



KAPPA 150 SERIES PRODUCT BROCHURE

150

A PRECISION ENGINEERED SERIES OF HYDRAULIC CYLINDERS

KAPPA 150 SERIES PRODUCT BROCHURE

PRECISION HYDRAULIC CYLINDERS FROM KAPPA ENGINEERING

Kappa Engineering's product range is focused on precision hydraulic cylinders. Within the hydraulic field, there is virtually no cylinder we cannot manufacture or repair. We can design any custom hydraulic cylinder to fit any project you can throw at us. Kappa cylinders are manufactured to the highest quality standards. Our production facility is serviced by state-of-the-art machinery, and our artisans are well renowned for their precision and accuracy.

We deliver high-quality cylinders on time! Kappa Engineering is the company that will get it done now!

KAPPA ENGINEERING 150 SERIES HYDRAULIC CYLINDERS

The Kappa 150 Series is a range of low-pressure tie-rod cylinders, used for agricultural and packing applications. It is easy to repair because it is not welded up but rather assembled with tie-rods. This simple, no-nonsense workhorse is an affordable cylinder for everyday use. Should your cylinder wear out with use, you can simply loosen the nuts that hold the components in place and strip the cylinder at your workshop. Once you've determined which components need to be replaced or repaired, you can order them from our sales department or send the whole cylinder to our workshop, and we will quote and fix the cylinder at your request. If you need an affordable hydraulic cylinder for a simple application, this is the one for you.

We have :

- 2 INCH BORE TIE ROD CYLINDER
- 3 INCH BORE TIE ROD CYLINDER
- 4 INCH BORE TIE ROD CYLINDER

KAPPA 150 SERIES TECHNICAL DATA

Nominal Pressure	• 15.0 Mpa (150 BAR - 2176psi)
Static Mounting Pressure	• 21.0 Mpa (210 BAR - 3046psi)
Mounting Position	• Optional
Hydraulic Fluid	• Mineral Oil to DIN51524
Fluid Temp. Range	• -30°C to +100°C
Stroking Speed	Up to 1.0 m/s

HYDRAULIC CYLINDER FORMULA

CYLINDER CAPACITY FLOW RATE IN LITERS PER MINUTE

- $L/min = AREA \times SPEED = \varnothing (CM) \times \varnothing (CM) \times SPEED (m/s) \times 4.71$
- $L/min = 10.1 \text{ CM} \times 10.1 \text{ CM} \times .02 \text{ m/s} \times 4.71 = 9 \text{ L/min}$

CYLINDER STROKE TIME IN SECONDS PER STROKE

- $SECONDS = \frac{STROKE \text{ LENGTH (CM)}}{SPEED (m/s)} / 100$
- $SECONDS = \frac{10 \text{ CM}}{.02 \text{ m/s}} / 100 = 5 \text{ SECONDS}$

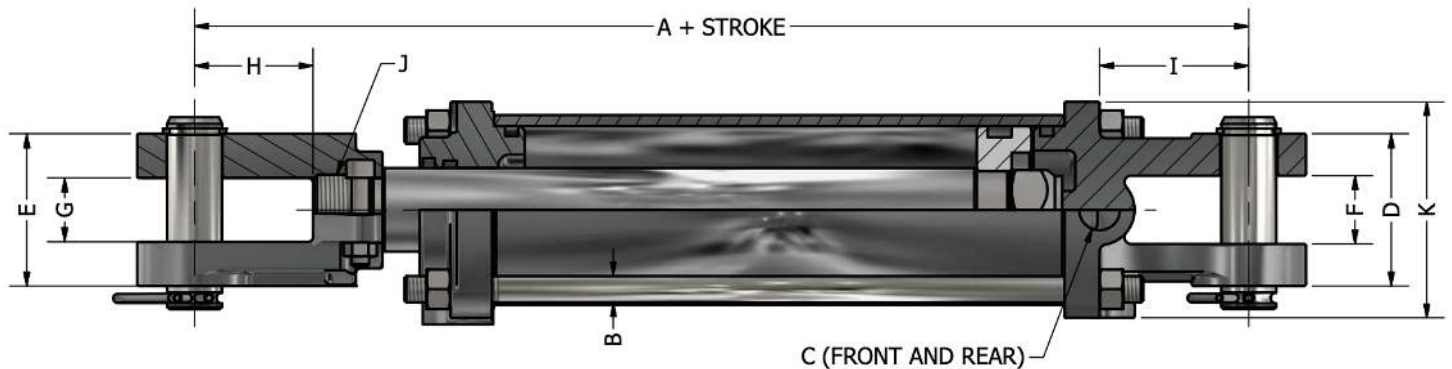
CYLINDER FORCE IN KG

- $KG = AREA \times PRESSURE = \varnothing (CM) \times \varnothing (CM) \times PRESSURE (BAR) \times \frac{3.14}{4}$
- $KG = 10.1 \text{ CM} \times 10.1 \text{ CM} \times 180 \text{ BAR} \times \frac{3.14}{4} = 14 \text{ 414 KG}$
- $KG = \frac{KG}{1000}$
- $\frac{14 \text{ 414 KG}}{1000} = 14.41 \text{ TONS}$

KAPPA 150 SERIES 2" BROCHURE

CYLINDER TIE ROD TYPE

	Bore x Stroke inch"	Rod Dia. inch"	Port Size inch"	Clevis Pin inch"	Bore x Stroke mm	Barrel Length mm	Closed Length mm	Open Length mm	Rod Force @ 180 Bar (Tons)	Piston Force @ 180 Bar (Tons)	Weight (kg)
KP 20006 - 106	2" x 6"	1-1/16"	3/8"	1"	50.8 x 152	210	413	565	2.37	3.53	7.1
KP 20008 - 106	2" x 8"	1-1/16"	3/8"	1"	50.8 x 203	261	464	667	2.37	3.53	8
KP 20008 - 106 A***	2" x 8"	1-1/16"	3/8"	1"	50.8 x 203	261	514	717	2.37	3.53	8
KP 20010 - 106	2" x 10"	1-1/16"	3/8"	1"	50.8 x 254	311	514	768	2.37	3.53	8.4
KP 20012 - 106	2" x 12"	1-1/16"	3/8"	1"	50.8 x 305	362	565	870	2.37	3.53	9.1
KP 20014 - 106	2" x 14"	1-1/16"	3/8"	1"	50.8 x 356	413	616	972	2.37	3.53	9.8
KP 20016 - 106	2" x 16"	1-1/16"	3/8"	1"	50.8 x 406	464	667	1073	2.37	3.53	10.4
KP 20018 - 106	2" x 18"	1-1/16"	3/8"	1"	50.8 x 457	515	718	1175	2.37	3.53	11.1
KP 20020 - 106	2" x 20"	1-1/16"	3/8"	1"	50.8 x 508	565	768	1276	2.37	3.53	11.7
KP 20024 - 106	2" x 24"	1-1/16"	3/8"	1"	50.8 x 610	667	870	1480	2.37	3.53	13
KP 20028 - 106	2" x 28"	1-1/16"	3/8"	1"	50.8 x 711	769	972	1683	2.37	3.53	14.3
KP 20030 - 106	2" x 30"	1-1/16"	3/8"	1"	50.8 x 762	819	1022	1784	2.37	3.53	15.1
KP 20036 - 106	2" x 36"	1-1/16"	3/8"	1"	50.8 x 914	972	1175	2089	2.37	3.53	17.1



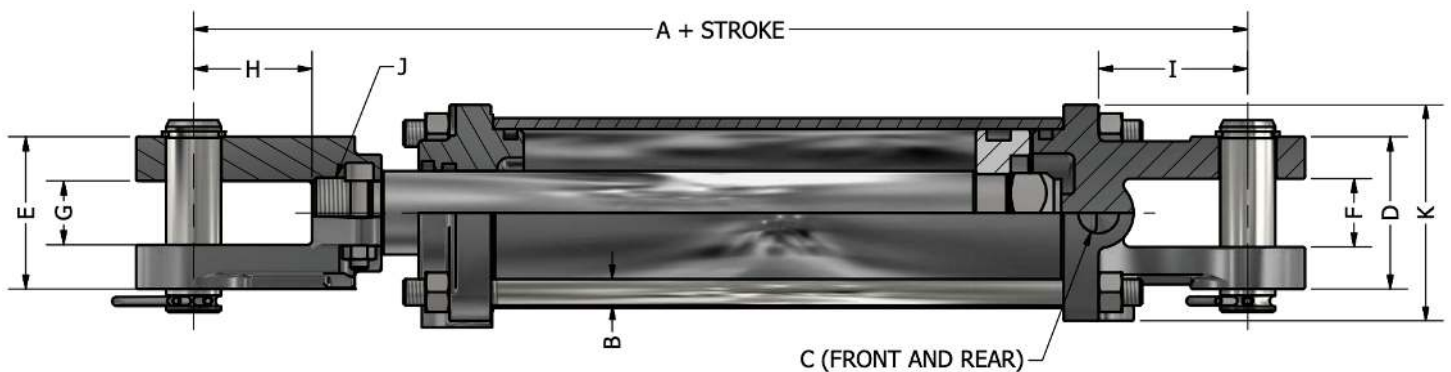
CYLINDER BASIC DIMENSIONS

BORE	A ***	B	C	D & E	F & G	H	I	J	K
2"	10.25"	0.188"	3/8"	2.441"	1.125"	2.125"	2"	1-1/16"	2.874"
50.8mm	260.4mm	4.8mm	NPT	62mm	29mm	54mm	50.8mm	UNF	73mm

KAPPA 150 SERIES 3" BROCHURE

CYLINDER TIE ROD TYPE

	Bore x Stroke inch"	Rod Dia. inch"	Port Size inch"	Clevis Pin inch"	Bore x Stroke mm	Bore x Stroke mm	Closed Length mm	Open Length mm	Rod Force @ 180 Bar (Tons)	Piston Force @ 180 Bar (Tons)	Weight (kg)
KP 30006 - 125	3" x 6"	1-1/4"	1/2"	1"	76.2 x 152	210	413	565	6.74	8.16	10.1
KP 30008 - 125	3" x 8"	1-1/4"	1/2"	1"	76.2 x 203	261	464	667	6.74	8.16	11
KP 30008 - 150	3" x 8"	1-1/2"	1/2"	1"	76.2 x 203	261	464	667	6.74	8.16	12.1
KP 30008 - 125 A	3" x 8" A*	1-1/4"	1/2"	1"	76.2 x 203	261	514	717	6.74	8.16	11.3
KP 30008 - 150 A	3" x 8" A*	1-1/2"	1/2"	1"	76.2 x 203	261	514	717	6.74	8.16	12.4
KP 30010-125	3" x 10"	1-1/4"	1/2"	1"	76.2 x 203	311	514	768	6.74	8.16	13.7
KP 30010-150	3" x 10"	1-1/2"	1/2"	1"	76.2 x 203	311	514	768	6.74	8.16	15
KP 30012-125	3" x 12"	1-1/4"	1/2"	1"	76.2 x 305	362	565	870	6.74	8.16	12.8
KP 30012-150	3" x 12"	1-1/2"	1/2"	1"	76.2 x 305	362	565	870	6.74	8.16	14
KP 30014-125	3" x 14"	1-1/4"	1/2"	1"	76.2 x 356	413	616	972	6.74	8.16	13.7
KP 30014-150	3" x 14"	1-1/2"	1/2"	1"	76.2 x 356	413	616	972	6.74	8.16	15.1
KP 30016-125	3" x 16"	1-1/4"	1/2"	1"	76.2 x 406	464	667	1073	6.74	8.16	14.8
KP 30016-150	3" x 16"	1-1/2"	1/2"	1"	76.2 x 406	464	667	1073	6.74	8.16	16.3
KP 30018-125	3" x 18"	1-1/4"	1/2"	1"	76.2 x 457	515	718	1175	6.74	8.16	15.8
KP 30018-150	3" x 18"	1-1/2"	1/2"	1"	76.2 x 457	515	718	1175	6.74	8.16	17.4
KP 30020-125	3" x 20"	1-1/4"	1/2"	1"	76.2 x 508	565	768	1276	6.74	8.16	16.8
KP 30020-150	3" x 20"	1-1/2"	1/2"	1"	76.2 x 508	565	768	1276	6.74	8.16	18.5
KP 30024-150	3" x 24"	1-1/2"	1/2"	1"	76.2 x 610	667	870	1480	6.74	8.16	21
KP 30028-150	3" x 28"	1-1/2"	1/2"	1"	76.2 x 711	769	972	1683	6.74	8.16	23.6
KP 30030-150	3" x 30"	1-1/2"	1/2"	1"	76.2 x 762	819	1022	1784	6.74	8.16	24.43
KP 30036-150	3" x 36"	1-1/2"	1/2"	1"	76.2 x 914	972	1175	2089	6.74	8.16	28.2
KP 30048-150	3" x 48"	1-1/2"	1/2"	1"	76.2 x 1219	1277	1480	2699	6.74	8.16	43.2
KP 30080-150	3" x 80"	1-1/2"	1/2"	1"	76.2 x 2032	2090	2292	4324	6.74	8.16	52
KP 30120-150	3" x 10"	1-1/2"	1/2"	1"	76.2 x 3048	3105	3308	6356	6.74	8.16	75



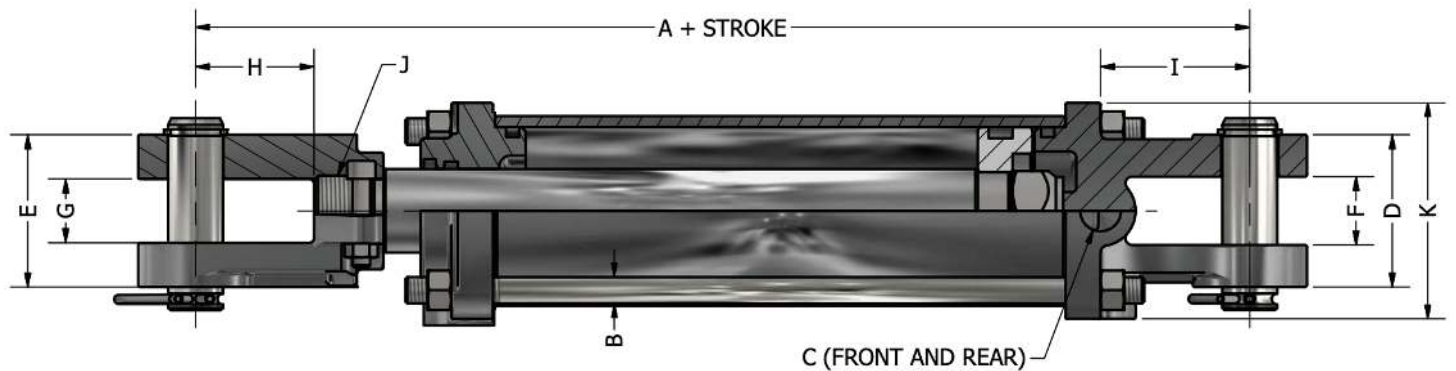
CYLINDER BASIC DIMENSIONS

BORE	A ***	B	C	D & E	F & G	H	I	J	K
3"	10.25"	0.188"	1/2"	2.717"	1.125"	2.125"	2"	1-1/4"	3.78"
76.2mm	260.4mm	4.8mm	NPT	69 mm	29mm	54mm	50.8mm	UNF	96mm

KAPPA 150 SERIES 4" BROCHURE

CYLINDER TIE ROD TYPE

	Bore x Stroke inch"	Rod Dia. inch"	Port Size inch"	Clevis Pin inch"	Bore x Stroke mm	Barrel Length mm	Closed Length mm	Open Length mm	Rod Force @ 180 Bar (Tons)	Piston Force @ 180 Bar (Tons)	Weight (kg)
KP 40008 - 200	4" x 8"	1-1/16"	3/8"	1"	101.6 x 203	261	464	667	10.76	14.41	18
KP 40008 - 200 A	4" x 8"	1-1/16"	3/8"	1"	101.6 x 203	261	514	717	10.76	14.41	18.4
KP 40010 - 200	4" x 8"	1-1/16"	3/8"	1"	101.6 x 254	311	514	768	10.76	14.41	19.1
KP 40012 - 200	4" x 10"	1-1/16"	3/8"	1"	101.6 x 305	362	565	870	10.76	14.41	20.6
KP 40014 - 200	4" x 12"	1-1/16"	3/8"	1"	101.6 x 356	413	616	972	10.76	14.41	0.72
KP 40016 - 200	4" x 14"	1-1/16"	3/8"	1"	101.6 x 406	464	667	1073	10.76	14.41	23.5
KP 40018 - 200	4" x 16"	1-1/16"	3/8"	1"	101.6 x 457	515	718	1175	10.76	14.41	25.2
KP 40020 - 200	4" x 18"	1-1/16"	3/8"	1"	101.6 x 508	565	768	1276	10.76	14.41	28.5
KP 40024 - 200	4" x 20"	1-1/16"	3/8"	1"	101.6 x 610	667	870	1480	10.76	14.41	1.24
KP 40028 - 200	4" x 24"	1-1/16"	3/8"	1"	101.6 x 711	769	972	1683	10.76	14.41	40.2
KP 40030 - 200	4" x 28"	1-1/16"	3/8"	1"	101.6 x 762	819	1022	1784	10.76	14.41	42.2
KP 40036 - 200	4" x 30"	1-1/16"	3/8"	1"	101.6 x 914	972	1175	2089	10.76	14.41	47.5
KP 40048 - 200	4" x 36"	1-1/16"	3/8"	1"	101.6 x 1219	1277	1480	2699	10.76	14.41	56.2
KP 40080 - 200	4" x 36"	1-1/16"	3/8"	1"	101.6 x 2032	2090	2292	4324	10.76	14.41	89.3
KP 400120 - 200	4" x 36"	1-1/16"	3/8"	1"	101.6 x 3048	3105	3308	6356	10.76	14.41	128



CYLINDER BASIC DIMENSIONS

BORE	A ***	B	C	D & E	F & G	H	I	J	K
4"	10.25"	0.25"	1/2"	2.717"	1.125"	2.125"	2.118"	1-1/2"	5.039"
101.6 mm	260.4mm	6.35 mm	NPT	69mm	29mm	54mm	53.8 mm	UNF	128 mm

HYDRAULIC CYLINDER OPERATION FORCE IN TONS

	Ø 40	Ø 40	Ø 50	Ø 50	Ø 63	Ø 63	Ø 80	Ø 80	Ø 100	Ø 100	Ø 125	Ø 125	Ø 160	Ø 160	Ø 200	Ø 200	
BORE	Ø 40	Ø 40	Ø 50	Ø 50	Ø 63	Ø 63	Ø 80	Ø 80	Ø 100	Ø 100	Ø 125	Ø 125	Ø 160	Ø 160	Ø 200	Ø 200	
RODE	Ø 20	Ø 25	Ø 25	Ø 32	Ø 32	Ø 40	Ø 40	Ø 50	Ø 50	Ø 65	Ø 65	Ø 80	Ø 80	Ø 100	Ø 100	Ø 125	
70 BAR	RETRACTING FORCE	0.65	0.53	1.03	0.81	1.61	1.30	2.63	2.14	4.12	3.17	6.26	5.07	10.55	8.57	16.49	13.42
	EXTENDING FORCE	0.88	0.88	1.37	1.37	2.18	2.18	3.51	3.51	5.49	5.49	8.59	8.59	14.07	14.07	21.99	21.99
100 BAR	RETRACTING FORCE	0.94	0.76	1.47	1.15	2.31	1.86	3.77	3.06	5.89	4.53	8.95	7.24	15.08	12.25	23.56	19.14
	EXTENDING FORCE	1.25	1.25	1.96	1.96	3.11	3.11	5.02	5.02	7.85	7.85	12.27	12.27	20.10	20.10	31.42	31.42
140 BAR	RETRACTING FORCE	1.31	1.07	2.06	1.62	3.23	2.60	5.27	4.28	8.24	6.35	12.53	10.14	21.11	17.15	32.99	26.80
	EXTENDING FORCE	1.75	1.75	2.74	2.74	4.36	4.36	7.03	7.03	10.99	10.99	17.18	17.18	28.15	28.15	43.98	43.98
210 BAR	RETRACTING FORCE	1.97	1.60	3.09	2.43	4.85	3.90	7.91	6.43	12.37	9.52	18.80	15.21	31.67	25.73	49.48	40.20
	EXTENDING FORCE	2.63	2.63	4.12	4.12	6.54	6.54	10.55	10.55	16.49	16.49	25.77	25.77	42.22	42.22	65.98	65.98
250 BAR	RETRACTING FORCE	2.35	1.91	3.68	2.89	5.78	4.65	9.40	7.65	14.72	11.34	22.38	18.11	37.70	30.63	58.91	47.87
	EXTENDING FORCE	3.14	3.14	4.90	4.90	7.79	7.79	12.56	12.56	19.63	19.63	30.68	30.68	50.27	50.27	78.55	78.55



HYDRAULIC OIL – RETRACTING FORCE
 HYDRAULIC OIL – EXTENDING FORCE

TESTED AT 1.5 TIMES THE OPERATING PRESSURE

ABOUT KAPPA ENGINEERING

Kappa Engineering was established in 1987 as a general engineering company. Later, the company began specialising in manufacturing, repairing, remanufacturing, assembling, and testing hydraulic cylinders. Kappa Engineering has been synonymous with fast turnaround times and high-quality workmanship in the hydraulic industry for over three decades.

We are proud to say that we support the following industries:



MINING



EARTH
MOVING



DRILLING
AND
EXPLORATION



WASTE
REMOVAL



TRANSPORT



AGRICULTURE

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CYLINDER PRODUCT SUPPORT

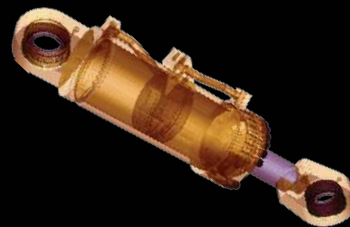
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