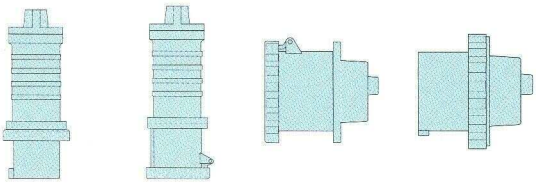
Watertight Pin and Sleeve Devices

North American Devices, 60 and 100 AMP

360R6W

4100P12W



AMPS	WIRING	VOLTAGE AC	CONNECTOR/ RECEPTACLE	PLUG/ INLET	WATERTIGHT PLUG	WATERTIGHT CONNECTOR	WATERTIGHT RECEPTACLE*	WATERTIGHT INLET
60	2p3w	125			360P4W	360C4W	360R4W	360B4W
	2p3w	250			360P6W	360C6W	360R6W	360B6W
	2p3w	480			360P7W	360C7W	360R7W	360B7W
	3p4w	125/250			460P12W	460C12W	460R12W	460B12W
	3p4w	3Ø250			460P9W	460C9W	460R9W	460B9W
	3p4w	3Ø480			460P7W	460C7W	460R7W	460B7W
	3p4w	3Ø600			460P5W	460C5W	460R5W	460B5W
	4p5w	3ØY120/208			560P9W	560C9W	560R9W	560B9W
	4p5w	3ØY277/480			560P7W	560C7W	560R7W	560B7W
	4p5w	3ØY347/600			560P5W	560C5W	560R5W	560B5W
100	2p3w	125			3100P4W	3100C4W	3100R4W	3100B4W
	2p3w	250			3100P6W	3100C6W	3100R6W	3100B6W
	2p3w	480			3100P7W	3100C7W	3100R7W	3100B7W
	3p4w	125/250			4100P12W	4100C12W	4100R12W	4100B12W
	3p4w	3Ø250			4100P9W	4100C9W	4100R9W	4100B9W
	3p4w	3Ø480			4100P7W	4100C7W	4100R7W	4100B7W
	3p4w	3Ø600			4100P5W	4100C5W	4100R5W	4100B5W
	4p5w	3ØY120/208			5100P9W	5100C9W	5100R9W	5100B9W
	4p5w	3ØY277/480			5100P7W	5100C7W	5100R7W	5100B7W
	4p5w	3ØY347/600			5100P5W	5100C5W	5100R5W	5100B5W

*Back-boxes for receptacles are noted on pages I 16 and I 17.

North American Watertight Devices

- Listed to UL 1682 and 1686, CE Approved
- Certified to CSA Standard C22.2 number 182.1
- IEC Classified to Standards 309-1 and 309-2 for both North American-rated and International-rated voltages and services

4100P12W

4100C12W

Materials

Inlet

PART	MATERIAL
Housing	Valox 357
Locking Ring	Valox 357
Mounting Flange	Valox 357
Contact Carrier	Nylon for 20 and 30 Amp devices; Reinforced nylon for 60 and 100 Amp devices
Phase, Ground Pins	Brass
Terminal Screws	Brass
Sealing Gasket	Solid Neoprene

Connector

PART	MATERIAL
Housing	Valox 357
Internal Cord Clamp Assembly	Thermoplastic
External Cord Clamp Assembly	Valox 357
Gland Cap	Valox 357
Grommet	Neoprene Onion Skin
Cover with Arm	Valox 357
Arm Spring	"Performance Grade" Stainless Steel
Cover Eyelet	Nickel-Plated Brass
Sealing Gasket	Solid Neoprene
Contact Carrier	Nylon for 20 and 30 Amp devices; Reinforced nylon for 60 and 100 Amp devices
Phase, Ground Sleeve	Brass
Sleeve Spring	Stainless Steel
Terminal Screws	Brass
Internal Screws	Zinc-plated Steel
External Screws	Acid-proof Stainless Steel

Plug

PART	MATERIAL
Housing	Valox 357
Locking Ring	Valox 357
Sealing Gasket	Solid Neoprene
Internal Cord Clamp Assembly	Thermoplastic
External Cord Clamp Assembly	Valox 357
Gland Cap	Valox 357
Grommet	Neoprene Onion Skin
Cord Clamp Screws	Acid-proof Stainless Steel
Gland Cap Screws	Acid-proof Stainless Steel
Contact Carrier	Nylon for 20 and 30 Amp devices; Reinforced nylon for 60 and 100 Amp devices
Ground, Phase Pins	Brass
Terminal Screws	Brass
Internal Screws	Zinc-plated Steel
External Screws	Acid-proof Stainless Steel

Receptacle

PART	MATERIAL
Housing	Valox 357
Mounting Flange	Valox 357
Cover with Arm	Valox 357
Arm Spring	"Performance Grade" Stainless Steel
Cover Eyelet	Nickel-Plated Brass
Sealing Gasket	Solid Neoprene
Terminal Screws	Brass
Phase, Ground Sleeves	Brass
Sleeve Spring	Stainless Steel

Watertight Application Guide

INDUSTRY	APPLICATION
Agriculture	For outdoor fans, HVAC pumping, and similar equipment.
Chemical Processing	For maintenance and process control equipment where electrical connectors are subject to immersion and corrosive chemicals.
Computer	For connections under raised floors or plenum spaces where moisture may be present, and the risk of accidental power disconnection must be virtually eliminated.
Construction	Use in areas where connections are outdoors and exposed to wet ground, severe weather or rough handling.
Food Processing	Use in areas subject to wash downs and where electrical connections are likely to see rough handling.
Entertainment	For outdoor connections subject to extremes of temperature and weather, particularly for critical loads such as sound and lighting.
Heavy Manufacturing	Areas where material particles, dust, or coolants might enter a device, or the connection may be subject to impact, temperature extremes, crushing, or other rough handling.
Light Manufacturing	Areas where connections are subjected to cleaning solvents or chemicals.
Wastewater Treatment	For outdoor use on aerators, pumps, and ventilating equipment, or in areas subject to moisture.

Pin and Sleeve Devices

460P7W

460C12W

Performance Specifications

Electrical

Dielectric Voltage	Devices rated≤ 300V: 2000V for 1 min. Devices rated >300V: 3000V for 1 min.
Insulation Resistance	500 V for 1 min. Insulation Resistance ≥ 5 megohms
Ground Path Current	Apply high current for short time (See Table 1) and maintain continuity
Overload	150% of rated current and 100% of rated voltage for 50 cycles (Power factor 0.75–0.80)
Current Interrupting	Certified for current interrupting at full-rated current and voltage
Temperature Rise	Max 30°C rise at full rated current (after overload)
Resistance to Arcing	Continuation of overload for additional 200 cycles
Endurance with Load	**Device** **# Cycles with Load** 20A 5000 Rated Current, Voltage 30A, 60A 1000 Rated Current, Voltage 100A 250 Rated Current, Voltage (Power Factor 0.75 - 0.80)

Mechanical

Mold Stress Relief	70°C for 7 hrs
Humidity	32°C, 93% humidity, 168 hrs
Cable Secureness	Pull force and apply torque for 1 minute (See Table 2)
Impact	Drop from 30" 8 times after conditioning to -25°C, for 6 hrs
Crush	250 lbs for 1 min after -25°C for 6 hrs
Withdrawal Force	Pull for one minute (See Table 3)
Strength of Insulating Base and Support	110% of specified tightening torque on terminal screws
Endurance	**Device** **Total #Cycles** (connect & disconnect) 20A 5000 30A, 60A 2000 100A 500
Polarization Integrity	Matching devices will not mate so that ground is energized even when polarization feature is removed and 40-lb insertion force applied

Environmental

Flammability	V2 or better on 20 and 30 amp devices per UL 94 or CSA 22.2 No 0.6 ; VO on 60 and 100 amp devices
Resistance to Corrosion	Ferrous parts immersed in 10% ammonium chloride solution at 20°C for 10 minutes
Moisture Resistance	**Watertight:** Device immersed for 24 hrs in 5 cm of 25°C water **Splashproof:** 1 inch diameter water stream at 15 PSI from 10 feet for 5 minutes
UV Resistance	Exposed plastic materials are UV stabilized

Table 1

SHORT-TIME GROUNDING TEST CURRENTS

Device Rating, Amperes	Minimum Size Equipment Grounding Conductor (Copper) AWG	(mm²)	Time, Seconds	Test Current, Amperes
20	12	(3.3)	4	470
30	10	(5.3)	4	750
60	10	(5.3)	4	750
100	8	(8.4)	4	1180

Ground-path integrity is of critical importance to safe operation of industrial equipment. Leviton pin and sleeve devices are tested by applying a test current through their ground path that far exceeds the device rating. All devices are properly wired and connected to line current at rated values. Then the ground path is subjected to a dramatic, sudden increase in current for 4 seconds. In all cases, the ground pin, sleeve, and terminals of the devices must sustain the test current, continue to function properly, and show no evidence of damage or deterioration in any electrical or mechanical elements of the ground path. Test current values and test parameters are displayed in the above chart.

Table 2

CORD OR CABLE SECURENESS TEST VALUES

Device Rating, Amperes	Force lb	N	Torque ft-lb	N•M	Maximum Displacement inches	mm
20	30	133	0.4	0.54	≤3/32	2.38
30	75	333	0.5	0.68	≤3/32	2.38
60	150	667	1.0	1.4	≤3/32	2.38
100	150	667	2.0	2.7	≤3/32	2.38

Heavy cord stress is typical of industrial applications. To assure you of top performance, Leviton pin and sleeve devices are subjected to a punishing series of tests to confirm they can absorb heavy cord pulls. The cord conductors wired to devices are simultaneously twisted and pulled. Values for the applied twisting torque and force of pull are shown above. In all cases, the cord displacement is less than 3/32 inches.

Table 3

MINIMUM WITHDRAWAL FORCE

Device Rating, Amperes	Minimum Withdrawal Force lb	N
20	5	22
30	6	27
60	15	67
100	20	89

In industrial settings, inadvertent disconnection of power can be troublesome at best, dangerous at worst, and unacceptable in any case. To verify that Leviton pin and sleeve plugs and connectors remain securely connected, they are tested to establish the minimum force required for withdrawal. In establishing these minimum withdrawal forces, the plugs and connectors are properly mated, but not locked with locking rings or other mechanical means. The pins and sleeves provide the only resistance to the force of withdrawal. In all cases, the values in the table above show the minimum force required to separate the plugs and connectors.