



Quantity	Part Number	Description	Charge Price (ea.)	Extended Value	Manufacturer	Spec Sheet	Current Stock* (for FPVC)
----------	-------------	-------------	--------------------	----------------	--------------	------------	---------------------------

Section Total: \$ 162.09

Control Kit 1 - HMI, Controller, Harnesses, Programming Kit		Kits include required components needed for programming and use. Wiring harness from controller has flying leads for connections to components.					
78700713	S50, 5" TFT Projected Capacitive Touchscreen, 8GB Flash	\$ 240.00		Enovation	Specifications	6	
58700010	(MC-2-18-6) Mobile PLC/Controller with integrated valve driver (PWM and On/Off Solenoid)	\$ 326.00		Enovation	Specifications	6	
	Connection Harness (Programming and Operation)			Enovation		6	

Battery Kit - Battery, Charger and Battery Adapter		Kits include required components needed for programming and use. Wiring harness from controller has flying leads for connections to components.					
B09W1BSLX5	Kobalt Battery Adapter	\$ 18.47		Amazon	Specifications	5	
B08MLDJNC3	Replacement Kobalt Batter, 25VDC 5Ah	\$ 45.59		Amazon	Specifications	5	
B07QX8H4VS	Kobalt Battery Charger 2445-03	\$ 70.20		Amazon	Specifications	5	

Sensors		Sensors provide feedback from your system to the controls. BPS33NVM3000P is limited to (1) per school.					
1	BSP B250-FV004-A04A1A-S4	Pressure Sensor, 250Bar, 0-10, 3W	\$ 146.93	\$ 146.93	Balluff	Specifications	4
1	7000-12221-6140500	Cable -M12 Connector -4 Wire - 5 Meters Long	\$ 15.16	\$ 15.16	Murr	Specifications	4
	BPS33NVM3000P	Pressure Sensor w/ display, AND 0-10V / 4-20mA, M12 4W	\$ 258.53		Barksdale	Specifications	22
	7000-12221-6140500	CBL-M12F 4W-BLK PVC 5M	\$ 15.16		Murr	Specifications	8
	BES M12MG-PSC80F-BP05	Inductive Sensor - 8 MM Distance - 3 Wire - NO contact - PNP - 5M - Non Flush Mount Style	\$ 25.10		Balluff	Specifications	4

*Current Stock includes items that are on order and have not yet been received.

Limited Stock



Quantity	Part Number	Description	Charge Price (ea.)	Extended Value	Manufacturer	Spec Sheet	Current Stock* (for FPVC)
----------	-------------	-------------	--------------------	----------------	--------------	------------	---------------------------

Section Total: \$ 1,119.94

Hand Pumps		Cartridge style hand pumps that require a valve body or cavity in a manifold.					
	DE-HPB-0L	HAND PUMP, PUSH TO PUMP TYPE (.39 CID) (7/8" Handle Needed Max 36")	\$ 76.03		Delta Power	Specifications	8
	ES	ES Line Body Delta 2Way -8 SAE Ports (Delta 2W Cavity)	\$ 27.50		Delta Power	Specifications	8

"Micro" Piston Pumps		Extremely small displacement pumps.					
	AKP105-0,3-500-V-A*00	Micro-Axial piston pump .018 CID	\$ 1,619.31		Bieri	Specifications	1
	HRK01-0,34-700-DV-V-A*00	Micro-Radial piston pump .021 CID (with built-in relief)	\$ 879.53		Bieri	Specifications	1
	HRK01-0,34-700-V-V-A*00	Micro-Radial piston pump .021 CID (without built-in relief)	\$ 879.53		Bieri	Specifications	2

Gear Pumps - Clockwise Rotation		Gear pumps with keyed shafts and clockwise rotation. These are <u>not</u> bidirectional.					
	ALP1A-D-2	Aluminum - 1/2IN Shaft w/ 1/8IN Key, SAE AA 2-bolt mount - 1.4c ³ (.0854in ³)/rev, -8 Inlet, -6 Outlet	\$ 146.90		Marzocchi	Specifications	6
	ALP1A-D-3	Aluminum - 1/2IN Shaft w/ 1/8IN Key, SAE AA 2-bolt mount - 2.1c ³ (.1281in ³)/rev, -8 Inlet, -6 Outlet	\$ 146.90		Marzocchi	Specifications	5
	ALP1A-D-4	Aluminum - 1/2IN Shaft w/ 1/8IN Key, SAE AA 2-bolt mount - 2.8c ³ (.1708in ³)/rev, -8 Inlet, -6 Outlet	\$ 146.90		Marzocchi	Specifications	4
1	ALP1A-D-5	Aluminum - 1/2IN Shaft w/ 1/8IN Key, SAE AA 2-bolt mount - 3.5c ³ (.2135in ³)/rev, -8 Inlet, -6 Outlet	\$ 146.90	\$ 146.90	Marzocchi	Specifications	1
	ALP1A-D-7	Aluminum - 1/2IN Shaft w/ 1/8IN Key, SAE AA 2-bolt mount - 5.2c ³ (.3172in ³)/rev, -8 Inlet, -6 Outlet	\$ 146.90		Marzocchi	Specifications	9

Gear Pumps - Clockwise Rotation		Gear pumps with keyed shafts and clockwise rotation. These are <u>not</u> bidirectional.					
	GP-F10-13-P-C	Aluminum - 1/2IN Shaft w/ 1/8IN Key, SAE AA 2-bolt mount - 1.3c ³ (.0854in ³)/rev, -8 Inlet, -6 Outlet	\$ 97.56		Dynamic FC	Specifications	2
	GP-F10-20-P-C	Aluminum - 1/2IN Shaft w/ 1/8IN Key, SAE AA 2-bolt mount - 2.0c ³ (.1281in ³)/rev, -8 Inlet, -6 Outlet	\$ 97.56		Dynamic FC	Specifications	2
	GP-F10-27-P-C	Aluminum - 1/2IN Shaft w/ 1/8IN Key, SAE AA 2-bolt mount - 2.7c ³ (.1708in ³)/rev, -8 Inlet, -6 Outlet	\$ 97.56		Dynamic FC	Specifications	2
	GP-F10-34-P-C	Aluminum - 1/2IN Shaft w/ 1/8IN Key, SAE AA 2-bolt mount - 3.4c ³ (.2135in ³)/rev, -8 Inlet, -6 Outlet	\$ 97.56		Dynamic FC	Specifications	2
	GP-F10-41-P-C	Aluminum - 1/2IN Shaft w/ 1/8IN Key, SAE AA 2-bolt mount - 4.1c ³ (.2501in ³)/rev, -8 Inlet, -6 Outlet	\$ 105.88		Dynamic FC	Specifications	2
	GP-F10-51-P-C	Aluminum - 1/2IN Shaft w/ 1/8IN Key, SAE AA 2-bolt mount - 5.1c ³ (.3172in ³)/rev, -8 Inlet, -6 Outlet	\$ 105.88		Dynamic FC	Specifications	2

Gear Motors - Clockwise Rotation		Gear motors with keyed shafts and bidirectional rotation.					
1	ALM1A-R-4-E2	Aluminum - 1/2IN Shaft w/ 1/8IN Key, SAE AA 2-bolt mount - 2.8c ³ (.1708in ³)/rev, -12 Inlet, -12 Outlet	\$ 201.50	\$ 201.50	Marzocchi	Specifications	5
	ALM1A-R-5-E2	Aluminum - 1/2IN Shaft w/ 1/8IN Key, SAE AA 2-bolt mount - 3.5c ³ (.2135in ³)/rev, -12 Inlet, -12 Outlet	\$ 201.50		Marzocchi	Specifications	2
	ALM1A-R-6-E2	Aluminum - 1/2IN Shaft w/ 1/8IN Key, SAE AA 2-bolt mount - 4.1c ³ (.2501in ³)/rev, -12 Inlet, -12 Outlet	\$ 201.50		Marzocchi	Specifications	4
	ALM1A-R-7-E2	Aluminum - 1/2IN Shaft w/ 1/8IN Key, SAE AA 2-bolt mount - 5.2c ³ (.3173in ³)/rev, -12 Inlet, -12 Outlet	\$ 201.50		Marzocchi	Specifications	5
	ALM1A-R-9-E2	Aluminum - 1/2IN Shaft w/ 1/8IN Key, SAE AA 2-bolt mount - 6.2c ³ (.3783in ³)/rev, -12 Inlet, -12 Outlet	\$ 201.50		Marzocchi	Specifications	5

Gear Motors - Clockwise Rotation		Gear motors with keyed shafts and bidirectional rotation.					
	GM-F10-13	Gear Motor, 1.3cc, Clockwise	\$ 139.38		Dynamic FC	Specifications	2
	GM-F10-20	Gear Motor, 2.0cc, Clockwise	\$ 139.38		Dynamic FC	Specifications	2

	GM-F10-27	Gear Motor, 2.7cc, Clockwise	\$ 139.38		Dynamic FC	Specifications	2
	GM-F10-34	Gear Motor, 3.4cc, Clockwise	\$ 139.38		Dynamic FC	Specifications	2
	GM-F10-41	Gear Motor 4.1cc, Clockwise	\$ 151.25		Dynamic FC	Specifications	2
	GM-F10-51	Gear Motor, 5.1cc, Clockwise	\$ 151.25		Dynamic FC	Specifications	2

Bent Axis Piston Motor/Pump - Clockwise Rotation			A piston motor with a CETOP flange, typically more efficient than gear motors. Metric fittings.				
	M5 093840	Bent Axis Piston Motor CETOP Flange (2 bolt) .305 CID with Keyed Shaft	\$ 643.75		Hydro Leduc	Specifications	4

Bladder Accumulators and Clamps			Pressure storage reservoir. These contain a gas bladder that requires a pre-charge of NITROGEN. All accumulators are assumed to ship with no pre-charge.				
1	SB330-4A1/112S-210C	Bladder Accumulator - 1 Gallon - Carbon Steel Shell - SAE -20 Fluid Connection - 3000PSI	\$ 749.78	\$ 749.78	Hydac	Specifications	3
	HS167	Clamp type mount for SB330-4A1/112S-210C	\$ 51.94		Hydac	Specifications	3
	SB330-1A1/112S-210C	Bladder Accumulator - 1 Liter (1.06 Quart) - Carbon Steel Shell - SAE -12 Fluid Connection - 3000 PSI	\$ 587.21		Hydac	Specifications	3
	HYRAC 110-118ST	Clamp type mount for SB330-1A1/112S-210C	\$ 44.37		Hydac	Specifications	3

Pressure Intensifiers			Will take oil from the inlet output the oil at a higher pressure at the cost of flow. These work in a similar manner to a transformer with electrical power.				
	HC1-2.8-A-1	Oil Intensifier, 2.8 Ratio,	\$ 963.75		Minibooster	Specifications	2

Test Points and Adapter			Pressure storage reservoir. These contain a gas bladder that requires a pre-charge of NITROGEN. All accumulators are assumed to ship with no pre-charge.				
2	D1620-01-04SAE	Test Point Connector, -4 SAE	\$ 10.88	\$ 21.76	Dynamic	Specifications	20
	D1620-01-06SAE	Test Point Connector, -6 SAE	\$ 10.88		Dynamic	Specifications	20
	DGA1620-01	Dynamic Test Probe adapter 1/4-NPT	\$ 25.00		Dynamic	Specifications	20

*Current Stock includes items that are on order and have not yet been received.



Manifold Form

Contact Our Engineering Team: fpvc@ifpusa.com

Last Updated: 9/12/2024

Please populate fields before sending for order.
Email completed sheet to fpvc@ifpusa.com

If viewing this sheet in your browser, please go to File -> Saves As -> Download a Copy

IFP Motion Solutions, INC is offering access to an industry leading solution for manifold design packages.

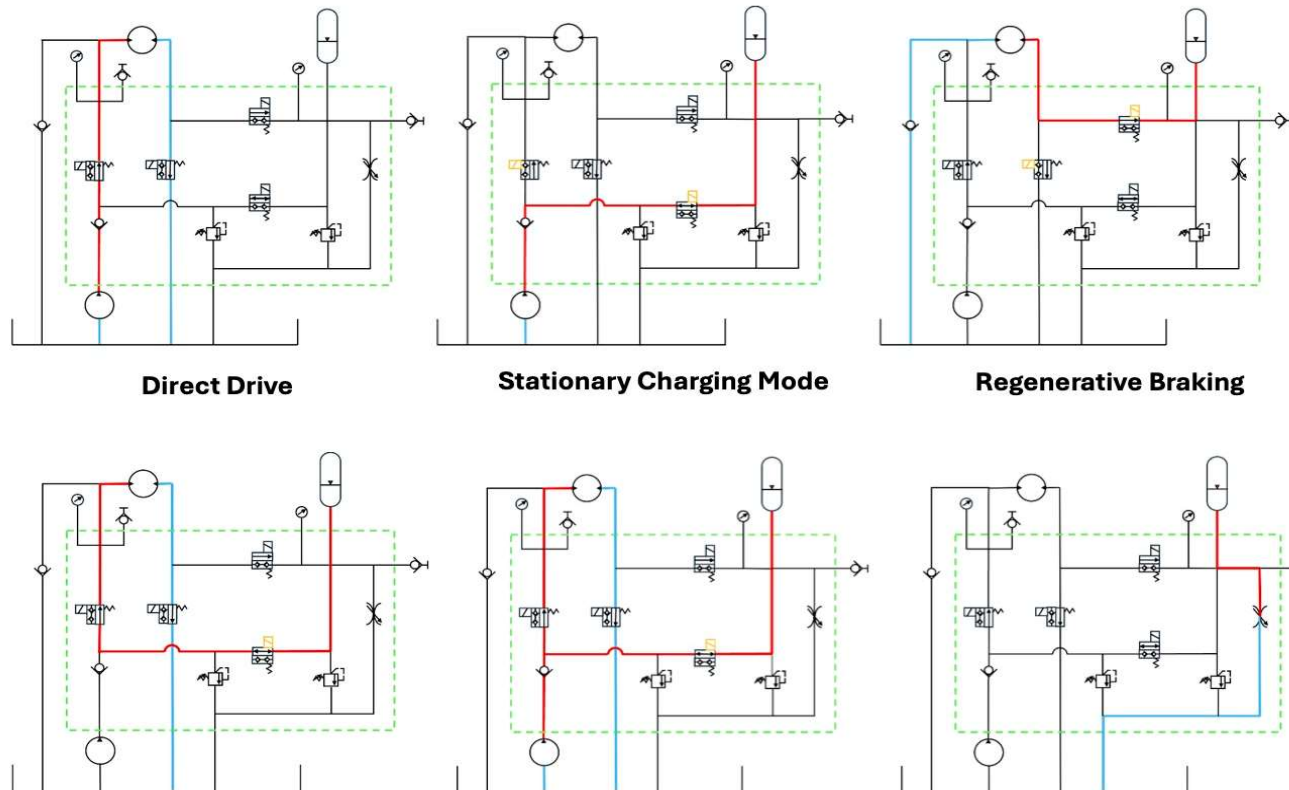
Contact IFP via fpvc@ifpusa.com with the following information:

Subject: FPVC Manifold Request; FAMU-FSU College of Engineering

Attachments: This order sheet with Start Here filled out, Manifold schematics, any other relevant information

Body: We are requesting a custom manifold from IFP. Our team contact is: Ethan Mercado, emm18b@fsu.edu, (757) 754-0620. Our industry mentor is: Dean Eberhardt, deberhardt@ifpusa.co, (612) 770-5300, AND Cory Fisher, cory.fisher@sunhydraulics.com, (941) 362-1288 . Our schematic is attached/below and is inteded to function in these modes: **DIRECT DRIVE MODE:** No valves energized. **STATIONARY CHARGING MODE:** DTDF-1 and DTBF-2 energized. **REGENERATIVE BRAKING MODE:** DTDF-2 and DTBF-1 energized. **DISHARGE MODE:** DTBF-2 energized. **DIRECT WITH BOOST:** DTBF-2 energized. **ACCUMULATOR PRESSURE RELEASE:** No valves energized

Your manifold will be shipped to you without valves or fittings installed. When designing your manifold please use valves that are located in the Valves and Accessories tab. You may use a mix of HYDAC and Sun Hydraulics valves. If you need to use a valve other than what is being offered please contact IFP prior to selecting. It is your responsibility to make sure that all necessary components are ordered for your manifold assembly (valves, coils, cables, fittings, etc).



Direct Drive

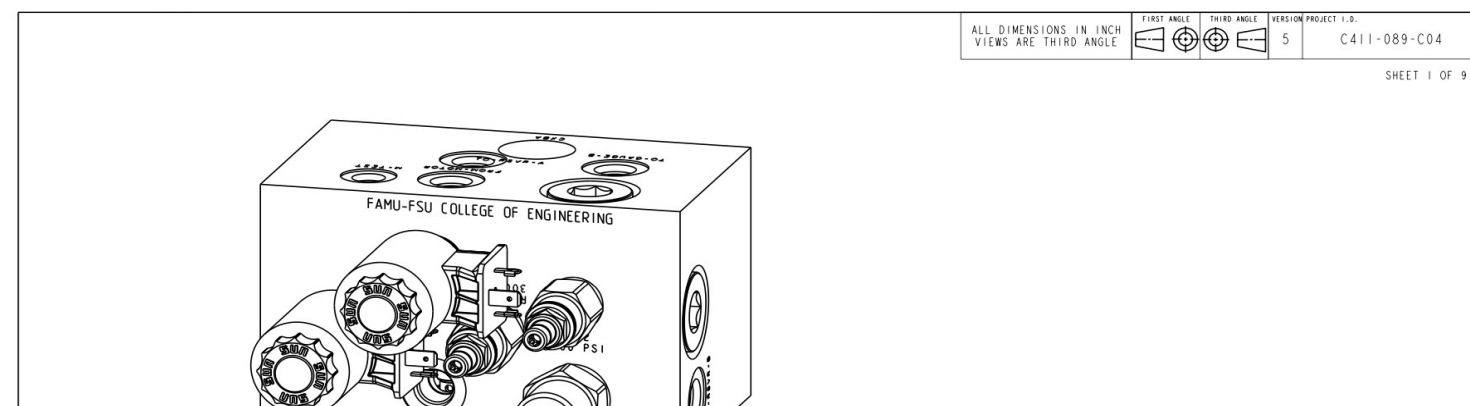
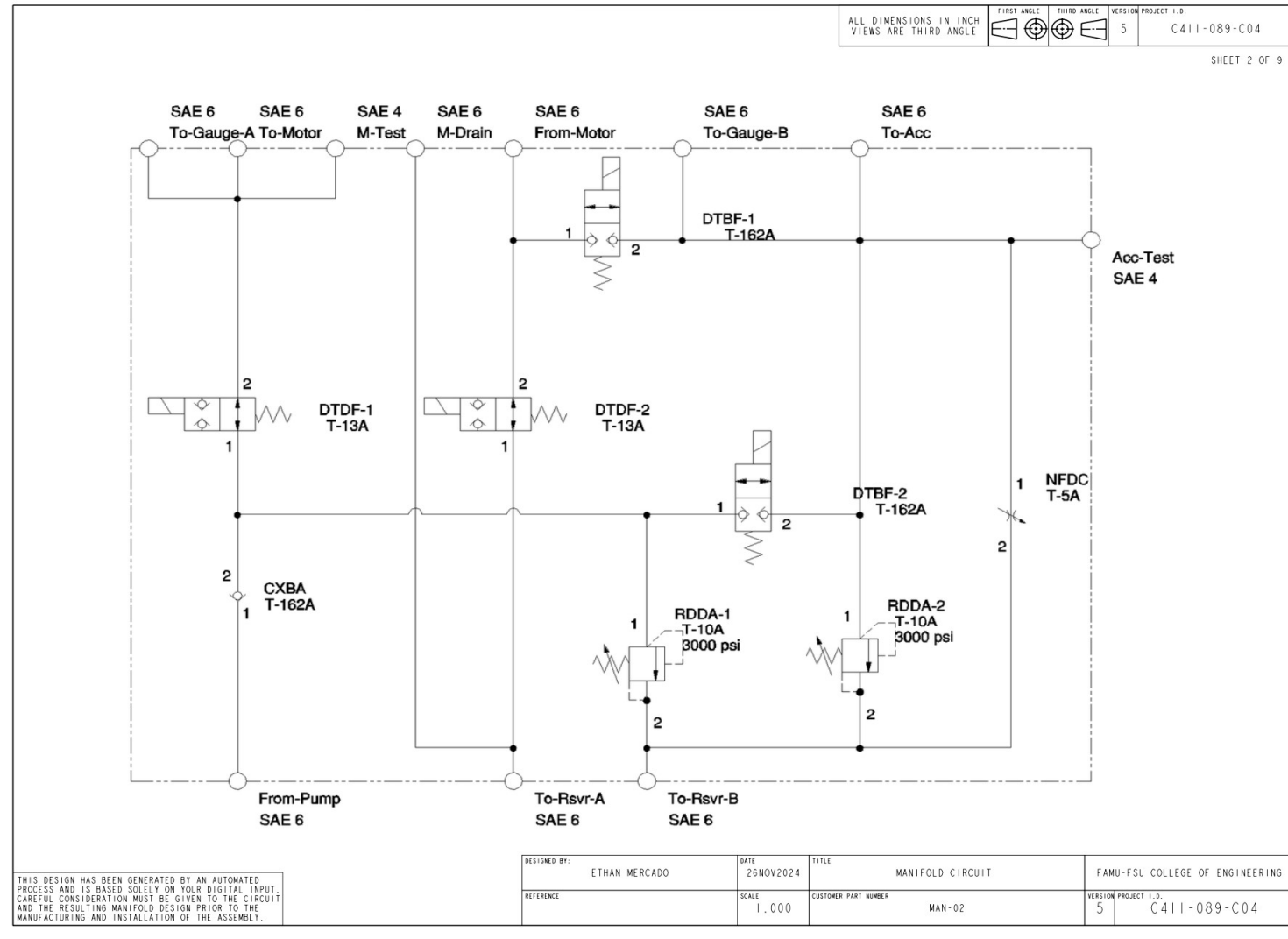
Stationary Charging Mode

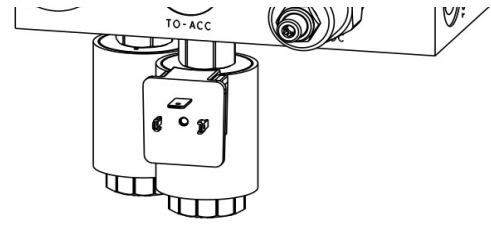
Regenerative Braking

Discharge Mode

Direct with Boost

Accumulator Pressure Release





1. SAE PORTS ARE O-RING SEALING PER ISO 11926-1
2. MOUNTING THREADS .375-16 UNC x .75 IN. (19.1MM) DP.
3. COATING: NONE
4. COILS CAN BE ROTATED ABOUT THE CARTRIDGE AXIS TO EXPOSE STAMPING OR AVOID OTHER CARTRIDGES.

QTY	PART NO.	SETTING	MATERIAL	PART NAME	QTY
1	C411-089-C04-Q		6061-T6 ALUMINUM	BODY	1
2	DTDFXHN212D			SOLENOID-OPERATED DIRECTIONAL VALVE	2
3	RDDA-LAN	3000 PSI		RELIEF VALVE	2
4	NFOCLAN			NEEDLE VALVE	1
5	A330-006-008			SAE-8 PLUG	1
6	A330-006-006			SAE-6 PLUG	1
7	DTBF-KCN212D			SOLENOID-OPERATED DIRECTIONAL VALVE	2
8	A330-006-012			SAE-12 PLUG	2
9	CKBA-XZN			CHECK VALVE	1

THIS DESIGN HAS BEEN GENERATED BY AN AUTOMATED PROCESS AND IS BASED SOLELY ON YOUR DIGITAL INPUT. CAREFUL CONSIDERATION MUST BE GIVEN TO THE CIRCUIT AND THE RESULTING MANIFOLD DESIGN PRIOR TO THE MANUFACTURING AND INSTALLATION OF THE ASSEMBLY.

DESIGNED BY:	ETHAN MERCADO	DATE:	26NOV2024	TITLE:	MANIFOLD CIRCUIT	FAMU-FSU COLLEGE OF ENGINEERING	
REFERENCE:		SCALE:	1.000	CUSTOMER PART NUMBER:	MAN-02	VERSION/PROJECT I.D.:	5 C411-089-C04

ALL DIMENSIONS IN INCH
VIEWS ARE THIRD ANGLE

FIRST ANGLE THIRD ANGLE VERSION PROJECT I.D. 5 C411-089-C04

SHEET 3 OF 9

2
5 6 7 8
10

Face Legend

THIS DESIGN HAS BEEN GENERATED BY AN AUTOMATED PROCESS AND IS BASED SOLELY ON YOUR DIGITAL INPUT. CAREFUL CONSIDERATION MUST BE GIVEN TO THE CIRCUIT AND THE RESULTING MANIFOLD DESIGN PRIOR TO THE MANUFACTURING AND INSTALLATION OF THE ASSEMBLY.

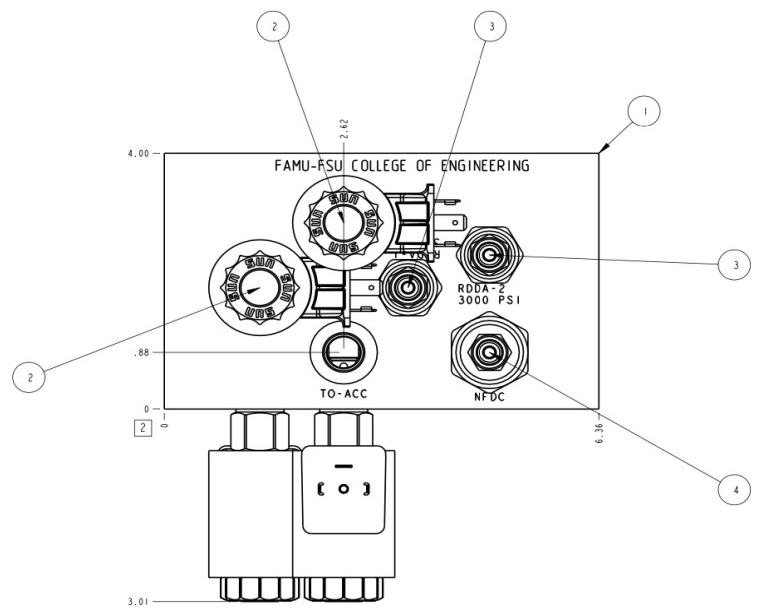
DESIGNED BY:	ETHAN MERCADO	DATE:	26NOV2024	TITLE:	MANIFOLD CIRCUIT	FAMU-FSU COLLEGE OF ENGINEERING	
REFERENCE:		SCALE:	0.540	CUSTOMER PART NUMBER:	MAN-02	VERSION/PROJECT I.D.:	5 C411-089-C04



SHEET 4 OF 9

2	5	6	7	8
	10			

Face Legend



THIS DESIGN HAS BEEN GENERATED BY AN AUTOMATED PROCESS AND IS BASED SOLELY ON YOUR DIGITAL INPUT. CAREFUL CONSIDERATION MUST BE GIVEN TO THE CIRCUIT AND THE RESULTING MANIFOLD DESIGN PRIOR TO THE MANUFACTURING AND INSTALLATION OF THE ASSEMBLY.

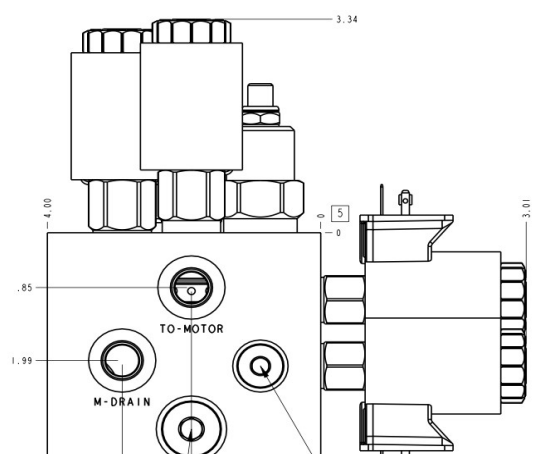
DESIGNED BY:	ETHAN MERCADO	DATE:	26NOV2024	TITLE:	MANIFOLD CIRCUIT	FAMU-FSU COLLEGE OF ENGINEERING
REFERENCE:		SCALE:	1.000	CUSTOMER PART NUMBER:	MAN-02	VERSION PROJECT I.D.
						5 C411-089-C04

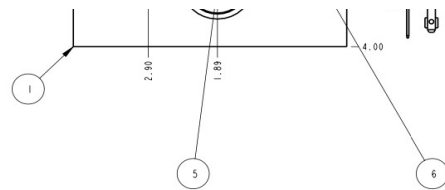


SHEET 5 OF 9

2	5	6	7	8
	10			

Face Legend

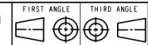




THIS DESIGN HAS BEEN GENERATED BY AN AUTOMATED PROCESS AND IS BASED SOLELY ON YOUR DIGITAL INPUT. CAREFUL CONSIDERATION MUST BE GIVEN TO THE CIRCUIT AND THE RESULTING MANIFOLD DESIGN PRIOR TO THE MANUFACTURING AND INSTALLATION OF THE ASSEMBLY.

DESIGNED BY:	ETHAN MERCADO	DATE:	26NOV2024	TITLE:	MANIFOLD CIRCUIT	FAMU-FSU COLLEGE OF ENGINEERING
REFERENCE:		SCALE:	1.000	CUSTOMER PART NUMBER:	MAN-02	VERSION PROJECT I.D.: 5 C411-089-C04

ALL DIMENSIONS IN INCH
VIEWS ARE THIRD ANGLE

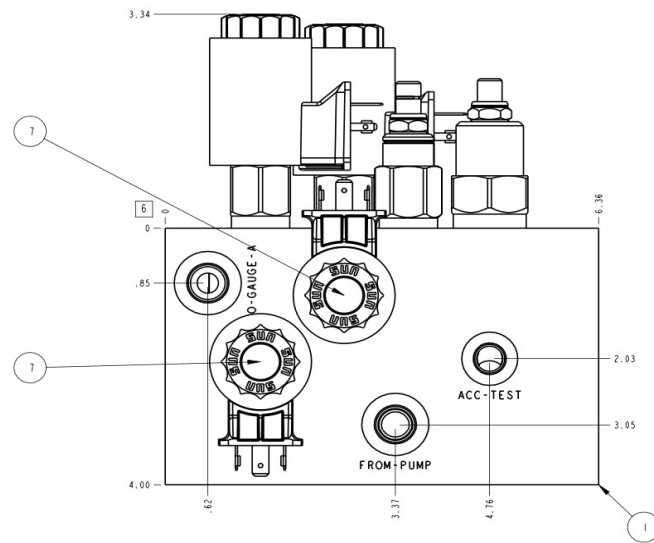


VERSION PROJECT I.D.
5 C411-089-C04

SHEET 6 OF 9

2
5 6 7 8
10

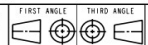
Face Legend



THIS DESIGN HAS BEEN GENERATED BY AN AUTOMATED PROCESS AND IS BASED SOLELY ON YOUR DIGITAL INPUT. CAREFUL CONSIDERATION MUST BE GIVEN TO THE CIRCUIT AND THE RESULTING MANIFOLD DESIGN PRIOR TO THE MANUFACTURING AND INSTALLATION OF THE ASSEMBLY.

DESIGNED BY:	ETHAN MERCADO	DATE:	26NOV2024	TITLE:	MANIFOLD CIRCUIT	FAMU-FSU COLLEGE OF ENGINEERING
REFERENCE:		SCALE:	1.000	CUSTOMER PART NUMBER:	MAN-02	VERSION PROJECT I.D.: 5 C411-089-C04

ALL DIMENSIONS IN INCH
VIEWS ARE THIRD ANGLE



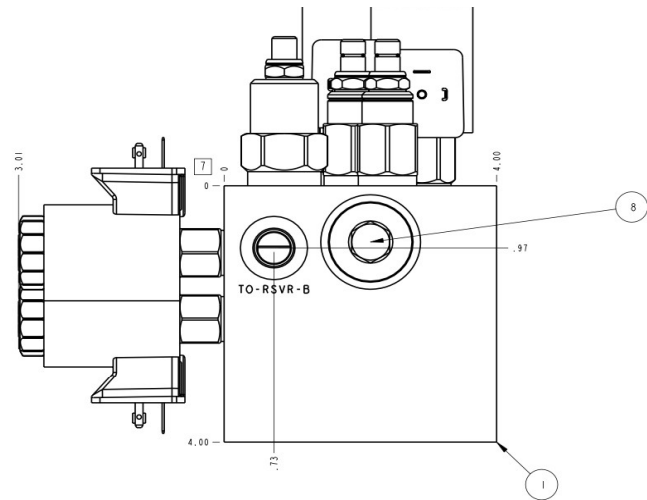
VERSION PROJECT I.D.
5 C411-089-C04

SHEET 7 OF 9

2
5 6 7 8
10

Face Legend





THIS DESIGN HAS BEEN GENERATED BY AN AUTOMATED PROCESS AND IS BASED SOLELY ON YOUR DIGITAL INPUT. CAREFUL CONSIDERATION MUST BE GIVEN TO THE CIRCUIT AND THE RESULTING MANIFOLD DESIGN PRIOR TO THE MANUFACTURING AND INSTALLATION OF THE ASSEMBLY.

DESIGNED BY:	ETHAN MERCADO	DATE:	26NOV2024	TITLE:	MANIFOLD CIRCUIT	FAMU-FSU COLLEGE OF ENGINEERING
REFERENCE:		SCALE:	1.000	CUSTOMER PART NUMBER:	MAN-02	VERSION PROJECT I.D.: 5 C411-089-C04

ALL DIMENSIONS IN INCH
VIEWS ARE THIRD ANGLE

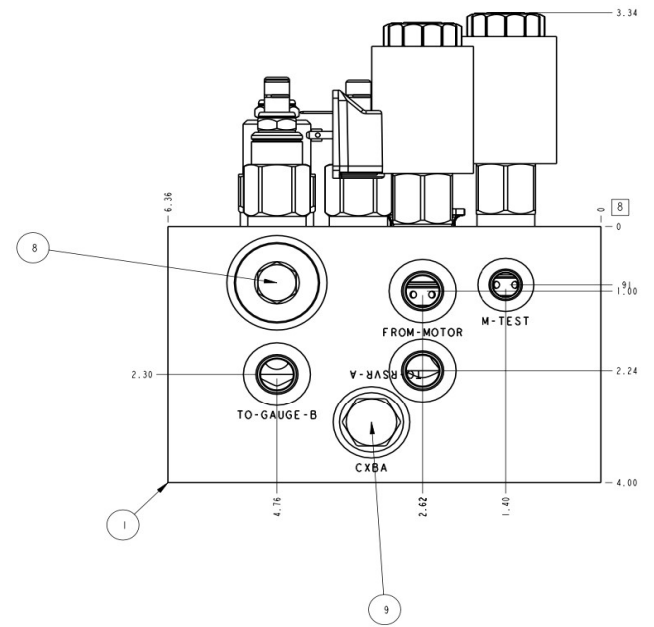


VERSION PROJECT I.D.:
5 C411-089-C04

SHEET 8 OF 9

2
5 6 7 8
10

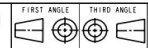
Face Legend



THIS DESIGN HAS BEEN GENERATED BY AN AUTOMATED PROCESS AND IS BASED SOLELY ON YOUR DIGITAL INPUT. CAREFUL CONSIDERATION MUST BE GIVEN TO THE CIRCUIT

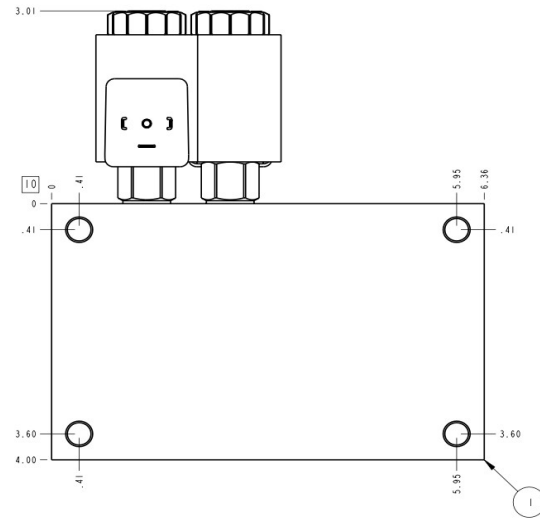
DESIGNED BY:	ETHAN MERCADO	DATE:	26NOV2024	TITLE:	MANIFOLD CIRCUIT	FAMU-FSU COLLEGE OF ENGINEERING
REFERENCE:		SCALE:		CUSTOMER PART NUMBER:		VERSION PROJECT I.D.: 5 C411-089-C04

ALL DIMENSIONS IN INCH
VIEWS ARE THIRD ANGLE



VERSION PROJECT I.D.
5 C411-089-C04

SHEET 9 OF 9			
2	6	7	8
5	6	7	8
10			
Face Legend			



THIS DESIGN HAS BEEN GENERATED BY AN AUTOMATED PROCESS AND IS BASED SOLELY ON YOUR DIGITAL INPUT. CAREFUL CONSIDERATION MUST BE GIVEN TO THE CIRCUIT AND THE RESULTING MANIFOLD DESIGN PRIOR TO THE MANUFACTURING AND INSTALLATION OF THE ASSEMBLY.

DESIGNED BY: ETHAN MERCADO	DATE 26NOV2024	TITLE MANIFOLD CIRCUIT	FAMU-FSU COLLEGE OF ENGINEERING
REFERENCE	SCALE 1.000	CUSTOMER PART NUMBER MAN-02	VERSION PROJECT I.D. 5 C411-089-C04



NFPA Fluid Power Vehicle Challenge Order Form
2024-2025

Updated 9/11/2024

For product related questions or to place an order, contact: [Michael Gustafson](mailto:Michael.Gustafson@SunSrc.com) [Michael Gustafson@SunSrc.com](mailto:Michael.Gustafson@SunSrc.com)

Instructions: When ordering parts, it is important to note when accessory items are required. For example, the SVP10-NOR-R00-00-B-00 solenoid cartridge valve must have one CP10-2-8S line body to install it into (unless it is used in a custom manifold, in which case a line body is not needed), plus one R16-type coil to actuate the valve. Click the link under "Reference Information" for additional information on each part.

NOTE: Teams MUST order at least ONE D1620-01-06SAE test point (listed under the SunSource donation items) and have it installed at the accumulator so that pressure can be checked by a judge during the competition using a gauge with a DGA1620-01 mating connector. Use of the mating connector and separate gauge by the team is optional, but suggested.

SunSource is offering these components for consideration in experimental projects. It is up to the team to review the technical data for each part to ensure it meets the needs of the application. For example, minimum rotation RPM on pumps and leakage rates through spool valves, among other technical specifications, need to be considered. While information has been provided in order to better identify potentially suitable product, it is up to the team to review the actual specification pages to ensure that all data is correct. In case a discrepancy is found, defer to the catalog information.

SunSource can provide parts not shown on this list. Please contact SunSource to determine a donation value or separate purchase price. Once the donation limit is surpassed SunSource will quote items and accept credit card orders.

While items highlighted green are preferred items that are typically stocked by SunSource, product availability is not guaranteed and should be confirmed at time of order.

Order Date	11/27/2024
Name	Ethan Mercado
Department	
email Address	emm18b@fsu.edu
Phone Number	(757) 754-0620
University	FAMU-FSU College of Engineering
Ship to Address	5681 Rustic Dr
City	Tallahassee
State	Florida
Zip	32303
Ship to the attention of:	Trace Flowers

Danfoss Value:	\$186.00	\$4000 max combined value
SunSource/Other Value:	\$8.00	\$1000 max
Total Value:	\$194.00	\$5000 max total value

GREEN = preferred item

Item	Manufacturer	Part Number	Value	Quantity Requested	Extended Value	Line Body Required (if yes, refer to product specification tab and order separately. Not needed if a custom manifold is used.)	Other Accessories Required (if yes, refer to product specification tab)	Reference Information
Accumulator, 1 gallon, SAE -20 port	Accumulators Inc	A13100-3	\$907.00				D1620-01-06SAE	A13100-3
Accumulator, 1 quart, SAE -12 port	Accumulators Inc	A1QT3100-3	\$626.00				D1620-01-06SAE	A1QT3100-3
Cartridge Valve, Check, 1 to 2, size 10	Danfoss	CV10-NP-0.3-B-00	\$14.00			VC10-2		CV10-NP-0.3-B-00
Cartridge Valve, Check, 1 to 2, size 16	Danfoss	CV11-16-P-0.5	\$37.00			VC16-2		CV11-16-P-0.5
Cartridge Valve, Check, 1 to 2, size 8	Danfoss	CV08-NP-0.3-B-00	\$12.00			VC08-2		CV08-NP-0.3-B-00
Cartridge Valve, Check, Pilot to open, Single Free flow 2-1	Danfoss	4SK303S	\$35.00			T-11A		4SK303S
Cartridge Valve, Flow Control, Compensated	Danfoss	HFCV10-HRT-P-E-XXX-00	\$87.00			VC10-2		HFCV10-HRT-P-E-XXX-00
Cartridge Valve, Flow Control, Needle Valve	Danfoss	FCV7-10-S-0-NV	\$31.00			VC10-2		FCV7-10-S-0-NV
Cartridge Valve, Flow Control, Needle Valve	Danfoss	NV1-8-S-0	\$29.00			VC08-2		NV1-8-S-0
Cartridge Valve, Flow Control, Needle Valve Free Flow 1-2	Danfoss	FCV7-10-S-0-FF	\$43.00			VC10-2		FCV7-10-S-0-FF
Cartridge Valve, Line Body, T-11A, Aluminum, SAE -8/-6	SunSource	FV-9171-A	\$28.00					FV-9171-A
Cartridge Valve, Line Body, VC08-2, Aluminum SAE -6	Danfoss	CP08-2-6S	\$22.00					CP08-2-6S
Cartridge Valve, Line Body, VC08-3, Aluminum SAE -6	Danfoss	CP08-3-6S	\$31.00					CP08-3-6S
Cartridge Valve, Line Body, VC10-2, Aluminum SAE -8	Danfoss	CP10-2-8S	\$21.00					CP10-2-8S
Cartridge Valve, Line Body, VC10-3, Aluminum SAE -8	Danfoss	CP10-3-8S	\$25.00					CP10-3-8S
Cartridge Valve, Line Body, VC10-4, Aluminum SAE -6	Danfoss	CP10-4-8S	\$37.00					CP10-4-8S
Cartridge Valve, Line Body, VC16-2, Aluminum SAE -16	Danfoss	CP16-2-16S	\$33.00					CP16-2-16S
Cartridge Valve, Manual, 2 pos. 2 way, normally closed	Danfoss	MPV1-10-K-0	\$47.00			VC10-2		MPV1-10-K-0
Cartridge Valve, Pump Handle, Doering	Doering	241016	\$41.00					241016
Cartridge Valve, Pump, Lever Operated, Push to pump, .601 CID	Doering	DCHP10230	\$177.00			VC10-2	Pump Handle	DCHP10230
Cartridge Valve, Reducing/relieving valve, direct acting	Danfoss	PRV1-10-S-0-6	\$61.00			VC10-3		PRV1-10-S-0-6
Cartridge Valve, Relief, Direct Acting	Danfoss	RV1-10-S-0-36	\$43.00			VC10-2		RV1-10-S-0-36
Cartridge Valve, Relief, Direct Acting, low pressure	Danfoss	RV10-10-S-0-5	\$52.00			VC10-2		RV10-10-S-0-5
Cartridge Valve, Shuttle, High side, Ball type	Danfoss	CP128-1-B-0	\$19.00			VC08-3		CP128-1-B-0
Cartridge Valve, Solenoid Coil, 12VDC Deutsch, P Type	Danfoss	300AA00061A	\$19.00				Electrical Connector- SA-6707	300AA00061A
Cartridge Valve, Solenoid Coil, 12VDC Deutsch, R13	Danfoss	R16-12D-20W-DE	\$21.00				Electrical Connector- SA-6707	R16-12D-20W-DE
Cartridge Valve, Solenoid Coil, 24VDC Deutsch, P Type	Danfoss	300AA00062A	\$19.00				Electrical Connector- SA-6707	300AA00062A
Cartridge Valve, Solenoid Coil, 24VDC Deutsch, R13	Danfoss	R16-24D-20W-DE	\$21.00				Electrical Connector- SA-6707	R16-24D-20W-DE
Cartridge Valve, Solenoid, 2 pos. 2 way Bi-poppet, normally Closed	Danfoss	SBV11-8-C-0-00	\$85.00			VC08-2	Coil, "P"	SBV11-8-C-0-00
Cartridge Valve, Solenoid, 2 pos. 2 way Bi-poppet, normally Open	Danfoss	SBV11-8-O-0-00	\$92.00			VC08-2	Coil, "P"	SBV11-8-O-0-00
Cartridge Valve, Solenoid, 2 pos. 2 way Uni-poppet Normally Open	Danfoss	SVP10-NOR-R00-00-B-00	\$52.00			VC10-2	Coil, "R16"	SVP10-NOR-R00-00-B-00
Cartridge Valve, Solenoid, 2 pos. 2 way Uni-poppet, normally Closed	Danfoss	SVP10-NCR-R00-00-B-00	\$39.00			VC10-2	Coil, "R16"	SVP10-NCR-R00-00-B-00
Cartridge Valve, Solenoid, 2 pos. 3 way Spool 1-2/1-3	Danfoss	SV10-23-04-R00-00-B-00	\$40.00			VC10-3	Coil, "R16"	SV10-23-04-R00-00-B-00
Cartridge Valve, Solenoid, 2 pos. 4 way Spool 3-2,4-1	Danfoss	SV10-24-01-R00-00-B-00	\$46.00			VC10-4	Coil, "R16"	SV10-24-01-R00-00-B-00
Cartridge Valve, Solenoid, 3 pos. 4 way (3 blocked, 2-4-1 connected in neutral)	Danfoss	SV10-34-05-R00-00-B-00	\$82.00			VC10-4	Coil, "R16" (needs two)	SV10-34-05-R00-00-B-00
Electrical Connector, Deutsch 2 pin (for coils) 24" leads	SunSource	SA-6707	\$11.00					SA-6707
Electrical Connector, Deutsch 4 pin (for pressure transducers)	SunSource	SA-4104-KIT	\$4.00	2	\$8.00		Requires cable- not included	SA-4104-KIT
Fitting, plug, -4 ORB male, external hex	Brennan	6408-04-0	\$1.00					6408-04-0

Item	Manufacturer	Part Number	Value	Quantity Requested	Extended Value	Line Body Required (if yes, refer to product specification tab and order separately. Not needed if a custom manifold is used.)	Other Accessories Required (if yes, refer to product specification tab)	Reference Information
Fitting, plug, -6 ORB male, external hex	Brennan	6408-06-O	\$1.00					6408-06-O
Fitting, plug, -8 ORB male, external hex	Brennan	6408-08-O	\$1.00					6408-08-O
Fitting, straight, -4 JIC male to -4 SAE male adjustable	Brennan	6400-04-04-O	\$1.00					6400-04-04-O
Fitting, straight, -6 JIC male to -6 SAE male adjustable	Brennan	6400-06-06-O	\$2.00					6400-06-06-O
Fitting, straight, -6 JIC male to -8 SAE male adjustable	Brennan	6400-06-08-O	\$2.00					6400-06-08-O
Fitting, straight, -8 JIC male to -8 SAE male adjustable	Brennan	6400-08-08-O	\$2.00					6400-08-08-O
Fitting, 45 degree, -4 JIC male to -4 SAE male adjustable	Brennan	6802-04-04-NWO-FG	\$4.00					6802-04-04-NWO-FG
Fitting, 45 degree, -6 JIC male to -6 SAE male adjustable	Brennan	6802-06-06-NWO-FG	\$5.00					6802-06-06-NWO-FG
Fitting, 45 degree, -8 JIC male to -8 SAE male adjustable	Brennan	6802-08-08-NWO-FG	\$6.00					6802-08-08-NWO-FG
Fitting, 90 degree, -4 JIC male to -4 SAE male adjustable	Brennan	6801-04-04-NWO-FG	\$3.00					6801-04-04-NWO-FG
Fitting, 90 degree, -6 JIC male to -6 SAE male adjustable	Brennan	6801-06-06-NWO-FG	\$4.00					6801-06-06-NWO-FG
Fitting, 90 degree, -8 JIC male to -8 SAE male adjustable	Brennan	6801-08-08-NWO-FG	\$5.00					6801-08-08-NWO-FG
Fitting, 45 degree, -4 JIC male to -4 JIC female swivel	Brennan	6502-04-04-FG	\$4.00					6502-04-04-FG
Fitting, 45 degree, -6 JIC male to -6 JIC female swivel	Brennan	6502-06-06-FG	\$5.00					6502-06-06-FG
Fitting, 45 degree, -8 JIC male to -8 JIC female swivel	Brennan	6502-08-08-FG	\$5.00					6502-08-08-FG
Fitting, 90 degree, -4 JIC male to -4 JIC female swivel	Brennan	6500-04-04-FG	\$3.00					6500-04-04-FG
Fitting, 90 degree, -6 JIC male to -6 JIC female swivel	Brennan	6500-06-06-FG	\$4.00					6500-06-06-FG
Fitting, 90 degree, -8 JIC male to -8 JIC female swivel	Brennan	6500-08-08-FG	\$5.00					6500-08-08-FG
Fitting, "T", -4 JIC male - JIC female swivel - JIC male	Brennan	6602-04-04-04-FG	\$5.00					6602-04-04-04-FG
Fitting, "T", -6 JIC male - JIC female swivel - JIC male	Brennan	6602-06-06-06-FG	\$6.00					6602-06-06-06-FG
Fitting, "T", -8 JIC male - JIC female swivel - JIC male	Brennan	6602-08-08-08-FG	\$7.00					6602-08-08-08-FG
Fitting, straight reducer, -8 JIC female to -6 JIC male	Brennan	2406-08-06	\$4.00					2406-08-06
Fitting, Test Point- Accumulator Side, SAE -6 Male, M16-2 test thru	Dynamic FCI	D1620-01-06SAE	\$21.00				Test Point- Gauge Side	D1620-01-06SAE
Fitting, Test Point- Gauge Side, 1/4" NPT Female.	Dynamic FCI	DGA1620-01	\$47.00					DGA1620-01
Gauge, 0-3000 PSI, 1/4" NPT male stem, 2-1/2" diameter.	Dynamic FCI	CF-1P-210-A	\$20.00					CF-1P-210-A
Gauge, 0-3000 PSI, SAE -4 male adjustable stem, 2-1/2" diameter.	Dynamic FCI	CF-1P-210-A-SAE	\$28.00					CF-1P-210-A-SAE
Motor, Gear, 0.513 CID, Keyed Shaft .625", Bi-rotation, external drain	Danfoss	121.20.096.00	\$359.00					SNM2NN-/8.0-B-N-06-GA-M6-E5-E5-NN-N-N/-NNN-N-N
Motor, Gear, 0.659 CID, Keyed Shaft .625", Bi-rotation, external drain	Danfoss	121.20.043.00	\$365.00					SNM2NN-/011-B-N-06-GA-M6-E5-E5-NN-N-N/-NNN-N-N
Motor, Gear, 1.025 CID, Keyed Shaft .625", Bi-rotation, external drain	Danfoss	121.20.045.00	\$405.00					SNM2NN-/017-B-N-06-GA-M6-E5-E5-NN-N-N/-NNN-N-N
Pump, Gear, 0.39 CID, 9 tooth spline, CCW rotation	Danfoss	111.20.347.00	\$281.00					SNP2NN-/6.0-L-N-06-SA-P1-E6-E5-NN-N-N/-NNN-N-N
Pump, Gear, 0.39 CID, Keyed Shaft .625", CW rotation	Danfoss	111.20.370.00	\$281.00					SNP2NN-/6.0-R-N-06-GA-P1-E6-E5-NN-N-N/-NNN-N-N
Pump, Gear, 0.39 CID, 9 tooth spline, CW rotation	Danfoss	111.20.346.00	\$281.00					SNP2NN-/6.0-R-N-06-SA-P1-E6-E5-NN-N-N/-NNN-N-N
Pump, Gear, 0.513 CID, 9 tooth spline, CCW rotation	Danfoss	111.20.349.00	\$287.00					SNP2NN-/8.0-L-N-06-SA-P1-E6-E5-NN-N-N/-NNN-N-N
Pump, Gear, 0.513 CID, 9 tooth spline, CW rotation	Danfoss	111.20.348.00	\$287.00					SNP2NN-/8.0-R-N-06-SA-P1-E6-E5-NN-N-N/-NNN-N-N
Pump, Gear, 0.513 CID, Keyed Shaft .625", CW rotation	Danfoss	111.20.372.00	\$287.00					SNP2NN-/8.0-R-N-06-GA-P1-E6-E5-NN-N-N/-NNN-N-N
Pump, Gear, 0.659 CID, 9 tooth spline, CCW rotation	Danfoss	111.20.131.00	\$293.00					SNP2NN-/011-L-N-06-SA-P1-E6-E5-NN-N-N/-NNN-N-N
Pump, Gear, 0.659 CID, 9 tooth spline, CW rotation	Danfoss	111.20.130.00	\$293.00					SNP2NN-/011-R-N-06-SA-P1-E6-E5-NN-N-N/-NNN-N-N
Pump, Gear, 0.659 CID, Keyed Shaft .625", CW rotation	Danfoss	111.20.243.00	\$293.00					SNP2NN-/011-R-N-06-GA-P1-E6-E5-NN-N-N/-NNN-N-N
Transducer, 0-3626 PSI, SAE -6	Danfoss	11044547	\$93.00	2	\$186.00		Electrical Connector- Deutsch	11044547
Transducer, 0-580 PSI, SAE -6	Danfoss	11044545	\$93.00				Electrical Connector- Deutsch	11044545

