

# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors



DS 001  
1983

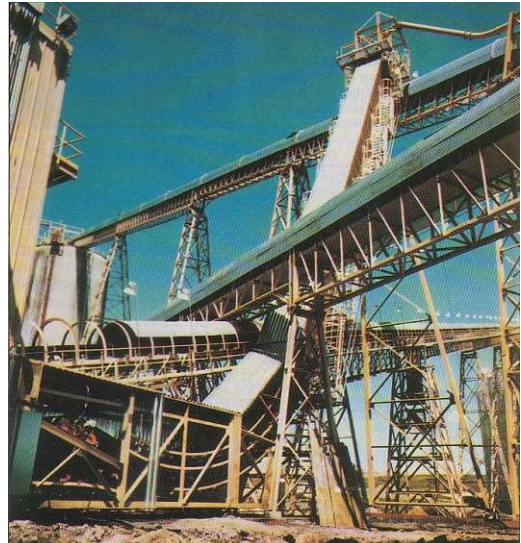
### Sandwich Conveyor Test & Demonstration

Materials	- Various, from light weight wood chips to heavy course ores
- Density	- 0.27 to 2.4 t/cu-m (17 to 150 PCF)
- Size	- To 254 mm (10") minus
Conveying Rate	- To 2700 t/h (3000 STPH)
Conveying Angle	- Variable 30 to 60 degrees
Belt Width	- 1524 mm (60")
Belt Speed	- Variable to 6.1 m/s (1200 FPM)
Lift	- Variable 7,900 to 19,50032 mm (26 to 64')
Length	- 35,000 mm (115')
Drives	
- Top Belt	- 74.6 kW (100 HP)
- Bottom Belt	- 111.8 kW (150 HP)

### Sandwich Conveyor for Coal Mine, Western USA

Material	- Coal
Conveying Rate	- 2540 t/h (2800 STPH)
Conveying Angle	- 60 degrees
Belt Width	- 1524 mm (60")
Belt Speed	- 5.33 m/s (1050 FPM)
Lift	- 32,900 mm (108')
Length	- 35,000 mm (115')
Drives	
- Top Belt	- 149 kW (200 HP)
- Bottom Belt	- 224 kW (300 HP)

DS 002  
1984



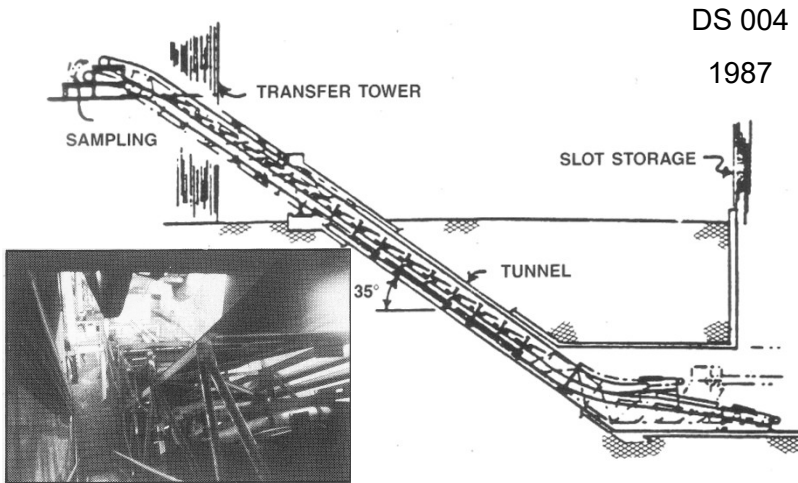
DS 003  
1992

### Sandwich Conveyor for Copper Mine, Eastern Europe

Material	- Copper Ore
- Density	- 2.08 t/cu-m (130 PCF)
- Size	- To 250 mm (10") minus
Conveying Rate	- 4000 t/h (4409 STPH)
Conveying Angle	- 35.5 degrees
Belt Width	- 2000 mm (78.7")
Belt Speed	- 2.85 m/s (561 FPM)
Lift	- 93,500 mm (307')
Drives	
- Top Belt	- 450 kW (600 HP)
- Bottom Belt	- 2x450=900 kW (1200 HP)

# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors



DS 004

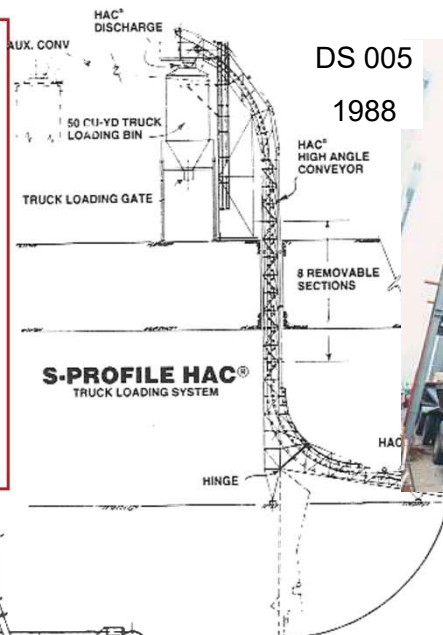
1987

### Sandwich Conveyor for Coal Mine, Western USA

Material	- Coal
Conveying Rate	- 2903 t/h (3200 STPH)
Conveying Angle	- 35 degrees
Belt Width	- 1829 mm (72")
Belt Speed	- 4.57 m/s (900 FPM)
Lift	- 29,000 mm (95')
Drives	
- Top Belt	- 149 kW (200 HP)
- Bottom Belt	- 224 kW (300 HP)

### Sandwich Conveyor for Metro Project, Los Angeles, CA, USA

Material	- Excavated Earth
Conveying Rate	- 272 t/h (300 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 1.6 m/s (315 FPM)
Lift	- 32,300 mm (106')
Drives	
- Top Belt	- 22.4 kW (30 HP)
- Bottom Belt	- 22.4 kW (30 HP)



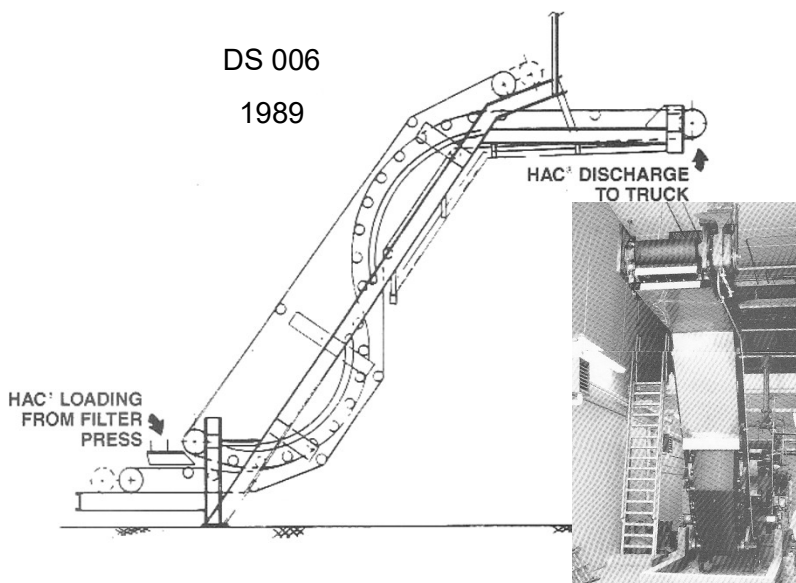
DS 005

1988



DS 006

1989

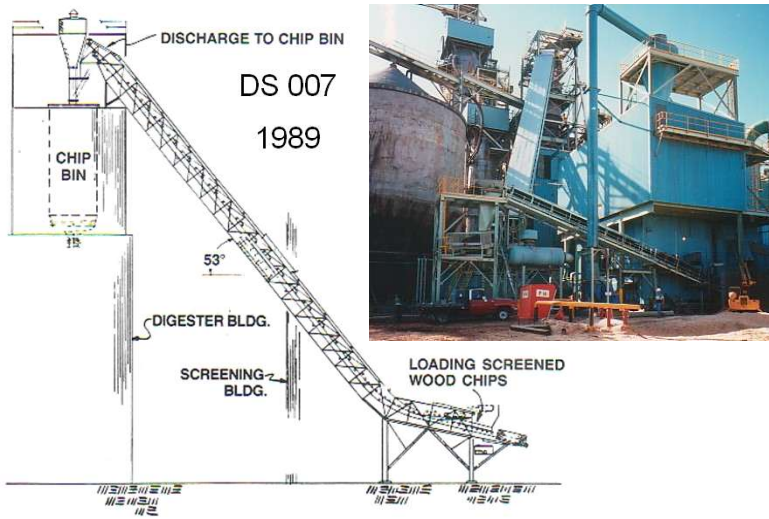


### Sandwich Conveyor for Waste Treatment Plant, Eastern USA

Material	- Municipal Sludge
Conveying Rate	- 272 kgs/h (600 lbs/h)
Conveying Angle	- 90 degrees
Belt Width	- 610 mm (24")
Belt Speed	- .3 m/s (60 FPM)
Lift	- 3,660 mm (12')
Drive	
- Bottom Belt	- 2.2 kW (3 HP)

# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors



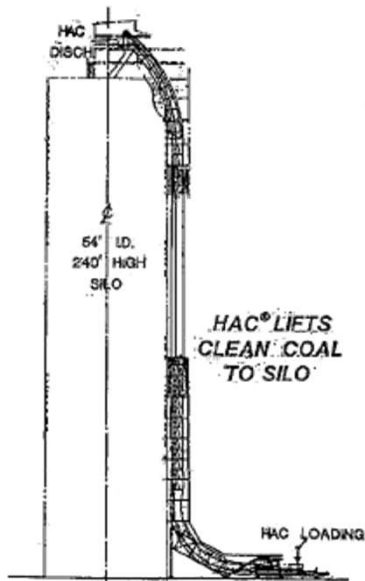
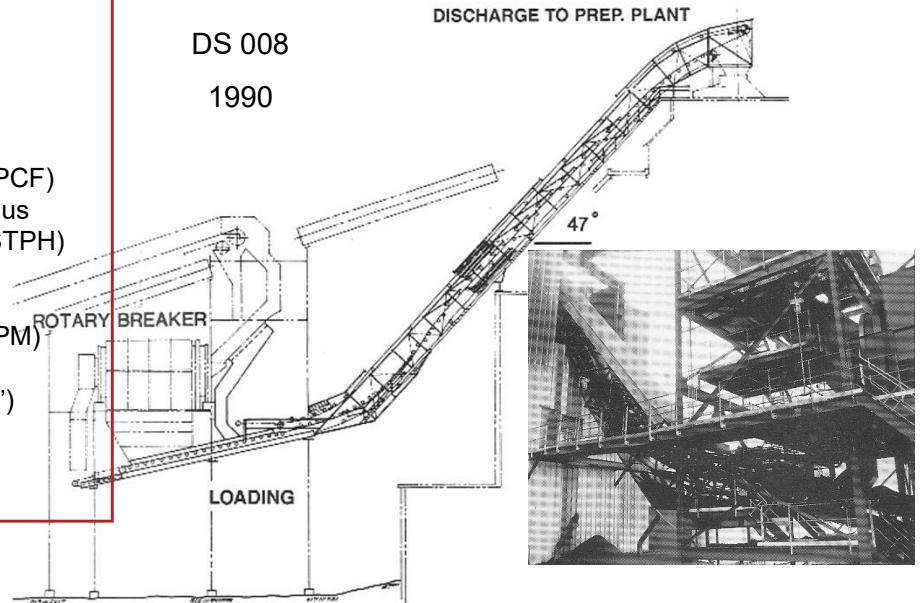
### Sandwich Conveyor for Paper Mill, Western USA

Material	- Wood Chips
- Density	- 0.27 t/cu-m (17 PCF)
- Size	- 76 mm (3") minus
Conveying Rate	- 173 t/h (191 STPH)
Conveying Angle	- 53 degrees
Belt Width	- 1219 mm (48")
Belt Speed	- 2.03 m/s (400 FPM)
Lift	- 32,600 mm (107')
Length	- 49,300 mm (162')
Drives	
- Top Belt	- 22.4 kW (30 HP)
- Bottom Belt	- 22.4 kW (30 HP)

### Sandwich Conveyor for Coal Prep Plant, Eastern USA

Material	- Raw Coal
- Density	- 1.04 t/cu-m (65 PCF)
- Size	- 152 mm (6") minus
Conveying Rate	- 1089 t/h (1200 STPH)
Conveying Angle	- 47 degrees
Belt Width	- 1372 mm (54")
Belt Speed	- 2.79 m/s (550 FPM)
Lift	- 21,900 mm (72')
Length	- 40,200 mm (132')
Drives	
- Top Belt	- 56 kW (75 HP)
- Bottom Belt	- 56 kW (75 HP)

DS 008  
1990



DS 009  
1991



### Sandwich Conveyor for Coal Prep Plant, Eastern USA

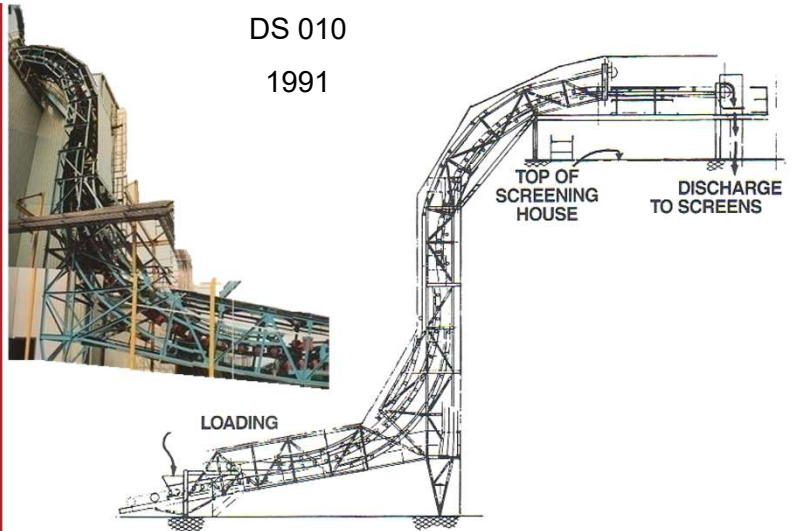
Material	- Clean Coal
- Density	- 0.8 t/cu-m (50 PCF)
- Size	- 127 mm (5") minus
Conveying Rate	- 726 t/h (800 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 1372 mm (54")
Belt Speed	- 2.79 m/s (550 FPM)
Lift	- 76,200 mm (250')
Length	- 90,200 mm (296')
Drives	
- Top Belt	- 112 kW (150 HP)
- Bottom Belt	- 112 kW (150 HP)

# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors

### Sandwich Conveyor for Paper Mill, Western USA

Material	- Wood Chips
- Density	- 0.275 t/cu-m (17.2 PCF)
- Size	- 76 mm (3") minus
Conveying Rate	- 65.3 t/h (72 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 2.03 m/s (400 FPM)
Lift	- 15,500 mm (51')
Length	- 31,400 mm (103')
Drives	
- Top Belt	- 7.5 kW (10 HP)
- Bottom Belt	- 7.5 kW (10 HP)



### Sandwich Conveyor for Coal Mine, Western USA

Material	- Raw Coal
- Density	- 0.961 t/cu-m (60 PCF)
- Size	- 203 mm (8") minus
Conveying Rate	- 1089 t/h (1200 STPH)
Conveying Angle	- 67 degrees
Belt Width	- 1372 mm (54")
Belt Speed	- 3.56 m/s (700 FPM)
Lift	- 33,200 mm (109')
Length	- 46,000 mm (151')
Drives	
- Top Belt	- 93.2 kW (125 HP)
- Bottom Belt	- 93.2 kW (125 HP)

### Sandwich Conveyor for Coal Prep Plant, Eastern USA

Material	- Refuse
- Density	- 1.28 t/cu-m (80 PCF)
- Size	- 135 mm (5.3") minus
Conveying Rate	- 454 t/h (500 STPH)
Conveying Angle	- To 41 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 2.34 m/s (460 FPM)
Lift	- 174,800 mm (574')
Length	- 454,200 mm (1490')
Drives	
- Top Belt	- 186.5 kW (250 HP)
- Bottom Belt	- 186.5 kW (250 HP)

DS 012  
1992



# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors

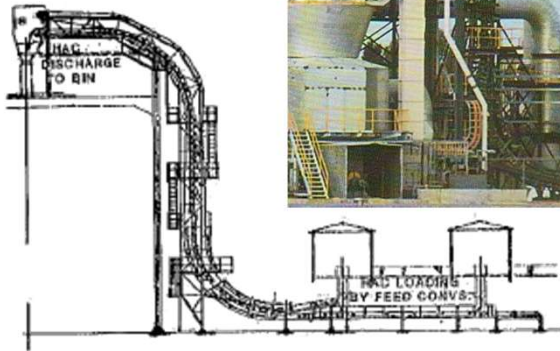


DS 013

1991

### Sandwich Conveyor for Cement Plant, Australia

Material	- Gypsum, Slag
- Density	- 0.968 t/cu-m (60.4 PCF)
- Size	- 30 mm (1.2") minus
Conveying Rate	- 50 t/h (55 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 600 mm (23.6")
Belt Speed	- 1.67 m/s (329 FPM)
Lift	- 16,200 mm (53')
Length	- 37,800 mm (124')
Drives	
- Top Belt	- 7.5 kW (10 HP)
- Bottom Belt	- 7.5 kW (10 HP)



### Sandwich Conveyor for Pulp Mill, Eastern Canada

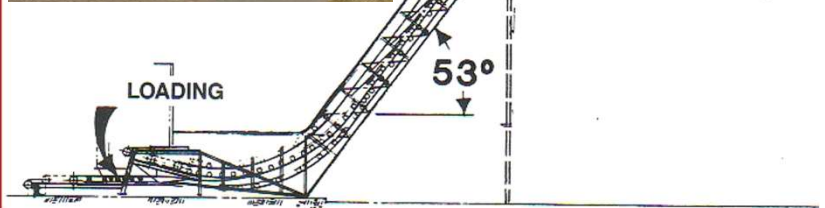
Material	- Wood Chips
- Density	- 0.336 t/cu-m (21 PCF)
- Size	- 76 mm (3") minus
Conveying Rate	- 375 t/h (414 STPH)
Conveying Angle	- 53 degrees
Belt Width	- 1219 mm (48")
Belt Speed	- 2.67 m/s (525 FPM)
Lift	- 22,900 mm (75')
Length	- 40,500 mm (133')
Drives	
- Top Belt	- 44.8 kW (60 HP)
- Bottom Belt	- 44.8 kW (60 HP)



DS 014

1991

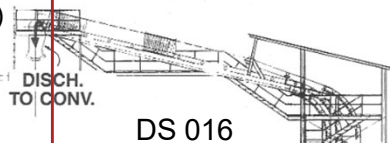
DISCH.  
TO SILO



### Unit 016, 1991

Material	- Mixed Compost
- Density	- 0.545 t/cu-m (34 PCF)
Conveying Rate	- 40.2 t/h (44.4 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 1.27 m/s (250 FPM)
Lift	- 12,900 mm (42.5')
Length	- 31,800 mm (104.5')
Drive	
- Bottom Belt	- 11.2 kW (15 HP)

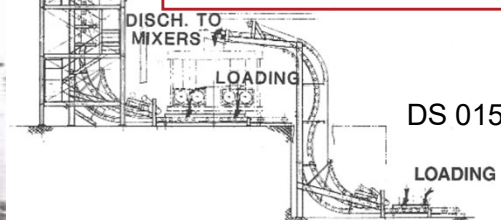
### Sandwich Conveyors for Composting Plant, Eastern USA



DS 016

### Unit 015, 1991

Material	- Unmixed Compost
- Density	- 0.564 t/cu-m (35.2 PCF)
Conveying Rate	- 40.2 t/h (44.4 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 1.27 m/s (250 FPM)
Lift	- 9,000 mm (29.5')
Length	- 17,500 mm (57.5')
Drive	
- Bottom Belt	- 11.2 kW (15 HP)



DS 015

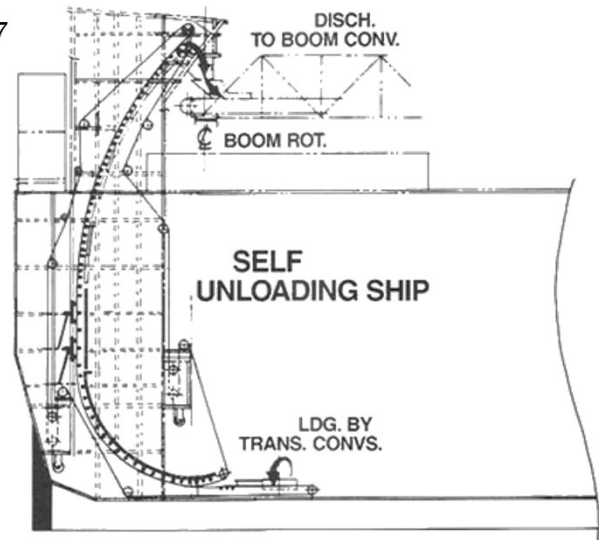
# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors

### Sandwich Conveyor for Self-Unloading Ship, Mexico

Material	- Various Grains
- Density	- 0.721 t/cu-m (45 PCF)
Conveying Rate	- 584 t/h (644 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 1524 mm (60")
Belt Speed	- 4.06 m/s (800 FPM)
Lift	- 18,900 mm (62')
Length	- 27,400 mm (90')
Drives	
- Inner Belt	- 56 kW (75 HP)
- Outer Belt	- 56 kW (75 HP)

DS 017  
1991



DISCHARGE  
TO BOOM CONVEYOR

DS 018  
1993

### Sandwich Conveyor for Self-Unloading Ship, Mexico

Material	- Various Grains
- Density	- 0.721 t/cu-m (45 PCF)
Conveying Rate	- 1361 t/h (1500 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 1829 mm (72")
Belt Speed	- 4.06 m/s (800 FPM)
Lift	- 17,800 mm (58.5')
Length	- 123,000 mm (404')
Drives	
- Inner Belt	- 112 kW (150 HP)
- Outer Belt	- 112 kW (150 HP)

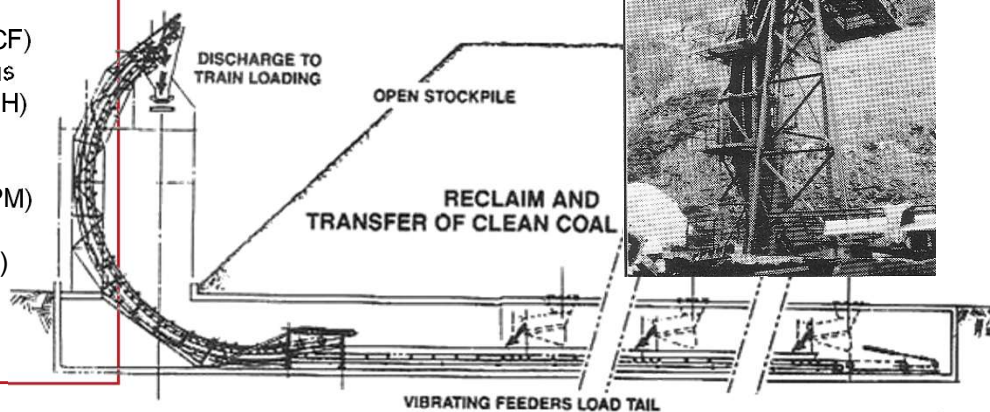
COMPLETE SYSTEM  
FOR SELF UNLOADER

LOADING TAIL FROM HOLDS ABOVE

### Sandwich Conveyor for Coal Mine, Eastern USA

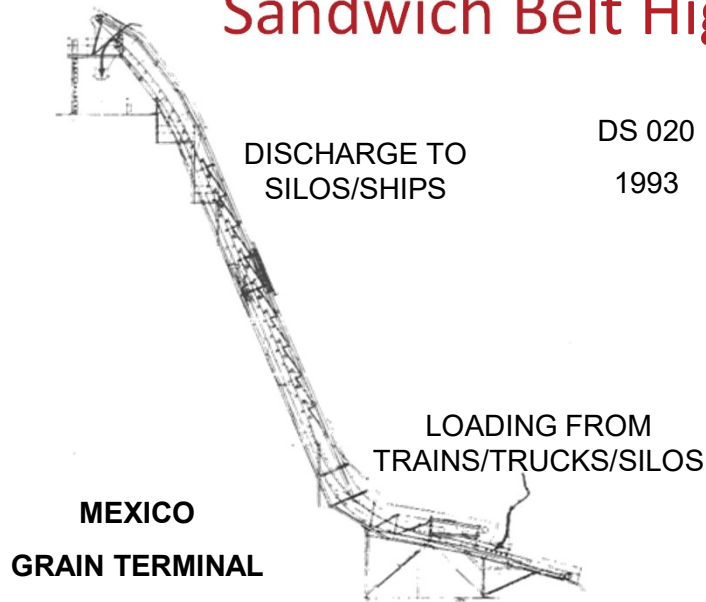
Material	- Clean Coal
- Density	- 0.8 t/cu-m (50 PCF)
- Size	- 6 mm (1/4") minus
Conveying Rate	- 544 t/h (600 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 1372 mm (54")
Belt Speed	- 2.79 m/s (550 FPM)
Lift	- 16,100 mm (53')
Length	- 69,400 mm (228')
Drives	
- Inner Belt	- 37.3 kW (50 HP)
- Outer Belt	- 75 kW (100 HP)

DS 019  
1991



# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors

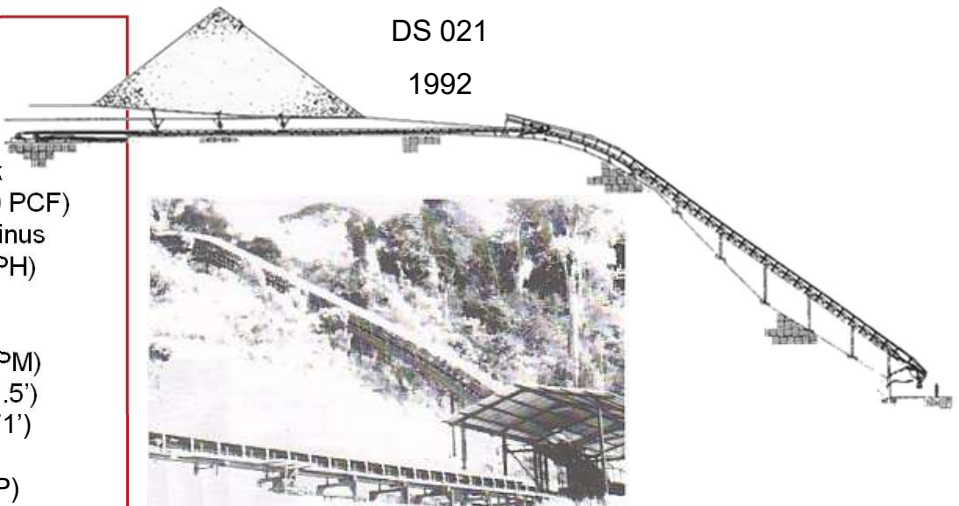


### Sandwich Conveyor for Grain Distribution Terminal, Mexico

Material	- Various Grains
- Density	- 0.721 t/cu-m (45 PCF)
- Size	- 50 mm (2") minus
Conveying Rate	- 907 t/h (1000 STPH)
Conveying Angle	- 65 degrees
Belt Width	- 1372 mm (54")
Belt Speed	- 3.73 m/s (735 FPM)
Lift	- 30,700 mm (100.6')
Length	- 44,200 mm (145.2')
Drives	
- Top Belt	- 75 kW (100 HP)
- Bottom Belt	- 75 kW (100 HP)

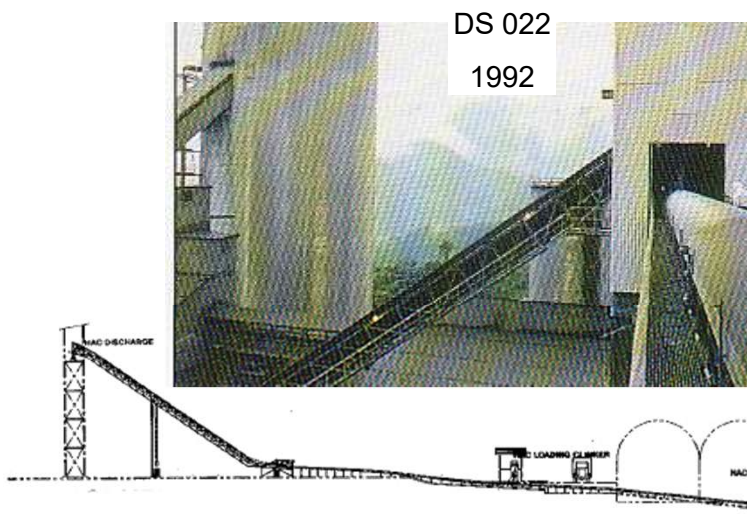
### Downhill Sandwich Conveyor from Phosphate Mine, Venezuela

Material	- Phosphate Rock
- Density	- 1.60 t/cu-m (100 PCF)
- Size	- 6.3 mm (1/4") minus
Conveying Rate	- 668 t/h (736 STPH)
Conveying Angle	- 35.5 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 2.29 m/s (450 FPM)
Elevation Drop	- 34,000 mm (111.5')
Length	- 113,000 mm (371')
Drive	
- Bottom Belt	- 93.2 kW (125 HP)



### Sandwich Conveyor for Cement Plant, Mexico

Material	- Clinker, Gypsum, Pozzolan
- Density	- 1.36 t/cu-m (85 PCF)
- Size	- 100 mm (3.9") minus
- Temperature	- Clinker to 200 deg C
Conveying Rate	- 715 t/h (788 STPH)
Conveying Angle	- 35 degrees
Belt Width	- 1219 mm (48")
Belt Speed	- 1.73 m/s (340 FPM)
Lift	- 40,950 mm (134.3')
Length	- 198,900 mm (653')
Drives	
- Top Belt	- 55.9 kW (50 HP)
- Bottom Belt	- 111.9 kW (100 HP)



# JOSEPH A. DOS SANTOS

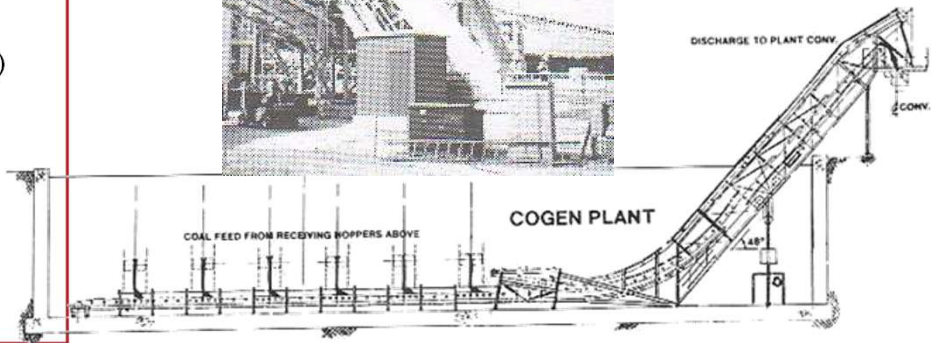
## Sandwich Belt High Angle Conveyors

### Sandwich Conveyor at Power Plant, Eastern USA

DS 023

1992

Material	- Coal
- Density	- 0.80 t/cu-m (50 PCF)
- Size	- 102 mm (4") minus
Conveying Rate	- 1814 t/h (2000 STPH)
Conveying Angle	- 48 degrees
Belt Width	- 1829 mm (72")
Belt Speed	- 3.56 m/s (700 FPM)
Lift	- 14,200 mm (46.6')
Length	- 57,000 mm (187')
Drives	
- Top Belt	- 75 kW (100 HP)
- Bottom Belt	- 112kW (150 HP)



DS 024

1992

### Sandwich Conveyor at Underground Gypsum Mine, Eastern USA

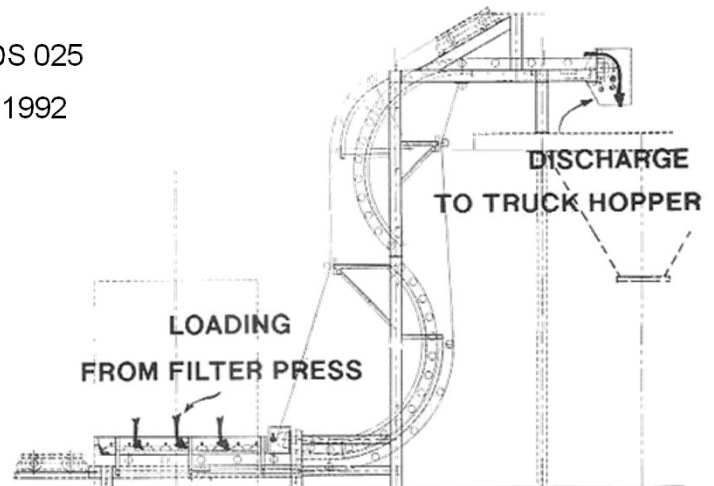
Material	- Gypsum Rock
- Density	- 1.70 t/cu-m (106 PCF)
- Size	- 152 mm (6") minus
Conveying Rate	- 363 t/h (400 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 1067 mm (42")
Belt Speed	- 1.52 m/s (300 FPM)
Lift	- 36,600 mm (120')
Length	- 48,500 mm (159')
Drives	
- Top Belt	- 37.3 kW (50 HP)
- Bottom Belt	- 37.3 kW (50 HP)

### Sandwich Conveyor for Sludge Dewatering Plant, Midwest USA

Material	- Sewage Sludge
- Density	- .64 t/cu-m (40 PCF)
- Size	- 51 mm (2") minus
Conveying Rate	- 9.1 t/h (10 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 610 mm (24")
Belt Speed	- 1.22 m/s (240 FPM)
Lift	- 7,100 mm (23.2')
Length	- 16,100 mm (53')
Drive	
- Bottom Belt	- 11.2 kW (15 HP)

DS 025

1992



# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors

### Unit 026, 1992

Material	- Raw Coal
- Density	- 0.88 t/cu-m (55 PCF)
- Size	- 203 mm (8") minus
Conveying Rate	- 1361 t/h (1500 STPH)
Conveying Angle	- 51 degrees
Belt Width	- 1524 mm (60")
Belt Speed	- 3.56 m/s (700 FPM)
Lift	- 23,200 mm (76')
Length	- 44,800 mm (147')
Drives	
- Top Belt	- 93.2 kW (125 HP)
- Bottom Belt	- 93.2 kW (125 HP)

### Sandwich Conveyors for Coal Mine, Western USA



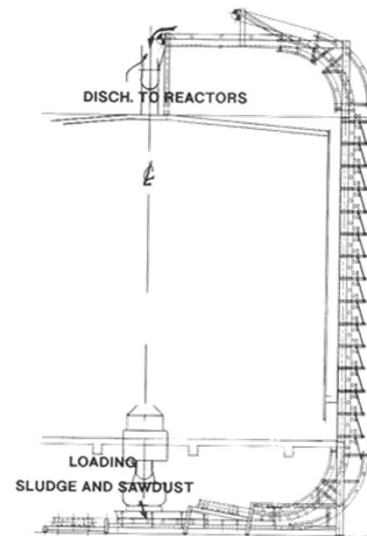
### Unit 027, 1992

Material	- Oversize Coal
- Density	- 1.04 t/cu-m (65 PCF)
- Size	- 2033X51mm (8"x2")
Conveying Rate	- 272 t/h (300 STPH)
Conveying Angle	- 35 degrees
Belt Width	- 1219 mm (48")
Belt Speed	- 1.27 m/s (250 FPM)
Lift	- 14,900 mm (49')
Length	- 38,200 mm (125.5')
Drive	
- Top Belt	- 14.9 kW (20 HP)
- Bottom Belt	- 14.9 kW (20 HP)

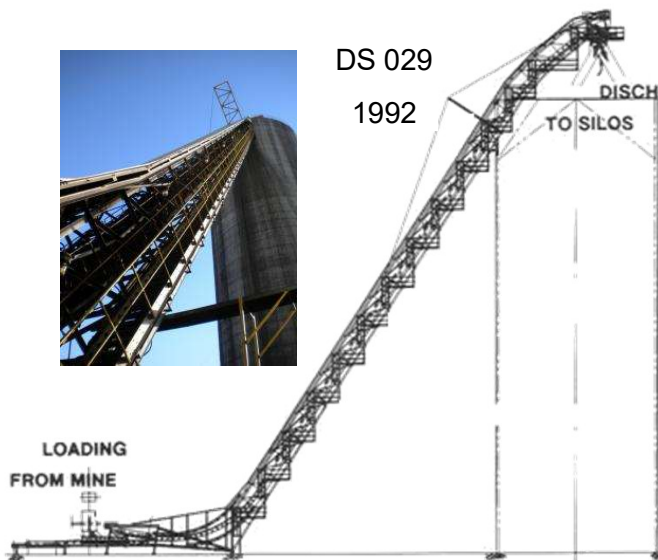
### Sandwich Conveyor for Composting Plant, Eastern Canada

Material	- Dewatered Sludge
- Density	- 0.72 t/cu-m (45 PCF)
Conveying Rate	- 109 t/h (120 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 1.52 m/s (300 FPM)
Lift	- 21,300 mm (70')
Length	- 36,900 mm (121')
Drives	
- Inner Belt	- 18.6 kW (25 HP)
- Outer Belt	- 18.6 kW (25 HP)

### DS 028 1992



### DS 029 1992



### Sandwich Conveyor for Coal Mine, Western USA

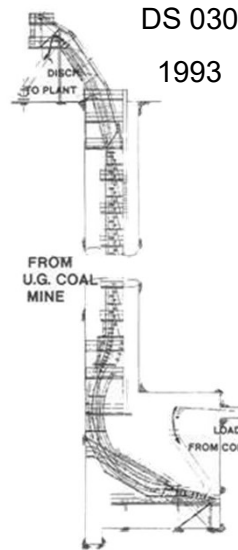
Material	- Coal
- Density	- 0.88 t/cu-m (55 PCF)
- Size	- 51 mm (2") minus
Conveying Rate	- 1949 t/h (2150 STPH)
Conveying Angle	- 57 degrees
Belt Width	- 1829 mm (72")
Belt Speed	- 3.81 m/s (750 FPM)
Lift	- 54,200 mm (178')
Length	- 90,800 mm (298')
Drives	
- Top Belt	- 186 kW (250 HP)
- Bottom Belt	- 298 kW (400 HP)

# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors

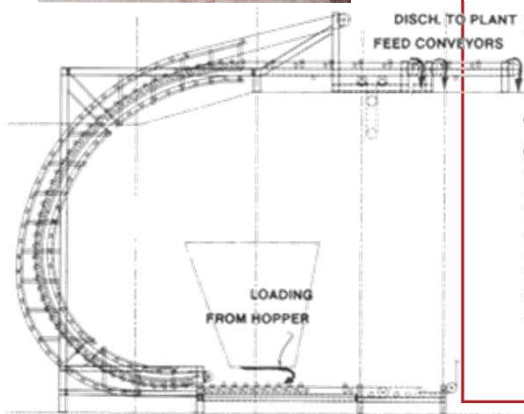
### Sandwich Conveyor at Underground Coal Mine, Midwest USA

Material	- ROM Coal
- Density	- 0.88 t/cu-m (55 PCF)
- Size	- 228 mm (9") minus
Conveying Rate	- 1361 t/h (1500 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 1524 mm (60")
Belt Speed	- 4.57 m/s (900 FPM)
Lift	- 104,000 mm (342')
Length	- 115,000 mm (377')
Drives	
- Top Belt	- 298 kW (400 HP)
- Bottom Belt	- 298 kW (400 HP)



### Sandwich Conveyors at Synfuel Plants, South Africa

1993



Units DS	- 031	032	033	034	035
Material	- ..... Coal.....				
- Density	- .....0.85 t/cu-m (53.1 PCF).....				
- Size	- .....6 mm (1/4").....				
Conveying Rate	- .....400 t/h (441 STPH).....		- .....600 t/h (661 STPH).....		
Conveying Angle	- .....90 degrees.....				
Belt Width	- .....1200 mm (47.2").....		- .....1350 (53.1").....		
Belt Speed	- .....2.2 m/s (433 FPM).....		- .....2.6 m/s (512 FPM).....		
Lift	- .....13,300 mm (43.5').....				
Length	- 37m(121')...38m(125')...41m(134').....		- .....38m(125').....		
Drives					
- Inner Belt	- .....30 kW (40.2 HP).....		- .....40 kW (53.6 HP)..		
- Outer Belt	- .....30 kW (40.2 HP).....		- .....40 kW (53.6 HP)..		

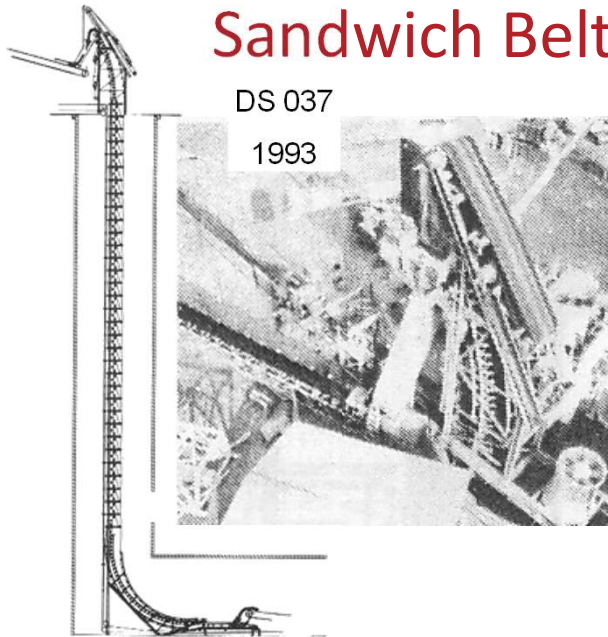
### Sandwich Conveyor for Gold Mine, Western USA

Material	- Gold Ore
- Density	- 1.6 t/cu-m (100 PCF)
- Size	- 250 mm (10") minus
Conveying Rate	- 689 t/h (760 STPH)
Conveying Angle	- 50 degrees
Belt Width	- 1219 mm (48")
Belt Speed	- 1.65 m/s (325 FPM)
Lift	- 28,900 mm (95')
Length	- 58,400 mm (191.5')
Drives	
- Top Belt	- 37.3 kW (50 HP)
- Bottom Belt	- 56 kW (75 HP)



# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors



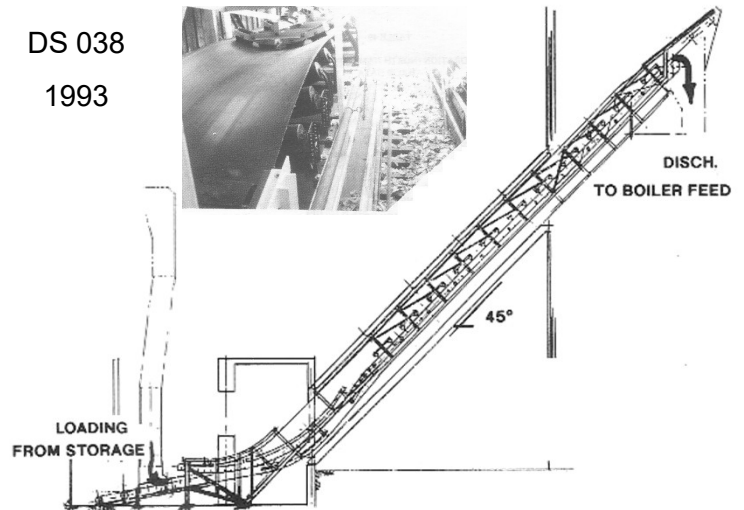
### Sandwich Conveyor at Tunnel Excavation Project, Midwest USA

Material	- TBM Muck
- Density	- 1.1 to 1.3 t/cu-m (85 to 105 PCF)
- Size	- 152 mm (6") minus
Conveying Rate	- 1266 t/h (1395 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 1372 mm (54")
Belt Speed	- 3.56 m/s (700 FPM)
Lift	- 70,000 mm (230')
Length	- 83,800 mm (275')
Drives	
- Top Belt	- 186 kW (250 HP)
- Bottom Belt	- 186 kW (250 HP)

### Sandwich Conveyor for Refuse Power Plant, Eastern USA

Material	- Refused Derived Fuel-RDF
- Density	- 0.19 t/cu-m (15 PCF)
- Size	- 203 mm (8") minus
Conveying Rate	- 45.3 t/h (50 STPH)
Conveying Angle	- 45 degrees
Belt Width	- 1372 mm (54")
Belt Speed	- 1.15 m/s (227 FPM)
Lift	- 23,800 mm (78')
Length	- 40,200 mm (132')
Drive	
- Bottom Belt	- 15 kW (20 HP)

DS 038  
1993



### Sandwich Conveyor Unit 039 for CoGen Power Plant, Eastern USA

Material	- Coal
- Density	- 1.12 t/cu-m (70 PCF)
- Size	- 51 mm (2") minus
Conveying Rate	- 236 t/h (260 STPH)
Conveying Angle	- 55 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 2.29 m/s (450 FPM)
Lift	- 28,300 mm (93')
Length	- 60,400 mm (199')
Drives	
- Top Belt	- 22.4 kW (30 HP)
- Bottom Belt	- 22.4 kW (30 HP)

DS 040  
1994

### Sandwich Conveyor Unit 040 for CoGen Power Plant, Eastern USA

Material	- Coal
- Density	- 1.12 t/cu-m (70 PCF)
- Size	- 6.3 mm (1/4") minus
Conveying Rate	- 236 t/h (260 STPH)
Conveying Angle	- 60/45 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 2.29 m/s (450 FPM)
Lift	- 48,500 mm (159')
Length	- 75,000 mm (246')
Drives	
- Top Belt	- 30 kW (40 HP)
- Bottom Belt	- 37.3 kW (50 HP)

DS 039  
1994

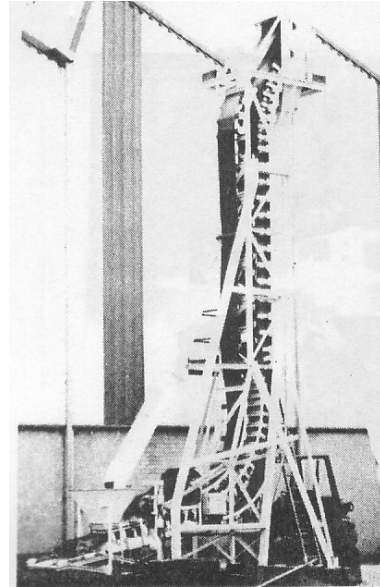
# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors

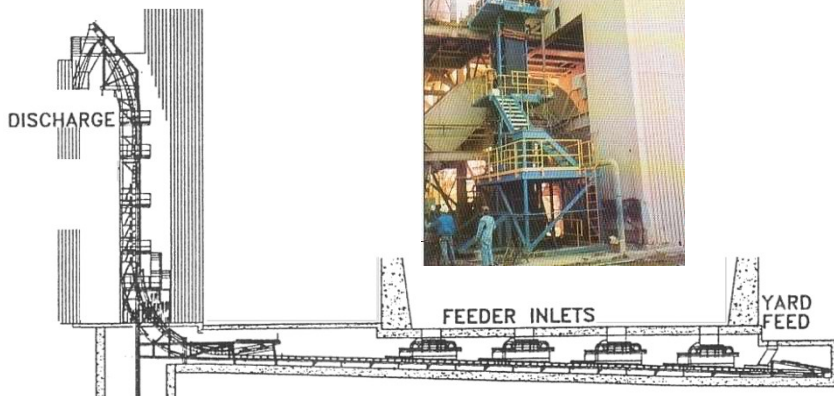
### Sandwich Conveyor Demonstration Unit, England

Material	- Various
- Density	- 0.65 to 1.3 t/cu-m (40 to 80 PCF)
- Size	- 50 mm (2") minus
Conveying Rate	- 49 t/h (54 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 500 mm (20")
Belt Speed	- 2.5 m/s (480 FPM)
Lift	- 9,000 mm (29.5')
Length	- 11,300 mm (38.2')
Drives	
- Top Belt	- 3 kW (4 HP)
- Bottom Belt	- 3 kW (4 HP)

DS 041  
1993



DS 042  
1994



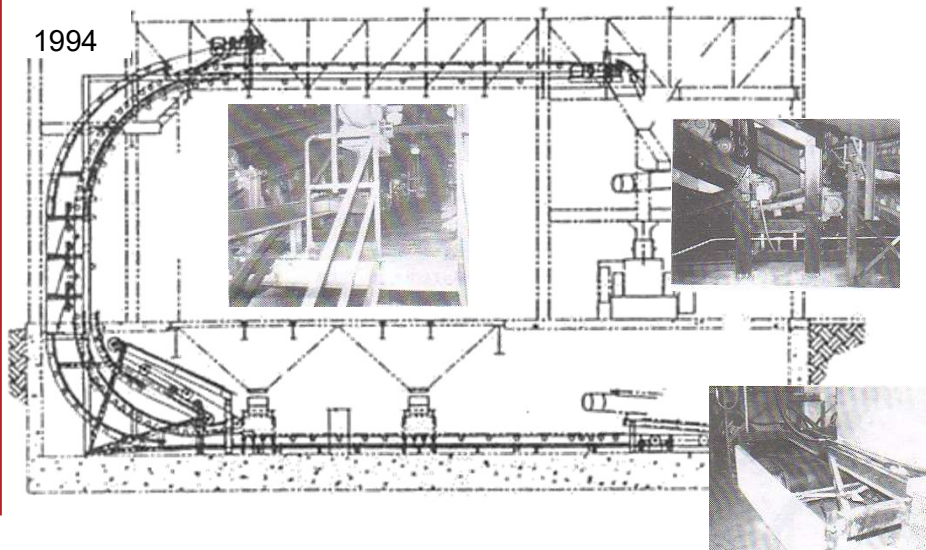
### Sandwich Conveyor for Cement Plant, Southeast USA

Material	- Limestone Mix
- Density	- 1.6 t/cu-m (100 PCF)
- Size	- 76 mm (3") minus
Conveying Rate	- 227 t/h (250 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 2.8 m/s (557 FPM)
Lift	- 28,500 mm (93.5')
Length	- 75,300 mm (247')
Drives	
- Top Belt	- 30 kW (40 HP)
- Bottom Belt	- 37 kW (50HP)

### Sandwich Conveyor for Coal Power Plant, Alaska USA

Material	- Sized Coal
- Density	- 0.8 t/cu-m (50 PCF)
- Size	- 152 mm (6") minus
Conveying Rate	- 136 t/h (150 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 1067 mm (42")
Belt Speed	- 1.51 m/s (297 FPM)
Lift	- 11,600 mm (38')
Length	- 42,600 mm (140')
Drives	
- Inner Belt	- 11.2 kW (15 HP)
- Outer Belt	- 14.9 kW (20 HP)

DS 043  
1994

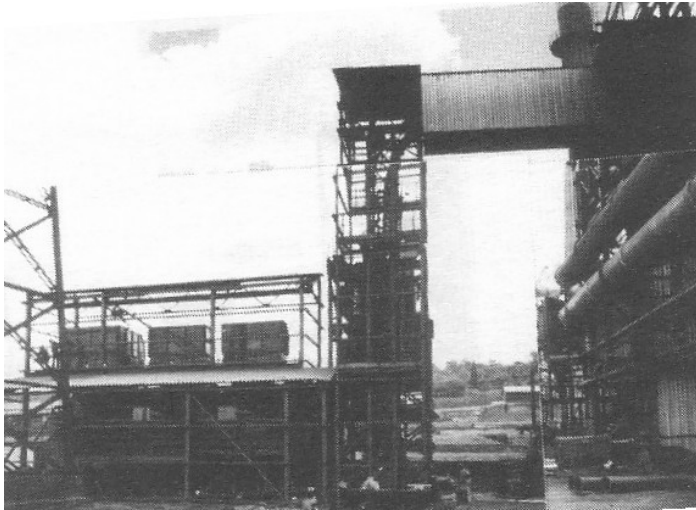


Office: +1 770 423 9895 • [Info@DosSantosIntl.com](mailto:Info@DosSantosIntl.com)

[DosSantosIntl.com](http://DosSantosIntl.com) • 531 Roselane St - Suite 810 • Marietta, GA 30060

# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors

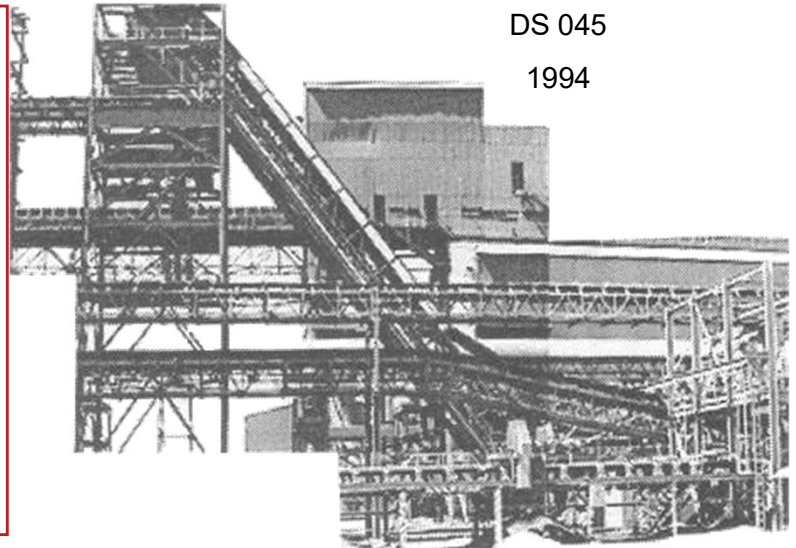


### DS 044 Sandwich Conveyor for Nickel Copper Mine, Zimbabwe

Material	- Cu Residue, Coal, Pyrite
- Density	- To 3.0 t/cu-m (to 187 PCF)
- Size	- 20 mm (.79") minus
Conveying Rate	- 7 t/h (7.7 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 500 mm (20")
Belt Speed	- 0.75 m/s (148 FPM)
Lift	- 15,900 mm (52.2')
Length	- 67,000 mm (220')
Drive	- Bottom Belt - 6 kW (8 HP)

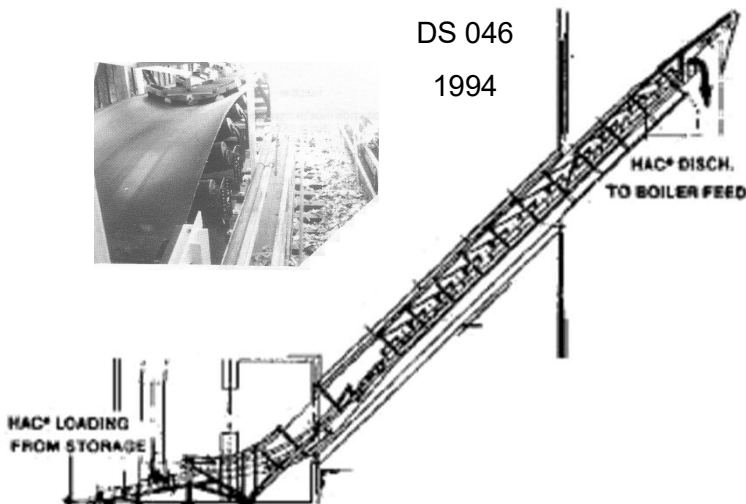
### Sandwich Conveyor for Iron Ore Mine, South Africa

Material	- Iron Ore
- Density	- 2.54 t/cu-m (159 PCF)
- Size	- 25 mm (1") minus
Conveying Rate	- 4250 t/h (4685 STPH)
Conveying Angle	- 53.5 degrees
Belt Width	- 1800 mm (70.9")
Belt Speed	- 3.1 m/s (610 FPM)
Lift	- 17,500 mm (57.4')
Length	- 37,000 mm (121.4')
Drives	- Top Belt - 220 kW (295 HP)
	- Bottom Belt - 220 kW (295 HP)



### DS 045 1994

### DS 046 1994



### Sandwich Conveyor for Refuse Power Plant, Eastern USA

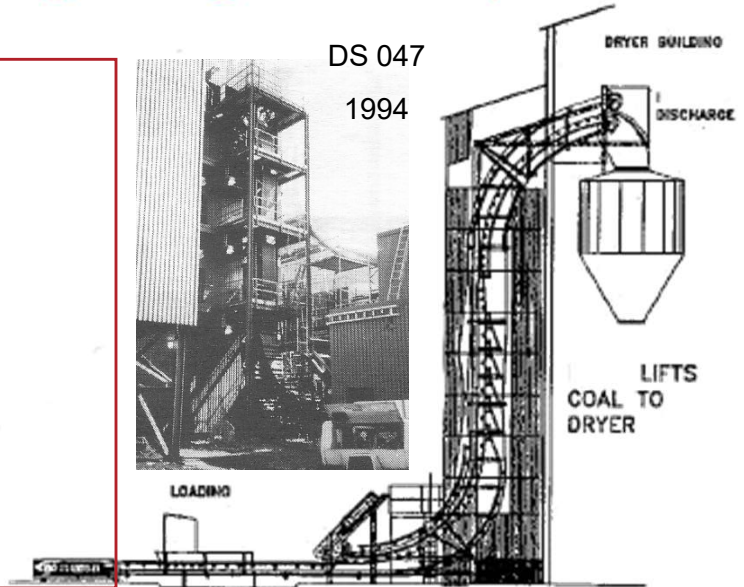
Material	- Refused Derived Fuel-RDF
- Density	- 0.19 t/cu-m (15 PCF)
- Size	- 203 mm (8") minus
Conveying Rate	- 45.3 t/h (50 STPH)
Conveying Angle	- 45 degrees
Belt Width	- 1372 mm (54")
Belt Speed	- 1.52 m/s (300 FPM)
Lift	- 23,800 mm (78')
Length	- 40,200 mm (132')
Drive	- Bottom Belt - 15 kW (20 HP)

# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors

### Sandwich Conveyor at Coal Mine, Western Canada

Material	- Sized Coal
- Density	- 0.80 to 1.3 t/cu-m (50 PCF)
- Size	- 50 mm (2") minus
Conveying Rate	- 200 t/h (220 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 2.54 m/s (500 FPM)
Lift	- 17,400 mm (57')
Length	- 28,800 mm (95')
Drives	
- Top Belt	- 22.4 kW (30 HP)
- Bottom Belt	- 22.4 kW (30 HP)



DS 047

1994

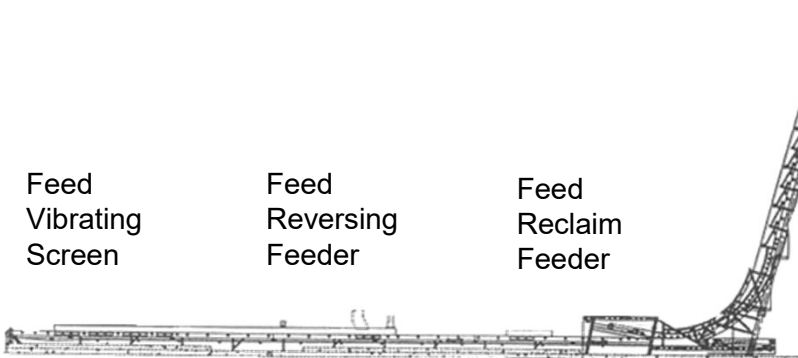
### Sandwich Conveyor for CoGen Power Plant, Eastern USA

DS 048

1995

Material	- Anthracite Culm
- Density	- 0.96 t/cu-m (60 PCF)
- Size	- 76 mm (3") minus
Conveying Rate	- 273 t/h (300 STPH)
Conveying Angle	- 75 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 2.3 m/s (450 FPM)
Lift	- 18,300 mm (60')
Length	- 57,900 mm (190')
Drives	
- Top Belt	- 30 kW (40 HP)
- Bottom Belt	- 30 kW (40HP)

Feed Vibrating Screen      Feed Reversing Feeder      Feed Reclaim Feeder

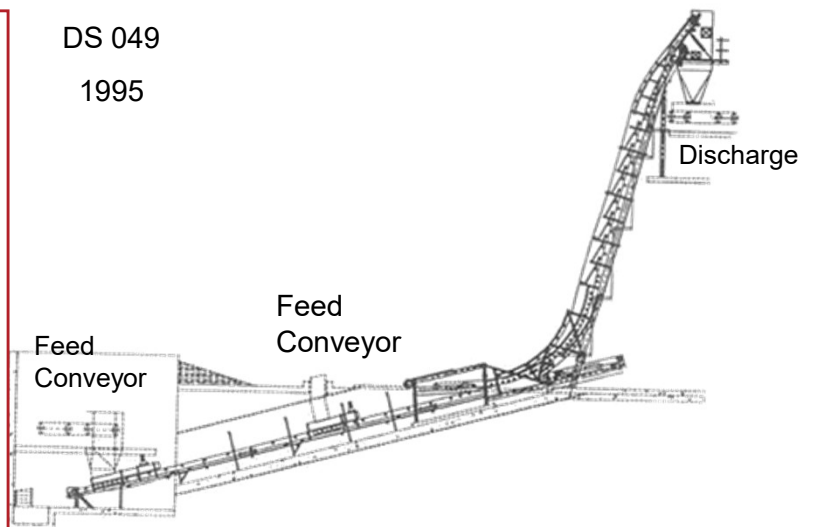


### Sandwich Conveyor for CoGen Power Plant, Eastern USA

Material	- Anthracite Culm
- Density	- 0.96 t/cu-m (60 PCF)
- Size	- 76 mm (3") minus
Conveying Rate	- 273 t/h (300 STPH)
Conveying Angle	- 75 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 2.3 m/s (450 FPM)
Lift	- 23,300 mm (76.6')
Length	- 37,500 mm (123')
Drives	
- Top Belt	- 30 kW (40 HP)
- Bottom Belt	- 30 kW (40HP)

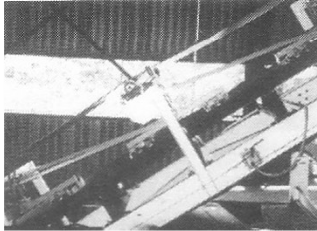
DS 049

1995

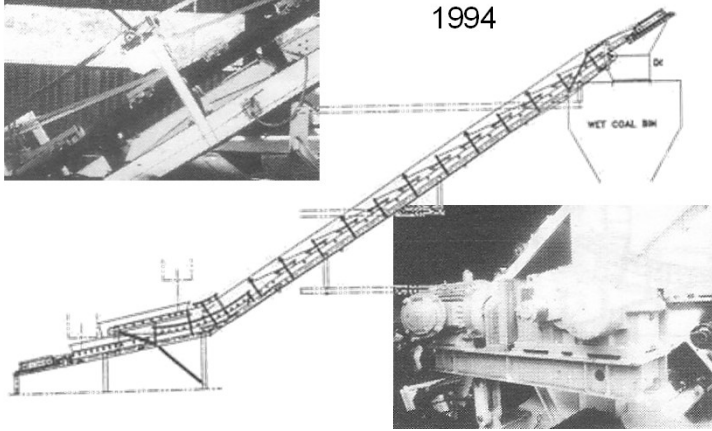


# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors



DS 050  
1994

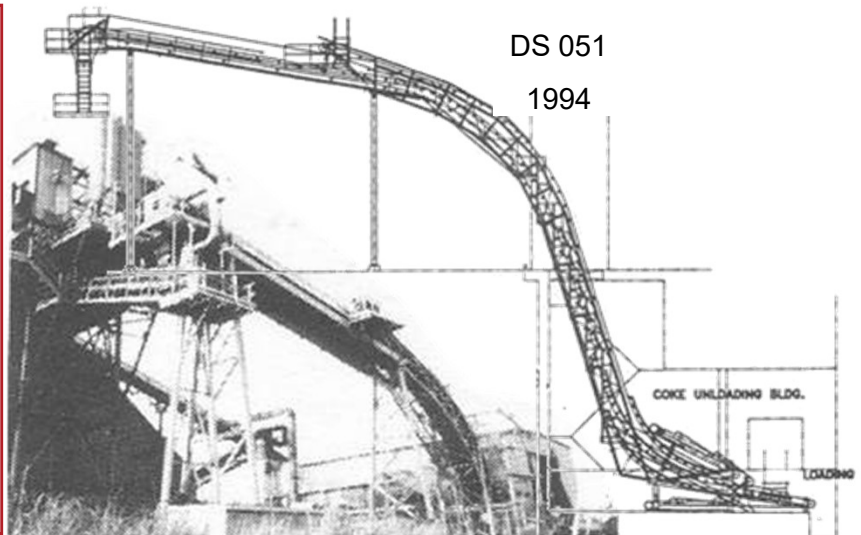


### Sandwich Conveyor for Coal Prep Plant, Eastern USA

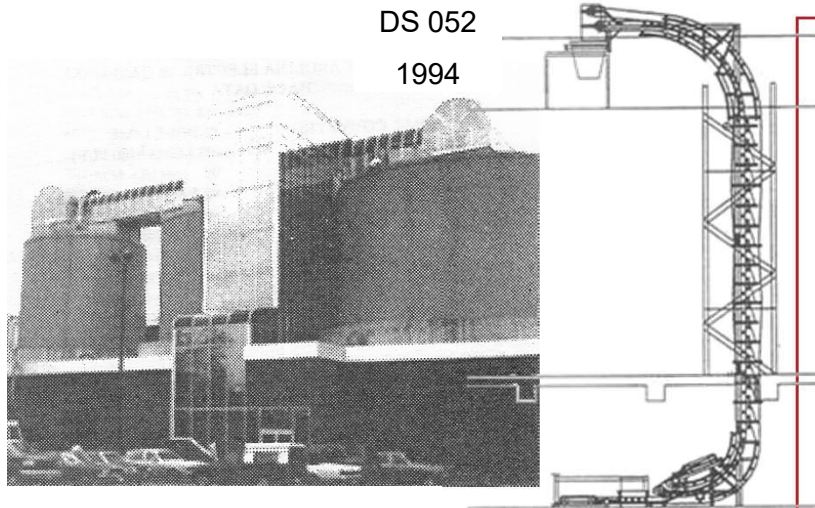
Material	- Coal
- Density	- 0.80 t/cu-m (50 PCF)
- Size	- 38 mm (1.5") minus
Conveying Rate	- 317 t/h (350 STPH)
Conveying Angle	- 33 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 2.29 m/s (450 FPM)
Lift	- 15,200 mm (49.9')
Length	- 31,100 mm (102')
Drive	- Bottom Belt - 37.3 kW (50 HP)

### Sandwich Conveyor at Oil Refinery, Pet Coke Plant, Southern USA

Material	- Hot Petroleum Coke
- Density	- 0.85t/cu-m (53 PCF)
- Size	- 152 mm (6") minus
Conveying Rate	- 635 t/h (700 STPH)
Conveying Angle	- 72.5 degrees
Belt Width	- 1372 mm (54")
Belt Speed	- 2.67 m/s (525 FPM)
Lift	- 26,200 mm (86')
Length	- 53,000 mm (173.9')
Drives	- Top Belt - 56 kW (75 HP)
	- Bottom Belt - 75 kW (100 HP)



DS 051  
1994



DS 052  
1994

### Sandwich Conveyor for Composting Plant, Eastern USA

Material	- Compost, Sludge & Sawdust
- Density	- 0.85 t/cu-m (53 PCF)
Conveying Rate	- 83.8 t/h (93 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 1.78 m/s (350 FPM)
Lift	- 22,600 mm (74.25')
Length	- 38,100 mm (125')
Drives	- Inner Belt - 15 kW (20 HP)
	- Outer Belt - 15 kW (20 HP)

# JOSEPH A. DOS SANTOS

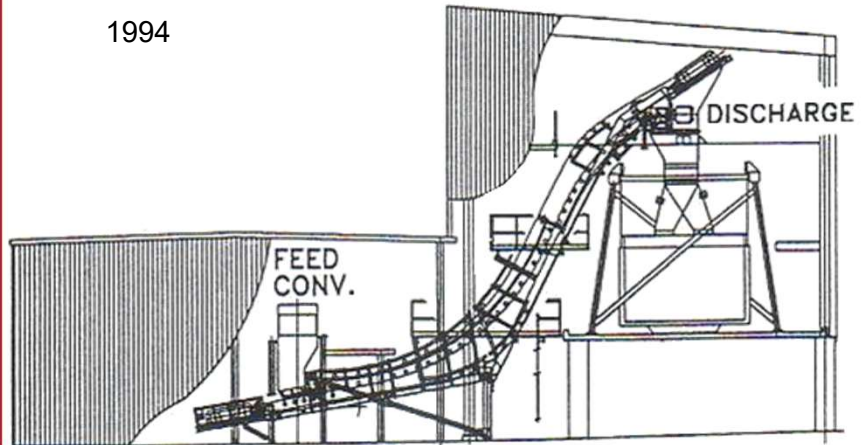
## Sandwich Belt High Angle Conveyors

### Sandwich Conveyor for Paper Mill, Eastern USA

Material	- Wood Chips
- Density	- 0.368 t/cu-m (23 PCF)
- Size	- 25 mm (1") minus
Conveying Rate	- 145 t/h (160 STPH)
Conveying Angle	- 63 degrees
Belt Width	- 1067 mm (42")
Belt Speed	- 1.8 m/s (350 FPM)
Lift	- 9,200 mm (30')
Length	- 16,700 mm (55')
Drive	
- Bottom Belt	- 22.4 kW (30 HP)

DS 053

1994



DS 054

1995

### Sandwich Conveyor for Paper Mill, Western USA

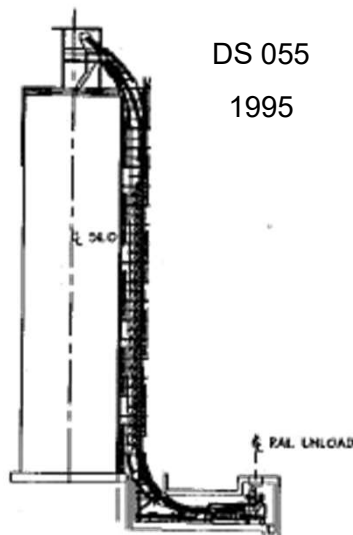
Material	- Wood Chips
- Density	- 0.277 t/cu-m (17 PCF)
- Size	- 76 mm (3") minus
Conveying Rate	- 435 t/h (480 STPH)
Conveying Angle	- 50 degrees
Belt Width	- 1524 mm (60")
Belt Speed	- 2.94 m/s (580 FPM)
Lift	- 32,000 mm (105')
Length	- 98,200 mm (322')
Drives	
- Top Belt	- 56 kW (75 HP)
- Bottom Belt	- 56 kW (75 HP)

### Sandwich Conveyor for Power Plant Stack Scrubber, Southeast USA

Material	- Pebble Lime
- Density	- 0.96 t/cu-m (60 PCF)
Conveying Rate	- 90.5 t/h (100 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 2.03 m/s (400 FPM)
Lift	- 44,300 mm (145.3')
Length	- 56,900 mm (187')
Drives	
- Top Belt	- 18.7 kW (25 HP)
- Bottom Belt	- 18.7 kW (25 HP)

DS 055

1995

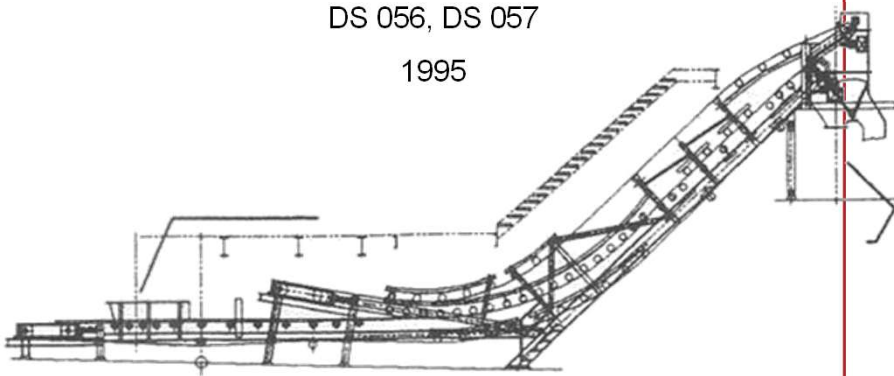


# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors

DS 056, DS 057

1995



### Sandwich Conveyors Units 056 & 057 for Taconite Mine, Northern USA

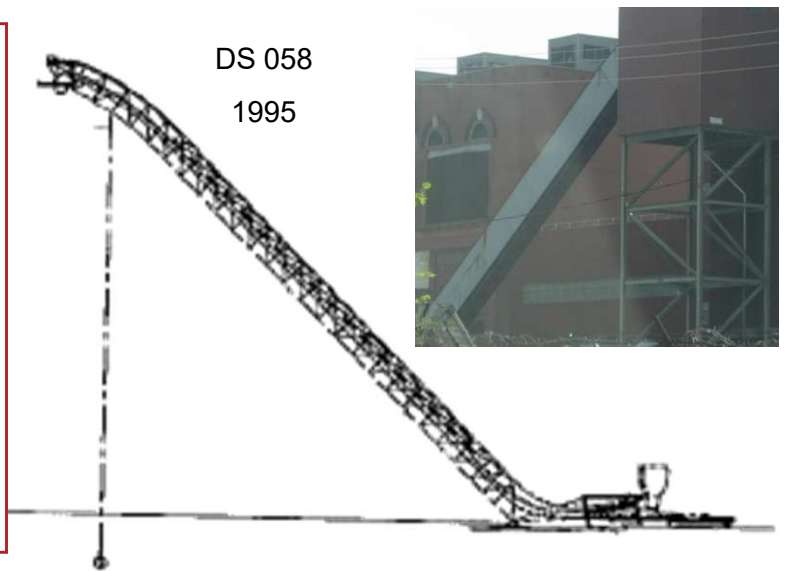
Material	- Iron Ore (Taconite)
- Density	- 2.26 t/cu-m (150 PCF)
- Size	- 64 mm (2.5") minus
Conveying Rate	- 136 t/h (150 STPH)
Conveying Angle	- 43 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 0.8 m/s (150 FPM)
Lift	- 5,300 mm (17')
Length	- 16,800 mm (55')
Drive	
- Bottom Belt	- 11.2 kW (15 HP)

### Sandwich Conveyor for Coal Power Plant, Midwest USA

Material	- Coal
- Density	- 0.72 t/cu-m (45 PCF)
- Size	- 38 mm (1.5") minus
Conveying Rate	- 635 t/h (700 STPH)
Conveying Angle	- 45 degrees
Belt Width	- 1219 mm (48")
Belt Speed	- 3.05 m/s (600 FPM)
Lift	- 37,000 mm (121')
Length	- 67,000 mm (220')
Drives	
- Top Belt	- 74.6 kW (100 HP)
- Bottom Belt	- 74.6 kW (100 HP)

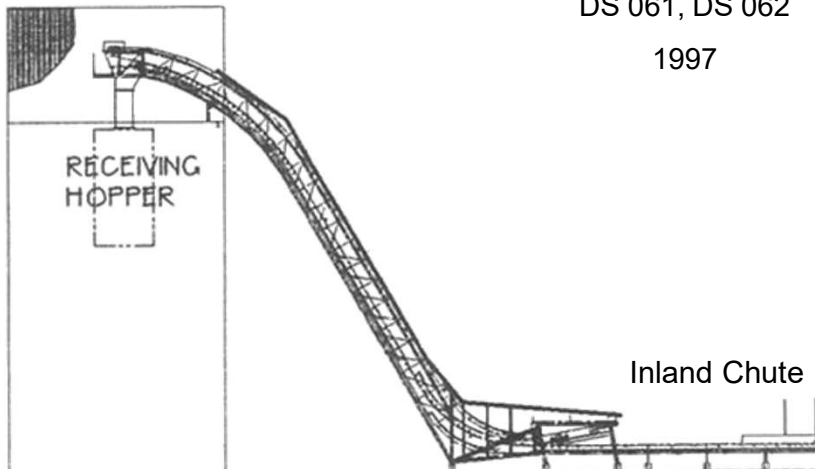
DS 058

1995



DS 061, DS 062

1997



### Sandwich Conveyors Units 061 & 062 for Cement Plant, Indonesia

Material	- Coal
- Density	- 1.0 t/cu-m (62 PCF)
- Size	- 9.5 mm (3/8") minus
Conveying Rate	- 200 t/h (220 STPH)
Conveying Angle	- 60 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 2.29 m/s (450 FPM)
Lift	- 19,965 mm (66')
Length	- 36,000 mm (118')
Drives	
- Top Belt	- 22.4 kW (30 HP)
- Bottom Belt	- 22.4 kW (30 HP)

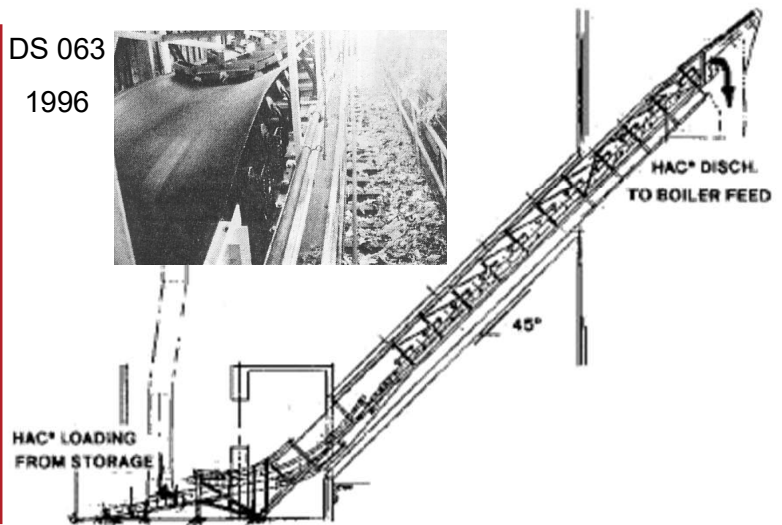
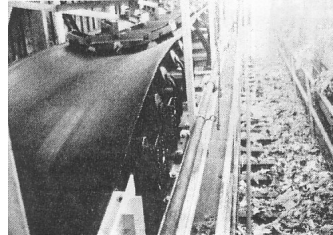
# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors

### Sandwich Conveyor for Refuse Power Plant, Eastern USA

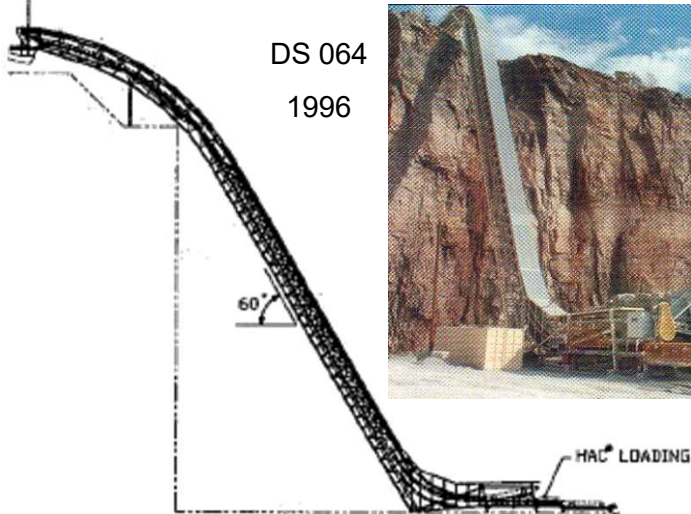
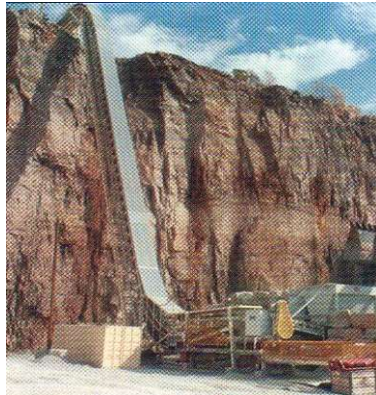
Material	- Refused Derived Fuel-RDF
- Density	- 0.19 t/cu-m (15 PCF)
- Size	- 203 mm (8") minus
Conveying Rate	- 45.3 t/h (50 STPH)
Conveying Angle	- 45 degrees
Belt Width	- 1372 mm (54")
Belt Speed	- 1.52 m/s (300 FPM)
Lift	- 21,900 mm (72')
Length	- 38,100 mm (125')
Drive	
- Bottom Belt	- 22 kW (30 HP)

DS 063  
1996



DISCHARGE

DS 064  
1996



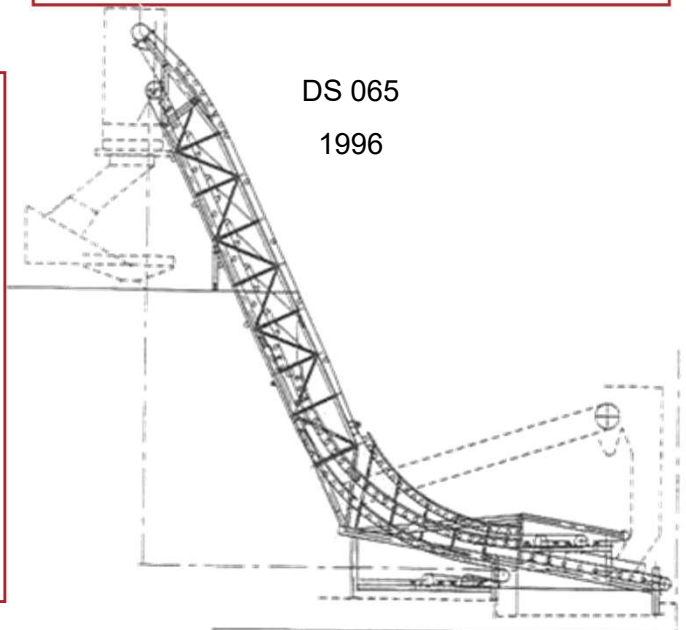
### Sandwich Conveyor for Limestone Quarry, Midwest USA

Material	- Limestone
- Density	- 1.60 t/cu-m (100 PCF)
- Size	- 76 mm (3") minus
Conveying Rate	- 762 t/h (800 STPH)
Conveying Angle	- 60 degrees
Belt Width	- 1067 mm (42")
Belt Speed	- 2.54 m/s (500 FPM)
Lift	- 48,000 mm (158')
Length	- 79,000 mm (258')
Drives	
- Top Belt	- 168 kW (125 HP)
- Bottom Belt	- 168 kW (125 HP)

### Sandwich Conveyor for Self-Unloading Ship, Great Lakes USA

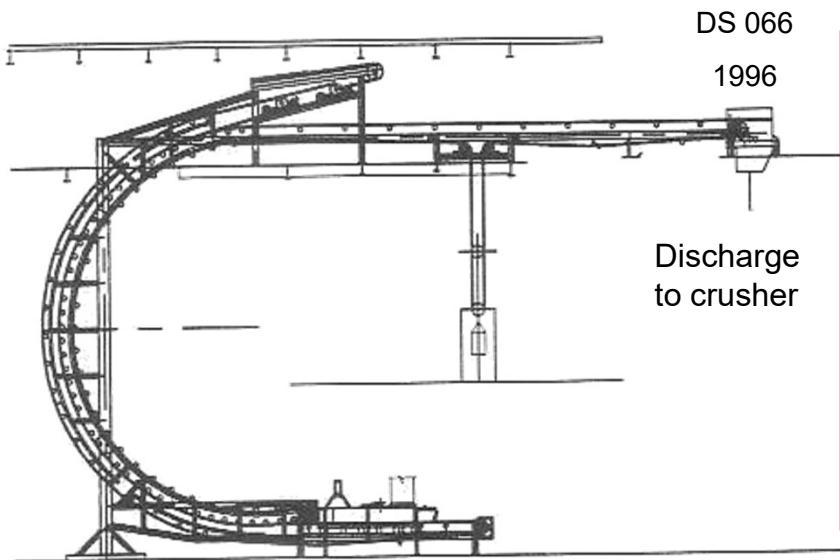
Material	- Coal, Limestone, Iron Ore
- Density	- 0.8 to 2.16 t/cu-m (50 to 135 PCF)
- Size	- To 305 mm (12") minus
Conveying Rate	- To 3993 t/h (4400 STPH)
Conveying Angle	- 65 degrees
Belt Width	- 2134 mm (84")
Belt Speed	- 3.5 m/s (700 FPM)
Lift	- 17,900 mm (59')
Length	- 28,900 mm (95')
Drives	
- Top Belt	- 186 kW (250 HP)
- Bottom Belt	- 186 kW (250 HP)

DS 065  
1996



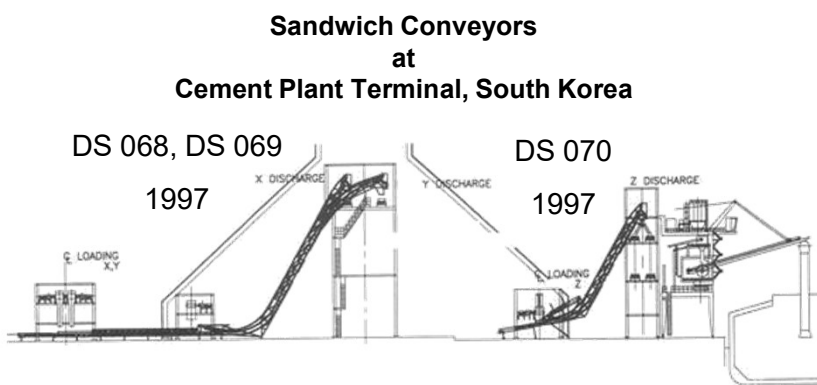
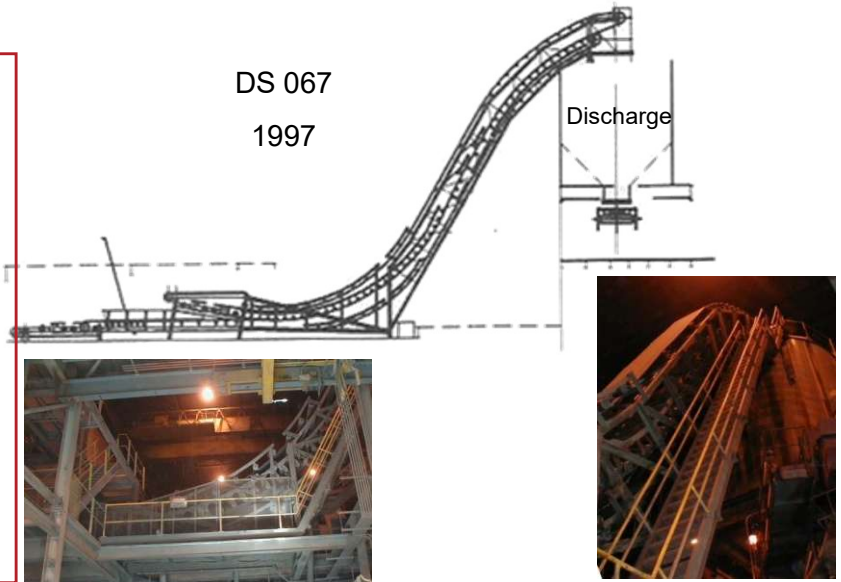
# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors



Sandwich Conveyor for Coal Power Plant, Midwest USA	
Material	- Coal
- Density	- 0.80 t/cu-m (50 PCF)
- Size	- 51 mm (2") minus
Conveying Rate	- 136 t/h (150 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 2.25 m/s (445 FPM)
Lift	- 10,800 mm (35.5')
Length	- 36,600 mm (120')
Drive	- Inner Belt - 37 kW (50 HP)

Sandwich Conveyor for Taconite Mine, Northern USA	
Material	- Crushed Iron Ore
- Density	- 2.16 t/cu-m (135 PCF)
- Size	- 38 mm (1.5") minus
Conveying Rate	- 590 t/h (650 STPH)
Conveying Angle	- 60 degrees
Belt Width	- 1067 mm (42")
Belt Speed	- 2.03 m/s (400 FPM)
Lift	- 13,700 mm (45')
Length	- 36,600 mm (120')
Drives	- Top Belt - 37 kW (50 HP) - Bottom Belt - 37 kW (50 HP)



Units DS	068	069	070
Material	- .....Limestone.....		
- Density	- .....1.5 t/cu-m (94 PCF).....		
- Size	- .....80 mm (3.1") minus.....		
Conveying Rate	- 2000 t/h (2205 STPH) minus		
Conveying Angle	- .....60 degrees.....		
Belt Width	- .....1524 mm (60").....		
Belt Speed	- .....3.45 m/s (679 FPM).....		
Lift	- 30.2 M.....	- 30.9 M.....	- 22.5 M.....
Length	- 78.1 M.....	- 83.6 M.....	- 36.5 M.....
Drives	- Inner Belt - .....150 kW (200 HP).....		
	- Outer Belt - .....150 kW (200 HP).....		

# JOSEPH A. DOS SANTOS

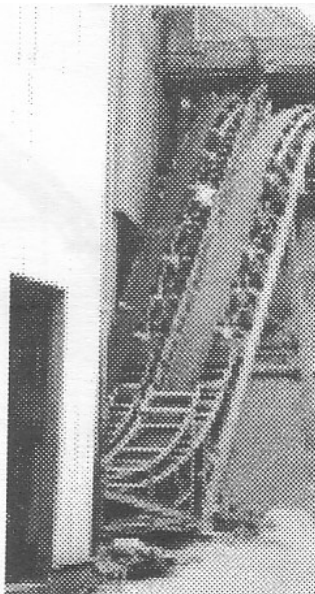
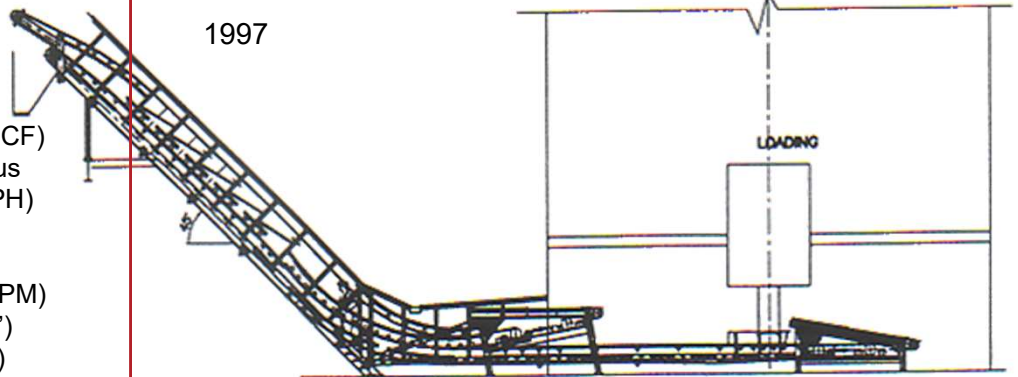
## Sandwich Belt High Angle Conveyors

### Sandwich Conveyor for Pulp Mill, Western USA

Material	- Wood Chips
- Density	- 0.4 t/cu-m (25 PCF)
- Size	- 76 mm (3") minus
Conveying Rate	- 21.8 t/h (24 STPH)
Conveying Angle	- 45 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 1.02 m/s (200 FPM)
Lift	- 8,930 mm (29.3')
Length	- 25,900 mm (85')
Drive	
- Bottom Belt	- 11.2 kW (15 HP)

DS 071

1997



DS 072, DS 073

1997

### Sandwich Conveyors for Cement Plant, Eastern USA

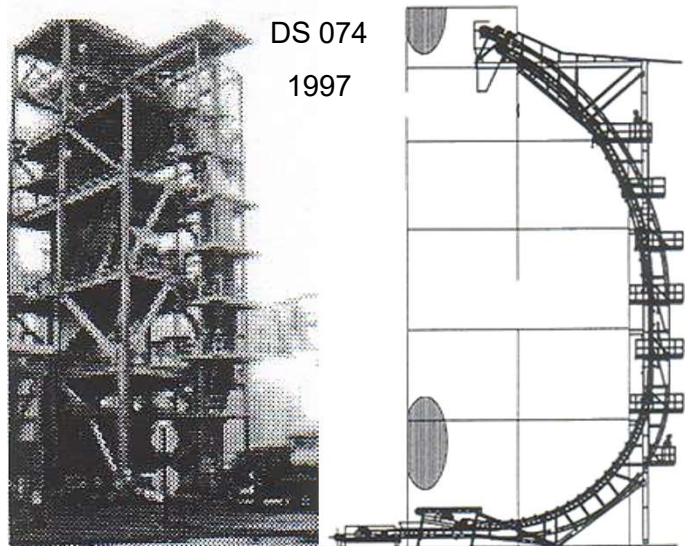
Units DS	072	073
Material	- .....	Clay.....
- Density	- To 1.04 t/cu-m (To 65 PCF)	
- Size	- .....51 mm (2") minus.....	
Conveying Rate	- .....19.8 t/h (20 STPH).....	
Conveying Angle	- .....60 degrees.....	
Belt Width	- .....762 mm (30").....	
Belt Speed	- .....1.0 m/s (200 FPM).....	
Lift	- .....11.1 M.....	11.4 M.....
Length	- .....23.5 M.....	27.4 M....
Drive		
-Bottom Belt	- .....11.2 kW (15 HP).....	

### Sandwich Conveyor for Paper Mill, Eastern USA

Material	- Wood Chips
- Density	- 0.4 t/cu-m (25 PCF)
- Size	- 76 mm (3") minus
Conveying Rate	- 245 t/h (250 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 1524 mm (60")
Belt Speed	- 2.29 m/s (450 FPM)
Lift	- 32,900 mm (108')
Length	- 53,300 mm (175')
Drives	
- Inner Belt	- 44.8 kW (60 HP)
- Outer Belt	- 44.8 kW (60 HP)

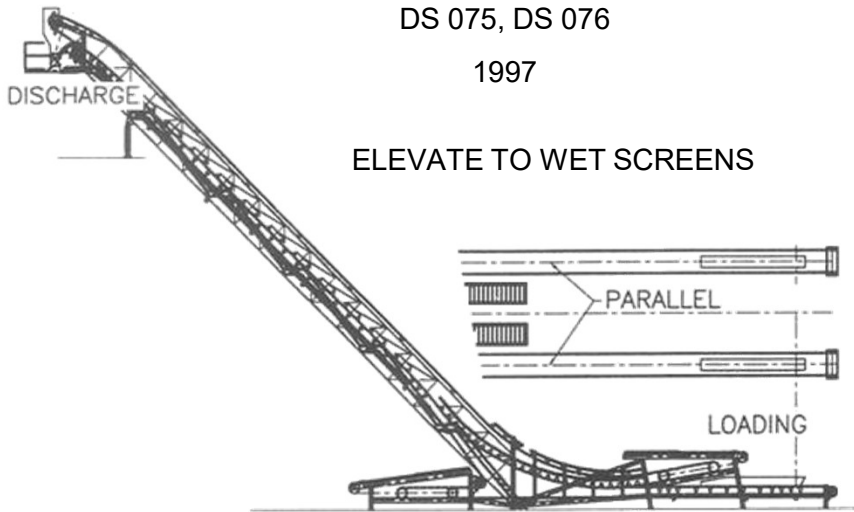
DS 074

1997



# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors



### Sandwich Conveyors for Copper Mine, Western Canada

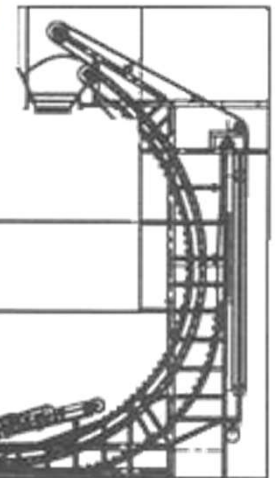
Material	- Copper Ore
- Density	- 1.62 t/cu-m (101 PCF)
- Size	- 75 mm (3") minus
Conveying Rate	- 584 t/h (644 STPH)
Conveying Angle	- 45 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 2.29 m/s (450 FPM)
Lift	- 18,300 mm (60')
Length	- 38,600 mm (126.6')
Drives	
- Top Belt	- 45 kW (60 HP)
- Bottom Belt	- 45 kW (60 HP)

### Sandwich Conveyor for Self Unloading Ship, Great Lakes USA

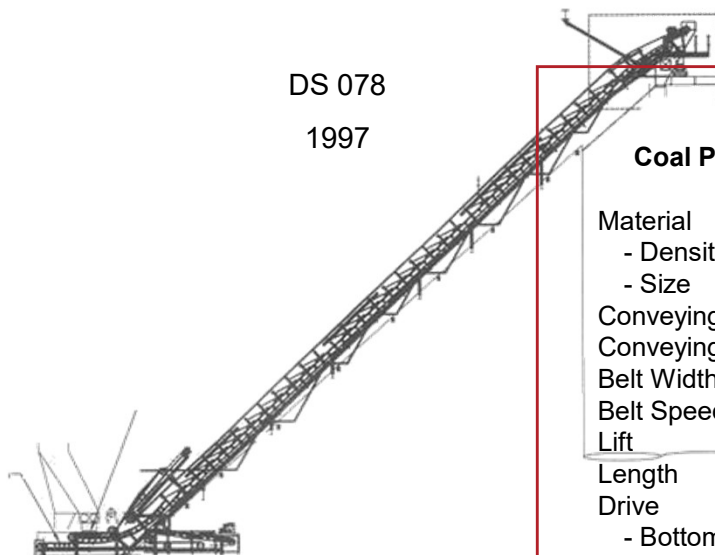
Material	- Various
- Density	- 0.9 to 2.5 t/cu-m (55 to 155 PCF)
- Size	- 152 mm (6") minus
Conveying Rate	- To 4264 t/h (To 4700 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 2134 mm (84")
Belt Speed	- 5.0 m/s (1000 FPM)
Lift	- 18,300 mm (60.3')
Length	- 166,000 mm (545')
Drives	
- Inner Belt	- 298 kW (400 HP)
- Outer Belt	- 298 kW (400 HP)



DS 077  
1997



DS 078  
1997



### Sandwich Conveyor for Coal Power Plant, Western Canada

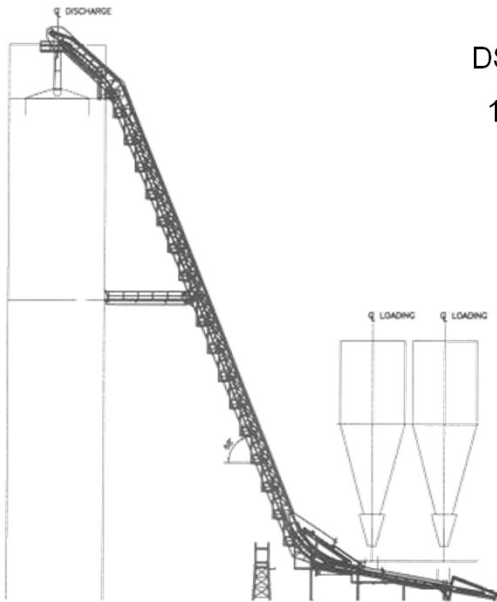
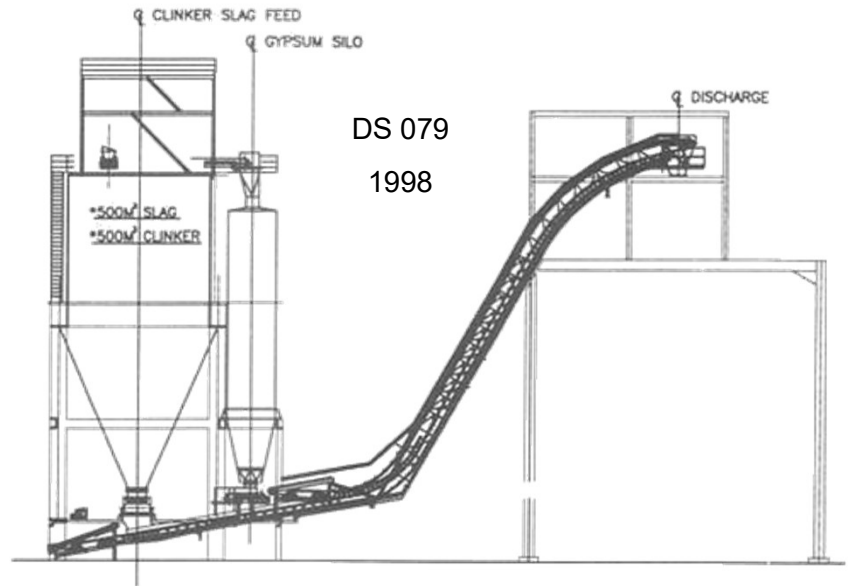
Material	- Wet Bottom Ash
- Density	- 1.02 t/cu-m (64 PCF)
- Size	- 102 mm (4") minus
Conveying Rate	- 82 t/h (92 STPH)
Conveying Angle	- 43 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 1.0 m/s (197 FPM)
Lift	- 31,700 mm (104')
Length	- 60,000 mm (197')
Drive	
- Bottom Belt	- 37 kW (50 HP)

# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors

### Sandwich Conveyor for Cement Plant, Brasil

Material	- Slag, Clinker, Gypsum
- Density	- 1.3 t/cu-m (81 PCF)
- Size	- 100 mm (4") minus
Conveying Rate	- 100 t/h (110 STPH)
Conveying Angle	- 60 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 1.34 m/s (264 FPM)
Lift	- 23,700 mm (78')
Length	- 46,100 mm (174')
Drives	
- Top Belt	- 19 kW (25 HP)
- Bottom Belt	- 19 kW (25 HP)



DS 080  
1998

### Sandwich Conveyor for Steel Mill, Southern USA

Material	- Iron Ore Fines
- Density	- 2.2 t/cu-m (138 PCF)
- Size	- 2 mm (1/16") minus
Conveying Rate	- 180 t/h (198 STPH)
Conveying Angle	- 68 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 1.2 m/s (236 FPM)
Lift	- 67,600 mm (222')
Length	- 91,000 mm (299')
Drives	
- Top Belt	- 37 kW (50 HP)
- Bottom Belt	- 37 kW (50 HP)

### Sandwich Conveyor Elevating to Shiploader, England

Material	- Grain, Limestone
- Density	- 0.7 to 1.35 t/cu-m (44 to 88 PCF)
- Size	- 50 mm (2") minus
Conveying Rate	- 2000 t/h (2204 STPH)
Conveying Angle	- 53.5 degrees
Belt Width	- 1800 mm (72")
Belt Speed	- 4.32 m/s (850 FPM)
Lift	- 20,462 mm (67')
Length	- 42,750 mm (140')
Drives	
- Top Belt	- 132 kW (175 HP)
- Bottom Belt	- 132 kW (175 HP)

DS 081  
1998

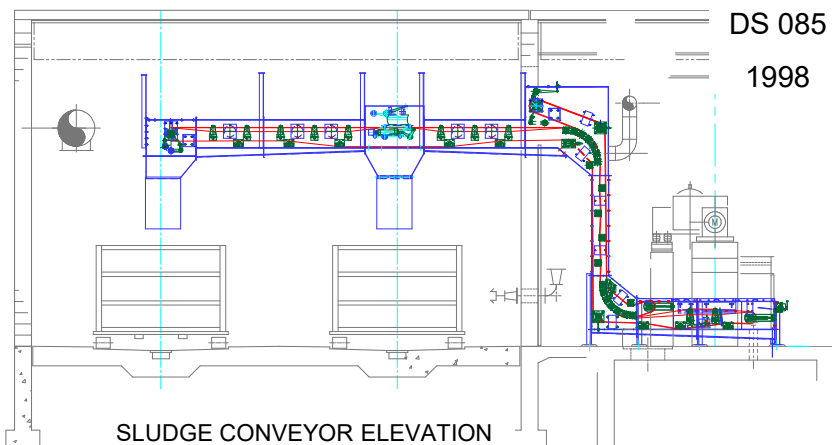
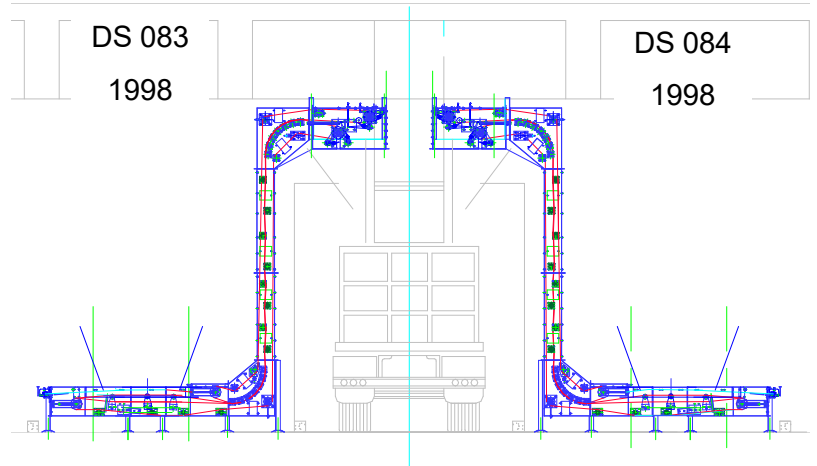


# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors

### Two-Units EleVeyor EL for Blue Plains -WWTP (Data, Each Unit)

Material	- Municipal Sludge
- Density	- 1.0 t/cu-m (65 PCF)
Conveying Rate	- 13.6 t/h (15 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 610 mm (24")
Belt Speed	- 0.38 m/s (75 FPM)
Lift	- 5,000 mm (16.3')
Length	- 11,250 mm (36.9')
EL Drives	
- Top Belt	- 1.9 kW (2.5 HP)
- Bottom Belt	- 1.9 kW (2.5 HP)

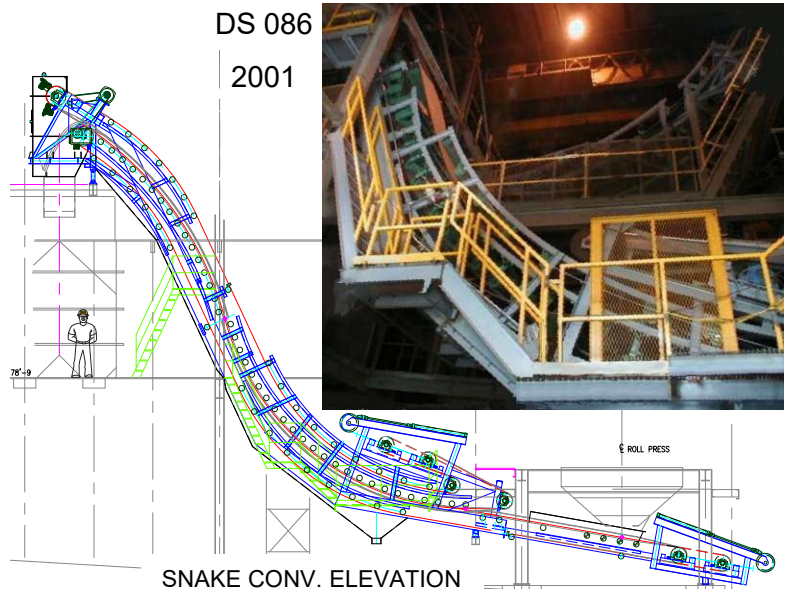


### EleVeyor EL for Foxwood Casino -WWTP

Material	- Municipal Sludge
- Density	- 1.0 t/cu-m (65 PCF)
Conveying Rate	- 13.6 t/h (15 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 610 mm (24")
Belt Speed	- 0.38 m/s (75 FPM)
Lift	- 3,350 mm (11')
Length	- 14,800 mm (48.5')
EL Drives	
- Top Belt	- 1.5 kW (2 HP)
- Bottom Belt	- 1.5 kW (2 HP)

### DSI Snake Sandwich Conveyor for Empire Iron Ore Mining Partnership

Material	- Iron Ore
- Density	- 2.4 t/cu-m (150 PCF)
- Size	- 2 mm (.08") minus
Conveying Rate	- 793 t/h (780 LTPH)
Conveying Angle	- 65 degrees
Belt Width	- 1067 mm (42")
Belt Speed	- 2.29 m/s (450 FPM)
Lift	- 11,522 mm (37.8')
Length	- 21,489 mm (70.5')
Snake Drives	
- Top Belt	- 29.8 kW (40 HP)
- Bottom Belt	- 37.3 kW (50 HP)



# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors



DS 087

2003

### DSI Snake Sandwich Conveyor for PHB Weserhutte S.A. at Aceralia

Material	- Coal
- Density	- 0.8 t/cu-m (50 PCF)
- Size	- 50 mm (2") minus
Conveying Rate	- 250 t/h (276 STPH)
Conveying Angle	- 75 degrees
Belt Width	- 1200 mm (47")
Belt Speed	- 2.29 m/s (450 FPM)
Lift	- 35,100 mm (115')
Length	- 45,065 mm (148')
Snake Drives	
- Top Belt	- 30 kW (40.2 HP)
- Bottom Belt	- 30 kW (40.2 HP)

### Sandwich Conveyor at Pulp Mill, Western Canada

DS 088

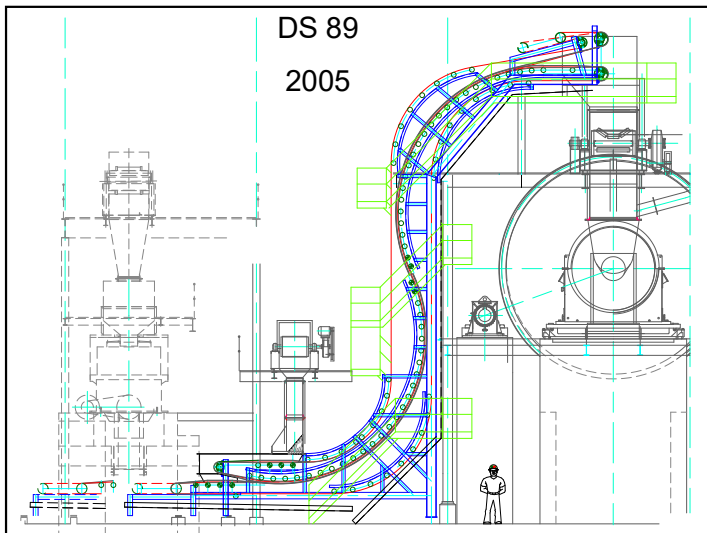
2002

Material	- Wood Chips
- Density	- .24 t/cu-m (15 PCF)
Conveying Rate	- 203 t/h (224 STPH)
Conveying Angle	- 45 degrees
Belt Width	- 1372 mm (54")
Belt Speed	- 2.61 m/s (513 FPM)
Lift	- 20,422 mm (67')
Length	- 57,303 mm (188')
Drives	
- Top Belt	- 22.4 kW (30 HP)
- Bottom Belt	- 22.4 kW (30 HP)



DS 89

2005



### DSI Snake Sandwich Conveyor for Continental CN at INCO Voisey's Bay Proj

Material	- Pebble Ore
- Density	- 2.25 t/cu-m (140 PCF)
- Size	- 60 mm (2.4") minus
Conveying Rate	- 102 t/h (112 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 1.02 m/s (200 FPM)
Lift	- 13,010 mm (42.7')
Length	- 23,500 mm (77.1')
Snake Drives	
- Top Belt	- 7.46 kW (10 HP)
- Bottom Belt	- 7.46 kW (10 HP)

# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors

### DSI Snake Sandwich Conveyor for Continental CN at DOFASCO Steel Project

Material	- Coke Breeze
- Density	- .48 t/cu-m (30 PCF)
- Size	- 25 mm (1") minus
Conveying Rate	- 31.8 t/h (35 STPH)
Conveying Angle	- 75 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 1.41 m/s (278 FPM)
Lift	- 16,382 mm (53.7')
Length	- 24,835 mm (81.5')
Snake Drives	
- Top Belt	- 7.46 kW (10 HP)
- Bottom Belt	- 7.46 kW (10 HP)



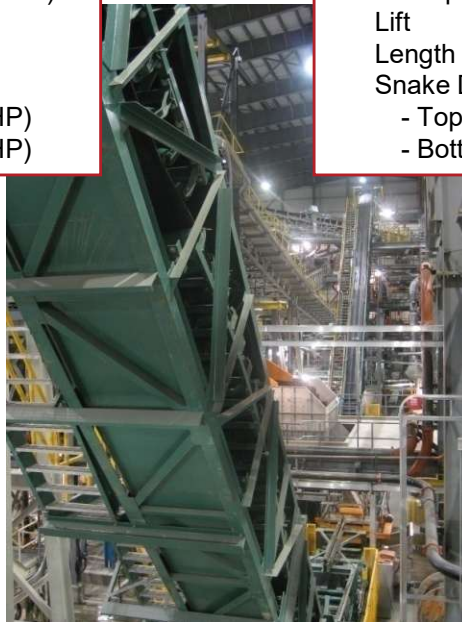
DS 90  
2005

### DSI Snake #2 Sandwich Conveyor for Continental CN at Snap Lake Diamond Mine (Initial / Future)

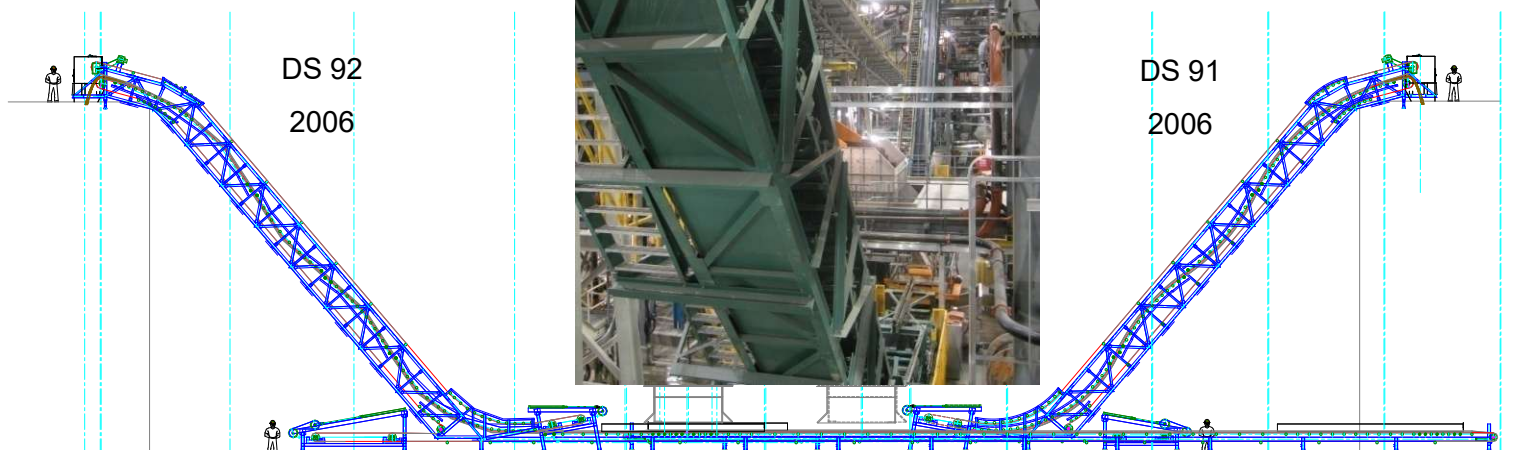
Material	- Kimberlite
- Density	- 1.6 t/cu-m (100 PCF)
- Size	- 50 mm (2") minus
Conveying Rate	- 250/500 t/h (276/552 STPH)
Conveying Angle	- 49.5 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 1.5/2.2 m/s (295/433 FPM)
Lift	- 18,310 mm (60.1')
Length	- 70,562 mm (231.5')
Snake Drives	
- Top Belt	- 22.4/44.8 kW (30/60 HP)
- Bottom Belt	- 22.4/44.8 kW (30/60 HP)

### DSI Snake #1 Sandwich Conveyor for Continental CN at Snap Lake Diamond Mine (Initial / Future)

Material	- Kimberlite
- Density	- 1.6 t/cu-m (100 PCF)
- Size	- 32 mm (1.3") minus
Conveying Rate	- 275/550 t/h (303/606 STPH)
Conveying Angle	- 49.5 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 1.5/2.2 m/s (295/433 FPM)
Lift	- 18,310 mm (60.1')
Length	- 39,015 mm (128')
Snake Drives	
- Top Belt	- 22.4/44.8 kW (30/60 HP)
- Bottom Belt	- 22.4/44.8 kW (30/60 HP)



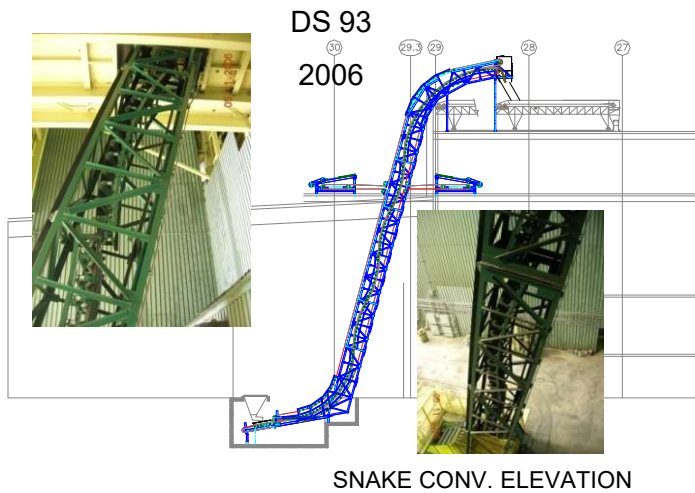
DS 91  
2006



DS 92  
2006

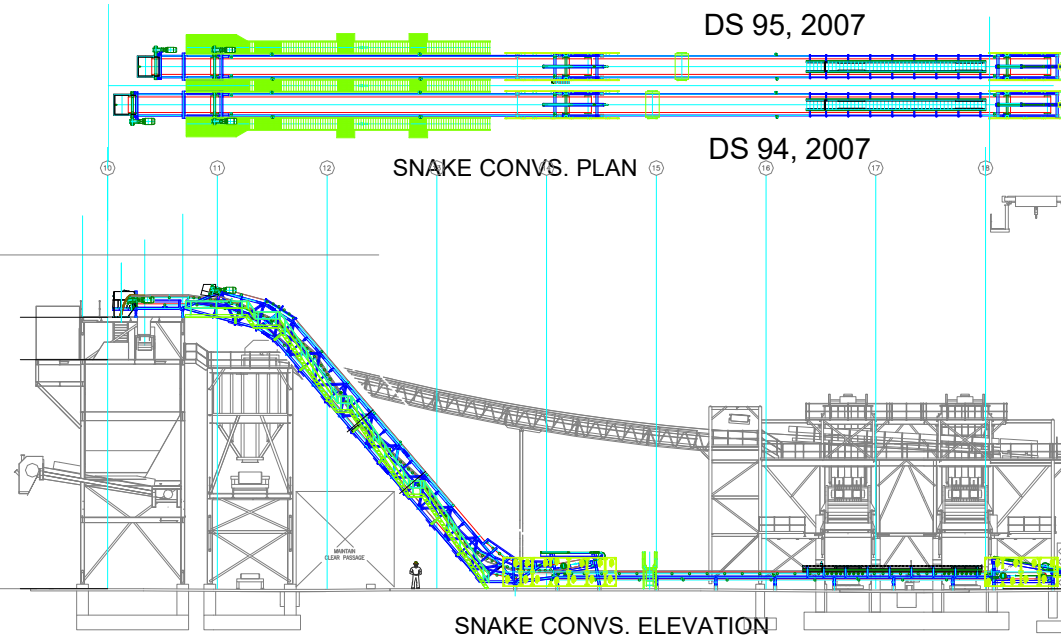
# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors



### DSI Snake Sandwich Conveyor for Continental CN at DOFASCO Steel Project

Material	- Various
- Density	- 4.16 t/cu-m (260 PCF)
- Size	- 75 mm (3") minus
Conveying Rate	- 188 t/h (200 STPH)
Conveying Angle	- 70 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 1.02 m/s (207 FPM)
Lift	- 35,235 mm (115.6')
Length	- 48,768 mm (160.0')
Snake Drives	
- Top Belt	- 18.64 kW (25 HP)
- Bottom Belt	- 18.64 kW (25 HP)



### DSI Snake #1 Sandwich Conveyor for Victor Diamond Mine Project

Material	- Kimberlite
- Density	- 1.6 t/cu-m (100 PCF)
- Size	- 28 mm (1.1") minus
Conveying Rate	- 381 t/h (420 STPH)
Conveying Angle	- 49.5 degrees
Belt Width	- 1067 mm (42")
Belt Speed	- 2 m/s (394 FPM)
Lift	- 18,508 mm (60.7')
Length	- 67,581 mm (221.7')
Snake Drives	
- Top Belt	- 29.83 kW (40 HP)
- Bottom Belt	- 29.83 kW (40 HP)

### DSI Snake #2 Sandwich Conveyor for Victor Diamond Mine Project

Material	- Kimberlite
- Density	- 1.6 t/cu-m (100 PCF)
- Size	- 6 mm (1/4") minus
Conveying Rate	- 185 t/h (204 STPH)
Conveying Angle	- 49.5 degrees
Belt Width	- 1067 mm (42")
Belt Speed	- 1.0 m/s (197 FPM)
Lift	- 18,508 mm (60.7')
Length	- 65,981 mm (216.5')
Snake Drives	
- Top Belt	- 18.65 kW (25 HP)
- Bottom Belt	- 18.65 kW (25 HP)

# JOSEPH A. DOS SANTOS

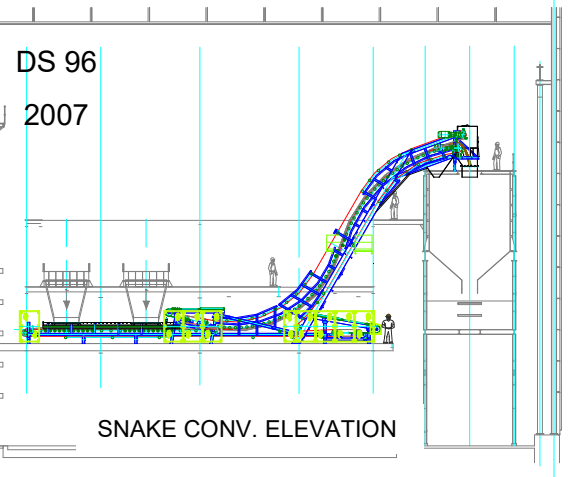
## Sandwich Belt High Angle Conveyors

### DSI Snake #3 Sandwich Conveyor for Victor Diamond Mine Project

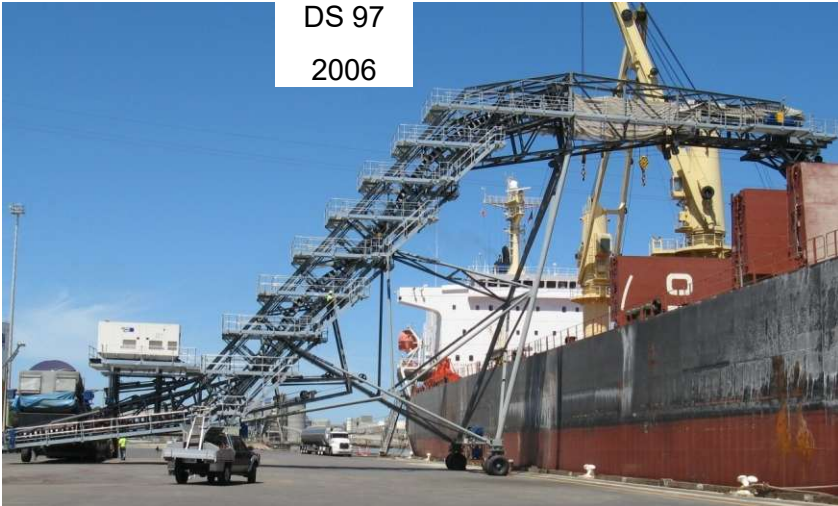
Material	- Kimberlite
- Density	- 1.6 t/cu-m (100 PCF)
- Size	- 28 mm (1.1") minus
Conveying Rate	- 422 t/h (465 STPH)
Conveying Angle	- 60 degrees
Belt Width	- 1067 mm (42")
Belt Speed	- 2 m/s (394 FPM)
Lift	- 11,886 mm (39.0')
Length	- 33,282 mm (109.2')
Snake Drives	
- Top Belt	- 29.83 kW (40 HP)
- Bottom Belt	- 29.83 kW (40 HP)



DS 96  
2007



DS 97  
2006



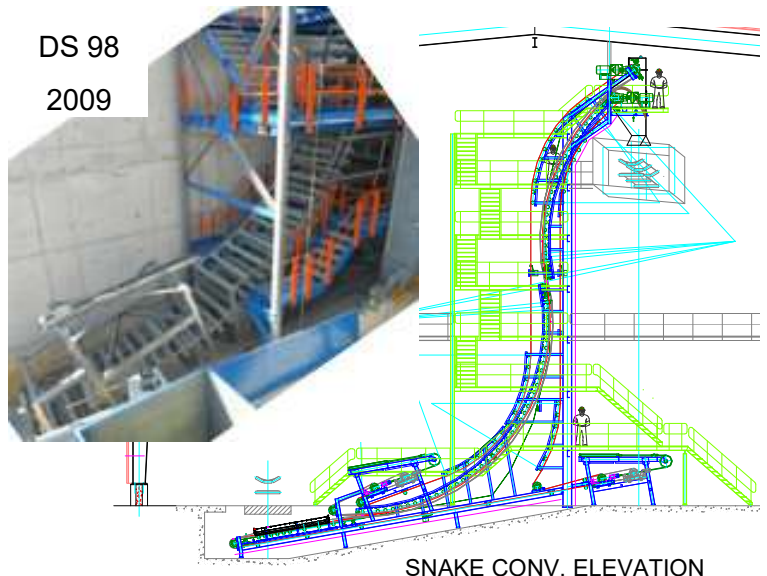
### DSI Snake Sandwich Conveyor Shiploader for Cortex Resources at Port Adelaide, Australia

Material	- Titanium Ore
- Density	- 2.4 t/cu-m (150 PCF)
Conveying Rate	- 1000 t/h (1102 STPH)
Conveying Angle	- 50 degrees
Belt Width	- 1200 mm (47")
Belt Speed	- 2 m/s (394 FPM)
Lift	- 21,805 mm (71.5')
Length	- 56,656 mm (185.9')
Snake Drives	
- Top Belt	- 55 kW (74 HP)
- Bottom Belt	- 55 kW (74 HP)

### DSI Snake Sandwich Conveyor for Duro Felguera at Repsol Refinery, Bilbao, Spain

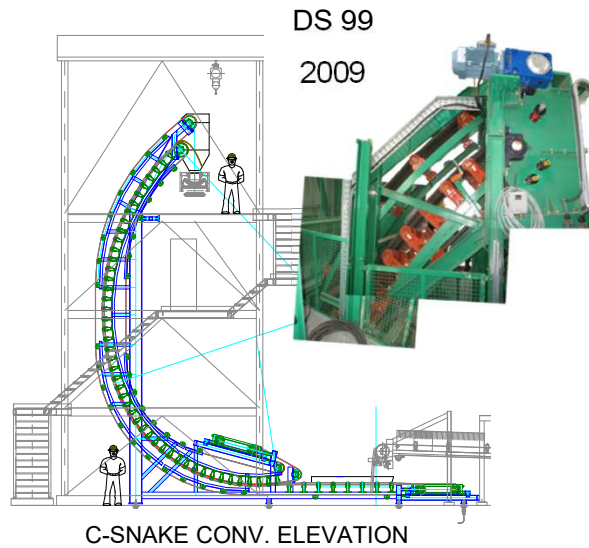
Material	- Green Petroleum Coke
- Density	- 0.721 t/cu-m (45 PCF)
- Size	- 80 mm (3.1") minus
- Temperature	- to 93° C
Conveying Rate	- 475 t/h (524 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 1400 mm (55")
Belt Speed	- 3.5 m/s (689 FPM)
Lift	- 21,155 mm (69.4')
Length	- 32,266 mm (105.2')
Snake Drives	
- Top Belt	- 45 kW (60 HP)
- Bottom Belt	- 45 kW (60 HP)

DS 98  
2009



# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors

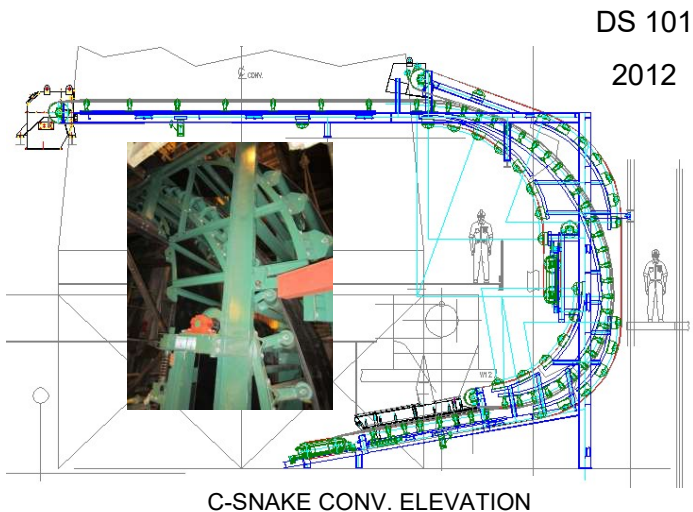
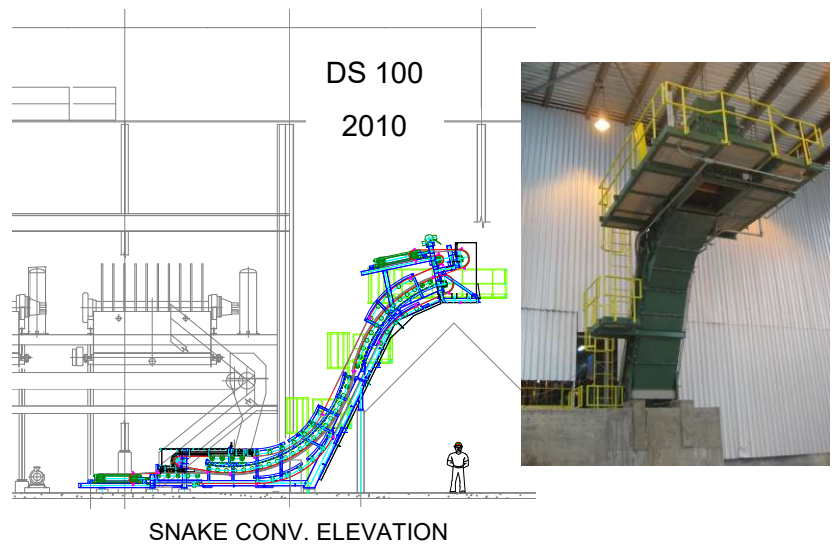


### DSI Snake Sandwich Conveyor for TAI M WESER at Repsol Refinery, Cartagena, Spain

Material	- Sulfur
- Density	- 1.04 t/cu-m (63 PCF)
- Size	- 3 mm (0.12") minus
Conveying Rate	- 40 t/h (44 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 600 mm (23.6")
Belt Speed	- 2.0 m/s (394 FPM)
Lift	- 10,509 mm (34.5')
Length	- 20,648 mm (67.7')
Snake Drives	
- Inner Belt	- 7.5 kW (10 HP)
- Outer Belt	- 7.5 kW (10 HP)

### DSI Snake Sandwich Conveyor for Golder Associates at Coyhaique XI Region, Chile

Material	- Filter Cake
- Density	- 1.2 t/cu-m (75 PCF)
- Size	- 1 mm (0.04") minus
Conveying Rate	- 77 t/h (85 STPH)
Conveying Angle	- 64 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 1.3 m/s (256 FPM)
Lift	- 7,235 mm (23.7')
Length	- 14,832 mm (48.7')
Snake Drives	
- Top Belt	- 7.5 kW (10 HP)
- Bottom Belt	- 7.5 kW (10 HP)



### DSI Snake Sandwich Conveyor for New Page Mill, Rumford, Maine, USA

Material	- Hog Fuel, (bark & wood waste)
- Density	- 0.32 t/cu-m (20 PCF)
- Size	- 102 mm (4") minus
Conveying Rate	- 54.4 t/h (60 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 1067 mm (42")
Belt Speed	- 1.52 m/s (300 FPM)
Lift	- 7,742 mm (27.6')
Length	- 16,642 mm (83.2')
Snake Drives	
- Inner Belt	- 7.5 kW (10 HP)
- Outer Belt	- 7.5 kW (10 HP)

# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors

### DSI Snake Sandwich Conveyor for Amec at Red Chris Project, BC, Canada

Material	- Pebble Ore (Cu, Au)
- Density	- 1.6 t/cu-m (100 PCF)
- Size	- 55 mm (2.2") minus
Conveying Rate	- 340 t/h (375 STPH)
Conveying Angle	- 67 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 2.1 m/s (413 FPM)
Lift	-24,215 mm (79.5')
Length	- 49,817 mm (160.7')
Snake Drives	
- Top Belt	- 29.8 kW (40 HP)
- Bottom Belt	- 29.8 kW (40 HP)

DS 102  
2012



DS 103  
2013

### DSI Snake Sandwich Conveyor for Oxbow, Ltd, Fawley Plant, Southampton, UK

Material	- Sulfur
- Density	- 1.20 t/cu-m (75 PCF)
- Size	- 2 mm (1/8") minus
Conveying Rate	- 20 t/h (22 STPH)
Conveying Angle	- 50.5 degrees
Belt Width	- 600 mm (23.6")
Belt Speed	- 0.40 m/s (78.7 FPM)
Lift	- 19,266 mm (63.2')
Length	- 55,800 mm (183.1')
Snake Drives	
- Top Belt	- 3.7 kW (5 HP)
- Bottom Belt	- 3.7 kW (5 HP)

### DSI Snake Sandwich Conveyor for Zanella Maquinas at Paraiba Cement, Brasil

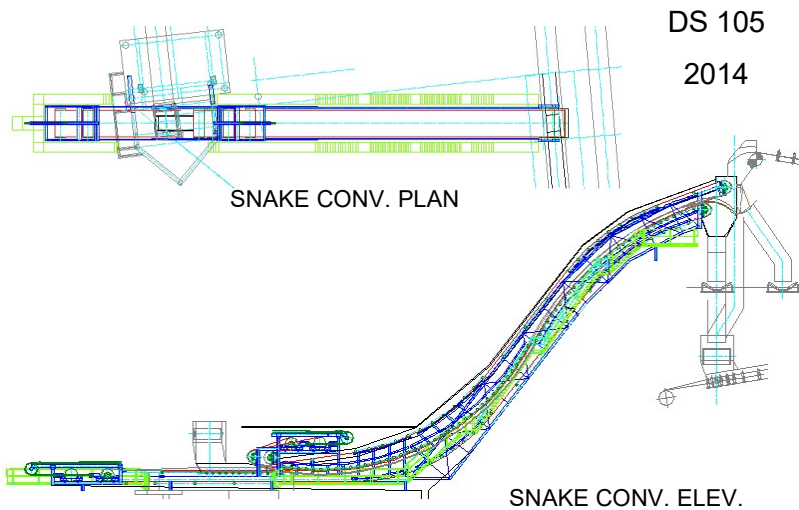
Material	- Various Cement Feed
- Density	- 1.4 t/cu-m (87 PCF)
- Size	- 100 mm (4") minus
Conveying Rate	- 720 t/h (794 STPH)
Conveying Angle	- 60 degrees
Belt Width	- 1220 mm (48")
Belt Speed	- 3.1 m/s (610 FPM)
Lift	- 20,290 mm (66.7')
Length	- 61,470 mm (202.7')
Snake Drives	
- Top Belt	- 56 kW (75 HP)
- Bottom Belt	- 56 kW (75 HP)

DS 104  
2013



# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors



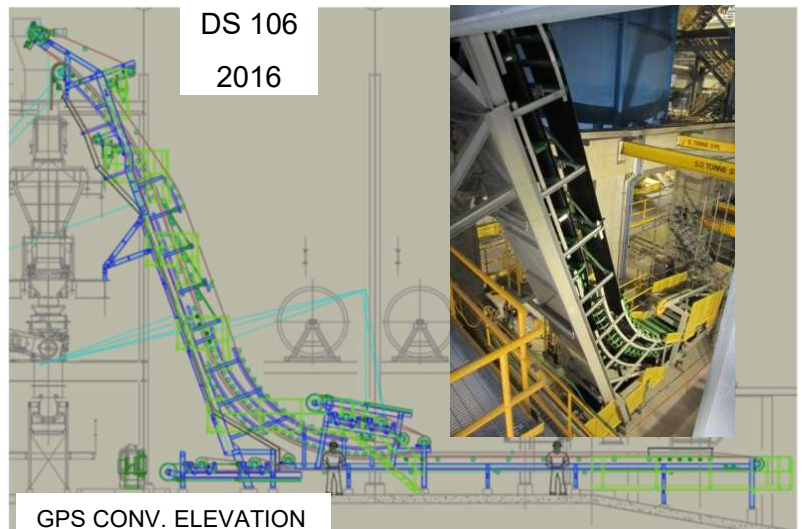
DS 105  
2014

### DSI Snake Sandwich Conveyor for UBT, Davant, LA, USA

Material	- Coal
- Density	- 0.80 t/cu-m (50 PCF)
- Size	- 76 mm (3") minus
Conveying Rate	- 3629 t/h (4000 STPH)
Conveying Angle	- 52 degrees
Belt Width	- 2438 mm (96")
Belt Speed	- 4.32 m/s (850 FPM)
Lift	- 18,540 mm (60.8')
Length	- 45,900 mm (150.6')
Snake Drives	
- Top Belt	- 224 kW (300 HP)
- Bottom Belt	- 224 kW (300 HP)

### DSI GPS Sandwich Conveyor for Pretium Metals Brucejack Project, BC, Canada

Material	- Pebble Ore
- Density	- 1.65 t/cu-m (103 PCF)
- Size	- 76 mm (3") minus
Conveying Rate	- 45 t/h (49.6 STPH)
Conveying Angle	- 70 degrees
Belt Width	- 914 mm (36")
Belt Speed	- 0.71 m/s (140 FPM)
Lift	- 13,490 mm (44.2')
Length	- 30,900 mm (101.5')
Snake Drives	
- Top Belt	- 7.5 kW (10 HP)
- Bottom Belt	- 7.5 kW (10 HP)



DS 106  
2016

GPS CONV. ELEVATION

### DSI Snake Sandwich Conveyor for Bedeschi S.p.A. at Yara Fertilizer, Sluiskil, Netherlands

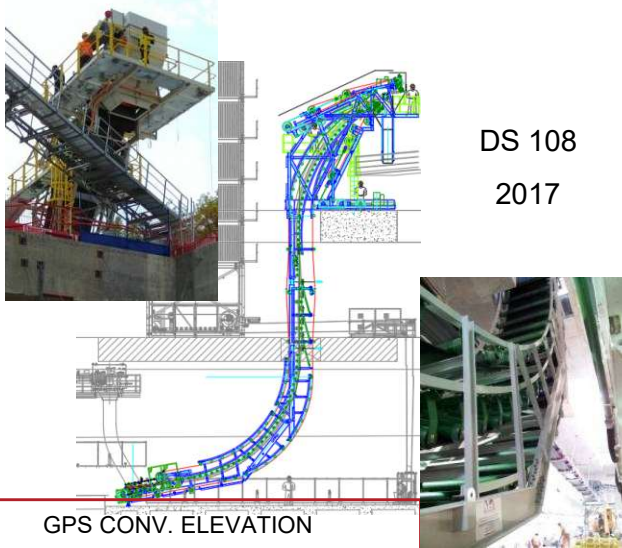
Material	- Urea, Amidas prills
- Density	- 0.75 t/cu-m (47 PCF)
- Size	- 3.6 mm (.14") minus
Conveying Rate	- 600 t/h (661 STPH)
Conveying Angle	- 40 degrees
Belt Width	- 1600 mm (63")
Belt Speed	- 2 m/s (394 FPM)
Lift	- 10,476 mm (34')
Length	- 32713 mm (107')
Snake Drives	
- Top Belt	- 37 kW (50 HP)
- Bottom Belt	- 37 kW (50 HP)

DS 107  
2017



# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors



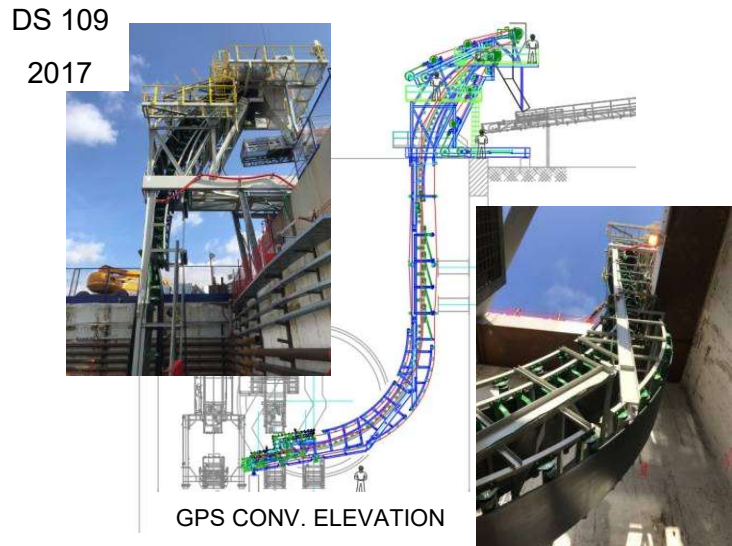
DS 108  
2017

**DSI GPS Sandwich Conveyor for H+E Logistik, Germany at Paris Metro project, France**

Material	- Tunnel muck
- Density	- 1.6 t/cu-m (100 PCF)
- Size	- 150 mm (5.9") minus
Conveying Rate	- 800 t/h (882 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 1400 mm (55.1")
Belt Speed	- 3 m/s (591 FPM)
Lift	- 24,647 mm (80.9')
Length	- 33,521 mm (110.0')
Snake Drives	
- Top Belt	- 75 kW (101 HP)
- Bottom Belt	- 75 kW (101 HP)

**DSI GPS Sandwich Conveyor for H+E Logistik, Germany at Paris Metro project, France**

Material	- Tunnel muck
- Density	- 1.6 t/cu-m (100 PCF)
- Size	- 150 mm (5.9") minus
Conveying Rate	- 800 t/h (882 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 1400 mm (55.1")
Belt Speed	- 3 m/s (591 FPM)
Lift	- 26,323 mm (86.4')
Length	- 35,197 mm (115.5')
Snake Drives	
- Top Belt	- 75 kW (101 HP)
- Bottom Belt	- 75 kW (101 HP)



**DS 110 DSI GPS Sandwich Conveyor for M3 at Buritica Project, Colombia**

Material	- Pebble ore
- Density	- 1.6 t/cu-m (100 PCF)
- Size	- 76 mm (3") minus
Conveying Rate	- 135 t/h (149 STPH)
Conveying Angle	- 45 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 1.07 m/s (211 FPM)
Lift	- 14,250 mm (46.8')
Length	- 34,100 mm (111.9')
Snake Drives	
- Inner Belt	- 11 kW (15 HP)
- Outer Belt	- 11 kW (15 HP)

# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors



GPS CONVEYOR

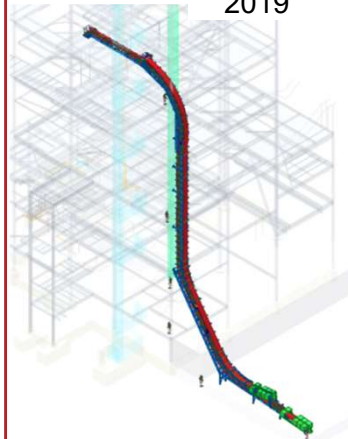
### DS 111 DSI GPS Sandwich Conveyor for M3 at Buritica Project, Colombia

Material	- Pebble ore
- Density	- 1.6 t/cu-m (100 PCF)
- Size	- 76 mm (3") minus
Conveying Rate	- 135 t/h (149 STPH)
Conveying Angle	- 45 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 1.07 m/s (211 FPM)
Lift	- 6,750 mm (22.2')
Length	- 17,500 mm (57.3')
Snake Drives	
- Inner Belt	- 11 kW (15 HP)
- Outer Belt	- 11 kW (15 HP)

### DSI GPS Sandwich Conveyor for Ash Grove Cement, Midlothian, TX USA

Material	- Tire chips
- Density	- 0.40 t/cu-m (25 PCF)
- Size	- 50.8 mm (2") minus
Conveying Rate	- 9 t/h (10 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 0.50 m/s (100 FPM)
Lift	- 40,538 mm (133')
Length	- 67,056 mm (220')
Snake Drives	
- Inner Belt	- 5.6 kW (7.50 HP)
- Outer Belt	- 5.6 kW (7.50 HP)

### DS 112 2019



### DS 113 2020



### DSI GPS Sandwich Conveyor for Ash Grove Cement, Midlothian, TX USA

Material	- Tire chips
- Density	- 0.40 t/cu-m (25 PCF)
- Size	- 50.8 mm (2") minus
Conveying Rate	- 9 t/h (10 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 0.50 m/s (100 FPM)
Lift	- 40,538 mm (133')
Length	- 62,500 mm (205')
Snake Drives	
- Inner Belt	- 5.6 kW (7.50 HP)
- Outer Belt	- 5.6 kW (7.50 HP)

# JOSEPH A. DOS SANTOS

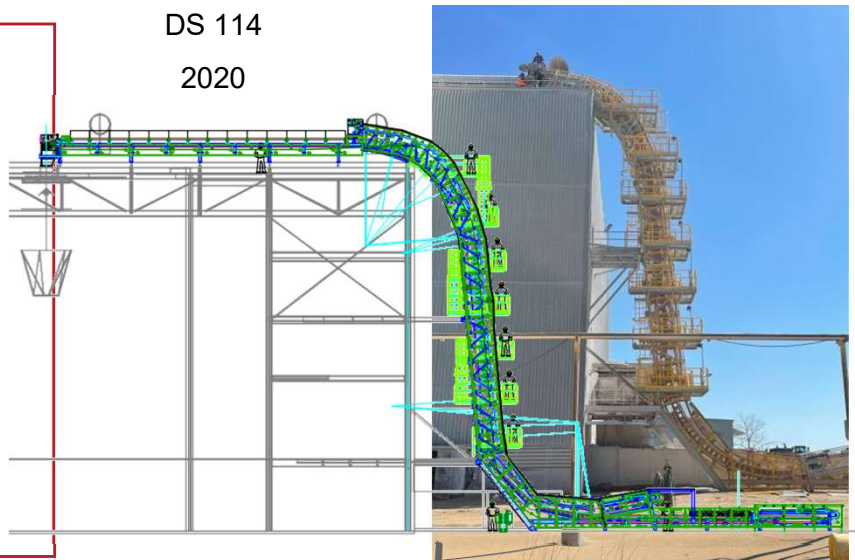
## Sandwich Belt High Angle Conveyors

### DSI GPS Sandwich Conveyor for

**Lafarge Holcim, Sparrow Point, MD USA**

Material	- Natural Gypsum
- Density	- 0.40 t/cu-m (75 PCF)
- Size	- 50.8 mm (3") minus
Conveying Rate	- 122 t/h (135 STPH)
Conveying Angle	- 85 degrees
Belt Width	- 762 mm (30")
Belt Speed	- 2.03 m/s (400 FPM)
Lift	- 23,300 mm (76')
Length	- 61,500 mm (202')
Snake Drives	
- Inner Belt	- 19 kW (25 HP)
- Outer Belt	- 19 kW (25 HP)

DS 114  
2020



### DS 115 DSI Sandwich Conveyor for SNF Coagulants, St. Avold France

Material	- Magnetite
- Density	- 3.00 t/cu-m (188 PCF)
- Size	- 1 mm (.04") minus
Conveying Rate	- 30 t/h (33 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 610 mm (24")
Belt Speed	- 0.39 m/s (76 FPM)
Lift	- 8,790 mm (29')
Length	- 14,400 mm (47')
Snake Drives	
- Inner Belt	- 4.00 kW (6 HP)
- Outer Belt	- 4.00 kW (6 HP)

### DSI Sandwich Conveyor for Singapore Airport

Material	- Tunnel Muck
- Density	- 1.83 t/cu-m (114 PCF)
- Size	- 150 mm (6") minus
Conveying Rate	- 800 t/h (882 STPH)
Conveying Angle	- 45 degrees
Belt Width	- 1200 mm (47")
Belt Speed	- 2.00 m/s (394 FPM)
Lift	- 32,783 mm (108')
Length	- 90,142 mm (296')
Snake Drives	
- Inner Belt	- 75 kW (100 HP)
- Outer Belt	- 75 kW (100 HP)

DS 116  
2021



# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors



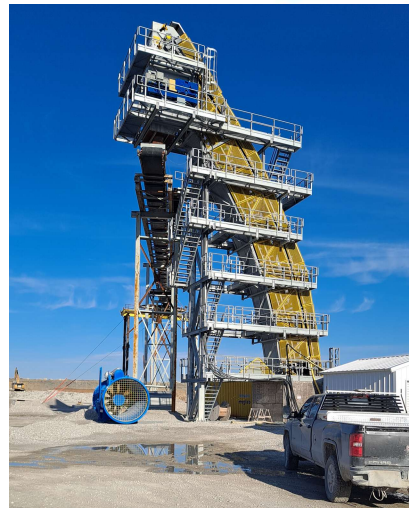
DS 117  
2021

### DSI Sandwich Conveyor for Cooper Consolidated, New Orleans, LA USA

Material	- Grains
- Density	- 0.77 t/cu-m (48 PCF)
- Size	- 101.6 mm (4") minus
Conveying Rate	- 2268 t/h (2500 STPH)
Conveying Angle	- 50 degrees
Belt Width	- 2134 mm (84")
Belt Speed	- 4.57 m/s (900 FPM)
Lift	- 18,474 mm (60.6')
Length	- 36,538 mm (119.9')
Snake Drives	
- Top Belt	- 112 kW (150 HP)
- Bottom Belt	- 149 kW (200 HP)

### DSI Sandwich Conveyor for Underground Quarry, Midwest, USA

Material	- Limestone
- Density	- 1.60 t/cu-m (100 PCF)
- Size	- 152 mm (6") minus
Conveying Rate	- 544 t/h (600 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 1372 mm (54")
Belt Speed	- 2.54 m/s (535 FPM)
Lift	- 246,739 mm (809.5')
Length	- 280,000 mm (918')
Snake Drives	
- Inner Belt	- 298 kW (400 HP)
- Outer Belt	- 298 kW (400 HP)



DS 118  
2026

# JOSEPH A. DOS SANTOS

## Sandwich Belt High Angle Conveyors

**Two-Units EleVeyor EL  
for  
Blue Plains -WWTP  
(Data, Each Unit)**

Material	- Municipal Sludge
- Density	- 1.0 t/cu-m (65 PCF)
Conveying Rate	- 13.6 t/h (15 STPH)
Conveying Angle	- 90 degrees
Belt Width	- 610 mm (24")
Belt Speed	- 0.38 m/s (75 FPM)
Lift	- 5,000 mm (16.3')
Length	- 11,250 mm (36.9')
EL Drives	
- Top Belt	- 1.9 kW (2.5 HP)
- Bottom Belt	- 1.9 kW (2.5 HP)

