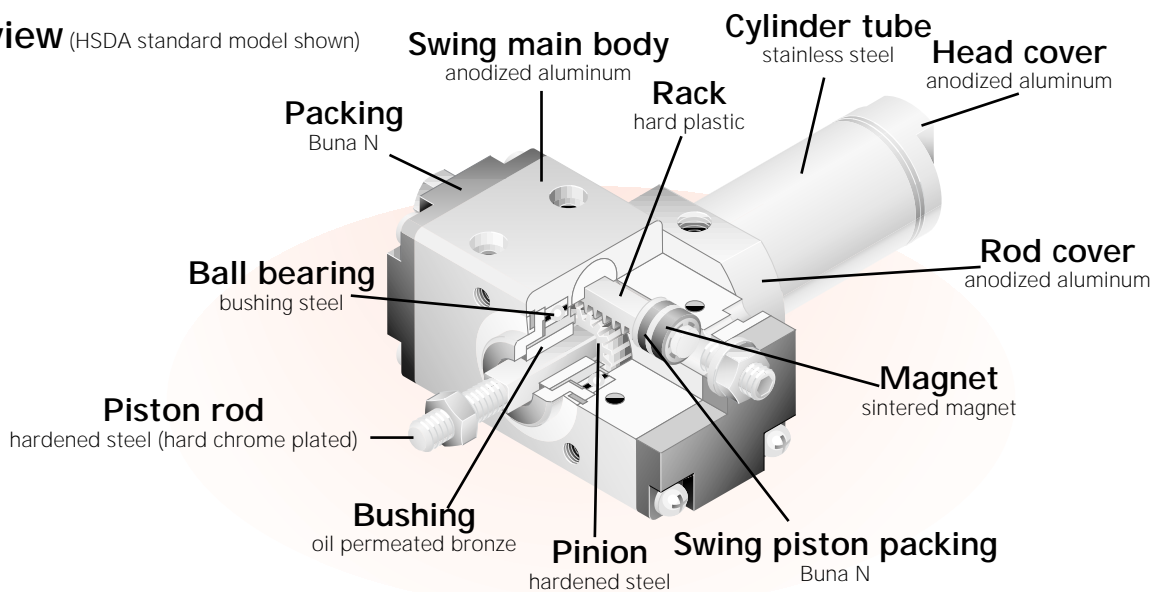


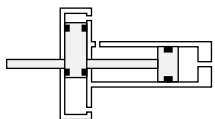
Swing Cutaway, specifications and weight chart

Cutaway view (HSDA standard model shown)



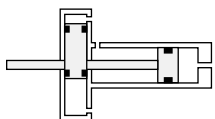
See terms and definitions page for more information.

Swing, specifications (HSDA)



Media					Air							
Temperature °C (°F)					0° to 60° (32° to 140°)							
Lubrication					None required. If used, must be compatible with seal materials.							
Maximum speed mm/s (in/s)					500 (20)							
Pressure range kgf/cm ² (psi)					2-7 (30-100)							
Angle specifications					45°	90°	135°	180°	45°	90°	135°	180°
Swing angle range					20°-105°	45°-105°	100°-195°	135°-195°	20°-100°	80°-100°	100°-190°	170°-190°
Swing time at 5 kgf/cm ² (71 psi) w/o load					0.2-0.5	0.2-0.5	0.4-0.8	0.4-1.0	0.2-1.0	0.2-1.2	0.4-1.8	0.4-2.5
Swing section												
Model		HSDA25				HSDA40						
Backlash		3.5°				2.5°						
Effective torque (5 kgf/cm ²) kgf/cm (lbf/in)		5.6 (4.86)				13.2 (11.46)						
Allowable kinetic energy kgf/cm (lbf/in)		Round rod		0.02 (.017)		Square rod		0.06 (.052)		0.20 (.174)		

Weight chart (HSDA)



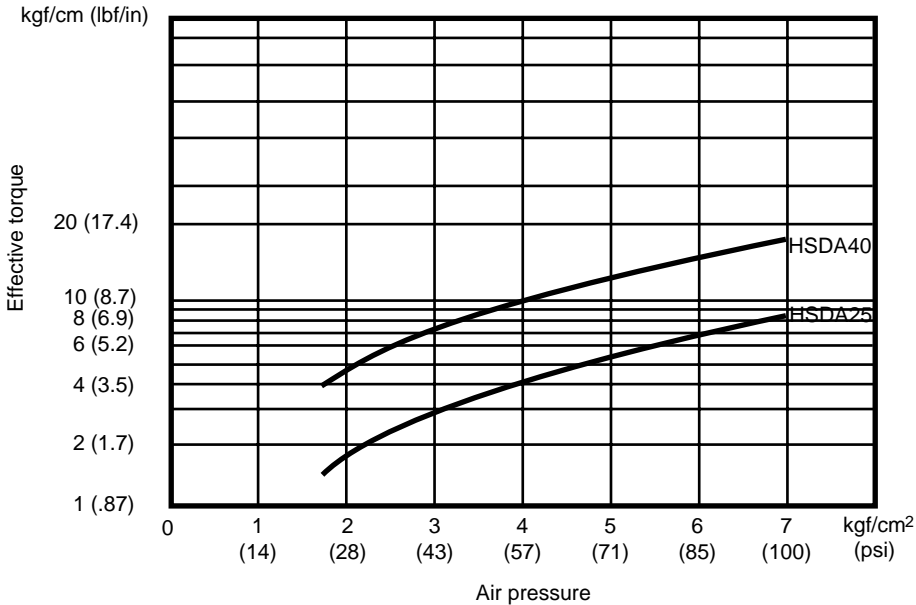
		3/4" stroke		1" stroke		2" stroke		3" stroke		4" stroke	
Bore mm (in)		gm	oz	gm	oz	gm	oz	gm	oz	gm	oz
25 (.984)	45°, 90°	641	23	641	23	642	23	-	-	-	-
25 (.984)	135°, 180°	761	27	761	27	762	27	-	-	-	-
40 (1.575)	45°, 90°	1252	44	1252	44	1254	44	1256	44	1258	44
40 (1.575)	135°, 180°	1532	54	1532	54	1534	54	1536	54	1538	54

- Call Humphrey for stroke availability.

Swing Bore and stroke chart

Swing section bore and stroke				
Model	45°	90°	135°	180°
HSDA25	16 x 6.3 mm	16 x 12.6 mm	16 x 18.9 mm	16 x 25.2 mm
HSDA40	20 x 9.4 mm	20 x 18.8 mm	20 x 28.3	20 x 37.7 mm

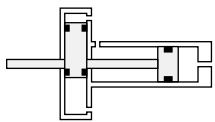
Swing Torque chart



Model	Air pressure - kgf/cm2 (psi)					
	2 (29)	3 (43)	4 (57)	5 (71)	6 (85)	7 (100)
HSDA25	1.7 (1.5)	3.0 (2.6)	4.3 (3.7)	5.6 (4.9)	6.8 (5.9)	8.1 (7.0)
HSDA40	4.7 (4.1)	7.5 (6.5)	10.3 (8.9)	13.2 (11.5)	15.9 (13.8)	18.7 (16.2)

Swing

Swing, standard (HSDA)



Accessories (see page 6)

Flange

Options (see page 6)

Square rod end (female thread)

Sensor switches (see Sensor section page 13)

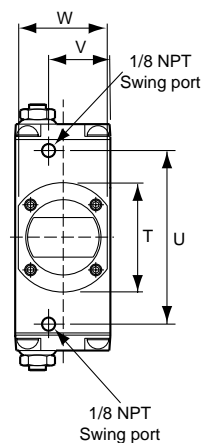
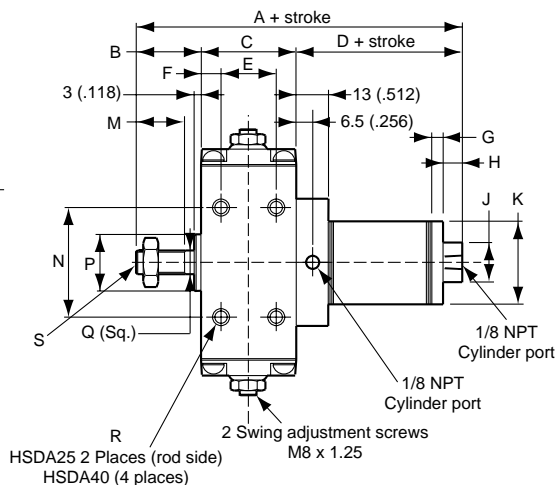
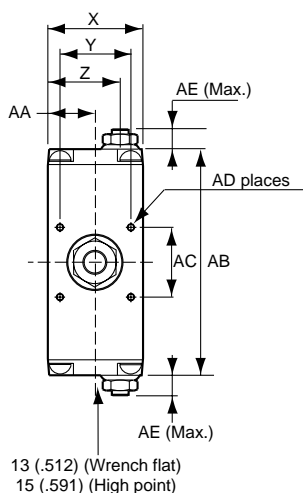
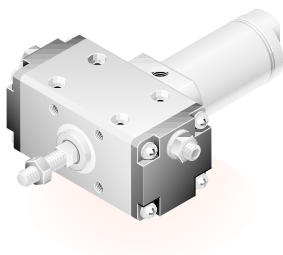
ZG553

ZC153

CS4M

CS5T

CS11T



Model mm (in)	Degree rotation	A	B	C	D	E	F	G	H	J
25	45°, 90°	133 (5.236)	29 (1.142)	44 (1.732)	60 (2.362)	-	8 (.315)	4 (.157)	5 (.197)	19 (.748)
25	135°, 180°	133 (5.236)	29 (1.142)	44 (1.732)	60 (2.362)	-	8 (.315)	4 (.157)	5 (.197)	19 (.748)
40	45°, 90°	154 (6.063)	34 (1.339)	52 (2.047)	68 (2.677)	30 (1.181)	11 (.433)	6 (.236)	6 (.236)	22 (.866)
40	135°, 180°	154 (6.063)	34 (1.339)	52 (2.047)	68 (2.677)	30 (1.181)	11 (.433)	6 (.236)	6 (.236)	22 (.866)

Model mm (in)	Degree rotation	K	M	N	P	Q	R
							size x c'bore x deep
25	45°, 90°	26.4 (1.039)	18 (.709)	42 (1.654)	20 (.787)	7.4 (.291)	7.1 (.280) x 11 (.433) x 6.3 (.248)
25	135°, 180°	26.4 (1.039)	18 (.709)	42 (1.654)	20 (.787)	7.4 (.291)	7.1 (.280) x 11 (.433) x 6.3 (.248)
40	45°, 90°	41.6 (1.638)	23 (.906)	54 (2.126)	32 (1.260)	13 (.512)	7.1 (.280) x 11 (.433) x 6.3 (.248)
40	135°, 180°	41.6 (1.638)	23 (.906)	54 (2.126)	32 (1.260)	13 (.512)	7.1 (.280) x 11 (.433) x 6.3 (.248)

Model mm (in)	Degree rotation	S	T	U	V	W	X	Y
25	45°, 90°	5/16-28 UNC	45 (1.772)	63 (2.480)	30 (1.181)	38 (1.496)	44 (1.732)	25 (.984)
25	135°, 180°	5/16-28 UNC	45 (1.772)	88 (3.465)	30 (1.181)	38 (1.496)	44 (1.732)	25 (.984)
40	45°, 90°	1/2-13 UNC	64 (2.520)	83 (3.268)	36 (1.417)	48 (1.890)	54 (2.126)	38 (1.496)
40	135°, 180°	1/2-13 UNC	64 (2.520)	121 (4.764)	36 (1.417)	48 (1.890)	54 (2.126)	38 (1.496)

Model mm (in)	Degree rotation	Z	AA	AB	AC	AD	AE
25	45°, 90°	34 (1.339)	22 (.866)	90 (3.543)	25 (.984)	10-32 UNF x 10 (.394)	11.6 (.457) [18.6 (.732)]*
25	135°, 180°	34 (1.339)	22 (.866)	115 (4.528)	25 (.984)	10-32 UNF x 10 (.394)	11.6 (.457) [18.6 (.732)]*
40	45°, 90°	41.5 (1.634)	27 (1.063)	112 (4.409)	38 (1.496)	1/4-20 UNC x 10 (.394)	11.2 (.441) [18.2 (.717)]*
40	135°, 180°	41.5 (1.634)	27 (1.063)	150 (5.906)	38 (1.496)	1/4-20 UNC x 10 (.394)	11.2 (.441) [18.2 (.717)]*

General note

25 mm bore is 1 inch nominal bore

40 mm bore is 1 1/2 inch nominal bore

*Numbers in [] are for 45° and 135° models.

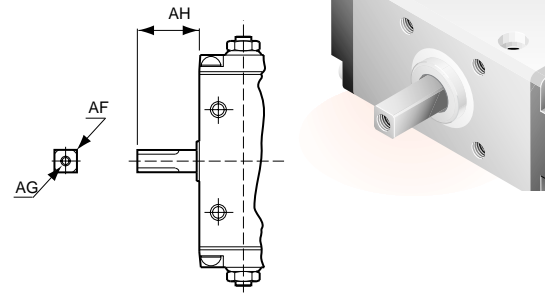
See page 7 for square rod end (female thread).

Square rod end (female thread)

Actuator is the same as standard swing (HSDA) on page 6 except for dimensions AF, AG, and AH.

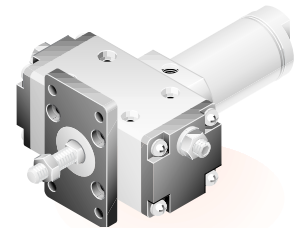
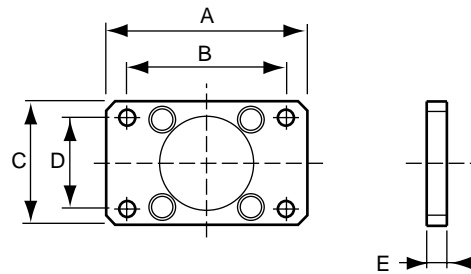
Model mm (in)	Degree rotation	AF	AG	AH
HSDA25	45°, 90°	8 (.315)	8-32 UNC x 6 (.236)	29 (1.142)
HSDA25	135°, 180°	8 (.315)	8-32 UNC x 6 (.236)	29 (1.142)
HSDA40	45°, 90°	15 (.591)	1/4-20 UNC x 6 (.236)	34 (1.339)
HSDA40	135°, 180°	15 (.591)	1/4-20 UNC x 6 (.236)	34 (1.339)

Tolerances
Note F
+ 0 (0)
-.022 (-.0009)



Swing Accessories

Flange



Model mm (in)	Degree rotation	A	B	C	D	E
HSDA25	45°, 90°	75 (2.953)	60 (2.362)	44 (1.732)	30 (1.181)	8 (.315)
HSDA25	135°, 180°	75 (2.953)	60 (2.362)	44 (1.732)	30 (1.181)	8 (.315)
HSDA40	45°, 90°	90 (3.543)	70 (2.756)	54 (2.126)	40 (1.575)	8 (.315)
HSDA40	135°, 180°	90 (3.543)	70 (2.756)	54 (2.126)	40 (1.575)	8 (.315)

Cylinder

Model	Bore	Stroke	Angle	Rod end options
HSDA		x	-	-
HSDA Swing cylinder	25 25 mm (.984 inch) (1 inch nominal bore) 40 40 mm (1.575 inch) (1 1/2 inch nominal bore)	Maximum stroke 2 inches 4 inches	45° 90° 135° 180°	Blank Male thread N Square (female thread)

Example: HSDA25x2-N-90

Accessories

Flange

Flange	Model	Bore
-		
3		25 25 mm (.984 inch) (1 inch nominal bore) 40 40 mm (1.575 inch) (1 1/2 inch nominal bore)

Example: 3-HSDA40

Rod nuts

Model	Size
-	
RN Rod nut	8 25mm (.984 inch) 1 inch nominal diameter bore 12 40 mm (1.575 inch) 1 1/2 inch nominal bore

Example: RN-8

Sensor

See Sensor section at back of catalog for order information.