Hi-Force®

HYDRAULIC TOOLS



PRODUCT CATALOG



OUR MISSION STATEMENT

To support our valued customers through the design, manufacture and supply of first class products and services of exceptional quality, to assist them to gain competitive advantage in their markets.

To sustain our vision and mission by constantly seeking improvement via continuous education and learning, and the application of the best available technology and business practices.

To provide a pleasant, nurturing and growth orientated environment, which encourages our employees to be highly productive and to grow both personally and professionally.

To develop diversified markets, that provide stability, and adequate financial returns and allow us to achieve our vision and provide opportunities for existing and future employees.

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HI-FORCE HYDRAULIC CYLINDERS

The extensive range of Hi-Force hydraulic cylinders includes a wide choice of options related to capacity, stroke length, single or double acting operation, steel or aluminum construction, hollow piston center hole and mechanical failsafe lock ring designs. All models are 10000 psi maximum working pressure and standard capacities range from 5 tons to 1115 tons. Hi-Force also offers custom designed and manufactured cylinders, meeting specific and unique customer requirements.

There is a Hi-Force hydraulic cylinder to suit every application and the high quality design and construction of all models, using the best available materials, ensures that Hi-Force hydraulic cylinders can cope with the most demanding applications in the harshest working conditions. Suitable manual and powered pumps for use with Hi-Force cylinders can be found on pages 28 to 55.













HYDRAULIC CYLINDERS

SELECTION TABLE 6

HVL RANGE 7
Single acting very low height pancake cylinders

HPS RANGE 8
Single acting low height pad cylinders

HLS RANGE 9
Single acting low height cylinders

HSS RANGE 10
Single acting multi-purpose cylinders

HHS RANGE 11
Single acting hollow piston cylinders

HHR RANGE 12
Double acting hollow piston cylinders

HDA RANGE 13
Double acting high tonnage cylinders

HFL RANGE 14
Single acting low height failsafe lock ring cylinders

HFG RANGE 15
Single acting failsafe lock ring cylinders

HAS RANGE 16
Single acting solid piston aluminum cylinders

HHA RANGE 17
Single acting hollow piston aluminum cylinders

HFA RANGE 18
Single acting failsafe lock ring aluminum cylinders

HRA RANGE 19
Double acting high tonnage aluminum cylinders

HGG RANGE 20
Single acting load return high tonnage industrial cylinders

HSG RANGE 21
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Pump and cylinder sets

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Saddles and piston rod thread specifications and drawings

SELECTION TABLE FOR HI-FORCE STANDARD RANGE CYLINDERS

Cylinder stroke (in)	Maximum lifting capacity of cylinders (tons)												
	5	11-12	16-22	25-35	36-41	55-57	67-80	112-121	162-167	220-287	353-439	573-892	1115
0.24	HPS50	HVL10	HVL20	HVL30		HVL50		HVL100					
0.39		HPS100											
0.43			HPS200										
0.47				HPS300									
0.59						HPS500							
0.63	HPS51						HPS750	HPS1000	HPS1500				
0.99	HSS51	HSS101 HHS101		HLS301		HLS501		HLS1001	HLS1501				
1.58		HLS101											
1.73			HLS201										
1.77									HFL1502	HFL2002 HFL2502	HFL4002	HFL5002	
1.97	HSS52	HHS102	HSS152	HHS202	HHS302			HFL1002	HLS1502	HFG2002			
2.01			HHA182	HSS252 HAS302 HFA302 HRA302	HHR302 HHA372	HSS502 HFL502 HFG502 HAS502 HFA502 HRA502		HFG1002 HAS1002 HFA1002 HRA1002	HFG1502				
2.21		HSS102											
2.36				HLS302		HLS502		HLS1002					
2.96	HSS53												
2.99							HHS603 HHR603	HHS1003 HHR1003					
3.94	HSS54	HSS104	HSS154					HFG1004	HFG1504				
4.02				HSS254		HSS504 HFG504		HSS1004					
4.14						HHA504							
4.93	HSS55												
5.91		HSS106	HSS156	HHS206 HSS256	HHR306	HFG506	HHS606	HFG1006 HHS1006	HFG1506		HFG3006		
5.95											HFG4006		
5.99		HHS106		HDA256 HAS306 HFA306 HRA306	HHS306	HSS506 HDA506 HAS506 HFA506 HRA506	HSS756 HHR606	HDA1006 HHR1006 HAS1006 HFA1006 HRA1006	HDA1506 HSG1506	HDA2006 HFG2006 HSG2006 HFG2506	HDA3006 HDA4006 HSG3006	HDA5006 HFG5006 HDA8006 HFG8006	HDA10006 HFG10006
6.03								HSS1006					
6.11									HGG1506	HGG2006	HGG3006		
6.93	HSS57												
8				HSS258		HSS508			HHR1508	HHR2508			
8.08				HSS308									
8.12		HSS108											
8.94	HSS59												
9.85		HSS1010	HSS1510	HSS2510									
10.01							HHR6010	HSS10010					
12.02		HSS1012		HAS3012 HFA3012 HRA3012	HHR3012	HAS5012 HFA5012 HRA5012		HAS10012 HFA10012 HRA10012	HDA15012	HDA20012	HDA30012 HDA40012	HDA50012	
13						HDA5013 HSS5013		HDA10013					
14.03				HSS2514									
18.01				HSS2518									
20.02						HDA5020							

Cylinder range	Main characteristics of Hi-Force cylinder range					
	Page	Cylinder principle	Return action	Piston feature	Saddle	Stroke limiting device
HVL	7	single acting	load/gravity return	solid piston	integrated	stop ring
HPS	8	single acting	spring assisted return	solid piston	integrated	stop ring
HLS	9	single acting	spring assisted return	solid piston	integrated	stop ring
HSS	10	single acting	spring assisted return	solid piston	several options available	stop ring
HHS	11	single acting	spring assisted return	hollow piston	several options available	stop ring
HHR	12	double acting	hydraulic return	hollow piston	several options available	stop ring
HDA	13	double acting	hydraulic return	solid piston	several options available	stop ring
HFL	14	single acting	load/gravity return	threaded piston & lock ring	tilting saddle	restriction port
HFG	15	single acting	load/gravity return	threaded piston & lock ring	tilting saddle	restriction port
HAS	16	single acting	spring assisted return	solid piston	flat saddle	stop ring
HHA	17	single acting	spring assisted return	hollow piston	several options available	stop ring
HFA	18	single acting	spring assisted return	threaded piston & lock ring	tilting saddle	stop ring
HRA	19	double acting	hydraulic return	solid piston	flat saddle	stop ring
HGG	20	single acting	load/gravity return	solid piston	tilting saddle	stop ring
HSG	21	single acting	load/gravity return	solid piston	tilting saddle	restriction port

HVL | SINGLE ACTING VERY LOW HEIGHT PANCAKE CYLINDERS

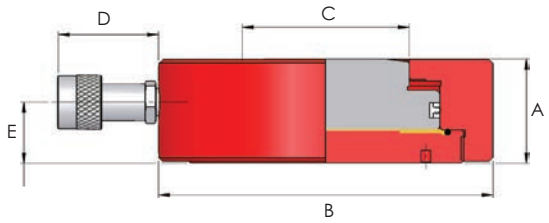


Capacities from 11 to 115 tons

Stroke length 0.24 inches

Working pressure 10000 psi

- Single acting, load return
- Compact, very low height design for access in narrow spaces
- Nitrocarburized piston rod for corrosion resistance
- Low friction bearing surfaces
- Anti-extrusion seals for improved performance at high pressures
- Customized and special design cylinders are available on request



Note: All models, excluding HVL100, are fitted with extension nipple for required coupling clearance (drawing is without coupling extension nipple).
HVL10 also available with 16 inches extension hose and coupling. Please add suffix 'H' to model number.
Base of all HVL cylinders must be fully supported during use.

Model number	Capacity (tons)	Stroke (in)	Oil capacity (in^3)	Cylinder eff. area (in^2)	Weight (lbs)	Dimensions (in)				
						A	B	C	D	E
HVL10	11	0.24	0.55	2.23	3.5	1.1	3.43	1.5	4.37	0.63
HVL20	22	0.24	1.04	4.43	5.7	1.26	4.1	2.05	4.37	0.75
HVL30	35	0.24	1.65	7.07	6.6	1.34	4.73	2.36	4.37	0.77
HVL50	55	0.24	2.62	11.05	15.9	1.77	6.23	2.96	4.37	1.14
HVL100	115	0.24	5.37	22.71	34.4	2.56	7.88	3.94	2.99	1.46

HPS | SINGLE ACTING LOW HEIGHT PAD CYLINDERS

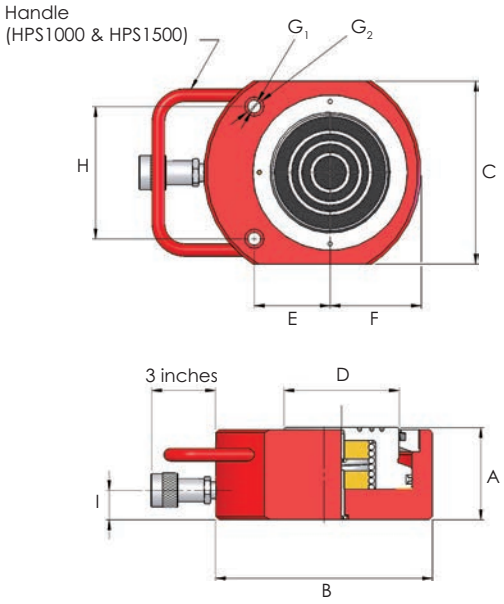


Capacities from 5 to 162 tons

Stroke lengths from 0.24 to 0.63 inches

Working pressure 10000 psi

- Single acting, spring assisted return
- Low closed height design for use in confined work areas
- Nitrocarburized piston rod for corrosion resistance
- Low friction bearing surfaces
- Anti-extrusion seals for improved performance at high pressures
- Customized and special design cylinders are available on request



Model number	Capacity (tons)	Stroke (in)	Oil capacity (in^3)	Cylinder eff. area (in^2)	Weight (lbs)	Dimensions (in)									
						A	B	C	D	E	F	G_1	G_2	H	I
HPS50	5	0.24	0.24	0.99	1.8	1.26	2.36	1.5	0.95	0.79	0.75	0.22	0.38	1.02	0.75
HPS51	5	0.63	0.61	0.99	2.0	1.65	2.36	1.5	0.95	0.79	0.75	0.22	0.38	1.02	0.75
HPS100	11	0.39	0.85	2.23	3.5	1.81	3.19	2.21	1.5	1.34	1.1	0.27	0.44	1.46	0.75
HPS200	22	0.43	1.89	4.43	5.7	2.05	3.94	2.99	2.01	1.58	1.54	0.35	0.56	1.97	0.75
HPS300	35	0.47	3.36	7.07	9.3	2.32	4.53	3.74	2.36	1.81	1.89	0.35	0.56	2.05	0.75
HPS500	55	0.59	6.53	11.05	14.6	2.64	5.52	4.49	2.76	2.13	2.36	0.43	0.68	2.64	0.79
HPS750	80	0.63	10	15.92	22.9	3.19	6.5	5.52	3.23	2.64	2.76	0.51	0.75	2.99	0.83
HPS1000	120	0.63	14.95	23.78	51.1	3.59	8.47	7.09	4.49	2.96	3.55	0.5	0.75	5.12	1.14
HPS1500	162	0.63	20.13	31.96	62.8	3.94	8.47	7.53	4.49	3.27	3.74	0.51	0.75	4.61	1.14

HLS | SINGLE ACTING LOW HEIGHT CYLINDERS

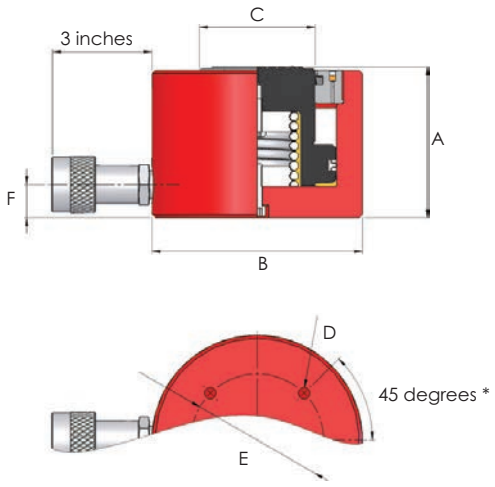


Capacities from 11 to 162 tons

Stroke lengths from 0.99 to 2.36 inches

Working pressure 10000 psi

- Single acting, spring assisted return
- Compact design with optimum stroke lengths
- Nitrocarburized piston rod for corrosion resistance
- Low friction bearing surfaces
- Anti-extrusion seals for improved performance at high pressures
- Customized and special design cylinders are available on request



**HLS101 features 2 base mounting holes at 90° from coupler*

Model number	Capacity (tons)	Stroke (in)	Oil capacity (in^3)	Cylinder eff. area (in^2)	Weight (lbs)	Dimensions (in) *(unless otherwise stated)*					
						A	B	C	D	E	F
HLS101	11	1.58	3.54	2.23	5.3	3.74	2.76	1.5	M8	1.58	0.75
HLS201	22	1.73	7.69	4.43	10.6	4.02	3.55	2.01	M8	2.36	0.75
HLS301	35	0.99	6.95	7.07	11.0	3.27	4.02	2.36	M8	3.15	0.75
HLS302	35	2.36	16.71	7.07	15.4	4.69	4.02	2.36	M8	3.15	0.75
HLS501	55	0.99	10.86	11.05	18.5	3.59	5	2.76	M8	3.15	0.79
HLS502	55	2.36	26.11	11.05	22.9	4.96	5	2.76	M8	3.15	0.79
HLS1001	120	0.99	23.42	23.78	43.7	4.26	7.01	4.49	M12	5.52	1.18
HLS1002	120	2.36	56.18	23.78	52.9	5.63	7.01	4.49	M12	5.52	1.18
HLS1501	162	0.99	31.48	31.96	81.6	5.12	8.51	4.49	M12	6.5	1.62
HLS1502	162	1.97	62.89	31.96	92.6	6.11	8.51	4.49	M12	6.5	1.62

HSS | SINGLE ACTING MULTI-PURPOSE CYLINDERS



- Single acting, spring assisted return
- Nitrocarburized piston rod for corrosion resistance
- Low friction bearing surfaces
- Anti-extrusion seals for improved performance at high pressures
- Collar threads withstand full load
- Grooved saddles fitted as standard on all models
- Optional piston rod saddles listed on pages 26 and 27
- Customized and special design cylinders are available on request

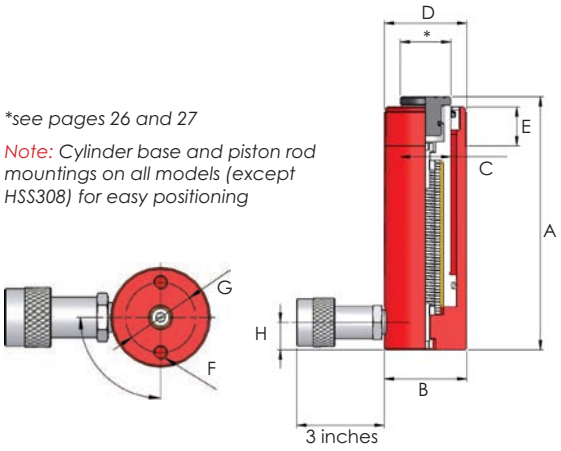
Capacities from 5 to 120 tons

Stroke lengths from 0.99 to 18.01 inches

Working pressure 10000 psi

*see pages 26 and 27

Note: Cylinder base and piston rod mountings on all models (except HSS308) for easy positioning



Model number	Capacity (tons)	Stroke (in)	Oil capacity (in^3)	Cylinder eff. area (in^2)	Weight (lbs)	Dimensions (in) *(unless otherwise stated)*							
						A	B	C	D	E	F	G	H
HSS51	5	0.99	0.98	0.99	2.2	4.22	1.5	0.95	1 ½"-16 UN	1.1	M6	0.99	0.75
HSS52	5	1.97	1.95	0.99	2.6	5.2	1.5	0.95	1 ½"-16 UN	1.1	M6	0.99	0.75
HSS53	5	2.96	2.93	0.99	3.1	6.19	1.5	0.95	1 ½"-16 UN	1.1	M6	0.99	0.75
HSS54	5	3.94	3.9	0.99	3.3	7.17	1.5	0.95	1 ½"-16 UN	1.1	M6	0.99	0.75
HSS55	5	4.93	4.88	0.99	4.0	8.16	1.5	0.95	1 ½"-16 UN	1.1	M6	0.99	0.75
HSS57	5	6.93	6.89	0.99	4.4	10.17	1.5	0.95	1 ½"-16 UN	1.1	M6	0.99	0.75
HSS59	5	8.94	8.91	0.99	5.3	12.14	1.5	0.95	1 ½"-16 UN	1.1	M6	0.99	0.75
HSS101	11	0.99	2.2	2.23	4.0	3.94	2.25	1.38	2 ¼"-14 UN	1.06	M8	1.58	0.75
HSS102	11	2.21	4.94	2.23	5.3	5.16	2.25	1.38	2 ¼"-14 UN	1.06	M8	1.58	0.75
HSS104	11	3.94	8.78	2.23	6.6	6.9	2.25	1.38	2 ¼"-14 UN	1.06	M8	1.58	0.75
HSS106	11	5.91	13.24	2.23	9.3	8.87	2.25	1.38	2 ¼"-14 UN	1.06	M8	1.58	0.75
HSS108	11	8.12	18.12	2.23	11.0	11.07	2.25	1.38	2 ¼"-14 UN	1.06	M8	1.58	0.75
HSS1010	11	9.85	22.02	2.23	11.9	12.81	2.25	1.38	2 ¼"-14 UN	1.06	M8	1.58	0.75
HSS1012	11	12.02	26.84	2.23	13.7	14.93	2.25	1.38	2 ¼"-14 UN	1.06	M8	1.58	0.75
HSS152	16	1.97	6.16	3.15	7.5	6.07	2.76	1.62	2 ¾"-16 UN	1.54	M10	1.89	0.75
HSS154	16	3.94	12.38	3.15	11.0	8.04	2.76	1.62	2 ¾"-16 UN	1.54	M10	1.89	0.75
HSS156	16	5.91	18.54	3.15	14.6	10.01	2.76	1.62	2 ¾"-16 UN	1.54	M10	1.89	0.75
HSS158	16	8	25.13	3.15	16.1	12.1	2.76	1.62	2 ¾"-16 UN	1.54	M10	1.89	0.75
HSS1510	16	9.85	30.93	3.15	19.4	13.95	2.76	1.62	2 ¾"-16 UN	1.54	M10	1.89	0.75
HSS252	28	2.01	10.86	5.41	14.3	6.86	3.39	2.13	3 5/16"-12 UN	1.93	M12	2.36	0.99
HSS254	28	4.02	21.72	5.41	17.6	8.87	3.39	2.13	3 5/16"-12 UN	1.93	M12	2.36	0.99
HSS256	28	5.91	31.96	5.41	21.2	10.76	3.39	2.13	3 5/16"-12 UN	1.93	M12	2.36	0.99
HSS258	28	8	43.25	5.41	24.7	12.77	3.39	2.13	3 5/16"-12 UN	1.93	M12	2.36	0.99
HSS2510	28	9.85	53.31	5.41	27.8	14.74	3.39	2.13	3 5/16"-12 UN	1.93	M12	2.36	0.99
HSS2514	28	14.03	75.76	5.41	37.0	18.91	3.39	2.13	3 5/16"-12 UN	1.93	M12	2.36	0.99
HSS2518	28	18.01	97.42	5.41	47.2	24.07	3.39	2.13	3 5/16"-12 UN	1.93	M12	2.36	0.99
HSS308	32	8.08	52.46	6.49	41.0	14.74	4.02	2.25	3 5/16"-12 UN	1.97	-	-	1.97
HSS502	55	2.01	22.2	11.05	28.7	5.91	5	3.11	5"-12 UN	2.17	M12	3.35	0.79
HSS504	55	4.02	44.41	11.05	37.0	7.92	5	3.11	5"-12 UN	2.17	M12	3.35	0.79
HSS506	55	5.99	66.12	11.05	44.1	9.89	5	3.11	5"-12 UN	2.17	M12	3.35	0.79
HSS508	55	8	88.33	11.05	51.1	11.9	5	3.11	5"-12 UN	2.17	M12	3.35	0.79
HSS5013	55	13	143.59	11.05	74.1	16.9	5	3.11	5"-12 UN	2.17	M12	3.35	0.79
HSS756	80	5.99	95.22	15.92	68.3	10.72	5.75	3.74	5 ¾"-12 UN	1.77	M12	4.53	1.26
HSS1004	120	4.02	95.47	23.78	91.7	8.79	7.29	4.49	6 ⅞"-12 UN	1.97	M12	5.75	1.26
HSS1006	120	6.03	143.17	23.78	109.8	10.8	7.29	4.49	6 ⅞"-12 UN	1.97	M12	5.75	1.26
HSS10010	120	10.01	237.66	23.78	144.4	14.78	7.29	4.49	6 ⅞"-12 UN	1.97	M12	5.75	1.26

Note: If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 46 and 50.

HHS | SINGLE ACTING HOLLOW PISTON CYLINDERS



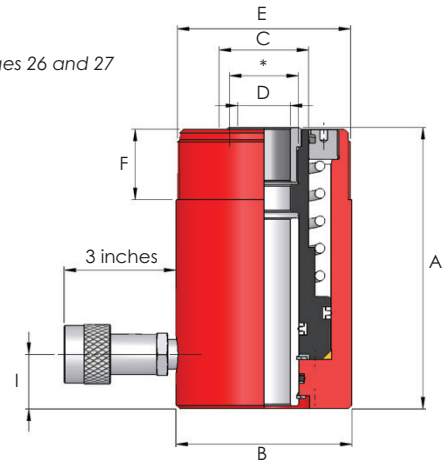
Capacities from 12 to 112 tons

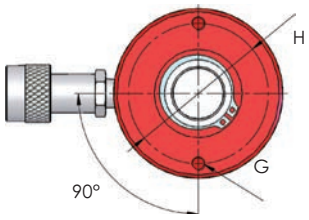
Stroke lengths from 0.99 to 5.99 inches

Working pressure 10000 psi

- Single acting, spring assisted return
- Hollow piston design for tooling, maintenance and tensioning applications
- Nitrocarburized piston rod for corrosion resistance
- Low friction bearing surfaces
- Anti-extrusion seals for improved performance at high pressures
- Collar threads withstand full load
- Optional piston rod saddles listed on pages 26 and 27
- Customized and special design cylinders are available on request

*see pages 26 and 27





Model number	Capacity (tons)	Stroke (in)	Oil capacity (in^3)	Cylinder eff. area (in^2)	Weight (lbs)	Dimensions (in) *(unless otherwise stated)*								
						A	B	C	D	E	F	G	H	I
HHS101	12	0.99	2.38	2.45	6.2	4.33	2.76	1.5	0.79	2 ¾"-16 UN	1.18	M8	2.01	0.75
HHS102	12	1.97	4.82	2.45	6.6	5.52	2.76	1.5	0.79	2 ¾"-16 UN	1.18	M8	2.01	0.75
HHS106	12	5.99	14.64	2.45	22.5	11.7	2.76	1.5	0.79	2 ¾"-16 UN	1.18	M8	2.01	0.75
HHS202	25	1.97	10.19	5.16	15.4	6.3	3.94	2.01	1.18	3 ⅞"-12 UN	1.58	M8	3.25	1.22
HHS206	25	5.91	30.5	5.16	30.4	12.06	3.94	2.01	1.18	3 ⅞"-12 UN	1.58	M8	3.25	1.22
HHS302	36	1.97	14.21	7.24	23.4	6.5	4.53	2.36	1.38	4 ½"-12 UN	1.58	M8	3.62	1.22
HHS306	36	5.99	43.31	7.24	42.3	12.61	4.53	2.36	1.38	4 ½"-12 UN	1.58	M8	3.62	1.22
HHS603	67	2.99	39.71	13.28	61.7	8.9	6.3	3.62	2.17	6 ¼"-12 UN	2.32	M12	5.12	1.22
HHS606	67	5.91	78.39	13.28	89.5	12.41	6.3	3.62	2.17	6 ¼"-12 UN	2.32	M12	5.12	1.22
HHS1003	112	2.99	66.37	22.18	141.1	10.87	8.39	5	3.19	8 ⅜"-12 UN	2.36	M16	7.01	1.77
HHS1006	112	5.91	130.97	22.18	165.3	13.79	8.39	5	3.19	8 ⅜"-12 UN	2.36	M16	7.01	1.77

Note: If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 46 and 50.

HHR | DOUBLE ACTING HOLLOW PISTON CYLINDERS

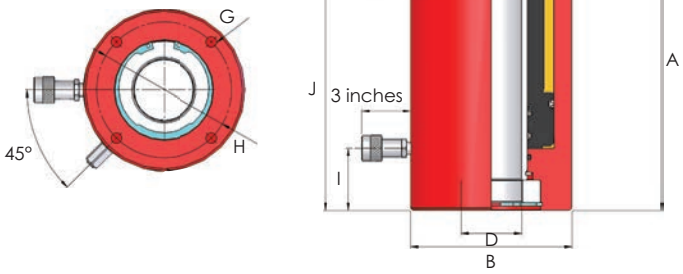


Capacities from 36 to 272 tons

Stroke lengths from 2.01 to 12.02 inches

Working pressure 10000 psi

- Double acting design for enhanced operating stages
- Hollow piston design for tooling, maintenance and tensioning applications
- Nitrocarburized piston rod for corrosion resistance
- Low friction bearing surfaces
- Annular area overload protection valve
- Anti-extrusion seals for improved performance at high pressures
- Collar threads withstand full load
- Optional piston rod saddles listed on pages 26 and 27
- Customized and special design cylinders are available on request



Note: 36 & 67 ton models feature 2 base mouting holes at 90° from coupler.
**see pages 26 and 27*

Model number	Capacity (tons) Push	Capacity (tons) Pull	Stroke (in)	Oil capacity (in^3)	Cylinder eff. area (in^2)	Weight (lbs)	Dimensions (in) *(unless otherwise stated)* A	B	C	D	E	F	G	H	I	J
HHR302	36	26	2.01	14.52	7.24	26.9	7.09	4.53	2.38	1.38	4 ½"-12 UN	1.58	M8	3.62	1.1	4.69
HHR306	36	26	5.91	42.76	7.24	38.8	10.99	4.53	2.38	1.38	4 ½"-12 UN	1.58	M8	3.62	1.1	8.59
HHR3012	36	26	12.02	86.86	7.24	56.7	17.1	4.53	2.38	1.38	4 ½"-12 UN	1.58	M8	3.62	1.1	14.7
HHR603	67	42	2.99	39.77	13.28	67.5	9.42	6.3	3.62	2.17	6 ¼"-12 UN	1.77	M12	5.12	1.22	6.54
HHR606	67	42	5.99	79.54	13.28	91.7	12.41	6.3	3.62	2.17	6 ¼"-12 UN	1.77	M12	5.12	1.22	9.53
HHR6010	67	42	10.01	132.92	13.28	115.7	16.43	6.3	3.62	2.17	6 ¼"-12 UN	1.77	M12	5.12	1.22	13.55
HHR1003	112	47	2.99	66.31	22.18	151.0	12.21	8.39	5.52	3.15	8 ⅜"-12 UN	1.58	M16	7.01	3.23	9.22
HHR1006	112	47	5.99	132.61	22.18	198.4	15.21	8.39	5.52	3.15	8 ⅜"-12 UN	1.58	M16	7.01	3.23	12.21
HHR1508	168	78	8	263.52	32.98	374.8	19.82	10.64	7.25	4.02	n/a	n/a	n/a	na	3.86	15.33
HHR2508	272	84	8	429.38	53.71	593.0	19.9	13.79	10.01	5.91	n/a	n/a	n/a	na	3.86	15.33

Note: If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 46 and 50.

HDA | DOUBLE ACTING HIGH TONNAGE CYLINDERS

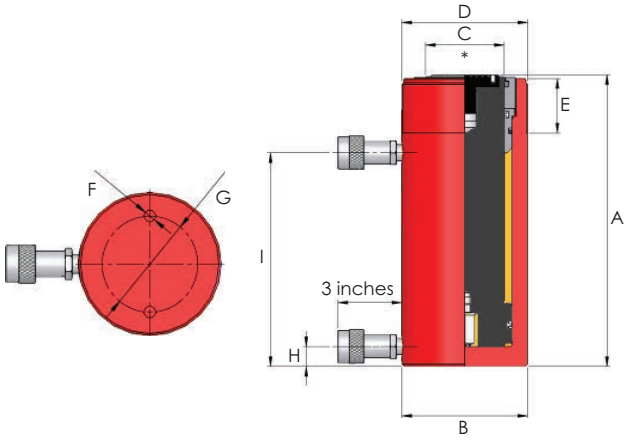


Capacities from 28 to 1115 tons

Stroke lengths from 5.99 to 20.02 inches

Working pressure 10000 psi

- Double acting design offers higher work output with improved performance and efficiency
- Substantial pulling force in the piston retraction mode provides increased versatility
- Nitrocarburized piston rod for corrosion protection
- Low friction bearing surfaces
- Internal annular area overload protection valve
- Anti-extrusion seals for improved performance at high pressures
- Flat saddle, collar thread and piston rod thread as standard on all models up to 224 tons
- Replaceable tilting saddle fitted as standard on models from 359 tons and upwards
- Lifting ring as standard on models from 55 to 120 tons
- Eyebolts as standard on models from 168 to 1115 tons
- Optional piston rod saddles listed on pages 26 and 27
- Customized and special design cylinders are available on request



Note: Base mounting holes (F) will not withstand full load.
Base mounting holes for easy positioning.
Base mounting holes on model HDA5020 are at a random angular orientation to the cylinder ports.

**see pages 26 and 27*

Model number	Capacity (tons)		Stroke (in)	Oil capacity (in^3)	Cylinder eff. area (in^2)	Weight (lbs)	Dimensions (in) *(unless otherwise stated)*									
	Push	Pull					A	B	C	D	E	F	G	H	I	J
HDA256	28	11	5.99	32.34	5.41	33.1	11.31	3.62	1.97	3 5/16"-12 UN	2.09	M10	2.36	1.18	8.35	40°
HDA506	55	17	5.99	65.91	11.05	62.6	11.62	5	3.11	5"-12 UN	2.17	M12	3.35	0.79	8.51	30°
HDA5013	55	17	13	143.41	11.05	93.9	18.64	5	3.11	5"-12 UN	2.17	M12	3.35	0.79	15.52	30°
HDA5020	55	17	20.02	220.91	11.05	138.4	28.76	5	3.11	5"-12 UN	2.17	M12	3.35	2.68	25.06	30°
HDA1006	120	40	5.99	142.19	23.76	142.2	11.98	7.29	4.49	6 7/8"-12 UN	2.01	M12	5.75	1.18	8.9	30°
HDA10013	120	40	13	308.78	23.76	196.2	18.99	7.29	4.49	6 7/8"-12 UN	2.01	M12	5.75	1.18	15.92	30°
HDA1506	168	87	5.99	198.94	33.2	198.4	12.21	8.27	4.49	8"-12 UN	2.17	M16	6.3	1.38	9.1	30°
HDA15012	168	87	12.02	398.48	33.2	265.7	18.24	8.27	4.49	8"-12 UN	2.17	M16	6.3	1.38	15.13	30°
HDA2006	224	104	5.99	264.23	44.21	286.2	12.88	10.01	5.52	9 3/4"-12 UN	2.56	M20	7.29	1.69	9.38	30°
HDA20012	224	104	12.02	530.3	44.21	369.1	18.91	10.01	5.52	9 3/4"-12 UN	2.56	M20	7.29	1.69	15.41	30°
HDA3006	359	-	5.99	424.11	70.9	425.5	16.11	12.29	6.5	Optional	Optional	M20	6.23	1.97	10.32	30°
HDA30012	359	-	12.02	851.28	70.9	551.2	22.14	12.29	6.5	Optional	Optional	M20	6.23	1.97	16.35	30°
HDA4006	439	-	5.99	518.09	86.63	630.5	16.98	14.18	8.51	Optional	Optional	M24	8	2.17	10.91	30°
HDA40012	439	-	12.02	1039.84	86.63	853.2	23.01	14.18	8.51	Optional	Optional	M24	8	2.17	16.94	30°
HDA5006	573	-	5.99	676.75	113.13	820.1	18.52	15.64	8	Optional	Optional	M24	8	2.56	11.82	30°
HDA50012	573	-	12.02	1358.39	113.13	1042.8	24.55	15.68	8	Optional	Optional	M24	8	2.56	17.85	30°
HDA8006	892	-	5.99	1054.49	175.79	1433.0	21.08	19.70	11.82	Optional	Optional	Optional	Optional	2.76	12.53	30°
HDA10006	1115	-	5.99	1319.33	220	1984.1	23.25	21.28	12.61	Optional	Optional	Optional	Optional	3.9	14.07	30°

Note: If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 46 and 50.

HFL | SINGLE ACTING LOW HEIGHT FAILSAFE LOCK RING CYLINDERS

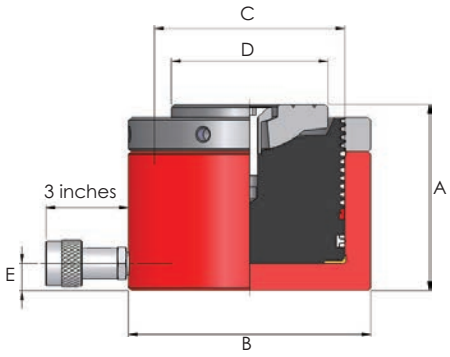


Capacities from 55 to 573 tons

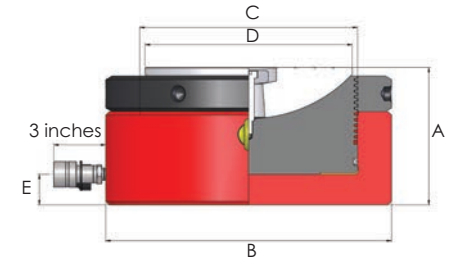
Stroke lengths from 1.77 to 2.01 inches

Working pressure 10000 psi

- Single acting, load return
- Mechanical lock ring feature allows for load holding for extended periods
- Compact, low height design suitable for vertical lifting applications only
- Threaded piston with tilting saddle fitted as standard to reduce the risk of side loading
- Nitrocarburized cylinder and piston rod for corrosion resistance
- Low friction bearing surfaces
- Anti-extrusion seals for improved performance at high pressures
- Overstroke restrictor port to prevent over extension of piston
- Tommy bars for easy rotation of the load holding lock ring are listed in the below table
- Saddle and piston rod details are listed on pages 26 and 27
- Customized and special design cylinders are available on request



HFL502, HFL1002, HFL1502



HFL2002, HFL2502, HFL4002, HFL5002

Model number	Capacity (tons)	Stroke (in)	Oil capacity (in^3)	Cylinder eff. area (in^2)	Weight (lbs)	Tommy bar	Dimensions (in) A	B	C	D	E
HFL502	55	2.01	21.97	11.05	31.3	TTB10	4.93	5	3.74	2.76	0.75
HFL1002	120	1.97	46.99	23.78	61.5	TTB10	5.4	7.29	5.52	4.53	0.79
HFL1502	168	1.77	65.3	33.22	97.0	TTB10	5.91	8.51	6.5	5.32	1.1
HFL2002	224	1.77	86.65	44.19	125.2	TTB14	6.11	10.01	7.49	5.32	1.18
HFL2502	287	1.77	100.69	56.75	153.0	TTB14	6.26	10.76	8.51	7.88	1.22
HFL4002	439	1.77	153.17	86.65	266.8	TTB16	7.01	14.18	10.52	10.24	1.42
HFL5002	573	1.77	200.77	113.13	410.1	TTB20	7.56	15.76	12.02	11.43	1.69

Note: If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 46 and 50.

HFG | SINGLE ACTING FAILSAFE LOCK RING CYLINDERS

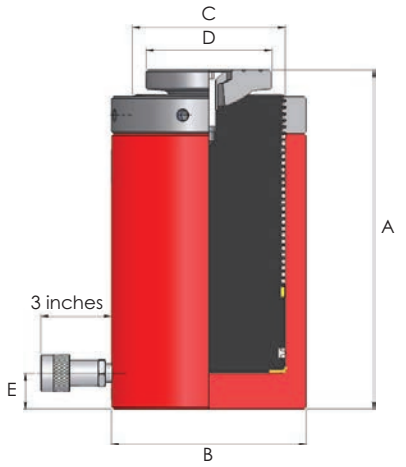


Capacities from 55 to 1115 tons

Stroke lengths from 1.97 to 5.99 inches

Working pressure 10000 psi

- Single acting, load return
- Mechanical lock ring feature allows for load holding for extended periods
- Suitable for vertical lifting applications only
- Threaded piston with tilting saddle fitted as standard to reduce the risk of side loading
- Nitrocarburized cylinder and piston rod for corrosion resistance
- Low friction bearing surfaces
- Anti-extrusion seals for improved performance at high pressures
- Overstroke restrictor port to prevent over extension of piston
- Tommy bars for easy rotation of the load holding lock ring are listed in the below table
- Saddle and piston rod details are listed on pages 26 and 27
- Customized and special design cylinders are available on request



Model number	Capacity (tons)	Stroke (in)	Oil capacity (in^3)	Cylinder eff. area (in^2)	Weight (lbs)	Tommy bar	Dimensions (in) A	B	C	D	E
HFG502	55	2.01	21.97	11.05	35.7	TTB10	6.82	5	3.74	2.76	0.99
HFG504	55	4.02	44.55	11.05	45.4	TTB10	8.83	5	3.74	2.76	0.99
HFG506	55	5.91	65.3	11.05	55.1	TTB10	10.72	5	3.74	2.76	0.99
HFG1002	120	2.01	46.38	23.78	77.2	TTB10	7.45	7.29	5.52	4.53	1.08
HFG1004	120	3.94	93.37	23.78	110.9	TTB10	9.46	7.29	5.52	4.53	1.08
HFG1006	120	5.91	140.35	23.78	144.2	TTB10	12.25	7.29	5.52	4.53	1.08
HFG1502	168	2.01	65.3	33.22	172.0	TTB10	9.34	8.51	6.5	5.32	1.65
HFG1504	168	3.94	130.59	33.22	185.2	TTB10	11.35	8.51	6.5	5.32	1.65
HFG1506	168	5.91	195.89	33.22	197.3	TTB10	13.32	8.51	6.5	5.32	1.65
HFG2002	224	1.97	86.65	44.19	210.3	TTB14	10.28	10.01	7.49	5.32	1.97
HFG2006	224	5.99	264.23	44.19	302.0	TTB14	14.26	10.01	7.49	5.32	1.97
HFG2506	282	5.99	335.63	56.81	377.0	TTB14	15.8	10.76	8.51	5.91	1.97
HFG3006	359	5.91	419.23	70.94	503.8	TTB14	16.43	12.21	9.5	5.91	1.97
HFG4006	439	5.95	515.04	86.65	680.1	TTB14	18.08	14.18	10.52	7.09	2.76
HFG5006	573	5.99	677.36	113.13	1007.5	TTB16	19.62	15.76	12.02	7.09	3.15
HFG8006	892	5.99	1066.15	175.79	1620.4	TTB16	22.26	18.91	14.97	13.4	3.15
HFG10006	1115	5.99	1318.8	220	2239.9	TTB20	24.43	21.28	16.75	14.96	3.55

Note: If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 46 and 50.

HAS | SINGLE ACTING SOLID PISTON ALUMINUM CYLINDERS



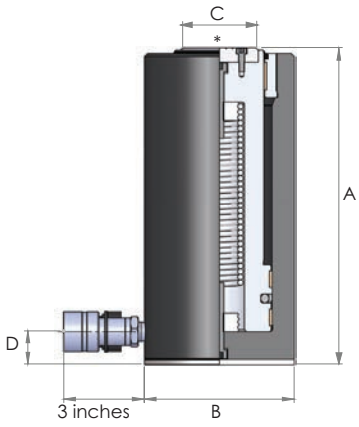
Capacities from 35 to 121 tons

Stroke lengths from 2.01 to 12.02 inches

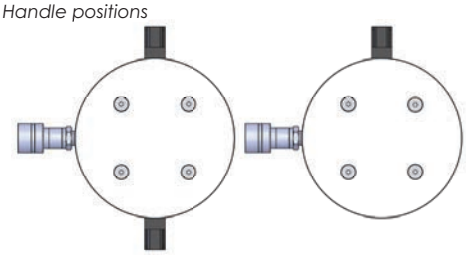
Working pressure 10000 psi

- Lightweight aluminum cylinders for applications where weight and portability are of prime importance
- Single acting, spring assisted return
- Hard anodized piston rod and cylinder for corrosion resistance and increased durability
- Steel base plate to protect cylinder body
- Low friction bearing surfaces
- Anti-extrusion seals for improved performance at high pressures
- Grooved saddles fitted as standard on all models
- Optional piston rod saddles listed on pages 26 and 27
- Customized and special design cylinders are available on request

*see pages 26 and 27



Handle positions



Model number	Capacity (tons)	Stroke (in)	Oil capacity (in^3)	Cylinder eff. area (in^2)	Weight (lbs)	Handles	Dimensions (in) A	B	C	D
HAS302	35	2.01	13.73	6.85	8.8	-	7.13	4.14	1.97	0.99
HAS306	35	5.99	40.99	6.85	13.2	-	11.11	4.14	1.97	0.99
HAS3012	35	12.02	82.23	6.85	17.6	1	17.14	4.14	1.97	0.99
HAS502	56	2.01	69.3	10.99	17.6	1	7.33	5.32	2.76	1.18
HAS506	56	5.99	65.7	10.99	24.3	1	11.31	5.32	2.76	1.18
HAS5012	56	12.02	131.88	10.99	35.3	1	17.34	5.32	2.76	1.18
HAS1002	121	2.01	47.89	23.85	41.9	2	8.51	7.68	3.94	1.62
HAS1006	121	5.99	142.74	23.85	50.7	2	12.49	7.68	3.94	1.62
HAS10012	121	12.02	286.4	23.85	75.0	2	18.52	7.68	3.94	1.62

Note: If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 46 and 50.

HHA | SINGLE ACTING HOLLOW PISTON ALUMINUM CYLINDERS



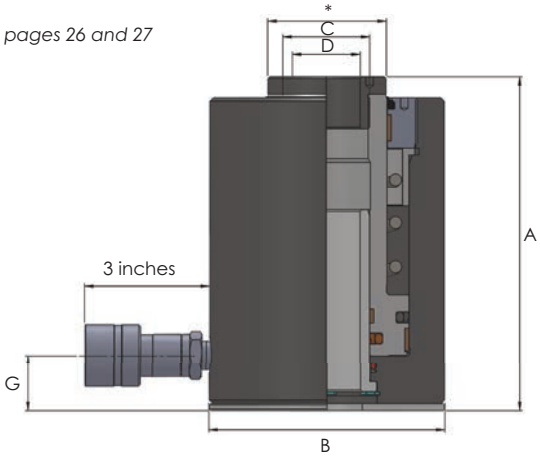
- Lightweight aluminum cylinders for applications where weight and portability are of prime importance
- Single acting, spring assisted return
- Hollow piston design for pulling, pressing and tensioning applications
- Hard anodized piston rod and cylinder for corrosion resistance and increased durability
- Steel base plate to protect cylinder body
- Low friction bearing surfaces
- Anti-extrusion seals for improved performance at high pressures
- Grooved saddles fitted as standard on all models.
- Optional piston rod saddles listed on pages 26 and 27
- Customized and special design cylinders are available on request

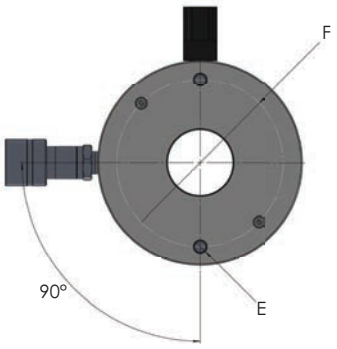
Capacities from 20 to 57 tons

Stroke lengths from 2.01 to 4.14 inches

Working pressure 10000 psi

*see pages 26 and 27





Model number	Capacity (tons)	Stroke (in)	Oil capacity (in^3)	Cylinder eff. area (in^2)	Weight (lbs)	Handles	Dimensions (in) *(unless otherwise stated)*						
							A	B	C	D	E	F	G
HHA182	20	2.01	7.87	3.91	7.9	-	6.9	3.86	1.42	1.02	M8x10	2.6	1.02
HHA372	41	2.01	16.23	8.08	15.9	-	7.6	5.36	1.97	1.54	M10x15	4.14	1.26
HHA504	57	4.14	46.67	11.28	29.5	1	11.03	6.3	2.56	2.01	M10x15	5.12	1.54

Note: If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 46 and 50.

HFA | SINGLE ACTING FAILSAFE LOCK RING ALUMINUM CYLINDERS



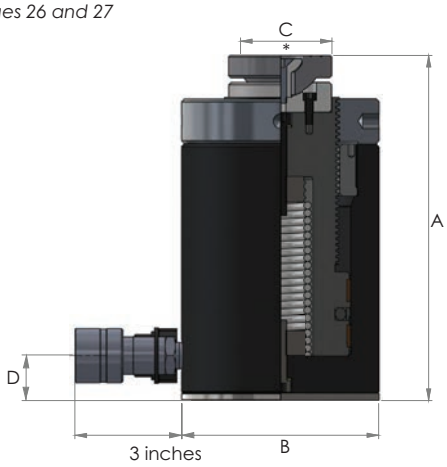
Capacities from 35 to 121 tons

Stroke lengths from 2.01 to 12.02 inches

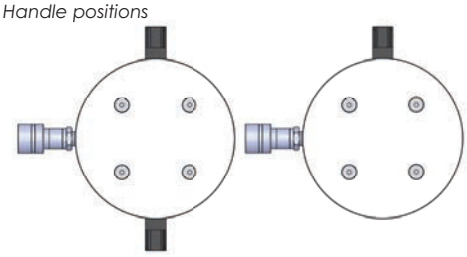
Working pressure 10000 psi

- Lightweight aluminum cylinders for applications where weight and portability are of prime importance
- Single acting, spring assisted return
- Mechanical lock ring feature allows for load holding for extended periods
- Hard anodized piston rod and cylinder for corrosion resistance and increased durability
- Low friction bearing surfaces
- Anti-extrusion seals for improved performance at high pressures
- Tilting saddle fitted as standard on all models
- Steel base plate fitted as standard
- Integral stop ring
- Optional piston rod saddles listed on pages 26 and 27
- Customized and special design cylinders are available on request

*see pages 26 and 27



Handle positions



Model number	Capacity (tons)	Stroke (in)	Oil capacity (in^3)	Cylinder eff. area (in^2)	Weight (lbs)	Tommy bar	Handles	Dimensions (in) A	B	C	D
HFA302	35	2.01	14.15	7.04	13.2	TTB10	-	8.94	4.26	1.97	0.99
HFA306	35	5.99	42.15	7.04	17.6	TTB10	-	12.92	4.26	1.97	0.99
HFA3012	35	12.02	84.55	7.04	24.3	TTB10	1	18.95	4.26	1.97	0.99
HFA502	56	2.01	22.2	11.05	19.8	TTB10	1	9.1	5.24	2.76	1.18
HFA506	56	5.99	66.12	11.05	24.3	TTB10	1	13.08	5.24	2.76	1.18
HFA5012	56	12.02	132.68	11.05	37.5	TTB10	1	19.11	5.24	2.76	1.18
HFA1002	121	2.01	47.89	23.85	52.9	TTB10	2	10.91	7.96	3.94	1.62
HFA1006	121	5.99	142.74	23.85	66.1	TTB10	2	14.89	7.96	3.94	1.62
HFA10012	121	12.02	286.4	23.85	86.0	TTB10	2	20.92	7.96	3.94	1.62

Note: If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 46 and 50.

HRA | DOUBLE ACTING HIGH TONNAGE ALUMINUM CYLINDERS



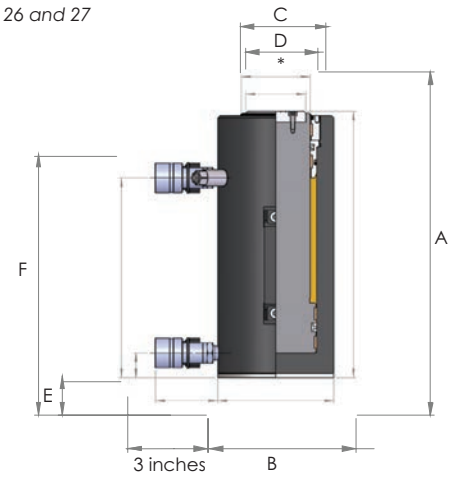
Capacities from 35 to 121 tons

Stroke lengths from 2.01 to 12.02 inches

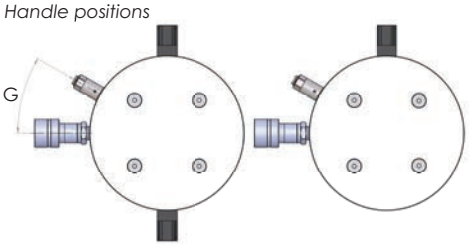
Working pressure 10000 psi

- Lightweight aluminum cylinders for applications where weight and portability are of prime importance
- Double acting design offers higher work output with improved performance and efficiency
- Hard anodized piston rod and cylinder for corrosion resistance and increased durability
- Low friction bearing surfaces
- Anti-extrusion seals for improved performance at high pressures
- Steel base plate fitted as standard
- Pressure relief valve on annulus side
- Optional piston rod saddles listed on pages 26 and 27
- Customized and special design cylinders are available on request

*see pages 26 and 27



Handle positions



Model number	Capacity (tons)	Stroke (in)	Oil capacity (in^3)	Cylinder eff. area (in^2)	Weight (lbs)	Handles	Dimensions (in)						
							A	B	C	D	E	F	G
HRA302	35	2.01	13.74	6.85	11.0	-	8.04	4.14	2.36	1.97	0.99	5.36	1.38
HRA306	35	5.99	40.96	6.85	15.4	-	12.02	4.14	2.36	1.97	0.99	9.34	1.38
HRA3012	35	12.02	82.2	6.85	22.0	1	18.05	4.14	2.36	1.97	0.99	15.37	1.38
HRA502	56	2.01	22.05	10.99	22.0	1	8.71	5.32	3.11	2.76	1.18	5.56	1.18
HRA506	56	5.99	65.72	10.99	28.7	1	12.69	5.32	3.11	2.76	1.18	9.53	1.18
HRA5012	56	12.02	131.88	10.99	41.9	1	18.72	5.32	3.11	2.76	1.18	15.56	1.18
HRA1002	121	2.01	47.89	23.85	48.5	2	10.17	7.96	4.33	3.94	1.62	6.78	1.18
HRA1006	121	5.99	142.73	23.85	63.9	2	14.14	7.96	4.33	3.94	1.62	10.76	1.18
HRA10012	121	12.02	286.4	23.85	86.0	2	20.17	7.96	4.33	3.94	1.62	16.78	1.18

Note: If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 46 and 50.

HGG | SINGLE ACTING LOAD RETURN HIGH TONNAGE INDUSTRIAL CYLINDERS

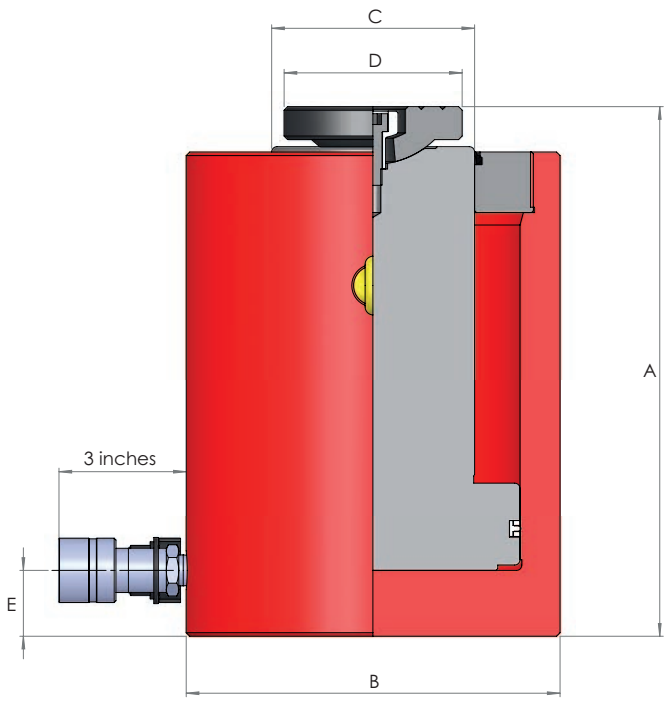


Capacities from 168 to 359 tons

Stroke length 6.11 inches

Working pressure 10000 psi

- Single acting, load return
- Heavy duty design for lifting and maintenance applications
- Integral stop ring for piston stroke limitation
- Tilting saddle fitted as standard to reduce the risk of side loading
- Low friction bearing surfaces
- Nitrocarburized piston rod for corrosion resistance
- Anti-extrusion seals for improved performance at high pressures
- Saddle and piston rod details are listed on pages 26 and 27
- Customized and special design cylinders are available on request



Model number	Capacity (tons)	Stroke (in)	Oil capacity (in^3)	Cylinder eff. area (in^2)	Weight (lbs)	Dimensions (in) A	B	C	D	E
HGG1506	168	6.11	202.6	33.22	128.5	11.7	8.27	4.49	3.94	1.46
HGG2006	224	6.11	282.54	44.19	210.1	12.06	10.01	5.52	5.32	1.97
HGG3006	359	6.11	433.27	70.94	338.4	13.51	12.29	6.5	5.91	1.97

Note: If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 46 and 50.

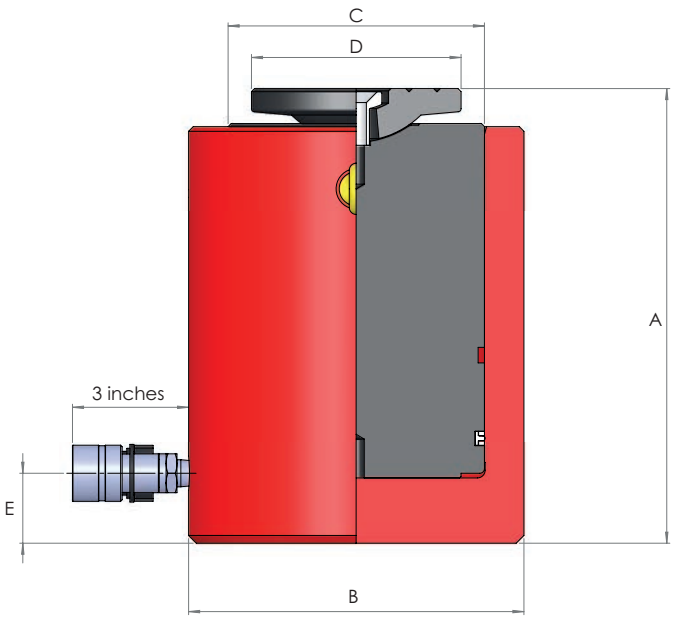
HSG | SINGLE ACTING LOAD RETURN HIGH TONNAGE CONSTRUCTION CYLINDERS



Capacities from 168 to 359 tons

Stroke length 5.99 inches

Working pressure 10000 psi



- Single acting, load return
- Heavy duty design for construction, civil engineering and heavy fabrication applications
- Overstroke restrictor port to prevent over extension of piston
- Tilting saddle fitted as standard to reduce the risk of side loading
- Nitrocarburized cylinder and piston rod for corrosion resistance
- Low friction bearing surfaces
- Anti-extrusion seals for improved performance at high pressures
- Saddle and piston rod details are listed on pages 26 and 27
- Customized and special design cylinders are available on request

Model number	Capacity (tons)	Stroke (in)	Oil capacity (in^3)	Cylinder eff. area (in^2)	Weight (lbs)	Dimensions (in)				
						A	B	C	D	E
HSG1506	168	5.99	195.89	33.22	170.9	11.54	8.51	6.5	5.32	1.77
HSG2006	224	5.99	264.84	44.19	237.4	11.66	10.01	7.51	5.32	1.77
HSG3006	359	5.99	426.56	70.94	386.2	12.84	12.29	9.51	5.91	1.97

Note: If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 46 and 50.

HCJ | CLIMBING JACKS

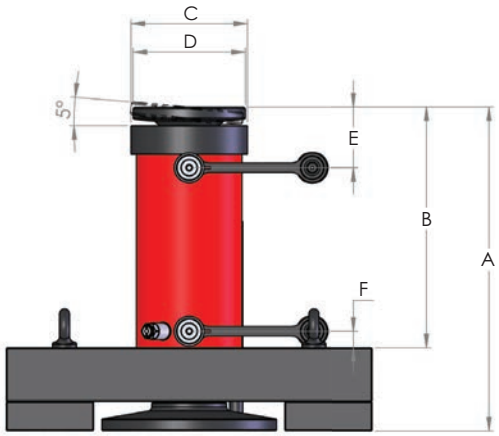


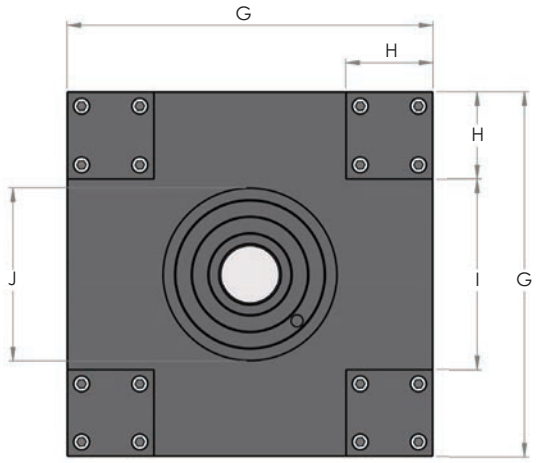
Capacities from 55.1 to 223.8 tons

Incremental lifting heights up to 5.99 inches

Working pressure 10000 psi

- Provides a simple and highly effective solution for lifting, lowering and positioning large heavy loads, especially in locations where space is limited
- Incorporates an inverted HDA double-acting hydraulic cylinder which offers higher work output with improved performance and efficiency
- Tilting saddle fitted as standard minimizes the risk of side loading
- Compact, robust steel base plate with an anti-rotation device that ensures maximum safety and stability during operation
- Base plate is coated with a high-performance fluoropolymer coating for increased wear and corrosion resistance
- Designed for use with cribbing blocks, allowing for fast and safe incremental lifting, or lowering of heavy loads and structures (See Note 1)
- Compatible with the Hi-Force powered pumps (see pages 39 to 43) or with SLF and SLV synchronous lift systems for computer-controlled, synchronized lifting operations (see page 44 to 52)
- Customized and special design climbing jacks are available upon request





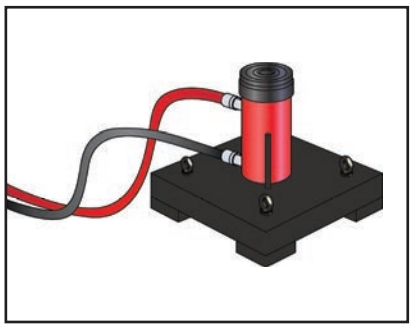
Model number	Capacity (tons)	Stroke (in)	Oil capacity (in^3)	Cylinder eff. area (in^2)	Weight (lbs)	Dimensions (in)									
						A	B	C	D	E	F	G	H	I	J
HCJ506	55.1	5.99	65.91	11.04	317.5	15.52	11.39	5.52	5.32	2.88	0.79	17.34	4.14	9.06	8.27
HCJ1006	120.2	5.99	142.19	23.76	489.4	17.26	11.94	7.8	5.32	3.43	0.79	17.93	4.14	9.65	9.26
HCJ1506	167.5	5.99	198.94	33.2	743	18.12	12.21	8.79	5.32	3.7	0.79	21.67	4.73	12.21	11.23
HCJ2006	223.8	5.99	264.23	44.21	903.9	18.99	12.49	10.52	5.32	4.02	0.79	21.67	4.73	12.21	12.02

Note: 1) Cribbing blocks are not supplied by Hi-Force. Please ensure that suitable cribbing blocks are used for the application.
2) If specifying this climbing jack for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 46 and 50.

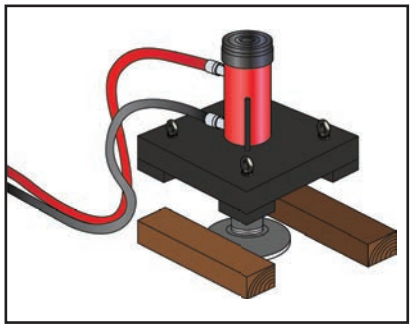
HCJ | CLIMBING JACKS

PROCEDURE FOR RAISING OR LOWERING A LOAD USING THE HI-FORCE HCJ CLIMBING JACKS

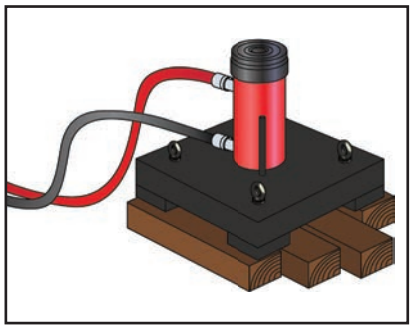
Stage 1: Position the HCJ climbing jack below the load with the piston fully retracted. Ensure the ground is level and stable and capable of supporting the load.



Stage 2: Gradually extend the piston to lift the load. Once sufficient clearance is achieved, insert the outer support blocks under the jack's base plate.

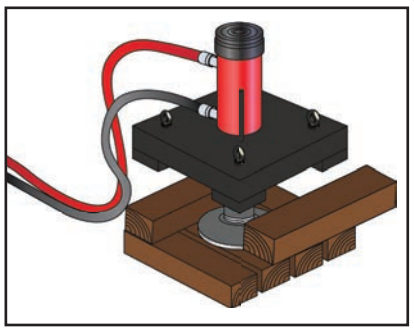


Stage 3: Retract the piston to allow placement of the inner blocks, which will support the piston plate for the next lifting stage.



Stage 4: Extend the piston again to raise the load further. Insert a new layer of blocks, positioned at 90° to the previous layer, under the base plate.

Retract the piston and continue alternating the block positions and piston strokes until the desired lift height is achieved.



If the application involves lowering a load, reverse the above process by removing blocks one layer at a time. Ensure the load is always securely supported before retracting the piston further. Continue until the load is safely lowered to its final position.

HPC | SINGLE ACTING PULL CYLINDERS

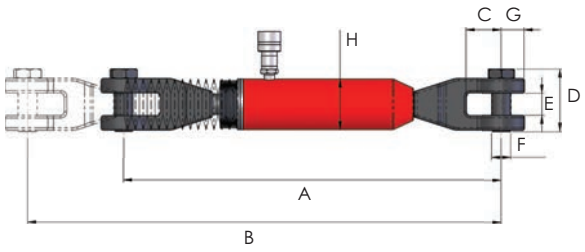


Capacities from 11 to 55 tons

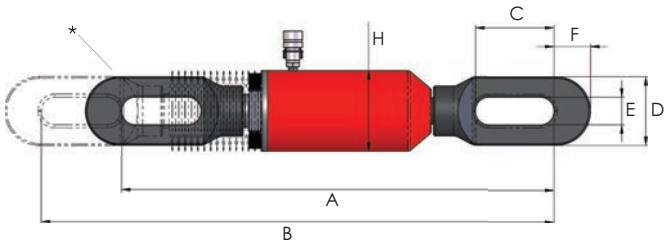
Stroke length 5.99 inches

Working pressure 10000 psi

- Single acting, spring assisted return
- Substantial hydraulic pulling force for steel plate alignment, cable tensioning and general load moving applications
- Replaceable pulling and clevis eyes fitted on the piston rod and cylinder base
- Nitrocarburized piston rod for corrosion resistance
- Anti-extrusion seals for improved performance at high pressures
- Protective piston rod bellows fitted as standard
- Customized and special design cylinders are available on request



HPC106C



HPC106, HPC306, HPC506

** Eye bolt thickness: HPC106 = 0.87", HPC306 = 1.38", HPC506 = 1.58"*

Model number	Capacity (tons)	Stroke (in)	Oil capacity (in^3)	Cylinder eff. area (in^2)	Weight (lbs)	Dimensions (in)							
						A	B	C	D	E	F	G	H
HPC106	11	5.99	13.91	2.33	26.5	23.64	29.63	4.49	2.64	1.26	1.3	-	3.15
HPC106C	11	5.99	13.91	2.33	34.2	23.72	29.71	2.29	3.9	1.38	1.18	1.42	3.15
HPC306	33	5.99	38.8	6.48	68.3	27.38	33.37	5.71	4.14	1.65	1.97	-	4.81
HPC506	55	5.99	65.76	11.01	119.0	32.27	38.26	5.87	5.12	2.05	2.72	-	6.03

PCS | PUMP AND CYLINDER SETS



Capacities from 5 to 120 tons

Stroke lengths from 0.39 to 6.03 inches

Working pressure 10000 psi

- Choice of 18 models of pump, cylinder & hose set
- Single acting, spring assisted return cylinders with solid or hollow pistons
- Manually operated pumps with factory set safety relief valve
- Standard 6.5 feet length hose with quick connect coupler
- Optional piston rod saddles available for most models, see pages 26 and 27

SET		PUMP		CYLINDER			HOSE		
Model number	Cylinder capacity (tons)	Model number	Capacity (in^3)	Model number	Stroke (in)	Closed height (in)	Model number	Length (ft)	Weight (lbs)
PCS50	5	HP110	61.02	HPS51	0.63	1.65	HC2	6.5	16.3
PCS53	5	HP110	61.02	HSS53	2.96	6.19	HC2	6.5	17.6
PCS100	11	HP110	61.02	HPS100	0.39	1.81	HC2	6.5	18.1
PCS101	11	HP110	61.02	HLS101	1.58	3.74	HC2	6.5	19.8
PCS102	11	HP110	61.02	HSS102	2.21	5.16	HC2	6.5	19.8
PCS106	11	HP110	61.02	HSS106	5.91	8.87	HC2	6.5	23.8
PCS200	22	HP110	61.02	HPS200	0.43	2.05	HC2	6.5	20.7
PCS201	22	HP110	61.02	HLS201	1.73	4.02	HC2	6.5	24.9
PCS256	28	HP110	61.02	HSS256	5.91	10.76	HC2	6.5	35.3
PCS300	35	HP110	61.02	HPS300	0.47	2.32	HC2	6.5	23.8
PCS302	35	HP110	61.02	HLS302	2.36	4.69	HC2	6.5	30.0
PCS502	55	HP110	61.02	HLS502	2.36	4.96	HC2	6.5	37.5
PCS506	55	HP232	122.05	HSS506	5.99	9.89	HC2	6.5	68.3
PCS1002	120	HP232	122.05	HLS1002	2.36	5.63	HC2	6.5	78.3
PCS1006	120	HP252	305.12	HSS1006	6.03	10.8	HC2	6.5	145.5
PCS202H	25	HP110	61.02	HHS202	1.97	6.3	HC2	6.5	30.6
PCS302H	36	HP110	61.02	HHS303	1.97	6.5	HC2	6.5	37.9
PCS603H	67	HP232	122.05	HHS603	2.99	8.9	HC2	6.5	76.3

Note: Models PCS202H, PCS302H & PCS603H are supplied with a hollow piston cylinder

CYLINDER SADDLES & PISTON ROD THREAD SPECIFICATIONS

Cylinder range		Saddles				Piston rod thread				
		Standard saddle		Optional saddle		Dimensions (in)			Thread size	Figure
		Model number	Figure	Model number	Figure	A	B	C	D	
HAS	HAS - 30T	HA30	2	HAT30	7	1.97	0.39	-	-	10
	HAS - 50T	HA50	2	HAT50	7	2.76	0.43	-	-	10
	HAS - 100T	HA100	2	HAT100	7	3.94	0.47	-	-	10
HDA	HDA - 25T	HD25	3	HD25T	9	1.77	0.35	1.38	1"-12 UNF	11
	HDA - 50T	HD50	3	HD50T	9	2.76	0.43	1.77	1"-12 UNF	11
	HDA - 100T	HD100	3	HD100T	9	3.94	0.47	2.17	1 ¾"-12 UNF	11
	HDA - 150T	HD200	3	HD200T	9	3.94	0.47	2.05	2 ½"-12 UNF	11
	HDA - 200T	HD200	3	HD200T	9	4.33	0.47	2.76	2 ½"-12 UNF	11
	HDA - 300T	HD300T	7	HD300	2	5.91	0.99	-	-	-
	HDA - 400T	HD400T	7	HD400	2	7.09	0.99	-	-	-
	HDA - 500T	HD500T	7	HD500	2	7.09	0.99	-	-	-
	HDA - 800T	TS800	8	-	-	7.09	-	2.01	M24x3	14
	HDA - 1000T	TS1000	8	-	-	7.09	-	2.01	M24x3	14
HFA	HFA - 30T	HAT30	7	HA30	2	1.97	0.39	-	-	10
	HFA - 50T	HAT50	7	HA50	2	2.76	0.43	-	-	10
	HFA - 100T	HAT100	7	HA100	2	3.94	0.47	-	-	10
HFG	HFG - 50T	TS50	8	-	-	1.22	-	0.59	M8x1.25	14
	HFG - 100T	TS100	8	-	-	2.36	-	0.71	M12x1.75	14
	HFG - 150T	TS150	8	-	-	2.36	-	0.71	M12x1.75	14
	HFG - 200T	TS200	8	-	-	2.36	-	0.71	M12x1.75	14
	HFG - 250T	TS300	8	-	-	2.76	-	0.63	M10x1.5	14
	HFG - 300T	TS300	8	-	-	4.93	-	0.67	M10x1.5	14
	HFG - 400T	TS400	8	-	-	4.93	-	0.67	M12x1.75	14
	HFG - 500T	TS500	8	-	-	4.93	-	0.67	M12x1.75	14
	HFG - 800T	TS800	8	-	-	6.9	-	1.97	M24x3	14
	HFG - 1000T	TS1000	8	-	-	6.9	-	2.01	M24x3	14
HFL	HFL - 50T	TS50	8	-	-	1.22	-	0.59	M8x1.25	14
	HFL - 100T	TS100	8	-	-	2.36	-	0.71	M12x1.75	14
	HFL - 150T	TS150	8	-	-	4.73	-	0.71	M12x1.75	14
	HFL - 250T	TS251	8	-	-	5.52	-	1.58	M10x1.5	14
	HFL - 400T	TS401	8	-	-	7.09	-	1.58	M12x1.75	14
	HFL - 500T	TS501	8	-	-	7.88	-	1.58	M12x1.75	14
HGG	HGG - 150T	TS150	8	-	-	0.71	-	2.36	M12x1.75	14
	HGG - 200T	TS201	8	-	-	0.71	-	4.91	M12x1.75	14
	HGG - 300T	TS301	8	-	-	0.83	-	3.74	M12x1.75	14
HHA	HHA - 18T	HA18	4	HA18T	5	-	-	1.1	M35x1.5	12
	HHA - 37T	HA37	4	HA37T	5	-	-	1.38	M50x1.5	12
	HHA - 50T	HA504	4	HA50T	5	-	-	1.46	M60x1.5	12
HHR	HHR - 30T	HA302	4	HA302T, HA302G	5,6	2.05	0.39	1.26	M48x1.5	13
	HHR - 60T	HA603	4	HA603T, HA603G	5,6	3.15	0.39	1.26	M70x1.5	13
	HHR - 100T	HA1003	4	HA1003T, HA1003G	5,6	4.49	0.47	1.5	M105x2	13
	HHR - 150T	HA1508	4	HA1508G	6	6.7	0.53	1.97	M150x3	13
	HHR - 250T	HA2508	4	HA2508G	6	9.53	0.53	2.92	M220x3	13
HHS	HHS - 10T	HA102	4	HA102T, HA102G	5,6	1.26	0.28	0.83	M28x1.5	13
	HHS - 20T	HA202	4	HA202T, HA202G	5,6	1.69	0.39	1.22	M39x1.5	13
	HHS - 30T	HA302	4	HA302T, HA302G	5,6	2.05	0.39	1.22	M48x1.5	13
	HHS - 60T	HA603	4	HA603T, HA603G	5,6	3.15	0.39	1.22	M70x1.5	13
	HHS - 100T	HA1003	4	HA1003T, HA1003G	5,6	4.49	0.47	1.5	M105x2	13
HRA	HRA - 30T	HA30	2	HAT30	7	1.97	0.39	-	-	10
	HRA - 50T	HA50	2	HAT50	7	2.76	0.43	-	-	10
	HRA - 100T	HA100	2	HAT100	7	3.94	0.47	-	-	10
HSG	HSG - 150T	TS150	8	-	-	0.71	-	2.36	M12x1.75	14
	HSG - 200T	TS201	8	-	-	0.71	-	4.91	M12x1.75	14
	HSG - 300T	TS302	8	-	-	1.1	-	6.3	M22x2.5	14
HSS	HSS - 5T	HA5	1	-	-	-	-	0.79	¾"-16 UNF	12
	HSS - 10T	HA10	1	HAT10	9	-	-	0.55	1"-8 UNC	12
	HSS - 15T	HA15	1	HAT10	9	-	-	0.55	1"-8 UNC	12
	HSS - 25T	HA25	1	HAT25	9	-	-	1.18	1 ½"-16 UN	12
	HSS - 30T	HA25	1	HAT25	9	-	-	1.18	1 ½"-16 UN	12
	HSS - 50T	HA50	2	HAT50	7	2.76	0.43	-	-	10
	HSS - 75T	HA75	2	HAT75	7	3.15	0.47	-	-	10
	HSS - 100T	HA100	2	HAT100	7	3.94	0.47	-	-	10

CYLINDER SADDLES & PISTON ROD THREAD SPECIFICATIONS

SADDLE DRAWINGS (for specifications, see facing page)

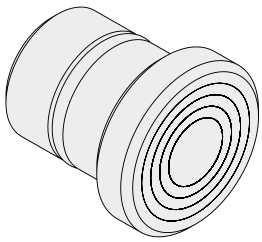


Figure 1

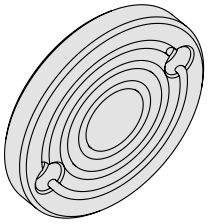


Figure 2

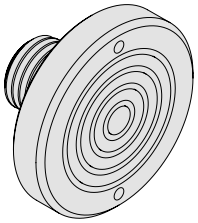


Figure 3

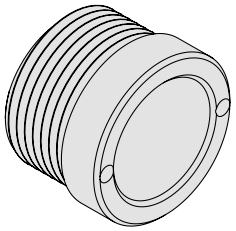


Figure 4

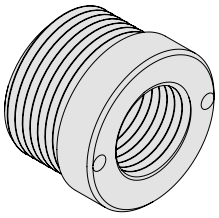


Figure 5

Note: See below table for details on internal saddle thread

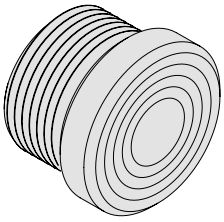


Figure 6

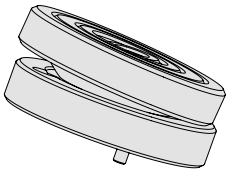


Figure 7

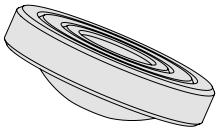


Figure 8

Saddle model	Internal saddle thread specification
HA18T	M24
HA37T	M36
HA50T	M48
HA102T	¾"-16 UNF
HA202T	1" x 8 UNC
HA302T	1 ¼" x 7 UNC
HA603T	1 ⅝" x 5 ½" UNS
HA1003T	2 ½" x 8 UN

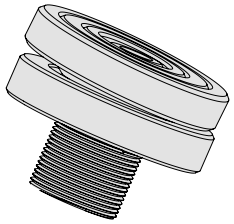


Figure 9

PISTON ROD DRAWINGS (for specifications, see facing page)

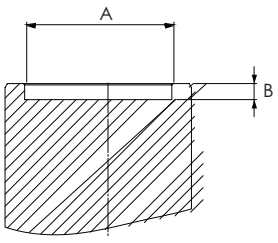


Figure 10

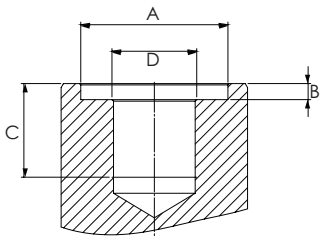


Figure 11

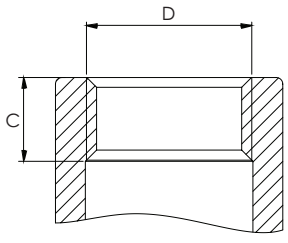


Figure 12

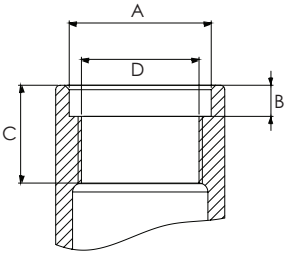


Figure 13

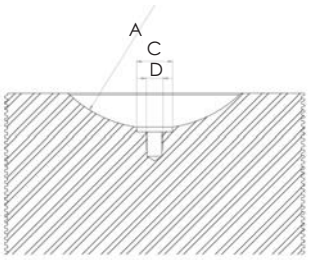


Figure 14

HI-FORCE HYDRAULIC PUMPS

The Hi-Force range of manual and powered hydraulic pumps comprises of standard models, with additional factory fitted options, of electric solenoid valves and 60 Hz motors, available to order. The range comprises of manual, battery, electric, air and gasoline engine driven options, all suitable for use at pressures up to 10000 psi maximum, excluding the HPX hand pump range on page 34, which offers even greater output pressure options, for specialist ultra-high pressure applications. Both the manual and the powered pump options are available in either single or two stage output flow rates and the extensive range and choice of models available, ensures that the user can select the best Hi-Force pump for the application.















HYDRAULIC PUMPS

SELECTION TABLE FOR HYDRAULIC PUMPS 30

HP STEEL 31
Manually operated, single or two stage, steel hand pumps

HP ALUMINUM 32
Manually operated, two stage, aluminum hand pumps

HP HIGH FLOW 33
Manually operated, two stage, high flow hand pumps

HPX RANGE 34
Manually operated, two stage ultra-high pressure hand pumps

HP-FP RANGE 35
Manually operated, two stage foot pumps

BPP RANGE 36
Battery powered, two stage hydraulic pump

HEP1 RANGE 37
Electric driven, two stage mini pumps with carrying strap

HEP1 RANGE 38
Electric driven, two stage compact pumps

HEP2 RANGE 39
Electric driven, two stage, medium flow, general duty pumps

HEP3 RANGE 40
Electric driven, two stage, high flow, general duty pumps

HEP4 RANGE 41
Electric driven, two stage, high flow, general duty pumps

HEP5 RANGE 42
Electric driven, two stage, ultra-high flow, heavy duty pumps

HSP RANGE 43
Electric driven, split flow, multi-outlet pumps

SLF RANGE 44
Synchronous lifting system, fixed speed drive

SLV RANGE 48
Synchronous lifting system, variable speed drive

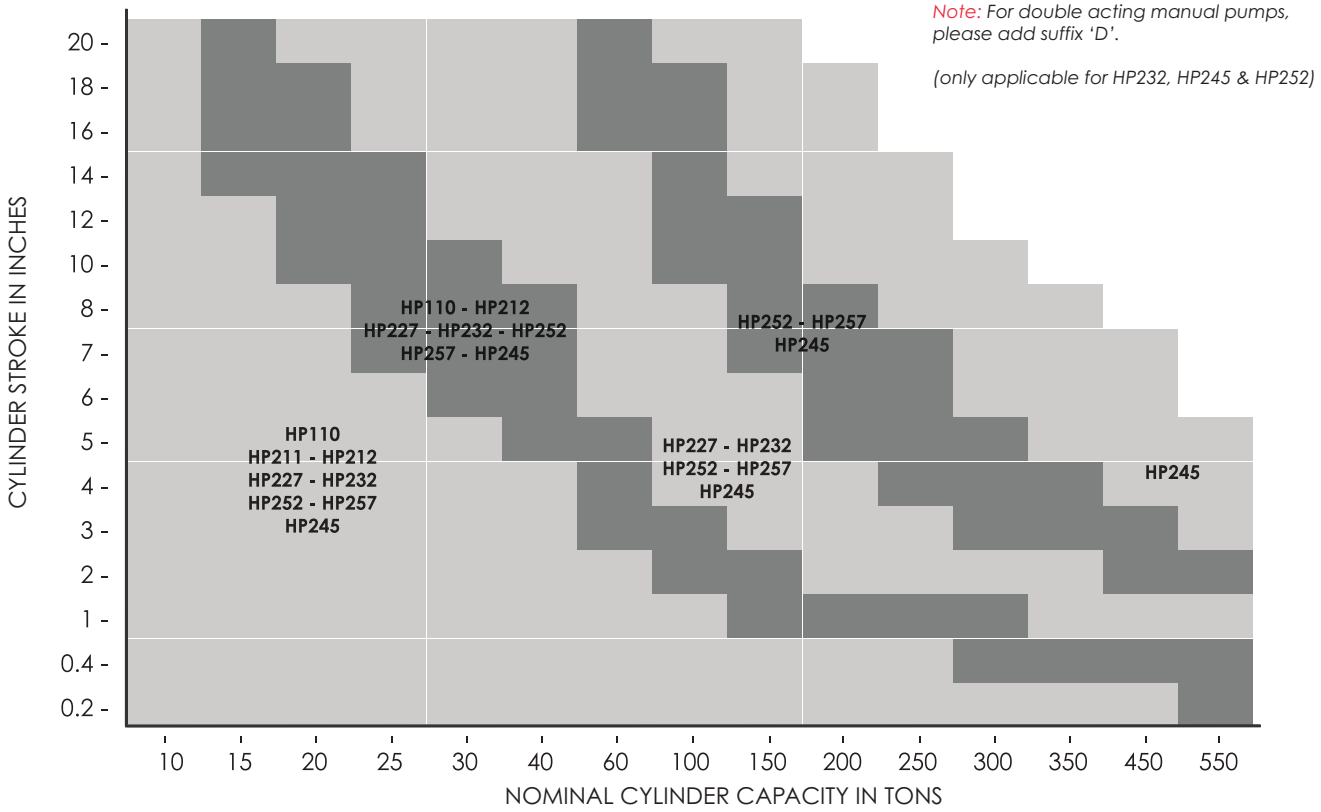
AHP11 RANGE 53
Air driven, single stage, hand or foot operated pumps

HAP RANGE 54
Air driven, two stage, high flow, general duty pumps

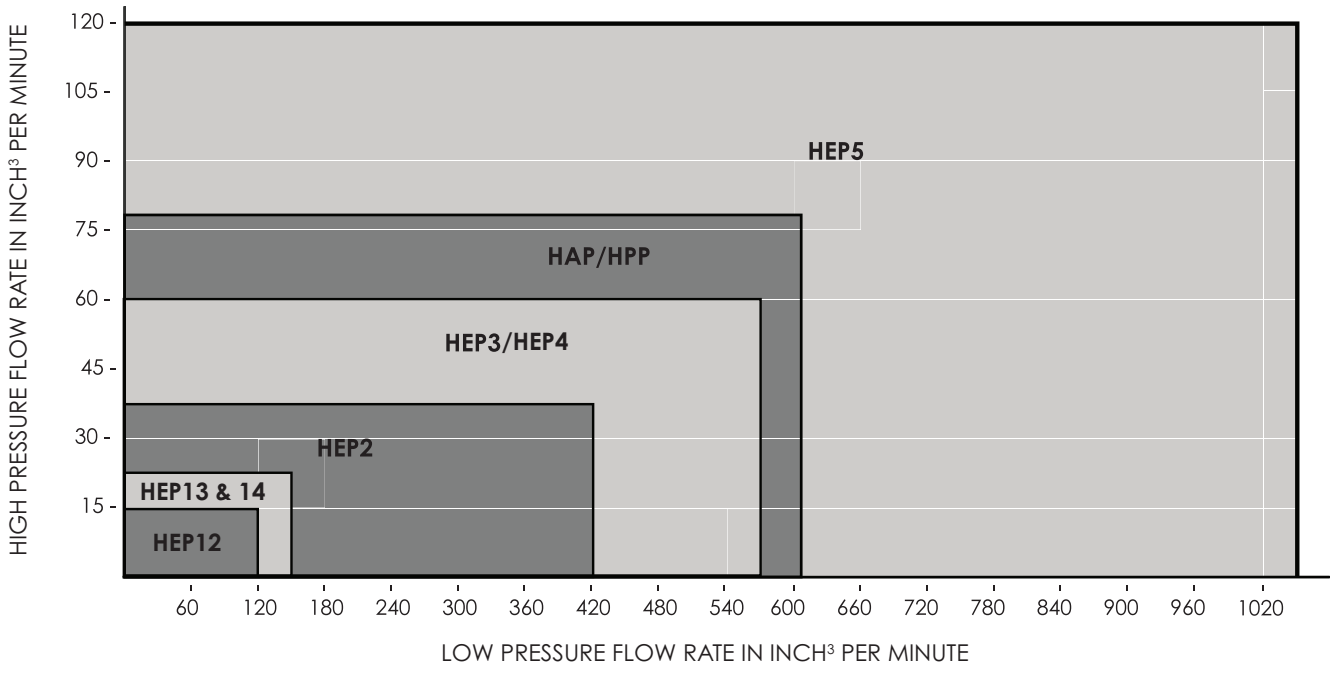
HPP RANGE 55
Gasoline engine driven, two stage, high flow, general duty pumps

SELECTION TABLE FOR HI-FORCE HYDRAULIC PUMPS

MANUAL PUMPS



POWERED PUMPS



HP | MANUALLY OPERATED PUMPS - STEEL

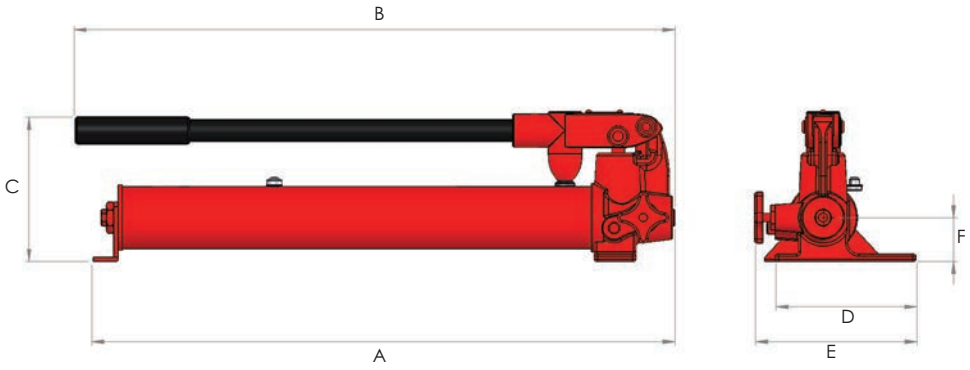


Single or two stage operation

Durable steel construction

Working pressure 10000 psi

- Oil reservoir capacity up to 250.2 inch^3
- External pressure release valve and factory set safety relief valve
- Low handle effort and ergonomic grip for easy operation
- Changeover pressure for two stage models is 203 psi



Model number	Valve type	Displacement per stroke (in^3) 1st stage	2nd stage	Usable oil capacity (in^3)	Handle effort (lbs)	Weight (lbs)	Dimensions (in) A	B	C	D	E	F
Single stage hand operated pumps for single acting cylinders and tools												
HP110	2-way	0.18	-	61.02	99	12.3	21.99	22.3	5.04	5.28	5.71	1.58
Two stage hand operated pumps for single acting cylinders and tools												
HP227	2-way	0.79	0.14	140.35	84	23.1	21.43	23.52	6.62	5.32	5.71	2.09
HP257	2-way	0.79	0.14	250.2	84	33.5	21.47	23.52	6.62	5.32	5.91	2.09

HP | MANUALLY OPERATED PUMPS - ALUMINUM

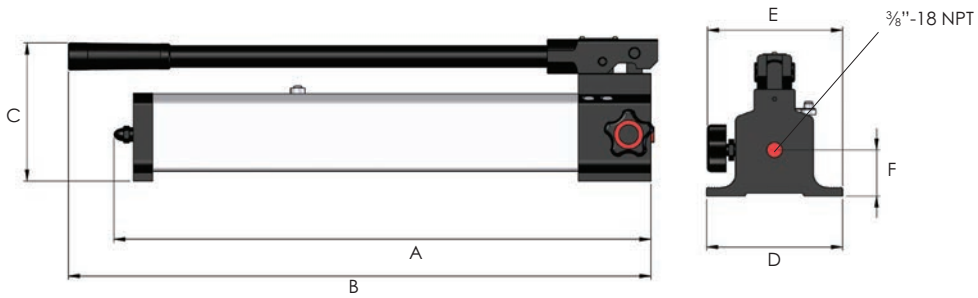


Two stage operation

Working pressure 10000 psi

Six models with choice of control valve

- Oil reservoir capacity up to 305.12 inch^3
- Lightweight aluminum construction with external pressure release valve and factory set safety relief valve
- Changeover pressure is 203 psi
- Low handle effort and ergonomic grip for easy operation



Model number	Valve type	Displacement per stroke (in^3) 1st stage	2nd stage	Usable oil capacity (in^3)	Handle effort (lbs)	Weight (lbs)	Dimensions (in) A	B	C	D	E	F
Two stage hand operated pumps for single acting cylinders and tools												
HP211	2-way	0.79	0.06	30.51	60	4.4	13.2	15.29	5.32	3.94	4.93	1.58
HP212	2-way	0.79	0.14	61.02	88	8.8	22.06	24.03	5.52	3.94	4.93	1.58
HP232	2-way	0.79	0.14	122.05	88	15.2	22.06	24.03	6.3	5.52	6.11	1.97
HP252	2-way	0.79	0.14	305.12	88	21.2	23.05	24.03	6.3	6.62	5.71	1.97
Two stage hand operated pumps for double acting cylinders and tools												
HP232D	4-way	0.79	0.14	122.05	88	19.2	22.85	24.63	6.3	5.52	6.9	1.18
HP252D	4-way	0.79	0.14	305.12	88	30.0	23.84	24.63	6.3	6.62	6.9	1.18

HP | MANUALLY OPERATED PUMPS - HIGH FLOW

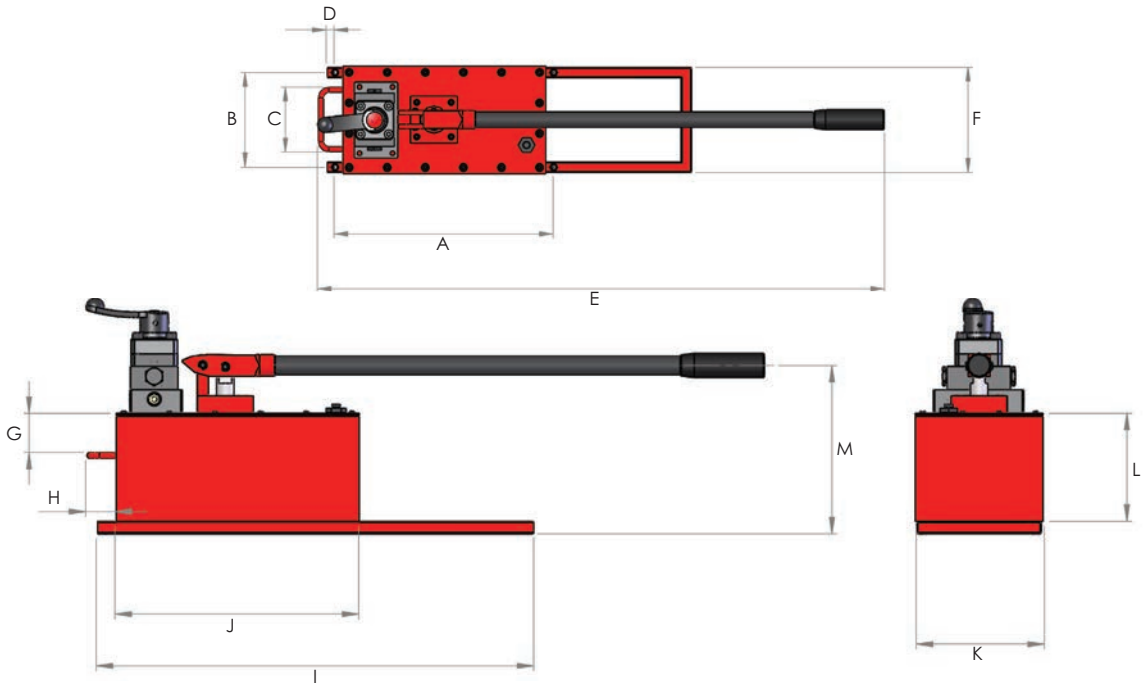


Heavy duty steel construction

Working pressure 10000 psi

Two stage with semi automatic changeover

- Oil reservoir capacity 2.64 gallons
- Factory set safety relief valve fitted as standard
- Available with 2-way valve for use with single acting cylinders and 4-way valve for use with double acting cylinders
- 1st stage flow rate of 6.89 in^3 per handle stroke for faster extension & retraction of piston under no load
- Changeover pressure is 406 psi
- Low handle effort and ergonomic grip for easy operation



Model number	Valve type	Displacement per stroke (in^3) 1st stage	2nd stage	Usable oil capacity (gallons)	Handle effort (lbs)	Weight (lbs)
Two stage hand operated pump for single acting cylinders and tools						
HP245	2-way	6.89	0.24	2.64	88	65.0
Two stage hand operated pump for double acting cylinders and tools						
HP245D	4-way	6.89	0.24	2.64	88	68.3

Dimensions (in)												
A	B	C	D	E	F	G	H	I	J	K	L	M
16.55	7.09	4.89	0.59	41.37	7.88	2.48	1.85	27.58	15.37	8.08	6.82	10.64

HPX | MANUALLY OPERATED ULTRA HIGH PRESSURE PUMPS

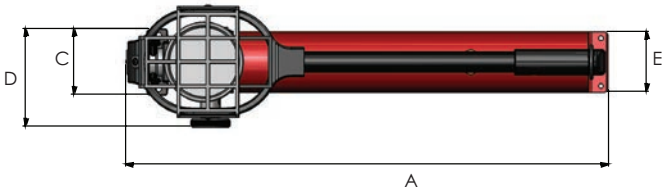


Compact lightweight aluminum construction

Two stage operation

Choice of 21750 or 40600 psi pressure rating

- Oil reservoir capacity 73.23 inch^3
- External pressure release valve and factory set safety valve
- Specifically designed for high pressure applications
- Integrated pressure gauge with scale reading bar and psi
- Bespoke handle with ergonomic grip and mesh guard to protect pressure gauge





Model number	Working pressure (psi)	Usable oil capacity (in^3)	Displacement per stroke (in^3)		Outlet port	Weight (lbs)	Dimensions (in)				
			1st stage	2nd stage			A	B	C	D	E
HPX1500	21750	73.23	1.22	0.06	¼" BSP	14.3	24.23	6.34	3.31	4.93	3.01
HPX2800	40600	73.23	1.22	0.05	9/16"-18 UNF	14.3	24.23	6.34	3.31	4.93	3.01

OPTIONAL HOSES:

Model number	Working pressure (psi)	Description	Weight (lbs)
XHH3-15	21750	10 ft hose with ¼" BSP male thread each end	3.1
XHH5-15	21750	16.5 ft hose with ¼" BSP male thread each end	5.7
XHH3-30	40600	10 ft hose with 9/16"-18 UNF male coned thread each end	7.1
XHH5-30	40600	16.5 ft hose with 9/16"-18 UNF male coned thread each end	11.2

HP-FP | MANUALLY OPERATED FOOT PUMPS

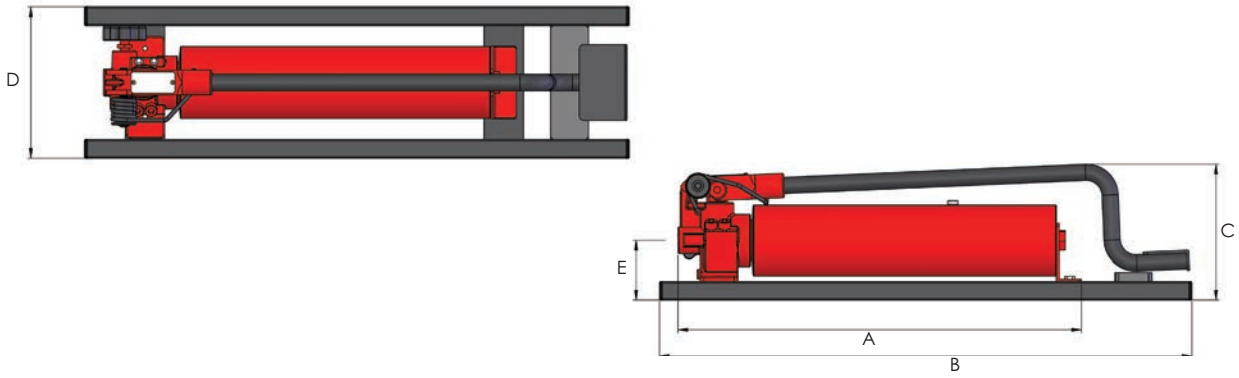


Working pressure 10000 psi

Two stage operation

Durable steel construction

- Oil reservoir capacity 140.35 inch^3
- External pressure release valve and factory set safety relief valve
- Wide foot pedal for easy and controlled pumping action
- Steel framework for maximum stability



Model number	Valve type	Displacement per stroke (in^3) 1st stage	2nd stage	Usable oil capacity (in^3)	Handle effort (lbs)	Weight (lbs)	Dimensions (in) A	B	C	D	E
HP227FP	2-way	0.79	0.14	140.35	86	27.6	21.43	28.17	7.29	7.88	3.07
HP227FPC	2-way	0.79	0.14	140.35	86	32.0	21.43	30.06	8.94	7.88	3.07

Note: HP227FPC is supplied with pressure gauge, gauge mounting block and 10 ft hose with male coupler

BPP | BATTERY POWERED HYDRAULIC PUMP

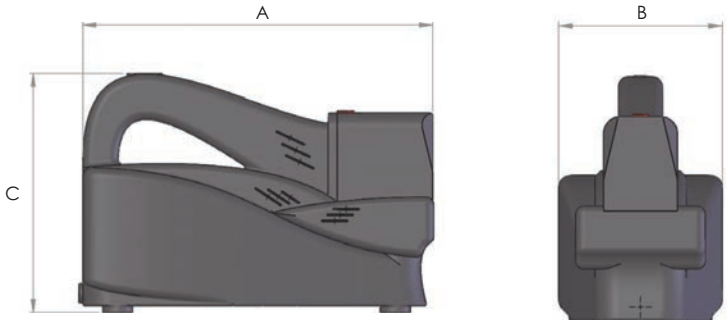


Working pressure 10000 psi

14.4V long life battery

Lightweight design

- Powerful hydraulic pump driven by 14.4 volt battery
- Compact and lightweight design with shoulder strap for easy carrying
- External pressure release valve and factory set safety valve
- Supplied with battery and charger



Model number	Oil capacity (in^3)	Oil flow (in^3/min) 1st stage	Oil flow (in^3/min) 2nd stage	Weight (lbs)	Dimensions (in) A	Dimensions (in) B	Dimensions (in) C
BPP107	42.72	30.51	9.15	17.6	13.99	6.3	10.24

BPP ACCESSORIES



Model number	Description
BP12	Battery pack 14.4V

Note: Charger supplied separately



Model number	Description
CU12	Mains charger 110V-230V



Model number	Voltage	Description
MP110	110V	Power supply to operate unit directly from mains
MP220	220/230V	

HEP1 | ELECTRIC DRIVEN LIGHTWEIGHT MINI PUMPS WITH CARRYING STRAP

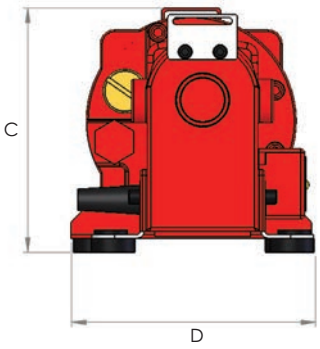


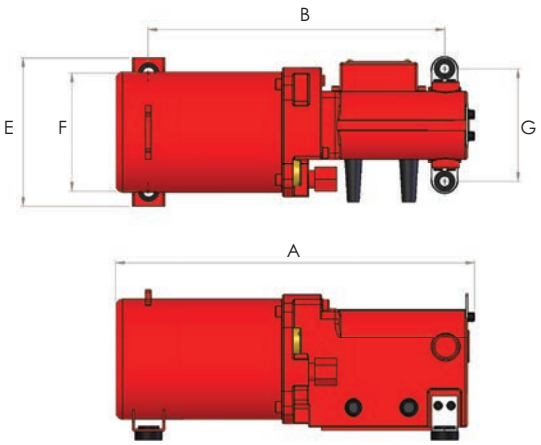
Working pressure 10000 psi

Two stage operation

Lightweight, compact design

- Oil reservoir capacity 48.82 inch^3
- Choice of 110 or 240 volt single phase electric motor with 2-way electric solenoid valve
- Internal safety overload valve
- Remote hand pendant controller with 10 feet cable
- Supplied with handy carrying strap





Model number	Motor voltage	Maximum flow rate (in^3/min) 1st stage	2nd stage	Valve type	Usable oil capacity (in^3)	Weight (lbs)	Dimensions (in) A	B	C	D	E	F	G
HEP1211S	110V-1Ph	122.05	12.2	2-way	48.82	16.5	13.12	10.6	5.52	5.48	5.44	4.33	4.14
HEP1212S	240V-1Ph	122.05	12.2	2-way	48.82	16.5	13.12	10.6	5.52	5.48	5.44	4.33	4.14

HEP1 | ELECTRIC DRIVEN TWO STAGE COMPACT PUMPS

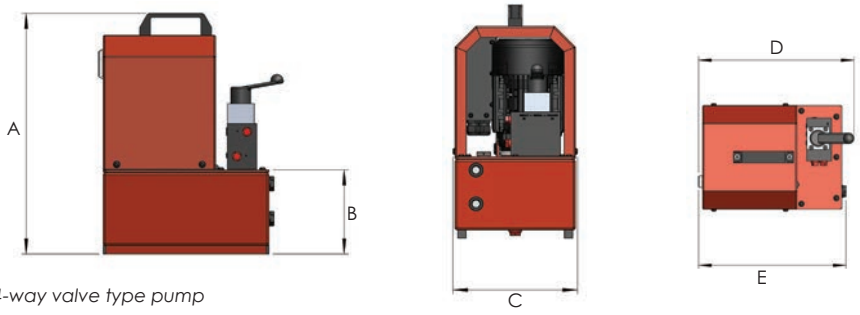


Working pressure 10000 psi

Two stage operation

Choice of valve options

- Usable oil reservoir capacity 1.06 gallons
- Two-stage pump design with maximum flow rates of 158.66 inch³/minute (1st stage) and 21.97 inch³/minute (2nd stage)
- Choice of 110V 50 Hz, 120V 60 Hz, 230V 50 Hz, and 220V 60 Hz single-phase electric motors
- Choice of 3-way dual-purpose valve (advance/auto retract for crimping and cutting and advance/hold/retract for lifting) and 4-way manual valve with load holding
- 3-way and 4-way valves are available with or without externally adjustable pressure relief valve and pressure gauge
- Pumps with suffix 'R' in the model number are fitted with an externally adjustable relief valve and glycerin filled pressure gauge
- Internal pressure relief valve set at 10000 psi
- Remote hand pendant controller with 10 feet control cable
- Ingress protection tested and IP55 rated



Drawing shows a 4-way valve type pump

Model number	Valve type	*Usable oil capacity (gallons)	Maximum flow rate (inch³/minute)		Motor voltage	Model number (60 Hz motor)	**Weight (lbs)	Dimensions (in)				
			1st stage	2nd stage				A	B	C	D	E
HEP1341	3-way	1.06	158.66	21.97	110V 50 Hz-1Ph	HEP1341H	54.0	17.73	6.3	9.46	13	13
HEP1341R	3-way	1.06	158.66	21.97	110V 50 Hz-1Ph	HEP1341HR	56.2	17.73	6.3	9.46	13	13
HEP1342	3-way	1.06	158.66	21.97	230V 50 Hz-1Ph	HEP1342H	54.0	17.73	6.3	9.46	13	13
HEP1342R	3-way	1.06	158.66	21.97	230V 50 Hz-1Ph	HEP1342HR	56.2	17.73	6.3	9.46	13	13
HEP1441	4-way	1.06	158.66	21.97	110V 50 Hz-1Ph	HEP1441H	55.1	17.73	6.3	9.46	13.79	13
HEP1441R	4-way	1.06	158.66	21.97	110V 50 Hz-1Ph	HEP1441HR	57.3	17.73	6.3	9.46	13.79	13
HEP1442	4-way	1.06	158.66	21.97	230V 50 Hz-1Ph	HEP1442H	55.1	17.73	6.3	9.46	13.79	13
HEP1442R	4-way	1.06	158.66	21.97	230V 50 Hz-1Ph	HEP1442HR	57.3	17.73	6.3	9.46	13.79	13

**Total oil reservoir capacity 1.85 gallons (approx.)*
***Weight including oil filled to maximum level*

Note: All 110V and 230V models are supplied to run at 50 Hz as standard, refer to the table for pumps with 60 Hz motor. 60 Hz models operate at 120V and 220V and deliver approximately 15-20% higher flow rate.

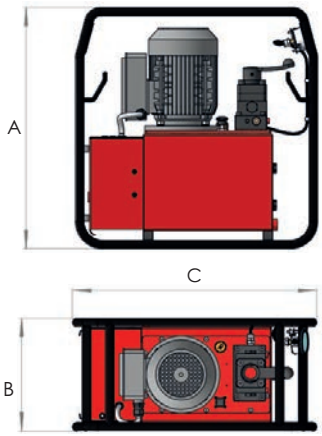
HEP2 | ELECTRIC DRIVEN PUMPS - GENERAL DUTY MEDIUM FLOW



Working pressure 10000 psi

Two stage operation

Choice of 2.64 or 6.6 gallon oil reservoir



- Choice of 110, 230 or 400/460 volt electric motors available as standard
- Choice of 2, 3 or 4-way manual control valves with load holding feature on 3 & 4-way versions
- Externally adjustable pressure relief for pressure settings up to 10000 psi
- Completely enclosed fan cooled low noise electric motors
- Cable management features for cable/hose winding and stowage
- Supplied as standard with pressure gauge and a robust roll frame

Model number	Valve type	Oil capacity (gallons)	Maximum flow rate (in³/min) 1st stage	2nd stage	Motor voltage	Model number (60 Hz motor)	Weight (lbs)	Dimensions (in) A	B	C
HEP207111	P-T Plate	2.64	427.17	39.67	110V 50 Hz-1Ph	HEP207111H	114.6	24.7	11.5	24.9
HEP207112	P-T Plate	2.64	427.17	39.67	230V 50 Hz-1Ph	HEP207112H	114.6	24.7	11.5	24.9
HEP207114	P-T Plate	2.64	427.17	39.67	400V 50 Hz/460V 60 Hz-3Ph	-	114.6	24.7	11.5	24.9
HEP207121	P-T Plate	6.6	427.17	39.67	110V 50 Hz-1Ph	HEP207121H	149.9	24.7	13.87	29.71
HEP207122	P-T Plate	6.6	427.17	39.67	230V 50 Hz-1Ph	HEP207122H	149.9	24.7	13.87	29.71
HEP207124	P-T Plate	6.6	427.17	39.67	400V 50 Hz/460V 60 Hz-3Ph	-	149.9	24.7	13.87	29.71
HEP207211	2-way	2.64	427.17	39.67	110V 50 Hz-1Ph	HEP207211H	115.7	24.7	11.5	24.9
HEP207212	2-way	2.64	427.17	39.67	230V 50 Hz-1Ph	HEP207212H	115.7	24.7	11.5	24.9
HEP207214	2-way	2.64	427.17	39.67	400V 50 Hz/460V 60 Hz-3Ph	-	115.7	24.7	11.5	24.9
HEP207221	2-way	6.6	427.17	39.67	110V 50 Hz-1Ph	HEP207221H	151.0	24.7	13.87	29.71
HEP207222	2-way	6.6	427.17	39.67	230V 50 Hz-1Ph	HEP207222H	151.0	24.7	13.87	29.71
HEP207224	2-way	6.6	427.17	39.67	400V 50 Hz/460V 60 Hz-3Ph	-	151.0	24.7	13.87	29.71
HEP207311	3-way	2.64	427.17	39.67	110V 50 Hz-1Ph	HEP207311H	115.7	24.7	11.5	24.9
HEP207312	3-way	2.64	427.17	39.67	230V 50 Hz-1Ph	HEP207312H	115.7	24.7	11.5	24.9
HEP207314	3-way	2.64	427.17	39.67	400V 50 Hz/460V 60 Hz-3Ph	-	115.7	24.7	11.5	24.9
HEP207321	3-way	6.6	427.17	39.67	110V 50 Hz-1Ph	HEP207321H	151.0	24.7	13.87	29.71
HEP207322	3-way	6.6	427.17	39.67	230V 50 Hz-1Ph	HEP207322H	151.0	24.7	13.87	29.71
HEP207324	3-way	6.6	427.17	39.67	400V 50 Hz/460V 60 Hz-3Ph	-	151.0	24.7	13.87	29.71
HEP207411	4-way	2.64	427.17	39.67	110V 50 Hz-1Ph	HEP207411H	115.7	24.7	11.5	24.9
HEP207412	4-way	2.64	427.17	39.67	230V 50 Hz-1Ph	HEP207412H	115.7	24.7	11.5	24.9
HEP207414	4-way	2.64	427.17	39.67	400V 50 Hz/460V 60 Hz-3Ph	-	115.7	24.7	11.5	24.9
HEP207421	4-way	6.6	427.17	39.67	110V 50 Hz-1Ph	HEP207421H	151.0	24.7	13.87	29.71
HEP207422	4-way	6.6	427.17	39.67	230V 50 Hz-1Ph	HEP207422H	151.0	24.7	13.87	29.71
HEP207424	4-way	6.6	427.17	39.67	400V 50 Hz/460V 60 Hz-3Ph	-	151.0	24.7	13.87	29.71

Note: 1) All 400/460V models are suitable for operation at 50 Hz and 60 Hz.
2) All 110V and 230V models are supplied to run at 50 Hz as standard, refer to the table for pumps with 60 Hz motor. 60 Hz models deliver approximately 15-20% higher flow rate.
3) To order a low voltage solenoid valve and hand pendant controller for the 3-way and 4-way valve pumps, suffix 'S' to the pump model number.

HEP3 | ELECTRIC DRIVEN PUMPS - GENERAL DUTY HIGH FLOW

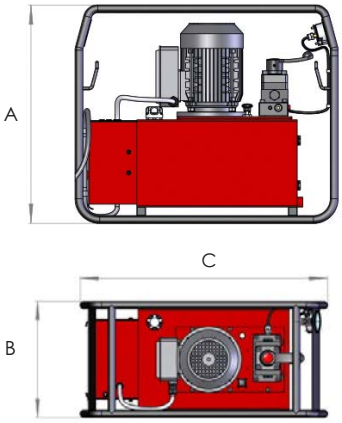


Working pressure 10000 psi

Two stage operation

6.6 gallon oil reservoir

- Choice of 110, 230 or 400/460 volt electric motors available as standard
- Choice of 2, 3 or 4-way manual control valves with load holding feature on 3 & 4-way versions
- Externally adjustable pressure relief for pressure settings up to 10000 psi
- Completely enclosed fan cooled low noise electric motors
- Cable management features for cable/hose winding and stowage
- Supplied as standard with pressure gauge and a robust roll frame



Model number	Valve type	Oil capacity (gallons)	Maximum flow rate (in³/min) 1st stage	2nd stage	Motor voltage	Model number (60 Hz motor)	Weight (lbs)	Dimensions (in) A	B	C
HEP310121	P-T Plate	6.6	549.21	61.02	110V 50 Hz-1Ph	HEP310121H	149.9	24.7	13.87	29.71
HEP310122	P-T Plate	6.6	549.21	61.02	230V 50 Hz-1Ph	HEP310122H	149.9	24.7	13.87	29.71
HEP310124	P-T Plate	6.6	549.21	61.02	400V 50 Hz/460V 60 Hz-3Ph	-	149.9	24.7	13.87	29.71
HEP310221	2-way	6.6	549.21	61.02	110V 50 Hz-1Ph	HEP310221H	151.0	24.7	13.87	29.71
HEP310222	2-way	6.6	549.21	61.02	230V 50 Hz-1Ph	HEP310222H	151.0	24.7	13.87	29.71
HEP310224	2-way	6.6	549.21	61.02	400V 50 Hz/460V 60 Hz-3Ph	-	151.0	24.7	13.87	29.71
HEP310321	3-way	6.6	549.21	61.02	110V 50 Hz-1Ph	HEP310321H	151.0	24.7	13.87	29.71
HEP310322	3-way	6.6	549.21	61.02	230V 50 Hz-1Ph	HEP310322H	151.0	24.7	13.87	29.71
HEP310324	3-way	6.6	549.21	61.02	400V 50 Hz/460V 60 Hz-3Ph	-	151.0	24.7	13.87	29.71
HEP310421	4-way	6.6	549.21	61.02	110V 50 Hz-1Ph	HEP310421H	151.0	24.7	13.87	29.71
HEP310422	4-way	6.6	549.21	61.02	230V 50 Hz-1Ph	HEP310422H	151.0	24.7	13.87	29.71
HEP310424	4-way	6.6	549.21	61.02	400V 50 Hz/460V 60 Hz-3Ph	-	151.0	24.7	13.87	29.71

Note: 1) All 400/460V models are suitable for operation at 50 Hz and 60 Hz.
2) All 110V and 230V models are supplied to run at 50 Hz as standard, refer to the table for pumps with 60 Hz motor. 60 Hz models deliver approximately 15-20% higher flow rate.
3) To order a low voltage solenoid valve and hand pendant controller for the 3-way and 4-way valve pumps, suffix 'S' to the pump model number.

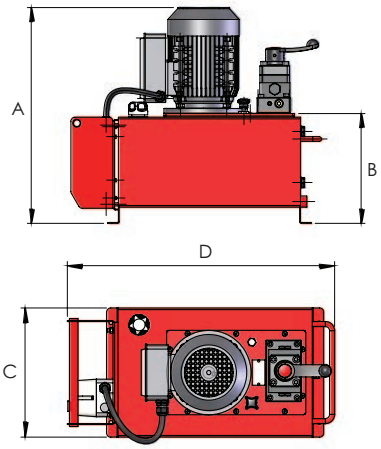
HEP4 | ELECTRIC DRIVEN PUMPS - GENERAL DUTY HIGH FLOW



Working pressure 10000 psi

Two stage operation

Choice of 10.56 or 15.84 gallon oil reservoir



- Choice of 110, 230 or 400/460 volt electric motors available as standard
- Choice of 2, 3 or 4-way manual control valves with load holding feature on 3 & 4-way versions
- Externally adjustable pressure relief for pressure settings up to 10000 psi
- Completely enclosed fan cooled low noise electric motors

Model number	Valve type	Oil capacity (gallons)	Maximum flow rate (in³/min) 1st stage	2nd stage	Motor voltage	Model number (60 Hz motor)	Weight (lbs)	Dimensions (in) A	B	C	D
HEP410141	P-T Plate	10.56	549.21	61.02	110V 50 Hz-1Ph	HEP410141H	195.1	27.3	15.21	12.06	24.94
HEP410142	P-T Plate	10.56	549.21	61.02	230V 50 Hz-1Ph	HEP410142H	195.1	27.3	15.21	12.06	24.94
HEP410144	P-T Plate	10.56	549.21	61.02	400V 50 Hz/460V 60 Hz-3Ph	-	195.1	27.3	15.21	12.06	24.94
HEP410161	P-T Plate	15.84	549.21	61.02	110V 50 Hz-1Ph	HEP410161H	264.6	28.09	16.04	16	25.85
HEP410162	P-T Plate	15.84	549.21	61.02	230V 50 Hz-1Ph	HEP410162H	264.6	28.09	16.04	16	25.85
HEP410164	P-T Plate	15.84	549.21	61.02	400V 50 Hz/460V 60 Hz-3Ph	-	264.6	28.09	16.04	16	25.85
HEP410241	2-way	10.56	549.21	61.02	110V 50 Hz-1Ph	HEP410241H	196.2	27.3	15.21	12.06	24.94
HEP410242	2-way	10.56	549.21	61.02	230V 50 Hz-1Ph	HEP410242H	196.2	27.3	15.21	12.06	24.94
HEP410244	2-way	10.56	549.21	61.02	400V 50 Hz/460V 60 Hz-3Ph	-	196.2	27.3	15.21	12.06	24.94
HEP410261	2-way	15.84	549.21	61.02	110V 50 Hz-1Ph	HEP410261H	265.7	28.09	16.04	16	25.85
HEP410262	2-way	15.84	549.21	61.02	230V 50 Hz-1Ph	HEP410262H	265.7	28.09	16.04	16	25.85
HEP410264	2-way	15.84	549.21	61.02	400V 50 Hz/460V 60 Hz-3Ph	-	265.7	28.09	16.04	16	25.85
HEP410341	3-way	10.56	549.21	61.02	110V 50 Hz-1Ph	HEP410341H	196.2	27.3	15.21	12.06	24.94
HEP410342	3-way	10.56	549.21	61.02	230V 50 Hz-1Ph	HEP410342H	196.2	27.3	15.21	12.06	24.94
HEP410344	3-way	10.56	549.21	61.02	400V 50 Hz/460V 60 Hz-3Ph	-	196.2	27.3	15.21	12.06	24.94
HEP410361	3-way	15.84	549.21	61.02	110V 50 Hz-1Ph	HEP410361H	265.7	28.09	16.04	16	25.85
HEP410362	3-way	15.84	549.21	61.02	230V 50 Hz-1Ph	HEP410362H	265.7	28.09	16.04	16	25.85
HEP410364	3-way	15.84	549.21	61.02	400V 50 Hz/460V 60 Hz-3Ph	-	265.7	28.09	16.04	16	25.85
HEP410441	4-way	10.56	549.21	61.02	110V 50 Hz-1Ph	HEP410441H	196.2	27.3	15.21	12.06	24.94
HEP410442	4-way	10.56	549.21	61.02	230V 50 Hz-1Ph	HEP410442H	196.2	27.3	15.21	12.06	24.94
HEP410444	4-way	10.56	549.21	61.02	400V 50 Hz/460V 60 Hz-3Ph	-	196.2	27.3	15.21	12.06	24.94
HEP410461	4-way	15.84	549.21	61.02	110V 50 Hz-1Ph	HEP410461H	265.7	28.09	16.04	16	25.85
HEP410462	4-way	15.84	549.21	61.02	230V 50 Hz-1Ph	HEP410462H	265.7	28.09	16.04	16	25.85
HEP410464	4-way	15.84	549.21	61.02	400V 50 Hz/460V 60 Hz-3Ph	-	265.7	28.09	16.04	16	25.85

Note: 1) All 400/460V models are suitable for operation at 50 Hz and 60 Hz.
2) All 110V and 230V models are supplied to run at 50 Hz as standard, refer to the table for pumps with 60 Hz motor. 60 Hz models deliver approximately 15-20% higher flow rate.
3) To order a low voltage solenoid valve and hand pendant controller for the 3-way and 4-way valve pumps, suffix 'S' to the pump model number.

WHEEL TROLLEY

Model number	Description
PPA40WT	Wheel trolley for all pumps with 10.56 gallons oil reservoir
PPA60WT	Wheel trolley for all pumps with 15.84 gallons oil reservoir

All HEP4 pumps can be supplied with a factory fitted wheel trolley.
Please suffix 'WT' to the pump model number.



HEP5 | ELECTRIC DRIVEN PUMPS - HEAVY DUTY HIGH FLOW

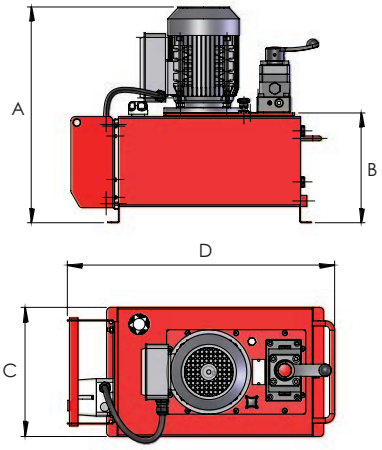


Working pressure 10000 psi

Two stage operation

Choice of 10.56 or 15.84 gallon oil reservoir

- 400/460 volt electric motors available as standard
- Choice of 2, 3 or 4-way manual control valves with load holding feature on 3 & 4-way versions
- Externally adjustable pressure relief for pressure settings up to 10000 psi
- Completely enclosed fan cooled low noise electric motors



Model number	Valve type	Oil capacity (gallons)	Maximum flow rate (in^3/min) 1st stage	2nd stage	Motor voltage	Weight (lbs)	Dimensions (in) A	B	C	D
HEP517144	P-T Plate	10.56	1067.91	115.95	400V 50 Hz/460V 60 Hz-3Ph	195.1	27.3	15.21	12.06	24.94
HEP517164	P-T Plate	15.84	1067.91	115.95	400V 50 Hz/460V 60 Hz-3Ph	264.6	28.09	16.04	16	25.85
HEP517244	2-way	10.56	1067.91	115.95	400V 50 Hz/460V 60 Hz-3Ph	196.2	27.3	15.21	12.06	24.94
HEP517264	2-way	15.84	1067.91	115.95	400V 50 Hz/460V 60 Hz-3Ph	265.7	28.09	16.04	16	25.85
HEP517344	3-way	10.56	1067.91	115.95	400V 50 Hz/460V 60 Hz-3Ph	196.2	27.3	15.21	12.06	24.94
HEP517364	3-way	15.84	1067.91	115.95	400V 50 Hz/460V 60 Hz-3Ph	265.7	28.09	16.04	16	25.85
HEP517444	4-way	10.56	1067.91	115.95	400V 50 Hz/460V 60 Hz-3Ph	196.2	27.3	15.21	12.06	24.94
HEP517464	4-way	15.84	1067.91	115.95	400V 50 Hz/460V 60 Hz-3Ph	265.7	28.09	16.04	16	25.85

Note: 1) All models are suitable for operation at 50 Hz and 60 Hz. 60 Hz models deliver approximately 15-20% higher flow rate.
2) To order a low voltage solenoid valve and hand pendant controller for the 3-way and 4-way valve pumps, suffix 'S' to the pump model number.

WHEEL TROLLEY

Model number	Description
PPA40WT	Wheel trolley for all pumps with 10.56 gallons oil reservoir
PPA60WT	Wheel trolley for all pumps with 15.84 gallons oil reservoir

All HEP5 pumps can be supplied with a factory fitted wheel trolley.
Please suffix 'WT' to the pump model number.



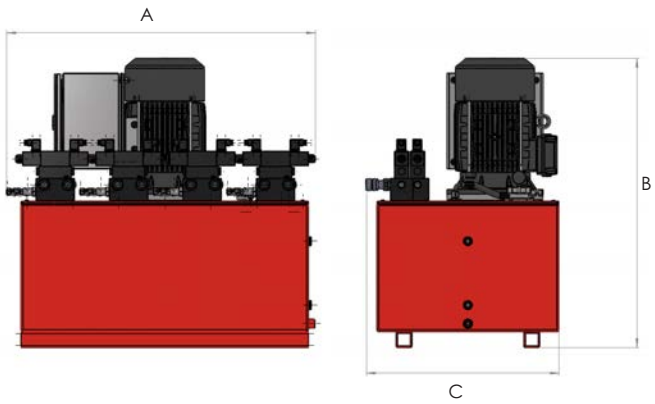
HSP | ELECTRIC DRIVEN SPLIT FLOW MULTI-OUTLET PUMPS



Working pressure 10000 psi

Efficient 3 phase motors with DC electric solenoids

Both single and double acting cylinder models available



- Selection of outlet valve configurations ranging from 4-outlet pump with manual valves to 8-outlet pump with electric solenoid valves
- Control system with individual outlet selection switches, providing choice of single or multiple synchronized operation
- Heavy duty completely enclosed, fan cooled three phase electric motor
- Externally adjustable pressure setting valves on each outlet, for pre-setting pressure up to 10000 psi maximum

Model number	Valve configuration	Valve type	Oil capacity (gallons)	Oil flow per outlet (in^3/min)	Motor voltage	Motor voltage (hp)	Weight (lbs)	Dimensions (in)		
								A	B	C
HSP4SM	4 x 3-way	manual	26.41	67.13	400V 50 Hz/460V 60 Hz-3Ph	10.05	599.7	39.4	35.85	24.03
HSP4DM	4 x 4-way	manual	26.41	67.13	400V 50 Hz/460V 60 Hz-3Ph	10.05	599.7	39.4	35.85	24.03
HSP4SE	4 x 3-way	electric	26.41	67.13	400V 50 Hz/460V 60 Hz-3Ph	10.05	604.1	39.4	35.85	24.03
HSP4DE	4 x 4-way	electric	26.41	67.13	400V 50 Hz/460V 60 Hz-3Ph	10.05	604.1	39.4	35.85	24.03
HSP6SE	6 x 3-way	electric	52.82	54.92	400V 50 Hz/460V 60 Hz-3Ph	14.74	738.5	49.25	41.76	31.52
HSP6DE	6 x 4-way	electric	52.82	54.92	400V 50 Hz/460V 60 Hz-3Ph	14.74	738.5	49.25	41.76	31.52
HSP8SE	8 x 3-way	electric	52.82	54.92	400V 50 Hz/460V 60 Hz-3Ph	14.74	815.7	49.25	41.76	31.52
HSP8DE	8 x 4-way	electric	52.82	54.92	400V 50 Hz/460V 60 Hz-3Ph	14.74	815.7	49.25	41.76	31.52

Note: All models are suitable for operation at 50 Hz and 60 Hz. 60 Hz models deliver approximately 15-20% higher flow rate.

SLF | SYNCHRONOUS LIFTING SYSTEM - FIXED SPEED DRIVE



Working pressure 10000 psi

Control from 4 to 8 lifting points

For use with standard single or double acting cylinders

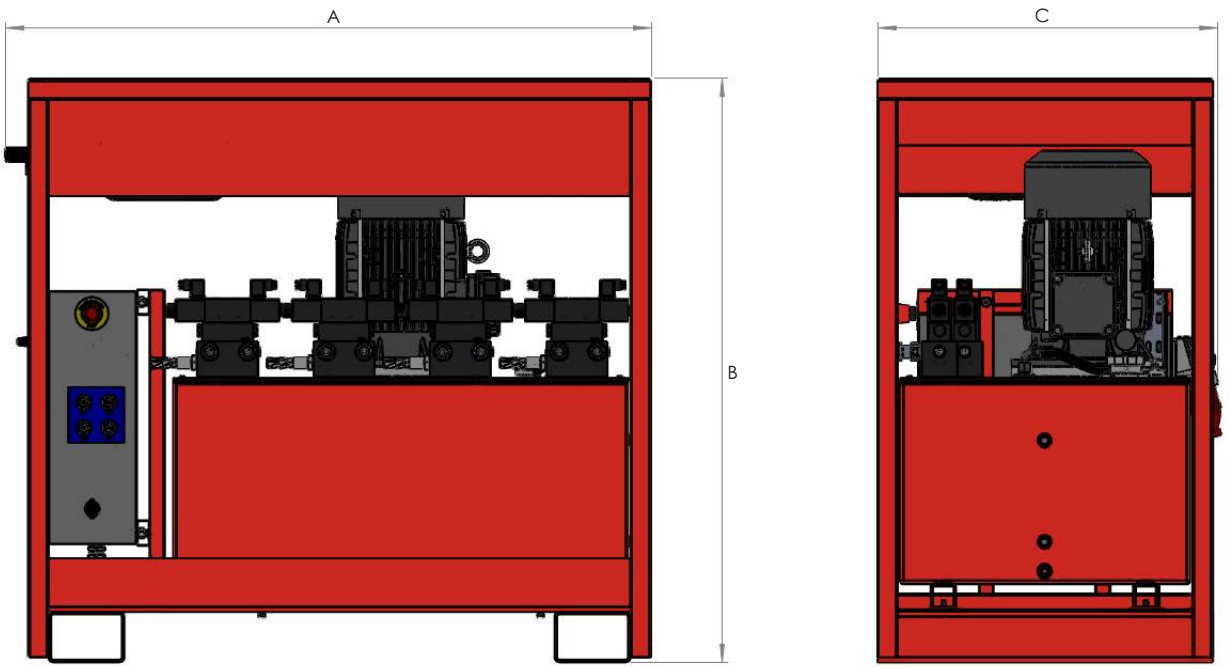
Control unit complete with multiple screens (depending on configuration and monitoring requirements) and USB port, supplied on a cable for remote operation.





- Designed for precise lifting and lowering of heavy loads using multiple synchronized hydraulic cylinders
- System comprises of heavy duty three phase electric motor, operator control panel to monitor up to 8 channels and a robust framework for transportation and storage of the entire system
- Selection of outlet valves ranging from 4-outlet pump to 8-outlet pump with options of 3-way and 4-way valve configurations
- 10000 psi pressure transducers are fitted as standard on each outlet
- Reservoir capacity of 26.41 gallons on the 4-outlet pump and 52.82 gallons on the 6-outlet and 8-outlet pumps
- Intuitive touch screen controller with several display options including stroke, cylinder pressure, system pressure and indicative weight of load
- Specified for string pot displacement sensors as standard. Alternative sensor types available upon request.
- Operating modes for the SLF include Manual, Pre-load, Automatic control, Depressurization and Indicative weighing
- System can be adapted to suit customer's special lifting requirements
- Customized systems can be tailored for unique application requirements

SLF | SYNCHRONOUS LIFTING SYSTEM - FIXED SPEED DRIVE



Model number	Type	Number of outlets	Oil capacity (gallons)	Oil flow per outlet (in³/min)	Motor voltage
SLF4S	Single acting	4	26.41	67.13	400V 50 Hz/460V 60 Hz-3Ph
SLF6S	Single acting	6	52.82	56.75	400V 50 Hz/460V 60 Hz-3Ph
SLF8S	Single acting	8	52.82	56.75	400V 50 Hz/460V 60 Hz-3Ph
SLF4D	Double acting	4	26.41	67.13	400V 50 Hz/460V 60 Hz-3Ph
SLF6D	Double acting	6	52.82	56.75	400V 50 Hz/460V 60 Hz-3Ph
SLF8D	Double acting	8	52.82	56.75	400V 50 Hz/460V 60 Hz-3Ph

Note: All models are suitable for operation at 50 Hz and 60 Hz. 60 Hz models deliver approximately 15-20% higher flow rate.

Model number	Dimensions (in) A	B	C
SLF4S	50.24	45.51	26.6
SLF6S	61.07	51.22	33.88
SLF8S	61.07	51.22	33.88
SLF4D	50.24	45.51	26.6
SLF6D	61.07	51.22	33.88
SLF8D	61.07	51.22	33.88

SLF | SYNCHRONOUS LIFTING SYSTEM - FIXED SPEED DRIVE

Mounting kits to fit single and double acting cylinders are listed below.

Model number	Mounting kit type	Applicable cylinder	Increase in closed height (in)
SLMK-1	1	HSS - 25T	+0.14
	1	HSS - 30T	+0.14
SLMK-2	2	HAS - 30T	+0.39
	2	HRA - 30T	+0.39
SLMK-3	3	HSS - 50T	+0.39
	3	HAS - 50T	+0.39
	3	HRA - 50T	+0.39
SLMK-4	4	HSS - 75T	+0.39
SLMK-5	5	HSS - 100T	+0.39
	5	HAS - 100T	+0.39
	5	HRA - 100T	+0.39
SLMK-6	6	HDA - 25T	+0.43
SLMK-7	7	HDA - 50T	+0.39
SLMK-8	8	HDA - 100T	+0.39
SLMK-9	9	HDA - 150T	+0.39
	9	HDA - 200T	+0.39
SLMK-10	10	HHS - 20T	+0.43
SLMK-11	11	HHS - 30T	+0.47
	11	HHR - 30T	+0.47
SLMK-12	12	HHS - 37T	+0.04
SLMK-13	13	HHA - 50T	+0.04
SLMK-14	14	HHS - 60T	+0.47
	14	HHR - 60T	+0.47
SLMK-15	15	HHS - 100T	+0.39
	15	HHR - 100T	+0.39
SLMK-16	16	HHR - 150T	+0.39
SLMK-17	17	HHR - 250T	+0.39
SLMK-18	18	HFA - 30T	0
SLMK-19	19	HFA - 50T	+0.32
SLMK-20	20	HFA - 100T	0
	20	HGG - 150T	0
SLMK-21	21	HDA - 300T	0
SLMK-22	22	HDA - 400T	0
	22	HDA - 500T	0
SLMK-23	23	HDA - 800T	0
	23	HDA - 1000T	0
	23	HFG - 800T	0
SLMK-24	24	HFL - 50T	+0.32
	24	HFG - 50T	+0.32
SLMK-25	25	HFG - 400T	0
	25	HFG - 500T	0
	25	HGG - 200T	0
	25	HSG - 200T	0
SLMK-26	26	HFL - 100T	+0.35
	26	HFG - 100T	+0.35
SLMK-27	27	HFL - 150T	+0.32
	27	HFG - 150T	+0.32
	27	HFG - 200T	+0.32
	27	HSG - 150T	+0.32
SLMK-28	28	HFG - 250T	0
	28	HFG - 300T	0
	28	HGG - 300T	0
SLMK-29	29	HSG - 300T	0
SLMK-30	30	HFL - 250T	+0.32
SLMK-31	31	HFL - 400T	+0.39
SLMK-32	32	HFL - 500T	+0.39
SLMK-33	33	HFG - 1000T	0
SLMK-34	34	HCJ - All	+0.47

SLF | SYNCHRONOUS LIFTING SYSTEM - FIXED SPEED DRIVE

The SLF system is designed for use with standard single and double acting cylinders. The table below outlines the SLF models along with the corresponding cylinder types that are compatible with them.

Model number	Applicable cylinder type	Applicable cylinder range	Stroke (in)	Page reference
All SLF single acting models	Single acting	HSS	2.01 - 18.01	10
	Single acting	HHS	0.99 - 5.99	11
	Single acting	HFL	1.77 - 2.01	14
	Single acting	HFG	1.97 - 5.99	15
	Single acting	HAS	2.01 - 12.02	16
	Single acting	HHA	2.01 - 4.14	17
	Single acting	HFA	2.01 - 12.02	18
	Single acting	HGG	6.11	20
	Single acting	HSG	5.99	21
All SLF double acting models	Double acting	HHR	2.01 - 12.02	12
	Double acting	HDA	5.99 - 20.02	13
	Double acting	HRA	2.01 - 12.02	19
	Double acting	HCJ	5.99	22

DISPLACEMENT SENSORS

- 25 inches (635 mm) string pot
- Provides stroke feedback to controls
- Includes magnet for mounting
- Each lifting point requires one sensor
- String pot displacement sensors as standard, other displacement sensors available on request



Model number	Type and stroke (in)
SLDS650	25.61

SENSOR CABLES AND HOSES

- Each displacement sensor requires one cable
- Suitable hydraulic hoses available in lengths up to 330 ft (100 m)

Cable model number	Hose model number	Length (ft)
SLDC10	HC10C	33
SLDC25	HC25C	82
SLDC50	HC50C	164
SLDC75	HC75C	246
SLDC100	HC100C	330

SLV | SYNCHRONOUS LIFTING SYSTEM - VARIABLE SPEED DRIVE



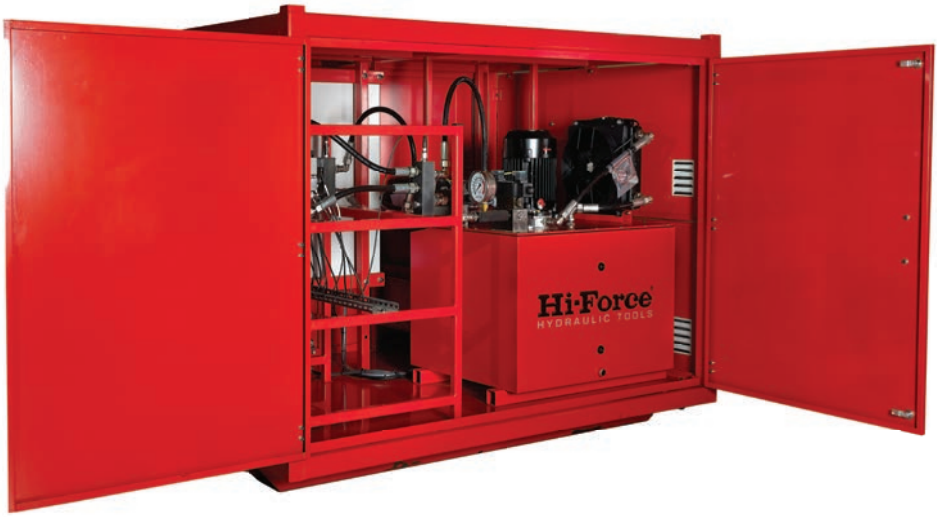
Working pressure 10000 psi

Control from 8 to 32 lifting points

Variable speed control

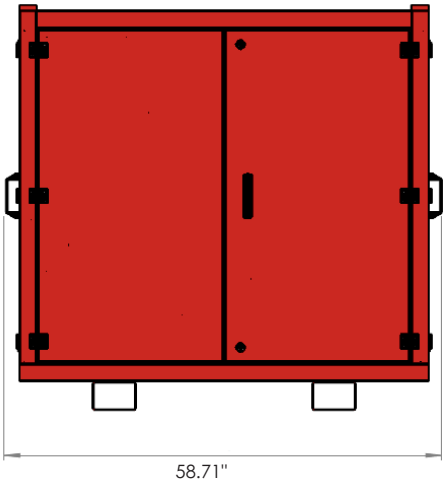
Control unit complete with multiple screens (depending on configuration and monitoring requirements) and USB port, supplied on a cable for remote operation.

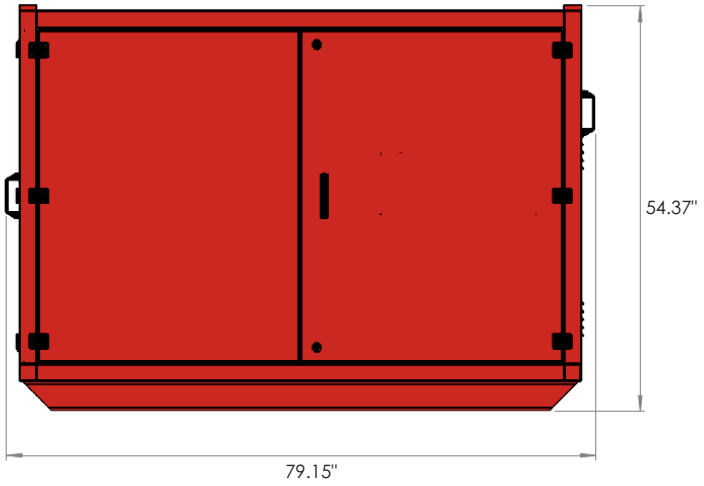




- Designed for precise lifting and lowering of heavy loads using multiple synchronized hydraulic cylinders
- System comprises of heavy duty three phase electric motor, operator control panel to monitor up to 32 channels and a robust framework for transportation and storage of the entire system
- Selection of outlet valves ranging from 8-outlet pump to 32-outlet pump, with single or double acting controls on each outlet
- Two stage pump unit offers a maximum low pressure flow rate of 1196.06 inches^3 per minute and a maximum high pressure flow rate of 292.91 inches^3 per minute at 10000 psi, with an option of reducing the flow rate using the variable speed drive controller
- 10000 psi pressure transducers are fitted as standard on each outlet
- Reservoir capacity of 52.82 and 105.64 gallons
- Intuitive touch screen controller with several display options including stroke, cylinder pressure, system pressure and indicative weight of load
- Includes a system data logging feature which allows operators to obtain a post lift report or end of project technical summary
- Specified for string pot displacement sensors as standard. Alternative sensor types available upon request.
- Operating modes for the SLV include Manual, Pre-load, Automatic control, Depressurization, Center of gravity and Indicative weighing
- System can be adapted to suit customer's special lifting requirements
- Customized systems can be tailored for unique application requirements

SLV | SYNCHRONOUS LIFTING SYSTEM - VARIABLE SPEED DRIVE





Model number	Number of outlets	Oil capacity (gallons)	Total oil flow per outlet (in^3/min) 1st stage	2nd stage	Supply voltage
SLV82	8	52.82	1196.06	292.91	380V/480V (50/60 Hz) - 3Ph
SLV122	12	52.82	1196.06	292.91	380V/480V (50/60 Hz) - 3Ph
SLV162	16	52.82	1196.06	292.91	380V/480V (50/60 Hz) - 3Ph
SLV202	20	52.82	1196.06	292.91	380V/480V (50/60 Hz) - 3Ph
SLV242	24	52.82	1196.06	292.91	380V/480V (50/60 Hz) - 3Ph
SLV282	28	52.82	1196.06	292.91	380V/480V (50/60 Hz) - 3Ph
SLV322	32	52.82	1196.06	292.91	380V/480V (50/60 Hz) - 3Ph
SLV84	8	105.64	1196.06	292.91	380V/480V (50/60 Hz) - 3Ph
SLV124	12	105.64	1196.06	292.91	380V/480V (50/60 Hz) - 3Ph
SLV164	16	105.64	1196.06	292.91	380V/480V (50/60 Hz) - 3Ph
SLV204	20	105.64	1196.06	292.91	380V/480V (50/60 Hz) - 3Ph
SLV244	24	105.64	1196.06	292.91	380V/480V (50/60 Hz) - 3Ph
SLV284	28	105.64	1196.06	292.91	380V/480V (50/60 Hz) - 3Ph
SLV324	32	105.64	1196.06	292.91	380V/480V (50/60 Hz) - 3Ph

Note: All models are suitable for operation at 50 Hz and 60 Hz.

SLV | SYNCHRONOUS LIFTING SYSTEM - VARIABLE SPEED DRIVE

Mounting kits to fit single and double acting cylinders are listed below.

Model number	Mounting kit type	Applicable cylinder	Increase in closed height (in)
SLMK-1	1	HSS - 25T	+0.14
	1	HSS - 30T	+0.14
SLMK-2	2	HAS - 30T	+0.39
	2	HRA - 30T	+0.39
SLMK-3	3	HSS - 50T	+0.39
	3	HAS - 50T	+0.39
	3	HRA - 50T	+0.39
SLMK-4	4	HSS - 75T	+0.39
SLMK-5	5	HSS - 100T	+0.39
	5	HAS - 100T	+0.39
	5	HRA - 100T	+0.39
SLMK-6	6	HDA - 25T	+0.43
SLMK-7	7	HDA - 50T	+0.39
SLMK-8	8	HDA - 100T	+0.39
SLMK-9	9	HDA - 150T	+0.39
	9	HDA - 200T	+0.39
SLMK-10	10	HHS - 20T	+0.43
SLMK-11	11	HHS - 30T	+0.47
	11	HHR - 30T	+0.47
SLMK-12	12	HHS - 37T	+0.04
SLMK-13	13	HHA - 50T	+0.04
SLMK-14	14	HHS - 60T	+0.47
	14	HHR - 60T	+0.47
SLMK-15	15	HHS - 100T	+0.39
	15	HHR - 100T	+0.39
SLMK-16	16	HHR - 150T	+0.39
SLMK-17	17	HHR - 250T	+0.39
SLMK-18	18	HFA - 30T	0
SLMK-19	19	HFA - 50T	+0.32
SLMK-20	20	HFA - 100T	0
	20	HGG - 150T	0
SLMK-21	21	HDA - 300T	0
SLMK-22	22	HDA - 400T	0
	22	HDA - 500T	0
SLMK-23	23	HDA - 800T	0
	23	HDA - 1000T	0
	23	HFG - 800T	0
SLMK-24	24	HFL - 50T	+0.32
	24	HFG - 50T	+0.32
SLMK-25	25	HFG - 400T	0
	25	HFG - 500T	0
	25	HGG - 200T	0
	25	HSG - 200T	0
SLMK-26	26	HFL - 100T	+0.35
	26	HFG - 100T	+0.35
SLMK-27	27	HFL - 150T	+0.32
	27	HFG - 150T	+0.32
	27	HFG - 200T	+0.32
	27	HSG - 150T	+0.32
SLMK-28	28	HFG - 250T	0
	28	HFG - 300T	0
	28	HGG - 300T	0
SLMK-29	29	HSG - 300T	0
SLMK-30	30	HFL - 250T	+0.32
SLMK-31	31	HFL - 400T	+0.39
SLMK-32	32	HFL - 500T	+0.39
SLMK-33	33	HFG - 1000T	0
SLMK-34	34	HCJ - All	+0.47

SLV | SYNCHRONOUS LIFTING SYSTEM - VARIABLE SPEED DRIVE

The SLV system is designed for use with standard single and double acting cylinder. The table below outlines the SLV models along with the corresponding cylinder types that are compatible with them.

Model number	Applicable cylinder type	Applicable cylinder range	Stroke (in)	Page reference
All SLV models	Single acting	HSS	2.01 - 18.01	10
	Single acting	HHS	0.99 - 5.99	11
	Single acting	HFL	1.77 - 2.01	14
	Single acting	HFG	1.97 - 5.99	15
	Single acting	HAS	2.01 - 12.02	16
	Single acting	HHA	2.01 - 4.14	17
	Single acting	HFA	2.01 - 12.02	18
	Single acting	HGG	6.11	20
	Single acting	HSG	5.99	21
	Double acting	HHR	2.01 - 12.02	12
	Double acting	HDA	5.99 - 20.02	13
	Double acting	HRA	2.01 - 12.02	19
	Double acting	HCJ	5.99	22

DISPLACEMENT SENSORS

- 25 inches (635 mm) string pot
- Provides stroke feedback to controls
- Includes magnet for mounting
- Each lifting point requires one sensor
- String pot displacement sensors as standard, other displacement sensors available on request



Model number	Type and stroke (in)
SLDS650	25.61

SENSOR CABLES AND HOSES

- Each displacement sensor requires one cable
- Suitable hydraulic hoses available in lengths up to 330 ft (100 m)

Cable model number	Hose model number	Length (ft)
SLDC10	HC10C	33
SLDC25	HC25C	82
SLDC50	HC50C	164
SLDC75	HC75C	246
SLDC100	HC100C	330

SYNCHRONOUS LIFTING SYSTEM FEATURES

FEATURE	SLF	SLV
PRESSURE TRANSDUCERS SUPPLIED AS STANDARD	✔	✔
TOUCH SCREEN DISPLAY TO MONITOR STROKE AND PRESSURE	✔	✔
CONTROL UNIT COMPLETE WITH TOUCH SCREEN	✔	✔
USB PORT FOR SYSTEM DATA LOGGING	-	✔
FORKLIFT ACCESS GUIDE CHANNELS	✔	✔
INDIVIDUAL SELECTION OF CYLINDERS	✔	✔
ACCURACY RANGE ADJUSTABLE UP TO +/- 0.04 in BETWEEN LEADING AND LAGGING CYLINDERS	✔	✔
FULL SYSTEM DIAGNOSTICS WITH CABLE UNPLUG DETECTION	✔	✔
CAN PROVIDE INDICATIVE WEIGHT OF LIFT	✔	✔
SYSTEM SUITABLE FOR PRELOADING	✔	✔
VARIABLE SPEED DRIVE FOR PRECISE FINE CONTROL	-	✔
TEMPERATURE MONITORING SYSTEM	-	✔
SYSTEM MOUNTED IN ENCLOSED FRAME WITH DOORS	-	✔
OIL COOLING SYSTEM	-	✔
CENTER OF GRAVITY INDICATION	-	✔
FOR USE WITH BOTH SINGLE AND DOUBLE ACTING CYLINDERS	Defined by model	✔
PUMP UNIT SPEC	Flow from 56.75 in^3/min to 67.13 in^3/min per outlet up to 10000 psi	Working pressure 10000 psi two stage pump unit: 1196.06 in^3/min total flow up to 1450 psi, 292.91 in^3/min total flow up to 10000 psi Option of reducing the flow rate using the variable speed drive controller, which offers an R.P.M. range from 200 to 1800
TANK CAPACITY	Up to 52.82 gallons reservoir capacity	Up to 105.64 gallons reservoir capacity
INDIVIDUAL CONTROLLABLE LIFTING POINTS	4 to 8	8 to 32
DISPLACEMENT SENSOR	String pot displacement sensors as standard. Other displacement sensors available on request	String pot displacement sensors as standard. Other displacement sensors available on request
SENSOR CABLES	Lengths up to 330 feet	Lengths up to 330 feet

AHP11 | AIR DRIVEN SINGLE STAGE HAND AND FOOT OPERATED PUMPS



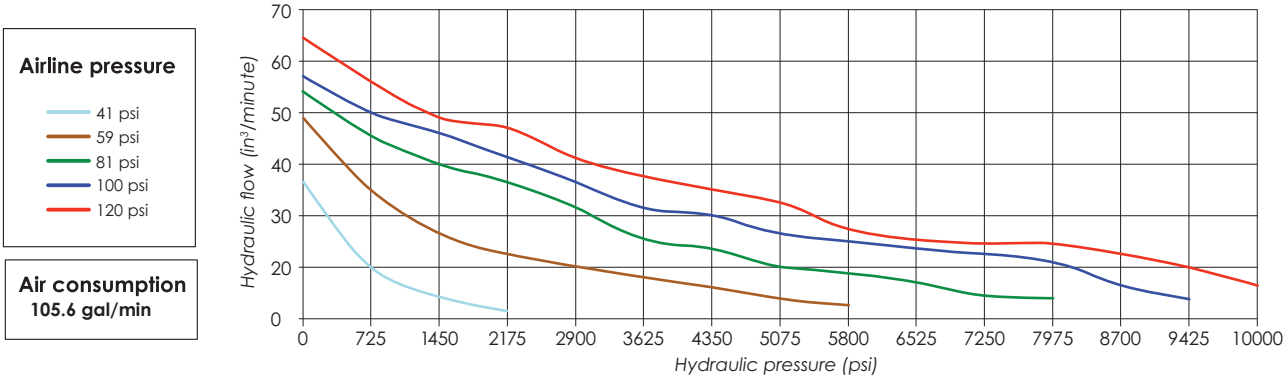
Working pressure 10000 psi

Compact, lightweight & powerful

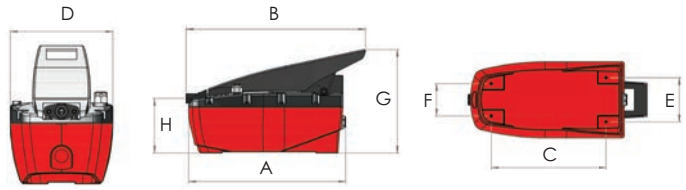
Choice of 0.55, 1.11 or 2.64 gallon oil reservoir

- Choice of 2-way or 4-way control valves
- Safety overload protection valve fitted as standard
- All models fitted with steel oil reservoir (excluding AHP1120)
- Optional remote pendant controller available. Suffix model number with 'R'

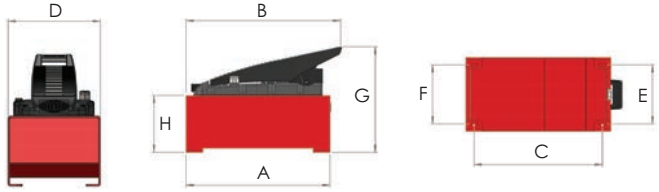
Oil flow / Pressure chart



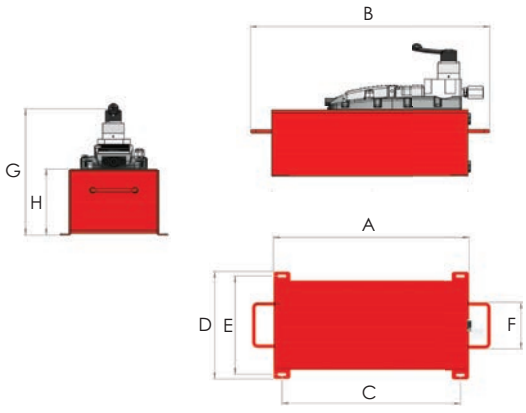
AHP1120 (plastic oil reservoir)



AHP1121, AHP1141 (metal oil reservoir)



AHP1122, AHP1142 (metal oil reservoir)



Model number	Maximum flow rate (in³/min)	Valve type	Usable oil capacity (gallons)	Air inlet connection G	Oil outlet connection NPTF	Weight (lbs)	Dimensions (in) A	B	C	D	E	F	G	H
AHP1120	67.13	2-way	0.55	¼"	⅜"	10.4	12.59	14.35	9.3	6.11	2.6	3.55	8.23	4.27
AHP1121	67.13	2-way	1.11	¼"	⅜"	22.5	13.79	14.81	12.21	7.01	5.61	5.61	10.09	5.4
AHP1122	67.13	2-way	2.64	¼"	⅜"	39.2	18.12	22.06	16.55	9.93	9.1	4.26	10.72	6.11
AHP1141	67.13	4-way	1.11	¼"	⅜"	30.4	13.79	15.05	12.21	7.01	5.61	5.61	11.43	5.4
AHP1142	67.13	4-way	2.64	¼"	⅜"	40.3	18.12	22.06	16.55	9.93	9.1	4.26	12.41	6.11

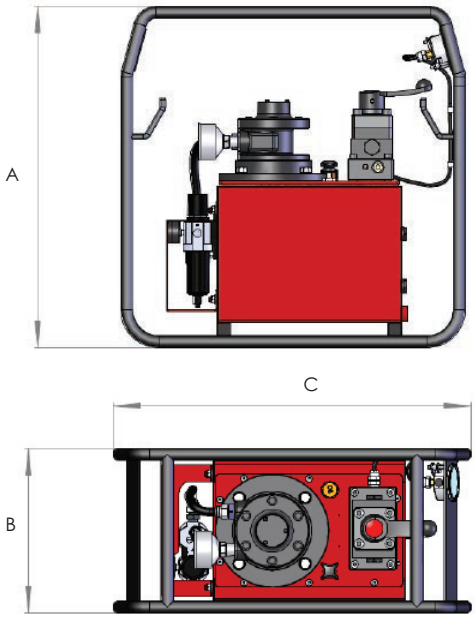
HAP | AIR DRIVEN PUMPS - GENERAL DUTY HIGH FLOW



Working pressure 10000 psi

Two stage operation

Choice of 2.64 or 6.6 gallons oil reservoir



- Driven by a powerful 4.08 kW rotary air motor with a maximum air consumption of 84.75 cubic feet per minute at 100 psi inlet air pressure
- Choice of 2, 3 or 4-way manual control valves with load holding feature on 3 & 4-way versions
- Externally adjustable pressure relief valve for pressure setting up to a maximum of 10000 psi
- Cable management features for cable/hose winding and stowage
- Supplied as standard with pressure gauge FRL unit and a robust roll frame

Model number	Valve type	Oil capacity (gallons)	Maximum flow rate (in^3/min) 1st stage	2nd stage	Weight (lbs)	Dimensions (in) A	B	C
HAP21011	P-T Plate	2.64	610.24	79.33	102.5	24.7	11.5	24.9
HAP21012	P-T Plate	6.6	610.24	79.33	137.8	24.7	13.87	29.71
HAP21021	2-way	2.64	610.24	79.33	103.6	24.7	11.5	24.9
HAP21022	2-way	6.6	610.24	79.33	138.9	24.7	13.87	29.71
HAP21031	3-way	2.64	610.24	79.33	103.6	24.7	11.5	24.9
HAP21032	3-way	6.6	610.24	79.33	138.9	24.7	13.87	29.71
HAP21041	4-way	2.64	610.24	79.33	103.6	24.7	11.5	24.9
HAP21042	4-way	6.6	610.24	79.33	138.9	24.7	13.87	29.71

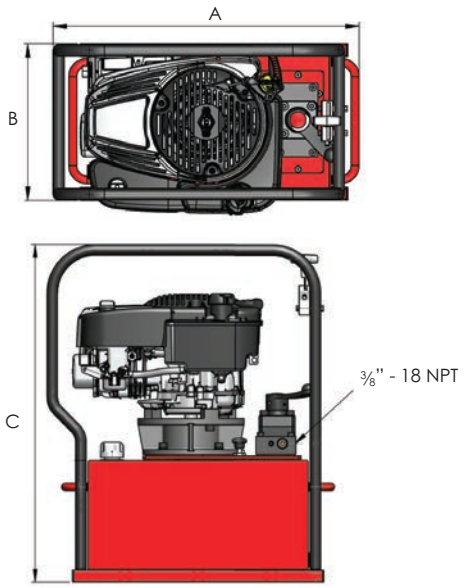
HPP | GASOLINE ENGINE DRIVEN PUMPS - GENERAL DUTY HIGH FLOW



Working pressure 10000 psi

Two stage operation

Choice of 6.6, 10.56 or 15.84 gallons oil reservoir



- Choice of 2, 3 or 4-way manual control valves with load holding feature on 3 & 4-way versions
- Externally adjustable pressure relief valve for pressure setting up to a maximum of 10000 psi
- Factory fitted roll bar protection frame included

Model number	Valve type	Oil capacity (gallons)	Maximum flow rate (in^3/minute) 1st stage	2nd stage	Weight (lbs)	Dimensions (in) A	B	C
HPP21012	P-T Plate	6.6	610.24	79.33	155.4	22.46	12.06	27.03
HPP21014	P-T Plate	10.56	610.24	79.33	188.5	22.46	12.06	31.32
HPP21016	P-T Plate	15.84	610.24	79.33	250.2	22.97	16	32.15
HPP21022	2-way	6.6	610.24	79.33	156.5	22.46	12.06	27.03
HPP21024	2-way	10.56	610.24	79.33	189.6	22.46	12.06	31.32
HPP21026	2-way	15.84	610.24	79.33	251.3	22.97	16	32.15
HPP21032	3-way	6.6	610.24	79.33	156.5	22.46	12.06	27.03
HPP21034	3-way	10.56	610.24	79.33	189.6	22.46	12.06	31.32
HPP21036	3-way	15.84	610.24	79.33	251.3	22.97	16	32.15
HPP21042	4-way	6.6	610.24	79.33	156.5	22.46	12.06	27.03
HPP21044	4-way	10.56	610.24	79.33	189.6	22.46	12.06	31.32
HPP21046	4-way	15.84	610.24	79.33	251.3	22.97	16	32.15

WHEEL TROLLEY

Model number	Description
PPA40WT	Wheel trolley for all pumps with 10.56 gallons oil reservoir
PPA60WT	Wheel trolley for all pumps with 15.84 gallons oil reservoir

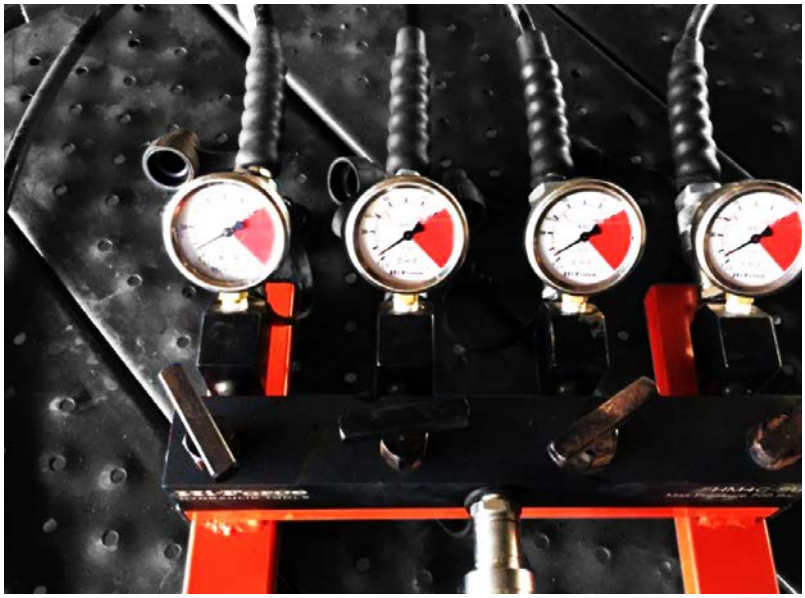
All 40L and 60L HPP pumps can be supplied with a factory fitted wheel trolley. Please suffix 'WT' to the pump model number.

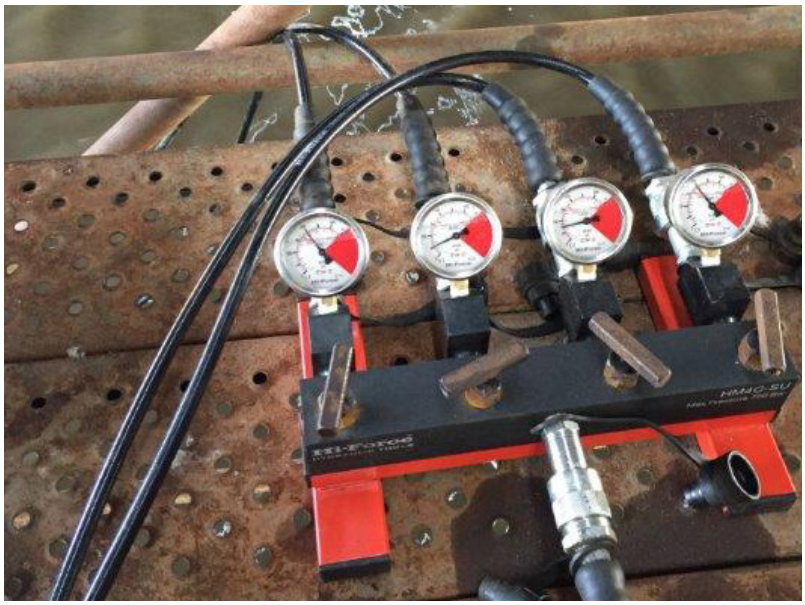


HI-FORCE SYSTEM COMPONENTS

The Hi-Force range of system components is designed and manufactured to provide all the essential accessory items required to complete the required high pressure hydraulic system. Whether the requirements are for a hose, pressure gauge and gauge block, for a simple hydraulic tool set up using a remote pump, or a more complex system of multiple lifting cylinders with manifolds, control valves, gauges, hoses, couplings and fittings, Hi-Force system components offer the essential high quality performance, to ensure the hydraulic system integrity and safe operation and use of your Hi-Force hydraulic tools, is maintained at all times. Specify Hi-Force system components for use with your Hi-Force hydraulic tools.









SYSTEM COMPONENTS

HYDRAULIC HOSES 58
High pressure hydraulic hoses

PRESSURE GAUGES & MOUNTING BLOCKS 59
Gauges and mounting blocks

DIGITAL PRESSURE GAUGE 60
Digital gauge with LCD display

PRESSURE TRANSDUCER & DIGITAL DISPLAY 61
Transducer and digital display

MANIFOLDS 62
Distribution blocks

CONTROLLED MANIFOLDS ASSEMBLIES 63
Manifold stations with pressure gauges

HYDRAULIC OIL 64
Premium grade hydraulic oil

HIGH PRESSURE COUPLERS & FITTINGS 65
High pressure couplers, fittings and adaptors

DIRECTIONAL CONTROL VALVES 66
Directional control valves

FLOW CONTROL VALVES 67
Flow control valves

HIGH PRESSURE HYDRAULIC HOSES



Working pressure 10000 psi

4:1 Factor of safety

Hand grip protective strain relievers

- Available in black or red outer covering to assist with identifying advance and return lines in double acting hydraulic systems

Length (ft)	No couplers ⅜" - 18 NPT male fitting both ends Model number		Weight (lbs)	⅜" - 18 NPT male fitting one end with CM1 coupler fitted one end Model number		Weight (lbs)	CM1 male couplers fitted both ends Model number		Weight (lbs)
									
									
1.5	HH0.5	HH0.5R	0.9	HC0.5	HC0.5R	1.1	HC0.5C	HC0.5CR	1.5
3.3	HH1	HH1R	1.1	HC1	HC1R	1.5	HC1C	HC1CR	2.2
6.5	HH2	HH2R	1.5	HC2	HC2R	2.0	HC2C	HC2CR	2.4
10	HH3	HH3R	2.0	HC3	HC3R	2.2	HC3C	HC3CR	2.6
13	HH4	HH4R	2.6	HC4	HC4R	2.6	HC4C	HC4CR	3.3
16.5	HH5	HH5R	2.9	HC5	HC5R	3.1	HC5C	HC5CR	3.5
19.5	HH6	HH6R	3.3	HC6	HC6R	3.5	HC6C	HC6CR	4.0
33	HH10	HH10R	4.9	HC10	HC10R	5.3	HC10C	HC10CR	5.7
39.5	HH12	HH12R	6.2	HC12	HC12R	6.6	HC12C	HC12CR	7.1
49	HH15	HH15R	6.8	HC15	HC15R	7.3	HC15C	HC15CR	7.7
65.5	HH20	HH20R	9.0	HC20	HC20R	9.3	HC20C	HC20CR	9.7
82	HH25	HH25R	11.7	HC25	HC25R	12.1	HC25C	HC25CR	12.3
98.5	HH30	HH30R	16.1	HC30	HC30R	17.0	HC30C	HC30CR	17.4
164	HH50	HH50R	25.6	HC50	HC50R	26.0	HC50C	HC50CR	26.5
246.1	HH75	HH75R	38.6	HC75	HC75R	39.0	HC75C	HC75CR	39.5
328.1	HH100	HH100R	51.4	HC100	HC100R	51.8	HC100C	HC100CR	51.8

Note: Hose bore is ¼" and outside diameter is ½".

PRESSURE GAUGES & GAUGE MOUNTING BLOCKS



Clear precise dual scale readings

Manufactured to EN837-1

+/-1% full scale accuracy

GAUGES

- Choice of dry or glycerin filled models available
- Recommended for use within all hydraulic systems to monitor hydraulic pressure
- Dual scale reading on all models
- Gauges scaled to match high tonnage cylinders available on request
- Individual gauge calibration certificates available at extra cost on request

Model number	Gauge diameter (in)	Gauge type	Reading inner scale	Reading outer scale	Inlet thread	Compatible Hi-Force cylinders	Weight (lbs)
HG63G	2.48	glycerin	0-700 bar	0-10000 psi	¼"-18 NPT	All models	0.4
HG1	3.94	dry	0-700 bar	0-10000 psi	½"-14 NPT	All models	2.0
HG1G	3.94	glycerin	0-700 bar	0-10000 psi	½"-14 NPT	All models	2.2
HG2	5.91	dry	0-700 bar	0-10000 psi	½"-14 NPT	All models	3.5
HG2G	5.91	glycerin	0-700 bar	0-10000 psi	½"-14 NPT	All models	3.7

GAUGE MOUNTING BLOCKS

- For easy "inline" connection of the selected pressure gauge to the hydraulic system

Model number	Dimensions (in) Length	Width	Height	Gauge thread	Inlet thread	Outlet thread	Weight (lbs)
HGA1	2.96	1.26	1.26	½"-14 NPT	⅜"-18 NPT male	⅜"-18 NPT female	0.6
HGA2	6.3	1.26	1.26	½"-14 NPT	⅜"-18 NPT male	⅜"-18 NPT female	1.9
HGA1-25	2.96	1.26	1.26	¼"-18 NPT	⅜"-18 NPT male	⅜"-18 NPT female	0.7
HGA2-25	6.3	1.26	1.26	¼"-18 NPT	⅜"-18 NPT male	⅜"-18 NPT female	2.0
AGA1-25	2.96	1.26	1.97	¼"-18 NPT	⅜"-18 NPT male	⅜"-18 NPT female	1.2

DIGITAL PRESSURE GAUGE

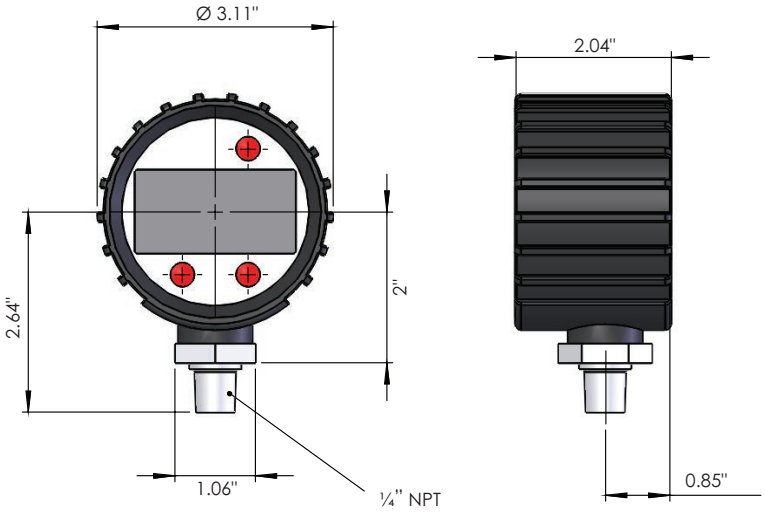


5 digit LCD display

Choice of pressure readings

0.5% full scale accuracy

- High quality, general purpose gauge to measure pressure up to 14500 psi (1000 bar)
- Displays readings in psi, psi, mpa and kg/cm^2
- LCD display with 0.47 inches, 5 digit upper line pressure reading and 0.24 inches, 5 digit lower line unit reading
- Blue backlight allows for easy reading in poor visibility conditions
- Minimum 2000 hours battery life (3 VDC)
- Supplied with rubber enclosure to help protect against accidental impact
- Features include tare, min & max memory and IP65 weatherproof enclosure rating
- Compatible gauge mounting blocks are detailed on page 59



Model number	Gauge diameter (in)	Pressure reading (psi)	Pressure reading (bar)	Pressure reading (mpa)	Pressure reading (kg/cm^2)	Inlet thread	Weight (lbs)
HDG1	2.76	0-14500	0-1000	0-100	0-1019.7	¼"-18 NPT	0.4

PRESSURE TRANSDUCER & DIGITAL DISPLAY



Pressure readings in bar and psi

0.5% full scale accuracy

Maximum working pressure 10000 psi

PRESSURE TRANSDUCER

- For precise measurement of system pressure up to 10000 psi
- Output 4-20 mA

Model number	Pressure reading (psi)	Pressure reading (bar)	Connection thread	Accuracy percentage full scale	Weight (lbs)
HPT1	0-10000	0-700	¼"-18 NPT	0.5	0.2

DIGITAL DISPLAY UNIT

- For use with HPT1 4-20mA pressure transducer to record pressure in applications where remote reading is preferred
- Compact size with large LCD screen
- Displays readings in psi or bar
- Features include minimum and maximum value, average value, tare offset and reset
- Complete with worldwide power supply unit
- IP65 enclosure rating
- Supplied complete with a 6.5 inches connecting cable

Model number	Pressure reading (psi)	Pressure reading (bar)	Screen display size (in) L x H	Overall size (in) L x W x H	Voltage VDC	Weight (lbs)
HDD1	0-10000	0-700	3 x 1	4.3 x 4.33 x 1.58	18 - 32	0.7

MANIFOLDS

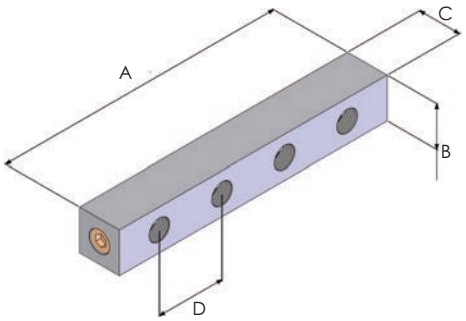


Working pressure 10000 psi

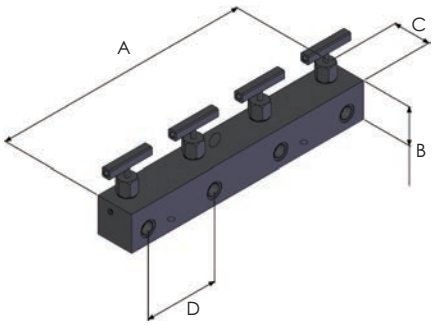
Choice of open or controlled manifolds

2, 4, 6 or 8 outlet port models available

- Designed for easy control of the direction of flow of the hydraulic fluid within the system
- Available as open manifold blocks or with individual needle type shut off/throttle valves on each outlet



HM & HM*L*



*HM*C*

Model number	Type	Design	Number of outlets	Connection ports female threads		Weight (lbs)	Dimensions (in)			
				Inlet	Outlet		A	B	C	D
HM2	open manifold	parallel	2	⅜"-18 NPT	2 x ⅜"-18 NPT	2.2	4.49	1.26	1.26	1.97
HM4	open manifold	parallel	4	⅜"-18 NPT	4 x ⅜"-18 NPT	3.3	8.43	1.26	1.26	1.97
HM6	open manifold	parallel	6	⅜"-18 NPT	6 x ⅜"-18 NPT	4.4	12.37	1.26	1.26	1.97
HM8	open manifold	parallel	8	⅜"-18 NPT	8 x ⅜"-18 NPT	5.5	16.31	1.26	1.26	1.97
HM4L	open manifold	extended parallel	4	⅜"-18 NPT	4 x ⅜"-18 NPT	5.3	15.52	1.26	1.26	4.33
HM6L	open manifold	extended parallel	6	⅜"-18 NPT	6 x ⅜"-18 NPT	8.2	24.19	1.26	1.26	4.33
HM2C	controlled manifold	parallel	2	⅜"-18 NPT	2 x ⅜"-18 NPT	4.4	5.91	2.01	1.5	3.94
HM4C	controlled manifold	parallel	4	⅜"-18 NPT	4 x ⅜"-18 NPT	7.7	13.79	2.01	1.5	3.94

CONTROLLED MANIFOLD ASSEMBLIES

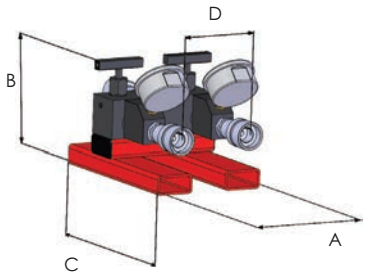


Working pressure 10000 psi

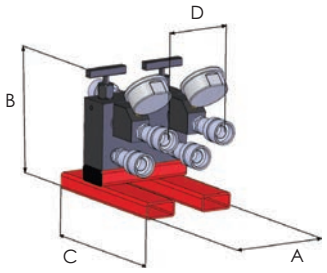
Up to 4 outlets with individual control on each

Choice of manifolds for single or double acting systems

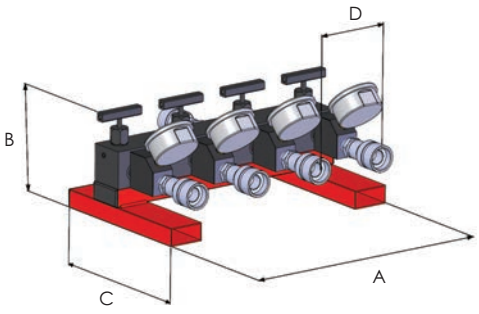
- Pressure gauges fitted to advance ports on all models
- Quick connect couplings fitted as standard to all inlet and outlet ports
- Precise control of oil flow and pressure within the hydraulic system



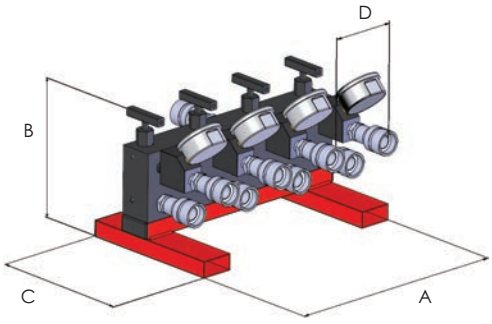
HM2C-SU



HM2C-DU



HM4C-SU



HM4C-DU

Model number	Description	Weight (lbs)	Dimensions (in) A	B	C	D
HM2C-SU	2-way controlled manifold unit, suitable for single acting systems	4.4	5.91	5.83	8.98	3.94
HM2C-DU	2-way controlled manifold unit, suitable for double acting systems	6.6	5.91	7.8	8.98	3.94
HM4C-SU	4-way controlled manifold unit, suitable for single acting systems	7.7	13.79	5.83	8.98	3.94
HM4C-DU	4-way controlled manifold unit, suitable for double acting systems	13.2	13.79	7.8	8.98	3.94

HYDRAULIC OIL



Premium grade hydraulic oil

High viscosity index

Supplied in a choice of 0.26, 1.32 or 6.6 gallon containers

- Effective and reliable lubricant
- Foaming resistance
- Provides optimum performance in all high pressure applications
- Specially formulated for use with all Hi-Force hydraulic tools

Model number	Contents (gallons)
HFO15-25	6.6
HFO46-1	0.26
HFO46-5	1.32
HFO46-25	6.6

OIL TYPE RECOMMENDATION

Product	Oil Type	
	HFO15	HFO46
ACP	✔	•
AHP/AHP-CR/AHP2/ AHP2-CR/ATDP	•	✔
AHP-BTU	•	✔
AHP11	•	✔
BC	•	✔
BPP	•	✔
CH	•	✔
Controlled Manifolds	✔	✔
Couplers & Fittings	✔	✔
CT	✔	•
Digital Gauge	✔	✔
DNS	•	✔
Gauge/Blocks	✔	✔
HAP	•	✔
HAS	•	✔
HCC	•	✔
HCH	•	✔
HCJ	•	✔
HDA	•	✔
HEP1	•	✔
HEP2/HEP3/HEP4/HEP5	-	✔
HFA	•	✔
HFG	•	✔
HFL	•	✔
HFS-H	•	✔
HFV42/HFV66	✔	✔
HGG	•	✔

Product	Oil Type	
	HFO15	HFO46
HHA	•	✔
HHP	•	✔
HHR	•	✔
HHS	•	✔
HKP	✔	•
HLS	•	✔
HMJ	•	✔
HMNS	✔	•
Hoses	✔	✔
HP(All)	✔	•
HP-FP	✔	•
HPC	•	✔
HPF	•	✔
HPP	•	✔
HPR/HBR	✔	•
HPS	•	✔
HPT	✔	✔
HPX	✔	•
HPX-BTU	✔	✔
HPV152	✔	✔
HRA	•	✔
HSG	•	✔
HSP	-	✔
HSS	•	✔
HSWC	✔	•
HTN	•	✔
HTWP	-	✔
HTWR1	•	✔

Product	Oil Type	
	HFO15	HFO46
HVL	•	✔
HWRC	•	✔
JAH	✔	•
JAS	✔	•
JCS	✔	✔
JS	✔	•
Manifolds	✔	✔
MHX	✔	•
NS	•	✔
PB	✔	•
PKC	✔	•
PKS	✔	•
PMV2	•	✔
PMV3/PMV3L	•	✔
PMV4/PMV4L	•	✔
RMV3/RMV3L	•	✔
RMV4/RMV4L	•	✔
SBT	•	✔
SC	✔	•
SCP	✔	•
SJS	✔	•
SLF/SLV	-	✔
STS	•	✔
STU	•	✔
Toughlift	•	✔
TPA	-	✔
TPE/TPE-M	-	✔
XHR1	•	✔

Note: ✔ *Recommended and factory fitted grade*
• *Acceptable alternative*
- *Not recommended*

HIGH PRESSURE COUPLERS AND FITTINGS

- Suitable for working pressures up to 10000 psi
- Designed to ensure easy system connection and assembly

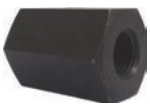
Model number	See picture	Description	Thread specification
HF7	1	Nipple	¼" NPT male to ¼" NPT male
HF8	5	Adaptor	¼" NPT female to ¼" NPT female
HF10	2	Elbow	⅜" NPT female to ⅜" NPT female
HF12	3	Equal tee	⅜" NPT female
HF13	4	Cross	⅜" NPT female
HF14	5	Adaptor	⅜" NPT female to ⅜" NPT female
HF15	5	Reducer	⅜" NPT female to ¼" NPT female
HF16	6	Elbow	⅜" NPT female to ⅜" NPT male
HF17	1	Nipple	⅜" NPT male to ⅜" NPT male
HF19	1	Long nipple	⅜" NPT male to ⅜" NPT male
HF24	7	Adaptor	⅜" NPT male to ⅜" BSPP female
HF27	1	Nipple	¼" NPT male to ⅜" NPT male
HF30	7	Reducer	⅜" NPT male to ¼" NPT female
HF31	8	Tee	⅜" NPT female to ⅜" NPT male
HF33	7	Reducer	⅜" NPT male to ¼" BSPT female
HF55	7	Reducer	⅜" NPT female to ¼" NPT male
HF69	7	Adaptor	½" BSPP male to ⅜" NPT female
CF1	9	Female coupler	⅜" NPT male
CM1	10	Male coupler	⅜" NPT female
CMF1	9 + 10	Complete coupler	⅜" NPT
CF2	9	Female coupler	¼" NPT male
CM2	10	Male coupler	¼" NPT female
CMF2	9 + 10	Complete coupler	¼" NPT
CFD1	11	Metal dust cap for CF1	
CMD1	12	Metal dust cap for CM1	
CFD2	11	Metal dust cap for CF2	
CMD2	12	Metal dust cap for CM2	
PPC1	13	Moulded universal dust cap to suit CF1 & CM1	


Picture 1


Picture 2


Picture 3


Picture 4


Picture 5


Picture 6


Picture 7


Picture 8


Picture 9


Picture 10


Picture 11


Picture 12


Picture 13

DIRECTIONAL CONTROL VALVES



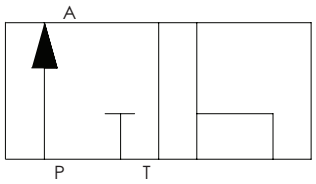
Working pressure 10000 psi

Pump or remote mounted design

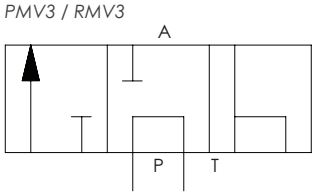
Manual valve options available

- Choice of 2, 3 or 4-way options
- Designed to provide precise control of oil flow and pressure

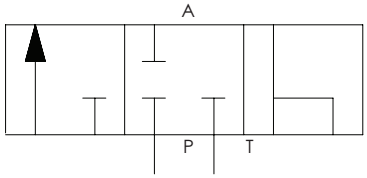
PMV2



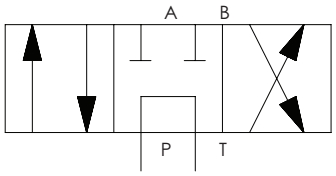
PMV3 / RMV3



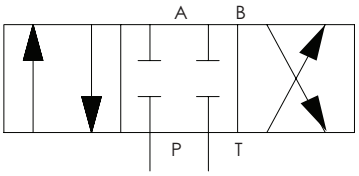
PMV3C / RMV3C



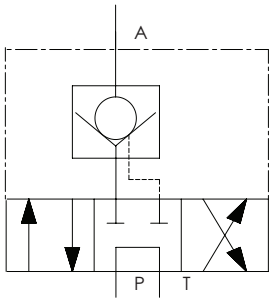
PMV4 / RMV4



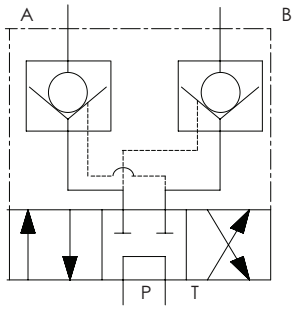
PMV4C / RMV4C



PMV3L / RMV3L



PMV4L / RMV4L



Description	Manual valve no load holding	Model number Manual valve with load holding	Manual valve closed center
Pump mounted, 2-way, 2 position valve	PMV2	-	-
Pump mounted, 3-way, 3 position valve	PMV3	PMV3L	PMV3C
Pump mounted, 4-way, 3 position valve	PMV4	PMV4L	PMV4C
Remote mounted, 3-way, 3 position valve	RMV3	RMV3L	RMV3C
Remote mounted, 4-way, 3 position valve	RMV4	RMV4L	RMV4C

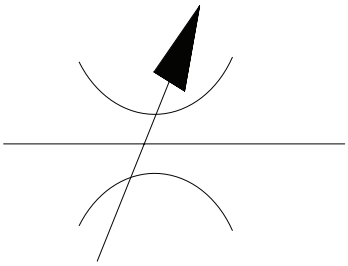
FLOW CONTROL VALVES



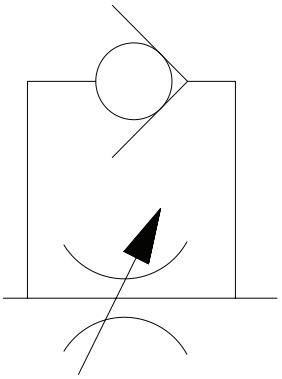
Working pressure 10000 psi

⅜" - 18 NPT female connection ports

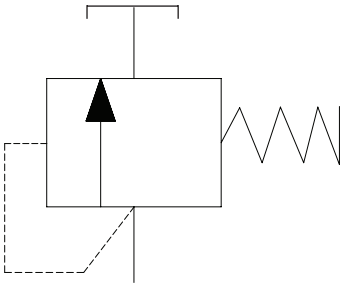
Model number	Description	Dimensions (in) Height	Length	Width
HM1C	Manual shut off valve with needle type flow control. Used for load holding and throttling functions. Can also be used as a gauge isolator.	3.23	2.52	1.5



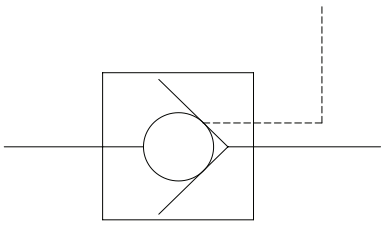
Model number	Description	Dimensions (in) Height	Length	Width
HFV66	Manual check valve used for automatic load locking, with precise manual load lowering feature.	3.39	2.96	1.85



Model number	Description	Dimensions (in) Height	Length	Width
HPV152	Adjustable pressure relief valve, for pressure setting from 800 to 10000 psi. Supplied complete with return line hose.	4.02	2.52	1.26



Model number	Description	Dimensions (in) Height	Length	Width
HFV42	Pilot operated check valve used as a safety valve for double acting cylinders. Pilot port connects to cylinder retract line.	3.31	2.52	1.26

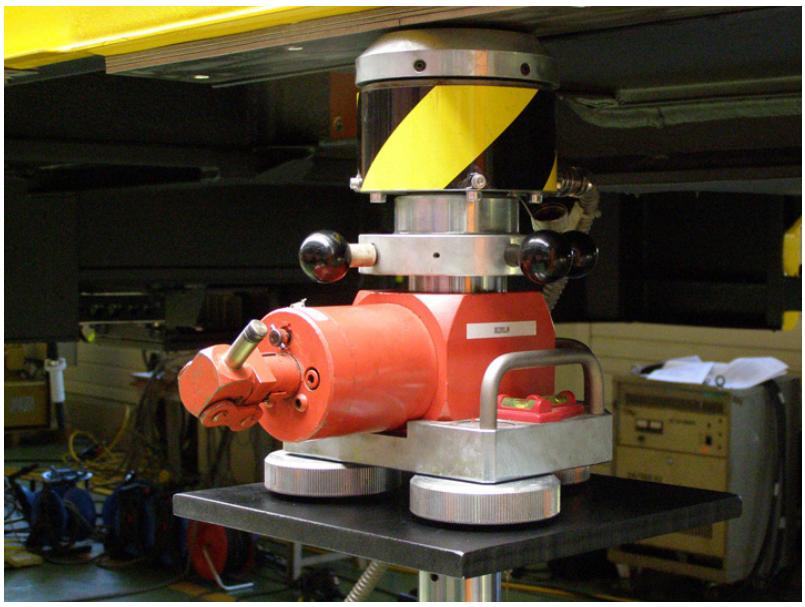


HI-FORCE HYDRAULIC JACKS

The Hi-Force range of hydraulic jacks offers a wide choice of lifting capacities, closed and extended heights, material construction and design. From self-contained aluminum and remote pump operated, steel toe lift jacks to compact low height jacks for confined space applications, the Hi-Force hydraulic jack range offers the user a wide choice of options, to suit every application. All jacks are supplied prefilled with oil ready to use.









JACKS

JAS RANGE 70
Aluminum jacks, compact multi-purpose design

JAH RANGE 71
Aluminum jacks plain piston, claw jacks and locking ring design

JCS RANGE 72
Steel & aluminum jacks, compact low height design

HMJ RANGE 73
Steel jacks, low height access machine lift design

JAS | ALUMINUM JACKS

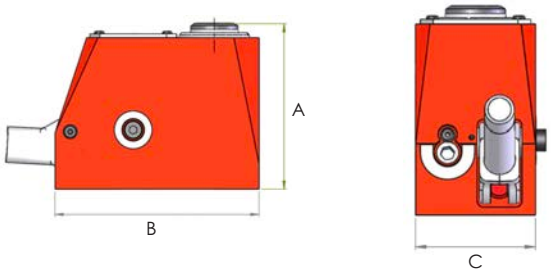


Maximum capacity 11 tons

Choice of 2.96 or 4.93 inches hydraulic lift height

Internal safety overload device

- Lightweight aluminum jack body
- Spring assisted piston retraction
- Nitrocarburized steel piston for increased corrosion resistance
- Overstroke safety limiting device



Model number	Capacity (tons)	Stroke (in)	Weight (lbs)	Dimensions (in) A	B	C
JAS103	11	2.96	9.5	5.16	6.38	2.96
JAS105	11	4.93	12.6	7.13	6.38	2.96

JAH | ALUMINUM JACKS

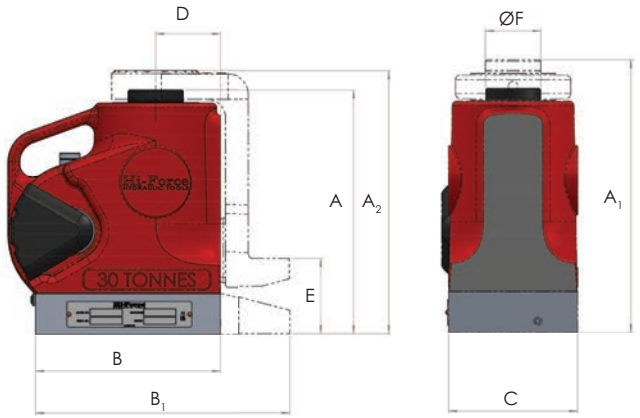


Capacities from 22 to 66 tons

Choice of 5.99 or 12.02 inches stroke lengths

Internal safety overload device

- Lightweight aluminum construction with critical parts manufactured from high quality steel
- Available with plain piston, lifting claw or failsafe mechanical lock ring
- Claw lift capacities from 9 to 26 tons
- Safety overstroke limiting device



Model number	Jack capacity (tons)	Claw capacity (tons)	Stroke (in)	Weight (lbs)	Dimensions (in)								
					A	A_1	A_2	B	B_1	C	D	E	F
Jack with plain piston													
JAH620	22	-	5.99	28.7	10.52	-	-	7.01	-	4.77	2.25	-	2.05
JAH1220	22	-	12.02	39.7	17.38	-	-	-	9.65	4.77	2.25	-	2.05
JAH630	33	-	5.99	35.3	10.48	-	-	7.88	-	5.52	2.76	-	2.36
JAH1230	33	-	12.02	52.9	17.89	-	-	-	10.87	5.52	2.76	-	2.36
JAH660	66	-	5.99	66.1	11.62	-	-	9.89	-	7.53	3.62	-	3.51
JAH1260	66	-	12.02	101.4	19.74	-	-	-	13.51	7.53	3.62	-	3.51
Jack with plain piston & lifting claw with extended base													
JAH620C	22	9	5.99	44.1	-	-	11.31	-	9.65	4.77	2.25	2.88	-
JAH1220C	22	9	12.02	50.7	-	-	18.08	-	9.65	4.77	2.25	2.84	-
JAH630C	33	13	5.99	50.7	-	-	11.31	-	10.87	5.52	2.76	3.19	-
JAH1230C	33	13	12.02	70.5	-	-	18.6	-	10.87	5.52	2.76	2.84	-
JAH660C	66	26	5.99	108	-	-	13.47	-	13.51	7.53	3.62	3.7	-
JAH1260C	66	26	12.02	147.7	-	-	21.47	-	13.51	7.53	3.62	3.15	-
Jack with failsafe mechanical load holding lock ring													
JAH620SR	22	-	5.99	28.7	-	11.31	-	7.01	-	4.77	2.25	-	4.77
JAH1220SR	22	-	12.02	41.9	-	18.2	-	-	9.61	4.77	2.25	-	4.77
JAH630SR	33	-	5.99	37.5	-	11.7	-	7.88	-	5.52	2.76	-	5.52
JAH1230SR	33	-	12.02	52.9	-	19.07	-	-	10.87	5.52	2.76	-	5.52
JAH660SR	66	-	5.99	66.1	-	12.81	-	9.89	-	7.53	3.62	-	7.49
JAH1260SR	66	-	12.02	101.4	-	21.08	-	-	13.51	7.53	3.62	-	7.49

Note: Lifting claw capacity on toe is maximum 40% of jack capacity, do not exceed!

JCS | COMPACT JACKS

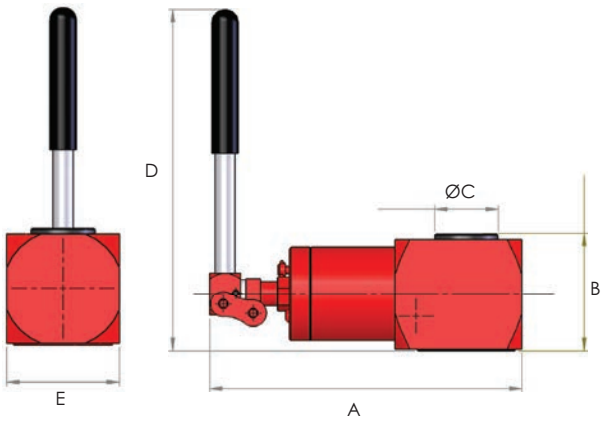


Capacities from 11 to 33 tons

Stroke lengths from 1.38 to 1.77 inches

Lightweight and compact

- Spring assisted piston retraction
- Nitrocarburized steel piston rod for corrosion resistance
- 360 degree positional pumping mechanism for increased versatility
- Internal safety overload valve



Model number	Capacity (tons)	Body construction	Stroke (in)	Weight (lbs)	Dimensions (in) A	B	C	D	E
JCS10	11	Steel	1.38	9.9	9.46	2.99	1.5	10.48	2.76
JCS20	22	Aluminum	1.62	12.1	10.13	4.02	2.01	11.07	4.02
JCS30	33	Aluminum	1.77	17.6	11.07	4.41	2.36	11.23	4.93

HMJ | STEEL MACHINE LIFT JACKS

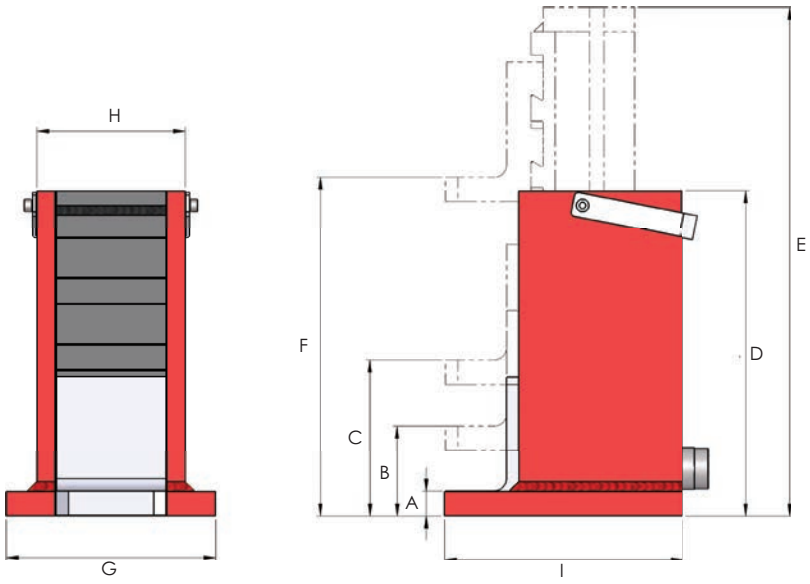


Capacities of 11 and 28 tons

Stroke length 5.91 inches

10000 psi maximum working pressure

- Lifting toe is precision guided throughout its lifting stroke to reduce friction and prevent potential side loading of the hydraulic cylinder
- Operated using a remote pump and hose for increased operator safety
- Lifting toe with minimum height of 1 inch, can be pre-set at three lifting positions
- Suitable for multiple lift point applications



Model number	Capacity (tons)		Stroke (in)	Weight (lbs)	Dimensions (in)								
	Toe	Head			A	B	C	D	E	F	G	H	I
HMJ10	9	11	5.91	64.4	0.99	3.11	5.24	10.72	16.63	11.15	7.96	4.81	7.37
HMJ25	22	28	5.91	121.5	1.38	4.61	7.84	13	18.91	13.75	11.5	5.99	8.31

Note: Maximum permissible input hydraulic pressure when lifting on the jack toe is 8630 psi for HMJ10 and 8120 psi for HMJ25, do not exceed!

HI-FORCE TOUGHLIFT JACKING SYSTEM

The Hi-Force Toughlift Jacking System offers users the easiest and safest method of lifting heavy plant and construction vehicles, in the mining and construction industry and railway locomotives, when critical maintenance and breakdown repair work is required. Suitable for lifting, even the largest vehicles, currently in production around the world, the Hi-Force Toughlift is available in 55, 110, 165 & 220 ton lifting capacities.









TOUGHLIFT

TL RANGE 76
ToughLift jacking systems

TL ACCESSORIES 77
Slip lock and load lock extensions

TL ACCESSORIES 78
Load block sets and spacers

TL ACCESSORIES 79
ToughLift accessories configuration examples

TL | TOUGHLIFT JACKING SYSTEMS



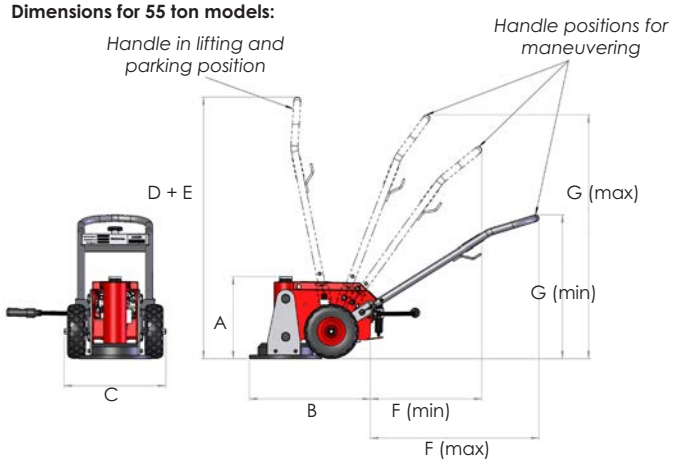
Capacities from 55 to 220 tons

Lifting heights up to 27 inches

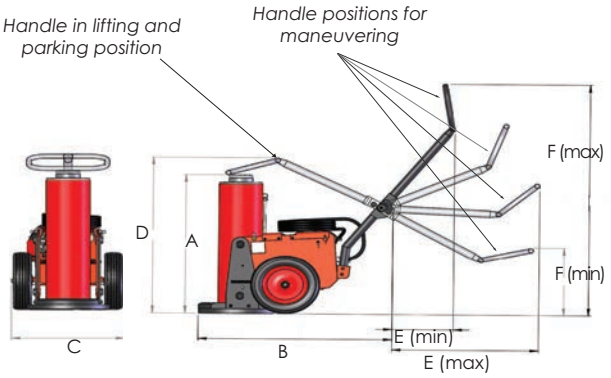
Working pressure 10000 psi

- Choice of air or electric driven hydraulic system
- High flow 3-stage pump unit offers faster advance and retract times
- Solid tyres fitted as standard with option of pneumatic tyres
- Narrow width wheels and redesigned wheel position for better ground clearance and balance when maneuvering
- Push button remote hand pendant controller with 16.5 feet control cable
- Tilting saddles fitted as standard on all models
- User friendly design with easily accessible maintenance features
- Wide range of accessories available for even greater versatility see pages 77 and 78

Dimensions for 55 ton models:



Dimensions for all other models:



Model number	Capacity (tons)	Power supply	Stroke (in)	Weight (lbs)	Max additional stack (in)	Dimensions (in) A	B	C	D	E (min-max)	F (min-max)	G (min-max)
TLA5010	55	90-psi air driven	10.01	352.7	26.79	17.85	26	22.06	56.74	56.74	14.97 - 39.4	27.58 - 51.22
TLA5014	55	90-psi air driven	13.99	374.8	26.79	21.83	26	22.06	56.74	56.74	14.97 - 39.4	27.58 - 51.22
TLE5010-110V	55	110V electric, 50 Hz	10.01	370.4	26.79	17.85	26	22.06	56.74	56.74	14.96 - 39.4	27.58 - 51.22
TLE5010H-120V	55	120V electric, 60 Hz	10.01	370.4	26.79	17.85	26	22.06	56.74	56.74	14.96 - 39.4	27.58 - 51.22
TLE5010	55	230V electric, 50 Hz	10.01	370.4	26.79	17.85	26	22.06	56.74	56.74	14.96 - 39.4	27.58 - 51.22
TLE5010H	55	220V electric, 60 Hz	10.01	370.4	26.79	17.85	26	22.06	56.74	56.74	14.96 - 39.4	27.58 - 51.22
TLE5014-110V	55	110V electric, 50 Hz	13.99	392.4	26.79	21.83	26	22.06	56.74	56.74	14.96 - 39.4	27.58 - 51.22
TLE5014H-120V	55	120V electric, 60 Hz	13.99	392.4	26.79	21.83	26	22.06	56.74	56.74	14.96 - 39.4	27.58 - 51.22
TLE5014	55	230V electric, 50 Hz	13.99	392.4	26.79	21.83	26	22.06	56.74	56.74	14.96 - 39.4	27.58 - 51.22
TLE5014H	55	220V electric, 60 Hz	13.99	392.4	26.79	21.83	26	22.06	56.74	56.74	14.96 - 39.4	27.58 - 51.22
TLA10016	110	90-psi air driven	15.96	637.1	18.91	26.2	44.52	25.69	32.74	14.03 - 33.65	18.32 - 63.24	-
TLA10021	110	90-psi air driven	20.88	703.3	7.09	33.21	44.52	25.69	37.27	14.03 - 33.69	18.32 - 63.28	-
TLA15015	165	90-psi air driven	15.37	690.0	19.11	26.2	44.52	25.69	32.9	14.03 - 33.73	18.32 - 63.32	-
TLA15020	165	90-psi air driven	20.49	769.4	7.09	33.21	44.52	25.69	37.94	14.03 - 33.77	18.32 - 63.36	-
TLA20015	220	90-psi air driven	15.01	822.3	19.7	26	44.52	25.69	32.7	14.03 - 33.81	18.32 - 63.39	-
TLA20027	220	90-psi air driven	27	998.7	7.09	37.98	44.52	25.69	42.75	14.03 - 33.84	18.32 - 63.43	-

Note: 110, 165 and 220 ton electric driven Hi-Force ToughLift jacking systems available on request

TL ACCESSORIES

- Slip lock extensions can be used in multiples up to the maximum height as specified in the table
- Load lock extensions can only be used one at a time, and optionally in conjunction with slip lock extensions
- Both extension options will terminate with a swivel tilting saddle on the top of the extension stack

SLIP LOCK EXTENSIONS

Length 7.1 in	Length 11.8 in	Length 15.8 in	Length 19.1 in	Length 19.7 in	To suit model	Recommended max. extension height (in)
SLE180-50	SLE300-50	SLE400-50	*	SLE500-50	TLA5010 TLE5010-110V TLE5010H-120V TLE5010 TLE5010H	26.79
SLE180-50	SLE300-50	*	*	*	TLA5014 TLE5014-110V TLE5014H-120V TLE5014 TLE5014H	25.81
SLE180-100	SLE300-100	*	SLE485-100	*	TLA10016	19.11
SLE180-100	*	*	*	*	TLA10021	7.09
SLE180-150	SLE300-150	*	SLE485-150	*	TLA15015	19.11
SLE180-150	*	*	*	*	TLA15020	7.09
SLE180-200	SLE300-200	SLE400-200	*	SLE500-200	TLA20015	19.7
SLE180-200	*	*	*	*	TLA20027	7.09

**Exceeds recommended maximum extension height*



LOAD LOCK EXTENSIONS

Length 7.1 in	Length 11.8 in	Length 15.8 in	Length 19.1 in	Length 19.7 in	To suit model	Recommended max. extension height (in)
LLE180-50	LLE300-50	LLE400-50	*	LLE500-50	TLA5010 TLE5010-110V TLE5010H-120V TLE5010 TLE5010H	26.79
LLE180-50	LLE300-50	*	*	*	TLA5014 TLE5014-110V TLE5014H-120V TLE5014 TLE5014H	25.81
LLE180-100	LLE300-100	*	LLE485-100	*	TLA10016	19.11
LLE180-100	*	*	*	*	TLA10021	7.09
LLE180-150	LLE300-150	*	LLE485-150	*	TLA15015	19.11
LLE180-150	*	*	*	*	TLA15020	7.09
LLE180-200	LLE300-200	LLE400-200	*	LLE500-200	TLA20015	19.7
LLE180-200	*	*	*	*	TLA20027	7.09

**Exceeds recommended maximum extension height*



TL ACCESSORIES

TROLLEY MOUNTED LOAD BLOCK SETS

Model number	Capacity (tons)	Lock out height (in)	Load blocks	Adaptor	To suit model
TLB50-250	55	9.85	3	1	TLA5010 TLE5010-110V TLE5010H-120V TLE5010 TLE5010H
TLB50-330	55	13	4	1	TLA5014 TLE5014-110V TLE5014H-120V TLE5014 TLE5014H
TLB100-405	110	15.76	5	1	TLA10016
TLB100-530	110	20.69	7	1	TLA10021
TLB150-390	165	15.17	5	1	TLA15015
TLB150-520	165	20.29	7	1	TLA15020
TLB200-380	220	14.78	5	1	TLA20015
TLB200-685	220	26.6	9	1	TLA20027



SPACERS

- Base mounted spacer to increase closed height by 11.8 inches
- Only available for TLA20015 model and weight is increased by an extra 173.1 lbs when fitted
- Suffix TLA20015 with “E” when ordering with spacer fitted



TL ACCESSORIES

TOUGHLIFT ACCESSORIES CONFIGURATION EXAMPLES









*Note: When using a combination of a load lock extension (LLE) with a slip lock extension (SLE), the LLE **must be** inserted into the cylinder first and then the SLE inserted into the LLE. The minimum Load Lock Extension must be 11.8 inches in length to allow the Slip Lock Extension to fully engage. The combination of the two extensions **must not** exceed the maximum recommended extension height for the relevant ToughLift model.*

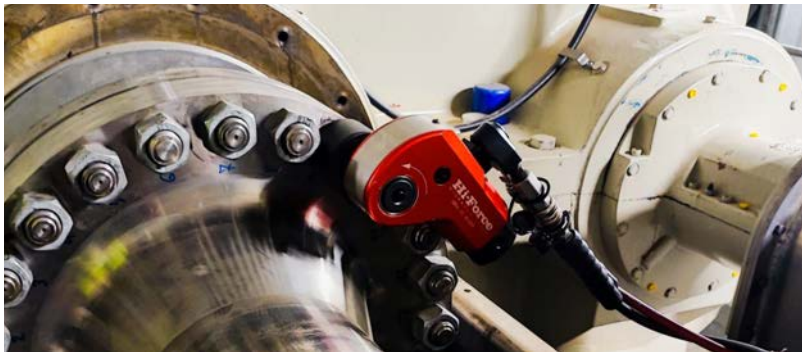
The recommended maximum height for each ToughLift model can be found on page 77 under the LLE and SLE tables. If you are in doubt about the selection, combination and use of both extensions, please contact your Hi-Force regional office.

HI-FORCE TORQUE TOOLS

The extensive range of Hi-Force torque tools, detailed in this section of the catalogue, includes manual, air and hydraulically driven tools, available in a wide variety of accurate and controlled, torque output capacities. The range offers a choice of tool options, suitable for use in almost every bolt torque tightening, or loosening application, that are regularly required in many industrial applications worldwide. From basic, manually operated, calibrated, hand torque wrenches through to the latest generation of high output torque, hydraulic wrenches, Hi-Force torque tools are recognised as a leading brand within the global market for bolting tools. Detailed within this section of the catalogue are manual hand torque wrenches, manual and pneumatic torque multipliers, square and hexagon drive hydraulic torque wrenches and all accessory items like extended hydraulic wrench reaction arms, heavy duty torque sockets, hexagon reducer bushes, back up wrenches, hydraulic torque wrench powered pumps, hoses and hose reels, impact wrenches and airline filter, regulator, lubricator unit.

iQ software is an innovative bolted joint integrity software programme designed to assist engineers with the provision of accurate bolt load calculations, based on key input data, related to each specific bolted joint, and is available for purchase through the provider company Asset55 Limited. Hi-Force is able to support our valued clients with bolt load calculations on an hourly chargeable time basis.













TORQUE TOOLS

NTW RANGE 82
Manual torque wrenches

HTW RANGE 83
Manual torque wrenches - Break back type

NTM RANGE 84
Manual torque multipliers

TWP RANGE 85
Pistol grip pneumatic torque multipliers

TWS-N RANGE 86
Hydraulic torque wrenches - Square drive

IS RANGE 87
Imperial hexagon AF size heavy duty sockets

MS RANGE 88
Metric hexagon AF size heavy duty sockets

TWS-N ACCESSORIES 89
Hexagon drive adaptors, extended reaction arms, and removable handle kits

TWH-N RANGE 90
Hydraulic torque wrenches - Low profile hexagon

TWH-NRH - IMPERIAL RANGE 91
Female hexagon ratchet heads for use with TWH-N torque wrenches

TWH-NRH - METRIC RANGE 92
Female hexagon ratchet heads for use with TWH-N torque wrenches

TWH-N ACCESSORIES 93
Square drive conversion kits, extended reaction arms, and removable handle kits

IB RANGE 94
Imperial hexagon AF size reducer bushes

MB RANGE 95
Metric hexagon AF size reducer bushes

BW RANGE 96
Backup wrenches

HTWP RANGE 97
Torque wrench pumps - standard range

TPA RANGE 98
Air driven torque wrench pumps

TPE-M RANGE 98
Electric driven torque wrench pumps - manual cycle

TPE RANGE 99
Electric driven torque wrench pumps - auto cycle

TORQUE WRENCH PUMP ACCESSORIES 100
Torque pump hoses, hose reel and couplers

IP RANGE 101
Pneumatic impact wrenches

NTW | MANUAL TORQUE WRENCHES



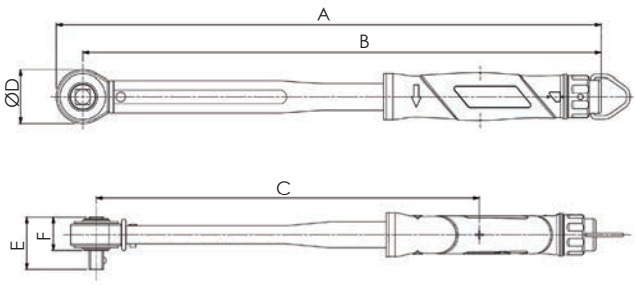
Torque capacities from 10 to 730 lbf.ft (12 to 1000 Nm)

Square drive sizes from ⅜" to 1"

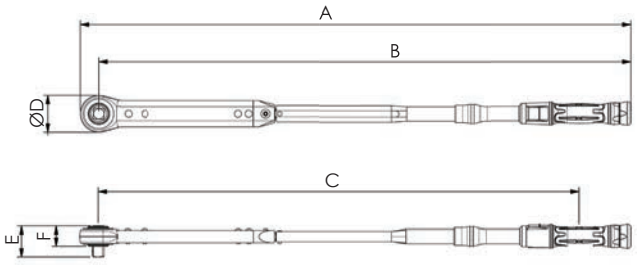
Dual scale torque reading in lbf.ft & Nm

- Square drive sizes from ⅜" to 1", with interchangeable ¾" and 1"drives on selected models
- Push-through ratchet provides bi-directional torque control and features a narrow engagement angle for easy positioning in confined spaces
- Clicking system triggers a tactile and audible signal when pre-set torque is achieved
- Secure push/pull locking mechanism prevents accidental adjustment
- Repeatable accuracy of +/- 3% in accordance with ISO6789-1:2017 and supplied with individual Declaration of Conformance
- Alignment pin safeguarding feature physically prevents the use of incompatible attachments, reducing the risk of improper setup (for NTW600, NTW800 and NTW1000 models only)
- NTW600, NTW800 and NTW1000 models can be split into two parts for a smaller, easier-to-transport package

NTW60, NTW100, NTW200, NTW300



NTW600, NTW800, NTW1000



Model number	Square drive	Torque range lbf.ft	Torque range Nm	Weight (lbs)
NTW60	⅜"	10 - 45	12 - 60	1.5
NTW100	½"	20 - 80	20 - 100	1.8
NTW200	½"	30 - 150	40 - 200	2.2
NTW300	½"	45 - 220	60 - 300	3.1
NTW600	¾" & 1"	90 - 440	120 - 600	7.7
NTW800	¾" & 1"	120 - 580	160 - 800	10.1
NTW1000	¾" & 1"	150 - 730	200 - 1000	11.7

Dimensions (inch) A	B	C	ØD	E	F
12.92	12.21	8.23	1.42	1.34	0.83
14.78	13.95	9.93	1.65	1.5	0.87
18.08	17.22	13.2	1.77	1.77	0.99
23.13	22.14	18.12	2.05	1.77	0.99
38.77	37.47	33.84	2.6	-	1.38
46.45	44.99	41.37	2.92	-	1.5
56.3	54.84	51.22	2.92	-	1.5

HTW | MANUAL TORQUE WRENCHES - BREAK BACK TYPE

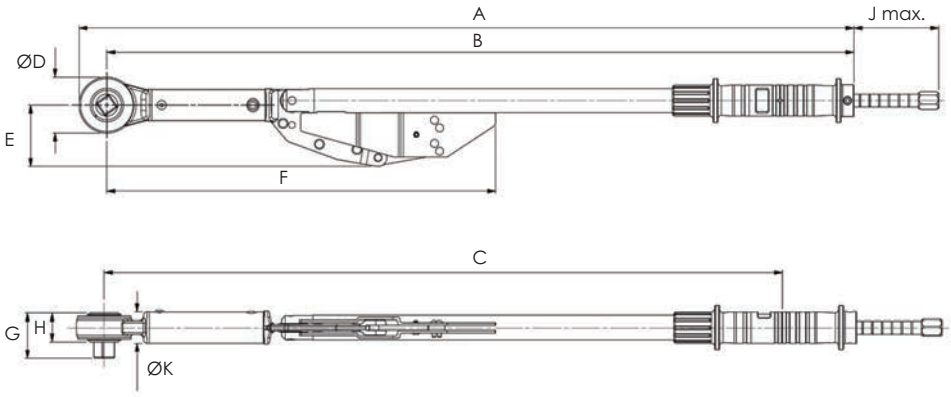


Torque capacities from 220 to 1500 lbf.ft

Repeatable accuracy +/- 4%

Dual scale lbf.ft & Nm

- Choice of ¾" or 1" square drive sizes
- Robust steel construction with corrosion resistant finish
- Push-through square drive for bi-directional torque control
- Internal cam control ensures controlled 'break' once preset torque is achieved
- Large break angle prevents possibility of over torquing
- Wrench automatically resets once hand pressure is released
- Marked with a unique serial number and supplied with calibration certificate
- Supplied in handy plastic storage case



Model number	Square drive	Torque range lbf.ft	Torque range Nm	Overall length (in)	Ratchet head dia (in)	Weight (lbs)
HTW1000B	¾"	200 - 750	300 - 1000	61.23	2.72	16.3
HTW1500B	¾"	500 - 1000	700 - 1500	73.64	2.72	21.2
HTW1800B	1"	500 - 1000	700 - 1500	73.64	2.72	21.2
HTW2000B	1"	700 - 1500	900 - 2000	76.44	2.72	28.2

Dimensions (in)									
A	B	C	ØD	E	F	G	H	J max.	ØK
57.09	55.75	52.17	2.72	2.96	38.38	2.17	1.38	4.14	1.5
69.5	68.16	64.42	2.72	2.96	54.33	2.17	1.38	4.14	1.5
69.5	68.16	64.42	2.72	2.96	54.33	2.48	1.38	4.14	1.5
73.09	71.71	69.86	2.72	2.96	54.33	2.48	1.38	3.35	1.5

NTM | MANUAL TORQUE MULTIPLIERS



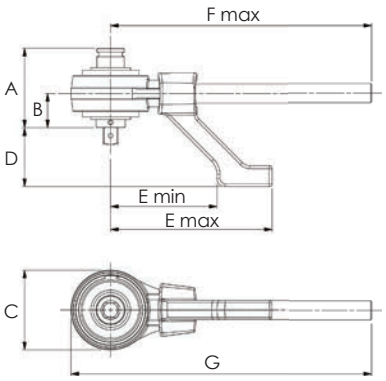
Torque capacities up to 7000 lbf.ft

Mean torque multiplication accuracy +/-4%

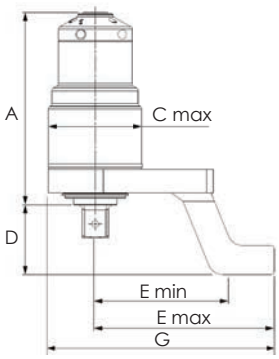
Supplied complete with reaction arm

- Choice of output square drives of ¾", 1" and 1 ½"
- Suitable for use with Hi-Force NTW range of manual torque wrenches listed on page 82
- Robust construction minimizes maintenance requirements and ensures long tool life
- Anti wind-up ratchet on models NTM40, NTM70 and NTM95 contains the reaction forces generated during tightening for safe, easy operation
- All models are supplied with a cranked reaction arm. NTM13 and NTM27 are also supplied with a straight reaction arm option.
- Multiplication ratios from 5:1 to 27:1

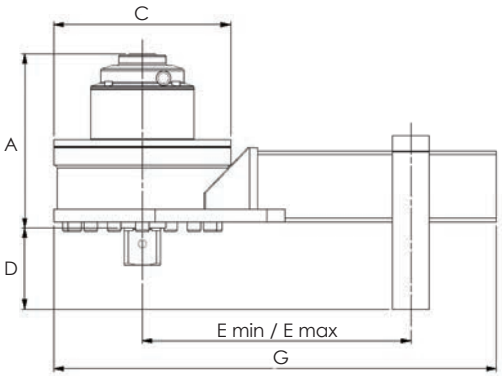
NTM13, NTM27



NTM40, NTM70



NTM95



Model number	Torque capacity lbf.ft	Torque capacity Nm	Multiplication ratio	Input square drive	Output square drive	Max. input torque required Nm	Rec. torque wrench	Weight incl. reaction arm (lbs)	Dimensions (inch) A	B	C	ØD	E (min)	E (max)	F	G
NTM13	960	1300	5:1	½"	¾"	260	NTW300	11.5	4.06	1.73	4.26	3.03	5.52	8.35	13.55	15.68
NTM27	2000	2700	5:1	¾"	1"	540	NTW600	11.5	3.94	1.42	4.26	3.35	5.52	8.35	13.55	15.68
NTM40	2950	4000	25:1	½"	1"	160	NTW200	17.4	7.49	-	3.62	2.72	4.53	6.9	-	8.71
NTM70	5160	7000	25.5:1	½"	1 ½"	275	NTW300	29.3	8.35	-	4.69	3.59	5.99	8.35	-	10.7
NTM95	7000	9500	27:1	¾"	1 ½"	352	NTW600	56.7	6.38	-	7.25	3.31	6.9	13.83	-	17

TWP | PISTOL GRIP PNEUMATIC TORQUE MULTIPLIERS

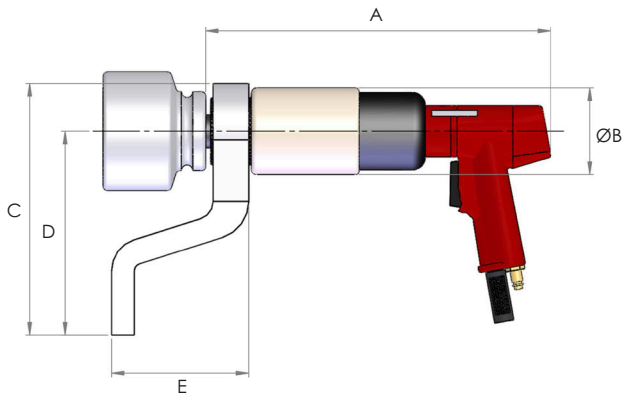


Torque capacities up to 4400 lbf.ft

Repeatable accuracy of +/- 5%

Lightweight and durable construction

- Air driven, single stage torque multipliers offering torque capacities from 150 to 4400 lbf.ft (200 to 6000 Nm)
- Ultra lightweight and durable construction with powerful performance for accurate tightening of bolted components
- Reversible, pistol grip design air motor allows for bi-directional torquing
- Smooth, non-impacting design of planetary gears minimizes wear to components
- Gearbox manufactured from high grade steel and electrogalvanized for increased corrosion protection
- Slim line design of gearbox allows access in narrow spaces
- Sensitive trigger control allows for easy reaction arm positioning
- Average air consumption of 49.5 cubic feet per minute from a standard airline pressure of 116 psi (23 litres per second at 8 bar)
- Supplied with a FRL filter, regulator and lubricator unit including class 1.0 air inlet pressure gauge and 10 feet long hose (see page 101)



Model number	Torque capacity * lbf.ft	Nm	Square drive size	R.P.M. at max pressure	Weight (lbs)	Dimensions (in) A	B	C	D	E
TWP09S	150 - 670	200 - 900	¾"	24	7.1	12.92	3.15	4.87	3.74	3.78
TWP15S	220 - 1110	300 - 1500	1"	12	10.4	13.51	3.47	6.8	5.24	4.33
TWP22S	370 - 1620	500 - 2200	1"	7	11.2	14.18	3.47	6.8	5.24	4.33
TWP32S	590 - 2360	800 - 3200	1"	4	12.8	15.09	3.47	6.8	5.24	4.33
TWP40S	620 - 3100	850 - 4200	1"	4	12.8	15.09	3.47	6.8	5.24	4.33
TWP60S	880 - 4400	1200 - 6000	1 ½"	4	17.0	15.76	4.02	9.69	7.64	5.83

**Minimum torque value at 22 psi, maximum torque value at 116 psi airline pressure. Weight is without reaction arm.*

TWS-N | HYDRAULIC TORQUE WRENCHES - SQUARE DRIVE

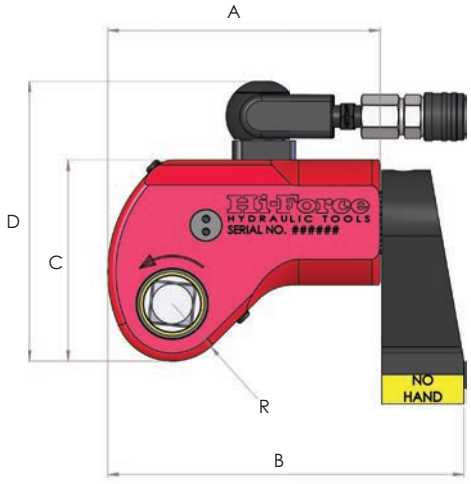


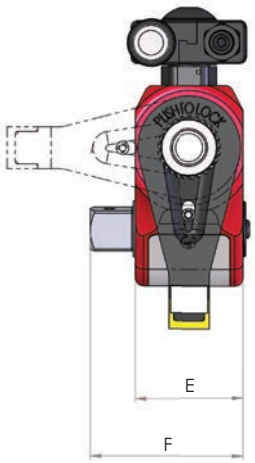
Torque capacities up to 26860 lbf.ft

Torque accuracy of +/- 3%

Working pressure 10000 psi

- Compact, lightweight aluminum body construction
- Output torque capacities from 1254 to 26860 lbf.ft (1727 to 36992 Nm)
- Choice of square drive sizes from ¾" to 2 ½"
- Reversible square drive for tightening or loosening applications
- Multi-position reaction arm with safety lock feature
- All models are fitted with a multi-directional 360° x 180° swivel with quick release couplings. The multi-directional feature enables easy positioning of hydraulic hoses during operation, preventing damage from pinching or kinking.
- High quality torque wrench sockets for use with TWS-N range hydraulic wrenches are listed on pages 87 and 88
- Optional allen hex drives available from ½" to 2 ¼" and 14 to 60 mm (see page 89)





Model number	Torque capacity lbf.ft at 10000 psi	Torque capacity Nm at 700 bar	Square drive size	Weight including reaction foot (lbs)	Dimensions (in) A	B	C	D	E	F	R
TWS17N	1254	1727	¾"	4.2	5.28	6.86	3.66	5.56	2.01	2.88	1.1
TWS45N	3289	4529	1"	10.6	6.7	8.75	4.96	6.9	2.68	3.86	1.42
TWS100N	7527	10064	1 ½"	19.8	8.79	11.54	6.42	8.31	3.62	5.28	1.81
TWS150N	10873	14974	1 ½"	33.1	9.73	12.73	7.45	9.34	3.94	5.44	2.13
TWS370N	26860	36992	2 ½"	71.6	12.96	17.02	9.42	11.39	5.4	7.88	2.6

IS | IMPERIAL HEXAGON AF SIZE HEAVY DUTY SOCKETS

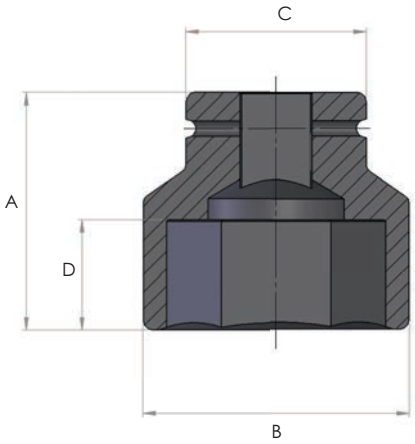


Square drives from ¾" to 2 ½"

Across flat sizes up to 6 ⅞"

Supplied complete with retaining ring and pin

- High quality, imperial size heavy duty impact sockets
- Suitable for use with Hi-Force TWS-N hydraulic torque wrenches, NTM and TWP torque multipliers and IP impact wrenches
- Long length, bi-hexagonal and special sockets available on request



Model number	Square drive	Nut AF (inches)	Dimensions (in) A	B	C	D
IS2-101	¾"	1 1/16"	2.05	1.58	1.5	0.75
IS2-104	¾"	1 ¼"	2.05	1.73	1.73	0.87
IS2-107	¾"	1 7/16"	2.21	2.01	1.73	0.99
IS2-110	¾"	1 ⅝"	2.44	2.29	1.73	1.06
IS2-113	¾"	1 13/16"	2.68	2.64	1.73	1.18
IS2-200	¾"	2"	2.84	2.8	2.13	1.26
IS2-203	¾"	2 3/16"	2.92	3.03	2.13	1.38
IS2-206	¾"	2 ⅜"	2.96	3.31	2.13	1.46
IS9-101	1"	1 1/16"	2.29	1.73	2.01	0.75
IS9-104	1"	1 ¼"	2.36	2.01	2.01	0.87
IS9-107	1"	1 7/16"	2.44	2.21	2.05	0.99
IS9-110	1"	1 ⅝"	2.44	2.42	2.05	1.06
IS9-113	1"	1 13/16"	2.52	2.68	2.29	1.18
IS9-200	1"	2"	2.76	2.92	2.29	1.38
IS9-203	1"	2 3/16"	2.84	3.15	2.44	1.38
IS9-206	1"	2 ⅜"	3.07	3.43	2.44	1.65
IS9-209	1"	2 9/16	3.15	3.66	2.44	1.65
IS9-212	1"	2 ¾"	3.78	3.94	2.44	1.65
IS9-215	1"	2 15/16"	3.86	4.14	3.39	1.77
IS9-302	1"	3 ⅛"	3.94	4.37	3.39	1.89
IS9-308	1"	3 ½"	4.14	4.89	3.39	2.05
IS9-314	1"	3 ⅞"	4.53	5.32	3.39	2.29
IS5-113	1 ½"	1 13/16"	3.31	2.99	3.39	1.18
IS5-200	1 ½"	2"	3.43	3.23	3.39	1.26

Model number	Square drive	Nut AF (inches)	Dimensions (in) A	B	C	D
IS5-203	1 ½"	2 3/16"	3.55	3.47	3.39	1.46
IS5-206	1 ½"	2 ⅜"	3.74	3.7	3.39	1.54
IS5-209	1 ½"	2 9/16"	3.94	3.94	3.39	1.65
IS5-212	1 ½"	2 ¾"	4.14	4.18	3.39	1.81
IS5-215	1 ½"	2 15/16"	4.26	4.41	3.39	1.93
IS5-302	1 ½"	3 ⅛"	4.53	4.65	3.39	2.09
IS5-308	1 ½"	3 ½"	4.85	5.08	3.39	2.32
IS5-314	1 ½"	3 ⅞"	5.12	5.67	3.74	2.56
IS5-404	1 ½"	4 ¼"	5.32	6.07	3.74	2.84
IS5-410	1 ½"	4 ⅝"	5.52	6.42	3.74	3.03
IS5-500	1 ½"	5"	5.71	6.97	5	3.15
IS5-506	1 ½"	5 ⅜"	5.91	7.64	5	3.35
IS6-302	2 ½"	3 ⅛"	5.52	4.89	5	1.77
IS6-308	2 ½"	3 ½"	5.52	5.32	5	2.05
IS6-314	2 ½"	3 ⅞"	5.91	5.79	5	2.29
IS6-404	2 ½"	4 ¼"	6.3	6.23	5	2.36
IS6-410	2 ½"	4 ⅝"	6.7	6.78	5	2.64
IS6-500	2 ½"	5"	6.9	7.25	5	2.84
IS6-506	2 ½"	5 ⅜"	7.09	7.76	5.99	3.03
IS6-512	2 ½"	5 ¾"	7.29	8.43	5.99	3.27
IS6-602	2 ½"	6 ⅛"	7.49	8.83	5.99	3.55
IS6-608	2 ½"	6 ½"	7.68	9.22	5.99	3.74
IS6-614	2 ½"	6 ⅞"	7.88	9.73	5.99	3.94

MS | METRIC HEXAGON AF SIZE HEAVY DUTY SOCKETS

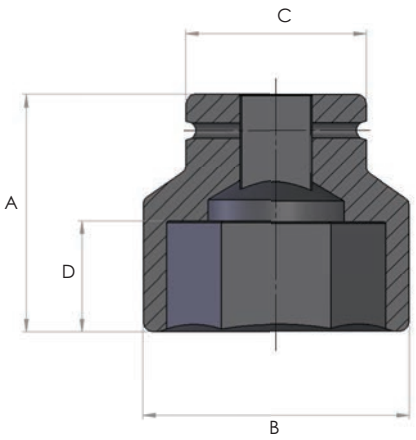


Square drives from ¾" to 2 ½"

Across flat sizes up to 145 mm

Supplied complete with retaining ring and pin

- High quality, metric size heavy duty impact sockets
- Suitable for use with Hi-Force TWS-N hydraulic torque wrenches, NTM and TWP torque multipliers and IP impact wrenches
- Long length, bi-hexagonal and special sockets available on request



Model number	Square drive	Nut AF (mm)	Dimensions (mm) A	B	C	D
MS2-24	¾"	24	50	39	44	16
MS2-27	¾"	27	54	43	44	19
MS2-30	¾"	30	54	47	44	21
MS2-32	¾"	32	54	49	44	20
MS2-36	¾"	36	54	54	44	23
MS2-41	¾"	41	58	60	44	27
MS2-46	¾"	46	63	67	44	30
MS2-50	¾"	50	72	71	54	32
MS2-55	¾"	55	74	77	54	35
MS2-60	¾"	60	75	84	54	37
MS9-24	1"	24	60	42	54	18
MS9-27	1"	27	60	46	54	19
MS9-30	1"	30	62	50	54	21
MS9-32	1"	32	62	52	54	22
MS9-36	1"	36	67	57	54	25
MS9-41	1"	41	70	63	54	27
MS9-46	1"	46	76	70	54	30
MS9-50	1"	50	80	75	54	35
MS9-55	1"	55	84	81	54	35
MS9-60	1"	60	87	87	54	42
MS9-65	1"	65	90	93	54	42
MS9-70	1"	70	96	100	54	42
MS9-75	1"	75	98	106	86	45
MS9-80	1"	80	100	112	86	48
MS9-85	1"	85	105	118	86	52
MS9-90	1"	90	105	125	86	52
MS9-95	1"	95	115	131	86	52
MS9-100	1"	100	115	137	86	58

Model number	Square drive	Nut AF (in)	Dimensions (mm) A	B	C	D
MS5-36	1 ½"	36	78	64	86	24
MS5-41	1 ½"	41	80	70	86	28
MS5-46	1 ½"	46	84	76	86	30
MS5-50	1 ½"	50	87	81	86	32
MS5-55	1 ½"	55	90	87	86	37
MS5-60	1 ½"	60	95	94	86	39
MS5-65	1 ½"	65	100	100	86	42
MS5-70	1 ½"	70	105	106	86	46
MS5-75	1 ½"	75	108	112	86	49
MS5-80	1 ½"	80	115	119	86	53
MS5-85	1 ½"	85	118	125	86	56
MS5-90	1 ½"	90	123	131	86	59
MS5-95	1 ½"	95	123	137	95	61
MS5-100	1 ½"	100	130	144	95	65
MS5-105	1 ½"	105	130	154	95	68
MS5-110	1 ½"	110	135	157	95	72
MS5-115	1 ½"	115	140	163	95	77
MS5-130	1 ½"	130	145	184	127	80
MS6-80	2 ½"	80	140	124	127	45
MS6-85	2 ½"	85	140	130	127	52
MS6-90	2 ½"	90	145	136	127	52
MS6-95	2 ½"	95	145	143	127	52
MS6-100	2 ½"	100	150	148	127	58
MS6-105	2 ½"	105	155	155	127	58
MS6-110	2 ½"	110	160	161	127	60
MS6-115	2 ½"	115	165	167	127	62
MS6-130	2 ½"	130	175	187	152	72
MS6-145	2 ½"	145	185	207	152	83

TWS-N | ACCESSORIES



Imperial allen hex drives from ½" to 2 ¼" and Metric allen hex drives from 14 to 60 mm

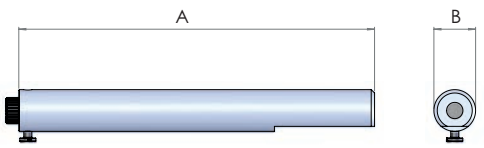
Extended reaction length arms with a choice of length

Handle kits for TWS-N to allow user to better support the tools during operation

For tool model number	Imperial allen hexagon drive adaptors			Metric allen hexagon drive adaptors		
	Model number	Hexagon size	Maximum torque load (lbf.ft)	Model number	Hexagon size	Maximum torque load (lbf.ft)
TWS17N	IH17N-008	½"	347	MH17N-14	14 mm	546
	IH17N-010	⅝"	686	MH17N-17	17 mm	996
	IH17N-012	¾"	1180	MH17N-19	19 mm	1189
	IH17N-014	⅞"	1254	MH17N-22	22 mm	1254
	IH17N-100	1"	1254	MH17N-24	24 mm	1254
TWS45N	IH45N-010	⅝"	686	MH45N-17	17 mm	811
	IH45N-012	¾"	1180	MH45N-19	19 mm	1180
	IH45N-014	⅞"	1881	MH45N-22	22 mm	1881
	IH45N-100	1"	2803	MH45N-24	24 mm	2729
	IH45N-102	1 ⅛"	3319	MH45N-27	27 mm	2876
	IH45N-104	1 ¼"	3319	MH45N-32	32 mm	3319
TWS100N	IH100N-014	⅞"	1394	MH100N-22	22 mm	1829
	IH100N-100	1"	2803	MH100N-24	24 mm	2729
	IH100N-102	1 ⅛"	4012	MH100N-27	27 mm	3429
	IH100N-104	1 ¼"	5458	MH100N-30	30 mm	4705
	IH100N-106	1 ⅜"	7316	MH100N-32	32 mm	5623
	IH100N-108	1 ½"	7375	MH100N-36	36 mm	7375
TWS150N	IH150N-104	1 ¼"	5458	MH150N-30	30 mm	5163
	IH150N-106	1 ⅜"	7301	MH150N-32	32 mm	5531
	IH150N-108	1 ½"	11063	MH150N-36	36 mm	8039
	IH150N-110	1 ⅝"	11063	MH150N-41	41 mm	11063
	IH150N-112	1 ¾"	11063	MH150N-46	46 mm	11063
TWS370N	IH370N-108	1 ½"	9514	MH370N-36	36 mm	7375
	IH370N-110	1 ⅝"	12021	MH370N-41	41 mm	12021
	IH370N-112	1 ¾"	15045	MH370N-46	46 mm	16594
	IH370N-114	1 ⅞"	18511	MH370N-50	50 mm	22568
	IH370N-200	2"	22568	MH370N-55	55 mm	27288
	IH370N-204	2 ¼"	27288	MH370N-60	60 mm	27288

Note: Check the maximum permissible torque load of hexagon drive adaptor before use.

EXTENDED REACTION ARMS





For tool model number	Model number	Length A		Diameter B	
		inch	mm	inch	mm
TWS17N	ERA17-21	21"	533	1 ¾"	44.5
	ERA17-24	24"	610	1 ¾"	44.5
	ERA17-36	36"	914	1 ¾"	44.5
TWS45N	ERA45-21	21"	533	2 ½"	63.5
	ERA45-24	24"	610	2 ½"	63.5
	ERA45-36	36"	914	2 ½"	63.5
TWS100N	ERA100-21	21"	533	3 ½"	88.9
	ERA100-24	24"	610	3 ½"	88.9
	ERA100-36	36"	914	3 ½"	88.9
TWS150N	ERA150-21	21"	533	3 ½"	88.9
	ERA150-24	24"	610	3 ½"	88.9
	ERA150-36	36"	914	3 ½"	88.9
TWS370N	ERA370-21	21"	533	4 ¾"	120.6
	ERA370-24	24"	610	4 ¾"	120.6
	ERA370-36	36"	914	4 ¾"	120.6

REMOVABLE HANDLE KITS

For tool model number	Model number
TWS17N	TSH17
TWS45N	TSH45
TWS100N	TSH100
TWS150N	TSH150
TWS370N	TSH370



Note: Standard circlip pliers are required to fit the handle kits.
A 3 mm hex key is additionally required to fit the TSH17 handle kit.

TWH-N | HYDRAULIC TORQUE WRENCHES - LOW PROFILE HEXAGON



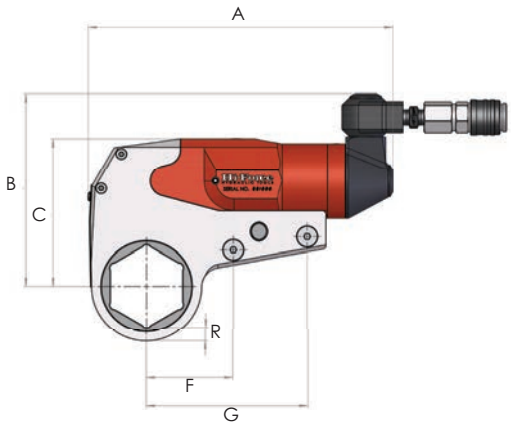
Torque capacities up to 34985 lbf.ft

Torque accuracy of +/- 3%

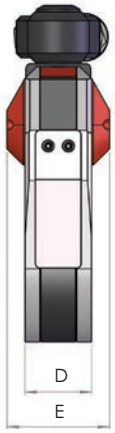
Working pressure 10000 psi

- Lightweight, high grade aluminum body (excluding TWH430N)
- Output torque capacities from 1906 to 34985 lbf.ft (2625 to 48181 Nm)
- Low profile design for direct in-line reaction
- Narrow cassette head design makes it ideal for limited access applications
- Ratchet head can be easily changed by simply withdrawing/inserting a single pin
- Imperial ratchet heads available with across flat (AF sizes) sizes from 1 1/16" to 6 7/8" (page 91)
- Metric ratchet heads available with across flat (AF sizes) sizes from 24 to 175 mm (page 92)
- All models except the TWH430N are fitted with a multi-directional 360° x 360° swivel. TWH430N is fitted with a multi-directional 360° x 180° swivel. Both swivels are fitted with quick release couplings, and the multi-directional features enable easy positioning of hydraulic hoses during operation, preventing damage from pinching or kinking.

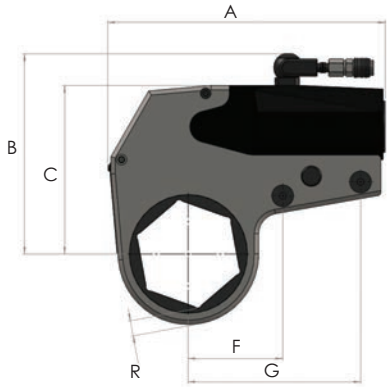
TWH27N, TWH54N, TWH120N, TWH210N (aluminum body)



All models



TWH430N (steel body)



Note: Drawing shows drive cylinder, including ratchet head as detailed on pages 91 and 92.

Drive cylinder and ratchet head are separate items and must be ordered separately.

Model number	Torque capacity		Hexagon AF Size				Weight (lbs)	Dimensions (in)								
	Nm at 10000 psi	lbf.ft at 10000 psi	Metric min	Metric max	Imperial min	Imperial max		A	B	C	D	E	F	G	R(min)	R(max)
TWH27N	2625	1906	24	46	1 1/16"	1 13/16"	3.1	7.6	4.93	3.82	1.26	2.01	2.13	4.29	0.37	0.48
	3068	2228	50	60	2"	2 3/8"	3.1	7.6	5.36	4.26	1.26	2.01	2.13	4.29	0.4	0.41
TWH54N	5372	3901	36	65	1 7/16"	2 9/16"	5.1	9.85	6.23	4.93	1.62	2.52	2.88	5.4	0.42	0.54
	6037	4384	70	80	2 3/4"	3 1/8"	5.1	9.85	6.66	5.36	1.62	2.52	2.88	5.4	0.46	0.58
TWH120N	11737	8522	50	80	2 3/16"	3 1/8"	8.4	12.21	7.45	6.19	2.05	3.07	3.62	6.78	0.58	0.6
	14349	10419	85	100	3 1/2"	3 7/8"	8.4	12.21	8.43	7.17	2.05	3.07	3.62	6.78	0.63	0.74
TWH210N	21216	15405	70	100	2 3/4"	3 7/8"	14.1	14.89	8.79	7.53	2.52	3.82	4.49	8.39	0.71	0.73
	23124	16791	105	115	4 1/4"	4 5/8"	14.1	14.89	9.3	8.04	2.52	3.82	4.49	8.39	0.72	0.82
TWH430N	43792	31798	80	115	3 1/8"	4 5/8"	35.5	15.96	11.47	9.53	3.27	3.66	5.75	10.52	1.01	1.23
	48181	34985	130	175	5"	6 7/8"	35.5	16.75	12.06	10.24	3.27	3.66	5.75	10.52	0.98	1.08

Note: Above selection table is for drive unit only. Ratchet head(s) to be ordered separately see pages 91 and 92.
Weight as stated is drive cylinder only, exact radius size (R) varies according to ratchet AF size selected.

TWH-NRH | IMPERIAL HEXAGON AF SIZE RATCHET HEADS

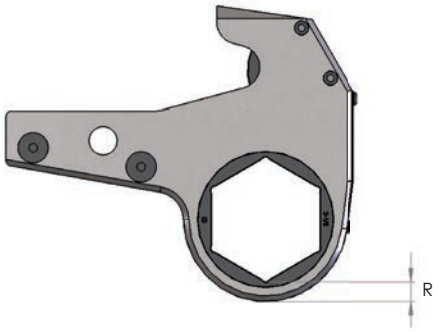


Choice of standard imperial sizes

Easily fitted to TWH-N drive units

High grade steel construction

- Imperial hexagon ratchet heads suitable for across flat (AF sizes) from 1 1/16" to 6 7/8"
- Easily fitted to TWH-N drive units by simply withdrawing/inserting a single pin
- Low profile design and minimum nose radius allows for fitment in confined spaces
- Imperial hexagon reducer bushes and square drive conversion kits also available (see pages 94 and 95)
- Special design ratchet heads made to order



IMPERIAL RATCHET HEAD SELECTION TABLE

Bolt size	Nut AF size	For TWH27N Model number	R in	Wt lbs	For TWH54N Model number	R in	Wt lbs	For TWH120N Model number	R in	Wt lbs	For TWH210N Model number	R in	Wt lbs	For TWH430N Model number	R in	Wt lbs
5/8"	1 1/16"	TWH27NRH-101	0.41	3.3												
3/4"	1 1/4"	TWH27NRH-104	0.39	3.5												
7/8"	1 7/16"	TWH27NRH-107	0.39	3.5	TWH54NRH-107	0.53	6.4									
1"	1 5/8"	TWH27NRH-110	0.39	3.5	TWH54NRH-110	0.43	6.2									
1 1/8"	1 13/16"	TWH27NRH-113	0.41	3.7	TWH54NRH-113	0.42	6.4									
1 1/4"	2"	TWH27NRH-200	0.39	3.7	TWH54NRH-200	0.46	6.6	TWH120NRH-200	0.58	12.8						
1 3/8"	2 3/16"	TWH27NRH-203	0.39	4.0	TWH54NRH-203	0.46	6.8	TWH120NRH-203	0.58	13.4						
1 1/2"	2 3/8"	TWH27NRH-206	0.41	4.0	TWH54NRH-206	0.46	7.1	TWH120NRH-206	0.58	14.1						
1 5/8"	2 5/16"				TWH54NRH-209	0.46	7.3	TWH120NRH-209	0.58	14.1						
1 3/4"	2 3/4"				TWH54NRH-212	0.46	7.5	TWH120NRH-212	0.59	14.3	TWH210NRH-212	0.72	26.7			
1 7/8"	2 15/16"				TWH54NRH-215	0.58	7.7	TWH120NRH-215	0.59	14.3	TWH210NRH-215	0.72	26.9			
2"	3 1/8"				TWH54NRH-302	0.48	7.7	TWH120NRH-302	0.59	14.3	TWH210NRH-302	0.73	27.1	TWH430NRH-302	1.02	51.1
2 1/4"	3 1/2"							TWH120NRH-308	0.67	17.4	TWH210NRH-308	0.76	27.3	TWH430NRH-308	1.06	52.7
2 1/2"	3 7/8"							TWH120NRH-314	0.77	18.7	TWH210NRH-314	0.77	27.6	TWH430NRH-314	1.04	56.7
2 3/4"	4 1/4"										TWH210NRH-404	0.77	29.3	TWH430NRH-404	1.06	57.5
3"	4 5/8"										TWH210NRH-410	0.76	30.4	TWH430NRH-410	1.02	58.0
3 1/4"	5"													TWH430NRH-500	1.08	61.5
3 1/2"	5 3/8"													TWH430NRH-506	1.02	62.4
3 3/4"	5 3/4"													TWH430NRH-512	0.98	64.6
4"	6 1/8"													TWH430NRH-602	0.99	66.4
4 1/4"	6 1/2"													TWH430NRH-608	0.99	68.3
4 1/2"	6 7/8"													TWH430NRH-614	1.08	70.1

TWH-NRH | METRIC HEXAGON AF SIZE RATCHET HEADS

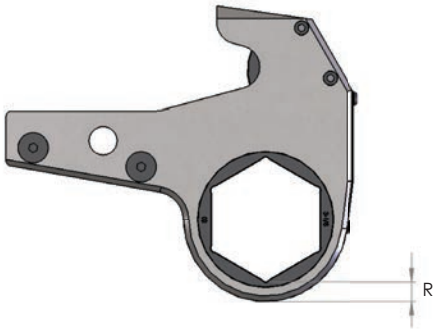


Choice of standard metric sizes

Easily fitted to TWH-N drive units

High grade steel construction

- Metric hexagon ratchet heads suitable for across flat (AF sizes) from 24 to 175 mm
- Easily fitted to TWH-N drive units by simply withdrawing/inserting a single pin
- Low profile design and minimum nose radius allows for fitment in confined spaces
- Imperial hexagon reducer bushes and square drive conversion kits also available (see pages 94 and 95)
- Special design ratchet heads made to order



METRIC RATCHET HEAD SELECTION TABLE

Bolt size	Nut AF size	For TWH27N			For TWH54N			For TWH120N			For TWH210N			For TWH430N		
		Model number	R mm	Wt lbs	Model number	R mm	Wt lbs	Model number	R mm	Wt lbs	Model number	R mm	Wt lbs	Model number	R mm	Wt lbs
16	24	TWH27NRH-24	12.2	3.3												
18	27	TWH27NRH-101	10.5	3.3												
20	30	TWH27NRH-30	10.8	3.5												
22	32	TWH27NRH-32	9.6	3.5												
24	36	TWH27NRH-36	10.1	3.5	TWH54NRH-36	13.8	6.4									
-	38				TWH54NRH-38	12.7	6.2									
27	41	TWH27NRH-110	10.1	3.5	TWH54NRH-110	10.9	6.2									
30	46	TWH27NRH-113	10.5	3.7	TWH54NRH-113	10.7	6.4									
33	50	TWH27NRH-200	10.4	3.7	TWH54NRH-200	12.1	6.6	TWH120NRH-200	15.2	12.8						
36	55	TWH27NRH-203	10.1	4.0	TWH54NRH-203	12.1	6.8	TWH120NRH-203	15	13.4						
39	60	TWH27NRH-206	10.5	4.0	TWH54NRH-206	12	7.1	TWH120NRH-206	15	14.1						
42	65				TWH54NRH-209	11.7	7.3	TWH120NRH-209	14.9	14.1						
45	70				TWH54NRH-212	11.7	7.5	TWH120NRH-212	14.8	14.3	TWH210NRH-212	18.2	26.7			
48	75				TWH54NRH-215	14.6	7.7	TWH120NRH-215	14.7	14.3	TWH210NRH-215	18.1	26.9			
52	80				TWH54NRH-302	11.7	7.7	TWH120NRH-302	14.7	14.3	TWH210NRH-302	18.1	27.1	TWH430NRH-302	25.6	51.1
56	85							TWH120NRH-85	16.4	17.2	TWH210NRH-85	18.2	27.3	TWH430NRH-85	29	52.9
60	90							TWH120NRH-90	16.2	17.4	TWH210NRH-90	18.6	27.3	TWH430NRH-90	31.3	57.3
64	95							TWH120NRH-95	15.9	17.4	TWH210NRH-95	18.6	27.6	TWH430NRH-95	28.5	56.9
68	100							TWH120NRH-100	18.7	18.7	TWH210NRH-100	18.6	27.6	TWH430NRH-100	25.6	56.4
72	105										TWH210NRH-105	18.4	28.4	TWH430NRH-105	28.6	58.4
76	110										TWH210NRH-110	18.3	29.3	TWH430NRH-110	25.7	57.8
80	115										TWH210NRH-115	20.7	30.4	TWH430NRH-115	27.3	58.2
90	130													TWH430NRH-130	25.6	60.2
-	135													TWH430NRH-135	26.7	62.4
100	145													TWH430NRH-145	25.4	64.8
110	155													TWH430NRH-602	25.3	66.4
115	165													TWH430NRH-608	25	68.3
-	175													TWH430NRH-614	27.1	70.1

TWH-N | ACCESSORIES



Choice of 1", 1 ½" or 2 ½" square drive sizes

Extended reaction length arms with a choice of length

Handle kits for TWH-N to allow user to better support the tools during operation

SQUARE DRIVE CONVERSION KITS

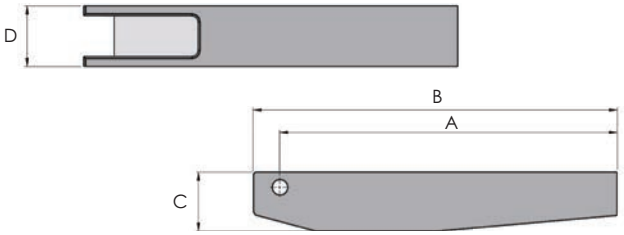
Model number	Square drive	Hexagon AF size		Maximum torque (lbf.ft)	Maximum torque (Nm)	Suitable for		Weight (lbs)
		in	mm			drive cylinder	ratchet head	
SDC27	1"	1 13/16"	46	1906	2625	TWH27N	TWH27NRH-113	2.4
SDC54	1 ½"	2 9/16"	65	3901	5372	TWH54N	TWH54NRH-209	6.6
SDC120	1 ½"	3 1/8"	80	8522	11737	TWH120N	TWH120NRH-302	9.7
SDC210-I	2 ½"	3 7/8"	-	15405	21216	TWH210N	TWH210NRH-314	20.1
SDC210-M	2 ½"	-	100	15405	21216	TWH210N	TWH210NRH-100	20.1

Note: When ordering SDC conversion kits, check to ensure that you already have the required size of ratchet head.

EXTENDED REACTION ARMS



TWH-N fitted with extended reaction arm



Model number	Dimensions (in)			
	Length (A)	Length (B)	Height (C)	Width (D)
ERA27-20	19.66	20.69	1.77	1.97
ERA54-20	20.21	21.08	2.17	2.56
ERA120-21	20.76	21.67	2.96	3.35
ERA210-21	21.47	23.17	3.74	3.74
ERA430-22	22.26	24.74	4.73	4.73

REMOVABLE HANDLE KITS

For tool model number	Model number	Hex key to fit handle kit
TWH27N	TSH27	3 mm
TWH54N	TSH54	4 mm
TWH120N	TSH120	5 mm
TWH210N	TSH210	6 mm
TWH430N	TSH430	8 mm



Handle kits for TWH27N, TWH54N, TWH120N and TWH210N



Handle kits for TWH430N

IB | IMPERIAL HEXAGON AF SIZE REDUCER BUSHES



- Economical solution of reducing female hexagon AF size of TWH-NRH imperial ratchet head
- Select the outside AF size (i.e. ratchet head AF size) and required inside AF size to determine the IB model number
- Note that wall thickness 'W' dimension of reducer bush must be added to the minimum radius dimension of the ratchet head

Outside AF size	Inside AF size	For TWH27NRH		For TWH54NRH		For TWH120NRH		For TWH210NRH		For TWH430NRH	
		Model number	W in	Model number	W in	Model number	W in	Model number	W in	Model number	W in
1 1/4"	1 1/16"	IB27-104-101	0.09								
1 7/16"	1 1/16"	IB27-107-101	0.19								
1 7/16"	1 1/4"	IB27-107-104	0.09								
1 5/8"	1 1/4"	IB27-110-104	0.19	IB54-110-104	0.19						
1 5/8"	1 7/16"	IB27-110-107	0.09	IB54-110-107	0.09						
1 13/16"	1 7/16"	IB27-113-107	0.19	IB54-113-107	0.19						
1 13/16"	1 5/8"	IB27-113-110	0.09	IB54-113-110	0.09						
2"	1 5/8"	IB27-200-110	0.19	IB54-200-110	0.19						
2"	1 13/16"	IB27-200-113	0.09	IB54-200-113	0.09						
2 3/16"	1 5/8"	IB27-203-110	0.28	IB54-203-110	0.28						
2 3/16"	1 13/16"	IB27-203-113	0.19	IB54-203-113	0.19						
2 3/16"	2"	IB27-203-200	0.09	IB54-203-200	0.09						
2 3/8"	1 13/16"	IB27-206-113	0.28	IB54-206-113	0.28						
2 3/8"	2"	IB27-206-200	0.19	IB54-206-200	0.19						
2 3/8"	2 3/16"	IB27-206-203	0.09	IB54-206-203	0.09	IB120-206-203	0.09				
2 9/16"	2"			IB54-209-200	0.28	not available	-				
2 9/16"	2 3/16"			IB54-209-203	0.19	IB120-209-203	0.19				
2 9/16"	2 3/8"			IB54-209-206	0.09	IB120-209-206	0.09				
2 3/4"	2 3/16"			IB54-212-203	0.28	IB120-212-203	0.28				
2 3/4"	2 3/8"			IB54-212-206	0.19	IB120-212-206	0.19				
2 3/4"	2 9/16"			IB54-212-209	0.09	IB120-212-209	0.09				
2 15/16"	2 3/8"			IB54-215-206	0.28	IB120-215-206	0.28				
2 15/16"	2 9/16"			IB54-215-209	0.19	IB120-215-209	0.19				
2 15/16	2 3/4"			IB54-215-212	0.09	IB120-215-212	0.09	IB210-215-212	0.09		
3 1/8"	2 9/16"			IB54-302-209	0.28	IB120-302-209	0.28	not available	-		
3 1/8"	2 3/4"			IB54-302-212	0.19	IB120-302-212	0.19	IB210-302-212	0.19		
3 1/8"	2 15/16"			IB54-302-215	0.09	IB120-302-215	0.09	IB210-302-215	0.09		
3 1/2"	2 15/16"					IB120-308-215	0.28	IB210-308-215	0.28		
3 1/2"	3 1/8"					IB120-308-302	0.19	IB210-308-302	0.19	IB430-308-302	0.19
3 7/8"	3 1/8"					IB120-314-302	0.37	IB210-314-302	0.37	IB430-314-302	0.37
3 7/8"	3 1/2"					IB120-314-308	0.19	IB210-314-308	0.19	IB430-314-308	0.19
4 1/4"	3 1/2"							IB210-404-308	0.37	IB430-404-308	0.37
4 1/4"	3 7/8"							IB210-404-314	0.19	IB430-404-314	0.19
4 5/8"	3 7/8"							IB210-410-314	0.37	IB430-410-314	0.37
4 5/8"	4 1/4"							IB210-410-404	0.19	IB430-410-404	0.19
5"	4 1/4"									IB430-500-404	0.37
5"	4 5/8"									IB430-500-410	0.19
5 3/8"	4 5/8"									IB430-506-410	0.37
5 3/8"	5"									IB430-506-500	0.19
5 3/4"	5"									IB430-512-500	0.37
5 3/4"	5 3/8"									IB430-512-506	0.19
6 1/8"	5 3/8"									IB430-602-506	0.37
6 1/8"	5 3/4"									IB430-602-512	0.19
6 1/2"	5 3/4"									IB430-608-512	0.37
6 1/2"	6 1/8"									IB430-608-602	0.19
6 7/8"	6 1/8"									IB430-614-602	0.37
6 7/8"	6 1/2"									IB430-614-608	0.19

MB | METRIC HEXAGON AF SIZE REDUCER BUSHES



- Economical solution of reducing female hexagon AF size of TWH-NRH metric ratchet head
- Select the outside AF size (i.e. ratchet head AF size) and required inside AF size to determine the MB model number
- Note that wall thickness 'W' dimension of reducer bush must be added to the minimum radius dimension of the ratchet head

Outside AF size	Inside AF size	For TWH27NRH		For TWH54NRH		For TWH120NRH		For TWH210NRH		For TWH430NRH	
		Model number	W mm	Model number	W mm	Model number	W mm	Model number	W mm	Model number	W mm
30	24	MB27-30-24	3								
32	24	MB27-32-24	3								
32	27	MB27-32-27	3								
36	30	MB27-36-30	3	MB54-36-30	3						
41	36	MB27-41-36	2.5	MB54-41-36	2.5						
46	36	MB27-46-36	5	MB54-46-36	5						
46	41	MB27-46-41	2.5	MB54-46-41	2.5						
50	41	MB27-50-41	4.5	MB54-50-41	4.5						
50	46	MB27-50-46	2	MB54-50-46	2						
55	41	MB27-55-41	7	MB54-55-41	7						
55	46	MB27-55-46	4.5	MB54-55-46	4.5						
55	50	MB27-55-50	2.5	MB54-55-50	2.5	MB120-55-50	2.5				
60	46	MB27-60-46	7	MB54-60-46	7	not available	-				
60	50	MB27-60-50	5	MB54-60-50	5	MB120-60-50	5				
60	55	MB27-60-55	2.5	MB54-60-55	2.5	MB120-60-55	2.5				
65	50			MB54-65-50	7.5	MB120-65-50	7.5				
65	55			MB54-65-55	5	MB120-65-55	5				
65	60			MB54-65-60	2.5	MB120-65-60	2.5				
70	55			MB54-70-55	7.5	MB120-70-55	7.5				
70	60			MB54-70-60	5	MB120-70-60	5				
70	65			MB54-70-65	2.5	MB120-70-65	2.5				
75	60			MB54-75-60	7.5	MB120-75-60	7.5				
75	65			MB54-75-65	5	MB120-75-65	5				
75	70			MB54-75-70	2.5	MB120-75-70	2.5	MB210-75-70	2.5		
80	65			MB54-80-65	7.5	MB120-80-65	7.5	not available	-		
80	70			MB54-80-70	5	MB120-80-70	5	MB210-80-70	5		
80	75			MB54-80-75	2.5	MB120-80-75	2.5	MB210-80-75	2.5		
85	70					MB120-85-70	7.5	MB210-85-70	7.5		
85	75					MB120-85-75	5	MB210-85-75	5		
85	80					MB120-85-80	2.5	MB210-85-80	2.5	MB430-85-80	2.5
90	75					MB120-90-75	7.5	MB210-90-75	7.5	not available	-
90	80					MB120-90-80	5	MB210-90-80	5	MB430-90-80	5
90	85					MB120-90-85	2.5	MB210-90-85	2.5	MB430-90-85	2.5
95	80					MB120-95-80	7.5	MB210-95-80	7.5	MB430-95-80	7.5
95	85					MB120-95-85	5	MB210-95-85	5	MB430-95-85	5
95	90					MB120-95-90	2.5	MB210-95-90	2.5	MB430-95-90	2.5
100	85					MB120-100-85	7.5	MB210-100-85	7.5	MB430-100-85	7.5
100	90					MB120-100-90	5	MB210-100-90	5	MB430-100-90	5
100	95					MB120-100-95	2.5	MB210-100-95	2.5	MB430-100-95	2.5
105	90							MB210-105-90	7.5	MB430-105-90	7.5
105	95							MB210-105-95	5	MB430-105-95	5
105	100							MB210-105-100	2.5	MB430-105-100	2.5
110	95							MB210-110-95	7.5	MB430-110-95	7.5
110	100							MB210-110-100	5	MB430-110-100	5
110	105							MB210-110-105	2.5	MB430-110-105	2.5
115	100							MB210-115-100	7.5	MB430-115-100	7.5
115	105							MB210-115-105	5	MB430-115-105	5
115	110							MB210-115-110	2.5	MB430-115-110	2.5
130	105									MB430-130-105	12.5
130	110									MB430-130-110	10
130	115									MB430-130-115	7.5
145	110									MB430-145-110	17.5
145	115									MB430-145-115	15
145	130									MB430-145-130	7.5

BW | BACKUP WRENCHES

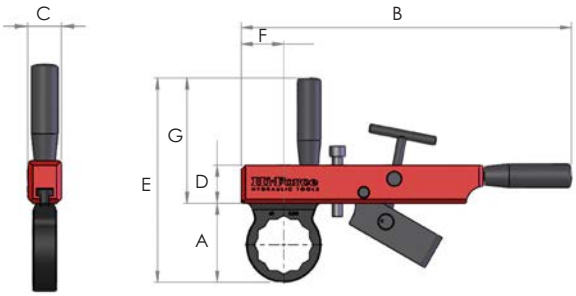


Suitable for use with TWS-N & TWH-N Wrenches

Interchangeable hexagon links

Positive release mechanism

- Prevents back nut rotation during torque tightening applications
- Heavy duty industrial construction with ergonomic grip for safe and easy operation
- 'T-Bar' design adjustable reaction point prevents lock up once tightening is completed
- Standard imperial and metric female hexagon links available



IMPERIAL

COMPLETE SET:

Model number	Description	BWH incl. set of links: From	To
BWI-SET	Holder complete with imperial link set (12 pcs)	1 7/16"	3 7/8"

HOLDER AND IMPERIAL HEXAGON LINKS:

Model number	Description	Hexagon AF size	Dimensions (in) A	B	C	D	E	F	G
Holder									
BWH	Backup wrench holder	-							
Hexagon links									
BWI-107	Hexagon link	1 7/16"	2.54	15.37	1.42	1.77	8.33	1.97	5.79
BWI-110	Hexagon link	1 5/8"	2.9	15.37	1.42	1.77	8.69	1.97	5.79
BWI-113	Hexagon link	1 13/16"	3.09	15.37	1.42	1.77	8.88	1.97	5.79
BWI-200	Hexagon link	2"	3.35	15.37	1.42	1.77	9.14	1.97	5.79
BWI-203	Hexagon link	2 3/16"	3.45	15.37	1.42	1.77	9.24	1.97	5.79
BWI-206	Hexagon link	2 3/8"	3.66	15.37	1.42	1.77	9.46	1.97	5.79
BWI-209	Hexagon link	2 9/16"	3.84	15.37	1.42	1.77	9.63	1.97	5.79
BWI-212	Hexagon link	2 3/4"	4.12	15.37	1.42	1.77	9.91	1.97	5.79
BWI-215	Hexagon link	2 15/16"	4.45	15.37	1.42	1.77	10.24	1.97	5.79
BWI-302	Hexagon link	3 1/8"	4.71	15.37	1.42	1.77	10.5	1.97	5.79
BWI-308	Hexagon link	3 1/2"	5.22	15.37	1.42	1.77	11.01	1.97	5.79
BWI-314	Hexagon link	3 7/8"	5.81	15.37	1.42	1.77	11.6	1.97	5.79

METRIC

COMPLETE SET:

Model number	Description	BWH incl. set of links: From	To
BWM-SET	Holder complete with metric link set (14 pcs)	36 mm	100 mm

HOLDER AND METRIC HEXAGON LINKS:

Model number	Description	Hexagon AF size	Dimensions (in) A	B	C	D	E	F	G
Holder									
BWH	Backup wrench holder	-							
Hexagon links									
BWM-36	Hexagon link	36 mm	2.54	15.37	1.42	1.77	8.33	1.97	5.79
BWM-41	Hexagon link	41 mm	2.9	15.37	1.42	1.77	8.69	1.97	5.79
BWM-46	Hexagon link	46 mm	3.09	15.37	1.42	1.77	8.88	1.97	5.79
BWM-50	Hexagon link	50 mm	3.35	15.37	1.42	1.77	9.14	1.97	5.79
BWM-55	Hexagon link	55 mm	3.45	15.37	1.42	1.77	9.24	1.97	5.79
BWM-60	Hexagon link	60 mm	3.66	15.37	1.42	1.77	9.46	1.97	5.79
BWM-65	Hexagon link	65 mm	3.84	15.37	1.42	1.77	9.63	1.97	5.79
BWM-70	Hexagon link	70 mm	4.12	15.37	1.42	1.77	9.91	1.97	5.79
BWM-75	Hexagon link	75 mm	4.45	15.37	1.42	1.77	10.24	1.97	5.79
BWM-80	Hexagon link	80 mm	4.71	15.37	1.42	1.77	10.5	1.97	5.79
BWM-85	Hexagon link	85 mm	5.22	15.37	1.42	1.77	11.01	1.97	5.79
BWM-90	Hexagon link	90 mm	5.81	15.37	1.42	1.77	11.6	1.97	5.79
BWM-95	Hexagon link	95 mm	5.63	15.37	1.42	1.77	11.43	1.97	5.79
BWM-100	Hexagon link	100 mm	5.83	15.37	1.42	1.77	11.62	1.97	5.79

HTWP | TORQUE WRENCH PUMPS - STANDARD LINE





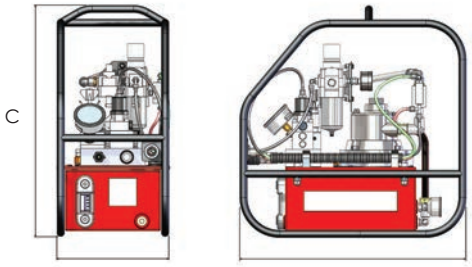
Working pressure 10000 psi

Two stage operation

Air or electric driven options

HTWP-P - AIR DRIVEN

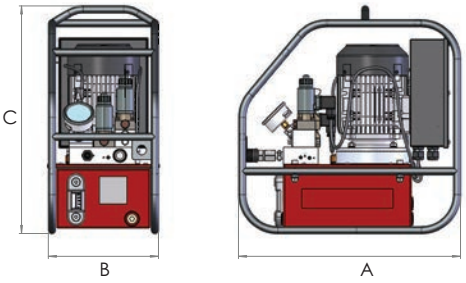
- Two stage operation with low pressure flow rate of up to 372.24 inch³ per minute
- Integral oil cooling system fitted as standard
- Dual scale (bar/psi) glycerine filled pressure gauge
- Easily adjustable torque setting pressure relief valve
- Reservoir oil sight and temperature gauge
- Air pressure gauge and filter, regulator and lubricator unit fitted on all models
- Remote hand pendant controller with 10 feet cable for easy operation
- Factory fitted roll bar protection frame included



Model number	Power supply	Motor rating (hp)	Flow rate (in³/min) low pressure	Flow rate (in³/min) high pressure	Changeover pressure (psi)	Oil capacity (gallons)	Weight (lbs)	Dimensions (in) A	Dimensions (in) B	Dimensions (in) C
HTWP2140P	100 psi	2.01	372.24	31.12	870	1.32	61.7	19.15	9.5	18.36

HTWP-AR - ELECTRIC DRIVEN

- Two stage operation with low pressure flow rate of up to 268.5 inch³ per minute
- 110, 120, 220 and 230 volt single phase electric motor with auto retract function
- Dual scale (bar/psi) glycerine filled pressure gauge
- Easily adjustable torque setting pressure relief valve
- Reservoir oil sight and temperature gauge
- Remote hand pendant controller with 10 feet cable for easy operation
- Factory fitted roll bar protection frame included



Model number	Power supply	Motor rating (hp)	Flow rate (in³/min) low pressure	Flow rate (in³/min) high pressure	Changeover pressure (psi)	Oil capacity (gallons)	Weight (lbs)	Dimensions (in) A	Dimensions (in) B	Dimensions (in) C
HTWP2141AR	110 volt	1.01	225.79	20.75	870	1.32	75.0	19.15	9.5	18.36
HTWP2141ARH	120 volt	1.01	268.5	24.41	870	1.32	75.0	19.15	9.5	18.36
HTWP2142AR	230 volt	1.01	225.79	20.75	870	1.32	75.0	19.15	9.5	18.36
HTWP2142ARH	220 volt	1.01	268.5	24.41	870	1.32	75.0	19.15	9.5	18.36

Note: Pumps with suffix 'H' in the model number are supplied with 60 Hz electric motor.

TP | TORQUE WRENCH PUMPS - PREMIUM LINE



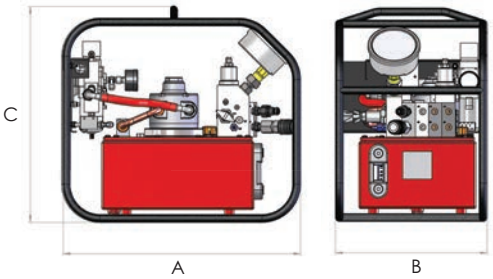
Working pressure 10000 psi

High flow 3-stage pump unit

Compact and lightweight

TPA - AIR DRIVEN

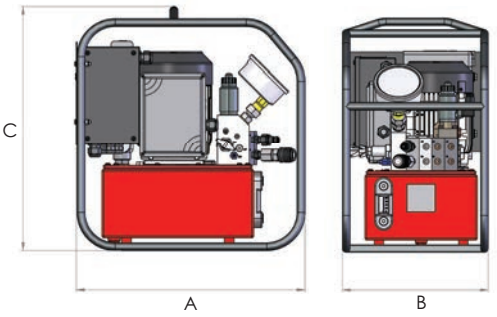
- Low noise operation (<90 db)
- Supplied fitted with one set of quick connect couplers
- Exhaust air radiator cooling system fitted as standard
- Adjustable torque setting pressure relief valve with locking nut
- Remote hand pendant controller with 16.5 feet cable for easy operation
- Multi-outlet 4-way split block for simultaneous operation of up to 4 torque wrenches
- Factory fitted roll bar protection and carrying frame



Model number	Power supply	Pressure gauge	Gauge reading	Flow rate (in³/min) 1st stage (0-943 psi)	2nd stage (943-4713 psi)	3rd stage (4713-10000 psi)	Oil capacity (gallons)	Max. oil temp (˚C)	Weight incl. oil (lbs)	Dimensions (in) A	B	C
TPA07A	100 psi air	analog	psi/bar	427.17	97.64	48.82	1.85	80°	66.1	19.15	12.25	17.34

TPE-M - ELECTRIC DRIVEN, MANUAL CYCLE

- Low noise operation (<88 db)
- Supplied fitted with one set of quick connect couplers
- Automatically activated oil cooling heat exchanger
- Adjustable torque setting pressure relief valve with locking nut
- Single button remote operation hand pendant with e-stop and 16.5 feet cable
- Multi-outlet 4-way split block for simultaneous operation of up to 4 torque wrenches
- Factory fitted roll bar protection and carrying frame

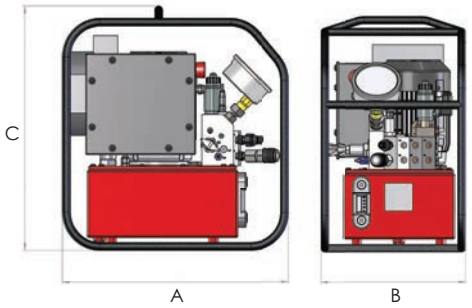


Model number	Power supply	Pressure gauge	Gauge reading	Flow rate (in³/min) 1st stage (0-943 psi)	2nd stage (943-4713 psi)	3rd stage (4713-10000 psi)	Oil capacity (gallons)	Max. oil temp (˚C)	Weight incl. oil (lbs)	Dimensions (in) A	B	C
TPE15AM	110V-1Ph-50 Hz	analog	psi/bar	396.65	91.54	45.77	1.85	80˚	86.0	18.56	12.25	19.74
TPE16AM	120V-1Ph-60 Hz	analog	psi/bar	475.98	109.84	54.92	1.85	80˚	86.0	18.56	12.25	19.74
TPE25AM	230V-1Ph-50 Hz	analog	psi/bar	396.65	91.54	45.77	1.85	80˚	86.0	18.56	12.25	19.74
TPE26AM	230V-1Ph-60 Hz	analog	psi/bar	475.98	109.84	54.92	1.85	80˚	86.0	18.56	12.25	19.74

TP | TORQUE WRENCH PUMPS - PREMIUM LINE

TPE - ELECTRIC DRIVEN, AUTO CYCLE

- Choice of manual operation with auto retract or fully automatic operation
- Low noise operation (<88 db)
- Supplied fitted with one set of quick connect couplers
- Automatically activated oil cooling heat exchanger fitted as standard
- Adjustable torque setting pressure relief valve with locking nut
- Analog or digital gauge options
- Remote hand pendant controller with 16.5 feet cable for easy operation
- Multi-outlet 4-way split block for simultaneous operation of up to 4 torque wrenches
- Factory fitted roll bar protection and carrying frame



Model number	Power supply	Pressure gauge	Gauge reading	Flow rate (in³/min) 1st stage (0-943 psi)	2nd stage (943-4713 psi)	3rd stage (4713-10000 psi)	Oil capacity (gallons)	Max. oil temp (˚C)	Weight incl. oil (lbs)	Dimensions (in) A	B	C
TPE15A	110V-1Ph-50 Hz	analog	psi/bar	396.65	91.54	45.77	1.85	80°	86.0	18.36	12.25	19.74
TPE15D	110V-1Ph-50 Hz	digital	psi/bar/Nm/lbf.ft	396.65	91.54	45.77	1.85	80°	86.0	18.36	12.25	19.74
TPE16A	120V-1Ph-60 Hz	analog	psi/bar	475.98	109.84	54.92	1.85	80°	86.0	18.36	12.25	19.74
TPE16D	120V-1Ph-60 Hz	digital	psi/bar/Nm/lbf.ft	475.98	109.84	54.92	1.85	80°	86.0	18.36	12.25	19.74
TPE25A	230V-1Ph-50 Hz	analog	psi/bar	396.65	91.54	45.77	1.85	80°	86.0	18.36	12.25	19.74
TPE25D	230V-1Ph-50 Hz	digital	psi/bar/Nm/lbf.ft	396.65	91.54	45.77	1.85	80°	86.0	18.36	12.25	19.74
TPE26A	230V-1Ph-60 Hz	analog	psi/bar	475.98	109.84	54.92	1.85	80°	86.0	18.36	12.25	19.74
TPE26D	230V-1Ph-60 Hz	digital	psi/bar/Nm/lbf.ft	475.98	109.84	54.92	1.85	80°	86.0	18.36	12.25	19.74
TPE45A	400V-3Ph-50 Hz	analog	psi/bar	396.65	91.54	45.77	1.85	80°	86.0	18.36	12.25	19.74
TPE45D	400V-3Ph-50 Hz	digital	psi/bar/Nm/lbf.ft	396.65	91.54	45.77	1.85	80°	86.0	18.36	12.25	19.74
TPE46A	480V-3Ph-60 Hz	analog	psi/bar	475.98	109.84	54.92	1.85	80°	86.0	18.36	12.25	19.74
TPE46D	480V-3Ph-60 Hz	digital	psi/bar/Nm/lbf.ft	475.98	109.84	54.92	1.85	80°	86.0	18.36	12.25	19.74

OPTIONAL COUPLER SETS

Optional coupler sets for simultaneous operation of multiple torque wrenches (one set supplied fitted as standard)

Model number	Description
TP-CS1	Single set of male/female flat face couplers, for simultaneous operation of two hydraulic wrenches
TP-CS2	Double set of male/female flat face couplers, for simultaneous operation of three hydraulic wrenches
TP-CS3	Triple set of male/female flat face couplers, for simultaneous operation of four hydraulic wrenches

TORQUE WRENCH PUMP ACCESSORIES





Hose lengths up to 330 feet

Supplied with quick connect couplings

Working pressure 10000 psi

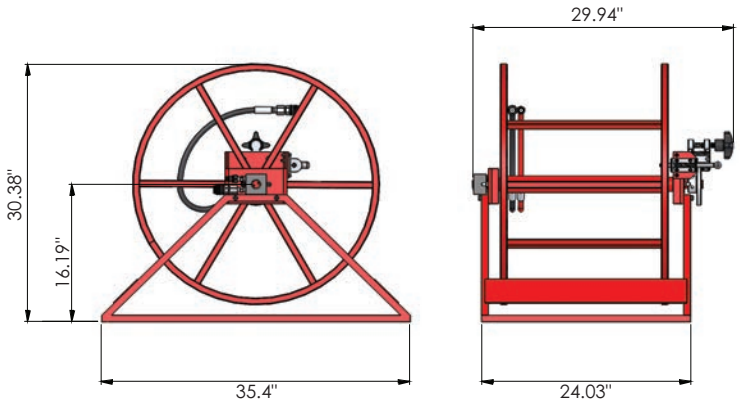
TORQUE WRENCH HOSES AND COUPLERS

- High quality hydraulic torque wrench bonded twin hose sets
- Maximum working pressure of 10000 psi with 4:1 safety factor
- Ergonomically designed protective, strain reliever hand grips on both ends

Model number	Description	Weight (lbs)
HTWH4	Bonded twin hoses with quick connect couplers, length 13 ft	7.7
HTWH5	Bonded twin hoses with quick connect couplers, length 16.5 ft	8.4
HTWH6	Bonded twin hoses with quick connect couplers, length 19.5 ft	10.1
HTWH8	Bonded twin hoses with quick connect couplers, length 26 ft	11.7
HTWH10	Bonded twin hoses with quick connect couplers, length 32 ft	15.0
HTWH50	Bonded twin hoses with quick connect couplers, length 164 ft	68.8
HTWH75	Bonded twin hoses with quick connect couplers, length 246 ft	102.7
HTWH100	Bonded twin hoses with quick connect couplers, length 330 ft	136.0
CF4F	Female half coupler, ¼" NPT Female	0.7
CM4F	Male half coupler, ¼" NPT Female	0.7

HTWR1 TORQUE WRENCH HOSE REEL

- Accommodates twin line hoses up to 330 feet long
- Supplied with twin 1.5 feet long lead hose for easy connection to main line hoses
- Disc brake allows for hose release speed control
- Fixing holes at the base of frame
- Weight 84 lbs



Note: We recommend the use of HTWR1 hose reel with hose lengths of 164 ft or more

IP | PNEUMATIC IMPACT WRENCHES



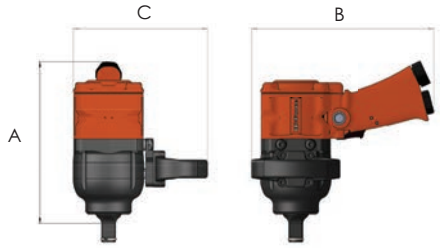
- Lightweight and compact design impact wrenches offering durability and reliability during operation
- Features twin hammer and 3-jaw hammer mechanism which offers increased power and balanced impact during bolt tightening
- Quiet operation and low vibration levels for reduced operator fatigue
- Ideal for use in applications in the automotive, construction, railways and heavy engineering industries as well as in tyre and mechanical workshops
- High quality impact sockets for use with IP range are listed on pages 87 and 88
- Filter, regulator & lubricator unit is recommended for use with IP impact wrenches

Industrial heavy duty design

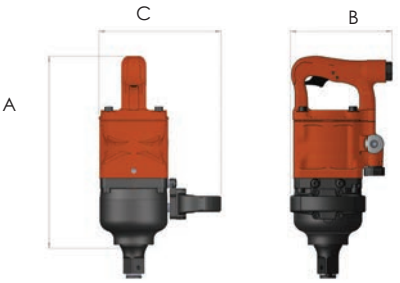
Square drive sizes from ½" to 1 ½"

Torque capacities up to 4376 lbf.ft

IP650 & IP1700



IP3200 & IP5950



Model number	Square drive size	Bolt range		Free speed	Maximum torque		Working pressure		Air flow (cfm)	Air inlet type	Vibration lvl	Sound pressure lvl	Weight (lbs)	Dimensions (in)			
		Imperial	Metric	R.P.M.	lbf.ft	Nm	psi	bar			(m/s²)	db(a)		A	B	C	C Handle removed
Pistol grip versions																	
IP650	½"	⅜" - ⅝"	M10-M16	5600	480	650	92	6.3	18	¼" BSP	5.0	97	5.1	6.93	7.21	2.44	No Handle
IP1700	¾"	9/16" - 1"	M14-M24	5400	1254	1700	92	6.3	32	½" BSP	9.4	102	13.0	8.71	9.85	7.25	3.78
IP1700X	¾"	9/16" - 1"	M14-M24	5400	1254	1700	92	6.3	32	½" BSP	9.4	102	14.6	8.71	9.85	7.25	3.78
Back handle grip versions																	
IP3200	1"	¾" - 1 ½"	M18-M39	3200	2350	3185	92	6.3	53	½" BSP	4.9	101	20.9	12.21	6.5	7.84	4.41
IP3200X	1"	¾" - 1 ½"	M18-M39	3200	2350	3185	92	6.3	53	½" BSP	4.9	101	23.4	12.21	6.5	7.84	4.41
IP5950	1 ½"	1" - 2"	M24-M56	3200	4376	5933	92	6.3	63	½" BSP	12.3	104	32.0	14.62	6.54	8.39	4.89

Note: 1) Models with suffix 'X' are fitted with extended anvil
2) Air flow measured at maximum supply pressure

Model number	Increase in anvil length (in)
IP1700X	4.68
IP3200X	5.4



FILTER REGULATOR LUBRICATOR (FRL) UNIT



- Allows for easy adjustment of air pressure to suit tool requirements
- Prevents entry of contaminants and water into the air supply
- Supplied with dual scale air inlet pressure gauge and 10 feet air hose with swivel end fittings

Model number	Air inlet connection	Air outlet connection	Weight (lbs)	Dimensions (in) Length	Width	Height
FRL11	½" NPT	½" NPT	6.6	7.88	7.88	12.21

HI-FORCE HYDRAULIC STUD BOLT TENSIONERS

Hydraulic stud bolt tensioners are generally accepted as the preferred and most efficient method of accurately tightening bolts, to a predetermined and known bolt load, to ensure an even clamping force on all stud bolts within the joint. This is particularly critical for bolted joints, on pipelines and pressure vessels, in the oil, gas and petrochemical industries, where correctly sealed joints are essential for the safe movement and processing of hydrocarbons, usually under high pressure. Multiple use of hydraulic stud bolt tensioners, to tension 25, 33, 50 or in some cases 100% of the bolts simultaneously, ensures an even pull down of the joint faces onto the gasket, ensuring the correct gasket compression to achieve a leak free joint, first time every time.

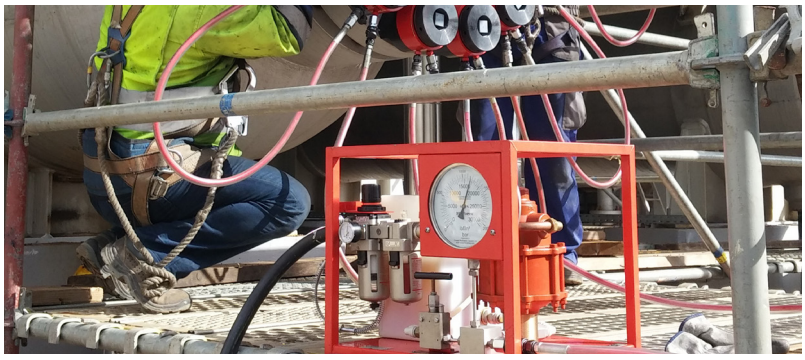
The extensive range of Hi-Force hydraulic stud bolt tensioners, detailed in this section of the catalog, includes both spring assisted and manual piston retraction, topside tensioners, subsea tensioners, hydraulic tensioning nuts, along with a range of manual and air driven bolt tensioner hydraulic pumps, hoses and accessories. The modular design of Hi-Force hydraulic stud bolt tensioners enables the user to adapt each model, to cover more than one stud bolt size, by simply ordering additional accessories. This greatly reduces investment costs, for users, that require to tension multiple sizes of stud bolts, whilst optimizing their investment costs. Hi-Force also offers custom designed bolt tensioners, meeting specific and unique customer requirements.

iQ software is an innovative bolted joint integrity software programme designed to assist engineers with the provision of accurate bolt load calculations, based on key input data, related to each specific bolted joint, and is available for purchase through the provider company Asset55 Limited. Hi-Force is able to support our valued clients with bolt load calculations on an hourly chargeable time basis.













BOLT TENSIONERS

SBT IMPERIAL RANGE 104
Spring return topside bolt tensioners

SBT COMPONENTS - IMPERIAL RANGE 105
Bolt tensioner components

SBT METRIC RANGE 106
Spring return topside bolt tensioners

SBT COMPONENTS - METRIC RANGE 107
Bolt tensioner components

STS IMPERIAL RANGE 108
Topside bolt tensioners

STS COMPONENTS - IMPERIAL RANGE 109
Bolt tensioner components

STS METRIC RANGE 110
Topside bolt tensioners

STS COMPONENTS - METRIC RANGE 111
Bolt tensioner components

STU IMPERIAL RANGE 112
Sub-sea bolt tensioners

STU METRIC RANGE 113
Sub-sea bolt tensioners

HTN IMPERIAL RANGE 114
Hydraulic tensioner nuts

HTN METRIC RANGE 115
Hydraulic tensioner nuts

BOLT TENSIONER PUMPS 116
Air driven and manually operated pumps for bolt tensioners

BOLT TENSIONER ACCESSORIES 117
Hoses, couplers and hose reel

SBT | SPRING RETURN BOLT TENSIONERS - IMPERIAL

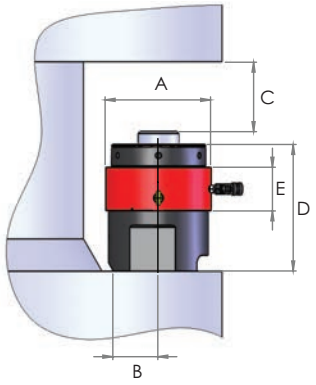


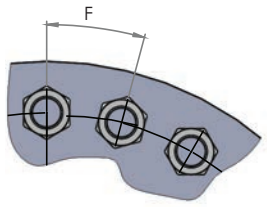
Capacities from 51.4 to 297.6 tons

Bolt sizes from 1 ¼" to 4" diameter

Maximum working pressure 21750 psi

- Single acting design with spring assisted piston retraction
- High grade alloy steel construction with nitrocarburized, corrosion resistant, piston
- Maximum stroke indicator to warn against piston over extension
- Safety over stroke device to protect operator from injury
- Self-energizing seals for improved performance and longevity at high pressure
- Dual quick connect inlet and outlet couplings for easy multiple tensioner connection
- Designed to fit most sizes of ANSI and API flanges and some Compact flanges
- Interchangeable accessories to cover multiple stud bolt sizes using same tensioner
- Non-standard size threaded pullers available to order on short delivery lead time
- Customized and special design tensioners are available on request





Note: Dimension F is for guidance on ANSI flange applications only

Model number	Bolt thread size	Threads per inch	Capacity tons	Capacity kN	Effective area (in²)	Stroke (in)	Weight (lbs)	Dimensions (in) A	B	C (min)	D	E	F
SBT2-125B1	1 ¼"	8	51.4	457	4.73	0.59	8.8	4.02	1.54	5	6.46	3.59	2.92
SBT2-137B1	1 ⅜"	8	51.4	457	4.73	0.59	8.8	4.02	1.54	5	6.46	3.59	3.03
SBT2-150B1	1 ½"	8	51.4	457	4.73	0.59	8.8	4.02	1.54	4.85	6.46	3.59	3.15
SBT3-162B1	1 ⅝"	8	92.4	822	8.49	0.59	14.8	5.4	1.85	5.75	7.41	3.7	3.62
SBT3-175B1	1 ¾"	8	92.4	822	8.49	0.59	14.8	5.4	1.85	5.63	7.41	3.7	3.66
SBT3-175B2	1 ¾"	8	92.4	822	8.49	0.59	15.9	5.4	1.97	5.83	7.6	3.7	3.7
SBT3-187B1	1 ⅞"	8	92.4	822	8.49	0.59	14.8	5.4	1.85	5.48	7.41	3.7	3.82
SBT3-187B2	1 ⅞"	8	92.4	822	8.49	0.59	15.9	5.4	1.97	5.67	7.6	3.7	4.1
SBT3-200B2	2"	8	92.4	822	8.49	0.59	15.9	5.4	1.97	5.56	7.6	3.7	4.1
SBT4-187B1	1 ⅞"	8	142.1	1264	13.07	0.59	24.3	6.58	1.97	5.79	7.76	3.82	4.1
SBT4-200B1	2"	8	142.1	1264	13.07	0.59	24.3	6.58	1.97	5.63	7.76	3.82	4.1
SBT4-200B2	2"	8	142.1	1264	13.07	0.59	26.9	6.58	2.44	6.11	8.39	3.82	4.18
SBT4-225B2	2 ¼"	8	142.1	1264	13.07	0.59	26.9	6.58	2.44	5.91	8.39	3.82	4.77
SBT4-250B2	2 ½"	8	142.1	1264	13.07	0.59	26.9	6.58	2.44	5.71	8.39	3.82	5
SBT5-250B1	2 ½"	8	206	1833	18.94	0.59	36.4	8.23	2.88	6.38	9.02	4.02	5.28
SBT5-275B1	2 ¾"	8	206	1833	18.94	0.59	36.4	8.23	2.88	6.15	9.02	4.02	5.52
SBT5-300B1	3"	8	206	1833	18.94	0.59	36.4	8.23	2.88	5.87	9.02	4.02	5.79
SBT6-300B1	3"	8	297.6	2649	27.37	0.59	52.9	9.69	3.31	6.86	10.01	4.06	6.34
SBT6-325B1	3 ¼"	8	297.6	2649	27.37	0.59	52.9	9.69	3.31	6.66	10.01	4.06	6.58
SBT6-350B1	3 ½"	8	297.6	2649	27.37	0.59	52.9	9.69	3.31	6.38	10.01	4.06	6.78
SBT6-375B3	3 ¾"	8	297.6	2649	27.37	0.59	65.3	9.69	4.14	7.64	11.62	4.06	7.53
SBT6-400B3	4"	8	297.6	2649	27.37	0.59	65.3	9.69	4.14	7.45	11.62	4.06	7.72

Note: Weight is for load cell and bridge only. Total weight of complete assembly depends on size of puller and nut rotating socket selected. Tommy bars are not included. Hi-Force recommends one tommy bar for every four tensioners.

SBT | BOLT TENSIONER COMPONENTS - IMPERIAL



Use with SBT Imperial Spring Return Tensioners

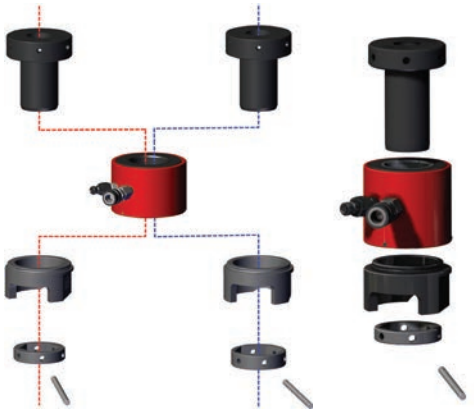
Modular design for greater flexibility

Versatile cost effective option

- Modify existing SBT tensioner assembly to another thread size, within the tensioner range
- All components or selected conversion kits must have the same suffix as the target tensioner size

Examples:
- To change from SBT3-162B1 to SBT3-187B1 would require conversion kit CKS3-187B1 only.
- To change from SBT3-187B1 to SBT3-200B2 would require conversion kit CKS3-200B2 and bridge STS3-B2.

Principle of SBT Spring Return Bolt Tensioner



- *Denotes smaller bridge size within tensioner range*
- *Denotes larger bridge size within tensioner range*
- *Denotes one bridge size within tensioner range*

DO NOT mix components from different colour lines, SBT2 & SBT5 models have only one size of tensioner bridge (B1)

Complete tensioner		Individual components					
Model number	Bolt thread	A Load cell	B Tommy bar	C Bridge	D Threaded puller	E Rotating socket	D&E Complete conversion kit
For tensioner range SBT2							
SBT2-125B1	1 ¼"	SBT2-LC	TTB08	STS2-B1	TPS2-125B1	RS2-51B1	CKS2-125B1
SBT2-137B1	1 ⅜"				TPS2-137B1	RS2-56B1	CKS2-137B1
SBT2-150B1	1 ½"				TPS2-150B1	RS2-60B1	CKS2-150B1
For tensioner range SBT3							
SBT3-162B1	1 ⅝"	SBT3-LC	TTB10	STS3-B1	TPS3-162B1	RS3-65B1	CKS3-162B1
SBT3-175B1	1 ¾"				TPS3-175B1	RS3-70B1	CKS3-175B1
SBT3-187B1	1 ⅞"				TPS3-187B1	RS3-75B1	CKS3-187B1
SBT3-175B2	1 ¾"			STS3-B2	TPS3-175B2	RS3-70B2	CKS3-175B2
SBT3-187B2	1 ⅞"				TPS3-187B2	RS3-75B2	CKS3-187B2
SBT3-200B2	2"				TPS3-200B2	RS3-80B2	CKS3-200B2
For tensioner range SBT4							
SBT4-187B1	1 ⅞"	SBT4-LC	TTB10	STS4-B1	TPS4-187B1	RS4-75B1	CKS4-187B1
SBT4-200B1	2"				TPS4-200B1	RS4-80B1	CKS4-200B1
SBT4-200B2	2"				TPS4-200B2	RS4-80B2	CKS4-200B2
SBT4-225B2	2 ¼"			STS4-B2	TPS4-225B2	RS4-90B2	CKS4-225B2
SBT4-250B2	2 ½"				TPS4-250B2	RS4-98B2	CKS4-250B2
For tensioner range SBT5							
SBT5-250B1	2 ½"	SBT5-LC	TTB14	STS5-B1	TPS5-250B1	RS5-100B1	CKS5-250B1
SBT5-275B1	2 ¾"				TPS5-275B1	RS5-108B1	CKS5-275B1
SBT5-300B1	3"				TPS5-300B1	RS5-118B1	CKS5-300B1
For tensioner range SBT6							
SBT6-300B1	3"	SBT6-LC	TTB14	STS6-B1	TPS6-300B1	RS6-118B1	CKS6-300B1
SBT6-325B1	3 ¼"				TPS6-325B1	RS6-127B1	CKS6-325B1
SBT6-350B1	3 ½"				TPS6-350B1	RS6-137B1	CKS6-350B1
SBT6-375B3	3 ¾"			STS6-B3	TPS6-375B3	RS6-146B3	CKS6-375B3
SBT6-400B3	4"				TPS6-400B3	RS6-156B3	CKS6-400B3

Note: Remember to check bridge compatibility for SBT3, SBT4 and SBT6 models when ordering components.

SBT | SPRING RETURN BOLT TENSIONERS - METRIC

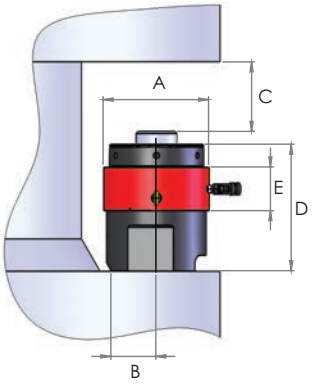


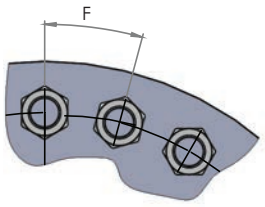
Capacities from 51.4 to 297.6 tons

Bolt sizes from M30 to M100 diameter

Maximum working pressure 21750 psi

- Single acting design with spring assisted piston retraction
- High grade alloy steel construction with nitrocarburized, corrosion resistant, piston
- Maximum stroke indicator to warn against piston over extension
- Safety over stroke device to protect operator from injury
- Self-energizing seals for improved performance and longevity at high pressure
- Dual quick connect inlet and outlet couplings for easy multiple tensioner connection
- Designed to fit most sizes of ANSI and API flanges and some Compact flanges
- Interchangeable accessories to cover multiple stud bolt sizes using same tensioner
- Non-standard size threaded pullers available to order on short delivery lead time
- Customized and special design tensioners are available on request





Note: Dimension F is for guidance on ANSI flange applications only

Model number	Bolt thread size	Thread pitch	Capacity tons	Capacity kN	Effective area (in²)	Stroke (in)	Weight (lbs)	Dimensions (in) A	B	C (min)	D	E	F
SBT2-M30B1	M30	3.5	51.4	457	4.73	0.59	8.8	4.02	1.54	5.2	6.46	3.59	2.8
SBT2-M33B1	M33	3.5	51.4	457	4.73	0.59	8.8	4.02	1.54	5	6.46	3.59	2.92
SBT2-M36B1	M36	4	51.4	457	4.73	0.59	8.8	4.02	1.54	4.85	6.46	3.59	3.03
SBT2-M39B1	M39	4	51.4	457	4.73	0.59	8.8	4.02	1.54	4.85	6.46	3.59	3.15
SBT3-M42B1	M42	4.5	92.4	822	8.49	0.59	14.8	5.4	1.85	5.71	7.41	3.7	3.59
SBT3-M45B1	M45	4.5	92.4	822	8.49	0.59	14.8	5.4	1.85	5.59	7.41	3.7	4.14
SBT3-M45B2	M45	4.5	92.4	822	8.49	0.59	14.8	5.4	1.85	5.79	7.6	3.7	3.82
SBT3-M48B1	M48	5	92.4	822	8.49	0.59	14.8	5.4	1.85	5.48	7.41	3.7	4.14
SBT3-M48B2	M48	5	92.4	822	8.49	0.59	14.8	5.4	1.85	5.67	7.6	3.7	4.14
SBT3-M52B2	M52	5	92.4	822	8.49	0.59	14.8	5.4	1.85	5.52	7.6	3.7	3.82
SBT4-M48B1	M48	5	142.1	1264	13.07	0.59	24.3	6.58	1.97	5.91	7.76	3.82	4.14
SBT4-M52B1	M52	5	142.1	1264	13.07	0.59	24.3	6.58	1.97	5.71	7.76	3.82	4.26
SBT4-M52B2	M52	5	142.1	1264	13.07	0.59	24.3	6.58	2.44	6.3	8.39	3.82	4.73
SBT4-M56B2	M56	5.5	142.1	1264	13.07	0.59	24.3	6.58	2.44	6.11	8.39	3.82	4.73
SBT4-M60B2	M60	5.5	142.1	1264	13.07	0.59	24.3	6.58	2.44	5.91	8.39	3.82	4.89
SBT4-M64B2	M64	6	142.1	1264	13.07	0.59	24.3	6.58	2.44	5.71	8.39	3.82	4.96
SBT5-M64B1	M64	6	206	1833	18.94	0.59	36.4	8.23	2.88	6.46	9.02	4.02	5.28
SBT5-M68B1	M68	6	206	1833	18.94	0.59	36.4	8.23	2.88	6.26	9.02	4.02	5.36
SBT5-M72B1	M72	6	206	1833	18.94	0.59	36.4	8.23	2.88	6.15	9.02	4.02	5.48
SBT5-M76B1	M76	6	206	1833	18.94	0.59	36.4	8.23	2.88	5.87	9.02	4.02	5.59
SBT6-M76B1	M76	6	297.6	2649	27.37	0.59	52.9	9.69	3.31	6.93	10.01	4.06	6.23
SBT6-M80B1	M80	6	297.6	2649	27.37	0.59	52.9	9.69	3.31	6.78	10.01	4.06	6.3
SBT6-M85B1	M85	6	297.6	2649	27.37	0.59	52.9	9.69	3.31	6.66	10.01	4.06	6.38
SBT6-M90B1	M90	6	297.6	2649	27.37	0.59	52.9	9.69	3.31	6.38	10.01	4.06	6.7
SBT6-M95B3	M95	6	297.6	2649	27.37	0.59	65.3	9.69	3.78	7.64	11.62	4.06	7.25
SBT6-M100B3	M100	6	297.6	2649	27.37	0.59	65.3	9.69	3.78	7.45	11.62	4.06	7.49

Note: Weight is for load cell and bridge only. Total weight of complete assembly depends on size of puller and nut rotating socket selected. Tommy bars are not included. Hi-Force recommends one tommy bar for every four tensioners.

SBT | BOLT TENSIONER COMPONENTS - METRIC



Use with SBT Metric Spring Return Tensioners

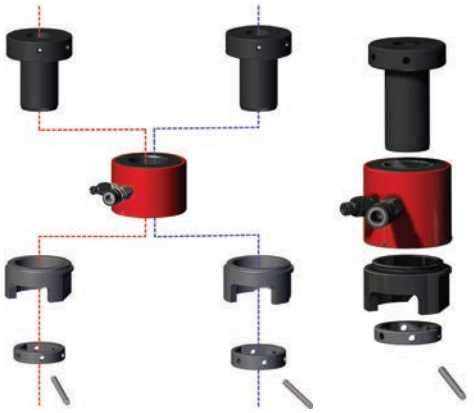
Modular design for greater flexibility

Versatile cost effective option

- Modify existing SBT tensioner assembly to another thread size, within the tensioner range
- All components or selected conversion kits must have the same suffix as the target tensioner size

Examples:
- To change from SBT3-M42B1 to SBT3-M48B1 would require conversion kit CKS3-M48B1 only.
- To change from SBT3-M48B1 to SBT3-M52B2 would require conversion kit CKS3-M52B2 and bridge STS3-B2.

Principle of SBT Spring Return Bolt Tensioner



- *Denotes smaller bridge size within tensioner range*
- *Denotes larger bridge size within tensioner range*
- *Denotes one bridge size within tensioner range*

DO NOT mix components from different colour lines, SBT2 & SBT5 models have only one size of tensioner bridge (B1)

Complete tensioner		Individual components					D&E
Model number	Bolt thread	A Load cell	B Tommy bar	C Bridge	D Threaded puller	E Rotating socket	Complete conversion kit
For tensioner range SBT2							
SBT2-M30B1	M30	SBT2-LC	TTB08	STS2-B1	TPS2-M30B1	RS2-46B1	CKS2-M30B1
SBT2-M33B1	M33				TPS2-M33B1	RS2-51B1	CKS2-M33B1
SBT2-M36B1	M36				TPS2-M36B1	RS2-56B1	CKS2-M36B1
SBT2-M39B1	M39				TPS2-M39B1	RS2-60B1	CKS2-M39B1
For tensioner range SBT3							
SBT3-M42B1	M42	SBT3-LC	TTB10	STS3-B1	TPS3-M42B1	RS3-65B1	CKS3-M42B1
SBT3-M45B1	M45				TPS3-M45B1	RS3-70B1	CKS3-M45B1
SBT3-M48B1	M48				TPS3-M48B1	RS3-75B1	CKS3-M48B1
SBT3-M45B2	M45			STS3-B2	TPS3-M45B2	RS3-70B2	CKS3-M45B2
SBT3-M48B2	M48				TPS3-M48B2	RS3-75B2	CKS3-M48B2
SBT3-M52B2	M52				TPS3-M52B2	RS3-80B2	CKS3-M52B2
For tensioner range SBT4							
SBT4-M48B1	M48	SBT4-LC	TTB10	STS4-B1	TPS4-M48B1	RS4-75B1	CKS4-M48B1
SBT4-M52B1	M52				TPS4-M52B1	RS4-80B1	CKS4-M52B1
SBT4-M52B2	M52			STS4-B2	TPS4-M52B2	RS4-80B2	CKS4-M52B2
SBT4-M56B2	M56				TPS4-M56B2	RS4-85B2	CKS4-M56B2
SBT4-M60B2	M60				TPS4-M60B2	RS4-90B2	CKS4-M60B2
SBT4-M64B2	M64				TPS4-M64B2	RS4-95B2	CKS4-M64B2
For tensioner range SBT5							
SBT5-M64B1	M64	SBT5-LC	TTB14	STS5-B1	TPS5-M64B1	RS5-95B1	CKS5-M64B1
SBT5-M68B1	M68				TPS5-M68B1	RS5-100B1	CKS5-M68B1
SBT5-M72B1	M72				TPS5-M72B1	RS5-105B1	CKS5-M72B1
SBT5-M76B1	M76				TPS5-M76B1	RS5-110B1	CKS5-M76B1
For tensioner range SBT6							
SBT6-M76B1	M76	SBT6-LC	TTB14	STS6-B1	TPS6-M76B1	RS6-110B1	CKS6-M76B1
SBT6-M80B1	M80				TPS6-M80B1	RS6-115B1	CKS6-M80B1
SBT6-M85B1	M85				TPS6-M85B1	RS6-120B1	CKS6-M85B1
SBT6-M90B1	M90				TPS6-M90B1	RS6-130B1	CKS6-M90B1
SBT6-M95B3	M95			STS6-B3	TPS6-M95B3	RS6-135B3	CKS6-M95B3
SBT6-M100B3	M100				TPS6-M100B3	RS6-146B3	CKS6-M100B3

Note: Remember to check bridge compatibility for SBT3, SBT4 and SBT6 models when ordering components.

STS | TOPSIDE BOLT TENSIONERS - IMPERIAL

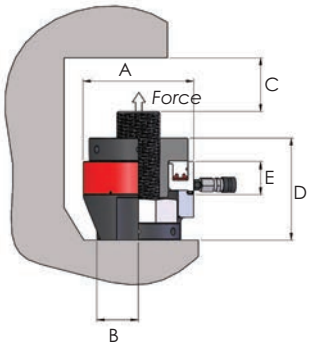


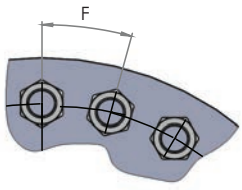
Capacities from 26.3 to 297.6 tons

Bolt sizes from ¾" to 4" diameter

Maximum working pressure 21750 psi

- Single acting design with manual piston retraction
- High grade alloy steel construction with nitrocarburized, corrosion resistant, piston
- Maximum stroke indicator to warn against piston over extension
- Self-energizing seals for improved performance and longevity of use at high pressure
- Dual quick connect inlet and outlet couplers for easy multiple tensioner connection
- Designed to fit most sizes of ANSI and API flanges and some Compact flanges
- Interchangeable accessories to cover multiple stud bolt sizes using same tensioner
- Non-standard size threaded pullers available to order on short delivery lead time
- Customized and special design tensioners are available on request





Note: Dimension F is for guidance on ANSI flange applications only

Model number	Bolt thread size	Threads per inch	Capacity tons	Capacity kN	Effective area (in²)	Stroke (in)	Weight (lbs)	Dimensions (in) A	B	C (min)	D	E	F
STS1-075B1	¾"	10	26.3	234	2.42	0.39	3.7	2.92	1.1	2.92	3.55	1.77	2.01
STS1-087B1	⅞"	9	26.3	234	2.42	0.39	3.7	2.92	1.1	2.92	3.55	1.77	2.13
STS1-100B2	1"	8	26.3	234	2.42	0.39	3.7	2.92	1.18	3.15	3.86	1.77	2.4
STS1-112B2	1 ⅛"	8	26.3	234	2.42	0.39	3.7	2.92	1.18	3.15	3.86	1.77	2.52
STS2-125B1	1 ¼"	8	51.4	457	4.73	0.59	7.7	4.02	1.54	4.06	5.04	2.13	2.92
STS2-137B1	1 ⅜"	8	51.4	457	4.73	0.59	7.7	4.02	1.54	4.06	5.04	2.13	3.03
STS2-150B1	1 ½"	8	51.4	457	4.73	0.59	7.7	4.02	1.54	4.06	5.04	2.13	3.15
STS3-162B1	1 ⅝"	8	92.4	822	8.49	0.59	13.4	5.24	1.85	4.53	5.91	2.21	3.62
STS3-175B1	1 ¾"	8	92.4	822	8.49	0.59	13.4	5.24	1.85	4.53	5.91	2.21	3.66
STS3-175B2	1 ¾"	8	92.4	822	8.49	0.59	13.4	5.24	1.97	4.61	6.11	2.21	4.1
STS3-187B1	1 ⅞"	8	92.4	822	8.49	0.59	13.4	5.24	1.85	4.53	5.91	2.21	3.82
STS3-187B2	1 ⅞"	8	92.4	822	8.49	0.59	13.9	5.24	1.97	4.61	6.11	2.21	4.1
STS3-200B2	2"	8	92.4	822	8.49	0.59	13.9	5.24	1.97	4.61	6.11	2.21	4.1
STS4-187B1	1 ⅞"	8	142.1	1264	13.07	0.59	23.4	6.42	1.97	4.69	5.87	2.25	4.1
STS4-200B1	2"	8	142.1	1264	13.07	0.59	23.4	6.42	1.97	4.69	5.87	2.25	4.1
STS4-200B2	2"	8	142.1	1264	13.07	0.59	26.0	6.42	2.44	4.69	5.87	2.25	4.18
STS4-225B2	2 ¼"	8	142.1	1264	13.07	0.59	26.0	6.42	2.44	5.32	6.5	2.25	4.77
STS4-250B2	2 ½"	8	142.1	1264	13.07	0.59	23.4	6.42	2.44	5.32	6.5	2.25	5
STS5-250B1	2 ½"	8	206	1833	18.94	0.59	35.3	7.6	2.88	5.71	7.37	2.36	5.28
STS5-275B1	2 ¾"	8	206	1833	18.94	0.59	35.3	7.6	2.88	5.71	7.37	2.36	5.52
STS5-300B1	3"	8	206	1833	18.94	0.59	35.3	7.6	2.88	5.71	7.37	2.36	5.79
STS6-300B1	3"	8	297.6	2649	27.37	0.59	51.8	9.18	3.31	7.01	8.51	2.52	6.34
STS6-325B1	3 ¼"	8	297.6	2649	27.37	0.59	51.8	9.18	3.31	7.01	8.51	2.52	6.58
STS6-350B1	3 ½"	8	297.6	2649	27.37	0.59	51.8	9.18	3.31	7.01	8.51	2.52	6.78
STS6-375B3	3 ¾"	8	297.6	2649	27.37	0.59	64.2	9.18	4.14	8.08	10.13	2.52	7.53
STS6-400B3	4"	8	297.6	2649	27.37	0.59	64.2	9.18	4.14	8.08	10.13	2.52	7.72

Note: Weight is for load cell and bridge only. Total weight of complete assembly depends on size of puller and nut rotating socket selected. Tommy bars are not included. Hi-Force recommends one tommy bar for every four tensioners.

STS | BOLT TENSIONER COMPONENTS - IMPERIAL



Use with STS Imperial Tensioners

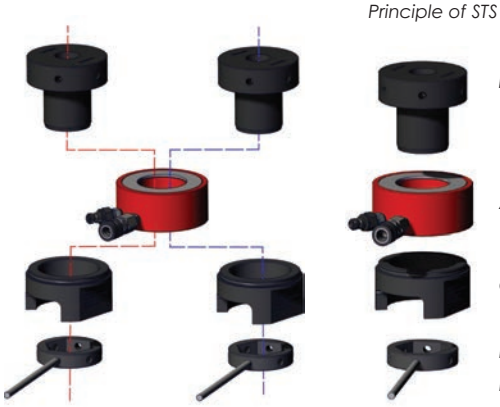
Modular design for greater flexibility

Versatile cost effective option

- Modify existing STS tensioner assembly to another thread size, within the tensioner range
- All components or selected conversion kits must have the same suffix as the target tensioner size
- Unthreaded pullers can be provided upon request for customers who prefer to customize their own non-standard threads to suit specific tensioning needs

Examples:
- To change from STS3-162B1 to STS3-187B1 would require conversion kit CK3-187B1 only.
- To change from STS3-187B1 to STS3-200B2 would require conversion kit CK3-200B2 and bridge STS3-B2.

Principle of STS Bolt Tensioner



DO NOT mix components from different colour lines, STS2 & STS5 models have only one size of tensioner bridge (B1)

- *Denotes smaller bridge size within tensioner range*
- *Denotes larger bridge size within tensioner range*
- *Denotes one bridge size within tensioner range*

Complete tensioner		Individual components					D&E
Model number	Bolt thread	A Load cell	B Tommy bar	C Bridge	D Threaded puller	E Rotating socket	Complete conversion kit
For tensioner range STS1							
STS1-075B1	¾"	STS1-LC	TTB06	STS1-B1	TP1-075B1	RS1-32B1	CK1-075B1
STS1-087B1	⅞"				TP1-087B1	RS1-37B1	CK1-087B1
STS1-100B2	1"			STS1-B2	TP1-100B2	RS1-41B2	CK1-100B2
STS1-112B2	1 ⅛"				TP1-112B2	RS1-46B2	CK1-112B2
For tensioner range STS2							
STS2-125B1	1 ¼"	STS2-LC	TTB08	STS2-B1	TP2-125B1	RS2-51B1	CK2-125B1
STS2-137B1	1 ⅜"				TP2-137B1	RS2-56B1	CK2-137B1
STS2-150B1	1 ½"				TP2-150B1	RS2-60B1	CK2-150B1
For tensioner range STS3							
STS3-162B1	1 ⅝"	STS3-LC	TTB10	STS3-B1	TP3-162B1	RS3-65B1	CK3-162B1
STS3-175B1	1 ¾"				TP3-175B1	RS3-70B1	CK3-175B1
STS3-187B1	1 ⅞"				TP3-187B1	RS3-75B1	CK3-187B1
STS3-175B2	1 ¾"				TP3-175B2	RS3-70B2	CK3-175B2
STS3-187B2	1 ⅞"			STS3-B2	TP3-187B2	RS3-75B2	CK3-187B2
STS3-200B2	2"				TP3-200B2	RS3-80B2	CK3-200B2
For tensioner range STS4							
STS4-187B1	1 ⅞"	STS4-LC	TTB10	STS4-B1	TP4-187B1	RS4-75B1	CK4-187B1
STS4-200B1	2"				TP4-200B1	RS4-80B1	CK4-200B1
STS4-200B2	2"				TP4-200B2	RS4-80B2	CK4-200B2
STS4-225B2	2 ¼"			STS4-B2	TP4-225B2	RS4-90B2	CK4-225B2
STS4-250B2	2 ½"				TP4-250B2	RS4-98B2	CK4-250B2
For tensioner range STS5							
STS5-250B1	2 ½"	STS5-LC	TTB14	STS5-B1	TP5-250B1	RS5-100B1	CK5-250B1
STS5-275B1	2 ¾"				TP5-275B1	RS5-108B1	CK5-275B1
STS5-300B1	3"				TP5-300B1	RS5-118B1	CK5-300B1
For tensioner range STS6							
STS6-300B1	3"	STS6-LC	TTB14	STS6-B1	TP6-300B1	RS6-118B1	CK6-300B1
STS6-325B1	3 ¼"				TP6-325B1	RS6-127B1	CK6-325B1
STS6-350B1	3 ½"				TP6-350B1	RS6-137B1	CK6-350B1
STS6-375B3	3 ¾"			STS6-B3	TP6-375B3	RS6-146B3	CK6-375B3
STS6-400B3	4"				TP6-400B3	RS6-156B3	CK6-400B3

Note: Remember to check bridge compatibility for STS1, STS3, STS4 and STS6 models when ordering components.

STS | TOPSIDE BOLT TENSIONERS - METRIC

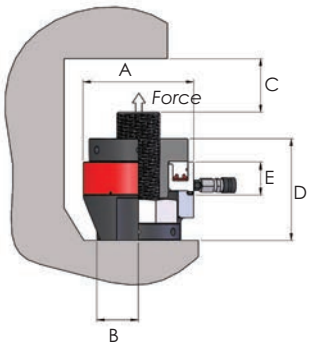


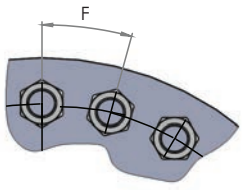
Capacities from 26.3 to 297.6 tons

Bolt sizes from M16 to M100 diameter

Maximum working pressure 21750 psi

- Single acting design with manual piston retraction
- High grade alloy steel construction with nitrocarburized, corrosion resistant, piston
- Maximum stroke indicator to warn against piston over extension
- Self-energizing seals for improved performance and longevity of use at high pressure
- Dual quick connect inlet and outlet couplers for easy multiple tensioner connection
- Designed to fit most sizes of ANSI and API flanges and some Compact flanges
- Interchangeable accessories to cover multiple stud bolt sizes using same tensioner
- Non-standard size threaded pullers available to order on short delivery lead time
- Customized and special design tensioners are available on request





Note: Dimension F is for guidance on ANSI flange applications only

Model number	Bolt thread size	Thread pitch	Capacity tons	Capacity kN	Effective area (in²)	Stroke (in)	Weight (lbs)	Dimensions (in) A	B	C (min)	D	E	F
STS1-M16B1	M16	2	26.3	234	2.42	0.39	3.7	2.92	1.1	2.92	3.55	1.77	1.85
STS1-M18B1	M18	2.5	26.3	234	2.42	0.39	3.7	2.92	1.1	2.92	3.55	1.77	1.93
STS1-M20B1	M20	2.5	26.3	234	2.42	0.39	3.7	2.92	1.1	2.92	3.55	1.77	2.01
STS1-M22B2	M22	2.5	26.3	234	2.42	0.39	4.2	2.92	1.18	3.15	3.86	1.77	2.21
STS1-M24B2	M24	3	26.3	234	2.42	0.39	4.2	2.92	1.18	3.15	3.86	1.77	2.32
STS1-M27B2	M27	3	26.3	234	2.42	0.39	4.2	2.92	1.18	3.15	3.86	1.77	2.4
STS2-M30B1	M30	3.5	51.4	457	4.73	0.59	7.7	4.02	1.54	4.06	5.04	2.13	2.8
STS2-M33B1	M33	3.5	51.4	457	4.73	0.59	7.7	4.02	1.54	4.06	5.04	2.13	2.92
STS2-M36B1	M36	4	51.4	457	4.73	0.59	7.7	4.02	1.54	4.06	5.04	2.13	3.03
STS2-M39B1	M39	4	51.4	457	4.73	0.59	7.7	4.02	1.54	4.06	5.04	2.13	3.15
STS3-M42B1	M42	4.5	92.4	822	8.49	0.59	13.4	5.24	1.85	4.53	5.91	2.21	3.59
STS3-M45B1	M45	4.5	92.4	822	8.49	0.59	13.4	5.24	1.85	4.53	5.91	2.21	3.7
STS3-M45B2	M45	4.5	92.4	822	8.49	0.59	13.9	5.24	1.97	4.61	6.11	2.21	4.14
STS3-M48B1	M48	5	92.4	822	8.49	0.59	13.4	5.24	1.85	4.53	5.91	2.21	3.82
STS3-M48B2	M48	5	92.4	822	8.49	0.59	13.9	5.24	1.97	4.61	6.11	2.21	4.14
STS3-M52B2	M52	5	92.4	822	8.49	0.59	13.9	5.24	1.97	4.61	6.11	2.21	4.14
STS4-M48B1	M48	5	142.1	1264	13.07	0.59	23.4	6.42	1.97	4.69	5.87	2.25	4.14
STS4-M52B1	M52	5	142.1	1264	13.07	0.59	23.4	6.42	1.97	4.69	5.87	2.25	4.26
STS4-M52B2	M52	5	142.1	1264	13.07	0.59	26.0	6.42	2.44	5.32	6.5	2.25	4.73
STS4-M56B2	M56	5.5	142.1	1264	13.07	0.59	26.0	6.42	2.44	5.32	6.5	2.25	4.73
STS4-M60B2	M60	5.5	142.1	1264	13.07	0.59	26.0	6.42	2.44	5.32	6.5	2.25	4.89
STS4-M64B2	M64	6	142.1	1264	13.07	0.59	26.0	6.42	2.44	5.32	6.5	2.25	4.96
STS5-M64B1	M64	6	206	1833	18.94	0.59	35.3	7.6	2.88	5.71	7.37	2.36	5.28
STS5-M68B1	M68	6	206	1833	18.94	0.59	35.3	7.6	2.88	5.71	7.37	2.36	5.36
STS5-M72B1	M72	6	206	1833	18.94	0.59	35.3	7.6	2.88	5.71	7.37	2.36	5.48
STS5-M76B1	M76	6	206	1833	18.94	0.59	35.3	7.6	2.88	5.71	7.37	2.36	5.59
STS6-M76B1	M76	6	297.6	2649	27.37	0.59	51.8	9.18	3.31	7.01	8.51	2.52	6.23
STS6-M80B1	M80	6	297.6	2649	27.37	0.59	51.8	9.18	3.31	7.01	8.51	2.52	6.3
STS6-M85B1	M85	6	297.6	2649	27.37	0.59	51.8	9.18	3.31	7.01	8.51	2.52	6.38
STS6-M90B1	M90	6	297.6	2649	27.37	0.59	51.8	9.18	3.31	7.01	8.51	2.52	6.7
STS6-M95B3	M95	6	297.6	2649	27.37	0.59	64.2	9.18	4.14	8.08	10.13	2.52	7.25
STS6-M100B3	M100	6	297.6	2649	27.37	0.59	64.2	9.18	4.14	8.08	10.13	2.52	7.49

Note: Weight is for load cell and bridge only. Total weight of complete assembly depends on size of puller and nut rotating socket selected. Tommy bars are not included. Hi-Force recommends one tommy bar for every four tensioners.

STS | BOLT TENSIONER COMPONENTS - METRIC



Use with STS Metric Tensioners

Modular design for greater flexibility

Versatile cost saving option

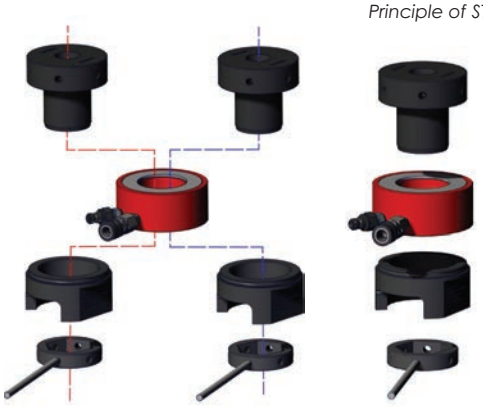
- Modify existing STS tensioner assembly to another thread size, within the tensioner range
- All components or selected conversion kits must have the same suffix as the target tensioner size
- Unthreaded pullers can be provided upon request for customers who prefer to customize their own non-standard threads to suit specific tensioning needs

Examples:

- To change from STS3-M42B1 to STS3-M48B1 would require conversion kit CK3-M48B1 only.
- To change from STS3-M48B1 to STS3-M52B2 would require conversion kit CK3-M52B2 and bridge STS3-B2.

● *Denotes smaller bridge size within tensioner range*
● *Denotes larger bridge size within tensioner range*
● *Denotes one bridge size within tensioner range*

Principle of STS Bolt Tensioner



D = Threaded puller
A = Load cell
C = Bridge
E = Nut rotating socket
B = Tommy bar

DO NOT mix components from different colour lines, STS2 & STS5 models have only one size of tensioner bridge (B1)

Complete tensioner		Individual components					
Model number	Bolt thread	A Load cell	B Tommy bar	C Bridge	D Threaded puller	E Rotating socket	D&E Complete conversion kit
For tensioner range STS1							
STS1-M16B1	M16	STS1-LC	TTB06	STS1-B1	TP1-M16B1	RS1-24B1	CK1-M16B1
STS1-M18B1	M18				TP1-M18B1	RS1-27B1	CK1-M18B1
STS1-M20B1	M20				TP1-M20B1	RS1-30B1	CK1-M20B1
STS1-M22B2	M22			STS1-B2	TP1-M22B2	RS1-32B2	CK1-M22B2
STS1-M24B2	M24				TP1-M24B2	RS1-37B2	CK1-M24B2
STS1-M27B2	M27				TP1-M27B2	RS1-41B2	CK1-M27B2
For tensioner range STS2							
STS2-M30B1	M30	STS2-LC	TTB08	STS2-B1	TP2-M30B1	RS2-46B1	CK2-M30B1
STS2-M33B1	M33				TP2-M33B1	RS2-51B1	CK2-M33B1
STS2-M36B1	M36				TP2-M36B1	RS2-56B1	CK2-M36B1
STS2-M39B1	M39				TP2-M39B1	RS2-60B1	CK2-M39B1
For tensioner range STS3							
STS3-M42B1	M42	STS3-LC	TTB10	STS3-B1	TP3-M42B1	RS3-65B1	CK3-M42B1
STS3-M45B1	M45				TP3-M45B1	RS3-70B1	CK3-M45B1
STS3-M48B1	M48				TP3-M48B1	RS3-75B1	CK3-M48B1
STS3-M45B2	M45			STS3-B2	TP3-M45B2	RS3-70B2	CK3-M45B2
STS3-M48B2	M48				TP3-M48B2	RS3-75B2	CK3-M48B2
STS3-M52B2	M52				TP3-M52B2	RS3-80B2	CK3-M52B2
For tensioner range STS4							
STS4-M48B1	M48	STS4-LC	TTB10	STS4-B1	TP4-M48B1	RS4-75B1	CK4-M48B1
STS4-M52B1	M52				TP4-M52B1	RS4-80B1	CK4-M52B1
STS4-M52B2	M52				TP4-M52B2	RS4-80B2	CK4-M52B2
STS4-M56B2	M56			STS4-B2	TP4-M56B2	RS4-85B2	CK4-M56B2
STS4-M60B2	M60				TP4-M60B2	RS4-90B2	CK4-M60B2
STS4-M64B2	M64				TP4-M64B2	RS4-95B2	CK4-M64B2
For tensioner range STS5							
STS5-M64B1	M64	STS5-LC	TTB14	STS5-B1	TP5-M64B1	RS5-95B1	CK5-M64B1
STS5-M68B1	M68				TP5-M68B1	RS5-100B1	CK5-M68B1
STS5-M72B1	M72				TP5-M72B1	RS5-105B1	CK5-M72B1
STS5-M76B1	M76				TP5-M76B1	RS5-110B1	CK5-M76B1
For tensioner range STS6							
STS6-M76B1	M76	STS6-LC	TTB14	STS6-B1	TP6-M76B1	RS6-110B1	CK6-M76B1
STS6-M80B1	M80				TP6-M80B1	RS6-115B1	CK6-M80B1
STS6-M85B1	M85				TP6-M85B1	RS6-120B1	CK6-M85B1
STS6-M90B1	M90				TP6-M90B1	RS6-130B1	CK6-M90B1
STS6-M95B3	M95			STS6-B3	TP6-M95B3	RS6-135B3	CK6-M95B3
STS6-M100B3	M100				TP6-M100B3	RS6-146B3	CK6-M100B3

Note: Remember to check bridge compatibility for STS1, STS3, STS4 and STS6 models when ordering components.

STU | SUB-SEA BOLT TENSIONERS - IMPERIAL

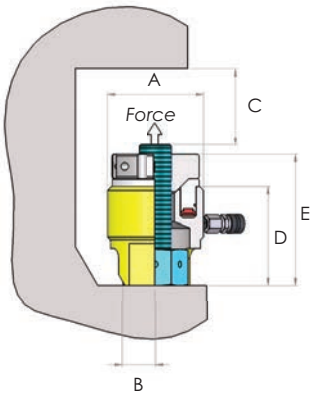


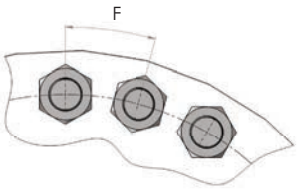
Capacities from 28.8 to 279 tons

Bolt sizes from 1" to 3 ½" diameter

Maximum working pressure 21750 psi

- Single acting design with manual piston retraction
- Manufactured from high grade alloy steel with added corrosion protection
- Extra-long piston stroke on all models, to save valuable diver time subsea
- Simple two piece design for easy operation by divers subsea
- Visible maximum stroke indicator to warn operator against piston over extension
- Safety over stroke device to protect operator from injury
- Self-energizing seals for improved performance and longevity of use at high pressure
- Dual quick connect inlet and outlet couplings for easy multiple tensioner connection
- Designed to fit most sizes of ANSI and API flanges and some Compact flanges
- Interchangeable quick fit pullers, to cover secondary bolt size, for each STU model, are available as accessories for even greater versatility (see table below)
- Customized and special design tensioners are available on request





Note: Dimension F is for guidance on ANSI flange applications only

Model number	Quick Fit Pullers	Bolt thread size	Capacity tons	Capacity kN	Effective area (in²)	Stroke (in)	Weight (lbs)	Tommy bar	Dimensions (in) A	B	C	D	E	F
STU1-100	QFP1-100	1"-8 UN	28.8	256	2.65	0.79	7.5	TTB06	3.23	0.87	4.69	4.69	5.52	2.4
STU1-112	QFP1-112	1 ⅛"-8 UN	28.8	256	2.65	0.79	7.5	TTB06	3.23	0.87	4.69	4.69	5.52	2.52
STU2-125	QFP2-125	1 ¼"-8 UN	48.4	430	4.45	1.18	13.2	TTB08	4.02	1.18	5.52	5.52	6.46	2.88
STU2-137	QFP2-137	1 ⅜"-8 UN	48.4	430	4.45	1.18	13.2	TTB08	4.02	1.18	5.52	5.52	6.46	2.96
STU3-150	QFP3-150	1 ½"-8 UN	62.2	553	5.72	1.18	16.5	TTB10	4.49	1.38	5.59	5.59	6.66	3.23
STU3-162	QFP3-162	1 ⅝"-8 UN	62.2	553	5.72	1.18	16.5	TTB10	4.49	1.38	5.59	5.59	6.66	3.35
STU4-175	QFP4-175	1 ¾"-8 UN	85	756	7.82	1.18	21.6	TTB10	5.04	1.62	5.95	5.95	7.13	3.7
STU4-187	QFP4-187	1 ⅞"-8 UN	85	756	7.82	1.18	21.6	TTB10	5.04	1.62	5.95	5.95	7.13	3.86
STU5-200	QFP5-200	2"-8 UN	131.3	1168	12.07	1.18	32.0	TTB12	5.91	1.89	6.46	6.46	7.96	4.41
STU5-225	QFP5-225	2 ¼"-8 UN	131.3	1168	12.07	1.18	32.0	TTB12	5.91	1.89	6.46	6.46	7.96	4.57
STU6-250	QFP6-250	2 ½"-8 UN	185.3	1649	17.04	1.18	50.3	TTB14	6.93	2.36	7.21	7.21	9.1	5.36
STU6-275	QFP6-275	2 ¾"-8 UN	185.3	1649	17.04	1.18	50.3	TTB14	6.93	2.36	7.21	7.21	9.1	5.56
STU7-300	QFP7-300	3"-8 UN	279	2483	25.66	1.18	78.5	TTB16	8.47	3.51	8.47	8.47	10.24	6.38
STU7-325	QFP7-325	3 ¼"-8 UN	279	2483	25.66	1.18	78.5	TTB16	8.47	3.51	8.47	8.47	10.24	6.82
STU7-350	QFP7-350	3 ½"-8 UN	279	2483	25.66	1.18	78.5	TTB16	8.47	3.51	8.47	8.47	10.24	6.9

Note: Tommy bars are not included. Hi-Force recommends one tommy bar for every four tensioners. Please note that the tommy bar listed will fit related quick fit puller; a different size may be required for the drilled hexagon nut.

STU | SUB-SEA BOLT TENSIONERS - METRIC

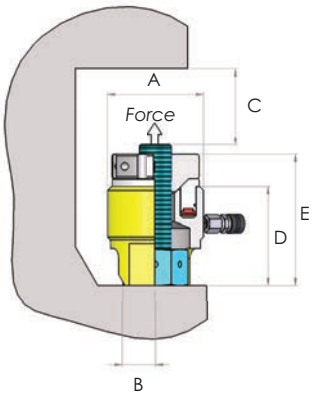


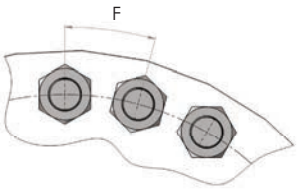
Capacities from 28.8 to 279 tons

Bolt sizes from M24 to M90 diameter

Maximum working pressure 21750 psi

- Single acting design with manual piston retraction
- Manufactured from high grade alloy steel with added corrosion protection
- Extra-long piston stroke on all models, to save valuable diver time
- Simple two piece design for easy operation by divers subsea
- Visible maximum stroke indicator to warn operator against piston over extension
- Safety over stroke device to protect operator from injury
- Self-energizing seals for improved performance and longevity of use at high pressure
- Dual quick connect inlet and outlet couplings for easy multiple tensioner connection
- Designed to fit most sizes of ANSI and API flanges and some Compact flanges
- Interchangeable quick fit pullers, to cover multiple bolt sizes, for each STU model, are available as accessories for even greater versatility (see table below)
- Customized and special design tensioners are available on request





Note: Dimension F is for guidance on ANSI flange applications only

Model number	Quick Fit Pullers	Bolt thread size	Capacity tons	Capacity kN	Effective area (in²)	Stroke (in)	Weight (lbs)	Tommy bar	Dimensions (in) A	B	C	D	E	F
STU1-24	QFP1-24	M24x3	28.8	256	2.65	0.79	7.5	TTB06	3.23	0.87	4.69	4.69	5.52	2.4
STU1-27	QFP1-27	M27x3	28.8	256	4.45	1.18	13.2	TTB06	3.23	0.87	4.69	4.69	5.52	2.52
STU2-30	QFP2-30	M30x3.5	48.4	430	4.45	1.18	13.2	TTB08	4.02	1.18	5.52	5.52	6.46	2.88
STU2-33	QFP2-33	M33x3.5	48.4	430	4.45	1.18	13.2	TTB08	4.02	1.18	5.52	5.52	6.46	2.96
STU2-36	QFP2-36	M36x4	48.4	430	5.72	1.18	16.5	TTB10	4.02	1.18	5.52	5.52	6.46	3.07
STU3-39	QFP3-39	M39x4	62.2	553	5.72	1.18	16.5	TTB10	4.49	1.38	5.59	5.59	6.66	3.23
STU3-42	QFP3-42	M42x4.5	62.2	553	7.82	1.18	21.6	TTB10	4.49	1.38	5.59	5.59	6.66	3.35
STU4-45	QFP4-45	M45x4.5	85	756	7.82	1.18	21.6	TTB10	5.04	1.62	5.95	5.95	7.13	3.7
STU4-48	QFP4-48	M48x5	85	756	12.07	1.18	32.0	TTB12	5.04	1.62	5.95	5.95	7.13	3.86
STU5-52	QFP5-52	M52x5	131.3	1168	12.07	1.18	32.0	TTB12	5.91	1.89	6.46	6.46	7.96	4.41
STU5-56	QFP5-56	M56x5.5	131.3	1168	17.04	1.18	50.3	TTB14	5.91	1.89	6.46	6.46	7.96	4.57
STU6-60	QFP6-60	M60x5.5	185.3	1649	17.04	1.18	50.3	TTB14	6.93	2.36	7.21	7.21	9.1	5.36
STU6-64	QFP6-64	M64x6	185.3	1649	17.04	1.18	50.3	TTB16	6.93	2.36	7.21	7.21	9.1	5.36
STU6-68	QFP6-68	M68x6	185.3	1649	17.04	1.18	50.3	TTB16	6.93	2.36	7.21	7.21	9.1	5.36
STU6-72	QFP6-72	M72x6	185.3	1649	25.66	1.18	78.5	TTB16	6.93	2.36	7.21	7.21	9.1	5.56
STU7-76	QFP7-76	M76x6	279	2483	25.66	1.18	78.5	TTB16	8.47	3.51	8.47	8.47	10.24	6.46
STU7-80	QFP7-80	M80x6	279	2483	25.66	1.18	78.5	TTB16	8.47	3.51	8.47	8.47	10.24	6.46
STU7-85	QFP7-85	M85x6	279	2483	25.66	1.18	78.5	TTB16	8.47	3.51	8.47	8.47	10.24	6.9
STU7-90	QFP7-90	M90x6	279	2483	165.56	30	35.6	TTB16	8.47	3.51	8.47	8.47	10.24	6.9

Note: Tommy bars are not included. Hi-Force recommends one tommy bar for every four tensioners. Please note that the tommy bar listed will fit related quick fit puller; a different size may be required for the drilled hexagon nut.

HTN | HYDRAULIC TENSIONER NUTS - IMPERIAL

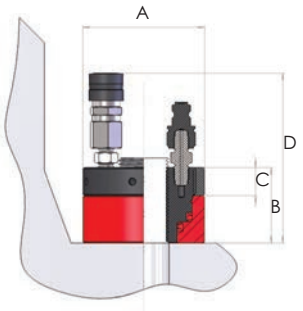


Capacities from 22.3 to 214.8 tons

Bolt sizes from 1" to 4" diameter

Maximum working pressure 21750 psi

- Single acting design with integral load holding lock nut
- Designed to permanently replace regular nuts on one side of the joint
- Ideally suited for bolted joints that need opening and closing, during maintenance, on a regular basis
- High grade alloy steel construction with nitrocarburized corrosion resistant piston
- Self-energizing seals for improved performance at high temperatures and pressures
- Dual quick connect inlet and outlet couplings for easy multiple tensioner nut connection
- Visible maximum stroke indicator to warn operator of potential over extension
- Customized and special design tensioners are available on request



Model number	Bolt size	Capacity tons	Capacity kN	Effective area (in²)	Stroke (in)	Weight (lbs)	Tommy bar	Dimensions (in) A	B	C	D
HTN1-100	1"-8 UN	22.3	198	2.05	0.2	4.2	TTB06	2.84	2.17	0.71	5.2
HTN2-112	1 ⅛"-8 UN	24.3	216	2.24	0.2	4.4	TTB06	2.96	2.17	0.71	5.2
HTN3-125	1 ¼"-8 UN	28.4	253	2.61	0.2	5.3	TTB06	3.23	2.25	0.83	5.28
HTN4-137	1 ⅜"-8 UN	34.4	306	3.16	0.2	6.0	TTB06	3.47	2.25	0.87	5.32
HTN5-150	1 ½"-8 UN	38.7	344	3.56	0.24	6.4	TTB06	3.66	2.29	0.83	5.32
HTN6-162	1 ⅝"-8 UN	44.7	398	4.11	0.24	7.7	TTB06	3.94	2.44	0.91	5.59
HTN7-175	1 ¾"-8 UN	53.4	475	4.91	0.24	8.8	TTB06	4.18	2.52	0.95	5.56
HTN8-187	1 ⅞"-8 UN	56.3	501	5.18	0.24	9.3	TTB06	4.33	2.52	0.99	5.59
HTN9-200	2"-8 UN	63.3	564	5.82	0.24	10.8	TTB06	4.61	2.64	1.26	5.71
HTN10-225	2 ¼"-8 UN	83.9	746	7.71	0.32	14.1	TTB06	5.04	2.92	1.1	5.99
HTN11-250	2 ½"-8 UN	101.7	905	9.35	0.32	17.6	TTB06	5.56	3.03	1.14	6.11
HTN12-275	2 ¾"-8 UN	112.3	1000	10.33	0.32	19.4	TTB08	5.91	3.07	1.18	6.15
HTN13-300	3"-8 UN	135.2	1203	12.44	0.32	23.4	TTB08	6.38	3.19	1.22	6.26
HTN14-325	3 ¼"-8 UN	158.9	1414	14.61	0.39	28.4	TTB08	6.86	3.43	1.38	6.5
HTN15-350	3 ½"-8 UN	180.3	1605	16.59	0.39	35.7	TTB10	7.37	3.74	1.46	6.82
HTN16-375	3 ¾"-8 UN	191.5	1705	17.61	0.39	40.3	TTB10	7.64	4.02	1.54	7.05
HTN17-400	4"-8 UN	214.8	1911	19.75	0.39	48.3	TTB10	8.08	4.33	1.62	7.41

Note: Tommy bars are not included. Hi-Force recommends one tommy bar for every four tensioner nuts.

HTN | HYDRAULIC TENSIONER NUTS - METRIC

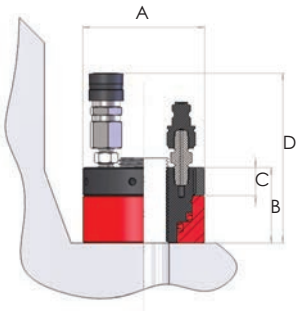


Capacities from 22.3 to 214.8 tons

Bolt sizes from M24 to M100 diameter

Maximum working pressure 21750 psi

- Single acting design with integral load holding lock nut
- Designed to permanently replace regular nuts on one side of the joint
- Ideally suited for bolted joints that need opening and closing, during maintenance, on a regular basis
- High grade alloy steel construction with nitrocarburized corrosion resistant piston
- Self-energizing seals for improved performance at high temperatures and pressures
- Dual quick connect inlet and outlet couplings for easy multiple tensioner nut connection
- Visible maximum stroke indicator to warn operator of potential over extension
- Customized and special design tensioners are available on request



Model number	Bolt size	Capacity tons	Capacity kN	Effective area (in²)	Stroke (in)	Weight (lbs)	Tommy bar	Dimensions (in) A	B	C	D
HTN1-M24	M24x3	22.3	198	2.05	0.2	4.2	TTB06	2.84	2.17	0.71	5.2
HTN2-M27	M27x3	24.3	216	2.24	0.2	4.4	TTB06	2.96	2.17	0.71	5.2
HTN3-M30	M30x3.5	28.4	253	2.61	0.2	5.3	TTB06	3.23	2.25	0.83	5.28
HTN3-M33	M33x3.5	28.4	253	2.61	0.2	5.3	TTB06	3.23	2.25	0.83	5.28
HTN4-M36	M36x4	34.4	306	3.16	0.2	6.0	TTB06	3.47	2.25	0.87	5.32
HTN5-M39	M39x4	38.7	344	3.56	0.24	6.4	TTB06	3.66	2.29	0.83	5.32
HTN6-M42	M42x4.5	44.7	398	4.11	0.24	7.7	TTB06	3.94	2.44	0.91	5.59
HTN7-M45	M45x4.5	53.4	475	4.91	0.24	8.8	TTB06	4.18	2.52	0.95	5.56
HTN8-M48	M48x5	56.3	501	5.18	0.24	9.3	TTB06	4.33	2.52	0.99	5.59
HTN9-M52	M52x5	63.3	564	5.82	0.24	10.8	TTB06	4.61	2.64	1.26	5.71
HTN10-M56	M56x5.5	83.9	746	7.71	0.32	14.1	TTB06	5.04	2.92	1.1	5.99
HTN11-M60	M60x5.5	101.7	905	9.35	0.32	17.6	TTB06	5.56	3.03	1.14	6.11
HTN11-M64	M64x6	101.7	905	9.35	0.32	17.6	TTB06	5.56	3.03	1.14	6.11
HTN12-M68	M68x6	112.3	1000	10.33	0.32	19.4	TTB08	5.91	3.07	1.18	6.15
HTN13-M72	M72x6	135.2	1203	12.44	0.32	23.4	TTB08	6.38	3.19	1.22	6.26
HTN13-M76	M76x6	135.2	1203	12.44	0.32	23.4	TTB08	6.38	3.19	1.22	6.26
HTN14-M80	M80x6	158.9	1414	14.61	0.39	28.4	TTB08	6.86	3.43	1.38	6.5
HTN15-M85	M85x6	180.3	1605	16.59	0.39	35.7	TTB10	7.37	3.74	1.46	6.82
HTN15-M90	M90x6	180.3	1605	16.59	0.39	35.7	TTB10	7.37	3.74	1.46	6.82
HTN16-M95	M95x6	191.5	1705	17.61	0.39	40.3	TTB10	7.64	4.02	1.54	7.05
HTN17-M100	M100x6	214.8	1911	19.75	0.39	48.3	TTB10	8.08	4.33	1.62	7.41

Note: Tommy bars are not included. Hi-Force recommends one tommy bar for every four tensioner nuts.

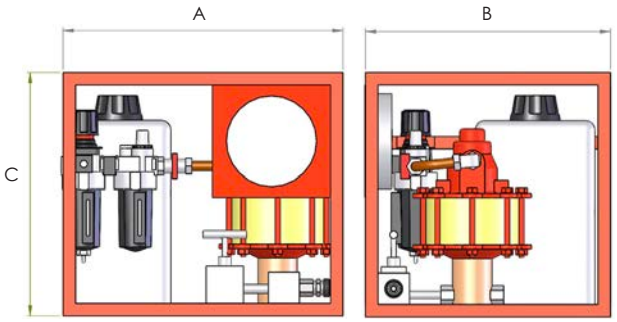
BOLT TENSIONER PUMPS



Operates from standard 100 psi air supply

Air consumption up to 1.59 m³/minute (56 scfm)

Working pressure 21750 psi



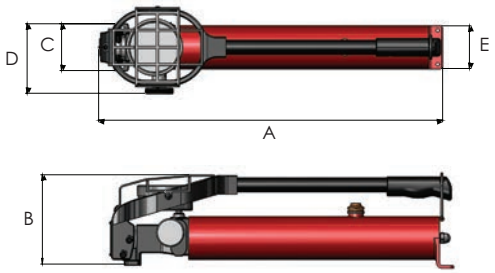
AHP-BTU

- Air driven hydraulic bolt tensioner pump operates from standard 100 psi air supply
- Lightweight stainless steel protective frame for easy storage and transportation
- Infinitely variable output pressure and flow rate
- Fitted with glycerin filled vibra-gauge and quick connect high pressure outlet coupling
- Airline filter regulator lubricator unit fitted as standard

Model number	Usable oil capacity (gallons)	Oil flow per stroke (in³)	Outlet coupler	Air consumption	Weight (lbs)	Dimensions (in) A	B	C
AHP275BTU	1.98	0.1	STFC4	28 scfm (0.79 m³/min)	44.1	17.73	15.56	15.56
AHP2-237BTU	1.98	0.37	STFC4	56 scfm (1.59 m³/min)	52.9	17.73	15.37	18.32

HPX-BTU

- Manually operated high pressure bolt tensioning pump
- Usable oil capacity 73.23 inch³
- Fitted with external pressure release valve and factory set safety valve
- Supplied with a dual scale pressure gauge and quick release outlet coupling
- Bespoke handle with ergonomic grip and mesh guard to protect gauge from accidental damage



Model number	Usable oil capacity (in³)	Displacement per stroke (in³) 1st stage	2nd stage	Outlet coupler	Weight (lbs)	Dimensions (in) A	B	C	D	E
HPX1500BTU	73.23	1.22	0.06	STFC4	14.3	24.23	6.34	3.31	4.93	3.01

BOLT TENSIONER ACCESSORIES | HOSES, COUPLERS & HOSE REEL



Hose lengths up to 984 feet

Supplied with quick connect couplings

Design pressure 21750 psi with 3:1 safety factor

XHR1 HOSE REEL

- Designed for sub-sea main line hose connection between the pump and the first tensioner
- Accommodates up to 984 ft of XHC bolt tensioner hydraulic hose
- Complete with quick connect couplings, integrated brake and a spring loaded locking bolt



Dimensions
Length 31.5" x Width 23.6" x Height 34.2"

Model number	Description	Weight (lbs)
XHC1.5B	Link hose complete with quick connect couplings, length 5 ft	2.2
XHC3B	Link hose complete with quick connect couplings, length 10 ft	3.7
XHC5B	Mainline hose complete with quick connect couplings, length 16.5 ft	5.7
XHC10B	Mainline hose complete with quick connect couplings, length 33 ft	9.9
XHC25B	Mainline hose complete with quick connect couplings, length 82 ft	18.7
XHC50B	Mainline hose complete with quick connect couplings, length 164 ft	37.3
XHC100B	Mainline hose complete with quick connect couplings, length 330 ft	74.1
XHC150B	Mainline hose complete with quick connect couplings, length 492 ft	111.6
XHC200B	Mainline hose complete with quick connect couplings, length 656 ft	147.7
XHC250B	Mainline hose complete with quick connect couplings, length 820 ft	184.5
XHC300B	Mainline hose complete with quick connect couplings, length 984 ft	221.3
XHR1	Hose reel, suitable for up to 984 feet of XHC high pressure hose	61.7
STFC4	Female coupling	0.9
STMC4	Male coupling	0.4
STN1P2	⅛" x ¼" BSP nipple for current model STS1 only	0.9
STN1P4-C	¼" BSP nipple with cone seat seal (current design - not for STS1)	1.5

Note: XHC high pressure bolt tensioner hoses up to 49 ft in length are supplied with a clear protective sleeve.

HI-FORCE NUT SPLITTERS AND SPREADERS

The Hi-Force range of hydraulic nut splitters provides the perfect answer for removal of worn, damaged or corroded fasteners. Manufactured from high quality steel, the range includes single acting and double acting versions, designed for splitting hexagon nuts from 11/16" to 5 3/8" AF sizes.

The flange spreader range offers mechanical and hydraulic spreader options and provides the ideal solution for opening flanges safely in the marine and oil & gas industries. The hydraulic flange spreaders are available as a single unit complete with pump and accessories or as a twin spreader arrangement which enables the operator to achieve parallel flange separation all around the joint.









NUT SPLITTERS AND SPREADERS

NS RANGE 120
Single acting nut splitters

HMNS RANGE 121
Self-contained nut splitters

DNS RANGE 122
Double acting nut splitters

HFS-H RANGE 123
Hydraulic flange spreaders

HFS & HFS-TK RANGE 124
Hydraulic flange spreader kits

MFS RANGE 125
Mechanical flange spreaders

JS RANGE 126
Jaw spreader

SJS & SJS-TK RANGE 127
Stepped jaw spreaders and jaw spreader kits

NS | SINGLE ACTING NUT SPLITTERS

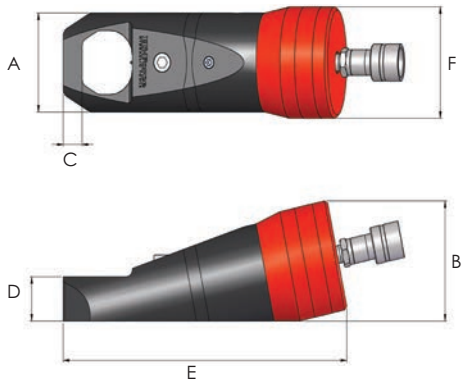


Nut AF sizes from $^{11}/_{16}$" to 2 $^{15}/_{16}$"

Bolt sizes from ½" to 1 ⅞"

Working pressure 10000 psi

- Single acting, spring assisted return
- Angled body design for increased clearance on flanges and flat surfaces
- High quality steel construction
- Suitable for splitting nuts up to RC44 hardness
- Designed to fit on most API and ANSI flanges
- Offers ideal 'cold cut' solution for applications where 'hot work' permits are not allowed
- Steel linkage keeps blade cutting edge parallel to the nut throughout the splitting process
- Compact and easy to use
- Optional 360˚ positional swivel coupling for fitment in confined spaces, available for use with NS104 and NS110 models only



Model number	Capacity (tons)	Oil capacity (in³)	Hexagon AF sizes inch	Hexagon AF sizes mm	Stud bolt thread sizes imperial	Stud bolt thread sizes metric	Weight (lbs)	Dimensions (in) A	B	C	D	E	F
NS104	18	2.81	$^{11}/_{16}$" - 1 ¼"	17 - 32	½" - ¾"	M10 - M22	8.8	2.52	3.03	0.49	1.18	8.27	2.64
NS110	27.4	3.78	1 ¼" - 1 $^{5}/_{8}$"	32 - 41	¾" - 1"	M22 - M27	16.3	3.07	3.78	0.79	1.46	11.27	2.68
NS200	45.4	7.44	1 ⅝" - 2"	41 - 50	1" - 1 ¼"	M27 - M33	23.4	3.78	4.57	0.83	1.69	12.41	4.26
NS206	63.7	11.9	2" - 2 ⅜"	50 - 60	1 ¼" - 1 ½"	M33 - M39	34.8	4.53	5.44	0.95	2.05	13.24	4.96
NS215	99.6	24.77	2 ⅜" - 2 $^{15}/_{16}$"	60 - 75	1 ½" - 1 ⅞"	M39 - M48	86.6	6.15	6.9	1.06	2.96	16.78	6.38

Note: NS nut splitters are for use on heavy duty nuts, where the nut height is equal to or greater than two-thirds of the blade length of the tool being used. Please check dimension 'C' to confirm the tool will fit in the space between the edge of the nut and the neck of the flange.

Replacement blades for NS nut splitters

Blade part number	For nut splitter
NS104-B	NS104
NS110-B	NS110
NS200-B	NS200
NS206-B	NS206
NS215-B	NS215

HMNS | SELF-CONTAINED NUT SPLITTERS

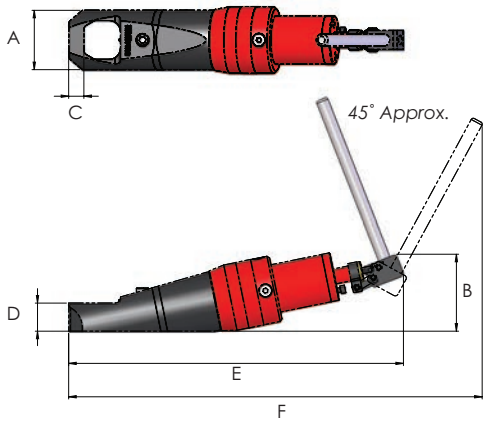


Nut AF sizes from 11/16" to 2"

Bolt sizes from ½" to 1 ¼"

Working pressure 10000 psi

- Single acting, spring assisted return
- Incorporates an integral hydraulic pump with multi-positional lever
- Angled body design for increased clearance on flanges and flat surfaces
- High quality steel construction
- Suitable for splitting nuts up to RC44 hardness
- Designed to fit on most API and ANSI flanges
- Offers ideal 'cold cut' solution for applications where 'hot work' permits are not allowed
- Steel linkage keeps blade cutting edge parallel to the nut throughout the splitting process
- Compact and easy to use



Model number	Capacity (tons)	Hexagon AF sizes inch	Hexagon AF sizes mm	Stud bolt thread sizes imperial	Stud bolt thread sizes metric	Weight (lbs)	Dimensions (in) A	B	C	D	E	F
HMNS104	18	11/16" - 1 ¼"	17 - 32	½" - ¾"	M10 - M22	12.8	2.52	3.47	0.49	1.18	14.97	17.93
HMNS110	27.4	1 ¼" - 1 5/8"	32 - 41	¾" - 1"	M22 - M27	17.4	3.07	3.98	0.79	1.46	17.34	21.28
HMNS200	45.4	1 5/8" - 2"	41 - 50	1" - 1 ¼"	M27 - M33	30.0	3.7	4.41	0.83	1.69	18.56	22.3

Note: HMNS nut splitters are for use on heavy duty nuts, where the nut height is equal to or greater than two-thirds of the blade length of the tool being used. Please check dimension 'C' to confirm the tool will fit in the space between the edge of the nut and the neck of the flange.

Replacement blades for HMNS nut splitters

Blade part number	For nut splitter
NS104-B	HMNS104
NS110-B	HMNS110
NS200-B	HMNS200

DNS | DOUBLE ACTING NUT SPLITTERS

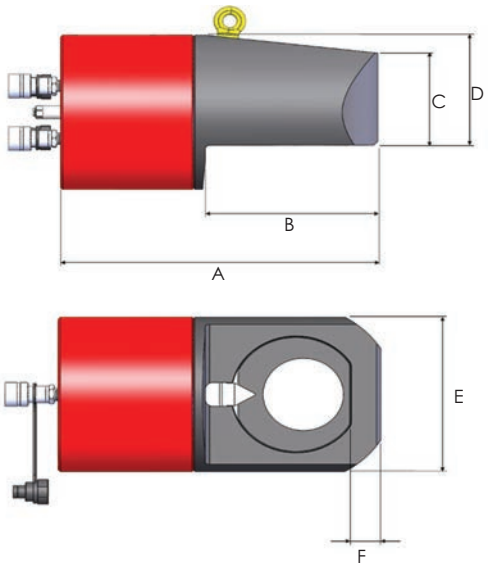


- Double acting hydraulic piston for easy extension and retraction of the blade
- Angled body design for increased clearance on flanges and flat surfaces
- High quality steel construction
- Pressure relief valve on annulus side
- Suitable for splitting nuts up to RC44 hardness
- Designed to fit on most API and ANSI flanges
- Steel linkage keeps blade cutting edge parallel to the nut throughout the splitting process

Nut AF sizes from 2 15/16" to 5 3/8"

Bolt sizes from 1 7/8" to 3 1/2"

Working pressure 10000 psi



Model number	Capacity (tons)	Oil capacity (in³)	Hexagon AF sizes inch	Hexagon AF sizes mm	Stud bolt thread sizes imperial	Stud bolt thread sizes metric	Weight (lbs)
DNS404	131.8	48.56	2 15/16" - 4 1/4"	75 - 105	1 7/8" - 2 3/4"	M48 - M72	110.2
DNS506	224.2	92.11	4 1/4" - 5 3/8"	105 - 136	2 3/4" - 3 1/2"	M72 - M95	211.6

Dimensions (in) A	B	C	D	E	F
14.93	7.56	3.92	5.14	7.21	1.34
17.77	9.46	5.52	6.6	9.26	1.62

Note: DNS nut splitters are for use on heavy duty nuts, where the nut height is equal to or greater than two-thirds of the blade length of the tool being used. Please check dimension 'F' to confirm the tool will fit in the space between the edge of the nut and the neck of the flange.

Replacement blades for DNS nut splitters

Blade part number	For nut splitter
DNS404-B	DNS404
DNS506-B	DNS506

HFS-H | HYDRAULIC FLANGE SPREADERS

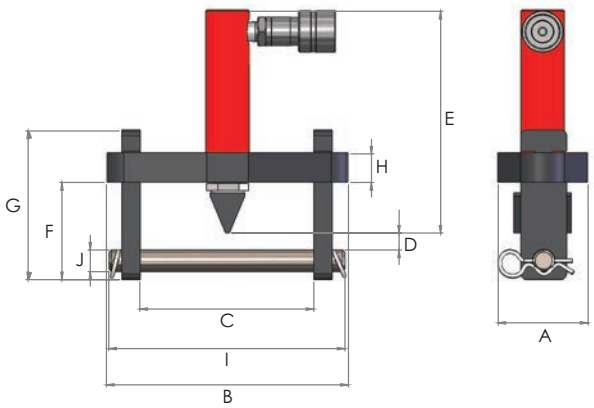


Capacities from 5 to 11 tons

Quick and easy to assemble on flange

Working pressure 10000 psi

- Single acting, spring assisted return cylinder for fast and safe operation
- Capable of opening flanges up to 2 x 2 ¼" thick
- Suitable for fitment on flanges with maximum bolt size of 1 ⅝" (41 mm)
- Spreading range from 2.4 to 8.83 inches
- Lightweight ergonomic design for ease of use



Model number	Capacity (tons)	Stroke (in)	Oil capacity (in^3)	Maximum flange thickness (in)	Stud size (in)	Standard wedge (in)	Weight (lbs)
HFS50H	5	2.96	2.93	2 x 2 ¼"	¾" - 1 ⅛"	⅛" - 1 ⅛"	11.0
HFS100H	11	2.21	4.94	2 x 3 ⅝"	1 ¼" - 1 ⅝"	⅛" - 1 ⅛"	25.6

Model number	Dimensions (in)										
	A	B	C (min)	C (max)	D	E	F	G	H	I	J
HFS50H	2.99	8.27	2.4	6.11	0.39	7.56	2.72	5.08	0.99	8.12	0.71
HFS100H	4.26	11.43	2.4	8.83	1.18	6.5	3.51	7.01	1.5	10.76	1.22

HFS & HFS-TK | HYDRAULIC FLANGE SPREADER KITS

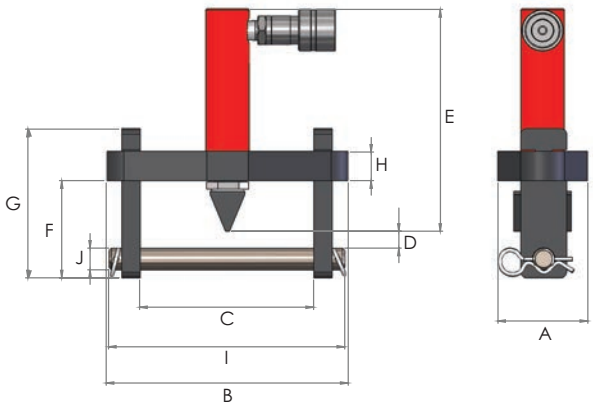


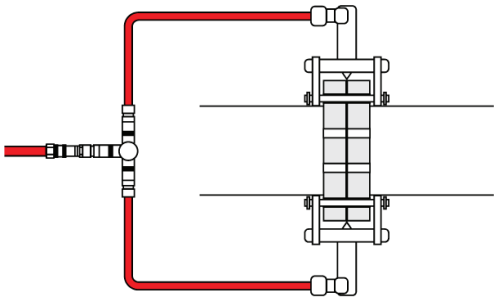
Capacities from 5 to 11 tons per spreader

Complete with manual hydraulic pump

Working pressure 10000 psi

- Single acting, spring assisted return for fast and safe operation
- Capable of opening flanges up to 2 x 3 5/8" thick
- Suitable for fitment on flanges with maximum bolt size of 1 5/8" (41 mm)
- Spreading range from 2.4 to 8.83 inches
- Lightweight ergonomic design for ease of use
- Available as single spreader or twin spreader arrangement
- Supplied complete with manually operated pump and hose assembly





Twin kit offers parallel flange separation on larger size flanges

Model number	Capacity (tons)	Stroke (in)	Oil capacity (in³)	Maximum flange thickness (in)	Stud size (in)	Standard wedge (in)	Weight (lbs)
HFS50	5	2.96	2.93	2 x 2 1/4"	3/4" - 1 1/8"	1/8" - 1 1/8"	49.6
HFS100	11	2.21	4.94	2 x 3 5/8"	1 1/4" - 1 5/8"	1/8" - 1 1/8"	64.2
HFS50-TK	2 x 5	2.96	2 x 2.93	2 x 2 1/4"	3/4" - 1 1/8"	1/8" - 1 1/8"	60.6
HFS100-TK	2 x 11	2.21	2 x 4.94	2 x 3 5/8"	1 1/4" - 1 5/8"	1/8" - 1 1/8"	78.7

Model number	Dimensions (in)										
	A	B	C (min)	C (max)	D	E	F	G	H	I	J
HFS50	2.99	8.27	2.4	6.11	0.39	7.56	2.72	5.08	0.99	8.12	0.71
HFS100	4.26	11.43	2.4	8.83	1.18	6.5	3.51	7.01	1.5	10.76	1.22
HFS50-TK	2.99	8.27	2.4	6.11	0.39	7.56	2.72	5.08	0.99	8.12	0.71
HFS100-TK	4.26	11.43	2.4	8.83	1.18	6.5	3.51	7.01	1.5	10.76	1.22

MFS | MECHANICAL FLANGE SPREADERS

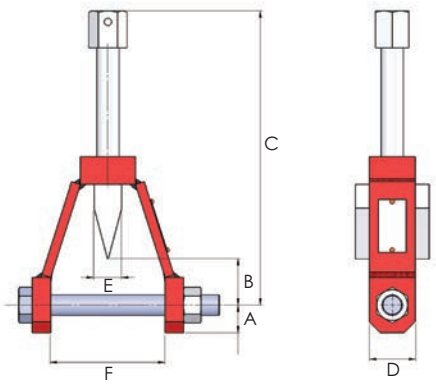


Suitable for bolt diameters up to 1 ¼"

Maximum spread 9.1 inches

No external power source required

- Manually operated mechanical feed screw design
- Capable of opening flanges up to 2 x 3 ¾" thickness
- Economical and safe operation
- High grade steel construction with high tensile cross bolt
- Case hardened spreading wedge
- Compact, portable and easy to use



Model number	Pin diameter		Min flange bolt hole diameter	Maximum flange thickness		Weight (lbs)	Dimensions (in)						
	inch	mm		inch	mm		A	B (max)	C (min)	C (max)	D	E	F
MFS16	5/8"	16	11/16"	2 x 7/8"	2 x 22	4.9	0.99	1.1	7.29	9.14	1.58	0.99	2.76
MFS19	3/4"	19	13/16"	2 x 1 3/8"	2 x 35	6.0	1.18	1.97	7.29	10.01	1.97	0.99	3.74
MFS22	7/8"	22	15/16"	2 x 1 13/16"	2 x 47	9.0	1.18	1.97	9.73	12.53	1.97	1.18	4.89
MFS25	1"	25	1"	2 x 2 7/16"	2 x 62	14.1	1.18	3.35	9.73	13.91	1.97	1.18	6.11
MFS28	1 1/8"	28	1 1/8"	2 x 2 3/4"	2 x 70	18.1	1.18	3.15	10.84	15.05	2.36	1.58	7.13
MFS31	1 1/4"	31	1 1/4"	2 x 3 3/4"	2 x 95	21.2	1.26	3.31	10.84	15.17	2.36	1.58	9.1

JS | JAW SPREADER

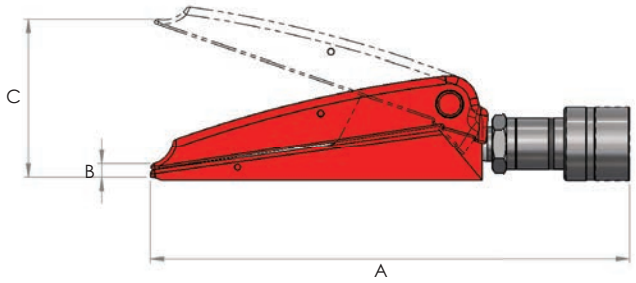


Capacity 1 ton

Maximum spread 3.31 inches

Working pressure 10000 psi

- Single acting, spring assisted return
- Narrow design requires access gap of only 0.51 inches
- High strength forged steel construction
- Easy connection to hydraulic pump and hose using supplied quick connect coupling
- Compact, lightweight and easy to use



Model number	Capacity (tons)	Oil capacity (in³)	Weight (lbs)	Dimensions (in)		
				A	B	C
JS4	1	0.61	4.9	9.22	0.51	3.31

SJS | STEPPED JAW SPREADERS

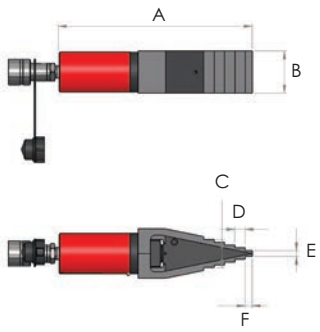


Capacity 14 tons per spreader unit

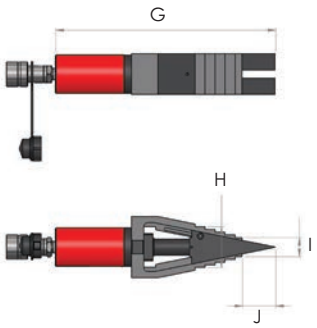
Maximum spread 2.36 inches

Supplied with safety block & stepped blocks

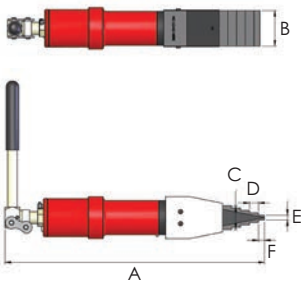
- Single acting, spring assisted return
- High strength steel construction
- Compact, lightweight and easy to use
- Low height jaw tips can easily fit into an 0.32 inches gap
- Maximum spreading distance 2.36 inches when using the supplied step blocks
- Self-contained spreader unit (SJS10-M) incorporates an integral manual hydraulic pump with multi-position operating lever



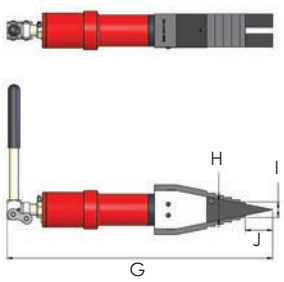
SJS10 Retracted



SJS10 Extended



SJS10-M Retracted



SJS10-M Extended

Model number	Capacity (tons)	Stroke (in)	Minimum height (in)	Maximum spread (in)	Oil capacity (in^3)	Weight (lbs)
SJS10	14	1.97	0.32	2.36	4.51	12.1
SJS10-M	14	1.97	0.32	2.36	4.51	16.5

Dimensions (in)									
A	B	C	D	E	F	G	H	I	J
10.99	2.36	1.58	0.59	0.32	0.39	12.92	2.36	1.1	1.93
17.06	2.36	1.58	0.59	0.32	0.39	19.03	2.36	1.1	1.93

TWIN KIT:

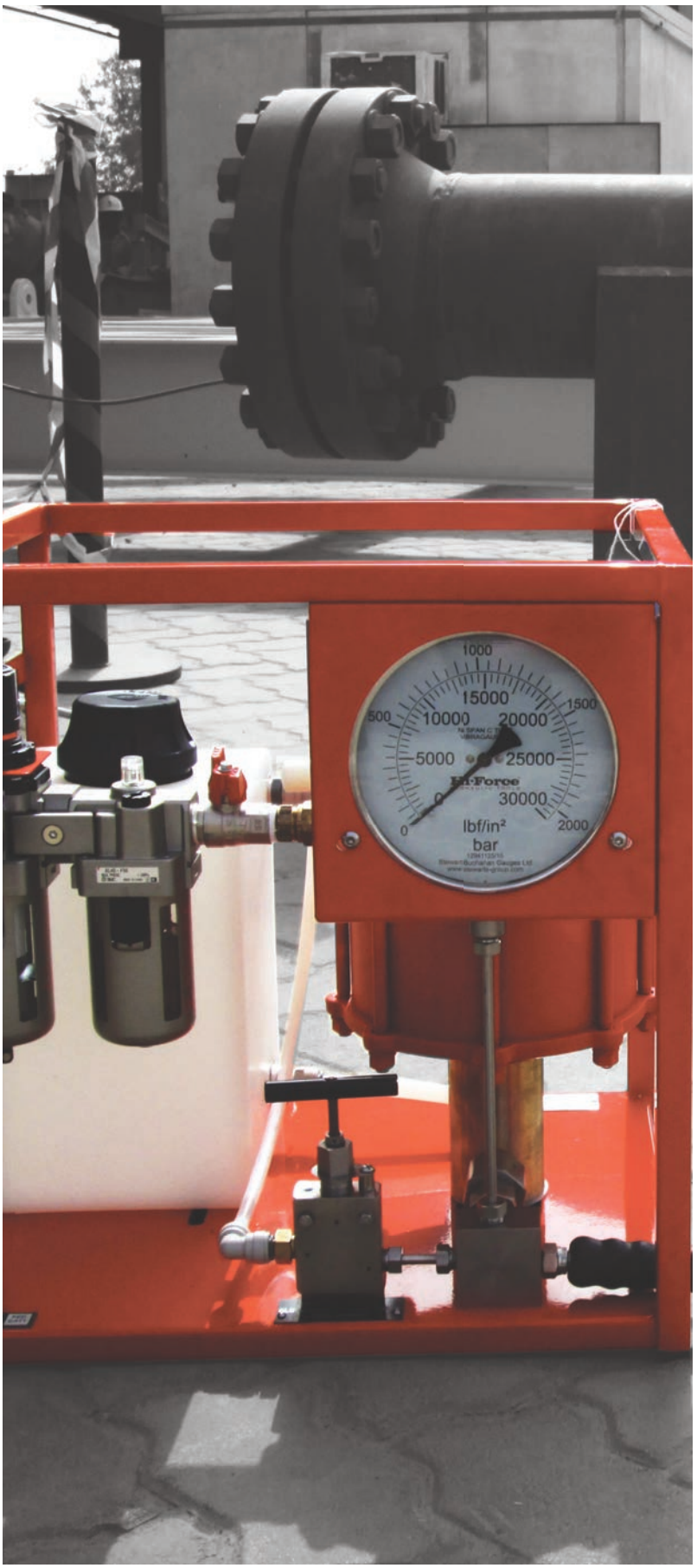
- Twin spreader kit is ideal for applications requiring two tools to be operated simultaneously
- Offers an even spread of the flange joint during gasket replacement

Model number	Spreaders 2 x	Pump 1 x	Hoses 2 x	Manifold 1 x	Gauges 2 x	Gauge blocks 2 x	Metal box 1x	Weight (lbs)
SJS10-TK	SJS10	HP212	HC3C	HM2C	HG63G	AGA1-25	MSB4	76.1

HI-FORCE HYDROTEST PUMPS

The Hi-Force range of hydrotest pumps is specifically designed for applications requiring pressure testing using water as a fluid medium. Extensively used for pressure testing valves, pipelines and pressure vessels, in various industries including oil and gas, petrochemical and food processing. The range offers a choice of two speed manually operated versions, with maximum output pressures up to 14500 psi, through to an extensive range of air driven options, offering a wide variety of piston displacement outputs and pressure outputs up to 40000 psi. All air driven versions also offer a factory fitted, integral chart recorder if required. All models can be factory fitted with special seals, manufactured from viton and ethylene propylene for use with special fluids or chemicals on request.

For a full list of fluids approved for use with Hi-Force hydrotest pumps please contact your Hi-Force Regional Office or approved Hi-Force Distributor.









HYDROTEST PUMPS

MHX RANGE 130
Manually operated hydrotest pumps

MHX-PU RANGE 131
Manually operated hydrotest pump units

AHP RANGE 132
Air driven hydrotest pumps - Standard flow

AHP-CR RANGE 133
Air driven hydrotest pumps - Standard flow with chart recorder

AHP2 RANGE 134
Air driven hydrotest pumps - Medium flow

AHP2-CR RANGE 135
Air driven hydrotest pumps - Medium flow with chart recorder

ATDP RANGE 136
Air driven hydrotest pumps - High flow, twin double acting design

HYDROTEST PUMP ACCESSORIES 137
Spare recorder charts & pen for chart recorder

MHX | MANUALLY OPERATED HYDROTEST PUMPS

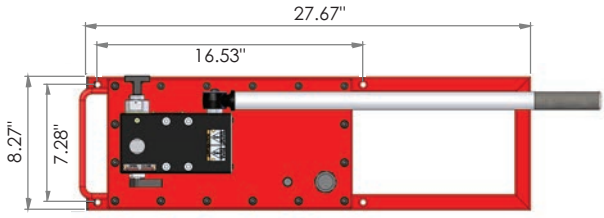


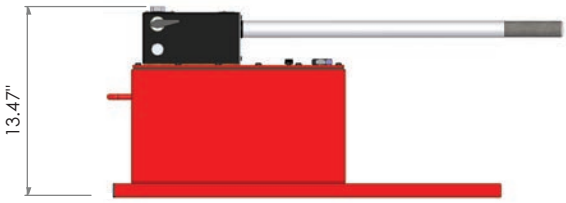
Choice of 5 models available

Maximum output pressures up to 14500 psi

Two stage displacement with manual T-Handle changeover plunger

- Lightweight aluminum alloy pump unit with integral factory set safety relief valve
- High grade stainless steel pistons for increased resistance to corrosion
- Smooth manually operated 2-way pressure and release valve with precise control
- Stainless steel powder coated 4 gallons capacity reservoir with extended foot reaction bar
- Multi-positional 24 inches length operating lever with retaining washer and bolt
- Optional 4 inches diameter hydraulic pressure gauges with fixing kit
- Standard 10 feet length hose with swivel end fittings available as optional extra
- Suitable for use with hydraulic mineral oil; demineralized, distilled and 'filtered mains supplied'
- For use with other fluids, consult Hi-Force as special seals may be required





Model number (with reservoir)	Working pressure (psi)	Displacement per stroke (in³) 1st stage	2nd stage	Changeover pressure (psi)	Outlet port	*Weight with reservoir (lbs)
MHX100	1450	3.05	1.34	725	⅜" NPT	44.1
MHX300	4350	3.05	0.49	725	⅜" NPT	44.1
MHX500	7250	3.05	0.24	725	⅜" NPT	44.1
MHX700	10150	3.05	0.18	725	⅜" NPT	44.1
MHX1000	14500	3.05	0.12	725	⅜" BSP	44.1

**Weight excluding fluid*

ACCESSORIES

PRESSURE GAUGES



Model number	Pressure range (psi)
MHX100GK	1600
MHX300GK	4500
MHX500GK	8000
MHX700GK	10000
MHX1000GK	14500

HOSES



Model number	Max WP (psi)	Length (ft)	Weight (lbs)	End fitting	For model number
HH3-6NMS-1	up to 4350	10	1.8	⅜" NPT Male Swivel	MHX100 & MHX300
HH3-6NMS-2	up to 10000	10	2.0	⅜" NPT Male Swivel	MHX500 & MHX700
HH3-6NMS-3	14500	10	3.3	⅜" BSP Male Swivel	MHX1000

MHX-PU | MANUALLY OPERATED HYDROTEST PUMP UNITS

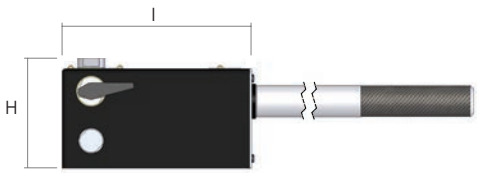


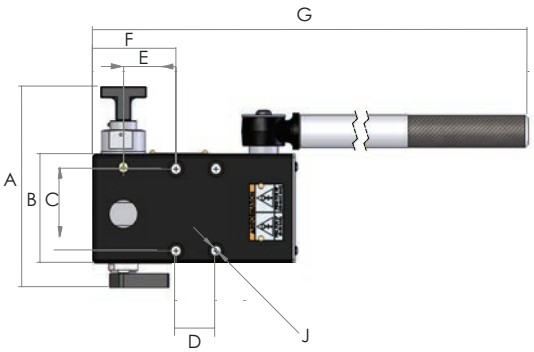
Choice of 5 models available

Maximum output pressures up to 14500 psi

Two stage displacement with manual T-Handle changeover plunger

- Supplied as pump unit and operating lever only, reservoir not included
- Includes four bolt fixing kit with gasket for easy mounting on fluid reservoir
- All other features are as specified for the MHX pumps





Model number (pump only)	Working pressure (psi)	Valve type	Displacement per stroke (in³) 1st stage	2nd stage	Changeover pressure (psi)	Outlet port	Suction port	Weight (lbs)
MHX100PU	1450	2-way	3.05	1.34	725	⅜" NPT	⅜" NPT	11
MHX300PU	4350	2-way	3.05	0.49	725	⅜" NPT	⅜" NPT	11
MHX500PU	7250	2-way	3.05	0.24	725	⅜" NPT	⅜" NPT	11
MHX700PU	10150	2-way	3.05	0.18	725	⅜" NPT	⅜" NPT	11
MHX1000PU	14500	2-way	3.05	0.12	725	⅜" BSP	⅜" NPT	11

Model number	Dimensions (in) A	B	C	D	E	F	G	H	I	J
All models	7.09	3.74	2.82	1.38	1.81	2.72	29.94	4.14	6.97	4 x M8

RESERVOIR



Model number	Description
MHR15	4 gallons standard reservoir

AHP | AIR DRIVEN HYDROTEST PUMPS - STANDARD FLOW

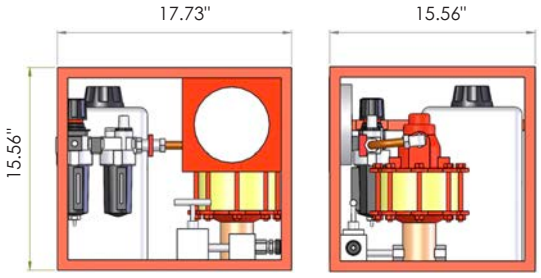


Output pressures up to 42500 psi

Suitable for use with various fluids

6 inches dual scale vibra pressure gauge

- Infinitely variable output pressure and fluid displacement speed
- Integral inlet air filtration and lubrication unit with air pressure gauge
- Airline regulator for easy setting of input air and output hydraulic pressure
- Maximum air consumption of 28 scfm (0.79 m^3) per minute at 100 psi
- Smooth and easily operated hydraulic pressure hold and release valve
- Fitted with input air pump start/stop valve for easy and fast pressure shut off
- Robust powder coated stainless steel protective framework
- Lightweight plastic, 2 gallons capacity, fluid reservoir
- Optional stainless steel reservoir, stroke counter system and pressure isolation valve available on request

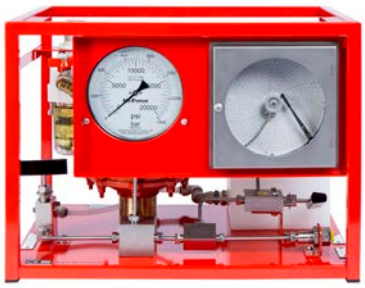


Model number	Max output pressure (psi) at airline input pressure 10 psi 0.69 bar	50 psi 3.45 bar	100 psi 6.9 bar	Fluid volume displacement per stroke (in^3)	Outlet port thread	Weight (lbs)
AHP10	87	493	1000	2.58	½" NPT	50.7
AHP26	203	1305	2625	0.98	½" NPT	46.3
AHP36	247	1769	3625	0.75	½" NPT	44.1
AHP58	406	2900	5800	0.46	½" NPT	44.1
AHP107	899	5409	10701	0.24	½" NPT	44.1
AHP187	1407	9251	18749	0.13	9/16"-18 UNF	44.1
AHP275	2248	13500	27507	0.1	9/16"-18 UNF	44.1
AHP425	5503	20996	42500	0.06	9/16"-18 UNF	44.1

Hydraulic pressure psi	bar	Approximate rate of discharge (gallons/min) at air input pressure 100 psi (7 bar) AHP10	AHP26	AHP36	AHP58	AHP107	AHP187	AHP275	AHP425
0	0	6.1	2.32	1.58	0.94	0.52	0.3	0.19	0.11
500	35	3.17	1.54	1.16	0.81	0.4	0.28	0.18	0.11
1000	69	*	1.25	1	0.66	0.34	0.26	0.17	0.1
1500	104	*	1.03	0.88	0.63	0.33	0.24	0.16	0.1
2000	138	*	0.79	0.79	0.59	0.32	0.21	0.15	0.09
2500	173	*	0.32	0.68	0.54	0.31	0.2	0.13	0.09
3000	207	*	*	0.51	0.49	0.31	0.19	0.13	0.08
4000	276	*	*	*	0.41	0.27	0.18	0.12	0.08
5000	345	*	*	*	0.27	0.25	0.18	0.11	0.07
7500	517	*	*	*	*	0.2	0.16	0.11	0.07
10000	690	*	*	*	*	0.12	0.14	0.1	0.06
15000	1034	*	*	*	*	*	0.1	0.09	0.06
20000	1379	*	*	*	*	*	*	0.08	0.05
25000	1724	*	*	*	*	*	*	0.06	0.04
30000	2069	*	*	*	*	*	*	*	0.03
40000	2760	*	*	*	*	*	*	*	0.01

** Pressure exceeds pump capacity*

AHP-CR | AIR DRIVEN HYDROTEST PUMPS - STANDARD FLOW WITH CHART RECORDER

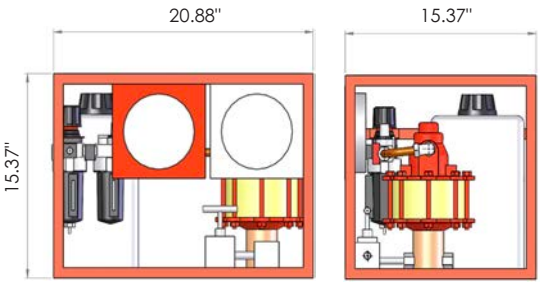


Output pressures up to 42500 psi

Suitable for use with various fluids

6 inches dual scale vibra pressure gauge

- Fitted with integral single pen chart recorder with isolation valve
- Supplied with 50 recorder charts and one black chart recorder pen
- Infinitely variable output pressure and fluid displacement speed
- Integral inlet air filtration and lubrication unit with air pressure gauge
- Airline regulator for easy setting of input air and output hydraulic pressure
- Maximum air consumption of 28 scfm (0.79 m^3) per minute at 100 psi
- Smooth and easily operated hydraulic pressure hold and release valve
- Fitted with input air pump start/stop valve for easy and fast pressure shut off
- Robust powder coated stainless steel protective framework
- Lightweight plastic, 2 gallons capacity, fluid reservoir
- Optional stainless steel reservoir, stroke counter system and pressure isolation valve available on request



Model number	Max output pressure (psi) at airline input pressure 10 psi 0.69 bar	50 psi 3.45 bar	100 psi 6.9 bar	Fluid volume displacement per stroke (in^3)	Outlet port thread	Weight (lbs)
AHP10-CR	87	493	1000	2.58	½" NPT	68.3
AHP26-CR	203	1305	2625	0.98	½" NPT	63.9
AHP36-CR	247	1769	3625	0.75	½" NPT	61.7
AHP58-CR	406	2900	5800	0.46	½" NPT	61.7
AHP107-CR	899	5409	10701	0.24	½" NPT	61.7
AHP187-CR	1407	9251	18749	0.13	9/16" -18 UNF	61.7
AHP275-CR	2248	13500	27507	0.1	9/16" -18 UNF	61.7
AHP425-CR	5503	20996	42500	0.06	9/16" -18 UNF	61.7

Hydraulic pressure		Approximate rate of discharge (gallons/min) at air input pressure 100 psi (7 bar)							
psi	bar	AHP10-CR	AHP26-CR	AHP36-CR	AHP58-CR	AHP107-CR	AHP187-CR	AHP275-CR	AHP425-CR
0	0	6.1	2.32	1.58	0.94	0.52	0.3	0.19	0.11
500	35	3.17	1.54	1.16	0.81	0.4	0.28	0.18	0.11
1000	69	*	1.25	1	0.66	0.34	0.26	0.17	0.1
1500	104	*	1.03	0.88	0.63	0.33	0.24	0.16	0.1
2000	138	*	0.79	0.79	0.59	0.32	0.21	0.15	0.09
2500	173	*	0.32	0.68	0.54	0.31	0.2	0.13	0.09
3000	207	*	*	0.51	0.49	0.31	0.19	0.13	0.08
4000	276	*	*	*	0.41	0.27	0.18	0.12	0.08
5000	345	*	*	*	0.27	0.25	0.18	0.11	0.07
7500	517	*	*	*	*	0.2	0.16	0.11	0.07
10000	690	*	*	*	*	0.12	0.14	0.1	0.06
15000	1034	*	*	*	*	*	0.1	0.08	0.06
20000	1379	*	*	*	*	*	*	0.06	0.05
25000	1724	*	*	*	*	*	*	0.21	0.04
30000	2069	*	*	*	*	*	*	*	0.03
40000	2760	*	*	*	*	*	*	*	0.01

** Pressure exceeds pump capacity*

AHP2 | AIR DRIVEN HYDROTEST PUMPS - MEDIUM FLOW

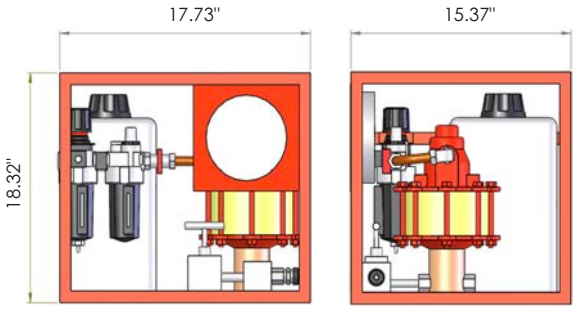


Output pressures up to 23700 psi

Suitable for use with various fluids

6 inches dual scale vibra pressure gauge

- Infinitely variable output pressure and fluid displacement speed
- Integral inlet air filtration and lubrication unit with air pressure gauge
- Airline regulator for easy setting of input air and output hydraulic pressure
- Maximum air consumption of 56 scfm (1.59 m^3) per minute at 100 psi
- Smooth and easily operated hydraulic pressure hold and release valve
- Fitted with input air pump start/stop valve for easy and fast pressure shut off
- Robust powder coated stainless steel protective framework
- Lightweight plastic, 2 gallons capacity, fluid reservoir
- Optional stainless steel reservoir, stroke counter system and pressure isolation valve available on request

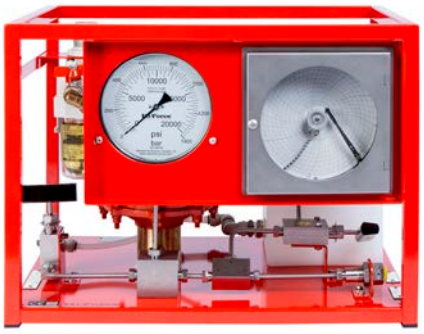


Model number	Max output pressure (psi) at airline input pressure 10 psi 0.69 bar	50 psi 3.45 bar	100 psi 6.9 bar	Fluid volume displacement per stroke (in^3)	Outlet port thread	Weight (lbs)
AHP2-036	249	1799	3600	2.49	½" NPT	52.9
AHP2-060	450	2899	6000	1.5	½" NPT	52.9
AHP2-097	750	4749	9700	0.93	½" NPT	52.9
AHP2-144	1099	7098	14400	0.62	½" NPT	52.9
AHP2-237	1900	11597	23700	0.37	9/16" -18 UNF	52.9

Hydraulic pressure		Approximate rate of discharge (gallons/min) at air input pressure 100 psi (7 bar)				
psi	bar	AHP2-036	AHP2-060	AHP2-097	AHP2-144	AHP2-237
0	0	2.69	1.64	1.03	0.71	0.41
500	35	2.27	1.45	0.94	0.66	0.4
1000	69	1.91	1.27	0.84	0.62	0.39
1500	104	1.62	1.19	0.79	0.57	0.37
2000	138	1.43	1.11	0.76	0.57	0.36
3000	207	0.81	0.92	0.67	0.5	0.34
4000	276	*	0.73	0.6	0.46	0.32
5000	345	*	0.57	0.55	0.43	0.32
7500	517	*	*	0.38	0.36	0.29
10000	690	*	*	*	0.3	0.26
15000	1034	*	*	*	*	0.21
20000	1379	*	*	*	*	0.13
23700	1634	*	*	*	*	0.09

** Pressure exceeds pump capacity*

AHP2-CR | AIR DRIVEN HYDROTEST PUMPS - MEDIUM FLOW WITH CHART RECORDER

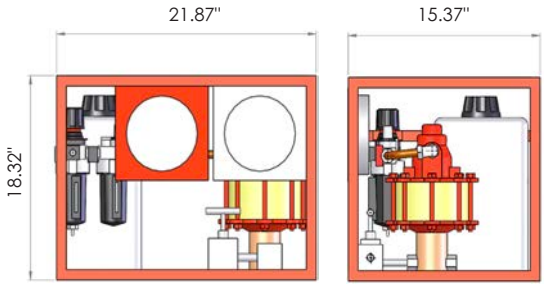


Output pressures up to 23700 psi

Suitable for use with various fluids

6 inches dual scale vibra pressure gauge

- Fitted with integral single pen chart recorder with isolation valve
- Supplied with 50 recorder charts and one black chart recorder pen
- Infinitely variable output pressure and fluid displacement speed
- Integral inlet air filtration and lubrication unit with air pressure gauge
- Airline regulator for easy setting of input air and output hydraulic pressure
- Maximum air consumption of 56 scfm (1.59 m^3) per minute at 100 psi
- Smooth and easily operated hydraulic pressure hold and release valve
- Fitted with input air pump start/stop valve for easy and fast pressure shut off
- Robust powder coated stainless steel protective framework
- Lightweight plastic, 2 gallons capacity, fluid reservoir
- Optional stainless steel reservoir, stroke counter system and pressure isolation valve available on request



Model number	Max output pressure (psi) at airline input pressure			Fluid volume displacement per stroke (in^3)	Outlet port thread	Weight (lbs)
	10 psi 0.69 bar	50 psi 3.45 bar	100 psi 6.9 bar			
AHP2-036CR	249	1799	3600	2.49	½" NPT	70.5
AHP2-060CR	450	2899	6000	1.5	½" NPT	70.5
AHP2-097CR	750	4749	9700	0.93	½" NPT	70.5
AHP2-144CR	1099	7098	1440	0.62	½" NPT	70.5
AHP2-237CR	1900	11597	23700	0.37	9/16" -18 UNF	70.5

Hydraulic pressure		Approximate rate of discharge (gallons/min) at air input pressure 100 psi (7 bar)				
psi	bar	AHP2-036CR	AHP2-060CR	AHP2-097CR	AHP2-144CR	AHP2-237CR
0	0	2.69	1.64	1.03	0.71	0.41
500	35	2.27	1.45	0.94	0.66	0.4
1000	69	1.91	1.24	0.84	0.62	0.39
1500	104	1.62	1.19	0.79	0.57	0.37
2000	138	1.43	1.11	0.76	0.57	0.36
3000	207	0.81	0.92	0.67	0.5	0.34
4000	276	*	0.73	0.6	0.46	0.32
5000	345	*	0.57	0.55	0.43	0.32
7500	517	*	*	0.38	0.36	0.29
10000	690	*	*	*	0.3	0.26
15000	1034	*	*	*	*	0.21
20000	1379	*	*	*	*	0.13
23700	1634	*	*	*	*	0.09

** Pressure exceeds pump capacity*

ATDP | AIR DRIVEN TWIN DOUBLE ACTING HYDROTEST PUMPS

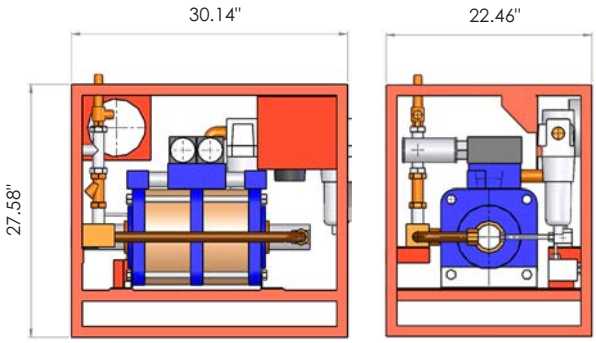


Output pressures up to 21600 psi

Suitable for use with various fluids

6 inches dual scale vibra pressure gauge

- Infinitely variable output pressure and fluid displacement speed
- Integral inlet air filtration and lubrication unit with air pressure gauge
- Airline regulator for easy setting of input air and output hydraulic pressure
- Maximum air consumption of 212 scfm (6 m^3) per minute at 100 psi
- Smooth and easily operated hydraulic pressure hold and release valve
- Fluid inlet port of 1" BSPF with integral Y-type fluid strainer
- Fitted with input air pump start/stop valve for easy and fast pressure shut off
- Robust powder coated stainless steel protective framework
- Optional stroke counter system, chart recorder and isolation section for chemical duty available on request



Model number	Max output pressure (psi) at airline input pressure 20 psi 1.38 bar	60 psi 4.14 bar	100 psi 6.9 bar	Fluid volume displacement per stroke (in^3)	Outlet port thread	Weight (lbs)
ATDP63	1260	3770	6300	16.78	½" NPT	211.6
ATDP125	2494	7497	12500	8.54	½" NPT	211.6
ATDP216	4321	12963	21600	4.82	1 ⅛"-12 UNF	211.6

Hydraulic pressure		Approximate rate of discharge (gallons/min) at air input pressure 100 psi (7 bar)		
psi	bar	ATDP63	ATDP125	ATDP216
0	0	8.5	4.46	2.51
1000	69	6.78	3.7	2.32
2000	138	5.41	3.25	2.11
3000	207	4.28	2.8	1.95
4000	276	3.3	2.48	1.82
5000	345	2.11	2.19	1.69
6000	414	0.74	1.93	1.61
8000	552	*	1.27	1.45
10000	690	*	0.79	1.29
12000	828	*	0.11	1.14
16000	1103	*	*	0.84
20000	1379	*	*	0.42

** Pressure exceeds pump capacity*

HYDROTEST PUMP ACCESSORIES

SPARE RECORDER CHARTS

Pack of 100 spare charts, diameter 6.5 inches, 4-hour time scale

Model number	Chart reading (psi)	Suitable for hydrotest pump unit
AHP-C01	0 - 1500	AHP10-CR
AHP-C03	0 - 3000	AHP26-CR
AHP-C05	0 - 5000	AHP36-CR AHP2-036CR
AHP-C10	0 - 10000	AHP58-CR AHP2-060CR
AHP-C15	0 - 15000	AHP107-CR AHP2-097CR
AHP-C20	0 - 20000	AHP187-CR AHP2-144CR
AHP-C30	0 - 30000	AHP275-CR AHP2-237CR
AHP-C45	0 - 45000	AHP425-CR



REPLACEMENT PEN FOR CHART RECORDER

Model number	Colour	Description
AHP-PB	Black	Suitable for pressure recording on all Hi-Force AHP pumps with chart recorder

HI-FORCE HYDRAULIC PULLER KITS

The Hi-Force range of hydraulic puller kits comprises of self-contained and remote operation, manually operated, 2 and 3-way jaw type pullers, with or without auto-centre option, bearing pullers, bearing cup pullers and cross head pullers, with pulling capacities up to 55 tons. All components are manufactured from high strength alloy and drop forged steel.

Additionally, within this section of the catalog Hi-Force also offers hydraulic pin and bush puller and instalment tool kits, ideally suited for use on heavy duty trucks, earth moving equipment and crane and jib arm lifting equipment, the range offers capacities up to 55 tons, at 10000 psi maximum working pressure.









PULLER KITS

SCP RANGE 140
Self-contained hydraulic pullers

ACP RANGE 177
Auto-center hydraulic puller kits

PKS RANGE 142
Hydraulic 2 and 3-way puller kits

PKC RANGE 143
Comprehensive hydraulic puller kits

HBR RANGE 144
Spring eye bush replacement tool kit

HPR RANGE 145
Pin & bush replacement tool kits

SCP | SELF-CONTAINED HYDRAULIC PULLERS

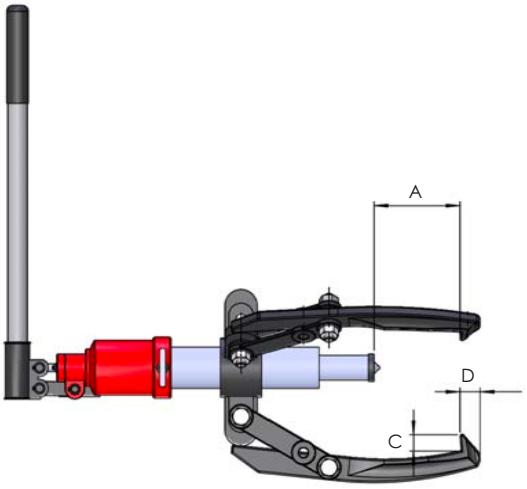


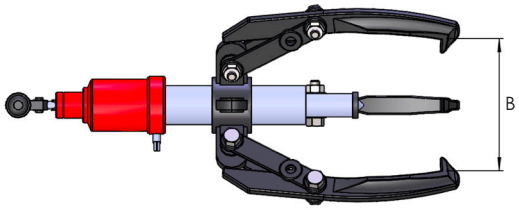
Capacities from 9 to 29 tons

Self-contained hydraulic system

Operates in any position

- Available in a choice of 2-way or 3-way puller configurations (see Note)
- Integrated hydraulic cylinder, pump and puller assembly for easy operation
- Ergonomic 360° rotating handle for easy positioning during use
- Incorporates safety valve to minimize the risk of puller overload
- Spring-loaded center point for easy centering of the puller to the shaft
- Supplied complete with piston rod extension piece and storage case





Model number	Capacity (tons)	Type of puller	Hydraulic stroke (in)	Piston rod extension (in)	Weight (lbs)	Dimensions (in) A	B (min)	B (max recommended)	C	D
SCP103	9	2 & 3-way jaw	3.23	1.97	25.6	7.68	1.18	9.85	0.87	0.24
SCP203	19	2 & 3-way jaw	3.23	3.94	52.2	10.84	1.97	14.18	1.14	0.39
SCP303	29	2 & 3-way jaw	4.33	5.91	110.2	15.96	3.94	21.28	1.5	1.42

Note: All models are supplied with a combination crosshead. This combination crosshead can be used as a 2-jaw puller when the legs are arranged at 180° and as a 3-jaw puller when the legs are arranged at 120°.

ACP | AUTO-CENTER HYDRAULIC PULLER KITS

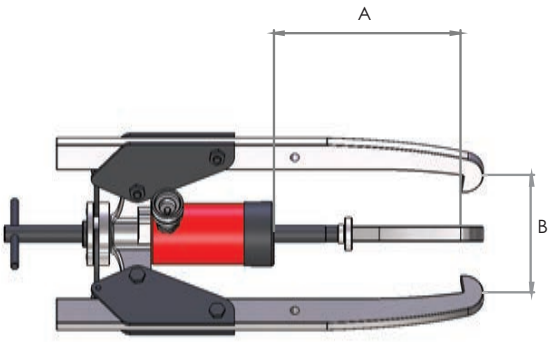


Capacities from 11 to 55 tons

Quick set-up time, easy to use

High quality, drop forged steel components

- Self-centering design allows secure positioning of jaws
- Incorporates safety overload prevention valve within hydraulic pump
- Supplied as a complete set with all necessary hydraulic components in handy storage case
- Model ACP10 offers choice of either 2-way or 3-way puller operation (see Note)



Model number	Capacity (tons)	Type of puller	Cylinder model	Pump model	Weight (lbs)	Dimensions (in) A	B (min)	B (max)
ACP10	11	2 & 3-way jaw	HHS102	PK10-HP	54.0	11.66	1.97	13.79
ACP20	22	3-way jaw	HHS202	PK20-HP	97.0	12.61	2.76	18.91
ACP30	33	3-way jaw	HHS302	PK30-HP	168.7	16.04	3.55	22.85
ACP50	55	3-way jaw	HHS603	PK50-HP	399.0	28.64	4.73	36.25

Note: ACP10 is supplied with a combination crosshead. This combination crosshead can be used as a 2-jaw puller when the legs are arranged at 180˚ and as a 3-jaw puller when the legs are arranged at 120˚.

PKS | HYDRAULIC 2 & 3 WAY PULLER KITS

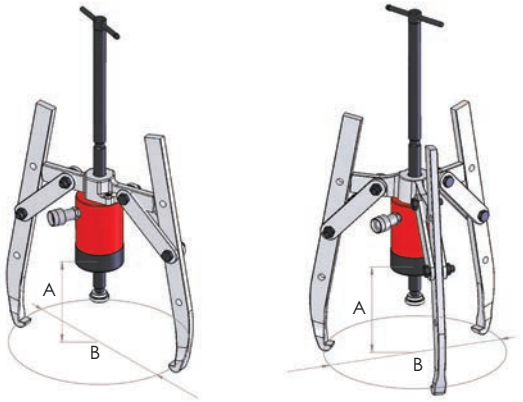


Capacities from 5 to 55 tons

Quick set-up time, easy to use

High quality, drop forged steel components

- Available in a choice of 2-way or 3-way puller configurations with 5 and 11 ton models offering a combination head (see Note 3)
- Incorporates safety overload prevention valve within hydraulic pump
- Supplied as a complete set with all necessary hydraulic components in handy storage case (see Note 4)



Model number	Capacity (tons)	Type of puller	Cylinder model	Pump model	Weight (lbs)	Dimensions (in) A	B (min)	B (max)
PKS5-2-3	5	2 & 3-way jaw	HSS53	HP110	29.5	8.87	*	9.46
PKS10-2-3	11	2 & 3-way jaw	HHS102	PK10-HP	45.9	11.66	1.97	13.79
PKS20-2	22	2-way jaw	HHS202	PK20-HP	67.9	12.61	2.76	18.91
PKS20-3	22	3-way jaw	HHS202	PK20-HP	78.7	12.61	2.76	18.91
PKS30-2	33	2-way jaw	HHS302	PK30-HP	98.8	16.04	3.55	22.85
PKS30-3	33	3-way jaw	HHS302	PK30-HP	119.9	16.04	3.55	22.85
PKS50-2	55	2-way jaw	HHS603	PK50-HP	218.3	28.64	4.73	36.25
PKS50-3	55	3-way jaw	HHS603	PK50-HP	268.3	28.64	4.73	36.25
PK202	22	2-way jaw beam	*	*	6.6	*	*	*
PK302	33	2-way jaw beam	*	*	8.8	*	*	*
PK502	55	2-way jaw beam	*	*	15.4	*	*	*

Note: 1) PK202, PK302 & PK502 are 2-way jaw beam only for modifying applicable capacity 3-way jaw pullers to 2-way jaw operation.
2) Dimensions calculated with 15° outward angled puller legs.
3) PKS5-2-3 and PKS10-2-3 are supplied with a combination crosshead. This combination crosshead can be used as a 2-jaw puller when the legs are arranged at 180° and as a 3-jaw puller when the legs are arranged at 120°.
4) All PKS puller kits are supplied in a metal storage box with the exception of PKS50-2 and PKS50-3, which are supplied in an alternate storage case.

PKC | COMPREHENSIVE HYDRAULIC PULLER KITS

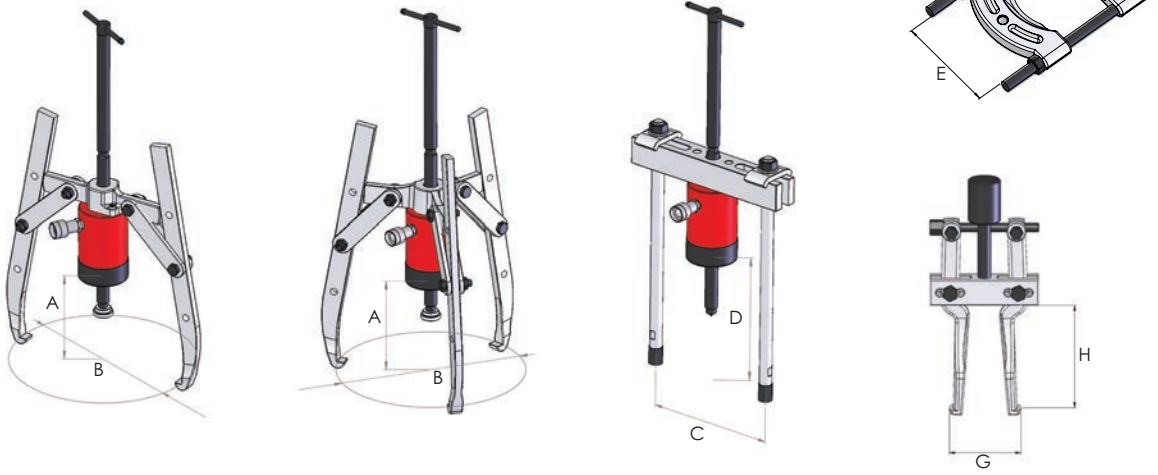


Capacities from 11 to 55 tons

Combination of 4 different pullers in one set

High quality, drop forged steel components

- Multi-purpose puller kit comprising of grip puller, bearing puller, bearing cup puller and cross head puller
- Choice of 2-way or 3-way jaw pulling options with PKC10 offering a combination head (see Note 2)
- Incorporates safety overload prevention valve within hydraulic pump
- Supplied as a complete set with all necessary hydraulic components in handy storage case (see Note 3)



Model number	Capacity (tons)	Cylinder model	Pump model	Weight (lbs)	Dimensions (in)											
					A	B (min)	B (max)	C (min)	C (max)	D	E	F (min)	F (max)	G (min)	G (max)	H
PKC10	11	HHS102	PK10-HP	72.3	11.66	1.97	13.79	4.53	10.24	11.82	4.33	0.39	4.33	1.58	5.71	4.53
PKC20	22	HHS202	PK20-HP	130.7	12.61	2.76	18.91	5.32	13.59	10.44	6.11	0.47	5.28	1.58	5.71	4.53
PKC30	33	HHS302	PK30-HP	257.9	16.04	3.55	22.85	7.09	17.34	11.19	10.24	0.67	10.05	2.36	9.46	5.91
PKC50	55	HHS603	PK50-HP	518.1	28.64	4.73	36.25	9.06	22.85	17.61	11.82	0.79	11.82	2.36	9.46	5.91

Note: 1) Dimensions A & B calculated with 15° outward angled puller legs
2) PKC10 is supplied with a combination crosshead. This combination crosshead can be used as a 2-jaw puller when the legs are arranged at 180° and as a 3-jaw puller when the legs are arranged at 120°.
3) All PKC puller kits are supplied in a metal storage box with the exception of PKC50, which is supplied in an alternate storage case.

HBR | SPRING EYE BUSH REPLACEMENT TOOL KIT



Powerful 20 tons output capacity

Maximum working pressure 10000 psi

Lightweight and compact design

- Choice of manual or air driven hydraulic pump
- Kit includes a lightweight aluminum alloy hollow bore cylinder
- Supplied complete with wide range of standard tooling accessories
- Handy storage and transportation box included with each kit

Model number	Capacity (tons)	Stroke (in)	Cylinder	Pump	Hose	Base plate	Threaded rods	Dolleys	Pull sleeves	Weight (lbs)
HBR-1	20	2.01	HHA182	n/a	n/a	1	3	5	2	59.5
HBR-1H	20	2.01	HHA182	HP212	HC2	1	3	5	2	72.8
HBR-1A	20	2.01	HHA182	AHP1120	HC2	1	3	5	2	77.2

Note: Model HBR-1 does not include pump and hose assembly.

PUMP OPTIONS

The HBR-1 hydraulic spring eye bush replacement tool kit can be operated by either the AHP1120 air driven foot pump or the HP212 lighweight aluminum hand pump.



HPR | PIN & BUSH REPLACEMENT TOOL KITS



Capacities up to 55 tons

Maximum working pressure 10000 psi

Lightweight and compact design

- Choice of manual or air driven hydraulic pump
- Kit includes a lightweight aluminum alloy hollow bore cylinder
- Supplied complete with wide range of standard tooling accessories
- Handy storage and transportation box included with each kit

Model number	Capacity (tons)	Stroke (in)	Cylinder	Pump	Hose	Base plate	Threaded rods	Pull sleeves	Adaptors	Reducer sleeves	Weight (lbs)
HPR-1	41	2.01	HHA372	n/a	n/a	1	1	2	2	1	83.8
HPR-1H	41	2.01	HHA372	HP212	HC2	1	1	2	2	1	97.0
HPR-1A	41	2.01	HHA372	AHP1120	HC2	1	1	2	2	1	101.4
HPR-2	55	4.1	HHA504	n/a	n/a	2	1	4	1	1	145.5
HPR-2H	55	4.1	HHA504	HP212	HC2	2	1	4	1	1	158.7
HPR-2A	55	4.1	HHA504	AHP1120	HC2	2	1	4	1	1	163.1

Note: Model numbers HPR-1 and HPR-2 do not include pump and hose assembly.

PUMP OPTIONS

The HPR hydraulic pin and bush replacement tool kits can be operated by either the AHP1120 air driven foot pump or the HP212 lighweight aluminum hand pump.



HI-FORCE CRIMPERS AND CUTTERS

Hi-Force hydraulic cable crimping tools are designed and manufactured for crimping un-insulated compression and mechanical connectors, in copper and aluminum, to a wide range of electrical power cables including distribution and transmission lines. Offering a choice of self-contained operation with inbuilt manually operated hydraulic pump mechanism, separate remote operation crimping head for use with a separate hydraulic pump and hose assembly, or battery operated which offers all the versatility of our self-contained and manually operated tools but, with the added speed and ease of use associated with a battery powered tool.

The Hi-Force hydraulic crimping tools range offers the most optimum choice to suit the widest range of electrical cable crimping applications. All models are designed and manufactured for use at 10000 psi maximum working pressure, supplied complete with all applicable die sets, compatible for use with the selected tool and include a convenient carrying and storage case. Self-contained manually operated and battery powered crimper tools are fitted with an automatic pump pressure relief valve, which activates and releases the hydraulic pressure immediately, once the compression (crimping) process has been successfully achieved. All remote operation crimper heads must be operated with a compatible Hi-Force 10000 psi hydraulic pump unit, fitted with an inbuilt pump safety overload, pressure relief valve, 10000 psi pressure gauge and 10000 psi rated hydraulic hose assembly.

Also detailed in this section of the catalog, is the cutter range from Hi-Force which offers hydraulic, manual and self-contained options that are suitable for cutting steel wire ropes, round bars, wire strands, cables and heavy duty steel chains in many applications across several industries.









CRIMPERS & CUTTERS

CH RANGE 148
Cable crimping heads

SC RANGE 149
Self-contained cable crimping tools

BC RANGE 150
Battery operated cable crimping tools

BC ACCESSORIES 151
Accessories for battery operated cable crimping tools

HCH RANGE 152
Cutter heads

CT RANGE 153
Self-contained cutters

HWC RANGE 154
Hammer blow, wire rope and cable cutters

HSWC RANGE 155
Self-contained wire rope cutters

HWRC RANGE 156
Double acting wire rope cutters

HCC RANGE 157
Chain cutters

CH | CABLE CRIMPING HEADS



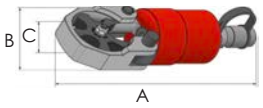
Choice of 7 models available

180 degree rotating head for easy fitment

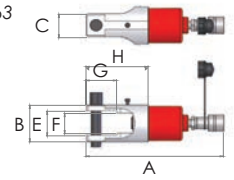
Working pressure 10000 psi

- Open 'C' jaw or parallel guide design
- 180° rotating head for easy access in confined spaces
- Fitted with quick connect coupling for easy connection to 10000 psi rated hydraulic pump
- Supplied with standard die sets and carrying case
- Suitable foot operated pump assembly detailed on page 35
- Model CH21 is suitable for crimping non-insulated terminals up to 240 mm²
- Models CH30, CH32 & CH40 are suitable for crimping connectors up to 400 mm²
- Models CH63 & CH80 are suitable for crimping connectors up to 630 mm²
- Model CH1000N is suitable for crimping distribution and transmission lines up to 1000 mm²

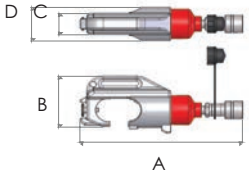
CH21



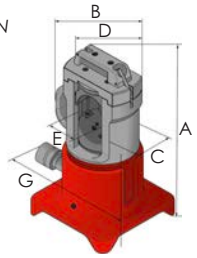
CH32/CH63



CH30/CH40/CH80



CH1000N



Crimping heads complete with die sets:

Model number	Output (tons)	C-Jaw opening	Applicable range DIN (mm²)	Standard dies (mm²)	Length (in)	Weight (lbs)	Dimensions (in) A	B	C	D	E	F	G	H
CH21	11	not applicable	16-240	With die (4pcs) 16-25, 35-70, 70-185, 240 Female die (1pc) 25-35, 50-70, 95-120, 150-185, 240	8.27	6.6	10.95	3.47	1.1	-	-	-	-	-
CH30	11	1.18 in	35-400	With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400	8.67	8.8	11.58	4.14	1.69	2.68	-	-	-	-
CH32	18	not applicable	16-400	With die (4pcs) 16, 25-35, 50-120, 150-400 Female die (8pcs) 16-25, 35-70, 95-120, 150, 185, 240, 300, 400	8.27	7.9	11.19	3.07	1.97	-	2.09	1.69	2.48	3.78
CH40	11	1.65 in	35-400	With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400	9.65	10.6	12.84	4.45	1.69	2.92	-	-	-	-
CH63	18	not applicable	35-630	With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400, 500, 630	9.46	10.6	12.57	3.07	1.97	-	1.93	-	6.42	-
CH80	14	1.97 in	35-630	With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400, 500, 630	14.74	15.4	14.74	4.33	1.02	2.52	-	-	-	-
CH1000N	58	not applicable	500-1000	With die 500, 630, 800, 1000	17.73	67.7	15.56	8.27	3.55	6.7	3.23	-	9.26	-

Complete set:

Model number	Description
CHP21	Comprehensive kit, comprising of crimper head CH21, manually operated foot pump HP227FPC and steel box CSB1
CHP30	Comprehensive kit, comprising of crimper head CH30, manually operated foot pump HP227FPC and steel box CSB1
CHP32	Comprehensive kit, comprising of crimper head CH32, manually operated foot pump HP227FPC and steel box CSB1
CHP40	Comprehensive kit, comprising of crimper head CH40, manually operated foot pump HP227FPC and steel box CSB1
CHP63	Comprehensive kit, comprising of crimper head CH63, manually operated foot pump HP227FPC and steel box CSB1
CHP80	Comprehensive kit, comprising of crimper head CH80, manually operated foot pump HP227FPC and steel box CSB1

Note: Models CH21 & CH32 are supplied with single indent dies, all other models are supplied with hexagonal dies. Please refer to page 151 for the mm² to AWG/mcm conversions.

OPTIONAL DIE SETS

Model number	Description
CD10	Die set 10 mm², suitable for crimping tool CH30, CH40 & CH63
CD16	Die set 16 mm², suitable for crimping tool CH30, CH40 & CH63
CD25	Die set 25 mm², suitable for crimping tool CH30, CH40 & CH63

SC | SELF-CONTAINED CABLE CRIMPING TOOLS



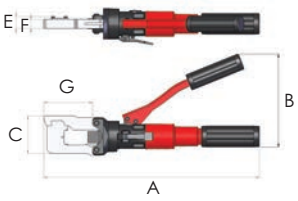
Choice of 6 models available

Supplied complete with die set

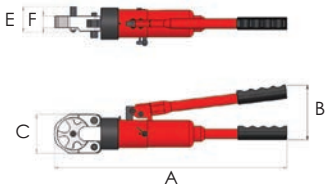
Choice of open jaw or parallel guide design

- 180° rotating head standard on all open jaw design models
- Incorporates an integral hydraulic pump for easy operation
- Automatic pump pressure release valve for correct pre-set crimping force
- Ergonomic grip handles for reduced operator effort and ease of use
- Supplied with standard die sets and carrying case
- Model SC18X is suitable for crimping non-insulated terminals up to 185 mm²
- Model SC21 is suitable for crimping connectors up to 240 mm²
- Models SC30, SC32 & SC40 are suitable for crimping connectors up to 400 mm²
- Model SC60 is suitable for crimping non-insulated terminals up to 630 mm²

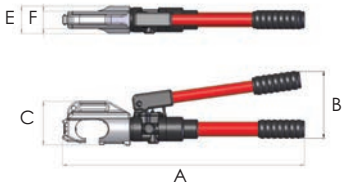
SC18X



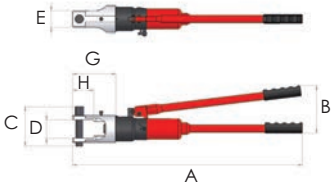
SC21



SC30, SC40



SC32, SC60



Model number	Output (tons)	C-Jaw opening	Applicable range DIN (mm²)	Standard dies (mm²)	Length (in)	Weight (lbs)	Dimensions (in) A	B	C	D	E	F	G	H
SC18X	5.5	not applicable	10-185	With die 10-16, 25-35, 50-70, 95-120, 150, 185	14.58	4.4	14.97	5.59	2.76	-	0.83	0.63	3.39	-
SC21	11	not applicable	25-240	With die (4pcs) 16-25, 35-70, 70-185, 240 Female die (1pc) 25-35, 50-70, 95-120, 150-185, 240	20.8	11.5	20.49	4.81	3.39	-	2.25	1.06	-	-
SC30	11	1.18 in	35-400	With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400	24.03	13.9	23.72	6.54	4.57	-	2.68	1.69	-	-
SC32	18	not applicable	16-400	With die (4pcs) 16, 25-35, 50-120, 150-400 Female die (8pcs) 16-25, 35-70, 95-120, 150, 185, 240, 300, 400	25.61	13.7	26.79	5.4	4.57	2.05	1.97	-	5.04	2.48
SC40	11	1.65 in	35-400	With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400	25.06	17.0	24.82	6.54	4.45	-	2.92	1.89	-	-
SC60	18	not applicable	35-630	With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400, 500, 630	25.61	14.3	27.19	5.52	4.57	2.05	1.97	-	6.42	-

Note: Models SC21 & SC32 are supplied with single indent dies, all other models are supplied with hexagonal dies. Please refer to page 151 for the mm² to AWG/mcm conversions.

OPTIONAL DIE SETS

Model number	Description
CD10	Die set 10 mm², suitable for crimping tool SC30, SC40 & SC60
CD16	Die set 16 mm², suitable for crimping tool SC30, SC40 & SC60
CD25	Die set 25 mm², suitable for crimping tool SC30, SC40 & SC60

BC | BATTERY OPERATED CABLE CRIMPING TOOLS

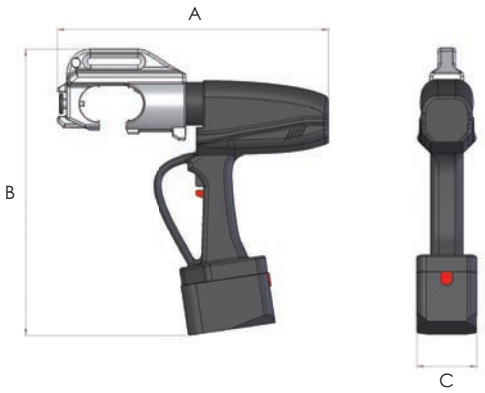


Fast self-contained battery powered tools

Supplied complete with standard set of dies

Lightweight and easy to operate

- Open jaw design with rotating head (excl. BC18X & BC63)
- Fast and quiet operation with no vibration
- Built in automatic pump pressure release valve
- Low battery power warning light
- Supplied complete with battery, charger, carrying strap and storage case



Model number	Output (tons)	C-Jaw opening	Applicable range DIN (mm²)	Standard dies (mm²)	Weight (lbs)	Dimensions (in) A	B	C
BC18X	5.5	not applicable	10-185	With die 10-16, 25-35, 50-70, 95-120, 150, 185	8.4	14.58	11.03	2.76
BC30	11	1.18 in	35-400	With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400	13.0	15.76	11.03	2.76
BC40	11	1.5 in	35-400	With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400	15.9	16.94	10.64	2.76
BC63	18	not applicable	35-630	With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400, 500, 630	15.2	16.55	12.61	2.96

OPTIONAL DIE SETS

Model number	Description
CD10	Die set 10 mm², suitable for crimping tool BC30, BC40 & BC63
CD16	Die set 16 mm², suitable for crimping tool BC30, BC40 & BC63
CD25	Die set 25 mm², suitable for crimping tool BC30, BC40 & BC63

Note: Please refer to page 151 for the mm² to AWG/mcm conversions

BC | ACCESSORIES



BP12

Model number	Description
BP12	Battery pack 14.4V

Note: Charger supplied separately



CU12

Model number	Description
CU12	Mains charger 110V-230V

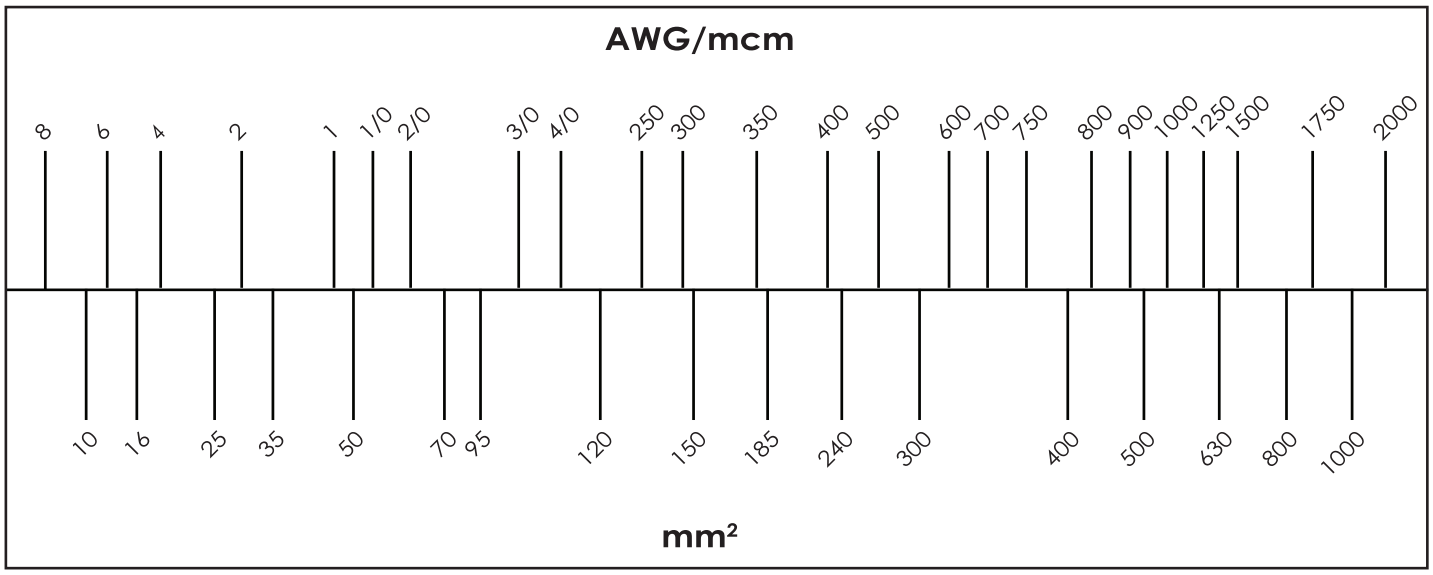


MP220

Model number	Description
Power supply to operate unit directly from mains	
MP110	110V
MP220	220/230V

CONVERSION TABLE

The metric die sets supplied with Hi-Force hydraulic crimpers are suitable for crimping non-insulated connectors and terminals to DIN standards only. The standard metric wire sizes do not correspond exactly to AWG/mcm standards. The illustration below provides a cross reference of closest equivalents of metric and AWG/mcm sizes.



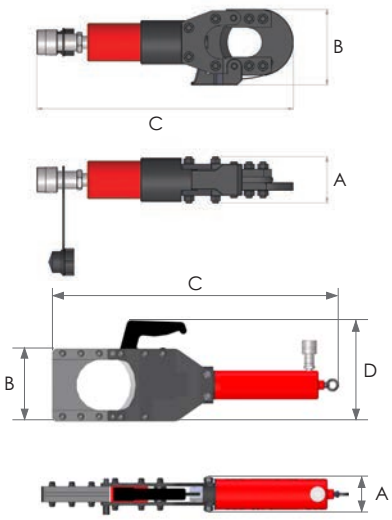
HCH | HYDRAULIC CUTTER HEADS



Single acting, spring assisted return design

Compact and lightweight

Working pressure 10000 psi



- High quality tool steel cutting blades
- Fitted with quick connect coupling for easy connection to hydraulic pump & hose
- Suitable for cutting copper, aluminum and telephone cables
- Carrying handle fitted as standard on HCH120 model

Model number	Cutting force (tons)	Weight (lbs)	Dimensions (in)			
			A	B	C	D
HCH40	8	6.2	2.36	3.98	13	-
HCH120	13	33.1	3.15	7.01	27.66	9.77

Material	Description	Maximum diameter cutting capacity (in)	
		HCH40	HCH120
Steel Wire Rope	6 x 7 Hempcore	0.79	-
	6 x 12 Hempcore	0.99	-
	6 x 19 Hempcore	0.99	-
Round Bar	Soft copper bar	0.99	-
	Soft aluminum bar	0.99	-
	Soft steel bar (below SS41)	0.63	-
Wire Strands	Bare copper strands	1.58	1.65
	Bare aluminum strands	1.58	1.81
Cable	Telephone cable CCP	-	4.73
	Armored underground cable	1.58	4.73

Note: The cable of XLPE armored underground cable cannot contain 'PVC cover' and 'steel wire'.

Replacement blades for HCH hydraulic cutter heads:

Blade part number	Blade type	For cutter
CT40-11	Moving	HCH40
CT40-05	Static	HCH40
HCH120-01	Moving	HCH120
HCH120-02	Static	HCH120

CT | SELF-CONTAINED HYDRAULIC CUTTERS

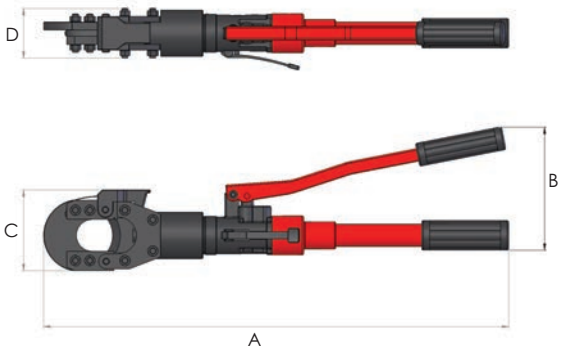


Cutting capacity up to 1.58 inches diameter

Cuts a wide variety of materials

Compact and lightweight

- High quality tool steel cutting blades
- Incorporates an integral hydraulic pump for easy operation
- Ergonomic grip handles for reduced operator effort
- Suitable for cutting steel wire rope, round bar, wire strands and cable



Model number	Cutting force (tons)	Weight (lbs)	Dimensions (in)			
			A	B	C	D
CT20	5.5	6.2	15.37	5.71	2.99	1.58
CT40	8	13.2	22.06	6.11	4.06	2.56

Material	Description	Maximum diameter cutting capacity (in)	
		CT20	CT40
Steel Wire Rope	6 x 7 Hempcore	0.63	0.79
	6 x 12 Hempcore	0.79	0.99
	6 x 19 Hempcore	0.79	0.99
Round Bar	Soft copper bar	0.79	0.99
	Soft aluminum bar	0.79	0.99
	Soft steel bar (below SS41)	0.63	0.63
Wire Strands	Bare copper strands	0.79	1.58
	Bare aluminum strands	0.79	1.58
Cable	Armored underground cable	0.79	1.58

Replacement blades for CT self-contained cutter models:

Blade part number	Blade type	For cutter
CT20-04	Moving	CT20
CT20-05	Static	CT20
CT40-11	Moving	CT40
CT40-05	Static	CT40

HWC | HAMMER BLOW WIRE ROPE AND CABLE CUTTERS

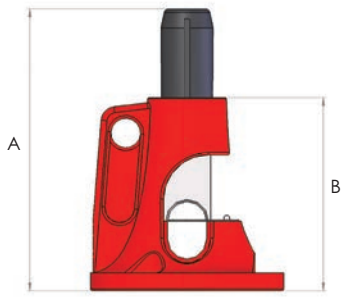


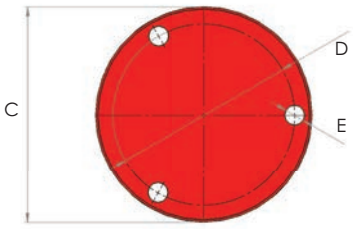
Highly cost efficient impact design

Cutting capacities up to 1.5 inches diameter

Portable and lightweight

- Manufactured from high quality, shock resistant ductile iron
- Heat treated, tool steel cutting blade, fully contained within housing for increased safety
- Suitable for cutting wire ropes and electrical cables





Model number	Cutting capacity Wire rope Ø in	Electric cable mcm*	Electric cable mm²	Weight (lbs)
HWC90	0.75	250	127	7.1
HWC91	1.06	300	152	15.4
HWC92	1.5	750	380	28.7

Dimensions (in) A	B	C	D	E
8.87	5.52	3.47	n/a	n/a
9.65	6.07	6.3	5.83	0.55
11.23	7.68	7.68	6.46	0.71

**mcm = 1000 circular mils*

Replacement blades for HWC hammer blow wire rope and cable cutters:

Blade part number	For cutter
HWC90-105	HWC90
HWC91-125	HWC91
HWC92-135	HWC92

HSWC | SELF-CONTAINED HYDRAULIC WIRE ROPE CUTTERS

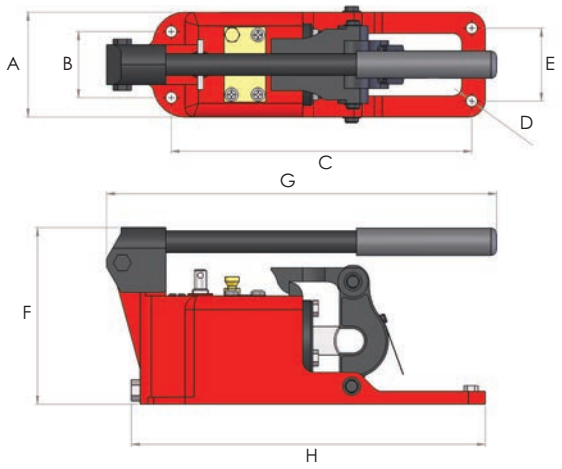


Cutting capacities up to 1.73 inches diameter

Strong rigid steel construction

Easy to use with minimum operator effort

- Self-contained design for applications where no external power is available
- Open jaw design cutting head allows easy access for the material to be cut
- Heat treated, high quality tool steel blade
- Ergonomic grip handle for low operator effort
- Smooth guillotine action reduces risk of blade jamming



Model number	Cutting capacity Wire rope Ø (in)	Weight (lbs)	Dimensions (in) A	B	C	D	E	F	G	H
HSWC19	0.75	20.9	3.66	2.29	10.44	0.4	2.52	6.07	13.59	12.41
HSWC28	1.1	34.2	4.14	2.52	11.58	0.4	2.64	6.86	14.74	14.07
HSWC44	1.75	66.1	4.93	2.76	15.48	0.4	3.31	8	19.31	18.12

Replacement blades for HSWC self-contained wire rope cutters:

Blade part number	For cutter
HSWC19-4	HSWC19
HSWC28-4	HSWC28
HSWC44-4	HSWC44

HWRC | DOUBLE ACTING WIRE ROPE CUTTERS

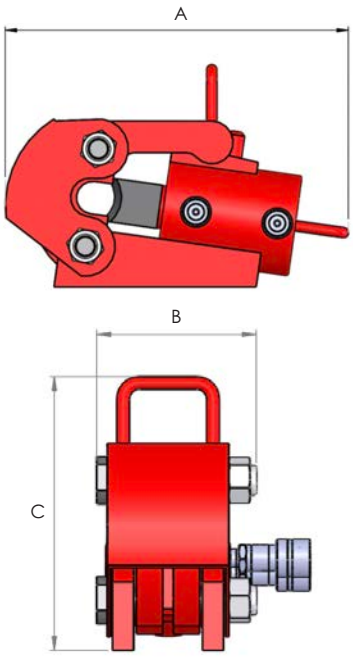


Double acting design

Smooth guillotine cutting action

Working pressure 10000 psi

- Features a double acting cylinder which offers a faster and positive return
- High grade steel construction
- Open jaw design cutting head allows easy access for the material to be cut
- Specially toughened high tensile steel blades and jaws
- Designed for cutting high tensile locked coil wire ropes and solid steel bars
- Fitted with quick connect couplings for easy connection to hydraulic pump and hoses



Model number	Output (tons)	Cutting capacity (in)			Oil capacity (in^3)	Weight (lbs)	Dimensions (in)		
		Wire rope Ø	Cable	Reinforcing bar			A	B	C
HWRC1115	40	1.5	1.5	0.79	21.35	66.1	15.76	6.11	10.64
HWRC1125	88	2.48	2.48	1.26	54.9	132.3	17.73	7.88	15.37
HWRC1136	88	3.55	3.55	1.26	73.23	154.3	20.29	7.88	15.37
HWRC1145	132	4.49	4.49	1.58	146.46	209.4	22.46	11.03	17.53

Replacement blades for HWRC wire rope cutter models:

Blade part number	For cutter
111511	HWRC1115
112511	HWRC1125
113611	HWRC1136
114511	HWRC1145

HCC | CHAIN CUTTERS

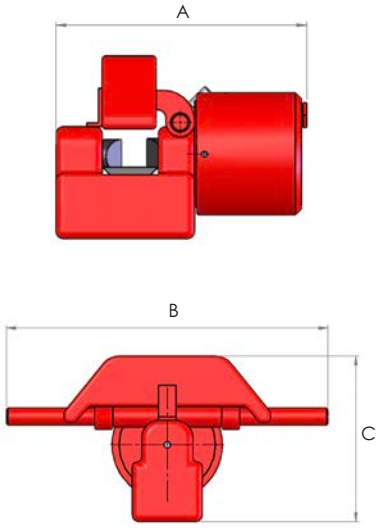


Cutting capacities up to 1.97 inches diameter

Smooth guillotine cutting action

Working pressure 10000 psi

- Single acting spring assisted return hydraulic piston
- High grade steel construction
- Swivel locking safety guard allows easy access for material to be cut
- Specially toughened high tensile steel blades and jaws
- Includes quick connect hydraulic coupling for easy connection to pump and hose
- Designed for cutting grade 100 and 47 HRC high tensile steel chains and reinforcing bars



Model number	Output (tons)	Cutting capacity Ø (in)	Maximum allowed Chain grade	Maximum allowed Steel hardness	Oil capacity (in³)	Weight (lbs)	Dimensions (in) A	Dimensions (in) B	Dimensions (in) C
HCC26-100	77	1.02	100	47 HRC	16.84	50.7	17.34	7.09	7.09
HCC34-100	110	1.34	100	47 HRC	30.01	88.2	16.15	18.12	9.85
HCC46-100	154	1.81	100	47 HRC	59.78	158.7	22.26	25.02	13.59
HCC50-100	160	1.97	100	47 HRC	67.1	169.8	22.26	25.02	14.18

Replacement blades for HCC chain cutter models:

Blade part number	Blade type	For cutter
HCC26-4M100	Moving	HCC26-100
HCC26-4S100	Static	HCC26-100
HCC34-5M100	Moving	HCC34-100
HCC34-5S100	Static	HCC34-100
HCC46-11M100	Moving	HCC46-100
HCC46-11S100	Static	HCC46-100
HCC50-17M100	Moving	HCC50-100
HCC50-17S100	Static	HCC50-100

HI-FORCE SKATES

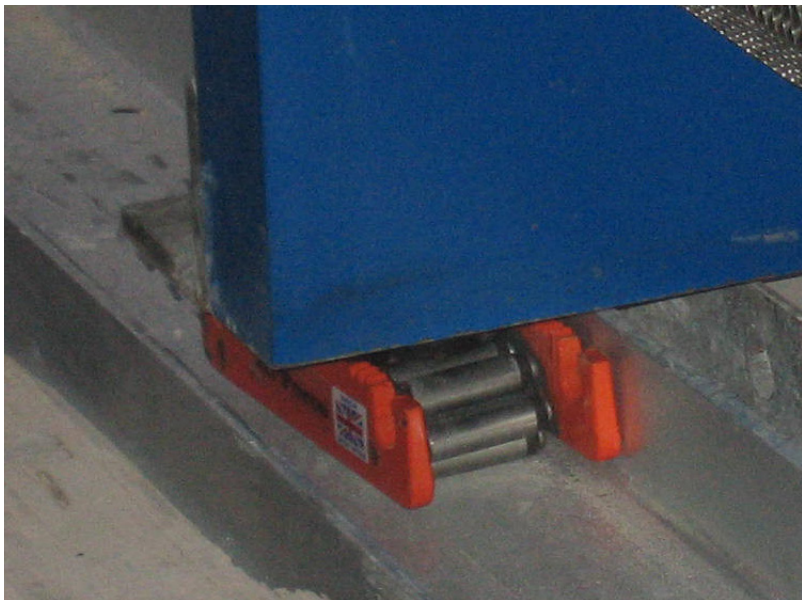
The Hi-Force range of skates are designed for moving, installing and relocating heavy machinery and equipment in a safe and cost effective way. The range comprises of a choice of six different designs, all manufactured to provide a flexible and dependable solution for heavy load movement. All models incorporate an endless hardened roller chain, which revolves around the skate and ensures at least four rollers remain in contact with the load bearing surface, at all times to ensure smooth travel, even over cracked concrete floors. Ideally suited for confined space applications and heavy irregular shaped loads, Hi-Force skates offer an economical alternative, for moving heavy loads, than most other lifting and positioning devices.

With a range of accessories like turntables, stabilisers, spacer bars and steering handles available, as well as the option of bespoke designs, to customer exact requirements, Hi-Force skates have all your heavy equipment movements covered.

Typical applications for Hi-Force skates include bridge building, oil rig installation, movement of transformers, generators, turbines and heavy machinery.









SKATES

RKT RANGE 160
Roller skate kit - tricycle

RKF RANGE 161
Roller skate kits - quad

RSN RANGE 162
Multi-purpose skates

RSA RANGE 163
Heavy duty skates

RSG RANGE 164
Heavy duty skates with grooved guide - single roller

RSD RANGE 165
Heavy duty skates with grooved guide - double roller

RKT | ROLLER SKATE KITS - TRICYCLE



Capacity 39 tons

Available as a complete kit

Endless hardened roller chain

- Low height design for increased stability and safety
- Heavy duty construction with minimal maintenance required
- Kit comprises of three skates with all necessary accessories
- Center front skate fitted with turntable for easy change of direction
- Twin rear skates supplied with tie bar for increased stability

Model number	Cap. per set (tons)	Twin rollers (ø in)	Single rollers (ø in)	Height (in)	Turntable (ø in)	Handle length (in)	Weight (lbs)
RKT35	39	1.18	0.95	4.33	9.85	34.67	149.9

METAL BOX



Dimensions (in)		
Length	Width	Height
24.03	12.21	6.5

Note: RKT kit is supplied in a metal storage case

RKF | ROLLER SKATE KITS - QUAD



Capacities from 22 to 66 tons

Minimum turning circle 10 feet

Endless hardened roller chain

- Low height design for increased stability and safety
- Heavy duty construction with minimal maintenance required
- Kit comprises of four skates with all necessary accessories
- Includes two turntables for fitment to front steering skates
- Maximum recommended speed of movement of 16 feet per minute

Model number	Cap. per set (tons)	Skates Qty: 4	Turntables Qty: 2	Levelling plates Qty: 2	Link bars Qty: 2	Handles Qty: 2	Weight (lbs)
RKF20	22	RSN10	RTT10	RLP10	RLB00	RPH00	105.8
RKF30	33	RSN15	RTT15	RLP15	RLB00	RPH00	123.5
RKF60	66	RSN30	RTT30	RLP30	RLB00	RPH00	198.4

Note: Each set carrying capacity is calculated taking into consideration that two roller skates are sufficient to support the full load.

Dimensions:

Model number	Rollers (ø in)	Total height (in)	Turntable (ø in)	Handle length (in)
RKF20	0.71	4.26	5.12	34.67
RKF30	0.95	4.61	5.12	34.67
RKF60	1.18	5.52	5.91	34.67

METAL BOX



Dimensions (in) Length	Width	Height
24.03	12.21	6.5

Note: RKF kit is supplied in a metal storage case

RSN | MULTI-PURPOSE SKATES



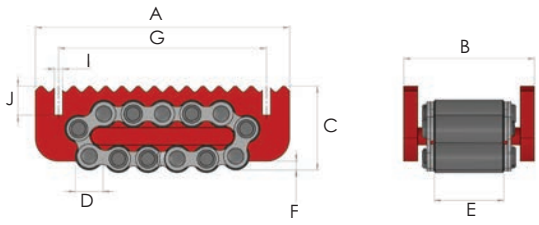
Capacities from 11 to 88 tons

Endless hardened roller chain

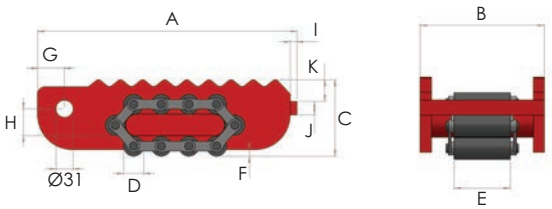
Full range of accessories available

- Low height design for increased stability and safety
- Heavy duty construction with minimal maintenance required
- Turntables and levelling plates available for easy directional change
- Maximum recommended speed of movement of 16 feet per minute

Drawings for models RSN10, RSN15 and RSN30



Drawings for models RSN60 and RSN80



Model number	Capacity (tons)	Rollers in contact	Rollers total	Weight (lbs)	Dimensions (in)										
					A	B	C	Ø D	E	F	G	H	I	J	K
RSN10	11	5	15	11.5	8.27	3.94	2.6	0.71	2.01	0.24	6.58	-	0.24	0.99	-
RSN15	16	4	13	16.1	8.67	4.45	2.96	0.95	2.36	0.39	7.09	-	0.24	0.99	-
RSN30	33	4	13	28.7	10.64	5.12	3.62	1.18	2.68	0.39	8.55	-	0.24	0.99	-
RSN60	66	4	13	70.5	14.97	6.62	5	1.65	2.99	0.63	1.42	1.89	0.39	1.58	0.59
RSN80	88	6	17	134.5	20.88	7.17	5.79	1.97	3.39	0.75	1.42	2.36	0.39	1.58	0.59

ACCESSORIES

Model number	Description	Diameter (in)	Capacity (tons)	Weight (lbs)
RTT10	Turntable	5.12	11	9.9
RTT15	Turntable	5.12	16	9.9
RTT30	Turntable	5.91	33	14.8
RTT60	Turntable	7.49	66	30.2
RTT80	Turntable	8.67	88	41.7
RLP10	Levelling plate	n/a	11	8.2
RLP15	Levelling plate	n/a	16	8.2
RLP30	Levelling plate	n/a	33	11.7
RLP60	Levelling plate	n/a	66	30.4
RLP80	Levelling plate	n/a	88	41.4

RSA | HEAVY DUTY SKATES

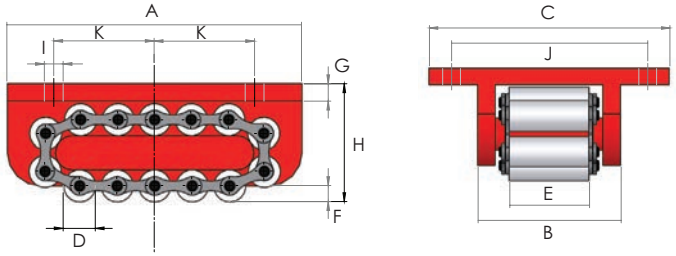


Capacities from 16 to 94 tons

Choice of 6 models available

Fitted with large load bearing top plate

- Low height design for increased stability and safety
- Drilled bolt holes (4 nr.) on all models up to 55 tons capacity
- Specially positioned bolt holes can be included as required
- Maximum recommended speed of movement of 16 feet per minute
- Can be used as a conveyor in fixed position under the moving load



Model number	Capacity (tons)	Rollers in contact	Rollers total	Weight (lbs)	Dimensions (in)										
					A	B	C	Ø D	E	F	G	H	Ø I	J	K
RSA15	16	5	15	19.6	8.27	3.94	6.9	0.71	2.01	0.24	0.51	2.99	0.55	5.52	2.96
RSA20	22	4	13	25.8	8.67	4.45	7.49	0.95	2.36	0.39	0.55	3.43	0.55	6.11	2.96
RSA40	44	4	13	42.5	10.64	5.12	8.27	1.18	2.68	0.39	0.55	4.1	0.71	6.9	3.74
RSA50	55	6	17	63.9	12.61	5.52	8.67	1.18	2.68	0.39	0.71	4.53	0.71	7.09	4.73
RSA65	72	4	13	112.4	14.97	6.62	10.64	1.65	2.99	0.75	0.75	5.71	0.87	8.67	5.52
RSA85	94	6	17	202.8	20.88	7.17	11.82	1.97	3.39	0.75	0.75	6.5	0.87	9.46	8.08

RSG | HEAVY DUTY SKATES WITH GROOVED GUIDE - SINGLE ROLLER

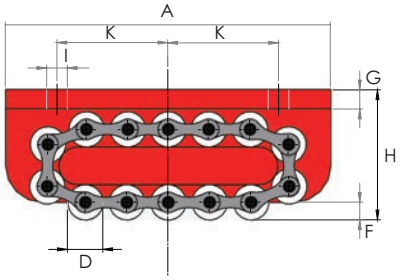


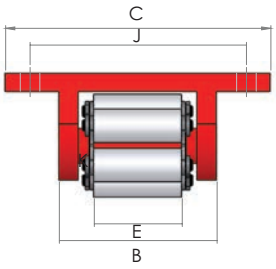
Capacities from 44 to 220 tons

Choice of 7 models available

Fitted with large load bearing top plate

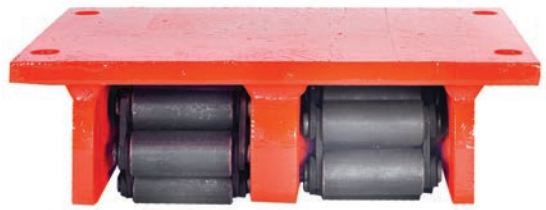
- Suitable for use over longer distances and/or permanent loads
- Center plate chain guide reduces wear significantly
- Optional fixing bolt holes available (standard on models RSG40 & RSG50)
- Maximum recommended speed of movement 16 feet per minute
- Can be used as a conveyor in fixed position under the moving load





Model number	Capacity (tons)	Rollers in contact	Rollers total	Weight (lbs)	Dimensions (in) A	B	C	Ø D	E	F	G	H	Ø I	J	K
RSG40	44	4	13	43.2	10.64	5.12	8.27	1.18	2.68	0.39	0.55	4.1	0.71	6.9	3.74
RSG50	55	6	17	65.0	12.61	5.52	8.67	1.18	2.68	0.39	0.71	4.53	0.71	7.09	4.73
RSG65	72	4	13	114.0	14.97	6.62	10.64	1.65	2.99	0.75	0.75	5.71	0.87	8.67	5.52
RSG85	94	6	17	205.0	20.88	7.17	11.82	1.97	3.39	0.75	0.75	6.5	0.87	9.46	8.08
RSG100	110	8	21	240.3	22.85	7.29	11.82	1.97	3.39	0.75	0.91	6.7	1.02	9.85	9.85
RSG150	165	9	23	357.1	25.61	8.08	13.79	1.97	3.94	0.79	1.1	7.49	1.02	11.03	9.46
RSG200	220	13	31	586.4	35.46	8.08	14.97	1.97	3.94	0.79	1.5	7.88	1.3	11.82	14.18

RSD | HEAVY DUTY SKATES WITH GROOVED GUIDE - DOUBLE ROLLER

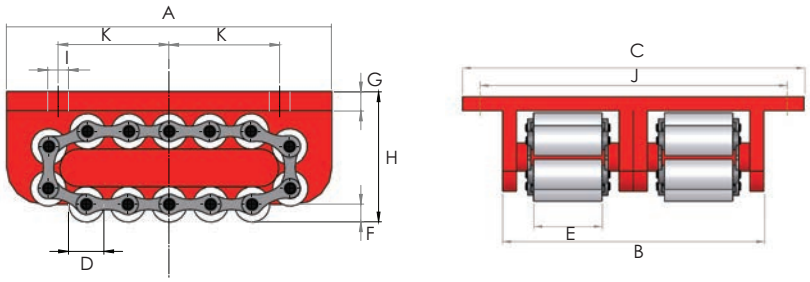


Capacities from 88 to 441 tons

Choice of 7 models available

Fitted with large load bearing top plate

- Low height double roller design for even greater stability and safety
- Twin center plate chain guides reduce wear significantly
- Fixing bolt holes (6 nr.) included as standard feature
- Maximum recommended speed of movement 16 feet per minute
- Can be used as a conveyor in fixed position under the moving load



Model number	Capacity (tons)	Rollers in contact	Rollers total	Weight (lbs)	Dimensions (in) A	B	C	Ø D	E	F	G	H	Ø I	J	K
RSD80	88	2x4	2x13	79.8	10.64	10.24	13.4	1.18	2.68	0.39	0.55	4.1	0.71	12.02	3.74
RSD100	110	2x6	2x17	126.8	12.61	11.03	14.18	1.18	2.68	0.39	0.71	4.53	0.71	12.81	4.73
RSD130	143	2x4	2x13	211.6	14.97	13.24	15.76	1.65	2.99	0.75	0.75	5.71	0.87	15.37	5.91
RSD170	187	2x6	2x17	385.8	20.88	14.34	18.91	1.97	3.39	0.75	0.75	6.5	0.87	16.94	8.27
RSD200	220	2x8	2x21	456.4	22.85	14.34	18.91	1.97	3.39	0.75	0.91	6.7	1.02	16.94	9.85
RSD300	331	2x9	2x23	672.4	25.61	16.15	22.06	1.97	3.94	0.79	1.1	7.49	1.02	19.31	9.46
RSD400	441	2x13	2x31	1069.2	35.46	16.15	23.25	1.97	3.94	0.79	1.5	7.88	1.3	19.7	14.18

HI-FORCE HYDRAULIC PRESSES

The HPF workshop presses are designed and manufactured, with maximum strength and durability, to provide years of safe and trouble-free operation. Ideally suited for use in workshop maintenance applications, the range offers capacities from 11 to 220 tons with stroke lengths up to 13 inches, operating at maximum pressures of 10000 psi.

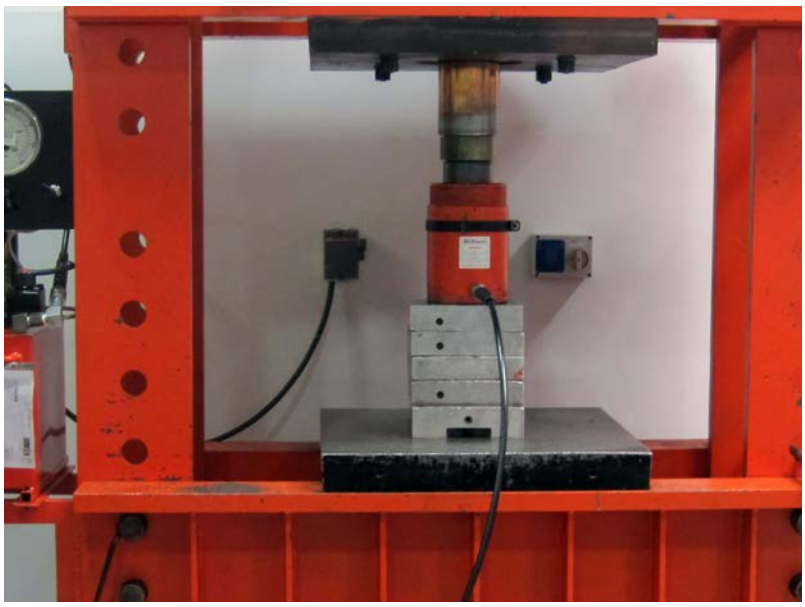
The HPF press models feature a robust steel frame construction and incorporate an adjustable work table with additional adjustable top bed on all models 55 tons capacity and above.

All models are supplied with dual scale, hydraulic pressure gauge for increased safety and load monitoring. Factory fitted optional accessories include multi-positional V-blocks with flat bed and V-shape press surfaces.









PRESSES

HPF RANGE 168

Workshop presses

HPF | WORKSHOP PRESSES



Capacities from 11 to 220 tons

Stroke lengths from 9.85 to 13 inches

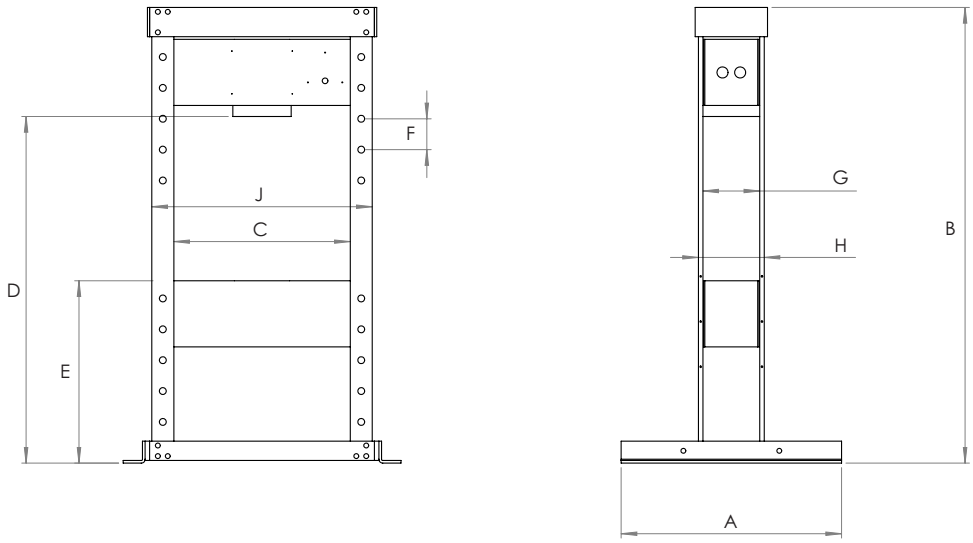
Working pressure 10000 psi

- Strong steel frame construction
- Easily adjustable work table on all models
- Adjustable upper bed on all models 55 tons and above

Model number	Capacity (tons)	Stroke (in)	Cylinder model	Cylinder principle	Pump model	Pump operation	Weight (lbs)
HPF1020	11	9.85	HSS1010	single acting	HP110	hand operated	418.9
HPF1030	11	9.85	HSS1010	single acting	AHP1120	air powered	418.9
HPF2520	28	9.85	HSS2510	single acting	HP227	hand operated	440.9
HPF2530	28	9.85	HSS2510	single acting	AHP1120	air powered	440.9
HPF2541	28	9.85	HSS2510	single acting	HPF207311	110V 50 Hz, 3-way	551.2
HPF2542	28	9.85	HSS2510	single acting	HPF207312	230V 50 Hz, 3-way	551.2
HPF2544	28	9.85	HSS2510	single acting	HPF207314	400V 50 Hz/460V 60 Hz, 3-way	551.2
HPF5020	55	13	HDA5013	double acting	HP252D	hand operated	1190.5
HPF5041	55	13	HDA5013	double acting	HPF207411	110V 50 Hz, 4-way	1300.7
HPF5042	55	13	HDA5013	double acting	HPF207412	230V 50 Hz, 4-way	1300.7
HPF5044	55	13	HDA5013	double acting	HPF207414	400V 50 Hz/460V 60 Hz, 4-way	1300.7
HPF10041	110	13	HDA10013	double acting	HPF207411	110V 50 Hz, 4-way	2314.8
HPF10042	110	13	HDA10013	double acting	HPF207412	230V 50 Hz, 4-way	2314.8
HPF10044	110	13	HDA10013	double acting	HPF207414	400V 50 Hz/460V 60 Hz, 4-way	2314.8
HPF20041	220	12.02	HDA20012	double acting	HPF207411	110V 50 Hz, 4-way	7495.6
HPF20042	220	12.02	HDA20012	double acting	HPF207412	230V 50 Hz, 4-way	7495.6
HPF20044	220	12.02	HDA20012	double acting	HPF207414	400V 50 Hz/460V 60 Hz, 4-way	7495.6

Note: 1) All 400/460V models are suitable for operation at 50 Hz and 60 Hz.
2) All 110V and 230V models are supplied to run at 50 Hz as standard. For 60 Hz requirements, please suffix 'H' to the press model number.
3) To order a press with low voltage solenoid valve and hand pendant controller, please suffix 'S' to the press model number.
4) To order a press suitable for 60 Hz operation with low voltage solenoid valve and hand pendant controller, please suffix 'HS' to the press model number.

HPF | WORKSHOP PRESSES



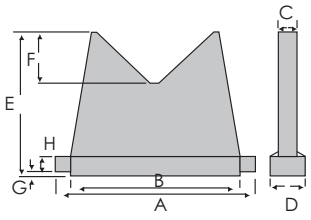
Model	Dimensions (in)									
	A	B	C	D (min - max)		E (min - max)		F	G	H	J
11 ton models	30.02	57.25	19.7	49.72		10.4	39.95	5.91	7.56	9.14	26
28 ton models	30.02	57.25	19.7	49.72		10.4	39.95	5.91	7.56	9.14	26
55 ton models	39.4	81.44	31.52	45.39	61.94	16.04	32.58	5.52	10.17	11.74	39.4
110 ton models	39.4	78.6	39.4	43.14	54.18	22.26	33.29	5.52	13.32	15.29	48.86
220 ton models	47.28	110.32	49.25	71.51	83.33	24.03	71.31	5.91	13	16.15	68.95

Note: Press bed and press head are adjustable in steps of 'F'.
1) 28 ton models have a fixed top head and adjustable bottom press bed with 6 positions
2) 55 ton models have an adjustable top head and bottom press bed with 4 positions each
3) 110 ton models have adjustable top head and bottom press bed with 3 positions each
4) 220 ton models have adjustable top head with 3 positions and a bottom press bed with 9 positions

V-BLOCKS

- Factory fitted optional multi-position V-blocks with flat bed and V-shape press surfaces
- Available for 11, 28, 55 and 110 ton presses

Model number	Capacity per set (tons)	Dimensions (in)							
		A	B	C	D	E	F	G	H
HVB2500	11 - 28	8.04	6.07	0.79	1.77	6.11	1.77	0.32	0.79
HVB5000	55	9.69	8.12	0.99	1.97	7.49	2.36	0.39	0.99
HVB10000	110	12.84	10.87	1.38	2.36	10.44	3.35	0.39	1.38

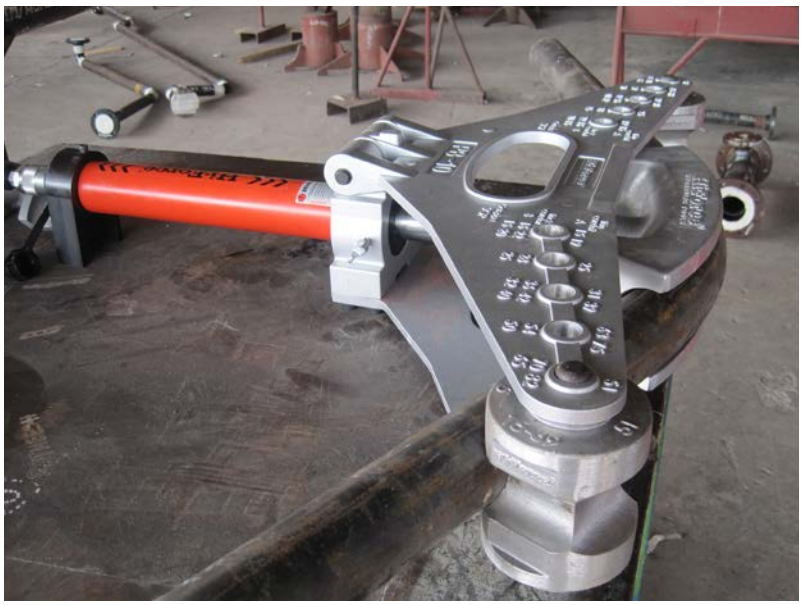


HI-FORCE SPECIALITY TOOLS

Hi-Force speciality tools comprise a range of equipment designed for specific, application-focused tasks. The range includes hydraulic hole punchers for heavy duty steel plates, knock out punchers for electrical control panels and thin steel plates and hydraulic pipe benders. All tools are 10000 psi maximum working pressure and can be operated using standard range Hi-Force hydraulic pumps and accessories.









SPECIALITY TOOLS

HHP RANGE 172
Hole punchers

HKP RANGE 173
Knock out punchers

PB RANGE 174
Pipe bender

TOOL BOXES 175
Metal storage transport boxes

HHP | HOLE PUNCHERS

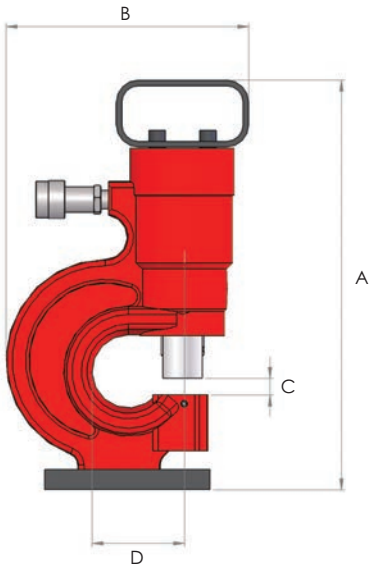


Punching force up to 48 tons

Throat depth up to 2.96 inches

Working pressure 10000 psi

- Choice of single or double acting models
- Fitted with integral positioning and carrying handle
- Supplied with standard set of punches and dies
- Includes standard quick connect couplings for easy attachment to pump and hose



Model number	Maximum force (tons)	Throat depth (in)	Punch capacity (in)		Standard punch/die sets included (in)	Weight excluding pump (lbs)	Dimensions (in)			
			Steel plate	Hole punch diameter			A	B	C	D
HHP30	29	2.96	0.39	up to 0.81	7/16", 1/2", 11/16", 13/16"	28.7	14.78	8.67	0.59	2.96
HHP50	48	2.56	0.59	up to 1	7/16", 1/2", 11/16", 13/16", 1"	92.6	16.75	11.07	0.59	2.56

Model number	Recommended pump and hose	
	Manually operated	Pneumatically operated
HHP30	HP232 complete with HC3 10 feet hose	AHP1120 complete with HC3 10 feet hose
HHP50	HP232D complete with 2 x HC3 10 feet hose	AHP1141 complete with 2 x HC3 10 feet hose

Note: Pumps and hoses supplied separately

HKP | KNOCK OUT PUNCHERS

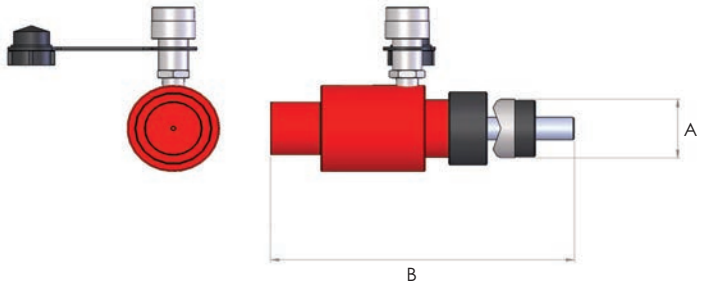


Capacity 11 tons

Standard die sets included

Working pressure 10000 psi

- Incorporates a single acting, spring assisted return cylinder
- Supplied with standard punches/die sets in a carrying case
- Can be supplied with or without manually operated pump and hydraulic hose
- Portable and easy to use
- Ideal for use in several punching applications including on-site hole punching in electric control panels and metal plates



Model number	Maximum force (tons)	Punch capacity (in)		Pump model	Hose model	Complete set weight (lbs)
		Stainless steel	Mild steel			
HKP10-2	11	0.06	0.13	HP110	HC2	32.2
HKP10-4	11	0.06	0.13	HP110	HC2	57.5
HKP10-2H	11	0.06	0.13	Not included	Not included	15.4
HKP10-4H	11	0.06	0.13	Not included	Not included	40.8

Model number	Description	Punches / dies included									
HKP10-2	Standard punch/die (A)	0.86	1.09	1.34	1.68	1.92	2.38				
	Conduit size	½"	¾"	1"	1 ¼"	1 ½"	2"				
	Length (B)	11.43	9.26	9.26	9.26	9.26	9.26				
HKP10-4	Standard punch/die (A)	0.86	1.09	1.34	1.68	1.92	2.38	3	3.5	4.05	4.55
	Conduit size	½"	¾"	1"	1 ¼"	1 ½"	2"	2 ½"	3"	3 ½"	4"
	Length (B)	11.43	9.26	9.26	9.26	9.26	9.26	9.89	9.89	9.89	9.89

PB | HYDRAULIC PIPE BENDER

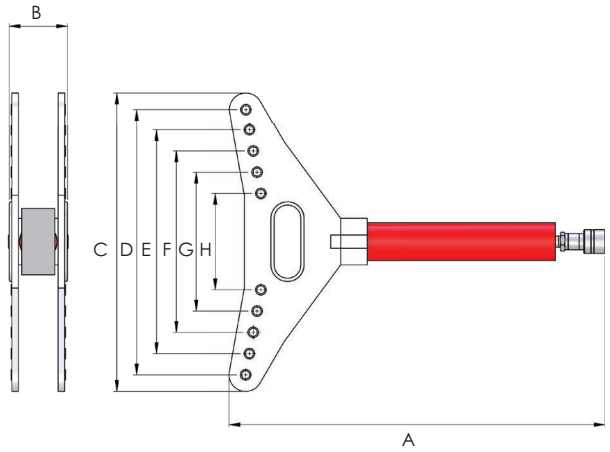


Capacity 11 tons

Bends up to 90 degrees

Working pressure 10000 psi

- Lightweight aluminum bending frame
- Designed to offer smooth, wrinkle free bend on various sizes and thicknesses of JIS standardized conduit pipes
- For use on pipe sizes from ½" to 3" (16 to 82 mm)
- Can be operated by manual or powered pumps up to 10000 psi
- Portable and easy to use
- Bending shoes are available as individual items



Model number	Max Capacity (tons)	Stroke (in)	Oil capacity (in^3)	Weight (lbs)	Applicable range / included bending shoes	Dimensions (in)							
						A	B	C	D	E	F	G	H
PB10B	11	9.85	24.41	137.8	Thick steel conduit from ½" (16 mm) to 3" (82 mm)	28.37	5.79	29.75	27.38	23.44	19.5	15.56	11.62

Note: Weight for PB10B includes metal storage box but excludes pump and hose.

BENDING SHOES

Model number	For thick steel conduit from ½" (16 mm) to 3" (82 mm)			
	Pipe size (inch)	Pipe outer diameter (in)	Pipe inner diameter (in)	Bending radius (in)
BS-B16	½"	0.83	0.65	2.96
BS-B22	¾"	1.04	0.86	3.55
BS-B28	1"	1.31	1.12	5.12
BS-B36	1 ¼"	1.65	1.45	7.68
BS-B42	1 ½"	1.88	1.69	9.06
BS-B54	2"	2.35	2.13	10.64
BS-B70	2 ½"	2.96	2.74	17.73
BS-B82	3"	3.46	3.24	19.7

TOOL BOXES



Metal storage and transport box

Width up to 19.7 inches

Strong durable steel construction

- Choice of 4 sizes
- Anti-corrosion powder coated surface finish
- Ideal for storing and transporting Hi-Force products and accessories
- Maintains and protects tool condition in harsh environments
- Lockable feature helps control authorized tool usage

Model number	Weight (lbs)	Length (in)	Width (in)	Height (in)
MSB2	21.4	24.43	13.4	5.79
MSB4	30.4	34.48	11.03	9.85
MSB6	35.9	28.37	19.7	9.85
MSB8	67.2	43.34	19.7	9.85

MODEL NUMBER	DESCRIPTION	PAGE NUMBER
ACP	Auto-centre hydraulic puller kits	141
AGA	Gauge mounting block	59
AHP	Air driven hydrotest pumps - standard flow	132
AHP-BTU	Air driven pumps for bolt tensioners	116
AHP-C	Chart recorder for AHP-CR and AHP2-CR pumps	137
AHP-CR	Air driven hydrotest pumps - standard flow with chart recorder	133
AHP-PB	Replacement pen for AHP-CR and AHP2-CR pumps	137
AHP11	Air driven single stage hand or foot operated pumps	53
AHP2	Air driven hydrotest pumps - medium flow	134
AHP2-CR	Air driven hydrotest pumps - medium flow with chart recorder	135
ATDP	Air driven twin double acting hydrotest pumps	136
BC	Battery operated cable crimping tools	150
BP	Battery pack for BPP & BC	36, 151
BPP	Battery powered hydraulic pump	36
BS	Bending shoes for hydraulic pipe bender	174
BWH	Backup wrench holder	96
BWI	Backup wrench imperial hexagon links	96
BWM	Backup wrench metric hexagon links	96
CD	Optional die sets for CH, SC & BC range	148, 149, 150
CF	Female couplers	65, 100
CFD	Metal dust cap for CF	65
CH	Cable crimping heads	148
CHP	Comprehensive crimper and pump kits	148
CK	Complete conversion kits for STS	109, 111
CKS	Complete conversion kits for SBT	105, 107
CM	Male couplers	65, 100
CMD	Metal dust cap for CM	65
CMF	Complete coupler	65
CT	Self-contained hydraulic cutters	153
CU	Charger for BPP & BC	36, 151
DNS	Double acting nut splitters	122
ERA	Extended reaction arms for TWS-N and TWH-N	89, 93
FRL	Filter/regulator/lubricator unit	101
HA	Cylinder saddles	26, 27
HA-G	Cylinder saddles	26, 27
HA-T	Cylinder saddles	26, 27
HAP	Air driven two stage general duty pumps	54
HAS	Single acting solid piston aluminum cylinders	16
HBR	Bush replacement tool kit	144
HC	Black hoses with coupler	58
HCJ	Climbing jacks	22
HC-C	Black hoses with couplers	58
HC-CR	Red hoses with couplers	58
HC-R	Red hoses with coupler	58
HCC	Chain cutters	157
HCH	Hydraulic cutter heads	152
HD	Cylinder saddles	26, 27
HD-T	Cylinder saddles	26, 27
HDA	Double acting high tonnage cylinders	13
HDD	Digital display unit	61
HDG	Digital pressure gauge	60
HEP1	Electric driven, two stage mini pumps with carrying strap	37
HEP1	Electric driven two stage compact pumps	38
HEP2	Electric driven two stage pumps - medium flow	39
HEP3	Electric driven two stage pumps - high flow	40

MODEL NUMBER	DESCRIPTION	PAGE NUMBER
HEP4	Electric driven two stage pumps - general duty high flow	41
HEP5	Electric driven two stage pumps - heavy duty ultra-high flow	42
HF	Fittings and adaptors	65
HFA	Single acting failsafe lock ring aluminum cylinders	18
HFG	Single acting failsafe lock ring cylinders	15
HFL	Single acting low height failsafe lock ring cylinders	14
HFO	Premium grade hydraulic oil	64
HFS	Hydraulic flange spreader kits	124
HFS-H	Hydraulic flange spreaders	123
HFS-TK	Hydraulic flange spreader twin kits	124
HFV	Flow control valves	67
HG	Pressure gauges	59
HG-G	Pressure gauges - glycerin	59
HGA	Gauge mounting blocks	59
HGG	Single acting load return high tonnage industrial cylinders	20
HH	Black hoses without couplers	58
HH-NMS	Hoses for MHX pumps	130
HHA	Single acting hollow piston aluminum cylinders	17
HHP	Hole punchers	172
HH-R	Red hoses without couplers	58
HHR	Double acting hollow piston cylinders	12
HHS	Single acting hollow piston cylinders	11
HKP	Knock out punchers	173
HLS	Single acting low height cylinders	9
HM	Manifolds	62
HM1C	Manual shut off valve	67
HM-C	Controlled manifolds	62
HM-C-SU	Controlled manifold assemblies (single)	63
HM-C-DU	Controlled manifold assemblies (double)	63
HM-L	Manifolds (extended parallel)	62
HMJ	Steel machine lift jacks	73
HMNS	Self-contained nut splitters	121
HP-STEEL	Manually operated steel hand pumps	31
HP-ALU	Manually operated aluminum hand pumps	32
HP-FP	Manually operated foot pump	35
HP-FPC	Manually operated foot pump with gauge, mounting block and hose	35
HP-HIGH FLOW	Manually operated high flow hand pumps	33
HPC	Single acting pull cylinders	24
HPF	Workshop presses	168, 169
HPP	Gasoline engine driven pumps	55
HPR	Pin and bush replacement tool kits	145
HPS	Single acting low height pad cylinders	8
HPT	Pressure transducer	61
HPV	Adjustable pressure relief valve	67
HPX	Manually operated ultra high pressure hand pumps	34
HPX-BTU	Manually operated ultra high pressure hand pump for bolt tensioners	116
HRA	Double acting high tonnage aluminum cylinders	19
HSG	Single acting load return high tonnage construction cylinders	21
HSP	Electric driven split flow multi-outlet pumps	43
HSS	Single acting multi-purpose cylinders	10
HSWC	Self-contained hydraulic wire rope cutters	155
HTN (imperial)	Hydraulic tensioner nuts	114
HTN (metric)	Hydraulic tensioner nuts	115
HTW	Manual torque wrenches - break back type	83
HTWH	Torque hose sets including couplers	100

MODEL NUMBER	DESCRIPTION	PAGE NUMBER
HTWP	Torque wrench pumps	97
HTWR	Torque wrench hose reel	100
HVB	Multi-position V-blocks for HPF presses	169
HVL	Single acting very low height pancake cylinders	7
HWC	Hammer blow wire rope cutters	154
HWRC	Double acting wire rope cutters	156
IB	Imperial hexagon AF size reducer bushes	94
IH	Imperial allen hexagon drive adaptors	89
IP	Pneumatic impact wrenches	101
IS	Imperial hexagon AF size heavy duty sockets	87
JAH	Aluminum jacks	71
JAS	Aluminum multi-purpose jacks	70
JCS	Compact solid piston jacks	72
JS	Jaw spreader	126
LLE	Load lock extensions for TL	77
MB	Metric hexagon AF size reducer bushes	95
MFS	Mechanical flange spreaders	125
MH	Metric allen hexagon drive adaptors	89
MHR	Reservoir for MHX pump units	131
MHX	Manually operated hydrotest pumps	130
MHX-GK	Pressure gauge kits for MHX pumps	130
MHX-PU	Manually operated hydrotest pump units	131
MP	Power supply for BPP & BC	36, 151
MS	Metric hexagon AF size heavy duty sockets	88
MSB	Metal storage transport boxes	175
NS	Single acting nut splitters	120
NTM	Manual torque multipliers	84
NTW	Manual torque wrenches	82
PB	Hydraulic pipe bender	174
PCS	Pump and cylinder sets	25
PKC	Comprehensive hydraulic puller kits	143
PKS	Hydraulic 2 and 3-way puller kits	142
PMV	Directional control valve, pump mounted	66
PMV-C	Directional control valve, pump mounted, closed centre	66
PMV-L	Directional control valve, pump mounted, load holding feature	66
PPA-WT	Wheel trolley	42, 55
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QFP	Quick fit pullers	112, 113
RKF	Roller skate kits - quad	161
RKT	Roller skate kit - tricycle	160
RLB	Link bars for RKF	161
RLP	Levelling plates for RKF and RSN	161, 162
RMV	Directional control valve, remote mounted	66
RMV-C	Directional control valve, remote mounted, closed centre	66
RMV-L	Directional control valve, remote mounted, feature load holding	66
RPH	Handles for RKF	161
RS	Rotating sockets for SBT & STS	105, 107, 109, 111
RSA	Heavy duty skates	163
RSD	Heavy duty skates with grooved guide - double roller	165
RSG	Heavy duty skates with grooved guide - single roller	164

MODEL NUMBER	DESCRIPTION	PAGE NUMBER
RSN	Multi-purpose skates	162
RTT	Turntables for RKF and RSN	161, 162
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SBT (metric)	Spring return topside bolt tensioners	106
SBT-LC	Tensioner load cell	105, 107
SC	Self-contained crimping tools	149
SCP	Self-contained hydraulic pullers	140
SDC	Square drive conversion kits	93
SJS	Stepped jaw spreader	127
SJS-M	Self-contained stepped jaw spreader	127
SJS-TK	Stepped jaw spreader twin kit	127
SLDC	Sensor cables	51, 51
SLDS	Displacement sensors	47, 51
SLE	Slip lock extensions for TL	77
SLF	Synchronous lifting systems, fixed speed drive	44-47
SLMK	Sensor cylinder mounting kits	46, 50
SLV	Synchronous lifting systems, variable speed drive	48-51
STFC	Female tensioner coupler	117
STMC	Male tensioner coupler	117
STN	Nipple	117
STS (imperial)	Topside bolt tensioners	108
STS (metric)	Topside bolt tensioners	110
STS-B	Tensioner bridge for SBT and STS	105, 107, 109, 111
STS-LC	Tensioner load cell	109, 111
STU (imperial)	Sub-sea bolt tensioners	112
STU (metric)	Sub-sea bolt tensioners	113
TL	ToughLift jacking systems	76-79
TLB	Load block sets for TL	78
TP	Tensioner threaded puller for STS	109, 111
TP-CS	Torque coupling sets	98, 99
TPA	Air driven torque pumps	98
TPE-M	Electric driven torque pumps - manual cycle	98
TPE	Electric driven torque pumps - auto cycle	99
TPS	Tensioner threaded puller for SBT	105, 107
TS	Cylinder saddles	26, 27
TSH	Removable handle kits for TWS-N and TWH-N	89, 93
TTB	Tommy bar for HFL, HFG and HFA	14, 15, 18
TTB	Tensioner tommy bar for SBT, STS, STU and HTN	105, 107, 109, 111, 112, 113, 114, 115
TWH-N	Hydraulic torque wrenches - hexagon drive	90
TWH-NRH	Ratchet heads for TWH-N	91, 92
TWP	Pneumatic torque multipliers	85
TWS-N	Hydraulic torque wrenches - square drive	86
XHC	High pressure bolt tensioner hoses	117
XHH	High pressure hoses for HPX pumps	34
XHR	Hose reel for XHC hoses	117

Hi-Force®
HYDRAULIC TOOLS

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