Amphenol® Neptune® Series Connectors for Power Applications

SL-NEP

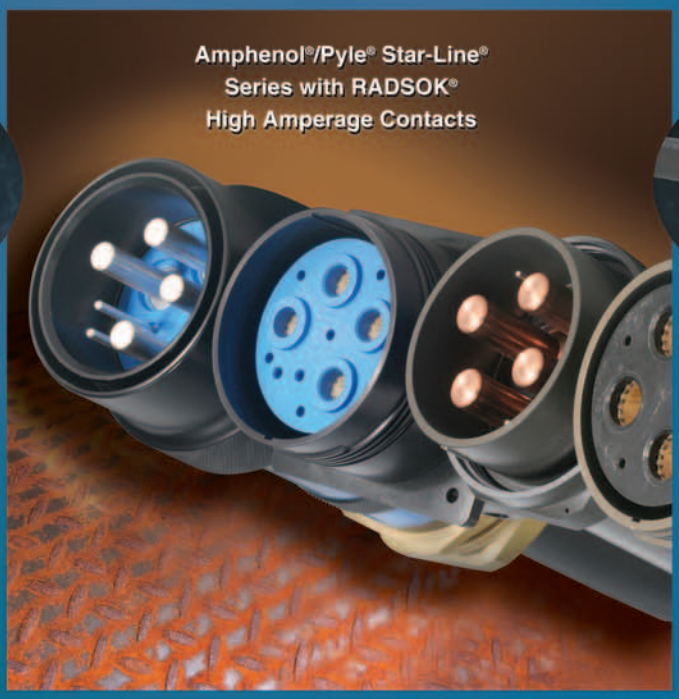
Heavy Duty - Environmental Power Connectors

Amphenol

Interconnects for Power Applications

For High Amperage and the Most Challenging Conditions

Star-Line®
with RADSOK®
and Backshell



Amphenol®/Pyle® Star-Line®
Series with RADSOK®
High Amperage Contacts

Star-Line®
with RADSOK®
and Cable Gland

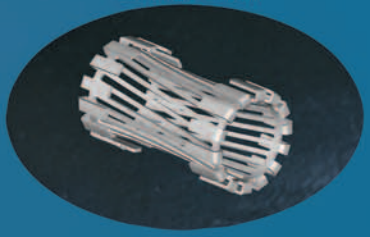
Star-Line with VFD Inserts

Star-Line® on Rapid Rig

Amphenol®
Overmolded
Cable
Assemblies

Amphenol® RADSOK®
Contact Technology

Hyperbolic, Stamped Grid
Configuration



Amphenol®
Amphe-EX®
Series

Amphenol® RIG Power Inserts
with EMI Shielding

Amphenol® RIG Power Star-Line

Amphenol®
Cable
Glands

Amphenol®

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Contents

Neptune® Series Overview	2
Environmental Highlights	3
Captive Contact Inserts	4
Connector Assemblies	4
Electrical Ratings	5
Termination Data	6
Wire Limitation Guide	6
Coupling Nut Torque	6
Code Logic	7
NP/NPE - Straight Plug	8
NR - Square Flange Receptacle	9
NRM - Square Flange Receptacle with Mechanical Clamp Nut	10
NRIM - In-Line Receptacle	11
NRBA - Receptacle Mounted to Junction Box with Angle Adapter	12
NRBA - Receptacle Mounted to Junction Box with Straight Adapter	13
Neptune	
30 Amp Plug	14
30 Amp Receptacle	15
60 Amp Plug	16
60 Amp Receptacle	17
100 Amp Plug	18
100 Amp Receptacle	19
150 Amp Plug	20
150 Amp Receptacle	21
200 Amp Plug	22
200 Amp Receptacle	23
Neptune Connector Assembly and Termination Instructions	24
Sales Offices and Distributors Listing	25

Catalog information for reference only. For more assistance, contact your local Amphenol field sales office or:

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www.amphenol-industrial.com
www.amphenol-aerospace.com

NEPTUNE® Series

Neptune Series connectors are heavy duty environmentally sealed plugs and receptacles and have been successfully used in all types of Industrial applications. These compact environmental connectors have provided outstanding performance in complex ground support cable networks, process control systems and instrumentation systems.

This family of connectors has made a major contribution to the successful interconnection of peak power generating systems as well as offshore petroleum production for power distribution and data acquisition.

Ample margins of safety and reliability have been designed into the Neptune connectors to maintain capability levels which make them ideally suited for the broad spectrum of demands placed on them by industry.

The specific materials and design features incorporated in Neptune connectors were originally selected to satisfy the stringent requirements of the Aerospace industry for heavy-duty connectors. These connectors combine electrical and mechanical capabilities that equal or exceed the performance parameters established by the Military Specification MIL-5015.

- **UL & CSA** listed to UL1682/CSA C22.2 requirements
- **ENVIRONMENTAL RESISTANCE** – Design and materials withstand the most challenging operating conditions. Series has an IP 68-8 rating.
- **PRESSURE TERMINALS**
- **EASILY ACCESSIBLE WIRE TERMINALS** – Conductors are readily terminated to contacts. Cable housings are slipped over conductors or leads after terminating. Cumbersome handling and seating of inserts with conductors attached is eliminated.
- **LARGE WIRING SPACE** – Ample wiring space is provided in cable housings and conduit fitting bodies. Hub of body mounts in any of four positions.
- **REVERSIBLE INSERTS** – A full range of contact inserts and application adapters are available. All are interchangeable and reversible to suit reverse service requirements.
- **DOUBLE-LEAD THREAD COUPLING** – Modified Acme Thread does not clog under adverse conditions of ice, snow, sand or mud and provides the quick coupling feature.
- **HARD ANODIC COATING** – All machined, aluminum parts finished with a hard, scratch-resistant coating per MIL-A-8625, Type III. Dielectric strength 1800 volts. Heat resistance of 750° F.
- **HIGH TENSILE STRENGTH ALUMINUM** – Bar Stock Components precision machined. Points of impact designed for extra strength.
- **RoHS COMPLIANT PRODUCT AVAILABLE** – Consult Amphenol Oil & Gas Techolgies.

Why the Double-Lead Acme Thread?

The double-lead Acme thread is a moderate torque quick-coupling thread which permits complete coupling in approximately one turn of the coupling nut. In addition, there are actually two parallel threads having starting points 180 degrees apart. All of this ensures that plugs and receptacles are being mated or unmated axially.
The thread contour makes it self-cleaning.

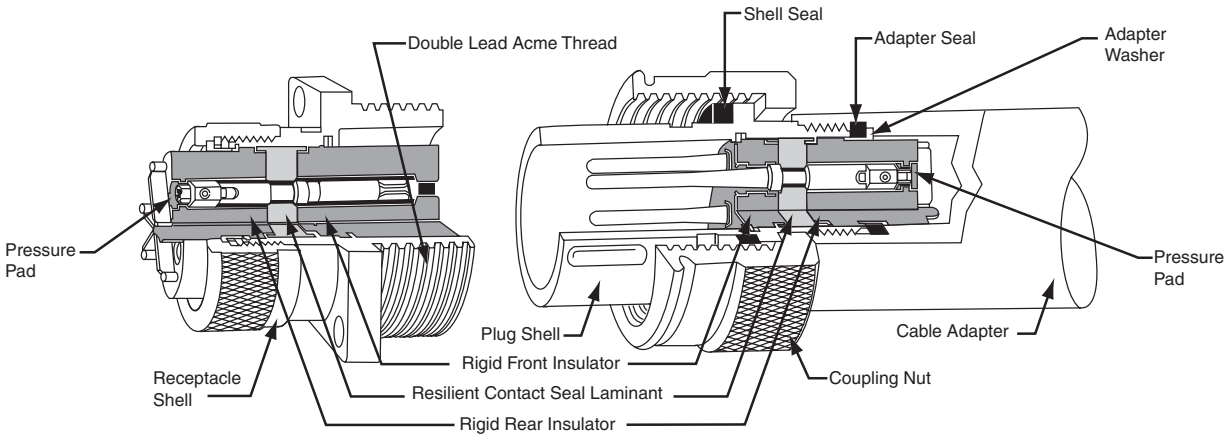
One parallel thread removed to show actual thread angle.

Standard double-lead Acme.
Two parallel threads.

Environmental Highlights

PROPERTY	MIL-5015 REQUIREMENTS CLASSES A, B, E J & R	NEPTUNE CONNECTORS
TEMPERATURE	-67° F to 225° F (-55° C to 107° C)	Temperature Classes A, B, E, J and R can withstand 257° F continuously. For short duration high-temperature life, consult factory.
PRESSURE	No requirement	300 PSI external (coupled connectors) 200 PSI internal (with pin and socket inserts)
AIR LEAKAGE	1 cubic inch/ hour maximum	Exceeds Classes E and R specifications
HUMIDITY AND MOISTURE RESISTANCE	1 1/2 times A.C. voltage rating after 14 days. Exposure to 95% relative humidity at 160° F.	Exceeds Classes E and R. MIL-5015 Meets MIL-STD-202B, Method 106A
CORROSION RESISTANCE	48 Hours – Method 1001 MIL-STD-1344 No exposure of base metal.	Salt spray: 300 days – No exposure of base metal.
CHEMICAL RESISTANCE	No requirement	Oil, most acids and alkalis.
DUST RESISTANCE	No requirement	Meets MIL-STD-202B, Method 110, Condition B
SHOCK RESISTANCE	50 G minimum	Exceeds 60 G's Certain inserts available to 200 G.
VIBRATION	Method 2005 Method II MIL-STD-1344	Exceeds Method II & MIL-STD-167-1 (Ships).
TEST PROBE ABUSE	Contact size No. 16 and No. 18	Exceeds MIL-5015 on all contacts No. 18 through 4/0.

Captive Contact Inserts



Self-sealing Construction: all captive contact inserts are capable of being terminated after assembly in the basic barrel and are completely self-sealing when pressurized by any selected adapter. Water, gas, vapor, moisture or dust positively cannot pass in either direction through or around the insulation.

The "sandwich" construction of inserts consists of a resilient silicone laminate between two rigid plastic insulators. The resilient laminate seals absorbs shock and vibration and allows the contacts to align themselves freely. The rigid faced plastic insulators impart just the right amount of restraint to retain the contacts in place.

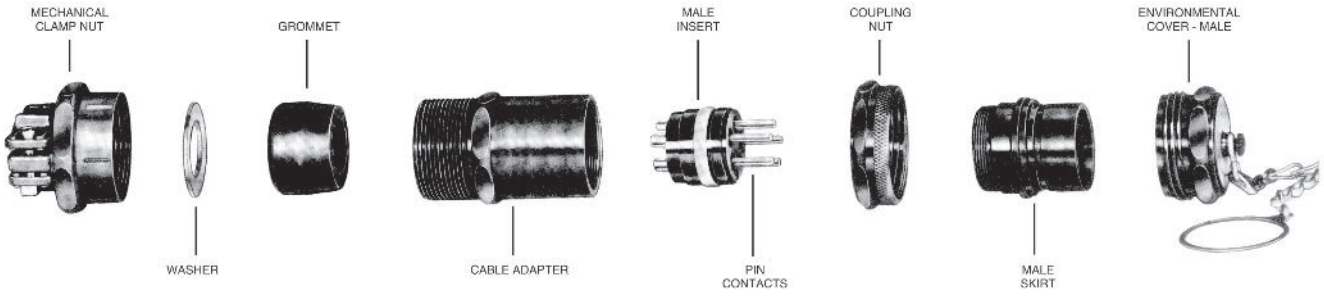
The combined "sandwich" provides all the advantages of resilient mounting plus all the advantages of rigid mounting, with none of the shortcomings of either. Under pressure, between a shoulder and a thrust washer, the silicone reacts as a fluid and being non-compressible, flows against all surfaces to affect a reliable seal around the periphery of the insert and around all contacts where they penetrate the insulation.

Contact cavities are clearly numbered on the front and

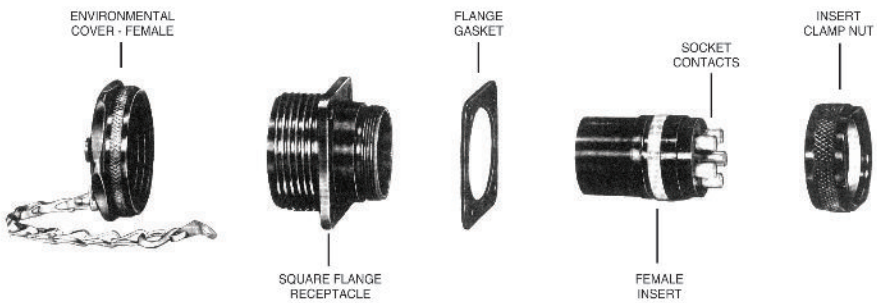
rear insert face to facilitate identification during assembly, inspection and maintenance. Socket insulator contact cavities are of a bellmouth guided entry design. These chamfered lead-ins insure easy and positive mating of male contacts.

Connector Assemblies

Typical Plug Components



Typical Receptacle Components



ELECTRICAL Ratings

Service Voltage Ratings

The voltage to which contact inserts are limited is a function of the dielectric separation between adjacent contacts and between contacts and shell.

The voltage rating is designated by a service voltage rating letter which is shown in the service voltage rating table with each contact configuration listing.

Service Voltage	Military Ratings MIL-5015 Specifications Non-Circuit Breaking		N.E.C. Ratings		Over Surface Distance Inches Nominal	Thru-Air Spacing Inches Nominal
			Non-Circuit	Circuit Breaking		
	D.C. Volts RMS	A.C. Volts RMS	D.C. RMS	A.C. RMS		
Instrument	250	200	–	–	1/16	–
A	700	500	250	240	1/8	1/16
D	1250	900	600	600	3/16	1/8
E	1750	1250	600	600	1/4	3/16
B	2450	1750	600	600	5/16	1/4
C	4200	3000	600	600	1	5/16

Three Classifications of Ampere Ratings

MS Ampere Ratings: (MIL-C-39029)

Based on the combination of the following:

The amount of current which an individual pin and socket contact may carry is a function of contact material and design efficiency of the pin and socket system as well as the ability of the primary conductor insulation to resist temperature rises due to inherent copper losses and bundling factors.

Total current carrying capacity of the connector is a function of the insert temperature which is rated at 225° F (107° C) for continuous operation. The total operating temperature is the summation of the ambient temperature plus the temperature rise resulting from the thermal losses of each contact.

MIL-W-5088 specifications may be used as a general reference on the subject inasmuch as pertinent cable derating data is included.

N.E.C. Non-Circuit-Breaking or Disconnect Ampere Ratings

The non-interrupting current ratings, shown in the table, are based on the temperature of the contacts being within the range specified by Underwriter's Laboratories, Inc. when wire sizes are selected in accordance with the National Electrical Code.

When multiple conductors are used, the load factor and temperature rise based on ambient and total insert temperature must be taken into consideration.

Contact Size AWG/ MCM	Non-Circuit Breaking Ampere Rating		† MV Drop	
	MS	N.E.C. ***	Solder Contacts	Crimp Contacts
#10	30	40	16	26
# 4	60	90	12	23
#1/0	100	155	10	22
#1/0	150	155	10	22
#4/0	200	225	8	22

NOTE: The N.E.C. circuit breaking and non-circuit breaking ratings are based on test results of contacts and connectors. Consult the N.E.C. when selecting wire/ cable for specific applications. Under certain conditions, a wire size may be rated higher or lower than the table indicates for a given contact size.

† Measurements made at extreme ends of mated contacts with probe touching contact and wire (MIL-5015 specifications).
** Based on temperature rise (National Electrical Code Requirement).
*** Based on Arcing Control (National Electrical Code Requirement).

Termination Data

Amphenol Corporation's tools for contact crimping, insertion and removal are required for terminating and assembling contacts.

Contact Dimensions

Contact Size AWG (mm)	Pressure Contacts	
	Diameter	Depth
#10 (6.0)	.142" (3.61)	25/64" (9.92)
#4 (25.0)	.333" (8.45)	37/64" (14.63)
1/0 (50.0)	.470" (11.94)	41/64" (16.27)
4/0 (120.00)	.656" (16.7)	57/64" (22.62)

Torque Data for Pressure Contacts

Contact/Conductor Size/Awg (mm)	Torque Req. In./Lbs. (N•m)	Retention Force Lbs. (N)
4/0 (120.00)	100 (11.3)	4/0 450 (2001.7) 3/0 350 (1556.9) 2/0 300 (1334.5)
1/0 (50.0)	50 (5.7)	1/0 250 (1112.0) #1 200 (889.6) #2 180 (800.7)
#4 (25.0)	20 (2.3)	#4 140 (622.8) #6 100 (444.8) #8 90 (400.3)
#10 (6.0)	15 (1.7)	#10 80 (355.9) #12 70 (311.4) #14 60 (266.9)

Wire Limitation Guide

There are restrictions to the maximum diameter of wire as they relate to the rear or wire side of the connector insert as follows.

Wire size	Maximum diameter
#4/0	.747"
#1/0	.555"
#4	.400"
#10	.201"

Coupling Nut Torque

To insure proper coupling the following torque values should be used on the coupling nut:

Shell Size	Torque Setting (lb. ft.)
30	11.0
60	13.5
100, 150	15.5
200	23.0

NOTE: The N.E.C. circuit breaking and non-circuit breaking ratings are based on test results of contacts and connectors. Consult the N.E.C. when selecting wire/cable for specific applications. Under certain conditions, a wire size may be rated higher or lower than our table indicates for a given contact size.

Code Logic

Receptacles		Panel Mount-Threaded Dust Cover-Std.	Fixed Inline w/ Full Backshell Adapter	Fixed Inline Panel Mount	Angle Back Box	Straight Back Box
Catalog Page		See Page 9	See Page 10	See Page 11	See Page 12	See Page 13
Amperage	Poles		"M"	"IM"	"BA"	"BS"
30	2W3P	NR-3023	NRM-3023	NRIM-3023	NRBA-3023	NRBS-3023
	3W3P	NR-3033	NRM-3033	NRIM-3033	NRBA-3033	NRBS-3033
	3W4P	NR-3034	NRM-3034	NRIM-3034	NRBA-3034	NRBS-3034
	4W4P	NR-3044	NRM-3044	NRIM-3044	NRBA-3044	NRBS-3044
	4W5P	NR-3045	NRM-3045	NRIM-3045	NRBA-3045	NRBS-3045
60	2W3P	NR-6023	NRM-6023	NRIM-6023	NRBA-6023	NRBS-6023
	3W3P	NR-6033	NRM-6033	NRIM-6033	NRBA-6033	NRBS-6033
	3W4P	NR-6034	NRM-6034	NRIM-6034	NRBA-6034	NRBS-6034
	4W4P	NR-6044	NRM-6044	NRIM-6044	NRBA-6044	NRBS-6044
	4W5P	NR-6045	NRM-6045	NRIM-6045	NRBA-6045	NRBS-6045
100	3W3P	NR-10033	NRM-10033	NRIM-10033	NRBA-10033	NRBS-10033
	3W4P	NR-10034	NRM-10034	NRIM-10034	NRBA-10034	NRBS-10034
	4W4P	NR-10044	NRM-10044	NRIM-10044	NRBA-10044	NRBS-10044
	4W5P	NR-10045	NRM-10045	NRIM-10045	NRBA-10045	NRBS-10045
150	3W3P	NR-15033	NRM-15033	NRIM-15033	NRBA-15033	NRBS-15033
	3W4P	NR-15034	NRM-15034	NRIM-15034	NRBA-15034	NRBS-15034
	4W4P	NR-15044	NRM-15044	NRIM-15044	NRBA-15044	NRBS-15044
	4W5P	NR-15045	NRM-15045	NRIM-15045	NRBA-15045	NRBS-15045
200	3W3P	NR-20033	NRM-20033	NRIM-20033	NRBA-20033	NRBS-20033
	3W4P	NR-20034	NRM-20034	NRIM-20034	NRBA-20034	NRBS-20034
	4W4P	NR-20044	NRM-20044	NRIM-20044	NRBA-20044	NRBS-20044
	4W5P	NR-20045	NRM-20045	NRIM-20045	NRBA-20045	NRBS-20045

Plugs		Straight Plug Less Cover	Straight Plug w/ Threaded Environmental Cover
Catalog Page		See Page 8	See Page 8
Amperage	Poles	Base Part Number	"E"
30	2W3P	NP-3023	NPE-3023
	3W3P	NP-3033	NPE-3033
	3W4P	NP-3034	NPE-3034
	4W4P	NP-3044	NPE-3044
	4W5P	NP-3045	NPE-3045
60	2W3P	NP-6023	NPE-6023
	3W3P	NP-6033	NPE-6033
	3W4P	NP-6034	NPE-6034
	4W4P	NP-6044	NPE-6044
	4W5P	NP-6045	NPE-6045
100	3W3P	NP-10033	NPE-10033
	3W4P	NP-10034	NPE-10034
	4W4P	NP-10044	NPE-10044
	4W5P	NP-10045	NPE-10045
150	3W3P	NP-15033	NPE-15033
	3W4P	NP-15034	NPE-15034
	4W4P	NP-15044	NPE-15044
	4W5P	NP-15045	NPE-15045
200	3W3P	NP-20033	NPE-20033
	3W4P	NP-20034	NPE-20034
	4W4P	NP-20044	NPE-20044
	4W5P	NP-20045	NPE-20045

REVERSE SERVICE & ALTERNATE KEYWAYS

For Reverse Service, add -R to end of Plug or Receptacle part numbers
Example: NR-3034-R or NPE-3034-R

For Alternate Insert Keyways, add appropriate rotation callout to the end of the part number
Example: NR-3034-01 or NPE-3034-01

RoHS COMPLIANT PRODUCT AVAILABLE – Consult Amphenol Oil & Gas Technologies

Straight Plug

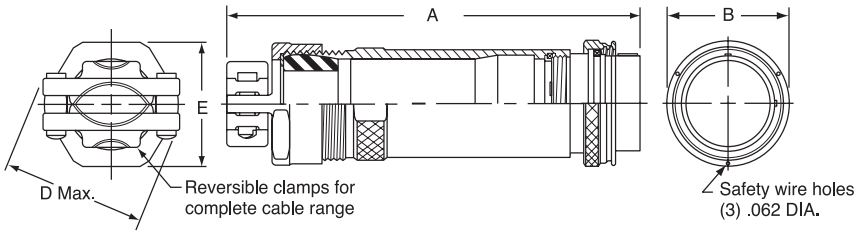
With Mechanical Clamp Nut

To specify plug with environmental cover, add “E”.
Example: NP changes to NPE. i.e. NPE-30XX.

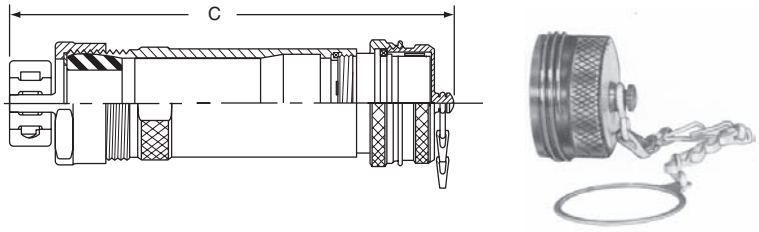
NP/NPE

Catalog Number	Amperage Rating	Dimensions				
		A	B	C	D	E
NP-3023	30	6-1/8	1-13/16	2-23/32	2-3/8	1-3/4
NP-3033	30	6-1/8	1-13/16	2-23/32	2-3/8	1-3/4
NP-3034	30	6-1/8	1-13/16	2-23/32	2-3/8	1-3/4
NP-3044	30	6-1/8	1-13/16	2-23/32	2-3/8	1-3/4
NP-3045	30	6-1/8	1-13/16	2-23/32	2-3/8	1-3/4
NP-6023	60	6-7/16	2-5/16	7-1/32	3	2-1/4
NP-6033	60	6-7/16	2-5/16	7-1/32	3	2-1/4
NP-6034	60	6-7/16	2-5/16	7-1/32	3	2-1/4
NP-6044	60	6-7/16	2-5/16	7-1/32	3	2-1/4
NP-6045	60	6-7/16	2-5/16	7-1/32	3	2-1/4
NP-10033	100	7-1/2	2-13/16	8-3/32	3-3/4	2-3/4
NP-10034	100	7-1/2	2-13/16	8-3/32	3-3/4	2-3/4
NP-10044	100	7-1/2	2-13/16	8-3/32	3-3/4	2-3/4
NP-10045	100	7-1/2	2-13/16	8-3/32	3-3/4	2-3/4
NP-15033	150	7-1/2	2-13/16	8-3/32	3-3/4	2-3/4
NP-15034	150	7-1/2	2-13/16	8-3/32	3-3/4	2-3/4
NP-15044	150	7-1/2	2-13/16	8-3/32	3-3/4	2-3/4
NP-15045	150	7-1/2	2-13/16	8-3/32	3-3/4	2-3/4
NP-20033	200	8-1/16	3-5/16	8-21/32	4-1/2	3-1/4
NP-20034	200	8-1/16	3-5/16	8-21/32	4-1/2	3-1/4
NP-20044	200	8-1/16	3-5/16	8-21/32	4-1/2	3-1/4
NP-20045	200	8-1/16	3-5/16	8-21/32	4-1/2	3-1/4

NP

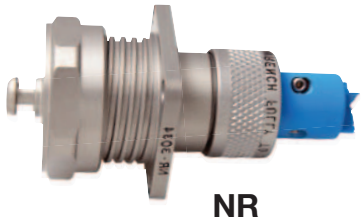


NPE



Square Flange Receptacle

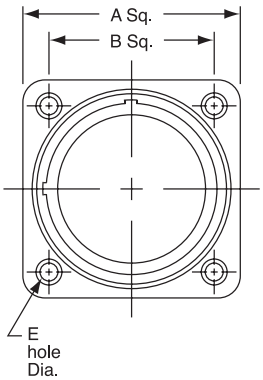
Square flange NR - type receptacle supplied complete with threaded environmental cover.

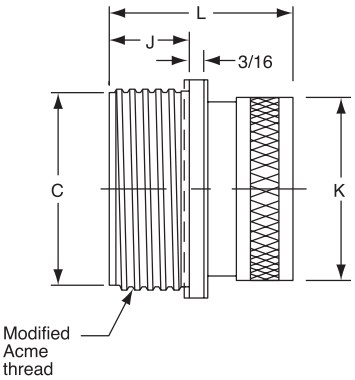


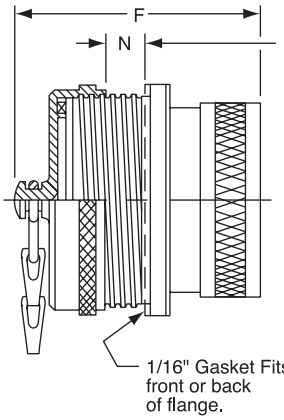
NR

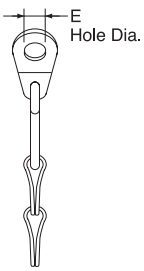
Catalog Number	Amperage Rating	Dimensions									
		A	B	C*	E	F	G	J	K	L	N
NR-3023	30	1-3/4	1-3/8	1-1/12	11/64	2-15/16	2-1/8	1	1-11/32	2-21/64	1/4
NR-3033	30	1-3/4	1-3/8	1-1/12	11/64	2-15/16	2-1/8	1	1-11/32	2-21/64	1/4
NR-3034	30	1-3/4	1-3/8	1-1/12	11/64	2-15/16	2-1/8	1	1-11/32	2-21/64	1/4
NR-3044	30	1-3/4	1-3/8	1-1/12	11/64	2-15/16	2-1/8	1	1-11/32	2-21/64	1/4
NR-3045	30	1-3/4	1-3/8	1-1/12	11/64	2-15/16	2-1/8	1	1-11/32	2-21/64	1/4
NR-6023	60	2-1/4	1-11/16	2	13/64	2-15/16	2-1/8	1	1-27/32	2-21/64	1/4
NR-6033	60	2-1/4	1-11/16	2	13/64	2-15/16	2-1/8	1	1-27/32	2-21/64	1/4
NR-6034	60	2-1/4	1-11/16	2	13/64	2-15/16	2-1/8	1	1-27/32	2-21/64	1/4
NR-6044	60	2-1/4	1-11/16	2	13/64	2-15/16	2-1/8	1	1-27/32	2-21/64	1/4
NR-6045	60	2-1/4	1-11/16	2	13/64	2-15/16	2-1/8	1	1-27/32	2-21/64	1/4
NR-10033	100	2-3/4	2-3/32	2-1/2	7/32	3-7/16	2-11/16	1-1/2	2-11/32	2-53/64	3/4
NR-10034	100	2-3/4	2-3/32	2-1/2	7/32	3-7/16	2-11/16	1-1/2	2-11/32	2-53/64	3/4
NR-10044	100	2-3/4	2-3/32	2-1/2	7/32	3-7/16	2-11/16	1-1/2	2-11/32	2-53/64	3/4
NR-10045	100	2-3/4	2-3/32	2-1/2	7/32	3-7/16	2-11/16	1-1/2	2-11/32	2-53/64	3/4
NR-15033	150	2-3/4	2-3/32	2-1/2	7/32	3-7/16	2-11/16	1-1/2	2-11/32	2-53/64	3/4
NR-15034	150	2-3/4	2-3/32	2-1/2	7/32	3-7/16	2-11/16	1-1/2	2-11/32	2-53/64	3/4
NR-15044	150	2-3/4	2-3/32	2-1/2	7/32	3-7/16	2-11/16	1-1/2	2-11/32	2-53/64	3/4
NR-15045	150	2-3/4	2-3/32	2-1/2	7/32	3-7/16	2-11/16	1-1/2	2-11/32	2-53/64	3/4
NR-20033	200	3-1/4	2-17/32	3	9/32	3-7/16	2-11/16	1-1/2	2-27/32	2-53/64	3/4
NR-20034	200	3-1/4	2-17/32	3	9/32	3-7/16	2-11/16	1-1/2	2-27/32	2-53/64	3/4
NR-20044	200	3-1/4	2-17/32	3	9/32	3-7/16	2-11/16	1-1/2	2-27/32	2-53/64	3/4
NR-20045	200	3-1/4	2-17/32	3	9/32	3-7/16	2-11/16	1-1/2	2-27/32	2-53/64	3/4

WITH THREADED ENVIRONMENTAL COVER AND SASH CHAIN









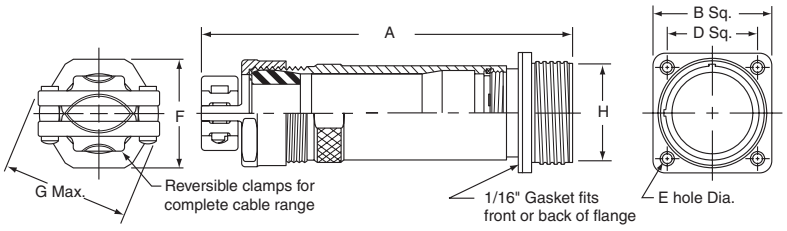
*Drill hole in panel 1/64" larger than Dimension "K" for front mounting or dimension "C" for back mounting.

Square Flange Receptacle with Mechanical Clamp Nut

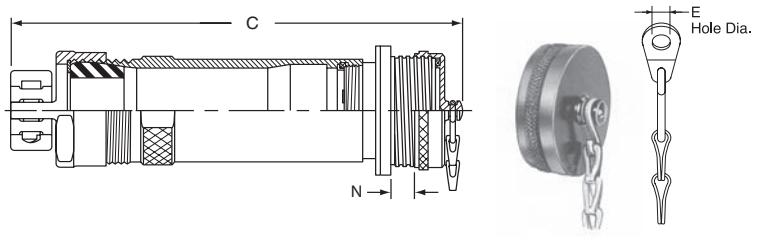
NRM - type receptacle supplied complete with threaded environmental cover.

NRM

Catalog Number	Amperage Rating	Dimensions								
		A	B	C	D	E	F	G	H	N
NRM-3023	30	6-1/8	1-3/4	6-3/4	1-3/8	11/64	1-3/4	2-3/8	1-1/2	1/4
NRM-3033	30	6-1/8	1-3/4	6-3/4	1-3/8	11/64	1-3/4	2-3/8	1-1/2	1/4
NRM-3034	30	6-1/8	1-3/4	6-3/4	1-3/8	11/64	1-3/4	2-3/8	1-1/2	1/4
NRM-3044	30	6-1/8	1-3/4	6-3/4	1-3/8	11/64	1-3/4	2-3/8	1-1/2	1/4
NRM-3045	30	6-1/8	1-3/4	6-3/4	1-3/8	11/64	1-3/4	2-3/8	1-1/2	1/4
NRM-6023	60	6-7/16	2-1/4	7-1/16	7-11/16	13/64	2-1/4	3	2	1/4
NRM-6033	60	6-7/16	2-1/4	7-1/16	7-11/16	13/64	2-1/4	3	2	1/4
NRM-6034	60	6-7/16	2-1/4	7-1/16	7-11/16	13/64	2-1/4	3	2	1/4
NRM-6044	60	6-7/16	2-1/4	7-1/16	7-11/16	13/64	2-1/4	3	2	1/4
NRM-6045	60	6-7/16	2-1/4	7-1/16	7-11/16	13/64	2-1/4	3	2	1/4
NRM-10033	100	7-1/2	2-3/4	8-1/8	2-3/32	7/32	2-3/4	3-3/4	2-1/2	3/4
NRM-10034	100	7-1/2	2-3/4	8-1/8	2-3/32	7/32	2-3/4	3-3/4	2-1/2	3/4
NRM-10044	100	7-1/2	2-3/4	8-1/8	2-3/32	7/32	2-3/4	3-3/4	2-1/2	3/4
NRM-10045	100	7-1/2	2-3/4	8-1/8	2-3/32	7/32	2-3/4	3-3/4	2-1/2	3/4
NRM-15033	150	7-1/2	2-3/4	8-1/8	2-3/32	7/32	2-3/4	3-3/4	2-1/2	3/4
NRM-15034	150	7-1/2	2-3/4	8-1/8	2-3/32	7/32	2-3/4	3-3/4	2-1/2	3/4
NRM-15044	150	7-1/2	2-3/4	8-1/8	2-3/32	7/32	2-3/4	3-3/4	2-1/2	3/4
NRM-15045	150	7-1/2	2-3/4	8-1/8	2-3/32	7/32	2-3/4	3-3/4	2-1/2	3/4
NRM-20033	200	8-1/16	3-1/4	8-11/16	2-17/32	6-32	3-1/4	4-1/2	3	3/4
NRM-20034	200	8-1/16	3-1/4	8-11/16	2-17/32	6-32	3-1/4	4-1/2	3	3/4
NRM-20044	200	8-1/16	3-1/4	8-11/16	2-17/32	6-32	3-1/4	4-1/2	3	3/4
NRIM-20045	200	8-1/16	3-1/4	8-11/16	2-17/32	6-32	3-1/4	4-1/2	3	3/4



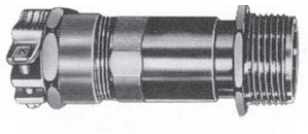
Drill hole in panel 1/64" larger than Dimension "H" for back mounting..



In-Line Receptacle

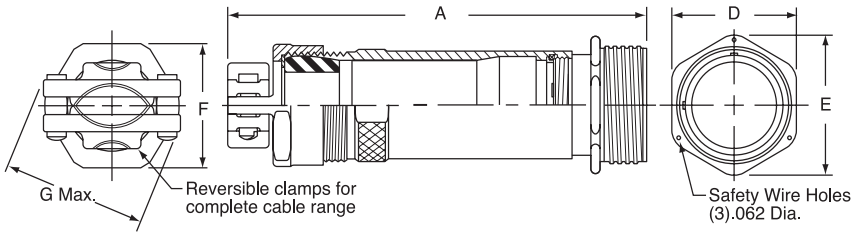
With Mechanical Clamp Nut

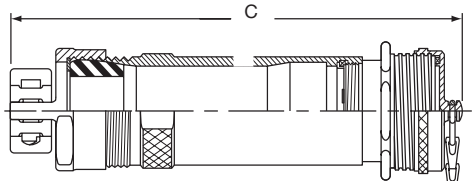
NRIM - type receptacle supplied complete with threaded environmental cover.



NRIM

Catalog Number	Amperage Rating	Dimensions				
		A	C	D	E	G
NRIM-3023	30	6-1/8	6-3/4	1-3/4	1-61/64	2-3/8
NRIM-3033	30	6-1/8	6-3/4	1-3/4	1-61/64	2-3/8
NRIM-3034	30	6-1/8	6-3/4	1-3/4	1-61/64	2-3/8
NRIM-3044	30	6-1/8	6-3/4	1-3/4	1-61/64	2-3/8
NRIM-3045	30	6-1/8	6-3/4	1-3/4	1-61/64	2-3/8
NRIM-6023	60	6-7/16	7-1/16	2-1/4	2-31/64	3
NRIM-6033	60	6-7/16	7-1/16	2-1/4	2-31/64	3
NRIM-6034	60	6-7/16	7-1/16	2-1/4	2-31/64	3
NRIM-6044	60	6-7/16	7-1/16	2-1/4	2-31/64	3
NRIM-6045	60	6-7/16	7-1/16	2-1/4	2-31/64	3
NRIM-10033	100	7-1/2	6-1/8	2-3/4	3-1/32	3-3/4
NRIM-10034	100	7-1/2	6-1/8	2-3/4	3-1/32	3-3/4
NRIM-10044	100	7-1/2	6-1/8	2-3/4	3-1/32	3-3/4
NRIM-10045	100	7-1/2	6-1/8	2-3/4	3-1/32	3-3/4
NRIM-15033	150	7-1/2	6-1/8	2-3/4	3-1/32	3-3/4
NRIM-15034	150	7-1/2	6-1/8	2-3/4	3-1/32	3-3/4
NRIM-15044	150	7-1/2	6-1/8	2-3/4	3-1/32	3-3/4
NRIM-15045	150	7-1/2	6-1/8	2-3/4	3-1/32	3-3/4
NRIM-20033	200	8-1/16	8-11/16	3-1/4	3-9/16	4-1/2
NRIM-20034	200	8-1/16	8-11/16	3-1/4	3-9/16	4-1/2
NRIM-20044	200	8-1/16	8-11/16	3-1/4	3-9/16	4-1/2
NRIM-20045	200	8-1/16	8-11/16	3-1/4	3-9/16	4-1/2





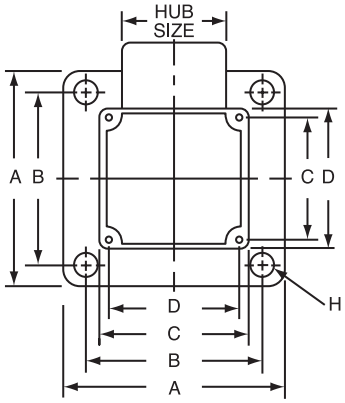
Receptacle Mounted to Junction Box

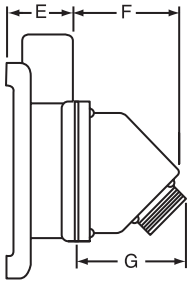
With Angle Adapter

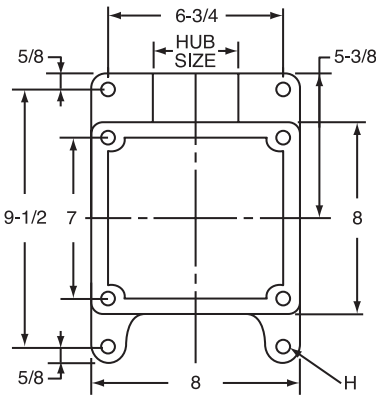
NRBA - type receptacle supplied complete with threaded environmental cover.

NRBA

Catalog Number	Amperage Rating	Hub Size	Dimensions							
			A	B	C	D	E	F	G	H
NRBA-3023	30	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	2-13/16	2-7/16	9/32
NRBA-3033	30	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	2-13/16	2-7/16	9/32
NRBA-3034	30	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	2-13/16	2-7/16	9/32
NRBA-3044	30	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	2-13/16	2-7/16	9/32
NRBA-3045	30	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	2-15/16	2-17/32	9/32
NRBA-6023	60	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	2-15/16	2-17/32	9/32
NRBA-6033	60	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	2-15/16	2-17/32	9/32
NRBA-6034	60	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	2-15/16	2-17/32	9/32
NRBA-6044	60	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	2-15/16	2-17/32	9/32
NRBA-6045	60	2”	6	5-1/4	4-1/2	3-7/8	3-3/4	3-39/64	3-3/8	9/32
NRBA-10033	100	2”	6	5-1/4	4-1/2	3-7/8	3-3/4	3-39/64	3-3/8	9/32
NRBA-10034	100	2”	6	5-1/4	4-1/2	3-7/8	3-3/4	3-39/64	3-3/8	9/32
NRBA-10044	100	2”	6	5-1/4	4-1/2	3-7/8	3-3/4	3-39/64	3-3/8	9/32
NRBA-10045	100	2.5”	SEE DRAWING BELOW		8	7	3-3/4	3-39/64	2-21/32	7/16
NRBA-15033	150	2”	6	5-1/4	4-1/2	3-7/8	3-3/4	3-39/64	3-3/8	9/32
NRBA-15034	150	2”	6	5-1/4	4-1/2	3-7/8	3-3/4	3-39/64	3-3/8	9/32
NRBA-15044	150	2”	6	5-1/4	4-1/2	3-7/8	3-3/4	3-39/64	3-3/8	9/32
NRBA-15045	150	2.5”	SEE DRAWING BELOW		8	7	3-3/4	3-33/64	2-21/32	7/16
NRBA-20033	200	2.5”	SEE DRAWING BELOW		8	7	3-3/4	3-33/64	2-21/32	7/16
NRBA-20034	200	2.5”			8	7	3-3/4	3-33/64	2-21/32	7/16
NRBA-20044	200	2.5”			8	7	3-3/4	3-33/64	2-21/32	7/16
NRBA-20045	200	2.5”			8	7	3-3/4	3-1/2	2-15/32	7/16







WITH THREADED ENVIRONMENTAL COVER AND SASH CHAIN

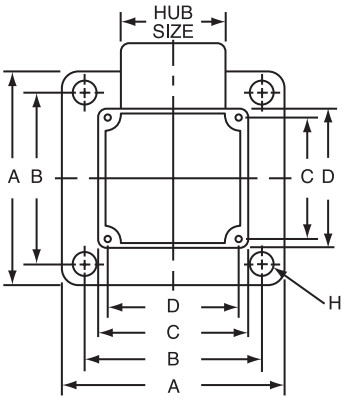
Receptacle Mounted to Junction Box

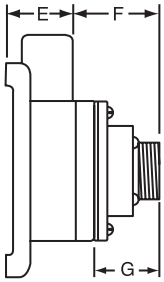
With Straight Adapter

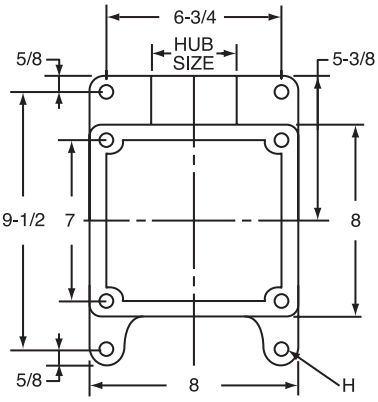
NRBS - type receptacle supplied complete with threaded environmental cover.

NRBS

Catalog Number	Amperage Rating	Hub Size	Dimensions							
			A	B	C	D	E	F	G	H
NRBS-3023	30	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	1-27/32	1	9/32
NRBS-3033	30	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	1-27/32	1	9/32
NRBS-3034	30	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	1-27/32	1	9/32
NRBS-3044	30	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	1-27/32	1	9/32
NRBS-3045	30	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	1-27/32	1	9/32
NRBS-6023	60	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	1-27/32	1	9/32
NRBS-6033	60	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	1-27/32	1	9/32
NRBS-6034	60	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	1-27/32	1	9/32
NRBS-6044	60	1”	5-1/4	4-5/8	4-3/16	3-9/16	2-3/8	1-27/32	1	9/32
NRBS-6045	60	2”	6	5-1/4	4-1/2	3-7/8	3-3/4	2-9/16	1-7/32	9/32
NRBS-10033	100	2”	6	5-1/4	4-1/2	3-7/8	3-3/4	2-9/16	1-7/32	9/32
NRBS-10034	100	2”	6	5-1/4	4-1/2	3-7/8	3-3/4	2-9/16	1-7/32	9/32
NRBS-10044	100	2”	6	5-1/4	4-1/2	3-7/8	3-3/4	2-9/16	1-7/32	9/32
NRBS-10045	100	2.5”	SEE DRAWING BELOW		8	7	3-3/4	2-27/32	1-1/2	7/16
NRBS-15033	150	2”	6	5-1/4	4-1/2	3-7/8	3-3/4	2-9/16	1-7/32	9/32
NRBS-15034	150	2”	6	5-1/4	4-1/2	3-7/8	3-3/4	2-9/16	1-7/32	9/32
NRBS-15044	150	2”	6	5-1/4	4-1/2	3-7/8	3-3/4	2-9/16	1-7/32	9/32
NRBS-15045	150	2.5”	SEE DRAWING BELOW		8	7	3-3/4	2-27/32	1-1/2	7/16
NRBS-20033	200	2.5”	SEE DRAWING BELOW		8	7	3-3/4	2-27/32	1-1/2	7/16
NRBS-20034	200	2.5”			8	7	3-3/4	2-27/32	1-1/2	7/16
NRBS-20044	200	2.5”			8	7	3-3/4	2-27/32	1-1/2	7/16
NRBS-20045	200	2.5”			8	7	3-3/4	2-27/32	1-1/2	7/16







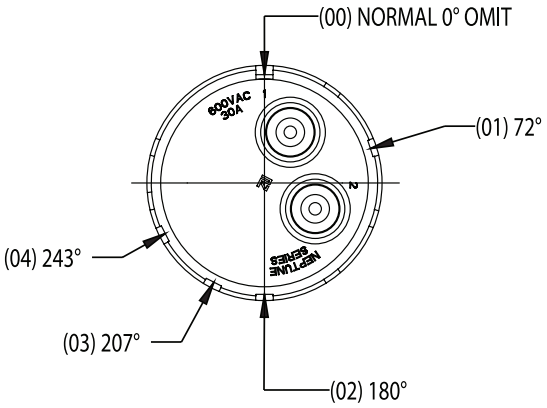
WITH THREADED ENVIRONMENTAL COVER AND SASH CHAIN

30 AMP

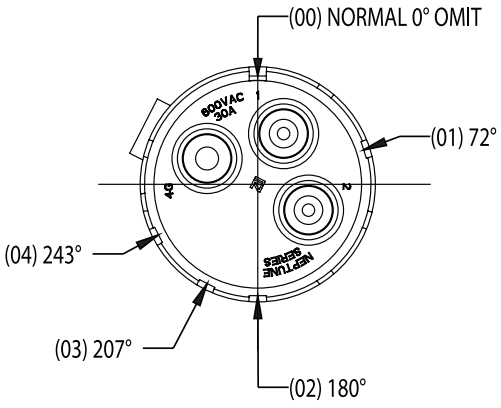
Plug

front face of pin insert shown

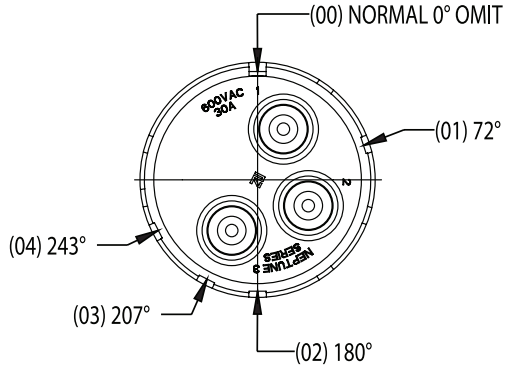
NPE - 3022



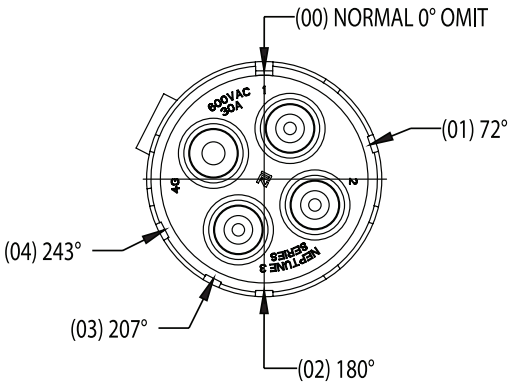
NPE - 3023



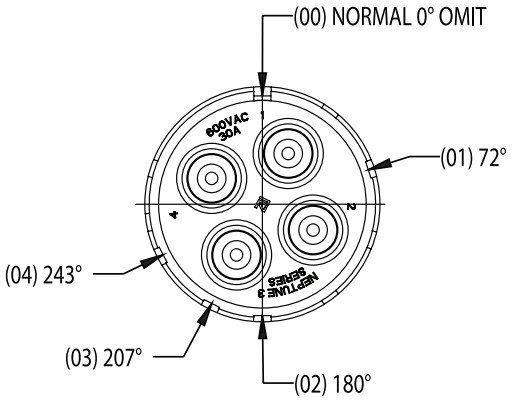
NPE - 3033



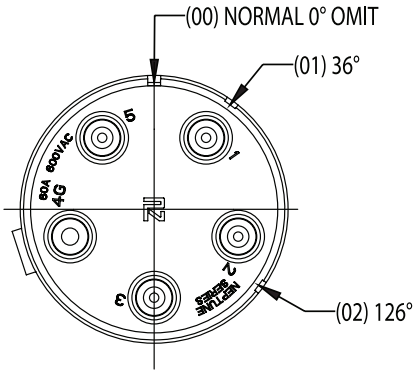
NPE - 3034



NPE - 3044



NPE - 3045

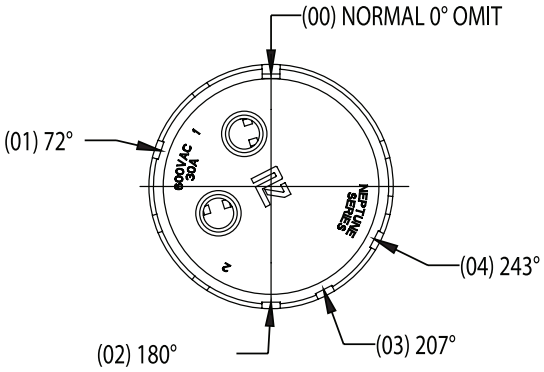


30 AMP

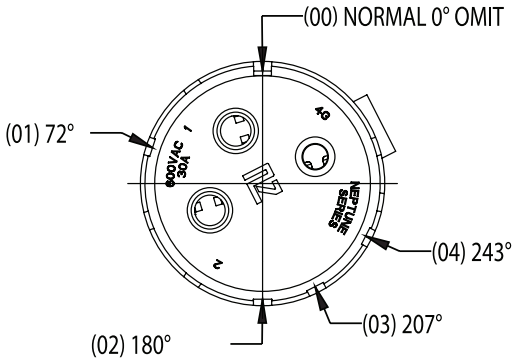
Receptacle

front face of socket insert shown

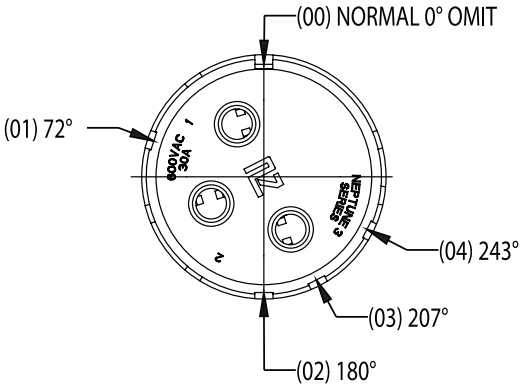
NR - 3022



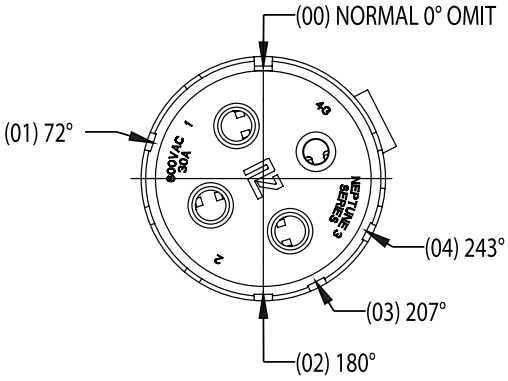
NR - 3023



NR - 3033



NR - 3034



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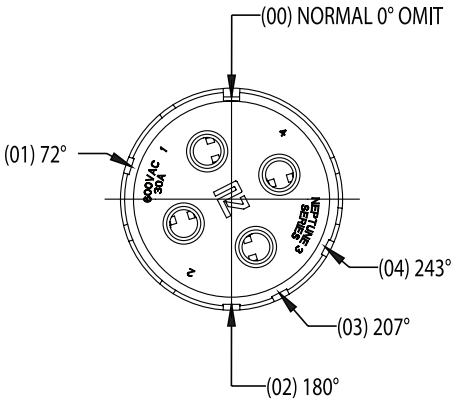

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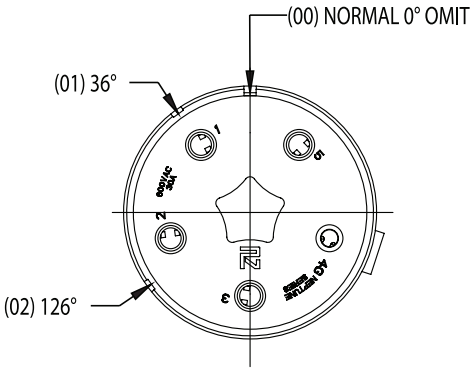
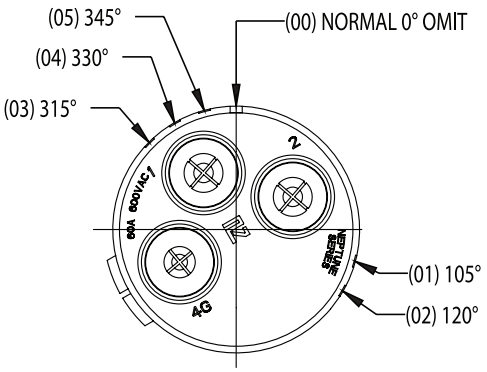


60 AMP

Plug

front face of pin insert shown

NPE - 6023



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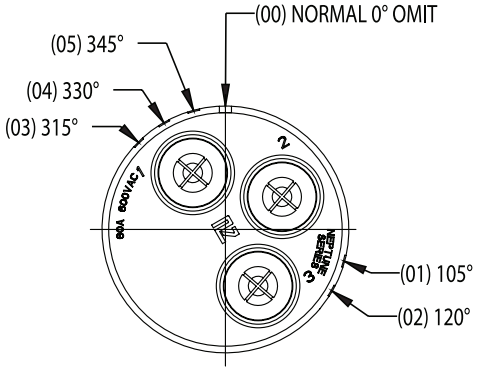

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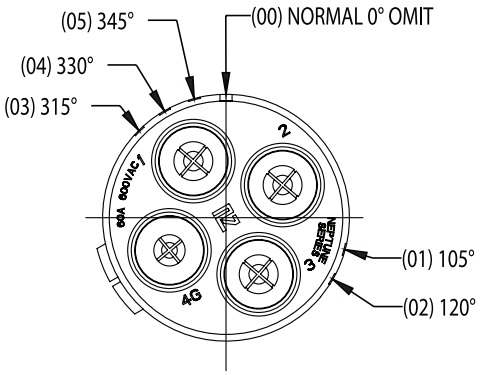

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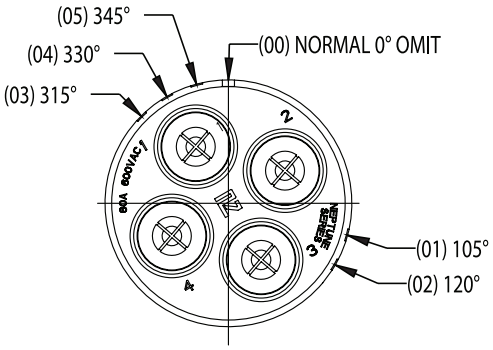

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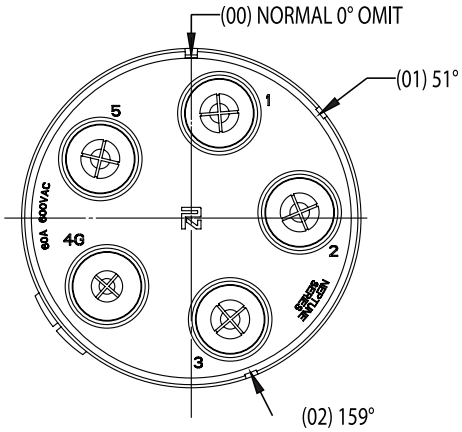
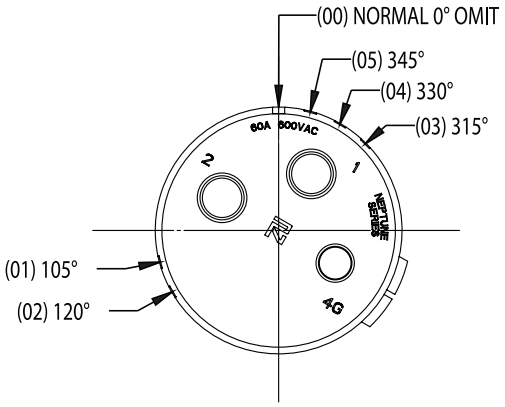


60 AMP

Receptacle

front face of socket insert shown

NR - 6023



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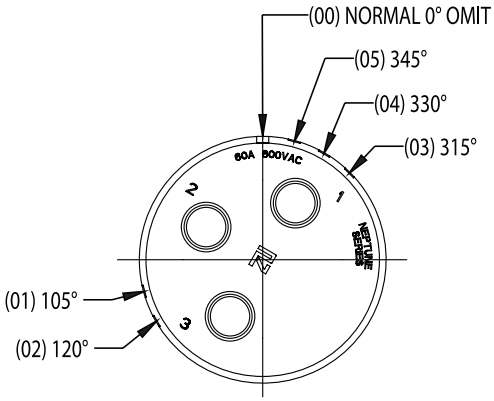

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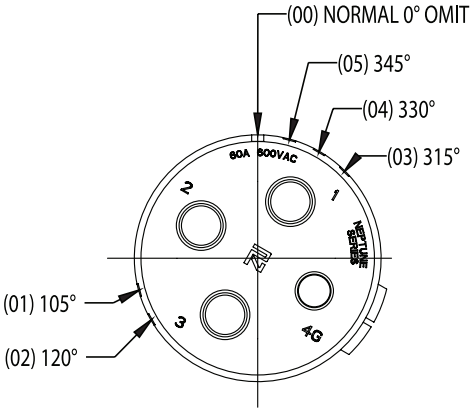

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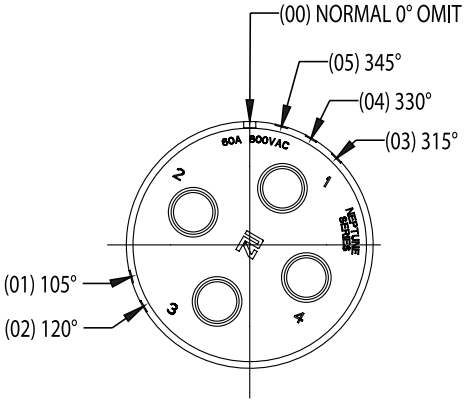

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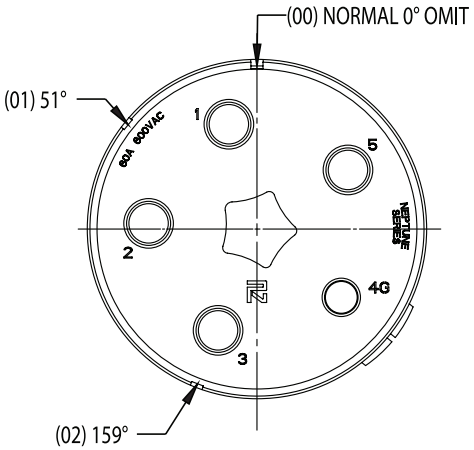

Plug

100 AMP

front face of pin insert shown

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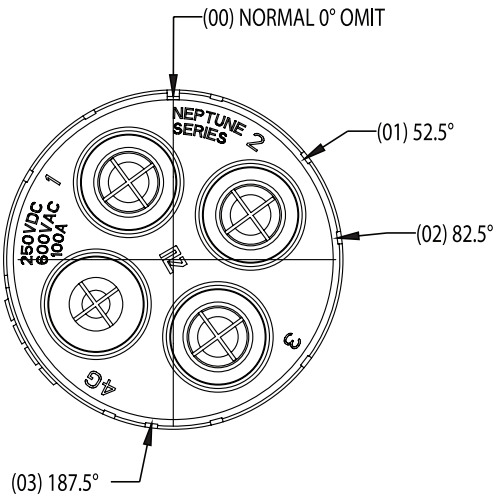

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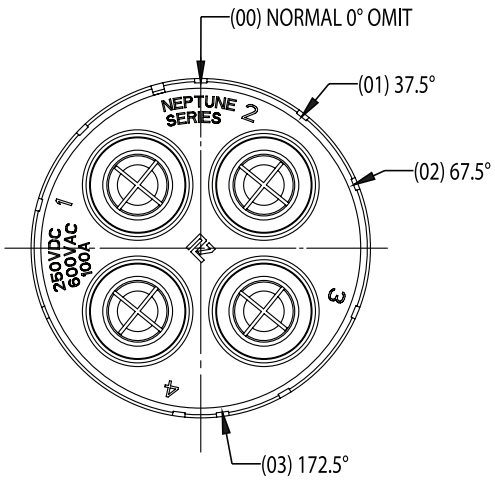

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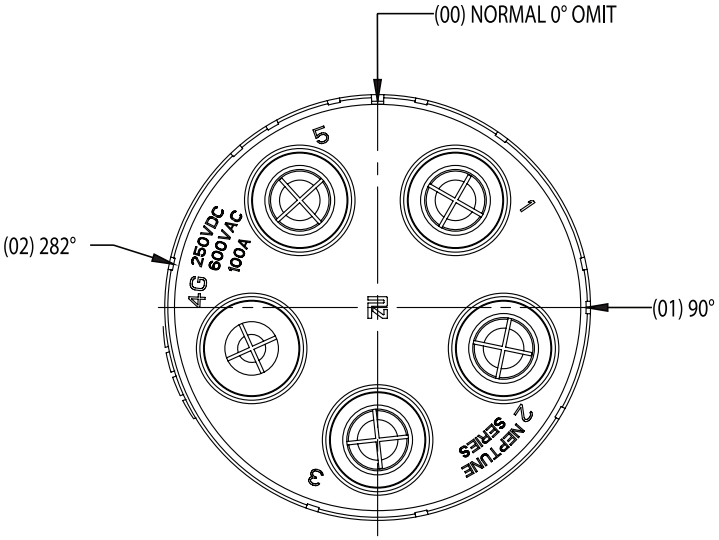

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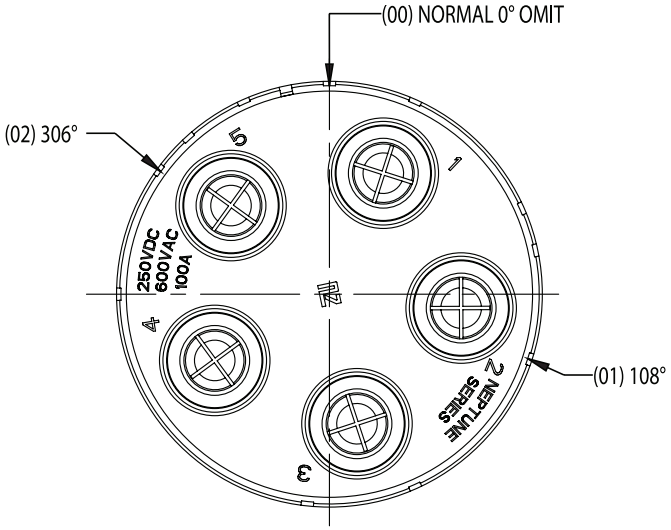

100 AMP

Receptacle

front face of socket insert shown

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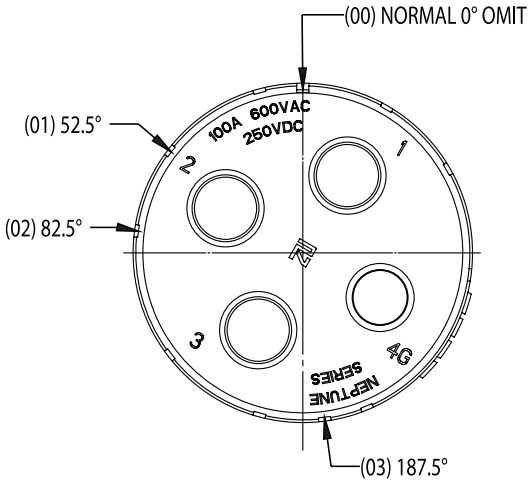

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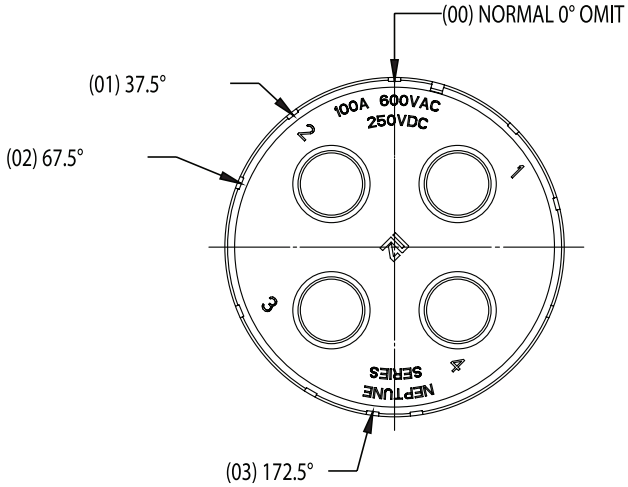

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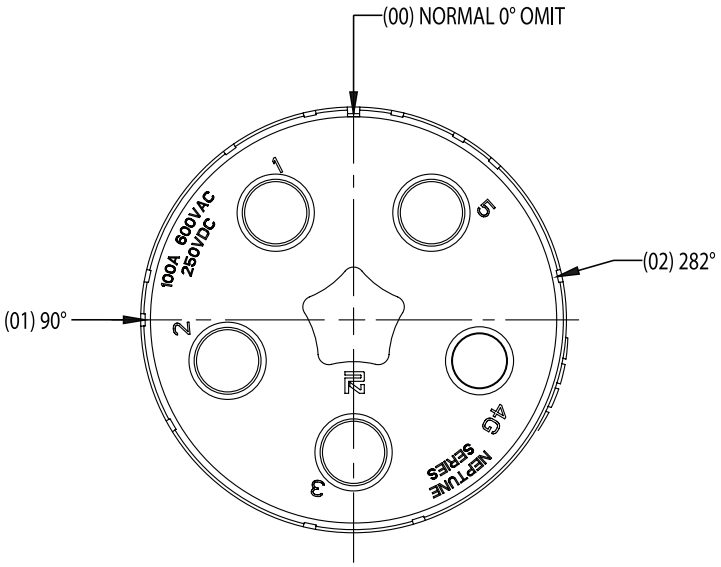

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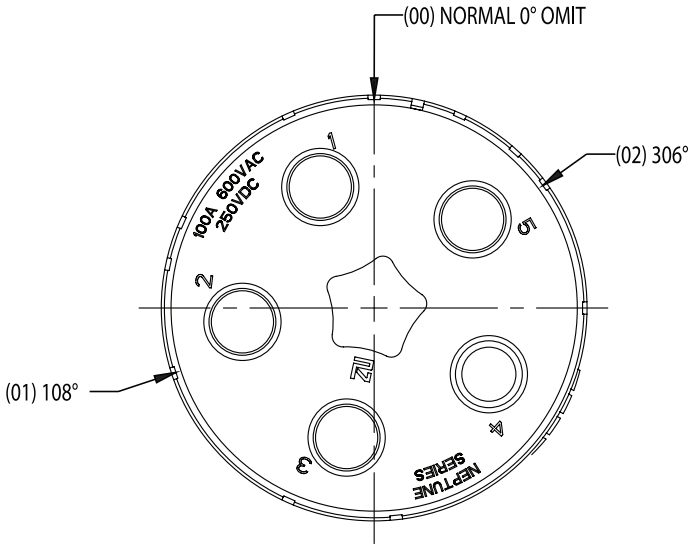

150 AMP

Plug

front face of pin insert shown

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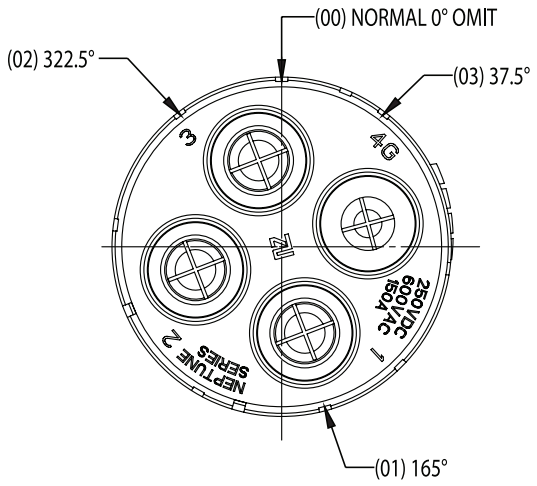

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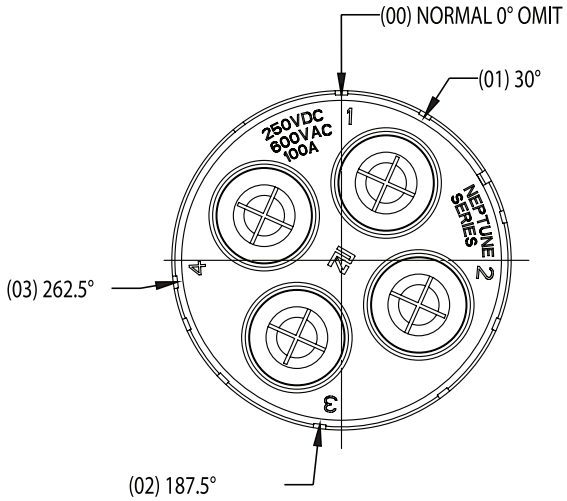

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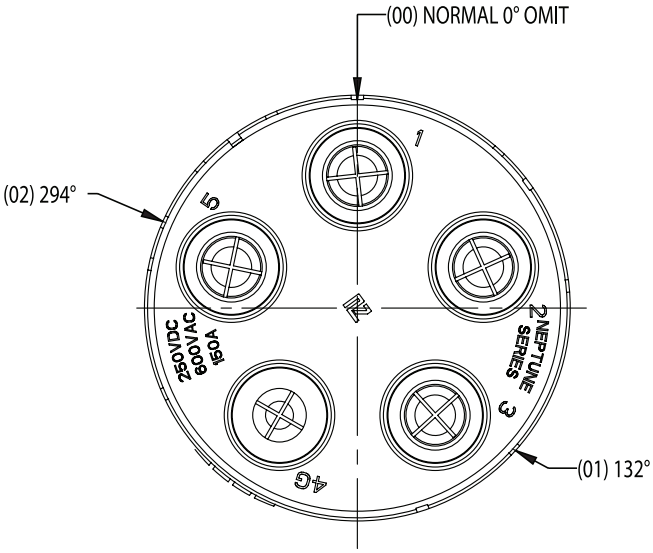

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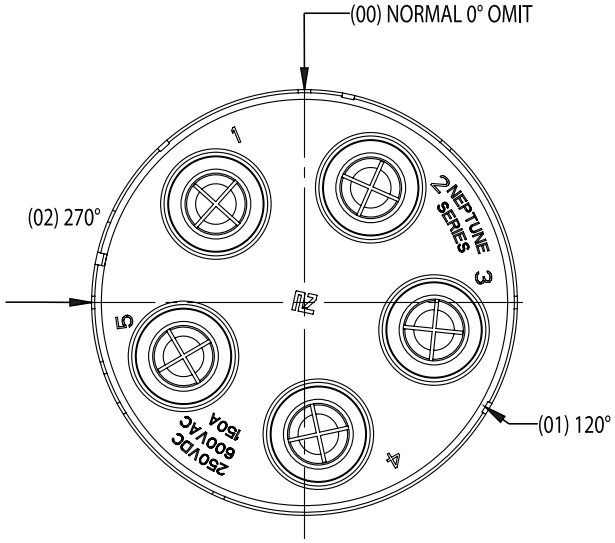
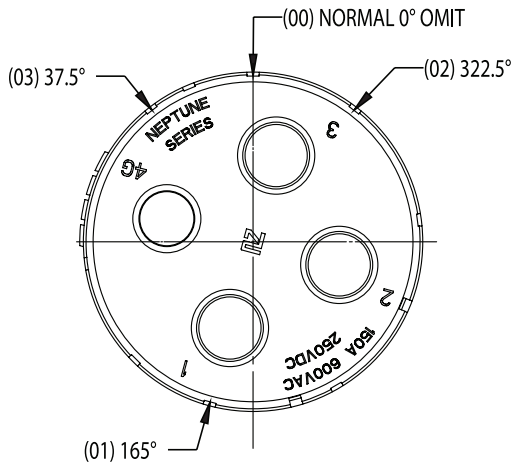


Receptacle

150 AMP

front face of socket insert shown

NR - 15034



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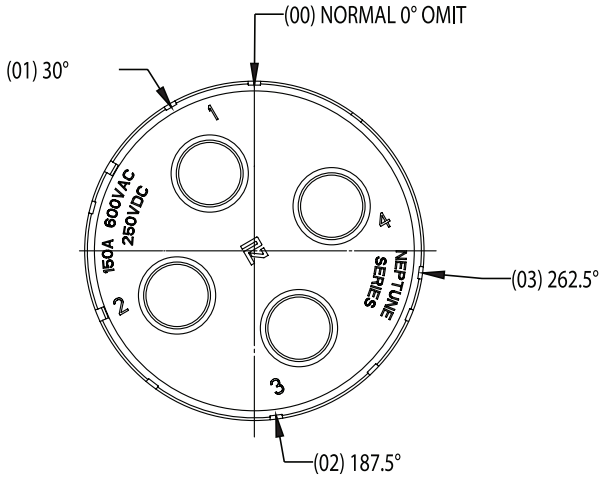

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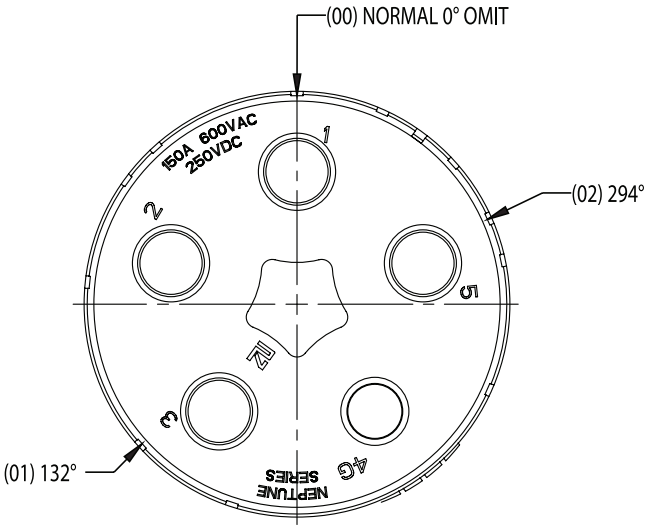

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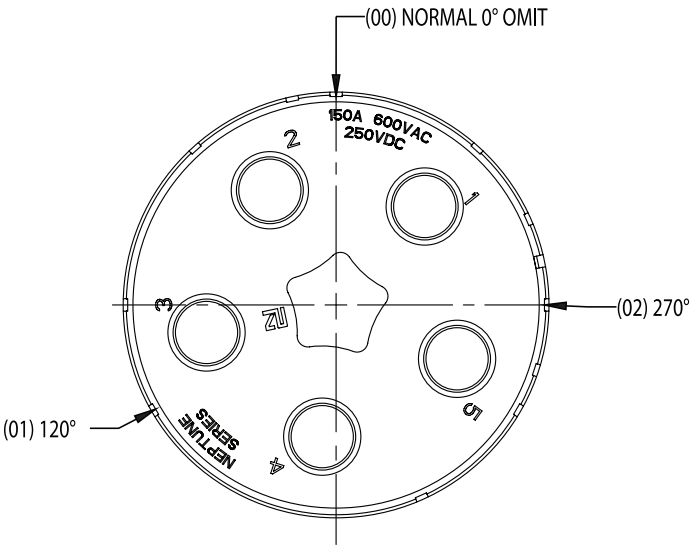
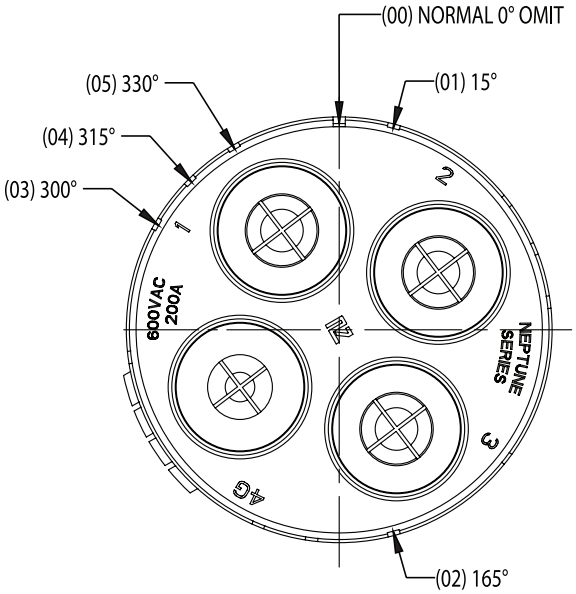


Plug

200 AMP

front face of pin insert shown

NPE - 20034



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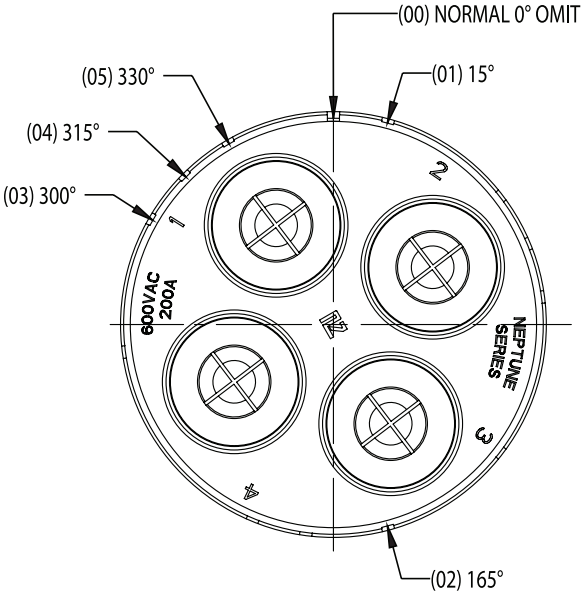

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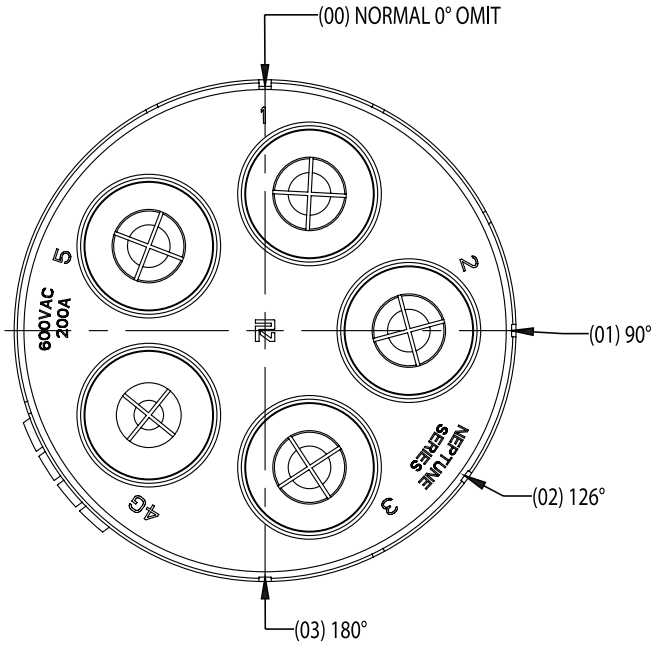

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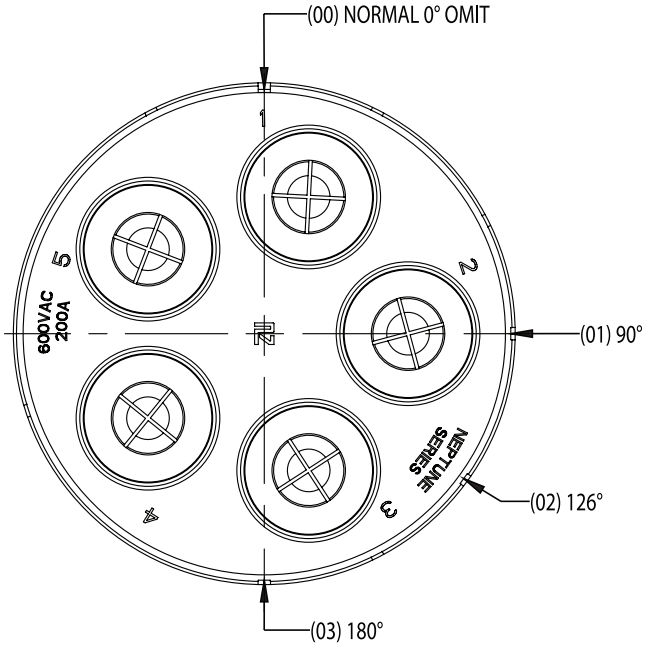

200 AMP

Receptacle

front face of socket insert shown

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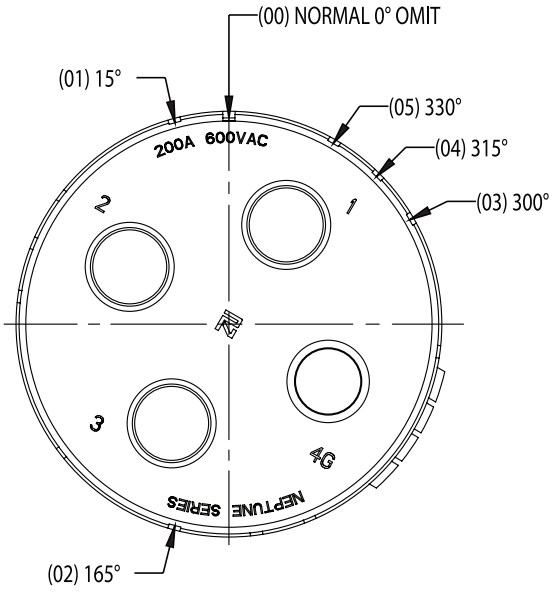

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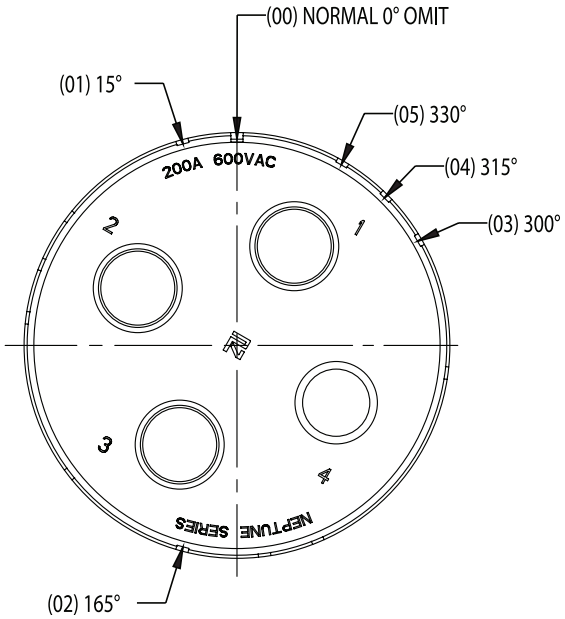

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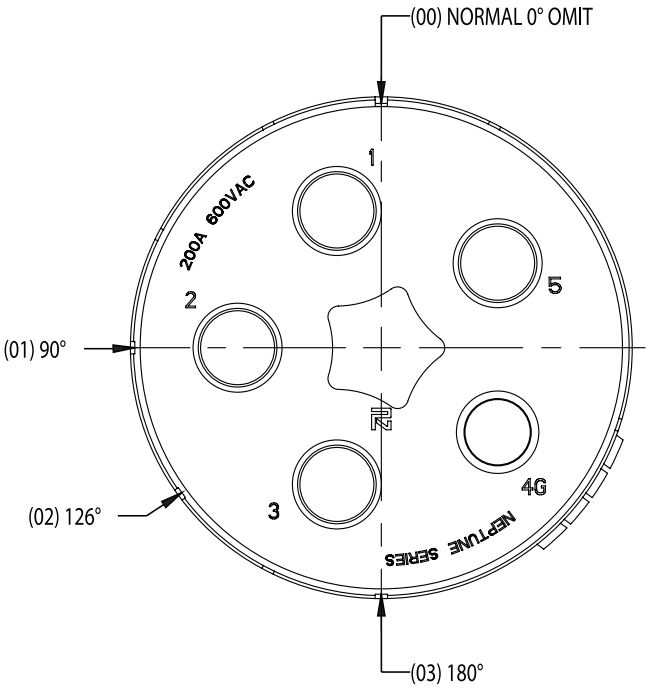

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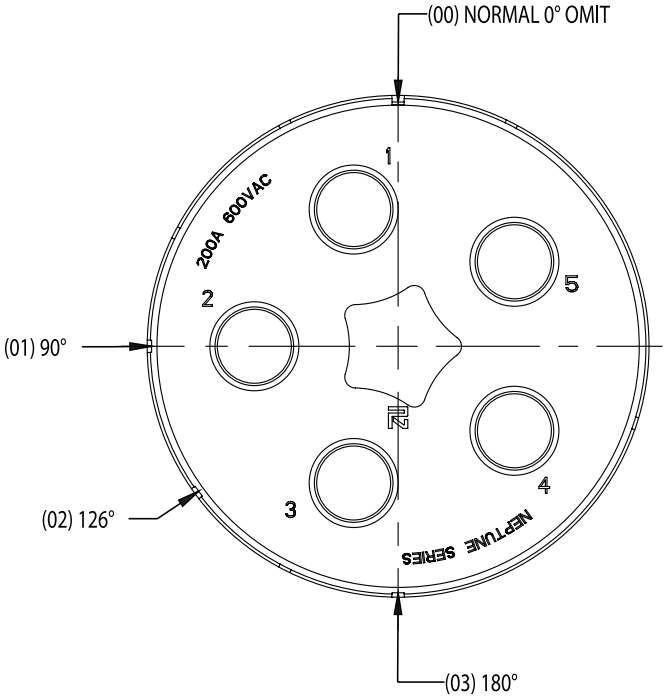

NEPTUNE Connector Assembly and Termination Instructions

Proper assembly of multiple-contact connectors, for the most part requires common sense. The simplicity of these instructions is perhaps the reason why they are easily overlooked or taken for granted. These 19 reminders can help eliminate connector failures caused by improper assembly.

1. Read the assembly instructions carefully before actually starting to assemble connectors. Besides the matter of instruction on correct procedures, there are two important reasons for this preliminary step: To identify the various component parts, and to check for any missing parts.
2. Cut cable jackets and sheathing squarely and to correct length, using only wire strippers that have been approved for the operation. In preparing the individual wires in cables and harnesses for assembly, make allowances in length for reaching the outermost circle of contact cavities in the connector insert. This, of course, means that the conductors and the insulation should be cut progressively longer as they extend out from the center of the cable or harness to assure sufficient length for any necessary forming.
3. Follow specifications covering maximum cable stripping lengths for efficient cable grommet sealing. All wires should be cut squarely so that they will fit into contact wire wells correctly.
4. Before starting actual termination wires, it is essential that cables and harnesses be laid out in a specified order in accordance with the wiring diagram. Proper layout will reduce the need for twisting and crossover of conductors. If the wiring layout is not correct, the termination operation will be difficult or even impossible and the chances for making errors will be increased. Cable and harness assemblies having a spiral layout also must be matched carefully to the correct contacts in both the male and female inserts.
5. Some cables have a soft filler or braid on the conductors which, compresses when external pressure is applied. As a result, the cable diameter may be reduced to a point where the sealing range of the grommet is exceeded. In addition, the seal may take a permanent set and further reduce sealing efficiency. To avoid leakage at the seal under these conditions, it is suggested that, where construction of the cable permits, a metal ferrule be slipped under the cable jacket at the stressed position. This ferrule will serve as a compression supporting member and enable the gland seal to withstand high external pressures.
6. Use only correct size sealing grommets to assure resistance to moisture and other contaminants. Make certain that cable jacket is smooth where grommet is to seal. Remove any grooves or ridges if present by sanding or scarfing.
7. Make certain that all contacts are the correct size before attempting to assemble them into insert cavities. This point is particularly important when both power and control types of contacts are used in the same connector.
8. Be sure that grounding contacts are correctly located.
9. After all contacts are terminated in their respective cavities and inspected, the cable adapter or insert clamp nut should be tightened with a wrench. This assembly operation should be done by placing the components in a vise with smooth-faced jaws and using a strap wrench.
10. When handling cables, use adequate support to prevent damage to the internal wires. Gland nuts and grommets are intended for sealing purposes and should not be used as a cable grip.
11. If one of the connector poles is a grounding wire, make sure that it is grounded properly before the connector is actually engaged.
12. When connectors having the same configuration are to be mounted close together, different or alternate keying arrangements should be used to prevent mismating or cross-mating and possible damage to the electrical system or human injury.
13. Always inspect all aspects of connector assembly operations before putting connectors into actual operation.
14. Terminating of conductors to contacts must be done carefully. Make certain that wire strands are fully bottomed in contact wells by checking through inspection hole provided.
15. Never try to straighten bent contacts. Straightening cannot be done properly and the plating on contacts will very likely be marred. This will result in a high resistance connection and will expose the base metal to possible corrosion.
16. Do not attempt to remove inserts that are bonded or locked in place in their shells.
17. Be certain that all components of connectors are assembled. Each part performs a vital function and it would not be included if it wasn't useful.
18. Each assembler of connectors should be his own inspector. Assembly workmanship is a significant factor in determining the quality of multiple-contact connectors. Quality cannot be "inspected" into connectors; it must be "built-in" during each and every assembly operation.
19. If potting connectors be sure to apply potting only in mated condition to assure that contacts will align properly.

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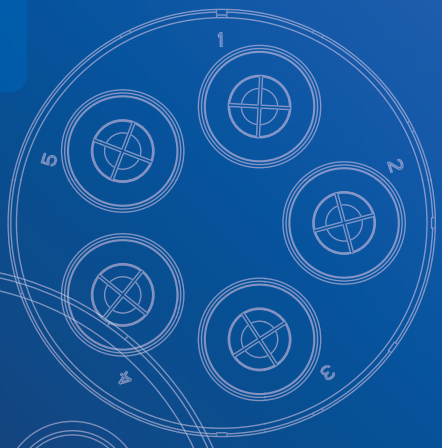

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