



Technical specifications  
for all our Handling Arm types

*“ Need a hand?*

*We have an arm for you! ”*

***Supplementary document to the Brochure***

## **Table of contents**

1. Energy	1
2. Pressure and air quality	1
3. Supply	1
4. Floor requirement	2
5. Operating instructions	3
6. Maintenance and inspection	4
7. Respect for the environment	5
8. Security	6
9. Explosion proof	7
10. Warranty	7
11. Storage	8

## 1. **Energy**

- 1.1 The amount of air required to operate the unit is 0.16 C.F.M. with an operating pressure ranging from 90 to 125 P.S.I.
- 1.2 The electrical energy required to produce 0.16 C.F.M. of compressed air is twenty-nine (29) watts per hour. For a work station, this would represent twenty two (22) cents per week, which would add up to eleven (11) dollars per year. (When idle)
- 1.3 Hydro Quebec annual fees in reference to connected charges are not applicable, since there are no motors or electrical elements.
- 1.4 As a comparison, a one (1) H.P. compressor would be sufficient to supply twenty (20) handling arms.

## 2 **Pressure and air quality**

- 2.1 This unit functions with an air supply between 90 and 125 P.S.I. A pressure greater than 135 P.S.I. could damage the regulators. The unit will cease to function, if the air supply is less than 80 P.S.I.
- 2.2 The air quality needs to be maintained with a five (5) microns filter, and it must not be lubricated, contain water or moisture.

## 3 **Supply**

- 3.1 The air supply requires a rigid line of  $\frac{3}{4}$  or 1"  $\emptyset$ , installed with a quick opening quarter turn / lockable ball valve.
- 3.2 The regulators and filters are supplied, and assembled by Delaney Technologies Inc.
- 3.3 The unit being built strictly with pneumatic elements, including its accessories, requires no direct electrical supply.

#### 4. **Floor requirements**

- 4.1 Every type of handling arm is fixed with chemical treated anchors in the cement, or in an armed foundation when required.
- 4.2 For all units with a lifting capacity of 100 to 500 lbs, a 6" cement slab is adequate, using three (3) anchors of 7/8 " in diameter.
- 4.3 For units with a lifting capacity of 550 to 750 lbs, an 8" cement slab is required, using three (3) or six (6) anchors of 7/8 " in diameter.
- 4.4 For units with a lifting capacity of 775 to 1000 lbs, a 10 " cement slab is required, using six (6) anchors of 1" in diameter.
- 4.5 For units with a lifting capacity of 1050 to 1500 lbs, a 12" cement slab is required, using six (6) anchors of 1"1/4 in diameter.
- 4.6 For all installations exceeding a lifting capacity of 1500 lbs, the cement slab must be cut in order to pour an adequate foundation.
- 4.7 An adequate foundation will also need to be poured, in the event that the slab would be damaged by cracks, or if it would not be thick enough, or strong enough.
- 4.8 The floor space required is minimal, being 18" x 18" for units up to 500 lbs and 36" x 36" for units between 550 and 5,000 lbs.

## 5. Operating instructions

- 5.1 As described by the photos in the brochure, the handling arm's vertical movement is controlled by applying pressure, with the thumb on the knurled button, of the control handle. When pressure is applied downwards, the load lowers and when pressure is applied upwards, the load rises. When the knurled button is released, the neutral is activated and stops the vertical movement anywhere on the vertical stroke.
- 5.2 The most interesting characteristic of this technology is the capacity to vary the speed proportionally, both upwards and downwards.
- 5.3 The variable and proportional speed, in both directions is quite impressive. In the slowest speed, it will move at **12" per MINUTE**, to allow for a very precise approach, without any jerks that would be generated from a brake, that engages and releases. The speed can be increased progressively to high speed, capable of reaching **36" per SECOND**. Obviously, an operator needs to be well trained to use this type of handling system, which is up to fifteen (15) times faster than any electric hoist.
- 5.4 The horizontal movement is controlled by the operator, requiring very little effort due to the quality of the ball bearings, and the lightness of the beam. The rotation of the beam is 360 degrees with no restriction whatsoever.
- 5.5 A wide variety of attachments are available, and Delaney Technologies Inc. offers conception services, in order to adapt to all new industrial applications. The handling arm is available with linear configuration, or articulated for more complex handling requirement.
- 5.6 This technology has no weight restrictions. Actually, some systems have been created for applications to stadium roofs, with a capacity of 200 tons.

## 6. **Maintenance and inspection**

This handling arm requires no preventive maintenance, and no annual inspection after it has been installed, for various reasons.

- 6.1 The first is due to the fact that there is no brake, to stop the vertical movement anywhere in the vertical stroke. This is controlled by the air valve under the column post.
- 6.2 The second is that there is no friction band system, which acts as load limitation. Gravity assures the load limit, by the weight of the piston.
- 6.3 The stainless steel cable does not require any preventive maintenance either, due to the fact that all of the transfer pulleys are built with elements, to prevent the cable from exiting the pulleys. These elements are precisely adjusted, so that as soon as the cable starts to wear, the first strand that would come loose, would get struck, letting the operator know that the cable needs to be changed.
- 6.4 The life expectancy of the cable is 300,000 cycles at full load capacity, and much more if the loads are less than the unit's weight limit.

## 7. **Respect for the environment**

- 7.1 This equipment is totally built in a way, to never release any oil, or grease in the environment.
- 7.2 All moving parts, including the pulleys are sealed, and have a capacity of moving at high speeds. In this application, where all movements are at low speed, it is impossible to have grease run off.
- 7.3 The sealing joints, and the guiding rings on the piston, are made of a polyamide alloy, highly resistant to friction. Because of this, no lubrication is required in the interior of the cylinder. Therefore, there can be no oil evaporation in the air, and no oil drips on the floor.
- 7.4 If ever a small amount of water or oil would come from the shop's already contaminated air lines, they would be absorbed by the stop cushion, at the bottom of the cylinder, since it is made of polyurethane, solvent resistant foam.
- 7.5 Another feature that respects the environment of the work station, is that it does not generate heat, since it has no motor. The unit is also very quiet, less than five (5) decibels when idle and less than twenty five (25) decibels when in use.
- 7.6 The paint is solid urethane, capable of resisting to UV rays, corrosion, temperatures of - 60° F and to industrial detergent. This also assures that no gas discharge can occur.

## 8. Security

- 8.1 The structure is intended to resist two and a half (2.5) times the unit's anticipated weight load requirement.
- 8.2 All moving components, including the pulleys, the cable, the attachment hook, are intended to resist eight (8) times the unit anticipated weight load requirement.
- 8.3 The piston limits the weight load to two (2) times its weight. By gravity, it is always searching to descend to the bottom of the cylinder. The piston's weight is doubled, since the cable is fished through the medallion where the attachment is connected, therefore creating a pulley effect. Because of this, it is impossible to overload the unit. If a greater weight load would be attempted, it would simply remain on the floor, preventing all possible damage.
- 8.4 The neutral position, which occurs when the thumb pressure is released from the button on the control handle, is assured by the valve that closes the unit's air intake and air release. Since there is no brake, the load cannot free fall, because it is directly linked to the piston by the cable.
- 8.5 In the event that a load would remain suspended on the unit, it would rise very slowly to the end of the vertical stroke. The opposite cannot happen, since a micro leak has been anticipated for this reason, on the piston's sealing joints.

## 9. **Explosion proof**

- 9.1 The unit is conceived in a way that no static electricity can be generated during its use, because all of the working elements, including the moving parts of the piston, the cable, and all of the various attachments, are always in contact to one another.
- 9.2 All of the elements function entirely with compressed air, avoiding all electric and electronic components that could generate sparks, during a short circuit.

## 10. **Warranty and warning**

- 10.1 The unit carries a ten (10) years warranty, against all manufacturing defects and the installation.
- 10.2 The control handle carries a twelve (12) month warranty, which would be voided in the event of abusive use, or if it would have received severe blows.
- 10.3 The control handle's warranty would also be voided if dirt particles would obstruct its circuits. This could happen if an operator would cause dust, or any other solid particles to enter the air line, by disconnecting the hoses and then reconnecting them in a dirty environment.
- 10.4 The cable carries a twelve (12) months warranty, unless it would have been flattened, or if some of the strands would have been cut.

## 11. **Storage**

- 11.1 To store the unit, it needs to be disassembled and the column must remain in a vertical position, anchored to the floor with the appropriate anchoring bolts, in order to prevent the piston's sealing joints from being flattened, and to protect the air valve at the bottom of the cylinder.
- 11.2 To prevent condensation and possible long term damage to the cylinder, the unit should not be stored in an environment where the temperature could change drastically. For these same reasons, the unit should never be stored outside.
- 11.3 All the hoses, and pneumatic conducts, must be sealed to prevent dirt and even insects from penetrating them and contaminate the elements for future use.