

grippers

**GR** Series  
Grippers



**numatics**

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### GR90-Series Angular Grippers

The GR90-Series has a double acting piston attached to a cross bar by a connecting rod. The linear movement of the piston is transformed into angular movement of the jaws through a double toggle link mechanism.

- A. Body:**  
Hardcoat anodized with Teflon®, reduced friction, reduced wear. Front and side ports standard.
- B. Jaws:**  
Hardened alloy steel.  
Keyway slot for tooling location.  
180° jaw motion.
- C. Locking Adjustment Screw:**  
Jaw rotations can be adjusted from 0-90° to be custom fit to each application.



### How to Order

**GR90 1 6 D X**

#### Seal Type

- 1 = Buna-N Seals
- 2 = Viton Seals

#### Sensing Type

- Standard Cord Set
  - 4 = Prox Switch - PNP (sourcing)
  - 5 = Prox Switch - NPN (sinking)
  - 6 = No Sensing
  - Quick Disconnect Cord Set
  - W = Prox Switch - PNP (sourcing) Straight
  - V = Prox Switch - NPN (sinking) Straight
  - U = Prox Switch - PNP (sourcing) 90 Deg.
  - T = Prox Switch - NPN (sinking) 90 Deg.
- Prox switches are 4 mm diameter.

#### Special Options

- X = No Options

#### Sensing Position

- A = Single Position Open
- B = Single Position Close
- C = Two Position Sensing
- D = No Sensing

### When ordering additional switches & Seal Kits:

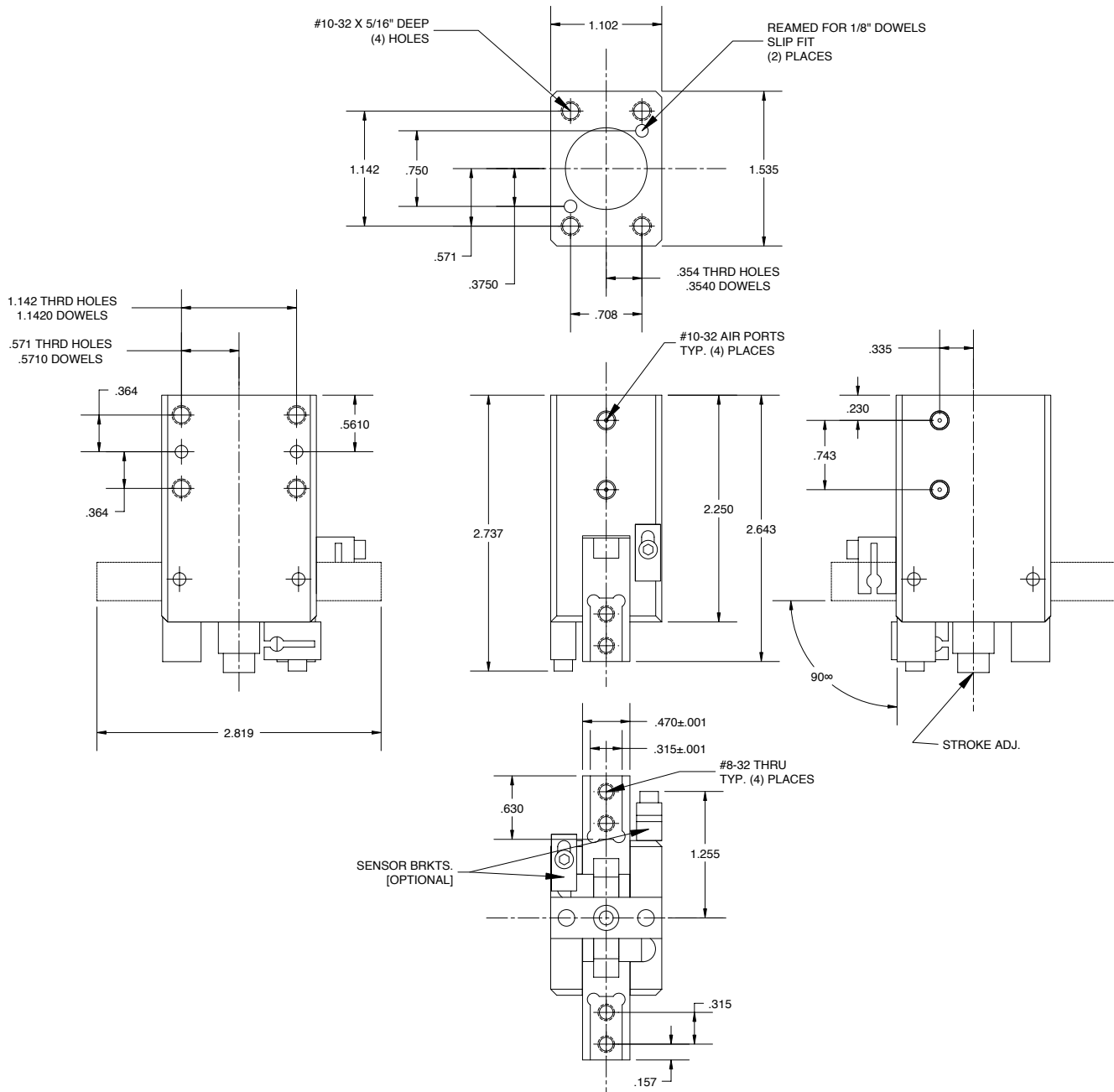
SENSING KITS STANDARD CORD SET		SENSING KITS QUICK DISCONNECT CORD SET	
Hall Effect-PNP (Sourcing)	PX04PS	Hall Effect-PNP (Sourcing)	PX04PQ
Hall Effect-NPN (Sinking)	PX04NS	Hall Effect-NPN (Sinking)	PX04NQ
		90° 5 meter cable	PXC90
		Straight 5 meter cable	PXCST
		( 5m Cables)	



# GR90 Series Angular Grippers

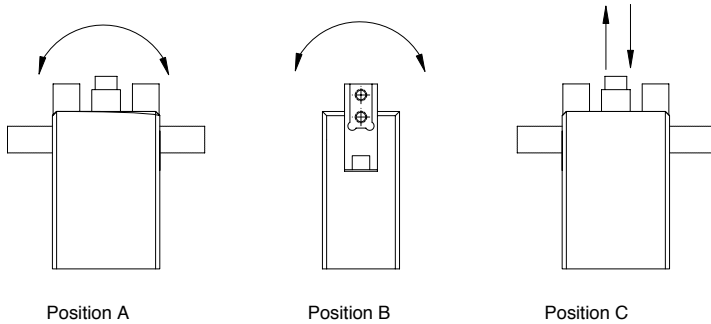
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## GR90 Dimensions





### GR90-Series Gripper Performance Data



Position A

Position B

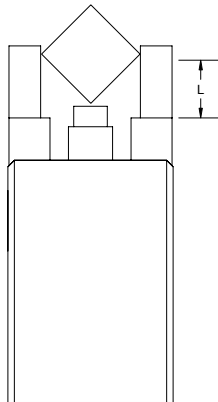
Position C

### Gripper Specifications

	GR90
Grip Force	
open @ 100 psi	55 lbs
close @ 100 psi	52 lbs.
Displacement	0.46 cu. in.
Max Operating Pressure	120 psi
Side Play	±0.001
Weight	7 oz.

### Recommended Maximum Load Ratings

	GR90	
Max Load Position A	30 in-lb	3.4 Nm
Max Load Position B	30 in-lb	3.4 Nm
Max Load Position C	40 lbs.	18Kgf



L (FINGER LENGTH)	GR90
1 Inch	30 lbs.
1.5 Inches	25 lbs.
2 Inches	15 lbs.

Force at 80 psi.

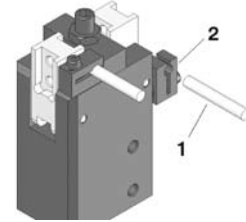


## GR90 Series Angular Grippers

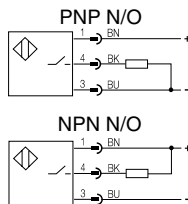
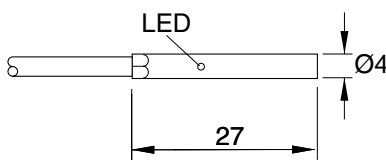
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### GR Series Switch Information

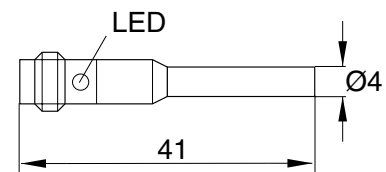
	SWITCH OR BRACKET DESCRIPTION	STANDARD PART NO.	QUICK DISCONNECT PART NO.
1	Prox Switch PNP	PX04PS	PX04PQ
1	Prox Switch NPN	PX04NS	PX04NQ
2	Switch Bracket	CT-500	CT-500



Prox Switch (NPN NO) Flying Lead - PX04NS  
(PNP NO) Flying Lead - PX04PS



Prox Switch (NPN NO), 8 mm connector - PX04NQ  
(PNP NO), 8 mm connector - PX04PQ



#### Sensing Data

Repeat accuracy R		≤5%
Ambient temperature range $t_d$	(°C)	-25...+70°C
Operating frequency f	(Hz)	1800
Utilization categories	(DC)	13
Function indication		YES

#### Electrical Data

Rated operational voltage $U_e$	(V)	24 DC
Supply voltage $U_B$	(V)	10...30 DC
Voltage drop $U_d$ at $I_e$ Stat./dyn.	(V)	≤3.0
Rated insulation voltage $U_i$	(V)	75 VDC
Load current capacity	(mA)	100
Current consumption	(mA)	≤10 / ≤3
Off-State Current $I_r$	(uA)	≤80
Protected against polarity reversal		YES
Short circuit protected		YES
Load Capacitance	(uF)	≤1.00

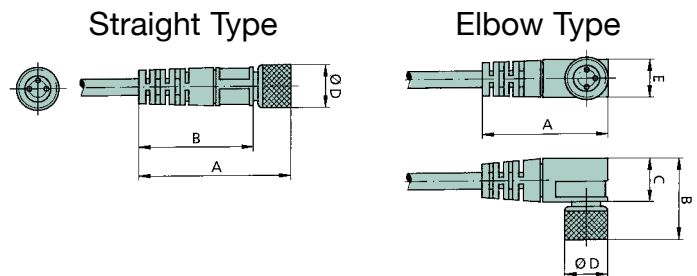
#### Mechanical Data

Degree of protection per IEC 529	IP 67
Housing material	stainless steel
Material of sensing face	POM
Connection	cabl
No. of wires x gauge	3 x 26 AWG

### Female Connectors for Reed Switches and Hall Effect Sensors

Dimensions (mm)

TYPE	ORDER CODE
Straight, 5 m Cable	PXCST
Elbow, 5 m Calbe	PXC90





### GR1400 – 180° Radial Gripper

The GR1400 has a double acting piston attached to a cross bar by a connecting rod. The linear movement of the piston is transformed into radial movement of the jaws through a double toggle link mechanism.

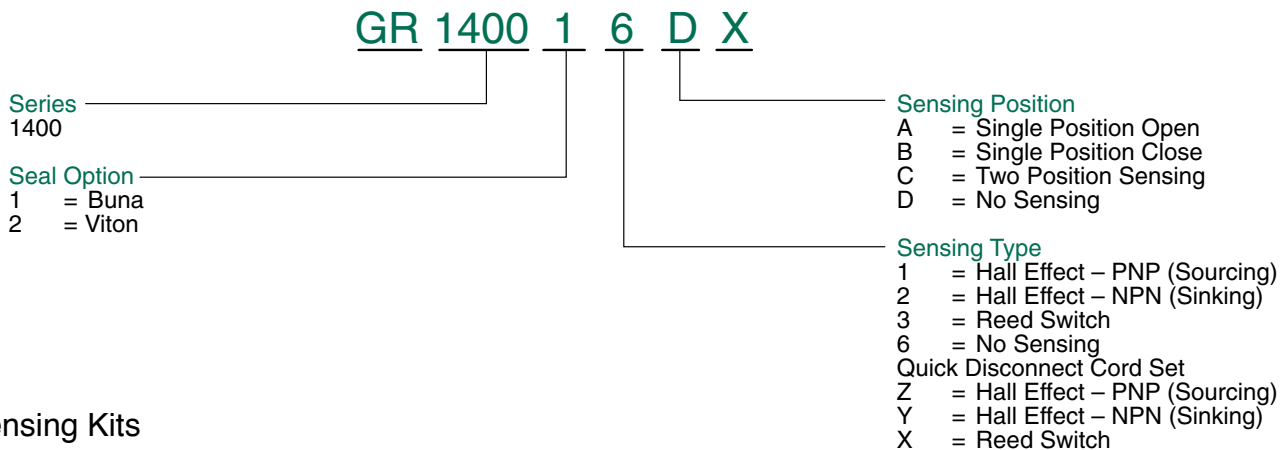
- A.** Body - Hardcoat anodized, T- Slot Sensing track for direct mount of the Numatics Global Switch. Side and top mounting standard. Dowel holes for locating.
- C.** Jaws - Keyway slot for tooling location, 180° Jaw motion
- D.** Pivot Pins - Hardened steel, Needle bearings reduce friction, reduce wear.
- E.** Center Toggle - Aluminum Bronze guided in body for repeatability to center. Bumper for cushion at full open and noise reduction.



### Specifications

GRIP FORCE CLOSE 80 PSI	GRIP FORCE OPEN 80 PSI	SIDE PLAY	WEIGHT	MAXIMUM OPERATING PRESSURE
720 lbs	317 lbs	±0.001	5.62 lbs.	120 psi

### How To Order



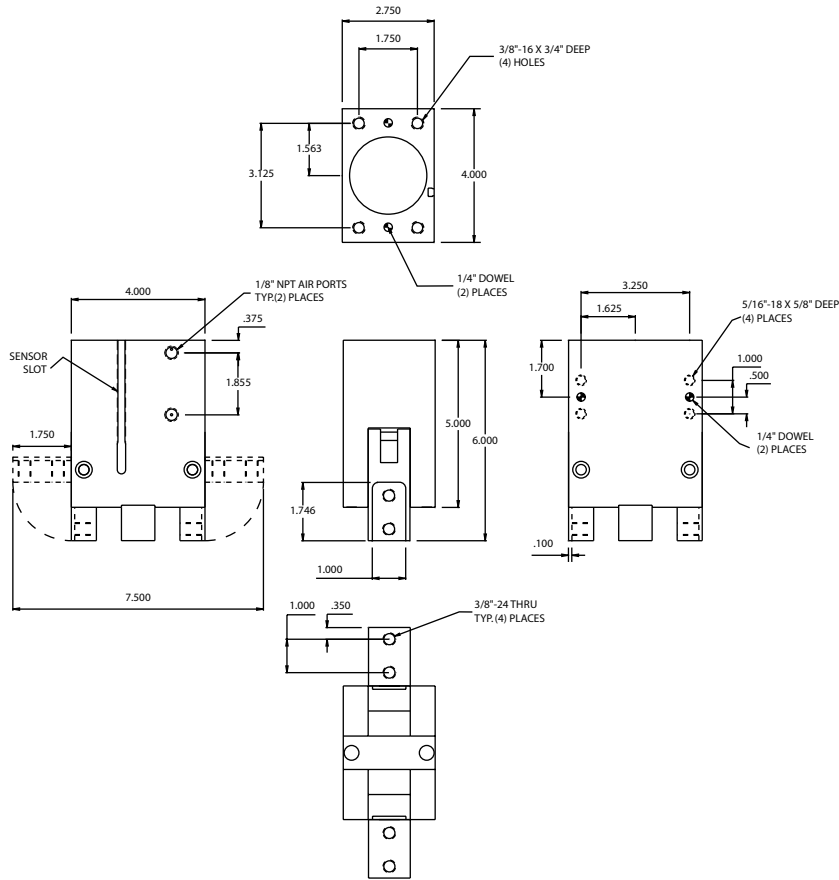
### Sensing Kits

SWITCH DESCRIPTION	STANDARD CORD SET PART NO.	QUICK DISCONNECT PART NO.
Hall Effect - PNP Sourcing	HPNPS31	HPNPQ31
Hall Effect - NPN Sinking	HNPNS32	HNPNQ32
Reed Switch	RSS02	RSQ02
90° 5 Meter Cable	N/A	PXC90
Straight 5 Meter Cable	N/A	PXCST

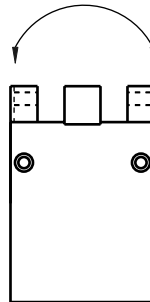
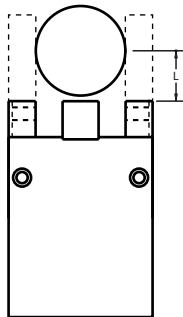


## GR1400 180° Radial Gripper

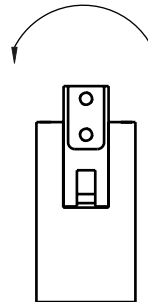
### Dimensions



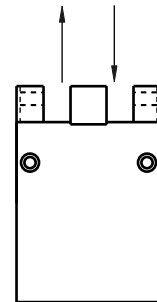
### Performance Data



Position A



Position B



Position C

#### Grip Force @ -4° Close vs. Finger length

L (FINGER LENGTH)	CLOSE FORCE @ 80 PSI	
2 inches	720 lbs	326 Kgf
4 inches	400 lbs	181 Kgf
6 inches	200 lbs	91 Kgf

#### Maximum Load Ratings

	GR1400	
Max Load Position A	880 in/ lbs.	99 Nm
Max Load Position B	930 in/ lbs.	105 Nm
Max Load Position C	1200 lbs.	544 Kgf

#### Grip Force a Function of Opening Angle

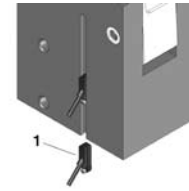
ANGLE	CLOSE FORCE @ 80 PSI	
0°	200 lbs	91 Kgf
45°	90 lbs	41 Kgf
90°	80 lbs	36 Kgf



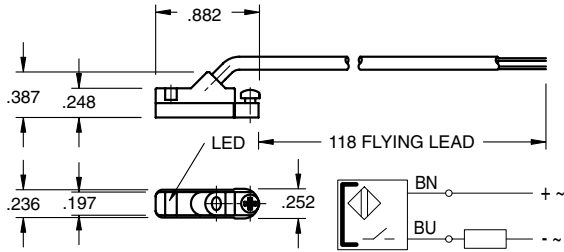


### GR1400 Series Switch Information

	SWITCH OR BRACKET DESCRIPTION	STANDARD PART NO.	QUICK DISCONNECT PART NO.
1	Hall Effect - NPN (Sinking)	HNPNS32	HNPNQ32
1	Reed Switch	RSS02	RSQ02



#### RSS02 – Reed Switch (AC/DC NO), flying lead



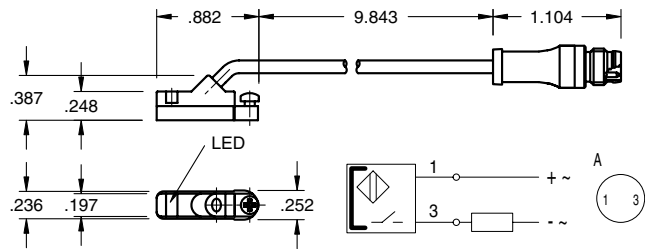
##### Sensing Data

Ambient temperature range $T_a$	(°F/°C)	-4 to 176 (-20 to 80)
Frequency of operating cycles $f$ at $U_e$	(kHz)	0.5
Turn on time $t$	(ms)	$\leq 0.25$
Turn off time $t$	(ms)	0.03
LED function indication		yes

##### Electrical Data

Rated operational voltage $U_e$	(V)	3...130 AC/DC
Supply voltage $U_B$	(V)	3...130 AC/DC
Voltage drop $U_d$ at $I_e$ Stat./dyn.	(V)	3.5
Rated insulation voltage $U_i$	(V)	2750 DC (EN 60335-1)
Rated supply frequency	(Hz)	AC/DC
Rated operational current $I_e$	(mA)	50 (10W max.)
No-load supply current $I_o$ at $U_e$ d./und.	(mA)	0
Observe polarity for correct LED function		

#### RSQ02 – 8mm connector

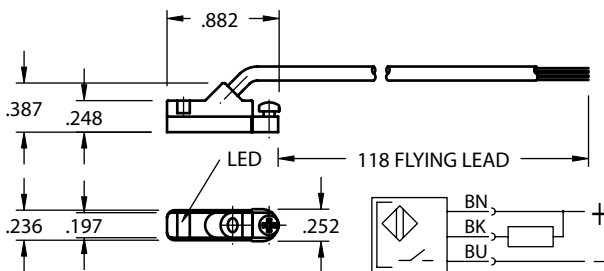


##### Mechanical Data

Housing material	Polyamide
Material of sensing face	Polyamide
Connection	PVC cable
Degree of Protection	IP 67
Rated shock: half-sinus	50g, 11 ms
Rated vibration environment	10g, 10...2000 Hz. 90 min



#### HNPNS32 – Electronic Switch (NPN NO), flying lead



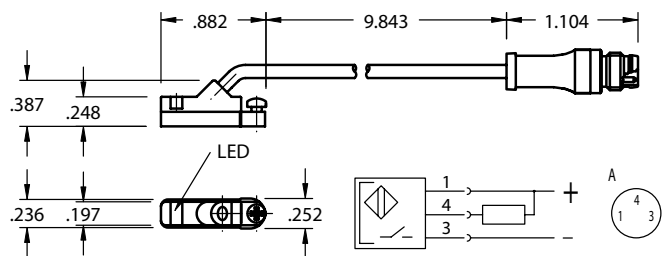
##### Sensing Data

Ambient temperature range $\Delta$	(°F/°C)	-13 to +158 (-25 to +70)
Temperature drift	(% of $S_T$ )	$\leq 0.3\%/^{\circ}C$
Frequency of operating cycles $f$ at $U_e$	(kHz)	10
Turn on time $t$	(ms)	.05
Turn off time $t$	(ms)	.05
Utilization categories		DC13
Function—/supply voltage indication		YES

##### Electrical Data

Rated operational voltage $U_e$	(V)	24 DC
Supply voltage $U_B$	(V)	10...30 DC
incl. ripple	(% of $U_e$ )	15
Voltage drop $U_d$ at $I_e$ Stat./dyn.	(V)	1/-
Rated insulation voltage $U_i$	(V)	75 AC
Rated supply frequency	(Hz)	DC
Rated operational current $I_e$	(mA)	200
No-load supply current $I_o$ at $U_e$ d./und.	(mA)	25/13
Protected against polarity reversal		YES

#### HNPNQ32 – 8mm connector



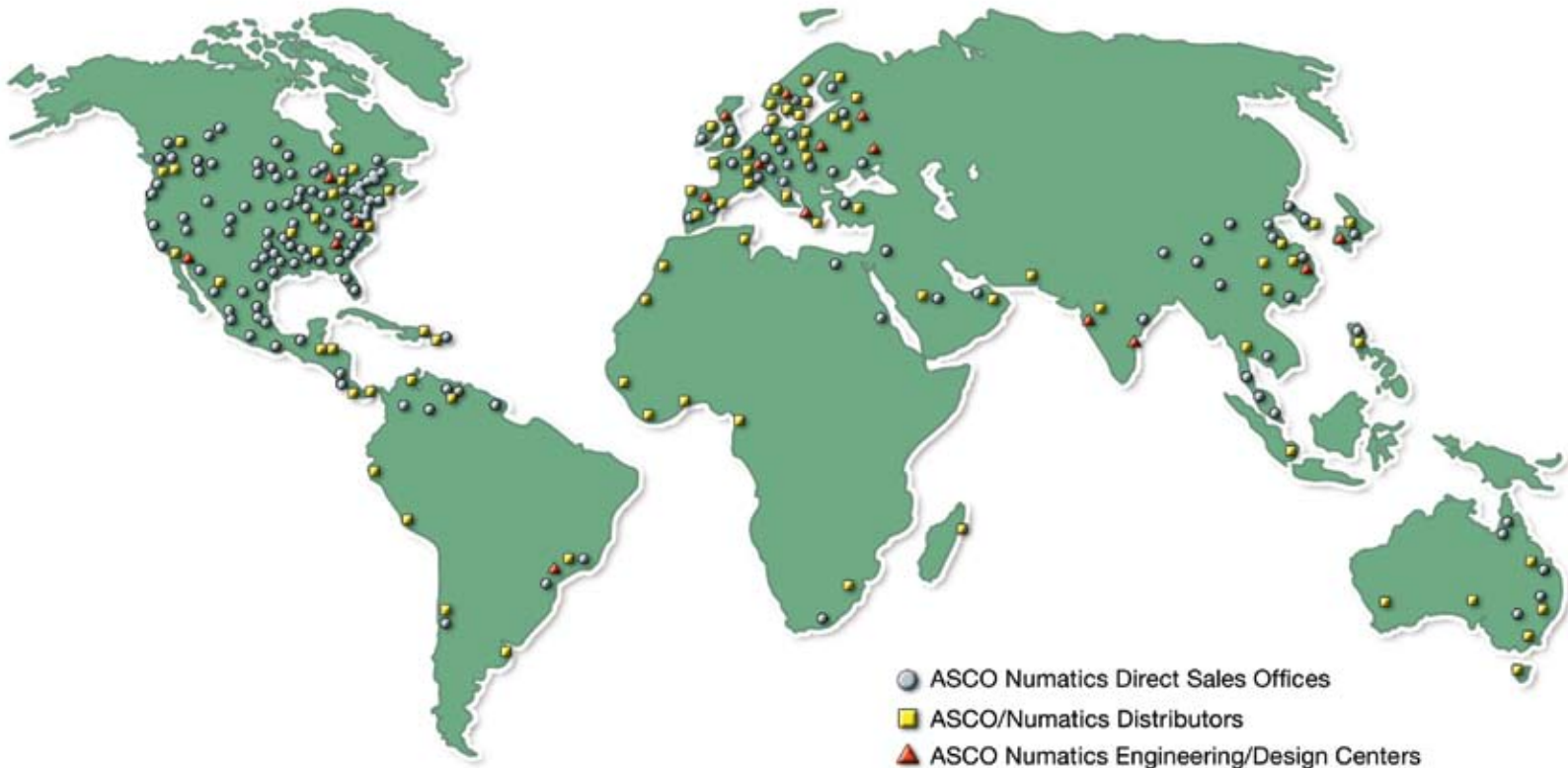
##### Mechanical Data

Housing material	Polyamide
Material of sensing face	Polyamide
Connection	PVC cable
Degree of Protection	IP 67
Rated shock: half-sinus	30 g, 11 ms
Rated vibration environment	55 Hz, 1mm amplitude, 3 x 30



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