



**Dixon® Terminal Products**

Various refined petroleum products are distributed through terminals to tank trucks, barges, or railcars. Dixon products are successfully utilized in many of these transfer applications, from dry disconnects and API couplers, to rack cords and vapor recovery couplers.

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## Our Commitment to the Terminal Market

Through innovation, superior product design, and application expertise our objective is to be the easiest company to do business with in the terminal market. We maintain high inventory levels and strive for short lead times while providing training and support before, during, and after the sale. The on-site training at the end-user level will focus on high-quality manufactured products that extend service life and minimize downtime.

### Safety

Dixon® couplings and retention devices are designed to work safely for their intended use. The selection of the proper hose, coupling and retention device, and the proper application of the coupling to the hose, are of utmost importance. Users must consider the size, temperature, application, media, pressure, and hose and coupling manufacturer's recommendations when selecting the proper hose assembly components. Dixon recommends that all hose assemblies be tested in accordance with the Association for Rubber Products Manufacturers' (ARPM) recommendations and be inspected regularly (before each use) to ensure that they are not damaged or have become loose. Visit [arpminc.com](http://arpminc.com) for more information.

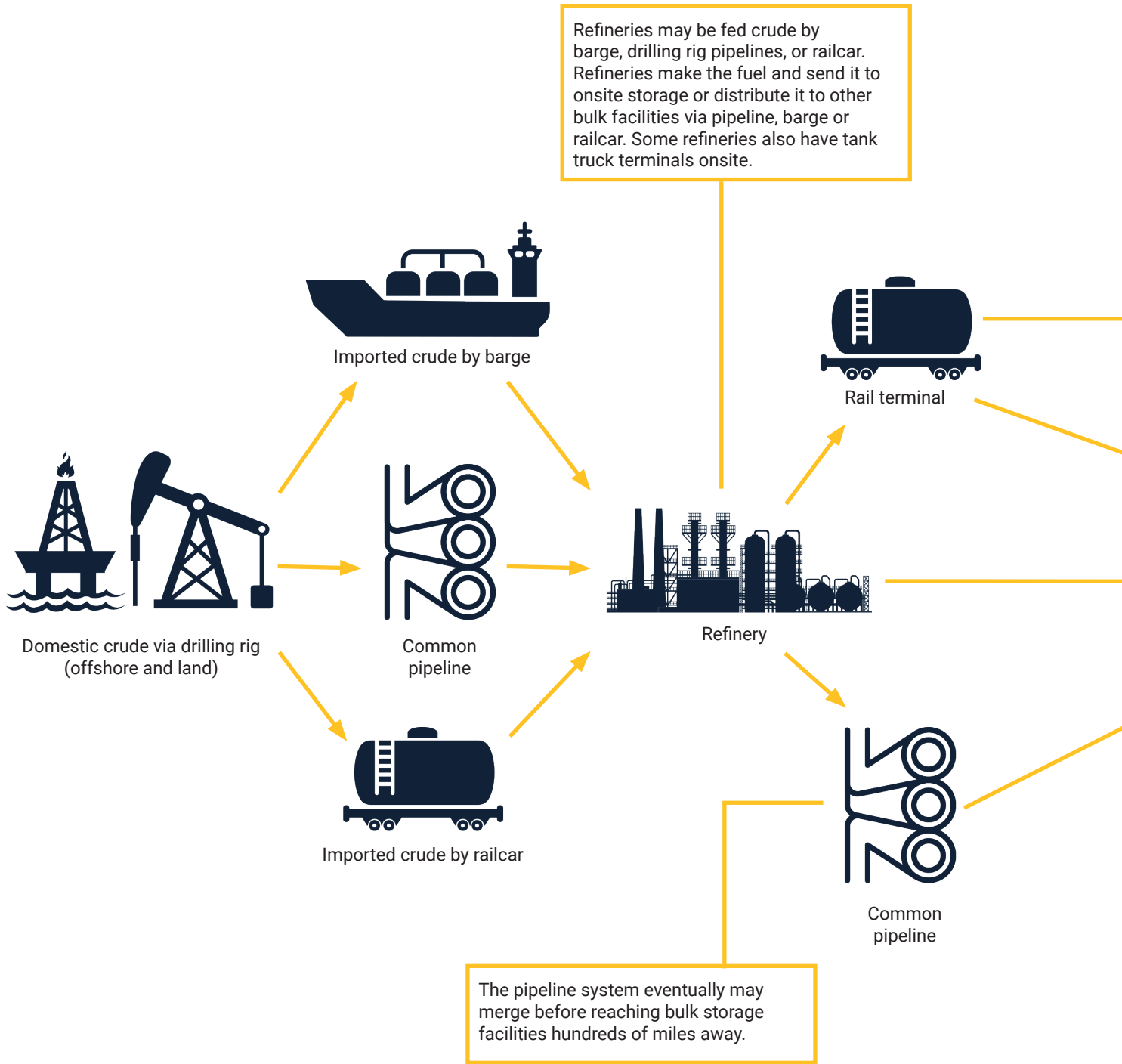
Where safety devices are integral to the coupling, they must be working and utilized. The use of supplementary safety devices such as safety clips or safety cables are recommended.

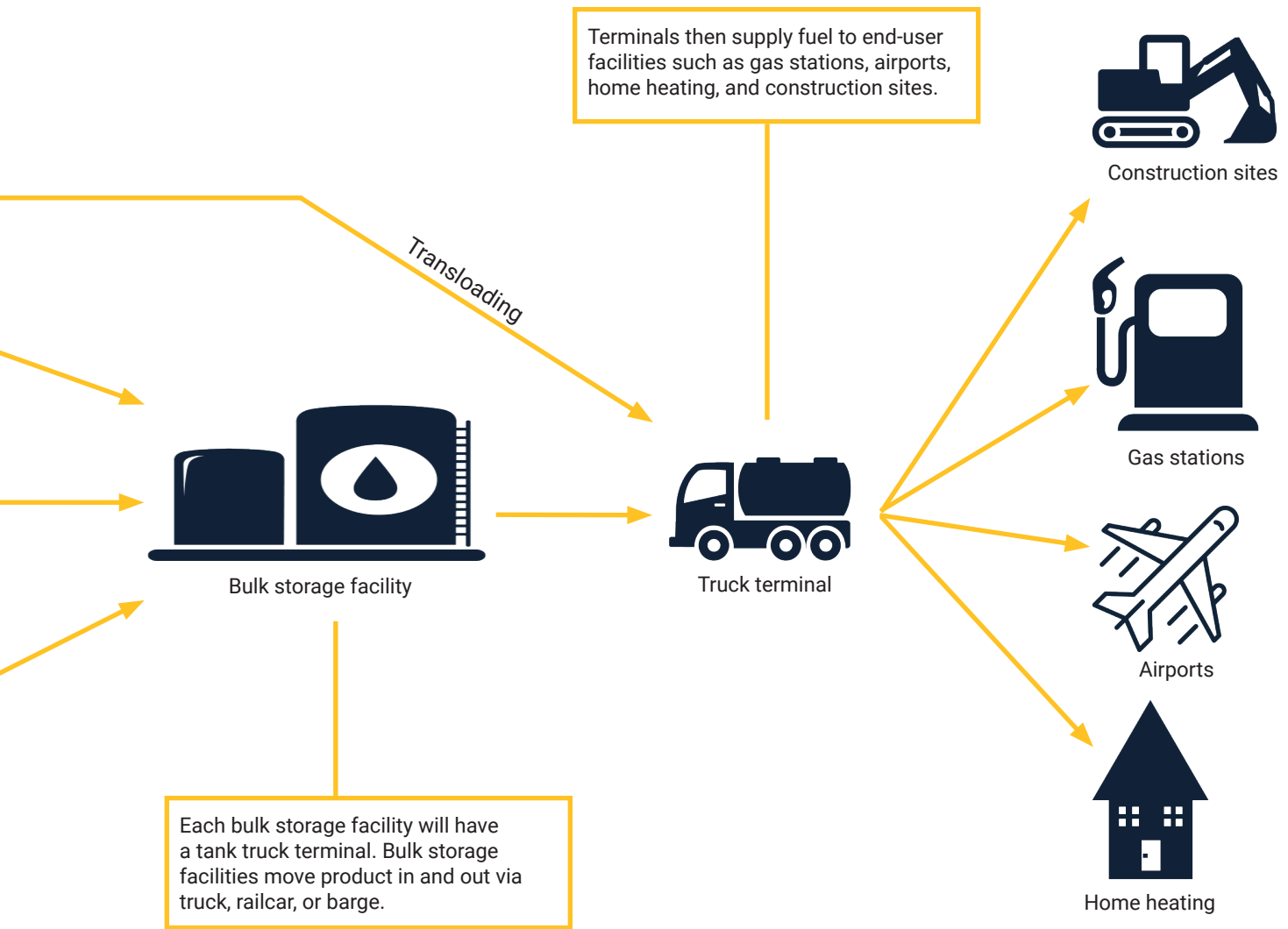
If any problem is detected, couplings must be removed from service immediately.

Dixon is available to consult, train, and recommend the proper selection and application of all fittings we sell. We strongly recommend that distributors and end users make use of Dixon's testing and recommendation services. Call 877.963.4966 or visit [dixonvalve.com](http://dixonvalve.com) to learn more.

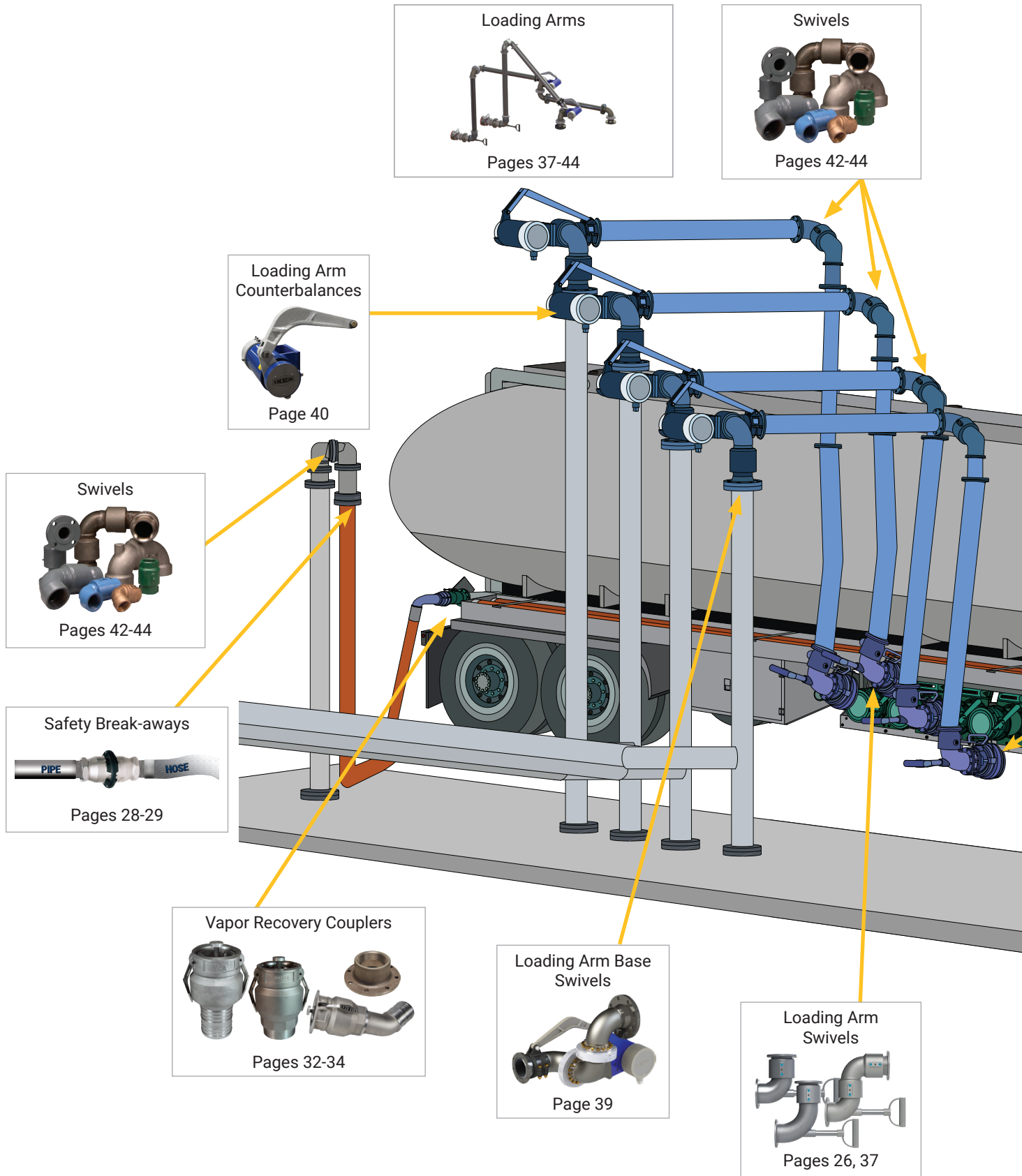
### Terminal Process

The illustration below provides a general overview of the terminal process.





### Tank Truck: Bottom Loading/Unloading



Loading Arms  
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Swivels  
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Loading Arm Counterbalances  
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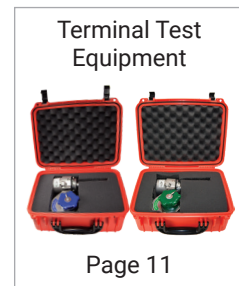
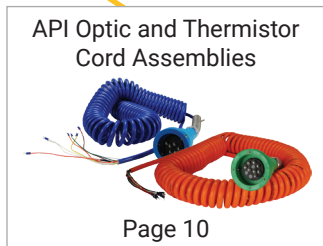
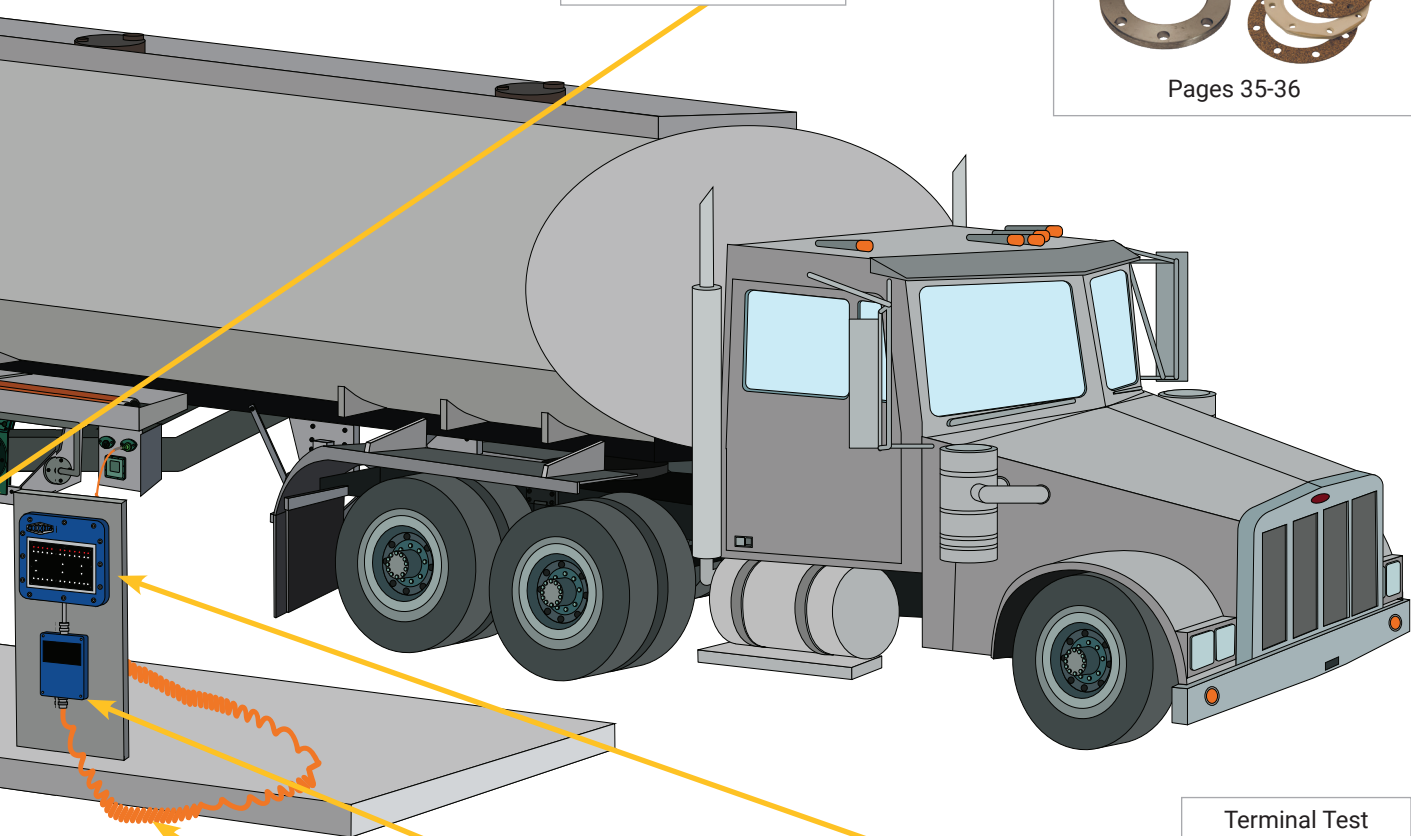
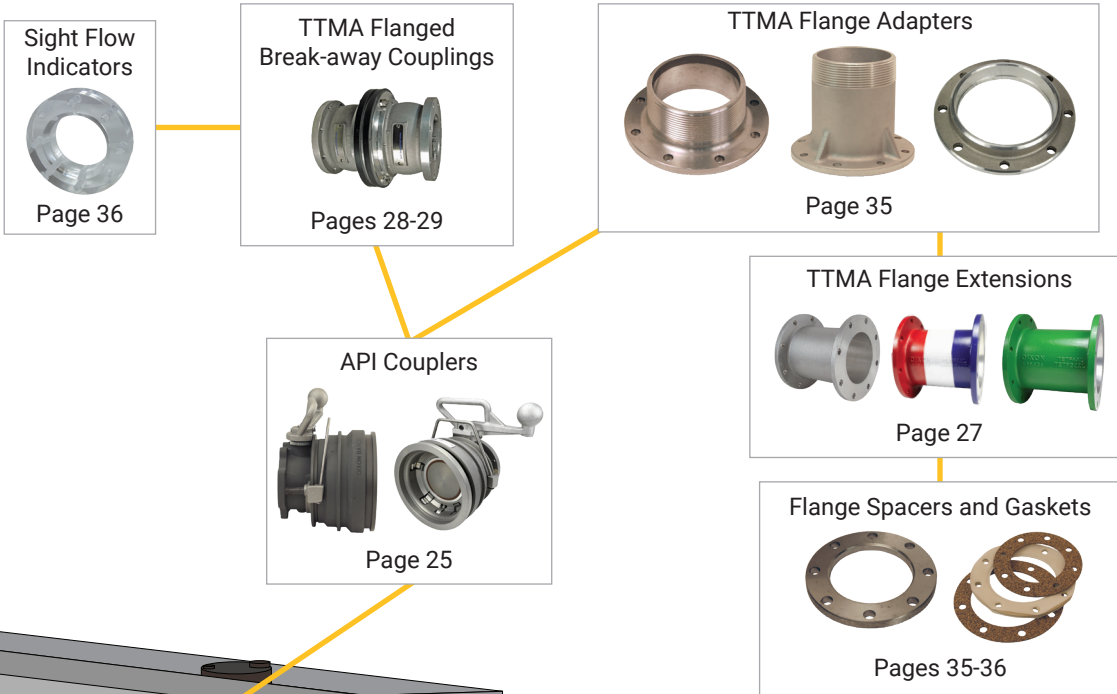
Safety Break-aways  
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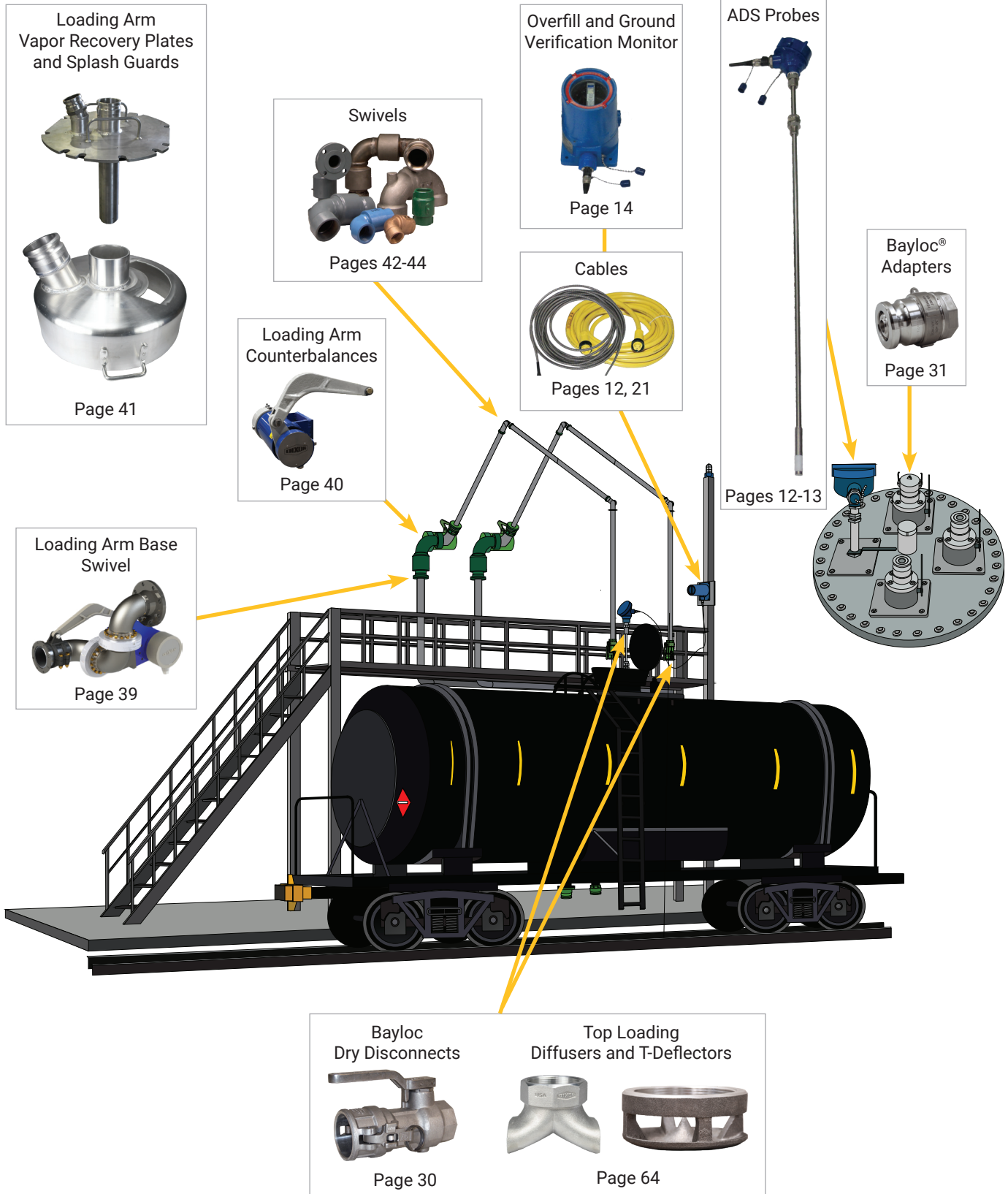
Loading Arm Base Swivels  
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### Tank Truck: Bottom Loading/Unloading

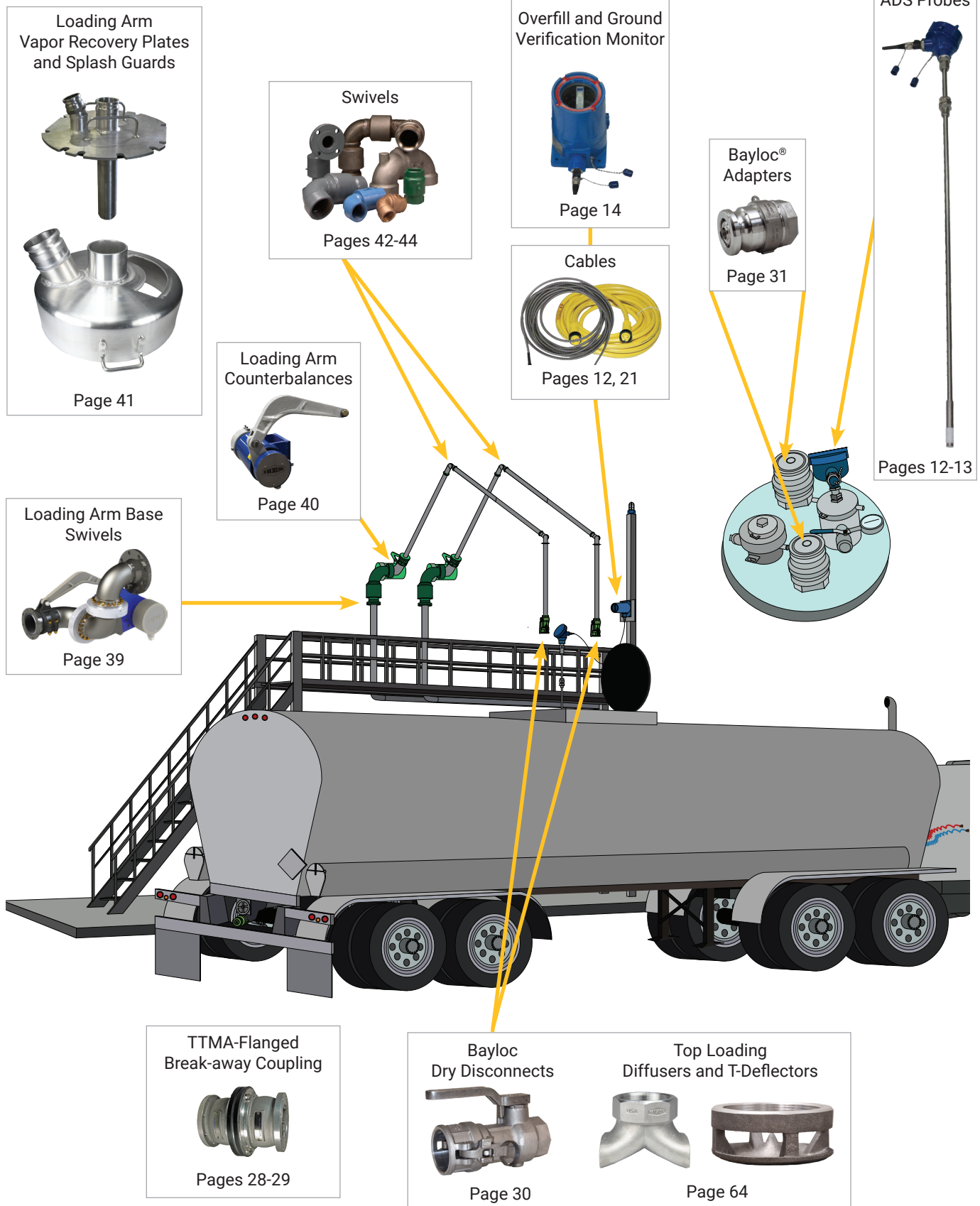


### Railcar: Top Loading





### Tank Truck: Top Loading



### Overfill Protection Rack Monitors



Rack Monitor System



Rack Monitor (FT7000)

**Application**

- Installed on the gantry to control the loading process of petroleum fuels or other hazardous liquid into cargo tanks

**Features**

- Automatically switches between 2-wire or 5-wire type sensors
- Compatible with analog 2-wire thermistor type sensors
- Redundant relay outputs prevent single point failures
- Data management via RS485 port
- Wireless bypass key system
- Ground verification
- Reads trailer identification modules

**Approvals**

- Meets API RP1004 and EN13922 standards
- Suitable for Class I, Division 1, Group CD and Class I, Zone 1, and Group IIB

### FT590-Series Terminal Test Equipment

**Applications**

- Verifies terminal overfill monitor performance and reads the trailer identification modules
- Displays the unique serial number you need to enter into the terminal automation system

**Features**

- Rack monitor testers and mini trailer overfill system have the same API compatible signals
- When connected to the API plug it will cause the terminal overfill monitor to switch permissive
- Tester contains a liquid level sensor, API compatible socket, ground bolt, and trailer identification module, all wired into one unit
- FloTech® FT530 is a self contained microprocessor capable of reading the serial number embedded into the trailer identification module located in the trailer socket



FT590OG



FT590TG



FT530

Description	Part #
rack tester thermistor with ground bolt	FT590TG
rack tester thermistor with ground bolt and trailer identification module	FT590TGT
rack tester optic with ground bolt	FT590OG
rack tester optic with ground bolt and trailer identification module	FT590OGT
trailer identification module reader	FT530

### API-Compatible Systems

**Features**

- Plug is color-coded (5-wire optic) blue or (2-wire optic / thermistor) green
- Highly visible safety orange jacket to meet trip hazard requirements
- Cord is bonded mechanically and resistant to abrasion and oil
- Cord sets are interchangeable with Scully and Civacon
- All wiring is compatible with standard Scully color codes and wiring number configurations
- The 9-pin conductor is shielded to be compatible with Scully VIP system
- For mating socket, consult Dixon®

**Materials**

- Plug body: reinforced nylon
- Button contacts: 316 stainless steel
- All other hardware: stainless steel

**Order Guide**

Part #	Rack Monitor Description
FT7000	rack monitor, auto switch between 2-wire / 5-wire sensors, ground verification, and trailer identification modules; API RP 1004 / EN13922
<b>Safe-T Connect Junction Box Description</b>	
FT7600	8-pin, 4J, green API plug, and 30' safety orange coiled cable
FT7600C	10-pin, 4J, green API plug, and 30' safety orange coiled cable
FT7600P	8-pin, 4J, green API plug, 30' safety orange coiled cable, and Plug-n-Play connector
FT7600S	8-pin, 4J, green API plug, and 20' safety orange straight cable
FT7620	6-pin, 3J, blue API plug, and 30' blue coiled cable
FT7620P	6-pin, 3J, blue API plug, 30' blue coiled cable, and Plug-n-Play connector
FT7620S	6-pin, 3J, blue API plug, and 20' blue straight cable
FT7630	10-pin, 4J, black plug per EN13922, and 30' blue shielded coiled cable
FT7630D	10-pin, 4J, black plug per EN13922, and 30' blue shielded coiled cable with Dixon Bayco break-away
<b>Junction Box Description</b>	
FT7500	single cord junction box
FT7501	dual cord junction box
FT7502	junction box with Cole Hersee yellow 13-pin break-away
FT7503	junction box with D-type pigtail break-away
FT7504	junction box w/ aluminum D-connector break-away
<b>Rack Cord Description</b>	
FT600	8-pin, 4J, API thermistor plug, and 30' safety orange coiled cable
FT600C	10-pin, 4J, API thermistor plug, and 30' safety orange coiled cable
FT600D	API thermistor plug w/ 30' coiled cable w/ aluminum D-connector break-away
FT600CD	API thermistor plug w/ 30' coiled cable w/ 13P CA 4J 10-pin aluminum D-connector break-away
FT600P	8-pin, 4J, API thermistor plug, and 30' safety orange coiled cable with 13-pin Plug-n-Play
FT600S	8-pin, 4J, API thermistor plug, and 20' safety orange straight cable
FT620D	API optic plug w/30' coiled cable w/ aluminum D-connector break-away
FT620	6-pin, 3J, API optic plug, and 30" blue coiled cable
FT620P	6-pin, 3J, API optic plug, 30' blue coiled cable and Plug-n-Play connector
FT620S	6-pin, 3J, API optic plug, and 20' blue straight cable
FT630	10-pin, 4J, black plug per EN13922, and 30' blue shielded coiled cable
FT630D	10-pin, 4J, black plug per EN13922, 30' blue shielded coiled cable, and Dixon Bayco break-away



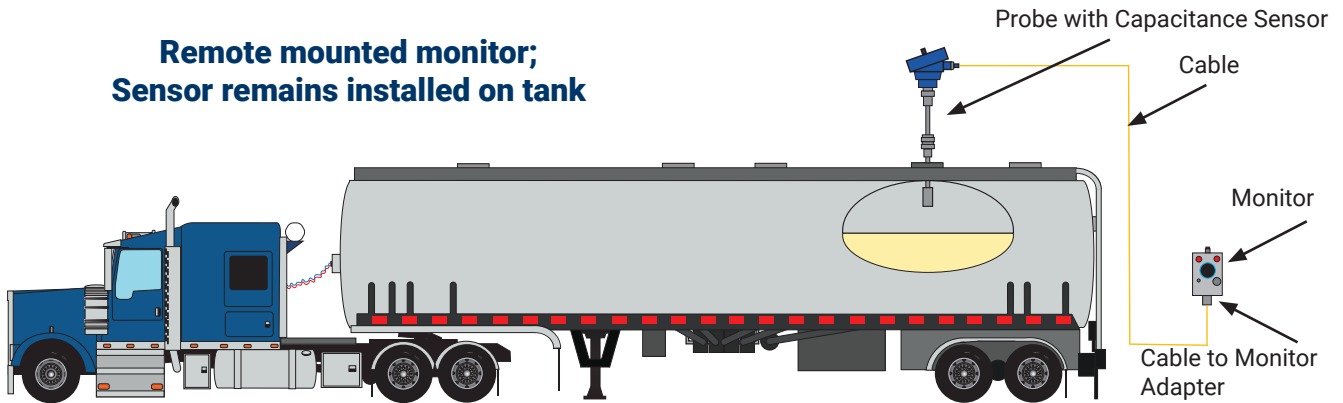
### A100 Outalarm® Self-Contained Portable Outage Alarm

**Visual and audible alerts  
when probe makes contact**



### Mobile Tank Gauging with Remote A100 Monitor

**Remote mounted monitor;  
Sensor remains installed on tank**



Cable  
A200CB3P25



Cable to Monitor Adapter  
A100CBLMTR-002



Monitor  
A100MTR



**ADS Capacitance probes have been used for**

- Petroleum products - gasoline, diesel, kerosene, and jet fuel
- Bio-diesel
- Water-based products
- Water/petroleum waste
- Ether
- Esters
- Surfactants
- Sulfuric acid
- Amines
- Molten sulfur
- Sodium hydroxide
- Methyl diphenyl diisocyanate (MDI)
- Vinyl chloride monomer
- Alcohol and methanol
- Brine

Probe with Capacitance  
Sensor, A200PC36-A-A100M

Capacitance probes work with all liquids with a dielectric constant 1.8 or higher.

Dixon® Industrial Fluid Control\* manufactures products specifically designed for liquid terminal operations. Our standard product offering is shown on the following pages. However, numerous additional applications, materials, and custom designs are available. For technical information or assistance with ordering these products, please call 513.874.8499 or 877.582.3569 or visit [dixonvalve.com](http://dixonvalve.com).

\*Formerly Automated Design Service, Inc. (ADS)

### ADS Outalarm®'s with Probe

#### Applications

- Specifically designed for liquid terminal operation on batch loading and overfill protection, tank cars, tanks trucks, marine barges; suitable for open and closed domes

#### Sizes

- 24", 36", 48", and 60" probe lengths standard, other lengths available

#### Features

- Self-contained; no wires, tubing, or external power
- Rugged weather-and corrosion-resistant construction
- No moving parts, tip sensitive phase shift digital capacitance sensor for conductive and non-conductive fluid; conductivity sensor available for conductive fluids
- Requires no calibration or adjustment
- Adjustable insertion length through a standard 1/2" NPT fitting
- High-intensity audible and flashing visual outputs
- Full, hard graduated laser engraved rod
- A100 operates up to 5000 hours on a single Lithium-ion battery in standby mode
- Fail-safe, continuous battery monitor goes to alarm state on low battery
- Battery current drain <0.23 mA during standby; <60 mA in alarm state

#### Materials

- Wetted materials: 316 stainless steel, PTFE standard, and other materials available

#### Specifications

- Minimum dielectric constant 1.8 of sensing medium
- Temperature range:
  - capacitance probe: **-4°F to 250°F (-20°C to 121°C)**
  - high-temperature capacitance probe: **-4°F to 325°F (-20°C to 162°C)**
  - outalarm monitor: **-4°F to 140°F (-20°C to 60°C)**
- Activation point: 1/4" into liquid surface
- Compatible with most liquid or dry bulk material with a dielectric constant of 1.8 or greater
- Horn intensity: 101 dB at 2'
- Light output: 3 each 3000 mcd high-intensity red flashing LEDs
- Pressure rating on standard unit: **50 PSI**; consult Dixon for applications up to **300 PSI**
- CSA North America, ATEX, and IECEx approval for Class I Div I, Groups A,B,C, D, and Class I Zone 0 Groups IIC hazardous locations



A100 capacitance probe

#### A100 Probes

Length	Capacitance Part # 250°F (121°C) Maximum	Hi-Temperature Capacitance Part # 325°F (163°C) Maximum
24"	A100C24ASXE (Replaced A100C24A)	A100A24ASXE (Replaced A100HC24A)
36"	A100C36ASXE (Replaced A100C36A)	A100A36ASXE (Replaced A100HC36A)
48"	A100C48ASXE (Replaced A100C48A)	A100A48ASXE (Replaced A100HC48A)
60"	A100C60ASXE (Replaced A100C60A)	A100A60ASXE (Replaced A100HC60A)

NOTE: Other lengths available, please contact Dixon at 877.582.3569 for quotes.

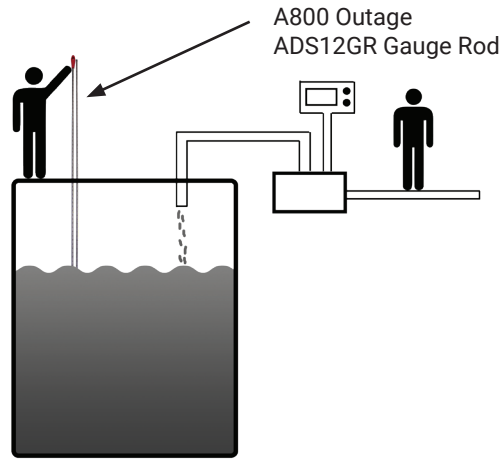
For conductivity probe applications, we will need to know the material being sensed when quoting and/or what you want the probe tuned to.

A100 ADS Outalarm®'s with Probe Part Number Key

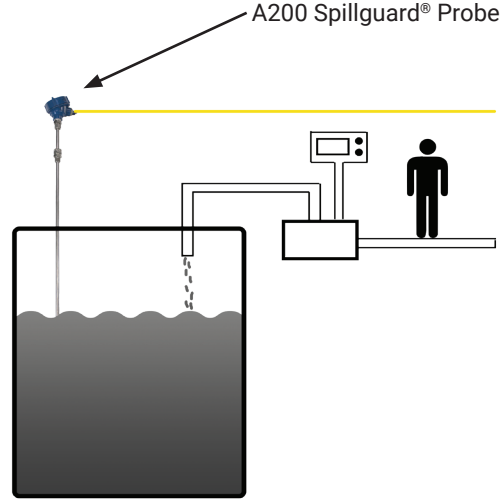
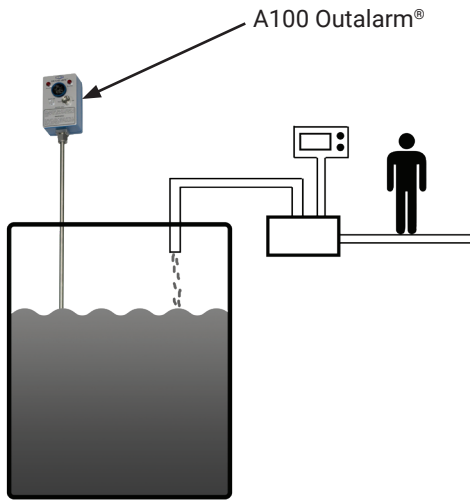
Dixon® ADS Outalarm with Probe Part Number Key		Series	Sensing Type	Sensor Probe Length	Pressure Fitting	Shaft Material	Approved Environment
		A100	A-C	0-99	A-B-C-H	H/S	XE
<b>Series</b>	<b>Code</b>						
ADS Outalarm with Probe	A100	←					
<b>Sensing Type</b>	<b>Code</b>						
HIGH TEMPERATURE 325°F (162°C) N.O. CAPACITANCE	A	←					
Standard temperature 250°F (121°C) N.O. capacitance	C						
For conductivity, pressure, or tilt, contact a Dixon representative							
<b>Sensor Probe Length</b>	<b>Code</b>						
0-99 sensor probe length in inches	0-99	←					
<b>Pressure Fitting</b>	<b>Code</b>						
50 PSI gland 1/2" NPT, stainless steel	A	←					
150 PSI gland 1/2" NPT, stainless steel	B						
300 PSI gland 1/2" NPT, stainless steel	C						
50 PSI 1/2" NPT, Hastelloy®	H						
<b>Material</b>	<b>Code</b>						
Hastelloy probe shaft	H	←					
Stainless steel probe shaft	S						
<b>Optional Approved Environment</b>	<b>Code</b>						
Equipment that has been classified as safe for use in hazardous areas, leave blank for non-approved assemblies	XE	←					

### ADS Tank Overflow Prevention Methods

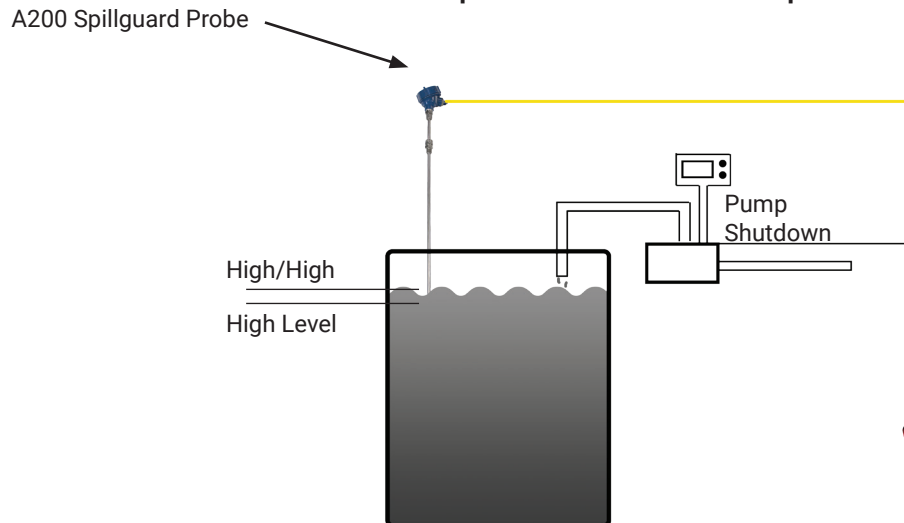
#### Manual Operator Gauging



#### Overflow Alarm



#### Multi-point Overflow with PLC Pump Shutdown



## ADS Spillguard® Systems - Monitors

### Applications

- Shutdown and alarm system for tank cars, tank trucks, barges, and ships; suitable for open and closed domes

### Sizes

- Standard cable lengths: 15', 25', and 50', other lengths available
- Insertion lengths 4" to 60" standard, other lengths available

### Features

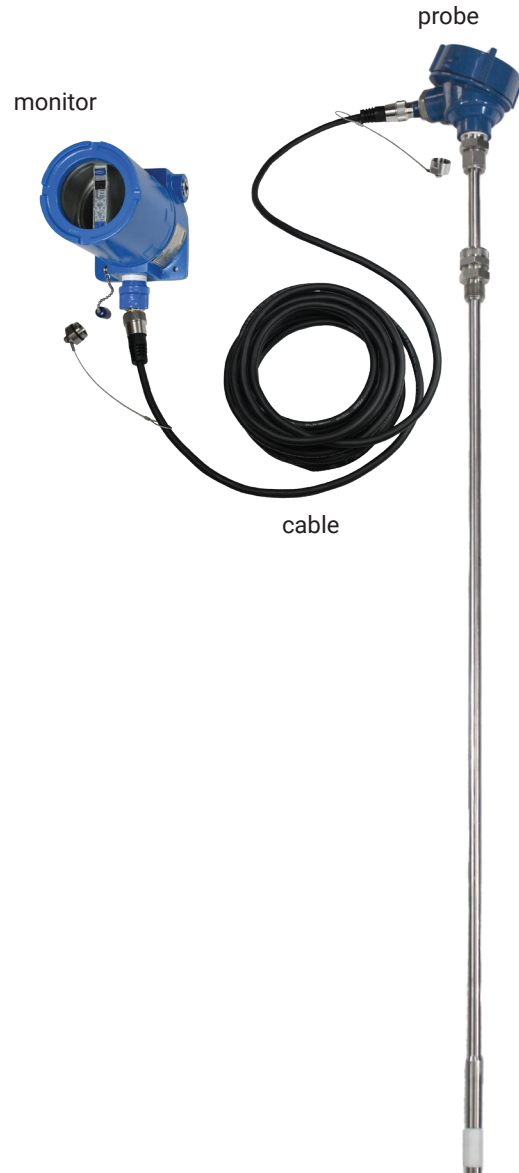
- Rugged, explosion-proof, weather-, chemical-, and corrosion-resistant
- LED status lights visible through glass cover
- Inserts into tank through standard 1/2" NPT fitting
- Probe can be portable or permanently installed in the vessel
- Laser engraved graduated rod with 1/4" graduations
- IP67 rated probe connector
- Fail-safe design, unit trips in the event of an open or shorted cable or loss of power
- Choice of capacitance, conductivity, or single-point ultrasonic sensors
- Input power: 120 VAC, 240 VAC, or 24 VDC, 2.5 watts
- Output relay de-energizes on high level, broken or shorted sensor cables, or loss of power
- Low voltage and current sensor, designed to safely operate in hazardous environments
- Optional self-test feature, tilt and ground verification interlocks, and latching circuit available

### Materials

- IP66 and NEMA 4X rated explosion-proof aluminum monitor housing
- Stainless steel probe connector

### Specifications

- Monitor: -4°F to 150°F (-20°C to 70 °C)
- Minimum dielectric constant 1.8
- Probe pressure rating: **50 PSI** with standard fitting; consult Dixon® for applications up to **300 PSI**
- Output relay dry contacts 2 form C (2PDT) rated 2 amps at 120/240 VAC, 1 form C (SPDT) with optional latching circuit and reset switch
- Monitor constructed from CSA/ATEX components
- Monitor designed for installation in Class I Division 1 Group BCD and Class I Zone 1 Group IIC hazardous locations
- Monitor designed for connection to probe operating in Class I Division 1 Group ABCD and Class I Zone 0 Group IIC hazardous locations



### A210 Spillguard Monitors

Monitor Options	24V DC Part #	120V DC Part #
A210 Spillguard monitor	A210S0243 (Replaced A210-24)	A210S1203 (Replaced A210-120)
A210 Spillguard monitor with external reset switch	A210SR0243 (Replaced A210R-24)	A210SR1203 (Replaced A210SR103)
A212 Spillguard dual control monitor	A212S0243 (Replaced A212-24)	A212S1203 (Replaced A212-120)



### A21 ADS Spillguard® Monitor Part Number Key

Dixon® A21 ADS Spillguard Monitor Part Number Key		Series	Single or Dual Channel	Optional Special Operation	Supply Voltage	Connector
		A21	0-2-4	A-B-G-S-R	024-120	0-1-3-5-W
<b>Series</b>	<b>Code</b>	←	←	←	←	←
ADS Spillguard Monitor	A21					
<b>Single Or Dual Channel</b>	<b>Code</b>	←	←	←	←	←
Single channel	0					
Dual channel	2					
Four channel	4					
<b>Optional Special Operation</b>	<b>Code</b>	←	←	←	←	←
Auto reset latching	A					
Bypass timer (not approved for hazardous locations)	B					
Ground verification	G					
Standard operation	S					
Resettable latching circuit	R					
<b>Supply Voltage</b>	<b>Code</b>	←	←	←	←	←
24VDC supply	024					
120VAC supply	120					
<b>Connector</b>	<b>Code</b>	←	←	←	←	←
No connector (conduit)	0					
Ten position	1					
Three position	3					
Five position	5					
Wireless	W					

## ADS Spillguard® Systems - A200 Capacitance Probes

### Capacitance Probes



#### Application

- For materials with dielectric constant > 1.8, liquids, powders, and slurries

#### Features

- 1/2" NPT sliding fitting standard, 3/4" fitting optional
- Open dome adapter and washout fitting available
- Tilt sensor optional

#### Materials

- Probe: 316 stainless steel
- Housing: NEMA 4X, IP66

#### Specifications

- Capacitance probe: -4°F to 250°F (-20°C to 121°C)
- High temperature capacitance probe: -4°F to 325°F (-20°C to 162°C)
- Monitor designed for installation in Class I Division 1 Group BCD and Class I Zone 1 Group IIC hazardous locations
- Monitor designed for connection to probe operating in Class I Division 1 Group ABCD and Class I Zone 0 Group IIC hazardous locations

Length	Capacitance Part # 250°F (121°C) Maximum	Hi-Temperature Capacitance Part # 250°F (121°C) Maximum
24"	A200C324AS (Replaced A200PC24A)	A200A324AS (Replaced A100PHC24A)
36"	A200C336AS (Replaced A200PC36A)	A200A336AS (Replaced A100PHC36A)
48"	A200C348AS (Replaced A200PC48A)	A200A348AS (Replaced A100PHC48A)
60"	A200C360AS (Replaced A200PC60A)	A200A360AS (Replaced A100PHC60A)

NOTE: Please see page 19 for the part number key.

Other lengths available, please contact Dixon® at 877.582.3569 for quotes. For conductivity probes for conductive fluids we will need to know material being sensed when quoting and/or what you want the probe tuned to.

### A200 ADS Spillguard® Probes Part Number Key

Dixon® A200 ADS Spillguard Probes Part Number Key		Series	Sensing Type	Connector	Sensor Probe Length	Pressure Fitting	Shaft Material
		A200	A/C	0-1-3-5	0-99	A-B-C-H	H-S
<b>Series</b>	<b>Code</b>	←	←	←	←	←	←
ADS Spillguard Probes	A200						
<b>Sensing Type</b>	<b>Code</b>	←	←	←	←	←	←
HIGH TEMPERATURE 325°F (162°C) N.O. capacitance	A						
Standard temperature 250°F (121°C) N.O. capacitance	C						
For conductivity, pressure, or tilt, contact a Dixon representative							
<b>Connector</b>	<b>Code</b>	←	←	←	←	←	←
Wireless	0						
Ten position connector	1						
Three position connector	3						
Five position connector	5						
<b>Sensor Probe Length</b>	<b>Code</b>	←	←	←	←	←	←
Sensor probe length in inches	0-99						
<b>Pressure Fitting</b>	<b>Code</b>	←	←	←	←	←	←
50 PSI standard 1/2" NPT, stainless steel	A						
150 PSI gland 1/2" NPT, stainless steel	B						
300 PSI gland 1/2" NPT, stainless steel	C						
50 PSI 1/2" NPT, Hastelloy®	H						
<b>Shaft Material</b>	<b>Code</b>	←	←	←	←	←	←
Hastelloy probe shaft	H						
Stainless steel probe shaft	S						

### ADS Multi-Point Ultrasonic Sensors

#### Applications

- For use when multiple detection points are required such as dribble mode, pump shutoff, overfill alarm, and where splashing is a concern

#### Features

- Intrinsically safe design class I, Div 1, Groups A, B, C, and D
- Up to five detection points available
- Rugged "tube in tube" ultrasonic sensor welded construction
- Individual level and pressure outputs
- Silicone strain gauge pressure transducer available, welded diaphragm, 0-50 PSIA standard range, single set point or alarm outside of a gap
- Tilt option
- Ground verification option
- Full hard heavy wall probe shaft, laser engraved scale up to 96" long

#### Material

- Wetted material: 316 stainless steel

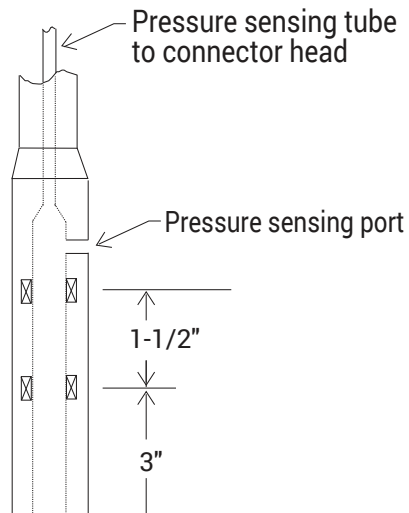
#### Specifications

- Operating temperature range: **-40°F (-40°C) to 250°F (121°C)**
- Monitor designed for installation in Class I Division 1 Group BCD and Class I Zone 1 Group IIC hazardous locations
- Monitor designed for connection to probe operating in Class I Division 1 Group ABCD and Class I Zone 0 Group IIC hazardous locations



Sensor O.D. is 7/8"

Example:  
3 point ultrasonic sensor



### ADS Multi-Point Ultrasonic Sensors Part Number Key

Dixon® ADS Multi-Point Ultrasonic Sensors Part Number Key		Series	Sensor Length	Pressure Option	Tilt Option	Liquid Sensor Points <sup>1</sup>	Custom Number
		A330U	08-60	P	T	1-5	XXXXX
<b>Series</b>	<b>Code</b>	←	←	←	←	←	←
ADS Multi-Point Ultrasonic Sensor	A330U						
<b>Sensor Length</b>	<b>Code</b>						
8"	08						
12"	12						
13"	13						
24"	24						
26"	26						
36"	36						
48"	48						
60"	60						
<b>Pressure Option</b>	<b>Code</b>						
Pressure	P						
<b>Tilt Option</b>	<b>Code</b>						
Tilt	T						
<b>Liquid Sensor Points<sup>1</sup></b>	<b>Code</b>						
1 detection point	1						
2 detection points	2						
3 detection points	3						
4 detection points	4						
5 detection points	5						
<b>Custom Assigned Number by Dixon</b>	<b>Code</b>						
Custom Number	xxxxx						

<sup>1</sup> Contact Dixon at 877.582.3569 for distance between sensor points. Probes with three or more detection points require a custom monitor.

## Wireless ADS Spillguard® Systems



Probe



Controller



Battery Charger

### Applications

- Shutdown and alarm system for tank cars, tank trucks, barges, and ships
- Suitable for open and closed domes

### Sizes

- Insertion lengths: 4" to 60" standard; other lengths available

### Features

- Rugged, explosion-proof, weather, chemical, and corrosion-resistant
- LED status lights visible through receiver glass cover
- Probe inserts into tank through standard 1/2" NPT process connection
- Probe is portable
- Laser engraved graduated rod with 1/4" graduations
- Fail-safe design: unit trips in the event of lost wireless communications
- Choice of capacitance, conductivity, or single or dual point ultrasonic sensors
- Input power: 120 VAC, 240 VAC, or 24 VDC
- Output relays de-energize on wetted sensor, broken wireless link, or loss of power and when charging
- Integral tilt interlock
- Lithium-ion battery powered
- 168 hrs (7 days) battery life
- Bluetooth 5.0
- Wireless range 115 ft.

### Materials

- Monitor and probe housings: IP66 NEMA 4X rated explosion-proof aluminum
- Wetted sensor parts: PTFE and stainless steel

### Specifications

- Capacitance sensor
- Minimum dielectric constant: 1.8
- Temperature range:
  - Capacitance probe: **-4°F to 250°F (-20°C to 121°C)**
  - High-temperature capacitance probe: **-4°F to 325°F (-20°C to 162°C)**
  - Probe pressure rating: **50 PSI** with standard fitting; consult Dixon® for applications up to **300 PSI**
- Output relay dry contacts 2 form C (2PDT) rated 2 amps at 120/240 VAC, 1 form C (SPDT) for fault status
- Monitor constructed from CSA/ATEX components
- Monitor designed for installation in Class I Division 1 Group BCD and Class I Zone 1 Group IIC hazardous locations
- Probe designed to operate in Class I Division 1 Group BCD and Class I Zone 1 Group IIC hazardous locations

Description	Part #
36" capacitance probe with tilt function	A200CTW36AS
24VDC receiver for installation in Hazardous locations	A212S024WXE
24VDC charger for installation in Hazardous Locations	A200CHG024XE

NOTE: Additional lengths available, for technical assistance or help with your application, please contact Dixon at 877.582.3569.

## A240-Series Ground Verification Monitor

### Applications

- Tank truck and railcar loading facilities
- Drum and barrel filling sites
- Loading of stationary tanks

### Features

- Bright red and green indicators communicate A240-series ground monitor status
- Convenient user terminal blocks make installation easy
- Environmentally sealed enclosure provides long service life even in outdoor environments
- Integrates easily into process control systems
- Provides and verifies ground bond through a single connection

### Specifications

- Temperature rating: **-40°F to 140°F (-40°C to 60°C)**
- Ingress protection: IEC 60529 IP 66
- NEMA rating: NEMA Type 4, 4X, 7, 9
- Conduit entries: three
- Suitable for installation in hazardous locations: Class I, Division 1 & 2, Groups B, C, and D hazardous locations, Class II, Division 1 & 2, Groups E, F, and G hazardous locations, and Class III hazardous locations
- Suitable for connection to hazardous locations: Class I, Division 1 & 2, Groups A, B, C, and D hazardous locations and Class I, Zone 0, 1 & 2, Groups IIC, IIB, and IIA hazardous locations
- Ground connection threshold: relay is energized when ground clamp connection is less than 10Ω
- Number of output relays: one
- Output relay configuration: one set of FORM C contacts (Normally Open, Common, and Normally Closed contacts)
- Output relay contact rating: 4Amp at 250VAC
- Monitor constructed from CSA/ATEX components
- Monitor designed for installation in Class I Division 1 Group BCD and Class I Zone 1 Group IIC hazardous locations
- Monitor designed for connection to probe operating in Class I Division 1 Group ABCD and Class I Zone 0 Group IIC hazardous locations



Description	Part #
ground verification monitor 120VAC	A240120
ground verification monitor 24VDC	A240024

## A540-Series Ground Clamp and Junction Box



### Applications

- Tank truck and railcar loading facilities
- Drum and barrel filling sites
- Loading of stationary tanks

### Features

- Clamp is tethered to the cable by a stainless steel strap that protects the connection from strain and wear
- Pull-out resistant cord grip on junction box holds cable tighter the harder it is pulled
- Junction box creates convenient service point for hazardous location installations
- Coiled cable (in blue or black) provides compact storage
- Strong clamping force penetrates grime and remains connected during loading process
- Provides ground and a ground-verification signal in a single clamp

### Materials

- Jacket: thermoplastic elastomer
- Teeth: stainless steel

### Specifications

- Temperature rating: **-40°F to 194°F (-40°C to 90°C)**
- Ingress protection: weatherproof, rain-tight, and dust tight
- Conduit entries: one 3/4" trade size hole and a factory-installed cable on the bottom
- Suitable for installation in hazardous locations: Class I, Division 1 & 2, Groups A, B, C, and D hazardous locations, Class II, Division 1 & 2, Groups E, F, and G hazardous locations and Class III hazardous locations
- Recommended wire between controller and the clamp: 18 GA stranded copper wire (THHN)
- Extended working length of cable: 30 ft.

Description	Part #
ground clamp and junction box (blue cable)	A540CSB0251
ground clamp and junction box (black cable)	A540CSX0251



## ADS Outage Gauges

### Applications

- Set level fill point for manual / visual fill control
- Measure outage requirements on mobile tanks

### Feature

- Open dome bracket

### Material

- 316 stainless steel

Length	Standard Outage Gauge Part #	Outage Gauge with J Bar Part #
2'	A800OG2	A8000GJ2
3'	A800OG3	A8000GJ3
4'	A800OG4	A8000GJ4
5'	A800OG5	A8000GJ5



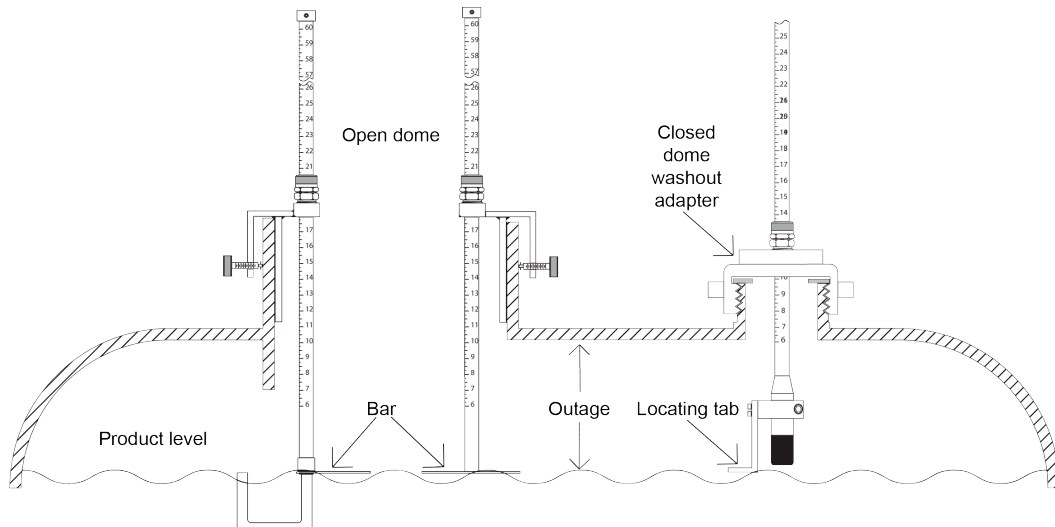
laser engraving closeup

### Setting Outage on Closed Dome with A100LT Locating Tab

1. Screw the washout adapter onto the washout nozzle.
2. Withdraw gauge rod until tab touches inside shell of tank. Note reading on rod.
3. Add desired outage to reading and push down rod to the calculated reading.
4. The probe sensor is now at the desired outage.

### Setting Outage on Open Dome Operation

1. Clamp bracket to vertical section of dome.
2. Withdraw gauge rod until bar touches inside shell of tank. Note reading on rod.
3. Add desired outage to reading and push down rod to the calculated reading.
4. The bar is now at the desired outage.
5. For tanks with manway protruding past shell, use J-bar gauge.



## ADS Gauge Rods



### Application

- Used to gauge liquid levels in any mobile tank

### Size

- 1/2" x .065 weight

### Features

- Laser engraved scale with 1/4" graduations
- Rods come in two sections that screw together at the midpoint
- Foot marks inscribed on rod at 1' intervals below the inch mark
- Heavy duty plastic handle

### Material

- 316 stainless steel



laser engraving closeup

Description	Part #	Part # w/ Sliding Innage Bar
gauge rod, 4' length, one-piece	ADS4GR	ADS4GR-IB
gauge rod, 8' length, two-piece	ADS8GR	ADS8GR-IB
gauge rod, 12' length, two-piece	ADS12GR	ADS12GR-IB

## ADS Spillguard® Cables

### Features

- 3 or 5 pin connector
- 316 stainless steel armored cable, yellow rubber cable, or extreme life cable
- Custom lengths available, please call 877.582.3569 for more information



### Armored Cables

Length	3 Pin Part #	5 Pin Part #
15'	A200CA3P15	A200CA5P15 <sup>1</sup>
20'	A200CA3P20	A200CA5P20 <sup>1</sup>
25'	A200CA3P25	A200CA5P25 <sup>1</sup>
50'	A200CA3P50	A200CA5P50 <sup>1</sup>

<sup>1</sup> Legacy part numbers



### Rubber Cables

Length	3 Pin Part #
25'	A200CB3P25 <sup>1</sup>
30"	A200CB3P30

<sup>1</sup> Legacy part numbers

Note: For use with (-M) mini connectors only.



### Heavy Duty Cables

Length	3 Pin Part #	5 Pin Part #
15'	A400ESS0315XE	A400ESS0515XE
25'	A400ESS0325XE	A400ESS0525XE
50'	A400ESS0350XE	A400ESS0550XE

NOTE: Please see page 27 for part number key.

### A400 Heavy Duty Cable Part Number Key

Dixon® A400 Extreme Life Cable Part Number Key		Series	Jacket Material	Male End Orientation	Female End Orientation	Number Of Conductors/ Connector Pins	Cable Length In Feet	Approved Environment
		A400	A-C-E-P	F-R-S	F-R-S	03-05-10	15-25-50	XE
<b>Series</b>	<b>Code</b>	←						
Extreme Life Cable	A400							
<b>Jacket Material</b>	<b>Code</b>	←						
Armored PVC	A							
Coiled TPU	C							
Extreme life	E							
Polyvinyl-Chloride (PVC)	P							
<b>Male End Orientation</b>	<b>Code</b>	←						
Flying leads	F							
Right angle connector	R							
Straight connector	S	←						
<b>Female End Orientation</b>	<b>Code</b>							
Flying leads	F							
Right angle connector	R	←						
Straight connector	S							
<b>Number Of Conductors/ Connector Pins</b>	<b>Code</b>	←						
Three position cable	03							
Five position cable	05							
Ten position cable	10							
<b>Cable Length In Feet</b>	<b>Code</b>	←						
15 feet	15							
25 feet	25							
50 feet	50							
<b>Optional Approved Environment</b>	<b>Code</b>	←						
Equipment that has been classified as safe for use in hazardous areas, leave blank for non-approved assemblies	XE							

**ADS Parts and Accessories**

**ADS Open Dome Adapters**



A100DA

**Features**

- Flexible design fits most domes
- 1/2" and 3/4" NPT port for Outalarm® probes

NPT Size	Stainless Steel Part #
1/2"	A100DA
3/4"	A100DB



A100TTA

**Tank Washout Caps**

Description	Part #
tank truck 3" washout adapter, 1/2" NPT	A100TTA
tank truck 3" washout adapter, 3/4" NPT	A100TTB
washout cap with swivel	A200SA
washout cap with swivel and 2" vent	A200SVA



A200SA



A210CR-3

**Cable Junction Boxes**

Description	Part #
3 pin cable junction box	A210CR-3
5 pin cable junction box	A210CR-5

**Additional Parts & Accessories**



A210PZH-24

Description	Part #
1" cam & groove coupler and 1/2" NPT bushing, stainless steel	A100CA1050
1" cam & groove coupler with 1/2" NPT bushing and 1" NPT vent tee, stainless steel	A100CA1050V
A100 / 200 splash guard, with 1-1/8" diameter poly	A100SG-POLY
locating tab for A100 / 200 probes	A100LT
replacement A100 monitor only	A100MTR
cable to monitor adapter	A100CBLMTR
A210 Piezo horn 24V DC	A210PZH-24
tri-color external signal light 24V DC	A210-24TC
tri-color external signal light 120V AC	A210-120TC



A210-12TC

## Dielectric Constant Common Materials

Fluid	Dielectric Constant	Fluid	Dielectric Constant
Acetal	3.8	Ethylamine	6.3
Acetaldehyde	15	Ethylene glycol	37
Acetamide	59.2	Fish oil	2.6
Acetic acid	6.2	Fluorobenzene	6.4
Acetone	20.7	Furan	3
Acetophenone	18	Furfural	42
Acetyl bromide	16.2	Gasoline, gas	2
Acetyl chloride	15.9	Glycerine	47 - 68
Acetylacetone	23	Glycerol	42.5
Acetylene dibromide	7.2	Glycerol water	37
Acetylene tetrabromide	5.6	Glycol	37
Aconite acid ester	6.3	Heptane	1.9
Adipic acid	1.8	Hexane	2
Aerosile	1	Hexanol	13.3
Aether	4	Hydrazine	52
Alcohol, allyl	20.6	Iodine	11.1
Alcohol, cetyl	3.6	Isopropanol	18
Alcohol, diacetone	18.2	Jet fuel	1.7
Alcohol, ethyl (ethanol)	24.3	Kerosene	1.8
Alcohol, methyl (methanol)	33.1	Linoleic acid	2.6 - 2.9
Alcohol, propyl	21.8	Linseed oil	3.2 - 3.5
Allyl chloride	8.2	Methane	1.7
Allyl iodide	6.1	Naphthalene	2.5
Aluminum bromide	3.4	Octane	2
Ammonia	15	Oil	2
Ammonia solution 25%	31.6	Olive oil	3.1
Amyl amine	4.5	Oxygen	1.51
Aniline	7.3	Palmitic acid	2.3
Anisole	4.5	Palm seed oil	1.8
Antimony hydride	1.8	Paraffin	1.6
Argon	1.5	Pentane	1.8
Arsine	2.1	Phenol	4.3
Arsone	2.3	Pentanol	14.8
Azoxybenzene	5.2	Phosgene	4.7
Benzene	2.3	Phosphorus liquid	3.9
Bromine	3.1	Pinene	2.7
Butane	1.4	Propane	1.6
Butanoic acid	3	Propanol, propyl alcohol	2.2
Caproic acid	2.6	Propylene	11.9
Caprylic acid	2.5	Propyl Ether	3.3
Carbon disulfide	2.64	Pyridine	1.12
Carbon tetrachloride	2.23	Resorcinol	3.2
Castor Oil	4.7	Stearic acid	2.3
Chlorine, chlor fluid	2	Styrene	2.4
Chlor benzene	5.7	Terpinene	2.7
Chloroform	4.8	Toluene	2.0 - 2.4
Coconut oil, refined	2.9	Transformer oil	2.1
Cotton seed oil	3.1	Turpentine (wood), white spirit	2.2
Cresol	10.6	Vinegar	24
Cumene	2.4	Water	10
Decane	2	Water, demineralized	29.3
Diesel oil, fuel	2.1	Water, heavy	78.3
Dodecane	2	Water - oil emulsion	24
Ether	4.3	Wine	25

A comprehensive list is available on [dixonvalve.com](http://dixonvalve.com).

### Sensor Selection Guidelines

#### Capacitance

Capacitance probes work with all liquids with a dielectric constant minimum of 1.8 or higher (Higher numbers on dielectric chart are good, 3-100 makes no difference to sensor)

- Temperature does affect the dielectric constant
- Solution and chemical compatibility to be monitored also need to be considered
  - Note: Some high-viscosity, sticky materials may adhere to the sensor and cause the sensor to read wet

#### Ultrasonic

- For multi-point applications – up to 5 sense points
- Ideal for areas where splashing is a problem
- Pressure sensing options available - specify pressure at time of order

#### Conductivity

All conductivity probe orders must include product used and/or specific tuning requested. Standard conductivity tuning is 200K Ohm.

These two liquids are the most common for conductivity probe use:

- Alcohol: Low in conductivity, requires 2 megOhm tune
- HCL: High in conductivity requires 10K Ohm tune<sup>1</sup>

<sup>1</sup> HCL fumes are very invasive. Capacitance sensors not recommended. Use conductivity sensors only 

**Conductivity probes are an alternative to capacitance probes if the liquid is conductive and there is risk of the capacitance probe being falsely tripped from splashing.**

**Dual electrode conductivity probes are good for liquids that may stick to the electrode. The exposed electrodes can easily be wiped off between loads.**

NOTE: There are always exceptions to these basic rules. Please call Dixon at 877.582.3569 if you have any questions regarding your application.

## Railroad Tank Car Connections

### Features

- All swivel nuts have standard 5" Railroad Tank Car thread
- Supplied with a nitrile rubber gasket in the threaded end, other gaskets available



### Style A

Male Adapter	Swivel Nut	Elbow	316 Stainless Steel Part #	Aluminum Part #
3"	5"	120°	RTCA30	---
4"	5"	110°	RTCA40 <sup>1</sup>	ATCA40

<sup>1</sup> Parts are produced as a welded fabrication

NOTE: Stainless steel railroad tank car connections are not compatible with aluminum and brass.



110° elbow

### Style F

### Features

- 4" TTMA flange can be bolted to sight glass; API adapter or other dry disconnect
- Supplied with PTFE nitrile rubber envelope gasket

TTMA Flange	Swivel Nut	Elbow	Aluminum Part #
4"	5"	110°	ATCF40 <sup>1</sup>
	5"	90°	ATCF40-90 <sup>1</sup>

<sup>1</sup> Part is produced as a welded fabrication

NOTE: For flange dimensions, diagrams, and additional information, please reference [dixonvalve.com](http://dixonvalve.com).



110° elbow

### Style GF

### Feature

- 4" TTMA flange can be bolted to sight glass; API adapter or other dry disconnect

TTMA Flange	Boss-lock Coupler	Elbow	Aluminum Part #
4"	4"	110°	ATCGF40
	4"	90°	ATCGF40-90

NOTE: For flange dimensions, diagrams, and additional information, please reference [dixonvalve.com](http://dixonvalve.com).



### Screen

### Features

- Stainless steel screen encapsulated in a nitrile rubber gasket
- For use in Style GF elbows

Size	Hole Size	316L Stainless Steel Part #
4"	1"	400-G-BUSS

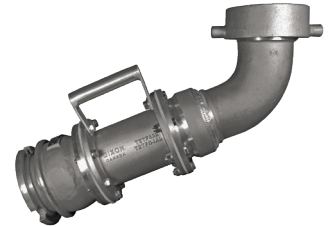
**Railroad Unloading Assemblies**

**Features**

- Robust aluminum body construction
- Removable, easy-carry handle
- Safe and reliable - valves will not open unless fittings are properly connected
- Multiple configurations available; consult Dixon® for pricing and availability

**Assembly with Dixon MannTek Dry Disconnect Adapter**

Adapter Size	Swivel Nut Size	Aluminum Part #
4"	5"	ATC40ASSDDA

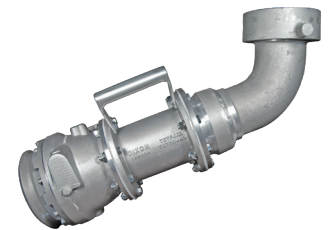


**Assembly with API Adapter**

**Feature**

- Stainless steel springs on the adapter and coupler for corrosion resistance

Adapter Size	Swivel Nut Size	Aluminum Part #
4"	5"	ATC40ASSAPI



**Dixon Tank Car Adapters**

**Features:**

- Standard 5" Railroad Tank Car thread
- Supplied with a nitrile rubber gasket in the threaded end

Size	356T6 Aluminum Part #	Brass Part #	Iron Part #	316 Stainless Steel Part #
2"	200-TCA-AL	---	---	200-TCA-SS
3"	300-TCA-AL	300-TCA-BR	---	300-TCA-SS
4"	400-TCA-AL	400-TCA-BR	---	400-TCA-SS

NOTE: Stainless steel adapters are not compatible with the aluminum and brass adapters.



rocker lug



pin lug

**45° Swivel**

**Features**

- Standard 5" Railroad Tank Car thread
- 45° tank car swivel adapter
- Unit has a long handle brass swivel nut and a swivel retaining ring
- Supplied with a nitrile rubber gasket in the threaded end; see next page for more gaskets

Size	356T6 Aluminum Part #
4"	40A-45TCAL





### Railroad Tank Car Connections



Style T

Male NPT	Swivel Nut	Elbow	Iron Part #	Aluminum Part #
3"	5"	120°	TCT30	ATCT30
4"	5"	110°	TCT40	ATCT40



Style T

Male NPT	Swivel Nut	Elbow	316 Stainless Steel Part #
3"	5"	120°	RTCT30
4"	5"	110°	RTCT40

NOTE: Components that make up these assemblies are not interchangeable between stainless steel and the other materials.



#### Dixon® Coupler x Tank Car Thread

**Features**

- Part is produced as a welded fabrication
- Coupler supplied with a nitrile rubber gasket, other gaskets available
- Use Dixon replacement handles only



Coupler	Male Tank Car Thread	Aluminum Part #
4"	5"	400DWX5TC

#### EZ Boss-Lock x Coupler Tank Car Thread

**Features**

- Part is produced as a welded fabrication
- Coupler supplied with a nitrile rubber gasket, other gaskets available
- Use EZ Boss-Lock replacement handles only


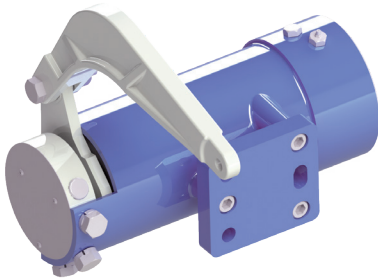
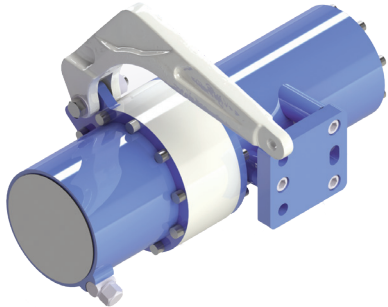


Coupler	Male Tank Car Thread	Aluminum Part #
4"	5"	AD400ALEZMTC

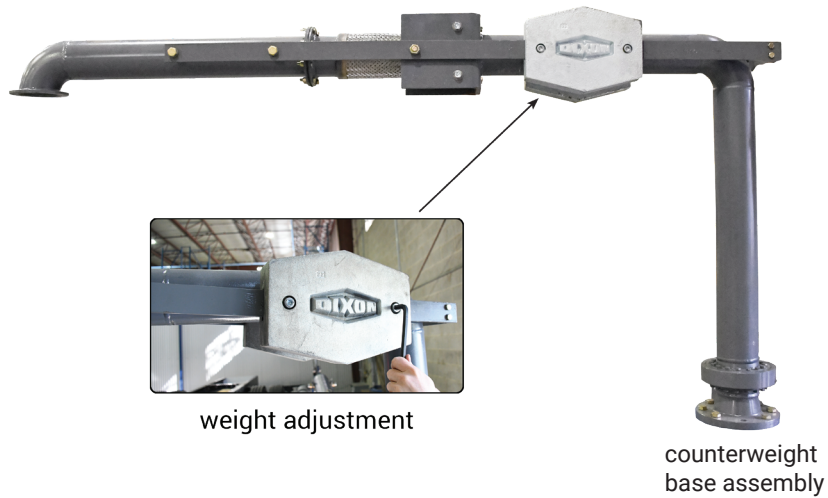
## Loading Arm Introduction

A loading arm is a dynamic system allowing for the transfer of media such as liquids, liquified gas, or dry bulk from one storage vessel to another. Consisting of a combination of swivel joints, pipe and/or hose legs, a counterbalance, and various end connections, loading arms can be configured for both top loading and bottom loading applications. Dixon® loading arms are ideal for a wide range of applications, transferring product to and from tank trucks or rail cars as well as to drums and totes.

### Dixon's Counterbalance Options

	Counterweight	ESB1 Torsion Spring Counterbalance	ESB2 Torsion Spring Counterbalance
			
<b>Description</b>	<ul style="list-style-type: none"> <li>• A classic and reliable means of supporting the weight of a loading arm</li> <li>• Utilizes a lever-and-fulcrum system with heavy metal weights that counteract the weight of the loading arm</li> <li>• Stores fully extended in the horizontal position</li> </ul>	<ul style="list-style-type: none"> <li>• A helical torsion spring inside a metal housing mounted on a loading arm base swivel</li> <li>• When a load pushes the spring downward, the spring exerts an upward balancing force to support the loading arm</li> <li>• Can be stored in various positions based on arm configuration and space requirements</li> </ul>	<ul style="list-style-type: none"> <li>• A heavy-duty helical torsion spring inside a metal housing mounted on a loading arm base swivel</li> <li>• Designed to support larger, heavier loading arms</li> <li>• Utilizes the same balancing method and offers the same storage benefits as the ESB1</li> </ul>
<b>Adjustment</b>	<ul style="list-style-type: none"> <li>• Uses 2 or 4 weights depending on the reach and weight of the loading arm</li> <li>• The balancing force can be precisely adjusted for various reach and load applications by sliding the weights in and out along a rail</li> </ul>	<ul style="list-style-type: none"> <li>• The balancing force can be precisely adjusted for various load applications by tightening or loosening the adjustment bolt</li> <li>• Multiple spring rates are available to accommodate various reach and load applications</li> </ul>	
<b>Benefits and Applications</b>	<ul style="list-style-type: none"> <li>• Counterweights are ideal for tight spaces, locations loading multiple products, or where arm crossover may be necessary</li> </ul>	<ul style="list-style-type: none"> <li>• Spring balances allow for a variety of arm configurations, as well as a wide range of applications including bulk chemicals, food &amp; beverage, and petroleum</li> </ul>	

### Counterweight Loading Arms



**Applications**

- Bottom loading bulk liquids and other loading products
- Suitable for fuel loading racks and other loading products requiring multiple arms to crossover

**Size**

- 4" nominal pipe size

**Features**

- No springs
- Split flange base swivel
- 2 or 4 adjustable counterweights
- Easy adjustment, operation, and maintenance

**Materials**

- Carbon steel schedule 40 pipe construction
- 321 stainless steel flex joint with 304 stainless steel braid
- FKM or nitrile rubber seals

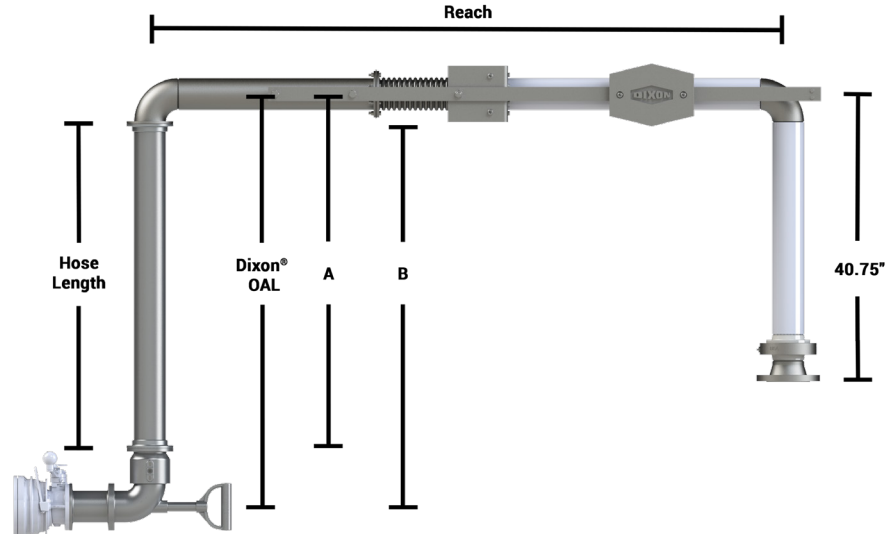
**Specifications**

- Composite or stainless steel braided drop hose
- Style 30 loading swivel
- D-handle or ball handle on loading swivel
- TTMA extension or color coded TTMA extension
- Safety break-away
- Sight glass
- Wet-R-Dri™ valve
- 5500-series API coupler

Counterweights	Reach Dimension	Part #	
		Nitrile Rubber Seals	FKM Seals
2	78"	CW2-LA4-078-0	CW2-LA4-078-1
2	90"	CW2-LA4-090-0	CW2-LA4-090-1
2	102"	CW2-LA4-102-0	CW2-LA4-102-1
2	114"	CW2-LA4-114-0	CW2-LA4-114-1
4	78"	CW4-LA4-078-0	CW4-LA4-078-1
4	90"	CW4-LA4-090-0	CW4-LA4-090-1
4	102"	CW4-LA4-102-0	CW4-LA4-102-1

NOTE: The counterweight base assemblies shown above do not contain the drop leg or the bottom unit. 114" reach is only available with 2 weights.

Counterweight Reference Sheet



Shown with available options including: composite hose, ball handle, Wet-R-Dri valve, color coded TTMA extension, sight flow indicator, and 5500-series API coupler

Hose Length	Dixon OAL	A	B	Reach / Part #			
				78"	90"	102"	114"
76"	89"	80"	84"	WV4078EV076M1ED <sup>1</sup>	WV4090EV076M1ED <sup>1</sup>	WV20A2EV076M1ED <sup>2</sup>	WV20B4EV076M1ED <sup>2</sup>
80"	93"	84"	88"	WV4078EV080M1ED <sup>1</sup>	WV4090EV080M1ED <sup>1</sup>	WV20A2EV080M1ED <sup>2</sup>	WV20B4EV080M1ED <sup>2</sup>
92"	105"	96"	100"	-	WV4090EV092M1ED <sup>1</sup>	WV20A2EV092M1ED <sup>2</sup>	WV20B4EV092M1ED <sup>2</sup>
96"	109"	100"	104"	-	WV4090EV096M1ED <sup>1</sup>	WV20A2EV096M1ED <sup>2</sup>	WV20B4EV096M1ED <sup>2</sup>
108"	121"	112"	116"	-	WV4090EV0A8M1ED <sup>1</sup>	WV40A2EV0A8M1ED <sup>1</sup>	WV20B4EV0A8M1ED <sup>2</sup>
112"	125"	116"	120"	-	WV4090EV0B2M1ED <sup>1</sup>	WV40A2EV0B2M1ED <sup>1</sup>	WV20B4EV0B2M1ED <sup>2</sup>
124"	137"	128"	132"	-	WV4090EV0C4M1ED <sup>1</sup>	WV40A2EV0C4M1ED <sup>1</sup>	WV20B4EV0C4M1ED <sup>2</sup>
128"	141"	132"	136"	-	WV4090EV0C8M1ED <sup>1</sup>	WV40A2EV0C8M1ED <sup>1</sup>	WV20B4EV0C8M1ED <sup>2</sup>

<sup>1</sup> 4 weights  
<sup>2</sup> 2 weights

NOTE: Part numbers listed above include FKM seals, stainless steel braided metal hose, Style 30 with D-handle, TTMA extension, and 5500-series API coupler. Other hose lengths are available upon request.

## A-Frame Loading Arm with Rigid Drop Pipe



### Sizes

- 3" and 4"

### Features

- Torsion spring counterbalance offered in left or right hand
- Base swivels offered: carbon steel V-ring, carbon steel split flange, or 316 stainless steel split flange
- Style 50 loading swivel
- Available accessories include safety break-away, Wet-R-Dri™ valve, ball handle (see pages 62-66)

### Materials

- Pipe leg materials offered: aluminum, carbon steel, and 316 stainless steel
- Available seals include: nitrile rubber, FKM, low temperature FKM, PTFE, EPDM, and food-grade nitrile

### Specifications

- Standard configurations below include carbon steel base swivels, ESB1 torsion spring counterbalance, TTMA extension, 5500-series API, and D-handle
- Other options available upon request

Size	Description	Part #
3"	60" x 60" aluminum legs, V-ring base swivel, FKM seals, API	AV3A46JAK48H6ED
	60" x 60" aluminum legs, split flange base swivel, FKM seals, API	AV3G46JAK48H6ED
4"	60" x 60" aluminum legs, V-ring base swivel, FKM seals, API	BV4A44JAU46H6ED
	60" x 60" aluminum legs, split flange base swivel, FKM seals, API	BV4G44JAU46H6ED*
	60" x 72" aluminum legs, V-ring base swivel, FKM seals, API	BV4A44JAU58H6ED
	60" x 72" aluminum legs, split flange base swivel, FKM seals, API	BV4G44JAU58H6ED

\*Shown in image above

### A-Frame Loading Arm with Drop Hose



**Sizes**

- 3" and 4"

**Features**

- Torsion spring counterbalance offered in left or right hand
- Base swivels offered: carbon steel V-ring, carbon steel split flange, or 316 stainless steel split flange
- Style 30 loading swivel; style 50 available upon request
- Available accessories include safety break-away, Wet-R-Dri™ valve, ball handle (see pages 62-66)

**Materials**

- Pipe leg materials offered: aluminum, carbon steel, and 316 stainless steel
- Available seals include: nitrile rubber, FKM, low temperature FKM, PTFE, EPDM, and food-grade nitrile
- Drop hose available in composite and stainless steel metal

**Specifications**

- Standard configurations below include carbon steel base swivels, ESB1 torsion spring counterbalance, TTMA extension, 5500-series API, and D-handle
- Other options available upon request

Size	Description	Part #
3"	60" aluminum leg A x 72" metal drop hose, V-ring base swivel, FKM seals, API	AV3A46JAK59M1ED
	60" aluminum leg A x 72" metal drop hose, split flange base swivel, FKM seals, API	AV3A46JAK59M1ED
	60" aluminum leg A x 72" composite drop hose, V-ring base swivel, FKM seals, API	AV3G46JAK59C1ED
	60" aluminum leg A x 72" composite drop hose, split flange base swivel, FKM seals, API	AV3G46JAK59C1ED
4"	60" aluminum leg A x 60" metal drop hose, V-ring base swivel, FKM seals, API	BV4A44JAU46M1ED
	60" aluminum leg A x 60" metal drop hose, split flange base swivel, FKM seals, API	BV4G44JAU46M1ED
	60" aluminum leg A x 60" composite drop hose, V-ring base swivel, FKM seals, API	BV4A44JAU46C1ED
	60" aluminum leg A x 60" composite drop hose, split flange base swivel, FKM seals, API	BV4G44JAU46C1ED
	60" aluminum leg A x 72" metal drop hose, V-ring base swivel, FKM seals, API	BV4A44JAU58M1ED
	60" aluminum leg A x 72" metal drop hose, split flange base swivel, FKM seals, API	BV4G44JAU58M1ED*
	60" aluminum leg A x 72" composite drop hose, V-ring base swivel, FKM seals, API	BV4A44JAU58C1ED
	60" aluminum leg A x 72" composite drop hose, split flange base swivel, FKM seals, API	BV4G44JAU58C1ED

\*Shown in image above

## Horizontal Hose Loader



### Sizes

- 3" and 4"

### Features

- Torsion spring counterbalance offered in left or right hand
- Base swivels offered: carbon steel V-ring, carbon steel split flange, or 316 stainless steel split flange
- Style 30 loading swivel; style 50 available upon request
- Available accessories include safety break-away, Wet-R-Dri™ valve, ball handle (see pages 62-66)

### Materials

- Pipe leg materials offered: aluminum, carbon steel, and 316 stainless steel
- Available seals include: nitrile rubber, FKM, low temperature FKM, PTFE, EPDM, and food-grade nitrile
- Drop hose available in composite hose and stainless steel metal hose

### Specifications

- Standard configurations below include carbon steel base swivels, ESB1 torsion spring counterbalance, TTMA extension, 5500-series API, and D-handle
- Other options available upon request

Size	Description	Part #
3"	52" aluminum leg A x 72" metal drop hose, V-ring base swivel, FKM seals, API	AV3A43MV061M1ED
	52" aluminum leg A x 72" metal drop hose, split flange base swivel, FKM seals, API	AV3G43MV061M1ED
	52" aluminum leg A x 72" composite drop hose, V-ring base swivel, FKM seals, API	AV3A43MV061C1ED
	52" aluminum leg A x 72" composite drop hose, split flange base swivel, FKM seals, API	AV3G43MV061C1ED
4"	52" aluminum leg A x 72" metal drop hose, V-ring base swivel, FKM seals, API	BV4A42MV059M1ED
	52" aluminum leg A x 72" metal drop hose, split flange base swivel, FKM seals, API	BV4G42MV059M1ED*
	52" aluminum leg A x 72" composite drop hose, V-ring base swivel, FKM seals, API	BV4A42MV059C1ED
	52" aluminum leg A x 72" composite drop hose, split flange base swivel, FKM seals, API	BV4G42MV059C1ED

\*Shown in image above

**Fixed Reach Loading Arm**



**Sizes**

- 2", 3", 4", and 6"

**Features**

- Torsion spring counterbalance offered in left or right hand
- Base swivels offered: carbon steel V-ring, carbon steel split flange, or 316 stainless steel split flange
- Available accessories include tee deflector, diffuser, top loading valve with or without remote handle kit, various handles, locking mechanism (see pages 62-66)

**Materials**

- Pipe leg materials offered: aluminum, carbon steel, and 316 stainless steel
- Available seals include: nitrile rubber, FKM, low temperature FKM, PTFE, EPDM, and food-grade nitrile

**Specifications**

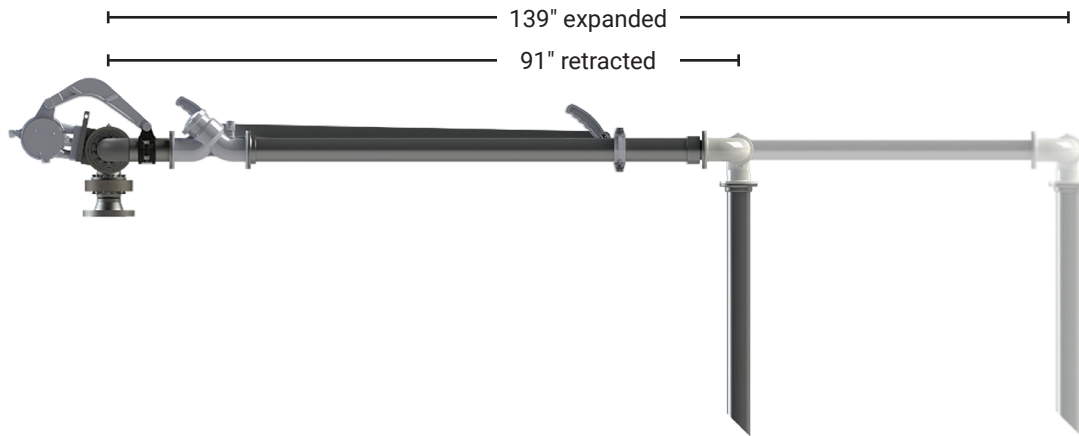
- Standard configurations below include ESB1 torsion spring counterbalance
- Other options available upon request

Size	Description	Part #
2"	60" x 48" 316 stainless steel legs, 316 stainless steel split flange base swivel, 45° cut, PTFE seals	AP2D48QUA45QC00
3"	120" x 48" carbon steel legs, carbon steel split flange base and apex swivels LA handle, bucket hook, 45° cut, FKM seals	CV3GA8AFK45ACJ0
4"	120" x 48" aluminum legs, carbon steel split flange base swivel, top loading valve, LA handle, bucket hook, 45° cut, FKM seals	CV4G90JAU42HCJY*

\*Shown in image above



### Telescoping Loading Arm



**Sizes**

- 3" and 4"

**Features**

- Torsion spring counterbalance offered in left or right hand
- Base swivels offered: carbon steel V-ring or carbon steel split flange
- Available accessories include tee deflector, top loading valve with or without remote handle kit, various handles (see pages 62-66)

**Materials**

- Pipe leg materials offered: aluminum
- Available swivel seals include: nitrile rubber and FKM

**Specifications**

- Standard configurations below include carbon steel split flange base swivel, ESB1 torsion spring counterbalance, 45° cut end connection
- Other options available upon request

Size	Description	Part #
3"	telescoping x 42" overall length, FKM seals and top loading valve	AV3GB49AK37HC0Y
	telescoping x 42" overall length, FKM seals, top loading valve and remote handle	BV3GB49AK37HC0N
	telescoping x 48" overall length, FKM seals and top loading valve	BV3GB49AK43HC0Y
	telescoping x 48" overall length, FKM seals, top loading valve and remote handle	BV3GB49AK43HC0N*

NOTE: Telescoping loading arms are for open discharge only.

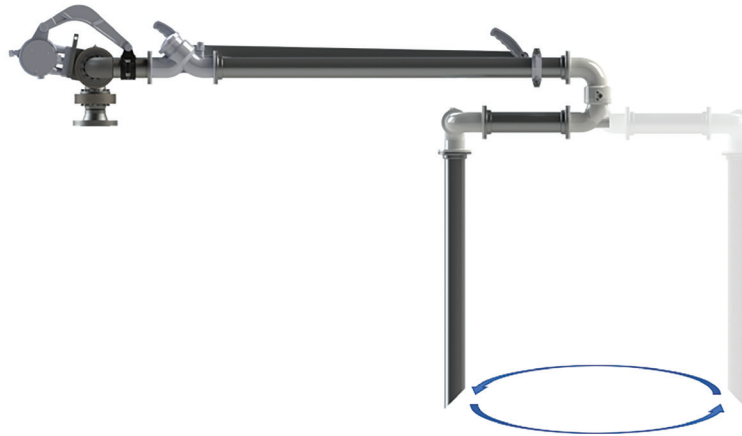


### Telescoping Arm Replacement Parts

Size	Description	Part #
3"	3" aluminum telescoping leg, 66" retracted and 114" extended	3SAL0-TFXTF-114
	3" nitrile rubber telescoping leg seal replacement kit	3RKT

\*Shown in image above

Scissor Style Loading Arm



Sizes

- 2", 3", and 4"

Features

- Torsion spring counterbalance offered in left or right hand
- Base swivels offered: carbon steel V-ring, carbon steel split flange, or 316 stainless steel split flange
- Available accessories include tee deflector, diffuser, top loading valve with or without remote handle kit, various handles, locking mechanism (see pages 62-66)

Materials

- Pipe leg materials offered: aluminum, carbon steel, 316 stainless steel
- Available swivel seals include: nitrile rubber, FKM, low temperature FKM, PTFE, EPDM, or food-grade nitrile

Specifications

- Standard configurations below include carbon steel split flange base swivel, aluminum legs, top load valve, remote handle kit, and FKM seals
- Other options available upon request

Size	Description	Part #
3"	84" x 48" drop leg with 24" scissor leg, 45° cut end, top loading valve, remote handle kit	AVBG59JAK43HC0N
	108" x 48" drop leg with 36" scissor leg, 45° cut end, top loading valve, remote handle kit	BVCG83JAK43HC0N
4"	84" x 48" drop leg with 24" scissor leg, 45° cut end, top loading valve, remote handle kit	CVFG55JAU42HC0N*
	108" x 48" drop leg with 36" scissor leg, 45° cut, heavy CB, top loading valve, remote handle kit	PVGG79JAU42HC0N

\*Shown in image above

### Unsupported Boom Loading Arm



**Sizes**

- 2", 3", 4", and 6"

**Features**

- Torsion spring counterbalance offered in left or right hand
- Base swivels offered: carbon steel V-ring, carbon steel split flange, or 316 stainless steel split flange
- Available accessories include tee deflector, diffuser, top loading valve with or without remote handle kit, various handles, and locking mechanism (see pages 62-66)

**Materials**

- Pipe and arm swivel materials offered: aluminum, carbon steel, and 316 stainless steel
- Available seals include: nitrile rubber, FKM, low temperature FKM, PTFE, EPDM, or food-grade nitrile

**Specifications**

- Standard configurations below include carbon steel split flange base swivel and ESB1 torsion spring
- Other options available upon request

Size	Description	Part #
3"	aluminum 78" x 48" drop leg w/ 45° cut, 48" carbon steel boom leg, FKM seals	HVDU64JAK43HC00
	carbon steel 90" x 60" drop leg w/ 45° cut, 60" carbon steel boom leg, FKM seals	JVEU78AFK57AC00
4"	aluminum 78" x 48" drop leg w/ 45° cut, 48" carbon steel boom leg, FKM seals	HVHU62JAU43HC00*
	carbon steel 90" x 60" drop leg w/ 45° cut, 60" carbon steel boom leg, FKM seals	KVJU75AFU56AC00
6"	carbon steel 78" x 48" drop leg w/ 45° cut, 48" carbon steel boom leg, FKM seals, ESB2 counterbalance	Q02660AC642AC00

\*Shown in image above

**Supported Boom Loading Arm**



**Sizes**

- 2", 3", 4", and 6"

**Features**

- Torsion spring counterbalance offered in left or right hand
- Base swivels offered: carbon steel V-ring, carbon steel split flange, or 316 stainless steel split flange
- Available accessories include tee deflector, diffuser, top loading valve with or without remote handle kit, various handles, and locking mechanism (see pages 62-66)
- Includes triangulated bracing with pillow block bearing to support longer, heavier arms

**Materials**

- Pipe and arm swivel materials offered: aluminum, carbon steel, and 316 stainless steel
- Available seals include: nitrile rubber, FKM, low temperature FKM, PTFE, EPDM, or food-grade nitrile

**Specifications**

- Standard configurations below include split flange base swivel and ESB1 torsion spring counterbalance
- Other options available upon request

Size	Description	Part #
2"	stainless steel base swivel, stainless steel 60" x 48" drop leg w/ 45° cut, 49" boom leg, PTFE seals	H02148QUA45QC00
3"	carbon steel base swivel, aluminum 78" x 48" drop leg w/ 45° cut, carbon steel 69" boom leg, FKM seals	H02564JAK43HC00
4"	carbon steel base swivel, aluminum 78" x 48" drop leg w/ 45° cut, carbon steel 69" boom leg, FKM seals	H01362JAU42HC00*

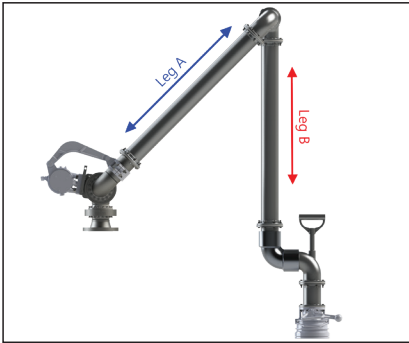
\*Shown in image above

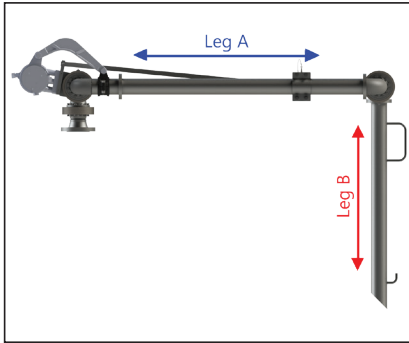
# Loading Arms

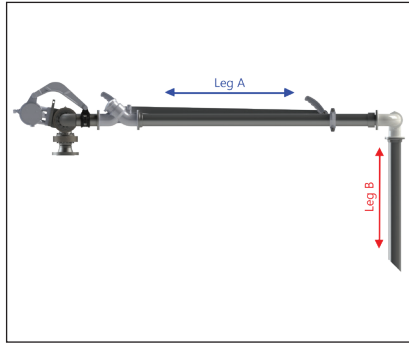
## Section 1: Customer Information

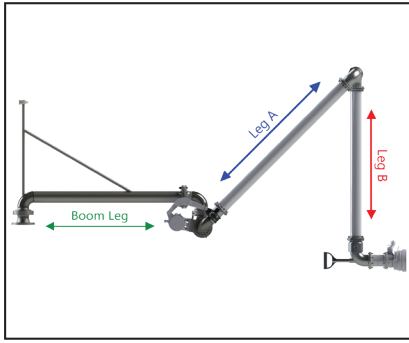
Distributor name:	_____	Phone:	_____
Contact person:	_____	Email:	_____
Distributor city, state:	_____	Customer code:	_____
End user name:	_____	Phone:	_____
Contact person:	_____	Email:	_____

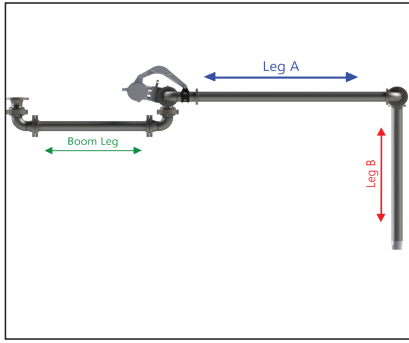
## Section 2: Configuration(s)

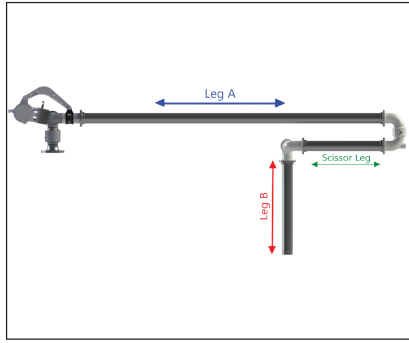
a.  A-frame 

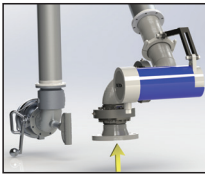
Fixed Reach (top load) 

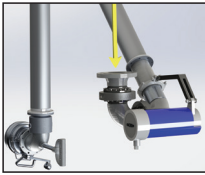
Telescoping\* (\*Leg A only available in one standard length) 

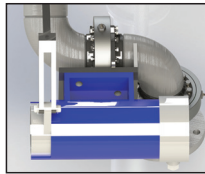
Supported boom 

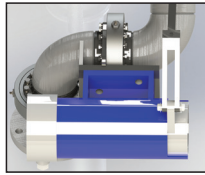
Unsupported boom 

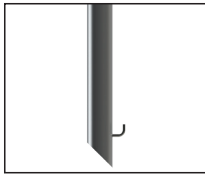
Scissor 

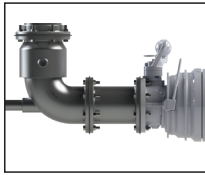
b.  Upfeed 

Downfeed 

c.  Left-hand 

Right-hand 

d.  Top load 

Bottom load 

e.  Other style/configurations:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Custom options are available. Contact Dixon Specialty Products at 888.226.4673 or [load-arms@dixonvalve.com](mailto:load-arms@dixonvalve.com).

# Loading Arms

## Section 3: Component Measurements and Materials

(Measure from centerline of swivel to centerline of swivel. Round to the nearest inch, i.e. 48", 60", etc.)

**Leg A** Length: \_\_\_\_\_ Material:  carbon steel  aluminum  stainless steel

**Leg B** Length: \_\_\_\_\_ Material:  carbon steel  aluminum  stainless steel  
 composite hose  metal hose

**Boom/Scissor**  
 Leg Length: \_\_\_\_\_ Material:  carbon steel  stainless steel  aluminum (scissor only)

## Section 4: Load Arm Information

- a. Quantity: \_\_\_\_\_
- b. Pipe size:  2"  3"  4"  other: \_\_\_\_\_"
- c. Base swivel:  split flange style  v-ring style
- d. Riser stand pipe connection:  Class 150 ANSI flange  Class 300 ANSI flange  other: \_\_\_\_\_
- e. Type of media:  asphalt  fuel  other: \_\_\_\_\_
- f. Seals (Dixon can recommend based on media):  Nitrile rubber  PTFE  FKM-A  
 low temperature FKM  EPDM  other: \_\_\_\_\_
- g. Environment conditions: temperature range \_\_\_\_\_ °F to \_\_\_\_\_ °F operating PSI : \_\_\_\_\_

h. End connections (check all that apply):

- 45° pipe cut
- API coupler w/ flange extension
- tee-deflector
- male NPT
- other: \_\_\_\_\_

- cam & groove coupler
- cam & groove adapter
- dry disconnect
- TTMA flange

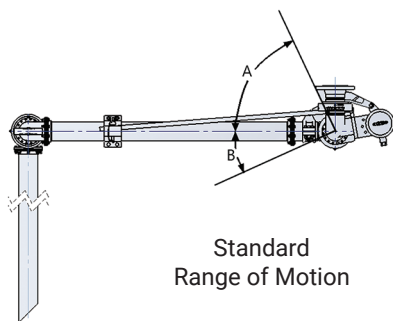
i. Add-ons (check all that apply):

- top loading valve
- top loading valve w/ remote handle kit
- butterfly (Wet-R-Dri™) valves
- locking mechanism
- loading arm handle
- other: \_\_\_\_\_
- sight glass
- D-handle
- ball handle
- bucket hook
- safety break-away

## Section 5: Site Limitations

Providing the following information will help ensure that the loading arm performs as expected when in service.

**A: 65 degrees**  
**B: 24 degrees**



- a. Ceiling or roof height from riser pipe connection distance: \_\_\_\_\_
- b. Additional items being added by the customer (vapor hoses, drip buckets, hold-down chains, etc.) and estimated weight (pounds): \_\_\_\_\_

## Sketches/Notes:

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Custom options are available. Contact Dixon Specialty Products at 888.226.4673 or load-arms@dixonvalve.com.

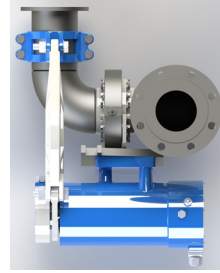
## Base Swivels with Counterbalance

### Sizes

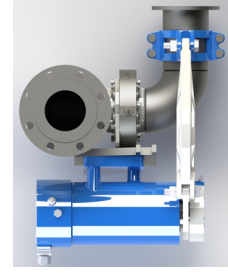
- Carbon steel V-ring: 3", 4", and 6"
- Carbon steel split flange: 2", 3", and 4"
- 316 stainless steel split flange: 2", 3", and 4"

### Features

- Torsion spring counterbalance offered in right or left hand
- Style 50 or 70 available for base swivels based on configuration and flow of media
- Connecting arm and clamp included



left hand style



right hand style

### Materials

- Base swivel materials offered: carbon steel and 316 stainless steel
- Available seals include: nitrile rubber, FKM, low temperature FKM, PTFE, EPDM, or food-grade nitrile

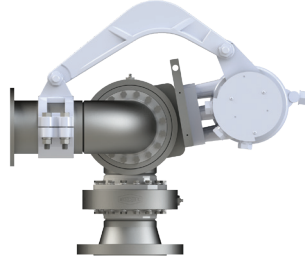
### Specifications

- Standard configurations below include carbon steel split flange base swivel, ESB1 torsion spring counterbalance, 150# flange inlet, and TTMA flange outlet
- Connection options include: 150# flange, 300# flange, and TTMA flange
- Other options available upon request

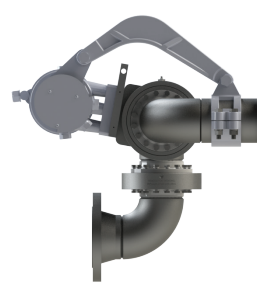
Orientation	Seals	Counterbalance Spring	3" Part #	4" Part #
UFRH	Nitrile rubber	A	AB3G0000000000	AB4G0000000000
		B	BB3G0000000000	BB4G0000000000
		C	CB3G0000000000	CB4G0000000000
	FKM	A	AV3G0000000000	AV4G0000000000
		B	BV3G0000000000	BV4G0000000000
		C	CV3G0000000000	CV4G0000000000
UFLH	Nitrile rubber	E	EB3G0000000000	EB4G0000000000
		F	FB3G0000000000	FB4G0000000000
		G	GB3G0000000000	GB4G0000000000
	FKM	E	EV3G0000000000	EV4G0000000000
		F	FV3G0000000000	FV4G0000000000
		G	GV3G0000000000	GV4G0000000000



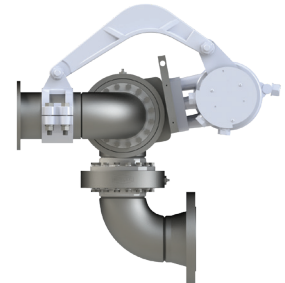
upfeed right-hand (UFRH)



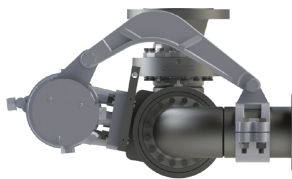
upfeed left-hand (UFLH)



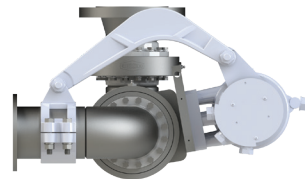
horizontal upfeed right-hand (HUFRRH)\*



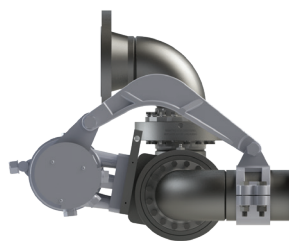
horizontal upfeed left-hand (HUFLH)\*



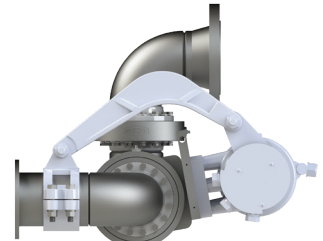
downfeed right-hand (DFRRH)\*



downfeed left-hand (DFLH)\*



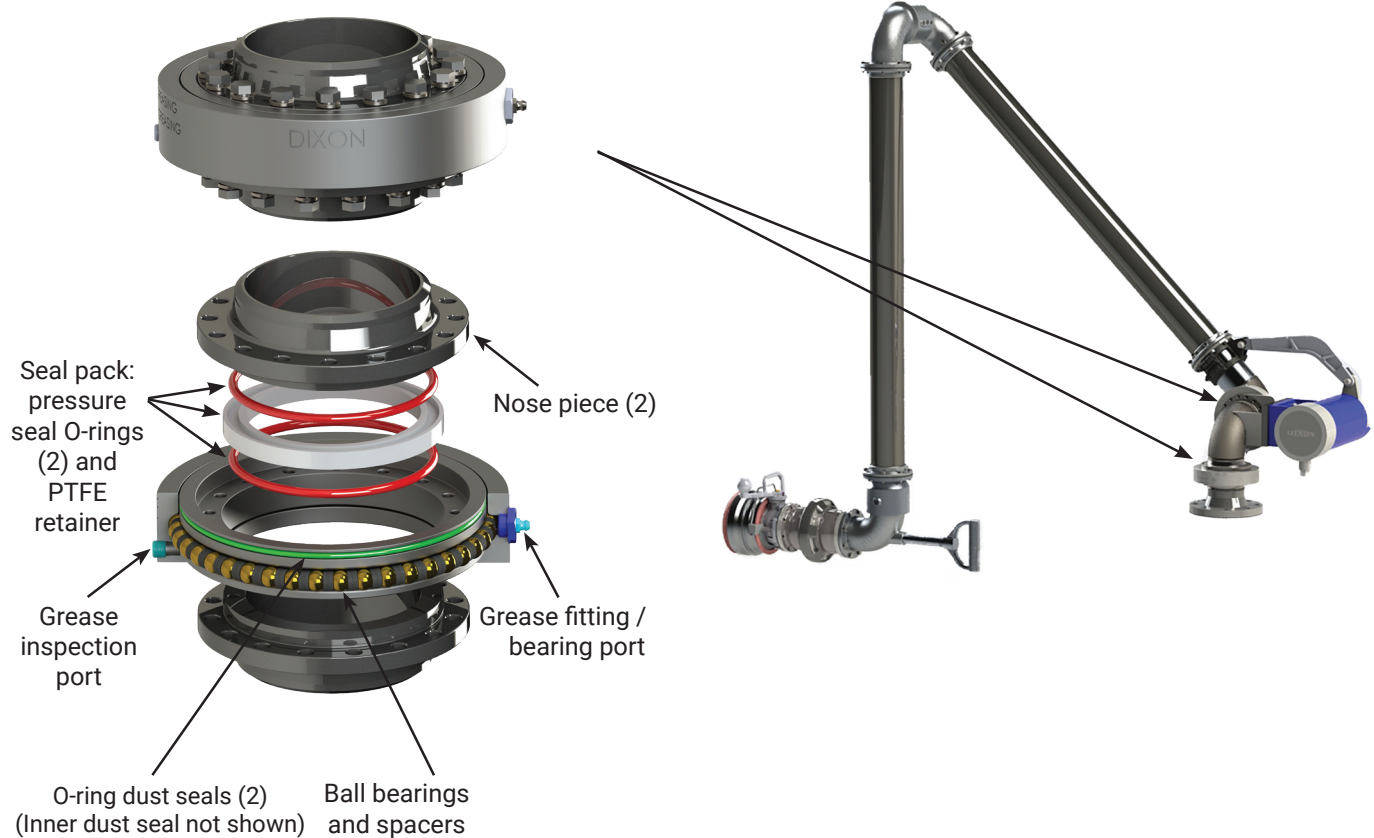
horizontal downfeed right-hand (HDFRRH)\*



horizontal downfeed left-hand (HDFLH)\*

\*Not listed in chart above, contact Dixon® for details

### Split Flange Swivels



#### Applications

- For use in industries from petroleum, blending plants, petrochemical, refining, mining, distilling, paint plants, farm irrigation and fertilizing, wastewater treatment, food and beverage process equipment, marine, and many more

#### Sizes

- 2", 3", and 4"

#### Features

- Bearing pack design allows easy seal change without removing the ball bearings
- Simple maintenance: remove one nose piece, replace seal pack, and reinstall with little downtime
- In-stream seal separates the wetted area from the ball bearings, allowing for longer bearing pack life compared to conventional swivels
- Wide-set bearing race for higher moment loads
- Compact design for low-profile applications
- Full penetration weld

#### Materials

- Bearing pack: through hardened forged high-carbon alloy
- Material contact surfaces: stainless steel, carbon steel, or aluminum nose pieces
- Seals: FKM-A, PTFE, and more upon request

#### Specifications

- Pressure rating: up to **600 PSI**
- Standard temperature range with Baylast seals is **-30°F to 212°F (-34°C to 100°C)**; contact factory for other temperature requirements

#### Available options

- Swivel end configurations: 150 lbs. and 300 lbs. flanges, FNPT, MNPT, butt weld, TTMA, and others upon request



## Loading Arms

### O-Ring Swivel Joints

#### Applications

- Commonly used in aluminum loading/unloading arm applications

#### Sizes

- 1" - 4"

#### Features

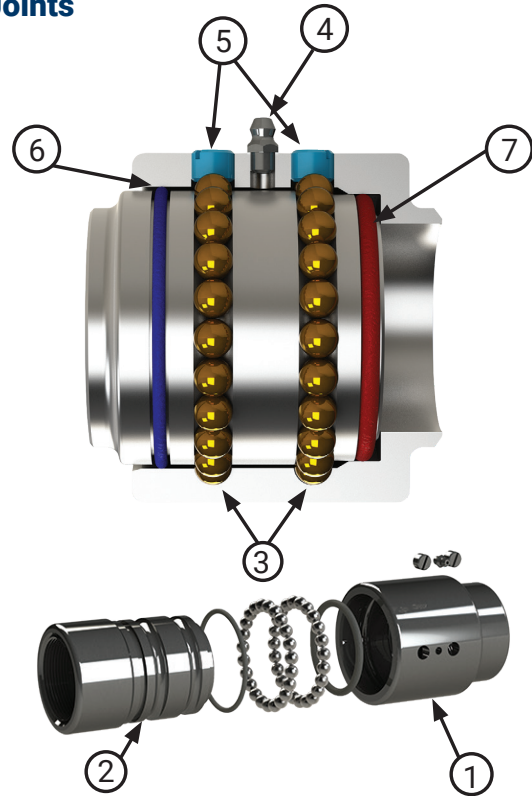
- O-ring pressure seal ensures a leak-proof seal and smooth rotation with lower torque
- Smooth moving seal for high-volume drum and tote loading
- Available working pressure ratings up to 1,000 PSI, based on material and end connections
- Available end connections include: 150 lbs. and 300 lbs. flanges, FNPT, MNPT, butt weld, TTMA, and others upon request
- End connections and materials offered may vary based on size, contact Dixon® for details

#### Materials

- Available materials include carbon steel, 316L stainless steel, aluminum, brass, and malleable iron

#### Bill of Materials

1. Body
2. Sleeve
3. Ball bearings
4. Grease fitting
5. Ball retainer screw
6. O-ring (dust seal)
7. O-ring (pressure seal)



### V-Ring Swivel Joints

#### Applications

- V-ring, also known as chevron packing, is a multiple lip seal known for its reliability and long life
- The three V-ring seals are designed to seal even under misalignment caused by race wear from years of service. This design results in longer time between service periods, increased up-time efficiencies, and lower maintenance costs.

#### Sizes

- 2" - 12"

#### Features

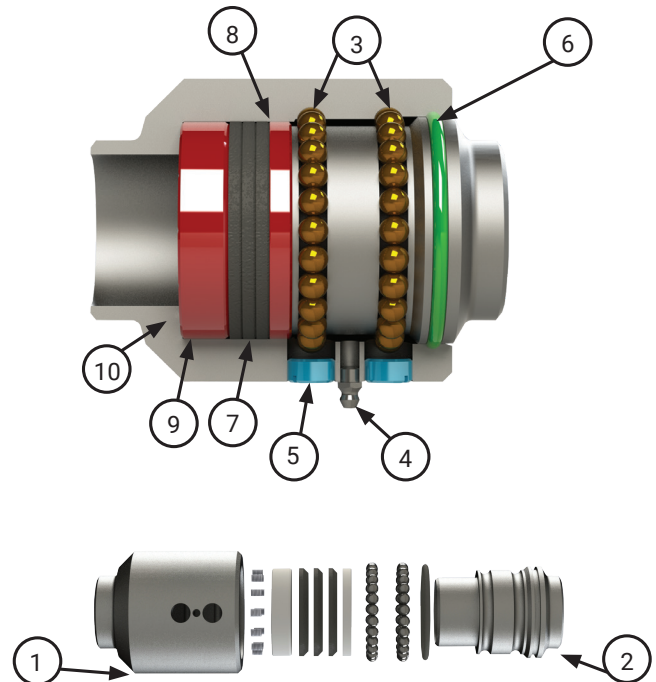
- Spring-loaded triple V-ring sealing system ensures a leak-proof seal at high or low pressure and extends seal life
- Swivels are shipped standard with the following:
  - Nitrile rubber pressure seals and dust seals
  - Carbon steel ball bearings
  - PTFE retainers in V-ring swivels
- Available working pressure ratings up to **1,000 PSI**
- End connections and materials offered may vary based on size, contact Dixon® for details

#### Materials

- Available materials include carbon steel, 316L stainless steel, and aluminum

#### Bill of Materials

1. Body
2. Sleeve
3. Ball bearings
4. Grease fitting
5. Ball retainer screw
6. O-ring (dust seal)
7. V-ring (pressure seal)
8. Seal retainer
9. Spring retainer
10. Springs



## 5500-Series API Couplers



\*Normal wear and tear items (including seals) not covered



5500-Series



Replaceable nose seal:  
Replace without removal  
from the loading arm

### Application

- Combined with API adapters, these couplers are suitable for railcar and tank truck loading or unloading

### Features

- Locking five-cam design provides easy alignment and tight connection
- Modular design allows various face seal combinations to be compatible with different alternative fuels, performance levels, and applications
- Shaft seals can be changed without removing coupler from the loading arm
- Fully interlocked collar cannot be opened when connected and cannot be disconnected when opened
- Replaceable seal design while coupler is on loading arm
- 4" TTMA inlet mounting flange connection
- Ball-end handle for easy and comfortable operation
- No special tools needed for maintenance
- Reference [dixonvalve.com](http://dixonvalve.com) for bill of materials and a complete list of repair kits

### Materials

- Body: hard coated anodized 356T6 aluminum
- Shroud: hard coated anodized 356T6 aluminum with stainless steel insert
- Link, shaft, pin, and crank: hardened 17-4PH stainless steel
- Cam: CF8M stainless steel
- Poppet and bearing: Bayloy
- Seals: Baylast, EPDM, FFKM, FKM-B, FKM-GFLT, fluorosilicone, and Hifluor

### Specifications

- Seal operating temperature:
  - Baylast™: -35°F to 212°F (-37°C to 100°C)
  - EPDM: -40°F to 250°F (-40°C to 120°C)
  - FFKM: 0°F to 400°F (-18°C to 204°C)
  - FKM-B: -10°F to 400°F (-23°C to 204°C)
  - FKM-GFLT: -35°F to 400°F (-34°C to 204°C)
  - Fluorosilicone: -50°F to 300°F (-40°C to 149°C)
  - Hifluor: 23°F to 350°F (-5°C to 176°C)
- Flow rate: 600 GPM at 3 PSI pressure drop, maximum flow rate: 1,000 GPM
- Fully compliant with API RP1004:2003 specifications
- Burst tested: 450 PSI

Description	Seal Material	Part #	Complete Repair Kit*	Replaceable Nose Seal
4" API coupler	Baylast	5500BL	5500RK2	5500RK8
	EPDM	5500E	5500RK3	5500RK9
	FFKM	5500K	5500RK6	5500RK12
	FKM-B	5500B	5500RK1	5500RK7
	FKM-GFLT	5500G	5500RK5	5500RK11
	Fluorosilicone	5500F	5500RK4	5500RK10
	Hifluor	5500H	5500RK19	5500RK20

NOTE: Complete repair kit contains all the seals, pins, and cotter keys to replace all the seals.

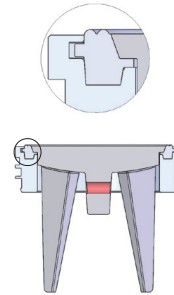
## 5500-Series API Coupler Accessories

### Seal Design

**Benefits**

- The burst pressure of the new nose seal is **450 PSI**, which is greater than that of the bonded nose seal at **150 PSI**
- Removable seal design is keyed in place and tested to **450 PSI** without seal ejection.

### 5500-Series



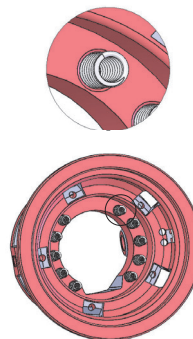
### Coiled Inconel® Springs

**Improvement**

- 10 Inconel coiled springs have been added. Coiled springs put more pressure on the nose seal-to-truck API adapter to help prevent leaks.

**Benefit**

- This will solve the occasional rusting and breaking issues.



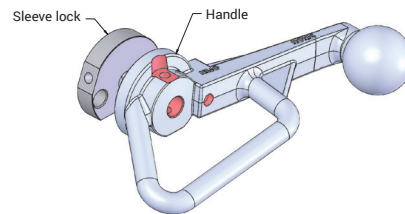
### Two-Piece Handle

**Improvement**

- Two-piece handle is attached to the coupler with two separate cross pins.

**Benefit**

- Should the handle cross pins be sheared away, the interlock will remain operational, preventing the coupler from opening.



### Accessories

**Part #: 5501**

- API coupler drain valve

**Benefits**

- Allows the operator to drain a loading arm easily and safely.
- Fits all API bottom loading couplers



**Part #: 5204H**

- Hanger for API rack coupler parking brake

**Benefit**

- Neatly store and secure loading arms while not in use



### TTMA Flange Extensions



TETF4AL



TETFG4AL

**Applications**

- Used to connect an API coupler to a loading arm
- Provides a specified parting point to prevent excessive damage to the loading arm

**Features**

- Adds a 6" space to allow for clearance between the loading arm and the tank truck
- Color coded for product identification
- Other colors available upon request. Consult Dixon® for more details

**Materials**

- Aluminum, powder coated aluminum



TETF4AL-W



TETF4AL-B



TETF4AL-G



TETF4AL-R



TETF4AL-Y



TETF4AL-G/Y



TETF4AL-R/W/B

Size	Description	Part #
4"	TTMA flange extension	TETF4AL
	TTMA flange extension with groove	TETFG4AL
	TTMA flange extension with 1/2" female NPT port	TETF4ALFP50
	TTMA flange extension with 3/4" female NPT port	TETF4ALFP75
	TTMA flange extension	TETF4AL
	TTMA flange extension; color-coded white	TETF4AL-W
	TTMA flange extension; color-coded blue	TETF4AL-B
	TTMA flange extension; color-coded green	TETF4AL-G
	TTMA flange extension; color-coded red	TETF4AL-R
	TTMA flange extension; color-coded yellow	TETF4AL-Y
	TTMA flange extension; color-coded orange	TETF4AL-O
	TTMA flange extension; color-coded black	TETF4AL-BLK
	TTMA flange extension; color-coded combination green and yellow	TETF4AL-G/Y
	TTMA flange extension; color-coded combination blue and white	TETF4AL-B/W
	TTMA flange extension; color-coded combination blue and red	TETF4AL-B/R
	TTMA flange extension; color-coded combination white and red	TETF4AL-W/R
TTMA flange extension; color-coded combination red, white, and blue	TETF4AL-R/W/B	

### TTMA Flange Extension Reducing Spools



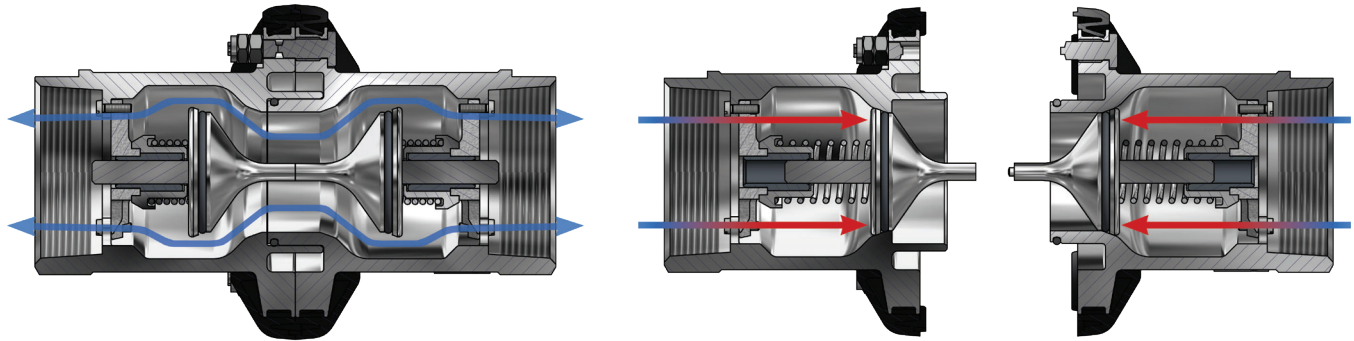
TETF3x4AL

Size	Description	Material	Part #
3" x 4"	TTMA flange extension reducing spool	aluminum	TETF3X4AL
	TTMA flange extension reducing spool	carbon steel	TETF3X4CS
	TTMA flange extension reducing spool	stainless steel	TETF3X4SS

## Safety Break-aways

### How it Works

Safety break-away couplings have three external break bolts. In the case of axial tension, all of the bolts take up the force corresponding to the break force on the hose with a safety margin. Non-axial forces concentrate the tension force more strongly on one bolt, so that the safety break-away coupling reacts in a natural way to the reduction of the hose break forces.



**BEFORE** emergency disconnect

The safety break-away valve consists of two halves, each with a valve that has a O-ring seal.

**AFTER** emergency disconnect

When the safety break-away couplings separate, the valves are able to close. The two valves close rapidly, minimizing exposure to personnel and the environment.

## Dixon TTMA Flanged Break-away Coupling

### Application

- Installs between an API coupler and loading arm

### Features

- Minimizes spillage and damage associated with drive-away and pull-away incidents
- Passive security against situations where a hose or loading arm could be subjected to inadvertent excessive loads
- Coupling automatically senses excessive load, closes the valves and disconnects
- High flow rate/low pressure drop
- FKM/FPM is standard seal



SBC400ALTTMA

Size	Material	Part #
4"	Aluminum	SBC400ALTTMA
		SBC400ALTTMACP

## Safety Break-aways

### Industrial Version



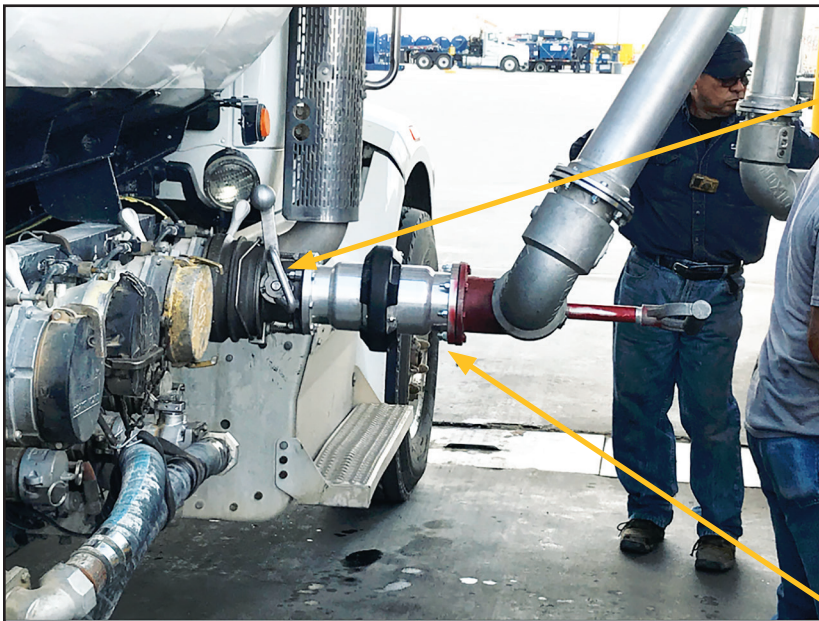
#### Applications

- Designed to minimize spillage and damage associated with pull-away incidents
- Typical applications: loading rack
- Designed to be installed between a fixed point (pipe, pump, or manifold) and a hose

#### Features

- Coupling automatically senses an excessive load, closes the valves, and disconnects
- Passive security against situations where a hose or loading arm could be subjected to inadvertent excessive loads
- High flow rate/low pressure drop
- FKM (FPM) seal standard
- Optional non-disclosure design is available; contact Dixon®

Size	Width	Overall Length	Material	Part #
4"	8.6"	12"	aluminum	SBC400AL
			316 stainless steel	SBC400SS



API coupler

Safety break-away coupling

Products in use at a facility

## Bayloc® Cam and Groove Style Dry Disconnects

### Application

- Helps prevent spillage from normal or accidental disconnects

### Sizes

- 1-1/2", 2", and 3" female NPT adapters x 2", 2-1/2", and 4" coupler with adapter
- 2", 2-1/2", and 4" couplers/adapters x 2" and 3" flange

### Features

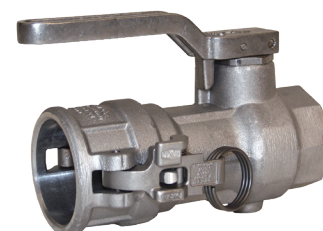
- Compatible with most cam and groove style dry disconnects
- Spring-loaded sealing device "snaps" closed should the coupling become disconnected with the poppet open
- Two-piece adapter design allows easy rebuilding of adapters
- EZ Boss-Lock cam arms provide security against accidental opening
- Automatic closing poppet assembly
- Stainless steel handle allows product exposure to corrosive chemicals or washdown service
- Fully interchangeable with Kamvalok® style fitting

### Materials

- Stainless steel or aluminum
- Seals: NBR - Nitrile rubber, FKM, PTFE, and EPDM
- Contact Dixon for information on chemical compatibility, size, material selection, and special configurations

#### Coupler x Female NPT

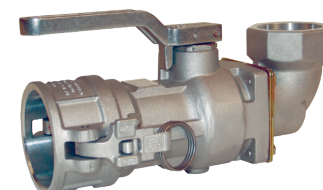
Female NPT	Coupler Size	Seal Material	Maximum PSI at 70°F (21°C)	Aluminum Part #	Stainless Steel* Part #
1-1/2"	2"	Nitrile rubber	210	DBC61-150	DBC71-150
2"	2-1/2"		150	DBC61-200	DBC71-200
3"	4"		120	DBC61-300	DBC71-300
1-1/2"	2"	FKM	210	DBC62-150	DBC72-150
2"	2-1/2"		150	DBC62-200	DBC72-200
3"	4"		120	DBC62-300	DBC72-300
1-1/2"	2"	PTFE Encapsulated Silicone and FFPM	210	DBC63-150	DBC73-150
2"	2-1/2"		150	DBC63-200	DBC73-200
3"	4"		120	DBC63-300	DBC73-300
1-1/2"	2"	EPDM	210	DBC64-150	DBC74-150
2"	2-1/2"		150	DBC64-200	DBC74-200
3"	4"		120	DBC64-300	DBC74-300
1-1/2"	2"	FFPM and PTFE <sup>†</sup>	210	---	DBC76-150
2"	2-1/2"		150	DBC66-200	DBC76-200
3"	4"		120	DBC66-300	DBC76-300
1-1/2"	2"	PTFE Encapsulated FKM and FFKM	210	---	DBC77-150
2"	2-1/2"		150	---	DBC77-200
3"	4"		120	---	DBC77-300
3"	4"	FKM-B	120	DBC69-300	DBC79-300



Straight configuration coupler

#### Greaseless Coupler x Female NPT

Female NPT	Coupler Size	Seal Material	Stainless Steel* Part #
1-1/2"	2"	PTFE Encapsulated FKM and FFKM	DBC77-150-GL
2"	2-1/2"		DBC77-200-GL



90° configuration coupler

#### Coupler x 90° Swivel Female NPT

Female NPT	Coupler Size	Seal Material	Aluminum Part #
2"	2-1/2"	Nitrile rubber	DBS61-200
2"	2-1/2"	FKM	DBS62-200
2"	2-1/2"	PTFE Encapsulated Silicone and FFPM	DBS63-200

\*Stainless steel corrosion resistance is equivalent to 304 stainless steel  
 FFPM gasket, main seal O-ring and handle O-ring, PTFE seals on cylinder assembly, stuffing box, and seal under poppet screw

## Bayloc® Cam and Groove Style Dry Disconnects

### Application

- Helps prevent spillage from normal or accidental disconnects

### Sizes

- 1-1/2", 2", and 3" female NPT adapters x 2", 2-1/2", and 4" coupler with adapter
- 2", 2-1/2", and 4" couplers/adapters x 2" and 3" flange

### Features

- Compatible with most cam and groove style dry disconnects
- Spring-loaded sealing device "snaps" closed should the coupling become disconnected with the poppet open
- Two-piece adapter design allows easy rebuilding of adapters
- Automatic closing poppet assembly
- Fully interchangeable with Kamvalok® style fitting

### Materials

- Stainless steel or aluminum
- Seals: NBR - Nitrile rubber, FKM, PTFE, and EPDM
- Contact Dixon® for information on chemical compatibility, size, material selection, and special configurations

#### Adapter x Female NPT

Female NPT	Adapter Size	Seal Material	Maximum PSI at 70°F (21°C)	Aluminum Part #	Stainless Steel Part #
1-1/2"	2"	Nitrile rubber	210	DBA11-150	DBA71-150
2"	2-1/2"		150	DBA11-200	DBA71-200
3"	4"		120	DBA11-300	DBA71-300
1-1/2"	2"	FKM	210	DBA12-150	DBA72-150
2"	2-1/2"		150	DBA12-200	DBA72-200
3"	4"		120	DBA12-300	DBA72-300
1-1/2"	2"	PTFE Encapsulated Silicone	210	DBA63-150	DBA73-150
2"	2-1/2"		150	DBA63-200	DBA73-200
3"	4"		120	DBA63-300	DBA73-300
1-1/2"	2"	EPDM	210	DBA64-150	DBA74-150
2"	2-1/2"		150	DBA64-200	DBA74-200
3"	4"		120	DBA64-300	DBA74-300
1-1/2"	2"	FFPM	210	DBA66-150	DBA76-150
2"	2-1/2"		150	DBA66-200	DBA76-200
3"	4"		120	DBA66-300	DBA76-300
1-1/2"	2"	PTFE Encapsulated FKM	210	---	DBA77-150
2"	2-1/2"		150	---	DBA77-200
3"	4"		120	---	DBA77-300
3"	4"	FKM-B	120	DBA69-300	---



DBA adapter



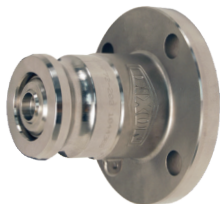
DBA jump size adapter

#### Jump Size Adapter x Female NPT

Female NPT	Adapter Size	Seal Material	Maximum PSI at 70°F (21°C)	Aluminum Part #
2"	2"	Nitrile rubber	150	DBA11-1520
2"	2"	FKM	150	DBA12-1520

#### Adapter x 150# ASA Flange

Flange Size	Adapter Size	Seal Material	Maximum PSI at 70°F (21°C)	Stainless Steel Part #
2"	2"	FKM	150	DBAF72-1520
		PTFE Encapsulated Silicone		DBAF73-1520
		EPDM		DBAF74-1520
		FFPM		DBAF76-1520
2"	2-1/2"	FKM	150	DBAF72-200
		PTFE Encapsulated Silicone		DBAF73-200
		EPDM		DBAF74-200
		FFPM		DBAF76-200
3"	4"	FKM	150	DBAF72-300
		PTFE Encapsulated Silicone		DBAF73-300
		EPDM		DBAF74-300
		FFPM		DBAF76-300



DBA flange adapter



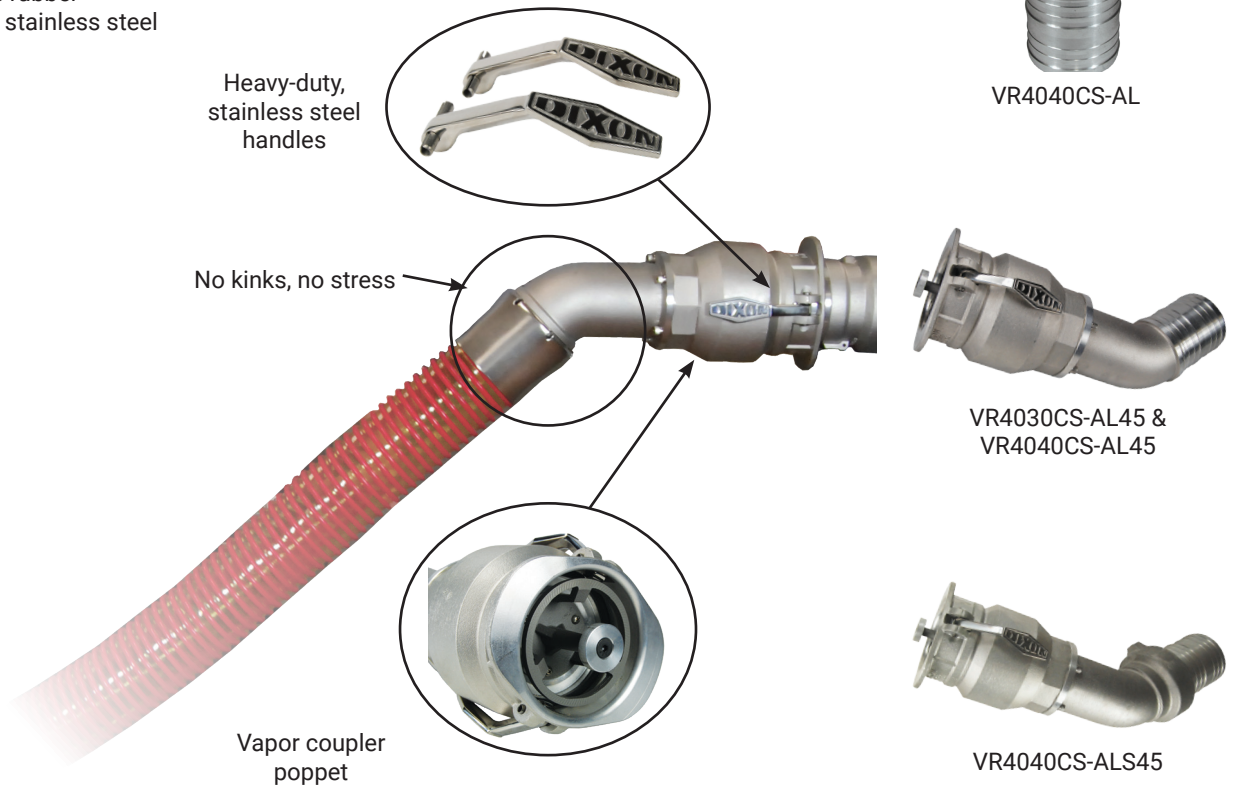
## Vapor Recovery Couplers

### Features

- "Floating bridge" poppet design allows optimal flow
- Machined hose shank ensures easier insertion into hose and better sealing
- Durable and easy-to-couple
- Big wings ensure contact with air interlock button on tanker, helping prevent drive-offs
- Change poppet seal without removing the coupler from the hose
- Secure to hose with traditional band clamps or built-in crimp collar
- 4" MNPT version allows for either cam and groove or threaded flange option
- 45° angle version relieves stress common to vapor hoses, swivel version also available

### Materials

- Coupler: aluminum
- Seal: Nitrile rubber
- Cam arms: stainless steel



Description	Part #
4" coupler x 4" hose shank	VR4040CS-AL
4" coupler x 3" 45° hose shank	VR4030CS-AL45
4" coupler x 4" 45° hose shank	VR4040CS-AL45
4" coupler x 4" 45° hose shank swivel	VR4040CS-ALS45
4" coupler x 4" MNPT connection	VR4040CS-4MNPT
4" coupler x 4" female NPT	VR4040CS-4FNPT
4" coupler x 3" hose shank	VR4030CS-SH
seal repair kit	VR4040CSRK1
cam arm repair kit	VR4040CSRK2



VR4040CS-4MNPT  
(TTF4AL-4FT sold separately)

Handle kit sold separately on page 58.

Vapor Recovery Coupler Handle Kits



VRHK  
(vapor recovery coupler handle kit sold separately)



VRHK-C

Description	Part #
handle kit	VRHK
compact handle kit	VRHK-C

Bayloc® Dry Disconnect Vapor Recovery Couplers

Application

- Bayloc dry disconnect, modified with a seal cylinder device, forms a secondary seal against truck adapter and maintains pressure on seals despite wear resulting from normal use

Features

- Locking handle
- Designed to meet California Air Resources Board (CARB) vapor emission requirements
- Dual seal against truck adapter provides vapor tight operation

Materials

- Aluminum
- FKM seals



Description	Part #
3" coupler x 4" FNPT	DBC62LVPR-300

## Vapor Recovery Plates and Splash Guards

### Application

- Vapor recovery plates are used to prevent unwanted emissions and to recover vapors that occur when products are being top loaded
- Splash guards are also used in top-loading applications, to reduce unwanted splash of products such as asphalt or other media while being loaded

### Sizes

- Designed to work with 2", 3", and 4" loading arms

### Features

- Design based on customers' needs and can be highly customized
- Available features include: threaded NPT ports, viewing ports, and handles
- Available connections include: cam & groove fittings, TTMA flanges, NPT threaded connections

### Materials

- Vapor plate available materials include: aluminum and stainless steel
- Vapor plate gasket available materials include: nitrile rubber and FKM
- Splash guard available materials include: aluminum



vapor recovery plate



splash guard

## Vapor Recovery Couplers

### Features

- Not intended for liquid service; for vapor recovery only
- For use with vapor recovery hose
- VR4030CS-AL has an FKM O-ring poppet seal

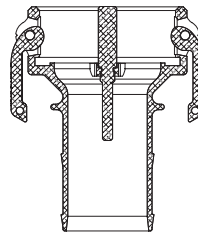


### Materials

- Coupler: aluminum
- Arms: bronze with stainless steel pins
- Finger rings: plated carbon steel
- Gasket: Nitrile rubber

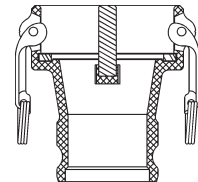
### Coupler With Probe x Hose Shank

Coupler Size	Hose Shank Size	Part #
4"	3"	4030-CVR-AL
	4"	400-CVR-AL



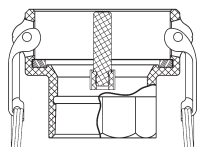
### Coupler With Probe x Adapter

Coupler Size	Adapter Size	Part #
4"	3"	4030-DAVR-AL

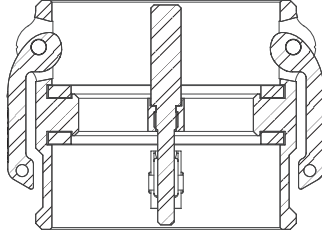


### Coupler With Probe x Female NPT

Coupler Size	Female NPT Size	Part #
4"	3"	4030-DVR-AL
	4"	400-DVR-AL

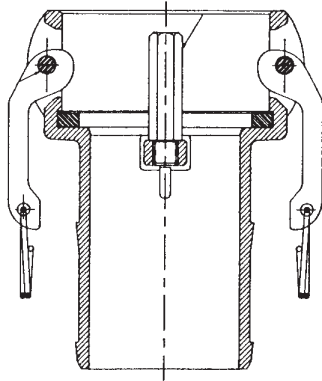


Coupler With Probe x Coupler With Probe



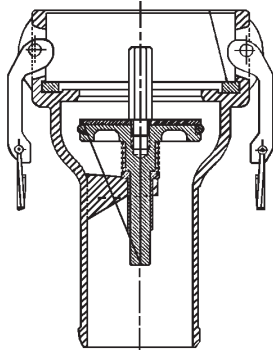
Coupler Size	Coupler Size	Part #
4"	4"	400-DDVR-AL

Coupler With Probe x Hose Shank



Coupler Size	Hose Shank Size	Part #
3"	3"	VRC3000AL

Coupler With Poppet\* And Probe x Hose Shank



Coupler Size	Hose Shank Size	Part #
4"	3"	VR4030CS-AL*

\*Only works with tank trucks that have poppet adapters.



## TTMA Series Flange Adapters

### Features

- Simply and easily converts threaded components to a standard TTMA flange configuration
- Solid cast lightweight aluminum design is more durable than welded fabrications
- Design improves flow through adapter
- Compact size reduces the overall space needed to install

### Material

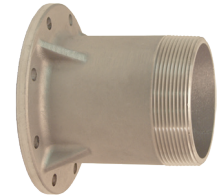
- Aluminum



TTF4AL-4MT

### Male Threaded

TTMA Flange	Male NPT	Overall Length	Part #
3"	3"	2-1/2"	TTF3AL-3MT
4"	3"	2-1/2"	TTF4AL-3MT
	4"	2-1/2"	TTF4AL-4MT



TTF4AL-4EMT

### Extended Length Male Threaded

TTMA Flange	Male NPT	Overall Length	Part #
4"	3"	5-1/2"	TTF4AL-3EMT
	4"	5-1/2"	TTF4AL-4EMT



TTF4AL-4FT

### Female Threaded

TTMA Flange	Female NPT	Overall Length	Part #
4"	3"	2-1/2"	TTF4AL-3FT
	4"	2-1/2"	TTF4AL-4FT



TTF400SP

### Slip-On

TTMA Flange	Pipe Size	Part #
4"	4"	TTF400SP

## Universal Flange Gaskets

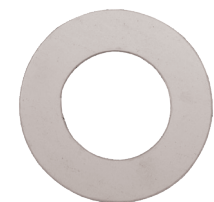
### Features

- Standard drop-ring type, all 1/16" thick
- For flange dimensional information and diagrams, please reference [dixonvalve.com](http://dixonvalve.com)

Size	Neoprene Part #	Klingsil® C-4401 Part #
1"	NG10	AG10
1-1/4"	NG15	AG15
1-1/2"	NG20	AG20
2"	NG25	AG25
2-1/2"	NG30	AG30
3"	NG35	AG35
4"	NG40	AG40
5"	NG50	---
6"	NG60	AG60
8"	NG80	AG80



Neoprene



Klingsil® C-4401

### Round TTMA Flange Gaskets



Cork and PTFE envelope

Size	OD	ID	THK	Material	Part #
3"	5-5/8"	3-1/2"	1/8"	cork/nitrile rubber	300GTTFCB
3"	5-5/8"	3-1/2"	1/16"	PTFE envelope with Klinger filler	300GTTFTK
3"	5-5/8"	3-1/2"	1/8"	Klingersil® C-4401	300GTTFK
3"	5-5/8"	3-5/8"	1/8"	Baylast	300GTTFBL
3"	5-7/8"	3-1/2"	1/4"	PTFE with fiber core	40321TF
4"	6-5/8"	4-9/16"	1/8"	cork/nitrile rubber	400GTTFCB
4"	6-5/8"	4-9/16"	1/16"	PTFE envelope with Klinger filler	400GTTFTK
4"	6-5/8"	4-9/16"	1/8"	Klingersil® C-4401	400GTTFK
4"	6-5/8"	4-5/8"	1/8"	Baylast	400GTTFBL
4"	6-7/8"	4-9/16"	1/4"	PTFE with fiber core	40322TF

### Betts Wet-R-Dri Valves

**Application**

- Designed for handling liquid, gaseous, or dry products

**Features**

- Positive stop in the open and closed position
- Detent spring and ball assist in holding the disc in the open and closed position



WD401ALVB

Size	Description	Part #
3"	TTMA Wet-R-Dri valve with manually-operated detent handle	WD301ALVB
3"	TTMA Wet-R-Dri valve with manually-operated metering handle	WD304ALVB
4"	TTMA Wet-R-Dri valve with manually -operated detent handle	WD401ALVB
4"	TTMA Wet-R-Dri valve with manually-operated metering handle	WD404ALVB

### TTMA Flanged Sight Flow Indicators

**Features**

- For use with ethanol
- Tank truck flange gaskets and dimensional information at [dixonvalve.com](http://dixonvalve.com)

**Material**

- Acrylic

**Specifications**

- Due to the proprietary blending of petroleum products, Dixon recommends that the thermoplastic tubing and the gaskets be immersion tested in the product to be handled to ensure compatibility
- Not compatible with crude oil



TT4ASG-ETH

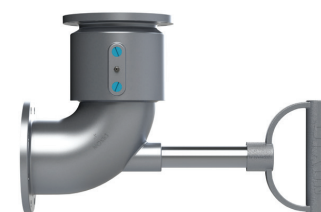
Size	Nominal Width	Part #
3"	1-3/4"	TT3ASG-ETH
4"	1-3/4"	TT4ASG-ETH

### Loading Arm Swivels

**Features**

- TTMA-flanged aluminum loading arm swivel
- Optional D-handle or ball handle is used to guide the connection of the API load coupler to the adapter on the tank truck
- Optional long radius elbow improves the flow into the API load coupler and provides spacing between the load arm and the tank truck
- Can be used with flange extensions and other TTMA flanged accessories
- Available seals include: nitrile rubber, FKM, low temperature FKM, EPDM, or food-grade nitrile

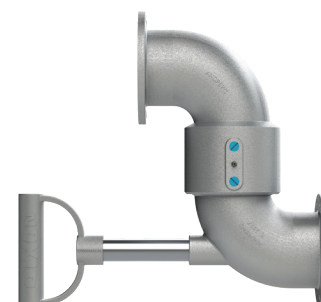
Description	Handle	Seal	3" Part #	4" Part #
style 20	no handle	Nitrile rubber	320TFXTFAL00000	420TFXTFAL00000
		FKM	320TFXTFAL11000	420TFXTFAL11000
style 30 short radius	D-handle	Nitrile rubber	33HTFXTFAL00000	43HTFXTFAL00000
		FKM	33HTFXTFAL11000	43HTFXTFAL11000
	ball handle	Nitrile rubber	33BTFXTFAL00000	43BTFXTFAL00000
		FKM	33BTFXTFAL11000	43BTFXTFAL11000
	no handle	Nitrile rubber	330TFXTFAL00000	430TFXTFAL00000
		FKM	330TFXTFAL11000	430TFXTFAL11000
style 30 long radius	D-handle	Nitrile rubber	---	43HTFTFLAL00000
		FKM	---	43HTFTFLAL11000
	ball handle	Nitrile rubber	---	43BTFTFLAL00000
		FKM	---	43BTFTFLAL11000
	no handle	Nitrile rubber	---	430TFTFLAL00000
		FKM	---	430TFTFLAL11000
style 40	D-handle	Nitrile rubber	34HTFXTFAL00000	44HTFXTFAL00000
		FKM	34HTFXTFAL11000	44HTFXTFAL11000
	ball handle	Nitrile rubber	34BTFXTFAL00000	44BTFXTFAL00000
		FKM	34BTFXTFAL11000	44BTFXTFAL11000
	no handle	Nitrile rubber	340TFXTFAL00000	440TFXTFAL00000
		FKM	340TFXTFAL11000	440TFXTFAL11000
style 50	D-handle	Nitrile rubber	35HTFXTFAL00000	45HTFXTFAL00000
		FKM	35HTFXTFAL11000	45HTFXTFAL11000
	ball handle	Nitrile rubber	35BTFXTFAL00000	45BTFXTFAL00000
		FKM	35BTFXTFAL11000	45BTFXTFAL11000
	no handle	Nitrile rubber	350TFXTFAL00000	450TFXTFAL00000
		FKM	350TFXTFAL11000	450TFXTFAL11000



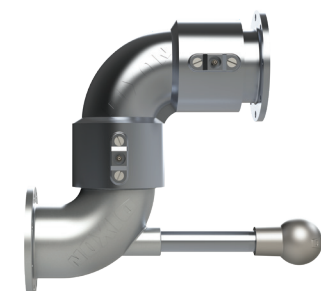
style 30, short radius



style 30, long radius



style 40



style 50

### Loading Arm Swivel Replacement Parts

Description	Part #
1" schedule 80 aluminum nipple	ATN100X7
ball-style handle	100BHAN-AL
D-Style heavy-duty shovel handle	100DHAN-AL
Nitrile rubber seal kit	4RK0BU
FKM-A seal kit	4RK0VIV1



### Loading Arm Legs/Spools and Hoses

**Sizes**

- 1-1/2", 2", 3", 4", and 6"

**Features**

- Available connections include: TTMA flange, 150# flange, 300# flange, MNPT, FNPT, and weld end
- Additional options include: ports, jump sizes, handle, and bucket hooks

**Materials**

- Pipe: carbon steel, 316 stainless steel, and aluminum
- Hose: stainless steel metal and composite



### Swivel Handles

**Feature**

- Threads into the elbow of a swivel

**Material**

- Aluminum



100\*HAN-AL



ATN100X7

Description	Part #
ball handle for loading arm swivels	100BHAN-AL
D-handle for loading arm swivels	100DHAN-AL
1" Schedule 80 nipple 7" overall length	ATN100X7

### Top Loading Diffusers and T-Deflectors

**Application**

- Installed on drop leg of a top load loading arm to distribute media evenly to help reduce splash

**Features**

- Diffusers distribute media evenly 360°
- T-deflectors distribute media to the sides of the tank, railcar, or tote
- Female NPT threaded

**Materials**

- Aluminum and stainless steel



diffuser



T-deflector

Size	Description	Part #
2"	aluminum T-deflector	200-TLTD-AL
	stainless steel T-deflector	200-TLTD-SS
3"	aluminum 360° diffuser	TLD-300S
	aluminum T-deflector	300-TLTD-AL
4"	stainless steel T-deflector	300-TLTD-SS
	aluminum 360° diffuser	TLD-400S
	aluminum T-deflector	400-TLTD-AL
	stainless steel T-deflector	400-TLTD-SS



## Loading Arm Components

### Split Flange Swivel Locking Kits

#### Applications

- Locks the swivel into a horizontal position
- Not to be used vertically


#### Feature

- Single or multiple hole design

#### Material

- Carbon steel

Description	Part #
locking single hole T-handle kit for split flange swivel joints	LA-SFLOCKTHK-S
locking multiple hole T-handle kit for split flange swivel joints	LA-SFLOCKTHK-M

Warning: This item is only intended to restrain the rotation during storage and is limited to a maximum of 12 in-lbs. of torque. 



### Locking Mechanism / Lock Bar Assembly

#### Application

- Used in top loading applications to help reduce sudden arm movement caused by pressure changes
- Contact Dixon<sup>®</sup> for more details

#### Material

- Carbon steel



### Counterbalances

#### Features

- Includes pivot arm (shown) and spring to help prevent possible pinch point
- Easy-adjust tension bolt, carbon steel housing

Description	Part #
light-duty white torsion spring, right hand	ESB1/A
medium-duty yellow torsion spring, right hand	ESB1/B
heavy-duty red torsion spring, right hand	ESB1/C
light-duty black torsion spring, left hand	ESB1/E
medium-duty grey torsion spring, left hand	ESB1/F
heavy-duty orange torsion spring, left hand	ESB1/G



ESB1/A

### Counterbalance Connecting Arm Clamps

#### Feature

- Clamps link counterbalance connecting arm to the primary leg

#### Materials

- 2" clamp: stainless steel
- 3" and 4" clamp: iron

Size	Description	Part #
2"	counterbalance connecting arm clamp for 2" pipe	ESB-CLAMP-2
3"	counterbalance connecting arm clamp for 3" pipe	ESB-CLAMP-3
4"	counterbalance connecting arm clamp for 4" pipe	ESB-CLAMP-4



ESB-CLAMP-3

## Top Loading Valves and Accessories

### Applications

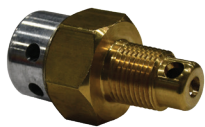
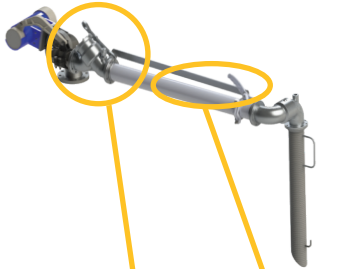
- Manual or remote controlled valve mounts before the loading arm horizontal leg to control flow
- Used in top loading fuels and other low viscosity media

### Features

- Adjustable closure rate
- Manually operated "Deadman" style with spring-loaded handle
- Optional remote-handle available

### Materials

- Valve: aluminum
- Vacuum breaker body: brass
- Vacuum breaker housing: aluminum
- Seals: FKM



Size	Description	Part #
2"	top loading valve with FNPT and vacuum breaker	TLV-200FTVBVIAL
2"	top loading valve with TTMA flanges and vacuum breaker	TLV-200TFVBVIAL
3"	top loading valve with TTMA flanges and vacuum breaker	TLV-300TFVBVIAL
4"	top loading valve with TTMA flanges and vacuum breaker	TLV-400TFVBVIAL
2"	valve remote, handle, and bracket kit with bar	TLRVK-200X58AL
3"	valve remote, handle, and bracket kit with bar	TLRVK-300X58AL
4"	valve remote, handle, and bracket kit with bar	TLRVK-400X58AL
2"	valve remote, handle, and bracket kit	AT1350-2
3"	valve remote, handle, and bracket kit	AT1350-3
4"	valve remote, handle, and bracket kit	AT1350-4
1/2"	vacuum breaker, BSP threads	VB-050-BSP <sup>1</sup>
1/2"	vacuum breaker, NPT threads	VB-050-NPT

<sup>1</sup> Replacement vacuum breaker for top loading valve.

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