

SUPERIOR DESIGN AND OPERATING FEATURES

Quality parts make each Geared Rotary Limit Switch highly dependable.

- The limit switch's ½" input shaft drives a bronze gear which rotates the cam block. The cam block houses independently adjustable cams that actuate the precision type snap action switches.
- Each switch can be provided with one to four single pole, double throw switches or a maximum of two double pole, double throw switches for versatility of control circuits.
- No minimum speed is specified because snap action contacts are used. Maximum rated speed of the worm shaft is 1000 RPM and can be rotated clockwise or counterclockwise.
- Gemco[®] Rotary Limit Switch offers the broadest range of standard gear selections of any switch available. Standard ratios range from 5:1 through 5333.3:1.
- Operating temperatures from -40°F to 180°F (-40°C to 82.2°C).
- UL and CSA Rated Snap Action Switches.



All Metal Gearing for Longevity

DESCRIPTION

AMETEK Factory Automation markets, engineers, and manufactures sensors and controls for demanding and harsh industrial environments. The Gemco[®] **Geared Rotary Limit Switches** are primarily used in material handling and rotary operations where motion is expressed in shaft rotation. The input shaft is typically connected to the motor or drive mechanism, after a set amount of turns, the cam trips the switches, thus starting or stopping the movement. The primary purpose of the switch is to control the intermediate or end limits in linear or rotary motion. The switch is often used as a safety device to protect against accidental damage to equipment due to overtravel. Our Geared Rotary Limit Switch line is designed for longevity. Units include all metal gearing and switches that are rated for 15 million operations.

In the 2000 Series, there are three different enclosures with either Worm or Spur Gear drive mechanisms. These enclosures provide a clean environmental condition for the industrial duty snap action switches. When motion can be expressed in shaft rotation; either through a roller chain, gear train, or direct coupling, the Gemco[®] Geared Rotary Limit Switches make it possible to open or close, up to four independent circuits at the desired angular positions.

The 2000 Series switches are provided in a variety of enclosure styles and ratios to meet your mounting and environmental conditions. NEMA 12, 4, 7 & 9 enclosure ratings are available.

Simplicity is the key to success

• Easy to Install & maintain

- o These limit switches may be mounted in any orientation. When installed properly, they will provide long life with a minimum amount of service/ maintenance.

ENCLOSURES

Series 2000 (General Purpose) **NEMA 12 enclosure**, molded from **Fibralloy**[®], a special fiberglass material that is resistant to acids, alcohols, hydrocarbons and heat. A tight fitting synthetic gasket prevents the entrance of oils and coolants. External mounting holes enable switch mounting without internal interference. Available in 2, 3 and 4 circuit units with either SPDT or DPDT switches, with ratios from 5:1 to 5333:1. Permissible speeds to 1000 RPM. (See Figures 1 and 2.)

- NEMA 12 – General Purpose, shock resistant Fibralloy[®] enclosure
- ½" Input Shaft with Woodruff Key for quick drive connection
- Self-lubricating Bearings – Powdered metal impregnated bearings for life-time lubrication
- Gear ratios from 5:1 to 5333:1
- External Mounting holes, permit mounting without internal interference
- Bronze gear and steel cams for longevity
- Snap Action Switches – SPDT or DPDT - UL Recognized and CSA approved



Figure 1 – NEMA 12 Enclosure – 2 Circuit



Figure 2 – NEMA 12 – 4 Circuit

ENCLOSURES

2000 Series (Watertight) NEMA 4 enclosure, made of cast aluminum with ½" input shaft. External mounting holes enable switch mounting without internal interference. Available in 2, 3 and 4 circuit units with either SPDT or DPDT switches, with ratios from 5:1 to 5333:1. Cast iron or cast bronze enclosures can be provided upon request. Permissible speeds to 1000 RPM. (See Figure 3)

- NEMA 4 – Heavy Duty, Cast Aluminum enclosure
- ½" Input Shaft with Woodruff Key for quick drive connection
- Self-lubricating Bearings – Powdered metal impregnated bearings for life-time lubrication
- Gear ratios from 5:1 to 5333:1
- External Mounting holes, permit mounting without internal interference
- Bronze gear and steel cams for longevity
- Snap Action Switches – SPDT or DPDT - UL Recognized and CSA approved
- *Optional Cast Iron & Cast Bronze enclosures available upon request*

2000 Series (Hazardous Locations) NEMA Type 7 & 9, made of cast aluminum with ½" input shaft. External mounting holes enable switch mounting without internal interference. Available in 2, 3 and 4 circuit units with either SPDT or DPDT switches, with ratios from 5:1 to 5333:1 Permissible speeds to 1000 RPM.

- NEMA 7 & 9 - Heavy duty, Cast Aluminum enclosure
- ½" Input Shaft with Woodruff Key for quick drive connection
- Self-lubricating Bearings – Powdered metal impregnated bearings for life-time lubrication
- Gear ratios from 5:1 to 5333:1
- External Mounting holes, permit mounting without internal interference
- Bronze gear and steel cams for longevity
- Snap Action Switches – SPDT or DPDT - UL Recognized and CSA approved

These enclosures are designed and manufactured to our interpretation of the following Underwriters Laboratory (UL) standards and have not been submitted for 3rd party approvals:

- UL 1203 Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations (Second Edition, July 27, 1994)
- UL 698 Industrial Control Equipment for Use in Hazardous (Classified) Locations (Twelfth Edition, June 22, 1995)
- NEMA 7, Class I, Division 1 & 2, Group D
- NEMA 9, Class II, Division 1 & 2, Group E, F, G

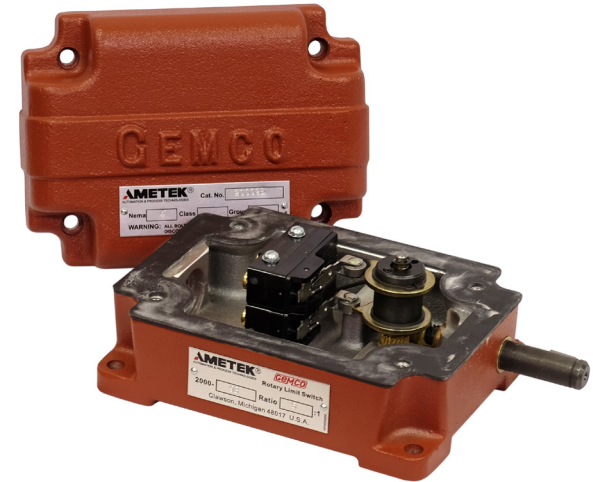


Figure 3 – NEMA 4 – 2 Circuit Enclosure

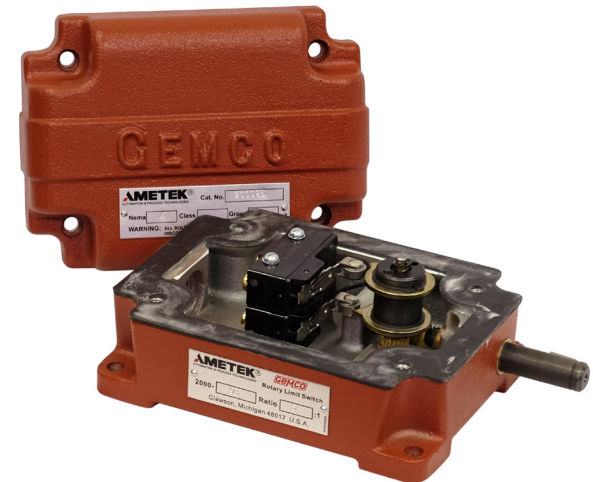



Figure 4 – NEMA 7 – 2 Circuit Enclosure

PART NUMBER STRUCTURE – NEMA 12, 4, & 7 (WORM GEARS)

Standard Two Cam SPDT Contact Symbol For Each Cam




See Table 2 Symbol A

Maximum Speed - 1000 RPM Worm Gear Type						
Standard Two Cam Geared Rotary Limit Switch with SPDT Switches						
Input Shaft Rev.	Cam Block Rev.	NEMA			Input Shaft Turns	
		NEMA 12	NEMA 4	NEMA 7	Maximum Setting	To Reset
5	1	2000-1B	2000-9B	2000-17B	4-1/2	1/16
10	1	2000-38B	2000-39B	2000-40B	9-1/4	1/8
20	1	2000-2B	2000-10B	2000-18B	18	1/8
30	1	2000-3B	2000-11B	2000-19B	28	1/4
40	1	2000-4B	2000-12B	2000-20B	37	1/4
50	1	2000-5B	2000-13B	2000-21B	46	1/4
60	1	2000-6B	2000-14B	2000-22B	58	1-1/2
80	1	2000-7B	2000-15B	2000-23B	77	3/4
100	1	2000-8B	2000-16B	2000-24B	94	3/4
150	1	2000-129B	2000-132B	2000-135B	135	4
250	1	2000-28B	2000-31B	2000-34B	230	6
300	1	2000-130B	2000-133B	2000-136B	265	6-1/2
500	1	2000-29B	2000-32B	2000-35B	460	15-1/4
600	1	2000-131B	2000-134B	2000-143B	555	16
1000	1	2000-30B	2000-33B	2000-36B	920	29
2000	1	2000-292B	2000-299B	2000-291B		
4000	1	2000-279B	2000-127B	2000-128B		
5333.3	1	2000-281B	2000-157B	2000-158B		Consult Factory

Standard 2 Cam SPDT - Switch Capacities: 125V - 15 amp AC, 1/2 amp DC, 250V - 15 amp AC, 1/4 amp DC, 480 V - 15 amp AC

Standard Three Cam SPDT Contact Symbol For Each Cam




See Table 2 Symbol C

Maximum Speed - 1000 RPM Worm Gear Type						
Standard Three Cam Geared Rotary Limit Switch with SPDT Switches						
Input Shaft Rev.	Cam Block Rev.	NEMA			Input Shaft Turns	
		NEMA 12	NEMA 4	NEMA 7	Maximum Setting	To Reset
5	1	2000-174B	2000-188B	2000-263B	4-3/4	1/16
10	1	2000-175B	2000-189B	2000-264B	9-1/2	1/16
20	1	2000-176B	2000-190B	2000-265B	19-1/4	1/8
30	1	2000-177B	2000-191B	2000-266B	28-1/2	1/4
40	1	2000-178B	2000-192B	2000-267B	38	1/2
50	1	2000-179B	2000-193B	2000-268B	47	1/2
60	1	2000-180B	2000-194B	2000-269B	57-1/2	1/2
80	1	2000-181B	2000-195B	2000-270B	76-3/4	1/2
100	1	2000-182B	2000-196B	2000-271B	96-1/4	1-1/2
150	1	2000-170B	2000-171B	2000-186B	135	4
250	1	2000-183B	2000-197B	2000-272B	234	2
300	1	2000-187B	2000-300B	2000-301B	265	6-1/2
500	1	2000-184B	2000-198B	2000-273B	460	7
600	1	2000-1100B	2000-1101B	2000-1102B	555	16
1000	1	2000-185B	2000-199B	2000-274B	920	10
2000	1	2000-1103B	2000-1104B	2000-1105B		
4000	1	2000-1106B	2000-1107B	2000-1108B		
5333.3	1	2000-1109B	2000-1110B	2000-1111B		Consult Factory

Standard 3 Cam SPDT - Switch Capacities: 125V - 10 amps resistive load, 250V - 10 amps resistive load, 30 VDC - 7 amps inductive load

Standard Two Cam DPDT Contact Symbol For Each Cam




See Table 2 Symbol B

Standard Two Cam Geared Rotary Limit Switch with DPDT Switches						
Input Shaft Rev.	Cam Block Rev.	NEMA			Input Shaft Turns	
		NEMA 12	NEMA 4	NEMA 7	Maximum Setting	To Reset
5	1	2000-137B	2000-145B	2000-159B	4-3/4	1/8
10	1	2000-138B	2000-146B	2000-160B	9-1/4	1/4
20	1	2000-25B	2000-147B	2000-161B	19	1/2
30	1	2000-47B	2000-148B	2000-60B	28-1/2	1/2
40	1	2000-139B	2000-149B	2000-162B	37-3/4	3/4
50	1	2000-73B	2000-150B	2000-163B	46-3/4	3/4
60	1	2000-75B	2000-151B	2000-164B	58	1-1/2
80	1	2000-77B	2000-152B	2000-165B	75	1-3/4
100	1	2000-43B	2000-153B	2000-166B	95	2
150	1	2000-1130B	2000-1131B	2000-1132B	135	4
250	1	2000-140B	2000-154B	2000-167B	237	6
300	1	2000-1133B	2000-1134B	2000-1135B	265	6-1/2
500	1	2000-141B	2000-155B	2000-168B	460	15-1/4
600	1	2000-1136B	2000-1137B	2000-1138B	555	16
1000	1	2000-142B	2000-156B	2000-169B	920	29
2000	1	2000-1139B	2000-1140B	2000-1141B		
4000	1	2000-1142B	2000-1143B	2000-1144B		
5333.3	1	2000-1145B	2000-1146B	2000-1147B		Consult Factory

Standard 2 Cam DPDT - Switch Capacities: 125V or 250 VAC - 10 amp; 125 VDC - 1/2 amp; 250VDC - 1/4 amp

Standard Four Cam SPDT Contact Symbol For Each Cam



See Table 2 Symbol C

Standard Four Cam Geared Rotary Limit Switch with SPDT Switches						
Input Shaft Rev.	Cam Block Rev.	NEMA			Input Shaft Turns	
		NEMA 12	NEMA 4	NEMA 7	Maximum Setting	To Reset
5	1	2000-89B	2000-101B	2000-113B	4-3/4	1/16
10	1	2000-90B	2000-102B	2000-114B	9-1/2	1/16
20	1	2000-91B	2000-103B	2000-115B	19-1/4	1/8
30	1	2000-92B	2000-104B	2000-116B	28-1/2	1/4
40	1	2000-93B	2000-105B	2000-117B	38	1/2
50	1	2000-94B	2000-106B	2000-118B	47	1/2
60	1	2000-95B	2000-107B	2000-119B	57-1/2	1/2
80	1	2000-96B	2000-108B	2000-120B	76-3/4	1/2
100	1	2000-97B	2000-109B	2000-121B	96-1/4	1-1/2
150	1	2000-1112B	2000-1113B	2000-1114B	135	4
250	1	2000-98B	2000-110B	2000-122B	234	2
300	1	2000-1115B	2000-1116B	2000-1117B	265	6-1/2
500	1	2000-99B	2000-111B	2000-123B	460	7
600	1	2000-1118B	2000-1119B	2000-1120B	555	16
1000	1	2000-100B	2000-112B	2000-124B	920	10
2000	1	2000-1121B	2000-1122B	2000-1123B		
4000	1	2000-1124B	2000-1125B	2000-1126B		
5333.3	1	2000-1127B	2000-1128B	2000-1129B		Consult Factory

Standard 4 Cam SPDT - Switch Capacities: 125V - 10 amps resistive load, 250V - 10 amps resistive load, 30 VDC - 7 amps inductive load

Worm Gear Type - Special Cams	
(Special cams not listed, can be special ordered by specifying cam angle.)	
Cam Part Number (For Standard Cam Only)	Interval for which Switch Contacts are Opened or Closed
S0005500	25° or 335° - Standard
S0006800	54° or 306°
S0008400	75° or 285°
S0006900	90° or 270°
S0008500	105° or 255°

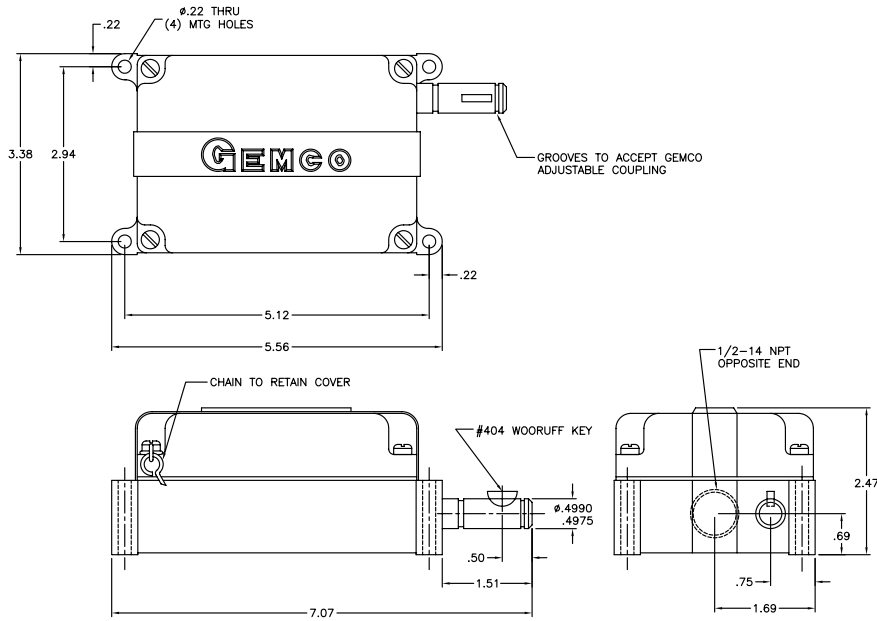
Special Cams

All units come supplied with our standard 25° cams. Consult factory for units needing longer dwell cams.

S0008600	135° or 225°
S0008700	150° or 210°
S0007000	180°
S0007100	240° or 120°
S0012700	360° - Blank Cam

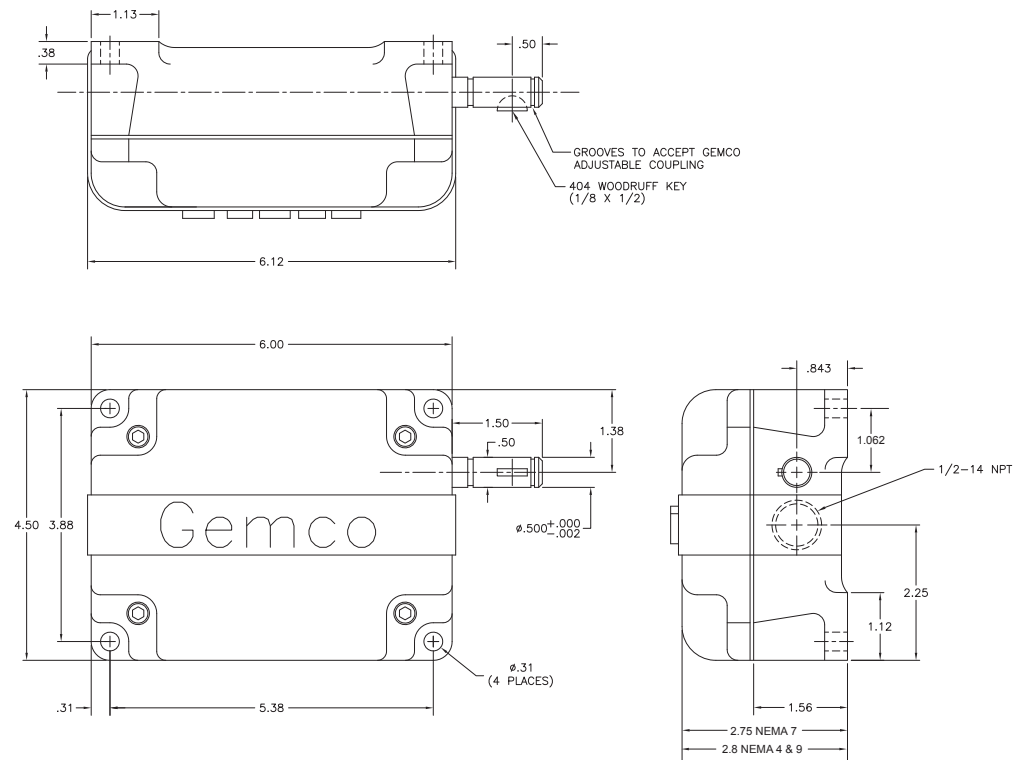
DIMENSIONS - WORM GEAR TYPES - NEMA 12, 4, 7 & 9

WORM GEAR TYPE (NEMA 12)



Approximate shipping weight – 2 lbs.

WORM GEAR TYPE (NEMA 4, 7 & 9)



NOTES:

- 1) NEMA 7 ENCLOSURE FOR USE IN CLASS I, GROUP D LOCATIONS ONLY.
 - 2) NEMA 9 ENCLOSURE FOR USE IN CLASS II, GROUP E,F,G LOCATIONS ONLY.
- Approximate shipping weight – 5 lbs.

SPUR GEAR TYPE - GEARED ROTARY LIMIT SWITCHES

GEMCO's Spur Gear Type Rotary Limit Switch is used in applications requiring ratios below 3:1 and 1:3 for controlling the end and/or intermediate limits of reciprocating or rotary motion. This device extends the line of Gemco Geared Rotary Limit Switches by providing ultra-sensitive control for small increments of motion. Our Spur Gear Type switches are available in our NEMA 12, NEMA 4, and NEMA 7 type enclosures. Each enclosure can accommodate from two to four SPDT switches or two DPDT switches. All switches are provided with silver to silver contacts for reliability along with screw type terminals.

The switches are actuated by independently adjustable cams which are driven by the input shaft. All cams are mounted on a common block, which is directly coupled or geared to the drive shaft.

Enclosures

NEMA 12 (General Purpose) enclosures consist of a die cast housing and Fibrallyoy[®] cover. All mounting holes are external to the wiring cavity eliminating interference with internal wiring when the switch is mounted. Captive screws fasten the cover to the die cast housing and eliminate problems of misplaced screws.

NEMA 4 and 7 enclosures are constructed of cast aluminum to prevent corrosion. Cast Iron and Cast Bronze enclosures can also be provided on special request. All units are provided with an attractive red wrinkle finish.

Ratios

Standard geared ratios between the input shaft and cam block are 1:1, 1/2:1, 1/3:1, 2:1, and 3:1. The 1:1 ratio may be supplied with a potentiometer gear coupled to the input shaft with ratios of 1:1, 1:2 and 1:3. All units come standard with our 25° Cams. Longer dwells available, consult factory.

Mounting

Unique mounting features permit these switches to be installed in any of three different positions. Mounting holes are provided for either direct or sprocket drive applications.

Potentiometer - Optional

An optional feature of mounting a 2-watt potentiometer within the enclosure, and gear coupled to the input shaft, is offered. This feature permits the potentiometer to be used as a remote position indicator or as a constant output auxiliary control device for open or closed loop feedback systems.

- Available in NEMA 12, 4 & 7 style enclosures
- ½" Input Shaft with Woodruff Key for quick drive connection
- Self-lubricating Bearings – Powdered metal impregnated bearings for life-time lubrication
- Gear ratios from 1:3 to 3:1
- External Mounting holes, permit mounting without internal interference
- Bronze gear and steel cams for longevity
- Snap Action Switches – SPDT or DPDT - UL Recognized and CSA approved
- Unique mounting – Mounting holes are provided for either direct or sprocket drive applications in three different positions
- Optional Potentiometer outputs available upon request

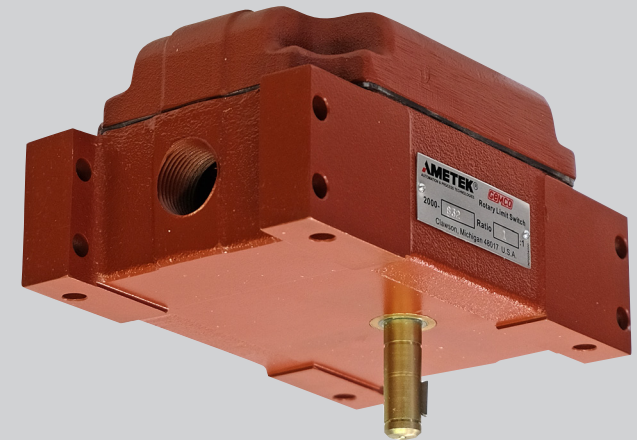


Figure 5 – NEMA 4 – Spur Gear Enclosure

Table 1 – Engineering Data

Input Shaft Rev.	Cam Block Rev.	Turns of Input Shaft		
		Max. Setting Between Limits	Min. Setting Between Limits	To Reset
1	1	0.90	0.050	0.025
1/2	1	0.45	0.025	0.012
1/3	1	0.30	0.015	0.008
2	1	1.80	0.100	0.050
3	1	2.70	0.150	0.075

Figures are based on a switch using standard 25° cams and symbol A contacts as noted in Table 2

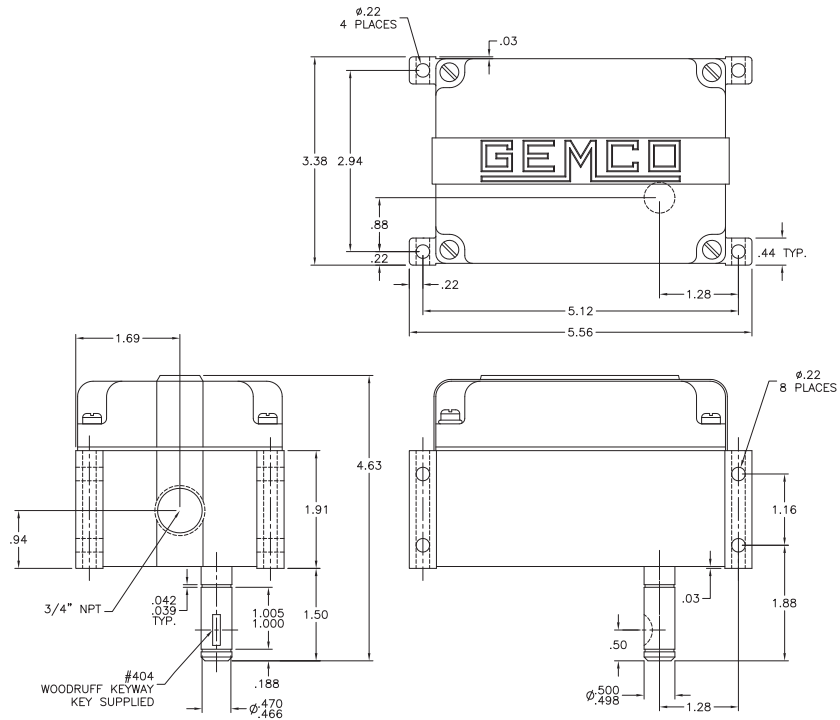
GEAR RATIO SELECTION

Spur Gear Type - Rotary Limit Switch						
			Two Circuit SPDT Symbol A	Two Circuit DPDT Symbol B	Three Circuit SPDT Symbol C	Four Circuit SPDT Symbol C
Enclosure	Input Shaft Rev.	Cam Block Rev.	Part Number	Part Number	Part Number	Part Number
NEMA 12	1	1	2000-800	2000-805	2000-810	2000-815
	1/2	1	2000-801	2000-806	2000-811	2000-816
	1/3	1	2000-802	2000-807	2000-812	2000-817
	2	1	2000-803	2000-808	2000-813	2000-818
	3	1	2000-804	2000-809	2000-814	2000-819
NEMA 4	1	1	2000-832	2000-837	2000-842	2000-847
	1/2	1	2000-833	2000-838	2000-843	2000-848
	1/3	1	2000-834	2000-839	2000-844	2000-849
	2	1	2000-835	2000-840	2000-845	2000-850
	3	1	2000-836	2000-841	2000-846	2000-851
NEMA 7	1	1	2000-864	2000-869	2000-874	2000-879
	1/2	1	2000-865	2000-870	2000-875	2000-880
	1/3	1	2000-866	2000-871	2000-876	2000-881
	2	1	2000-867	2000-872	2000-877	2000-882
	3	1	2000-868	2000-873	2000-878	2000-883

In selecting a gear ratio, maximum accuracy and ease of adjustment are more easily obtained if rotation of the input shaft between limits is equal to, or less than, maximum settings between limits. For example, if .8 revolutions of the input shaft is required to open and close a valve, a gear ratio of 1:1 input to cams should be selected.

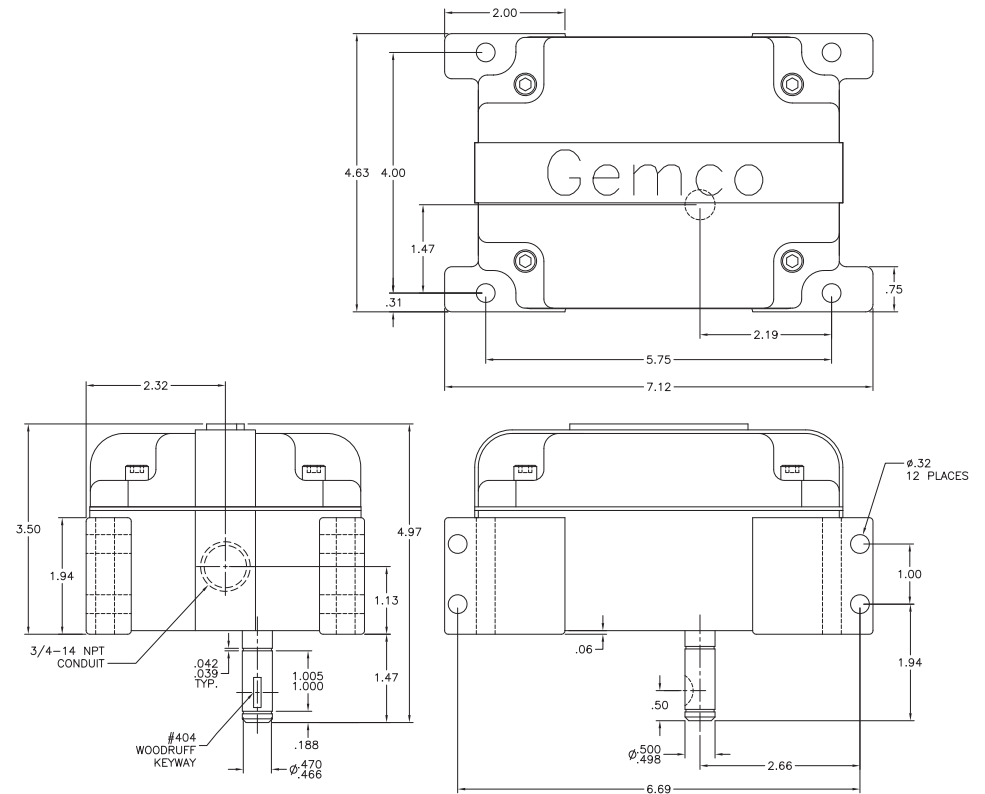
DIMENSIONS - SPUR GEAR TYPES - NEMA 12, 4, 7 & 9

SPUR GEAR TYPE (NEMA 12)



Approximate shipping weight – 3 lbs.

SPUR GEAR TYPE (NEMA 4, 7 & 9)



Approximate shipping weight – 4.5 lbs.

HEAVY DUTY TYPE - GEARED ROTARY LIMIT SWITCHES

2000 Series (Heavy Duty) - NEMA 12 enclosure, made of cast aluminum with 3/4" Input shaft. External mounting holes enable switch mounting without internal interference. Available in 2, 3 and 4 circuit units with either SPDT or DPDT switches, with ratios from 5:1 to 3000:1. Permissible speeds to 1800 RPM.

Ruggedly built, GEMCO'S Heavy Duty Rotary Limit Switches have gained wide acceptance on installations such as mechanical press ram adjustments, press extractors and shuttles which require dependable trouble-free performance. These installations require a limit switch that will withstand rapid starting and stopping, shock, vibration and still successfully control the end or intermediate limits of such devices. Because of these demands and the high reliability required, GEMCO'S heavy-duty Rotary Limit Switch far exceeds any on the market.

- NEMA 12 - Heavy duty, Cast Aluminum enclosure
- 3/4" Input Shaft with Woodruff Key on 5:1 – 30:1 ratios
- 1/2" Input Shaft with Woodruff Key on 125:1 – 3000:1 ratios
- Self-lubricating Bearings – Powdered metal impregnated bearings for life-time lubrication
- Gear ratios from 5:1 to 3000:1
- External Mounting holes, permit mounting without internal interference
- Bronze gear and steel cams for longevity
- Snap Action Switches – SPDT or DPDT - UL Recognized and CSA approved

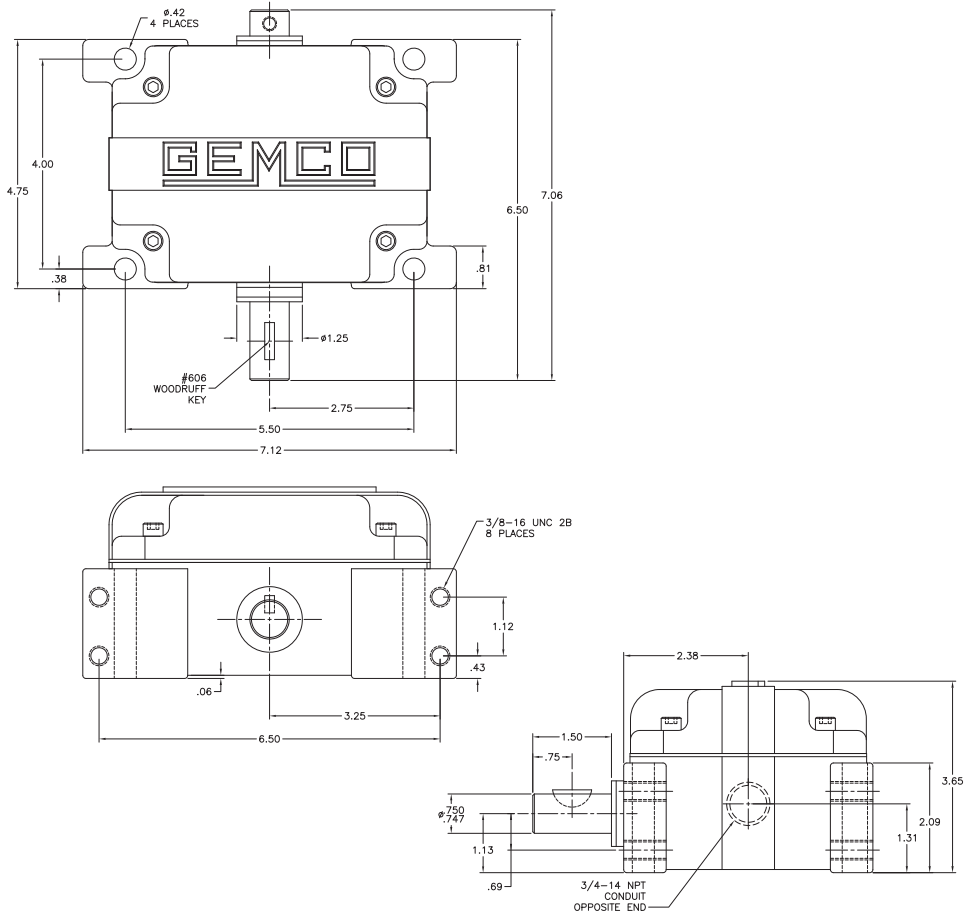


Figure 6 – NEMA 12 – Heavy Duty – 5:1 to 30:1 ratios – Side shaft location

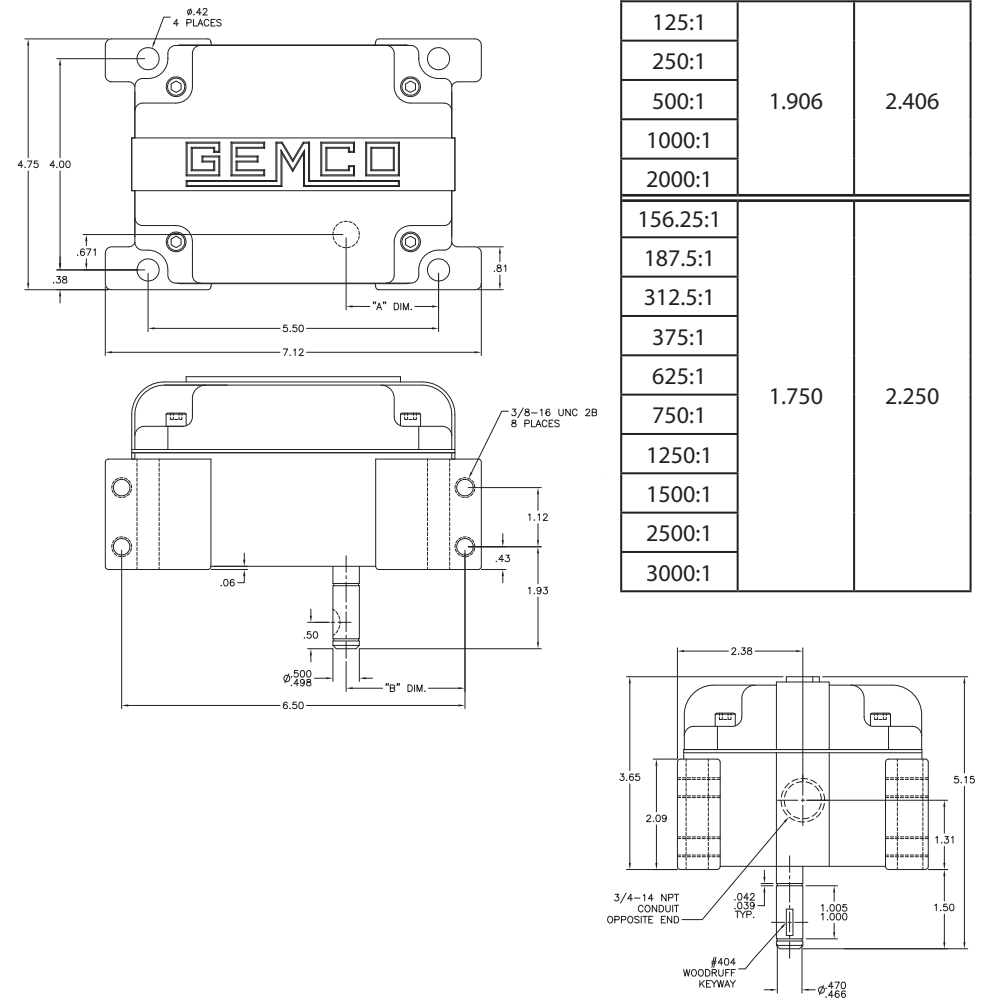
Heavy Duty - NEMA 12					
		Two Circuit SPDT Symbol A	Two Circuit DPDT Symbol B	Three Circuit SPDT Symbol C	Four Circuit SPDT Symbol C
Reduction Ratios	Shaft Location	Part Number	Part Number	Part Number	Part Number
5 to 1	Side	2000-2000	2000-2006	2000-2012	2000-2018
7.5 to 1	Side	2000-2001	2000-2007	2000-2013	2000-2019
10 to 1	Side	2000-2002	2000-2008	2000-2014	2000-2020
15 to 1	Side	2000-2003	2000-2009	2000-2015	2000-2021
20 to 1	Side	2000-2004	2000-2010	2000-2016	2000-2022
30 to 1	Side	2000-2005	2000-2011	2000-2017	2000-2023
125 to 1	Bottom	2000-2024	2000-2039	2000-2054	2000-2069
156.25 to 1	Bottom	2000-2025	2000-2040	2000-2055	2000-2070
187.5 to 1	Bottom	2000-2026	2000-2041	2000-2056	2000-2071
250 to 1	Bottom	2000-2027	2000-2042	2000-2057	2000-2072
312.5 to 1	Bottom	2000-2028	2000-2043	2000-2058	2000-2073
375 to 1	Bottom	2000-2029	2000-2044	2000-2059	2000-2074
500 to 1	Bottom	2000-2030	2000-2045	2000-2060	2000-2075
625 to 1	Bottom	2000-2031	2000-2046	2000-2061	2000-2076
750 to 1	Bottom	2000-2032	2000-2047	2000-2062	2000-2077
1,000 to 1	Bottom	2000-2033	2000-2048	2000-2063	2000-2078
1,250 to 1	Bottom	2000-2034	2000-2049	2000-2064	2000-2079
1,500 to 1	Bottom	2000-2035	2000-2050	2000-2065	2000-2080
2,000 to 1	Bottom	2000-2036	2000-2051	2000-2066	2000-2081
2,500 to 1	Bottom	2000-2037	2000-2052	2000-2067	2000-2082
3,000 to 1	Bottom	2000-2038	2000-2053	2000-2068	2000-2083

DIMENSIONS - HEAVY DUTY GEARED ROTARY LIMIT SWITCH

5:1 TO 30:1 DIMENSIONS



125:1 TO 3000:1 DIMENSIONS



ELECTRICAL SWITCH RATINGS

Note: Depending on which 2000 Series is ordered, it may contain a different type of electrical switch. Refer to Symbol letter in part number grid to determine which switch will be installed inside of the Rotary Limit Switch.

All 2 circuit module units will be supplied with switches that have easy to wire screw type terminals: See Figure 7.

All 3 and 4 circuit models will use a terminal type switch. See Figure 8. Consult factory for special tall cover options that allow NEMA 4, 7 & 9 Enclosures, 3 & 4 circuit units with switch screw type terminals. See Figure 9.

The terminal type and size for the 3 & 4 circuit model switches will be **“Quick Disconnect, Female, for 14-16 AWG wire, with .110" x .020" tab, insulated or non-insulated”**, customer option and supplied by the customer.

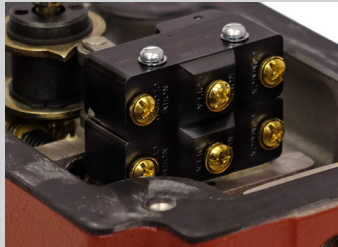


Figure 7 – Screw Terminal Switch Connection

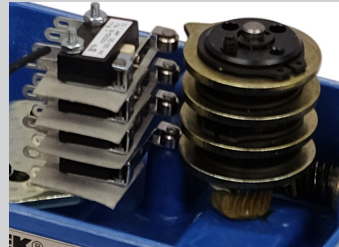


Figure 8 – 3 & 4-circuit unit with terminal type switch

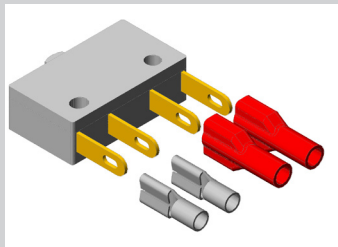


Figure 8 – Terminal Switch Connection



Figure 9 – Tall cover spacer with Screw Terminal Connection

SPECIFICATIONS

Specifications	
Enclosure	
Housing - Material	Varies by Product - Fibrallloy [®] , Cast Aluminum. Cast Iron and Cast Bronze housings available upon request
Rating	Varies by enclosure type - See Product Description
Cover Gasket	Varies by enclosure type - See Product Description
Bearings	Powdered metal impregnated bearings for life-time lubrication
Input Shaft	1/2" w/ 404 Woodruff Key - Maximum Load 5 lbs.
Input Shaft - Material	ASTM A311 Class B - Black Oxide Finish
Gear Ratios - Available	5:1 to 5333:1
Gears - Internal	Bronze
Cams	Steel - 25° Lobe standard - Longer dwells available upon request
Switches	SPDT or DPDT - UL & CSA Approved. Rated for 15 million operations
Operating Temperature	-40°F to 180°F (-40°C to 82.2°C)
RPM	Worm Gear Type - 1,000 RPM Maximum Heavy Duty Type - 1,800 RPM Maximum
Potentiometers	Optional - Multi-turn wire wound, 2 watt

Table 2 - Basic Switch Data		
Symbol A	Symbol B	Symbol C
SPDT	DPDT	SPDT
Ratings 125 V - 15 Amps. A.C., 1/2 Amp. DC 250 V - 15 Amps. A.C., 1/4 Amp. DC 460 V - 15 Amps. A.C.	Ratings 125 V - 250VAC - 10 Amps 125 VDC - 1/2 Amp 250VDC - 1/4 Amp	Ratings 125 VAC. - 10 Amps, resistive 250 VAC. - 10 Amps, resistive 30 VDC - 7 Amps. inductive
Electrical Switch Approvals CE, CSA, & UL	Electrical Switch Approvals CE, CSA, & UL	Electrical Switch Approvals UL recognized & CSA certified
See Figure 7		See Figure 8

2000 RIGHT ANGLE GEAR REDUCER ADAPTER

Flange Mount 40:1 Right Angle Gear Reducers are available for the 2000 Series, NEMA 4, 7 & 9 enclosures. The Right Angle Adapter is made of cast aluminum with ½" Slotted Input shaft.

- NEMA 4 Rugged Cast Aluminum baseplate
- ½" Input Shaft with slotted keyway for quick drive connection
- Self-lubricating Bearings – Powdered metal impregnated bearings for life-time lubrication
- Gear ratio 40:1 – In addition to ratio on Rotary Limit Switch
- External Mounting holes, permit mounting without internal interference
- Bronze gear and steel input shaft for longevity
- Bases available for 2000 Series and 2006 Series
 - 2000 Series (NEMA 4, 7 or 9) – 2, 3, or 4 Circuit Model – SD0384300

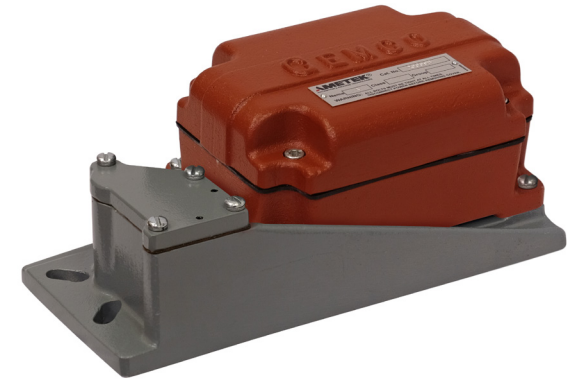


Figure 10: Right Angle Baseplate 40:1 ratio. Image shows with 2000 Series Rotary Limit Switch

DIMENSIONS

2000-NEMA 4 (2-4 Circuit Left Hand Dimensions with Right Angle Gear Reducer)

