	5	25
CN2M-11		62					
CN2M-12		75					
CN2M-13	12.000	62	20	10	20	5	25
CN2M-14		75					
CN2M-15		100					

D

# KNURLED HANDWHEELS

MATERIAL

ALUMINUM BLACK ANODIZED

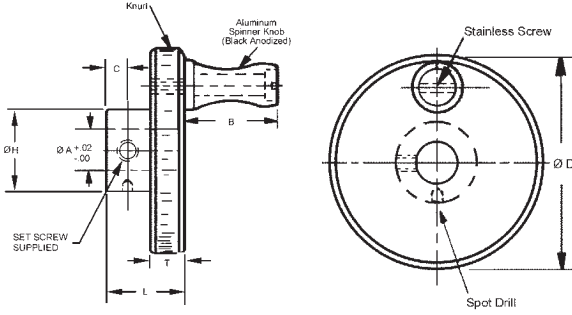


STOCK NO.	$\text{ØA}$	$\text{ØD}$	$\text{ØH}$	$T$	$L$	$C$	$B$
CN1M-1A	3.00	25	10	3	10	3	19
CN1M-2A		38					
CN1M-3A		50					
CN1M-4A	5.00	25	10	5	12	3	19
CN1M-5A		38					
CN1M-6A		50					
CN1M-7A-X	8.00	25	12	5	12	3	19
CN1M-8A-X		38					
CN1M-9A-X		50					
CN1M-10A	10.00	50	20	10	20	5	25
CN1M-11A		62					
CN1M-12A		75					
CN1M-13A	12.00	62	20	10	20	.5	25
CN1M-14A		75					
CN1M-15A		100					

# KNURLED HAND CRANKS

MATERIAL

ALUMINUM BLACK ANODIZED

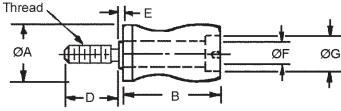


STOCK NO.	$\varnothing A$	$\varnothing D$	$\varnothing H$	T	L	C	B
CN2M-1A	3.000	25	10	3	10	3	19
CN2M-2A		38					
CN2M-3A		50					
CN2M-4A	5.000	25	10	5	12	3	19
CN2M-5A		38					
CN2M-6A		50					
CN2M-7A-X	8.000	25	12	5	12	3	19
CN2M-8A-X		38					
CN2M-9A-X		50					
CN2M-10A	10.000	50	20	10	20	5	25
CN2M-11A		62					
CN2M-12A		75					
CN2M-13A	12.000	62	20	10	20	5	25
CN2M-14A		75					
CN2M-15A		100					

D

# KNOBS

TYPE	MATERIAL
SPINNER KNOB AND SCREW	ALUMINUM BLACK ANODIZED WITH STAINLESS STEEL SCREW



STOCK NO.	ØA	B	THREAD	D	E	ØF	G
CN8-1M	13	19	M4 X 0.7	5	0.4	5	8
CN8-2M	18	25	M6 X 1.0	11	0.4	8	13
CN8-3M	24	32	M10 X 1.5	16	0.8	13	19

# SYNCRO MOUNT CLAMPS

## MATERIAL

STAINLESS STEEL DIN 1.4005

STOCK NO.	T	C	F
SM-11	1.57	1.32	2.54
SM-12	2.36	2.08	3.33
SM-13	3.18	2.77	4.60
SM-14	6.35	6.05	7.32
SM-15	1.83	1.60	2.87
SM-16	3.18	2.84	4.11
SM-17	3.96	3.63	4.90
SM-18	5.72	5.41	6.68

## MATERIAL

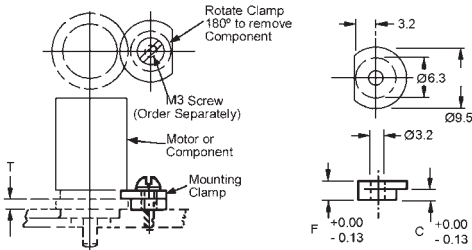
STAINLESS STEEL DIN 1.4305

STOCK NO.	T	C	F
SM-1	1.57	1.32	2.54
SM-2	2.36	2.08	3.33
SM-3	3.18	2.77	4.60
SM-4	6.35	6.05	7.32
SM-5	1.83	1.60	2.87
SM-6	3.18	2.84	4.11
SM-7	3.96	3.63	4.90
SM-8	5.72	5.41	6.68

## MATERIAL

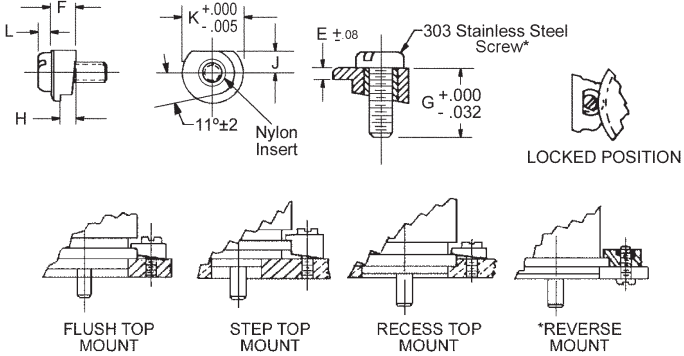
ALUMINUM

STOCK NO.	T	C	F
SM-1A	1.57	1.32	2.54
SM-2A	2.36	2.08	3.33
SM-3A	3.18	2.77	4.60
SM-4A	6.35	6.05	7.32



# SYNCRO MOUNT CLAMPS

MOUNT STYLES	MATERIAL
TOP AND REVERSE	3 STAINLESS STEEL DIN 1.4401 (SINTERED) WITH NYLON INSERTS



STOCK NO.	MOUNT STYLE	H ±0.08	REF J	E	REF F	G	SCREW SIZE	ØK	L MAX
SQM-6	TOP	0.79	3.18	1.02	1.80	7.0	M3 X 0.5	9.90	1.73
SQM-7		1.57		1.02	2.59	7.0			
SQM-8		1.57		1.27	2.84	9.5			
SQM-9		1.57		1.60	3.18	9.5			
SQM-10		1.98		1.60	3.58	9.5			
SQM-11		2.36		1.02	3.38	9.5			
SQM-12		2.36		1.27	3.63	9.5			
SQM-13		2.36		1.60	3.96	9.5			
SQM-14		3.18		1.27	4.45	9.5			
SQM-15		3.96		1.02	4.98	9.5			
SQM-16		5.72		1.60	7.32	11.0			
SQM-17		6.35		1.60	7.92	15.0			

- Quick Releasing
- Faster Nulling of Clamped Component
- Self Locking

#### BOLT CIRCLE FOR CLEATS

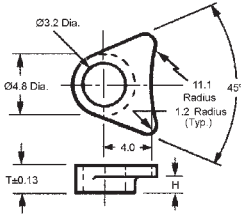
Use the larger of the following two bolt circles

Add 6.89 to maximum flange diameter or add 10.16 to maximum groove base diameter.

# SYNCRO MOUNT CLAMPS

## MATERIAL

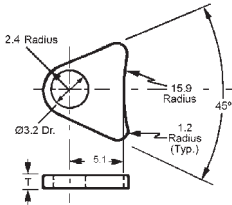
STAINLESS STEEL DIN 1.4305 AND ALUMINUM 2024



STAINLESS STEEL DIN 1.4305 STOCK NO.	ALUMINUM STOCK NO.	H	T
SM-20	SM-20-A	1.2	2.36
SM-21	SM-21-A	2.8	3.96
SM-22	SM-22-A	5.3	6.91

## MATERIAL

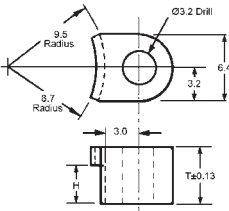
STAINLESS STEEL DIN 1.4305 AND ALUMINUM 2024



STAINLESS STEEL DIN 1.4305 STOCK NO.	ALUMINUM STOCK NO.	T
SM-23	SM-23-A	1.02

## MATERIAL

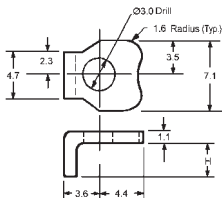
STAINLESS STEEL DIN 1.4305 AND ALUMINUM 2024



STAINLESS STEEL DIN 1.4305 STOCK NO.	ALUMINUM STOCK NO.	H	T
SM-24	SM-24-A	0.5	1.65
SM-25	SM-25-A	1.3	2.41
SM-26	SM-26-A	2.9	4.06
SM-27	SM-27-A	4.5	5.59

## MATERIAL

STAINLESS STEEL DIN 1.4300

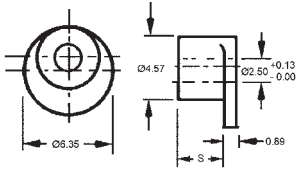


STOCK NO.	H
SM-28	FLAT
SM-29	1.2
SM-30	2.0
SM-31	2.8
SM-32	3.6

# SYNCRO MOUNT CLAMPS

## MATERIAL

STAINLESS STEEL DIN 1.4305

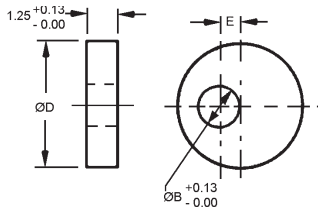


STOCK NO.	S
SM-47	1.45
SM-48	2.24
SM-49	2.64
SM-50	2.97



## MATERIAL

STAINLESS STEEL DIN 1.4305 AND ALUMINUM DIN 3.1355



STAINLESS STEEL DIN 1.4305 STOCK NO.	ALUMINUM STOCK NO.	E	$\varnothing D$	$\varnothing B$
SM-43	SM-43-A	0.28	4.75	2.62
SM-44	SM-44-A	0.79	6.35	3.22
SM-45	SM-45-A	1.57	7.87	3.22
SM-46	SM-46-A	1.57	9.40	3.22