

HHS | SINGLE ACTING HOLLOW PISTON CYLINDERS



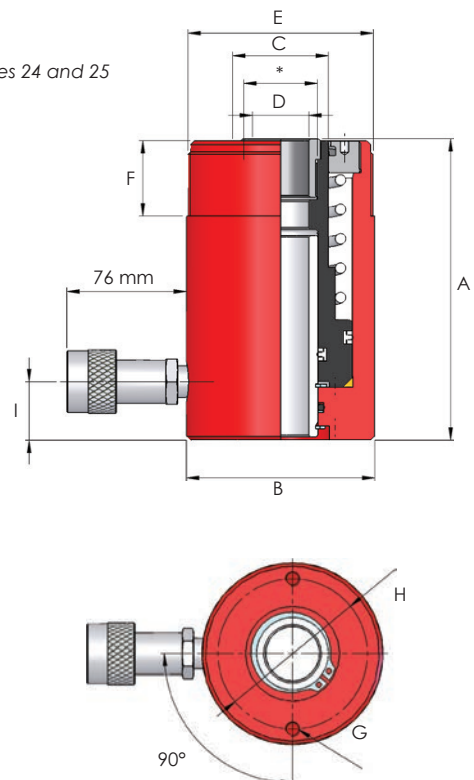
- ▶ Single acting, spring assisted return
- ▶ Hollow piston design for tooling, maintenance and tensioning applications
- ▶ Nitrocarburised piston rod for corrosion resistance
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Collar threads withstand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

Capacities from 11 to 102 tonnes

Stroke lengths from 25 to 152 mm

Working pressure 700 bar

*see pages 24 and 25



Model number	Capacity (tonnes)	Stroke (mm)	Oil capacity (cm ³)	Cylinder eff. area (cm ²)	Weight (kg)
HHS101	11	25	39	15.8	2.8
HHS102	11	50	79	15.8	3.0
HHS106	11	152	240	15.8	10.2
HHS202	23	50	167	33.3	7.0
HHS206	23	150	500	33.3	13.8
HHS302	33	50	233	46.7	10.6
HHS306	33	152	710	46.7	19.2
HHS603	61	76	651	85.7	28.0
HHS606	61	150	1285	85.7	40.6
HHS1003	102	76	1088	143.1	64.0
HHS1006	102	150	2147	143.1	75.0

Dimensions (mm) (unless otherwise stated)									
A	B	C	D	E	F	G	H	I	
110	70	38	20	2 3/4"-16 UN	30	M8	51	19	
140	70	38	20	2 3/4"-16 UN	30	M8	51	19	
297	70	38	20	2 3/4"-16 UN	30	M8	51	19	
160	100	51	30	3 7/8"-12 UN	40	M8	82.5	31	
306	100	51	30	3 7/8"-12 UN	40	M8	82.5	31	
165	115	60	35	4 1/2"-12 UN	40	M8	92	31	
320	115	60	35	4 1/2"-12 UN	40	M8	92	31	
226	160	92	55	6 1/4"-12 UN	59	M12	130	31	
315	160	92	55	6 1/4"-12 UN	59	M12	130	31	
276	213	127	81	8 3/8"-12 UN	60	M16	178	45	
350	213	127	81	8 3/8"-12 UN	60	M16	178	45	

Note: If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 42 and 46.

HLS | SINGLE ACTING LOW HEIGHT CYLINDERS

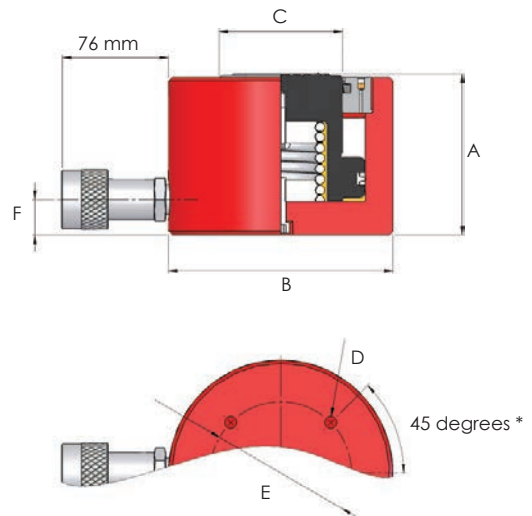


- ▶ Single acting, spring assisted return
- ▶ Compact design with optimum stroke lengths
- ▶ Nitrocarburised piston rod for corrosion resistance
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Customised and special design cylinders are available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

Capacities from 10 to 147 tonnes

Stroke lengths from 25 to 60 mm

Working pressure 700 bar



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

Model number	Capacity (tonnes)	Stroke (mm)	Oil capacity (cm³)	Cylinder eff. area (cm²)	Weight (kg)	Dimensions (mm) <i>(unless otherwise stated)</i>					
						A	B	C	D	E	F
HLS101	10	40	58	14.4	2.4	95	70	38	M8	40	19
HLS201	20	44	126	28.6	4.8	102	90	51	M8	60	19
HLS301	32	25	114	45.6	5.0	83	102	60	M8	80	19
HLS302	32	60	274	45.6	7.0	119	102	60	M8	80	19
HLS501	50	25	178	71.3	8.4	91	127	70	M8	80	20
HLS502	50	60	428	71.3	10.4	126	127	70	M8	80	20
HLS1001	109	25	384	153.4	19.8	108	178	114	M12	140	30
HLS1002	109	60	921	153.4	24.0	143	178	114	M12	140	30
HLS1501	147	25	516	206.2	37.0	130	216	114	M12	165	41
HLS1502	147	50	1031	206.2	42.0	155	216	114	M12	165	41

HPS | SINGLE ACTING LOW HEIGHT PAD CYLINDERS

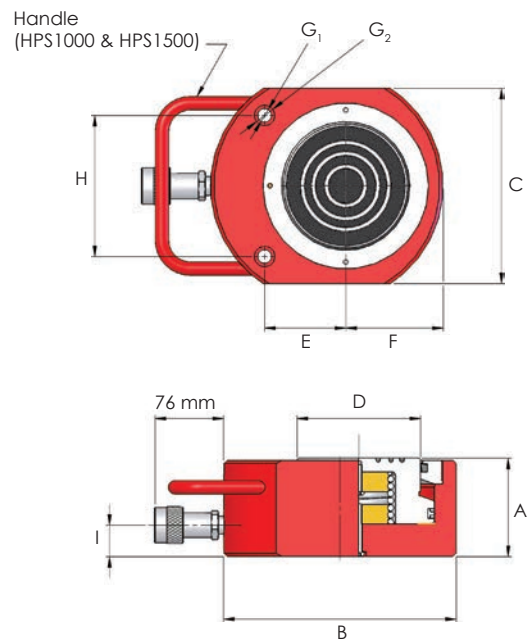


Capacities from 4.5 to 147 tonnes

Stroke lengths from 6 to 16 mm

Working pressure 700 bar

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



Model number	Capacity (tonnes)	Stroke (mm)	Oil capacity (cm ³)	Cylinder eff. area (cm ²)	Weight (kg)	Dimensions (mm)									
						A	B	C	D	E	F	G ₁	G ₂	H	I
HPS50	4.5	6	4	6.4	0.8	32	60	38	24	20	19	5.6	9.8	26	19
HPS51	4.5	16	10	6.4	0.9	42	60	38	24	20	19	5.6	9.8	26	19
HPS100	10	10	14	14.4	1.6	46	81	56	38	34	28	6.8	11.3	37	19
HPS200	20	11	31	28.6	2.6	52	100	76	51	40	39	8.8	14.3	50	19
HPS300	32	12	55	45.6	4.2	59	115	95	60	46	48	8.8	14.3	52	19
HPS500	50	15	107	71.3	6.6	67	140	114	70	54	60	10.8	17.3	67	20
HPS750	73	16	164	102.7	10.4	81	165	140	82	67	70	13	19	76	21
HPS1000	109	16	245	153.4	23.2	91	215	180	114	75	90	12.8	19	130	29
HPS1500	147	16	330	206.2	28.5	100	215	191	114	83	95	13	19	117	29

HSS | SINGLE ACTING MULTI-PURPOSE CYLINDERS

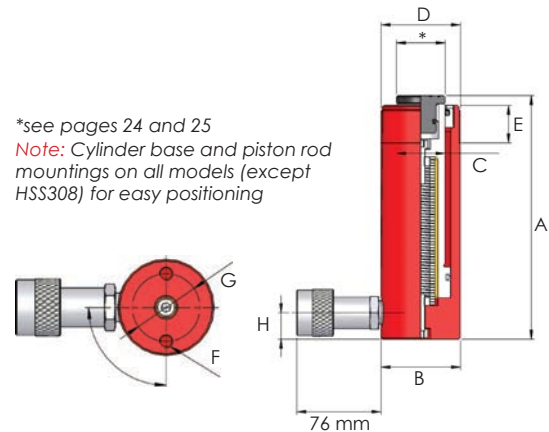


- ▶ Single acting, spring assisted return
- ▶ Nitrocarburised piston rod for corrosion resistance
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Collar threads withstand full load
- ▶ Grooved saddles fitted as standard on all models
- ▶ Optional piston rod saddles listed on pages 24 and 25
- ▶ Customised and special design cylinders are available on request

Capacities from 4.5 to 109 tonnes

Stroke lengths from 25 to 457 mm

Working pressure 700 bar



*see pages 24 and 25

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

Model number	Capacity (tonnes)	Stroke (mm)	Oil capacity (cm ³)	Cylinder eff. area (cm ²)	Weight (kg)	Dimensions (mm) (unless otherwise stated)							
						A	B	C	D	E	F	G	H
HSS51	4.5	25	16	6.4	1.0	107	38	24	1 ½"-16 UN	28	M6	25	19
HSS52	4.5	50	32	6.4	1.2	132	38	24	1 ½"-16 UN	28	M6	25	19
HSS53	4.5	75	48	6.4	1.4	157	38	24	1 ½"-16 UN	28	M6	25	19
HSS54	4.5	100	64	6.4	1.5	182	38	24	1 ½"-16 UN	28	M6	25	19
HSS55	4.5	125	80	6.4	1.8	207	38	24	1 ½"-16 UN	28	M6	25	19
HSS57	4.5	176	113	6.4	2.0	258	38	24	1 ½"-16 UN	28	M6	25	19
HSS59	4.5	227	146	6.4	2.4	308	38	24	1 ½"-16 UN	28	M6	25	19
HSS101	10	25	36	14.4	1.8	100	57	35	2 ¼"-14 UN	27	M8	40	19
HSS102	10	56	81	14.4	2.4	131	57	35	2 ¼"-14 UN	27	M8	40	19
HSS104	10	100	144	14.4	3.0	175	57	35	2 ¼"-14 UN	27	M8	40	19
HSS106	10	150	217	14.4	4.2	225	57	35	2 ¼"-14 UN	27	M8	40	19
HSS108	10	206	297	14.4	5.0	281	57	35	2 ¼"-14 UN	27	M8	40	19
HSS1010	10	250	361	14.4	5.4	325	57	35	2 ¼"-14 UN	27	M8	40	19
HSS1012	10	305	440	14.4	6.2	379	57	35	2 ¼"-14 UN	27	M8	40	19
HSS152	14.5	50	101	20.3	3.4	154	70	41	2 ¾"-16 UN	39	M10	48	19
HSS154	14.5	100	203	20.3	5.0	204	70	41	2 ¾"-16 UN	39	M10	48	19
HSS156	14.5	150	304	20.3	6.6	254	70	41	2 ¾"-16 UN	39	M10	48	19
HSS1510	14.5	250	507	20.3	8.8	354	70	41	2 ¾"-16 UN	39	M10	48	19
HSS252	25	51	178	34.9	6.5	174	86	54	3 ⅝"-12 UN	49	M12	60	25
HSS254	25	102	356	34.9	8.0	225	86	54	3 ⅝"-12 UN	49	M12	60	25
HSS256	25	150	524	34.9	9.6	273	86	54	3 ⅝"-12 UN	49	M12	60	25
HSS258	25	203	709	34.9	11.2	324	86	54	3 ⅝"-12 UN	49	M12	60	25
HSS2510	25	250	874	34.9	12.6	374	86	54	3 ⅝"-12 UN	49	M12	60	25
HSS2514	25	356	1242	34.9	16.8	480	86	54	3 ⅝"-12 UN	49	M12	60	25
HSS2518	25	457	1597	34.9	21.4	611	86	54	3 ⅝"-12 UN	49	M12	60	25
HSS308	29	205	860	41.9	18.6	374	102	57	3 ⅝"-12 UN	50	-	-	50
HSS502	50	51	364	71.3	13.0	150	127	79	5"-12 UN	55	M12	85	20
HSS504	50	102	728	71.3	16.8	201	127	79	5"-12 UN	55	M12	85	20
HSS506	50	152	1084	71.3	20.0	251	127	79	5"-12 UN	55	M12	85	20
HSS508	50	203	1448	71.3	23.2	302	127	79	5"-12 UN	55	M12	85	20
HSS5013	50	330	2354	71.3	33.6	429	127	79	5"-12 UN	55	M12	85	20
HSS756	73	152	1561	102.7	31.0	272	146	95	5 ¾"-12 UN	45	M12	115	32
HSS1004	109	102	1565	153.4	41.6	223	185	114	6 ⅞"-12 UN	50	M12	146	32
HSS1006	109	153	2347	153.4	49.8	274	185	114	6 ⅞"-12 UN	50	M12	146	32
HSS10010	109	254	3896	153.4	65.5	375	185	114	6 ⅞"-12 UN	50	M12	146	32

Note: If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 42 and 46.

HIGH PRESSURE HYDRAULIC HOSES















Working pressure 700 bar

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 (m)	No couplers 3/8" - 18 NPT male fitting both ends		Weight (kg)	3/8" - 18 NPT male fitting one end with CM1 coupler fitted one end		Weight (kg)	CM1 male couplers fitted both ends		Weight (kg)
	Model number			Model number			Model number		
									
									
0.5	HH0.5	HH0.5R	0.4	HC0.5	HC0.5R	0.5	HC0.5C	HC0.5CR	0.7
1	HH1	HH1R	0.5	HC1	HC1R	0.7	HC1C	HC1CR	1.0
2	HH2	HH2R	0.7	HC2	HC2R	0.9	HC2C	HC2CR	1.1
3	HH3	HH3R	0.9	HC3	HC3R	1.0	HC3C	HC3CR	1.2
4	HH4	HH4R	1.2	HC4	HC4R	1.2	HC4C	HC4CR	1.5
5	HH5	HH5R	1.3	HC5	HC5R	1.4	HC5C	HC5CR	1.6
6	HH6	HH6R	1.5	HC6	HC6R	1.6	HC6C	HC6CR	1.8
10	HH10	HH10R	2.2	HC10	HC10R	2.4	HC10C	HC10CR	2.6
12	HH12	HH12R	2.8	HC12	HC12R	3.0	HC12C	HC12CR	3.2
15	HH15	HH15R	3.1	HC15	HC15R	3.3	HC15C	HC15CR	3.5
20	HH20	HH20R	4.1	HC20	HC20R	4.2	HC20C	HC20CR	4.4
25	HH25	HH25R	5.3	HC25	HC25R	5.5	HC25C	HC25CR	5.6
30	HH30	HH30R	7.3	HC30	HC30R	7.7	HC30C	HC30CR	7.9

Note: Hose bore is 6.6 mm and outside diameter is 12.7 mm

JS | JAW SPREADER

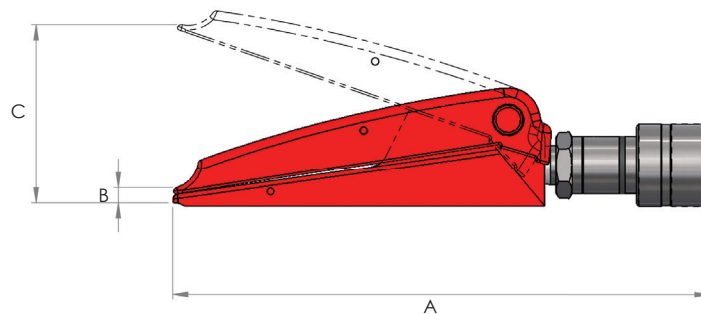


Capacity 0.9 tonnes

Maximum spread 84 mm

Working pressure 700 bar

- ▶ Single acting, spring assisted return
- ▶ Narrow design requires access gap of only 13 mm
- ▶ 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 (tonnes)	Oil capacity (cm³)	Weight (kg)	Dimensions (mm)		
				A	B	C
JS4	0.9	10	2.2	234	13	84

PRESSURE GAUGES & GAUGE MOUNTING BLOCKS



Clear precise dual scale readings

Manufactured to EN837-1

+/-1% full scale accuracy

GAUGES

- ▶ Choice of dry or glycerine 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 (over 109 tonnes) available on request
- ▶ Individual gauge calibration certificates available at extra cost on request

Model number	Gauge diameter (mm)	Gauge type	Reading inner scale	Reading outer scale	Inlet thread	Compatible Hi-Force cylinders	Weight (kg)
HG63G	63	glycerine	0-700 bar	0-10000 psi	¼"-18 NPT	All models	0.2
HG1	100	dry	0-700 bar	0-10000 psi	½"-14 NPT	All models	0.9
HG1G	100	glycerine	0-700 bar	0-10000 psi	½"-14 NPT	All models	1.0
HG5	100	dry	0-700 bar	0-4.5 tonnes	½"-14 NPT	All 4.5 tonnes models	0.9
HG10	100	dry	0-700 bar	0-10 tonnes	½"-14 NPT	All 10 tonnes models	0.9
HG11	100	dry	0-700 bar	0-11 tonnes	½"-14 NPT	All 11 tonnes models	0.9
HG20	100	dry	0-700 bar	0-20 tonnes	½"-14 NPT	All 20 tonnes models	0.9
HG23	100	dry	0-700 bar	0-23 tonnes	½"-14 NPT	All 23 tonnes models	0.9
HG25	100	dry	0-700 bar	0-25 tonnes	½"-14 NPT	All 25 tonnes models	0.9
HG32	100	dry	0-700 bar	0-32 tonnes	½"-14 NPT	All 32 tonnes models	0.9
HG33	100	dry	0-700 bar	0-33 tonnes	½"-14 NPT	All 33 tonnes models	0.9
HG50	100	dry	0-700 bar	0-50 tonnes	½"-14 NPT	All 50 tonnes models	0.9
HG61	100	dry	0-700 bar	0-61 tonnes	½"-14 NPT	All 61 tonnes models	0.9
HG102	100	dry	0-700 bar	0-102 tonnes	½"-14 NPT	All 102 tonnes models	0.9
HG109	100	dry	0-700 bar	0-109 tonnes	½"-14 NPT	All 109 tonnes models	0.9
HG2	150	dry	0-700 bar	0-10000 psi	½"-14 NPT	All models	1.6
HG2G	150	glycerine	0-700 bar	0-10000 psi	½"-14 NPT	All models	1.7

GAUGE MOUNTING BLOCKS

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

Model number	Dimensions (mm)			Gauge thread	Inlet thread	Outlet thread	Weight (kg)
	Length	Width	Height				
HGA1	75	32	32	½"-14 NPT	⅜"-18 NPT male	⅜"-18 NPT female	0.3
HGA2	160	32	32	½"-14 NPT	⅜"-18 NPT male	⅜"-18 NPT female	0.9
HGA1-25	75	32	32	¼"-18 NPT	⅜"-18 NPT male	⅜"-18 NPT female	0.3
HGA2-25	160	32	32	¼"-18 NPT	⅜"-18 NPT male	⅜"-18 NPT female	0.9
AGA1-25	75	32	50	¼"-18 NPT	⅜"-18 NPT male	⅜"-18 NPT female	0.6

HP | MANUALLY OPERATED PUMPS - ALUMINIUM

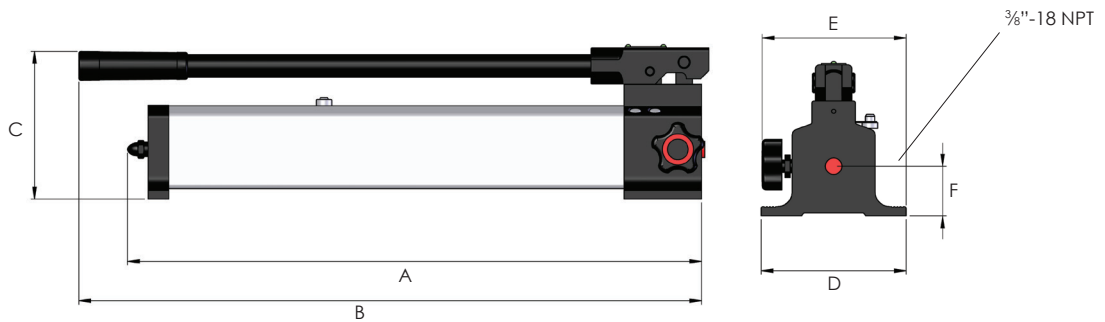


Two stage operation

Working pressure 700 bar

Six models with choice of control valve

- ▶ Oil reservoir capacity up to 5 litres
- ▶ Lightweight aluminium construction with external pressure release valve and factory set safety relief valve
- ▶ Changeover pressure is 14 bar
- ▶ Low handle effort and ergonomic grip for easy operation



Model number	Valve type	Displacement per stroke (cm³)		Usable oil capacity (litres)	Handle effort (kg)	Weight (kg)	Dimensions (mm)					
		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	12.9	1	0.5	27	2.0	335	388	135	100	125	40
HP212	2-way	12.9	2.3	1	40	4.0	560	610	140	100	125	40
HP232	2-way	12.9	2.3	2	40	6.9	560	610	160	140	155	50
HP252	2-way	12.9	2.3	5	40	9.6	585	610	160	168	145	50
Two stage hand operated pumps for double acting cylinders and tools												
HP232D	4-way	12.9	2.3	2	40	8.7	580	625	160	140	175	30
HP252D	4-way	12.9	2.3	5	40	13.6	605	625	160	168	175	30