



Laboratory of Kohler (Thailand) Public Company Limited

32 M1, Tandieo, Kaeng Khoi, Saraburi 18110, Thailand

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Product Testing Report

Requester Product Engineer

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Requested by Mr. Natanon Duangrivong

Testing Place Laboratory of Kohler (Thailand) Public Company Limited
32 M1, Tandieo, Kaeng Khoi, Saraburi 18110, Thailand

Type Toilets /Dual Flush S Trap

Product name PINE 1 PCS TOILET : TRADEMARK : KARAT

Product code 99192ME-C-3X / 99192ME-C-WK

Standard required ☒ SASO1473 : ☐ Other (Please identify).....

Received date VC: 10 Oct 23 TN: 16 Oct 23

Test date VC: 12 Oct 23 TN: 16 Oct 23

Report date VC: 16 Oct 23 TN: 27 Oct 23

Sample condition Normal sample condition

Testing report number WC_S2310002

Sample number 1

Result The test result are detailed on the next pages

Reported by *Sompop Nuansri*

(Sompop Nuansri)

Technician of VC Laboratory

Checked/Approved by *[Signature]*

(Seangjan Kanjantuk)

Technician management VC Laboratory

Reported by *Dechhemmarut Boonchalee*

(Dechhemmarut Boonchalee)

Technician of TN Laboratory

Checked/Approved by *Jeerapa Butkanit*

(Jeerapa Butkanit)

Technical Management TN Laboratory

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FM-KT-GEN-510-4-20-04-21

Testing Report number : WC_S2310002

Sample Number : 1 Bar Code : ST336836X : Code model 99192ME-C-3X / 99192ME-C-WK

Type : Toilets / Dual Flush S Trap

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No.	Cluase	Description / Requirement	RESULTS		
			Sample1	Sample2	
1	7.1	Trap seal deepth (50 mm Min.)	54	-	
2	7.2	Trap seal restoration (50 mm Min.)	54	-	
3	7.3	Water consumption rate, Maximum flow rate (Lite/min)	<u>Nominal Flow Rate ,Q_{nom} Calculated</u>	3.16	-
			<u>Full Flush</u>		
		(a) Single Flush , (Floor-mounted Bowl) S-trap (3.0+0.5)	Maximum flow rate, Q _{max}	4.47	-
		(b) Single Flush , (Wall hung) P-Trap (4.0+0.5)	@ 1.5 bar (20 PSI)	4.21	-
		(c) Dual flush S-Trap (calculated) (3.0+0.5)	@ 3.0 bar (50 PSI)	4.47	-
		(d) Dual flush P-Trap (calculated) (4.0+0.5)	@ 4.5 bar (80 PSI)	4.72	-
			<u>Half Flush</u>		
			Maximum flow rate, Q _{max}	2.90	-
			@ 1.5 bar (20 PSI)	2.76	-
			@ 3.0 bar (50 PSI)	2.86	-
			@ 4.5 bar (80 PSI)	3.07	-
4	7.4	Granule and Ball			
		Granule (125 Max.)	13	-	
		Ball (5 Max.)	0	-	
5	7.5	Surface Wash (Longest / Total) (13 mm / 50 mm Max.)	0	-	
6	7.6	Mixed media			
		Sponges 1 st flush / 2 nd flush	20	-	
		Paper Balls 1 st flush / 2 nd flush	8	-	
7	7.7	Drain line transport characterization (12.2 m Min.)	14.68	-	
8	7.8	Overflow for gravity tanks (No leakage)	Pass	-	
9	5.2.3	Critical Level (CL) (25 mm Min.)	29	-	
10	2.5	Dye test @ Ratio 17/1 (Duel Flush only)	Pass	-	
11	2.5	4 Toilet Paper Balls (Duel Flush only)	4	-	

No.	Cluase	DESCRIPTION	REQUIREMENT		RESULTS	
			for floor-mounted bottom-outlet water closets	for rear-outlet and rear-spigot-outlet water closets	Sample1	Sample2
1	4.3	Outlet Dimension				
		Base Outlet Outside Diameter	95 mm max.	102 +/- 5 mm	78.10	-
		Base Ring Inside Diameter	184 mm min.	150 mm min	189.70	-
		Floor Flange Depth	13 - 19 mm		14.50	-
		Outlet Length	-	40 mm min	-	-
		Floor to Center Outlet	-	190 +/- 9.5 mm	-	-
		Floor Fixing Holes Size	19 x 11 to 25 x 13 mm	-	9.9/9.6	-
		Floor Fixing Hole Spacing	152 +/- 7.6 mm	-	-	-
2	4.5	Rough In Details	250 +/- 55 mm		305	-
3	4.6	Seat Mounting Holes				
		Seat Mounting Hole Spacing	140 +/-20 mm	140 +/- 20 mm	140.80	-
		Seat Mounting Hole Diamenter	14.5 +/- 1.5 mm	14.5 +/- 1.5 mm	16.60	-
4	4.7	Rim Profiles				
		A 'Length (Elongated)	400 - 600 mm	400 - 600 mm	474.70	-
		B 'Length (Round)	350 - 530 mm	350 - 530 mm	-	-
		Width	300 - 450 mm	300 - 450 mm	356.10	-
5	4.8	Water Surface Dimensions				
		Length	100 mm min	100 mm min	130	-
		Width	100 mm min	100 mm min	103	-

Testing Report number : WC_S2310002

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No.	Clause	DESCRIPTION	REQUIREMENT		RESULTS	
			for floor-mounted bottom-outlet water closets	for rear-outlet and rear-spigot-outlet water closets	Sample1	Sample2
6	4.9	Trap Diameter	38 mm min	38 mm min	52.0	-
7	4.12	Rim Heights				
		A - Adult water closets	340 mm min	340 mm min	408.00	-
		B - Handicapped/elderly water closets	340 - 485 mm	340 - 485 mm	-	-
		C - Children's water closets	240 - 270 mm	240 - 270 mm	-	-
8	4	Structural Integrity test for Wall-Mounted Bowl (Load test)	-	2.2kN, @ 10 Min	Pass	-
9	5	Joint seal test (Leak test)	34.5 ± 3.4 Kpa	34.5 ± 3.4 Kpa	Pass	-

- Remark
1. Ball size \geq 38mm.....52..... mm.
 2. *** not comply with SASO 1473/2016

Picture of Product : 99192ME-C-3X / 99192ME-C-WK

Reported by Sompop Nuansri

(Sompop Nuansri)

Technician of VC Laboratory

Checked/Approved by Seangjan Kanjantuk

(Seangjan Kanjantuk)

Technician management VC Laboratory

Reported date : __16 Oct 23____

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No.	Clause	DESCRIPTION	REQUIREMENT	RESULTS
				Sample1
1	5.2	Application of Glazing	Not visible surface un glaze after	OK
2	5.5	Thickness	not less than 6 mm	10.46
3	5.7	Water absorption		
		1. Vacuum and Boiling Method	Three determinations and the greatest	0.14
		2. Boiling Method	of the Three individual values	0.12
4	5.8	Crazing		
		PC1 Glaze Surface		No Crazing
		PC2 Glaze Surface or Unglaze Surface	'No Crazing / Metheylene Blue Solution	No Crazing
		PC3 Glaze Surface or Unglaze Surface		No Crazing
5	5.9	Chemical Resistance		
		1. Acetic acid, solution 10%	Compared with the control test piece / not difference is pass	not difference
		2. Citric acid, solution 10%		not difference
		3. Detergent, solution 0.15%		not difference
		4. Hydrochloric acid of specific gravity 1.18, 1:1 by volume		not difference
		5. Sodium Hydroxide, solution 5%		not difference
		6. Sodium stearate, solution 0.15%		not difference
		7. Sulphuric acid, solution 3%		not difference
6	5.10	Resistance to Staining and Burning		
		a. 0.5% aqueous solution of Methylene blue	No stain remained is Pass	No stain
		b. 10%-14% aqueous solution of Sodium hypochlorite an aqueous dilute solution of chlorine of 10% concentration is made from it		No stain
		c. 3% aqueous solution of Hydrogen peroxide		No stain
		d. Amyl tetrachloride		No stain
		e. Carbon tetrachloride		No stain
		f. 13 g of Iodine in 1 litre of ethanol		No stain
		g. A Lighted Cigarette		No stain
7	5.11	Abrasion Resistance		
		<u>Mineral</u>	The number of the mineral which caused scratches in the Glaze surface	6
		1. Talc 2. Selanite 3. Calcite 4. Plousspar 5. Apatite 6. Feldspar 7. Quartz 8. Topaze 9. Corundum		

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 Reported by Dechhemarut Boonchalee

(Dechhemarut Boonchalee)

Technician of TN Laboratory

 Checked/Approved by Jeerapa Butkanit

(Jeerapa Butkanit)

Technical Management TN Laboratory

Reported date : 27 Oct 23

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