Wholesale - 2009

H & T Sheet Metal Mfg.

SPIRALS

H & T SHEET METAL MFG.
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H & T Sheet Metal Mfg.

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Spiral Seed Cleaners and Accessories

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Some of... H & T "SPIRAL" GRAVITY CLEANERS

HT-5
HT-25 M10
HT-25
HT-SHORTY
HT-50 M19
HT-50

HT- Enclosed lab Set
HT-50E
HT-100
HT-200

HT-300
HT-400

ALL TYPES OF CORES AVAILABLE
And some more H & T Products .....
SECTION A

LAB SPIRAL HT-5
- **Operates by Gravity**
- **No Power Required**

⇒ **Capacity 5 BPH**

This Separator is used for removing giant morning glory from soybeans. Removes mustard, wild peas, vetch, cockle, soybeans or any round seed from wheat, rye, barley, oats, flaxseed and other grains, screenings or seeds.

**Operates by gravity . . .** The Single separator contains one unit of 5 spiral flights fed from a hopper at the top. The seed leaving the hopper runs over a cone divider which spreads the feed evenly to each of the five flights in each unit. Going down the flights the round kernels travel at a much faster speed than the kernels which are not round. Their momentum increases until the round seeds run over the edge of the inner spirals, drop into the outer spiral, and discharge through a spout at the bottom side of the machine. The non-round seed remains on the small flights and slides down to a separate discharge spout at the bottom near the center of the unit.

**No power required . . .** Since there are no moving parts, no power is required to operate the machine. When the feed has been properly set, the separator continues to operate automatically as long as there is grain in the hopper. Constructed of galvanized non-rust iron in a strong steel frame.

Different pitched spiral core flighting can be offered.

(This flighting can be furnished in Galvanized metal up to 22 gauge & 26 gauge Stainless)

⇒ Figure based on average precleaned soybean seed but may vary depending on precleaning quality, type seed, or required quality of final product.
SECTION B

ONE (1) CORE SINGLE OPEN
HT-25  MID SIZE

With Heavy Duty 16 ga. Hopper


**HT-25 MID SIZE**

Single open
Spiral Separator

**Operates by Gravity**

No Power Required

**Capacity** 25 BPH

This Separator is used for removing giant morning glory from soybeans. Removes mustard, wild peas, vetch, cockle, soybeans or any round seed from wheat, rye, barley, oats, flaxseed and other grains, screenings or seeds.

**Operates by gravity . . .** The Single separator contains one unit of spirals fed from a large hopper at the top, with an adjustable feed cone for the unit. The seed leaving the hopper runs over a cone divider which spreads the feed evenly to each of the five flights in the unit. Going down the flights the round kernels travel at a much faster speed than the kernels which are not round. Their momentum increases until the round seeds run over the edge of the inner spirals, drop into the outer spiral, and discharge through a spout at the bottom side of the machine. The non-round seed remains on the small flights and slides down to a separate discharge spout at the bottom near the center of the unit.

**No power required . . .** Since there are no moving parts, no power is required to operate the machine. When the feed has been properly set, the separator continues to operate automatically as long as there is grain in the hopper. Constructed of galvanized non-rust iron in a strong steel frame.

Different pitched spiral core flighting can be offered.

(This flighting can be furnished in Galvanized metal up to 22 gauge & 26 gauge Stainless)

⇒ Figure based on average precleaned soybean seed but may vary depending on precleaning quality, type seed, or required quality of final product.
SECTION C

ONE (1) CORE SINGLE OPEN
HT-25 (Standard Height)

With Heavy Duty 16 ga. Hopper
With Heavy Duty Hopper

HTZ5
**HT-25**

**Single open Spiral Separator**

**Operates by Gravity**

**No Power Required**

**Capacity** 25 BPH

This Separator is used for removing giant morning glory from soybeans. Removes mustard, wild peas, vetch, cockle, soybeans or any round seed from wheat, rye, barley, oats, flaxseed and other grains, screenings or seeds.

Operates by gravity . . . The Single separator contains one unit of spirals fed from a large hopper at the top, with an adjustable feed cone for the unit. The seed leaving the hopper runs over a cone divider which spreads the feed evenly to each of the five flights in the unit. Going down the flights the round kernels travel at a much faster speed than the kernels which are not round. Their momentum increases until the round seeds run over the edge of the inner spirals, drop into the outer spiral, and discharge through a spout at the bottom of the machine. The non-round seed remains on the small flights and slides down to a separate discharge spout at the bottom near the center of the unit.

No power required . . . Since there are no moving parts, no power is required to operate the machine. When the feed has been properly set, the separator continues to operate automatically as long as there is grain in the hopper. Constructed of galvanized non-rust iron in a strong steel frame.

Different pitched spiral core flighting can be offered.

(This flighting can be furnished in Galvanized metal up to 22 guage & 26 guage Stainless)

⇒ Figure based on average precleaned soybean seed but may vary depending on precleaning quality, type seed, or required quality of final product.
<table>
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<tr>
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<th>Millimeters</th>
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<td>B</td>
<td>12 1/2</td>
<td>317.50</td>
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<tr>
<td>C</td>
<td>6 3/4</td>
<td>170.95</td>
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<tr>
<td>D</td>
<td>23</td>
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<tr>
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<td>438.15</td>
</tr>
<tr>
<td>F</td>
<td>23</td>
<td>584.20</td>
</tr>
</tbody>
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**HT-25**

SINGLE CORE "OPEN" SPIRAL FOOT PRINT DRAWING

TOP - FRONT - SIDE (3 - A)

3 - B
SECTION D

TWO (2) CORE, DOUBLE OPEN
HT-50 "SHORTY"
Operates by Gravity

No Power Required

⇒ Capacity 50 BPH

This Separator is used for removing giant morning glory from soybeans. Removes mustard, wild peas, vetch, cockle, soybeans or any round seed from wheat, rye, barley, oats, flaxseed and other grains, screenings or seeds.

Operates by gravity . . . The Double separator contains two units of spirals fed from a large hopper at the top, with an adjustable feed plate for each unit. The seed leaving the hopper runs over a cone divider which spreads the feed evenly to each of the five flights in each unit. Going down the flights the round kernels travel at a much faster speed than the kernels which are not round. Their momentum increases until the round seeds run over the edge of the inner spirals, drop into the outer spiral, and discharge through a spout at the bottom side of the machine. The non-round seed remains on the small flights and slides down to a separate discharge spout at the bottom center of the unit.

No power required . . . Since there are no moving parts, no power is required to operate the machine. When the feed has been properly set, the separator continues to operate automatically as long as there is grain in the hopper. Constructed of galvanized non-rust iron in a strong steel frame. Different pitched spiral core flighting can be offered. (This flighting can be furnished in Galvanized metal up to 22 guage & 26 guage Stainless)

⇒ Figure based on average precleaned soybean seed but may vary depending on precleaning quality, type seed, or required quality of final product.
FOOT PRINT 4 - B-2

DATE: 
Issued by: 

2 CORE "OPEN" SPIRAL

Type: SHORTY 2
       HT-5D

Replaces: 

Ref: 4 - A-2

25
SECTION E

TWO (2) CORE, DOUBLE OPEN
HT-50  MID SIZE
- **Operates by Gravity**
- **No Power Required**

**Capacity 50 BPH**

This Separator is used for removing giant morning glory from soybeans. Removes mustard, wild peas, vetch, cockle, soybeans or any round seed from wheat, rye, barley, oats, flaxseed and other grains, screenings or seeds.

**Operates by gravity . . .** The Double separator contains two units of spirals fed from a large hopper at the top, with an adjustable feed plate for each unit. The seed leaving the hopper runs over a cone divider which spreads the feed evenly to each of the five flights in each unit. Going down the flights the round kernels travel at a much faster speed than the kernels which are not round. Their momentum increases until the round seeds run over the edge of the inner spirals, drop into the outer spiral, and discharge through a spout at the bottom side of the machine. The non-round seed remains on the small flights and slides down to a separate discharge spout at the bottom center of the unit.

**No power required . . .** Since there are no moving parts, no power is required to operate the machine. When the feed has been properly set, the separator continues to operate automatically as long as there is grain in the hopper. Constructed of galvanized non-rust iron in a strong steel frame. Different pitched spiral core flighting can be offered. (This flighting can be furnished in Galvanized metal up to 22 guage & 26 guage Stainless)

⇒ Figure based on average precleaned soybean seed but may vary depending on precleaning quality, type seed, or required quality of final product.
Top - Front - Side (5 - A)

Flat

Center

Rounded
SECTION F

TWO (2) CORE, DOUBLE OPEN
HT-50 ( Standard Height )
This Separator is used for removing giant morning glory from soybeans. Removes mustard, wild peas, vetch, cockle, soybeans or any round seed from wheat, rye, barley, oats, flaxseed and other grains, screenings or seeds.

**Operates by Gravity**

**No Power Required**

**Capacity 50 BPH**

**Operates by gravity . . .** The Double separator contains two units of spirals fed from a large hopper at the top, with an adjustable feed plate for each unit. The seed leaving the hopper runs over a cone divider which spreads the feed evenly to each of the five flights in each unit. Going down the flights the round kernels travel at a much faster speed than the kernels which are not round. Their momentum increases until the round seeds run over the edge of the inner spirals, drop into the outer spiral, and discharge through a spout at the bottom side of the machine. The non-round seed remains on the small flights and slides down to a separate discharge spout at the bottom center of the unit.

**No power required . . .** Since there are no moving parts, no power is required to operate the machine. When the feed has been properly set, the separator continues to operate automatically as long as there is grain in the hopper. Constructed of galvanized non-rust iron in a strong steel frame.

Different pitched spiral core flighting can be offered.

(This flighting can be furnished in Galvanized metal up to 22 guage & 26 guage Stainless)

⇒ Figure based on average precleaned soybean seed but may vary depending on precleaning quality, type seed, or required quality of final product.
SECTION G

TWO (2) CORE, DOUBLE OPEN
HT-50 ... Standard Height

With Heavy Duty
16 ga Hoppers - Self Cleaning
With
“Rotating Wheel” Feed Flow Control
HT-50 with "Heavy Duty Hopper"
HT-50
Double open Spiral Separator
Heavy Hopper

- Operates by Gravity
- No Power Required

⇒ Capacity 50 BPH

This Separator is used for removing giant morning glory from soybeans. Removes mustard, wild peas, vetch, cockle, soybeans or any round seed from wheat, rye, barley, oats, flaxseed and other grains, screenings or seeds.

**Operates by gravity . . .** The Double separator contains two units of spirals fed from a large hopper at the top, with an adjustable feed plate for each unit. The seed leaving the hopper runs over a cone divider which spreads the feed evenly to each of the five flights in each unit. Going down the flights the round kernels travel at a much faster speed than the kernels which are not round. Their momentum increases until the round seeds run over the edge of the inner spirals, drop into the outer spiral, and discharge through a spout at the bottom side of the machine. The non-round seed remains on the small flights and slides down to a separate discharge spout at the bottom center of the unit.

**No power required . . .** Since there are no moving parts, no power is required to operate the machine. When the feed has been properly set, the separator continues to operate automatically as long as there is grain in the hopper. Constructed of galvanized non-rust iron in a strong steel frame.

Different pitched spiral core flighting can be offered.
(This flighting can be furnished in Galvanized metal up to 22 guage & 26 guage Stainless)

⇒ Figure based on average precleaned soybean seed but may vary depending on precleaning quality, type seed, or required quality of final product.
FOOT PRINT 7 - B

2 CORE "OPEN" SPIRAL with Heavy Duty Hopper

Type
STANDARD
HT-50

DATE:  
Issued by:  

Replaces:  
NO. 7-A

40
2 CORE "OPEN" SPIRAL

HT-JO

TOP - FRONT - SIDE (7 - A)

ROUND

CENTER

FLAT

<p>| | |</p>
<table>
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</table>

Dimensions in Inches
SECTION G

TWO (2) CORE, DOUBLE OPEN
HT-50 STANDARD

“EXTRA HEAVY DUTY“
(Steel Shot & Abrasives)

*Flighting Thickness*: 26 to 22 ga
Galvanize or Stainless

*Flighting Widths* can be:
3 - 3.5 - 4 - 4.5 - 5 - 5.5 - 6 - 6.5

*With Heavy Duty*
16 - 14 ga. Hoppers - Self Cleaning
“Lined Spouting“
HP-50 with "Heavy Duty Hopper & Solid Steel Flow Control"
Operates by Gravity
No Power Required

⇒ Capacity  50 BPH - Soy

: This unit can be used in Abrasives :

This Separator is used for removing giant morning glory from soybeans. Removes mustard, wild peas, vetch, cockle, soybeans or any round seed from wheat, rye, barley, oats, flaxseed and other grains, screenings or seeds.

Operates by gravity . . . The Double separator contains two units of spirals fed from a large hopper at the top, with an adjustable feed plate for each unit. The seed leaving the hopper runs over a cone divider which spreads the feed evenly to each of the five flights in each unit. Going down the flights the round kernels travel at a much faster speed than the kernels which are not round. Their momentum increases until the round seeds run over the edge of the inner spirals, drop into the outer spiral, and discharge through a spout at the bottom side of the machine. The non-round seed remains on the small flights and slides down to a separate discharge spout at the bottom center of the unit.

No power required . . . Since there are no moving parts, no power is required to operate the machine. When the feed has been properly set, the separator continues to operate automatically as long as there is grain in the hopper. Constructed of galvanized non-rust iron in a strong steel frame. Different pitched spiral core flighting can be offered.

- This flighting can be furnished in Galvanized metal up to 22 guage & 20 guage Stainless - Flighting Widths - 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5
(Hopper - 14 ga with Solid Steel Flow Control & Inserts for More Precise Flow Adjustment)

⇒ Figure based on average precleaned soybean seed but may vary depending on precleaning quality, type seed, or required quality of final product.
HEAVY DUTY FLOW CONTROL

Insert Goes Here!
FOOTPRINT DRAWINGS

2 CORE "OPEN" SPIRAL

HT-Ø0
SECTION H

TWO (2) CORE, DOUBLE OPEN CELAND TYPE
CELLAND
PICTURE
GOES HERE
HT - 200
&
HT - 300
SECTION I

ONE (1) CORE
ENCLOSED SPIRAL
HT-50E
HT-50E
Enclosed Spiral Separator

Completely Enclosed For

- Dust Control
- Quiet Operation
- Compactness
- Ease of Handling

⇒ High Capacity 50 BPH

- Each unit contains (1) independent soldered, galvanized Spiral Core Cartridge with each having infinitely adjustable flow-control (flow control adjustable during operation)
- Integral self-cleaning hopper
- Deflectors included for fine tuning separation
- One (1) access door for easy entrance to internal components (2 doors optional)
- Heavy 14 gauge body construction with rubber cushioned seed discharge points
- Legs 3/16” Flanges 1/8”
- Different pitched spiral cores offered which are easily installed (these cores can be furnished in Galvanized metal up to 22 gauge & 24 gauge Stainless)

⇒ Figure based on average precleaned soybean seed but may vary depending on precleaning quality, type seed, or required quality of final product.
BASIC HT-50E BOX TYPE SPIRAL SEPARATOR (MATERIAL PATH)

POUNDS & FLATS MATERIAL
Hopper x (1)

ENTRY FOR FEED ADJUSTMENT

JAM NUT

1/8" RUBBER OVER STEEL
(0.175 IN)

SLIDE VALVE

EXIT SPOUT (FLAT MATERIAL)

ENTRY FOR HOPPER CLEAN OUT

POUNDS & DISCHARGE SPOUT
HT-50E

Top - Front - Side (8-1/4"

Round

7"

22 3/4" (578 mm)

24 5/8" (625 mm)

12 5/15" (313 mm)

24 5/8" (625 mm)

23 13/16" (605 mm)

22 1/4" (565 mm)

12 5/16" (313 mm)

24 5/8" (625 mm)

22 3/4" (578 mm)

7"

(313 MM)

(313 MM)

(565 MM)

(565 MM)

(578 MM)

(605 MM)
SECTION J

TWO (2) CORE
ENCLOSED SPIRAL
HT-100
**High Capacity  100 BPH**

- Each unit contains (2) independent soldered, galvanized Spiral Core Cartridges with each having infinitely adjustable flow-control (flow control adjustable during operation)
- Integral self-cleaning hoppers
- Deflectors included for fine tuning separation
- Two (2) access doors for easy entrance to internal components
- Heavy 14 gauge body construction with rubber cushioned seed discharge points
- Legs 3/16” Flanges 1/8”
- Different pitched spiral cores offered which are easily installed (these cores can be furnished in Galvanized metal up to 22 gauge & 24 guage Stainless)

⇒ Figure based on average precleaned soybean seed but may vary depending on precleaning quality, type seed, or required quality of final product.
SECTION K

FOUR (4) CORE
ENCLOSED SPIRAL
HT-200
⇒ **High Capacity   200 BPH**

- Each unit contains (4) independent soldered, galvanized Spiral Core Cartridges with each having infinitely adjustable flow-control (flow control adjustable during operation)
- Integral self-cleaning hoppers
- Deflectors included for fine tuning separation
- Two (2) access doors for easy entrance to internal components
- Heavy 14 gauge body construction with rubber cushioned seed discharge points
- Legs 3/16” Flanges 1/8”
- Different pitched spiral cores offered which are easily installed (these cores can be furnished in Galvanized metal up to 22 gauge & 24 gauge Stainless)

⇒ Figure based on average precleaned soybean seed but may vary depending on precleaning quality, type seed, or required quality of final product.
4 CORE ENCLOSED SPIRAL

Type: STANDARD

Replaces: 10 - 4
HT-200
4 CORE ENCLOSED SPIRAL
FOOT PRINT DRAWING

DATE: 2005
SECTION L

SIX (6) CORE
ENCLOSED SPIRAL
HT-300
HT-300
Enclosed
Spiral Separator

Completely Enclosed For

- Dust Control
- Quiet Operation
- Compactness
- Ease of Handling

⇒ High Capacity 300 BPH

- Each unit contains (6) independent soldered, galvanized Spiral Core Cartridges with each having infinitely adjustable flow-control (flow control adjustable during operation)
- Integral self-cleaning hoppers
- Deflectors included for fine tuning separation
- Four (4) access doors for easy entrance to internal components
- Heavy 14 gauge body construction with rubber cushioned seed discharge points
- Legs 3/16” Flanges 1/8”
- Different pitched spiral cores offered which are easily installed (these cores can be furnished in Galvanized metal up to 22 gauge & 24 gauge Stainless)

⇒ Figure based on average precleaned soybean seed but may vary depending on precleaning quality, type seed, or required quality of final product.
SECTION M

EIGHT (8) CORE
ENCLOSED SPIRAL
HT-400
HT-400
Low Profile - Double Bottom
**High Capacity  400 BPH**

- Each unit contains (8) independent soldered, galvanized Spiral Core Cartridges with each having infinitely adjustable flow-control (flow control adjustable during operation)
- Integral self-cleaning hoppers
- Deflectors included for fine tuning separation
- Four (4) access doors for easy entrance to internal components
- Heavy 14 gauge body construction with rubber cushioned seed discharge points
- Legs 3/16”  Flanges 1/8”
- Different pitched spiral cores offered which are easily installed (these cores can be furnished in Galvanized metal up to 22 gauge & 24 gauge Stainless)

⇒ Figure based on average precleaned soybean seed but may vary depending on precleaning quality, type seed, or required quality of final product.
BASIC HT-400 BOX TYPE SPIRAL SEPARATOR (MATERIAL PATH)
SECTION N

FOUR (4) CORE
ENCLOSED SPIRAL

HAGAN “MAGIC BOX”
HAGAN
PICTURE
GOES
HERE
"MAGIC BOX"

4 CORE ENCLOSED SPIRAL

FOOT PRINT DRAWING: 207
SECTION N

HT-8FC

EIGHT (8) FLIGHT CORE
PROFILES OF STANDARDIZED ENCLOSED SPIRAL CORES

TOP Numbers = Downward Angles around the STEM Pipe
BANKING ANGLES = BOTTOM Numbers - CENTER

LOWER ENERGY

HIGHER ENERGY

H & T LAB CORES
HT-8FC

Eight (8) Flight Core

Flights are Energy Equalized so Fine Tuning Gate Will Work Properly!

Adjustment GATE for Fine Tuning
Explanation of Energy Levels
Use as Guide for Placement of "MAGNETIC" Seed Dams

This port of the spiral Serves as a Spiral Bowl

Position 1 P (1)

SlideGate & Bottom

Look For "Indentations" On Spiral Core

The Indentations shown here Represents the PERIGEE POINT ... 2 P (1, 2, 3) or ...
2 R = 2th Revolution ... for #1, #2, & #3 Spiral Flights

"Indentations" ARE USED AS ... ENERGY REFERENCE POINTS
EXAMPLE OF

- - MAGNETIC SEED DAMS - -

4 ... inches long x 3/4 inches Wide

See Page - 154
The following pages contain pictures to give operator instructions of where to ... Place your magnetic “Seed Dams“

The first thing operator needs to do is locate the (8) “Indentations” that have been stamped into your - spiral flighting to make ... Placement of your dams easier

To get a better understanding of the purpose of seed dams
*page 136 - 146

Also ... the factory installed steel dams - page 94 (Equilizers)

See Picture Below ....
Factory Installed “EQUALIZER”

(8) Magnetic Seed Blockers should go approx 180 degs around & down from Equalizer

Notice ... 1st dam is placed on the Blue .. #1 Flight

Other 7 dams go directly underneath vertically on 2,3,4,5,6,7,8 flights
This picture shows #1 Blue flighting only and its location at top of the Gate!
Top down view of the #1 “Blue Flight” and the placement of the 1st Magnetic seed dam in relation to the “Factory installed” — Equalizer —
*Approx 180 degs around & down*

The other - 7 dams - are placed vertically down from this dam

If “More are needed” They will go directly ... Under these dams!
H & T SHEET METAL MFG

2009 Wholesale Price Structure

EIGHT(8) FLIGHT CORE UNITS

8 cores & up /


(26 ga. $ — — — ) (24/26 ga. $ — — — ) (22/26 ga. $ — — — )

(24 ga. $ — — — ) (22/24 ga. $ — — — )

(22 ga. $ — — — )

Multipliers

(1) - 1.097 (2) - 1.073 (4) - 1.048 (6) - 1.024 (8) - 1

Note(1) To figure the price of say (2) cores of a preferred guage above,
simply pick price from above list and multiply by ... 1.073

Note(2) Above prices are all based on H&T's standardized 49.75" core
lengths. If for instance a longer core is needed...Use price derived at
above & divide by 49.75 - price per inch (A).then Multiply extra inches
needed by (A) ADD THIS ANSWER TO ORIGINAL PRICE

Note (3) RETROFIT HEADS for above cores - $ — — - each

********************************************************************

CRATING PRICES: These Crates are for ... Domestic as well as
for Export ..... $ — — - (1) $ — — - (2) $ — — (4) $ — — — (6)
$ — — — (8)
EIGHT (8) FLIGHT CORE UNITS
Stainless Steel / Galv - Standard Flighting

8 cores & up

(26/28 ga. - $ — — — ) (24/28 ga. - $ — — — )
(26/26 ga. - $ — — — ) (24/26 ga. - $ — — — ) (22/26 ga. - $ — — — )
(24/24 ga. - $ — — — ) (22/24 ga. - $ — — — )
(22/22 ga. - $ — — — )

Multipliers
(1) - 1.097  (2) - 1.073  (4) - 1.048  (6) - 1.024  (8) - 1

Note(1) To figure the price of say (2) cores of a preferred guage above, simply pick price from above list and multiply by ... 1.073

Note(2) Above prices are all based on H&T's standardized 49.75" core lengths. If for instance a longer core is needed...Use price derived at above & divide by 49.75 - price per inch (A). then Multiply extra inches needed by (A) ADD THIS ANSWER TO ORIGINAL PRICE

Note (3) RETROFIT HEADS for above cores - $ — — each

*******************************************************************************
H & T SHEET METAL MFG

2009 Wholesale Price Structure

EIGHT(8) FLIGHT CORE UNITS

Stainless Steel - Standard Flighting

8 cores & up ∧


(26 ga.- $ — — — ) (24/26 ga.- $ — — — ) (22/26 ga.- $ — — — )

(24 ga.- $ — — — ) (22/24 ga.- $ — — — )

(22 ga.- $ — — — )

Multipliers

(1) - 1.097  (2) - 1.073  (4) - 1.048  (6) - 1.024  (8) - 1

Note(1) To figure the price of say (2) cores of a preferred guage above, simply pick price from above list and multiply by ... 1.073

Note(2) Above prices are all based on H&T's standardized 49.75" core lengths. If for instance a longer core is needed... Use price derived at above & divide by 49.75 - price per inch (A). then Multiply extra inches needed by (A)  ADD THIS ANSWER TO ORIGINAL PRICE

Note (3) RETROFIT HEADS  for above cores - $ — — - each

*******************************************************************************
H & T SHEET METAL MFG
2009 Wholesale Price Structure

EIGHT(8) FLIGHT CORE UNITS

FOR CANOLA

8 cores & up \$


(26 ga. - $ — — — ) (24/26 ga. - $ — — — ) (22/26 ga. - $ — — — )

(24 ga. - $ — — — ) (22/24 ga. - $ — — — )

(22 ga. - $ — — — )

Multipliers
(1) - 1.097  (2) - 1.073  (4) - 1.048  (6) - 1.024  (8) - 1

Note(1) To figure the price of say (2) cores of a preferred gauge above, simply pick price from above list and multiply by ... 1.073

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Note (3) RETROFIT HEADS for above cores - $ — — - each

*******************************************************************************
8 cores & up

(28 ga. - $———) (26/28 ga. - $———) (24/28 ga. - $———)

(26 ga. - $———) (24/26 ga. - $———) (22/26 ga. - $———)

(24 ga. - $———) (22/24 ga. - $———)

(22 ga. - $———)

Multipliers
(1) - 1.097  (2) - 1.073  (4) - 1.048  (6) - 1.024  (8) - 1

Note(1) To figure the price of say (2) cores of a preferred guage above, simply pick price from above list and multiply by ... 1.073

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Note (3) RETROFIT HEADS  for above cores - $ ——- each

*****************************************************************************
**H & T SHEET METAL MFG**

2009 Wholesale Price Structure

**EIGHT(8) FLIGHT CORE UNITS**

*Stainless Steel/Galv - 8 Inch Flighting*

8 cores & up ∧

(26/28 ga.- $ — — — ) (24/28 ga.- $ — — — )

(26/26 ga.- $ — — — ) (24/26 ga.- $ — — — ) (22/26 ga.- $ — — — )

(24/24 ga.- $ — — — ) (22/24 ga.- $ — — — )

(22/22 ga.- $ — — — )

**Multipliers**

(1) - 1.097  (2) - 1.073  (4) - 1.048  (6) - 1.024  (8) - 1

Note (1) To figure the price of say (2) cores of a preferred guage above, simply pick price from above list and multiply by ... 1.073

Note (2) Above prices are all based on H&T’s standardized 49.75” core lengths. If for instance a longer core is needed... Use price derived at above & divide by 49.75 - price per inch (A). Then Multiply extra inches needed by (A) ADD THIS ANSWER TO ORIGINAL PRICE

Note (3) RETROFIT HEADS for above cores - $ — — each

**********************************************************************************
EIGHT (8) FLIGHT CORE UNITS
Stainless Steel - 8 Inch Flushing

8 cores & up

(28 ga. $——— ) (26/28 ga. $——— ) (24/28 ga. $——— )
(26 ga. $——— ) (24/26 ga. $——— ) (22/26 ga. $——— )
(24 ga. $——— ) (22/24 ga. $——— )
(22 ga. $——— )

Multipliers
(1) - 1.097  (2) - 1.073  (4) - 1.048  (6) - 1.024  (8) - 1

Note (1) To figure the price of say (2) cores of a preferred gauge above, simply pick price from above list and multiply by ... 1.073

Note (2) Above prices are all based on H&T’s standardized 49.75” core lengths. If for instance a longer core is needed... Use price derived at above & divide by 49.75 - price per inch (A). then Multiply extra inches needed by (A) ADD THIS ANSWER TO ORIGINAL PRICE

Note (3) RETROFIT HEADS for above cores - $——- each

**************************************************************************
EIGHT(8) FLIGHT CORE UNITS

Example data here given on a ... 24/28 core unit

(cores are constructed with ... G60 gal)
24 ga. Galvanized for the first ... 1 1/3 Revolution
28 ga. Galvanized their after ............

Each unit comes with (Energy Equalizers for equalizing flight energy)

Each unit comes with (Magnetic Deflectors to Improve Separation)

Each unit comes with an Adjustable Slide Gate at Termination
Point at Bottom of core (FOR FINE TUNING SEPARATIONS)

Each unit comes with its own DISPERSAL BOWL at TOP of core.

PRICE: $ — — — (1) $ — — — (2) $ — — — (4)
$ — — — (6) $ — — — (8)

CRATING PRICES: These Crates are for ... Domestic as well as
for Export ..... $ — — - (1) $ — — - (2) $ — — - (4) $ — — - (6)
$ — — - (8)
A Word About . . .

“ANGLES”
Hello! Use special tools to measure length between pilings.

(2) Drop per Revolution of Pilings (inches).

(2) Circumference of stem pipe.

Summary: Need (1) bending angle as measured above.

Correct way to measure:

1. Set Pilings up.
2. Use “TOP Pilings” and “SPREAD Pilings” as reference points.
3. Measure bending or as “TOP Spread.”

Notes: These (3) measurements are needed in order for...

Pool per Rev.
Summary: Need a Banking Angle as Measured Above

1.9 - Need Drop per Revolution -- For 1 Revolution
1.2 - Need Circumference of Steam Pipe
5 deg (0) Degrees
-90 deg and 90 deg considered
Make 5 deg

A Spherical Core's Pitch Angle
Correct Way to Measure

Example: Place Core

Example: Drop Down

C A U T I O N: Make sure spherical core is plane
Home made
" Drop per Revolution "
Tool

A - 1" x 1" sq. tubing

B - Small " Bolt with Wing Nut"
   welded to a " Long 3/16" Nut "
   to " Screw in Althread"

C - 3/16" Althread approx 14" Long
Thus a "true Banking Angle" Will be Found

Form a Straight Line i

This Way Pitching Will

When Level this Way
Air Gaps under Straight edge
There Will Be no

Right

Step Down View #1 Right
Measuring the Banking Angle

Straight edge is placed along "SIDE" of stem pipe like this in order to measure Banking Angle. Make sure there are no air gaps under straight edge.

(Straight edge made of 22 ga. broke on 90 degrees - 1/2" x 1" for Double open) Use ... 1/2" x 3/4" to measure Box Cores

Place protractor on straight edge like this to take "Banking Angle Measurement". This protractor reads "0" zero degrees on Horizontal ... Get another person to read protractor if you can't hold straight edge in place & read Banking Angle at the same time.
Measuring the Drop per Revolution

Need to know the Drop in inches for (1) Revolution (Double opens - use Top Flight) This measurement needs to be taken at ... 3 or 4 places in order to get an accurate reading (Take measurements around the Middle part of the machine)

Can use ...
1/8" Aluminum Rod
3/16" is Better
Measuring the Circumference of the Stem Pipe

We need an Accurate Stem Pipe Circumference Measurement. One of the best ways to do this is to use a .... 28 ga. x 1/4 “ wide metal Wrap Around Overlap & Mark. Then straighten wrap around out & measure with a tape measurer.
Measuring the Width of the Flighting

In order to measure Flighting Width you will need a piece of 28 ga. x 1/4" wide metal like this with the corner nipped off to a point, which goes next to the stem pipe.

Curve the 28 ga. metal strip along the curve of the flighting seam (where flighting is attached to each other) making sure the point of the strip is next to pipe & mark strip at the outer edge of the Flighting. This is the width of your Flighting.
# Xport Crating Parameters for Spiral Separator Cleaners

<table>
<thead>
<tr>
<th>Model of Spiral</th>
<th>List Price</th>
<th>hp(kw)</th>
<th>Motor(s)</th>
<th>Spec. Mtrs</th>
<th>Sub-Total</th>
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<tbody>
<tr>
<td>HT-5</td>
<td>$ ———</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>$ ———</td>
</tr>
<tr>
<td>HT-25 (Heavy Duty Hopper)</td>
<td>$ ———</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>$ ———</td>
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<tr>
<td>HT-50 (Standard Hopper)</td>
<td>$ ———</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>$ ———</td>
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<tr>
<td>HT-50 (Heavy Duty Hopper)</td>
<td>$ ———</td>
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<td>$ ———</td>
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<tr>
<td>HT-50E LP (Low Profile)</td>
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<td>NA</td>
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<td>$ ———</td>
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<td>$ ———</td>
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<td>NA</td>
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<table>
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<tr>
<th>Net</th>
<th>Xport Pack</th>
<th>Cont. Lgt</th>
<th>Weight (lbs)</th>
<th>Volume (ft2)</th>
<th>Dimentions (LxWxH)</th>
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<td>$ CALL</td>
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<td>21</td>
<td>—</td>
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<td>HT25</td>
<td>$ ———</td>
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<td>81.5”</td>
<td>34.25</td>
<td>—</td>
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<td>$ CALL</td>
<td>80”</td>
<td>59</td>
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<td>97”</td>
<td>344.5</td>
<td>—</td>
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</tbody>
</table>
H & T SHEET METAL MFG

2009 Wholesale Price Structure
Standard - 26 ga. with 24 ga. Hoppers can be shipped (1) (2) (3) (4) per crate

LAB SAMPLER, OPEN (HT-5)
PRICE: $ ———
Each (Crating Cost - ——— ) (Export Crate - )
Net Weight: 80 lbs
Shipping Weight: — lbs (Domestic) 27”(w)*27”(l)*50”(t)

ONE (1) CORE, OPEN (HT-25)
with “Heavy Duty 16 ga black iron self cleaning Hopper System “
PRICE: $ ———
Each (Crating Cost - ——— ) (Export Crate - )
Net Weight: 108 lbs
Shipping Weight: — lbs (Domestic) 27”(w)*27”(l)*82”(t)

TWO (2) CORE, DOUBLE OPEN (CELLAND)
PRICE: $ ———
Each (Crating Cost - ——— ) (Export Crate - )
Net Weight: 160 lbs
Shipping Weight: — lbs (Domestic)
2009 Wholesale Price Structure
Standard - 26 ga. with 24 ga. Hoppers can be shipped (1) (2) (3) (4) per crate

HT-50 (Shorty), DOUBLE OPEN
PRICE: $ — — — —
Each (Crating Cost = — — - ) (Export Crate = )
Net Weight:
Shipping Weight: 000 lbs (Domestic) 47 1/4"(w)*56"(t)*27"(l)
000 lbs (Export)

TWO(2) CORE, DOUBLE OPEN (HT-50)
PRICE: $— — — —
Each (Crating Cost = — — - ) (Export Crate = )
Net Weight: 165 lbs
Shipping Weight: — - lbs (Domestic) 47 1/4"(w)*80"(t)*27"(l)

TWO(2) CORE, DOUBLE OPEN (HT-50)
with “Heavy Duty 16 ga black iron self cleaning Hopper System”
PRICE: $ — — — —
Each (Crating Cost = — — - ) (Export Crate = )
Net Weight: 181 lbs
Shipping Weight: — - lbs (Domestic) 47 1/4"(w)*82"(t)*27(l)
H & T SHEET METAL MFG

2009 Wholesale Price Structure
Standard - Extra Heavy Duty

HT-5
(Machines are constructed of G60 galvanized sheet metal and
Steel Leg Material)

Basic Machines

26 ga. - $ — — —
24 ga. - $ — — —
22 ga. - $ — — —

******************************************************************************

HT-25
(Machines are constructed of G60 galvanized sheet metal and
Steel Leg Material)

Basic Machines

26 ga. - $ — — — ....... Hopper (24 ga.)
24 ga. - $ — — — ....... Hopper (24 ga.)
22 ga. - $ — — — ....... Hopper (24 ga.)

******************************************************************************

HT-50 (Shorty)
(Machines are constructed of G60 galvanized sheet metal and
Steel Leg Material)

Basic Machines

26 ga. - $ — — — ....... Hopper (24 ga.)*
24 ga. - $ — — — ....... Hopper (24 ga.)*
22 ga. - $ — — — ....... Hopper (24 ga.)*
H & T SHEET METAL MFG

2009 Wholesale Price Structure
Standard - Extra Heavy Duty

HT-50
(Machines are constructed of G60 galvanized sheet metal and
Steel Leg Material)

Basic Machines

26 ga. - $ — — — — — — Hopper (24 ga.)*
24 ga. - $ — — — — — — Hopper (24 ga.)*
22 ga. - $ — — — — — — Hopper (24 ga.)*

******************************************************************************

HAGAN ...... same as above

******************************************************************************

CELLAND
(Machines are constructed of G60 galvanized sheet metal and
Steel Leg Material)

Basic Machines

26 ga. - $ — — — — — — Hopper (24 ga.)*
24 ga. - $ — — — — — — Hopper (24 ga.)*
22 ga. - $ — — — — — — Hopper (24 ga.)*

******************************************************************************

123
2009 Wholesale Price Structure
Enclosed LP (Box) Spirals - Standard Cores (26 ga.)
with Seed Dams & Manuals

ONE (1) CORE, ENCLOSED SPIRAL (HT-50E)
PRICE: $———- (1) $———- (2) $———- (3)
$———- (4) * Note - Discount of $ 50.00 if “Top” not needed
Each › (Crating & Fork Skid cost - CALL)
Shipping Weight: — lbs (Steel Skid+ Crate - Domestic)

TWO(2) CORE, ENCLOSED SPIRAL (HT-100)
PRICE: $———- (1) $———- (2) $———- (3)
$———- (4) * Note - Discount of $100.00 if “Top” not needed
Each › (Crating & Fork Skid cost - CALL)
Shipping Weight: — lbs (Steel Skid+ Crate - Domestic)

FOUR(4) CORE, ENCLOSED SPIRAL (HT-200)
PRICE: $———- (1) $———- (2) $———- (3)
$———- (4) * Note - Discount of $200.00 if “Top” not needed
Each › (Crating & Fork Skid cost - CALL)
Shipping Weight: — lbs (Steel Skid+ Crate - Domestic)

SIX(6) CORE, ENCLOSED SPIRAL (HT-300)
PRICE: $———- (1) $———- (2) $———- (3)
$———- (4) * Note - Discount of $300.00 if “Top” not needed
Each › (Crating & Fork Skid cost - CALL)
Shipping Weight: — lbs (Steel Skid+ Crate - Domestic)
H & T SHEET METAL MFG

2009 Wholesale Price Structure
Enclosed LP (Box) Spirals - Standard Cores (26 ga.)
with Seed Dams & Manuals

EIGHT(8) CORE, ENCLOSED SPIRAL (HT-400)
PRICE: $— — — — (1) $— — — — (2) $— — — — (3)
$— — — — (4) * Note - Discount of $400.00 if "Top" not needed
Each (Crating & Fork Skid cost - CALL)

Shipping Weight: — — lbs (Steel Skid+ Crate - Domestic)

*EIGHT(8) CORE, ENCLOSED SPIRAL (HT-400)
DOUBLE BOTTOM PRICE: "SAME AS ABOVE"

Enclosed HP (HIGH PROFILE) Machines
Enclosed (Box) Spirals - Standard Cores (28 ga.)
with Seed Dams & Manuals

(1) HT-50EHP — $— — — - - Domestic crate & fork skid (CALL)
(1) HT-100HP — $— — — - - Domestic Crate & fork skid (CALL)
(1) HT-200HP — $— — — - - Domestic Crate & fork skid (CALL)
(1) HT-300HP — $— — — - - Domestic Crate & fork skid (CALL)
(1) HT-400HP — $— — — - - Domestic Crate & fork skid (CALL)
2009 Wholesale Price Structure
Enclosed (Box) Spirals

FOUR (4) CORE, ENCLOSED SPIRAL (HAGAN)
"MAGIC BOX"

PRICE: $——— - (1) $——— - (2) $——— - (3)
$——— - (4)* Note - Discount of $200.00 if "Top" not needed
H & T SHEET METAL MFG
2009 Wholesale Price Structure

EIGHT(8) FLIGHT CORE UNITS

8 cores & up ∨

(26 ga.- $ — — — ) (24/26 ga.- $ — — — ) (22/26 ga.- $ — — — )
(24 ga.- $ — — — ) (22/24 ga.- $ — — — )
(22 ga.- $ — — — )

Multipliers
(1) - 1.097 (2) - 1.073 (4) - 1.048 (6) - 1.024 (8) - 1

Note(1) To figure the price of say (2) cores of a preferred guage above, simply pick price from above list and multiply by ... 1.073

Note(2) Above prices are all based on H&T's standardized 49.75" core lengths. If for instance a longer core is needed...Use price derived at above & divide by 49.75 - price per inch (A). then Multiply extra inches needed by (A) ADD THIS ANSWER TO ORIGINAL PRICE

Note (3) RETROFIT HEADS for above cores - $ — — - each

**************************************************************************************
CRATING PRICES: These Crates are for ... Domestic as well as for Export ..... $ — — - (1) $ — — - (2) $ — — - (4) $ — — - (6)
$ — — - (8)
EIGHT (8) FLIGHT CORE UNITS
Stainless Steel/Galv - Standard Flying

8 cores & up ∧

(26/28 ga.- $——— ) (24/28 ga.- $——— )
(26/26 ga.- $——— ) (24/26 ga.- $——— ) (22/26 ga.- $——— )
(24/24 ga.- $——— ) (22/24 ga.- $——— )
(22/22 ga.- $——— )

Multipliers
(1) - 1.097 (2) - 1.073 (4) - 1.048 (6) - 1.024 (8) - 1

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above & divide by 49.75 - price per inch (A). then Multiply extra inches
needed by (A) ADD THIS ANSWER TO ORIGINAL PRICE

Note (3) RETROFIT HEADS for above cores - $——- each

*****************************************************************************
8 cores & up

(28 ga.- $ —— — ) (26/28 ga.- $ —— — ) (24/28 ga.- $ —— — )

(26 ga.- $ —— — ) (24/26 ga.- $ —— — ) (22/26 ga.- $ —— — )

(24 ga.- $ —— — ) (22/24 ga.- $ —— — )

(22 ga.- $ —— — )

Multipliers
(1) - 1.097  (2) - 1.073  (4) - 1.048  (6) - 1.024  (8) - 1

Note(1) To figure the price of say (2) cores of a preferred guage above, simply pick price from above list and multiply by ... 1.073

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Note (3) RETROFIT HEADS for above cores - $ — - each

****************************************************************************
H & T SHEET METAL MFG
2009 Wholesale Price Structure

EIGHT(8) FLIGHT CORE UNITS

FOR CANOLA

8 cores & up \

(28 ga. $ —— —) (26/28 ga. $ —— —) (24/28 ga. $ —— —)

(26 ga. $ —— —) (24/26 ga. $ —— —) (22/26 ga. $ —— —)

(24 ga. $ —— —) (22/24 ga. $ —— —)

(22 ga. $ —— —)

Multipliers
(1) - 1.097  (2) - 1.073  (4) - 1.048  (6) - 1.024  (8) - 1

Note(1) To figure the price of say (2) cores of a preferred gauge above, simply pick price from above list and multiply by ... 1.073

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Note (3) RETROFIT HEADS for above cores - $ —— - each

*************************************************************************************************
H & T SHEET METAL MFG
2009 Wholesale Price Structure

EIGHT(8) FLIGHT CORE UNITS
Galvanized Metal - 8 Inch Flighting

8 cores & up □

(26 ga. - $ — — — ) (24/26 ga. - $ — — — ) (22/26 ga. - $ — — — )
(24 ga. - $ — — — ) (22/24 ga. - $ — — — )
(22 ga. - $ — — — -)

Multipliers
(1) - 1.097 (2) - 1.073 (4) - 1.048 (6) - 1.024 (8) - 1

Note(1) To figure the price of say (2) cores of a preferred gauge above, simply pick price from above list and multiply by ... 1.073

Note(2) Above prices are all based on H&T’s standardized 49.75” core lengths. If for instance a longer core is needed... Use price derived at above & divide by 49.75 - price per inch (A). then Multiply extra inches needed by (A) ADD THIS ANSWER TO ORIGINAL PRICE

Note (3) RETROFIT HEADS  for above cores - $ — — - each

******************************************************************************
H & T SHEET METAL MFG
2009 Wholesale Price Structure

EIGHT(8) FLIGHT CORE UNITS
Stainless Steel/Galv - 8 Inch Flighting

8 cores & up /

(26/28 ga.- $ — — — ) (24/28 ga.- $ — — — )

(26/26 ga.- $ — — — ) (24/26 ga.- $ — — — ) (22/26 ga.- $ — — — )

(24/24 ga.- $ — — — ) (22/24 ga.- $ — — — )

(22/22 ga.- $ — — — )

Multipliers
(1) - 1.097  (2) - 1.073  (4) - 1.048  (6) - 1.024  (8) - 1

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(24 ga. - $ — — — - ) (22/24 ga.- $ — — — - )
(22 ga. - $ — — — - )

Multipliers
(1) - 1.097  (2) - 1.073  (4) - 1.048  (6) - 1.024  (8) - 1

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******************************************************************************
EIGHT(8) FLIGHT CORE UNITS

Example data here given on a ... 24/28 core unit

(cores are constructed with ... G60 gal)
24 ga. Galvanized for the first ... 1 1/3 Revolution
28 ga. Galvanized their after ............

Each unit comes with (Energy Equalizers for equalizing flight energy)

Each unit comes with (Magnetic Deflectors to Improve Separation)

Each unit comes with an Adjustable Slide Gate at Termination
Point at Bottom of core (FOR FINE TUNING SEPARATIONS)

Each unit comes with its own DISPERSAL BOWL at TOP of core.

PRICE: $ — — — (1) $ — — — (2) $ — — — (4)
$ — — — (6) $ — — — (8)

CRATING PRICES: These Crates are for ... Domestic as well as
for Export ..... $ — — - (1) $ — — - (2) $ — — - (4) $ — — - (6)
$ — — — (8)
“Whirlybird“
Gravity Spiral Separator for . . Steelshot

Height = 78 1/2 “
Barrel Dia = 35”
A - What type of products can be run on a Spiral Separator?

Spiral separators will ..... SEPARATE
If set up Properly   -   ROUND ... from... UNROUND   products

Question? What would we expect to separate from .... Soybeans
  Dust & small foreign material
  Unround Seed ( shrivels ... etc )
  Split Seed

Question? What about Steel Shot
  Steel dust & small pieces of steel or foreign material
  Unround Shot

Question? What about something like Alfalfa
  Will separate Alfalfa from ... Round grass seeds etc

WHERE DO WE START

The very first thing we need is a clear understanding of how a Round object acts ... or ... The Path it Draws ... so to speak when the round object ... Rolls Down a Spiral Flighting
Look very carefully at a side profile of a Single Spiral Flight wrapped around a Stem Pipe

The Spiral Flighting has a (1) Fixed - Banking Angle and “Here is the catch “ a Large Variety of Downward Angles

Why a Large variety of Downward Angles?

Because Angle ... A ( Path traveled next to Pipe ) is a 40 deg Down Angle

Angle ... B ( Outside Edge of the Flighting ) is a 6.620 deg Down Angle

Stem Pipe Diameter = 2.9045 inches
Total over all Diameter of Spiral = 21 inches
Drop per Revolution = 7.656 inches

What Does This All Mean ... Or Better Yet How Does This Angle Change Affect A Rolling Round Object When Dropped At The Top Of The Flighting Up Next To The Stem Pipe
It means ..... as the Spiral Flighting Diameter Increases (with all things remaining the same)

*The Downward Angle Decreases*

Now we all know that as the Downward Angle Decreases the rolling object will ........ **SLOW DOWN**

![Fig. 2 A Single flight Spiral Separator](image)

The line coming off the round object with an arrow at the end represents an example path the round object will make.

*What happens is that as the round object travels out to a larger diameter “it slows down” because ... the Downward Angle Decreases ... the round object looses energy and tries to fall back to the center of the stem pipe. Although it will not actually hit the stem pipe as other forces are working to prevent this.*

It (round) will reach a Low Point @ 1 revolution down from the SP  = (perigee point 1)
Now let’s look at the path of an object that is Less Round - Path B
Fig 3

Will look similar to path ... A except ... won’t travel as far out

Unround is ... less energetic

FIG 3

Ok .... the Paths will look similar on the next level .. Down ...on the spiral flighting .... But will ... travel out to a Larger Diameter ( UP TO A POINT )

IMPORTANT!
All the paths ... High points & Low points will ... Stay close to the same locations relative to the .... SP ( starting point ) no matter how many levels or revolutions the spiral has.

OK ! NOW THAT WE KNOW WHY THIS PATH IS FORMED BY .. ROUND & LESS ROUND OBJECTS
LETS GET TO THE ... TEST /// “ NOT SO FAST “
Let's look at a bunch of ... Rounds, Not so Round and plain old Unround stuff going down the flighting at the same time - FIG 4

It will take a little longer for the Rounds to gain speed enough to break free of the .. Main Mass .. & when it does Rounds will ..Swing Out .. Less

Notice Previous Paths - dotted lines
OH YES! THE QUESTION HAS TO COME UP HOW MUCH YOU FEED IN THE FLIGHTING AT ANY MOMENT IS VERY ..... IMPORTANT!

If you feed to much ... called Overfeeding .. the Rounds might NEVER break Free and if it breaks free the Swing Out will be Very Small - “In other Words - No Separation“

THE KEY WORD HERE IS ...... “S E P A R A T I O N“

In other words we need room for the Material we are running to get up to their Natural speed .. Unhindered by other material rubbing up against each other ...... with the exception of dust etc Sliding up ... or almost next to the stem pipe.

This fast running ..... Track .... so to speak will allow Rounds to build up speed & separate from Unrounds to the Maximum.

We have to .....Have ... SEPARATION ..... as we have to set a ...... DIAMETER ...... For the Spiral Flighting.

The diameter is ...... DETERMINED ...... by what the User is trying to remove from the Round Product or VICE VERSA SOME TIMES THE ROUND PRODUCT = BAD & UNROUND = GOOD PRODUCT

In Fig 5 the (2) Rounds that have made Swing Outs ... Leave the Main part of the Mass at a certain Diameter. If the User wants to keep .... This - (2) Rounds a Diameter will be set at the .......... .. DOTTED CIRCLE ...

You - Tester - wants to make sure you are determining this Diameter on a ... Second or Third Level down from .. Start Point
Although .... Very Unrounds tend to .... Not keep Gaining Altitude up the Spiral Flighting. (Very small unrounds can’t get up enough speed)
In other words ... Dust etc sort of reaches a Terminal Velocity

The **LENGTH** of the Spiral flighting needs to be enough so all the Rounds have a chance to break free of the Unrounds & Swing Out over the Edge of the *Set Diameter* we have worked out ...... It’s a question of Feed Flow Amount

**OK - GOING BACK OVER THIS INFORMATION**

1 - Banking Angle   - Derivative of Downward Angle as defined going around the Stem Pipe
2 - Downward Angle .....Decreases as diameter gets Larger
3 - Feed Flow very Important - Material has to have Separation
4 - Diameter of Spiral is determined by Swing out of Rounds
5 - Length of spiral flighting is determined - after everything else by Feed Flow Amount

**Now on to the ....... Test**
Now we need the right ..... Tester to run our sample down & a Feed system that will deliver just the ... Right amount of Feed & we run our Test

H & T uses a variety of Single Flight cores 24 inches in Diameter along with a Seed Splitter system ( for getting the feed flow right )
We take Samples at different Diameters & Levels at Swing out point of the Product
By taking Samples this will more closely tell us where to “ Set the Diameter of the Flighting “
We make observations of the terminal altitude of the unrounds & this will let us determine length.
**ONCE ..... DIAMETER & LENGTH ARE DECIDED UPON**
A ...... WORKING CORE CAN BE MADE

Note!
We can not take a sample with the above 24 inch diameter Testers to send to a customer
These testers only give the information (Tester Sample) we need to make a working Spiral Separator.

*However .... we do have Premade test spirals for this purpose!*
MAKING THE CORE

Once the information we need to make a core is derived from our testers we can figure also how many flights that can be attached to the stem pipe.

After the core is built we have to take into account that ... Each Flight is of different ... Lengths

Being of different lengths makes all the ... Starting Points (SP) different. This if you remember will make all of the flights have different points where the Rounds ...... Swing Out (Apogee)

This problem is solved with placing ... Factory installed equalizer Dams at the shortest flights Starting Point (SP)
As more flights are added they are in effect no longer than the Shortest #1 Flight
These Equalizers not only cause all flights to have the same Apogee points but will also let the .... Slide gate at the bottom of the core for Fine Tuning work like it should.
The following page shows a diagram of an - 8 flight core and how # 2 - # 8 flight is .... Longer than the #1 flight
You can see how this problem is solved with “Factory Installed Equalizers”
These simply block the flow on flights 2-8 and make every thing start all over again giving these 7 flights the same energy as #1.
The Indentation marks are simply “Reference Marks” so user can know where he is so to speak ....... Energy wise
These are placed at the “Swing in “ points (Perigee) for all flights
Explanation of Energy Levels
Use as Guide for Placement of "STEEL" Seed Dams

Look For "Indentations" On Spirol Core
The Indentations shown here Represents the PEPIGEE POINT ... 2 P (1,2,3) or ...
2 P = 2th Revolution ... for #1, #2, & #3 Spirol Flights

"INDENTATIONS" ARE USED AS ... ENERGY REFERENCE POINTS
REMovable or MOVEABLE - SEED DAMS
Sometimes the user of the spiral separators might not want some of the stuff that is going over the edge of the separator. In other words user needs the spiral to be ..... Bigger in Diameter That is sometimes not reasonable so the next best thing we can do is to use ..... Blockers or ...... SEED DAMS

A seed Dam used here to deflect an almost Round back down into Main Mass. This object is not wanted with the Rounds

Notice that the location of the Dam will be located ... up hill and Left of the Perigee Indentation notch. Remember ..... once you have found the Location for one flight you have found it for ....... ALL
The following pictures shows ....... 14 ga. Black Iron Metal Seed Blockers (Seed Dams) being clamped down at the Perigee Point - 2 revolutions down from the SP of # 1 flight. These .... Metal dams are made especially for H & T Spiral Cores ....... But can be .... Custom made for any Core Cartridge This Dam set has (8) Fingers all held in place at the correct deflection Angle by .... 2 Wing Nuts. This placement is an Example Location Placement. A more realistic placement would be right after the .... Apogee (Swing out) of the .... Round Product. In other words ....... To the ..... Left of Perigee Point
TIGHTING THE WING NUTS

Movable Steel Seed Dams being Installed
SUPPLEMENT - Changes for these boxes

1 - All 14 ga construction (Body, Hoppers, Bottom, Top, etc)

2 - Hopper system - Replaceable (Bolt on)
   Hopper Inserts for Precise Seed Flow Control
   can be supplied with these cleaners
   (Inserts may not be necessary)
   Hopper Feed pipe = 10 ga
   Improved adjustable feed cones

3 - All steel access cover plates
   “Clear Polycarbonate cover plates optional“

4 - New Polycarbonate bendable plastic doors
   with magnetic seals.

5 - Removal (Bolt on rubber shields) - for
   easy replacement of rubber.

6 - Improved Anti-interaction rubber curtains
   1/16” Neo Rubber (Heavy Duty)

7 - Cores have improved Bowl
   Cores have 14 ga energy equalizers
   Cores come with Seed Dams with
   3x times Magnetic holding power
   as our older style seed dams
INSERTS ... GO HERE!
SECTION M

FOUR (4) CORE HARDEN TYPE
ENCLOSED SPIRAL MODEL 200
TROUBLESHOOTING - “PRINT THIS PAGE”

IF TO MANY ROUNDS GOING INTO REJECTS ... BACK GATE  DOWN  A BIT

STILL .. TO MANY ROUNDS GOING INTO REJECTS ... SLOW FEED FLOW DOWN

STILL .. TO MANY ROUNDS GOING INTO REJECTS ... *** TWIST SEED DAMS OUT A BIT AWAY FROM PIPE - ALL (8) OF THEM

STILL .. TO MANY ROUNDS GOING INTO REJECTS ... REMOVE ALL (8) SEED DAMS

MIGHT WANT TO CONSIDER A SMALLER DIAMETER CORE — PAGE 141
( ORBIT HEIGHT OF THE REJECT MATERIAL SHOULD DETERMINE DIAMETER OF THE CORE )

MIGHT WANT TO CONSIDER A ** MORE ENERGETIC CORE (See bottom of page)

IF TO MANY REJECTS GOING INTO ROUNDS ... PULL GATE  UP  A BIT

STILL .. TO MANY REJECTS GOING INTO ROUNDS ... INCREASE FEED FLOW “SLIGHTLY“ ( OVERFEEDING = TO MANY ROUNDS IN REJECTS )

STILL .. TO MANY REJECTS GOING INTO ROUNDS ... ADD SEED DAMS NOT FULL ANGLE - ALL (8) OF THEM

STILL .. TO MANY REJECTS GOING INTO ROUNDS ... *** APPLY FULL ANGLE ON - ALL (8) SEED DAMS

STILL .. TO MANY REJECTS GOING INTO ROUNDS ... ADD (8) MORE SEED DAMS “NOT FULL ANGLE“ — VERTICALLY UNDER — FIRST SET OF 8 DAMS

STILL .. TO MANY REJECTS GOING INTO ROUNDS :

- BIGGER DIAMETER CORE CAN HELP IF PRODUCT IS NOT .. TO ENERGETIC - “PRODUCT BEING TO ENERGETIC MEANS IT HAS A ... LARGE ORBIT AROUND THE CENTER STEM PIPE SUCH AS .. LARGE ROUND SEEDS OR STEEL SHOT WOULD HAVE - IN THIS CASE - A CORE LARGE ENOUGH TO HAVE A POSITIVE EFFECT COULD EXCEED THE LIMITATION SIZE OF THE CABINET ENCLOSURE “

IF DUST & SMALLER REJECT MATERIAL WILL ALLOW “ WITHOUT STOPPING UP THE CORE .... MIGHT WANT TO CONSIDER A ** LESS ENERGETIC CORE ** LESS ENERGETIC CORE = DECREASED DOWNWARD ANGLE ... THAT THE SPIRAL IS WRAPPED AROUND THE STEM PIPE ( Standard variations of Downward Angle is (3) degree increments - See Page 90 )

*** FULL MAXIMUM ANGLE OF SEED DAMS SHOW ON .. PAGE 99  ( Top Picture ) ( MAX ANGLE = SEED DAM POINTING TO OUTER EDGE OF PIPE - ON LOWER SIDE )
SECTION N

EIGHT (10) CORE ENCLOSED SPIRAL HT-500
HT-500
Enclosed
Spiral Separator

Completely Enclosed For

♦ Dust Control
♦ Quiet Operation
♦ Compactness
♦ Ease of Handling

⇒ High Capacity  500 BPH

♦ Each unit contains (10) independent soldered, galvanized Spiral Core Cartridges with each having infinitely adjustable flow-control (flow control adjustable during operation)
♦ Integral self-cleaning hoppers
♦ Deflectors included for fine tuning separation
♦ Four (6) access doors for easy entrance to internal components
♦ Heavy 14 gauge body construction with rubber cushioned seed discharge points
♦ Legs 3/16” Flanges 1/8”
♦ Different pitched spiral cores offered which are easily installed (these cores can be furnished in Galvanized metal up to 22 gauge & 24 gauge Stainless)

⇒ Figure based on average precleaned soybean seed but may vary depending on precleaning quality, type seed, or required quality of final product.
BASIC HT-500 BOX TYPE SPIRAL SEPARATOR (MATERIAL PATH)
8 CORE ENCLOSED “SPIRAL” SEPARATOR

HT - 400 MAGIC BOX
HT-400 MAGIC BOX
Enclosed Spiral Separator

Completely Enclosed For

- Dust Control
- Quiet Operation
- Compactness
- Ease of Handling

⇒ High Capacity  400 BPH

- Each unit contains (8) independent soldered, galvanized Spiral Core Cartridges with each having infinitely adjustable flow-control (flow control adjustable during operation)
- Integral self-cleaning hoppers
- Deflectors included for fine tuning separation
- Four (4) access doors for easy entrance to internal components
- Heavy 14 -16 gauge body construction with rubber cushioned seed discharge points
- Legs 3/16”  Flanges 1/8”
- Different pitched spiral cores offered which are easily installed
  (these cores can be furnished in Galvanized metal up to 22 gauge & 26 gauge Stainless)

⇒ Figure based on average precleaned soybean seed but may vary depending on precleaning quality, type seed, or required quality of final product.
24 5/16" (617 MM)

24 5/16" (617 MM)

48 5/8" (1235 MM)

45 1/4" (1146 MM)

48 5/8" (1235 MM)

12" (305 MM)

93 1/4" (2367 MM)

96 5/8" (2454 MM)

TOP - FRONT - SIDE (108-A)

"MAGIC BOX"

8 CORE ENCLOSED SPIRAL

FOOT PRINT DRAWING

DRAWN: FEB-LL-3007

NO. 208-B