

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

Hall Effect-PNP (Sourcing)	PX04PS
Hall Effect-NPN (Sinking)	PX04NS

SENSING KITS

QUICK DISCONNECT CORD SET

Hall Effect-PNP (Sourcing)	PX04PQ
Hall Effect-NPN (Sinking)	PX04NQ

90° 5 meter cable PXC90

Straight 5 meter cable PXCST

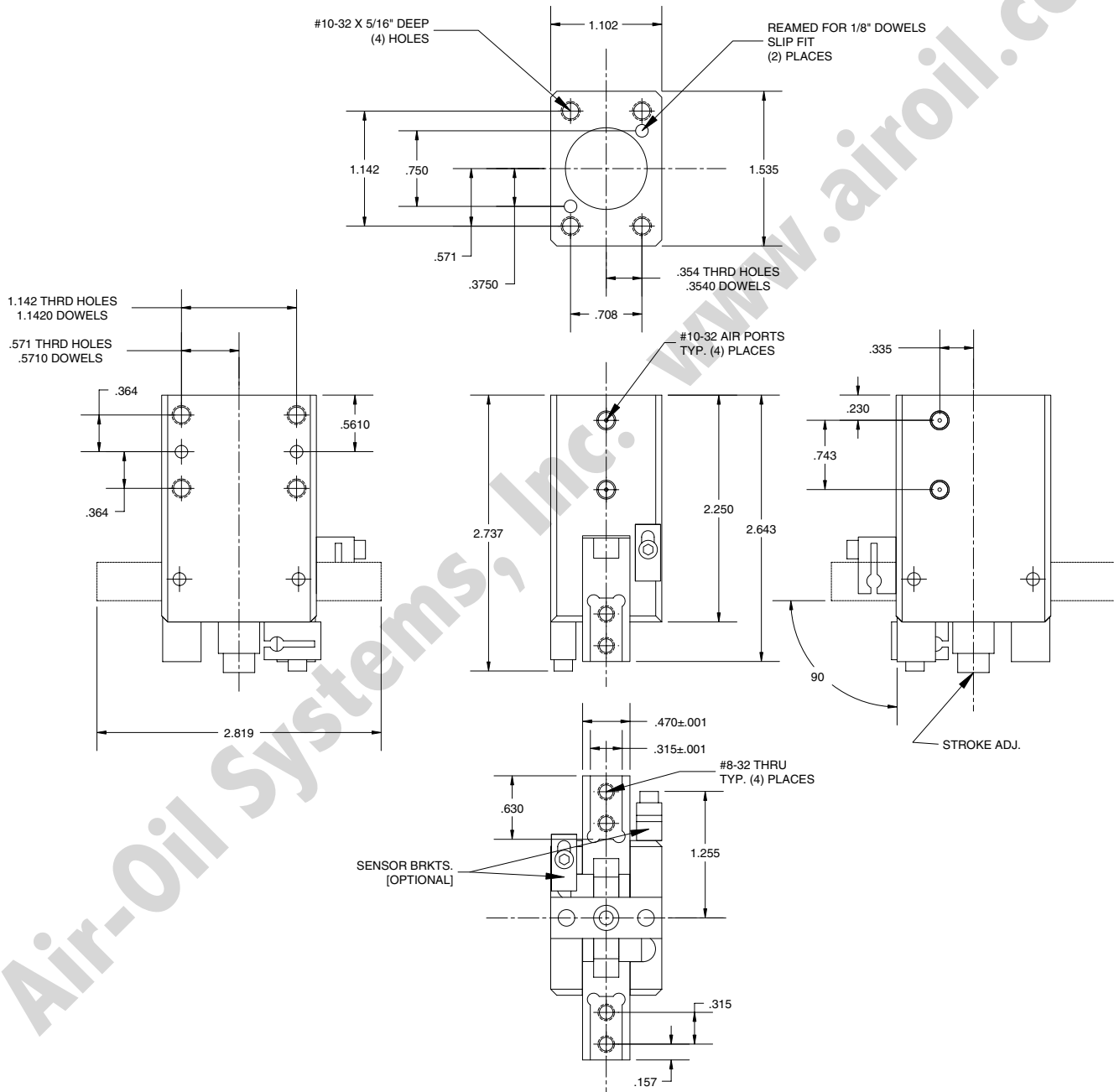
(5m Cables)



GR90 Series Angular Grippers

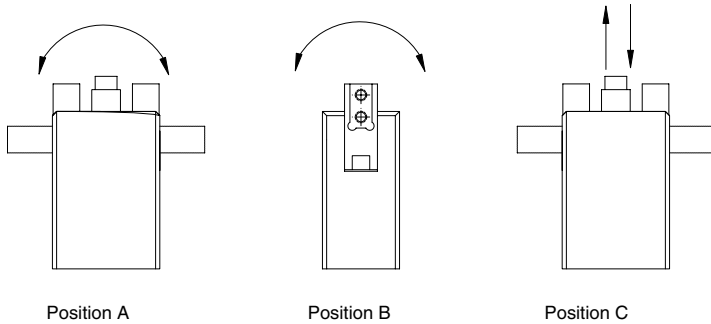
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GR90 Dimensions





GR90-Series Gripper Performance Data

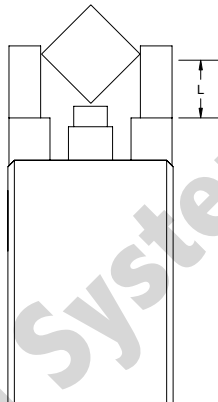


Gripper Specifications

	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.

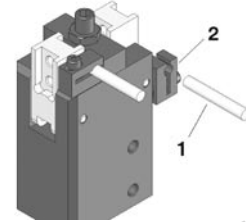


GR90 Series Angular Grippers

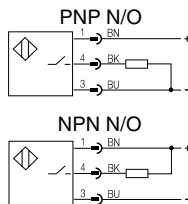
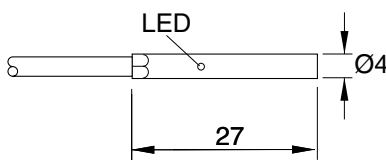
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GR Series Switch Information

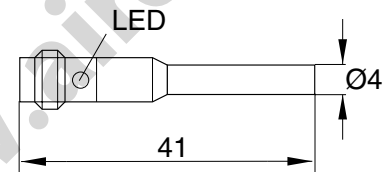
SWITCH OR BRACKET DESCRIPTION	STANDARD PART NO.	QUICK DISCONNECT PART NO.
1 Prox Switch PNP	PX04PS	PX04PQ
1 Prox Switch NPN	PX04NS	PX04NQ
2 Switch Bracket	CT-500	CT-500



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

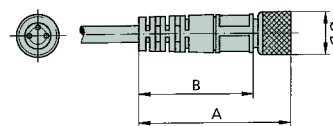
Degree of protection per IEC 529	IP 67
Housing material	stainless steel
Material of sensing face	POM
Connection	cabl
No. of wires x gauge	3 x 26 AWG

Female Connectors for Reed Switches and Hall Effect Sensors

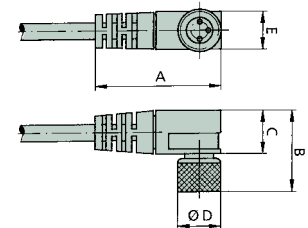
Dimensions (mm)

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

Straight Type



Elbow Type





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.

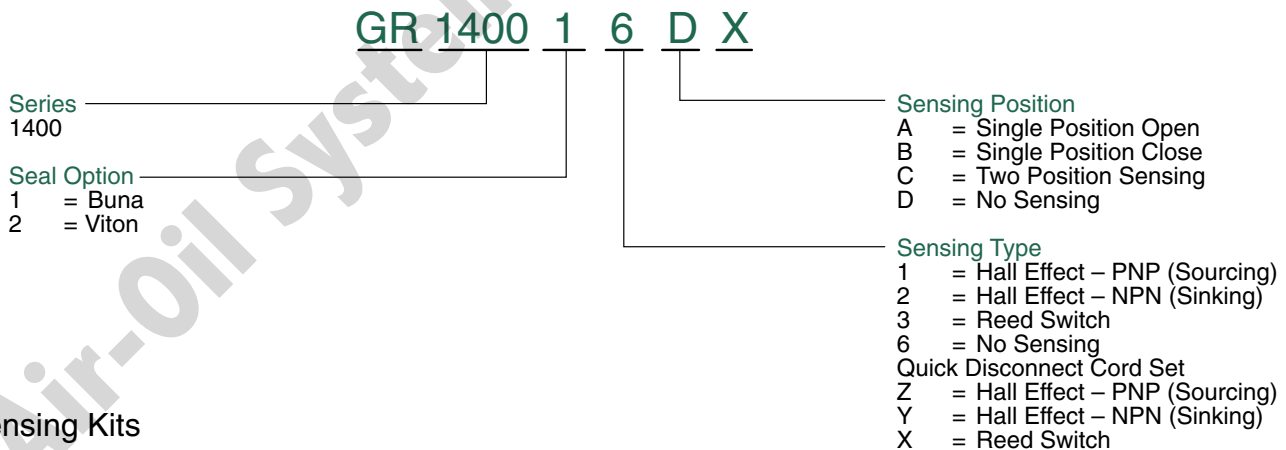
- A.** Body - Hardcoat anodized, T- Slot Sensing track for direct mount of the Numatics Global Switch. Side and top mounting standard. Dowel holes for locating.
- C.** Jaws - Keyway slot for tooling location, 180° Jaw motion
- D.** Pivot Pins - Hardened steel, Needle bearings reduce friction, reduce 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



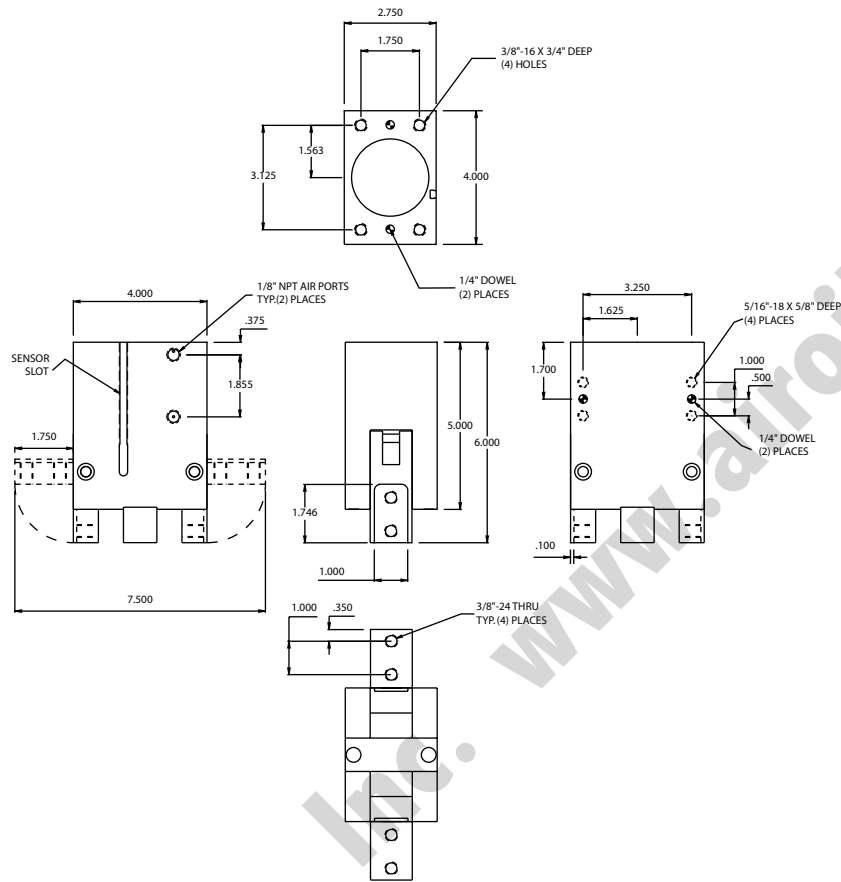
Sensing Kits

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

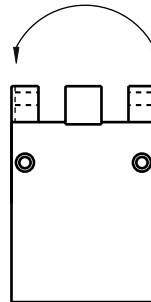
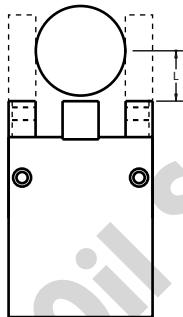


GR1400 180° Radial Gripper

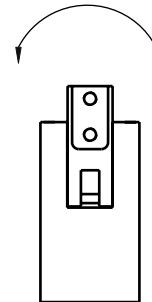
Dimensions



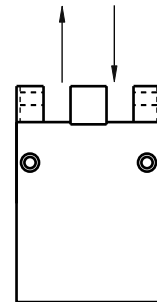
Performance Data



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

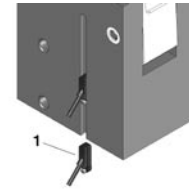
Grip Force a Function of Opening Angle

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

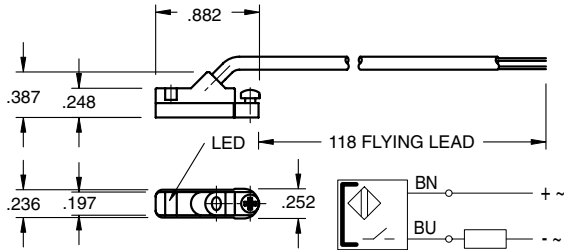


GR1400 Series Switch Information

	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

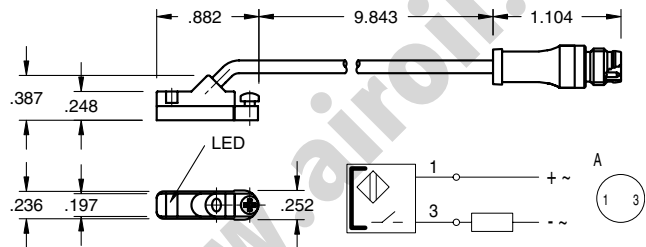
Ambient temperature range T_a	(°F/°C)	-4 to 176 (-20 to 80)
Frequency of operating cycles f at U_e	(kHz)	0.5
Turn on time t	(ms)	≤ 0.25
Turn off time t	(ms)	0.03
LED function indication		yes

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

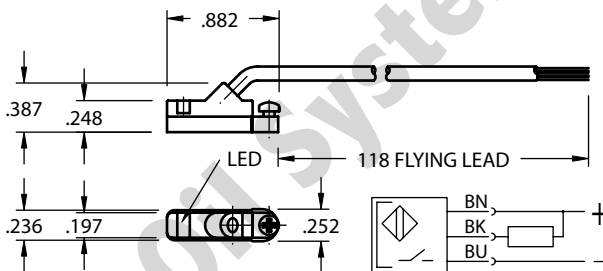


Mechanical Data

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

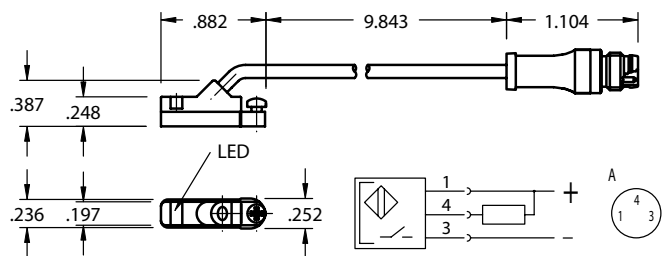
Ambient temperature range Δ	(°F/°C)	-13 to +158 (-25 to +70)
Temperature drift	(% of S_T)	$\leq 0.3\%/^{\circ}C$
Frequency of operating cycles f at U_e	(kHz)	10
Turn on time t	(ms)	.05
Turn off time t	(ms)	.05
Utilization categories		DC13
Function~/supply voltage indication		YES

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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