

KURT MANUFACTURING - LIFETIME IRONCLAD™ WARRANTY

All Kurt Manufacturing Company industrial workholding products and parts with the exceptions noted below, are warranted against defects in material and workmanship for the life of the product or part. (The life of the product is defined as that point in time when such item no longer functions due to normal wear and tear.) Failure to properly maintain and/or properly operate the product or part that has been worn out, abused heated ground or otherwise altered, used for a purpose other than that for which it was intended, or used in a manner inconsistent with any instructions regarding its use. The sole obligation of Kurt Manufacturing Company, Inc. (Kurt) and the purchaser's SOLE AND EXCLUSIVE REMEDY hereunder, shall be limited to the replacement or repair of any Kurt product or part (by an authorized Kurt technician) which are returned to Kurt Manufacturing Company's place of business, transportation, shipping and postal charges prepaid, and there determined by Kurt Manufacturing Company to be covered by the warranty contained herein.

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KURT ASSUMES NO LIABILITY FOR, AND MAKES NO WARRANTY REGARDING ANY PURCHASE ITEMS WHERE THE MANUFACTURER OF SUCH ITEM EXTENDS A SEPARATE WARRANTY.



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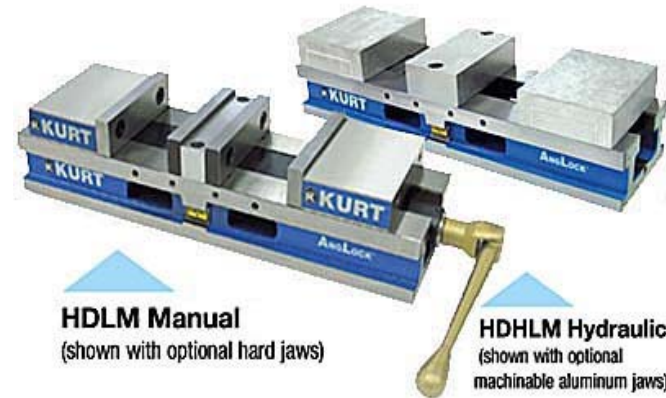
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KURT HD6 Series Manual & Hydraulic Base Assembly

Operating Instructions Manual



HDLM Manual
(shown with optional hard jaws)

HDHLM Hydraulic
(shown with optional
machinable aluminum jaws)

Clamping Force Lbs.			
Torque Ft-Lbs	HDLM6	Hydraulic PSI	HDHLM6
10	1540	500	875
20	2520	1000	1600
30	3350	1500	2330
40	4310	2000	3130
50	5750	2500	3950
60	6860	3000	5475
70	7460	3500	6350
		4000	6350
		4500	7100
Hyd. Displacement 1.08 cubic inches			

Thank you!

**If you have any feedback or questions,
please contact us at
workholding@kurt.com
or 877-226-7823.**

to those holes. On the “Long” versions, the outboard holes have plugs to keep debris out and must be removed if you wish to use those holes as well. Replace plugs after bolts are secured. **Note some of the clamp holes are at inch locations and some are at metric. For exact hole locations, consult your catalog or go to our web site at www.kurtworkholding.com and click on Workholding Products.**

- 3) After vise is mounted in place, add the vise jaws to the base assembly. See jaw installation instructions that came with the jaw kit. If a hard jaw kit “J style” was installed, tram the stationary jaw for straightness prior to using. If it exceeds .0006” in six inches, remove stationary jaw and disassemble the 10mm bolt, the tapered top clamp and .750 dia. split sleeve and clean with solvent and a clean cloth. Do Not apply grease or oil to these components. Reassemble and retest. This should not be necessary when using the carvable type unless a high degree of accuracy is required and you are not re-cutting the jaw contour.

Preload Adjustment

Both the manual and hydraulic, short and long versions have clamping preload features. Preload enables you to close the movable jaw on one station and hold a part in place with spring pressure while the other is loaded and clamped. This especially helpful when the vise is used in a vertical position.

Preload on the **HDM6** (manual-short) is best obtained by clamping parts in both stations. Rotate the preload adjustment screw until it makes contact with the front nut and back off until desired distance is achieved. This distance is best determined by opening and closing the jaws visually observing the distance the front movable jaw travels until it stops and the rear jaw starts to move.

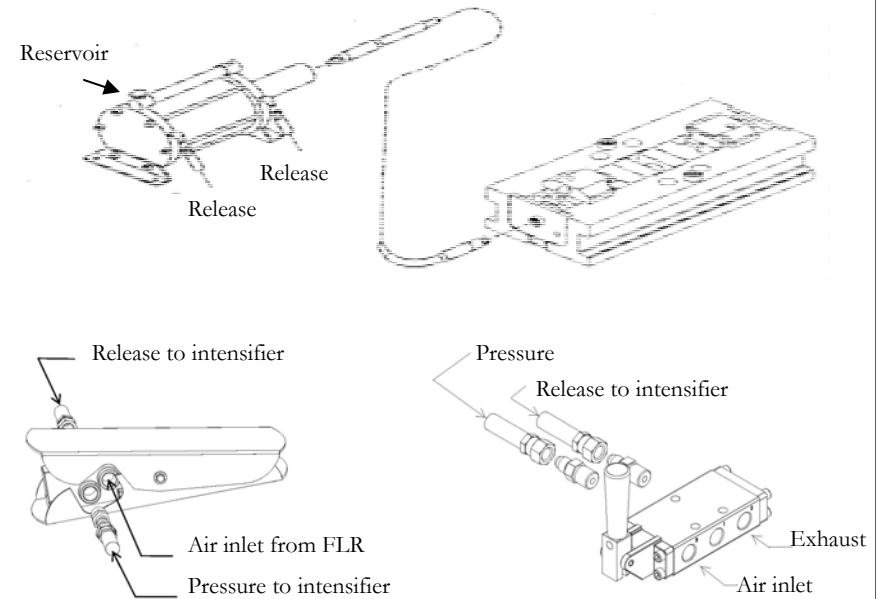


Diagram 9

Proper torque value for double angle stationary jaw pins.

The torque value of the two double angle pins that screw into the vise body should not exceed 15 foot pounds. See diagram 10.

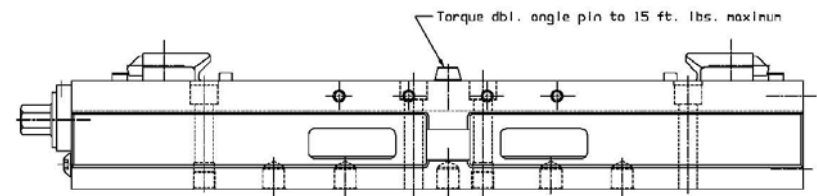
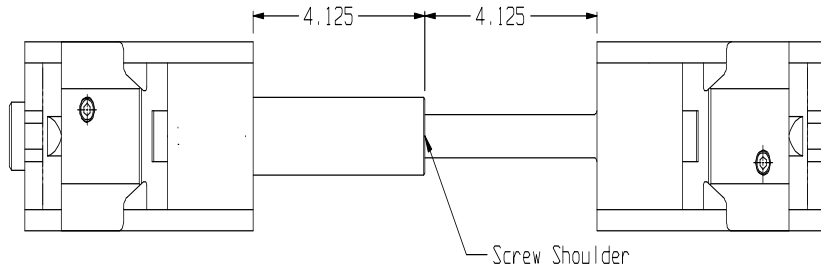


Diagram 10



Rotate nuts until the 4.125 dimension is achieved

Diagram 6

- 9) A filter-lubricator-regulator (FLR) combination is recommended to insure clear air coming into the unit. See clamping force chart for air pressure required to attain desired clamping force.

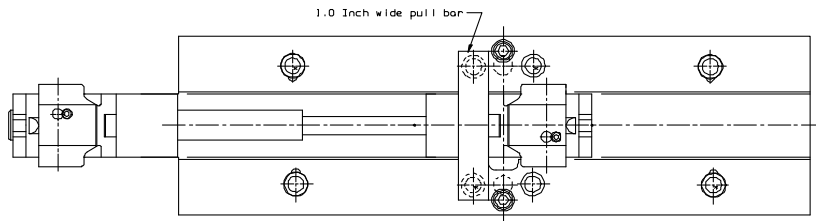


Diagram 8

- 10) Apply air pressure (80 psi max.) to system. Loosen fitting on vise screw end and bleed air out of the line. Tighten fitting and release air pressure.
- 11) Repeat step 10 until all air is purged from the system. Add oil to reservoir as needed. Note: Always mount the intensifier higher than the vise to ensure the hydraulic system stays purged of air during operation. System is now ready for use.

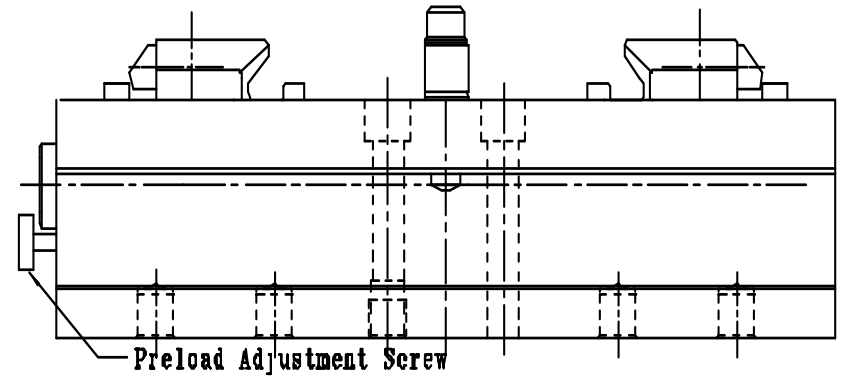


Diagram 1

Preload on the **HDHM6** (hydraulic-short) is not adjustable but rather has a maximum fixed amount of .125" in each station. To obtain preload on this model the jaws must be carved in a way as to still have spring pressure on the part when the internal hydraulic cylinder is in the open position. This is best done by placing two .187/ .219" thick spacers at the outside edges of both stations and closing the vise hydraulically. This will provide 1/16 to 3/32 spring preload on each station. Mill desired profile into the jaws and open and remove spacers. To load parts into the part profile, you must pull back on the movable jaw as each station is loaded.

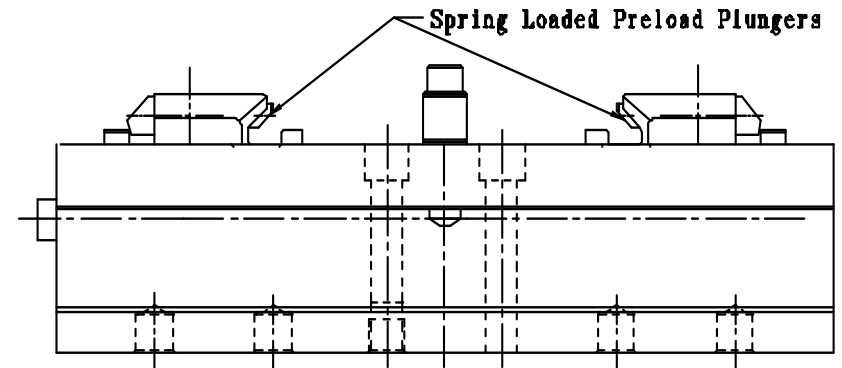


Diagram 2

Preload on the **HDHLM6** (hydraulic-long) is accomplished in the same fashion except the part width must be added into the .187/.219 dimension to obtain proper preload.

Preload on the **HDHLM6** (hydraulic-long) with the “J” style, factory hard jaw set, is accomplished by placing parts in the front and rear station. Begin to close the vise, rear jaw is only one moving, until it clamps the rear part. Front jaw will now begin closing and close until front jaw is approximately .030 from the part. Lift the part out and slowly continue closing until part will no longer slip between the stationary and movable jaw. Pull front movable jaw back, spring loaded, with one hand and drop the part in with the other. It should now be held in place by spring pressure. Rotate handle ½ turn counter clockwise to allow rear movable to move away from part to allow the spring preload feature to operate. If more or less preload is desired, increase or decrease on the ½ turn amount.

Note: There will always be spring pressure preload on the front station and the movable jaw will have to be pulled back by hand to get parts in and out. The rear station is optional it can be set with preload or without if desired.

Preload on the **HDLM6** (manual-long) is accomplished by adjusting the threaded preload ring found in the holding block. The preload amount is equal to .156 at its maximum to nearly zero if you wish. The threaded ring can be rotated in 180 degree increments to obtain desired amount. First loosen the set screw found on top of the holding block and then rotate the threaded ring, using a two prong spanner wrench, until one of the two notches on the ring align with the set screw. The farther the threaded ring is inside the holding block the less preload amount will be in play when the jaws are opened.

Preload is reversible on the manual long model meaning rear station can be preloaded to grasp the part, with spring pressure, first. If you wish to reverse the preload from rear station to front station

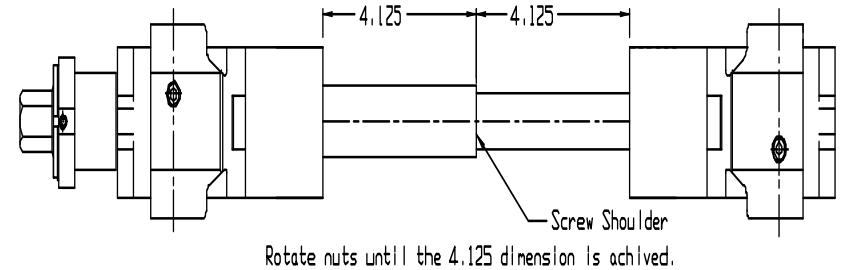


Diagram 4

- 3) Once the friction shoes are inside the vise body continue closing until there is room to replace the front nut stop and button head cap screw. Ref. bill of materials items 18 & 19.
- 4) Open vise to free up pull bar and remove it. Remount jaws and vise is now ready to for use.

Kurt APD50-112 Hydraulic Intensifier Supply Line

Connection Instructions

- 1) Remove plastic caps from pressure and release ports on Hydraulic Intensifier. Install 90 fittings.
- 2) Remove plastic caps from pressure and release ports on hand or foot valve. Install straight fitting.
- 3) Install a SAE 4 straight fitting into the 7/16-20 thread found on one end of vise screw.
- 4) Connect air hose from Hydraulic Intensifier pressure port to Hand or Foot Valve pressure port. See diagram 9.
- 5) Connect air hose from Hydraulic Intensifier release port to Hand or Foot Valve release port. See diagram 9.
- 6) Connect high-pressure hydraulic hose (shiny black hose) to nose of Hydraulic Intensifier and to fitting in end on the vise screw.
- 7) Add hydraulic oil to reservoir (8 ounce bottle supplied).
- 8) Connect shop air to inlet port of Hand or Foot Valve.

- 1) On the **HDHM6** (hydraulic-short) model, hook the rear nut onto the front nut and with both hands supporting the nuts, slide the assembly into the vise body.
- 2) Install the front end plate, one with hole in it for screw shaft, and slide the nut/ screw assembly back toward you so screw shaft comes thru the end plate. Install the rear plate.
- 3) Install the movable jaws onto the nuts followed by the stationary jaw.

- 1) On the **HDLM6** (manual-long) model, start by double checking the nut timing position before installing the nut/ screw assembly into the body. See diagram 4.
- 2) Slide nut/ screw assembly, rear nut first, into the vise body up to the holding block. See diagram 3 for holding block identification. Install stationary and rear movable jaws. Place a 3.25 spacer in the rear station and start closing, clockwise rotation, the vise. You may have to help get the friction clamp, rectangle piece with tapered ends, started into the body by using a pair of pliers to help compress the spring material.
- 3) Once the holding block is inside the body, reinstall the M10 button head cap screw in the end of the body. Install front movable jaw and vise is now ready to go.

- 1) On the **HDHLM6** (hydraulic-long) model, start by double checking the nut timing position before installing the nut/ screw assembly into the vise body. See diagram 6.
- 2) Slide the nut/ screw assembly into the vise body up to the friction shoes on the front nut. Place the pull bar that came with the vise into the counter bored holes as shown in diagram 8 and start closing, rotate screw clockwise, the vise.

first, place a .500 thick spacer in with the rear part and close the jaws. This process will readjust the holding block to a new location. Remove the spacer and the vise should be ready to go.

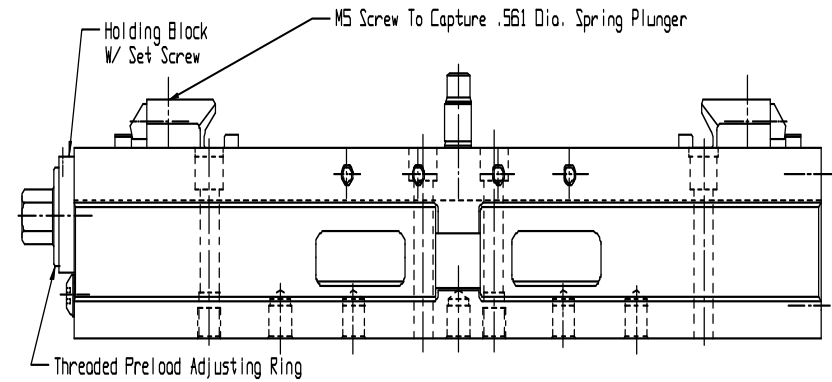
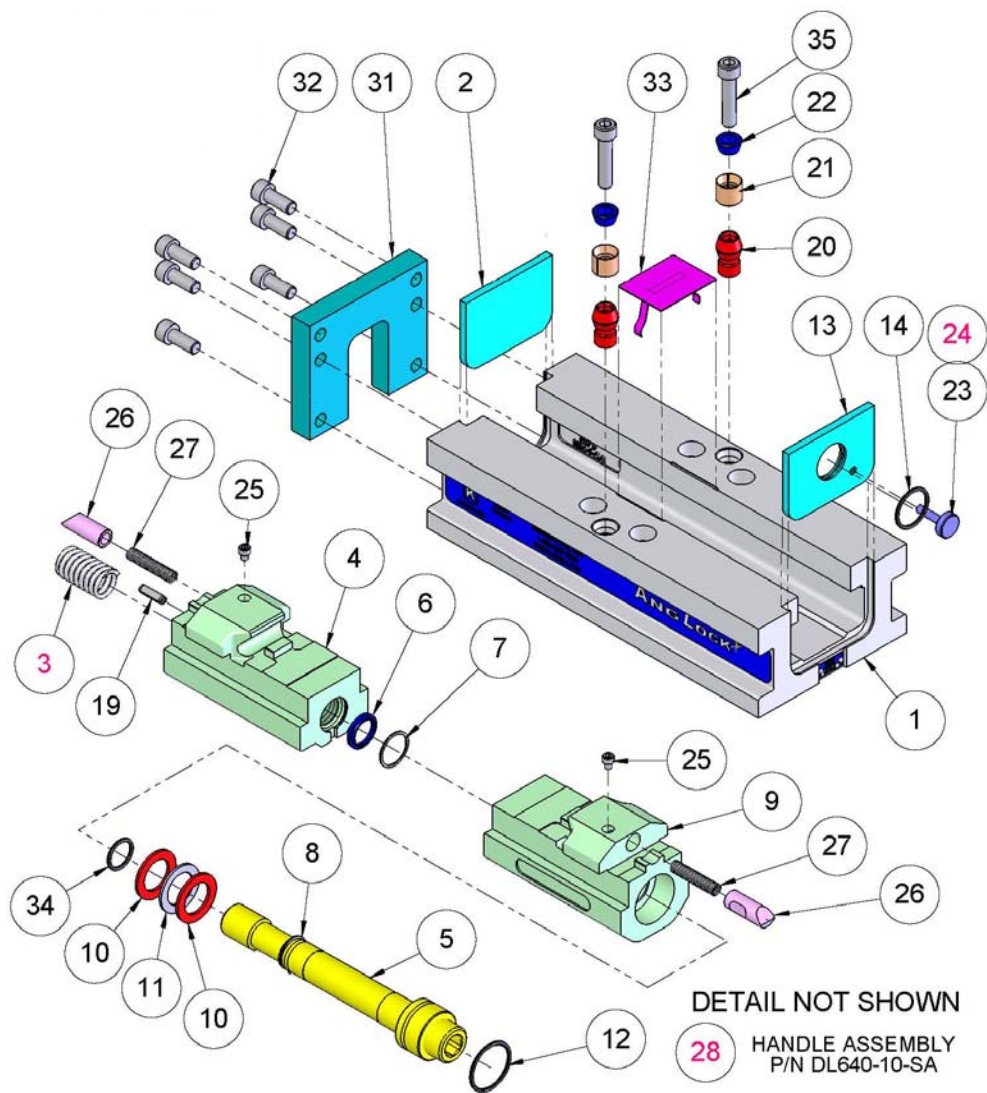


Diagram 3

Caution: Remember when using the preload feature on any of these vises that parts are held by spring pressure only until the vise is closed tight with the handle or by activating the hydraulic cylinder.

Important Reminder: Preload requires special attention when using the vise in a vertical position. Always have the top station preloaded first so the weight of the part is resting on the stationary jaw and not working against the springs. The order of loading the vise should be top station first, bottom second. Unloading should be bottom first and then the top. Do not have the preload set so small that only a small amount of rotation of the handle will release the bottom part then the top. Injury may result from a part dropping from the top station unexpectedly. Remember that as an end user you are responsible for safety issues.



HDM6

6" DOUBLE LOCK HIGH DENSITY METRIC MANUAL VISE
(BASE MODEL)

screw rotation so the spacer can be removed. Remove the stationary and front movable jaws and the nut/ screw assembly can now be slid out of the vise.

- 1) On the **HDHLM6** (hydraulic-long) model, start by removing the rear movable jaw and rotating the screw clockwise to close the vise. Remove the button head cap screw and "L" shaped bracket located by the internal hex of the screw.
- 2) At this point, remove the stationary and front movable jaws. Place a 4 3/4" long x 3/4" wide x 3/16" thick piece of stock between the rear nut and the positive stop on the machined nut rail support surface found on the inside floor of the body.
- 3) Rotate the screw counter clockwise of open the vise and this will push the front nut out of the vise body.

Reassembly

To reassemble nut/ screw assembly back into the body follow the instructions below:

- 1) On the **HDM6** (manual-short) model, using the vise handle, rotate the screw until the nuts touch one another. Place the .970 dia. spring into the rear nut.
- 2) Slip the rear end plate, has no hole, into the body. Slide the nut/ screw assembly into the body with rear nut going first.
- 3) By placing one hand on top of the rear nut, push toward the rear to compress the spring. With the other hand slip the front end plate into the vise body and allow the screw hex end to come thru the plate. Install the preload screw, see diagram 1, and return the nuts to full open position and reinstall jaws.

Disassembly

Occasionally it may be necessary to disassemble the Nut/Screw assembly from the vise body to perform routine maintenance.

- 1) On the **HDM6** (manual-short) model, start by removing the stationary jaw first and then the movable jaws.
- 2) Using the vise handle, rotate vise screw to close/ move nuts toward each other until they touch. Remove preload adjustment screw out of the front plate, see diagram 1.
- 3) By placing one hand on top of the rear nut, push toward the rear to compress the spring in that nut. When the internal hex end diameter on the screw has cleared the front plate, lift that plate out of the vise body slot. The nut/ screw assembly can now be removed from the body.

- 1) On the **HDHM6** (hydraulic-short) model, start by removing the jaws as well and the hydraulic port fitting from the end of the vice screw.

- 2) Lift the rear end plate, one without a hole, from the vise body and slide nut/ screw assembly toward the rear until the screw shaft clears the front plate.

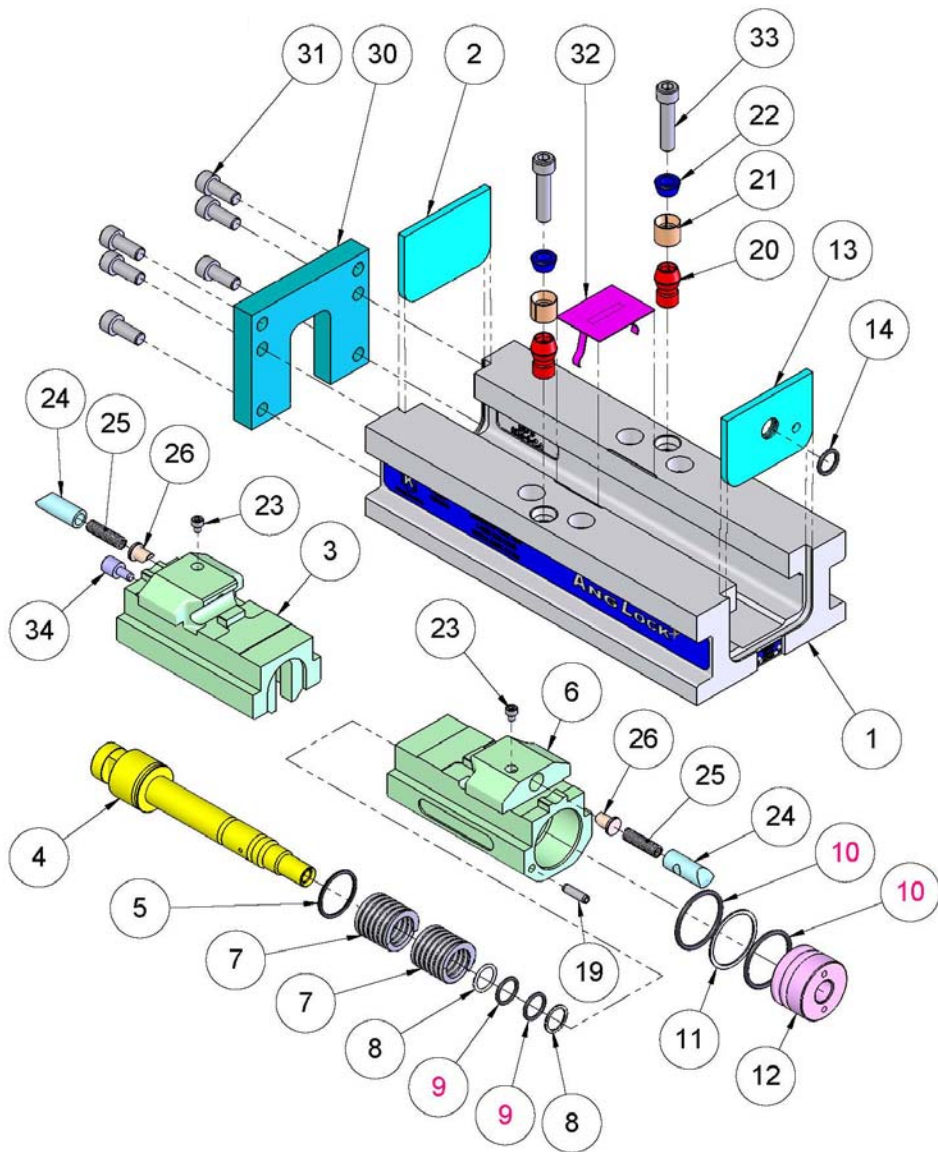
- 3) Remove the front plate and slide the assembly by pulling on the front nut and supporting the rear with the other hand. The rear nut is attached to the front only by a hook device so beware it can drop off once the assembly clears the body.

- 1) On the **HDLM6** (manual-long) model, start by removing the M10 button head cap screw located under the holding block and threaded into the vise body. See diagram 3.

- 2) Remove rear station movable jaw. Place a 3.25 thick spacer in the front station and start closing the vise and this will drive the holding block out of the vise body.

- 3) Once the holding block is clear of the body, reverse the

HDM6 - SHORT VERSION			
ITEM			
NUMBER	PART NUMBER	DESCRIPTION	EA
1	HDM6-1	MACHINED BODY	1
2	HD6-253	END PLATE, REAR	1
3	HD6-327	SPRING, COMPRESSION	1
4	HDM6-3R	REAR NUT	1
5	HD6-5	SCREW	1
6	DL640-97	WIPER SEAL	1
7	DL640-217	SPIRAL RETAINING RING	1
8	HD6-147	RETAINING RING	1
9	HDM6-3F	FRONT NUT	1
10	D60-42	THRUST BEARING	2
11	D60-41	THRUST BEARING WASHER	1
12	HD6-68	O-RING #126	1
13	HDM6-333	END PLATE, FRONT, METRIC	1
14	HD6-96	O-RING, BUNA N #122	1
15	HDM6-102	TAG, MODEL/SERIAL NO.,	1
17	HD6-313	STICKER, LEFT SIDE	1
18	HD6-314	STICKER, RIGHT SIDE	1
19	04-4428	ROLL PIN 1/4	1
20	HDM6-277A	STAT. JAW LOCATING PIN	2
21	HD6-209	CLAMP SLEEVE	2
22	HD6-35	CLAMP, STATIONARY JAW	2
23	HDM6-18	SCREW, ADJUSTING	1
24	HDM6-22	PLASTIC THUMB SCREW KNOB	1
25	26-0082	SHCS M5X.8	2
26	HDM6-142	SPRING GUIDE	2
27	HD6-267	COMPRESSION SPRING	2
28	DL640-10-SA	HANDLE, INTERNAL 5/8 HEX	1
29	HD6-169	COMPRESSION SPRING OPTIONAL	1
30	HD6-197	COMPRESSION SPRING OPTIONAL	1
31	HDM6-239	HOLDING PLATE	1
32	26-0224	SHCS M10X1.5	6
33	HD6-248	CHIP GUARD	1
34	3600V-99	O-RING	1
35	26-0232	SHCS M10x1.5 x 45MM LG.	2

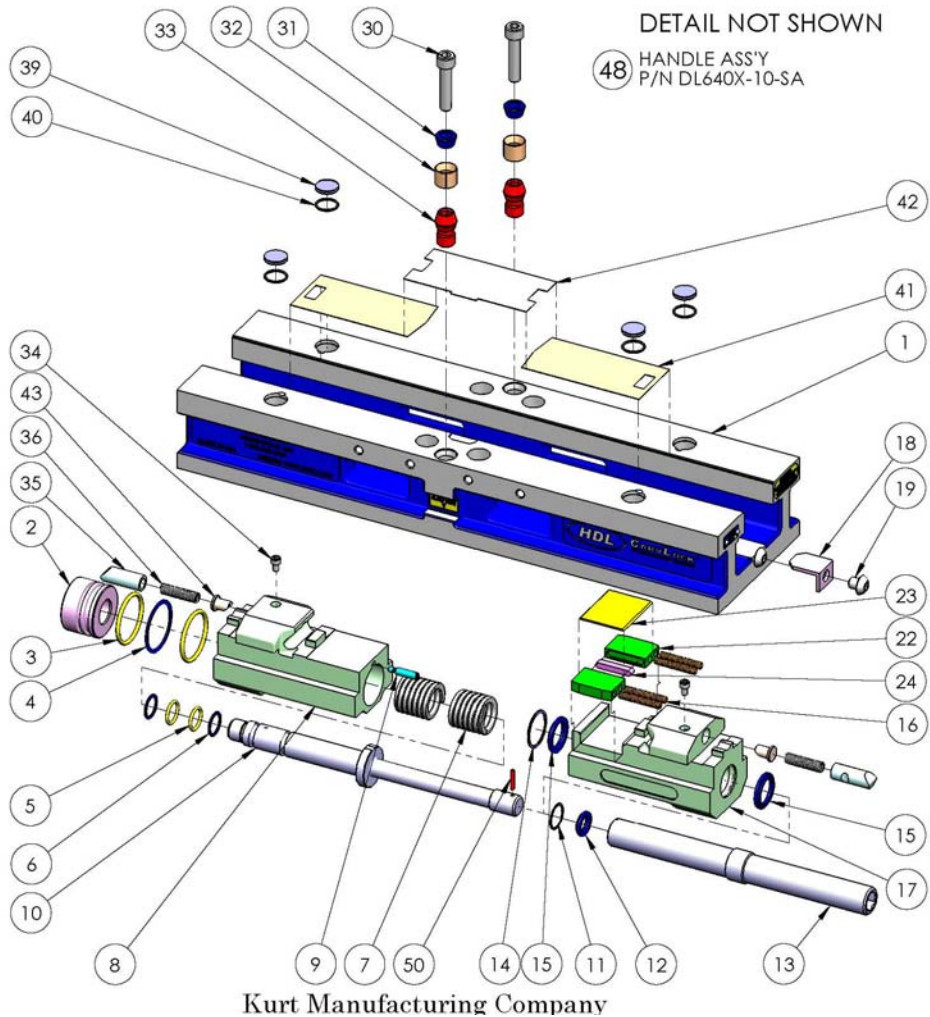


HDHM6

6" DOUBLE LOCK HIGH DENSITY METRIC HYDRAULIC VISE
(BASE MODEL)

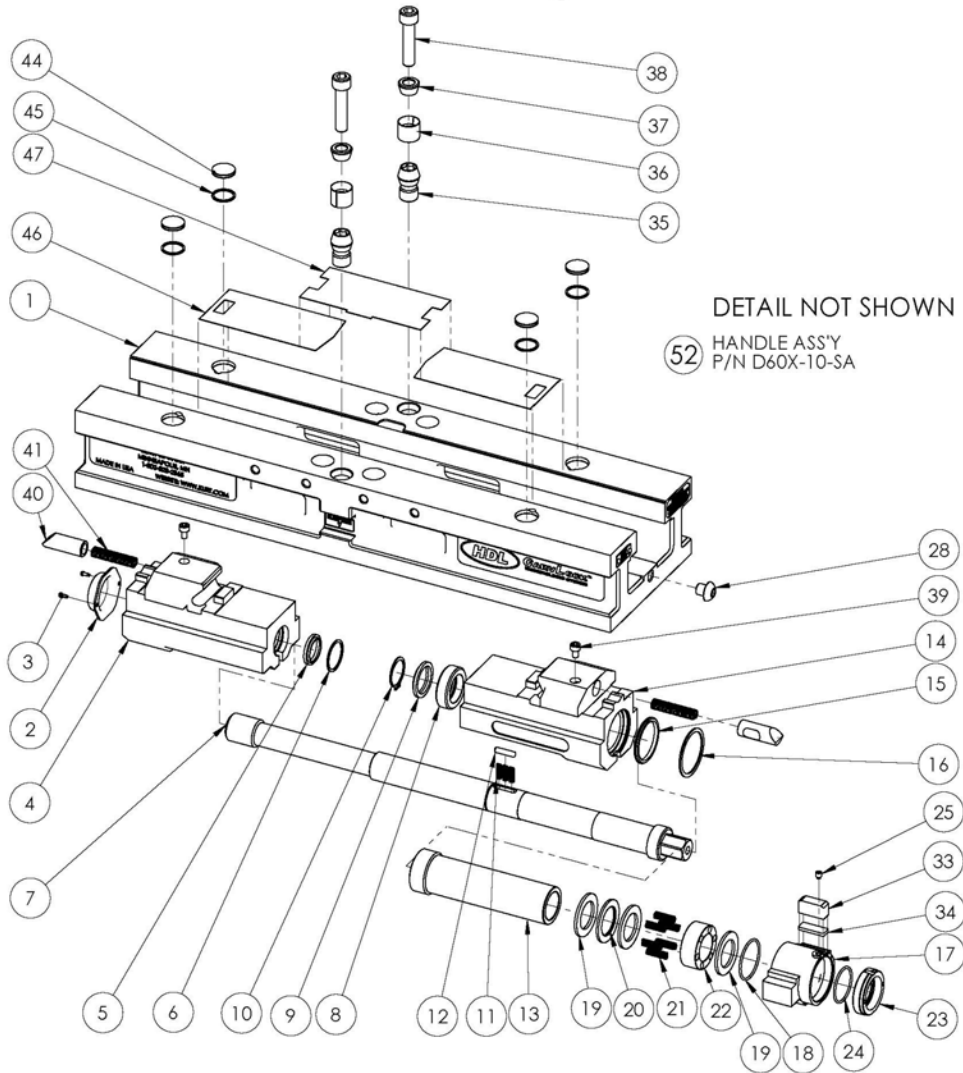
HDHLM6 HYDRAULIC VISE			
ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY.
1	HDLM6-1	BODY, MACHINED LONG	1
2	HDH6-93	PISTON/RETAINING RING	1
3	HDH6-96	O-RING #223	2
4	HDH6-188	PARKER PARBACK	1
5	HDH6-68	O-RING #115	2
6	HDH6-187	PARKER PARBACK	2
7	360HU-87A	SPRING (COMPRESSION)	2
8	HDHLM6-3R	REAR NUT	1
9	HDHLM6-25	TIMING PIN	1
10	HDHLM6-89	PISTON SCREW	1
11	DL430-217	SPIRAL RETAINING RING	1
12	DL430-97	WIPER RING SEAL	1
13	HDHLM6-5	SCREW EXTENSION	1
14	DL430-231	SPIRAL RETAINING RING	1
15	DL430-331	WIPER RING SEAL	2
16	HDHLM6-169	SPRING	4
17	HDHLM6-3FA	FRONT NUT	1
18	HDHLM6-61	SPACER,	1
19	29-0218	SCREW, BHCS M10X1.5 X 12.	1
22	HDHLM6-225A	FRICTON CLAMP	1
23	HDHLM6-53A	COVER	1
24	HDHLM6-311A	SPRING (PRE-LOAD)	1
30	26-0232	SHCS M10x1.5 x 45MM LG.	2
31	HD6-35	CLAMP, STATIONARY JAW	2
32	HD6-209	CLAMP SLEEVE	2
33	HDM6-277A	STAT. JAW LOCATING PIN	1
34	26-0082	M5X.8 SHCS	2
35	HDHM6-142	SPRING GUIDE	2
36	HD6-267	SPRING (COMPRESSION) (RATE 7.8#)	2
39	3600V-191	PROTECTIVE PLUG,	2
40	DLU4-96	O-RING,#016	4
41	HDLM6-249	CHIP GUARD, MOVABLE	2
42	HDLM6-248	CHIP GUARD, STATIONARY	1
43	HDH6-334	PRE-LOAD PLUNGER	2
48	DL640X-10-SA	EXT. HANDLE ASSY.	1
50	HDHLM6-168	PLUG	1

HDHLM6 Hydraulic AngLock Vise



HDHM6 - HYDRAULIC SHORT VERSION			
ITEM NUMBER	PART NUMBER	DESCRIPTION	EA
1	HDM6-1	MACHINED BODY	1
2	HD6-253	END PLATE, REAR	1
3	HDHM6-3R	REAR NUT	1
4	HDH6-5	SCREW	1
5	PM43-96	O-RING #125	1
6	HDHM6-3F	FRONT NUT	1
7	360HU-87A	SPRING, COMPRESSION	2
8	HDH6-187	SEAL	2
9	HDH6-68	O-RING #115	2
10	HDH6-96	O-RING #223	2
11	HDH6-188	SEAL	1
12	HDH6-93	PISTON/RETAINING RING	1
13	HDH6-333	END PLATE, FRONT	1
14	MLH35-173A	O-RING #114,	1
19	04-4428	ROLL PIN 1/4X7/8	1
20	HDM6-277A	STAT. JAW LOCATING PIN	2
21	HD6-209	CLAMP SLEEVE	2
22	HD6-35	CLAMP, STATIONARY JAW	2
23	26-0082	SHCS M5X.8	2
24	HDHM6-142	SPRING GUIDE	2
25	HD6-267	SPRING COMPRESSION	2
26	HDH6-334	PRE-LOAD PLUNGER	2
32	HD6-248	CHIP GUARD	1
33	26-0232	SHCS M10x1.5 x 45MM LG	2
34	HDHM6-312	CARR-LANE REST BUTTON	1

HDLM6 Manual AngLock Vise



HDLM6 MANUAL VISE			
ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY.
1	HDLM6-1	BODY, MACHINED LONG	1
2	DL600-218	END CAP,	1
3	07-0230	SCREW,DRIVE,#2 X .25	2
5	DL640-97	WIPER RING SEAL	1
6	DL640-217	RETAINING RING	1
7	DL640-5B-CP	SCREW, MACHINED	1
8	DL640-61A	SPACER, THREADED	1
9	DL430-331	WIPER RING	1
10	DL640-147B	TRUARC EXT. SNAP RING	1
11	DL640-215	CLUTCH SPRING, STAINLESS	3
12	04-0030	DOWEL PIN, 3/16 DIA.	1
13	DL640-273B	CLUTCH, DL640	1
14	HDLM6-3F-CP	NUT, MACHINED FRONT	1
15	DL640-129	METRIC "O" RING	1
16	DL640-231	RETAINING RING	1
17	DL640-212	HOLDING BLOCK, METRIC	1
18	DL640-68	O-RING, 1-3/8 X 1-1/2	1
19	D60-42	WASHER, THRUST BEARING,	3
20	D60-41	THRUST BEARING,	1
21	DL640-197	SPRING, COMPRESSION	6
22	DL640-8A	COLLAR, DL640 VISE	1
23	DL640-91-P	COLLAR, THREADED,	1
24	DL640-128	O-RING, 1-3/16 ID, 1-5/16	1
25	28-1122	SOCKET SET SCREW, M5 X 8	1
28	29-0218	SCREW, BHCS M10X1.5 X 12.	1
33	DL640-225A-P	FRICTION CLAMP	1
34	DL640-311A	SPRING, PRE-LOAD	1
35	HDM6-277A	STAT. JAW LOCATING PIN	2
36	HD6-209	CLAMP SLEEVE	2
37	HD6-35	CLAMP, STATIONARY JAW	2
38	26-0232	SHCS M10x1.5 x 45MM LG.	2
39	26-0082	SCREW, SHCS M5x.8 x 6MM LG	2
40	HDM6-142	SPRING GUIDE, METRIC	2
41	HD6-197	SPRING, (RED) MANUAL	2
44	3600V-191	PROTECTIVE PLUG,	2
45	DLU4-96	O-RING, #016	4
46	HDLM6-249	CHIP GUARD, MOVABLE	2
47	HDLM6-248	CHIP GUARD, STATIONARY	1
52	D60XI-10-SA	HANDLE ASS'Y., LONG SOCKET	1