



# Sparger Systems

Air safety cushions for springboard and platform diving



Natare Air Safety Cushion Sparger Systems for springboard and platform diving prevent injuries and aid divers during training in learning the mechanics of complicated dives.

Sparger control systems feature solid state electronics, and industrial grade UL-listed components.



### Features, Benefits for Natare Air Cushion Sparger Systems

## Air Safety Cushion Sparger Systems

Natare state-of-the-art Air Safety Cushion Sparger Systems for springboard and platform diving provide instant mounds of highly aerated water in the diver's entry area to help prevent injuries and aid divers during training in learning the mechanics of complicated dives.

Instant air cushion sparger systems utilize special stainless steel and PVC sparger nozzles (diffusers) installed in the pool floor directly under the diving boards or platforms to provide a mound of bubbles to cushion the diver's impact into the water while providing the diver with a clear visual reference for the water surface.

The bubble action is activated on demand by the coach or trainer using a hand held remote control that starts and stops the release of air. The bubbling action normally lasts for between five to seven seconds, providing adequate time to coordinate the air release with the diver's entry into the water.

The sparger nozzles are supplied by a high capacity compressor and storage tank, which are located in a remote mechanical room or service area. Air safety cushion systems can be installed for permanent or removable use, either during new construction or for existing pools.

The first air cushion was installed at Point Claire, Québec, and air cushion systems are now installed throughout the United States, Canada and Europe. Initial installations were typically found in Olympic caliber facilities such as the Indiana University Natatorium in Indianapolis and the King County Aquatic Center in Seattle, Washington. Since the initial introduction in 1971, air cushion safety systems have become a requirement for any facility with a top quality diving training program.

Natare Air Safety Cushion Bubbler Systems are precisely engineered, field tested systems that are intended for use in new construction or renovation. Highly durable materials such as PVC stainless steel and high density polyethylene are used throughout to product a system that will last for years and years with little or no maintenance.

Sparger control systems feature solid state electronics, industrial grade UL-listed components and NEMA 4X PVC control enclosures to ensure reliable performance even in a swimming pool environment.

Sparger diffuser heads are available in stainless steel or combination stainless steel, PVC and high density polyethylene and provide maximum air dispersion. Individual air diffusion sparger heads are permanently installed in the floor of the diving pool and require no maintenance.



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## What it does

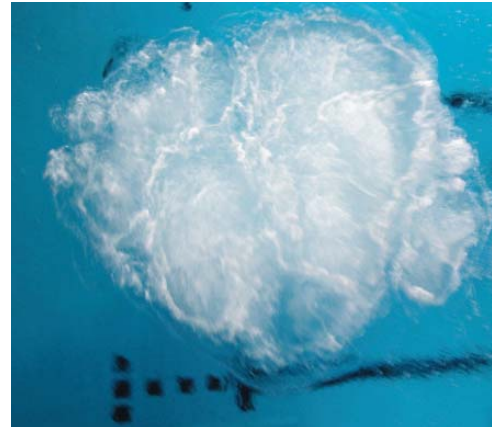
An air safety cushion sparger system is a combination of air compressor, sparger diffuser nozzles, control valves, filters and controls individually selected to provide the correct quantity and quality of air from the bottom of the diving pool.

A uniform mixture of air and water in the diver's entry area lessens the fear of injury during training. The highly aerated foam cushion helps the diver to concentrate on the mechanics of learning new dives, particularly dives with a higher degree of difficulty. The froth of water also helps the diver to judge the water surface accurately.

The coach or trainer communicates with the diver to coordinate the initiation of the bubbling action as the diver leaves the tower of platform, then stops the air flow after the diver enters the water. Operation is simple and easy, and both coach and diver soon learn to maximize the beneficial effects of the system.

Air Safety Cushion Sparger Systems are designed and manufactured specifically for each application. The number, size and location of the aerating sparger diffuser nozzles are designed for specific function of diving pool depths, board heights and locations. Compressor, air storage and compressed air needs are based upon diffuser nozzle requirements and required cycle times.

Typical systems consist of a base mounted compressor with one or more air receivers (air storage units). Depending upon compressor sizing and storage capacity, dives can be completed as often as every two to four minutes. In addition to the air compressor and storage units, a complete air quality and control system is provided including pressure reducing valves, filters, air regulation valves, electric solenoid control valves and control panel. Remote handheld push button control pendants can be radio controlled or cable connected to the control panel.



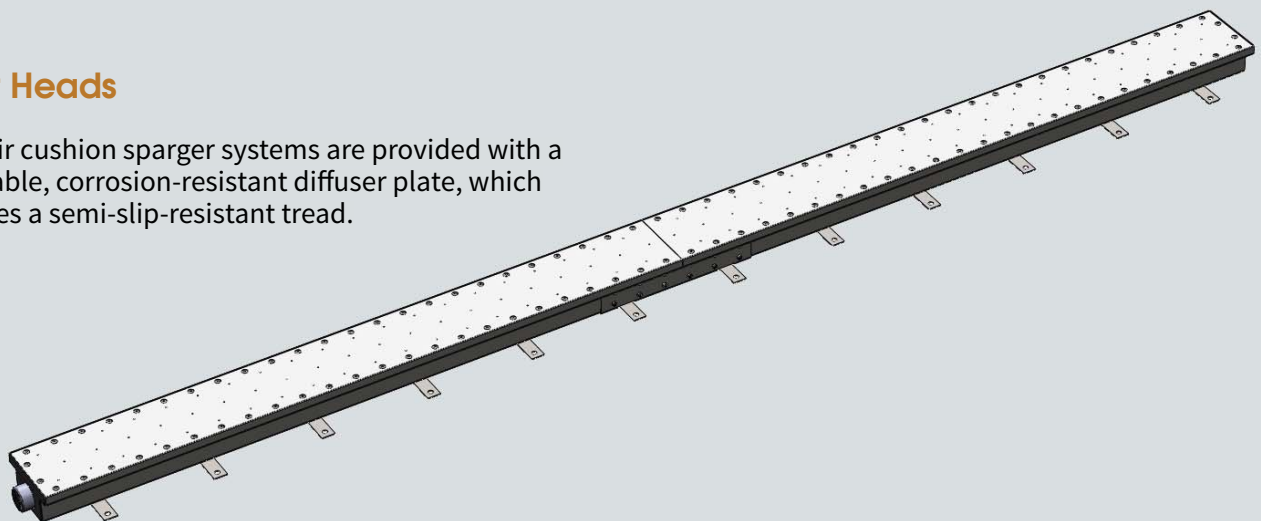
Embedded Pool Floor Air Diffuser



Cushioning Layer of Bubbles on Demand!

## Sparger Heads

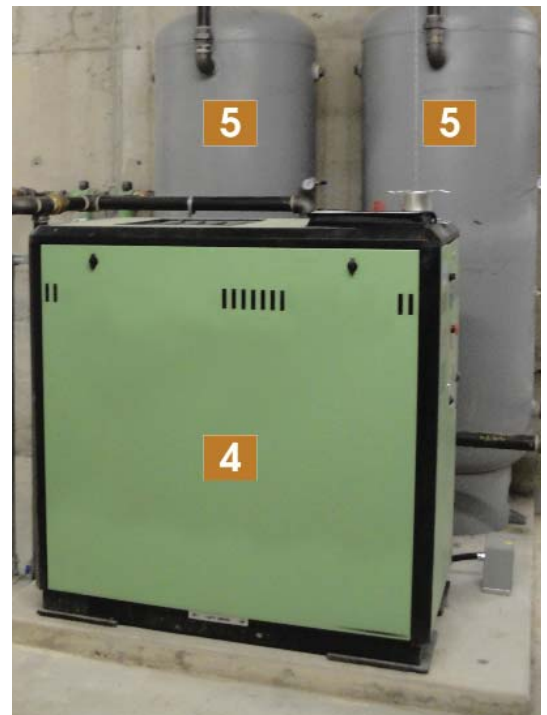
Natare air cushion sparger systems are provided with a highly durable, corrosion-resistant diffuser plate, which incorporates a semi-slip-resistant tread.



## Easy to Setup Modular Components

Air Safety Cushion Sparger Systems are designed and manufactured specifically for each application. The number, size and location of the aerating sparger diffuser nozzles are designed for specific function of diving pool depths, board heights and locations. Compressor, air storage and compressed air needs are based upon diffuser nozzle requirements and required cycle times. Natare's Air Safety Cushion Sparger Systems are designed to work in junction with a variety of manufacturer's Air Supply Systems air supply systems.

Typical air supply systems consist of a base mounted compressor with one or more air receivers (air storage units). Depending upon compressor sizing and storage capacity, dives can be completed as often as every two to four minutes. In addition to the air compressor and storage units, a complete air quality and control system is provided including pressure reducing valves, filters, air regulation valves, electric solenoid control valves and control panel.



## Air Cushion Sparger System Components

1. Master System Control Panel
2. Sparger Head Air Control System Enclosure
3. Deck Side Control Panel with Wireless Remote
4. Air Compressor(s)
5. Air Tank(s)/Receiver(s)
6. Sparger Head(s) (Not Shown- Located in Pool)

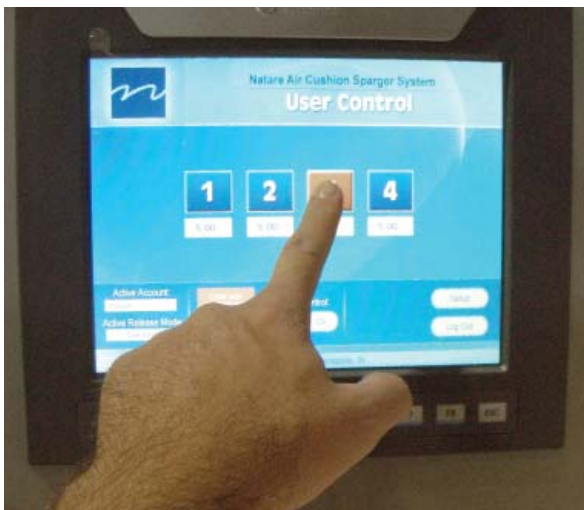


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## Water Surface Dulling Feature

The Natare Air Cushion Sparger System also includes a water surface Dulling feature. This feature utilizes a small flow of air through the sparger heads to disturb the water surface. The Dulling feature can be turned on or off at the Deck Side Control Panel.

Enabling the surface dulling will supply a slight flow of air to all of the sparger heads at once. The air flow for each sparger head is independently controlled inside the Sparger Head Air Control System Enclosure for desired effect above the corresponding sparger head



## Air Pressure Check and Low Air Pressure Warning

When running the Air Safety Cushion Sparger System for long periods of time or for a diver who is just learning a new dive and needs the aide of the bubbles repetitively, you need to monitor the Air Pressure gauge indicator. The Main screen shows the current level of air pressure available (circled in red). If the pressure gets below the Low Air Pressure setting, your screen will turn all yellow with the text stating LOW AIR PRESSURE. The system will need to build up the air pressure in the air storage system before the system can be used again, and the system will be locked until proper air pressure returns.



## Air Cushion Sparger System Settings and Adjustment

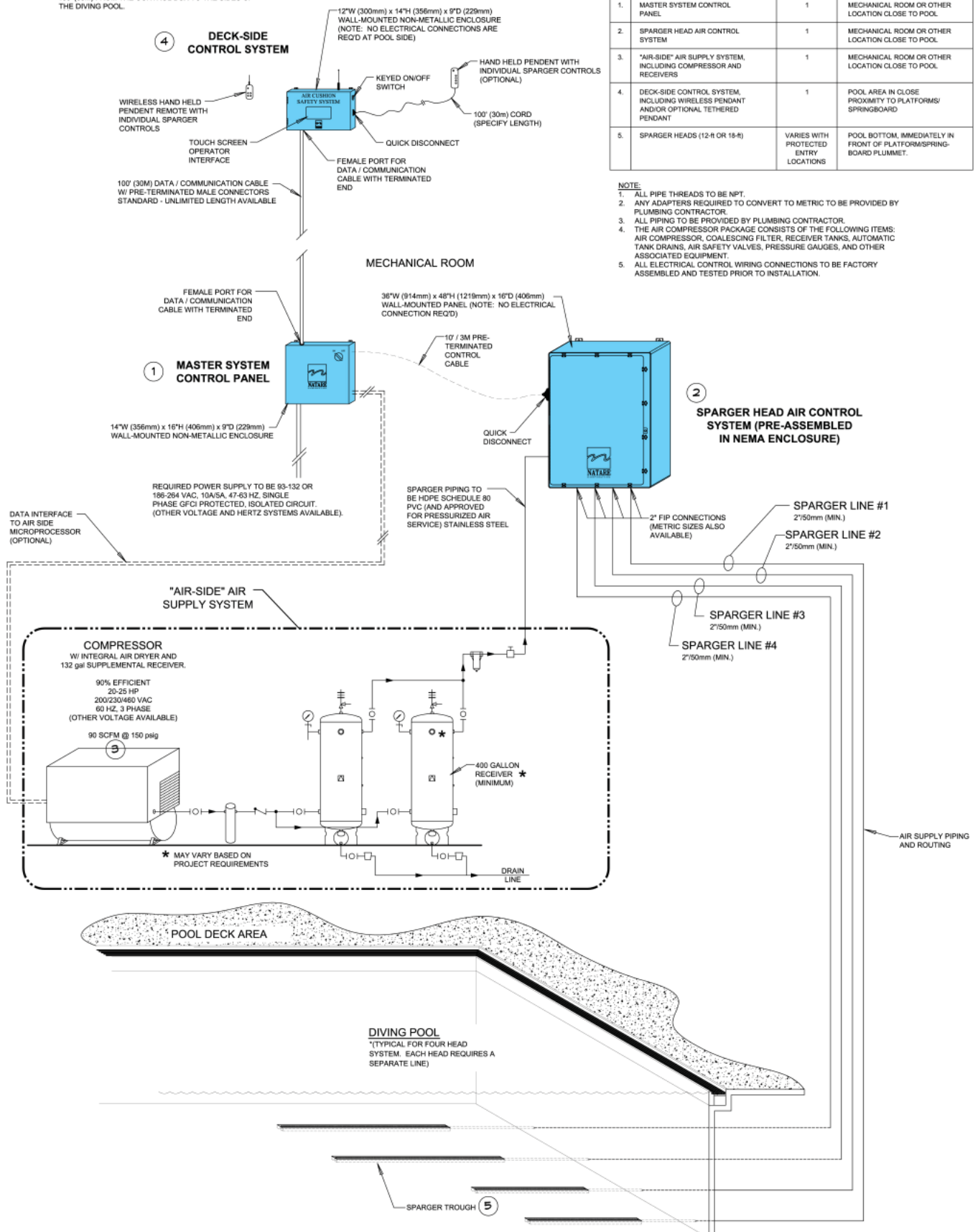
After the installation and operation of your Natare Air Cushion Sparger System has been tested by a factory authorized sparger technician, it should be ready for use. There are many adjustments inside the Sparger Head Air Control System Enclosure that are critical to the performance. You MUST consult with a factory authorized sparger technician prior to making any adjustments inside the Sparger Head Air Control System Enclosure. Improper settings to the precision control system inside the Sparger Head Air Control System Enclosure could cause extensive damage to the sparger system, pool and equipment, and potential injury or death.



For reference, your Natare Air Cushion Sparger System has been set to the following readings:	
Description	Factory Setting
System Air Pressure	125 psi (or as regulated by compressor)
Primary Sparger Head Pressure Regulator	40 psi
Water Surface Dulling Pressure Regulator	50 psi
Control System Pressure Regulator	70 psi
Individual Sparger Head Flow Control Valve	Approximately 4 turns open (from completely closed) or as required for proper distribution of air
Individual Water Surface Dulling Flow Control Valve	Approximately 1 turn open (from completely closed) or as required for proper distribution of air
Low Air Pressure Warning	40psi
Timed Duration Release Mode	5 seconds
Screen Saver – Logo	300 seconds or as desired
Screen Saver – Back Light	300 seconds or as desired

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**AIR CUSHION SAFETY SYSTEM DECK CONTROL PANEL IS TO BE LOCATED IN CLOSE PROXIMITY TO PLATFORM. THIS WILL ALLOW THE HANDHELD PENDANT TO EXTEND 100' (30M) FROM THE CONTROL BOX TO THE SIDES OF THE DIVING POOL.**

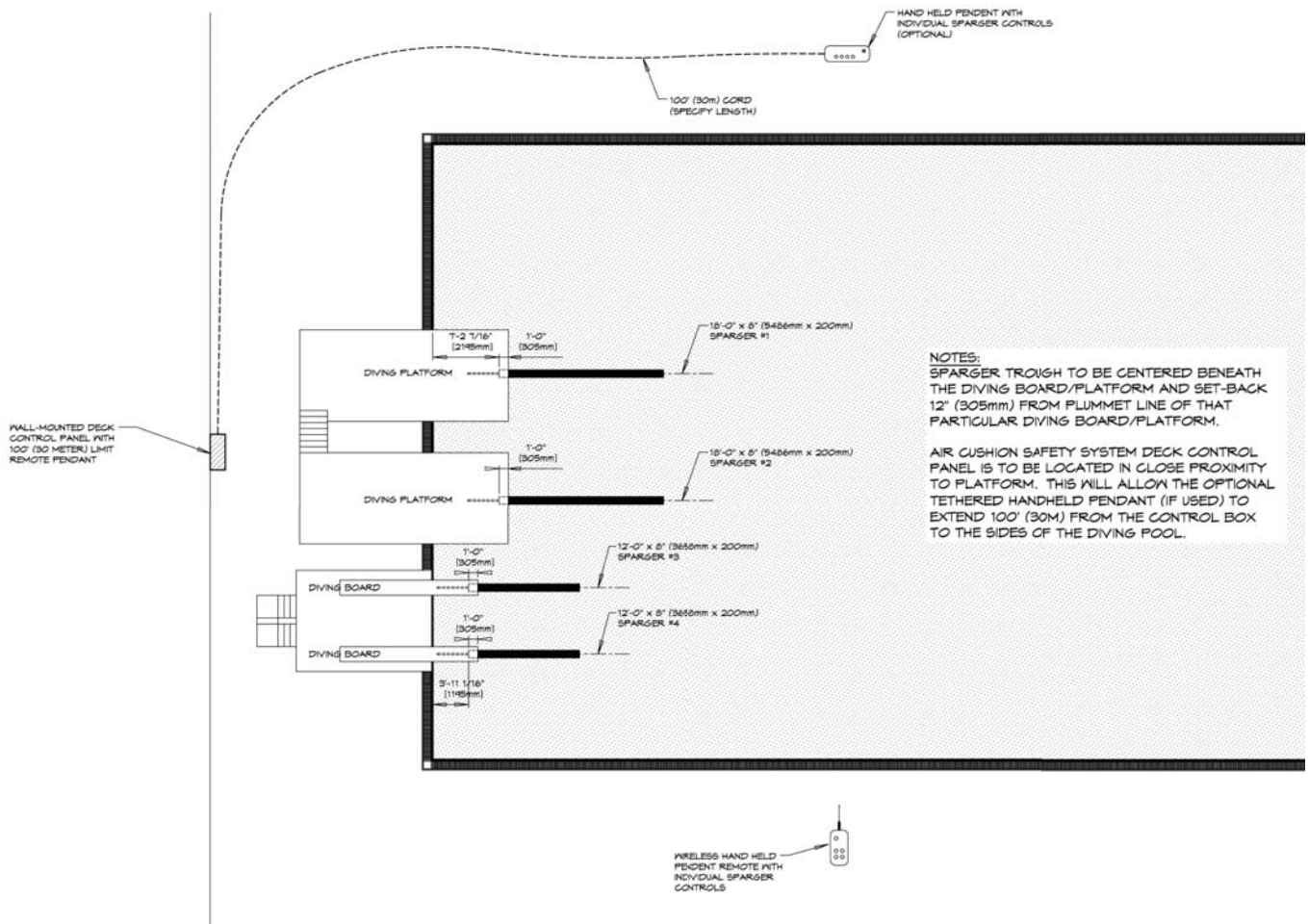


**AIR CUSHION SPARGER SYSTEM - MAIN SYSTEM AND COMPONENTS**

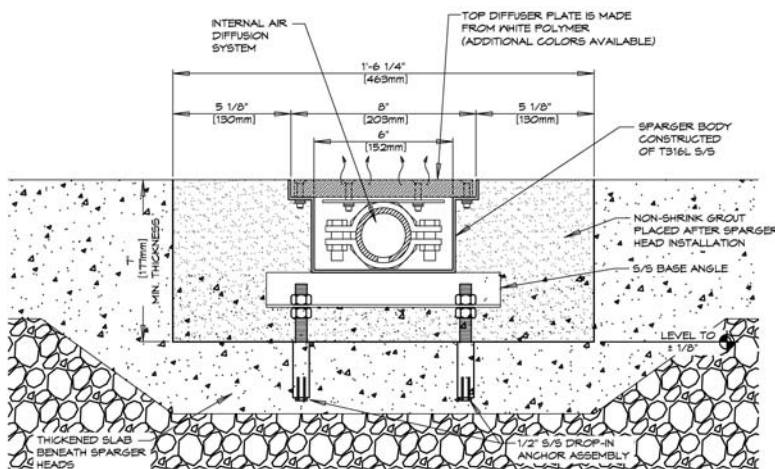
ITEM	DESCRIPTION	QUANTITY	LOCATION
1.	MASTER SYSTEM CONTROL PANEL	1	MECHANICAL ROOM OR OTHER LOCATION CLOSE TO POOL
2.	SPARGER HEAD AIR CONTROL SYSTEM	1	MECHANICAL ROOM OR OTHER LOCATION CLOSE TO POOL
3.	"AIR-SIDE" AIR SUPPLY SYSTEM, INCLUDING COMPRESSOR AND RECEIVERS	1	MECHANICAL ROOM OR OTHER LOCATION CLOSE TO POOL
4.	DECK-SIDE CONTROL SYSTEM, INCLUDING WIRELESS PENDANT AND/OR OPTIONAL TETHERED PENDANT	1	POOL AREA IN CLOSE PROXIMITY TO PLATFORMS/ SPRINGBOARD
5.	SPARGER HEADS (12-18 OR 18-6)	VARIES WITH PROTECTED ENTRY LOCATIONS	POOL BOTTOM, IMMEDIATELY IN FRONT OF PLATFORM/SPRINGBOARD PLUMMET.

**NOTE:**

1. ALL PIPE THREADS TO BE NPT.
2. ANY ADAPTERS REQUIRED TO CONVERT TO METRIC TO BE PROVIDED BY PLUMBING CONTRACTOR.
3. ALL PIPING TO BE PROVIDED BY PLUMBING CONTRACTOR.
4. THE AIR COMPRESSOR PACKAGE CONSISTS OF THE FOLLOWING ITEMS: AIR COMPRESSOR, COALESCING FILTER, RECEIVER TANKS, AUTOMATIC TANK DRAINS, AIR SAFETY VALVES, PRESSURE GAUGES, AND OTHER ASSOCIATED EQUIPMENT.
5. ALL ELECTRICAL CONTROL WIRING CONNECTIONS TO BE FACTORY ASSEMBLED AND TESTED PRIOR TO INSTALLATION.



Typical Sparger Plan View



Typical Sparger Section

Natare has designed, manufactured and installed some of the world's largest, highest, most complex (and fastest!) swimming pools and aquatic facilities. Natare equipment and systems are available through a worldwide network of builders, distributors and specialty contractors who are there to help carefully select and conscientiously install our products, equipment and systems to make your facility work for you.

Whether it is new construction, renovation or operation, talk to Natare.