

Test Report No. 1877

ITACS[®]

International Testing and
Certification Services

PO Box 300, Hindmarsh
South Australia 5007
4-6 Second Street, Bowden
South Australia 5007
Telephone (08) 8346 8680
International + 61 8 8346 8680
Facsimile (08) 8346 7072
E-Mail itacs@itacslab.com

Product: **Clipsal type WHS series- single pole 250 V**
Clipsal type WHD series – double pole 250 V
Clipsal type WHT series – triple pole 440 V
20 A, 35 A, 55 A, 63 A and 80 A
surface mounting switches

Client: Clipsal Asia Limited
Kwai Chung N.T. Hong Kong

Nature of tests: BS EN 60529: 1992 - Specification for degrees
of protection provided by enclosures (IP code)

Result: IP66 Complied

Commenced: 1st July 2000 ; Completed: 23rd January 2001

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Authorised signature:



Jurek W. Botiuk 23rd January 2001



ACCREDITATION NO. 1700

The tests and measurements reported herein
have been performed in accordance with
NATA requirements including the
requirements of ISO/IEC guide 25:1990
and are traceable to National Standards of
Measurements. This document shall not be
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Detailed description of product

The **Clipsal** type **WHD35** 250 V, a.c., 35 A surface mounting switch consists of a base and a cover. The double pole switch mechanism is secured to the base via two screws and is operated by a rotating handle giving positive action to the switch actuator. All poles of the switch operate simultaneously via a single yoke with each bridge, contact set under spring tension. The base also contains a neutral link and an earth link for solid connection purposes. Entry to the enclosure is via four 25 mm screwed conduit entries and the switch is lockable in the "off" position.

IP rating protection is provided by:

- A foam gasket between the cover and base.
- Foam gasket and silicon grease between the rotary handle and cover.
- Assembly of cover to base is by four screws which are covered by plastic caps.
- Provision for screws for surface mounting are provided with plastic caps.
- Silicon used to seal conduit entry holes.

The **Clipsal** type **WHT20** 440 V, a.c., 20 A surface mounting switch enclosure is similar to the Clipsal type WHD35 except that it incorporates a triple pole switch mechanism and a neutral link.

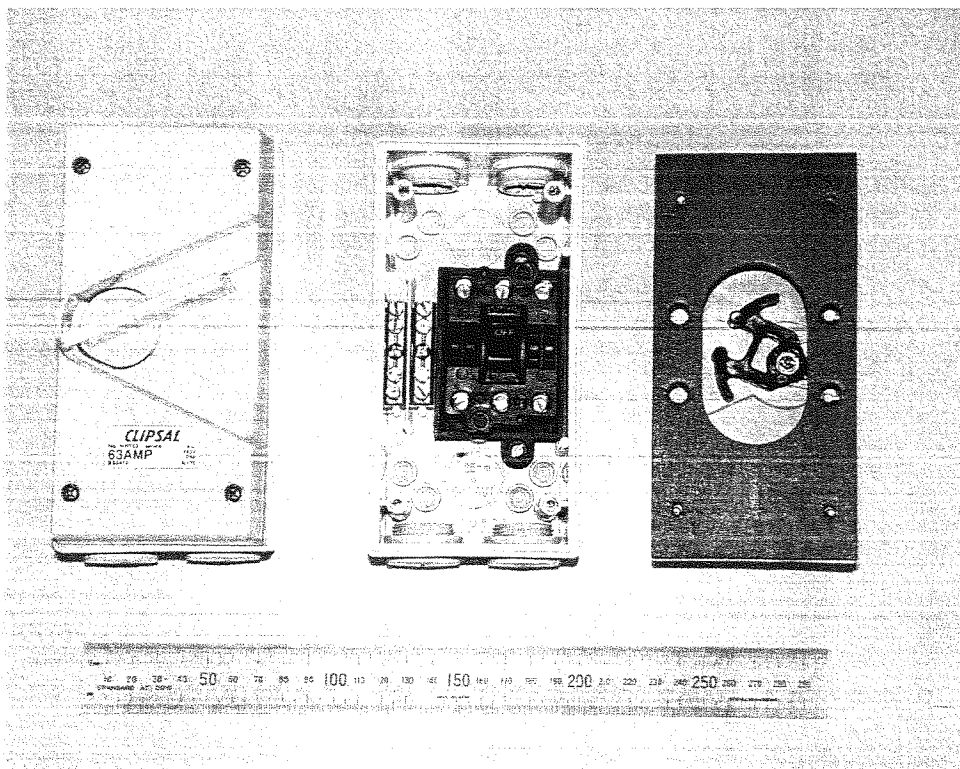
Approx. overall dimensions (mm)

170 x 82 x 81

Approx. mass per unit (g)

500

<u>Series</u>	<u>Model</u>	<u>Voltage (V)</u>	<u>Current (A)</u>
WHS	WHS20	250	20
	WHS35	250	35
	WHS55	250	55
	WHS63	250	63
WHD	WHD20	250	20
	WHD35	250	35
	WHD55	250	55
	WHD63	250	63
WHT	WHT20	440	20
	WHT35	440	35
	WHT55	440	55
	WHT63	440	63
	WHT80	440	80



Clipsal type WHT63 surface mounting switch as representative of the series

**Specification
and
Clause Nos.**

Clause Title
(Inc. a brief precis of Requirements and Criteria.)

**Actual Results
Assessments,
Remarks**

Notes

1. Details in Testing Record No. 1877
2. The brief precis in "column 2" provide an indication only of the prime requirements. For complete details applied, refer to the standard specification(s) and clauses listed in "column 1" herein.
3. Specification applied:
BS EN 60529 - 1992
BS EN 60669.1 - 2000
4. Reporting of results herein is in accordance with NATA recommendations taking into account U of M. Where measurement is on the limit or below the limit it is deemed to comply. Where measurement is above the limit it is deemed not to comply.
5. Client states test item(s) submitted are of production quality.
6. This test report is based on assessment(s) and test(s) applied to the specific test item(s) as submitted by the client. ITACS disclaims any and all responsibility or obligation for any other item.

The Clipsal types WHD35 and WHT20 were tested as representatives of the Clipsal type WHS, WHD and WHT series (refer page 2 herein).

BS EN 60529

- 11 **General requirements for tests**
11.1 **Atmospheric conditions for water or dust tests**
Recommended conditions.
Temperature range : 15°C to 35°C.
Relative humidity : 25% to 75%.
Air pressure : 86 kPa to 106 kPa.

Complied

BS EN 60669.1

- 15.2 **Resistance to harmful ingress of water**
The enclosure of switches other than ordinary shall provide a degree of protection against harmful ingress of water.

Complied

BS EN 60529

- 11.2 **Test samples**
Type tests. Test items tested in clean and new condition, with all parts in place and mounted, to wooden board, in the most onerous but normal conditions of use including testing conditions as per Cl. 15.2 of BS EN 60669.1.
For dust test, tested as category 1 enclosure, unenergised.
- 11.3 **Application of test requirements and interpretation of test results**
The requirements of this standard shall apply. In addition to determining the evaluation of the water tests, the H.V. test applied.
- 11.4 **Combination of test conditions for the first characteristic numeral**
- Test for protection against access to hazardous parts.
- Test for protection against solid foreign objects.
- 11.5 **Empty enclosures**
- 12 **Test for protection against access to hazardous parts indicated by the first characteristic numeral**
12.1 **Access probes**
Per table VI.
For first characteristic numeral:
0 - no test required.
1; a - sphere of \varnothing 50 mm with handle and guard.
2; b - jointed test finger \varnothing 12 mm x 80 mm with stop face.
3; c - test rod of \varnothing 2.5 mm x 100 mm long with handle and stop face.
4, 5, 6; d - test wire of \varnothing 1 mm x 100 mm long with handle and stop face.

Complied

Complied

Applied

Not applicable

Applied

Specification and Clause Nos.	Clause Title (Inc. a brief precis of Requirements and Criteria.)	Actual Results Assessments, Remarks
BS EN 60529		
12.2	Test conditions Access probe is pushed against or inserted through any openings with force specified in table VI.	Applied
12.3	Acceptance conditions The protection is satisfactory if adequate clearance is kept between access probe and hazardous parts.	Complied
12.3.1	For low voltage equipment ($\leq 1\ 000\ \text{V a.c.}$) The access probe shall not touch hazardous live parts.	Complied
12.3.2	For high-voltage equipment ($\geq 1\ 000\ \text{V a.c.}$) The access probe is placed in the most unfavourable position(s), the equipment shall be capable of withstanding the dielectric tests	Not applicable
12.3.3	For equipment with hazardous mechanical parts The access probe shall not touch hazardous mechanical parts.	Not applicable
13	Test for protection against solid foreign objects indicated by first characteristic numeral	
13.1	Test means Per table VII. For first characteristic numeral: 0 - no test required. 1 - rigid sphere of $\varnothing 50\ \text{mm}$ without handle. 2 - rigid sphere of $\varnothing 12.5\ \text{mm}$ without handle. 3 - rigid wire of $\varnothing 2.5\ \text{mm}$. 4 - rigid wire of $\varnothing 1.0\ \text{mm}$. 5 - dust test chamber with or without underpressure. 6 - dust test chamber with underpressure.	Applied
13.2	Test conditions for first characteristic numerals 1, 2, 3 and 4 The probe is pushed against any openings of the enclosure with force specified in table VII.	Complied
13.3	Acceptance conditions for first characteristic numerals 1, 2, 3 and 4 The protection is satisfactory if the full diameter of the probe does not pass through any openings.	Complied
13.4	Dust test for first characteristic numerals 5 and 6 Tested as category 1 enclosure. Test items were suspended vertically within dust chamber. Draw from enclosure $80\ \text{x enclosure volume at } \leq 2\ \text{kPa}$. - With extraction rate of $40 - 60\ \text{volumes/h}$ test for $2\ \text{h}$. - With extraction rate $< 40\ \text{volumes/h}$ test for $8\ \text{h}$, or until $80\ \text{volumes}$ have been reached.	Applied
13.5	Special conditions for first characteristic numeral 5	
13.5.1	Test conditions for first characteristic numeral 5 The enclosure shall be deemed category 1 unless the relevant product standard for the equipment specifies that the enclosure is category 2.	Complied
13.5.2	Acceptance conditions for first characteristic numeral 5 The protection is satisfactory if talcum powder has not accumulated in a quantity or location such that it would interfere with the correct operation of the equipment or impair safety.	Complied
13.6	Special conditions for first characteristic numeral 6	
13.6.1	Test conditions for first characteristic numeral 6 The enclosure shall be deemed category 1	Complied
13.6.2	Acceptance conditions for first characteristic numeral 6 On inspection no deposit of dust observable inside enclosure.	IP6X Complied

Specification and Clause Nos.	Clause Title (Inc. a brief precis of Requirements and Criteria.)	Actual Results Assessments, Remarks
BS EN 60529		
14	Test for protection against water indicated by the second characteristic numeral	
14.1	Test means Per table VIII: Test applied per Cl. 14.2.6	Applied
14.2	Test conditions Conducted with fresh water. Water temperature should not differ by 5 K from temperature of test item. If water temp. > 5 K below temperature of test item, a pressure balance is provided.	Complied
14.2.1	Test for second characteristic numeral 1 with the drip box The test is made with a device which produces a uniform flow of water drops over the whole area of the enclosure. The duration of test is 10 min.	Complied
14.2.2	Test for second characteristic numeral 2 with the drip box The dripping device is the same as specified in Cl.14.2.1 adjusted to provide the water flow rate specified in table VIII. The duration of test is 10 min.	Complied
14.2.3	Test for second characteristic numeral 3 with oscillating tube or spray nozzle (a) Conditions when using the test device as in figure 4 (oscillating tube) (b) Test for second characteristic numeral 3 with hand held test device shielded IPX3: water hand-held device with moving shield to fig. 5 applied from all practical directions. Water flow rate 10 L/min \pm 5% at 0.3 - 0.5 m for minimum 5 min.	Complied
14.2.4	Test for second characteristic numeral 4 with oscillating tube or spray nozzle (a) Conditions when using the test device as in figure 4 (oscillating tube) (b) Test for second characteristic numeral 4 with hand held test device IPX4: water hand-held device to fig. 5 applied from all practical directions. Water flow rate 10 L/min \pm 5% from 0.3 - 0.5 m for 5 min.	Complied
14.2.5	Test for second characteristic numeral 5 with 6.3 mm nozzle IPX5: water jet applied from all practical directions. Nozzle bore \varnothing 6.3 mm; water flow rate 12.5 L/min \pm 5% from 2.5 - 3 m for 3 min.	Complied
14.2.6	Test for second characteristic numeral 6 with the 12.5 mm nozzle IPX6: water jet applied from all practical directions. Nozzle bore \varnothing 12.5 mm; water flow rate 100 L/min \pm 5% from 2.5 - 3 m for 3 min.	Applied
14.3	Acceptance conditions Visual inspection for ingress of water - - insufficient to interfere with satisfactory operation of equipment or impair safety. - no deposit on insulation parts where it could lead to tracking along the creepage distance. - not reach live parts not designed to operate when wet. - not accumulate near cable ends nor enter cable.	IPX6 Complied
BS EN 60669.1		
16.2	High voltage test No flashover or breakdown to occur while the 50 Hz voltage specified applied for 60 s between: - switch breaks; 2 000 V - poles; 2 000 V - live parts (together) and metal foil wrapped over any accessible non-conductive part; 2 000 V	Complied