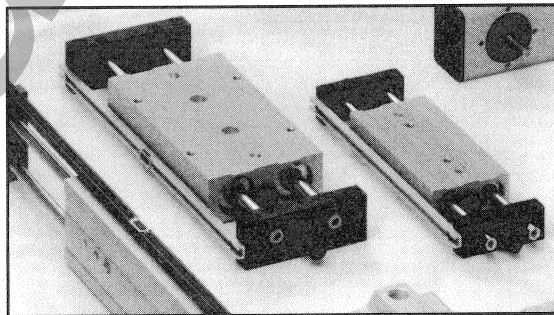
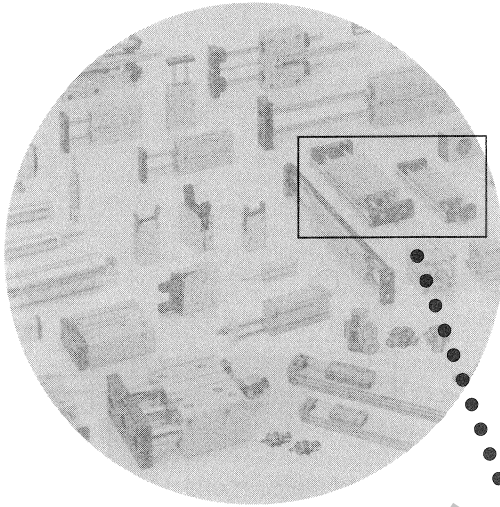


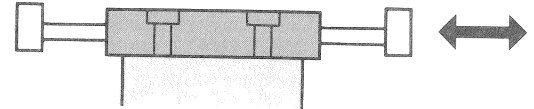
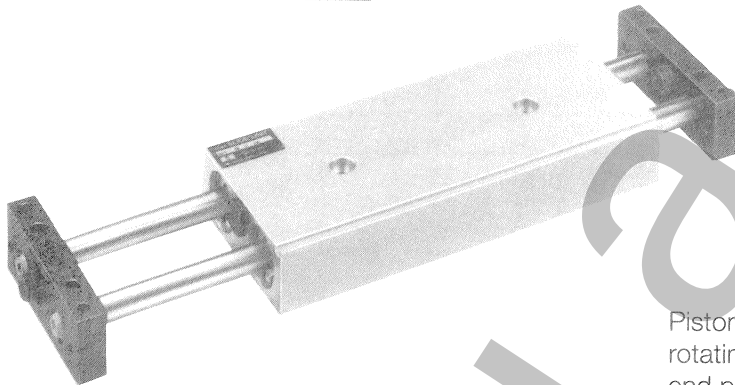
Slide Units



HUMPHREY SLIDE UNITS

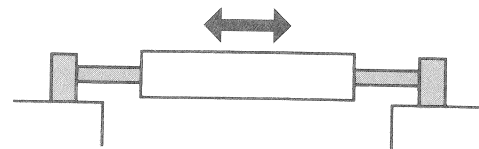
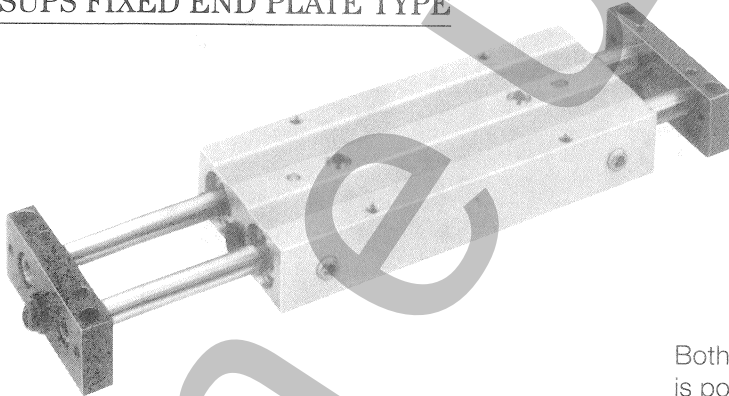
- Humphrey Slide Units combine two cylinders in a single, non-rotating, pneumatic device that provides high, accurate performance.
- Precise stroke adjustment is made possible by the adjusting bolts at each end of the Slide Unit.
- Concise size saves space and weight.
- Three different mounting styles: Fixed Table, Fixed End Plate, and Fixed Rail-on Plate.
- Optional shock absorbers for $\frac{5}{8}$ " and 1" Slide Units are available to cushion the end of the stroke.
- Integral magnets for stroke position sensing are standard.
- Optional sensor switches have LEDs (most models), and include the popular Hall Effect type.
- Optional End Keep feature locks piston rods in the event of pressure loss or failure, thereby preventing damage to equipment.
- Humphrey Slide Units require no externally applied lubrication.

HSUTS FIXED TABLE TYPE



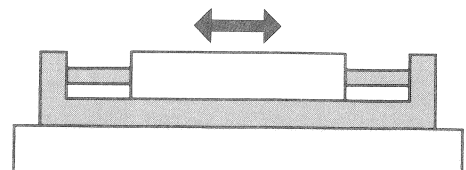
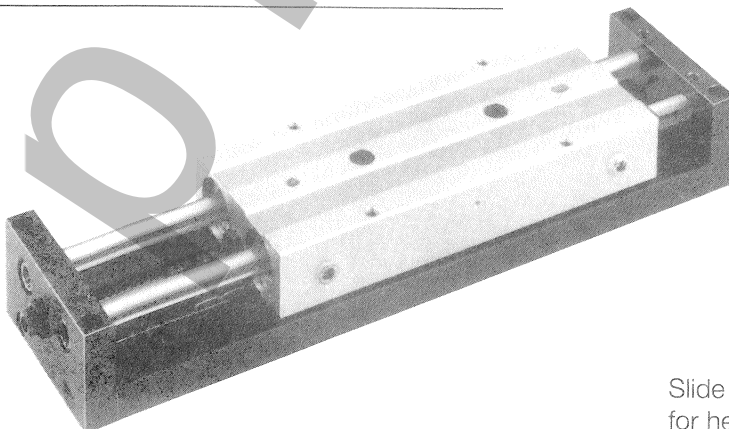
Piston rods and end plates move. Use as a non-rotating cylinder or mount a sliding type table to both end plates.

HSUPS FIXED END PLATE TYPE



Both end plates are fixed. Use as a sliding table. Piping is possible from either end plate.

HSULS FIXED RAIL-ON PLATE TYPE

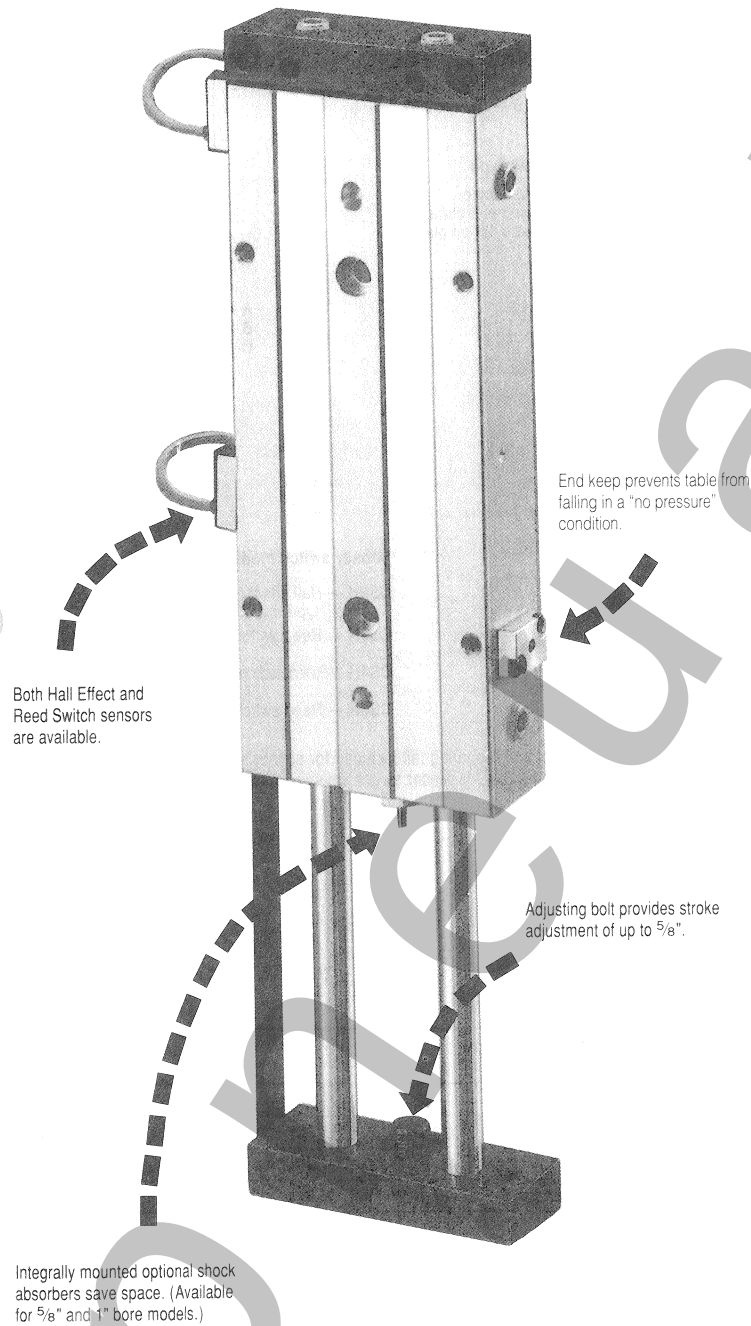


Slide bearing is installed under the table. Best choice for heavier loads and/or longer strokes.

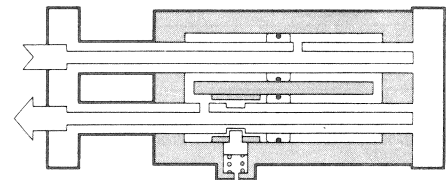
END KEEP MECHANISM

The End Keep feature locks the table at the end of the stroke in the event of pressure loss or failure.

Helps prevent damage to the Slide Unit and to adjacent equipment.

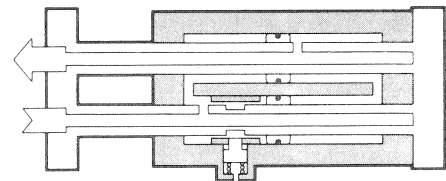


End Keep Locked



When Slide Unit piston is exhausted at the end of the stroke (on the side with the End Keep mechanism), spring force actuates the End Keep piston which automatically locks the Slide Unit.

End Keep Released



When supply pressure is reapplied to the side of the Slide Unit housing the End Keep mechanism, the End Keep spring is overridden. This releases the lock and reactivates the Slide Unit.

SLIDE UNITS

STANDARD TYPE

SPECIFICATIONS

Item		Cylinder bore size – in. (mm)		
		3/8 (10)	5/8 (16)	1 (25)
Operation		Double acting, Double piston		
Media		Air		
Mounting type		Fixed table, fixed end plate, and rail-on plate types		
Pressure range psig (kgf/cm ²)	Fixed table type	20 ~ 125 (1.5 ~ 9)	20 ~ 125 (1.5 ~ 9)	20 ~ 125 (1.5 ~ 9)
	Fixed end plate type			
	Fixed rail-on plate type	30 ~ 125 (2 ~ 9)		
Temperature – °F (°C)		32 ~ 140 (0 ~ 60)		
Speed range in./sec. (mm/sec)	Standard	2 ~ 8 (50 ~ 200)		
	w/shock absorber	–	2 ~ 16 (50 ~ 400)	
Cushion		None	Shock absorber (optional)	
Lubrication		Not required		
Non-rotating accuracy		±0.1°	±0.05°	±0.02°
Stroke adjusting range each end – in. (mm)		1"-5" ± 0.315	6"-8" ± 0.276	
Maximum loads lb./in. (kgf)	Fixed table type	1.1 (0.5)	3.3 (1.5)	5.5 (2.5)
	Fixed end plate type	2.2 (1)	6.6 (3)	11.0 (5)
	Fixed rail-on plate type	22 (10)		
Port size		10-32		1/8" NPT

NOTE 1: Magnet and mounting rail included for sensor switch.
Refer to sensor section for sensor switch selection and information.

BORE SIZES AND STROKES in. (mm)

Bore size	Standard strokes – in.
3/8 (10)	1, 2, 3, 4
5/8 (16)	1, 2, 3, 4, 5, 6, 7, 8
1 (25)	1, 2, 3, 4, 5, 6, 7, 8

NOTE: Model HSULS: All bore sizes, minimum stroke is 4". Model HSULS-10 has 4" stroke only.

THRUST FORCE

Bore in. nominal (mm) actual	Piston rod dia. inch (mm)	Pressure area in. ² (cm ²)	Air pressure – psig (kgf/cm ²)								
			14 (1)	28 (2)	43 (3)	57 (4)	71 (5)	85 (6)	100 (7)	114 (8)	128 (9)
3/8 (10)	0.236 (6)	0.16 (1.005)	2.21 (1.00)	4.43 (2.01)	6.64 (3.01)	8.86 (4.02)	11.07 (5.02)	13.30 (6.03)	15.50 (7.03)	17.73 (8.04)	19.93 (9.04)
5/8 (16)	0.315 (8)	0.47 (3.02)	6.64 (3.01)	13.30 (6.03)	19.93 (9.04)	26.59 (12.06)	33.23 (15.07)	39.89 (18.09)	46.55 (21.11)	53.18 (24.12)	59.84 (27.14)
1 (25)	0.472 (12)	1.17 (7.56)	16.54 (7.5)	33.30 (15.1)	49.83 (22.6)	66.59 (30.2)	83.13 (37.7)	99.89 (45.3)	116.42 (52.8)	133.18 (60.4)	149.94 (68.0)

ORDERING INFORMATION

HSU T S 16 × 4 CS3H A HSUTS

BORE
×
STROKE

S — Sensor type NOTE 1

Slide unit type

T — Fixed table
P — Fixed end plate
L — Fixed rail-on plate

Slide Units

Mounting bracket for Slide Unit sensor switches:

HSUTS — Fixed table
HSUPS — Fixed end plate
HSULS — Fixed rail-on plate

A — 39 in. (nom.) 1000mm (actual)
B — 108 in. (nom.) 3000mm (actual)
C — 196 in. (nom.) 5000mm (actual)

Sensor switch model

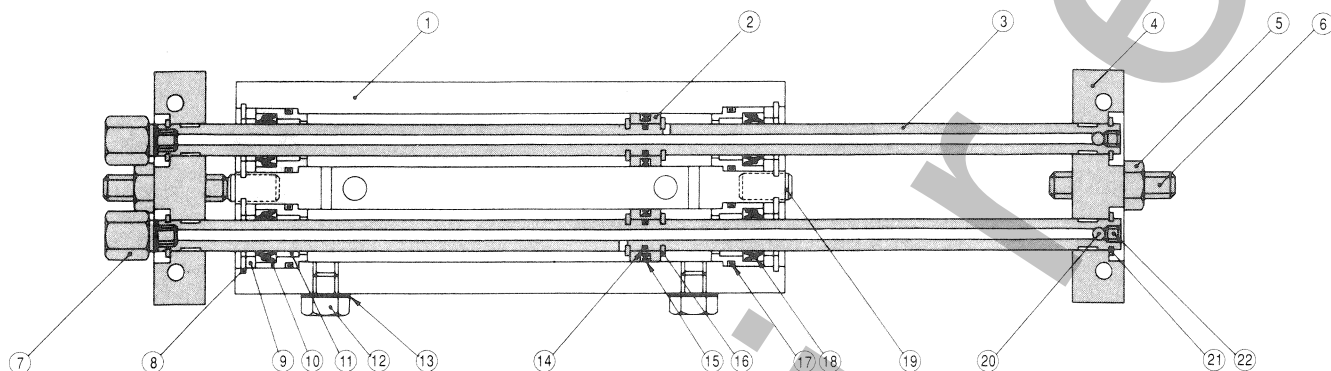
CS9H — Hall effect (solid state) type with LED 4 ~ 28 VDC
CS3H — Reed switch with LED 10 ~ 30 VDC
85 ~ 115 VAC
CS4H — Reed switch with LED 10 ~ 30 VDC
85 ~ 115 VAC
CS5H — Reed switch 3 ~ 30 VDC
85 ~ 115 VAC

NOTE 1: Magnet and mounting rail included for sensor switch.
Refer to sensor section for sensor switch selection and information.

lbs. (kgf)

INNER CONSTRUCTION AND MAJOR PARTS

HSUP10x□



NAMES AND MATERIALS OF MAJOR PARTS

No.	Item	Cylinder dimensions – in. (mm)		
		3/8 (10)	5/8 (16)	1 (25)
1	Table	Anodized aluminum		
2	Piston	Anodized aluminum		
3	Piston rod	Hard steel (hard chrome plated)		
4	End plate	Hard steel (black chromate)		
5	Lock nut	Hard steel (black chromate)		
6	Adjusting bolt	Hard steel (black chromate)		
7	Port adaptor	Stainless steel	Nickel plated brass	
8	Snap ring	Nickel plated steel		
9	End cap	Aluminum		
10	Seal case	Anodized aluminum		
11	Rod bushing	Oil permeated bronze		
12	Plug	Nickel plated brass		Chrome plated steel

No.	Item	Cylinder dimensions – in. (mm)		
		3/8 (10)	5/8 (16)	1 (25)
13	Plug gasket	Buna coated copper		–
14	Modified o-ring	Buna N		
15	Piston seal	Buna N		
16	Snap ring	Hard steel (black zinc plated)		
17	O-ring	Buna N		
18	Rod seal	Buna N		
19	Striker bolt	Hard chrome plated steel		
20	Ball	Stainless steel	–	
21	Snap ring	Hard steel (black chromate)	Hard steel (black zinc plated)	
22	Seal screw	Hard steel (black chromate)	Hard steel (black zinc plated)	
	Magnet	Resinous magnet		

WEIGHT

oz. (kgf)

Model	Body weight								Added weight		
	Stroke – in.								Shock absorber	Weight of one sensor switch	
	1	2	3	4	5	6	7	8		CS9H□	CS3H□ CS4H□ CS5H□
HSUT 10x□ HSUP 10x□	9.5 (0.27)	10.9 (0.31)	12.7 (0.36)	14.5 (0.41)	–	–	–	–	–	1.4 (0.04)	1.1 (0.03)
HSUL 10x□	–	–	–	35.3 (1.00)	–	–	–	–			
HSUT 16x□ HSUP 16x□	19.4 (0.55)	22.6 (0.64)	25.4 (0.72)	28.6 (0.81)	31.4 (0.89)	34.6 (0.98)	37.7 (1.07)	40.6 (1.15)	0.7 (0.02)	1.4 (0.04)	1.1 (0.03)
HSUL 16x□	–	–	–	57.6 (1.63)	64.9 (1.84)	72.3 (2.05)	79.4 (2.25)	86.8 (2.46)			
HSUT 25x□ HSUP 25x□	44.5 (1.25)	50.4 (1.43)	53.3 (1.61)	63.1 (1.79)	69.5 (1.97)	75.8 (2.15)	81.8 (2.32)	88.2 (2.50)	1.1 (0.03)	1.4 (0.04)	1.1 (0.03)
HSUL 25x□	–	–	–	109.0 (3.09)	121.3 (3.44)	134.0 (3.80)	146.4 (4.15)	159.1 (4.51)			