SAIVS®
赛维思

Operation Instructions

CLP Series Single-Acting Low Profile Lock Nut Hydraulic Cylinder

CLL Series Single-Acting Mechanical Lock Nut Hydraulic Cylinder

Please read these instructions carefully before operating. And keep instructions properly for future reference.

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These instructions contain warnings, precautions, operation practices, and troubleshooting for CLL (CLP) series single-acting (single-acting super-low profile) mechanical lock nut hydraulic cylinder. These operation instructions are only for the reference of the end users.

I. Receiving Notice (Unpacking Inspection)

Visually inspect all components for shipping damage. Shipping damage is not covered by warranty. If shipping damage is found, notify carrier at once. The carrier is responsible for all repair and replacement costs resulting from damage in shipment.

II. Warnings and Precautions

Safety First

Please carefully read and understand the contents of these instructions before use and abide by these operation rules to prevent the personal injuries and equipment damages during operations of the equipment. ASIVS will not be liable for any damage arising from the incorrect operations.

Warning: Whenever possible, replace old parts with Saivs genuine parts.

Warning: The conditions that may form backpressure for oil hoses, such as serious bending or winding of hoses and placement of objects on oil hoses, are prohibited during operations, in order to prevent burst of oil hoses from causing damages.

Warning: It's prohibited to drag or hoist other hydraulic parts (such as pump, hydraulic wrench, cylinder, and valve) by oil hoses.

Warning: During the operations, do not offset the load or overload, in order to prevent damaging cylinder and causing danger. Under loaded condition, never disassemble the quick couplings, in order to prevent causing accidents and damaging parts.

Warning: This pump utilizes the hydraulic oil as the medium. Therefore, fulfill the maintenances for the oil and this pump, in order to prevent oil silting and leakage and impair the operating performance.

Notice: For a new or long-term unused cylinder, due to excessive air content in the cylinder, the piston rod may have slight bouncing symptom at the start of operations. In such case, reciprocate the oil cylinder under no-load condition for 2~3 times to bleed the air from the chambers. As the seals are vulnerable to aging under long-term non-use

condition for a long-term unused oil cylinder to impair the service life of oil cylinder, during long-term non-use, reciprocate the oil cylinder for 2~3 times under non-load condition once a month.

Warning: The high pressure oil hoses passed the 105MPa (1050Kgf/cm2) test before delivery. However, the hoses are vulnerable to aging, the user shall check frequently, once every 6 months generally or once every 3 months under frequent condition. During the checking, test by 87.5Mpa (875kgf/cm2) pressure. Upon detection of burst, bulge, or leakage, timely replace.

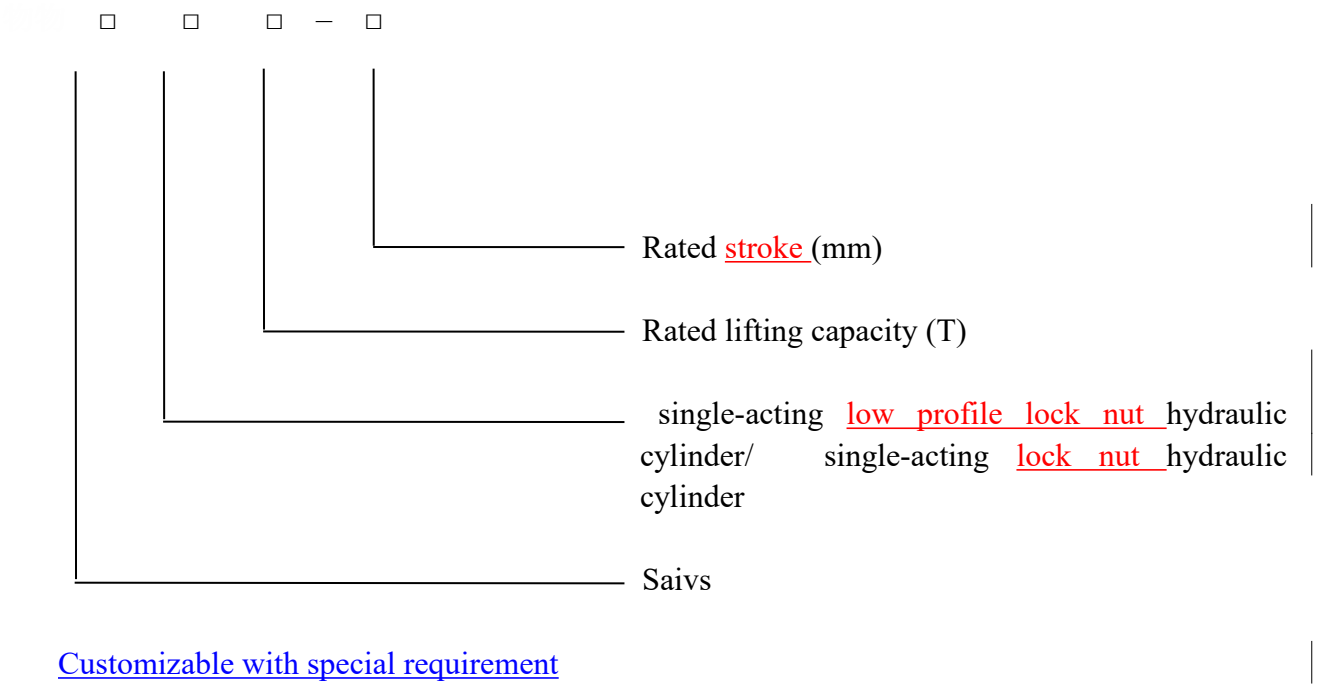
Warning: During operations, strictly abide by the technical specification. The user shall fulfill the periodic checking and maintenances depending on working condition.

Notice: SAIVS will not be liable for any damages arising from incorrect operations.

III. Overview

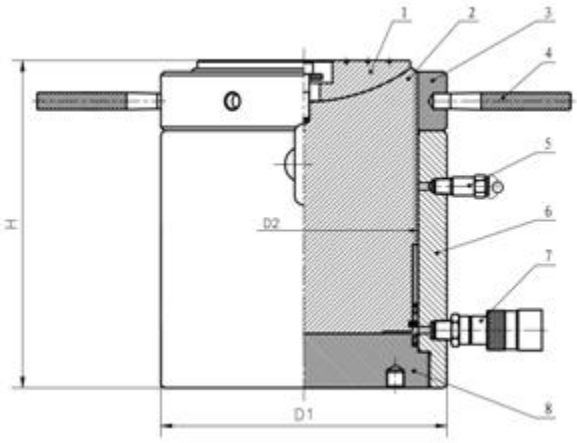
CLL (CLP) series single-acting (single-acting super-low profile) mechanical lock nut hydraulic cylinder is a kind of hydraulic tool with high-tonnage gravity return function. Working together with super-pressure electric pump station or hand pump, it can realize the stretching, clamping, and correction functions in addition to the basic operations, including lifting, pushing, expanding, and squeezing. In addition to the characteristics of the common hydraulic cylinder, it boasts the mechanical lock nut function to realize the long-term support of weight in a more convenient and safer manner. At present, it's extensively applied in the infrastructures, including architecture, ship, mining, petrochemical industry, and railway.

IV. Model Description



Customizable with special requirement

V. Technical Specification



1 - Saddle 2 - Piston rod 3 - Lock nut 5 - Handle 5 - Safety valve 6 – Cylinder 7 - Quick coupling 8 - Bottom cover

CLP Series

Model	Cylinder capacity ton(KN)	Stroke (mm)	Hydraulic oil capacity (cm^3)	Body height H (mm)	Outside diameter D1 (mm)	Cylinder bore diameter D2 (mm)	Diameter of piston rod (mm)	Weight (kg)
CLP-602	60(606)	50	432	125	140	106	Tr104x4	15
CLP-1002	100(1027)	50	734	137	180	137	Tr136x6	27
CLP-1602	160(1619)	45	1040	148	224	172	Tr171x6	45.5
CLP-2002	200(1999)	45	1285	155	245	190.7	Tr190x6	57
CLP-2502	260(2567)	45	1650	159	275	216	Tr215x6	74
CLP-4002	400(3916)	45	2517	178	350	270	Tr266x6	134
CLP-5002	520(5114)	45	3287	192	400	305	Tr304x6	188

The parameters listed in the table may be subject to change due to improvement without further notice.

CLL Series

Model	Cylinder capacity ton	Stroke (mm)	Hydraulic oil capacity (cm^3)	Body height H (mm)	Outside diameter D1 (mm)	Cylinder bore diameter D2 (mm)	Diameter of piston rod (mm)	Weight (kg)
CLL-502	50	50	392	160	140	100	Tr99x4	18
CLL-504		100	784	215	140	100	Tr99x4	25
CLL-506		150	1176	275	140	100	Tr99x4	33
CLL-508		200	1568	347	140	100	Tr99x4	41
CLL-5012		300	2352	447	140	100	Tr99x4	53
CLL-1002	100	50	770	170	188	140	Tr139x6	34
CLL-1004		100	1540	257	188	140	Tr139x6	50
CLL-1006		150	2310	312	188	140	Tr139x6	61
CLL-1008		200	3080	370	188	140	Tr139x6	73
CLL-10012		300	4620	470	188	140	Tr139x6	93
CLL-1502	150	50	1005	209	215	165	Tr159x6	56
CLL-1504		100	2010	259	215	165	Tr159x6	70
CLL-1506		150	3015	309	215	165	Tr159x6	83
CLL-1508		200	4020	359	215	165	Tr159x6	97
CLL-15012		300	6030	459	215	165	Tr159x6	124
CLL-2002	200	50	1570	243	268	200	Tr199x6	93
CLL-2006		150	4712	343	268	200	Tr199x6	131
CLL-20012		300	9423	493	268	200	Tr199x6	189
CLL-3002	320	50	2453	295	320	245	Tr249x6	179
CLL-3006		150	7359	395	320	245	Tr249x6	240
CLL-30012		300	14718	545	320	245	Tr249x6	331
CLL-4002	400	50	2861	335	370	275	Tr269x6	266
CLL-4006		150	8583	435	370	275	Tr269x6	345
CLL-40012		300	17169	585	370	275	Tr269x6	464
CLL-5002	500	50	4019	375	420	310	Tr319x6	358
CLL-5006		150	12057	475	420	310	Tr319x6	454
CLL-50012		300	24114	625	420	310	Tr319x6	597
CLL-6002	630	50	5087	395	475	350	Tr359x6	490
CLL-6006		150	15261	495	475	350	Tr359x6	614
CLL-60012		300	30522	645	475	350	Tr359x6	800
CLL-8002	800	50	6280	455	550	400	Tr399x6	843

CLL-8006		150	18840	555	550	400	Tr399x6	1028
CLL-80012		300	37698	705	550	400	Tr399x6	1306

VI. Operation Method

1. Before operations, ensure to check all parts for normal functioning.
2. During operations, strictly abide by the requirements specified in the main specification and eliminate the over-height and overload to prevent accidents.
3. If a hand pump is used as the power source, connect the cylinder, oil hoses, and hand pump by quick couplings, as shown in Figure (I) below.

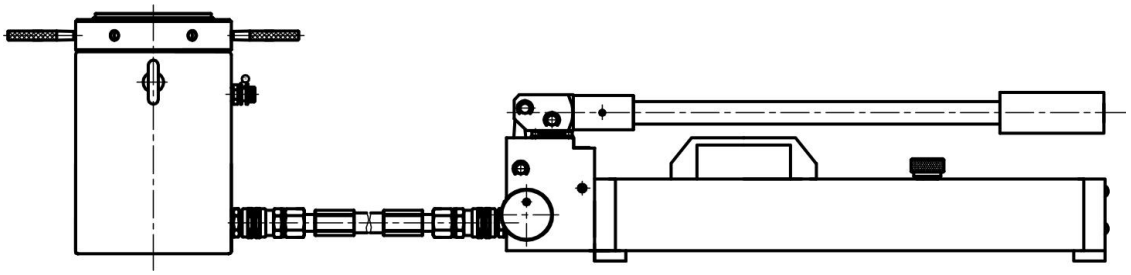


Figure (I)

4. If a super-pressure electric pump is used as the power source, connect the cylinder, oil hoses, and electric pump by quick couplings, as shown in Figure (II) below.

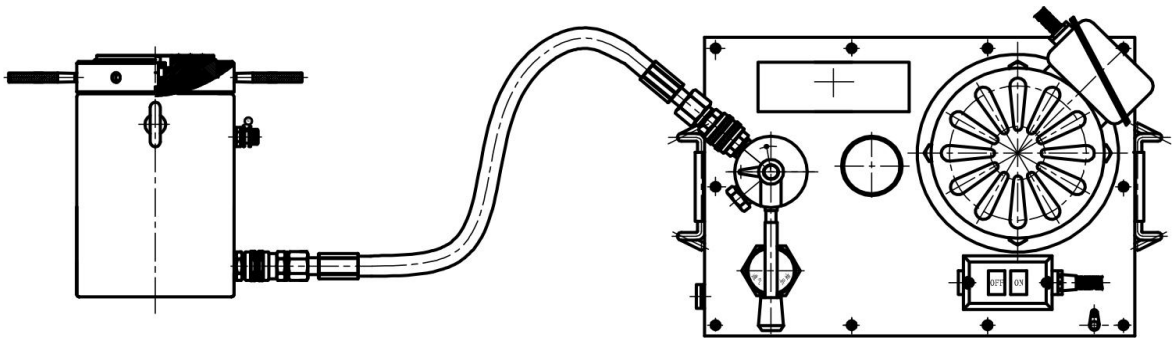


Figure (II)

5. The connection method for quick couplings is shown in figure (III) below: Directly connect the male connector with the female connector axially to the end and then tighten the sleeve. To detach the quick coupling, unscrew the sleeve, pull out the female (male) connector axially, and install the dust caps.

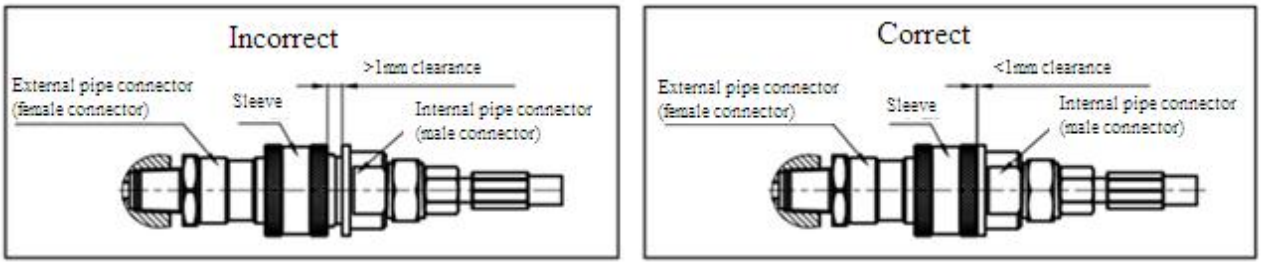


Figure (III)

Warning: Ensure the complete engagement while connecting the quick coupling, in order to ensure that the check valve in the connector is opened to prevent oil line blockage. Otherwise, the check valve in the connected coupling can't open to cause obstructed oil line.

Notice: Ensure to apply the force axially during the disassembling and assembling, in order to prevent damaging O-rings or blocking the external hose connectors.

Notice: Keep clean the hose connectors against the ingress of impurities into pipeline, otherwise it will lead to pipeline leakage or blockage.

Notice: Do not loosen any high pressure oil hose during the running of pump.

6. Choose appropriate gravity center for the weight. Appropriately select the support point of the cylinder and cushion its bottom face levelly and stably to prevent sinkage and inclination (The hardness of the ground shall be taken into consideration to determine the necessity of cushioning with tough wood boards).
7. Firstly perform the no-load running:

   Tighten the hand wheel clockwise on the unloading valve of the hand pump and lift and depress the handle on the hand pump to lift the piston rod. When the piston rod lifts to the rated stroke of the cylinder, loosen counter-clockwise the hand wheel on unloading valve so that the piston rod returns under the action of gravity. Repeat above operation for several times. If no abnormality is detected, the cylinder can be used for lifting of weights. (Please refer to the corresponding operation instructions for the operations of hand pump)

   Electric pump: Start the electric pump and operate the handle of directional control valve on the electric pump to the working position connected to the oil hose to lift the piston rod. When the piston rod lifts to the rated stroke of the cylinder, operate the handle to the neutral unloading position so that the piston rod returns under the action of gravity. Repeat above operation for

several times. If no abnormality is detected, the cylinder can be used for lifting of weights. (Please refer to the corresponding operation instructions for the operations of electric pump)

8. Preparations: When the piston rod lifts a weight to the required stroke, immediately screw the lock nut on the cylinder by handle to the end face of cylinder body to support the weight by mechanical lock.
9. To reset the piston rod, unscrew the lock nut by handle to the end face of piston rod to unload the pump and then return the piston rod under action of gravity.
10. Completion: Timely cut off the power supply and disassemble the high pressure hoses and install dust caps.

VII. Troubleshooting

Problem	Possible malfunction cause
Cylinder can't advance	Opened relief valve of pump
	Incompletely tightened connectors
	Low oil level in pump
	Pump malfunction
	Load beyond carrying capacity of cylinder
	Leakage of cylinder seals
Cylinder only advances for one segment	Low oil level in pump
	Incompletely tightened connectors
	Obstructed motion of cylinder piston
Sudden advancement of cylinder	Air content in hydraulic system
	Obstructed motion of cylinder piston
Low advancement speed of cylinder	Connection leakage
	Incompletely tightened connectors
	Pump malfunction
Advancement of cylinder without pressure holding	Pump malfunction
	Connection leakage
	Incorrect system settings
	Leakage of cylinder seals

Oil leakage of cylinder.	Wear or damage of seals
	Internal damage of cylinder
	Loose connection
Reversing failure or slow reversing speed of cylinder	Incompletely tightened connectors
	Excessive oil in pump oil tank
	Obstructed flow due to undersized hose
	Damage or insufficient elasticity of compression spring (if equipped)
	Internal damage of cylinder
Oil leakage of external relief valve	Incompletely tightened connectors
	Obstructed oil return pipeline

Note:

1. **Our company reserves the modification right for these operation instructions of this hydraulic cylinder without further notice.**
2. **For more detailed information, please contact our company.**

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