DME HYDRAULIC LOCKING CORE PULL CYLINDERS

IMPORTANT SAFETY INFORMATION

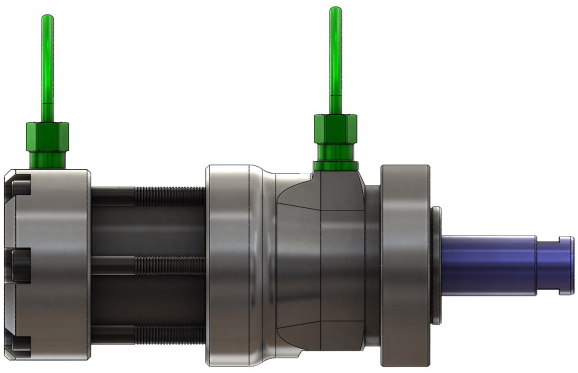
1. To avoid injury, exercise caution by reading these instructions before servicing or operating the system.
2. These instructions must be passed on to the end user where they should be read before using this product. Failure to do so can result in injury.

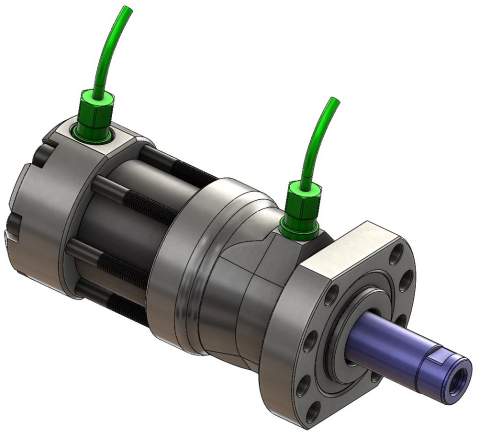
⚠ WARNING **Failure to comply can result in injury:**
STORED ENERGY HAZARD

1. This product maintains hydraulic pressure during normal operation in both full back (retracted) and full forward (extended) position of the cylinder assembly's piston. Use caution when operating and servicing the system. Proper protective equipment, including eye protection, must be worn.
2. Hydraulic service to the cylinder assembly must not exceed 3625 PSI hydraulic pressure.

⚠ NOTICE **Failure to comply can result in improper equipment operation or damage:**

1. The DME Hydraulic Locking Core Pull Cylinder (HLCP) assembly includes two inductive proximity sensors. The proximity sensors require power to deliver a signal. It is the responsibility of the customer to provide proper electrical service for sensor operation.
2. The proximity sensors do not require adjustment while installing into the cylinder assembly. Please follow the provided sensor installation instructions, or the cylinder may not operate properly, or, the sensors will fail to detect the proper position of the piston.
3. The proximity sensors are available in two types: **NPN HLCPNPN-M8** (standard) or **PNP HLCPPNP-M8** (optional). If PNP type is required, this must be specified at time of order. Electrical wire-up schematics are provided for both types in this document. Please follow the proper wire-up for the proximity sensor.
4. If the proximity sensors are not used, it is always important to monitor the position of the sliding core. External limit switches may be used if the machine cannot accept 3-wire NPN or PNP signal inputs, or where the service temperature of the proximity sensors is expected to be exceeded, or in cases were an elevated level of magnetism or electrical current is expected to be in close proximity to the sensors. For proper system function, it is important that full forward (extended) position as well as the full reverse (retracted) position of the piston (or sliding core) be monitored.
5. If using the proximity sensors provided with this device, do not exceed the maximum service temperature of 212°F (100° C).
6. When using external limit switches in the mold instead of the proximity sensors supplied with this product, the maximum service temperature of this device is 356°F (180° C).
7. A minimum of 870 PSI holding pressure (hydraulic service) is required at all times. If the 870 PSI holding pressure is not maintained while the piston is in full forward (extended position), the piston may not remain locked in forward position within the cylinder assembly.
8. The Mold Designer and/or Mold Maker is required to select the proper size of cylinder assembly in order to counter the load that will act on the sliding core due to plastic injection pressure within the mold cavity. Improperly selected cylinder assembly size can result in molded part flash or damage to the mold during operation. Contact DME for assistance in cylinder selection.
9. When selecting the appropriate size of cylinder assembly, take care to account for the necessary preload when the sliding core needs to shut off on an opposing core face inside the mold. Load capacity of the cylinder assembly is reduced when preload of the sliding core is required. The maximum allowable preloads for each cylinder assembly size are provided in this document, as well as load capacities for both with and without maximum preload.
10. The piston rod is not to be used as the sliding core itself. Do not modify the piston rod in any way. The piston rod is intended to be attached to the sliding core in the mold, and it is the responsibility of the mold designer and/or mold maker to select appropriate sliding core design for the intended application.





DETAIL 1.0: HYDRAULIC LOCKING CORE PULL CYLINDER ASSEMBLY

Note: Spacer disk not shown

MOLD DESIGN CONSIDERATIONS:

- This product is available in several sizes, and each size has two available "standard" stroke lengths. If you require a stroke that is different than the available standard strokes, then a non-standard stroke design is required. When ordering this product, please specify the required stroke if the standard strokes available are not suitable for the intended application.
- This product maintains a sliding core in full back (retracted) or full forward (extended) positions. **In order for the cylinder assembly to "lock", the piston must be fully extended forward.**
- This product includes a spacer disk. The spacer disk is placed between the front of the body flange and pocket installation. The mold maker must grind the spacer disk to ensure proper fit at the desired mold operation temperature. The adjustment of the spacer disk is important for when the sliding core

MOLD DESIGN CONSIDERATIONS (continued):

must "shut off" against an opposing core wall or face, so that plastic flashing is avoided. For proper "shut-off" as described above, maximum allowable preload amounts are provided in this document. Adjust the spacers prior to final mold assembly. Ensure sufficient pocket clearance around the piston rod and spacer disk is present for smooth operation.

- Positional alignment of the cylinder assembly is achieved by aligning the forward collet of the cylinder body (protrudes forward of the mounting flange) into the mold plate via the outer diameter of the collet. The collet will protrude past the spacer disk. Rotational alignment of the overall assembly is achieved via the mounting screws, as rotational alignment is only used to position the proximity sensors and hydraulic fitting connections and/or hoses within the overall installation. The piston may freely rotate, therefore if rotational alignment of the sliding core is required, rotational alignment of the sliding core must be achieved via other means.
- The positional alignment of the mold's sliding core is not to be maintained by the cylinder assembly's piston. The sliding core must have it's own provision for positional alignment within the mold plate.
- The suggested installation pocket details are based on the cylinder assembly being recessed into the side of the mold plate. It is possible to have the cylinders assembly mounted fully "proud" of the side of the mold plate, however, positional alignment of the cylinder assembly to the mold plate requires the forward collet (protruding forward of the mounting flange of the cylinder body) to be recessed partially into the side of the mold. Please adjust the overall installation as required to fit your application, while maintaining minimum clearances for the hydraulic fitting connections and/or hoses, as well as maintaining clearances for the proximity sensors. It is the responsibility of the mold designer and/or mold maker to select appropriate hydraulic fittings, as well as provide necessary pocket clearances (where required) for the hydraulic fittings. Clearance for hydraulic service may need to accommodate hoses or other features, in addition to the hydraulic fittings themselves. Standard hydraulic thread is NPTF type, but other types are available upon request.
- Please see Detail 3.4 for additional notes regarding necessary clearance needed to accommodate the proximity sensors.
- Mounting screws provided should not be modified (shortened). Ensure the tapped mounting holes are deep enough to ensure the screw heads can fully seat on the mounting flange after the screws are installed fully and torque is applied. See next pages for suggested pocket machining details.

TABLE 1.0 — HLCP ASSEMBLY SIZES

NPN Assembly No.	PNP Assembly No.	STROKE	ROD DIA.	CYLINDER BORE DIA.	NPTF TAP
HLCP060-1000DW	HLCP060-1000DWP	25.4 mm (1.00 in)	16 mm (0.63 in)	30 mm (1.18 in)	1/8
HLCP060-2000DW	HLCP060-2000DWP	50.8 mm (2.00 in)			
HLCP100-1250DW	HLCP100-1250DWP	31.8 mm (1.25 in)	20 mm (0.79 in)	36 mm (1.42 in)	1/8
HLCP100-2500DW	HLCP100-2500DWP	63.5 mm (2.50 in)			
HLCP150-1375DW	HLCP150-1375DWP	34.9 mm (1.375 in)	25 mm (0.98 in)	45 mm (1.77 in)	1/4
HLCP150-2750DW	HLCP150-2750DWP	69.9 mm (2.75 in)			
HLCP200-1750DW	HLCP200-1750DWP	44.5 mm (1.75 in)	32 mm (1.26 in)	56 mm (2.20 in)	1/4
HLCP200-3500DW	HLCP200-3500DWP	88.9 mm (3.50 in)			
HLCP300-2000DW	HLCP300-2000DWP	50.8 mm (2.00 in)	42 mm (1.65 in)	71 mm (2.80 in)	3/8
HLCP300-4000DW	HLCP300-4000DWP	101.6 mm (4.00 in)			
HLCP500-2500DW	HLCP500-2500DWP	63.5 mm (2.50 in)	50 mm (1.97 in)	84 mm (3.31 in)	3/8
HLCP500-5000DW	HLCP500-5000DWP	127.0 mm (5.00 in)			
HLCP750-3000DW	HLCP750-3000DWP	76.2 mm (3.00 in)	60 mm (2.36 in)	105 mm (4.13 in)	1/2
HLCP750-6000DW	HLCP750-6000DWP	152.4 mm (6.00 in)			

TABLE 1.1 — LOAD CAPACITIES FOR THE DME HYDRAULIC LOCKING CORE PULL CYLINDER ASSEMBLY

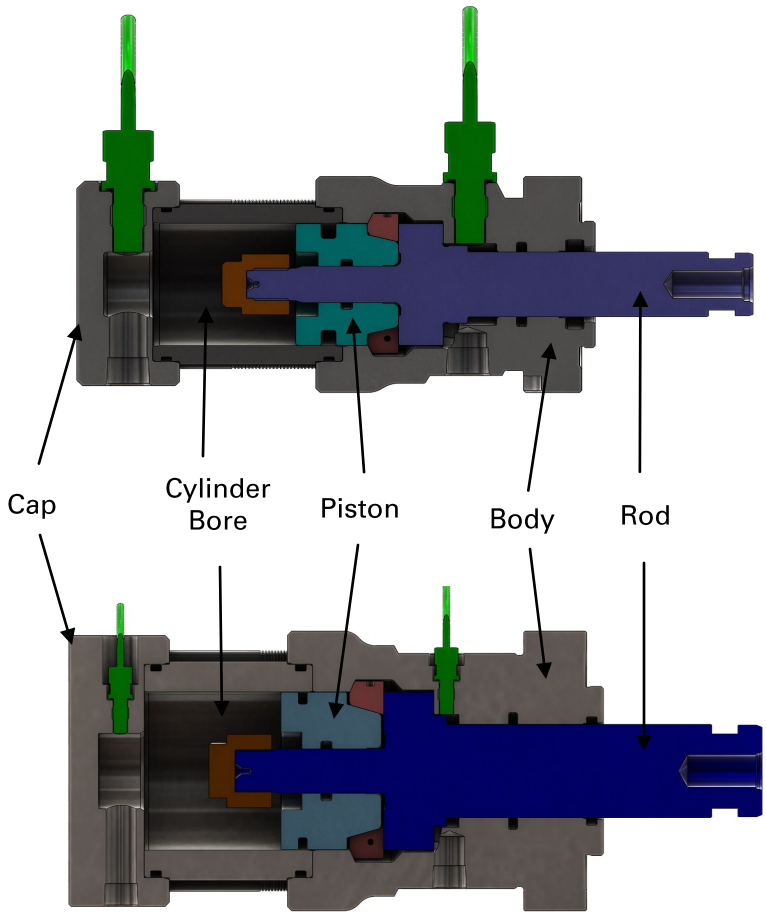
NPN Assembly No.	PNP Assembly No.	AT 160 BAR (2321 PSI) PRELOAD	Holding Force in kilo Newton [kN]		Holding Force in Pound Force [lbf]		Holding Force in Metric ton [ton]		Holding Force in UK (troy) ton [ton]		Holding Force in US (avdp) ton [ton]	
			Without Preload	With Max Preload	Without Preload	With Max Preload	Without Preload	With Max Preload	Without Preload	With Max Preload	Without Preload	With Max Preload
HLCP060-1000DW	HLCP060-1000DWP	0.15 mm (0.006 in)	60	35	13,488	7,868	6.12	3.57	5.46	3.19	6.74	3.93
HLCP060-2000DW	HLCP060-2000DWP	0.20 mm (0.008 in)										
HLCP100-1250DW	HLCP100-1250DWP	0.15 mm (0.006 in)	100	50	22,480	11,240	10.20	5.10	9.11	4.55	11.24	5.62
HLCP100-2500DW	HLCP100-2500DWP	0.20 mm (0.008 in)										
HLCP150-1375DW	HLCP150-1375DWP	0.10 mm (0.004 in)	150	65	33,720	14,612	15.30	6.63	13.65	5.91	16.86	7.31
HLCP150-2750DW	HLCP150-2750DWP	0.15 mm (0.006 in)										
HLCP200-1750DW	HLCP200-1750DWP	0.15 mm (0.006 in)	200	110	44,960	24,728	20.39	11.21	18.20	10.01	22.48	12.36
HLCP200-3500DW	HLCP200-3500DWP	0.20 mm (0.008 in)										
HLCP300-2000DW	HLCP300-2000DWP	0.15 mm (0.006 in)	300	160	67,440	35,968	30.59	16.31	27.31	14.57	33.72	17.98
HLCP300-4000DW	HLCP300-4000DWP	0.20 mm (0.008 in)										
HLCP500-2500DW	HLCP500-2500DWP	0.20 mm (0.008 in)	500	300	112,400	67,440	50.98	30.59	45.51	27.31	56.20	33.72
HLCP500-5000DW	HLCP500-5000DWP	0.30 mm (0.012 in)										
HLCP750-3000DW	HLCP750-3000DWP	0.20 mm (0.008 in)	750	400	168,600	89,920	76.48	40.79	68.27	36.41	84.30	44.96
HLCP750-6000DW	HLCP750-6000DWP	0.30 mm (0.012 in)										

MOLD DESIGN CONSIDERATIONS (continued):

TABLE 1.3 — MASSES AND THREAD SIZES

Assembly Number	Mass		Thread Size in Piston Rod	Thread Tap Hole Depth to Drill Point
	kg	lb		
HLCP060-1000DW HLCP060-1000DWP	1.8	3.97	5/16 - 24 UNF	20mm
HLCP060-2000DW HLCP060-2000DWP	2.0	4.41		
HLCP100-1250DW HLCP100-1250DWP	2.9	6.39	5/16 - 24 UNF	20mm
HLCP100-2500DW HLCP100-2500DWP	3.2	7.05		
HLCP150-1375DW HLCP150-1375DWP	5.0	11.02	3/8 - 24 UNF	28mm
HLCP150-2750DW HLCP150-2750DWP	5.4	11.90		
HLCP200-1750DW HLCP200-1750DWP	9.3	20.50	1/2 - 20 UNF	35mm
HLCP200-3500DW HLCP200-3500DWP	10.5	23.15		
HLCP300-2000DW HLCP300-2000DWP	20.1	44.31	5/8 - 18 UNF	40mm
HLCP300-4000DW HLCP300-4000DWP	22.4	49.38		
HLCP500-2500DW HLCP500-2500DWP	31.0	68.34	5/8 - 18 UNF	42mm
HLCP500-5000DW HLCP500-5000DWP	33.0	72.75		
HLCP750-3000DW HLCP750-3000DWP	55.5	122.36	3/4 - 16 UNF	50mm
HLCP750-6000DW HLCP750-6000DWP	62.1	136.91		

DETAIL 1.1 - HYDRAULIC LOCKING CORE PULL ASSEMBLY



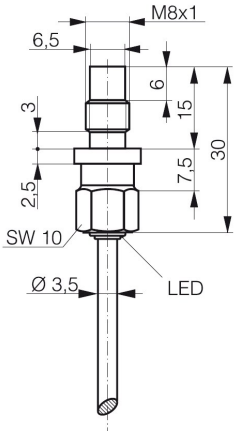
HLCP060 & HLCP100

HLCP150—HLCP750

PROXIMITY SWITCH ELECTRICAL DATA:

Switching Output:	**HLCPNPN-M8**= NPN (Standard), Contrinex # DWAD501P8	**HLCPPNP-M8**= PNP (Optional) Contrinex # DWAD503P8	
Connection	2 m Cable (PUR)		
Ripple max. of UB	20 %		
Rated operational voltage (UB)	24 DC V	Switching frequency (f)	800 Hz
Load current capacity (Ie)	200 mA	Voltage drop max. static	2.0 V
Hysteresis max (H)	15 %	No-load supply current damped	10 mA
Switching element function	NO	Supply voltage max. (Ub)	30 V
Time delay before availability	30 ms	Supply voltage min. (Ub)	10 V
Electrical type	DC	Operating Distance	1.5mm

DETAIL 2.0: PROXIMITY SENSOR DIMENSIONS



(Shown in Millimeters)

PROXIMITY SENSOR INSTALLATION INSTRUCTIONS:

NOTE: These sensors require power to produce a signal. This includes during installation/setup and during normal operation. Refer to power requirements (above). Customer is responsible to provide power service to operate sensors. If only dry contacts are present on the injection molding machine, see next page for suggested wire-up.

Notes:

1- Screw in sensors in by hand.

Torque to 12Nm (8.83 ft. lbs.)

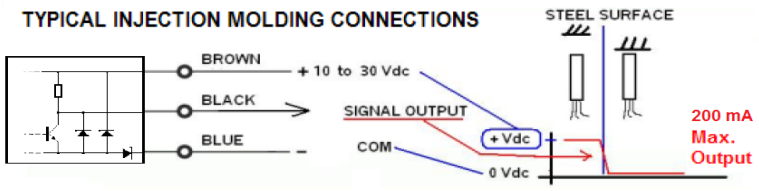
2- TORQUE sensor to12Nm (will require sensor wrench for HLCP150-750)

3- Cycle rod forward & back full stroke. The LED on each sensor will confirm by lighting up.

4- HLCP150 through and including HLCP750 series requires tubular spanner wrench to tighten sensors to 8.83 ft/lbs. Item # TSP10 included.

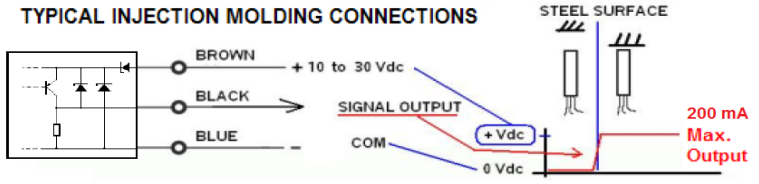
DETAIL 2.2: PROXIMITY SENSOR WIRE UP INSTRUCTIONS:

NPN, NO
HLCPNPN-M8



NPN, NO (normally open) proximity sensors are supplied standard with product. These sensors are inductive sensors and will require power to operate.

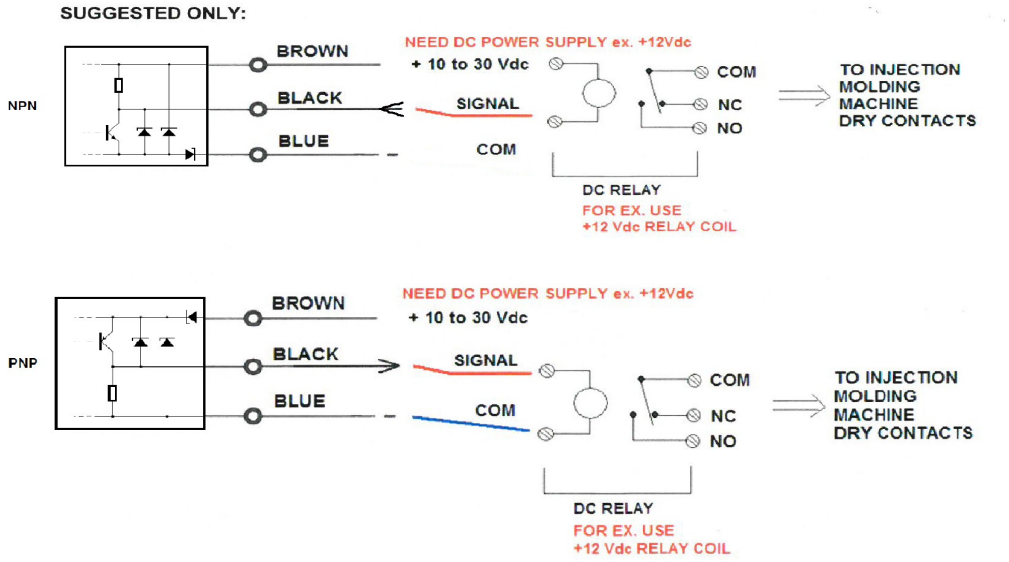
PNP, NO
HLCPPNP-M8



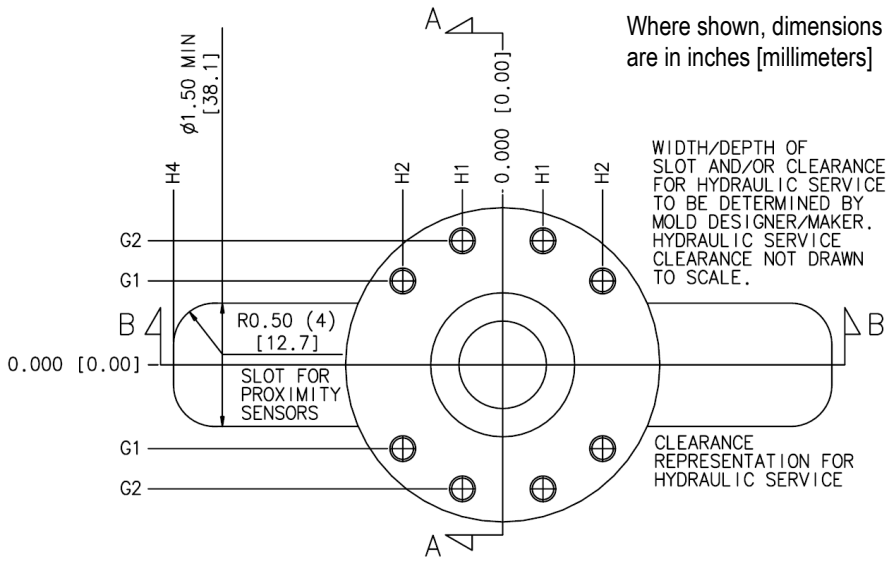
PNP, NO (normally open) proximity sensors are optional and must be requested at the time of the HLCP cylinder assembly order. As with the NPN sensors, the PNP sensors are inductive sensors and will require power to operate.

DETAIL 2.3: OPTIONAL WIRE-UP—WHEN INJECTION MOLDING MACHINE CANNOT ACCEPT 3-WIRE NPN OR PNP SIGNAL

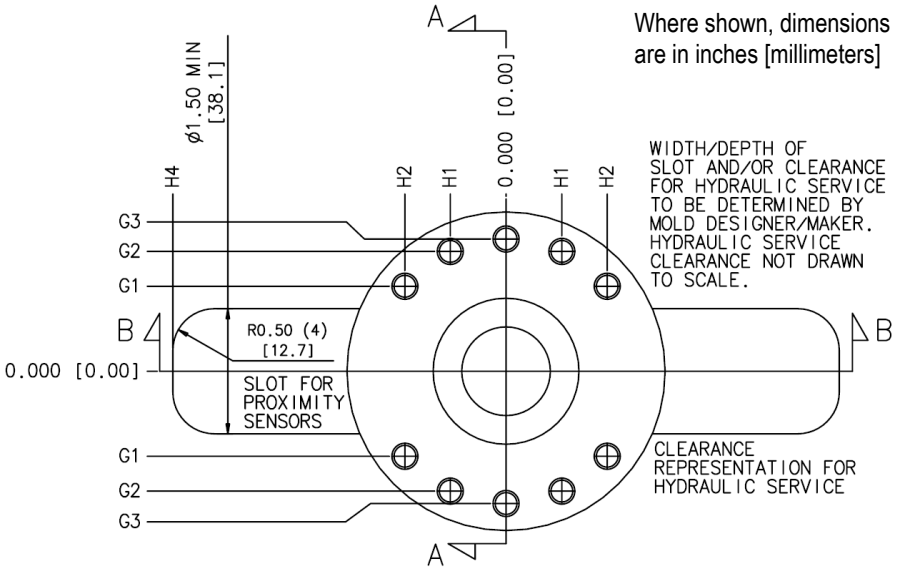
- Not all injection molding machines are equipped to accept 3-wire NPN or PNP signal. The proximity sensors are highly accurate, high-pressure, inductive sensors which have no moving parts. Inductive sensors require power to deliver a signal. If dry contacts are required, an external power supply and relay circuit will be required with the HLCPNPN-M8 (NPN, NO) or HLCPPNP-M8 (PNP, NO) proximity sensors. A suggested electrical schematic is shown below. This suggested circuit can be used with either NPN or PNP proximity sensors. Voltages shown are suggested only. Please refer to the voltage range specified for the sensors on the previous page. The molder is required to provide the electrical service required to operate the sensors.



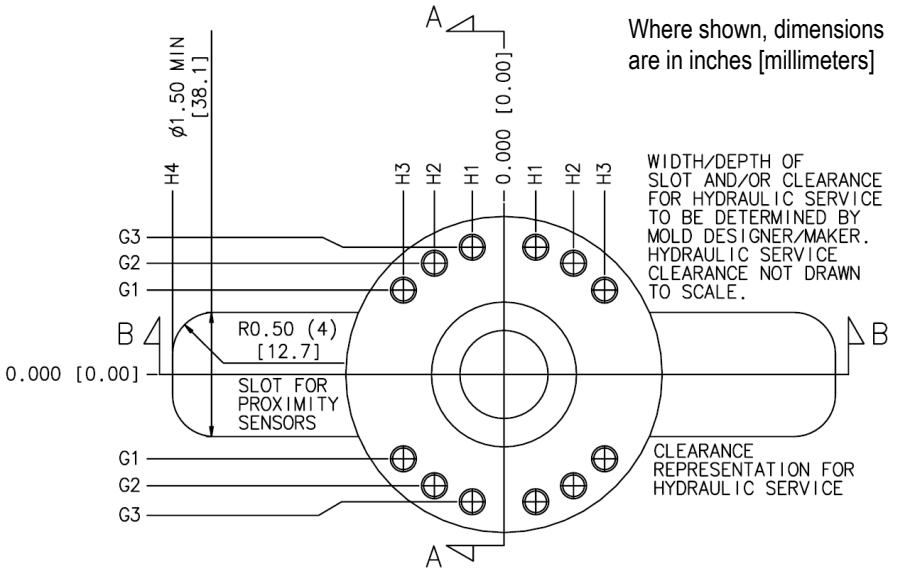
- When servicing the HLCP cylinder assembly, ensure that proper signals are received from both the front and rear mounted proximity sensors. Check the condition of the proximity sensor wires. If wires are found to be damaged, the sensors will need to be replaced. Follow the sensor installation information provided on the previous page. Portable sensor testers are available online through various production supply houses.
- If you intend to use external limit switches in your mold, and do not intend to use the proximity sensors, threaded plugs (to replace the sensors and plug the threaded holes in the cylinder body and cylinder cap) are available upon request (see last page of this document).



DETAIL 3.0: POCKET DETAIL — PLAN VIEW (HLCP060 AND HLCP100 SIZES ONLY)



DETAIL 3.1: POCKET DETAIL — PLAN VIEW (HLCP150 THROUGH HLCP500 SIZES)



DETAIL 3.2: POCKET DETAIL — PLAN VIEW (HLCP750 SIZE ONLY)

GENERAL OPERATING INSTRUCTIONS:

- Do not exceed hydraulic service pressure of 3625 PSI.
- Always have a minimum 870 PSI hold pressure available for normal operation of this device.
- Always monitor the position of the cylinder piston (i.e. fully retracted or fully extended).

SERVICING INSTRUCTIONS:

- Take care to implement a preventative maintenance schedule for your mold and Hydraulic Locking Core Pull cylinder assembly. In most conditions, a regular review of the cylinder every 3 months is recommended. In some extreme cases a more frequent preventative maintenance schedule may be required. In the first 3 months of use, it is recommended that the cylinder assembly should be checked monthly to ensure proper alignment and function of the product.
- At every preventative maintenance schedule, ensure the cylinder assembly properly actuates as well as properly locks when in the full-forward (extended) position.
- Mounting screws are provided with each Hydraulic Locking Core Pull Cylinder assembly. Check mounting and assembly screws for damage prior to installation or assembly. If a mounting or assembly screw is required to be replaced, Grade 8 UNC Socket Head Cap Screws of appropriate length must be used. Please see the Bill of Materials (BOM) lists included in this document, for the quantity and size of mounting screws required.
- Standard O-rings and seals are used with this device, and are listed in the Bill of Materials (BOM) lists provided. When changing or replacing O-rings, take care to inspect the O-ring for nicks, scraps or cuts. If an O-ring is found to be damaged prior to or after installation, remove and replace the damaged O-ring.
- It is recommended that the hydraulic service to the cylinder assembly have proper filtration employed, to ensure proper functioning as well as product life for the cylinder assembly. Any debris in the hydraulic service can prevent the locking mechanism from properly locking when the piston is in full forward (extended) position. During servicing, ensure that no debris is left inside the cylinder body, as well as in the hydraulic service lines and/or fittings.
- During servicing, check the condition of the proximity sensor wires, and check for signal. If the sensor wires are damaged or if signal has been lost for either sensor, the affected sensor or sensors will need to be replaced.
- The cylinder is internally self-lubricated via the hydraulic service oil. Lubrication of the sliding core may be necessary.

INSTALLATION INSTRUCTIONS:

- If preload is required on the piston rod and sliding core (when shutting off on an opposing core face or wall), ensure the spacer disk provided has been properly adjusted to ensure the recommended preload is achieved.

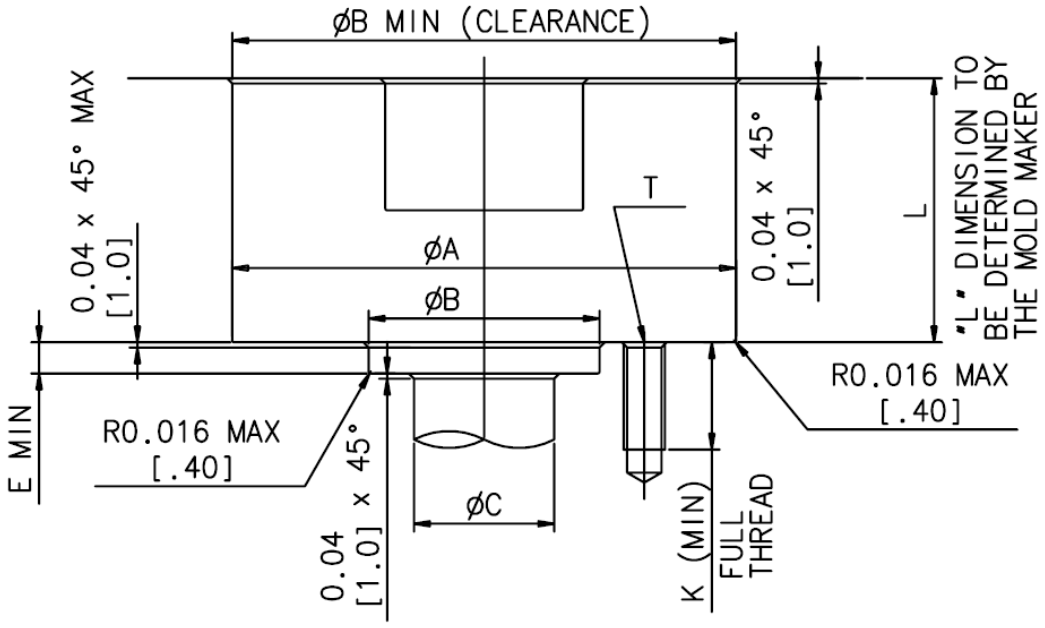
  Preload: The provided spacer plate allows for final adjustment/fitting and preload if necessary
  When you are shutting off on steel, such as a through hole part, the opposing injection force, elasticity of the steel, thermal expansion, tolerances of the mold, can allow for plastic flash. For example, when the mold maker adjusts the rod face of the HLCP to the steel in a through molded part, the rod face just touches the steel with no force. The mold maker is fitting or bluing off the two faces at this point for fit. However, in this example where you are shutting off on steel, you want to compensate for any opposing injection force, elasticity of the steel, thermal expansion, tolerances of the mold, etc., so the rod does not move. The mold maker will "preload" the rod into the steel to a maximum amount of approximately .005 - .010 inch based on HLCP size and stroke (see table below). Now, when you preload the rod, the holding force is reduced considerably as the segments are not fully locked along the mechanical taper but there is partial taper engagement of the segments and you have the hydraulic pressure. This is why there are two ratings in the catalog for with and without preload. With preload the holding force ratings are reduced considerably. Preload can become even more of a consideration with longer rods, longer stroke, and smaller rod diameters.
  These are dependent of the processed material and pressure which can lead to flash.
  The significant advantage of this design is the possibility to compensate elasticity within a defined range.

- Insert the modified (adjusted) spacer disk into the cylinder assembly installation pocket in the mold plate.
- Insert the cylinder assembly into the installation pocket, and fasten the cylinder assembly to the mold plate using the mounting screws provided. Take care to use recommended torque settings.
- If the sliding core must be attached to the piston rod after the cylinder assembly has been attached to the mold plate, please connect the sliding core to the piston rod at this time.
- Attach all hydraulic service hoses and fittings to the cylinder assembly. Attached service hoses to the hydraulic service system or equipment. Ensure 870 PSI minimum hold pressure is available at all times.
- If proximity sensors are included and used with this device, ensure the sensors are connected to the desired monitoring equipment and/or to the injection molding machine. If different limit switches are used in place of the product's proximity sensors, make sure that those limit switches are installed and connected to the desired monitoring equipment and/or to the injection molding machine. For either method, it is important to ensure that the proximity sensors or limit switches are functioning and monitored properly. Note: Power (electrical service) is required to operate the proximity sensors.
- Details 3.0 through 3.2 show the suggested plan view pocket installation. The suggested installation varies by cylinder assembly size, as different sizes use different quantities of mounting screws. See chart on following pages for all suggested dimensions and mounting screw thread size.
- Recommended torque values for assembly and mounting screws are shown in the BOM (Bill of Materials) for each HLCP cylinder size and stroke.

Assembly Number	Max Preload
HLCP060-1000DW/DWP	0.005
HLCP060-2000DW/DWP	0.008
HLCP100-1250DW/DWP	0.005
HLCP100-2500DW/DWP	0.008
HLCP150-1375DW/DWP	0.004
HLCP150-2750DW/DWP	0.004
HLCP200-1750DW/DWP	0.005
HLCP200-3500DW/DWP	0.006
HLCP300-2000DW/DWP	0.004
HLCP300-4000DW/DWP	0.006
HLCP500-2500DW/DWP	0.008
HLCP500-5000DW/DWP	0.010
HLCP750-3000DW/DWP	0.008
HLCP750-6000DW/DWP	0.010

DETAIL 3.3: SUGGESTED POCKET DETAIL — SECTION VIEW A-A (ALL SIZES)

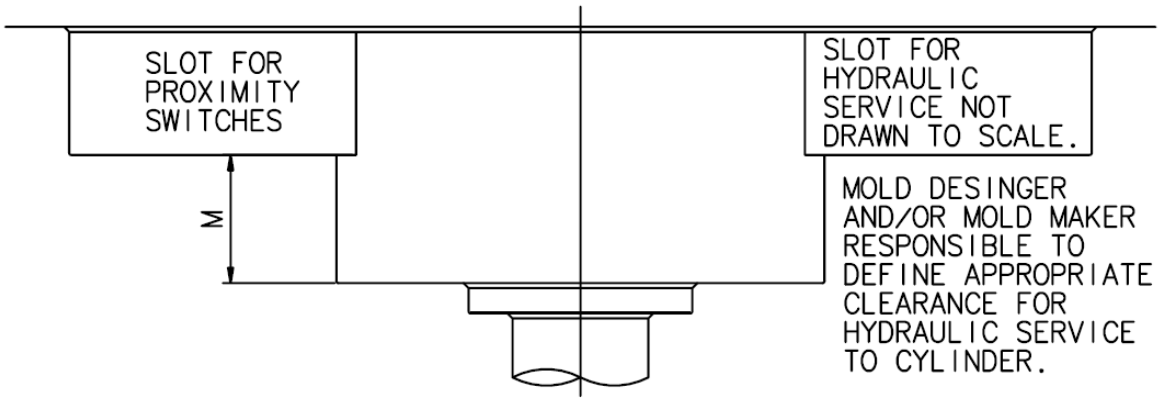
Important:
The suggested installation pocket details show two "slots" (please refer to Section B-B and the appropriate Plan View). The slot described for the proximity switch (signaling full forward position of the piston rod) is a minimum requirement but can be made larger if required. The slot shown for hydraulic service is only a representation, and the mold maker and/or mold designer is responsible to provide appropriate clearance for the actual hydraulic service (fittings, hoses, etc) that will be used with the intended mold and/or application.



SECTION A-A (ALL SIZES)

SLOT FOR PROXIMITY SENSORS

NOTE:
IN DETAILS 3.3 — 3.4, WHERE SHOWN, DIMENSIONS ARE IN INCHES [MILLIMETERS]

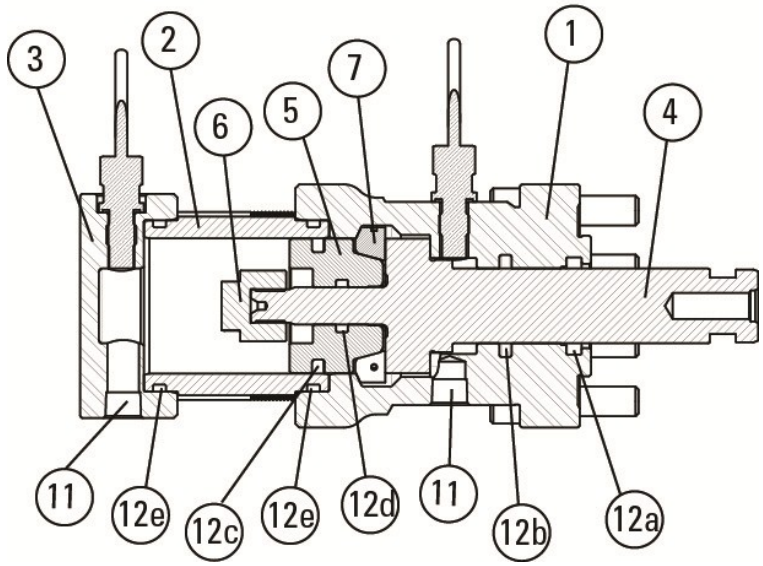


SECTION B-B (ALL SIZES)

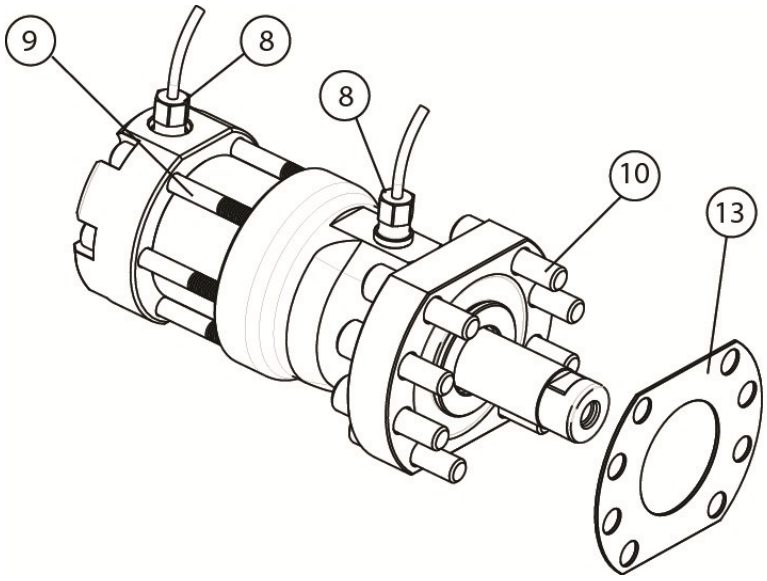
TABLE 3.0: INSTALLATION DIMENSION CHART — SUGGESTED POCKET DETAILS. FOR PISTON ROD THREAD SIZES, SEE PAGE 3.

		ØA	ØB	ØC	E	H1	H2	H3	H4	G1	G2	G3	K	M	"T"
	[mm]	MIN	SEE BELOW	+/- 0.03	MIN	+/- 0.03			MIN	+/- 0.03			MIN	MAX	Flange Mounting Screw Thread Size
	[in]			+/- 0.001		+/- 0.001				+/- 0.001					(and recommended torque)
HLCP060 size	[mm]	66.00	31.240 +0.025/-0	20.00	10.00	7.87	20.70		86.00	17.40	25.78		18.0	13.0	1/4-20 UNC
	[in]	2.598	1.2299 +0.0010/-0	0.787	0.394	0.310	0.815		3.386	0.685	1.015		0.71	0.51	Torque: 13 ft.lbs [17.5 Nm]
HLCP100 size	[mm]	82.00	37.590 +0.025/-0	24.00	10.00	9.78	25.53		94.00	21.46	31.88		21.0	18.0	5/16-18 UNC
	[in]	3.228	1.4799 +0.0010/-0	0.945	0.394	0.385	1.005		3.701	0.845	1.255		0.83	0.71	Torque: 27 ft.lbs [36.4 Nm]
HLCP150 size	[mm]	96.00	44.450 +0.025/-0	29.00	10.00	17.02	30.86		101.00	25.91	36.45	40.26	26.0	18.0	5/16-18 UNC
	[in]	3.780	1.7500 +0.0010/-0	1.142	0.394	0.670	1.215		3.976	1.020	1.435	1.585	1.02	0.71	Torque: 27 ft.lbs [36.4 Nm]
HLCP200 size	[mm]	120.50	63.500 +0.030/-0	37.00	10.00	21.46	38.86		113.25	32.64	46.10	50.80	26.0	25.0	3/8-16 UNC
	[in]	4.744	2.5000 +0.0012/-0	1.457	0.394	0.845	1.530		4.459	1.285	1.815	2.000	1.02	0.98	Torque: 52 ft.lbs [70.2 Nm]
HLCP300 size	[mm]	150.00	76.200 +0.030/-0	47.00	10.00	28.96	52.32		128.00	36.58	56.90	63.75	33.0	41.0	1/2-13 UNC
	[in]	5.906	3.0000 +0.0012/-0	1.850	0.394	1.140	2.060		5.039	1.440	2.240	2.510	1.30	1.61	Torque: 130 ft.lbs [175 Nm]
HLCP500 size	[mm]	177.50	88.900 +0.035/-0	55.00	10.00	31.75	57.66		141.75	48.39	68.20	75.18	34.0	55.0	5/8-11 UNC
	[in]	6.988	3.5000 +0.0014/-0	2.165	0.394	1.250	2.270		5.581	1.905	2.685	2.960	1.34	2.17	Torque: 255 ft.lbs [344 Nm]
HLCP750 size	[mm]	213.00	114.300 +0.035/-0	66.00	10.00	16.64	47.88	72.90	159.50	56.90	79.12	90.93	42.0	60.0	5/8-11 UNC
	[in]	8.386	4.5000 +0.0014/-0	2.598	0.394	0.655	1.885	2.870	6.280	2.240	3.115	3.580	1.65	2.36	Torque: 255 ft.lbs [344 Nm]

HYDRAULIC LOCKING CORE PULL CYLINDER ASSEMBLY — SECTION ASSEMBLY VIEWS



HLCP060 above for reference only



Section assemblies above are for reference only.
Number of components may vary, see B.O.M. tables for respective cylinder assembly components.

HYDRAULIC LOCKING CORE PULL CYLINDER ASSEMBLY — BILL OF MATERIALS

TABLE 4.0: HLCP060-1000

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	HLCP060BODY	HLCP CYLINDER, BODY	1
2	HLCP0601000SL	HLCP CYLINDER, SLEEVE	1
3	HLCP060CAP	HLCP CYLINDER, CAP	1
4	HLCP0601000RD	HLCP CYLINDER, ROD	1
5	HLCP060PSTN	HLCP CYLINDER, PISTON	1
6	HLCP060PSTNBU	HLCP CYLINDER, PISTON BUSHING	1
7	HLCP060SEGM	HLCP CYLINDER, SEGMENT KIT	1
8	HLCPNPN-M8	CONTRINEX INDUCTIVE SENSOR M8X1.0 NPN	2
9	HLCP060ASCREW1	HLCP CYLINDER, ASSEMBLY SCREWS. M5x55 mm (Torque: 85.9 in.lbs)	6
10	HLCP060MSCREW	HLCP CYLINDER, MOUNTING SCREWS. 1/4-20 UNC x 1.00 inches (Torque: 13 ft.lbs)	8
11	HLCP060OILCAP	HLCP CYLINDER, OIL CAPS	2
12	HLCP060-SEALS	HLCP CYLINDER, SEAL KIT	1
12a	WD2200160-Z201	EXCLUDER	1
12b	RSK000160-T46V	STEPSEAL	1
12c	PT0100300-T46V	GLYD RING	1
12d	S35P9X12.3X2.6	INNER PISTON O-RING	1
12e	OR1603510-VC009	SLEEVE O-RING	2
13	HLCP060SPACER	HLCP CYLINDER, SPACER PLATE	1

TABLE 4.1: HLCP060-2000

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	HLCP060BODY	HLCP CYLINDER, BODY	1
2	HLCP0602000SL	HLCP CYLINDER, SLEEVE	1
3	HLCP060CAP	HLCP CYLINDER, CAP	1
4	HLCP0602000RD	HLCP CYLINDER, ROD	1
5	HLCP060PSTN	HLCP CYLINDER, PISTON	1
6	HLCP060PSTNBU	HLCP CYLINDER, PISTON BUSHING	1
7	HLCP060SEGM	HLCP CYLINDER, SEGMENT KIT	1
8	HLCPNPN-M8	CONTRINEX INDUCTIVE SENSOR M8X1.0 NPN	2
9	HLCP060ASCREW2	HLCP CYLINDER, ASSEMBLY SCREWS. M5x80 mm (Torque: 85.9 in.lbs)	6
10	HLCP060MSCREW	HLCP CYLINDER, MOUNTING SCREWS. 1/4-20 UNC x 1.00 inches (Torque: 13 ft.lbs)	8
11	HLCP060OILCAP	HLCP CYLINDER, OIL CAPS	2
12	HLCP060-SEALS	HLCP CYLINDER, SEAL KIT	1
12a	WD2200160-Z201	EXCLUDER	1
12b	RSK000160-T46V	STEPSEAL	1
12c	PT0100300-T46V	GLYD RING	1
12d	S35P9X12.3X2.6	INNER PISTON O-RING	1
12e	OR1603510-VC009	SLEEVE O-RING	2
13	HLCP060SPACER	HLCP CYLINDER, SPACER PLATE	1

TABLE 4.2: HLCP100-1250

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	HLCP100BODY	HLCP CYLINDER, BODY	1
2	HLCP1001250SL	HLCP CYLINDER, SLEEVE	1
3	HLCP100CAP	HLCP CYLINDER, CAP	1
4	HLCP1001250RD	HLCP CYLINDER, ROD	1
5	HLCP100PSTN	HLCP CYLINDER, PISTON	1
6	HLCP100PSTNBU	HLCP CYLINDER, PISTON BUSHING	1
7	HLCP100SEGM	HLCP CYLINDER, SEGMENT KIT	1
8	HLCPNPN-M8	CONTRINEX INDUCTIVE SENSOR M8X1.0 NPN	2
9	HLCP100ASCREW1	HLCP CYLINDER, ASSEMBLY SCREWS. M6x60 mm (Torque: 12.6 ft.lbs)	6
10	HLCP100MSCREW	HLCP CYLINDER, MOUNTING SCREWS. 5/16-18 UNC x 1.25 inches (Torque: 27 ft.lbs)	8
11	HLCP100OILCAP	HLCP CYLINDER, OIL CAPS	2
11a	HLCP100-SEALS	HLCP CYLINDER, SEAL KIT	1
11b	WD2200200-Z201	EXCLUDER	1
11c	RSK100200-T46V	STEPSEAL	1
11d	PT0100360-T46V	GLYD RING	1
11e	S35P10X14.06X3.2	INNER PISTON O-RING	1
12	OR2504200-VC009	SLEEVE O-RING	2
13	HLCP100SPACER	HLCP CYLINDER, SPACER PLATE	1

TABLE 4.3: HLCP100-2500

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	HLCP100BODY	HLCP CYLINDER, BODY	1
2	HLCP1002500SL	HLCP CYLINDER, SLEEVE	1
3	HLCP100CAP	HLCP CYLINDER, CAP	1
4	HLCP1002500RD	HLCP CYLINDER, ROD	1
5	HLCP100PSTN	HLCP CYLINDER, PISTON	1
6	HLCP100PSTNBU	HLCP CYLINDER, PISTON BUSHING	1
7	HLCP100SEGM	HLCP CYLINDER, SEGMENT KIT	1
8	HLCPNPN-M8	CONTRINEX INDUCTIVE SENSOR M8X1.0 NPN	2
9	HLCP100ASCREW2	HLCP CYLINDER, ASSEMBLY SCREWS. M6x90 mm (Torque: 12.6 ft.lbs)	6
10	HLCP100MSCREW	HLCP CYLINDER, MOUNTING SCREWS. 5/16-18 UNC x 1.25 inches (Torque: 27 ft.lbs)	8
11	HLCP100OILCAP	HLCP CYLINDER, OIL CAPS	2
11a	HLCP100-SEALS	HLCP CYLINDER, SEAL KIT	1
11b	WD2200200-Z201	EXCLUDER	1
11c	RSK100200-T46V	STEPSEAL	1
11d	PT0100300-T46V	PT0100360-T46V	1
11e	S35P10X14.06X3.2	INNER PISTON O-RING	1
12	OR2504200-VC009	SLEEVE O-RING	2
13	HLCP100SPACER	HLCP CYLINDER, SPACER PLATE	1

HYDRAULIC LOCKING CORE PULL CYLINDER ASSEMBLY — BILL OF MATERIALS

TABLE 4.4: HLCP150-1375

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	HLCP150BODY	HLCP CYLINDER, BODY	1
2	HLCP1501375SL	HLCP CYLINDER, SLEEVE	1
3	HLCP150CAP	HLCP CYLINDER, CAP	1
4	HLCP1501375RD	HLCP CYLINDER, ROD	1
5	HLCP150PSTN	HLCP CYLINDER, PISTON	1
6	HLCP150PSTNBU	HLCP CYLINDER, PISTON BUSHING	1
7	HLCP150SEGM	HLCP CYLINDER, SEGMENT KIT	1
8	HLCPNPN-M8	CONTRINEX INDUCTIVE SENSOR M8X1.0 NPN	2
9	HLCP150ASCREW1	HLCP CYLINDER, ASSEMBLY SCREWS. M6x80 mm (Torque: 12.6 ft.lbs)	8
10	HLCP150MSCREW	HLCP CYLINDER, MOUNTING SCREWS. 5/16-18 UNC x 1.50 inches (Torque: 27 ft.lbs)	10
11	HLCP150OILCAP	HLCP CYLINDER, OIL CAPS	2
12	HLCP150-SEALS	HLCP CYLINDER, SEAL KIT	1
12a	WE3100250-T46V	EXCLUDER	1
12b	RSK100250-T46V	STEPSEAL	1
12c	PT0200450-T46V	GLYD RING	1
12d	S35P13X17.5X3.6	INNER PISTON O-RING	1
12e	OR2505500-VC009	SLEEVE O-RING	2
13	HLCP150SPACER	HLCP CYLINDER, SPACER PLATE	1

TABLE 4.5: HLCP150-2750

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	HLCP150BODY	HLCP CYLINDER, BODY	1
2	HLCP1502750SL	HLCP CYLINDER, SLEEVE	1
3	HLCP150CAP	HLCP CYLINDER, CAP	1
4	HLCP1502750RD	HLCP CYLINDER, ROD	1
5	HLCP150PSTN	HLCP CYLINDER, PISTON	1
6	HLCP150PSTNBU	HLCP CYLINDER, PISTON BUSHING	1
7	HLCP150SEGM	HLCP CYLINDER, SEGMENT KIT	1
8	HLCPNPN-M8	CONTRINEX INDUCTIVE SENSOR M8X1.0 NPN	2
9	HLCP150ASCREW2	HLCP CYLINDER, ASSEMBLY SCREWS. M6x110 mm (Torque: 12.6 ft.lbs)	8
10	HLCP150MSCREW	HLCP CYLINDER, MOUNTING SCREWS. 5/16-18 UNC x 1.50 inches (Torque: 27 ft.lbs)	10
11	HLCP150OILCAP	HLCP CYLINDER, OIL CAPS	2
12	HLCP150-SEALS	HLCP CYLINDER, SEAL KIT	1
12a	WE3100250-T46V	EXCLUDER	1
12b	RSK100250-T46V	STEPSEAL	1
12c	PT0200450-T46V	PT0100360-T46V	1
12d	S35P13X17.5X3.6	INNER PISTON O-RING	1
12e	OR2505500-VC009	SLEEVE O-RING	2
13	HLCP150SPACER	HLCP CYLINDER, SPACER PLATE	1

TABLE 4.6: HLCP200-1750

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	HLCP200BODY	HLCP CYLINDER, BODY	1
2	HLCP2001750SL	HLCP CYLINDER, SLEEVE	1
3	HLCP200CAP	HLCP CYLINDER, CAP	1
4	HLCP2001750RD	HLCP CYLINDER, ROD	1
5	HLCP200PSTN	HLCP CYLINDER, PISTON	1
6	HLCP200PSTNBU	HLCP CYLINDER, PISTON BUSHING	1
7	HLCP200SEGM	HLCP CYLINDER, SEGMENT KIT	1
8	HLCPNPN-M8	CONTRINEX INDUCTIVE SENSOR M8X1.0 NPN	2
9	HLCP200ASCREW1	HLCP CYLINDER, ASSEMBLY SCREWS. M8x100 mm (Torque: 29.5 ft.lbs)	8
10	HLCP200MSCREW	HLCP CYLINDER, MOUNTING SCREWS. 3/8-16 UNC x 1.75 inches (Torque: 52 ft.lbs)	10
11	HLCP200OILCAP	HLCP CYLINDER, OIL CAPS	2
12	HLCP200-SEALS	HLCP CYLINDER, SEAL KIT	1
12a	WE3100320-T46V	EXCLUDER	1
12b	RSK100320-T46V	STEPSEAL	1
12c	PT0200560-T46V	GLYD RING	1
12d	S35P16X22.1X4.7	INNER PISTON O-RING	1
12e	OR3007000-VC009	SLEEVE O-RING	2
13	HLCP200SPACER	HLCP CYLINDER, SPACER PLATE	1

TABLE 4.7: HLCP200-3500

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	HLCP200BODY	HLCP CYLINDER, BODY	1
2	HLCP2003500SL	HLCP CYLINDER, SLEEVE	1
3	HLCP200CAP	HLCP CYLINDER, CAP	1
4	HLCP2003500RD	HLCP CYLINDER, ROD	1
5	HLCP200PSTN	HLCP CYLINDER, PISTON	1
6	HLCP200PSTNBU	HLCP CYLINDER, PISTON BUSHING	1
7	HLCP200SEGM	HLCP CYLINDER, SEGMENT KIT	1
8	HLCPNPN-M8	CONTRINEX INDUCTIVE SENSOR M8X1.0 NPN	2
9	HLCP200ASCREW2	HLCP CYLINDER, ASSEMBLY SCREWS. M8x140 mm (Torque: 29.5 ft.lbs)	8
10	HLCP200MSCREW	HLCP CYLINDER, MOUNTING SCREWS. 3/8-16 UNC x 1.75 inches (Torque: 52 ft.lbs)	10
11	HLCP200OILCAP	HLCP CYLINDER, OIL CAPS	2
12	HLCP200-SEALS	HLCP CYLINDER, SEAL KIT	1
12a	WE3100320-T46V	EXCLUDER	1
12b	RSK100320-T46V	STEPSEAL	1
12c	PT0200560-T46V	PT0100360-T46V	1
12d	S35P16X22.1X4.7	INNER PISTON O-RING	1
12e	OR3007000-VC009	SLEEVE O-RING	2
13	HLCP200SPACER	HLCP CYLINDER, SPACER PLATE	1

HYDRAULIC LOCKING CORE PULL CYLINDER ASSEMBLY — BILL OF MATERIALS

TABLE 4.8: HLCP300-2000

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	HLCP300BODY	HLCP CYLINDER, BODY	1
2	HLCP3002000SL	HLCP CYLINDER, SLEEVE	1
3	HLCP300CAP	HLCP CYLINDER, CAP	1
4	HLCP3002000RD	HLCP CYLINDER, ROD	1
5	HLCP300PSTN	HLCP CYLINDER, PISTON	1
6	HLCP300PSTNBU	HLCP CYLINDER, PISTON BUSHING	1
7	HLCP300SEGM	HLCP CYLINDER, SEGMENT KIT	1
8	HLCPNPN-M8	CONTRINEX INDUCTIVE SENSOR M8X1.0 NPN	2
9	HLCP300ASCREW1	HLCP CYLINDER, ASSEMBLY SCREWS. M10x110 mm (Torque: 58.3 ft.lbs)	8
10	HLCP300MSCREW	HLCP CYLINDER, MOUNTING SCREWS. 1/2-13 UNC x 2.25 inches (Torque: 130 ft.lbs)	10
11	HLCP300OILCAP	HLCP CYLINDER, OIL CAPS	2
12	HLCP300-SEALS	HLCP CYLINDER, SEAL KIT	1
12a	WE3100420-T46V	EXCLUDER	1
12b	RSK200420-T46V	STEPSEAL	1
12c	PT0200710-T46V	GLYD RING	1
12d	S35P20X26.85X5.4	INNER PISTON O-RING	1
12e	OR4009000-VC009	SLEEVE O-RING	2
13	HLCP300SPACER	HLCP CYLINDER, SPACER PLATE	1

TABLE 4.9: HLCP300-4000

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	HLCP300BODY	HLCP CYLINDER, BODY	1
2	HLCP3004000SL	HLCP CYLINDER, SLEEVE	1
3	HLCP300CAP	HLCP CYLINDER, CAP	1
4	HLCP3004000RD	HLCP CYLINDER, ROD	1
5	HLCP300PSTN	HLCP CYLINDER, PISTON	1
6	HLCP300PSTNBU	HLCP CYLINDER, PISTON BUSHING	1
7	HLCP300SEGM	HLCP CYLINDER, SEGMENT KIT	1
8	HLCPNPN-M8	CONTRINEX INDUCTIVE SENSOR M8X1.0 NPN	2
9	HLCP300ASCREW2	HLCP CYLINDER, ASSEMBLY SCREWS. M10x160 mm (Torque: 58.3 ft.lbs)	8
10	HLCP300MSCREW	HLCP CYLINDER, MOUNTING SCREWS. 1/2-13 UNC x 2.25 inches (Torque: 130 ft.lbs)	10
11	HLCP300OILCAP	HLCP CYLINDER, OIL CAPS	2
12	HLCP300-SEALS	HLCP CYLINDER, SEAL KIT	1
12a	WE3100420-T46V	EXCLUDER	1
12b	RSK200420-T46V	STEPSEAL	1
12c	PT0200710-T46V	PT0100360-T46V	1
12d	S35P20X26.85X5.4	INNER PISTON O-RING	1
12e	OR4009000-VC009	SLEEVE O-RING	2
13	HLCP300SPACER	HLCP CYLINDER, SPACER PLATE	1

TABLE 4.10: HLCP500-2500

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	HLCP500BODY	HLCP CYLINDER, BODY	1
2	HLCP5002500SL	HLCP CYLINDER, SLEEVE	1
3	HLCP500CAP	HLCP CYLINDER, CAP	1
4	HLCP5002500RD	HLCP CYLINDER, ROD	1
5	HLCP500PSTN	HLCP CYLINDER, PISTON	1
6	HLCP500PSTNBU	HLCP CYLINDER, PISTON BUSHING	1
7	HLCP500SEGM	HLCP CYLINDER, SEGMENT KIT	1
8	HLCPNPN-M8	CONTRINEX INDUCTIVE SENSOR M8X1.0 NPN	2
9	HLCP500ASCREW1	HLCP CYLINDER, ASSEMBLY SCREWS. M10x140 mm (Torque: 58.3 ft.lbs)	10
10	HLCP500MSCREW	HLCP CYLINDER, MOUNTING SCREWS. 5/8-11 UNC x 2.50 inches (Torque: 255 ft.lbs)	10
11	HLCP500OILCAP	HLCP CYLINDER, OIL CAPS	2
12	HLCP500-SEALS	HLCP CYLINDER, SEAL KIT	1
12a	WE3100500-T46V	EXCLUDER	1
12b	RSK200500-T46V	STEPSEAL	1
12c	PT0300840-T46V	GLYD RING	1
12d	S35P24X30.8X5.4	INNER PISTON O-RING	1
12e	OR4510600-VC009	SLEEVE O-RING	2
13	HLCP500SPACER	HLCP CYLINDER, SPACER PLATE	1

TABLE 4.11: HLCP500-5000

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	HLCP500BODY	HLCP CYLINDER, BODY	1
2	HLCP5005000SL	HLCP CYLINDER, SLEEVE	1
3	HLCP500CAP	HLCP CYLINDER, CAP	1
4	HLCP5005000RD	HLCP CYLINDER, ROD	1
5	HLCP500PSTN	HLCP CYLINDER, PISTON	1
6	HLCP500PSTNBU	HLCP CYLINDER, PISTON BUSHING	1
7	HLCP500SEGM	HLCP CYLINDER, SEGMENT KIT	1
8	HLCPNPN-M8	CONTRINEX INDUCTIVE SENSOR M8X1.0 NPN	2
9	HLCP500ASCREW2	HLCP CYLINDER, ASSEMBLY SCREWS. M10x200 mm (Torque: 58.3 ft.lbs)	10
10	HLCP500MSCREW	HLCP CYLINDER, MOUNTING SCREWS. 5/8-11 UNC x 2.50 inches (Torque: 255 ft.lbs)	10
11	HLCP500OILCAP	HLCP CYLINDER, OIL CAPS	2
12	HLCP500-SEALS	HLCP CYLINDER, SEAL KIT	1
12a	WE3100500-T46V	EXCLUDER	1
12b	RSK200500-T46V	STEPSEAL	1
12c	PT0300840-T46V	PT0100360-T46V	1
12d	S35P24X30.8X5.4	INNER PISTON O-RING	1
12e	OR4510600-VC009	SLEEVE O-RING	2
13	HLCP500SPACER	HLCP CYLINDER, SPACER PLATE	1

HYDRAULIC LOCKING CORE PULL CYLINDER ASSEMBLY — BILL OF MATERIALS

TABLE 4.12: HLCP750-3000

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	HLCP750BODY	HLCP CYLINDER, BODY	1
2	HLCP7503000SL	HLCP CYLINDER, SLEEVE	1
3	HLCP750CAP	HLCP CYLINDER, CAP	1
4	HLCP7503000RD	HLCP CYLINDER, ROD	1
5	HLCP750PSTN	HLCP CYLINDER, PISTON	1
6	HLCP750PSTNBU	HLCP CYLINDER, PISTON BUSHING	1
7	HLCP750SEGM	HLCP CYLINDER, SEGMENT KIT	1
8	HLCPNPN-M8	CONTRINEX INDUCTIVE SENSOR M8X1.0 NPN	2
9	HLCP750ASCREW1	HLCP CYLINDER, ASSEMBLY SCREWS. M12x160 mm (Torque: 100.3 ft.lbs)	10
10	HLCP750MSCREW	HLCP CYLINDER, MOUNTING SCREWS. 5/8-11 UNC x 3.00 inches (Torque: 255 ft.lbs)	12
11	HLCP750OILCAP	HLCP CYLINDER, OIL CAPS	2
12	HLCP750-SEALS	HLCP CYLINDER, SEAL KIT	1
12a	WE3100600-T46V	EXCLUDER	1
12b	RSK200600-T46V	STEPSEAL	1
12c	PT0301050-T46V	GLYD RING	1
12d	RT0100300-T46V	INNER PISTON O-RING	1
12e	OR5013000-VC009	SLEEVE O-RING	2
13	HLCP750SPACER	HLCP CYLINDER, SPACER PLATE	1

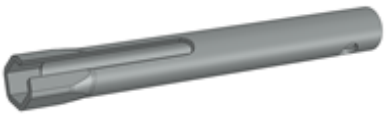
TABLE 4.13: HLCP750-6000

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	HLCP750BODY	HLCP CYLINDER, BODY	1
2	HLCP7506000SL	HLCP CYLINDER, SLEEVE	1
3	HLCP750CAP	HLCP CYLINDER, CAP	1
4	HLCP7506000RD	HLCP CYLINDER, ROD	1
5	HLCP750PSTN	HLCP CYLINDER, PISTON	1
6	HLCP750PSTNBU	HLCP CYLINDER, PISTON BUSHING	1
7	HLCP750SEGM	HLCP CYLINDER, SEGMENT KIT	1
8	HLCPNPN-M8	CONTRINEX INDUCTIVE SENSOR M8X1.0 NPN	2
9	HLCP750ASCREW2	HLCP CYLINDER, ASSEMBLY SCREWS. M12x240 mm (Torque: 100.3 ft.lbs)	10
10	HLCP750MSCREW	HLCP CYLINDER, MOUNTING SCREWS. 5/8-11 UNC x 3.00 inches (Torque: 255 ft.lbs)	12
11	HLCP750OILCAP	HLCP CYLINDER, OIL CAPS	2
12	HLCP750-SEALS	HLCP CYLINDER, SEAL KIT	1
12a	WE3100600-T46V	EXCLUDER	1
12b	RSK200600-T46V	STEPSEAL	1
12c	PT0301050-T46V	PT0100360-T46V	1
12d	RT0100300-T46V	INNER PISTON O-RING	1
12e	OR5013000-VC009	SLEEVE O-RING	2
13	HLCP750SPACER	HLCP CYLINDER, SPACER PLATE	1

ORDERING INFORMATION:

- Before placing an order, make sure you have defined the necessary HLCP assembly size and stroke length.
- Contact DME Customer Service and specify the HLCP cylinder assembly number. If a special stroke length is required, please specify the required stroke to the DME Customer Service representative.
- Specify NPN or PNP type. **Remember:** the HLCP cylinder assembly is delivered standard with NPN sensors installed. PNP is optional and if PNP is required, it must be specified at time of order. PNP type, Normally Open proximity sensor — part number = HLCPPNP-M8.
- If you intend to use external limit switches in your mold, and do not intend to use the proximity sensors, threaded plugs (to replace the sensors) are available upon request. The plugs (with O-ring) replace the sensors. Then apply suggested torque. Part number WD81NANON / Suggested torque setting 8Nm (5.9 ft. lbs.)

4mm hex (wrench not included with assembly)



TSP10 (included with sizes HLCP150 -HLP750 for tightening sensors)

- Remember that hydraulic fittings are not supplied by DME, and are to be supplied by the mold maker and/or molder. Threaded connections (for hydraulic fittings) on the HLCP cylinder assembly are NPTF, however other hydraulic fitting thread types can be supplied upon special request.
- It is recommended that spare parts be ordered along with the system assembly order. Suggested spare parts include the Seal Kit, Spacer Plate, Proximity Sensors (NPN or PNP).

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