Test Report

No.: SHHL1807038189CE Date: AUG. 01, 2018

CORRAVENI INDUSTRIES CO., LTD.
NO.3, LANE 1473, ZHENGUANG ROAD, SHANGHAI, CHINA

The following sample(s) was/were submitted and identified by the client as:

Sample Description	: CLOSE-COUPLED CERAMIC TOILET, P-TRAP
Style No.	: PO121-P2
Country of Origin	: PRC
Sample Receiving Date	: JUL. 13, 2018
Testing Period	: JUL. 13, 2018 TO AUG. 01, 2018
Testing Location	: 3RD BUILDING, LANE 3999, XIUPU ROAD, PUDONG NEW AREA, SHANGHAI
Test Performed	: SELECTED TEST(S) AS REQUESTED BY APPLICANT
Test Requested	: 1. EN 997:2012+A1:2015 WC PANS AND WC SUITES WITH INTEGRAL TRAP (CLASS 1) 2. EN 33:2011 WC PANS AND WC SUITES - CONNECTING DIMENSIONS
Test Result(s)	: FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S)
Conclusion	: THE SUBMITTED SAMPLE MET THE TEST REQUIREMENT.

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Signed for and on behalf of
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

_____
Yomoro Gu
Authorized Signatory

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General product information

Manufactured from CORRAVENI INDUSTRIES CO., LTD.

THE SAMPLE SUBMITTED WAS A CLOSE COUPLED WC SUITES, MADE OF WHITE CERAMIC. WITH HORIZONTAL WASTE OUTLET, CLASS 1, FLUSH VOLUME: FULL FLUSH: 6L, REDUCED FLUSH: 3L.

Style No.: PO121-P2

Copy of marking plate and summary of test results (information/comments):

CE

CORRAVENI INDUSTRIES CO., LTD.
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Declaration of Performance DOP1807-PO121-S2
EN 997:2012+A1:2015-CL1 - 6A

Intended use: personal hygiene

Product type: WC pan and WC suite PO121-P2

Capacity of flushing water:	Pass
Backflow prevention (of foul air):	Pass
Cleanability:	Pass
Load resistance:	Pass
Valve reliability:	Pass
Water/leak tightness:	Pass
Durability:	Pass

CE marking on the product

Summary of testing:

The submitted samples were tested and found to comply with applicable requirements of EN 997:2012+A1:2015 and EN 33:2011.

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Test Conducted:

1. EN 997:2012+A1:2015 WC Pans and WC Suites with Integral Trap (Class 1)

2. EN 33:2011 WC pans and WC suites - Connecting dimensions

Sample Size: 1 piece

<table>
<tr><th>Clause</th><th>Test Method/ Requirement</th><th>Result</th><th>Rating</th></tr>
<tr><td colspan="4">1. EN 997:2012+A1:2015</td></tr>
<tr><td colspan="4">5 Functional requirements and test methods for class 1 products</td></tr>
<tr><td>5.1 Depth of Water Seal</td><td>When tested in accordance with 5.7.1, the depth of the water seal shall be not less than 50 mm.</td><td>Water Seal: 64mm</td><td>Pass</td></tr>
<tr><td colspan="4">5.2 Flushing requirements</td></tr>
<tr><td>5.2.1 General</td><td>Table1 correlates the flushing requirements to the WC pan type and flushing volume.
Table 1 — Flushing requirements
<table>
<tr><th>Type of WC pan in accordance with Table 2 and Table 3</th><th>Wash of bowl (5.2.2)</th><th>Flushing of toilet paper (5.2.3)</th><th>Flushing of 50 plastic balls (5.2.4)</th><th>Oversplashing (5.2.5)</th><th>After-flush volume (5.2.6)</th></tr>
<tr><td>9</td><td>X</td><td>X</td><td>X</td><td>X</td><td></td></tr>
<tr><td>7</td><td>X</td><td>X</td><td>X</td><td>X</td><td></td></tr>
<tr><td>6</td><td>X</td><td>X</td><td></td><td>X</td><td>X</td></tr>
<tr><td>5</td><td>X</td><td>X</td><td></td><td>X</td><td>X</td></tr>
<tr><td>4</td><td>X</td><td>X</td><td>X</td><td>X</td><td></td></tr>
</table></td><td>Type of WC pan: 6</td><td>Pass</td></tr>
<tr><td>5.2.2 Wash of Bowl</td><td>When tested in accordance with 5.7.2.3, the arithmetic average of any unflushed area below the rim and above the surface of the water in the trap shall not be more than 50 cm^2 after five flushing operations.
In case of rimless WCs, the surface to be tested is the area between the water surface and a horizontal line 85 mm below the top edge of the bowl.</td><td>See Result 1</td><td>Pass</td></tr>
<tr><td>5.2.3 Flushing of Toilet Paper</td><td>When tested in accordance with 5.7.2.4, 12 sheets of toilet paper shall be flushed out of the WC pan a minimum of 4 times out of five tests.
For baby WC pans, 6 sheets of toilet paper shall be flushed out of the WC pan a minimum of 4 times out of five tests.</td><td>See Result 2</td><td>Pass</td></tr>
<tr><td>5.2.4 Flushing of Fifty Small Plastic Balls</td><td>When tested in accordance with 5.7.2.5 after five tests, each with 50 balls, a minimum of 85% the balls shall be flushed out of the WC pan.</td><td>/</td><td>N/A</td></tr>
<tr><td>5.2.5 Over-Splashing</td><td>When tested in accordance with 5.7.2.6, flushing water shall not splash beyond the rim of the bowl and wet the floor. Only a few small drops are permissible.</td><td>/</td><td>Pass</td></tr>
<tr><td>5.2.6 After-flush Volume</td><td>When tested in accordance with 5.7.2.7, an after-flush volume of 2.5 L or 2.8 L as appropriate is required.</td><td>See Result 3</td><td>Pass</td></tr>
</table>

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Clause	Test Method/ Requirement	Result	Rating
5.3 Water Absorption	When tested in accordance with 5.7.3, the arithmetic average for water absorption of glazed ceramic WC pans shall not exceed 0.5% by mass.	Water absorption: 0.3%	Pass
5.4 Static Load	When tested in accordance with 5.7.4, wall-hung and non-ceramic WC pans and suites shall withstand a force of 4.00 ± 0.05 kN without showing any evidence of cracking or permanent deformation. Experience has shown that pedestal ceramic WC pans and WC suites comply with this requirement.	/	Pass
5.5 Additional requirements of flushing cisterns for close-coupled suites and one-piece WCs			
5.5.1 General	If close-coupled suites and one-piece WCs comprising a flushing cistern and a WC pan supplied or specified by the manufacturer as a unit, the following requirements shall be fulfilled.	See Below	Pass
5.5.2 Inlet valve of the flushing cistern	Flushing cisterns shall have an inlet valve complying with EN 14124.	See Remark 1	Pass
5.5.3 Supply piping	All materials of the supply piping which could be in contact with drinking water shall not be danger to health. They shall not change the taste, aroma or visual appearance of the drinking water. The use of elastomeric flexible supply hoses complying with EN 13618 is permissible inside the assembly.	/	N/A
5.5.4 Flush volume(s) of the flushing cistern	The flush volume(s) for one-piece and close-coupled flushing cisterns supplied with a WC pan shall conform to the value(s) specified by the manufacturer according to Table 3, when measured as described in 5.7.5.1. Flushing cisterns or their components shall be marked to allow the correct volume(s) of flush to be achieved.	See Result 4	Pass
5.5.5 Leaktightness between flushing cistern and bowl	When tested in accordance with 5.7.5.2, there shall be no leakage between the WC pan and the flushing cistern.	/	Pass
5.5.6 Outlet valve leaktightness	When tested in accordance with 5.7.5.3, the outlet shall not show any leakage greater than three drops within 15 min.	/	Pass

Clause	Test Method/ Requirement	Result	Rating
5.5.7 Outlet valve reliability	When tested in accordance with 5.7.5.4, the outlet mechanism functions shall be ensured. The flushing device shall not show any failure or permanent distortion of any component including linkages that prevents normal operation of the mechanism. The outlet of the flushing device shall not show leakage greater than three drops within 15 min.	See Remark 2	Pass
5.5.8 Overflow	When tested as described in 5.7.5.5, the overflow shall meet the requirements specified below: a) The distance between the maximum water level and the overflow level shall be ≤ 20 mm. b) The distance between the critical water level and the overflow level shall be ≤ 10 mm. c) The distance between the meniscus level and the overflow level shall be ≤ 5 mm.	a): 9mm b): 5mm c): 2mm	Pass
5.5.9 Safety margin – dimension “c”	When tested as described in 5.7.5.6, dimension “c” corresponding to the distance between the overflowing level and the maximum nominal water level indicated by the manufacturer shall be ≥ 20 mm.	Dimension “c”: 37mm	Pass
5.5.10 Safety margin – dimension “a”	When tested as described in 5.7.5.7, the dimension “*a*” between the overflow level and the lowest point of the air inlet orifice of the inlet valve shall be 20 mm minimum as required in EN 1717, to prevent backflow. In the case of an adjustable overflow, the adjustment shall provide a dimension “*a*” of 20 mm minimum.	Dimension “a”: 22mm	Pass
5.6 Durability	Class 1 products conforming to the requirements of 5.2 to 5.4 and 5.5.5 to 5.5.10 are deemed to be durable.	/	Pass
5.8 Types of independent WC pans, close-coupled suites and one-piece WCs			
5.8.1 Nominal flush volume	Type and test volume for a full flush shall be defined by the manufacturer. Baby WC pans belong to type 5 or type 4. The nominal flush volume of independent WC pans shall correspond to one of the types given in Table2.	Close-coupled WC pan Claim: 6.0L/3.0L Actual: 5.7L/3.0L See Result 4	Pass

Clause	Test Method/ Requirement	Result	Rating
	Table 2 — Types of independent WC pans Type / Nominal flush volume l / Test flush volume l 9 / 9 / $9^{0}_{-0,1}$ 7 / 7 / $7^{0}_{-0,1}$ 6 / 6 / $6^{0}_{-0,1}$ 5 / 5 / $5^{0}_{-0,5}$ 4 / 4 / $4^{0}_{-0,1}$ The nominal flush volume of close-coupled suites and one-piece WC pans shall correspond to one of the types given in Table 3. Table 3 — Types of close-coupled suites and one-piece WC pans Type / Nominal flush volume l / Test flush volume l / Reduced flush volume l 9 / 9 / $9^{0}_{-1,4}$ / Maximum 2/3 of the nominal flush volume as specified by the manufacturer 7 / 7 / 7 ± 0,5 6 / 6 / $6^{+0,4}_{-0,5}$ 5 / 5 / $5^{+0,4}_{-0,5}$ 4 / 4 / $4^{+1,0}_{-0,5}$		
5.8.2 Flushing devices	Independent WC pans shall be designed to be flushed by any one or both of the following separate flushing devices: Valve-type cistern Type A Pressure flush valve Type C	/	N/A
5.8.3 Verification of types	1) Connect the flushing cistern to a water supply of (0.2±0.1) MPa and adjust the flush volume in accordance with the manufacturer's instructions. 2) Flush the flushing cistern 3 times and measure the flush volume to accuracy of ±0,1L.The water supply shall be closed during the flushing operation. 3) The WC pan shall be classified on the arithmetic average resulting from three flushing operations referring to Table 2 or Table 3. 4) The flushing tests in accordance with this standard shall be carried out on the basis of the WC pan type (see Table 1).	See Result 4	Pass

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Clause	Test Method/ Requirement	Result	Rating
7. Dangerous substances	National regulations on dangerous substances may require verification and declaration on release, and sometimes content, when construction products covered by this standard are placed on those markets. In the absence of European harmonized test methods, verification and declaration on release/content should be done taking into account national provisions in the place of use.	/	N/A
8. Marking	The intended use of close-coupled suites, one-piece and independent WC pans with integral trap is personal hygiene in accordance with the scope of this standard. The intended use is also mentioned in Annex ZA, Tables ZA.1.1 and ZA.1.2. The abbreviation “PH” for the intended use personal hygiene may be used for CE-marking. A schematic drawing of the product may optionally follow the abbreviation for personal hygiene. Close-coupled suites, one-piece and independent WC pans with integral trap belong always to one class and type at least. For each class and type a set of requirements to be tested (see 9.2.2) is defined. Due to this a close-coupled suite, one-piece and independent WC pan with integral trap can be described with a designation code which includes all fulfilled essential requirements. The relevant product characteristics and the Essential Characteristics for close-coupled suites, one-piece and independent WC pans with integral trap including their abbreviations are given in Tables 4 and 5.	CE label was provided	Pass

Clause	Test Method/ Requirement	Result	Rating

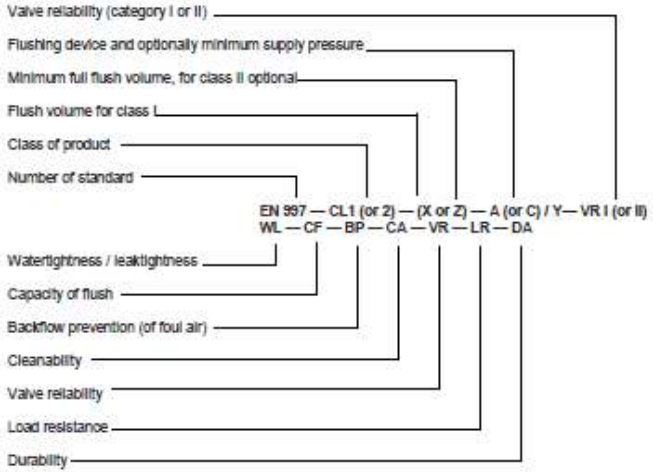
Table 4 — Characteristics and abbreviations for class 1 products

Abbreviation	Characteristics
EN 997	Number of European Standard for WCs and WC suites for product description
CL 1 - X	Class 1 product with fixed flush volumes (9 l, 7 l, 6 l, 5 l or 4 l)
(Y)	Minimum supply pressure (optionally)
A	Flushing cistern
C	Pressure flush valve
WL	Water tightness / leak tightness
CF	Capacity of flush
BP	Backflow prevention (foul air)
CA	Cleanability
VR(x)	Valve reliability (Class 1 close-coupled suites and one-piece WC pans only – category I or II)
LR	Load resistance
DA	Durability

Table 5 — Characteristics and abbreviations for class 2 products

Abbreviation	Characteristics
EN 997	Number of European Standard for WCs and WC suites for product description
CL 2 - Z	Class 2 product with flush volume ≤ 6 l and optionally minimum full flush volume (as Z)
WL	Water tightness / leak tightness
CF	Capacity of flush
BP	Backflow prevention (foul air)
VR	Valve reliability
CA	Cleanability
LR	Load resistance
DA	Durability

All close-coupled suites, one-piece and independent WC pans with integral trap shall be designated in accordance with the following system:



The declaration of the characteristics of the second line is considered being covered by the declaration of the relevant class. However, the characteristics should be listed when one of

Clause	Test Method/ Requirement	Result	Rating
	those characteristics is not declared.		
2. EN 33:2011			
2. Connecting dimensions			
2.1 Inlet of WC pans with independent water supply	The connecting dimensions of inlets of WC pans with independent water supply shall comply with the dimensions given in Tables 1, and 2.	/	N/A
2.2 Outlets of WC pans and WC suites	The connecting dimensions of WC pans outlets shall comply with the dimensions given in Tables 3 to 6.	See Result 5	Pass
3 Fixing dimensions for wall-hung WC pans and WC suites	The fixing dimensions for wall-hung WC pans and WC suites shall comply with the dimensions given in Table 7 and Figure 1.	/	N/A
4 Fixing dimensions for the seat	If the WC pan manufacturer does not provide a WC seat with the WC pan or does not recommend a suitable WC seat model, the fixing dimensions for the WC seat shall comply with the dimensions given in Table 8 and Figure 2. The angle is defined to ensure the stable position of the WC seat and its lid in the upright position (see Figures 3a to 3e).	See Result 6 See Remark 3	Pass

Remark:

1. The test report SHHL1805023412PL for inlet valve (side fill valve), issued by SGS lab on Jun. 08, 2018 was provided for test review.
2. The test report SHHL1611068947CE for outlet valve (flush valve), issued by SGS lab on Jan. 11, 2017 was provided for test review.
3. A suitable toilet seat was provided by client.
4. N/A = Not applicable.

Result 1 Wash of Bowl (cm²)

Flush times	1	2	3	4	5	Ave
Unflushed Area (Requirement:≤50)	0	0	0	0	0	0

Result 2 Flushing of Toilet Paper

Flush times	1	2	3	4	5
Number Flushed Out (Requirement: ≥4 times flushed out)	12	11	12	12	12

Result 3 After-flush Volume (L)

Flush times	1	2	3	4	5	6	7	8	9	10	Ave
After-flush Volume (Requirement: minimum ≥2.5 average ≥2.8)	2.9	2.8	2.9	3.0	2.9	2.8	3.0	3.0	2.9	2.9	2.9

Result 4 Flushing Volume of WC pans (L)

Flush times	1	2	3	Average
Full flush volume	5.6	5.7	5.7	5.7
Reduced flush volume	3.0	3.0	3.0	3.0

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Result 5 Outlets of WC pans and WC suites

a) Outlet dimensions

Designation	Symbol	Requirement	Result(mm)
External diameter of the outlet	d5	102±5	103
External cylindrical part of the outlet without grooves	i	≥ 40	49
Diameter of the free space around the outlet	k	≥ 150	238
Distance between the centre line of the outlet and the base of the appliance	t1	180^{+15}_{-10}	186
Distance from the plane passing through the end of the outlet and the base of the appliance	t2	≥ 10	/

b) Pedestal WC suites

Designation	Symbol	Requirement	Result(mm)
Distance between the vertical plane passing through the end of the outlet and the part of the WC suite nearest to the wall	q_1	140±25	142
		100±25	/
	q_2	≥ 115	/
Distance from the centre line of the outlet and the vertical plane passing through the part of the WC suite nearest to the wall	q_3	75±15	/
		120±25	/
		225±25	/
	q_4	120±25	/
		225±25	/

Result 6 Fixing dimensions for the seat

Designation	Symbol	Requirement	Result(mm)
Diameter of holes	d_6	15±2	15
Distance between the centres of holes	m	155±10	164
Distance between the centre line of holes and the front of the bowl	l	430±10	417
Angle between the vertical plane and the point P where an arc of length *l* taken from the centre line of the seat fixing holes meets the flushing cistern	α	≥8°	10°
Angle between the vertical plane and the point P where an arc of length *l* taken from the centre line of the seat fixing holes meets the wall			/

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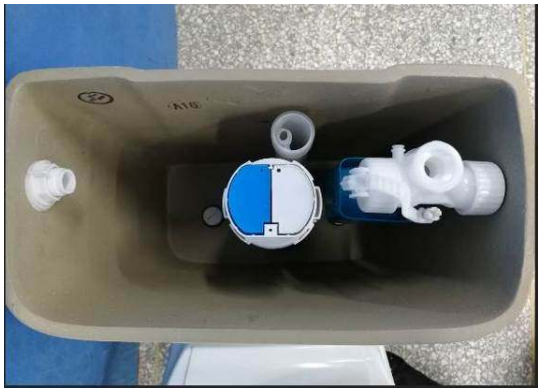
Sample Photo:

Test sample (Front view)

Test sample (Side view)

Test sample (Top view)

Test sample (Flushing cistern)



SGS authenticate the photo on original report only

End of Report

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