EQUIPMENT GUIDE

651.686.4272 | cemstone.com
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.
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SPTO 1000 - TRUCK MOUNTED
CONCRETE PUMP

• Output 70 cy per hour
• Maximum pressure on concrete 1100 psi
• Maximum aggregate size 1.5”
• Concrete cylinder stroke length 39”
• Outlet diameter 5”
• Hydraulic Pressure 4350 psi
• 5-ton legal

Easy maneuverability on job sites.
STPO 1000

Performance Characteristics of the Axial Piston Hydraulic Pump

- Maximum Pump Speed: 2200 RPM
- Hydraulic Relief Valve is set at Maximum 3867 PSI

Break Point: 2980 PSI

Graph showing
- Piston Side Pressure
- Oil Pressure
- Number of Strokes
- Oil Volume

Page 2 | Concrete Pump & Conveyor Services
• Great for corefill and topping mixes
• Highly maneuverable alternative to trailer pumping
• 3-section boom
• Unfolding height is 15’ 9”
• Vertical reach is 54’ 5”
• Net horizontal reach is 37’

Low unfolding 15’ 9” height allows indoor work. 2” hose off the rear-end for easy access to backyard and other hard to reach applications.
OUTRIGGER SPREAD

11'-9"

7'-2"

14'-5"

DO NOT OPERATE BOOM SECTION 3 PAST VERTICAL

Minimum unfolding height

270°

54'-5"

43'-7"

270°

15'-9"

43' - 7"

270°

54' - 5"

43' - 7"
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”
- 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.
Net horizontal reach 44' 4"
Horizontal reach 51'-10"
End hose 3 m
Fold-out height 12' 8"
63' 9"
65' 7"
• 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

Telescopic boom versatility combines with operational ease to provide maximum utilization.
• 4-section boom
• Vertical reach is 111’ 6”
• Net horizontal reach is 90’
• On-road traveling height of 13’
• Central Tire Inflation (CTI) ideal for soft or sandy conditions
• 5-ton legal

Our most versatile pump for residential and commercial pours.
• 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.
WORKING RANGE
TRUCK MOUNTED
CONCRETE PUMPS

Minimum unfolding height 27' 4"
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.
End Hose not to be operated in caution area.
• 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.
WORKING RANGE
TRUCK MOUNTED
CONCRETE PUMPS
*mounting on Mack MRU
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 127’
- Net horizontal reach is 105’ 9”
- 7 ton legal

Ideal for any project - residential, commercial and industrial.
4-section Overhead Roll and Fold®
Vertical reach is 149’ 7” - 154’ 6”
Net horizontal reach is 128’ 10” - 130’
9 ton legal

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

OUTRIGGER SPREAD

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OUTRIG
FREE STANDING PLACING BOOM
18 METER
BHD 18+3 SERIES TECHNICAL SPECIFICATIONS
(available in Freestanding Configuration only)

Transport Size
(4050Kg/8928.722 lbs)

Loads on slabs

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

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
• Concrete placement speed as much as 50% faster than tower crane and bucket.
• 39M 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.
• Outrigger spread 11’
• 50’ horizontal reach
• 33/50’ overall reach with telescoping maxi-swing pivot
• 30’ maximum discharge height from ground
• 320° conveyor rotation
• Average load size 7 cubic yards

The best value for single load jobs conveying aggregate or concrete.
• 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 mix concrete trucks in our current fleet.
• 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 mix concrete trucks in our current fleet.
## CEMSTONE PUMPABLE MIXES

### 2” PUMPABLE MIXES

<table>
<thead>
<tr>
<th>Mixes</th>
<th>Code</th>
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<tbody>
<tr>
<td>3000 psi 3/8” Rock + Air</td>
<td>B3498</td>
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<tr>
<td>4000 psi 3/8” Rock + Air</td>
<td>T4796</td>
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<tr>
<td>4000 psi 3/8” Rock</td>
<td>Xtop</td>
</tr>
<tr>
<td>4500 psi 3/8” Rock + Air</td>
<td>T4696</td>
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<tr>
<td>4500 psi 3/8” Rock</td>
<td>T4795</td>
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<tr>
<td>5000 psi 3/8” Rock + Air</td>
<td>T5196</td>
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<tr>
<td>5000 psi 3/8” Rock</td>
<td>T5195</td>
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### 3” PUMPABLE MIXES

<table>
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<th>Mixes</th>
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<td>3000 psi</td>
<td>F3265</td>
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<tr>
<td>3000 psi + Air</td>
<td>F3266</td>
</tr>
<tr>
<td>3500 psi</td>
<td>W3765</td>
</tr>
<tr>
<td>3500 psi + Air (winter)</td>
<td>W3666</td>
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<tr>
<td>3500 psi + Air (summer)</td>
<td>P3866</td>
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<tr>
<td>4000 psi</td>
<td>W4265</td>
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<tr>
<td>4000 psi + Air</td>
<td>P4266</td>
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<tr>
<td>4500 psi</td>
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<tr>
<td>5000 psi</td>
<td>W5265</td>
</tr>
<tr>
<td>5000 psi + Air</td>
<td>W5266</td>
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</tbody>
</table>

### 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.

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

<table>
<thead>
<tr>
<th>STATE</th>
<th>AREA</th>
<th>PHONE NUMBER</th>
<th>TOLL FREE NUMBER</th>
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<tbody>
<tr>
<td>MINNESOTA</td>
<td>651.686.4274</td>
<td>800.CEMSTONE</td>
<td></td>
</tr>
<tr>
<td>S. MINNESOTA</td>
<td>507.446.2410</td>
<td>800.294.1543</td>
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<tr>
<td>WISCONSIN</td>
<td>715.986.4442</td>
<td>866.279.2221</td>
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MINNESOTA DISPATCH CENTERS

<table>
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<th>DISPATCH CENTER</th>
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<tr>
<td>METRO DISPATCH</td>
<td>651.688.9520</td>
<td>800.CEMSTONE</td>
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<tr>
<td>NORTHERN MN</td>
<td>320.676.3365</td>
<td>800.955.6105</td>
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<tr>
<td>Aitkin • Big Sandy •</td>
<td>Isle</td>
<td>800.543.1977</td>
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<tr>
<td>Brainerd • Hackensack • Rock Creek</td>
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<td>WEST METRO MN</td>
<td>763.972.6111</td>
<td>800.658.7172</td>
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<td>Delano • St. Bonifacius</td>
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<tr>
<td>SOUTH CENTRAL MN</td>
<td>952.492.3939</td>
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<td>Arlington • Gibbon •</td>
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<td>Jordan • Montgomery</td>
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<tr>
<td>SOUTHEAST MN</td>
<td>651.388.8996</td>
<td>800.325.6055</td>
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<td>Red Wing</td>
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<td>SOUTHERN MN</td>
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<td>800.294.1543</td>
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<td>Albert Lea • Cannon</td>
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<tr>
<td>Falls • Faribault</td>
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<tr>
<td>Northfield • Owatonna</td>
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<tr>
<td>• Waseca</td>
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<tr>
<td>Blue Earth • Mankato</td>
<td>507.553.5113</td>
<td>800.658.7172</td>
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<td>• Wells</td>
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<tr>
<td>Armstrong • Fairmont</td>
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<td>• Jackson • St. James</td>
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<tr>
<td>Windom • Worthington</td>
<td>507.847.3001</td>
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<tr>
<td>• Armstrong</td>
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<tr>
<td>Mankato • New Ulm</td>
<td>507.387.3421</td>
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# IOWA DISPATCH CENTER

**NORTH IOWA**
Forest City • Lake Mills • Manly
Northwood • St. Ansgar

641.324.1063 • 800.658.3081

**CENTRAL IOWA**
Clarion • Emmetsburg • Fort Dodge
Gillmore • Lakota • Rockwell City
Sac City • Storm Lake • Webster

515.955.6781 X5122

**SOUTH CENTRAL IOWA**
Durand

715.672.5008

**NORTHERN IOWA**
Dresser • Frederic • Hayward • Spooner • Turtle Lake

715.986.4442 • 866.279.2221

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# WISCONSIN DISPATCH CENTERS

**CENTRAL WI**
New Richmond • River Falls

715.246.4238 • 800.555.9415

**SOUTH CENTRAL WI**
Durand

715.672.5008

**NORTHERN WI**
Dresser • Frederic • Hayward • Spooner • Turtle Lake

715.986.4442 • 866.279.2221

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# CEMSTONE CONTRACTOR SUPPLY

**MINNESOTA**

651.905.1500 • 800.829.8228

**WISCONSIN**

715.243.1940 • 800.555.9415

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# AGGREGATES

**MINNESOTA**

651.688.9526

**WISCONSIN**

715.246.4238 • 800.555.9415
### Pre-Placement Safety Checklist

**Must fill out COMPLETELY**

<table>
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<tr>
<th>Customer</th>
<th>Project Name</th>
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<table>
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<tr>
<th>Date of checklist completion</th>
<th>Scheduled date of placement</th>
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<table>
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<tr>
<th>Placing equipment size required</th>
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#### Overhead Hazards / Obstruction Present

<table>
<thead>
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- Power lines (20ft clearance required)
- Trees

#### Underground Hazards Present/Identified

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<thead>
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- Utilities
- Septic System

#### Excavation Hazards

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- Adequate space to maintain 1 to 1
- Soil condition acceptable
- Additional cribbing required (by contractor)

#### Safe Access for RM Trucks

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- 15’ wide for one truck
- 25’ wide for two trucks
- Other obstacles

#### Traffic Control

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<th>NO</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Lane closure (if yes, use diagram provided)
- Signage, barricades
- Drums
- Cones

#### Traffic direction (Trained Flagman)

<table>
<thead>
<tr>
<th>Name (print)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

#### Designated trained person to back RM Truck to pump

<table>
<thead>
<tr>
<th>Name (print)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

---

**If any conditions change** after this document has been signed, **notify** Cemstone Placing Dispatch Department **651-686-4274**

---

**REMEMBERS**

- 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.
PERMISSIBLE PRESSURES ON VARIOUS TYPES OF SOIL

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virgin ground</td>
<td>22</td>
</tr>
<tr>
<td>Asphalt, min. 8” thick</td>
<td>29</td>
</tr>
<tr>
<td>Compressed crushed stone</td>
<td>36</td>
</tr>
<tr>
<td>Clay/silt soil, firm</td>
<td>43</td>
</tr>
<tr>
<td>Mixed granular soil</td>
<td>51</td>
</tr>
<tr>
<td>Firm compacted soil</td>
<td>58</td>
</tr>
<tr>
<td>More compacted</td>
<td>72</td>
</tr>
<tr>
<td>More compacted (e.g. class 5)</td>
<td>109</td>
</tr>
<tr>
<td>Brittle weathered rock</td>
<td>145</td>
</tr>
</tbody>
</table>

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

\[
\text{PSI} = \frac{\text{LOAD}}{\text{AREA}}
\]

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.
**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**

Even though the bottom is at a 1 to 1 ratio with the top, this cliff could collapse. Out-rigger force is transmitted at a 45 degree angle, and there is no material to support the force at point X.
PLACING HAND SIGNALS

1. START PUMP SPEED UP
2. SLOW PUMP DOWN
3. STOP PUMP
4. LITTLE BIT
5. RELIEVE PRESSURE
6. ADD WATER 4-GALLONS
7. ALL DONE CLEAN UP
8. BOOM UP
9. BOOM DOWN
10. BOOM LEFT
11. BOOM RIGHT
12. OPEN OR EXTEND BOOM
13. CLOSE OR RETRACT BOOM
14. STOP BOOM

AMERICAN CONCRETE PUMPING ASSOCIATION