

MANUAL NUMBER X021141 | REVISION F | ENGLISH (US)

Reactor® 3 Hydraulic Proportioning Systems

Hydraulic, heated, plural component proportioner for spraying polyurethane foam and polyurea coatings.

Only use with Reactor 3 Heated Hoses. For indoor use only. For professional use only. Not approved for use in explosive atmospheres or hazardous (classified) locations.

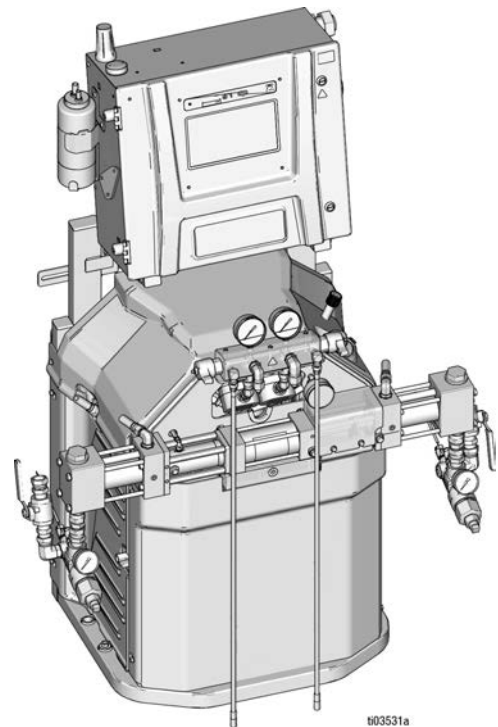


Important Safety Instructions

Read all warnings and instructions in this manual and in related manuals before using the equipment. Be familiar with the proper control and usage of the equipment. Save these instructions.



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RELATED MANUALS

Additional documents are available to support the operation, repair, and maintenance of the Reactor® 3 Hydraulic Proportioning Systems. Find English manuals and any available translations at www.graco.com.

ENGLISH MANUAL NUMBER	DESCRIPTION
X024616EN	Reactor® 3 Proportioner, Repair-Parts
Feed System Manuals	
309852	Circulation and Return Tube Kit, Instructions-Parts
3A8502	T4 3:1 Pneumatic Transfer Pump, Operation and Parts
3A8503	CORE® Transfer Pump, Operation and Parts
Proportioning Pumps Manual	
3A3085	Proportioning Pumps, Repair-Parts
Spray Gun Manuals	
X007702EN	Fusion® AP Spray Gun, Instructions
X008239EN	Fusion PC Spray Gun, Instructions
312666	Fusion CS Spray Gun, Instructions
309586	Fusion MP Spray Gun, Instructions-Parts
X047418EN	Fusion FX Spray Gun, Instructions
313213	Probler® P2 Gun, Instructions
Reactor Connect Manual	
3A8504	Reactor Connect, Instructions
Heated Hose Manual	
3A7683	Reactor Heated Hose (Reactor 3), Instructions
Dispense Manual	
X041488EN	Reactor 3 Dispense System, Instruction

SUPPLIED MANUALS

The following manuals and quick guides are shipped with the Reactor® 3 Hydraulic Proportioning Systems. Refer to these manuals and quick guides for detailed equipment information.

Manuals are also available at www.graco.com.

ENGLISH MANUAL NUMBER	DESCRIPTION
X021141EN	Reactor 3 Proportioner, Operation
3B0421	Reactor 3 Startup Quick Guide
3B0422	Reactor 3 Shutdown Quick Guide

RELATED MANUALS

TRANSLATED MANUALS

Additional language documents are available to support all regions where the Reactor® 3 Hydraulic Proportioning Systems are sold. Find any available translations at www.graco.com.

Table 1-1: Translations for Reactor 3 Hydraulic Proportioning Systems Operation Manual

LANGUAGE	MANUAL NUMBER
Chinese	X021141ZH
Dutch	X021141NL
English	X021141EN
French	X021141FR
German	X021141DE
Italian	X021141IT
Japanese	X021141JA
Korean	X021141KO
Polish	X021141PL
Portuguese	X021141PT
Spanish	X021141ES
Swedish	X021141SV
Turkish	X021141TR

MODELS

The part numbers reflect the distinct features and characteristics of the Reactor® 3 Hydraulic Proportioning Systems.

REACTOR H - 30

	MODEL	H-30 PRO 15 KW (27R355)	H-30 ELITE 15 KW (27R357)	H-30 ELITE 15 KW (27R393) NO PUMPS
Technical Information	Maximum Working Pressure	2000 psi (14 MPa, 140 bar)	2000 psi (14 MPa, 140 bar)	2000 psi (14 MPa, 140 bar)
	Approximate Output / Cycle A + B	0.074 gal. (0.28 l)	0.074 gal. (0.28 l)	0.0148–0.074 gal. (0.056–0.282 l)
	Maximum Flow (60 Hz)	31 lb/min (14.1 kg/min)	31 lb/min (14.1 kg/min)	6.2–31 lb/min (2.82–14.1 kg/min)
	Maximum Heated Hose Length Supported	320 ft (97 m)	320 ft (97 m)	320 ft (97 m)
	Total System Load	23,260 W	23,260 W	23,260 W
	Primary Heater Load	14.4 kW	14.4 kW	14.4 kW
	Full Load Peak Current 50/60 Hz	200–240 VAC 1Ø	100 A	100 A
200–240 VAC 3Ø Δ		59 A	59 A	59 A
350–415 VAC 3Ø Y		35 A	35 A	35 A
System Features	Ratio Monitoring	---	✓	✓
	Reactor Connect App	✓	✓	✓
	Software includes auto pressure balancing and power equipment	✓	✓	✓
	Large Inlet Strainer with Gauge, Pressure, and Temperature Sensors	---	✓	✓
	Electronic Pressure Control	---	✓	✓
Packages	Externally Heated Hose Package, 1 x 50 ft (15.24 m)	ESR355★	ESR357•	---
	Externally Heated Hose Package, 4 x 50 ft (15.24 m)	EHR355★	EHR357•	---
	Internally Heated Hose Package, 1 x 50 ft (15.24 m)	ISR355•	ISR357•	---
	Internally Heated Hose Package, 2 x 100 ft (30.48 m)	IHR355•	IHR357•	---

MODELS

	MODEL	H-30 PRO 15 KW (27R355)	H-30 ELITE 15 KW (27R357)	H-30 ELITE 15 KW (27R393) NO PUMPS
	CORE E1 Transfer Pump with Internally Heated Hose Package, 1 x 50 ft (15.24 m)	---	CSR357•	---
	CORE E1 Transfer Pump with Internally Heated Hose Package, 2 x 100 ft (30.48 m)	---	CHR357•	---

★ Includes 10 ft (3.05 m) whip hose.

• Includes 20 ft (6.1 m) whip hose.

MODELS

REACTOR H - 30 (50 HZ)

	MODEL	H-30 PRO 15 KW, 50 HZ (27R389)	H-30 ELITE 15 KW, 50 HZ (27R390)	H-30 ELITE 15 KW, 50 HZ (27R394) NO PUMPS
Technical Information	Maximum Working Pressure	2000 psi (14 MPa, 140 bar)	2000 psi (14 MPa, 140 bar)	2000 psi (14 MPa, 140 bar)
	Approximate Output / Cycle A + B	0.074 gal. (0.28 l)	0.074 gal. (0.28 l)	0.0148–0.074 gal. (0.056–0.282 l)
	Maximum Flow (50 Hz)	31 lb/min (14.1 kg/min)	31 lb/min (14.1 kg/min)	6.2–31 lb/min (2.82–14.1 kg/min)
	Maximum Heated Hose Length Supported	320 ft (97 m)	320 ft (97 m)	320 ft (97 m)
	Total System Load	23,260 W	23,260 W	23,260 W
	Primary Heater Load	14.4 kW	14.4 kW	14.4 kW
	Full Load Peak Current 50 Hz	350–415 VAC 3Ø Y	35 A	35 A
System Features	Ratio Monitoring	---	✓	✓
	Reactor Connect App	✓	✓	✓
	Software includes auto pressure balancing and power equipment	✓	✓	✓
	Large Inlet Strainer with Gauge, Pressure, and Temperature Sensors	---	✓	✓
	Electronic Pressure Control	---	✓	✓
Packages	Externally Heated Hose Package, 1 x 50 ft (15.24 m)	ESR389★	ESR390•	---
	Externally Heated Hose Package, 4 x 50 ft (15.24 m)	EHR389★	EHR390•	---
	Internally Heated Hose Package, 1 x 50 ft (15.24 m)	ISR389•	ISR390•	---
	Internally Heated Hose Package, 2 x 100 ft (30.48 m)	IHR389•	IHR390•	---
	CORE E1 Transfer Pump with Internally Heated Hose Package, 1 x 50 ft (15.24 m)	---	CSR390•	---

MODELS

	MODEL	H-30 PRO 15 KW, 50 HZ (27R389)	H-30 ELITE 15 KW, 50 HZ (27R390)	H-30 ELITE 15 KW, 50 HZ (27R394) NO PUMPS
	CORE E1 Transfer Pump with Internally Heated Hose Package, 2 x 100 ft (30.48 m)	---	CHR390•	---

★ Includes 10 ft (3.05 m) whip hose.

• Includes 20 ft (6.1 m) whip hose.

MODELS

REACTOR H - 50

	MODEL	H-50 PRO 20 KW, 230 V (27R375)	H-50 ELITE 20 KW, 230 V (27R377)	H-50 ELITE 20 KW, 230 V (27R395) NO PUMPS
Technical Information	Maximum Working Pressure	2000 psi (14 MPa, 140 bar)	2000 psi (14 MPa, 140 bar)	2000 psi (14 MPa, 140 bar)
	Approximate Output / Cycle A + B	0.074 gal. (0.28 l)	0.074 gal. (0.28 l)	0.0148–0.074 gal. (0.056–0.282 l)
	Maximum Flow	53 lb/min (24 kg/ min)	53 lb/min (24 kg/ min)	10.6–53 lb/min (4.8–24 kg/min)
	Maximum Heated Hose Length Supported	420 ft (128 m)	420 ft (128 m)	420 ft (128 m)
	Total System Load	31,700 W	31,700 W	31,700 W
	Primary Heater Load	20.4 kW	20.4 kW	20.4 kW
	Full Load Peak Current 50/60 Hz	200–240 VAC 3Ø Δ	95 A	95 A
System Features	Ratio Monitoring	---	✓	✓
	Reactor Connect App	✓	✓	✓
	Software includes auto pressure balancing and power equipment	✓	✓	✓
	Large Inlet Strainer with Gauge, Pressure, and Temperature Sensors	---	✓	✓
	Electronic Pressure Control	---	✓	✓
Packages	Externally Heated Hose Package, 1 x 50 ft (15.24 m)	ESR375★	ESR377•	---
	Externally Heated Hose Package, 6 x 50 ft (15.24 m)	EHR375★	EHR377•	---
	Internally Heated Hose Package, 1 x 50 ft (15.24 m)	ISR375•	ISR377•	---
	Internally Heated Hose Package, 3 x 100 ft (30.48 m)	IHR375•	IHR377•	---
	CORE E1 Transfer Pump with Internally Heated Hose Package, 1 x 50 ft (15.24 m)	---	CSR377•	---

MODELS

	MODEL	H-50 PRO 20 KW, 230 V (27R375)	H-50 ELITE 20 KW, 230 V (27R377)	H-50 ELITE 20 KW, 230 V (27R395) NO PUMPS
	CORE E1 Transfer Pump with Internally Heated Hose Package, 3 x 100 ft (30.48 m)	---	CHR377•	---

★ Includes 10 ft (3.05 m) whip hose.

• Includes 20 ft (6.1 m) whip hose.

MODELS

REACTOR H - 50

	MODEL	H-50 PRO 20 KW, 400 V (27R376)	H-50 ELITE 20 KW, 400 V (27R378)	H-50 ELITE 20 KW, 400 V (27R396) NO PUMPS
Technical Information	Maximum Working Pressure	2000 psi (14 MPa, 140 bar)	2000 psi (14 MPa, 140 bar)	2000 psi (14 MPa, 140 bar)
	Approximate Output / Cycle A + B	0.074 gal. (0.28 l)	0.074 gal. (0.28 l)	0.0148–0.074 gal. (0.056–0.282 l)
	Maximum Flow	53 lb/min (24 kg/ min)	53 lb/min (24 kg/ min)	10.6–53 lb/min (4.8–24 kg/min)
	Maximum Heated Hose Length Supported	420 ft (128 m)	420 ft (128 m)	420 ft (128 m)
	Total System Load	31,700 W	31,700 W	31,700 W
	Primary Heater Load	20.4 kW	20.4 kW	20.4 kW
	Full Load Peak Current 50/60 Hz	350–415 VAC 3Ø Y	52 A	52 A
System Features	Ratio Monitoring	---	✓	✓
	Reactor Connect App	✓	✓	✓
	Software includes auto pressure balancing and power equipment	✓	✓	✓
	Large Inlet Strainer with Gauge, Pressure, and Temperature Sensors	---	✓	✓
	Electronic Pressure Control	---	✓	✓
Packages	Externally Heated Hose Package, 1 x 50 ft (15.24 m)	ESR376★	ESR378•	---
	Externally Heated Hose Package, 6 x 50 ft (15.24 m)	EHR376★	EHR378•	---
	Internally Heated Hose Package, 1 x 50 ft (15.24 m)	ISR376	ISR378•	---
	Internally Heated Hose Package, 3 x 100 ft (30.48 m)	IHR376•	IHR378•	---
	CORE E1 Transfer Pump with Internally Heated Hose Package, 1 x 50 ft (15.24 m)	---	CSR378•	---

MODELS

	MODEL	H-50 PRO 20 KW, 400 V (27R376)	H-50 ELITE 20 KW, 400 V (27R378)	H-50 ELITE 20 KW, 400 V (27R396) NO PUMPS
	CORE E1 Transfer Pump with Internally Heated Hose Package, 3 x 100 ft (30.48 m)	---	CHR378•	---

★ Includes 10 ft (3.05 m) whip hose.

• Includes 20 ft (6.1 m) whip hose.

MODELS

REACTOR H - X P 2

	MODEL	H-XP2 PRO 15 KW (27R365)	H-XP2 ELITE 15 KW (27R367)	H-XP2 ELITE 15 KW (27R399) NO PUMPS	
Technical Information	Maximum Working Pressure	3500 psi (24.1 MPa, 241 bar)	3500 psi (24.1 MPa, 241 bar)	3500 psi (24.1 MPa, 241 bar)	
	Approximate Output / Cycle A + B	0.042 gal. (0.16 l)	0.042 gal. (0.16 l)	0.0147–0.042 gal. (0.056–0.16 l)	
	Maximum Flow (60 Hz)	1.8 gpm (6.8 lpm)	1.8 gpm (6.8 lpm)	0.63–1.8 gpm (2.38–6.8 lpm)	
	Maximum Heated Hose Length Supported	320 ft (97 m)	320 ft (97 m)	320 ft (97 m)	
	Total System Load	23,260 W	23,260 W	23,260 W	
	Primary Heater Load	14.4 kW	14.4 kW	14.4 kW	
	Full Load Peak Current 50/60 Hz	200–240 VAC 1Ø	100 A	100 A	100 A
		200–240 VAC 3Ø Δ	59 A	59 A	59 A
350–415 VAC 3Ø Y		35 A	35 A	35 A	
System Features	Ratio Monitoring	---	✓	✓	
	Reactor Connect	✓	✓	✓	
	Software includes auto pressure balancing and power equipment	✓	✓	✓	
	Large Inlet Strainer with Gauge, Pressure, and Temperature Sensors	---	✓	✓	
	Electronic Pressure Control	---	✓	✓	
Packages	Externally Heated Hose Package, 1 x 50 ft (15.24 m)	ESR365★	ESR367•	---	
	Externally Heated Hose Package, 4 x 50 ft (15.24 m)	EHR365★	EHR367•	---	
	Internally Heated Hose Package, 1 x 50 ft (15.24 m)	ISR365•	ISR367•	---	
	Internally Heated Hose Package, 2 x 100 ft (30.48 m)	IHR365•	IHR367•	---	

MODELS

	MODEL	H-XP2 PRO 15 KW (27R365)	H-XP2 ELITE 15 KW (27R367)	H-XP2 ELITE 15 KW (27R399) NO PUMPS
	CORE E1 Transfer Pump with Internally Heated Hose Package, 1 x 50 ft (15.24 m)	---	CSR367•	---
	CORE E1 Transfer Pump with Internally Heated Hose Package, 2 x 100 ft (30.48 m)	---	CHR367•	---

★ Includes 10 ft (3.05 m) whip hose.

• Includes 20 ft (6.1 m) whip hose.

MODELS

REACTOR H - X P 2 (5 0 H Z)

	MODEL	H-XP2 PRO 15 KW, 50 HZ (27R391)	H-XP2 ELITE 15 KW, 50 HZ (27R392)	H-XP2 ELITE 15 KW, 50 HZ (27R400) NO PUMPS
Technical Information	Maximum Working Pressure	3500 psi (24.1 MPa, 241 bar)	3500 psi (24.1 MPa, 241 bar)	3500 psi (24.1 MPa, 241 bar)
	Approximate Output / Cycle A + B	0.042 gal. (0.16 l)	0.042 gal. (0.16 l)	0.0147–0.042 gal. (0.056–0.16 l)
	Maximum Flow (50 Hz)	1.8 gpm (6.8 lpm)	1.8 gpm (6.8 lpm)	0.63–1.8 gpm (2.38–6.8 lpm)
	Maximum Heated Hose Length Supported	320 ft (97 m)	320 ft (97 m)	320 ft (97 m)
	Total System Load	23,260 W	23,260 W	23,260 W
	Primary Heater Load	14.4 kW	14.4 kW	14.4 kW
	Full Load Peak Current 50 Hz	350–415 VAC 3Ø Y	35 A	35 A
System Features	Ratio Monitoring	---	✓	✓
	Reactor Connect	✓	✓	✓
	Software includes auto pressure balancing and power equipment	✓	✓	✓
	Large Inlet Strainer with Gauge, Pressure, and Temperature Sensors	---	✓	✓
	Electronic Pressure Control	---	✓	✓
Packages	Externally Heated Hose Package, 1 x 50 ft (15.24 m)	ESR391★	ESR392•	---
	Externally Heated Hose Package, 4 x 50 ft (15.24 m)	EHR391★	EHR392•	---
	Internally Heated Hose Package, 1 x 50 ft (15.24 m)	ISR391•	ISR392•	---
	Internally Heated Hose Package, 2 x 100 ft (30.48 m)	IHR391•	IHR392•	---
	CORE E1 Transfer Pump with Internally Heated Hose Package, 1 x 50 ft (15.24 m)	---	CSR392•	---

MODELS

	MODEL	H-XP2 PRO 15 KW, 50 HZ (27R391)	H-XP2 ELITE 15 KW, 50 HZ (27R392)	H-XP2 ELITE 15 KW, 50 HZ (27R400) NO PUMPS
	CORE E1 Transfer Pump with Internally Heated Hose Package, 2 x 100 ft (30.48 m)	---	CHR392•	---

★ Includes 10 ft (3.05 m) whip hose.

• Includes 20 ft (6.1 m) whip hose.

MODELS

REACTOR H - X P 3

	MODEL	H-XP3 PRO 20 KW, 230 V (27R385)	H-XP3 ELITE 20 KW, 230 V (27R387)	H-XP3 ELITE 20 KW, 230 V (27R401) NO PUMPS
Technical Information	Maximum Working Pressure	3500 psi (24.1 MPa, 241 bar)	3500 psi (24.1 MPa, 241 bar)	3500 psi (24.1 MPa, 241 bar)
	Approximate Output / Cycle A + B	0.042 gal. (0.16 l)	0.042 gal. (0.16 l)	0.0147–0.042 gal. (0.056–0.16 l)
	Maximum Flow	3.0 gpm (11.4 lpm)	3.0 gpm (11.4 lpm)	1.05–3.0 gpm (3.99–11.4 lpm)
	Maximum Heated Hose Length Supported	420 ft (128 m)	420 ft (128 m)	420 ft (128 m)
	Total System Load	31,700 W	31,700 W	31,700 W
	Primary Heater Load	20.4 kW	20.4 kW	20.4 kW
	Full Load Peak Current 50/60 Hz	200–240 VAC 3Ø Δ	95 A	95 A
System Features	Ratio Monitoring	---	✓	✓
	Reactor Connect	✓	✓	✓
	Software includes auto pressure balancing and power equipment	✓	✓	✓
	Large Inlet Strainer with Gauge, Pressure, and Temperature Sensors	---	✓	✓
	Electronic Pressure Control	---	✓	✓
Packages	Externally Heated Hose Package, 1 x 50 ft (15.24 m)	ESR385★	ESR387•	---
	Externally Heated Hose Package, 6 x 50 ft (15.24 m)	EHR385★	EHR387•	---
	Internally Heated Hose Package, 1 x 50 ft (15.24 m)	ISR385•	ISR387•	---
	Internally Heated Hose Package, 3 x 100 ft (30.48 m)	IHR385•	IHR387•	---
	CORE E1 Transfer Pump with Internally Heated Hose Package, 1 x 50 ft (15.24 m)	---	CSR387•	---

MODELS

	MODEL	H-XP3 PRO 20 KW, 230 V (27R385)	H-XP3 ELITE 20 KW, 230 V (27R387)	H-XP3 ELITE 20 KW, 230 V (27R401) NO PUMPS
	CORE E1 Transfer Pump with Internally Heated Hose Package, 3 x 100 ft (30.48 m)	---	CHR387•	---

★ Includes 10 ft (3.05 m) whip hose.

• Includes 20 ft (6.1 m) whip hose.

MODELS

REACTOR H - X P 3

	MODEL	H-XP3 PRO 20 KW, 400 V (27R386)	H-XP3 ELITE 20 KW, 400 V (27R388)	H-XP3 ELITE 20 KW, 400 V (27R402) NO PUMPS
Technical Information	Maximum Working Pressure	3500 psi (24.1 MPa, 241 bar)	3500 psi (24.1 MPa, 241 bar)	3500 psi (24.1 MPa, 241 bar)
	Approximate Output / Cycle A + B	0.042 gal. (0.16 l)	0.042 gal. (0.16 l)	0.0147–0.042 gal. (0.056–0.16 l)
	Maximum Flow	3.0 gpm (11.4 lpm)	3.0 gpm (11.4 lpm)	1.05–3.0 gpm (3.99–11.4 lpm)
	Maximum Heated Hose Length Supported	420 ft (128 m)	420 ft (128 m)	420 ft (128 m)
	Total System Load	31,700 W	31,700 W	31,700 W
	Primary Heater Load	20.4 kW	20.4 kW	20.4 kW
	Full Load Peak Current 50/60 Hz	350–415 VAC 3Ø Y	52 A	52 A
System Features	Ratio Monitoring	---	✓	✓
	Reactor Connect	✓	✓	✓
	Software includes auto pressure balancing and power equipment	✓	✓	✓
	Large Inlet Strainer with Gauge, Pressure, and Temperature Sensors	---	✓	✓
	Electronic Pressure Control	---	✓	✓
Packages	Externally Heated Hose Package, 1 x 50 ft (15.24 m)	ESR386★	ESR388•	---
	Externally Heated Hose Package, 6 x 50 ft (15.24 m)	EHR386★	EHR388•	---
	Internally Heated Hose Package, 1 x 50 ft (15.24 m)	ISR386•	ISR388•	---
	Internally Heated Hose Package, 3 x 100 ft (30.48 m)	IHR386•	IHR388•	---
	CORE E1 Transfer Pump with Internally Heated Hose Package, 1 x 50 ft (15.24 m)	---	CSR388•	---

MODELS

	MODEL	H-XP3 PRO 20 KW, 400 V (27R386)	H-XP3 ELITE 20 KW, 400 V (27R388)	H-XP3 ELITE 20 KW, 400 V (27R402) NO PUMPS
	CORE E1 Transfer Pump with Internally Heated Hose Package, 3 x 100 ft (30.48 m)	---	CHR388•	---

★ Includes 10 ft (3.05 m) whip hose.

• Includes 20 ft (6.1 m) whip hose.

APPROVALS









Intertek approvals apply to proportioners without hoses.

PART NUMBER	MODEL	SERIES	APPROVALS		
27R355	H-30 (60 Hz)	Pro			
27R357		Elite			
27R393					
27R375	H-50 (230 V)	Pro			
27R377		Elite			
27R395					
27R365	H-XP2 (60 Hz)	Pro			
27R367		Elite			
27R399					
27R385	H-XP3 (230 V)	Pro			
27R387		Elite			
27R401					
27R389	H-30 (50 Hz)	Pro			 Intertek 5024314 Conforms to ANS/UL Std. 499 Certified to CAN/CSA Std. C22.2 No. 88
27R390		Elite			
27R394					
27R376	H-50 (400 V)	Pro			
27R378		Elite			
27R396					
27R391	H-XP2 (50 Hz)	Pro	 		
27R392		Elite			
27R400					
27R386	H-XP3 (400 V)	Pro			
27R388		Elite			
27R402					

SAFETY SYMBOLS

The following safety symbols appear throughout this manual and on warning labels. Read the table below to understand what each symbol means.

SYMBOL	MEANING
	Burn Hazard
	Crush Hazard
	Electric Shock Hazard
	Equipment Misuse Hazard
	Fire and Explosion Hazard
	Moving Parts Hazard
	Skin Injection Hazard
	Skin Injection Hazard
	Splash Hazard
	Toxic Fluid or Fumes Hazard

SYMBOL	MEANING
	Eliminate Ignition Sources
	Do Not Stop Leaks with Hand, Body, Glove or Rag
	Do Not Place Hands or Other Body Parts Near Fluid Outlet
	Ground Equipment
	Read Manual
	Follow Pressure Relief Procedure
	Ventilate Work Area
	Wear Personal Protective Equipment



Safety Alert Symbol

This symbol indicates: Attention! Become Alert! Look for this symbol throughout the manual to indicate important safety messages.

WARNINGS

The following warnings apply throughout this manual. Read, understand, and follow the warnings before using this equipment. Failure to follow these warnings can result in serious injury.



DANGER



SEVERE ELECTRIC SHOCK HAZARD

This equipment is powered by more than 240 V. Contact with this voltage will cause death or serious injury.

- Turn off and disconnect all power before disconnecting any cables and before servicing equipment.
- This equipment must be grounded. Connect only to grounded power source.
- All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.

 **WARNING**



TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled or swallowed.

- Read Safety Data Sheets (SDSs) for handling instructions and to know the specific hazards of the fluids you are using, including the effects of long-term exposure.
- When spraying, servicing equipment, or when in the work area, always keep work area well-ventilated and always wear appropriate personal protective equipment. See **Personal Protective Equipment** warnings in this manual.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.



PERSONAL PROTECTIVE EQUIPMENT

Always wear appropriate personal protective equipment and cover all skin when spraying, servicing equipment, or when in the work area. Protective equipment helps prevent serious injury, including long-term exposure; inhalation of toxic fumes, mists or vapors; allergic reaction; burns; eye injury; and hearing loss. This protective equipment includes but is not limited to:

- A properly fitting respirator, which may include a supplied-air respirator, chemically impermeable gloves, protective clothing, and foot coverings as recommended by the fluid manufacturer and local regulatory authority.
- Protective eyewear and hearing protection.






SKIN INJECTION HAZARD

High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. **Get immediate surgical treatment.**








- Do not spray without tip guard and trigger guard installed.
- Engage trigger lock when not spraying.
- Do not point gun at anyone or at any part of the body.
- Do not put your hand over the spray tip.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Follow the **Pressure Relief Procedure** when you stop spraying and before cleaning, checking, or servicing equipment.
- Tighten all fluid connections before operating the equipment.
- Check hoses and couplings daily. Replace worn or damaged parts immediately.

 **WARNING**

	<p>FIRE AND EXPLOSION HAZARD</p> <p>Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. To help prevent fire and explosion:</p> <ul style="list-style-type: none"> • Use equipment only in well-ventilated area. • Eliminate all ignition sources, such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static sparking). • Ground all equipment in the work area. See Grounding instructions. • Never spray or flush solvent at high pressure. • Keep work area free of debris, including solvent, rags and gasoline. • Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present. • Use only grounded hoses. • Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are anti-static or conductive. • Stop operation immediately if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem. • Keep a working fire extinguisher in the work area.
	<p>THERMAL EXPANSION HAZARD</p> <p>Fluids subjected to heat in confined spaces, including hoses, can create a rapid rise in pressure due to the thermal expansion. Over-pressurization can result in equipment rupture and serious injury.</p> <ul style="list-style-type: none"> • Open a valve to relieve the fluid expansion during heating. • Replace hoses proactively at regular intervals based on your operating conditions.
	<p>PRESSURIZED ALUMINUM PARTS HAZARD</p> <p>Use of fluids that are incompatible with aluminum in pressurized equipment can cause serious chemical reaction and equipment rupture. Failure to follow this warning can result in death, serious injury, or property damage.</p> <ul style="list-style-type: none"> • Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents. • Do not use chlorine bleach. • Many other fluids may contain chemicals that can react with aluminum. Contact your material supplier for compatibility.











 **WARNING**

 	<p>EQUIPMENT MISUSE HAZARD</p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> • Do not operate the unit when fatigued or under the influence of drugs or alcohol. • Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See Technical Specifications in all equipment manuals. • Use fluids and solvents that are compatible with equipment wetted parts. See Technical Specifications in all equipment manuals. Read fluid and solvent manufacturer’s warnings. For complete information about your material, request Safety Data Sheets (SDSs) from distributor or retailer. • Do not leave the work area while equipment is energized or under pressure. • Turn off all equipment and follow the Pressure Relief Procedure when equipment is not in use. • Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer’s replacement parts only. • Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards. • Make sure all equipment is rated and approved for the environment in which you are using it. • Use equipment only for its intended purpose. Call your distributor for information. • Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces. • Do not kink or overbend hoses or use hoses to pull equipment. • Keep children and animals away from work area. • Comply with all applicable safety regulations.
 	<p>MOVING PARTS HAZARD</p> <p>Moving parts can pinch, cut, or amputate fingers and other body parts.</p> <ul style="list-style-type: none"> • Keep clear of moving parts. • Do not operate equipment with protective guards or covers removed. • Equipment can start without warning. Before checking, moving, or servicing equipment, follow the Pressure Relief Procedure and disconnect all power sources.
	<p>BURN HAZARD</p> <p>Equipment surfaces and fluid that is heated can become very hot during operation. To avoid severe burns:</p> <ul style="list-style-type: none"> • Do not touch hot fluid or equipment.

IMPORTANT ISOCYANATE (ISO) INFORMATION




Isocyanates (ISO) are catalysts used in two component materials.

ISOCYANATE CONDITIONS

 WARNING																					
																					
<p>Spraying or dispensing fluids that contain isocyanates creates potentially harmful mists, vapors, and atomized particulates.</p> <ul style="list-style-type: none"> • Read and understand the fluid manufacturer’s warnings and Safety Data Sheets (SDSs) to know specific hazards and precautions related to isocyanates. • Use of isocyanates involves potentially hazardous procedures. Do not spray with this equipment unless you are trained, qualified, and have read and understood the information in this manual and in the fluid manufacturer’s application instructions and SDSs. • Use of incorrectly maintained or mis-adjusted equipment may result in improperly cured material, which could cause off gassing and offensive odors. Equipment must be carefully maintained and adjusted according to instructions in the manual. • To prevent inhalation of isocyanate mists, vapors and atomized particulates, everyone in the work area must wear appropriate respiratory protection. Always wear a properly fitting respirator, which may include a supplied-air respirator. Ventilate the work area according to instructions in the fluid manufacturer’s SDSs. • Avoid all skin contact with isocyanates. Everyone in the work area must wear chemically impermeable gloves, protective clothing and foot coverings as recommended by the fluid manufacturer and local regulatory authority. Follow all fluid manufacturer recommendations, including those regarding handling of contaminated clothing. After spraying, wash hands and face before eating or drinking. • Hazard from exposure to isocyanates continues after spraying. Anyone without appropriate personal protective equipment must stay out of the work area during application and after application for the time period specified by the fluid manufacturer. Generally this time period is at least 24 hours. • Warn others who may enter work area of hazard from exposure to isocyanates. Follow the recommendations of the fluid manufacturer and local regulatory authority. Posting a placard such as the following outside the work area is recommended: 																					
<table border="1" style="margin: auto;"> <thead> <tr> <th colspan="2" style="background-color: #f4a460; text-align: center;"> WARNING</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">TOXIC FUMES HAZARD</td> </tr> <tr> <td colspan="2" style="text-align: center;">DO NOT ENTER DURING SPRAY FOAM APPLICATION OR FOR ___ HOURS AFTER APPLICATION IS COMPLETE</td> </tr> <tr> <th colspan="2" style="background-color: #f4a460; text-align: center;">DO NOT ENTER UNTIL:</th> </tr> <tr> <td colspan="2" style="text-align: center;">DATE: _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">TIME: _____</td> </tr> </tbody> </table>										 WARNING			TOXIC FUMES HAZARD	DO NOT ENTER DURING SPRAY FOAM APPLICATION OR FOR ___ HOURS AFTER APPLICATION IS COMPLETE		DO NOT ENTER UNTIL:		DATE: _____		TIME: _____	
 WARNING																					
	TOXIC FUMES HAZARD																				
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DO NOT ENTER UNTIL:																					
DATE: _____																					
TIME: _____																					

IMPORTANT ISOCYANATE (ISO) INFORMATION

KEEP COMPONENTS A AND B SEPARATE

 WARNING				
				
<p>Cross-contamination can result in cured material in fluid lines which could cause serious injury or damage equipment. To prevent cross-contamination:</p> <ul style="list-style-type: none">• Never interchange component A and component B wetted parts.• Never use solvent on one side if it has been contaminated from the other side.				

MOISTURE SENSITIVITY OF ISOCYANATES

Exposure to moisture (such as humidity) will cause ISO to partially cure, forming small, hard, abrasive crystal that become suspended in the fluid. Eventually a film will form on the surface and the ISO will begin to gel, increasing in viscosity.

NOTICE
<p>Partially cured ISO will reduce performance and the life of all wetted parts.</p> <ul style="list-style-type: none">• Always use a sealed container with a desiccant dryer in the vent, or a nitrogen atmosphere. Never store ISO in an open container.• Keep the ISO pump wet cup or reservoir (if installed) filled with appropriate lubricant. The lubricant creates a barrier between the ISO and the atmosphere.• Use only moisture-proof hoses compatible with ISO.• Never use reclaimed solvents, which may contain moisture. Always keep solvent containers closed when not in use.• Always lubricate threaded parts with an appropriate lubricant when reassembling.

NOTE:

The amount of film formation and rate of crystallization varies depending on the blend of ISO, the humidity, and the temperature.



CHANGING MATERIALS

NOTICE
<p>Changing the material types used in your equipment requires special attention to avoid equipment damage and downtime.</p> <ul style="list-style-type: none">• When changing materials, flush the equipment multiple times to ensure it is thoroughly clean.• Always clean the fluid inlet strainers after flushing.• Check with your material manufacturer for chemical compatibility.• When changing between epoxies and urethanes or polyureas, disassemble and clean all fluid components and change hoses. Epoxies often have amines on the B (hardener) side. Polyureas often have amines on the B (resin) side.

FOAM RESINS WITH 245 FA BLOWING AGENTS

Some foam blowing agents will froth at temperatures above 90°F (33°C) when not under pressure, especially if agitated. To reduce frothing, minimize preheating in a circulation system.

MATERIAL SELF-IGNITION

 WARNING				
				
<p>Some materials may become self-igniting if applied too thick. Read material manufacturer's warnings and Safety Data Sheets (SDSs).</p>				

MOISTURE SENSITIVITY OF ISOCYANATES: REACTOR 3 PROCEDURES

For Reactor 3 Hydraulic Proportioning Systems, performing the correct procedures before storage can prevent ISO from partially curing in the equipment.

NOTICE

- To prevent damage, cycle material through the Reactor at least once per week when wetted and sitting idle. Use the A-side transfer pump to flush material through the A-side outlet manifold recirculation fitting. See **Flush the Equipment**.
- The Reactor should not be stored after ingesting air or running out of material. Prior to storage, follow the Purge Air procedure in your operation manual.

TECHNICAL SPECIFICATIONS

The table provides important information related to the Reactor® 3 Hydraulic Proportioning Systems, including product attributes, measurements, and performance characteristics that support the use of the equipment.

Table 8-1: Technical Specifications for Reactor® 3 Hydraulic Proportioning Systems, H-30

H-30	US	METRIC
Maximum Fluid Working Pressure	2000 psi	1.4 MPa, 14 bar
Maximum Fluid Temperature	180°F	82.2°C
Maximum Flow Rate	31 lb/min	14.1 kg/min
Bare Models	6.2–31 lb/min	2.82–14.1 kg/min
Maximum Heated Hose Length	320 ft	97 m
Approximate Output per cycle (A + B)	0.074 gal.	0.28 l
Bare Models	0.0148–0.074 gal.	0.056–0.28 l
Operating Ambient Temperature Range	20°F to 120°F	-7°C to 49°C
Fluid Inlets	3/4 npt(f)	
Fluid Outlet - A	#8 (1/2 in.) JIC, with #5 (5/16 in.) JIC adapter	
Fluid Outlet - B	#10 (5/8 in.) JIC, with #6 (3/8 in.) JIC adapter	
Fluid Circulation Port Size	1/4 nps(m)	
Fluid Circulation Port Maximum Pressure	250 psi	1.7 MPa, 17 bar
Maximum Fluid Inlet Pressure	600 psi	4.14 MPa, 41.4 bar
Sound Pressure (Measured per ISO 3744)		
Measured from 3.1 ft (1 m) @ 1050 psi (7.2 MPa, 72.3 bar), 31 lb/min (13.6 kg/min)	81.4 dBA	
Sound Power		
Measured from 3.1 ft (1 m) @ 1050 psi (7.2 MPa, 72.3 bra), 31 lb/min (13.6 kg/min)	96.9 dBA	
Dimensions		
Width	36.5 in.	93 cm
Depth	24.6 in.	62 cm
Height	60.2 in.	153 cm
Weight	612 lb	278 kg
Bare Models	516–540 lb	234–245 kg

TECHNICAL SPECIFICATIONS

Table 8-2: Technical Specifications for Reactor® 3 Proportioning Systems, H-50

H-50	US	METRIC
Maximum Fluid Working Pressure	2000 psi	1.4 MPa, 14 bar
Maximum Fluid Temperature	180°F	82.2°C
Maximum Flow Rate	53 lb/min	24 kg/min
Bare Models	10.6–53 lb/min	4.8–24 kg/min
Maximum Heated Hose Length	420 ft	128 m
Approximate Output per cycle (A + B)	0.074 gal.	0.28 l
Bare Models	0.0148–0.074 gal.	0.056–0.28 l
Operating Ambient Temperature Range	20°F to 120°F	-7°C to 49°C
Fluid Inlets	3/4 npt(f)	
Fluid Outlet - A	#8 (1/2 in.) JIC, with #5 (5/16 in.) JIC adapter	
Fluid Outlet - B	#10 (5/8 in.) JIC, with #6 (3/8 in.) JIC adapter	
Fluid Circulation Port Size	1/4 nps(m)	
Fluid Circulation Port Maximum Pressure	250 psi	1.7 MPa, 17 bar
Maximum Fluid Inlet Pressure	600 psi	4.14 MPa, 41.4 bar
Sound Pressure (Measured per ISO 3744)		
Measured from 3.1 ft (1 m) @ 1050 psi (7.2 MPa, 72.3 bar), 31 lb/min (13.6 kg/min)	81.4 dBA	
Sound Power		
Measured from 3.1 ft (1 m) @ 1050 psi (7.2 MPa, 72.3 bar), 31 lb/min (13.6 kg/min)	96.9 dBA	
Dimensions		
Width	36.5 in.	93 cm
Depth	24.6 in.	62 cm
Height	60.2 in.	153 cm
Weight	612 lb	278 kg
Bare Models	569 lb	258 kg

TECHNICAL SPECIFICATIONS

Table 8-3: Technical Specifications for Reactor® 3 Proportioning Systems, H-XP2

H-XP2	US	METRIC
Maximum Fluid Working Pressure	3500 psi	24.1 MPa, 241 bar
Maximum Fluid Temperature	180°F	82.2°C
Maximum Flow Rate	1.8 gpm	6.8 lpm
Bare Models	0.63–1.8 gpm	2.38–6.8 lpm
Maximum Heated Hose Length	320 ft	97 m
Approximate Output per cycle (A + B)	0.042 gal.	0.16 l
Bare Models	0.0147–0.042 gal.	0.056–0.16 l
Operating Ambient Temperature Range	20°F to 120°F	-7°C to 49°C
Fluid Inlets	3/4 npt(f)	
Fluid Outlet - A	#8 (1/2 in.) JIC, with #5 (5/16 in.) JIC adapter	
Fluid Outlet - B	#10 (5/8 in.) JIC, with #6 (3/8 in.) JIC adapter	
Fluid Circulation Port Size	1/4 nps(m)	
Fluid Circulation Port Maximum Pressure	250 psi	1.7 MPa, 17 bar
Maximum Fluid Inlet Pressure	600 psi	4.14 MPa, 41.4 bar
Sound Pressure (Measured per ISO 3744)		
Measured from 3.1 ft (1 m) @ 1050 psi (7.2 MPa, 72.3 bar), 31 lb/min (13.6 kg/min)	81.4 dBA	
Sound Power		
Measured from 3.1 ft (1 m) @ 1050 psi (7.2 MPa, 72.3 bra), 31 lb/min (13.6 kg/min)	96.9 dBA	
Dimensions		
Width	36.5 in.	93 cm
Depth	24.6 in.	62 cm
Height	60.2 in.	153 cm
Weight	612 lb	278 kg
Bare Models	516–540 lb	234–245 kg

TECHNICAL SPECIFICATIONS

Table 8-4: Technical Specifications for Reactor® 3 Proportioning Systems, H-XP3

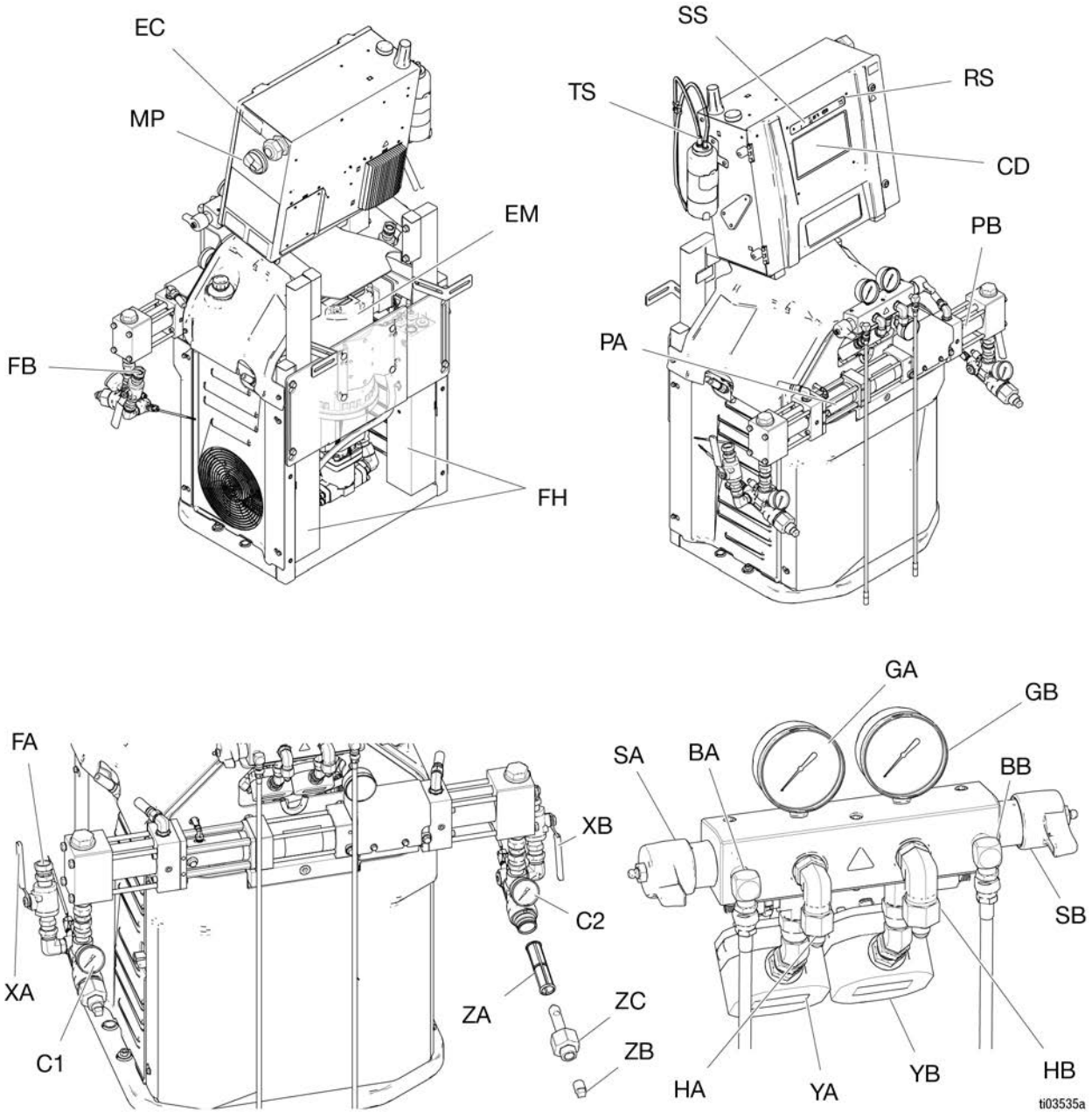
H-XP3	US	METRIC
Maximum Fluid Working Pressure	3500 psi	24.1 MPa, 241 bar
Maximum Fluid Temperature	180°F	82.2°C
Maximum Flow Rate	3.0 gpm	11.4 lpm
Bare Models	1.05–3.0 gpm	3.99–11.4 lpm
Maximum Heated Hose Length	420 ft	128 m
Approximate Output per cycle (A + B)	0.042 gal.	0.16 l
Bare Models	0.0147–0.042 gal.	0.056–0.16 l
Operating Ambient Temperature Range	20°F to 120°F	-7°C to 49°C
Fluid Inlets	3/4 npt(f)	
Fluid Outlet - A	#8 (1/2 in.) JIC, with #5 (5/16 in.) JIC adapter	
Fluid Outlet - B	#10 (5/8 in.) JIC, with #6 (3/8 in.) JIC adapter	
Fluid Circulation Port Size	1/4 nps(m)	
Fluid Circulation Port Maximum Pressure	250 psi	1.7 MPa, 17 bar
Maximum Fluid Inlet Pressure	600 psi	4.14 MPa, 41.4 bar
Sound Pressure (Measured per ISO 3744)		
Measured from 3.1 ft (1 m) @ 1050 psi (7.2 MPa, 72.3 bar), 31 lb/min (13.6 kg/min)	81.4 dBA	
Sound Power		
Measured from 3.1 ft (1 m) @ 1050 psi (7.2 MPa, 72.3 bar), 31 lb/min (13.6 kg/min)	96.9 dBA	
Dimensions		
Width	36.5 in.	93 cm
Depth	24.6 in.	62 cm
Height	60.2 in.	153 cm
Weight	612 lb	278 kg
Bare Models	569 lb	258 kg

All trademarks or registered trademarks are the property of their respective owners.

COMPONENT IDENTIFICATION

The diagrams highlight the controls and features on the Reactor® 3 Hydraulic Proportioning Systems.

PROPORTIONER

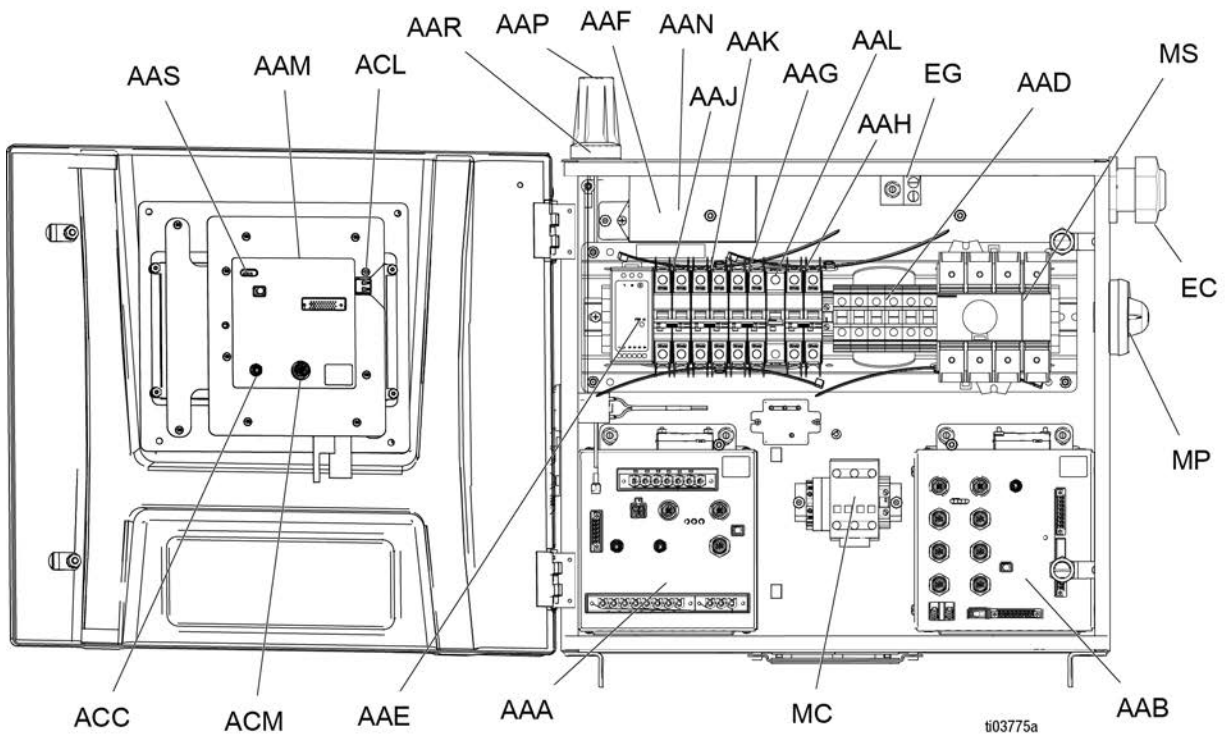


COMPONENT IDENTIFICATION

BA	ISO Side Pressure Relief Outlet
BB	RES Side Pressure Relief Outlet
C1	ISO Side Inlet Pressure Gauge
C2	RES Side Inlet Pressure Gauge
CD	Advanced Display Module (ADM)
EC	Electrical Cord Strain Relief
EM	Electric Motor
FA	ISO Side Inlet Fitting
FB	RES Side Inlet Fitting
FH	Fluid Heaters
GA	ISO Side Pressure Gauge
GB	RES Side Pressure Gauge
HA	ISO Side Hose Connection
HB	RES Side Hose Connection
MP	Main Power Switch
PA	ISO Side Pump
PB	RES Side Pump
RS	Red Stop Button
SA	ISO Side Pressure Relief/Spray Valve
SB	RES Side Pressure Relief/Spray Valve
SS	System LED Status Light
TS	ISO Lubrication Reservoir
XA	ISO Side Fluid Inlet Valve
XB	RES Side Fluid Inlet Valve
YA	Flow Meter (ISO side, Elite models only)
YB	Flow Meter (RES side, Elite models only)
ZA	Inlet Strainer Screen
ZB	Inlet Strainer Drain Plug
ZC	Inlet Strainer Cap

COMPONENT IDENTIFICATION

ELECTRICAL ENCLOSURE (REACTOR H-30/H-XP2)

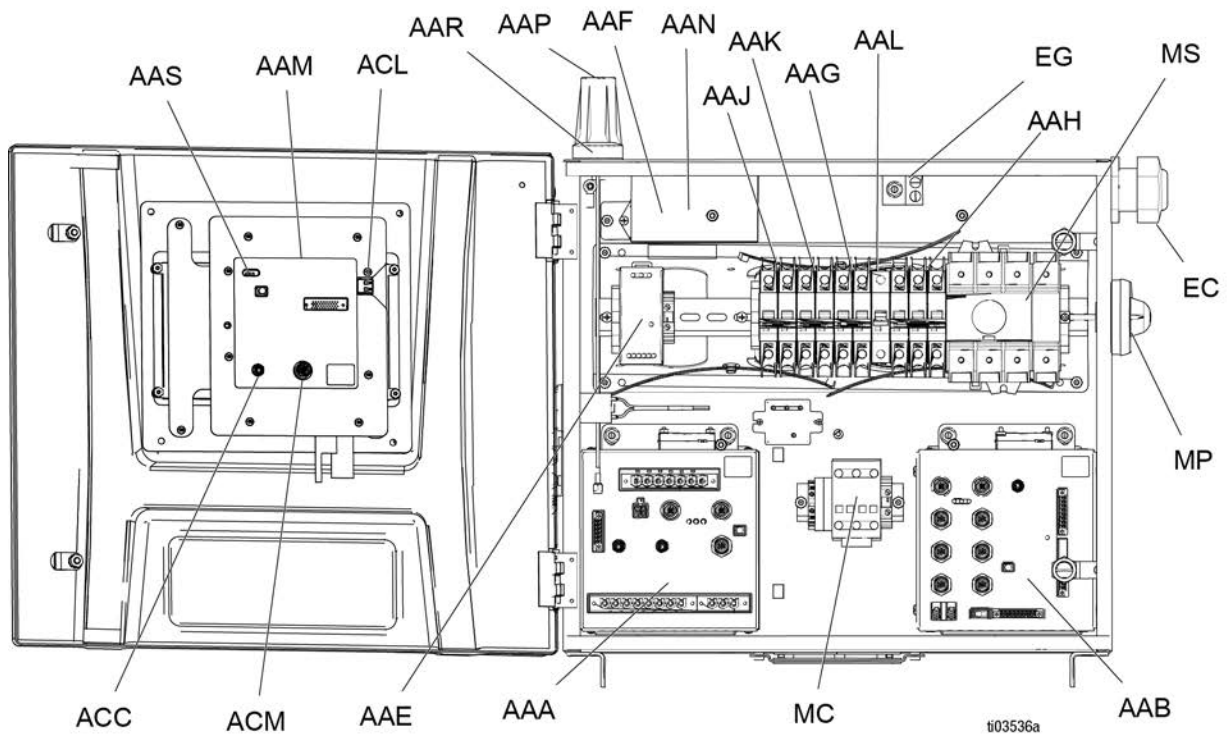


COMPONENT IDENTIFICATION

AAA	Temperature Control Module (TCM)
AAB	Hydraulic Control Module (HCM)
AAD	Wiring Terminal Blocks
AAE	24 V Power Supply
AAF	Surge Protector
AAG	Transformer Breaker
AAH	Motor Breaker
AAJ	A-Side Heat Breaker
AAK	B-Side Heat Breaker
AAL	Hose Breaker
AAM	Advanced Display Module (ADM)
AAN	Reactor Connect App Module
AAP	Cellular Antenna
AAR	GPS Antenna
AAS	ADM LED Status Lights
ACC	Reactor Connect Module Cable Connection
ACL	ADM USB Port
ACM	ADM CAN Cable Connection
EC	Incoming Power Cord Strain Relief
EG	Incoming Power Ground Terminal
MC	Motor Contactor
MP	Main Power Disconnect Knob
MS	Main Power Disconnect Switch

COMPONENT IDENTIFICATION

ELECTRICAL ENCLOSURE (REACTOR H-50/H-XP3)

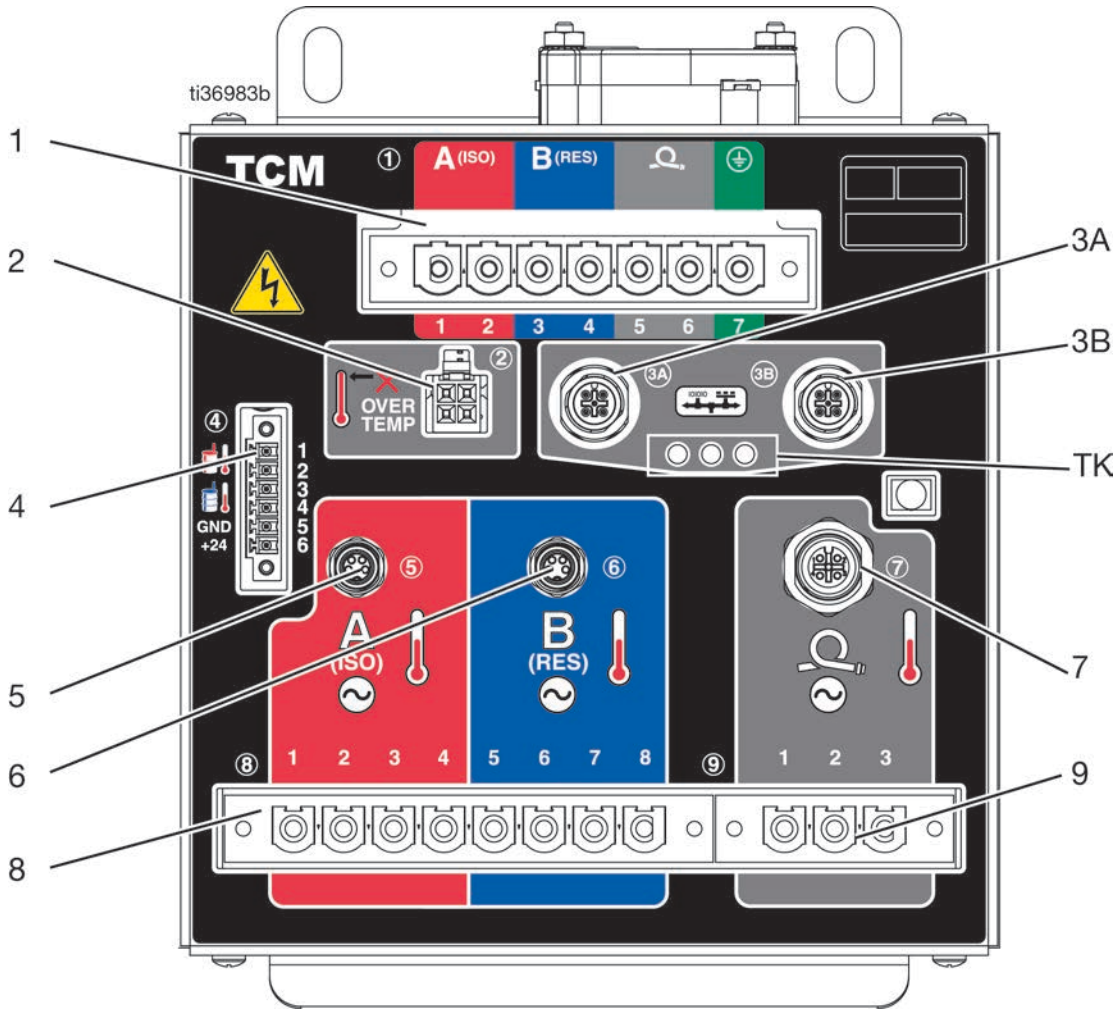


COMPONENT IDENTIFICATION

AAA	Temperature Control Module (TCM)
AAB	Hydraulic Control Module (HCM)
AAE	24 V Power Supply
AAF	Surge Protector
AAG	Transformer Breaker
AAH	Motor Breaker
AAJ	A-Side Heat Breaker
AAK	B-Side Heat Breaker
AAL	Hose Breaker
AAM	Advanced Display Module (ADM)
AAN	Reactor Connect App Module
AAP	Cellular Antenna
AAR	GPS Antenna
AAS	ADM LED Status Light
ACC	Reactor Connect Module Cable Connection
ACL	ADM USB Port
ACM	ADM CAN Cable Connection
EC	Incoming Power Cord Strain Relief
EG	Incoming Power Ground Terminal
MC	Motor Contactor
MP	Main Power Disconnect Knob
MS	Main Power Disconnect Switch

COMPONENT IDENTIFICATION

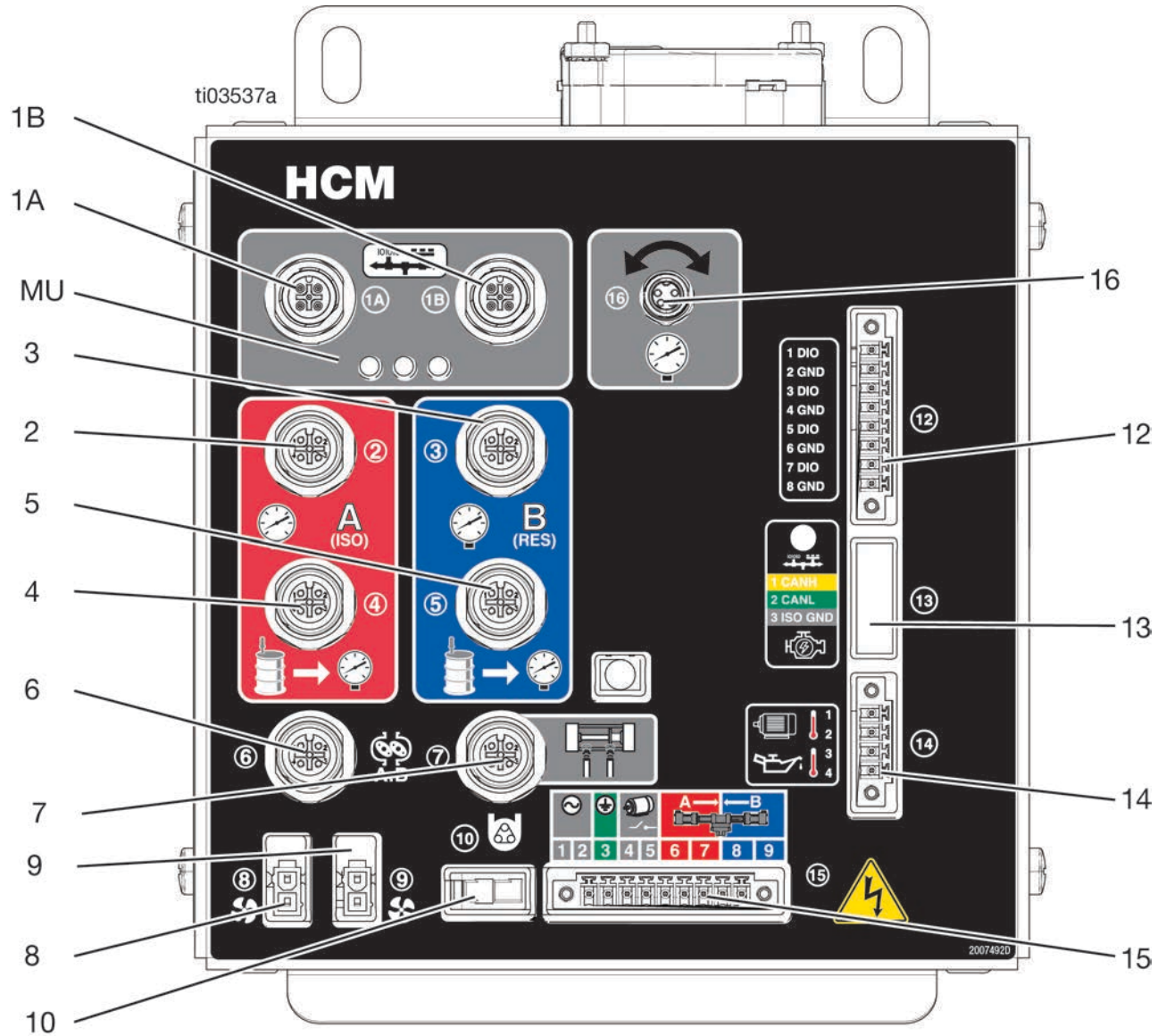
TEMPERATURE CONTROL MODULE (TCM)



- 1 Main Power Input
- 2 Heater Over-Temperature Inputs
- 3A CAN Communications Connections
- 3B CAN Communications Connections
- 4 A/B Inlet Temperatures and 24 VDC Power Supply Input
- 5 A Heater Temperature Input
- 6 B Heater Temperature Input
- 7 A/B Hose Temperature Inputs
- 8 A/B Heater Power Outputs
- 9 A/B Hose Power Outputs
- TK TCM LED Status Lights

COMPONENT IDENTIFICATION

HYDRAULIC CONTROL MODULE (HCM)



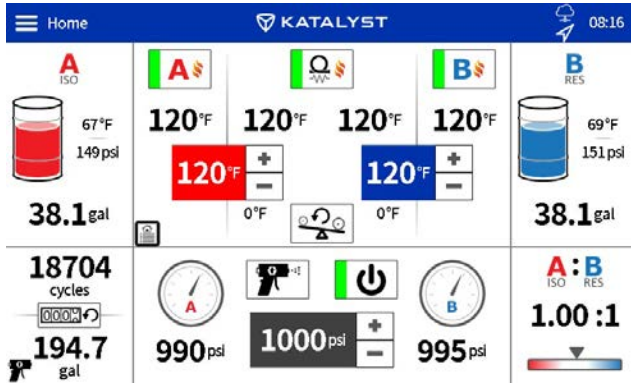
COMPONENT IDENTIFICATION

1A	CAN Communication Connections
1B	
2	A-Side Pump Outlet Pressure
3	B-Side Pump Outlet Pressure
4	A-Side Pump Inlet Pressure
5	B-Side Pump Inlet Pressure
6	Flow Meter Inputs
7	Pump Position Switches
8	Transformer Fan
9	Motor Fan
10	ISO Lube Pump Output
12	Digital Inputs/Outputs
13	Engine J1939 CAN Connection
14	Motor Temperature and Hydraulic Oil Temperature
15	Motor Contactor and Solenoids
16	Electronic Pressure Control Output
MU	HCM LED Status Lights

ADVANCED DISPLAY MODULE (ADM)

The ADM display shows graphical and text information related to setup and spray operations.

ADM KEYS AND INDICATORS



Press Red Stop Button (RS) to stop all proportioner processes. This is not a safety or emergency stop.

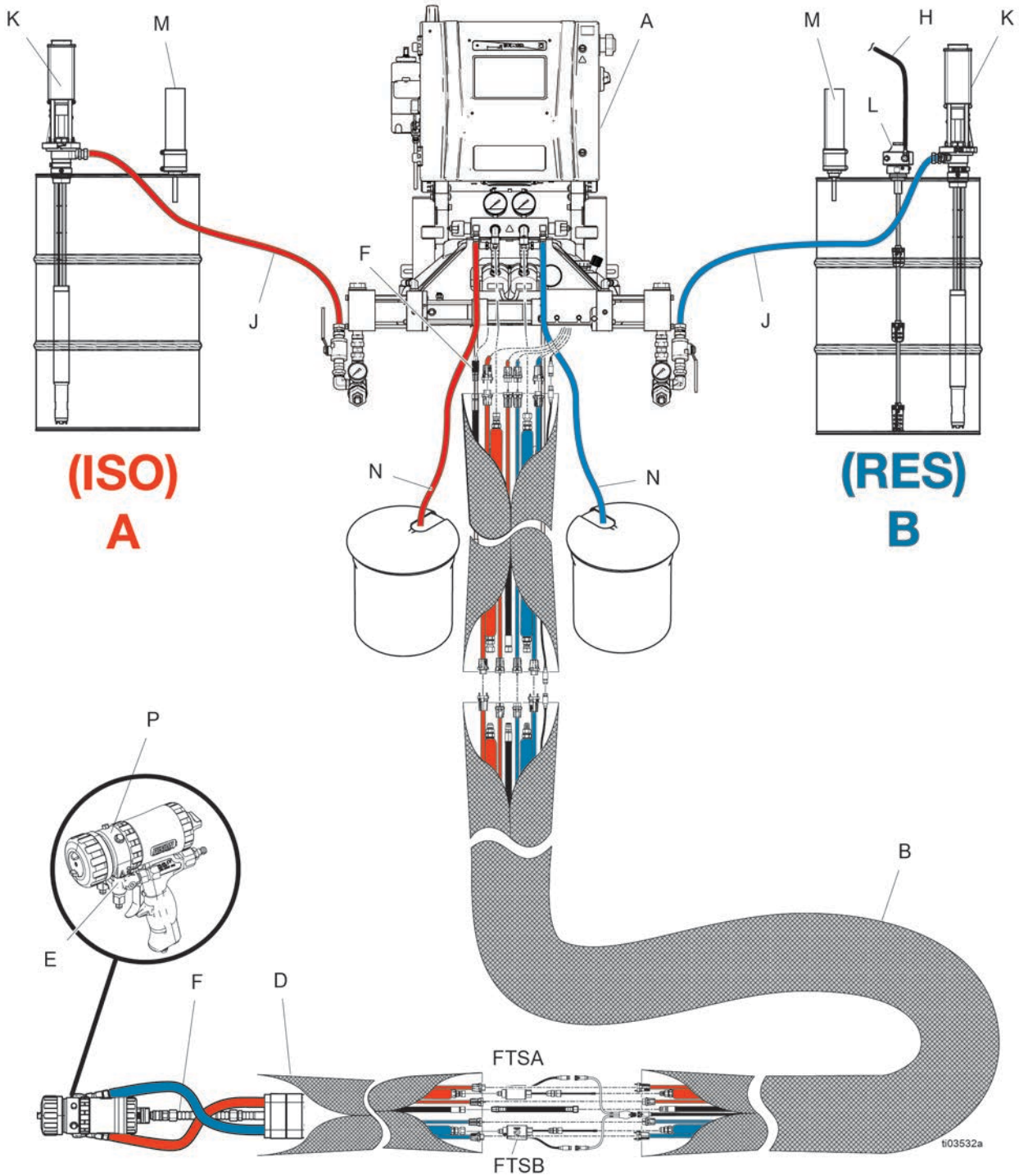
NOTE:

For a complete description of the ADM icons and screens, see **Advanced Display Module (ADM)**.

TYPICAL INSTALLATION

The diagram can be used as a guide for selecting and installing system components and accessories on the Reactor® 3 Hydraulic Proportioning Systems.

TYPICAL INSTALLATION WITHOUT CIRCULATION



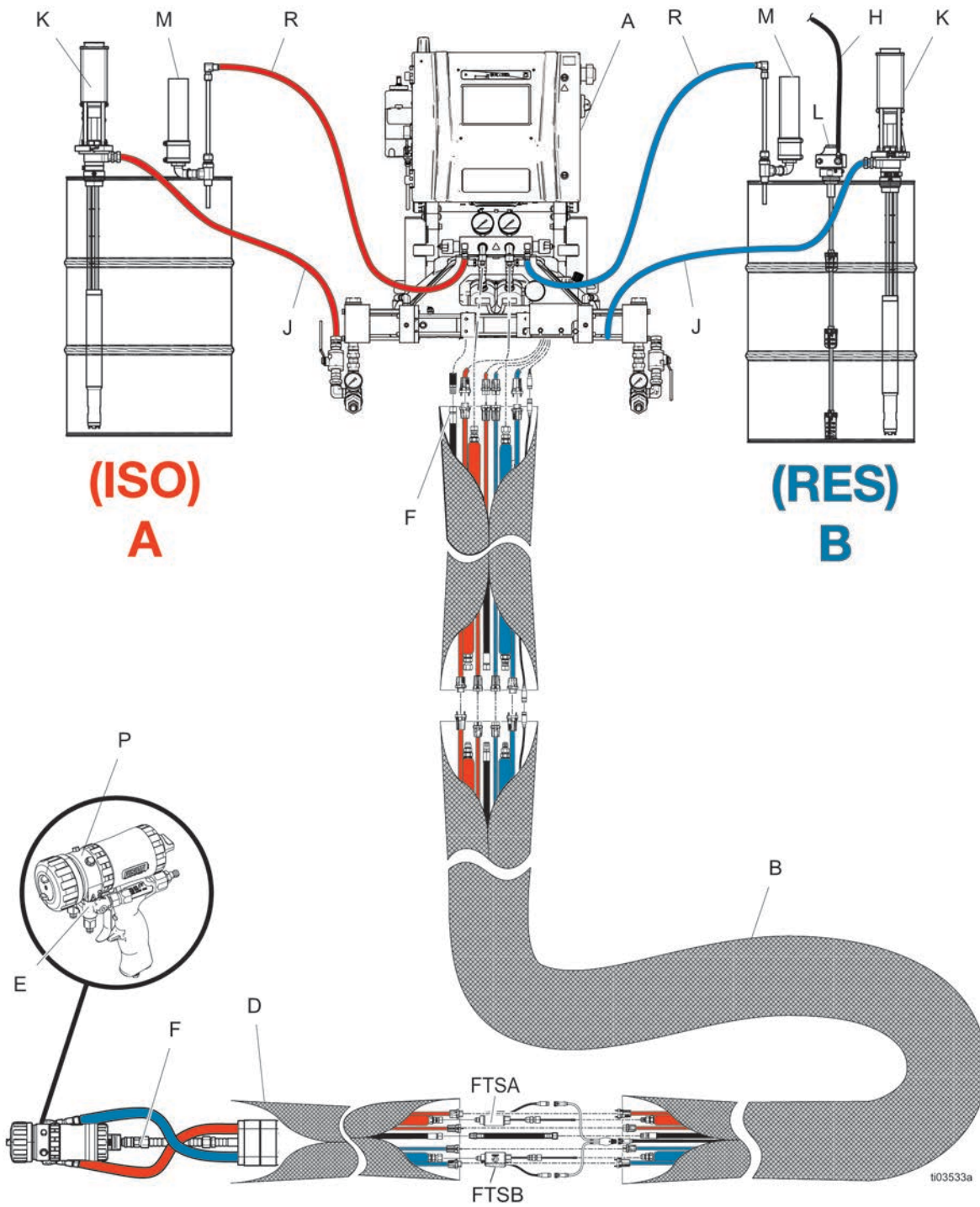
TYPICAL INSTALLATION

- A Reactor Proportioner
- B* Heated Hose Bundle
- D Heated Whip Hose
- E Gun Manifold
- F Gun Air Supply Hose
- H Agitator Air Supply Line
- J Fluid Supply Lines
- K Transfer Pumps
- L Agitator
- M Desiccant Dryers
- N Bleed Lines
- P Gun Fluid Manifold
- FTSA* Fluid Temperature Sensor (A side)
- FTSB* Fluid Temperature Sensor (B side)

** Shown exposed for clarity. Wrap with tape during operation. Not included on all Reactor models.*

TYPICAL INSTALLATION

TYPICAL INSTALLATION WITH SYSTEM FLUID MANIFOLD TO DRUM CIRCULATION



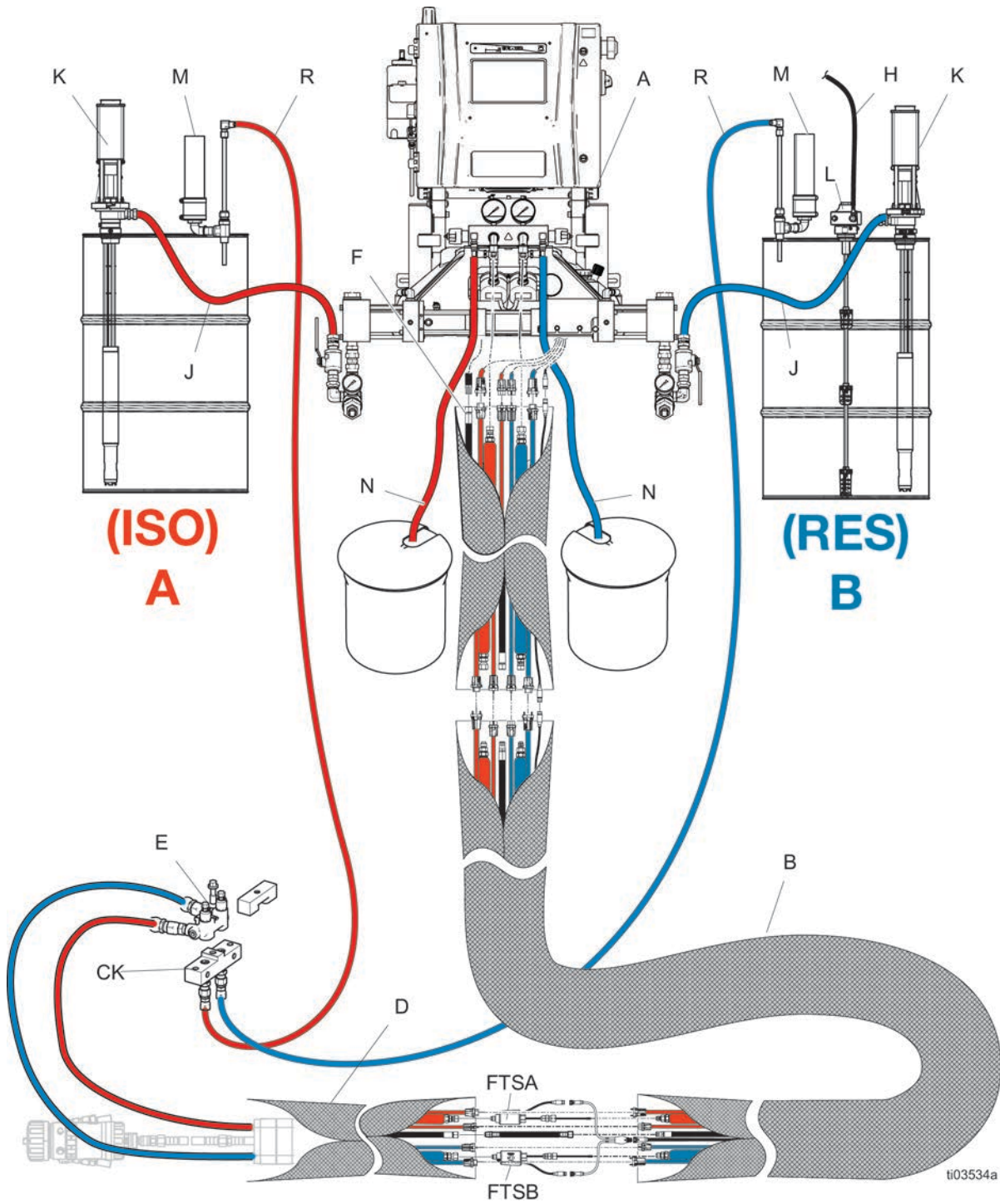
TYPICAL INSTALLATION

- A Reactor Proportioner
- B* Heated Hose Bundle
- D Heated Whip Hose
- E Gun Manifold
- F Gun Air Supply Hose
- H Agitator Air Supply Line
- J Fluid Supply Lines
- K Transfer Pumps
- L Agitator
- M Desiccant Dryers
- P Gun Fluid Manifold
- R Recirculation Lines
- FTSA* Fluid Temperature Sensor (A side)
- FTSB* Fluid Temperature Sensor (B side)

** Shown exposed for clarity. Wrap with tape during operation. Not included on all Reactor models.*

TYPICAL INSTALLATION

TYPICAL INSTALLATION WITH GUN FLUID MANIFOLD TO DRUM CIRCULATION



TYPICAL INSTALLATION




A	Reactor Proportioner
B*	Heated Hose Bundle
D	Heated Whip Hose
E	Gun Manifold
F	Gun Air Supply Hose
H	Agitator Air Supply Line
J	Fluid Supply Lines
K	Transfer Pumps
L	Agitator
M	Desiccant Dryers
N	Bleed Lines
R	Recirculation Lines
CK	Circulation Block
FTSA*	Fluid Temperature Sensor (A side)
FTSB*	Fluid Temperature Sensor (B side)

** Shown exposed for clarity. Wrap with tape during operation. Not included on all Reactor models.*

INSTALLATION

Properly install the Reactor® 3 Hydraulic Proportioning Systems equipment to ensure optimal performance during use.

GROUNDING

! WARNING				
				
<p>The equipment must be grounded to reduce the risk of static sparking and electric shock. Electric or static sparking can cause fumes to ignite or explode. Grounding provides an escape wire for the electric current.</p>				

Reactor: System is grounded through the power cord.

Hose: Use only Reactor 3 heated hoses to ensure static ground continuity. Check electrical resistance of hoses from the gun to the Reactor system ground. If total resistance exceeds 29 megaohms, replace hose(s) immediately.

Spray gun: Spray gun is grounded through Reactor 3 hoses. Use only Reactor 3 heated hoses.

Fluid supply containers: Follow your local code.

Object being sprayed: Follow your local code.

Solvent pails used when flushing: Follow your local code. Use only metal pails, which are conductive, placed on a grounded surface. Do not place pail on a nonconductive surface, such as paper or cardboard, which interrupts grounding continuity.

To maintain grounding continuity when flushing or relieving pressure: Hold a metal part of spray gun firmly to the side of a grounded metal pail, then trigger gun.

LOCATION

For ease of operation and maintenance:

- Ensure adequate lighting where the Reactor is installed for visibility and safety.
- Ensure adequate space to the front and sides of the Reactor to access valves or use wrenches and tools.

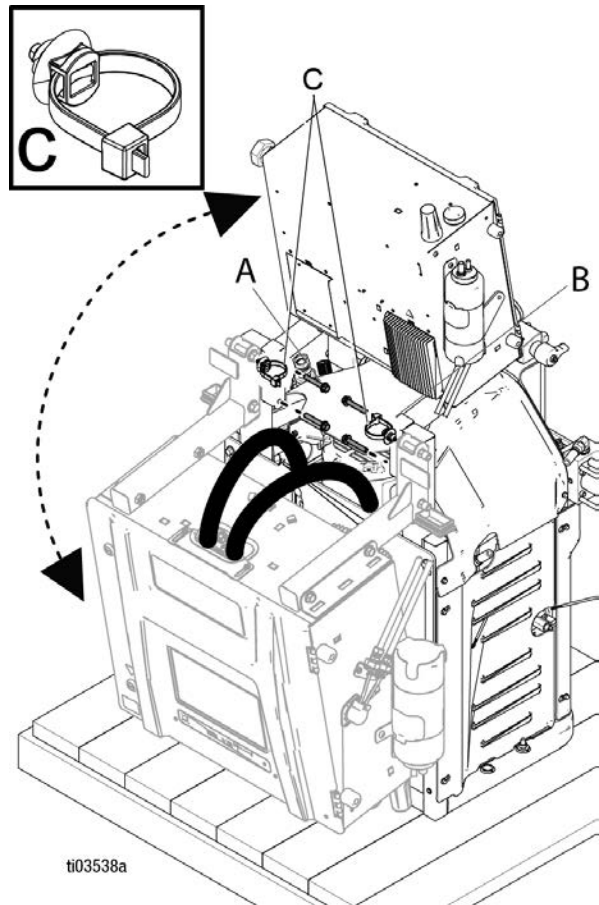
TOOLS REQUIRED FOR INSTALLATION

9/16 in. socket or wrench

ASSEMBLE THE PROPORTIONER

Reactor 3 proportioners arrive in a shipping configuration. Before mounting the system, assemble the proportioner in the upright position.

1. Remove bolts (A) and nuts.
2. Swing the electrical enclosure upright.
3. Reinstall bolt (A) with nut. Tighten bolt (B) and nut.
4. Position the cable bundles against the frame. Attach the bundles to the frame with a loose wire tie (C) on each side.



INSTALLATION

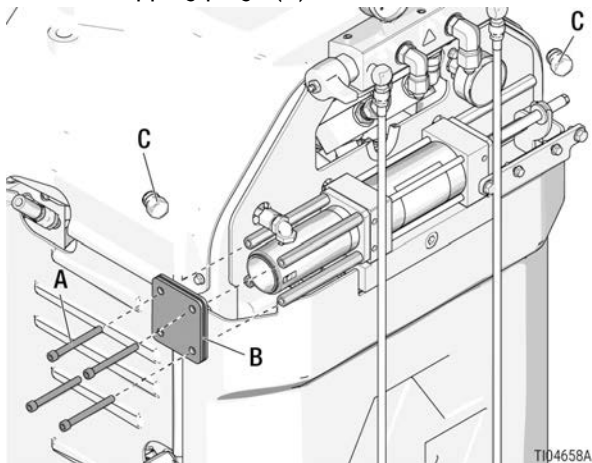
PUMP INSTALLATION (BARE MODELS ONLY)

The following pump sizes are available for purchase:

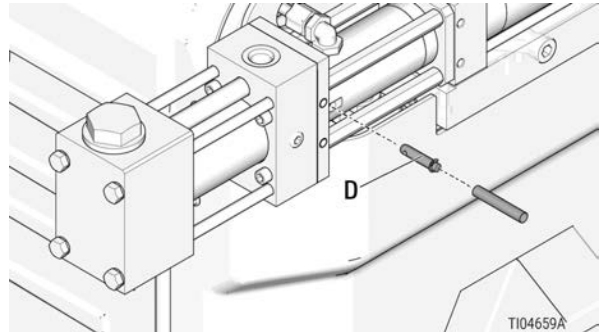
PART	PUMP SIZE
24F291	28 cc
247371	30 cc
247372	40 cc
247373	48 cc
247374	60 cc
247375	80 cc
247577	88 cc
247376	90 cc
247377	120 cc
247576	140 cc

For guidance on selecting pump sizes. See **Performance Charts**.

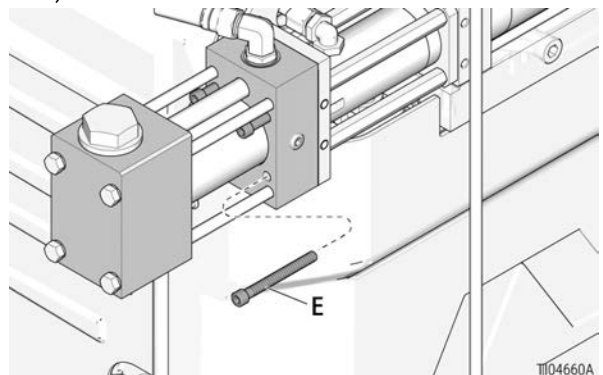
1. Remove four bolts (A) and shipping plate (B). Remove shipping plugs (C).



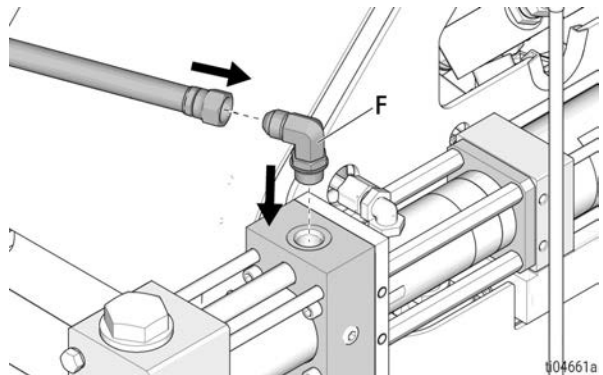
2. Attach A-side pump and assemble pin (D) into pump rod using the tool provided.



3. Assemble screws (E) and torque to 200 in-lb (22.6 N·m).

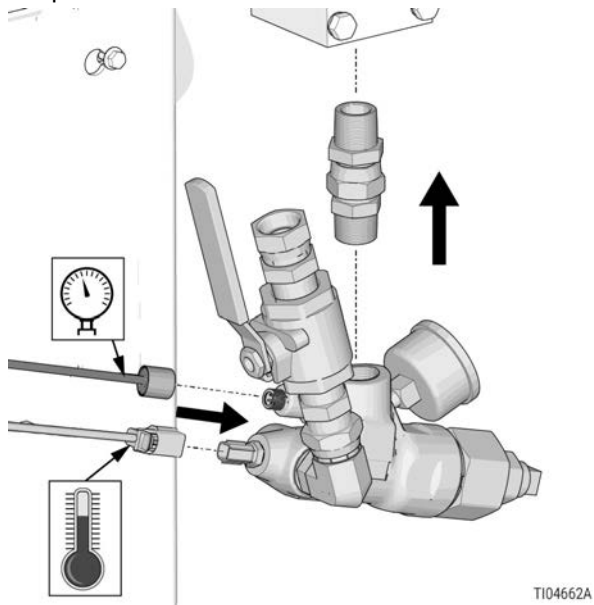


4. Assemble fitting (F) and tighten to pump and outlet hose.

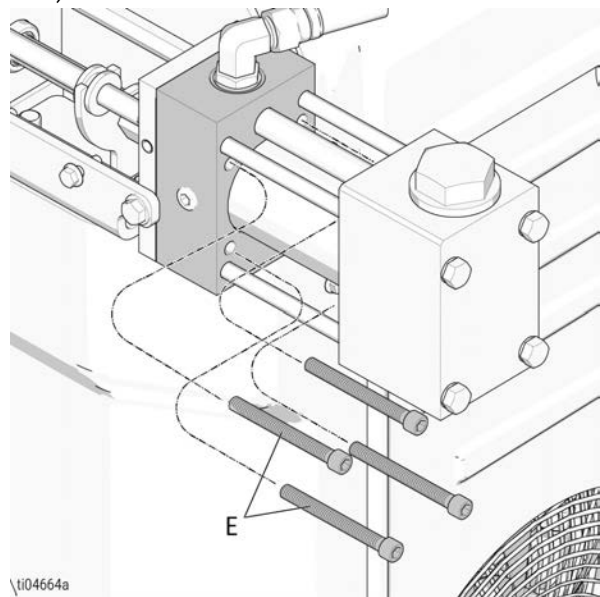


INSTALLATION

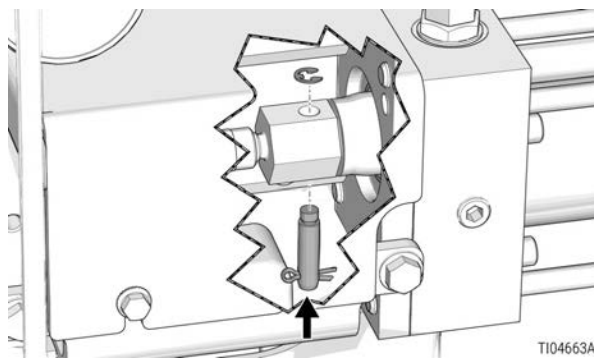
5. Assemble pump inlet fittings. Connect pressure and temperature sensors.



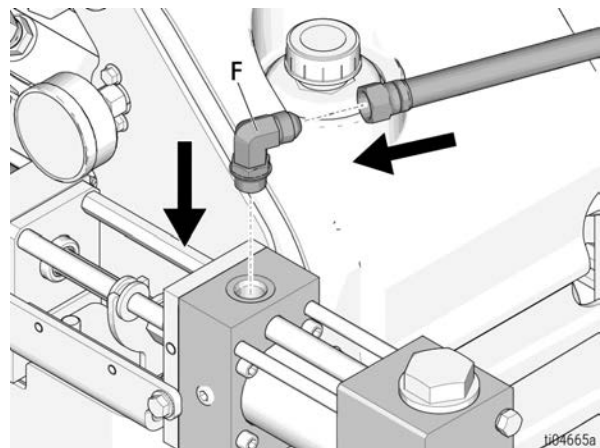
7. Assemble screws (E) and torque to 200 in-lb (22.6 N·m).



6. Attach B-side pump and assemble pin through pump rod.

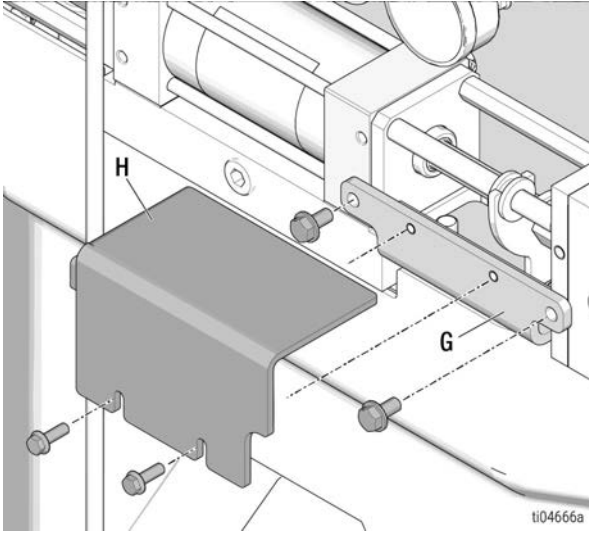


8. Assemble fitting (F) and tighten to pump and outlet hose.

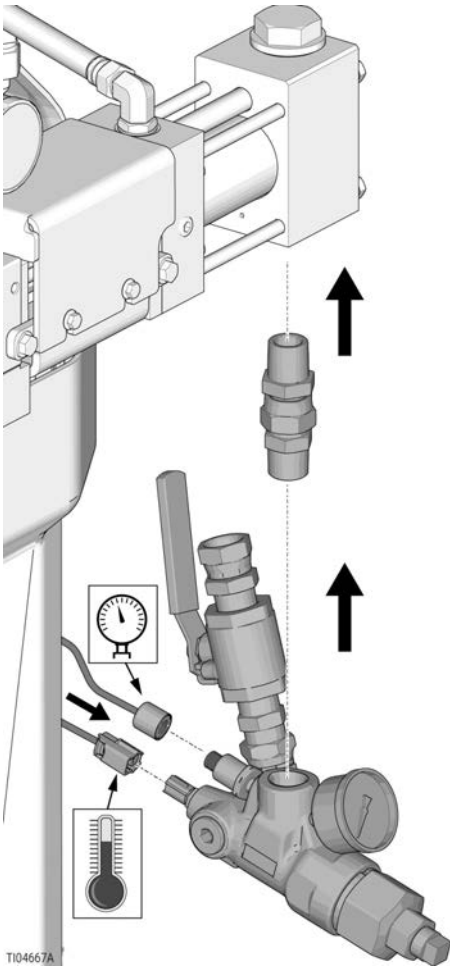


INSTALLATION

9. Assemble pump sensor bracket (G) and protection guard (H) to unit using hardware provided.



10. Assemble pump inlet fittings and connect pressure and temperature sensors.



INSTALLATION

MOUNT THE SYSTEM

WARNING



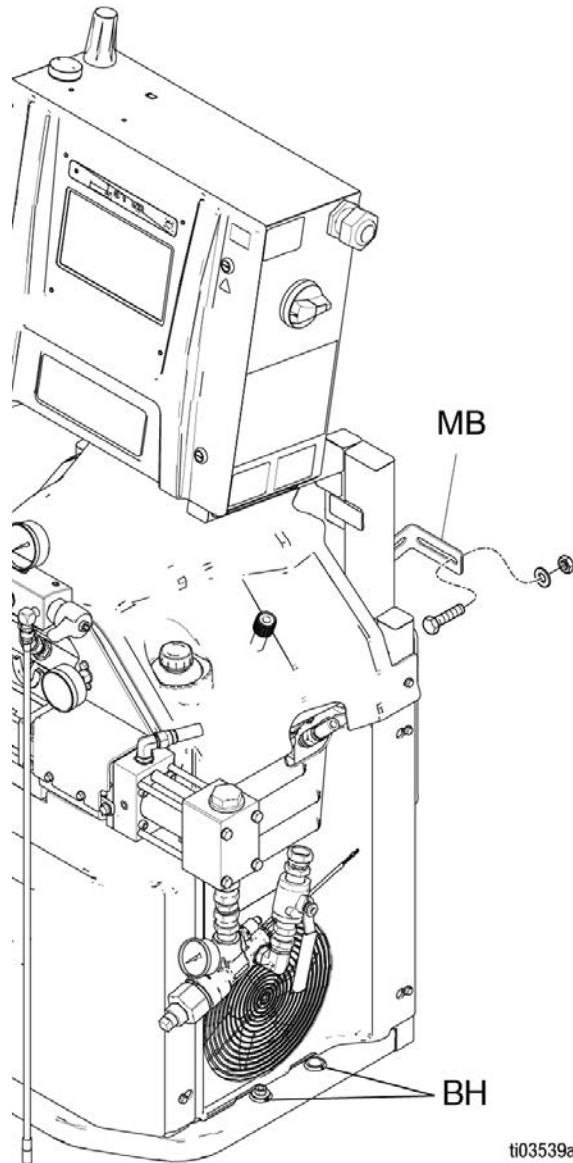
To prevent serious injury due to the system tipping over, ensure the Reactor is properly secured to the wall.

NOTE:

Mounting brackets and bolts are included in the box of loose parts shipped with the system.

1. Secure the left and right wall mounting brackets (MB) to the wall. If the brackets do not line up with the wall stud spacing, bolt a piece of wood to the studs then secure the brackets to the wood.

2. Use the four holes in the base of the system frame (BH) to secure the base to the floor. The bolts are not supplied.



ti03539a

SETUP

When using the equipment for the first time or after long term storage, follow the steps to prepare the Reactor® 3 Hydraulic Proportioning Systems for operation.

TOOLS REQUIRED FOR SETUP

- 1-1/4 in. wrench
- 1-1/16 in. wrench
- 7/8 in. wrench
- 5/8 in. wrench
- 1 in. wrench
- 11/16 in. wrench
- 3/4 in. wrench
- 3/8 in. socket
- Flat-head screwdriver
- 18 in. adjustable wrench

GENERAL EQUIPMENT GUIDELINES

NOTICE

Failure to properly size the generator may result in damage. To avoid damage to the equipment, follow the guidelines listed below.

Determine the correct size generator. Using the correct size generator and proper air compressor will enable the proportioner to run at a nearly constant RPM. Failure to do so will cause voltage fluctuations that can damage electrical equipment. To determine the correct size generator:

1. List peak wattage requirements of all system components.
2. Add the wattage required by the system components.
3. Perform the following equation: Total watts x 1.25 = kilovolt-amperes (kVA).

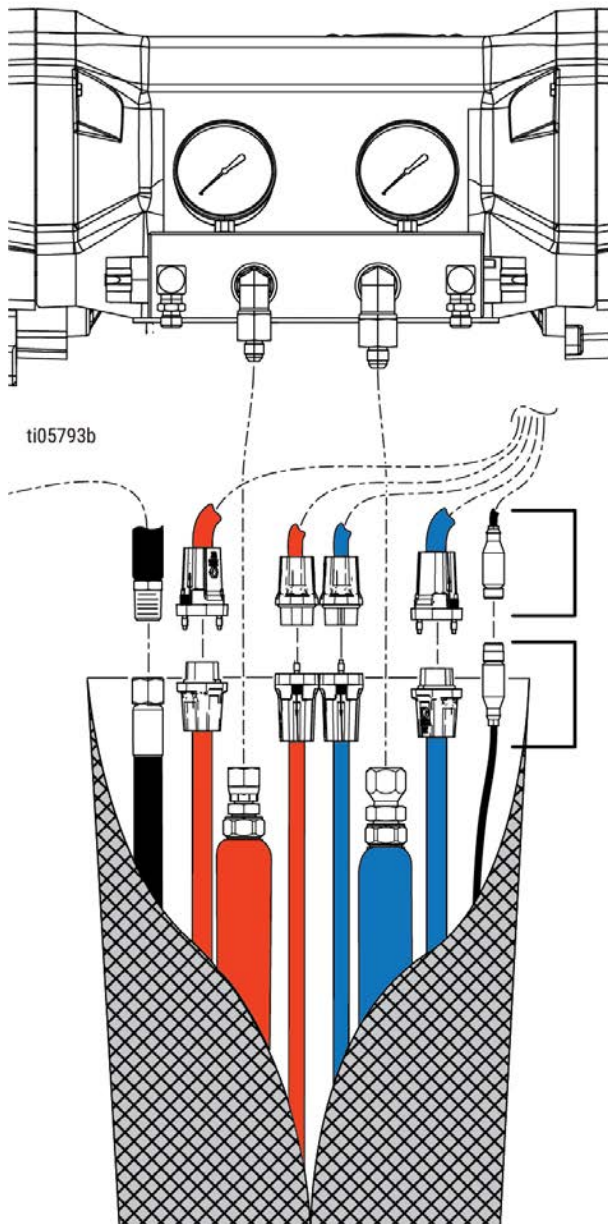
4. Select a generator size that is equal to or greater than the determined kVA. Voltage fluctuations can damage electrical equipment. To avoid voltage fluctuations:
 - Size the proportioner power cord using the electrical ratings in **Models**.
 - Use an air compressor with continuous run head unloading devices. Direct online air compressors that start and stop during a job.
 - Maintain and inspect the generator, air compressor, and other equipment per the manufacturer's recommendations to avoid an unexpected shutdown.
 - Use a wall power supply with enough current to meet system requirements.

CONNECT HEATED HOSE TO PROPORTIONER



NOTICE

To avoid damage to the hose, only connect Reactor 3 heated hoses to your Reactor proportioner.

Connect the heated hose components to the mating component on the proportioner. Refer to your heated hose manual for detailed instructions. See **Related Manuals**.



**CONNECT POWER - H - 10 / H - X P 2
(50 / 60 H Z)**

⚠ WARNING				
				
All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.				

1. Turn the Main Power Switch (MP) **OFF**.
2. Open the Electrical Enclosure Door.

NOTE:

The terminal jumpers are located inside the Electrical Enclosure Door.

3. Install the supplied terminal jumpers in the positions shown in **H-10/H-XP2 (50/60 Hz) Terminal Jumpers** figure for the power source used.

NOTE:

Ensure the terminal jumpers are fully inserted and lie flush.

4. Route the power cable through the Strain Relief (EC) in the electrical enclosure.
5. Connect the incoming power wires and ground wire as shown in **H-10/H-XP2 (50/60 Hz) Terminal Jumpers** figure. Gently pull on all connections to verify they are properly secured.

6. Verify all items are connected properly as shown in **H-10/H-XP2 (50/60 Hz) Terminal Jumpers** figure, then close the Electrical Enclosure Door.

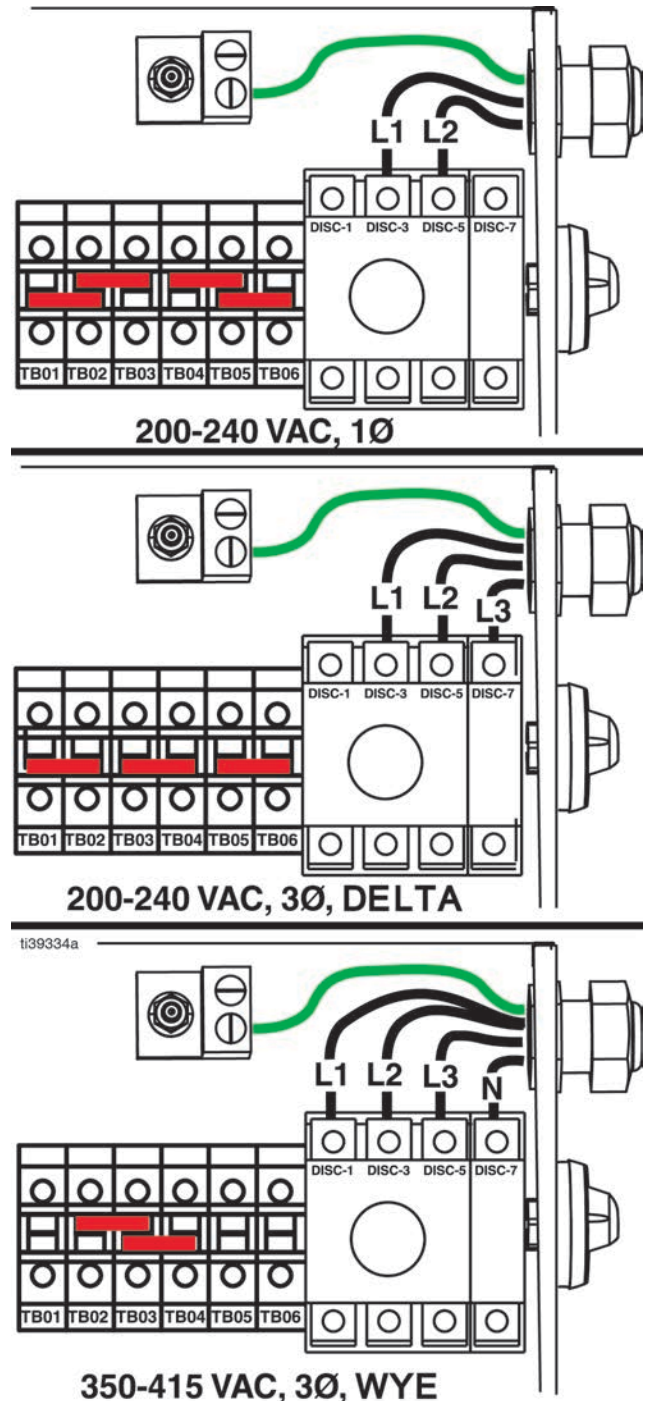




Figure 12-1: H-10/H-XP2 (50/60 Hz) Terminal Jumpers

SETUP

CONNECT POWER - H-30/H-XP2 (50 Hz) AND H-50/H-XP3 (50/60 Hz)

⚠ WARNING			
			
All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.			

1. Turn the Main Power Switch (MP) **OFF**.
2. Open the Electrical Enclosure Door.
3. Route the power cable through the Strain Relief (EC) in the electrical enclosure.
4. Connect the incoming power wired and ground wire as shown in **H-30/H-XP2 (50 Hz) and H-50/H-XP3 (50/60 Hz) Terminal Jumpers** figure. Gently pull on all connections to verify they are properly secured.

5. Verify all items are connected properly as shown in **H-30/H-XP2 (50 Hz) and H-50/H-XP3 (50/60 Hz) Terminal Jumpers** figure, then close the Electrical Enclosure Door.

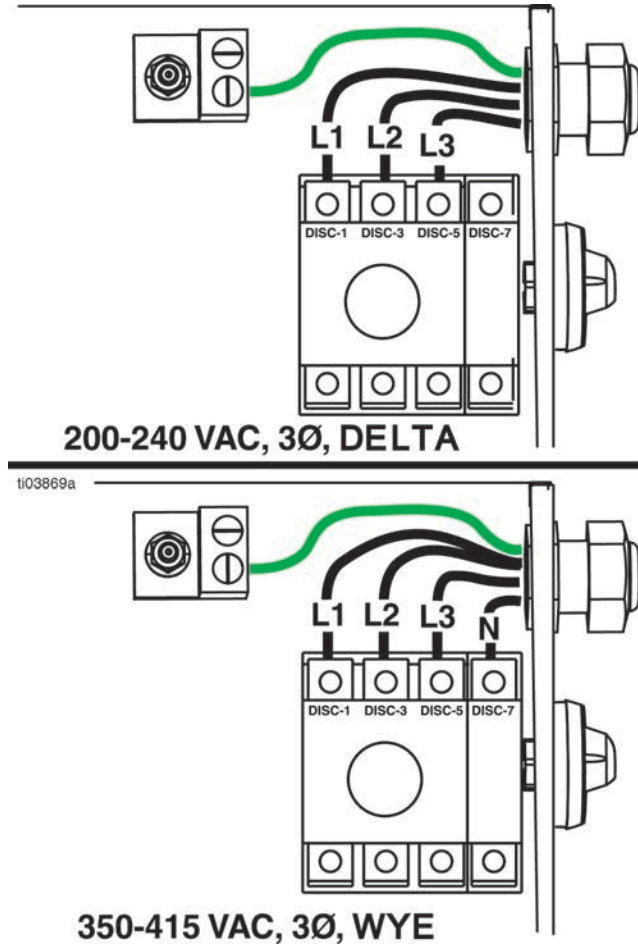



Figure 12-2: H-30/H-XP2 (50 Hz) and H-50/H-XP3 (50/60 Hz) Terminal Jumpers

THROAT SEAL LIQUID (TSL™)

WARNING				
				
<p>The pump rod and connecting rod move during operation. Moving parts can cause serious injury such as pinching or amputation. Keep hands and fingers away from the wet-cup during operation.</p> <p>To prevent the pump from moving, turn the Main Power Switch (MP) OFF.</p>				

NOTE:
Replacement TSL bottles can be ordered as follows:

REPLACEMENT PART	DESCRIPTION
25T859	Replacement bottles of TSL (must be ordered in quantities of six).

Component A (ISO) Pump: Keep ISO lubrication Reservoir (TS) 3/4 full of Graco Throat Seal Liquid (TSL). The reservoir comes from the factory three-fourths full of TSL. Use a marker to mark the fill line on the reservoir bottle. If the reservoir is low or empty, add new TSL to the fill line. When ordering pre-filled bottles from Graco, use a marker to draw a line at the top of the fluid line as it was shipped. Replace TSL if the fluid develops a gel-like consistency.

INSTALL CELL MODULE

NOTE:
You must install the cell module to use the Reactor® Connect App.

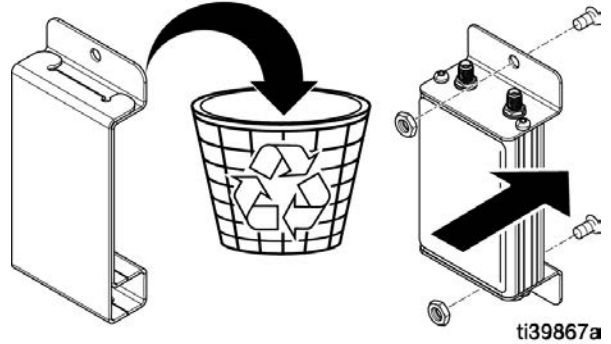
NOTE:
The cell module is an optional accessory, and is included with Hydraulic Reactor models.

1. Turn the Main Power Switch (MP) **OFF**. Disconnect incoming power at the source.
2. Open the Electrical Enclosure Door.

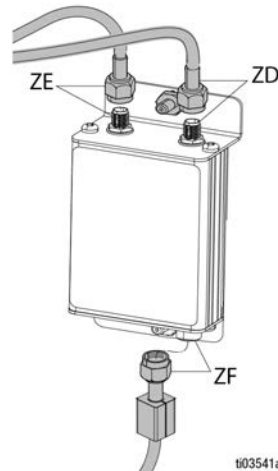
3. Remove the cardboard insert from the cell module mounting location.

NOTE:
When you remove the cardboard insert, you acknowledge your understanding of the Reactor Owner's Manual, Reactor Connect app Terms and Conditions, and Reactor Connect Privacy Notice.

4. Install the cellular module in the cell module mounting location using the supplied nuts.







5. Attach the cell antenna cable (ZE) to the cellular module. Tighten by hand.
6. Attach the GPS antenna cable (ZD) to the cell module. Tighten by hand.
7. Attach the serial communication cable (ZF) from the ADM to the cell module.
8. Close and lock the electrical enclosure door with the door latches.

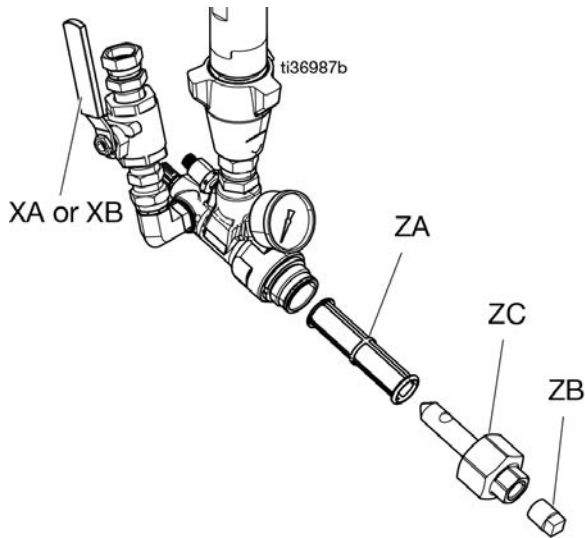


STARTUP

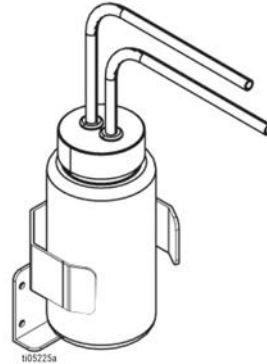
Follow the steps to power on the equipment to prepare the Reactor® 3 Hydraulic Proportioning System for operation.

⚠ WARNING			
			
To prevent serious injury, only operate Reactor with all covers and shrouds in place.			
NOTICE			
Proper system setup, startup, and shutdown procedures are critical to electrical equipment reliability. The following procedures ensure steady voltage. Failure to follow these procedures will cause voltage fluctuations that can damage electrical equipment.			

1. Follow the **Pressure Relief Procedure**.
2. Check the fluid inlet filter screens. Before daily startup, ensure the fluid inlet screens are clean. See **Flush Inlet Strainer Screen**.



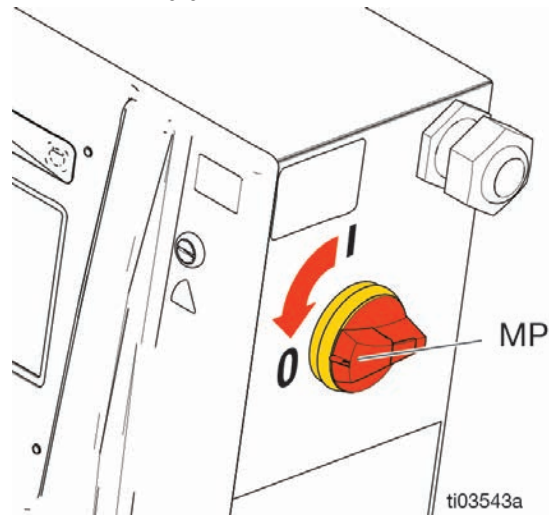
3. Check the ISO Lubrication Reservoir (TS). Check level and condition of ISO lube daily. See **Pump Lubrication System**.



4. Use A and B Drum Level Sticks (24M174) to measure the material level in each drum. If desired, the level can be entered and tracked with the Advanced Display Module (ADM).
5. Check the generator fuel level.

NOTICE
Running out of fuel will cause voltage fluctuations that can damage electrical equipment. Do not run out of fuel.

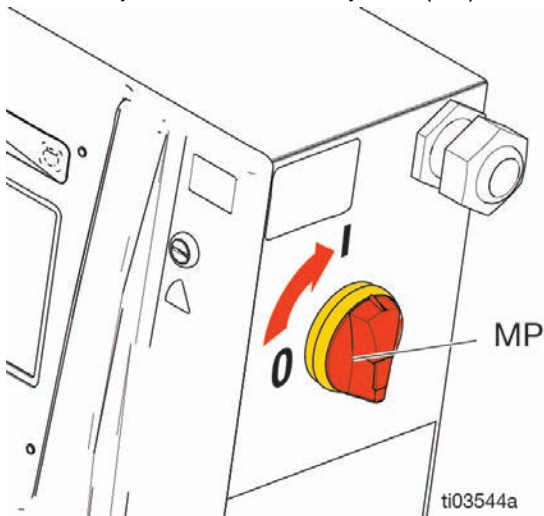
6. Confirm the system Main Power Switch (MP) is **OFF** before starting generator.



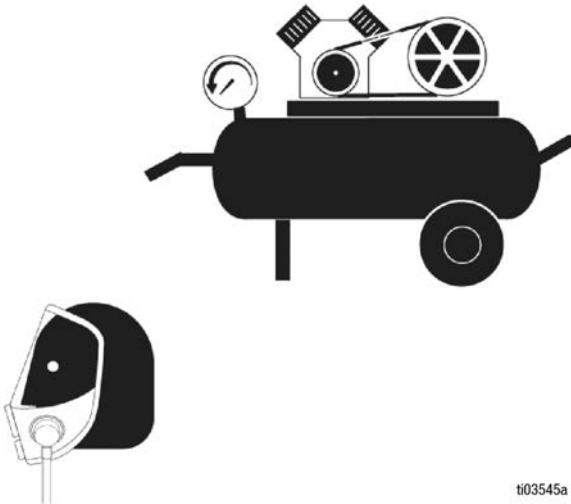
7. Ensure the main breaker on the generator is in the **OFF** position.
8. Start the generator. Allow the generator to reach full operating temperature.
9. Turn the generator main breaker to the **ON** position.

STARTUP

10. Turn the system Main Power System (MP) **ON**.



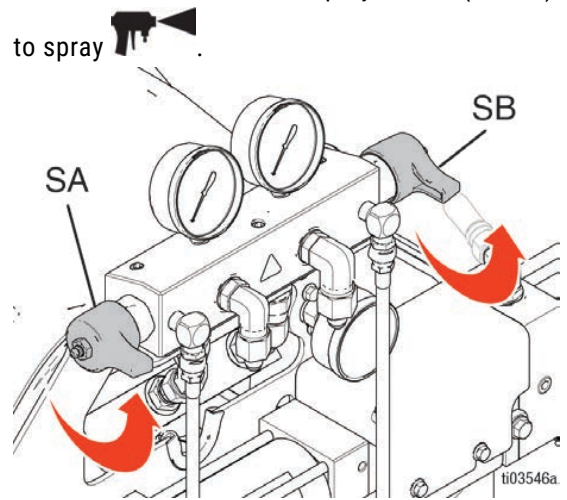
11. Turn **ON** the air compressor, air dryer, and breathing air (if applicable).



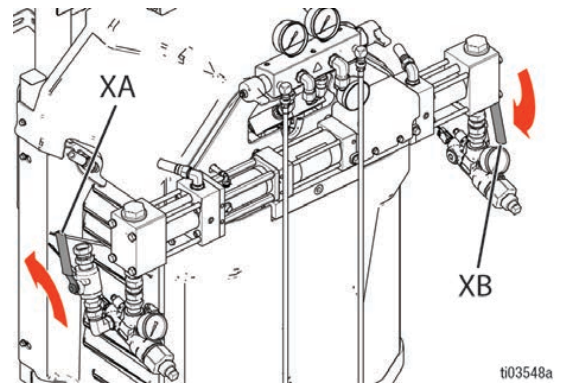
12. For the first startup of new system, use the transfer pumps to supply fluid to the system.




- Check that all Setup steps are complete. See **Setup**.
- If an agitator is used, turn the agitator **ON**. See your agitator manual.
- If you need to circulate fluid through the system to preheat the drum supply, see **Circulation Through Reactor**. If you need to circulate material through the heated hose to the gun manifold, see **Circulation Through Gun Manifold**.

- d. Turn both Pressure Relief/Spray Valves (SA, SB) to spray





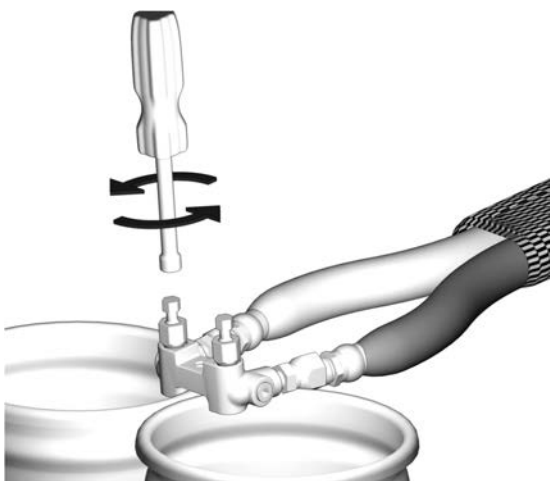
- e. Open the Fluid Inlet Valves (XA, XB). Check for leaks.





⚠ WARNING			
			
<p>Cross-contamination can result in cured material in fluid lines which could cause injury or damage equipment. To prevent cross-contamination:</p> <ul style="list-style-type: none"> • Never interchange A-side and B-side wetted parts. • Never use the same solvent to flush A-side and B-side wetted parts. Use fresh solvent on each. • Always provide two grounded waste containers to keep A-side and B-side fluids separate. 			

STARTUP

- f. Turn the transfer pumps **ON**. If you are using an electric transfer pump, on the ADM screen, tap  to turn **ON** the A-side transfer pump, and tap  to turn **ON** the B-side transfer pump.
- g. Hold the Gun Manifold over two grounded waste containers. Open fluid valves A and B until clean, air-free fluid comes from valves. Close valves.






The Fusion AP gun manifold is shown.




- h. Turn the transfer pumps **OFF**. If you are using an electric transfer pump, tap  to turn **OFF** the A-side transfer pump, and tap  to turn **OFF** the B-side transfer pump.


13. Preheat the system.

NOTE:

The hose calibration must be completed before turning on the hose heat for the first time. See **Calibrate the Heated Hose**.

 WARNING				
				
<p>The equipment is used with heated fluid which can cause equipment surfaces to become very hot. To avoid severe burns</p> <ul style="list-style-type: none"> • Do not touch hot fluid or equipment. • Do not turn on hose heat without fluid in hoses. • Allow equipment to cool completely before touching it. • Wear gloves if fluid temperature exceeds 110°F (43°C). 				



 WARNING				
				
<p>Thermal expansion can cause overpressurization, resulting in equipment rupture and serious injury, including fluid injection. Do not pressurize system when preheating hose.</p>				

- a. Tap  to turn **ON** the hose heat.
- b. If you need to calibrate fluid through the system to preheat the drum supply, see **Circulation Through Reactor**. If you need to circulate material through the heated hose to the gun manifold, see **Circulation Through Gun Manifold**.
- c. Wait for the hose to reach set point temperature.

NOTE:

Hose heat-up time may increase at voltages less than 230 VAC when maximum hose length is used.

STARTUP

- d. Tap  to turn **ON** the ISO heat zone and tap  to turn **ON** the RES heat zone.

OPERATION

The instructions provide guidance on how to use the Reactor® 3 Hydraulic Proportioning Systems.

PRESSURE RELIEF PROCEDURE

Relieve pressure on the Reactor® 3 Hydraulic Proportioning System when operation is stopped, and before cleaning, checking, or servicing the equipment.



Follow the Pressure Relief Procedure whenever you see this symbol.

WARNING				
<p>This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the Pressure Relief Procedure when you stop spraying and before cleaning, checking, or servicing the equipment.</p>				

1. Relieve pressure in the gun and perform the gun shutdown procedure. See your gun manual. See **Related Manuals**.

2. Tap to turn the motor **OFF**.

NOTE:

Electric transfer pumps will automatically turn off with the motor.

3. Tap , , and to turn **OFF** all heat zones.

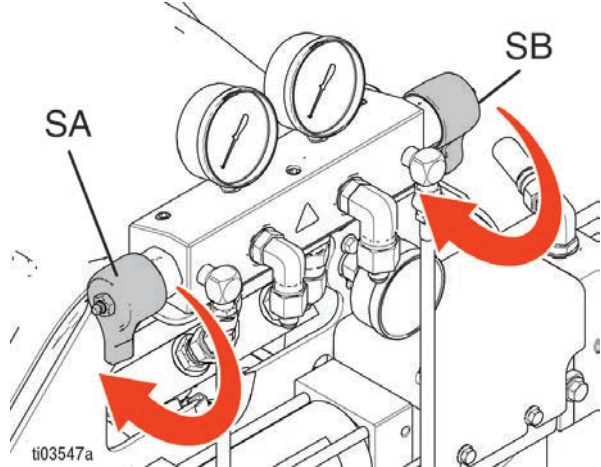
4. Shut off the transfer pumps and agitator, if used. For pneumatic transfer pumps and agitators, refer to your component manuals. See **Related Manuals**.

For electric transfer pumps (if necessary), tap

to turn **OFF** the A-side transfer pump, and tap

to turn **OFF** the B-side transfer pump.

5. Make sure the bleed or circulation lines are connected and routed to waste containers or supply tanks. Turn the Pressure Relief/Spray Valve (SA, SB) to pressure relief/circulation . Make sure the gauges drop to 0.



JOG MODE

Jog Mode has two purposes:

- To speed fluid heating during circulation.
- To ease system flushing and priming.

JOG LEVEL

The Jog Level determines how quickly the system will pass chemicals through the system. The jog levels are between J1 and J20. Lower jog levels will move fluid at lower speeds and pressures. Higher jog levels move fluid at higher speeds and pressures. Actual speed and pressure are variable based on the chemicals used.


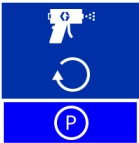


NOTE:


If Electronic Pressure Control is not installed, turn compensator knob completely counterclockwise to run system at lower pressure.

JOG THE SYSTEM

NOTE:

If pneumatic transfer pumps are in use, manually turn on air supply to the pumps. See your pump manual. See **Related Manuals**. If electric transfer pumps are in use, the pumps automatically turn on when the motor is turned on.








1. Tap the **Pump Mode** button .
2. Select **Jog Mode** from the menu.
 
3. Tap  to set the Jog Level.
4. Tap  to turn the motor **ON**.

5. Tap  to turn the motor **OFF**.

JOG THE TRANSFER PUMPS SEPARATELY


Pneumatic Transfer Pumps: Manually turn ON/OFF air to the pumps one at a time. See your pump manual. See **Related Manuals**.

Electric Transfer Pumps:

1. Ensure the motor power  is **OFF**.
2. Tap  to turn **ON** the A-side transfer pump.
3. Tap  to set the Jog Level.
4. Tap  to turn **OFF** the A-side transfer pumps.
5. Tap  to turn **ON** the B-side transfer pump.
6. Tap  to set the Jog Level.
7. Tap  to turn **OFF** the B-side transfer pump.

JOG LIMIT FEATURE


The Jog Limit Feature automatically shuts off the Reactor motor after a specified number of jog cycles.

Tap the checkbox next to the  icon to enable/disable this feature. When this feature is enabled, the Job Cycle limit will display and decrement while the motor is running in jog Mode.

The Jog Cycle Limit can be set on the Pressure/Flow Setup Screen.

PURGE AIR PROCEDURE

WARNING



NOTE:
Perform this procedure any time air is introduced into the system.

1. Follow the **Pressure Relief Procedure**.
2. Install a recirculation kit or install bleed lines between the outlet manifold recirculation fitting and a waste container.

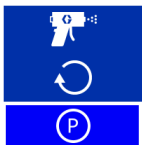
NOTICE


To prevent equipment damage, do not circulate fluid containing a blowing agent without consulting with your material supplier regarding fluid temperature limits.


3. If using pneumatic transfer pumps, turn air **ON** to the transfer pump. See your pump manual. See **Related Manuals**.

4. Tap the **Pump Mode** button .

5. Select **Jog Mode** from the menu.




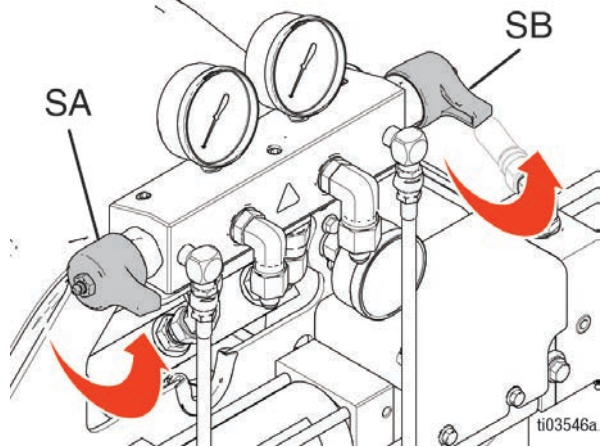
6. Tap  to set the Jog Level to desired setting. See **Jog Mode**.

7. Tap  to turn the motor **ON**.


NOTE:
Electric transfer pumps will automatically turn on with the motor.

8. Use Jog Mode to pump one gallon (3.8 l) of material through the system. See **Jog Mode**.

9. Set the Pressure Relief/Spray Valve (SA, SB) to spray .

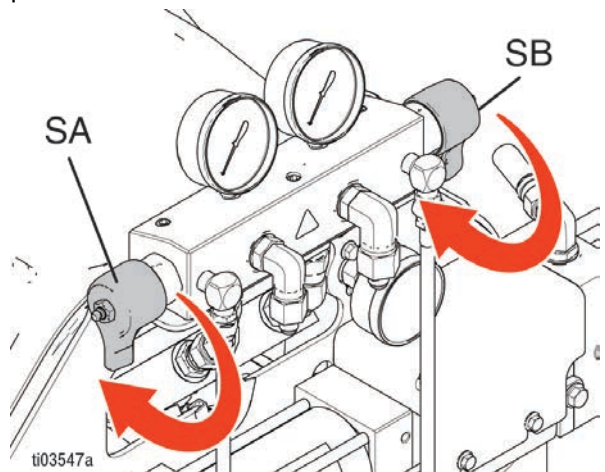


10. If using pneumatic transfer pumps, turn **OFF** air to the transfer pumps. See your pump manual. See **Related Manuals**.

11. Tap  to turn the motor **OFF**.

NOTE:
Electric transfer pumps will automatically turn off with the motor.





12. Set the Pressure Relief/Spray Valves (SA, SB) to pressure/circulation .



13. Listen for a spitting sound from the Bleed Lines (N) or Recirculation Lines (R). See **Typical Installation**. This sound indicates the Reactor system still contains unwatered air. If the system still contains air, repeat the **Purge Air Procedure**.

FLUSH THE EQUIPMENT


WARNING

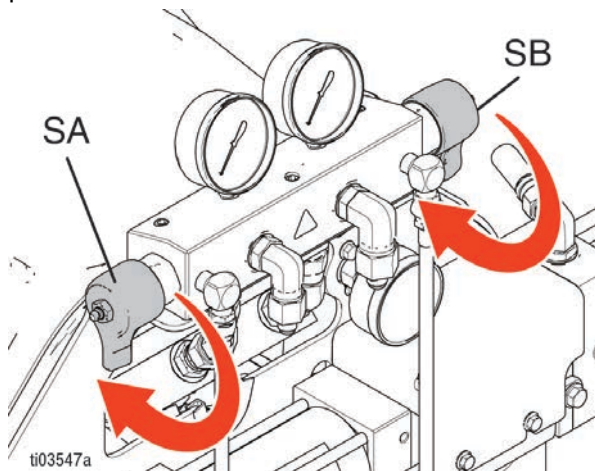






To help prevent fire and explosion:

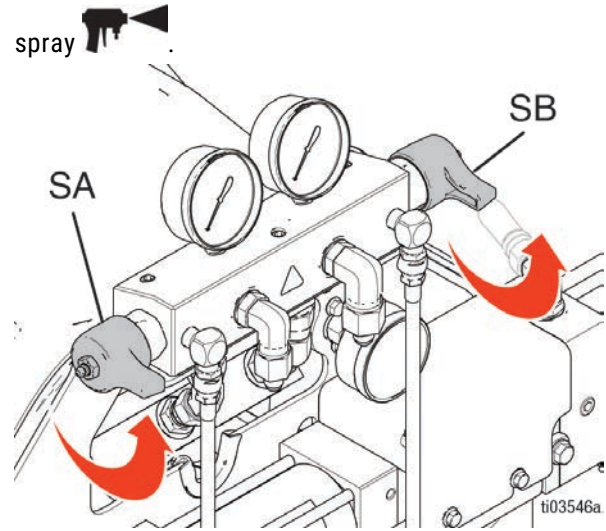
- Flush equipment only in a well-ventilated area.
- Do not spray flammable fluids.
- Do not turn on heaters while flushing with flammable solvents.
- Always ground equipment and waste containers.
- Flush out old fluid with new fluid, or flush out old fluid with a compatible solvent before introducing new fluid.
- Use the lowest possible pressure when flushing.
- All wetted parts are compatible with common solvents. Use only moisture-free solvents.

To flush the fluid supply lines, pumps, heaters, hose, and the gun manifold:

1. Install Bleed Lines between the outlet manifold recirculation fitting and a grounded metal waste container.
2. Route the Recirculation Lines back to respective A or B supply, or grounded metal waste containers.
3. Set the Pressure Relief/Spray Valves (SA, SB) to pressure relief/circulation .



4. Use Jog Mode to circulate fluid. Reactor systems allow the entire system to be in Jog Mode, or A and B-side transfer pumps to be put into Jog Mode separately. See **Jog Mode**. Circulate fluid until only solvent comes from the bleed lines. The Reactor feed hoses, pumps, and heaters are now flushed.
5. Set the Pressure Relief/Spray Valves (SA, SB) to spray .



6. Hold the Gun Manifold over two grounded waste containers. Open Fluid Inlet Valves (XA and XB) until only solvent comes from the valves. Close the Fluid Inlet Valves. The Reactor hose and gun manifold are now flushed.
7. **Optional:** Use accessory circulation kit to circulate fluid through the gun manifold.

CIRCULATION	GUN	MANUAL IN ENGLISH
246362	Fusion AP, PC, MP	309818
256566	Fusion CS	313058

NOTICE

To prevent moisture from reacting with isocyanate, always leave the system filled with a moisture-free plasticizer or oil. Do not use water. Never leave the system dry. See **Important Isocyanate Information**.

FLUID CIRCULATION

CIRCULATION THROUGH REACTOR




NOTICE


To prevent equipment damage, do not circulate fluid containing a blowing agent without consulting with your material supplier regarding fluid temperature limits.

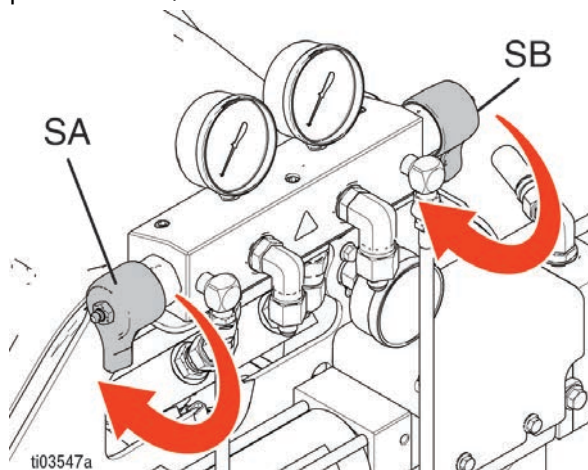
NOTE:







Optimum heat transfer is achieved at lower fluid flow rates with temperature set points at desired drum temperature. To circulate through gun manifold and preheat hose, see **Circulation Through Gun Manifold**.

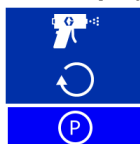
1. Route the circulation lines back to the respective component A or B supply drum. See **Typical Installation with System Fluid Manifold to Drum Circulation**. Use hoses rated at the maximum working pressure of this equipment. See **Technical Specifications**.
2. Follow **Startup**.

⚠ WARNING				
				
<p>To avoid injection injury and splashing, do not install shutoffs downstream of the Pressure Relief/Spray Valves (SA, SB). The valves function as overpressure relief valves when set to SPRAY. Lines must be open so valves can automatically relieve the pressure when the machine is operating.</p>				

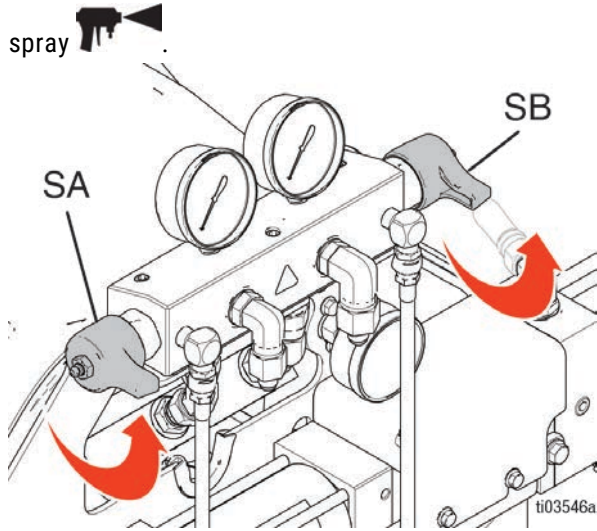
3. Set the Pressure Relief/Spray Valves (SA, SB) to pressure relief/recirculation .



4. Tap +/- to set the temperature targets for ISO  and RES  on the ADM screen.
5. Use Jog Mode for circulation fluid until the desired drum temperature for ISO and RES temperatures reach their respective targets. Reactor systems allow the entire system to be in Jog Mode, or the A and B-side transfer pumps to be put into Jog Mode separately. See **Jog Mode**.
6. Tap  to turn **ON** the ISO heat zone, and tap  to turn **ON** the RES heat zone.
7. Tap  to turn **ON** the hose heat.
8. Set the temperature targets for the desired spray temperature of ISO and RES. Wait until the fluid temperature readings reach their set temperature targets.
9. Tap the **Pump Mode** button .
10. Select **Spray Mode** from the menu.



11. Set the Pressure Relief/Spray Valves (SA, SB) to spray



CIRCULATION THROUGH GUN MANIFOLD

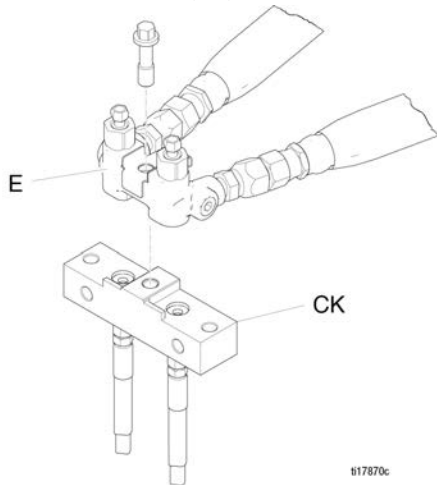
NOTICE

To prevent equipment damage, do not circulate fluid containing a blowing agent without consulting with your material supplier regarding fluid temperature limits.

NOTE:

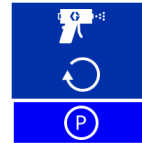
Optimum heat transfer is achieved at lower fluid flow rates with temperature set points at desired drum temperature. Circulating fluid through the gun manifold allows rapid preheating of the hose.

1. Install the Gun Manifold (E) on an accessory circulation block (CK).

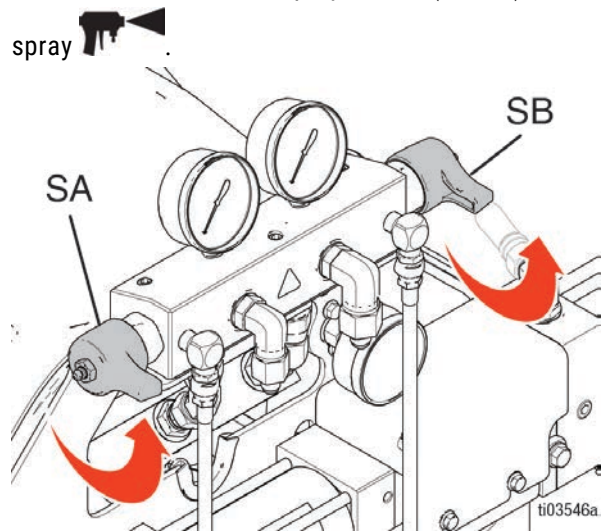


The Fusion AP gun manifold is shown.

2. Route the Recirculation Lines back to their respective component A or B supply drums. See **Typical Installation with Gun Fluid Manifold to Drum Circulation**. Use hoses rated at the maximum working pressure of this equipment. See **Technical Specifications**.
3. Follow **Startup**.
4. Set temperature targets for ISO **120°F** and RES **120°F** on the ADM screen.
5. Tap **A** to turn on the ISO primary heat zone and **B** to turn on the RES primary heat zone.
6. Use Jog Mode to circulate fluid until ISO and RES temperatures reach their respective targets. Reactor systems allow the entire system to be in Jog mode, or A and B-side transfer pumps to be put into Jog Mode separately. See **Jog Mode**.
7. Tap **Q** to turn **ON** the hose heat.
8. Tap the **Pump Mode** button **P**.
9. Select **Spray Mode** from the menu.



10. Set the Pressure Relief/Spray Valves (SA, SB) to spray



CALIBRATION

CALIBRATE THE HEATED HOSE

NOTICE

To prevent damage to the heated hose, hose calibration is required if any of the following conditions are true:




- The hose has never been calibrated before.
- A section of hose has been replaced.
- A section of hose has been added.
- A section of hose has been removed.

NOTE:

The Reactor and heated hose must be at the same ambient temperature to get the most accurate calibration.

NOTE:

A minimum of 50 ft (15.2 m) hose is required for proper operation while in Resistance Control Mode.

1. Tap . Go to **Setup > Heat**.
2. Tap **Calibrate** .
3. Tap **Continue**  to acknowledge the reminder to have the hose at ambient temperature.
4. Wait while the system measures the hose resistance.

NOTE:

If hose heat was on prior to the calibration procedure, the system will wait up to 5 minutes to allow the wire temperature to equalize.


5. Tap **Accept**  to proceed with the calibration, or **Cancel**  to stop the calibration.

NOTE:

A temperature estimate will be displayed if the system was able to measure the hose wire resistance.




CALIBRATE THE TRANSFER PUMPS

After installing a new electrical transfer pump, you must calibrate the transfer pump motor.

1. Tap . Go to **Setup > Supply System**.
2. If the transfer pump type is set to **Electric**, change the transfer pump type to **Air**. Tap the **Transfer Pump (A or B) Type** field. Select **Air**.
3. Change the transfer pump system type from **Air** to **Electric**. Tap the **Transfer Pump (A or B) Type** field. Select **Electric**.

NOTE:

Changing the transfer pump type from **Air** to **Electric** triggers the calibration function.

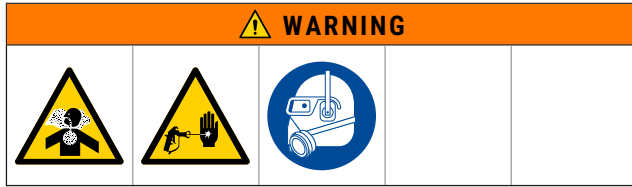
4. **If calibrating both transfer pumps**, repeat steps 2 and 3 for the other transfer pump motor.
5. Confirm there is no or low inlet pressure in the transfer pump by opening the Recirculation Lines (R).
6. Turn the transfer pumps **ON**. The transfer pumps will slowly move from multiple strokes and then shift into normal operation.
 - a. To turn on the transfer pumps individually, tap  to turn the A-side transfer pump **ON**, or tap  to turn the B-side transfer pump **ON**.
 - b. To turn on both transfer pumps with the system, tap  to turn the motor **ON**.

NOTE:

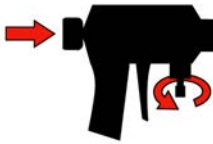
Electric transfer pumps will automatically turn on with the motor.

OPERATION

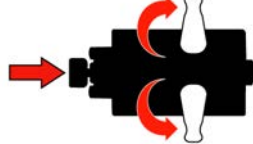
SPRAY



1. Engage the gun piston safety lock and close the A-side and B-Side gun fluid manifold valves.

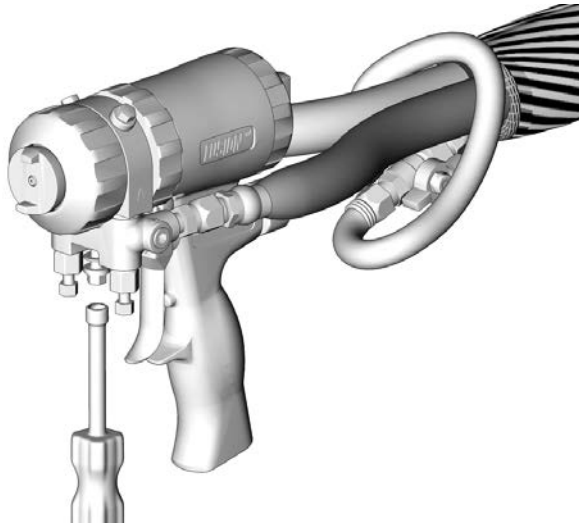


Fusion



Probler

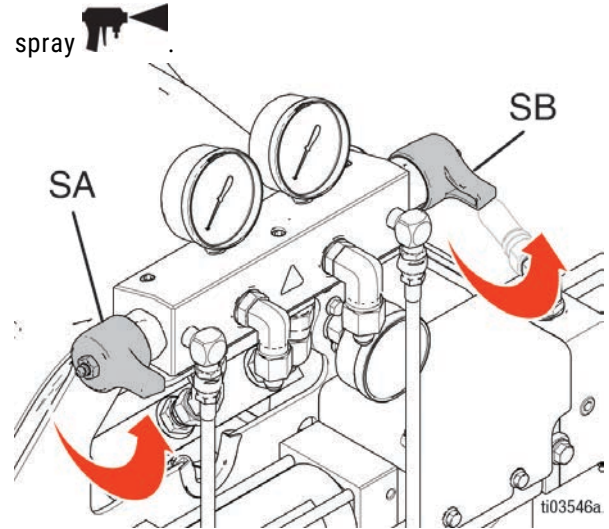
2. Attach the Gun Manifold. Connect the gun air line. Open the air line valve.



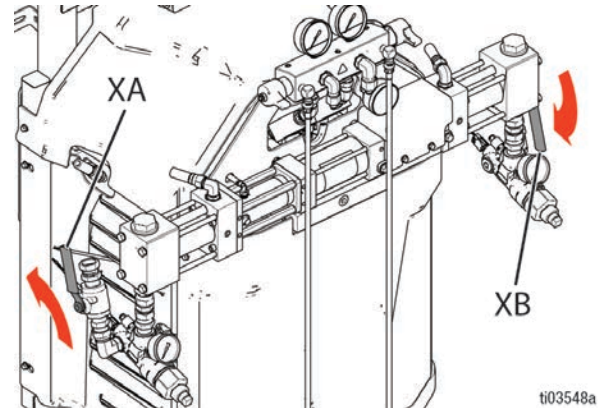
Fusion AP Gun shown

3. Adjust the gun air regulator to desired gun air pressure. Do not exceed the maximum rated air pressure. See your gun manual. See **Related Manuals**.

4. Set the Pressure Relief/Spray Valves (SA, SB) to spray



5. Verify the heat zones are on and the temperatures are on target.
6. Open the Fluid Inlet Valves (XA, XB) located at each pump inlet.




7. Tap the **Pump Mode** button .
8. Select **Spray Mode** from the menu.



9. **If using pneumatic transfer pumps**, turn air to the transfer pumps **ON**. See your pump manual. See **Related Manuals**.

OPERATION


10. Tap  to turn the motor **ON**.

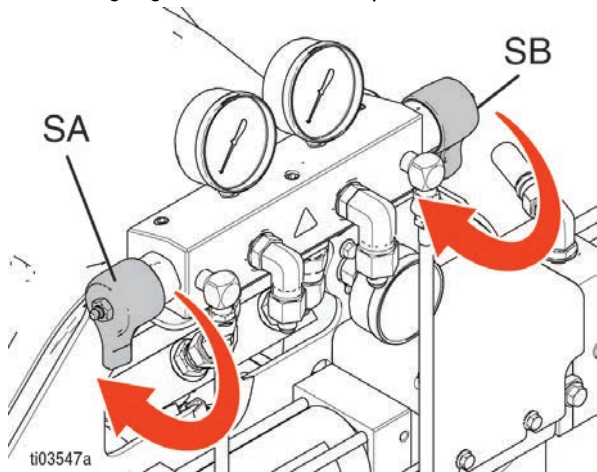
NOTE:

Electric transfer pumps will automatically turn on with the motor.

NOTE:

A manual pressure adjustment control is available on the Elite models in the event of an issue with the electronic control. See **Manual Pressure Control**.

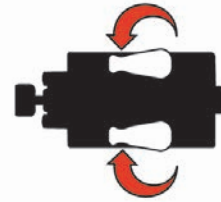
11. Check the Pressure Gauges (GA, GB) to ensure proper pressure balance. If imbalanced, reduce pressure of higher component by slightly turning the Pressure Relief/Spray Valve (SA, SB) for that component toward pressure relief/circulation  until the gauges show balanced pressures.



12. Open the A-side and B-side gun fluid manifold valves.



Fusion



Probler

NOTICE

To prevent material crossover on impingement guns, never open gun fluid manifold valves or trigger gun if pressures are imbalanced.

13. Disengage the gun piston safety lock.



Fusion



Probler

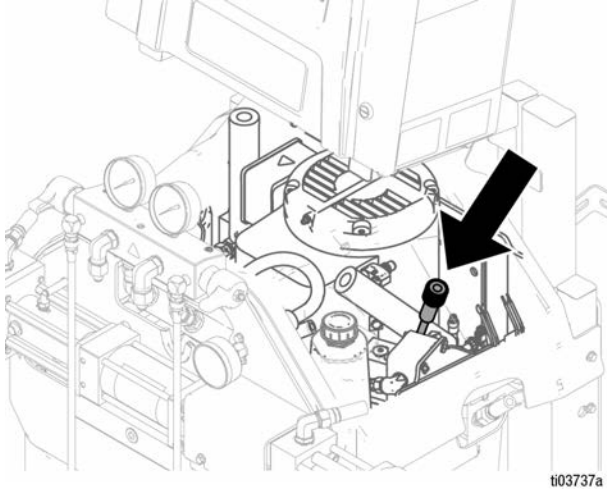
SPRAY ADJUSTMENTS

Flow rate, atomization, and overspray are affected by four variables:

- **Fluid pressure setting.** Too little pressure results in an uneven pattern, coarse droplet size, low flow, and poor mixing. Too much pressure results in excessive overspray, high flow rates, difficult control, and excessive wear.
- **Fluid temperature.** Similar effects to fluid pressure setting. The A and B temperatures can be offset to help balance the fluid pressure.
- **Mix chamber size.** Choice of mix chamber is based on desired flow rate and fluid viscosity.
- **Clean-off air adjustment.** Too little clean-off air results in droplets building up on the front of the nozzle, and no pattern containment to control overspray. Too much clean-off air results in air-assisted atomization and excessive overspray.

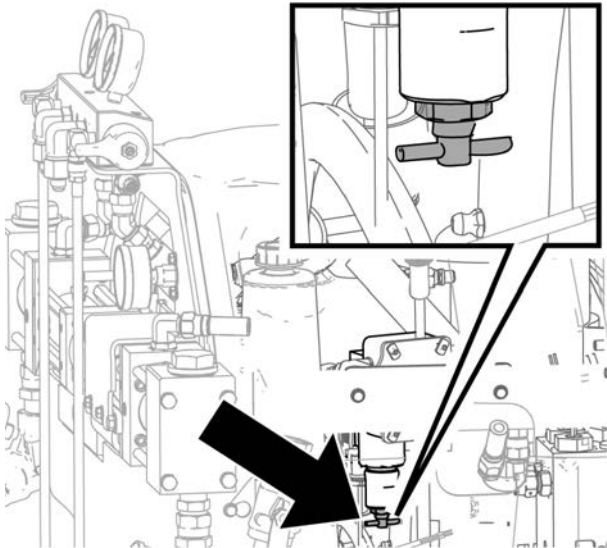
MANUAL PRESSURE CONTROL

- **Pressure compensator knob adjustment on Pro models:** Turn knob clockwise to increase pressure and counterclockwise to decrease pressure. Use hydraulic pressure gauge to view hydraulic pressure.



ti03737a

- **Pressure compensator knob adjustment on Elite models:** Use only in the event of an issue with the electronic control. Turn knob clockwise to increase pressure and counterclockwise to decrease pressure. Use hydraulic pressure gauge to view hydraulic pressure.




ti03738a

SHUTDOWN

NOTICE

Proper system **Setup, Startup, and Shutdown** procedures are critical to electrical equipment reliability. The following procedures ensure steady voltage. Failure to follow these procedures will cause voltage fluctuations that can damage electrical equipment and void the warranty.

1. **If using pneumatic transfer pumps,** turn off air pressure to the transfer pumps. See your pump manual. See **Related Manuals**.

2. Tap  to turn the motor **OFF**.

NOTE:

Electric transfer pumps will automatically turn off with the motor.

3. Tap , , and  to turn **OFF** all heat zones.


4. Follow the **Pressure Relief Procedure**.

5. Tap the **Pump Mode** button .

6. Select **Park Mode** from the menu.



The park icon will flash red while the park operation is in progress. The park operation is complete when the motor and transfer pumps are off, and a green

check appears next to the **Park Mode** icon . Verify the Park operation is complete before moving to the next step.

NOTE:

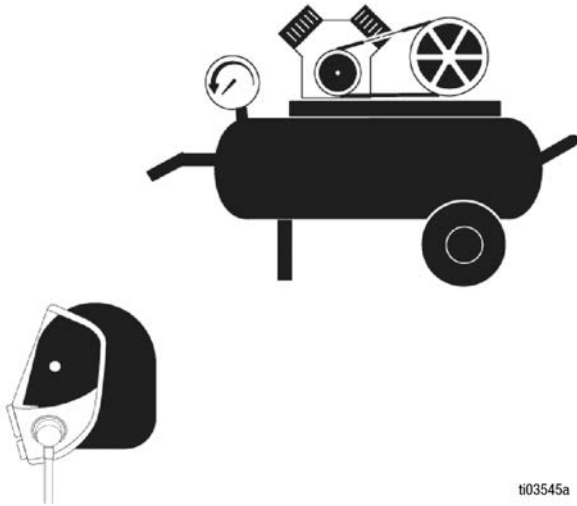
Pressure Relief Valves must be set to pressure relief/circulation to complete park operation.

NOTE:

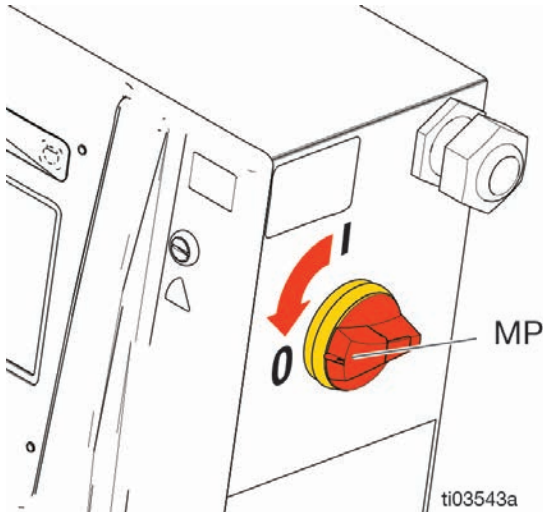
Electric transfer pumps will automatically park at the bottom of their stroke when the system is in **Park Mode**.

OPERATION

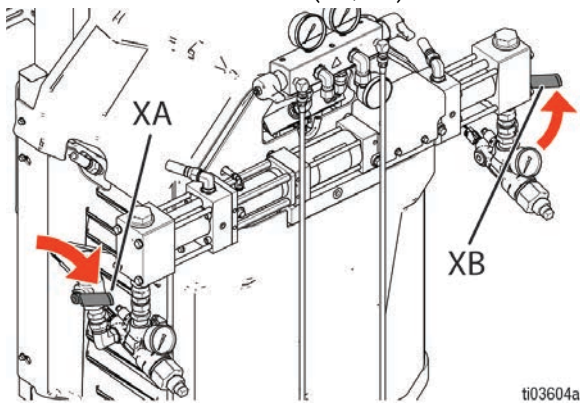
7. Turn **OFF** the air compressor, air dryer, and breathing air.



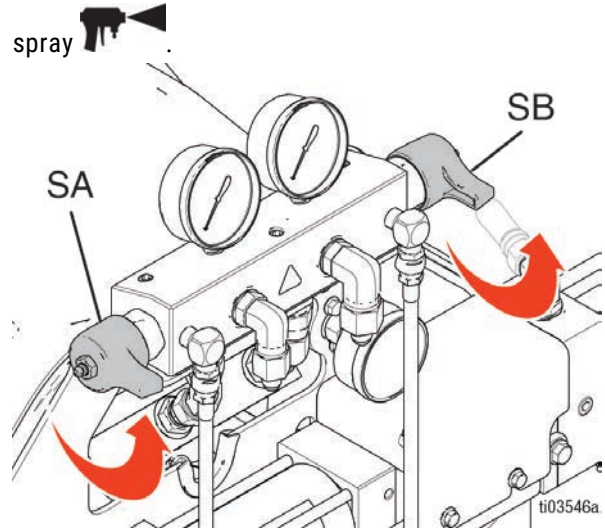
8. Turn the Main Power Switch (MP) **OFF**.



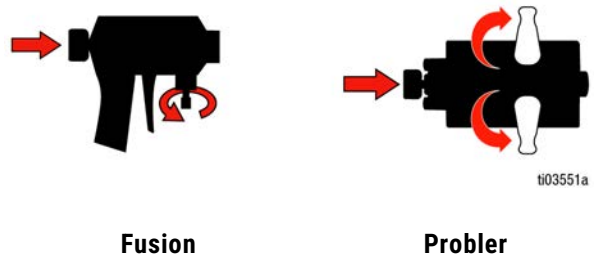
9. Close all Fluid Inlet Valves (XA, XB).



10. Set the Pressure Relief/Spray Valves (SA, SB) to spray



11. Engage the gun piston safety lock and close the A-side and B-side gun fluid manifold valves.



ADVANCED DISPLAY MODULE (ADM)

Follow the instructions for using the ADM to set the system controls for the Reactor® 3 Proportioning Systems.

MENU BAR


The menu bar is located at the top of each screen of the ADM. The menu bar contains the **Navigation** menu (1), current screen (2), system notifications (3) and time (4).

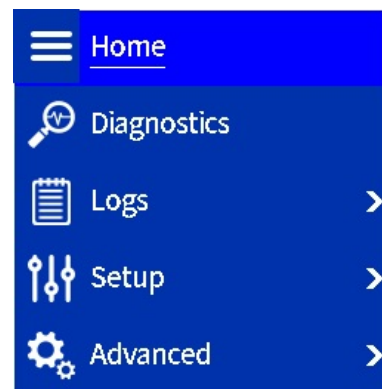


SYSTEM NOTIFICATION ICONS

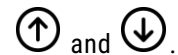
ICON	NAME	DESCRIPTION
	Connected to Server	The cell module is detected and connected to network and server.
	Connected to Network, but not to Server	The cell module is detected and connected to network, but unable to connect to the server.
	Not connected to Network	The cell module is detected, but unable to connect to network.
	GPS location Tracking	GPS location tracking is able to determine the system's location.
	Software Update Pending	A software update will occur on next power cycle.
	USB Download/ Upload in Progress	The USB drive is detected and download/upload has completed successfully.
	USB Download/ Upload Complete	The USB drive is detected and download/upload has completed successfully.
	USB Error	The USB drive is detected but an error is preventing it from being used.

NAVIGATE THE SCREENS

To navigate between the screens, tap , then select the desired location from the menu.



To switch between the pages within each screen, tap

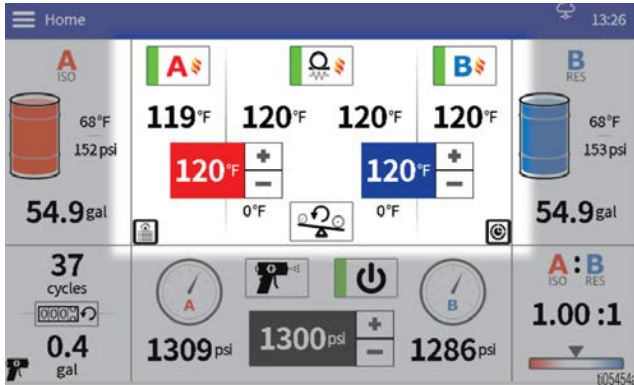


HOME SCREEN

Use the Home Screen to control the Reactor system operation functions.

TEMPERATURE CONTROL PANEL

The Temperature Control Panel contains controls for hose heat and A and B-side primary heaters.

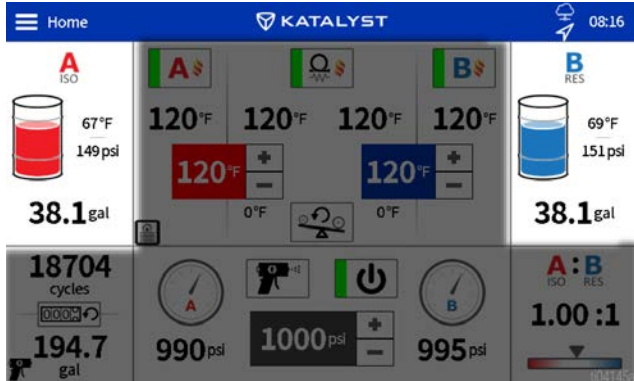


ICON	NAME	DESCRIPTION
	Primary Heater A On/Off	Tap to toggle the A primary heater state.
	Primary Heater B On/Off	Tap to toggle the B primary heater state.
	Hose Heat On/Off	Tap to toggle the hose heat state.
	A (ISO) Temperature Setpoint	Tap +/- to adjust the setpoint by one degree. Press and hold +/- to rapidly adjust the setpoint. Tap the number to open a pop-up and type in the setpoint directly.
	B (RES) Temperature Setpoint	Tap +/- to adjust the setpoint by one degree. Press and hold +/- to rapidly adjust the setpoint. Tap the number to open a pop-up and type in the setpoint directly.

ICON	NAME	DESCRIPTION
	Hose Current Setpoint	Tap +/- to adjust the setpoint by one amp. Press and hold +/- to rapidly adjust the setpoint. Tap the number to open a pop-up and type in the setpoint directly. NOTE: The Hose Current Setpoint button is only displayed if the Hose Control Mode is set to Manual in the Setup Screen settings.
	Reset Auto Pressure Balance Temperature Offsets	Tap to reset the Auto Pressure Balance temperature offset values (to the left and right of this button).
	Job Shortcut	Tap to be sent to the Logs > Job screen.
	Dispense Shortcut	Tap to be sent to Setup > Dispense screen. NOTE: Only visible when dispense functionality is enabled.

A AND B SIDE SUPPLY CONTROL PANELS

The A and B side Supply Control Panels display the remaining material supply for A and B side materials, and contains controls for electric transfer pumps (if applicable).



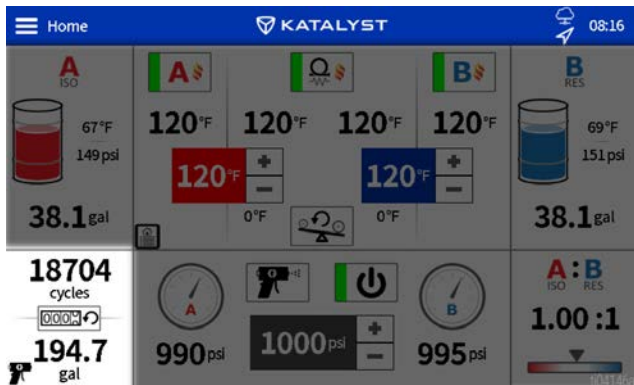
ICON	NAME	DESCRIPTION
	A (ISO) Transfer Pump Jog Level	Tap +/- or the displayed jog level number (such as J10) to set the A-side transfer pump jog level. NOTE: Jog levels are between 1 and 20. See Jog Mode .
	B (RES) Transfer Pump Jog Level	Tap +/- or the displayed jog level number (such as J10) to set the B-side transfer pump jog level. NOTE: Jog levels are between 1 and 20. See Jog Mode .

ICON	NAME	DESCRIPTION
 	Electric Transfer Pump A On/Off	Press to toggle the A electric transfer pump state. NOTE: This button is only displayed if an electric transfer pump is installed and the proportioner pump state is off. The electric transfer pumps are automatically turned on any time the proportioner pump is turned on.
 	Electric Transfer Pump B On/Off	Press to toggle the B electric transfer pump state. NOTE: This button is only displayed if an electric transfer pump is installed and the proportioner pump state is off. The electric transfer pumps are automatically turned on any time the proportioner pump is turned on.

ADVANCED DISPLAY MODULE (ADM)

CYCLE COUNT PANEL

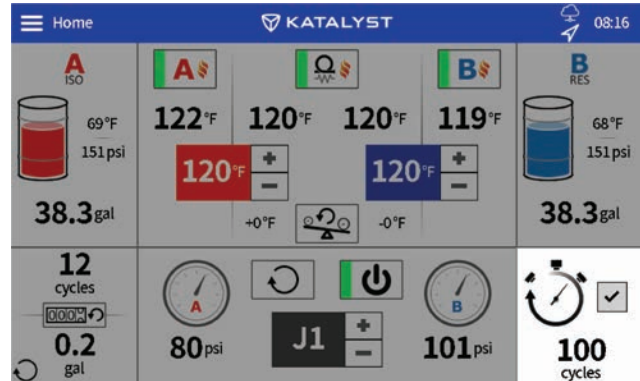
The Cycle Count Panel contains information regarding the pump cycles and the equivalent amount of material.



ICON	NAME	DESCRIPTION
	Reset Cycle Counter	Tap to reset the cycle and volume counters in the lower left portion of the screen. NOTE: Separate counters are kept in spray and jog mode. Pressing the reset button only resets the currently displayed counters.

JOG CYCLE LIMIT PANEL

The Jog Cycle Limit Panel contains a feature enable/disable checkbox and a cycle limit countdown. Tap the checkbox to enable the feature. When enabled, the Reactor pump will shut off after the specified number of cycles.



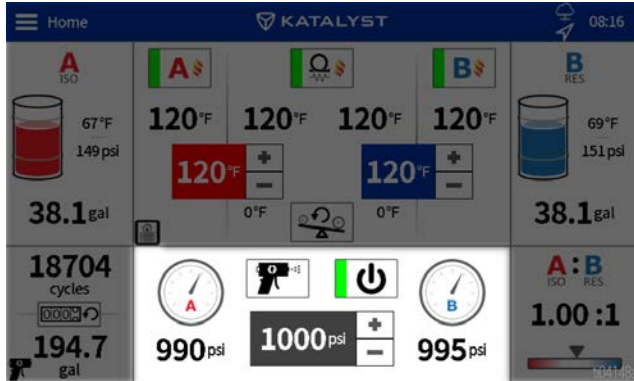
RATIO MONITORING PANEL

The Ratio Monitoring Panel displays information regarding the A to B material ratio.



PROPORTIONER CONTROL PANEL

The Proportioner Control Panel contains controls for operating the proportioner pump.









ICON	NAME	DESCRIPTION
	Proportioner Pump Pressure Setpoint	Tap +/- to adjust the setpoint by 10 psi. Press and hold +/- to slew. Tap the number to open pop-up and type in setpoint directly.
	Proportioner Pump Jog Level	Tap +/- to adjust the jog level by one. Press and hold +/- to slew. Tap the number to open pop-up and type in jog level directly.

ICON	NAME	DESCRIPTION
	Proportioner Pump Modes	<p>Tap to select the proportioner pump mode.</p> <p>Spray: Used to pressurize and spray material. Pump drives to pressure setpoint.</p> <p>Jog: Used to recirculate/flush material. Pump drives to jog level.</p> <p>Park: Used to park the electric transfer pumps and proportioner pump. Parking increases seal life on the proportioner pump and helps get the electric transfer pumps (if present) ready for removal.</p> <p>NOTE:</p> <p>The park operation will start when entering Park mode from any other mode. The park icon will flash red while park operation is in progress.</p> <p>Parked: Indicates a park operation has completed successfully.</p>
	Proportioner Pump On/Off	Tap to toggle the proportioner pump state.

DIAGNOSTIC SCREEN

Use the Diagnostic Screen to view information for all system components.


ICON	NAME	DESCRIPTION
	General System Data	Tap to display general system information related to heat/pressure/flow.
	Heat Data	Tap to display more detailed information related to heat.
	Pressure/Flow Data	Tap to display more detailed information related to pressure/flow.
	Hydraulic Oil Life Reset	Tap to reset Hydraulic Oil Life percentage counter. NOTE: MAHX advisory is displayed on startup when Hydraulic Oil Life is below 5%.
	Electric Transfer Pump Data	Tap to display more detailed information related to electric transfer pumps. NOTE: This page is only displayed if at least one electric transfer pump is installed on the system.
	Engine Data	Tap to display more detailed information related to engine. NOTE: This page is only displayed if an active connection is present between the HCM port 13 and an engine with a J1939 communication port.

LOG SCREEN

Use the Log Screen to view information for Reactor operation performance.

ERRORS SCREEN

The Errors Screen shows the date, time, error code, and description of all errors that have occurred in the system during operation.

ICON	NAME	DESCRIPTION
	Help	Tap to display a QR code with a link to help.graco.com for error and troubleshooting information.

EVENTS SCREEN

The Events Screen shows the date, time, event code, and description of all events that have occurred in the Reactor system during operation.

USAGE SCREEN

The Usage Screen shows pump cycle counts and material usage for each day of use of the Reactor system.

JOB SCREEN

The Job Screen shows pump cycle counts and material usage for each day of use of a job specified by the user. Job screen can be enabled or disabled.

U S B D A T A D O W N L O A D



1. Turn the Main Power Switch **OFF**.
2. Open the Electrical Enclosure Door.
3. Insert the USB drive to the port in the back of the ADM.

NOTE:

USB A type drives are supported.

NOTE:

The ADM can read/write to FAT (File Allocation Table) formatted storage devices. NFTS (New Technology File System) formatted devices are not supported.

4. Close the Electrical Enclosure Door.
5. Turn the Main Power Switch **ON**. The **USB Download** **in Progress** icon  will appear in the menu bar of the ADM screen.
6. Wait until the **USB Download Complete** icon  appears in the menu bar.
7. Turn the Main Power Switch **OFF**.
8. Open the Electrical Enclosure Door.
9. Remove the USB drive.
10. Close the Electrical Enclosure Door.

SETUP SCREENS

Use the Setup Screens to edit settings for the Reactor system.

PRESSURE/FLOW SCREEN

Use the Pressure/Flow Screen to set pressure monitoring settings for the Reactor system.

SETTING	DESCRIPTION
Enable Auto Pressure Balance	<p>This feature monitors the pressure imbalance while material is flowing and adds temperature offsets to the setpoints to minimize the pressure imbalance.</p> <p>Tap the checkbox to enable/disable Auto Pressure Balance. Tap the number value to adjust the temperature offset limit allowed using Auto Pressure Balance.</p> <p>NOTE: This feature is only enabled on Pro and Elite models.</p>
Enable Pressure Imbalance Alarms	<p>Tap the checkbox to enable/disable Pressure Imbalance Alarms. Tap the number value to adjust the alarm threshold.</p> <p>NOTE: Pressure imbalance alarms are automatically enabled if flow meters are enabled.</p>
Enable Pressure Imbalance Deviations	<p>Tap the checkbox to enable/disable Pressure Imbalance Deviations. Tap the number value to adjust the deviation threshold.</p>

SETTING	DESCRIPTION
Enable Smart Control	<p>Tap the checkbox to enable/disable Smart Control. This feature:</p> <ul style="list-style-type: none"> Slows down the proportioner pump if inlet pressure is low. This is done to allow the transfer pumps to keep up and avoid off-ratio conditions. Controls the output pressure to the average of the A and B pressure sensors (instead of the max).
Enable Flow Meters	Tap the checkbox to enable/disable flow meters.
Enable Flow Meter Alarms	<p>Tap the checkbox to enable/disable flow meter alarms. Tap the number value to adjust the alarm threshold.</p> <p>NOTE: Flow meter alarms are only available when flow meters are installed.</p>
Flow Meter A K-Factor	<p>Tap the number value to enter the K-Factor for the A-side flow meter.</p> <p>NOTE: The K-Factor is noted on the meter label.</p>
Flow Meter B K-Factor	<p>Tap the number value to enter the K-Factor for the B-side flow meter.</p> <p>NOTE: The K-Factor is noted on the meter label.</p>
Enable Maximum Pressure Setpoint	Tap the checkbox to enable/disable a user-defined maximum pressure setpoint. Tap the number to adjust the maximum pressure setpoint that can be entered on the home screen.
Enable Minimum Pressure Setpoint	Tap the checkbox to enable/disable a user-defined minimum pressure setpoint. Tap the number to adjust

ADVANCED DISPLAY MODULE (ADM)

SETTING	DESCRIPTION
	the minimum pressure setpoint that can be entered on the home screen.
Enable Jog Limit	<p>Tap the checkbox to enable/disable the jog limit feature. Tap the number to adjust the jog cycle limit. When enabled and in jog mode, the Reactor pump will automatically shut off when the specified number of cycles are completed.</p> <p>NOTE: This feature can be enabled directly on the home screen.</p> <p>NOTE: Jog Mode is only available on models with Electronic Pressure Controller installed.</p>

HEAT SCREEN

Use the Heat Screen to calibrate hose heat and set the hose control mode. To calibrate the system, see **Calibration**.

SETTING	DESCRIPTION
Hose Control Mode	<p>Tap to select hose control mode.</p> <p>FTS: Control to target temperature using an FTS (fluid temperature sensor) on each side of the hose. Calibration is required to use FTS control mode. See Calibration.</p> <p>Resistance: Control to target temperature using the resistance of the heater element (changes with temperature). Calibration is required to use Resistance control mode. See Calibration.</p> <p>Manual: Control to target current (amps) to heat the hose. Manual control mode has no pre-programmed control and is designed to be used for a limited amount of time until a proper calibration can be performed or FTS issues can be resolved.</p> <p>NOTE:</p> <p>When manual hose mode is enabled, the manual hose mode advisory (EVCH) will appear.</p>
Hose A Calibration Factor	Resistance value determined during the calibration process for the A-side hose.
Hose B Calibration Factor	Resistance value determined during the calibration process for the B-side hose.
Last Calibration Date	Date/time of last successful calibration.

SETTING	DESCRIPTION
Enable Power Management	<p>Tap the checkbox to enable/disable power management. Tap the number to adjust the primary heater power limit.</p> <p>Power management allows users to limit the primary heater wattage to a desired level. This can be done to free up auxiliary power for other devices on a generator and/or run the system on a smaller generator. With power management enabled, the new total system load can be determined using this formula:</p> <p>Total System Load (with power management) = Total System Load (without power management) - Primary Heater Load (without power management) - Primary Heater Load (with power management)</p> <p>Example: H-30 15 kW</p> <p>Power management enabled and primary heater limit set to 7 kW</p> <p>Total System Load (with power management) = 15 kW - (10 kW - 7 kW) = 12 Kw</p> <p>NOTE:</p> <p>On single phase systems, peak current draw is reduced and linearly scaled with the drop in total system load. On three phase systems, peak current draw does not scale linearly with the drop in total system load.</p>
Enable Maximum Temperature Setpoint	Tap the checkbox to enable/disable a user-defined maximum temperature setpoint. Tap the number to adjust the maximum temperature setpoint that can be entered on the home screen.
Enable Minimum Temperature Setpoint	Tap the checkbox to enable/disable a user-defined minimum temperature setpoint. Tap the number to adjust the minimum temperature setpoint that can be entered on the home screen.

SYSTEM SCREEN


Use the System Screen to set system settings.

SETTING	DESCRIPTION
System Name	System name that is displayed in the Reactor Connect App.
Proportioner Type	Proportioner model type. See Models .
Enable Custom Pump Sizes	Tap to enable/disable custom pump sizes.
Pump A Volume	Volume of the A-side proportioner pump. Value is editable if Enable Custom Pump Sizes is checked.
Pump B Volume	Volume of the B-side proportioner pump. Value is editable if Enable Custom Pump Sizes is checked.
Standby Idle Time	Amount of time the pump line is idle before turning off electric motor. Motor will restart if pressure drops or a shot starts.
Enable Electronic Pressure Control	Tap to enable/disable electronic pressure control. NOTE: Must have Electronic Pressure Controller installed to work properly.
Enable Recirculation Cycle Count	Tap to enable/disable cycle counts under 700 psi. NOTE: This feature is only available if Electronic Pressure Control is disabled.

SUPPLY SYSTEM SCREEN

Use the Supply System screen to set feed system settings.

SETTING	DESCRIPTION
Transfer Pump A Type	<p>Tap to select the type of transfer pump used to feed the A side of the proportioner.</p> <p>Transfer Pump Type Options:</p> <p>Air: Select when using an air/ pneumatic transfer pump (or other non-Graco Electric Transfer Pump).</p> <p>Electric: Select when using the Graco Electric Transfer Pumps.</p>
Transfer Pump B Type	<p>Tap to select the type of transfer pump used to feed the B side of the proportioner. See Transfer Pump A Type for a list of options.</p>
Enable Smart Supply	<p>This feature automatically adjusts the Electric Transfer Pump pressure setpoint to maintain appropriate inlet pressure with various chemicals, ambient conditions, and supply configurations.</p> <p>NOTE:</p> <p>This feature is automatically enabled when the inlet pressure sensors are enabled and at least one electric transfer pump is installed.</p>
Max Chemical Volume	<p>Tap to enter the chemical volume of the supply containers.</p>
Enable Low Chemical Alarm	<p>Tap the checkbox to enable/disable Low Chemical Alarms. Tap the number value to adjust the alarm threshold.</p>
Enable Inlet Pressure Sensors	<p>Tap the checkbox to enable/disable inlet pressure sensors.</p> <p>NOTE:</p> <p>Inlet pressure sensors are automatically enabled if flow meters are enabled.</p>

SETTING	DESCRIPTION
Enable Inlet Temperature Sensors	<p>Tap the checkbox to enable/disable inlet temperature sensors.</p>
Enable Low Inlet Temperature Alarms	<p>Tap the checkbox to enable/disable Low Inlet Temperature Alarms. Tap the number value to adjust the alarm threshold.</p>
Enable High Inlet Temperature Alarms	<p>Tap the checkbox to enable/disable High Inlet Temperature Alarms. Tap the number value to adjust the alarm threshold.</p>
Enable Transfer Pump Runaway Alarm	<p>Tap the checkbox to enable or disable Transfer Pump A or B Runaway alarms (DAFA or DAFB). The Transfer Pump Runaway alarms can be disabled if occurring frequently and disrupting operation.</p> <p>NOTE:</p> <p>See help.graco.com troubleshooting information for correcting issues with DAFA or DAFB alarms.</p>
Request Electric Transfer Pump Calibration	<p>Tap Electric Transfer Pump calibration button to queue an electric transfer pump calibration the next time the electric transfer pump is run. Only appears when electric transfer pumps are selected.</p> <p></p> <p>NOTE:</p> <p>After pressing the button, a notice will appear on the screen notifying the user the calibration is queued.</p>

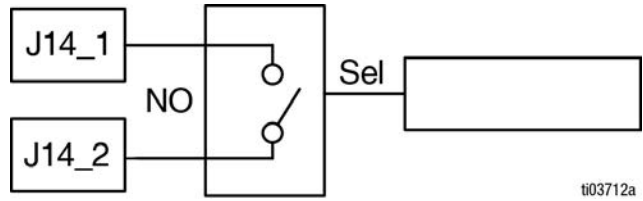
GATEWAY SCREEN

Use the Gateway Screen to set digital inputs and outputs.

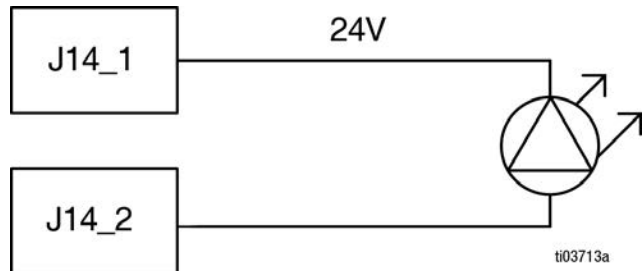
SETTING	DESCRIPTION
Digital Input/Output 1-2	<p>Tap first box to select Input/Output or Disabled for the digital input/output pins 1 and 2 on the HCM connector 12.</p> <p>Disabled: Do nothing.</p> <p>Inputs:</p> <p>Disabled: Do nothing.</p> <p>Power On, Motor On, All Heat On: When input is received, turn on motor and all heat zones.</p> <p>Power On, Motor Off, All Heat Off: When input is received, turn off motor and all heat zones.</p> <p>Power On, Motor Off, Hose Heat On: When input is received, turn off motor and primary heaters. Turn hose heat on.</p> <p>(Shot) Electric Gun Trigger: When input is received, begin/pause/reset dispense.</p> <p>Outputs:</p> <p>Disabled: Do nothing.</p> <p>Active Alarm: Use to drive the red light of the accessory light tower kit.</p> <p>Active Advisory/Deviation: Use to drive the yellow light of the accessory light tower kit.</p> <p>No Errors: Use to drive the green light of the accessory light tower kit.</p> <p>No Alarms: Is driven high when no alarms are active.</p> <p>Motor On, No Alarms: Is driven high when no alarms are active, and motor is on.</p> <p>Motor On, All Heat On, No Alarms: Is driven high when no alarms are</p>

SETTING	DESCRIPTION
	<p>active, motor is on, and all heat zones are on.</p> <p>Motor On, All Heat at Targets, No Alarms: Is driven high when no alarms are active, motor is on, and all heat zones are within 5°C of target.</p> <p>(Shot) Delayed Air Purge: Is driven high to open air purge solenoid valve.</p> <p>(Shot) Gun ON/OFF: Is driven high to open gun trigger ON solenoid valve.</p>
Digital Input/Output 3-4	See Digital Input/Output 1-2.
Digital Input/Output 5-6	See Digital Input/Output 1-2.
Digital Input/Output 7-8	See Digital Input/Output 1-2.

The digital inputs function when the signal is pulled from an open connection to a closed loop between the positive and neutral references. See the image for an example implementation using a relay.



The digital outputs output a 24 V signal when the user-defined criteria are met. An example of using this would be in conjunction with the Graco Light Tower as shown in the image.



DISPENSE SETUP SCREEN

Use the Dispense Screen to enable and configure preset dispense.

NOTE:

Refer to your Dispense System manual for additional information related to Dispense. See **Related Manuals**.

NOTE:

To Dispense in Volume Mode, your Reactor needs to have flow meters and they need to be enabled.

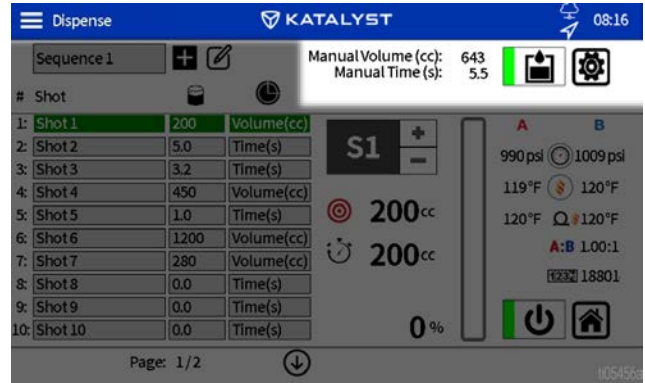
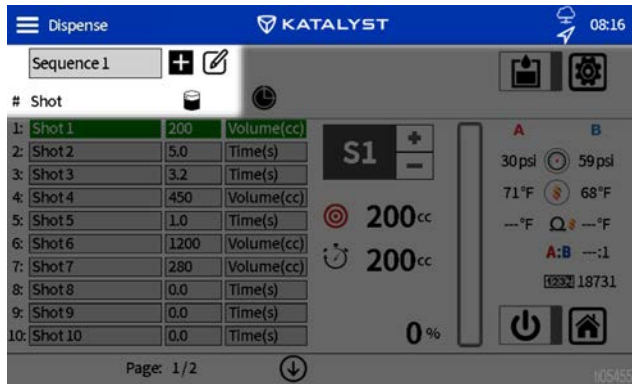
SETTING	DESCRIPTION
Enable Dispense	Tap the checkbox to enable or disable dispense functionality.
Triggering	Continuous: Only dispense while gun trigger is pulled. Momentary: Continue to dispense when trigger is released.
Shot Interruption Action	Pause Shot: Stop dispense and resume dispense. Reset Shot: Stop dispense then start over at beginning of shot.
Enable Auto Sequencing	If selected, automatically advance to the next shot in the sequence.
Delayed Air Purge	If selected, air purge is delayed by user specified amount.
Enable Auto Volume Calibration	Tap the checkbox to enable or disable Automatic Volume calibration.
Volume Calibration	Required prior to dispensing in volume mode if Auto Volume Calibration is not enabled. Tap the calibration icon to begin dispensing three calibration shots. Boxes are checked when the shots are completed.
Last Calibration Date	Date and time of most recent successful volume calibration, manual or auto.

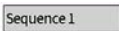


DISPENSE RUN SCREENS


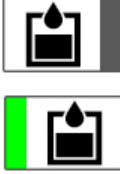

Use the Dispense Run Screen to configure Sequences and Shots.

SEQUENCE PANEL

The Sequence Panel is used to create or edit a Sequence of Dispenses/Shots.



ICON	NAME	DESCRIPTION
	Sequence Name	Tap to change the active Sequence. Sequences are automatically ordered alpha-numerically, with the active Sequence listed at the top. There can be up to 25 Sequences.
	Add Sequence	Tap to add a Sequence.
	Edit Sequence	Tap to edit the Sequence name.

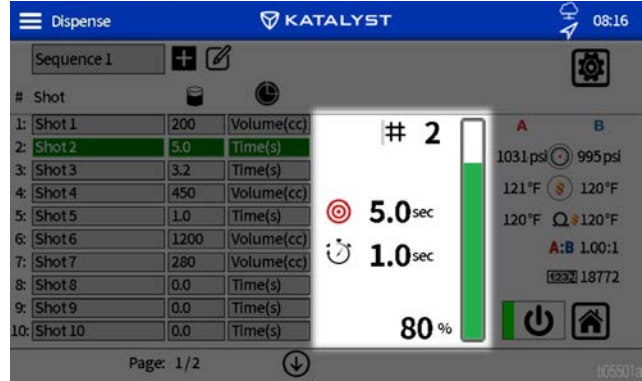
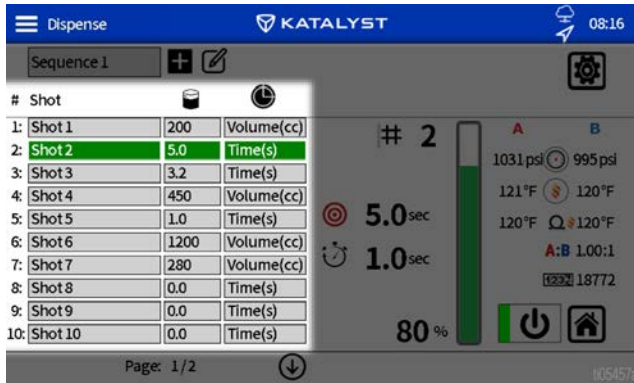
ICON	NAME	DESCRIPTION
	Dispensed Amount	The volume and time of the most recent Manual Mode shot.
	Manual Mode	Tap to activate or deactivate Manual Dispense Mode.
	Setup	Tap to view Dispense Setup Screen.

MANUAL MODE PANEL

The Manual Mode Panel allows gun to be controlled and triggered like a standard gun or to access the Dispense Setup Screen.

SHOT CONTROL PANEL

The Shot Control Panel is used to create or modify shots.



ICON	NAME	DESCRIPTION
	Shot Name	Tap to create or change the shot name. Activate shot highlighted green. There can be up to 20 shots in each Sequence.
	Shot Dispense Value	Tap to change the Shot Value. A time-based Shot can be 0.1–9,999.9 seconds. A volume-based Shot can be 200–99,999 cc's.
	Shot Mode	Tap to select either Time or Volume mode.
	Page Down/Up	Tap to view either Shots 1-10 (page 1) or Shots 11-20 (page 2).

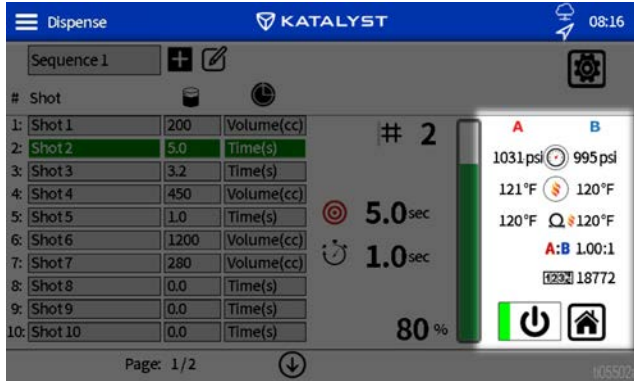
ICON	NAME	DESCRIPTION
	Active Shot	Tap to change the active Shot
	Target Value	Target value for the active Shot.
	Shot Status	Portion of Shot that is remaining.
	Shot Status	Portion of Shot that has already dispensed (shown as a percentage and in a bar graph).

SHOT STATUS PANEL

The Shot Status Panel displays the status of the active Shot.

REACTOR HOME SCREEN PANEL

The Reactor Home Screen Panel displays certain portions of the Reactor Home Screen.



ICON	NAME	DESCRIPTION
	Machine Status	Duplication of Home Screen information. Refer to Home Screen for additional information.
	Proportioner Pump On/Off	Tap to toggle the proportioner pump state.
	Home Screen	Tap to switch to Home Screen.

ADVANCED SCREENS

Use the Advanced Screens to manage the system cellular connection, display settings, and software.

CELLULAR SCREEN

Use the Cellular Screen to connect the Reactor Connect App to the Reactor, or to reset the Reactor Key. See your Reactor Connect manual. See **Related Manuals**.

Resetting your Reactor Key prevents other users from remotely changing or viewing Reactor settings without first reconnecting to the Reactor.

ICON	NAME	DESCRIPTION
	Reset Key	Tap to reset the Reactor Connect Key for the system.

SETTING	DESCRIPTION
IMEI	IMEI of the Reactor Connect App Module. This value is used to identify the device and the system within the Reactor.
Key	Key used by Reactor Connect App.
Key Created	Date and time of last key creation.

After resetting the Reactor key, all operators using the Graco Reactor Connect App must reconnect to the Reactor.

For security of wireless control, change the Reactor key regularly and whenever there is a concern about unauthorized access.

DISPLAY SCREEN

Use the Display Screen to set the language, date format, current date, time, setup screens password, screen saver delay, temperature units, pressure units, volume units, and cycle units (pump cycles or volume).

Tap the field next to each setting to edit.

SETTING	DESCRIPTION
Enable Demo Mode	Tap to enable/disable demo mode. NOTE: Settings changed and cycles accrued in demo mode are not undone after exiting demo mode.
Language	Display language.
Number Format	Display and USB download number format.
Date Format	Display and USB download date format.
Date	Display date and time.
Screen Saver	Screen saver timeout period (zero disables the screen saver).
Password	Display password. Settings with a lock next to the entry can be password protected. NOTE: enter 0000 (default value) to disable the password.
Temperature Units	Display and USB download temperature units.
Pressure Units	Display and USB download pressure units.
Volume Units	Display and USB download volume units.




SOFTWARE SCREEN

The Software Screen displays the system part number, system serial number, software part number, and software version.

SETTING	DESCRIPTION
System Part #	System part number (shown on product label). NOTE: Value will be blank on replacement displays.
System Serial #	System serial number (shown on product label). NOTE: Value will be blank on replacement displays.
Software Part #	System software part number.
Software Version	System software version.
Enable Cellular Software Updates	Tap the checkbox to enable/disable cellular software updates.

MAINTENANCE

Follow the recommended maintenance steps to keep the Reactor® 3 Hydraulic Proportioning Systems in good condition for optimal use.

 WARNING				
				

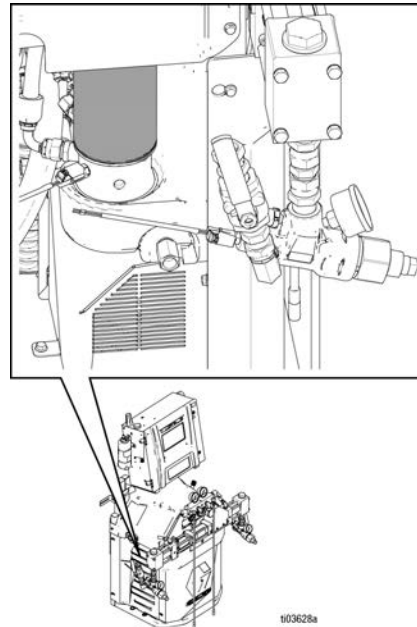
Prior to performing any maintenance procedures, follow the **Pressure Relief Procedure**.

PREVENTIVE MAINTENANCE SCHEDULE

The operating conditions of your particular system determine how often maintenance is required. Establish a preventive maintenance schedule by recording when and what kind of maintenance is needed, and then determine a regular schedule for checking your system.

- Inspect hydraulic and fluid lines for leaks daily.
- Clean up all hydraulic leaks; identify and repair the cause of the leak.
- Inspect fluid inlet strainer screens daily.
- Keep component A from exposure to moisture to prevent crystallization.

- Check hydraulic fluid level weekly. Check hydraulic fluid level on a dipstick. Fluid level must be between indent marks on dipstick. Refill as required with approved hydraulic fluid. See **Technical Specifications**, and the Approved Anti-Wear (AW) Hydraulic Oils table in your Reactor Repair-Parts manual. See **Related Manuals**. If fluid is dark in color, change fluid and filter.



- Change break-in oil in a new unit after the first 250 hours of operation or within 3 months, whichever comes first. See **Frequency of Oil Changes** table for recommended frequency of oil changes.

Table 16-1: Frequency of Oil Changes

AMBIENT TEMPERATURE	RECOMMENDED FREQUENCY
0° to 90°F (-17°C to 32°C)	1000 hours or 12 months, whichever comes first
90°F and above (32°C and above)	500 hours or 6 months, whichever comes first

TOOLS REQUIRED FOR MAINTENANCE

- 9/16 in. wrench
- 1-1/8 in. wrench or pipe wrench
- Fusion grease gun

PROPORTIONER MAINTENANCE

Fluid Inlet Strainer Screens

Inspect fluid inlet strainer screens daily, see **Flush Inlet Strainer Screen**.

ISO Lubricant Level

Inspect ISO lubricant level and condition daily. Refill or replace as needed. See **Pump Lubrication System**.

Moisture

To prevent crystallization, do not expose component A to moisture in air.

Gun Mix Chamber Ports

Clean the gun mix chamber ports regularly. See your gun manual. See **Related Manuals**.

Gun Check Valve Screens

Clean the gun check valve screens regularly. See your gun manual. See **Related Manuals**.

Dust Protection

Use clean, dry, oil-free compressed air to prevent dust buildup on control modules, fans, and motor (under shield).

Vent Holes

Keep the vent holes on the back of the electrical cabinet open.

Grease Circulation Valves

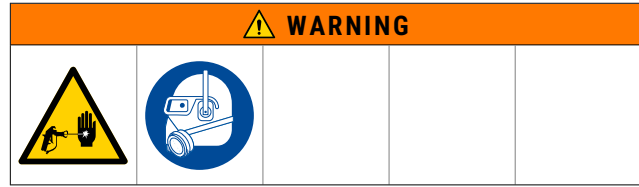
Clean the grease circulation valves weekly.

Desiccant Dryer

The desiccant dryer cartridge has an indicator window. Check this window daily to ensure that the dryer cartridge is still in working condition.

When the window appears blue, the dryer cartridge is still in working condition. If the window appears pink, moisture has entered the dryer cartridge and the dryer should be replaced.

FLUSH INLET STRAINER SCREEN



The inlet strainers filter out particles that can plug the pump inlet check valves. Inspect the A and B-side screens daily as part of the startup routine and clean as required.

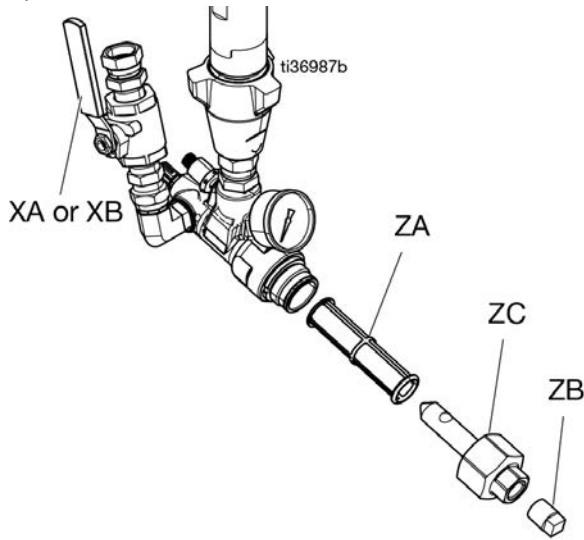
Isocyanate can crystallize from moisture contamination or from freezing. If the chemicals used are clean and proper storage, transfer, and operating procedures are followed, there should be minimal contamination of the A-side screen.

Clean the A-side screen only during daily startup. This minimizes moisture contamination by immediately flushing out any isocyanate residue at the start of dispensing operations.

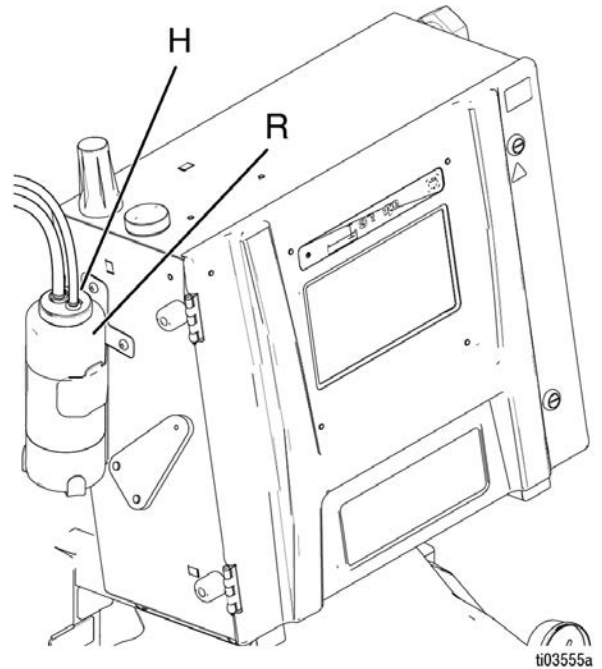
1. Follow the **Pressure Relief Procedure**.
2. Close the Fluid Inlet Valve (XA) at the pump inlet. This prevents material from being pumped while cleaning the screen.
3. Place a container under the strainer base to catch fluid when removing the Strainer Inlet Drain Plug (ZB).
4. After the fluid has drained, remove Inlet Strainer Cap (ZC) and Inlet Strainer Screen (ZA) from the strainer manifold. Thoroughly flush the screen with compatible solvent and shake it dry. Inspect the screen. No more than 25 percent of the mesh should be restricted. If more than 25 percent of the mesh is blocked, replace the screen. Inspect the gasket and replace as required.
5. Install the Strainer Inlet Drain Plug (ZB) with the Inlet Strainer Screen (ZA).

MAINTENANCE

6. Open the Fluid Inlet Valve (XA), ensure there are no leaks, then wipe the equipment clean. Proceed with operation.



5. Thread the TSL Fluid Reservoir (R) onto the cap (H) assembly and place it in the bracket.



CHANGE ISO PUMP THROAT SEAL LUBRICANT (TSL) FLUID

Check the condition of the TSL fluid daily. Change the TSL fluid if it becomes a gel, its color darkens, or it becomes diluted with isocyanate.

Gel formation is due to moisture absorption by the TSL fluid. The interval between changes depends on the environment in which the equipment is operating. The TSL fluid system minimizes exposure to moisture, but some contamination is still possible.

TSL fluid discoloration is due to continual seepage of small amounts of isocyanate past the pump packings during operation. If the packings are operating properly, TSL fluid replacement due to discoloration should not be necessary more often than every 3 or 4 weeks.

To change TSL Fluid:

1. Follow the **Pressure Relief Procedure**.
2. Lift the TSL Fluid Reservoir (R) out of the bracket and remove the reservoir from the cap (H). Hold the cap over a suitable waste container and flush contaminated fluid out of the lines by placing the strainer in the new fluid and dispensing contaminated fluid through the return line into waste container.
3. Drain the TSL Fluid Reservoir (R) and flush it with clean TSL fluid or replace it with a new reservoir.
4. When the TSL fluid system is flushed clean, fill it with fresh TSL fluid.

6. Verify the TSL fluid pump is operating correctly by feeling the pulsation in the return hose during normal proportioner pump operation.

RECYCLING AND DISPOSAL

Properly recycle and dispose of the Reactor® 3 Hydraulic Proportioning Systems at the end of its useful life.






END OF PRODUCT LIFE


At the end of a product's useful life, recycle it in a responsible manner.

TROUBLESHOOTING

When problems occur, follow the recommended troubleshooting steps to repair the Reactor® 3 Hydraulic Proportioning Systems.

⚠ WARNING




To avoid injury due to unexpected machine operation initiated by a remote controller, disconnect the Reactor Connect cellular module, if equipped, from the system and disconnect Gateway connector prior to troubleshooting. Disconnect cellular module cable at connector ACC and Gateway connector 12. See **Electrical Enclosure** and **Hydraulic Control Module (HCM)**. Refer to your Reactor Connect manual for instructions. See **Related Manuals**.

TROUBLESHOOTING ERRORS

When an error occurs, the error information screen displays the active error code and description. See **Log Screens**.

To troubleshoot an active error:

1. Tap  for help with the active error.


Errors 08:39				
Date	Time	Help	Code	Description
02/17/21	13:29		T6DB	(E04) Temp. Sensor Err. B
02/17/21	13:29		V4MA	High Voltage A
02/17/21	13:29		T6DA	(E04) Temp. Sensor Err. A
02/17/21	13:29		P6FB	Press. Sens. Err. Inlet B
02/17/21	13:29		P6FA	Press. Sens. Err. Inlet A
02/17/21	13:29		T4EB	(E01) High Temp. Switch B
02/17/21	13:29		T4EA	(E01) High Temp. Switch A
02/17/21	13:29		P6BX	(E22) Press. Sens. Err. B
02/17/21	13:29		P6AX	(E21) Press. Sens. Err. A
02/17/21	13:29		A4DH	(E02) High Current Hose

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2. A QR code screen is displayed. Scan the QR code with your smartphone to be sent directly to online troubleshooting for the active error code. Otherwise, go to **help.graco.com** and search for the active error.

Errors 08:40				
Date	Time	Help	Code	Description
02/17/21	13:29			
02/17/21	13:29			
02/17/21	13:29			
02/17/21	13:29			
02/17/21	13:29			
02/17/21	13:29			
02/17/21	13:29			
02/17/21	13:29			
02/17/21	13:29		A4DH	(E02) High Current Hose

V4MA: High Voltage A



✓

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TROUBLESHOOTING

LED STATUS DESCRIPTIONS

The following tables describe the meaning of LED statuses for the TCM, HCM, ADM, and System.

See **Temperature Control Module (TCM)**.

Table 18-1: TCM Module LED Status Descriptions

LED	CONDITIONS	DESCRIPTION
TCM Status (TK)	Green Solid	Power applied to module
	Yellow Flashing	Active communication
	Red Steady Flashing	Software update in progress
	Red Random Flashing or Solid	Module error exists

See **Hydraulic Control Module (HCM)**.

Table 18-2: HCM Module LED Status Descriptions

LED	CONDITIONS	DESCRIPTION
HCM Status (MU)	Green Solid	Power applied to module
	Yellow Flashing	Active communication
	Red Steady Flashing	Software update in progress
	Red Random Flashing or Solid	Module error exists

See **Electrical Enclosure and Proportioner**.

Table 18-3: ADM LED Status Descriptions

LED	CONDITIONS	DESCRIPTION
ADM Status (AAS)	Green Solid	Power applied to module
	Yellow Solid	Active communication
	Red Steady Flashing	Software update in progress
	Red Random Flashing or Solid	Module error exists
System Status (SS)	Green Flashing Fast	Software update in progress
	Green Flashing Slow	System On

ACCESSORIES

Kits and accessories are available to purchase separately. Use the part numbers in the list to order the correct items.

SET NUMBER	DESCRIPTION
20A677	Engine CAN Kit
24M174	Drum Level Sticks
20A676	Light Tower Kit
18A154	Air Manifold Kit
18E211	Cellular Mobile Remote Mounting Kit
2010517	MPR to EPR Conversion H-30/H-XP2 (60 Hz)
2010519	MPR to EPR Conversion H-50/H-XP3 (60 Hz)
2010518	MPR to EPR Conversion H-30/H-XP2 (50 Hz)
2010520	MPR to EPR Conversion H-50/H-XP3 (50 Hz)
2012942	Auto Dispense Kit

PERFORMANCE CHARTS

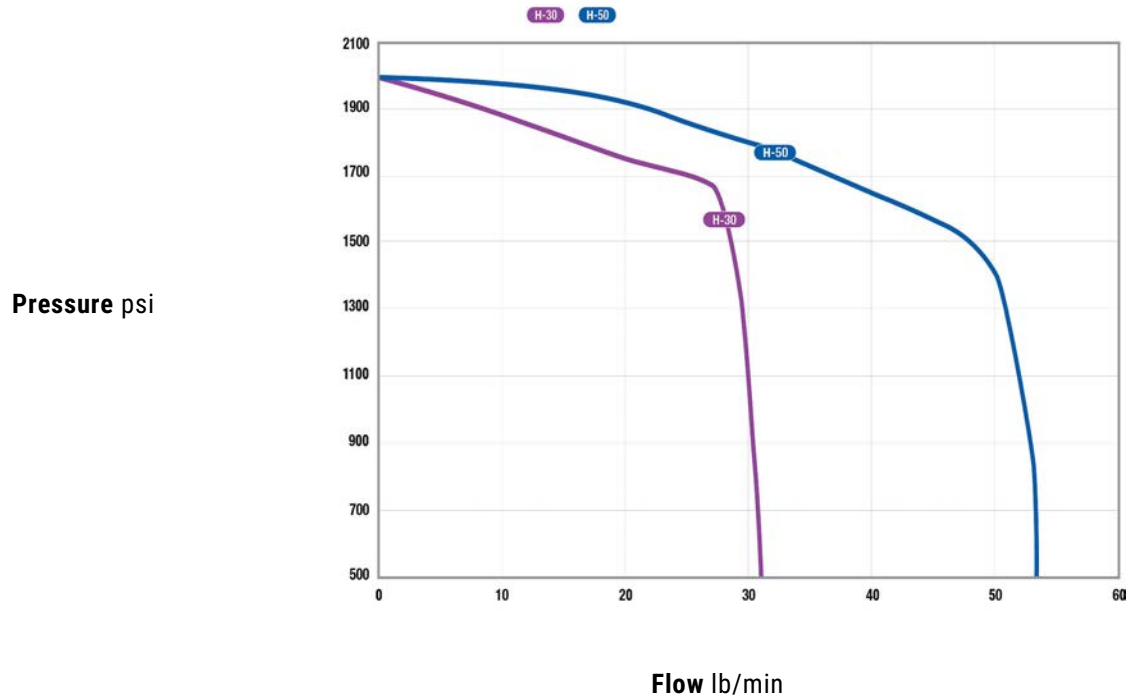
Use these charts to help identify the proportioner that will work most efficiently with each mix chamber. Flow rates are based on a material viscosity of 60 cps.

NOTICE

To prevent system damage, do not pressurize the system above the line for the gun tip size being used.

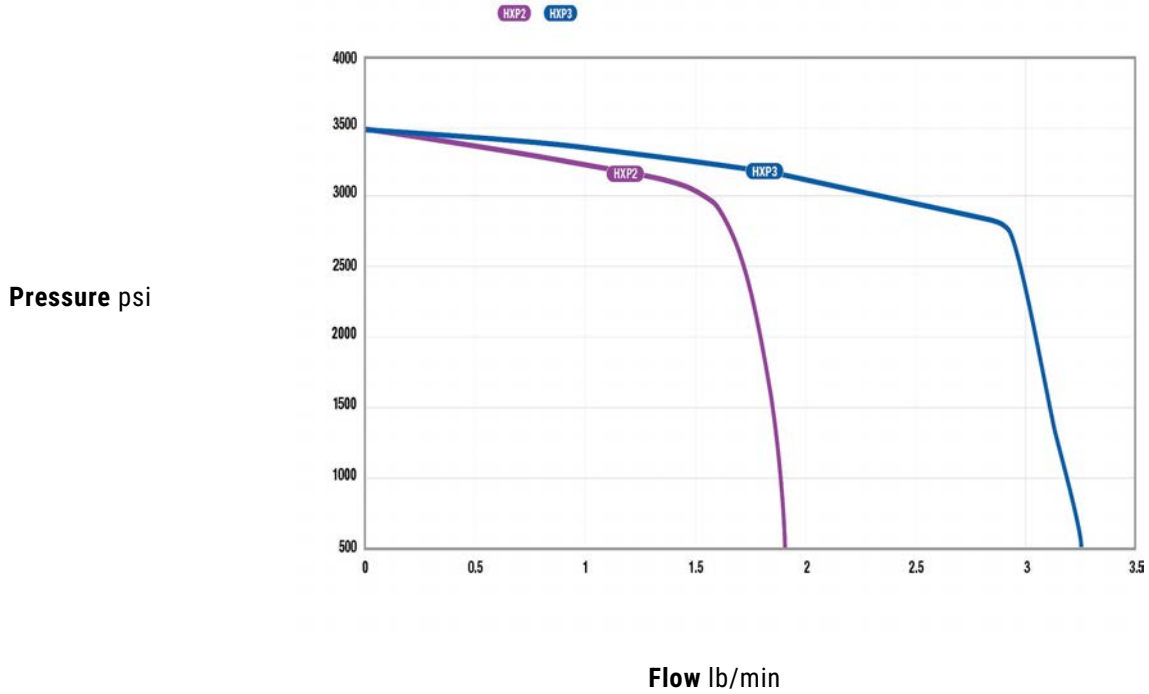
PRESSURE/FLOW CHARTS

H-30 and H-50 (1:1 140 cc A-Side Pump, 140 cc B-Side Pump)



PERFORMANCE CHARTS

H-XP2 and H-XP3 (1:1 80 cc A-Side Pump, 80 cc B-Side Pump)



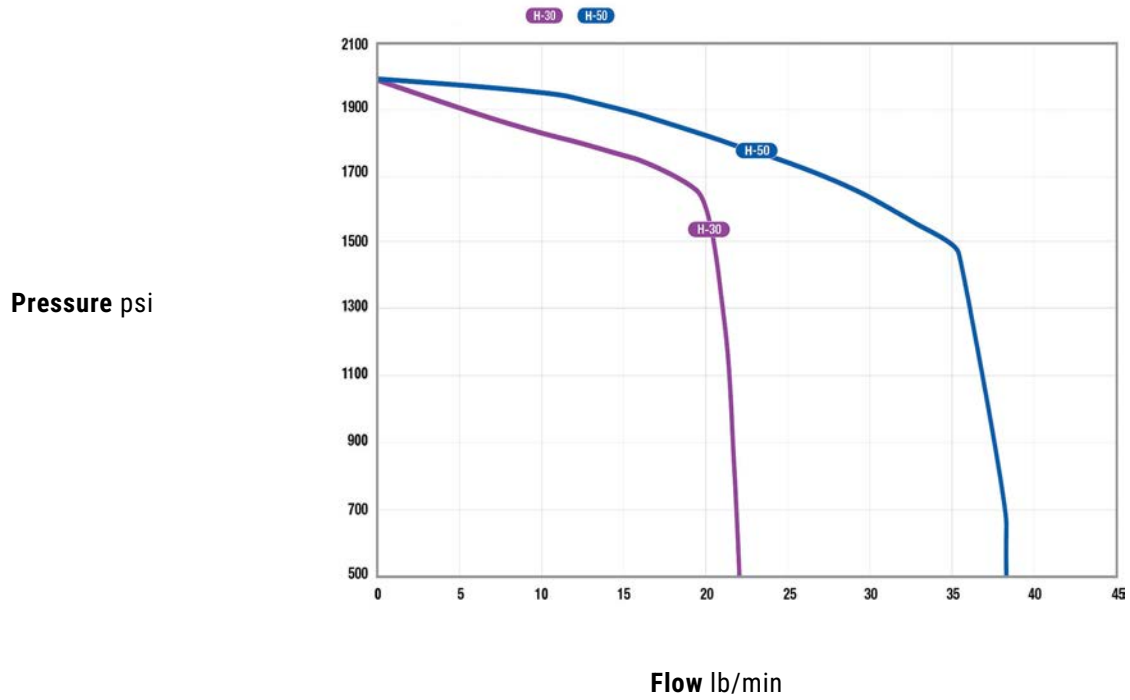
NON-1:1 RATIO TABLE

		MIX RATIO									
B-Side Pump	A-Side Pump										
	cc	28	30	40	48	60	80	88	96	120	140
	28	1.00	0.93	0.70	0.58	0.47	0.35	0.32	0.29	0.23	0.20
	30	1.07	1.00	0.75	0.63	0.50	0.38	0.34	0.31	0.25	0.21
	40	1.43	1.33	1.00	0.83	0.67	0.50	0.45	0.42	0.33	0.29
	48	1.71	1.60	1.20	1.00	0.80	0.60	0.55	0.50	0.40	0.34
	60	2.14	2.00	1.50	1.25	1.00	0.75	0.68	0.63	0.50	0.43
	80	2.86	2.67	2.00	1.67	1.33	1.00	0.91	0.83	0.67	0.57
	88	3.14	2.93	2.20	1.83	1.47	1.10	1.00	0.92	0.73	0.63
	96	3.43	3.20	2.40	2.00	1.60	1.20	1.09	1.00	0.80	0.69
	120	4.29	4.00	3.00	2.50	2.00	1.50	1.36	1.25	1.00	0.86
	140	5.00	4.67	3.50	2.92	2.33	1.75	1.59	1.46	1.17	1.00

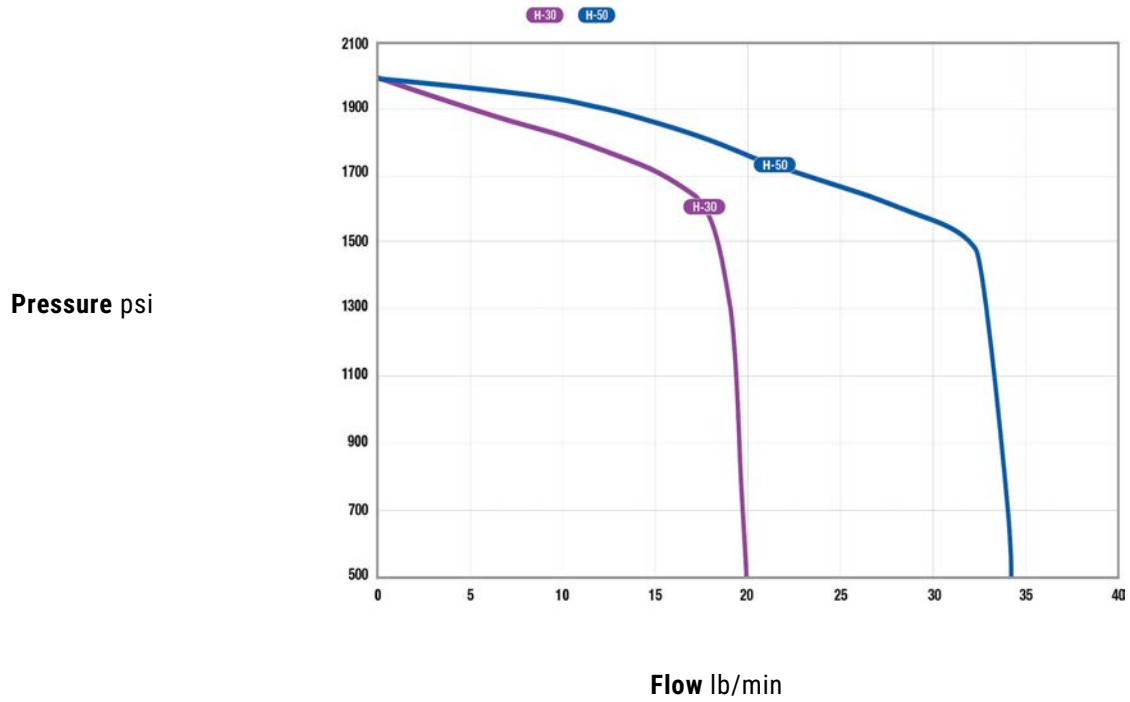
PERFORMANCE CHARTS

NON - 1:1 PERFORMANCE CHARTS

H-30 and H-50 (1.5:1) (120 cc A-Side Pump, 80 cc B-Side Pump)

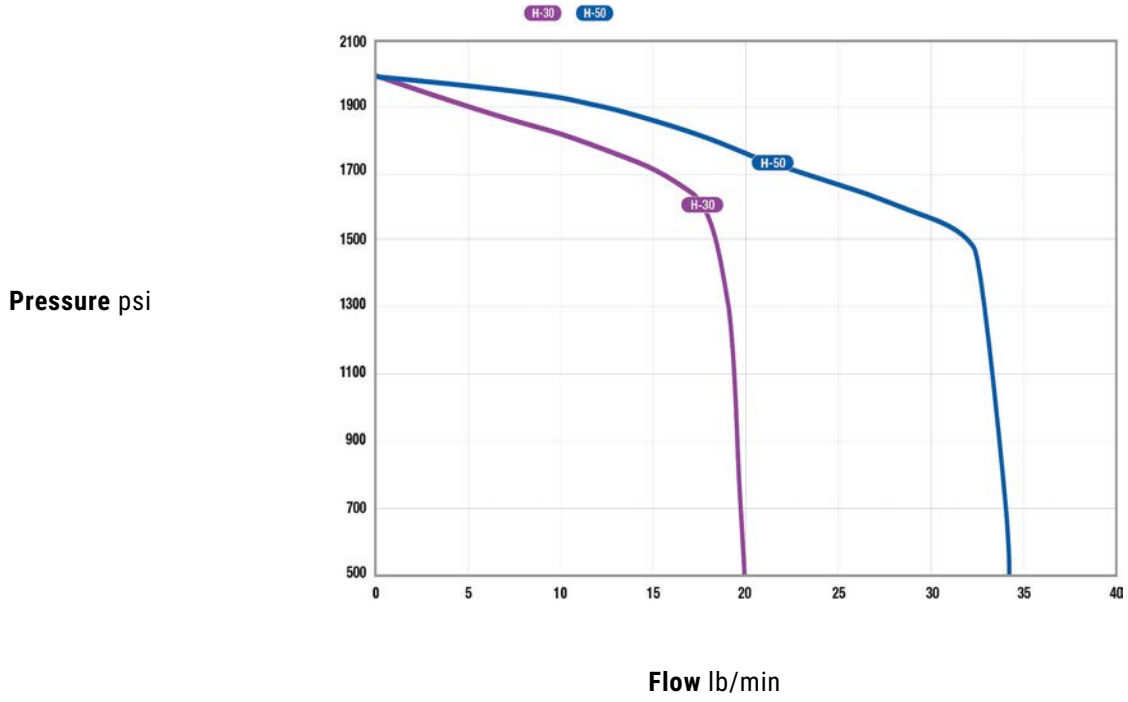


H-30 and H-50 (2:1) (120 cc A-Side Pump, 60 cc B-Side Pump)

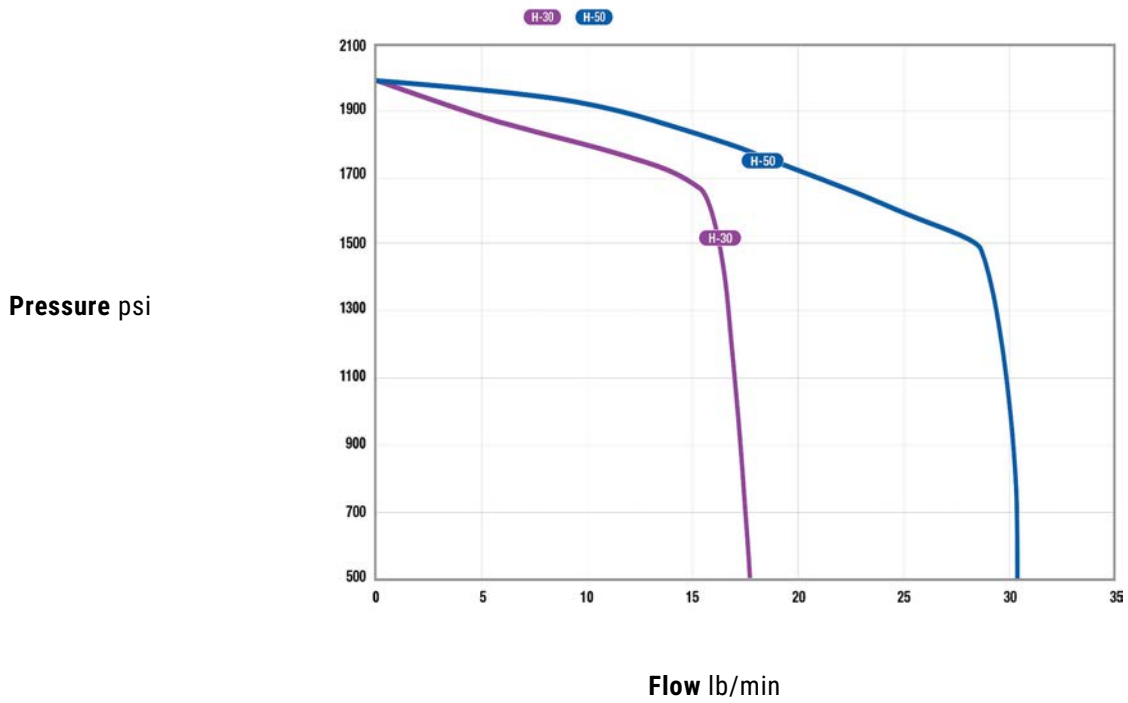


PERFORMANCE CHARTS

H-30 and H-50 (2.5:1) (120 cc A-Side Pump, 48 cc B-Side Pump)

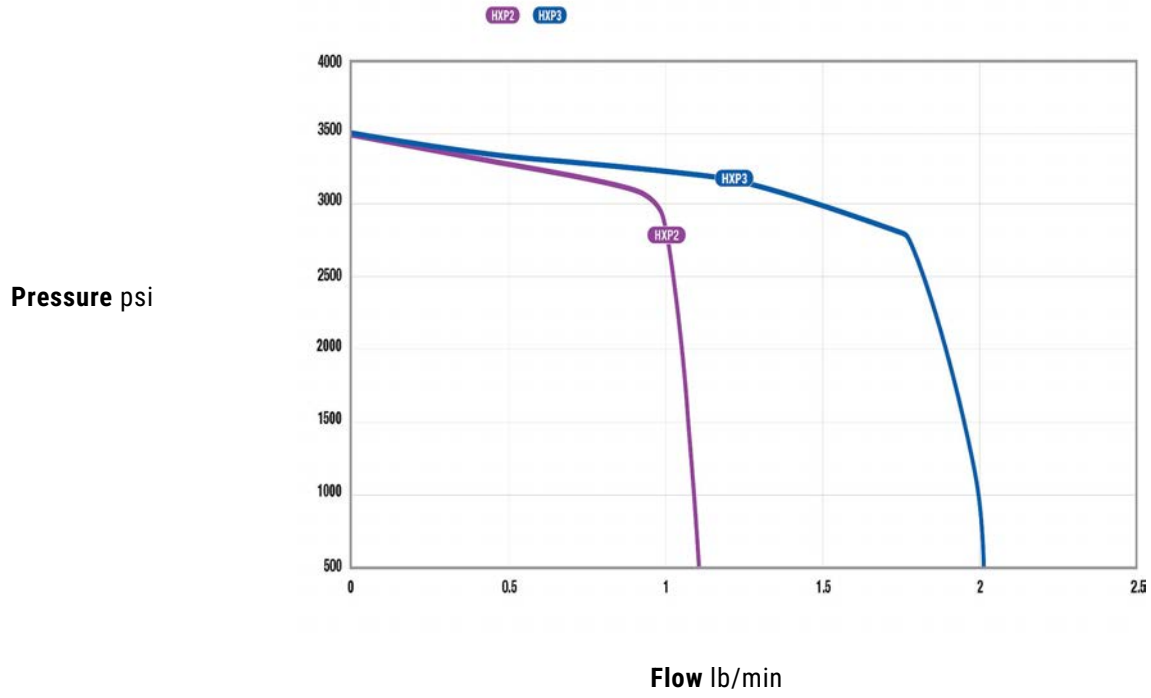


H-30 and H-50 (3:1) (120 cc A-Side Pump, 40 cc B-Side Pump)

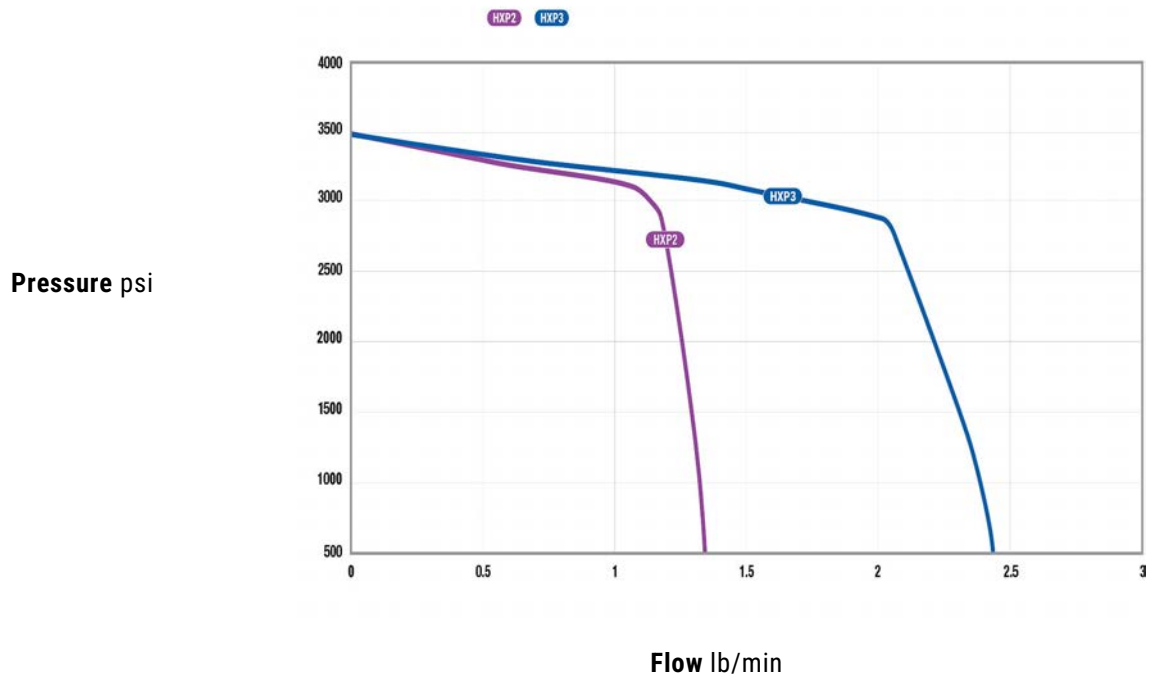


PERFORMANCE CHARTS

H-XP2 and H-XP3 (1.5:1) (60 cc A-Side Pump, 40 cc B-Side Pump)

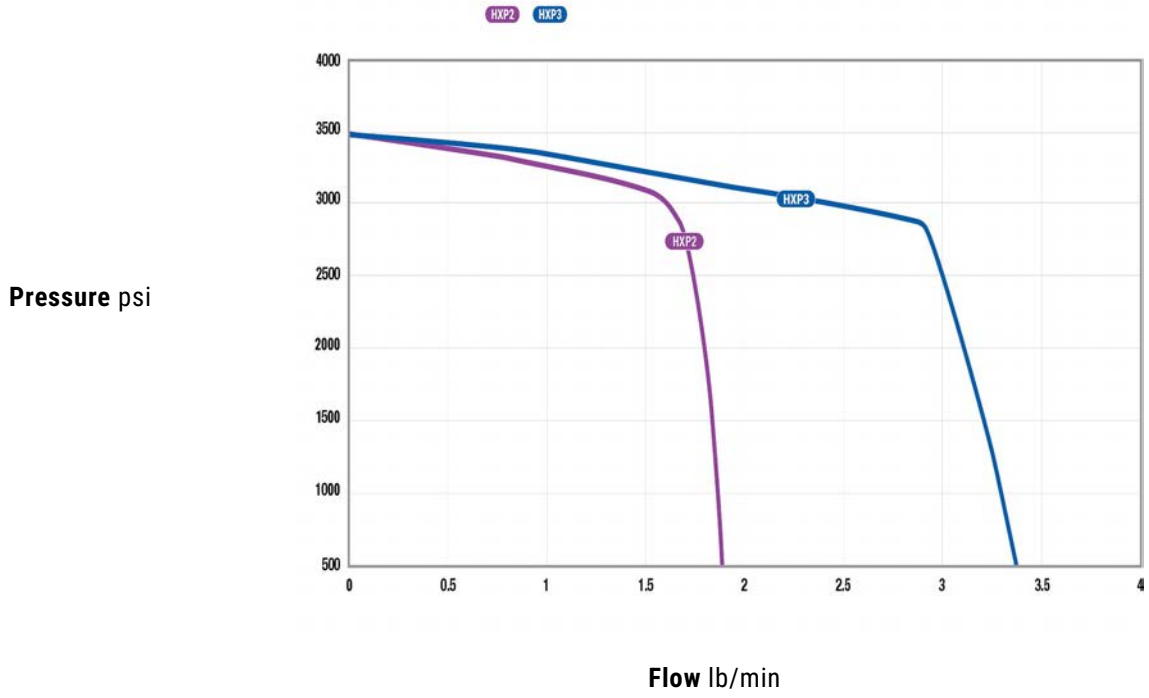


H-XP2 and H-XP3 (2:1) (80 cc A-Side Pump, 40 cc B-Side Pump)

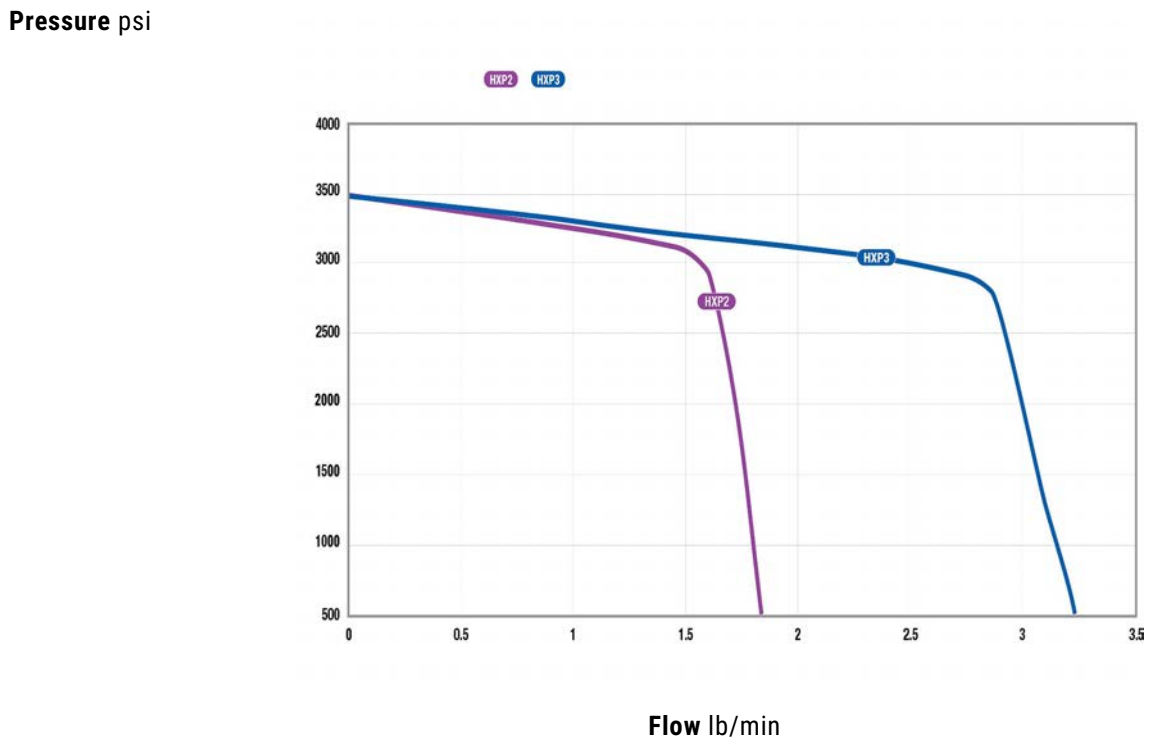


PERFORMANCE CHARTS

H-XP2 and H-XP3 (2.5:1) (120 cc A-Side Pump, 48 cc B-Side Pump)

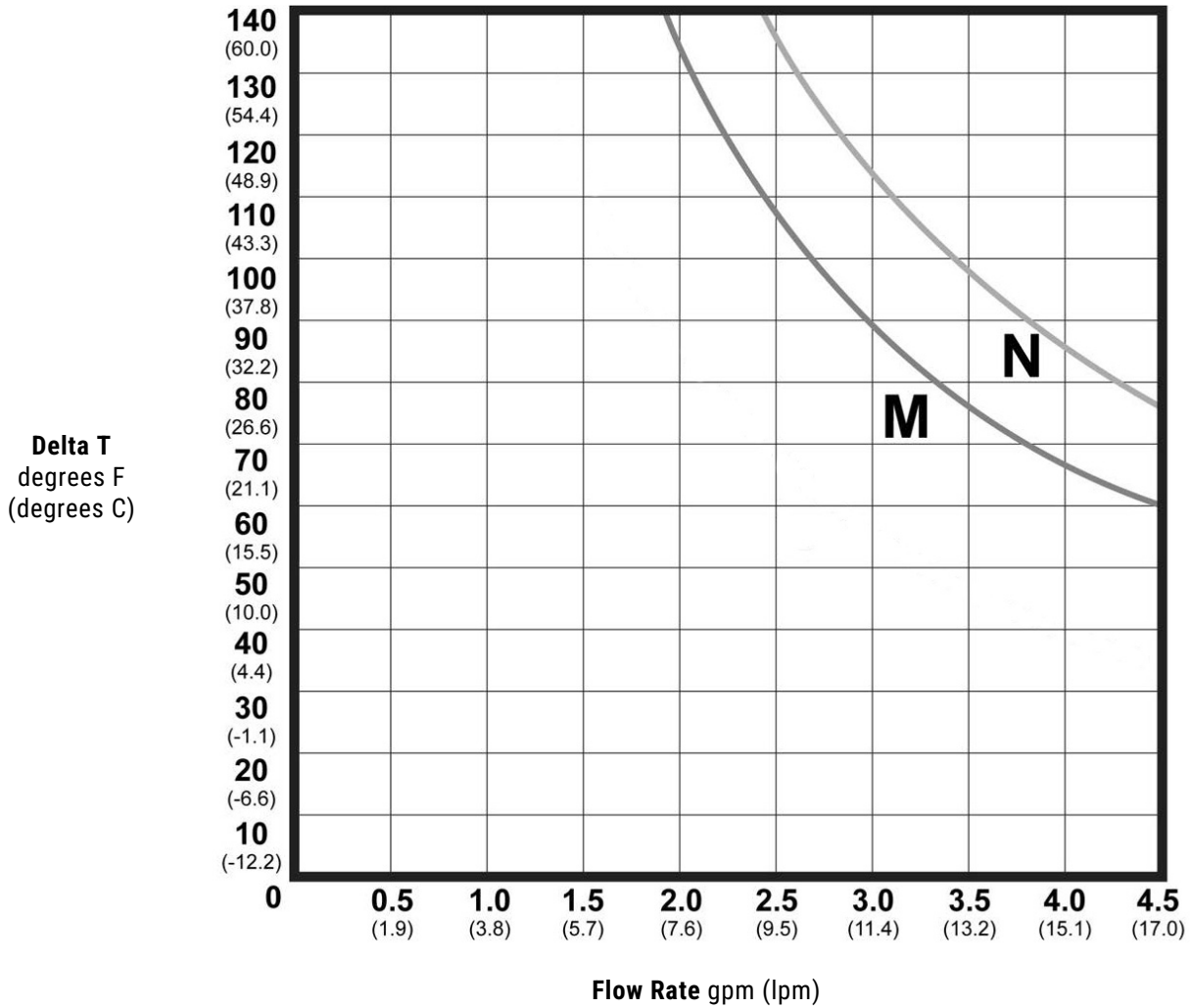


H-XP2 and H-XP3 (3:1) (120 cc A-Side Pump, 40 cc B-Side Pump)



PERFORMANCE CHARTS

HEATER PERFORMANCE CHART



M = 15.3 kW

N = 20.4 kW

NOTE:

Heater performance data is based on testing with 10 wt. hydraulic oil and 230V across heater power wires.

PERFORMANCE CHARTS

INTERNALLY HEATED HOSE PRESSURE SETPOINT ADJUSTMENT

Internally heated hoses experience additional pressure drop when compared to externally heated hoses of the same inner diameter. The system pressure setpoint may need to be increased to offset the additional pressure drop and achieve desired pressure and pattern at the gun. Pressure drop may vary based on pressure setpoint, temperature setpoints, chemical viscosities, and hose configuration (length and number of fittings). See the table for a starting point for offsetting the additional pressure drop.


HOSE LENGTH	PRESSURE SETPOINT ADJUSTMENT
< 100 ft (30 m)	Increase 50–150 psi (3.4–10.3 bar)
100–200 ft (30–70 m)	Increase 100–250 psi (6.9–17.2 bar)
> 200 ft (70 m)	Increase 150–350 psi (10.3–24.1 bar)

INTERNALLY HEATED HOSE TEMPERATURE SETPOINT ADJUSTMENT

Temperature setpoints may need to be adjusted on internally heated hoses to address additional pressure imbalance caused by additional pressure drop. In order to balance pressures, increase the temperature of the higher pressure material and decrease the temperature of the lower pressure material. Once the imbalance is resolved, adjust the temperature setpoints up or down together to achieve the desired results.

CALIFORNIA PROPOSITION 65

CALIFORNIA RESIDENTS

 **WARNING** Cancer and reproductive harm – www.P65warnings.ca.gov.

GRACO EXTENDED WARRANTY FOR REACTOR® COMPONENTS

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

Graco Part Number	Description	Warranty Period
2010146	Hydraulic Control Module	36 Months
25P036	Temperature Control Module	36 Months
18E139	Advanced Display Module	36 Months
All other Reactor 3 parts		12 Months

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

FOR GRACO CANADA CUSTOMERS

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GRACO INC. AND SUBSIDIARIES | P.O. BOX 1441 | MINNEAPOLIS MN 55440-1441 | USA

Graco Headquarters: Minneapolis, MN USA | International Offices: Australia, Belgium, China, Japan, Korea | Toll Free Phone Number: 1-800-690-2894 (Contractor Division) and 1-800-328-0211 (Industrial Division) | For patent information, see graco.com/patents