The Force injection system is designed for use on planting and seeding implements with a liquid fertilizer application delivery system and a carrier product tank already installed. Carrier rate control is not included with the Force system, but is available as an optional feature.

The Force CS injection system has an output range of 1 to 40 oz./min. The system must be operated within the range to ensure proper operation of the injection pump and application of injected products. To help ensure that the minimum injection rate is achieved, the smallest section or implement width for use with Force CS injection system should not be below 8 row units.

<table>
<thead>
<tr>
<th>Part#</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>117-0171-477</td>
<td>Force® CS Sidekick Pro Injection System</td>
<td>$11,927.40</td>
</tr>
<tr>
<td>117-0171-499</td>
<td>Force® CS Sidekick Pro ISO Injection System</td>
<td>$14,224.30</td>
</tr>
<tr>
<td>117-0171-500</td>
<td>Force® CS Add-on Cabinet Kit</td>
<td>$3,450.50</td>
</tr>
<tr>
<td>INSTALLATION OnSite Installation <strong>(Approximate NET)</strong></td>
<td>$1,100.00</td>
<td></td>
</tr>
</tbody>
</table>

*NOTE: Price does not include installation, controller, cables, carrier system, plumbing or other accessories.

**NOTE: See page 140 for additional required components.**

**NEW Force® CS Insecticide Closed Application System**

Raven and Syngenta have partnered to develop a new Force® closed application system. The application system is an innovative new option for growers looking for improved corn rootworm control with an in-furrow application of Force® CS soil-applied insecticide.

- 4 Box Capacity, 8 ounces per acre, 40 acres per box, 160 acres total.
- Box Size - 24"x24"x30' Wide, not including the mounting brackets.
  - Approximately 75 lbs.

**REPLACEMENT PARTS**

**Cabinet and Injection Plumbing - 117-0171-477**

The Plumbing Items Listed Below are Included in this Kit

<table>
<thead>
<tr>
<th>Item#</th>
<th>Part#</th>
<th>Description</th>
<th>Qty</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>063-0173-432</td>
<td>Mixer Assembly, Low Flow 1&quot; NPT</td>
<td>1</td>
<td>$469.41</td>
</tr>
<tr>
<td>2</td>
<td>EVA12</td>
<td>1/2&quot; EVA Hose</td>
<td>20'</td>
<td>$0.87</td>
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<tr>
<td>3</td>
<td>A1238</td>
<td>Fitting, 1/2&quot; Hose Barb x 3/8&quot; MPT</td>
<td>3</td>
<td>$0.96</td>
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<tr>
<td>4</td>
<td>333-0002-277</td>
<td>Fitting, Tee, Gauge 1&quot; Poly</td>
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<td>5</td>
<td>RB1238</td>
<td>Fitting, Bushing, 1/2&quot; x 3/8&quot; NPT Poly</td>
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<td>$4.17</td>
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<tr>
<td>6</td>
<td>RB10012</td>
<td>Fitting, Bushing, 1&quot; x 1/2&quot; NPT Poly</td>
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<tr>
<td>7</td>
<td>M1000</td>
<td>Fitting, Nipple, Pipe, 1&quot; Poly</td>
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<td>8</td>
<td>333-0008-271</td>
<td>Fitting, Nipple, Pipe, 3/8&quot; NPT SS</td>
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<tr>
<td>9</td>
<td>333-0009-061</td>
<td>Fitting, Plug, 1/4&quot; NPT Poly</td>
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<td>333-0011-078</td>
<td>Valve, Check, 3/8&quot; NPT SS</td>
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<td>11</td>
<td>333-0011-090</td>
<td>Valve, Check, 1&quot; NPT Poly</td>
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<td>12</td>
<td>333-0011-101</td>
<td>Valve, Check, 3/8&quot; NPT Poly</td>
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<td>$36.15</td>
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<td>13</td>
<td>HC12</td>
<td>Clamp, Worm Drive, Hose 1/2&quot;</td>
<td>8</td>
<td>$1.48</td>
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<tr>
<td>14</td>
<td>435-1000-003</td>
<td>Tie, Cable, Black Nylon, 14.5&quot; Lg</td>
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<td>N/A</td>
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<td>15</td>
<td>334-0001-054</td>
<td>Valve 3-Way Continuous Flow</td>
<td>5</td>
<td>N/A</td>
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<tr>
<td>16</td>
<td>333-0002-047</td>
<td>Fitting, Elbow, 1/2&quot; x 1/2&quot; Hose Barb</td>
<td>2</td>
<td>$3.14</td>
</tr>
</tbody>
</table>
**MONITORS AND CONTROLS**

**Ordering Instructions when using SCS4400**

A. Order 1 Console Cable
- 115-0172-007 SCS4400 Console Cable, Liquid Product, Gen II (includes chassis cabling) $2,441.37

B. Optional
- 063-0172-967 Remote Implement Switch (requires adapter cable) $454.27
- 115-0172-040 Adapter Cable, Remote Implement Switch $100.59
- 115-0171-448 Cable, 10' Extension Cable, Cab Cable to Chassis Cable $211.66
- 115-0171-501 Cable, 20' Extension Cable $215.65

C. Select One (1) CAN/Power Tee Extension Cable for Each Node
- 115-0171-928 Cable, CAN/Power Implement Tee, 12' Long $517.61
- 115-0171-951 Cable, CAN/Power Implement Tee, 6' Long $903.20
- 115-0171-916 Cable, CAN/Power Implement Tee, 12' Long $771.18
- 115-0171-917 Cable, CAN/Power Implement Tee, 24' Long $867.58
- 115-0171-934 Cable, CAN/Power Implement Tee, 36' Long $1,058.28

D. Select One (1) CAN Terminator per Implement
- 063-0173-224 Terminator, CAN Passive, 16 Pin AMP $168.46

E. Select One (1) In-Cab CAN Terminator (already included in OmniRow Planter System, Steering Only Chassis Cables, and Boom Sense-Speed/CAN SwitchBox Kits)
- 063-0172-369 Terminator, CAN Passive $215.78

F. Select One (1) Speed Sensor Extension Cable (if applicable)
- 115-0171-262 Cable, Speed Sensor Extension Cable, 10' $132.02
- 115-0159-032 Cable, Speed Sensor Extension Cable, 12' $136.21
- 115-0171-239 Cable, Speed Sensor Extension Cable, 18' $146.69
- 115-0159-018 Cable, Speed Sensor Extension Cable, 24' $157.17
- 115-0171-241 Cable, Speed Sensor Extension Cable, 29' $169.74

**Ordering Instructions for Envizio Pro and Viper Pro**

A. Select One (1) Chassis Cable
- 115-0171-915 Cable, Power/CAN, Chassis, Tractors with Front Mounted Batteries; Approved Tractor Models: CAT Challenger-MT700, 800, 900; JD6x20, 6x30, 7220, 7320, 7420, 7520, 7230, 7330, 7430, 7530, (Small Frame 7x20 and 7x30 Series JD) $903.20

B. Select One (1) Field Computer/Console Cable
- 115-0172-001 Envizio Pro (II)/Viper Pro Console Cable, Chassis Interface Cable, Gen II RTK $991.22
- 115-0172-003 SCS4400 Console Cable, Liquid Product, Gen II (includes chassis cabling) $2,776.67

C. Optional
- 115-0171-929 Cable, 10' Extension, Cab Cable to Chassis $322.72

D. Select One (1) CAN/Power Tee Extension Cable for Each Node (excluding SmarTrax and OmniRow Planter nodes)
- 115-0171-928 Cable, CAN/Power Implement Tee, 12' Long $517.61
- 115-0171-951 Cable, CAN/Power Implement Tee, 6' Long $903.20
- 115-0171-916 Cable, CAN/Power Implement Tee, 12' Long $771.18
- 115-0171-917 Cable, CAN/Power Implement Tee, 24' Long $867.58
- 115-0171-934 Cable, CAN/Power Implement Tee, 36' Long $1,058.28

E. Select One (1) CAN Terminator per implement (already included in OmniRow Planter, Product Controller & AccuFlow System Kits)
- 063-0173-224 Terminator, CAN Passive, 16 Pin AMP $168.46

**Ordering Instructions when using JD Greensear Rate Control (GRC) and Force CS ISO Injaction**

A. Determine if Extension Cable is needed
- 115-0172-093 Cable, 6' Extension Cable $417.02
- 115-0172-094 Cable, 12' Extension Cable $477.80
- 115-0172-095 Cable, 24' Extension Cable $572.10

B. If Electrical Load is more than 30 AMPs, Cable is Required
- 115-0171-958 Cable, Adapter, John Deere ISO to Raven ISO $991.22

**Ordering Instructions when using Raven ISO Product Control with Force CS ISO Injection Kit**

A. Cable ISOBUS Hitch to Raven ISO ECU is required
- 115-0171-974 Cable, ISOBUS to Raven ECU, 12' Long $800.15
- 115-0171-888 Cable, ISOBUS to Raven ECU, 14' Long $800.15
- 115-0172-034 Cable, ISOBUS to Raven ECU, 17' Long $917.87
- 115-0171-975 Cable, ISOBUS to Raven ECU, 36' Long $1,152.58

B. Raven ISO Product Control Node (Required); this node is required even if carrier control is done by other means because this node provides section width input.
- 063-0173-006 ECU ISO CAN Product Controller $2,564.74

If Electrical Load is more than 30 AMPs, Cable is Required
- 115-0171-955 Cable, Adapter, John Deere ISO to Raven ISO $991.22

No extension cable allows between Implement Extension Tee and Cable
- 115-0172-360 Cable, ISO Sidekick Gen II $775.37

C. Optional
- 063-0173-080 Foot Switch ISO Node $293.28
- 115-0171-865 Cable, Foot Switch Cable Extension, 22' Long $305.96

D. A Product Controller Cable is Required
- 115-0171-945 Product Controller Cable $1,089.71
- 115-0171-319 Product Controller Optional Ext Cable, 12' Long $855.00
- 115-0171-320 Product Controller Optional Ext Cable, 24' Long $880.15

E. Select a Flow Control Cable (if carrier control is desired)
- 115-0171-313 Cable, Flow Control Cable, 10 Boom, 12' Long $798.42
- 115-0171-314 Cable, Flow Control Cable, 10 Boom, 24' Long $798.42
- 115-0171-315 Cable, Flow Control Cable, 5 Boom, 12' Long $567.91
- 115-0171-316 Cable, Flow Control Cable, 5 Boom, 24' Long $687.36

F. Select a Flow Meter, Control Valve, and Section Valves as Desired.

See Page 153 for Options

G. Cable ISO Implement Extension Tee is Required
- 115-0171-960 Cable, ISO Implement Extension Tee, 12' $704.12
- 115-0171-961 Cable, ISO Implement Extension Tee, 6’ $779.56
- 115-0171-931 Cable, ISO Implement Extension Tee, 12' $859.01
- 115-0172-035 Cable, ISO Implement Extension Tee, 17' $955.59
- 115-0171-932 Cable, ISO Implement Extension Tee, 24’ $1,068.76
- 115-0171-933 Cable, ISO Implement Extension Tee, 36' $1,246.89

H. A Raven ISO to Active Terminator Adapter Cable is Required
- 115-0171-963 Cable, Adapter Raven ISO to Active Terminator $176.03

I. A Terminator, Active Powell is Required
- 063-0172-964 Terminator, CAN Active Powell $225.24

**Force CS Injaction Systems**

**Part#** | **Description** | **Price**
--- | --- | ---
117-0171-477 | Force® CS Sidekick Pro Injection System | $11,927.40
117-0171-499 | Force® CS Sidekick Pro ISO Injection System | $14,224.30
117-0171-500 | Force® CS Add-on Cabinet Kit | $3,450.50

**INSTALLATION**

OnSite Installation (Approximate NET) $1,00.00

*NOTE: Price does not include installation, controller, cables, carrier system, plumbing or other accessories

**CONTACT INFORMATION**

Grimes, IA 800-351-1587 • Gardner, KS 877-829-8502 • Brimfield, IL 855-778-8500
MONITORS AND CONTROLS

FORCE™ CS INJECTION SYSTEM

FOR FORCE CS for Envizio Pro & Viper Pro

FOR FORCE CS for Raven ISO Product Control

NOTES:

1. SECTION WIDTHS ARE Turned ON by "ON SCREEN SWITCHES" or by ISO SWITCH BOX. (Kit Switch Box, ISO TO JOHN DEERE 652500/2630 117-0171-1437)

2. IF ELECTRICAL LOAD IS MORE THAN 30 AMPS REFER TO PARTS REQUIRED TO ADD SECOND INJECTION PUMP.

3. NO EXTENSION CABLE ALLOWED BETWEEN IMPLEMENT EXT TEE AND CABLE 115-0172-107.

Grimes, IA 800-351-1587 • Gardner, KS 877-829-8502 • Brimfield, IL 855-778-8500
Example of Sidekick Pro™
ISO Injection System

Plumbing Installation

The Raven SCS-Sidekick has been discontinued by Raven. Some replacement parts are still available and listed below.