

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 capacities range from 5 tons to 573 tons, with special design cylinders also available on request. 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 26 to 53.





HYDRAULIC CYLINDERS

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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
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												
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
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		
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	restriction port
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

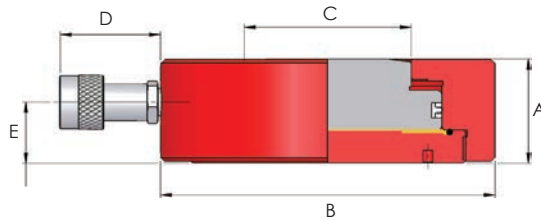


Capacities from 11 to 115 tons

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



*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



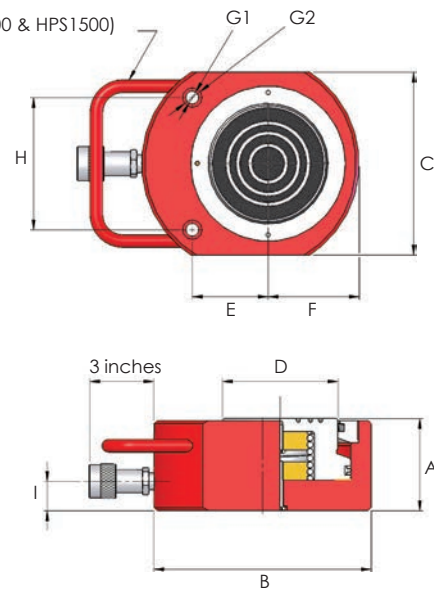
Capacities from 5 to 162 tons

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

Handle
(HPS1000 & HPS1500)



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	G1	G2	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

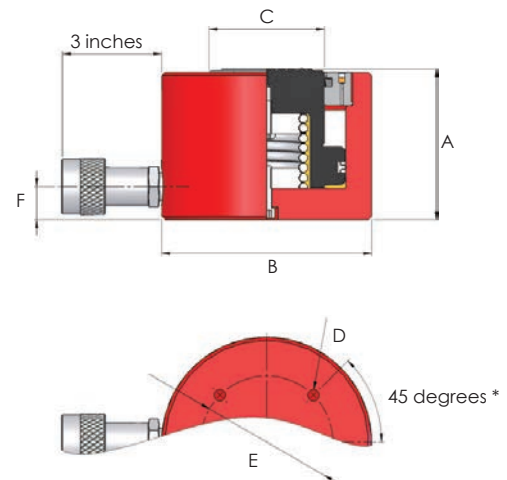


- ▶ Single acting, spring assisted return
- ▶ Compact design with optimum stroke lengths
- ▶ Nitrocarburized piston rod for corrosion resistance
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures

Capacities from 11 to 162 tons

Stroke lengths from 0.99 to 2.36 inches

Working pressure 10000 psi



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

Model number	Capacity (tons)	Stroke (in)	Oil capacity (in³)	Cylinder eff. area (in²)	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 24 and 25

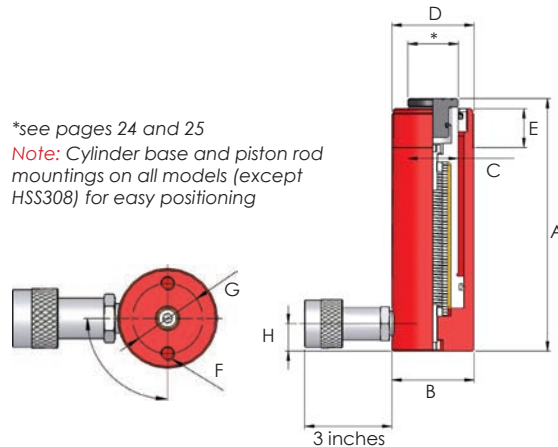
Capacities from 5 to 120 tons

Stroke lengths from 0.99 to 18.01 inches

Working pressure 10000 psi

*see pages 24 and 25

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



Model number	Capacity (tons)	Stroke (in)	Oil capacity (in³)	Cylinder eff. area (in²)	Weight (lbs)
HSS51	5	0.99	0.98	0.99	2.2
HSS52	5	1.97	1.95	0.99	2.6
HSS53	5	2.96	2.93	0.99	3.1
HSS54	5	3.94	3.9	0.99	3.3
HSS55	5	4.93	4.88	0.99	4.0
HSS57	5	6.93	6.89	0.99	4.4
HSS59	5	8.94	8.91	0.99	5.3
HSS101	11	0.99	2.2	2.23	4.0
HSS102	11	2.21	4.94	2.23	5.3
HSS104	11	3.94	8.78	2.23	6.6
HSS106	11	5.91	13.24	2.23	9.3
HSS108	11	8.12	18.12	2.23	11.0
HSS1010	11	9.85	22.02	2.23	11.9
HSS1012	11	12.02	26.84	2.23	13.7
HSS152	16	1.97	6.16	3.15	7.5
HSS154	16	3.94	12.38	3.15	11.0
HSS156	16	5.91	18.54	3.15	14.6
HSS1510	16	9.85	30.93	3.15	19.4
HSS252	28	2.01	10.86	5.41	14.3
HSS254	28	4.02	21.72	5.41	17.6
HSS256	28	5.91	31.96	5.41	21.2
HSS258	28	8	43.25	5.41	24.7
HSS2510	28	9.85	53.31	5.41	27.8
HSS2514	28	14.03	75.76	5.41	37.0
HSS2518	28	18.01	97.42	5.41	47.2
HSS308	32	8.08	52.46	6.49	41.0
HSS502	55	2.01	22.2	11.05	28.7
HSS504	55	4.02	44.41	11.05	37.0
HSS506	55	5.99	66.12	11.05	44.1
HSS508	55	8	88.33	11.05	51.1
HSS5013	55	13	143.59	11.05	74.1
HSS756	80	5.99	95.22	15.92	68.3
HSS1004	120	4.02	95.47	23.78	91.7
HSS1006	120	6.03	143.17	23.78	109.8
HSS10010	120	10.01	237.66	23.78	144.4

Dimensions (in) (unless otherwise stated)							
A	B	C	D	E	F	G	H
4.22	1.5	0.95	1 ½"-16 UN	1.1	M6	0.99	0.75
5.2	1.5	0.95	1 ½"-16 UN	1.1	M6	0.99	0.75
6.19	1.5	0.95	1 ½"-16 UN	1.1	M6	0.99	0.75
7.17	1.5	0.95	1 ½"-16 UN	1.1	M6	0.99	0.75
8.16	1.5	0.95	1 ½"-16 UN	1.1	M6	0.99	0.75
10.17	1.5	0.95	1 ½"-16 UN	1.1	M6	0.99	0.75
12.14	1.5	0.95	1 ½"-16 UN	1.1	M6	0.99	0.75
3.94	2.25	1.38	2 ¼"-14 UN	1.06	M8	1.58	0.75
5.16	2.25	1.38	2 ¼"-14 UN	1.06	M8	1.58	0.75
6.9	2.25	1.38	2 ¼"-14 UN	1.06	M8	1.58	0.75
8.87	2.25	1.38	2 ¼"-14 UN	1.06	M8	1.58	0.75
11.07	2.25	1.38	2 ¼"-14 UN	1.06	M8	1.58	0.75
12.81	2.25	1.38	2 ¼"-14 UN	1.06	M8	1.58	0.75
14.93	2.25	1.38	2 ¼"-14 UN	1.06	M8	1.58	0.75
6.07	2.76	1.62	2 ¾"-16 UN	1.54	M10	1.89	0.75
8.04	2.76	1.62	2 ¾"-16 UN	1.54	M10	1.89	0.75
10.01	2.76	1.62	2 ¾"-16 UN	1.54	M10	1.89	0.75
13.95	2.76	1.62	2 ¾"-16 UN	1.54	M10	1.89	0.75
6.86	3.39	2.13	3 ⅝"-12 UN	1.93	M12	2.36	0.99
8.87	3.39	2.13	3 ⅝"-12 UN	1.93	M12	2.36	0.99
10.76	3.39	2.13	3 ⅝"-12 UN	1.93	M12	2.36	0.99
12.77	3.39	2.13	3 ⅝"-12 UN	1.93	M12	2.36	0.99
14.74	3.39	2.13	3 ⅝"-12 UN	1.93	M12	2.36	0.99
18.91	3.39	2.13	3 ⅝"-12 UN	1.93	M12	2.36	0.99
24.07	3.39	2.13	3 ⅝"-12 UN	1.93	M12	2.36	0.99
14.74	4.02	2.25	3 ⅝"-12 UN	1.97	-	-	1.97
5.91	5	3.11	5"-12 UN	2.17	M12	3.35	0.79
7.92	5	3.11	5"-12 UN	2.17	M12	3.35	0.79
9.89	5	3.11	5"-12 UN	2.17	M12	3.35	0.79
11.9	5	3.11	5"-12 UN	2.17	M12	3.35	0.79
16.9	5	3.11	5"-12 UN	2.17	M12	3.35	0.79
10.72	5.75	3.74	5 ¾"-12 UN	1.77	M12	4.53	1.26
8.79	7.29	4.49	6 ⅞"-12 UN	1.97	M12	5.75	1.26
10.8	7.29	4.49	6 ⅞"-12 UN	1.97	M12	5.75	1.26
14.78	7.29	4.49	6 ⅞"-12 UN	1.97	M12	5.75	1.26

HHS | SINGLE ACTING HOLLOW PISTON CYLINDERS



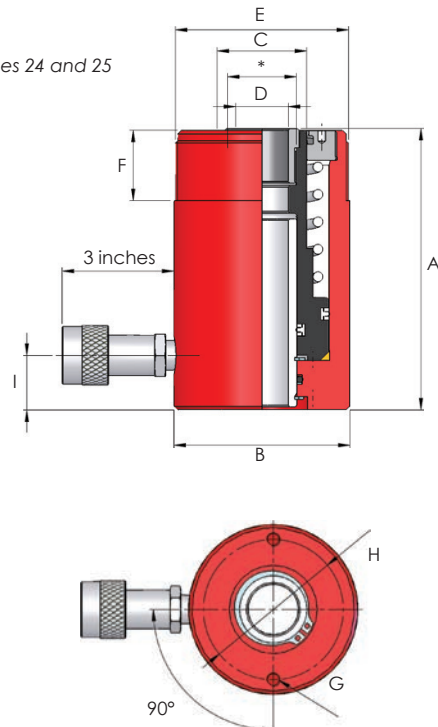
- ▶ Single acting, spring assisted return
- ▶ Hollow piston design for tooling, maintenance and tensioning applications
- ▶ Nitrocarburized piston rod for corrosion resistance
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Collar threads withstand full load
- ▶ Optional piston rod saddles listed on pages 24 and 25

Capacities from 12 to 112 tons

Stroke lengths from 0.99 to 5.99 inches

Working pressure 10000 psi

*see pages 24 and 25

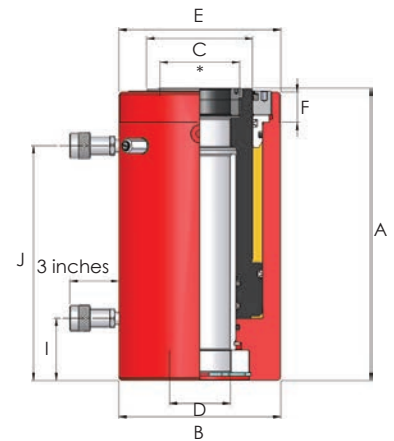
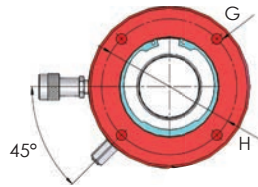


Model number	Capacity (tons)	Stroke (in)	Oil capacity (in ³)	Cylinder eff. area (in ²)	Weight (lbs)	Dimensions (in) (unless otherwise stated)								
						A	B	C	D	E	F	G	H	I
HHS101	12	0.99	2.38	2.45	6.2	4.33	2.76	1.5	0.79	2 3/4"-16 UN	1.18	M8	2.01	0.75
HHS102	12	1.97	4.82	2.45	6.6	5.52	2.76	1.5	0.79	2 3/4"-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 3/4"-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 7/8"-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 7/8"-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 1/2"-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 1/2"-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 1/4"-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 1/4"-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 3/8"-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 3/8"-12 UN	2.36	M16	7.01	1.77

HHR | DOUBLE ACTING HOLLOW PISTON CYLINDERS



- ▶ 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 24 and 25



*Note: 36 & 67 ton models feature 2 base mounting holes at 90° from coupler.
see pages 24 and 25

Model number	Capacity (tons)		Stroke (in)	Oil capacity (in³)	Cylinder eff. area (in²)	Weight (lbs)	Dimensions (in) (unless otherwise stated)									
	Push	Pull					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 ⅝"-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 ⅝"-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

HDA | DOUBLE ACTING HIGH TONNAGE CYLINDERS

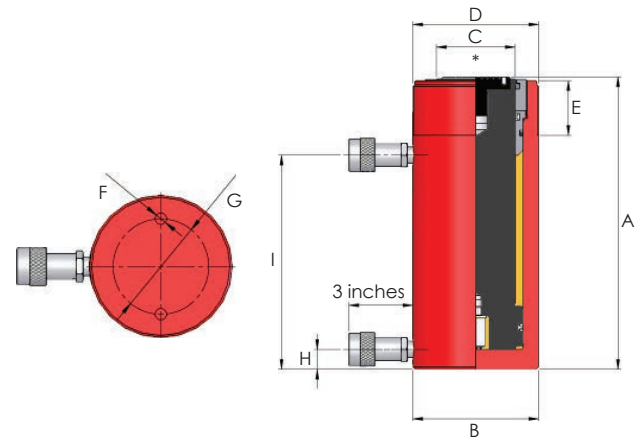


- ▶ Double acting design offers higher work output with improved performance and efficiency
- ▶ Substantial pulling force in the piston retraction mode provides increased versatility
- ▶ Nitrocarburized cylinder body and piston rod for increased corrosion protection
- ▶ Low friction bearing surfaces
- ▶ 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 573 tons
- ▶ Optional piston rod saddles listed on pages 24 and 25

Capacities from 28 to 573 tons

Stroke lengths from 5.99 to 20.02 inches

Working pressure 10000 psi



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 24 and 25*

Model number	Capacity (tons)		Stroke (in)	Oil capacity (in ³)	Cylinder eff. area (in ²)	Weight (lbs)
	Push	Pull				
HDA256	28	11	5.99	32.34	5.41	33.1
HDA506	55	17	5.99	65.91	11.05	62.6
HDA5013	55	17	13	143.41	11.05	93.9
HDA5020	55	17	20.02	220.91	11.05	138.4
HDA1006	120	40	5.99	142.19	23.76	142.2
HDA10013	120	40	13	308.78	23.76	196.2
HDA1506	168	87	5.99	198.94	33.2	198.4
HDA15012	168	87	12.02	398.48	33.2	265.7
HDA2006	224	104	5.99	264.23	44.21	286.2
HDA20012	224	104	12.02	530.3	44.21	369.1
HDA3006	359	-	5.99	424.11	70.9	425.5
HDA4006	439	-	5.99	518.09	86.63	630.5
HDA5006	573	-	5.99	676.75	113.13	820.1

Note: Other capacities and stroke lengths available on request

Dimensions (in) (unless otherwise stated)									
A	B	C	D	E	F	G	H	I	
11.31	3.62	1.97	3 5/16"-12 UN	2.09	M10	2.36	1.18	8.35	
11.62	5	3.11	5"-12 UN	2.17	M12	3.35	0.79	8.51	
18.64	5	3.11	5"-12 UN	2.17	M12	3.35	0.79	15.52	
28.76	5	3.11	5"-12 UN	2.17	M12	3.35	2.68	25.06	
11.98	7.29	4.49	6 7/8"-12 UN	2.01	M12	5.75	1.18	8.9	
18.99	7.29	4.49	6 7/8"-12 UN	2.01	M12	5.75	1.18	15.92	
12.21	8.27	4.49	8"-12 UN	2.17	M16	6.3	1.38	9.1	
18.24	8.27	4.49	8"-12 UN	2.17	M16	6.3	1.38	15.13	
12.88	10.01	5.52	9 3/4"-12 UN	2.56	M20	7.29	1.69	9.38	
18.91	10.01	5.52	9 3/4"-12 UN	2.56	M20	7.29	1.69	15.41	
16.11	12.29	6.5	Optional	Optional	M20	6.23	1.97	10.32	
16.98	14.18	8.51	Optional	Optional	M24	8	2.17	10.91	
18.52	15.64	8	Optional	Optional	M24	8	2.56	11.82	

HFL | SINGLE ACTING LOW HEIGHT FAILSAFE LOCK RING CYLINDERS

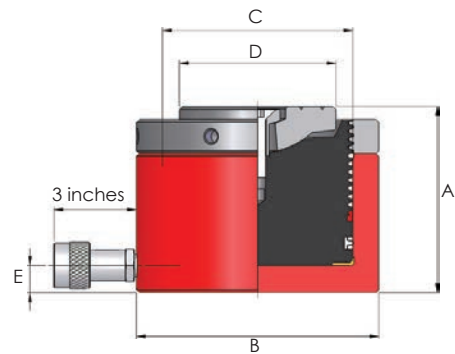


Capacities from 55 to 573 tons

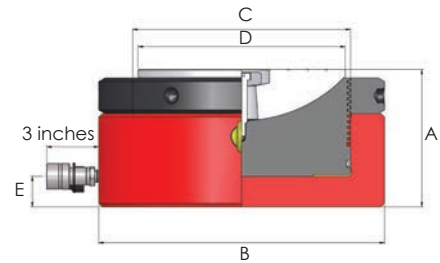
Stroke lengths from 1.77 to 2.01 inches

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 body and piston rod for increased corrosion protection
- ▶ 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 24 and 25



HFL502, HFL1002, HFL1502



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
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

HFG | SINGLE ACTING FAILSAFE LOCK RING CYLINDERS

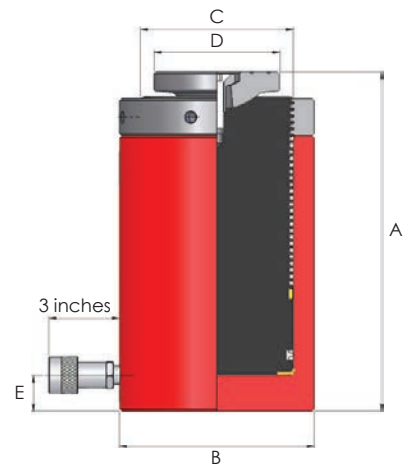


Capacities from 55 to 573 tons

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 body and piston rod for increased corrosion protection
- ▶ 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 24 and 25



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

Note: Other capacities and stroke lengths available on request

HAS | SINGLE ACTING SOLID PISTON ALUMINUM CYLINDERS



Capacities from 35 to 121 tons

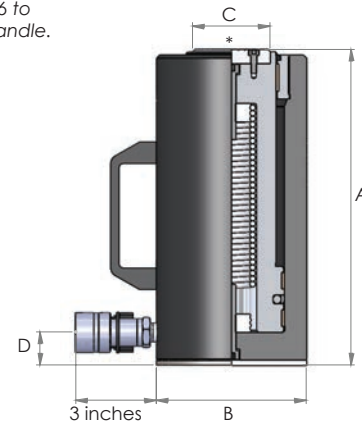
Stroke lengths from 2.01 to 12.02 inches

Working pressure 10000 psi

*see pages 24 and 25

Note: Models from 56 to 121 tons feature a handle.

- ▶ 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 24 and 25



Model number	Capacity (tons)	Stroke (in)	Oil capacity (in³)	Cylinder eff. area (in²)	Weight (lbs)	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	17.14	4.14	1.97	0.99
HAS502	56	2.01	69.3	10.99	17.6	7.33	5.32	2.76	1.18
HAS506	56	5.99	65.7	10.99	24.3	11.31	5.32	2.76	1.18
HAS5012	56	12.02	414.31	10.99	35.3	17.34	5.32	2.76	1.18
HAS1002	121	2.01	47.89	23.85	41.9	8.51	7.68	4.33	1.62
HAS1006	121	5.99	142.74	23.85	50.7	12.49	7.68	4.33	1.62
HAS10012	121	12.02	286.4	23.85	75.0	18.52	7.68	4.33	1.62

Note: Other capacities and stroke lengths available on request

HHA | SINGLE ACTING HOLLOW PISTON ALUMINUM CYLINDERS



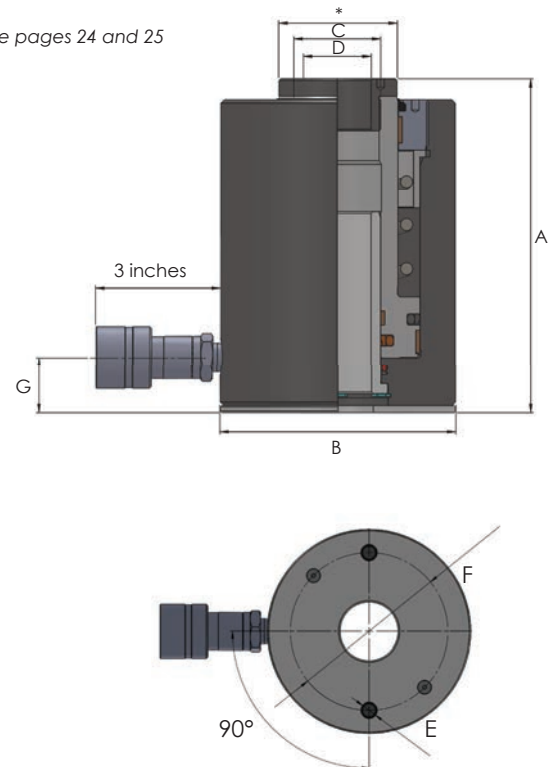
- ▶ Lightweight aluminum cylinders for applications where weight and portability are of prime importance
- ▶ Single acting, spring assisted return
- ▶ Hollow piston design for pulling, pressing and tensioning applications
- ▶ Hard anodized piston rod and cylinder for corrosion resistance and increased 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 24 and 25

Capacities from 20 to 57 tons

Stroke lengths from 2.01 to 4.14 inches

Working pressure 10000 psi

*see pages 24 and 25



Model number	Capacity (tons)	Stroke (in)	Oil capacity (in³)	Cylinder eff. area (in²)	Weight (lbs)	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	1.77	1.02	M8x10	2.6	1.02
HHA372	41	2.01	16.23	8.08	15.9	7.6	5.36	2.72	1.54	M10x15	4.14	1.26
HHA504	57	4.14	46.67	11.28	29.5	11.03	6.3	3.11	2.01	M10x15	5.13	1.54

HFA | SINGLE ACTING FAILSAFE LOCK RING ALUMINUM CYLINDERS



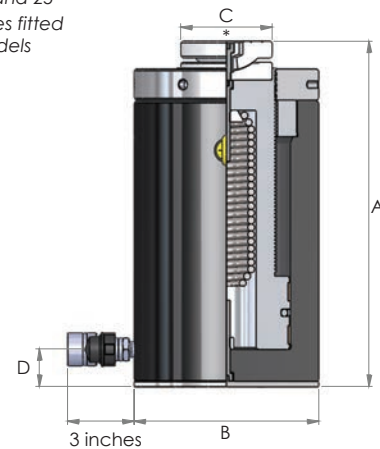
Capacities from 35 to 121 tons

Stroke lengths from 2.01 to 12.02 inches

Working pressure 10000 psi

*see pages 24 and 25
Note: Lifting eyes fitted on 121 tons models

- ▶ 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 24 and 25



Model number	Capacity (tons)	Stroke (in)	Oil capacity (in³)	Cylinder eff. area (in²)	Weight (lbs)	Tommy bar	Dimensions (in)			
							A	B	C	D
HFA302	35	2.01	14.15	7.04	13.2	TTB10	8.94	4.26	1.97	0.79
HFA306	35	5.99	42.15	7.04	17.6	TTB10	12.92	4.26	1.97	0.79
HFA3012	35	12.02	84.55	7.04	24.3	TTB10	18.95	4.26	1.97	0.79
HFA502	56	2.01	22.2	11.05	19.8	TTB10	9.1	5.24	2.76	0.99
HFA506	56	5.99	66.12	11.05	24.3	TTB10	13.08	5.24	2.76	0.99
HFA5012	56	12.02	132.68	11.05	37.5	TTB10	19.11	5.24	2.76	0.99
HFA1002	121	2.01	47.89	23.85	52.9	TTB10	10.91	7.96	3.94	1.38
HFA1006	121	5.99	142.74	23.85	66.1	TTB10	14.89	7.96	3.94	1.38
HFA10012	121	12.02	286.4	23.85	86.0	TTB10	20.92	7.96	3.94	1.38

Note: Other capacities and stroke lengths available on request

HRA | DOUBLE ACTING HIGH TONNAGE ALUMINUM CYLINDERS



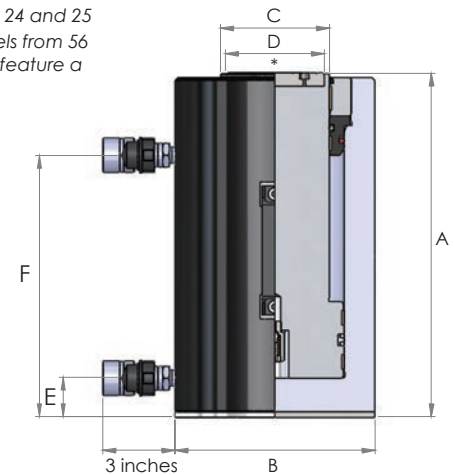
Capacities from 35 to 121 tons

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
- ▶ Handles fitted as standard on models 56 ton upwards
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Steel base plate fitted as standard on models
- ▶ Pressure relief valve on annulus side
- ▶ Optional piston rod saddles listed on pages 24 and 25

*see pages 24 and 25
Note: Models from 56 to 121 tons feature a handle.



Model number	Capacity (tons)	Stroke (in)	Oil capacity (in³)	Cylinder eff. area (in²)	Weight (lbs)	Dimensions (in)					
						A	B	C	D	E	F
HRA302	35	2.01	13.74	6.85	11.0	8.04	4.14	2.36	1.97	0.99	5.36
HRA306	35	5.99	40.96	6.85	15.4	12.02	4.14	2.36	1.97	0.99	9.34
HRA3012	35	12.02	82.2	6.85	22.0	18.05	4.14	2.36	1.97	0.99	15.37
HRA502	56	2.01	22.05	10.99	22.0	8.71	5.32	3.11	2.76	1.18	5.56
HRA506	56	5.99	65.72	10.99	28.7	12.69	5.32	3.11	2.76	1.18	9.53
HRA5012	56	12.02	131.88	10.99	41.9	18.72	5.32	3.11	2.76	1.18	15.56
HRA1002	121	2.01	47.89	23.85	48.5	10.17	7.96	4.33	3.94	1.62	6.78
HRA1006	121	5.99	142.73	23.85	63.9	14.14	7.96	4.33	3.94	1.62	10.76
HRA10012	121	12.02	286.4	23.85	86.0	20.17	7.96	4.33	3.94	1.62	16.78

HGG | SINGLE ACTING LOAD RETURN HIGH TONNAGE INDUSTRIAL CYLINDERS

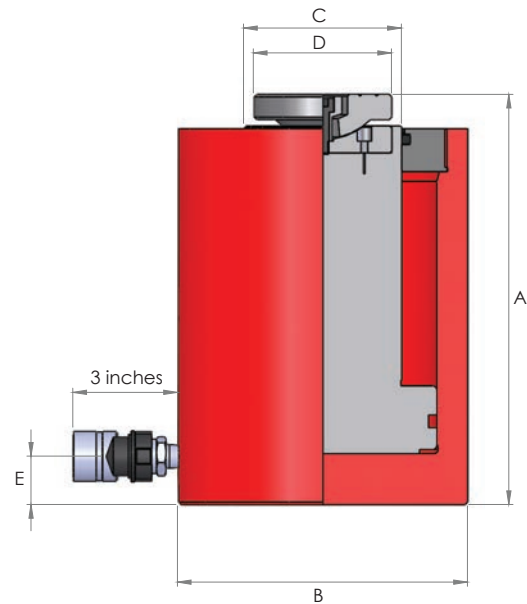


Capacities from 168 to 359 tons

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 24 and 25



Model number	Capacity (tons)	Stroke (in)	Oil capacity (in³)	Cylinder eff. area (in²)	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	12.21	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

HSG | SINGLE ACTING LOAD RETURN HIGH TONNAGE CONSTRUCTION CYLINDERS

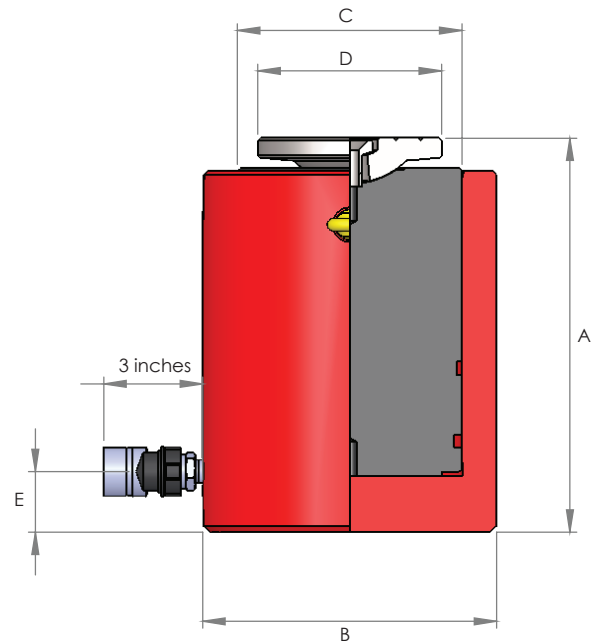


Capacities from 168 to 359 tons

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 body 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 24 and 25



Model number	Capacity (tons)	Stroke (in)	Oil capacity (in³)	Cylinder eff. area (in²)	Weight (lbs)
HSG1506	168	5.99	195.89	33.22	170.9
HSG2006	224	5.99	264.84	44.19	237.4
HSG3006	359	5.99	426.56	70.94	386.2

Dimensions (in)				
A	B	C	D	E
11.54	8.51	6.5	5.32	1.77
11.66	10.01	7.51	5.32	1.77
12.84	12.29	9.51	5.91	1.97

HPC | SINGLE ACTING PULL CYLINDERS

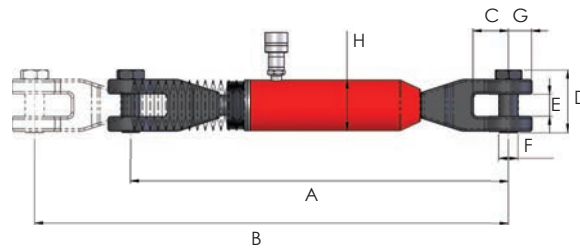


Capacities from 11 to 55 tons

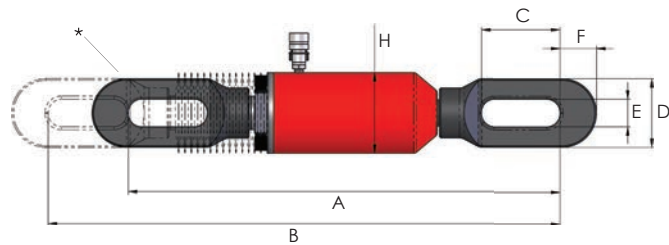
Stroke length 5.99 inches

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



HPC106C



HPC106, HPC306, HPC506

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

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 6.6 feet length hose with quick connect coupler
- ▶ Optional piston rod saddles available for most models, see pages 24 and 25

Model number	SET	Model number	PUMP	Model number	CYLINDER		HOSE		Weight (lbs)
	Cylinder capacity (tons)		Capacity (in³)		Stroke (in)	Closed height (in)	Model number	Length (ft)	
PCS50	5	HP110	61.02	HPS51	0.63	1.65	HC2	6.6	16.3
PCS53	5	HP110	61.02	HSS53	2.96	6.19	HC2	6.6	17.6
PCS100	11	HP110	61.02	HPS100	0.39	1.81	HC2	6.6	18.1
PCS101	11	HP110	61.02	HLS101	1.58	3.74	HC2	6.6	19.8
PCS102	11	HP110	61.02	HSS102	2.21	5.16	HC2	6.6	19.8
PCS106	11	HP110	61.02	HSS106	5.91	8.87	HC2	6.6	23.8
PCS200	22	HP110	61.02	HPS200	0.43	2.05	HC2	6.6	20.7
PCS201	22	HP110	61.02	HLS201	1.73	4.02	HC2	6.6	24.9
PCS256	28	HP110	61.02	HSS256	5.91	10.76	HC2	6.6	35.3
PCS300	35	HP110	61.02	HPS300	0.47	2.32	HC2	6.6	23.8
PCS302	35	HP110	61.02	HLS302	2.36	4.69	HC2	6.6	30.0
PCS502	55	HP110	61.02	HLS502	2.36	4.96	HC2	6.6	37.5
PCS506	55	HP232	122.05	HSS506	5.99	9.89	HC2	6.6	68.3
PCS1002	120	HP232	122.05	HLS1002	2.36	5.63	HC2	6.6	78.3
PCS1006	120	HP252	305.12	HSS1006	6.03	10.8	HC2	6.6	145.5
PCS202H	25	HP110	61.02	HHS202	1.97	6.3	HC2	6.6	30.6
PCS302H	36	HP110	61.02	HHS303	1.97	6.5	HC2	6.6	37.9
PCS603H	67	HP232	122.05	HHS603	2.99	8.9	HC2	6.6	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				Figure
	Standard saddle		Optional saddle		Figure	Dimensions (in)			Thread size	
	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 ¼"-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	-	-	-
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
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	TS250	8	-	-	5.52	-	1.58	M10x1.5	14
	HFL - 400T	TS400	8	-	-	7.09	-	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	HA50	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)

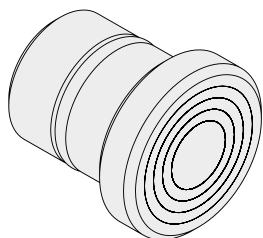


Figure 1

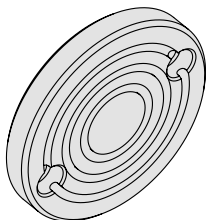


Figure 2

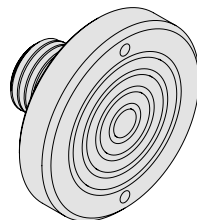


Figure 3

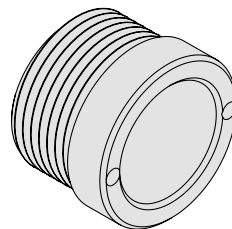


Figure 4

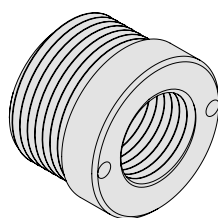


Figure 5

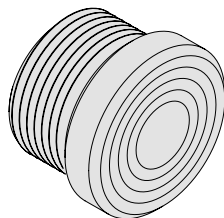


Figure 6

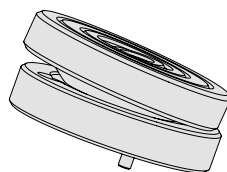


Figure 7

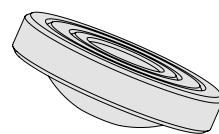


Figure 8

Note: See below table for details on internal saddle thread

Saddle model	Internal saddle thread specification
HA18T	M24
HA37T	M36
HA50T	M48
HA102T	¾"-16 UNF
HA202T	1"x8 UNC
HA302T	1¼"x7 UNC
HA603T	1½"x5 ½" UNS
HA1003T	2½"x8 UN

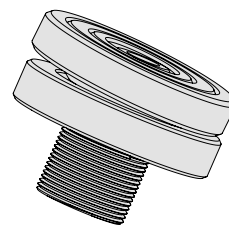


Figure 9

PISTON ROD DRAWINGS (for specifications, see facing page)

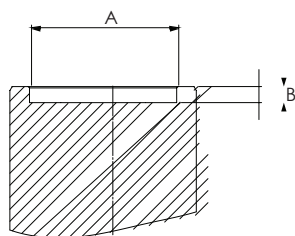


Figure 10

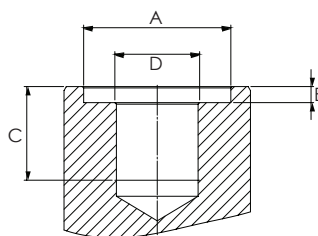


Figure 11

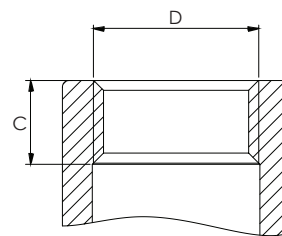


Figure 12

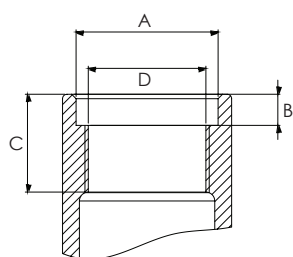


Figure 13

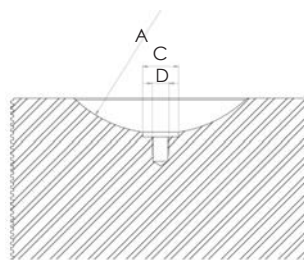


Figure 14

HI-FORCE HYDRAULIC PUMPS

The Hi-Force range of manual and powered hydraulic pumps comprises of 141 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 32, 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 28

HP STEEL 29

Manually operated, single or two stage, steel hand pumps

HP ALUMINUM 30

Manually operated, two stage, aluminum hand pumps

HP HIGH FLOW 31

Manually operated, two stage, high flow hand pumps

HPX HIGH FLOW 32

Manually operated, two stage ultra-high pressure hand pumps

HP-FP RANGE 33

Manually operated, two stage foot pumps

BPP RANGE 34

Battery powered, two stage hydraulic pump

HEP1 RANGE 35

Electric driven, two stage mini pumps with carrying strap

HEP103 RANGE 36

Electric driven, two stage compact pumps

HEP2 RANGE 37

Electric driven, two stage, medium flow, general duty pumps

HEP3 RANGE 38

Electric driven, two stage, high flow, general duty pumps

HEP5 RANGE 39

Electric driven, two stage, ultra-high flow, general duty pumps

HSP RANGE 40

Electric driven, split flow, multi-outlet pumps

SLF RANGE 41

Synchronous lifting system, fixed speed drive

SLV RANGE 45

Synchronous lifting system, variable speed drive

AHP11 RANGE 50

Air driven, single stage, hand or foot operated pumps

HAP RANGE 51

Air driven, two stage, high flow, general duty pumps

HPP RANGE 52

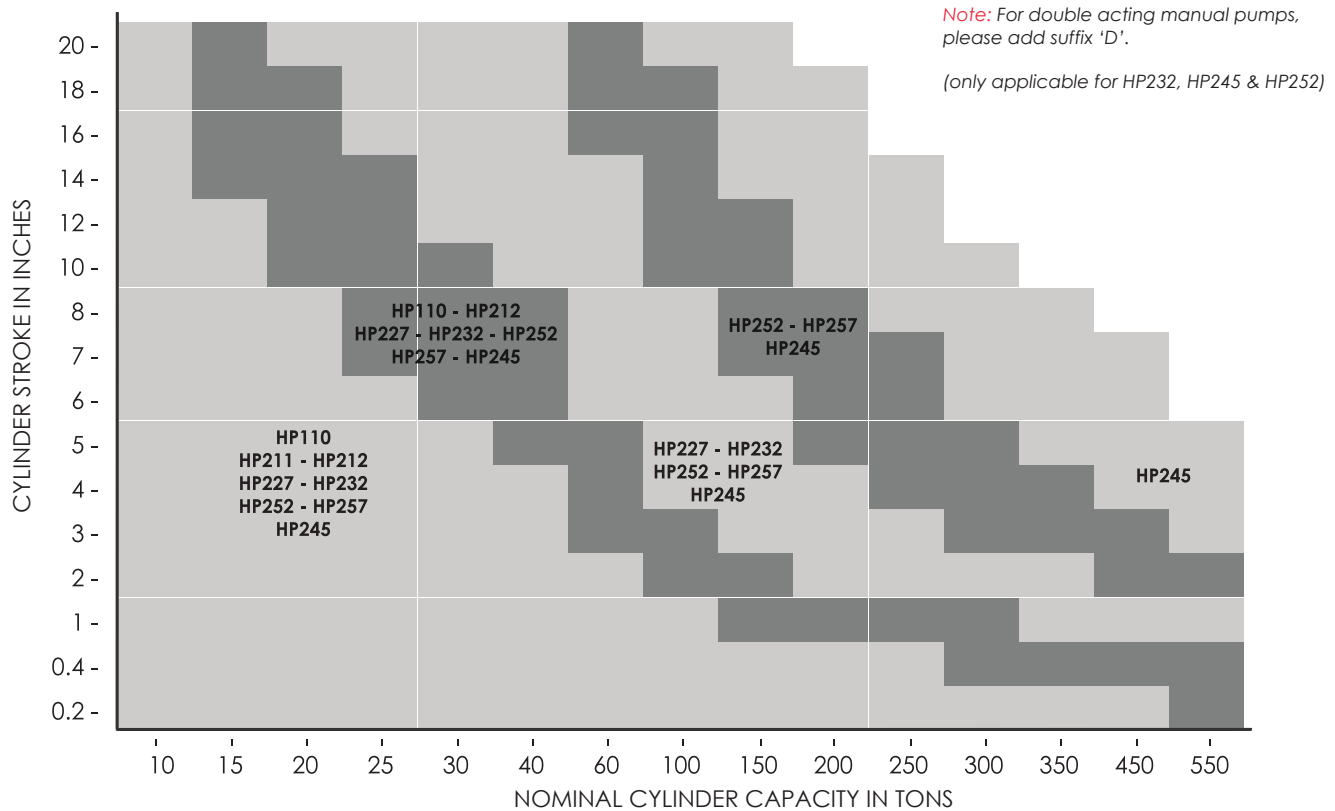
Gasoline engine driven, two stage, high flow, general duty pumps

ACCESSORIES FOR POWERED PUMPS 53

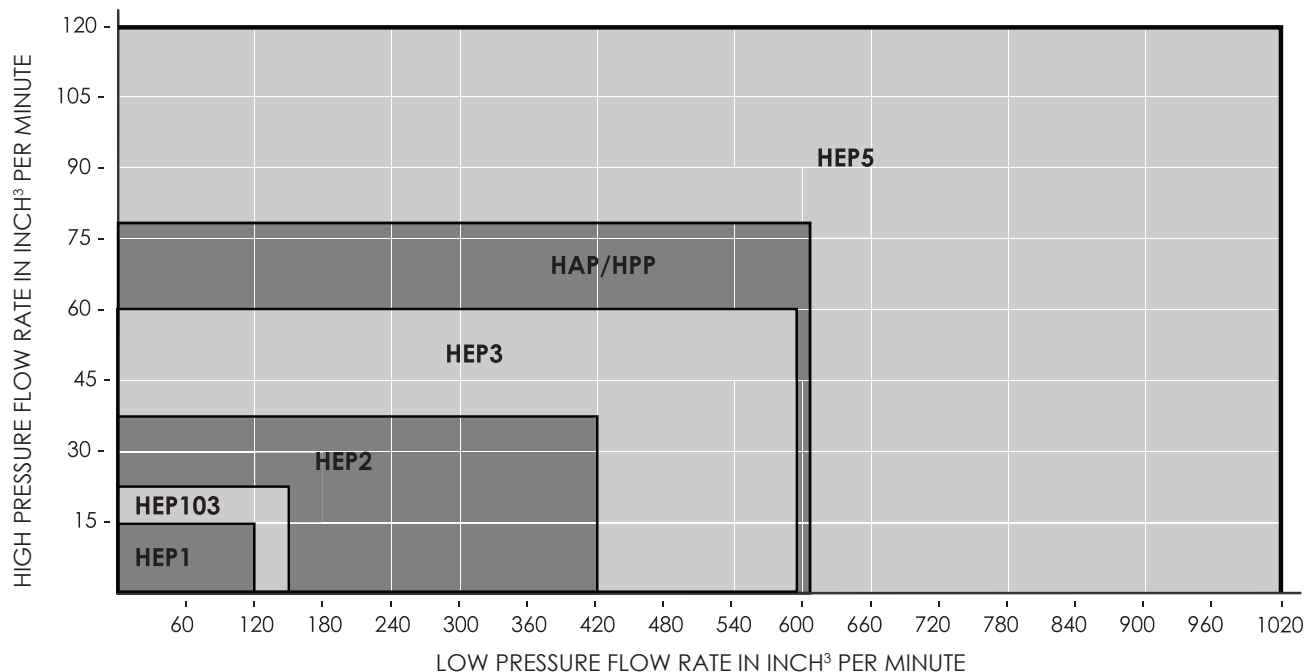
Protection frames, trolleys, solenoid valves, 60 Hz electric motor option

SELECTION TABLE FOR HI-FORCE HYDRAULIC PUMPS

MANUAL PUMPS



POWERED PUMPS



HP | MANUALLY OPERATED PUMPS - STEEL

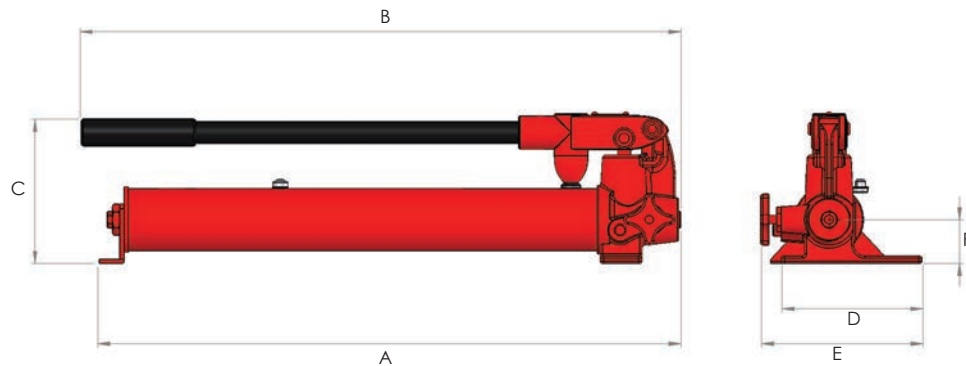


Single or two stage operation

Durable steel construction

Working pressure 10000 psi

- ▶ Oil reservoir capacity up to 250.2 inch³
- ▶ 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)		Usable oil capacity (in ³)	Handle effort (lbs)	Weight (lbs)	Dimensions (in)					
		1 st stage	2 nd stage				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

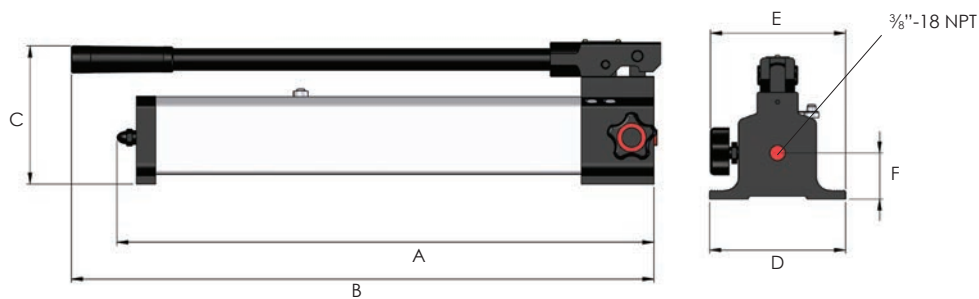


Two stage operation

Working pressure 10000 psi

Six models with choice of control valve

- ▶ Oil reservoir capacity up to 305.12 inch³
- ▶ 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)		Usable oil capacity (in ³)	Handle effort (lbs)	Weight (lbs)	Dimensions (in)					
		1 st stage	2 nd stage				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

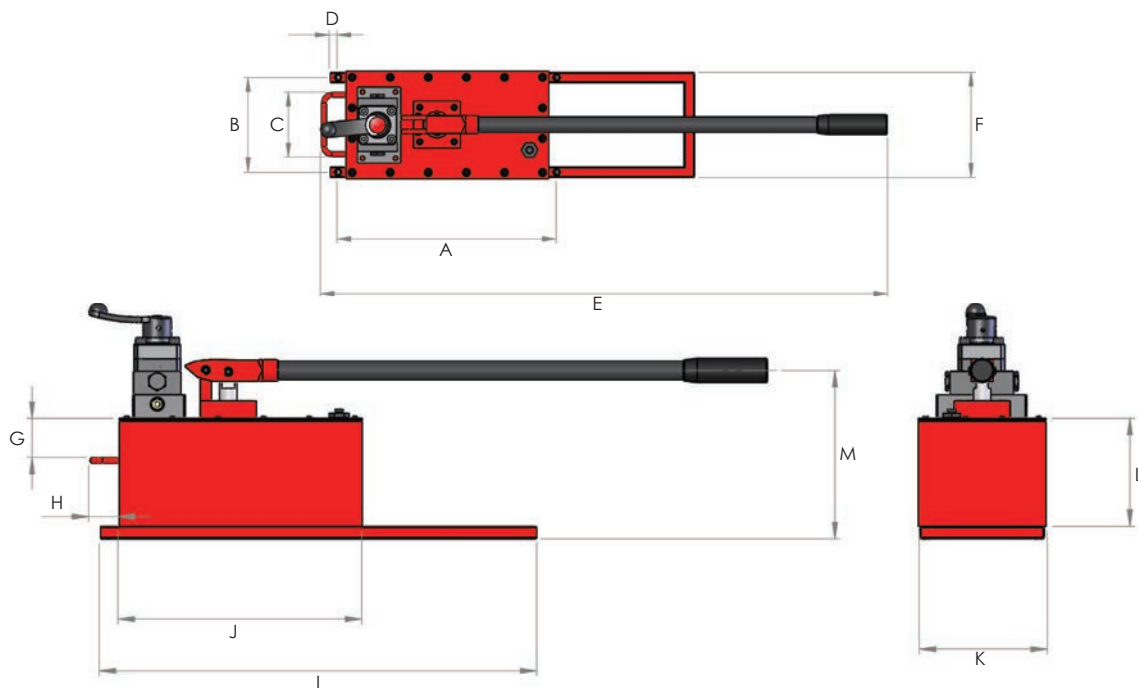


Heavy duty steel construction

Working pressure 10000 psi

2 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 in³ 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) 1 st stage	2 nd 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

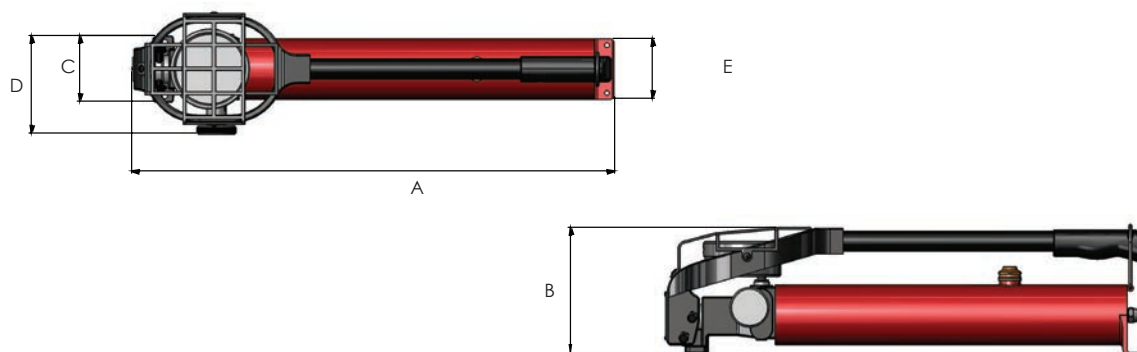


Compact lightweight aluminum construction

Two stage operation

Choice of 21750 or 40600 psi pressure rating

- ▶ Oil reservoir capacity 73.23 inch³
- ▶ External pressure release valve and factory set safety valve
- ▶ Specifically designed for high pressure applications
- ▶ 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)				
			1 st stage	2 nd stage			A	B	C	D	E
HPX1500	21750	73.23	1.22	0.06	1/4" 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 1/4" BSP male thread each end	3.1
XHH5-15	21750	16.5 ft hose with 1/4" BSP male thread each end	5.7
XHH3-30	43500	10 ft hose with 9/16" - 18 UNF male coned thread each end	7.1
XHH5-30	43500	16.5 ft hose with 9/16" - 18 UNF male coned thread each end	11.2

HP-FP | MANUALLY OPERATED FOOT PUMPS

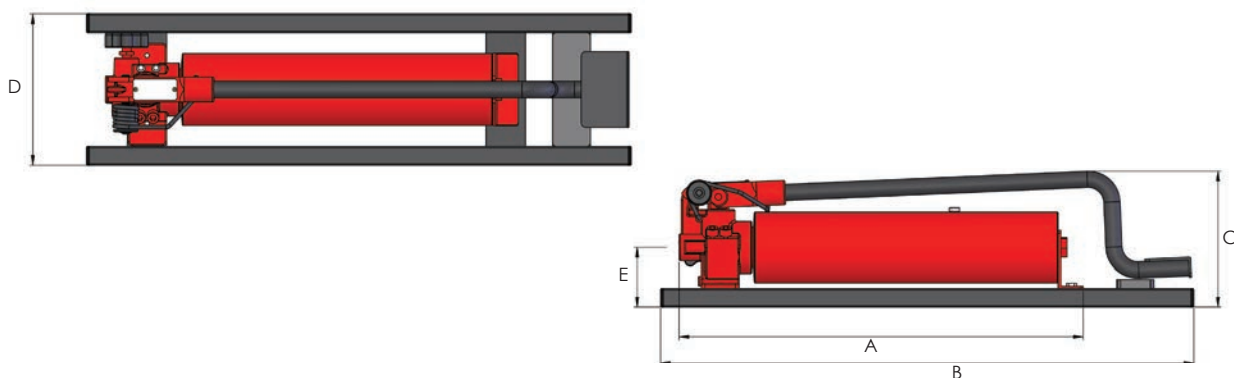


Working pressure 10000 psi

Two stage operation

Durable steel construction

- ▶ Oil reservoir capacity 140.35 inch³
- ▶ 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)		Usable oil capacity (in ³)	Handle effort (lbs)	Weight (lbs)	Dimensions (in)				
		1 st stage	2 nd stage				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

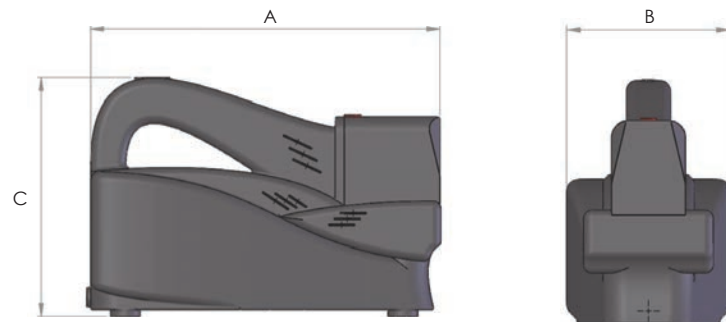


Working pressure 10000 psi

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 (in³)	Oil flow (in³/min)		Weight (lbs)	Dimensions (in)		
		1 st stage	2 nd stage		A	B	C
BPP107	42.72	30.51	9.15	17.6	13.99	6.3	10.24

BPP ACCESSORIES



Model number	Description
CCU144	14.4V Vehicle power socket charger unit



Model number	Description
BP12	Battery Pack 14.4V

Note: Charger supplied separately



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



Model number	Description
CU12	Mains charger 110V-230V

HEP1 | ELECTRIC DRIVEN LIGHTWEIGHT MINI PUMPS WITH CARRYING STRAP

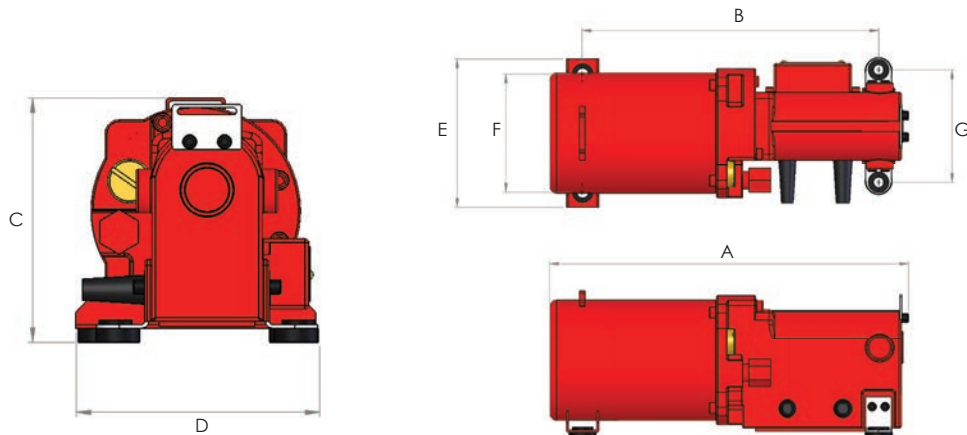


Working pressure 10000 psi

Two stage operation

Lightweight, compact design

- ▶ Oil reservoir capacity 48.82 inch³
- ▶ 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)		Valve type	Usable oil capacity (in ³)	Weight (lbs)	Dimensions (in)						
		1 st stage	2 nd stage				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

HEP103 | ELECTRIC DRIVEN TWO STAGE COMPACT PUMPS

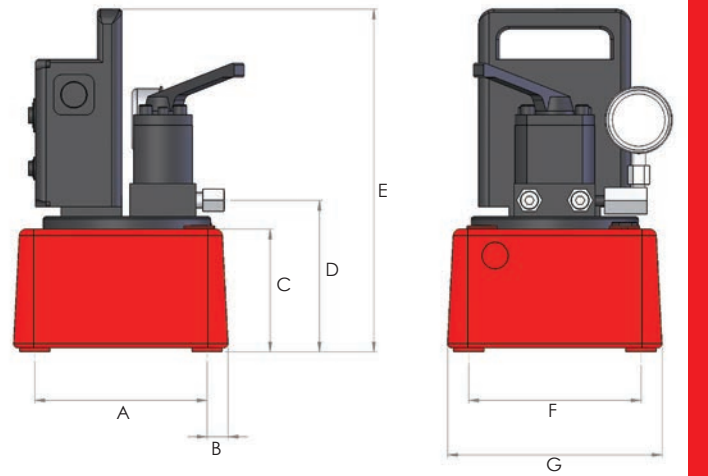


- ▶ Oil reservoir capacity 1.06 gallons
- ▶ Choice of 110 or 240 volt single phase electric motors with 50/60 Hz dual frequency
- ▶ Choice of manual or electric powered control valves in 2, 3 or 4-way configuration
- ▶ Control valves available with open center, closed center or locking valve design
- ▶ Supplied with glycerin filled pressure gauge
- ▶ Integral carrying handle for easy transportation
- ▶ Remote hand pendant controller with 10 feet control cable

Working pressure 10000 psi

Two stage operation

Choice of valve options



Model number	Motor voltage	Maximum flow rate (in ³ /min) 1 st stage	2 nd stage	Changeover pressure (psi)	Remote pendant functions	Usable oil capacity (gallons)	Weight (lbs)
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Below models feature 2-way solenoid valve, normally closed (hold function), suitable for use with single acting cylinders and tools, requiring load holding.

HEP103241LS	110V - 1Ph	152.56	21.36	2175	advance/retract	1.06	42.3
HEP103242LS	240V - 1Ph	152.56	21.36	2175	advance/retract	1.06	42.3

Below models featuring 2-way solenoid valve, normally open (auto retract function), suitable for use with single acting cylinders and tools, requiring auto retract.

HEP103241S	110V - 1Ph	152.56	21.36	2175	advance/retract	1.06	45.2
HEP103242S	240V - 1Ph	152.56	21.36	2175	advance/retract	1.06	45.2

Below models feature 3-way manually operated valve, suitable for use with single acting cylinders and tools.

HEP103341	110V - 1Ph	152.56	21.36	2175	motor on/off	1.06	39.9
HEP103342	240V - 1Ph	152.56	21.36	2175	motor on/off	1.06	39.9

Below models feature 4-way manually operated valve, suitable for use with double acting cylinders and tools.

HEP103441	110V - 1Ph	152.56	21.36	2175	motor on/off	1.06	39.9
HEP103442	240V - 1Ph	152.56	21.36	2175	motor on/off	1.06	39.9

Below models feature 4-way solenoid valve, locking feature on A and B port, suitable for use with double acting cylinders and tools, requiring load holding.

HEP103441LS	110V - 1Ph	152.56	21.36	2175	advance/retract	1.06	45.2
HEP103442LS	240V - 1Ph	152.56	21.36	2175	advance/retract	1.06	45.2

Model number	Dimensions (in)						
	A	B	C	D	E	F	G
All Models	7.68	0.99	4.63	5.58	13.47	8.27	10.24

HEP2 | ELECTRIC DRIVEN PUMPS - GENERAL DUTY MEDIUM FLOW

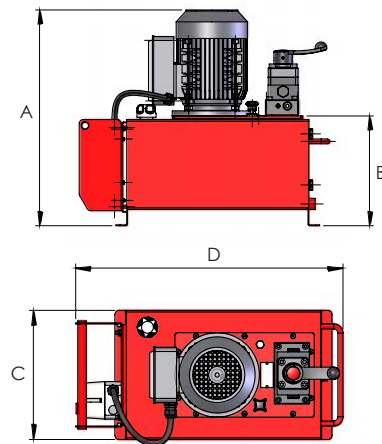


- ▶ Choice of 110/115, 220/240 or 380/440 volt electric motors available as standard
- ▶ Choice of 2, 3 or 4-way manual control valves with load holding feature on 3 & 4-way versions
- ▶ Externally adjustable pressure relief for pressure settings up to 10000 psi
- ▶ Completely enclosed for cooled low noise electric motors

Working pressure 10000 psi

Two stage operation

Choice of 2.64 or 6.6 gallon oil reservoir



Model number	Valve type	Oil capacity (gallons)	Maximum flow rate (in ³ /min)		Motor voltage	Weight (lbs)	Dimensions (in)			
			1 st stage	2 nd stage			A	B	C	D
HEP207111H	P-T Plate	2.64	427.17	39.67	110/115V-1Ph	103.6	20.76	10.24	9.69	20.02
HHEP207112H	P-T Plate	2.64	427.17	39.67	220/240V-1Ph	103.6	20.76	10.24	9.69	20.02
HEP207114	P-T Plate	2.64	427.17	39.67	380/440V-3Ph	103.6	20.76	10.24	9.69	20.02
HEP207121H	P-T Plate	6.6	427.17	39.67	110/115V-1Ph	138.9	21.47	10.91	12.06	24.94
HEP207122H	P-T Plate	6.6	427.17	39.67	220/240V-1Ph	138.9	21.47	10.91	12.06	24.94
HEP207124	P-T Plate	6.6	427.17	39.67	380/440V-3Ph	138.9	21.47	10.91	12.06	24.94
HEP207211H	2-way	2.64	427.17	39.67	110/115V-1Ph	104.7	20.76	10.24	9.69	20.02
HEP207212H	2-way	2.64	427.17	39.67	220/240V-1Ph	104.7	20.76	10.24	9.69	20.02
HEP207214	2-way	2.64	427.17	39.67	380/440V-3Ph	104.7	20.76	10.24	9.69	20.02
HEP207221H	2-way	6.6	427.17	39.67	110/115V-1Ph	140.0	21.47	10.91	12.06	24.94
HEP207222H	2-way	6.6	427.17	39.67	220/240V-1Ph	140.0	21.47	10.91	12.06	24.94
HEP207224	2-way	6.6	427.17	39.67	380/440V-3Ph	140.0	21.47	10.91	12.06	24.94
HEP207311H	3-way	2.64	427.17	39.67	110/115V-1Ph	104.7	20.76	10.24	9.69	20.02
HEP207312H	3-way	2.64	427.17	39.67	220/240V-1Ph	104.7	20.76	10.24	9.69	20.02
HEP207314	3-way	2.64	427.17	39.67	380/440V-3Ph	104.7	20.76	10.24	9.69	20.02
HEP207321H	3-way	6.6	427.17	39.67	110/115V-1Ph	140.0	21.47	10.91	12.06	24.94
HEP207322H	3-way	6.6	427.17	39.67	220/240V-1Ph	140.0	21.47	10.91	12.06	24.94
HEP207324	3-way	6.6	427.17	39.67	380/440V-3Ph	140.0	21.47	10.91	12.06	24.94
HEP207411H	4-way	2.64	427.17	39.67	110/115V-1Ph	104.7	20.76	10.24	9.69	20.02
HEP207412H	4-way	2.64	427.17	39.67	220/240V-1Ph	104.7	20.76	10.24	9.69	20.02
HEP207414	4-way	2.64	427.17	39.67	380/440V-3Ph	104.7	20.76	10.24	9.69	20.02
HEP207421H	4-way	6.6	427.17	39.67	110/115V-1Ph	140.0	21.47	10.91	12.06	24.94
HEP207422H	4-way	6.6	427.17	39.67	220/240V-1Ph	140.0	21.47	10.91	12.06	24.94
HEP207424	4-way	6.6	427.17	39.67	380/440V-3Ph	140.0	21.47	10.91	12.06	24.94

Note: All 380/440V models are suitable for operation at 50Hz and 60Hz.

All 110/115 and 220/240 volt models are supplied to run at 60Hz as standard. For 50Hz requirements please remove suffix "H" from the model number. A wide variety of optional extras are detailed on pages 53.

HEP3 | ELECTRIC DRIVEN PUMPS - GENERAL DUTY HIGH FLOW

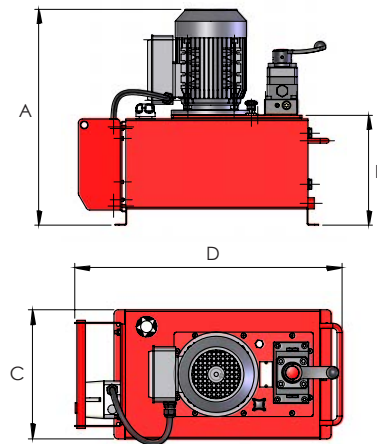


- ▶ Choice of 110/115, 220/240 or 380/440 volt electric motors available as standard
- ▶ Choice of 2, 3 or 4-way manual control valves with load holding feature on 3 & 4-way versions
- ▶ Externally adjustable pressure relief for pressure settings up to 10000 psi
- ▶ Completely enclosed for cooled low noise electric motors

Working pressure 10000 psi

Two stage operation

Choice of 6.6 or 10.56 gallon oil reservoir



Model number	Valve type	Oil capacity (gallons)	Maximum flow rate (in ³ /min)		Motor voltage	Weight (lbs)	Dimensions (in)			
			1 st stage	2 nd stage			A	B	C	D
HEP310121H	P-T Plate	6.6	610.24	61.02	110/115V-1Ph	140.0	21.47	10.91	12.06	24.94
HEP310122H	P-T Plate	6.6	610.24	61.02	220/240V-1Ph	140.0	21.47	10.91	12.06	24.94
HEP310124	P-T Plate	6.6	610.24	61.02	380/440V-3Ph	140.0	21.47	10.91	12.06	24.94
HEP310141H	P-T Plate	10.56	610.24	61.02	110/115V-1Ph	195.1	25.77	15.21	12.06	24.94
HEP310142H	P-T Plate	10.56	610.24	61.02	220/240V-1Ph	195.1	25.77	15.21	12.06	24.94
HEP310144	P-T Plate	10.56	610.24	61.02	380/440V-3Ph	195.1	25.77	15.21	12.06	24.94
HEP310221H	2-way	6.6	610.24	61.02	110/115V-1Ph	141.1	21.47	10.91	12.06	24.94
HEP310222H	2-way	6.6	610.24	61.02	220/240V-1Ph	141.1	21.47	10.91	12.06	24.94
HEP310224	2-way	6.6	610.24	61.02	380/440V-3Ph	141.1	21.47	10.91	12.06	24.94
HEP310241H	2-way	10.56	610.24	61.02	110/115V-1Ph	196.2	25.77	15.21	12.06	24.94
HEP310242H	2-way	10.56	610.24	61.02	220/240V-1Ph	196.2	25.77	15.21	12.06	24.94
HEP310244	2-way	10.56	610.24	61.02	380/440V-3Ph	196.2	25.77	15.21	12.06	24.94
HEP310321H	3-way	6.6	610.24	61.02	110/115V-1Ph	141.1	21.47	10.91	12.06	24.94
HEP310322H	3-way	6.6	610.24	61.02	220/240V-1Ph	141.1	21.47	10.91	12.06	24.94
HEP310324	3-way	6.6	610.24	61.02	380/440V-3Ph	141.1	21.47	10.91	12.06	24.94
HEP310341H	3-way	10.56	610.24	61.02	110/115V-1Ph	196.2	25.77	15.21	12.06	24.94
HEP310342H	3-way	10.56	610.24	61.02	220/240V-1Ph	196.2	25.77	15.21	12.06	24.94
HEP310344	3-way	10.56	610.24	61.02	380/440V-3Ph	196.2	25.77	15.21	12.06	24.94
HEP310421H	4-way	6.6	610.24	61.02	110/115V-1Ph	141.1	21.47	10.91	12.06	24.94
HEP310422H	4-way	6.6	610.24	61.02	220/240V-1Ph	141.1	21.47	10.91	12.06	24.94
HEP310424	4-way	6.6	610.24	61.02	380/440V-3Ph	141.1	21.47	10.91	12.06	24.94
HEP310441H	4-way	10.56	610.24	61.02	110/115V-1Ph	196.2	25.77	15.21	12.06	24.94
HEP310442H	4-way	10.56	610.24	61.02	220/240V-1Ph	196.2	25.77	15.21	12.06	24.94
HEP310444	4-way	10.56	610.24	61.02	380/440V-3Ph	196.2	25.77	15.21	12.06	24.94

Note: All 380/440V models are suitable for operation at 50Hz and 60Hz.

All 110/115 and 220/240 volt models are supplied to run at 60Hz as standard. For 50Hz requirements please remove suffix "H" from the model number. A wide variety of optional extras are detailed on pages 53.

HEP5 | ELECTRIC DRIVEN PUMPS - HEAVY DUTY HIGH FLOW

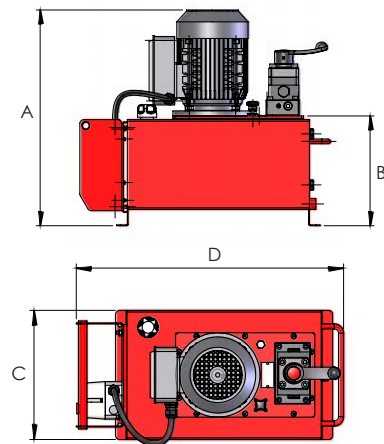


- ▶ Choice of 220/240 or 380/440 volt electric motors available as standard
- ▶ Choice of 2, 3 or 4-way manual control valves with load holding feature on 3 & 4-way versions
- ▶ Externally adjustable pressure relief for pressure settings up to 10000 psi
- ▶ Completely enclosed for cooled low noise electric motors

Working pressure 10000 psi

Two stage operation

Choice of 10.56 or 15.84 gallon oil reservoir



Model number	Valve type	Oil capacity (gallons)	Maximum flow rate (in ³ /min)		Motor voltage	Weight (lbs)	Dimensions (in)			
			1 st stage	2 nd stage			A	B	C	D
HEP517142H	P-T Plate	10.56	1037.4	122.05	220/240V-1Ph	195.1	27.3	15.21	12.06	24.94
HEP517144	P-T Plate	10.56	1037.4	122.05	380/440V-3Ph	195.1	27.3	15.21	12.06	24.94
HEP517162H	P-T Plate	15.84	1037.4	122.05	220/240V-1Ph	264.6	28.09	16.04	16	25.85
HEP517164	P-T Plate	15.84	1037.4	122.05	380/440V-3Ph	264.6	28.09	16.04	16	25.85
HEP517242H	2-way	10.56	1037.4	122.05	220/240V-1Ph	196.2	27.3	15.21	12.06	24.94
HEP517244	2-way	10.56	1037.4	122.05	380/440V-3Ph	196.2	27.3	15.21	12.06	24.94
HEP517262H	2-way	15.84	1037.4	122.05	220/240V-1Ph	264.6	28.09	16.04	16	25.85
HEP517264	2-way	15.84	1037.4	122.05	380/440V-3Ph	264.6	28.09	16.04	16	25.85
HEP517342H	3-way	10.56	1037.4	122.05	220/240V-1Ph	196.2	27.3	15.21	12.06	24.94
HEP517344	3-way	10.56	1037.4	122.05	380/440V-3Ph	196.2	27.3	15.21	12.06	24.94
HEP517362H	3-way	15.84	1037.4	122.05	220/240V-1Ph	264.6	28.09	16.04	16	25.85
HEP517364	3-way	15.84	1037.4	122.05	380/440V-3Ph	264.6	28.09	16.04	16	25.85
HEP517442H	4-way	10.56	1037.4	122.05	220/240V-1Ph	196.2	27.3	15.21	12.06	24.94
HEP517444	4-way	10.56	1037.4	122.05	380/440V-3Ph	196.2	27.3	15.21	12.06	24.94
HEP517462H	4-way	15.84	1037.4	122.05	220/240V-1Ph	264.6	28.09	16.04	16	25.85
HEP517464	4-way	15.84	1037.4	122.05	380/440V-3Ph	264.6	28.09	16.04	16	25.85

Note: All 380/440V models are suitable for operation at 50Hz and 60Hz.
 All 220/240 volt models are supplied to run at 60Hz as standard. For 50Hz requirements please remove suffix "H" from the model number. A wide variety of optional extras are detailed on pages 53.

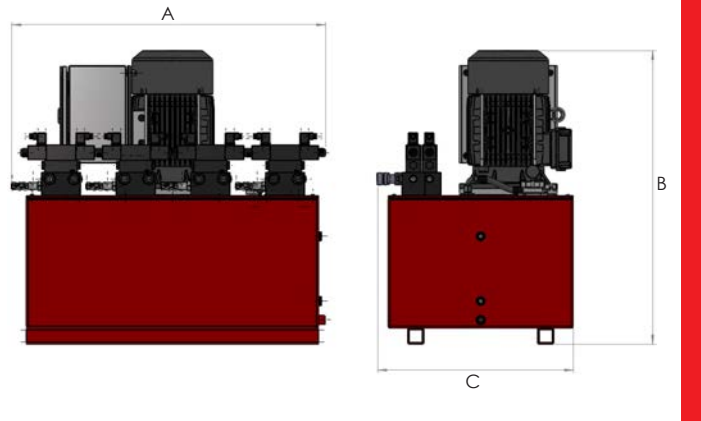
HSP | ELECTRIC DRIVEN SPLIT FLOW MULTI-OUTLET PUMPS



Working pressure 10000 psi

Choice of 26.41 or 39.62 gallon oil reservoir

Choice of manual or electric valves



- ▶ 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
- ▶ Optional fully automatic PLC controlled synchronized lifting system with range of settings, available on request

Model number	Valve configuration	Valve type	Oil capacity (gallons)	Oil flow per outlet (in ³ /min)	Motor voltage	Weight (lbs)	Dimensions (in)		
							A	B	C
HSP43M104	4 x 3-way	manual	26.41	67.13	380/440V-3Ph	599.7	39.4	35.85	24.03
HSP44M104	4 x 4-way	manual	26.41	67.13	380/440V-3Ph	599.7	39.4	35.85	24.03
HSP43E104	4 x 3-way	electric	26.41	67.13	380/440V-3Ph	604.1	39.4	35.85	24.03
HSP44E104	4 x 4-way	electric	26.41	67.13	380/440V-3Ph	604.1	39.4	35.85	24.03
HSP63E104	6 x 3-way	electric	26.41	54.92	380/440V-3Ph	738.5	49.25	41.76	31.52
HSP64E104	6 x 4-way	electric	26.41	54.92	380/440V-3Ph	738.5	49.25	41.76	31.52
HSP83E104	8 x 3-way	electric	39.62	42.72	380/440V-3Ph	815.7	49.25	41.76	31.52
HSP84E104	8 x 4-way	electric	39.62	42.72	380/440V-3Ph	815.7	49.25	41.76	31.52

SLF | SYNCHRONOUS LIFTING SYSTEM - FIXED SPEED DRIVE

Working pressure 10000 psi

Control from 4 to 8 lifting points

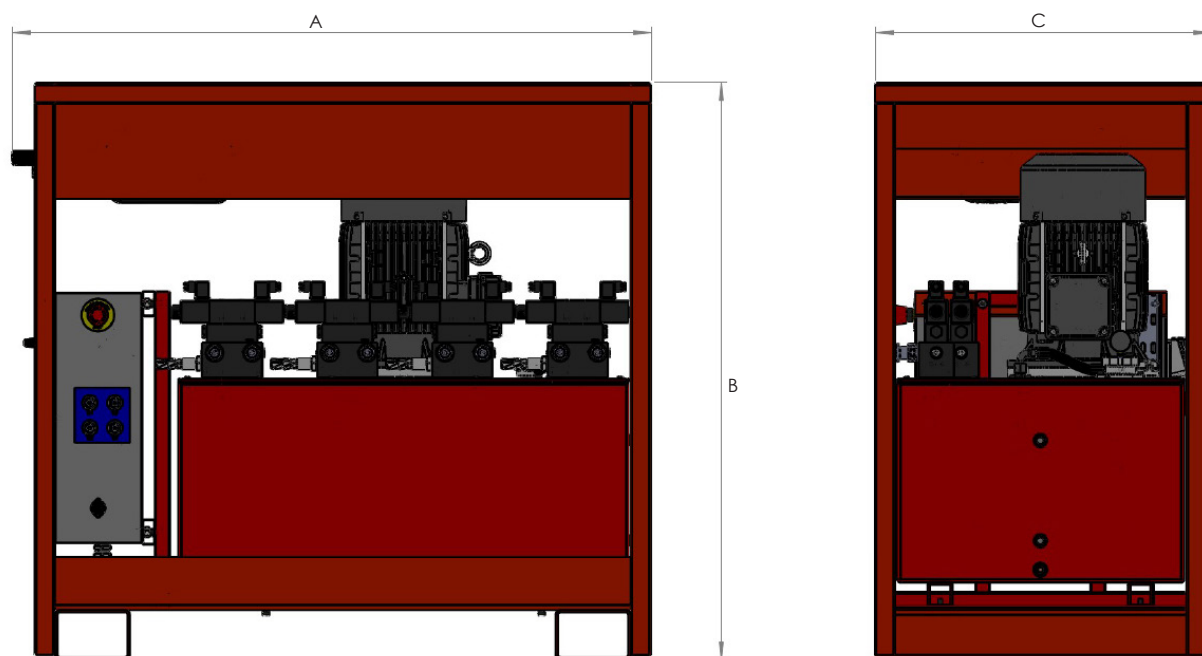
For use with standard single or double acting cylinders

Peli-case complete with multiple screens (depending on configuration and monitoring requirements), 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	Number of outlets	Oil capacity (gallons)	Oil flow per outlet (in ³ /min)	Motor voltage
SLF4S	4	26.41	268.5	380/440V-3Ph
SLF6S	6	52.82	268.5	380/440V-3Ph
SLF8S	8	52.82	268.5	380/440V-3Ph
SLF4D	4	26.41	268.5	380/440V-3Ph
SLF6D	6	52.82	268.5	380/440V-3Ph
SLF8D	8	52.82	268.5	380/440V-3Ph

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

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
SLMK-1	1	HSS - 25T
	1	HSS - 30T
SLMK-2	2	HAS - 30T
	2	HRA - 30T
SLMK-3	3	HSS - 50T
	3	HAS - 50T
	3	HRA - 50T
SLMK-4	4	HSS - 75T
SLMK-5	5	HSS - 100T
	5	HAS - 100T
	5	HRA - 100T
SLMK-6	6	HDA - 25T
SLMK-7	7	HDA - 50T
SLMK-8	8	HDA - 100T
SLMK-9	9	HDA - 150T
	9	HDA - 200T
SLMK-10	10	HHS - 20T
SLMK-11	11	HHS - 30T
	11	HHR - 30T
SLMK-12	12	HHA - 37T
SLMK-13	13	HHA - 50T
SLMK-14	14	HHS - 60T
	14	HHR - 60T
SLMK-15	15	HHS - 100T
	15	HHR - 100T
SLMK-16	16	HHR - 150T
SLMK-17	17	HHR - 250T
SLMK-18	18	HFA - 30T
SLMK-19	19	HFA - 50T
SLMK-20	20	HFA - 100T
SLMK-21	21	HDA - 300T
SLMK-22	22	HDA - 400T
	22	HDA - 500T
SLMK-24	24	HFL - 50T
	24	HFG - 50T
SLMK-25	25	HFG - 400T
	25	HFG - 500T
	25	HGG - 200T
	25	HSG - 200T
SLMK-26	26	HFL - 100T
	26	HFG - 100T
	26	HFG - 150T
	26	HFG - 200T
	26	HGG - 150T
	26	HSG - 150T
SLMK-27	27	HFL - 150T
SLMK-28	28	HFG - 250T
	28	HFG - 300T
	28	HGG - 300T
SLMK-29	29	HSG - 300T
SLMK-30	30	HFL - 250T
SLMK-31	31	HFL - 400T
SLMK-32	32	HFL - 500T

SLF | SYNCHRONOUS LIFTING SYSTEM - FIXED SPEED DRIVE

The SLF system is designed for use with standard single and double acting cylinders. Below table lists the SLF model and cylinder type that can be used with it.

Model number	Applicable cylinder type	Applicable cylinder range	Cylinder stroke (in)	Page reference
SLF4S SLF6S SLF8S	Single acting	HSS	2.01 - 18.01	10
	Single acting	HHS	1.97 - 5.99	11
	Single acting	HFL	1.77 - 2.01	14
	Single acting	HFG	1.97 - 5.99	15
	Single acting	HAS	2.01 - 5.99	16
	Single acting	HHA	2.01 - 4.14	17
	Single acting	HFA	2.05 - 12.02	18
	Single acting	HGG	6.11	20
	Single acting	HSG	5.99	21
SLF4D SLF6D SLF8D	Double acting	HHR	2.01 - 12.02	12
	Double acting	HDA	5.99 - 13	13
	Double acting	HRA	2.01 - 12.02	19

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

- ▶ Each displacement sensor requires one cable

Model number	Length (ft)
SLDC10	33
SLDC25	82
SLDC50	164
SLDC75	246
SLDC100	328

SLV | SYNCHRONOUS LIFTING SYSTEM - VARIABLE SPEED DRIVE

Working pressure 10000 psi

Control from 8 to 32 lifting points

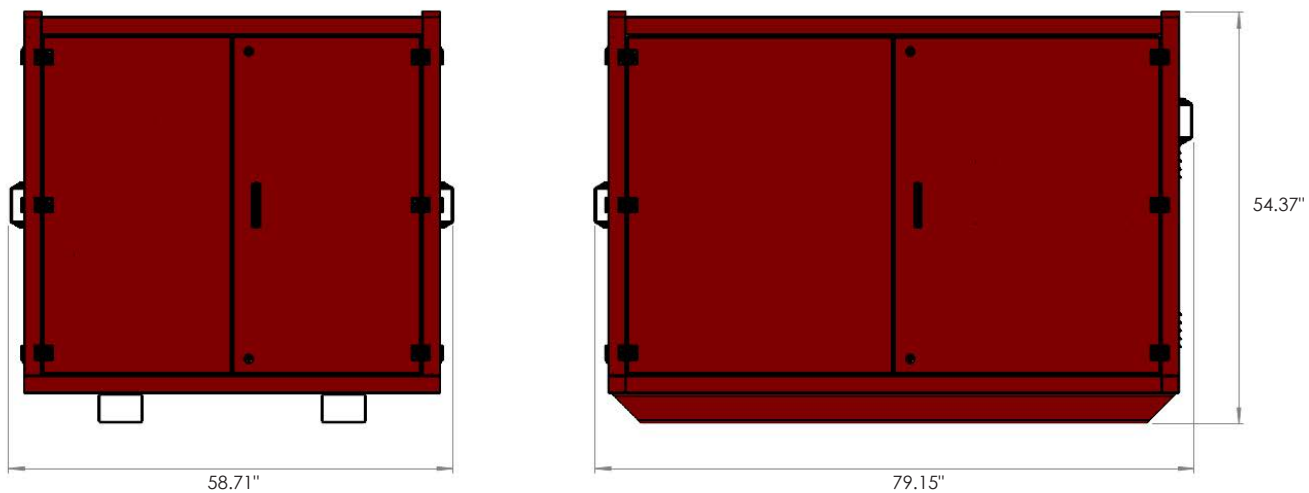
Variable speed control

Peli-case complete with multiple screens (depending on configuration and monitoring requirements), 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 inches³ per minute and a maximum high pressure flow rate of 292.91 inches³ per minute at 10000 psi, with an option of reducing the flow rate by 50% 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
- ▶ 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)		Motor voltage
			1 st stage	2 nd stage	
SLV82	8	52.82	1196.06	292.91	380/440V-3Ph
SLV122	12	52.82	1196.06	292.91	380/440V-3Ph
SLV162	16	52.82	1196.06	292.91	380/440V-3Ph
SLV202	20	52.82	1196.06	292.91	380/440V-3Ph
SLV242	24	52.82	1196.06	292.91	380/440V-3Ph
SLV282	28	52.82	1196.06	292.91	380/440V-3Ph
SLV322	32	52.82	1196.06	292.91	380/440V-3Ph
SLV84	8	105.64	1196.06	292.91	380/440V-3Ph
SLV124	12	105.64	1196.06	292.91	380/440V-3Ph
SLV164	16	105.64	1196.06	292.91	380/440V-3Ph
SLV204	20	105.64	1196.06	292.91	380/440V-3Ph
SLV244	24	105.64	1196.06	292.91	380/440V-3Ph
SLV284	28	105.64	1196.06	292.91	380/440V-3Ph
SLV324	32	105.64	1196.06	292.91	380/440V-3Ph

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

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
SLMK-1	1	HSS - 25T
	1	HSS - 30T
SLMK-2	2	HAS - 30T
	2	HRA - 30T
SLMK-3	3	HSS - 50T
	3	HAS - 50T
	3	HRA - 50T
SLMK-4	4	HSS - 75T
SLMK-5	5	HSS - 100T
	5	HAS - 100T
	5	HRA - 100T
SLMK-6	6	HDA - 25T
SLMK-7	7	HDA - 50T
SLMK-8	8	HDA - 100T
SLMK-9	9	HDA - 150T
	9	HDA - 200T
SLMK-10	10	HHS - 20T
SLMK-11	11	HHS - 30T
	11	HHR - 30T
SLMK-12	12	HHA - 37T
SLMK-13	13	HHA - 50T
SLMK-14	14	HHS - 60T
	14	HHR - 60T
SLMK-15	15	HHS - 100T
	15	HHR - 100T
SLMK-16	16	HHR - 150T
SLMK-17	17	HHR - 250T
SLMK-18	18	HFA - 30T
SLMK-19	19	HFA - 50T
SLMK-20	20	HFA - 100T
SLMK-21	21	HDA - 300T
SLMK-22	22	HDA - 400T
	22	HDA - 500T
SLMK-24	24	HFL - 50T
	24	HFG - 50T
SLMK-25	25	HFG - 400T
	25	HFG - 500T
	25	HGG - 200T
	25	HSG - 200T
SLMK-26	26	HFL - 100T
	26	HFG - 100T
	26	HFG - 150T
	26	HFG - 200T
	26	HGG - 150T
	26	HSG - 150T
SLMK-27	27	HFL - 150T
SLMK-28	28	HFG - 250T
	28	HFG - 300T
	28	HGG - 300T
SLMK-29	29	HSG - 300T
SLMK-30	30	HFL - 250T
SLMK-31	31	HFL - 400T
SLMK-32	32	HFL - 500T

SLV | SYNCHRONOUS LIFTING SYSTEM - VARIABLE SPEED DRIVE

The SLV system is designed for use with standard single and double acting cylinders. Below table lists the SLV model and cylinder type that can be used with it.

Model number	Applicable cylinder type	Applicable cylinder range	Cylinder stroke (in)	Page reference
SLV82 SLV122 SLV162 SLV202 SLV242 SLV282 SLV322 SLV84 SLV124 SLV164 SLV204 SLV244 SLV284 SLV324	Single acting	HSS	2.01 - 18.01	10
	Single acting	HHS	1.97 - 5.99	11
	Single acting	HFL	1.77 - 2.01	14
	Single acting	HFG	1.97 - 5.99	15
	Single acting	HAS	2.01 - 5.99	16
	Single acting	HHH	2.01 - 4.14	17
	Single acting	HFA	2.05 - 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 - 13	13
	Double acting	HRA	2.01 - 12.02	19

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

- ▶ Each displacement sensor requires one cable

Model number	Length (ft)
SLDC10	33
SLDC25	82
SLDC50	164
SLDC75	246
SLDC100	328

SYNCHRONOUS LIFTING SYSTEM FEATURES

FEATURE	SLF	SLV
PRESSURE TRANSDUCERS SUPPLIED AS STANDARD	✓	✓
TOUCH SCREEN DISPLAY TO MONITOR STROKE AND PRESSURE	✓	✓
PELI-CASE COMPLETE WITH TOUCH SCREEN	✓	✓
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	Working pressure 10000 psi: 268.5 in ³ /min flow 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 by 50% using the variable speed drive controller
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 328 feet	Lengths up to 328 feet

AHP11 - AIR DRIVEN SINGLE STAGE HAND AND FOOT OPERATED PUMPS



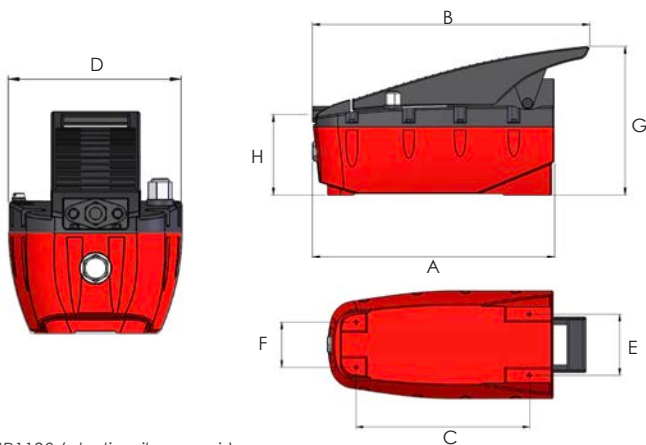
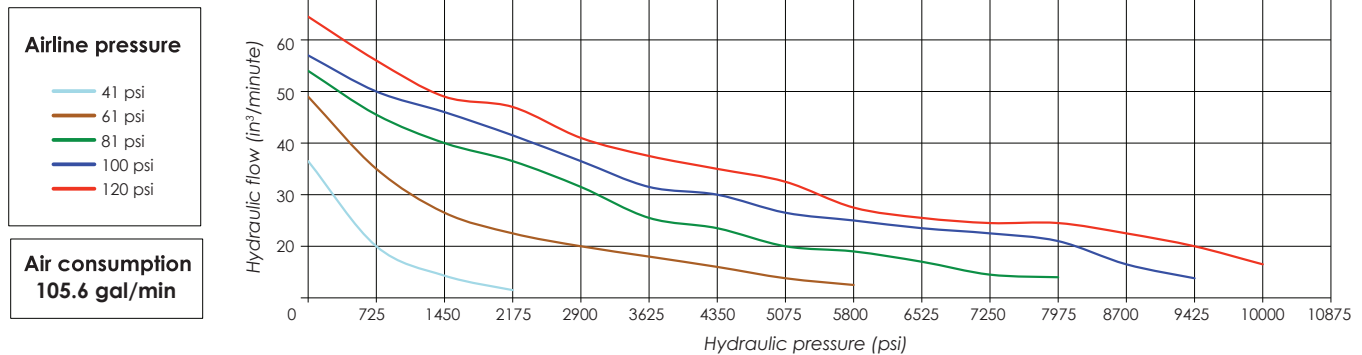
Working pressure 10000 psi

Compact, lightweight & powerful

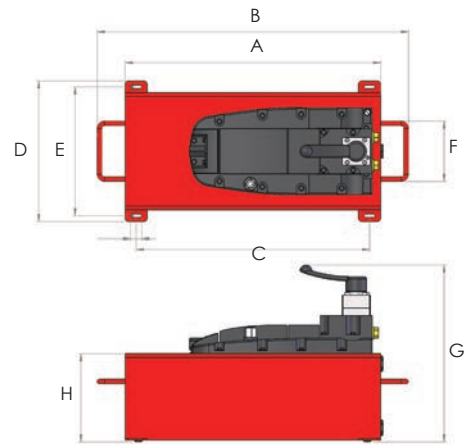
Standard 100 psi air input pressure required

- ▶ Choice of oil reservoirs from 0.63 to 2.64 gallons capacity
- ▶ 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 (metal oil reservoir)
 AHP1122 (metal oil reservoir)



AHP1141 (metal oil reservoir)
 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	48.82	2-way	0.63	1/4"	3/8"	10.4	14.38	*	9.34	6.19	2.6-3.55	*	8.27	4.93
AHP1121	48.82	2-way	1.32	1/4"	3/8"	19.8	16.55	*	14.97	9.46	8.67	*	8.79	4.49
AHP1122	48.82	2-way	2.64	1/4"	3/8"	39.2	18.28	22.06	*	8.27	*	4.26	10.8	6.23
AHP1141	48.82	4-way	1.32	1/4"	3/8"	20.9	16.55	*	14.97	9.46	8.67	*	10.44	4.49
AHP1142	48.82	4-way	2.64	1/4"	3/8"	40.3	18.28	22.06	*	8.27	*	*	12.41	6.23

*Not Applicable

HAP | AIR DRIVEN PUMPS - GENERAL DUTY HIGH FLOW

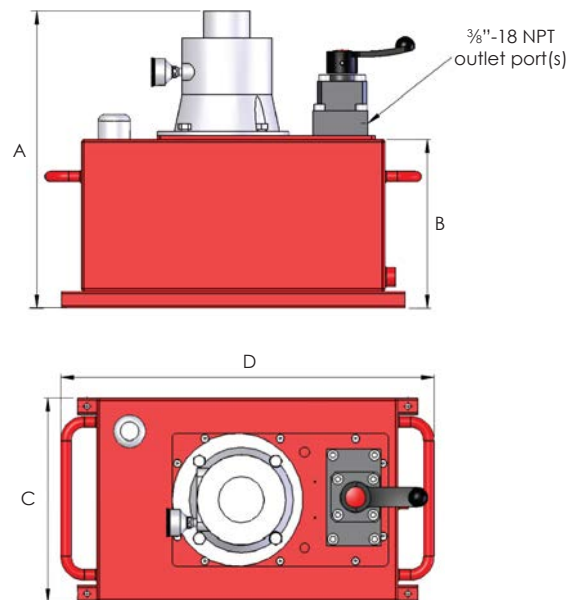


- ▶ Driven by a powerful 4.08 kW rotary air motor with a maximum air consumption of 84.75 cubic feet per minute at 100 psi inlet air pressure
- ▶ Choice of control valves with load holding feature fitted as standard to all 3 and 4-way valves
- ▶ Externally adjustable pressure relief valve for pressure setting up to a maximum of 10000 psi

Working pressure 10000 psi

Two stage operation

Choice of 2.64, 6.6, 10.56 or 15.84 gallons oil reservoir



Model number	Valve type	Oil capacity (gallons)	Maximum flow rate (in ³ /min)		Weight (lbs)	Dimensions (in)			
			1 st stage	2 nd stage		A	B	C	D
HAP21011	P-T Plate	2.64	610.24	79.33	91.5	15.48	7.8	9.69	17.26
HAP21012	P-T Plate	6.6	610.24	79.33	126.8	16.63	8.94	12.06	22.46
HAP21014	P-T Plate	10.56	610.24	79.33	157.6	20.92	13.24	12.06	22.06
HAP21016	P-T Plate	15.84	610.24	79.33	212.7	21.75	14.07	16	22.97
HAP21021	2-way	2.64	610.24	79.33	92.6	15.48	7.8	9.69	17.26
HAP21022	2-way	6.6	610.24	79.33	127.9	16.63	8.94	12.06	22.46
HAP21024	2-way	10.56	610.24	79.33	158.7	20.92	13.24	12.06	22.06
HAP21026	2-way	15.84	610.24	79.33	213.8	21.75	14.07	16	22.97
HAP21031	3-way	2.64	610.24	79.33	92.6	15.48	7.8	9.69	17.26
HAP21032	3-way	6.6	610.24	79.33	127.9	16.63	8.94	12.06	22.46
HAP21034	3-way	10.56	610.24	79.33	158.7	20.92	13.24	12.06	22.06
HAP21036	3-way	15.84	610.24	79.33	213.8	21.75	14.07	16	22.97
HAP21041	4-way	2.64	610.24	79.33	92.6	15.48	7.8	9.69	17.26
HAP21042	4-way	6.6	610.24	79.33	127.9	16.63	8.94	12.06	22.46
HAP21044	4-way	10.56	610.24	79.33	158.7	20.92	13.24	12.06	22.06
HAP21046	4-way	15.84	610.24	79.33	213.8	21.75	14.07	16	22.97

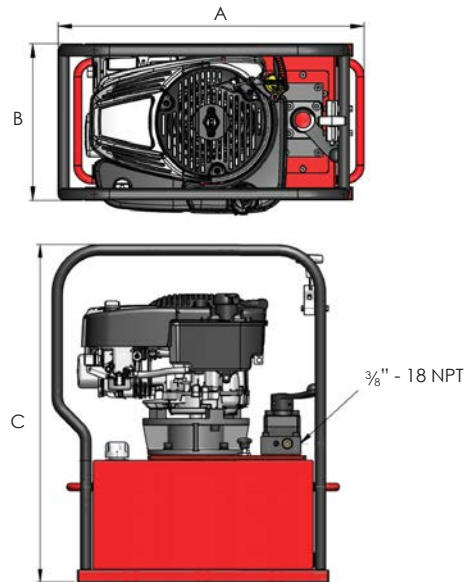
HPP | GASOLINE ENGINE DRIVEN PUMPS - GENERAL DUTY HIGH FLOW


Working pressure 10000 psi

Two stage operation

Choice of 6.6, 10.56, 15.84 gallons oil reservoir

- ▶ Choice of control valves with load holding feature fitted as standard to all 3 and 4 way valves
- ▶ Manual 2-way, 3-way or 4-way valves with load holding feature fitted as standard
- ▶ 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)		Weight (lbs)	Dimensions (in)		
			1 st stage	2 nd stage		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

ACCESSORIES FOR POWERED PUMPS

PROTECTIVE ROLL FRAME

Model number	For all HEP and HAP models
PPA10RF	All pumps with 2.64 gallons reservoir
PPA25RF	All pumps with 6.6 gallons reservoir
PPA40RF	All pumps with 10.56 gallons litre reservoir
PPA60RF	All pumps with 15.84 gallons reservoir

All HEP & HAP model pumps can be supplied with a factory fitted protective roll frame. Just suffix pump model number with 'P'.



WHEEL TROLLEY

Model number	For all HEP, HAP and HPP models
PPA40WT	Wheel trolley for all pumps with 6.6 & 10.56 gallons oil reservoir
PPA60WT	Wheel trolley for all pumps with 15.84 gallons oil reservoir

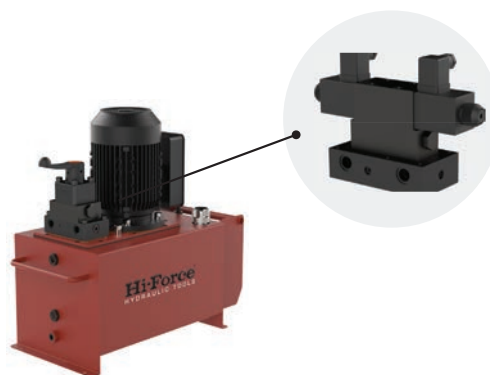
All HEP, HAP & HPP model pumps can be supplied with a factory fitted wheel trolley. Just suffix model number with 'WT'.



LOW VOLTAGE SOLENOID VALVE WITH HAND PENDANT CONTROLLER

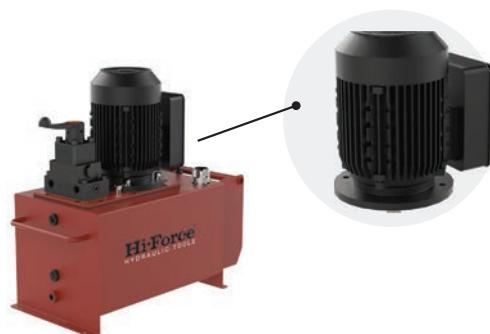
Suffix	Description
S	All HEP2, 3 and 5 series electric pumps can be supplied with a low voltage (24V) solenoid valve, either in 3-way or 4-way versions, both featuring a locking feature and remote pendant control as standard

To order pump with solenoid valve, just suffix pump model number with 'S'.



50 Hz ELECTRIC MOTOR

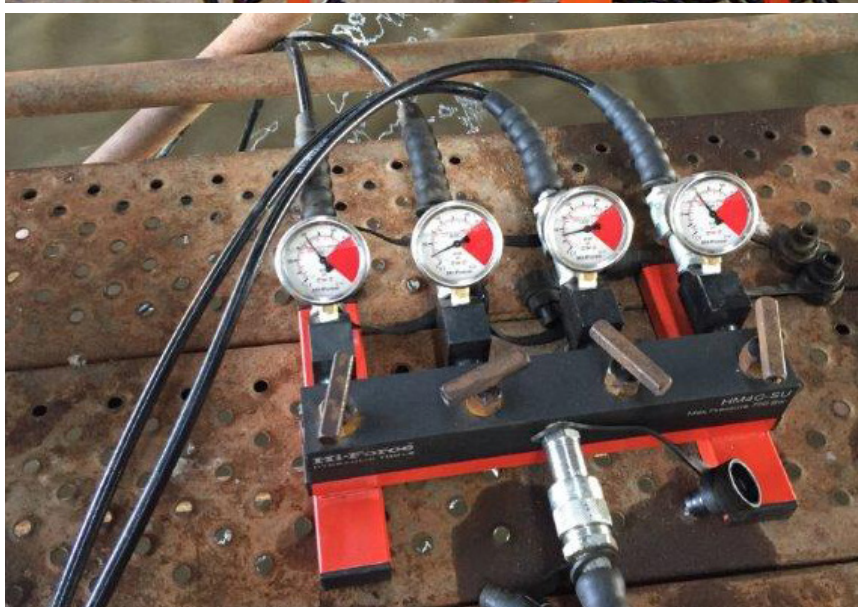
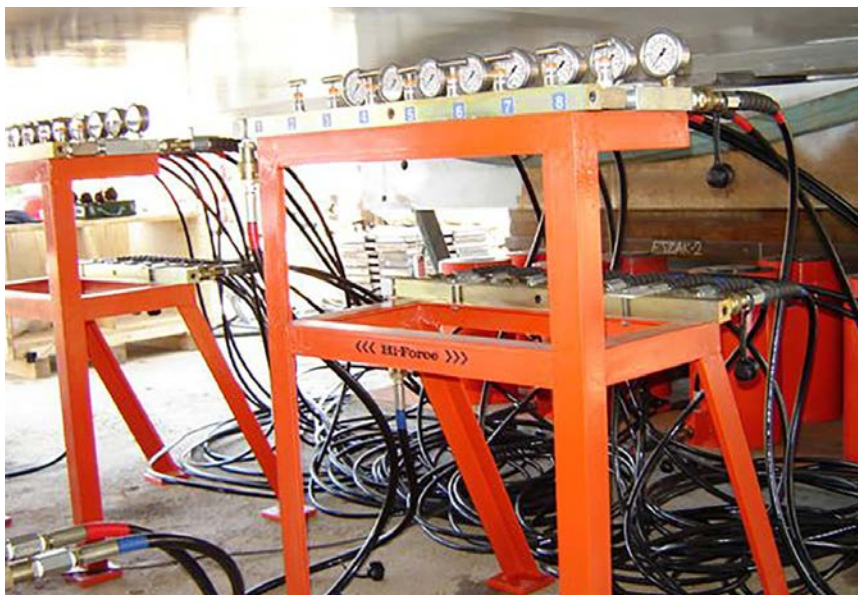
Suffix	Description
H	All 380/440V models are suitable for operation at 50Hz and 60Hz. All 110/115 and 220/240 volt models are supplied to run at 60Hz. For 50Hz requirements, please remove suffix 'H' from the model number.



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 56

High pressure hydraulic hoses

PRESSURE GAUGES & MOUNTING BLOCKS 57

Gauges and mounting blocks

DIGITAL PRESSURE GAUGE 58

Digital gauge with LCD display

PRESSURE TRANSDUCER & DIGITAL DISPLAY 59

Transducer and digital display

MANIFOLDS 60

Distribution blocks

CONTROLLED MANIFOLDS ASSEMBLIES 61

Manifold stations with pressure gauges

HYDRAULIC OIL 62

Premium grade hydraulic oil

HIGH PRESSURE COUPLERS & FITTINGS 63

High pressure couplers, fittings and adaptors

DIRECTIONAL CONTROL VALVES 64

Directional control valves

FLOW CONTROL VALVES 65

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 3/8" - 18 NPT male fitting both ends		Weight (lbs)	3/8" - 18 NPT male fitting one end with CM1 coupler fitted one end		Weight (lbs)	CM1 male couplers fitted both ends		Weight (lbs)
	Model number			Model number			Model number		
									
									
1.6	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
6.6	HH2	HH2R	1.5	HC2	HC2R	2.0	HC2C	HC2CR	2.4
10.0	HH3	HH3R	2.0	HC3	HC3R	2.2	HC3C	HC3CR	2.6
13.0	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
19.7	HH6	HH6R	3.3	HC6	HC6R	3.5	HC6C	HC6CR	4.0
33.0	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
49.2	HH15	HH15R	6.8	HC15	HC15R	7.3	HC15C	HC15CR	7.7
65.6	HH20	HH20R	9.0	HC20	HC20R	9.3	HC20C	HC20CR	9.7
82.0	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

Note: Hose bore is 1/4" and outside diameter is 1/2".

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	700 bar	0-10000 psi	1/4"-18 NPT	All models	0.4
HG1	3.94	dry	700 bar	0-10000 psi	1/2"-14 NPT	All models	2.0
HG1G	3.94	glycerin	700 bar	0-10000 psi	1/2"-14 NPT	All models	2.2
HG2	5.91	dry	700 bar	0-10000 psi	1/2"-14 NPT	All models	3.5
HG2G	5.91	glycerin	700 bar	0-10000 psi	1/2"-14 NPT	All models	3.7

GAUGE MOUNTING BLOCKS:

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

Model number	Length	Dimensions (in) Width	Height	Gauge thread	Inlet thread	Outlet thread	Weight (lbs)
HGA1	2.96	1.26	1.26	1/2"-14 NPT	3/8"-18 NPT male	3/8"-18 NPT female	0.6
HGA2	6.7	1.26	1.26	1/2"-14 NPT	3/8"-18 NPT male	3/8"-18 NPT female	1.9
HGA1-25	2.96	1.26	1.26	1/4"-18 NPT	3/8"-18 NPT male	3/8"-18 NPT female	0.7
HGA2-25	6.7	1.26	1.26	1/4"-18 NPT	3/8"-18 NPT male	3/8"-18 NPT female	2.0
AGA1-25	2.96	1.26	1.97	1/4"-18 NPT	3/8"-18 NPT male	3/8"-18 NPT female	1.2

DIGITAL PRESSURE GAUGE

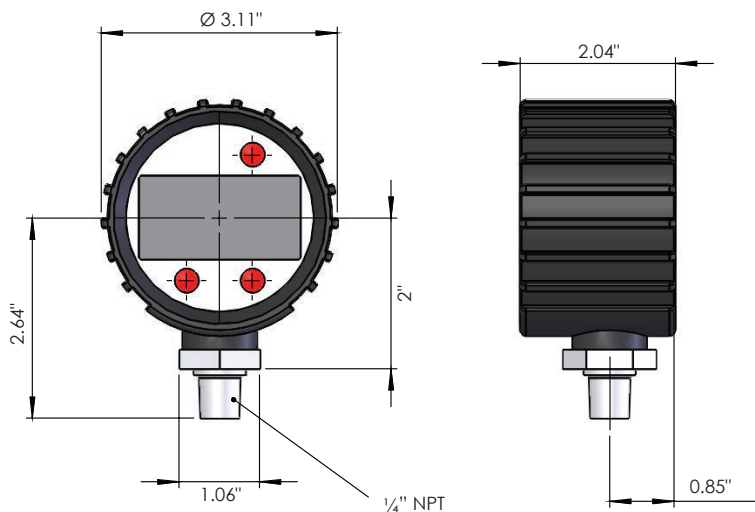


5 digit LCD display

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, bar, mpa and kg/cm²
- ▶ 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 57



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	1/4"-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
- ▶ Supplied complete with a 6.6 foot connecting cable

Model number	Pressure reading (psi)	Pressure reading (bar)	Connection thread	Accuracy percentage full scale	Weight (lbs)
HPT1	0-10000	0-700	1/4"-18 NPT	0.5	0.2

Digital Display Unit

- ▶ For use with HPT1 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

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

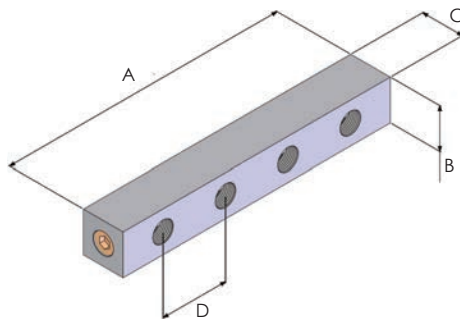


Working pressure 10000 psi

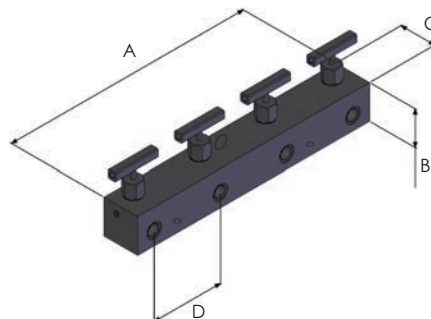
Choice of open or controlled manifolds

2, 4, 5, 6 or 8 outlet port models available

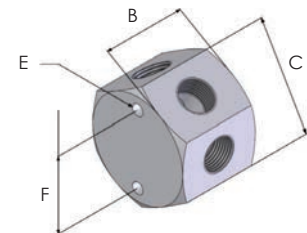
- Designed for easy control of the direction of flow of the hydraulic fluid within the system
- Available as open manifold blocks or with individual needle type shut off/throttle valves on each outlet



HM* & HM*L



HM*C



HM5

Model number	Type	Design	Number of outlets	Connection ports female threads		Weight (lbs)	Dimensions (in)					
				Inlet	Outlet		A	B	C	D	E	F
HM2	open manifold	parallel	2	$\frac{3}{8}$ " -18 NPT	2 x $\frac{3}{8}$ " -18 NPT	2.2	4.49	1.26	1.26	1.97	-	-
HM4	open manifold	parallel	4	$\frac{3}{8}$ " -18 NPT	4 x $\frac{3}{8}$ " -18 NPT	3.3	8.43	1.26	1.26	1.97	-	-
HM5	open manifold	hexagon	5	$\frac{3}{8}$ " -18 NPT	5 x $\frac{3}{8}$ " -18 NPT	1.5	-	1.62	2.01	-	M6	1.5
HM6	open manifold	parallel	6	$\frac{3}{8}$ " -18 NPT	6 x $\frac{3}{8}$ " -18 NPT	4.4	12.37	1.26	1.26	1.97	-	-
HM8	open manifold	parallel	8	$\frac{3}{8}$ " -18 NPT	8 x $\frac{3}{8}$ " -18 NPT	5.5	16.31	1.26	1.26	1.97	-	-
HM4L	open manifold	extended parallel	4	$\frac{3}{8}$ " -18 NPT	4 x $\frac{3}{8}$ " -18 NPT	5.3	15.52	1.26	1.26	4.33	-	-
HM6L	open manifold	extended parallel	6	$\frac{3}{8}$ " -18 NPT	6 x $\frac{3}{8}$ " -18 NPT	8.2	24.19	1.26	1.26	4.33	-	-
HM2C	controlled manifold	parallel	2	$\frac{3}{8}$ " -18 NPT	2 x $\frac{3}{8}$ " -18 NPT	4.4	5.91	2.01	1.5	3.94	-	-
HM4C	controlled manifold	parallel	4	$\frac{3}{8}$ " -18 NPT	4 x $\frac{3}{8}$ " -18 NPT	7.7	13.79	2.01	1.5	3.94	-	-

CONTROLLED MANIFOLD ASSEMBLIES

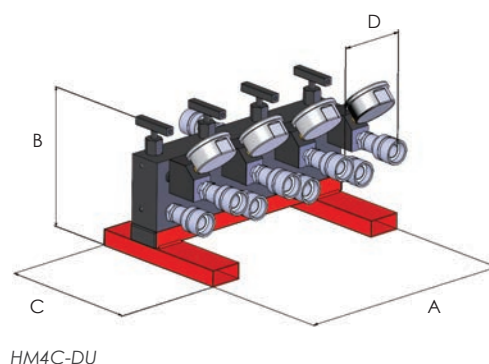
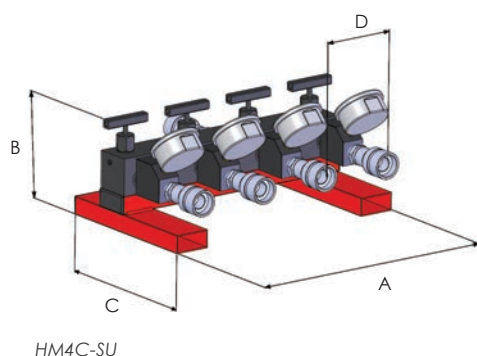
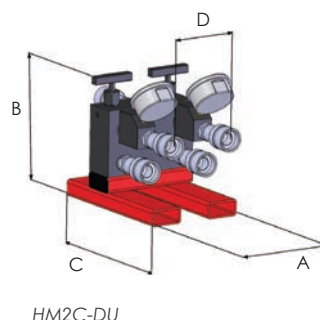
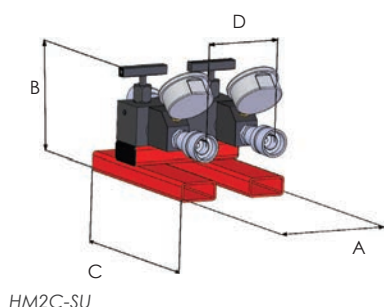


Working pressure 10000 psi

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



Model number	Description	Weight (lbs)	A	Dimensions (in) B	C	D
HM2C-SU	2-way controlled manifold unit, suitable for single acting systems	4.4	5.91	2.01	2.01	3.94
HM2C-DU	2-way controlled manifold unit, suitable for double acting systems	6.6	5.91	4.02	2.01	3.94
HM4C-SU	4-way controlled manifold unit, suitable for single acting systems	7.7	13.79	2.01	2.01	3.94
HM4C-DU	4-way controlled manifold unit, suitable for double acting systems	13.2	13.79	4.02	2.01	3.94

HYDRAULIC OIL



Premium grade hydraulic oil

High viscosity index

Supplied in a choice of 0.26, 1.32 or 6.60 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)	Suitable for use with
HFO32-1	0.26	Manually operated pumps
HFO32-5	1.32	Manually operated pumps
HFO32-25	6.60	Manually operated pumps
HFO46-1	0.26	Powered pumps
HFO46-5	1.32	Powered pumps
HFO46-25	6.60	Powered pumps

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	1/4" NPT male to 1/4" NPT male
HF8	5	Adaptor	1/4" NPT female to 1/4" NPT female
HF10	2	Elbow	3/8" NPT female to 3/8" NPT female
HF12	3	Equal tee	3/8" NPT female
HF13	4	Cross	3/8" NPT female
HF14	5	Adaptor	3/8" NPT female to 3/8" NPT female
HF15	5	Reducer	3/8" NPT female to 1/4" NPT female
HF16	6	Elbow	3/8" NPT female to 3/8" NPT male
HF17	1	Nipple	3/8" NPT male to 3/8" NPT male
HF19	1	Long nipple	3/8" NPT male to 3/8" NPT male
HF24	7	Adaptor	3/8" NPT male to 3/8" BSP female
HF27	1	Nipple	1/4" NPT male to 3/8" NPT male
HF30	7	Reducer	3/8" NPT male to 1/4" NPT female
HF31	8	Tee	3/8" NPT female to 3/8" NPT male
HF33	7	Reducer	3/8" NPT male to 1/4" BSP female
HF55	7	Reducer	3/8" NPT female to 1/4" NPT male
HF69	7	Adaptor	1/2" BSP male to 3/8" NPT female
CF1	9	Female coupler	3/8" NPT male
CM1	10	Male coupler	3/8" NPT female
CMF1	9 + 10	Complete coupler	3/8" NPT
CF2	9	Female coupler	1/4" NPT male
CM2	10	Male coupler	1/4" NPT female
CMF2	9 + 10	Complete coupler	1/4" 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



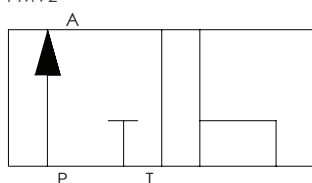
Working pressure 10000 psi

Pump or remote mounted design

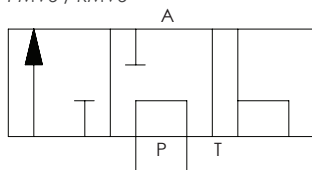
Manual or solenoid options available

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

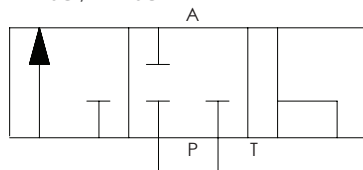
PMV2



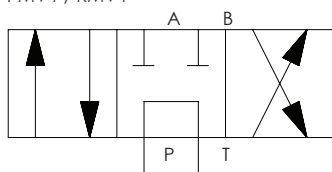
PMV3 / RMV3



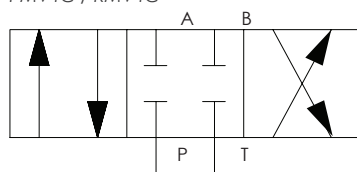
PMV3C / RMV3C



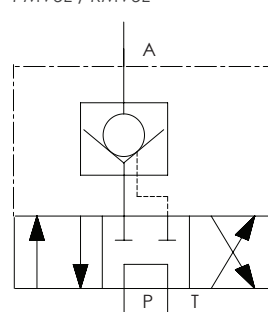
PMV4 / RMV4



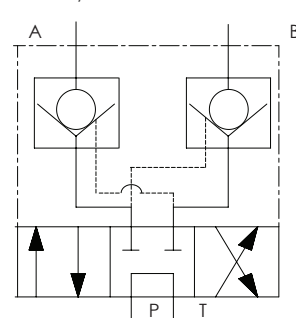
PMV4C / RMV4C



PMV3L / RMV3L



PMV4L / RMV4L



Description	Manual valve no load holding	Model number		
		Manual valve with load holding	Solenoid valve 24V incl. control	Manual valve closed center
Pump mounted, 2-way, 2 position valve	PMV2	-	-	-
Pump mounted, 3-way, 3 position valve	PMV3	PMV3L	PMV3S	PMV3C
Pump mounted, 4-way, 3 position valve	PMV4	PMV4L	PMV4S	PMV4C
Remote mounted, 3-way, 3 position valve	RMV3	RMV3L	RMV3S	RMV3C
Remote mounted, 4-way, 3 position valve	RMV4	RMV4L	RMV4S	RMV4C

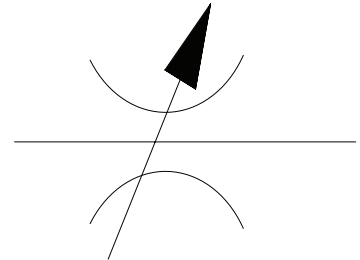
FLOW CONTROL VALVES



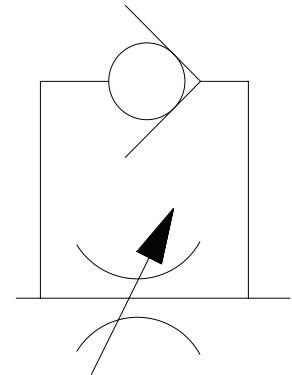
Working pressure 10000 psi

3/8" - 18 NPT female connection ports

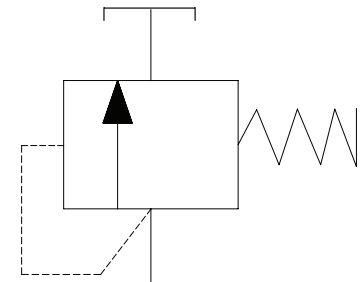
Model number	Description	Dimensions (in)		
		Height	Length	Width
HM1C	Manual shut off valve with needle type flow control. Used for load holding and throttling functions. Can also be used as a gauge isolator.	3.23	2.52	1.5



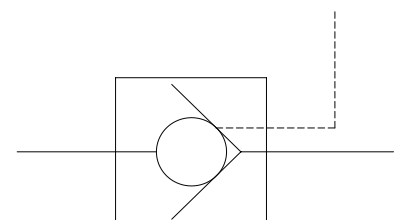
Model number	Description	Dimensions (in)		
		Height	Length	Width
HFV66	Manual check valve used for automatic load locking, with precise manual load lowering feature.	3.39	2.96	1.85



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



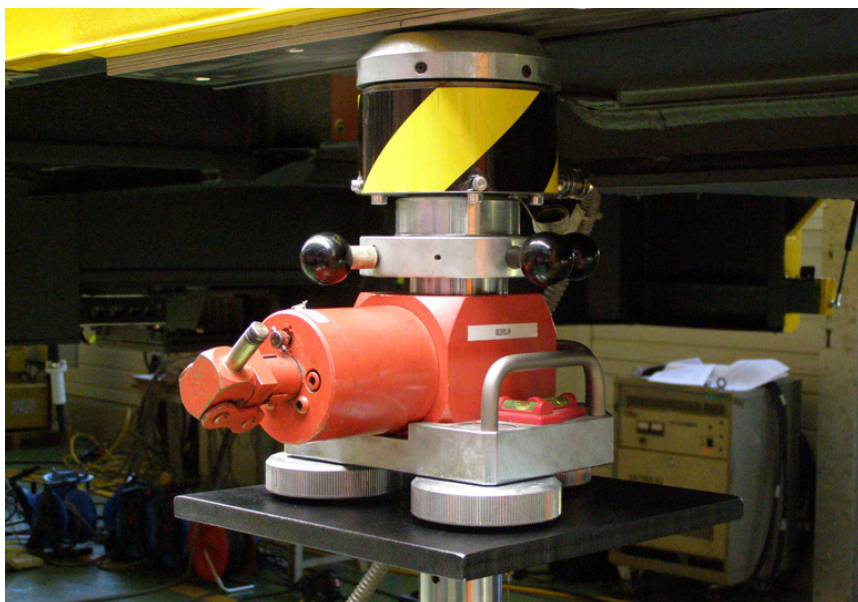
Model number	Description	Dimensions (in)		
		Height	Length	Width
HFV42	Pilot operated check valve used as a safety valve for double acting cylinders. Pilot port connects to cylinder retract line.	3.31	2.52	1.26



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 a basic, low cost range of steel bottle jacks, to self-contained aluminum and remote pump operated, steel toe lift jacks and 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	68
------------------	-----------

Aluminum jacks, compact multi-purpose design

JAH RANGE	69
------------------	-----------

Aluminum jacks plain piston, claw jacks and locking ring design

JCS RANGE	70
------------------	-----------

Steel & aluminum jacks, compact low height design

JCH RANGE	71
------------------	-----------

Steel & aluminum jacks, compact low height hollow piston design

JSS RANGE	72
------------------	-----------

Steel jacks, conventional bottle jack design

HMJ RANGE	73
------------------	-----------

Steel jacks, low height access machine lift design

JAS | ALUMINUM JACKS

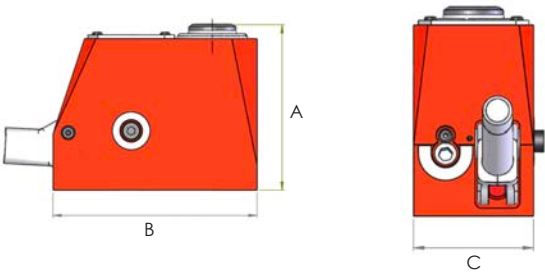


Maximum capacity 11 tons

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
- ▶ Over stroke 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

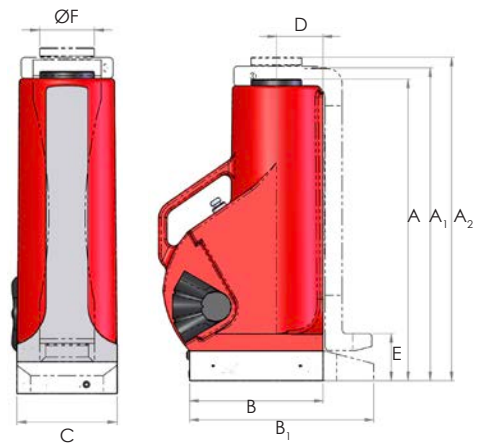


- ▶ Lightweight aluminum construction with critical parts manufactured from high quality steel
- ▶ Available with plain piston, lifting claw or failsafe mechanical lock ring
- ▶ Claw lift capacities from 8.8 to 26.5 tons
- ▶ Safety over stroke limiting device

Capacities from 22 to 66.1 tons

Choice of 5.99 or 12.02 inches stroke lengths

Internal safety overload device



Model number	Jack capacity (tons)	Claw capacity (tons)	Stroke (in)	Weight (lbs)	Dimensions (in)			
Jack with plain piston					A	B	C	D
JAH620	22	-	5.99	24.3	10.36	-	7.01	4.77
JAH1220	22	-	12.02	37.5	17.26	-	9.69	4.77
JAH630	33.1	-	5.99	35.3	10.36	-	8	5.52
JAH1230	33.1	-	12.02	52.9	17.77	-	10.76	5.52
JAH660	66.1	-	5.99	61.7	11.54	-	9.89	7.49
JAH1260	66.1	-	12.02	97	19.7	-	13.47	7.49
Jack with plain piston & lifting claw with extended base					A ₁	B ₁	C	D
JAH620C	22	8.8	5.99	33.1	11.03	2.64	9.69	4.77
JAH1220C	22	8.8	12.02	50.7	17.97	2.64	9.69	4.77
JAH630C	33.1	13.2	5.99	46.3	11.07	2.88	10.76	5.52
JAH1230C	33.1	13.2	12.02	70.5	18.6	2.88	10.76	5.52
JAH660C	66.1	26.5	5.99	97	12.88	2.88	13.47	7.49
JAH1260C	66.1	26.5	12.02	143.3	21.28	2.88	13.47	7.49
Jack with failsafe mechanical load holding lock ring					A ₂	B	C	D
JAH620SR	22	-	5.99	28.7	11.39	-	7.01	4.77
JAH1220SR	22	-	12.02	41.9	18.28	-	9.69	4.77
JAH630SR	33.1	-	5.99	37.5	11.5	-	8	5.52
JAH1230SR	33.1	-	12.02	55.1	18.87	-	10.76	5.52
JAH660SR	66.1	-	5.99	66.1	13	-	9.89	7.49
JAH1260SR	66.1	-	12.02	101.4	21.12	-	13.47	7.49

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

JCS | COMPACT JACKS - SOLID PISTON

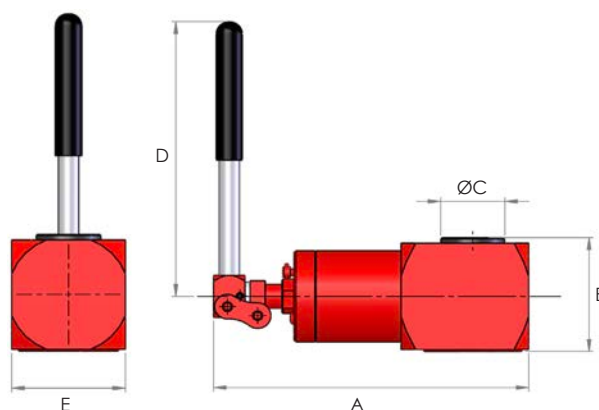


Capacities from 11 to 33 tons

Stroke lengths from 1.38 to 1.77 inches

Lightweight and compact

- ▶ Model JCS10 is manufactured from high grade steel, whereas models JCS20 & JCS30 are manufactured predominantly from aluminum alloy
- ▶ 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)
JCS10	11	Steel	1.38	9.9
JCS20	22	Aluminum	1.62	12.1
JCS30	33	Aluminum	1.77	17.6

Dimensions (in)				
A	B	C	D	E
9.46	2.99	1.5	10.48	2.76
10.13	4.02	2.01	11.07	4.02
11.07	4.41	2.36	11.23	4.93

JCH | COMPACT JACKS - HOLLOW PISTON

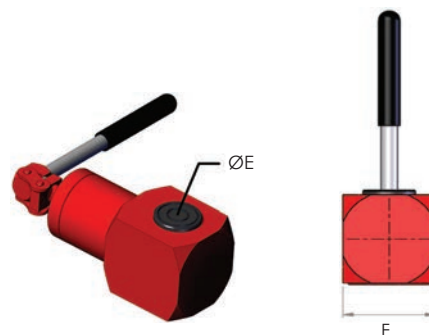
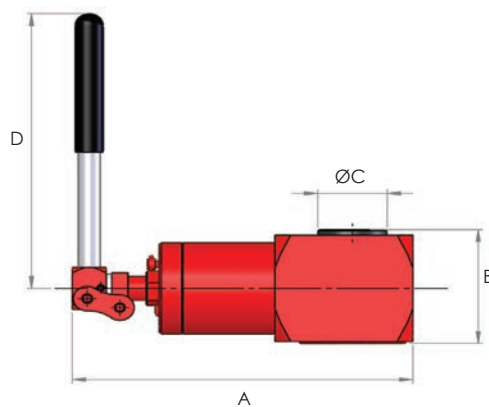


- ▶ Load return piston
- ▶ Nitrocarburized hollow bore piston rod for increased versatility, durability and corrosion protection
- ▶ 360 positional pumping mechanism for increased versatility
- ▶ Internal safety overload valve

Choice of 14 or 23 ton capacity

Choice of 1.62 or 1.77 inches stroke length

Lightweight and compact



Model number	Capacity (tons)	Body construction	Stroke (in)	Weight (lbs)
JCH13	14	Aluminum	1.62	12.1
JCH21	23	Aluminum	1.77	17.6

Dimensions (in)					
A	B	C	D	E	F
10.13	3.74	2.01	11.07	0.99	4.02
11.07	4.49	2.36	11.23	1.38	4.93

JSS | STEEL BOTTLE JACKS

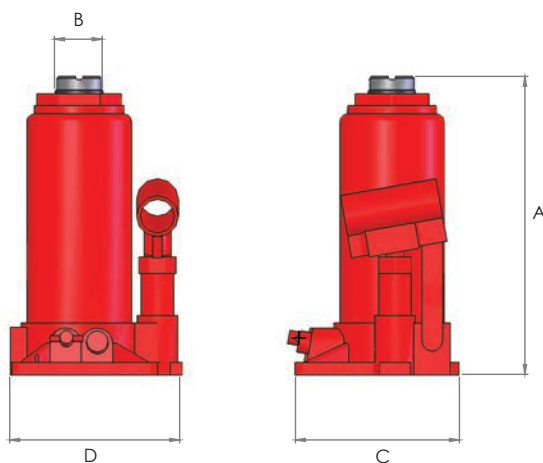


Capacities from 3 to 110 tons

Stroke lengths from 5.32 to 7.68 inches

Heavy duty steel construction

- ▶ Piston rod mechanical screw extension on all models up to 18 tons capacity
- ▶ Low handle effort for easy operation
- ▶ Internal safety overload valve



Model number	Capacity (tons)	Stroke (in)	Screw Extension (in)	Weight (lbs)	Dimensions (in)			
					A	B	C	D
JSS35	3	5.32	2.76	6.6	7.68	1.1	3.94	3.94
JSS55	6	5.32	3.55	8.8	7.88	1.26	4.73	4.33
JSS106	11	6.86	3.55	15.4	9.57	1.69	4.33	4.93
JSS166	18	7.01	3.74	22.0	10.05	2.09	5.91	6.3
JSS207	22	7.49	-	33.1	11.03	2.21	5.04	6.58
JSS327	33	7.49	-	44.1	11.23	2.8	5.91	7.37
JSS507	55	7.68	-	63.9	11.82	3.35	7.09	8.47
JSS1007	110	7.68	-	143.3	13.4	4.61	10.44	9.46

HMJ | STEEL MACHINE LIFT JACKS

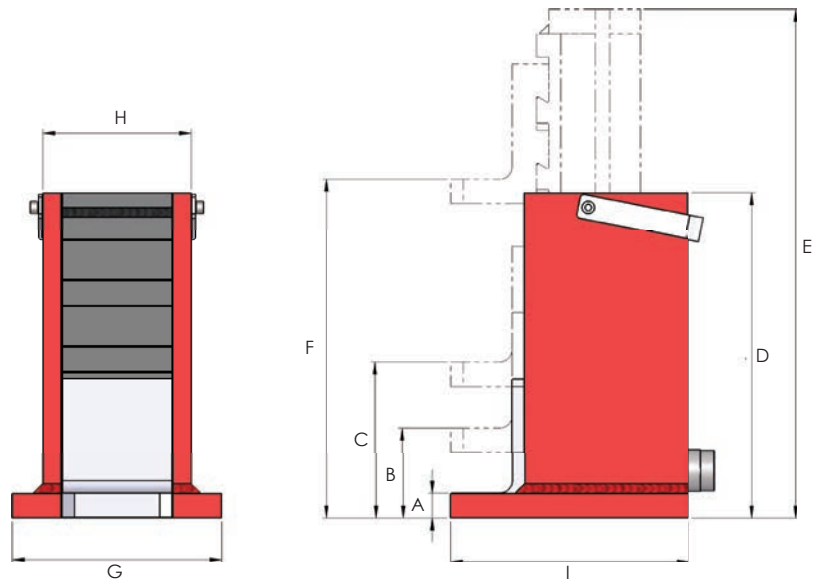


Capacities of 11 and 28 tons

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 & load lock extensions	
TL ACCESSORIES	78
Spacers, load block sets	
TL ACCESSORIES	79
ToughLift accessories configuration examples	

TL | TOUGHLIFT JACKING SYSTEMS



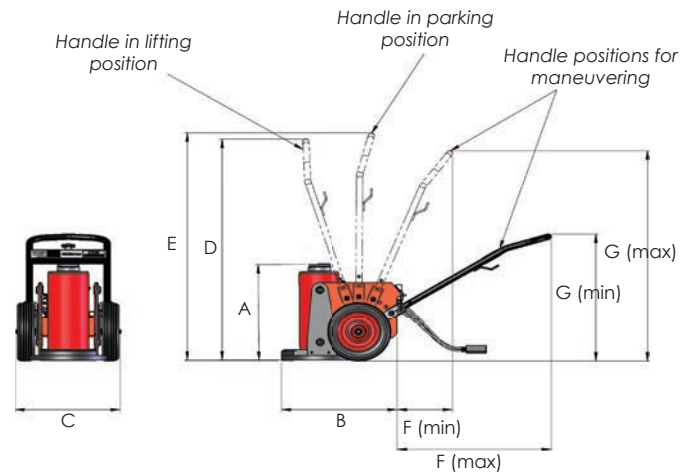
- ▶ Choice of air or electric driven hydraulic system
- ▶ High flow 3-stage pump unit offers faster advance and retract times
- ▶ Solid tyres fitted as standard with option of pneumatic tyres
- ▶ Narrow width wheels and redesigned wheel position for better ground clearance and balance when maneuvering
- ▶ 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

Choice of 8 models with capacities from 55 to 220 tons

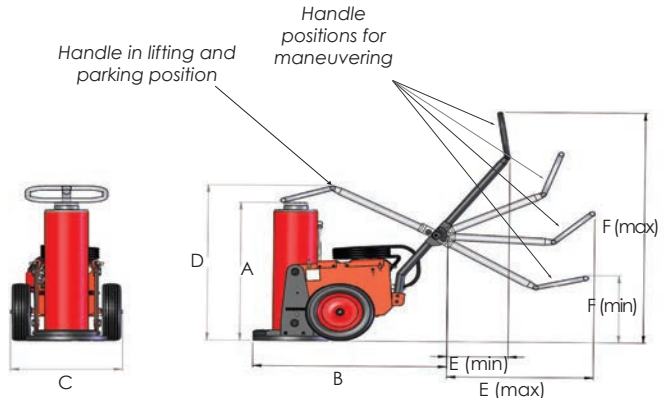
Lifting heights up to 27 inches

Working pressure 10000 psi

Dimensions for 55 ton models:



Dimensions for all other models:



Model number	Capacity (tons)	Power supply	Stroke (in)	Weight (lbs)	Max additional stack (in)
TL050A255	55	90-psi air driven	10.01	352.7	26.79
TL050E255-A	55	240V electric	10.01	370.4	26.79
TLA10016	110	90-psi air driven	15.96	637.1	18.91
TLA10021	110	90-psi air driven	20.88	703.3	7.09
TLA15015	165	90-psi air driven	15.37	690	19.11
TLA15020	165	90-psi air driven	20.49	769.4	7.09
TLA20015	220	90-psi air driven	15.01	822.3	19.7
TLA20027	220	90-psi air driven	27	998.7	7.09

Dimensions (in)						
A	B	C	D	E (min-max)	F (min-max)	G (min-max)
17.93	26	22.06	56.74	56.74	14.97-39.4	27.58-51.22
17.93	26	22.06	56.74	56.74	14.97-39.4	27.58-51.22
26.2	44.52	25.69	32.74	14.03-33.65	18.32-63.24	-
33.21	44.52	25.69	37.27	14.03-33.65	18.32-63.24	-
26.2	44.52	25.69	32.9	14.03-33.65	18.32-63.24	-
33.21	44.52	25.69	37.94	14.03-33.65	18.32-63.24	-
26	44.52	25.69	32.7	14.03-33.65	18.32-63.24	-
37.98	44.52	25.69	42.75	14.03-33.65	18.32-63.24	-

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	TL050A255 TL050E255	26.79
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	TL050A255 TL050E255	26.79
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	TL050A255 TL050E255
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 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 catalog, 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 catalog 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.

Additionally on page 105, you will find details on Hi-Force innovative and world leading BOLTRIGHT PRO joint integrity calculation software.





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TWM | MANUAL TORQUE WRENCHES - CLICK TYPE



Choice of 7 models with torque range from 7 to 630 lbf.ft (10 to 850 Nm)

Dual scale torque reading adjustment in lbf.ft & Nm

Repeatable accuracy of +/- 3% and supplied with individual calibration certificate

- ▶ Reversible square drives sizes from 3/8" to 3/4"
- ▶ Robust steel construction with corrosion resistant finish
- ▶ Heavy duty ratchet head with audible click when pre-set torque achieved
- ▶ Torque setting lock mechanism to prevent accidental change during use

Model number	Square drive	Torque range		Main scale grad (Nm)	Micro scale grad (Nm)	Overall length (in)	Ratchet head dia (in)	Weight (lbs)
		lbf.ft	Nm					
TWM50	3/8"	7 - 37	10 - 50	2.50	0.25	13.16	1.38	1.1
TWM100	1/2"	15 - 75	20 - 100	5.00	0.50	15.52	1.73	2.0
TWM200	1/2"	30 - 150	40 - 200	10.00	1.00	19.11	1.73	2.4
TWM300	1/2"	45 - 220	60 - 300	10.00	1.00	22.73	1.81	3.1
TWM400	3/4"	60 - 300	80 - 400	10.00	1.00	27.03	2.64	4.4
TWM550	3/4"	80 - 405	110 - 550	10.00	1.00	37.67	2.72	8.4
TWM850	3/4"	185 - 630	250 - 850	10.00	1.00	54.33	2.72	10.4

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 3/4" 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 torqueing
- ▶ 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		Overall length (in)	Ratchet head dia (in)	Weight (lbs)
		lbf.ft	Nm			
HTW1000B	3/4"	220 - 750	300 - 1000	58.12	2.76	16.1
HTW1500B	3/4"	500 - 1000	700 - 1500	58.12	2.76	22.9
HTW1800B	1"	500 - 1000	700 - 1500	58.12	2.76	22.9
HTW2000B	1"	600 - 1500	900 - 2000	75.65	2.76	28.7

TWG | MANUAL TORQUE MULTIPLIERS

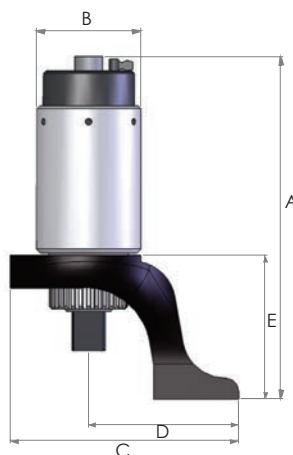


Torque capacities up to 7330 lbf.ft

Lightweight aluminum housing

Supplied complete with reaction arm

- ▶ Choice of output square drives of ¾", 1" and 1 ½"
- ▶ Suitable for use with Hi-Force TWM range of hand torque wrenches listed on page 82
- ▶ Compact design for easy fitment
- ▶ Single stage planetary gear in models up to 2050 lbf.ft
- ▶ Overload safety mechanism on models TWG40, TWG60, TWG100
- ▶ Multiplication ratios from 4:1 to 28.5:1



Model number	Torque capacity		Gearbox ratio	Input square drive	Output square drive	Overload Protection	Rec. torque wrench	Weight (lbs)	Dimensions (in)				
	lbf.ft	Nm							A	B	C	D	E
TWG13	950	1300	5:1	½"	¾"	No	TWM300	2.9	5.24	3.15	4.89	3.78	3.86
TWG20	1500	2000	4:1	¾"	1"	No	TWM550	4.0	5.16	3.47	7.49	5.91	3.15
TWG28	2050	2800	5.5:1	¾"	1"	No	TWM550	5.3	5.75	4.18	8.71	6.26	3.27
TWG40	2930	4000	16:1	½"	1"	Yes	TWM300	9.3	8.94	3.47	6.9	5.32	4.33
TWG60	4400	6000	18:1	¾"	1 ½"	Yes	TWM400	14.6	10.09	4.02	9.46	7.49	5.71
TWG100	7330	10000	28.5:1	¾"	1 ½"	Yes	TWM400	24.0	11.5	5.59	10.52	8.47	6.42

TWP | PISTOL GRIP PNEUMATIC TORQUE MULTIPLIERS

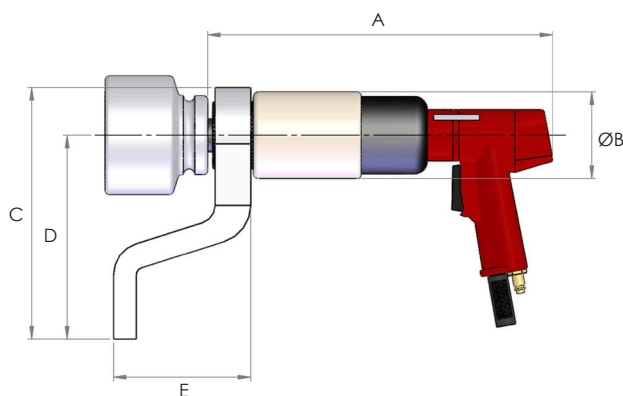


Torque capacities up to 4400 lbf.ft

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 torqueing
- ▶ 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



Model number	Torque capacity *		Square drive size	R.P.M. at max pressure	Weight (lbs)	Dimensions (in)				
	lbf.ft	Nm				A	B	C	D	E
TWP09S	150 - 670	200 - 900	¾"	24	7.1	12.92	3.15	4.89	3.78	3.86
TWP15S	220 - 1110	300 - 1500	1"	12	10.4	13.51	3.47	7.49	5.91	3.15
TWP22S	370 - 1620	500 - 2200	1"	7	11.2	14.18	3.47	7.49	5.91	3.15
TWP32S	590 - 2360	800 - 3200	1"	4	12.8	15.09	3.47	6.15	6.26	3.27
TWP40S	620 - 3100	850 - 4200	1"	4	12.8	15.09	3.47	6.9	5.71	4.33
TWP60S	880 - 4400	1200 - 6000	1½"	4	17.0	15.76	4.02	9.46	7.49	5.71

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

TWP-OG | PISTOL GRIP PNEUMATIC TORQUE MULTIPLIERS WITH OFFSET GEAR BOX

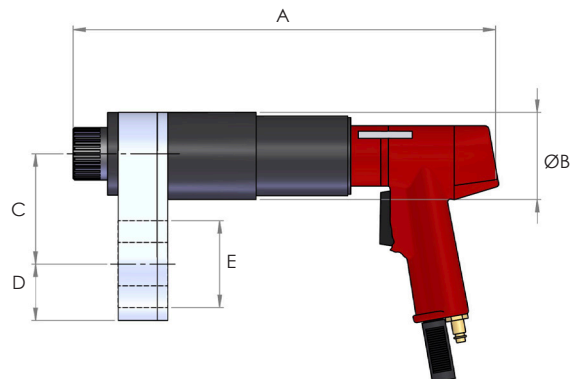


Torque capacities up to 3500 lbf.ft

Repeatable accuracy of +/- 5%

Lightweight and durable construction

- ▶ Air driven, single stage torque multipliers offering torque capacities from 2200 to 3500 lbf.ft (3000 to 4800 Nm)
- ▶ Features an integrated offset gearbox specially designed for heat exchangers
- ▶ 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



Model number	Torque capacity*		R.P.M. at max pressure	Weight (lbs)	Female Hexagon (E)	Dimensions (in)			
	lbf.ft	Nm				A	ØB	C	D
TWP30S-OG1	2200	3000	7	22.0	60 mm AF	15.6	3.47	4.41	2.4
TWP30S-OG2	2650	3600	5	26.5	80 mm AF	15.6	3.47	4.65	2.96
TWP30S-OG3	3500	4800	4	28.7	95 mm AF	15.6	3.47	5.32	3.74

*Maximum torque value at 116 psi airline pressure

TWS-N | HYDRAULIC TORQUE WRENCHES - SQUARE DRIVE

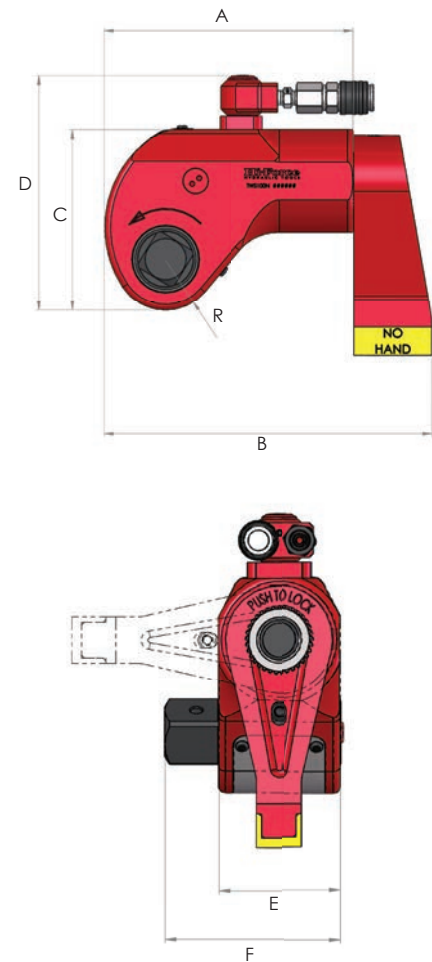


- ▶ Compact, lightweight aluminum body construction
- ▶ Output torque capacities from 1254 to 26860 lbf.ft (1727 to 36992 Nm)
- ▶ Choice of square drive sizes from ¾" to 2½"
- ▶ Reversible square drive for tightening or loosening applications
- ▶ Multi-position reaction arm with safety lock feature
- ▶ Fitted with 360° uni-swivel quick release couplings for easy positioning of hydraulic hoses during operation
- ▶ High quality torque wrench sockets for use with TWS-N range hydraulic wrenches are listed on pages 88 and 89
- ▶ Optional allen hex drives available from ½" to 2¼" and 14 to 60 mm (see page 90)

Torque capacities up to 26860 lbf.ft

Torque accuracy of +/- 3%

Working pressure 10000 psi



Model number	Torque capacity		Square drive size	Weight including reaction foot (lbs)
	lbf.ft at 10000 psi	Nm at 700 bar		
TWS17N	1254	1727	¾"	4.2
TWS45N	3289	4529	1"	10.6
TWS100N	7308	10064	1½"	19.8
TWS150N	10873	14974	1½"	33.1
TWS370N	26860	36992	2½"	71.6

Dimensions (in)						
A	B	C	D	E	F	R
5.08	6.58	3.55	5.16	2.01	2.88	0.99
6.58	8.59	4.77	6.7	2.68	3.86	1.34
8.79	11.54	6.42	8.31	3.62	5.32	1.81
9.73	12.73	7.56	9.3	3.94	5.56	2.13
12.96	17.02	9.46	11.35	5.4	8.04	2.6

IS | IMPERIAL HEXAGON AF SIZE HEAVY DUTY SOCKETS

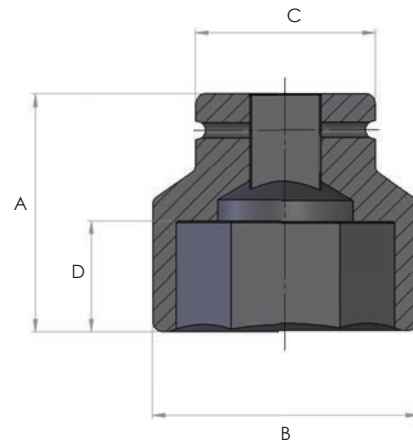


- ▶ High quality, imperial size heavy duty impact sockets
- ▶ Suitable for use with Hi-Force TWS-N hydraulic torque wrenches and IW impact wrenches
- ▶ Long length, bi-hexagonal and special sockets available on request

Square drives from $\frac{3}{4}$ " to 2 $\frac{1}{2}$ "

Across flat sizes up to 6 $\frac{7}{8}$ "

Supplied complete with retaining ring and pin



Model number	Square drive	Nut AF (inches)	Dimensions (in)			
			A	B	C	D
IS2-101	$\frac{3}{4}$ "	1 $\frac{1}{16}$ "	2.05	1.58	1.5	0.63
IS2-104	$\frac{3}{4}$ "	1 $\frac{1}{4}$ "	2.05	1.73	1.73	0.79
IS2-107	$\frac{3}{4}$ "	1 $\frac{1}{8}$ "	2.21	2.01	1.73	0.91
IS2-110	$\frac{3}{4}$ "	1 $\frac{5}{8}$ "	2.44	2.29	1.73	1.06
IS2-113	$\frac{3}{4}$ "	1 $\frac{3}{16}$ "	2.68	2.64	1.73	1.26
IS2-200	$\frac{3}{4}$ "	2"	2.84	2.8	2.13	1.38
IS2-203	$\frac{3}{4}$ "	2 $\frac{3}{16}$ "	2.92	3.03	2.13	1.38
IS2-206	$\frac{3}{4}$ "	2 $\frac{3}{8}$ "	2.96	3.31	2.13	1.38
IS9-101	1"	1 $\frac{1}{16}$ "	2.29	1.73	2.01	0.67
IS9-104	1"	1 $\frac{1}{4}$ "	2.36	2.01	2.01	0.83
IS9-107	1"	1 $\frac{1}{8}$ "	2.44	2.21	2.05	1.02
IS9-110	1"	1 $\frac{5}{8}$ "	2.44	2.44	2.05	1.02
IS9-113	1"	1 $\frac{3}{16}$ "	2.52	2.68	2.29	1.06
IS9-200	1"	2"	2.76	2.92	2.29	1.22
IS9-203	1"	2 $\frac{3}{16}$ "	2.84	3.15	2.44	1.26
IS9-206	1"	2 $\frac{3}{8}$ "	3.07	3.43	2.44	1.38
IS9-209	1"	2 $\frac{1}{16}$ "	3.15	3.66	2.44	1.42
IS9-212	1"	2 $\frac{3}{4}$ "	3.35	3.86	2.44	1.58
IS9-215	1"	2 $\frac{1}{2}$ "	3.74	4.1	3.39	1.89
IS9-302	1"	3 $\frac{1}{8}$ "	3.94	4.29	3.39	2.05
IS9-308	1"	3 $\frac{1}{2}$ "	4.14	4.93	3.39	2.05
IS9-314	1"	3 $\frac{3}{8}$ "	4.14	5.36	3.74	2.05
IS5-113	1 $\frac{1}{2}$ "	1 $\frac{3}{16}$ "	3.31	2.99	3.39	1.06
IS5-200	1 $\frac{1}{2}$ "	2"	3.43	3.23	3.39	1.14

Model number	Square drive	Nut AF (inches)	Dimensions (in)			
			A	B	C	D
IS5-203	1 $\frac{1}{2}$ "	2 $\frac{3}{16}$ "	3.55	3.39	3.39	1.42
IS5-206	1 $\frac{1}{2}$ "	2 $\frac{3}{8}$ "	3.62	3.66	3.39	1.5
IS5-209	1 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	3.74	3.82	3.39	1.58
IS5-212	1 $\frac{1}{2}$ "	2 $\frac{3}{4}$ "	3.94	4.14	3.39	1.69
IS5-215	1 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	4.06	4.33	3.39	1.77
IS5-302	1 $\frac{1}{2}$ "	3 $\frac{1}{8}$ "	4.33	4.57	3.39	1.97
IS5-308	1 $\frac{1}{2}$ "	3 $\frac{1}{2}$ "	4.65	5.12	3.39	2.17
IS5-314	1 $\frac{1}{2}$ "	3 $\frac{3}{8}$ "	4.93	5.52	3.74	2.29
IS5-404	1 $\frac{1}{2}$ "	4 $\frac{1}{4}$ "	4.93	5.91	3.74	2.29
IS5-410	1 $\frac{1}{2}$ "	4 $\frac{5}{8}$ "	5.32	6.5	3.74	2.56
IS5-500	1 $\frac{1}{2}$ "	5"	5.52	7.05	5	2.76
IS5-506	1 $\frac{1}{2}$ "	5 $\frac{3}{8}$ "	5.91	7.68	5	2.96
IS6-302	2 $\frac{1}{2}$ "	3 $\frac{1}{8}$ "	5.52	4.89	5	2.01
IS6-308	2 $\frac{1}{2}$ "	3 $\frac{1}{2}$ "	5.52	5.32	5	2.01
IS6-314	2 $\frac{1}{2}$ "	3 $\frac{3}{8}$ "	5.91	5.79	5	2.25
IS6-404	2 $\frac{1}{2}$ "	4 $\frac{1}{4}$ "	6.3	6.26	5	2.52
IS6-410	2 $\frac{1}{2}$ "	4 $\frac{5}{8}$ "	6.7	6.78	5	2.8
IS6-500	2 $\frac{1}{2}$ "	5"	6.9	7.29	5	2.96
IS6-506	2 $\frac{1}{2}$ "	5 $\frac{3}{8}$ "	7.09	7.76	5	3.11
IS6-512	2 $\frac{1}{2}$ "	5 $\frac{3}{4}$ "	7.29	8.27	5	3.27
IS6-602	2 $\frac{1}{2}$ "	6 $\frac{1}{8}$ "	7.49	8.79	5	3.59
IS6-608	2 $\frac{1}{2}$ "	6 $\frac{1}{2}$ "	7.68	9.26	5	3.74
IS6-614	2 $\frac{1}{2}$ "	6 $\frac{7}{8}$ "	7.88	9.77	5	4.14

MS | METRIC HEXAGON AF SIZE HEAVY DUTY SOCKETS

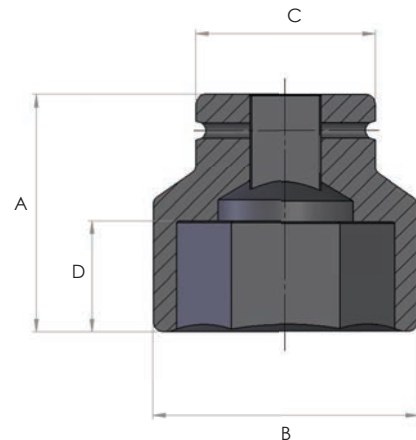


- High quality, metric size heavy duty impact sockets
- Suitable for use with Hi-Force TWS-N hydraulic torque wrenches and IW impact wrenches
- Long length, bi-hexagonal and special sockets available on request

Square drives from ¾" to 2 ½"

Across flat sizes up to 145 mm

Supplied complete with retaining ring and pin



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	16
MS2-30	¾"	30	54	47	44	23
MS2-32	¾"	32	56	49	44	23
MS2-36	¾"	36	56	54	44	23
MS2-41	¾"	41	58	60	44	24
MS2-46	¾"	46	63	67	44	30
MS2-50	¾"	50	72	71	54	32
MS2-55	¾"	55	74	78	54	35
MS2-60	¾"	60	75	84	54	37
MS9-24	1"	24	58	42	54	17
MS9-27	1"	27	58	46	54	17
MS9-30	1"	30	60	50	54	21
MS9-32	1"	32	60	51	54	21
MS9-36	1"	36	65	56	54	30
MS9-41	1"	41	67	63	54	31
MS9-46	1"	46	74	69	54	36
MS9-50	1"	50	80	74	54	42
MS9-55	1"	55	84	80	54	44
MS9-60	1"	60	87	86	54	44
MS9-65	1"	65	90	92	54	46
MS9-70	1"	70	96	99	54	51
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	95	58

Model number	Square drive	Nut AF (in)	Dimensions (mm)			
			A	B	C	D
MS5-36	1 ½"	36	78	64	86	23
MS5-41	1 ½"	41	80	70	86	26
MS5-46	1 ½"	46	84	76	86	27
MS5-50	1 ½"	50	87	81	86	29
MS5-55	1 ½"	55	90	86	86	36
MS5-60	1 ½"	60	92	93	86	38
MS5-65	1 ½"	65	95	97	86	40
MS5-70	1 ½"	70	100	105	86	43
MS5-75	1 ½"	75	103	110	86	45
MS5-80	1 ½"	80	110	116	86	50
MS5-85	1 ½"	85	118	125	86	55
MS5-90	1 ½"	90	118	130	86	55
MS5-95	1 ½"	95	118	137	95	55
MS5-100	1 ½"	100	125	140	95	58
MS5-105	1 ½"	105	125	150	95	58
MS5-110	1 ½"	110	125	156	95	58
MS5-115	1 ½"	115	135	160	95	65
MS5-130	1 ½"	130	140	185	127	70
MS6-80	2 ½"	80	140	124	127	51
MS6-85	2 ½"	85	140	130	127	51
MS6-90	2 ½"	90	145	136	127	54
MS6-95	2 ½"	95	145	143	127	54
MS6-100	2 ½"	100	150	149	127	57
MS6-105	2 ½"	105	155	155	127	61
MS6-110	2 ½"	110	160	161	127	64
MS6-115	2 ½"	115	165	167	127	67
MS6-130	2 ½"	130	175	188	127	75
MS6-145	2 ½"	145	185	208	127	83

TWS-N | ACCESSORIES

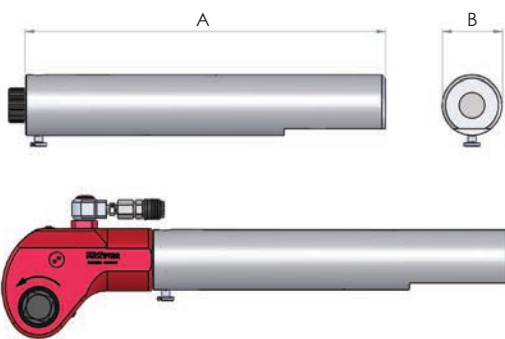

Imperial allen hex drives from ½ to 2¼

Metric allen hex drives from 14 to 60 mm

Extended length arms with choice of length

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	¾"	686	MH17N-17	17 mm	996
	IH17N-012	¾"	1180	MH17N-19	19 mm	1189
	IH17N-014	7⁄8"	1254	MH17N-22	22 mm	1254
	IH17N-100	1"	1254	MH17N-24	24 mm	1254
TWS45N	IH45N-010	¾"	686	MH45N-17	17 mm	811
	IH45N-012	¾"	1180	MH45N-19	19 mm	1180
	IH45N-014	7⁄8"	1881	MH45N-22	22 mm	1881
	IH45N-100	1"	2803	MH45N-24	24 mm	2729
	IH45N-102	1 1⁄8"	3319	MH45N-27	27 mm	2876
	IH45N-104	1 1⁄4"	3319	MH45N-32	32 mm	3319
TWS100N	IH100N-014	7⁄8"	1394	MH100N-22	22 mm	1829
	IH100N-100	1"	2803	MH100N-24	24 mm	2729
	IH100N-102	1 1⁄8"	4012	MH100N-27	27 mm	3429
	IH100N-104	1 1⁄4"	5458	MH100N-30	30 mm	4705
	IH100N-106	1 3⁄8"	7316	MH100N-32	32 mm	5623
	IH100N-108	1 1⁄2"	7375	MH100N-36	36 mm	7375
TWS150N	IH150N-104	1 1⁄4"	5458	MH150N-30	30 mm	5163
	IH150N-106	1 3⁄8"	7301	MH150N-32	32 mm	5531
	IH150N-108	1 1⁄2"	11063	MH150N-36	36 mm	8039
	IH150N-110	1 5⁄8"	11063	MH150N-41	41 mm	11063
	IH150N-112	1 3⁄4"	11063	MH150N-46	46 mm	11063
TWS370N	IH370N-108	1 1⁄2"	9514	MH370N-36	36 mm	7375
	IH370N-110	1 5⁄8"	12021	MH370N-41	41 mm	12021
	IH370N-112	1 3⁄4"	15045	MH370N-46	46 mm	16594
	IH370N-114	1 7⁄8"	18511	MH370N-50	50 mm	22568
	IH370N-200	2"	22568	MH370N-55	55 mm	27288
	IH370N-204	2 1⁄4"	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 1⁄4"	44.5
	ERA17-24	24"	610	1 3⁄4"	44.5
	ERA17-36	36"	914	1 3⁄4"	44.5
TWS45N	ERA45-21	21"	533	2 1⁄2"	63.5
	ERA45-24	24"	610	2 1⁄2"	63.5
	ERA45-36	36"	914	2 1⁄2"	63.5
TWS100N	ERA100-21	21"	533	3 1⁄2"	88.9
	ERA100-24	24"	610	3 1⁄2"	88.9
	ERA100-36	36"	914	3 1⁄2"	88.9
TWS150N	ERA150-21	21"	533	3 1⁄2"	88.9
	ERA150-24	24"	610	3 1⁄2"	88.9
	ERA150-36	36"	914	3 1⁄2"	88.9
TWS370N	ERA370-21	21"	533	4 3⁄4"	120.6
	ERA370-24	24"	610	4 3⁄4"	120.6
	ERA370-36	36"	914	4 3⁄4"	120.6

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 1/8" to 6 7/8" (page 92)
- ▶ Metric ratchet heads available with across flat (AF sizes) sizes from 24 to 175 mm (page 93)
- ▶ Fitted with 360° uni-swivel with quick release couplings for easy positioning of hydraulic hoses

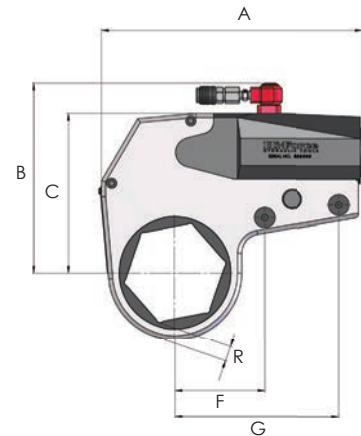
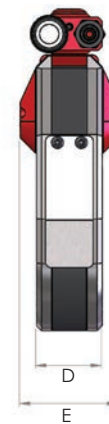
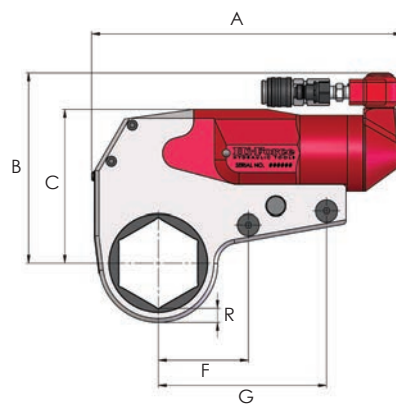
TWH27N, TWH54N, TWH120N, TWH210N
(aluminum body)

All models

TWH430N (steel body)

Note: Drawing shows drive cylinder, including ratchet head as detailed on pages 92 and 93.

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 1/8"	1 3/8"	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 1/8"	2 1/8"	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 3/8"	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 1/8"	3 3/8"	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 3/8"	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 3/8"	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 92 and 93. 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

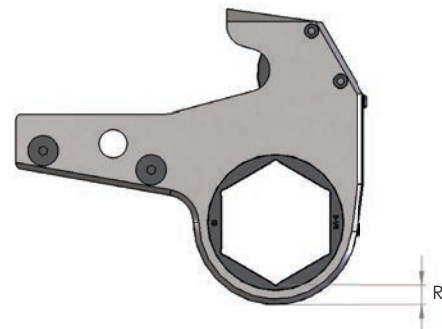


Choice of standard imperial sizes

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 96 and 97)
- ▶ Special design ratchet heads made to order



IMPERIAL RATCHET HEAD SELECTION TABLE																
Bolt size	Nut AF size	For TWH27N			For TWH54N			For TWH120N			For TWH210N			For TWH430N		
		Model number	R in	Wt lbs	Model number	R in	Wt lbs	Model number	R in	Wt lbs	Model number	R in	Wt lbs	Model number	R in	Wt lbs
5/8"	1 1/8"	TWH27NRH1.1/16	0.41	3.3												
3/4"	1 1/4"	TWH27NRH1.1/4	0.38	3.5												
7/8"	1 7/16"	TWH27NRH1.7/16	0.39	3.5	TWH54NRH1.7/16	0.53	6.4									
1"	1 5/8"	TWH27NRH1.5/8	0.39	3.5	TWH54NRH1.5/8	0.43	6.2									
1 1/8"	1 13/16"	TWH27NRH1.13/16	0.41	3.7	TWH54NRH1.13/16	0.42	6.4									
1 1/4"	2"	TWH27NRH2	0.41	3.7	TWH54NRH2	0.46	6.6									
1 3/8"	2 3/16"	TWH27NRH2.3/16	0.41	4.0	TWH54NRH2.3/16	0.46	6.8	TWH120NRH2.3/16	0.58	13.4						
1 1/2"	2 3/8"	TWH27NRH2.3/8	0.41	4.0	TWH54NRH2.3/8	0.46	7.1	TWH120NRH2.3/8	0.58	14.1						
1 5/8"	2 1/2"				TWH54NRH2.9/16	0.46	7.3	TWH120NRH2.9/16	0.58	14.1						
1 3/4"	2 3/4"				TWH54NRH2.3/4	0.46	7.5	TWH120NRH2.3/4	0.59	14.3	TWH210NRH2.3/4	0.72	26.7			
1 7/8"	2 15/16"				TWH54NRH2.15/16	0.58	7.7	TWH120NRH2.15/16	0.59	14.3	TWH210NRH2.15/16	0.72	26.9			
2"	3 1/8"				TWH54NRH3.1/8	0.48	7.7	TWH120NRH3.1/8	0.59	14.3	TWH210NRH3.1/8	0.73	27.1	TWH430NRH3.1/8	1.02	51.1
2 1/4"	3 1/2"							TWH120NRH3.1/2	0.67	17.4	TWH210NRH3.1/2	0.76	27.3	TWH430NRH3.1/2	1.06	52.7
2 1/2"	3 3/8"							TWH120NRH3.7/8	0.77	18.7	TWH210NRH3.7/8	0.77	27.6	TWH430NRH3.7/8	1.04	56.7
2 3/4"	4 1/4"										TWH210NRH4.1/4	0.77	29.3	TWH430NRH4.1/4	1.06	57.5
3"	4 5/8"										TWH210NRH4.5/8	0.76	30.4	TWH430NRH4.5/8	1.02	58.0
3 1/4"	5"													TWH430NRH5	1.08	61.5
3 1/2"	5 5/8"													TWH430NRH5.3/8	1.02	62.4
3 3/4"	5 3/4"													TWH430NRH5.3/4	0.98	64.6
4"	6 1/8"													TWH430NRH6.1/8	0.99	66.4
4 1/4"	6 1/2"													TWH430NRH6.1/2	0.99	68.3
4 1/2"	6 7/8"													TWH430NRH6.7/8	1.08	70.1

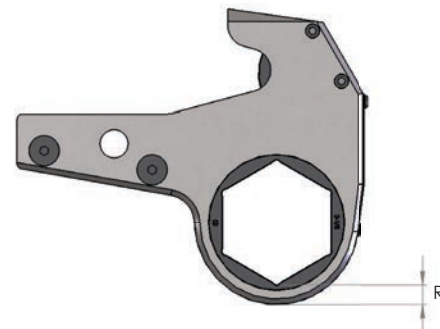
TWH-NRH | METRIC HEXAGON AF SIZE RATCHET HEADS


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 96 and 97)
- ▶ 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	12.1	3.3												
18	27	TWH27NRH-27	10.4	3.3												
20	30	TWH27NRH-30	10.7	3.5												
22	32	TWH27NRH-32	9.5	3.5												
24	36	TWH27NRH-36	10.1	3.5	TWH54NRH-36	13.8	6.4									
-	38				TWH54NRH-38	12.6	6.2									
27	41	TWH27NRH-41	10.1	3.5	TWH54NRH-41	10.9	6.2									
30	46	TWH27NRH-46	10.5	3.7	TWH54NRH-46	10.7	6.4									
33	50	TWH27NRH-50	10.4	3.7	TWH54NRH-50	12.1	6.6	TWH120NRH-50	15.2	12.8						
36	55	TWH27NRH-55	10.1	4.0	TWH54NRH-55	12.1	6.8	TWH120NRH-55	15.0	13.4						
39	60	TWH27NRH-60	10.5	4.0	TWH54NRH-60	12.0	7.1	TWH120NRH-60	15.0	14.1						
42	65				TWH54NRH-65	11.7	7.3	TWH120NRH-65	14.9	14.1						
45	70				TWH54NRH-70	11.7	7.5	TWH120NRH-70	14.8	14.3	TWH210NRH-70	18.2	26.7			
48	75				TWH54NRH-75	14.6	7.7	TWH120NRH-75	14.7	14.3	TWH210NRH-75	18.1	26.9			
52	80				TWH54NRH-80	11.7	7.7	TWH120NRH-80	14.7	14.3	TWH210NRH-80	18.1	27.1	TWH430NRH-80	25.6	51.1
56	85							TWH120NRH-85	16.4	17.2	TWH210NRH-85	18.2	27.3	TWH430NRH-85	29.0	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	26.6	62.4
100	145													TWH430NRH-145	25.4	64.8
110	155													TWH430NRH-155	25.0	66.4
115	165													TWH430NRH-165	25.0	68.3
-	175													TWH430NRH-175	27.3	70.1

TWH-N | ACCESSORIES


Choice of 1", 1½" or 2½" square drive sizes

Suitable for TWH-N range (excluding TWH430N)

Easily fitted, no special tools required

SQUARE DRIVE CONVERSION KITS

- Converts TWH-N female hexagon drive torque wrench into a standard square drive wrench
- Kit comprises of reaction foot and standard hexagon AF to square drive adaptor

Model number	Square drive	Hexagon AF size	Maximum torque (lbf.ft)	Maximum torque (Nm)	Suitable for drive cylinder	Suitable for ratchet head	Weight (lbs)
SDC27-I	1"	1⅜"	2263	3068	TWH27N	TWH27NRH1.13/16	2.4
SDC27-M	1"	46 in	2263	3068	TWH27N	TWH27NRH-46	2.4
SDC54-I	1 ½"	2⅞"	4453	6037	TWH54N	TWH54NRH2.9/16	6.6
SDC54-M	1 ½"	65 in	4453	6037	TWH54N	TWH54NRH-65	6.6
SDC120-I	1 ½"	3⅞"	10583	14349	TWH120N	TWH120NRH3.1/8	9.7
SDC120-M	1 ½"	80 in	10583	14349	TWH120N	TWH120NRH-80	9.7
SDC210-I	2 ½"	3⅞"	17055	23124	TWH210N	TWH210NRH3.7/8	20.1
SDC210-M	2 ½"	100 in	17055	23124	TWH210N	TWH210NRH-100	20.1

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

TWH-N | ACCESSORIES

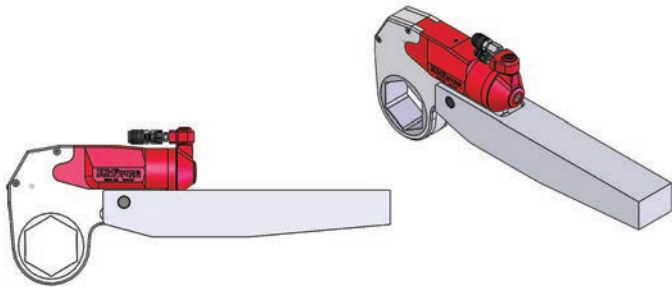


Lightweight aluminum alloy construction

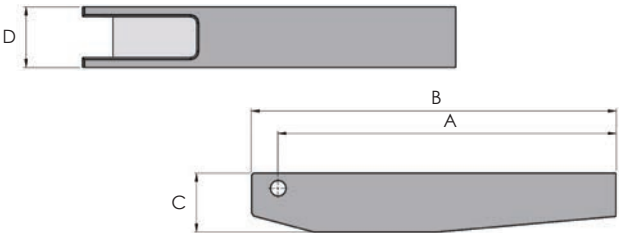
Offers in-line reaction outside of the standard range of reaction points for TWH-N wrenches

Increased accessibility for applications in confined spaces

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

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 3/16"	1 7/16"	IB27-113-107	0.19	IB54-113-107	0.19						
1 3/8"	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 3/16"	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 3/16"	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 3/16"	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 7/16"	2"			IB54-209-200	0.28	not available	-				
2 7/16"	2 3/16"			IB54-209-203	0.19	IB120-209-203	0.19				
2 7/16"	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 7/16"			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 7/16"			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 7/16"			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	3.0								
32	24	MB27-32-24	3.0								
32	27	MB27-32-27	3.0								
36	30	MB27-36-30	3.0	MB54-36-30	3.0						
41	36	MB27-41-36	2.5	MB54-41-36	2.5						
46	36	MB27-46-36	5.0	MB54-46-36	5.0						
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	2.0	MB54-50-46	2.0						
55	41	MB27-55-41	7.0	MB54-55-41	7.0						
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	7.0	MB54-60-46	7.0	not available	-				
60	50	MB27-60-50	5.0	MB54-60-50	5.0	MB120-60-50	5.0				
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	5.0	MB120-65-55	5.0				
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	5.0	MB120-70-60	5.0				
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	5.0	MB120-75-65	5.0				
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	5.0	MB120-80-70	5.0	MB210-80-70	5.0		
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	5.0	MB210-85-75	5.0		
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	5.0	MB210-90-80	5.0	MB430-90-80	5.0
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	5.0	MB210-95-85	5.0	MB430-95-85	5.0
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	5.0	MB210-100-90	5.0	MB430-100-90	5.0
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	5.0	MB430-105-95	5.0
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	5.0	MB430-110-100	5.0
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	5.0	MB430-115-105	5.0
115	110							MB210-115-110	2.5	MB430-115-110	2.5
130	105									MB430-130-105	12.5
130	110									MB430-130-110	10.0
130	115									MB430-130-115	7.5
145	110									MB430-145-110	17.5
145	115									MB430-145-115	15.0
145	130									MB430-145-130	7.5

BW | BACKUP WRENCHES

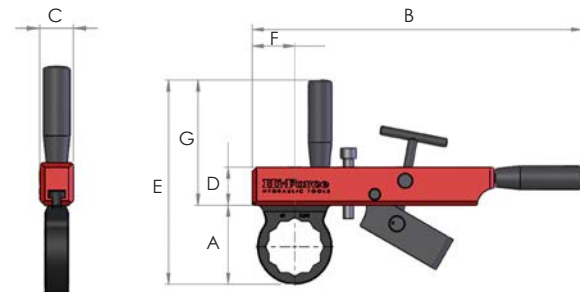


Suitable for use with TWS-N & TWH-N Wrenches

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 3/8"

HOLDER AND IMPERIAL HEXAGON LINKS:

Model number	Description	Hexagon AF size	A	B	Dimensions (in)				
			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 1 / ₂ "	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	A	B	Dimensions (mm)					
					C	D	E	F	G	
Holder										
BWH	Backup wrench holder	-								
Hexagon links										
BWM-36	Hexagon link	36 mm	64.5	390	36	45	211.5	50	147	
BWM-41	Hexagon link	41 mm	73.5	390	36	45	220.5	50	147	
BWM-46	Hexagon link	46 mm	78.5	390	36	45	225.5	50	147	
BWM-50	Hexagon link	50 mm	85	390	36	45	232	50	147	
BWM-55	Hexagon link	55 mm	87.5	390	36	45	234.5	50	147	
BWM-60	Hexagon link	60 mm	93	390	36	45	240	50	147	
BWM-65	Hexagon link	65 mm	97.5	390	36	45	244.5	50	147	
BWM-70	Hexagon link	70 mm	104.5	390	36	45	251.5	50	147	
BWM-75	Hexagon link	75 mm	113	390	36	45	260	50	147	
BWM-80	Hexagon link	80 mm	119.5	390	36	45	266.5	50	147	
BWM-85	Hexagon link	85 mm	130	390	36	45	277	50	147	
BWM-90	Hexagon link	90 mm	135.5	390	36	45	282.5	50	147	
BWM-95	Hexagon link	95 mm	143	390	36	45	290	50	147	
BWM-100	Hexagon link	100 mm	148	390	36	45	295	50	147	

HTWP | TORQUE WRENCH PUMPS - STANDARD LINE

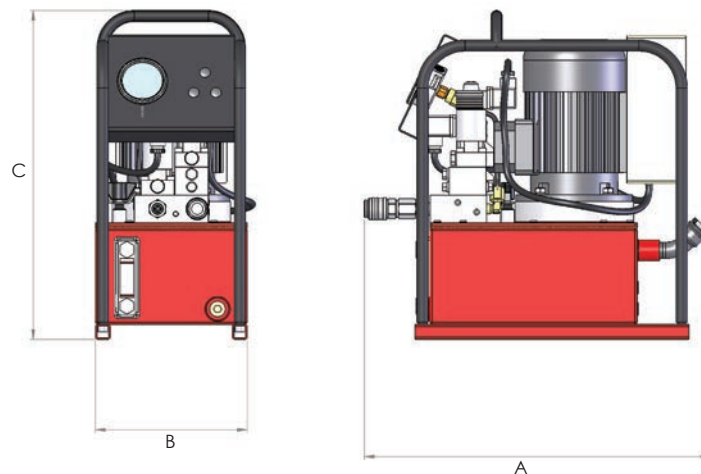


Working pressure 10000 psi

Two stage operation

Air or electric driven options

- ▶ Compatible for use with TWS-N and TWH-N series hydraulic torque wrenches
- ▶ Two stage operation with low pressure flow rate of up to 372.24 inch³ per minute
- ▶ 110 or 240 volt single phase electric motor with auto retract function
- ▶ Integral oil cooling system in air driven models
- ▶ Dual scale (psi/bar) glycerin filled pressure gauge
- ▶ Easily adjustable torque setting pressure relief valve
- ▶ Reservoir oil sight level gauge fitted on all models
- ▶ Air pressure gauge and filter, regulator and lubricator unit fitted on air driven models
- ▶ Oil reservoir capacity 1.32 gallons
- ▶ Remote hand pendant controller with 10 feet control line cable for easy operation
- ▶ Factory fitted roll bar protection frame included



Model number	Power supply	Motor rating (hp)	Displacement (in ³ /min)		Changeover pressure (psi)	Weight (lbs)	Dimensions (in)		
			low pressure	high pressure			A	B	C
HTWP2140P	100 psi	2.01	372.24	31.12	870	61.7	18.44	8.08	17.53
HTWP2141AR	110 volt	1.01	237.99	21.97	870	75.0	18.44	8.08	17.53
HTWP2141ARH	110 volt	1.01	237.99	21.97	870	75.0	18.44	8.08	17.53
HTWP2142AR	240 volt	1.01	237.99	21.97	870	75.0	18.44	8.08	17.53
HTWP2142ARH	240 volt	1.01	237.99	21.97	870	75.0	18.44	8.08	17.53

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

TPA | AIR DRIVEN TORQUE WRENCH PUMPS - PREMIUM LINE

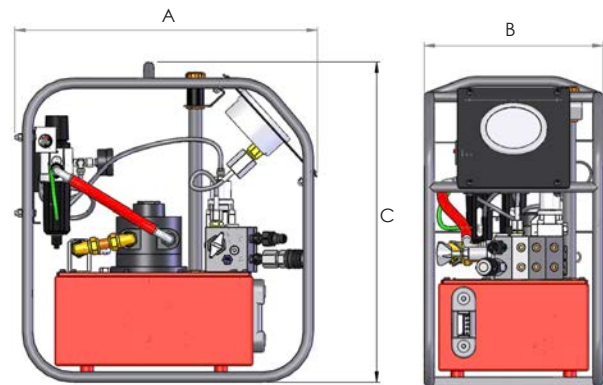


Working pressure 10000 psi

High flow 3-stage pump unit

Compact and lightweight

- ▶ 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
- ▶ 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
- ▶ Optional software controlled pump with digital display and digital gauge available



Model number	Power supply	Pressure gauge	Gauge reading *	Flow rate (gallons/min)			Oil capacity (gallons)	Max. oil temp (°C)	Weight incl. oil (lbs)	Dimensions (in)		
				1 st stage (0-943 psi)	2 nd stage (943-4,713 psi)	3 rd stage (4,713-10000 psi)				A	B	C
TPA07A	1,000 psi air	analogue	psi/bar	427.17	97.64	48.82	1.85	80°	66.1	18.68	11.27	19.74
TPA07D	1,000 psi air	digital	psi/bar/Nm/lbf.ft	427.17	97.64	48.82	1.85	80°	86.0	18.68	11.27	19.74

*Torque value reading only available on optional software controlled, programmable pump unit

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

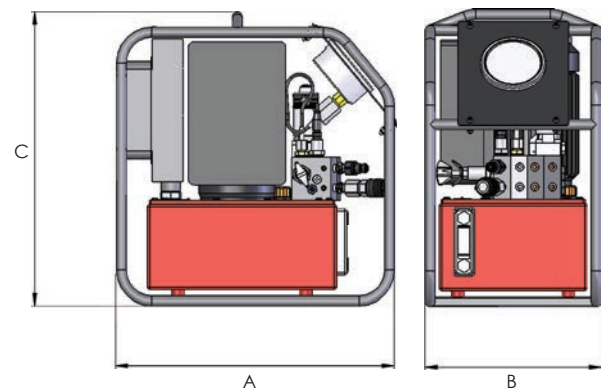
TPE | ELECTRIC DRIVEN TORQUE WRENCH PUMPS - PREMIUM LINE


Working pressure 10000 psi

High flow 3-stage pump unit

Compact and lightweight

- ▶ 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
- ▶ Choice of manual operation with auto retract or fully automatic operation
- ▶ Multi-outlet 4-way split block for simultaneous operation of up to 4 torque wrenches
- ▶ Factory fitted roll bar protection and carrying frame
- ▶ Optional software controlled pump with digital display and digital gauge available



Model number	Power supply	Pressure gauge	Gauge reading *	Flow rate (gallons/min)			Oil capacity (gallons)	Max. oil temp (°C)	Weight incl. oil (lbs)	Dimensions (in)		
				1 st stage (0-943 psi)	2 nd stage (943-4,713 psi)	3 rd stage (4,713-10000 psi)				A	B	C
TPE15A	110V-1Ph-50 Hz	analog	psi/bar	6.5	1.5	0.75	1.85	80°	86.0	17.97	11.27	18.75
TPE15D	110V-1Ph-50 Hz	digital	psi/bar/Nm/lbf.ft	6.5	1.5	0.75	1.85	80°	86.0	17.97	11.27	18.75
TPE16A	120V-1Ph-60 Hz	analog	psi/bar	7.8	1.8	0.90	1.85	80°	86.0	17.97	11.27	18.75
TPE16D	120V-1Ph-60 Hz	digital	psi/bar/Nm/lbf.ft	7.8	1.8	0.90	1.85	80°	86.0	17.97	11.27	18.75
TPE25A	230V-1Ph-50 Hz	analog	psi/bar	6.5	1.5	0.75	1.85	80°	86.0	17.97	11.27	18.75
TPE25D	230V-1Ph-50 Hz	digital	psi/bar/Nm/lbf.ft	6.5	1.5	0.75	1.85	80°	86.0	17.97	11.27	18.75
TPE26A	230V-1Ph-60 Hz	analog	psi/bar	7.8	1.8	0.90	1.85	80°	86.0	17.97	11.27	18.75
TPE26D	230V-1Ph-60 Hz	digital	psi/bar/Nm/lbf.ft	7.8	1.8	0.90	1.85	80°	86.0	17.97	11.27	18.75
TPE45A	400V-3Ph-50 Hz	analog	psi/bar	6.5	1.5	0.75	1.85	80°	86.0	17.97	11.27	18.75
TPE45D	400V-3Ph-50 Hz	digital	psi/bar/Nm/lbf.ft	6.5	1.5	0.75	1.85	80°	86.0	17.97	11.27	18.75
TPE46A	480V-3Ph-60 Hz	analog	psi/bar	7.8	1.8	0.90	1.85	80°	86.0	17.97	11.27	18.75
TPE46D	480V-3Ph-60 Hz	digital	psi/bar/Nm/lbf.ft	7.8	1.8	0.90	1.85	80°	86.0	17.97	11.27	18.75

*Torque value reading only available on optional software controlled, programmable pump unit

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

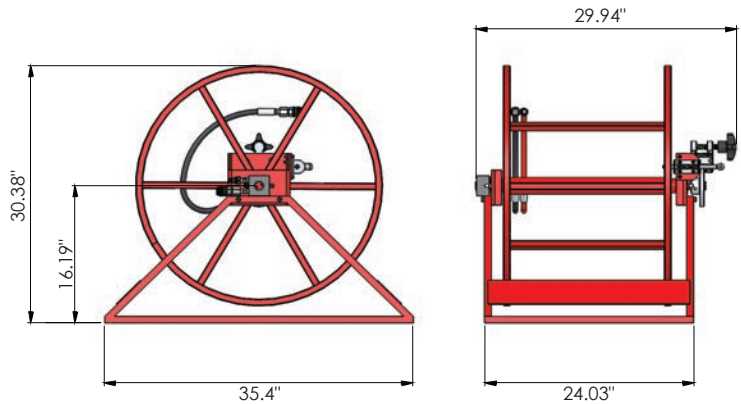
- ▶ High quality hydraulic torque wrench bonded twin hose sets
- ▶ Maximum working pressure of 10000 psi with 4:1 safety factor
- ▶ Ergonomically designed protective, strain reliever hand grips on both ends

Model number	Description	Weight (lbs)
HTWH4	Bonded twin hoses with quick connect couplers, length 13.2 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 33 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	46.6
HTWH100	Bonded twin hoses with quick connect couplers, length 330 ft	61.7
CF4F	Female half coupler, 1/4" NPT Female	102.7
CM4F	Male half coupler, 1/4" NPT Female	136.0
HTWM4	Multi-split block complete with quick connect couplers for use with 4 hydraulic wrenches	24.7

Note: HTWM4 only suitable for use with HTWP Series pumps, see page 99.

HTWR1 Torque Wrench Hose Reel:

- ▶ Accommodates twin line hoses up to 330 feet long
- ▶ Supplied with twin 1.68 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.

IW | PNEUMATIC IMPACT WRENCHES

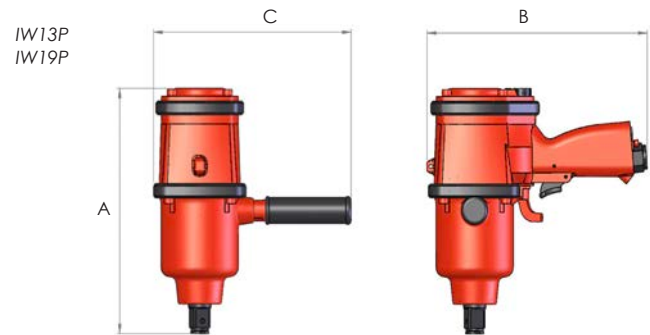


- ▶ Industrial impact wrenches offering torque capacities from 65 to 2370 lbf.ft
- ▶ Available with pistol grip or back handle grip
- ▶ Quiet operation and minimal vibration for reduced operator fatigue
- ▶ Compact design with excellent power to weight ratio
- ▶ Incorporates four position power output device
- ▶ High quality torque wrench sockets for use with IW range are listed on pages 88 and 89
- ▶ Filter, regulator & lubricator unit is recommended for use with IW impact wrenches (see page 104)

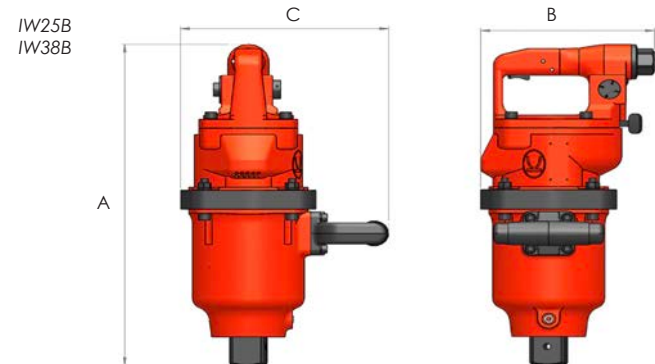
Industrial heavy duty design

Square drive sizes from ½" to 1½"

Operates from standard 90 psi air pressure



Note: Model IW13P does not have a side handle fitted



Model number	Square drive size	Bolt capacity		Free speed		Maximum torque		Recommended torque		Air consumption		Weight (lbs)	Dimensions (in)		
		inch	mm	R.P.M.	I.P.M	lbf.ft	Nm	lbf.ft	Nm	cfm	m³/min		A	B	C
Pistol grip versions															
IW13P	½"	⅝"	16	6300	1200	300	450	65-260	90-350	12.5	0.35	6.2	7.8	8.75	3.07
IW19P	¾"	⅞"	22	3800	1100	640	870	185-590	250-800	21.4	0.60	13.7	9.93	9.65	8.67
Back handle grip versions															
IW25B	1"	1¾"	45	3700	700	1980	2700	740-1772	1000-2450	26.7	0.75	23.6	14.11	7.64	8.31
IW38B	1½"	2"	50	3000	600	2600	3500	740-2370	1000-3200	29.2	0.82	35.3	16.11	7.45	8.94

Note: Performance figures are at 90 psi (0.62 MPa (PE)) air pressure

FRL 11 | FILTER REGULATOR LUBRICATOR UNIT



Protective carrying frame

Complete with air inlet hose

Air pressure gauge fitted as standard

- ▶ Suitable for use with air operated tools and air driven pumps
- ▶ Allows for easy adjustment of air pressure to suit tool requirements
- ▶ Prevents entry of contaminants and water into the air supply
- ▶ Lubricates air motor to ensure smooth operation
- ▶ 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)	Length	Dimensions (in) Width	Height
FRL11	½" NPT	½" NPT	6.6	7.88	7.88	12.21

BOLTRIGHT PRO



Online access compatible with all operating systems

Suitable for an extensive range of bolt torque calculation requirements

BOLTRIGHTPRO Hi-Force's answer to joint integrity

BOLTRIGHT PRO is an innovative, bolted joint integrity software program, designed to assist engineers, with the provision of accurate bolt load calculations, based on key input data, related to each specific bolted joint. BOLTRIGHT PRO has been primarily designed for use in the Oil & Gas industry, where the safe movement of hydrocarbons in a leak free environment is absolutely critical, however it can also assist in many other industries, where bolted joints are present.

The user enters all available data about the joint including flange size, material and rating, gasket type, bolt size and material grade, lubricant type and operating temperature. BOLTRIGHT PRO will analyze this data and produce a comprehensive calculation, of the required torque to be applied to all of the flange joint bolts to achieve a leak free joint, first time every time! Additionally, BOLTRIGHT PRO will produce a clear and easy to follow bolt tightening procedure, which will include the correct tool selection, from within Hi-Force's extensive range of bolting tools, along with the correct sequence of applying the loads, onto the respective flange joint bolts, including the applicable pump hydraulic pressure settings, for each stage of the bolt tightening process.

The methodology of the BOLTRIGHT PRO software calculations is fully traceable to industry standards, ensuring that the latest best practice procedures are followed at all times. As part of the software joint integrity review process, BOLTRIGHT PRO will also display all of the relevant combined stresses within the joint, once the bolt tightening is completed. This includes not only bolt stress but also gasket and flange stress, to ensure all of the stresses within the joint are within acceptable levels. The flexibility of the BOLTRIGHT PRO software enables the user to change any of the input data in order that optimum integrity can be achieved within each and every joint. As an example a change of bolt material and lubricant type can and will affect the BOLTRIGHT PRO software calculations and bolt tightening procedures.

ASME B16.5 Raised Face Weld Neck Flange

Tightening Specification - ASSETS

Bolt Load and Procedure

Assembly

Applied

Bolt Stress Lbs/in²

50000

Bolt Load kN

207

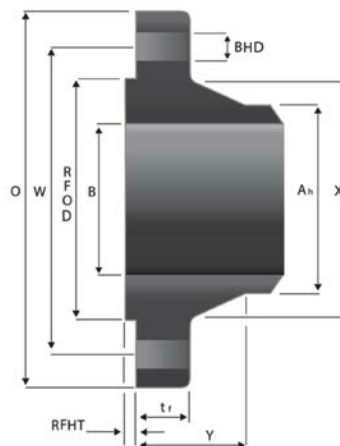
Bolt Yield %

48

Tool Selection

Hi-Force TWH54N [Change](#)

	Pass 1 30%	Pass 2 60%	Pass 3 100%	Check Pass	
Torque	213	426	710	710	ft-lbs
TWH54N	540	1070	1790	1790	Lbs/in²



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, special design tensioners made to exacting customer specifications, 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.

Additionally on page 123, you will find details on Hi-Force innovative and world leading BOLTRIGHT PRO joint integrity calculation software.





BOLT TENSIONERS

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SBT | SPRING RETURN BOLT TENSIONERS - IMPERIAL

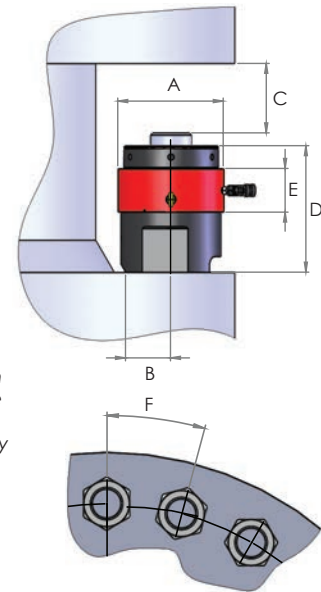


Capacities from 51 to 298 tons

Bolt sizes from 1 1/4" 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



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 (in ²)	Stroke (in)	Weight (lbs)	Dimensions (in)					
								A	B	C (min)	D	E	F
SBT2-125B1	1 1/4"	8	51.4	457	4.73	0.59	8.8	4.02	1.54	5	6.46	3.59	2.92
SBT2-137B1	1 3/8"	8	51.4	457	4.73	0.59	8.8	4.02	1.54	5	6.46	3.59	3.03
SBT2-150B1	1 1/2"	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 5/8"	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 3/4"	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 3/4"	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 7/8"	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 7/8"	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 7/8"	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 1/4"	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 1/2"	8	142.1	1264	13.07	0.59	26.9	6.58	2.44	5.71	8.39	3.82	5
SBT5-250B1	2 1/2"	8	206	1833	18.94	0.59	36.4	8.23	2.88	6.38	9.02	4.02	5.28
SBT5-275B1	2 3/4"	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 1/4"	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 1/2"	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 3/4"	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

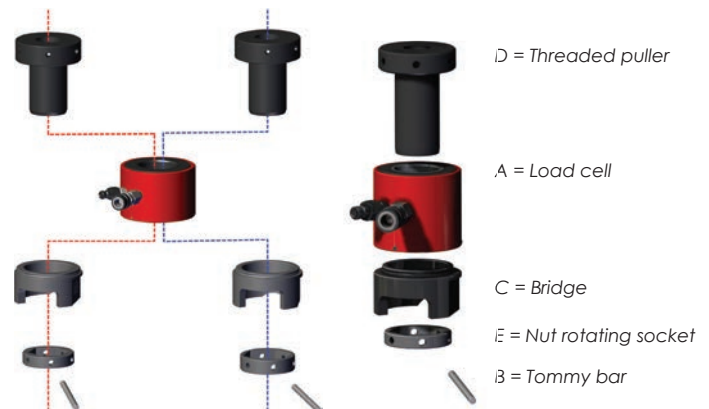
Versatile cost effective option

- 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					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							
SBT2-125B1	1¼"	SBT2-LC	TTB08	STS2-B1	TPS2-125B1	RS2-51B1	CKS2-125B1
SBT2-137B1	1⅜"				TPS2-137B1	RS2-56B1	CKS2-137B1
SBT2-150B1	1½"				TPS2-150B1	RS2-60B1	CKS2-150B1
For tensioner range SBT3							
SBT3-162B1	1⅝"	SBT3-LC	TTB10	STS3-B1	TPS3-162B1	RS3-65B1	CKS3-162B1
SBT3-175B1	1¾"				TPS3-175B1	RS3-70B1	CKS3-175B1
SBT3-187B1	1⅞"				TPS3-187B1	RS3-75B1	CKS3-187B1
SBT3-175B2	1¾"			STS3-B2	TPS3-175B2	RS3-70B2	CKS3-175B2
SBT3-187B2	1⅞"				TPS3-187B2	RS3-75B2	CKS3-187B2
SBT3-200B2	2"				TPS3-200B2	RS3-80B2	CKS3-200B2
For tensioner range SBT4							
SBT4-187B1	1⅞"	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	2¼"			STS4-B2	TPS4-225B2	RS4-90B2	CKS4-225B2
SBT4-250B2	2½"				TPS4-250B2	RS4-98B2	CKS4-250B2
For tensioner range SBT5							
SBT5-250B1	2½"	SBT5-LC	TTB14	STS5-B1	TPS5-250B1	RS5-100B1	CKS5-250B1
SBT5-275B1	2¾"				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	3¼"				TPS6-325B1	RS6-127B1	CKS6-325B1
SBT6-350B1	3½"				TPS6-350B1	RS6-137B1	CKS6-350B1
SBT6-375B3	3¾"			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

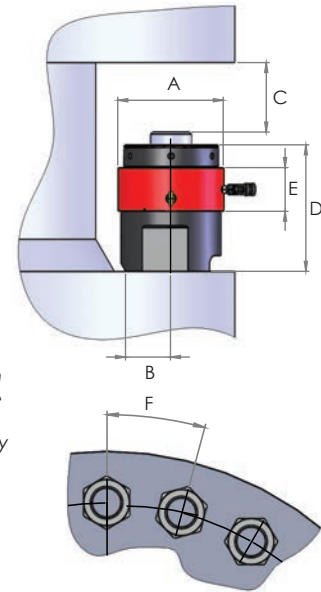


Capacities from 51 to 298 tons

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



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

Model number	Bolt thread size	Thread pitch	Capacity		Effective area (in ²)	Stroke (in)	Weight (lbs)	Dimensions (in)					
			tons	kN				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

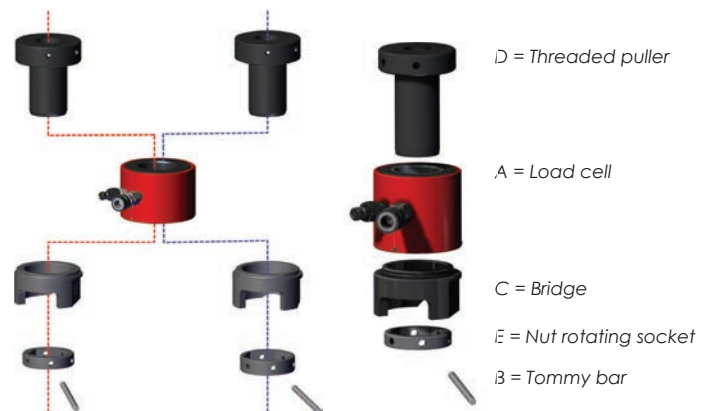
Versatile cost effective option

- 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 Complete conversion kit
Model number	Bolt thread	A Load cell	B Tommy bar	C Bridge	D Threaded puller	E Rotating socket	
For tensioner range SBT2		SBT2-LC	TTB08	STS2-B1	TPS2-M30B1	RS2-46B1	CKS2-M30B1
SBT2-M30B1	M30				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-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-LC	TTB10	STS4-B1	TPS4-M48B1	RS4-75B1	CKS4-M48B1
SBT4-M52B1	M52				TPS4-M52B1	RS4-80B1	CKS4-M52B1
SBT4-M52B2	M52				TPS4-M52B2	RS4-80B2	CKS4-M52B2
SBT4-M56B2	M56			STS4-B2	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-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-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			STS6-B3	TPS6-M90B1	RS6-130B1	CKS6-M90B1
SBT6-M95B3	M95				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

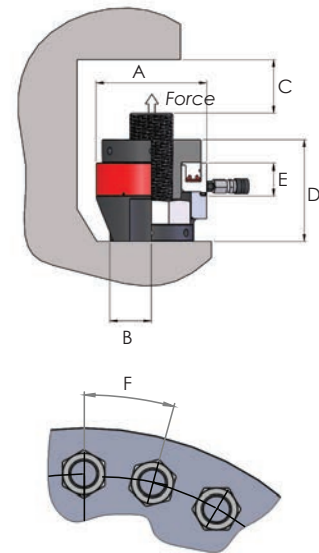


Capacities from 26 to 298 tons

Bolt sizes from 3/4" 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



Model number	Bolt thread size	Threads per inch	Capacity tons	kN	Effective area (in ²)	Stroke (in)	Weight (lbs)	Dimensions (in)					
								A	B	C (min)	D	E	F
STS1-075B1	3/4"	10	26.3	234	2.42	0.39	3.7	2.92	1.1	2.92	3.55	1.77	2.01
STS1-087B1	7/8"	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 1/8"	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 1/4"	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 3/8"	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 1/2"	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 5/8"	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 3/4"	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 3/4"	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 7/8"	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 7/8"	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 7/8"	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 1/4"	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 1/2"	8	142.1	1264	13.07	0.59	23.4	6.42	2.44	5.32	6.5	2.25	5
STS5-250B1	2 1/2"	8	206	1833	18.94	0.59	35.3	7.6	2.88	5.71	7.37	2.36	5.28
STS5-275B1	2 3/4"	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 1/4"	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 1/2"	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 3/4"	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

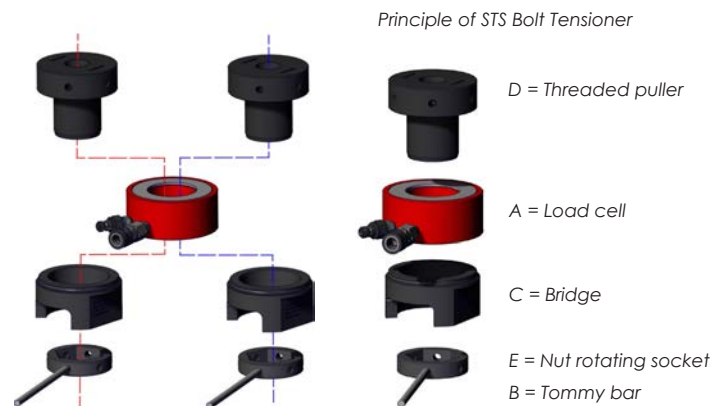
Versatile cost effective option

- 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

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.

- 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, STS2 & STS5 models have only one size of tensioner bridge (B1)

Complete tensioner		Individual components				D&E Complete conversion kit
Model number	Bolt thread	A Load cell	B Tommy bar	C Bridge	D Threaded puller	E Rotating socket
For tensioner range STS1						
STS1-075B1	¾"	STS1-LC	TTB06	STS1-B1	TP1-075B1	RS1-32B1
STS1-087B1	⅞"				TP1-087B1	RS1-37B1
STS1-100B2	1"			STS1-B2	TP1-100B2	RS1-41B2
STS1-112B2	1⅛"				TP1-112B2	RS1-46B2
For tensioner range STS2						
STS2-125B1	1¼"	STS2-LC	TTB08	STS2-B1	TP2-125B1	RS2-51B1
STS2-137B1	1⅜"				TP2-137B1	RS2-56B1
STS2-150B1	1½"				TP2-150B1	RS2-60B1
For tensioner range STS3						
STS3-162B1	1⅝"	STS3-LC	TTB10	STS3-B1	TP3-162B1	RS3-65B1
STS3-175B1	1¾"				TP3-175B1	RS3-70B1
STS3-187B1	1⅞"				TP3-187B1	RS3-75B1
STS3-175B2	1¾"			STS3-B2	TP3-175B2	RS3-70B2
STS3-187B2	1⅞"				TP3-187B2	RS3-75B2
STS3-200B2	2"				TP3-200B2	RS3-80B2
For tensioner range STS4						
STS4-187B1	1⅞"	STS4-LC	TTB10	STS4-B1	TP4-187B1	RS4-75B1
STS4-200B1	2"				TP4-200B1	RS4-80B1
STS4-200B2	2"			STS4-B2	TP4-200B2	RS4-80B2
STS4-225B2	2¼"				TP4-225B2	RS4-90B2
STS4-250B2	2½"				TP4-250B2	RS4-98B2
For tensioner range STS5						
STS5-250B1	2½"	STS5-LC	TTB14	STS5-B1	TP5-250B1	RS5-100B1
STS5-275B1	2¾"				TP5-275B1	RS5-108B1
STS5-300B1	3"				TP5-300B1	RS5-118B1
For tensioner range STS6						
STS6-300B1	3"	STS6-LC	TTB14	STS6-B1	TP6-300B1	RS6-118B1
STS6-325B1	3¼"				TP6-325B1	RS6-127B1
STS6-350B1	3½"			STS6-B3	TP6-350B1	RS6-137B1
STS6-375B3	3¾"				TP6-375B3	RS6-146B3
STS6-400B3	4"				TP6-400B3	RS6-156B3

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

STS | TOPSIDE BOLT TENSIONERS - METRIC

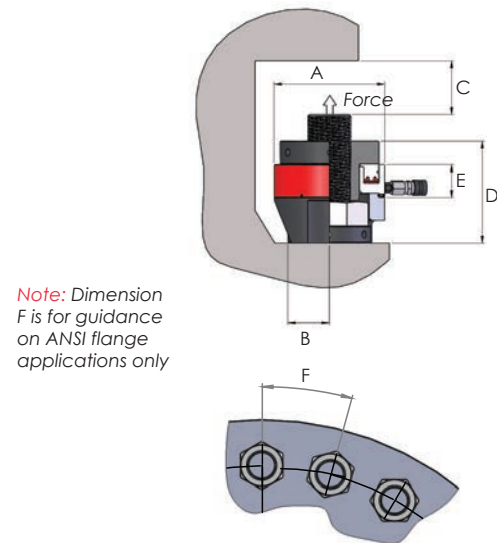


Capacities from 26 to 298 tons

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



Model number	Bolt thread size	Thread pitch	Capacity tons	kN	Effective area (in ²)	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

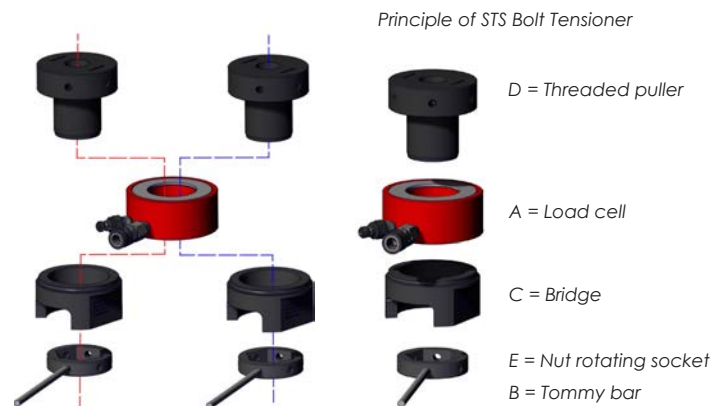
Versatile cost saving option

- 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

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



DO NOT mix components from different colour lines, STS2 & STS5 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 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			STS6-B3	TP6-M90B1	RS6-130B1	CK6-M90B1
STS6-M95B3	M95				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



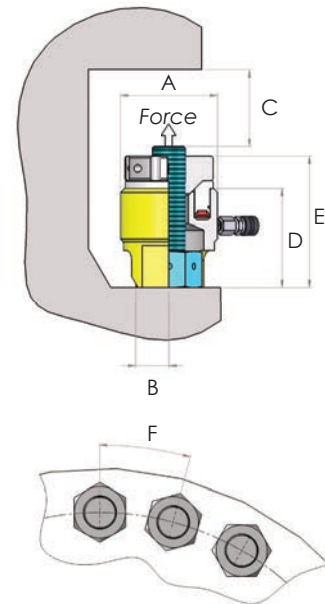
- ▶ Single acting design with manual piston retraction
- ▶ Manufactured from high grade alloy steel with added corrosion protection
- ▶ Extra-long piston stroke on all models, to save valuable diver time subsea
- ▶ Simple two piece design for easy operation by divers subsea
- ▶ Visible maximum stroke 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)

Capacities from 29 to 279 tons

Bolt sizes from 1" to 3 1/2" diameter

Maximum working pressure 21750 psi

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

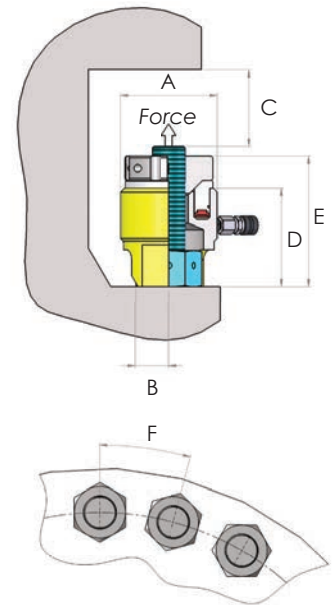


Model number	Quick Fit Pullers	Bolt thread size	Capacity tons	Capacity kN	Effective area (in²)	Stroke (in)	Weight (lbs)	Tommy bar	Dimensions (in)					
									A	B	C	D	E	F
STU1-100	QFP1-100	1"-8 UN	28.8	256.04	2.65	0.79	7.5	TTB06	3.23	0.87	4.69	4.69	5.52	2.4
STU1-112	QFP1-112	1 1/8"-8 UN	28.8	256.04	2.65	0.79	7.5	TTB06	3.23	0.87	4.69	4.69	5.52	2.52
STU2-125	QFP2-125	1 1/4"-8 UN	48.4	430.36	4.45	1.18	13.2	TTB08	4.02	1.18	5.52	5.52	6.46	2.88
STU2-137	QFP2-137	1 3/8"-8 UN	48.4	430.36	4.45	1.18	13.2	TTB08	4.02	1.18	5.52	5.52	6.46	2.96
STU3-150	QFP3-150	1 1/2"-8 UN	62.2	553.35	5.72	1.18	16.5	TTB10	4.49	1.38	5.59	5.59	6.66	3.23
STU3-162	QFP3-162	1 5/8"-8 UN	62.2	553.35	5.72	1.18	16.5	TTB10	4.49	1.38	5.59	5.59	6.66	3.35
STU4-175	QFP4-175	1 3/4"-8 UN	85	756.30	7.82	1.18	21.6	TTB10	5.04	1.62	5.95	5.95	7.13	3.7
STU4-187	QFP4-187	1 7/8"-8 UN	85	756.30	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	1168.19	12.07	1.18	32.0	TTB12	5.91	1.89	6.46	6.46	7.96	4.41
STU5-225	QFP5-225	2 1/4"-8 UN	131.3	1168.19	12.07	1.18	32.0	TTB12	5.91	1.89	6.46	6.46	7.96	4.57
STU6-250	QFP6-250	2 1/2"-8 UN	185.3	1649.12	17.04	1.18	50.3	TTB14	6.93	2.36	7.21	7.21	9.1	5.36
STU6-275	QFP6-275	2 3/4"-8 UN	185.3	1649.12	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	2483.44	25.66	1.18	78.5	TTB16	8.47	3.51	8.47	8.47	10.24	6.38
STU7-325	QFP7-325	3 1/4"-8 UN	279	2483.44	25.66	1.18	78.5	TTB16	8.47	3.51	8.47	8.47	10.24	6.82
STU7-350	QFP7-350	3 1/2"-8 UN	279	2483.44	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


- ▶ 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 multiple bolt sizes, for each STU model, are available as accessories for even greater versatility (see table below)

Capacities from 29 to 279 tons
Bolt sizes from M24 to M90 diameter
Maximum working pressure 21750 psi


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 (in ²)	Stroke (in)	Weight (lbs)	Tommy bar	Dimensions (in)					
									A	B	C	D	E	F
STU1-24	QFP1-24	M24x3	28.8	256.04	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	256.04	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	430.36	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	430.36	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	430.36	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	553.35	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	553.35	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	756.30	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	756.30	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	1168.19	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	1168.19	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	1649.12	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	1649.12	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	1649.12	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	1649.12	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	2483.44	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	2483.44	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	2483.44	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	2483.44	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

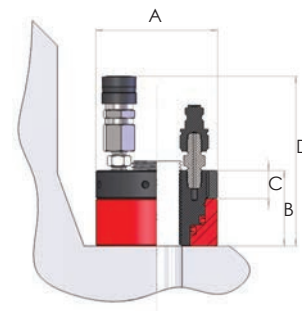


Capacities from 22 to 215 tons

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



Model number	Bolt size	Capacity		Effective area (in ²)	Stroke (in)	Weight (lbs)	Tommy bar	Dimensions (in)			
		tons	kN					A	B	C	D
HTN1-100	1"-8 UN	22.3	198.27	2.05	0.2	4.2	TTB06	2.84	2.17	0.71	5.2
HTN2-112	1½"-8 UN	24.3	216.30	2.24	0.2	4.4	TTB06	2.96	2.17	0.71	5.2
HTN3-125	1¼"-8 UN	28.4	252.94	2.61	0.2	5.3	TTB06	3.23	2.25	0.83	5.28
HTN4-137	1¾"-8 UN	34.4	305.83	3.16	0.2	6.0	TTB06	3.47	2.25	0.87	5.32
HTN5-150	1½"-8 UN	38.7	344.12	3.56	0.24	6.4	TTB06	3.66	2.29	0.83	5.32
HTN6-162	1¾"-8 UN	44.7	397.61	4.11	0.24	7.7	TTB06	3.94	2.44	0.91	5.59
HTN7-175	1¾"-8 UN	53.4	475.01	4.91	0.24	8.8	TTB06	4.18	2.52	0.95	5.56
HTN8-187	1¾"-8 UN	56.3	501.40	5.18	0.24	9.3	TTB06	4.33	2.52	0.99	5.59
HTN9-200	2"-8 UN	63.3	563.72	5.82	0.24	10.8	TTB06	4.61	2.64	1.26	5.71
HTN10-225	2¼"-8 UN	83.9	746.44	7.71	0.32	14.1	TTB06	5.04	2.92	1.1	5.99
HTN11-250	2½"-8 UN	101.7	905.13	9.35	0.32	17.6	TTB06	5.56	3.03	1.14	6.11
HTN12-275	2¾"-8 UN	112.3	999.85	10.33	0.32	19.4	TTB08	5.91	3.07	1.18	6.15
HTN13-300	3"-8 UN	135.2	1203.43	12.44	0.32	23.4	TTB08	6.38	3.19	1.22	6.26
HTN14-325	3¼"-8 UN	158.9	1413.72	14.61	0.39	28.4	TTB08	6.86	3.43	1.38	6.5
HTN15-350	3½"-8 UN	180.3	1605.04	16.59	0.39	35.7	TTB10	7.37	3.74	1.46	6.82
HTN16-375	3¾"-8 UN	191.5	1704.59	17.61	0.39	40.3	TTB10	7.64	4.02	1.54	7.05
HTN17-400	4"-8 UN	214.8	1911.46	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

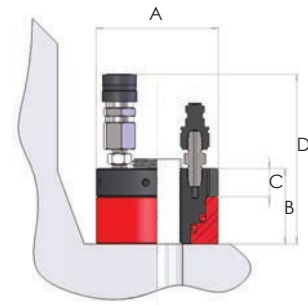


Capacities from 22 to 215 tons

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



Model number	Bolt size	Capacity		Effective area (in²)	Stroke (in)	Weight (lbs)	Tommy bar	Dimensions (in)			
		tons	kN					A	B	C	D
HTN1-M24	M24x3	22.3	198.27	2.05	0.2	4.2	TTB06	2.84	2.17	0.71	5.2
HTN2-M27	M27x3	24.3	216.30	2.24	0.2	4.4	TTB06	2.96	2.17	0.71	5.2
HTN3-M30	M30x3.5	28.4	252.94	2.61	0.2	5.3	TTB06	3.23	2.25	0.83	5.28
HTN3-M33	M33x3.5	28.4	252.94	2.61	0.2	5.3	TTB06	3.23	2.25	0.83	5.28
HTN4-M36	M36x4	34.4	305.83	3.16	0.2	6.0	TTB06	3.47	2.25	0.87	5.32
HTN5-M39	M39x4	38.7	344.12	3.56	0.24	6.4	TTB06	3.66	2.29	0.83	5.32
HTN6-M42	M42x4.5	44.7	397.61	4.11	0.24	7.7	TTB06	3.94	2.44	0.91	5.59
HTN7-M45	M45x4.5	53.4	475.01	4.91	0.24	8.8	TTB06	4.18	2.52	0.95	5.56
HTN8-M48	M48x5	56.3	501.40	5.18	0.24	9.3	TTB06	4.33	2.52	0.99	5.59
HTN9-M52	M52x5	63.3	563.72	5.82	0.24	10.8	TTB06	4.61	2.64	1.26	5.71
HTN10-M56	M56x5.5	83.9	746.44	7.71	0.32	14.1	TTB06	5.04	2.92	1.1	5.99
HTN11-M60	M60x5.5	101.7	905.13	9.35	0.32	17.6	TTB06	5.56	3.03	1.14	6.11
HTN11-M64	M64x6	101.7	905.13	9.35	0.32	17.6	TTB06	5.56	3.03	1.14	6.11
HTN12-M68	M68x6	112.3	999.85	10.33	0.32	19.4	TTB08	5.91	3.07	1.18	6.15
HTN13-M72	M72x6	135.2	1203.43	12.44	0.32	23.4	TTB08	6.38	3.19	1.22	6.26
HTN13-M76	M76x6	135.2	1203.43	12.44	0.32	23.4	TTB08	6.38	3.19	1.22	6.26
HTN14-M80	M80x6	158.9	1413.72	14.61	0.39	28.4	TTB08	6.86	3.43	1.38	6.5
HTN15-M85	M85x6	180.3	1605.04	16.59	0.39	35.7	TTB10	187	95	37	173
HTN15-M90	M90x6	180.3	1605.04	16.59	0.39	35.7	TTB10	187	95	37	173
HTN16-M95	M95x6	191.5	1704.59	17.61	0.39	40.3	TTB10	194	102	39	179
HTN17-M100	M100x6	214.8	1911.46	19.75	0.39	48.3	TTB10	205	110	41	188

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

STS | CUSTOMIZED & SPECIAL DESIGN BOLT TENSIONERS



Custom design and built to customer requirements

Short delivery lead time due to in-house manufacture

Working pressure up to 33000 psi

Hi-Force offers customized and special design hydraulic bolt tensioners that can include:

- ▶ Fitment on non-standard size and shape nuts requiring special design bridge
- ▶ Applications where retaining nuts are recessed requiring special nut rotating sockets
- ▶ Stud bolts with two different thread diameters and specifications
- ▶ Larger diameter bolts above the 4" (M100) size covered in the standard range
- ▶ Applications with restricted amount of space available
- ▶ Special bridges requiring increased load bearing surface area



BOLT TENSIONER PUMPS



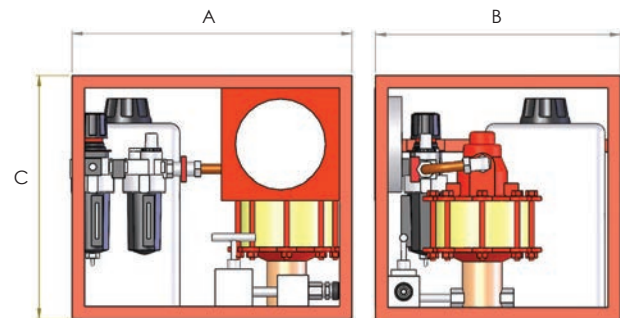
AHP-BTU

- ▶ 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

Ultra-high performance

Air or manually operated

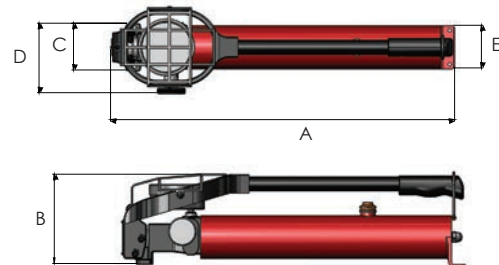
Working pressure 21750 psi



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
- ▶ Compact, lightweight aluminum construction
- ▶ Fitted with external pressure release valve and factory set safety valve
- ▶ Bespoke handle with ergonomic grip and mesh guard to protect gauge from accidental damage



Model number	Usable oil capacity (in³)	Displacement per stroke (in³)		Outlet coupler	Weight (lbs)	Dimensions (in)				
		1 st stage	2 nd stage			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	1/8" x 1/4" BSP nipple for current model STS1 only	0.9
STN1P4	1/4" BSP nipple c/w bonded sealing washer (old design - not for STS1)	1.1
STN1P4-C	1/4" BSP nipple with cone seat seal (current design - not for STS1)	1.5

BOLTRIGHT PRO



Online access compatible with all operating systems

Suitable for an extensive range of bolt tension calculation requirements

BOLTRIGHT PRO

Hi-Force's answer to joint integrity

BOLTRIGHT PRO is an innovative, bolted joint integrity software program, designed to assist engineers, with the provision of accurate bolt load calculations, based on key input data, related to each specific bolted joint. BOLTRIGHT PRO has been primarily designed for use in the Oil & Gas industry, where the safe movement of hydrocarbons in a leak free environment is absolutely critical, however it can also assist in many other industries, where bolted joints are present.

The user enters all available data about the joint including flange size, material and rating, gasket type, bolt size and material grade, lubricant type and operating temperature. BOLTRIGHT PRO will analyze this data and produce a comprehensive calculation, of the required tension to be applied to all of the flange joint bolts to achieve a leak free joint, first time every time! Additionally, BOLTRIGHT PRO will produce a clear and easy to follow bolt tightening procedure, which will include the correct tool selection, from within Hi-Force's extensive range of bolting tools, along with the correct sequence of applying the loads, onto the respective flange joint bolts, including the applicable pump hydraulic pressure settings, for each stage of the bolt tightening process.

The methodology of the BOLTRIGHT PRO software calculations is fully traceable to industry standards, ensuring that the latest best practice procedures are followed at all times. As part of the software joint integrity review process, BOLTRIGHT PRO will also display all of the relevant combined stresses within the joint, once the bolt tightening is completed. This includes not only bolt stress but also gasket and flange stress, to ensure all of the stresses within the joint are within acceptable levels. The flexibility of the BOLTRIGHT PRO software enables the user to change any of the input data in order that optimum integrity can be achieved within each and every joint. As an example a change of bolt and gasket material can and will affect the BOLTRIGHT PRO software calculations and bolt tightening procedures.

ASME B16.5 Raised Face Weld Neck Flange

Tightening Specification

Bolt Load and Procedure

Assembly

Applied

Bolt Stress Lbs/in²

50000

Bolt Load kN

207

Bolt Yield %

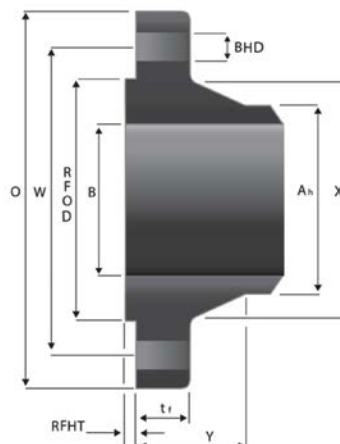
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Tool Selection

Hi-Force STS2 125B1

Change

	Pass 1	Pass 2	Pass3	4th /Check/Breakloose Pass	
Tension	391	339	312	260	kN
125B1	18580	16100	14860	12380	Lbs/in²
Torque Equiv. Check Pass				710	ft-lbs



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 $1\frac{1}{16}$ " to $5\frac{3}{8}$ " 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	126
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Single acting nut splitters

HMNS RANGE	127
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Self-contained nut splitters

DNS RANGE	128
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Double acting nut splitters

HFS-H RANGE	129
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Hydraulic flange spreaders

HFS & HFS-TK RANGE	130
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Hydraulic flange spreader kits

MFS RANGE	131
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Mechanical flange spreaders

JS RANGE	132
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Jaw spreader

SJS & SJS-TK RANGE	133
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Stepped jaw spreaders and jaw spreader kits

NS | SINGLE ACTING NUT SPLITTERS

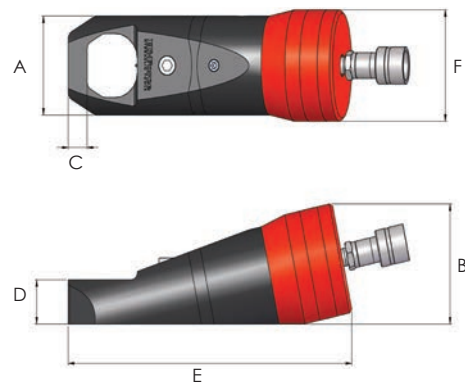


Nut AF sizes from $1\frac{1}{16}$ " to $2\frac{15}{16}$ "

Bolt sizes from $\frac{1}{2}$ " to $1\frac{7}{8}$ "

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 all 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	Hexagon AF sizes		Stud bolt thread sizes		Weight (lbs)	Dimensions (in)					
	inch	mm	imperial	metric		A	B	C	D	E	F
NS104	$1\frac{1}{16}$ " - $1\frac{1}{4}$ "	17 - 32	$\frac{1}{2}$ " - $\frac{3}{4}$ "	M10 - M22	8.8	2.52	3.03	0.49	1.18	8.27	2.64
NS110	$1\frac{1}{4}$ " - $1\frac{5}{8}$ "	32 - 41	$\frac{3}{4}$ " - 1"	M22 - M27	16.3	3.07	3.78	0.79	1.46	11.27	2.68
NS200	$1\frac{5}{8}$ " - 2"	41 - 50	1" - $1\frac{1}{4}$ "	M27 - M33	23.4	3.78	4.57	0.83	1.69	12.41	4.26
NS206	2" - $2\frac{3}{8}$ "	50 - 60	$1\frac{1}{4}$ " - $1\frac{1}{2}$ "	M33 - M39	34.8	4.53	5.44	0.95	2.05	13.24	4.96
NS215	$2\frac{3}{8}$ " - $2\frac{15}{16}$ "	60 - 75	$1\frac{1}{2}$ " - $1\frac{7}{8}$ "	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.

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

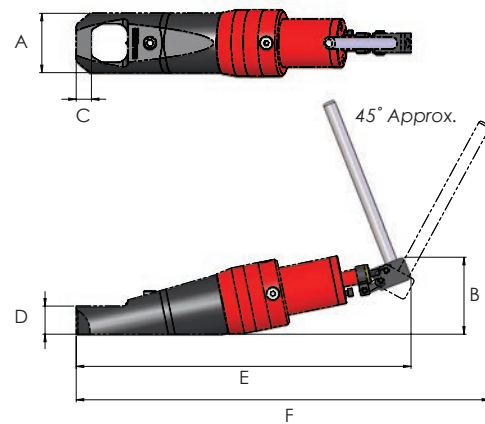


Nut AF sizes from $1\frac{1}{16}$ " to 2"

Bolt sizes from $\frac{1}{2}$ " to $1\frac{1}{4}$ "

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 all 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	Hexagon AF sizes		Stud bolt thread sizes		Weight (lbs)	Dimensions (in)					
	inch	mm	imperial	metric		A	B	C	D	E	F
HMNS104	$1\frac{1}{16}$ " - $1\frac{1}{4}$ "	17 - 32	$\frac{1}{2}$ " - $\frac{3}{4}$ "	M10 - M22	12.8	2.52	3.47	0.49	1.18	14.97	17.93
HMNS110	$1\frac{1}{4}$ " - $1\frac{5}{8}$ "	32 - 41	$\frac{3}{4}$ " - 1"	M22 - M27	17.4	3.07	3.98	0.79	1.46	17.34	21.28
HMNS200	$1\frac{5}{8}$ " - 2"	41 - 50	1" - $1\frac{1}{4}$ "	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.

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

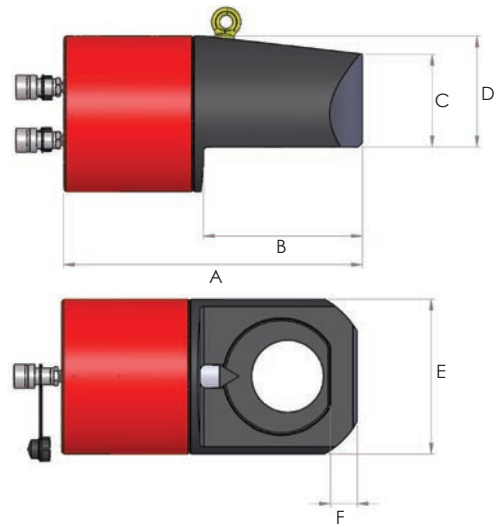


- ▶ Double acting hydraulic piston for easy extension and retraction of the blade
- ▶ Angled body design for increased clearance on flanges and flat surfaces
- ▶ High quality steel construction
- ▶ Suitable for splitting nuts up to RC44 hardness
- ▶ Designed to fit on all API and ANSI flanges
- ▶ Steel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

Nut AF sizes from 2¹⁵/₁₆" to 5³/₈"

Bolt sizes from 1⁷/₈" to 3¹/₂"

Working pressure 10000 psi



Model number	Hexagon AF sizes		Stud bolt thread sizes		Weight (lbs)	Dimensions (in)					
	inch	mm	imperial	metric		A	B	C	D	E	F
DNS404	2 ¹⁵ / ₁₆ " - 4 ¹ / ₄ "	75 - 105	1 ⁷ / ₈ " - 2 ³ / ₄ "	M48 - M72	110.2	14.95	7.56	3.92	5.14	7.21	1.34
DNS506	4 ¹ / ₄ " - 5 ³ / ₈ "	105 - 136	2 ³ / ₄ " - 3 ¹ / ₂ "	M72 - M95	211.6	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.

Replacement blades for DNS nut splitters

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

HFS-H | HYDRAULIC FLANGE SPREADERS

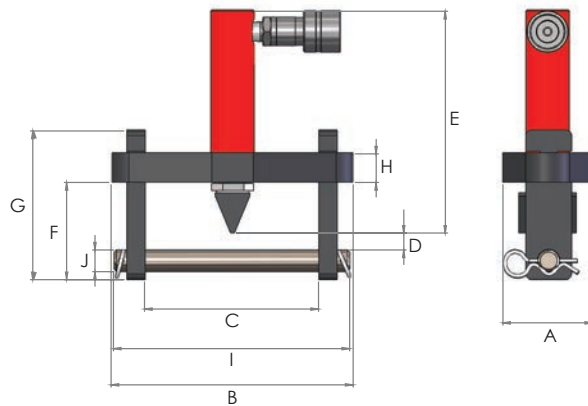


Capacities from 5 to 11 tons

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 2¼" thick
- ▶ Suitable for fitment on flanges with maximum bolt size of 1½" (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 (in³)	Maximum flange thickness (in)	Stud size (in)	Standard wedge (in)	Weight (lbs)
HFS50H	5	2.96	2.93	2 x 2¼"	¾" - 1½"	⅛" - 1⅛"	11.0
HFS100H	11	2.21	4.94	2 x 3⅝"	1¼" - 1⅝"	⅛" - 1⅛"	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

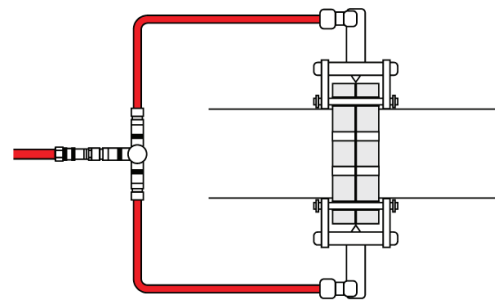
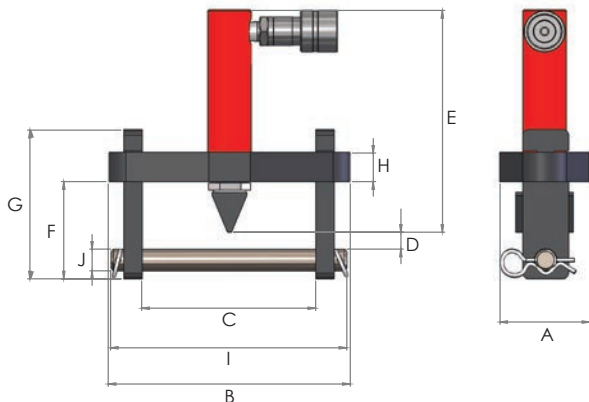


Capacities from 5 to 11 tons per spreader

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 1/8" (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

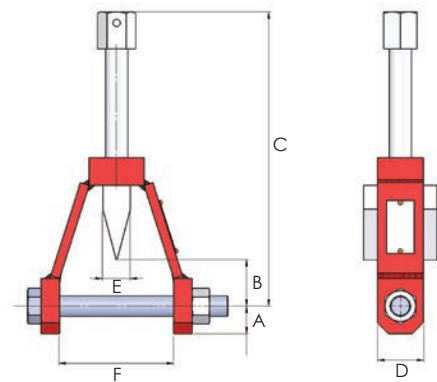


Suitable for bolt diameters up to 1 1/4"

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 3/4" 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	1 1/16"	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	1 3/16"	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	1 5/16"	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 1/16"	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

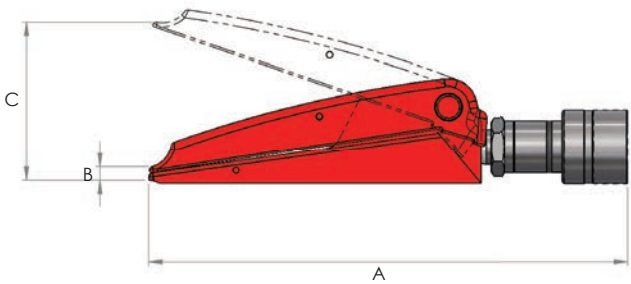


Capacity 1 ton

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

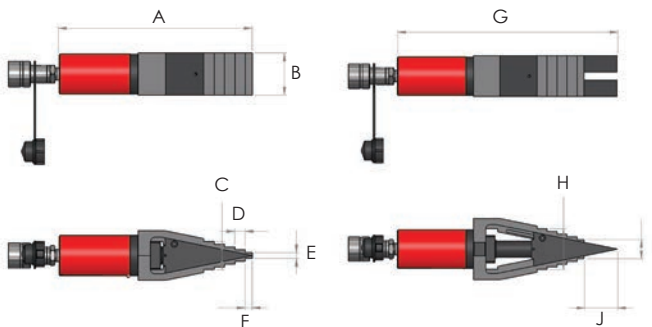


Capacity 14 tons per spreader unit

Maximum spread 2.36 inches

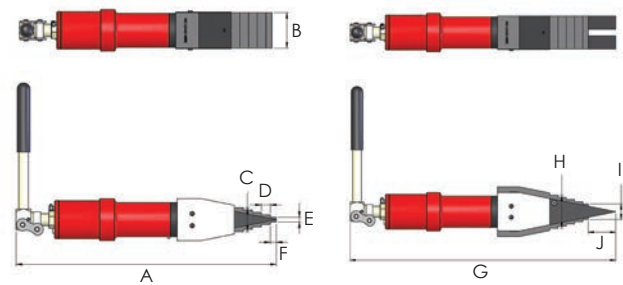
Supplied with safety block & stepped blocks

- ▶ 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 (in³)	Weight (lbs)
SJS10	14.3	1.97	0.32	2.36	4.51	12.1
SJS10-M	14.3	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

MHP RANGE 136

Manually operated hydrotest pumps

MHP-PU RANGE 137

Manually operated hydrotest pump units

AHP RANGE 138

Air driven hydrotest pumps - Standard flow

AHP-CR RANGE 139

Air driven hydrotest pumps - Standard flow with chart recorder

AHP2 RANGE 140

Air driven hydrotest pumps - Medium flow

AHP2-CR RANGE 141

Air driven hydrotest pumps - Medium flow with chart recorder

AHP3 RANGE 142

Air driven hydrotest pumps - High flow

ATDP RANGE 143

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

MHP | MANUALLY OPERATED HYDROTEST PUMPS

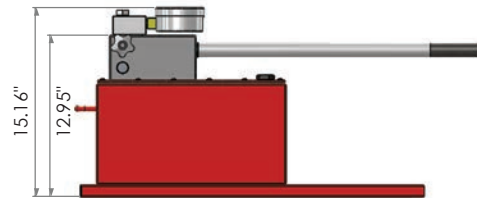
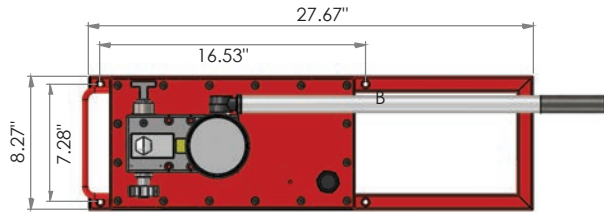


Choice of 5 models available

Maximum output pressures up to 14500 psi

Two stage displacement with manual changeover button

- ▶ 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



Model number (with reservoir)	Working pressure (psi)	Displacement per stroke (in ³)		Changeover pressure (psi)	Outlet port	Weight with reservoir (lbs)
		1 st stage	2 nd stage			
MHP100	1450	3.05	1.34	725	3/8" NPT	44.1
MHP300	4350	3.05	0.49	725	3/8" NPT	44.1
MHP500	7250	3.05	0.24	725	3/8" NPT	44.1
MHP700	10150	3.05	0.18	725	3/8" NPT	44.1
MHP1000	14500	3.05	0.12	725	3/8" BSP	44.1

ACCESSORIES

PRESSURE GAUGES



Model number	Pressure range (psi)
MHP100GK	1600
MHP300GK	4500
MHP500GK	8000
MHP700GK	10000
MHP1000GK	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	3/8" NPT Male Swivel	MHP100 & MHP300
HH3-6NMS-2	up to 10000	10	2.0	3/8" NPT Male Swivel	MHP500 & MHP700
HH3-6NMS-3	14500	10	3.3	3/8" BSP Male Swivel	MHP1000

MHP-PU | MANUALLY OPERATED HYDROTEST PUMP UNITS

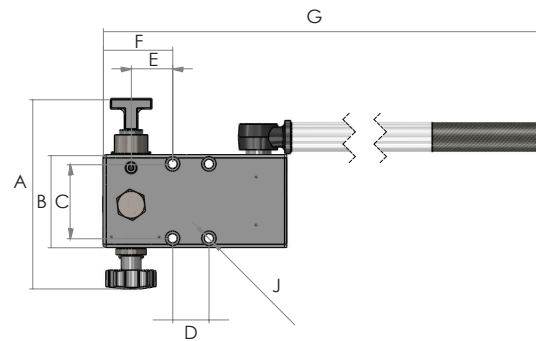
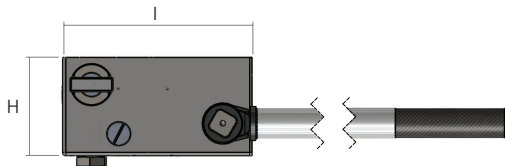


Choice of 5 models available

Maximum output pressures up to 14500 psi

Two stage displacement with manual changeover button

- ▶ Supplied as pump unit and operating lever only, reservoir not included
- ▶ Includes four bolt fixing kit with gasket for easy mounting on fluid reservoir



Model number (pump only)	Working pressure (psi)	Valve type	Displacement per stroke (in ³) 1 st stage	2 nd stage	Changeover pressure (psi)	Outlet port	Suction port	Weight (lbs)
MHP100PU	1450	2-way	3.05	1.34	725	3/8" NPT	3/8" BSP	11
MHP300PU	4350	2-way	3.05	0.49	725	3/8" NPT	3/8" BSP	11
MHP500PU	7250	2-way	3.05	0.24	725	3/8" NPT	3/8" BSP	11
MHP700PU	10150	2-way	3.05	0.18	725	3/8" NPT	3/8" BSP	11
MHP1000PU	14500	2-way	3.05	0.12	725	3/8" BSP	3/8" BSP	11

Model number	A	B	C	D	Dimensions (in)		G	H	I	J
All models	7.21	3.51	2.82	1.38	E	F	29.94	3.62	6.97	4 x M8

RESERVOIR



Model number	Description
MHR15	4 gallons standard reservoir

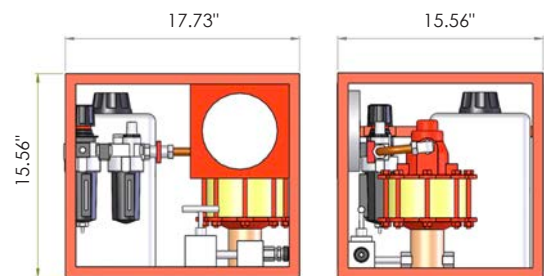
AHP | AIR DRIVEN HYDROTEST PUMPS - STANDARD FLOW


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 m³) 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 (in³)	Outlet port thread	Weight (lbs)
	10 psi 0.69 bar	50 psi 3.45 bar	100 psi 6.9 bar			
AHP10	87	493	1001	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	⅝"-18 UNF	44.1
AHP275	2248	13500	27507	0.1	⅝"-18 UNF	44.1
AHP425	5003	20996	42500	0.06	⅝"-18 UNF	44.1

Hydraulic pressure		Approximate rate of discharge (gallons/min) at air input pressure 100 psi (7 bar)							
psi	bar	AHP10	AHP26	AHP36	AHP58	AHP107	AHP187	AHP275	AHP425
0	0	6.10	2.32	1.58	0.94	0.52	0.30	0.19	0.11
500	35	3.17	1.54	1.16	0.81	0.40	0.28	0.18	0.11
1000	69	*	1.25	1.00	0.66	0.34	0.26	0.17	0.10
1500	104	*	1.03	0.88	0.63	0.33	0.24	0.16	0.10
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	0.20	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	*	*	*	*	0.20	0.16	0.11	0.07
10000	690	*	*	*	*	0.12	0.14	0.10	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

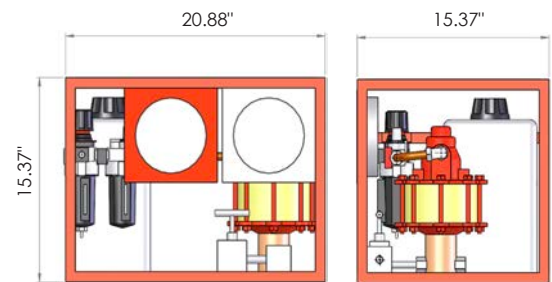
AHP-CR | AIR DRIVEN HYDROTEST PUMPS - STANDARD FLOW WITH CHART RECORDER


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 m³) 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 (in³)	Outlet port thread	Weight (lbs)
	10 psi 0.69 bar	50 psi 3.45 bar	100 psi 6.9 bar			
AHP10-CR	87	493	1001	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	¾" -18 UNF	61.7
AHP275-CR	2248	13500	27507	0.1	¾" -18 UNF	61.7
AHP425-CR	5003	20996	42500	0.06	¾" -18 UNF	61.7

PUMP ACCESSORIES

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

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	6.10	2.32	1.58	0.94	0.52	0.30	0.19	0.11
500	35	3.17	1.54	1.16	0.81	0.40	0.28	0.18	0.11
1000	69	*	1.25	1.00	0.66	0.34	0.26	0.17	0.10
1500	104	*	1.03	0.88	0.63	0.33	0.24	0.16	0.10
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	0.20	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	*	*	*	*	0.20	0.16	0.11	0.07
10000	690	*	*	*	*	0.12	0.14	0.10	0.06
15000	1034	*	*	*	*	*	0.10	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

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
AHP-C10	0 - 10000	AHP58-CR
AHP-C15	0 - 15000	AHP107-CR
AHP-C20	0 - 20000	AHP187-CR
AHP-C30	0 - 30000	AHP275-CR
AHP-C45	0 - 45000	AHP425-CR

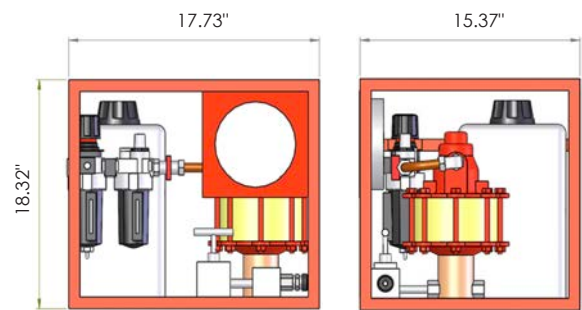
AHP2 | AIR DRIVEN HYDROTEST PUMPS - MEDIUM FLOW


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 28 scfm (0.79 m³) 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

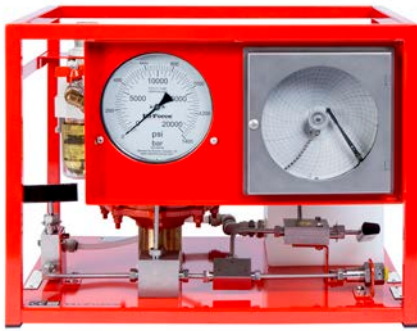


Model number	Max output pressure (psi) at airline input pressure			Fluid volume displacement per stroke (in³)	Outlet port thread	Weight (lbs)
	10 psi 0.69 bar	50 psi 3.45 bar	100 psi 6.9 bar			
AHP2-036	249	1799	3599	2.49	½" NPT	52.9
AHP2-060	450	2899	5999	1.5	½" NPT	52.9
AHP2-097	750	4749	9698	0.93	½" NPT	52.9
AHP2-144	1099	7098	14396	0.62	½" NPT	52.9
AHP2-237	1900	11597	23694	0.37	¾" - 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

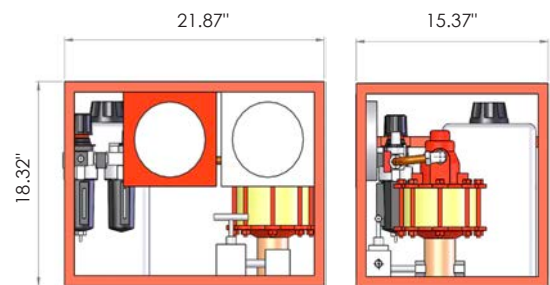


Output pressures up to 23700 psi

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 28 scfm (0.79 m³) 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 (in³)	Outlet port thread	Weight (lbs)
	10 psi 0.69 bar	50 psi 3.45 bar	100 psi 6.9 bar			
AHP2-036CR	249	1799	3599	2.49	½" NPT	70.5
AHP2-060CR	450	2899	5999	1.5	½" NPT	70.5
AHP2-097CR	750	4749	9698	0.93	½" NPT	70.5
AHP2-144CR	1099	7098	14396	0.62	½" NPT	70.5
AHP2-237CR	1900	11597	23694	0.37	⅝" -18 UNF	70.5

PUMP ACCESSORIES

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

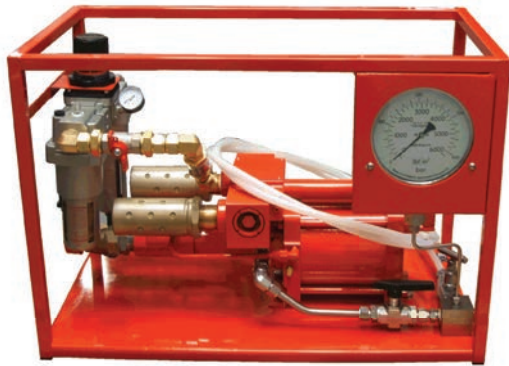
Hydraulic pressure		Approximate rate of discharge (gallons/min) at air input pressure 100 psi (7 bar)				
psi	bar	AHP2-036CR	AHP2-060CR	AHP2-097CR	AHP2-144CR	AHP2-237CR
0	0	2.69	1.64	1.03	0.71	0.41
500	35	2.27	1.45	0.94	0.66	0.40
1000	69	1.91	1.24	0.84	0.62	0.39
1500	104	1.62	1.19	0.79	0.57	0.37
2000	138	1.43	1.11	0.76	0.57	0.36
3000	207	0.81	0.92	0.67	0.50	0.34
4000	276	*	0.73	0.60	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

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

Model number	Chart reading (psi)	Suitable for hydrotest pump unit
AHP-C05	0 - 5000	AHP2-036CR
AHP-C10	0 - 10000	AHP2-060CR
AHP-C15	0 - 15000	AHP2-097CR
AHP-C20	0 - 20000	AHP2-144CR
AHP-C30	0 - 30000	AHP2-237CR

AHP3 | AIR DRIVEN HYDROTEST PUMPS - HIGH FLOW

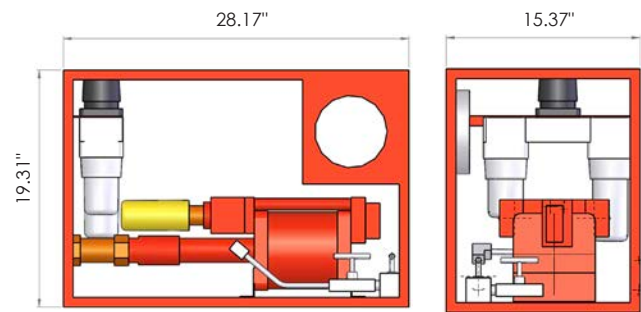


Output pressures up to 10000 psi

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 175 scfm (4.96 m³) per minute at 100 psi
- ▶ Smooth and easily operated hydraulic pressure hold and release valve
- ▶ Fluid inlet port of 1 1/4" 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 chemical duty distance piece 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)
	15 psi 1.04 bar	50 psi 3.45 bar	100 psi 6.9 bar			
AHP3-040	600	2000	3999	6	1/2" NPT	88.2
AHP3-060	900	3000	5999	3.5	1/2" NPT	88.2
AHP3-100	1499	5000	9998	2.1	1/2" NPT	88.2

Hydraulic pressure		Approximate rate of discharge (gallons/min) at air input pressure 100 psi (7 bar)			
psi	bar	AHP3-040	AHP3-060	AHP3-100	
0	0	4.84	4.13	3.16	
500	34.5	3.81	3.39	2.77	
1000	68.9	2.85	2.77	2.29	
1500	103.4	1.90	2.26	1.86	
2000	137.9	1.56	1.84	1.49	
2500	172.4	1.12	1.49	1.28	
3000	206.8	0.69	1.21	1.10	
3500	241.3	0.35	0.99	1.02	
4000	275.8	0	0.80	0.93	
4500	310.3	*	0.63	0.80	
5000	344.8	*	0.49	0.74	
5500	379.2	*	0.34	0.69	
6000	413.7	*	0.17	0.64	
6500	448.2	*	*	0.50	
7000	482.6	*	*	0.37	
7500	517.1	*	*	0.30	
8000	551.6	*	*	0.24	
8500	586.1	*	*	0.17	
9000	620.5	*	*	0.13	
9500	655.0	*	*	0.09	
10000	689.5	*	*	0.04	

* Pressure exceeds pump capacity

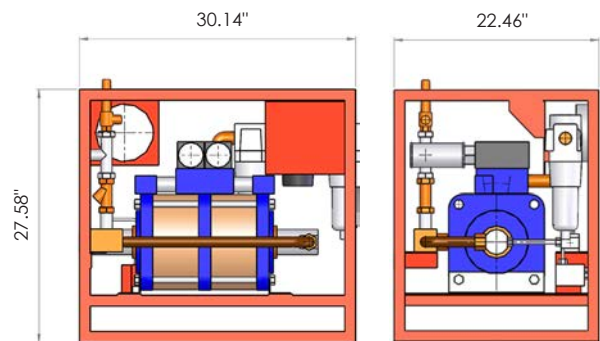
ATDP | AIR DRIVEN TWIN DOUBLE ACTING HYDROTEST PUMPS


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 m³) per minute at 100 psi
- ▶ Smooth and easily operated hydraulic pressure hold and release valve
- ▶ Fluid inlet port of 1¼" 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 chemical duty distance piece available on request



Model number	Max output pressure (psi) at airline input pressure			Fluid volume displacement per stroke (in³)	Outlet port thread	Weight (lbs)
	20 psi 1.38 bar	60 psi 4.14 bar	100 psi 6.9 bar			
ATDP63	1262	3770	6293	16.78	½" NPT	211.6
ATDP125	2494	7497	12499	8.54	½" NPT	211.6
ATDP216	4321	12963	21591	4.82	1½"-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	8.50	4.46	2.51
1000	69	6.78	3.70	2.32
2000	138	5.41	3.25	2.11
3000	207	4.28	2.80	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

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-center option, bearing pullers, bearing cup pullers and cross head pullers. The range offers pulling capacities up to 55 tons, in the manually operated versions, plus from 83 to 242 tons, powered trolley mounted, heavy duty 2 and 3-way pullers. 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	146
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Self-contained hydraulic pullers

ACP RANGE	147
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Auto-center hydraulic puller kits

PKS RANGE	148
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Hydraulic 2 and 3 way puller kits

PKC RANGE	149
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Comprehensive hydraulic puller kits

SPP RANGE	150
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Heavy duty hydraulic pullers

HBR RANGE	152
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Spring eye bush replacement tool kit

HPR RANGE	153
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Pin & bush replacement tool kits

SCP | SELF-CONTAINED HYDRAULIC PULLERS

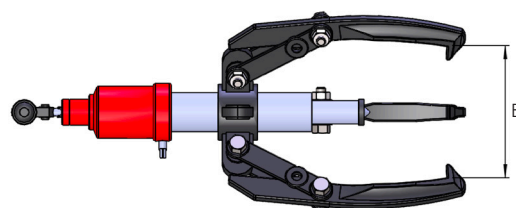
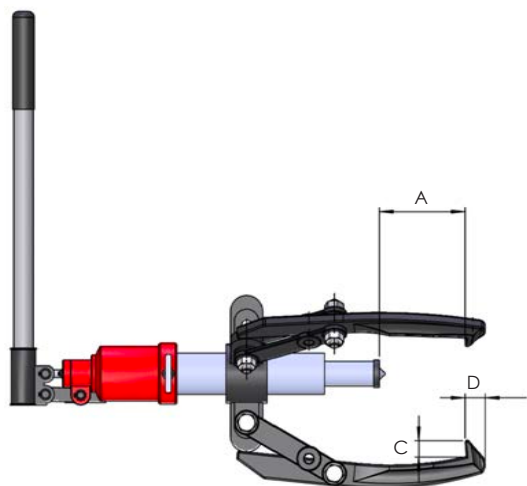


Capacities from 11 to 33 tons

Self-contained hydraulic system

Operates in any position

- ▶ Available in 3-jaw configuration only
- ▶ 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)	C	D
SCP103	11	3-way jaw	3.23	1.97	25.6	7.68	1.18	12.21	0.87	0.24
SCP203	22	3-way jaw	3.23	3.94	52.2	10.84	1.97	16.94	1.14	0.39
SCP303	33.1	3-way jaw	4.33	5.91	110.2	15.96	3.94	24.03	1.5	1.42

ACP | AUTO-CENTER HYDRAULIC PULLER KITS

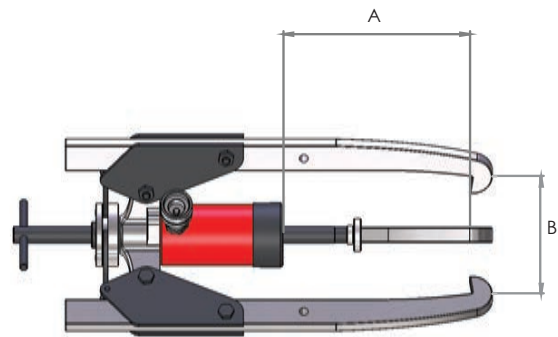


Capacities from 11 to 55 tons

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
- ▶ Detachable hydraulic system, with hollow bore cylinder, for use in other applications
- ▶ 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



Model number	Capacity (tons)	Type of puller	Cylinder model number	Pump model number	Weight (lbs)	Dimensions (in)		
						A	B (min)	B (max)
ACP10	11	2 & 3 way jaw	HHS102	HP110	54.0	11.66	1.97	13.79
ACP20	22	3-way jaw	HHS202	HP110	97.0	12.61	2.76	18.91
ACP30	33	3-way jaw	HHS302	HP110	168.7	16.04	3.55	22.85
ACP50	55	3-way jaw	HHS603	HP227	399.0	28.64	4.73	36.25

PKS | HYDRAULIC 2 & 3 WAY PULLER KITS

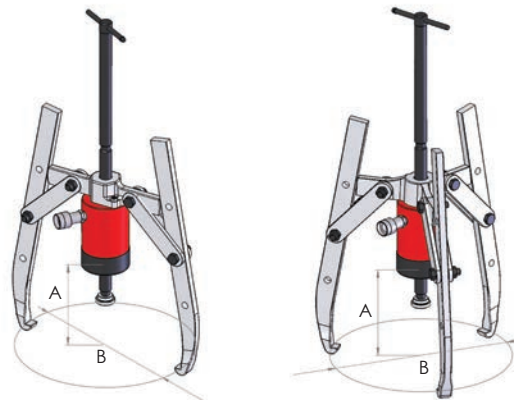


- ▶ Available in choice of 2 or 3-way puller configurations with 5 ton and 11 ton models offering a combination of both options
- ▶ Incorporates safety overload prevention valve within hydraulic pump
- ▶ Detachable hydraulic system with hollow bore cylinder for use in other applications (excluding 5 ton model which has solid piston design cylinder)
- ▶ Supplied as a complete set with all necessary hydraulic components in handy storage case

Capacities from 5 to 55 tons

Quick set-up time, easy to use

High quality, drop forged steel components



Note: Dimensions calculated with 15° outward angled puller legs.

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	HP110	45.9	11.66	1.97	13.79
PKS20-2	22	2-way jaw	HHS202	HP110	67.9	12.61	2.76	18.91
PKS20-3	22	3-way jaw	HHS202	HP110	78.7	12.61	2.76	18.91
PKS30-2	33	2-way jaw	HHS302	HP110	98.8	16.04	3.55	22.85
PKS30-3	33	3-way jaw	HHS302	HP110	119.9	16.04	3.55	22.85
PKS50-2	55	2-way jaw	HHS603	HP227	218.3	28.64	4.73	36.25
PKS50-3	55	3-way jaw	HHS603	HP227	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: PK202, PK302 & PK502 are 2-way jaw beam only for modifying applicable capacity 3-way jaw pullers to 2-way jaw operation.

PKC | COMPREHENSIVE HYDRAULIC PULLER KITS

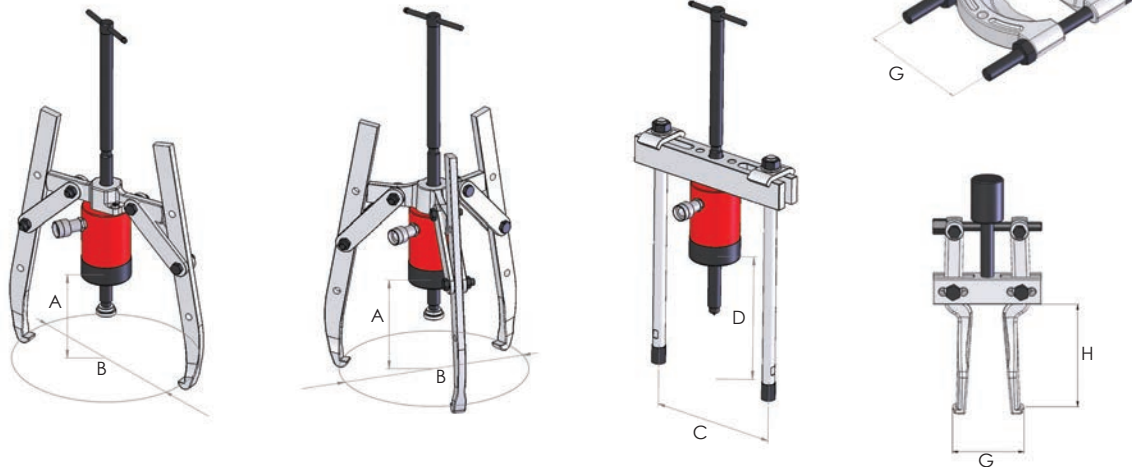


Capacities from 11 to 55 tons

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
- ▶ Incorporates safety overload prevention valve within hydraulic pump
- ▶ Detachable hydraulic system with hollow bore cylinder for use in other applications
- ▶ Supplied as a complete set with all necessary hydraulic components in handy storage case



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	HP110	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	HP110	130.7	12.61	2.76	18.91	5.32	13.59	10.44	5.99	0.43	5.28	1.58	5.71	4.53
PKC30	33.1	HHS302	HP110	257.9	16.04	3.55	22.85	7.09	17.34	11.19	10.24	0.59	9.85	2.36	9.46	5.91
PKC50	55.1	HHS603	HP227	518.1	28.64	4.73	36.25	9.06	22.85	17.61	10.24	0.67	10.05	2.36	9.46	5.91

Note: Dimensions A & B calculated with 15° outward angled puller legs

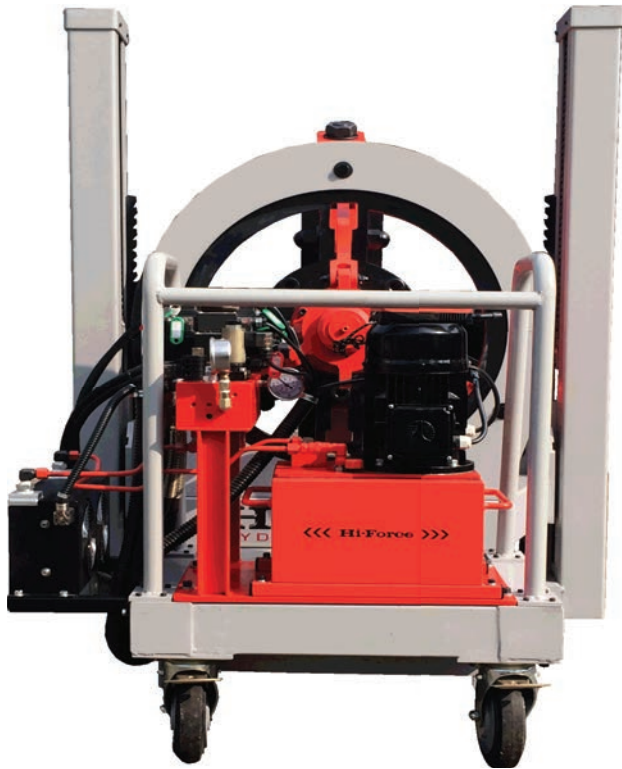
SPP | HEAVY DUTY HYDRAULIC PULLERS

Capacities from 83 to 242 tons
Wireless remote controlled operation
Power driven trolley with wheel lock function

- ▶ Combination 2-way and 3-way jaw puller
- ▶ Twin vertical support posts for increased stability & puller jaw height adjustment
- ▶ Self-centering, 180° rotating pulling jaws offer added versatility during positioning
- ▶ Anti-slip mechanism fitted to puller jaws for increased safety
- ▶ Powered by standard HEP2 series electric driven hydraulic pump

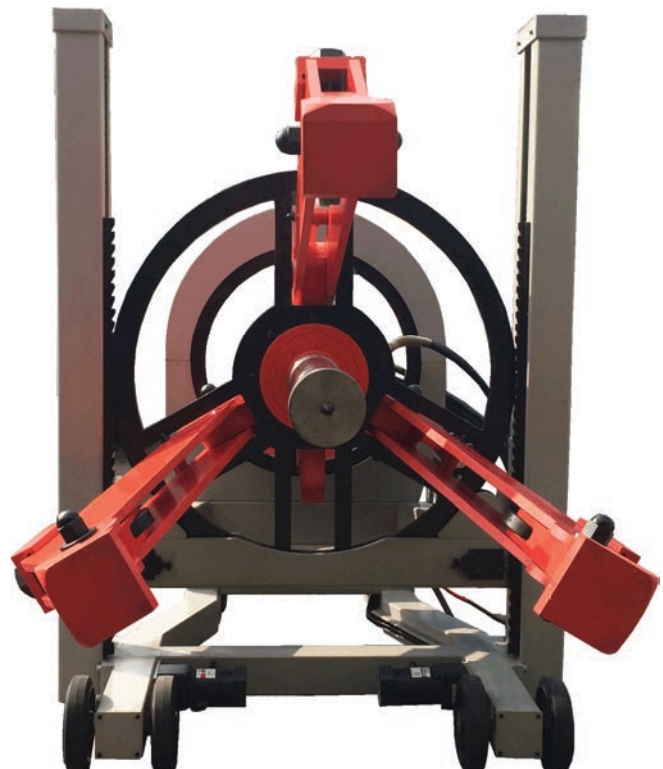
Model number	Capacity (tons)	Motor voltage	Stroke (in)	Weight (lbs)	Reach (in)		Spread (in)		Dimensions (in)			
					min	max	min	max	Length	Width	Height	
Puller with 50 Hz motor												
SPP7515	83	110/115V	6.5	1455.0	19.31	27.58	4.33	48.07	86.68	47.28	63.63	
SPP7525	83	220/240V	6.5	1455.0	19.31	27.58	4.33	48.07	86.68	47.28	63.63	
SPP7545	83	380/440V	6.5	1455.0	19.31	27.58	4.33	48.07	86.68	47.28	63.63	
SPP12015	132	110/115V	6.7	1957.7	35.46	43.34	5.91	48.07	94.95	47.28	63.43	
SPP12025	132	220/240V	6.7	1957.7	35.46	43.34	5.91	48.07	94.95	47.28	63.43	
SPP12045	132	380/440V	6.7	1957.7	35.46	43.34	5.91	48.07	94.95	47.28	63.43	
SPP22015	242	110/115V	6.7	2866.0	35.46	43.34	5.91	48.07	97.32	50.04	64.22	
SPP22025	242	220/240V	6.7	2866.0	35.46	43.34	5.91	48.07	97.32	50.04	64.22	
SPP22045	242	380/440V	6.7	2866.0	35.46	43.34	5.91	48.07	97.32	50.04	64.22	
Puller with 60 Hz motor												
SPP7516	83	110/115V	6.5	1455.0	19.31	27.58	4.33	48.07	86.68	47.28	63.63	
SPP7526	83	220/240V	6.5	1455.0	19.31	27.58	4.33	48.07	86.68	47.28	63.63	
SPP7546	83	380/440V	6.5	1455.0	19.31	27.58	4.33	48.07	86.68	47.28	63.63	
SPP12016	132	110/115V	6.7	1957.7	35.46	43.34	5.91	48.07	94.95	47.28	63.43	
SPP12026	132	220/240V	6.7	1957.7	35.46	43.34	5.91	48.07	94.95	47.28	63.43	
SPP12046	132	380/440V	6.7	1957.7	35.46	43.34	5.91	48.07	94.95	47.28	63.43	
SPP22016	242	110/115V	6.7	2866.0	35.46	43.34	5.91	48.07	97.32	50.04	64.22	
SPP22026	242	220/240V	6.7	2866.0	35.46	43.34	5.91	48.07	97.32	50.04	64.22	
SPP22046	242	380/440V	6.7	2866.0	35.46	43.34	5.91	48.07	97.32	50.04	64.22	

SPP | HEAVY DUTY HYDRAULIC PULLERS



Hydraulic system powered by HEP2 series pump

Self-centering puller jaws with anti-slip mechanism



HBR-1 | 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 lightweight 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 lightweight 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.





CRIMPERS & CUTTERS

CH RANGE 156

Cable crimping heads

SC RANGE 157

Self-contained cable crimping tools

BC RANGE 158

Battery operated cable crimping tools

BC ACCESSORIES 159

Accessories for battery operated cable crimping tools

HCH RANGE 160

Cutter heads

CT RANGE 161

Self-contained cutters

HWC RANGE 162

Hammer blow, wire rope and cable cutters

HSWC RANGE 163

Self-contained wire rope cutters

HWRC RANGE 164

Double acting wire rope cutters

HCC RANGE 165

Chain cutters

CH | CABLE CRIMPING HEADS



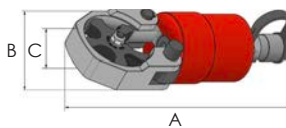
- ▶ Open 'C' jaw or parallel guide design
- ▶ 180° rotating head for easy access in confined spaces
- ▶ Fitted with quick connect coupling for easy connection to 10000 psi rated hydraulic pump
- ▶ Supplied with standard die sets and carrying case
- ▶ Suitable foot operated pump assembly detailed on page 33
- ▶ 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

Choice of 7 models available

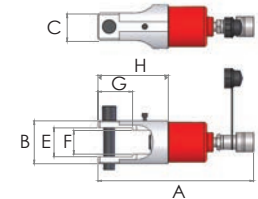
180 degree rotating head for easy fitment

Working pressure 10000 psi

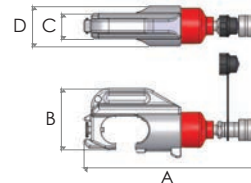
CH21



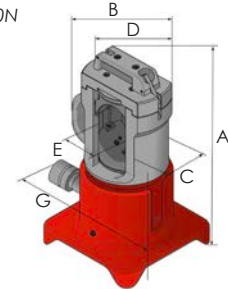
CH32/CH63



CH30/CH40/CH80



CH1000N



Crimping heads complete with die sets:

Model number	Output (tons)	C-Jaw opening	Applicable range DIN (mm ²)	Standard dies (mm ²)	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	13	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	20	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	13	1.5 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	20	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	16	1.97 in	35-630	With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400, 500, 630	11.82	15.4	14.58	4.18	2.48	2.48	-	-	-	-
CH1000N	66	not applicable	500-1000	With die 500, 630, 800, 1000	16.55	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 159 for the mm² to AWG/mcm conversions.

OPTIONAL DIE SETS

Model number	Description
CD10	Die set 10 mm ² , suitable for crimping tool CH30, CH40 & CH60
CD16	Die set 16 mm ² , suitable for crimping tool CH30, CH40 & CH60
CD25	Die set 25 mm ² , suitable for crimping tool CH30, CH40 & CH60

SC | SELF-CONTAINED CABLE CRIMPING TOOLS



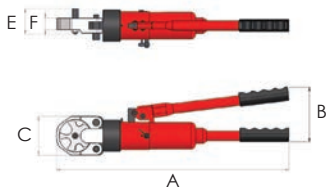
Choice of 6 models available

Supplied complete with die set

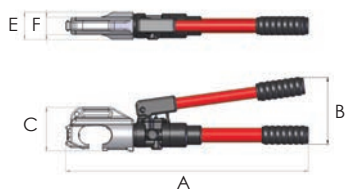
Choice of open jaw or parallel guide design

- ▶ 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

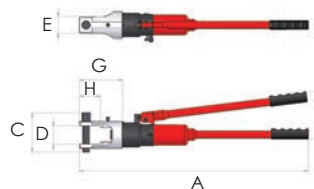
SC21



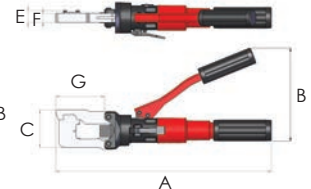
SC30, SC40



SC32, SC60



SC18X



Model number	Output (tons)	C-Jaw opening	Applicable range DIN (mm ²)	Standard dies (mm ²)	Length (in)	Weight (lbs)	Dimensions (in)							
							A	B	C	D	E	F	G	H
SC18X	7	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	13	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	20	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	13	1.5 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	20	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 159 for the mm² to AWG/mcm conversions.

OPTIONAL DIE SETS

Model number	Description
CD10	Die set 10 mm ² , suitable for crimping tool SC30, SC40 & SC60
CD16	Die set 16 mm ² , suitable for crimping tool SC30, SC40 & SC60
CD25	Die set 25 mm ² , suitable for crimping tool SC30, SC40 & SC60

BC | BATTERY OPERATED CABLE CRIMPING TOOLS

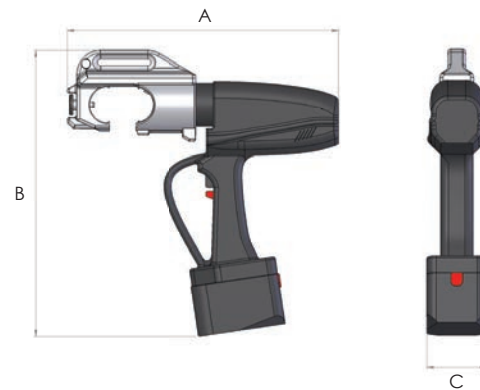


Fast self-contained battery powered tools

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	8	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	13	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	13	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	20	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 159 for the mm² to AWG/mcm conversions

BC | ACCESSORIES



CCU144

Model number	Description
CCU144	14.4V Vehicle power socket charger unit



BP12

Model number	Description
BP12	Battery pack 14.4V

Note: Charger supplied separately



MP220

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



CU12

Model number	Description
CU12	Mains charger 110V-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.

AWG/mcm	
8	10
6	16
4	25
2	35
1	50
1/0	70
2/0	95
3/0	120
4/0	150
250	185
300	240
350	300
400	400
500	500
600	630
700	800
750	1000
800	1250
900	1500
1000	1750
1250	2000
1500	
1750	
2000	
mm ²	

HCH | HYDRAULIC CUTTER HEADS

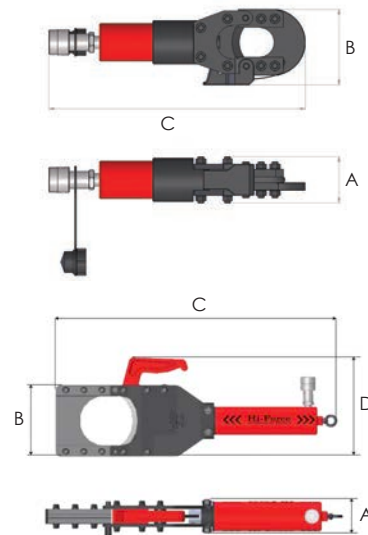


- ▶ High quality tool steel cutting blades
- ▶ Fitted with quick connect coupling for easy connection to hydraulic pump & hose
- ▶ Suitable for cutting copper, aluminum and telephone cables including armored and lead sheathed cables
- ▶ Carrying handle fitted as standard on HCH120 model

Single acting spring assisted return design

Compact and lightweight

Working pressure 10000 psi



Model number	Cutting force (tons)	Weight (lbs)	Dimensions (in)			
			A	B	C	D
HCH40	8	6.2	2.36	3.98	13	-
HCH120	14	33.1	3.15	7.01	27.66	9.77

Model number	Description	Maximum diameter cutting capacity (in)	
		HCH40	HCH120
Steel Wire Rope	6 x 7 Hempcore	0.79	1.18
	6 x 12 Hempcore	0.99	1.42
	6 x 19 Hempcore	0.99	1.42
Round Bar	Soft copper bar	0.99	1.58
	Soft aluminum bar	0.87	1.58
	Soft steel bar	0.63	-
Wire Strands	Bare copper strands	1.26	1.97
	Bare aluminum strands	1.26	1.97
Cable	Telephone cable CCP	1.58	4.73
	Lead sheathed telephone cable	1.58	4.73
	Armored underground cable	1.58	4.73

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

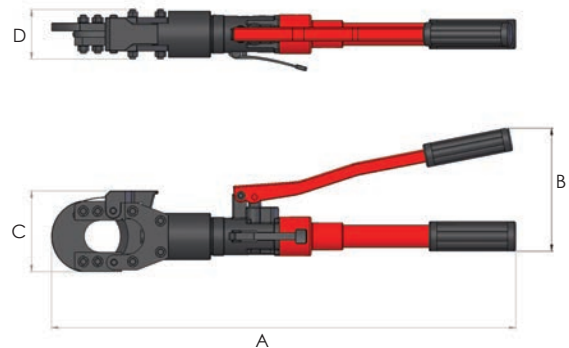
CT | SELF-CONTAINED HYDRAULIC CUTTERS


- ▶ 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

Cutting capacity up to 1.58 inches diameter

Cuts a wide variety of materials

Compact and lightweight



Model number	Cutting force (tons)	Weight (lbs)	Dimensions (in)			
			A	B	C	D
CT20	7	6.2	15.37	5.71	2.99	1.58
CT40	8	13.2	22.06	6.11	4.06	2.56

Model number	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	0.87
	Soft steel bar	0.63	0.63
Wire Strands	Bare copper strands	0.79	1.26
	Bare aluminum strands	0.79	1.26
	Telephone cable CCP	0.79	1.58
Cable	Lead sheathed telephone cable	0.79	1.58
	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

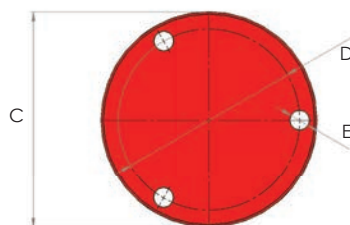
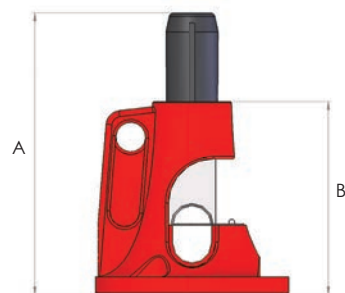


Highly cost efficient impact design

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	Wire rope Ø in	Cutting capacity		Weight (lbs)
		Electric cable mcm*	mm ²	
HWC90	0.75	250	127	7.1
HWC91	1.06	300	152	15.4
HWC92	1.5	750	380	28.7

*mcm = 1,000 circular mils

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

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

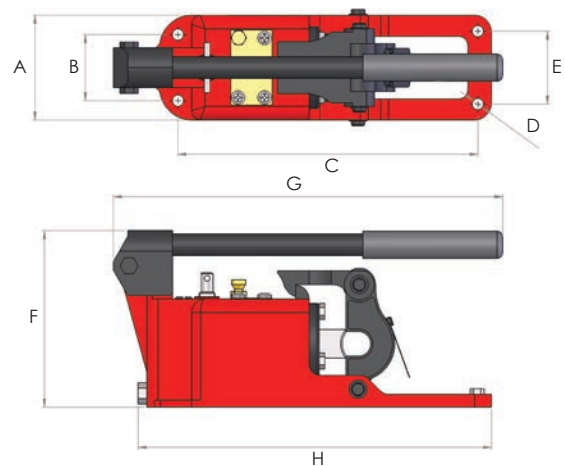


Cutting capacities up to 1.73 inches diameter

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)
HSWC19	0.75	20.9
HSWC28	1.1	34.2
HSWC44	1.73	66.1

Dimensions (in)							
A	B	C	D	E	F	G	H
3.66	2.29	10.44	0.4	2.52	6.07	13.59	12.41
4.14	2.52	11.58	0.4	2.64	6.86	14.74	14.07
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

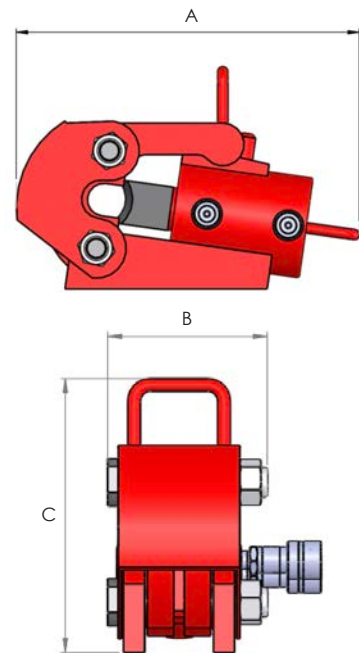


- ▶ Features a double acting cylinder which offers a faster and positive return
- ▶ High grade steel construction
- ▶ Open jaw design cutting head allows easy access for the material to be cut
- ▶ Specially toughened high tensile steel blades and jaws
- ▶ Designed for cutting high tensile locked coil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

Double acting design

Smooth guillotine cutting action

Working pressure 10000 psi



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	73.2	154.3	20.29	7.88	15.37
HWRC1145	132	4.49	4.49	1.58	146.4	209.4	22.46	11.03	17.53

Replacement blades for HWRC wire rope cutter models:

Blade part number	For cutter
HWRC1115-B	HWRC1115
HWRC1125-B	HWRC1125
HWRC1136-B	HWRC1136
HWRC1145-B	HWRC1145

HCC | CHAIN CUTTERS

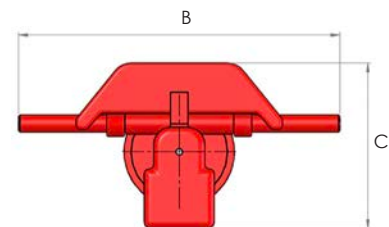
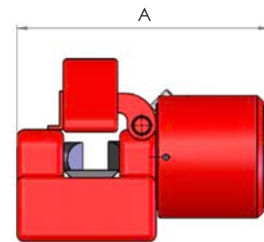


- ▶ Single acting spring assisted return hydraulic piston
- ▶ High grade steel construction
- ▶ Swivel locking safety guard allows easy access for material to be cut
- ▶ Specially toughened high tensile steel blades and jaws
- ▶ Fitted with overload protection valve for extra safety
- ▶ Includes quick 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

Cutting capacities up to 1.97 inches diameter

Smooth guillotine cutting action

Working pressure 10000 psi



Model number	Output (tons)	Cutting capacity Ø (in)	Maximum allowed		Oil capacity (in³)	Weight (lbs)	Dimensions (in)		
			Chain grade	Steel hardness			A	B	C
HCC26-100	77	1.02	77.2	16.84	16.84	50.7	17.34	7.09	7.09
HCC34-100	110	1.34	110.2	30.01	30.01	88.2	16.15	18.12	9.85
HCC46-100	154	1.81	154.3	59.78	59.78	158.7	22.26	25.02	13.59
HCC50-100	160	1.97	165.3	67.1	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

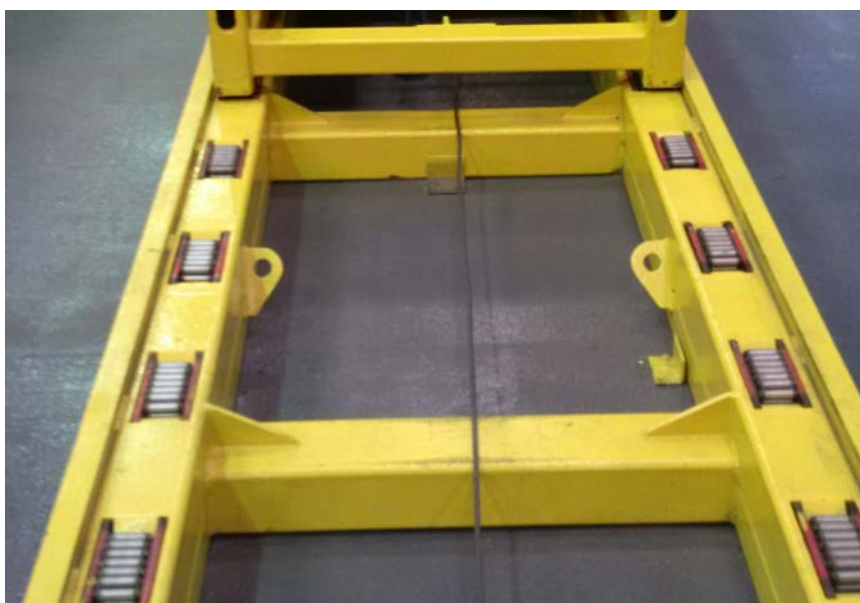
HI-FORCE SKATES

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 a more 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	168
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Roller skate kit - tricycle

RKF RANGE	169
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Roller skate kits - quad

RSN RANGE	170
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Multi-purpose skates

RSA RANGE	171
------------------	------------

Heavy duty skates

RSG RANGE	172
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Heavy duty skates with grooved guide - single roller

RSD RANGE	173
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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

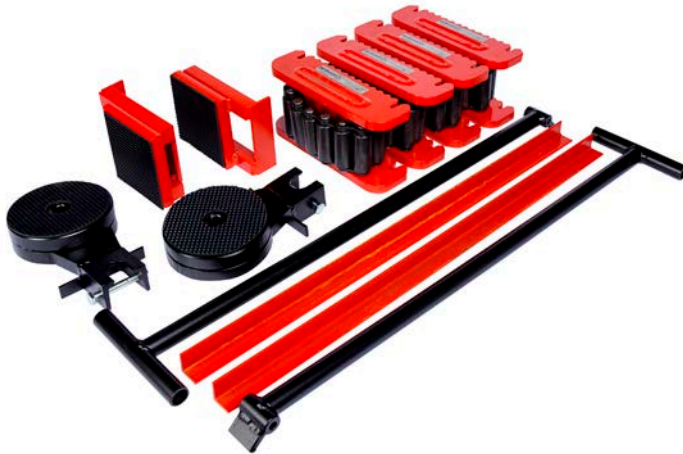
METAL BOX



Length	Dimensions (in) 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



Length	Dimensions (in) Width	Height
24.03	12.21	6.5

Note: RKF kit is supplied in a metal storage case

RSN | MULTI-PURPOSE SKATES



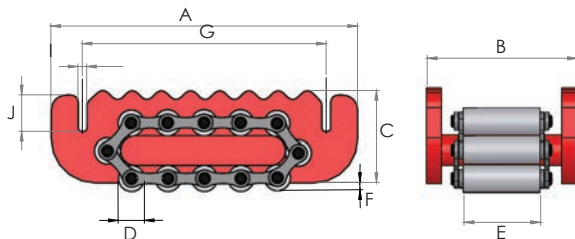
Capacities from 11 to 88 tons

Endless hardened roller chain

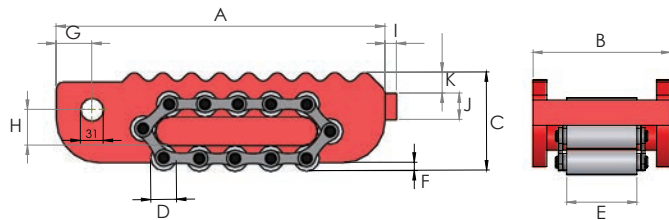
Full range of accessories available

- 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

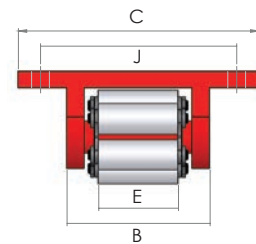
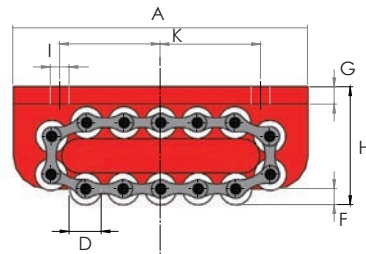


Capacities from 16 to 94 tons

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)
RSA15	16	5	15	19.6
RSA20	22	4	13	25.8
RSA40	44	4	13	42.5
RSA50	55	6	17	63.9
RSA65	72	4	13	112.4
RSA85	94	6	17	202.8

Dimensions (in)														
A	B	C	Ø D	E	F	G	H	Ø I	J	K				
8.27	3.94	6.9	0.71	2.01	0.24	0.51	2.99	0.55	5.52	2.96				
8.67	4.45	7.49	0.95	2.36	0.39	0.55	3.43	0.55	6.11	2.96				
10.64	5.12	8.27	1.18	2.68	0.39	0.55	4.1	0.71	6.9	3.74				
12.61	5.52	8.67	1.18	2.68	0.39	0.71	4.53	0.71	7.09	4.73				
14.97	6.62	10.64	1.65	2.99	0.75	0.75	5.71	0.87	8.67	5.52				
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

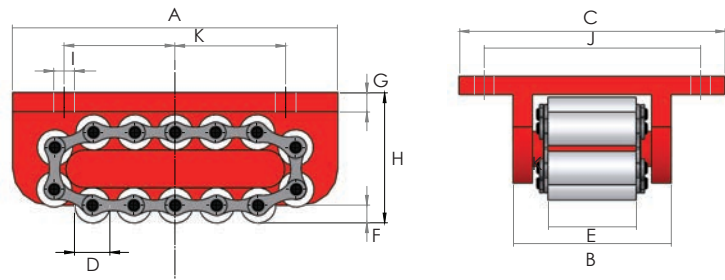


Capacities from 44 to 220 tons

Choice of 7 models available

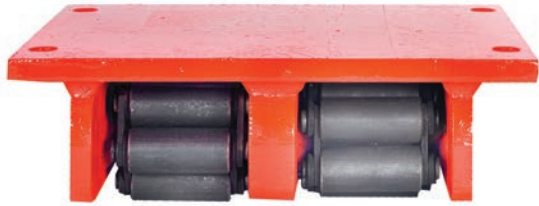
Fitted with large load bearing top plate

- 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

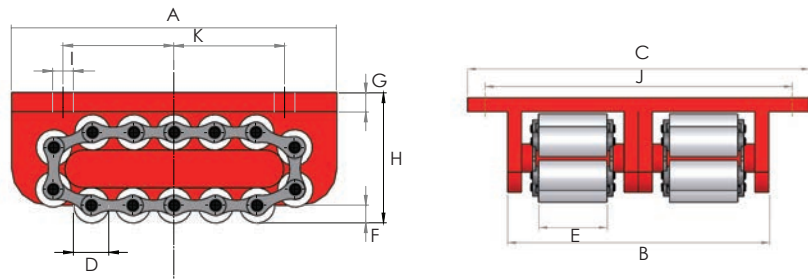


Capacities from 88 to 441 tons

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



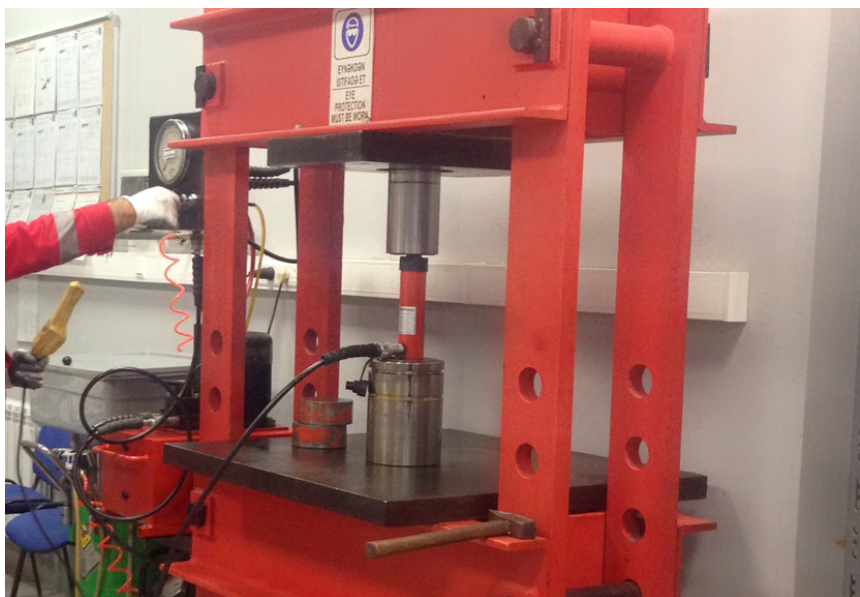
Model number	Capacity (tons)	Rollers in contact	Rollers total	Weight (lbs)	Dimensions (in)										
					A	B	C	Ø D	E	F	G	H	Ø I	J	K
RSD80	88	2x4	2x13	79.8	10.64	10.24	13.4	1.18	2.68	0.39	0.55	4.1	0.71	12.02	3.74
RSD100	110	2x6	2x17	126.8	12.61	11.03	14.18	1.18	2.68	0.39	0.71	4.53	0.71	12.81	4.73
RSD130	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 Hi-Force range of workshop hydraulic presses offers a choice of 25 models with either single acting or double acting cylinder and manually operated, air powered or electric powered hydraulic pump. All models incorporate an adjustable work table with additional adjustable top bed adjustment on all models 55 tons capacity and above. All models supplied with dual scale, hydraulic pressure gauge for increased safety and load monitoring. Factory fitted optional accessories include a mechanical bed winch for easy adjustment of the work table, rolling head kit for horizontal adjustment of the hydraulic cylinder and multi-positional work piece V-blocks.

Ideally suited for use in workshop maintenance departments, Hi-Force hydraulic presses are designed and manufactured, with maximum strength and durability, to provide years of trouble-free use in a wide variety of applications.





PRESSES

HPF RANGE

176

Workshop presses, V-blocks and bed winches

HPF | WORKSHOP PRESSES


Capacities from 11 to 220 tons

Stroke lengths from 9.85 to 13 inches

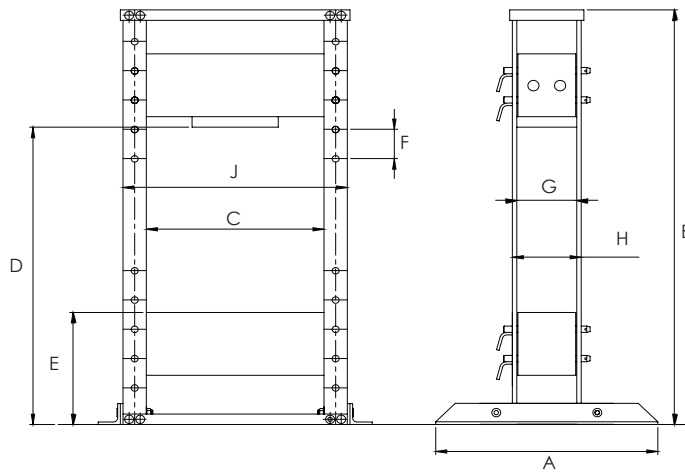
Working pressure 10000 psi

- ▶ Strong steel frame construction
- ▶ Choice of single or double acting hydraulic cylinder
- ▶ Manual, air or electric driven pump options
- ▶ 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	209.4
HPF1030	11	9.85	HSS1010	single acting	AHP1120	air powered	187.4
HPF2520	28	9.85	HSS2510	single acting	HP227	hand operated	319.7
HPF2530	28	9.85	HSS2510	single acting	AHP1120	air powered	304.2
HPF2541	28	9.85	HSS2510	single acting	HEP103341H	electric driven 110V	352.7
HPF2542	28	9.85	HSS2510	single acting	HEP103342H	electric driven 240V	352.7
HPF2544	28	9.85	HSS2510	single acting	HEP207314	electric driven 415V	352.7
HPF5020S	55	13	HSS5013	single acting	HP257	hand operated	1036.2
HPF5020D	55	13	HDA5013	double acting	HP252D	hand operated	1102.3
HPF5030S	55	13	HSS5013	single acting	AHP1121	air powered	1113.3
HPF5030D	55	13	HDA5013	double acting	AHP1141	air powered	1113.3
HPF5041S	55	13	HSS5013	single acting	HEP207311H	electric driven 110V	1113.3
HPF5041D	55	13	HDA5013	double acting	HEP207411H	electric driven 110V	1060.4
HPF5042S	55	13	HSS5013	single acting	HEP207312H	electric driven 240V	1128.8
HPF5042D	55	13	HDA5013	double acting	HEP207412H	electric driven 240V	1142.0
HPF5044S	55	13	HSS5013	single acting	HEP207314	electric driven 415V	1142.0
HPF5044D	55	13	HDA5013	double acting	HEP207414	electric driven 415V	1142.0
HPF10020	110	13	HDA10013	double acting	HP245D	hand operated	2228.9
HPF10030	110	13	HDA10013	double acting	HAP21042	air powered	2268.5
HPF10041	110	13	HDA10013	double acting	HEP207421H	electric driven 110V	2299.4
HPF10042	110	13	HDA10013	double acting	HEP207422H	electric driven 240V	2299.4
HPF10044	110	13	HDA10013	double acting	HEP207424	electric driven 415V	2299.4
HPF20041	220	12.02	HDA20012	double acting	HEP310421H	electric driven 110V	7165.0
HPF20042	220	12.02	HDA20012	double acting	HEP310422H	electric driven 240V	7165.0
HPF20044	220	12.02	HDA20012	double acting	HEP310424	electric driven 415V	7165.0

HPF | WORKSHOP PRESSES

PRESS FRAME



Note: Press bed and press head are adjustable in steps of 'F', 55 tons have 4 positions, 110 tons has 3 positions, 220 tons has 7 positions. 11 and 28 ton press frame has fixed press head and adjustable press bed.

Model number	A	B	C	Dimensions (in)		E (min - max)		F	G	H	J
HPF1000	29.23	57.05	20.02	49.57		10.24	39.79	5.91	-	5.99	26
HPF2500	29.94	57.05	20.02	49.57		10.24	39.79	5.91	-	5.99	26
HPF5000	39.4	80.97	31.52	44.92	61.46	15.56	32.11	5.52	10.17	11.74	39.4
HPF10000	39.4	78.01	39.4	42.95	53.98	21.67	32.7	5.52	13.32	15.29	48.86
HPF20000	47.28	110.32	49.25	71.51	83.33	24.03	59.49	5.91	13	16.15	68.95

Note: Press frame only available for fitment of customer existing hydraulic components

BED WINCHES

- ▶ Allows for easy mechanical adjustment of the work table
- ▶ Supplied as a factory fitted option on 55 & 110 ton models only

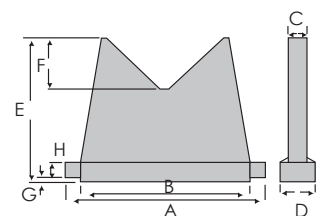
Suffix	Description
BW	Bed winch, suitable for 55 and 110 ton models



V-BLOCKS

- ▶ Multi-position V-blocks with flat bed and V-shape press surfaces
- ▶ Available as standard for 11, 28, 55 and 110 ton presses

Model number	Capacity per set (tons)	Dimensions (in)							
HVB2500	11 - 28	8.04	6.07	0.79	1.77	6.11	1.77	0.79	0.32
HVB5000	55	14.38	10.44	0.99	1.97	7.49	2.36	0.99	0.39
HVB10000	110	16.75	12.81	1.38	2.36	10.44	3.35	1.38	0.39



HI-FORCE SPECIALITY TOOLS

Hi-Force speciality tools includes a range of tools for a variety of tool specific applications. 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 180

Hole punchers

HKP RANGE 181

Knock out punchers

PB RANGE 182

Pipe bender

TOOL BOXES 183

Metal storage transport boxes

HHP | HOLE PUNCHERS

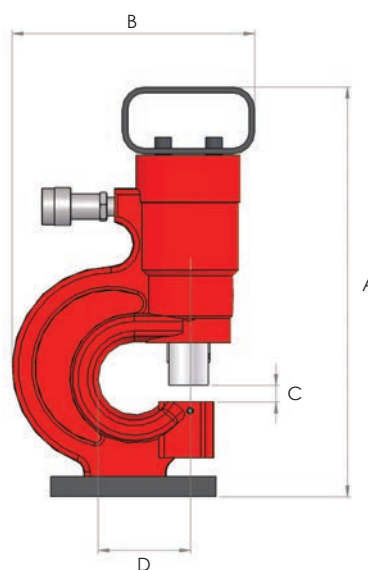


- ▶ Choice of single or double acting models
- ▶ Fitted with integral positioning and carrying handle
- ▶ Supplied with standard set of punches and dies
- ▶ Includes standard quick connect couplings for easy attachment to pump and hose

Punching force up to 55 tons

Throat depth 2.76 inches

Working pressure 10000 psi



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	33	2.76	0.39	up to 0.81	0.4, 0.5 0.7, 0.8	28.7	14.58	8.67	0.51	3.07
HHP50	55	2.76	0.59	up to 1	0.4, 0.5 0.7, 0.8, 1	92.6	16.29	11.07	0.59	2.76

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

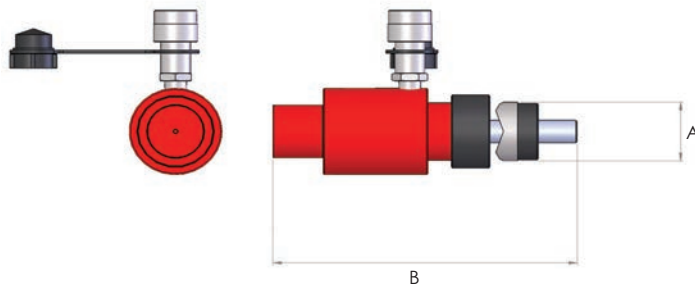


Capacity 11 tons

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									
		0.86	1.09	1.34	1.68	1.92	2.38				
HKP10-2	Standard punch/die (Dim. A)	0.86	1.09	1.34	1.68	1.92	2.38				
	Conduit size	½"	¾"	1"	1¼"	1½"	2"				
	Length B	12.06	9.46	9.46	9.46	9.46	9.46				
HKP10-4	Standard punch/die (Dim. 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"	1¼"	1½"	2"	2½"	3"	3½"	4"
	Length B	12.06	9.46	9.46	9.46	9.46	9.46	9.97	9.97	9.97	9.97

PB | HYDRAULIC PIPE BENDER

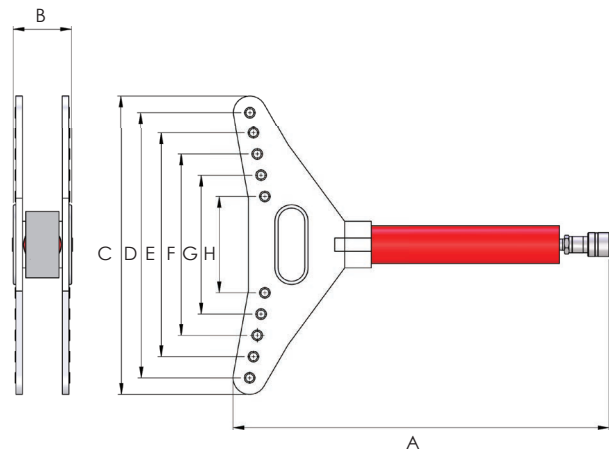


Capacity 11 tons

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 (in³)	Weight (lbs)	Applicable range / included bending shoes
PB10B	11	9.85	24.41	137.8	Thick steel conduit from ½" (16 mm) to 3" (82 mm)

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

Dimensions (in)							
A	B	C	D	E	F	G	H
28.37	5.79	29.75	27.38	23.44	19.5	15.56	11.62

BENDING SHOES

Model number	Pipe size (inch)	For thick steel conduit from ½" (16 mm) to 3" (82 mm)		
		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	1¼"	1.65	1.45	7.68
BS-B42	1½"	1.88	1.69	9.06
BS-B54	2"	2.35	2.13	10.64
BS-B70	2½"	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-center hydraulic puller kits	147
AGA	Gauge mounting block	57
AHP	Air driven hydrotest pumps - standard flow	138
AHP-BTU	Air driven pumps for bolt tensioners	121
AHP-C	Chart recorder for AHP-CR pumps	139, 141
AHP-CR	Air driven hydrotest pumps - standard flow with chart recorder	139
AHP-PB	Replacement pen for AHP-CR pumps	139, 141
AHP11	Air driven single stage hand or foot operated pumps	50
AHP2	Air driven hydrotest pumps - medium flow	140
AHP2-CR	Air driven hydrotest pumps - medium flow, with chart recorder	141
AHP3	Air driven hydrotest pumps - high flow	142
ATDP	Air driven twin double acting hydrotest pumps	143
BC	Battery operated cable crimping tools	158
BOLTRIGHT PRO	Bolted joint integrity software for calculating torque & tension values	105, 123
BP	Battery pack for BPP & BC	34, 159
BPP	Battery powered hydraulic pump	34
BS	Bending shoes for hydraulic pipe bender	182
BW	Bed winches	177
BWH	Backup wrench holder	98
BWI	Backup wrench imperial hexagon links	98
BWM	Backup wrench metric hexagon links	98
CCU	Vehicle charger unit	34, 159
CD	Optional die sets for CH, SC & BC range	156, 157, 158
CF	Female couplers	63
CFD	Metal dust cap for CF	63
CH	Cable crimping heads	156
CHP	Comprehensive crimper and pump kits	156
CK	Complete conversion kits for STS	113, 115
CKS	Complete conversion kits for SBT	109, 111
CM	Male couplers	63
CMD	Metal dust cap for CM	63
CMF	Complete coupler	63
CT	Self-contained hydraulic cutters	161
CU	Charger for BPP & BC	34, 159
DNS	Double acting nut splitters	128
ERA	Extended reaction arms	90, 95
FRL	Filter/regulator/lubricator unit	104
HA	Cylinder saddles	24
HA-G	Cylinder saddles	24
HA-T	Cylinder saddles	24
HAP	Air driven two stage general duty pumps	51
HAS	Single acting solid piston aluminum cylinders	16
HBR	Bush replacement tool kit	152
HC	Black hoses with coupler	56
HC-C	Black hoses with couplers	56
HC-CR	Red hoses with couplers	56
HC-R	Red hoses with coupler	56
HCC	Chain cutters	165
HCH	Hydraulic cutter heads	160
HD	Cylinder saddles	24
HD-T	Cylinder saddles	24
HDA	Double acting high tonnage cylinders	13
HDD	Digital display unit	59
HDG	Digital pressure gauge	58
HEP1	Electric driven two stage mini pumps	35
HEP103	Electric driven two stage compact pumps	36
HEP2	Electric driven two stage pumps - medium flow	37
HEP3	Electric driven two stage pumps - high flow	38
HEP5	Electric driven two stage pumps - heavy duty high flow	39

MODEL NUMBER	DESCRIPTION	PAGE NUMBER
HF	Fittings and adaptors	63
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	62
HFS	Hydraulic flange spreader kits	130
HFS-H	Hydraulic flange spreaders	129
HFS-TK	Hydraulic flange spreader twin kits	130
HFV	Flow control valves	65
HG	Pressure gauges	57
HG-G	Pressure gauges - glycerin	57
HGA	Gauge mounting blocks	57
HGG	Single acting load return high tonnage industrial cylinders	20
HH	Black hoses without couplers	56
HH-NMS	Hoses for MHP pumps	136
HHA	Single acting hollow piston aluminum cylinders	17
HHP	Hole punchers	180
HH-R	Red hoses without couplers	56
HHR	Double acting hollow piston cylinders	12
HHS	Single acting hollow piston cylinders	11
HKP	Knock out punchers	181
HLS	Single acting low height cylinders	9
HM	Manifolds	60
HM1C	Manual shut off valve	65
HM-C	Controlled manifolds	60
HM-C-SU	Controlled manifold assemblies (single)	61
HM-C-DU	Controlled manifold assemblies (double)	61
HM-L	Manifolds (extended parallel)	60
HMJ	Steel machine lift jacks	73
HMNS	Self-contained nut splitters	127
HP-STEEL	Manually operated steel hand pumps	29
HP-ALU	Manually operated aluminum hand pumps	30
HP-D	Manually operated pumps for double acting cylinders	30, 31
HP-FP	Manually operated foot pumps	33
HP-FPC	Manually operated foot pumps with gauge, mounting block and hose	33
HP-HIGH FLOW	Manually operated high flow hand pumps	31
HPC	Single acting pull cylinders	22
HPF	Workshop presses	176
HPG	Gasoline engine driven pumps	52
HPR	Pin and bush replacement tool kits	153
HPS	Single acting low height pad cylinders	8
HPT	Pressure transducer	59
HPV	Adjustable pressure relief valve	65
HPX	Manually operated ultra high pressure hand pumps	32
HPX-BTU	Manually operated ultra high pressure hand pump for bolt tensioners	121
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	40
HSS	Single acting multi-purpose cylinders	10
HSWC	Self-contained hydraulic wire rope cutters	163
HTN (imperial)	Hydraulic tensioner nuts	118
HTN (metric)	Hydraulic tensioner nuts	119
HTW	Manual torque wrenches - break back type	83
HTWH	Torque hose sets including couplers	102
HTWM	4-way multi-split block	102
HTWP	Torque wrench pumps	99
HTWR	Torque wrench hose reel	102
HVB	Multi-position V-blocks	177
HVL	Single acting very low height pancake cylinders	7

MODEL NUMBER	DESCRIPTION	PAGE NUMBER
HWC	Hammer blow wire rope cutters	162
HWRC	Double acting wire rope cutters	164
IB	Imperial hexagon AF size reducer bushes	96
IH	Imperial allen hexagon drive adaptors	90
IS	Imperial hexagon AF size heavy duty sockets	88
IW	Pneumatic impact wrenches	103
JAH	Aluminum jacks	69
JAS	Aluminum multi-purpose jacks	68
JCH	Steel and aluminum compact hollow piston low height jacks	71
JCS	Steel and aluminum compact low height jacks	70
JS	Jaw spreader	132
JSS	Steel bottle jacks	72
LLE	Load lock extensions for TL	77
MB	Metric hexagon AF size reducer bushes	97
MFS	Mechanical flange spreaders	131
MH	Metric allen hexagon drive adaptors	90
MHP	Manually operated hydrotest pumps	136
MHP-GK	Pressure gauge kits for MHP pumps	136
MHP-PU	Manually operated hydrotest pump units	137
MHR	Reservoir for MHP pumps	137
MP	Power supply for BPP & BC	34, 159
MS	Metric hexagon AF size heavy duty sockets	89
MSB	Metal storage transport boxes	183
NS	Single acting nut splitters	126
PB	Hydraulic pipe bender	182
PCS	Pump and cylinder sets	23
PKC	Comprehensive hydraulic puller kits	149
PKS	Hydraulic 2 and 3 way puller kits	148
PMV	Directional control valve, pump mounted	64
PMV-C	Directional control valve, pump mounted	64
PMV-L	Directional control valve, pump mounted, load holding feature	64
PMV-S	Directional control valve, pump mounted, 24V solenoid	64
PPA-RF	Protective roll frame	53
PPA-WT	Wheel trolley	53
PPC	Universal dust cap	63
QFP	Quick fit pullers	116, 117
RKF	Roller skate kits - quad	169
RKT	Roller skate kit - tricycle	168
RLB	Link bar for RKF and RKT	169
RLP	Levelling plates for RKF and RSN	169, 170
RMV	Directional control valve, remote mounted	64
RMV-C	Directional control valve, remote mounted, closed center	64
RMV-L	Directional control valve, remote mounted, locking feature	64
RMV-S	Directional control valve, remote mounted, 24V solenoid	64
RPH	Handle for RKF	169
RS	Rotating sockets for SBT & STS	109, 111, 113, 115
RSA	Heavy duty skates	171
RSD	Heavy duty, twin roller skates with grooved guide	173
RSG	Heavy duty skates with grooved guide	172
RSN	Multi-purpose skates	170
RTT	Turntables for RKF and RSN	169, 170
SBT (imperial)	Spring return topside bolt tensioners	108
SBT (metric)	Spring return topside bolt tensioners	110
SBT-LC	Tensioner load cell	109, 111
SC	Self-contained crimping tools	157
SCP	Self-contained hydraulic pullers	146

MODEL NUMBER	DESCRIPTION	PAGE NUMBER
SDC	Square drive conversion kits	94
SJS	Stepped jaw spreader	133
SJS-M	Self-contained stepped jaw spreader	133
SJS-TK	Stepped jaw spreader twin kit	133
SLDC	Sensor cables	44, 48
SLDS	Displacement sensors	44, 48
SLE	Slip lock extensions for TL	77
SLF	Synchronous lifting system, fixed speed drive	41
SLMK	Sensor cylinder mounting kits	43, 47
SLV	Synchronous lifting system, variable speed drive	45
SPP	Heavy duty hydraulic pullers	150
STFC	Female tensioner coupler	122
STMC	Male tensioner coupler	122
STN	Nipple	122
STS (imperial)	Topside bolt tensioners	112
STS (metric)	Topside bolt tensioners	114
STS-B	Tensioner bridge for SBT and STS	109, 111, 113, 115
STS-LC	Tensioner load cell	113, 115
STU (imperial)	Sub-sea bolt tensioners	116
STU (metric)	Sub-sea bolt tensioners	117
TL	ToughLift jacking systems	76
TLB	Load block sets for TL	77
TP	Tensioner threaded puller for STS	113, 115
TP-CS	Torque coupling sets	100, 101
TPA	Air driven torque pumps - premium line	100
TPE	Electric driven torque pumps - premium line	101
TPS	Tensioner threaded puller for SBT	109, 111
TS	Cylinder saddles	24
TTB	Tommy bar for HFL and HFG	14, 15
TTB	Tensioner tommy bar for SBT, STS & STU	109, 111, 113, 115, 116, 117
TWG	Manual torque multipliers	84
TWH-N	Hydraulic torque wrenches - hexagon drive	91
TWH-NRH	Ratchet heads for TWH-N	92, 93
TWM	Manual torque wrenches - click type	82
TWP	Pneumatic torque multipliers	85
TWP-OG	Pneumatic torque multipliers with offset gearbox	86
TWS-N	Hydraulic torque wrenches - square drive	87
XHC	High pressure bolt tensioner hoses	122
XHH	High pressure hoses for HPX pumps	32
XHR	Hose reel for XHC hoses	122

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