Contents

Product Description

The 30.5 mm pushbutton line features a zinc die cast construction with chrome-plated housing and mounting nut. The same durable construction is also available with the corrosive resistant E34 line of pushbuttons. See E34 section on **Pages 47-166 – 47-189**.

Reliability Nibs

Eaton's Cutler-Hammer® contact blocks feature enclosed silver contacts with pointed "reliability nibs" for reliable performance from logic level up to 600V. To ensure reliable switching, nibs bite through oxide which can form on silver contacts, eliminating the need for expensive logic level blocks for most applications.

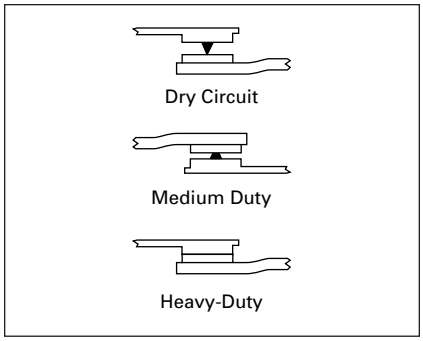


Figure 47-90. Reliability Nibs

Reliability nibs improve performance in dry circuit, corrosive, fine dust and other contaminated atmospheres. Under normal environmental conditions, the minimum operational voltage is 5V and the minimum operational current is 1 mA, AC/DC. For operation under a wider range of environmental conditions, logic level contact blocks with inert palladium tipped contacts are recommended.

Grounding Nibs

10250T line operators have "grounding nibs" — four metal points on the operator casting designed to bite through most paints and other coatings on metal panels to enhance the ground connection when the operator is securely tightened.

Grounding Nibs

Diaphragm Seal with Drainage Holes

Liquid Drainage

Eaton's Cutler-Hammer pushbutton operators offer front of panel drainage via holes in the operator bushing. Hidden from view by the mounting nut, these holes prevent buildup of liquid inside the operator, which can prevent operation in freezing environments. The holes also provide a route for escaping liquid in high pressure washdowns, effectively relieving pressure from the internal diaphragm seal, ensuring reliable sealing in applications even beyond NEMA 4.

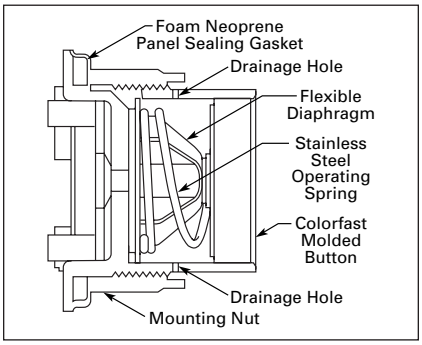
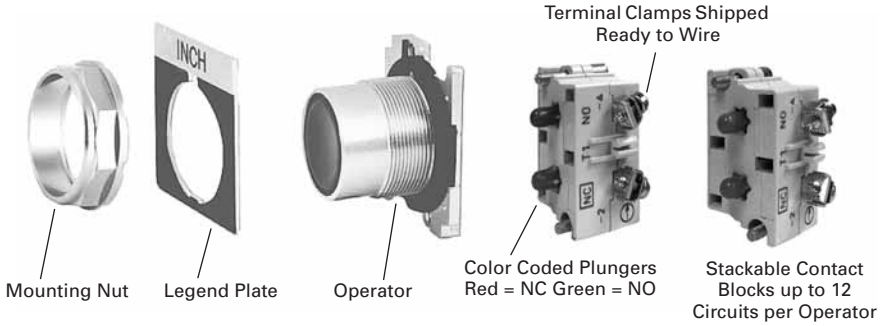


Figure 47-91. Diaphragm Seal



10250T Series

Features

- Heavy-duty zinc die cast construction
- Enclosed silver contacts with reliability nibs
- Diaphragm seals with drainage holes
- Grounding nibs on the operator casing

Benefits

- Reliability nibs improve contact reliability even under dry circuit and fine dust conditions
- Drainage holes prevent buildup of liquid inside the operator which can prevent operation in freezing environments
- Grounding nibs bit through paint and other coatings to provide secure ground

Contact Operation

Slow make and break. All normally closed contacts have positive opening operation, i.e., normally closed contacts are forced open in the event of contact weld or spring breakage.

Standards and Certifications

- CE EN60947-5-1
- UL 508 — File No. 131568
- CSA C22.2 No. 14 — File No. LR68551

Ingress Protection

When mounted in similarly rated enclosure —

- Standard Indicating Lights
  - UL (NEMA) Type 1, 2, 3, 3R, 3S, 4, 4X, 12, 13
  - IEC IP65
- All Other Operators
  - UL (NEMA) Type 1, 2, 3, 3R, 4, 4X, 12, 13
  - IEC IP65

Technical Data and Specifications

Mechanical Ratings

- Frequency of operation
  - All pushbuttons: 6000 operations/hr.
  - Key and lever selector switches: 3000 operations/hr.
  - Auto-latch devices: 1200 operations/hr.
- Life
  - Pushbuttons: 10 x 10^6 operations
  - Contact blocks: 10 x 10^6 operations
  - PresTest units: 10 x 10^6 operations
  - Lever and key selector switches: 0.25 x 10^6 operations
  - Twist to release pushbuttons: 0.3 x 10^6 operations
- Shock resistance
  - Duration: 20 mS ≥ 5g

Climate Conditions

- Operating Temperature: 1° to 150°F (-17° to 66°C)
- Storage Temperature: -40° to 176°F (-40° to 80°C)
- Altitude: 6,562 ft. (2,000m)
- Humidity: Max. 95% RH @ 60°C

Terminals

- Marking
  - NC-NO on the contact block to meet the NEMA requirements. Dual marking system 1 – 2 for normally closed, 3 – 4 for normally open to meet BS5472 (Cenelec EN50 005)
- Clamps
  - Terminals are saddle clamp type for 1 x 22 AWG (0.34 mm^2) to 2 x 14 AWG (2.5 mm^2) conductors
- Torque = 7 lb-in (0.8 Nm)
- Degree of protection against direct electrical contact: IP2X with fingerproof shroud

Light Units

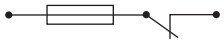
- Transformers: will withstand short circuit for 1 hour per IEC 60997-5-1
- Bulbs — average life
  - Transformer type: 20,000 hrs.
  - Resistor/direct voltage type: 2500 hrs. minimum @ rated V
  - LED: 60,000 to 100,000 hrs.

Electrical Ratings

- Insulation: Ui = 660V AC or DC
- Thermal: Ith = 10A

Short Circuit Coordination to IEC/EN 60947-5-1

- Rated conditional short circuit current: 1 kA
- Fuse type: GE Power Controls TIA 10, Red Spot Type gG, 10A, 660V AC, 460V DC, BS88-2, IEC 60269-2-1



Fuse

- UL rating: A600, P600
  - AC load life duty cycle 1200 operations/hour
    - 10A: 110V pf 0.4 – 1 x 10^6 operations
    - 5A: 250V pf 0.4 – 1 x 10^6 operations
    - 2A: 660V pf 0.4 – 1 x 10^6 operations
- Switching capacity
  - AC15 rated make/break (11 x Ie at 1.1 x Ue)
    - 6A: 120V pf 0.3
    - 4A: 240V pf 0.3
    - 2A: 660V pf 0.3
  - DC13 rated make/break (1.1 x Ie at 1.1 x Ue)
    - 1.0A: 125V L/R ≥ 0.95 at 300 mS
    - .55A: 250V L/R ≥ 0.95 at 300 mS
    - .1A: 660V L/R ≥ 0.95 at 300 mS
    - 10A: 110V pure resistive
- Maximum ratings for logic level and hostile atmosphere application
  - Maximum amperes: 0.5A
  - Maximum volts: 120V AC/DC

Table 47-171. Contact Block

Meet or Exceed NEMA Rating Designations A600, A300 and B300 for AC and P600 for DC							
Description	Volts AC 50 or 60 Hz				Volts DC		
	120	240	480	600	24/28	125	250
Make and Emerg. Interrupting Capacity (Amp)	60	30	15	12	5.7	1.1	0.55
Normal Load Break (Amp)	6	3	1.5	1.2	5.7	1.1	0.55
Thermal Current (Amp)	10	10	10	10	5.0	5.0	5.0
Voltamperes:							
Make and Emerg. Interrupting Capacity	7200	7200	7200	7200	138	138	138
Normal Load Break	720	720	720	720	138	138	138

Illuminated Pushbuttons and Indicating Lights

- LED or Incandescent
- Full Voltage, Resistor or Transformer Type

Table 47-183. Operators without Lens

Light Unit Type	Type	Voltage	Illuminated Pushbutton		Indicating Light		PresTest		Master Test		LED/Lamp Number
											
			Catalog Number	Price U.S. $	Catalog Number	Price U.S. $	Catalog Number	Price U.S. $	Catalog Number	Price U.S. $	
Incandescent	Full Voltage AC/DC	6	**10250T473**		**10250T203N**		**10250T232N**		—		#755
		12	**10250T474**		**10250T204N**		**10250T233N**		—		#756
		24	**10250T476**		**10250T206N**		**10250T235N**		—		#757
		32	**10250T477**		**10250T207N**		**10250T238N**		—		#1828
		48	**10250T478**		**10250T208N**		**10250T239N**		—		#1835
	Resistor ② AC/DC	120	**10250T471**		**10250T201N**		**10250T231N**		—		120MB
		240	**10250T472**		**10250T202N**		**10250T240N**		—		120MB
	Transformer AC Only ③	24	**10250T416**		—		—		—		#755
		120	**10250T411**		**10250T181N**		**10250T221N**		—		
		240	**10250T422**		**10250T182N**		**10250T222N**		—		
		277	**10250T419**		**10250T198N**		—		—		
		380	**10250T413**		**10250T183N**		**10250T223N**		—		
		480	**10250T414**		**10250T184N**		**10250T224N**		—		
		600	**10250T415**		**10250T185N**		**10250T225N**		—		
	Neon ④ AC/DC	120	—		**10250T226N**		—		—		NE51H-R22
		240	—		**10250T227N**		—		—		NE51H-R68
	Solid-State 50/60 Hz Only	120	—		—		—		**10250T189N**		120MB
LED (LEDs not included) ①	Full Voltage	—	**10250T397L**		**10250T197L**		**10250T297L**		—		Bayonet Base
	Transformer AC Only	24	**10250T416L**		—		—		—		
		120	**10250T411L**		**10250T181L**		**10250T221L**		—		
		240	**10250T412L**		**10250T182L**		**10250T222L**		—		
		277	**10250T419L**		**10250T198L**		—		—		
		380	**10250T413L**		**10250T183L**		**10250T223L**		—		
		480	**10250T414L**		**10250T184L**		**10250T224L**		—		
		600	**10250T415L**		**10250T185L**		**10250T225L**		—		

① These units do not include lamps. Order LED separately to match lens color. See **Page 47-157** for LED Selection and **Page 47-165** for Catalog Numbering System.
② Resistor units are not available for use with LEDs, choose either transformer or full voltage LED style.
③ For flashing lamp, add letter **F** to listed Catalog Number. Example: 10250T181N**F**.
④ Resistant to shock and vibration. For best illumination use amber, yellow or clear lens.

Table 47-184. Indicating and Master Test Lenses

	Color	Plastic		Glass	
		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
	Red	**10250TC1N**		**10250TC7N**	
	Green	**10250TC2N**		**10250TC8N**	
	Amber	**10250TC19N**		**10250TC9N**	
	Yellow	**10250TC3N**		—	
	Blue	**10250TC4N**		**10250TC10N**	
	Clear	**10250TC5N**		**10250TC11N**	
	White	**10250TC6N**		**10250TC12N**	

Table 47-185. Illuminated Pushbutton Lenses

	Color	Catalog Number	Price U.S. $
	Red	**10250TC21**	
	Green	**10250TC22**	
	Yellow	**10250TC23**	
	Amber	**10250TC43**	
	Blue	**10250TC24**	
	Clear	**10250TC25**	
	White	**10250TC26**	

Table 47-186. PresTest Lenses

	Color	Plastic		Glass	
		Catalog Number	Price U.S. $	Catalog Number	Price U.S. $
	Red	**10250TC21**		**10250TC13N**	
	Green	**10250TC22**		**10250TC14N**	
	Amber	**10250TC43**		**10250TC15N**	
	Yellow	**10250TC23**		—	
	Blue	**10250TC24**		**10250TC16N**	
	Clear	**10250TC25**		**10250TC17N**	
	White	**10250TC26**		**10250TC18N**	

Dimensions ..... **Pages 47-160 – 47-162**
Legend Plates ..... **Pages 47-151 – 47-152**
Replacement Lamps/LEDs ..... **Page 47-157**
Discount Symbol **1CD1C**