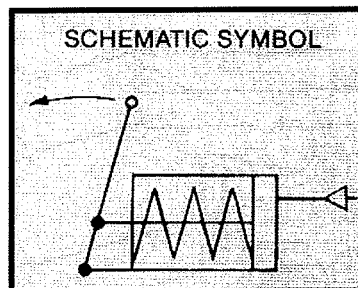
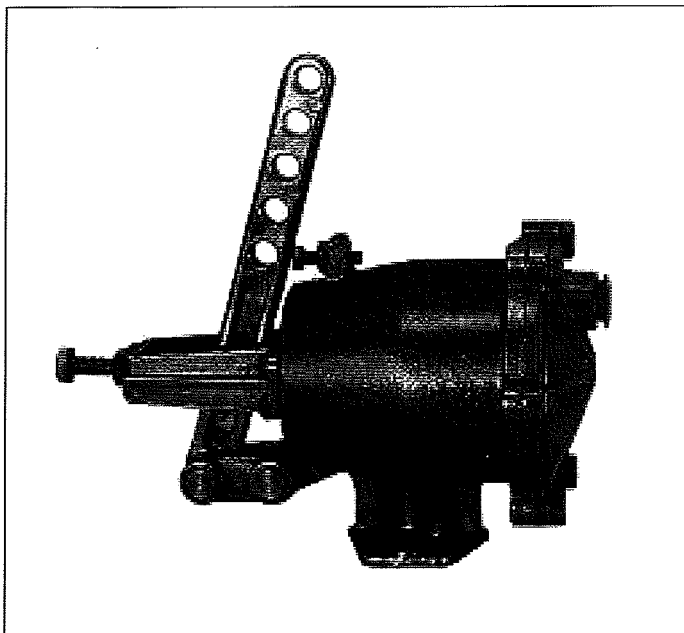


HOBELT

4105 Actuator Positioner



6

DESCRIPTION

The 4105 Actuator Positioner is used in conjunction with pressure control heads to provide fast, accurate positioning of low-force mechanisms.

Input pressure acts against a piston, "U" cup and a spring, producing lever position output corresponding to input pressure.

The piston, "U" cup and large bearing surfaces for the rod and all lever pins assure low friction for fast, accurate response and long life.

SPECIFICATIONS

Weight: 4 lbs. (1.8 kg)

Materials: Die-cast silicon bronze and stainless steel hardware

Maximum Supply Pressure: 200 PSI (13.79 BAR)

Operating Temperature Range: -40°C to +90°C

Pipe Port Size: 1/4" NPT

Stroke: Approximately 2 3/8" at longest lever position

NOTE: THE 4105 SUPERCEDES AND REPLACES THE 4106.

APPLICATIONS

- For accurate positioning and control of governors, throttles and valves.
- Used anywhere low-force positioning is required.

ORDERING INFORMATION

Model Designation Order Codes:

- U - 10-80 PSI input pressure range
- R - 0-100 PSI input pressure range

Other ranges available upon request.

The Standard Model 4105 Relay Valve is supplied as follows:

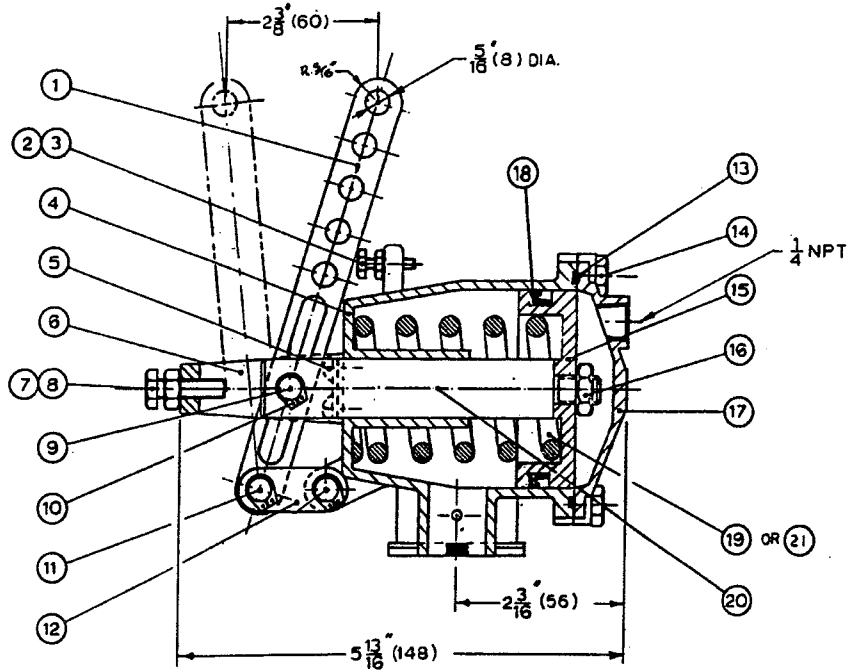
1. With adjustable stops and multi position lever
2. With 10-80 PSI pressure range

To order, state Model Number, followed by desired Model Designation Order Codes listed above.

Example: To order a standard 4105 with 10-80 PSI pressure range. Order No. 4105-U.

Kobel Actuator Positioner

KOBELT



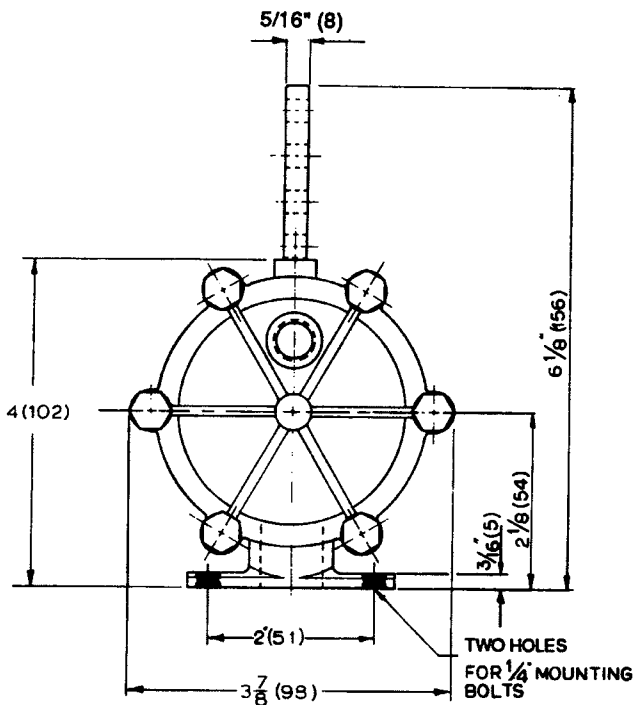
ALL DIMENSIONS IN INCHES (mm.)

6

A Repair Kit is available, consisting of all seals and gaskets. Order No. 4105-RK.

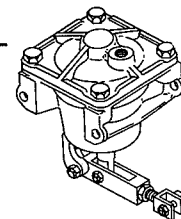
4105 THROTTLE ACTUATOR

ITEM	QTY	PART NO.	DESCRIPTION
1	1	4105-0001	Lever
2	1	1001-0812	Cap Screw
3	1	1022-0108	Nut
4	1	4105-0002	Piston Housing
5	4	1004-0806	Round Head Machine Screw
6	1	4105-0003	Bracket
7	1	1001-1018	Cap Screw
8	1	1022-0210	Jam Nut
9	1	4105-0004	Pin
10	6	1029-1031	Snap ring
11	2	4105-0005	Pin
12	2	4105-0006	Linkage
13	1	1101-0149	"O" Ring
14	6	1001-1008	Cap Screw
15	1	4105-0007	Piston
16	1	1022-0212	Hex Nut
17	1	4105-0008	End Cap
18	1	1102-0063	"U" Cup
19	1	1201-0017	Spring
20	1	4105-0010	Piston Rod



NOTE

KOBELT 4105 REPLACES
REXROTH WABCO A2H
ACTUATOR





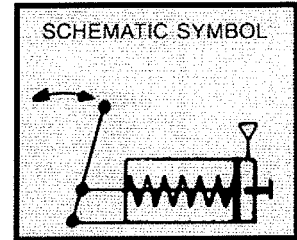
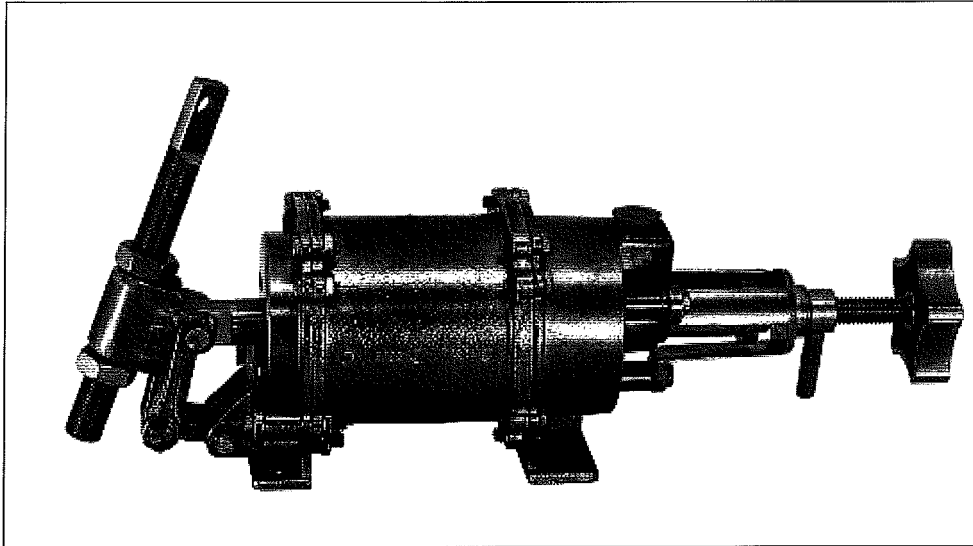
1074 Kenran Industrial Dr.
St. Louis, MO 63137
Phone: 1-800-381-9968

HUMCO ENGINE CONTROLS

Kobel Throttle Actuator

KOBELT

4107 Throttle Actuator



PATENT PENDING

6

DESCRIPTION

The 4107 Throttle Actuator is used in conjunction with pressure control heads to provide fast, accurate positioning of low- and medium-force mechanisms. Input pressure acts on a rolling diaphragm and against a spring, producing lever position output corresponding to input pressure. The output lever is provided (threaded rod) with two jam nuts on either side of the output linkage, which permits infinite stroke selection. The arrangement is ideally suited for multi-engine installations with a single source of control air pressure. The fine adjustment of the linkage will allow throttle adjustment for load equalization (not an automatic load share). This cylinder also features a manual override. This allows the engineer to position the throttle actuator if there is no air supply. It can be done without having to disconnect any part of the linkage from the actuator.

SPECIFICATIONS

- Weight:** 6.1 lbs. (2.76 kg)
- Materials:** Die-cast silicon bronze and stainless steel hardware
- Maximum Supply Pressure:** 125 PSI (8.62 BAR)
- Operating Temperature Range:** -40°C to +90°C
- Pipe Port Size:** 1/4" NPT
- Maximum Stroke:** 3 1/2" (89 mm.)
- Stroke as Linear Activator:** 1" (25.4 mm.)

APPLICATIONS

- For accurate positioning and control of governors, throttles and valves.
- Used anywhere low- and medium-force positioning is required.

ORDERING INFORMATION

Model Designation Order Codes:

- U - 10-80 PSI input pressure range
- R - 0-100 PSI input pressure range

Other ranges available upon request.

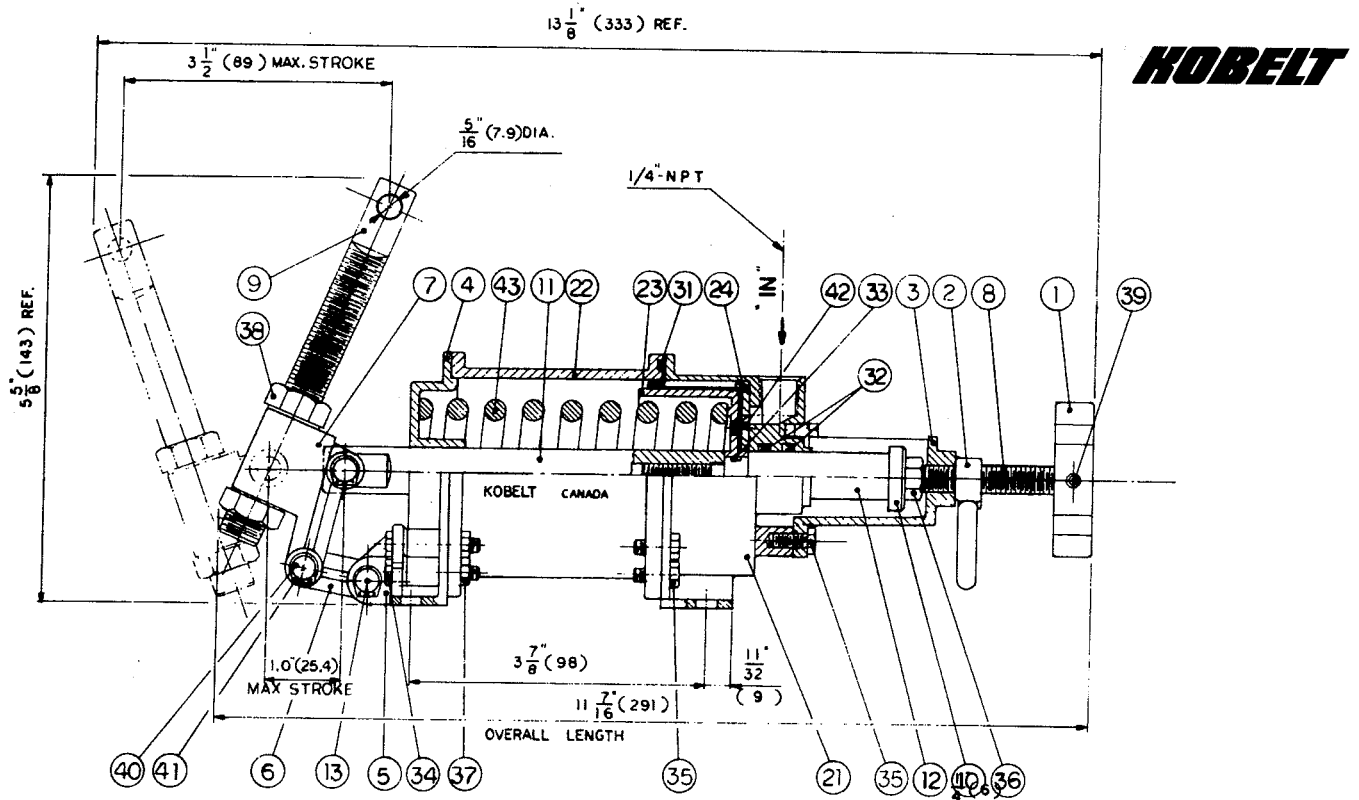
The Standard Model 4107 Relay Valve is supplied as follows:

1. With adjustable stops and multi position lever
2. With 10-80 PSI pressure range

To order, state Model Number, followed by desired Model Designation Order Codes listed above.

Example: To order a standard 4107 with 10-80 PSI pressure range. Order No. 4107-SU.

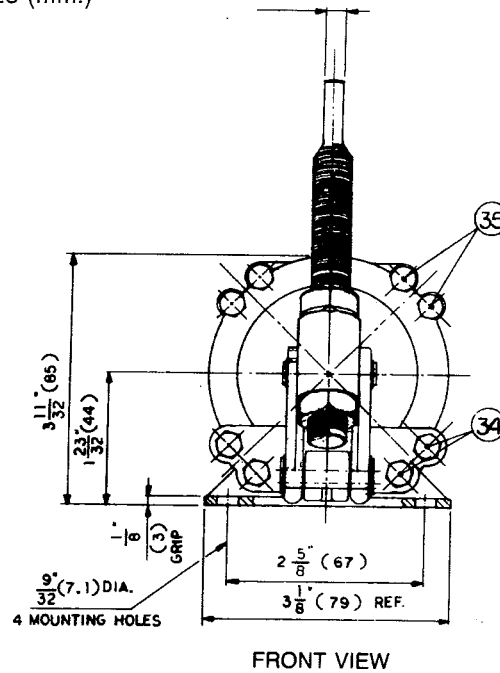
Kobel Throttle Actuator



ALL DIMENSIONS ARE IN INCHES (mm.)

4107 THROTTLE ACTUATOR

ITEM	QTY	PART NO.	DESCRIPTION
1	1	4107-0001	Knob
2	1	4107-0002	Locking Lever
3	1	4107-0003	Knob Bracket
4	1	4107-0004	Front End Cap
5	1	4107-0005	Linkage Mounting Bracket
6	1	4107-0006	Linkage
7	1	4107-0007	Output Link
8	1	4107-0008	Knob Screw
9	1	4107-0009	Adjustable Lever
10	1	4107-0010	Stop
11	1	4107-0011	Flat End Shaft
12	1	4107-0012	Rear End Shaft
13	1	4107-0013	Solid Pin
14	1	2048-0002	Dome
21	1	4221-0001	End Cap
22	1	4221-0002	Cylinder Housing
23	1	4221-0003	Piston
24	1	4221-0004	Diaphragm Retainer Plate
31	1	1104-2004	Diaphragm
32	2	1102-0006	"U" Cup
33	1	1101-0012	"O" Ring
34	4	1001-0820	Hex Head Cap Screw
35	15	1001-0808	Hex Head Cap Screw
36	1	1001-6112	Hex Head Cap Screw
37	8	1022-0208	Jam Nut
38	2	1022-0264	Jam Nut
39	1	1024-0512	Spring Pin
40	2	1025-0519	Solid Pin
41	6	1029-1031	Snap Ring
42	4	1009-0804	Phillips Flat Head Machine Screw
43*	1	1201-0116	"U" Spring (10-80 PSI)
43*	1	1201-0117	"R" Spring (0-100 PSI)



*Optional, depending on pressure configuration.

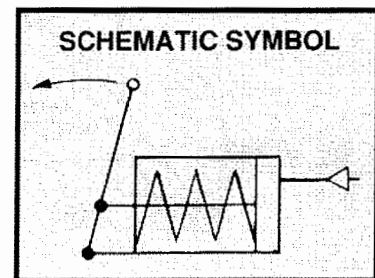
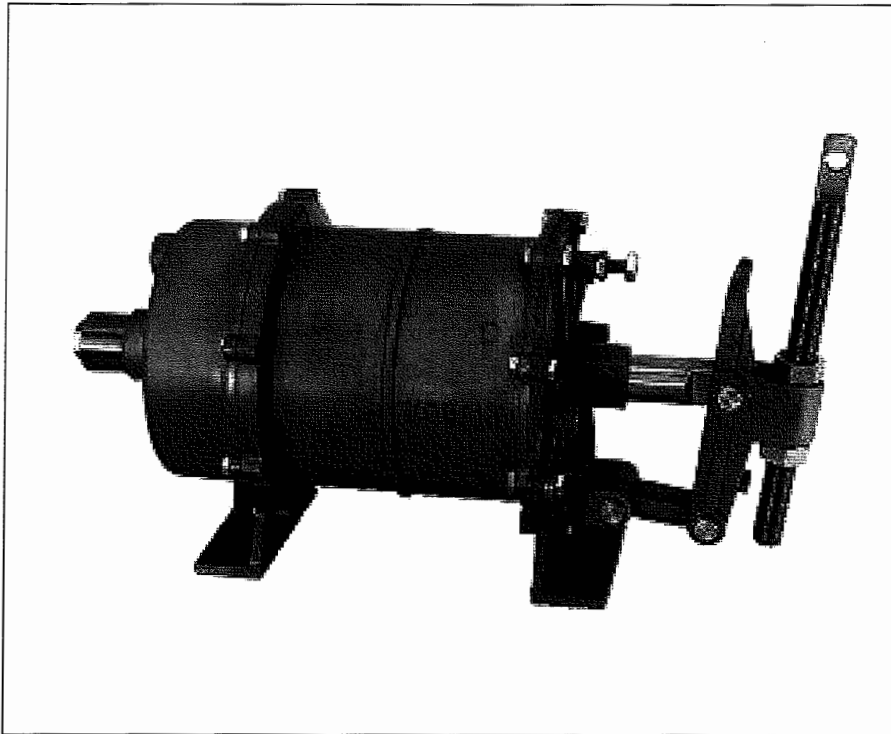
A Repair Kit is available, consisting of all seals and gaskets. Order No. 4107-RK.



Kobel Actuator Positioner

KOBELT

4108 Actuator Positioner



6

DESCRIPTION

The 4108 Pneumatic Positioner is used to position throttles, variable delivery pumps and innumerable items that need infinite positioning. Due to its large diaphragm area and heavy spring, the 4108 is a very powerful positioning device. It is very accurate, although the accuracy decreased proportionally to the resistance of the object to be controlled. The output lever is provided with a threaded rod which permits infinite stroke selection. This is accomplished by moving the nuts on the output lever up and down, thus changing the effective lever length. Mechanical stops are provided for minimum and maximum pressure setting. The output linkage can be rotated at 90° increments to provide horizontal or vertical movement. The available stroke is 5/32" (4 mm.) to 4 3/16" (106 mm.). For small output movements, the threaded rod can be inserted from the opposite side.

SPECIFICATIONS

Weight: 15 lbs. (6.8 kg)

Materials: Die-cast silicon bronze and stainless steel hardware

Maximum Supply Pressure: 200 PSI (13.79 BAR)

Operating Temperature Range: -40°C to +90°C

Pipe Port Size: 1/4" NPT

APPLICATIONS

- For accurate positioning and control of governors, throttles and valves
- Used anywhere low- and medium-force positioning is required

ORDERING INFORMATION

Model Designation Order Codes:

U - 10-80 PSI input pressure range

R - 0-100 PSI input pressure range

Other ranges available upon request.

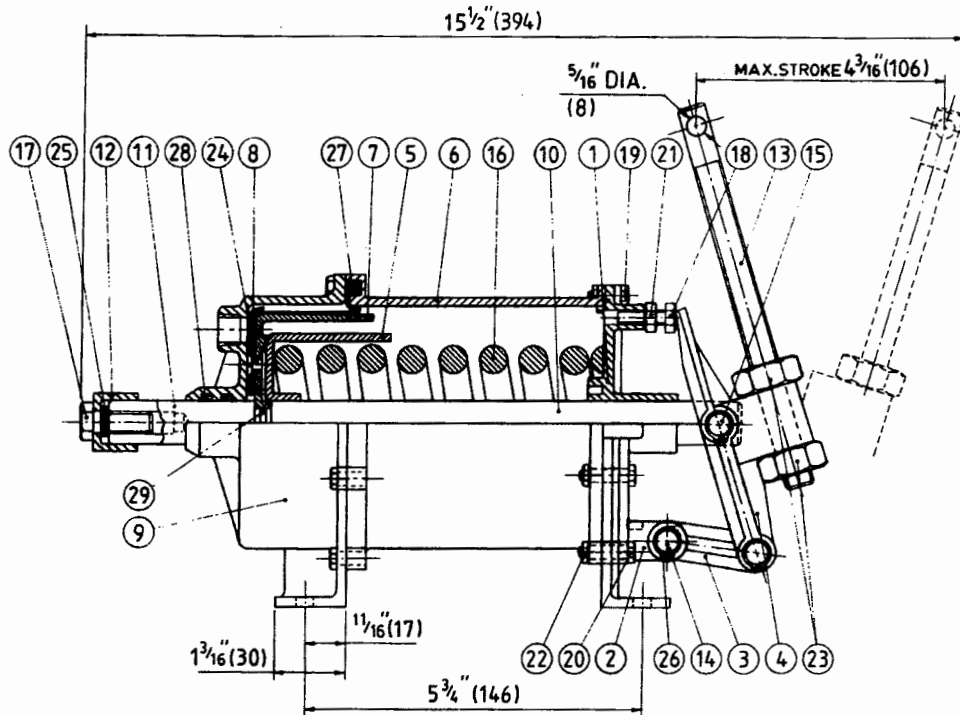
The Standard Model 4108 Relay Valve is supplied as follows:

1. With adjustable stops and multi position lever
2. With 10-80 PSI pressure range

To order, state Model Number, followed by desired Model Designation Order Codes listed above.

Example: To order a standard 4108 with 10-80 PSI pressure range. Order No. 4108-U.

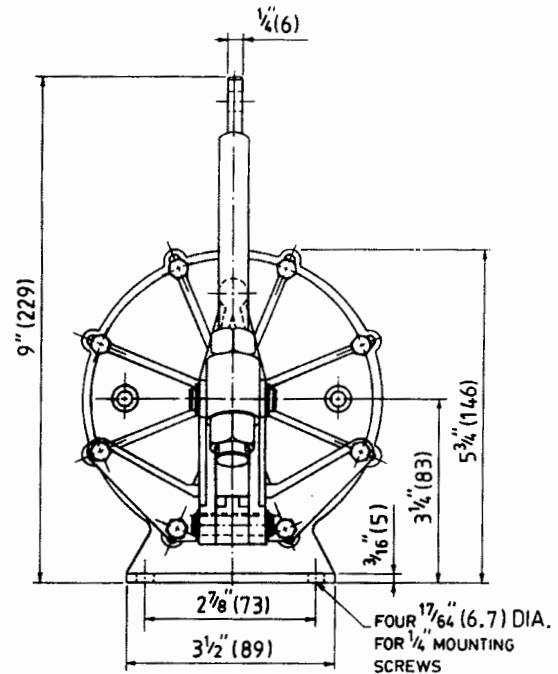
Kobelt Actuator Positioner



4108 ACTUATOR

ITEM	QTY	PART NO.	DESCRIPTION
1	1	4108-0001	End Cap
2	1	4108-0002	Linkage Mounting Bracket
3	1	4108-0003	Linkage
4	1	4108-0004	Output Link
5	1	4108-0007	Spring Retainer
6	1	4224-0001	Cylinder Housing
7	1	4224-0004	Piston
8	1	4224-0005	Retainer Plate
9	1	4224-0006	End Cap
10	1	4108-0008	Piston Rod
11	1	4108-0006	Piston Rod Extension
12	1	4108-0009	Stop
13	1	4108-0005	Threaded Output Rod
14	1	4108-0010	Snap Ring Pin
15	2	4108-0011	Snap Ring Pin
16*	1	1201-1044	Spring 10-80 PSI (Black)
16*	1	1201-1045	Spring 0-100 PSI (Blue)
17	1	1001-6216	Hex Head Screw
18	1	1001-1014	Hex Head Screw
19	12	1001-0810	Hex Head Screw
20	4	1001-0814	Hex Head Screw
21	1	1022-0210	Jam Nut
22	4	1022-0108	Nut
23	2	1022-0164	Nut
24	6	1009-0804	Phillips Flathead Screw
25	**	1023-0242	Washer
26	6	1029-1037	Snap Ring
27	1	1104-2003	Rolling Diaphragm
28	2	1102-0007	"U" Cup
29	1	1101-0012	"O" Ring

- *Optional, depending on pressure configuration.
- **As required for shimming.



ALL DIMENSIONS IN INCHES (mm.)

A Repair Kit is available, consisting of all seals and gaskets. Order No. 4108-RK.

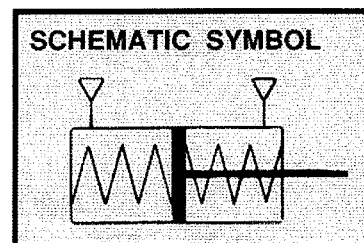


1074 Kenran Industrial Dr.
St. Louis, MO 63137
Phone: 1-800-381-9968

Kobel Double-Acting Self-Centering Actuator

HOBELT

4204 Double-Acting, Self-Centering Actuator



6

DESCRIPTION

The 4204 is a pivot-mounted, spring-centered cylinder. Applying air pressure to either side of the piston will cause the piston rod to move accordingly. This cylinder is mostly used for the control of marine hydraulic reverse reduction gears and serves as a three-position actuator, providing control over the hydraulic clutch valve. With no air pressure in either control port, the output rod is centered. By applying air pressure (minimum 65 PSI), the piston rod stroke is one inch in either direction (total stroke, two inches). The construction is all bronze and stainless steel, and will provide many years of trouble-free service. When used as a three-position control cylinder, order Model 4202-C. The same configuration cylinder is also available for infinite positioning of variable hydraulic delivery valves and pumps. It is possible to infinitely position the output rod by varying the air pressure to either side of cylinder. When ordering this configuration, order model 4204-A. The basic difference between the two configurations is the spring.

APPLICATIONS

- Used in conjunction with Kobelt pressure control head 2543/53 and 2547/57, the 4204-A provides infinite positioning in two directions. It is best suited for accurate positioning of low-force mechanisms.
- Used in conjunction with Kobelt control heads 3604, 3609, 2544/54 and 2545/55, the 4204-C is a compact 3-position, self-centering cylinder.

SPECIFICATIONS

Weight: 3.3 lbs. (1.5 kg)
Materials: Die-cast silicon bronze and stainless steel
Maximum Input Pressure: 200 PSI (13.79 BAR)
Operating Temperature Range: -40°C to +90°C
Pipe Port Size: 1/4" NPT
Stroke: 1" each way

ORDERING INFORMATION

- 4204-A 2-direction positioner actuator
10-80 PSI range
- 4204-C 3-position self-centering cylinder
35-65 PSI range

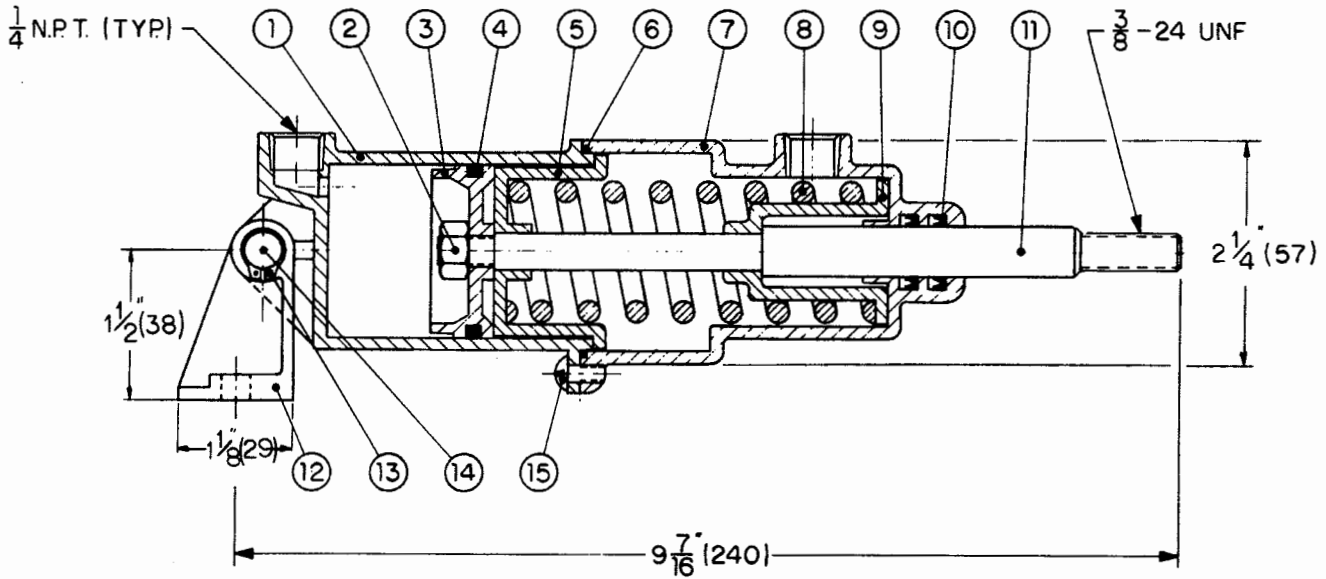


1074 Kenran Industrial Dr.
St. Louis, MO 63137
Phone: 1-800-381-9968

HUMCO ENGINE CONTROLS

Kobel Double-Acting Self-Centering Actuator

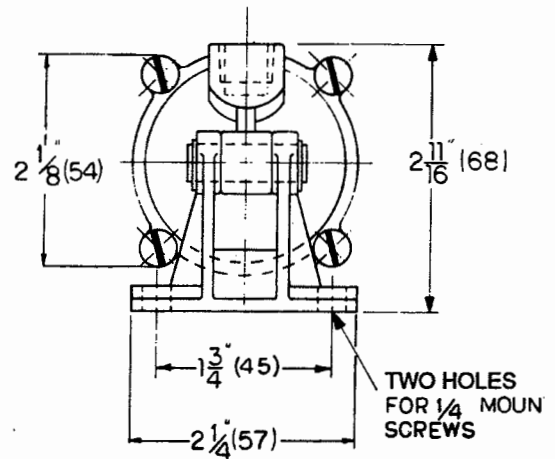
KOBELT



6

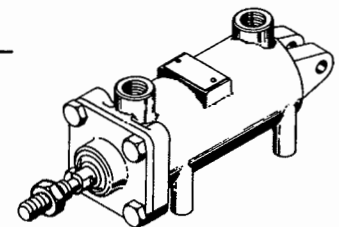
4204 CLUTCH ACTUATOR

ITEM	QTY	PART NO.	DESCRIPTION
1	1	4204-0001	Cylinder Barrel
2	1	1022-0161	Nut
3	1	4204-0002	Piston
4	1	1101-0222	"O" Ring
5	1	4204-0003	Spring Retainer
6	1	1101-0033	"O" Ring
7	1	4204-0004	Front Barrel
8	1	1201-0023	Spring (Clutch Cylinder)
8	1	1201-0024	Spring (Positioner)
9	1	4204-0005	Spring Retainer
10	2	1102-0005	"U" Cup
11	1	4204-0006	Piston Rod
12	1	4204-0007	Swivel Mount
13	2	1029-1037	Snap Ring
14	1	4204-0008	Pin
15	4	1010-0806	Screw



A Repair Kit is available, consisting of all seals.
Order No. 4204-RK.

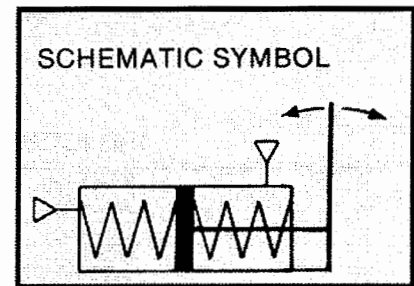
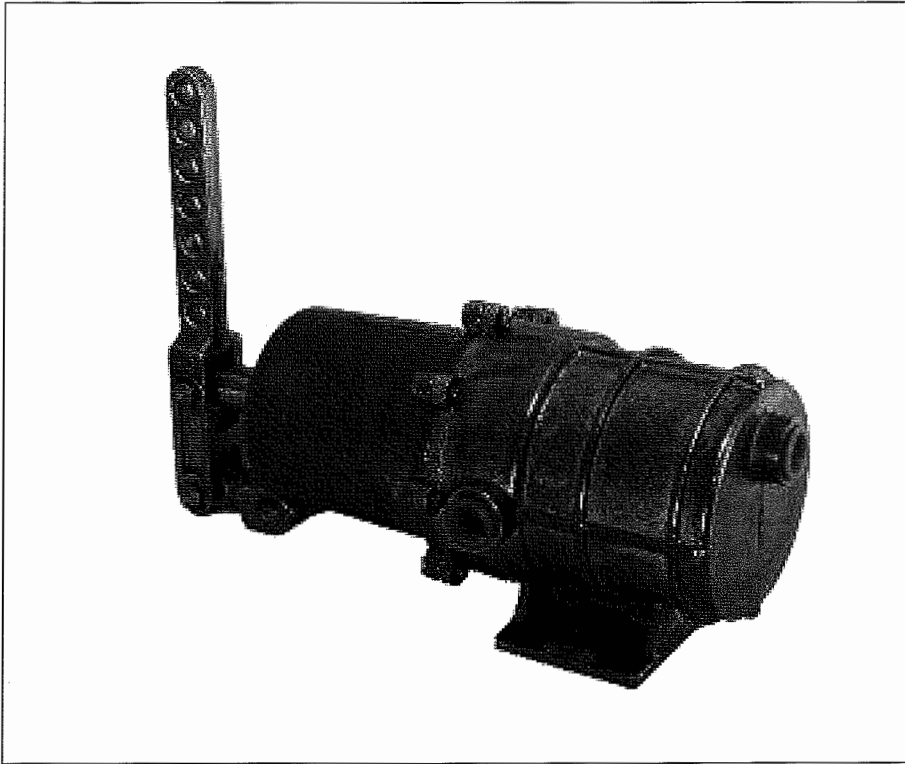
NOTE
KOBELT 4204
REPLACES REXROTH
WABCO ACTUATOR



Kobel Double-Acting Self-Centering Actuator

KOBELT

4207 Double-Acting, Self-Centering Actuator



6

DESCRIPTION

The 4207 is a double-acting and spring-centered air actuator. The rod-lever configuration provides fourteen (14) different strokes which could be positioned into eight (8) different planes by rotating the rod end cap.

APPLICATIONS

- Used in conjunction with Kobelt pressure control head 2543, the 4207-A provides infinite positioning in two directions. It is best suited for accurate positioning and control of variable hydraulic pumps, and variable hydraulic valves or governors
- Used in conjunction with Kobelt control heads 3609, 2544 and 2545, the 4207-C is a most versatile 3-position cylinder, providing fourteen (14) different strokes

SPECIFICATIONS

- Weight:** 7.46 lbs. (3.4 kg)
Materials: Die-cast silicon bronze and stainless steel hardware
Maximum Input Pressure: 150 PSI (11.4 BAR)
Operating Temperature Range: -40°C to +90°C
Pipe Port Size: 1/4" NPT
Stroke: Approximately 2 3/8" each way at longest lever position
Maximum Operating Output Force at
Longest Lever Position:
- | | | |
|--------|---|-------------------|
| 4207-A | - | 8 lbs. @ 80 PSI |
| 4207-C | - | 60 lbs. @ 100 PSI |

ORDERING INFORMATION

- 4207-A 2-direction positioner
Actuator
10-80 PSI range
- 4207-C 3-position clutch cylinder
10-80 PSI range

Other ranges for special applications available upon request.

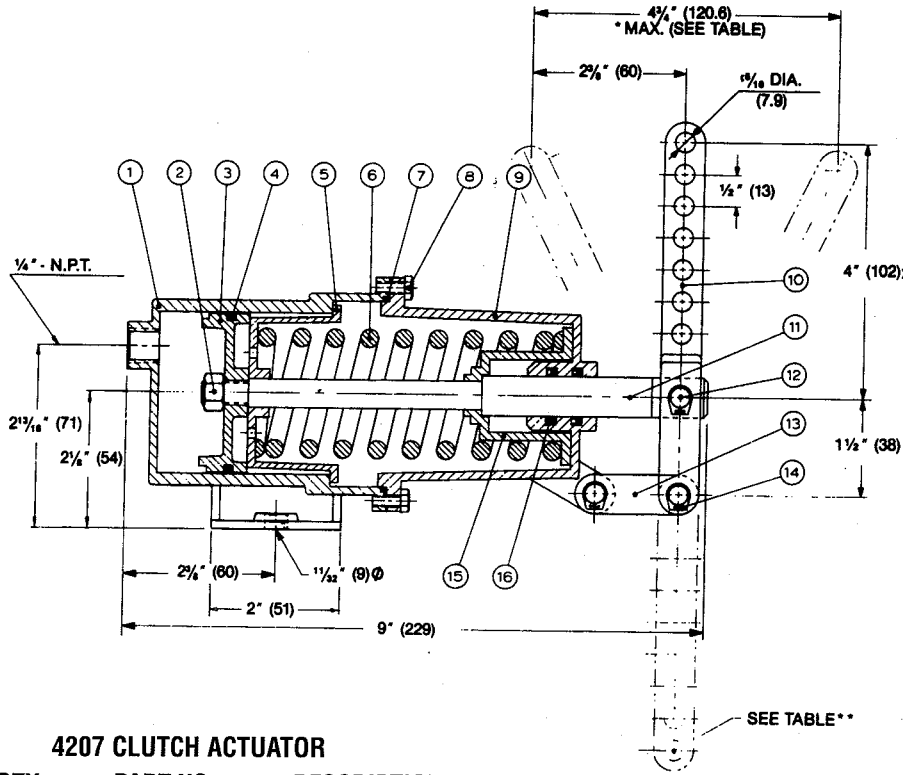


1074 Kenran Industrial Dr.
St. Louis, MO 63137
Phone: 1-800-381-9968

HUMCO ENGINE CONTROLS

Kobelt Double-Acting Self-Centering Actuator

KOBELT



4207 CLUTCH ACTUATOR

ITEM	QTY	PART NO.	DESCRIPTION
1	1	4207-0001	Actuator Barrel (Rear)
2	1	1022-0001	3/8" UNF Nut
3	1	4207-0007	Piston
4	1	1101-0228	"O" Ring
5	1	4207-0006	Spring Retainer (Cylinder Extension)
6	1	1201-0018	Spring (4207-A)
6	1	1201-0019	Spring (4207-C)
7	1	1101-0040	"O" Ring
8	8	1001-0888	Hex Head Cap Screw
9	1	4207-0002	Actuator Barrel (Front)
10	1	4207-0003	Fork Lever
11	1	4207-0008	Piston Rod
12	3	4207-0009	Pin
13	1	4207-0004	Lever Linkage
14	6	1029-1031	Snap Ring
15	1	4207-0005	Spring Retainer (Cylinder Retraction)
16	2	1102-0006	"U" Cup

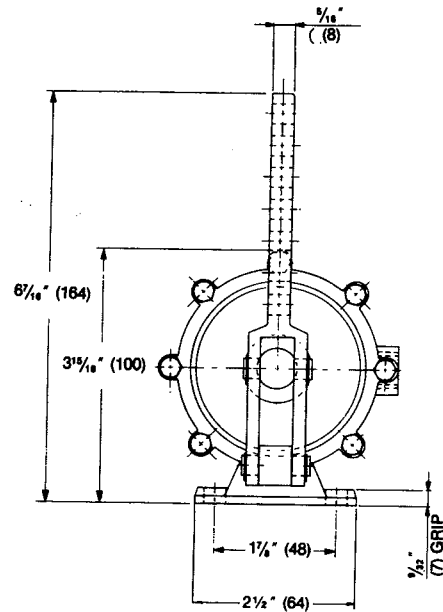
••14 STROKES AVAILABLE

FORK LEVER AS DRAWN

- 4 3/4" (120.6 mm.)
- 4 5/16" (109.5 mm.)
- 3 7/8" (98.4 mm.)
- 3 7/16" (87.3 mm.)
- 3" (72.6 mm.)
- 2 9/16" (65.1 mm.)
- 2 1/8" (54 mm.)

FORK LEVER INVERTED

- 3 3/8" (85.7 mm.)
- 2 15/16" (74.6 mm.)
- 2 1/2" (69.5 mm.)
- 2 1/16" (52.4 mm.)
- 1 11/16" (42.9 mm.)
- 1 1/4" (31.8 mm.)
- 13/16" (20.6 mm.)



ALL DIMENSIONS IN INCHES (mm.)

A Repair Kit is available, consisting of all seals and gaskets. Order No. 4207-RK.