

HYPRO[®] FORCEFIELD[™] SUPERIOR WET SEAL PROTECTION

for Today's Most Demanding Spraying Conditions



HYPRO® 9310 Series ForceField® Centrifugal Pumps

Superior Wet Seal Protection

Features & Benefits

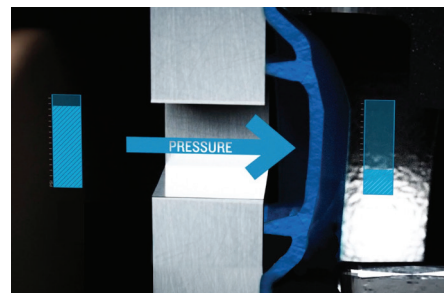
- ForceField Technology is a superior wet seal technology that provides the ultimate protection for the mechanical seal and avoids costly downtime
- Protects the mechanical seal against common failures related to dry run and chemical bonding by using a barrier fluid to keep it cool and lubricated
- Actively maintains a pressure differential between the barrier fluid and the pumping solution, which results in longer life and worry free operation
- Capable of flows up to 311 GPM (1177 LPM) and can produce up to 150 PSI (10.3 bar)
- Designed to be a drop-in replacement for standard Hypro hydraulically driven centrifugal pumps
- One year warranty covering pump, motor and seals



ForceField Technology is ideal for use in the most demanding spraying conditions.



Chamber barrier fluid keeps the seal cool and lubricated to protect against dry run and chemical bonding failures.



Self-regulating chamber designed to provide pressure when needed and safe serviceability when it is not needed.

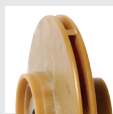
THE FORCES BEHIND FORCEFIELD™



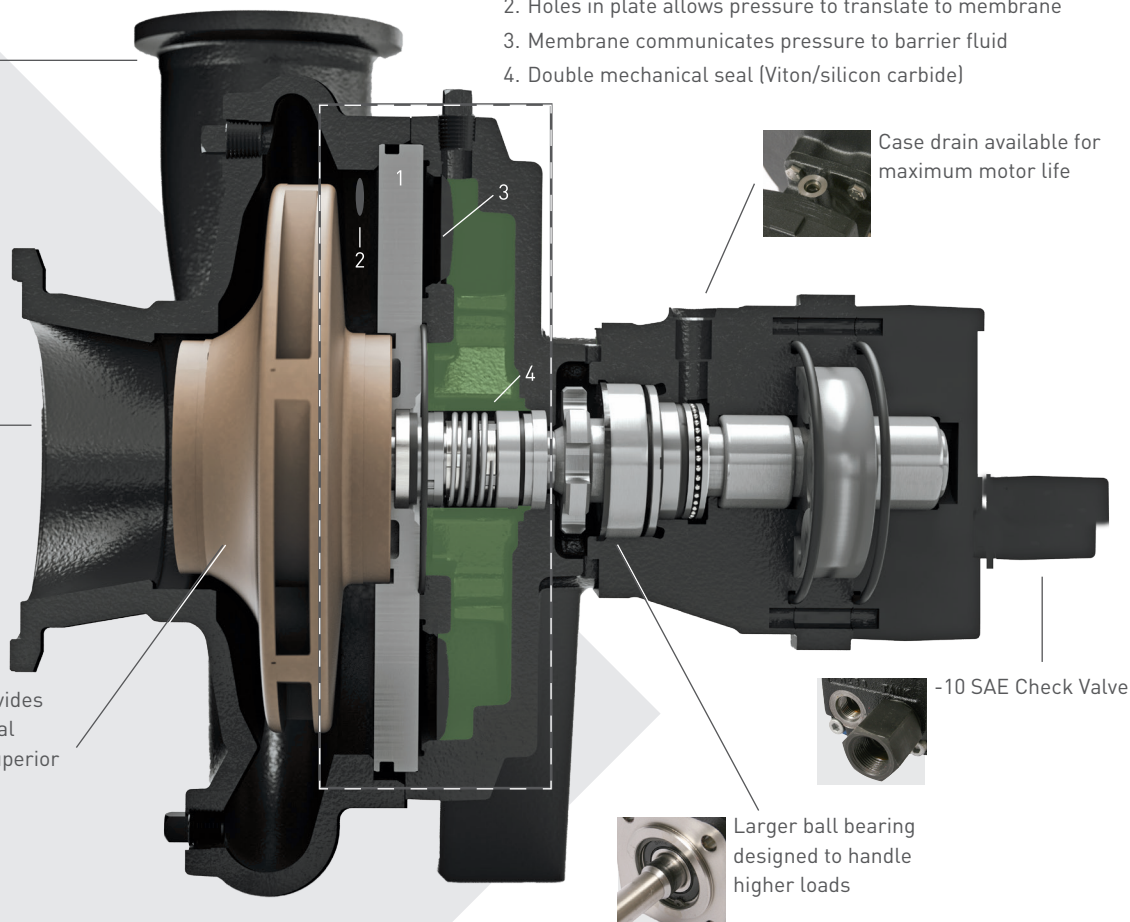
Available with NPT or Universal Flange connections



Stainless steel or cast iron housing



GTX impeller provides improved chemical resistance and superior strength



Self-Regulated Seal Chamber

1. Chamber front plate encloses wet seal chamber
2. Holes in plate allows pressure to translate to membrane
3. Membrane communicates pressure to barrier fluid
4. Double mechanical seal (Viton/silicon carbide)



Case drain available for maximum motor life



-10 SAE Check Valve



Larger ball bearing designed to handle higher loads

THE HIDDEN COST OF DOWNTIME

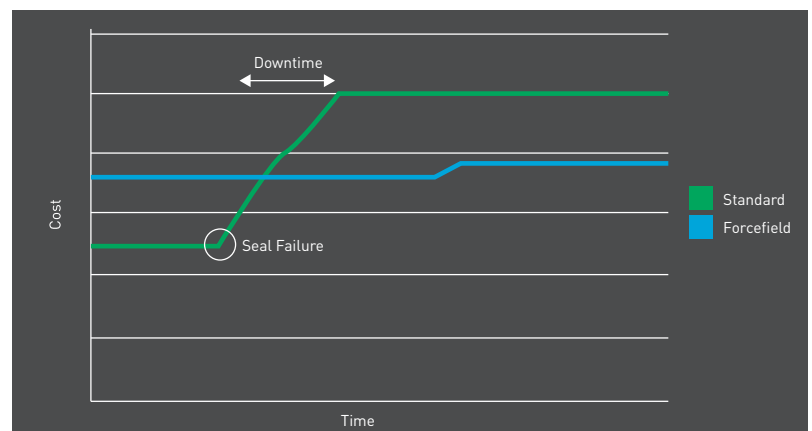
Everyone knows that downtime is costly and should be avoided, but have you considered all of the factors that affect the true cost of downtime for a sprayer?

Downtime Factors:

- Repair part costs
- Hourly rate for technician
- Delayed application/yield loss
 - ◊ Up to 4.8* bushels of corn yield per acre can be lost for every inch of weed growth
- Lost business for custom applicators
- Stress & extended hours

*Data from Southern Illinois University

FORCEFIELD VS STANDARD PUMP COST OVER TIME



ForceField pumps provide worry free operation without the risk of seal failure and costly downtime.

FORCEFIELD™

Order Information

9313 Series ForceField Centrifugal Pump



Part Number	Current Product Equivalent	Inlet/Outlet	Max GPM	Max LPM	Max PSI	Max Bar	Max Hyd. GPM	Max Hyd. LPM
9313C-M04	9303C-HM2C	1-1/2" NPT x 1-1/4" NPT	140	530	90	6.2	7	26.5
9313CU-M04	9303C-HM2C-U	220 x 200 Universal Flange	140	530	90	6.2	7	26.5
9313C-M05	9303C-HM4C	1-1/2" NPT x 1-1/4" NPT	155	587	100	6.9	8	30.3
9313CU-M05	9303C-HM4C-U	220 x 200 Universal Flange	155	587	100	6.9	8	30.3
9313C-M08	9303C-HM1C	1-1/2" NPT x 1-1/4" NPT	188	712	137	9.4	13	49.2
9313CU-M08	9303C-HM1C-U	220 x 200 Universal Flange	188	712	137	9.4	13	49.2
9313C-M10	9303C-HM5C	1-1/2" NPT x 1-1/4" NPT	197	746	150	10.3	16	60.6
9313CU-M10	9303C-HM5C-U	220 x 200 Universal Flange	197	746	150	10.3	16	60.6
9313C-M16	9303C-HM3C	1-1/2" NPT x 1-1/4" NPT	194	734	103	7.1	20	75.7
9313CU-M16	9303C-HM3C-U	220 x 200 Universal Flange	194	734	103	7.1	20	75.7
9313S-M04	9303S-HM2C	1-1/2" NPT x 1-1/4" NPT	140	530	90	6.2	7	26.5
9313SU-M04	9303S-HM2C-U	220 x 200 Universal Flange	140	530	90	6.2	7	26.5
9313S-M05	9303S-HM4C	1-1/2" NPT x 1-1/4" NPT	155	587	100	6.9	8	30.3
9313SU-M05	9303S-HM4C-U	220 x 200 Universal Flange	155	587	100	6.9	8	30.3
9313S-M08	9303S-HM1C	1-1/2" NPT x 1-1/4" NPT	188	712	137	9.4	13	49.2
9313SU-M08	9303S-HM1C-U	220 x 200 Universal Flange	188	712	137	9.4	13	49.2
9313S-M10	9303S-HM5C	1-1/2" NPT x 1-1/4" NPT	197	746	150	10.3	16	60.6
9313SU-M10	9303S-HM5C-U	220 x 200 Universal Flange	197	746	150	10.3	16	60.6
9313S-M16	9303S-HM3C	1-1/2" NPT x 1-1/4" NPT	194	734	103	7.1	20	75.7
9313SU-M16	9303S-HM3C-U	220 x 200 Universal Flange	194	734	103	7.1	20	75.7

Case Drain motor available - Add suffix "Y" (i.e. 9313CU-M08Y)

9314 Series ForceField Centrifugal Pumps



Part Number	Current Product Equivalent	Inlet/Outlet	Max GPM	Max LPM	Max PSI	Max Bar	Max Hyd. GPM	Max Hyd. LPM
9314C-M08	9306C-HM1C	2" NPT x 1-1/2" NPT	227	859	132	9.1	14	53
9314CU-M08	9306C-HM1C-U	220 x 220 Universal Flange	227	859	132	9.1	14	53
9314C-M10	9306C-HM5C	2" NPT x 1-1/2" NPT	233	882	150	10.3	17	64.4
9314CU-M10	9306C-HM5C-U	220 x 220 Universal Flange	233	882	150	10.3	17	64.4
9314C-M16	9306C-HM3C	2" NPT x 1-1/2" NPT	232	878	138	9.5	24	90.8
9314CU-M16	9306C-HM3C-U	220 x 220 Universal Flange	232	878	138	9.5	24	90.8
9314S-M08	9306S-HM1C	2" NPT x 1-1/2" NPT	227	859	132	9.1	14	53
9314SU-M08	9306S-HM1C-U	220 x 220 Universal Flange	227	859	132	9.1	14	53
9314S-M10	9306S-HM5C	2" NPT x 1-1/2" NPT	233	882	150	10.3	17	64.4
9314SU-M10	9306S-HM5C-U	220 x 220 Universal Flange	233	882	150	10.3	17	64.4
9314S-M16	9306S-HM3C	2" NPT x 1-1/2" NPT	232	878	138	9.5	24	90.8
9314SU-M16	9306S-HM3C-U	220 x 220 Universal Flange	232	878	138	9.5	24	90.8

Case Drain motor available - Add suffix "Y" (i.e. 9314CU-M08Y)

9316 Series ForceField Centrifugal Pumps



Part Number	Current Product Equivalent	Inlet/Outlet	Max GPM	Max LPM	Max PSI	Max Bar	Max Hyd. GPM	Max Hyd. LPM
9316C3U-M08	9306C-HM1C-3U	300 x 220 Universal Flange	286	1083	127	8.8	14	53
9316C3U-M10	9306C-HM5C-3U	300 x 220 Universal Flange	311	1177	150	10.3	18	68.1
9316C3U-M16	9306C-HM3C-3U	300 x 220 Universal Flange	307	1162	128	8.8	24	90.8
9316S3U-M08	9306S-HM1C-3U	300 x 220 Universal Flange	286	1083	127	8.8	14	53
9316S3U-M10	9306S-HM5C-3U	300 x 220 Universal Flange	311	1177	150	10.3	18	68.1
9316S3U-M16	9306S-HM3C-3U	300 x 220 Universal Flange	307	1162	128	8.8	24	90.8

Case Drain motor available - Add suffix "Y" (i.e. 9316C3U-M08Y)

Related Products

ForceField Replacement Fluid

Part Number	Description
2160-0096	Replacement fluid (pre-mixed) for ForceField seal chamber- 23oz.

Hydraulic Port Adapters



Part Number	Description
3360-0021A	1/2" NPT Pressure Port Adapter
3430-0187	1/2" NPT Pressure Port Adapter with metering orifices
3320-0051A	3/4" NPT Check valve / Tank Port Adapter
3320-0077	M30x2.0 Pressure Port Adapter
3360-0027	M30x2.0 Check valve / Tank Port Adapter

Vent Line Kits



Part Number	Description
3430-0456	Vent line kit with 25' (6.3 m) long, 1/4" ID vinyl hose, 1/8" NPT x 1/4" HB 90° nylon elbow fitting, 1/8" NPT x 1/4" HB straight polypropylene fitting, plastic hose clamp and plastic cable tie. Works with all Hypro centrifugals.
3430-0797	Push-to-connect vent line kit with 25' (6.3 m) long, 1/4" polyethylene tubing, 1/8" MNPT x 1/4" push-to-connect straight, 1/8" MNPT x 1/4" push-to-connect 90° elbow, and plastic cable ties. Works with all Hypro centrifugal pumps.

Universal Flanged Clamps



- Clamshell designed delivers superior durability and sealing capability through an even clamping pressure around Universal Flange joints
- GTX polymer delivers superior chemical resistance and strength
- Captured bolt and nut design allows for ease of assembly and maintenance, with 10mm socket or nut driver
- Servicable design eliminates areas prone to collecting debris and excessive corrosion

Size		Fits Series	Max. Operating Pressure		Packaging	UF Clamps w/ Stainless Steel Hardware
US Units	Metric Units		at 70°F	at 21°C		Part Number
1"	25 mm	100	150 PSI	10 BAR	1 Clamp & 1 Gasket	BG-UFC0100E-A-S
					Clamp only	UFC0100-S
1.5"	38 mm	200	150 PSI	10 BAR	1 Clamp & 1 Gasket	BG-UFC0150E-A-S
					Clamp only	UFC0150-S
2"	51 mm	220	150 PSI	10 BAR	1 Clamp & 1 Gasket	BG-UFC0200E-A-S
					Clamp only	UFC0200-S
3"	76 mm	300	125 PSI	8.6 BAR	1 Clamp & 1 Gasket	BG-UFC0300E-A-S
					Clamp only	UFC0300-S

Universal Flanged Gaskets



- The gasket wraparound feature provides positive alignment of the adjoining fittings and allows visual inspection to be conducted during assembly
- Provides sealing areas between fitting faces and outside diameter of flanged surfaces which increases the maximum pressure the joint can manage without leaks
- Flow can be increased by as much as 16% as the new universal flanged gasket reduces protrusion into the joint

Part Number	Size		Fits Series	Gasket Type
	US Units	Metric Units		
UFG0100E-A	1"	25 mm	100	EPDM
UFG0150E-A	1.5"	38 mm	200	EPDM
UFG0200E-A	2"	51 mm	220	EPDM
UFG0300E-A	3"	76 mm	300	EPDM

9313C-M04, 9313CU-M04, 9313S-M04, 9313SU-M04**U.S. Units**

Hyd. Flow GPM	GPM at 10 PSI	GPM at 20 PSI	GPM at 30 PSI	GPM at 40 PSI	GPM at 50 PSI	GPM at 60 PSI	GPM at 70 PSI	GPM at 80 PSI
5	128	111	85	60	36	15		
6	134*	120	97	74	55	36	18	
7	140*	127	104	83	64	45	29	14

9313C-M04, 9313CU-M04, 9313S-M04, 9313SU-M04**Metric Units**

Hyd. Flow LPM	LPM at 0.7 BAR	LPM at 1.4 BAR	LPM at 2.1 BAR	LPM at 2.8 BAR	LPM at 3.4 BAR	LPM at 4.1 BAR	LPM at 4.8 BAR	LPM at 5.5 BAR
18.9	485	420	322	227	136	57		
22.7	507*	454	367	280	208	136	68	
26.5	530*	481	394	314	242	170	110	53

9313C-M05, 9313CU-M05, 9313S-M05, 9313SU-M05**U.S. Units**

Hyd. Flow GPM	GPM at 10 PSI	GPM at 20 PSI	GPM at 30 PSI	GPM at 40 PSI	GPM at 50 PSI	GPM at 60 PSI	GPM at 70 PSI	GPM at 80 PSI	GPM at 90 PSI
6	144*	130	106	82	58	30			
7	150*	138	119	96	75	55	34	14	
8	155*	145*	130	108	88	70	52	35	17

9313C-M05, 9313CU-M05, 9313S-M05, 9313SU-M05**Metric Units**

Hyd. Flow LPM	LPM at 0.7 BAR	LPM at 1.4 BAR	LPM at 2.1 BAR	LPM at 2.8 BAR	LPM at 3.4 BAR	LPM at 4.1 BAR	LPM at 4.8 BAR	LPM at 5.5 BAR	LPM at 6.2 BAR
22.7	545*	492	401	310	220	114			
26.5	568*	522*	450	363	284	208	129	53	
30.3	587*	549*	492	409	333	265	197	132	64

9313C-M08, 9313CU-M08, 9313S-M08, 9313SU-M08**U.S. Units**

Hyd. Flow GPM	GPM at 20 PSI	GPM at 30 PSI	GPM at 40 PSI	GPM at 50 PSI	GPM at 60 PSI	GPM at 70 PSI	GPM at 80 PSI	GPM at 90 PSI	GPM at 100 PSI	GPM at 110 PSI	GPM at 120 PSI
11	178*	169*	157*	138	117	97	72	48	22		
12	183*	176*	165*	149*	131	111	93	74	52	29	
13	188*	182*	173*	159*	141	124	106	89	71	53	33

9313C-M08, 9313CU-M08, 9313S-M08, 9313SU-M08**Metric Units**

Hyd. Flow LPM	LPM at 1.4 BAR	LPM at 2.1 BAR	LPM at 2.8 BAR	LPM at 3.4 BAR	LPM at 4.1 BAR	LPM at 4.8 BAR	LPM at 5.5 BAR	LPM at 6.2 BAR	LPM at 6.9 BAR	LPM at 7.6 BAR	LPM at 8.3 BAR
41.6	674*	640*	594*	522	443	367	273	182	83		
45.4	693*	666*	625*	564*	496	420	352	280	197	110	
49.2	712*	689*	655*	602*	534	469	401	337	269	201	125

9313C-M10, 9313CU-M10, 9313S-M10, 9313SU-M10**U.S. Units**

Hyd. Flow GPM	GPM at 30 PSI	GPM at 40 PSI	GPM at 50 PSI	GPM at 60 PSI	GPM at 70 PSI	GPM at 80 PSI	GPM at 90 PSI	GPM at 100 PSI	GPM at 110 PSI	GPM at 120 PSI	GPM at 130 PSI
13	185*	176*	162*	143	122	99	68	24			
14	190*	183*	172*	155*	137	117	96	70	35		
15	193*	187*	179*	168*	154*	135	113	91	66	41	16
16	197*	192*	186*	178*	166*	150	132	114	96	76	55

9313C-M10, 9313CU-M10, 9313S-M10, 9313SU-M10**Metric Units**

Hyd. Flow LPM	LPM at 2.1 BAR	LPM at 2.8 BAR	LPM at 3.4 BAR	LPM at 4.1 BAR	LPM at 4.8 BAR	LPM at 5.5 BAR	LPM at 6.2 BAR	LPM at 6.9 BAR	LPM at 7.6 BAR	LPM at 8.3 BAR	LPM at 9.0 BAR
49.2	700*	666*	613*	541	462	375	257	91			
53.0	719*	693*	651*	587*	519	443	363	265	132		
56.8	731*	708*	678*	636*	583*	511	428	344	250	155	61
60.6	746*	727*	704*	674*	628*	568	500	432	363	288	208

*Flow rates can only be achieved with sufficient NPSHA (Net Positive Suction Head Available), refer to OIPM for details.

9313C-M16, 9313CU-M16, 9313S-M16, 9313SU-M16**U.S. Units**

Hyd. Flow GPM	GPM at 20 PSI	GPM at 30 PSI	GPM at 40 PSI	GPM at 50 PSI	GPM at 60 PSI	GPM at 70 PSI	GPM at 80 PSI	GPM at 90 PSI	GPM at 100 PSI
16	168*	154*	134	105	66				
18	185*	177*	165*	145*	119	85	41		
20	194*	190*	184*	175*	160*	139	115	78	20

9313C-M16, 9313CU-M16, 9313S-M16, 9313SU-M16**Metric Units**

Hyd. Flow LPM	LPM at 1.4 BAR	LPM at 2.1 BAR	LPM at 2.8 BAR	LPM at 3.4 BAR	LPM at 4.1 BAR	LPM at 4.8 BAR	LPM at 5.5 BAR	LPM at 6.2 BAR	LPM at 6.9 BAR
60.6	636*	583*	507*	397	250				
68.1	700*	670*	625*	549*	450	322	155		
75.7	734*	719*	697*	662*	606*	526	435	295	76

9314C-M08, 9314CU-M08, 9314S-M08, 9314SU-M08**U.S. Units**

Hyd. Flow GPM	GPM at 30 PSI	GPM at 40 PSI	GPM at 50 PSI	GPM at 60 PSI	GPM at 70 PSI	GPM at 80 PSI	GPM at 90 PSI	GPM at 100 PSI	GPM at 110 PSI	GPM at 120 PSI
11	217	190	152	111	73	43	12			
12	224*	203	175	146	115	80	49	24		
13	226*	211*	186	160	131	106	81	56	29	
14	227*	216*	196	171	146	120	95	71	50	27

9314C-M08, 9314CU-M08, 9314S-M08, 9314SU-M08**Metric Units**

Hyd. Flow LPM	LPM at 2.1 BAR	LPM at 2.8 BAR	LPM at 3.4 BAR	LPM at 4.1 BAR	LPM at 4.8 BAR	LPM at 5.5 BAR	LPM at 6.2 BAR	LPM at 6.9 BAR	LPM at 7.6 BAR	LPM at 8.3 BAR
41.6	821	719	575	420	276	163	45			
45.4	848*	768	662	553	435	303	185	91		
49.2	856*	799*	704	606	496	401	307	212		
53.0	859*	818*	742	647	553	454	360	269	189	102

9314C-M10, 9314CU-M10, 9314S-M10, 9314SU-M10**U.S. Units**

Hyd. Flow GPM	GPM at 40 PSI	GPM at 50 PSI	GPM at 60 PSI	GPM at 70 PSI	GPM at 80 PSI	GPM at 90 PSI	GPM at 100 PSI	GPM at 110 PSI	GPM at 120 PSI	GPM at 130 PSI
15	227*	217*	200	175	147	120	87	57	22	
16	231*	224*	212	190	163	136	111	83	53	17
17	233*	228*	220*	205	179	151	125	100	74	49

9314C-M10, 9314CU-M10, 9314S-M10, 9314SU-M10**Metric Units**

Hyd. Flow LPM	LPM at 2.8 BAR	LPM at 3.4 BAR	LPM at 4.1 BAR	LPM at 4.8 BAR	LPM at 5.5 BAR	LPM at 6.2 BAR	LPM at 6.9 BAR	LPM at 7.6 BAR	LPM at 8.3 BAR	LPM at 9.0 BAR
56.8	859*	821*	757	662	556	454	329			
60.6	874*	848*	803	719	617	515	420	314		
64.4	882*	863*	833*	776	678	572	473	379	280	185

9314C-M16, 9314CU-M16, 9314S-M16, 9314SU-M16**U.S. Units**

Hyd. Flow GPM	GPM at 40 PSI	GPM at 50 PSI	GPM at 60 PSI	GPM at 70 PSI	GPM at 80 PSI	GPM at 90 PSI	GPM at 100 PSI	GPM at 110 PSI	GPM at 120 PSI	GPM at 130 PSI
18	216	191	155	100	30					
20	232*	224*	203	175	135	78				
22	232*	230*	224*	211	187	153	107	51		
24	232*	230*	226*	222*	212	190	162	126	85	34

9314C-M16, 9314CU-M16, 9314S-M16, 9314SU-M16**Metric Units**

Hyd. Flow LPM	LPM at 2.8 BAR	LPM at 3.4 BAR	LPM at 4.1 BAR	LPM at 4.8 BAR	LPM at 5.5 BAR	LPM at 6.2 BAR	LPM at 6.9 BAR	LPM at 7.6 BAR	LPM at 8.3 BAR	LPM at 9.0 BAR
68.1	818	723	587	379	114					
75.7	878*	848*	768	662	511	295				
83.3	878*	871*	848*	799	708	579	405	193		
90.8	878*	871*	856*	840*	803	719	613	477	322	129

*Flow rates can only be achieved with sufficient NPSHA (Net Positive Suction Head Available), refer to OIPM for details.

9316C3U-M08, 9316S3U-M08**U.S. Units**

Hyd. Flow GPM	GPM at 30 PSI	GPM at 40 PSI	GPM at 50 PSI	GPM at 60 PSI	GPM at 70 PSI	GPM at 80 PSI	GPM at 90 PSI	GPM at 100 PSI	GPM at 110 PSI	GPM at 120 PSI
11	250	213	175	131	86	40				
12	266*	232	194	154	116	82	48			
13	274*	243	207	174	140	109	78	48		
14	286*	262*	230	196	166	134	104	76	49	20

9316C3U-M08, 9316S3U-M08**Metric Units**

Hyd. Flow LPM	LPM at 2.1 BAR	LPM at 2.8 BAR	LPM at 3.4 BAR	LPM at 4.1 BAR	LPM at 4.8 BAR	LPM at 5.5 BAR	LPM at 6.2 BAR	LPM at 6.9 BAR	LPM at 7.6 BAR	LPM at 8.3 BAR
41.6	946	806	662	496	326	151				
45.4	1007*	878	734	583	439	310	182			
49.2	1037*	920	784	659	530	413	295	182		
53.0	1083*	992*	871	742	628	507	394	288	185	76

9316C3U-M10, 9316S3U-M10**U.S. Units**

Hyd. Flow GPM	GPM at 30 PSI	GPM at 40 PSI	GPM at 50 PSI	GPM at 60 PSI	GPM at 70 PSI	GPM at 80 PSI	GPM at 90 PSI	GPM at 100 PSI	GPM at 110 PSI	GPM at 120 PSI	GPM at 130 PSI
15	298*	283*	255	223	189	151	108	65			
16	304*	295*	276*	247	212	175	139	104	65	29	
17	307*	299*	284*	261*	229	197	162	130	98	67	35
18	311*	303*	291*	271*	242	210	178	150	121	93	62

9316C3U-M10, 9316S3U-M10**Metric Units**

Hyd. Flow LPM	LPM at 2.1 BAR	LPM at 2.8 BAR	LPM at 3.4 BAR	LPM at 4.1 BAR	LPM at 4.8 BAR	LPM at 5.5 BAR	LPM at 6.2 BAR	LPM at 6.9 BAR	LPM at 7.6 BAR	LPM at 8.3 BAR	LPM at 9.0 BAR
56.8	1128*	1071*	965	844	715	572	409	246			
60.6	1151*	1117*	1045*	935	803	662	526	394	246	110	
64.4	1162*	1132*	1075*	988*	867	746	613	492	371	254	132
68.1	1177*	1147*	1102*	1026*	916	795	674	568	458	352	235

9316C3U-M16, 9316S3U-M16**U.S. Units**

Hyd. Flow GPM	GPM at 30 PSI	GPM at 40 PSI	GPM at 50 PSI	GPM at 60 PSI	GPM at 70 PSI	GPM at 80 PSI	GPM at 90 PSI	GPM at 100 PSI	GPM at 110 PSI	GPM at 120 PSI
18	279*	249	210	164	94					
20	302*	290*	265*	231	190	128	35			
22	-	305*	299*	277*	243	202	151	91		
24	-	-	307*	301*	280*	252	217	177	130	63

9316C3U-M16, 9316S3U-M16**Metric Units**

Hyd. Flow LPM	LPM at 2.1 BAR	LPM at 2.8 BAR	LPM at 3.4 BAR	LPM at 4.1 BAR	LPM at 4.8 BAR	LPM at 5.5 BAR	LPM at 6.2 BAR	LPM at 6.9 BAR	LPM at 7.6 BAR	LPM at 8.3 BAR
68.1	1056*	943	795	621	356					
75.7	1143*	1098*	1003*	874	719	485	132			
83.3	-	1155*	1132*	1049*	920	765	572	344		
90.8	-	-	1162*	1139*	1060*	954	821	670	492	238

*Flow rates can only be achieved with sufficient NPSHA (Net Positive Suction Head Available), refer to OIPM for details.



375 5TH AVE NW, NEW BRIGHTON, MN 55112 WWW.HYPROPUMPS.COM
PH: 800-424-9776 ORDERS FAX: 800-323-6496

Because we are continuously improving our products and services, Pentair reserves the right to change specifications without prior notice.