

DRAINAGE FOR BIO PHARMACEUTICAL FACTORIES



Kent Stainless were established in 1982 and today are one of Ireland's leading stainless steel engineering firms with over 110 employees and over 20 design engineers.

Kent Stainless have a long established track record for being the number 1 designer and manufacturer of stainless steel drainage for the Pharmaceutical, Bio Pharmaceutical, Food, Beverage, Dairy and Meat Sectors. Our focus is on innovations in this sector and the ability to customise small production runs for each specific project.

Welding Compliance

ASME IX Coded Standard

ASME IX covers the qualification of welders and welding operators, welding procedures, brazing operatives and brazing procedures for the complete range of ferrous and non-ferrous engineering metals (steels, copper, nickel, aluminium, titanium and zirconium alloys) and oxy-gas, arc, power beam, resistance and solid phase welding processes



or

EN ISO15614-1:2017

Specification and qualification of welding procedures for metallic materials. Welding procedure test. Arc and gas welding of steels and arc welding of nickel and nickel alloys



- ★ EN 1090:2008 Welding Control Certificate – structural components and kits for fabricated structures
- ★ Weld Procedure Qualification Records (PQRs) approved to ASME IX and EN 15614
- ★ Welder Qualification Test Certification (WQTs) approved to ASME IX and EN 287-1 (EN ISO 9606-1 from early 2018)
- ★ In-house Welding Inspectors qualified to CSWIP Level 2

File Formats

- ★ Kent Stainless engineers are trained in 2D CAD and 3D, FEA, PDM and BIM systems. This allows us offer files in the following formats:



SAT



REVIT



NAVISWORKS



STEP



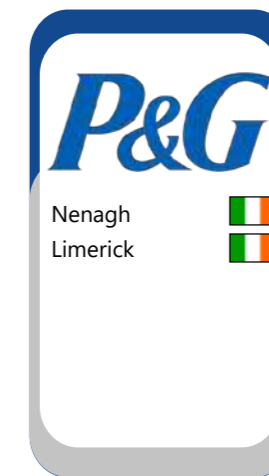
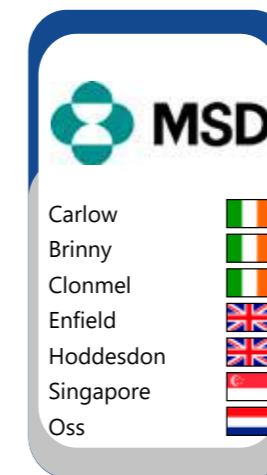
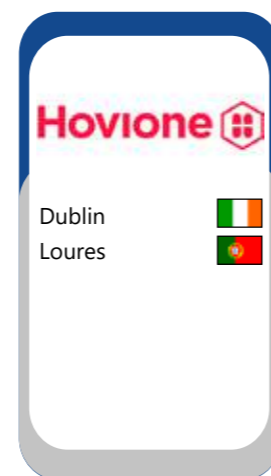
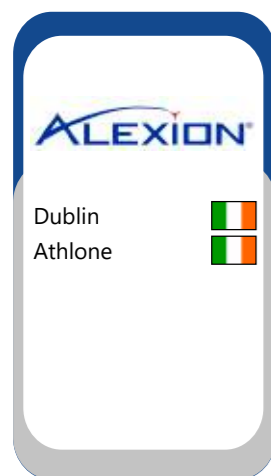
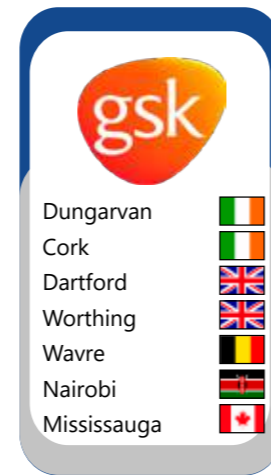
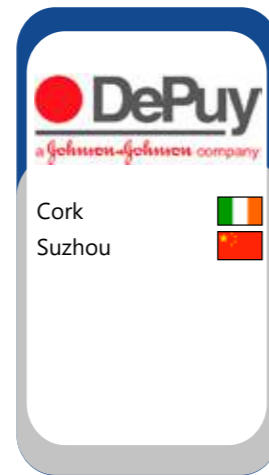
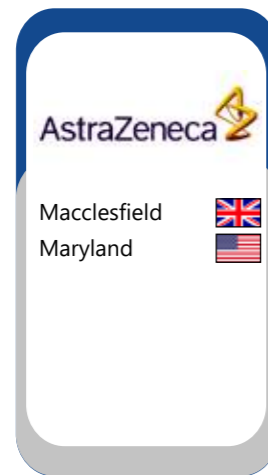
IFC



CAD



SOLIDWORKS



This brochure concentrates on **Sealed Cleanroom Floor Drains**.

These can be either **Manually** Opened or **Automatically** Opened. They can be part of a **Sealed Trench Drain System**. All variations can then be **Single** or **Double Skin Drains** also known as **Double Contained Drainage**.



Sealed Cleanroom
Floor Drains



Sealed Pop Up
Floor Drains



Sealed Rodding Eyes
& Cleanouts



Double Contained
Floor Drain



Trench Drain

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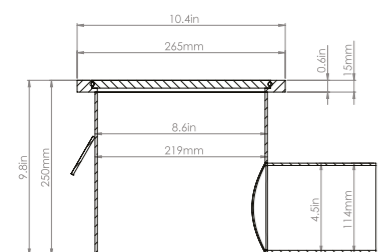
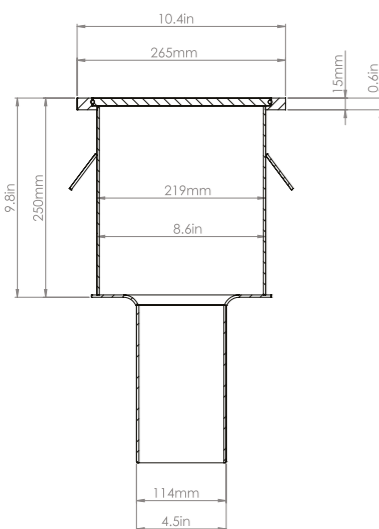
Rodding Eye Cleanouts

KVCR Deep Sump Floor Drain

The **KVCR265/4"RD Deep Sump Floor Drain** is a Round Top, Round Body/Bottom Outlet Drain for Heavy Duty Areas with High Flow Rates—typically 97 gallons per minute or 6 litres per second. This is a sealed cleanroom drain with a strong positive seal created by machining away a 0.4" (10mm) groove from a 0.6" (15mm) top plate. A 0.4" (10mm) top plate with a recessed 'o-ring' creates the seal. This top plate is then removable with a heavy duty suction cup available as an accessory. They are designed for use primarily in Pharmaceutical factories. They can be used in both light duty and very heavy duty trafficked areas (sealed gullies are most often used in laboratories or cleanrooms which are limited to pedestrian traffic - however the 0.4" (10mm) top plate makes it possible to drive heavy factory traffic over these gullies). As standard the KVCR265/4"RD takes a 0.4" (10mm) thick sealed grating but 0.4" (10mm) slotted and perforated gratings can also be used. In most cases a 4" or 6" SCH10 outlet is required because these are most popular with American Multinational Pharmaceutical companies who have scheduled stainless steel pipework to connect to, but this can easily be substituted for a 110mm or 160mm.

INDUSTRIES

- BioPharma
- Pharmaceutical
- Laboratories



Product Code	Height	Top Diameter	Body Diameter	Outlet	Flow Rate US GPM
KVCR265/4" RD	9.84in (250mm)	10.43in (265mm)	8.6in (219mm)	4" Sch 10	97.8 GPM (6.17 l/s)
KVCR365/6" RD	9.84in (250mm)	14.37in (365mm)	12.55in (319mm)	6" Sch 10	228 GPM (14.39 l/s)
Side Outlet					
KHCR265/4" RD	9.84in (250mm)	10.43in (265mm)	8.6in (219mm)	4" Sch 10	82.42 GPM (5.2 l/s)
KHCR365/6" RD	9.84in (250mm)	14.37in (365mm)	12.55in (319mm)	6" Sch 10	127.9 GPM (8.07 l/s)





KVCRCDC Twin Wall Deep Sump Floor Drain

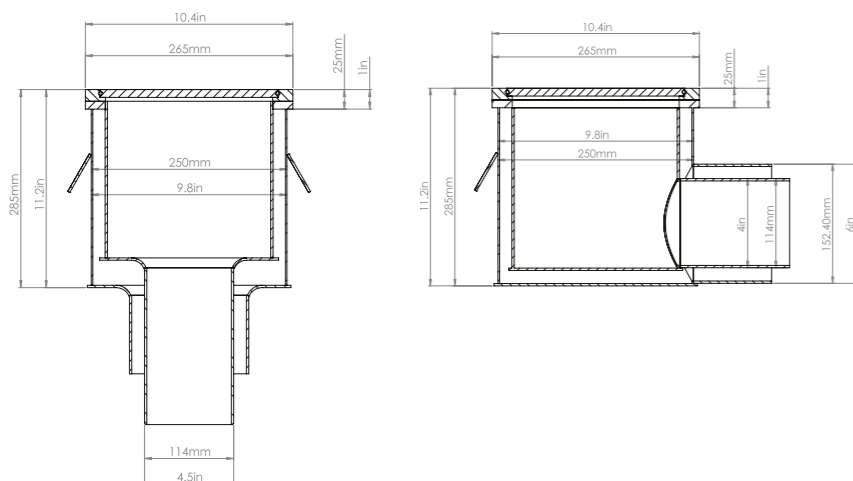
The **KVCRCDC265/4"RD Deep Sump Floor Drain** is a Dual Skin, Twin Walled or Double Contained version of our Round Top, Round Body/Bottom Outlet Drain. It is designed to contain corrosive, hazardous and high temperature fluids for Heavy Duty Areas with High Flow Rates - typically 97 gallons per minute or 6 litres per second.

This is a sealed cleanroom drain with a strong positive seal created by machining away a 0.4" (10mm) groove from a 0.6" (15mm) top plate. A 0.4" (10mm) top plate with a recessed 'o-ring' creates the seal. This top plate is then removable with a heavy duty suction cup available as an accessory. They are designed for use primarily in Pharmaceutical factories. They can be used in both light duty and very heavy duty trafficked areas (sealed gullies are most often used in laboratories or cleanrooms which are limited to pedestrian traffic - however the 0.4" (10mm) top plate makes it possible to drive heavy factory traffic over these gullies). As standard the KVCRC265/4"RD takes a 0.4" (10mm) thick sealed grating but 0.4" (10mm) slotted and perforated gratings can also be used. In most cases a dual 4"/6" or a dual 6"/8" SCH10 outlet is required because these are most popular with American Multinational Pharmaceutical companies who have scheduled stainless steel pipework to connect to, but this can easily be substituted for a 110mm/160mm or 160mm/220mm outlet pipe for European & other projects connecting with polypropylene pipework.

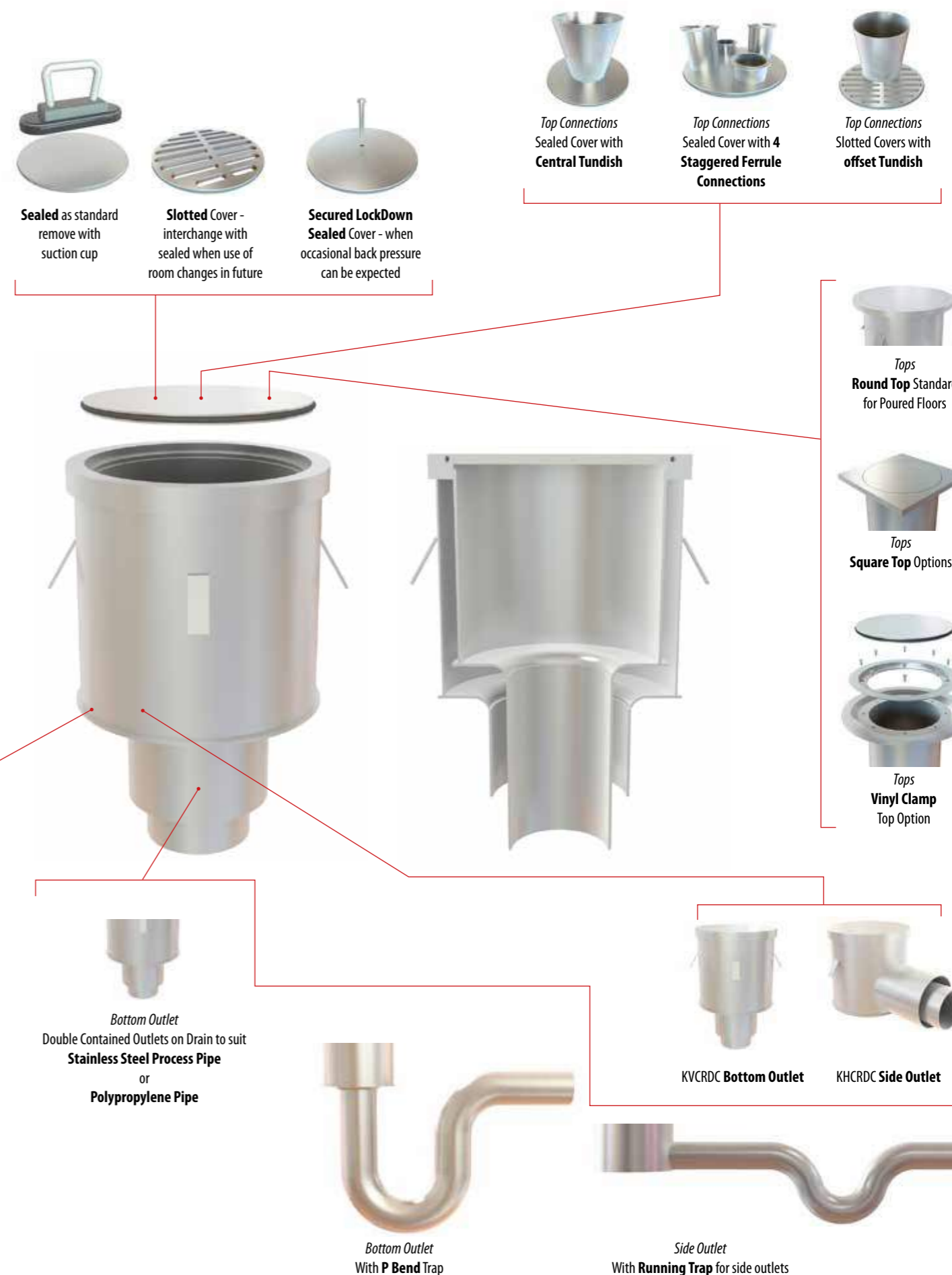
In the USA It is trapped by an optional 4" or 6" P Trap—this can then be changed to a 4" or 6" Running Trap for side outlet variations.

INDUSTRIES

- BioPharma
- Pharmaceutical
- Laboratories



Product Code	Height	Top Diameter	Body Diameter	Outlet	Flow Rate US GPM
KVCRCDC265/4"/6" RD	11.2in (285mm)	10.43in (265mm)	9.8in (250mm)	4"/6" Sch 10	97.8 GPM (6.17 l/s)
KVCRCDC365/6"/8" RD	9.84in (250mm)	14.37in (365mm)	12.6in (320mm)	6"/8" Sch10	228 GPM (14.39 l/s)
Side Outlet					
KHCRDC265/4"/6" RD	11.2in (285mm)	10.43in (265mm)	9.8in (250mm)	4"/6" Sch 10	82.42 GPM (5.2 l/s)
KHCRDC365/6"/8" RD	9.84in (250mm)	14.37in (365mm)	12.6in (320mm)	6"/8" Sch10	127.9 GPM (8.07 l/s)



KVCRP Pop Up Drain - Ground Floor

This is the Ground Floor version of our **KVCRP Pneumatic Floor Gully**. The pneumatic connection is accessed from **inside** the drain body. A flange supplied by Kent is mechanically connected to the inward air pipe. A second flange is connected to the internal air pipe and these come together to form a double flange/gasket connection.

There are 3 options for the pneumatic valve choice:

Single Acting Sprung Out Cylinder

Air supply required **to close the drain** and exhausted to allow the cover to open using an internal spring. This system is generally used when the drains are connected to the fire suppression system. In the event of the air supply system failing the covers will open.

Single Acting Sprung In Cylinder

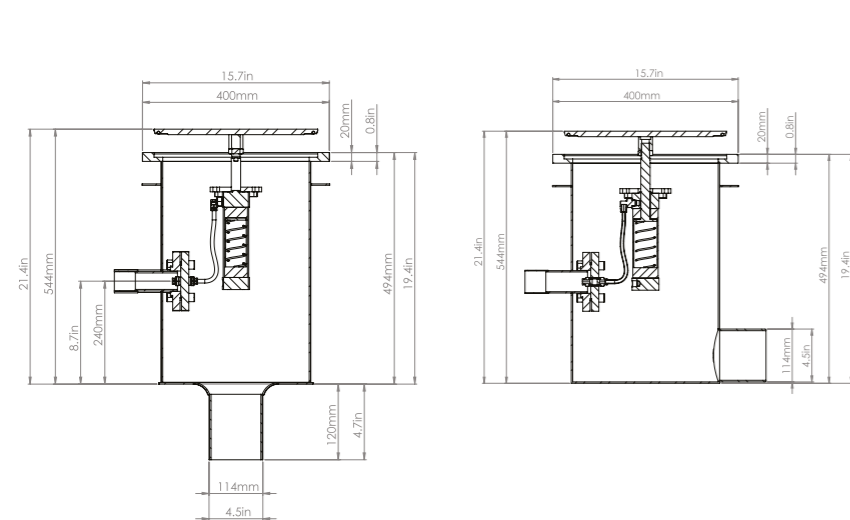
Air supply required **to open the drain** and exhausted to allow the cover to close using an internal spring. This system is generally used in clean production areas. In the event of the air supply system failing the covers will remain sealed.

Double Acting Cylinder

Air supply is required **to both open and close the drain**, this system is generally used when drains are to be opened for cleaning / wash down cycles. Constant air supply required to keep the cover sealed.

INDUSTRIES

- BioPharma
- Pharmaceutical
- Laboratories



Product Code	Height	Top Diameter	Body Diameter	Outlet	Flow Rate US GPM
KVCRP 400/4"RD	19.4in (494mm)	15.7in (400mm)	13.0in (330mm)	4" Sch 10	126.8 GPM (8 l/s)
KVCRP 400/6"RD	19.4in (494mm)	15.7in (400mm)	13.0in (330mm)	6" Sch 10	317 GPM (20 l/s)
Side Outlet					
KHCRP 400/4"RD	19.4in (494mm)	15.7in (400mm)	13.0in (330mm)	4" Sch 10	97.1 GPM (6 l/s)
KHCRP 400/6"RD	19.4in (494mm)	15.7in (400mm)	13.0in (330mm)	6" Sch 10	221.9 GPM (14 l/s)



Activated by
Control Room



Activated by
Sprinkler System



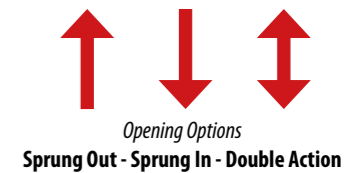
Activated by
Wall Mounted Rotary Switch



Tops
Round Top Standard
for Poured Floors

Tops
Square Top Options

Tops
Vinyl Clamp
Top Option



Opening Options
Sprung Out - Sprung In - Double Action



1.57" (40mm)
clear opening
under cover



Bottom Outlet
Push Fit (standard)



Bottom Outlet
Threaded (optional)



KVCRP Bottom Outlet



KHCRP Side Outlet



Bottom Outlet
4" 150lb R/F S/O ANSI Flange



Bottom Outlet
With P Bend Trap



Side Outlet
With Running Trap for side outlets



KVCRP Pop Up Drain - Upper Floor

This is the Upper floor version of our KVCRP Pneumatic Floor Gully. The pneumatic connection is accessed from **outside** the drain body. An air feed stainless pipe, by others, then hangs from a bracket connected to the underside of the upper floor slab.

There are 3 options for the pneumatic valve choice:

Single Acting Sprung Out Cylinder

Air supply required **to close the drain** and exhausted to allow the cover to open using an internal spring. This system is generally used when the drains are connected to the fire suppression system. In the event of the air supply system failing the covers will open.

Single Acting Sprung In Cylinder

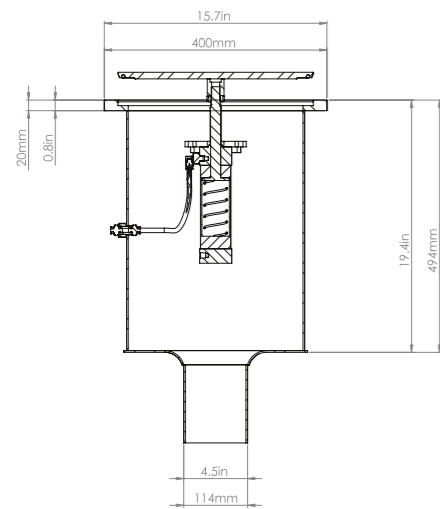
Air supply required **to open the drain** and exhausted to allow the cover to close using an internal spring. This system is generally used in clean production areas. In the event of the air supply system failing the covers will remain sealed.

Double Acting Cylinder

Air supply is required **to both open and close the drain**, this system is generally used when drains are to be opened for cleaning / wash down cycles. Constant air supply required to keep the cover sealed.

INDUSTRIES

- BioPharma
- Pharmaceutical
- Laboratories



Product Code	Height	Top Diameter	Body Diameter	Outlet	Flow Rate US GPM
KVCRP400/4"RD (U)	19.4in (494mm)	15.7in (400mm)	13.0in (330mm)	4" Sch 10	126.8 GPM (8 l/s)
KVCRP400/6"RD (U)	19.4in (494mm)	15.7in (400mm)	13.0in (330mm)	6" Sch 10	317 GPM (20 l/s)



Activated by
Control Room



Activated by
Sprinkler System



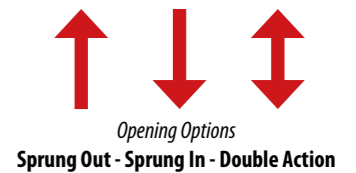
Activated by
Wall Mounted Rotary Switch



Tops
Round Top Standard
for Poured Floors

Tops
Square Top Options

Tops
Vinyl Clamp
Top Option



Opening Options
Sprung Out - Sprung In - Double Action



1.57" (40mm)
clear opening
under cover



Bottom Outlet
Push Fit (standard)

Bottom Outlet
Threaded (optional)

Bottom Outlet
4" 150lb R/F S/O ANSI Flange

Bottom Outlet
With P Bend Trap



KVCRP Pop Up Drain - Double Contained / Dual Skin

This is a Dual Skin, Twin Walled or Double Contained version of our KVCRP Pneumatic Floor Gully. The pneumatic connection is accessed from **inside** the drain body. A flange supplied by Kent is mechanically connected to the inward air pipe. A second flange is connected to the internal air pipe and these come together to form a double flange/gasket connection.

There are 3 options for the pneumatic valve choice:

Single Acting Sprung Out Cylinder

Air supply required **to close the drain** and exhausted to allow the cover to open using an internal spring. This system is generally used when the drains are connected to the fire suppression system. In the event of the air supply system failing the covers will open.

Single Acting Sprung In Cylinder

Air supply required **to open the drain** and exhausted to allow the cover to close using an internal spring. This system is generally used in clean production areas. In the event of the air supply system failing the covers will remain sealed.

Double Acting Cylinder

Air supply is required **to both open and close the drain**, this system is generally used when drains are to be opened for cleaning / wash down cycles. Constant air supply required to keep the cover sealed.

INDUSTRIES

- BioPharma
- Pharmaceutical
- Laboratories



Activated by
Control Room



Activated by
Sprinkler System



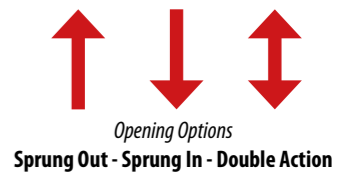
Activated by
Wall Mounted Rotary Switch



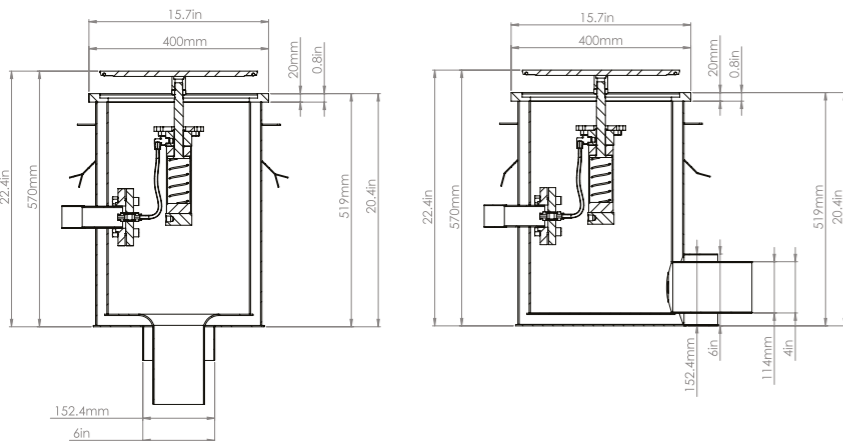
Tops
Round Top Standard
for Poured Floors

Tops
Square Top Options

Tops
Vinyl Clamp
Top Option



Opening Options
Sprung Out - Sprung In - Double Action



Holding Flange

Puddle Flange

DPM Clamp Flange



1.57" (40mm)
clear opening
under cover



Bottom Outlet
Double Contained Outlets on Drain to suit
Stainless Steel Process Pipe
or
Polypropylene Pipe



KVCRP Bottom Outlet

KHCPR Side Outlet



Bottom Outlet
With **P Bend Trap**



Side Outlet
With **Running Trap** for side outlets

Product Code	Height	Top Diameter	Body Diameter	Outlet	Flow Rate US GPM
KVCRPDC400/4"/6" RD	20.4in (519mm)	15.7in (400mm)	14.56in (370mm)	4" Sch 10	126.8 GPM (8.0 l/s)
KVCRPDC400/6"/8" RD	20.4in (519mm)	15.7in (400mm)	14.56in (370mm)	6" Sch 10	317 GPM (20 l/s)
Side Outlet					
KHCRPDC400/4"/6" RD	20.4in (519mm)	15.7in (400mm)	14.56in (370mm)	4" Sch 10	97.1 GPM (6.0 l/s)
KHCRPDC400/6"/8" RD	20.4in (519mm)	15.7in (400mm)	14.56in (370mm)	6" Sch 10	221.9 GPM (14.0 l/s)



KSBC KVCRP Pop Up Drain - Channel Trench Drain

The **KSBC450/ KVCRP400/4"** is an amalgamation of a trench drain or channel with a sealed pneumatic drain as it's outlet.

The pneumatic connection is accessed from **inside** the drain body. A flange supplied by Kent is mechanically connected to the inward air pipe. A second flange is connected to the internal air pipe and these come together to form a double flange/gasket connection.

There are 3 options for the pneumatic valve choice:

Single Acting Sprung Out Cylinder

Air supply required **to close the drain** and exhausted to allow the cover to open using an internal spring. This system is generally used when the drains are connected to the fire suppression system. In the event of the air supply system failing the covers will open.

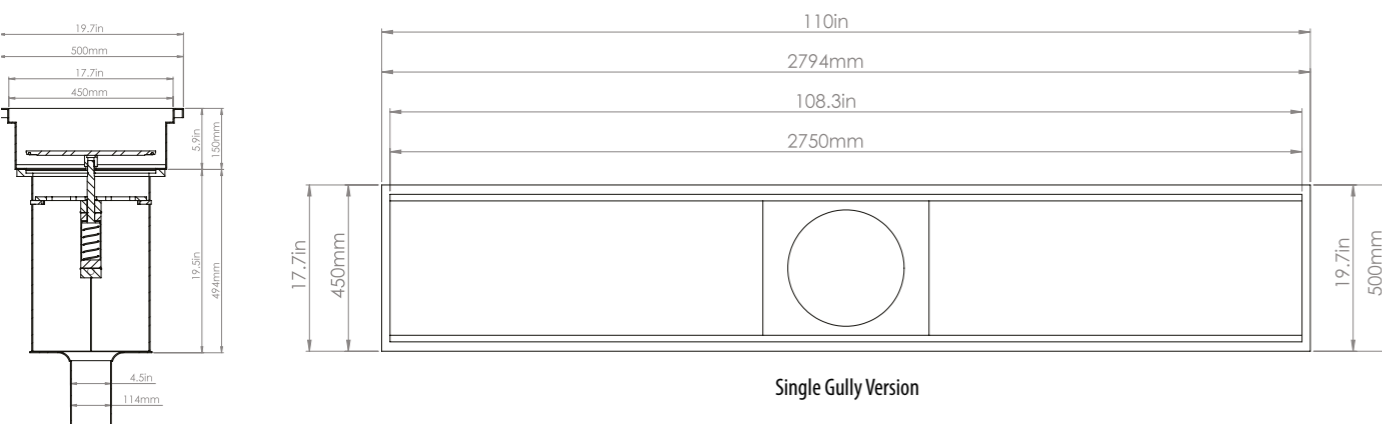
Single Acting Sprung In Cylinder

Air supply required **to open the drain** and exhausted to allow the cover to close using an internal spring. This system is generally used in clean production areas. In the event of the air supply system failing the covers will remain sealed.

Double Acting Cylinder

Air supply is required **to both open and close the drain**, this system is generally used when drains are to be opened for cleaning / wash down cycles. Constant air supply required to keep the cover sealed.

The Trench Drain can come also with a side outlet gully and can be changed to a 6" outlet. Occasionally also it is ordered a as a Dual Skinned or Double Contained Channel Trench Drain.



Product Code	Channel Start Depth	Channel Width	Gully Outlet	Flow Rate US GPM
KSBC450/KVCRP400/4"	5.9in (150mm)	17.7in (450mm)	4" SCH10	126.8 GPM (8.0 l/s)
KSBC450/KVCRP400/6"	5.9in (150mm)	17.7in (450mm)	6" SCH10	317 GPM (20.0 l/s)

INDUSTRIES

- BioPharma
- Pharmaceutical
- Laboratories



Activated by
Control Room

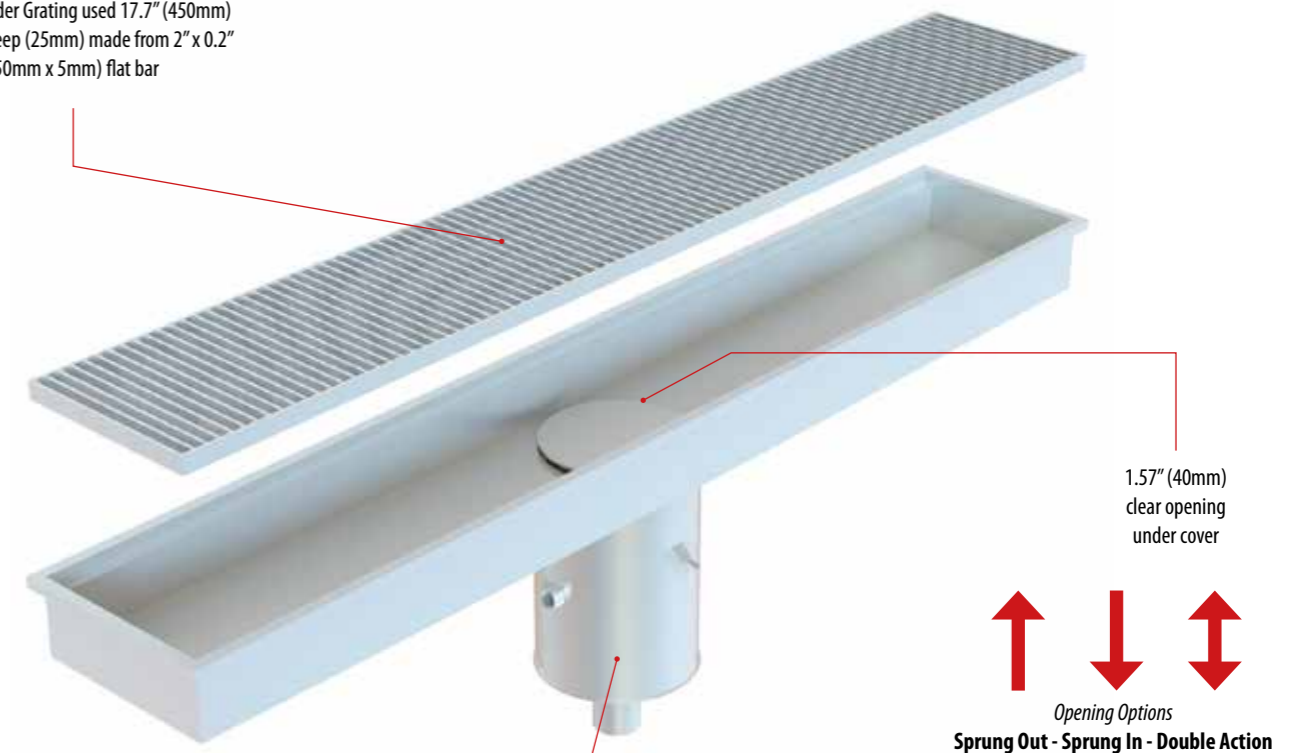


Activated by
Sprinkler System



Activated by
Wall Mounted Rotary Switch

Typical Ladder Grating used 17.7" (450mm) wide x 1" deep (25mm) made from 2" x 0.2" (50mm x 5mm) flat bar



Bottom Outlet
Push Fit (standard)



Bottom Outlet
Threaded (optional)



KVCRP Bottom Outlet



KVCRP Side Outlet



Bottom Outlet
4" 150lb R/F S/O ANSI Flange



Bottom Outlet
With P Bend Trap



Side Outlet
With Running Trap for side outlets



KSBC KVCRP Pop Up Drain - Channel Trench Drain

The **KSBC450/ KVCRP400/4"/4"** is an amalgamation of a trench drain or channel with 2 sealed pneumatic drain outlets. It can be used to temporarily contain a valuable, or a hazardous liquid, before diverting that liquid to a sump. Then the 2nd outlet is opened for washdown and diverting to the foul water drainage.

The pneumatic connection is accessed from **inside** the drain body. A flange supplied by Kent is mechanically connected to the inward air pipe. A second flange is connected to the internal air pipe and these come together to form a double flange/gasket connection.

There are 3 options for the pneumatic valve choice and each outlet can be set to operate independantly:

Single Acting Sprung Out Cylinder

Air supply required **to close the drain** and exhausted to allow the cover to open using an internal spring. This system is generally used when the drains are connected to the fire suppression system. In the event of the air supply system failing the covers will open.

Single Acting Sprung In Cylinder

Air supply required **to open the drain** and exhausted to allow the cover to close using an internal spring. This system is generally used in clean production areas. In the event of the air supply system failing the covers will remain sealed.

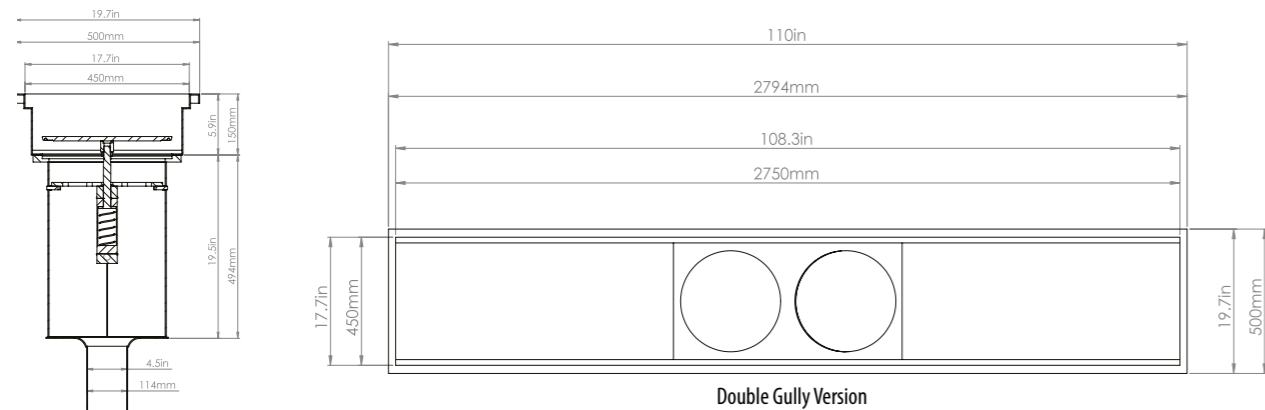
Double Acting Cylinder

Air supply is required **to both open and close the drain**, this system is generally used when drains are to be opened for cleaning / wash down cycles. Constant air supply required to keep the cover sealed.

The Trench Drain can come also with a side outlet gully and can be changed to a 6" outlet. Occasionally also it is ordered as a Dual Skinned or Double Contained Channel Trench Drain.

INDUSTRIES

- BioPharma
- Pharmaceutical
- Laboratories



Product Code	Channel Start Depth	Channel Width	Gully Outlet	Flow Rate US GPM
KSBC450/KVCRP400/4"/4"	5.9in (150mm)	17.7in (450mm)	4" SCH10 x 2	126.8 GPM (6.17 l/s) x 2
KSBC450/KVCRP400/6"/6"	5.9in (150mm)	17.7in (450mm)	6" SCH10 x 2	317 GPM (20.0 l/s) x 2



Activated by
Control Room

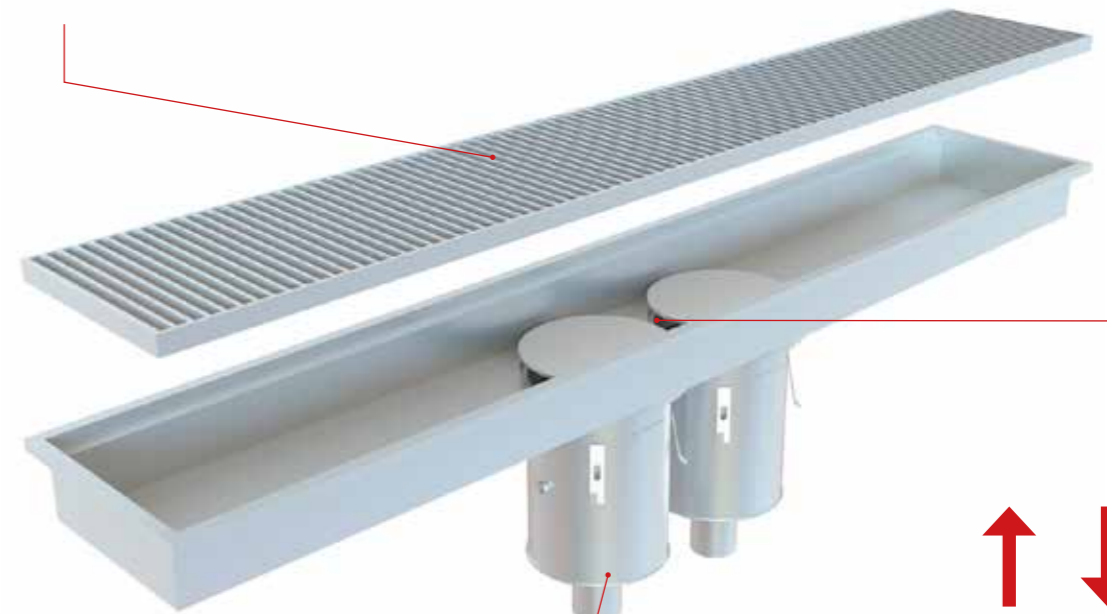


Activated by
Sprinkler System



Activated by
Wall Mounted Rotary Switch

Typical Ladder Grating used 17.7" (450mm) wide x 1" deep (25mm) made from 2" x 0.2" (50mm x 5mm) flat bar



1.57" (40mm)
clear opening
under cover

Opening Options
Sprung Out - Sprung In - Double Action



Bottom Outlet
Push Fit (standard)



Bottom Outlet
Threaded (optional)



KVCRP Bottom Outlet



KVCRP Side Outlet



Bottom Outlet
4" 150lb R/F S/O ANSI Flange



Bottom Outlet
With P Bend Trap



Side Outlet
With Running Trap for side outlets

Rodding Eye Cleanouts

The KRCR180/4"RD is a Sealed Double Contained Rodding Eye or Cleanout. It has a Round Body, Round Top Bottom Outlet and can be used for Heavy Duty Areas.

This is a sealed cleanroom rodding eye with a strong positive seal created by machining away a 10mm groove from a 20mm top plate. A 10mm top plate with a recessed 'o-ring' creates the seal.

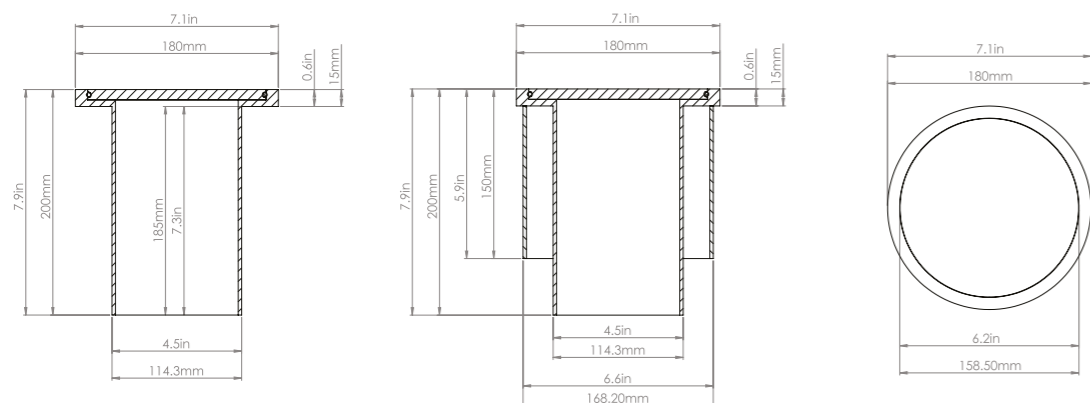
They are designed for use primarily in Pharmaceutical factories. They can be used in both light duty and very heavy duty trafficked areas (sealed gullies are most often used in laboratories or cleanrooms which are limited to pedestrian traffic - however, the 10mm top plate makes it possible to drive heavy factory traffic over these gullies).

In most cases a 4" or 6" SCH10 outlet is required because these are most popular with American Multinational Pharmaceutical companies who have scheduled stainless steel pipework to connect to, but this can easily be substituted for a 110mm or 160mm outlet pipe for European projects and polypropylene connections

The KRE200DC RD Gully is a Sealed Double Contained Rodding Eye or Cleanout.

INDUSTRIES

- BioPharma
- Pharmaceutical
- Laboratories



Product Code	Height	Top Diameter	Body Diameter	Outlet
KRCR180/4" RD	7.9in (200mm)	7.1in (180 mm)	4.5in (114 mm)	4" Sch 10
KRCR230/6" RD	7.9in (200mm)	9.0in (230mm)	6.6in (168mm)	6" Sch 10
Dual Skinned				
KRCR180/4"/6"RD	7.9in (200mm)	7.1in (180mm)	6.6in (168mm)	4"/6" Sch 10
KRCR230/6"/8"RD	7.9in (200mm)	9.0in (230mm)	8.63in (219mm)	6"/8" Sch 10



Sealed as standard
remove with
suction cup



Available with
Holding Flange



Bottom Outlet
Push Fit (standard)



Bottom Outlet
4" 150lb R/F S/O ANSI Flange

Delivering Across the Globe

UK

AstraZeneca - Cambridge
ESAI – Hatfield
Genzyme - Haverhill
GSK – Dartford & Worthing
Hyaltech - Livingston
Johnson & Johnson - Bridgend
Merck Millipore – Enfield & Hoddesdon
Merial - Surrey
Novartis - Grimsby
Pfizer – Sandwich & Morpeth
Sanofi - Haverhill

EUROPE

Aspen - Netherlands
Biogen - Switzerland
Corden – Belgium
Genzyme - Belgium
GSK - Belgium
Hovione - Portugal
Janssen Pharma - Belgium
Janssen Pharma - Holland
Pfizer - Sweden

MIDDLE EAST

ARABIO - Saudi Arabia
Julphar - Saudi Arabia
Kuwait Saudi Pharmaceutical
Industries - Kuwait

NORTH AMERICA

GSK - Mississauga, Ontario
Sanofi – North York, Ontario
AstraZenca Medimmune – Gaithersburg, MD
Hovione, Huntington, NJ
Kedrion – East Windsor, NJ
Novartis – Holly Springs, NC
Sanofi – Swiftwater, PA
GSK – Hamilton, MT

IRELAND

Abbvie - Sligo & Cork	Ipsen - Dublin
Aerie - Athlone	Janssen Biologics - Cork & Limerick
Alkermes - Athlone	Janssen Pharma - Cork
Alexion - Dublin	Janssen R&D - Cork & Athlone
Allergan - Dublin & Mayo	Jazz Pharma - Dublin & Cork
Amgen - Dublin	Leo Pharma - Dublin
Amneal - Limerick	Mallinckrodt - Dublin
Aspen - Dublin	Merck Millipore - Cork & Carlow & Tipperary
Astellas - Dublin & Tralee	MSD - Dublin & Galway
Bayer - Dublin	Mylan - Dublin & Tipperary
BioMarin - Dublin & Cork	Niche Generics - Dublin & Cork
BMS - Dublin	Novartis - Dublin & Cork
Cara Partners - Cork	Pfizer - Dublin & Limerick
Covidien - Cork	Regeneron - Dublin
DePuy - Cork	Roche - Clare
Eli Lilly - Cork	Servier - Wicklow
Eurofins - Tipperary	Shire - Dublin
GE Healthcare - Cork	Teva - Tipperary
Genzyme - Waterford & Cork	Takeda - Dublin
Gilead - Dublin & Tipperary	West Pharma - Tipperary
GSK - Cork	Wuxi - Dundalk
Helsinn - Dublin	Wyeth - Dublin & Athlone
Horizon - Dublin & Cork	Zoetis - Dublin
Hovione - Dublin	

REST OF THE WORLD

Wyeth - Philippines
GSK – Singapore
Mead Johnson - Singapore
Abbott - Singapore
Merck Millipore - Singapore
Novartis - Singapore
Pfizer - Singapore
Philip Morris - Singapore
DePuy - China
GSK - Kenya



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