



# **POWERTRAIN**

**Program Book/Guidelines for  
Festo Products  
( Supplement for GMI-Flex, VMM,  
and Alexander )**

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Revision Date	Version No.	Document Name	Revision	Paragraph Affected	Revised By
19.06.2008	1.0	CL-F-Festo	First Version Released	ALL	Peter Pappert
21.08.2009	2.0	CL-F-Festo	Update of some products	2.1.2 and 2.1.3	Peter Pappert

## Table of Contents

<b>1.0 INTRODUCTION .....</b>	<b>4</b>
<b>1.1 SCOPE OF DOCUMENT .....</b>	<b>4</b>
<b>2.0 PRODUCT OVERVIEW .....</b>	<b>5</b>
<b>2.1 AIR PREPARATION .....</b>	<b>5</b>
2.1.1 DRIP LEG .....	6
2.1.2 AIR PREPARATION UNIT .....	6
2.1.3 MANUAL SHUT OFF VALVE .....	7
2.1.4 FILTER REGULATORS ( 5 MICRON) .....	7
2.1.5 FILTER .....	8
2.1.6 REGULATORS .....	9
2.1.7 ELECTRICAL ON/OFF VALVES .....	10
2.1.8 SOFT START VALVES .....	10
<b>2.2 ACCESSORIES .....</b>	<b>11</b>
2.2.1 GAUGES .....	11
2.2.2 SILENCERS .....	11
2.2.3 TUBING – POLYURETHANE .....	11
2.2.4 FITTINGS .....	12
2.2.5 FLOW CONTROLS – RIGHT ANGLE .....	12
2.2.6 FLOW CONTROLS – IN LINE .....	12
2.2.7 PART SEATED MODULE (SEAT CHECKER) .....	12
<b>2.3 ACTUATORS .....</b>	<b>13</b>
2.3.1 ISO 15552 CYLINDERS .....	13
2.3.2 ISO 6432 CYLINDERS .....	13
2.3.3 LOCKING CYLINDERS .....	13
2.3.4 RODLESS CYLINDERS .....	14
2.3.5 COMPACT/SHORT STROKE CYLINDERS .....	14
2.3.6 ROTARY ACTUATORS .....	14
2.3.7 GUIDED CYLINDERS .....	14
2.3.8 FLAT CYLINDERS .....	15
2.3.9 STOPPER CYLINDERS .....	15
<b>2.4 DIRECTIONAL CONTROL VALVES .....</b>	<b>16</b>
2.4.1 VTSA ISO 15407-2 (SIZE 01) 26MM MANIFOLDS .....	16
2.4.2 VTSA ISO 15407-2 (SIZE 01) 26MM INDIVIDUAL VALVES .....	17
2.4.3 VTSA ISO 15407-2 INDIVIDUAL SUBBASES .....	17
2.4.4 VTSA ISO 15407-2 ACCESSORIES .....	18
2.4.5 VTSA ISO 15407-2 SANDWICH REGULATORS .....	18
2.4.6 VSVA ISO 15407-1 DIRECTIONAL CONTROL VALVES (SIZE 01) 26MM .....	19
2.4.7 VSVA ISO 15407-1 INDIVIDUAL SUBBASES .....	19
<b>3.0 SERVICE &amp; SUPPORT .....</b>	<b>20</b>
<b>4.0 ORDERING/PROJECT/SALES INFORMATION .....</b>	<b>20</b>

## 1.0 INTRODUCTION

### 1.1 SCOPE OF DOCUMENT

This document is intended to provide Festo components approved for use on General Motors Powertrain programs.

Festo Corporation is an approved GM Powertrain source for all pneumatic products including cylinders, actuators, valves, filters, regulators, cylinder mounted proximity sensors, Fieldbus Valve/Sensor Manifolds with serial interface, as well as other miscellaneous electro-pneumatic components.

All miscellaneous pneumatic components should be selected according to application needs, under the guidance of the local Festo applications engineer and with the approval of General Motors.

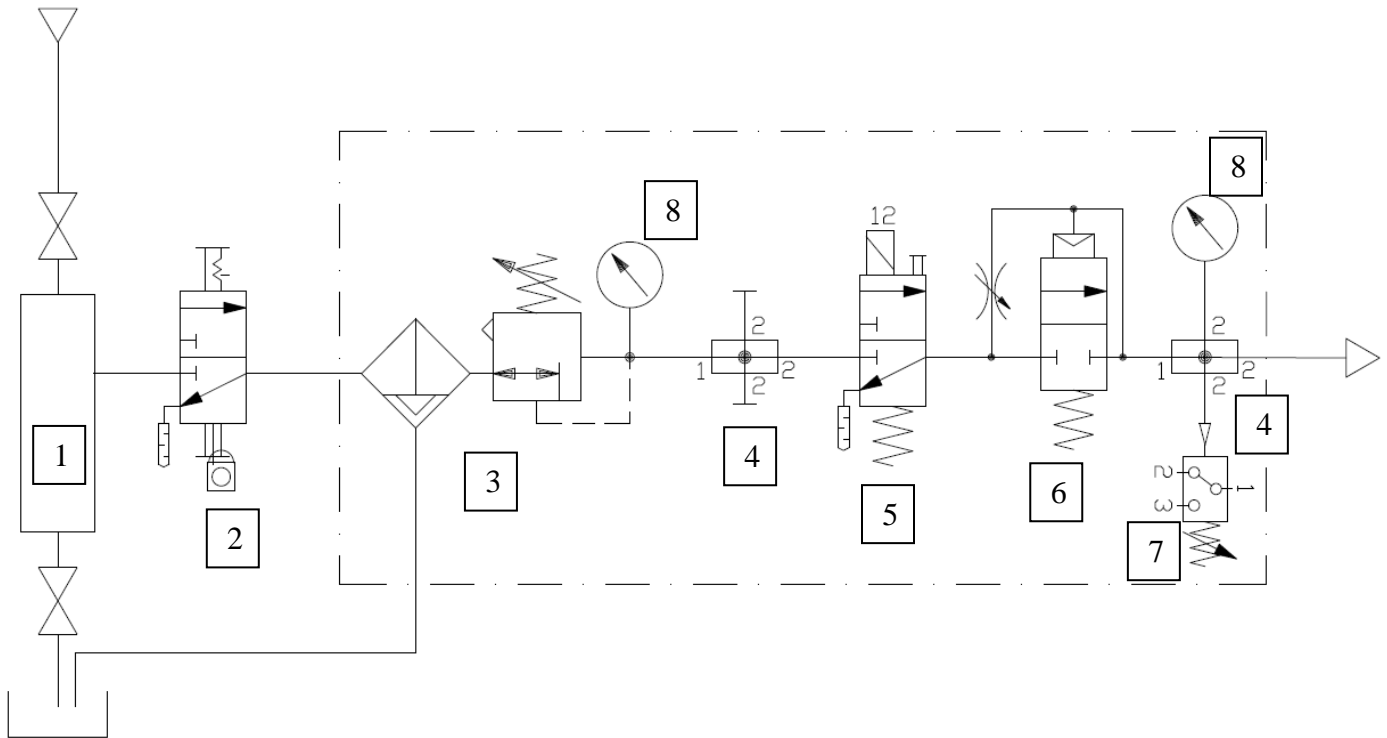
GMI-Flex Only

## 2.0 PRODUCT OVERVIEW

Air preparation module Diagram

### 2.1. AIR PREPARATION

#### Main Air Preparation Unit



1. Drip Leg
2. Manual Lockout Valve
3. Filter Regulator 5  $\mu\text{m}$
4. Branching Module
5. Electrical On-Off Valve, Pressure relief valve
6. Soft Start Valve
7. Pressure Switch
8. Pressure Gauge Red / Green

### 2.1.1. Drip Leg

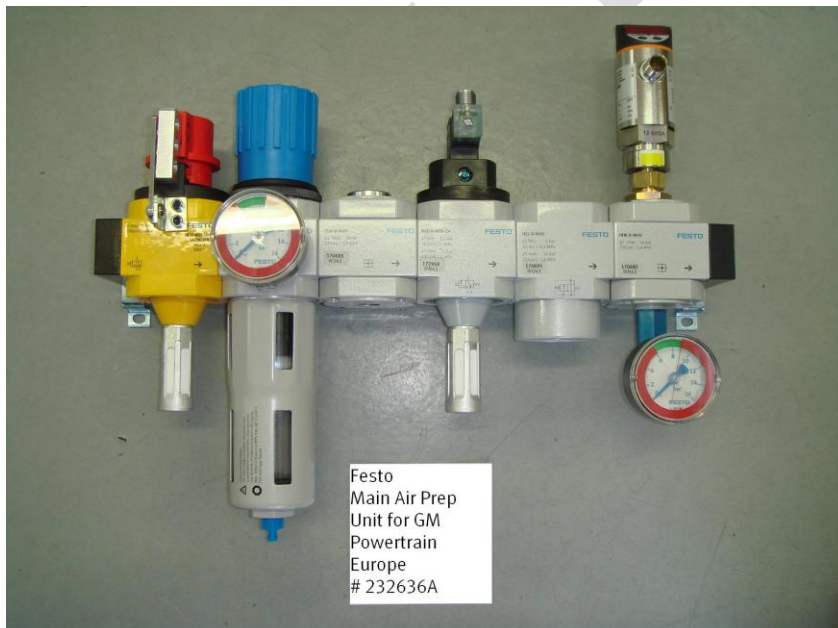
PART NUMBER	TYPE CODE	DESCRIPTION
534059	DNC-100-3/8-SA-203603	Filter to remove large pollutants, G3/8 ISO port
<b>534427</b>	<b>DNC-100-1/2-SA-203603</b>	<b>Filter to remove large pollutants, G1/2 ISO port</b>
534428	DNC-100-3/4-SA-203603	Filter to remove large pollutants, G3/4 ISO port
<b>534429</b>	<b>DNC-100-1-SA-203603</b>	<b>Filter to remove large pollutants, G1 ISO port</b>

G1/2 and G1 preferred sizes



### 2.1.2. Air RepARATION Unit

PART NUMBER	TYPE CODE	DESCRIPTION
232636-A	G1/2	<ul style="list-style-type: none"> <li>- Manual lock-out valve, triple lock, yellow/red</li> <li>- Filter regulator unit with metal bowl guard and automatic condensate drain</li> <li>- Branching module</li> <li>- Electrical on-off and press. relief valve</li> <li>- Soft-start valve for gradual pressure build-up</li> <li>- Branching module and pressure gauge (red-green)</li> <li>- Pressure switch IFM PN5004</li> </ul>
232635-A	G1	



Festo  
Main Air Prep  
Unit for GM  
Powertrain  
Europe  
# 232636A

### 2.1.3. Manual Lock-Out Valve

PART NUMBER	TYPE CODE	DESCRIPTION
566431	HE-D-Midi-SA239798	Manual operated Lock-Out valve, triple Lock Positions
543518	HE-D-Maxi-SA231224	Manual operated Lock-Out valve, triple Lock Positions

### 2.1.4. Filter-Regulator without Pressure Gauge - order Pressure Gauge separately, see 2.2.1

PART NUMBER	TYPE CODE	DESCRIPTION
192621	LFR-1/4-D-5M-O-MINI-A	Filter-Regulator, G1/4 ISO Ports, 5 Micron, Relieving, Auto Drain
192623	LFR-1/4-D-5M-O-MIDI-A	Filter-Regulator, G1/4 ISO Ports, 5 Micron, Relieving, Auto Drain
192622	LFR-3/8-D-5M-O-MINI-A	Filter-Regulator, G3/8 ISO Ports, 5 Micron, Relieving, Auto Drain
192624	LFR-3/8-D-5M-O-MIDI-A	Filter-Regulator, G3/8 ISO Ports, 5 Micron, Relieving, Auto Drain
192625	LFR-1/2-D-5M-O-MIDI-A	Filter-Regulator, G1/2 ISO Ports, 5 Micron, Relieving, Auto Drain
192626	LFR-3/4-D-5M-O-MIDI-A	Filter-Regulator, G3/4 ISO Ports, 5 Micron, Relieving, Auto Drain
192628	LFR-3/4-D-5M-O-MAXI-A	Filter-Regulator, G3/4 ISO Ports, 5 Micron, Relieving, Auto Drain
192629	LFR-1-D-5M-O-MAXI-A	Filter-Regulator, G1 ISO Ports, 5 Micron, Relieving, Auto Drain



#### Replacement Elements:

159640	LFP-D-MINI-5M	Replacement element, 5 Micron, for LFR-xx-D-5M-MINI-A
159594	LFP-D-MIDI-5M	Replacement element, 5 Micron, for LFR-xx-D-5M-MIDI-A
159641	LFP-D-MAXI-5M	Replacement element, 5 Micron, for LFR-xx-D-5M-MAXI-A

#### Mounting Components:

159638	HFOE-D-MINI	Mounting Bracket for MINI D-Series pressure regulators
159593	HFOE-D-MIDI/MAXI	Mounting Bracket for MIDI & MAXI D-Series pressure regulators
159642	FRB-D-MINI	Threaded Bolt Set for MINI D-Series air preparation equipment
159595	FRB-D-MIDI	Threaded Bolt Set for MIDI D-Series air preparation equipment
159643	FRB-D-MAXI	Threaded Bolt Set for MAXI D-Series air preparation equipment

## 2.1.5. Filter

### 5 Micron:

PART NUMBER	TYPE CODE	DESCRIPTION
162619	LF-1/4-D-5M-MINI-A	Particulate filter, 5 Micron, G 1/4 ISO ports, Auto Drain
186462	LF-1/4-D-5M-MIDI-A	Particulate filter, 5 Micron, G 1/4 ISO ports, Auto Drain
162620	LF-3/8-D-5M-MINI-A	Particulate filter, 5 Micron, G 3/8 ISO ports, Auto Drain
162621	LF-3/8-D-5M-MIDI-A	Particulate filter, 5 Micron, G 3/8 ISO ports, Auto Drain
162622	LF-1/2-D-5M-MIDI-A	Particulate filter, 5 Micron, G 1/2 ISO ports, Auto Drain
162623	LF-3/4-D-5M-MIDI-A	Particulate filter, 5 Micron, G 3/4 ISO ports, Auto Drain
162624	LF-3/4-D-5M-MAXI-A	Particulate filter, 5 Micron, G 3/4 ISO ports, Auto Drain
162625	LF-1-D-5M-MAXI-A	Particulate filter, 5 Micron, G1 ISO ports, Auto Drain
192560	LF-D-5M-MINI-A	Particulate filter, 5 Micron, Auto Drain, Without Flanges
192561	LF-D-5M-MIDI-A	Particulate filter, 5 Micron, Auto Drain, Without Flanges
192562	LF-D-5M-MAXI-A	Particulate filter, 5 Micron, Auto Drain, Without Flanges
<b>Replacement Elements:</b>		
159640	LFP-D-MINI-5M	Replacement element, 5 Micron, for LF-xx-D-5M-MINI-A
159594	LFP-D-MIDI-5M	Replacement element, 5 Micron, for LF-xx-D-5M-MIDI-A
159641	LFP-D-MAXI-5M	Replacement element, 5 Micron, for LF-xx-D-5M-MAXI-A



### 1 Micron:

PART NUMBER	TYPE CODE	DESCRIPTION
162635	LFMB-1/4-D-MINI-A	Coalescing filter, 1 Micron, G 1/4 ISO ports, Auto Drain
186468	LFMB-1/4-D-MIDI-A	Coalescing filter, 1 Micron, G 1/4 ISO ports, Auto Drain
162636	LFMB-3/8-D-MINI-A	Coalescing filter, 1 Micron, G 3/8 ISO ports, Auto Drain
162637	LFMB-3/8-D-MIDI-A	Coalescing filter, 1 Micron, G 3/8 ISO ports, Auto Drain
162638	LFMB-1/2-D-MIDI-A	Coalescing filter, 1 Micron, G 1/2 ISO ports, Auto Drain
162639	LFMB-3/4-D-MIDI-A	Coalescing filter, 1 Micron, G 3/4 ISO ports, Auto Drain
162640	LFMB-3/4-D-MAXI-A	Coalescing filter, 1 Micron, G 3/4 ISO ports, Auto Drain
162641	LFMB-1-D-MAXI-A	Coalescing filter, 1 Micron, G 1 ISO ports, Auto Drain
192572	LFMB-D-MINI-A	Coalescing filter, 1 Micron, Auto Drain, Without Flanges
192573	LFMB-D-MIDI-A	Coalescing filter, 1 Micron, Auto Drain, Without Flanges
192574	LFMB-D-MAXI-A	Coalescing filter, 1 Micron, Auto Drain, Without Flanges
<b>Replacement Elements:</b>		
162677	MS4/D-MINI-LFMB	Replacement element, 1 Micron, for LFMB-xx-D-MINI-A
162678	LFMBP-D-MIDI	Replacement element, 1 Micron, for LFMB-xx-D-MIDI-A
162679	LFMBP-D-MAXI	Replacement element, 1 Micron, for LFMB-xx-D-MAXI-A



**0.01 Micron:**

PART NUMBER	TYPE CODE	DESCRIPTION
162651	LFMA-1/4-D-MINI-A	Coalescing filter, .01 Micron, G 1/4 ISO ports, Auto Drain
186470	LFMA-1/4-D-MIDI-A	Coalescing filter, .01 Micron, G 1/4 ISO ports, Auto Drain
162652	LFMA-3/8-D-MINI-A	Coalescing filter, .01 Micron, G 3/8 ISO ports, Auto Drain
162653	LFMA-3/8-D-MIDI-A	Coalescing filter, .01 Micron, G 3/8 ISO ports, Auto Drain
162654	LFMA-1/2-D-MIDI-A	Coalescing filter, .01 Micron, G 1/2 ISO ports, Auto Drain
162655	LFMA-3/4-D-MIDI-A	Coalescing filter, .01 Micron, G 3/4 ISO ports, Auto Drain
162656	LFMA-3/4-D-MAXI-A	Coalescing filter, .01 Micron, G 3/4 ISO ports, Auto Drain
162657	LFMA-1-D-MAXI-A	Coalescing filter, .01 Micron, G 1 ISO ports, Auto Drain
192566	LFMA-D-MINI-A	Coalescing filter, .01 Micron, Auto Drain, Without Flanges
192567	LFMA-D-MIDI-A	Coalescing filter, .01 Micron, Auto Drain, Without Flanges
192568	LFMA-D-MAXI-A	Coalescing filter, .01 Micron, Auto Drain, Without Flanges



**Replacement Elements:**

162674	MS4/D-MINI-LFMA	Replacement element, .01 Micron, for LFMA-xx-D-MINI-A
162675	LFMAP-D-MIDI	Replacement element, .01 Micron, for LFMA-xx-D-MIDI-A
162676	LFMAP-D-MAXI	Replacement element, .01 Micron, for LFMA-xx-D-MAXI-A

**Note:** Coalescing filters use the same mounting components as standard particulate filters.

**2.1.6. Regulators Regulators without Pressure Gauge - order Pressure Gauge separately, see 2.2.1**

[LINK TO FESTO REGULATORS](#)

PART NUMBER	TYPE CODE	DESCRIPTION
192307	LR-1/4-D-7-O-I-MINI	Pressure Regulator, G1/4 ISO ports, Relieving
192319	LR-1/4-D-7-O-I-MIDI	Pressure Regulator, G1/4 ISO ports, Relieving
192309	LR-3/8-D-7-O-I-MINI	Pressure Regulator, G3/8 ISO ports, Relieving
192321	LR-3/8-D-7-O-I-MIDI	Pressure Regulator, G3/8 ISO ports, Relieving
192323	LR-1/2-D-7-O-I-MIDI	Pressure Regulator, G1/2 ISO ports, Relieving
192325	LR-3/4-D-7-O-I-MIDI	Pressure Regulator, G3/4 ISO ports, Relieving
192363	LR-3/4-D-7-O-I-MAXI	Pressure Regulator, G3/4 ISO ports, Relieving
192367	LR-1-D-7-O-I-MAXI	Pressure Regulator, G1 ISO ports, Relieving



<b>Mounting Components:</b>		
159638	HFOE-D-MINI	Mounting Bracket for MINI D-Series pressure regulators
159593	HFOE-D-MIDI/MAXI	Mounting Bracket for MIDI & MAXI D-Series pressure regulators
159642	FRB-D-MINI	Threaded Bolt Set for MINI D-Series air preparation equipment
159595	FRB-D-MIDI	Threaded Bolt Set for MIDI D-Series air preparation equipment
159643	FRB-D-MAXI	Threaded Bolt Set for MAXI D-Series air preparation equipment
<b>Precision Regulators:</b>		
159500	LRP-1/4-0,7	Precision Pressure Regulator, G1/4 ISO ports, control range up to 0,7 bar
162834	LRP-1/4-2,5	Precision Pressure Regulator, G1/4 ISO ports, control range up to 2,5 bar
159501	LRP-1/4-4	Precision Pressure Regulator, G1/4 ISO ports, control range up to 4 bar
159502	LRP-1/4-10	Precision Pressure Regulator, G1/4 ISO ports, control range up to 10 bar
<b>Mounting Components:</b>		
159503	HR-1/4-P	Mounting Bracket for LRP



### 2.1.7. Electrical On-Off Valves

PART NUMBER	TYPE CODE	DESCRIPTION
533763	HEE-D-MINI-24-M12	Electrical On/Off Valve, 24VDC, M12 Connection
533767	HEE-D-MIDI-24-M12	Electrical On/Off Valve, 24VDC, M12 Connection
533772	HEE-D-MAXI-24-M12	Electrical On/Off Valve, 24VDC, M12 Connection



### 2.1.8. Soft Start Valves

PART NUMBER	TYPE CODE	DESCRIPTION
170690	HEL-D-MINI	Soft Start Valve, D-Series, MINI Size
170691	HEL-D-MIDI	Soft Start Valve, D-Series, MIDI Size
170692	HEL-D-MAXI	Soft Start Valve, D-Series, MAXI Size



## 2.2. ACCESSORIES

### 2.2.1 GAUGES

PART NUMBER	TYPE CODE	DESCRIPTION
546963	MA-40-2,5-1/8-E-RG	Pressure Gauge, 0-2,5 Bar, 1/8" Red/Green Indication
525725	MA-40-10-1/8-E-RG	Pressure Gauge, 0-10 Bar, 1/8" Red/Green Indication
525726	MA-40-16-1/8-E-RG	Pressure Gauge, 0-16 Bar, 1/8" Red/Green Indication
525727	MA-50-2,5-1/4-E-RG	Pressure Gauge, 0-2,5 Bar, 1/4" Red/Green Indication
525728	MA-50-10-1/4-E-RG	Pressure Gauge, 0-10 Bar, 1/4" Red/Green Indication
525729	MA-50-16-1/4-E-RG	Pressure Gauge, 0-16 Bar, 1/4" Red/Green Indication
543488	PAGN-26-10-P10	Pressure Gauge, 0-10 Bar, Cartridge connection (For use with VTSA ISO 15407-2 Sandwich Regulators)



### 2.2.2 Silencers

PART NUMBER	TYPE CODE	DESCRIPTION
6841	U-1/8-B	Silencer G1/8"
6842	U-1/4-B	Silencer G1/4"
6843	U-3/8-B	Silencer G3/8"
6844	U-1/2-B	Silencer G1/2"
6845	U-3/4-B	Silencer G3/4"
151990	U-1-B	Silencer G1"



### 2.2.3 Tubing - Polyurethane

TUBING SERIES	DESCRIPTION	COLORS
PUN	Polyurethane - 4, 6, 8, 10, 12mm OD	Blue, ( Red see Note ),



**NOTE:** Maximum length of polyurethane tubing is 3-meters or 3-meters plus movable member.  
Red polyurethane tubing shall be used for any applications where any trapped air hazards exist.

## 2.2.4 Fittings

SERIES	DESCRIPTION	MATERIAL TYPE
QS-F	Corrosion Resistant Push-Pull Fitting	Chrome/Nickel Plated Brass; <b>G-Thread only</b>



## 2.2.5 Flow Controls (Meter-out) Right Angle

PART NUMBER	TYPE CODE	DESCRIPTION
151165	GRLA-1/8-B	Right-angle, G1/8 ISO Female Thread ,
151172	GRLA-1/4-B	Right-angle, G1/4 ISO Female Thread ,
151178	GRLA-3/8-B	Right-angle, G3/8 ISO Female Thread ,
151179	GRLA-1/2-B	Right-angle, G1/2 ISO Female Thread ,



## 2.2.6 Inline Flow Controls (Meter-out)

PART NUMBER	TYPE CODE	DESCRIPTION
151215	GR-1/8-B	One-way flow control, G1/8 Female Thread
2101	GR-1/4	One-way flow control, G1/4 Female Thread
6308	GR-3/8-B	One-way flow control, G3/8 Female Thread
3720	GR-1/2	One-way flow control, G1/2 Female Thread
2103	GR-3/4	One-way flow control, G3/4 Female Thread



## 2.2.7 Part Seated Module (Seat Checker)

SERIES	DESCRIPTION	GENERAL INFORMATION
SOPA	Air Gap Sensing Module	Distance Measurement Range 0.03-0.15mm Up to 4 Modules per Unit Digital LCD Display Micro M12 connection



## 2.3 ACTUATORS

### 2.3.1 ISO 1552 CYLINDERS

[LINK TO FESTO ISO 1552 CYLINDERS](#)

SERIES	DESCRIPTION	GENERAL INFORMATION
DNC	ISO1552 Pneumatic Cylinder, Aluminum Extrusion	32-125mm Bore Sizes 10-2000mm Stroke Lengths
DNG	ISO 1552 Pneumatic Cylinder, Tie Rod Design	32-200mm Bore Sizes 10-2000mm Stroke Lengths



### 2.3.2 ISO 6432 Cylinders

[LINK TO FESTO ISO 6432 CYLINDERS](#)

SERIES	DESCRIPTION	GENERAL INFORMATION
ESNU	ISO 6432 Single-Acting Pneumatic Cylinder	8-63mm Bore Sizes 1-50mm Stroke Lengths
DSNU	ISO 6432 Double-Acting Pneumatic Cylinder	8-63mm Bore Sizes 1-500mm Stroke Lengths



### 2.3.3 Locking Cylinder

SERIES	DESCRIPTION	GENERAL INFORMATION
DNC-...-KP	ISO 1552 Pneumatic Cylinder	32-125mm Bore Sizes 10-2000mm Stroke Lengths (Static Locking Only)
DNKCE	ISO 1552 Pneumatic Cylinder	40, 63, 100mm Bore Sizes 10-2000mm Stroke Lengths (Dynamic Locking Possible)



### 2.3.4 Rodless Cylinders

[LINK TO FESTO RODLESS CYLINDERS](#)

SERIES	DESCRIPTION	GENERAL INFORMATION
DGP DGPL (High Load)	Rodless Cylinder - Mechanically Coupled	18-80mm Bore Sizes 10-3000mm Stroke Lengths
DGC	Rodless Cylinder -With Integrated Guide	8-40mm Bore Sizes 1-2000mm Stroke Lengths
DGO: Cylinder Only SLM: Integrated Slide	Rodless Cylinder - Magnetically Coupled	DGO: 12-40mm Bore, 10-4000mm Stroke SLM: 12-40mm Bore, 10-1500mm Stroke



### 2.3.5 Compact/Short Stroke Cylinders

[LINK TO FESTO COMPACT CYLINDERS](#)

SERIES	DESCRIPTION	GENERAL INFORMATION
AEN ADN	ISO 21287 Compact Cylinder AEN = Single Acting ADN = Double Acting	12-125mm Bore Sizes 1-500mm Stroke Lengths



### 2.3.6 Rotary Actuators

[LINK TO FESTO ROTARY ACTUATORS](#)

SERIES	DESCRIPTION	GENERAL INFORMATION
DSM	Rotary Vane Actuator	6-40mm Bore Sizes
DRQD	Rotary Rack & Pinion Actuator	16-32mm Bore Sizes



### 2.3.7 Guided Cylinder

[LINK TO FESTO GUIDED CYLINDERS](#)

SERIES	DESCRIPTION	GENERAL INFORMATION
DFM	Flat Body Guided Cylinder	12-100mm Bore Sizes 10-200mm Stroke Lengths



### 2.3.8 Flat Cylinders

[LINK TO FESTO FLAT CYLINDERS](#)

SERIES	DESCRIPTION	GENERAL INFORMATION
DZH	Flat Cylinder	16-63mm Bore Sizes 1-1000mm Stroke Lengths
DZF	Flat Cylinder	12-63mm Bore Sizes 10-320mm Stroke Lengths



### 2.3.9 Stopper Cylinder

SERIES	DESCRIPTION	GENERAL INFORMATION
DFST	Heavy Duty Stopper Cylinder	50, 63, 80mm Bore Sizes Load capacity up to 800kg Adjustable & Replaceable Shock Absorber



GMI-FLEX ONLY

## 2.4 DIRECTIONAL VALVES

### 2.4.1. ISO 15407-2 SIZE 01 ( 26MM)

Profibus Manifold: 539217 VTSA-FB

**NOTE:** Verify proper configuration by using Festo Online Configuration tool.

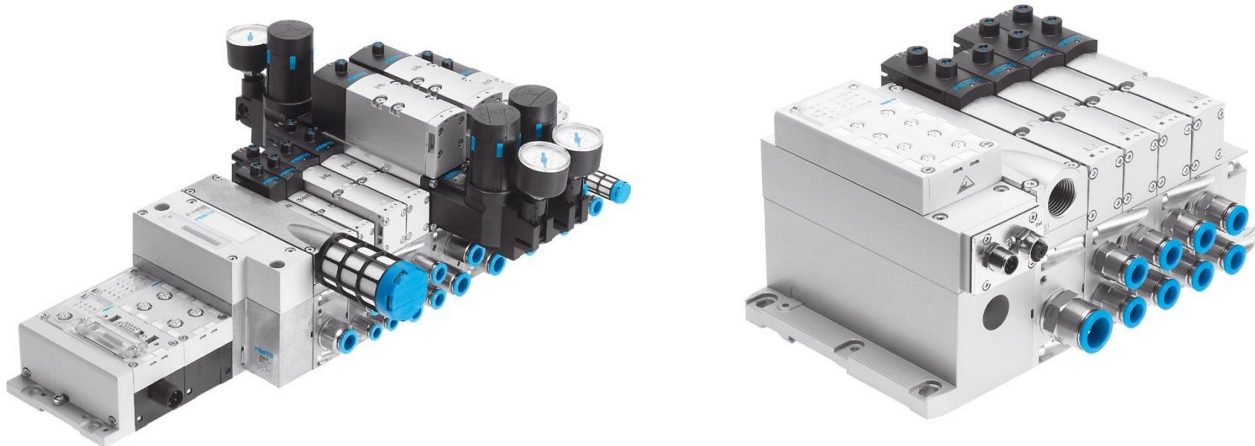
[LINK TO FESTO ISO VALVES](#)

Profibus Electrical Order Code:

**50E - F13GES - S**

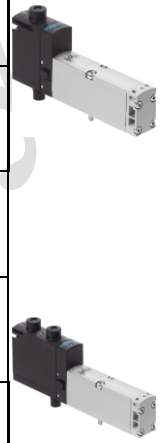
Type:  
50E = CPX Terminal

Electronic Modules (up to 9 allowed)	
Fieldbus/Input/Output Options	Connection Technology
F13 = Profibus DP Control Node	GC = without node specific connectors
E = 8 Digital Inputs	GE = Plug straight, IP65 Sub-D 9-pin, for Profibus DP
F = 4 Digital Inputs	GF = Adapter, 2xM12 B-encoded, for Profibus DP
L = 8 Digital Outputs	GO = Connecting block 2xM12, B-encoded, 5-pin for Profibus-DP
A = 4 Digital Outputs	X = Manifold block 4xM12 5-pin, double
Electrical Supply	GW = Connecting block 4xM12, 5-pin, double, metal thread
S = Interlinking block with system supply	W = Manifold block 4xM12 5-pin, double, screened
QS = Connecting block with system supply, M18, 4-pin	
QR = Connecting block with system supply, 7/8", 4-pin	
QP = Connecting block with system supply, 7/8", 5-pin	
QZ = Connecting block with additional supply, M18, 4-pin	
QX = Connecting block with additional supply, 7/8", 5-pin	



### 2.4.2. VTSA Directional Control Valves - ISO 15407-2 (Size 01)

PART NUMBER	TYPE CODE	DESCRIPTION
539159	VSVA-B-M52-MZD-A1-1T1L	ISO Size 01 (26mm) 5/2 Valve Single Solenoid Mechanical Spring Return
539156	VSVA-B-B52-ZD-A1-1T1L	ISO Size 01 (26mm) 5/2 Valve Double Solenoid Pilot
539161	VSVA-B-P53E-ZD-A1-1T1L	ISO Size 01 (26mm) 5/3 Valve Double Solenoid Exhausted Center
539160	VSVA-B-P53U-ZD-A1-1T1L	ISO Size 01 (26mm) 5/3 Valve Double Solenoid Pressurized Center
539152	VSVA-B-T32U-AZD-A1-1T1L	ISO Size 01 (26mm) 2x3/2 Valve Normally Passing
539150	VSVA-B-T32C-AZD-A1-1T1L	ISO Size 01 (26mm) 2x3/2 Valve Normally Non-Passing
539154	VSVA-B-T32H-AZD-A1-1T1L	ISO Size 01 (26mm) 2x3/2 Valve 1x Normally Pass., 1 x Normally Non-P



### 2.4.3. VTSA ISO 15407-2 Individual Subbases

PART NUMBER	TYPE CODE	DESCRIPTION
541069	VABS-S4-1S-G14-B-R3	ISO Size 01 Subbase, G1/4 ISO Threads, Internal Pilot, M12 Connector
541063	VABS-S4-1S-G14-R3	ISO Size 01 Subbase, G1/4 ISO Threads, External Pilot, M12 Connector



#### 2.4.4. VTSA ISO 15407-2 Accessories

PART NUMBER	TYPE CODE	DESCRIPTION
539234	VABE-S6-1R-G12	VTSA Right-hand end plate, G1/2 ISO Thread (1, 3, 5 ports), G1/4 ISO Thread (14, 12 ports), Internal Pilot
539236	VABE-S6-1RZ-G12	VTSA Right-hand end plate, G1/2 ISO Thread (1, 3, 5 ports), G1/4 ISO Thread (14, 12 ports), External Pilot
549046	VABE-S6-LT-C-S6-R5	VTSA Left-hand Mutlipole node, 6 M12 Connectors, capable of controlling 12 solenoids
549037	VABE-S6-LT-C-S10-R5	VTSA Left-hand Mutlipole node, 10 M12 Connectors, capable of controlling 20 solenoids
539220	VABV-S4-1S-G14-2T2	ISO Size 01 Manifold Slice, G1/4 ISO Thread, 4 Solenoid Addresses
539222	VABV-S4-1S-G14-2T1	ISO Size 01 Manifold Slice, G1/4 ISO Thread, 2 Solenoid Addresses
539238	VABE-S6-1RZ-G-B1	Endplate with pilot air selector
539231	VABF-S6-10-P1A7-G12	Supply Plate with exhaust plate
539230	VABF-S6-10-P1A6-G12	Supply plate with exhaust port cover
540171	VABF-S4-1-P1A3-G14	Vertical supply plate
540175	VABF-S4-1-F1B1-C	Flow control plate
542885	VABF-S4-1-L1D1-C	Vertical shut-off plate
539721	VABF-S4-1-A2G2-G14	ISO Size 01, 90° Connection Plate, G1/4 ISO Thread
539212	VABB-S4-1-WT	ISO Size 01 Blanking Plate



#### 2.4.5. VTSA ISO 15407-2 Sandwich regulators

PART NUMBER	TYPE CODE	DESCRIPTION
540175	VABF-S4-1-F1B1-C	ISO Size 01 Sandwich Flow Control
540154	VABF-S4-1-R1C2-C-10	ISO Size 01 Sandwich Regulator, P (1) Port, 0-10 Bar
540158	VABF-S4-1-R3C2-C-10	ISO Size 01 Sandwich Regulator, A (4) Port, 0-10 Bar
540162	VABF-S4-1-R2C2-C-10	ISO Size 01 Sandwich Regulator, B (2) Port, 0-10 Bar
540166	VABF-S4-1-R4C2-C-10	ISO Size 01 Dual Sandwich Regulator, A/B (2/4) Port, 0-10 Bar
540152	VABF-S4-1-R1C2-C-6	ISO Size 01 Sandwich Regulator, P (1) Port, 0-6 Bar
540156	VABF-S4-1-R3C2-C-6	ISO Size 01 Sandwich Regulator, A (4) Port, 0-6 Bar
540160	VABF-S4-1-R2C2-C-6	ISO Size 01 Sandwich Regulator, B (2) Port, 0-6 Bar
540164	VABF-S4-1-R4C2-C-6	ISO Size 01 Dual Sandwich Regulator, A/B (2/4) Port, 0-6 Bar
546253	VABF-S4-1-R7C2-C-10	ISO Size 01 Sandwich Regulator, A (4) Port, 0-10 Bar
546249	VABF-S4-1-R7C2-C-6	ISO Size 01 Sandwich Regulator, A (4) Port, 0-6 Bar



#### 2.4.6. VSVA Directional Control Valves -15407-1 (Sizes 01)

PART NUMBER	TYPE CODE	DESCRIPTION
534556	VSVA-B-M52-MH-A1-1R5L	5/2, single solenoid
534546	VSVA-B-M52-MZH-A1-1R5L	5/2, single solenoid, external
534557	VSVA-B-B52-H-A1-1R5L	5/2, double solenoid
534547	VSVA-B-B52-ZH-A1-1R5L	5/2, double solenoid, external
534561	VSVA-B-P53U-H-A1-1R5L	5/3-way, pressurised
534551	VSVA-B-P53U-ZH-A1-1R5L	5/3-way, pressurised, external
534559	VSVA-B-P53C-H-A1-1R5L	5/3-way, closed
534549	VSVA-B-P53C-ZH-A1-1R5L	5/3-way, closed, external
534560	VSVA-B-P53E-H-A1-1R5L	5/3-way, exhausted
534550	VSVA-B-P53E-ZH-A1-1R5L	5/3-way, exhausted, external
534552	VSVA-B-T32C-AH-A1-1R5L	2 x 3/2-way, closed
534542	VSVA-B-T32C-AZH-A1-1R5L	2 x 3/2-way, closed, external
534553	VSVA-B-T32U-AH-A1-1R5L	2 x 3/2-way, open
534543	VSVA-B-T32U-AZH-A1-1R5L	2 x 3/2-way, open, external
534554	VSVA-B-T32H-AH-A1-1R5L	2 x 3/2-way, 1 open, 1 closed
534544	VSVA-B-T32H-AZH-A1-1R5L	2 x 3/2-way, 1 open, 1 closed, external



#### 2.4.7. ISO 15407-1 Individual Sub bases

PART NUMBER	TYPE CODE	DESCRIPTION
161109	NAS-1/4-01-VDMA	Individual sub-base
161102	NAW-1/4-01-VDMA	Manifold sub-base
161104	NEV-01-VDMA	End plate kit
161107	NDV-01-VDMA	Blanking plate
161105	NSC-1/2-01-VDMA	Isolating disc Port 1,2,3
161106	NSC-1/8-01-VDMA	Isolating disc Port 12 and 14



### 3.0 SERVICE & SUPPORT

#### TECHNICAL SUPPORT

	NORTH AMERICA	EUROPE	EAST ASIA
<b>Company</b>	<b>Festo Corporation</b>	<b>Festo AG &amp; Co. KG</b>	<b>Festo Korea Co, Ltd.</b>
<b>Address</b>	2601 Cambridge Court Suite 320 Auburn Hills, MI 48326	Ruiter Strasse 82  Esslingen, Germany 73734	470-, Kasan Dong Kumchun-Ku Seoul, Korea
<b>Phone</b>	++1 248-340-1778	++49 (0) 711-347-2030	++82 2-850-7275
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<b>Fax</b>	++1 248-340-1790	++49 (0) 711-347-542030	++82 2-864-7040
<b>E-Mail</b>	Mark.Kuenzel@us.festo.com Bryan.Morehouse@us.festo.com	thw@de.festo.com	Kr0smcho@festo.com

### 4.0 ORDERING/PROJECT/SALES INFORMATION

#### ORDERING INSTRUCTIONS

All orders must be placed directly through the nearest Authorized Festo Sales Representative.

#### PROJECT AND SALES CONTACTS

	NORTH AMERICA	EUROPE	EAST ASIA
<b>Address</b>	<b>Festo Corporation</b>  2601 Cambridge Court Suite 320 Auburn Hills, MI 488326	<b>Festo AG &amp; Co. KG</b>  Ruiter Str 82  Esslingen, Germany 73734	<b>Festo K.K.</b>  470-, Kasan Dong Kumchun-Ku Seoul, Korea
<b>Project Contact</b>	Dennis Adams	Peter Pappert	Joong-Hee Kim
<b>Phone</b>	++1 586-419-7501	++49 (0) 711-347-3627	++82 2-850-7360
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