KURT360° ™
Advantage

Kurt Hydraulic Clamping Systems

KURT

KURT 360° ™ Advantage

Benefit from Our Wide Range of Options.

The KURT 360° ADVANTAGE represents our complete precision manufacturing product offering. Gain powerful manufacturing advantages from a wide range of Hydraulic Clamps & Pumps.

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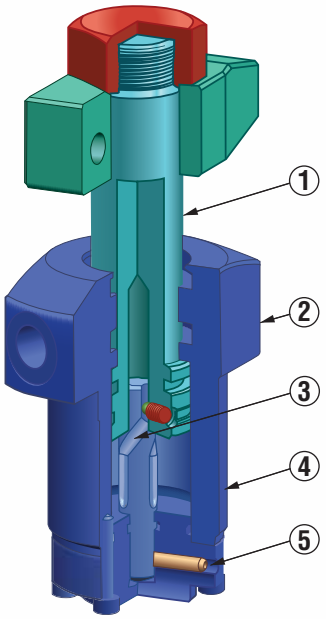
Swing Clamp Cylinder Design & Features



(1) Treatment

- Hard chromed and polished for better wear resistance and smooth piston action
- Heat treated piston (HRC 60-63) to reduce abrasion and for better wear resistance

(2) Flexible Mounting Type

- Upper and lower flange mounting styles for added flexibility
- Clamping force range from 475 lb to 6000 lb
- Max. pressure : 5000 psi

(3) Guide Rod

- 3 guide slots design for larger sizes to ensure long life and reduces stress.
- Special guide slot design to reduce the wear and ensure long life (reduces stress)
- To change the direction (left 90°/ right 90°/ pull·push) is easily done by rotating piston.

(4) Cylinder Body

- Hardened to HRC 38-46 - reduces the wear of inner face of cylinder body, to ensure longer life (1,000,000 cycles)
- Polished to ensure longer life (reduces wear to the oil seal)

(5) Pin

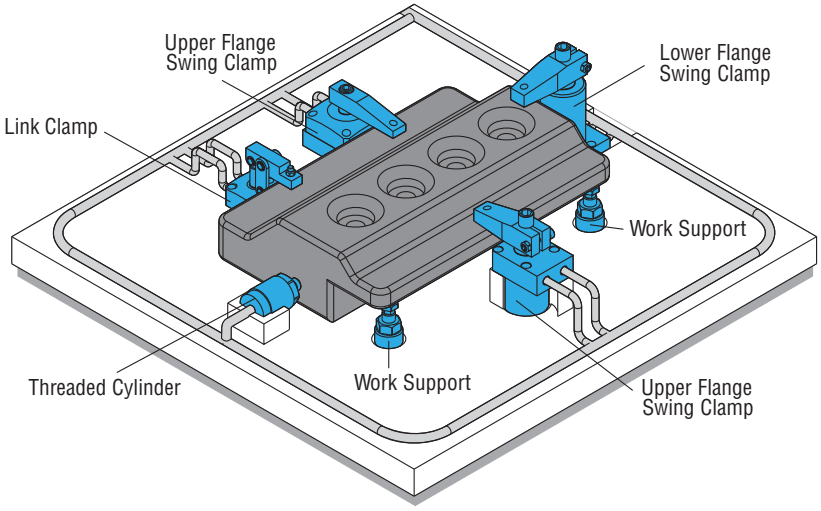
- Heat treated to HRC 38-40 – gives strength to the pin and reduces breakage.

Swing Clamps - Introduction

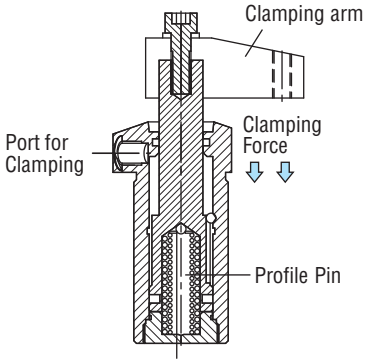
Kurt Workholding introduces a wide range of Swing Clamps having clamping capacity of 475 lbs. to 6,000 lbs. at 5,000 PSI. The single cylinder design powers both the swing and clamp force cycle. The single cylinder swing clamp design allows for the clamp to swing left or right when unclamping to allow access to remove the part. Loading and unloading are a much easier task with the swing clamp design.

There are three types of Clamping Cylinders.

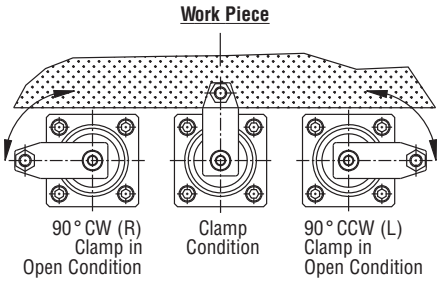
- Swing Action Clamps
- Link Clamps (Vertical Swing Clamps)
- Threaded Body Cylinders.



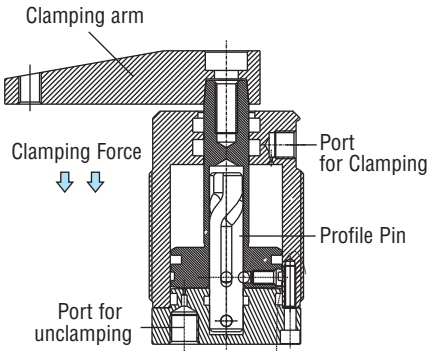
Single Acting Swing Clamp Cross Section



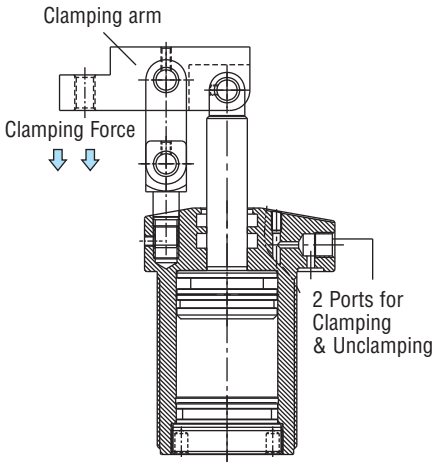
Direction of Rotation



Dual Acting Swing Clamp Cross Section



Link Clamp Cross Section



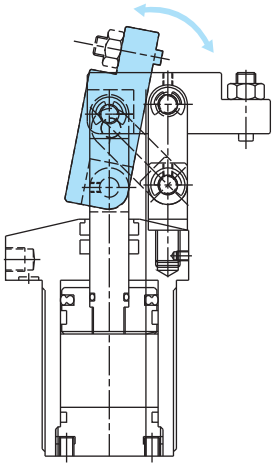
Swing Stroke / Clamp Stroke

In a Link Clamp the clamping arm swings vertically to give the required clamping and unclamping action.

Can be used to clamp low profile work pieces.

Can produce larger clamp force than Swing Clamps in the same bore size.

Direction of Rotation



030 Series Hydraulic Swing Clamps, Bottom Flange Manifold Mounted or Threaded Port

Application

- Attachment of the cylinder body to the fixture platen is done with 3 or 4 S.H.C.S. The connection type can be either manifold mounted or threaded port. Can be single or double acting as well.

Feature

Single acting

- Hydraulic clamping and spring return for unclamping to original home position. Requires only one hydraulic line.

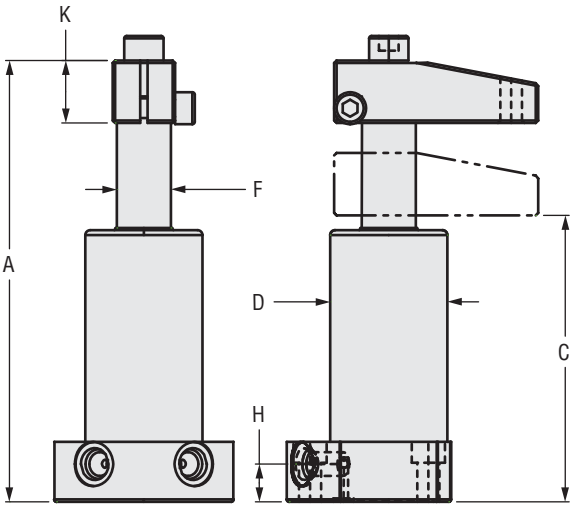
Double acting

- Hydraulic control of clamping and unclamping.
- Can be clamped and unclamped with a solenoid valve or directional valve.

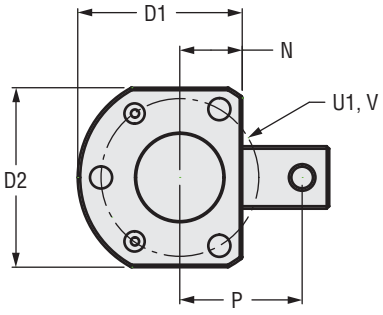
Note

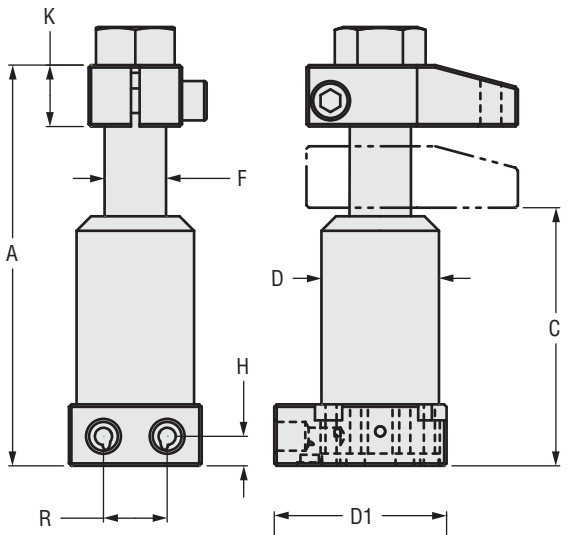
- Evacuating chips from around shaft and cylinder body will increase the life of the cylinder. Coolant should also be removed before clamping or unclamping cylinder to help prevent oil contamination.
- Keep oil flow velocity under maximum value rating for longer life.

Note:
Swing Clamp arms sold separately.
See page 17.

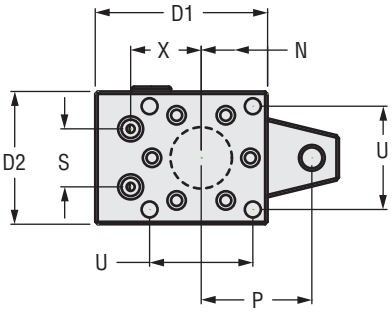


030 SERIES
BOTTOM
FLANGE
-21, -51, -121





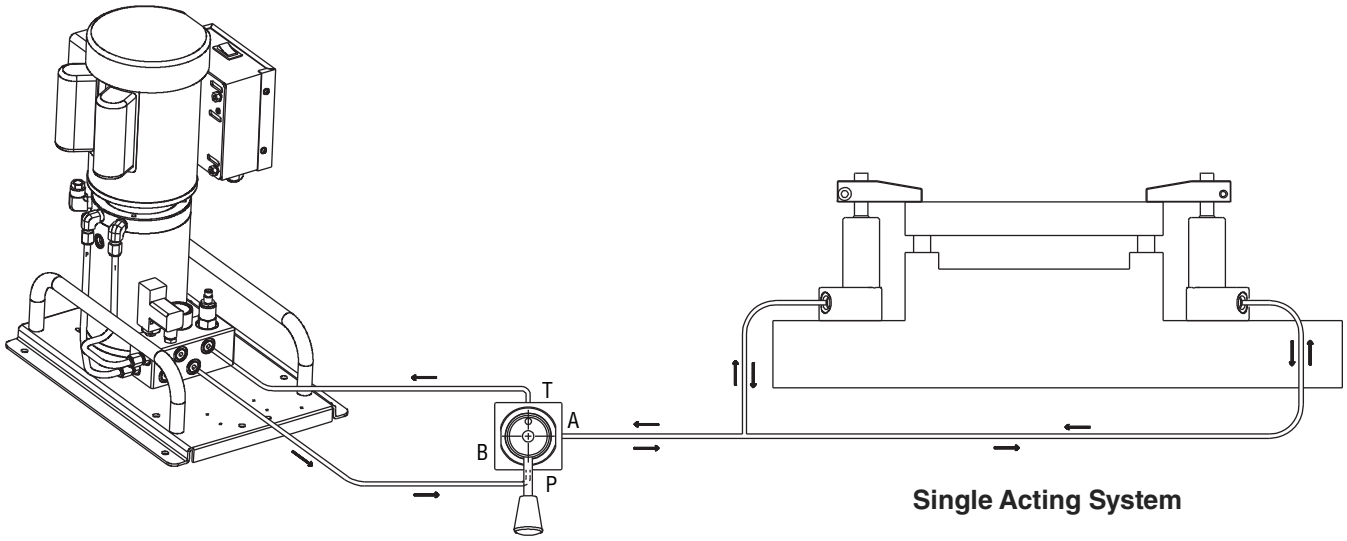
030 SERIES
BOTTOM
FLANGE
-92, -201



030 Series Swing Clamps

NEW

Cylinder Type	SINGLE - ACTING						DOUBLE - ACTING				
Left 90°	030LS-21	030LS-51	030LS-92	030LS-121	030LS-201		030LD-21	030LD-51	030LD-92	030LD-121	030LD-201
Right 90°	030RS-21	030RS-51	030RS-92	030RS-121	030RS-201		030RD-21	030RD-51	030RD-92	030RD-121	030RD-201
Operating Pressure	500 - 5000 psi						500 - 5000 psi				
Clamp Force @ 5000 psi (lbs)	475	1100	1900	2600	4840		570	1360	2400	3260	6000
Clamping Stroke (in)	0.32	0.39	0.47	0.51	0.55		0.32	0.39	0.47	0.51	0.55
Total Stroke (in)	0.65	0.89	0.87	1.12	1.10		0.65	0.89	0.87	1.12	1.10
Effect Area-Clamp (in^2)	0.12	0.28	0.49	0.66	1.22		0.12	0.28	0.49	0.66	1.22
Effect Area-Unclamp (in^2)	-	-	-	-	-		0.24	0.59	1.25	1.25	2.46
Oil Capacity-Clamp (in^3)	0.08	0.25	0.42	0.73	1.34		0.08	0.25	0.42	0.73	1.34
Oil Capacity-Unclamp (in^3)	-	-	-	-	-		0.16	0.52	1.09	1.39	2.71
Max. Oil Capacity (in^3/min)	0.2	0.4	1.0	1.6	2.3		0.2	0.4	1.0	1.6	2.3
Max. Oil Velocity (GPM)	0.05	0.10	0.26	0.42	0.60		0.05	0.10	0.26	0.42	0.60
A (in)	4.669	5.709	6.024	7.067	7.008		4.669	5.709	6.024	7.067	7.008
C (in)	3.366	3.957	4.134	4.961	4.634		3.366	3.957	4.134	4.961	4.634
ΦD (in)	1.098	1.370	1.882	1.882	2.512		1.098	1.370	1.882	1.882	2.512
D1 (in)	1.858	2.130	2.760	2.630	3.350		1.858	2.130	2.760	2.630	3.350
D2 (in)	1.772	2.244	2.126	2.874	2.756		1.772	2.244	2.126	2.874	2.756
ΦF (in)	0.394	0.630	0.984	0.866	1.260		0.394	0.630	0.984	0.866	1.260
H (in)	0.551	0.551	0.472	0.630	0.472		0.551	0.551	0.472	0.630	0.472
K (in)	0.630	0.866	0.984	1.000	1.260		0.630	0.866	0.984	1.000	1.260
N (in)	0.610	0.752	1.059	1.000	1.382		0.610	0.752	1.059	1.000	1.382
P (in)	1.575	1.969	1.772	1.969	2.165		1.575	1.969	1.772	1.969	2.165
R (in)	-	-	1.020	-	1.020		-	-	1.020	-	1.020
S (in)	-	-	0.929	-	1.142		-	-	0.929	-	1.142
U (in)	1.575	1.969	1.654	2.520	2.165		1.575	1.969	1.654	2.520	2.165
ΦU1 (in)	1.654	1.969	-	2.520	-		1.654	1.969	-	2.520	-
ΦV (in)	0.217	0.268	0.272	0.350	0.335		0.217	0.268	0.272	0.350	0.335
X (in)	-		1.130		1.382				1.130		1.382
Wt. cylinder only (lbs)	1.4	2.2	3.8	4.0	7.2		1.4	2.4	4.2	4.4	7.6
PORT	SAE-2	SAE-4	G1/4	SAE-4	SAE-4		SAE-2	SAE-4	G1/4	SAE-4	SAE-4
Clamp Arm (order separately)	CAS-21	CAS-51	CAS-92	CAS-121	CAS-201		CAS-21	CAS-51	CAS-92	CAS-121	CAS-201



Single Acting System

040 Series Threaded Body With Threaded Port

Application

- Cylinder body is attached to the fixture platen by one or two threaded Jam nuts. Can be single or double acting as well.

Feature

Single acting

- Hydraulic clamping and spring return for unclamping to original home position. Requires only one hydraulic line.

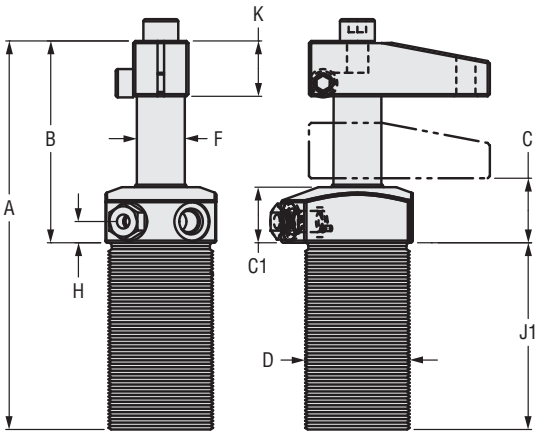
Double acting

- Hydraulic control of clamping and unclamping.
- Can be clamped and unclamped with a solenoid valve or directional valve.

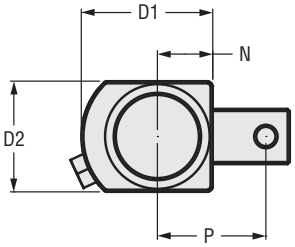
Note

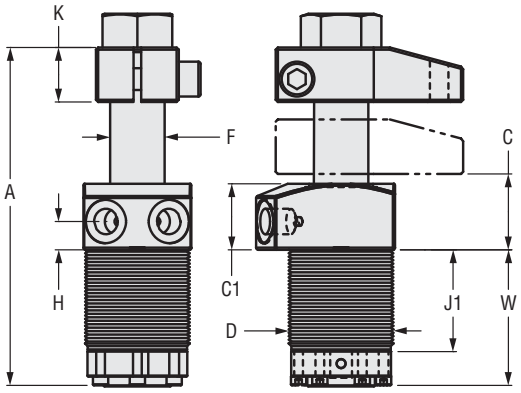
- Evacuating chips from around shaft and cylinder body will increase the life of the cylinder. Coolant should also be removed before clamping or unclamping cylinder to help prevent oil contamination.
- Keep oil flow velocity under maximum value rating for longer life.

Note:
Swing Clamp arms sold separately.
See page 17.

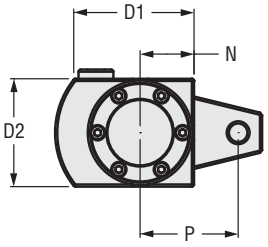


040 SERIES
THREADED
BODY
-21, -51, 121



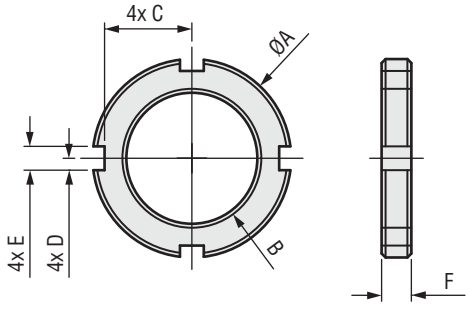


040 SERIES
THREADED
BODY
-92, -201



Jam Nut data and weight

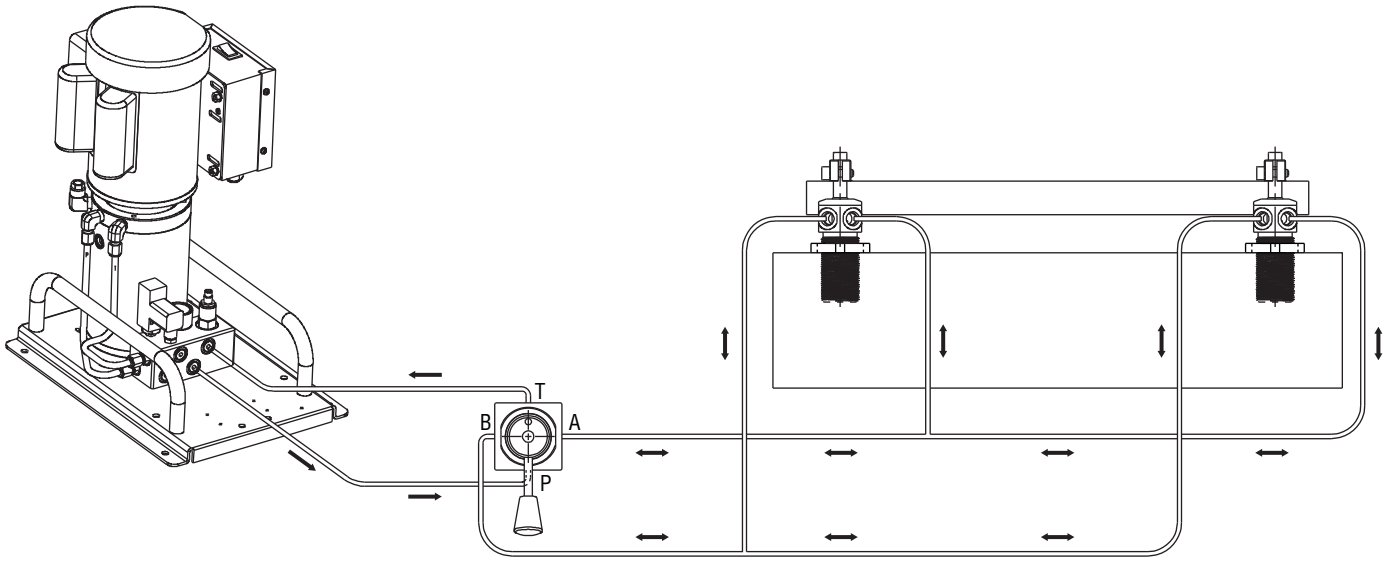
Model Number	A	B	C	D	E	F	Weight kg
JAM21	1.75	1-1/8-16UNF	0.685	0.137	0.275	0.354	0.06
JAM51	1.88	1-3/8-18UNF	0.820	0.137	0.275	0.250	0.04
JAM121	2.5	1-7/8-16UNF	1.060	0.192	0.385	0.500	0.12
JAM92	2.75	M48X1.5P	1.270	0.137	0.275	0.433	0.17
JAM201	3.25	2-1/2-16UNF	1.500	0.200	0.400	0.393	0.16



040 Series Swing Clamps

NEW

Cylinder Type	SINGLE - ACTING						DOUBLE - ACTING				
Left 90°	040LS-21	040LS-51	040LS-92	040LS-121	040LS-201		040LD-21	040LD-51	040LD-92	040LD-121	040LD-201
Right 90°	040RS-21	040RS-51	040RS-92	040RS-121	040RS-201		040RD-21	040RD-51	040RD-92	040RD-121	040RD-201
Operating Pressure	500 - 5000 psi						500 - 5000 psi				
Clamp Force @ 5000 psi (lbs)	475	1100	1900	2600	4840		570	1360	2400	3260	6000
Clamping Stroke (in)	0.32	0.39	0.47	0.51	0.55		0.32	0.39	0.47	0.51	0.55
Total Stroke (in)	0.65	0.89	0.87	1.12	1.10		0.65	0.89	0.87	1.12	1.10
Effect Area-Clamp (in^2)	0.12	0.28	0.49	0.66	1.22		0.12	0.28	0.49	0.66	1.22
Effect Area-Unclamp (in^2)	-	-	-	-	-		0.24	0.59	1.25	1.25	2.46
Oil Capacity-Clamp (in^3)	0.08	0.25	0.42	0.73	1.34		0.08	0.25	0.42	0.73	1.34
Oil Capacity-Unclamp (in^3)	-	-	-	-	-		0.16	0.52	1.09	1.39	2.71
Max. Oil Capacity (in^3/min)	0.2	0.4	1.0	1.6	2.3		0.2	0.4	1.0	1.6	2.3
Max. Oil Velocity (GPM)	0.05	0.10	0.26	0.42	0.60		0.05	0.10	0.26	0.42	0.60
A (in)	4.665	5.748	5.630	7.039	6.732		4.665	5.748	5.630	7.039	6.732
B (in)	2.579	3.150	-	3.654	-		2.579	3.150	-	3.654	-
C (in)	1.280	1.165	1.260	1.537	1.457		1.280	1.165	1.260	1.537	1.457
C1 (in)	0.984	0.984	1.181	1.008	1.260		0.984	0.984	1.181	1.008	1.260
ΦD Thread	1.125-16 UNF	1.375-18 UNF	M48 X 1.5	1 7/8-16 UNF	2.500-16 UNF		1.125-16 UNF	1.375-18 UNF	M48 X 1.5	1 7/8-16 UNF	2.500-16 UNF
D1 (in)	1.551	1.870	2.520	2.382	2.992		1.551	1.870	2.520	2.382	2.992
D2 (in)	1.299	1.496	1.969	2.008	2.559		1.299	1.496	1.969	2.008	2.559
ΦF (in)	0.394	0.630	0.984	0.866	1.260		0.394	0.630	0.984	0.866	1.260
H (in)	0.394	0.394	0.512	0.394	0.512		0.394	0.394	0.512	0.394	0.512
J1 (in)	2.087	2.598	1.811	3.386	2.165		2.087	2.598	1.811	3.386	2.165
K (in)	0.630	0.866	0.984	1.000	1.181		0.630	0.866	0.984	1.000	1.181
N (in)	0.610	0.752	0.965	1.000	1.280		0.610	0.752	0.965	1.000	1.280
P (in)	1.575	1.969	1.772	1.969	2.165		1.575	1.969	1.772	1.969	2.165
W (in)	-	-	2.480	-	2.835		-	-	2.480	-	2.835
Wt. cylinder only (lbs)	1.1	2.2	3.4	3.5	6.1		1.1	2.2	3.6	4.0	6.6
PORT	SAE-2	SAE-4	G1/4	SAE-4	SAE-4		SAE-2	SAE-4	G1/4	SAE-4	SAE-4
Clamp Arm (order separately)	CAS-21	CAS-51	CAS-92	CAS-121	CAS-201		CAS-21	CAS-51	CAS-92	CAS-121	CAS-201



Double Acting System

050 Series Upper Flange
Manifold Mounted or Threaded Port

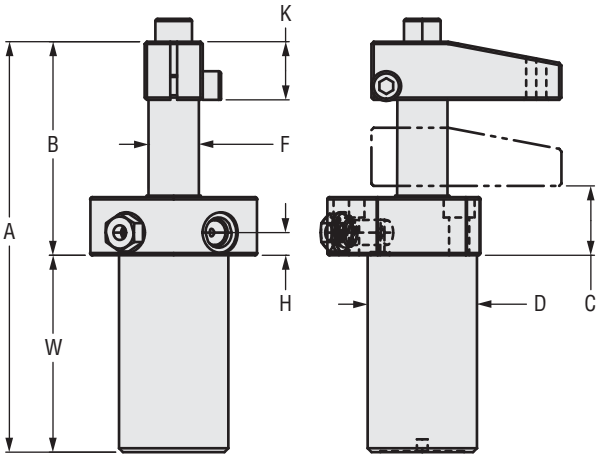
Application
- Attachment of the cylinder body to the fixture platen is done with 3 or 4 S.H.C.S. The connection type can be either manifold mounted or threaded port. Can be single or double acting as well.

Feature
Single acting
- Hydraulic clamping and spring return for unclamping to original home position. Requires only one hydraulic line.

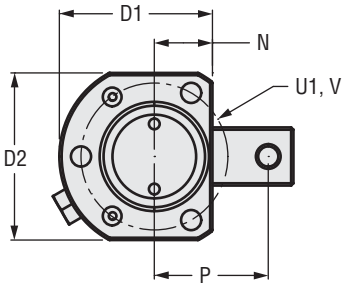
Double acting
- Hydraulic control of clamping and unclamping.
- Can be clamped and unclamped with a solenoid valve or directional valve.

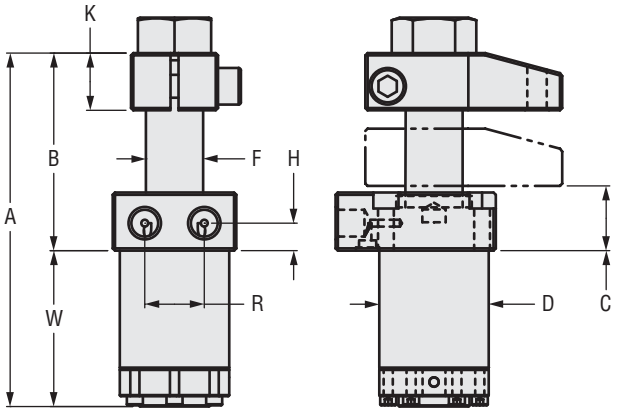
Note
- Evacuating chips from around shaft and cylinder body will increase the life of the cylinder. Coolant should also be removed before clamping or unclamping cylinder to help prevent oil contamination.
- Keep oil flow velocity under maximum value rating for longer life.

Note:
Swing Clamp arms sold separately.
See page 17.

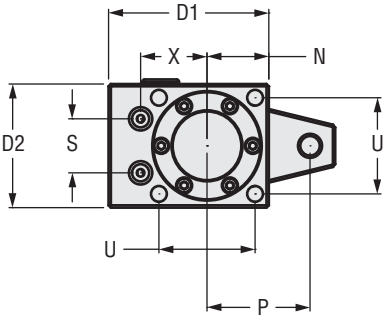


050 SERIES
TOP
FLANGE
-21, -51, -121





050 SERIES
TOP
FLANGE
-92, -201



050 Series Swing Clamps

NEW

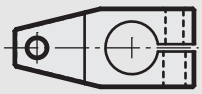
Cylinder Type	SINGLE - ACTING						DOUBLE - ACTING				
Left 90°	050LS-21	050LS-51	050LS-92	050LS-121	050LS-201		050LD-21	050LD-51	050LD-92	050LD-121	050LD-201
Right 90°	050RS-21	050RS-51	050RS-92	050RS-121	050RS-201		050RD-21	050RD-51	050RD-92	050RD-121	050RD-201
Operating Pressure	500 - 5000 psi						500 - 5000 psi				
Clamp Force @ 5000 psi (lbs)	475	1100	1900	2600	4840		570	1360	2400	3260	6000
Clamping Stroke (in)	0.32	0.39	0.47	0.50	0.55		0.32	0.39	0.47	0.50	0.55
Total Stroke (in)	0.65	0.89	0.87	1.12	1.10		0.65	.8i9	0.87	1.12	1.10
Effect Area-Clamp (in^2)	0.12	0.28	0.49	0.66	1.22		0.12	0.28	0.49	0.66	1.22
Effect Area-Unclamp (in^2)	-	-	-	-	-		0.24	0.59	1.25	1.25	2.46
Oil Capacity-Clamp (in^3)	0.08	0.25	0.42	0.73	1.34		0.08	0.25	0.42	0.73	1.34
Oil Capacity-Unclamp (in^3)	-	-	-	-	-		0.16	0.52	1.09	1.39	2.71
Max. Oil Capacity (in^3/min)	0.2	0.4	1.0	1.6	2.3		0.2	0.4	1.0	1.6	.
Max. Oil Velocity (GPM)	0.05	0.10	0.26	0.42	0.60		0.05	0.10	0.26	0.42	0.60
A (in)	4.661	5.722	5.618	7.083	6.732		4.661	5.722	5.748	7.083	6.732
B (in)	2.571	3.124	2.945	3.701	3.602		2.571	3.124	3.071	3.701	3.602
C (in)	1.280	1.561	1.134	1.547	1.248		1.280	1.561	1.142	1.547	1.248
ΦD (in)	1.098	1.370	1.882	1.882	2.480		1.098	1.370	1.882	1.882	2.480
D1 (in)	1.858	2.130	2.760	2.630	3.350		1.858	2.130	2.760	2.630	3.350
D2 (in)	1.772	2.244	2.126	2.874	2.756		1.772	2.244	2.126	2.874	2.756
ΦF (in)	0.394	0.630	0.984	0.866	1.260		0.394	0.630	0.984	0.866	1.260
H (in)	0.433	0.433	0.512	0.394	0.512		0.433	0.433	0.512	0.394	0.512
K (in)	0.630	0.866	0.984	1.000	1.260		0.630	0.866	0.984	1.000	1.260
N (in)	0.610	0.752	1.059	1.000	1.382		0.610	0.752	1.059	1.000	1.382
P (in)	1.575	1.969	1.772	1.969	2.165		1.575	1.969	1.772	1.969	2.165
R (in)	-	-	1.024	-	1.020		-	-	1.024	-	1.020
S (in)	-	-	0.929	-	1.150		-	-	0.929	-	1.150
U (in)	1.575	1.969	1.654	2.520	2.165		1.575	1.969	1.654	2.520	2.165
ΦU1 (in)	1.654	1.969	-	2.520	-		1.654	1.969	-	2.520	-
ΦV (in)	0.217	0.268	0.272	0.346	0.335		0.217	0.268	0.272	0.346	0.335
W (in)	2.091	2.598	2.677	3.382	3.130		2.091	2.598	2.677	3.382	3.130
X (in)	-	-	1.130	-	1.402		-	-	1.130	-	1.402
Wt. cylinder only (lbs)	1.4	2.4	3.3	3.4	6.6		1.4	2.4	4.0	3.5	7.0
PORT	SAE-2	SAE-4	G1/4	SAE-4	SAE-4		SAE-2	SAE-4	G1/4	SAE-4	SAE-4
Clamp Arm (order separately)	CAS-21	CAS-51	CAS-92	CAS-121	CAS-201		CAS-21	CAS-51	CAS-92	CAS-121	CAS-201

See These Additional Accessories

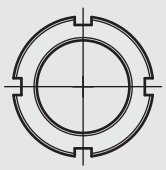
WS-BL Work Support
Pages 12-13

Valves
Pages 13-16

Swing Clamp Arms
Page 17

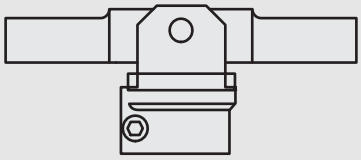


Jam Nut
Page 6



Hydraulic Pump and Hydraulic Intensifier
Page 18

Double Clamp Arm
Page 17



VT Series Link Clamp

Description

The clamping mechanism on this series of hydraulic clamping cylinders works on a lever principle. As the piston is pushed forward the clamp mechanism is pushed down. This type of clamp provides a larger clamping force than of a swing clamp of equal size. Main parts of the clamping mechanism are mounted outside of the cylinder body for convenient maintenance if needed.

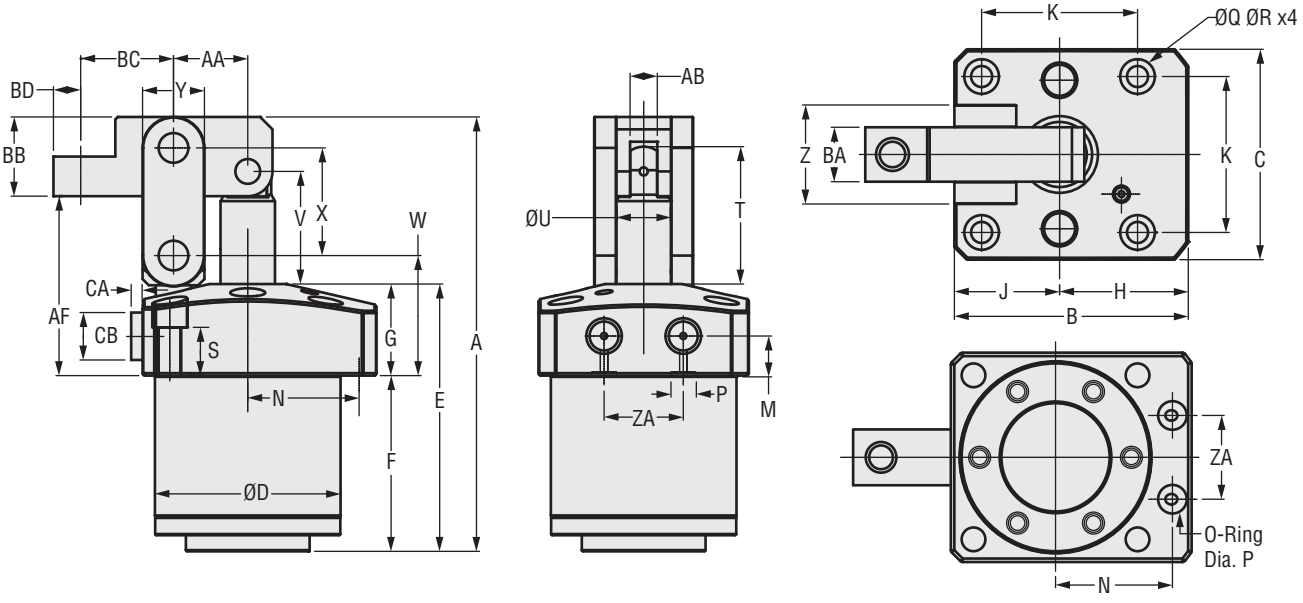
- Minimum operating pressure: 355 Lbs / 25Kg/cm^2.
- Maximum operating pressure: 995 Lbs / 70Kg/cm^2.
- Double acting and single acting
- Cylinder body is made of aluminum alloy to reduce the weight
- Manifold mounted or threaded port connection in one cylinder body.
- A stronger link mechanism for longer life cycles.
- Integrated with a inner flow control valve so no extra valves are needed.
- Design ensures repeatable clamping location.
- Linkage can be re-positioned to clamp at 90, 180 or 270 degrees from hydraulic ports.
- Cylinder is supplied with standard arm. No additional arm to purchase.

Article no.	Clamping force at 1000 PSI	Piston area (in^2)	Stroke (in)	Oil capacity (in^3)	Weight Lbs
VT-32D	795	1.24	1.02	1.27	2.02
VT-40D	1250	1.95	1.16	2.27	4.10
VT-50D	1950	3.03	1.38	4.18	5.16

Article no.	Clamping force at 1000 PSI	Piston area (in^2)	Stroke (in)	Oil capacity (in^3)	Weight Lbs
VT-32S	640	1.24	1.02	1.27	2.02
VT-40S	995	1.95	1.16	2.27	4.10
VT-50S	1565	3.03	1.38	4.18	5.16

Article no.	A	B	C	D -0.004/ -0.008	E	F	G	H	J	K	M	N	P	Q	R	S	T	U
VT-32D/VT-32S	5.216	2.717	2.362	2.165	3.425	2.323	1.102	1.535	1.181	1.850	0.472	1.319	0.335	0.433	0.268	0.590	1.476	0.630
VT-40D/VT-40S	5.787	3.189	2.760	2.559	3.661	2.480	1.181	1.811	1.378	2.165	0.512	1.555	0.410	0.433	0.268	0.610	1.772	0.708
VT-50D/VT-50S	6.890	3.720	3.346	2.952	4.252	2.795	1.457	2.047	1.673	2.480	0.630	1.772	0.410	0.551	0.354	0.765	2.165	0.866

Article no.	V	W ±0.015	X	Y	Z	ZA	AA	AB +0.004	AF	BA	BB	BC	BD	CA	CB	Chamfer	Hydraulic Port	O-Ring
VT-32D/VT-32S	1.240	1.398	1.181	0.630	1.102	0.945	0.827	0.315	2.106	0.630	0.787	1.142	0.315	0.138	0.551	0.118 x 45°	G1/8	1BP5
VT-40D/VT-40S	1.457	1.535	1.398	0.748	1.457	1.181	0.965	0.394	2.323	0.748	0.984	1.260	0.394	0.177	0.748	0.157 x 45°	G1/4	1BP7
VT-50D/VT-50S	1.772	1.890	1.713	0.984	1.575	1.260	1.181	0.433	2.835	0.866	1.260	1.476	0.433	0.177	0.748	0.394 x 45°	G1/4	1BP7



TC Clamping Cylinder

TC Series Hydraulic Threaded-Body Cylinders

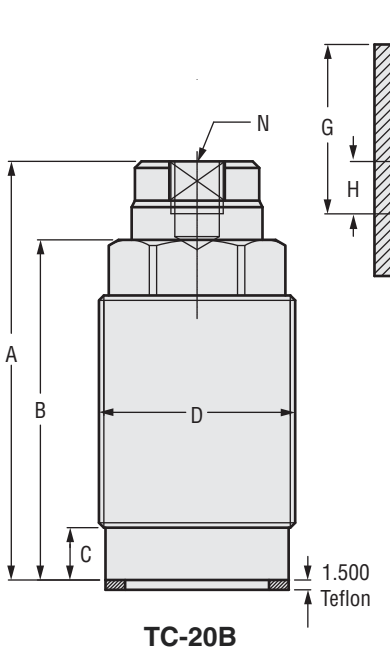
Description

The Threaded Body Clamping Cylinders are designed for part holding, part positioning or ejection of a workpiece. Clamping force is applied to the workpiece within the designated clamping stroke to secure the part. They may also be used to pre position a part or aid in ejection of a workpiece.

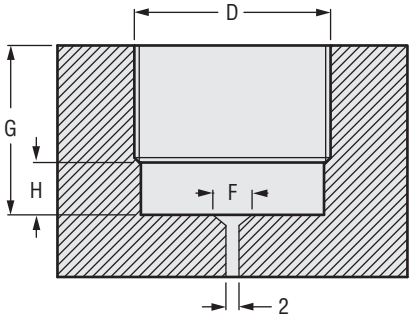
The mounting manner for this Threaded Body Clamping Cylinder is shown in the drawing below. This drawing illustrates dimensional data for clamping cylinder. This type of mounting needs a Teflon packing (included) in order to avoid oil leakage.

Type

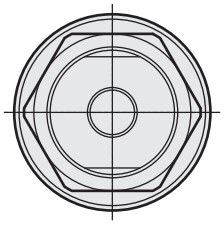
Series B: Knock out head style with female threads.



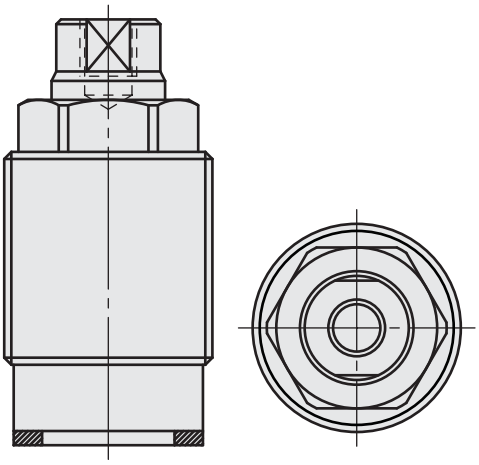
TC-20B



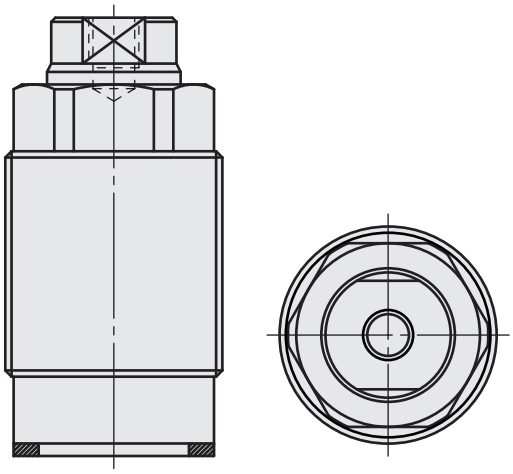
Mounting Diagram



	TC-12B	TC-16B	TC-20B
Operating Pressure psi / kg/cm²	284-4978 / 20-350		
Acting Type	Single Acting		
Stroke (in / mm)	0.39 / 10	0.47 / 12	0.59 / 15
Piston Rod Diameter Φ (in / mm)	0.47 / 12	0.63 / 16	0.78 / 20
Clamping Force lb / (200 kg / cm²)	440 / 200	880 / 400	1365 / 620
A (in / mm)	1.77 / 45	2.04 / 52	2.54 / 64.5
B (in / mm)	1.41 / 36	1.75 / 44.5	2.12 / 54
C (in / mm)	0.27 / 7	0.31 / 8	0.31 / 8
D (mm)	M22 x 1.5	M26 x 1.5	M30 x 1.5
F (in / mm)	0.47 / 12	0.63 / 16	0.78 / 20
G (in / mm)	0.63 / 16	0.78 / 20	0.94 / 24
H (in / mm)	0.23 / 6	0.27 / 7	0.27 / 7
N (mm)	M6 x 1	M6 x 1	M8 x 1.25
Weight (lbs / kg)	0.22 / 0.10	0.33 / 0.15	0.66 / 0.30



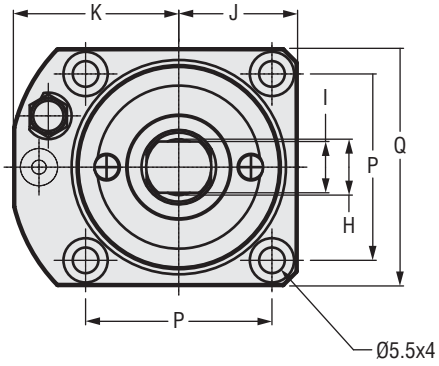
TC-12B

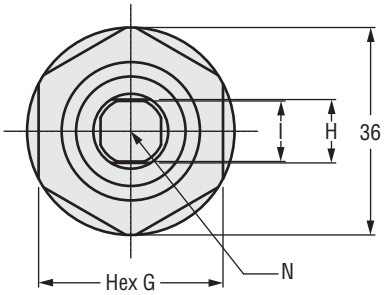


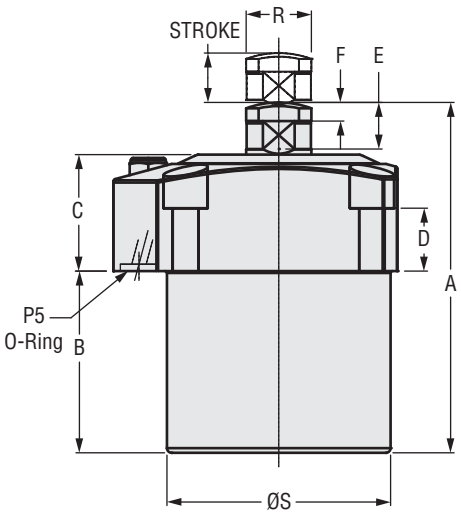
TC-16B

WS-BL Low Pressure Work Supports

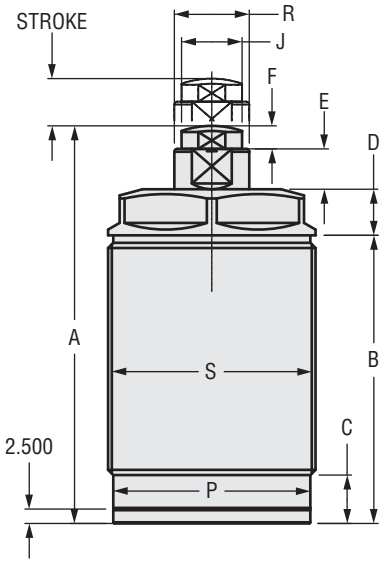
- Collet design can produce larger supporting force than a sleeve design.
- Larger supporting forces can be provided in a compact body making for better performance and stability even at low clamping pressure.
- Larger supporting forces prevent work piece chatter caused by the cutting load and vibration.
- It is not necessary to machine an air vent or oil passage for mounting to base with a thread body style work support thus making threaded body work supports user friendly.
- The wiper makes less contacting force with the rod which results in less friction.
- The wiper makes a lower contacting force produced by contact with the rod.
- Operating range: 355-995 psi / 25-70 kg/cm^2
- Mounting type: Upper Flange and Threaded Body.
- Manifold mounted or threaded port in one cylinder body (upper flange type only).



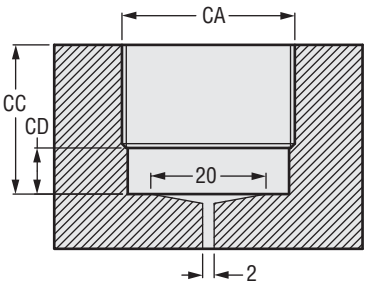




WS-U48BL



WS-T36BL



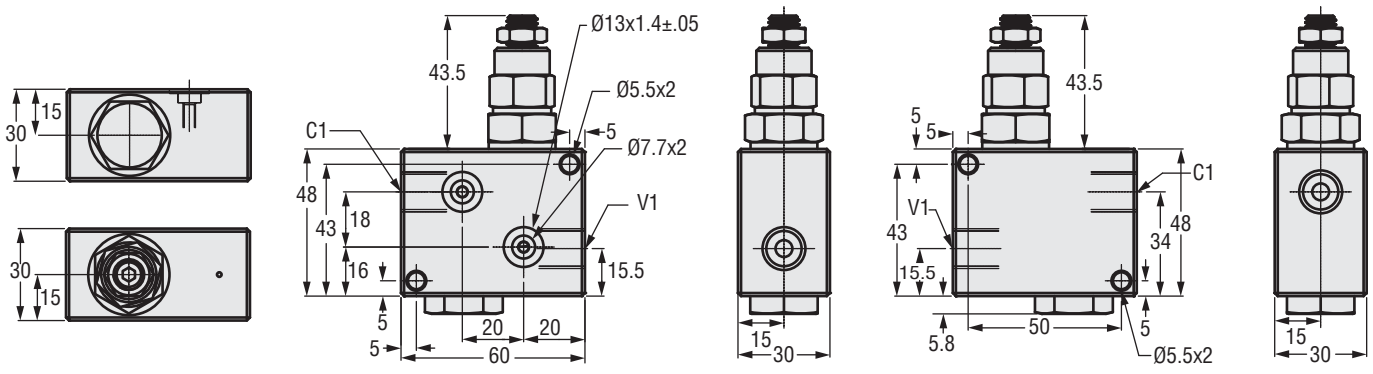
Mounting Diagram

	WS-T26BL	WS-T30BL	WS-T36BL	WS-U40BL	WS-U48BL
Supporting Force (Lbs /(70kg/cm²) kg)	460 Lbs / 210 kg	660 Lbs / 300 kg	770 Lbs / 350 kg	840 Lbs / 380 kg	1,100 Lbs / 500 kg
Plunger Stroke (in / mm)	0.25 / 6.5	0.31 / 8	0.31 / 8	0.315 / 8	0.394 / 10
Max Operating Pressure (psi / kg/cm²)	1,500 psi / 105kg/cm²				
Normal Pressure (psi / kg/cm²)	355-995 psi / 25-70kg/cm²				
A (in / mm)	2.60 / 66	2.87 / 73	2.71 / 69	2.63 / 67	2.95 / 75
B (in / mm)	1.83 / 46.5	2.04 / 51.8	1.917 / 48.7	1.22 / 31	1.53 / 39
C (in / mm)	0.256 / 6.5	0.37 / 9.5	0.33 / 8.4	0.98 / 25	0.98 / 25
D (in / mm)	0.41 / 10.5	0.40 / 10.2	0.366 / 9.3	0.57 / 14.5	0.53 / 13.5
E (in / mm)	0.19 / 5	0.27 / 7	0.27 / 7	0.39 / 10	0.39 / 10
F (in / mm)	0.16 / 4	0.16 / 4	0.16 / 4	0.16 / 4	0.16 / 4
G (in / mm)	0.94 / 24	1.06 / 27	1.26 / 32	-	-
H (in / mm)	0.35 / 9	0.31 / 8	0.43 / 11	0.43 / 11	0.47 / 12
I (in / mm)	0.35 / 9	0.35 / 9	0.41 / 10.5	0.43 / 11	0.43 / 11
J (in / mm)	-	-	-	0.88 / 22.5	1.00 / 25.5
K (in / mm)	-	-	-	1.24 / 31.5	1.24 / 31.5
N (in / mm)	M6 x 12D	M6 x 12D	M8 x 11D	M10 x 11D	M10 x 11D
P Φ (in / mm)	0.94 / 24	1.11 / 28.2	1.34 / 34.2	1.34 / 34	1.57 / 40
Q Φ (in / mm)	1.02 / 26	1.18 / 30	1.42 / 36	1.77 / 45	2.00 / 51
R Φ (in / mm)	0.39 / 10	0.39 / 10	0.51 / 13	0.51 / 13	0.55 / 14
S	M26 x 1.5	M30 x 1.5	M36 x 1.5	Φ1.57 / 40	Φ1.89 / 48
CA	M26 x 1.5	M30 x 1.5	M36 x 1.5	-	-
CB (in / mm)	0.95 / 24.3	1.12 / 28.5	1.36 / 34.5	-	-
CC (in / mm)	0.78~1.18 / 20~30	0.78~1.97 / 20~50	0.78~1.89 / 20~48	-	-
CD (in / mm)	0.07 / 2	0.35 / 9	0.31 / 8	-	-
Weight (lbs / kg)	0.44 / 0.20	0.55 / 0.25	0.77 / 0.35	1.32 / 0.6	1.76 / 0.8

VSQ Series Valves

- This valve is suitable for a second circuit which must have a lower pressure and lower flow rate.
- The active pressure of the second circuit can be adjusted with the adjustable nut.
- Includes one filter with a setting below 50um
- Non-Leak seal design
- Two mounting types: Manifold mounted and threaded port.

	Max Pressure Bar / PSI	Adjust Range Bar / PSI	Increasement Bar / Coil	Setting Pressure Bar / PSI	Max. Flow Rate L / MIN-GPM	Weight kg / lbs
VSQ-10-H	210 / 3045	50-210 / 725-3045	48	200 / 2900	10 / 2.6	0.3 / 0.66
VSQ-10-L	100 / 1450	5-100 / 72-1450	30	100 / 1450	20 / 5.2	0.3 / 0.66



PRV Series Valves

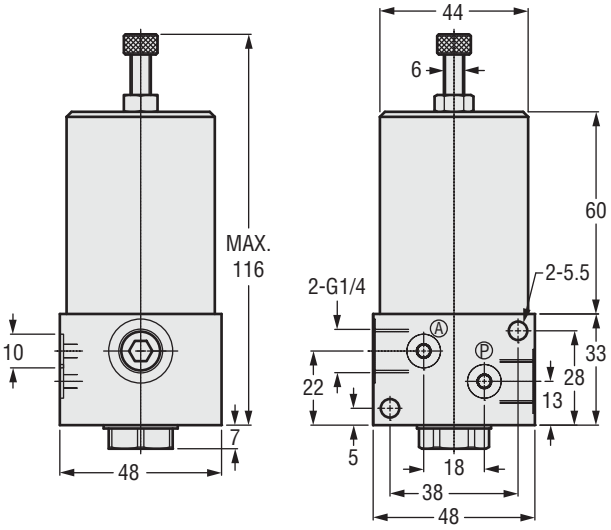
Description

These valves regulate system pressure for all subsequent valves, according to the adjusted pressure. Valve maintains a constant pressure in the secondary circuit. Also includes a check valve that prevents pressure drop on secondary side of circuit.

Application

Used when a hydraulic supply with a higher pressure (primary side) must also be used for another circuit with a lower pressure (secondary circuit).

- Accurate control of hydraulic pressure
- Maintains a constant pressure in secondary circuit
- Includes valve that prevents pressure drop on secondary side.
- Adjustment knob can be locked.
- Manifold mounted or threaded port into one valve.
- 5 Pressure adjustments within range.
- Repeatability is ±6% of set pressure.
- Maximum inlet pressure is 7,150 psi / 500 kg/cm².



PRV-M02

	PRV-M-02-4	PRV-M-02-5
Operating Pressure (psi / kg/cm²)	7100 / 500	
Pressure Range (psi / kg/cm²)	425-3400 / 30-240	710-5400 / 50-380
Weight (lbs / kg)	2.64 / 1.2	

FCV Series Valves

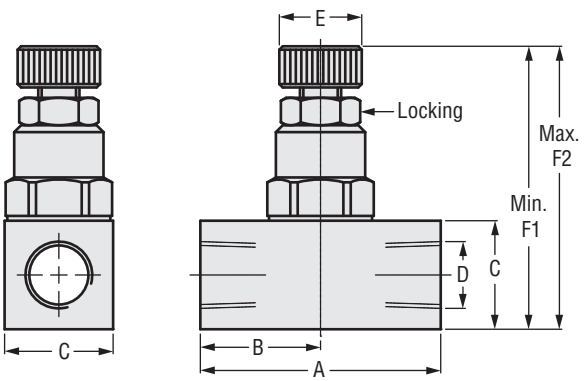
Description

Valve provides for repeatable oil flow control. The internal design allows for flow in one direction and free flow in the opposite direction.

Application

Use the FCV Series flow control valves to protect your components from damage due to high flow rates.

- Provide repeatable oil flow control.
- Internal design allows for flow in one direction and free flow in the opposite direction.
- Adjustment knob can be locked.



	FCV-01
A (in / mm)	1.38 / 35
B (in / mm)	0.75 / 19
C (in / mm)	0.62 / 15.9
D	PT 1/8
ΦE (in / mm)	0.47 / 12
F1 (in / mm)	1.61 / 41
F2 (in / mm)	1.75 / 44.5
Weight (lbs / kg)	0.18 / 0.08

KDC Series Directional Control Valves

KDC Series valves are constructed of heat treated alloy steel and aluminum components. They are compact, lightweight (12 oz.) and shift easily even under maximum pressure. The valves have extremely low leakage, less than one (1) drop per two (2) minutes at rated pressure.

The working pressure rating available is 6,000 psi. The CV factor is .26 for the -4 SAE. Temperature range is -40°F to + 160°F. The manifold mounting conforms to D03 mounting pattern. For panel mounting, the hole should be 1 13/32" diameter and with a maximum thickness of 5/16".

The -7 configuration manipulator provides a special 4 way flow pattern which is ideal for pilot applications. In the neutral position, P is blocked and A and B are connected to tank . There is a restriction in neutral between A, B and tank, and this valve cannot be used where return flow through A and B is high.

High strength mounting bolts are included with the manifold mount version valve.

The KDC Series valves are used in a broad range of OEM applications, including instrumentation systems for power plants, jet engine transport trailers and testing systems.

3-Way

4-Way

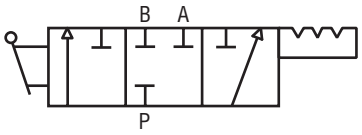
KDC Valves Configuration

Series	Pressure Rating PSI	Port Location	Flow Configuration	Port Size	Seals	Panel Mount
KDC	**M** 6,000	**0** Manifold	**3** 3 Way	**3** -4 SAE	**N** Nitrile	**S** Std.
		1 Side	**4** 4 Way Closed	**5** Manifold		**P** Panel
			7 Manipulator			

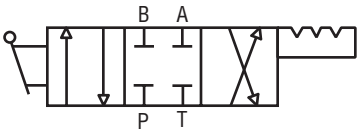
Models Available

KDC-M035NS
KDC-M045NS
KDC-M075NS
KDC-M143NP
KDC-M173NP

-3 3 Way

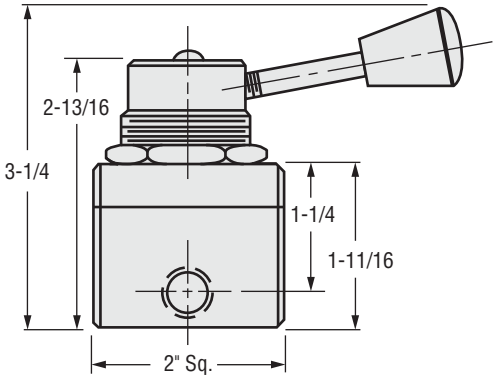


-4 4 Way Closed Center

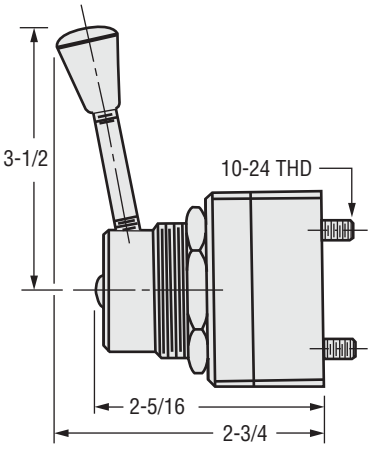


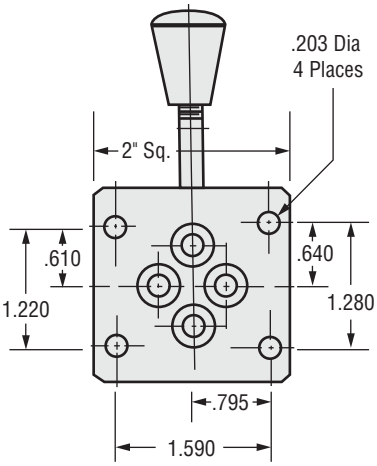
-7 4 Way Manipulator

Side Port Panel Mount Model



Manifold Mount Model





Directional Seated Valves

Directional control valves are generally used for the direction, leakage free control of hydraulically actuated valves (depending on the flow pattern). They are designed as spring returned ball seated valves. The valve elements are forced into their respective switching position against the spring force and fluid pressure by the hand control acting on a pin. A strainer insert in the inlet port prevents the entry of contamination.

The manifold mounted holes have O-ring seals at the finish ground bottom surface of the valve body. Pipes may be connected either via customer furnished connection blocks or sub-plates. These valves do not show any leakage in blocked switching position. Reliable shifting is ensured, as these valves are designed as ball seated valves where there is no seizing or sticking in working position under full pressure. The leverage between actuation and valve element ensures low actuation forces and smooth shifting. These directional control valves are available with check valve and return pressure through orifice inserts to limit the inflow of oil.

Individual valves with sub-plate, enabling direct pipe connection, may be equipped with a by-pass check valve, a pressure limiting valve, or a rectifier circuit by means of check valves.

Table 1: Flow Pattern Individual valves, manifold mounting

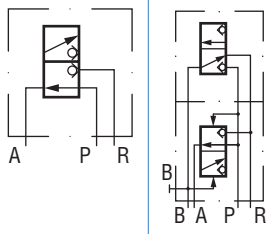
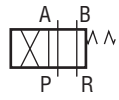
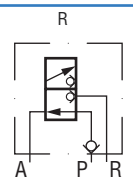
Coding	3/2-way valve	4/2 way valve
	Z3	4
Detailed symbols (must be completed by actuation symbol		
Simplified flow pattern symbol		

Table 2: Size, main data

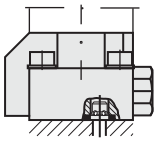
Coding			1
Max. flow approx. |pm			12
Directional valves (…-way)			3/2; 4/2
Pressure Pmax (bar)	Manual actuation	Type D...	700

Table 3 Individual valves, manifold mounting. Additional elements to influence shifting operations, inserted in port P or R (can be retrofitted)

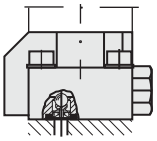
Coding and Symbol	Additional element		
	for size	Type	Note
	all	Insert check valves type ER	The check valve prevents an uncontrolled impact or reflow R→P or A→P, e.g. if the inlet pressure at P drops below the consumer pressure at A (during idle position or actuation of another consumer with a lower pressure requirement) when several valves are connected in parallel. A pressure reduction is prevented during such switching operations.

Installation Illustration

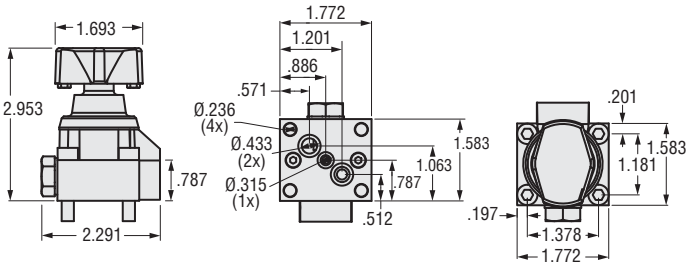
Check valve or orifice installed in port P



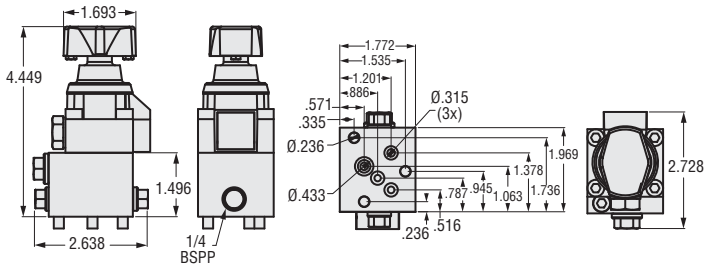
Return pressure stop installed in port R



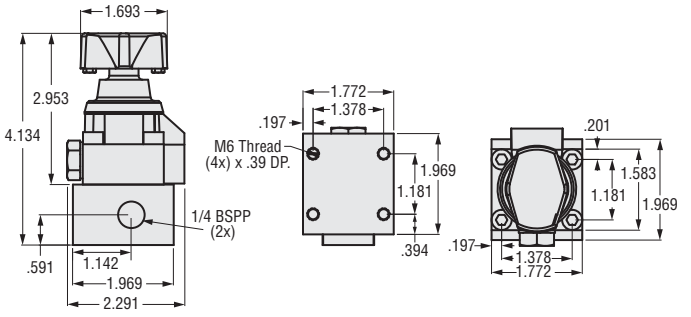
KDZ3-1R
Single Acting 2 Position 3-Way



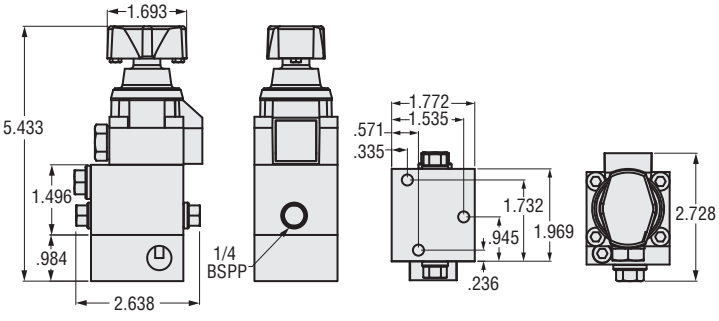
KD4-1R
Double Acting 2 Position 4-Way



KDZ3-1R-1/4
Single Acting 2 Position 3-Way with Sub-Plate Mounting



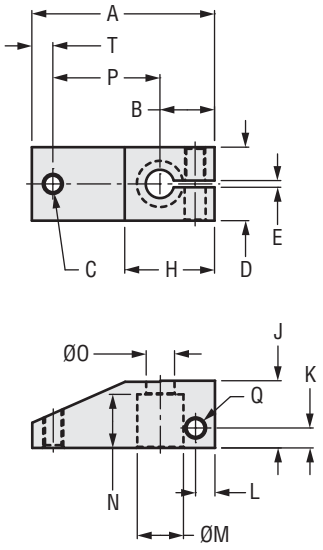
KD4-1R-1/4
Double Acting 2 Position 4-Way with Sub-Plate Mounting



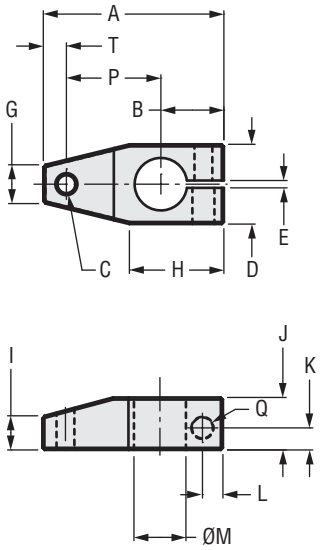
SWING CLAMP ARMS

CLAMPING ARMS					
	CAS-21	CAS-51	CAS-92	CAS-121	CAS-201
A (in)	2.519	3.149	3.386	3.268	4.173
B (in)	0.709	0.709	1.181	0.866	1.417
C (mm)	M6 x 1.0	M8 x 1.25	M10 x 1.5	M10 x 1.5	M12 x 1.75
D (in)	0.630	0.866	1.496	1.13	1.968
E (in)	0.125	0.125	0.138	0.125	0.138
G (in)	0.630	0.866	0.709	1.100	0.984
H (in)	1.139	1.294	1.772	1.459	2.559
I (in)	0.394	0.433	0.630	0.630	0.827
J (in)	0.630	0.748	0.984	1.000	1.256
K (in)	0.236	0.236	0.413	0.236	0.551
L (in)	0.217	0.217	0.384	0.217	0.433
M (in)	0.394	0.630	0.984	0.866	1.260
N (in)	0.394	0.472	–	0.709	–
O (in)	0.256	0.335	–	0.413	–
P (in)	1.574	1.968	1.772	1.969	2.165
Q (mm)	M6 x 1.0	M6 x 1.0	M10 x 1.5	M8 x 1.25	M12 x 1.75
T (in)	0.236	0.315	0.433	0.433	0.591
Weight (lbs)	0.22	0.49	0.88	0.73	1.83

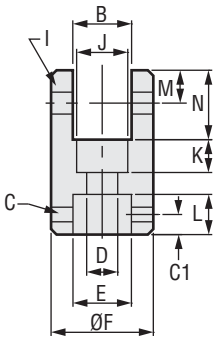
CLAMP ARMS CAS SERIES -21, -51, -121



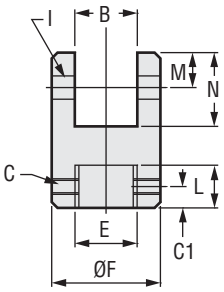
CLAMP ARMS CAS SERIES -92, -201

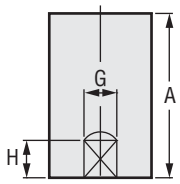


AD-52 Adaptor
AD-122 Adaptor



AD-92
AD-202

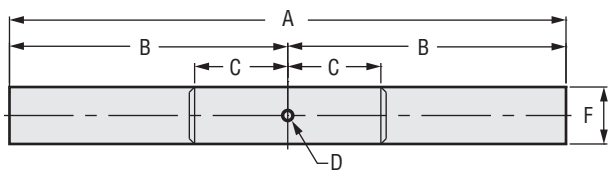


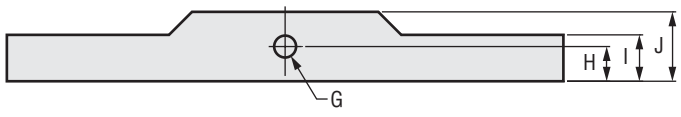


Side View

Model No.	A	B ±0.002	C	C1	D	E	øF	G	H	I	J	K	L	M	N
AD-52	1.772	0.633	M5 x 0.8	0.216	ø0.335	ø0.630 +0.004	1.102	0.315	0.590	ø0.236	0.590	0.354	0.433	0.354	0.748
AD-122	2.07	0.870	M6 x 1.0	0.295	ø0.413	ø0.866 +0.004	1.535	0.315	0.590	ø0.315	0.709	0.413	0.590	0.370	0.866
AD-92	1.732	0.633	M5 x 0.8	0.276	N/A	ø0.984 +0.004	1.575	0.315	0.590	ø0.236	N/A	N/A	0.669	0.354	0.748
AD-202	1.968	0.870	M6 x 1.0	0.276	N/A	ø1.260 +0.004	1.968	0.315	0.590	ø0.315	N/A	N/A	0.669	0.370	0.866

Double Arms used with adaptor above



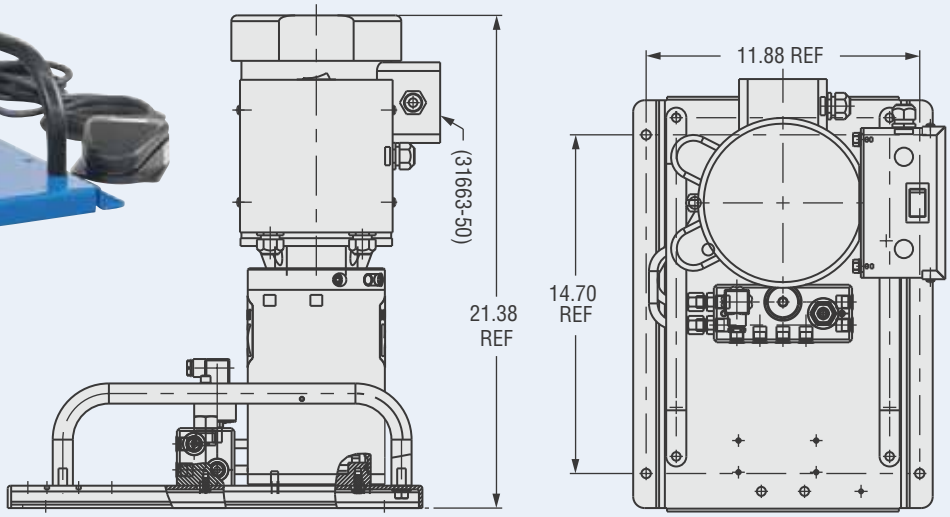


Model No.	A	B	C	D	F	G +0 +0.0008	H	I	J
DCA-52	6.000	3.000	1.000	M3 x 0.5	0.630	ø0.2362	0.375	0.500	0.750
DCA-92	6.000	3.000	1.000	M4 x 0.7	0.630	ø0.2362	0.375	0.500	0.750
DCA-122	8.000	4.000	1.500	M4 x 0.7	0.866	ø0.3149	0.437	0.720	0.866
DCA-202	8.000	4.000	1.500	M6 x 1.0	0.866	ø0.3149	0.437	0.720	0.866

KHP5000 Hydraulic Pump

- 1 HP Motor, 115/208-230 VAC
- Max Amps 11.1 @ 5000 PSI
- External safety relief is user adjustable from 500-5000 PSI
- Internal safety relief set at 5000 PSI
- Auto dump valve
- 127 cu. In. (.54 gal) total capacity
- 75 cu. In. (.32 gal) useable capacity
- Weight 82 lbs
- Average Pump Output Volume 31.3 cu. In.
- Decibel rating 72dBA Running at 5,000 PSI at a distance of 2 feet.

NEW



Hydraulic Intensifier

This power source simply converts air pressure to useable hydraulic pressure. A compressed air source is needed along with a filter, regulator and lubricator unit (not included) to control clamping forces. Each vise must have it's own intensifier. Intensifier must be mounted same level or above the vise.

APD50-112-Hand or APD50-112-Foot

APD50-112	
Air PSI	Hydraulic PSI
30	1200
40	1600
50	2000
60	2400
70	2800
80	3200
Do not exceed 80 PSI Air	

Features:

- Air oil pressure ratio 40:1.
- 2.400 cubic inches usable hydraulic oil.
- 1/4 NPT outlet fitting.
- Liquid fill hydraulic sight tube.
- For use with 4" and 6" and 8XL series vises.
- Hand or foot operated.

APD60-112-Hand or APD60-112-Foot

APD60-112	
Air PSI	Hydraulic PSI
30	2900
40	3500
50	4400
60	5300
70	6200
Do no exceed 70 PSI Air	

Features:

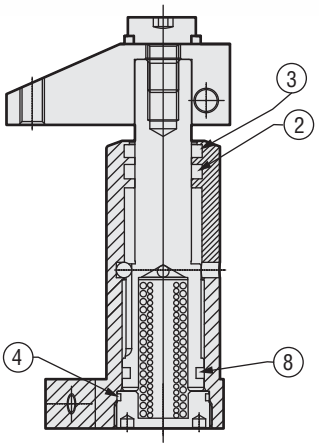
- Air oil pressure ratio 92:1.
- 2.072 cubic inches usable hydraulic oil.
- 1/4 NPT outlet fitting.
- Used with PTH800A vise only.
- Hand or foot operated.

Seal Kits

Seal Kit No.	Part No. In Seal Kit
030D-21-SK	No. 2 No3 No 4 No 8
030D-51-SK	No. 2 No3 No 4 No 8
030D-121-SK	No. 2 No3 No 4 No 8
030D-92-SK	No.2 No.3 No.4 No.9 No.11 No.12
030D-201-SK	No.2 No.3 No.4 No.9 No.11 No.12
030S-21-SK	No. 2 No3 No 4 No 8
030S-51-SK	No. 2 No3 No 4 No 8
030S-121-SK	No. 2 No3 No 4 No 8
030S-92-SK	No.2 No.3 No.4 No.9 No.11 No.12
030S-201-SK	No.2 No.3 No.4 No.9 No.11 No.12
040D-21-SK	No.2 No.3 No.4 No.8
040D-51-SK	No.2 No.3 No.4 No.8
040D-121-SK	No.2 No.3 No.4 No.8
040D-92-SK	No.2 No.3 No.4 No.9 No.11 No.12
040D-201-SK	No.2 No.3 No.4 No.9 No.11 No.12
040S-21-SK	No.2 No.3 No.4 No.8
040S-51-SK	No.2 No.3 No.4 No.8
040S-121-SK	No.2 No.3 No.4 No.8
040S-92-SK	No.2 No.3 No.4 No.9 No.11 No.12
040S-201-SK	No.2 No.3 No.4 No.9 No.11 No.12
050D-21-SK	No.2 No.3 No.4 No.8
050D-51-SK	No.2 No.3 No.4 No.8
050D-121-SK	No.2 No.3 No.4 No.8
050D-92-SK	No.2 No.3 No.4 No.9 No.11 No.12
050D-201-SK	No.2 No.3 No.4 No.9 No.11 No.12
050S-21-SK	No.2 No.3 No.4 No.8
050S-51-SK	No.2 No.3 No.4 No.8
050S-121-SK	No.2 No.3 No.4 No.8
050S-92-SK	No.2 No.3 No.4 No.9 No.11 No.12
050S-201-SK	No.2 No.3 No.4 No.9 No.11 No.12

Repair Kit For
030S-21, 51 & 121
040S-21, 51 & 121
050S-21, 51 & 121

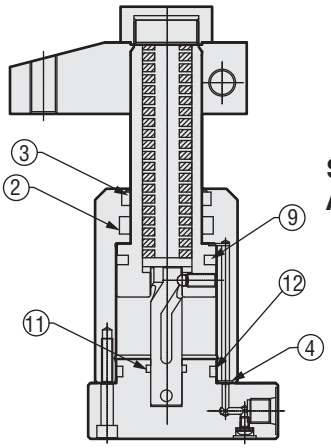
Items in Seal Kit		
	Description	Qty
8	Piston Seal	1
4	O-Ring	1
3	Wiper	1
2	Rod Seal	1



Single Acting

Repair Kit For
030S-92 & 201
040S-92 & 201
050S-92 & 201

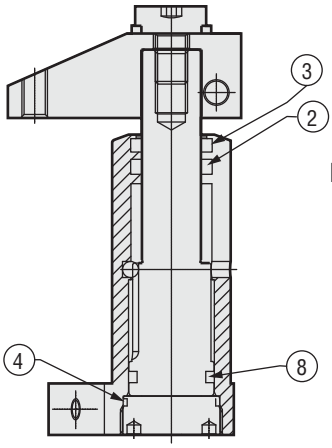
Items in Seal Kit		
	Description	Qty
12	O-Ring	1
11	O-Ring	1
9	Piston Seal	1
4	O-Ring	2
3	Wiper	1
2	Rod Seal	1



Single Acting

Repair Kit For
030D-21, 51 & 121
040D-21, 51 & 121
050D-21, 51 & 121

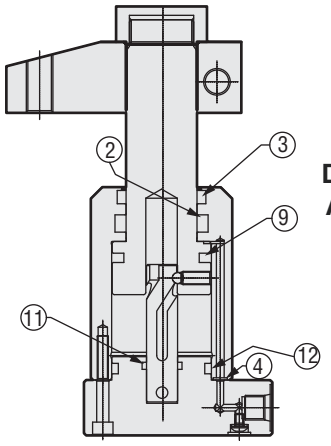
Items in Seal Kit		
	Description	Qty
8	Piston Seal	1
4	O-Ring	1
3	Wiper	1
2	Rod Seal	1



Double Acting

Repair Kit For
030D-92 & 201
040D-92 & 201
050D-92 & 201

Items in Seal Kit		
	Description	Qty
12	O-Ring	1
11	O-Ring	1
9	Piston Seal	1
4	O-Ring	2
3	Wiper	1
2	Rod Seal	1



Double Acting

www.kurtworkholding.com

Safety Notes:

- Upon receipt of components check for any damage that may have occurred during shipping.
- Always keep hands away from cylinders when clamping and unclamping avoiding pinch points.
- If a hose or hydraulic line becomes bent or kinked replace it immediately.
- Most Kurt cylinders are designed to operate at 5000 PSI Max. Refer to catalog for rating of individual components.
- Remove any trapped air from system before operating.
- Never attempt to uncouple quick disconnects while system is under pressure.
- Never exceed the pressure rating of the systems lowest component as this would be the maximum pressure setting. This includes clamp, hoses, fittings etc.
- Never handle a pressurized hose as the smallest leak can penetrate the skin.
- If system develops a leak find it and repair it immediately.
- Think safety first and always use common sense while running any hydraulic component.

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Website: www.kurtworkholding.com

Distributor

ONE YEAR LIMITED WARRANTY

For Kurt Branded Products

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LIT.KHSCAT.7.11.2

AMT The Association For Manufacturing Technology

WPG Workholding Product Group