



# Central Park Hotel

1760 Central Park Dr.  
Steamboat Springs,  
CO

Outdoor Swimming Pool & 2 Spa's Submittal

4501 Airport Drive, Unit 101. Valparaiso, IN 46383, Phone: 219-736-7770, Fax: 219-736-7774

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- Design Considerations- Requires Coordination
- Basecrete & Basecrete Plus
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- Pool & Spa Heater Vent Kit Selection- Requires Venting & Intake Configuration Selection
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## Central Park Hotel

### Steamboat Springs, CO

A pre-construction meeting is preferred to discuss the below. The following items are required to be designed, engineered, and incorporated into each specific responsible parties' drawings and design package. These items are required for permitting, constructing, and operating of the swimming pool. The provided swimming pool drawings and submittal package are to be used as a guide by the design team and are not all inclusive to local code requirements and standard trade practices for all disciplines beyond the swimming pool design. We highly encourage a design team meeting, with the Architect, Structural Engineer, Electrical Engineer, Plumbing Engineer, Mechanical/HVAC Engineer, and Landscape/Civil Engineer.

#### **Architectural/Structural Engineered Signed and Sealed Drawings**

- Permits and Submissions for Items Specific to Design
- Sleeves and Penetrations in Mechanical Room
- Minimum Perimeter Deck Width Requirements
- Minimum/Maximum Perimeter Deck Slopes
- Perimeter Deck Finish Materials
- Access Hardware for Doors and Windows Leading into Pool Area
- Restroom Location and Fixture Count Requirements
- Mechanical Room Sizing for All Specified Equipment and Clearances
- Chemical Storage Location Requirements
- Minimum 40" Clear Door Width leading into Mechanical Room
- Door Access Hardware
- Signage Requirements and Locations Throughout Pool Area
- ADA Accessibility Requirements
- Ingress and Egress Requirements
- Acoustical Treatments for Indoor Pool Facilities
- Safety Equipment Locations in Pool Area

#### **Electrical Engineered Signed and Sealed Drawings**

- Permits and Submission for Items Specific to Design
- Bonding of all Metallic Items with 5 Feet of Pools Edge
- Bonding of all Equipment in Mechanical Room
- Electrical Panel Location and Clearances
- Deck Lighting and Photometric Design and Testing
- Circulation Pump Power and Control Switching
- Contactor and Starter for Circulation Pump
- Underwater Light Terminations and Junction Boxes



- Underwater Light Transformer Power and Location
- Underwater Light Power, Switching and Location
- Heater Power and Switching Locations
- Chemical Feed and Monitoring System Power and Location
- Accessible Telephone and Signage

#### **Plumbing Engineered Signed and Sealed Drawings**

- Permits and Submission for Items Specific to Design
- Deck Drain Locations and Details
- Deck Drain Termination Details
- Sump Pit and Sump Pump Sizing and Location
- Backwash Drain Location and Capacity in Mechanical Room
- Floor Drain in Center of Mechanical Room
- 1" Makeup Water w/ RPZ Valve in Mechanical Room
- Hose Bibs on the Pool Deck, 50' Maximum Hose Reach
- 1 Hose Bib in Mechanical Room
- Hose Bibs in the Restrooms
- Shower Supply, Drain and Location on the Pool Deck
- Drinking Fountain Supply, Drain and Location
- Eyewash Supply, Drain and Location in Mechanical Room
- Gas Supply for Pool Heater

#### **Mechanical/HVAC Engineered Signed and Sealed Drawings**

- Trade Permits for Items Specific to Design
- Make-Up Air Duct Sizing and Material for Heater
- Exhaust Duct Sizing and Materials for Heater
- Exhaust Duct Design and Maximum Distances
- Venting Termination Locations
- Exterior Building Termination Details for Ducts
- Mechanical Room Ventilation Requirements
- Chemical Storage Room Ventilation
- Dehumidification Unit Sizing for Indoors
- Dehumidification Controls for Auxiliary Heat Capture

#### **Landscape/Civil Engineered Signed and Sealed Drawings**

- Trade Permits for Items Specific to Design
- Minimum Deck Width Requirements
- Minimum/Maximum Deck Slopes
- Fencing, Gates and Railing Details
- Deck Drain or Sheet Draining Narratives and Details
- Deck Finish Materials and Coefficient Ratings
- Soils Reports and Corrective Actions

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# Basecrete & Basecrete Plus

The background of the page is a blue gradient with concentric ripples, resembling water. The ripples are centered in the lower half of the page and fade out towards the top.



# **BASECRETE**

Flexible Waterproof Bondcoat



## **BASECRETE**

**A Highly Flexible Concrete Repair Mortar for;**

- **Protecting Concrete Structures**
- **Waterproofing Concrete Vessels**

**Power - Strength - Flexibility**

Basecrete : A Higher Level of Concrete Protection



## Description of Basecrete

BaseCrete is a waterproof bondcoat for use in all applications where a solid and durable waterproof barrier is required. BaseCrete will adhere to most surfaces, is resistant to most chemicals and corrosive agents and can withstand a high degree of movement while maintaining its integrity. BaseCrete can be used to protect any concrete structure or surface from deterioration due to water infiltration. In addition Basecrete protects the underlying structure against the corrosive elements often found in water such as salt. BaseCrete is also completely resistant to all the chemicals used in pool maintenance. In industrial applications Basecrete will protect the underlying structure against the destructive effects of many acids and other corrosive agents. Basecrete can be used to protect new construction against deterioration from above agents as well as to repair structures that have already suffered deterioration as a result of water infiltration and/or the effects of corrosive agents. BaseCrete is a versatile multi-purpose overlay product imparting industry leading protection to all types of structures.

## Composition

BaseCrete is a mix of polymers and specialized cement resulting in an extremely dense mortar. The unique polymers impart an exceptional degree of impermeability while the specialized cement adds a degree of adhesion that is unrivalled in the industry today. In addition the product has an exceptionally high degree of elasticity that clearly surpasses the tolerances for movement built in to most structures. The combination of the above factors results in a product that acts like concrete, can be applied like concrete yet is waterproof, adheres to anything and can withstand a considerable amount of movement.

## Applications

BaseCrete can be used anywhere one wishes or needs to protect against water infiltration or the effects of corrosive agents or even both at the same time. The unique elasticity of BaseCrete makes it particularly useful in applications such as suspended pools where a certain amount of movement is inevitable. Balconies exposed to the elements, particularly in coastal regions, are also prime candidates for application of Basecrete. Overflow gutters for infinity and vanishing edge pools are ideal applications for BaseCrete as are all types of water features.

## TECHNICAL SPECIFICATIONS

### IMPACT STRENGTH

19 lbs / 8.6 kg

### COMPRESSIVE STRENGTH

7050 psi / 48.61 MPa

### TENSILE STRENGTH

732 psi / 5.05 MPa

### FLEXURAL STRENGTH

2380 psi / 16.41 MPa

### ADHESIVE STRENGTH

Concrete : 1372 psi / 9.46 MPa

Steel : 1144 psi / 7.89 MPa

### SHEAR BOND ADHESION

720 psi / 4.96 MPa

### ASTM Standards

ASTM E96 – Vapor transmission

ASTM C321 – Bond Strength

ASTM C672 – Freeze-Thaw

ASTM d4541.02 – Pull Off Test

Meets or exceeds all above ASTM standards

## USE BASECRETE ;

- As a waterproof bondcoat
- In suspended pools
- To waterproof overflow gutters in infinity and vanishing edge pools
- In Planters
- On any water feature
- In Tanks & Cisterns
- On Balconies
- On Pool decks and Walkways
- To repair any concrete structure
- To Protect against corrosion
- In Parking garages
- On Sea Walls
- On Roofs and Ceilings



## CORROSION PROTECTION

The unique properties of Basecrete make it an ideal solution for most corrosion problems affecting concrete structures today.

Basecrete can be used to protect new structures against the agents that cause corrosion as well as on existing structures that have begun to deteriorate due to the corrosive effects of agents such as water, chlorides or other corrosive agents.

Applying a thin layer of Basecrete on a new structure will prevent water and or chlorides from penetrating into the substrate and damaging the structure through the oxidization of the rebar inside the concrete. Basecrete in addition to being waterproof is highly resistant to common corrosive elements such as chlorides and other acidic elements.

On structures that exhibit damage due to corrosion such as cracking and spalling, Basecrete can be used to repair the damage already done as well as to seal the structure afterwards to prevent further damage taking place.

A common problem is the delamination of the surface layer on concrete structures due to water infiltration. A protective coating of Basecrete underneath the outer layer will eliminate this problem in most cases. Balconies in coastal condos are an excellent example of a concrete structure where a protective layer of Basecrete will eliminate future problems of delamination of the top coat.





### SUSPENDED POOLS

Suspended pools pose a particular problem for waterproofing due to the structural flexibility built into the design. By their very nature they are designed to move in order to absorb the weight of the water inside the pool as well as the movement in the building itself.

This poses a problem for most traditional cement based bond coats and or waterproofing agents. BaseCrete however is designed to be highly flexible while at the same time maintaining its structural integrity. The flexibility built into Basecrete will far surpass the tolerances for movement built into the structure.

### Parking Garages

Conventional parking garage overlay coatings require several layers of materials and days of curing time before they can be used again. A single layer of Basecrete on a Garage floor will protect the floor for years to come and it can be driven on after 12 hours of cure time. The photo shows a tire skid mark from a Dodge Ram Pick-up having peeled out over a section of Basecrete applied only ONE hour earlier. There was no deterioration or delamination of the Basecrete. Applying a single 1/16<sup>th</sup> inch coat of Basecrete on a Garage floor will protect the concrete for years to come and more importantly the garage will be back in service after only one day.



## Basecrete Technologies LLC

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Sarasota, FL 34238

[www.basecreteusa.com](http://www.basecreteusa.com)  
[info@basecreteusa.com](mailto:info@basecreteusa.com)

Tel: 1 941 312 5142

Basecrete: A Higher Level of Concrete Protection

# BASECRETE

CONCRETE WATERPROOFING BOND COAT

## PRODUCT SPECIFICATION

### 1.1 DESCRIPTION

**BASECRETE IS A WATERPROOFING BONDCOAT / UNDERLAYMENT / MICRO TOPPING FOR USE IN ALL APPLICATIONS WHERE A SOLID AND DURABLE WATERPROOF BARRIER IS REQUIRED. BASECRETE WILL ADHERE TO MOST SURFACES, IS RESISTANT TO MOST CHEMICALS AND CORROSIVE AGENTS AND CAN WITHSTAND A HIGH DEGREE OF MOVEMENT WHILE MAINTAINING ITS INTEGRITY. BASECRETE IS A LIQUID AND COMPOUND MIX DESIGN AVAILABLE IN 1 & 5 GALLON PAILS AND 50LB BAGS. BASECRETE IS JOB SITE READY.**

### 2.1 WATERPROOFING APPLICATIONS

WATERPROOF BONDCOAT	POOL DECKS	CISTERNS & WATER RESERVOIRS	SUSPENDED POOLS
UNDERLAYMENT	PLANTERS	CATWALKS & WALKWAYS	COMMERCIAL POOLS
MICRO TOPPING	SCRATCH COAT	BREAK WALLS	RESIDENTIAL POOLS
STUCCO	CRACK REPAIRS	PARKING GARAGES	WATER FEATURES
BARN FOUNDATIONS	FISH PONDS	AQUATIC ENCLOSURES	SUSPENDED DECKS
ANIMAL ENCLOSURES	MAN HOLES	WILDLIFE WATERING PONDS	BYLANDS, DOCKS, PIERS
NATURAL RESERVOIRS	ICF & EIF	ZOO ENCLOSURES	TUCK POINTING
PARGING	MAN MADE REEFS	MOORINGS/JETTY'S	ELEVATOR FOUNDATIONS

### 2.2 APPLICATION METHODS

#### A. *Tools*

BaseCrete can be applied by Trowel, Roller (1" nap), Brush, Squeegee or Spray

#### B. *Thickness*

Apply BaseCrete in two (2) layers, one vertically, one horizontally. Each layer should be 1/16" thick for a total of 1/8" thickness to achieve a waterproof bond coat. The second layer can be applied once the first layer is dry to the touch.

#### C. *Special Applications*

BaseCrete can be built up in 2" increments and feather edged.

### 2.3 COVERAGE

Coverage is approximate for one coat. Slump can be adjusted to accommodate specific job requirements by adjusting the liquid or the compound – do not add water to the mix.

A. *Trowel...* 1 gallon & 1 x 50lb bag = 40-50 sq ft @ 1/8"

B. *Roller...* 5 gallons & 2 x 50lb bags = 400-450 sq ft @25-30 mil

C. *Squeegee...* 5 gallons & 2 x 50lb bags = 250-275 sq ft @40mil

D. *Spray...* 5 gallons & 2 x 50lb bags = 375-450 sq ft @ 10-30 mil

### 2.4 SUBSTRATE PREPARATION

#### A. *Initial inspection*

Inspect job site. Determine if any pervious material used is incompatible with BaseCrete.

#### B. *Preparing Site*

Remove all previous material and any loose debris. Check and repair any cracks or voids with BaseCrete repair mortar. Once the site is clean and clear of any old material, loose debris, cracks etc., pressure wash for final preparation. Protect adjacent areas to prevent material from going beyond designated site.

#### C. *Substrate surface preparation*

Begin with a SSD (Saturated Surface Dry) substrate that is clearly damp below the immediate surface, has no standing water and has a surface that is showing no signs of a "film" of water on the surface. Ideally the concrete will be clearly damp (typically much darker than dry concrete) but the surface will have no water present and will be showing "signs" of drying.

# BASECRETE

CONCRETE      WATERPROOFING      BOND COAT

## 2.5 TEMPERATURE & WEATHER FACTORS

### A. *Product limitations*

Do not allow BaseCrete to freeze or overheat

### B. *Site temperature*

Do not apply BaseCrete to frozen substrate or in conditions hotter than 105 degrees or colder than 40 degrees

Check local weather for temperature variations, precipitation etc that will affect your application.

## 2.6 MIXING INSTRUCTIONS

Mix on site using 5 gallon pails and paddle mixer. Blend product according to manufacturer's instructions on product label. Keep product out of direct sun. Allow product to false set (approximately 5 minutes) and re mix. Pot life is approximately 30 minutes depending on the temperature and humidity. Use mix ratio depending on application method.

### A. *Special Note*

Use BaseCrete liquid to change consistency of mix.

Do not add water to the mix.

### B. *Clean up after mixing*

Clean all tools and spills immediately with clean water.

## 2.7 COLD JONTS and CRACKS

Use BaseCrete Mesh to build rounded coves in corners on all cold joints. Build up with BaseCrete mix.

Use BaseCrete Mesh to fill in and bridge cracks.

## 3.1 HANDLING AND STORAGE

Keep BaseCrete products off the ground. Keep dry and out of direct sun/heat/cold.

## 4.1 CUSTOMER SERVICE

We recommend a BaseCrete Representative attend initial applications.

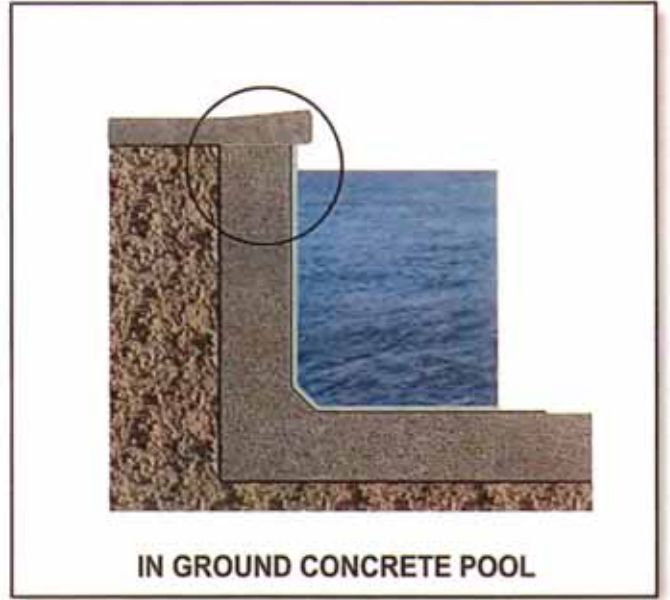
## 5.1 STANDARDS

- A. IMPACT STRENGTH 19 lbs / 8.6 kg
- B. COMPRESSIVE STRENGTH 7050 psi / 48.61 MPa
- C. TENSILE STRENGTH 732 psi / 5.05 MPa
- D. FLEXURAL STRENGTH 2380 psi / 16.41 MPa
- E. ADHESIVE STRENGTH
  - Concrete : 1372 psi / 9.46 MPa
  - Steel : 1144 psi / 7.89 MPa
- F. SHEAR BOND ADHESION 720 psi / 4.96 MPa
- G. ASTM E96 – Vapor transmission
- H. ASTM C321 – Bond Strength
- I. ASTM C672 – Freeze-Thaw
- J. ASTM d4541.02 – Pull Off Test

# BASECRETE WATERPROOFING



SUSPENDED CONCRETE POOL



IN GROUND CONCRETE POOL



**BASECRETE  
WATERPROOFING**  
SPACE FOR TECHNICAL DATA



**BASECRETE**

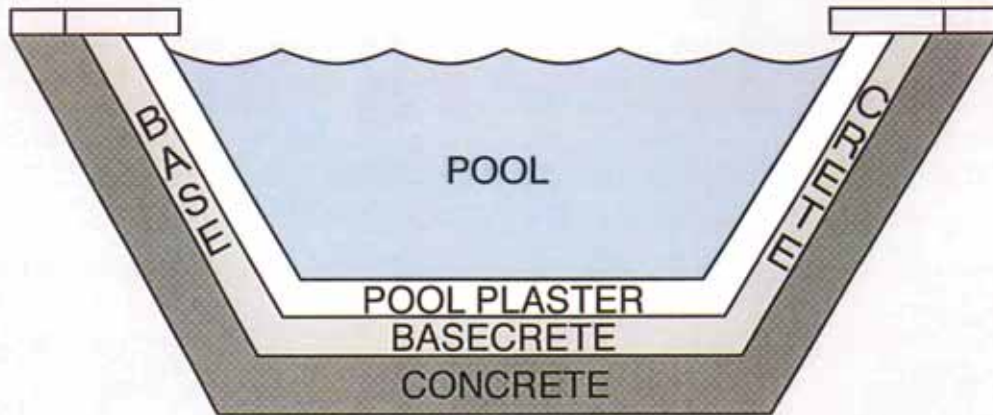
Last revised:

Issued: Nov 2014

**02-02**

# BASECRETE

www.basecreteusa.com



## Description:

- A cement compatible all acrylic emulsion developed for use in cement based products.
- Extremely versatile. It has been engineered for use as a cement modified in base coats as well as a binder for top coats.
- Provides exceptional easy water resistance adhesive strength, binding power, flexibility and exterior durability.

## Key Attributes:

- Rheology and workability
- Improves hydration
- Water resistance
- Bond strength
- Flexural strength
- Mechanical strength
- Exterior durability
- Basecrete is nontoxic and poses no threat to application on environment

## Applications:

- Basecoats and Top Coats
- Adhesives
- Cement modifier for grouts and mortars
- Film forming bonding agent to bond to new concrete
- Overlays to existing concrete surfaces
- Brush spray or towel (swimming pool brush or spray)
- Coverage will depend on surface porosity and thickness & application
- Application not recommended when temperature is less than 40°F for at least 48 hours before and after application
- For swimming pools: application 2 coats, 1 coat vertical and 1 horizontal
- For swimming pools: Trowel not recommended for surface must be rough for mechanical adhesion

## Packaging:

- Totes; 5 gallon pail

**PULL-OFF ADHESION TEST OF BASECRETE COATING**

**Client:** Basecrete Technologies, LLC  
6550 N Federal Highway suite 511  
Fort Lauderdale, FL 33308

**Contact:** Kenneth Pearce

**Date of report:** March 10, 2015

**Report No.:** BT-03-2015-01

**Test Method:** ASTM D7234-12

**Specimen Preparation:** Basecrete Dry Mix and Basecrete Liquid were mixed according to manufacturer's recommendations and applied with trowel to concrete surface (4" (100 mm) thick concrete slab made of Sacrete High Strength Concrete Mix) in two coats. Maximum thickness of the coating was approximately 3/16" (4.76 mm). Two samples, one with color and one without color, were prepared for testing. The samples were allowed to dry for 14 days.

**Test Procedure:** Seven (7) test dollies of 20 mm diameter were installed on the two Basecrete samples using Araldite adhesive. Adhesive was allowed to dry for a minimum of 24 hours. Then the Pull Tests were performed using Elcometer Model 106. A graduated magnifier was used to read the location of the indicator on the Elcometer. The Pull Test Data is presented in Table I.

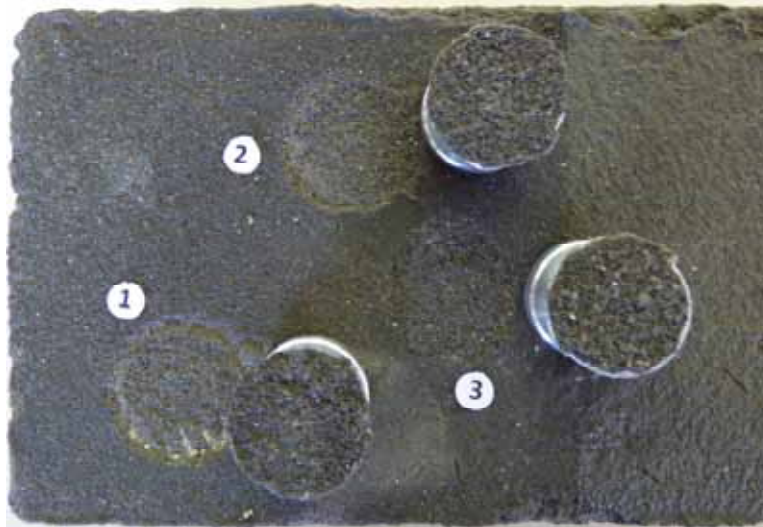
**TABLE I**

<b>Sample Number</b>	<b>Elcometer Reading</b>	<b>Adhesion Strength (psi)</b>	<b>Adhesion Strength (MPa)</b>
1	55	112.75	0.777
2	80	164	1.131
3	60	123	0.848
4	55	112.75	0.777
5	70	143.5	0.986
6	80	164	1.131
7	75	153.75	1.060

Average = 139.1 psi (0.959 MPa) & Standard Deviation = 22.81 psi (0.157 MPa)

**Observation:** All samples showed no delamination between Basecrete and the concrete substrate nor Basecrete and the Dolly surface.

**Photos:**



Samples 1, 2 and 3



Samples 4, 5, 6 and 7

*S.S. Rajpathak*

Shirish S. Rajpathak, P.E., C.P.S., FL. Reg. # 42702  
President  
Issued on March 10, 2015. (Valid for two years)



# BASECRETE +

**POOL  
SHELL  
PRIMARY  
WATERPROOFING**

**PENETRATE  
DENSIFY  
WATERPROOF  
EXFOLIATE  
PROTECT  
STRENGTHEN**

# BC+

# BASECRETE + PSPW

## POOL SHELL PRIMARY WATERPROOFING



## APPLICABLE STANDARDS

**Basecrete + meets or exceeds the following standards**

- ASTM D-56-91 - Flash Point: None
- ASTM D-5084-91 - Permeability
- ASTM C-666 - Freeze/Thaw cycles
- ASTM C-666 B - Salt Resistance
- ASTM C-67 - Efflorescence
- Contains no VOC's
- EPA Compliant

## BASECRETE +

### POOL - SHELL - PRIMARY - WATERPROOFING

BC+ is a highly penetrating, highly viscous concrete densifier, to be used as the Pool, Shell, Primary, Waterproofing. Upon application, BC+ penetrates deeply into the concrete matrix, on a molecular level, searching and filling out all the voids that exist within any concrete structure. BC+ bonds with the free Calcium and Lime within the concrete, transforming itself into a dense waterproof barrier of colloidal silicate gel. It is important to note that the concrete remains able to “breathe” allowing vapors from within the concrete to escape.

Apply Basecrete + with a low-pressure pump type sprayer. Apply two coats in quick succession removing excess material immediately. Do NOT allow excess material to dry on surface.

## BENEFITS

- Waterproofs the surface of the concrete
- Densify and strengthens the concrete
- Controls hydration of new concrete
- Exfoliates entrapped salts
- Reduces rust formation on rebar
- Reduces ASR (alkali silica reactivity)
- Accelerates concrete curing time



# COLOR SELECTIONS THAT NEED TO BE CHOSEN WHEN SUBMITTAL PACKET IS RETURNED:

**Please Note: Some Selections May Have Longer Lead Times**

- Pool & Spa Waterline Tile- NPT Color TBD
- Pool & Spa Step Nosing Tile- Inlays Color TBD
- Pool & Spa Grout For Tile- Laticrete Color TBD
- Pool & Spa Grout For Coping- Laticrete Color TBD
- Thin Set(White or Gray)- Color TBD
- Pool & Spa Coping- Federal Stone Color TBD
- Pool & Spa Plaster- Diamond Brite Color TBD
- Spa Air Intake Box- Color TBD

# Pool & Spa Waterline Tile

The background of the page is a close-up photograph of water ripples. The water is a vibrant blue, and the ripples create a series of concentric, slightly blurred circles that radiate from the center. The lighting is soft, highlighting the texture of the water's surface.

# 6" x 6" Solids

## Basic Tiles



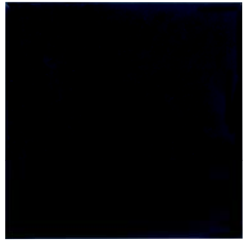
**Light Blue**  
M6761C



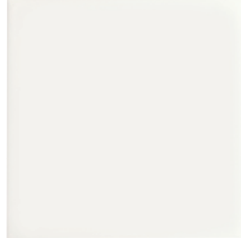
**Cobalt**  
M6764C

**Size: 6" x 6"**

6" x 6": 4 pcs. = 1.0 sq. ft. nominal



**Glossy Black**  
M6765C



**White**  
M6762C



The 6" x 6" Solids tile is available in 6" x 6" bullnose tile a 6" x 6" radius bullnose, and a 2" x 6" mud cap.



**Navy Blue**  
M6766C

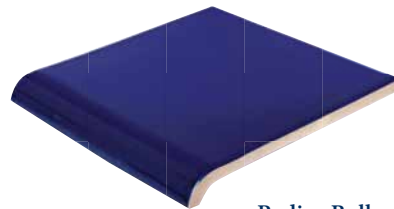


### Note

6" x 6" Solids A4200 and A3602 trim tiles are frostproof.



**Mud Cap 2" x 6"**  
A4200



**Radius Bullnose 6" x 6"**  
A3602

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Pool & Spa

Step

Nosing Tile

# SAFETY EDGE TILE

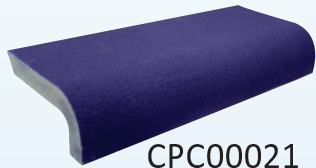
Product Size: **2"x6"**

Thickness: **¼"**

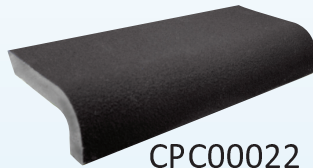
Surface: **Skid Resistant (Factory)**

Frost Resistant?: **Yes**

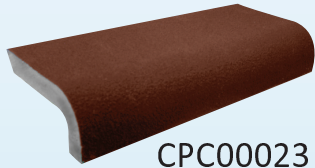
Color: **Blue, Black, Brown, Green & Cobalt**



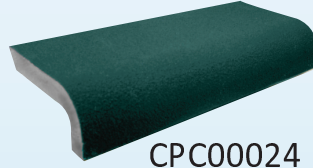
CPC00021  
Blue



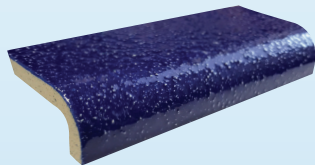
CPC00022  
Black



CPC00023  
Brown



CPC00024  
Green



CPC00025  
Cobalt - GLOSSY SKID RESISTANT FINISH



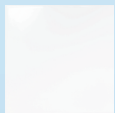
# FROSTPROOF FIELD TILE

*Field Tile Must be ordered in case quantity.*

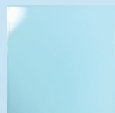
**6"x6"**

*Case quantity varies - please call*

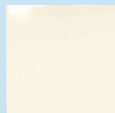
**Waterline / Smooth**



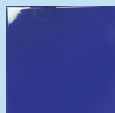
White  
CPC00080



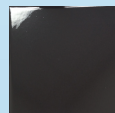
Light Blue  
CPC00079



Beige  
CPC00078

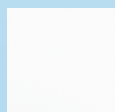


Dark Blue  
CPC00082

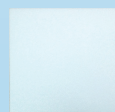


Black  
CPC00083

**Deck / Skid Resistant**



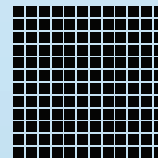
White  
CPC04413



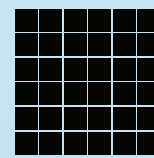
Light Blue  
CPC04782

**Mosaic Porcelain Tile  
(Unglazed)**

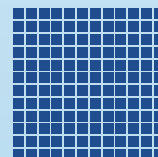
*24 square feet per case*



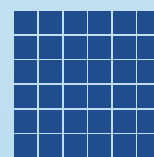
Black 1x1  
CPA11BLK



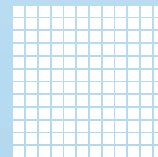
Black 2x2  
CPA22BLK



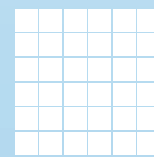
Dark Blue 1x1  
CPA11BLU



Dark Blue 2x2  
CPA22BLU



White 1x1  
CPA11WHT



White 2x2  
CPA22WHT

6" TILE  
8" TILE  
VINYL  
PLASTIC  
GLASS  
(5" PRINT)  
6" TILE  
(TOP PRINT)  
MOSAIC  
**SAFETY EDGE  
FIELD TILE**  
CUSTOM  
CONVERSION  
METRIC  
PHOTO  
GALLERY

The background of the page is a close-up photograph of blue water with concentric ripples emanating from a central point, creating a sense of depth and movement. The text is overlaid on this background.

# Pool & Spa Grout For Tile



Globally Proven  
Construction Solutions

# Grouts and Sealant Colour Chart

## LATICRETE® Grouts & Sealant

This chart shows available colours for the following products:

SPECTRALOCK® PRO Grout\*

SPECTRALOCK PRO Premium Grout\*

PERMACOLOR® Select\*

PERMACOLOR Grout

Smooth Grout

SPECTRALOCK 2000 IG

LATASIL™ Sealant

## GROUT AND SEALANT SELECTION KEY

Available in All 40 Colours:

SPECTRALOCK PRO Grout

SPECTRALOCK PRO PREMIUM GROUT

PERMACOLOR Select

PERMACOLOR Grout

SPECTRALOCK 2000 IG (not available in Bright White)

Available in Selected Colours:

■ SPECTRALOCK DAZZLE Glow

★ Smooth Grout

● LATASIL Sealant

SPECTRALOCK PRO Grout, SPECTRALOCK PRO Premium Grout, PERMACOLOR Select and PERMACOLOR Grout are available in all 40 colours. Use Grout Selection Key for all other products. SPECTRALOCK DAZZLE (Gold, Silver, Copper and Mother-of-Pearl etc) can be mixed with all 40 colours of SPECTRALOCK PRO Grout.



44 Bright White



18 Sauterne



16 Siltstone



85 Almond



03 Silk



23 Antique White



39 Mushroom



41 Kashmir



81 Butter Cream



52 Toasted Almond



55 Tawny



17 Marble Beige



40 Latte



61 Parchment



30 Sand Beige



56 Desert Khaki



38 River Rock



27 Hemp



57 Hot Cocoa



92 Saltlito



58 Terra Cotta



46 Quarry Red



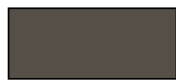
43 Chocolate Truffle



66 Chestnut Brown



59 Espresso



35 Mocha



50 Sea Glass



67 Autumn Green



53 Twilight Blue



42 Platinum



91 Slate Grey



88 Silver Shadow



89 Smoke Grey



90 Light Pewter



78 Sterling Silver



24 Natural Grey



34 Sandstone



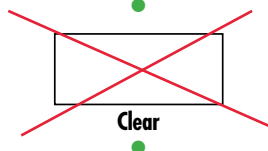
60 Dusty Grey



45 Raven



22 Midnight Black



Clear



Index

# Pool & Spa Grout For Coping



Globally Proven  
Construction Solutions

# Grouts and Sealant Colour Chart

## LATICRETE® Grouts & Sealant

This chart shows available colours for the following products:

SPECTRALOCK® PRO Grout\*

SPECTRALOCK PRO Premium Grout\*

PERMACOLOR® Select\*

PERMACOLOR Grout

Smooth Grout

SPECTRALOCK 2000 IG

LATASIL™ Sealant

## GROUT AND SEALANT SELECTION KEY

Available in All 40 Colours:

SPECTRALOCK PRO Grout

SPECTRALOCK PRO PREMIUM GROUT

PERMACOLOR Select

PERMACOLOR Grout

SPECTRALOCK 2000 IG (not available in Bright White)

Available in Selected Colours:

■ SPECTRALOCK DAZZLE Glow

★ Smooth Grout

● LATASIL Sealant

SPECTRALOCK PRO Grout, SPECTRALOCK PRO Premium Grout, PERMACOLOR Select and PERMACOLOR Grout are available in all 40 colours. Use Grout Selection Key for all other products. SPECTRALOCK DAZZLE (Gold, Silver, Copper and Mother-of-Pearl etc) can be mixed with all 40 colours of SPECTRALOCK PRO Grout.



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38 River Rock



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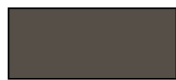
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78 Sterling Silver



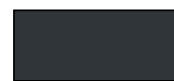
24 Natural Grey



34 Sandstone



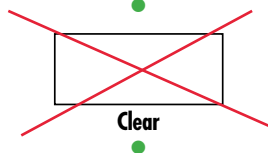
60 Dusty Grey



45 Raven



22 Midnight Black



Clear



Index

# Thin Set

(Gray or White Available)



# VersaBond® Professional Thin-Set Mortar

## 1 Product Name

VersaBond® Professional Thin-Set Mortar

## 2 Manufacturer

Custom Building Products  
 Technical Services  
 10400 Pioneer Boulevard, Unit 3  
 Santa Fe Springs, CA 90670  
 Customer Support: 800-272-8786  
 Technical Services: 800-282-8786  
 Fax: 800- 200-7765  
 Email: [contactus@cbpmail.net](mailto:contactus@cbpmail.net)  
[custombuildingproducts.com](http://custombuildingproducts.com)

## 3 Product Description

A professional formula, all-purpose mortar, polymer-modified to provide good bond strength for floor and tile projects. VersaBond® cures quickly even in cold climates and adheres to most surfaces, exceeding ANSI A118.4 and A118.11 without the need for additives.

### Key Features

- For most standard installations
- Fast setting even in cold weather

### Suitable Tile Types

- Vitreous, semi-vitreous or non-vitreous tile: ceramic, mosaic, quarry, cement body tile
- Impervious porcelain and glass tile
- Brick and thin brick
- Cement-based precast terrazzo
- Natural stone tile

### Suitable Substrates

- Concrete, mortar beds, masonry, Portland cement plaster
- [WonderBoard® Lite cement backerboard](#)
- Liquid applied waterproofing membranes such as [RedGard®](#) and [Custom® 9240](#)
- Crack prevention sheet membranes such as [Crack Buster® Pro](#)
- Uncoupling membranes such as [RedGard® Uncoupling Mat](#)
- Surfaces treated with [MBP Multi-Surface Bonding Primer](#)
- Exterior Grade Plywood (interior residential and light commercial dry areas)
- Gypsum wallboard (interior dry areas)
- Existing ceramic tile (scarified)
- Fully-bonded sheet vinyl flooring (scarified)
- Plastic laminates (scarified)
- Cutback adhesive (see preparation instructions)

### Composition of Product

VersaBond® Fortified Thin-Set Mortar is a dry, proprietary blend of Portland cement, copolymers, inorganic aggregates and chemicals



### Benefits of Product in the Installation

- Cost-efficient, all-purpose mortar
- Good bond strength
- Cures quickly even in cold climates
- Approved for industry-recommended interior and exterior applications
- Exceeds ANSI A118.4 and A118.11 standards without the need for additives

### Limitations to the Product

- Do not bond directly to hardwood, Luan plywood, particle board, parquet, cushion or sponge-back vinyl flooring, metal, fiberglass, plastic or OSB panels.
- Not recommended for interior and exterior pools and water features. CUSTOM recommends [MegaLite® Crack Prevention Mortar](#), [MegaFlex® Crack Prevention Mortar](#) and [ProLite® Large Tile and Stone Mortar](#) for the installation of ceramic and porcelain tile in submerged applications. For additional information, contact Custom Technical Services.
- When setting moisture sensitive natural stone, cement or agglomerate tile use [EBM-Lite™ Epoxy Bonding Mortar 100% Solids](#) or [CEG-Lite™ 100% Solids Commercial Epoxy Grout](#).
- Do not use to install resin-backed stone; use [EBM-Lite™ Epoxy Bonding Mortar 100% Solids](#), [CEG-Lite™ 100% Solids Commercial Epoxy Grout](#) or contact Custom's® Technical Services for recommendations.
- For clear or translucent glass, CUSTOM recommends [Glass Tile Premium Thin-Set Mortar](#). When setting glass tile larger than 6" x 6" (15 x 15 cm), contact Custom's® Technical Services for recommendations.
- When setting dimensional stone larger than 12" x 12" (30 x 30 cm), contact Custom's® Technical Services for recommendations regarding subfloor deflection requirements.

### Packaging

- 50 lb (22.68 kg) and 25 lb (11.34 kg) bags
- Gray or white



# VersaBond® Professional Thin-Set Mortar

## 4 Technical Data

### Applicable Standards

American National Standards Institute (ANSI) — ANSI A108.5, A118.4 and A118.11 of the American National Standards for the Installation of Ceramic Tile  
ASTM International (ASTM)

- ASTM C109 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in or [50-mm] Cube Specimens)
- ASTM C627 Standard Test Method for Evaluating Ceramic Floor Tile Installation Systems Using the Robinson-Type Floor Tester

Resilient Floor Covering Institute - (RFCI) Recommended Work Practices for Removal of Resilient Floor Coverings  
Tile Council of North America (TCNA) - TCNA Handbook for Ceramic Tile Installation, TCNA Method EJ171  
ISO 13007-2

### Technical Chart

Property	Test Method	Requirement	Typical Results
Pot Life			4 Hours
Open Time	A118.4 Section 5.3	> 20 minutes	Pass
4 Week Shear Bond Strength			
Glazed Wall Tile	A118.4 Section 5.1.5	> 300 psi	450 - 550 psi (31.6 - 38.7 kg/cm <sup>2</sup> )
Porcelain Tile	A118.4 Section 5.2.4	> 200 psi	300 - 400 psi (21.1 - 28.1 kg/cm <sup>2</sup> )
Quarry Tile to Plywood	A118.11 Section 4.1.2	> 150 psi	150 - 250 psi (10.5 - 17.6 kg/cm <sup>2</sup> )

### Environmental Consideration

Custom® Building Products is committed to environmental responsibility in both products produced and in manufacturing practices. Use of this product can contribute towards LEED® v3 certification:

- Up to 2 points towards MR Credit 5, Regional Materials
- Up to 2 points towards MR Credit 4, Recycled Content
- Up to 1 point towards IEQ Credit 4.1, Low-Emitting Materials – Adhesives & Sealants

## 5 Instructions

### General Surface Prep

**USE CHEMICAL-RESISTANT GLOVES, such as nitrile, when handling product.**

Surfaces must be structurally sound. Remove all grease, oil, dirt, curing compounds, sealers, adhesives or any other contaminant that would prevent a good bond. Glossy or painted surfaces must be sanded, or abraded, and stripped of all contaminants. Concrete must be cured 28 days and accept water penetration. Concrete must be free of efflorescence and not subject to hydrostatic pressure. Concrete slabs should have a coarse finish to enhance the bond. Plywood flooring including those under resilient flooring must be structurally sound and meet all ANSI and deflection requirements. For questions about proper subfloor installation, call Technical Services. Smooth concrete surfaces, existing glazed tile, terrazzo, or polished stone should be scarified. Sheet vinyl must be well bonded and stripped of old finish. Roughen the surface by sanding or abrading, then rinse and allow to dry. Expansion joints should never be bridged with setting material. Do not sand flooring materials containing asbestos. Ambient temperature should be maintained above 50° F (10° C) or below 100° F (38° C) for 72 hours to achieve proper bond.

### Bonding to Concrete Surfaces

Concrete or plaster must be fully cured and must accept water penetration. Test by sprinkling water on various areas of the substrate. If water penetrates, then a good bond can be achieved; if water beads, surface contaminants are present, and loss of adhesion may occur. Contaminants should be mechanically removed before installation. Concrete must be free of efflorescence and not subject to hydrostatic pressure. Concrete slabs should have a coarse finish to enhance the bond. Smooth concrete slabs must be mechanically abraded to achieve proper bond.

### Bonding to Lightweight Cement and Gypsum Surfaces

Lightweight or gypsum based underlayments must obtain a minimum 2000 psi (13.8 MP) compressive strength. The underlayment must be sufficiently dry and properly cured to the manufacturer's specifications for permanent, non-moisture permeable coverings. Surfaces to be tiled must be structurally sound and subject to deflection not to exceed the current ANSI Standards. Surfaces shall be free of all grease, oil, dirt, dust, curing compounds, waxes, sealers, efflorescence, or any other foreign matter.

All Lightweight cement or Gypsum surfaces should be primed with a properly applied sealer or a primer coat of [RedGard](#), consisting of 1 part RedGard diluted with 4 parts clean, cool water. Mix in a clean bucket at low speed to obtain a lump free solution. The primer can be brushed, rolled or sprayed to achieve an even coat. Apply the primer coat to the floor at a rate of 300 sq. ft./ (7.5 sq. m/L). Drying time depends on site conditions, but is normally less than 1 hour. Extremely porous surfaces may require 2 coats. At this point, RedGard can be applied to the primed lightweight or gypsum based surface. Refer to the individual product data sheet or packaging directions for application instructions. Expansion joints must be installed in accordance with local building codes and ANSI/TCNA guidelines. Refer to TCNA EJ171.



# VersaBond® Professional Thin-Set Mortar

## Bonding to Plywood Surfaces

Plywood floors, including those under resilient flooring, must be structurally sound and must meet all ANSI A108.01 Part 3.4 requirements. Maximum allowable deflection: L/360 tile L/720 stone. See TCNA F150-13 Tile Installations, TCNA F141-13 and F250-13 for Stone. For questions about proper subfloor installation requirements, call Custom technical services.

## Bonding to Backerboards

As an alternative to an additional layer of plywood, WonderBoard backerboard may be installed over plywood subfloors for ceramic tile installations. Refer to TCNA F144-13 tile installations, TCNA F250-13 stone installations. Call Custom technical services when installing natural stone over plywood subfloor.

## Bonding to Existing Surfacing Material

Existing Ceramic Tile, Resilient Flooring or Plastic Laminates: Resilient flooring or plastic laminates must be well bonded, as well as clean and free of all contaminants. Roughen the surface by sanding or scarifying; rinse and allow to dry. Do not sand flooring that contains asbestos. For existing well bonded ceramic tile, mechanically abrade the surface. Rinse and allow to dry. When sanding, an approved respirator should be used.

## Bonding to Cutback Adhesive

Adhesive layers must be removed, as they reduce mortar bond strength to cement surfaces. Use extreme caution; adhesives may contain asbestos fibers. Do not sand or grind adhesive residue, as harmful dust may result. Never use adhesive removers or solvents, as they soften the adhesive and may cause it to penetrate into the concrete. Adhesive residue must be wet scraped to the finished surface of the concrete, leaving only the transparent staining from the glue. To determine desirable results, do a test bond area before starting. Refer to the RFCI Pamphlet, "Recommended Work Practices for Removal of Resilient Floor Coverings" for further information.

## Movement Joint Placement

Construction, expansion and isolation joints as described in ANSI A108.01, should never be bridged with setting material. They must be brought through the tile work and filled with an appropriate elastomeric sealant. Contact Custom® Building Products for the proper treatment of control or saw cut joints. Refer to TCNA EJ171.

## Mixing Ratios

Mix 6 qts (5.68 L) clean water per 50 lb (22.68 kg) bag of mortar.

## Mixing Procedures

Mix by hand or use a low 150 – 200 rpm speed 1/2" (13 mm) drill to achieve a smooth, paste-like consistency. Let the mixture slake or stand 5 – 10 minutes; stir again and use. Stir occasionally, but do not add more water. When properly mixed, troweled ridges will stand without slump.

## Application of Product

Installation must conform to ANSI A108.5. Use a properly-sized notch trowel to ensure proper coverage under tiles. Using the flat side of the trowel, apply a skim coat of mortar to the surface. With the notch side of the trowel held at a 45° angle, apply additional mortar to the surface, combing in one direction. Press the tile firmly into place in a perpendicular motion across ridges, moving back and forth. The perpendicular motion flattens ridges and closes valleys, allowing maximum coverage. With some tile, back-buttering is advisable. Adjust the tile promptly and beat it in with a beating block and rubber mallet. Mortar can be applied up to 1/4" (6 mm) thick after beat in. Periodically pull up a tile and check the back to ensure proper adhesive coverage. If the material has skinned over (not sticky to the touch), recomb with the notch trowel; if too dry, remove and replace the dry material with fresh material. Material in the bucket will remain workable for approximately 4 hours.

## Curing of Product

Curing time is affected by ambient and surface temperatures and humidity. Use the following as a guideline. Allow 24 hours before grouting and light traffic, and 7-10 days before heavy or vehicular traffic. Before exposure to heavy or vehicular traffic, assure assembly is rated "Heavy or Extra Heavy" per TCNA Service Requirements. As necessary, use plywood or other load distributing protection when moving heavy equipment across tiled assembly.

## Cleaning of equipment

Clean with water before the material dries.

## Storage

Protect from freezing. Store in a cool, dry area.

## Health Precautions

This product contains Portland cement and free silica. Avoid eye contact or prolonged contact with skin. Wash thoroughly after handling. If eye contact occurs, flush with water for 15 minutes and consult a physician. Do not breathe dust; wear a NIOSH approved respirator

## Conformance to Building Codes

Installation must comply with the requirements of all applicable local, state and federal code jurisdictions.

## 6 Availability & Cost

Location	Item Code	Size	Color	Package
USA	MTSG25	25 lb (11.34 kg)	Gray	Bag
USA	MTSG50	50 lb (22.68 kg)	Gray	Bag
USA	MTSW50	50 lb (22.68 kg)	White	Bag
Canada	CVBG50	50 lb (22.68 kg)	Gray	Bag
Canada	CVBW50	50 lb (22.68 kg)	White	Bag



# CUSTOM®

# VersaBond® Professional Thin-Set Mortar

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## 7 Product Warranty

This product is eligible for Custom® Building Products 10 Year Installation Systems Warranty. Custom® Building Products warrants to the original consumer purchaser that its product shall be free from defects in material and workmanship under normal and proper usage for a period of one year following the date of original purchase. Custom's® sole liability under this warranty shall be limited to the replacement of the product. Some states, countries or territories do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty will not extend to any product which has been modified in any way or which has not been used in accordance with Custom's® printed instructions. Custom® makes no other warranties either expressed or implied. This warranty gives you specific legal rights, and you may have other rights that vary from state to state or from one country/territory to another. For details and complete warranty information, visit [custombuildingproducts.com](http://custombuildingproducts.com).

When VersaBond® Fortified Thin-Set Mortar is used as a part of a qualifying full installation system of CUSTOM products, the installation can qualify for up to a 10 year system warranty. CUSTOM will repair and/or replace, at its discretion, the affected area of the system. For more information, find details and limitations to this warranty at [custombuildingproducts.com](http://custombuildingproducts.com).

## 8 Product Maintenance

Properly installed product requires no special maintenance.

## 9 Technical Services Information

For technical assistance, contact Custom technical services at 800-282-8786 or visit [custombuildingproducts.com](http://custombuildingproducts.com).

## 10 Filing System

Additional product information is available from the manufacturer upon request.

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### Expected Wear

Properly installed tile will last for more than 60 years.

### Related Products

Polyblend® Sanded Grout



# VersaBond® Professional Thin-Set Mortar

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## Coverage

SQUARE FOOT COVERAGE PER 50 LB BAG (SQUARE METER PER 22.68 KG)

Trowel Size	Min Coverage	Max Coverage
Longest side of tile less than 8" use 1/4" x 1/4" x 1/4" (6 x 6 x 6 mm) Square-Notch	85 sq. ft. (8.8 M <sup>2</sup> )	95 sq. ft. (8.8 M <sup>2</sup> )
Longest side of tile 8" to 15" use 1/4" x 3/8" x 1/4" (6 x 9.5 x 6 mm) Square-Notch	60 sq. ft. (5.6 M <sup>2</sup> )	67 sq. ft. (6.2 M <sup>2</sup> )

Recommended minimum coverage (80% for dry areas and 95% for wet areas and exteriors). Back buttering may be necessary.

Note that mortar coverage does not include backbuttering tiles. When backbuttering, consider the tile underside pattern and depth to estimate thickness and usage to add to your estimate.

Chart for estimating purposes. Coverage may vary based on installation practices and jobsite conditions. For more sizes, use the material calculator at [CustomBuildingProducts.com](http://CustomBuildingProducts.com) or contact CUSTOM Technical Services at 800-282-8786.



# CUSTOM®

Index

# Pool & Spa Coping

The background of the page is a close-up photograph of blue water with concentric ripples emanating from a central point, creating a sense of depth and movement. The ripples are most prominent in the lower half of the image, fading slightly towards the top.

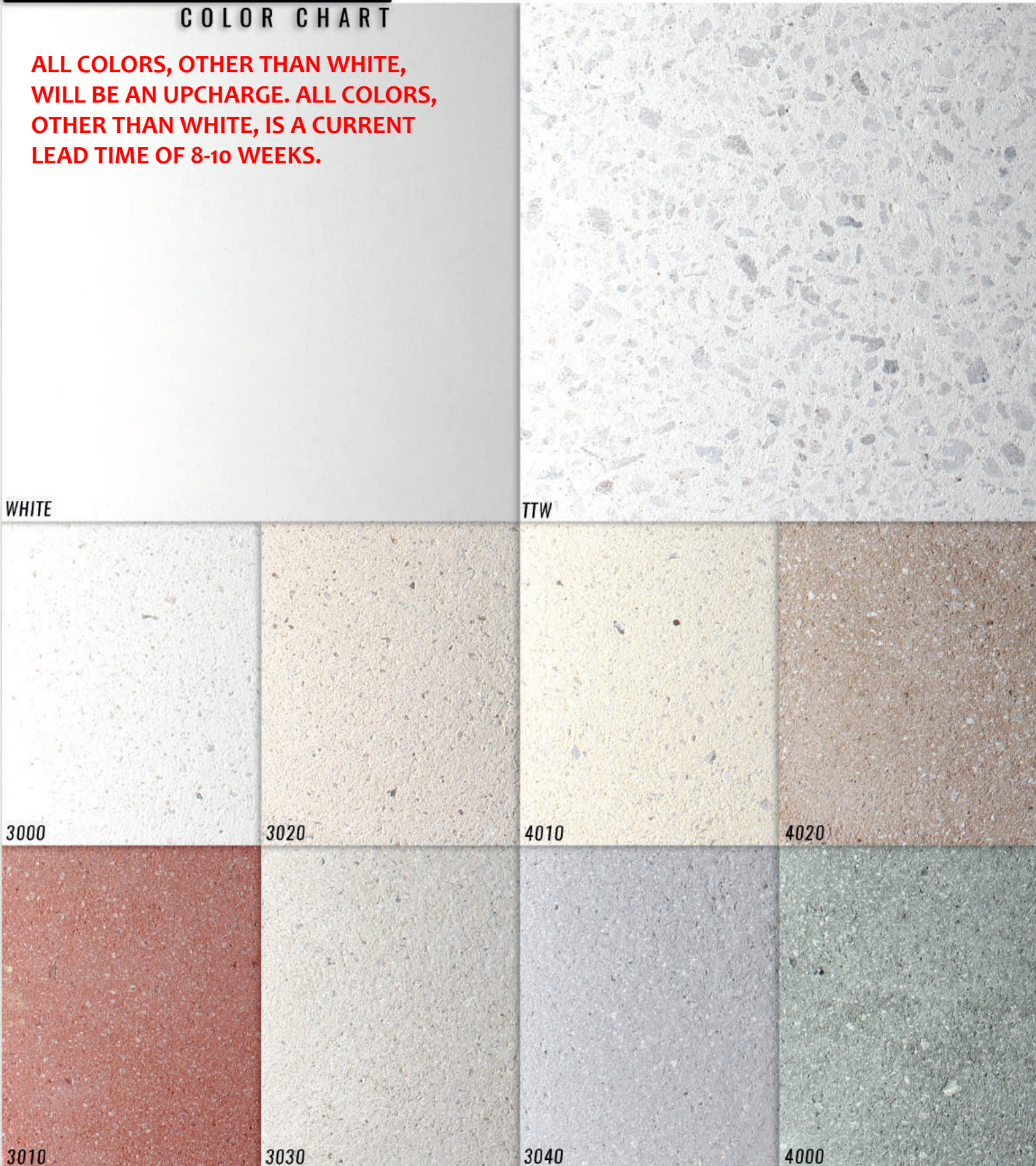


COLOR CHART

AVAILABLE COLORS:

White is standard and most readily available, while ttw is the standard white with the top surface terrazzoed. All other custom colors are cast with integral pigment and the surface terrazzoed to reveal the sand for an upgraded look. All of our products have a smooth finish and custom colors have a natural satin appearance. Colors shown are represented as close as possible. During the actual hand casting process, variations can be expected due to the differences in raw materials and casting times.

**ALL COLORS, OTHER THAN WHITE, WILL BE AN UPCHARGE. ALL COLORS, OTHER THAN WHITE, IS A CURRENT LEAD TIME OF 8-10 WEEKS.**



WHITE

TTW

3000

3020

4010

4020

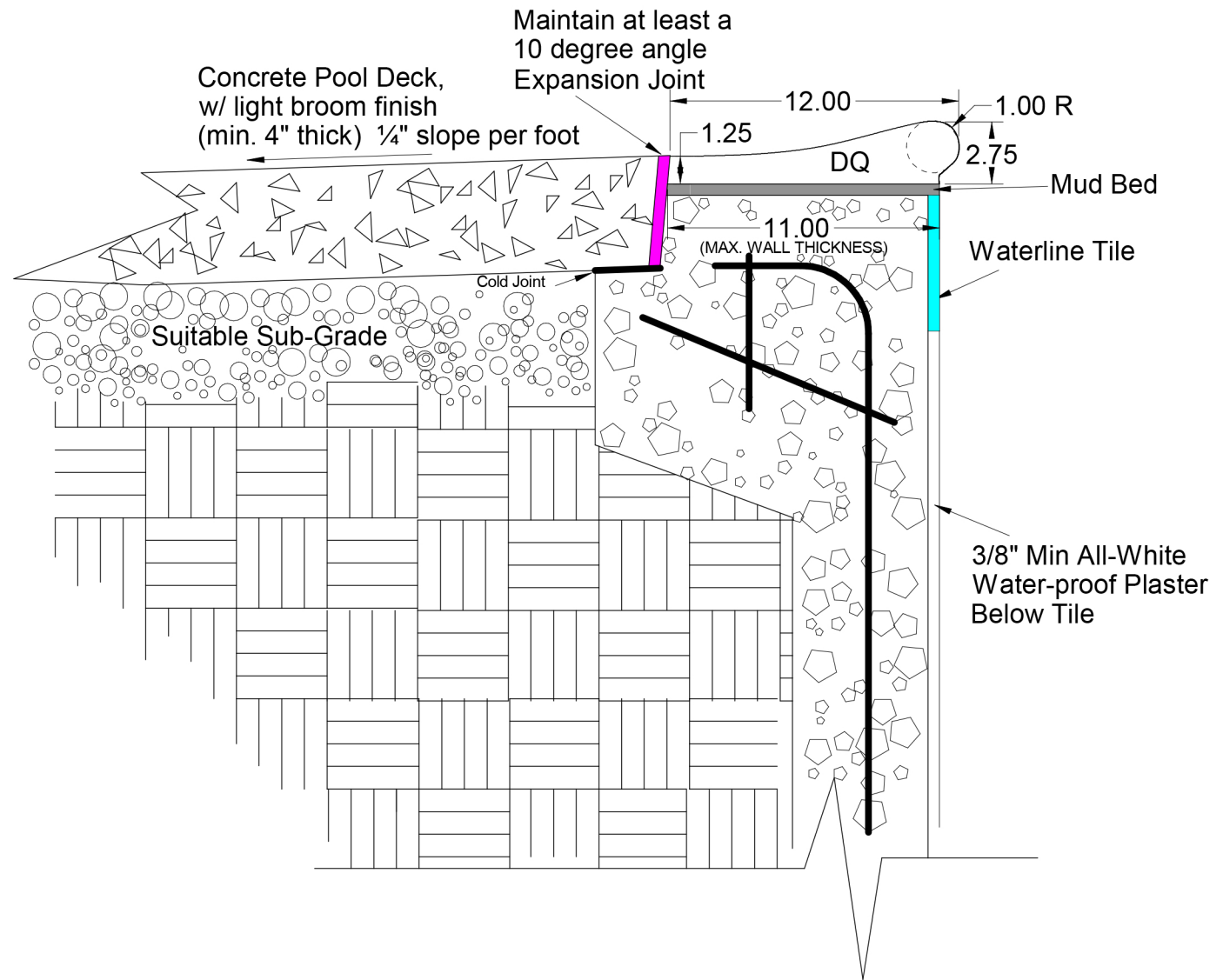
3010

3030

3040

4000

# DQ® COPING / WALL DETAIL



\*\*\*DO NOT BUILD FROM THIS DRAWING  
USE FOR CONSIDERATION PURPOSES ONLY  
\*\*\* NOMINAL MEASUREMENTS,  
PLEASE CALL FOR ACTUAL SAMPLE SLICE

Index

# Pool & Spa Plaster

The background of the page is a close-up photograph of water ripples. The ripples are concentric circles of varying shades of blue, from a light, almost white blue at the center to a deep, vibrant blue at the edges. The lighting creates a shimmering effect on the water's surface, with highlights and shadows that give the ripples a three-dimensional appearance. The overall tone is clean and refreshing, consistent with the theme of a pool or spa.

# DIAMOND BRITE®

EXPOSED AGGREGATE POOL FINISHES

*The Leader in Quality  
Swimming Pool, Spa  
& Fountain Finishes*

*There's more to a great pool finish  
than meets the eye...*

A great pool finish is durable, comfortable, easily maintained and enhances your poolscape environment. Diamond Brite from SGM is all that and more.

Diamond Brite combines natural quartz aggregate, polymer-modified cement and non-fading Diamond Quartz in a stunning variety of colors. The result is a unique finish that stands up to the harshest pool environments while providing years of enjoyment.

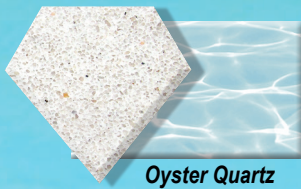


800.641.9247

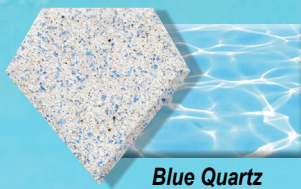
[www.sgm.cc](http://www.sgm.cc)

**SGM** SWIMMING  
POOL, SPA &  
DECK FINISHES

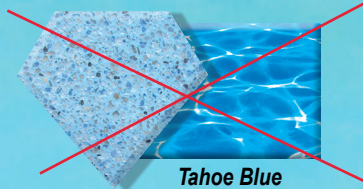
Diamond Brite's dynamic, factory blended finishes and simple maintenance feature makes it well suited for fountains and spas, as well as other water features. Its insoluble quartz aggregate is unaffected by the harshest pool chemicals and resists permanent staining. The Diamond Quartz accent colors won't rust, rub off or fade like other colored aggregates because our coating technology produces a tough, permanently bonded color aggregates. Additionally, the accent colors in Diamond Brite give the surface a variegated appearance, masking the slight imperfections that are readily apparent in traditional finishes. You'll also have an added sense of security knowing that your pool is comfortable to the feet and slip resistant.



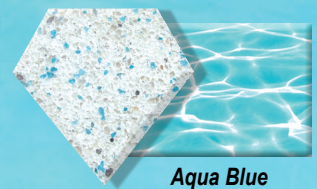
Oyster Quartz



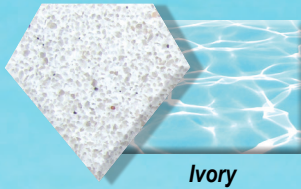
Blue Quartz



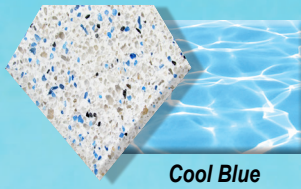
Tahoe Blue



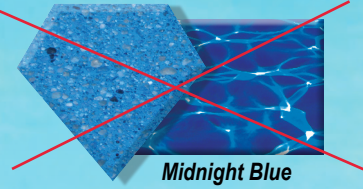
Aqua Blue



Ivory



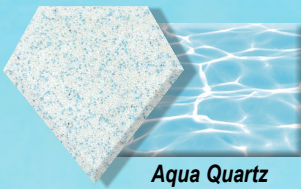
Cool Blue



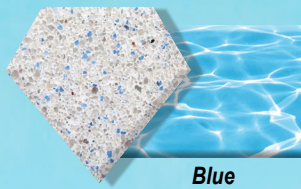
Midnight Blue



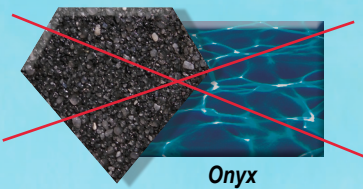
Marlin Blue



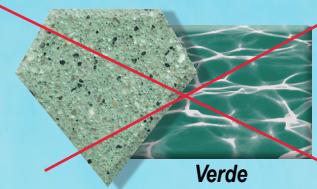
Aqua Quartz



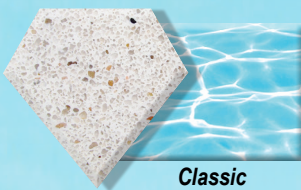
Blue



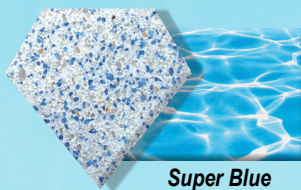
Onyx



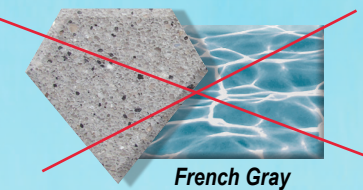
Verde



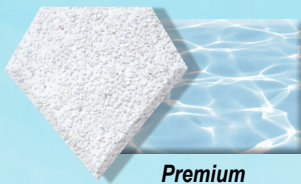
Classic



Super Blue



French Gray

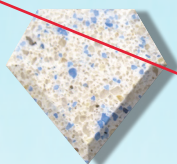


Premium Commercial White

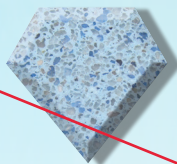
**Commercial Projects:** Premium Commercial White is specially formulated for commercial installations, and is the only Diamond Brite choice that offers a 10 year extended warranty for commercial pools. Made from 100% Pure Diamond Quartz ceramic colored white aggregate, Premium Commercial White meets and exceeds Industry and Municipal Standards for Total Solar Reflectance.



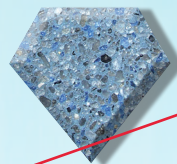
Two or more Diamond Brite selections can be blended to create the unique finishes of the **Watercolor Series**, which complement a variety of poolsapes.



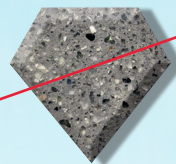
Cool Quartz



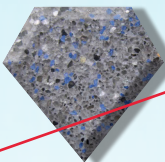
Tahiti Blue



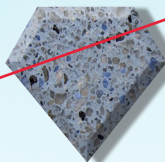
Bahama Breeze



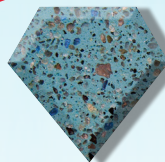
Grecian Slate



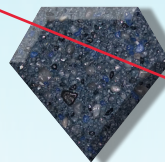
Steel Blue



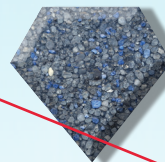
Aegean Sea



Isla Verde



Ocean Blue



Cobalt

**Warranty**

You can be assured the highest quality materials have been used and our products are supported by the best warranty program in the industry. It's a sign of our commitment to achieve the highest quality standards in all our swimming pool, spa and fountain finishes.

To register your warranty online visit:  
[www.sgm.cc](http://www.sgm.cc)

\*Sample colors are as accurate as modern printing can produce. The color of your pool may vary due to water depth, lighting conditions at job-site, mixing and installation methods. For best results, match to a keychain sample chip or wet cement sample chip.

800.641.9247

[www.sgm.cc](http://www.sgm.cc)



Index

# Pool & Spa Heaters



# MASTERTEMP® HEATER

## HIGH PERFORMANCE HEATER

TRADEGRADE



MasterTemp High Performance Heater

### Featured Highlights

- Now with smart connectivity, it's easier than ever to get the pool warm and ready whenever it's needed
- Digital connectivity with your pool's automation system and an advanced ignition control module with flame strength sensor help to ensure optimal heater performance
- MasterTemp Heater is certified for low NOx emissions
- Multi-position top panel allows digital display to be re-positioned for convenient operation
- Tough, rustproof exterior handles the heat and weathers the elements
- Certified for outdoor and indoor installations <sup>1</sup>
- Optional Smart Heater Bypass valve control diverts water flow when the heater isn't needed to help save up to 35% in yearly operational costs\*

MasterTemp Heaters offer all the efficiency, convenience and reliability features you want in a pool heater, plus a lot more. As easy to use as your home heating system, plus, user-friendly LCD display and troubleshoot icons make system operation and monitoring a snap. The compact design and super-quiet operation won't intrude on your poolside leisure time. Heavy-duty (HD) unit with cupro-nickel exchanger for improved performance in more challenging applications, like low pH, high flow or heavy use.

### Ordering Information

Product	Gas Type	BTU (000's)	Heat Exchanger Efficiency	Carton Wt. Lbs.
<b>MASTERTEMP HEATERS</b>				
460792	Natural	175	84%	128
460793	Propane	175	84%	128
460730	Natural	200	84%	128
460731	Propane	200	84%	128
461000	Natural	200 ASME	84%	138
461001	Propane	200 ASME	84%	138
460732	Natural	250	84%	133
460733	Propane	250	84%	133
460771	Natural	250 ASME	84%	140
460772	Propane	250 ASME	84%	140
460806	Natural	250HD	82%	136
461020	Natural	250 ASME HD	82%	140
460734	Natural	300	84%	136
460735	Propane	300	84%	136
460736	Natural	400	84%	136
460737	Propane	400	84%	136
460805	Natural	400HD	82%	136
460775	Natural	400 ASME	84%	149
460776	Propane	400 ASME	84%	149
461021	Natural	400 ASME HD	82%	149
461031	Air Intake Kit			
462048	Smart Heater Bypass Kit			

Note:  
The MasterTemp High Performance Heater is certified for low NOx emissions.

CALIFORNIA PROPOSITION 65 WARNING

⚠️ **WARNING:** Cancer and Reproductive Harm.  
 ⚠️ **AVERTISSEMENT:** Peut Causer le Cancer et des Dommages au Système Reproducteur.  
 ⚠️ **ADVERTENCIA:** Cáncer y Daño Reproductivo.  
[www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)

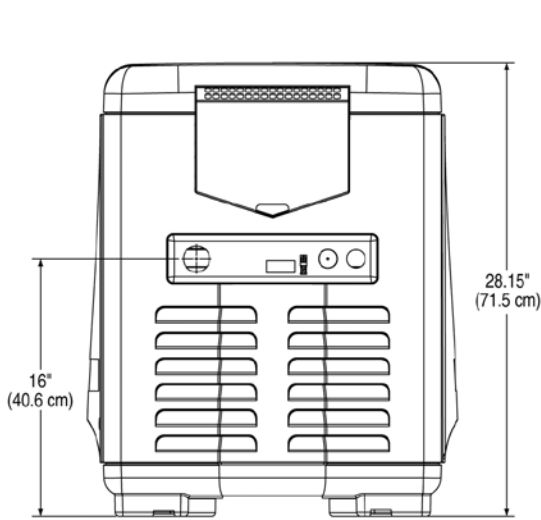
\*Savings amount based on lab testing conducted using MasterTemp 400® heater in conjunction with IntelliFlo® VSF Pump and Bypass Kit, which includes IntelliValve® controlled by heater. Test Conditions: Pump flow rate: 50gpm. Pump run time: 3000 hours/yr. Heater run time: 100 hours/yr. Electrical Cost: \$0.21 per kWh. System TDH: Heater and Bypass Kit added to Standardized "Curve C" System Curve performance data as per California Energy Commission Title 20 Appliance Efficiency Regulations. Test conditions assume pump flow rate of 50gpm and Constant Flow operation utilizing a lower motor RPM when flow is bypassing the heater due to lower system TDH. Actual performance and any subsequent energy consumption/savings are dependent upon various characteristics of the plumbing system, including but not limited to, pipe size, pipe lengths, filter type, fittings, system design, equipment run time/settings and more.

<sup>1</sup> Certified by CSA in compliance with CSA/ANSI Z21.56:19/CSA 4.7:19

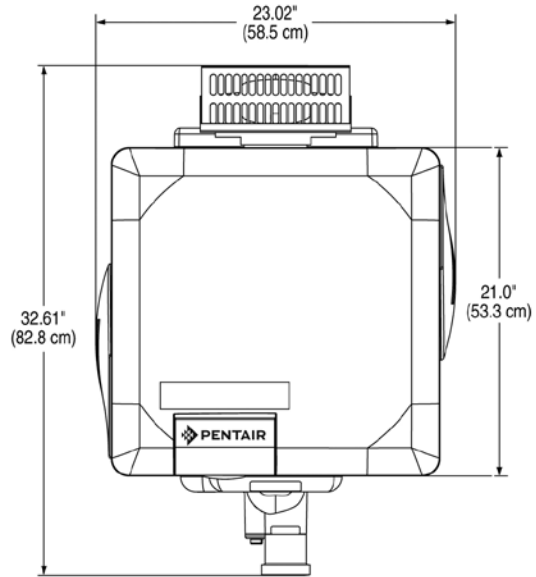
# MASTERTEMP® HEATER (CONT'D)

## HIGH PERFORMANCE HEATER

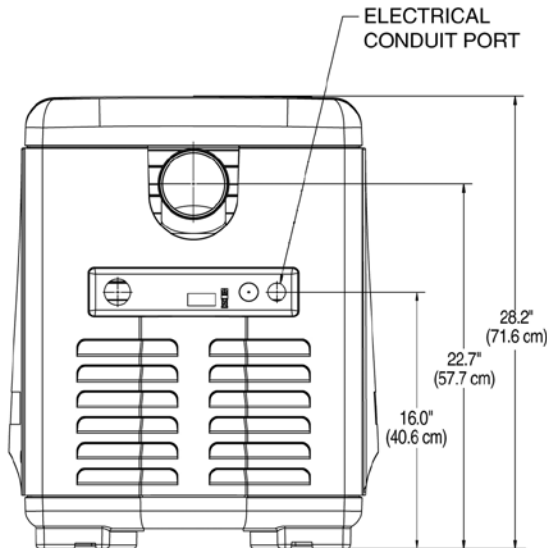
### Dimensions and Performance



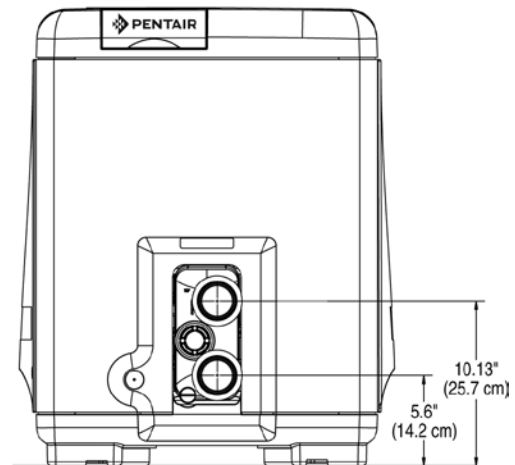
**FRONT**



**TOP**



**EXHAUST SIDE**



**PLUMBING SIDE**

See pages 447–451 for replacement parts.



PUMP(S) CONFIRMATION  
REQUIRED PER PHASE & VOLTAGE  
IN EQUIPMENT ROOM

Index

# Pool & Spa Recirculation Pump W/ Spare Strainer

(Includes VFD)

# INTELLIFLO3®

## VARIABLE SPEED AND FLOW POOL PUMP

### TRADEGRADE



Optional touchscreen for more flexible control.



IntelliFlo3 3.0 HP Variable Speed & Flow Pump

IntelliFlo3 1.5 HP Variable Speed & Flow Pump

### Featured Highlights

- Proprietary flow technology maintains the pool's optimal flow
- Easy control via the Pentair Home app or optional touchscreen
- Up to 90% energy savings\*
- New motor, drive and hydraulics
- Optional onboard automation
- Easy setup and remote updates



Pentair Home app: pool owners can access the pool anytime, anywhere.



Pentair Pro app: ability to control and remotely monitor.

This pump combines true set-it-and-forget-it patented flow technology paired with smart connectivity of the Pentair Home app. The proprietary combination of variable speed plus auto-regulated flow means all good things flow from the IntelliFlo3—for your customers and for your business. Small pool or big, this pump is a simple, smart, worry-free way to give pool owners the effortless, inviting pool experience they expect.

### Ordering Information

PART #	DESCRIPTION	THP	WEF	Maximum Input Voltage	Frequency	Full Load AMPS	Port Size (NPT)	Weight	Certification <sup>3</sup>
<b>INTELLIFLO3 VARIABLE SPEED AND FLOW POOL PUMP</b>									
011075	IntelliFlo3 VSF 3.0 HP*	3	7.1	208V-230V	50 Hz or 60 Hz	12.4-11.2 Amps	2" x 2" or 2.5" x 2.5" or (optional) 3" x 3"	55 lbs	UL <sup>1</sup> , NSF <sup>2</sup>
011076	IntelliFlo3 VSF 3.0 HP with relay board*	3	7.1	208V-230V	50 Hz or 60 Hz	12.4-11.2 Amps	2" x 2" or 2.5" x 2.5" or (optional) 3" x 3"	55 lbs	UL <sup>1</sup> , NSF <sup>2</sup>
011077	IntelliFlo3 VSF 3.0 HP with touchscreen*	3	7.1	208V-230V	50 Hz or 60 Hz	12.4-11.2 Amps	2" x 2" or 2.5" x 2.5" or (optional) 3" x 3"	55 lbs	UL <sup>1</sup> , NSF <sup>2</sup>
011078	IntelliFlo3 VSF 3.0 HP with touchscreen and relay board*	3	7.1	208V-230V	50 Hz or 60 Hz	12.4-11.2 Amps	2" x 2" or 2.5" x 2.5" or (optional) 3" x 3"	55 lbs	UL <sup>1</sup> , NSF <sup>2</sup>
<b>INTELLIFLO3 VARIABLE SPEED AND FLOW POOL PUMP WITH TOUCH SCREEN HMI</b>									
011065	IntelliFlo3 VSF 1.5 HP*	1.5	9.4	115/208-230V	50 Hz or 60 Hz	12/6.4-5.9 Amps	1.5" x 1.5" or 2" x 2"	48 lbs	UL <sup>1</sup> , NSF <sup>2</sup>
011066	IntelliFlo3 VSF 1.5 HP with relay board*	1.5	9.4	115/208-230V	50 Hz or 60 Hz	12/6.4-5.9 Amps	1.5" x 1.5" or 2" x 2"	48 lbs	UL <sup>1</sup> , NSF <sup>2</sup>
011067	IntelliFlo3 VSF 1.5 HP with touchscreen*	1.5	9.4	115/208-230V	50 Hz or 60 Hz	12/6.4-5.9 Amps	1.5" x 1.5" or 2" x 2"	48 lbs	UL <sup>1</sup> , NSF <sup>2</sup>
011068	IntelliFlo3 VSF 1.5 HP with touchscreen and relay board*	1.5	9.4	115/208-230V	50 Hz or 60 Hz	12/6.4-5.9 Amps	1.5" x 1.5" or 2" x 2"	48 lbs	UL <sup>1</sup> , NSF <sup>2</sup>

<sup>1</sup> 'UL' indicates that pump bears a UL mark signifying evaluation to U.S. Standards UL1081 for Permanently Connected Swimming Pool and Spa Pumps and to Canadian Standards CAN/CSA C22.2 No. 108-01 Liquid Pumps For Swimming Pools Only (Enclosure 3).

<sup>2</sup> 'NSF' indicates that pump bears a mark signifying evaluation to NSF Standard 50 For Self-Priming Centrifugal Pumps For Swimming Pools, Spas and Hot Tubs.

<sup>3</sup> Product may have been evaluated to other state and local regulatory standards. Listing status may change. Always confirm status with appropriate agency if in doubt.

\*Savings based on variable speed pump compared to a single-speed pump running 12 hours per day at an average of \$0.16 per kWh in a 20,000 gallon pool. Actual savings may vary based on local utility rates, pool size, pump run time, pump horsepower, pump rpm, plumbing size and length, pump model, service factor and other hydraulic factors. Individual Weighted Energy Factor (WEF) scores and savings may vary by model.

CALIFORNIA PROPOSITION 65 WARNING

▲ **WARNING:** Cancer and Reproductive Harm.  
▲ **AVERTISSEMENT:** Peut Causer le Cancer et des Dommages au Système Reproducteur.  
▲ **ADVERTENCIA:** Cáncer y Daño Reproductivo.

www.p65warnings.ca.gov. PH201714

# INTELLIFLO3® (CONT'D)

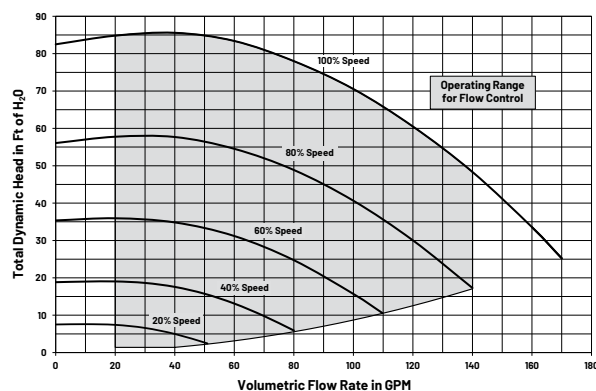
## VARIABLE SPEED AND FLOW POOL PUMP

### Ordering Information

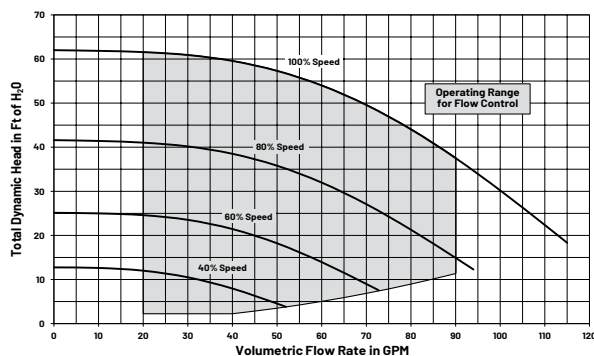
PART #	DESCRIPTION
<b>INTELLIFLO3 ADD ONS</b>	
356159Z	IntelliFlo3 VSF universal touchscreen add on
356365Z	IntelliFlo3 VSF optional universal relay board kit
410009	2.5" Sweep Elbow Pump Kit
410029	3" Union Kit for 3 HP Pumps
357831Z	Retrofit Riser Base Kit for 1.5 HP Models—IntelliFlo and WhisperFlo Models
357832Z	Retrofit Riser Base Kit for 1.5 HP Models—IntelliPro, Max-E-Pro, and Challenger Models
357833Z	Retrofit Riser Base Kit for 3.0 HP Models—IntelliPro, Max-E-Pro, and Challenger Models

### Dimensions and Performance

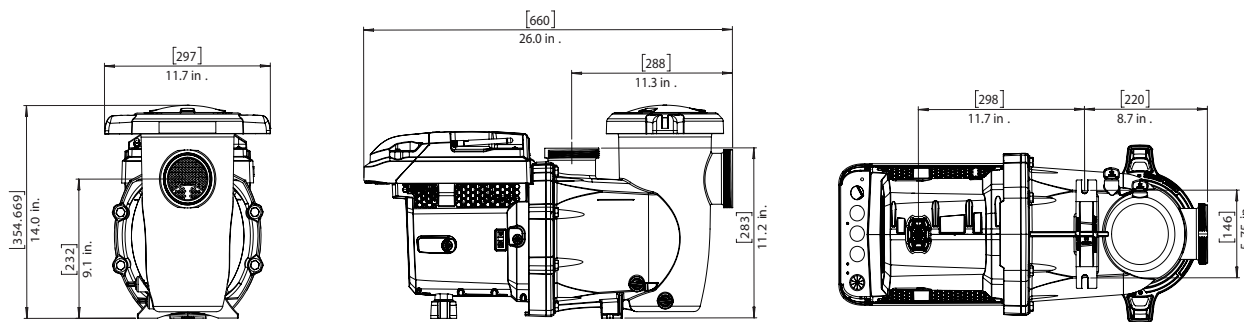
**Pump Performance Curves (3 HP Models)**



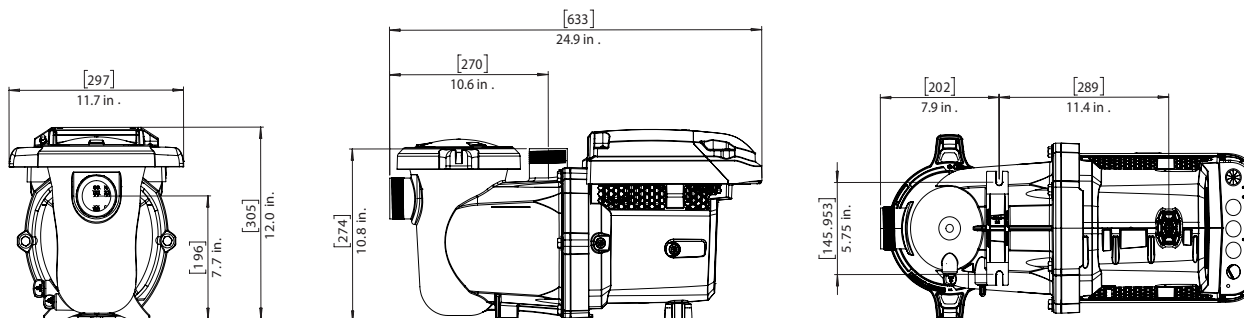
**Pump Performance Curves (1.5 HP Models)**



**Pump Dimensions (3 HP Models)**



**Pump Dimensions (1.5 HP Models)**



See page 497 for replacement parts.

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# Spa Therapy Pumps W/ Spare Strainer

(Includes VFD)

# WHISPERFLOXF<sup>®</sup>

## HIGH PERFORMANCE PUMPS

### TRADEGRADE



WhisperFloXF Pump shown with TEFC Motor

Developed using advanced engineering tools - CFD (Computational Fluid Dynamics) and FEA (Finite Element Analysis). The impeller design delivers high level of precision concentricity for efficiency.

\*Optional riser base for Challenger pump replacements. Part # 400012 available separately.

### Featured Highlights

- Drop-in replacement for all WhisperFlo<sup>®</sup> Pump models. Simple replacement for Challenger<sup>®</sup> Pumps.\*
- Union connectors included for connecting directly to 2.5 in. or 3 in. plumbing
- Extra large, robust basket with smooth surface for easy debris removal
- Easy-carry handle; easily removable ergonomic lock ring; and see-through lid for easy basket inspection
- Three Phase XF pumps are compatible with Pentair's Acu Drive XS VFD's

### Ordering Information

Product	Rated HP	THP	WEF	HHP	Service Factor	Voltage	Frequency	Current	Port Size	Weight	Certifications <sup>3</sup>	Curve Key
<b>COMMERCIAL SINGLE-SPEED TEFC</b>												
022034	5	5	N/A	N/A	1.00	208-230	60	20.0-18.8	2.5" x 2.5" or 3" x 3"	67	UL <sup>1</sup> , NSF <sup>2</sup>	A
<b>TEFC SINGLE-SPEED—NOT FOR SALE IN THE USA</b>												
022032-INT	2	2.60	N/A	N/A	1.30	208-230	60	11.1-9.5	2.5" x 2.5" or 3" x 3"	57	UL <sup>1</sup> , NSF <sup>2</sup>	D
022033-INT	3	3.45	N/A	N/A	1.15	208-230	60	14.6-12.7	2.5" x 2.5" or 3" x 3"	61	UL <sup>1</sup> , NSF <sup>2</sup>	B
<b>THREE-PHASE SUPER-DUTY</b>												
022017	2	2.6	N/A	N/A	1.30	208-230/460	60	7.5-7.2/3.6	2.5" x 2.5" or 3" x 3"	60	UL <sup>1</sup> , NSF <sup>2</sup>	I
022018	3	3.25	N/A	N/A	1.15	208-230/460	60	9.8-9.4/4.7	2.5" x 2.5" or 3" x 3"	60	UL <sup>1</sup> , NSF <sup>2</sup>	H
022019	5	5.00	N/A	N/A	1.00	208-230/460	60	13.9-13.1/6.6	2.5" x 2.5" or 3" x 3"	72	UL <sup>1</sup> , NSF <sup>2</sup>	G
<b>ACCESSORIES</b>												
400012	XF Riser Base - Simplifies installation of XF-series pumps in applications where Challenger pumps are being replaced.											

<sup>1</sup> 'UL' indicates that pump bears a UL mark signifying evaluation to U.S. Standards UL1081 for Permanently Connected Swimming Pool and Spa Pumps and to Canadian Standards CAN/CSA C22.2 No. 108-01 Liquid Pumps For Swimming Pools Only (Enclosure 3).

<sup>2</sup> 'NSF' indicates that pump bears a mark signifying evaluation to NSF Standard 50 For Self-Priming Centrifugal Pumps For Swimming Pools, Spas and Hot Tubs.

<sup>3</sup> Product may have been evaluated to other state and local regulatory standards. Listing status may change. Always confirm status with appropriate agency if in doubt.

CALIFORNIA PROPOSITION 65 WARNING

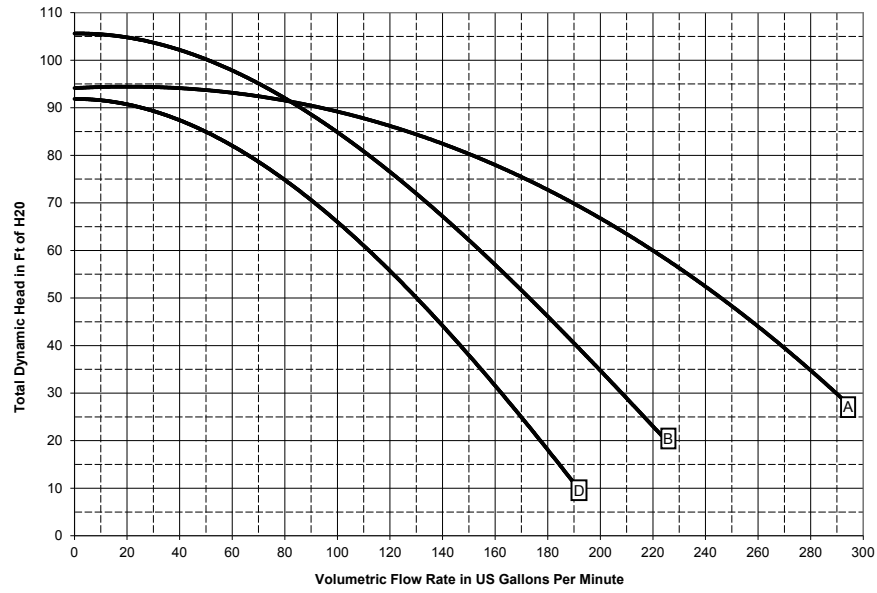
⚠ **WARNING:** Cancer and Reproductive Harm.  
 ⚠ **AVERTISSEMENT:** Peut Causer le Cancer et des Dommages au Système Reproducteur.  
 ⚠ **ADVERTENCIA:** Cáncer y Daño Reproductivo.  
[www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)

# WHISPERFLOXF<sup>®</sup>

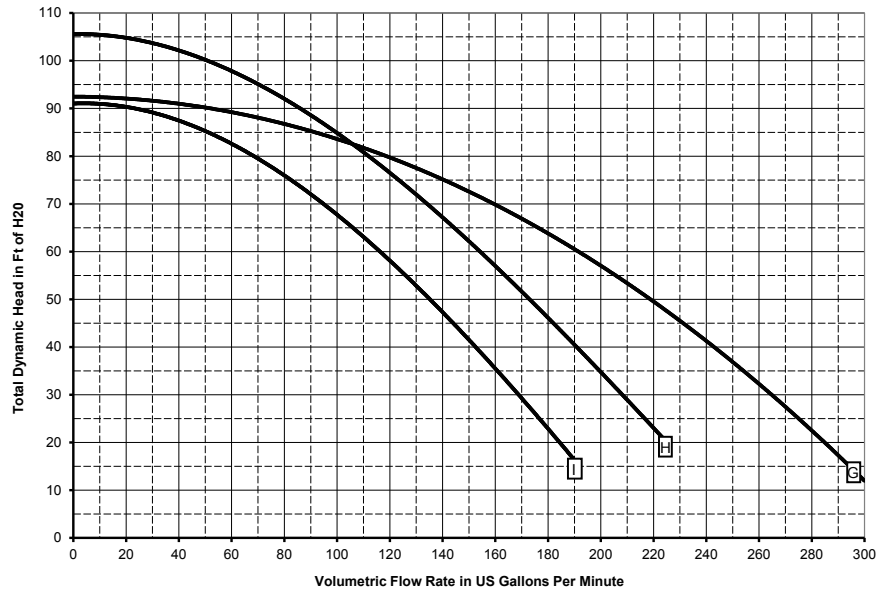
## HIGH PERFORMANCE PUMPS (CONT'D)

### Dimensions and Performance

1 & 2-Speed  
Performance  
Curve

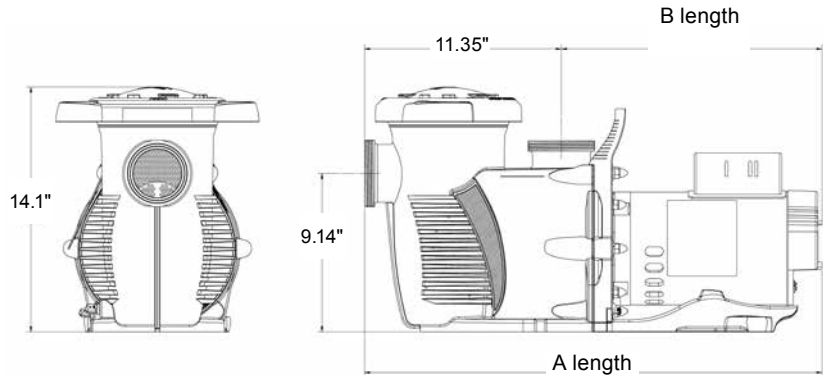


3 Phase  
Performance  
Curve



B-VARYING LENGTH		
HP	TEFC	3-PH
2	13.05	12.35
3	13.65	13.05
5	14.55	13.88

A-VARYING LENGTH		
HP	TEFC	3-PH
2	24.4	23.7
3	25	24.4
5	25.9	25.23



See pages 507-508 for replacement parts.

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# Depth Markers



## Standard Porcelain Depth Markers

### Single Tile Abbreviations



### English Depth Markers



**Note:** Offset 1 Available - just the number 1 available for two digit numbers that require two tiles.



Also available for renovations are vinyl stick-on tiles for the deck and tempered glass overlays for the waterline. Tempered glass and vinyl require separate kits for installation.

#### Sizes

6" x 6"  
4" high numbers & letters

8" x 8"  
6" high numbers & letters

#### Trim

No Trim available

### Metric Depth Markers

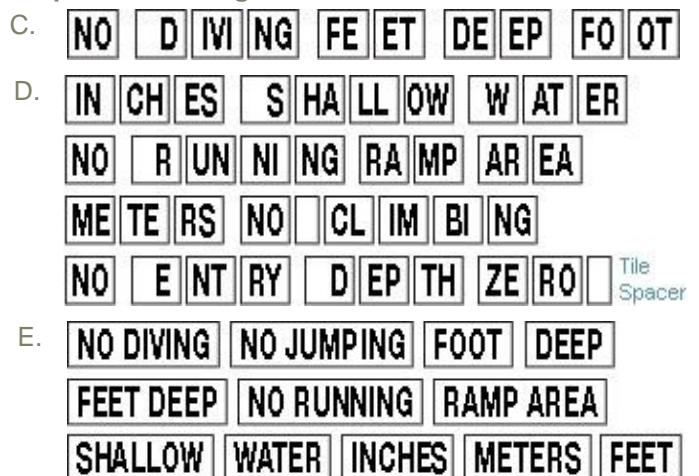


- A. Available in ceramic, vinyl and tempered glass.
- B. Available in ceramic and vinyl only.
- C. Available in ceramic and glass only.
- D. Available in ceramic only.
- E. Available in vinyl only.

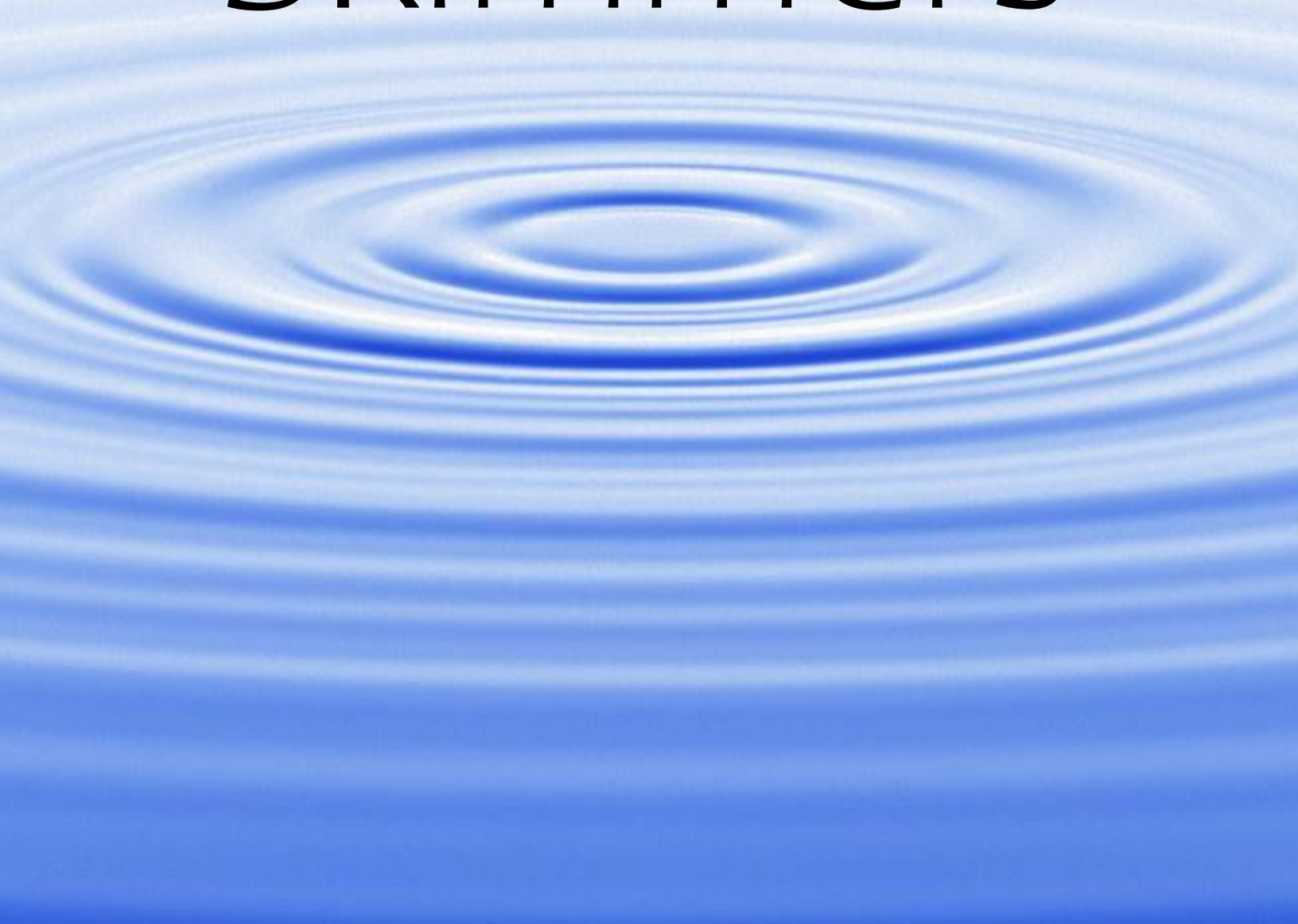
### Single Tile Messages



### Multiple Tile Messages



# Pool & Spa Skimmers



# FLOWSTAR® STANDARD SKIMMER WITH FLUSH FACE, FLOAT ASSEMBLY, BASKET, LID AND ADJUSTABLE COLLAR

Built in conformance with NSF 50 and SPS 3 standards

## FEATURES

Designed for commercial and residential use, 15 GPM min, 90 GPM max

Adjustable collar

New weir clip lock secures the clips in the weir door

Large self-contained basket with lock-in feature (will not float)

Underwater dampers on the faceplate for noise reduction on weir plate – especially on windy days

Super strong engineered polymer upper housing

Extra heavy duty PVC lower unit (no transitional glue required)

2½" outside slip and 2" inside slip (outside skimmer)

2" threads for pressure testing (inside skimmer)

Built-in overflow or fill line knock out

Upper housing has pre-cut rebar cutouts with pre-drilled holes for tie wire

Skimmer Lid and Collar G154 UV tested

Optional custom name/logo engraved on the lid (requires minimum 500 piece lid order)

1 per case

Two additional lid options available (sold separately): square or snap-in round/square



Part # SKR2xx



Optional vacuum plate with snap-in lug can be glued in under lid for easy storage p/n SK43101



Optional BFB adapter converts skimmer fittings to 4" or 3" tee for improved hydraulics and code compliance p/n BFB101

## STANDARD COLORS

- SKR201 – White
- SKR203 – Light Gray
- SKR205 – Dark Gray

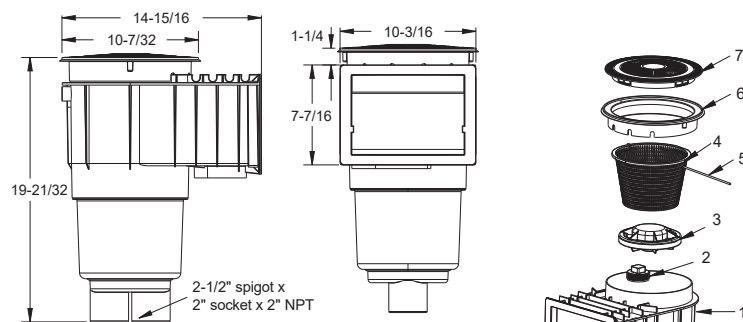
Snap-in Round/Square Lid and Collar (sold separately) p/n SK65xxx

Square Lid and Collar (sold separately) p/n SK64xxx

Available without lid and collar SKR2NL101 (white only)

NOTICE: For NSF certified skimmers, please contact your AquaStar Sales Representative. Lid, float valve, 4" socket, and 6" socket options are not NSF certified.

SPS 3 & NSF 50 Compliant



1. Skimmer Body
2. 2" Port Plug
3. Float Assembly
4. Basket
5. Basket Rod
6. Collar
7. Lid
8. Plaster Shield
9. Weir Assembly
10. Weir Clip, Qty 2

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Pool & Spa

Pour-A-Lids



# FILL-LID STANDARD 10" SKIMMER COVER AND FRAME



**NSF**

Certified to  
NSF/ANSI/CAN 50

Make your skimmer or autofill cover vanish

## FEATURES

Unique fillable lid allows cover to virtually disappear with every deck finish

Ideal for natural stone pavers, up to 35 millimeters in thickness

Adjustable frame levels out uneven surfaces

Made with super strong engineered polymer tested to the latest GV154 UV standard

Internal tabs keep finish in place

316 stainless steel screws

Fits AquaStar and most standard skimmers

20 per case

**NEW**





Fits all AquaStar skimmers and autofills and most standard skimmers

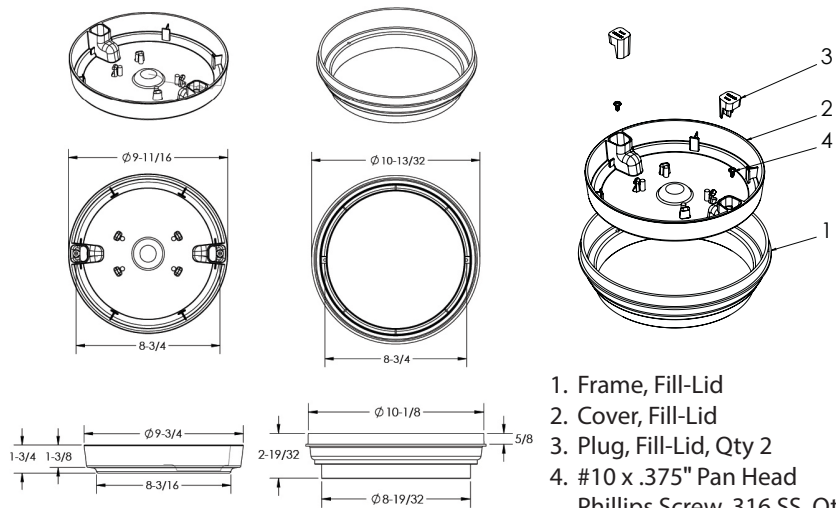


Virtually disappears with every deck finish. Ideal for natural stone pavers.

Part # FL10xxx

## STANDARD COLORS

-  FL10101 – White
-  FL10103 – Light Gray
-  FL10108 – Tan
-  FL10100 – Clear



P 877-768-2717 F 877-276-POOL Outside the US: P +1-949-336-1940 F +1-949-336-1940  
info@aquastarpoolproducts.com www.aquastarpoolproducts.com CS051-122024

# Pool & Spa Levelor Auto Fill

The background of the page is a close-up photograph of blue water with concentric ripples emanating from a central point, creating a sense of depth and movement. The ripples are most prominent in the lower half of the image, where they are more closely spaced and create a darker blue hue, while the upper half shows more widely spaced ripples and a lighter blue color.



Levolor® water leveling systems electronically maintain water levels in pools, spas, fountains and ponds. It can be used anywhere a constant level of water is needed to maintain a beautiful appearance and protect equipment, especially Vanishing Edge designs. Easily installed on new or existing pools and spas, the Levolor system does not require structural modifications for installation.

SIMPLE, RELIABLE & COMPLETELY AUTOMATIC

## ACCURATE WATER LEVELING TECHNOLOGY FOR ANY APPLICATION

### Easily maintain water level without a hose

With Levolor you'll never need to fill your pool with a garden hose. Levolor replaces the water in your pool that is lost due to evaporation and splashing automatically.

### Sophisticated electronics

Our unique electronics compensate for waves, will not overfill your pool, and sense the water level without any moving parts.

### Simple installation: Retrofit or new

Since a Levolor System requires no structural modifications, you can easily retrofit existing equipment systems.

### Protect equipment & appearance

Low water level can cause permanent damage to your pool's equipment. Keep your pool looking and performing at its peak with Levolor.

## Levolor® Electronic Water Leveler

Easy to Read LEDs



LX2 Series



K Series

### ALL ZODIAC POOL AND SPA PRODUCTS WORK SEAMLESSLY TOGETHER

The Zodiac system is designed to create a carefree backyard paradise — enhancing the overall pool and spa experience by delivering performance and reliability through technology.

### ZODIAC POOL AND SPA PRODUCTS

Pumps	Water Purification	In-Floor
Filters	Valves	Water Leveling
Heaters	Water Features	Pool Covers
Heat Pumps	Lighting	Accessories
Controls	Cleaners	

### Levolor Electronic Water Leveling Systems

- K-1100** Fill system for pools and spas.
- LX2** Fill system (Static pipe) for pools and spas.
- K-2000** Fill system for Vanishing Edge pools with high level switch that activates a pump.
- K-2100** Fill systems for fountains with low level cut-off that turn off the pump.
- K-2300** Fill system for two separate bodies of water with two sensors and two solenoid valves.

## ProEdge Care

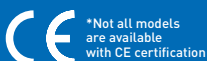
### EXTENDED SERVICE PLANS

Protect pool equipment from expensive repair costs. ProEdge Care Extended Service Plans, up to 4 years added protection. [www.proedgecare.com](http://www.proedgecare.com)

### Zodiac Pool Systems, Inc.

2620 Commerce Way, Vista, CA 92081

1.800.822.7933 | [www.ZodiacPoolSystems.com](http://www.ZodiacPoolSystems.com)



# Spa Air Intake Box



# OPTIMIZED FOR TOTAL RELAXATION





**FROM THE WORLD'S #1 IN-FLOOR  
CLEANING SYSTEMS COMPANY**



The Air-Port™ is easy to install, greatly improves the efficiency of the spa air intake line, and provides the customer with a quieter spa experience by reducing the noise created by air intake points in the spa deck to a virtually inaudible whisper.

The Air-Port™ eliminates the need to run extended air intake lines and thereby eliminates the problems associated with flooded lines. Air-Port™ comes complete with a muffler that allows the air intake to operate very quietly for installation right next to the spa.

### **FEATURES AND BENEFITS**

- Optimizes the delivery of air into the spa air loop
- Reduces the noise created by air intake points so it can be installed right next to the spa
- Eliminates the need to run an air intake pipe quite a distance away from the spa
- Perfect for raised spas
- Easy to install
- Available in three colors to blend with any deck



White



Lt. Gray



Beige





## SPA AIR SOLUTION INSTALLATION INSTRUCTIONS

Paramount Pool & Spa Systems' AirPort greatly improves the efficiency of the spa air loop and is very effective with raised spas. The Paramount AirPort reduces the noise created by air intake points in the deck spa side to a virtually inaudible whisper.

In many installations, an air intake pipe is run a distance away from the spa to reduce the noise associated with drawing air into the airline. If this pipe is not level, especially when challenged by a longer pipe run, problems can occur with the air intake. The therapy jets may not be able to pull air through the flooded line without the addition of a costly blower.

Raised spas also increase the potential for air intake line problems because the therapy venturi may not have enough power to lift the water to evacuate the flooded intake line. In both situations the Paramount AirPort eliminates the need to run these extended air intake lines and thereby eliminates the problems associated with flooded lines.

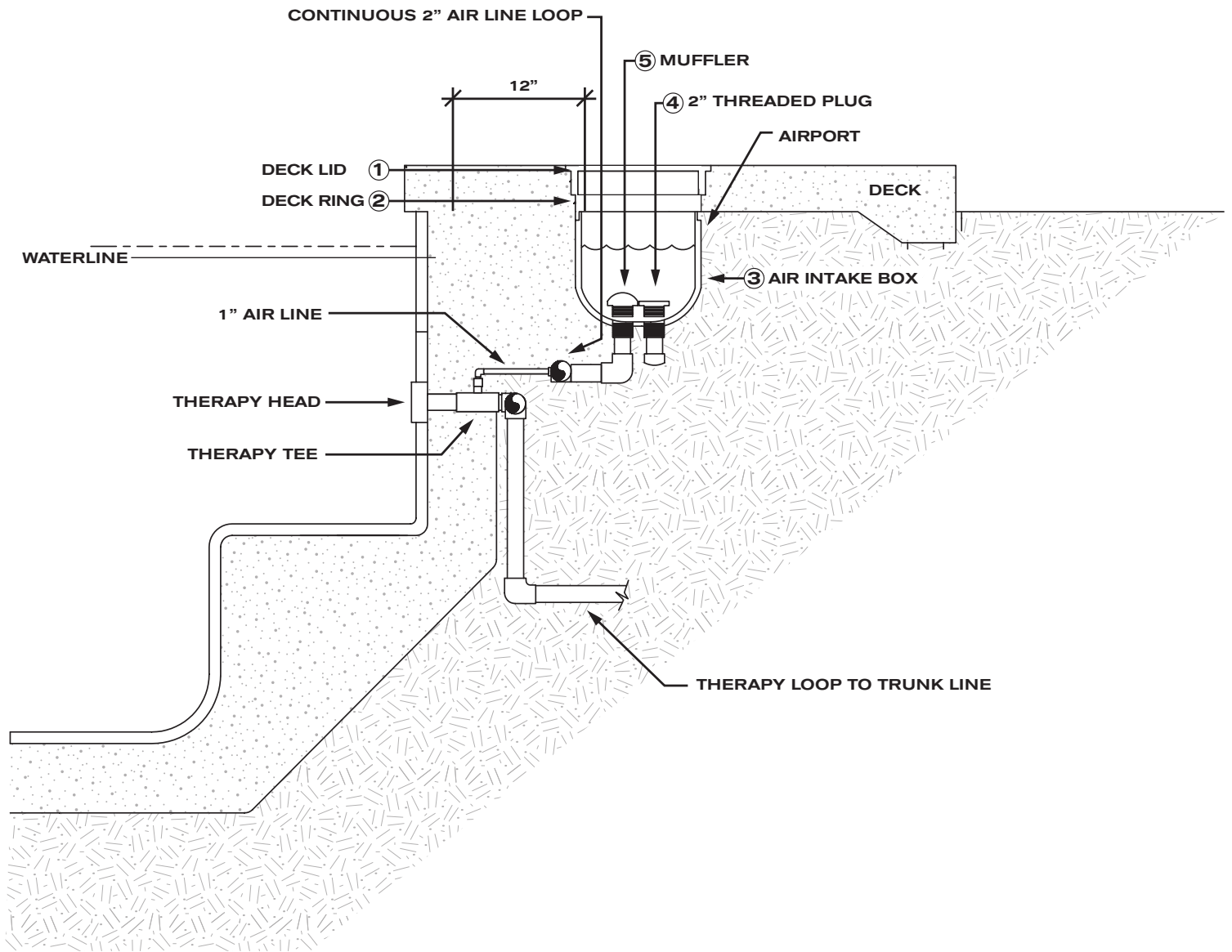
The Paramount AirPort is designed to be installed in the spa deck with a minimum width of 24". It should be set so the top of the canister is 1/4" or higher than the spa bond beam. For best performance the closer the AirPort is to the spa the better the therapy action. **Note:** If you must move it further away from the spa, never go further than 12' and the airline must be higher or level from the bottom of the AirPort to the air intake of the therapy lines. If paver or stone decking is used in place of the plastic ring and lid included in the AirPort, then sufficient air holes are needed to supply air to the therapy jets. The AirPort comes with one muffler to handle 6 therapy nozzles and it has the capability of adding a second muffler to the second port to increase its capacity to 12 therapy nozzles run by the same pump. **Note:** If two separate pumps are used on different sets of therapy nozzles then two different AirPorts (one for each pump and set of therapy heads) should be used.

The use of the AirPort reduces the need for additional pipe by allowing the air intake to occur right next to the spa without producing undesirable air intake noise. AirPort comes complete with a muffler that allows the air intake to operate very quietly maintaining the perfect ambiance around your spa.

### PLUMBING

1. Set AirPort level with top of bond beam.
2. Plumb the spa air loop so that it is entirely below water level. The system is designed to keep the airline under water at all times. The loop should be a continuous loop all around the spa.
3. Connect one port of AirPort to the spa air loop line.
4. Place the included threaded 2" plug in the unused port.
5. Plug the second port with stub of pipe and cap.
6. Stub outs for therapy heads must remain straight and level. Do not bend!
7. Install the muffler in AirPort at startup by threading the muffler into the port connected to the air loop.
8. If running therapy heads on separate pumps or for therapy heads on different elevations, use two AirPorts.
9. For best performance of the therapy jets, make sure to place therapy tees equal distance from the jets and in a complete loop around the spa.

See diagram on reverse side for mor information



### AirPort

Item	Part Number	Description
	004-252-8192-01	AirPort, White
	004-252-8192-02	AirPort, Gray
	004-252-8192-07	AirPort, Beige

### Parts

Item	Part Number	Description
1	005-252-4572-XX	Deck Lid
2	005-250-4880-XX	Deck Ring
3	005-252-8192-XX	Air Intake Box
4		2" Plug - Threaded
5	004-252-3110-XX	AirPort Muffler

Please indicate your color choice by replacing the "XX" using these codes:  
White-01, Gray-02, Beige-07

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# Lights & Niches



# INTELLIBRITE®

## ARCHITECTURAL SERIES POOL & SPA LIGHTING



TRADEGRADE

IntelliBrite Architectural Series Pool Light

IntelliBrite Architectural Series Spa Light

### Featured Highlights

- More light, more energy efficient — now 60% brighter and 50% more energy efficient\*
- Spreads light widely and evenly in all directions using a 3D light engine and convex lens
- Provides cleaner white light with no color separation thanks to improved optics
- Color for every mood with five brilliant color lights and seven dynamic color-changing light shows
- High-quality components add durability to the dazzle due to long-lasting construction
- Compatibility with Pentair 10" and 6" niches enables an ideal upgrade from incandescent or first-generation LED lights
- Adds instant ambiance with easy customer pool control through a Pentair automation system, if available, or a Color Sync™ Controller for Pentair Color LED Lights

Our most brilliant lighting innovation yet. Our improved patented design is the next generation of LED technology.

CALIFORNIA PROPOSITION 65 WARNING  
 ⚠️ **WARNING:** Cancer and Reproductive Harm.  
 ⚠️ **AVERTISSEMENT:** Peut Causer le Cancer et des Dommages au Système Reproducteur.  
 ⚠️ **ADVERTENCIA:** Cáncer y Daño Reproductivo.  
[www.p65warnings.ca.gov](http://www.p65warnings.ca.gov) PR320174

### Ordering Information

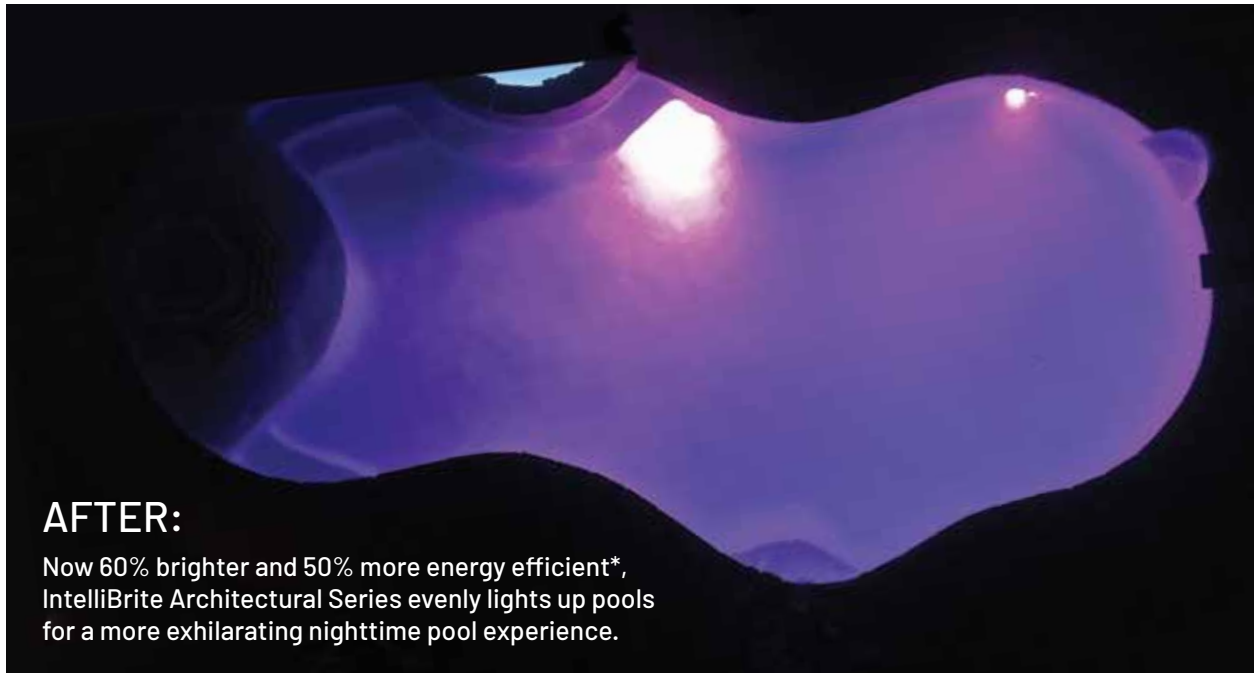
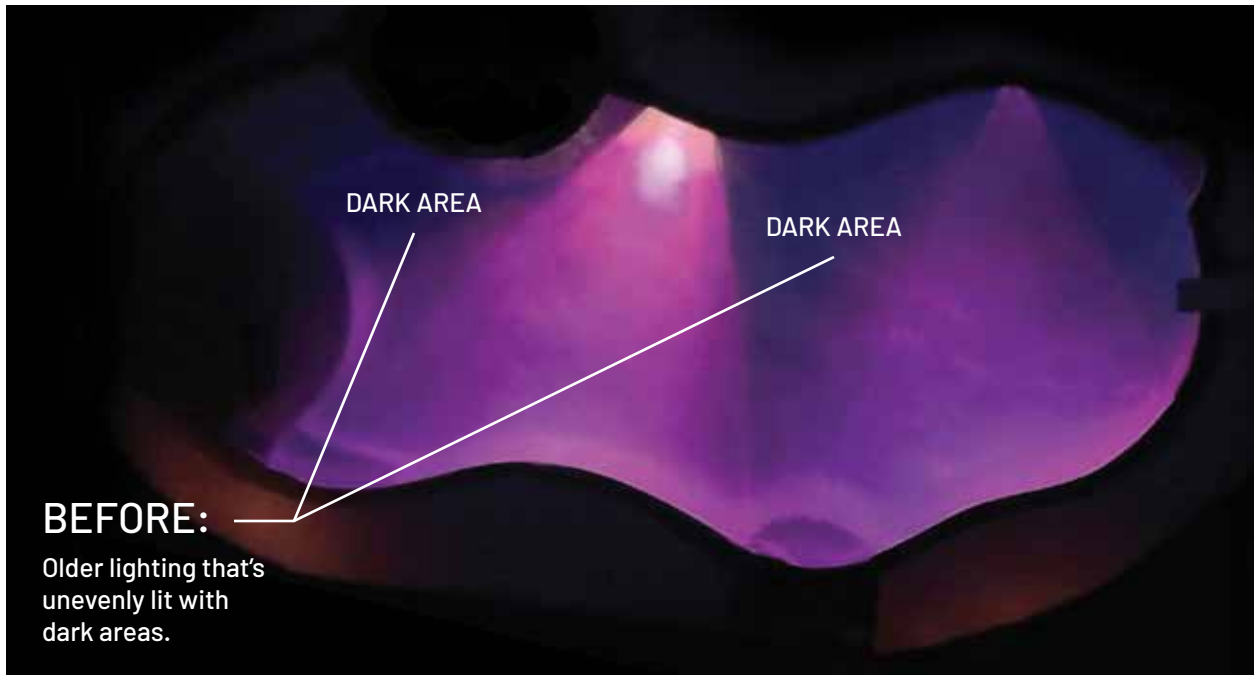
Product Number By Cord Length (Feet)					Size	Model	Voltage	Power
30'	50'	100'	150'	250'				
<b>INTELLIBRITE ARCHITECTURAL SERIES POOL &amp; SPA LIGHTING</b>								
602185	602186	602187	602188	602206	Pool	Color	120V	28W
602151	602152	602153	602154	—	Pool	Color	12V	28W
602201	602202	602203	602204	602205	Spa	Color	120V	18W
602197	602198	602199	602200	—	Spa	Color	12V	18W
602181	602182	602183	602184	602207	Pool	White, 300W Equivalent	120V	26W
602143	<b>602144</b>	602145	602146	—	Pool	White, 300W Equivalent	<b>12V</b>	<b>26W</b>
602177	602178	602179	602180	602208	Pool	White, 500W Equivalent	120V	31W
602139	602140	602141	602142	—	Pool	White, 500W Equivalent	12V	31W
602193	602194	602195	602196	602209	Spa	White, 100W Equivalent	120V	18W
618015	<b>618016</b>	618017	618018	—	Spa	White, 100W Equivalent	<b>12V</b>	<b>18W</b>
602189	602190	602191	602192	602221	Pool	Warm White	120V	31W
602147	602148	602149	602150	—	Pool	Warm White	12V	31W
602225	602226	602227	602228	602229	Spa	Warm White	120V	18W
602238	602239	602240	602241	—	Spa	Warm White	12V	18W
—	—	—	602236	—	Pool	Turtle	12V	31W
—	—	—	602223	—	Pool	Turtle	120V	31W
—	—	—	602242	—	Spa	Turtle	12V	18W
—	—	—	602231	—	Spa	Turtle	120V	18W

\*Compared to Pentair IntelliBrite 5G Color LED Pool Light in white color mode only. The IntelliBrite Architectural Series delivers higher lumen output depending on color mode, ranging from 28%–141% brighter, while energy efficiency improvements range from 17–58% based on color mode.

Appearance of color and white LED light may vary between various models of lights. Appearance and perception of pool lighting may vary depending on a number of factors including, but not limited to, the particular model of light, the location/depth/angle of the light's installation, pool finish/material, pool depth/shape/geometry, ambient light sources, subjective factors and more. For best results when using multiple lights, use all the same model and do not mix multiple models of lights within a single installation.

# INTELLIBRITE®

## ARCHITECTURAL SERIES POOL & SPA LIGHTING



\*Compared to Pentair IntelliBrite 5G Color LED Pool Light in white color mode only. The IntelliBrite Architectural Series delivers higher lumen output depending on color mode, ranging from 28%-141% brighter, while energy efficiency improvements range from 17-58% based on color mode.

### Certifications



See page 472–475 for replacement parts.

# PLASTIC NICHES

## PLASTIC NICHES FOR SWIMMING POOLS AND SPAS



**Gunite Plastic Niches** - These plastic concrete niches are molded of high strength, corrosion resistant PVC with a one inch PVC hub. Both 450 and 3/4 in. reducer bushings are included. Gunite models feature rebar tie-backs and a plaster ring for clean, simple installations and all are packed with a gunite/plaster shield.



**QuickNiche™ Vinyl Liner Niche** - One look at the QuickNiche is all it takes to see that this is a product that really lives up to its name. It is an easy-to-install, super-sealing light niche for vinyl liner pools. It features a revolutionary lock-ring design that mounts and seals like a vinyl inlet fitting fast, secure, and totally leak proof.

### Featured Highlights

**Gunite Plastic Niches:**

- Innovative cord seal grommet (Accessory sold separately)
- Large and small models
- Rebar tie-backs
- Plaster ring for secure sealing
- Internal/external bonding lugs
- High strength PVC construction
- Rear one inch PVC hub
- Includes 45° and 3/4 in. reducer bushings
- Includes gunite/plaster shield

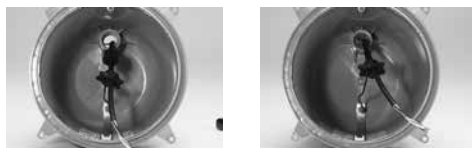
**QuickNiche:**

- Revolutionary design mounts and seals like a vinyl inlet fitting
- No screws directly through the pool wall as with conventional vinyl niches
- Designed for quick and easy, one-person installation
- Rubber gasket overmolded on seal ring for reliable sealing
- Built-in current-collecting ring for maximum safety
- Zero wall panel exposure
- Fits standard niche panel
- UL listed

### Ordering Information

	Product	Description	Carton Qty.	Carton Wt. (Lbs.)
<b>PLASTIC NICHE - CONCRETE</b>				
Spa-	79206600	Small PVC niche, concrete <sup>1</sup>	1	2
Pool-	79206700	Large PVC niche, concrete <sup>1</sup>	1	3
<b>PLASTIC NICHE - VINYL</b>				
	620004	QuickNiche <sup>1,2</sup>	1	1
	630043	QuickNiche blue seal ring	1	1
	630044	QuickNiche gray seal ring	1	1
<b>ACCESSORIES</b>				
	670044	Cord Seal Grommet Kit	3	1
	60028300	Listed potting compound	1	0.325

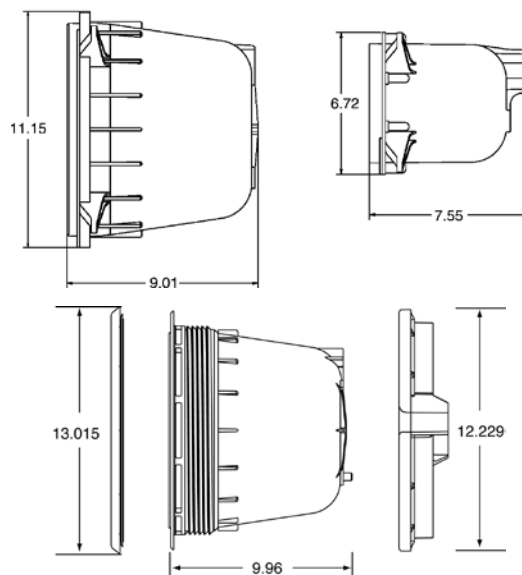
### Dimensions and Certifications



Innovative cord seal grommet accessory  
(p/n 670044)

Notice: Underwriters Laboratories has listed Pentair Water Pool and Spa, Inc. lights for use with Pentair Water Pool and Spa, Pentair Pool Products, American Products, Purex, or PacFab niches ONLY. To ensure proper grounding/bonding connections install only Pentair Water Pool and Spa lights in Pentair, Water Pool and Spa, Pentair Pool Products, American Products, Purex or PacFab niches only.

<sup>1</sup> Plastic niches are only listed for use with 12V lights in Canada.  
<sup>2</sup> Cord seal grommet not available for Quick Niche.



See page 485-486 for replacement parts.

CALIFORNIA PROPOSITION 65 WARNING  
 ⚠️ **WARNING:** Cancer and Reproductive Harm.  
 ⚠️ **AVERTISSEMENT:** Peut Causer le Cancer et des Dommages au Système Reproducteur.  
 ⚠️ **ADVERTENCIA:** Cáncer y Daño Reproductivo.  
 www.p65warnings.ca.gov. P9820114

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# Transformers



# MICROBRITE®

## COLOR AND WHITE LED LIGHT

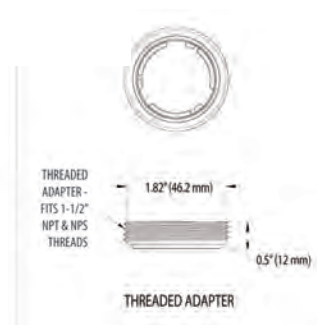
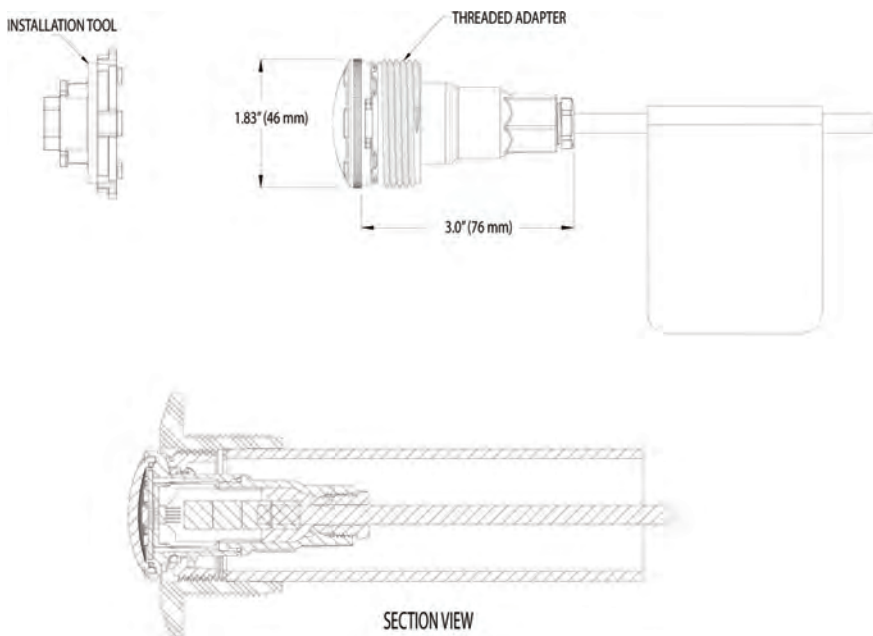
Product	Description	Color	Lights	Cord Length	Voltage
<b>MICROBRITE COMBO KITS WITH 300 WATT TRANSFORMER</b>					
602130	MicroBrite Light Combo Kit	Color LED	Two	100'	12V
602131	MicroBrite Light Combo Kit	White LED	Two	100'	12V
602132	MicroBrite Light Combo Kit	Warm White LED	Two	100'	12V
602133	MicroBrite Light Combo Kit	Color LED	Four	100'	12V
602134	MicroBrite Light Combo Kit	White LED	Four	100'	12V
602135	MicroBrite Light Combo Kit	Warm White LED	Four	100'	12V

Note: A 300W transformer is included in each combo kit. Transformer is 120V input, 12V-14V output.

Product	Description
<b>REPLACEMENT KITS</b>	
620460	MicroBrite Light Adaptor, Replacement
620459	Installation Tool, Replacement. (Hex/Wrench Style)
602158Z	Installation Tool, Replacement (Hand/Grip Style)
620463	Conduit Seal O-Ring, Replacement

Product	Voltage	Wattage
<b>TRANSFORMERS (LANDSCAPE POOL RATED)</b>		
619962	120V Input, 12-14V Output	100W
<b>619963</b>	<b>120V Input, 12-14V Output</b>	<b>300W</b>

### Dimensions and Certifications



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# Rebar





#4 GRADE 60 REBAR

# Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement<sup>1</sup>

This standard is issued under the fixed designation A 615/A 615M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the Department of Defense.*

## 1. Scope\*

1.1 This specification covers deformed and plain carbon steel bars for concrete reinforcement in cut lengths and coils. Steel bars containing alloy additions, such as with the AISI and SAE series of alloy steels, are permitted if the resulting product meets all the other requirements of this specification. The standard sizes and dimensions of deformed bars and their number designations are given in Table 1. The text of this specification references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the specification.

1.2 Bars are of three minimum yield levels: namely, 40 000 [280 MPa], 60 000 [420 MPa], and 75 000 psi [520 MPa], designated as Grade 40 [280], Grade 60 [420], and Grade 75 [520], respectively.

1.3 Hot-rolled plain rounds, in sizes up to and including 2 in. [50.8 mm] in diameter in coils or cut lengths, when specified for dowels, spirals and structural ties or supports shall be furnished under this specification in Grade 40 [280], Grade 60 [420], and Grade 75 [520]. For ductility properties (elongation and bending), test provisions of the nearest smaller nominal diameter deformed bar size shall apply. Requirements providing for deformations and marking shall not be applicable.

NOTE 1—Welding of the material in this specification should be approached with caution since no specific provisions have been included to enhance its weldability. When steel is to be welded, a welding procedure suitable for the chemical composition and intended use or service should be used. The use of the latest edition of ANSI/AWS D 1.4 is recommended. This document describes the proper selection of the filler metals, preheat/interpass temperatures, as well as, performance and procedure qualification requirements.

1.4 This specification is applicable for orders in either inch-pound units (as Specification A 615) or in SI units (as Specification A 615M).

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel, and Related Alloys and is the direct responsibility of Subcommittee A01.05 on Steel Reinforcement.

Current edition approved May 1, 2004. Published May 2004. Originally approved in 1968. Last previous edition approved in 2004 as A 615/A 615M – 04.

1.5 The values stated in either inch-pound units or SI units are to be regarded as standard. Within the text, the SI units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from the two systems may result in nonconformance with the specification.

## 2. Referenced Documents

### 2.1 ASTM Standards:<sup>2</sup>

A 6/A 6M Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling

A 370 Test Methods and Definitions for Mechanical Testing of Steel Products

A 510 Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel

A 510M Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel (Metric)

A 700 Practices for Packaging, Marking, and Loading Methods for Steel Products for Domestic Shipment

A 706/A 706M Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

### 2.2 AWS Standard:

ANSI/AWS D 1.4 Structural Welding Code—Reinforcing Steel<sup>3</sup>

### 2.3 U.S. Military Standards:

MIL-STD-129 Marking for Shipment and Storage<sup>4</sup>

MIL-STD-163 Steel Mill Products Preparation for Shipment and Storage<sup>4</sup>

### 2.4 U.S. Federal Standard:

Fed. Std. No. 123 Marking for Shipment (Civil Agencies)<sup>4</sup>

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> Available from American Welding Society, 550 N.W. LeJeune Road, P.O. Box 351040, Miami, FL 33135.

<sup>4</sup> Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

\*A Summary of Changes section appears at the end of this standard.

**TABLE 1 Deformed Bar Designation Numbers, Nominal Weights [Masses], Nominal Dimensions, and Deformation Requirements**

Bar Designation No. <sup>A</sup>	Nominal Weight, lb/ft [Nominal Mass, kg/m]	Nominal Dimensions <sup>B</sup>			Deformation Requirements, in. [mm]		
		Diameter, in. [mm]	Cross-Sectional Area, in. <sup>2</sup> [mm <sup>2</sup> ]	Perimeter, in. [mm]	Maximum Average Spacing	Minimum Average Height	Maximum Gap (Chord of 12.5 % of Nominal Perimeter)
3 [10]	0.376 [0.560]	0.375 [9.5]	0.11 [71]	1.178 [29.9]	0.262 [6.7]	0.015 [0.38]	0.143 [3.6]
4 [13]	0.668 [0.994]	0.500 [12.7]	0.20 [129]	1.571 [39.9]	0.350 [8.9]	0.020 [0.51]	0.191 [4.9]
5 [16]	1.043 [1.552]	0.625 [15.9]	0.31 [199]	1.963 [49.9]	0.437 [11.1]	0.028 [0.71]	0.239 [6.1]
6 [19]	1.502 [2.235]	0.750 [19.1]	0.44 [284]	2.356 [59.8]	0.525 [13.3]	0.038 [0.97]	0.286 [7.3]
7 [22]	2.044 [3.042]	0.875 [22.2]	0.60 [387]	2.749 [69.8]	0.612 [15.5]	0.044 [1.12]	0.334 [8.5]
8 [25]	2.670 [3.973]	1.000 [25.4]	0.79 [510]	3.142 [79.8]	0.700 [17.8]	0.050 [1.27]	0.383 [9.7]
9 [29]	3.400 [5.060]	1.128 [28.7]	1.00 [645]	3.544 [90.0]	0.790 [20.1]	0.056 [1.42]	0.431 [10.9]
10 [32]	4.303 [6.404]	1.270 [32.3]	1.27 [819]	3.990 [101.3]	0.889 [22.6]	0.064 [1.63]	0.487 [12.4]
11 [36]	5.313 [7.907]	1.410 [35.8]	1.56 [1006]	4.430 [112.5]	0.987 [25.1]	0.071 [1.80]	0.540 [13.7]
14 [43]	7.65 [11.38]	1.693 [43.0]	2.25 [1452]	5.32 [135.1]	1.185 [30.1]	0.085 [2.16]	0.648 [16.5]
18 [57]	13.60 [20.24]	2.257 [57.3]	4.00 [2581]	7.09 [180.1]	1.58 [40.1]	0.102 [2.59]	0.864 [21.9]

<sup>A</sup>Bar numbers are based on the number of eighths of an inch included in the nominal diameter of the bars [bar numbers approximate the number of millimetres of the nominal diameter of the bar].

<sup>B</sup>The nominal dimensions of a deformed bar are equivalent to those of a plain round bar having the same weight [mass] per foot [metre] as the deformed bar.

### 3. Terminology

#### 3.1 Definitions of Terms Specific to This Standard:

3.1.1 *deformed bar, n*—steel bar with protrusions; a bar that is intended for use as reinforcement in reinforced concrete construction.

3.1.1.1 *Discussion*—The surface of the bar is provided with lugs or protrusions that inhibit longitudinal movement of the bar relative to the concrete surrounding the bar in such construction. The lugs or protrusions conform to the provisions of this specification.

3.1.2 *deformations, n*—protrusions on a deformed bar.

3.1.3 *plain bar, n*—steel bar without protrusions.

3.1.4 *rib, n*—longitudinal protrusion on a deformed bar.

### 4. Ordering Information

4.1 It shall be the responsibility of the purchaser to specify all requirements that are necessary for material ordered to this specification. Such requirements shall include but are not limited to the following:

4.1.1 Quantity (weight) [mass],

4.1.2 Name of the material (deformed and plain carbon steel bars for concrete reinforcement),

4.1.3 Size,

4.1.4 Cut lengths or coils,

4.1.5 Deformed or plain,

4.1.6 Grade,

4.1.7 Packaging (see Section 21),

4.1.8 ASTM designation and year of issue, and

4.1.9 Certified mill test reports (if desired). (See Section 16.)

### 5. Material and Manufacture

5.1 The bars shall be rolled from properly identified heats of mold cast or strand cast steel using the electric-furnace, basic-oxygen, or open-hearth process.

### 6. Chemical Composition

6.1 An analysis of each heat of steel shall be made by the manufacturer from test samples taken preferably during the pouring of the heats. The percentages of carbon, manganese,

phosphorus, and sulfur, shall be determined. The phosphorus content thus determined shall not exceed 0.06 %.

6.2 A product check, for phosphorus, made by the purchaser shall not exceed that specified in 6.1 by more than 25 %.

### 7. Requirements for Deformations

7.1 Deformations shall be spaced along the bar at substantially uniform distances. The deformations on opposite sides of the bar shall be similar in size, shape, and pattern.

7.2 The deformations shall be placed with respect to the axis of the bar so that the included angle is not less than 45°. Where the line of deformations forms an included angle with the axis of the bar from 45 to 70° inclusive, the deformations shall alternately reverse in direction on each side, or those on one side shall be reversed in direction from those on the opposite side. Where the line of deformations is over 70°, a reversal in direction shall not be required.

7.3 The average spacing or distance between deformations on each side of the bar shall not exceed seven tenths of the nominal diameter of the bar.

7.4 The overall length of deformations shall be such that the gap (measured as a chord) between the ends of the deformations on opposite sides of the bar shall not exceed 12½ % of the nominal perimeter of the bar. Where the ends terminate in a longitudinal rib, the width of the longitudinal rib shall be considered the gap. Where more than two longitudinal ribs are involved, the total width of all longitudinal ribs shall not exceed 25 % of the nominal perimeter of the bar; furthermore, the summation of gaps shall not exceed 25 % of the nominal perimeter of the bar. The nominal perimeter of the bar shall be 3.1416 times the nominal diameter.

7.5 The spacing, height, and gap of deformations shall conform to the requirements prescribed in Table 1.

### 8. Measurements of Deformations

8.1 The average spacing of deformations shall be determined by measuring the length of a minimum of 10 spaces and dividing that length by the number of spaces included in the measurement. The measurement shall begin from a point on a deformation at the beginning of the first space to a corresponding point on a deformation after the last included space.

Spacing measurements shall not be made over a bar area containing bar marking symbols involving letters or numbers.

8.2 The average height of deformations shall be determined from measurements made on not less than two typical deformations. Determinations shall be based on three measurements per deformation, one at the center of the overall length and the other two at the quarter points of the overall length.

8.3 Insufficient height, insufficient circumferential coverage, or excessive spacing of deformations shall not constitute cause for rejection unless it has been clearly established by determinations on each lot (Note 2) tested that typical deformation height, gap, or spacing do not conform to the minimum requirements prescribed in Section 7. No rejection shall be made on the basis of measurements if fewer than ten adjacent deformations on each side of the bar are measured.

NOTE 2—As used within the intent of 8.3, the term “lot” shall mean all the bars of one bar size and pattern of deformations contained in an individual shipping release or shipping order.

## 9. Tensile Requirements

9.1 The material, as represented by the test specimens, shall conform to the requirements for tensile properties prescribed in Table 2.

9.2 The yield point or yield strength shall be determined by one of the following methods:

9.2.1 The yield point shall be determined by drop of the beam or halt in the gage of the testing machine.

9.2.2 Where the steel tested does not have a well-defined yield point, the yield strength shall be determined by reading the stress corresponding to the prescribed strain using an autographic diagram method or an extensometer as described in Test Methods and Definitions A 370. The strain shall be 0.5 % of gage length for Grade 40 [280] and Grade 60 [420] and shall be 0.35 % of gage length for Grade 75 [520]. When material is furnished in coils, the test sample shall be straightened prior to placing it in the jaws of the tensile machine. Straightening shall be done carefully to avoid formation of local sharp bends and to minimize cold work. Insufficient straightening prior to attaching the extensometer can result in lower-than-actual yield strength readings.

9.3 The percentage of elongation shall be as prescribed in Table 2.

**TABLE 2 Tensile Requirements**

	Grade 40 [280] <sup>A</sup>	Grade 60 [420]	Grade 75 [520] <sup>B</sup>
Tensile strength, min, psi [MPa]	60 000 [420]	90 000 [620]	100 000 [690]
Yield strength, min, psi [MPa]	40 000 [280]	60 000 [420]	75 000 [520]
Elongation in 8 in. [203.2 mm], min, %:			
Bar Designation No.			
3 [10]	11	9	...
4, 5 [13, 16]	12	9	...
6 [19]	12	9	7
7, 8 [22, 25]	...	8	7
9, 10, 11 [29, 32, 36]	...	7	6
14, 18 [43, 57]	...	7	6

<sup>A</sup>Grade 40 [280] bars are furnished only in sizes 3 through 6 [10 through 19].  
<sup>B</sup>Grade 75 [520] bars are furnished only in sizes 6 through 18 [19 through 57].

## 10. Bending Requirements

10.1 The bend-test specimen shall withstand being bent around a pin without cracking on the outside radius of the bent portion. The requirements for degree of bending and sizes of pins are prescribed in Table 3. When material is furnished in coils, the test sample shall be straightened prior to placing it in the bend tester.

10.2 The bend test shall be made on specimens of sufficient length to ensure free bending and with apparatus which provides:

10.2.1 Continuous and uniform application of force throughout the duration of the bending operation.

10.2.2 Unrestricted movement of the specimen at points of contact with the apparatus and bending around a pin free to rotate.

10.2.3 Close wrapping of the specimen around the pin during the bending operation.

10.3 It is permissible to use more severe methods of bend testing, such as placing a specimen across two pins free to rotate and applying the bending force with a fixed pin. When failures occur under more severe methods, retests shall be permitted under the bend-test method prescribed in 10.2.

## 11. Permissible Variation in Weight [Mass]

11.1 Deformed reinforcing bars shall be evaluated on the basis of nominal weight [mass]. The weight [mass] determined using the measured weight [mass] of the test specimen and rounding in accordance with Practice E 29, shall be at least 94 % of the applicable weight [mass] per unit length prescribed in Table 1. In no case shall overweight [excess mass] of any deformed bar be the cause for rejection. Weight [mass] variation for plain rounds shall be computed on the basis of permissible variation in diameter. For plain bars smaller than 3/8 in. [9.5 mm], use Specification A 510 [Specification A 510M]. For larger bars up to and including 2 in. [50.8 mm], use Specification A 6/A 6M.

## 12. Finish

12.1 The bars shall be free of detrimental surface imperfections.

12.2 Rust, seams, surface irregularities, or mill scale shall not be cause for rejection, provided the weight, dimensions, cross-sectional area, and tensile properties of a hand wire brushed test specimen are not less than the requirements of this specification.

12.3 Surface imperfections or flaws other than those specified in 12.2 shall be considered detrimental when specimens containing such imperfections fail to conform to either tensile

**TABLE 3 Bend Test Requirements**

Bar Designation No.	Pin Diameter for Bend Tests <sup>A</sup>		
	Grade 40 [280]	Grade 60 [420]	Grade 75 [520]
3, 4, 5 [10, 13, 16]	3½ d <sup>B</sup>	3½ d	...
6 [19]	5d	5d	5d
7, 8 [22, 25]	...	5d	5d
9, 10, 11 [29, 32, 36]	...	7d	7d
14, 18 [43, 57] (90°)	...	9d	9d

<sup>A</sup>Test bends 180° unless noted otherwise.  
<sup>B</sup>d = nominal diameter of specimen.

or bending requirements. Examples include, but are not limited to, laps, seams, scabs, slivers, cooling or casting cracks, and mill or guide marks.

NOTE 3—Reinforcing bar intended for epoxy coating applications should have surfaces with a minimum of sharp edges to achieve proper cover. Particular attention should be given to bar marks and deformations where coating difficulties are prone to occur.

NOTE 4—Deformed bars destined to be mechanically-spliced or butt-welded may require a certain degree of roundness in order for the splices to adequately achieve strength requirements.

### 13. Number of Tests

13.1 For bar sizes No. 3 to 11 [10 to 36], inclusive, one tension test and one bend test shall be made of the largest size rolled from each heat. If, however, material from one heat differs by three or more designation numbers, one tension and one bend test shall be made from both the highest and lowest designation number of the deformed bars rolled.

13.2 For bar sizes Nos. 14 and 18 [43 and 57], one tension test and one bend test shall be made of each size rolled from each heat.

13.3 For all bar sizes one set of dimensional property tests including bar weight [mass] and spacing, height, and gap of deformations shall be made of each bar size rolled from each heat.

### 14. Retests

14.1 If any tensile property of any tension test specimen is less than that specified, and any part of the fracture is outside the middle third of the gage length, as indicated by scribe scratches marked on the specimen before testing, a retest shall be allowed.

14.2 If the results of an original tension specimen fail to meet the specified minimum requirements and are within 2000 psi [14 MPa] of the required tensile strength, within 1000 psi [7 MPa] of the required yield point, or within two percentage units of the required elongation, a retest shall be permitted on two random specimens for each original tension specimen failure from the lot. Both retest specimens shall meet the requirements of this specification.

14.3 If a bend test fails for reasons other than mechanical reasons or flaws in the specimen as described in 14.5 and 14.6, a retest shall be permitted on two random specimens from the same lot. Both retest specimens shall meet the requirements of this specification. The retest shall be performed on test specimens that are at air temperature but not less than 60°F [16°C].

14.4 If a weight [mass] test fails for reasons other than flaws in the specimen as described in 14.6, a retest shall be permitted on two random specimens from the same lot. Both retest specimens shall meet the requirements of this specification.

14.5 If any test specimen fails because of mechanical reasons such as failure of testing equipment or improper specimen preparation, a replacement specimen shall be permitted.

14.6 If flaws are detected in a test specimen, either before or during the performance of the test, a replacement specimen shall be permitted from the same heat and bar size as the original.

### 15. Test Specimens

15.1 All mechanical tests shall be conducted in accordance with Test Methods and Definitions A 370 including Annex A9.

15.2 Tension test specimens shall be the full section of the bar as rolled. The unit stress determination shall be based on the nominal bar area.

15.3 The bend-test specimens shall be the full section of the bar as rolled.

### 16. Test Reports

16.1 When specified in the purchase order, the following information shall be reported on a per heat basis. Report additional items as requested or desired.

16.1.1 Chemical analysis including carbon, manganese, phosphorus, and sulfur.

16.1.2 Tensile properties.

16.1.3 Bend test.

16.2 A Material Test Report, Certificate of Inspection, or similar document printed from or used in electronic form from an electronic data interchange (EDI) transmission shall be regarded as having the same validity as a counterpart printed in the certifier's facility. The content of the EDI transmitted document must meet the requirements of the invoked ASTM standard(s) and conform to any EDI agreement between the purchaser and the supplier. Notwithstanding the absence of a signature, the organization submitting the EDI transmission is responsible for the content of the report.

NOTE 5—The industry definition invoked here is: EDI is the computer to computer exchange of business information in a standard format such as ANSI ASC X12.

### 17. Inspection

17.1 The inspector representing the purchaser shall have free entry, at all times while work on the contract of the purchaser is being performed, to all parts of the manufacturer's works that concern the manufacture of the material ordered. The manufacturer shall afford the inspector all reasonable facilities to satisfy him that the material is being furnished in accordance with this specification. All tests (except product analysis) and inspection, shall be made at the place of manufacture prior to shipment, unless otherwise specified, and shall be so conducted as not to interfere unnecessarily with the operation of the works.

17.2 *For Government Procurement Only*— Except as otherwise specified in the contract, the contractor is responsible for the performance of all inspection and test requirements specified herein. The contractor shall be permitted to use his own or any other suitable facilities for the performance of the inspection and test requirements specified herein, unless disapproved by the purchaser at the time of purchase. The purchaser shall have the right to perform any of the inspections and tests at the same frequency as set forth in this specification, where such inspections are deemed necessary to ensure that material conforms to prescribed requirements.



**18. Rejection**

18.1 Unless otherwise specified, any rejection based on tests made in accordance with 6.2, shall be reported to the manufacturer within five working days from the receipt of samples by the purchaser.

18.2 Material that shows injurious defects subsequent to its acceptance at the manufacturer’s works will be rejected, and the manufacturer shall be notified.

**19. Rehearing**

19.1 Samples tested in accordance with 6.2 that represent rejected material shall be preserved for two weeks from the date rejection is reported to the manufacturer. In case of dissatisfaction with the results of the tests, the manufacturer shall have the right to make claim for a rehearing within that time.

**20. Marking**

20.1 When loaded for mill shipment, bars shall be properly separated and tagged with the manufacturer’s heat or test identification number.

20.2 Each producer shall identify the symbols of his marking system.

20.3 All bars produced to this specification, except plain round bars which shall be tagged for grade, shall be identified by a distinguishing set of marks legibly rolled onto the surface of one side of the bar to denote in the following order:

20.3.1 *Point of Origin*—Letter or symbol established as the producer’s mill designation.

20.3.2 *Size Designation*—Arabic number corresponding to bar designation number of Table 1.

20.3.3 *Type of Steel*—Letter *S* indicating that the bar was produced to this specification, or for Grade 60 [420] bars only, letters *S* and *W* indicating that the bar was produced to meet both Specifications A 615/A 615M and A 706/A 706M.

20.3.4 *Minimum Yield Designation*—For Grade 60 [420] bars, either the number 60 [4] or a single continuous longitudinal line through at least five spaces offset from the center of the bar side. For Grade 75 [520] bars, either the number 75 [5] or two continuous longitudinal lines through at least five spaces offset each direction from the center of the bar. (No marking designation for Grade 40 [280] bars.)

20.3.5 It shall be permissible to substitute: a metric size bar of Grade 280 for the corresponding inch-pound size bar of Grade 40, a metric size bar of Grade 420 for the corresponding inch-pound size bar of Grade 60, and a metric size bar of Grade 520 for the corresponding inch-pound size bar of Grade 75.

**21. Packaging**

21.1 When specified in the purchase order, packaging shall be in accordance with the procedures in Practices A 700.

21.2 *For Government Procurement Only*— When specified in the contract or order, and for direct procurement by or direct shipment to the U.S. government, material shall be preserved, packaged, and packed in accordance with the requirements of MIL-STD-163. The applicable levels shall be as specified in the contract. Marking for shipment of such material shall be in accordance with Fed. Std. No. 123 for civil agencies and MIL-STD-129 for military agencies.

**22. Keywords**

22.1 concrete reinforcement; deformations (protrusions); steel bars

**SUMMARY OF CHANGES**

Committee A01 has identified the location of the following changes to this standard since A 615/A 615M-04 that may impact the use of this standard. (Approved May 1, 2004)

(1) Added 16.2 and Note 5.

Committee A01 has identified the location of the following changes to this standard since A 615/A 615M-03a that may impact the use of this standard. (Approved Jan. 1, 2004)

(1) Revised the title.  
(2) Revised 1.1, 4.1.2, and 5.1.

(3) Revised 10.3 to eliminate permissive language.



## A 615/A 615M – 04a

Committee A01 has identified the location of the following changes to this standard since A 615/A 615M-03 that may impact the use of this standard. (Approved June 10, 2003).

- |                     |                   |
|---------------------|-------------------|
| (1) Deleted Note 2. | (5) Revised 16.1. |
| (2) Revised 6.2.    | (6) Revised 17.2. |
| (3) Revised 14.5.   | (7) Revised 19.1. |
| (4) Revised 14.6.   |                   |

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# Piping in Mechanical Room

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## PVC Industrial Pipe: Schedule 40

### Application:

Corrosion resistant pressure pipe, IPS sizes 1/8" through 24", for use at temperatures up to and including 140° F. Pressure rating (120 psi to 810 psi) varies with schedule, pipe size, and temperature as stated in Georg Fischer Harvel LLC engineering bulletin (Product Bulletin 112/401). Pipe is also suitable for PVC plastic drain, waste, and vent (DWV) applications. Generally resistant to most acids, bases, salts, aliphatic solutions, oxidants, and halogens. Chemical resistance data is available and should be referenced for proper material selection. Pipe exhibits excellent physical properties and flammability characteristics (independently tested flame and smoke characteristics-ULC). Typical applications include: chemical processing, plating, high purity applications, potable water systems, water and wastewater treatment, drainage, irrigation, agricultural, and other applications involving corrosive fluid transfer.

### Scope:

This specification outlines minimum manufacturing requirements for Polyvinyl Chloride (PVC) Schedule 40 iron pipe size (IPS) pressure pipe. This pipe is intended for use in applications where the fluid conveyed does not exceed 140° F. This pipe meets and or exceeds the industry standards and requirements as set forth by the American Society for Testing and Materials (ASTM D1785 & D2665) and the National Sanitation Foundation (NSF International STD 61 & Std 14).

### PVC Materials:

The material used in the manufacture of the pipe shall be domestically produced rigid polyvinyl chloride (PVC) compound, Type I Grade I, with a Cell Classification of 12454 as defined in ASTM D1784, trade name designation H707 PVC. This compound shall be white or gray in color as specified, and shall be approved by NSF International for use with potable water (NSF Std 61).

### Dimensions:

All sizes of PVC Schedule 40 pipe shall be manufactured in strict accordance to the requirements of ASTM D1785 for physical dimensions and tolerances. PVC Sch 40 pipe sizes 1-1/4" through 24" diameters shall also meet the requirements of ASTM D2665 Standard Specification for PVC plastic drain, waste and vent (DWV) pipe and shall be dual marked as such. Each production run of pipe manufactured in compliance to the standard, shall also meet or exceed the test requirements for materials, workmanship, burst pressure, flattening, and extrusion quality defined in ASTM D1785 and ASTM D2665 as applicable. All belled-end pipe shall have tapered sockets to create an interference-type fit, which meet or exceed the dimensional requirements and the minimum socket length for pressure-type sockets as defined in ASTM D2672. All PVC Schedule 40 pipe must also meet the requirements of NSF Standard 14 and CSA Standard B137.3 rigid PVC pipe for pressure applications, and shall bear the mark of these Listing agencies. This pipe shall have a flame spread rating of 0-25 when tested for surface burning characteristics in accordance with CAN/ULC-S102-2-M88 or equivalent.

### Marking:

Product marking shall meet the requirements of ASTM D1785 and ASTM D2665 as applicable and shall include: the manufacturer's name (or the manufacturer's trademark when privately labeled); the nominal pipe size; the material designation code; the pipe schedule and pressure rating in psi for water @ 73° F; the ASTM designation D1785; the ASTM designation D2665 (when dual marked); the independent laboratory's seal of approval for potable water usage; and the date and time of manufacture.

### Sample Specification:

All PVC Schedule 40 pipe shall be manufactured from a Type I, Grade I Polyvinyl Chloride (PVC) compound with a Cell Classification of 12454 per ASTM D1784. The pipe shall be manufactured in strict compliance to ASTM D1785 and D2665 (where applicable), consistently meeting and/or exceeding the Quality Assurance test requirements of these standards with regard to material, workmanship, burst pressure, flattening, and extrusion quality. The pipe shall be manufactured in the USA, using domestic materials, by an ISO 9001 certified manufacturer. Standard lengths of pipe sizes 6" and larger shall be beveled each end by the pipe manufacturer. All pipe shall be stored indoors after production at the manufacturing site until shipped from factory. This pipe shall carry the National Sanitation Foundation (NSF) seal of approval for potable water applications. All pipe shall be manufactured by Georg Fischer Harvel LLC.



## PVC Industrial Pipe: Schedule 40

### Schedule 40 Dimensions

Nom. Pipe Size (in.)	O.D.	Average I.D.	Min. Wall	Nom. Wt./Ft.	Max. W.P.
1/8	0.405	0.249	0.068	0.051	810
1/4	0.540	0.344	0.088	0.086	780
3/8	0.675	0.473	0.091	0.115	620
1/2	0.840	0.602	0.109	0.170	600
3/4	1.050	0.804	0.113	0.226	480
1	1.315	1.029	0.133	0.333	450
* 1-1/4	1.660	1.360	0.140	0.450	370
* 1-1/2	1.900	1.590	0.145	0.537	330
* 2	2.375	2.047	0.154	0.720	280
* 2-1/2	2.875	2.445	0.203	1.136	300
* 3	3.500	3.042	0.216	1.488	260
* 3-1/2	4.000	3.521	0.226	1.789	240
* 4	4.500	3.998	0.237	2.118	220
* 5	5.563	5.016	0.258	2.874	190
* 6	6.625	6.031	0.280	3.733	180
* 8	8.625	7.942	0.322	5.619	160
* 10	10.750	9.976	0.365	7.966	140
* 12	12.750	11.889	0.406	10.534	130
* 14	14.000	13.073	0.437	12.462	130
* 16	16.000	14.940	0.500	16.286	130
* 18	18.000	16.809	0.562	20.587	130
* 20	20.000	18.743	0.593	24.183	120
* 24	24.000	22.544	0.687	33.652	120

\* Denotes these sizes are dual marked as being in compliance with both ASTM D1785 (pressure pipe) and ASTM D2665 (drain, waste & vent pipe- DWV).

The pressure ratings given are for water, non-shock, @ 73 °F. The following temperature de-rating factors are to be applied to the working pressure ratings (WP) listed when operating at elevated temperatures.

Multiply the working pressure rating of the selected pipe at 73 °F, by the appropriate de-rating factor to determine the maximum working pressure rating of the pipe at the elevated temperature chosen.

EX:  
10" PVC SCH 40 @ 120 °F = ?  
140 psi x 0.40 = 56 psi max.  
@ 120 °F

De-Rating Factor	
Operating Temp (°F)	De-Rating Factor
73	1.00
80	0.88
90	0.75
100	0.62
110	0.51
120	0.40
130	0.31
140	0.22

THE MAXIMUM SERVICE TEMPERATURE FOR PVC IS 140 °F.

Solvent-cemented joints should be utilized when working at or near maximum temperatures. GF Harvel does not recommend the use of PVC for threaded connections at temperatures above 110 °F; use flanged joints, unions, or roll grooved couplings where disassembly is necessary at elevated temperatures.

Threading of Schedule 40 PVC pipe is not a recommended practice due to insufficient wall thickness. Thread only Schedule 80 or heavier walls. *Threading requires a 50% reduction in pressure rating stated for plain end pipe @ 73 °F.*

Chemical resistance data should be referenced for proper material selection and possible de-rating when working with fluids other than water. Refer to GF Harvel 112/401 Product Bulletin for chemical resistance, installation data, and additional information.

#### ASTM STANDARD D1784 MATERIAL EQUIVALENTS:

Cell Classification 12454 = PVC Type I Grade I = PVC1120

Pipe sizes shown are manufactured in strict compliance with ASTM D1785 and ASTM D2665 where applicable.

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# Piping From Mechanical Room To Pool & Spas

## PVC Industrial Pipe: **Schedule 80**

### Application:

Corrosion resistant pressure pipe, IPS sizes 1/8" through 24", for use at temperatures up to and including 140° F. Pressure rating (210 psi to 1230 psi) varies with schedule, pipe size, and temperature as stated in Georg Fischer Harvel LLC engineering bulletin (Product Bulletin 112/401). Generally resistant to most acids, bases, salts, aliphatic solutions, oxidants, and halogens. Chemical resistance data is available and should be referenced for proper material selection. Pipe exhibits excellent physical properties and flammability characteristics (independently tested flame and smoke characteristics-ULC). Typical applications include: chemical processing, plating, high purity applications, potable water systems, water and wastewater treatment, irrigation, agricultural, and other industrial applications involving corrosive fluid transfer.

### Scope:

This specification outlines minimum manufacturing requirements for Polyvinyl Chloride (PVC) Schedule 80 iron pipe size (IPS) pressure pipe. This pipe is intended for use in applications where the fluid conveyed does not exceed 140° F. This pipe meets and or exceeds the industry standards and requirements as set forth by the American Society for Testing and Materials (ASTM) and the National Sanitation Foundation (NSF International).

### PVC Materials:

The material used in the manufacture of the pipe shall be domestically produced rigid polyvinyl chloride (PVC) compound, Type I Grade I, with a Cell Classification of 12454 as defined in ASTM D1784, trade name designation H707 PVC. This compound shall be gray in color as specified, and shall be approved by NSF International for use with potable water (NSF Std 61).

### Dimensions:

PVC Schedule 80 pipe shall be manufactured in strict accordance to the requirements of ASTM D1785 for physical dimensions and tolerances. Each production run of pipe manufactured in compliance to this standard, shall also meet or exceed the test requirements for materials, workmanship, burst pressure, flattening, and extrusion quality defined in ASTM D1785. All belled-end pipe shall have tapered sockets to create an interference-type fit, which meet or exceed the dimensional requirements and the minimum socket length for pressure-type sockets as defined in ASTM D2672. All PVC Schedule 80 pipe must also meet the requirements of NSF Standard 14 and CSA Standard B137.3 rigid PVC pipe for pressure applications, and shall bear the mark of these Listing agencies. This pipe shall have a flame spread rating of 0-25 when tested for surface burning characteristics in accordance with CAN/ULC-S102-2-M88 or equivalent.

### Marking:

Product marking shall meet the requirements of ASTM D1785 and shall include: the manufacturer's name (or the manufacturer's trademark when privately labeled); the nominal pipe size; the material designation code; the pipe schedule and pressure rating in psi for water @ 73° F; the ASTM designation D1785; the independent laboratory's seal of approval for potable water usage; and the date and time of manufacture.

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### Sample Specification:

All PVC Schedule 80 pipe shall be manufactured from a Type I, Grade I Polyvinyl Chloride (PVC) compound with a Cell Classification of 12454 per ASTM D1784. The pipe shall be manufactured in strict compliance to ASTM D1785, consistently meeting and/or exceeding the Quality Assurance test requirements of this standard with regard to material, workmanship, burst pressure, flattening, and extrusion quality. The pipe shall be manufactured in the USA, using domestic materials, by an ISO 9001 certified manufacturer. Standard lengths of pipe sizes 6" and larger shall be beveled each end by the pipe manufacturer. All pipe shall be stored indoors after production at the manufacturing site until shipped from factory. This pipe shall carry the National Sanitation Foundation (NSF) seal of approval for potable water applications. All pipe shall be manufactured by Georg Fischer Harvel LLC.



## PVC Industrial Pipe: Schedule 80

### Schedule 80 Dimensions

Nom. Pipe Size (in.)	O.D.	Average I.D.	Min. Wall	Nom. Wt./Ft.	Max. W.P.
1/8	0.405	0.195	0.095	0.063	1230
1/4	0.540	0.282	0.119	0.105	1130
3/8	0.675	0.403	0.126	0.146	920
1/2	0.840	0.526	0.147	0.213	850
3/4	1.050	0.722	0.154	0.289	690
1	1.315	0.936	0.179	0.424	630
1-1/4	1.660	1.255	0.191	0.586	520
1-1/2	1.900	1.476	0.200	0.711	470
2	2.375	1.913	0.218	0.984	400
2-1/2	2.875	2.290	0.276	1.500	420
3	3.500	2.864	0.300	2.010	370
3-1/2	4.000	3.326	0.318	2.452	350
4	4.500	3.786	0.337	2.938	320
5	5.563	4.768	0.375	4.078	290
6	6.625	5.709	0.432	5.610	280
8	8.625	7.565	0.500	8.522	250
10	10.750	9.493	0.593	12.635	230
12	12.750	11.294	0.687	17.384	230
14	14.000	12.410	0.750	20.852	220
16	16.000	14.213	0.843	26.810	220
18	18.000	16.014	0.937	33.544	220
20	20.000	17.814	1.031	41.047	220
24	24.000	21.418	1.218	58.233	210

The pressure ratings given are for water, non-shock, @ 73 °F. The following temperature de-rating factors are to be applied to the working pressure ratings (WP) listed when operating at elevated temperatures.

Multiply the working pressure rating of the selected pipe at 73 °F, by the appropriate de-rating factor to determine the maximum working pressure rating of the pipe at the elevated temperature chosen.

EX:  
 10" PVC SCH 80 @ 120 °F = ?  
 230 psi x 0.40 = 92 psi max.  
 @ 120 °F

De-Rating Factor	
Operating Temp (°F)	De-Rating Factor
73	1.00
80	0.88
90	0.75
100	0.62
110	0.51
120	0.40
130	0.31
140	0.22

THE MAXIMUM SERVICE TEMPERATURE FOR PVC IS 140 °F.

Solvent-cemented joints should be utilized when working at or near maximum temperatures. GF Harvel does not recommend the use of PVC for threaded connections at temperatures above 110 °F; use flanged joints, unions, or roll grooved couplings where disassembly is necessary at elevated temperatures.

Thread only Schedule 80 or heavier walls. *Threading requires a 50% reduction in pressure rating stated for plain end pipe @73 °F.* Threading of Schedule 40 PVC pipe is not a recommended practice due to insufficient wall thickness.

Chemical resistance data should be referenced for proper material selection and possible de-rating when working with fluids other than water. Refer to GF Harvel 112/401 Product Bulletin for chemical resistance, installation data, and additional information.

#### ASTM STANDARD D1784 MATERIAL EQUIVALENTS:

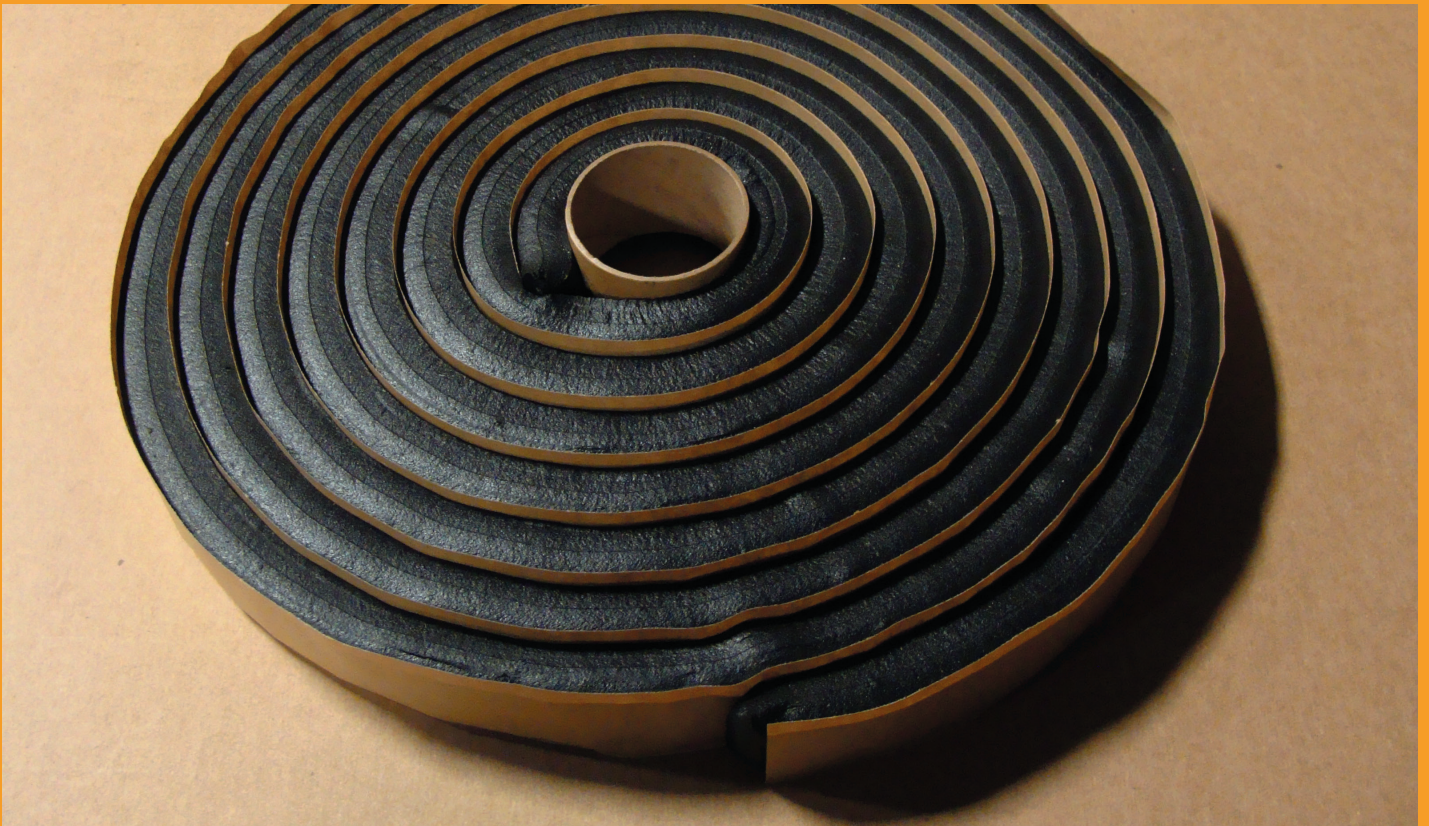
Cell Classification 12454 = PVC Type I Grade I = PVC1120

Pipe sizes shown are manufactured in strict compliance with ASTM D1785.

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# Piping Water Stop

The background of the page is a blue gradient with a series of concentric, glowing white and light blue ripples that resemble a drop of water hitting a surface. The ripples are centered in the lower half of the page and expand outwards towards the edges.



# WATERPROOFING

## Sika<sup>®</sup> Swellstop<sup>™</sup> & Sika<sup>®</sup> Lockstop<sup>™</sup>

STRIP-APPLIED WATERSTOPS FOR NON-MOVING JOINTS

# Sika® Swellstop™

Hydrophilic controlled expansion waterstop for non-moving joints

**Sika® Swellstop™ IS A HIGHLY VERSATILE, STRIP-APPLIED WATERSTOP FOR NON-MOVING CONCRETE JOINTS. FORMULATED TO ENCAPSULATE HYDROPHILIC MATERIALS INTO A RUBBER BASE, Swellstop™ CREATES A CONTROLLED, MOISTURE-ACTIVATED, COMPRESSION SEAL.**

Sika® Swellstop™'s structural integrity conforms well to the underlying substrate and exhibits self-healing properties when needed. Unlike many traditional clay-based products, Sika® Swellstop™ will not expand to a point at which the waterstop itself is destroyed. Field experience has proven that products, which continually expand, lose much of their structural integrity and can actually erode when subjected to a constant flow of water. Furthermore, the controlled expansion properties engineered into Sika® Swellstop™, reduce the internal pressures created in cast-in-place applications, which can cause spalling in foundations and wall structures.

Sika® Swellstop™ is ideal for a variety of non-moving joint applications, including:

- Retaining walls
- Box culverts
- Penetrations
- Concrete pipes
- Vaults
- Slabs

#### KEY ADVANTAGES

- Simple, low-cost installation
- Create watertight bond
- Require no split forming
- Multiple sizes for numerous applications
- Internationally accepted



#### PHYSICAL PROPERTIES

Description	Value
Color	Black
Specific gravity (ASTM D71)	1.60 ± 5%
Volatile matter ASTM D6	1% maximum
Penetration, cone at 77°F 15 gm; 5 sec. ASTM D217	40 ± 5%
Application temperature	10°F - 125°F
Service temperature	-30°F - 180°F

#### AVAILABLE SIZES



■ **Sika® Swellstop™:**  
3/4" X 1  
16'8" rolls x 6 rolls/  
carton = 100 ft./carton



■ **Sika® Swellstop™ II:**  
3/8" X 3/4"  
25' rolls x 6 rolls/carton  
= 150 ft./carton



■ **Sika® Swellstop™ SC**  
1/2" x 3/4" x 1-1/4"  
20' roll x 6 rolls/carton  
= 120 ft./carton

# Sika® Lockstop™

Mastic waterstop for construction joints

Sika® Lockstop™ IS A STRIP-APPLIED MASTIC WATERSTOP FOR NON-MOVING CONCRETE JOINTS. WHEN PROPERLY INSTALLED USING Sika® Lockstop™ PRIMER ADHESIVE, Sika® Lockstop™ CREATES A WATERTIGHT SEAL BETWEEN CONCRETE SURFACES. Sika® Lockstop™ DOES NOT SWELL OR CREATE ANY INTERNAL JOINT PRESSURES AND REQUIRES MINIMAL CONCRETE COVERAGE.



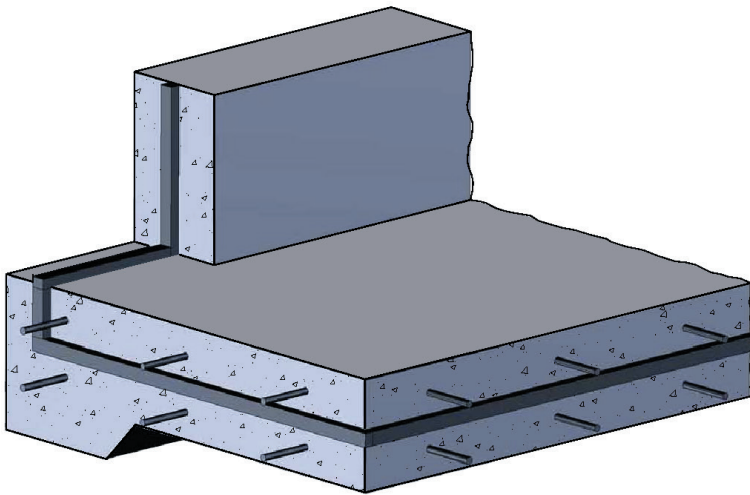
## AVAILABLE SIZES



■ Sika® Lockstop™: 3/4" x 1" | 16'-8" roll  
6 rolls/carton | 100'/carton

## KEY ADVANTAGES

- Watertight bond
- No split forming
- Easy to install
- Economical



Sika® Lockstop™ conforms well to the underlying substrate and exhibits self-healing properties. Unlike hydrophilic waterstop products, Sika® Lockstop™ will not expand when subjected to moisture and can be installed in nearly all weather conditions and temperatures.

Sika® Lockstop™ is ideal for a variety of non-moving joint applications, including:

- Retaining walls
- Box culverts
- Penetrations
- Concrete pipes
- Vaults
- Slabs

## PHYSICAL PROPERTIES

Description	ASTM test	Required limits	Typical values
Specific gravity	D71	1.15 - 1.50	1.22 - 1.30
Flash point	D92	350°F min.	450°F
Fire point	D92	375°F min.	475°F
Ash inert materials	D482	25% min.	35%
Volatile material	D6	3% min.	1.20%

# PRIMERS AND COMPLEMENTARY PRODUCTS

## AVAILABLE REQUIRED PRIMERS



### Swellstop™ Solvent-based primer

- Packaging: 1 gal. and 1 qt. cans
- Yield: ~700-800 ft./gal.



### Swellstop™ Water-based primer

- Packaging: 1 gal.
- Yield: 2400 ft./gal.

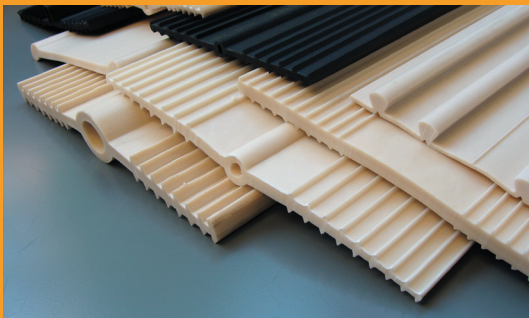


### Lockstop™ Solvent-based primer

- Packaging: 1 gal.
- Yield: ~700-800 ft./gal.

Complete Installation Guidelines and CSI Format, Three Part Specifications are available in print or online.

Please consult a Sika® Greenstreak® Engineer for further information.



If your project involves working joints please consult Sika® Greenstreak® about one of our available PVC waterstops.

The sale of all Sika products are subject to the following Limited Warranty:

#### LIMITED MATERIAL WARRANTY

Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor.

**NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.**

Our most current General Sales Conditions shall apply. Please consult the Product Data Sheets prior to any use and processing.

#### SIKA CORPORATION

Sika Greenstreak Sales and Technical Support Office  
3400 Tree Court Industrial Blvd.  
Saint Louis, MO 63122  
Phone: +800 325 9504

#### SIKA CORPORATION

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Lyndhurst, NJ 07071  
Phone: +201 933 8800  
usa.sika.com

Greenstreak

BUILDING TRUST



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# Shotcrete





### SHOTCRETE MIX

#### MATERIALS:

CEMENT	:A.S.T.M.	C-150 TYPE 1
FLYASH	:A.S.T.M.	C-618
FINE AGGREGATE	:A.S.T.M.	C-33 NATURAL SAND
COARSE AGGREGATE	:A.S.T.M.	C-33 #8 GRAVEL
ADMIXTURE	:A.S.T.M.	C-494 TYPE A
ADMIXTURE	:A.S.T.M.	C-260 A.E.A.

#### QUANTITIES OF MATERIALS PER CUBIC YARD OF CONCRETE (SSD)

MIX DESIGN NUMBER :9208  
4000 psi @28 days

CEMENT	(lbs.)	:705
FLYASH	(lbs.)	:150
FINE AGGREGATE	(lbs.) Sand	:2100
COARSE AGGREGATE	(lbs.) Peagravel	:650
ADMIXTURE C-494 TYPE A	(oz.)	:21.2
ADMIXTURE C-260	(oz.)	:4.3
POTABLE WATER	(gal.)	:37.0
W/C RATIO		:0.36
SPECIFIED SLUMP RANGE		:2" Max
SPECIFIED AIR CONTENT		:10%

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# Pool & Spa Filter

The background of the page is a close-up photograph of blue water with concentric ripples emanating from a central point, creating a sense of depth and movement. The ripples are most prominent in the lower half of the image, fading into a lighter blue at the top.

# TRITON® C AND TRITON C-3

## HIGH CAPACITY FIBERGLASS SIDE MOUNT SAND FILTER WITHOUT VALVES

### TRADEGRADE



TR 140C-3

TR 100 C

This filter series features multiple diverters for increased filtration rates in commercial applications up to 20 GPM/sq. ft.

### Featured Highlights

- Maximum Operating Pressure 50 psi
- Full 2 in. Drain
- 8 in. opening for easy access to sand bed
- The Triton C-3 features standard 3 in. flange connections
- TR 100C-3 & TR 140C-3 models are available in black only

**CALIFORNIA PROPOSITION 65 WARNING**

⚠ **WARNING:** Cancer and Reproductive Harm.  
 ⚠ **AVERTISSEMENT:** Peut Causer le Cancer et des Dommages au Système Reproducteur.  
 ⚠ **ADVERTENCIA:** Cáncer y Daño Reproductivo.  
[www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)

### Ordering Information

Product	Model	Effective Filtration Area (Sq. Ft.)	Flow Rate	Turnover Capacity (In Gal.) <sup>2</sup>			Filter Media		All Sand Req'd (Lbs.)	Ctn Qty.	Ctn Wt. (Lbs.)
				6 Hour	8 Hour	10 Hour	Pea Gravel Req'd (Lbs.)	Sand Req'd (Lbs.)			
<b>TRITON C SAND FILTERS</b>											
140315	TR 100C- Almond	4.91	98	35,280	47,040	58,800	150	450	600	1	70
140316	TR 140C- Almond	7.06	141	50,760	67,680	84,600	275	650	925	1	82
<b>TRITON C-3 SAND FILTERS</b>											
140310	TR 100C-3-Black only	4.91	98	35,280	47,040	58,800	150	450	600	1	65
140342	TR 140C-3-Black only	7.06	141	50,760	67,680	84,600	275	650	925	1	82
<b>TRITON C VALVE OPTIONS<sup>1</sup></b>											
261050	2 in. HiFlow w/ plumbing, for sand filters									1	11
261055	2 in. MPV, for sand filters (SM 20-3)									1	10
263080	FullFloXF Valve for Sand, inlet port on top, Pentair 2 in. unions glued on XF Valve										

<sup>1</sup> Valves must be purchased separately.

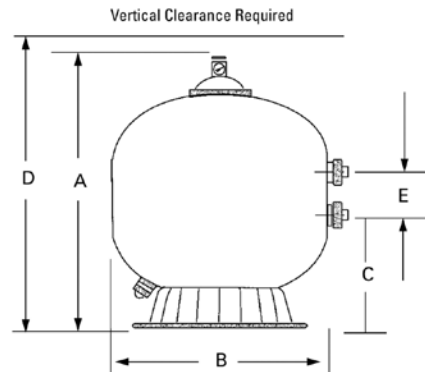
<sup>2</sup> Based on 20 gpm per sq. ft. Tanks are NSF/ANSI 50 certified for 5–20 gpm/sq.ft.

### Dimensions and Performance

**Certified to NSF/ANSI Standard 50**

**DIMENSION TABLE**

MODEL	A. DIM.	B. DIM.	C. DIM.	D DIM.	E DIM.
TR 100 C	39¾ in.	30-½ in.	16-½ in.	43¾ in.	7-½ in.
TR 140 C	45-¾ in.	36-½ in.	18¾ in.	49¾ in.	7-½ in.
TR 100 C-3	39¾ in.	30-½ in.	16-1/16 in.	43¾ in.	7.72 in.
TR 140 C-3	45-¾ in.	36-½ in.	18-½ in.	49¾ in.	7.72 in.



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# Valves



# PRE-PLUMBED VALVES

## BACKWASH VALVES FOR 1-1/2 & 2 IN. D.E. AND SAND FILTERS

Side mounted HiFlow™ and Multiport Valves are designed for maximum performance and working pressures. Available in 1-1/2 and 2 in. threaded or slip models.

### CALIFORNIA PROPOSITION 65 WARNING

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 ⚠ **ADVERTENCIA:** Cáncer y Daño Reproductivo.  
[www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)

### Featured Highlights

- PVC body
- The right valve for easy operation
- Six-position, positive-lock operation
- Special winterizing position

### Ordering Information

Product	Description	Carton Qty.	Carton Wt. (Lbs.)
<b>MULTIPOINT VALVE KIT FOR FILTERS, SLIP</b>			
261055	2 in. MPV, for Triton & Quad D.E. filters [SM 20-3] 7-1/2 in. Centerline	1	10
261152	2 in. MPV, for FNS, FNS Plus & NSP filters [SM 20-2] 7-1/2 in. Centerline	1	10
261173	1-1/2 in. MPV, for Triton & Quad D.E. filters [SM 10-3] 7-1/2 in. Centerline	1	6
261177	1-1/2 in. MPV, for FNS, FNS Plus & NSP filters [SM 10-2] 7-1/2 in. Centerline	1	7
<b>HIFLOW VALVE KIT FOR FILTERS, SLIP</b>			
261050	2 in., w/ bulkhead fittings, for Triton & Quad D.E. filters, 7-1/2 in. Centerline	1	11
261142	2 in., w/ bulkhead fittings, for FNS, FNS Plus & NSP filters, 7-1/2 in. Centerline	1	11
<b>PVC SLIDE VALVE, SLIP</b>			
263064	Push Pull Valve, 7-1/2 in. Center, PVC, Almond	1	4.5
263079	2 in. w/o bulkhead fittings for D.E. and sand filters, 7-1/2 in. Centerline	1	3
<b>FULLFLOXF BACKWASH VALVES</b>			
262507	Sta-Rite version for System 3 Mod D.E., inlet on top, with Sta-Rite offset adapters glued on	1	11
262508	Sta-Rite version for System 3 D.E. and Sand, inlet on bottom, with Sta-Rite offset adapters glued on	1	10
262509	Valve with filter inlet port on top, no fittings, only valve	1	10
262511	Valve with filter inlet port on bottom, no fittings, only valve	1	10
263080	Valve for Sand and Quad D.E., inlet port on top, Pentair 2 in. unions glued on	1	12
263081	Valve for D.E., inlet port on bottom, Pentair 2 in. unions glued on	1	12



HiFlow Valve Kit  
261050



PVC Slide Valve  
Kit  
263064



Multiport Valve Kit  
261055



eco select™ FullFloXF®  
Backwash  
Valve Kit  
263080

# Pool & Spa Chemical Controllers

# INTELLICHEM® CHEMICAL CONTROLLER

## TRADEGRADE



IntelliChem Chemical Controller



Chemical Tanks with on board pumps

IntelliChem Chemical Controller can work independently or in conjunction with other Pentair automation products. It's built-in Langelier Saturation Index calculator lets pool owners know when the water is in or out of balance. IntelliChem Chemical Controller uses the same technology found in commercial installations, water parks, hotel and community pools.

### Featured Highlights

- Auto Setup/Configuration wizard makes start-up quick and easy
- Programmable chemical feed cycle and mix times for precise water balance
- Aids in better water conditions by minimizing excess chemical addition
- Built-in Langelier Saturation Index calculator lets you know when your water chemistry is in or out of balance
- Reduces chemical costs by adding chemicals with precision
- Flow sensor ensures chemicals won't feed without system flow
- Password-protected access prevents tampering or accidental program change
- Seamless interface with IntelliTouch®, EasyTouch®, SunTouch® Automation Systems and ScreenLogic2® Interface for chemical management
- Compatible with IntelliChlor® Salt Chlorine Generators, external dosing pumps, and CO<sub>2</sub> systems

#### CALIFORNIA PROPOSITION 65 WARNING

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[www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)

## Ordering Information

Product	Description	Application
<b>INTELLICHEM CHEMICAL CONTROLLER</b>		
521357	Controller Only	For systems using external feed pumps, IntelliChlor, or CO <sub>2</sub> . Containers ordered separately. The 521357 Controller is NSF certified.
522621	Controller and Acid Tank with Tank Mounted Pump <sup>1,2</sup>	For systems requiring a tank and pump for feeding liquid acid
522622	Controller and Acid and Chlorine Tanks with Tank Mounted Pumps <sup>1,2</sup>	For systems requiring tanks and pumps for feeding liquid acid and chlorine
<b>INTELLICHEM CHEMICAL CONTROLLER ACCESSORIES</b>		
522472	Acid Tank with Tank Mounted Pump <sup>1,2</sup>	Convenient and innovative container for storing and feeding liquid acid. No external pump required.
522473	Chlorine Tank with Tank Mounted Pump <sup>1,2</sup>	Convenient and innovative container for storing and feeding liquid chlorine. No external pump required
521378	Acid Container <sup>1</sup> without pump	Convenient and innovative container for storing muriatic acid (must provide separate external pump or can be upgraded with the new pump on tank PN 522474)
521397	Chlorine Container without pump	Convenient and innovative container for storing chlorine (must provide separate external pump or can be upgraded with the new pump on tank PN 522474)
522480	Stenner Blue Pump on Tank Tube <sup>2</sup> Replacement (2/pk)	Replacement tubes for blue tank mounted pump
522474	Upgrade Kit for IntelliChem Container	Upgrade older non-pump containers (521378 & 521397) with the new tank mounted pump
522478Z	Upgrade Kit for IntelliChem Controller	Upgrade controller only systems to use the new tank mounted pumps
714000070	CO <sub>2</sub> Kit w/Diffuser, Solenoid, Regulator	For systems using CO <sub>2</sub> to lower pH levels.
521622	IntelliChem Winterizing Kit	Includes protective end caps and solution for storing pH and ORP probes in freezing climates
521498	IntelliChem Flash Programming Kit	Upgrade IntelliChem Chemical Controllers to the latest firmware for added functionality and improved performance

<sup>1</sup> Pentair always recommends 1:1 dilution when using full strength muriatic acid. When mixing, remember to always add acid to water.

<sup>2</sup> Pentair recommends replacing peristaltic pump tubes every 6 months.  
 Note: Always try to position container off the equipment pad (if possible).



See page 559–560 for replacement parts.

\*"Sanitizer" is an industry term of art and is not intended to imply any antimicrobial capabilities.

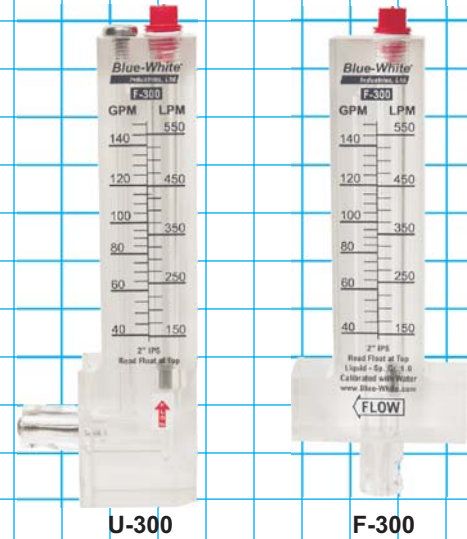
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# Pool & Spa Flow Meters



# F-300 U-300 D-300

**Clamp-on Insertion Mount**  
**Dual GPM / LPM scale**



## Features:

- Dual GPM/LPM scale printed on both sides of the meter.
- 1" through 8" pipe sizes.
- Flow rates from 2 to 1900 GPM (8 to 7200 LPM).
- Corrosion resistant 316SS or Teflon internal float materials.
- One piece machined acrylic body.
- Mounts to existing pipe. No unions or adapters required.
- Models for mounting on horizontal or vertical pipe.
- Mounting clamps and gasket included.

## Specifications:

**Pipe Requirements:** ..... IPS inch pipe size (ASTM-D-1785)  
**Max. Psi (bar):** ..... 150 PSI (10.3 bar) @ 70° F (21° C)  
**Max. fluid temp.:** ..... 190° F (88° C) @ 0 PSI  
**Max. ambient temp.:** ..... 14° to 110° F / -10° to 43° C  
*Note: Temperature & Pressure ratings of meter only. Actual pipe rating may vary.*

**Full scale accuracy:** ..... +/- 10%  
**Power requirement:** ..... No power required  
**Enclosure:** ..... NEMA 4X (IP56)  
**Approximate shipping wt:** ... 1"-4" units: 1 lb. (.45 kg)  
 6"-8" units: 2 lb. (.91 kg)

## Materials of Construction:

**Meter Body:** ..... Cast Acrylic  
**Float:** ..... Standard range models = 316SS  
 Low range models = Teflon  
**Gasket:** ..... Neoprene  
**Pipe Clamp:** ..... 300 series Stainless Steel  
**Pitot screw:** ..... 1" thru 2" models only. 300 series stainless Steel

## Installation Requirements:

### Minimum Straight Pipe Length Requirements

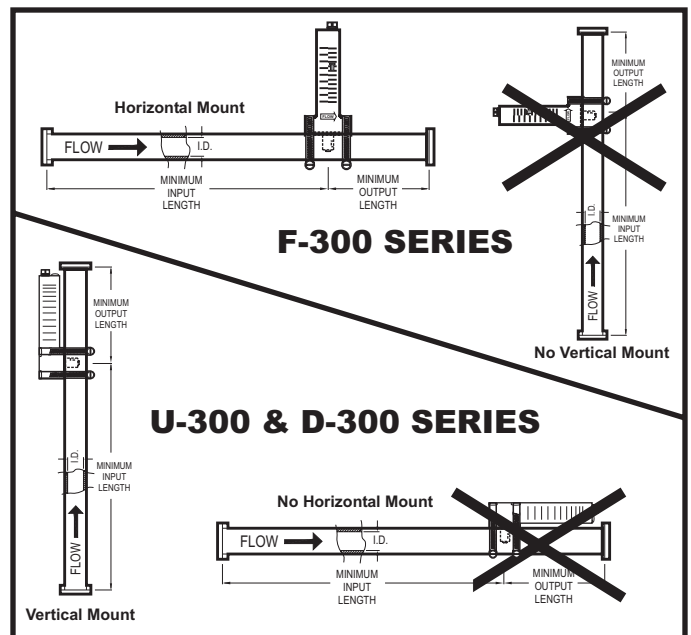
The meter's accuracy is affected by disturbances such as pumps, elbows, tees, valves, etc., in the flow stream. Install the meter in a straight run of pipe **as far as possible** from any disturbances. The distance required for accuracy is 10 times the nominal pipe diameter before the meter and 4 times the nominal pipe diameter after the meter.

#### Example of Minimum Straight Pipe Length Requirements

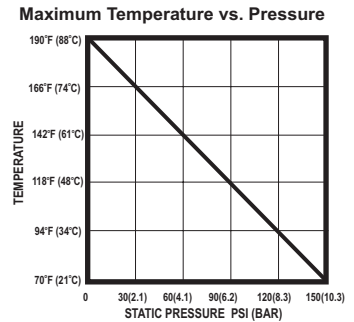
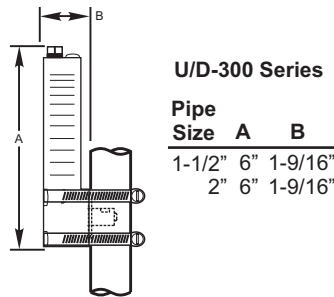
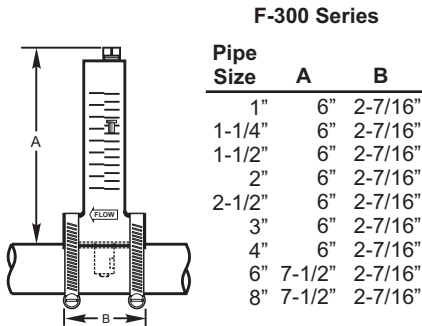
Nominal Pipe Diameter	Minimum Inlet Pipe Length	Minimum Outlet Pipe Length
3 inch	30 inch (10 X 3")	12 inch (4 X 3")
1-1/2 inch	15 inch (10 x 1.5")	6 inch (4 x 1.5")
6 inch	60 inch (10 x 6")	24 inch (4 x 6")

### Mounting location

- The meter is designed to withstand outdoor conditions.
- F series meters must be mounted at the vertical (twelve o'clock) position on horizontal pipe only.
- U & D series meters must be mounted on vertical pipe only.
- The pipe must be completely full of water at all times.
- See the minimum straight length of pipe requirement chart above.
- The meter can accurately measure flow from one direction only.
- U-series meters measure upward flows only.
- D-series meters measure downward flows only.



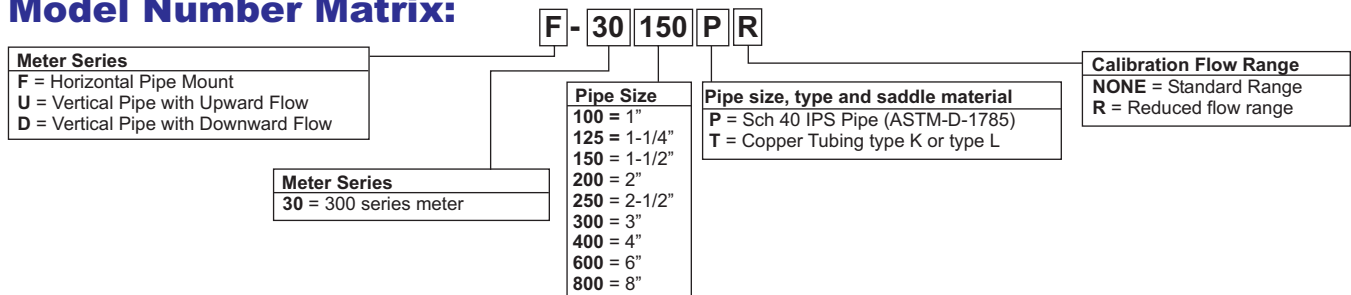
### Dimensions:



### Flow Stream Requirements:

Low viscosity fluids with a specific gravity of 1.0.

### Model Number Matrix:



### Pipe Size, Flow Range and Display Model Options:

#### Models for Mounting on Horizontal Pipe

##### Models for U.S. IPS Sch40 Pipe (ASTM 1785)

Display in U.S. Gallons and Liters per Minute

Pipe Size	GPM Flow Range	LPM Flow Range	Model Number
1"	5 to 35	20 to 160	F-30100P
1"	2 to 10	8 to 38	F-30100PR
1-1/4"	15 to 75	60 to 280	F-30125P
1-1/4"	5 to 35	30 to 130	F-30125PR
1-1/2"	20 to 100	75 to 375	F-30150P
1-1/2"	9 to 30	30 to 110	F-30150PR
2"	40 to 150	150 to 550	F-30200P
2"	15 to 70	60 to 260	F-30200PR
2-1/2"	60 to 240	225 to 900	F-30250P
3"	80 to 300	300 to 1125	F-30300P
3"	40 to 140	160 to 520	F-30300PR
4"	125 to 500	550 to 2000	F-30400P
6"	250 to 1050	900 to 3900	F-30600P
8"	500 to 1900	2000 to 7200	F-30800P

##### Models for Copper Tubing types K & L

Display in U.S. Gallons and Liters per Minute

Pipe Size	GPM Flow Range	LPM Flow Range	Model Number
1"	5 to 35	20 to 160	F-30100T
1"	2 to 10	8 to 38	F-30100TR
1-1/4"	15 to 75	60 to 280	F-30125T
1-1/4"	5 to 35	30 to 130	F-30125TR
1-1/2"	20 to 100	75 to 375	F-30150T
1-1/2"	9 to 30	30 to 110	F-30150TR
2"	40 to 150	150 to 550	F-30200T
2"	15 to 70	60 to 260	F-30200TR
2-1/2"	60 to 240	225 to 900	F-30250T
3"	80 to 300	300 to 1125	F-30300T
3"	40 to 140	160 to 520	F-30300TR
4"	125 to 500	550 to 2000	F-30400T
6"	250 to 1050	900 to 3900	F-30600T
8"	500 to 1900	2000 to 7200	F-30800T

#### Models for Mounting on Vertical Pipe

##### Models for U.S. IPS Sch40 Pipe (ASTM 1785)

Display in U.S. Gallons and Liters per Minute

Pipe Size	GPM Flow Range	LPM Flow Range	Flow Direction	Model Number
1-1/2"	20 to 100	75 to 375	UP	U-30150P
1-1/2"	20 to 100	75 to 375	DOWN	D-30150P
1-1/2"	9 to 30	30 to 120	UP	U-30150PR
1-1/2"	9 to 30	30 to 120	DOWN	D-30150PR
2"	40 to 150	150 to 550	UP	U-30200P
2"	40 to 150	150 to 550	DOWN	D-30200P
2"	18 to 70	70 to 280	UP	U-30200PR
2"	18 to 70	70 to 280	DOWN	D-30200PR

##### Models for Copper Tubing types K & L

Display in U.S. Gallons and Liters per Minute

Pipe Size	GPM Flow Range	LPM Flow Range	Flow Direction	Model Number
1-1/2"	20 to 100	75 to 375	UP	U-30150T
1-1/2"	20 to 100	75 to 375	DOWN	D-30150T
1-1/2"	9 to 30	30 to 120	UP	U-30150TR
1-1/2"	9 to 30	30 to 120	DOWN	D-30150TR
2"	40 to 150	150 to 550	UP	U-30200T
2"	40 to 150	150 to 550	DOWN	D-30200T
2"	18 to 70	70 to 280	UP	U-30200TR
2"	18 to 70	70 to 280	DOWN	D-30200TR

Index

# Meters & Gauges

The background of the page is a blue gradient with a pattern of concentric ripples, resembling water. The ripples are centered in the lower half of the page and fade out towards the top.



### **2 inch Standard Pressure Gauge 0-60 PSI**

---

2" face diameter with 1/4" NPT bottom connection.

**Item # 32-400**



### **In-Line Dial Thermometer - Nylon Well**

---

Dimensions: 3" diameter with 2" stem and 1/2" NPT (30° - 130° F)

**Item # 56-155**



### **2 inch Standard Vacuum Gauge 0-30 Hg**

---

2" face diameter with 1/4" NPT bottom connection.

**Item # 32-402**

Index

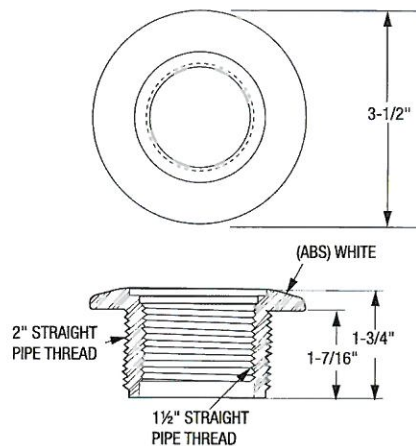
# Inlets & Jet Fittings

The background of the page is a blue gradient with a series of concentric, glowing white and light blue ripples emanating from the center, resembling a drop of water hitting a surface. The ripples are most prominent in the lower half of the page, creating a sense of depth and movement.

## Vacuum Fitting/ Receptacle For Concrete Pools



SP-1022\* 1 1/2" FIP White  
SP-1022S 1 1/2" Socket, White.



## Directional Flow Inlet Fittings



SP-1418D Hydrostream 3/4" opening  
SP-1419C Hydrostream 1/2" opening  
SP-1419D Hydrostream 3/4" opening  
SP-1419E Hydrostream 1" opening

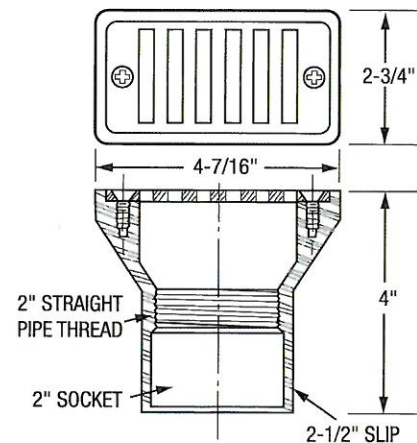
## Extended Flange Directional Flow Eyeball Fitting



SP1418D 1 1/2" MIP Hydrostream 3/4" opening  
SP1422D 1 1/2" slip Hydrostream Insider 3/4" opening  
SP1422E 1 1/2" slip Hydrostream Insider 1" opening

Type 1422D-2" Hydrostream Insider Fitting  
for 2" Schedule 40 PVC pipe

## Gutter Drain Attractive and Streamlined



Model No.	Description
SP-1019	2" FIP plus 2" Socket Connection. White Body and Grate.

Index

# Pool Main Drain Covers

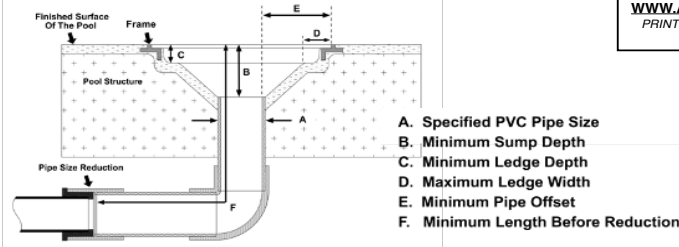


**DIRECTIONS:** Please follow the SOFA specific flow rates, sump specifications, and flow path zone information below. The installation must conform to these minimum/maximum requirements including the SOFA dimension defined in Figure 1. The flow path zone is defined by dimensions A through E. The installed sump may be manufactured or field-built and it may be larger/deeper than Figure 1. Please write the Cover Model Number, orientation, and SOFA Model Flow Rating on the *VGBA DRAIN COVER IDENTIFICATION INFORMATION* label that comes with each AquaStar Pool Products, Inc. drain cover.

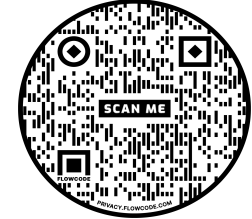
Cover Model Number:  
**32CDPHxxx**



FIGURE 1 – SOFA MODEL & FLOW PATH



FOR MOST CURRENT INFORMATION  
SCAN THE QR CODE OR VISIT  
[WWW.AQUASTARPOOLPRODUCTS.COM/FLOWCODE](http://WWW.AQUASTARPOOLPRODUCTS.COM/FLOWCODE)  
PRINTED DOCUMENTS MAY NOT HAVE THE MOST CURRENT  
FLOW RATINGS OR INSTALLATION OPTIONS.

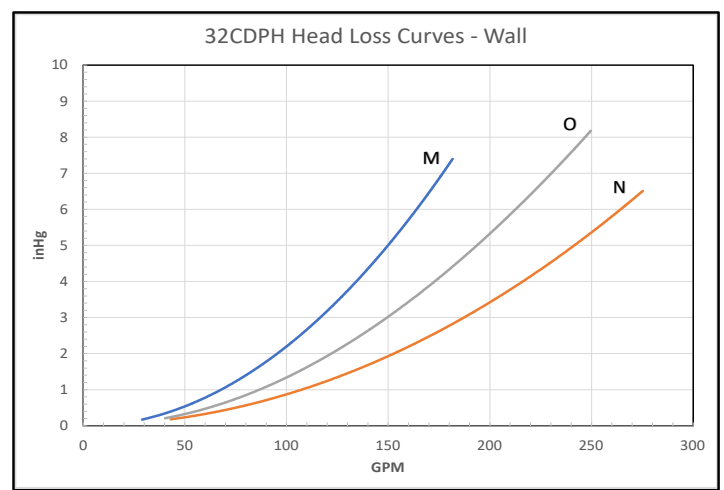
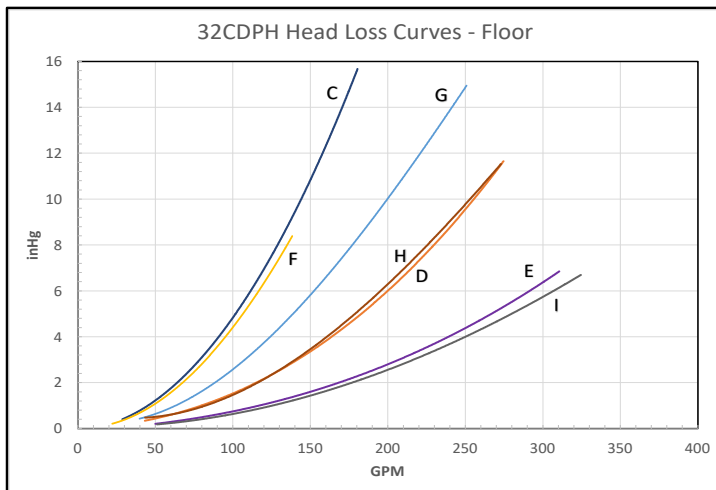


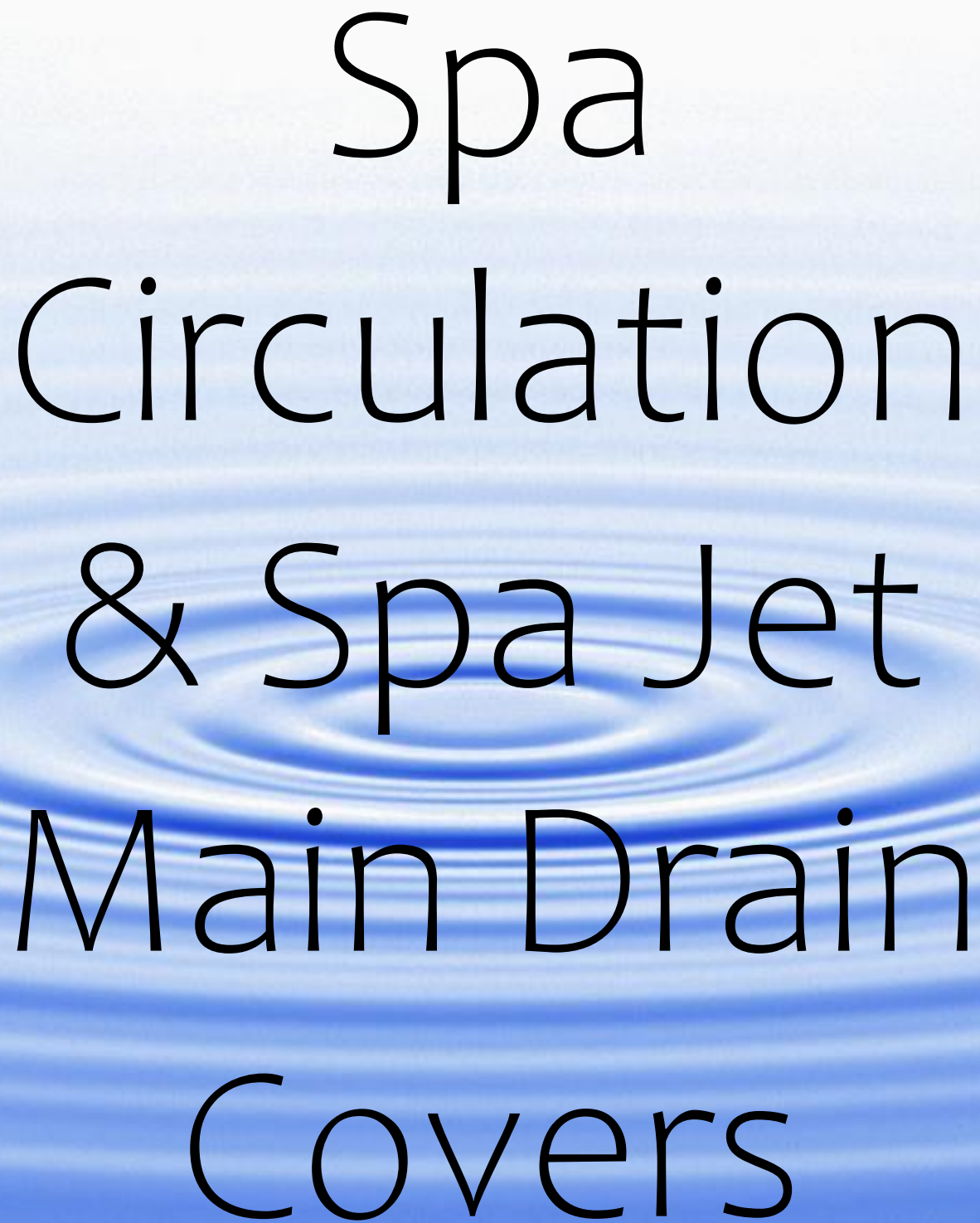
SOFA Model No.	Pipe Size (Nominal)	Pipe Depth (Minimum)	Orientation (Wall / Floor)	Flow Rating (GPM)	Head Loss Curve
32CDPH-32f_A-2b_B2.98_C.95_D.2_E.475_F16	2" (b)	2.98"	Floor (f)	145	C
32CDPH-32f_A-2x2b_B2.98_C.95_D.2_E.475_F16	2" x 2 (b)	2.98"	Floor (f)	220	D
32CDPH-32f_A-2x3b_B2.98_C.95_D.2_E.475_F16	2" x 3 (b)	2.98"	Floor (f)	250	E
32CDPH-32f_A-2.5b_B2.98_C.95_D.2_E.475_F16	2.5" (b)	2.98"	Floor (f)	200	G
<b>32CDPH-32f_A-2.5x2b_B2.98_C.95_D.2_E.475_F16</b>	<b>2.5" x 2 (b)</b>	<b>2.98"</b>	<b>Floor (f)</b>	<b>220</b>	<b>H</b>
32CDPH-32f_A-2.5x3b_B2.98_C.95_D.2_E.475_F16	2.5" x 3 (b)	2.98"	Floor (f)	260	I
32CDPH-32w_A-2b_B2.98_C.95_D.2_E.475_F16	2" (b)	2.98"	Wall (w)	145	M
32CDPH-32w_A-2x2b_B2.98_C.95_D.2_E.475_F16	2" x 2 (b)	2.98"	Wall (w)	220	N
32CDPH-32w_A-2.5b_B2.98_C.95_D.2_E.475_F16	2.5" (b)	2.98"	Wall (w)	200	O

Note 1: "SOFA Model No" nomenclature; bottom pipe = (b), side pipe = (s). See Fig 1 for capital letters A through E

Note 2: Head loss inHg is measured 16 to 24 inches from the finish surface of the pool. Reference Fig 1 dimension F.

Note 3: Compatible with AquaStar sump P/N: 32CDSBxxx (not required). See Cover Model Number: 32CDPHFRxxx for additional field-built sump options with more flow rates.



The background of the page is a close-up photograph of blue water with concentric ripples, creating a textured, circular pattern. The text is overlaid on this background.

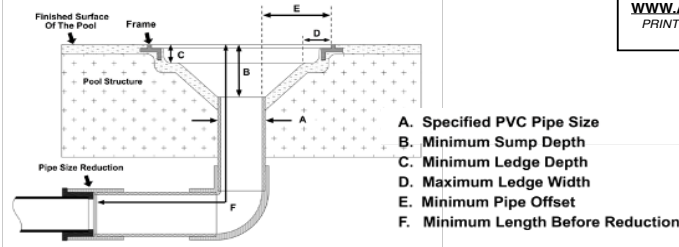
# Spa Circulation & Spa Jet Main Drain Covers

**DIRECTIONS:** Please follow the SOFA specific flow rates, sump specifications, and flow path zone information below. The installation must conform to these minimum/maximum requirements including the SOFA dimension defined in Figure 1. The flow path zone is defined by dimensions A through E. The installed sump may be manufactured or field-built and it may be larger/deeper than Figure 1. Please write the Cover Model Number, orientation, and SOFA Model Flow Rating on the *VGBA DRAIN COVER IDENTIFICATION INFORMATION* label that comes with each AquaStar Pool Products, Inc. drain cover.

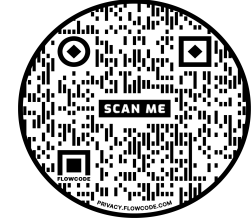
Cover Model Number:  
**32CDPHxxx**



FIGURE 1 – SOFA MODEL & FLOW PATH



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[WWW.AQUASTARPOOLPRODUCTS.COM/FLOWCODE](http://WWW.AQUASTARPOOLPRODUCTS.COM/FLOWCODE)  
PRINTED DOCUMENTS MAY NOT HAVE THE MOST CURRENT  
FLOW RATINGS OR INSTALLATION OPTIONS.

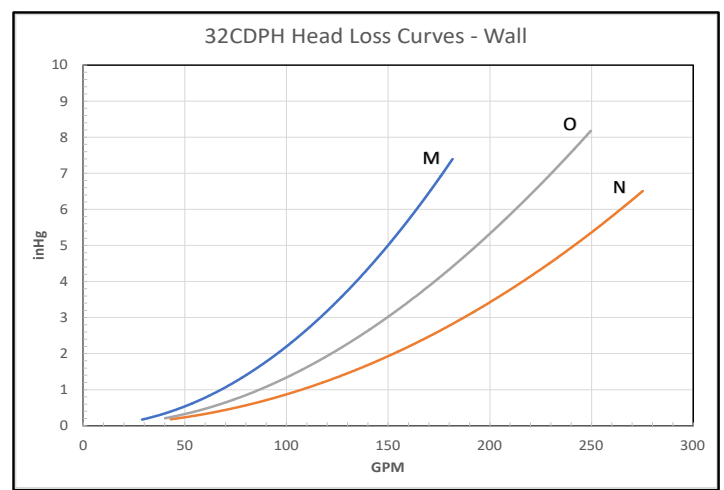
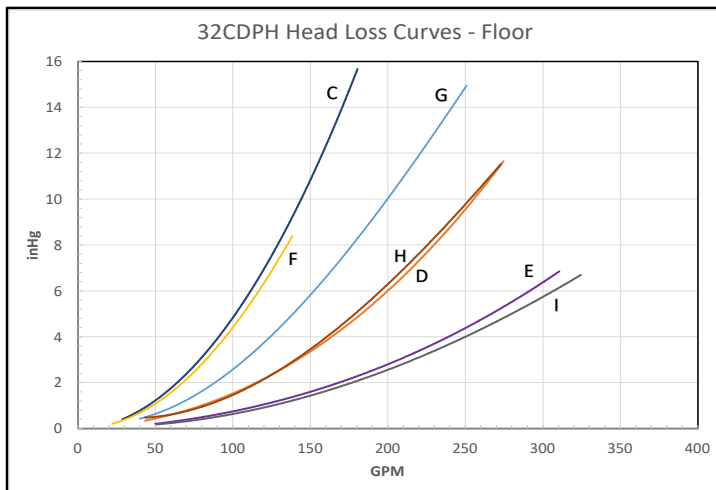


SOFA Model No.	Pipe Size (Nominal)	Pipe Depth (Minimum)	Orientation (Wall / Floor)	Flow Rating (GPM)	Head Loss Curve
32CDPH-32f_A-2b_B2.98_C.95_D.2_E.475_F16	2" (b)	2.98"	Floor (f)	145	C
32CDPH-32f_A-2x2b_B2.98_C.95_D.2_E.475_F16	2" x 2 (b)	2.98"	Floor (f)	220	D
32CDPH-32f_A-2x3b_B2.98_C.95_D.2_E.475_F16	2" x 3 (b)	2.98"	Floor (f)	250	E
32CDPH-32f_A-2.5b_B2.98_C.95_D.2_E.475_F16	2.5" (b)	2.98"	Floor (f)	200	G
<b>32CDPH-32f_A-2.5x2b_B2.98_C.95_D.2_E.475_F16</b>	<b>2.5" x 2 (b)</b>	<b>2.98"</b>	<b>Floor (f)</b>	<b>220</b>	<b>H</b>
32CDPH-32f_A-2.5x3b_B2.98_C.95_D.2_E.475_F16	2.5" x 3 (b)	2.98"	Floor (f)	260	I
32CDPH-32w_A-2b_B2.98_C.95_D.2_E.475_F16	2" (b)	2.98"	Wall (w)	145	M
32CDPH-32w_A-2x2b_B2.98_C.95_D.2_E.475_F16	2" x 2 (b)	2.98"	Wall (w)	220	N
32CDPH-32w_A-2.5b_B2.98_C.95_D.2_E.475_F16	2.5" (b)	2.98"	Wall (w)	200	O

Note 1: "SOFA Model No" nomenclature; bottom pipe = (b), side pipe = (s). See Fig 1 for capital letters A through E

Note 2: Head loss inHg is measured 16 to 24 inches from the finish surface of the pool. Reference Fig 1 dimension F.

Note 3: Compatible with AquaStar sump P/N: 32CDSBxxx (not required). See Cover Model Number: 32CDPHFRxxx for additional field-built sump options with more flow rates.



Spa

Hydrotherapy

Jet Main

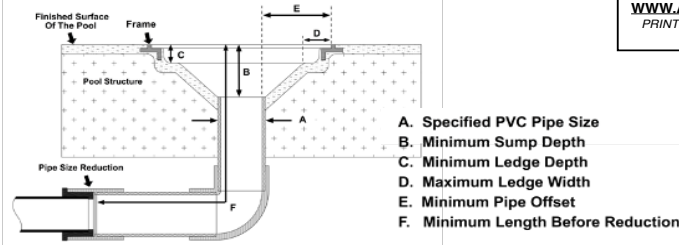
Drain Covers

**DIRECTIONS:** Please follow the SOFA specific flow rates, sump specifications, and flow path zone information below. The installation must conform to these minimum/maximum requirements including the SOFA dimension defined in Figure 1. The flow path zone is defined by dimensions A through E. The installed sump may be manufactured or field-built and it may be larger/deeper than Figure 1. Please write the Cover Model Number, orientation, and SOFA Model Flow Rating on the *VGBA DRAIN COVER IDENTIFICATION INFORMATION* label that comes with each AquaStar Pool Products, Inc. drain cover.

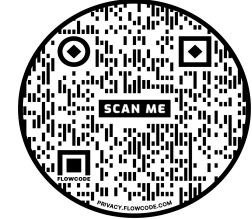
Cover Model Number:  
**32CDPHxxx**



FIGURE 1 – SOFA MODEL & FLOW PATH



FOR MOST CURRENT INFORMATION  
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[WWW.AQUASTARPOOLPRODUCTS.COM/FLOWCODE](http://WWW.AQUASTARPOOLPRODUCTS.COM/FLOWCODE)  
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FLOW RATINGS OR INSTALLATION OPTIONS.

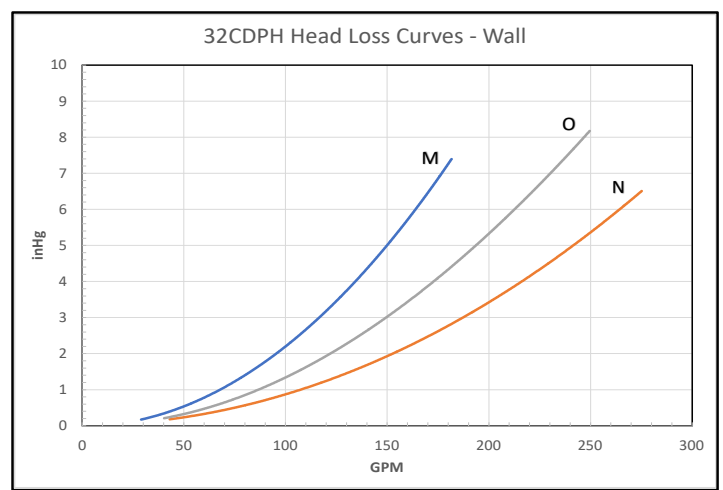
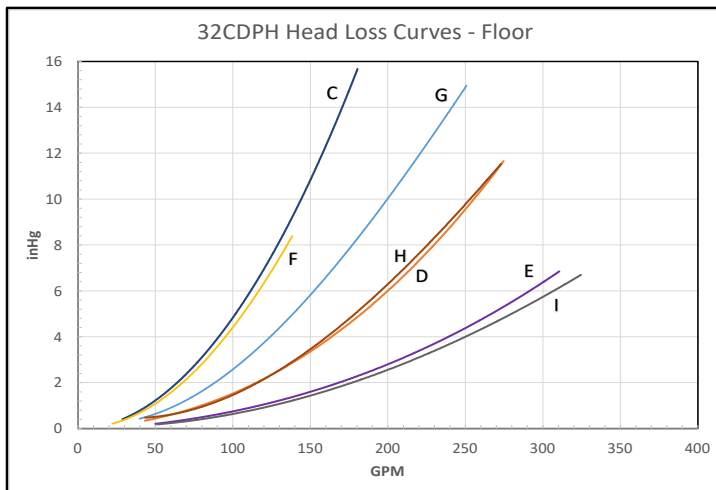


SOFA Model No.	Pipe Size (Nominal)	Pipe Depth (Minimum)	Orientation (Wall / Floor)	Flow Rating (GPM)	Head Loss Curve
32CDPH-32f_A-2b_B2.98_C.95_D.2_E.475_F16	2" (b)	2.98"	Floor (f)	145	C
32CDPH-32f_A-2x2b_B2.98_C.95_D.2_E.475_F16	2" x 2 (b)	2.98"	Floor (f)	220	D
<b>32CDPH-32f_A-2x3b_B2.98_C.95_D.2_E.475_F16</b>	<b>2" x 3 (b)</b>	<b>2.98"</b>	<b>Floor (f)</b>	<b>250</b>	<b>E</b>
32CDPH-32f_A-2.5b_B2.98_C.95_D.2_E.475_F16	2.5" (b)	2.98"	Floor (f)	200	G
32CDPH-32f_A-2.5x2b_B2.98_C.95_D.2_E.475_F16	2.5" x 2 (b)	2.98"	Floor (f)	220	H
32CDPH-32f_A-2.5x3b_B2.98_C.95_D.2_E.475_F16	2.5" x 3 (b)	2.98"	Floor (f)	260	I
32CDPH-32w_A-2b_B2.98_C.95_D.2_E.475_F16	2" (b)	2.98"	Wall (w)	145	M
32CDPH-32w_A-2x2b_B2.98_C.95_D.2_E.475_F16	2" x 2 (b)	2.98"	Wall (w)	220	N
32CDPH-32w_A-2.5b_B2.98_C.95_D.2_E.475_F16	2.5" (b)	2.98"	Wall (w)	200	O

Note 1: "SOFA Model No" nomenclature; bottom pipe = (b), side pipe = (s). See Fig 1 for capital letters A through E

Note 2: Head loss inHg is measured 16 to 24 inches from the finish surface of the pool. Reference Fig 1 dimension F.

Note 3: Compatible with AquaStar sump P/N: 32CDSBxxx (not required). See Cover Model Number: 32CDPHFRxxx for additional field-built sump options with more flow rates.



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# Equalizer Covers



## 6" Round Hockey Puck Sumplless Suction Outlet Cover, HydroAir/ITT Replacement

### VGB Series

The AquaStar line of suction outlet covers, compliant with the Virginia Graeme-Baker Pool and Spa Safety Act (ANSI/APSP 16-2011 and NSF/ANSI 50-2009a)

#### Features

For single or multiple drain use in gunite, steel, vinyl, fiberglass and tile pools and spas (see installation instructions)

Single – sumplless

Floor/wall (2" pipe): 224 GPM at 6.3 fps

Floor (1½" pipe): 177 GPM at 5.9 fps

Wall (1½" pipe): 122 GPM at 3.4 fps

11.4 square inch opening

Trademarked VGB compliance button easily identifies VGB 2008 compliant cover from on deck and underwater

#316 stainless steel screws

Manufactured from superior UV-resistant engineered polymers

All components meet or exceed ANSI/APSP 16-2011 and NSF/ANSI 50-2009a national standards and ASTM G154 UV testing exposure

Listed with IAMPO R&T

Eight different adapter plates are sold separately, available for sumplless connections to 1022s, 1.5" female adapters, 1.5" and 2" inside and outside slip and threads as well as existing HydroAir wall fittings #10-6015S and 10-6304S (both with brass inserts)

25 per case

#### No sump required!



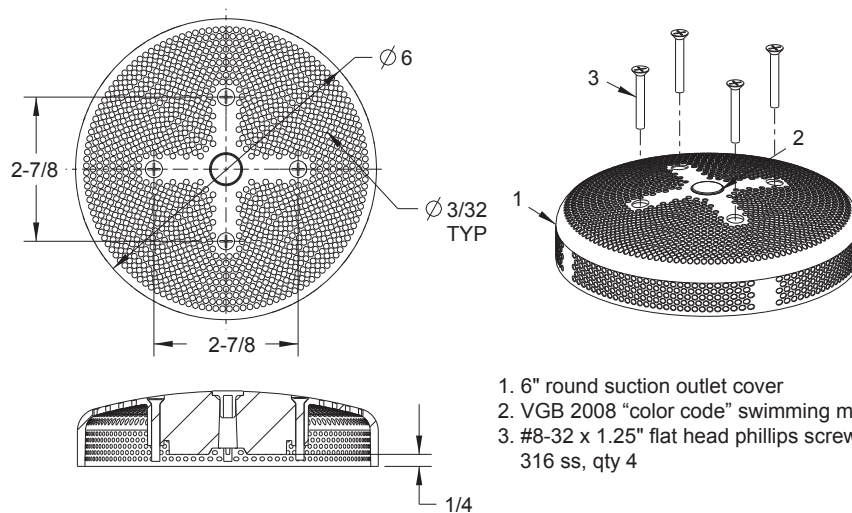
Part # 6HPxxx, 6HPHxxx

#### STANDARD COLORS

101	105
102	108
103	

Hydro-Air retrofit version also available p/n 6HPHxxx

#### VGB 2008 Compliant



1. 6" round suction outlet cover
2. VGB 2008 "color code" swimming man
3. #8-32 x 1.25" flat head phillips screw, 316 ss, qty 4

Retrofits to StaRite/Pentair #8011 and AquaStar #4RNDxxx equalizer

# ADDITIONAL PRODUCT CONFIGURATIONS FOR 6HPXXX (sold separately) 25/case

STANDARD COLORS  101  102  103  105  108

**Code Key:**

6 = for 6HPxxx  
HP = "hockey puck"

xxx = color  
(i.e. 101 = white)

15 = 1 1/2", 20 = 2"  
25 = 2 1/2"

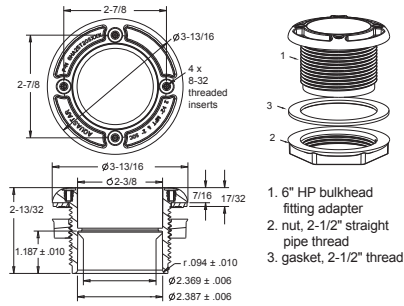
Soc. = socket, slip  
Spg. = spigot, slip

SI = Slip Insider  
T = Thread

**6" Bulkhead Adapter with 2 1/2" Thread and 2" Socket for Fiberglass/Steel, with Gasket and 2 1/2" Locking Nut (sold separately)**



Part #  
# 6HA25T20Sxxx  
(to be used with  
part # 6HPHxxx)

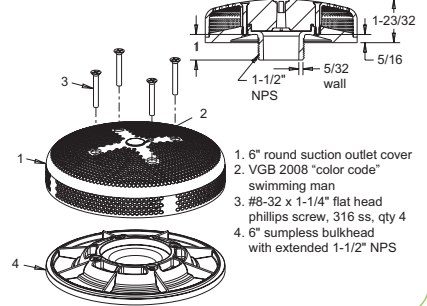


**6" Bulkhead Adapter with Extended 1 1/2" Threaded Sumpless Fitting (sold separately)**

Use with flush mount  
1 1/2" FPT, does not fit  
1022 female adapters



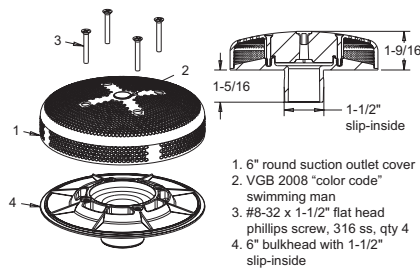
Part #  
6E15Txxx



**6" Bulkhead Adapter with 1 1/2" Slip-Insider Sumpless Fitting (sold separately)**



Part #  
# 615Slxxx

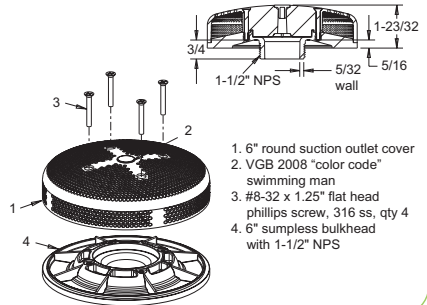


**6" Bulkhead Adapter with 1 1/2" Threaded Sumpless Fitting (sold separately)**

Fits 1022  
female  
adapters



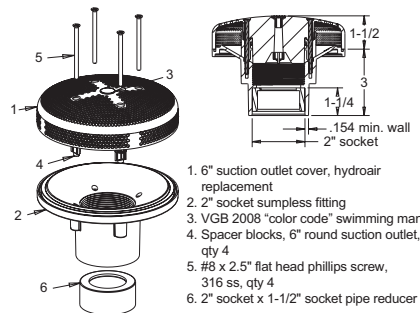
Part #  
# 615Txxx



**6" Bulkhead Adapter with 2" Socket Sumpless Fitting (sold separately)**



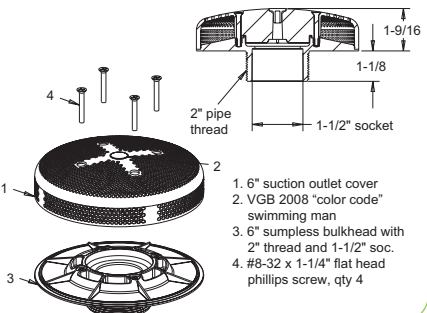
Part #  
RNDxxx



**6" Bulkhead Adapter with 2" Threaded x 1 1/2" Socket Sumpless Fitting (sold separately)**



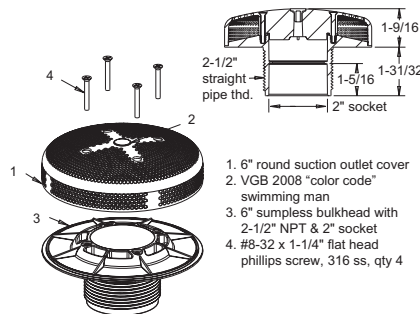
Part #  
620T15Sxxx



**6" Bulkhead Adapter with 2 1/2" Threaded x 2" Socket Sumpless Fitting (sold separately)**



Part #  
625T20Sxxx

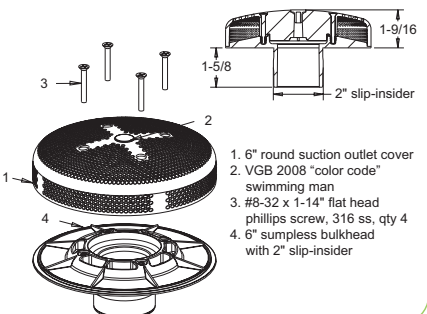


**6" Bulkhead Adapter with 2" Slip-Insider Sumpless Fitting (sold separately)**

Also available as  
1 1/2" slip Insider  
p/n 615Slxxx



Part #  
620Slxxx



Index

# Handrails



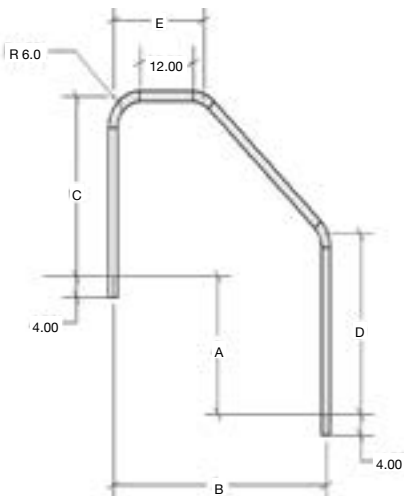
# ADA 3-Bend Stair Rails



- Tubing: 1.90" OD
- Wall Thickness: .065"
- Stainless Steel: 304 or 316L Marine Grade\* (add -MG to part number)
- Bends: 6" Radius
- Options: Powder-coating and SealedSteel Salt Friendly available
- Recommended anchors: AS-100B (order separately)
- Recommended escutcheon: EP-100F (order separately)

\* Minimum requirement for salt pools is 316L Marine Grade

Model No.	Description	A	B	C	D	E	Weight	Length	Width	Height
3HR-4ADA	4' Rail	26"	48"	34"	34"	20.38"	20 lbs 10kg	60" 152cm	42" 107cm	4" 10cm
3HR-5ADA	5' Rail	36"	60"	34"	34"	20.32"	22 lbs 10kg	72" 178cm	42" 107cm	4" 10cm
3HR-5.5ADA	5'6" Rail	32"	66"	34"	34"	19.88"	24 lbs 11kg	78" 198cm	42" 107cm	4" 10cm
3HR-6ADA	6' Rail	46"	72"	34"	34"	20.28"	26 lbs 12kg	84" 213cm	42" 107cm	4" 10cm
3HR-6.5ADA	6'6" Rail	32"	78"	34"	34"	35"	28 lbs 13kg	90" 229cm	42" 107cm	4" 10cm
3HR-7ADA	7' Rail	36"	84"	34"	34"	40"	30 lbs 14kg	96" 244cm	42" 107cm	4" 10cm
3HR-8ADA	8' Rail	30"	96"	34"	34"	53"	32 lbs 14kg	108" 274cm	42" 107cm	4" 10cm



# Recessed Steps

The background of the page features a series of concentric, blue-toned ripples on a water surface, centered in the lower half of the frame. The ripples are most prominent in the lower half and fade into a light blue gradient towards the top.



## **ABS STEPS WHITE 3/BOX**

- Product # : AMP-35-792
- Mfg. : PENTAIR WATER POOL AND SPA INC
- Mfg. # : 82400700
- Department : WHITEGOODS | FLOW FITTINGS
- Product Line : Miscellaneous - White Goods | Flow Fittings
- UOM ( Default ) : BX
- Obsolete: This product is not obsolete.
- Ship Weight (lbs.) : 4.30
- Dimensions : 8.50x8.50x17.75
- UPC Code : 788379652258

### Additional Info

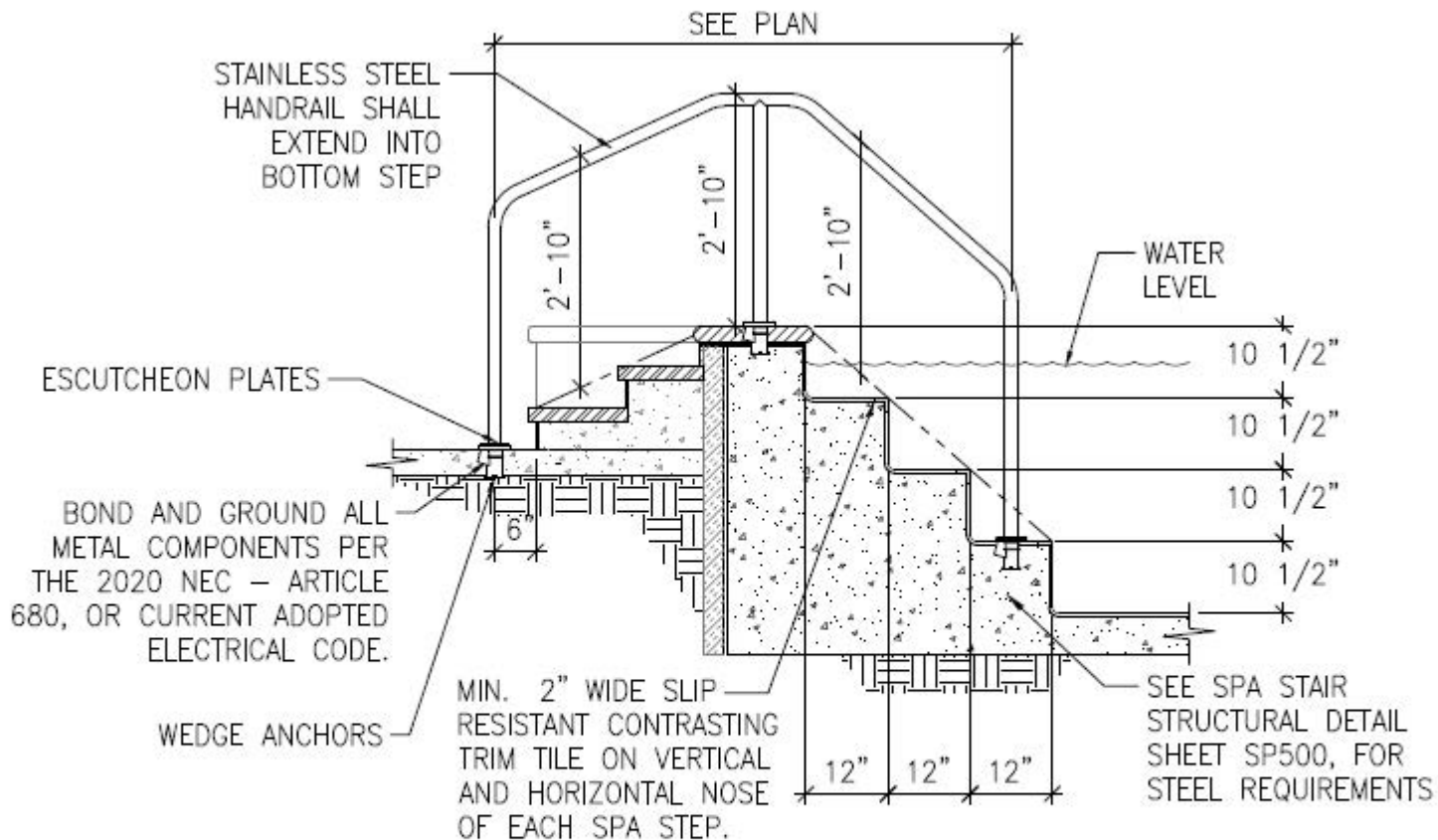
### Description

Pentair Steps, White, ABS, For Use with: Pentair Pool Specialty Fittings

Index

# Spa Custom Handrails





# SPA STAIR AND HANDRAIL DETAIL

SCALE: 1/2"=1'-0"



Index

# Grab Rails



# Figure 4 – Residential



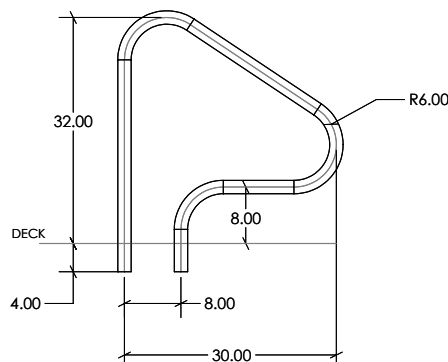
- Tubing: 1.90" OD
  - Wall Thickness: .049", .065"
  - Stainless Steel: 304 or 316L Marine Grade\* (add -MG to part number)
  - Bends: 6" Radius
  - Options: Powder-coating and SealedSteel Salt Friendly available
  - Recommended Anchors: AS-100B-SS
  - Recommended Escutcheons: EP-100F (order separately)
  - Sold as pairs, unless otherwise noted
- \* Minimum requirement for salt pools is 316L Marine Grade

Figure 4 (1.90" OD)

Model No.	Description	Shipping			
		Weight	Length	Width	Height
F4H-100	30" Figure 4, .065" wall, pair	24 lbs 11kg	39" 99cm	32" 81cm	4" 10cm
F4H-101	30" Figure 4, .049" wall, pair	19 lbs 9kg	39" 99cm	32" 81cm	4" 10cm
<b>F4H-102</b>	<b>26" Figure 4, .049" wall, pair</b>	18 lbs 8kg	39" 99cm	32" 81cm	4" 10cm
F4H-102S	26" Figure 4, .049" wall, single	12 lbs 5kg	39" 99cm	32" 81cm	4" 10cm

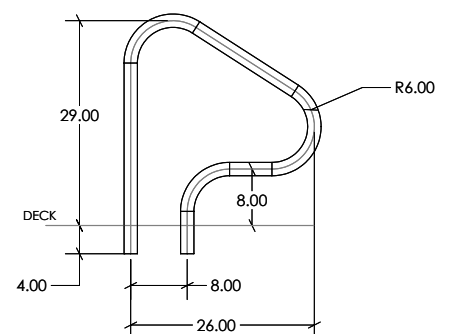
### 30-inch Setback

F4H-100 & F4H-101



### 26-inch Setback

F4H-102



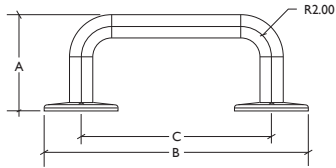
Index

# ADA Transfer Rails

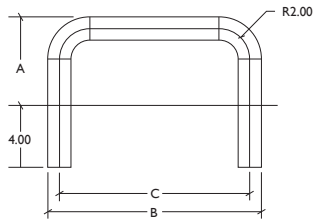


# ADA Transfer Rails

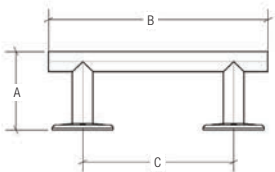
Bent Rails with Flanges



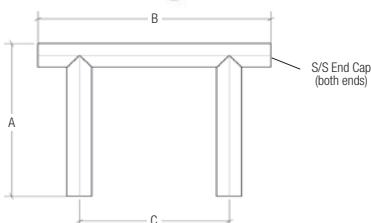
Bent Rails without Flanges



Straight Rails with Flanges



Straight Rails without Flanges



- Tubing: 1.50" OD
  - Wall Thickness: .120"
  - Stainless Steel: 316L Marine Grade\*
  - Recommended anchor: AS-200B if not flanged (order separately)
  - Recommended escutcheon: EP-150 if not flanged (order separately)
  - Flanged models include mounting hardware (3/8-16 UNC anchor bolts)
  - More transfer and exercise rails on page 102
  - Sold as a single rail
- \* Minimum requirement for salt pools is 316L Marine Grade

## Transfer Grab Rail with Flanges - Marine Grade

Model No.	Description	A	B	C	Weight	Length	Width	Height
EB-12A	12" Rail	5.75"	12"	7.50"	6 lbs 3kg	18" 46cm	6" 15cm	4" 10cm
EB-14A	14" Rail	5.75"	14"	9.50"	6 lbs 3kg	18" 46cm	6" 15cm	4" 10cm
EB-16A	16" Rail	5.75"	16"	11.50"	6 lbs 3kg	18" 46cm	6" 15cm	4" 10cm
EB-18A	18" Rail	5.75"	18"	13.50"	7 lbs 3kg	18" 46cm	6" 15cm	4" 10cm
60-718	Mounting Hardware				2 lbs 1kg	3" 8cm	3" 8cm	4" 10cm

• No SealedSteel or Powder-Coated on flanged models.

## Transfer Grab Rail - Anchors

Model No.	Description	A	B	C	Weight	Length	Width	Height
EB-12B	12" Rail	5.75"	10"	8.50"	5 lbs 2kg	11" 28cm	11" 28cm	3" 8cm
EB-14B	14" Rail	5.75"	12"	10.50"	5 lbs 2kg	13" 33cm	11" 28cm	3" 8cm
EB-16B	16" Rail	5.75"	14"	12.50"	5 lbs 2kg	15" 38cm	11" 28cm	3" 8cm
EB-18B	18" Rail	5.75"	16"	14.50"	6 lbs 2kg	17" 43cm	11" 28cm	3" 8cm

## Straight Transfer Rails with Flanges - Marine Grade

Model No.	Description	A	B	C	Weight	Length	Width	Height
TR-12A	12" Rail	5.75"	12"	7"	6 lbs 2kg	18" 45cm	16" 40cm	4" 10cm
TR-14A	14" Rail	5.75"	14"	9"	7 lbs 3kg	18" 45cm	16" 40cm	4" 10cm
TR-16A	16" Rail	5.75"	16"	11"	7 lbs 3kg	18" 45cm	16" 40cm	4" 10cm
TR-18A	18" Rail	5.75"	18"	13"	7 lbs 3kg	18" 45cm	16" 40cm	4" 10cm
60-718	Mounting Hardware				2 lbs 1kg	3" 8cm	3" 8cm	4" 10cm

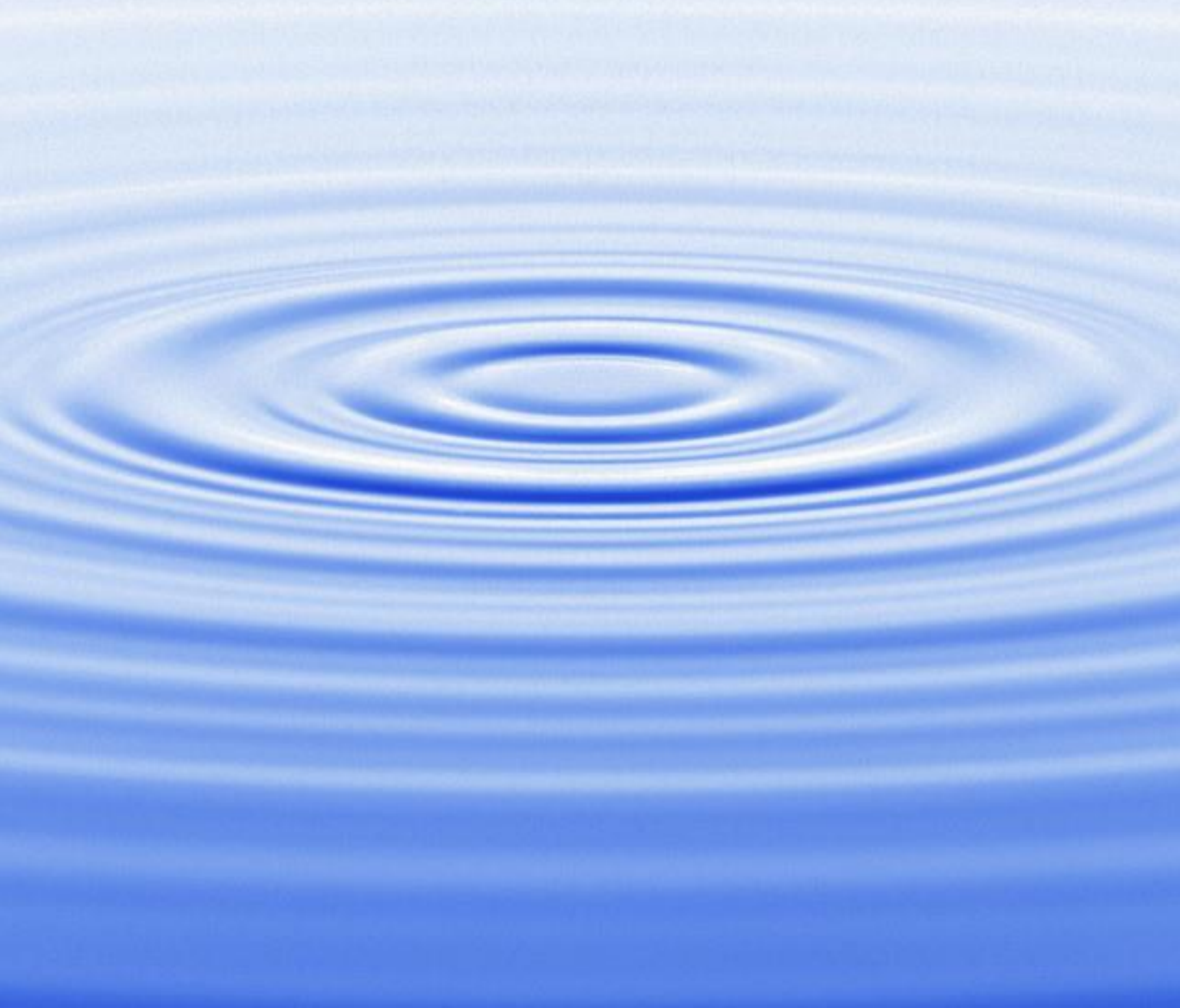
• No SealedSteel or Powder-Coated on flanged models.

## Straight Transfer Rails - Anchors

Model No.	Description	A	B	C	Weight	Length	Width	Height
TR-12B	12" Rail	9.75"	12"	7"	6 lbs 2kg	13" 33cm	11" 28cm	3" 8cm
TR-14B	14" Rail	9.75"	14"	9"	6 lbs 2kg	15" 38cm	11" 28cm	3" 8cm
TR-16B	16" Rail	9.75"	16"	11"	6 lbs 2kg	17" 43cm	11" 28cm	3" 8cm
TR-18B	18" Rail	9.75"	18"	13"	6 lbs 2kg	19" 48cm	11" 28cm	3" 8cm

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# Anchors



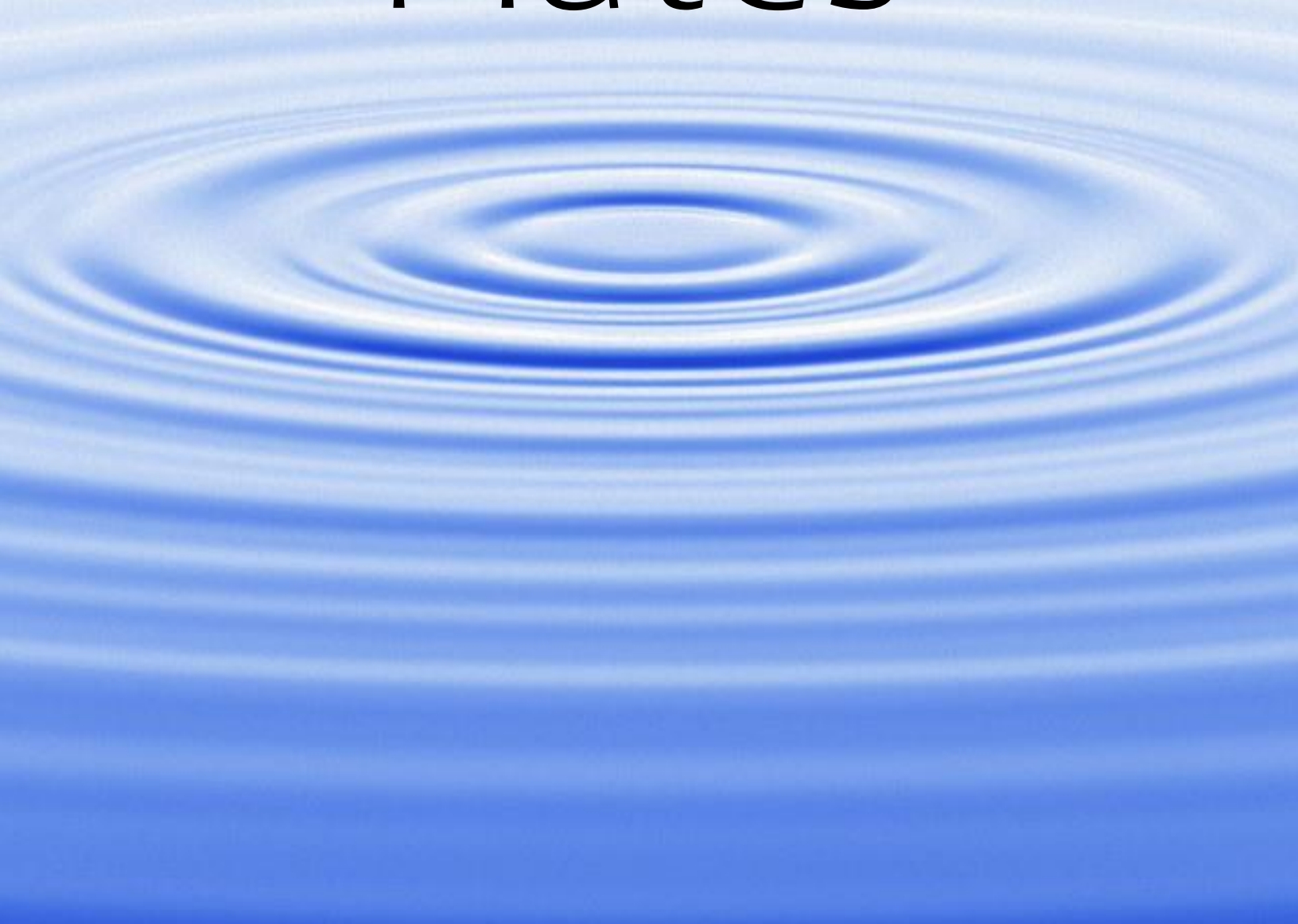


## **Heavy-Duty Bronze Anchor Socket**

Dimensions: 4 1/8" h x 1.90  
I.D.; Weight: 3 lbs.

Index

# Escutcheon Plates





**Round Chrome-Cyclac  
Escutcheon - 1.90 inch**

Adds a finishing touch to anchor sockets and is usable on any 1.90" diameter deck equipment

Index

# Clock





12 Inch Wall Outdoor Clock Battery Operated

Index

# Safety & Maintenance

The background of the page is a blue gradient with a pattern of concentric ripples, resembling water. The ripples are centered in the lower half of the page and fade out towards the top.

---

### Life Hook - only

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Includes mounting bolts and wing nuts to fit any standard pole. Requires [#10-374 adapter](#) if used with fiberglass pole.  
Weight: 2 lbs., 4 oz.

Item # 12-23

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### Ring Buoy 24 inch

---



Manufactured under the strict codes of the United States Coast Guard, these ring buoys are classified as U.S. Coast Guard Approved, PFD Type IV. Made from solid closed cell plastic with a metal ring molded inside for durability and balance. Buoy surface resists weather and temperature extremes and feature an integral rope for easy handling. Weight: 2 lbs., 10 oz. Ships UPS Oversize.

Color:

Item # 12-252

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### 30 ft. Ring Buoy Line - Throw Rope

---



Made from heavy-duty, floating line with a "Lemon Foot" attached to hold the line with your foot.  
Weight: 8 oz.

Item # 12-260

---



### Bulk First Aid Kit - Large

Design for large aquatic facilities with a large variety of medical supplies. Appropriate for up to 75 people.  
Dimensions: 10 1/2" x 15 1/2" x 2 1/2"; Weight: 17 lb.

*Hazmat ground shipping only.*

Item # 12-046



---

**Standard Vacuum Hose - 1.5 in x 35 ft length with swivel**

---

Designed to take heavy pump suction, twisting and straining without collapsing. Hose also works as a discharge hose with integral molded cuffs. Made of UV inhibited materials. Color: Blue/Black. Weight: 11 lbs. Comes with a 3 year warranty.

Item # 10-401

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**Standard Pool Brush**

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A good sturdy brush, 18" long with curved ends and 4 rows of durene bristles.  
Item # 10-140



---

**Dually Telescopic Pole - 6 ft to 18 ft**

---

This pole is made of the heaviest wall tubing available and feature a three piece design that allows it to be shipped UPS and is extendible in varying lengths from 6' to 18'. Weight: 5 lbs.

Item # 10-348



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### Flex-A-Vac Vacuum Head

---

**This flexible vacuum head conforms to the curved area of any pool while vacuuming. Strong and lightweight, but does not "float" when in use. Dimensions: 13 1/2" w x 8" deep; Weight: 5 lbs.  
Item # 10-200**



---

### Standard Leaf Skimmer

---

**Durable edge with a tough fiberglass screen net. Dimensions: 13" x 15"; Weight: 14 oz.  
Item # 10-100**



---

### Complete FAS-DPD Chlorine Test Kit

---

**A complete high range test kit that utilizes the high-range comparator block, sanitizer tests are titrations to improve accuracy and eliminate color-match problems, and free and combined chlorine 1 drop = 0.2 or 0.5 ppm.**

**Includes:**

- Printed Color Comparator
- Waterproof Instruction
- Treatment Charts
- Chemistry Guide
- Watergram

**Item # 56-204**



### **Polyethylene Backboard**

---

This backboard is constructed of medium density polyethylene for high impact resistance. Fully foam filled for water rescue. Backboard is Haz-Mat impermeable and made with FDA/UL approved resin. Features 16 hand holds and 8 child strapping locations. Structure is concave to minimize lateral movement. Ships complete with 3 quick snap straps.

**Item # 12-317**

# Signs



## POOL RULES

1. NO RUNNING.
2. NO BOISTEROUS OR ROUGH PLAY.
3. NO DIVING ALLOWED IN AREAS OF THE POOL LESS THAN 5 FEET DEEP OR IN POOLS NOT APPROVED FOR DIVING.
4. CHILDREN SHOULD NOT USE THE SWIMMING POOL WITHOUT ADULT SUPERVISION.
5. ADULTS SHOULD NOT SWIM ALONE.
6. NO PERSON UNDER THE INFLUENCE OF ALCOHOL OR DRUGS SHOULD USE THE POOL.
7. NO PERSON WITH SKIN, EYE, EAR OR NASAL INFECTIONS ALLOWED IN THE POOL.
8. NO PERSONS WITH COMMUNICABLE DISEASE ALLOWED IN THE POOL.
9. NO ANIMALS OR PETS ALLOWED IN THE POOL OR ON THE DECK.
10. NO GLASS ALLOWED IN THE POOL OR ON THE DECK.
11. ALL PERSONS USING POOL DO SO AT THEIR OWN RISK. OWNERS AND MANAGEMENT ARE NOT RESPONSIBLE FOR ACCIDENTS OR INJURIES.
12. POOL IS FOR PRIVATE USE. MEMBERS AND GUESTS ONLY.
13. MANAGEMENT RESERVES THE RIGHT TO DENY USE OF THE POOL TO ANYONE AT ANY TIME.
14. THIS POOL IS OPEN FROM      A.M. TO      P.M.
15. THE MAXIMUM NUMBER OF SWIMMERS ALLOWED IN THE POOL IS      .
16. A FIRST AID KIT IS LOCATED      .
17. EMERGENCY TELEPHONE (OR OTHER NOTIFICATION DEVICE) IS LOCATED      .

# SPA RULES

- SHOWER BEFORE ENTERING
- NO FOOD OR BEVERAGES IN SPA POOL OR ON SPA POOL WET DECK
- NO GLASS OR ANIMALS IN THE FENCED SPA POOL AREA (OR 50 FEET FROM UNFENCED SPA POOL)
- DO NOT SWALLOW THE SPA WATER
- MAXIMUM WATER TEMPERATURE 104° F
- CHILDREN UNDER TWELVE MUST HAVE ADULT SUPERVISION
- PREGNANT WOMEN, SMALL CHILDREN, PEOPLE WITH HEALTH PROBLEMS AND PEOPLE USING ALCOHOL, NARCOTICS OR OTHER DRUGS THAT CAUSE DROWSINESS SHOULD NOT USE SPA POOLS WITHOUT FIRST CONSULTING A DOCTOR
- MAXIMUM USE 15 MINUTES

**BATHING LOAD: \_\_\_\_\_ PERSONS**

**POOL HOURS: \_\_\_ A.M. TO \_\_\_ P.M.**

# Emergency 911 Sign



**12"X6" HORIZONTAL EMERGENCY DIAL 911 SIGN**

# No Diving Sign

PS232 1812ND 18X12 HORIZONTAL SIGN NO DIVING ALLOWED



# No Lifeguard On Duty Sign



## Description

PoolStyle, SW-1, Sign - No Lifeguard on Duty, 18"x24"

**EMERGENCY  
SHUT-OFF**

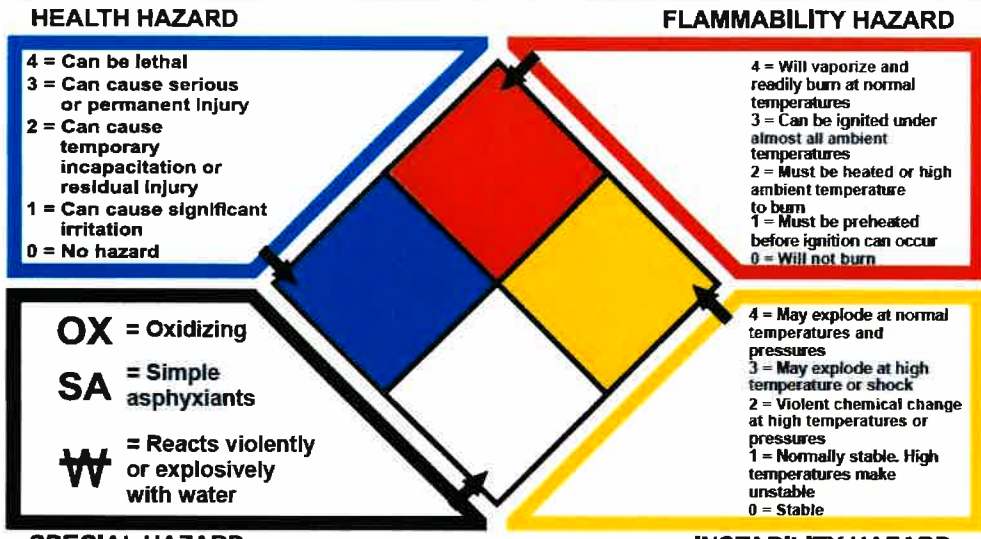


**Compliance – Resource Bulletin**

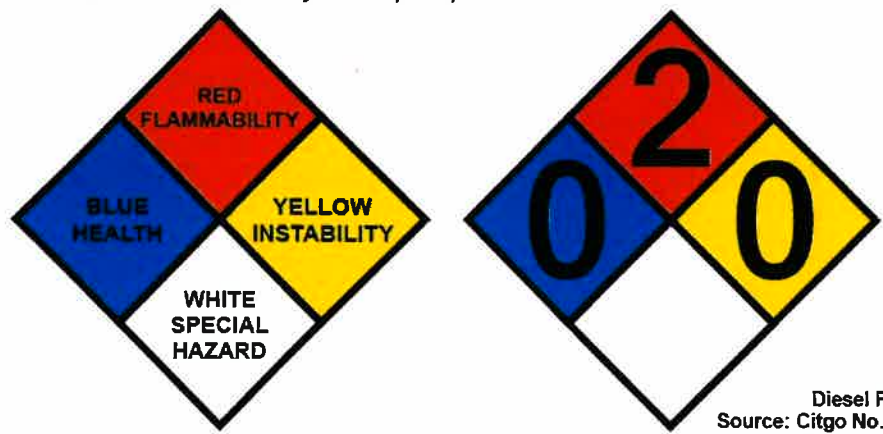
(NFPA Signs Continued)

Graphic Aid 1:

**NFPA Rating Explanation Guide**



*This chart for reference only - For complete specifications consult the NFPA 704 Standard*



Diesel Fuel  
Source: Citgo No. 2 Diesel Fuel  
MSDS Sheet # AG2DF

For NFPA 704 signs please visit our store:  
<https://www.compliancesigns.com/nfpadiamonds.shtml>

[1] NFPA.org FAQ

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# Pool Cover

The background of the page is a close-up photograph of blue water with concentric ripples emanating from a central point, creating a sense of depth and movement.

# THE ELITE SUPER BUBBLE®

## CHLOR-SAFE® SOLAR/THERMAL BLANKET

The Elite Super Bubble® blanket can be used to retain heat for indoor pools or to increase the water temperature in outdoor pools. Elite Super Bubble® pool blankets are formulated and proven to last in Australia's harsh environment by using the world's latest technology.

Elite Super Bubble® pool blankets are proven to heat and insulate better than other solar blankets on the market, due to their dark high absorbent colour & large insulating bubble size\*. It's for these reasons that Elite Super Bubble® blanket is earning the reputation world wide of being the Mercedes of pool blankets for its performance, longevity and value of investment.

Elite has been developing Solar thermal blankets for over 25 years, that truly work and last – allowing the warranty that Elite offers to be proven by time. With 100's of systems across Australia and around the world, we are proud to have the best insulating bubble blanket on the market.

### Fabric Detail

Elite's exclusive 500 or 550 micron deep blue high absorption Chlor-Safe® Super Bubble® type solar/thermal blanket fabric, is the only fabric that has been specifically designed for commercial pool covers, providing the best protection against chlorine & UV degradation.

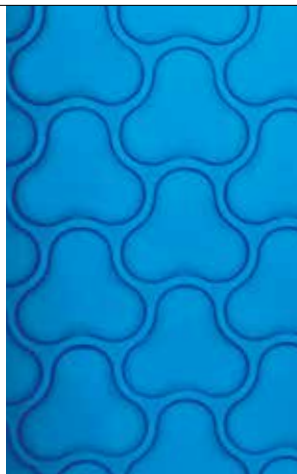
Elite's Super Bubble® has been developed to be the longest lasting, highest strength, bubble type fabric on the market. R Value = 0.75kw. Note: Other suppliers often use a domestic grade fabric with a low R value which = less savings. Elite Super Bubble® Blankets are the best on the market ,just ask anyone in the industry! Australian Designed and manufactured for Australian conditions.

### Method of Fabrication

The Super Bubble fabric is automatically seam welded from wide panels. Both ends and edges have large, high wear resistant, PVC reinforcing and the stitching has the highest UV and chlorine inhibitors. Each blanket will have its own easy to use haul cord fastening system.

### Elite Triple Cell® Solar Pool Blanket

Elite Triple Cell® is world leading technology. It has been purpose designed to provide greater heat generation and insulation. The large triple cells act as solar collectors on the water surface enabling pool owners to swim longer in a warmer pool. It's easier to use and easier to wind, easier on the eye and comes with a 12 year pro rata warranty\*. Elite Triple Cell® is a world first and it is exclusive to Elite Pool Covers.



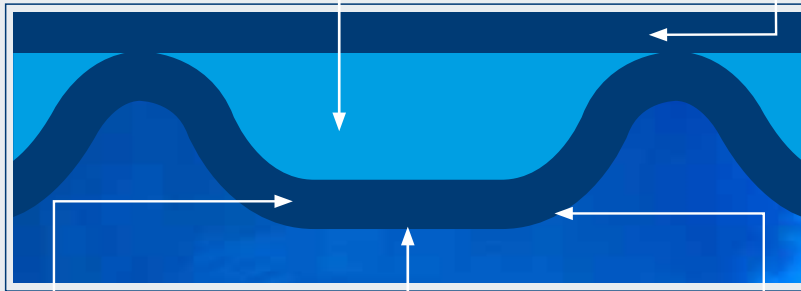
# WHAT MAKES ELITE POOL BLANKETS THE BEST?



## Elite Super Bubble Profile

**Large bubbles:** equals better insulation than other small bubble blankets, so your pool stays warmer overnight

**Ultra-heat® deep colours;** warms your pool better than pale blue blankets so you will swim sooner for longer



Broad base for better wind resistance & automatic cleaner operation plus, **the best Solar Absorbency**

Thicker than standard blankets a Saltsafe Chlor-Safe® base equals a **longer life and a better investment**

Formed round base for a stronger and longer lasting blankets: **No Weak Points**

## Elite Pool Cover Systems that won't let you down

Throughout Australia, there's a fair chance the local community swimming pool is covered by Elite. The same is true if you are travelling overseas, Elite has pools covered in South Africa, Turkey, Dubai, Spain & New Zealand.

Elite's commercial range of pool cover systems are renown for their performance & many years of trouble free operation.

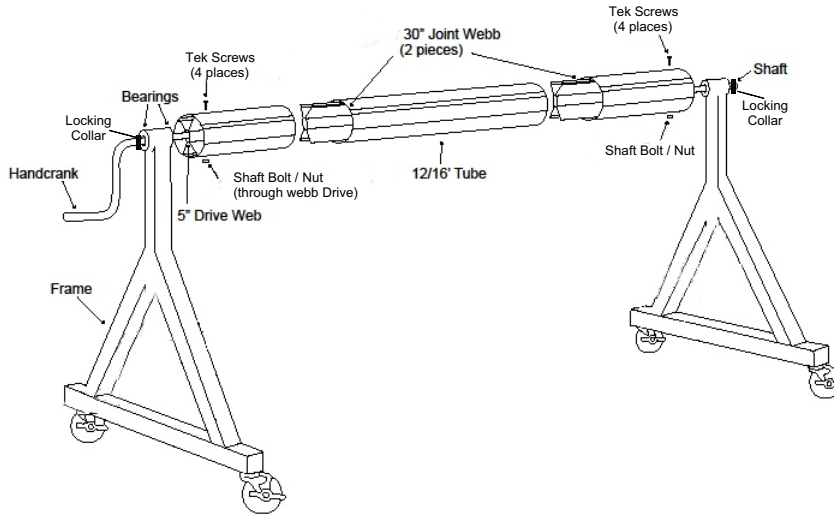
Australian made, Elite Pool Covers Commercial range of systems will get the job done for you!

Chlor-Safe® Super Bubble Fabric Specifications		
	500 micron	550 micron
<b>Thermal resistance:</b>	R value 0.075kw	R value 0.085
<b>Material width:</b>	1.4 metres	1.4 metres
<b>Colour:</b>	High absorption Blue	Blue-Green
<b>Bubble height:</b>	6 mm	6 mm
<b>Bubble diameter:</b>	20 mm	20 mm
<b>Fabric weight:</b>	530 g/m <sup>a</sup>	585 g/m <sup>a</sup>
<b>Water absorption:</b>	Minimal	
<b>Fabric:</b>	Extruded case polyethylene with maximum UV and chemical inhibitors added	
<b>Manufacturer:</b>	Made in Australia by a quality assured Company	

<sup>a</sup>independent scale tank & comparative guarded hot plate tests to Australian standard 4859-1.

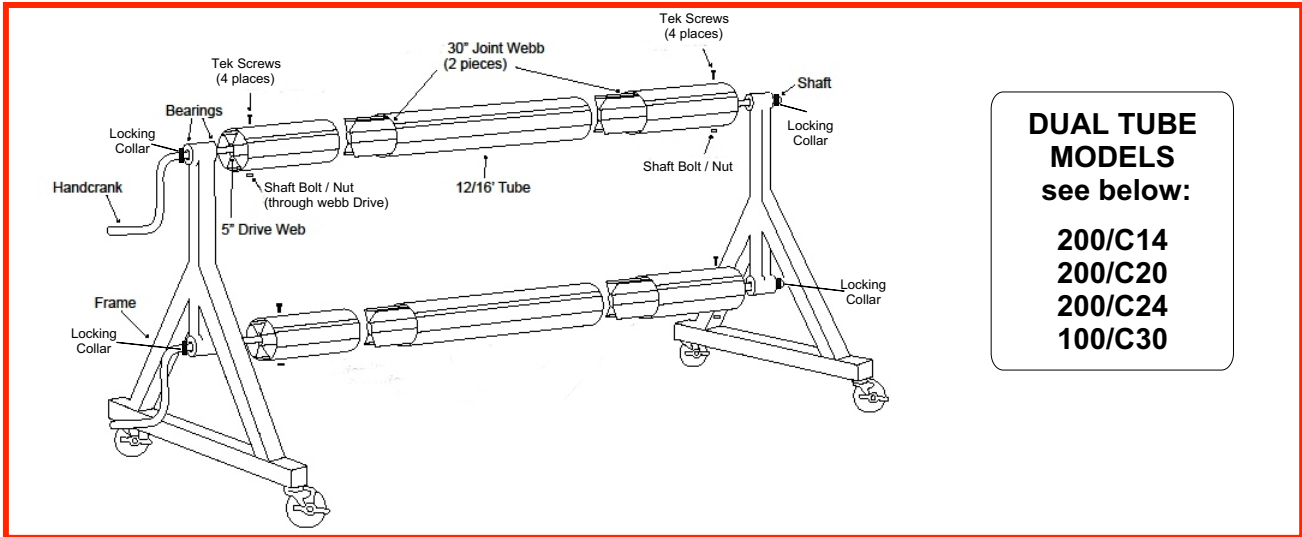


# COMMERCIAL REEL SYSTEMS



**SINGLE TUBE  
MODELS  
see below:**

**100/C14  
100/C20  
100/C24**



**DUAL TUBE  
MODELS  
see below:**

**200/C14  
200/C20  
200/C24  
100/C30**

### Commercial Models

Part#	DESCRIPTION	100/C14	200/C14	100/C20	100/C30	200/C20	100/C24	200/C24
3009	5' Commercial Anodized Aluminum Tube	0	0	2	0	4	2	4
3010	12' Commercial Anodized Aluminum Tube	0	0	1	0	2	0	0
3011	16' Commercial Anodized Aluminum Tube	1	2	0	2	0	1	2
3012	Commercial Frame (for Single Tube Assembly)	2	0	2	0	0	2	0
3013	Commercial Frame (for Dual Tube Assembly)	0	2	0	2	2	0	2
3020	5" Drive Webb (Aluminum Commercial)	2	4	0	4	4	2	4
3022	30" Joint Webb (Aluminum Commercial)	0	0	2	0	4	0	0
3054	Tek Screws (For Tubing)	8	16	40	80	80	80	80
3068	1.5" Bolt & .25" Nut	2	4	2	4	4	2	4
3060	Aluminum Collar (with set screw)	2	4	2	4	4	2	4
3061	Heavy Duty Aluminum Bearing	4	8	4	8	8	4	8
5005	Aluminum Handcrank	1	2	1	2	2	1	2
5006	Aluminum Shaft	1	2	1	2	2	1	2
5007	4" Heavy Duty Locking Casters	4	4	4	4	4	4	4
7010	Inground Cover Kit	1	2	1	2	2	1	2

# HORIZON COMMERCIAL REEL ASSEMBLY INSTRUCTIONS

Read all instructions carefully and study appropriate Diagram before you start assembly.

## TUBE ASSEMBLY:

- If a 1 piece tube is used with a Single or Dual Tube Reel Frame, no tube assembly is required. This includes the HV-100/C14, HV-200/C14 and the HV-100/C30. All other Reels have 3 piece tubes
- 3 piece tubes use either a 12' long or 16' long center tube and two - 5' end tubes. The 5' tubes will have the Joint Webb inserted and attached at the factory.  
Please note the pattern of the tek screws used to secure the joint webb into the 5' tubes and use this same pattern to secure the joint webb to the center tube.
- For 3 piece tubes lay the 3 tube sections End to End with the long piece in the center. Lay the 5' tubes on either side with the joint webb facing the center tube.
- Insert the joint webb into the center tube and butt the seam tightly. Make sure joint webb slides into channel on inside of tube - in the very same way as the factory installed joint webb.
- Drill pilot holes through the center tube and joint webb using the scribe marks on the tube to locate these holes. The holes should be space 1 inch in and 11 inches in from the seam where the tubes butt. Do this on 4 sides of the tube - you may use the same pattern as used on the 5' tubes.
- Securely screw in and tighten self-tapping screws in these holes.
- Repeat this process on the other end of the center tube(s) to complete tube assembly.

## REEL END ASSEMBLY:

- Press 2 Flange Bearings into the 2" diameter frame collar. These round frame collars are welded in place at the top of the frame for single tube reels and also in the center of the frame to accommodate a dual tube reel.
- The flange bearings do not have to be tight in the frame collar. If a flange bearing is loose it can be secured in place in the next assembly step.
- Determine which end of the reel should have the crank handle. The crank handle locking collar should be placed on the crank handle first so that it is on the outside of the frame. Then insert the shaft of the crank handle through the flange bearings in the frame collar at the top of the frame.
- Place a drive webb on the shaft of the crank handle and line up the hole in the shaft with the hole in the drive webb and secure with a 1.5" bolt and .25" nut provided.
- Press the drive webb snugly against the inside of the frame. Move the crank handle locking collar snugly up against the outside of the frame. Tighten the set screw.
- Next, using the second frame, insert the straight shaft through the 2 flange bearings at the top of the frame. Place the second drive webb on this shaft and line up the hole in the shaft with the hole in the drive webb and secure with a 1.5" bolt and .25" nut provided.
- Press the inside of the second frame snugly against the drive web. Move the straight shaft locking collar snugly up against the outside of the frame. Tighten the set screw.
- For DUAL TUBE reel systems repeat the above steps using the frame collars at the bottom center of the frames

## FINAL REEL SYSTEM ASSEMBLY:

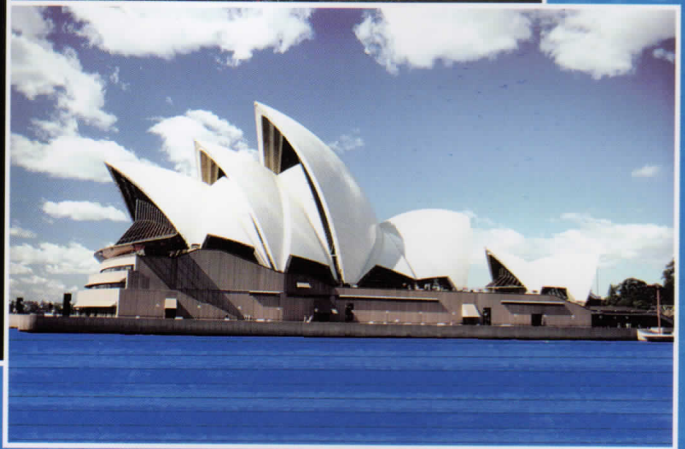
- With a helper, slide the tube (or tubes if a Dual Tube Reel is used) onto the drive webb of one of the reel end assemblies. Align end of tube flush with the end of drive webb
- Again with a helper, slide the other end of the tube (or tubes) onto the drive webb of the second reel end assembly. Align end of tube flush with the end of drive webb
- Drill 4 pilot holes through the tube and into the legs of the drive webb at each end. Secure the tube(s) to the drive webb(s) with self-tapping tek screws.
- Lift the reel at one end and insert the threaded stem of 2 casters completely through the holes in the base of the reel frame. Secure and tighten the casters with the 7/16" nuts provided.
- Repeat this caster attachment process at the other frame of the reel system.
- Instructions for attaching the solar blanket to the tube(s) using the straps are included in the strap and hardware package.

Index

# Spa Cover

The background of the page is a close-up photograph of blue water with concentric ripples emanating from a central point, creating a sense of depth and movement. The ripples are most prominent in the lower half of the image, fading into a lighter blue gradient towards the top.

# ThermGuard®



Covering the  
World's *Greatest Pools*

# Like your's

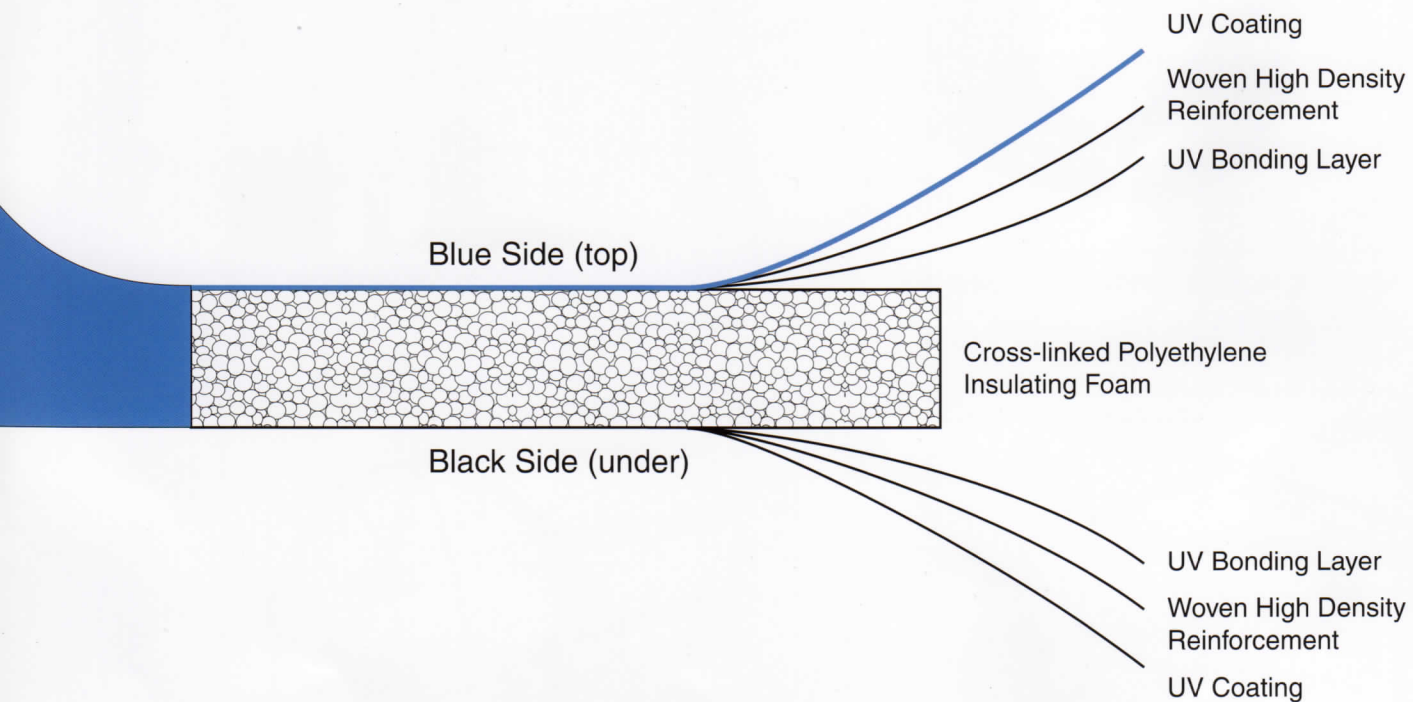


## Save Money

Pools lose energy. That is a fact. Evaporation is the largest source of energy loss. When the air temperature drops below your pool's temperature, heat is evaporating away. What can be done? The U.S. Department of Energy says it best, "Currently, the most effective method of controlling evaporation is to cover the pool...". This translates to an energy savings of 60 to 80 percent. A ThermGard® Insulated Swimming Pool Cover System by Universal Filtration will save you money.

# Quality Fabric

The heart of a pool cover system is the fabric. ThermGard® uses a seven layer, custom laminated polyethylene to provide the optimum in insulation and durability. Standard and Deluxe grades are available to fit every budget.



# Quality Construction

ThermGard® Standard and Deluxe Insulated Swimming Pool Covers are the culmination of over 20 years of pool cover manufacturing experience. Over a dozen different materials are used to construct a single cover. Each raw material is of the highest quality available. Covers are custom made to insure fit. Cutouts for ladders, handrails, slides and other water features are included. A choice of edging is available to offer wind resistance if necessary. Lock stitching is used throughout each cover. ThermGard® covers are backed by a factory warranty.

# Convenient Storage

A cover saves money only when used. This requires a strong and convenient storage system. Universal Storage Reels are specifically designed and engineered for cover handling ease. Reels are available in single, double and triple winding tube configurations. There is a Universal reel just right for your pool.



Single Reel



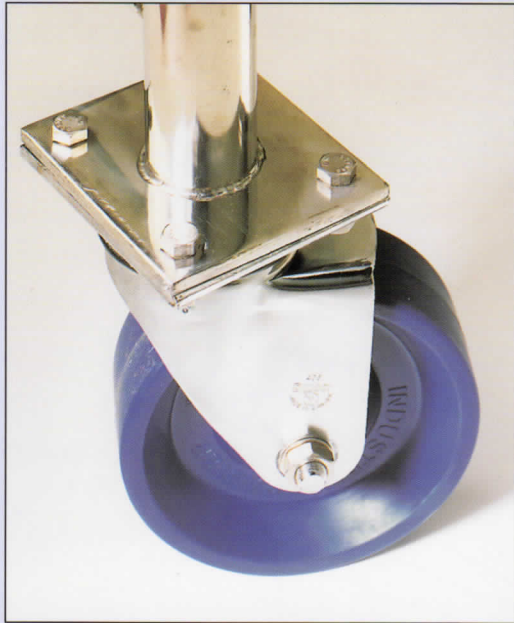
Double Reel



Triple Reel

# Strength and Beauty

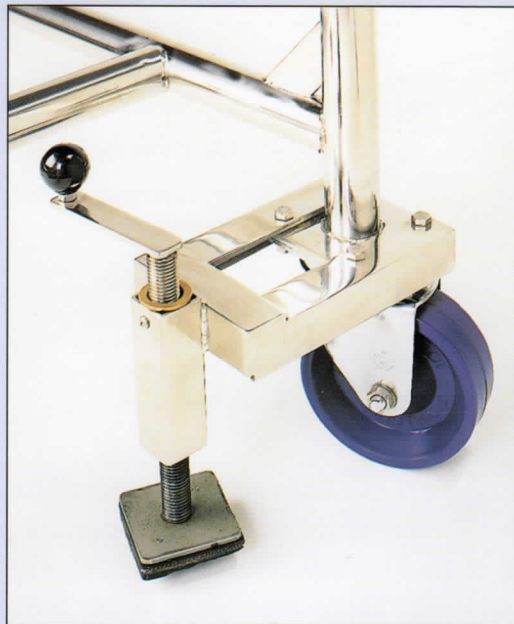
Each reel is constructed entirely of grade 304 Stainless Steel—every foot of tubing, every nut and bolt. Round, polished tubing blends with your other deck equipment. Universal reels look as good as they work.



Casters feature urethane wheels and rugged frame for easy mobility.



Welded construction for strength and durability.



Screw Jack brakes stabilize the reel during use.



Large diameter handwheel eases cover handling.

## Need more information...

- Custom Energy Audit using Energy Smart Pools by U.S. Department of Energy
- Complete Technical Specifications
- Detailed Factory Warranty

## Other related products...

- Repair Kits
- Cover Repair Service
- Storage Reel Replacement Parts
- Wall Mount Storage Reels
- Motorized Storage Reels

**ThermGuard**®

Manufactured by

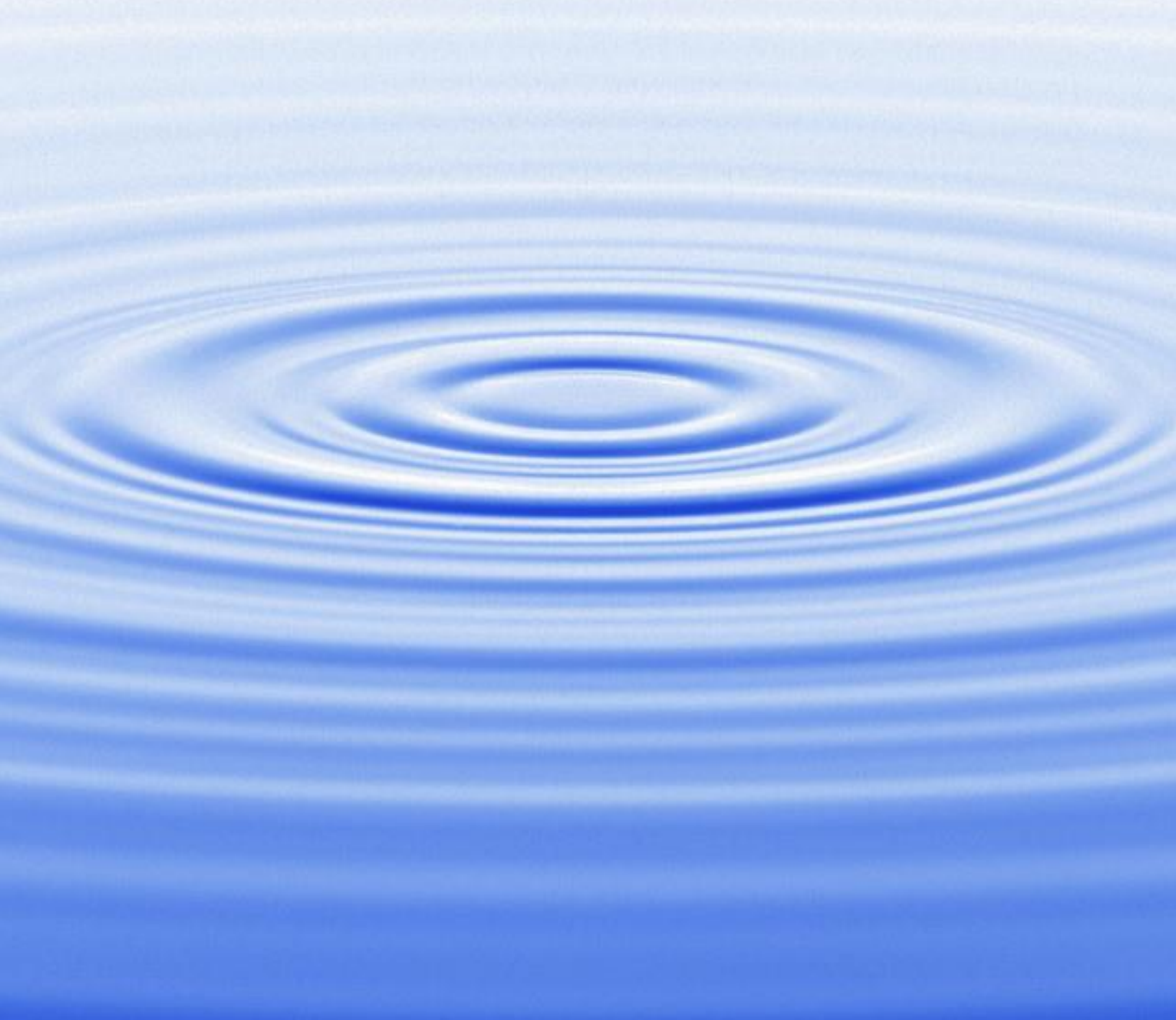


Alhambra, CA 91803  
(626) 554-4489

Authorized **ThermGuard**® Distributor

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# Pool Lift



# Splash!™ Series



## Lift Color



GRAY MIST

Due to printing technology actual color may differ.

## Splash! variations include:

- Hi/Lo – Useful for facilities that have both in-ground pools and raised spas
- Spa – Designed for raised spas
- Extended Reach – For use on pools with unusual gutter configurations requiring a longer reach
- ER Hi/Lo – For facilities that have both in-ground pools and raised spas, requiring a longer reach than the Splash Hi/Lo

This fixed lifting system is designed for swimming facilities seeking to provide user-friendly access to their swimming pools.

- Third-party tested & verified ADA compliant
- Integrated armrests
- State of California compliant
- 400 lb/181.5 kg lifting capacity\*
- LiftOperator® Intelligent Controller
- 344° rotation helps ensure a safe transfer area
- Powder-coated stainless steel and aluminum construction

\* Lifting capacity of Extended Reach models are 300 lb/136 kg



Model No.	Description Pool Lift with Armrests	Shipping – (Class 85)			
		Weight	Length	Width	Height
300-0000	Splash!	274 lbs/124kg	40"/102cm	48"/122cm	57"/145cm
350-0000	Splash! Hi/Lo	280 lbs/127kg	40"/102cm	48"/122cm	57"/145cm
370-0000	Splash! Extended Reach	282 lbs/128kg	40"/102cm	48"/122cm	57"/145cm
375-0000	Splash! Spa	268 lbs/122kg	40"/102cm	48"/122cm	57"/145cm
385-0000	Splash! ER Hi/Lo	281 lbs/127kg	40"/102cm	48"/122cm	57"/145cm
390-0000	Splash! Package*	285 lbs/129kg	40"/102cm	48"/122cm	57"/145cm
390-2000	Splash! ER Package*	293 lbs/133kg	40"/102cm	48"/122cm	57"/145cm

### Notes:

- Includes battery, charger, battery console cover, water-resistant hand control, stainless steel anchor socket with cover, footrest, seat belt assembly and armrests.
- To order a lift with an Activation Key (for LiftOperator), add a K to the end of the part number
- To order without an anchor jig add an N to end of part number
- \* Package includes mast cover and caddy

## Splash! 300

The Splash! 300 has the same features as the regular Splash!, but with a 300lb/159kg lifting capacity. In addition, it offers easier core drilling installation, with no additional footings required on a standard 4" reinforced deck.

Model No.	Description Pool Lift with Armrests	Shipping – (Class 85)			
		Weight	Length	Width	Height
300-3000	Splash! 300	274 lbs/124kg	40"/102cm	48"/122cm	60"/152cm
350-3000	Splash! 300 Hi/Lo	281 lbs/127kg	40"/102cm	48"/122cm	60"/152cm
375-3000	Splash! 300 Spa	268 lbs/121kg	40"/102cm	48"/122cm	60"/152cm

### Notes:

- Includes battery, charger, battery console cover, water resistant hand control, stainless steel anchor socket with cover, footrest, seat belt assembly and armrests
- To order a lift with an Activation Key (for LiftOperator), add a K to the end of the part number
- To order without an anchor jig add an N to end of part number

## Parts & Accessories:

- 1001495 Battery
- 500-1000 Spineboard Attachment
- 920-5000 Cover
- 970-5000 Seat Saver Cover
- 170-3000A Armrest Replacement (pair)
- 400-0000 Caddy
- 900-6000 Stability Strap
- 300-6200L Locking Anchor & Cap
- 900-1000 Seat Belt

A completed Deck Profile form is required with your pool lift order.

