



***105' DIAMETER NCL TANK  
SIDEDRAW  
INSTRUCTIONS***

Rev: 12-5-03



PNEG-1343



## Installation And Management Of Side Draw Systems

Grain Systems designs and manufacturers bins to the highest standards, however proper installation and good usage practices for a commercial flume system are essential, regardless of manufacturer. The following practices address general usage and installation criteria for such systems.

### A.) SIDE DRAW INSTALLATION:

1.) Side discharge is only permitted in GSI commercial bins when a GSI manufactured side draw flume system has been installed. No corrugated steel bin should be unloaded through the sidewall without installation of such a system and permission of the manufacturer.

2.) Installation of a flume system may require installation of additional wind rings and 1" diameter anchor bolts. Reference the attached pages or the commercial bin section of the GSI sales catalog. Installation of multiple systems requires additional wind rings and must be placed a minimum of 90 degrees apart. Installation of multiple systems requires approval of GSI engineering.

3.) A side draw should not be the only discharge system available. A standard center discharge and conveyor should be installed.

### B.) SIDE DRAW MANAGEMENT AND USAGE:

1.) Side draw systems are intended for use with dry flowable grain. Side draws are not to be used for poorly flowing products. This is not unique to GSI bins and flume systems but is a general rule for such systems.

2.) In multiple system installations only one side draw may be used at any one time.

3.) Filling should not be occurring at the same time as grain is being withdrawn through the side draw flume system.

4.) Prolonged storage of grain in the sloped condition produced by side draw discharge may accelerate differential settlement and result in deformations of the bin/silo. After using the side draw system the sloped grain should be returned to a near level condition by use of the center discharge. Leveling of the grain should also allow more even consolidation of foundation and fill soils and produce more even settlement of the bin/silo.

5.) If geotechnical investigations or past experience indicate significant foundation level soil variations or a site propensity toward differential settlement, side draw usage may be prohibited or severely restricted. In this situation the use of a flume system should be reviewed with geotechnical consultants or the foundation engineer.

**1" Anchor Bolts Required With Sidedraw Systems  
Used With 2.66" Corrugation Commercial Tanks**

CORRUGATION	TANK DIAMETER	TOTAL NUMBER OF 1" ANCHOR BOLTS
2.66"	42'	42
2.66"	48'	48
2.66"	54	54
2.66"	60'	60
2.66"	72'	72
2.66"	75'	75
2.66"	78'	78
2.66"	90'	90
2.66"	105'	105

**Use 1" diameter anchor bolts at all of the required stiffener locations.**

**Additional Wind Rings Required For 2.66" Commercial Tanks  
With Side Draw Chute Systems  
(One System Only)**

	42'		48'		54'		60'		72'		75'		78'		90'		105'		
RINGS	STD	ADD	STD	ADD	STD	ADD	STD	ADD	STD	ADD	STD	ADD	STD	ADD	STD	ADD	STD	ADD	RINGS
37	--	--	--	--	7	1	7	1	7	1	8	1	8	1	--	--	--	--	37
36	--	--	--	--	6	1	6	1	7	1	7	1	7	2	--	--	--	--	36
35	--	--	--	--	6	1	6	1	6	1	7	1	7	1	7	1	--	--	35
34	--	--	--	--	5	1	5	1	6	2	6	2	6	2	6	2	6	2	34
33	--	--	--	--	4	2	4	2	5	2	5	3	5	3	5	3	6	2	33
32	4	1	4	1	4	1	4	1	5	2	5	2	5	2	5	2	5	3	32
31	3	2	3	2	4	1	4	1	4	2	4	2	4	2	4	2	5	3	31
30	3	2	3	2	4	1	4	1	4	1	4	1	4	1	4	2	4	3	30
29	2	1	3	1	3	2	3	2	3	2	3	2	3	2	4	2	4	3	29
28	2	1	2	1	2	2	2	2	2	2	3	2	3	2	3	3	4	3	28
27	1	1	2	1	2	2	2	2	2	2	3	2	3	2	3	3	3	4	27
26	1	1	1	1	2	2	2	2	2	2	2	2	3	2	3	3	3	4	26
25	--	1	1	1	1	2	1	2	2	2	2	2	2	2	3	3	3	4	25
24	--	1	--	1	1	2	1	2	2	2	2	2	2	2	2	3	3	3	24
23	--	1	--	1	1	2	1	2	2	2	2	2	2	2	2	3	2	4	23
22	--	1	--	1	1	2	1	2	2	2	2	2	2	2	2	3	2	3	22
21	--	1	--	1	--	3	1	2	2	2	2	2	2	2	2	3	2	3	21
20	--	1	--	1	--	3	1	2	2	2	2	2	2	2	2	3	2	3	20
19	--	1	--	1	--	3	1	2	1	3	2	2	2	2	2	3	2	3	19
18	--	1	--	1	--	3	1	2	1	3	1	3	2	2	2	3	2	3	18
17	--	1	--	1	--	3	1	2	1	2	1	2	1	2	2	2	2	2	17
16	--	1	--	1	--	3	--	3	1	2	1	2	1	2	1	2	1	2	16
15	--	1	--	1	--	3	--	3	1	2	1	2	1	2	1	1	1	2	15
14	--	1	--	1	--	2	--	2	--	2	--	2	--	2	1	2	1	2	14
13	--	1	--	1	--	1	--	2	--	2	--	2	--	2	--	2	1	1	13
12	--	--	--	--	--	1	--	2	--	2	--	2	--	2	--	2	1	1	12

NOTE: Consult the gage sheet supplied with the tank for complete wind ring quantities and placement for the specific tank the sidedraw is being installed in.

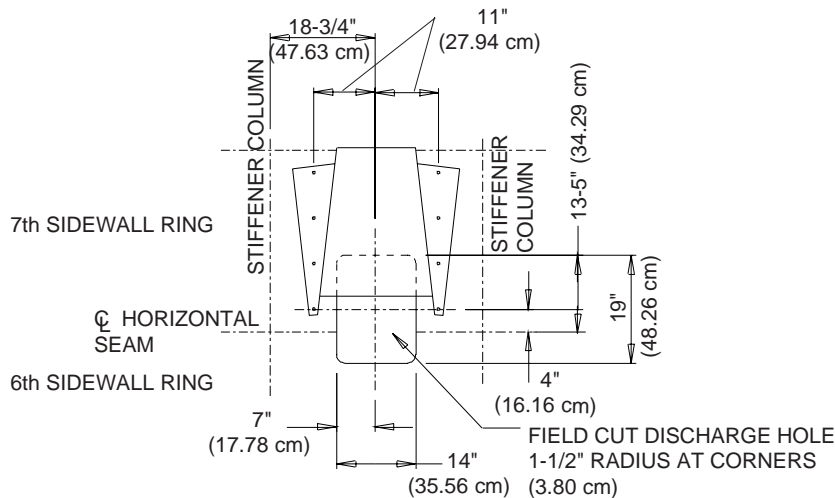
## 105' Dia. Tank 2.66" Side Draw Instructions - 3 Post (Viewed From Inside Of Bin)

**NOTE: Reference PNEG-1000 or PNEG-066 for 90' Dia. and smaller bin sidedraw installation instructions.**

### DISCHARGE TUBE INSTALLATION

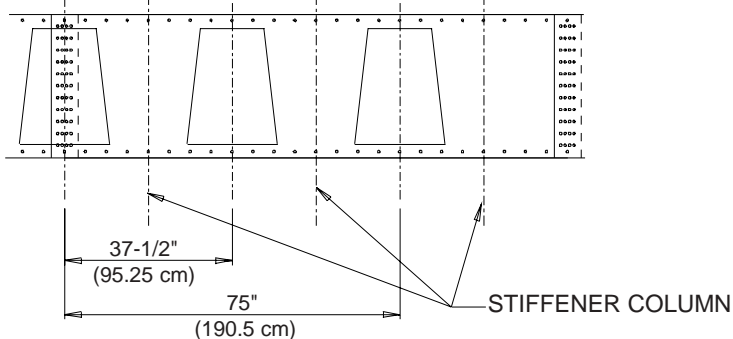
- 1.) Use the bottom 2 holes in the last chute to locate discharge tube 28" below the 7th horizontal seam. Refer to Detail "C" for sidewall sheet hole dimensions.
- 2.) For proper water shed install plate so upper body sheet overlaps the plate, as shown in Detail "D".
- 3.) Use discharge tube assembly as a template, drill all holes 1/2" diameter.
- 4.) Use 2 beads of caulking to seal discharge plate to body sheets. **Use 7/16" diameter bolts & nuts provided to bolt discharge assembly weldment to body sheets.**

NUMBER OF RINGS IN TANK	CHUTE LOCATION HORIZONTAL STARTING LOCATION
ALL	1.) LOCATE 1ST CHUTE IN 2ND RING FROM TOP
	2.) TOP BOLT HOLES IN CHUTE TO BE LOCATED ON 2ND CORRUGATION OF BODY SHEET
11, 14, 17, 20, 23, 26, 29, & 32, 35	3.) CENTER CHUTE 75 INCHES (LEFT TO RIGHT) FROM 1ST HOLE IN 2ND BODY SHEET
10, 13, 16, 19, 22, 25, 28, & 31, 34	3.) CENTER CHUTE 37.500 INCHES (LEFT TO RIGHT) FROM 1ST HOLE IN 2ND BODY SHEET
12, 15, 18, 21, 24, 27, 30, & 33	3.) CENTER CHUTE OVER VERTICAL SEAM.



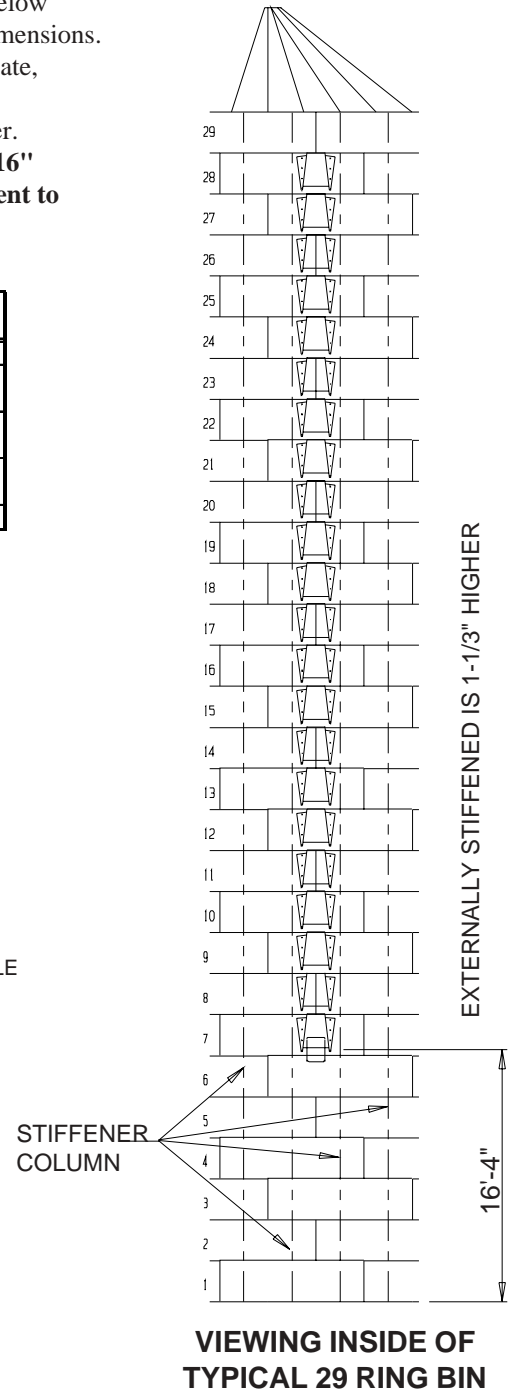
**DETAIL "C"**

### FIRST CHUTE LOCATION



### WIND RING INSTALLATION

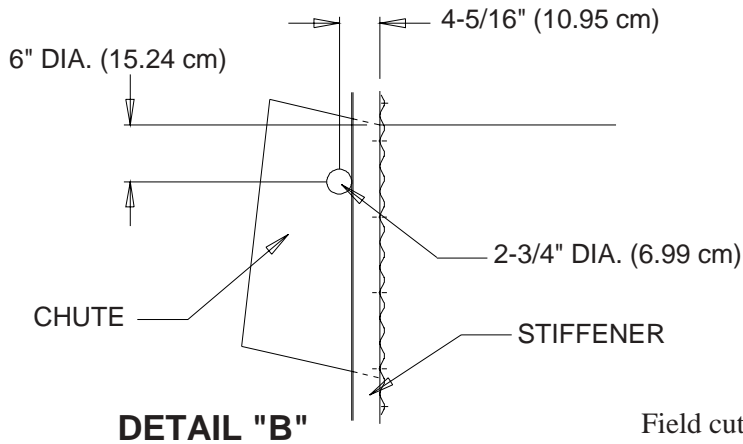
Tanks that use wind rings require 2-3/4" dia. holes passing through the side draw chute; with the center no less than 6" from either end and 4-3/8" from the sidewall. The wind ring must penetrate through the chute and form a complete ring. Do not locate wind ring in 8" space at chute entrance. Field drill stiffeners for wind ring attachment bracket (if required).



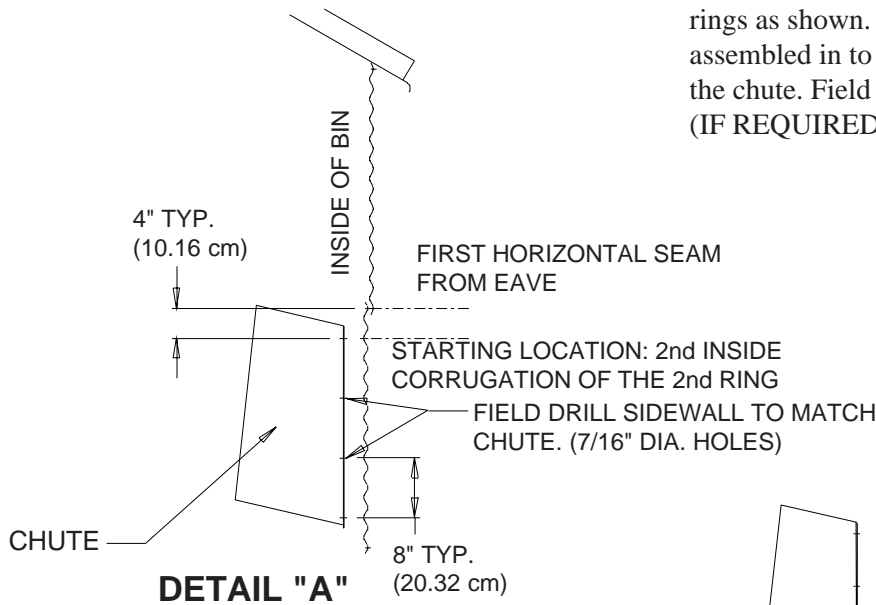
**VIEWING INSIDE OF  
TYPICAL 29 RING BIN**

**NOTE: Unload tube and supports from rack & pinion not provided by G.S.I.**

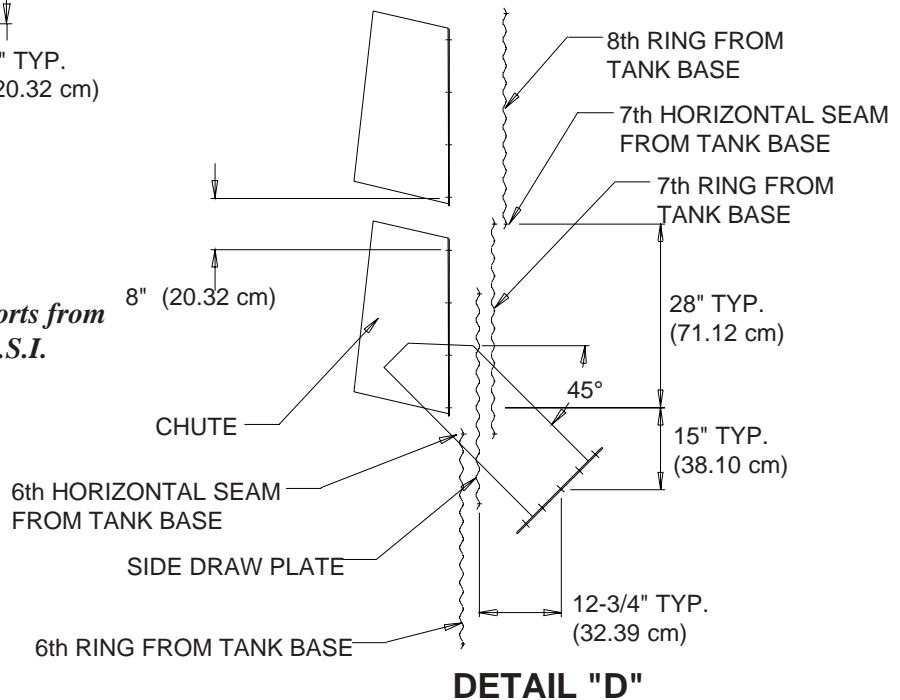
### 2.66" Side Draw Instructions - 3 Post (Internally Stiffened)

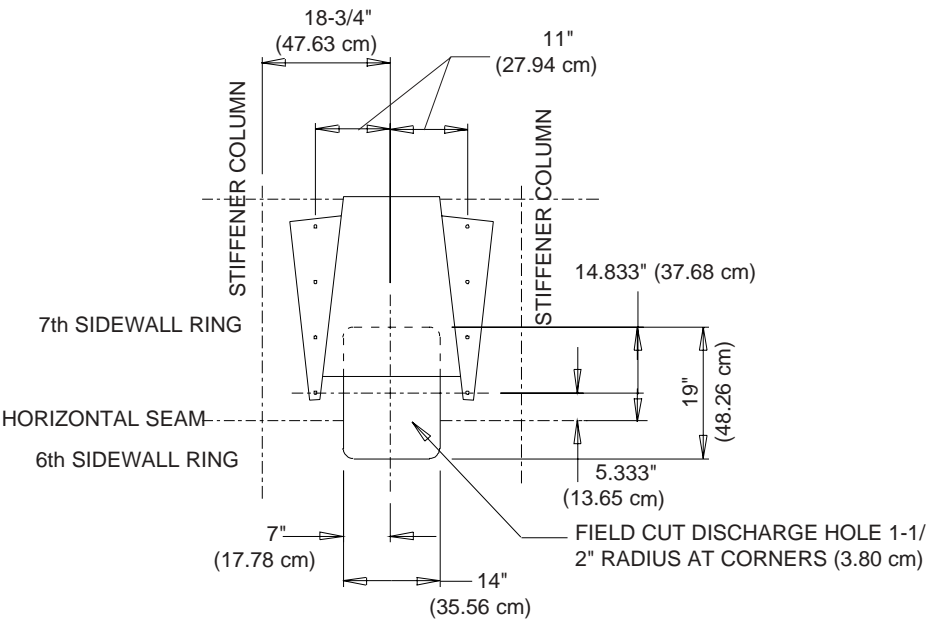


Field cutting of chutes is necessary to install the wind rings. Locate wind rings as shown. The wind ring must be assembled in to a complete ring and penetrate through the chute. Field drill stiffeners for attachment brackets (IF REQUIRED).



**NOTE:** *Unload tubes and supports from rack & pinion not provided bt G.S.I.*

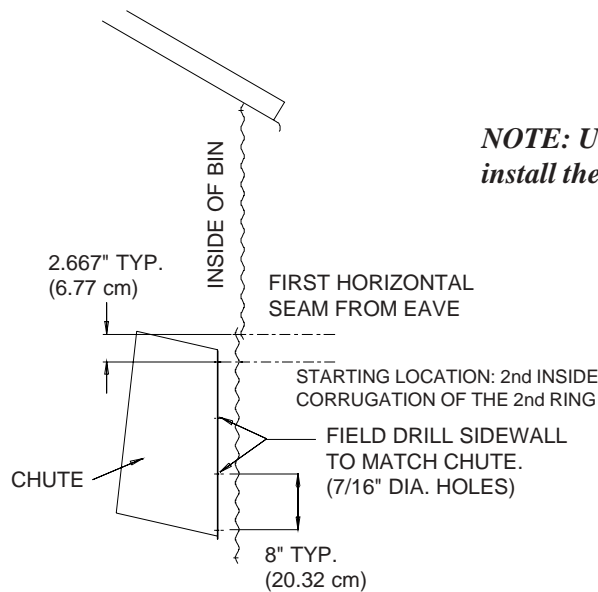




**DETAIL "C"(EXTERNALLY STIFFENED)(3 POST)**



2.66" Side Draw Instructions - 3 Post (Externally Stiffened)

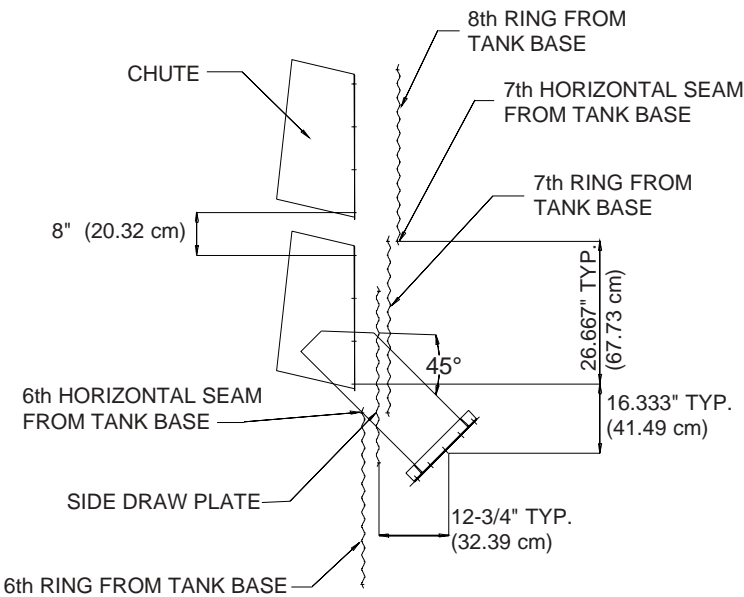


*NOTE: Use 3/8" diameter bolts to install the chute to the sidewall.*

DETAIL "A" (EXTERNALLY STIFFENED)

*NOTE: Unload tubes and supports from rack & pinion down are not provided by G.S.I.*

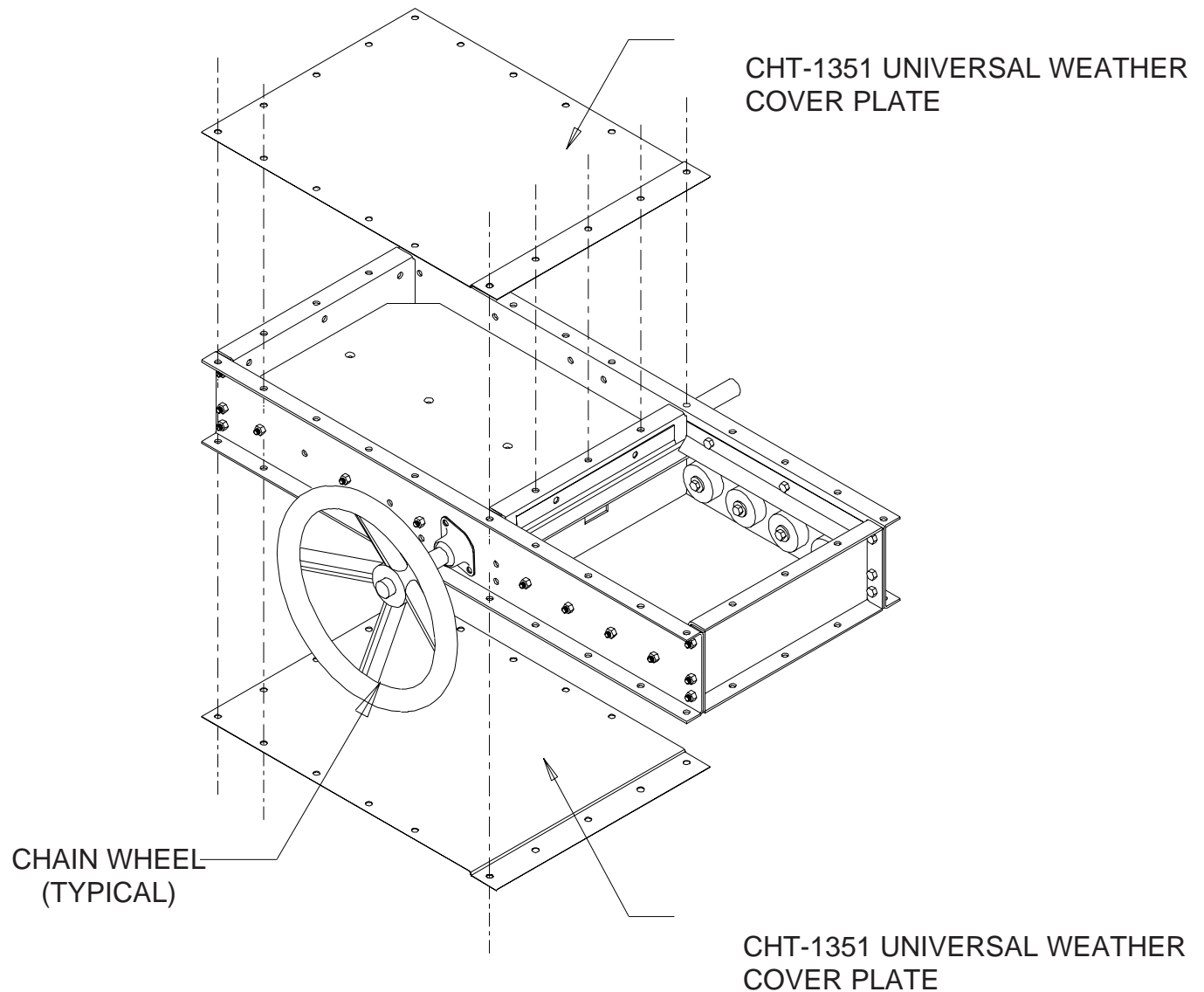
*NOTE: Use 7/16" x 2-1/2" bolts and recessed nuts to install the discharge tube.*



DETAIL "D" (EXTERNALLY STIFFENED)

### Weather Cover Assembly Instructions For Roller Valve

- 1.) Install weather cover kit after gate has been installed.
- 2.) Use bead caulking at all seams where weather cover attaches to gate.
- 3.) Use 5/8" x 3/4" bolts & nuts to plug all holes not in use.
- 4.) Use 1/4" self-drillers to seal gate end plate corners.



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