Parameter	Example				Distinguishing Features
Protection Class	C14		C18		with / without earth conductor contact
	Protection Class I		Protection Class II		
Rated Current	C8 A	C9	C14	C20	varying plug outlines
	2.5A	6A	10A	16A	
Pin Temperature	C14	C16	C16 A		plug outlines feature additional notches
	70°C for cold applications	120°C for hot applications	155°C for very hot applications		

Table 1: Standard's definition

Table 1 shows the various main criteria and their specific values according to the standard's definition.

Nominal current: The standard, instead of 'nominal current', uses the term 'rated current'. It defines the current for which the manufacturer has designed the appliance coupler.

Pin temperature TP is measured where the pin projects from the engagement surface (Figure 5). The maximum permitted pin temperatures are, according to the standard, 70°C, 120°C and 155°C, respectively. The appliance's normal ambient temperature T_{A1} during operation, according to IEC 60320, is 25°C and may occasionally reach 35°C. In other words, the pin temperature is determined essentially by the design of the respective appliance, i.e. its interior temperature T_{A2}, rather than by its ambient temperature. Typical applications with increased pin temperatures include appliances with heating coils such as ovens or electric grills.

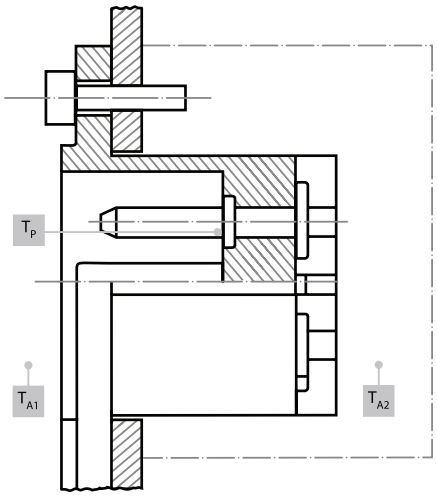

Figure 5: Lateral section view of an appliance inlet and its relevant temperatures

Protection classes are defined in IEC 61140. The IEC 60320 standard defines, for appliance couplers, protection class 1 and 2 types, i.e. types for appliances equipped with a protective conductor and special insulation.
In addition to the limiting values described, the standards define further general criteria such as withdrawal forces, testing procedures, the minimum number of plugging cycles and the number of flections in flexible cords. IEC 60320-1 codes the various plug outlines using a combination of letters and numbers (e.g. 'C14'), while IEC 60320-2-2 uses a single letter (e.g. 'F').

Tables 2, 3 and 4 describe the individual plug outlines in detail (Symbol, Type), i.e. their relevant nominal/rated current, pin temperature and protection class parameters. They also show which combination the standard defines. Each possible combination in the matrix is denoted with a dot. The columns list the components with the pins, while the lines show the sockets.

Normaly the parameter of inlet and outlet are similar (e.g. protection class 1 -> 1). It is generally possible to match a connector with a higher rated temerature with a lowe rated inlet.

Mating Appliance Coupler IEC 60320-1						Appliance Inlets										
						Gender Male										
					Symbol											
					Type	C6	C8	C8p	C10	C14	C16	C16A	C18	C20	C22	C24
					Current [A]	2.5	2.5	2.5	6	10	10	10	10	16	16	16
					Temperature [°C]	70	70	70	70	70	120	155	70	70	155	70
		Symbol	Type	Current [A]	Temperature [°C]	Protection class	1	2	2	2	1	1	1	2	1	1	2
IEC 60320 Connectors	Gender Female		C5	2.5	70	1	•										
			C7	2.5	70	2		•									
			C7p	2.5	70	2			•								
			C9	6	70	2				•							
			C13	10	70	1					•			□			
			C15	10	120	1					□	•		□			
			C15A	10	155	1					□	□	•	□			
			C17	10	70	2								•			
			C19	16	70	1									•		□
			C23	16	70	2											•

Table 2: Combinations according to IEC 60320-1; • Intended, □ Possible

Mating Intercorrection Coupler IEC 6032-2-2						lugs						
						Gender Male						
					Symbol							
					Type	A	C	E	G	I	K	
					Current [A]	2.5	2.5	10	10	16	16	
					Temperature [°C]	70	70	70	70	70	70	
		Symbol	Type	Current [A]	Temperature [°C]	Protection class	1	2	1	2	1	2
IEC 60320 Appliance Outlets	Gender Female		B	2.5	70	1	•					
			D	2.5	70	2		•				
			F	10	70	1			•	□		
			H	10	70	2				•		
			J	16	70	1					•	□
			L	16	70	2						•

Table 3: Combinations according to IEC 60320-2-2 • Intended, □ Possible

Mating Appliance Coupler IEC 60320-1						Plug						
						Gender Male						
						Symbol						
						Type	A	C	E	G	I	K
						Current [A]	2.5	2.5	10	10	16	16
						Temperature [°C]	70	70	70	70	70	70
		Symbol	Type	Current [A]	Temperature [°C]	Protection class	1	2	1	2	1	2
IEC 60320 Connectors	Gender Female		C5	2.5	70	1	•					
			C7	2.5	70	2		•				
			C13	10	70	1			•	□		
			C15	10	120	1			□	□		
			C15A	10	155	1			□	□		
			C17	10	70	2				•		
			C19	16	70	1					•	
			C23	16	70	2						•

Table 4: Combinations according to IEC 60320-1 • Intended, □ Possible

In addition to the connections within the standards, as mentioned, there are possible combinations between IEC 60320-1 and IEC 60320-2-2. Fitted with a flexible cord, the components become interconnection cords to be used for connecting appliances or for extending other interconnection cords or power supply cords.

Finding the mating Connection

Knowing which counterpart to choose for a given component is one thing; finding it is another. Out of this need, SCHURTER has created on its Web site the new 'Mating Connectors' [2] service reflecting the relationships shown in tables 2, 3 and 4 above.
This instrument makes it easy for the user to find the right power supply system fast instead of having to assemble it from individual components. There are two approaches to finding a solution.

- The user already knows a product from the SCHURTER catalog and is looking for the matching counterpart. One click shows all suitable counterparts.
- The user knows the desired parameters according to IEC 60320 (current, pin temperature, protection class). All combinations of matching appliance couplers with the corresponding characteristics are shown.

In both cases, the selection range is narrowed down step by step and iteratively by additional parameters and thus gradually adapted to the user's needs. Figure 6 shows the access via a specific SCHURTER product leading to a mating coupler or below the entry of a specific IEC-connector parameter to gain an overview of the specific SCHURTER inlets and their mating couplers.