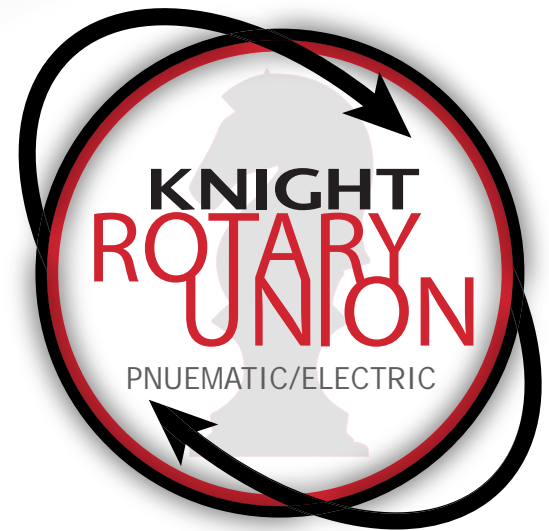




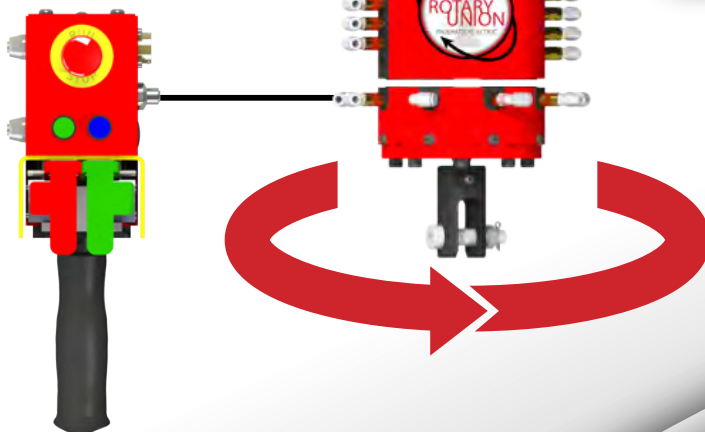
KNIGHT GLOBAL



Used with chain hoists
for best results!



Knight Global has designed a family of Rotary Unions (PATENT PENDING) to prevent air lines, electrical cables and safety chains from winding up, protecting against equipment damage and its associated down time.



KNIGHTGLOBAL.COM



KNIGHT ROTARY UNIONS

Choosing the Correct Rotary Union

In order to choose the correct Rotary Union for your application, two critical questions must be asked:



1. What are you hanging the Rotary Union from?

There are four standard options:

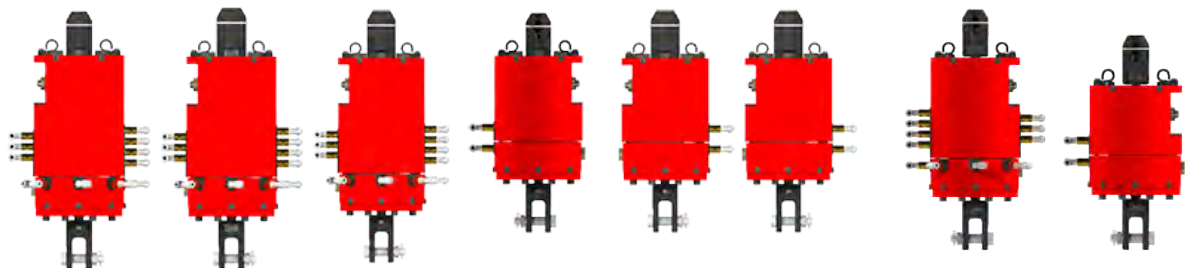
- a) A Knight Servo Hoist or Knight D-Series Servo Hoist
- b) A Knight Speed Hoist
- c) A Demag Electric Hoist
- d) A Pneumatic Air Balancer



2. What is required by the fixture hanging from the Rotary Union?

There are four possible options:

- a) The fixture is manual and does not require pneumatic or electric signals.
- b) The fixture only requires electric signals.
- c) The fixture requires both pneumatic and electric signals.
- d) The fixture only requires pneumatic signals.



Once these two questions are resolved, the correct Rotary Union can be selected by considering the capacity of the hoist being used as well as the capabilities of that hoist.

KNIGHT ROTARY UNIONS

Categories of Products

Knight Global's Patented Rotary Unions provide up to 1,000 lbs capacity. They are offered with up to (7) pneumatic passages (1/8" NPT ports). It may also include wiring for electrical signals (2 amps max). The number of conductors are dependent upon the category of the Rotary Unions.

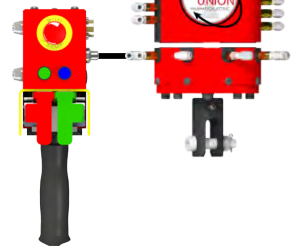
Within the Knight Global Rotary Union family of products, there are 5 specific categories:

1. **Electropneumatic Servo Hoist Rotary Unions with Load Cells**
- includes electric only options
2. **Electropneumatic Speed Hoist Rotary Unions without Load Cells**
- includes electric only options
3. **Pneumatic Balancer Rotary Unions without Load Cells**
4. **Servo Hoist Rotary Union Adapters for Existing Load Cells**
5. **Electropneumatic Demag Hoist Rotary Union without Load Cells**



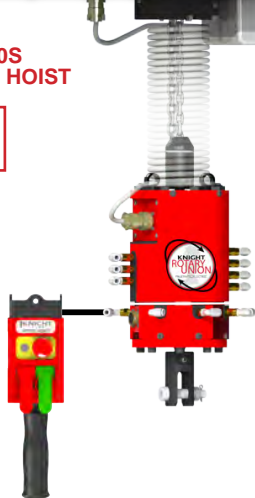
KSH1000S
SDS SERVO HOIST

1



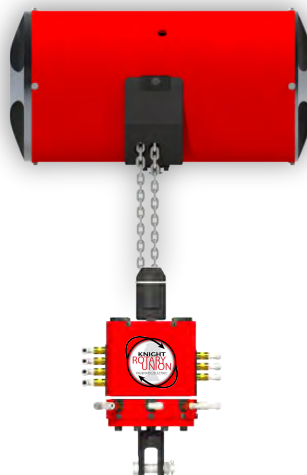
KSH750S
SDS SPEED HOIST

2



KBC500S
SDS AIR BALANCER

3



Rotary Union Adapter
with LMM*

4



Demag
Electric Hoist

5

*LMM not included

KNIGHT ROTARY UNIONS

For Knight Servo Hoists or D-Series Hoists

Knight Servo Hoists and Knight D-Series Hoists require integrated load cells in their design. The following models of Rotary Unions contain their own load cells. When it comes to choosing the correct Rotary Union for a Servo Hoist or D-Series Hoist, the type of signals required for the fixture must be considered.

1



IF ONLY ELECTRICAL SIGNALS ARE REQUIRED:

- For a 200 lbs, 250 lbs, 400 lbs, OR 500 lbs hoist with a 4mm chain, use **KLCA1064**
- For a 750 lbs or 1000 lbs hoist with a 5mm chain, use **KLCA1065**
- For a 350 lbs hoist with a 5mm chain, use **KLCA1066**



IF ELECTRICAL SIGNALS and a SINGLE PNEUMATIC SIGNAL IS REQUIRED:

- For a 200 lbs, 250 lbs, 400 lbs, OR 500 lbs hoist with a 4mm chain, use **KLCA1061**
- For a 750 lbs or 1000 lbs hoist with a 5mm chain, use **KLCA1062**
- For a 350 lbs hoist with a 5mm chain, use **KLCA1063**



IF ELECTRICAL SIGNALS and UP TO 7 PNEUMATIC SIGNALS ARE REQUIRED:

- For a 200 lbs, 250 lbs, 400 lbs, OR 500 lbs hoist with a 4mm chain, use **KLCA1058**
- For a 750 lbs or 1000 lbs hoist with a 5mm chain, use **KLCA1059**
- For a 350 lbs hoist with a 5mm chain, use **KLCA1060**

4

RETROFIT ADAPTER KIT*

If you will be hanging the Rotary Union from an existing Knight Servo Hoist or D-Series Hoist with a standard Knight LMM (load monitoring module) there are two Rotary Union adapters that are available. These can be used if the fixture is manual and doesn't require electric or pneumatic signals.

IF NO PNEUMATIC OR ELECTRIC SIGNALS ARE REQUIRED:

- If the hoist's chain is 4mm, up to 500lbs capacity, use **KSAA1073**
- If the hoist chain is 5mm, up to 1000lbs capacity, use **KSAA1075**



*This retrofit kit includes bearing, KSAA1004 shackle, and all necessary hardware required to retrofit.

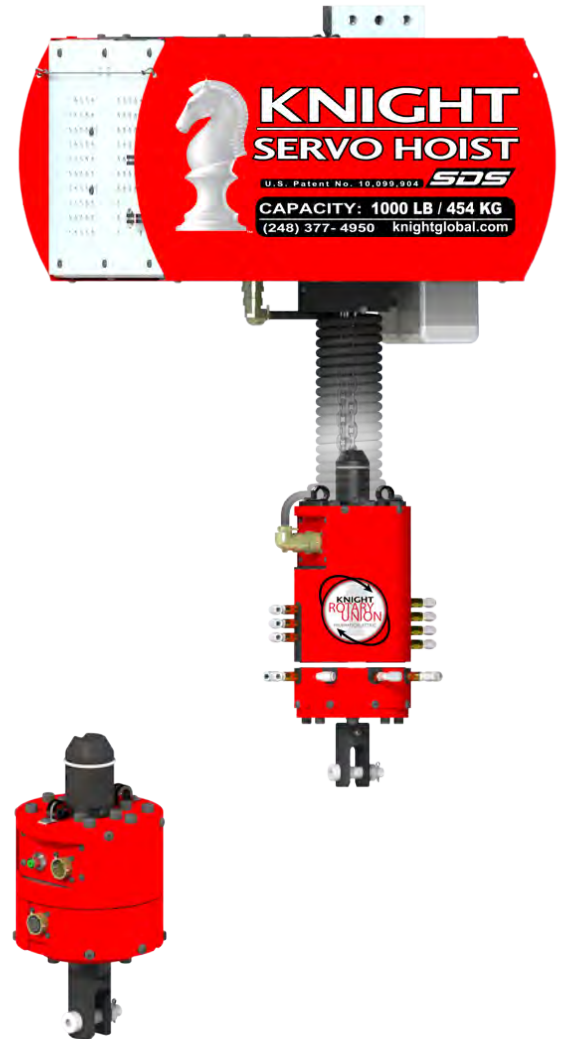
KNIGHT ROTARY UNIONS

Servo Hoist Models and Specifications

Knight Global Servo Hoist Rotary Unions with Load Cells

(Cannot be used with Speed Hoists)

- Used in conjunction with the New Variable Speed Pendant, Dual Speed Pendant, Fixture Handle and Remote OCI Module.
- Sealed packaging to protect wiring, slip ring, rotate assembly.
- (1) 19-Pin M23 Male Receptacle.
- (1) 19-Pin M23 Female Receptacle.
- Operating Voltage: 24VDC up to 2amps.
- KSAA1004 Shackle comes standard.
- Includes patented load cells with integral amplifier for noise immunity.
- Improved 16mm clevis mount with cross pinning to eliminate the need for threaded rod.
- The LMM “pass-thru” load sensing module mounts inline of the chain on the system and is used when the operator is not able to reach the run stop button when the hoist is in the up position, and is used in conjunction with the KCA1015 (OCI) Operator Controlled Interface Module.
- The Electropneumatic Rotary Unions have (1) or (7) pneumatic passages (1/8” NPT Ports capable of 1 Mpa Positive Pressure and Vacuum Pressure of -1.5kPa).
- All Servo Hoist models allow for up to 15 signals.
- Electric models allow for the shortest possible stack up height.



Operating Voltage: 24VDC up to 2 amps

Part Number	1/8" NPT Ports Quantity	Chain Nest Size (Chain Diameter Size)	M/F Amphenol M23 Connector	Capacity
KLCA1058	(7)	4mm	19 Pin / 15 open	200lb / 250lb 400lb / 500lb
KLCA1059	(7)	5mm	19 Pin / 15 open	750lb / 1000lb
KLCA1060	(7)	5mm	19 Pin / 15 open	350lb
KLCA1061	(1)	4mm	19 Pin / 15 open	200lb / 250lb 400lb / 500lb
KLCA1062	(1)	5mm	19 Pin / 15 open	750lb / 1000lb
KLCA1063	(1)	5mm	19 Pin / 15 open	350lb
KLCA1064	(0)	4mm	19 Pin / 15 open	200lb / 250lb 400lb / 500lb
KLCA1065	(0)	5mm	19 Pin / 15 open	750lb / 1000lb
KLCA1066	(0)	5mm	19 Pin / 15 open	350lb

ELECTRIC ONLY

KNIGHT ROTARY UNIONS

For Knight Speed Hoists

2

Knight's SDS Speed Hoist does not contain an integrated load cell, and therefore the Rotary Unions do not either. When it comes to choosing the correct Rotary Union for a Speed Hoist, the type of signals required for the fixture must be considered.



IF ONLY ELECTRICAL SIGNALS ARE REQUIRED:

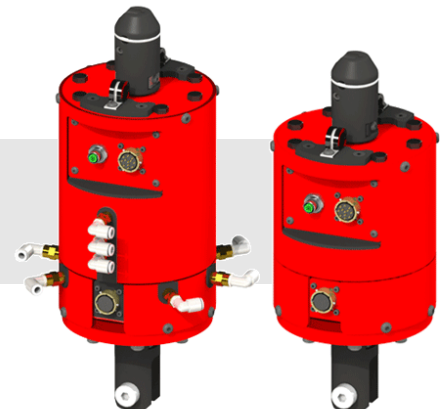
- For a 200 lbs or 400 lbs hoist with a 4mm chain, use **KSAA1078**
- For a 750 lbs or 1000 lbs hoist with a 5mm chain, use **KSAA1079**

IF ELECTRICAL SIGNALS and a SINGLE PNEUMATIC SIGNAL IS REQUIRED:

- For a 200 lbs or 400 lbs hoist with a 4mm chain, use **KSAA1069**
- For a 750 lbs or 1000 lbs hoist with a 5mm chain, use **KSAA1071**

IF ELECTRICAL SIGNALS and UP TO 7 PNEUMATIC SIGNALS ARE REQUIRED:

- For a 200 lbs or 400 lbs hoist with a 4mm chain, use **KSAA1068**
- For a 750 lbs or 1000 lbs hoist with a 5mm chain, use **KSAA1070**



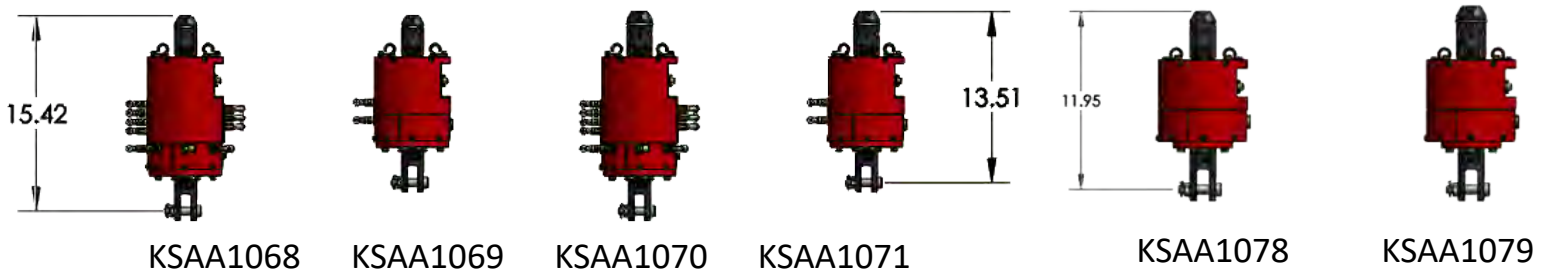
KNIGHT ROTARY UNIONS

Speed Hoist Models and Specifications

Knight Global Speed Hoist Rotary Unions without Load Cells

(Cannot be used with Servo Hoists)

- Used in conjunction with the New Variable Speed Pendant, Dual Speed Pendant, Fixture Handle and Remote OCI Module.
- Sealed packaging to protect wiring, slip ring, rotate assembly.
- (1) 19-Pin M23 Male Receptacle.
- (1) 19-Pin M23 Female Receptacle.
- Operating Voltage: 24VDC up to 2amps.
- KSAA1004 Shackle comes standard.
- The Electropneumatic models have (1) or (7) pneumatic passages (1/8" NPT Ports capable of 1 Mpa Positive Pressure and Vacuum Pressure of -1.5kPa).
- All Speed Hoist models allow for up to 12 signals.



Operating Voltage: 24VDC up to 2 amps

Part Number	1/8" NPT Ports Quantity	Chain Nest Size (Chain Diameter Size)	M/F Amphenol M23 Connector	Capacity
KSAA1068	(7)	4mm	12 Pin / 12 open	200lb / 400lb
KSAA1069	(1)	4mm	12 Pin / 12 open	200lb / 400lb
KSAA1070	(7)	5mm	12 Pin / 12 open	750lb / 1000lb
KSAA1071	(1)	5mm	12 Pin / 12 open	750lb / 1000lb
KSAA1078	(0)	4mm	12 Pin / 12 open	200lb / 400lb
KSAA1079	(0)	5mm	12 Pin / 12 open	750lb / 1000lb

ELECTRIC ONLY

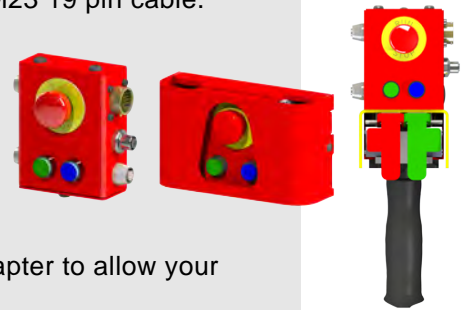
KNIGHT ROTARY UNIONS

Design Considerations

MECHANICAL CONSIDERATIONS:

- Knight Rotary Unions all share the same main bearing. Its mechanical load capacity is 1000lbs. **The capacity of each Rotary Union part number is based on the size of the chain nest, the lifting capacity of the hoist, and the capacity of the applicable load cell if included.** It is therefore important to choose the correct Rotary Union that fit the hoist criteria:
 - Lower capacity Rotary Union part numbers cannot be upsized to higher capacities after the fact.
 - In addition, high capacity Rotary Unions with load cells and a 5mm chain nest cannot be down-sized to a smaller hoist.
- If you find that the Rotary Union is too tall for your application, it may be helpful to build your fixture around the Rotary Union so the clevis lifts from the bottom of the fixture frame.
- All Rotary Unions that have load cells will require an external OCI Box (Operator Controlled Interface), mounted below the Rotary Union on the fixture. It will also require a KCA1041-XX M23 19 pin cable. This OCI Box can be:
 - Attached to a pendant handle.
 - Mounted to the fixture.
- If you have an existing Knight Hoist (1000 lbs. or less), with a hanging remote pendant, and your fixture is manual, you can use a Knight Rotary Union Adapter to allow your fixture to rotate freely. Some examples of this would be:
 - Ice tongs.
 - Mechanical clamping fixture.
 - Knight Parallel grippers

***OCI Box Examples:**



ELECTRICAL CONSIDERATIONS:

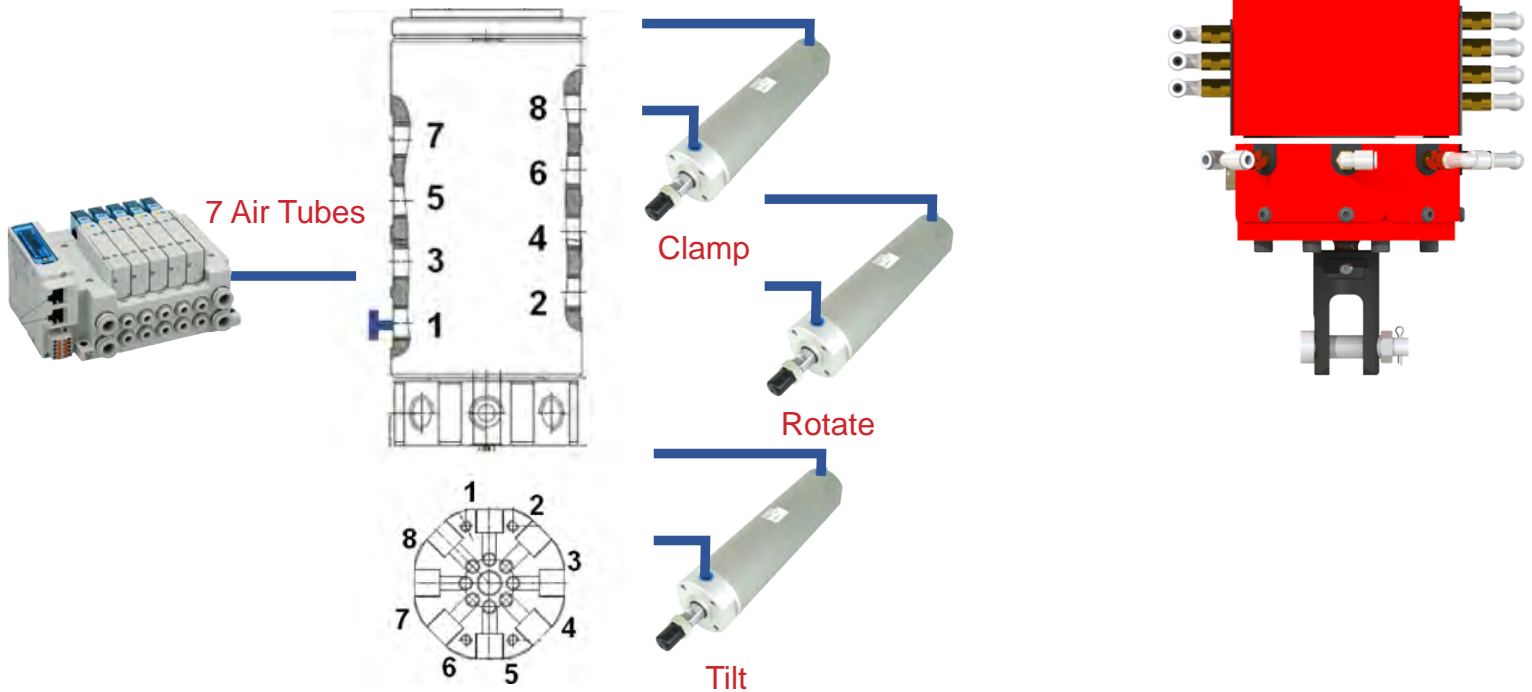
- Knight Rotary Unions have an Operating Voltage of 24VDC up to 2 amps.
 - You will not be able to use these devices to run actuators or motors.
- Rotary Unions for Servo Hoists are not interactable with a Speed Hoist.
- A Rotary Union with a M/F Amphenol M23 19 pin Connector uses 4 of the 19 pins for the load cell. This means when incorporated with a servo you will have 15 pins left with which to send signals back and forth.
- A Rotary Union with a M/F Amphenol M23 12 Pin Connector does not have a load cell so you will have 12 pins which can be used to send signals back and forth.

KNIGHT ROTARY UNIONS

Design Considerations

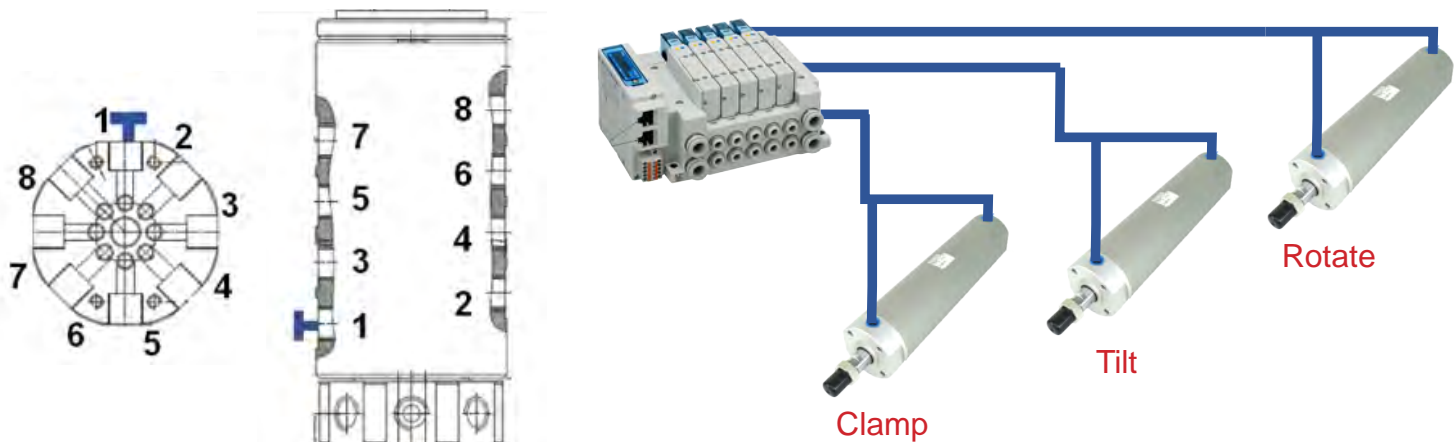
SERVO WITH VALVES MOUNTED ABOVE THE LIFTING DEVICE:

- With (7) air passages available on a Rotary Union, if the Solenoid valves are mounted above the Rotary Union, it will dictate the number of actuators that can be placed below the unit.
- Typically 3 valves = 6 air tubes, 3 sets of cylinder motions. See example:



SERVO WITH VALVES MOUNTED BELOW THE LIFTING DEVICE:

- If the Solenoid valves are mounted below the Rotary Union, a “supply” line will need to feed through the Rotary Union to the supply valve(s).
- Multiple supply lines to feed valves is possible. See example:



KNIGHT ROTARY UNIONS

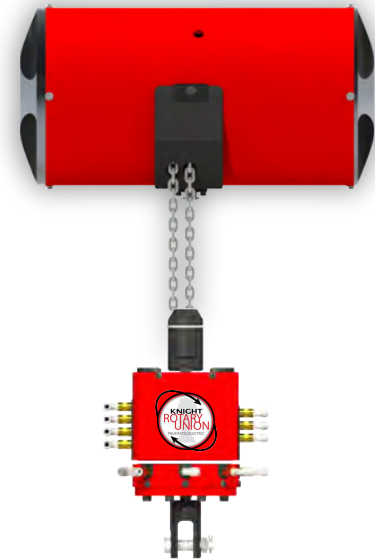
For Knight Pneumatic Balancers

3

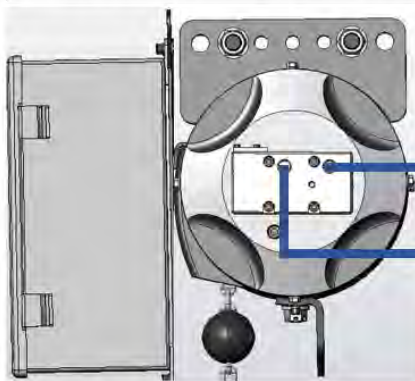
Knight Global Pneumatic Rotary Unions for Air Balancers

- Used in conjunction with a Knight Air Balancer up to 1000 lbs. capacity.
- Sealed packaging to protect wiring, slip ring, rotate assembly.
- KSAA1004 Shackle comes standard.
- Up to (7) pneumatic passages* (1/8" NPT Ports capable of 1 Mpa Positive Pressure and Vacuum Pressure of -1.5kPa).
- Pad Eye or Chain Nest options for chain attachment.

*Applications that use the standard "feather-able" style Up/Down Controls Pendant will require the use of (4) of the ports to allow for sufficient volume of air (2 ports for UP supply and 2 ports for DOWN flow). Due to the limitations on the number of available ports, pneumatic logic will need to be located below the Rotary Union on the end effector rather than in an enclosure at the Balancer. (See example below)



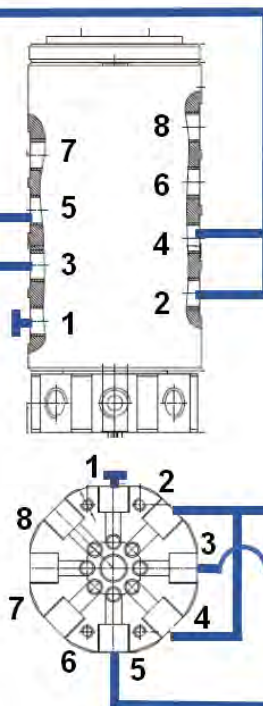
PNEUMATIC BALANCER WITH "FEATHER-ABLE" UP/DN CONTROLS



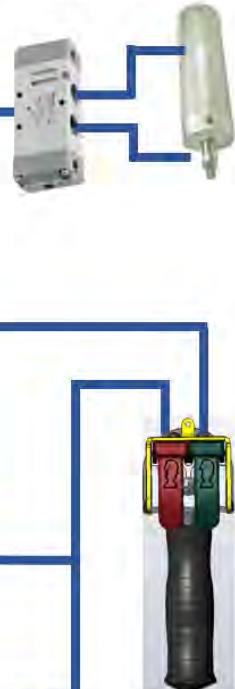
REMAINING 3 PNEUMATIC PORTS (6,7,8) AVAILABLE FOR AUXILLARY SIGNAL MOTIONS ie; BRAKE, TRACKDOG, TRACTORS... LOCATED ABOVE THE LIFTING DEVICE

ADDITIONAL VALVES/LOGIC MAY BE NEEDED IF MULTIPLE MOTIONS ARE REQUIRED.

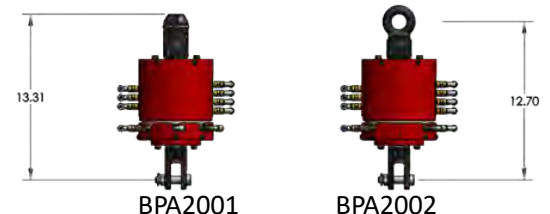
* REVIEW WITH PNEUMATIC CONTROLS DESIGN



VALVES AND LOGIC MUST BE LOCATED ON FIXTURE



Part Number	1/8" NPT Ports Quantity	Chain Nest Size (Chain Diameter Size)	Electric Connector	Capacity
BPA2001	(7)	5mm	N / A	1000lb
BPA2002	(7)	Ø1 ¼" Pad Eye	N/A	1000lb



KNIGHT ROTARY UNIONS

Demag Hoist Models and Specifications

Knight Global Electropneumatic Rotary Unions for Demag Hoists

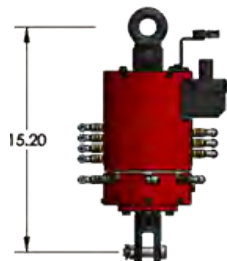
(Cannot be used with Knight Hoists)

- Used in conjunction with a Demag Hoist up to 1000 lbs. capacity.
- Sealed packaging to protect wiring, slip ring, rotate assembly.
- (1) Demag Style RJ45 connector.
- (1) 12-Pin M23 Female Receptacle.
- Operating Voltage: 24VAC up to 2amps.
- KSAA1004 Shackle comes standard.
- Improved 16mm clevis mount with cross pinning to eliminate the need for threaded rod.
- These Electropneumatic models have (1) or (7) pneumatic passages (1/8" NPT Ports capable of 1 Mpa Positive Pressure and Vacuum Pressure of -1.5kPa).
- Each Demag Rotary Union allows for up to 12 signals.

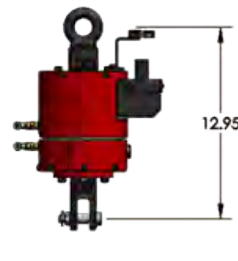
5



These models require the use of both the **KCA1159 Knight 2-Speed Pendant handle** and the **KCA1108-XX 12 pin cable**.



KSAA1076



KSAA1077

Part Number	1/8" NPT Ports Quantity	Chain Nest Size (Chain Diameter Size)	M/F Amphenol M23 Connector	Capacity
KSAA1076	(7)	Ø1 ¼" Pad Eye	12 Pin / 12 open	1000lb
KSAA1077	(1)	Ø1 ¼" Pad Eye	12 Pin / 12 open	1000lb