



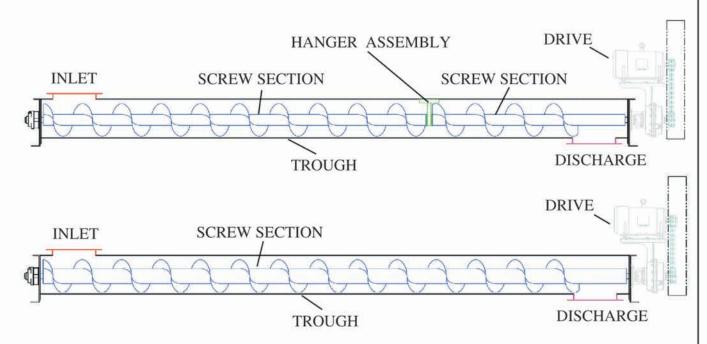
CSC has the experience and manufacturing capability to take bulk material handling equipment from concept to completion. CSC has been building bulk material handling equipment since the 1920s, working at the current location in Saint Joseph, MO since 1976. The company operated under the name Continental Screw Conveyor until 2013. The company was renamed Conveyance Solutions by Continental to better reflect the wide range of conveyance solutions provided by Continental.

The facility has 60,000 square feet of manufacturing space with a comprehensive machine shop, large fabrication section and versatile paint/finish area, along with engineering and administrative offices. The main focus is the design and manufacturing of industrial duty bulk material handling equipment, particularly screw conveyors, bucket elevators and belt conveyors. The approach from the start is building equipment to fit a particular application instead of having the customer compromise their requirements to fit standard equipment. With equipment installed around the world.,CSC continues to take the extra step to ensure that the right equipment at the most cost-effective price is offered to complete each individual job.

NOTE: Environmental as well as many other conditions vary with each installment. As a result, the information included in this catalog is intended merely as a guide to equipment selection. CSC does not warrant that adherence to these guidelines will result in proper selection, manufacture or maintenance of conveyor equipment. Unless there are written specifications or recommendations pursuant to a written contractual commitment, CSC hereby disclaims all responsibility for any equipment and/or system malfunction, any violations of law, property damage, personal injury or any other damages resulting from equipment and/or system selection, design, installation, maintenance or operation carried out by the contractor or user.

SCREW CONVEYORS

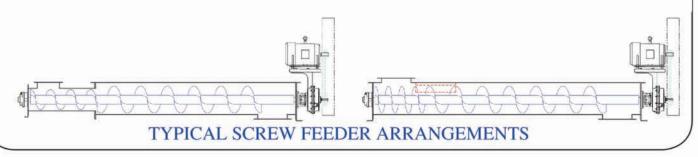
Screw conveyors are designed to have material loaded into them by a controlled feed, receiving a uniform and continuous amount of product. The unit conveys the material to the discharge at a consistent rate. Advantages of using screw conveyors include the ability to have multiple inlets and discharges, a low number of moving parts and conveying material in a dust tight manner. CSC specializes in building heavy duty units for particular applications, designing each unit to meet specific requirements.



TYPICAL SCREW CONVEYOR ARRANGEMENTS

SCREW FEEDERS

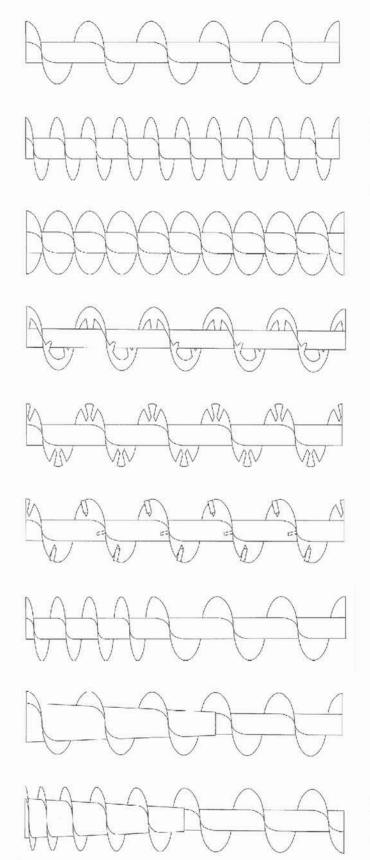
Screw feeders are designed to be flood fed, so that regardless of the amount of material in a hopper above the inlet the volumetric output rate will remain constant. It is this trait that makes screw feeders a critical part of a system, as they set the rate of material flow for the equipment downstream. A series of independent screw feeders can be used to unload a large collecting tank or silo. This arrangement allows for varied material rates to be pulled from different storage areas and improved reliability as one unit can be isolated for inspection/maintenance without shutting down the rest of the system. The alternative is to use a multiple screw unit which feeds from a wide area while maintaining a low stack up height and requiring fewer drives.



SCREW CONVEYOR OPTIONS

-		
Mate	erial of	Units can be built from carbon steel, various grades of stainless steel,
Cons	truction	aluminum and other alloys
	afety ritches	Used to sense the operating condition or speed of the unit, mounted to read an external shaft or sense through the trough wall to detect screw movement within the unit. Limit switches are standard on drop bottoms and cover mounted inspection doors.
HARDES C	anger arings	Depending on factors such as material handled and temperature, hanger bearings in units may be engineered nylon, polyethylene, wood or hard iron. For particular applications more specialized non-stock hanger bearings are available such as ceramic, Rulon and Stellite.
	oors	Inspection ports on covers and drop bottoms on troughs are common options for equipment observation and maintenance. Supplied with safety grates and limit switches for operator safety.
98	haft eals	Seals for drive and tail shafts can range from common wastepack and packing gland seals to elaborate mechanical seals. Factors in selecting the correct seal include material handled, temperature and angle of incline.
34.45	Veld nishes	The finish of the interior welds of a unit will range from standard wire brush cleaning to a food grade level with a high degree of polish and no pits or crevices.
Di	rives	The style of the drive may be selected by the customer, with options such as shaft mounted reducers, direct drive and chain and sprocket arrangements as some of the possibilities.
Tro	oughs	Standard U-trough, flared and rectangular with angle or formed flanges. Options include external jackets for heating and cooling along with drop bottom sections for easier maintenance on units.
Co	overs	Available in flat, flanged and hip roof designs. Means of attachment include bolting, screw clamps, spring clamps and toggle clamps. In special applications plexiglass sections may be used for observation of unit in operational state.
Hards	surfacing	Available on perimeter edge of flights, faces of flights and on screw section pipe. Applied by automated plasma transfer arc system, hardsurfacing material is fused with base material to increase service life of screw section. Commonly used in applications with glass cullet, gypsum, flyash and other highly abrasive materials.

SCREW SECTION STYLES



Standard Full Pitch

Used for conveying material horizontally or on slight inclines.

Half Pitch

Used in screw feeders, also in conveyors where material is being conveyed up an incline.

Double Flight Full Pitch

Used in conveyors where an even discharge of materials is required.

Ribbon

Used in conveyors to convey sticky materials.

Cut

Used in conveyors where mixing materials is desired.

Cut and Fold

Used in conveyors where high levels of mixing materials and increased retention time is desired.

Varied Pitch

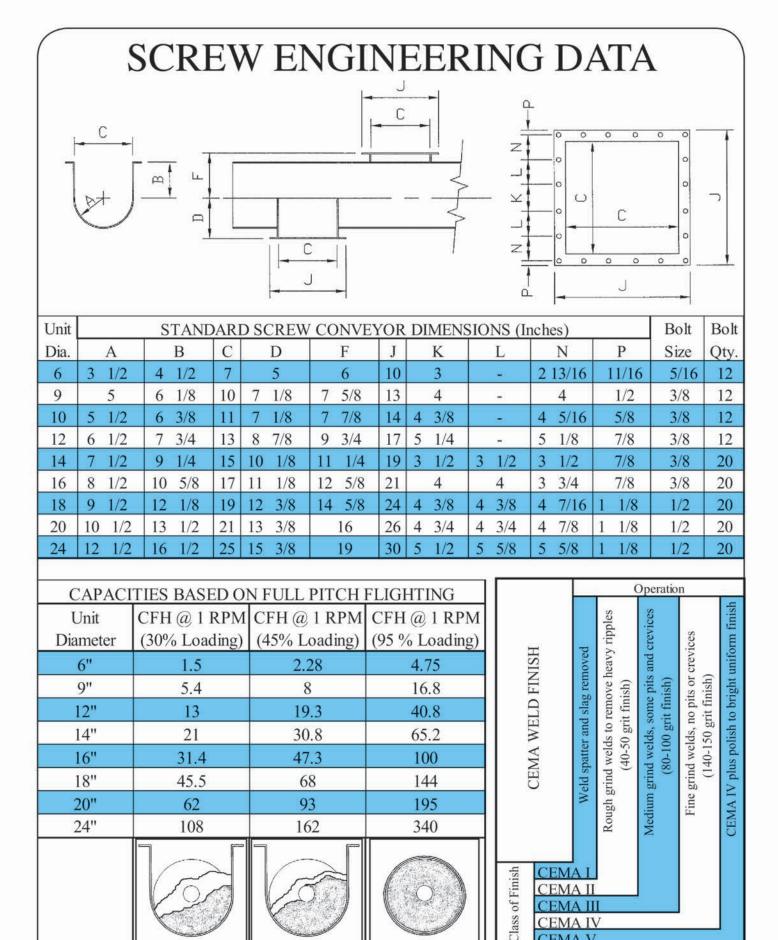
Used in screw feeders, short pitch below inlet, full pitch beyond to allow material loading to drop.

Cone with Consistent Pitch

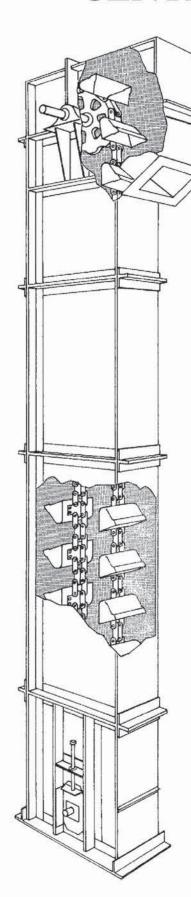
Used in screw feeders where an even loading across the inlet length is desired.

Cone with Varied Pitch

Used in screw feeders where a specific loading across the inlet length is desired.



CENTRIFUGAL ELEVATORS



Centrifugal bucket elevators are used to handle fine free flowing materials. The buckets travel at speeds high enough to discharge material by centrifugal force as they pass around the head sprocket/pulley. Casings can be made from carbon steel, stainless steel and other harder materials as required by the application. The main advantage of a centrifugal elevator over a continuous elevator is the ability to dig out of the boot, allowing for a lower feed point which can reduce pit costs. The two primary types of centrifugal elevators are chain and belt. Chain elevators will handle the nonabrasive materials while belt elevators will handle more abrasive material as long as there are no slivers or sharp pieces.

Design options for the units include various drive configurations, internal or external take-ups along with

Design options for the units include various drive configurations, internal or external take-ups along with molded or fabricated buckets. Maintenance options include service platforms, rest platforms and access ladders with cage, all which meet OSHA guidelines. Materials handled by centrifugal elevators include bentonite, borax, cement, coal, coke, glass batch, gypsum, lime, salt, sand, sugar and other free flowing materials where product degradation is not a problem.

CENTRIFUGAL BUCKET ELEVATOR CAPACITIES

CHAIN E	LEVATORS	BELT ELEVATORS			
MODEL	CAPACITY	MODEL	CAPACITY		
SC6420	288 CFH	SB6420	288 CFH		
SC8524	614 CFH	SB8524	614 CFH		
SC10624	1,051 CFH	SB10624	1,051 CFH		
SC12730	1,768 CFH	SB12730	1,710 CFH		
SC14730	2,138 CFH	SB14730	2,070 CFH		
SC16824	2,550 CFH	SB16824	2,652 CFH		
SC16830	3,160 CFH	SB16830	3,060 CFH		

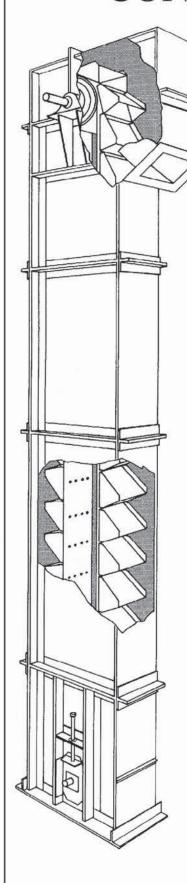
Key To Elevator Models

Style - Bucket Width - Bucket Projection - Pulley/Sprocket Diameter

SC = Centrifugal Chain

SB = Centrifugal Belt

CONTINUOUS ELEVATORS



Continuous bucket elevators are used to handle heavy materials with large lumps. The buckets travel at lower speeds to allow for minimum material degradation and reduced wear on equipment. The main advantages of a continuous elevator over a centrifugal elevator is the large lump size capacity and the gentle manner in which the material is conveyed. In both chain and belt versions of the continuous elevator the backside of a bucket helps form the discharge chute for the following bucket.

Design options for the units include various drive configurations, internal or external take-ups along with molded or fabricated buckets. Maintenance options include service platforms, rest platforms and access ladders with cage, all which meet OSHA guidelines.

Materials handled by continuous elevators include aluminum chips, aluminum oxide, baking powder, pelletized carbon black, charcoal, cement, coal, cork, gypsum, lime, limestone, pumice, salt, slag, light soda ash and other materials that have low densities and are sensitive to product degradation.

CONTINUOUS BUCKET ELEVATOR CAPACITIES

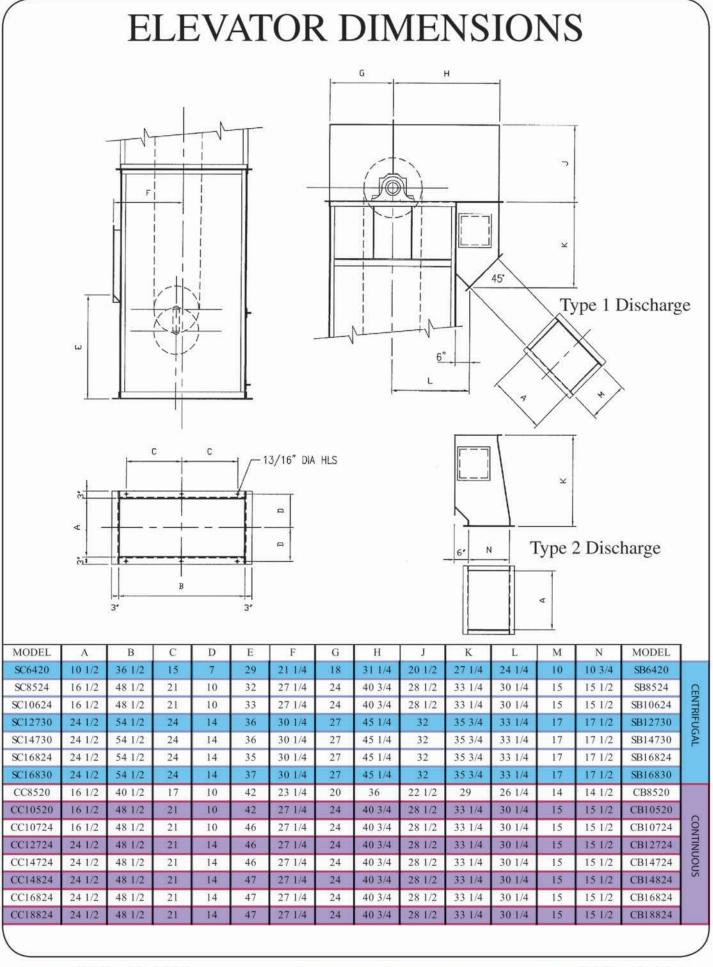
CHAIN E	LEVATORS	BELT ELEVATORS		
MODEL	CAPACITY	MODEL	CAPACITY	
CC8520	675 CFH	CB8520	675 CFH	
CC10520	842 CFH	CB10520	842 CFH	
CC10724	1080 CFH	CB10724	1,080 CFH	
CC12724	1,293 CFH	CB12724	1,293 CFH	
CC14724	1,518 CFH	CB14724	1,518 CFH	
CC14824	1,815 CFH	CB14824	1,815 CFH	
CC16824	2,080 CFH	CB16824	2,080 CFH	
CC18824	2,340 CFH	CB18824	2,340 CFH	

Key To Elevator Models

Style - Bucket Width - Bucket Projection - Pulley/Sprocket Diameter

SC = Centrifugal Chain

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BELT CONVEYORS

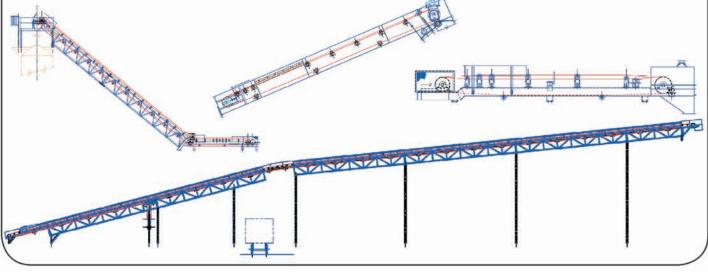
Belt conveyors are used to move large amounts of material using a minimal amount of horsepower. These conveyors can be provided in sizes from small capacity 18" feeders with short single welded channel fame assembly up to high capacity 48" wide conveyors several hundred feet long with 20'-0" or 40'-0" truss sections.

CSC offers the two most common types of construction, channel frame and truss frame. Channel frame conveyors are built with 6", 8" and 10" channel frame and handle spans ranging from 15 feet to 20 feet depending on the conveyor width. Truss frame conveyors allow for longer spans and larger widths, giving the capability to handle higher capacities. Trusses are available in 24" to 48" depth for standard units all the way up to 60" depth for height capacity units with wide belts. In addition to these standard construction belt conveyors CSC offers several specialty type conveyors. Examples of these include flexible sidewall conveyors in inclined, 'Z' and 90 degree configurations, along with slider belt conveyors with stainless steel and UHMW slider beds. Height inclined cleated belt conveyors for moving free flowing material in near vertical arrangement are also available with a wide variety of cleat designs and arrangements. Standard conveyors are typically open on the carry and return side but covers are available. The units can be fitted with full radius covers for the top carrying side to decrease the amount of dust generated. The lower return side of belt conveyors can be made with fabricated covers which reduce the dust generated and also collect any spilled material that would otherwise fall from the unit. Enclosed belt conveyors are useful where dust containment and product isolation are priorities. Different from standard conveyors with covers attached, enclosed units feature an integrated cover which is part of the conveyor structure itself. These units offer the dust containment benefit of a screw conveyor without the risk of product degradation during the conveyance of the material. Available in carbon and stainless steel construction, units can be placed in both horizontal and inclined installations.



BELT CONVEYOR OPTIONS

Material of Construction	Units can be built from carbon steel, various grades of stainless steel, aluminum and other alloys.
Safety Switches	Switches inlcude zero speed switches, alignment switches and plug switches. The zero speed switch is usually tail mounted while an alignment switch is common at the center of units over 150 feet in length. Plug switches are used in discharge chutes to detect excessive material.
Idlers	CEMA B, C and D series idlers are available in 4", 5" and 6" diameter rolls set at 20°, 35° and 45° configurations. Other options include impact idlers, self training idlers and return idlers, along with specialized items such as impact beds.
Conveyor Belting	Available in a variety of cover thicknesses and compositions to handle material of varying sizes, abrasiveness and temperatures. Along with various base materials, there are multiple belt styles available for particular applications. The styles include standard flat, flat with surface profile, flat with cleats and flexible sidewall designs.
Covers	Formed fabricated covers are available along with standard full radius styles. The covers are available in stainless, aluminum, painted carbon steel and galvanized carbon steel.
Drives	The style of the drive may be selected by the customer, with options such as shaft mounted reducers, direct drive and chain and sprocket arrangements as some of the possibilities.
Discharge	With selection depending on the material being conveyed, UHMW,
Chute Liners	AR400, ceramic and other liners are available.
Cleaners	Primary and secondary blade cleaners are available in a wide variety of styles and materials. Also available are brush cleaners and V-plows for special return belt cleaning applications.



BELT CONVEYOR ENGINEERING

C.	CAPACITIES (CFH) WITH 20° TROUGHED BELT AT 100 FPM						
Belt Width	0° S.A.	5° S.A.	10° S.A.	15° S.A.	20° S.A.	25° S.A.	30° S.A.
18"	537	653	769	886	1,005	1,128	1,254
24"	1,041	1,258	1,477	1,698	1,924	2,155	2,394
30"	1,708	2,060	2,414	2,772	3,137	3,511	3,897
36"	2,538	3,057	3,579	4,107	4,645	5,196	5,765
42"	3,533	4,250	4,972	5,703	6,447	7,210	7,997
48"	4,691	5,640	6,594	7,560	8,544	9,552	10,592

C	CAPACITIES (CFH) WITH 35° TROUGHED BELT AT 100 FPM						
Belt Width	0° S.A.	5° S.A.	10° S.A.	15° S.A.	20° S.A.	25° S.A.	30° S.A.
18"	864	964	1,066	1,169	1,274	1,381	1,492
24"	1,668	1,857	2,048	2,241	2,438	2,640	2,847
30"	2,733	3,039	3,346	3,658	3,975	4,300	4,636
36"	4,058	4,508	4,961	5,419	5,886	6,364	6,857
42"	5,644	6,266	6,891	7,524	8,169	8,830	9,511
48"	7,491	8,312	9,138	9,974	10,825	11,698	12,598

S.A. = Surcharge Angle of material (angle to the horizontal assumed by the surface of a material at rest on a moving belt, ranges from 0 to 20 degrees below the angle of repose). Refer to the Material Characteristics page in the back for approximate S.A. values.

RECOMMENDED MAXIMUM BELT SPEED					
Material Being Conveyed	Belt Speeds (FPM)	Belt Width			
	500	18			
Grain or other non-abrasive free flowing material	700	24-30			
	800	36-42			
	1,000	48-60			
	400	18			
Coal, damp clay, fine crushed stone	600	24-36			
	800	42-60			
Foundry sand (prepared or damp)	350	18-60			
Non-abrasive materials when discharged from belt by a plow	200	18-60			
Fine non-abrasive or mildly abrasive materials when belt conveyor fed from hopper	20-100	18-60			

MATERIAL CHARACTERISTICS

Material Description	Density PCF	Angle of Repose	Material Description	Density PC F	Angle of Repose
Adipic Acid	45		Granite, Fines	80-90	20-29
Alumina	55-65	22	Graphite, Flour	28	36M.362
Alumina, Sized or Briquette	65		Graphite, Ore	65-75	
Aluminum Oxide	60-120	29	Gypsum, Calcined	55-60	
Aluminum, Ore See Bauxite	00-120		Gypsum, Calcined, Powdered	60-80	
Ashes, Coal, Dry - 1/2"	35-45	45	Gypsum, Raw - 1"	70-80	
Bagasse	7-10	45	Hops, Spent, Dry	35	
Baking, Powder	40-55	150	Hops, Spent, Wet	50-55	
Baking, Soda	40-55		Iron Ore, Concentrate	120-180	35
Bark, Wood, Refuse	10-20	45	Iron Oxide Pigment	25	7.7
Barley, Fine Ground	24-38	23	Kaolin Clay	63	35
Barley, Malted	31	23	Kaolin Clay, Tale	42-56	7.2
Bauxite, Crushed - 3"	75-85	30-44	Lead Ore, -1/2"	180-230	30
Bauxite, Dry, Ground	68	31	Lead Ore, -1/8"	200-270	30
Bentonite - 100 Mesh	50-60	42	Lead Oxide, -100 Mesh Red Lead	30-150	45
Bentonite, Crude	34-40	42-44	Lead Oxide, -200 Mesh Red Lead	30-180	45
Borax, Fines	45-55	11=11111	Lime, Ground, Unslaked	60-65	43
Brewer's Grain, Spent, Dry	14-30	45	Lime, Hydrated	40	40
Brewer's Grain, Spent, Wet	55-60	45	Lime, Hydrated, Pulverized	32-40	40
Calcium Carbide	70-90	30-44	Lime, Pebble	53-56	30
Calcium Carbonate See Limestone	70-20	50.11	Limestone, Agricultural	68	30-44
Calcium Hydrate See Lime, Hydrated			Limestone, Crushed	85-90	38
Calcium Phosphate	40-50		Limestone, Dust	55-95	2.00
Calcium Sulfate See Gypsum	40-50		Manganese Ore	125-140	39
Carbon, Black, Pelleted*	20-25	25	Paper, Pulp, -4%	62	19
Carbon, Black, Peneted	*	30-44	Paper, Pulp, 6% to 15%	60-62	19
Cement, Aerated Portland	60-75	30-11	Phosphate Rock, Pulverized	60	40
Cement, Clinker	75-95	30-44	Polyvinyl Chloride, Pellets	20-30	- 10
Cement, Mortar	133	20-77	Polyvinyl Chloride, Powder	20-30	
Cement, Portland	94	30-44	Salt, Dry, Coarse	45-60	
Charcoal, Ground	18-28	35	Salt, Dry, Fine	70-80	25
Charcoal, Lumps	18-28	35	Sand, Dry Bank, Damp	110-130	45
Clay (Bentonite, Fuller's Earth, Kaoiln)	60-80	35	Sand, Dry Bank, Dry	90-110	35
Clay, Dry, Lumpy	60-75	35	Sand, Foundry, Shake Out	90-110	39
Clinker, Cement See Cement, Clinker	00-73	35	Sand, Silica, Dry	90-100	20-29
Coal, Anthracite, Culm and River	55-61	35	Sand, Sinea, Dry Sawdust, Dry	10-13	36
Coal, Anthracite, Sized - 1/2"	49-61	27	Slag, Blast Furnace, Crushed	130-180	25
Coal, Bituminous, Mined	40-60	45	Slag, Furnace, Granular, Dry	60-65	25
Coal, Bituminous, Mined Coal, Bituminous, Mined, Sized	45-55	35	Sludge, Sewage, Dry	40-50	20
Coal, Bituminous, Mined, Slack	43-50	40	Sludge, Sewage, Dry, Ground	45-55	
Coal, Lignite	37-45	38	Soap, Detergent	15-50	
Cocoa, Powdered	30-35	50	Soap, Powder	20-25	
Coffee, Ground, Dry	25		Soda Ash, Heavy	55-65	32
Coffee, Ground, Wet	35-45		Soda Ash, Light	20-35	37
Coke, Breeze	25-35	30-44	Sodium Bicarbonate See Baking Soda	20-33	5.7
Coke, Loose	25-35	30-44	Sodium Borate See Borax		
Coke, Petrol, Calcimined	35-45	30-44	Sodium Carbonate See Soda Ash		
Cullet, Fines	80-120	30-44	Sodium Chloride See Salt		
Cullet, Lumps	80-120	30-44	Sodium Phosphate	50-60	37
Detergent See Soap, Detergent	00-120	KY TT	Starch	25-50	24
Diatomaceous Earth	11-17	30-44	Sugar, Refined, Granulated, Dry	50-55	30-44
Distiller's Grain, Spent, Dry	30	29.77	Sulphur, Powdered	50-60	30-44
Distiller's Grain, Spent, Wet	40-60		Talcum, Powder	50-60	- June
Dolomite, Crushed	80-100	30-44	Tobacco, Scraps	15-25	45
Feldspar, Ground	65-80	30-44	Urea Prills, Coated	43-46	45
Flue Dust, Blast Furnace	110-125	20	Wood, Chips, Screened	10-30	45
Flyash	30-45	4.0	Wood, Chips, Screened Wood, Flour	16-36	13
Fuller's Earth, Dry, Raw	30-43	23	Wood, Flour Wood, Shavings	8-16	
Fuller's Earth, Oily, Spent	60-65	20-29	Zinc Oxide, Heavy	30-35	45-55
	37	20-22	Zinc Oxide, Heavy Zinc Oxide, Light	10-15	45-55
Gilsonite Glass, Batch		0-10			43
THUSS INDICE	80-100	0-10	Zinc, Concentrate, Residue	75-80	

* Data listed is presented as a guideline and should be verified prior to use

* To determine surcharge angle (S.A.) of a material use the table to the right

* For materials not on list please contact us to review application

Angle of Repose	Surcharge Angle		
0°-19°	5°		
20°-29°	10°		
30°-34°	20°		
35°-39°	25°		
40° and up	30°		

REQUEST FOR QUOTATION

Name Company Address	Phone Fax E-Mail		
Inquiry Data O Firm Price (Requires 7-14 Days) O Budget Price +/- 10% Type of Equipment O Screw Conveyor O Bucket Elevator O Belt Conveyor O Other	Length / Height O Centerline to Centerline O Overall Angle of Incline Drive Motor O Yes O TEFC O No O Explosion Proof		
Requested Schedule Quote Due (/ /) Order Placed (/ /) Delivery (/ /)	Material of Construction O Mild Steel O Stainless Steel (Type) O Other		
Material to be Conveyed Material Density Size Temperature Moisture	Required PPH CFH		
Equipment Fed By (Required Information) Sketch			



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