



ITERO[®]

Charge Performance Data

OWEN OIL TOOLS



Owen's Energetics Technology Group recently developed and released multiple sizes of our HERO®PerFRAC consistent hole shaped charge product line, allowing us to provide you with the largest selection of hole size options in the industry for 2.750", 3.125", and 3.375" gun systems. HERO®PerFRAC is the latest generation HERO® charge specifically designed to improve the efficiency of fracturing operations in today's unconventional reservoirs. HERO®PerFRAC charges produce consistent entry hole sizes, regardless of gun position, to allow fracture initiation to occur at the face of the borehole. Utilizing HERO® super deep penetrating technology enables fracture initiation along the perforation tunnel at intersecting natural fractures. HERO®PerFRAC charges have been tested to verify that entry hole size performance is not affected by hydrostatic pressure, and penetration performance has been verified in stressed natural rock, including shale.

Owen manufactures a variety of charges designed for specific applications such as:

- **HERO®HR - Super deep penetration in high compressive strengths formations.**
- **HERO®PerFRAC - Consistent hole sizes to minimize the effects of tortuosity.**
- **SGH (Super Good Hole) - Combined performance and value.**

Core Lab®

FRAC OPTIMIZED											
GUN SIZE	SHOT DENSITY (SPF) DRY OR FLUID	PHASING	CASING	*CHARGE PART NUMBER	EXP. WEIGHT (G.)	AVG. HOLE SIZE (IN.)	MIN. HOLE SIZE (IN.)	MAX. HOLE SIZE (IN.)	HOLE SIZE VARIATION (% STD DEV)	STRESSED BERE A PENETRATION (IN.)	STRESSED SHALE PENETRATION (IN.)
2.75"	4D/6F	60°	4.50 in. 11.6# P-110	PFC-2716-330	16.0	0.30	0.28	0.31	3.9%	8.63	5.63
2.75"	4D/6F	60°	4.50 in. 13.5# P-110	PFC-2716-330	16.0	0.30	0.27	0.31	5.1%	8.63	5.63
2.75"	4D/6F	60°	4.50 in. 15.1# P-110	PFC-2716-330	16.0	0.30	0.27	0.32	5.5%	8.63	5.63
2.75"	4D/6F	60°	5.50 in. 17# P-110	PFC-2716-330	16.0	0.28	0.24	0.31	8.8%	8.63	5.63
2.75"	4D/6F	60°	5.50 in. 23# P-110	PFC-2716-330	16.0	0.29	0.26	0.31	6.0%	8.63	5.63
2.75"	4D/6F	60°	4.50 in. 11.6# P-110	PFC-2717-334	16.8	0.34	0.32	0.36	4.0%	10.44	6.87
2.75"	4D/6F	60°	4.50 in. 13.5# P-110	PFC-2717-334	16.8	0.34	0.32	0.35	3.1%	10.44	6.87
2.75"	4D/6F	60°	5.50 in. 20# P-110	PFC-2717-334	16.8	0.31	0.25	0.34	10.6%	10.44	6.87
2.75"	4D/6F	60°	4.50 in. 11.6# P-110	PFC-2717-342	16.8	0.42	0.37	0.44	6.6%	6.75	5.13
2.75"	4D/6F	60°	4.50 in. 13.5# P-110	PFC-2717-342	16.8	0.42	0.37	0.45	6.6%	6.75	5.13
2.75"	4D/6F	60°	4.50 in. 15.1# P-110	PFC-2717-342	16.8	0.42	0.40	0.44	4.9%	6.75	5.13
2.75"	4D/6F	60°	5.50 in. 17# P-110	PFC-2717-342	16.8	0.35	0.23	0.44	23.3%	6.75	5.13
2.75"	4D/6F	60°	5.50 in. 23# P-110	PFC-2717-342	16.8	0.37	0.26	0.45	20.2%	6.75	5.13
3.125"	4D/6F	60°	4.50 in. 11.6# P-110	PFC-3116-330	16.0	0.31	0.30	0.32	2.2%	6.88	5.00
3.125"	4D/6F	60°	4.50 in. 13.5# P-110	PFC-3116-330	16.0	0.31	0.30	0.32	1.8%	6.88	5.00
3.125"	4D/6F	60°	4.50 in. 15.1# P-110	PFC-3116-330	16.0	0.31	0.30	0.32	1.7%	6.88	5.00
3.125"	4D/6F	60°	5.50 in. 17# P-110	PFC-3116-330	16.0	0.31	0.29	0.32	3.6%	6.88	5.00
3.125"	4D/6F	60°	5.50 in. 20# P-110	PFC-3116-330	16.0	0.30	0.28	0.31	4.6%	6.88	5.00
3.125"	4D/6F	60°	5.50 in. 23# P-110	PFC-3116-330	16.0	0.30	0.29	0.32	3.2%	6.88	5.00
3.125"	4D/6F	60°	4.50 in. 11.6# P-110	PFC-3121-336	21.5	0.37	0.35	0.38	2.6%	9.63	6.50
3.125"	4D/6F	60°	4.50 in. 13.5# P-110	PFC-3121-336	21.5	0.37	0.36	0.38	2.2%	9.63	6.50
3.125"	4D/6F	60°	5.00 in. 18# P-110	PFC-3121-336	21.5	0.37	0.36	0.39	3.1%	9.63	6.50
3.125"	4D/6F	60°	5.00 in. 23.2# P-110	PFC-3121-336	21.5	0.36	0.35	0.37	2.2%	9.63	6.50
3.125"	4D/6F	60°	5.50 in. 17# P-110	PFC-3121-336	21.5	0.36	0.31	0.39	8.8%	9.63	6.50
3.125"	4D/6F	60°	5.50 in. 20# P-110	PFC-3121-336	21.5	0.35	0.30	0.38	7.7%	9.63	6.50
3.125"	4D/6F	60°	5.50 in. 23# P-110	PFC-3121-336	21.5	0.36	0.34	0.37	3.2%	9.63	6.50
3.125"	4D/6F	60°	4.50 in. 11.6# P-110	PFC-3121-342	21.5	0.41	0.40	0.42	1.8%	7.50	4.88
3.125"	4D/6F	60°	4.50 in. 13.5# P-110	PFC-3121-342	21.5	0.41	0.40	0.43	2.5%	7.50	4.88
3.125"	4D/6F	60°	5.00 in. 18# P-110	PFC-3121-342	21.5	0.40	0.38	0.42	3.9%	7.50	4.88
3.125"	4D/4F	90°	5.50 in. 17# P-110	PFC-3121-342	21.5	0.43	0.41	0.45	4.6%	7.50	4.88
3.125"	4D/6F	60°	5.50 in. 17# P-110	PFC-3121-342	21.5	0.44	0.42	0.45	2.4%	7.50	4.88
3.125"	4D/4F	90°	5.50 in. 20# P-110	PFC-3121-342	21.5	0.42	0.40	0.43	3.1%	7.50	4.88
3.125"	4D/6F	60°	5.50 in. 20# P-110	PFC-3121-342	21.5	0.43	0.41	0.44	2.7%	7.50	4.88
3.125"	4D/4F	90°	5.50 in. 23# P-110	PFC-3121-342	21.5	0.43	0.41	0.43	2.4%	7.50	4.88
3.125"	4D/6F	60°	5.50 in. 23# P-110	PFC-3121-342	21.5	0.43	0.40	0.44	3.6%	7.50	4.88
3.125"	4D/6F	60°	4.50 in. 11.6# P-110	PFC-3121-346	21.5	0.46	0.44	0.48	3.6%	7.97	5.57
3.125"	4D/6F	60°	4.50 in. 13.5# P-110	PFC-3121-346	21.5	0.47	0.44	0.49	3.8%	7.97	5.57
3.125"	4D/6F	60°	5.50 in. 17# P-110	PFC-3121-346	21.5	0.45	0.36	0.48	10.8%	7.97	5.57
3.125"	4D/6F	60°	5.50 in. 20# P-110	PFC-3121-346	21.5	0.46	0.43	0.48	4.7%	7.97	5.57
3.125"	4D/6F	60°	5.50 in. 23# P-110	PFC-3121-346	21.5	0.45	0.42	0.48	6.2%	7.97	5.57
3.375"	4D/6F	60°	5.50 in. 23# P-110	PFC-3121-336	21.5	0.35	0.32	0.37	5.1%	9.63	6.50
3.375"	4D/6F	60°	5.50 in. 20# P-110	PFC-3121-342	21.5	0.42	0.40	0.44	3.4%	7.50	4.88
3.375"	4D/6F	60°	5.50 in. 23# P-110	PFC-3121-342	21.5	0.42	0.40	0.44	4.5%	7.50	4.88
3.375"	4D/6F	60°	5.50 in. 20# P-110	PFC-3121-346	21.5	0.46	0.43	0.49	5.5%	7.97	5.57
3.375"	4D/6F	60°	5.50 in. 23# P-110	PFC-3121-346	21.5	0.46	0.44	0.48	3.6%	7.97	5.57

HERO[®]HR

Hard Rock

HARD ROCK OPTIMIZED

	O.D. (IN.)	CHARGE TYPE	SHOT DENSITY (SPF) DRY OR FLUID	PHASING	CHARGE CODE	CHARGE P/N	EXP WEIGHT (G.)	ENTRY HOLE (IN.)	PEN. (IN.)	DATA SOURCE
HERO [®] -HR	2	SDP	4D/6F	60°	37	SDP-2107-410	6.5	0.26	25.2	API RP-19B
HERO [®] -HR	2 3/4	SDP	4D/6D	60°	45	SDP-2715-410	15	0.32	39.4	API RP-19B
HERO [®] -HR	3 1/8	SDP	4D/6F	60°/90°	01/08	SDP-3121-410	21	0.39	44.4	API RP-19B
HERO [®] -HR	3 3/8	SDP	4D/5D/6F	60°/90°	08	SDP-3325-410	25	0.41	56.1	API RP-19B
HERO [®] -HR	3 3/8	SDP	4D/6D	60°/90°	01/08	SDP-3121-410	21	0.42	45.2	API RP-19B
HERO [®] -HR	4	SDP	5F	60°/90°	03	SDP-4539-410	39	0.45	65.1	API RP-19B
HERO [®] -HR	4 1/2	SDP	4D/5F	60°	03	SDP-4539-410	39	0.40	69.3	API RP-19B
HERO [®] -HR	4 1/2	SDP	12F	135°/45°	01/08	SDP-3121-410	21	0.37	40.5	API RP-19B
HERO [®] -HR	7	SDP	12F	135°/45°	03	SDP-4539-410	39	0.40	66.1	API RP-19B

DEEP PENETRATION OPTIMIZED

	O.D. (IN.)	CHARGE TYPE	SHOT DENSITY (SPF) DRY OR FLUID	PHASING	CHARGE CODE	CHARGE P/N	EXP WEIGHT (G.)	ENTRY HOLE (IN.)	PEN. (IN.)	DATA SOURCE
RETRIEVABLE TUBING GUN										
HERO [®]	1 9/16	SDP	4D/6D	0°	38	SDP-1687-402NT3	3.3	0.16	12.2	API RP-19B
HERO [®]	1 9/16	SDP	4D/6D	60°/90°/180°	38	SDP-1687-402NT3	3.3	0.16	10.6	API RP-19B
HERO [®]	2 1/2	SDP	4D/6F	0°/60°/90°/180°	33	SDP-2500-402NT3	11.1	0.32	24.7	API RP-19B
EXPENDABLE										
SUPER HERO [®]	2 3/4	SDP	4D/6D	60°	45	SDP-2750-311NT4	15	0.40	40.5	RP-43
SUPER HERO [®]	2 7/8	SDP	4D/6D	60°	45	SDP-2750-411NT4	15	0.35	30.6	API RP-19B
SUPER HERO [®]	3 1/8	SDP	4D/6F	60°/90°	01/08	SDP-3125-411NT4	21	0.35	34.2	API RP-19B
HERO [®]	3 1/8	SDP	4D/6F	60°/90°	01/08	SDP-3375-411NT	21.5	0.43	39.4	API RP-19B
HERO [®]	3 1/8	SDP	12F	135°/45°	02	SDP-3125-312NT	9.2	0.33	20.6	RP-43
SUPER HERO [®]	3 3/8	SDP	4D/6D	60°/90°	08	SDP-3125-311NT4	21	0.37	43.3	RP-43
SUPER HERO [®]	3 3/8	SDP	4D/6D	60°/90°	01/08	SDP-3125-411NT4	21	0.37	39.3	API RP-19B
HERO [®]	3 3/8	SDP	12F	135°/45°	02	SDP-3125-312NT	9.2	0.31	20.2	RP-43
HERO [®]	3 3/8	SDP	4D/5D/6F	60°/90°	08	SDP-3375-411NT	21.5	0.44	43.7	API RP-19B
SUPER HERO [®]	4	SDP	4D/6D	60°/90°	01/08	SDP-3125-411NT4	21	0.39	43.3	RP-43
HERO [®]	4	SDP	4D/6D	60°/90°	01/08	SDP-3375-311NT	21.5	0.48	38.4	RP-43

HERO*	4	SDP	4F	90°	03	SDP-4500-411NT3	39	0.41	59.5	RP-43
HERO*	4	SDP	4F	60°/90°	03	SDP-4500-411NT3	39	0.43	49.2	API RP-19B
SUPER HERO*	4 1/2	SDP	4D/6D	60°	01/08	SDP-3125-411NT4	21	0.37	43.0	RP-43
HERO*	4 1/2	SDP	4D/6D	60°	01/08	SDP-3375-311NT	21.5	0.37	33.3	RP-43
HERO*	4 1/2	SDP	4D/5F	60°	03	SDP-4500-411NT3	39	0.40	62.7	RP-43
HERO*	4 1/2	SDP	4D/5F	60°	03	SDP-4500-411NT3	39	0.40	54.2	API RP-19B
SUPER HERO*	4 1/2	SDP	12F	135°/45°	01/08	SDP-3125-411NT4	21	0.35	43.8	RP-43
SUPER HERO*	4 1/2	SDP	12F	135°/45°	01/08	SDP-3125-411NT4	21	0.34	32.9	API RP-19B
HERO*	4 1/2	SDP	12F	135°/45°	01/08	SDP-3375-411NT	21.5	0.39	38.0	API RP-19B
HERO*	5 1/8	SDP	4D/5F	60°	03	SDP-4500-411NT3	39	0.42	62.7	RP-43
SUPER HERO*	5 1/8	SDP	12F	135°/45°	01/08	SDP-3125-411NT4	21	0.37	43.1	RP-43
HERO*	5 1/8	SDP	12F	135°/45°	01/08	SDP-3375-311NT	21.5	0.45	40.1	RP-43
HERO*	7	SDP	12F	135°/45°	03	SDP-4500-411NT3	39	0.39	64.8	RP-43
HERO*	7	SDP	12F	135°/45°	03	SDP-4500-411NT3	39	0.39	51.5	API RP-19B
SLICK										
SUPER HERO*	3 1/8	DP	4F	60°/90°	-	SDP-3125-411NT4	21	0.36	42.5	RP-43
HERO*	3 1/8	DP	4F	60°/90°	-	SDP-3375-311NT	21.5	0.38	33.7	RP-43
SUPER HERO*	4	DP	4D/6F	60°/90°	-	SDP-3125-411NT4	21	0.34	38.8	RP-43
HERO*	4	DP	4D/6F	60°/90°	-	SDP-3375-311NT	21.5	0.38	37.8	RP-43

FLOW OPTIMIZED GOOD HOLE CHARGE										
	O.D. (IN.)	CHARGE TYPE	SHOT DENSITY (SPF) DRY OR FLUID	PHASING	CHARGE CODE	CHARGE P/N	EXP WEIGHT (G.)	ENTRY HOLE (IN.)	PEN. (IN.)	DATA SOURCE
	2	GH	4D/6D	0°/60°/90°/180°	37	RTG-2125-302GH	6.4	0.36	6.6	RP-43
	3 1/8	GH	4D/6F	60°/90°	01/08	TAG-3375-311	21.5	0.52	24.9	RP-43
	3 3/8	GH	4D/6F	60°/90°	01/08	TAG-3375-311	21.5	0.52	28.2	RP-43
HERO*	3 3/8	DP/GH	4D/5D/6F	60°/90°	08	TAG-3375-331	25	0.55	36.4	API RP-19B
	4	GH	4D/6D	60°/90°	01/08	TAG-3375-311	21.5	0.51	26.0	RP-43
	4	DP/GH	4F	60°/90°	03	TAG-4500-311	39	0.58	40.2	RP-43
	4 1/2	GH	4D/6D	60°	01/08	TAG-3375-311	21.5	0.51	27.5	RP-43
	4 1/2	DP/GH	4D/5F	60°	03	TAG-4500-311	39	0.52	42.3	RP-43
	4 1/2	GH	12F	135°/45°	01/08	TAG-3375-311	21.5	0.51	27.5	RP-43
	5 1/8	GH	12F	135°/45°	01/08	TAG-3375-311	21.5	0.49	25.7	RP-43
	7	SGH	18F	140°/20°	03	SGH-7039-330	39	0.50	21.0	QC



CAPSULE CHARGE										
	O.D. (IN.)	CHARGE TYPE	SHOT DENSITY (SPF) DRY OR FLUID	PHASING	CHARGE CODE	CHARGE P/N	EXP. WEIGHT (G.)	ENTRY HOLE (IN.)	PEN. (IN.)	DATA SOURCE
EXPOSED THRU-TUBING GUN SYSTEMS										
SHOGUN STRIP SYSTEMS										
HERO®	1 11/16	SDP	4F/6F	0°	-	STP-1687-401NTX	8.4	0.23	18.0	API RP-19B
HERO®	1 11/16	SDP	4F/6F	60°/40°	-	STP-1687-401NTX	8.4	0.24	19.3	API RP-19B
	1 11/16	DP	4F/6F	0°	-	STP-1687-301T	7.5	0.26	17.9	RP-43
	1 11/16	DP	4F/6F	0°	-	STP-1687-301E	8.4	0.35	11.2	RP-43
	1 11/16	BH	4F/6F	0°	-	STP-1687-301BE	10.8	0.48	10.5	RP-43
	1 11/16	BH	4F/6F	0°/60°/40°	-	STP-1687-301NB	8.3	0.48	10.5	RP-43
HERO®	2 1/8	SDP	4F/6F	0°	-	STP-2125-401NTX	14.2	0.26	23.7	API RP-19B
HERO®	2 1/8	SDP	4F/6F	60°/40°	-	STP-2125-401NTX	14.2	0.28	25.3	API RP-19B
	2 1/8	DP	4F/6F	0°	-	STP-2125-301E	16.2	0.43	16.2	RP-43
	2 1/8	BH	4F/6F	0°	-	STP-2125-301BE	17	0.62	13.0	RP-43
	2 1/8	BH	4F/6F	0°/60°/40°	-	STP-2125-301NB	12.5	0.62	13.0	RP-43
HERO®	2 1/2	SDP	4F	60°	-	STP-2500-401NTXII	25.1	0.36	32.6	API RP-19B
BI-WIRE SYSTEMS										
	1 11/16	DP	4F	0°/180°	-	BWC-1687-301	10	0.40	8.1	RP-43
	2 1/8	DP	4F	0°/180°	-	BWC-2125-302	23	0.49	12.6	RP-43
FORMED WIRE SYSTEMS										
	1 11/16	DP	4F	0°/180°	-	FWC-1687-301	10	0.40	8.1	RP-43
	2 1/8	DP	4F	0°/180°	-	FWC-2125-302	23	0.49	12.6	RP-43
LINK SYSTEMS										
	1 11/16	DP	4F	0°/90°/180°	-	LNK-1687-301	10	0.40	8.1	RP-43
	2 1/8	DP	4F	0°/90°/180°	-	LNK-2125-302	23	0.49	12.6	RP-43

Notes:

UNCONSOLIDATED OPTIMIZED

	O.D. (IN.)	CHARGE TYPE	SHOT DENSITY (SPF) DRY OR FLUID	PHASING	CHARGE CODE	CHARGE P/N	EXP. WEIGHT (G.)	ENTRY HOLE (IN.)	PEN. (IN.)	DATA SOURCE
	1 11/16	BH	4D/6D	0°/60°/90°/180°	38	RTG-1687-401BH	3.2	0.37	2.7	API RP-19B
	1 11/16	BH	4D/6D	0°/60°/90°/180°	38	RTG-1687-301BH	3.3	0.37	3.3	RP-43
	2 1/8	BH	4D/6D	0°/60°/90°/180°	37	RTG-2125-402F	6.4	0.42	3.0	API RP-19B
	2 1/2	BH	4D/6F	0°/60°/90°/180°	33	TAG-2500-401F	11.5	0.67	4.6	API RP-19B
	2 3/4	BH	4D/6D	60°	45	TAG-2750-401BH	14.5	0.64	5.7	API RP-19B
	2 7/8	BH	4D/6D	60°	45	TAG-2750-401BH	14.5	0.60	5.7	RP-43
	3 1/8	BH	12F	135°/45°	02	HSC-3125-310A	11	0.58	5.2	RP-43
	3 1/8	BH	4F/6F	60°/90°	-	TAG-3375-301	20	0.59	4.7	API RP-19B
	3 3/8	BH	6F	60°/90°	01/08	TAG-3375-301	20	0.73	6.1	RP-43
PHANTOM®	3 3/8	BH	12F	135°/45°	02	HSC-3125-310ZF	10	0.63	5.5	RP-43
	3 3/8	BH	12F	135°/45°	02	HSC-3125-310A	11	0.63	4.9	RP-43
	4	BH	4D/6F	60°/90°	-	TAG-3375-301	20	0.62	7.2	RP-43
	4 1/2	BH	12F	135°/45°	01/08	TAG-3375-301	20	0.71	7.0	RP-43
PHANTOM®	4 1/2	BH	12F/16F	135°/45°	14	TAG-5000-306ZF	18.5	0.72	7.0	RP-43
PHANTOM®	5 1/8	BH	12F/16F	135°/45°	14	TAG-5000-306ZF	19	0.71	7.1	RP-43
PHANTOM®	7	BH	18F	140°/20°	35	TAG-7000-362F	39	1.06	7.4	RP-43

Owen Oil Tools
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USA

Bakersfield, California	661.637.1380
Fruita, Colorado	970.858.1850
Godley, Texas	817.551.0540
Houma, Louisiana	985.868.7010
Houston, Texas	713.328.2673
Midland, Texas	432.561.8960
Oklahoma City, Oklahoma	405.495.4441
Punxsutawney, Pennsylvania	724.286.9131
Snyder, Texas	325.573.9580
Victoria, Texas	361.576.6083
Williston, North Dakota	701.577.6936

GLOBAL

Aberdeen, Scotland	44.1224.421.133
Abu Dhabi, UAE	971.2.551.5559
Adelaide, Australia	61.8.8152.0244
Balikpapan, Indonesia	62.542.852.6551
Beijing, China	86.10.8458.0125
Bogota, Columbia	57.3134506927
Kuala Lumpur, Malaysia	60.35.031.0088
Limehillock, Scotland	44.146.629.5222
Songkhla, Thailand	66.74.334.070
Tangerang, Indonesia	62.21.8062.3777

International customers please be sure to add the USA country code (+1) when calling to the numbers listed above. Shipping is available to most international locations from our USA Headquarters.

From our global network of Owen Oil Tools facilities, we provide perforating gun systems, pipe recovery systems and auxiliary equipment that can be conveyed into the well bore by any method available to provide our customers with solutions for their well intervention problems.

We do more than simply provide a commodity. We provide a "Best in Class" product line and back the product with unrivaled technical support and training where required. We also endeavor to assist our clients with choosing the Owen Oil Tools product that best fits their particular needs. This is a rarity in today's "one size fits all" marketplace.

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