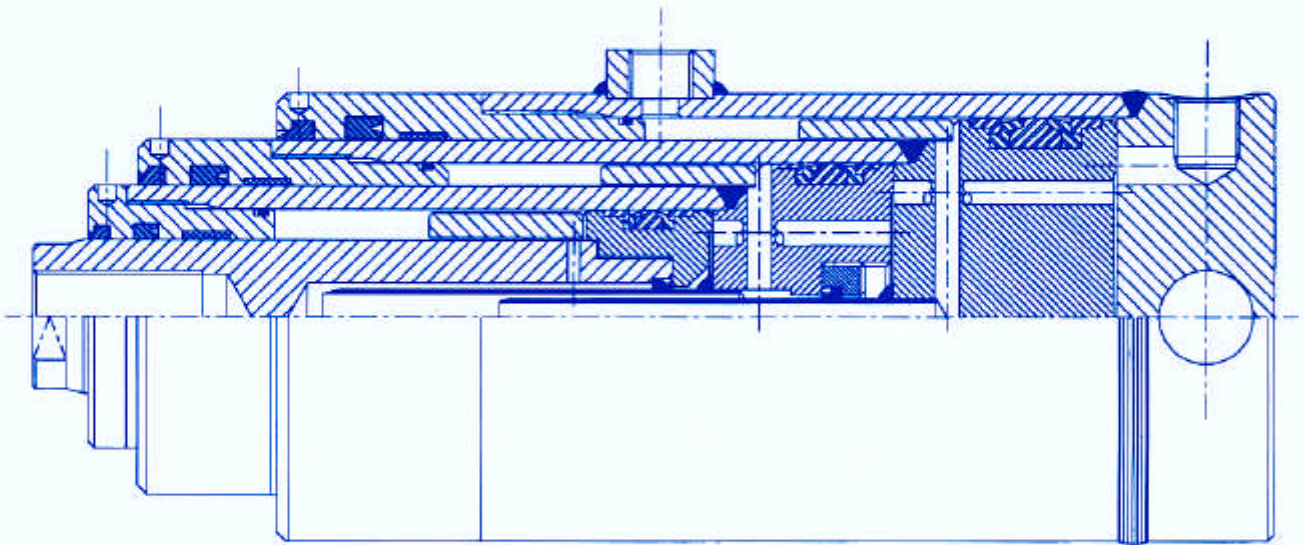




RAM POWER LTD



HYDRAULIC RAMS

TELESCOPIC DOUBLE ACTING METRIC RANGE

General Specifications

Our Telescopic Double Acting Metric range of hydraulic rams are designed for heavy duty industrial service. By utilising welded construction and our many years of experience, combined with a policy of 100% product testing, we are able to provide a comparatively low cost product, on short lead times, with no compromise on quality.

The following booklet is a guide to our standard range of telescopic double acting rams. However, we also have extensive experience with many other types of hydraulic actuator. If you require a product not listed, or to a modified specification, please contact our sales office, who will be happy to advise.

In many long stroke applications where the load decreases through the stroke, telescopic rams are actually cheaper than the standard ram.

For Ram Accessories e.g. rod end eyes, please see our Double Acting Metric ram catalogue.

Maximum pressure rating:	210 Bar (3000 psi)
Test pressure:	315 Bar (4500 psi) Tested in accordance with ISO10100
Maximum rod velocity:	0.5 m/s
Fluid temperature range:	-10 to + 90 degrees C
Ambient temperature range:	-10 to + 90 degrees C
* Fluid specification:	Mineral Oil DIN51524+51525 HL, H-LP & HV ISO HM.
Rod finish:	20 micron hard chromium plate min. Ra = 0.4

* For use with fluids other than mineral oil please contact our sales office. This will ensure that testing is carried out with the correct grade of fluid and that all materials used are compatible.

Part Numbering System

100/2-TDM0-0250

BORE SIZE IN mm

50/2	50mm	BORE
63/2	63mm	BORE
70/3	70mm	BORE
80/2	80mm	BORE
90/3	90mm	BORE
100/2	100mm	BORE
110/3	110mm	BORE
125/2	125mm	BORE
130/3	130mm	BORE
160/2	160mm	BORE
160/3	160mm	BORE
200/2	200mm	BORE
203/3	203mm	BORE
250/3	250mm	BORE

/2 or /3 denotes whether 2 stage or 3 stage ram

STROKE IN mm

Refer to data sheets & buckling calculations for maximum values.

Telescopic Double acting Metric ram style_

Mounting Type	Female Rod Thread	Male Rod Thread
Pin Mounted	TDM0	TDM1
Bushed Pin Hole	TDM16	TDM17
Spherical Eye	TDM32	TDM33
Front Flange	TDM48	TDM49
Trunnion	TDM96	TDM97

The information contained in this publication is for guidance only. We reserve the right to make changes without notice. The responsibility for checking calculations, formulae, graphs and tables lies with the customer. Certified drawings are available on request. The vendor will accept no responsibility for any loss or accident howsoever caused.



Basic Dimensions

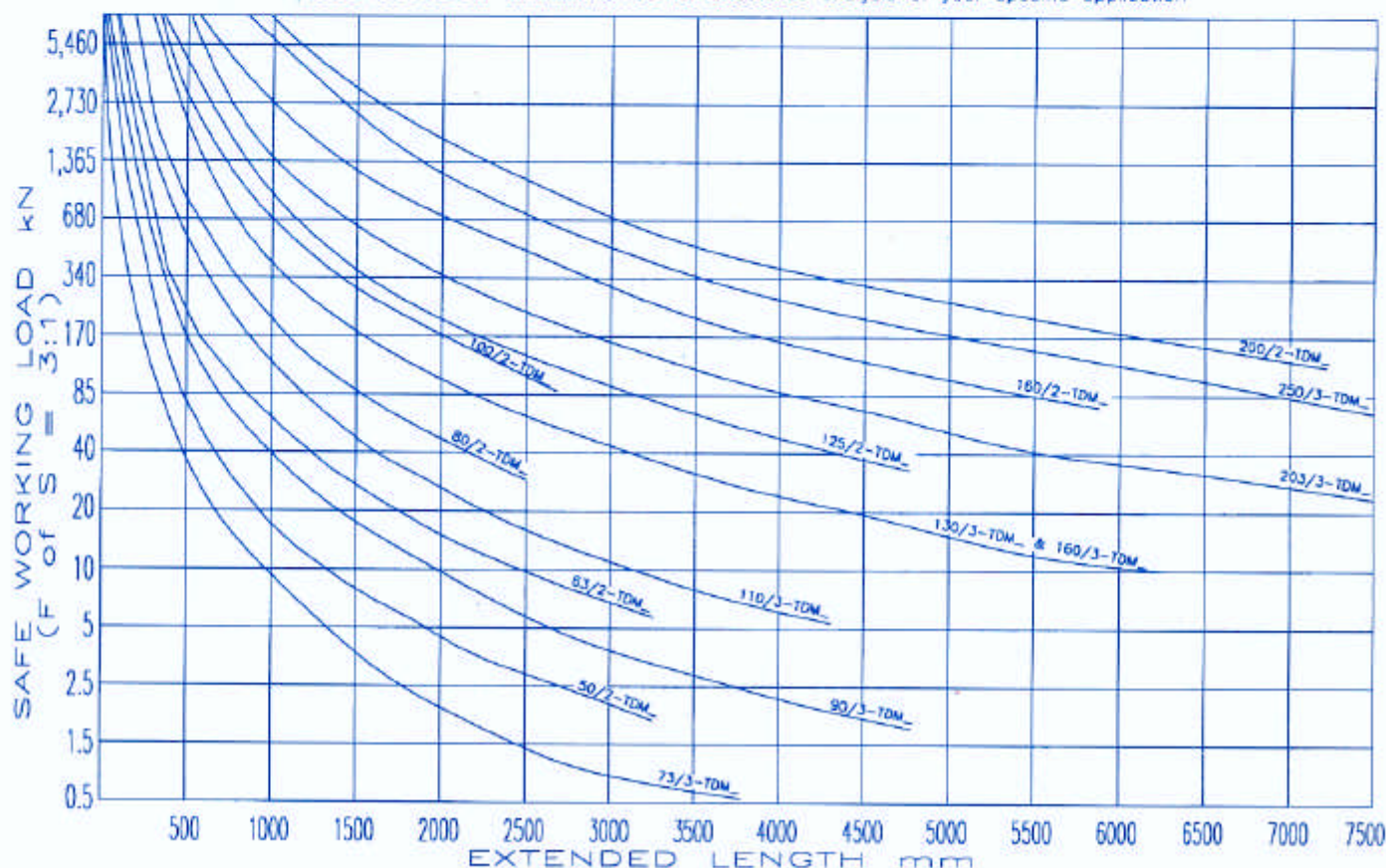
ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED.
FOR MOUNTING DIMENSIONS PLEASE REFER TO RELEVANT PAGE.

TYPE No.	OUTER BORE	1st STAGE ROD DIAMETER	2nd STAGE ROD DIAMETER	3rd STAGE ROD DIAMETER	1st STAGE ⁽¹⁾ THRUST AREA CM ²	2nd STAGE ⁽²⁾ THRUST AREA CM ²	3rd STAGE ⁽³⁾ THRUST AREA CM ²	1st STAGE ⁽¹⁾ PULL AREA CM ²	2nd STAGE ⁽²⁾ PULL AREA CM ²	3rd STAGE ⁽³⁾ PULL AREA CM ²	OUTSIDE DIA.	1st STAGE ⁽¹⁾ ROD THREAD	PORTS B.S.P.
50/2-TDM	50	20	38.1	—	8.04	19.63	—	4.90	8.23	—	60	M18X2.0 30 LONG	3/8"
63/2-TDM	63	28	48	—	12.56	31.17	—	6.41	13.08	—	73	M20X1.5 40 LONG	3/8"
70/3-TDM	70	20	38.1	60	8.04	19.63	38.48	4.90	8.23	10.21	82.6	M18X2.0 30 LONG	3/8"
80/2-TDM	80	36	63	—	19.63	50.26	—	9.46	19.09	—	95	M24X2.0 45 LONG	3/8"
90/3-TDM	90	28	48	75	12.56	31.17	63.61	6.41	13.08	19.43	105	M20X1.5 40 LONG	3/8"
100/2-TDM	100	50	85	—	38.32	78.54	—	18.68	21.79	—	115	M30X2.0 55 LONG	1/2"
110/3-TDM	110	36	63	95	19.63	50.26	95.03	9.46	19.09	24.15	125	M24X2.0 45 LONG	1/2"
125/2-TDM	125	50	96	—	50.26	122.72	—	30.63	50.34	—	145	M38X3.0 75 LONG	1/2"
130/3-TDM	130	50	85	115	38.32	78.54	132.73	18.68	21.79	28.86	145	M30X2.0 55 LONG	1/2"
160/2-TDM	160	70	120	—	78.54	201.06	—	40.06	87.96	—	190	M45X3.0 90 LONG	3/4"
160/3-TDM	160	50	96	140	50.26	122.72	201.06	30.63	50.34	47.12	190	M38X3.0 75 LONG	3/4"
200/2-TDM	200	90	150	—	122.72	314.16	—	59.10	137.44	—	230	M52X3.0 100 LONG	1"
203/3-TDM	203	70	120	185	78.54	201.06	323.65	40.06	87.96	54.85	228.6	M45X3.0 90 LONG	1"
250/3-TDM	250	90	150	228.6	122.72	314.16	490.87	59.10	137.44	80.44	277.9	M52X3.0 100 LONG	1"

- 1) ALL RAMS CAN BE SUPPLIED WITH MALE OR FEMALE THREADS TO INNER ROD IF REQUIRED. SEE PART NUMBERING SYSTEM FOR DETAILS
- 2) CHANGE IN EFFECTIVE AREAS BETWEEN STAGES OCCURS AT 1/2 STROKE FOR /2 RAMS (2 STAGE) AND AT 1/3 & 2/3 STROKE FOR /3 RAMS (3 STAGE)

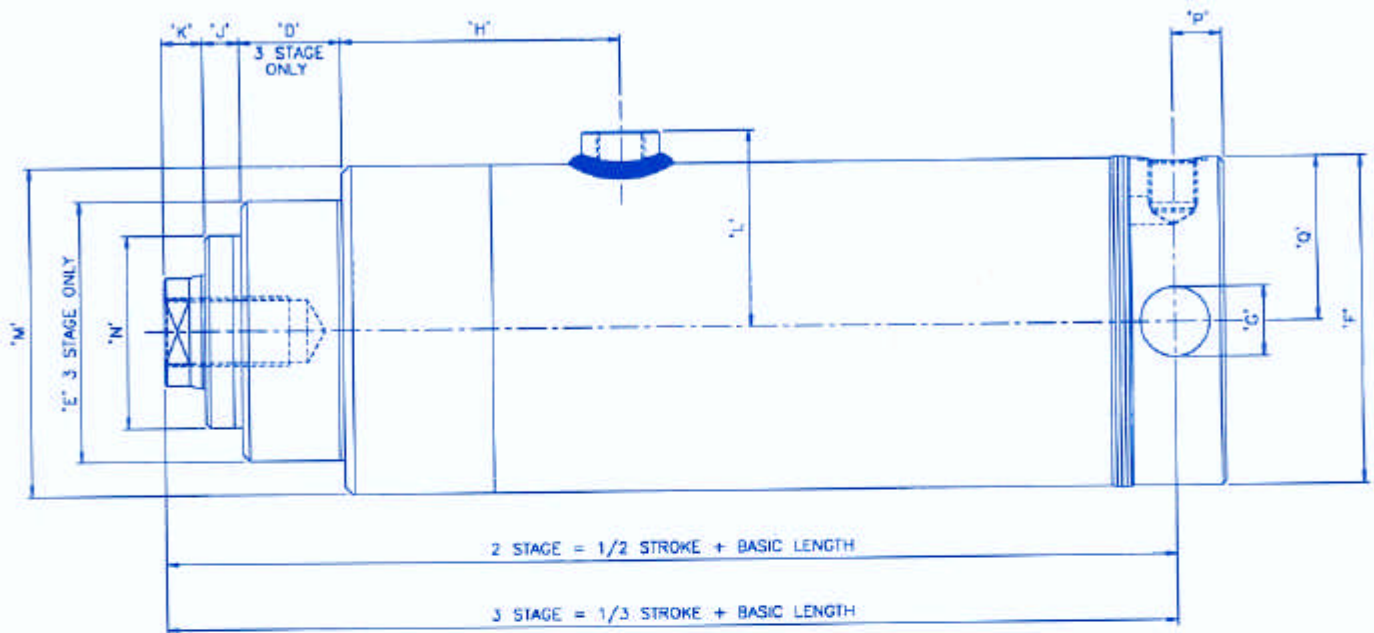
Buckling Calculations (Both ends rounded—for guidance only)

please refer to our technical office for a detailed analysis of your specific application





Pin Mounted Rams

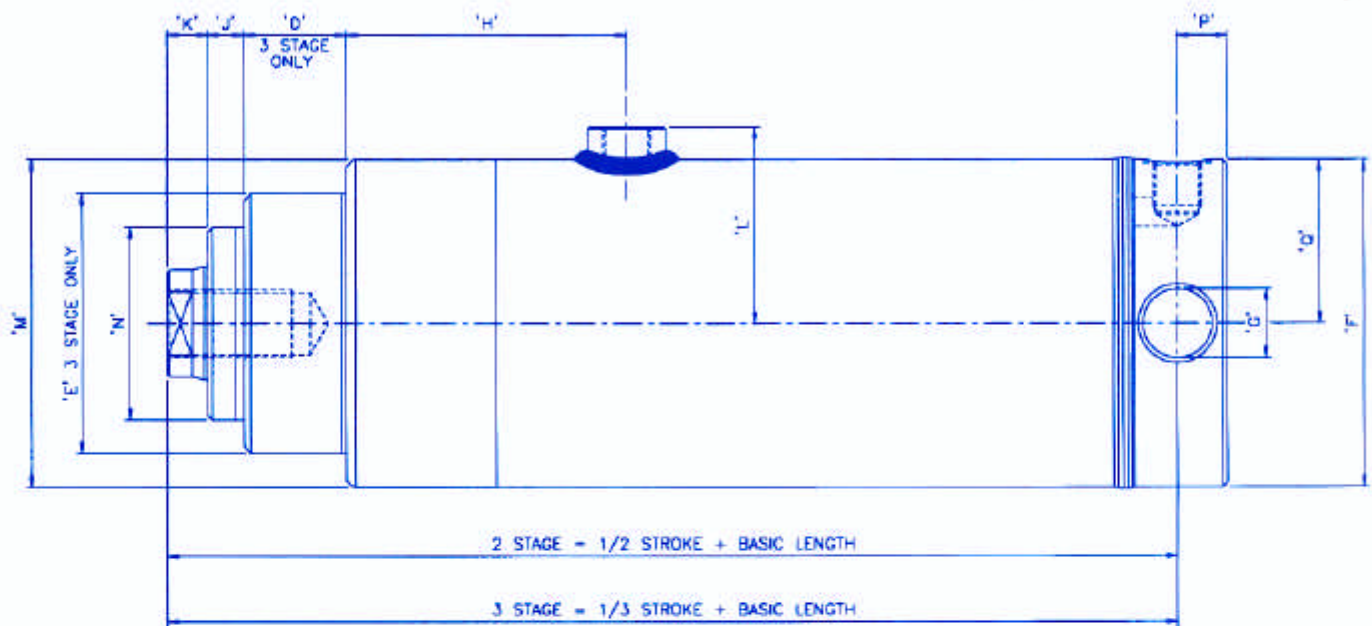


ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED.

TYPE No.	D	E ∅	F ∅	G ∅	H	J	K	L	M ∅	N ∅	P	Q	BASIC LENGTH	STROKE RANGE
50/2-TDMO	—	—	70	17.5	81	20	10	43	60	38	17	32	170	10-500
													220	501-1000
													270	1001-1500
63/2-TDMO	—	—	80	20.5	91	17	15	50	73	48	18	40	180	10-610
													230	611-1000
													280	1001-1500
70/3-TDMO	42	60	82.6	17.5	85	20	10	55	82.6	38	17	41.3	220	10-600
													270	601-1200
													320	1201-1800
80/2-TDMO	—	—	100	25.4	90	17	15	60	95	63	18	48	190	10-400
													240	401-750
													290	751-1100
90/3-TDMO	43	75	105	20.5	95	17	15	66	105	48	18	52.5	240	10-800
													290	801-1400
													340	1401-1900
100/2-TDMO	—	—	115	30.5	105	16	18	71	115	85	24	57.5	210	10-500
													260	501-850
													310	851-1200
110/3-TDMO	39	95	125	25.4	108	17	15	76	125	63	18	62.5	255	10-600
													305	601-1200
													355	1201-1700
125/2-TDMO	—	—	150	40.5	135	37	24	87	145	96	27	75	285	10-1000
													335	1001-1620
													385	1621-2200
130/3-TDMO	45	115	145	30.5	124	16	18	87	145	85	22	72.5	280	10-700
													330	701-1300
													380	1301-1900
160/2-TDMO	—	—	195	50.5	135	42	25	115	190	120	36	97.5	315	10-1100
													395	1101-1900
													475	1901-2700
160/3-TDMO	67	140	190	40.5	135	37	24	115	190	96	27	95	355	10-1300
													405	1301-1900
													455	1901-2500
200/2-TDMO	—	—	235	60.5	181	80	32	135	230	150	39	117.5	415	10-1900
													515	1901-2300
													615	2301-3300
203/3-TDMO	34	185	228.6	50.5	193	42	25	136.5	228.6	120	36	114.3	410	10-1300
													490	1301-2200
													570	2201-3000
250/3-TDMO	18	228.6	278	60.5	255	80	32	162	278	150	40	139	520	10-2100
													620	2101-3000
													720	3001-3900



Bushed Pin Mounted Rams



ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED.

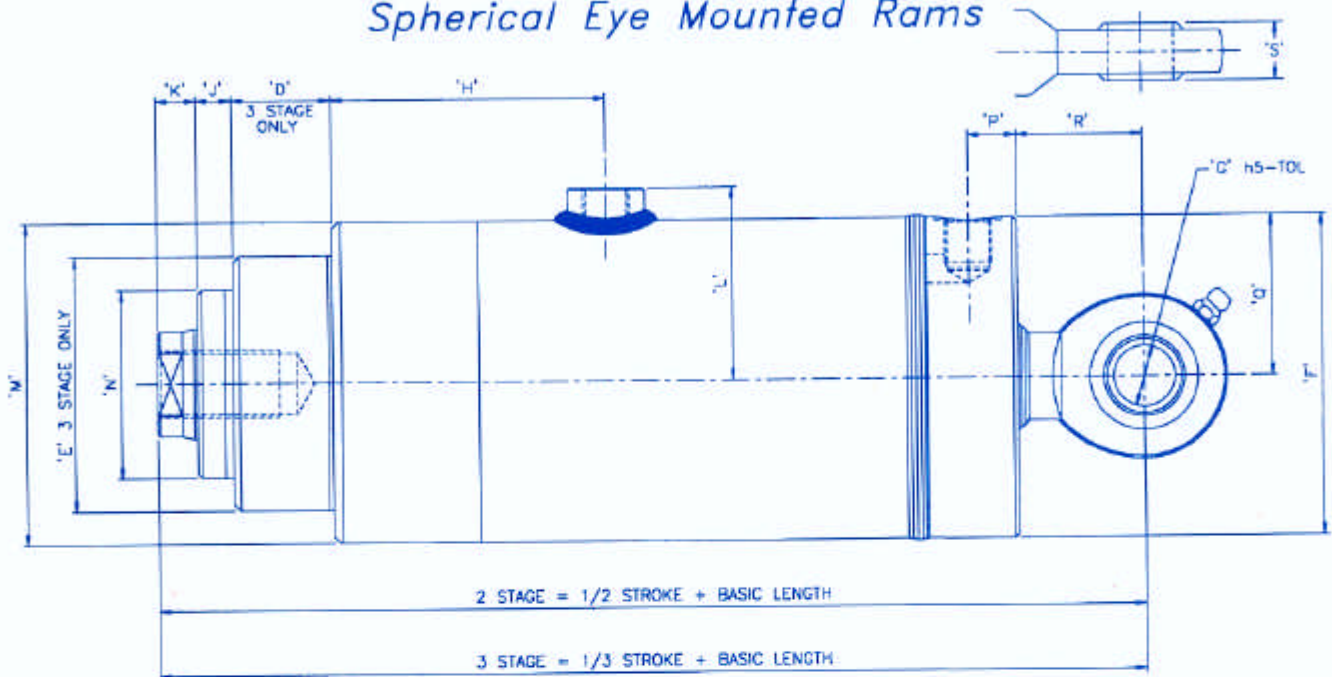
TYPE No.	D	E ∅	F ∅	G ∅H8	H	J	K	L	M ∅	N ∅	P	Q	BASIC LENGTH	STROKE RANGE
50/2-TDM16	—	—	70	17	81	20	10	43	60	38	17	32	170	10-500
													220	501-1000
													270	1001-1500
63/2-TDM16	—	—	80	20	91	17	15	50	73	48	18	40	180	10-610
													230	611-1000
													280	1001-1500
70/3-TDM16	42	60	82.6	17	85	20	10	55	82.6	38	17	41.3	220	10-600
													270	601-1200
													320	1201-1800
80/2-TDM16	—	—	100	25	90	17	15	60	95	63	18	48	190	10-400
													240	401-750
													290	751-1100
90/3-TDM16	43	75	105	20	95	17	15	66	105	48	18	52.5	240	10-800
													290	801-1400
													340	1401-1900
100/2-TDM16	—	—	115	30	105	16	18	71	115	85	24	57.5	210	10-500
													260	501-850
													310	851-1200
110/3-TDM16	39	95	125	25	108	17	15	76	125	63	18	62.5	255	10-600
													305	601-1200
													355	1201-1700
125/2-TDM16	—	—	150	40	135	37	24	87	145	96	27	75	285	10-1000
													335	1001-1620
													385	1621-2200
130/3-TDM16	45	115	145	30	124	16	18	87	145	85	22	72.5	280	10-700
													330	701-1300
													380	1301-1900
160/2-TDM16	—	—	195	50	135	42	25	115	190	120	36	97.5	315	10-1100
													395	1101-1900
													475	1901-2700
160/3-TDM16	67	140	190	40	135	37	24	115	190	96	27	95	355	10-1300
													405	1301-1900
													455	1901-2500
200/2-TDM16	—	—	235	60	181	80	32	135	230	150	39	117.5	415	10-1900
													515	1901-2300
													615	2301-3300
203/3-TDM16	34	185	228.6	50	193	42	25	136.5	228.6	120	36	114.3	410	10-1300
													490	1301-2200
													570	2201-3000
250/3-TDM16	18	228.6	278	60	255	80	32	162	278	150	40	139	520	10-2100
													620	2101-3000
													720	3001-3900



RAM POWER LTD

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Spherical Eye Mounted Rams

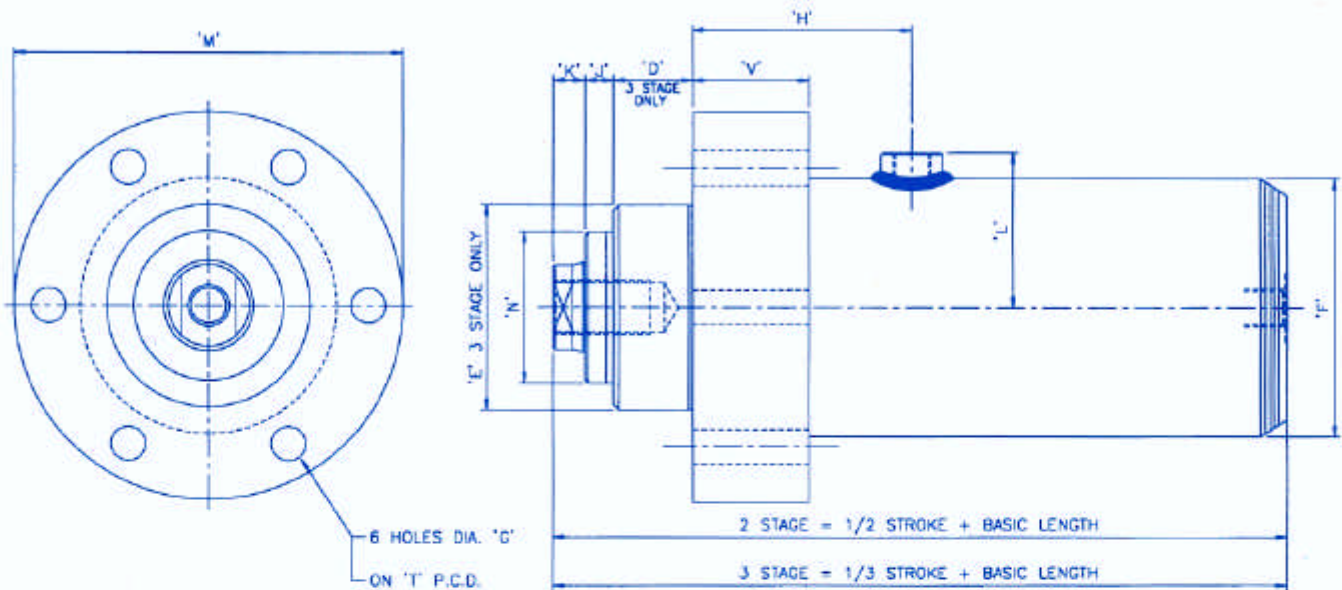


ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED.

TYPE No.	D	E ∅	F ∅	G ∅ h5	H	J	K	L	M ∅	N ∅	P	Q	R	S	BASIC LENGTH	STROKE RANGE
50/2-TDM32	—	—	70	17	81	20	10	43	60	38	17	32	35	14	222	10-500
															272	501-1000
															322	1001-1500
63/2-TDM32	—	—	80	20	91	17	15	50	73	48	18	40	38	16	236	10-610
															286	611-1000
															336	1001-1500
70/3-TDM32	42	60	82.6	17	85	20	10	55	82.6	38	17	41.3	35	14	272	10-600
															322	601-1200
															372	1201-1800
80/2-TDM32	—	—	100	25	90	17	15	60	95	63	18	48	45	20	253	10-400
															303	401-750
															353	751-1100
90/3-TDM32	43	75	105	20	95	17	15	66	105	48	18	52.5	38	16	296	10-800
															346	801-1400
															396	1401-1900
100/2-TDM32	—	—	115	30	105	16	18	71	115	85	24	57.5	51	22	285	10-500
															335	501-850
															385	851-1200
110/3-TDM32	39	95	125	25	108	17	15	76	125	63	18	62.5	45	20	318	10-600
															368	601-1200
															418	1201-1700
125/2-TDM32	—	—	150	40	135	37	24	87	145	96	27	75	69	28	381	10-1000
															431	1001-1620
															481	1621-2200
130/3-TDM32	45	115	145	30	124	16	18	87	145	85	22	72.5	51	22	353	10-700
															403	701-1300
															453	1301-1900
160/2-TDM32	—	—	195	50	135	42	25	115	190	120	36	97.5	88	35	420	10-1100
															500	1101-1900
															580	1901-2700
160/3-TDM32	67	140	190	40	135	37	24	115	190	96	24	95	69	28	446	10-1300
															496	1301-1900
															546	1901-2500
200/2-TDM32	—	—	235	60	181	80	32	135	230	150	39	117.5	100	44	554	10-1900
															654	1901-2300
															754	2301-3300
203/3-TDM32	34	185	228.6	50	193	42	25	136.5	228.6	120	36	114.3	88	35	534	10-1300
															614	1301-2200
															694	2201-3000
250/3-TDM32	18	228.6	278	60	255	80	32	162	278	150	40	139	100	44	660	10-2100
															760	2101-3000
															860	3001-3900



Front Flange Mounted Rams

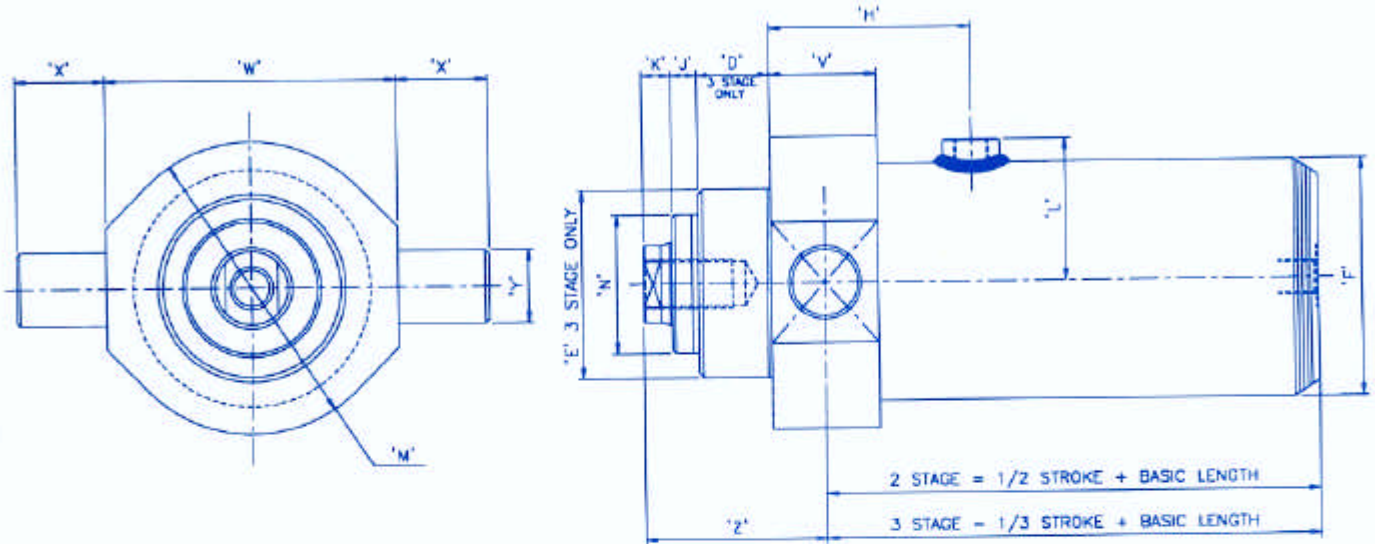


ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED.

TYPE No.	D	E ∅	F ∅	G ∅	H	J	K	L	M ∅	N ∅	T P.C.D.	V	BASIC LENGTH	STROKE RANGE
50/2-TDM4B	—	—	60	11	81	20	10	43	100	38	82	34	170	10-500
													220	501-1000
													270	1001-1500
63/2-TDM4B	—	—	73	13	91	17	15	50	120	48	100	34	184	10-610
													234	611-1000
													284	1001-1500
70/3-TDM4B	42	60	82.6	13	85	20	10	55	130	38	106	34	220	10-600
													270	601-1200
													320	1201-1800
80/2-TDM4B	—	—	95	17	90	17	15	60	150	63	125	38	190	10-400
													240	401-750
													290	751-1100
90/3-TDM4B	43	75	105	17	95	17	15	66	165	48	136	38	240	10-800
													290	801-1400
													340	1401-1900
100/2-TDM4B	—	—	115	21	105	16	18	71	186	85	152	52	205	10-500
													255	501-850
													315	851-1200
110/3-TDM4B	39	95	125	21	108	17	15	76	200	63	165	52	260	10-600
													310	601-1200
													360	1201-1700
125/2-TDM4B	—	—	145	25	135	37	24	87	230	96	188	66	272	10-1000
													322	1001-1620
													372	1621-2200
130/3-TDM4B	45	115	145	25	124	16	18	87	235	85	190	66	280	10-700
													330	701-1300
													380	1301-1900
160/2-TDM4B	—	—	190	37	135	42	25	115	320	120	258	76	296	10-1100
													376	1101-1900
													456	1901-2700
160/3-TDM4B	67	140	190	37	135	37	24	115	320	96	258	76	355	10-1300
													405	1301-1900
													455	1901-2500
200/2-TDM4B	—	—	230	49	181	80	32	135	405	150	320	106	388	10-1900
													488	1901-2300
													588	2301-3300
203/3-TDM4B	34	185	228.6	49	193	42	25	136.5	405	120	320	106	405	10-1300
													485	1301-2200
													565	2201-3000
250/3-TDM4B	18	228.6	278	65	255	80	32	162	500	150	392	150	510	10-2100
													610	2101-3000
													710	3001-3900



Trunnion Mounted Rams



ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED.

TYPE No.	D	E ∅	F ∅	H	J	K	L	M ∅	N ∅	V	W	X	Y 17 ∅	Z	BASIC LENGTH	STROKE RANGE
50/2-TDM96	—	—	60	81	20	10	43	80	38	34	80	25	20	47	123	10-500
															173	501-1000
															223	1001-1500
63/2-TDM96	—	—	73	91	17	15	50	95	48	34	100	35	25	49	135	10-610
															185	611-1000
															235	1001-1500
70/3-TDM96	42	60	82.6	85	20	10	55	95	38	34	100	35	25	89	131	10-600
															181	601-1200
															231	1201-1800
80/2-TDM96	—	—	95	90	17	15	60	120	63	38	120	45	30	51	139	10-400
															189	401-750
															239	751-1100
90/3-TDM96	43	75	105	95	17	15	66	120	48	38	120	45	30	94	146	10-800
															196	801-1400
															246	1401-1900
100/2-TDM96	—	—	115	105	16	18	71	140	85	52	140	50	40	60	145	10-500
															195	501-850
															245	851-1200
110/3-TDM96	39	95	125	108	17	15	76	140	63	52	140	50	40	97	163	10-600
															213	601-1200
															263	1201-1700
125/2-TDM96	—	—	145	135	37	24	87	180	96	66	180	60	50	94	178	10-1000
															228	1001-1620
															278	1621-2200
130/3-TDM96	45	115	145	124	16	18	87	180	85	66	180	60	50	112	168	10-700
															218	701-1300
															268	1301-1900
160/2-TDM96	—	—	190	135	42	25	115	240	120	76	240	80	60	105	191	10-1100
															271	1101-1900
															351	1901-2700
160/3-TDM96	67	140	190	135	37	24	115	240	96	76	240	80	60	166	189	10-1300
															239	1301-1900
															289	1901-2500
200/2-TDM96	—	—	230	181	80	32	135	280	150	106	280	100	80	165	223	10-1900
															323	1901-2300
															423	2301-3300
203/3-TDM96	34	185	228.6	193	42	25	136.5	280	120	106	280	100	80	154	251	10-1300
															331	1301-2200
															411	2201-3000
250/3-TDM96	18	228.6	278	255	80	32	162	350	150	150	350	100	100	205	305	10-2100
															405	2101-3000
															505	3001-3900