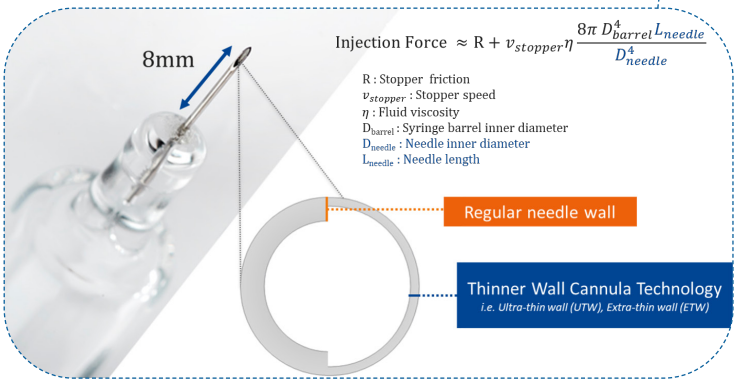
BD solutions for enabling delivery of complex biologics

BD Neopak™ XtraFlow™ Glass Prefillable Syringe



BD Neopak™ XtraFlow™ Glass Prefillable Syringe solution leverages 8 mm needle length in combination with thin wall cannula to **reduce pressure drop** and **enhance flow**.[1]

Experience

- BD partnering in combination product development with the biopharmaceutical industry for 30 years[4]
- XtraFlow™ needle technology is built on BD Neopak™ Glass Prefillable Syringe technology
  - Compatible with existing manufacturing and inspection technologies/practices
  - Supports single PFS platform* approach

* PFS platform: Serving a range of requirements (silicone reactivity, drug fill volume, viscosity, device integration, etc.) with a minimal number of SKUs and little to no change in core materials (glass, silicone, rubber, etc.)

Availability

- BD Neopak™ XtraFlow™ Glass Prefillable Syringe is a product under development
- Samples for both 1 mlL & 2.25 mL formats are available

Key benefits

Improving subcutaneous drug delivery and end-user injection experience[1,3]

- **Reduce injection force** and/or **time** for a fixed solution viscosity[1,2]
  Ejection force or injection time required to push on the plunger rod for viscous solution delivery (10-30Cp) is reduced by up to 57%*[2]
- **Positively impact patient preference**[3]
  64% of self-injecting chronic disease patients preferred the BD Neopak™ XtraFlow™ (27G 8mm UTW). Reduced injection force was the main reason given followed by the shorter needle length[3]
- **Reduce intramuscular injection risk by 2.5x to 13x**[3µ†]
- **Reduce needle-related anxiety**[3†]

* When compared to 12.7 mm special thin wall needle

* With BD Neopak™ XtraFlow™ 27G 8 mm ultra-thin wall when compared to the BD Neopak™ 12.7 mm 27G special-thin wall syringe
Ejection force and injection time values were simulated through a mathematical model based on the Hagen-Poiseuille equation

µ In case of a non-recommended subcutaneous injection technique (45° or 90° angle with no skin pinch) as simulated by mathematical model

† When compared to BD Neopak™ 12.7mm 27G special-thin wall syringe

BD

References

1. Injection time and ejection force calculation [internal study], Le Pont-de-Claix, France; Becton, Dickinson and Company, 2020
2. BD Neopak™ XtraFlow™ 2.25 mL prototype evaluation [internal study] , Le Pont-de-Claix, France; Becton, Dickinson and Company, 2020
3. Pager et al. (2020), "User experience for manual injection of 2 mL viscous solutions is enhanced by a new prefillable syringe with staked 8 mm ultra-thin wall needle" Expert Opinion on Drug Delivery, https://doi.org/10.1080 / 17425247.2020.1796630
   * When compared to 12.7 mm special thin wall needle
4. BD Medical Pharmaceutical Systems_BD Hypak™ Glass Prefillable Syringe since 1975_BD Website

BD Medical
Pharmaceutical Systems
United States
1 Becton Drive
Franklin Lakes, NJ 07417
+1 800 225 3310
Europe
11 rue Aristide-Bergès
38800 Le Pont-de-Claix
France
Phone: +33 4 76 68 36 36 - Fax: +33 4 76 68 35 05
Becton Dickinson France S.A.S - Share capital: 64 719 915 €
RCS Grenoble B 056 501 711

bd.com