RGL’s Q-Distributor is a tubing deployed flow control device (FCD) used for optimal fluid injection control. Multiple device deployment on a single injection string can enhance the distribution with specific injection placements.

The Q-Distributor can be customized for flow and pressure drop requirements with multiple ports. The Q-Distributor comes with two-position sliding sleeve technology and can be selectively shifted opened or closed.

The Q-Distributor is manufactured in an API Q1™ Certified facility.

Features and Benefits
• Two-position shiftable: open or closed
• Superior erosion, corrosion, and scale resistance
• Reduces openhole erosion and casing damage
• Maximizes injection efficiencies along the well length
• Selective shifting via coiled tubing
• Bi-directional injection distribution
• Field configurable

Applications
• Secondary liner completions
• Outflow control device for steam, water, or gas injection with inflow control capability
• Ideal for vertical, deviated and horizontal completions
• Suitable for high-temperature, high-pressure service during injection, production, and stimulation

Options
• RGL NALU™ flow control wellbore modelling and optimization
• Temperature-sensing technology
• Inflow control
• Zonal isolation packers
• Hydraulic or mechanical shifting
• Shift-validation technology
### Technical Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>3.5 in. (88.9 mm)</th>
<th>4.5 in. (114.3 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OD (Maximum)</td>
<td>5.00 (127.00)</td>
<td>5.75 (146.10)</td>
</tr>
<tr>
<td>ID (Minimum)</td>
<td>2.75 (69.85)</td>
<td>3.44 (87.30)</td>
</tr>
<tr>
<td>Maximum Length</td>
<td>54.7 (1389.4)</td>
<td>54.7 (1389.4)</td>
</tr>
<tr>
<td>Number of Nozzles</td>
<td>10 (5 per row)</td>
<td>12 (6 per row)</td>
</tr>
<tr>
<td>Shift Tool Size (Type B)</td>
<td>2.75 (69.85)</td>
<td>3.44 (65.07)</td>
</tr>
<tr>
<td>Nozzle Options</td>
<td>D, FP</td>
<td>D, FP</td>
</tr>
</tbody>
</table>

Notes: Specs and illustrations for reference only. Dimensions are subject to change.

### Additional Product Information:

1. End-field connections to suit customer application.
2. 2P tool: assembly is shipped in the CLOSED position, pull UP to open.
3. Shift tooling is the mechanical or hydraulic OTIS ‘B’ Positioning Tool.
4. Shift-validation tool available upon request.
5. Field-configurable: ports can be blanked on site prior to deployment.
RGL’s Q-Diverter is used for optimal inflow production control. Multiple device deployment on a single production string can enhance the distribution of recovery with specific production placements. Wellbore modelling software can be used to optimize placement and rates. The Q-Diverter is tubing-deployed and can be customized for flow and pressure drop requirements with multiple ports or nozzles.

**Features and Benefits**
- API Q1™ Certified manufacturing processes
- Autonomous (AICD) or nozzle options
- Flush OD and ID allowing full bore access
- Superior erosion/corrosion resistance
- Improved recovery rates & subcool optimization

**Applications**
- Inflow control device (ICD)
- High temperature, high pressure service
- Ideal for a wide range of applications up to +343°C (650°F)
- Controls water and steam breakthrough

**Options**
- RGL patented nozzle technology with variable port, orifice or nozzle sizes available
- Temperature sensing technology available for even flow control monitoring
- RGL’s proprietary RGL ENC coating
# Q-Diverter™

## Technical Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>2.38 (60.3)</th>
<th>2.88 (73)</th>
<th>3.5 (88.9)</th>
<th>4.5 (114.4)</th>
<th>5.5 (139.7)</th>
<th>6.63 (162.6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OD (Maximum)</td>
<td>2.88 (73)</td>
<td>3.5 (88.9)</td>
<td>4.5 (114.3)</td>
<td>5.5 (139.7)</td>
<td>6.4 (162.6)</td>
<td>7.63 (193.7)</td>
</tr>
<tr>
<td>ID (Minimum)</td>
<td>1.31 (33.4)</td>
<td>5 (50.8)</td>
<td>2.88 (73)</td>
<td>3.88 (98.4)</td>
<td>4.78 (121.4)</td>
<td>5.7 (144.8)</td>
</tr>
<tr>
<td>Maximum Length</td>
<td>40 (102)</td>
<td>40 (102)</td>
<td>40 (102)</td>
<td>40 (102)</td>
<td>51 (130)</td>
<td>52 (132)</td>
</tr>
<tr>
<td>Number of Nozzles</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Nozzle Options</td>
<td>A, FP, FV</td>
<td>A, FP, FV</td>
<td>A, FP, FV</td>
<td>A, FP, FV</td>
<td>A, FP, FV</td>
<td>A, FP, FV</td>
</tr>
</tbody>
</table>

## Additional Product Information:

1. End field connections to suit customer application.
2. Nozzles can be blanked off.
3. Non-shifting.

Notes: For reference only. Dimensions are subject to change.
Q-Selector™

Formerly SCJ

RGL’s Q-Selector is a liner deployed flow control device (FCD) for new well completions with a simple inner port tube and an outer screen. The Q-Selector can improve the distribution into the target formation and control the inflow of produced fluids.

For injection, the Q-Selector provides choked flow and can be designed to allow for higher injection pressures, which may provide strategic fracturing of the reservoir sand for specific exploitation applications. For production, oil is preferentially produced over steam, water, and gas. Each Q-Selector is completed and custom designed with RGL’s screen technologies, resulting in large openflow areas for optimal exposure to the reservoir.

The Q-Selector is manufactured in an API Q1™ Certified facility.

Features and Benefits
- Uniform inflow profile
- Drift ID bore access
- Improved recovery rates and production optimization
- Superior erosion, corrosion, and scale resistance
- Viscosity sensitive and insensitive nozzles; High-flowing velocity steam, water, or gas can be choked effectively by higher pressure drop

Applications
- Openhole standalone completions
- Secondary liner completions
- Production and injection wells requiring sand and flow control
- Production wells for steam, water, or gas breakthrough prevention
- Ideal for vertical, deviated and horizontal completions
- Suitable for high-temperature, high-pressure service during injection, production, and stimulation

Options
- RGL proLAB™ sand control lab testing and modelling
- RGL NALU™ flow control near-wellbore modelling and optimization
- RGL patented nozzle technologies
- Sand control options include proWRAP™, proPUNCH™, and proMESH™
- Zonal isolation packers
- Temperature sensing technology
- Hydraulic or mechanical shifting
- Shift-validation technology
- Field configurable
## Technical Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>4.5 in. (114.3 mm)</th>
<th>5 in. (127 mm)</th>
<th>5.5 in. (139.7 mm)</th>
<th>6.63 in. (168.23 mm)</th>
<th>7 in. (177.8 mm)</th>
<th>8.63 in. (219.08 mm)</th>
<th>9.63 in. (244.48 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OD (Maximum)</td>
<td>5.00 (127.0)</td>
<td>5.563 (141.3)</td>
<td>6.265 (159.1)</td>
<td>7.39 (187.7)</td>
<td>7.875 (200.0)</td>
<td>9.625 (244.5)</td>
<td>10.625 (269.9)</td>
</tr>
<tr>
<td>ID (Minimum)</td>
<td>4.00 (101.6)</td>
<td>4.408 (112)</td>
<td>4.892 (124.3)</td>
<td>6.049 (153.64)</td>
<td>6.366 (161.7)</td>
<td>7.921 (201.2)</td>
<td>8.835 (224.4)</td>
</tr>
<tr>
<td>Maximum Length</td>
<td>492 (1250)</td>
<td>492 (1250)</td>
<td>492 (1250)</td>
<td>492 (1250)</td>
<td>492 (1250)</td>
<td>492 (1250)</td>
<td>492 (1250)</td>
</tr>
<tr>
<td>Number of Nozzles</td>
<td>Varies</td>
<td>Varies</td>
<td>Varies</td>
<td>Varies</td>
<td>Varies</td>
<td>Varies</td>
<td>Varies</td>
</tr>
<tr>
<td>Nozzle Options</td>
<td>FP</td>
<td>FP</td>
<td>FP</td>
<td>FP</td>
<td>FP</td>
<td>FP</td>
<td>FP</td>
</tr>
</tbody>
</table>

Notes: Specs and illustrations for reference only. Dimensions are subject to change.

### Additional Product Information:

1. End field connections to suit customer application.
2. Screen length and specifications, as requested.
3. proWRAP™ sand control is standard.
4. Temperature rated for 650°F (343°C).
5. Tungsten Carbide nozzle technologies available.
6. Tools are rated for a 15°/100 ft (15°/30 m) bend.
7. Field-configurable: ports can be blanked on site prior to deployment.
8. Shiftable options available.
RGL’s **Q-Controller** is an autonomous inflow control device (AICD). Oil production is unhindered with the Q-Controller design and is preferentially produced over steam, water, and gas. Installing multiple Q-Controllers can improve recovery rates and optimize the inflow profile along the production interval.

Each Q-Controller is completed and custom designed with RGL’s screen technologies, resulting in large openflow areas for optimal exposure to the reservoir.

The Q-Controller is manufactured in an API Q1™ Certified facility.

**Features and Benefits**
- Uniform inflow profile
- Drift ID bore access
- Improved recovery rates and production optimization
- Superior erosion, corrosion, and scale resistance
- Viscosity sensitive and insensitive nozzles; High-flowing velocity steam, water, or gas can be choked effectively by higher pressure drop
- Evenly distributed inflow profile along the well

**Applications**
- Openhole standalone completions
- Secondary liner completions
- Production wells requiring sand and flow control
- Production wells for steam, water, or gas breakthrough prevention
- Ideal for vertical, deviated and horizontal completions
- Suitable for high-temperature, high-pressure service during injection, production, and stimulation

**Options**
- RGL proLAB™ sand control lab testing and modelling
- RGL NALU™ flow control near-wellbore modelling and optimization
- RGL patented nozzle technologies
- Sand control options include proWRAP™, proPUNCH™, and proMESH™
- Zonal isolation packers
- Temperature sensing technology

Formerly PCJ
## Q-Controller™ with D Nozzles

### Technical Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>4 in. (101.6 mm)</th>
<th>4.50 in. (114.3 mm)</th>
<th>5.50 in. (139.7 mm)</th>
<th>7.00 in. (177.8 mm)</th>
<th>8.63 in. (219.1 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OD (Maximum)</td>
<td>5.50 (139.7)</td>
<td>5.875 (149.2)</td>
<td>6.88 (174.8)</td>
<td>8.375 (212.7)</td>
<td>9.875 (250.8)</td>
</tr>
<tr>
<td>ID (Minimum)</td>
<td>API Drift</td>
<td>API Drift</td>
<td>API Drift</td>
<td>API Drift</td>
<td>API Drift</td>
</tr>
<tr>
<td>Port ID, (mm)</td>
<td>3, 4</td>
<td>3, 4</td>
<td>3, 4</td>
<td>3, 4</td>
<td>3, 4</td>
</tr>
<tr>
<td>Number of Nozzles</td>
<td>2-3</td>
<td>2-3</td>
<td>2-3</td>
<td>2-3</td>
<td>2-3</td>
</tr>
</tbody>
</table>

## Q-Controller™ with A Nozzles

### Technical Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>4 in. (101.6 mm)</th>
<th>4.50 in. (114.3 mm)</th>
<th>5.50 in. (139.7 mm)</th>
<th>7.00 in. (177.8 mm)</th>
<th>8.63 in. (219.1 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OD (Maximum)</td>
<td>5.00 (127)</td>
<td>5.50 (139.7)</td>
<td>6.88 (174.8)</td>
<td>8.00 (203.2)</td>
<td>9.63 (244.5)</td>
</tr>
<tr>
<td>ID (Minimum)</td>
<td>API Drift</td>
<td>API Drift</td>
<td>API Drift</td>
<td>API Drift</td>
<td>API Drift</td>
</tr>
<tr>
<td>Port ID, (mm)</td>
<td>3.2, 4.5, 6</td>
<td>3.2, 4.5, 6</td>
<td>3.2, 4.5, 6</td>
<td>3.2, 4.5, 6</td>
<td>3.2, 4.5, 6</td>
</tr>
<tr>
<td>Number of Nozzles</td>
<td>2-3</td>
<td>2-3</td>
<td>2-3</td>
<td>2-3</td>
<td>2-3</td>
</tr>
</tbody>
</table>

Notes: Specs and illustrations for reference only. Dimensions are subject to change.

### Additional Product Information:

1. End field connections to suit customer application.
2. Screen length and specifications, as requested.
3. proWRAP™ sand control is standard.
4. Temperature rated for 650°F (343°C).
5. Tools come with two Tungsten Carbide nozzles.
6. Tools are non-shiftable.
7. Tools are rated for a 15°/100 ft (15°/30 m) bend.
RGL’s Q-Enforcer is a tubing deployed flow control device (FCD) used to maximize production efficiency by improving injection characteristics. The device’s flow conditioning extends the injecting zone length, reduces openhole erosion and casing damage, while optimizing custom injection rates with a uniform injection profile.

The Q-Enforcer maximizes injection efficiencies along the well by exit flow conditioning. The device’s laminar exit flow extends the thermal reach beyond traditional injecting zones, thus reducing the number of installations required. This increases injection efficiency at the delivery point.

This device offers operational flexibility for controlling the number of exit port numbers. The Q-Enforcer comes with two-position sliding sleeve technology and can be selectively shifted opened or closed.

The Q-Enforcer is manufactured in an API Q1™ Certified facility.

Features and Benefits
- Two-position shiftable: open or closed
- Superior erosion, corrosion, and scale resistance
- Reduces openhole erosion and casing damage
- Extends injection zones longitudinal to the wellbore
- Maximizes injection efficiencies along the well length
- Selective shifting via coiled tubing
- Bi-directional injection distribution
- Field configurable

Applications
- Secondary liner completions
- Outflow control device for steam, water, or gas injection with inflow control capability
- Ideal for vertical, deviated and horizontal completions
- Suitable for high-temperature, high-pressure service during injection, production, and stimulation

Options
- RGL NALU™ flow control wellbore modelling and optimization
- Temperature-sensing technology
- RGL patented nozzle technologies
- Inflow control
- Zonal isolation packers
- Hydraulic or mechanical shifting
- Shift-validation technology
# Q-Enforcer™

## Technical Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>1.66 in. (42.2 mm)</th>
<th>3.5 in. (88.9 mm)</th>
<th>4.5 in. (114.4 mm)</th>
<th>5.5 in. (139.7 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OD (Maximum)</td>
<td>3.0 (76.2)</td>
<td>5.656 (143.7)</td>
<td>5.656 (143.7)</td>
<td>6.125 (155.6)</td>
</tr>
<tr>
<td>ID (Minimum)</td>
<td>1.25 (31.8)</td>
<td>2.82 (71.6)</td>
<td>2.82 (71.6)</td>
<td>3.31 (84.07)</td>
</tr>
<tr>
<td>Maximum Length</td>
<td>24.25 (615.95)</td>
<td>47.06 (1195.32)</td>
<td>47.06 (1195.32)</td>
<td>53.56 (1,360.42)</td>
</tr>
<tr>
<td>Number of Nozzles</td>
<td>24 (2 X 12 typ per side)</td>
<td>40 (2 X 20 typ)</td>
<td>40 (2 X 20 typ)</td>
<td>40 (2 X 20 typ)</td>
</tr>
<tr>
<td>Shift Tool Size (Type B)</td>
<td>1.250 (31.75)</td>
<td>2.813 (71.45)</td>
<td>2.813 (71.45)</td>
<td>3.313 (84.15)</td>
</tr>
<tr>
<td>Nozzle Options</td>
<td>D, FP, FO, FV</td>
<td>D, FP, FO, FV</td>
<td>D, FP, FO, FV</td>
<td>D, FP, FO, FV</td>
</tr>
</tbody>
</table>

Notes: Specs and illustrations for reference only. Dimensions are subject to change.

### Additional Product Information:

1. End-field connections to suit customer application.
2. 2P tool: assembly is shipped in the CLOSED position, pull UP to open. Assembly is symmetrical around the vertical axis at midpoint.
3. Shift tooling is the mechanical or hydraulic OTIS ‘B’ Positioning Tool.
4. Shift-validation tool available upon request.
5. Field-configurable: ports can be blanked on site prior to deployment.
6. Bi-directional flow conditioning at the exit ports is patent-protected.
RGL's Q-Commander™ flow control device is used for recovering greater pressure rates. The Q-Commander™ is equipped with a high-velocity flow control device nozzle (the FV nozzle), capable of recovering market-leading production performance. Ideal for drilling longer and deeper wells, the Q-Commander™ can be used in all types of steam-assisted operations, including SAGD, CSS and steamflooding, and will help operators manage well performance regardless of pressure and temperature fluctuations in the reservoir.

Features and Benefits
- Custom engineered to the application
- Flush OD and ID allowing full bore access
- Superior erosion/corrosion resistance
- Sand control options
- Shiftable options via coiled tubing (Otis B profile) helps achieve high velocity pressure recovery rates
- Bi-directional injection distribution
- Outflow control distribution ideal for liner deployments
- Field configurable

Applications
- Outflow control device for inflow and outflow control options
- High-temperature/high-pressure service during injection, production and simulation
- Ideal for a wide range of applications, such as Steam-Assisted Gravity Drainage (SAGD) and Cyclic Steam Stimulation (CSS), with temperature ratings of up to +343°C (650°F)

Options
- Multiple thread options to meet work string requirements
- RGL NALU™ flow control wellbore modelling and optimization
- Temperature sensing technology
- RGL patented nozzle technologies
- RGL's proprietary RGL ENC coating option available
# Technical Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>Basepipe Size, in. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OD (Maximum)</strong></td>
<td>mm 5.500</td>
</tr>
<tr>
<td></td>
<td>in. 139.7</td>
</tr>
<tr>
<td><strong>ID (Minimum)</strong></td>
<td>mm 149.9</td>
</tr>
<tr>
<td></td>
<td>in. 5.9</td>
</tr>
<tr>
<td><strong>Maximum Length</strong></td>
<td>mm 120</td>
</tr>
<tr>
<td></td>
<td>in. 3048</td>
</tr>
<tr>
<td><strong>Shift Tool Size (Type B)</strong></td>
<td>mm 3.563</td>
</tr>
<tr>
<td></td>
<td>in. 90.5</td>
</tr>
<tr>
<td><strong>Number of Nozzles (Can blank if necessary)</strong></td>
<td>6</td>
</tr>
<tr>
<td><strong>t</strong></td>
<td>FV</td>
</tr>
<tr>
<td><strong>Tool Coating</strong></td>
<td>Electroless Nickel (EN)</td>
</tr>
<tr>
<td><strong>Slotted Section</strong></td>
<td>mm 14.6</td>
</tr>
<tr>
<td></td>
<td>in. 358.14</td>
</tr>
</tbody>
</table>

Notes: Specs and illustrations for reference only. Dimensions are subject to change.

## Additional Product Information:

1. End field connections to suit customer requirements
2. Basepipes are available in perforated pipe or slotted liner options
3. Additional base pipe and screen specifications are available upon request.
4. Gravel options include: Natural Gravel Packs Silica Sands, Proppants, Bouxite, Glass, and Ceramic Beads