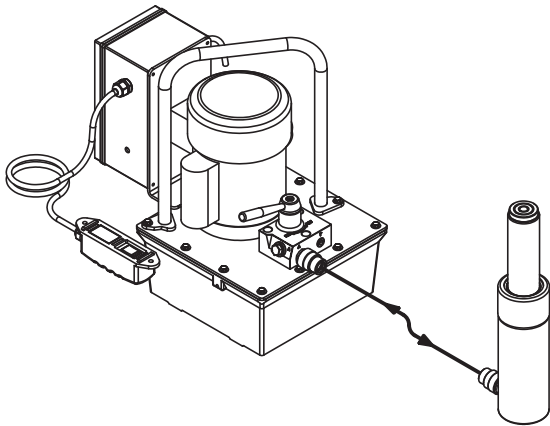


The basic hydraulic system consists of a single acting cylinder, The pump can be powered by an electric motor, air power and also machanic driven by hand or foot pumps.

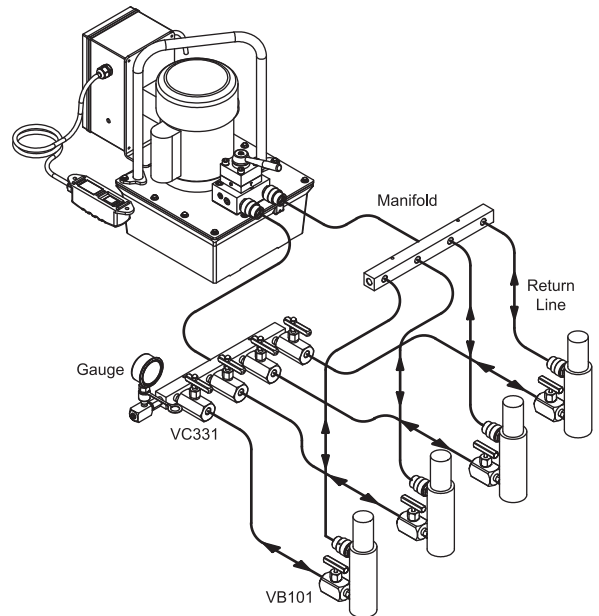


Flow: is created by pump.

Pressure: is created by resistance to flow. This resistance is usually the result of a load.

Force: The amount of force a hydraulic cylinder can be generated is equal to hydraulic pressure times the effective area of the cylinder. (Effective area is the surface of the piston face in cm<sup>2</sup>.)

For mutiple cylinder systems, multiply the effective area times the number of cylinders times pressure to determine the system force.



Many different system arrangements can be achieved by using a remote mounted directional valve. Remote valves are ideal when system control is desired away from the pump. Hydraulic connections are quick and convenient when you use inline manifolds to control upto 4 double-acting cylinders.

### ■ Formula for Calculation of Output Force:

$$\frac{\text{bar} \times \text{Cylinder Effective Area} \times \text{No. of Cylinders}}{1000 \text{ kgs}} = \text{Metric Tons}$$

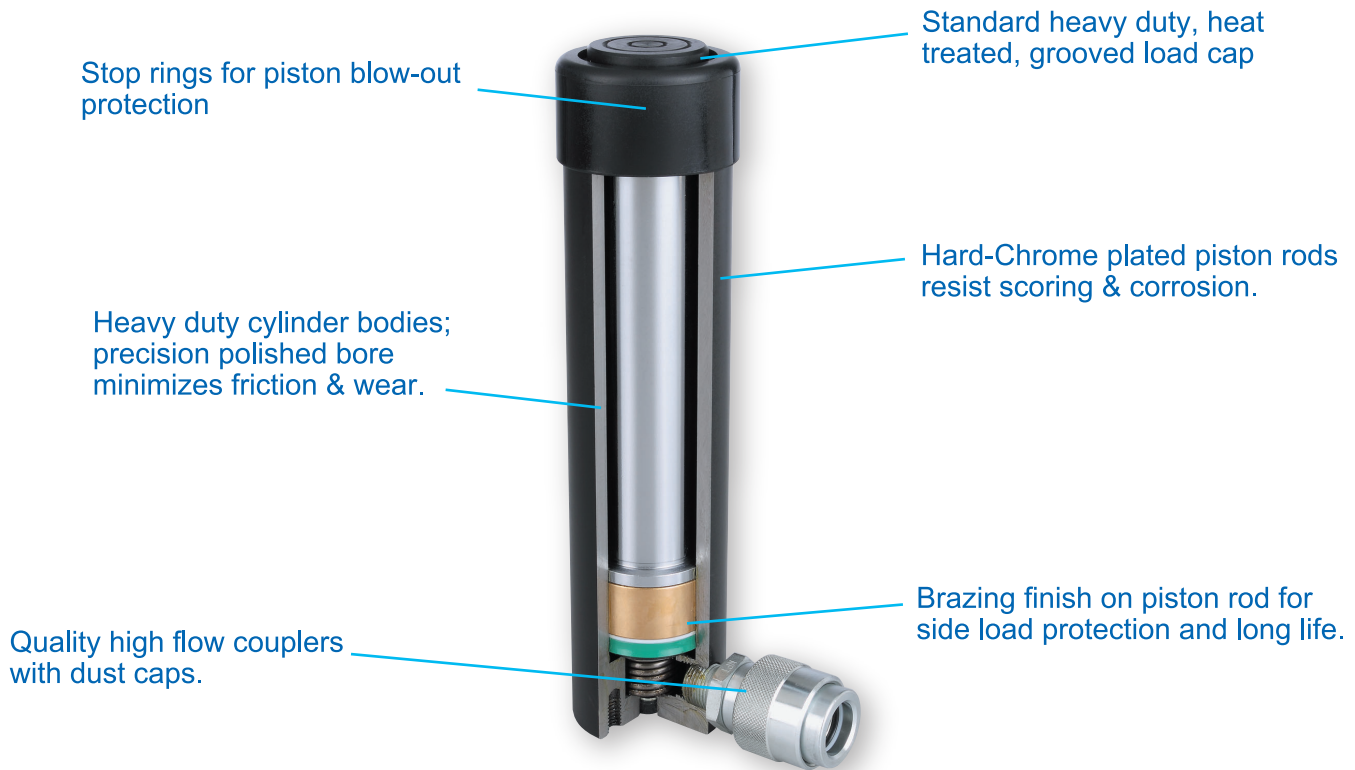
Speed: When using a " power pump " the speed at which your cylinder will lift is determined by dividing the pump's flow by the cylinder's effective area.

### ■ Formula for Calculation of Lifiting Speed

$$\frac{\text{Pump Flow per Minute}}{\text{Cylinder Effective Area} \times \text{No. of Cylinders}} = \text{Piston Travel ( mm / min )}$$

### ■ Metric Conversion Chart

1 U.S. Gallon = 3.785 Liters = 3.785 cu./cm	1kPa = 6.9 psi
1Cubic Inch = 16.39 cu./cm	1 inch = 2.54 cm = 25.4 mm
1 Bar = 14.7 psi	1 Meter = 39.37 in.
1 Metric Ton = 2,205 lbs = 1,000 kgs	1 Horsepower = 745.7 Watts
1 Ton ( short ) = 2,000 lbs = 907.18 kgs	



## FEATURES

1. **Wide Variety**  
Powerram offers the wide selection of cylinder design, capacity and stroke to match your daily requirements.
2. **Built for Rugged Industrial/Construction Use**  
All Powerram cylinders meet worldwide Safety Standards. Stop rings, plated pistons and heavy duty construction provide trouble free operation and long life.
3. **Spring Return**  
Heavy duty with steel plated spring provide fast and completed retraction after cycle, and retain the tension longer.  
Long lasting spring contribute substantially to the cylinder life.
4. **Versatile Fixtures**  
Threaded collars and internal plunger threads withstand full loading for maximum flexibility in fixturing.
5. **Piston Blow-Out Protection**  
All Powerram cylinders incorporate a positive piston stop to limit piston travel at the end of the stroke, allowing the cylinder to be operated at full stroke. Piston stops add strength and safety to your Powerram cylinder.
6. **Protection from Contamination**  
Rod wiper clean the rod surface during retraction, protecting the inner cylinder assembly from dirt, moisture and other contaminants that may reduce the strength of the piston stroke.
7. **Protection from Outside**  
**Most POWERRAM cylinders have Black Nitriding Finish which provide sustainable protection against moisture and other contaminant.**  
**All aluminum cylinders have hard anodized finish.**
8. **POWERRAM cylinders fully comply to ANSI/ASME B30.1.**

## SUMMARY OF CYLINDERS

Series	Description	Type	Capacity (ton)	Stroke (mm)	Page
NSSS	Standard, Spring Return	Single Acting	4.5 - 100	25.4 - 406	07
NSHS / NRHS	Hollow, Spring Return	Single Acting	10 - 100	8 - 160	09
NSCS	Compact, Spring Return	Single Acting	10 - 100	38 - 62	10
NSLS	Flat, Spring Return	Single Acting	5 - 150	6 - 17	11
NSLS	Telescopic, Load Return	Single Acting	10 - 20	13 - 25	12
JLLC	Lock Nut, Load Return	Single Acting	50 - 1000	50 - 300	13 - 14
JLPC	Lock Nut, Low height, Load Return	Single Acting	60 - 250	45 - 50	15
SSA	Aluminum, Standard, Spring Return	Single Acting	20 - 100	50 - 250	03
ACHC	Aluminum, Hollow, Spring Return	Single Acting	20 - 60	50 - 150	04
ALNC	Aluminum, Lock Nut, Spring Return	Single Acting	20 - 100	50 - 250	06
ADHC	Aluminum, Hollow	Double Acting	30 - 60	50 - 250	05
NDAC	Standard	Double Acting	10 - 100	150 - 470	16
NDAH	Hollow	Double Acting	30 - 100	76 - 257	17

# ALUMINUM CYLINDERS



## MODEL:SSA-SERIES

Capacity: 20 - 100 Ton

Stroke: 50 - 250 mm

Spring Return, Single Acting

Max. Working Pressure: 700 bar / 10,000 psi

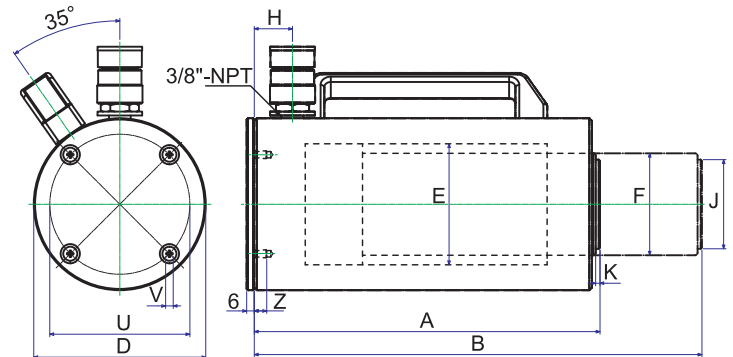


## FEATURES

- Half weight of the steel cylinders.
- Heavy duty spring for fast & full retraction.
- Large saddle surface for side load protection.
- Carrying handles are equipped for all models.
- Hard-Anodized coating reduces wear & corrosion.
- Rod wiper protects inner rod from dirt.
- Stop rings for piston blow-out protection.

Base Plate Mounting Holes Dimensions(mm)

Model No./ Capacity (ton)	Bolt Circle U (mm)	Thread V (mm)	Thread Depth Z (mm)
SSA-20	70	M6x1.0	20
SSA-30	80	M6x1.0	10
SSA-50	110	M6x1.0	10
SSA-100	160	M6x1.0	10



## SPECIFICATIONS

Model No.	Capacity (ton)	Stroke (mm)	Cylinder Effective Area (cm <sup>2</sup> )	Oil Capacity (cm <sup>3</sup> )	Collapsed Height A (mm)	Extended Height B (mm)	Outside Diameter D (mm)	Cylinder Bore Diam E (mm)	Plunger Diameter F (mm)	Base to Advance Port H (mm)	Saddle Diameter J (mm)	Saddle Protrusion from Plunger K (mm)	Weight (kgs)
SSA202	20	50	33.2	166	168	218	92	62	55	25	40	3	4.3
SSA204		100	33.2	332	218	318	92	62	55	25	40	3	5.0
SSA206		150	33.2	498	268	418	92	62	55	25	40	3	5.7
SSA208	30	200	33.2	664	318	518	92	62	55	25	40	3	6.5
SSA302		50	44.2	221	175	225	110	75	60	25	40	3	6.0
SSA304		100	44.2	442	225	325	110	75	60	25	40	3	6.9
SSA306	50	150	44.2	663	275	425	110	75	60	25	40	3	7.9
SSA308		200	44.2	884	325	525	110	75	60	25	40	3	8.8
SSA502		50	70.9	354.5	171	221	135	95	80	30	70	6	7.7
SSA504	100	100	70.9	709	221	321	135	95	80	30	70	6	9.1
SSA506		150	70.9	1063.5	271	421	135	95	80	30	70	6	11.7
SSA508		200	70.9	1418	321	521	135	95	80	30	70	6	13.5
SSA5010	100	250	70.9	1772.5	371	621	135	95	80	30	70	6	16.4
SSA1002		50	143	715	185	235	200	135	105	45	70	6	17.2
SSA1004		100	143	1430	235	335	200	135	105	45	70	6	21.0
SSA1006	100	150	143	2145	285	435	200	135	105	45	70	6	25.1
SSA1008		200	143	2860	335	535	200	135	105	45	70	6	28.5
SSA10010		250	143	3575	385	635	200	135	105	45	70	6	30.7



## MODEL:ACHC-SERIES

Capacity: 20 - 60 Tons

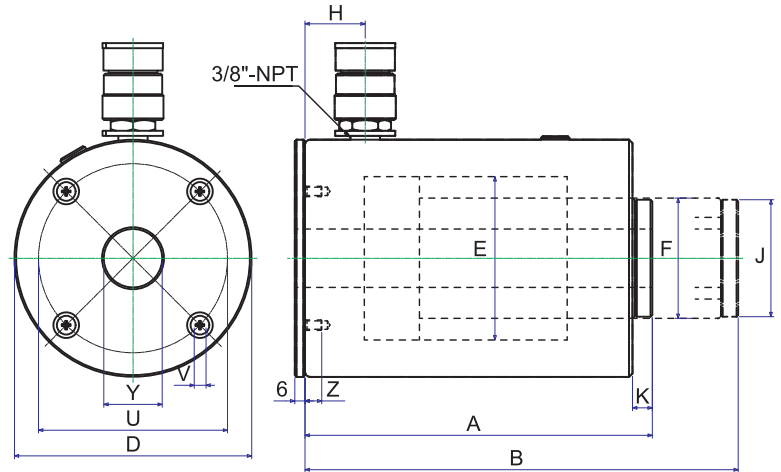
Stroke: 50 - 150 mm

Spring Return, Hollow Type

Max. Working Pressure: 700 bar / 10,000 psi

### FEATURES

- Half weight of the steel cylinders.
- Heavy duty spring for fast & full retraction.
- Chrome plated center hole for extra protection.
- Carrying handles are equipped with all models.
- Hard-Anodized coating reduces wear & corrosion.
- Stop rings for piston blow-out protection.
- Rod wiper protects inner rod from dirt.



Base Plate Mounting Holes Dimensions(mm)

Model No./ Capacity (ton)	Bolt Circle U (mm)	Thread V (mm)	Thread Depth Z (mm)
ACHC-20	80	M6×1.0	10
ACHC-30	110	M6×1.0	10
ACHC-60	160	M6×1.0	10

### SPECIFICATIONS

Model No.	Cylinder Capacity (ton)	Stroke (mm)	Cylinder Effective Area (cm <sup>2</sup> )	Oil Capacity (cm <sup>3</sup> )	Collapsed Height A (mm)	Extended Height B (mm)	Outside Diameter D (mm)	Cylinder Bore Diam E (mm)	Plunger Diameter F (mm)	Base to Advance Port H (mm)	Saddle Diameter J (mm)	Saddle Protrusion from Plunger K (mm)	Center Hole Dia. Y (mm)	Weight (kg)
ACHC202	20	50	34	170	175	225	110	75	55	30	54	8	27	4.3
ACHC204		100		340	245	345	110	75	55	30	54	8	27	6.5
ACHC206		150		510	315	465	110	75	55	30	54	8	27	8.0
ACHC302	30	50	55	275	202	252	138	95	70	35	68	11.5	34	8.4
ACHC304		100		550	264.5	364.5	138	95	70	35	68	11.5	34	11.8
ACHC306		150		825	327	477	138	95	70	35	68	11.5	34	12.8
ACHC602	60	50	89.5	448	250	300	200	125	100	50	89	14	54	23.0
ACHC604		100		895	300	400	200	125	100	50	89	14	54	26.3
ACHC606		150		1342	350	500	200	125	100	50	89	14	54	27.0

# ALUMINUM CYLINDERS

## MODEL:ADHC-SERIES

Capacity: 30 & 60 Tons

Stroke: 50 - 250 mm

Hollow, Double Acting

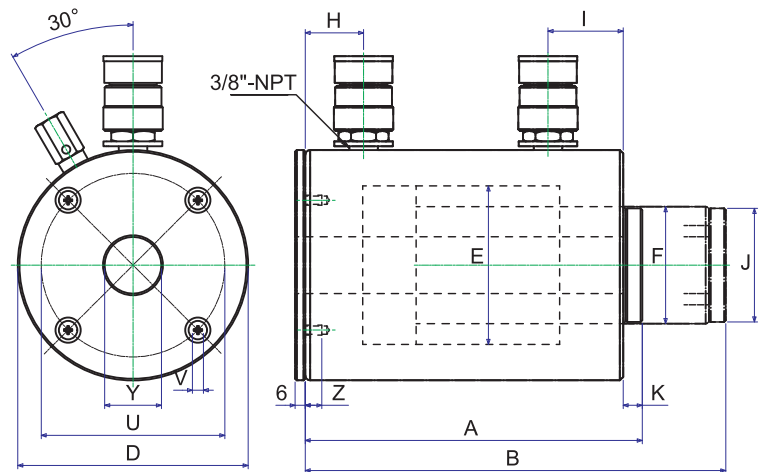
Max. Working Pressure: 700 bar / 10,000 psi



### FEATURES

- Half weight of the steel cylinders.
- Steel piston regarding protection against load damage.
- Chrome plated center sleeve for extra protection.
- Carrying handles are equipped with all models.
- Hard-Anodized coating reduces wear & corrosion.
- Stop rings for piston blow-out protection.
- Rod wiper protects inner rod from dirt.

Base Plate Mounting Holes Dimensions(mm)			
Model No./ Capacity (ton)	Bolt Circle U (mm)	Thread V (mm)	Thread Depth Z (mm)
ADHC-30	110	M6×1.0	10
ADHC-60	160	M6×1.0	10



### SPECIFICATIONS

Model No.	Maximum Cylinder Capacity (ton)	Stroke (mm)	Maximum Cylinder Capacity (tons)		Cylinder Effective Area (cm <sup>2</sup> )		Oil Capacity (cm <sup>3</sup> )		Collapsed Height A (mm)	Extended Height B (mm)	Outside Diameter D (mm)	Cylinder Bore Diam E (mm)	Plunger Diameter F (mm)	Base to Advance Port H (mm)	Top to Retract Port I (mm)	Saddle Diameter J (mm)	Saddle Protrusion from Plunger K (mm)	Center Hole Diameter Y (mm)	Weight (kgs)
			Push	Pull	Push	Pull	Push	Pull											
ADHC302	30	50	38.5	22.7	55	32.4	275	162	202	252	138	95	70	35	45	68	11.5	34	9.6
ADHC306		150					825	486	327	477	138	95	70	35	45	68	11.5	34	14.8
ADHC3010		250					1374	810	430	680	138	95	70	35	45	68	11.5	34	16.0
ADHC602	60	50	62.6	31	89.5	44.2	448	221	250	300	200	125	100	50	50	89	14	54	15.5
ADHC606		150					1342	662	350	500	200	125	100	50	50	89	14	54	23.0
ADHC6010		250					2237	1104	433	683	200	125	100	50	50	89	14	54	30.5

# ALUMINUM CYLINDERS



## MODEL:ALNC-SERIES

Capacity: 20 - 100 Ton

Stroke: 50 - 250 mm

Spring Return, Lock Nut Type

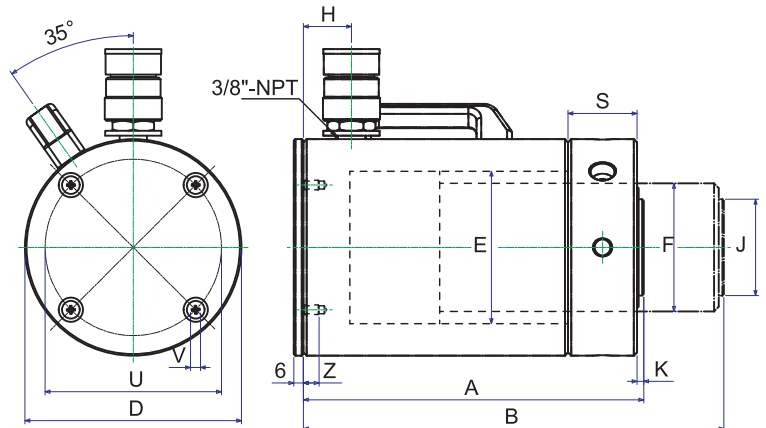
Max. Working Pressure: 700 bar / 10,000 psi



### FEATURES

- Half weight of the steel cylinders.
- Locknut extend load holding period safely.
- Large saddle surface for side load protection.
- Carrying handles are equipped with all models.
- Hard-Anodized coating reduces wear & corrosion.
- Stop rings for piston blow-out protection.
- Heavy duty spring for fast and full retraction.

Base Plate Mounting Holes Dimensions(mm)			
Model No./ Capacity (ton)	Bolt Circle U (mm)	Thread V (mm)	Thread Depth Z (mm)
ALNC-20	70	M6×1.0	10
ALNC-30	80	M6×1.0	10
ALNC-50	110	M6×1.0	10
ALNC-100	160	M6×1.0	10



### SPECIFICATIONS

Model No.	Capacity (ton)	Stroke (mm)	Cylinder Effective Area (cm <sup>2</sup> )	Oil Capacity (cm <sup>3</sup> )	Collapsed Height A (mm)	Extended Height B (mm)	Outside Diameter D (mm)	Cylinder Bore Diam E (mm)	Plunger Diameter (threaded) F (mm)	Base to Advance Port H (mm)	Saddle Diameter J (mm)	Saddle Protrusion from Plunger K (mm)	Lock Nut Height S (mm)	Weight (kgs)
ALNC202	20	50	30.2	151	193	243	92	62	Tr55×3	25	40	3	25	4.8
ALNC204		100	30.2	302	243	343	92	62	Tr55×3	25	40	3	25	5.7
ALNC206		150	30.2	453	293	443	92	62	Tr55×3	25	40	3	25	6.3
ALNC208		200	30.2	604	343	543	92	62	Tr55×3	25	40	3	25	6.9
ALNC302	30	50	44.2	221	205	255	110	75	Tr60×3	25	40	3	30	6.9
ALNC304		100	44.2	442	255	355	110	75	Tr60×3	25	40	3	30	7.7
ALNC306		150	44.2	662	305	455	110	75	Tr60×3	25	40	3	30	8.6
ALNC308		200	44.2	883	355	555	110	75	Tr60×3	25	40	3	30	9.6
ALNC502	50	50	70.8	354	212	262	135	95	Tr80×4	30	60	3	43	9.3
ALNC504		100	70.8	708	262	362	135	95	Tr80×4	30	60	3	43	10.7
ALNC506		150	70.8	1063	312	462	135	95	Tr80×4	30	60	3	43	14.5
ALNC508		200	70.8	1417	362	562	135	95	Tr80×4	30	60	3	43	14.5
ALNC5010		250	70.8	1771	412	662	135	95	Tr80×4	30	60	3	43	16.5
ALNC1002	100	50	143	715	235	285	200	135	Tr105×6	45	70	3	51	21.9
ALNC1004		100	143	1431	285	385	200	135	Tr105×6	45	70	3	51	25.2
ALNC1006		150	143	2146	335	485	200	135	Tr105×6	45	70	3	51	29.2
ALNC1008		200	143	2861	385	585	200	135	Tr105×6	45	70	3	51	33.0
ALNC10010		250	143	3577	435	685	200	135	Tr105×6	45	70	3	51	35.4



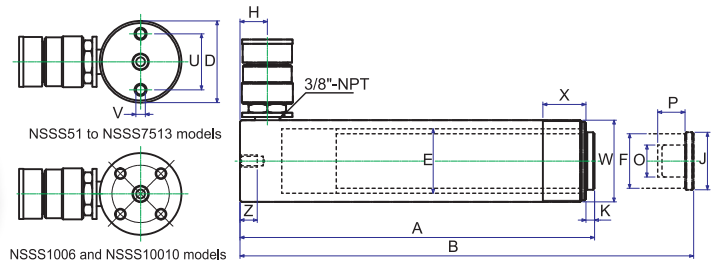
## MODEL: NSSS-SERIES

Capacity: 4.5 - 100 Ton

Stroke: 25.4 - 406 mm

Max. Working Pressure: 700 bar / 10,000 psi

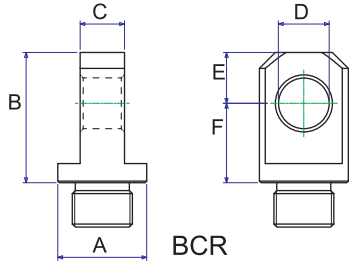
- All cylinders are single acting with spring return.
- Pistons hard chromed.
- Cylinders inside roll-polished.
- Cylinders outside blasted with black nitriding finish.



## NSSS-SERIES, STANDARD CYLINDERS

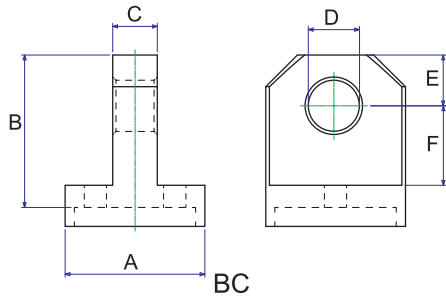
Model	Capacity (ton)	Stroke (mm)	Oil Cap (cm <sup>3</sup> )	A HEIGHT(mm)		D Ø mm	E Ø mm	F Ø mm	H mm	J mm	K mm	O Ø UN	P mm	U mm	V Ø UNC	Z mm	W Ø UN	X mm	Weight (kgs)
				RETRACTED	EXTENDED														
NSSS51	4.5	26	17	110	136		28.6						14						1
NSSS53		76	54	165	241		30						14						1.5
NSSS55	5	127	90	216	343	38	30	25.4	19	25	6	3/4"-16	14	25	1/4"-20	14	1 1/2"-16	28	1.9
NSSS57		183	129	273	456		30						16						2.4
NSSS59		232	164	324	556		30						16						2.8
NSSS101		25.4	36.5	90	115.4		42.8			—	—	#10-24UN	6.5						1.8
NSSS102		51	73	121	172		42.8			40	6	1"-8	19						2.3
NSSS104		101	145	171	272		42.8			40	6	1"-8	19						3.3
NSSS106	10	152.5	242	247	399.5	57	45	38	19	40	6	1"-8	19	39	5/16"-18	13	2 1/4"-14	30	4.4
NSSS108		203.5	323	298	501.5		45			40	6	1"-8	19						5.4
NSSS1010		255.5	406	350	605.5		45			40	6	1"-8	19						6.4
NSSS1012		305.5	486	400	705.5		45			40	6	1"-8	19						6.8
NSSS1014		356.5	567	451	807.5		45			40	6	1"-8	19						8.2
NSSS151		26.5	63	124	150.5				19										3.3
NSSS152		52.5	125	149.6	202.1				19										4.1
NSSS154		102.5	243	200	302.5				19										5
NSSS156		153	363	271.6	424.6				25										6.8
NSSS158	15	203.5	483	322	525.5	73	55	40	25	38	9.6	1"-8	25.4	47.7	3/8"-16	13	2 3/4"-16	30	8.2
NSSS1510		254.5	604	373	627.5				25										9.5
NSSS1512		305	724	424	729				25										10.9
NSSS1514		355.7	845	474.6	830.3				25										11.8
NSSS1516		406	824	523	829				25										12.8
NSSS251		25.5	98	139.5	165														5.9
NSSS252		51	196	165	216														6.4
NSSS254		102	392	216	318														8.2
NSSS256		158.5	610	273	431.5														10
NSSS258	25	209.5	806	324	533.5	88	70	55	25	50	10.5	1 1/2"-16	25.4	58	1/2"-13	19	3 5/16"-12	50	12.2
NSSS2510		260.5	1002	375	635.5														14.1
NSSS2512		311	1196	425.5	736.5														16.3
NSSS2514		361.5	1390.5	476	837.5														17.7
NSSS308	30	209.5	925	387.5	597	103	75	60	57	50	10.5	1 1/2"-16	25.4	—	—	—	4"-12	50	18.1
NSSS502		51	361	177	228														15
NSSS504		101.5	719	229	330.5														19.1
NSSS506	50	157.5	1116	283	440.5	127	95	80	33	70	3	—	—	95	1/2"-13	19	5"-12	55	23.1
NSSS508		203	1446	349	552														27.1
NSSS5010		260	1853	385	645														30.4
NSSS5013		335.5	2377	461	796.5														37.6
NSSS756		155	1752	285	440														29.5
NSSS7513	75	333.5	3770	491	824.5	152	120	95	30	70	3	—	—	—	—	—	5 3/4"-12	45	59
NSSS1002		50	715	238	288														43
NSSS1004	100	100	1430	288	388														50
NSSS1006		170	2432	358	528	177	135	105	40	70	3	—	—	139	3/4"-10	25	6 7/8"-12	45	59
NSSS10010		260	3720	448	708														72.6

## Accessories for NSSS series



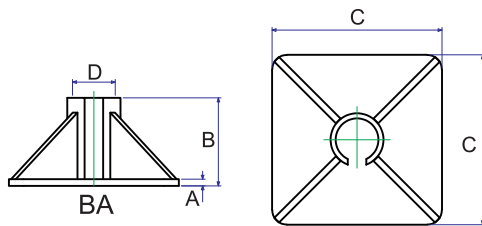
### For NSSS 5, 10, 15 & 25 Ton

Piston Clevis						
Model	A	B	C	D	E	F
BCR5	28	41	14	16	16	25
BCR10	43	59	25	22.3	25	34
BCR15	43	62	25	22.3	25	37
BCR25	57	74	38	31.8	31	43



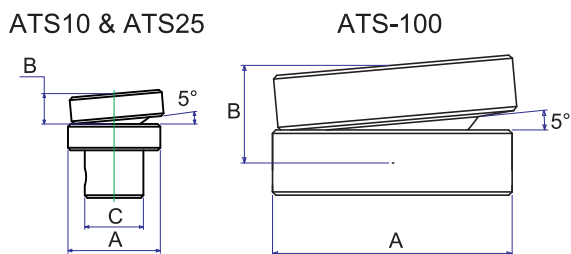
### For NSSS 5, 10, 15 & 25 Ton

Base Clevis						
Model	A	B	C	D	E	F
BC5	44	48	14	16	16	25
BC10	63	67	25	22.3	25	35
BC15	78.5	67	25	22.3	25	35
BC25	95	79	38	31.8	31	41



### BA10 for NSSS102 through NSSS1014 BA25 for NSSS252 through NSSS2514

Cylinder Bases				
Model	A	B	C	D
BA10	10	123	230	58
BA25	16	128	280	89



### ATS10 for NSSS10T ATS25 for NSSS25T through NSSS30T ATS100 for NSSS50T through NSSS100T

Accessories Tilt Saddles			
Model	A	B	C
ATS10	40	11.5	22.2
ATS25	50	14	36.3
ATS100	70	28.5	-

## MODEL: NSHS & NRHS SERIES

Capacity: 10 - 100 Ton

Stroke: 8 - 160 mm

Max. Working Pressure: 700 bar / 10,000 psi

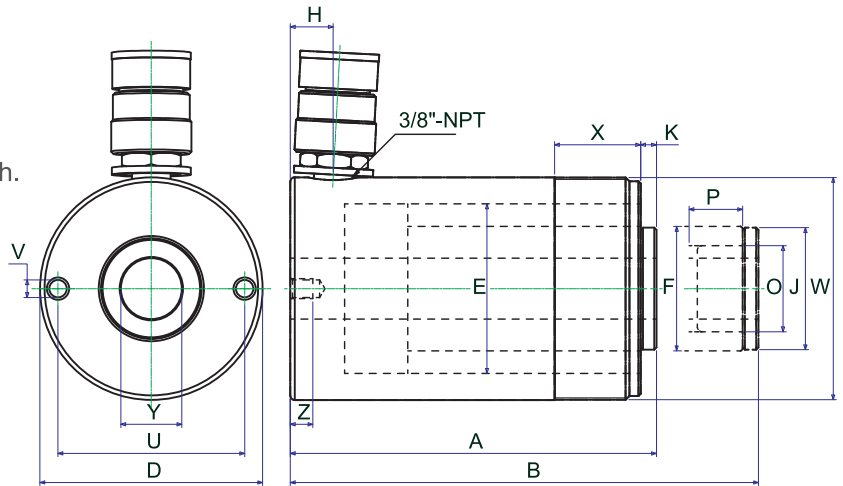


### FEATURES

- All cylinders are single acting with spring return.
- Pistons hard chromed.
- Cylinders inside roll-polished.
- Cylinders outside blasted with black nitriding finish.
- Use in combination with hand / foot pumps (Page 18-28), and accessories (page 71-77)

### NRHS SERIES

- Get the fast retracting speed by Tension spring design.
- Enlarged Plunger size provide stronger gripping force.



### NSHS & NRHS SERIES, HOLLOW PLUNGER CYLINDERS

Model	Capacity (ton)	Stroke (mm)	Cylinder Effective Area (cm <sup>2</sup> )	Oil Cap (cm <sup>3</sup> )	HEIGHT(mm)		D Ø mm	E Ø mm	F Ø mm	H mm	J mm	K mm	O Ø UN	P mm	U mm	V Ø UN	Z mm	W Ø UN	X mm	Y Centre Hole (Ø mm)	Weight (kgs)		
					RETRACTED	EXTENDED																	
NSHS120	12	8	18.5	14.8	60	68	73	54	35	12.5	—	—	3/4"-16	16	50.8	5/16"-18	9	2 3/4"-16	33	19.5	1.8		
NSHS121		42	18.9	79	120	162		55		19			—	—		—	—	12.7	3.1				
NSHS1211		42	18.9	79	120	162		55		19			—	—		3/4"-16	16	12.7	3.1				
NSHS123	20	76	18.9	143.2	184	260	98.5	55	55	19	54	7	1 9/16"-16	25	82.6	3/8"-16	9.4	3 7/8"-12	38	27	4.5		
NSHS202		51	34	173	162	213		75		19			54	7	1 9/16"-16	25	82.6	3/8"-16	9.4	3 7/8"-12	38	27	7.5
NSHS206		155	34	527	306	461		75		19			54	7	1 9/16"-16	25	82.6	3/8"-16	9.4	3 7/8"-12	38	27	13.5
NSHS302	30	65	47.8	310	178.5	243.5	117	90	65	21.5	59.9	0.5	1 7/8"-16	25	92	3/8"-16	14	4 1/2"-12	42	34	20.4		
NSHS306		160	47.8	763	330	490		90		65	21.5	59.9	0.5	1 7/8"-16	25	92	3/8"-16	14	4 1/2"-12	42	34	20.4	
NSHS603	60	76	89.6	680	247.5	323.5	158.6	125	90	32	89	12.5	2 3/4"-16	25	130	1/2"-13	14	6 1/4"-12	50	54	26.8		
NSHS606		152	89.6	1360	323.5	475.5		125		90	32	89	12.5	2 3/4"-16	25	130	1/2"-13	14	6 1/4"-12	50	54	34	
NSHS1003	100	76	143	1085	254	330	213	165	125	38	125	12	4"-16	30	178	5/8"-11	19	8 3/8"-12	60	79	50.1		
NRHS102	10	63.5	14.9	42.6	135.5	199	76.2	60	52.4	25.4	52	0.5	1 3/4"-12	15	60.3	1/4"-20UNC	10	—	—	19.5	4		
NRHS108		203	14.9	302.3	287.5	490.5		60		52.4	25.4	52	0.5	1 3/4"-12	15	60.3	1/4"-20UNC	10	—	—	19.5	8.5	
NRHS302	30	63.5	42.7	271	158.5	222	121	95	79.9	30	79.5	1.5	2 3/4"-12	20	95.3	7/16"-20UNF	14	4 3/4"-20UN	38	33.3	11.4		
NRHS306		152.5	42.7	651	247.5	400		95		79.9	30	79.5	1.5	2 3/4"-12	20	95.3	7/16"-20UNF	14	4 3/4"-20UN	38	33.3	11.4	



## MODEL: NSCS-SERIES

Capacity: 10 - 100 Ton

Stroke: 38 - 62 mm

Max. Working Pressure: 700 bar / 10,000 psi

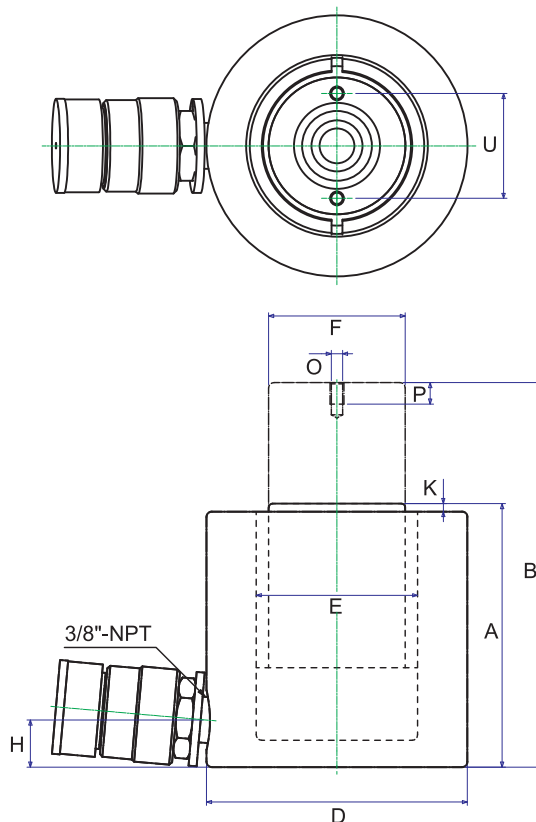
- All cylinders are single acting with spring return.
- Pistons hard chromed.
- Cylinders inside roll-polished.
- Cylinders outside blasted with black nitriding finish.



### Hand / Foot Pumps Page 19-30



### High Pressure Accessories Page 73-79



## NSCS-SERIES, COMPACT CYLINDERS

Model	Capacity (ton)	Stroke (mm)	Oil Cap (cm <sup>3</sup> )	A B		C	D	E	F	H	K	V	G	O	P	U	L	M	Weight (kgs)
				HEIGHT (mm) RETRACTED	HEIGHT (mm) EXTENDED														
NSCS101	10	38	55.0	88	126	—	78	42.8	38	17.5	5	—	—	M4	8	26	—	—	4.1
NSCS201	20	45	127.0	98	143	—	97	60	50.8	17.5	3	—	—	M5	9	39	—	—	5
NSCS302	30	62	274.0	117	179	—	107	75	63.5	19	3	—	—	M5	8	39	—	—	6.8
NSCS502	50	60.5	429.0	127	187.5	—	127	95	70	19	2	—	—	M5	8	39	—	—	10.9
NSCS1002	100	58	830.0	146.5	204.5	—	165	135	92	25	1.5	—	—	M8	10	55	—	—	22.7



## MODEL: NSLS-SERIES

Capacity: 5 - 150 Ton

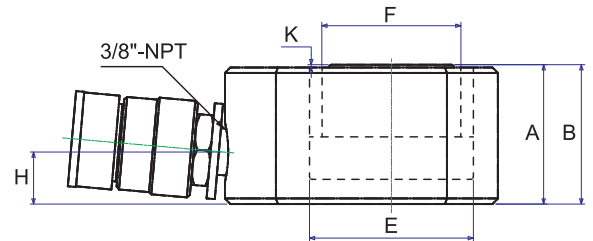
Stroke: 6 - 17 mm

Max. Working Pressure: 700 bar / 10,000 psi

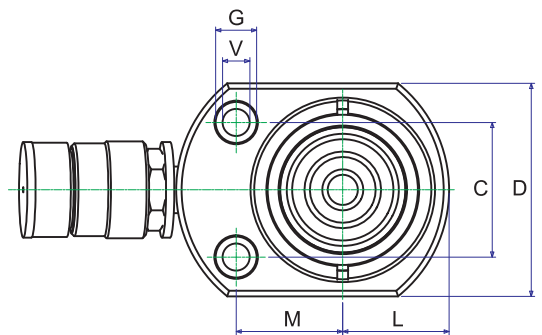
- All cylinders are single acting with spring return.
- Pistons hard chromed.
- Cylinders inside roll-polished.
- Cylinders outside blasted with black nitriding finish.



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## NSLS-SERIES, FLAT CYLINDERS

Model	Capacity (ton)	Stroke (mm)	Oil Cap (cm <sup>3</sup> )	HEIGHT(mm)		C mm	D mm	E mm	F mm	H mm	K mm	V mm	G mm	O mm	P mm	U mm	L mm	M mm	Weight (kgs)
				RETRACTED	EXTENDED														
NSLS50	5	6	4.5	33	39	28.5	58,5×44	31	25.4	16	1	5.3	9.5	—	—	—	22	22	0.7
NSLS100	10	12	18.0	42	54	36.5	82,5×60	44	38	19	1	7.5	11	—	—	—	30	34	1.6
NSLS200	20	12	34.0	51	63	49.3	100×78	60	50.8	19	1	10	15	—	—	—	39	39	2.6
NSLS300	30	13	54.0	58	71	52.3	117,5×95	73	63.5	19	2	10	16	—	—	—	47.5	47.5	4.5
NSLS500	50	16	113.0	66	82	66.5	145×115	95	70	19	2	11	19	—	—	—	57.5	58	6.8
NSLS750	75	16	180.0	79	95	76.2	170×145	120	82.5	19	2	13.5	20.5	—	—	—	72.5	70	11.3
NSLS1000	100	16	229.0	85	101	76.2	185×160	135	92	19	2	13.5	20.5	—	—	—	80	78	14.5
NSLS1500	150	17	363.0	100	117	117	225×195	165	115	23	2	13.5	20.5	—	—	—	97.5	85	26.3

## MODEL: NSLS-TELESCOPIC SERIES

Capacity: 10 ~ 35 Ton

Stroke: 13 - 135 mm

Max. Working Pressure: 700 bar / 10,000 psi



NSLS20-10



NSLS10-05



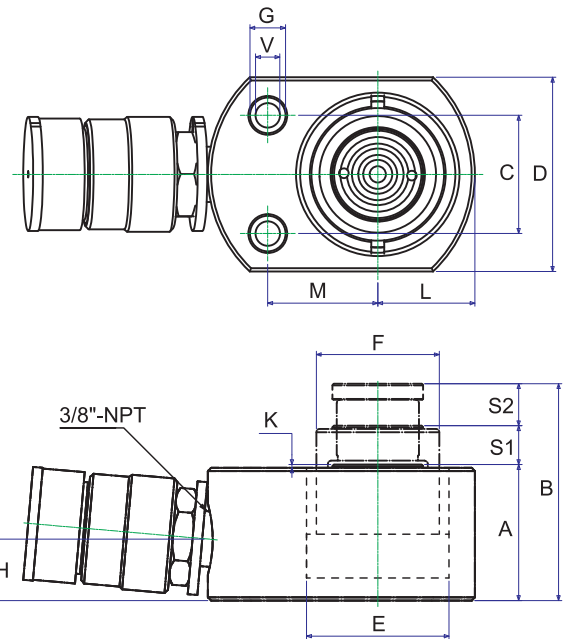
NSLS35-14

### FEATURES

- NSLS Telescopic Cylinders have a build-in matting and long stroke.
- They are perfect for those who works with different types of service job in tight spaces and want to combine large forces with long stroke.
- Available in three different sizes: 10+5 Ton, 20+10 Ton and 35+14 Ton.
- Single Acting, Load Return
- Pistons hard chromed.
- Cylinders inside roll-polished.
- Cylinders outside blasted with black nitriding finish.
- Use in combination with hand / foot pumps (Page 19-30), and accessories (page 73-79)

### CAUTION!

To prevent damage to the compact system, always load the load at the middle of the lifting piston.



### NSLS TELESCOPIC CYLINDERS

Model No.	Capacity (ton)		Stroke (mm)		Effective Area (cm <sup>2</sup> )		Oil Cap (cm <sup>3</sup> )	A	B	C mm	D mm	E mm	F mm	H mm	K mm	V mm	G mm	L mm	M mm	Weight (kgs)
	1st	2nd	S1	S2	1st	2nd		Height (mm)												
	RETRACTED	EXTENDED																		
NSLS10-05	10	5	12	13	15.2	7.5	29	42	67	36.5	82.5×60	44	38	19	1	7.5	11	30	34	1.6
NSLS20-10	20	10	12	13	28.3	15.2	55	51	76	49.3	100×78	60	50.8	19	1	10	15	39	39	2.6
NSLS35-14	35	14	135	135	50	20	944	283	553	—	—	80	67	20	46	—	—	—	—	16.1

# LOCK NUT CYLINDERS

## MODEL:JLLC-SERIES

Capacity: 50 - 1,000 Tons

Stroke: 50 - 300 mm

Max. working pressure: 700 bar / 10,000 psi

Load Return, Lock Nut



### FEATURES

- Single-acting, load return.
- Safety Lock nut for mechanical load holding.
- Chrome plated for preventing corrosion and lower friction for smoother operation.
- Withstands side load forces up to 5% of rated cylinder capacity without scoring.
- Overflow port for piston protection.
- Interchangeable, hardened, grooved saddle are standard.
- High flow coupler and dust cap included on all models.

### SPECIFICATIONS

Model No.	Capacity (ton)	Stroke (mm)	Collapsed Height A (mm)	Extended Height B (mm)	Weight (kgs)
JLLC502	50	50	164	214	15
JLLC506		150	264	414	25
JLLC5010		250	364	614	35
JLLC1002	100	50	187	237	30
JLLC1006		150	287	437	48
JLLC10010		250	387	637	64
JLLC1502	150	50	209	259	53
JLLC1506		150	309	459	78
JLLC15012		300	459	759	117
JLLC2002	200	50	243	293	83
JLLC2006		150	343	493	117
JLLC20012		300	493	793	170
JLLC3002	300	50	295	345	173
JLLC3006		150	395	545	233
JLLC30012		300	545	845	323
JLLC4002	400	50	335	385	250
JLLC4006		150	435	585	327
JLLC40012		300	585	885	441
JLLC5002	500	50	375	425	367
JLLC5006		150	475	625	466
JLLC50012		300	625	925	617
JLLC6002	600	50	395	445	446
JLLC6006		150	495	645	562
JLLC60012		300	645	945	737
JLLC8002	800	50	455	505	709
JLLC8006		150	555	705	870
JLLC80012		300	705	1005	1110
JLLC10002	1000	50	495	545	949
JLLC10006		150	595	745	1141
JLLC100012		300	745	1045	1430

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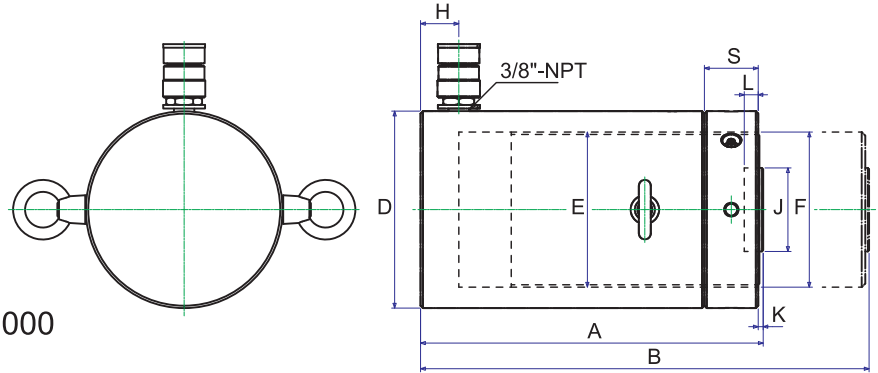


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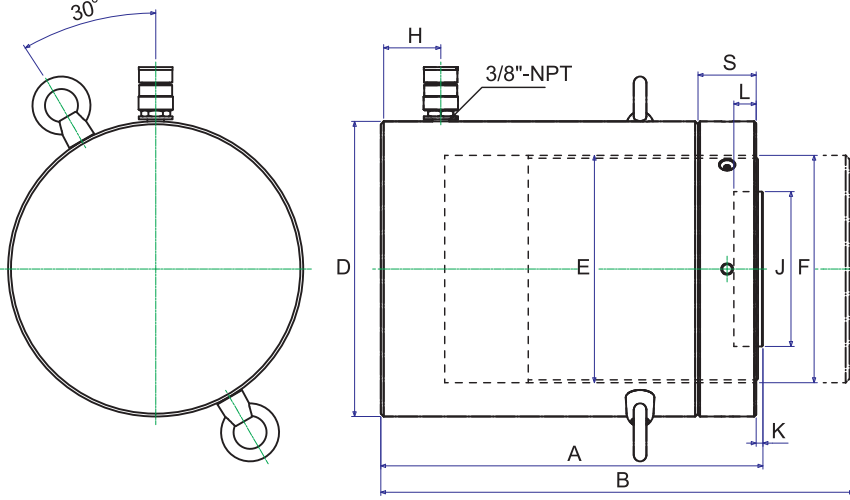


# LOCK NUT CYLINDERS

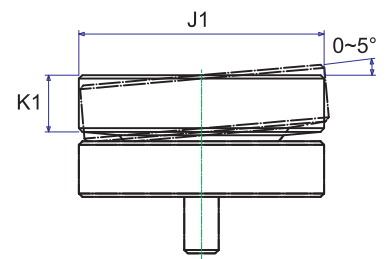
MODEL:JLLC50 - JLLC200



MODEL:JLLC300 - JLLC1000



TSA-Optional Tilt Saddle



Model No.	Cylinder Effective Area (cm <sup>2</sup> )	Oil Capacity (c.c.)	Outside Diameter D (mm)	Cylinder Bore Diam E (mm)	Plunger Diameter F (mm)	Base to Advance Port H (mm)	Saddle Diameter J (mm)	Saddle Protrusion from Plunger K (mm)	Depth of Plunger Hole L (mm)	Lock Nut Height S (mm)	Model No.	Optional Tilt Saddle		
												Dia. J1 (mm)	Height K1 (mm)	Model Number
JLLC502	70.9	354.5	125	95	Tr95x4	20	70	4	13	35	JLLC502	70	22	TSA-100
JLLC506	70.9	1063.5	125	95	Tr95x4	20	70	4	13	35	JLLC506	70	22	TSA-100
JLLC5010	70.9	1772.5	125	95	Tr95x4	20	70	4	13	35	JLLC5010	70	22	TSA-100
JLLC1002	133	665	165	130	Tr130x4	32	70	4	13	45	JLLC1002	70	22	TSA-100
JLLC1006	133	1995	165	130	Tr130x4	32	70	4	13	45	JLLC1006	70	22	TSA-100
JLLC10010	133	3325	165	130	Tr130x4	32	70	4	13	45	JLLC10010	70	22	TSA-100
JLLC1502	201	1005	205	160	Tr160x6	49	125	4	25	45	JLLC1502	125	20	TSA-200
JLLC1506	201	3015	205	160	Tr160x6	49	125	4	25	45	JLLC1506	125	20	TSA-200
JLLC15012	201	6030	205	160	Tr160x6	49	125	4	25	45	JLLC15012	125	20	TSA-200
JLLC2002	269	1345	235	185	Tr185x6	52	125	4	25	50	JLLC2002	125	20	TSA-200
JLLC2006	269	4035	235	185	Tr185x6	52	125	4	25	50	JLLC2006	125	20	TSA-200
JLLC20012	269	8070	235	185	Tr185x6	52	125	4	25	50	JLLC20012	125	20	TSA-200
JLLC3002	433.5	2167.5	305	235	Tr235x6	62	160	5	25	60	JLLC3002	195	75	TSA-300
JLLC3006	433.5	6502.5	305	235	Tr235x6	62	160	5	25	60	JLLC3006	195	75	TSA-300
JLLC30012	433.5	13005	305	235	Tr235x6	62	160	5	25	60	JLLC30012	195	75	TSA-300
JLLC4002	551	2755	355	265	Tr265x6	76	160	5	25	70	JLLC4002	225	85	TSA-400
JLLC4006	551	8265	355	265	Tr265x6	76	160	5	25	70	JLLC4006	225	85	TSA-400
JLLC40012	551	16530	355	265	Tr265x6	76	160	5	25	70	JLLC40012	225	85	TSA-400
JLLC5002	706.5	3532.5	395	300	Tr300x6	81	180	5	25	80	JLLC5002	250	90	TSA-500
JLLC5006	706.5	10597.5	395	300	Tr300x6	81	180	5	25	80	JLLC5006	250	90	TSA-500
JLLC50012	706.5	21195	395	300	Tr300x6	81	180	5	25	80	JLLC50012	250	90	TSA-500
JLLC6002	854.9	4274	425	330	Tr330x6	89	195	5	25	85	JLLC6002	275	95	TSA-600
JLLC6006	854.9	12823	425	330	Tr330x6	89	195	5	25	85	JLLC6006	275	95	TSA-600
JLLC60012	854.9	25646	425	330	Tr330x6	89	195	5	25	85	JLLC60012	275	95	TSA-600
JLLC8002	1194	5970	505	390	Tr390x6	105	225	5	25	100	JLLC8002	320	120	TSA-800
JLLC8006	1194	17910	505	390	Tr390x6	105	225	5	25	100	JLLC8006	320	120	TSA-800
JLLC80012	1194	35820	505	390	Tr390x6	105	225	5	25	100	JLLC80012	320	120	TSA-800
JLLC10002	1451.5	7257	555	430	Tr430x6	108	250	5	25	110	JLLC10002	360	135	TSA-1000
JLLC10006	1451.5	21772	555	430	Tr430x6	108	250	5	25	110	JLLC10006	360	135	TSA-1000
JLLC100012	1451.5	43544	555	430	Tr430x6	108	250	5	25	110	JLLC100012	360	135	TSA-1000

## MODEL: JLPC-SERIES

Capacity: 60 - 250 Tons

Stroke: 45 & 50 mm

Max. working pressure: 700 bar / 10,000 psi

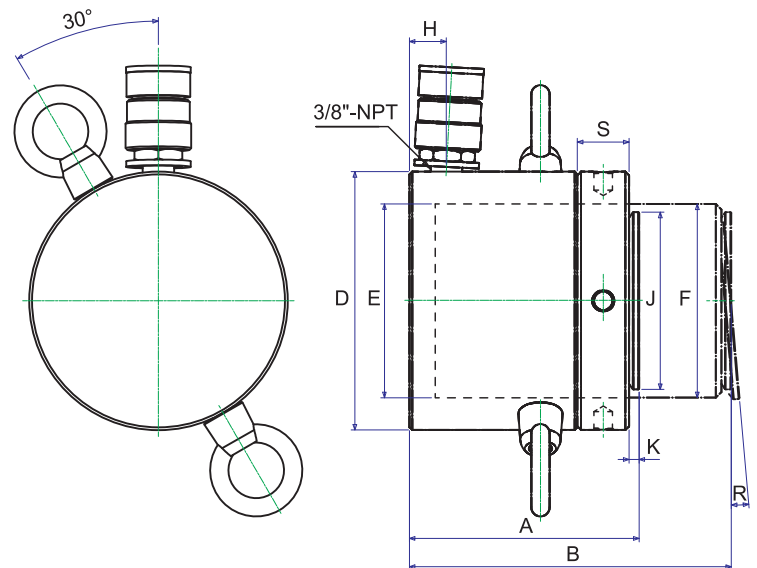
Load Return



### FEATURES

- Extremely low height for use in confined areas.
- Single-acting, load return.
- Lock nut for positive and safe load holding over a long period of time.
- Chrome plated for preventing corrosion and lower friction for smoother operation.
- Withstands sideload forces up to 3% of rated cylinder capacity without scoring.
- Overflow port functions as a stroke limiter.
- High flow coupler and dust cap included on all models.

## MODEL: JLPC60 - 250



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### SPECIFICATIONS

Model No.	Cylinder Capacity (ton)	Stroke (mm)	Cylinder Effective Area (cm <sup>2</sup> )	Oil Capacity (c.c.)	Collapsed Height A (mm)	Extended Height B (mm)	Outside Diameter D (mm)	Cylinder Bore Diam E (mm)	Plunger Diameter F (mm)	Base to Advance Port H (mm)	Saddle Diameter J (mm)	Saddle Protrusion from Plunger K (mm)	Saddle Max. Tilt Angle R	Lock Nut Height S (mm)
JLPC602	60	50	86.6	433	124	174	140	105	Tr105x6	20	96	5	5°	28
JLPC1002	100		143	715	137	187	175	135	Tr135x6	21	126	8	5°	31
JLPC1502	150		214	963	148	193	220	165	Tr165x6	27	150	9	5°	40
JLPC2002	200	45	283	1273.5	155	200	245	190	Tr190x6	30	180	10	5°	43
JLPC2502	250		363	1633	159	204	275	215	Tr215x6	32	200	11	5°	44

# DOUBLE-ACTING CYLINDERS



## MODEL:NDAC-SERIES

Capacity: 10 - 100 Tons

Stroke: 150 - 470 mm

Max. working pressure: 700 bar / 10,000 psi

Double-Acting

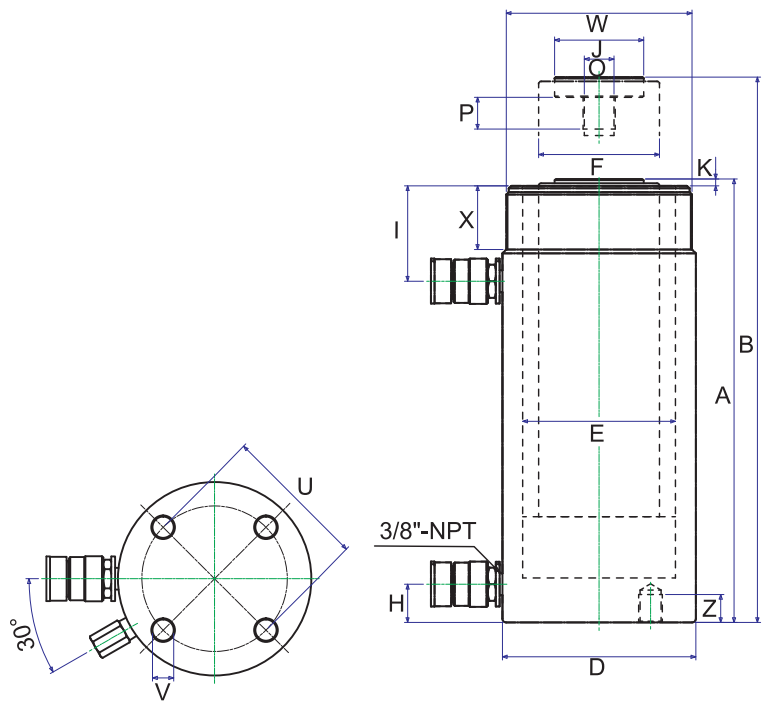
### FEATURES

- Perfect for construction, shipyard, utility, mining and equipment maintenance shops.
- Piston hard chromed.
- Cylinders inside roll-polished.
- Cylinders outside blasted with black nitriding finish.

### Hand / Foot Pumps Page 19-30



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## SPECIFICATIONS

Model No.	Cap. (ton)		Stroke (mm)	Oil Cap. (cm <sup>3</sup> )		A B Height (mm)		D Ømm	E Ømm	F Ømm	H mm	I mm	J Ømm	K mm	O ØUN	P mm	U mm	V Ø UNC	Z mm	W ØUN	X mm	Y Center Hole (Ø mm)	Weight (kgs)
	Push	Pull		Push	Pull	Retracted	Extended																
NDAC1010	10	4	251	399	144	408	659	78	45	36	36.5	55	40	8	1"-8	25.4	--	--	--	2 1/4"-14	27	--	13
NDAC1012			301	478	172	458	759																15
NDAC308	30	14	209	923	426	387	596	103	75	55	25	75	50	12	1 1/2"-16	25.4	--	--	--	4"-12	50	--	20
NDAC3014			368	1625	751	547	915																29
NDAC506			150	1062	309	331	481				30												29
NDAC5013	50	14	330	2338	680	511	841	127	95	80		70	70	5	1"-12	25.4	88.9	5/8"-11	22	5"-12	50	--	43
NDAC5018			470	3330	968	675	1145				52												59
NDAC756	75	29.5	155	1752	654	348	503	152	120	95	30	75	70	5	1"-12	38	114.3	3/4"-10	22	5 3/4"-12	45	--	40
NDAC7513			333	3764	1405	526	859																58
NDAC1006	100	50.6	160	2289	1155	358	518	177	135	95	38	71	80	5	1 3/4"-12	35	139.7	3/4"-10	25	6 7/8"-12	50	--	59
NDAC10013			330	4721	2383	528	858																83

# DOUBLE-ACTING CYLINDERS



## MODEL: NDAH-SERIES

Capacity: 30 - 100 Tons

Stroke: 76 - 257 mm

Max. working pressure: 700 bar / 10,000 psi

Double-Acting, Hollow Plunger

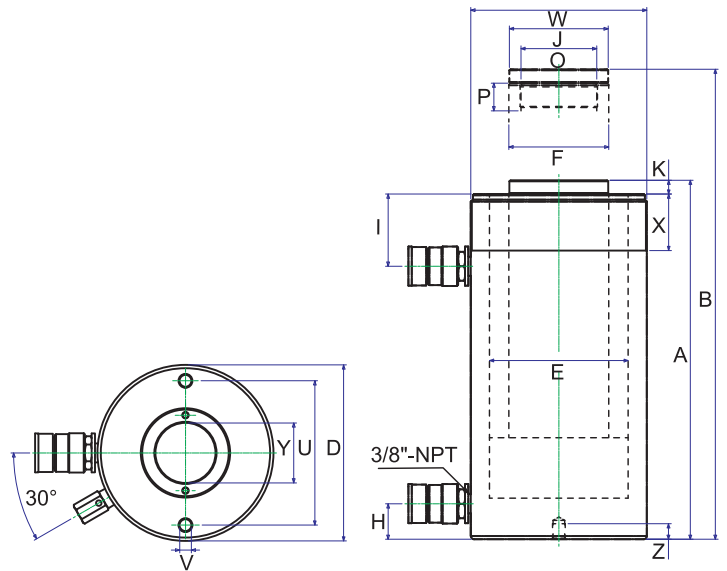
### FEATURES

- Perfect for construction, shipyard, utility, mining and equipment maintenance shops.
- Piston hard chromed.
- Cylinders inside roll-polished.
- Cylinders outside blasted with black nitriding finish.

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## SPECIFICATIONS

Model No.	Capacity (ton)		Stroke (mm)	Cylinder Effective Area (cm <sup>2</sup> )	Oil Cap. (cm <sup>3</sup> )		A B		D	E	F	H	I	J	K	O	P	U	V	Z	W	X	Y	Weight (kgs)
	Push	Pull			Push	Pull	Retracted	Extended																
NDAH307	30	21	178	47.8	849	541	330	508	117	90	65	21.5	60.5	60	0.5	17/8"-16	25	92	3/8"-16	14	4 1/2"-12	42	34	22
NDAH3010			257	47.8	1226	782	431	688																27
NDAH603			89	89.6	797	526	247.5	336.5																28
NDAH606	60	41	165	89.6	1477	975	323.5	488.5	158.6	125	90	32	65	89	12.5	2 3/4"-16	25	130	1/2"-13	14	6 1/4"-12	50	54	35
NDAH6010			257	89.6	2300	1518	437.5	694.5																45
NDAH1003			76	143	1086	692	254	330																52
NDAH1006	100	64	152	143	2172	1384	325	477	213	165	125	38	82	125	12	4"-16	30	178	5/8"-11	19	8 3/8"-12	60	79	65
NDAH10010			256	143	3656	2331	462	718																88