



IV THERAPY
aim at ZERO occlusion

aim at ZERO

bionector TKO[®]
Bi-directional fluid
control system



Value Life



bionector TKO[®]

aim at ZERO occlusion

Occlusions can be commonplace in patients with vascular access lines. This is accepted as normal, with occlusions and their consequences being dealt with as a matter of routine.

The most common causes include:

- Thrombotic occlusion when blood or clotting agents accumulate inside the catheter¹
- Persistent withdrawal occlusion when fibrin is aspirated into the catheter.¹

- **Occlusions cost money**

Anticoagulant treatment is expensive, nursing time is increased and lines may need to be replaced if they can't be cleared.¹

- **Occlusions affect patients**

Treatment can't be delivered as needed, they may need to stay in hospital for longer; there's an increased risk of infection, and if the line can't be unblocked they have to undergo a second placement procedure.¹

"To Keep Open" (TKO) patented valve, significantly reduces the risk of accidental catheter occlusion

Reduces thrombotic occlusions by preventing blood reflux from:

- Syringe and giving set disconnection
- Syringe plunger rebound
- IV bag running dry
- Venous pressure changes.¹

Clinically shown to reduce:

- Catheter occlusions by 88% (50.4 to 5.8 per 1,000 catheter days)²
- Loss of IV catheter by 91% (9% to 0.8%)²
- Tissue plasminogen activator (tPA) usage by 85%².

89.8%
reduction in
occlusions²

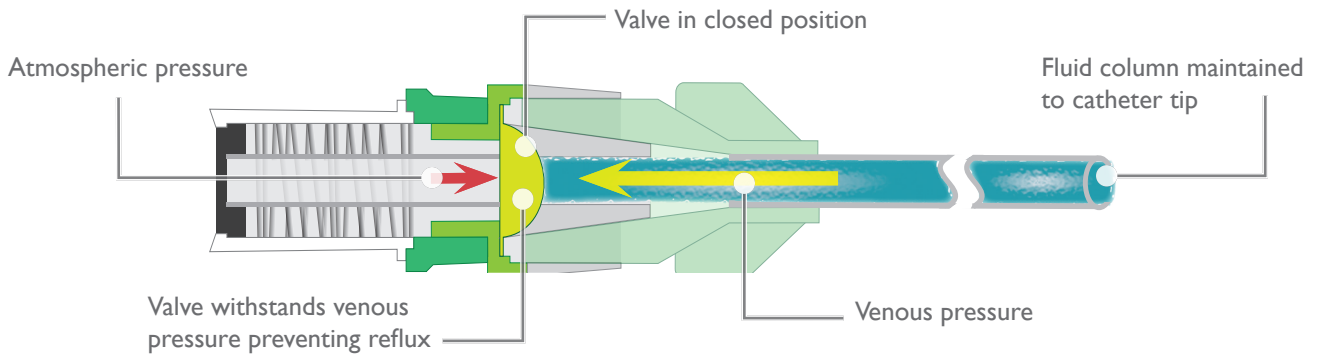
County Durham and Darlington NHS Foundation Trust looked at the impact of using Bionector TKO[®], versus standard Bionector, on occlusion and line removal rates of midline catheters. The study size was 261 midline catheters delivering a total of 2,937 catheter days. Catheter occlusions were reduced by **89.8%** and catheter removals were reduced by **83.3%**.

Combining **bionector** market-leading needle-free device with a valve that quite simply stops catheter tip reflux.

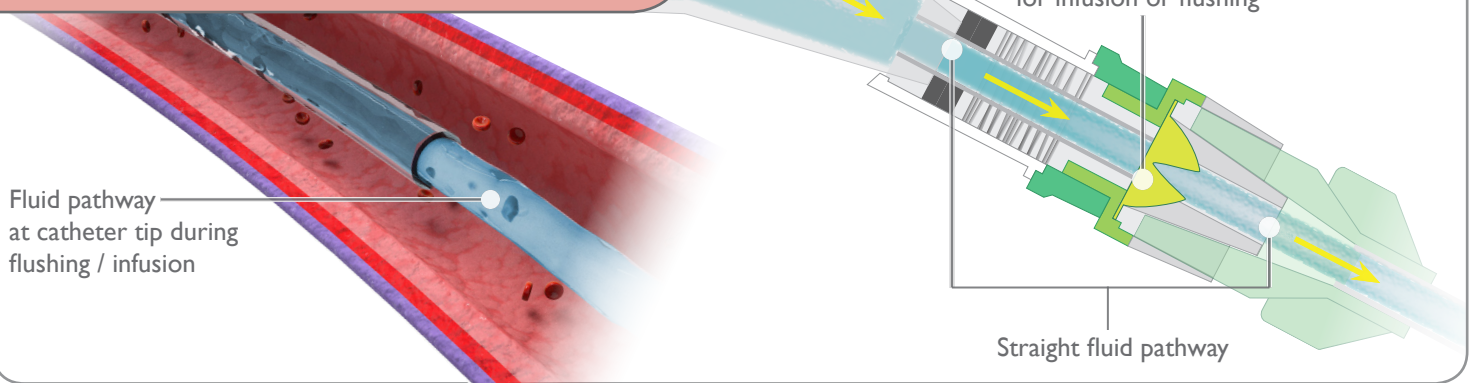
bionector TKO®

The Bi-directional Flow

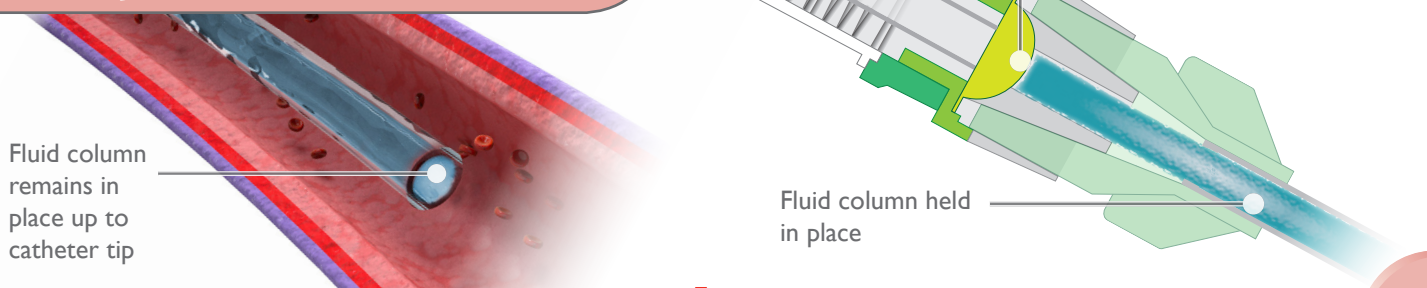
Withstands venous pressure to stay closed between accesses, but opens easily under forces exerted during injection or aspiration.



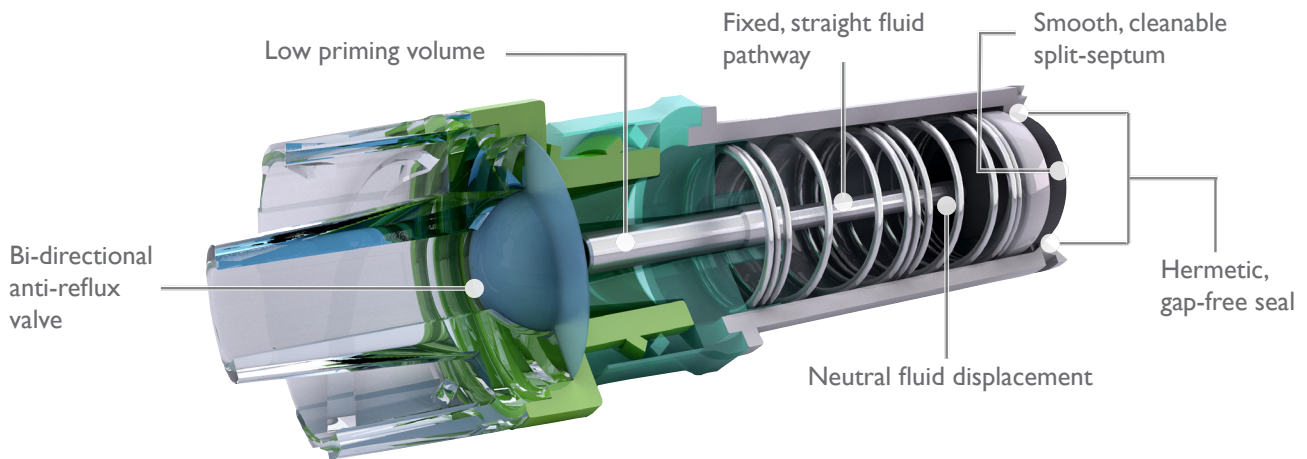
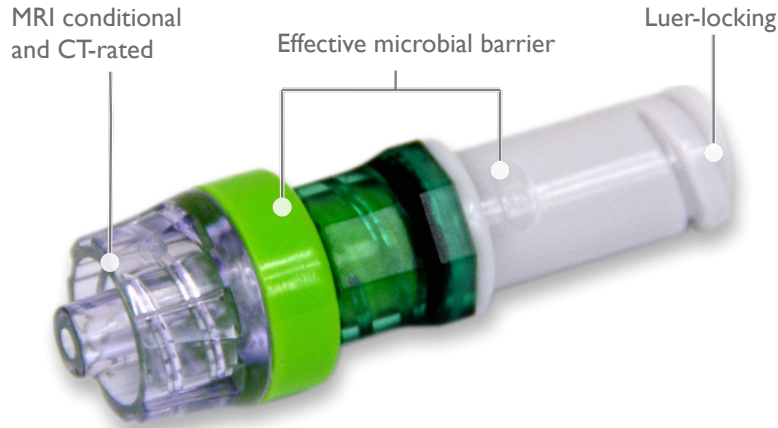
Valve opens on injection and infusion to allow administration of IV therapy.



Valve closes instantaneously on disconnection, holding the fluid column in place and preventing reflux at the catheter tip.



aim at **ZERO** occlusion



Codes	Product	Description	Priming Volume	Flow rate	Power Inject up to	Box/case quantity
838.01 E	bionector TKO®	Needle-free connector	0.1 ml	> 55 ml/min	350 psi	50/2400
5222.838	octopus1	Extension line of 27 cm with bionector TKO®	0.75 ml	> 40 ml/min	240 psi	25/300

- Valve opening pressure 0.43 psi (22.4mmHg)
- Withdrawal pressure 7.0 psi (29 times vascular resistance)

(1) BOLTON D. Preventing occlusion and restoring patency to central venous catheters. Br J Community Nurs. 2013 Nov;18(11):539-40, 542-4
 (2) County Durham and Darlington NHS Foundation Trust Bionector TKO® data- References available on request

CRITICAL CARE

For further information, please contact: questions@vygon.com

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