



# C433

## Instruction Manual

Congratulations on the purchase of your new Valco C433 linear actuator. This actuator has been designed specifically for the purpose of opening and closing agricultural air inlets. Simply pull out of the box and install it following the guidelines in this manual. The C433 has a start up capacity of 1000 lbs., a dynamic capacity of 800lbs and has a stroke of 18" and a stroke speed of 14.5 in/minute.



## WARRANTY

VALCO warrants every new C433 actuator to be free of defects in material and workmanship, to the extent that, within a period of one year from the date of purchase VALCO shall either repair or replace at VALCO's option, any unit or part thereof, returned freight prepaid, and found to be defective. Proof of purchase may be required. This warranty does not include any labor or transportation costs incidental to the removal and reinstallation of the unit at the user's premises.

Components repaired or replaced are warranted through the remainder of the original warranty period only. This warranty applies to the original purchaser-user only; it is null and void in case of alteration, accident, abuse, neglect, and operation not in accordance with instructions.

**DISCLAIMER:** Operating this linear actuator above its rated load capacity or pulling a load off center (See Figure 4.1 and 4.2) may cause early failure and will void the warranty.

**NOTICE:** No warranty claims will be honored by VALCO unless prior authorization is obtained.



# C433 Instruction Manual

## 1. UNPACKING

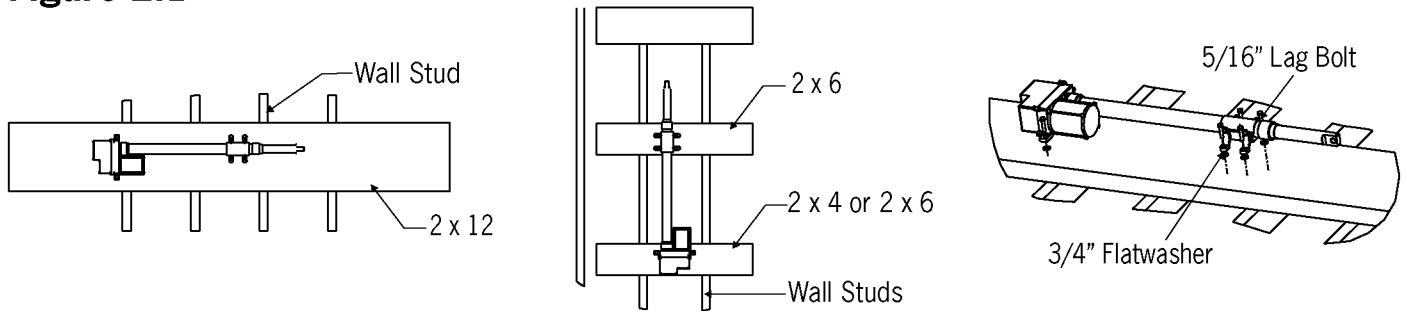
After unpacking the unit, carefully inspect it to make sure no damage has occurred during shipment. The hardware bag should contain 2 water tight connectors, 6 lag bolts, 6 flat washers and 1 connector plug.

## 2. MOUNTING THE LINEAR ACTUATOR TO THE WALL

**Step#1:** Select setup configuration from Sections 4 and 5. **SEE DISCLAIMER IN WARRANTY SECTION.**

**Step#2:** Choose a mounting location that is supported by the structural frame of the building. Mount unit using 5/16" lag bolts and 1" flatwashers. **Note: Figure 2.1** suggests a few methods of mounting the C433 to a wall. Other methods are possible and may be needed depending on different wall conditions (i.e. lagging to a cement wall).

**Figure 2.1**

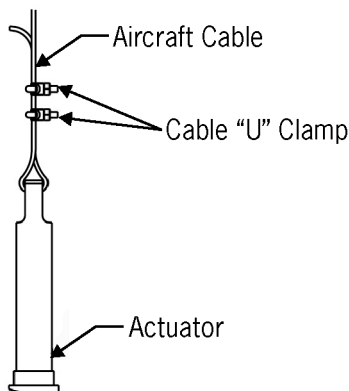


**Step#3:** Install hand winch, brackets, pulleys, etc. (available from VALCO) as per chosen configuration, making sure that none of the cables will interfere with normal operation of doors, windows etc. **Note:** Make sure all pulleys are in line with each other, otherwise cables and pulleys will fail prematurely.

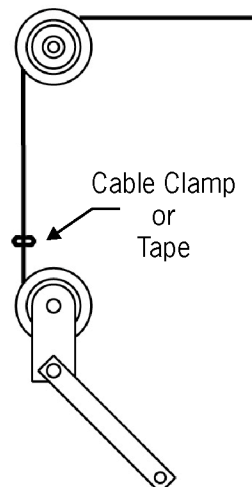
**Step#4:** Connect the curtain cable to the actuator arm. We recommend looping the cable through and securing with cable clamps. See **Figure 2.2**. When hooking up the cable(s), insure that the actuator is in the closed position (un-extended). This will ensure that the manual winch has enough cable to allow operation of the air inlet.

**Step#5:** Take up the slack in cables with hand winch until the inlets are completely shut and sealed. Place a cable clamp or tape on cable near hand winch to insure that cable is not tightened beyond this point. This could damage building or inlet setup). See **Figure 2.3**.

**Suggested Cable Clamping Method**



**Figure 2.2**



**Figure 2.3**

**Step#6:** Run actuator until desired maximum inlet opening is achieved. Set limit switch. (See wiring instructions in **Section 3** to set limit switch).

**Step#7:** If using a potentiometer feedback control, calibrate the control as per its instructions.

**3. WIRING THE LINEAR ACTUATOR**

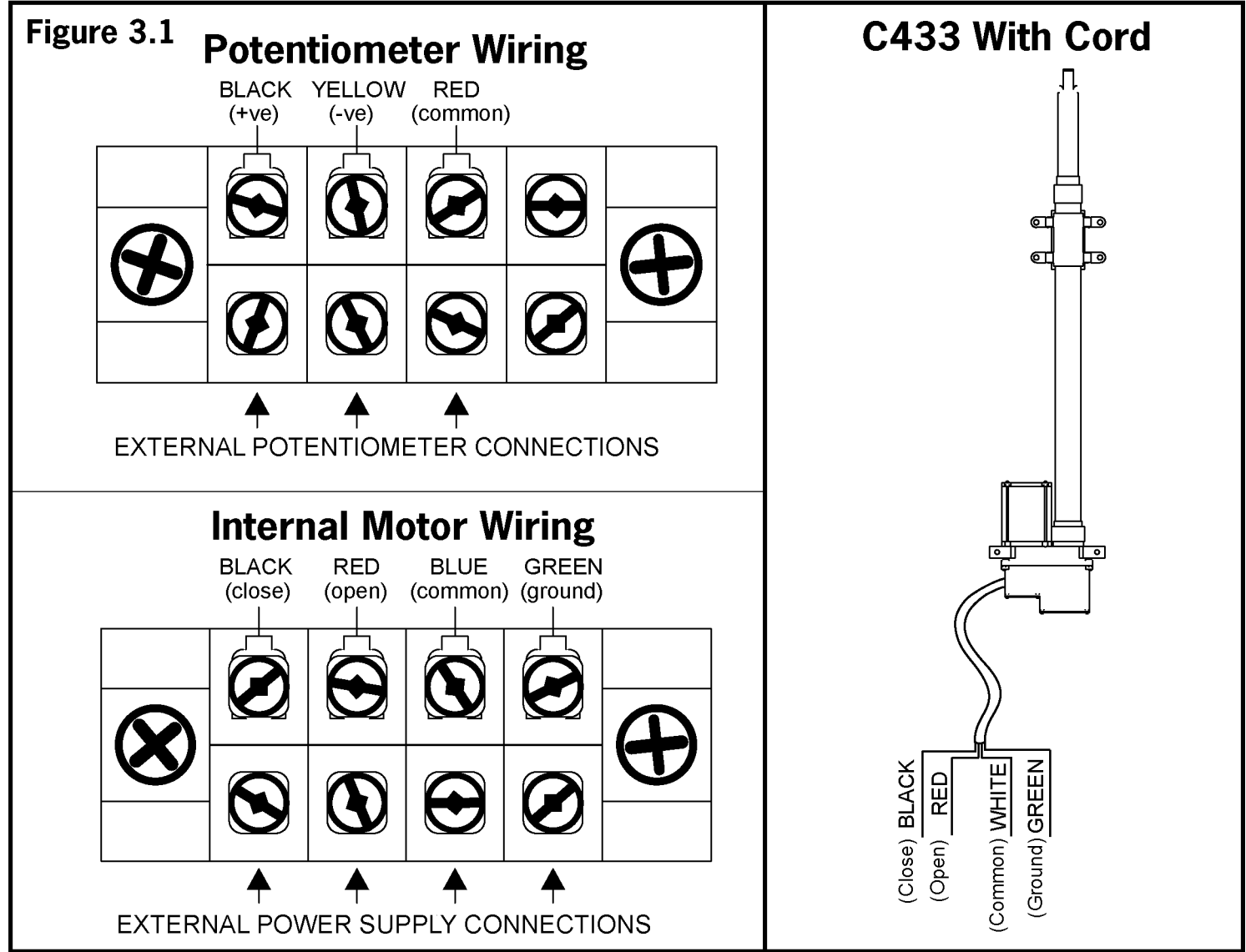


**WARNING:** Be sure power is off at the electrical panel before wiring.  
Follow all local electrical and safety codes.

- Step#1:** Remove larger connection box cover.
- Step#2:** Securely ground the linear actuator by connecting a separate ground wire to the green screw inside the wiring box.
- Step#3:** Make wire connection between the C433 and the control unit according to the wiring diagram **Figure 3.1**.

**WARNING:** Do not supply 230V power source to potentiometer connections; this will immediately destroy the potentiometer. Use different cords to supply power to the unit and for the potentiometer to avoid any residual distortion effects in the potentiometer signal. Also, it is recommended that you run the potentiometer cable at a distance from the power cables, again to avoid residual distortion.

**WARNING:** Only one C433 can be wired into a circuit (one per control relay). Two or more units cannot be wired in parallel, unless an external relay is used to isolate the units from each other (contact VALCO for more information).



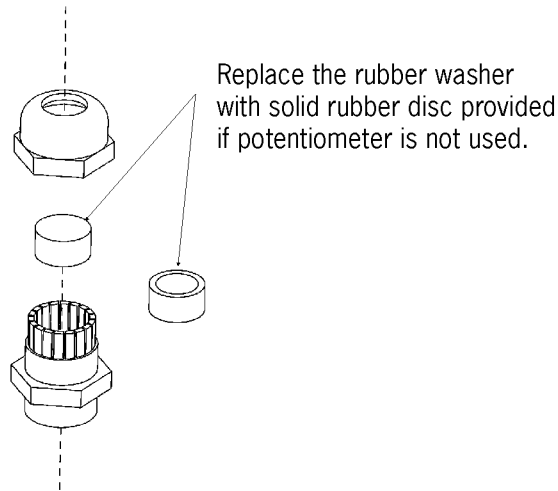
**Step#4:** If potentiometer is not used, replace the rubber washer in the water tight connector with the plug provided. See **Figure 3.2**.

**Step#5:** Make power source and potentiometer connections to the control unit according to the installation manual provided with the control. (**Note:** Control must be compatible with a 10k $\Omega$  potentiometer).

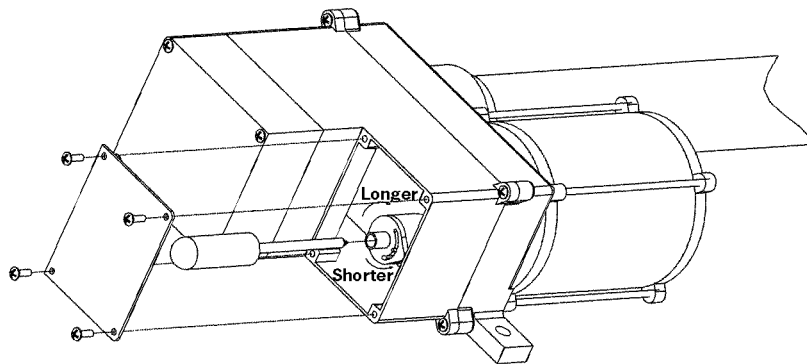
**Step#6:** Setting limit switches. The bottom limit switch is pre-set and cannot be adjusted. Remove limit switch cover plate.

**WARNING: Be sure power is off at the electrical panel before removing limit switch cover plate.** See **Figure 3.2** for directions on adjusting the top limit. Loosen the screw in the plastic cylinder (using Phillips driver) and turn the cam counter clockwise to shorten the screw stroke or clockwise to lengthen the stroke. The bottom and top cam are notched and interlock with each other so the top cam will not slip. Each notch corresponds to 1/2" of travel of the screw. Once cam is set to desired location, tighten the screw and replace cover.

**Figure 3.2**



**Figure 3.3**



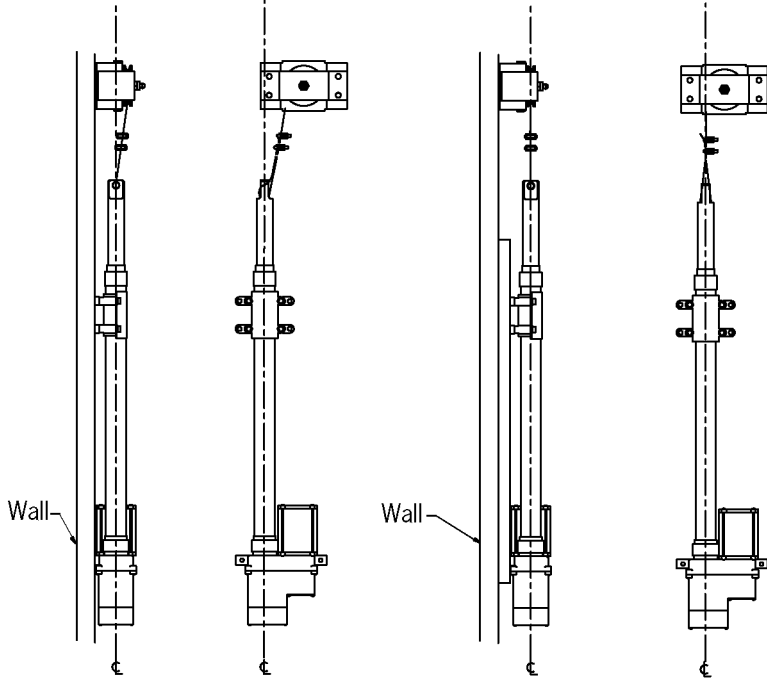
- 1) Use Phillips Screwdriver to loosen Screw in Cam
- 2) Pull Cam Back Slightly
- 3) Turn to Modify Stroke Length
  - Clockwise - Longer Stroke
  - Counter-Clockwise - Shorter Stroke

#### 4. PULLEY CONFIGURATIONS

There are many different possible pulley arrangements which can affect the maximum load and the rate that the air inlets open and close. **Figure 4.1 to 4.5** show some of the different options available. **WARNING: Header bracket must be properly lined up with the actuator arm or actuator will fail.** VALCO recommends using VALCO header brackets and pulleys, since these are designed to line up with the cable from the actuator arm.

**Figure 4.1**

**IMPORTANT:** Pulley installation must not cause cable to be at an angle to shaft (or for dual header application, uneven cable angles) in both side and front view directions



**WRONG**

**Side view:**  
Cable alignment to actuator centerline must be centered

**WRONG**

**Front view:**  
Cable alignment to actuator centerline must be centered

**CORRECT**

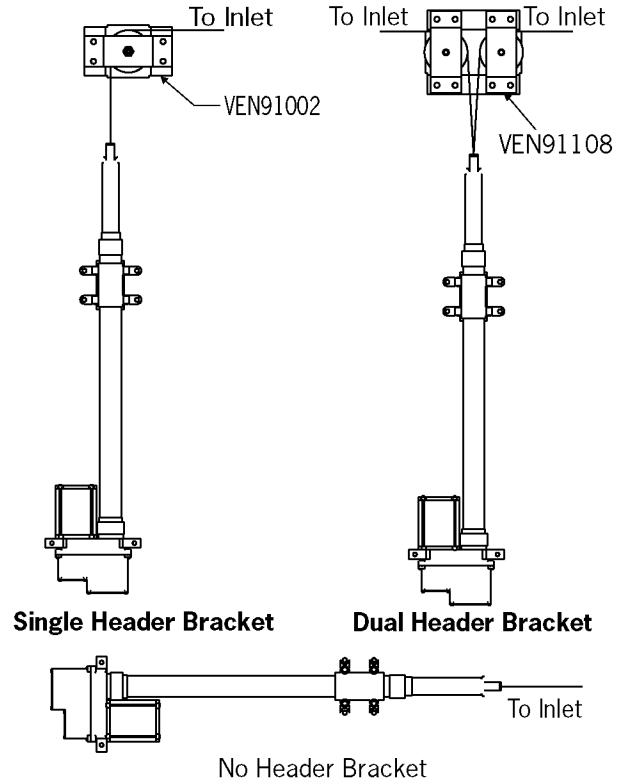
Make sure actuator shaft and cable are centered below pulley(s), when viewed sideways

**CORRECT**

Make sure actuator shaft and cable are centered and tangent below pulley(s), when viewed facing installation

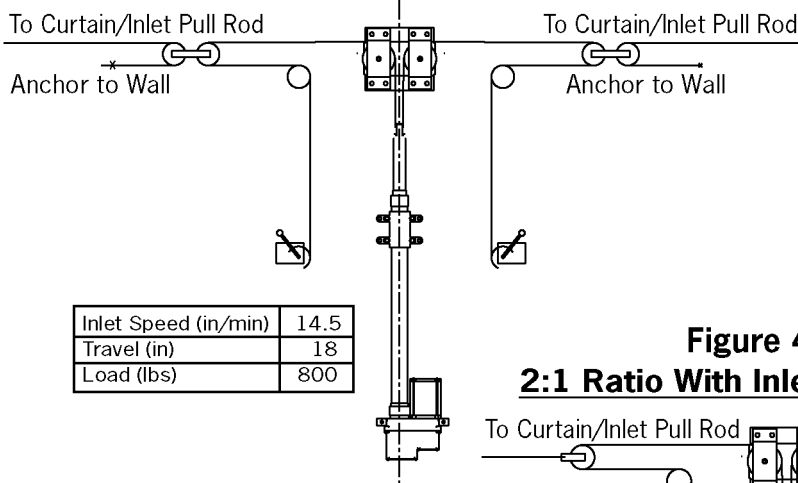
**Figure 4.2**

**Header Bracket Options**



**Figure 4.3**

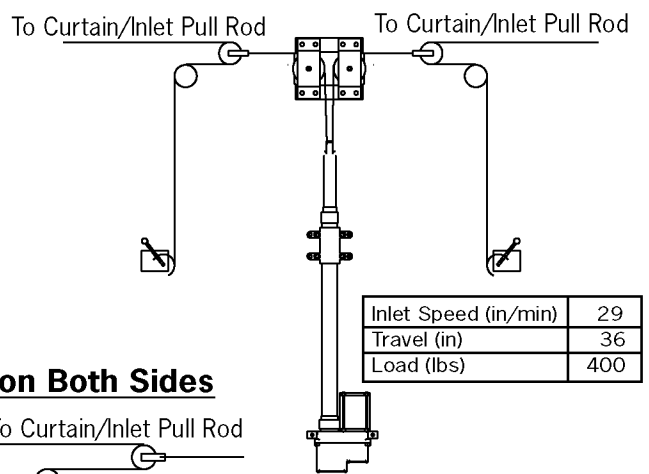
**1:1 Ratio With Inlets on Both Sides**



Inlet Speed (in/min)	14.5
Travel (in)	18
Load (lbs)	800

**Figure 4.4**

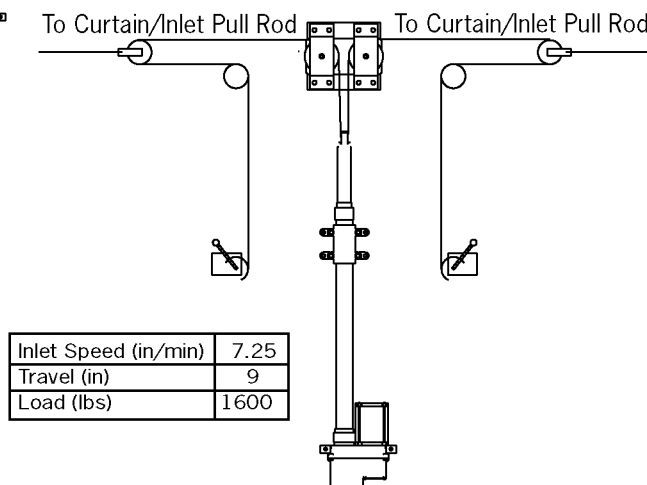
**1:2 Ratio With Inlets on Both Sides**



Inlet Speed (in/min)	29
Travel (in)	36
Load (lbs)	400

**Figure 4.5**

**2:1 Ratio With Inlets on Both Sides**

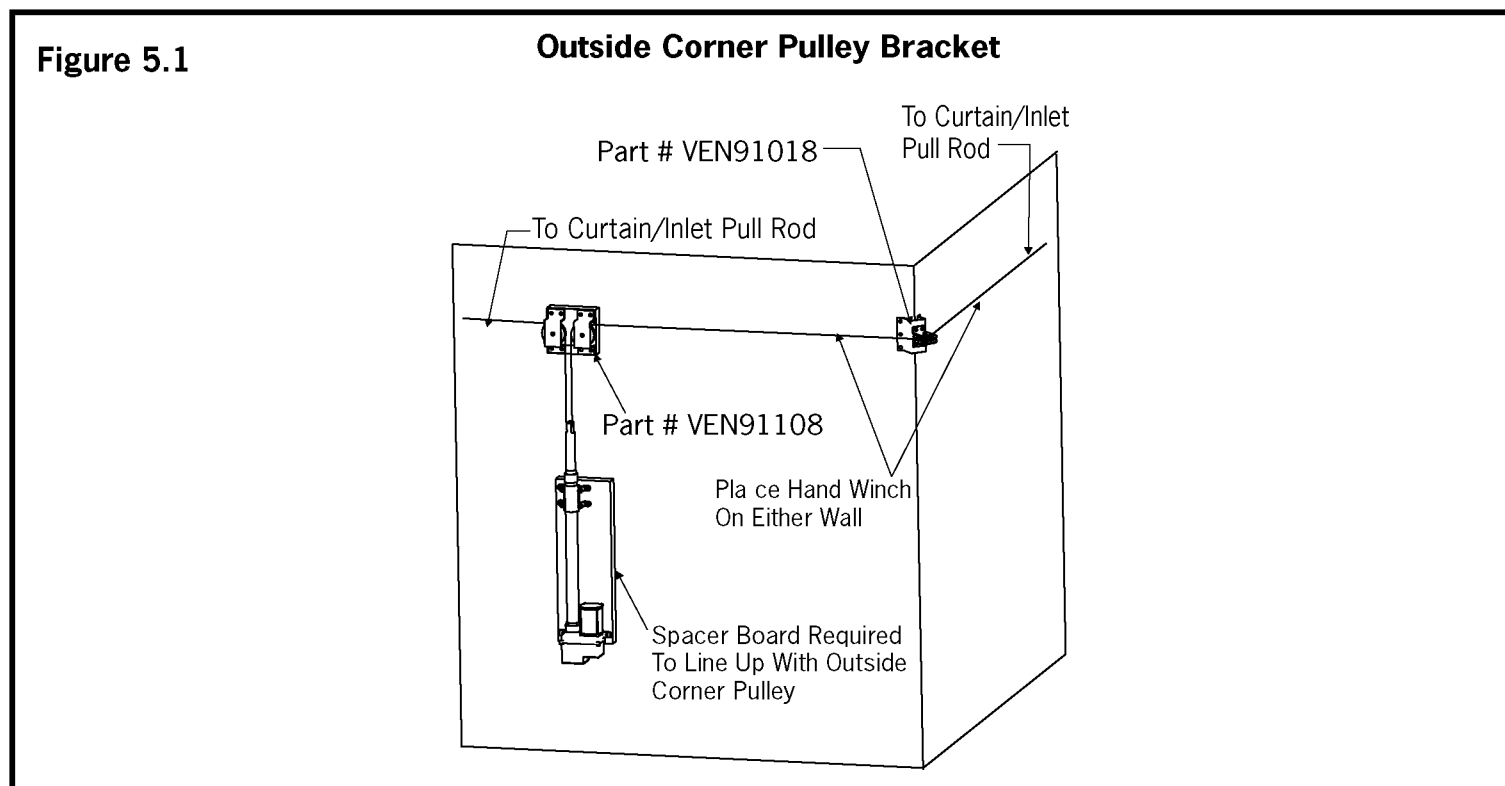


Inlet Speed (in/min)	7.25
Travel (in)	9
Load (lbs)	1600

## 5. BUILDING LAYOUT DIAGRAMS

The C433 can be mounted vertically or horizontally on a wall, and can also be mounted to the ceiling. These vary with inlet system and building configuration. Listed below are some of the more common mounting locations for the C433 (See **Figure 5.1**).

**Note:** The C433 has a dynamic load capacity of 800 lbs.; however, you should not load the unit with its max capacity unless all pulleys, pulley brackets, cables and winches are rated for this type of load. Also, with loads of this magnitude, extra precaution must be taken to ensure that all brackets are properly secured to the building and that the building structure can take the load. Allowance should also be made for friction in pulleys, static pressure and wind gusts, which can have a dramatic effect on the load.



## 6. MAINTENANCE

The C433 is virtually maintenance free. We recommend that you regularly wipe it down with a damp rag. **DO NOT PRESSURE WASH** water will penetrate the wiring box and could create a short.

## 7. C433 ACCESSORIES

VALCO offers a full set of accessories to complement the C433. These can be ordered using the part numbers listed below.

### Header brackets pulleys

VEN91002	Header bracket single pulley
VEN91108	Horizontal pulley
VEN91018	Outside corner pulley
VEN91109	Vertical pulley
ZA302	Actuator arm pulley

### Winches

VB315	Handwinch 1200 lb. Capacity
VB316	Winch mounting bracket



**Customer Helpline:**  
**1-800-328-3813**

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