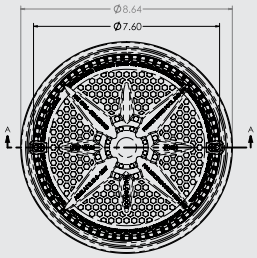
STARGUARD® MAIN DRAINS

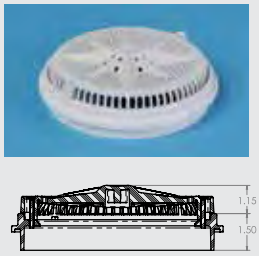
StarGuard drains comply with provisions of the ANSI/APSP 16-2011 standard as required by the Virginia Graeme Baker Pool & Spa Safety Act.

High-quality StarGuard drains are available in white, black, gray and dark gray, as well as a variety of configurations to fit any inground pool or spa installation. Review the specifications to find the right StarGuard drain model for your application.

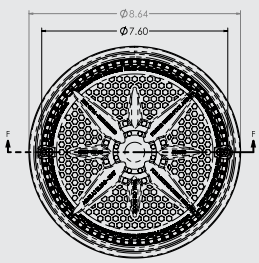
Pentair® StarGuard drains have an industry-leading 15.35 square inches of open area for water flow. If you are in an area where water velocity through the grate is limited to 1.5 feet/second, the StarGuard covers allow flow rates up to 72 GPM. Other leading competitors have open areas under 9 square inches that would limit flow to under 42 GPM.

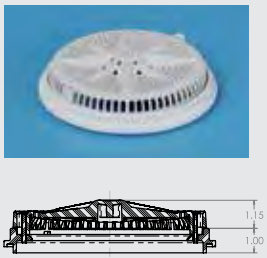
Part Number	Description		Flow Rate Floor (GPM)	Flow Rate Wall (GPM)	Open Area (sq. in.)
500108	8" StarGuard Cover with Long Ring-White	(Single)	144	112	15.35
500100	8" StarGuard Cover with Long Ring-Black	(Single)			
500101	8" StarGuard Cover with Long Ring-Dark Gray	(Single)			
500102	8" StarGuard Cover with Long Ring-Gray	(Single)			
500140	8" StarGuard Cover with Long Ring-White	(2 Pack)			
500141	8" StarGuard Cover with Long Ring-Black	(2 Pack)			
500142	8" StarGuard Cover with Long Ring-Dark Gray	(2 Pack)			
500143	8" StarGuard Cover with Long Ring-Gray	(2 Pack)			



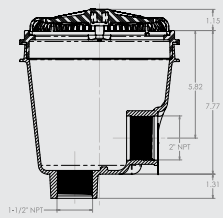
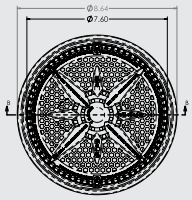


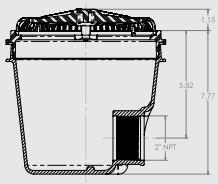
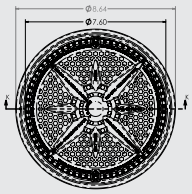
Part Number	Description		Flow Rate Floor (GPM)	Flow Rate Wall (GPM)	Open Area (sq. in.)
500103	8" StarGuard Cover with Short Ring-White	(Single)	144	112	15.35
500104	8" StarGuard Cover with Short Ring-Black	(Single)			
500105	8" StarGuard Cover with Short Ring-Dark Gray	(Single)			
500106	8" StarGuard Cover with Short Ring-Gray	(Single)			
500144	8" StarGuard Cover with Short Ring-White	(2 Pack)			
500145	8" StarGuard Cover with Short Ring-Black	(2 Pack)			
500146	8" StarGuard Cover with Short Ring-Dark Gray	(2 Pack)			
500147	8" StarGuard Cover with Short Ring-Gray	(2 Pack)			

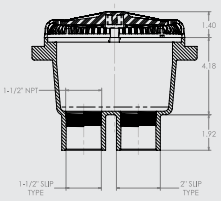
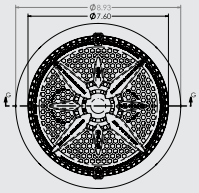


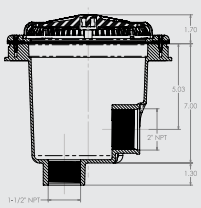
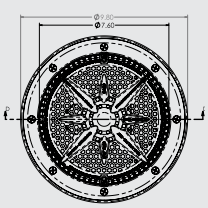


STARGUARD® MAIN DRAINS

Part Number	Description		Flow Rate Floor (GPM)	Flow Rate Wall (GPM)	Open Area (sq. in.)
500110	8" StarGuard Drain with 2" Side and 1.5" Bottom Ports ABS Sump with Ring and Cover-White	(2 Pack)	144	112	15.35
500111	8" StarGuard Drain with 2" Side and 1.5" Bottom Ports ABS Sump with Ring and Cover-Black	(2 Pack)			
500113	8" StarGuard Drain with 2" Side and 1.5" Bottom Ports ABS Sump with Ring and Cover-Dark Gray	(2 Pack)			
500114	8" StarGuard Drain with 2" Side and 1.5" Bottom Ports ABS Sump with Ring and Cover-Gray	(2 Pack)			

Part Number	Description		Flow Rate Floor (GPM)	Flow Rate Wall (GPM)	Open Area (sq. in.)
500115	8" StarGuard Drain with 2" Side Port ABS Sump with Ring and Cover-White	(2 Pack)	144	112	15.35
500116	8" StarGuard Drain with 2" Side Port ABS Sump with Ring and Cover-Black	(2 Pack)			
500117	8" StarGuard Drain with 2" Side Port ABS Sump with Ring and Cover-Dark Gray	(2 Pack)			
500118	8" StarGuard Drain with 2" Side Port ABS Sump with Ring and Cover-Gray	(2 Pack)			

Part Number	Description		Flow Rate Floor (GPM)	Flow Rate Wall (GPM)	Open Area (sq. in.)
500120	8" StarGuard Drain with Dual 2" Bottom Ports ABS Sump and Cover-White	(2 Pack)	144	112	15.35
500121	8" StarGuard Drain with Dual 2" Bottom Ports ABS Sump and Cover-Black	(2 Pack)			
500122	8" StarGuard Drain with Dual 2" Bottom Ports ABS Sump and Cover-Dark Gray	(2 Pack)			
500123	8" StarGuard Drain with Dual 2" Bottom Ports ABS Sump and Cover-Gray	(2 Pack)			

Part Number	Description		Flow Rate Floor (GPM)	Flow Rate Wall (GPM)	Open Area (sq. in.)
500130	8" StarGuard Drain with 2" Side and 1.5" Bottom Vinyl Liner ABS Sump-White	(2 Pack)	144	112	15.35
					

WARNINGS & INSTRUCTIONS

Installers, pool operators and pool owners must read these warnings and all instructions before using the StarGuard drain!

- Serious bodily injury or death can result if this product is not installed and used correctly.
- This cover must only be installed and used with the supplied Pentair® frame or with an existing Pentair, Sta-Rite or American Products frame that is in good condition and has intact brass inserts. This cover is not compatible with any other frame. If the pool or spa has an existing frame (other than one in good condition with intact brass inserts manufactured by Pentair or American Products), the existing frame must first be removed and the new supplied frame installed. Do not install this cover on any other style of frame or another manufacturer's frame. Failure to follow this warning may result in a suction entrapment hazard and can cause limb and body entrapment or evisceration/disembowelment.
- For use with multiple suction outlets or a single outlet. If only a single suction outlet or main drain exists, a safety vacuum release system (SVRS) such as the IntelliFlo® VS+SVRS Variable Speed Pump, a gravity drainage system, an automatic shut-off system or a suction-limiting vent system must be used.
- Suction entrapment hazard: Pool and spa pumps produce high levels of suction, which can pose extreme danger if a person comes in close proximity to an open pool or spa drain or if a drain cover is loose, cracked, broken or missing. Pool and spa pumps move large volumes of water, which can pose extreme danger if a person's hair comes in close proximity to a drain that is not the proper size for the pump or pumps.

Important notice:

Regularly inspect all drain covers for cracks, damage and advanced weathering. If a drain cover becomes loose, cracked, damaged, broken or is missing, close the pool or spa immediately, post a notice and keep the pool or spa closed until an appropriate VGB 2008 certified drain cover is properly installed. Drain covers deteriorate over time due to exposure to sunlight and pool chemicals. This drain cover must be replaced within seven (7) years from installation (or earlier if the cover becomes damaged in any way).

- Only the supplied stainless-steel screws should be used with the drain cover. Substitute screws such as masonry screws, sheet rock screws or other types of screws should never be used. Screws put into the frame anywhere except in the original screw holes may not hold and could cause an entrapment hazard, including possible limb and body entrapment or evisceration/disembowelment. If the screw holes of the frame are stripped or the brass inserts are missing, replace the frame. *Do not drill new screw holes in the frame as this will damage and weaken the frame.*

To reduce the risk of entrapment hazards:

A minimum of two (2) working suction outlets per pump should be installed. Dual suction fittings must be placed in such locations and distances to avoid blockage of both outlets at the same time. Suction outlets in the same plane (i.e., floor or wall) must be installed a minimum of three (3) feet (91.44 cm) apart. If suction outlets are located closer than three (3) feet apart, they shall be located on two different planes (i.e., one on the bottom and one on the vertical wall) in order to prevent dual blockage by a user. Such suction outlets must *not* be located on seating areas including seat backrests.

SAFETY TIPS Suction Safety

Protecting swimmers from suction hazards begins with the educated pool professionals, those entrusted to provide a safe and enjoyable aquatic environment. Here are a few issues that must be addressed.

- Swimmers must be protected from pump suction hazards at all times.
- Drain covers, pumps, vacuum port fittings, skimmers and safety devices must meet minimum safety standards and be certified by a nationally recognized testing laboratory.
- These products must be installed properly and in accordance with the manufacturer's instructions and all codes, standards and laws.
- These products must be regularly inspected for missing screws, loose connections, cracks, damage, advanced weathering and years of service. Remember, they do not last forever and they must be maintained.
- Do not install products that are not approved or do not meet the performance requirements of the specific suction system.

SAFETY TIPS Continued

Selecting Proper Drain Covers

Each pump will operate at a different flow rate depending on the system and assigned jobs (i.e. filtering, heating, cleaning, spa jets, waterfalls, etc.). Once this is understood, the proper suction system can be designed and installed. Here are some of the design issues that must be considered.

- Maximum system flow.
- Drain covers must be rated to handle the maximum system flow.
- Dual-drain and multiple-drain system branch piping must be sized to keep water velocity below 6 feet per second when operating at maximum system flow. Branch piping is the suction pipe between drains, not the pipe leading back to the pump.
- The frame and sump under the drain cover or a field built sump must be included or listed in the cover manufacturer's instructions.
- Drain covers must be attached using the original manufacturer's hardware, including mounting frames, sumps and fittings.
- Do not mix and match covers, frames and sumps. Only install covers on frames, sumps or field-built sump designs that have been certified by a nationally recognized testing laboratory as being compatible with that specific drain cover.

The Virginia Graeme Baker Pool & Spa Safety Act of 2007—Summary

This federal law was enacted to help prevent suction entrapment injuries and became effective December 19, 2008. The requirements for public swimming pools, spas and wading pools are summarized below and must be met before these facilities can be operated.

- Drain Cover Requirements—New drain covers, fasteners, frames and sumps certified to ANSI/APSP 16-2011 must be installed.
- Backup System Requirements—Suction piping for each pump must be inspected and will be considered in compliance with the federal law if: 1) no submerged drains connect to the pump, or 2) multiple drains or suction outlets are at least three (3) feet apart, or 3) there is a single "unblockable" drain. An unblockable drain includes a sump under the cover that is larger than 18 inches by 23 inches or a channel type drain with a diagonal open area of at least 29 inches.

Single- and two-drain systems that fail to meet the listed requirements must be modified by adding: 1) Safety Vacuum Release System (SVRS), 2) Suction-Limiting Vent System, 3) Gravity Drainage System, 4) Automatic Pump Shut-Off System, 5) Drain Disablement, or 6) Other Systems determined by Consumer Product Safety Commission to be equally effective. Another option is to split the single drain into a dual-drain system with at least 3 feet of separation using properly sized branch piping.

Codes and Standards

All public pools, spas and wading pools must comply with the Virginia Graeme Baker Act. In addition, many state and local governments may have more stringent requirements, codes and standards that apply to residential and public pools, spas and wading pools. These may include the ANSI/APSP 7 Suction Entrapment Avoidance Standard, the International Code Council's building codes (which adopt the International Building Code and International Residential Code), and other codes and standards. Be sure to consult your state and local building and health codes and standards for more information.

FOR MORE INFORMATION ABOUT:

- Pentair safety and compliance products, visit: www.pentairpool.com.
- Virginia Graeme Baker Pool and Spa Safety Act, visit: www.cpsc.gov.
- ICC codes, visit: www.iccsafe.org.
- ANSI/APSP-7 Suction Entrapment Avoidance Standard, visit: www.apsp.org.

PENTAIR

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