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Standard Products Catalog (Industrial Markets)

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1. All Electric Governors

All electric governor systems consist of five major components, one from each of the following categories: Actuator, Speed Control, Magnetic Pickup, Wiring Harness, and Installation Kit. The EPG systems may be expanded by including one or more items from the Electronic Accessories Category.

Steady State Torque Output:

- Model I—1.3 N·m / 11.5 lb-in
- Model II—2.6 N·m / 23 lb-in
- Model III—5.2 N·m / 46 lb-in
- Model IV—10.4 N·m / 92 lb-in

| | Part Number |
|---|-------------|
| 1. ProAct™ ISC (Integrated Speed Control) Actuators/Throttle Bodies | |
| A. PISC Speed Control | |
| Model I | 8404-203 |
| Model II | 8404-204 |
| Model III | 8404-213 |
| Model IV | 8404-214 |
| B. PISC Integrated Throttle Bodies | |
| PISC II, 137 mm, 85 °C flow medium max. temp. | 8235-198 |
| PISC II, 137 mm, 205 °C flow medium max. temp. | 8235-361 |
| PISC II, 139 mm, 85 °C flow medium max. temp. | 8235-305 |
| PISC II, 152 mm, 205 °C flow medium max. temp. | 8235-339 |
| PISC II, 154 mm, 205 °C flow medium max. temp. | 8235-337 |
| PISC III, 169 mm, 100 °C flow medium max. temp. | 8235-351 |
| PISC III, 178 mm, 85 °C flow medium max. temp. | 8235-360 |
| PISC III, 180 mm, 85 °C flow medium max. temp. | 8235-350 |
| 2. ProAct™ Accessories | |
| Connector ProAct ISC | 1635-1113 |
| Lever Kit .625-36 | 5394-181 |
| 3. Flo-Tech™ Speed Controls/Actuators/Throttle Bodies | |
| A. Flo-Tech Speed Controls | |
| 12 Vdc Speed Control | 8290-196 |
| 24 Vdc Speed Control | 8290-195 |
| Contact channel partner or sales support engineer for throttle body sizing or for other applications. | |
| B. Flo-Tech Actuators with Integral Throttle Bodies | |
| Preferred: | |
| 33 mm bore, Packard Connector, PWM | 8235-132 |
| 75 mm bore, Deutsch Connector, PWM | 8235-147 |
| Non-Preferred: | |
| 33 mm bore, Packard Connector, 4-20 mA | 8235-163 |
| 60 mm bore, Deutsch Connector, 0-200 mA | 8235-166 |
| 68 mm bore, Deutsch Connector, 0-200 mA | 8235-145 |
| 68 mm bore, Packard Connector, 0-200 mA | 8235-152 |
| 68 mm bore, Bendix Connector, 0-200 mA | 8235-153 |
| 75 mm bore, Deutsch Connector, 0-200 mA | 8235-146 |
| 4. EPG | |
| A. Actuator | |
| Model 512, 12 Vdc | 8256-022 |
| Model 524, 24 Vdc | 8256-021 |
| Model 1712, 12 Vdc | 8256-017 |
| Model 1724, 24 Vdc | 8256-016 |

| | Part Number |
|--|-------------|
| B. Speed Control (Isochronous) | |
| The following part numbers represent a 3000–6000 Hz range; contact Woodward for part numbers of different speed ranges. All have Start Fuel Limit. | |
| 12 Vdc, 512 or 1712 SC for Diesel or Turbine | 8290-186 |
| 12 Vdc, 512 or 1712 SC for Natural Gas or Gasoline | 8290-187 |
| 24 Vdc, 524 or 1724 SC for Diesel or Turbine | 8290-184 |
| 24 Vdc, 524 or 1724 SC for Natural Gas or Gasoline | 8290-185 |
| 24 Vdc, 4024 Speed Control for Diesel or Turbine | 8290-148 |
| 24 Vdc, 4024 Speed Control for Natural Gas or Gasoline | 8290-147 |
| C. Speed Control (Droop) For 512/524 and 1712/1724 Series Systems | |
| The following part numbers represent a 3000–6000 Hz range; contact Woodward for part numbers of different speed ranges. | |
| 12 Vdc, Diesel or Turbine | 8290-192 |
| 24 Vdc, Diesel or Turbine | 8290-191 |
| 24 Vdc, Natural Gas or Turbine | 8290-045 |
| D. Wiring Harness | |
| 10 ft.–MPU, 15 ft.–Actuator, 15 ft.–Battery | 8924-621 |
| 15 ft.–MPU, 25 ft.–Actuator, 25 ft.–Battery | 8924-620 |
| 25 ft.–MPU, 30 ft.–Actuator, 30 ft.–Battery | 8924-645 |
| E. Linkage Kit (EPG Actuators) | |
| General Linkage Kit, (1712/1724) 1 Lever, (3960-059) 2 Rod Ends, 16" .250 Rod | 8924-414 |
| General Linkage Kit, (1712/1724) 1 Lever, (3979-007) 2 Rod Ends, 16" .312 Rod | 8924-370 |
| Lever 4024, EG-10P (.5x36 Serrations) | 3699-027 |
| F. Installation Kits (Kits do not include actuator, speed control, MPU or wiring harness.) | |
| ENGINES EQUIPPED WITH ROBERT BOSCH FUEL PUMPS | |
| Bosch RS/RSV Governor on LH side of engine | 8924-595 |
| CATERPILLAR ENGINES (1712, 1724, OR 4024 ONLY) | |
| D3304, 3306 CAT Mechanical Governor (before 1982) | 8924-601 |
| 3208, CAT Mechanical Governor | 8924-608 |
| 3406, B Series Fuel System (after 1982) | 8924-782 |
| 3306, B Series Fuel System (after 1982) | 8924-642 |
| 3408B, 3412B (4024) Speed Setting Lever | 8924-743 |
| CUMMINS ENGINES (1712, 1724 UNLESS OTHERWISE NOTED) | |
| N/NT/NTA-855 | 8924-604 |
| KT/KTA-38 GS & KTA-50 GS | 8924-607 |
| DETROIT DIESEL ENGINES (1712, 1724 UNLESS OTHERWISE NOTED) | |
| V71 (12 cyl. max) or V92 (8 cyl. max) | 8924-863 |
| V71 16 cylinder or V92 12 or 16 cylinder (4024) | 8923-072 |
| V149 (4024) | 8923-071 |
| 3, 4-71 (Exhaust on Left, 512/524) | 8924-862 |
| 3, 4, 6-71 Inline, (Exhaust on Right, 1712/1724) | 8924-584 |
| 3, 4, 6-71 Inline, (Exhaust on Left, 1712/1724) | 8924-591 |

2. Turbine Controls and Associated Devices

| | Part Number |
|---|-------------|
| 1. 2301E-ST Steam Turbine Controls | |
| 2301E-ST – Steam Turbine Control | 8273-1013 |
| 2301E-ST – Steam Turbine Control, CSA Hazardous Loc | 8273-1014 |
| 2. Peak200 Steam Turbine Controls | |
| Peak200 - Bulkhead Mount, LV | 8200-1500 |
| Peak200 - Bulkhead Mount, HV | 8200-1501 |
| Peak200 - Bulkhead Mount, LV, ATEX | 8200-1502 |
| Peak200 - Front Panel Mount, LV | 8200-1503 |
| Peak200 - Front Panel Mount, HV | 8200-1504 |
| Peak200 - Front Panel Mount, LV, ATEX | 8200-1505 |
| Peak200 – Bulkhead Mount, LV, Hazardous Location, INMETRO cert | 8200-1506 |
| Peak200 – Front Panel Mount, LV, Hazardous Location, INMETRO cert | 8200-1507 |
| Peak200 – Bulkhead Mount, HV, N.A. Class1, Div2 Loc Compliant | 8200-1508 |
| Peak200 – Front Panel Mount, HV, N.A. Class1, Div2 Loc Compliant | 8200-1509 |

Auxiliaries

| | |
|---|-----------|
| LinkNet-HT Analog 4-20 mA Module (8 AI and 2 AO) | 8200-1203 |
| LinkNet-HT RTD Module (8 RTD Inputs) | 8200-1200 |
| LinkNet-HT Discrete Input Module (16 DIs) | 8200-1204 |
| LinkNet-HT Discrete Output Module (16 DOs) | 8200-1205 |
| RemoteView Software License | 8928-5311 |
| Software Feature Pack License (Enables added I/O, Multilingual Screens, Event Log, Data log) | 8447-5004 |
| Vibration Sensor, Accelerometer | 8928-7482 |
| Proximity Vibration Sensor – Refer to SEC of America website | SEC PN |

3. 505 Steam Turbine Controls

| | |
|--|-----------|
| 505 - LVDC, Ordinary Location | 8200-1300 |
| 505 - HVAC/DC, Ordinary Location | 8200-1301 |
| 505 - LVDC, Zone-2 Hazardous Location | 8200-1302 |
| 505-XT - LVDC, Ordinary Location | 8200-1310 |
| 505-XT - HVAC/DC, Ordinary Location | 8200-1311 |
| 505-XT - LVDC, Zone-2 Hazardous Location | 8200-1312 |

Accessories:

| | |
|--|----------------|
| RemoteView - Software License | 8928-5311 |
| Old 505 to New 505 Retrofit Wiring Kit | 5404-1801 |
| Vibration Sensor - 4-20mA Accelerometer, 16' cable | 8928-7482 |
| Vibration Sensors - 4-20mA Proximity | SEC of America |

4. 5009XT Steam Turbine Controls

| | |
|----------------------------|-----------|
| 5009XT w/ 2 120 V AC/DC PS | 8262-1141 |
| 5009XT w/ 2 220 VAC PS | 8262-1142 |
| 5009XT w/ 2 24 VDC PS | 8262-1143 |

Part Number

5. Standard MicroNet Turbine Control Kits

| | |
|--|-----------|
| Standard MicroNet Turbine Kit, 8-Slot, 2 120 V AC/DC PS, Relay Drivers | 8262-1093 |
| Standard MicroNet Turbine Kit, 8-Slot, 2 220 VAC PS, Relay Drivers | 8262-1094 |
| Standard MicroNet Turbine Kit, 8-Slot, 2 24 VDC PS, Relay Drivers | 8262-1095 |
| Standard MicroNet Turbine Kit, 8-Slot, 2 120 V AC/DC PS, Relays | 8262-1106 |
| Standard MicroNet Turbine Kit, 8-Slot, 2 220 VAC PS, Relays | 8262-1107 |
| Standard MicroNet Turbine Kit, 8-Slot, 2 24 VDC PS, Relays | 8262-1108 |

6. GTC Gas Turbine Controls

| | |
|---|-----------|
| GTC100-1 Shaft GT, Dual Fuel, PowerSense Module | 8262-1001 |
| GTC200-2 Shaft GT, Dual Fuel, 1-Analog Module | 8262-1002 |
| GTC250A-FC - 2 Shaft Aero Type Gas Turbine Fuel Control | 8262-1036 |

7. Servo Position Controllers (replace Digital Remote Final Drivers)

| | |
|--|--------------------|
| SPC - Configurable Servo/Actuator Driver, Marine Certified | 8200-226 |
| SPC - Configurable Servo/Actuator Driver, CANOpen Comm | 8200-227 |
| Optional Mounting Bracket - Vertical | 8928-7334 |
| | Part Number |

8. ProTech® Overspeed Protection Devices

| | |
|--|-----------|
| ProTech-SX | |
| ProTech-SX - Panel Mount, HV/LV | 8237-1242 |
| ProTech-SX - Panel Mount, HV/HV | 8237-1243 |
| ProTech-GII | |
| ProTech-GII - Bulkhead Mount, HV/LV, Ind relay | 8237-2594 |
| ProTech-GII - Bulkhead Mount, HV/HV, Ind relay | 8237-2595 |
| ProTech-GII - Bulkhead Mount, HV/LV, voted relays | 8237-2596 |
| ProTech-GII - Bulkhead Mount, HV/HV, voted relays | 8237-2597 |
| ProTech-GII - Panel Mount, HV/LV, Ind relay | 8237-2598 |
| ProTech-GII - Panel Mount, HV/HV, Ind relay | 8237-2599 |
| ProTech-GII - Panel Mount, HV/LV, voted relays | 8237-2600 |
| ProTech-GII - Panel Mount, HV/HV, voted relays | 8237-2601 |
| ProTech TPS | |
| ProTech TPS - Bulkhead Mount, HV/LV, Ind relay | 8237-2602 |
| ProTech TPS - Bulkhead Mount, HV/HV, Ind relay | 8237-2603 |
| ProTech TPS - Bulkhead Mount, HV/LV, voted relays | 8237-2604 |
| ProTech TPS - Bulkhead Mount, HV/HV, voted relays | 8237-2605 |
| ProTech TPS - Panel Mount, HV/LV, Ind relay | 8237-2606 |
| ProTech TPS - Panel Mount, HV/HV, Ind relay | 8237-2607 |
| ProTech TPS - Panel Mount, HV/LV, voted relays | 8237-2608 |
| ProTech TPS - Panel Mount, HV/HV, voted relays | 8237-2609 |
| MicroNet Safety Module | |
| MicroNet Safety Module - Bulkhead Mount, HV/LV, Ind relay | 8237-2492 |
| MicroNet Safety Module - Bulkhead Mount, HV/HV, Ind relay | 8237-2493 |
| MicroNet Safety Module - Bulkhead Mount, HV/LV, voted relays | 8237-2496 |
| MicroNet Safety Module - Bulkhead Mount, HV/HV, voted relays | 8237-2497 |
| MicroNet Safety Module - Panel Mount, HV/LV, Ind relay | 8237-2494 |
| MicroNet Safety Module - Panel Mount, HV/HV, Ind relay | 8237-2495 |
| MicroNet Safety Module - Panel Mount, HV/LV, voted relays | 8237-2498 |
| MicroNet Safety Module - Panel Mount, HV/HV, voted relays | 8237-2499 |
| Conversion Kits | |
| Old ProTech-GII models to new ProTech-GII models - Refer to PCN 06946 for details/limitations | 8929-039 |
| Old ProTechTPS models to new Input Voting ProTechTPS - Refer to PCN 06947 for details/limitations | 8929-037 |
| Old MicroNet Safety Module models to new Input Voting models - Refer to PCN 06948 for details/limitations | 8929-038 |

3. Compressor Controls and Associated Devices

| | Part Number |
|---|-------------|
| 1. Vertex Controllers | |
| Vertex – Front Panel Mount – OCP, LV | 8200-1370 |
| Vertex – Front Panel Mount – OCP, HV | 8200-1371 |
| Vertex – Front Panel Mount – OCP, LV, Hazardous Loc Ratings | 8200-1372 |
| Vertex – Back Panel Mount, LV | 8200-1380 |
| Vertex – Back Panel Mount, HV | 8200-1381 |
| Vertex – Back Panel Mount, LV, Hazardous Location Ratings | 8200-1382 |
| Auxiliaries | |
| Distributed I/O Module - RTCnet RTD (100/200ohm) | 8200-1100 |
| Distributed I/O Module - RTCnet T/C (Fail High) | 8200-1101 |
| Distributed I/O Module - RTCnet AIO Loop power | 8200-1103 |
| Distributed I/O Module - RTCnet DIN (16ch) | 8200-1104 |
| Distributed I/O Module - RTCnet DOUT (16ch) | 8200-1105 |
| RemoteView Software License | 8928-5311 |
| Vibration Sensor, Accelerometer | 8928-7482 |
| Vibration Sensor, Proximity – Refer to SEC of America website | SEC PN |

4. Electronic Controls

| | Part Number |
|--|-------------|
| 1. 2301E Electronic Load Sharing and Speed Controls | |
| 2301E – Engine LSSC, 24 Vdc Input, Ordinary Locations | 8273-1011 |
| 2301E – Engine LSSC, 24 Vdc Input, Hazardous Locations | 8273-1012 |
| 2. 2300E Electronic Load Sharing and Speed Controls | |
| 2300E – Hardware Only, Ordinary Locations | 8273-1017 |
| 2300E – Hardware Only, Hazardous Locations | 8273-1018 |
| 3. 723PLUS Controls | |
| 723PLUS Control/Power Generation: | |
| DSL/MSLC load sharing, high voltage/low speed | 8280-467 |
| DSL/MSLC load sharing, low voltage | 8280-412 |
| DSL/MSLC load sharing, high voltage | 8280-413 |
| Analog load sharing, low voltage | 8280-414 |
| Analog load sharing, high voltage | 8280-415 |
| Analog load sharing, low voltage/low speed | 8280-480 |
| Analog load sharing, high voltage/low speed | 8280-481 |
| DSL/MSLC Gateway w/ CMNDS, low voltage | 8280-416 |
| DSL/MSLC Gateway w/ CMNDS, high voltage | 8280-417 |
| 723PLUS Control/Marine: | |
| Single engine marine propulsion, low voltage/low speed | 8280-418 |
| Single engine marine propulsion, low voltage | 8280-419 |
| Dual engine marine load sharing, low voltage | 8280-423 |
| 723PLUS Control/Industrial: | |
| Variable speed/process control, low voltage | 8280-464 |
| Variable speed control, low voltage | 8280-410 |

| | Part Number |
|--|-------------|
| 723PLUS Position Control: 20–160 mA actuator | 8262-092 |
| Handheld Programmer for 723PLUS | 9907-205 |
| 4. 828 Control (723PLUS) Hardware Platform for Distributors | |
| 828 Low Voltage, Hardware Only | 9907-247 |
| 828 High Voltage, Hardware Only | 9907-248 |

| | Part Number |
|---------------------------------|-------------|
| 5. Atlas Platform | |
| AtlasSC | 8273-040 |
| AtlasSC - 1 Analog I/O Module | 8273-041 |
| Atlas-II | 8273-584 |
| Atlas-II - 1 Analog I/O Module | 8273-565 |
| Atlas-II - 2 Analog I/O Modules | 8273-571 |
| Atlas-II - 3 Analog I/O Modules | 8273-555 |

6. Flex500 Platform

Flex500 Controls

| | |
|--|-----------|
| Flex500 – Front Panel Mount, LVDC, OCP | 8200-1340 |
| Flex500 – Front Panel Mount, HVAC/DC, OCP | 8200-1341 |
| Flex500 – Front Panel Mount, LVDC, Zone-2, OCP | 8200-1342 |
| Flex500 – Back Panel Mount, LVDC | 8200-1350 |
| Flex500 – Back Panel Mount, HVAC/DC | 8200-1351 |
| Flex500 – Back Panel Mount, LVDC, Zone-2 | 8200-1352 |

Auxiliaries

| | |
|--|-------------------------|
| CSM - 505XT Core Source License | 8447-5006 |
| CSM - Vertex Core Source License (Core Software Licenses allow CSMs to programmed and ran on a Flex500 controller) | 8447-5008 |
| LinkNet-HT and RTCNet modules: | Refer to Section 4.8.10 |
| GAP, CIS, RemoteView, & NetSim software programs | Refer to Chapter 5 |
| Vibration Sensor, Accelerometer | 8928-7482 |

| | Part Number |
|---|-------------|
| 7. Engine System Custom Controls (733, 766, In-Pulse™ 2, ECM3) | |
| 733 Custom Control | 8237-1177 |
| 766 Custom Control | 8237-1179 |

8. MicroNet™ System Modules, Cables, & Accessories

Note: Part numbers with the field shaded green are preferred part numbers

| Description | Part Numbers | Notes | Field Termination Modules | Cable Selection Table |
|--|--------------|---|---------------------------|-----------------------|
| 8.1 Chassis | | | | |
| Micronet Plus 8 Slot Chassis | 5453-829 | | | |
| Micronet Plus 14 Slot Chassis | 5453-759 | | | |
| MicroNet TMR Chassis | 5453-279 | | | |
| MicroNet TMR Power Supply Chassis | 5453-277 | Connect to Main chassis using 5416-977 ribbon cable and redundant 5417-293 power supply interconnect cable. | | |
| Blank Module - 1" blank module to divert cooling | 3799-301 | | | |

| Description | Part Numbers | Notes | Field Termination Modules | Cable Selection Table |
|--|--------------|------------------------|---------------------------|-----------------------|
| 8.2 Power Supplies | | | | |
| MicroNet Plus PS - 24 Vdc Input | 5466-1000 | | | |
| MicroNet Plus PS - 110Vac/125Vdc Input | 5466-1001 | | | |
| MicroNet Plus PS - 220Vac Input | 5466-1002 | | | |
| MicroNet TMR PS - 24 Vdc Input | 5501-370 | | | |
| MicroNet TMR PS - 120 Vac/Vdc Input | 5501-380 | | | |
| MicroNet TMR PS 0 220 Vac Input | 5501-381 | | | |
| MicroNet TMR Kernel PS | 5466-1049 | Only used with CPU5200 | | |

| | | | | |
|--|-----------|---|--|--|
| 8.3 CPU Modules | | | | |
| 5200CPU MicroNet Plus - Secure Application | 5466-1141 | Use with 5466-1246 RTN Expansion Rack Module | | |
| 5200CPU MicroNet Plus (Cyber-Security) LICENSED | 5466-1145 | Use with 5466-1146 RTN Expansion Rack Module, Includes cyber security license 8928-5222 | | |
| 5200CPU MicroNet Plus - Enhanced Performance | 5466-1245 | Use with 5466-1246 RTN Expansion Rack Module | | |
| 5200CPU MicroNet TMR | 5466-1347 | Use with 5466-1246 RTN Expansion Rack Module, requires 5466-1049 Kernel P.S. | | |
| 5200CPU MicroNet TMR (Preferred) | 5466-1247 | Use with 5466-1246 RTN Expansion Rack Module, requires 5466-1049 Kernel Power Supply | | |
| P1020CPU MicroNet Plus (High Perf, Cyber Security) | 5466-1510 | Use with 5466-1246 RTN Expansion Rack Module | | |
| P1020CPU MicroNet Plus (Secure Applications) | 5466-1520 | Use with 5466-1246 RTN Expansion Rack Module | | |

| | | | | |
|--|-----------|---|--|--|
| 8.4 Communication Modules | | | | |
| RTN to CAN Gateway (bulkhead mount Atlas based) | 8200-1250 | CAN to RTN Gateway Interface | | |
| RTN Gateway – 10 CAN, Enhanced | 8200-1252 | | | |
| RTN Gateway – 10 CAN, Cyber | 8200-1253 | | | |
| Remote RTN (MicroNet Plus) (Cyber-Security) LICENSED | 5466-1146 | Real Time Network XCVR (Cyber-security) - Use with 5466-1145 style of CPU | | |

| Description | Part Numbers | Notes | Field Termination Modules | Cable Selection Table |
|--|--------------|---|---------------------------|-----------------------|
| Remote RTN (MicroNet Plus) - Secure Application | 5466-1246 | Real Time Network XCVR (Cyber-security) - Use with 5466-1141 & 5466-1245 CPUs | | |
| SIO Module - , 4 Channel, two RS232, two configurable (RS232, RS422, RS485), Screw posts | 5501-5006 | Connectors use DB-9 screw post connectors | | Table I |
| SIO Module - , 4 Channel, two RS232, two configurable (RS232, RS422, RS485), Slide Locks | 5466-5007 | Connectors use DB-9 with slide lock posts | | Table I |

8.5 Input Modules

| | | | | |
|--|-----------|---|--------------------|---------|
| Discrete Input - 48 channel, 24 VDC | 5464-643 | 24 Vdc w/o LEDs, common bus, Requires 2 FTM's & 1 cable to each FTM. Total of 2 cables. | 5437-419, 5437-687 | Table K |
| Speed Sensor - 4 channel, MPU | 5466-5000 | | 5437-523 | Table J |
| Speed Sensor - 4 channel, MPU / Eddy Probe | 5466-5001 | | 5437-523 | Table J |
| Speed Sensor - 4 channel, 2 MPU / 2 Prox | 5466-5002 | | 5437-523 | Table J |
| Speed Sensor - 4 channel, 3 MPU / 1 Prox | 5466-5003 | | 5437-523 | Table J |
| Pressure Interface - 2 Channel (4 transducers/channel) | 5466-326 | See Pressure Transducer Assemblies | 5437-523 | Table J |

8.6 Output Modules

| | | | | |
|--|-----------|----------------------------------|----------------------------|---------|
| Discrete Output Driver- 64 channel | 5464-654 | | 5441-413 or 1751-6091 | Table K |
| 4-20 mA - 8 channel | 5464-648 | | 5437-523 or 5501-427 (TMR) | Table J |
| 0-1 mA - 8 channel | 5464-649 | | 5437-523 or 5501-427 (TMR) | Table J |
| 0-5 Vdc - 8 channel | 5464-650 | | 5437-523 or 5501-427 (TMR) | Table J |
| 0-10 Vdc - 8 channel | 5464-652 | | 5437-523 or 5501-427 (TMR) | Table J |
| Actuator Driver - 2 channel +/- 12.25 mA Integrating or Proportional (software selectable) Outputs | 5501-1428 | Bi-Polar(\pm)Actuator Driver | 5437-672 | Table K |
| Actuator Driver - 2 channel +/- 30 mA Integrating or Proportional (software selectable) Outputs | 5501-1429 | Bi-Polar(+)Actuator Driver | 5437-672 | Table K |
| Actuator Driver - 2 channel +/- 60 mA Integrating or Proportional (software selectable) Outputs | 5501-1430 | Bi-Polar(+)Actuator Driver | 5437-672 | Table K |
| Actuator Driver - 2 channel +/- 120 mA Integrating or Proportional (software selectable) Outputs | 5501-1431 | Bi-Polar(+)Actuator Driver | 5437-672 | Table K |

| Description | Part Numbers | Notes | Field Termination Modules | Cable Selection Table |
|--|--------------|--|--|-----------------------|
| Actuator Driver - 2 channel +/- 245 mA Integrating or Proportional (software selectable) Outputs | 5501-1432 | Bi-Polar(+)Actuator Driver | 5437-672 | Table K |
| Real Time SIO - Connects to GS/LQ & EM Drivers | 5503-267 | Uses screw post connectors, Use w/ LQ Driver & EM Digital - Multidrop is not allowed with this module | | |
| 8.7 Input & Output Modules | | | | |
| High Density Combo I/O - 4 Speed Inputs, 12 I/V (4-20 mA or 0-5 V) Selectable Inputs, 4 4-20 mA Outputs | 5466-1105 | Speed inputs have high accuracy. All 4-20mA outputs are actuator outputs. No 0-200mA outputs available. Speed Inputs use low-density cable & Analog I/O use high-density cable. | For Simplex: 5437-523 (1) 5501-376 (1) For TMR: 5501-372 (1) 5501-502 (1) | Table J Table M |
| High Density Combo I/O - 4 Speed Inputs (Selectable MPU/PROX/EDDY), 12 Analog Inputs (Selectable 4-20 mA or 0-5 V), 4 Analog Outputs (4-20 mA 600 Ohm) | 5466-1115 | Speed inputs have standard accuracy (same as -316). All 4-20mA outputs are actuator outputs. No 0-200mA outputs available. Speed Inputs use low-density cable & Analog I/O use high-density cable. | For Simplex: 5437-523 (1) 5501-376 (1) For TMR: 5501-372 (1) 5501-502 (1) | Table J Table M |
| Simplex Combo I/O - 4 MPU's, 8 4-20 mA Inputs, 4 4-20 mA Outputs, 2 Prop. Actuator Outputs | 5466-316 | Non-Preferred | 5501-371 (2) | Table J |
| Simplex Discrete I/O - 48 Inputs / 24 Outputs | 5466-1050 | Digital I/O, SW Compatible only in coder 5.0x and up, Simplex FTM relay drivers 5441-693, 5441-694 FTMs also are options | 5501-325 (HV) (1) or 5501-367 (LV) (1) | Table M (2 cables) |
| Simplex Discrete I/O - 48 Inputs / 24 Outputs -2 (spare) | 5466-1158 | Digital I/O, Use as a spare only, Backward compatible with older systems, SW Compatible only in coder 4.06, 5.04, 6.00, Simplex FTM relay drivers 5441-693, 5441-694 FTMs also are options | 5501-325 (HV) (1) or 5501-367 (LV) (1) | Table M (2 cables) |
| High Density Analog I/O - 24 Inputs (Selectable 4-20 mA or 0-5 V) (5mS Anti-aliasing filter on A/I ch. 23/24), 8 Outputs (4-20 mA 600 Ohms) Isolated I/O | 5466-5025 | | | Table M (2 cables) |
| Simplex High Density Analog I/O - 24 4-20 mA Inputs (5mS Anti-aliasing filter on A/I ch. 23/24), 8 | 5466-5026 | | 5501-376 (2) or TMR 5501-372 (2) | Table M (2 cables) |

| Description | Part Numbers | Notes | Field Termination Modules | Cable Selection Table |
|---|--------------|---|--|-----------------------|
| TMR and Dataforth High Density I/O - 24 0-5 V Inputs (5mS Anti-aliasing filter on A/I ch. 23/24), 8 4-20 mA Outputs | 5466-5027 | Same as -5026 only configured for Dataforth I/O, All inputs configured for voltage inputs. Both FTM's manufactured by Dataforth, 9097-601 Dataforth module TAB | Dataforth: 5441-695 (2) TMR 5441-697 (2) or TMR: 5501-372 (2) | Table M (2 cables) |
| TMR Combo I/O - (4) MPU's, (8) 0-5 Volt Inputs, (4) 4-20 mA Outputs, (2) Prop. Actuator Outputs | 5466-253 | Non-Preferred | 5501-365 (2) | Table J |
| TMR Discrete I/O - 48 Inputs / 24 Outputs | 5466-1051 | With 4 FTMs and 3 MicroNet cards, system I/O is 24 DI and 12 DO | 5453-276 (4) | Table M (2 cables) |
| TMR Discrete I/O - 48 Inputs / 24 Outputs (spare) | 5466-1156 | Digital I/O, Use as a spare only, Backward compatible with older systems, SW Compatible only in coder 4.06, 5.04, 6.00, With 4 FTMs and 3 MicroNet cards, system I/O is 24 DI and 12 DO | 5453-276 (4) | Table M (2 cables) |
| TMR and Dataforth High Density I/O - 24 0-5 V Inputs (5mS Anti-aliasing filter on A/I ch. 23/24), 8 4-20 mA Outputs | 5466-5027 | Same as -5026 only configured for Dataforth I/O, All inputs configured for voltage inputs. Both FTM's manufactured by Dataforth, 9097-601 Dataforth module TAB | Dataforth: 5441-695 (2) TMR 5441-697 (2) or TMR: 5501-372 (2) | Table M (2 cables) |

8.8 Special Function Modules

| | | | | |
|---|----------|--|----------|---------|
| Dual Solenoid Monitor | 5466-272 | Cable 5417-296 used in 9971-1083 Non-Preferred | 5437-523 | Table J |
| Overspeed Trip Module - trip @ 5478 Hz | 5501-473 | Non-Preferred | 5437-523 | Table A |
| Overspeed Trip Module - trip @ 5408 & 6160 Hz | 5501-476 | Non-Preferred | 5437-523 | Table A |
| Overspeed Trip Module - trip @ 5408 Hz | 5501-477 | Non-Preferred | 5437-523 | Table A |
| Overspeed Trip Module - trip @ 5404 Hz | 5501-478 | Non-Preferred | 5437-523 | Table A |
| Overspeed Trip Module - trip @ 6160 Hz | 5501-479 | Non-Preferred | 5437-523 | Table A |

8.9 Relay FTMs

| | | | | |
|---|-----------|--|--|---------|
| Discrete Output Relay - 32 channel, 10 Amp at 28 VDC | 5441-413 | 1 Form 'C' contact per relay | | Table K |
| Discrete Output Relay - 16 channel, 10 Amp at 28 VDC, 2 Form 'C' contacts per relay | 5441-419 | 2 Form 'C' contacts per relay | | Table K |
| Discrete Output Relay - 16 channel, 10 Amp at 28 VDC | 1751-6091 | DIN Rail mount | | Table K |
| Discrete I/O - 24 Inputs /12 Relay Outputs | 5441-693 | Purchased from Phoenix Contact. No Surface Mount Components. | | Table M |

| Description | Part Numbers | Notes | Field Termination Modules | Cable Selection Table |
|--|--------------|--|---------------------------|-----------------------|
| Discrete I/O - 24 Inputs /12 Relay Driver | 5441-694 | Purchased from Phoenix Contact. No Surface Mount Components. | | Table M |
| Discrete I/O - 48 Inputs - 24Vdc, 24 Discrete Outputs J1 & J2 to J3 cable connectors | 5501-367 | Simplex High Density Discrete Inputs, Discrete Outputs are routed from J1 & J2 to J3 | | Table M |
| TMR Discrete I/O - 6 Inputs, 3 Relay Outputs | 5453-276 | Used with 5009FT and TMR applications, Uses cable 5417-019 between FTMs | | Table M |

8.10 LINKnet HT Modules

| | | | | |
|--|-----------|--|--|---------|
| RTN Gateway - 10 CAN ports | 8200-1250 | | | |
| RTN Gateway – 10 CAN, Enhanced | 8200-1252 | | | |
| RTN Gateway – 10 CAN, Cyber | 8200-1253 | | | |
| RTD Input - 8 Channel | 8200-1200 | | | Table R |
| Thermocouple Input - 8 Channel, Fail high | 8200-1201 | | | Table R |
| 4-20 mA - 8 Inputs / 2 Outputs | 8200-1202 | | | Table R |
| 4-20 mA - 8 Inputs / 2 Outputs, 24Vdc Loop Power | 8200-1203 | | | Table R |
| Discrete Input - 16 Channel | 8200-1204 | | | Table R |
| Discrete Output - 16 Channel | 8200-1205 | | | Table R |

8.11 RTCnet Modules

| | | | | |
|--|-----------|------------------------------------|--|---------|
| RTN Gateway - 10 CAN ports | 8200-1250 | | | Table R |
| RTN Gateway – 10 CAN, Enhanced | 8200-1252 | | | |
| RTN Gateway – 10 CAN, Cyber | 8200-1253 | | | |
| RTD Input - 8 Channel | 8200-1100 | | | Table R |
| Thermocouple Input - 8 Channel, Fail high | 8200-1101 | | | Table R |
| Thermocouple Input - 8 Channel, Fail high, High Accuracy | 8200-1151 | Use for Gas Turbine EGT Monitoring | | Table R |
| 4-20 mA - 8 Inputs / 2 Outputs | 8200-1102 | | | Table R |
| 4-20 mA - 8 Inputs / 2 Outputs, 24Vdc Loop Power | 8200-1103 | | | Table R |
| Discrete Input - 16 Channel | 8200-1104 | | | Table R |
| Discrete Output - 16 Channel | 8200-1105 | | | Table R |
| Termination Resistor Kit | 8923-1889 | | | |

8.12 Dataforth I/O

| | | | | |
|-----------------------|-----------|---|----------|--|
| Thermocouple - K-Type | 1784-1028 | Datforth PN: SCM7B47K-1574 | 5441-695 | |
| RTD - 100 Ohm | 1784-655 | Datforth PN: SCM7B34-1459, European Curve | 5441-695 | |
| 4-20 mA Input | 1784-659 | Datforth PN: SCM7BPT-1460 | 5441-695 | |
| 0-5 Vdc Input | 1784-657 | Datforth PN: SCM7BPT | 5441-695 | |

| Description | Part Numbers | Notes | Field Termination Modules | Cable Selection Table |
|------------------------------------|--------------|---|---------------------------|-----------------------|
| 8.13 Network Switches | | | | |
| Ethernet - 8 Port, RJ45 Connectors | 1752-423 | Hirshmann PN: RS2-TX, Compatible with CPU5200, Recommended for Expansion Racks | | |
| Fiber Optic - 5 Port | 1711-1069 | Hirshmann PN: RS2-4TX/1FX EEC, Compatible with CPU5200, Recommended for Expansion Racks, 5 port | | |
| Fiber Optic - 5 Port | 1751-6077 | Hirshmann PN: RS2-3TX/2FX, Compatible with CPU5200 | | |

MicroNet System Cables

| Table A - NetCon Analog Cables | | |
|--------------------------------|----------|----------------------------|
| 6 feet, Black | 5416-346 | Netcon style exposed braid |
| 8 feet, Black | 5416-347 | Netcon style exposed braid |
| 10 feet, Black | 5416-348 | Netcon style exposed braid |
| 12 feet, Black | 5416-349 | Netcon style exposed braid |
| 14 feet, Black | 5416-350 | Netcon style exposed braid |
| 16 feet, Black | 5416-351 | Netcon style exposed braid |
| 18 feet, Black | 5416-352 | Netcon style exposed braid |
| 20 feet, Black | 5416-353 | Netcon style exposed braid |
| 22 feet, Black | 5416-354 | Netcon style exposed braid |
| 26 feet, Black | 5416-355 | Netcon style exposed braid |
| 40 feet, Black | 5416-751 | Netcon style exposed braid |

| Table B - NetCon Discrete Cables | | |
|----------------------------------|----------|--|
| 3 feet, Gray | 5416-332 | |
| 6 feet, Gray | 5416-333 | |
| 8 feet, Gray | 5416-334 | |
| 10 feet, Gray | 5416-335 | |
| 12 feet, Gray | 5416-336 | |
| 14 feet, Gray | 5416-337 | |
| 16 feet, Gray | 5416-338 | |
| 18 feet, Gray | 5416-339 | |
| 20 feet, Gray | 5416-340 | |
| 22 feet, Gray | 5416-341 | |
| 24 feet, Gray | 5416-342 | |
| 26 feet, Gray | 5416-343 | |
| 40 feet, Gray | 5416-750 | |

| | |
|--------------------------------|-------------|
| Table C - PS/2 keyboard/ Mouse | Inactivated |
|--------------------------------|-------------|

| | | |
|------------------------------|----------|--|
| Table D - Transceiver Cables | | |
| 10 feet, Metal Braid (Spare) | 5415-963 | Not Compatible with CPU5200, Used with old Simplex or TMR MicroNet systems |
| T-Module (Spare) | 5437-059 | Not Compatible with CPU5200, Used with old Simplex or TMR MicroNet systems |

| | |
|---------------------------|-------------|
| Table E - Ethernet Cables | Inactivated |
|---------------------------|-------------|

| | | |
|---------------------------------|-----------|--|
| Table F - Ethernet Cat-5 Cables | | |
| 1.5 feet | 5417-391 | |
| 3 feet | 5417-392 | |
| 7 feet | 5417-393 | |
| 10 feet | 5417-394 | |
| 15 feet | 5417-1243 | |
| 25 feet | 5417-396 | |
| 10 feet, crossover | 5417-414 | |
| 14 feet, crossover | 5417-415 | |

| | | |
|-----------------------------------|----------|--|
| Table G - LinkNet Cable | | |
| Wire - 2 CONDUCTOR 22AWG, LOW CAP | 2008-349 | |

| | | |
|--|----------|--|
| Table H - MicroNet TMR Cables | | |
| PS Interconnect Cable, 40" | 5417-293 | Used between Power Supply & Main Chassis |
| PS 50 pin Ribbon Cable, 6" | 5416-977 | Used between Power Supply & Main Chassis |
| 34 pin Ribbon Cable for Relay FTM interconnect. 6" | 5417-019 | Used between FTMs 5453-276 as interconnect cable |

| | | |
|---|----------|--|
| Table I - RS232 Serial Port Cables | | |
| 9 Pin DB - Male to Female, Extension, 6 feet | 5417-411 | |
| 9 Pin DB - Male to Female, Extension, 10 feet | 5417-412 | |
| 9 Pin DB - Male to Female, Extension, 15 feet | 5417-413 | |

| Table J - Low Density Analog Cables | | |
|-------------------------------------|----------|-----------------------------------|
| 3 feet, Black | 5417-296 | MicroNet style-- no exposed braid |
| 6 feet, Black | 5417-026 | MicroNet style-- no exposed braid |
| 8 feet, Black | 5417-027 | MicroNet style-- no exposed braid |
| 10 feet, Black | 5417-028 | MicroNet style-- no exposed braid |
| 12 feet, Black | 5417-029 | MicroNet style-- no exposed braid |
| 14 feet, Black | 5417-030 | MicroNet style-- no exposed braid |
| 16 feet, Black | 5417-031 | MicroNet style-- no exposed braid |
| 18 feet, Black | 5417-032 | MicroNet style-- no exposed braid |
| 20 feet, Black | 5417-033 | MicroNet style-- no exposed braid |
| 22 feet, Black | 5417-034 | MicroNet style-- no exposed braid |
| 26 feet, Black | 5417-035 | MicroNet style-- no exposed braid |
| 40 feet, Black | 5417-036 | MicroNet style-- no exposed braid |

| Table K - Low Density Discrete Cables | | |
|---------------------------------------|-----------|--|
| 3 feet, Gray | 5417-037 | |
| 6 feet, Gray | 5417-038 | |
| 8 feet, Gray | 5417-039 | |
| 10 feet, Gray | 5417-040 | |
| 12 feet, Gray | 5417-041 | |
| 14 feet, Gray | 5417-042 | |
| 16 feet, Gray | 5417-043 | |
| 18 feet, Gray | 5417-044 | |
| 20 feet, Gray | 5417-045 | |
| 22 feet, Gray | 5417-046 | |
| 24 feet, Gray | 5417-047 | |
| 26 feet, Gray | 5417-048 | |
| 30 feet, Gray | 5417-1108 | |
| 40 feet, Gray | 5417-049 | |

| Table L - VGA Video Ext. Cables | | |
|--|----------|--|
| 15 Pin HD - Male to Female, Extension, 6 feet | 5417-405 | |
| 15 Pin HD - Male to Female, Extension, 10 feet | 5417-406 | |
| 15 Pin HD - Male to Female, Extension, 15 feet | 5417-407 | |
| 15 Pin HD - Male to Male, 6 feet | 5417-408 | |
| 15 Pin HD - Male to Male, 10 feet | 5417-409 | |
| 15 Pin HD - Male to Male, 15 feet | 5417-410 | |

| Table M - HD Analog/Discrete Cables | | |
|-------------------------------------|----------|--|
| 6 feet, Gray | 5417-171 | |
| 8 feet, Gray | 5417-172 | |
| 10 feet, Gray | 5417-173 | |
| 12 feet, Gray | 5417-174 | |
| 14 feet, Gray | 5417-175 | |
| 16 feet, Gray | 5417-176 | |
| 18 feet, Gray | 5417-177 | |
| 20 feet, Gray | 5417-178 | |

| | |
|--------------------------------------|----------|
| Table N - Fiber Optic Cables ST Type | Inactive |
|--------------------------------------|----------|

| | |
|-----------------------------------|----------|
| Table P - RS-485 Cables for RTSIO | Inactive |
|-----------------------------------|----------|

| Table Q - Fiber Optic Cables SC Type (MicroNet Plus - CPU and RTN) | | |
|---|-----------|--|
| 2 meter | 5417-1090 | |
| 3 meter | 5417-1091 | |
| 5 meter | 5417-1092 | |
| 10 meter | 5417-1093 | |
| 15 meter | 5417-1094 | |
| 30 meter | 5417-1095 | |
| ST to SC Duplex Adapter | 1751-6079 | |
| SC to SC Duplex Coupler | 1751-6080 | |

| Table R - CAN / DEVICENET Cables | | |
|--|-----------|---------------|
| NETWORK TEE, 7/8' M/F BUS, F DROP | 1635-1463 | |
| NETWORK TERMINATOR, MALE 121 OHM | 1635-1464 | |
| NETWORK TERMINATOR, FEMALE 121 OHM | 1635-1465 | |
| | | |
| THICK TRUNK CABLE (0.5M) | 5417-1110 | 0.41 Diameter |
| THICK TRUNK CABLE (1M) | 5417-1111 | 0.41 Diameter |
| THICK TRUNK CABLE (2M) | 5417-1112 | 0.41 Diameter |
| THICK TRUNK CABLE (3M) | 5417-1113 | 0.41 Diameter |
| THICK TRUNK CABLE (4M) | 5417-1114 | 0.41 Diameter |
| THICK TRUNK CABLE (6M) | 5417-1115 | 0.41 Diameter |
| | | |
| THICK DROP, 7/8' MALE TO PIGTAIL, (0.3M) | 5417-1116 | |
| THICK DROP, 7/8' MALE TO PIGTAIL, (1M) | 5417-1117 | |
| THICK DROP, 7/8' MALE TO PIGTAIL, (2M) | 5417-1118 | |
| THICK DROP, 7/8' MALE TO PIGTAIL, (3M) | 5417-1119 | |
| THICK DROP, 7/8" MALE TO PIGTAIL, (6M) | 5417-1281 | |

| | | |
|--|-----------|---------------|
| MICRONET DROP, M12 FEMALE TO 7/8' MALE, (0.5M) | 5417-1120 | 0.28 Diameter |
| MICRONET DROP, 7/8' MALE TO M12 FEMALE, (1M) | 5417-1127 | 0.28 Diameter |
| MICRONET DROP, 7/8' MALE TO M12 FEMALE, (2M) | 5417-1128 | 0.28 Diameter |
| MICRONET DROP, 7/8' MALE TO M12 FEMALE, (3M) | 5417-1245 | 0.28 Diameter |
| MID DROP, 7/8' MALE TO PIGTAIL, (0.3M) | 5417-1141 | |
| MID DROP, 7/8' MALE TO PIGTAIL, (1M) | 5417-1142 | |
| MID DROP, 7/8' MALE TO PIGTAIL, (2M) | 5417-1143 | |
| MID DROP, 7/8' MALE TO PIGTAIL, (3M) | 5417-1144 | |
| MID TRUNK CABLE (0.5M) | 5417-1145 | 0.33 Diameter |
| MID TRUNK CABLE (1M) | 5417-1146 | 0.33 Diameter |
| MID TRUNK CABLE (2M) | 5417-1147 | 0.33 Diameter |
| MID TRUNK CABLE (3M) | 5417-1148 | 0.33 Diameter |
| MID TRUNK CABLE (4M) | 5417-1149 | 0.33 Diameter |
| MID TRUNK CABLE (6M) | 5417-1150 | 0.33 Diameter |

9. Magnetic Pickups

| Description | Thread | Thread Length | DC Resistance | Ratings | Compatible Connector | Part Number |
|---------------------------------------|-----------|---------------|---------------|------------------|---------------------------|-------------|
| MPU-70 VPP | 0.625-18 | 1.4" | 210 ohms | None | 1630-755 | 202816 |
| MPU-60 VPP | 0.75 – 20 | 1.8" | 225 ohms | CSA&UL Div1&Div2 | None-3 10" 18awg wires | 232205 |
| MPU | 0.625-18 | 1.8" | 200 ohms | CSA&UL Div1&Div2 | None-3 10" 18awg wires | 1680-609 |
| MPU-50 VPP | 0.625-18 | 2.0" | 200 ohms | None | 1630-755 | 1680-613 |
| MPU-60 VPP | 0.625-18 | 2.5" | 250 ohms | None | 1630-755 | 1680-622 |
| MPU-60 VPP | 0.625-18 | 4.5" | 250 ohms | None | 1630-755 | 1680-631 |
| MPU-60 VPP | M 16x1.5 | 3.5" | 260 ohms | CSA Div1&Div2 | None-3 10" 18awg wires | 1680-637 |
| MPU-60 VPP | 0.625-18 | 3" | 250 ohms | None | 1630-755 | 1680-649 |
| MPU-190 VPP | 0.75 – 20 | 2.5" | 1200 ohms | None | 1630-755 | 1680-727 |
| MPU-54 VPP | 0.625-18 | 1.8" | 180 ohms | CSA&ATEX – Div1 | None-3 10" 18awg wires | 1680-2004 |
| MPU-54 VPP | 0.625-18 | 4.0" | 200 ohms | CSA&ATEX – Div1 | None-3 10" 18awg wires | 1680-2005 |
| MPU-54 VPP | 0.625-18 | 2.75" | 200 ohms | CSA&ATEX – Div1 | None-3 10" 18awg wires | 1680-2006 |
| MPU-54 VPP | 0.625-18 | 6.0" | 200 ohms | CSA&ATEX – Div1 | None-3 10" 18awg wires | 1680-2007 |
| MPU-54 VPP | 0.625-18 | 1.8" | 180 ohms | CSA&ATEX – Div1 | None-3 10" 18awg wires | 1680-2008 |
| MPU-54 VPP | 0.75 – 20 | 3.0" | 180 ohms | CSA&ATEX – Div1 | None-3 10" 18awg wires | 1680-2009 |
| MPU-54 VPP | 0.625-18 | 1.8" | 180 ohms | CSA&ATEX – Div1 | None-3 27" 18awg wires | 1680-2017 |
| MPU-62 VPP, SIL3 | 0.625-18 | 1.4" | 210 ohms | None | 1630-755 | 1680-2028 |
| MPU-62 VPP, SIL3 | 0.625-18 | 2.5" | 210 ohms | None | 1630-755 | 1680-2024 |
| MPU-62 VPP, SIL3 | M 16x1.5 | 4.0" | 210 ohms | None | 1630-755 | 1680-2030 |
| MPU-62 VPP, SIL3 | 0.625-18 | 3.0" | 210 ohms | None | 1630-755 | 1680-2029 |
| MPU Kit (1680-613) MPU & Connector | 0.625-18 | 2.0 | 200 ohms | None | N/A | 5430-915 |
| MPU Kit (202816) MPU & Connector | 0.625-18 | 2.5" | 250 ohms | None | N/A | 5430-929 |
| MPU Kit (1680-622) MPU & Connector | 0.625-18 | 2.5" | 250 ohms | None | N/A | 5430-929 |

| | | | | | | |
|---------------------------------------|----------|------|----------|------|-----|----------|
| MPU Kit (1680-631) MPU & Connector | 0.625-18 | 4.5" | 250 ohms | None | N/A | 5430-933 |
| MPU Kit (1680-649) MPU & Connector | 0.625-18 | 4.5" | 250 ohms | None | N/A | 5430-951 |

10. Active Proximity Probes

| Description | Thread | Thread Length | DC Resistance | Ratings | Compatible Connector | Part Number |
|--------------------------------------|------------|---------------|---------------|---------|-----------------------|-------------|
| Active Probe-5-24V Pwr | 0.625-18 | 1.5" | | None | 20' Cable | 1680-202 |
| Active Probe-5-24V Pwr, 4-4.6Vout | 0.725 – 20 | 1.4" | | None | Conduit, 10' Cable | 1680-233 |
| Active Probe-5-24V Pwr | 0.625-18 | 1.5" | | None | Conduit, 10' Cable | 1680-453 |
| Active Probe-5-24V Pwr | 0.625-18 | 2.75" | | None | Conduit, 10' Cable | 1680-455 |
| Active Probe-5-24V Pwr | 0.625-18 | 1.4" | | None | 1631-227 | 1680-699 |
| Active Probe-5-24V Pwr | 0.625-18 | 1.5" | | None | 1631-002, 1631-612 | 1680-718 |
| Active Probe-5-24V Pwr | 0.625-18 | 2.75" | | None | 1631-002, 1631-612 | 1680-925 |
| Active Probe-5-24V Pwr | 0.625-18 | 4.0" | | None | 1631-002, 1631-612 | 1680-986 |
| Active Probe-5-24V Pwr | 0.625-18 | 1.5" | | None | Conduit, 20' Cable | 1680-941 |
| Active Probe-7-30V Pwr | M 16x1.5 | 4.0" | | None | 1630-249, 1631-002 | 1689-1114 |
| Active Probe-7-30V Pwr | 0.625-18 | 4.0" | | None | 1630-249, 1631-002 | 1680-1115 |

5. Software Licenses

Woodward's Graphical Application Program (GAP™) is used to custom program Woodward's MicroNet™ and Atlas controllers. The GAP install software may be downloaded from the Woodward website free or copied multiple times, but does not function unless a software license is purchased for each computer (seat) that it is to be used on. Additional GAP Programmer platforms: Flex***, LECM, 2301E, 723, 733, 828, etc...

Each listed seat license price below includes one seat license (authorization serial number), which can only be used on one computer.

1. GAP Software Programs

| GAP Software Programs & Kits | Part Number |
|--|---------------|
| GAP Programmer License | 8928-810 |
| <ul style="list-style-type: none"> This seat license is used to authorize the GAP on any one computer: The GAP Install Program must be downloaded from Woodward's website before the received program authorization serial number can be used to authorize its use on that computer. An un-activated version of the Monitor-GAP service tool program is also installed on the target computer during a GAP program install. This Monitor-GAP service tool program can then be activated/authorized by purchasing a Monitor-GAP license (refer to information listed below). Woodward's Monitor-GAP service tool program is also installed during GAP Programmer installation program, and can be authorized and utilized with this program | |
| GAP-Read-Only Programmer License | (none needed) |
| GAP-Demo Programmer License | (none needed) |
| <ul style="list-style-type: none"> No license is necessary for the GAP-Read-Only software program functionality. When a GAP Programmer program is installed on a computer without an authorization serial number, the program functions as a Read Only GAP program or as a Demo GAP program. The GAP Programmer Install Program must first be downloaded from Woodward's website onto the desired computer, before it can be used as a Read-Only or Demo based GAP program. | |
| ToolKit Developer License | 8928-5016 |

| GAP Software Programs & Kits | Part Number |
|--|-------------|
| Monitor-GAP License | 8928-5007 |
| <ul style="list-style-type: none"> Optionally, the Monitor-GAP service tool program can be authorized and utilized with this program functioning in its Read-Only or Demo modes of operation. This license is used to authorize the Monitor-GAP software service tool, and only includes a program authorization serial number for one computer (seat). Monitor GAP is a licensed software service tool that allows GAP users to view real-time values in GAP application programs when connected to a control, or running NetSim™ tools. Monitor GAP works in parallel with the GAP graphical display and superimposes the actual run-time values into that display environment. | |
| Old GAP Programs (3.03 and older) CD Install Kits | XXXX-XXX |
| <ul style="list-style-type: none"> Contact the Woodward technical assistance group for part number availability of Old GAP programs, and associated turbine package models. | |

2. Graphical User Interface Development and Viewing program Licenses

CIS (Control Interface Studio) GUI Development Software Program

| | |
|---|-----------|
| CIS Yearly Subscription License | 1796-3131 |
| <ul style="list-style-type: none"> This subscription license is used to authorize the CIS program on any one computer for a period of one year The CIS program is used to create to create GUIs for Flex500 or MicroNet platforms Contact your Woodward Customer Service Representative to purchase a subscription | |

- Upon purchase of a CIS subscription license, the user will receive an email notification of Qt account creation and then will be granted 72 hours access to Qt's web portal to upload/install Woodward's CIS program and related component library
- Subscription & Install kit Includes:
 - Woodward's standard component kit (used by the 505 controller)
 - Example application program which includes basic screens a typical user would need to create a GUI program similar to the 505 controller's.

RemoteView Operator Control Panel Program

RemoteView License

8928-5311

- This license is used to authorize the RemoteView program to function continuously on any one computer
- The RemoteView program allows users to view CIS based programs on computers or touch panels used with Flex500 or MicroNet platforms
- Contact your Woodward Customer Service Representative to purchase a license
- The RemoteView software install program can be obtained/downloaded from the Woodward.com website

3. Software Service Tool Programs & Kits

Part Number

Control Assistant Software License

8928-5014

- This license is used to authorize the Control Assistant Software tool on one computer (seat).
- The Control Assistant program is used to view high-speed Datalog files created in **Atlas, MicroNet, and MicroNet TMR** controllers.
- Control Assistant provides the following:
 - Live parameter monitoring, tuning, and trending
 - Off-line trending (Datalogs and archived trend data)

ToolKit Developer License

8928-5016

This license is used to authorize the Developer functionality in ToolKit, and only includes a program authorization serial number for one computer (seat).

- ToolKit is a licensed software development program used to create Service Tools and Service and Configuration tools for Woodward electronic controllers 2300, 723, 733, LECM, Atlas, and MicroNet via Woodward's Servlink protocol over RS-232/-422/-485 serial, CANopen, XCP, Ethernet.
- Upon purchasing the Developer license, you will be given a serial number. It is important for you to keep this number, as it is your proof that you own the license.

AppManager Datalog Retrieval License - Enterprise

8928-5009

- This license is used to authorize the **AppManager Program's Datalog Retrieval Function for 4 or more controls**, and only includes a program authorization serial number for one computer (seat).
- Datalog Retrieval Function for 1-3 controls is included in AppManager without fee.
- The AppManager Program's Datalog Retrieval Function is embedded in **AppManager Version 2.2 and higher install programs**.
- The **AppManager Install Program** must be downloaded from Woodward's website and onto the desired computer, before the received program authorization serial number can be used to authorize its use on that computer.
- The Datalog Retrieval functionality performs automatic archiving of Datalog files generated on one or more controls connected by a network. The collected files are given unique names based upon the original file name, the last time of modification, and the source control.

4. NetSim Simulation Licenses

| | Part Number |
|--|-------------|
| NetSim Basic License | 8928-5005 |
| <ul style="list-style-type: none"> • This seat license is used to authorize a NetSim Basic software program, and only includes a program authorization serial number for one computer (seat). • The NetSim Control Executive program must first be downloaded from Woodward's website onto the desired computer before the received program authorization serial number can be used to authorize its use on that computer. • NetSim Basic is a Simulation Service tool that allows GAP application programs to be run and tested on a computer before they are downloaded into the control. With NetSim Basic, once a GAP application program has been created it can then be executed to simulate the open-loop control operation. Training is available to utilize GAP-to-GAP modeling techniques to achieve closed-loop control operations with NetSim Basic. • The supported hardware platforms are MicroNet controllers. • Supports GAP programmed hardware platforms. • The NetSim Basic program is only compatible with GAP programs using Coder 2.08 and higher Coder programs. <ul style="list-style-type: none"> • Contact the Woodward technical assistance group for training. | |

| | |
|---|-----------|
| NetSim Advanced License | 8928-5006 |
| <ul style="list-style-type: none"> • This seat license is used to authorize a NetSim Advanced software program, and only includes a program authorization serial number for one computer (seat). • The NetSim Control Executive program must first be downloaded from Woodward's website onto the desired computer before the received program authorization serial number can be used to authorize its use on that computer. • The NetSim Advanced program is a Simulation Service tool that allows GAP application programs to be run and tested against turbine models on a computer before they are downloaded into the control. With NetSim Advanced, once a GAP application program has been created it can then be executed against a simulated turbine package to simulate the closed-loop control operation. • Supports GAP-programmed hardware platforms. | |

5. Auxiliary Devices

| | |
|--|-----------|
| USB to Serial Adapter Kit | 8928-463 |
| (Includes USB to 9 Pin Sub-D converter, 6 foot Serial Cable, & Software driver Installation CD) | |
| Allows USB ports to communicate to Woodward products (SPCs, 2301Ds, AtlasSCs, etc.) via serial communications. | |
| MicroNet TMR Programmer (PCMCIA Flash Card) | 1790-9026 |
| 10 MB Flash Memory Card | 1790-792 |

6. Electro-Hydraulic Governors & Actuators

| | Non Preferred | Part Number Replaced By (CE Compliant) |
|--|---------------|--|
| 1. TG Turbine Governors | | |
| TG13 Screw SS, 2400 rpm | 8516-038 | 9904-814 |
| TG13 Screw SS, 2400 rpm | B8516-038 | 9904-815 |
| TG13 Screw SS, 2400 rpm | C8516-038 | 9904-816 |
| TG13 Screw SS, 4000 rpm | F8516-039 | 9904-820 |
| TG13 Screw SS, 4000 rpm | G8516-039 | 9904-821 |
| TG13 Screw SS, 6000 rpm | J8516-040 | 9904-822 |
| TG13 Screw SS, 6000 rpm | H8516-040 | 9904-823 |
| TG13 Lever SS, 2400 rpm | B8516-041 | 9904-824 |
| TG13 Lever SS, 2400 rpm | C8516-041 | 9904-817 |
| TG13 Lever SS, 4000 rpm | C8516-042 | 9904-818 |
| TG13 Lever SS, 4000 rpm | D8516-042 | 9904-819 |
| TG13 Lever SS, 6000 rpm | B8516-043 | 9904-825 |
| TG13 Lever SS, 6000 rpm | C8516-043 | 9904-826 |
| TG13M (motor speed setting) | 8516-167 | |
| TG17 Screw SS, 2400 rpm | 8516-044 | 9904-800 |
| TG17 Screw SS, 2400 rpm | B8516-044 | 9904-801 |
| TG17 Screw SS, 2400 rpm | C8516-044 | 9904-802 |
| TG17 Screw SS, 4000 rpm | 8516-045 | 9904-803 |
| TG17 Screw SS, 4000 rpm | B8516-045 | 9904-804 |
| TG17 Screw SS, 4000 rpm | C8516-045 | 9904-805 |
| TG17 Screw SS, 6000 rpm | C8516-046 | 9904-806 |
| TG17 Screw SS, 6000 rpm | D8516-046 | 9904-807 |
| TG17 Lever SS, 2400 rpm | 8516-047 | 9904-808 |
| TG17 Lever SS, 2400 rpm | A8516-047 | 9904-809 |
| TG17 Lever SS, 4000 rpm | 8516-048 | 9904-810 |
| TG17 Lever SS, 4000 rpm | A8516-048 | 9904-811 |
| TG17 Lever SS, 6000 rpm | 8516-049 | 9904-812 |
| TG17 Lever SS, 6000 rpm | A8516-049 | 9904-813 |
| TG611 | | |
| TG to TG611 Conversion Kit | 8516-174 | |
| TG611-13, Screw, 2400 rpm, CCW, ATEX, w/ OTD | 8516-175 | |
| TG611-13, Screw, 2400 rpm, CW, ATEX, w/ OTD | 8516-176 | |
| TG611-13, Screw, 2400 rpm, CW, ATEX, w/ OTD | 8516-177 | |
| TG611-13, Screw, 2400 rpm, CCW, ATEX, w/ OTD | 8516-178 | |
| TG611-13, Screw, 4000 rpm, CCW, ATEX, w/ OTD | 8516-179 | |
| TG611-13, Screw, 4000 rpm, CW, ATEX, w/ OTD | 8516-180 | |
| TG611-13, Screw, 4000 rpm, CW, ATEX, w/ OTD | 8516-181 | |
| TG611-13, Screw, 4000 rpm, CCW, ATEX, w/ OTD | 8516-182 | |
| TG611-13, Screw, 6000 rpm, CCW, ATEX, w/ OTD | 8516-183 | |
| TG611-13, Screw, 6000 rpm, CW, ATEX, w/ OTD | 8516-184 | |
| TG611-17, Screw, 2400 rpm, CCW, ATEX, w/ OTD | 8516-185 | |
| TG611-17, Screw, 2400 rpm, CW, ATEX, w/ OTD | 8516-186 | |
| TG611-17, Screw, 4000 rpm, CCW, ATEX, w/ OTD | 8516-187 | |
| TG611-17, Screw, 4000 rpm, CW, ATEX, w/ OTD | 8516-188 | |
| TG611-17, Screw, 4000 rpm, CCW, ATEX, w/ OTD | 8516-189 | |
| TG611-17, Screw, 6000 rpm, CCW, ATEX, w/ OTD | 8516-190 | |
| TG611-17, Screw, 6000 rpm, CW, ATEX, w/ OTD | 8516-191 | |

2. TGE Turbine Actuators

| | |
|-----------------|----------|
| TGE13, 2400 rpm | 9904-110 |
| TGE13, 4000 rpm | 9904-111 |
| TGE13, 6000 rpm | 9904-112 |
| TGE17, 2400 rpm | 9904-113 |
| TGE17, 4000 rpm | 9904-114 |
| TGE17, 6000 rpm | 9904-115 |

3. VariStroke Actuators

VariStroke Selection procedure:

1. Create VariStroke model number by using information from Figure 5-1 below.
2. Use the VariStroke Sizing Tool as necessary to select the correct size cylinder for the application. The VariStroke Sizing Tool is available from FTC\servf10\saleskit\Actuation\VariStroke directory or via e-business.
3. Use the developed VariStroke model number from step #1 and the below VariStroke part number table to select the correct internal VariStroke part number. Note that the estimated delivery time for part numbers that already exist is 8-10 weeks.
4. If an internal VariStroke part number does not exist for the required model number, then contact Levi Smith or Rich Kamphaus to have a part number created. Note that the estimated delivery time for part numbers that do not yet exist in the below table is 12+ weeks.

Varistroke Model Number Information

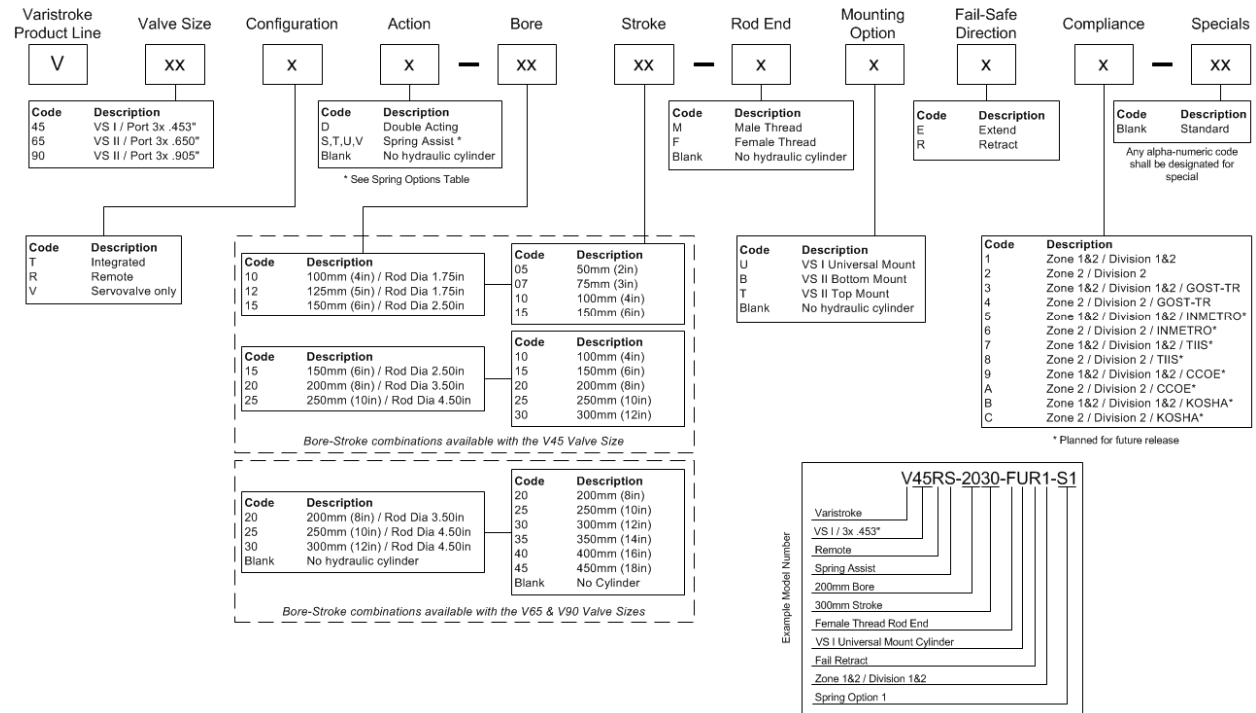


Figure 6-1. VariStroke and VariStroke II Model Number Information

Single Acting VSI G1 - Model Number Information



Varistroke Product Line
V
Code 45 Description VSI G1 / Port 6x .453"

Valve Size
XX
Code G Description 150mm Bore
Code K, L, M, N Description 200mm Bore

Configuration
X
Code T Description Integrated Remote¹
Code R Description Remote²

Action
X
Code U Description Servo working with Single Acting Cylinder³
Code K, L, M, N Description Servo working with Single Acting Cylinder equipped with Internal Spring (Spring Assist)

Bore
XX

Stroke
XX
Code M Description Male Thread
Code F Description Female Thread
Code Blank Description No Hydraulic Cylinder


Rod End
X
Code U Description VS Universal Mount
Code Blank Description No Hydraulic Cylinder

Mounting Option
X

Fail-Safe Direction
X
Code E Description Extend
Code R Description Retract

Compliance
X
Code Blank Description Standard Cylinder with Dump Valve Ports

Specials
XX
Code X Description Standard Cylinder with Dump Valve Ports



Code Description

| | |
|---|------------------------------------|
| 1 | Zone 1&2 / Division 1&2* |
| 2 | Zone 2 / Division 2 |
| 3 | Zone 1&2 / Division 1&2 / GOST+TR* |
| 4 | Zone 2 / Division 2 / GOST+TR* |
| 5 | Zone 1&2 / Division 1&2 / INMETRO* |
| 6 | Zone 2 / Division 2 / INMETRO* |
| 7 | Zone 1&2 / Division 1&2 / TIBS* |
| 8 | Zone 1&2 / Division 1&2 / CCOE* |
| 9 | Zone 2 / Division 2 / CCOE* |
| A | Zone 1&2 / Division 1&2 / KOSHA* |
| B | Zone 2 / Division 2 / KOSHA* |
| C | Zone 2 / Division 2 / KOSHA* |

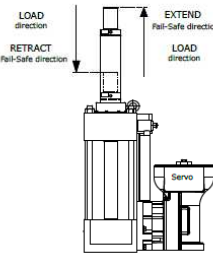
* Planned for future release

Code Description

| | |
|-------|---|
| Blank | without Dump Valve installed |
| G | with Dump Valve installed on the Right side |
| R | with Dump Valve installed on the Left side |
| L | with Dump Valve installed on the Left side |

Notes:

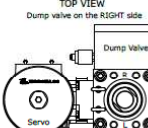
- Servo installed directly on the hydraulic cylinder thru special pattern holes. Solution dedicated to work with WVD cylinders.
- Servo can be connected to any hydraulic cylinder. Hydraulic connections SAE Code 61 Flange.
- Select also this option in case of servo ordering (no hydraulic cylinder).



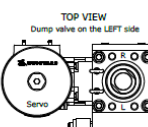
LOAD direction
RETRACT direction
EXTEND direction
Fail-Safe direction
LOAD direction

| Code | Description | Code | Description | Available Action |
|------|-------------------------------|------|----------------|------------------|
| 10 | 101,6mm (4in) / Rod Dia 1,75" | 07 | 76,2mm (3in) | G |
| 12 | 127mm (5in) / Rod Dia 1,75" | 10 | 101,6mm (4in) | G, K, L, M |
| 15 | 152,4mm (6in) | 15 | 152,4mm (6in) | G |
| 20 | 203,2mm (8in) | 20 | 203,2mm (8in) | G |
| 25 | 254,0mm (10in) | 25 | 254,0mm (10in) | G |
| 30 | 304,8mm (12in) | 30 | 304,8mm (12in) | G |

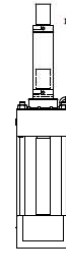
TOP VIEW
Dump valve on the RIGHT side




TOP VIEW
Dump valve on the LEFT side



SIDE VIEW
Integrated version



SIDE VIEW
Remote version



Example Model Number = Servo with Cylinder and without Dump Valve

V45RK-1520-FUR1

- Varistroke
- VSI G1 / 6x .453"
- Remote
- Spring Assist (Spring 1,2%)
- 150mm Bore
- 200mm Stroke
- Female Thread Rod End
- VS Universal Mount Cylinder
- Fail Retract
- Zone 1&2 / Division 1&2

Example Model Number = Servo with Cylinder and Dump Valve

V45TG-2030-MUE2-DV L

- Varistroke
- VSI G1 / 6x .453"
- Integrated
- Single Acting Cylinder
- 200mm Bore
- 300mm Stroke
- Male Thread Rod End
- VS Universal Mount Cylinder
- Fail Extend
- Zone 2 / Division 2
- Cylinder with Dump Valve Ports
- with Dump Valve installed on the Left side

Example Model Number = Servo only

V45RG-R1

- Varistroke
- VSI G1 / 6x .453"
- Remote
- Single Acting Cylinder
- Fail Retract
- Zone 1&2 / Division 1&2

| Bore [in] | Stroke [in] | Spring force [lbf] | Spring | | | |
|-----------|-------------|--------------------|--------|------|------|------|
| | | | K | L | M | N |
| 4 | 4 | MIN | 56 | 114 | 224 | - |
| | | MAX | 112 | 226 | 478 | - |
| 6 | 3 | MIN | 108 | 235 | 520 | - |
| | | MAX | 216 | 471 | 1040 | - |
| 8 | 4 | MIN | 108 | 235 | 520 | - |
| | | MAX | 216 | 471 | 1040 | - |
| 8 | 3 | MIN | 276 | 529 | 1052 | 1946 |
| | | MAX | 510 | 1057 | 2104 | 4046 |
| 10 | 4 | MIN | 242 | 528 | 1052 | 2023 |
| | | MAX | 544 | 1058 | 2104 | 4047 |
| 10 | 4 | MIN | 354 | 642 | 1312 | 2744 |
| | | MAX | 708 | 1286 | 2624 | 5488 |

Figure 6-2. Single Acting VariStroke VSI G1 Model Number Information

Table 6-1. VS-I Actuator Models

| VS-I - Actuator Models | | | | | | | | |
|------------------------|-------------------|----------|--------------|----------|------------------------|---------------------|--------------|----------------------|
| VSI Model # | Cylinder Diameter | | Stroke Range | | Output Cylinder Action | Fail Safe Direction | Zone Ratings | Internal Part Number |
| | (mm) | (inches) | (mm) | (inches) | | | | |
| V45TD-1007-MUE2 | 102 | 4 | 38 - 76 | 1.5 - 3 | Double | Extend | Zone 2 | 2-9907-1726 |
| V45TD-1010-MUE2 | 102 | 4 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1729 |
| V45TD-1015-MUE2 | 102 | 4 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | 2-9907-1730 |
| V45TD-1010-MUR2 | 102 | 4 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1350 |
| V45TD-1015-MUR2 | 102 | 4 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | 2-9907-1728 |
| V45TD-1210-MUE2 | 127 | 5 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1749 |
| V45TD-1215-MUE2 | 127 | 5 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | |
| V45TD-1210-MUR2 | 127 | 5 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1753 |
| V45TD-1215-MUR2 | 127 | 5 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | 2-9907-1754 |
| V45TD-1505-MUE2 | 153 | 6 | 25 - 51 | 1 - 2 | Double | Extend | Zone 2 | 2-9907-1488 |
| V45TD-1507-MUE2 | 153 | 6 | 38 - 76 | 1.5 - 3 | Double | Extend | Zone 2 | 2-9907-1491 |
| V45TD-1510-MUE2 | 153 | 6 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1317 |
| V45TD-1515-MUE2 | 153 | 6 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | 2-9907-1313 |
| V45TD-1520-MUE2 | 153 | 6 | 102 - 203 | 4 - 8 | Double | Extend | Zone 2 | 2-9907-1352 |
| V45TD-1525-MUE2 | 153 | 6 | 126 - 255 | 5 - 10 | Double | Extend | Zone 2 | |
| V45TD-1530-MUE2 | 153 | 6 | 153 - 305 | 6 - 12 | Double | Extend | Zone 2 | |
| V45TD-1505-MUR2 | 153 | 6 | 25 - 51 | 1 - 2 | Double | Retract | Zone 2 | 2-9907-1475 |
| V45TD-1507-MUR2 | 153 | 6 | 38 - 76 | 1.5 - 3 | Double | Retract | Zone 2 | 2-9907-1492 |
| V45TD-1510-MUR2 | 153 | 6 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1316 |
| V45TD-1515-MUR2 | 153 | 6 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | 2-9907-1315 |
| V45TD-1520-MUR2 | 153 | 6 | 102 - 203 | 4 - 8 | Double | Retract | Zone 2 | 2-9907-1312 |
| V45TD-1525-MUR2 | 153 | 6 | 126 - 255 | 5 - 10 | Double | Retract | Zone 2 | 2-9907-1380 |
| V45TD-1530-MUR2 | 153 | 6 | 153 - 305 | 6 - 12 | Double | Retract | Zone 2 | 2-9907-1384 |
| V45TD-2010-MUE2 | 203 | 8 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1318 |
| V45TD-2015-MUE2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | 2-9907-1321 |
| V45TD-2020-MUE2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Extend | Zone 2 | 2-9907-1322 |
| V45TD-2025-MUE2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Extend | Zone 2 | 2-9907-1368 |
| V45TD-2025-MUE-DV | 203 | 8 | 126 - 255 | 5 - 10 | Double | Extend | Zone 2 | 2-9907-1993 |
| V45TD-2025-MUE-DVR | 203 | 8 | 126 - 255 | 5 - 10 | Double | Extend | Zone 2 | 2-9907-2010 |
| V45TD-2030-MUE2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Extend | Zone 2 | 2-9907-1371 |
| V45TD-2010-MUR2 | 203 | 8 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1324 |
| V45TD-2015-MUR2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | 2-9907-1325 |
| V45TD-2020-MUR2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Retract | Zone 2 | 2-9907-1319 |
| V45TD-2025-MUR2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Retract | Zone 2 | 2-9907-1320 |
| V45TD-2030-MUR2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Retract | Zone 2 | 2-9907-1323 |
| V45TD-2510-MUE2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1330 |
| V45TD-2515-MUE2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | 2-9907-1329 |
| V45TD-2520-MUE2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Extend | Zone 2 | 2-9907-1342 |

Manual 25182

Standard Products Catalog (Industrial Markets)

| | | | | | | | | |
|-------------------|-----|----|-----------|---------|--------|---------|--------|-------------|
| V45TD-2525-MUE2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Extend | Zone 2 | 2-9907-1343 |
| V45TD-2530-MUE2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Extend | Zone 2 | 2-9907-1361 |
| V45TD-2510-MUR2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1331 |
| V45TD-2515-MUR2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | 2-9907-1327 |
| V45TD-2520-MUR2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Retract | Zone 2 | 2-9907-1328 |
| V45TD-2525-MUR2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Retract | Zone 2 | 2-9907-1358 |
| V45TD-2530-MUR2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Retract | Zone 2 | 2-9907-1362 |
| V45TD-1007-FUE2 | 102 | 4 | 38 - 76 | 1.5 - 3 | Double | Extend | Zone 2 | 2-9907-1731 |
| V45TD-1010-FUE2 | 102 | 4 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1550 |
| V45TD-1015-FUE2 | 102 | 4 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | 2-9907-1732 |
| V45TD-1010-FUR2 | 102 | 4 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1734 |
| V45TD-1015-FUR2 | 102 | 4 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | 2-9907-1735 |
| V45TD-1210-FUE2 | 127 | 5 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1757 |
| V45TD-1215-FUE2 | 127 | 5 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | 2-9907-1758 |
| V45TD-1210-FUR2 | 127 | 5 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1761 |
| V45TD-1215-FUR2 | 127 | 5 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | |
| V45TD-1505-FUE2 | 153 | 6 | 51 - 102 | 1 - 2 | Double | Extend | Zone 2 | 2-9907-1489 |
| V45TD-1507-FUE2 | 153 | 6 | 38 - 76 | 1.5 - 3 | Double | Extend | Zone 2 | 2-9907-1493 |
| V45TD-1510-FUE2 | 153 | 6 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1374 |
| V45TD-1515-FUE2 | 153 | 6 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | 2-9907-1548 |
| V45TD-1520-FUE2 | 153 | 6 | 102 - 203 | 4 - 8 | Double | Extend | Zone 2 | 2-9907-1377 |
| V45TD-1507-FUR2 | 153 | 6 | 38 - 76 | 1.5 - 3 | Double | Extend | Zone 2 | 2-9907-1494 |
| V45TD-1510-FUR2 | 153 | 6 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1314 |
| V45TD-1515-FUR2 | 153 | 6 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | 2-9907-1375 |
| V45TD-1520-FUR2 | 153 | 6 | 102 - 203 | 4 - 8 | Double | Retract | Zone 2 | 2-9907-1378 |
| V45TD-1525-FUR2 | 153 | 6 | 126 - 255 | 5 - 10 | Double | Retract | Zone 2 | |
| V45TD-1530-FUR2 | 153 | 6 | 153 - 305 | 6 - 12 | Double | Retract | Zone 2 | 2-9907-1386 |
| V45TD-2010-FUE2 | 203 | 8 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1365 |
| V45TD-2015-FUE2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | 2-9907-1338 |
| V45TD-2020-FUE2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Extend | Zone 2 | 2-9907-1326 |
| V45TD-2020-FUE-DV | 203 | 8 | 102 - 203 | 4 - 8 | Double | Extend | Zone 2 | 2-9907-1995 |
| V45TD-2025-FUE2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Extend | Zone 2 | 2-9907-1369 |
| V45TD-2030-FUE2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Extend | Zone 2 | 2-9907-1372 |
| V45TD-2010-FUR2 | 203 | 8 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1366 |
| V45TD-2015-FUR2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | 2-9907-1339 |
| V45TD-2020-FUR2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Retract | Zone 2 | 2-9907-1367 |
| V45TD-2025-FUR2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Retract | Zone 2 | 2-9907-1370 |
| V45TD-2030-FUR2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Retract | Zone 2 | 2-9907-1373 |
| V45TD-2510-FUE2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1353 |
| V45TD-2515-FUE2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | 2-9907-1355 |
| V45TD-2520-FUE2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Extend | Zone 2 | 2-9907-1332 |
| V45TD-2525-FUE2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Extend | Zone 2 | 2-9907-1359 |
| V45TD-2530-FUE2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Extend | Zone 2 | 2-9907-1363 |
| V45TD-2510-FUR2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1354 |
| V45TD-2515-FUR2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | 2-9907-1356 |

| | | | | | | | | |
|-----------------|-----|----|-----------|--------|--------|---------|--------|-------------|
| V45TD-2520-FUR2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Retract | Zone 2 | 2-9907-1357 |
| V45TD-2525-FUR2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Retract | Zone 2 | 2-9907-1360 |
| V45TD-2530-FUR2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Retract | Zone 2 | 2-9907-1364 |

Table 6-1. VS-I Actuator Models

Table 6-2. VS-I Double-Acting Spring Assist Actuator Models

| VS-I - Double-Acting Spring Assist Actuator Models | | | | | | | | |
|--|-------------------|----------|--------------|----------|------------------------|---------------------|--------------|----------------------|
| VSI Model # | Cylinder Diameter | | Stroke Range | | Output Cylinder Action | Fail Safe Direction | Zone Ratings | Internal Part Number |
| | (mm) | (inches) | (mm) | (inches) | | | | |
| V45TS-1010-MUE2 | 102 | 4 | 51 - 102 | 2 - 4 | (56 - 112 lbs) | Extend | Zone 2 | 2-9907-1552 |
| V45TT-1010-MUE2 | 102 | 4 | 51 - 102 | 2 - 4 | (114 - 226 lbs) | Extend | Zone 2 | 2-9907-1610 |
| V45TU-1010-MUE2 | 102 | 4 | 51 - 102 | 2 - 4 | (224 - 478 lbs) | Extend | Zone 2 | 2-9907-1611 |
| V45TS-1015-MUE2 | 102 | 4 | 76 - 153 | 3 - 6 | Spring Assist | Extend | Zone 2 | |
| V45TS-1010-MUR2 | 102 | 4 | 51 - 102 | 2 - 4 | (56 - 112 lbs) | Retract | Zone 2 | 2-9907-1608 |
| V45TT-1010-MUR2 | 102 | 4 | 51 - 102 | 2 - 4 | (114 - 226 lbs) | Extend | Zone 2 | 2-9907-1614 |
| V45TU-1010-MUR2 | 102 | 4 | 51 - 102 | 2 - 4 | (224 - 478 lbs) | Extend | Zone 2 | 2-9907-1615 |
| V45TS-1015-MUR2 | 102 | 4 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | |
| V45TS-1507-MUE2 | 153 | 6 | 38 - 76 | 1.5 - 3 | Spring Assist | Extend | Zone 2 | 2-9907-1678 |
| V45TT-1507-MUE2 | 153 | 6 | 38 - 76 | 1.5 - 3 | (235 - 471 lbs) | Extend | Zone 2 | 2-9907-1679 |
| V45TU-1507-MUE2 | 153 | 6 | 38 - 76 | 1.5 - 3 | (520 - 1040 lbs) | Extend | Zone 2 | 2-9907-1680 |
| V45TS-1510-MUE2 | 153 | 6 | 51 - 102 | 2 - 4 | (108 - 216 lbs) | Extend | Zone 2 | 2-9907-1681 |
| V45TT-1510-MUE2 | 153 | 6 | 51 - 102 | 2 - 4 | (235 - 471 lbs) | Extend | Zone 2 | 2-9907-1682 |
| V45TS-1515-MUE2 | 153 | 6 | 76 - 153 | 3 - 6 | Spring Assist | Extend | Zone 2 | |
| V45TS-1520-MUE2 | 153 | 6 | 102 - 203 | 4 - 8 | Spring Assist | Extend | Zone 2 | |
| V45TS-1510-MUR2 | 153 | 6 | 51 - 102 | 2 - 4 | Spring Assist | Retract | Zone 2 | 2-9907-1693 |
| V45TU-1510-MUR2 | 153 | 6 | 51 - 102 | 2 - 4 | Spring Assist | Retract | Zone 2 | 2-9907-1695 |
| V45TS-1515-MUR2 | 153 | 6 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | |
| V45TS-1520-MUR2 | 153 | 6 | 102 - 203 | 4 - 8 | Spring Assist | Retract | Zone 2 | |
| V45TS-2007-MUE2 | 203 | 8 | 38 - 76 | 1.5 - 3 | (262 - 524 lbs) | Extend | Zone 2 | 2-9907-1597 |
| V45TT-2007-MUE2 | 203 | 8 | 38 - 76 | 1.5 - 3 | (528 - 1057 lbs) | Extend | Zone 2 | 2-9907-1602 |
| V45TU-2007-MUE2 | 203 | 8 | 38 - 76 | 1.5 - 3 | Spring Assist | Extend | Zone 2 | 2-9907-1598 |
| V45TV-2007-MUE2 | 203 | 8 | 38 - 76 | 1.5 - 3 | (1946 - 4046 lbs) | Extend | Zone 2 | 2-9907-1651 |
| V45TS-2010-MUE2 | 203 | 8 | 51 - 102 | 2 - 4 | (242 - 544 lbs) | Extend | Zone 2 | 2-9907-1652 |
| V45TV-2010-MUE2 | 203 | 8 | 51 - 102 | 2 - 4 | (2023 - 4046 lbs) | Extend | Zone 2 | 2-9907-1478 |
| V45TS-2015-MUE2 | 203 | 8 | 76 - 153 | 3 - 6 | Spring Assist | Extend | Zone 2 | |
| V45TS-2020-MUE2 | 203 | 8 | 102 - 203 | 4 - 8 | Spring Assist | Extend | Zone 2 | |
| V45TS-2025-MUE2 | 203 | 8 | 126 - 255 | 5 - 10 | Spring Assist | Extend | Zone 2 | |
| V45TS-2030-MUE2 | 203 | 8 | 153 - 305 | 6 - 12 | Spring Assist | Extend | Zone 2 | |
| V45TS-2010-MUR2 | 203 | 8 | 51 - 102 | 2 - 4 | (56 - 112 lbs) | Retract | Zone 2 | 2-9907-1667 |
| V45TT-2010-MUR2 | 203 | 8 | 51 - 102 | 2 - 4 | (528 - 1057 lbs) | Retract | Zone 2 | 2-9907-1668 |
| V45TU-2010-MUR2 | 203 | 8 | 51 - 102 | 2 - 4 | Spring Assist | Retract | Zone 2 | 2-9907-1669 |
| V45TS-2015-MUR2 | 203 | 8 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | |
| V45TU-2015-MUR2 | 203 | 8 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | 2-9907-1989 |
| V45TS-2020-MUR2 | 203 | 8 | 102 - 203 | 4 - 8 | Spring Assist | Retract | Zone 2 | |
| V45TS-2025-MUR2 | 203 | 8 | 126 - 255 | 5 - 10 | Spring Assist | Retract | Zone 2 | |
| V45TS-2030-MUR2 | 203 | 8 | 153 - 305 | 6 - 12 | Spring Assist | Retract | Zone 2 | |
| V45TS-2510-MUE2 | 255 | 10 | 51 - 102 | 2 - 4 | Spring Assist | Extend | Zone 2 | 2-9907-1630 |

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| | | | | | | | | |
|-----------------|-----|----|------------|---------|-------------------|---------|--------|-------------|
| V45TS-2515-MUE2 | 255 | 10 | 76 - 153 | 3 - 6 | Spring Assist | Extend | Zone 2 | 2-9907-1999 |
| V45TT-2515-MUE2 | 255 | 10 | 528 - 1057 | 3 - 6 | Spring Assist | Extend | Zone 2 | 2-9907-2013 |
| V45TS-2520-MUE2 | 255 | 10 | 102 - 203 | 4 - 8 | Spring Assist | Extend | Zone 2 | |
| V45TS-2525-MUE2 | 255 | 10 | 126 - 255 | 5 - 10 | Spring Assist | Extend | Zone 2 | |
| V45TS-2530-MUE2 | 255 | 10 | 153 - 305 | 6 - 12 | Spring Assist | Extend | Zone 2 | |
| V45TS-2510-MUR2 | 255 | 10 | 51 - 102 | 2 - 4 | Spring Assist | Retract | Zone 2 | 2-9907-1638 |
| V45TS-2515-MUR2 | 255 | 10 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | |
| V45TT-2515-MUR2 | 255 | 10 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | 2-9907-2017 |
| V45TS-2520-MUR2 | 255 | 10 | 102 - 203 | 4 - 8 | Spring Assist | Retract | Zone 2 | |
| V45TS-2525-MUR2 | 255 | 10 | 126 - 255 | 5 - 10 | Spring Assist | Retract | Zone 2 | |
| V45TS-2530-MUR2 | 255 | 10 | 153 - 305 | 6 - 12 | Spring Assist | Retract | Zone 2 | |
| V45TS-1010-FUE2 | 102 | 4 | 51 - 102 | 2 - 4 | (56 - 112 lbs) | Extend | Zone 2 | 2-9907-1607 |
| V45TT-1010-FUE2 | 102 | 4 | 51 - 102 | 2 - 4 | (114 - 226 lbs) | Extend | Zone 2 | 2-9907-1612 |
| V45TU-1010-FUE2 | 102 | 4 | 51 - 102 | 2 - 4 | (224 - 478 lbs) | Extend | Zone 2 | 2-9907-1613 |
| V45TS-1015-FUE2 | 102 | 4 | 76 - 153 | 3 - 6 | Spring Assist | Extend | Zone 2 | |
| V45TS-1010-FUR2 | 102 | 4 | 51 - 102 | 2 - 4 | (56 - 112 lbs) | Retract | Zone 2 | 2-9907-1609 |
| V45TT-1010-FUR2 | 102 | 4 | 51 - 102 | 2 - 4 | (114 - 226 lbs) | Retract | Zone 2 | 2-9907-1616 |
| V45TU-1010-FUR2 | 102 | 4 | 51 - 102 | 2 - 4 | (224 - 478 lbs) | Retract | Zone 2 | 2-9907-1617 |
| V45TS-1015-FUR2 | 102 | 4 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | |
| V45TS-1510-FUE2 | 153 | 6 | 51 - 102 | 2 - 4 | Spring Assist | Extend | Zone 2 | 2-9907-1687 |
| V45TT-1510-FUE2 | 153 | 6 | 51 - 102 | 2 - 4 | Spring Assist | Extend | Zone 2 | 2-9907-1688 |
| V45TS-1515-FUE2 | 153 | 6 | 76 - 153 | 3 - 6 | Spring Assist | Extend | Zone 2 | |
| V45TS-1520-FUE2 | 153 | 6 | 102 - 203 | 4 - 8 | Spring Assist | Extend | Zone 2 | |
| V45TS-1510-FUR2 | 153 | 6 | 51 - 102 | 2 - 4 | Spring Assist | Retract | Zone 2 | 2-9907-1699 |
| V45TS-1515-FUR2 | 153 | 6 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | |
| V45TS-1520-FUR2 | 153 | 6 | 102 - 203 | 4 - 8 | Spring Assist | Retract | Zone 2 | |
| V45TS-2007-FUE2 | 203 | 8 | 51 - 102 | 1.5 - 3 | Spring Assist | Extend | Zone 2 | |
| V45TT-2007-FUE2 | 203 | 8 | 51 - 102 | 1.5 - 3 | (528 - 1057 lbs) | Extend | Zone 2 | 2-9907-1656 |
| V45TU-2007-FUE2 | 203 | 8 | 51 - 102 | 1.5 - 3 | (1052 - 2104 lbs) | Extend | Zone 2 | 2-9907-1657 |
| V45TS-2010-FUE2 | 203 | 8 | 51 - 102 | 2 - 4 | Spring Assist | Extend | Zone 2 | 2-9907-1659 |
| V45TT-2010-FUE2 | 203 | 8 | 51 - 102 | 2 - 4 | Spring Assist | Extend | Zone 2 | 2-9907-1660 |
| V45TS-2015-FUE2 | 203 | 8 | 76 - 153 | 3 - 6 | Spring Assist | Extend | Zone 2 | |
| V45TS-2020-FUE2 | 203 | 8 | 102 - 203 | 4 - 8 | Spring Assist | Extend | Zone 2 | |
| V45TS-2025-FUE2 | 203 | 8 | 126 - 255 | 5 - 10 | Spring Assist | Extend | Zone 2 | |
| V45TS-2030-FUE2 | 203 | 8 | 153 - 305 | 6 - 12 | Spring Assist | Extend | Zone 2 | |
| V45TS-2010-FUR2 | 203 | 8 | 51 - 102 | 2 - 4 | Spring Assist | Retract | Zone 2 | 2-9907-1674 |
| V45TS-2015-FUR2 | 203 | 8 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | |
| V45TS-2020-FUR2 | 203 | 8 | 102 - 203 | 4 - 8 | Spring Assist | Retract | Zone 2 | |
| V45TS-2025-FUR2 | 203 | 8 | 126 - 255 | 5 - 10 | Spring Assist | Retract | Zone 2 | |
| V45TS-2030-FUR2 | 203 | 8 | 153 - 305 | 6 - 12 | Spring Assist | Retract | Zone 2 | |
| V45TS-2510-FUE2 | 255 | 10 | 51 - 102 | 2 - 4 | Spring Assist | Extend | Zone 2 | 2-9907-1634 |
| V45TS-2515-FUE2 | 255 | 10 | 76 - 153 | 3 - 6 | Spring Assist | Extend | Zone 2 | |
| V45TS-2520-FUE2 | 255 | 10 | 102 - 203 | 4 - 8 | Spring Assist | Extend | Zone 2 | |
| V45TS-2525-FUE2 | 255 | 10 | 126 - 255 | 5 - 10 | Spring Assist | Extend | Zone 2 | |
| V45TS-2530-FUE2 | 255 | 10 | 153 - 305 | 6 - 12 | Spring Assist | Extend | Zone 2 | |

| | | | | | | | | |
|-----------------|-----|----|-----------|--------|---------------|---------|--------|-------------|
| V45TS-2510-FUR2 | 255 | 10 | 51 - 102 | 2 - 4 | Spring Assist | Retract | Zone 2 | 2-9907-1642 |
| V45TS-2515-FUR2 | 255 | 10 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | |
| V45TS-2520-FUR2 | 255 | 10 | 102 - 203 | 4 - 8 | Spring Assist | Retract | Zone 2 | |
| V45TS-2525-FUR2 | 255 | 10 | 126 - 255 | 5 - 10 | Spring Assist | Retract | Zone 2 | |
| V45TS-2530-FUR2 | 255 | 10 | 153 - 305 | 6 - 12 | Spring Assist | Retract | Zone 2 | |

Table 6-3. VS-I Single-Acting Actuator Models

| VS-I - Single-Acting Actuator Models | | | | | | | | |
|--------------------------------------|-------------------|----------|--------------|----------|------------------------------------|---------------------|--------------|----------------------|
| VSI Model # | Cylinder Diameter | | Stroke Range | | Power Cylinder Return Spring Force | Fail Safe Direction | Zone Ratings | Internal Part Number |
| | (mm) | (inches) | (mm) | (inches) | | | | |
| V45TM-2007-MUE-DV | 203 | 8 | 38 - 76 | 1.5 - 3 | (1052 - 2104 lbs) | Extend | Zone 2 | 2-9907-1991 |
| V45TG-2030-MUE-DV | 203 | 8 | 153 - 305 | 6 - 12 | No Spring | Extend | Zone 2 | 2-9907-1992 |
| V45TG-2030-MUE-DVR | 203 | 8 | 153 - 305 | 6 - 12 | No Spring | Extend | Zone 2 | 2-9907-2008 |

Table 6-4. VS-I Remote Servo and Cylinder Kits

| VS-I - Remote Servo & Cylinder Kits | | | | | | | | |
|-------------------------------------|-------------------|----------|--------------|----------|------------------------|---------------------|--------------|----------------------|
| VSI Model # | Cylinder Diameter | | Stroke Range | | Output Cylinder Action | Fail Safe Direction | Zone Ratings | Internal Part Number |
| | (mm) | (inches) | (mm) | (inches) | | | | |
| V45RD-1007-MUE2 | 102 | 4 | 38 - 76 | 1.5 - 3 | Double | Extend | Zone 2 | 2-9907-1736 |
| V45RD-1010-MUE2 | 102 | 4 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1737 |
| V45RD-1015-MUE2 | 102 | 4 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | 2-9907-1546 |
| V45RD-1010-MUR2 | 102 | 4 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1739 |
| V45RD-1015-MUR2 | 102 | 4 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | 2-9907-1740 |
| V45RD-1505-MUE2 | 153 | 6 | 25 - 51 | 1 - 2 | Double | Extend | Zone 2 | 2-9907-1484 |
| V45RD-1507-MUE2 | 153 | 6 | 38 - 76 | 1.5 - 3 | Double | Extend | Zone 2 | 2-9907-1480 |
| V45RD-1510-MUE2 | 153 | 6 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1425 |
| V45RD-1515-MUE2 | 153 | 6 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | 2-9907-1429 |
| V45RD-1520-MUE2 | 153 | 6 | 102 - 203 | 4 - 8 | Double | Extend | Zone 2 | 2-9907-1433 |
| V45RD-1525-MUE2 | 153 | 6 | 126 - 255 | 5 - 10 | Double | Retract | Zone 2 | |
| V45RD-1530-MUE2 | 153 | 6 | 153 - 305 | 6 - 12 | Double | Retract | Zone 2 | |
| V45RD-1507-MUR2 | 153 | 6 | 38 - 76 | 1.5 - 3 | Double | Retract | Zone 2 | 2-9907-1481 |
| V45RD-1510-MUR2 | 153 | 6 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1426 |
| V45RD-1515-MUR2 | 153 | 6 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | 2-9907-1430 |
| V45RD-1520-MUR2 | 153 | 6 | 102 - 203 | 4 - 8 | Double | Retract | Zone 2 | 2-9907-1434 |
| V45RD-1525-MUR2 | 153 | 6 | 126 - 255 | 5 - 10 | Double | Retract | Zone 2 | |
| V45RD-1530-MUR2 | 153 | 6 | 153 - 305 | 6 - 12 | Double | Retract | Zone 2 | |
| V45RD-2010-MUE2 | 203 | 8 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1255 |
| V45RD-2015-MUE2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | 2-9907-1389 |
| V45RD-2020-MUE2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Extend | Zone 2 | 2-9907-1393 |
| V45RD-2025-MUE2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Extend | Zone 2 | 2-9907-1397 |
| V45RD-2030-MUE2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Extend | Zone 2 | 2-9907-1401 |
| V45RD-2010-MUR2 | 203 | 8 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1387 |
| V45RD-2015-MUR2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | 2-9907-1390 |
| V45RD-2020-MUR2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Retract | Zone 2 | 2-9907-1394 |
| V45RD-2025-MUR2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Retract | Zone 2 | 2-9907-1398 |
| V45RD-2030-MUR2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Retract | Zone 2 | 2-9907-1402 |
| V45RD-2510-MUE2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1405 |
| V45RD-2515-MUE2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | 2-9907-1409 |
| V45RD-2520-MUE2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Extend | Zone 2 | 2-9907-1413 |
| V45RD-2525-MUE2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Extend | Zone 2 | 2-9907-1417 |
| V45RD-2530-MUE2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Extend | Zone 2 | 2-9907-1421 |
| V45RD-2510-MUR2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1406 |
| V45RD-2515-MUR2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | 2-9907-1410 |
| V45RD-2520-MUR2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Retract | Zone 2 | 2-9907-1414 |
| V45RD-2525-MUR2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Retract | Zone 2 | 2-9907-1418 |
| V45RD-2530-MUR2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Retract | Zone 2 | 2-9907-1422 |

| | | | | | | | | |
|-----------------|-----|----|-----------|--------|--------|---------|--------|-------------|
| V45RD-1010-FUE2 | 102 | 4 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1742 |
| V45RD-1015-FUE2 | 102 | 4 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | 2-9907-1743 |
| V45RD-1010-FUR2 | 102 | 4 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1745 |
| V45RD-1015-FUR2 | 102 | 4 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | 2-9907-1746 |
| V45RD-1505-FUE2 | 153 | 6 | 25 - 51 | 1 - 2 | Double | Extend | Zone 2 | 2-9907-1486 |
| V45RD-1510-FUE2 | 153 | 6 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1427 |
| V45RD-1515-FUE2 | 153 | 6 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | 2-9907-1431 |
| V45RD-1520-FUE2 | 153 | 6 | 102 - 203 | 4 - 8 | Double | Extend | Zone 2 | 2-9907-1435 |
| V45RD-1525-FUE2 | 153 | 6 | 126 - 255 | 5 - 10 | Double | Extend | Zone 2 | |
| V45RD-1530-FUE2 | 153 | 6 | 153 - 305 | 6 - 12 | Double | Extend | Zone 2 | |
| V45RD-1510-FUR2 | 153 | 6 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1428 |
| V45RD-1515-FUR2 | 153 | 6 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | 2-9907-1432 |
| V45RD-1520-FUR2 | 153 | 6 | 102 - 203 | 4 - 8 | Double | Retract | Zone 2 | 2-9907-1436 |
| V45RD-1525-FUR2 | 153 | 6 | 126 - 255 | 5 - 10 | Double | Extend | Zone 2 | |
| V45RD-1530-FUR2 | 153 | 6 | 153 - 305 | 6 - 12 | Double | Extend | Zone 2 | 2-9907-1444 |
| V45RD-2010-FUE2 | 203 | 8 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1348 |
| V45RD-2015-FUE2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | 2-9907-1391 |
| V45RD-2020-FUE2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Extend | Zone 2 | 2-9907-1395 |
| V45RD-2025-FUE2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Extend | Zone 2 | 2-9907-1399 |
| V45RD-2030-FUE2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Extend | Zone 2 | 2-9907-1403 |
| V45RD-2010-FUR2 | 203 | 8 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1388 |
| V45RD-2015-FUR2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | 2-9907-1392 |
| V45RD-2020-FUR2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Retract | Zone 2 | 2-9907-1396 |
| V45RD-2025-FUR2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Retract | Zone 2 | 2-9907-1400 |
| V45RD-2030-FUR2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Retract | Zone 2 | 2-9907-1404 |
| V45RD-2510-FUE2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Extend | Zone 2 | 2-9907-1407 |
| V45RD-2515-FUE2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Extend | Zone 2 | 2-9907-1411 |
| V45RD-2520-FUE2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Extend | Zone 2 | 2-9907-1415 |
| V45RD-2525-FUE2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Extend | Zone 2 | 2-9907-1419 |
| V45RD-2530-FUE2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Extend | Zone 2 | 2-9907-1423 |
| V45RD-2510-FUR2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Retract | Zone 2 | 2-9907-1408 |
| V45RD-2515-FUR2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Retract | Zone 2 | 2-9907-1412 |
| V45RD-2520-FUR2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Retract | Zone 2 | 2-9907-1416 |
| V45RD-2525-FUR2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Retract | Zone 2 | 2-9907-1420 |
| V45RD-2530-FUR2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Retract | Zone 2 | 2-9907-1424 |

Table 6-5. VS-I Spring Assist – Remote Servo & Cylinder Kit

| VS-I - Spring Assist - Remote Servo & Cylinder Kits | | | | | | | | |
|---|-------------------|----------|--------------|----------|------------------------|---------------------|--------------|----------------------|
| VSI Model # | Cylinder Diameter | | Stroke Range | | Output Cylinder Action | Fail Safe Direction | Zone Ratings | Internal Part Number |
| | (mm) | (inches) | (mm) | (inches) | | | | |
| V45RS-1010-MUE2 | 102 | 4 | 51 - 102 | 2 - 4 | Spring Assist | Extend | Zone 2 | 2-9907-1618 |
| V45RS-1015-MUE2 | 102 | 4 | 76 - 153 | 3 - 6 | Spring Assist | Extend | Zone 2 | |
| V45RS-1010-MUR2 | 102 | 4 | 51 - 102 | 2 - 4 | Spring Assist | Retract | Zone 2 | 2-9907-1624 |

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| V45RS-1015-MUR2 | 102 | 4 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | |
| V45RS-1510-MUE2 | 153 | 6 | 51 - 102 | 2 - 4 | Spring Assist | Extend | Zone 2 | 2-9907-1705 |
| V45RS-1515-MUE2 | 153 | 6 | 76 - 153 | 3 - 6 | Spring Assist | Extend | Zone 2 | |
| V45RS-1520-MUE2 | 153 | 6 | 102 - 203 | 4 - 8 | Spring Assist | Extend | Zone 2 | |
| V45RS-1510-MUR2 | 153 | 6 | 51 - 102 | 2 - 4 | Spring Assist | Retract | Zone 2 | 2-9907-1717 |
| V45RS-1515-MUR2 | 153 | 6 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | |
| V45RS-1520-MUR2 | 153 | 6 | 102 - 203 | 4 - 8 | Spring Assist | Retract | Zone 2 | |
| V45RS-2007-MUE2 | 203 | 8 | 38 - 76 | 1.5 - 3 | Spring Assist | Extend | Zone 2 | 2-9907-1566 |
| V45RT-2007-MUE2 | 203 | 8 | 38 - 76 | 1.5 - 3 | (528 - 1057 lbs) | Extend | Zone 2 | 2-9907-1603 |
| V45RS-2010-MUE2 | 203 | 8 | 51 - 102 | 2 - 4 | Spring Assist | Extend | Zone 2 | 2-9907-1569 |
| V45RT-2010-MUE2 | 203 | 8 | 51 - 102 | 2 - 4 | Spring Assist | Extend | Zone 2 | 2-9907-1570 |
| V45RS-2015-MUE2 | 203 | 8 | 76 - 153 | 3 - 6 | Spring Assist | Extend | Zone 2 | |
| V45RS-2020-MUE2 | 203 | 8 | 102 - 203 | 4 - 8 | Spring Assist | Extend | Zone 2 | |
| V45RS-2025-MUE2 | 203 | 8 | 126 - 255 | 5 - 10 | Spring Assist | Extend | Zone 2 | |
| V45RS-2030-MUE2 | 203 | 8 | 153 - 305 | 6 - 12 | Spring Assist | Extend | Zone 2 | |
| V45RS-2010-MUR2 | 203 | 8 | 51 - 102 | 2 - 4 | Spring Assist | Retract | Zone 2 | 2-9907-1585 |
| V45RS-2015-MUR2 | 203 | 8 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | |
| V45RS-2020-MUR2 | 203 | 8 | 102 - 203 | 4 - 8 | Spring Assist | Retract | Zone 2 | |
| V45RS-2025-MUR2 | 203 | 8 | 126 - 255 | 5 - 10 | Spring Assist | Retract | Zone 2 | |
| V45RS-2030-MUR2 | 203 | 8 | 153 - 305 | 6 - 12 | Spring Assist | Retract | Zone 2 | |
| V45RS-2510-MUE2 | 255 | 10 | 51 - 102 | 2 - 4 | Spring Assist | Extend | Zone 2 | 2-9907-1646 |
| V45RS-2515-MUE2 | 255 | 10 | 76 - 153 | 3 - 6 | Spring Assist | Extend | Zone 2 | |
| V45RS-2520-MUE2 | 255 | 10 | 102 - 203 | 4 - 8 | Spring Assist | Extend | Zone 2 | |
| V45RS-2525-MUE2 | 255 | 10 | 126 - 255 | 5 - 10 | Spring Assist | Extend | Zone 2 | |
| V45RS-2530-MUE2 | 255 | 10 | 153 - 305 | 6 - 12 | Spring Assist | Extend | Zone 2 | |
| V45RS-2510-MUR2 | 255 | 10 | 51 - 102 | 2 - 4 | Spring Assist | Retract | Zone 2 | 2-9907-1558 |
| V45RS-2515-MUR2 | 255 | 10 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | |
| V45RS-2520-MUR2 | 255 | 10 | 102 - 203 | 4 - 8 | Spring Assist | Retract | Zone 2 | |
| V45RS-2525-MUR2 | 255 | 10 | 126 - 255 | 5 - 10 | Spring Assist | Retract | Zone 2 | |
| V45RS-2530-MUR2 | 255 | 10 | 153 - 305 | 6 - 12 | Spring Assist | Retract | Zone 2 | |
| V45RS-1010-FUE2 | 102 | 4 | 51 - 102 | 2 - 4 | Spring Assist | Extend | Zone 2 | 2-9907-1621 |
| V45RS-1015-FUE2 | 102 | 4 | 76 - 153 | 3 - 6 | Spring Assist | Extend | Zone 2 | |
| V45RS-1010-FUR2 | 102 | 4 | 51 - 102 | 2 - 4 | Spring Assist | Retract | Zone 2 | 2-9907-1627 |
| V45RS-1015-FUR2 | 102 | 4 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | |
| V45RS-1510-FUE2 | 153 | 6 | 51 - 102 | 2 - 4 | Spring Assist | Extend | Zone 2 | 2-9907-1711 |
| V45RS-1515-FUE2 | 153 | 6 | 76 - 153 | 3 - 6 | Spring Assist | Extend | Zone 2 | |
| V45RS-1520-FUE2 | 153 | 6 | 102 - 203 | 4 - 8 | Spring Assist | Extend | Zone 2 | |
| V45RS-1510-FUR2 | 153 | 6 | 51 - 102 | 2 - 4 | Spring Assist | Retract | Zone 2 | 2-9907-1723 |
| V45RS-1515-FUR2 | 153 | 6 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | |
| V45RS-1520-FUR2 | 153 | 6 | 102 - 203 | 4 - 8 | Spring Assist | Retract | Zone 2 | |
| V45RS-2007-FUE2 | 203 | 8 | 38 - 76 | 1.5 - 3 | Spring Assist | Extend | Zone 2 | 2-9907-1573 |
| V45RT-2007-FUE2 | 203 | 8 | 38 - 76 | 1.5 - 3 | Spring Assist | Extend | Zone 2 | 2-9907-1574 |
| V45RS-2010-FUE2 | 203 | 8 | 51 - 102 | 2 - 4 | Spring Assist | Extend | Zone 2 | 2-9907-1577 |
| V45RS-2015-FUE2 | 203 | 8 | 76 - 153 | 3 - 6 | Spring Assist | Extend | Zone 2 | |
| V45RS-2020-FUE2 | 203 | 8 | 102 - 203 | 4 - 8 | Spring Assist | Extend | Zone 2 | |

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| V45RS-2025-FUE2 | 203 | 8 | 126 - 255 | 5 - 10 | Spring Assist | Extend | Zone 2 | |
| V45RS-2030-FUE2 | 203 | 8 | 153 - 305 | 6 - 12 | Spring Assist | Extend | Zone 2 | |
| V45RS-2010-FUR2 | 203 | 8 | 51 - 102 | 2 - 4 | Spring Assist | Retract | Zone 2 | 2-9907-1593 |
| V45RS-2015-FUR2 | 203 | 8 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | |
| V45RS-2020-FUR2 | 203 | 8 | 102 - 203 | 4 - 8 | Spring Assist | Retract | Zone 2 | |
| V45RS-2025-FUR2 | 203 | 8 | 126 - 255 | 5 - 10 | Spring Assist | Retract | Zone 2 | |
| V45RS-2030-FUR2 | 203 | 8 | 153 - 305 | 6 - 12 | Spring Assist | Retract | Zone 2 | |
| V45RS-2510-FUE2 | 255 | 10 | 51 - 102 | 2 - 4 | Spring Assist | Extend | Zone 2 | 2-9907-1554 |
| V45RS-2515-FUE2 | 255 | 10 | 76 - 153 | 3 - 6 | Spring Assist | Extend | Zone 2 | |
| V45RS-2520-FUE2 | 255 | 10 | 102 - 203 | 4 - 8 | Spring Assist | Extend | Zone 2 | |
| V45RS-2525-FUE2 | 255 | 10 | 126 - 255 | 5 - 10 | Spring Assist | Extend | Zone 2 | |
| V45RS-2530-FUE2 | 255 | 10 | 153 - 305 | 6 - 12 | Spring Assist | Extend | Zone 2 | |
| V45RS-2510-FUR2 | 255 | 10 | 51 - 102 | 2 - 4 | Spring Assist | Retract | Zone 2 | 2-9907-1562 |
| V45RS-2515-FUR2 | 255 | 10 | 76 - 153 | 3 - 6 | Spring Assist | Retract | Zone 2 | |
| V45RS-2520-FUR2 | 255 | 10 | 102 - 203 | 4 - 8 | Spring Assist | Retract | Zone 2 | |
| V45RS-2525-FUR2 | 255 | 10 | 126 - 255 | 5 - 10 | Spring Assist | Retract | Zone 2 | |
| V45RS-2530-FUR2 | 255 | 10 | 153 - 305 | 6 - 12 | Spring Assist | Retract | Zone 2 | |

Table 6-6. VS-II - Actuator Models

| VS-II - Actuator Models | | | | | | | | | |
|------------------------------|-------------------|----------|--------------|----------|------------------------|-------------------------|---------------------|--------------|----------------------|
| VSII Model # | Cylinder Diameter | | Stroke Range | | Output Cylinder Action | Cylinder Mounting Holes | Fail Safe Direction | Zone Ratings | Internal Part Number |
| | (mm) | (inches) | (mm) | (inches) | | | | | |
| V90TD-2015-MBE2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Bottom | Extend | Zone 2 | |
| V90TD-2020-MBE2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Bottom | Extend | Zone 2 | |
| V90TD-2025-MBE2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Bottom | Extend | Zone 2 | |
| V90TD-2030-MBE2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Bottom | Extend | Zone 2 | |
| V90TD-2015-MBR2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Bottom | Retract | Zone 2 | |
| V90TD-2020-MBR2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Bottom | Retract | Zone 2 | |
| V90TD-2025-MBR2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Bottom | Retract | Zone 2 | |
| V90TD-2030-MBR2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Bottom | Retract | Zone 2 | |
| V90TD-2035-MBR2 | 203 | 8 | 178 - 356 | 7 - 14 | Double | Bottom | Retract | Zone 2 | |
| | | | | | | | | | |
| V90TD-2510-MBE2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Bottom | Extend | Zone 2 | |
| V90TD-2515-MBE2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Bottom | Extend | Zone 2 | 2-9907-1302 |
| V90TD-2520-MBE2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Bottom | Extend | Zone 2 | 2-9907-1867 |
| V90TD-2525-MBE2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Bottom | Extend | Zone 2 | |
| V90TD-2530-MBE2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Bottom | Extend | Zone 2 | 2-9907-1282 |
| V90TD-2535-MBE2 | 255 | 10 | 178 - 356 | 7 - 14 | Double | Bottom | Extend | Zone 2 | |
| V90TD-2510-MBR2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Bottom | Retract | Zone 2 | |
| V90TD-2515-MBR2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Bottom | Retract | Zone 2 | |
| V90TD-2520-MBR2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Bottom | Retract | Zone 2 | |
| V90TD-2525-MBR2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Bottom | Retract | Zone 2 | |
| V90TD-2530-MBR2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Bottom | Retract | Zone 2 | 2-9907-1262 |
| V90TD-2535-MBR2 | 255 | 10 | 178 - 356 | 7 - 14 | Double | Bottom | Retract | Zone 2 | |
| | | | | | | | | | |
| V90TD-3010-MBE2 | 305 | 12 | 51 - 102 | 2 - 4 | Double | Bottom | Extend | Zone 2 | 2-9907-1301 |
| V90TD-3015-MBE2 | 305 | 12 | 76 - 153 | 3 - 6 | Double | Bottom | Extend | Zone 2 | 2-9907-1303 |
| V90TD-3020-MBE2 | 305 | 12 | 102 - 203 | 4 - 8 | Double | Bottom | Extend | Zone 2 | 2-9907-1263 |
| V90TD-3025-MBE2 | 305 | 12 | 126 - 255 | 5 - 10 | Double | Bottom | Extend | Zone 2 | 2-9907-1499 |
| V90TD-3030-MBE2 | 305 | 12 | 153 - 305 | 6 - 12 | Double | Bottom | Extend | Zone 2 | 2-9907-1283 |
| V90TD-3010-MBR2 | 305 | 12 | 51 - 102 | 2 - 4 | Double | Bottom | Retract | Zone 2 | |
| V90TD-3015-MBR2 | 305 | 12 | 76 - 153 | 3 - 6 | Double | Bottom | Retract | Zone 2 | |
| V90TD-3020-MBR2 | 305 | 12 | 102 - 203 | 4 - 8 | Double | Bottom | Retract | Zone 2 | |
| V90TD-3025-MBR2 | 305 | 12 | 126 - 255 | 5 - 10 | Double | Bottom | Retract | Zone 2 | |
| V90TD-3030-MBR2 | 305 | 12 | 153 - 305 | 6 - 12 | Double | Bottom | Retract | Zone 2 | |
| V90TD-3035-MBR2 | 305 | 12 | 178 - 356 | 7 - 14 | Double | Bottom | Retract | Zone 2 | |
| | | | | | | | | | |
| Female Threaded Shaft Models | | | | | | | | | |
| V90TD-2015-FBE2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Bottom | Extend | Zone 2 | |
| V90TD-2020-FBE2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Bottom | Extend | Zone 2 | |
| V90TD-2025-FBE2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Bottom | Extend | Zone 2 | |
| V90TD-2030-FBE2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Bottom | Extend | Zone 2 | |

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| V90TD-2015-FBR2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Bottom | Retract | Zone 2 | |
| V90TD-2020-FBR2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Bottom | Retract | Zone 2 | |
| V90TD-2025-FBR2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Bottom | Retract | Zone 2 | |
| V90TD-2030-FBR2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Bottom | Retract | Zone 2 | |
| V90TD-2035-FBR2 | 203 | 8 | 178 - 356 | 7 - 14 | Double | Bottom | Retract | Zone 2 | |
| | | | | | | | | | |
| V90TD-2510-FBE2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Bottom | Extend | Zone 2 | |
| V90TD-2515-FBE2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Bottom | Extend | Zone 2 | |
| V90TD-2520-FBE2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Bottom | Extend | Zone 2 | 2-9907-1261 |
| V90TD-2525-FBE2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Bottom | Extend | Zone 2 | |
| V90TD-2530-FBE2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Bottom | Extend | Zone 2 | |
| V90TD-2535-FBE2 | 255 | 10 | 178 - 356 | 7 - 14 | Double | Bottom | Extend | Zone 2 | |
| V90TD-2510-FBR2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Bottom | Retract | Zone 2 | |
| V90TD-2515-FBR2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Bottom | Retract | Zone 2 | |
| V90TD-2520-FBR2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Bottom | Retract | Zone 2 | |
| V90TD-2525-FBR2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Bottom | Retract | Zone 2 | |
| V90TD-2530-FBR2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Bottom | Retract | Zone 2 | |
| V90TD-2535-FBR2 | 255 | 10 | 178 - 356 | 7 - 14 | Double | Bottom | Retract | Zone 2 | |
| | | | | | | | | | |
| V90TD-3010-FBE2 | 305 | 12 | 51 - 102 | 2 - 4 | Double | Bottom | Extend | Zone 2 | |
| V90TD-3015-FBE2 | 305 | 12 | 76 - 153 | 3 - 6 | Double | Bottom | Extend | Zone 2 | |
| V90TD-3020-FBE2 | 305 | 12 | 102 - 203 | 4 - 8 | Double | Bottom | Extend | Zone 2 | |
| V90TD-3025-FBE2 | 305 | 12 | 126 - 255 | 5 - 10 | Double | Bottom | Extend | Zone 2 | 2-9907-1547 |
| V90TD-3030-FBE2 | 305 | 12 | 153 - 305 | 6 - 12 | Double | Bottom | Extend | Zone 2 | |
| V90TD-3010-FBR2 | 305 | 12 | 51 - 102 | 2 - 4 | Double | Bottom | Retract | Zone 2 | |
| V90TD-3015-FBR2 | 305 | 12 | 76 - 153 | 3 - 6 | Double | Bottom | Retract | Zone 2 | |
| V90TD-3020-FBR2 | 305 | 12 | 102 - 203 | 4 - 8 | Double | Bottom | Retract | Zone 2 | |
| V90TD-3025-FBR2 | 305 | 12 | 126 - 255 | 5 - 10 | Double | Bottom | Retract | Zone 2 | |
| V90TD-3030-FBR2 | 305 | 12 | 153 - 305 | 6 - 12 | Double | Bottom | Retract | Zone 2 | |
| V90TD-3035-FBR2 | 305 | 12 | 178 - 356 | 7 - 14 | Double | Bottom | Retract | Zone 2 | |
| Top Mount Cylinder Models | | | | | | | | | |
| V90TD-2015-MTE2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Top | Extend | Zone 2 | |
| V90TD-2020-MTE2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Top | Extend | Zone 2 | |
| V90TD-2025-MTE2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Top | Extend | Zone 2 | |
| V90TD-2030-MTE2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Top | Extend | Zone 2 | |
| V90TD-2015-MTR2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Top | Retract | Zone 2 | |
| V90TD-2020-MTR2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Top | Retract | Zone 2 | |
| V90TD-2025-MTR2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Top | Retract | Zone 2 | |
| V90TD-2030-MTR2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Top | Retract | Zone 2 | |
| V90TD-2035-MTR2 | 203 | 8 | 178 - 356 | 7 - 14 | Double | Top | Retract | Zone 2 | |
| | | | | | | | | | |
| V90TD-2510-MTE2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Top | Extend | Zone 2 | |
| V90TD-2515-MTE2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Top | Extend | Zone 2 | |
| V90TD-2520-MTE2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Top | Extend | Zone 2 | |
| V90TD-2525-MTE2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Top | Extend | Zone 2 | |
| V90TD-2530-MTE2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Top | Extend | Zone 2 | |

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| V90TD-2535-MTE2 | 255 | 10 | 178 - 356 | 7 - 14 | Double | Top | Extend | Zone 2 |
| V90TD-2510-MTR2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Top | Retract | Zone 2 |
| V90TD-2515-MTR2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Top | Retract | Zone 2 |
| V90TD-2520-MTR2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Top | Retract | Zone 2 |
| V90TD-2525-MTR2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Top | Retract | Zone 2 |
| V90TD-2530-MTR2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Top | Retract | Zone 2 |
| V90TD-2535-MTR2 | 255 | 10 | 178 - 356 | 7 - 14 | Double | Top | Retract | Zone 2 |
| | | | | | | | | |
| V90TD-3010-MTE2 | 305 | 12 | 51 - 102 | 2 - 4 | Double | Top | Extend | Zone 2 |
| V90TD-3015-MTE2 | 305 | 12 | 76 - 153 | 3 - 6 | Double | Top | Extend | Zone 2 |
| V90TD-3020-MTE2 | 305 | 12 | 102 - 203 | 4 - 8 | Double | Top | Extend | Zone 2 2-9907-1780 |
| V90TD-3025-MTE2 | 305 | 12 | 126 - 255 | 5 - 10 | Double | Top | Extend | Zone 2 |
| V90TD-3030-MTE2 | 305 | 12 | 153 - 305 | 6 - 12 | Double | Top | Extend | Zone 2 |
| V90TD-3010-MTR2 | 305 | 12 | 51 - 102 | 2 - 4 | Double | Top | Retract | Zone 2 |
| V90TD-3015-MTR2 | 305 | 12 | 76 - 153 | 3 - 6 | Double | Top | Retract | Zone 2 |
| V90TD-3020-MTR2 | 305 | 12 | 102 - 203 | 4 - 8 | Double | Top | Retract | Zone 2 |
| V90TD-3025-MTR2 | 305 | 12 | 126 - 255 | 5 - 10 | Double | Top | Retract | Zone 2 |
| V90TD-3030-MTR2 | 305 | 12 | 153 - 305 | 6 - 12 | Double | Top | Retract | Zone 2 |
| V90TD-3035-MTR2 | 305 | 12 | 178 - 356 | 7 - 14 | Double | Top | Retract | Zone 2 |
| Female Threaded Shaft Models | | | | | | | | |
| V90TD-2015-FTE2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Top | Extend | Zone 2 |
| V90TD-2020-FTE2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Top | Extend | Zone 2 |
| V90TD-2025-FTE2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Top | Extend | Zone 2 |
| V90TD-2030-FTE2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Top | Extend | Zone 2 |
| V90TD-2015-FTR2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Top | Retract | Zone 2 |
| V90TD-2020-FTR2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Top | Retract | Zone 2 |
| V90TD-2025-FTR2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Top | Retract | Zone 2 |
| V90TD-2030-FTR2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Top | Retract | Zone 2 |
| V90TD-2035-FTR2 | 203 | 8 | 178 - 356 | 7 - 14 | Double | Top | Retract | Zone 2 |
| | | | | | | | | |
| V90TD-2510-FTE2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Top | Extend | Zone 2 |
| V90TD-2515-FTE2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Top | Extend | Zone 2 |
| V90TD-2520-FTE2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Top | Extend | Zone 2 |
| V90TD-2525-FTE2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Top | Extend | Zone 2 |
| V90TD-2530-FTE2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Top | Extend | Zone 2 |
| V90TD-2535-FTE2 | 255 | 10 | 178 - 356 | 7 - 14 | Double | Top | Extend | Zone 2 |
| V90TD-2510-FTR2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Top | Retract | Zone 2 |
| V90TD-2515-FTR2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Top | Retract | Zone 2 |
| V90TD-2520-FTR2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Top | Retract | Zone 2 |
| V90TD-2525-FTR2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Top | Retract | Zone 2 |
| V90TD-2530-FTR2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Top | Retract | Zone 2 |
| V90TD-2535-FTR2 | 255 | 10 | 178 - 356 | 7 - 14 | Double | Top | Retract | Zone 2 |
| | | | | | | | | |
| V90TD-3010-FTE2 | 305 | 12 | 51 - 102 | 2 - 4 | Double | Top | Extend | Zone 2 |
| V90TD-3015-FTE2 | 305 | 12 | 76 - 153 | 3 - 6 | Double | Top | Extend | Zone 2 |
| V90TD-3020-FTE2 | 305 | 12 | 102 - 203 | 4 - 8 | Double | Top | Extend | Zone 2 |

| | | | | | | | | |
|-----------------|-----|----|-----------|--------|--------|-----|---------|--------|
| V90TD-3025-FTE2 | 305 | 12 | 126 - 255 | 5 - 10 | Double | Top | Extend | Zone 2 |
| V90TD-3030-FTE2 | 305 | 12 | 153 - 305 | 6 - 12 | Double | Top | Extend | Zone 2 |
| V90TD-3010-FTR2 | 305 | 12 | 51 - 102 | 2 - 4 | Double | Top | Retract | Zone 2 |
| V90TD-3015-FTR2 | 305 | 12 | 76 - 153 | 3 - 6 | Double | Top | Retract | Zone 2 |
| V90TD-3020-FTR2 | 305 | 12 | 102 - 203 | 4 - 8 | Double | Top | Retract | Zone 2 |
| V90TD-3025-FTR2 | 305 | 12 | 126 - 255 | 5 - 10 | Double | Top | Retract | Zone 2 |
| V90TD-3030-FTR2 | 305 | 12 | 153 - 305 | 6 - 12 | Double | Top | Retract | Zone 2 |
| V90TD-3035-FTR2 | 305 | 12 | 178 - 356 | 7 - 14 | Double | Top | Retract | Zone 2 |

Table 6-7. VS-II Remote Servo & Cylinder Kits

| VS-II - Remote Servo & Cylinder Kits | | | | | | | | | |
|--------------------------------------|-------------------|----------|--------------|----------|------------------------|-------------------------|---------------------|--------------|----------------------|
| VSII Model # | Cylinder Diameter | | Stroke Range | | Output Cylinder Action | Cylinder Mounting Holes | Fail Safe Direction | Zone Ratings | Internal Part Number |
| | (mm) | (inches) | (mm) | (inches) | | | | | |
| V90RD-2015-MBE2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2020-MBE2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2025-MBE2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2030-MBE2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2015-MBR2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Bottom | Retract | Zone 2 | |
| V90RD-2020-MBR2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Bottom | Retract | Zone 2 | |
| V90RD-2025-MBR2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Bottom | Retract | Zone 2 | |
| V90RD-2030-MBR2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Bottom | Retract | Zone 2 | |
| | | | | | | | | | |
| V90RD-2510-MBE2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2515-MBE2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2520-MBE2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2525-MBE2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2530-MBE2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2535-MBE2 | 255 | 10 | 178 - 356 | 7 - 14 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2510-MBR2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Bottom | Retract | Zone 2 | |
| V90RD-2515-MBR2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Bottom | Retract | Zone 2 | |
| V90RD-2520-MBR2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Bottom | Retract | Zone 2 | |
| V90RD-2525-MBR2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Bottom | Retract | Zone 2 | |
| V90RD-2530-MBR2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Bottom | Retract | Zone 2 | |
| V90RD-2535-MBR2 | 255 | 10 | 178 - 356 | 7 - 14 | Double | Bottom | Retract | Zone 2 | |
| | | | | | | | | | |
| V90RD-3010-MBE2 | 305 | 12 | 51 - 102 | 2 - 4 | Double | Bottom | Extend | Zone 2 | |
| V90RD-3015-MBE2 | 305 | 12 | 76 - 153 | 3 - 6 | Double | Bottom | Extend | Zone 2 | |
| V90RD-3020-MBE2 | 305 | 12 | 102 - 203 | 4 - 8 | Double | Bottom | Extend | Zone 2 | |
| V90RD-3025-MBE2 | 305 | 12 | 126 - 255 | 5 - 10 | Double | Bottom | Extend | Zone 2 | |
| V90RD-3030-MBE2 | 305 | 12 | 153 - 305 | 6 - 12 | Double | Bottom | Extend | Zone 2 | 2-9907-1898 |
| V90RD-3010-MBR2 | 305 | 12 | 51 - 102 | 2 - 4 | Double | Bottom | Retract | Zone 2 | |
| V90RD-3015-MBR2 | 305 | 12 | 76 - 153 | 3 - 6 | Double | Bottom | Retract | Zone 2 | |
| V90RD-3020-MBR2 | 305 | 12 | 102 - 203 | 4 - 8 | Double | Bottom | Retract | Zone 2 | |

| | | | | | | | | | |
|------------------------------|-----|----|-----------|--------|--------|--------|---------|--------|--|
| V90RD-3025-MBR2 | 305 | 12 | 126 - 255 | 5 - 10 | Double | Bottom | Retract | Zone 2 | |
| V90RD-3030-MBR2 | 305 | 12 | 153 - 305 | 6 - 12 | Double | Bottom | Retract | Zone 2 | |
| Female Threaded Shaft Models | | | | | | | | | |
| V90RD-2015-FBE2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2020-FBE2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2025-FBE2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2030-FBE2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2015-FBR2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Bottom | Retract | Zone 2 | |
| V90RD-2020-FBR2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Bottom | Retract | Zone 2 | |
| V90RD-2025-FBR2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Bottom | Retract | Zone 2 | |
| V90RD-2030-FBR2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Bottom | Retract | Zone 2 | |
| | | | | | | | | | |
| V90RD-2510-FBE2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2515-FBE2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2520-FBE2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2525-FBE2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2530-FBE2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2535-FBE2 | 255 | 10 | 178 - 356 | 7 - 14 | Double | Bottom | Extend | Zone 2 | |
| V90RD-2510-FBR2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Bottom | Retract | Zone 2 | |
| V90RD-2515-FBR2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Bottom | Retract | Zone 2 | |
| V90RD-2520-FBR2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Bottom | Retract | Zone 2 | |
| V90RD-2525-FBR2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Bottom | Retract | Zone 2 | |
| V90RD-2530-FBR2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Bottom | Retract | Zone 2 | |
| V90RD-2535-FBR2 | 255 | 10 | 178 - 356 | 7 - 14 | Double | Bottom | Retract | Zone 2 | |
| | | | | | | | | | |
| V90RD-3010-FBE2 | 305 | 12 | 51 - 102 | 2 - 4 | Double | Bottom | Extend | Zone 2 | |
| V90RD-3015-FBE2 | 305 | 12 | 76 - 153 | 3 - 6 | Double | Bottom | Extend | Zone 2 | |
| V90RD-3020-FBE2 | 305 | 12 | 102 - 203 | 4 - 8 | Double | Bottom | Extend | Zone 2 | |
| V90RD-3025-FBE2 | 305 | 12 | 126 - 255 | 5 - 10 | Double | Bottom | Extend | Zone 2 | |
| V90RD-3030-FBE2 | 305 | 12 | 153 - 305 | 6 - 12 | Double | Bottom | Extend | Zone 2 | |
| V90RD-3010-FBR2 | 305 | 12 | 51 - 102 | 2 - 4 | Double | Bottom | Retract | Zone 2 | |
| V90RD-3015-FBR2 | 305 | 12 | 76 - 153 | 3 - 6 | Double | Bottom | Retract | Zone 2 | |
| V90RD-3020-FBR2 | 305 | 12 | 102 - 203 | 4 - 8 | Double | Bottom | Retract | Zone 2 | |
| V90RD-3025-FBR2 | 305 | 12 | 126 - 255 | 5 - 10 | Double | Bottom | Retract | Zone 2 | |
| V90RD-3030-FBR2 | 305 | 12 | 153 - 305 | 6 - 12 | Double | Bottom | Retract | Zone 2 | |
| Top Mount Cylinder Models | | | | | | | | | |
| V90RD-2015-MTE2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Top | Extend | Zone 2 | |
| V90RD-2020-MTE2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Top | Extend | Zone 2 | |
| V90RD-2025-MTE2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Top | Extend | Zone 2 | |
| V90RD-2030-MTE2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Top | Extend | Zone 2 | |
| V90RD-2015-MTR2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Top | Retract | Zone 2 | |
| V90RD-2020-MTR2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Top | Retract | Zone 2 | |
| V90RD-2025-MTR2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Top | Retract | Zone 2 | |
| V90RD-2030-MTR2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Top | Retract | Zone 2 | |
| | | | | | | | | | |

| | | | | | | | | | |
|------------------------------|-----|----|-----------|--------|--------|-----|---------|--------|--|
| V90RD-2510-MTE2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Top | Extend | Zone 2 | |
| V90RD-2515-MTE2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Top | Extend | Zone 2 | |
| V90RD-2520-MTE2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Top | Extend | Zone 2 | |
| V90RD-2525-MTE2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Top | Extend | Zone 2 | |
| V90RD-2530-MTE2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Top | Extend | Zone 2 | |
| V90RD-2535-MTE2 | 255 | 10 | 178 - 356 | 7 - 14 | Double | Top | Extend | Zone 2 | |
| V90RD-2510-MTR2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Top | Retract | Zone 2 | |
| V90RD-2515-MTR2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Top | Retract | Zone 2 | |
| V90RD-2520-MTR2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Top | Retract | Zone 2 | |
| V90RD-2525-MTR2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Top | Retract | Zone 2 | |
| V90RD-2530-MTR2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Top | Retract | Zone 2 | |
| V90RD-2535-MTR2 | 255 | 10 | 178 - 356 | 7 - 14 | Double | Top | Retract | Zone 2 | |
| | | | | | | | | | |
| V90RD-3010-MTE2 | 305 | 12 | 51 - 102 | 2 - 4 | Double | Top | Extend | Zone 2 | |
| V90RD-3015-MTE2 | 305 | 12 | 76 - 153 | 3 - 6 | Double | Top | Extend | Zone 2 | |
| V90RD-3020-MTE2 | 305 | 12 | 102 - 203 | 4 - 8 | Double | Top | Extend | Zone 2 | |
| V90RD-3025-MTE2 | 305 | 12 | 126 - 255 | 5 - 10 | Double | Top | Extend | Zone 2 | |
| V90RD-3030-MTE2 | 305 | 12 | 153 - 305 | 6 - 12 | Double | Top | Extend | Zone 2 | |
| V90RD-3010-MTR2 | 305 | 12 | 51 - 102 | 2 - 4 | Double | Top | Retract | Zone 2 | |
| V90RD-3015-MTR2 | 305 | 12 | 76 - 153 | 3 - 6 | Double | Top | Retract | Zone 2 | |
| V90RD-3020-MTR2 | 305 | 12 | 102 - 203 | 4 - 8 | Double | Top | Retract | Zone 2 | |
| V90RD-3025-MTR2 | 305 | 12 | 126 - 255 | 5 - 10 | Double | Top | Retract | Zone 2 | |
| V90RD-3030-MTR2 | 305 | 12 | 153 - 305 | 6 - 12 | Double | Top | Retract | Zone 2 | |
| Female Threaded Shaft Models | | | | | | | | | |
| V90RD-2015-FTE2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Top | Extend | Zone 2 | |
| V90RD-2020-FTE2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Top | Extend | Zone 2 | |
| V90RD-2025-FTE2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Top | Extend | Zone 2 | |
| V90RD-2030-FTE2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Top | Extend | Zone 2 | |
| V90RD-2015-FTR2 | 203 | 8 | 76 - 153 | 3 - 6 | Double | Top | Retract | Zone 2 | |
| V90RD-2020-FTR2 | 203 | 8 | 102 - 203 | 4 - 8 | Double | Top | Retract | Zone 2 | |
| V90RD-2025-FTR2 | 203 | 8 | 126 - 255 | 5 - 10 | Double | Top | Retract | Zone 2 | |
| V90RD-2030-FTR2 | 203 | 8 | 153 - 305 | 6 - 12 | Double | Top | Retract | Zone 2 | |
| | | | | | | | | | |
| V90RD-2510-FTE2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Top | Extend | Zone 2 | |
| V90RD-2515-FTE2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Top | Extend | Zone 2 | |
| V90RD-2520-FTE2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Top | Extend | Zone 2 | |
| V90RD-2525-FTE2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Top | Extend | Zone 2 | |
| V90RD-2530-FTE2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Top | Extend | Zone 2 | |
| V90RD-2535-FTE2 | 255 | 10 | 178 - 356 | 7 - 14 | Double | Top | Extend | Zone 2 | |
| V90RD-2510-FTR2 | 255 | 10 | 51 - 102 | 2 - 4 | Double | Top | Retract | Zone 2 | |
| V90RD-2515-FTR2 | 255 | 10 | 76 - 153 | 3 - 6 | Double | Top | Retract | Zone 2 | |
| V90RD-2520-FTR2 | 255 | 10 | 102 - 203 | 4 - 8 | Double | Top | Retract | Zone 2 | |
| V90RD-2525-FTR2 | 255 | 10 | 126 - 255 | 5 - 10 | Double | Top | Retract | Zone 2 | |
| V90RD-2530-FTR2 | 255 | 10 | 153 - 305 | 6 - 12 | Double | Top | Retract | Zone 2 | |
| V90RD-2535-FTR2 | 255 | 10 | 178 - 356 | 7 - 14 | Double | Top | Retract | Zone 2 | |

| | | | | | | | | | |
|-----------------|-----|----|-----------|--------|--------|-----|---------|--------|--|
| V90RD-3010-FTE2 | 305 | 12 | 51 - 102 | 2 - 4 | Double | Top | Extend | Zone 2 | |
| V90RD-3015-FTE2 | 305 | 12 | 76 - 153 | 3 - 6 | Double | Top | Extend | Zone 2 | |
| V90RD-3020-FTE2 | 305 | 12 | 102 - 203 | 4 - 8 | Double | Top | Extend | Zone 2 | |
| V90RD-3025-FTE2 | 305 | 12 | 126 - 255 | 5 - 10 | Double | Top | Extend | Zone 2 | |
| V90RD-3030-FTE2 | 305 | 12 | 153 - 305 | 6 - 12 | Double | Top | Extend | Zone 2 | |
| V90RD-3010-FTR2 | 305 | 12 | 51 - 102 | 2 - 4 | Double | Top | Retract | Zone 2 | |
| V90RD-3015-FTR2 | 305 | 12 | 76 - 153 | 3 - 6 | Double | Top | Retract | Zone 2 | |
| V90RD-3020-FTR2 | 305 | 12 | 102 - 203 | 4 - 8 | Double | Top | Retract | Zone 2 | |
| V90RD-3025-FTR2 | 305 | 12 | 126 - 255 | 5 - 10 | Double | Top | Retract | Zone 2 | |
| V90RD-3030-FTR2 | 305 | 12 | 153 - 305 | 6 - 12 | Double | Top | Retract | Zone 2 | |

Table 6-8. VS-I & VS-II Servos

| VS-I & VS-II Servos | | | | | | | | |
|-------------------------|---------------------------|---------------------|---------------------------|---------------------|------------------------|--------------|---------------------|----------------------|
| VariStroke Servo Models | 3-Way Liters/Min @ 35 bar | 3-Way GPM @ 500 psi | 4-Way Liters/Min @ 35 bar | 4-Way GPM @ 500 psi | Output Cylinder Action | Zone Ratings | Fail Safe Direction | Internal Part Number |
| V45VD-E2 | 320 | 84 | 226 | 60 | Double | Zone 2 | Extend | 2-9907-1256 |
| V90VD-E2 | 3985 | 1053 | 2820 | 745 | Double | Zone 2 | Extend | 2-9907-1287 |
| V45VD-R2 | 320 | 84 | 226 | 60 | Double | Zone 2 | Retract | 2-9907-1333 |
| V90VD-R2 | 3985 | 1053 | 2820 | 745 | Double | Zone 2 | Retract | 2-9907-1288 |

Table 6-9. VS-I and VS-II Spare Parts

| VS-I & VS-II Spare Parts | | | | |
|---|------------------------|--------------|---------------------|----------------------|
| Spare Part Description | Output Cylinder Action | Zone Ratings | Fail Safe Direction | Internal Part Number |
| VS-I Spare Parts | | | | |
| V45TD-E2 Servo - Integrated, 4" & 5" bore | Double | Zone 2 | Extend | 2-9907-1452 |
| V45TD-E2 Servo - Integrated, 6",8",10" bore | Double | Zone 2 | Extend | 2-9907-1335 |
| V45TD-R2 Servo - Integrated, 4" & 5" bore | Double | Zone 2 | Retract | 2-9907-1453 |
| V45TD-R2 Servo - Integrated, 6",8",10" bore | Double | Zone 2 | Retract | 2-9907-1336 |
| V45VD-E2 Servo - Remote | Double | Zone 2 | Extend | 2-9907-1256 |
| V45VD-R2 Servo - Remote | Double | Zone 2 | Retract | 2-9907-1333 |
| Bridge Manifold Seal Kit - 4" & 5" bore | ----- | ----- | ----- | 8923-2165 |
| Bridge Manifold Seal Kit - 6",8",10" bore | ----- | ----- | ----- | 8923-2068 |
| Cylinder Shaft Seal Kit - 4" Bore | ----- | ----- | ----- | 8935-1215-10 |
| Cylinder Shaft Seal Kit - 5" Bore | ----- | ----- | ----- | 8935-1215-12 |
| Cylinder Shaft Seal Kit - 6" Bore | ----- | ----- | ----- | 8935-1215-15 |
| Cylinder Shaft Seal Kit - 8" Bore | ----- | ----- | ----- | 8935-1215-20 |
| Cylinder Shaft Seal Kit - 10" Bore | ----- | ----- | ----- | 8935-1215-25 |
| Tools/Sockets Kit - V1 Gland Seal Removal | ----- | ----- | ----- | 8923-2508 |
| VS-II Spare Parts | | | | |

| | | | | |
|------------------------------------|--------|--------|---------|--------------|
| V90VD-E2 Servo | Double | Zone 2 | Extend | 2-9907-1287 |
| V90VD-R2 Servo | Double | Zone 2 | Retract | 2-9907-1288 |
| Electronic DVP Driver | ----- | ----- | ----- | 8923-2024 |
| Bridge Manifold Seal Kit | ----- | ----- | ----- | 8923-2020 |
| Cylinder Shaft Seal Kit - 10" Bore | ----- | ----- | ----- | 8923-2021 |
| Cylinder Shaft Seal Kit - 12" Bore | ----- | ----- | ----- | 8923-2022 |
| LVDT Connector Kit | ----- | ----- | ----- | 8923-2023 |
| LVDT - 4" Stoke Kit | ----- | ----- | ----- | 1680-1104-10 |
| LVDT - 6" Stoke Kit | ----- | ----- | ----- | 1680-1104-15 |
| LVDT - 8" Stoke Kit | ----- | ----- | ----- | 1680-1104-20 |
| LVDT - 10" Stoke Kit | ----- | ----- | ----- | 1680-1104-25 |
| LVDT - 12" Stoke Kit | ----- | ----- | ----- | 1680-1104-30 |
| LVDT - 14" Stoke Kit | ----- | ----- | ----- | 1680-1104-35 |
| LVDT - 16" Stoke Kit | ----- | ----- | ----- | 1680-1104-40 |
| LVDT - 18" Stoke Kit | ----- | ----- | ----- | 1680-1104-45 |

Part Number

4. Servo Boosters

| | |
|--------------------------|----------|
| Single Cylinder 1 x 1 | 8901-037 |
| Single Cylinder 2 x 1 | 8901-051 |
| Tandem Cylinder 1 x 1 | 8901-065 |
| Tandem Cylinder 2 x 1 | 8901-067 |
| Two-stage Cylinder 2 x 1 | 8901-091 |
| Two-Stage Cylinder 3 x 1 | 8901-103 |

5. CPC Current-to-Pressure Converter

| | |
|--|-----------|
| CPC-II - 10 bar, Div.2 (Zone2) | 9907-1200 |
| CPC-II - 10 bar, Div.1&2 (Zone1&2) | 9907-1199 |
| CPC-II - 25 bar, Div.2 (Zone2) | 9907-1198 |
| CPC-II - 25 bar, Div.1&2 (Zone1&2) | 9907-1197 |
| CPC-II - Dual Redundant, Zone 2, 0-10 bar model | 9907-1253 |
| CPC-II - Dual Redundant, Zone 2, 0-25 bar model | 9907-1254 |
| CPC-II - Voith Adapter Manifold | 8928-7240 |
| CPC-DX - Dual Redundant Skid, Zone 2, 0-10 bar model | 8918-116 |
| CPC-DX - Dual Redundant Skid, Zone 2, 0-25 bar model | 8918-118 |

CPC-DX Repair Kits

| | |
|--|-----------|
| KIT-CPC REPLACEMENT, 10 BAR, ZONE 2, FOR CPC-DX SKID | 8923-1996 |
| KIT-CPC REPLACEMENT, 25 BAR, ZONE 2, FOR CPC-DX SKID | 8923-1997 |
| KIT-REPLACEMENT ISOLATION VALVE: RIGHT HAND | 8923-2236 |
| KIT-REPLACEMENT ISOLATION VALVE, LEFT HAND | 8923-2242 |
| KIT-PRESSURE GAUGE, 10BAR, FOR CPC-DX SKID | 8923-2237 |
| KIT-PRESSURE GAUGE, 25BAR, FOR CPC-DX SKID | 8923-2238 |

Part Number

| | |
|------------------------------------|-----------|
| KIT-SHUTTLE VALVE, FOR CPC-DX SKID | 8923-2239 |
|------------------------------------|-----------|

6. EM Electric Actuators

| | |
|---|----------|
| EML100 Actuator, 1.5" Linear, Single Feedback | 9907-779 |
| EM-300 Actuator | 8256-109 |

Suitable EL/LQ Driver Replacement

EM/LQ Driver P/Ns 8200-176, 8200-177, 8200-314, & 8200-319 can be replaced by any of these DVP P/Ns (see page 44):

| |
|------------------------------|
| 8200-505, IP30, Ethernet, TB |
| 8200-507, IP30, TB option |

 8200-506, IP56, Ethernet

 8200-508, IP56, conduit option

Note: Evaluate your application and select the suitable DVP driver that fits the environment. Please consult with a Woodward Application Engineer if there are any questions or concerns.

7. TM Actuators (Linear)

| | |
|---|-----------|
| TM-25LP, Standard, Extends | 9907-1213 |
| TM-25LP, Standard, Retracts | 9907-1214 |
| TM-25LP, Dual Coil, Extends w/o Feedback | 9905-658 |
| TM-25LP, Dual Coil, Retracts w/o Feedback | 9905-657 |
| TM-25LP, Dual Coil, Retracts w/ LVDT | 9905-659 |
| TM-200LP, Dual Coil, Retracts | 9905-773 |

8. Turbine Shutdown Trip Block Assemblies

| | |
|---|-------------|
| QuickTrip - SIL-3, CV=10, Ordinary Locations | 0-9907-1978 |
| QuickTrip - SIL-3, CV=10, Zone 1 Locations | 1-9907-1978 |
| QuickTrip - SIL-3, CV=10, Zone 2 Locations | 2-9907-1978 |
| QuickTrip - SIL-3, CV=10, Zone 1 Locations, Russia C-US Certs | 3-9907-1978 |
| QuickTrip - SIL-3, CV=10, Zone 2 Locations, Russia C-US Certs | 4-9907-1978 |

7. Ignition Products

| | Part Number |
|--|-------------|
| 1. Coils | |
| Unshielded Coils | |
| Black | 8408-291 |
| Red | 8408-591 |
| Blue | 8408-501 |
| Shielded Coils | |
| Black | 8409-291 |
| Red | 8409-591 |
| Blue | 8409-501 |
| 2. Shielded Harnesses | |
| For IC-92X | |
| Harness, B-Bank, 14 pole, 80" | 5417-675 |
| Harness, A-Bank, 17-pole, 80" | 5417-673 |
| For TIS-910/IC-910 | |
| Harness, B-Bank, 14 pole, 80" | 5417-675 |
| Harness, A-Bank, 17-pole, 80" | 5417-673 |
| 3. Ignition Controllers | |
| IC-920 | |
| 3-hole gland plate, 20 output (D1 display) | 8408-0702 |
| 3-hole gland plate, 20 output (J1939, CANopen, E3) | 8408-0725 |
| 3-hole gland plate, 24 output (D1 display) | 8408-0724 |
| 3-hole gland plate, 24 output (J1939, CANopen, E3) | 8408-0726 |
| IC-922 | |
| 3-hole gland plate, 20 output (D1 display) | 8408-0802 |
| 3-hole gland plate, 20 output (J1939, CANopen, E3) | 8408-0727 |

8. L-Series Actuators and Integrated Speed Controls

| | Part Number |
|--|-------------|
| 1. L-Series Speed Control–Actuator Only | |
| L-Series Act., Type 6 Shaft, Std Cvr, Spd Ctrl w/o CAN, Dflt Pmtrs | 8404-1001 |
| L-Series Act., Type 5 Shaft, Std Cvr, Spd Ctrl w/o CAN, Dflt Pmtrs | 8404-1002 |
| L-Series Act., Type 5 Shaft, Std Cvr, Spd Ctrl w/o CAN, Coleman Pmtrs | 8404-1003 |
| L-Series Act., Type 4 Shaft, Std Cvr, Spd Ctrl w/o CAN, Dflt Pmtrs | 8404-1004 |
| 2. L-Series Speed Control–Actuator with ITB | |
| L-Series ITB, 25 mm, Spd Ctrl, Dflt Pmtrs | 8404-2023 |
| L-Series ITB, 30 mm, Spd Ctrl, Dflt Pmtrs | 8404-2006 |
| L-Series ITB, 36 mm, Spd Ctrl, Dflt Pmtrs | 8404-2007 |
| L-Series ITB, 43 mm, Spd Ctrl, Dflt Pmtrs | 8404-2008 |
| L-Series ITB, 50 mm, Spd Ctrl, Dflt Pmtrs | 8404-2009 |
| L-series ITB, 30 mm, Sealed, Spd Ctrl, Dflt Pmtrs | 8404-2033 |
| L-series ITB, 50 mm, Sealed, Spd Ctrl, Dflt Pmtrs | 8404-2052 |
| 3. L-Series Process Control with ITB (AFR is considered a form of Process Control) | |
| L-Series Trim Valve, 16 mm, Process Ctrl, Dflt Pmtrs | 8404-3001 |
| L-Series Trim Valve, 22 mm, Process Ctrl, Dflt Pmtrs | 8404-3002 |
| L-Series ITB, 25 mm Sealed, Process Ctrl, Dflt Pmtrs, N/C | 8404-2061 |
| L-Series ITB, 30 mm Sealed, Process Ctrl, Dflt Pmtrs, N/C | 8404-2062 |
| L-Series ITB, 36 mm Sealed, Process Ctrl, Dflt Pmtrs, N/C | 8404-2063 |
| L-Series ITB, 43 mm Sealed, Process Ctrl, Dflt Pmtrs, N/C | 8404-2064 |
| L-Series ITB, 50 mm Sealed, Process Ctrl, Dflt Pmtrs, N/C | 8404-2065 |
| L-Series ITB, 25 mm Sealed, AFR Ctrl, N/O | 8404-2048 |
| L-Series ITB, 30 mm Sealed, AFR Ctrl, N/O | 8404-2049 |
| L-Series ITB, 50 mm Sealed, AFR Ctrl, N/O | 8404-2051 |
| 4. L-Series Speed Control–Actuator with ITB & Venturi Mixer (MAS) | |
| L-Series LC50, 25 mm ITB, 27 mm X-MIX, MAS, Spd Ctrl, Dflt Pmtrs | 8404-4001 |
| L-Series LC50, 30 mm ITB, 19 mm O-MIX, MAS, Spd Ctrl, Dflt Pmtrs | 8404-4002 |
| L-Series LC50, 36 mm ITB, 23 mm O-MIX, MAS, Spd Ctrl, Dflt Pmtrs | 8404-4003 |
| L-Series LC50, 43 mm ITB, 29 mm O-MIX, MAS, Spd Ctrl, Dflt Pmtrs | 8404-4004 |
| L-Series LC50, 50 mm ITB, 36 mm O-MIX, MAS, Spd Ctrl, Dflt Pmtrs | 8404-4005 |
| L-Series LC50, 30 mm ITB, 30 mm X-MIX, MAS, Spd Ctrl, Dflt Pmtrs | 8404-4006 |
| L-Series LC50, 36 mm ITB, 34 mm X-MIX, MAS, Spd Ctrl, Dflt Pmtrs | 8404-4007 |
| L-Series LC50, 43 mm ITB, 40 mm X-MIX, MAS, Spd Ctrl, Dflt Pmtrs | 8404-4008 |
| L-Series LC50, 50 mm ITB, 47 mm X-MIX, MAS, Spd Ctrl, Dflt Pmtrs | 8404-4009 |
| L-Series LC50, 25 mm ITB, 27 mm X-MIX, MAS, Pos Ctrl, Dflt Pmtrs | 8404-4012 |
| 5. L-Series Diesel Engine Applications | |
| L-Series DER, Stanadyne Cvr/Shft, Spd Ctrl w/o CAN, Stana Pmtrs | 8404-5003 |
| L-Series DER, Delphi Cvr/Shft w/Lvr, Spd Ctrl w/o CAN, Dflt Pmtrs | 8404-5004 |
| 6. L-Series Speed Control with ITB & Trim Valve | |
| L-Ser., LC50, 43 mm ITB, 29 mm O-MIX, 22 mm Trim Valve, Dflt Pmtrs | 8404-4019 |
| L-Ser., LC50, 50 mm ITB, 36 mm O-MIX, 22 mm Trim Valve, Dflt Pmtrs | 8404-4020 |
| L-Ser., LC50, 50 mm ITB, 47 mm X-MIX, 22 mm Trim Valve, Dflt Pmtrs | 8404-4021 |

| | Part Number |
|--|-------------|
| 7. L-Series Positioner with ITB | |
| L-Series Trim Valve, 16 mm, Pos Ctrl, Dflt Pmtrs | 8404-3003 |
| L-Series Trim Valve, 22 mm, Pos Ctrl, Dflt Pmtrs | 8404-3004 |
| L-Series ITB, 25 mm Sealed, Pos Ctrl, PWM, N/C | 8404-2013 |
| L-Series ITB, 30 mm Sealed, Pos Ctrl, PWM, N/C | 8404-2014 |
| L-Series ITB, 36 mm Sealed, Pos Ctrl, PWM, N/C | 8404-2015 |
| L-Series ITB, 43 mm Sealed, Pos Ctrl, PWM, N/C | 8404-2016 |
| L-Series ITB, 50 mm Sealed, Pos Ctrl, PWM, N/C | 8404-2017 |
| L-Series ITB, 25 mm Sealed, Pos Ctrl, PWM, N/O | 8404-2056 |
| L-Series ITB, 36 mm Sealed, Pos Ctrl, PWM, N/O | 8404-2057 |
| L-Series ITB, 50 mm Sealed, Pos Ctrl, PWM, N/O | 8404-2058 |
| 8. L-Series Accessories | |
| Gasket, 16 & 22 mm, 1/valve | 3051-073 |
| Gasket, 25, 30, & 36 mm ITBs | 0014-00-034 |
| Gasket, 43 & 50 mm ITBs | 0108-00-021 |
| HEGO (Heated Exhaust Gas Oxygen) Sensor | 1680-6005 |
| Kit, HEGO Mating Connector | 8928-427 |
| Cable, LCS to L-Series Adapter | 5450-1033 |
| Kit, L-Series Serial Communication Interface | 8923-1061 |
| Kit, L-Series Mating Connector | 8928-396 |
| Manifold Air Pressure Transducer | 6910-314 |
| Zero Pressure Regulator (for sizes 25, 30, or 36 mm) | 0055-00-062 |
| Zero Pressure Regulator (for sizes 43 or 50 mm) | 0055-00-063 |

9. F-Series Actuator and Actuator with ITB

| | Part Number |
|--|-------------|
| 1. F-Series Positioners | |
| F-Series Actuator, Std Shaft, 23-pin | 8235-600 |
| F-Series 33 mm ITB, Std Mount, 23-pin, Plan A | 8235-661 |
| F-Series 48 mm ITB, Std Mount, 23-pin, Plan A, Factory Default SW | 8235-602 |
| F-Series 48 mm ITB, M08 Mount, 23-pin, Plan A, Factory Default SW | 8235-604 |
| F-Series 60 mm ITB, Std Mount, 23-pin, Plan A, Factory Default SW | 8235-606 |
| F-Series 60 mm ITB, JADE Mount, 23-pin, Plan A, Factory Default SW | 8235-608 |
| F-Series 68 mm ITB, Std Mount, 23-pin, Plan A, Factory Default SW | 8235-610 |
| F-Series 68 mm ITB, M10 Mount, 23-pin, Plan D, Factory Default SW | 8235-612 |
| F-Series 68 mm ITB, Std Mount, 23-pin, Plan B, Flo-Tech Flow Curve | 8235-635 |
| F-Series 68 mm ITB, M10 Mount, 14-pin, Plan A | 8235-618 |
| F-Series 48 mm ITB, Std Mount, 14-pin, Plan A | 8235-623 |
| F-Series 48 mm ITB, M08 Mount, 14-pin, Plan B | 8235-624 |
| F-Series 60 mm ITB, Std Mount, 14-pin, Plan A | 8235-625 |
| F-Series 60 mm ITB, JADE Mount, 14-pin, Plan A | 8235-626 |
| F-Series 68 mm ITB, Std Mount, 14-pin, Plan A | 8235-627 |
| F-Series 68 mm ITB, M10 Mount, 14-pin, Plan A | 8235-628 |
| F-Series 48 mm ITB, Std Mount, 14-pin, Plan A | 8235-629 |
| F-Series 60 mm ITB, Std Mount, 14-pin, Plan A | 8235-630 |
| F-Series 68 mm ITB, Std Mount, 14-pin, Plan A | 8235-631 |
| F-Series 60 mm ITB, Std Mount, 14-pin, Plan B | 8235-634 |
| F-Series 68 mm ITB, Std Mount, 14-pin, Plan B | 8235-639 |
| F-Series 48 mm ITB, Std Mount, 14-pin, Plan B | 8235-644 |
| F-Series 48 mm ITB, Std Mount, 23-pin, Plan B, Flo-Tech Sch, N/O | 8235-668 |
| F-Series 60 mm ITB, Std Mount, 23-pin, Plan A, Flo-Tech Sch, N/O | 8235-669 |
| F-Series 68 mm ITB, Std Mount, 23-pin, Plan A, Flo-Tech Sch, N/O | 8235-622 |

2. Accessories

| | |
|--|-----------|
| Kit-F-Series 14-Pin Mating Connector (14-pin kit) | 8923-1311 |
| Kit-F-Series 23-Pin Mating Connector (23-pin kit) | 8923-1312 |
| Kit-F-Series Communication Hardware, 14 Pin (14-pin kit) | 8923-1254 |
| Kit-F-Series Communication Hardware, 23 Pin (23-pin kit) | 8923-1255 |

10. R-Series Actuators

| | |
|---|----------|
| R11 Actuator – 11nm torque, 4-20mA, 0-200mA Demand Input | 8410-001 |
| R11 Actuator – 11nm torque, CAN Demand Input | 8410-007 |
| Note: R11 Actuators have 73° rotation & 75ms slew rate | |
| R30 Actuator – 30nm torque, 4-20mA or 0-200mA Demand Input | 8410-002 |
| R30 Actuator – 30nm torque, CAN Demand Input | 8410-008 |
| R30 Actuator – 30nm torque, with 8 plugs | 8410-014 |
| Note: R30 Actuators have 73° rotation & 105ms slew rate | |
| R120 Actuator – 120nm torque, 4-20mA or 0-200mA Demand Input | 8410-010 |
| R120 Actuator – 120nm torque, 4-20mA or 0-200mA Demand Input, Water Cooling | 8410-011 |
| Note: R120 actuators have a 90° rotation & 600ms slew rate | |

11. TecJet Fuel Control Valves

| | Part Number |
|-------------------------------|-----------------------------|
| TecJet 110 | 8407-523 |
| TecJet 50 Plus | 8407-522 (non-preferred) |
| TecJet 52 | 8407-527 |
| TecJet 50 Plus Precision Flow | 8407-520 |
| TecJet 85 | 8407-530 |

12. Gas Turbine Valves

1. GS6 Gas Fuel Valve Actuator w/ On-board Driver

| | |
|---------------------------------------|-----------|
| GS6, 0.30" Port Size, Single Resolver | 9908-1536 |
| GS6, 0.45" Port Size, Single Resolver | 9908-1540 |
| GS6, 0.60" Port Size, Single Resolver | 9908-1544 |
| GS6, 0.75" Port Size, Single Resolver | 9908-1552 |

2. GS16 Gas Fuel Valve Actuator w/ On-board Driver

| | |
|---------------------------------------|-----------|
| GS16, 1.0" Port Size, Single Resolver | 9908-273 |
| GS16, 1.5" Port Size, Single Resolver | 9908-1501 |
| GS16, 2.0" Port Size, Single Resolver | 9908-1502 |

3. GSOV25HT Gas Fuel Shutoff Valve, 2.0" Flange

| | |
|--|----------|
| GSOV25HT w/ 24 Vdc Solenoid, open pos. sw. | 9907-894 |
| GSOV25HT w/ 125 Vdc Solenoid, open pos. sw. | 9907-895 |
| GSOV25HT w/ 125 Vdc Solenoid, closed pos. sw. | 9907-896 |
| GSOV25HT w/ 24 Vdc Solenoid, open & closed pos. sw. | 9907-898 |
| GSOV25HT w/ 125 Vdc Solenoid, open & closed pos. sw. | 9907-899 |

4. LQ6 Liquid Fuel Valve Actuator w/ On-board Driver

| | |
|--|-----------|
| LQ6, 0.050" Port Size, Single Resolver | 9908-1519 |
| LQ6, 0.067" Port Size, Single Resolver | 9908-1520 |
| LQ6, 0.150" Port Size, Single Resolver | 9908-271 |

5. LQ25 Standard Valves

LQ25 Valve w/ PIV, w/ SOV, w/ LmtSw, w/o Driver

| | |
|--|----------|
| 0.1 in ² (requires analog driver) | 9908-202 |
| 0.2 in ² (requires analog driver) | 9907-995 |
| 0.2 in ² , 125 Vdc SOV/Switch, 3-speed Resolver (req. digital driver) | 9907-652 |
| 0.3 in ² (requires analog driver) | 9907-994 |
| 0.3 in ² , 3-speed Resolver (requires digital driver) | 9907-996 |

6. LSOV25 Liquid Fuel Shutoff Valve

| | |
|-------------------------------------|----------|
| LSOV25, 24 Vdc, 0.5 NPT conduit | 9907-997 |
| LSOV25, 24 Vdc, w/ proximity switch | 9904-516 |

| | Part Number |
|--|-------------|
| 7. DVP Digital Valve Positioner | |
| 24 Vdc DVP Driver | |
| IP30, Ethernet, TB Input, TB Output | 8200-505 |
| IP30, TB Input, TB Output | 8200-507 |
| IP30, Ethernet, TB Input, Circ Connector Output | 8200-509 |
| IP30, TB Input, Circ Connector Output | 8200-510 |
| IP30, Ethernet, TB Input, 4 Circ Connector Output | 8200-511 |
| IP56, Ethernet, Conduit Input And Output | 8200-506 |
| IP56, Conduit Input And Output | 8200-508 |
| IP56, Conduit, Circ Connector Output | 8200-513 |
| 125V DVP Driver (DVP 1250) | |
| IP30, Ethernet, TB Input, Circ Connector Output | 8200-182 |
| IP30, Ethernet, TB Input, TB Output | 8200-183 |
| IP30, Tb Input, TB Output | 8200-186 |
| IP30, Tb Input, Circ Connector Output | 8200-188 |
| IP30, Ethernet, TB Input, 4 Circ Connector Output | 8200-189 |
| IP30, Tb Input, 4 Circ Connector Output | 8200-190 |
| IP56, Ethernet, Tb Input, TB Output | 8200-184 |
| IP56, Ethernet, Conduit Input, Circ Connector Output | 8200-185 |
| IP56, Conduit Input, Circ Connector Output | 8200-187 |
| IP56, Conduit Input, Conduit Output | 8200-504 |
| High Output DVP, 5KW | |
| TB input/output, Ethernet, Non-SIL, NA Listings | 8200-533 |
| TB input/output, No Ethernet, Non-SIL, NA Listings | 8200-538 |
| TB Input/Output, Ethernet, SIL, NA Listings | 8200-540 |
| TB Input/Output No Ethernet, SIL, NA Listings | 8200-541 |
| High Output DVP, 10KW | |
| TB input/output, Ethernet, Non-SIL, NA Listings | 8200-535 |
| TB input/output, No Ethernet, Non-SIL, NA Listings | 8200-536 |
| TB Input/Output, Ethernet, SIL, NA Listings | 8200-544 |
| TB Input/Output No Ethernet, SIL, NA Listings | 8200-545 |

DVP Cable

| Configuration | Cable Part Number | | |
|--|-------------------|------------------------------|--------------|
| | 200C Cable | 125C Cable | Heavy Frame |
| (DVP J1) - Motor Power, 5 Pin Straight-to-Straight Connector | 5450-1096.xx | 5450-1837.xx | |
| (DVP J1) - Motor Power, 5 Pin, Straight-to-Right Angle Connectors | 5450-1819.xx | 5450-1836.xx | N/A |
| (DVP J1) - Motor Power, 5 Pin, Flying Lead-to- Straight Connector | 5450-1818.xx | 5450-1835.xx 5450-1460.xx | 5450-1701.xx |
| (DVP J1) - Motor Power, 5 Pin, Flying Lead -to- Right Angle Connector | 5450-1817.xx | 5450-1834.xx | 5450-1694.xx |
| (DVP J2) - Feedback1, Motor Resolver, 10 Pins Straight-to-Straight Connectors | 5450-1806.xx | 5450-1822.xx | N/A |
| (DVP J2) - Feedback1, Motor Resolver, 10 Pin, Straight-to-Right Angle Connectors | 5450-1095.xx | 5450-1824.xx 5450-1445.xx | N/A |
| (DVP J2) - Feedback1, Motor Resolver, 10 Pin, Flying Lead-to-Straight Connectors | 5450-1808.xx | 5450-1821.xx | 5450-1696.xx |
| (DVP J2) - Feedback1, Motor Resolver, 10 Pin Flying Lead-to-90 Degree Connector | 5450-1807.xx | 5450-1823.xx 5450-1462.xx | 5450-1703.xx |
| (DVP J3) - Feedback2 Stem Resolver & ID, 14 Pin, Straight-to-Straight Connector | 5450-1094.xx | 5450-1828.xx 5450-1446.xx | N/A |
| (DVP J3) - Feedback2, Stem Resolver & ID, 14 Pin, Straight-to-90 Deg. Connector | 5450-1809.xx | 5450-1827.xx | N/A |
| (DVP J3) - Feedback2, Stem Resolver & ID, 14 Pin, Flying Lead -to- Straight Connectors | 5450-1810.xx | 5450-1826.xx | 5450-1695.xx |
| (DVP J3) - Feedback2, Stem Resolver & ID, 14 Pin, Flying Lead -to- Right Angle Connector | 5450-1811.xx | 5450-1825.xx | 5450-1702.xx |
| (DVP J4) - Feedback3 Redundant Motor Resolver, 7 Pin, Straight-to-Straight Connector | 5450-1814.xx | 5450-1832.xx | N/A |

| | | | |
|--|--------------|--------------|--------------|
| (DVP J4) - Feedback3, Redundant Motor Resolver, 7 Pin, Straight-to-Right Angle Connectors | 5450-1815.xx | 5450-1831.xx | N/A |
| (DVP J4) - Feedback3 Redundant Motor Resolver, 7 Pin, Flying Lead-to-Straight Connector | 5450-1813.xx | 5450-1830.xx | 5450-1696.xx |
| (DVP J4) - Feedback3 Redundant Motor Resolver, 7 Pin, Flying Lead-to-Right Angle Connector | 5450-1812.xx | 5450-1829.xx | 5450-1699.xx |
| Sov 7 Pin Flying Lead-to-Straight Connector | 5450-1286.xx | 5450-1838.xx | 5450-1700.xx |

Note: The suffix ".xx" denotes a cable length in five foot increments.

| | Part Number |
|---|-------------|
| 8. GS40 Gas Fuel Valve Actuator w/ On-board Driver | |
| GS40, 0.30" Port Size | 9908-1604 |
| GS40, 0.75" Port Size | 9908-1593 |
| 9. GS50 Gas Fuel Valve Actuator w/ On-board Driver | |
| GS50, 1.0" Port Size | 9908-1601 |
| GS50, 1.5" Port Size | 9908-1606 |
| GS50, 2.0" Port Size | 9908-1592 |

13. Air/Fuel Ratio Controls

| | Part Number |
|---|-------------|
| 1. E3 (All Encompassing Engine and Emission Control) | |
| Full Authority | 9908-419 |
| Fuel Blending | 9906-720 |
| Lean Burn Trim (AFR only) | 8280-1158 |
| Lean Burn Trim (w/ speed control) | 8280-1159 |
| Rich Burn (AFR only) | 8280-1104 |
| Rich Burn (w/ speed control) | 8280-1105 |
| 2. Accessories | |
| Universal Exhaust Gas Oxygen Sensor (UEGO) | 1689-1032 |
| UEGO Connector Kit | 8923-1178 |
| StableSense™ Sensor | 1689-1197 |
| StableSense™ Connector Kit | 8928-7363 |
| Cam Speed Pickup (M16x1.5) | 1689-1114 |
| Cam Speed Pickup (5/8 x 18) | 1689-1115 |
| USB to RS-485 Converter | 1784-1037 |
| Spare E3 Control Mating Connector Kit | 8928-1096 |

* Reference the specific E3 Control manual for a more detailed list of system accessories.

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Please reference publication **25182**.



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