

CONVEY

FLEXIBLE SCREW CONVEYOR PARTS & COMPONENTS



**NATIONAL BULK
EQUIPMENT®**
AN **NBE** COMPANY

FORWARD THINKING | **REAL RESULTS®**

IMPROVE RUN TIME PERFORMANCE & EXTEND DUTY CYCLES

Flexible screw conveyor parts and components from National Bulk Equipment provide market-dominant build specifications and materials of construction, together with application-specific engineering, to ensure total process effectiveness. Also available from National Bulk Equipment are replacement screws, outer tubes, and center cores for all competitive flexible screw conveyor systems.

Processing payback quickly disappears when calculating the costs of those all-too-frequent replacements of under-built parts on under-built flexible screw conveying systems. Processing payback is found in the uptime, throughput, and quality-product output resulting from specifying flexible screw replacement parts and components from National Bulk Equipment. Whether your current system is red, orange, blue, or shop-made, specify National Bulk Equipment flexible screw conveyor parts and components and bring optimal performance and process efficiency to any flexible screw conveying operation.



When Custom Specs Are Standard

When process materials are unpredictable, harsh environments are inhospitable, and production rates seem unattainable, the National Bulk Equipment engineering team will leverage our applications expertise, material science engineering, and R&D resources to design and manufacture custom components for your application. Whether confidential concepts or early-stage experiments, trust National Bulk Equipment for forward thinking.

24-7 Performance Ships in 48 Hours

Maintenance events may be inevitable, but performance loss is not. The customer support team at National Bulk Equipment is ready to ensure your flexible screw conveyor system runs at optimal availability. Whether an emergency expedited component, or replacement parts for preventive maintenance, National Bulk Equipment warehousing and logistics will guarantee shipping within 48 hours; with most parts shipping within 24 hours.

Application Requirements: Have They Changed?

Even when ordering replacement parts it is important to review the application requirements. Perhaps application parameters have changed; the length or angle of the flexible screw conveyor run is different. Or, process material characteristics are no longer suitable to the original equipment screw or outer tube specifications. In any case, whether application or performance related, or just preventive maintenance, the application engineering, and product management teams at National Bulk Equipment are ready to review your application. Ensure the flexible screw conveyor parts and components you receive will keep your system running at optimal availability. Specify National Bulk Equipment for reliable, repeatable, and real results. Call NBE at 616.399.2220

Build Specifications: The Measure of Improved Performance

It may result from increasing the flexible screw wire thickness, or specifying a wider wire; even without changing the dimensions of the outer tube. Improved performance in uptime, throughput, and product quality can be achieved by specifying the dominant materials of construction and build specifications of National Bulk Equipment flexible screw conveyor system replacement parts and components.

Product Specification Requirements

Use this Product Specification Requirements chart, together with the appropriate listings of National Bulk Equipment flexible screw replacement parts and components on the following pages, to select the best replacement parts for your application.

Instructions:

- Identify manufacturer and model number, if available, of current part(s).
- Identify type of flexible screw (flat, or beveled wire; round, or square bar).
- Confirm dimensions **A** through **I**

Screw Dimensions:

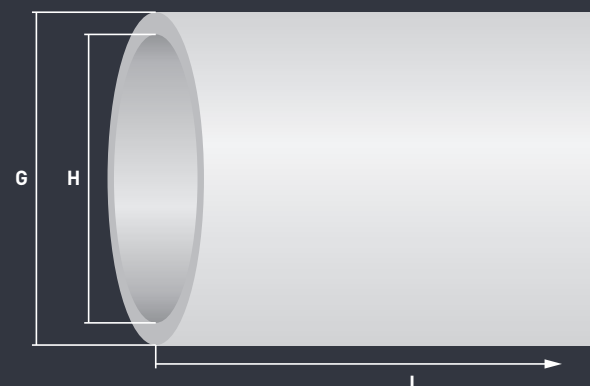
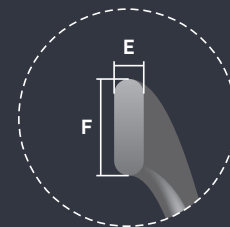
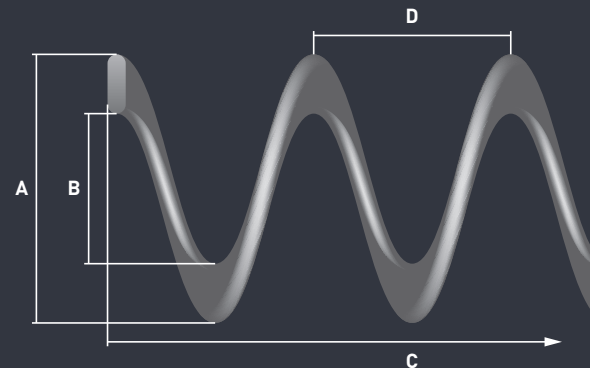
- A** Outside diameter (in.)
- B** Inside diameter (in.)
- C** Overall length (ft.)
- D** Flight pitch (in.)

Screw Flight Material Dimensions:

- E** Thickness (in.)
- F** Height (in.)

Outer Tube Dimensions:

- G** Outside diameter (in.)
- H** Inside diameter (in.)
- I** Overall length (ft.)



Flexible Conveyor Screws

The balance of precision and power is key to effectively selecting a flexible screw conveying system screw. The performance-proven materials of construction of every National Bulk Equipment flexible screw; together with its process-specific flight design, pitch, and finished machining, ensure sustained conveying accuracy, at designed capacities, of even the most demanding materials and bulk densities.



PROCESS MATERIAL CHARACTERISTICS:

lightweight material types, including materials that are highly aerated, powdered, or fluidizing

PROCESS MATERIAL EXAMPLES: flour, talc, calcium carbonate, starch, seasonings, fumed silica, ground coffee

MATERIAL FLOW: free- to semi-free flowing



PROCESS MATERIAL CHARACTERISTICS:

flow-resistant material types, including materials that are sticky, tend to pack, smear, cake, or crumble

PROCESS MATERIAL EXAMPLES: iron oxide, zinc oxide, cocoa powder, carbon black

MATERIAL FLOW: semi-free to sluggish flowing

Flat Wire Screws

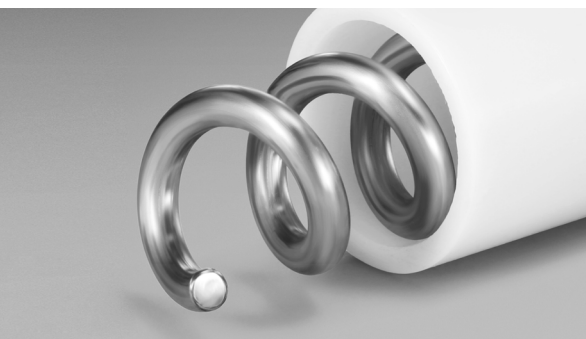
TUBE O.D. (IN.) (NOMINAL SIZE)		DIAMETER & PITCH (IN.)	FLIGHT DIMENSIONS (IN.)	MODEL NO.
2		1.375 OD × 0.75 ID × 1.50 Pitch	0.125 × 0.3125	200-FW
2.5	*	1.75 OD × 1.00 ID × 1.75 Pitch	0.1875 × 0.375	250-FW
	*	2.00 OD × 1.125 ID × 1.50 Pitch	0.1875 × 0.4375	250-HDFW
3.5	*	2.375 OD × 1.50 ID × 2.00 Pitch	0.1875 × 0.4375	350-FW
	*	2.375 OD × 1.50 ID × 2.00 Pitch	0.25 × 0.4375	350-HDFW
4.5	*	3.25 OD × 1.375 ID × 3.50 Pitch	0.25 × 1.00	450-SDFW
	*	3.25 OD × 1.375 ID × 3.50 Pitch	0.375 × 1.00	450-HDFW
		3.50 OD × 2.00 ID × 3.50 Pitch	0.25 × 0.75	450-HPFW
		3.625 OD × 1.375 ID × 3.25 Pitch	0.1875 × 1.125	450-FW
5	*	4.00 OD × 2.00 ID × 4.00 Pitch	0.25 × 1.00	500-FW
6.5	*	5.50 OD × 2.50 ID × 5.50 Pitch	0.375 × 1.50	650-FW
8.5	*	7.50 OD × 2.50 ID × 7.50 Pitch	0.375 × 2.50	850-FW

* Denotes National Bulk Equipment standard products.

Beveled Wire Screws

TUBE O.D. (IN.) (NOMINAL SIZE)		DIAMETER & PITCH (IN.)	FLIGHT DIMENSIONS (IN.)	MODEL NO.
3.5	*	2.375 OD × 1.50 ID × 2.00 Pitch	0.1875 × 0.4375	350-BE
	*	2.375 OD × 1.50 ID × 2.00 Pitch	0.25 × 0.4375	350-HDBE
4.5	*	3.25 OD × 1.375 ID × 3.50 Pitch	0.25 × 1.00	450-BE
		3.50 OD × 2.00 ID × 3.50 Pitch	0.25 × 0.75	450-HPBE
	*	3.50 OD × 2.00 ID × 3.50 Pitch	0.375 × 0.75	450-HDBE
	*	3.625 OD × 1.375 ID × 3.50 Pitch	0.25 × 1.125	450-WFHDBE
5	*	4.00 OD × 2.00 ID × 4.00 Pitch	0.25 × 1.00	500-BE
	*	4.00 OD × 2.00 ID × 4.00 Pitch	0.375 × 1.00	500-HDBE
6.5	*	5.50 OD × 2.50 ID × 5.50 Pitch	0.375 × 1.50	650-BE
8.5	*	7.50 OD × 2.50 ID × 7.50 Pitch	0.375 × 2.50	850-BE

* Denotes National Bulk Equipment standard products.



PROCESS MATERIAL CHARACTERISTICS:

highly abrasive materials including granular, irregular shaped, flakes, or pellets

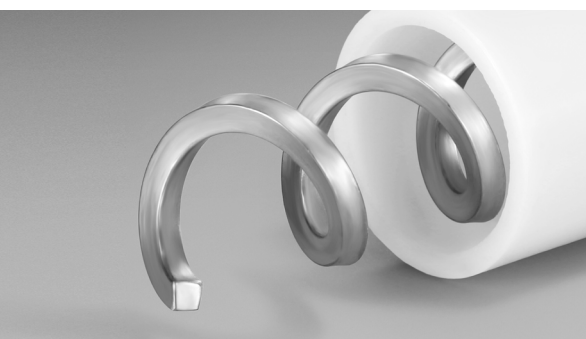
PROCESS MATERIAL EXAMPLES: salt, sugar, rice, coffee beans, corn, regrind

MATERIAL FLOW: semi-free to sluggish flowing

Round Bar Wire Screws

TUBE O.D. (IN.) (NOMINAL SIZE)		DIAMETER & PITCH (IN.)	FLIGHT DIMENSIONS (IN.)	MODEL NO.
2.5	*	1.50 OD × 1.00 ID × 1.75 Pitch	0.25	250-RW
	*	1.75 OD × 0.75 ID × 1.75 Pitch	0.50	250-HDRW
3	*	2.25 OD × 1.50 ID × 2.00 Pitch	0.375	300-RW
	*	2.375 OD × 1.50 ID × 2.00 Pitch	0.4375	300-HDRW
4	*	3.00 OD × 2.00 ID × 2.50 Pitch	0.50	400-RW
4.5	*	3.50 OD × 2.00 ID × 3.25 Pitch	0.75	450-HDRW
5	*	4.00 OD × 2.875 ID × 4.00 Pitch	0.5625	500-RW
6	*	5.125 OD × 3.625 ID × 4.875 Pitch	0.75	600-RW

* Denotes National Bulk Equipment standard products.



Square Bar Wire Screws

TUBE O.D. (IN.) (NOMINAL SIZE)		DIAMETER & PITCH (IN.)	FLIGHT DIMENSIONS (IN.)	MODEL NO.
2.5	*	1.75 OD × 1.25 ID × 1.75 Pitch	0.3125	250-SB
3.5	*	2.50 OD × 1.50 ID × 2.50 Pitch	0.50	350-SB
4.5	*	3.00 OD × 2.00 ID × 2.50 Pitch	0.50	450-SB

* Denotes National Bulk Equipment standard products.

PROCESS MATERIAL CHARACTERISTICS:

high-bulk density material types, and highly abrasive materials

PROCESS MATERIAL EXAMPLES:

sand, metal powder, steel shot, large salt

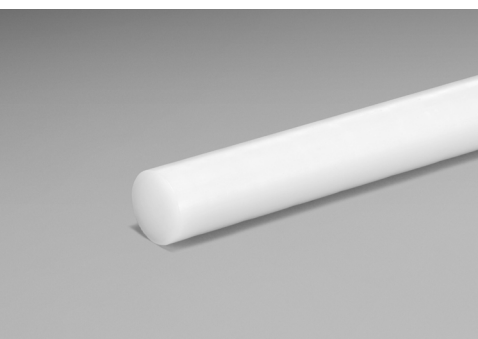
MATERIAL FLOW: free-, semi-free, to sluggish flowing

Center Cores

For improved conveying efficiency, the UHMWPE center core, placed through the length of the screw axis, prevents reverse flow or flooding of material. Common applications are those conveying highly aerated material, easily fluidized material, or material being conveyed up extreme inclines.

TUBE O.D. (IN.) (NOMINAL SIZE)		DIAMETER (IN.)	MODEL NO.
2.5	*	0.6875	250 Center Core
3	*	1.375	300 Center Core
4	*	1.875	400 Center Core
6.5	*	2.32	650 Center Core - FW
	*	2.96	650 Center Core - RW
8.5	*	2.32	850 Center Core - FW
	*	2.96	850 Center Core - RW

* Denotes National Bulk Equipment standard products.



Flexible Conveyor Outer Tubes

Protect valuable uptime and process materials from the early wear and worry typical of thin-wall tube. Double the thickness of typical replacement tube, National Bulk Equipment thick-gauge tube is available in up to half-inch wall thickness; in either UHMWPE or polypropylene construction. The extremely smooth interior surface adds additional protection from cross contamination. From the inside out, NBE outer tubes provide long-term performance, regardless of demanding process materials, duty cycles, or both.

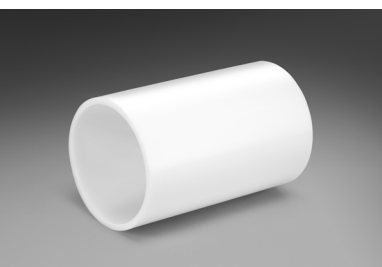


UHMWPE Outer Tubes

UHMWPE provides the highest impact strength and tensile strength of any thermoplastic. It is FDA and USDA approved, non-corrosive, temperature resistant, and aids in material flow. UHMWPE outer tubes can bend to a radius as tight as 6 feet; enabling conveying tube to run around layout obstacles. UHMWPE outer tubes are available in lengths up to 40 feet.

TUBE O.D. (IN.) (NOMINAL SIZE)	DIAMETER (IN.)	BEND RADIUS (FT.)	MODEL NO.
2	1.837 OD × 1.60 ID	6	200 UHMWPE
2.5	2.32 OD × 2.06 ID	6	232 UHMWPE
	2.50 OD × 2.00 ID	6	250 UHMWPE
	* 2.65 OD × 2.25 ID	6	265 UHMWPE
3.5	2.96 OD × 2.70 ID	10	300 UHMWPE
	3.115 OD × 2.75 ID	10	312 UHMWPE
	* 3.50 OD × 3.00 ID	12	350 UHMWPE
4.5	4.20 OD × 3.83 ID	20	420 UHMWPE
	* 4.50 OD × 4.00 ID	20	450 UHMWPE
5	4.70 OD × 4.36 ID	No bend	470 UHMWPE
	* 5.00 OD × 4.50 ID	No bend	500 UHMWPE

* Denotes National Bulk Equipment standard products.



Polypropylene Outer Tubes

For applications requiring high-volume conveying, or conveying of larger materials, polypropylene outer tubes provide large-diameter tube construction. Polypropylene tube is non-bending, and is available in lengths up to 30 feet.

TUBE O.D. (IN.) (NOMINAL SIZE)	DIAMETER (IN.)	MODEL NO.
6.5	* 6.625 OD × 6.00 ID	650 PP
8.5	* 8.625 OD × 8.00 ID	850 PP

* Denotes National Bulk Equipment standard products.

Flexible Screw Conveyor Performance Upgrade Kit

Improving total process performance is possible without a total system replacement. When original equipment specifications are not enough. When application requirements have changed. Or, when unplanned downtime caused by under-built equipment is too frequent; specify the flexible screw conveyor performance upgrade kit from National Bulk Equipment. This performance upgrade kit includes the discharge head, flexible screw, and outer tube; and is designed to easily interface with most any process hopper or material supply source.

The National Bulk Equipment discharge head is built for strength; its gear drive and motor are specified for power, performance, and longevity. Optimal output torque and motor horsepower combine to bring maximum power and efficiency to the most challenging flexible screw conveying operations. NBE motor and gear drive specifications turn difficult material types, capacity requirements, and conveying distances from problems to production.



Bulk Material Processing and Packaging: Accurate, Dependable, Automated

Every National Bulk Equipment dry bulk material handling installation begins with Forward Thinking: looking upstream and downstream, evaluating every process influence and its possible effect on the application; from the equipment, to the material, to the operator, and the surrounding facility. With over 15,000 installations worldwide, NBE processing systems have proven their ability to maximize process capacity and improve total line performance. The full line of NBE automated processing systems includes: bulk bag dischargers, bulk bag fillers, container dischargers, container fillers, product recovery systems, conveyance systems, storage, mixing and blending, NTEP-certified weigh systems, and automation control design and manufacturing. Look ahead to NBE. Look to Forward Thinking.

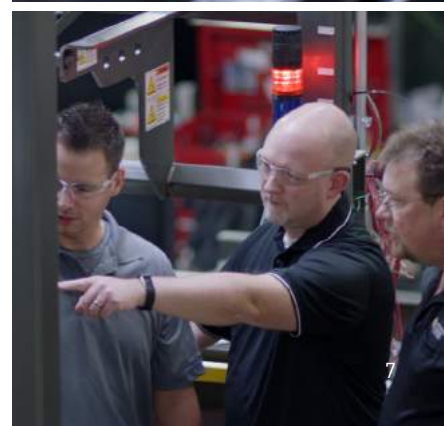
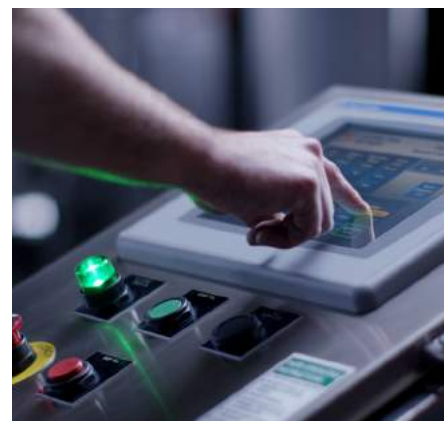
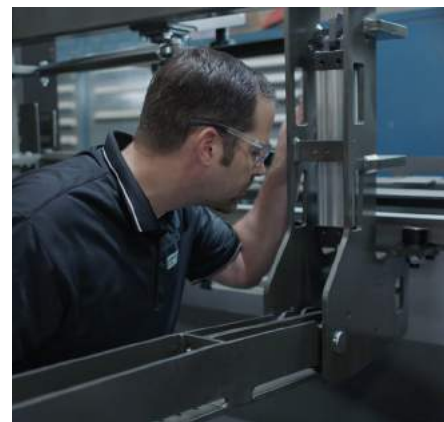
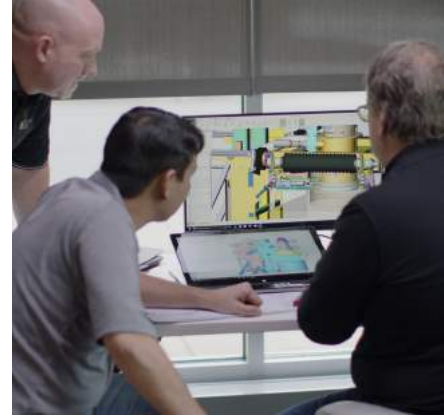
Integrated Automation: Total Process Control

Plant safety, product safety, changeovers, compliance issues, customer requirements, process complexities, equipment effectiveness; each of these factors make automated process operations a necessity. National Bulk Equipment integrated automation brings system-wide process control, communication, sensing, monitoring, and reporting together into a single, menu-driven, touch-screen HMI. High-speed Ethernet communications deliver information between NBE equipment and legacy systems to UL-listed panels designed and built by NBE. National Bulk Equipment integrated automation pushes control functionality farther out, and deeper into equipment operations to optimize total line throughput and deliver a standard, system-wide, data report from the control layer. Broader controls functionality and increased data reporting improve resource management, reduce operating burden, and extend equipment life cycles.

Single-source Engineering and Manufacturing

Total accountability: from concept to completion. No best-guess design plans. No outsourced fabrication. No contract installers. No third-party service support. National Bulk Equipment process systems are designed, engineered, and produced in-house. This vertically integrated engineering and production environment enables the manufacturing of equipment and systems to exceptional quality standards, within strict production schedules.

Whether integrating a single National Bulk Equipment system, or designing, building, and installing a complete, fully automated, processing or packaging operation, NBE will work to ensure Real Results.





FORWARD THINKING | **REAL RESULTS**

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