



EVALUATION REPORT

5001 East Philadelphia Street
Ontario, California – USA 91761-2816

Ph: 909.472.4100 | Fax: 909.472.4243
<http://www.iapmortl.org>

Report Number: 2505-22014

Project No.: 38507

Report Issued: August 1, 2022

Client: Daldorado
4327 Arnold Ave
Naples FL 34104

Source of Samples: Engineering Evaluation

Location of Testing: Engineering Evaluation

Dates of Evaluation: June 20-23, 2022

Product Description: Model numbers DalMax-SG-187234, DalMax-SG-187242, DalMax-SG-244834, DalMax-SG-244842

Primary Standard: ANSI/APSP/ICC-16 2017 (PA)

Scope of Evaluation: The samples described in the product description were evaluated per section 3.9.1, 3.9.2 of the referenced standard.

Conclusion: The limiting flowrate of water through the samples described in the “Product Description” was established at 2556 gpm for the 18x72 models and 2140 gpm for the 24x48 models.

Report Status: COMPLETE

Evaluated By,



Sal Aridi, PE

This report replaces report number 2505-22013. It was reissued to add Tables 4B and 4C on page 3.

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The following is an engineering evaluation of the suction fittings outlined in Table 1 per the reference standard on page 1. The drawings of the units are in the annex. Each of the units is made up of 2 covers that were tested and reported under IAPMO report 2505-21008-004. A calculation of the flow rates was performed per Equation 1 of the reference standard and the rated flow rate (per that calculation) was established in Table 2. Then the flow rate was backcalculated using the 1.5 feet per second maximum mandated by the standard. Those flow rates are listed in Table 5 and those are the flow rates established as the rating for the purposes of this evaluation.

Table 1- Model Specifics

	DalMax -SG-187234	DalMax-SG-187242	DalMax-SG-244834	DalMax-SG-244842
Length (in)	72	72	48	48
Width (in)	18	18	24	24
Depth (in)	34	42	34	42
Return Pipe Size (in)	16	24	16	24
Distance From Cover to top of return pipe (in)	16.5	16.5	16.5	16.5
% Open Area of Cover	62%	62%	62%	62%

Equation 1

$$Q = a_R \sqrt{\frac{F}{C \frac{\rho}{2} a_B}}$$

Table 2 - Calculations Used Per Equation 1 of Section 3.9.1.1

Model	18x72	24x48
Flat Dimension (ft ²)	9	8
a _b (ft ²)	2.875	2.875
a _r (ft ²)	6.125	5.125
a _r After applying 62% open area (ft ²)	3.798	3.178
C (from APSP 16-2011)	2.1	2.1
F (lb)	120	120
p (slugs/ft ³)	1.94	1.94
Q (ft ³ /sec)	17.19	14.38
Flow Rate (gpm)*	7715	6456
Velocity through open area (ft/sec)*	4.53	4.53

*These values are based on the open area a_r After applying the 62% open area

Since section 3.9.2 limits the velocity to 1.5 ft/sec

Then back calculating at a velocity of 1.5 ft/sec Yields the following flow rates:

Table 3 – Final Rating Per the Standard @ 1.5 ft/sec

Model	18x72	24x48
Flow Rate (gpm)	2556	2140

Per IAPMO Test Report 2505-21008-004 the flow rates that were determined to pass the standard for the covers that are half the size of the models under evaluation of this report are:

Table 4 – Flow Rates Based on Testing

	Floor Rating	Wall Rating
Dalmax 18x36	2869 gpm	2080 gpm
Dalmax 24x24	1734 gpm	1600 gpm

Resulting in the following velocities:

Table 4B – Velocities Based on Testing

	Floor Rating	Wall Rating
Dalmax 18x36 ft/sec	6.35	4.60
Dalmax 24x24 ft/sec	5.54	5.11

Using the tested complying velocities of the 18x36 and 24x24 and interpolating them to the 18x72 and 24x48 yields the following data:

Table 4C- Applying the velocities derived from testing to the larger sizes

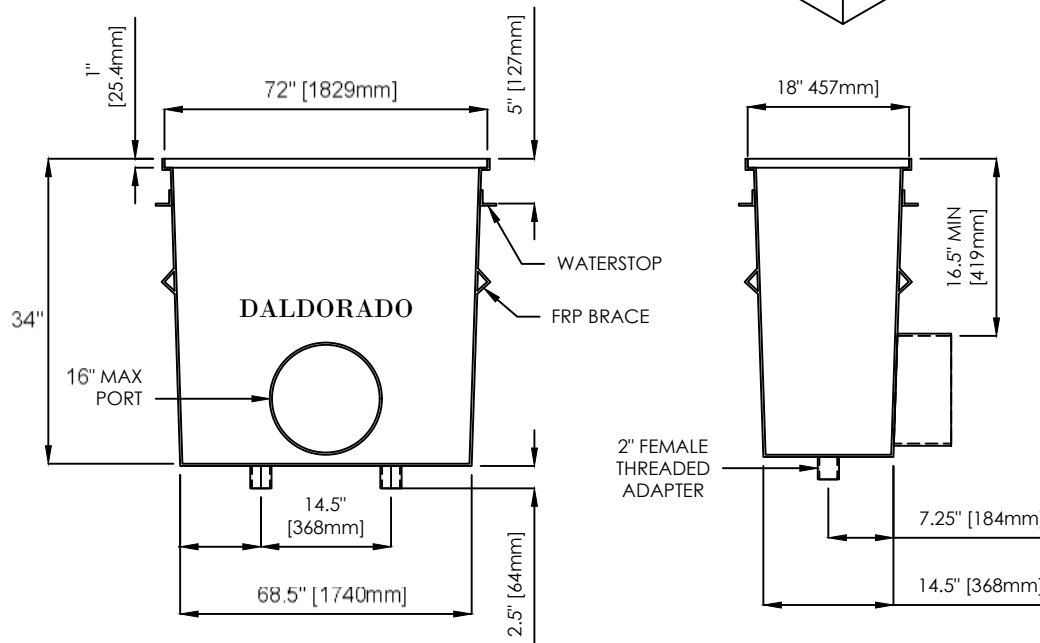
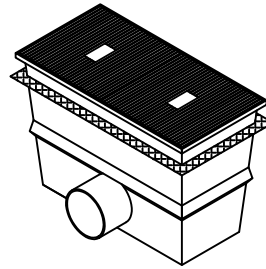
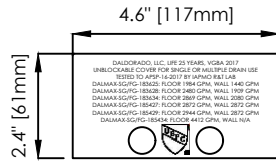
	DalMax -SG- 187234	DalMax-SG- 187242	DalMax-SG- 244834	DalMax-SG- 244842
<u>Calculated</u> based on Passing velocities of the smaller models (gpm) Floor	10822	10822	7900	7900
<u>Calculated</u> based on Passing Flow Speed of Smaller Models (gpm) Wall	7840	7840	7282	7282

Therefore based on the calculations of equation 1 and the testing done, the flow rates assigned to the following samples are:

Table 5 – Rated Flow Rates Using the 1.5 ft/sec Velocity

	DalMax -SG- 187234	DalMax-SG- 187242	DalMax-SG- 244834	DalMax-SG- 244842
Approved Flow Rates (gpm)	2556	2556	2140	2140
Approved Flow Speed (ft/sec)	1.5	1.5	1.5	1.5

Annex A



SUMP AND GRATE: UNBLOCKABLE SOFA CERTIFIED TO APSP/ANSI/ICC-16 2017, NSF/ANSI/CAN 50-2020, AND USPC. RPD FIELD CERTIFICATION IS NOT REQUIRED. CORROSION RESISTANT, NON-CONDUCTIVE, NON-MAGNETIC, AND REQUIRES NO BONDING.

SUMP: FABRICATED WITH 8-OZ FIBERGLASS MAT AND WHITE MARINE GRADE GEL COAT (APPLIED INSIDE ONLY). A 1.5-IN FRP WATER STOP IS LOCATED 5-IN BELOW TOP LIP OF SUMP AND A 1.5-IN FRP BRACE IS APPLIED, BOTH AROUND THE OUTSIDE PERIMETER. TWO (2) 2-IN SCH-40 FEMALE THREADED ADAPTERS ARE INSTALLED STANDARD ON THE BOTTOM OF THE SUMP FOR HYDROSTATIC VALVE CONNECTION. THE MAXIMUM SIDE PORT SIZE IS 16-IN, AND PORT SIZES > 16-IN ARE PERMITTED TO BE LOCATED ON THE BOTTOM. ANY CONFIGURATION OF MULTIPLE PORTS OF ANY SIZE IS PERMITTED PROVIDED ALL SIDE PORTS ARE ≤ 16-IN. THE CERTIFIED MAXIMUM FLOW RATE FOR THE SOFA MUST NOT BE EXCEEDED. "DALDORADO" IS STENCILED ON THE BODY, AND MARKING REQUIRED BY STANDARDS IS IMPRINTED ON THE LEDGE. OPTIONAL WATER STOPS ON PORTS, MOUNTING UNISTRUTS, AND PORT GUSSETS ARE AVAILABLE. PORTS MAY BE SCH-40 OR SCH-80, TYPE SLIP COUPLING, THREADED FEMALE ADAPTER, OR FLANGE COUPLING.

GRATE: FOUR (4) FLAT 18"x18" GRATES FORMED OF UV-STABILIZED MOLDED PVC, CERTIFIED TO APSP/ANSI/ICC-16 2017, NSF/ANSI/CAN 50-2020, AND USPC. THE TOP SURFACE OF THE GRATE HAS A TEXTURED DESIGN FOR SLIP RESISTANCE. GRATE SECTIONS ARE 0.20-IN (5MM) WIDE AND 1-IN (25.4MM) AVG. DEPTH FOR LOAD STRENGTH REQUIREMENTS. SPACE BETWEEN GRATE BARS DOES NOT EXCEED 0.39-IN (10MM). GRATE PROVIDES A MINIMUM 62% OPEN AREA FOR UNRESTRICTED WATER FLOW. THE MANUFACTURE DATE AND MARKING REQUIRED BY STANDARDS IS MOLDED INTO EACH GRATE.

INSTALLATION: FOLLOW DALDORADO SUPPLIED INSTALLATION INSTRUCTIONS AND WARNINGS. GRATE MUST BE INSTALLED WITHIN SUMP USING ONLY THE 316 SS 1/4"-20x1.25" MACHINE SCREWS (TESTED TO APSP/ANSI/ICC-16 2017) AS SUPPLIED BY DALDORADO. NO OTHERS ARE PERMITTED.

TOTAL GPM		
PORT CONFIGURATIONS	ANY PER NOTES ABOVE	
PIPE SCHEDULE-PVC	40	80
MAX PORT SIZE, SIDE	16-IN	
MAX PORT SIZE, BOTTOM	24-IN	
GRATE COLOR	WHITE	
ANY P.O. SUBMITTAL MUST BE ATTACHED TO ORDER FORM		

**SUMP LIFE: LIFE OF THE AQUATIC FACILITY
GRATES AND FASTENERS: 25 YEAR SERVICE LIFE/10 YEAR WARRANTY**

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Product: 18x72x34 Sump & Grate Package

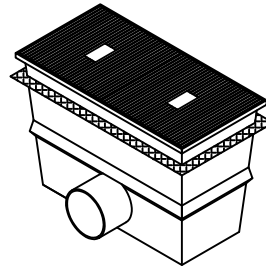
Product #: DalMAX-SG-187234

Material: FG/PVC Rev Date: 01/01/2022

Color: WHITE Rev By: JW BERGER

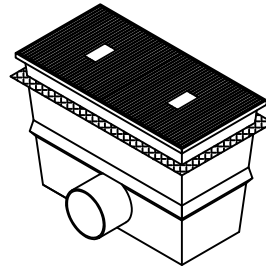
DALDORADO

4327 Arnold Ave, Naples, FL 34104
Phone: 888.509.8128
www.daldorado.com



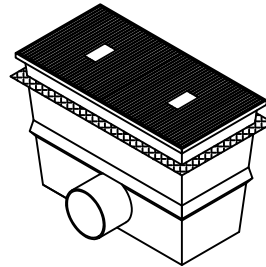
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