

IEC 309 PIN & SLEEVE DEVICES • MATERIALS

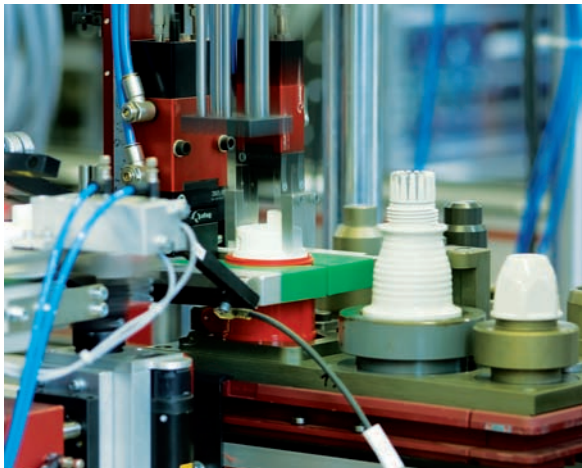
PLUG

Assembly Screws*	Steel, Electro Zinc Plated
Friction Ring*	Steel, Electro Zinc Plated
Gland Cap	Polycarbonate Blend
Grommet	Solid Neoprene
Housing (Front and Back)	Type 6 Nylon
Internal Cord Clamp	Type 6 Nylon
Locking Ring	Type 6 Nylon
Pins (Watertight)	Brass, Nickel Plated
Pins (Splashproof)	Brass
Sealing Gasket	Neoprene
Terminal Screws	Steel, Nickel Plated

INLET

Housing	Type 6 Nylon
Locking Ring	Type 6 Nylon
Mounting Flange	Type 6 Nylon
Pins (Watertight)	Brass, Nickel Plated
Pins (Splashproof)	Brass
Sealing Gasket	Neoprene
Terminal Screws	Steel, Nickel Plated

* Stainless steel available upon request



CONNECTOR

Assembly Screws*	Steel, Electro Zinc Plated
Cover	Type 6 Nylon
Cover Fastener	Nickel Plated Brass, Brass or Macrolon
Cover Spring	Stainless Steel (A2)
Friction Ring*	Steel, Electro Zinc Plated
Gland Cap	Polycarbonate Blend
Grommet	Solid Neoprene
Housing (Front and Back)	Type 6 Nylon
Internal Cord Clamp	Type 6 Nylon
Sealing Gasket	Neoprene
Sleeve Spring	Steel, Nickel Plated
Sleeves (Watertight)	Brass, Nickel Plated
Sleeves (Splashproof)	Brass
Terminal Screws	Steel, Nickel Plated

RECEPTACLE

Cover	Type 6 Nylon
Cover Fastener	Nickel Plated Brass, Brass or Macrolon
Cover Spring	Stainless Steel (A2)
Housing	Type 6 Nylon
Mounting Flange	Type 6 Nylon
Sealing Gasket	Neoprene
Sleeve Spring	Steel, Nickel Plated
Sleeves (Watertight)	Brass, Nickel Plated
Sleeves (Splashproof)	Brass
Terminal Screws	Steel, Nickel Plated

Manufacturing pin & sleeve devices, of superior quality, can only be accomplished through the use of high grade materials. That is an important part of the Walther Pin & Sleeve system — quality products you can depend on.

Male pins and female sleeves are made of high conductivity brass. Contacts used with watertight devices are nickel plated to prevent corrosion. The insulated housing is made from a high impact, nylon material. The nonmetallic device, while resistant to most solvents, chemicals and salt water, is also non-conductive, which enhances the safety of the product.

All extracts from manufacturing, test standard or independent agency approvals is for informational purposes only and are not intended to be, should not be used as, nor considered to be a complete description of such. Contact customer service for a more complete version of the test standard or agency approval in question.

Walther reserves the right to make technical descriptive and dimensional changes due to product changes and/or improvements.

DIN EN ISO 9001  Certificate Registration No. 4678-01

Minimum test requirements

ELECTRICAL

Insulation Resistance	500V for 1 min. Resistance $\geq 5M \Omega$
Dielectric Voltage Withstand	3000V for 1 min.
Ground Path Current	See Table 1
Endurance, Connect and Disconnect Cycles	See Table 2
Current Interrupting	Certified for current interrupting at full rated current and voltage.
Overload Test (Power factor 0.75 - 0.80)	Tested for current interrupting at 150% of the rated current and 100% of the rated voltage for 50 cycles.
Temperature Rise	Maximum 30° C rise at full rated current (after overload).
Resistance to Arcing	Continuation of overload test for an additional 200 cycles.

MECHANICAL

Mold Stress Relief	70°C (158°F) for 7 hours.
Humidity	32°C (89.6°F), 93% humidity for 7 days (168 hours).
Cable Secureness	See Table 3
Impact	A device is wired with a 90" (2300mm) length of flexible cord and dropped from 30" (760mm) 8 times. The device is then conditioned for 6 hours at -25°C and immediately subjected to a repeated impact test.
Crushing	250 lbs for 1 minute. The device is then conditioned for 6 hours at -25°C and immediately subjected to a repeated crushing test.
Withdrawal Force	See Table 4
Strength of Insulating Base and Support	110% of specified tightening torque on terminal screws.
Polarization Integrity	Matching devices will not mate so that the ground is energized, even when polarization feature is removed and 40 lb (180 N) insertion force is applied.

ENVIRONMENTAL

Flammability	V-2 or better per UL 94 or CSA 22.2 No. 0.6
Ambient Temperature Range	Minimum: -25°C (-13°F) with impact Maximum: 90°C (194°F)
Resistance to Corrosion	Ferrous parts immersed for 10 min. in a 10% solution of ammonium chloride at a temperature of 20°C.
Moisture Resistance	Watertight (IP67): Device immersed for 24 hours in water at a temp. of 25°C, the highest point of the device being 2" (5cm) below the water level. Splashproof (IP44): Device is sprayed with water for 10 minutes and immediately afterwards subjected to splashing water in all directions (360°).
UV Resistance	Exposed plastic materials are UV stabilized.

TABLE 1

Ground Path Current Test				
Device Rating Amperes	Minimum Size Grounding Conductor		Time, Seconds	Test Current, Amperes
	AWG	mm ²		
20	12	3.3	4	470
30	10	5.3	4	750
60	10	5.3	4	750
100	8	8.4	4	1180

A test current that far exceeds the device rating, is passed through the mating devices and grounding wires.

TABLE 2

Endurance Test			
Device Rating Amperes	Cycles with Load at Rated Current and Voltage	No-Load Cycles	Sequence
20	5000	0	-
30	1000	1000	Alternating
60	1000	1000	Alternating
100	250	250	Alternating

The test sequence is conducted by using a no-load, followed by a load sequence. The power factor of the load is 0.75 to 0.80.

TABLE 3

Cable Secureness Test						
Device Rating Amperes	Force		Torque		Maximum Displacement	
	lb.	N	ft.-lb.	N•m	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

The flexible cord or cable is simultaneously twisted and pulled. Values for the applied twisting torque and force of pull are shown in Table 3. In all cases the cord displacement is less than 3/32 inches.

TABLE 4

Withdrawal Forces Test			
Device Rating Amperes	Minimum Withdrawal Force		
	lb.	N	Time, Minutes
20	5	22	1
30	6	27	1
60	15	67	1
100	20	89	1

The pressure exerted by mating contacts of a plug and connector must be sufficient to prevent unintentional withdrawal during normal use. During the test, any locking rings or retaining means are not to be engaged.



These products are Listed to applicable UL Standards and requirements by Underwriters Laboratories Inc. UL 1682 UL 1686

