

# CEMSTONE®

CONCRETE PLACING SERVICE

## CONCRETE PUMP & CONVEYOR EQUIPMENT GUIDE





# OUR --- MISSION EVERY DAY

is to be a **TRUSTED PARTNER**  
with **PASSIONATE PEOPLE**  
creating **BUILDING MATERIALS**  
for a **BETTER TOMORROW.**

OUR  
CORE  
VALUES

**IWE**

**DEMAND** Safety  
**EXPECT** Integrity  
**EMPOWER** Innovation  
**DRIVE** Excellence  
**EMBRACE** Collaboration



St. Paul Water Treatment Plant - Roseville, MN

# CEMSTONE. BUILD IT BETTER.



## ACPA Certified Pump Operators

Cemstone Concrete Pump Operators are ACPA (American Concrete Pumping Association) Certified. The ACPA Certification is the only nationally recognized safety certification program for concrete pump operators. The certification enables our operators achieve the highest degree of professionalism and maintain the strictest standards for safety.

This certification has been shown to improve safety, decrease accident rates in the workplace, and has become a critical standard for customers looking for a reliable, high quality pumping contractor.

Annual recertification also keeps operators focused on correct practices and safety procedures.

## Annual Certified Boom Inspections

Cemstone conducts recertification boom inspections every two years by a certified structural inspector. This insures that our equipment will meet or exceed OSHA, and manufacturers' recommendations. In meeting the criteria of inspection and repairs, **you can be certain we are doing everything possible to ensure the safety of our employees and customers.**

Contents of this book are for quick reference only. Full technical specifications and information is available upon request.



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## LINE PUMP TRUCKS

- Output 70 cy per hour
- Maximum pressure on concrete 1100 psi
- Maximum aggregate size 1.5"
- Concrete cylinder stroke length 39"
- Outlet diameter 5"
- 2", 2.5", 3" line system
- Hydraulic Pressure 4350 psi
- 5-7 ton legal

**Easy maneuverability on job sites.**



## LINE PUMP HOSE OPTIONS

HOSE DIAMETER	LENGTH	WEIGHT EMPTY	WEIGHT FULL
2"	25'	40 lbs	120 lbs
2.5"	25'	60 lbs	190 lbs
3"	10'	50 lbs	120 lbs
4"	10'	60 lbs	190 lbs
5"	10'	70 lbs	280 lbs

*\* approximate weights*





## 20 METER • 63-FOOT BOOM

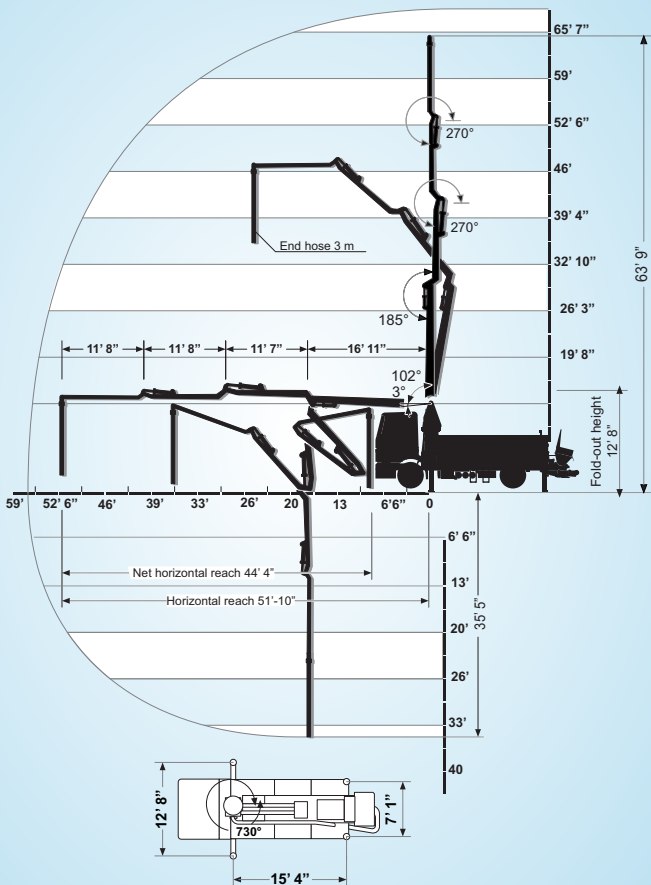
- The S 20 offers a unique boom design in a compact package, affording pumpers, concrete contractors and specialty contractors a versatile tool to expand concrete pumping possibilities.
- 4-section boom
- Unfolding height 12' 8"
- Vertical reach is 63' 9"
- Net horizontal reach is 44' 4"
- 2", 2.5", 3" line system
- 7-ton legal

**The Double Z is a short boom truck long on versatility (820 degrees of total articulation) and ideal for residential, specialty and commercial work.**





# 20 METER





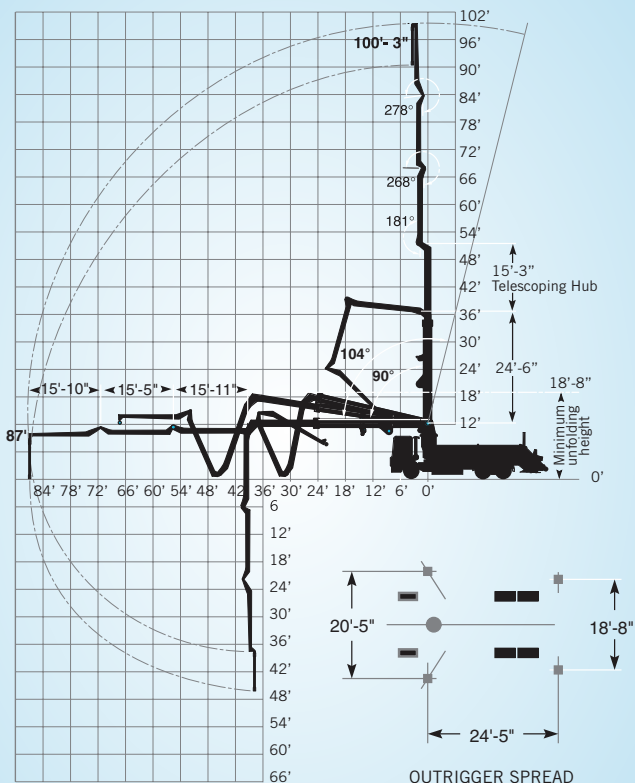
## 31 METER • 100-FOOT BOOM

- Outrigger spread is 20' 5"
- 4-section boom
- **Minimum unfolding height is 18' 8"**
- Vertical reach is 100' 3"
- Net horizontal reach is 84'
- Output 170 yds per hour
- 9-ton legal

**Telescopic boom versatility combines with operational ease to provide maximum utilization.**



# 31 METER





## 36 METER • 115-FOOT BOOM

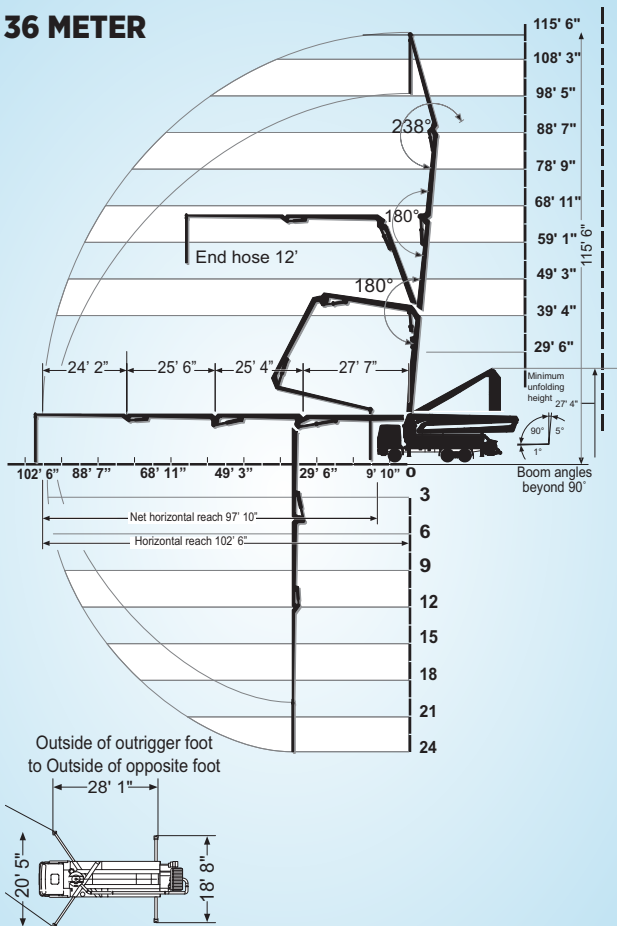
- Roll and Fold® design of these booms you will enjoy low unfolding height and fast clean out
- Easy maneuverability for high utilization
- 4-section boom
- Vertical reach is 115' 6"
- Net horizontal reach is 95'
- 5-7 ton legal

**Four-section boom versatility, impressive output and reliability.**





# 36 METER





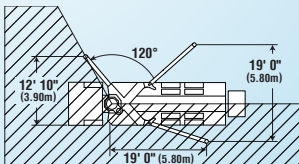
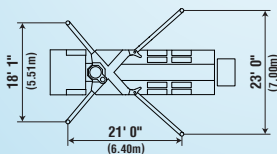
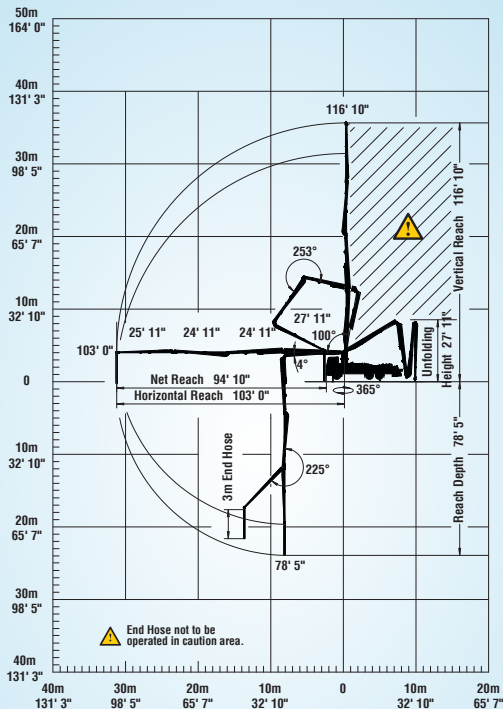
## 36 METER • Z-BOOM • 115-FOOT BOOM

- Multi-Z Boom design allows efficient operation in restricted headroom whether positioned inside or outside structure
- Easy maneuverability for high utilization
- 4-section boom
- Vertical reach is 115' 6"
- Net horizontal reach is 95'
- 5-ton legal

**Powerful pumping performance with a small footprint makes it perfect for restrictive job sites.**



# 36 METER-Z





## 38 METER • 122-FOOT BOOM

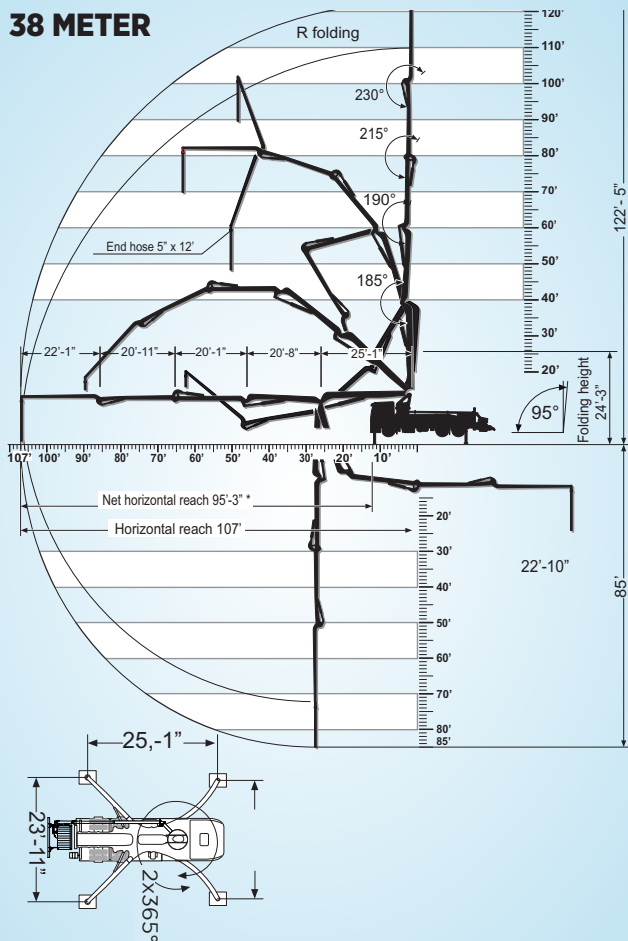
- Easy Flex One-Sided Outrigger System
- 5-Section Hyper Extension Boom
- Vertical reach is 122' 5"
- Net horizontal reach is 107'
- Unfolding height is 24' 4"
- 7-ton legal

**Unique 5-section boom that allows placement in hard to reach jobsites.**





# 38 METER





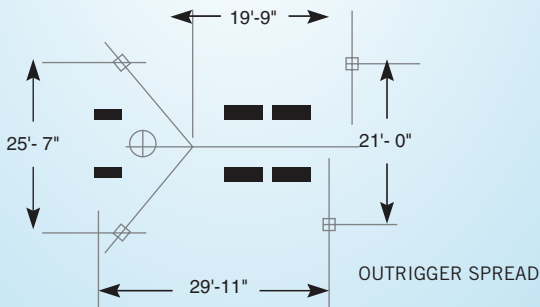
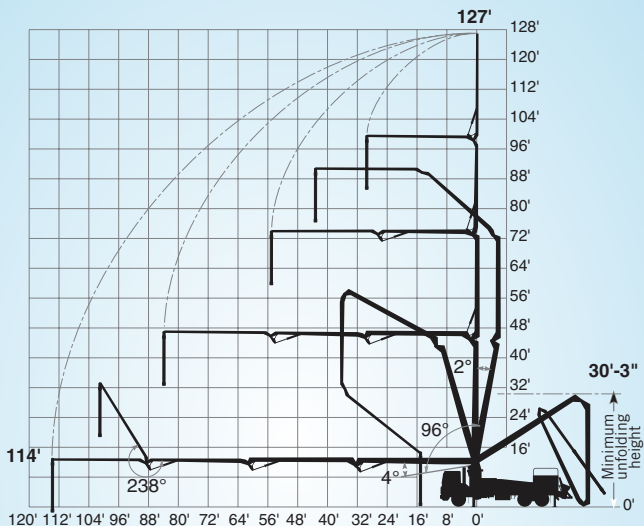
## 39 METER • 127-FOOT BOOM

- Detachable boom for job site versatility with a variety of mounting options including free-standing, form mounting or mast-mounting with floor frames.
- 4-section boom
- Vertical reach is 151'3"
- Net horizontal reach is 134'5"
- 9-ton legal

**Ideal for any project - residential, commercial and industrial.**



# 39 METER





## 46 METER • 150-FOOT BOOM

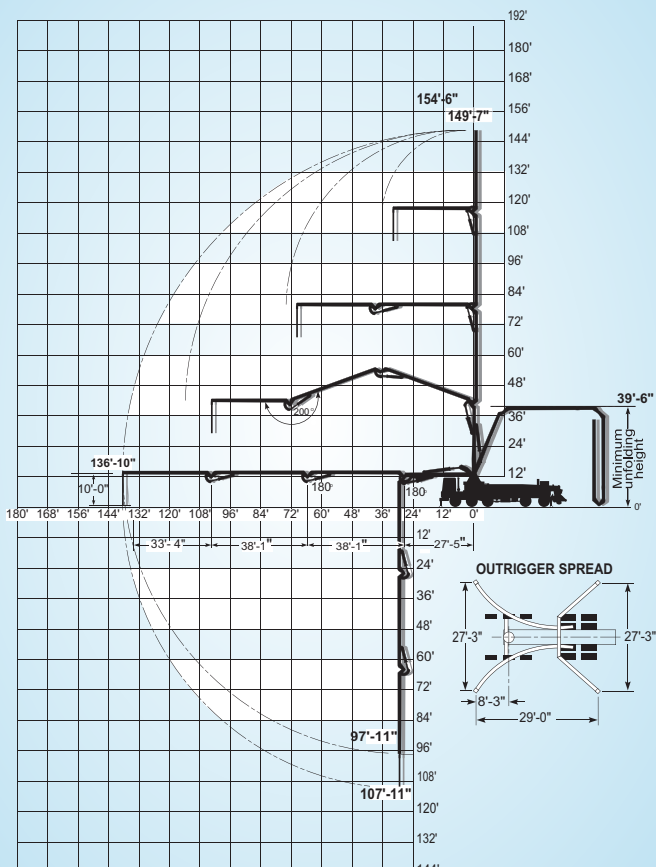
- 4-section Overhead Roll and Fold®
- Vertical reach is 149' 7" - 154' 6"
- Net horizontal reach is 128' 10" - 130'
- Unfolding height 39' 6"
- 9-ton legal

**Super X outriggers provide maximum stability with the smallest footprint. A proven workhorse for commercial and industrial long reach.**





# 46 METER





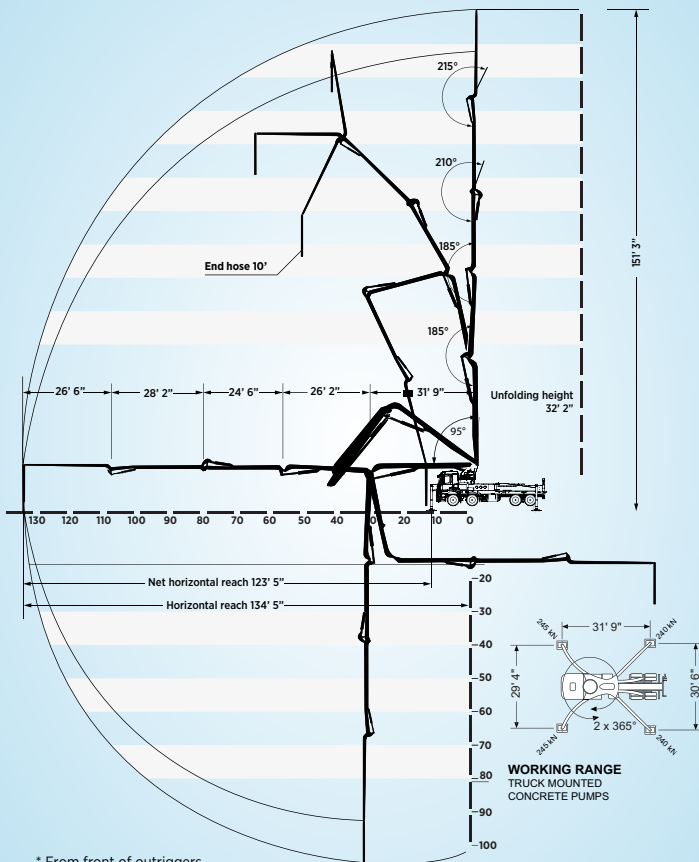
## 47 METER • 154-FOOT BOOM

- 5-section Overhead Roll and Fold®
- Vertical reach is 151'
- Net horizontal reach is 143'
- Unfolding height 32'
- 9-ton legal

**Super X outriggers provide maximum stability with the smallest footprint. A proven workhorse for commercial and industrial long reach.**



# 47 METER



\* From front of outriggers

\*\* From center of turret



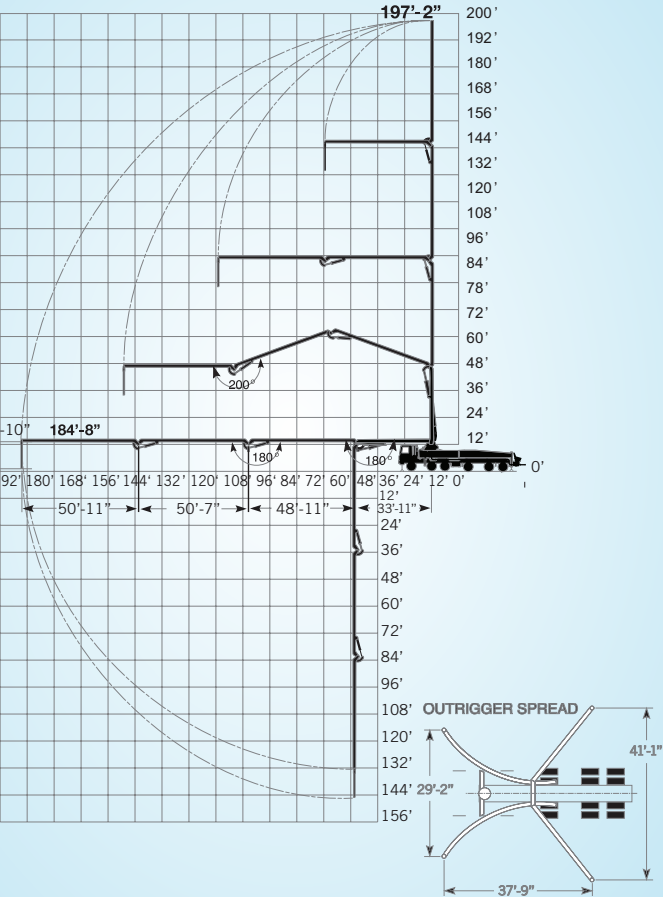
## 61 METER • 197-FOOT BOOM

- 4-section boom
- Section lengths:
  - 1st section - 34'
  - 2nd section - 49'
  - 3rd section - 50' 8"
  - 4th section - 51'
- Unfolding height 51' 9"
- Vertical reach is 197' 2"
- Net horizontal reach is 171' 9"
- Outrigger spread 41' 1"
- Overweight permits required daily - **24 hour notice required**

**Our longest boom for high rise, commercial work.**



# 61 METER





# FREE STANDING PLACING BOOM 18 METER



# FREE STANDING PLACING BOOM 18 METER

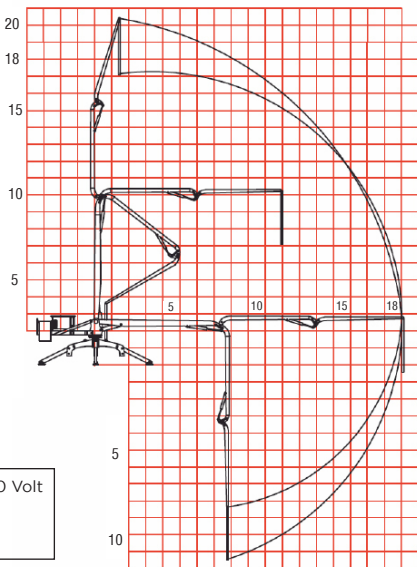
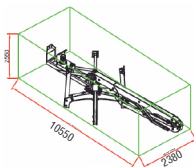


## BHD 18+3 SERIES TECHNICAL SPECIFICATIONS

(available in Freestanding Configuration only)

### Transport Size

(4050Kg/8928.722 lbs)



- Electric motor - 220 Volt
- CE Certified
- Operator Supplied

### Loads on slabs

**BHD 18+3** : 3250 kg/7165.024 lbs

Counterweight : 2500 kg/5511.557 lbs

+ Concrete in Pipe : 1100 kg/2425.085 lbs

**TOTAL WEIGHT** 6850 kg/15101.669 lbs





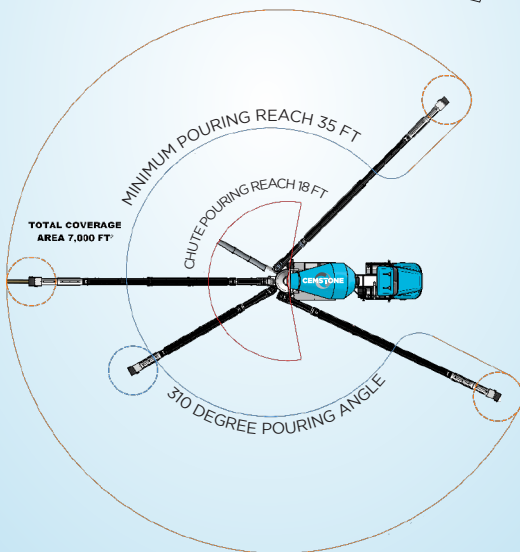
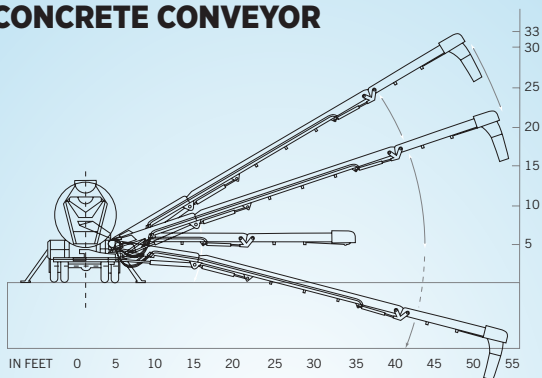
## MIXER MOUNTED CONCRETE CONVEYOR TRUCK

- Outrigger spread 11'
- 50' horizontal reach
- 33/50' overall reach with telescoping maxi-swing pivot
- 30' maximum discharge height from ground
- 320° conveyor rotation
- 5-ton legal - empty
- 9-ton legal - 7.75 cubic yards

**The best value for single load jobs conveying aggregate or concrete.**



# CONCRETE CONVEYOR

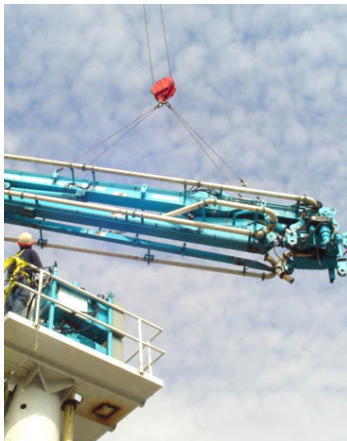




## HIGH RISE PLACING BOOM

- Concrete placement speed as much as 50% faster than tower crane and bucket.
- 39 meter placing boom
- 114' reach
- Picking weight 17,700 lbs empty
- Trailer capability and availability on request

**Specifically for high rise/long reach concrete placing applications.**



## REAR DISCHARGE TRUCK AVERAGE DIMENSIONS



- Maximum Height .....13 feet 6 inches
- Maximum Length ..... range 39 - 45 feet  
(with a boost-a-load down)
- Maximum Width ..... 9 feet 6 inches
- Turn Radius ..... 37 feet
- Maximum Chute Length ..... 16 feet

**Note this is a MAXIMUM of rear discharge ready-mixed concrete trucks in our current fleet.**



## FRONT DISCHARGE TRUCK AVERAGE DIMENSIONS



- Maximum Height .....13 feet 6 inches
- Maximum Length ..... 40 feet
- Maximum Width ..... 9 feet 6 inches
- Turn Radius ..... 37 feet
- Maximum Chute Length ..... 16 feet

**Note this is a MAXIMUM of front discharge ready-mixed concrete trucks in our current fleet.**

# CEMSTONE PUMPABLE MIXES



## 2" PUMPABLE MIXES

3000 psi 3/8" Rock + Air	B3498
4000 psi 3/8" Rock + Air	T4796
4000 psi 3/8" Rock	Xtop
4500 psi 3/8" Rock + Air	T4696
4500 psi 3/8" Rock	T4795
5000 psi 3/8" Rock + Air	T5196
5000 psi 3/8" Rock	T5195

- Recommend 3/4" screen over hopper to filter large material.
- Extra yard of concrete if more than 100' hose.
- Allow 30 minutes to unload full truck.

## 3" PUMPABLE MIXES

3000 psi	F3265
3000 psi + Air	F3266
3500 psi	W3765
3500 psi + Air (winter)	W3666
3500 psi + Air (summer)	P3866
4000 psi	W4265
4000 psi + Air	P4266
4500 psi	P4665
4500 psi + Air	W4766
5000 psi	W5265

- Primer needed if pumping 150' or further.
- Extra yard of concrete is more than 100' hose.

## 4" PUMPABLE MIXES

**MOST** mixes that are 3000 psi or greater, pump through 4" or 5" line off the rear end or off the boom.

## PROFESSIONAL CONSULTATION & PLACEMENT SERVICES

### THE CEMSTONE ADVANTAGE!

The **Cemstone Advantage** allows customers to get ready-mix, aggregate, placing equipment and placing services all in one partner. By providing pumps, conveyors, specialty equipment, ready-mix concrete, aggregates and expert operators in-house, Cemstone is the premier option for your project and can reliably serve your needs. Ask for a Professional Consultation today!

### CEMSTONE CONCRETE PLACING SERVICES

<b>MINNESOTA</b>	651.686.4274
<b>S. MINNESOTA</b>	507.446.2410
<b>WISCONSIN</b>	715.986.4442

### MINNESOTA DISPATCH CENTERS

<b>METRO DISPATCH</b>	651.688.9520
<b>WEST METRO</b> Delano • St. Bonifacius	763.972.6111
<b>NORTH</b> Aitkin • Brainerd • Hackensack Isle • Rock Creek	320.676.3365
<b>WEST METRO MN</b> Delano • St. Bonifacius	763.972.6111
<b>SOUTH CENTRAL</b> Arlington • Gibbon • Jordan • Montgomery	952.492.3939
<b>SOUTH</b> Albert Lea • Faribault • Northfield Owatonna • Red Wing • Waseca	507.446.2410
<b>SOUTHWEST</b> Blue Earth • Fairmont • Jackson Mankato • New Ulm • St. James Sherburn • Wells • Windom	507.553.5113
<b>WEST</b> Arlington • Gibbon • Jordan • Montgomery	952.492.3939

## IOWA DISPATCH CENTER

### NORTH

Forest City • Lake Mills • Northwood

641.324.1063

### CENTRAL

Algona • Clarion • Emmetsburg  
Fort Dodge • Gilmore • Rockwell City  
Sac City • Storm Lake

515.955.6781 X5122

## WISCONSIN DISPATCH CENTERS

### CENTRAL WI

Cameron • Dresser • Durand • Hayward  
New Richmond • River Falls • Spooner  
Turtle Lake

715.246.4238

## CEMSTONE CONTRACTOR SUPPLY

### MINNESOTA

651.905.1500

### WISCONSIN

715.243.1940

## AGGREGATES

### MINNESOTA

651.688.9526

### WISCONSIN

715.246.4238

## PRE-POUR PLACING SAFETY ASSESSMENT



**If any conditions change** after the Pre-Pour Placement Safety Assessment document has been signed, **notify** Cemstone Placing Dispatch Department **651-686-4274**

### REMINDERS

- Review hand signals with pump operators before placing concrete.
- Wear approved hard hats, gloves, boots and safety glasses when placing ready mixed concrete to prevent cement burns.
- **NOTE:** Placing equipment must wash out at the plant.





# PRE-POUR PLACING SAFETY ASSESSMENT

Customer: \_\_\_\_\_ Project Name: \_\_\_\_\_

Location: \_\_\_\_\_

Date of assessment completion: \_\_\_\_\_ Scheduled date of placement: \_\_\_\_\_

## CONCRETE PUMPS/CONVEYORS

Placing Equipment Needed				Pump Setup Location	YES	NO	NA	
Pump Size _____ System Size _____				Setup footprint large enough				
Feet _____				Location large enough to unfold boom				
<b>Overhead Hazards / Obstruction Present</b>	Power lines (20 ft clearance required)	YES	NO	NA	Personal Protective Equipment (PPE)			
	Telephone/Cable Line				Job/Building Entrance			
	Trees				Washout			
					Lightening			
<b>Underground Hazards Present/Identified</b>	Utilities	YES	NO	NA	<b>Safe Access for RM Trucks</b>	YES	NO	NA
	Septic System				15' wide for one truck			
					25' wide for two trucks			
<b>Excavation Hazards</b>	Adequate space to maintain 1 to 1	YES	NO	NA	Other obstacles			
	Soil condition acceptable				<b>Traffic Control</b>	YES	NO	NA
	Additional cribbing required (by contractor)				Lane closure (if yes, diagram below)			
				Signage, barricades				
				Barrels				
				Cones				
<b>DEMAND SAFETY</b>				<b>Traffic Direction (Trained Flagman)</b>				
				Name (print)				
				<b>Designated Trained Person to Back RM Truck to Pump</b>				
				Name (print)				

## PLACING BOOM & MINI PLACER

	YES	NO	NA		YES	NO	NA
Will equipment sit on ground				Adequate space/clearance from structure to operate equipment			
Will equipment sit on elevated structure				Power lines or other obstruction present			
If on structure, has structural engineering for loads been completed				Access to site by semi/trailer to deliver equipment			
If yes, do we have a copy				Adequate Capacity of crane/lift along with proper rigging to unload and put equipment in place			
If on ground, are ground conditions suitable				Certificate of Insurance received			
If power is necessary, supply properly installed by licensed electrician				Waiver of Liability received			
Proper ventilation required to run Spider Boom indoors (gas engine)							

# PRE-POUR PLACING SAFETY ASSESSMENT



## PERMISSIBLE PRESSURES ON VARIOUS TYPES OF SOIL

Virgin ground	22 psi
Asphalt, min. 8" thick	29 psi
Compressed crushed stone	36 psi
Clay/silt soil, firm	43 psi
Mixed granular soil	51 psi
Firm compacted soil	58 psi
More compacted	72 psi
More compacted (e.g. class 5)	109 psi
Brittle weathered rock	145 psi

### To calculate soil pressure:

Divide the force on the outrigger leg (from the decal) by the number of square inches of soil contact.

### PSI=LOAD ÷ AREA

PSI=Pressure on the soil

Load=Force in pounds

Area=Square inches of soil contact

**EXAMPLE:** Load bearing capacity of the soil (8 inches of asphalt) = 29 PSI

Force on the soil by the outrigger leg = 40,000 Pounds (from decal)

Pad on outrigger = 12" x 12" (144 square inches)

$40,000 \div 144 = 278 \text{ PSI}$

In this example you could expect the outrigger to sink into the asphalt and cause a tip over. To prevent this, you install additional cribbing:

Additional cribbing = 40" x 40" (1600 square inches)

Now asphalt will support the outrigger.

## HOSE WHIPPING



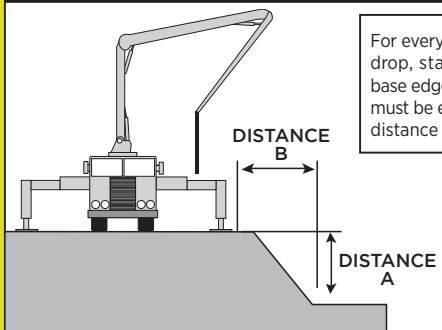
## CAUTION

Remove everyone from the discharge area whenever the pump is first starting, restarting after moving, or if air has been introduced into the line.



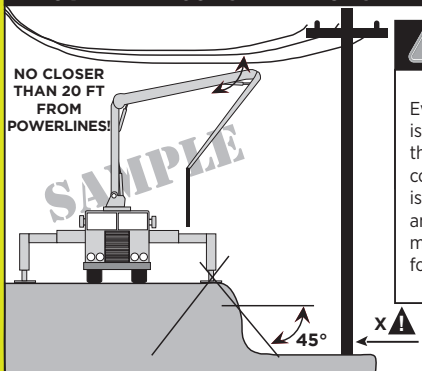
## PRE-POUR PLACING SAFETY ASSESSMENT

### THE 1 TO 1 RULE



For every 1 foot of vertical drop, stay back from the base edge 1 foot. (distance "B" must be equal or greater than distance "A")

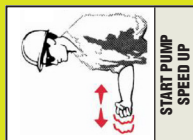
### OVERHEAD CONSIDERATIONS



### WARNING

Even though the bottom is at a 1 to 1 ratio with the top, this cliff could collapse. Outrigger force is transmitted at a 45° angle, and there is no material to support the force at point X.

# PLACING HAND SIGNALS



**START PUMP  
SPEED UP**



**SLOW PUMP  
DOWN**



**STOP PUMP**



**LITTLE BIT**



**RELIEVE  
PRESSURE**



**ADD WATER  
4-GALLONS**



**ALL DONE  
CLEAN UP**



**BOOM UP**



**BOOM DOWN**



**BOOM LEFT**



**BOOM RIGHT**



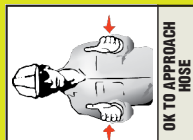
**OPEN OR  
EXTEND BOOM**



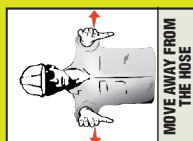
**CLOSE OR  
RETRACT BOOM**



**STOP BOOM**



**OK TO APPROACH  
HOSE**



**MOVE AWAY FROM  
THE HOSE**



# CEMSTONE

CONCRETE PLACING SERVICE



651.686.4274



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Mendota Heights, MN 55120-1221



[cemstone.com](http://cemstone.com)