



Shaped Charge Performance Data

FEBRUARY 2026



Thank you for choosing SWM perforating systems!

Over the four decades since SWM's founding, perforating technologies have been our sole focus. We develop integrated systems, where perforating guns, shaped charges, switches, control panels, and test boxes complement each other to deliver the highest reliability and performance.

The AdvancedPerf product line allows us to match the right charge to each application, further supporting our goal of delivering effective perforations, for both stimulation and production.

We are dedicated to 100% customer satisfaction. It is a key part of the company's DNA. This extends to **customizing any of our charges** to meet your desired hole size and penetration objectives—within the confines of physics!—and offering **free testing in any casing** size, weight, or grade you don't see listed.

Our team of experienced engineers can deliver cost-effective solutions to meet even the most difficult perforating challenges. We promise to meet or beat any system on the market in a 2-1/2", 2-3/4" or 3-1/8" gun size.

Email us at sales@swmtx.com or call (877) 665-8747 to discuss your specific perforating application.

AdvancedAlign™ Charges

All tests performed using SWM PerfAlign™ self-orienting gun systems

AdvancedAlign™ Charges are **uniquely designed for self-orienting perforating systems**. When combined with SWM PerfAlign™ guns, they deliver consistently superior hole quality, with entry hole diameters between 0.25" and 0.55" and the industry's first truly **burr-free hole**. Unlike lower-quality entry holes created by conventional charges, burr-free perforations create **significantly less friction and turbulence** during stimulation operations. Reduced turbulence ensures **more uniform pressure across the perforated interval**, enhancing the stimulation process.

Charge	Part Number ¹	Explosive Weight	Gun Size	Casing			Phasing	Entry Hole Diameter ²	Standard Deviation	Penetration ³	Gun Swell
				Size	Weight	Grade					
AA27-38	SC27A115-018	15g	2-3/4"	4½"	13.5#	P-110	0°	0.38"	1.5%	10"	2.90"
AA27-40	SC27A116-018	16g	2-3/4"	4½"	13.5#	P-110	0°	0.40"	0.8%	10"	2.90"
AA27-42	SC27A117-018	17g	2-3/4"	4½"	13.5#	P-110	90°/270°	0.42"	2.3%	10"	2.90"
				4½"	20#	P-110	0°	0.47"	2.2%	10"	
AA31-25	SC31A113-027	13g	3-1/8"	5½"	20#	P-110	0°	0.25"	1.1%	12"	3.18"
				5½"	20#	P-110	90°/270°	0.28"	3.1%	12"	
AA31-30	SC31A115-027	15g	3-1/8"	4½"	13.5#	P-110	0°	0.33"	1.0%	12"	3.18"
				4½"	13.5#	P-110	90°/270°	0.36"	0.5%	12"	
				5"	18#	P-110	0°	0.31"	1.2%	12"	
				5½"	20#	P-110	0°	0.30"	0.7%	12"	
AA31-32	SC31A116-027	16g	3-1/8"	5½"	20#	P-110	90°/270°	0.31"	0.9%	12"	3.18"
				4½"	13.5#	P-110	0°	0.34"	1.2%	12"	
				5½"	20#	P-110	0°	0.32"	1.1%	12"	
				5½"	20#	P-110	90°/270°	0.35"	1.6%	12"	
AA31-34	SC31A114-018	14g	3-1/8"	6"	22.3#	P-110	0°	0.30"	1.4%	12"	3.16"
				4½"	13.5#	P-110	0°	0.36"	2.3%	8"	
				5½"	20#	P-110	0°	0.34"	0.8%	8"	
				5½"	20#	P-110	90°/270°	0.37"	0.9%	8"	
AA31-36	SC31A114-019	14g	3-1/8"	4½"	13.5#	P-110	0°	0.38"	1.0%	8"	3.16"
				5"	18#	P-110	0°	0.37"	1.3%	8"	
				5½"	20#	P-110	0°	0.36"	0.7%	8"	
				5½"	20#	P-110	90°/270°	0.38"	2.6%	8"	
AA31-38	SC31A115-018	15g	3-1/8"	5½"	23#	P-110	0°	0.37"	0.8%	8"	3.18"
				4½"	13.5#	P-110	0°	0.40"	1.0%	8"	
				5½"	20#	P-110	0°	0.38"	1.1%	8"	
				5½"	20#	P-110	90°/270°	0.40"	0.7%	8"	
AA31-40	SC31A116-018	16g	3-1/8"	5½"	23#	P-110	0°	0.40"	2.2%	8"	3.25"
				4½"	13.5#	P-110	0°	0.42"	1.3%	8"	
				5"	18#	P-110	0°	0.40"	2.4%	8"	
				5½"	20#	P-110	90°/270°	0.42"	1.3%	8"	
AA31-40S	SC31A121-027	21g	3-1/8"	5½"	20#	P-110	0°	0.40"	1.1%	8"	3.25"
				4½"	13.5#	P-110	0°	0.40"	1.5%	14"	
				4½"	13.5#	P-110	90°/270°	0.43"	1.3%	8"	
				5½"	20#	P-110	0°	0.42"	0.9%	8"	
AA31-42	SC31A117-015	17g	3-1/8"	5½"	20#	P-110	90°/270°	0.45"	1.2%	8"	3.26"
				5½"	20#	P-110	0°	0.44"	1.0%	8"	
				4½"	13.5#	P-110	0°	0.45"	1.5%	8"	
				5½"	20#	P-110	0°	0.45"	0.5%	8"	
AA31-45	SC31A118-015	18g	3-1/8"	5½"	20#	P-110	90°/270°	0.47"	2.3%	8"	3.26"
				5½"	20#	P-110	0°	0.47"	0.9%	7"	
				6"	22.3#	P-110	0°	0.44"	1.7%	7"	
AA31-47	SC31A119-018	19g	3-1/8"	4½"	11.6#	P-110	90°/270°	0.51"	0.9%	7"	3.28"
				5"	18#	P-110	0°	0.50"	0.7%	7"	
				5½"	20#	P-110	0°	0.50"	0.8%	7"	
				5½"	23#	P-110	0°	0.51"	1.0%	7"	
AA31-50	SC31A121-015	21g	3-1/8"	5½"	23#	Q-125	90°/270°	0.50"	0.9%	7"	3.28"
				5½"	23#	P-110	0°	0.50"	0.8%	7"	
				5½"	23#	P-110	0°	0.51"	1.0%	7"	
				5½"	23#	P-110	90°/270°	0.50"	0.9%	7"	

Notes:

¹ All charges utilize RDX explosive. HMX configurations also available.

² Entry hole diameters measured with guns shot eccentric to casing.

³ Penetration measured from shots into 28 day aged concrete.

All tests performed with guns submerged in fluid.

Other hole sizes, phasings, and casing sizes/weights available by request.

NR - Not Reported

AdvancedAlign™ Deep Charges

Tests performed using SWM PerfAlign™ self-orienting gun systems
(except where indicated)

When depth of penetration is your primary perforating objective, AdvancedAlign™ Deep charges are the answer, delivering consistent, low standard deviation entry holes and class-leading penetration. AdvancedAlign™ Deep charges can be customized to meet your specific wellbore configuration.

Charge	Part Number ¹	Explosive Weight	Gun Size	Casing			Phasing	Entry Hole Diameter ²	Standard Deviation	Penetration ³	Gun Swell
				Size	Weight	Grade					
AD31-38	SC31A123-002	23g	3-1/8"	5½"	20#	P-110	90°/270°	0.38"	2.7%	30"	3.21"
AD31-42	SC31A124-002	25g	3-1/8"	5½"	20#	P-110	90°/270°	0.42"	2.7%	30"	3.23"
AD31-45	SC31A124-003	24g	3-1/8"	5½"	20#	P-110	90°/270°	0.45"	4.5%	20"	3.23"
ADP-39	SC45A139-001	39g	4" ⁴	7"	26#	P-110	90°	0.42"	NR	43"	NR
				7-5/8"	39#	P-110		0.47"		43"	
				9-5/8"	40#	L-80		0.36"		43"	

Advanced Good Hole Charges

All tests performed using SWM PerfStorm™ gun systems

Proven across thousands of perforating runs, Advanced Good-Hole™ charges are a general purpose solution that delivers consistent, low standard deviation entry holes ranging from 0.30" to 0.45". Advanced Good-Hole™ charges can also be customized to meet your unique requirements.

Charge	Part Number ¹	Explosive Weight	Gun Size	Casing			Phasing	Entry Hole Diameter ²	Standard Deviation	Penetration ³	Gun Swell
				Size	Weight	Grade					
AGH-15	SC27A115-001	15g	2-3/4"	4½"	13.5#	P-110	60°	0.37"	NR	25"	2.83"
AGH-19	SC31A119-001	19g	3-1/8"	4½"	13.5#	P-110	60°	0.39"	NR	24"	3.25"
				5½"	20#	P-110	60°	0.34"	NR	24"	
				5½"	23#	P-110	60°	0.32"	NR	24"	
AGH-21	SC31A121-002	21g	3-1/8"	4½"	11.6#	P-110	60°	0.40"	NR	26"	3.28"
				4½"	13.5#	P-110	60°	0.40"	NR	26"	
				5½"	20#	P-110	60°	0.36"	NR	26"	
				6"	22.3#	P-110	60°	0.36"	NR	26"	
AGH-21B	SC31A121-007	21g	3-1/8"	5½"	20#	P-110	60°	0.42"	NR	20"	3.26"
AGH-23	SC31A123-001	23g	3-1/8"	4½"	11.6#	P-110	60°	0.40"	NR	30"	3.28"
				4½"	13.5#	P-110	60°	0.41"	NR	30"	
				5½"	17#	P-110	60°	0.39"	NR	30"	
				5½"	20#	P-110	60°	0.40"	NR	30"	
				5½"	23#	P-110	60°	0.40"	NR	30"	
				6"	22.3#	P-110	60°	0.32"	NR	30"	
				7"	26#	P-110	60°	0.30"	NR	26"	
				9-5/8"	40#	L-80	60°	0.29"	NR	24"	
AGH-25	SC31A124-001	25g	3-1/8"	5½"	20#	P-110	60°	0.44"	NR	30"	3.39"
				7"	26#	P-110	60°	0.32"	NR	26"	
				9-5/8"	40#	L-80	60°	0.29"	NR	24"	

Notes:

¹ All charges utilize RDX explosive. HMX configurations also available.

² Entry hole diameters measured with guns shot eccentric to casing.

³ Penetration measured from shots into 28 day aged concrete.

⁴ Test performed using 4" SWM TAG gun with 8" standoff ring.

All tests performed with guns submerged in fluid.

Other hole sizes, phasings, and casing sizes/weights available by request.

NR - Not Reported

AdvancedFrac™ Equal-Entry Charges

All tests performed using SWM PerfStorm™ gun systems

AdvancedFrac™ Equal-Entry™ charges deliver **consistent, low standard deviation entry hole diameters** at all angles, ranging from 0.35" to 0.55". They also deliver **burr-free holes** that create **significantly less friction and turbulence** during stimulation operations. Reduced turbulence ensures more **uniform pressure across the perforated interval**, enhancing the stimulation process.

Charge	Part Number ¹	Explosive Weight	Gun Size	Casing			Phasing	Entry Hole Diameter ²	Standard Deviation	Penetration ³	Gun Swell
				Size	Weight	Grade					
AF27-38	SC27A112-011	12g	2-3/4"	4½"	13.5#	P-110	60°	0.38"	3.9%	10"	2.87"
AF27-40	SC27A113-011	13g	2-3/4"	4½"	13.5#	P-110	60°	0.40"	4.1%	10"	2.88"
AF27-42	SC27A114-011	14g	2-3/4"	4½"	13.5#	P-110	60°	0.42"	3.9%	10"	2.88"
AF27-44	SC27A116-011	16g	2-3/4"	4½"	13.5#	P-110	60°	0.44"	3.7%	10"	2.90"
AF31-27	SC31A113-014	13g	3-1/8"	4½"	13.5#	P-110	60°	0.31"	5.6%	12"	3.18"
AF31-28	SC31A113-013	13g	3-1/8"	4½"	13.5#	P-110	60°	0.33"	3.6%	12"	3.18"
AF31-30	SC31A115-013	15g	3-1/8"	4½"	13.5#	P-110	60°	0.35"	5.3%	12"	3.18"
				4½"	13.5#	P-110	60°	0.31"	3.1%	12"	
				5"	18#	P-110	0°	0.31"	3.3%	12"	
				5½"	20#	P-110	60°	0.31"	3.5%	12"	
AF31-32	SC31A116-013	16g	3-1/8"	5½"	20#	P-110	60°	0.32"	6.8%	12"	3.18"
AF31-35	SC31A117-013	17g	3-1/8"	4½"	13.5#	P-110	60°	0.39"	5.7%	12"	3.20"
				5½"	20#	P-110	60°	0.35"	5.8%	12"	
AF31-36	SC31A114-011	14g	3-1/8"	5"	18#	P-110	0°	0.37"	3.8%	8"	3.16"
				5½"	20#	P-110	60°	0.37"	4.7%	8"	
AF31-38	SC31A114-012	14g	3-1/8"	5½"	20#	P-110	60°	0.38"	3.7%	8"	3.16"
				6"	24#	P-110	60°	0.36"	4.9%	8"	
AF31-40	SC31A115-011	15g	3-1/8"	4½"	13.5#	P-110	60°	0.41"	2.8%	8"	3.22"
				5½"	17#	P-110	60°	0.40"	3.6%	8"	
				5½"	20#	P-110	60°	0.40"	3.7%	8"	
				5½"	23#	P-110	60°	0.43"	3.5%	8"	
				6"	22.3#	P-110	60°	0.38"	5.4%	8"	
AF31-42	SC31A116-011	16g	3-1/8"	4½"	13.5#	P-110	60°	0.42"	4.4%	8"	3.25"
				5"	18#	P-110	60°	0.43"	4.4%	8"	
				5½"	20#	P-110	60°	0.42"	3.4%	8"	
				5½"	23#	P-110	60°	0.44"	2.8%	8"	
				6"	22.3#	P-110	60°	0.41"	6.0%	7"	
AF31-44	SC31A117-011	17g	3-1/8"	5½"	17#	P-110	60°	0.46"	3.8%	8"	3.25"
				5½"	20#	P-110	60°	0.44"	3.7%	8"	
				5½"	23#	P-110	60°	0.46"	2.8%	8"	
				6"	22.3#	P-110	60°	0.42"	5.8%	8"	
AF31-46	SC31A118-011	18g	3-1/8"	5½"	20#	P-110	60°	0.46"	3.8%	8"	3.26"
AF31-48	SC31A119-011	19g	3-1/8"	5½"	20#	P-110	60°	0.48"	3.0%	8"	3.26"
AF31-50	SC31A121-011	21g	3-1/8"	4½"	11.6#	P-110	60°	0.51"	2.8%	7"	3.29"
				5½"	20#	P-110	60°	0.50"	2.9%	7"	

Notes:

¹ All charges utilize RDX explosive. HMX configurations also available.

² Entry hole diameters measured with guns shot eccentric to casing.

³ Penetration measured from shots into 28 day aged concrete.

All tests performed with guns submerged in fluid.

Other hole sizes, phasings, and casing sizes/weights available by request.

NR - Not Reported

Advanced Breakdown Charges

All tests performed using SWM PerfStorm™ gun systems

Advanced Breakdown Shaped Charges™ use a combination of heat and pressure to **effectively clear compaction and debris** from perforation tunnels. Their specialized internal chemistry **generates both kinetic and exothermic energy** that breaks up and expels debris and compacted material back into the wellbore, **creating an unobstructed perforation**. These charges can be used with any SWM gun system, including PerfAlign™ self-orientating guns, with no clearance issues. Advanced Breakdown Charges™ are beneficial for a wide range of applications, including effective perforation of **heterogeneous zones**, improved perforation performance in **mature wells**, creating a pathway for efficient **fracture stimulation**, and achieving higher efficiency in **limited-entry perforating** applications.

Charge	Part Number ¹	Explosive Weight	Gun Size	Casing			Phasing	Entry Hole Diameter ²	Standard Deviation	Penetration ³	Gun Swell
				Size	Weight	Grade					
ABD-23	SC31A123-001R	23g	3-1/8"	5½"	20#	P-110	60°	0.42"	NR	24"	3.28"
ABD31-40	SC31A121-027R	21g	3-1/8"	5½"	20#	P-110	0°	0.40"	NR	14"	3.28"
ABD-39	SC45A139-001R	39g	4"	7"	26#	P-110	90°	0.53"	NR	36"	NR
				7-5/8"	39#	P-110	90°	0.56"		36"	

Advanced ReFrac Charges

All tests performed using SWM PerfStorm™ gun systems

Advanced ReFrac charges deliver **consistent, large entry hole diameters** in the outer casing string when perforating through two concentric strings during a refracturing operation. It is essential to optimize a charge for **each combination of casing strings** to achieve maximum performance. If you don't see your casing combination listed here, please contact your SWM representative to discuss a customized solution.

Charge	Part Number ¹	Explosive Weight	Gun Size	Liner / Casing			Phasing	Entry Hole Diameter ²	Standard Deviation	Penetration ³	Gun Swell
				Size	Weight	Grade					
				Upper = Liner, Lower = Casing							
ARF25-35	SC25A112-009	12g	2-1/2"	3½"	9.2#	P-110	0°	0.41"	1.1%	NR	2.60"
				4½"	13.5#	P-110		0.48"	2.3%		
				3½"	9.2#	P-110	60°	0.44"	4.2%		
				4½"	13.5#	P-110		0.54"	7.7%		
				3½"	9.2#	P-110	60°	0.44"	3.9%		
				5"	18#	P-110		0.34"	4.7%		
ARF27-38	SC31A118-010	18g	2-3/4"	4"	11.6#	P-110	90°/270°	0.47"	3.5%	NR	2.95"
				5½"	20#	P-110		0.42"	3.8%		
ARF27-45	SC31A118-009	18g	2-3/4"	4"	11.6#	P-110	0°	0.46"	1.2%	NR	2.95"
				5½"	20#	P-110	0°	0.45"	2.9%		
				4"	11.6#	P-110	90°/270°	0.48"	2.9%		
				5½"	20#	P-110	90°/270°	0.50"	2.9%		

Notes:

- ¹ All charges utilize RDX explosive. HMX configurations also available.

² Entry hole diameters measured with guns shot eccentric to casing.

³ Penetration measured from shots into 28 day aged concrete.
- All tests performed with guns submerged in fluid.

Other hole sizes, phasings, and casing sizes/weights available by request.

NR - Not Reported

Advanced Big Hole Charges

All tests performed using SWM PerfAlign™ gun systems

A family of big hole charges for when consistently larger entry holes are essential to meeting your perforating objectives. Note: These charges are only sold as part of a specific SWM gun system to ensure the desired level of performance.

Charge	Part Number ¹	Explosive Weight	Gun Size	Casing			Phasing	Entry Hole Diameter ²	Standard Deviation	Penetration ³	Gun Swell
				Size	Weight	Grade					
ABH31-55	SC31A123-015	23g	3-1/8"	5½"	20#	P-110	0°	0.55"	0.76%	7"	3.26"
ABH31-62	SC31A121-011R	21g	3-1/8"	5½"	17#	P-110	0° ^{4a}	0.60"	2.6%	7"	3.26"
				5½"	20#	P-110	0°	0.55"	2.1%	7"	
				5½"	20#	P-110	60°	0.62"	9.7%	7"	
				5½"	20#	P-110	90°/270°	0.66"	1.5%	7"	
ABH31-60	SC31A123-022	23g	3-1/8"	5½"	17#	P-110	0° ^{4a}	0.57"	1.1%	7"	3.26"
				5½"	17#	P-110	0° ^{4b}	0.53"	1.2%	7"	

Advanced SWD Big Hole Charges

All tests performed using SWM TAG gun systems

A family of charges designed specifically for big hole applications in **salt water disposal wells**. Note: These charges are only sold as part of a specific SWM gun system to ensure the desired level of performance.

Charge	Part Number ¹	Explosive Weight	Gun Size	Casing			Phasing	Entry Hole Diameter ²	Standard Deviation	Penetration ³	Gun Swell
				Size	Weight	Grade					
SWB-39	SC45A139-010	39g	4" ⁵	9-5/8"	40#	L-80	90°	0.45"	NR	14"	NR
SWR-39	SC45A139-010R	39g	4" ⁵	9-5/8"	40#	L-80	90°	0.50"	NR	12"	NR

Advanced Punch Charges

WARNING: Using a shaped charge designed to punch holes through material thicker than your target wall thickness can lead to **serious damage** to the casing or tubing behind the target. Please contact SWM Engineering for special applications and any target wall thicknesses outside the ranges specified below.

Charge	Part Number ¹	Explosive Weight	Gun Size	Application	Target Wall Thickness	Entry Hole Diameter	Penetration
APC-38	SC15A104-011	3.3g	1-9/16"	Tubing	0.20" - 0.38"	0.38"	≤ 0.10"
APC-50	SC14A104-012	3.3g	1-9/16"	Casing	0.38" - 0.50"	0.38"	≤ 0.10"

Notes:

¹ All charges utilize RDX explosive. HMX configurations also available.

² Entry hole diameters measured with guns shot eccentric to casing.

³ Penetration measured from shots into 28 day aged concrete.

⁴ Tests performed (a) using 4.3" standoff ring, and (b) without standoff.

⁵ Tests performed using 8" standoff ring.

All tests performed with guns submerged in fluid.

Other hole sizes, phasings, and casing sizes/weights available by request.

NR - Not Reported



AdvancedPerfTM

Perforating is a Team GameTM

7408 Advance Rd.
Poolville, TX 76487

sales@swmtx.com
(877) 665-8747



Shaped Charge Performance Data



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7408 Advance Rd.
Poolville, TX 76487

sales@swmtx.com
(877) 665-8747