

Splash Pad Product Specification Guide

Technical reference for product planning, engineering review, and manufacturing evaluation

Document Type	Technical specification guide
Prepared By	EPN product and engineering team
Primary Product	Kids splash pads and related PVC water play products
Recommended Use	Private label development, retail program review, sourcing evaluation
Core Manufacturing Scope	Material preparation, cutting, welding, testing, packaging

Splash pads are among the most commercially attractive summer water play products because they combine low water depth, easy installation, compact storage, and strong visual appeal for children and families. Compared with inflatable pools, splash pads generally require less water, lower freight volume, and simpler user setup. These characteristics make them suitable for backyard retail programs, seasonal promotions, and private label product lines focused on outdoor recreation.

At EPN, splash pad manufacturing is supported by an integrated production system that includes an internal PVC and composite material workshop, PVC processing facilities equipped with high-frequency welding machines, automated cutting equipment, inflatable structure inspection stations, airtightness testing devices, accessory preparation support, and packaging and printing capabilities. This structure allows our team to evaluate design feasibility, control production consistency, and support projects from sampling through shipment.

This guide is written in the style of an internal technical reference and is intended to help sourcing teams, product managers, and brand owners understand the main specification parameters behind a well-made splash pad. The following pages summarize structural design, size and material guidance, engineering ranges, manufacturing flow, quality control checkpoints, and practical product development recommendations based on EPN's production experience.

Key commercial data point	Reference range
Minimum order quantity	50 pcs
Standard sample lead time	5-10 days
Special sample lead time	10-15 days for new accessory tooling or special processes
Typical production lead time	20-30 days after sample approval and deposit
Supported trade terms	EXW / FOB / DAP / DDP
Supported payment methods	T/T, PayPal, credit card, third-party payment, Alibaba, Alipay, Western Union

1. Product Structure and Size Planning

Although a splash pad looks simple at retail level, it is actually a pressure-distribution product. Water enters through the connector, circulates through the outer ring channel, and exits through small sprinkler holes positioned around the perimeter. The product must therefore maintain a workable balance between ring volume, seam strength, hole spacing, and material flexibility. If any of these variables are poorly matched, spray height becomes uneven, the ring may distort under pressure, or the connector area may become a leakage point.

At EPN, structural planning begins with intended user scenario, not only with graphic concept. We usually review target age range, number of children expected on the pad at the same time, garden or patio size, and the likely water pressure environment for the destination market. This helps our engineering and production teams recommend a more suitable diameter, PVC thickness range, and sprinkler-hole count before sample production starts.

Diameter	Typical user scenario	Recommended age	PVC thickness	Typical hole count	Typical spray zone
100-120 cm	Toddler use, compact patios, small lawns	1-3 years	0.25-0.30 mm	40-50	Small circular play area
140-150 cm	1-2 children in standard backyard	3-5 years	0.30-0.35 mm	50-70	Balanced family-use format
160-170 cm	2-3 children active play	4-7 years	0.35-0.40 mm	70-90	Wider central play surface
180-200 cm	Family play, group play, retail hero SKU	5+ years	0.40-0.45 mm	90-110	Large spray coverage area

Structural components commonly reviewed by EPN

The main splash pad structure normally includes the central play surface, outer ring water channel, reinforced edge seam, sprinkler hole layout, and hose connector assembly. In projects that add interactive functions such as basketball hoops or character elements, the surrounding inflatable structures must also be considered as part of the pressure and weld design. EPN uses automated cutting equipment to keep panel dimensions stable and high-frequency welding to maintain continuous seam bonding around the ring.

Component	Function	Typical engineering concern	EPN control point
Central play surface	Main standing and sitting area	Flatness, anti-slip feel, graphic alignment	Panel layout and print-position control
Outer sprinkler ring	Water circulation and spray generation	Ring volume and pressure balance	Weld consistency and ring geometry review
Welding seam	Structural sealing	Leakage, seam split, weak bonding	High-frequency weld width and visual inspection
Sprinkler holes	Water exit and spray pattern	Uneven spacing or unstable spray	Hole count and distribution verification

Component	Function	Typical engineering concern	EPN control point
Connector zone	Water inlet connection	Leak risk under pressure	Reinforced PVC area and leak testing

2. Material Selection and Engineering Data

Material choice is one of the biggest drivers of splash pad durability, odor perception, foldability, and freight efficiency. A light-gauge material may lower cost and packing weight, but it can also reduce shape stability in larger diameters. A heavy-gauge material improves robustness, but if it is not matched properly with layout and weld design, the product can become unnecessarily stiff or cost-heavy for the market segment. For this reason, EPN normally treats material selection as a product-positioning decision rather than a single fixed default.

Because EPN operates an internal material workshop for high-performance PVC and composite materials, our team can evaluate how material thickness, surface finish, and reinforcement level affect manufacturability. This is particularly useful when a project requires a large-diameter splash pad, custom graphics, stronger pet-oriented versions, or structural add-ons that place more stress on the welded perimeter.

Material option	Thickness range	Typical use	Commercial benefit	Engineering note
Flexible PVC	0.25-0.30 mm	Small splash pads and entry SKUs	Lower weight and cost	Best for compact diameters and lighter use
Reinforced PVC	0.30-0.35 mm	Standard family splash pads	Balanced durability and flexibility	Most common range for mainstream retail
Heavy-duty PVC	0.40-0.45 mm	Large sizes and higher-activity use	Higher durability and shape stability	Useful when hole count and ring pressure increase
Pet-oriented reinforced PVC	0.40-0.45 mm	Dog splash pads or mixed-use products	Improved scratch resistance	Supports more demanding outdoor use

Reference item	Typical specification range	Why it matters
Sprinkler hole diameter	0.8-1.2 mm	Affects spray height, direction, and pressure balance
Connector size	3/4 inch standard	Supports common residential hose connection
Pressure compatibility	Approx. 2-4 bar household range	Important for broad consumer usability
Recommended seam width	Approx. 8-12 mm	Supports sealing strength in ring structure
Typical sample approval focus	Spray pattern, seam quality, print alignment, connector seal	Reduces production-stage correction risk

Material and design recommendations from EPN

For splash pads below 120 cm, flexible PVC can often achieve acceptable durability while keeping freight and packing costs efficient. For the 140-170 cm range, reinforced PVC is generally a more stable choice for mainstream family use. Once the product approaches 180 cm or above, or when it is positioned as a higher-traffic family item, thicker PVC and stronger seam design are usually recommended. If the product is

targeted at the pet category, a more robust material approach is advisable even at mid-size diameters.

3. Manufacturing Flow, Quality Control, and Delivery Data

A reliable splash pad is not created by material alone. Manufacturing accuracy has a direct effect on seam reliability, ring geometry, connector sealing, and the final spray pattern. At EPN, the production sequence is organized so that each stage feeds into the next with clear checkpoints, from material inspection to cutting, welding, hole formation, leak testing, and packaging. This internal coordination is one reason why our team can support both smaller development runs and repeated seasonal production programs with more stable output.

Our factory setup includes high-frequency welding machines, automated cutting equipment, inflatable structure inspection stations, airtightness testing instruments, and packaging support. These resources make it easier to control dimensional consistency, reduce manual variation, and catch quality issues before shipment. In practice, this means that projects move through a more structured workflow rather than relying on loosely connected outside vendors.

Production stage	Main work content	Main equipment or control point	Typical output
Material preparation	Inspect PVC rolls and prepare production-ready sheets	Internal material workshop	Approved raw material for cutting
Cutting	Cut center panels, ring panels, and reinforcement pieces	Automated cutting equipment	Dimensionally consistent components
Welding	Seal ring structure and reinforce critical areas	High-frequency welding machines	Watertight main body structure
Hole formation	Create sprinkler-hole pattern around ring	Layout control and visual review	Balanced spray path
Connector assembly	Install inlet connection and reinforce zone	PVC reinforcement plus fitting check	Ready-to-test water inlet section
Inspection and testing	Check seam, spray, connector, and appearance	Inspection stations and airtightness test	Approved finished unit
Packing	Fold product and combine accessories and packaging	Packaging and printing support	Shipment-ready product set

QC checkpoint	Inspection content	Typical concern prevented
Material inspection	Thickness consistency, color, surface quality	Unexpected weakness or appearance defect
Weld inspection	Continuous seam line, no split or bubble	Leakage and seam failure
Hole check	Hole count, spacing, uniformity	Uneven spray or weak water distribution
Connector leak test	Seal performance under water pressure	Inlet leakage during use

QC checkpoint	Inspection content	Typical concern prevented
Final packing check	Accessory completeness, print quality, carton condition	Missing parts or damaged retail presentation

Commercial item	EPN reference
Minimum order quantity	50 pcs
Standard sample lead time	5-10 days
Special sample lead time	10-15 days when new tooling or special process is involved
Mass production lead time	20-30 days depending on order size and confirmed specification
Shipping methods	Courier, air freight, sea freight
Communication channels	Email, WhatsApp, WeChat, voice call, video meeting
Factory visit support	Available by arrangement
Pre-shipment inspection	100 percent product inspection before shipment

4. Conclusion and Product Development Recommendations

From a technical and commercial point of view, a successful splash pad is not defined by appearance alone. The strongest products are those in which diameter, PVC thickness, sprinkler-hole count, seam design, connector reinforcement, and production controls are matched to the intended user scenario. Products that are oversized for their material grade, under-engineered at the connector zone, or produced with inconsistent welding quality may still look acceptable in photos but often generate avoidable complaints once they reach the end user.

Based on EPN's experience with PVC water-play and inflatable recreational products, the most practical specification strategy is to treat splash pad development as a combination of engineering review and market positioning. Entry-level compact pads can prioritize lighter materials and efficient packaging. Mainstream family-use models usually need a more balanced reinforced PVC structure. Larger hero products, or products expected to support heavier use, require more disciplined control over material thickness, seam integrity, and spray distribution. This is especially true when the design includes extra play elements or when the product is adapted for pet-related use.

Development topic	Recommendation	Why it improves results
Target age and usage	Define user age and number of children before finalizing size	Helps avoid overbuilt or undersized designs
Diameter selection	Use 100-120 cm for toddlers, 140-170 cm for mainstream family use, 180-200 cm for larger group play	Improves practical fit for end users
Material planning	Upgrade thickness as diameter and activity level increase	Supports longer life and better structural stability
Spray engineering	Match hole count and spacing to diameter and target spray zone	Improves consistency of water coverage
Connector design	Reinforce inlet zone and verify sealing under test conditions	Reduces one of the most common failure points
Sampling	Confirm sample on spray, seam, print, and accessory set before mass production	Limits production-stage rework
Supplier evaluation	Prefer factories with internal cutting, welding, testing, and packaging capability	Improves coordination and batch consistency

EPN recommendation summary

For buyers, the safest decision path is to evaluate splash pads in three layers. First, confirm whether the size and age positioning are commercially correct for the intended market. Second, verify whether the material range and engineering data are reasonable for that size. Third, review whether the factory has the internal manufacturing and inspection capability to produce the product consistently. EPN supports this process through collaborative design review, sample development, material evaluation, and 100 percent pre-shipment inspection, helping customers move from concept to shipment with clearer technical control.

Beyond splash pads, EPN's broader manufacturing scope includes dog splash pads, dog pools, splash pads with basketball hoops, snow tubes, fabric-covered snow tubes, inflatable punching bags, sprinkler arches, and pool

pillows. This wider product background is useful because it gives our engineering and production teams hands-on experience with multiple PVC recreational structures, not only a single seasonal item. For brands building a wider outdoor or seasonal product line, that broader capability can shorten development cycles and improve supplier continuity.

In summary, this guide recommends selecting specifications according to user scenario, not only headline size or cost target. When size planning, material choice, weld design, and inspection standards are aligned, splash pads are far more likely to perform well in retail, reduce complaint risk, and support repeat seasonal orders. EPN can support that specification process through product co-development, structured sampling, internal manufacturing coordination, and dependable quality control.