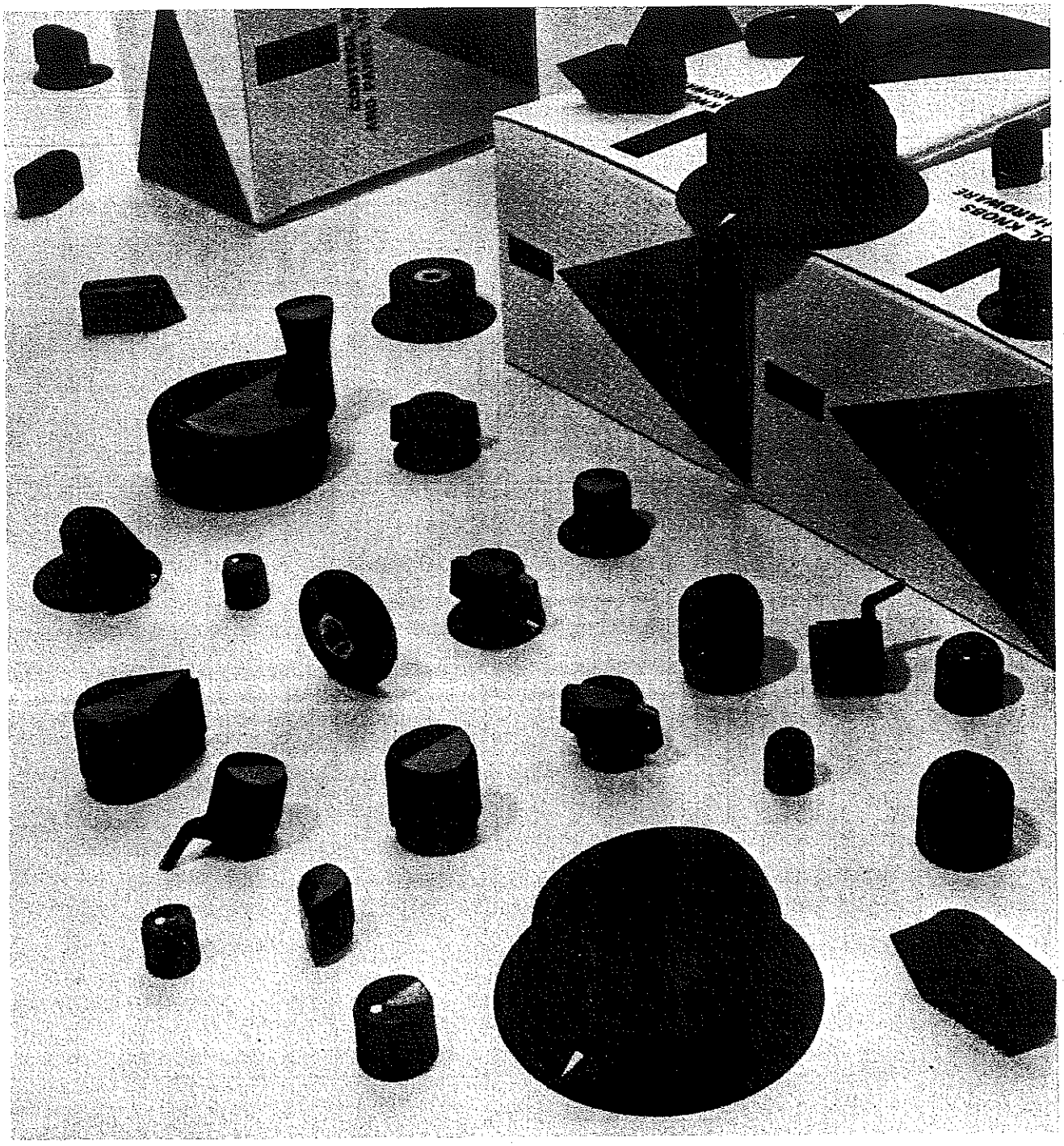
STANDARD SERIES



Panel Products Company

(This product line was purchased from Raytheon Company.)

Panel Products Control Knobs

Table of Contents

MS91528 Standard Series (QPL-3926)

MS91528 STANDARD SERIES CONTROL KNOBS FEATURE TOP QUALITY AND LEND DISTINCTIVE CUSTOMER APPEAL TO YOUR PRODUCTS. ALL KNOBS HAVE A COMMON MOTIF, RESULTING IN UNIFORM APPEARANCE REGARDLESS OF FUNCTION. MS91528 STANDARD SERIES INCLUDES HUNDREDS OF KNOBS IN MANY FUNCTIONAL SHAPES, SIZES AND COLORS FULLY MEETING MIL-K-3926 AND MS91528. ALL ARE MOLDED FROM HIGH-IMPACT POLYCARBONATE WITH CORROSION-RESISTANT ALUMINUM INSERTS FOR MAXIMUM STRENGTH.

MS91528 Standard Series Specifications

A. Material and performance per MIL-K-3926.

B. Dimensions per MS91528.

C. Colors per FED-STD-595. Black No. 37038 (matte); 17038 (mirror). Gray No. 36231 (matte); 16231 (mirror). Red No. 31136 (matte); 11136 (mirror).

D. Moisture Resistance: 10 days, method 106 of MIL-STD-202.

E. Salt Spray: 48 hours, method 101, Cond. B of MIL-STD-202.

F. Temperature: $-65^{o}C$ to $+125^{o}C$.

G. Torque: 15 pound inches with 4-40 set screws, maximum knob diameter 3/4"; 30 pound inches with 8-32 set screws and larger diameters.

H. Set screws: Corrosion treated steel with hex head and cup point per FF-S-200. Two 4-40 UNC-3A set screws are provided in all 1/8" shaft hole knobs and for all 50 series and 70 series knobs. Two 8-32 UNC-3A set screws are provided for all larger knobs having shaft holes of 3/16" or greater.

I. Flammability: Self-extinguishing in accordance with MIL-STD-202.

J. Marking: All MS91528 designed types are marked in accordance with MIL-STD-130. (Commercial variations are not branded)

K. Packaging: All knobs are individually packed in appropriately labeled plastic bags. Preservation packaging per MIL-P-116 can be obtained by special request.

Catalog Number System

Type

1. Round, unskirted
2. Round, skirted
3. Round, dial skirted w/arrow
4. Unskirted pointer
5. Skirted pointer
6. Crank
7. Bar pointer, unskirted
8. Bar pointer, dial skirted

Style

BL Backlighted Dial
CB Concentric Lower Knob
LK Knob Lock Pointer Knob
NP No arrow on dial
WD White dot
WL White Line
NP No arrow on dial
WD White dot
WL White Line

G 70-3 BL-2 G-4

Color

None = Black
G = Gray
R = Red

Series/ Approx. Knob Diameter

50 = 1/2"
70 = 3/4"
90 = 1"
125 = 1-1/4"
175 = 1-3/4"
225 = 2-1/4"

Shaft Hole

1 = .127"
2 = .252"
3 = .190"
4 = .267"
5 = .377"
*1D = .127" D Flat
*2D = .252" D Flat

*per MS91528. Available on special order.

Finish

none - mirror
G - matte

(Optional) Tactile Form

-1 Intensity - blue
-2 Tune - orange
-3 Dimmer - white
-4 Gain - red
-5 Focus - violet
-6 Range - yellow
-7 Marker - green
-8 Bearing - gray

Notes:
1. B preceding first hyphen indicates round bar knob - available in 70 series size only.
2. Legend indicates standard type numbering system and does not imply all combinations are available as standard stocked items.

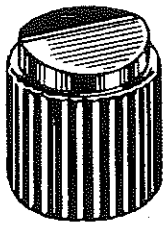
Options Available on Special Order

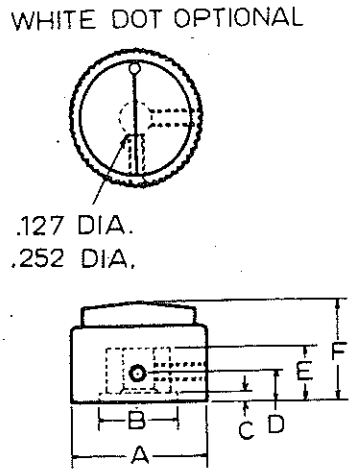
1. Shaft Hole Variations: 1/8" or 1/4" D flat per MS91528; enlarged or reduced shaft holes per customer requirement.
2. Special Marking: Fluorescent and phosphorescent dots, lines, arrows, etc. per MIL-L-3891 and TT-P-54; also, hot stamped or engraved markings on knobs and dials per customer requirement.
3. Colors: Many knobs are stocked in grey or red color. Others can be obtained in colors of your choice if order quantity is suitable. (Material charges will be made for small quantity orders of non-stocked molded parts)
4. Special Machining and Configurations: PPC is equipped to provide special machined surfaces, nut clearance, set screw location changes, slotted dials, and other modifications to plastic and metal parts. We are also capable of producing large-volume custom designed knobs and mechanical components.

   Applications Assistance: Please contact our engineering group for assistance in the selection of the optimum design and products to satisfy your requirements. (See quotation procedure below)

   Quotations: For non-stocked MS91528 knobs, use the MS91528 designations as in QPL-3926 or the standard catalog numbering system to identify the item. For modifications not encompassed by the MIL SPEC, please forward sketches, samples, or prints so we may provide a prompt response to your RFQ.

Standard Series-Round

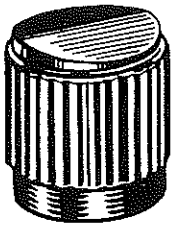


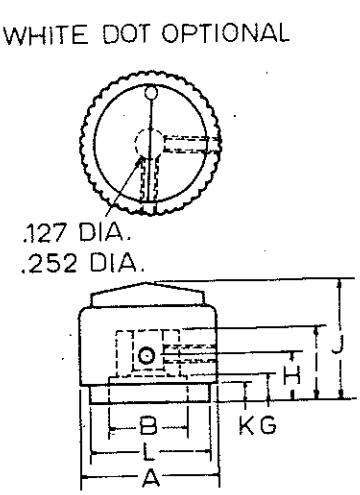


Series	A +.030 −.010	B min.	C min.	D max.	E min.	F ±.030
50	.500	.435	.026	.158	.405	.510
70	.700	.485	.026	.187	.405	.610
90	.900	.640	.114	.260	.520	.790
125	1.250	.750	.114	.260	.455	.700
175	1.750	.750	.114	.260	.520	.850
225	2.250	.750	.114	.260	.520	.875

Series (Approx. Knob Diam.)	Shaft Dia.	Without White Dot			With White Dot		
		Matte Finish	MS91528-	Mirror Finish	Matte Finish	MS91523-	Mirror Finish
50	1/8	50-1-1G	ON1B	50-1-1	50-1WD-1G	OC1B	50-1WD-1
50	1/8	G50-1-1G	ON1G	G50-1-1	G50-1WD-1G	OC1G	G50-1WD-1
50	1/8	R50-1-1G	ON1R	R50-1-1	R50-1WD-1G	OC1R	R50-1WD-1
50	3/16	50-1-3G	-	50-1-3	50-1WD-3G	-	50-1WD-3
50	1/4	50-1-2G	-	50-1-2	50-1WD-2G	-	50-1WD-2
70	1/8	70-1-1G	1N1B	70-1-1	70-1WD-1G	1C1B	70-1WD-1
70	1/8	G70-1-1G	1N1G	G70-1-1	G70-1WD-1G	1C1G	G70-1WD-1
70	1/8	R70-1-1G	1N1R	R70-1-1	R70-1WD-1G	1C1R	R70-1WD-1
70	3/16	70-1-3G	-	70-1-3	-	-	-
70	3/16	G70-1-3G	-	G70-1-3	-	-	-
70	3/16	R70-1-3G	-	R70-1-3	-	-	-
70	1/4	70-1-2G	1N2B	70-1-2	70-1WD-2G	1C2B	70-1WD-2
70	1/4	G70-1-2G	1N2G	G70-1-2	G70-1WD-2G	1C2G	G70-1WD-2
70	1/4	R70-1-2G	1N2R	R70-1-2	R70-1WD-2G	1C2R	R70-1WD-2
90	1/8	90-1-1G	2N1B	90-1-1	90-1WD-1G	2C1B	90-1WD-1
90	1/8	G90-1-1G	2N1G	G90-1-1	G90-1WD-1G	2C1G	G90-1WD-1
90	3/16	90-1-3G	-	90-1-3	-	-	-
90	1/4	90-1-2G	2N2B	90-1-2	90-1WD-2G	2C2B	90-1WD-2
90	1/4	G90-1-2G	2N2G	G90-1-2	G90-1WD-2G	2C2G	G90-1WD-2
125	1/4	125-1-2G	3N2B	125-1-2	125-1WD-2G	3C2B	125-1WD-2
125	1/4	G125-1-2G	3N2G	G125-1-2	G125-1WD-2G	3C2G	G125-1WD-2
175	1/4	175-1-2G	4N2B	175-1-2	-	-	-
175	1/4	G175-1-2G	4N2G	G175-1-2	-	-	-
225	1/4	225-1-2G	5N2B	225-1-2	-	-	-
225	1/4	G225-1-2G	5N2G	G225-1-2	-	-	-

Round-Ring Skirted

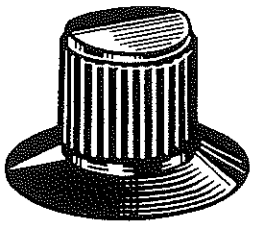


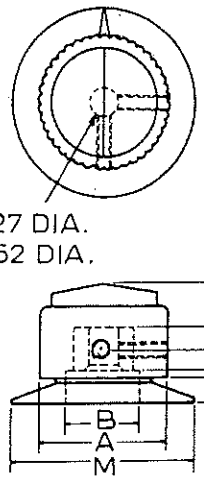


Series	A +.030 −.010	B min.	H max.	I min.	J ±.030	G min.	K max.	L max.
50	.500	.435	.325	.560	.655	.177	175	460
70	.700	485	.369	.568	.782	.188	.187	.680
90	.900	.640	.484	.730	1.010	.320	235	.845
125	1.250	750	.427	.605	.850	.250	.175	1.185
175	1.750	750	.489	.740	1.070	.320	.240	1.690
225	2.250	.750	.489	.740	1.095	.320	240	2.185

Series (Approx. Knob Diam.)	Shaft Dia.	Without White Dot			With White Dot		
		Matte Finish	MS91528-	Mirror Finish	Matte Finish	MS91528-	Mirror Finish
50	1/8	50-2-1G	0D1B	50-2-1	50-2WD-1G	0E1B	50-2WD-1
50	1/8	G50-2-1G	0D1G	G50-2-1	G50-2WD-1G	0E1G	G50-2WD-1
50	1/8	R50-2-1G	0D1R	R50-2-1	R50-2WD-1G	0E1R	R50-2WD-1
50	3/16	50-2-3G	-	50-2-3	-	-	-
50	1/4	50-2-2G	-	50-2-2	-	-	-
70	1/8	70-2-1G	1D1B	70-2-1	70-2WD-1G	1E1B	70-2WD-1
70	1/8	G70-2-1G	1D1G	G70-2-1	G70-2WD-1G	1E1G	G70-2WD-1
70	3/16	70-2-3G	-	70-2-3	-	-	-
70	1/4	70-2-2G	1D2B	70-2-2	70-2WD-2G	1E2B	70-2WD-2
70	1/4	G70-2-2G	1D2G	G70-2-2	G70-2WD-2G	1E2G	G70-2WD-2
70	1/4	R70-2-2G	1D2R	R70-2-2	-	-	-
90	1/8	90-2-1G	2D1B	90-2-1	90-2WD-1G	2E1B	90-2WD-1
90	1/8	G90-2-1G	2D1G	G90-2-1	G90-2WD-1G	2E1G	G90-2WD-1
90	1/4	90-2-2G	2D2B	90-2-2	90-2WD-2G	2E2B	90-2WD-2
90	1/4	G90-2-2G	2D2G	G90-2-2	G90-2WD-2G	2E2G	G90-2WD-2
125	1/4	125-2-2G	3D2B	125-2-2	125-2WD-2G	3E2B	125-2WD-2
125	1/4	G125-2-2G	3D2G	G125-2-2	G125-2WD-2G	3E2G	G125-2WD-2
175	1/4	175-2-2G	4D2B	175-2-2	-	-	-
225	1/4	225-2-2G	5D2B	225-2-2	-	-	-

Round–Dial Skirted



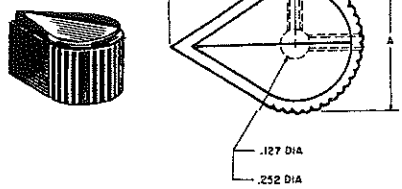


Series	A +.030 −.010	B min.	G min.	H max.	I min.	J ±.030	K max.	M max.
50	.500	.435	.177	.325	.560	.655	.175	.900
70	.700	.485	.188	.369	.568	.782	.187	1.150
90	.900	.640	.320	.484	.730	1.010	.235	1.525
125	1.250	.750	.250	.427	.605	.850	.175	1.837
175	1.750	.750	.320	.489	.740	1.070	.240	2.468
225	2.250	.750	.320	.489	.740	1.095	.240	3.020

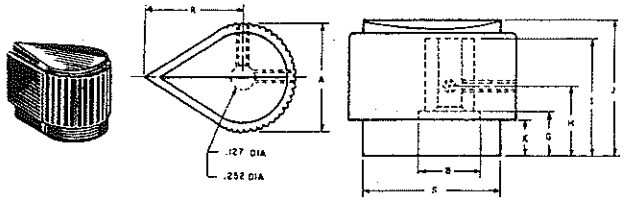
Series (Approx. Knob Diam.)	Shaft Dia.	With Arrow on Dial			Without Arrow on Dial		
		Matte Finish	MS91528-	Mirror Finish	Matte Finish	MS91528-	Mirror Finish
50	1/8	50-3-1G	0F1B	50-3-1	50-3NP-1G	0G1B	50-3NP-1
50	1/8	G50-3-1G	0F1G	G50-3-1	G50-3NP-1G	0G1G	G50-3NP-1
50	3/16	50-3-3G	-	50-3-3	-	-	-
50	1/4	50-3-2G	-	50-3-2	-	-	-
70	1/8	70-3-1G	1F1B	70-3-1	70-3NP-1G	1G1B	70-3NP-1
70	1/8	G70-3-1G	1F1G	G70-3-1	G70-3NP-1G	1G1G	G70-3NP-1
70	1/8	70-3BL-1G	101B	-	-	-	-
70	1/4	70-3-2G	1F2B	70-3-2	70-3NP-2G	1G2B	70-3NP-2
70	1/4	G70-3-2G	1F2G	G70-3-2	G70-3NP-2G	1G2G	G70-3NP-2
70	1/4	R70-3-2G	1F2R	R70-3-2	R70-3NP-2G	1G2R	R70-3NP-2
70	1/4	70-3BL-2G	102B	-	-	-	-
90	1/8	90-3-1G	2F1B	90-3-1	90-3NP-1G	2G1B	90-3NP-1
90	1/8	G90-3-1G	2F1G	G90-3-1	G90-3NP-1G	2G1G	G90-3NP-1
90	1/8	90-3BL-1G	201B	-	-	-	-
90	1/4	90-3-2G	2F2B	90-3-2	90-3NP-2G	2G2B	90-3NP-2
90	1/4	G90-3-2G	2F2G	G90-3-2	G90-3NP-2G	2G2G	G90-3NP-2
90	1/4	90-3BL-2G	202B	-	-	-	-
125	1/4	125-3-2G	3F2B	125-3-2	125-3NP-2G	3G2B	125-3NP-2
125	1/4	G125-3-2G	3F2G	G125-3-2	G125-3NP-2G	3G2G	G125-3NP-2
125	1/4	125-3BL-2G	302B	-	-	-	-
175	1/4	175-3-2G	4F2B	175-3-2	175-3NP-2G	4G2B	175-3NP-2
175	1/4	G175-3-2G	4F2G	G175-3-2	G175-3NP-2G	4G2G	G175-3NP-2
175	1/4	175-3BL-2G	402B	-	-	-	-
225	1/4	225-3-2G	5F2B	225-3-2	225-3NP-2G	5G2B	225-3NP-2
225	1/4	G225-3-2G	5F2G	G225-3-2	G225-3NP-2G	5G2G	G225-3NP-2

Pointer

POINTER



SKIRTED POINTER



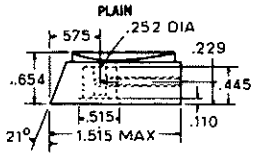
Series	A +.030 −.010	B min	C min	D max	E min	F ±.303	G min	H max	I min	J ±.030	K max	R ±.025 −.005	S max
50	.500	.435	.026	.158	.405	.510	.177	.325	.560	.655	.175	.490	.690
70	.700	.485	.026	.187	.405	.610	.188	.369	.568	.782	.187	.680	1.000
90	.900	.640	.114	.260	.520	.790	.320	.484	.730	1.010	.235	.885	1.345

Series (Approx. Knob Diam.)	Shaft Dia.	Without Ring Skirts			With Ring Skirts		
		Matte Finish	MS91528-	Mirror Finish	Matte Finish	MS91528-	Mirror Finish
50	1/8	50-4-1G	0P1B	50-4-1	50-5-1G	0K1B	50-5-1
50	1/8	G50-4-1G	0P1G	G50-4-1	G50-5-1G	0K1G	G50-5-1
50	1/4	50-4-2G	-	50-4-2	50-5-2G	-	50-5-2
50	1/4	G50-4-2G	-	G50-4-2	G50-5-2G	-	G50-5-2
70	1/8	70-4-1G	1P1B	70-4-1	70-5-1G	1K1B	70-5-1
70	1/8	G70-4-1G	1P1G	G70-4-1	G70-5-1G	1K1G	G70-5-1
70	1/4	70-4-2G	1P2B	70-4-2	70-5-2G	1K2B	70-5-2
70	1/4	G70-4-2G	1P2G	G70-4-2	G70-5-2G	1K2G	G70-5-2
90	1/8	90-4-1G	2P1B	90-4-1	90-5-1G	2K1B	90-5-1
90	1/8	G90-4-1G	2P1G	G90-4-1	G90-5-1G	2K1G	G90-5-1
90	1/4	90-4-2G	2P2B	90-4-2	90-5-2G	2K2B	90-5-2
90	1/4	G90-4-2G	2P2G	G90-4-2	G90-5-2G	2K2G	G90-5-2

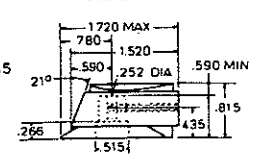
Bar Pointer

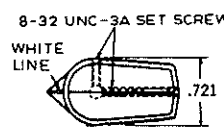
1-1/2" BAR—70 SERIES

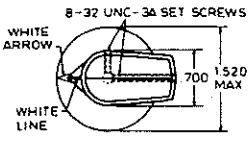
PLAIN



DIAL SKIRT

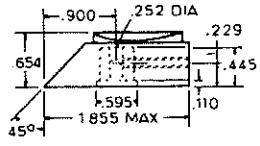




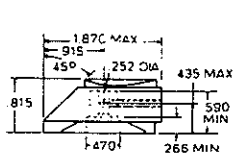


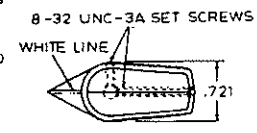
1-7/8" BAR—90 SERIES

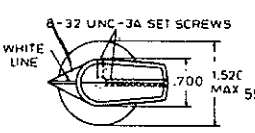
PLAIN



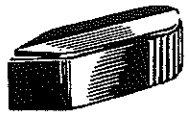
DIAL SKIRT



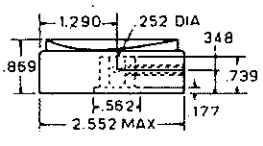


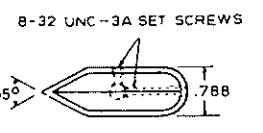


2-1/2" BAR—125 SERIES



PLAIN





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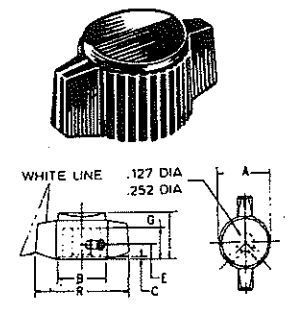
Bar Pointer (Cont.)

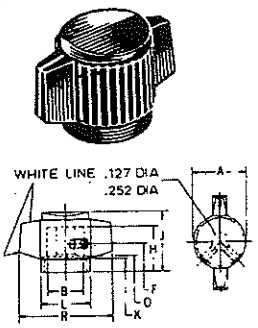
Series (Approx. Knob Diam.)	Shaft Dia.	Without Dial Skirts: Matte Finish	Without Dial Skirts: MS91528-	Without Dial Skirts: Mirror Finish	With Dial Skirts: Matte Finish	With Dial Skirts: MS91528-	With Dial Skirts: Mirror Finish
70	1/4	70-7WL-2G	1A2B	70-7WL-2	70-8WL-2G	1B2B	70-8WL-2
70	1/4	G70-7WL-2G	1A2G	G70-7WL-2	G70-8WL-2G	1B2G	G70-8WL-2
90	1/4	90-7WL-2G	2A2B	90-7WL-2	90-8WL-2G	2M2B	90-8WL-2
90	1/4	G90-7WL-2G	2A2G	G90-7WL-2	G90-8WL-2G	2M2G	G90-8WL-2
125	1/4	125-7-2G	3R2B	125-7-2	-	-	-
125	1/4	G125-7-2G	3R2G	G125-7-2	-	-	-

70 Series Round Bar Standard with white line on side

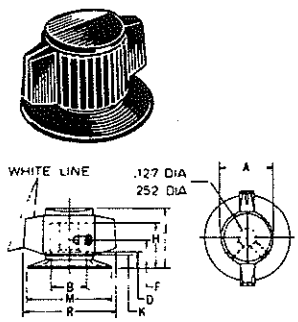
ROUND



RING SKIRT



DIAL SKIRT



A +.030 −.010	.700	H min.	.568
B min.	.485	I ±.030	.610
C min.	.026	J ±.030	.782
D min.	.188	K max.	.187
E max.	.187	L max.	.680
F max.	.369	M max.	1.150
G min.	.405	R ±.025	1.150

Shaft Dia.	Round Bar - Plain: Matte	Round Bar - Plain: MS91528-	Round Bar - Plain: Mirror	Round Bar - Ring Skirted: Matte	Round Bar - Ring Skirted: MS91528-	Round Bar - Ring Skirted: Mirror
1/8	70B-1-1G	1GG1B	70B-1-1	70B-2-1G	1HH1B	70B-2-1
1/8	G70B-1-1G	1GG1G	G70B-1-1	G70B-2-1G	1HH1G	G70B-2-1
1/4	70B-1-2G	1GG2B	70B-1-2	70B-2-2G	1HH2B	70B-2-2
1/4	G70B-1-2G	1GG2G	G70B-1-2	G70B-2-2G	1HH2G	G70B-2-2

Shaft Dia.	Round Bar - Dial Skirted: Matte	Round Bar - Dial Skirted: MS91528-	Round Bar - Dial Skirted: Mirror
1/8	70B-3-1G	1II1B	70B-3-1
1/8	G70B-3-1G	1II1G	G70B-3-1
1/4	70B-3-2G	1II2B	70B-3-2
1/4	G70B-3-2G	1II2G	G70B-3-2

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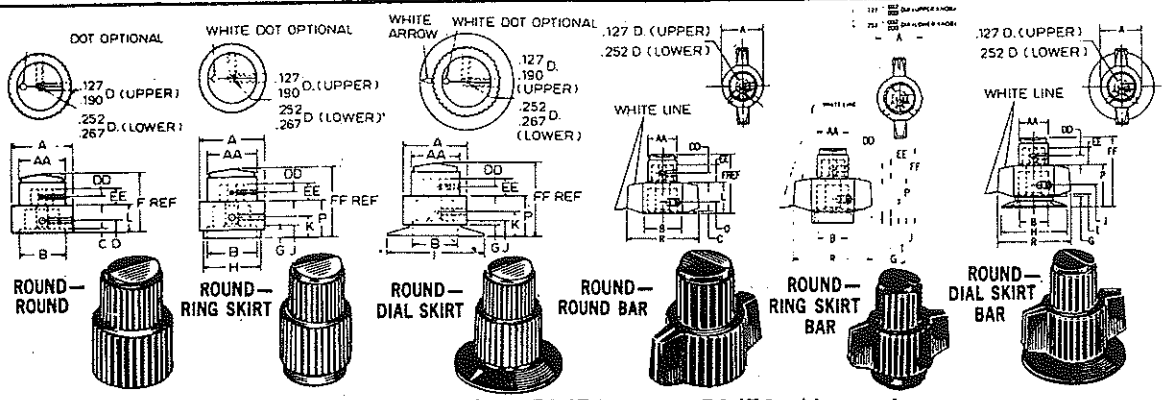
Concentric Lower Knobs, Matte and Mirror Finish



Dimensions for all concentrics; for 50/70B use 50/70 dimensions.

Series	A +.030 −.010	AA +.030 −.010	B min.	C min.	D max.	DD max.	EE min.	F ref.	FF ref.	G max.	H max.	I max.	J max.	K max.	L ±.015	P ±.025	R ±.025
50/70	.700	.500	.485	.026	.187	.158	.405	1.065	1.255	.187	.680	1.150	.188	.369	.510	.690	1.150
70/90	.900	.700	.640	.114	.260	.187	.405	1.310	1.550	.235	.845	1.525	.320	.484	.655	.885	—
90/125	1.250	.900	.750	.114	.260	.260	.520	1.365	1.545	.175	1.185	1.837	.250	.427	.530	.700	—

LOWER KNOB SELECTION

Series	Shaft Dia.	Round *Finish	Round MS91528-	Round-Ring Skirted *Finish	Round-Ring Skirted MS91528-	Round-Dial Skirted *Finish	Round-Dial Skirted MS91528-
70	1/4	70-1CB-2G	1N2BC	70-2CB-2G	1D2BC	70-3CB-2G	1F2BC
70	1/4	70-1CB-2	-	70-2CB-2	-	70-3CB-2	-
70	1/4	G70-1CB-2G	1N2GC	G70-2CB-2G	1D2GC	G70-3CB-2G	1F2GC
70	1/4	G70-1CB-2	-	G70-2CB-2	-	G70-3CB-2	-
90	1/4	90-1CB-2G	2N2BC	90-2CB-2G	2D2BC	90-3CB-2G	2F2BC
90	1/4	90-1CB-2	-	90-2CB-2	-	90-3CB-2	-
90	1/4	G90-1CB-2G	2N2GC	G90-2CB-2G	2D2GC	G90-3CB-2G	2F2GC
90	1/4	G90-1CB-2	-	G90-2CB-2	-	G90-3CB-2	-
90	.267	90-1CB-4G	-	90-2CB-4G	-	90-3CB-4G	-
90	.267	90-1CB-4	-	90-2CB-4	-	90-3CB-4	-
125	1/4	125-1CB-2G	3N2BC	125-2CB-2G	3D2BC	125-3CB-2G	3F2BC
125	1/4	125-1CB-2		125-2CB-2	-	125-3CB-2	-
		Round Bar - No Skirt		Round Bar - Ring Skt.		Round Bar - Dial Skt.	
70B	1/4	70B-1CB-2G	1GG2BC	70B-2CB-2G	1HH2BC	70B-3CB-2G	1II2BC
70B	1/4	70B-1CB-2	-	70B-2CB-2	-	70B-3CB-2	-
70B	1/4	G70B-1CB-2G	1GG2GC	G70B-2CB-2G	1HH2GC	G70B-3CB-2G	1II2GC
70B	1/4	G70B-1CB-2	-	G70B-2CB-2	-	G70B-3CB-2	-

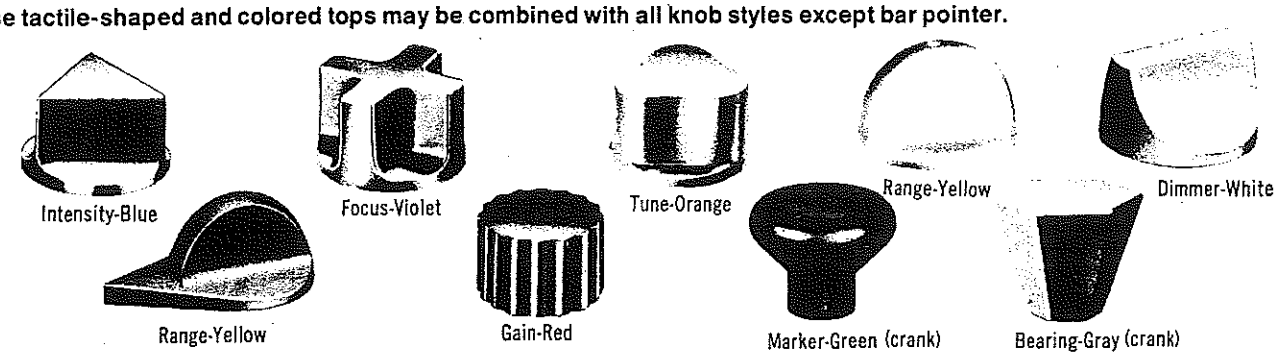
*Suffix "G" denotes matte finish

UPPER KNOB SELECTION

Select the appropriate upper knob from the round knob section in this catalog. Upper knobs are generally taken from the next smaller size (series) with 1/8" or 3/16" shaft hole and same finish as the lower knob. Tactile knobs with 1/8" or 3/16" shaft holes can be supplied as a custom order.

Tactile Shape Black w/colored top; matte finish for 1/4" shafts

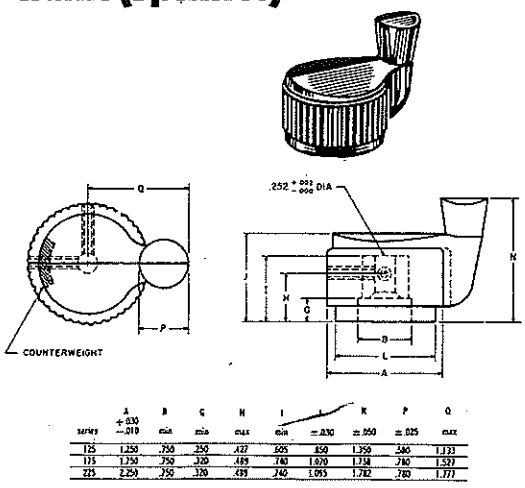
These tactile-shaped and colored tops may be combined with all knob styles except bar pointer.



Series Approx. Knob Diam.	Function	Color	Round Matte Finish	Round MS91528-	Round-Ring Skirted Matte Finish	Round-Ring Skirted MS91528-	Round-Dial Skirted Matte Finish	Round-Dial Skirted MS91528-
70	Intensity	Blue	70-1-2G-1	1N2B1	70-2-2G-1	1D2B1	70-3-2G-1	1F2B1
70	Tune	Orange	70-1-2G-2	1N2B2	70-2-2G-2	1D2B2	70-3-2G-2	1F2B2
70	Dimmer	White	70-1-2G-3	1N2B3	70-2-2G-3	1D2B3	70-3-2G-3	1F2B3
70	Gain	Red	70-1-2G-4	1N2B4	70-2-2G-4	1D2B4	70-3-2G-4	1F2B4
70	Focus	Violet	70-1-2G-5	1N2B5	70-2-2G-5	1D2B5	70-3-2G-5	1F2B5
70	Range	Yellow	70-1-2G-6	1N2B6	70-2-2G-6	1D2B6	70-3-2G-6	1F2B6
90	Intensity	Blue	90-1-2G-1	2N2B1	90-2-2G-1	2D2B1	90-3-2G-1	2F2B1
90	Tune	Orange	90-1-2G-2	2N2B2	90-2-2G-2	2D2B2	90-3-2G-2	2F2B2
90	Dimmer	White	90-1-2G-3	2N2B3	90-2-2G-3	2D2B3	90-3-2G-3	2F2B3
90	Gain	Red	90-1-2G-4	2N2B4	90-2-2G-4	2D2B4	90-3-2G-4	2F2B4
90	Focus	Violet	90-1-2G-5	2N2B5	90-2-2G-5	2D2B5	90-3-2G-5	2F2B5
90	Range	Yellow	90-1-2G-6	2N2B6	90-2-2G-6	2D2B6	90-3-2G-6	2F2B6
			Pointer		Pointer-Ring Skirted			
70	Range	Yellow	70-4-2G-6	1P2B7	70-5-2G-6	1K2B7	–	–
90	Range	Yellow	90-4-2G-6	2P2B7	90-5-2G-6	2K2B7	–	–

Note: Round 125 Series Tactile Knobs available by special order.

Crank (Spinner)



Series	A ±.030 -.010	B max	C max	H max	I max	K ±.030	M ±.050	P ±.025	Q max
125	1.250	.750	.250	.437	.505	.850	1.350	.560	1.133
175	1.750	.750	.320	.489	.740	1.070	1.738	.780	1.527
225	2.250	.750	.320	.489	.740	1.095	1.782	.780	1.777

Crank (Spinner) Knobs & Tactile Forms for 1/4" Shafts

Series	Tactile Spinner Function	Color	Matte	MS91528-	Mirror
125	-	-	125-6-2G	3S2B	125-6-2
125	-	-	G125-6-2G	3S2G	G125-6-2
125	Marker	Green	125-6-2G-7	3S2B8	-
125	Bearing	Gray	126-6-2G-8	3S2B9	-
175	-	-	175-6-2G	4S2B	175-6-2
175	-	-	G175-6-2G	4S2G	G175-6-2
175	Marker	Green	175-6-2G-7	4S2B8	-
175	Bearing	Gray	175-6-2G-8	4S2B9	-
225	-	-	225-6-2G	5S2B	225-6-2
225	-	-	G225-6-2G	5S2G	G225-6-2
225	Marker	Green	226-6-2G-7	5S2B8	-
225	Bearing	Gray	225-6-2G-8	5S2B9	-

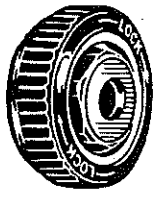
Knob Locks

Knob Locks are positive friction locking devices for holding precise or critical control settings under conditions of shock and vibration. They are also useful where there is danger of accidental jarring or manual contact. Special splash-proof versions feature molded rubber inserts which prevent water leakage down into the control and also serve as dust seals.

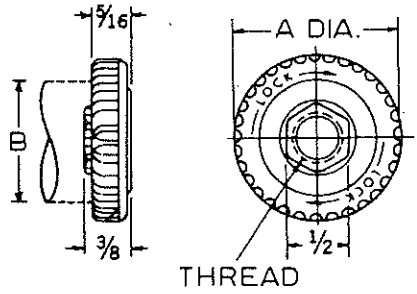
Knob Locks may be used with standard control knobs and occupy little more panel space than the knobs themselves. An eighth turn of the fluted skirt locks the control knob by forcing a rubber bushing against its lower surface. A critical control setting is not affected. An eighth turn to the left frees the knob to rotate freely. Used primarily with potentiometers and similar variable controls, knob locks mount directly to threaded control bushings replacing the nuts and lock washers usually supplied.

Knob Locks are offered in three sizes for use with standard and white dot 70, 90, and 125 Series control knobs. Where settings must be read precisely at panel level, a Knob Lock Pointer Knob may be used.

Standard



Splash Proof



DESIGN AND QUALITY FEATURES

- Positive friction locking system
- Resists shock, vibration, or accidental movement
- Tested under salt spray, humidity, and temperature conditions
- Occupies minimum panel space
- Used with standard off-the-shelf control knobs
- No special mounting hardware or tools required
- Special water and dust-tight models available
- Made of highest quality materials
- Available in three sizes in either mirror or matte finish

MATERIAL SPECIFICATION DATA

Body - Cellulose acetate butyrate per LP-349, Type III, Class H2

Nylon - MIL-P-17091B, Type 1

Brass - 1/2 hard per QQ-B-626 - nickel plated per QQ-N-290, Class I, Type V

Aluminum - 5052-H34 per QQ-A-250/8

Rubber - Grade SC 415 ABF_2 per MIL-R-3065 (ORD.)

Beryllium Copper - 1/4 hard per QQ-C-533.

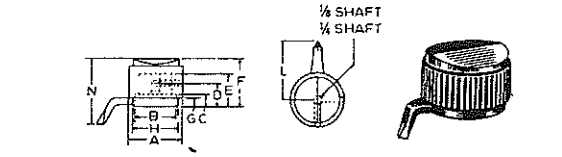
Knob Locks (Cont.)

Series	Thread	Standard Model Matte	MS91528-	Mirror	Splash-Proof Model Matte	MS91528-	Mirror
70	3/8-32	KL701G	*1CC2B	KL701	KL703G	*1DD2B	KL703
70	3/8-32	GKL701G	*1CC2G	GLK701	GKL703G	*1DD2G	GKL703
70	1/4-32	KL702G	*1CC1B	KL702	-	-	-
70	1/4-32	GKL702G	*1CC1G	GKL702	-	-	-
90	3/8-32	KL901G	*2CC2B	KL901	KL902G	*2DD2B	KL902
90	3/8-32	GKL901G	*2CC2G	GKL901	GKL902G	*2DD2G	GKL902
125	3/8-32	KL1251G	*3CC2B	KL1251	KL1252G	*3DD2B	KL1252

These MS91528 designations are for reference only.

LOCKING POINTER KNOBS

Series	Shaft Dia.	Matte	MS91528-	Mirror
70	1/8	70-1LK-1G	1AA1B	70-1LK-1
70	1/8	G70-1LK-1G	1AA1G	G70-1LK-1
70	1/4	70-1LK-2G	1AA2B	70-1LK-2
70	1/4	G70-1LK-2G	1AA2G	G70-1LK-2
90	1/4	90-1LK-2G	2AA2B	90-1LK-2
	1/4	125-1LK-2G	3AA2B	125-1LK-2



series	A ±.030 −.010	B min	C min	D max	E min	F ±.030	G max	H max	L max	N max
70	.700	.560	.188	.369	.568	.782	.187	.680	.812	1.164
90	.905	.640	.320	.437	.680	.958	.235	.845	.968	1.310
125	1.250	1.000	.250	.442	.605	.862	.175	1.185	1.725	1.215

KNOB LOCK/KNOB COMBINATIONS

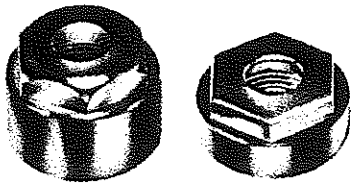
Knob Lock Catalog No.	Type	Finish	Dia.(A)	Dia.(B)	Thread	Matching Pointer Knob	Matching Standard Knob	Matching White Dot Standard Knob
KL701	Std.	Mirror	1"	.721	3/8-32	70-1LK-2	70-1-2	70-1WD-2
KL701G	Std.	Matte	1"	.721	3/8-32	70-1LK-2G	70-1-2G	70-1WD-2G
KL702	Std.	Mirror	1"	.721	3/8-32	70-1LK-1	70-1-1	70-1WD-1
KL702G	Std.	Matte	1"	.721	3/8-32	70-1LK-1G	70-1-1G	70-1WD-1G
KL703	Spl. Pf.	Mirror	1"	.721	3/8-32	70-1LK-2	70-1-2	70-1WD-2
KL703G	Spl. Pf.	Matte	1"	.721	3/8-32	70-1LK-2G	70-1-2G	70-1WD-2G
KL901	Std.	Mirror	1-5/16"	.928	3/8-32	90-1LK-2	90-1-2	90-1WD-2
KL901G	Std.	Matte	1-5/16"	.928	3/8-32	90-1LK-2G	90-1-2G	90-1WD-2G
KL902	Spl. Pf.	Mirror	1-5/16"	.928	3/8-32	90-1LK-2	90-1-2	90-1WD-2
KL902G	Spl. Pf.	Matte	1-5/16"	.928	3/8-32	90-1LK-2G	90-1-2G	90-1WD-2G
KL1251	Std.	Mirror	1-5/8"	1.269	3/8-32	125-1LK-2	125-1-2	125-1WD-2
KL1251G	Std.	Matte	1-5/8"	1.269	3/8-32	125-1LK-2G	125-1-2G	125-1WD-2G
KL1252	Spl. Pf.	Mirror	1-5/8"	1.269	3/8-32	125-1LK-2	125-1-2	125-1WD-2
KL1252G	Spl. Pf	Matte	1-5/8"	1.269	3/8-32	125-1LK-2G	125-1-2G	125-1WD-2G

Note: Gray combinations also available

Shaft Locks

	Catalog No.	For Shaft Size	Control Bushing Thread Size	Color
Shaft Lock Models	SL-100B	1/4"	3/8-32 NEF-2	Black
	SL-101R	1/4"	3/8-32 NEF-2	Red
	SL-105B	1/8"	1/4-32 NEF-2	Black
Knob Locking Model*	SL110B	1/4"	3/8-32 NEF-2	Black

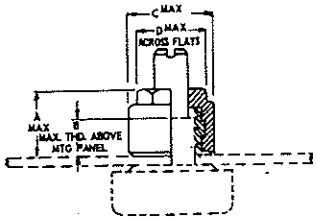
*Use with any 90 Series, or larger, ring or dial skirted round, skirted pointer, or crank knob.



Shaft Lock Knob Lock

SPECIFICATIONS

Nylon—MIL-M-20693
Insert—Brass per QQ-B-626 Nickel plated per QQ-N-290, Class I, Type V
Shock—50 g's
Vibration—5 hours at 10 to 55 cps with amplitude of 0.06"
Water Immersion—50 hours under 3 ft. head of water. Control shaft rotated every 10 hours.
Temperature Shock—Five cycles of 30 munutes at each extreme, −55°C and +85°C
Humidity—150 hours at 95% relative Ihumidity 40°C
Life Wear—10,000 complete cycles



Model	A	B	C	D
SL-100B	.480	.348	.630	.505
SL-101R	.480	.348	.630	.505
SL-105B	.317	.223	.455	.380
SL-110B	.286	.187	.630	.505

Shaft Locks prevent control shafts from rotating under conditions of shock, vibration, or accidental contact. They form a dust and waterproof seal at the shaft and also at the panel surface. One-piece construction, they are simple, effective, and inexpensive.

The Shaft Lock's tapered nylon collar grips the control shaft tightly forming a dust and water-tight seal and exerting an even frictional drag which resists accidental rotation. A molded lip at the outer edge of the base compresses against the panel surface to complete the sealing function of the device. To adjust the control smoothly and accurately, merely insert a screwdriver and turn no unlocking and relocking required. Tests have demonstrated no significant change in locking torque and water sealing even after 10,000 full on-full off cycles.

Shaft Locks mount directly to the threaded bushing found on most potentiometers and other variable controls. Simply discard the nuts and washers supplied with the control, slip on the Shaft Lock, and tighten with any type of standard 1/2 inch nut driver. Once in place, the Shaft Lock need never be loosened - a distinct advantage over conventional two-piece metal split bushing types.

The Knob Lock, Model SL-110B, fits underneath the 90 Series knob and is completely out of sight. It is often a replacement for more expensive and complicated locking devices. It provides the same high quality performance as the regular models.

DESCRIPTION

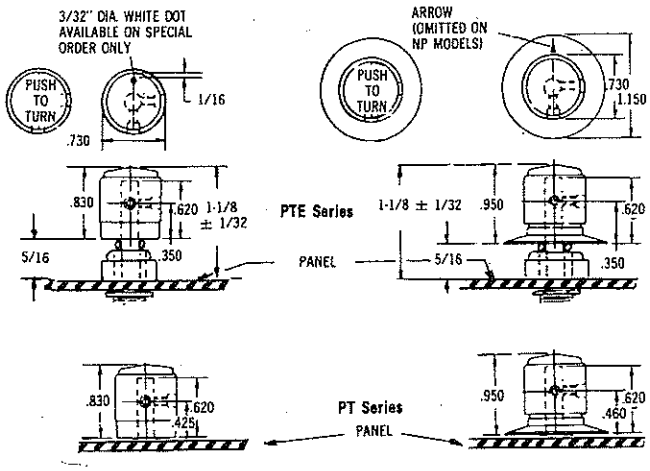
"Self-Locking Push-to-Turn" devices are designed for applications in which control settings must be maintained under conditions of shock and vibration. The setting can not be changed accidently since the knob must be fully depressed before movement.

Easy to install, the "Push-to-Turn" knob having zero backlash, allows the operator infinite resolution of setting yet locks positively when released.

The design is exactly the same as our standard line of control knobs and allows uniformity of panel design when used in conjunction with other types.

ROUND — RING SKIRT

ROUND — DIAL SKIRT



Notes:

1. PTE knobs are free to rotate in unengaged mode and therefore are not recommended for use when calibration markings must be fixed in the unengaged mode
2. PT knobs are locked in the unengaged mode and are recommended for use with calibration markings.

1. These knobs are available in gray by special order.
2. Mounting hardware supplied with knobs.

Shaft Dia.	Round-Ring Skirted Matte	Round-Ring Skirted Mirror	Round-Dial w/Arrow Matte	Round-Dial w/Arrow Mirror	Round-Dial w/o Arrow Matte	Round-Dial w/o Arrow Mirror
Push-to-Turn						
1/8	PT70-2-1G	PT70-2-1	PT70-3-1G	PT70-3-1	PT70-3NP-1G	PT70-3NP-1
1/4	PT70-2-2G	PT70-2-2	PT70-3-2G	PT70-3-2	PT70-3NP-2G	PT70-3NP-2
Push-to-Engage						
1/8	PTE70-2-1G	PTE70-2-1	-	-	PTE70-3NP-1G	PTE70-3NP-1
1/4	PTE70-2-2G	PTE70-2-2	-	-	PTE70-3NP-2G	PTE70-3NP-2

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