

Technical Bulletin No: 28-2016



Title:	110V Power Tool Plug Selection
Priority	Green – Opportunity to Improve
Legislation:	PUWER, E@WR
Brief Description:	Many items of 110V equipment are routinely fitted with 16A plugs even though they have an indicated potential load of 16A or more e.g. 230mm angle grinders and large breakers. This bulletin is to clarify industry best practice.
Equipment Affected:	110V Power Tools and Equipment



A number of machines have an indicated current in excess of 16 amps e.g. many 230mm (9") grinders have a dataplate indicated current of 19A. During routine testing, the start-up current often is in excess of 16 amps but quickly reduces. Even in very harsh applications the operating current will rarely exceed 16 amps. On a risk managed approach, use of a 32 amp plug introduces a range of additional risks which may significantly outweigh the benefits of increased current capacity. Additional risk includes:

- Likelihood that the client will not have a suitable 32 amp supply and may then fit a 16 amp plug themselves without a subsequent combined inspection and test.
- Transformers with 32 amp outlets are significantly larger and heavier.
- 5kVA 32 amp transformers have thermal trips / protection devices that will not operate until at least 45 amps is drawn compared to a 3kVA transformer that has protection devices that operate at 28 amps or less.
- Dust extractors with Power Take-Off have 16 amp sockets which would prevent a power tool being used with the extractor if it is fitted with a 32 amp plug without establishing a separate 32 amp supply.

For 110v tools that are intermittent demand (see Bulletin 21) of up to 2,200 watts (2.2kW) a 16 amp plug that meets EN60309 may be fitted if it is likely that the client will not have a 32 amp supply.

Examples of **Intermittent Demand Equipment**: Drilling equipment, Grinders, Impact wrenches, Reciprocating saws Chop saws, Routers

NOTE: Its specification allows for a breaking load (being able to pull out the plug under load) of 125% of capacity i.e. 20 amps and so in the event of equipment failure, the plug can be separated from the socket even if 2,200 watts is being consumed.

1 – 16A Power Outlet on Dust Extractor	2 – Typical Data Plate
	
Recommended Actions:	<ul style="list-style-type: none"> • Review current provision • Use this bulletin with clients where concerns are raised regarding plug capacity
Circulation:	Management / Purchasing / Workshop Team

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