SECTION II

DESIGN AND LAYOUT SECTION II

Classes of Enclosures

Conveyors can be designed to protect the material being handled from a hazardous surrounding or to protect the surroundings from a hazardous material being conveyed.

This section establishes recommended classes of construction for conveyor enclosures — without regard to their end use or application. These several classes call for specific things to be done to a standard conveyor housing to provide several degrees of enclosure protection.

Enclosure Classifications

Class IE — Class IE enclosures are those provided primarily for the protection of operating personnel or equipment, or where the enclosure forms an integral or functional part of the conveyor or structure. They are generally used where dust control is not a factor or where protection for, or against, the material being handled is not necessary — although as conveyor enclosures a certain amount or protection is afforded.

Class IIE — Class IIE enclosures employ constructions which provide some measure of protection against dust or for, or against, the material being handled.

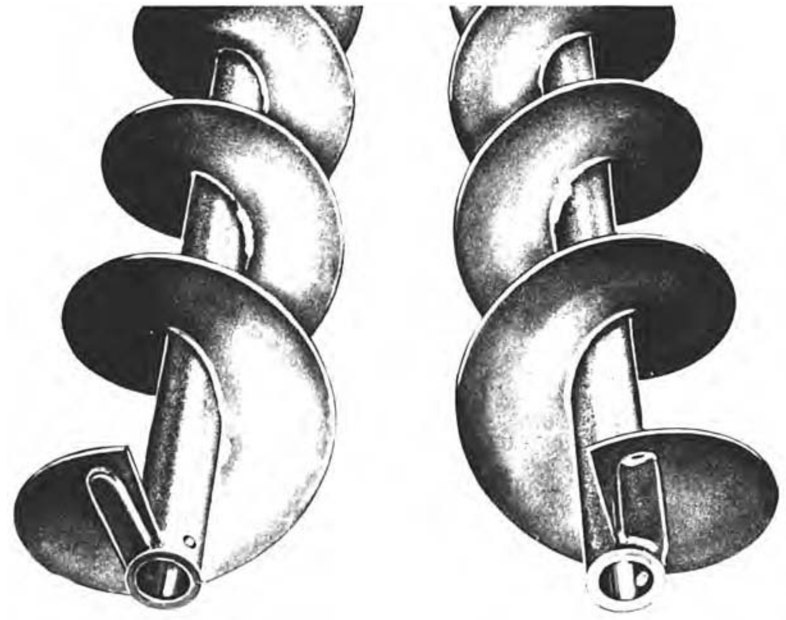
Class IIIE — Class IIIE enclosures employ constructions which provide a higher degree of protection in these classes against dust, and for or against the material being handled.

Class IVE — Class IVE enclosures are for outdoor applications and under normal circumstances provide for the exclusion of water from the inside of the casing. They are not to be construed as being water-tight, as this may not always be the case.

When more than one method of fabrication is shown, either is acceptable.

Enclosure Construction

Component Classification	Enclosure Classifications			
	I E	II E	III E	IV E
A. TROUGH CONSTRUCTION				
Formed & Angle Top Flange				
1. Plate type end flange				
a. Continuous arc weld	X	X	X	X
b. Continuous arc weld on top of end flange and trough top rail	X	X	X	X
2. Trough Top Rail Angles (Angle Top trough only)				
a. Staggered intermittent arc and spot weld	X			
b. Continuous arc weld on top leg of angle on inside of trough and intermittent arc weld on lower leg of angle to outside of trough		X	X	X
c. Staggered intermittent arc weld on top leg of angle on inside of trough and intermittent arc weld on lower leg of angle to outside of trough, or spot weld when mastic is used between leg of angle and trough sheet		X	X	X
B. COVER CONSTRUCTION				
1. Plain flat				
a. Only butted when hanger is at cover joint	X			
b. Lapped when hanger is not at cover joint	X			
2. Semi-Flanged				
a. Only butted when hanger is at cover joint	X	X	X	X
b. Lapped when hanger is not at cover joint	X			
c. With buttstrap when hanger is not at cover joint		X	X	X
3. Flanged				
a. Only butted when hanger is at cover joint		X	X	X
b. Buttstrap when hanger is not at cover joint		X	X	X
4. Hip Roof				
a. Ends with a buttstrap connection				X
C. COVER FASTENERS FOR STANDARD GA. COVERS				
1. Spring, screw or toggle clamp fasteners or bolted construction				
a. Max. spacing plain flat covers	60″			
b. Max. spacing semi-flanged covers	60″	30″	18″	18″
c. Max. spacing flanged and hip-roof covers		40″	24″	24″
D. GASKETS				
1. Covers				
a. Red rubber or felt up to 230° F		X	X	
b. Neoprene rubber, when contamination is a problem		X	X	
c. Closed cell foam type elastic material to suit temperature rating of gasket		X	X	X
2. Trough End flanges				
a. Mastic type compounds		X	X	X
b. Red rubber up to 230° F		X	X	X
c. Neoprene rubber, when contamination is a problem		X	X	
d. Closed cell foam type elastic material to suit temperature rating of gasket		X	X	X
E. TROUGH END SHAFT SEALS*				
1. When handling non-abrasive materials			X	X
2. When handling abrasive materials	X	X	X	X
*Lip type seals for non-abrasive materials Felt type for mildly abrasive materials Waste type for highly abrasive materials				



Left Hand Right Hand

Right and Left Hand Screws

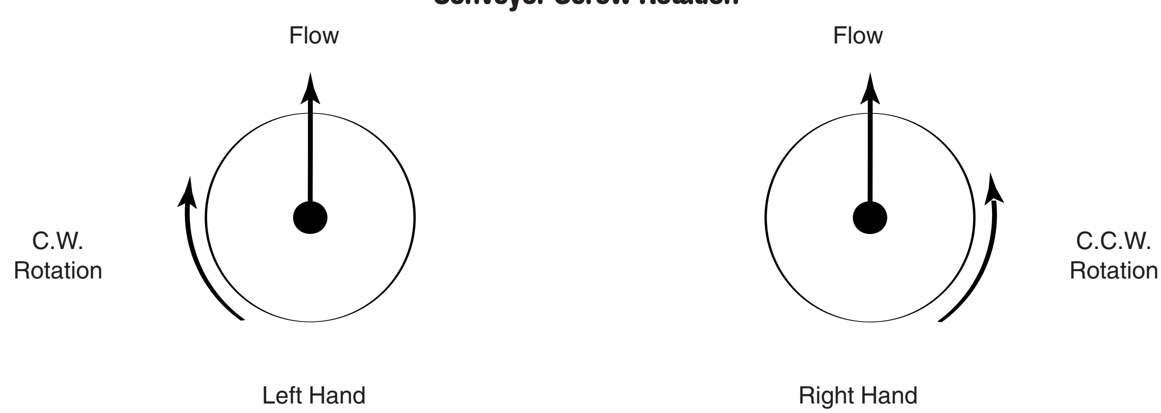
A conveyor screw is either right hand or left hand depending on the form of the helix. The hand of the screw is easily determined by looking at the end of the screw.

The screw pictured to the left has the flight helix wrapped around the pipe in a counter-clockwise direction, or to your left. Same as left hand threads on a bolt. This is arbitrarily termed a LEFT hand screw.

The screw pictured to the right has the flight helix wrapped around the pipe in a clockwise direction, or to your right. Same as right hand threads on a bolt. This is termed a RIGHT hand screw.

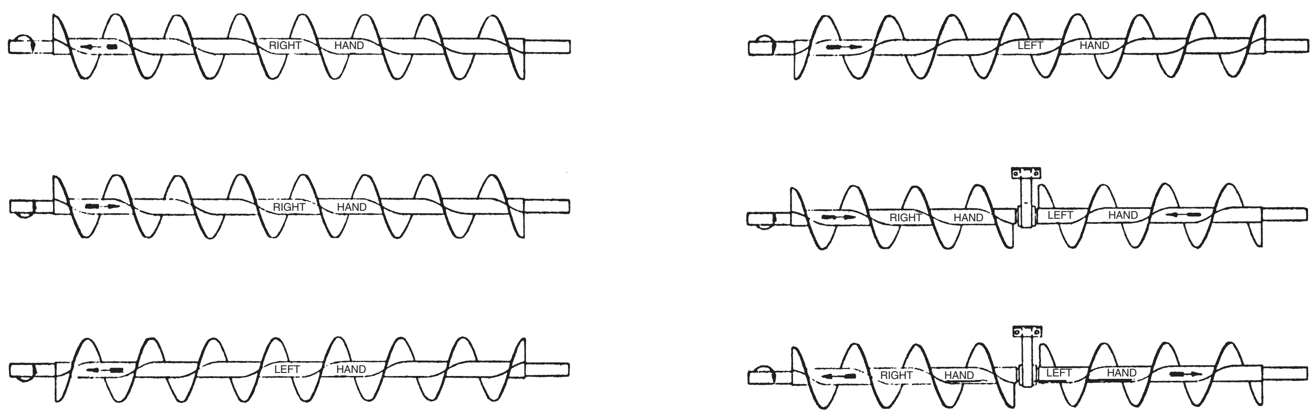
A conveyor screw viewed from either end will show the same configuration. If the end of the conveyor screw is not readily visible, then by merely imagining that the flighting has been cut, with the cut end exposed, the hand of the screw may be easily determined.

Conveyor Screw Rotation



The above diagrams are a simple means of determining screw rotation. When the material flow is in the direction away from the end being viewed, a R.H. screw will turn counter clockwise and a L.H. screw will turn clockwise rotation as shown by the arrows.

Conveyor Screw Rotation



The above diagram indicates the hand of conveyor screw to use when direction of rotation and material flow are known.

Special Screw Conveyor Continuous Weld Finishes

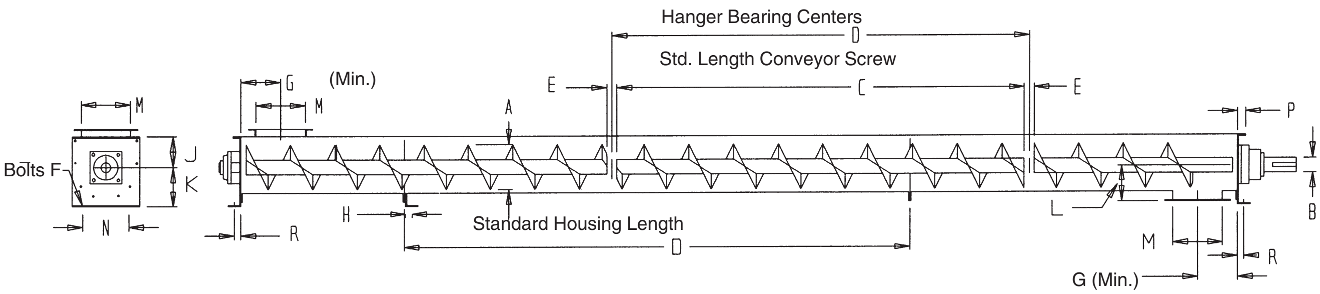
Specifications on screw conveyor occasionally include the term “grind smooth” when referring to the finish on continuous welds. This specification is usually used for stainless steel, but occasionally it will appear in carbon steel specifications as well.

“Grind smooth” is a general term and subject to various interpretations. This Table establishes recommended classes of finishes, which should be used to help find the class required for an application.

Operation	Class of Finish				
	I	II	III	IV	V
Weld spatter and slag removed	X	X	X	X	X
Rough grind welds to remove heavy weld ripple or unusual roughness (Equivalent to a 40-50 grit finish)		X			
Medium grind welds — leaving some pits and crevices (Equivalent to a 80-100 grit finish)			X		
Fine grind welds — no pits or crevices permissible (Equivalent to a 140-150 grit finish)				X	X
Polish to a bright uniform finish					X

* **Contact factory for available material surface finishes.**

Trough

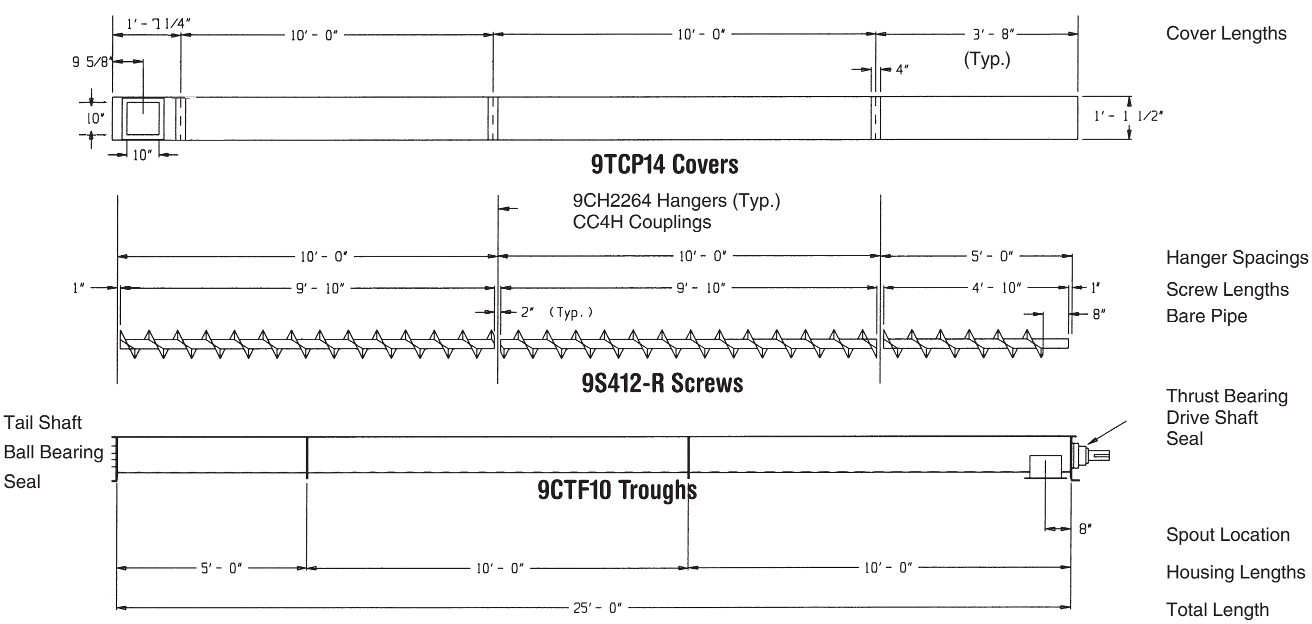


A Screw Diameter	B Coupling Diameter	C Length	D Length	E	F Bolts	G (Min.)	H	J	K	L	M	N	P	R
4	1	9-10½	10	1½	⅜	4½	⅞	3⅝	4⅝	3¾	5	5¾	1⁷⁄₁₆	1
6	1½	9-10	10	2	⅜	6	¹³⁄₁₆	4½	5⅝	5	7	8⅛	1½	1
9	1½ 2	9-10	10	2	½	8	1⁵⁄₁₆	6⅛	7⅞	7⅛	10	9⅜	1⅝	1½
10	1½ 2	9-10	10	2	½	9	1⁹⁄₁₆	6⅜	8⅞	7⅞	11	9½	1¾	1¾
12	2 2⁷⁄₁₆ 3	11-10 11-9 11-9	12	2 3 3	⅝	10½	1⅜	7¾	9⅝	8⅞	13	12¼	2	1⅝
14	2⁷⁄₁₆ 3	11-9	12	3	⅝	11½	1⅜	9¼	10⅞	10⅛	15	13½	2	1⅝
16	3	11-9	12	3	⅝	13½	1¾	10⅝	12	11⅛	17	14⅞	2½	2
18	3 3⁷⁄₁₆	11-9 11-8	12	3 4	⅝	14½	1¾	12⅛	13⅜	12⅜	19	16	2½	2
20	3 3⁷⁄₁₆	11-9 11-8	12	3 4	¾	15½	2	13½	15	13⅜	21	19¼	2½	2¼
24	3⁷⁄₁₆	11-8	12	4	¾	17½	2¼	16½	18⅛	15⅜	25	20	2½	2½

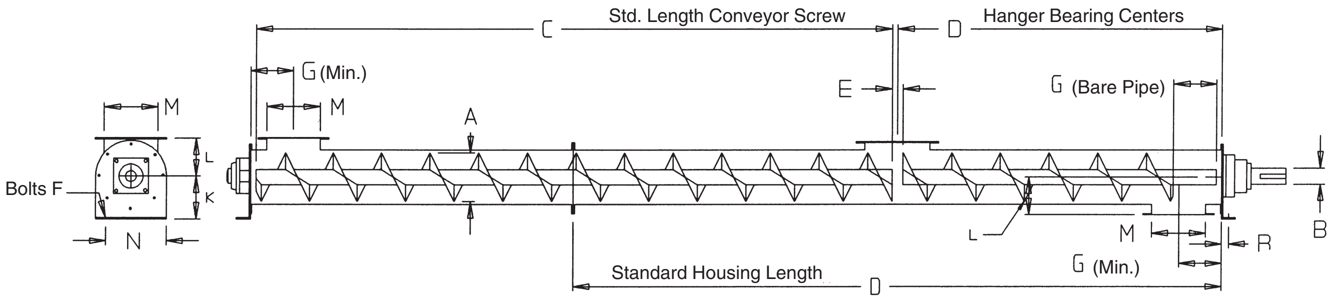
Screw clearance at trough end is one half of dimension E

Typical Method of Detailing

9″ × 2″ × 25´-0″ Conveyor



Tubular Trough Housing

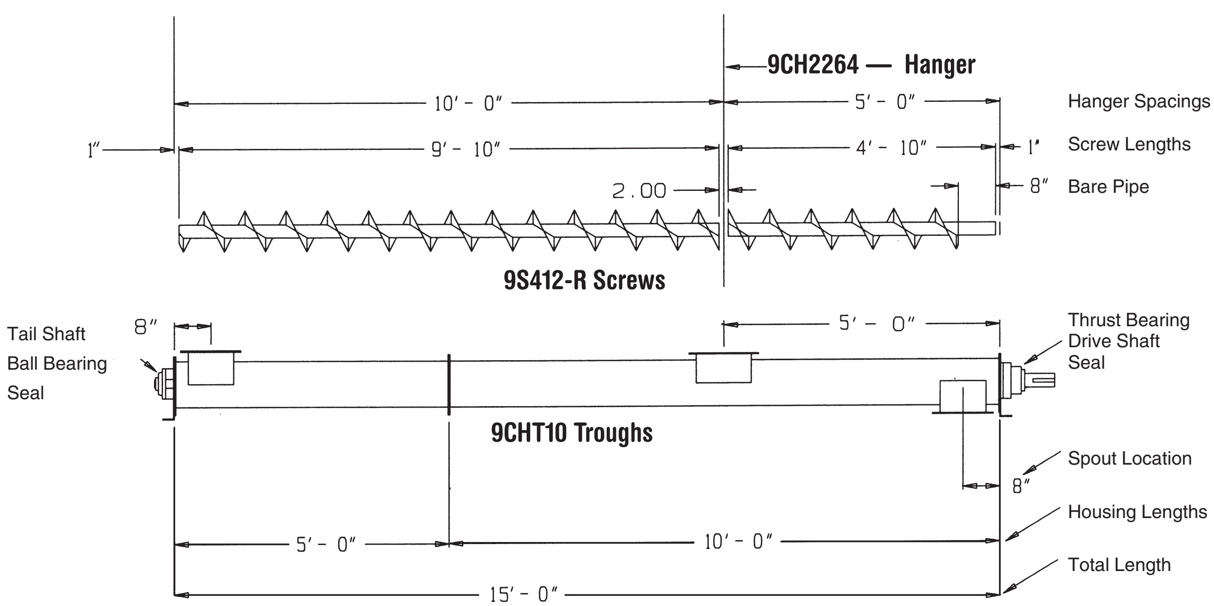


A Screw Dia.	B Coupling Dia.	C Length	D Length	E	F Bolts	G (Min.)	H	J	K	L	M	N	P	R
4	1	9-10½	10	1½	⅜	4½	⅞	3⅝	4⅝	3¾	5	5¾	1 7/16	1
6	1½	9-10	10	2	⅜	6	13/16	4½	5⅝	5	7	8⅛	1½	1
9	1½ 2	9-10	10	2	½	8	1 5/16	6⅛	7⅞	7⅛	10	9⅜	1⅝	1½
10	1½ 2	9-10	10	2	½	9	1 9/16	6⅜	8⅞	7⅞	11	9½	1¾	1¾
12	2 2 7/16 3	11-10 11-9 11-9	12	2 3 3	⅝	10½	1⅜	7¾	9⅝	8⅞	13	12¼	2	1⅝
14	2 7/16 3	11-9	12	3	⅝	11½	1⅜	9¼	10⅞	10⅛	15	13½	2	1⅝
16	3	11-9	12	3	⅝	13½	1¾	10⅝	12	11⅛	17	14⅞	2½	2
18	3 3 7/16	11-9 11-8	12	3 4	⅝	14½	1¾	12⅛	13⅜	12⅜	19	16	2½	2
20	3 3 7/16	11-9 11-8	12	3 4	¾	15½	2	13½	15	13⅜	21	19¼	2½	2¼
24	3 7/16	11-8	12	4	¾	17½	2¼	16½	18⅛	15⅜	25	20	2½	2½

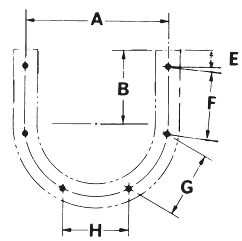
Screw clearance at trough end is one half of dimension E

Typical Method of Detailing

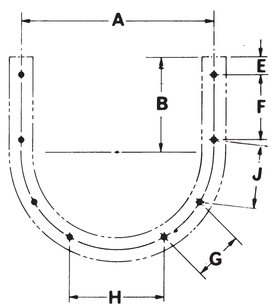
9″ × 2″ × 15′-0″ Conveyor



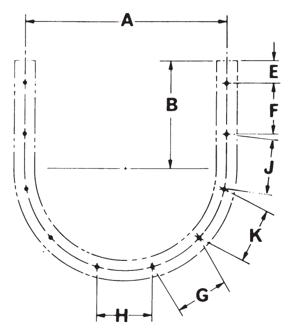
U-Trough End Flanges



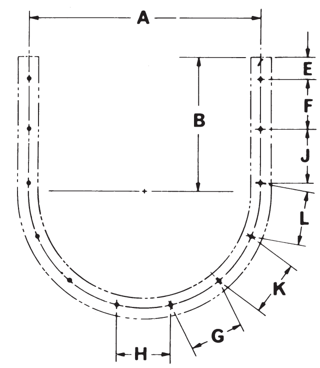
6 Bolts



8 Bolts



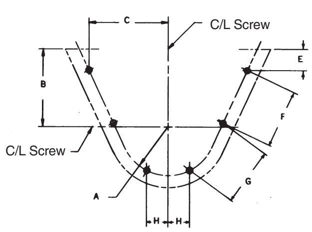
10 Bolts



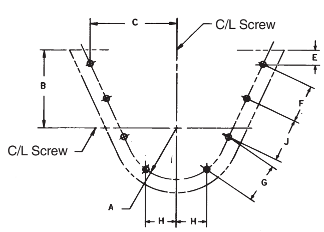
12 Bolts

Screw Diameter	Bolts		A	B	E	F	G	H	J	K	L
	Number	Diameter									
4	6	⅜	7	3⅝	1⅛	3⅛	3⅛	3⅛	—	—	—
6	6	⅜	8⅞	4½	1 1/32	4⅛	4 1/16	4 1/16	—	—	—
9	8	⅜	12½	6⅛	1 3/16	4⅛	3¾	5⅛	4⅛	—	—
10	8	⅜	13¼	6⅜	2¼	3½	4 3/16	5 1/16	4⅛	—	—
12	8	½	15⅞	7¾	1½	5 5/16	4 1/16	7¾	5 3/16	—	—
14	8	½	17⅞	9¼	2 17/32	5⅝	5 15/16	6	5 15/16	—	—
16	8	⅝	20	10⅝	2⅝	6⅜	6⅝	7½	6⅝	—	—
18	10	⅝	22	12⅛	2 23/32	5 15/16	5⅞	5⅞	5⅞	5⅞	—
20	10	⅝	24⅜	13½	2 25/32	6¼	6 11/16	6 11/16	6 11/16	6 11/16	—
24	12	⅝	28½	16½	2 25/32	6⅛	6⅝	6⅝	6⅝	6⅝	6⅝

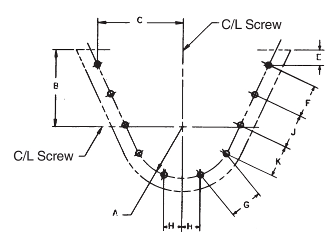
Flared Trough End Flanges



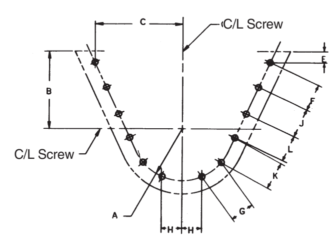
6 Bolts



8 Bolts



10 Bolts

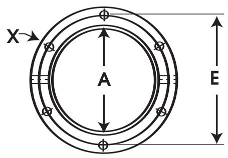


12 Bolts

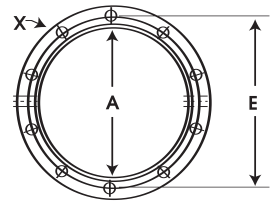
Screw Diameter Inches	Bolts		A	B	C	E	F	G	H	J	K	L
	Diameter Number	Holes	Inches									
6	⅜	6	4 7/16	7	7 3/16	1 27/32	5¼	5¼	2 1/32	—	—	—
9	⅜	8	6¼	9	9 21/32	1 43/64	5	5	2 9/16	5	—	—
12	½	8	7 15/16	10	11 13/16	1 13/16	5¾	5¾	3⅞	5¾	—	—
14	½	10	8 15/16	11	12 49/64	2 1/16	5⅛	5⅛	3	5⅛	5⅛	—
16	⅝	10	10	11½	14 11/16	2 15/64	5½	5½	3¾	5½	5½	—
18	⅝	10	11	12⅛	16	2⅝	6 3/16	6 3/16	2 15/16	6 3/16	6 3/16	—
20	⅝	10	12 3/16	13½	17⅞	2 9/32	7	7	3 11/32	7	7	—
24	⅝	12	14¼	16½	20 61/64	2 5/16	6⅞	6⅞	3 5/16	6⅞	6⅞	6⅞

thomas conveyor company®

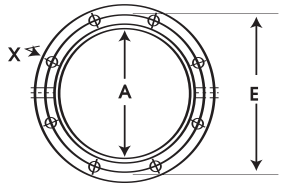
Tubular Housing Flanges



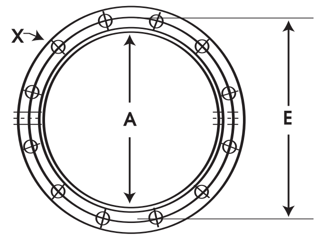
6 bolts



10 bolts

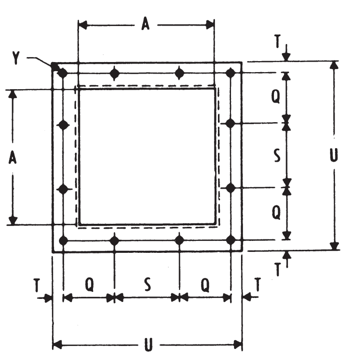


8 bolts

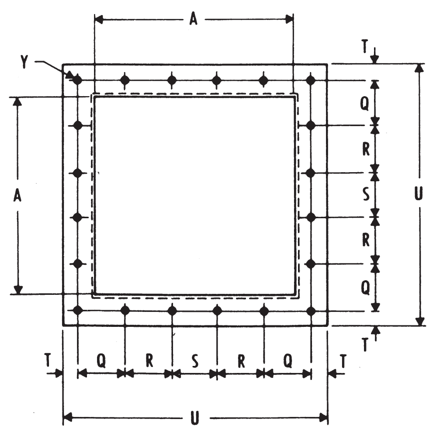


12 bolts

Intake & Discharge Flanges



12 bolts



20 bolts

Screw Size	Flange Bolts		A	E	Q	R	S	T	U
	Tubular X	Discharge Y							
4	6—⅜	12—¼	5	7	2¼	—	2¼	⅜	7½
6	8—⅜	12—⅜	7	8⅞	2 13/16	—	3	11/16	10
9	8—⅜	12—⅜	10	11⅞	4	—	4	½	13
10	8—⅜	12—⅜	11	13¼	4 5/16	—	4⅜	⅝	14¼
12	8—½	12—⅜	13	15	5⅛	—	5¼	⅞	17¼
14	8—½	20—⅜	15	17	3½	3½	3½	⅞	19¼
16	8—⅝	20—⅜	17	19½	3¾	4	4	⅞	21¼
18	10—⅝	20—½	19	22	4 7/16	4⅜	4⅜	1⅛	24¼
20	10—⅝	20—½	21	24⅜	4⅞	4¾	4¾	1⅛	26¼
24	12—⅝	20—½	25	28½	5⅝	5⅝	5½	1⅛	30¼

Note: The above tubular flange patterns effective 1/1/05.

Bolt Requirements Related to Conveyor Trough Sizes

Part Name	4"	6"	9"	10"	12"	14"	16"	18"	20"	24"
Flange, Trough	6 - 3/8 x 1	6 - 3/8 x 1	8 - 3/8 x 1	8 - 3/8 x 1	8 - 1/2 x 1 1/4	8 - 1/2 x 1 1/4	8 - 5/8 x 1 1/2	10 - 5/8 x 1 1/2	10 - 5/8 x 1 1/2	12 - 5/8 x 1 1/2
Flange, Tubular Trough	6 - 3/8 x 1	8 - 3/8 x 1	8 - 3/8 x 1	8 - 3/8 x 1	8 - 1/2 x 1 1/4	8 - 1/2 x 1 1/4	8 - 5/8 x 1 1/2	10 - 5/8 x 1 1/2	10 - 5/8 x 1 1/2	12 - 5/8 x 1 1/2
Ends, Trough										
Inside	6 - 3/8 x 1	6 - 3/8 x 1	8 - 3/8 x 1	8 - 3/8 x 1	8 - 1/2 x 1 1/4	8 - 1/2 x 1 1/4	8 - 5/8 x 1 1/2	10 - 5/8 x 1 1/2	10 - 5/8 x 1 1/2	12 - 5/8 x 1 1/2
Inside Discharge	2 - 3/8 x 1	2 - 3/8 x 1	4 - 3/8 x 1	4 - 3/8 x 1	4 - 1/2 x 1 1/4	4 - 1/2 x 1 1/4	4 - 5/8 x 1 1/2	4 - 5/8 x 1 1/2	4 - 5/8 x 1 1/2	6 - 5/8 x 1 1/2
Inside Rectangular	5 - 3/8 x 1	6 - 3/8 x 1	8 - 3/8 x 1 1/4	8 - 3/8 x 1 1/4	10 - 1/2 x 1 1/2	11 - 1/2 x 1 1/2	12 - 5/8 x 1 1/2	12 - 5/8 x 1 1/2	12 - 5/8 x 1 1/2	12 - 5/8 x 1 1/2
Outside	6 - 3/8 x 1 1/4	6 - 3/8 x 1 1/4	8 - 3/8 x 1 1/4	8 - 3/8 x 1 1/4	8 - 1/2 x 1 1/2	8 - 1/2 x 1 1/2	8 - 5/8 x 1 1/2	10 - 5/8 x 1 3/4	10 - 5/8 x 1 3/4	12 - 5/8 x 1 3/4
Outside Discharge	2 - 3/8 x 1 1/4	2 - 3/8 x 1 1/4	4 - 3/8 x 1 1/4	4 - 3/8 x 1 1/4	4 - 1/2 x 1 1/2	4 - 1/2 x 1 1/2	4 - 5/8 x 1 1/2	4 - 5/8 x 1 3/4	4 - 5/8 x 1 3/4	6 - 5/8 x 1 3/4
Ends, Tubular Trough	6 - 3/8 x 1 1/4	8 - 3/8 x 1 1/4	8 - 3/8 x 1 1/4	8 - 3/8 x 1 1/4	8 - 1/2 x 1 1/2	8 - 1/2 x 1 1/2	8 - 5/8 x 1 1/2	10 - 5/8 x 1 1/2	10 - 5/8 x 1 1/2	12 - 5/8 x 1 1/2
Hanger, Trough										
Style 60	-	4 - 3/8 x 1 1/4	4 - 3/8 x 1 1/4	4 - 3/8 x 1 1/4	4 - 1/2 x 1 1/2	4 - 1/2 x 1 1/2	4 - 1/2 x 1 1/2	4 - 5/8 x 1 3/4	4 - 5/8 x 1 3/4	-
Style 70	-	4 - 3/8 x 1 1/4	4 - 3/8 x 1 1/4	4 - 3/8 x 1 1/4	4 - 1/2 x 1 1/2	4 - 1/2 x 1 1/2	4 - 1/2 x 1 1/2	4 - 5/8 x 1 3/4	4 - 5/8 x 1 3/4	-
Style 216	4 - 1/4 x 1	4 - 3/8 x 1 1/4	4 - 3/8 x 1 1/4	4 - 3/8 x 1 1/4	4 - 1/2 x 1 1/2	4 - 1/2 x 1 1/2	4 - 1/2 x 1 1/2	4 - 5/8 x 1 3/4	4 - 5/8 x 1 3/4	4 - 5/8 x 1 3/4
Style 220	4 - 1/4 x 1	4 - 3/8 x 1 1/4	4 - 3/8 x 1 1/4	4 - 3/8 x 1 1/4	4 - 1/2 x 1 1/2	4 - 1/2 x 1 1/2	4 - 1/2 x 1 1/2	4 - 5/8 x 1 3/4	4 - 5/8 x 1 3/4	4 - 5/8 x 1 3/4
Style 226	4 - 1/4 x 1	4 - 3/8 x 1 1/4	4 - 3/8 x 1 1/4	4 - 3/8 x 1 1/4	4 - 1/2 x 1 1/2	4 - 1/2 x 1 1/2	4 - 1/2 x 1 1/2	4 - 5/8 x 1 3/4	4 - 5/8 x 1 3/4	4 - 5/8 x 1 3/4
Style 230	4 - 1/4 x 1	4 - 3/8 x 1 1/4	4 - 3/8 x 1 1/4	4 - 3/8 x 1 1/4	4 - 1/2 x 1 1/2	4 - 1/2 x 1 1/2	4 - 1/2 x 1 1/2	4 - 5/8 x 1 3/4	4 - 5/8 x 1 3/4	4 - 5/8 x 1 3/4
Style 316	4 - 1/4 x 1	4 - 3/8 x 1	4 - 3/8 x 1	4 - 3/8 x 1 1/4	4 - 1/2 x 1 1/4	4 - 1/2 x 1 1/4	4 - 1/2 x 1 1/4	4 - 5/8 x 1 1/2	4 - 5/8 x 1 1/2	4 - 5/8 x 1 1/2
Style 326	4 - 1/4 x 1	4 - 3/8 x 1	4 - 3/8 x 1	4 - 3/8 x 1 1/4	4 - 1/2 x 1 1/4	4 - 1/2 x 1 1/4	4 - 1/2 x 1 1/4	4 - 5/8 x 1 1/2	4 - 5/8 x 1 1/2	4 - 5/8 x 1 1/2
Covers, Trough	A/R - 3/8 x 1	A/R - 3/8 x 1	A/R - 3/8 x 1	A/R - 3/8 x 1	A/R - 3/8 x 1	A/R - 3/8 x 1	A/R - 3/8 x 1	A/R - 3/8 x 1	A/R - 3/8 x 1	A/R - 3/8 x 1
Saddle - Feet										
Flanged Feet	2 - 3/8 x 1 1/4	2 - 3/8 x 1 1/4	2 - 3/8 x 1 1/4	2 - 3/8 x 1 1/4	2 - 1/2 x 1 1/2	2 - 1/2 x 1 1/2	2 - 5/8 x 1 3/4	2 - 5/8 x 1 3/4	2 - 5/8 x 1 3/4	2 - 5/8 x 1 3/4
Saddle	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spouts, Discharge										
Flange	12 - 1/4 x 1	12 - 3/8 x 1	12 - 3/8 x 1	12 - 3/8 x 1	12 - 3/8 x 1	20 - 3/8 x 1	20 - 3/8 x 1	20 - 1/2 x 1 1/4	20 - 1/2 x 1 1/4	20 - 1/2 x 1 1/4
Flange w/Slide	10 - 1/4 x 1	10 - 3/8 x 1	10 - 3/8 x 1	10 - 3/8 x 1	10 - 3/8 x 1	16 - 3/8 x 1	16 - 3/8 x 1	16 - 1/2 x 1 1/4	16 - 1/2 x 1 1/4	16 - 1/2 x 1 1/4

All bolts hex head cap screws with hex nuts and lock washers.

Bolt Requirements Related to Conveyor Trough Sizes

Part Name	1"	1 1/2"	2"	2 7/16"	3"	3 7/16"
Bearings, End						
Discharge Bronze	3-3/8 x 1 1/4	3-1/2 x 1 1/2	3-5/8 x 1 3/4	3-5/8 x 1 3/4	3-3/4 x 2	3-3/4 x 2 1/4
Discharge Ball	3-3/8 x 1 1/2	3-1/2 x 1 3/4	3-5/8 x 1 3/4	3-5/8 x 2	3-3/4 x 2 1/4	3-3/4 x 2 1/2
Flanged Bronze	4-3/8 x 1 1/4	4-1/2 x 1 1/2	4-5/8 x 1 3/4	4-5/8 x 1 3/4	4-3/4 x 2	4-3/4 x 2 1/4
Flanged Ball	4-3/8 x 1 1/2	4-1/2 x 1 3/4	4-1/2 x 1 3/4	4-5/8 x 2	4-3/4 x 2 1/4	4-3/4 x 2 1/2
Flanged Roller	-	4-1/2 x 2 1/4	4-1/2 x 2 1/4	4-5/8 x 2 1/4	4-3/4 x 3	4-3/4 x 3 1/4
Pillow Block Bronze	2-3/8 x 1 1/2	2-1/2 x 1 3/4	2-5/8 x 2	2-5/8 x 2 1/4	2-3/4 x 2 1/2	2-7/8 x 2 3/4
Pillow Block Ball	2-3/8 x 2 1/4	2-1/2 x 2 1/2	2-5/8 x 2 1/2	2-5/8 x 2 3/4	2-7/8 x 3 1/4	2-7/8 x 3 3/4
Pillow Block Roller	-	2-1/2 x 2 3/4	2-5/8 x 3	2-5/8 x 3 1/4	2-3/4 x 3 3/4	2-7/8 x 4 1/2
Bearings, Thrust						
Type "E" Roller	-	4-1/2 x 3	4-1/2 x 3	4-5/8 x 3 1/2	4-3/4 x 3 3/4	4-3/4 x 4
Coupling Bolts	3/8 x 2 1/16	1/2 x 3	5/8 x 3 5/8	5/8 x 4 3/8	3/4 x 5-3 1/2" Pipe 3/4 x 5 1/2-4" Pipe	7/8 x 5 1/2
Seals, Shafts						
Flanged Gland	-	4-1/2 x 1 3/4	4-1/2 x 1 3/4	4-5/8 x 1 3/4	4-5/8 x 2	4-3/4 x 2
Plate w/Ball or Bronze	-	4-1/2 x 2 1/2	4-1/2 x 2 1/2	4-5/8 x 2 3/4	4-3/4 x 3 3/4	4-3/4 x 3 1/4
Plate w/ Roller	-	4-1/2 x 3	4-1/2 x 3	4-5/8 x 3 1/2	4-3/4 x 3 3/4	4-3/4 x 4
Split Gland	-	2-1/2 x 2	2-1/2 x 2	2-5/8 x 2 1/4	2-5/8 x 2 1/4	2-3/4 x 2 3/4
Waste Pack w/Ball or Bronze	-	4-1/2 x 3 1/2	4-5/8 x 3 1/2	4-5/8 x 3 3/4	4-3/4 x 4	4-3/4 x 5
Waste Pack w/Roller	-	4-1/2 x 4	4-1/2 x 4	4-5/8 x 4 1/2	4-3/4 x 4 3/4	4-3/4 x 5 1/2

All bolts hex head cap screws with hex nuts and lock washers.

thomas conveyor company®

Pipe Sizes, Dimensions and Weights

Nominal Pipe Size Inches	Outside Diameter Inches	I.P.S. Schedule			Wall Inches	Inside Diameter Inches	Wt./Ft. Pounds
⅛	.405		10S		.049	.307	.1863
		40	40S	Est	.068	.269	.2447
		80	80S	Ex. Hvy.	.095	.215	.3145
¼	.540		10S		.065	.410	.3297
		40	40S	Est.	.088	.364	.4248
		80	80S	Ex. Hvy.	.119	.302	.5351
⅜	.675		10S		.065	.545	.4235
		40	40S	Std.	.091	.493	.5676
		80	80S	Ex. Hvy.	.126	.423	.7388
½	.840		5S		.065	.710	.5383
			10S		.083	.674	.6710
		40	40S	Est.	.109	.622	.8510
		80	80S	Ex. Hvy.	.147	.546	1.088
		160			.187	.466	1.304
				XX Hvy.	.294	.252	1.714
¾	1.050		5S		.065	.920	.6838
			10S		.083	.884	.8572
		40	40S	Std.	.113	.824	1.131
		80	80S	Ex. Hvy.	.154	.742	1.474
		160			.218	.614	1.937
				XX Hvy.	.308	.434	2.441
1	1.315		5S		.065	1.185	.8678
			10S		.109	1.097	1.404
		40	40S	Std.	.133	1.049	1.679
		80	80S	Ex. Hvy.	.179	.957	2.172
		160			.250	.815	2.844
				XX Hvy.	.358	.599	3.659
1¼	1.660		5S		.065	1.530	1.107
			10S		.109	1.442	1.806
		40	40S	Std.	.140	1.380	2.273
		80	80S	Ex. Hvy.	.191	1.278	2.997
		160			.250	1.160	3.765
				XX Hvy.	.382	.896	5.214
1½	1.900		5S		.065	1.770	1.274
			10S		.109	1.682	2.085
		40	40S	Std.	.145	1.610	2.718
		80	80S	Ex. Hvy.	.200	1.500	3.631
		160			.281	1.338	4.859
				XX Hvy.	.400	1.100	6.408
2	2.375		5S		.065	2.245	1.604
			10S		.109	2.157	2.638
		40	40S	Std.	.154	2.067	3.653
		80	80S	Ex. Hvy.	.218	1.939	5.022
		160			.343	1.689	7.444
				XX Hvy.	.436	1.503	9.029
2½	2.875		5S		.083	2.709	2.475
			10S		.120	2.635	3.531
		40	40S	Std.	.203	2.469	5.793
		80	80S	Ex. Hvy.	.276	2.323	7.661
		160			.375	2.125	10.01
				XX Hvy.	.552	1.771	13.69
3	3.500		5S		.083	3.334	3.029
			10S		.120	3.260	4.332
		40	40S	Est.	.216	3.068	7.576
		80	80S	Ex. Hvy.	.300	2.900	10.25
		160			.438	2.624	14.32
				XX Hvy.	.600	2.300	18.58
3½	4.000		5S		.083	3.834	3.472
			10S		.120	3.760	4.973
		40	40S	Std.	.226	3.548	9.109
		80	80S	Ex. Hvy.	.318	3.364	12.50
4	4.500		5S		.083	4.334	3.915
			10S		.120	4.260	5.613
		40	40S	Est.	.237	4.026	10.79
		80	80S	Ex. Hvy.	.337	3.826	14.98
		120			.438	3.624	19.00
		160			.531	3.438	22.51
				XX Hvy.	.674	3.152	27.54
5	5.563		5S		.109	5.345	6.349
			10S		.134	5.295	7.770
		40	40S	Est.	.258	5.047	14.62
		80	80S	Ex. Hvy.	.375	4.813	20.78
		120			.500	4.563	27.04
		160			.625	4.313	32.96
				XX Hvy.	.750	4.063	38.55
6	6.625		5S		.109	6.407	7.585
			10S		.134	6.357	9.289
		40	40S	Std.	.280	6.065	18.97
		80	80S	Ex. Hvy.	.432	5.761	28.57
		120			.562	5.491	36.39
		160			.718	5.189	45.30
				XX Hvy.	.864	4.897	53.16
8	8.625		5S		.109	8.407	9.914
			10S		.148	8.329	13.40
		20			.250	8.125	22.36
		30			.277	8.071	24.70
		40	40S	Est.	.322	7.981	28.55
		60			.406	7.813	35.64
		80	80S	Ex. Hvy.	.500	7.625	43.39
		100			.593	7.439	50.87
		120			.718	7.189	60.63
		140			.812	7.001	67.76
				XX Hvy.	.875	6.875	72.42
		160			.906	6.813	74.69
10	10.750		5S		.134	10.482	15.19
			10S		.165	10.420	18.70
		20			.250	10.250	28.04
		30			.307	10.136	34.24
		40	40S	Std.	.365	10.020	40.48
		60	80S	Ex. Hvy.	.500	9.750	54.74
		80			.593	9.564	64.33
		100			.718	9.224	76.93
		120			.843	9.064	89.20
		140			1.000	8.750	104.1
		160			1.125	8.500	115.7

NOTE:
Weights shown are in pounds per foot, based on the average wall of the pipe. The following formula was used in calculating the weight per foot.

$W = 10.68 (D - t)t$

W = Weight in pounds per foot (to 4 digits)
D = Outside Diameter in inches (to 3 decimal places)
t = Wall thickness in decimals (to 3 decimal places)

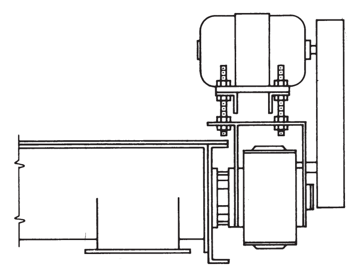
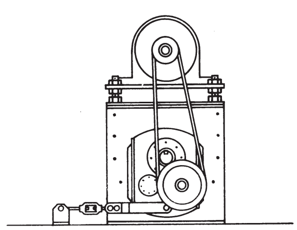
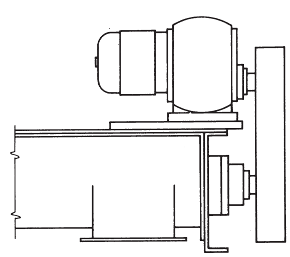
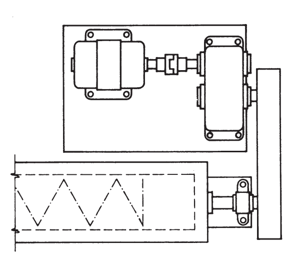
All weights are carried to four digits only, the fifth digit being carried forward if five or over, or dropped if under five.

Typical Drive Arrangements

The most common types of drives for Screw Conveyors are illustrated below.

In addition to those shown, other types availble are: variable speed drives, hydraulic drives, and take-off drives for connection to other equipment.

For special drive requirements, consult our Engineering Department.

Screw Driver Reducer	 (Side View)	Reducer mounts on trough end, and is directly connected to the conveyor screw and includes integral thrust bearing, seal gland, and drive shaft. Motor mount may be positioned at top, either side, or below. Separate drive shaft, end bearing, and seal are not required.
Shaft Mounted Reducer	 (End View)	Reducer mounts on conveyor drive shaft. Motor and "V"-Belt drive may be in any convenient location. The torque arm may be fastened to the floor, or fitted to trough end. Requires extended drive shaft, end bearing, and seal.
Gearmotor Drive	 (Side View)	Integral motor-reducer with chain drive to conveyor drive shaft. Usually mounted to top of trough by means of an adapter plate.
Base Type Reducer Drive	 (Top View)	Motor direct-coupled to base type reducer, with chain drive to conveyor drive shaft. Usually mounted on floor or platform as close as possible to conveyor.

thomas conveyor company®

Sample Horsepower Work Sheet

Client: ______________________ Date Quote Due: ______________________

Conveyor No.: ______________________ Inquiry No.: ______________________

Table 1-2

_______ Dia. ⑨ Length **L** = ______________________ Recommended % Trough Loading: ______________________

Material: ______________________ Materal HP Factor: F_M = ______________________

Capacity: ______________________ Component Series: ______________________

Density: **W** = ______________________ Lbs/Ft³ Intermediate Hanger Bearing Series: ______________________

Lumps: Max. Size ___________ in. Class (I) (II) (III) ____ Notes: ______________________

Required Capacity = **C** = ___________ CFH (cubic feet per hour)

$$CFH = \frac{TPH \times 2000}{W}$$

$$CFH = \frac{\text{Pounds per Hour}}{W}$$

CFH = Bushels per Hour ⑨ 1.24

Tables 1-3, 1-4, 1-5

Equivalent Capacity = Req'd Capacity __________ × CF_1 __________ × CF_2 __________ × CF_3 __________ = __________ CFH Equivalent Capacity

Table 1-6

Screw Diameter = ____________________ Select Diameter from 'at max RPM' column where capacity listed equals or exceeds equivalent capacity

Screw RPM = **N** = ____________ = $\frac{\text{Equivalent Capacity}}{\text{Capacity 'at one RPM' for diameter selected}}$

Table 1-7

Check lump size and lump class for diameter selected. If larger screw diameter recommended, recalculate RPM per instructions above for selected diameter.

Tables 1-12, 1-13, 1-14, 1-15, 1-16, 1-17

Values to be substituted in formula: ______ ______ ______ ______ ______
F_d F_b F_f F_p e

$$HP_f = \frac{(\ L\ )(\ N\ )(\ F_d\ )(\ F_b\ )}{1{,}000{,}000} = \_\_\_\_\_\_\_\_\_\_\_\_$$

NOTE: Consult factory for feeder horsepower

$$HP_m = \frac{(\ C\ )(\ L\ )(\ W\ )(\ F_f\ )(\ F_m\ )(\ F_p\ )}{1{,}000{,}000} = \_\_\_\_\_\_\_\_\_\_\_\_$$

If $HP_f + HP_m$ is less than 5.2, select overload factor F_O = __________ (If $HP_f + HP_m$ is greater than 5.2, $F_O = 1.0$)

$$\text{Total HP} = \frac{(HP_f + HP_m)\ Fo}{e} = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_$$

DRIVE: Use ____________ HP motor with AGMA Class (I) (II) (III) Drive at ____________________ Screw RPM

Tables 1-18, 1-19

$$\text{Torque} = \frac{\text{Motor HP} \times 63{,}025}{\text{Screw RPM}} = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \text{ in.-lbs.}$$

List Minimum Size: Shaft Dia. ____________ Pipe ____________ Bolt/Shear ____________ Bolt/Bearing ____________

Tables 1-8, 1-9, 1-10, 1-11

Select Components:
Trough ___________ Screw ___________ Hanger Style ___________ Hanger Bearing ___________ Cover ___________