

## 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 refer to our double acting metric range.

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 minerals are compatible.

## TELESCOPIC DOUBLE ACTING METRIC RANGE

### ◀ PART NUMBERING SYSTEM ▶

How our part numbering system works:

example:

**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 and 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 the 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.

## TELESCOPIC DOUBLE ACTING METRIC RANGE

### ◀ BASIC DIMENSIONS ▶

All dimensions in millimeters unless otherwise stated. For mounting dimensions please refer to relevant page.

Type No.	Outer Bore	1st Stage			2nd Stage 2)			3rd Stage 2)			Outer Ø	Rod Thread	Ports B.S.P.
		Rod Ø	Rod Ø	Rod Ø	Thrust Area cm <sup>2</sup>	Thrust Area cm <sup>2</sup>	Thrust Area cm <sup>2</sup>	Pull Area cm <sup>2</sup>	Pull Area cm <sup>2</sup>	Pull Area cm <sup>2</sup>			
50/2-TDM_	50	20	38.1	-	8.04	19.63	-	4.90	8.23	-	60	M16x2.0 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	M16x2.0 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	M39x3.0 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	M39x3.0 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"

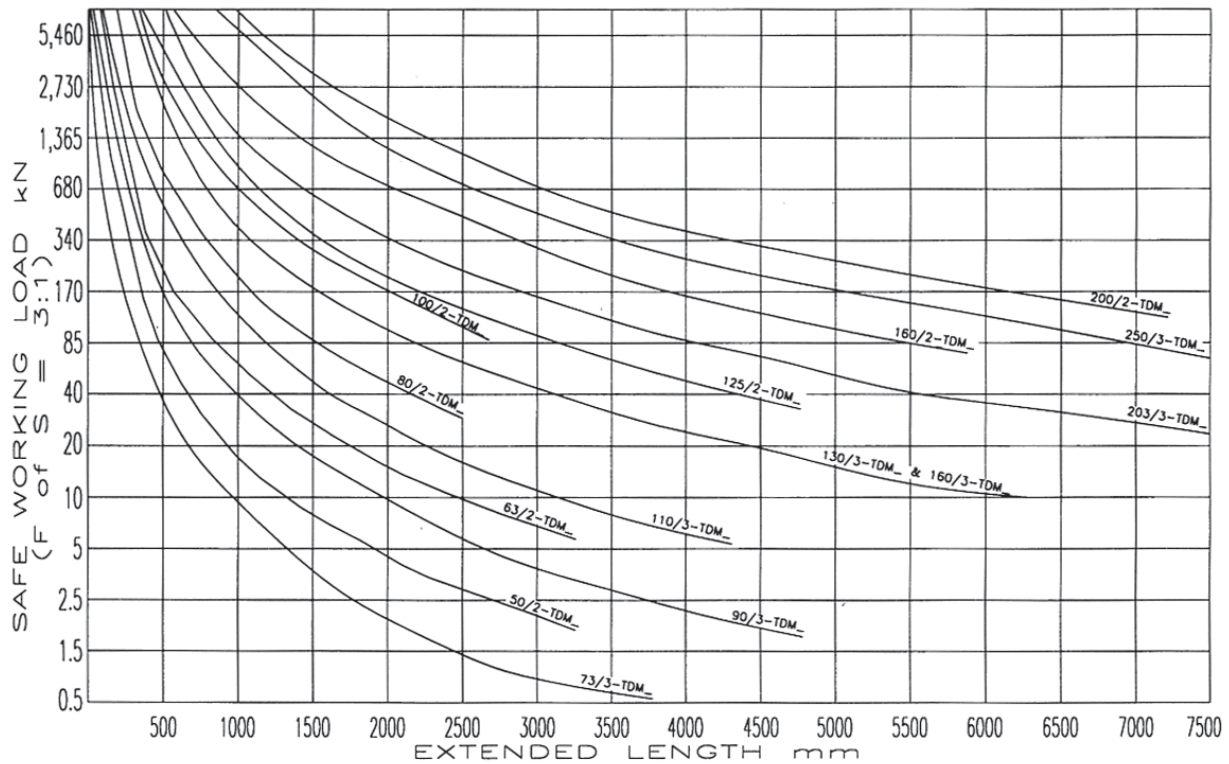
1) All rams can be supplied with male or female threads to inner rod if required. See part numbering system for details.

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).

## TELESCOPIC DOUBLE ACTING METRIC RANGE

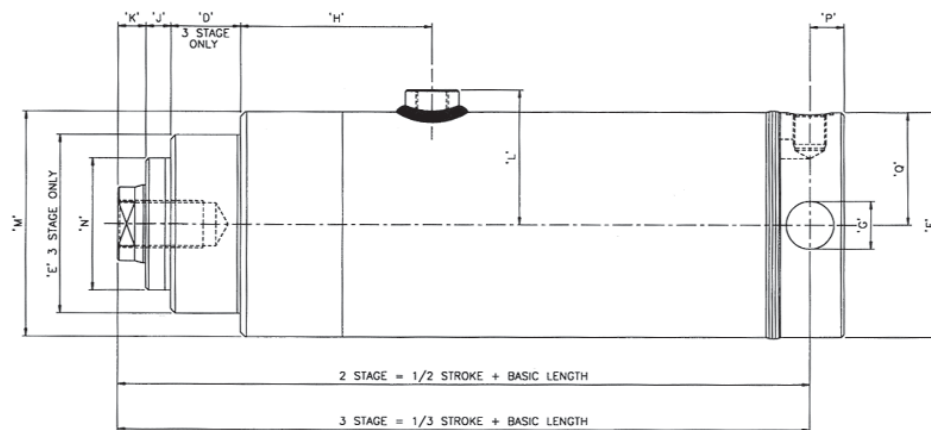
### ◀ BUCKLING CALCULATIONS ▶

Both ends rounded - for guidance only. Please refer to our technical office for a detailed analysis of your specific application.



## TELESCOPIC DOUBLE ACTING METRIC RANGE

### ◀ PIN MOUNTED RAMS ▶

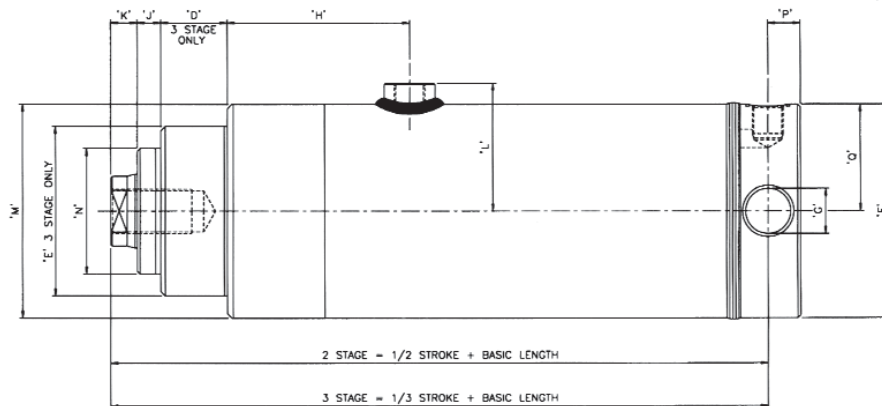


All dimensions in millimeters unless otherwise stated.

Type No.	D	E Ø	F Ø	G Ø	H	J	K	L	M Ø	N Ø	P	Q	Basic Length	Stroke Range
50/2-TDM0	-	-	70	17.5	81	20	10	43	60	38	17	32	170 220 270	10-500 501-1000 1001-1500
63/2-TDM0	-	-	80	20.5	91	17	15	50	73	48	18	40	180 230 280	10-610 611-1000 1001-1500
70/3-TDM0	42	60	82.6	17.5	85	20	10	55	82.6	38	17	41.3	220 270 320	10-600 601-1200 1201-1800
80/2-TDM0	-	-	100	25.4	90	17	15	60	95	63	18	48	190 240 290	10-400 401-750 751-1100
90/3-TDM0	43	75	105	20.5	95	17	15	66	105	48	18	52.5	240 290 340	10-800 801-1400 1401-1900
100/2-TDM0	-	-	115	30.5	105	16	18	71	115	85	24	57.5	210 260 310	10-500 501-850 851-1200
110/3-TDM0	39	95	125	25.4	108	17	15	76	125	63	18	62.5	255 305 355	10-600 601-1200 1201-1700
125/2-TDM0	-	-	150	40.5	135	37	24	87	145	96	27	75	285 335 385	10-1000 1001-1620 1621-2200
130/3-TDM0	45	115	145	30.5	124	16	18	87	145	85	22	72.5	280 330 380	10-700 701-1300 1301-1900
160/2-TDM0	-	-	195	50.5	135	42	25	115	190	120	36	97.5	315 395 475	10-1100 1101-1900 1901-2700
160/3-TDM0	67	140	190	40.5	135	37	24	115	190	96	27	95	355 405 455	10-1300 1301-1900 1901-2500
200/2-TDM0	-	-	235	60.5	181	80	32	135	230	150	39	117.5	415 515 615	10-1900 1901-2300 2301-3300
203/3-TDM0	34	185	228.6	50.5	193	42	25	136.5	228.6	120	36	114.3	410 490 570	10-1300 1301-2200 2201-3000
250/3-TDM0	18	228.6	278	60.5	255	80	32	162	278	150	40	139	520 620 720	10-2100 2101-3000 3001-3900

## TELESCOPIC DOUBLE ACTING METRIC RANGE

◀ BUSHED PIN MOUNTED RAMS ▶

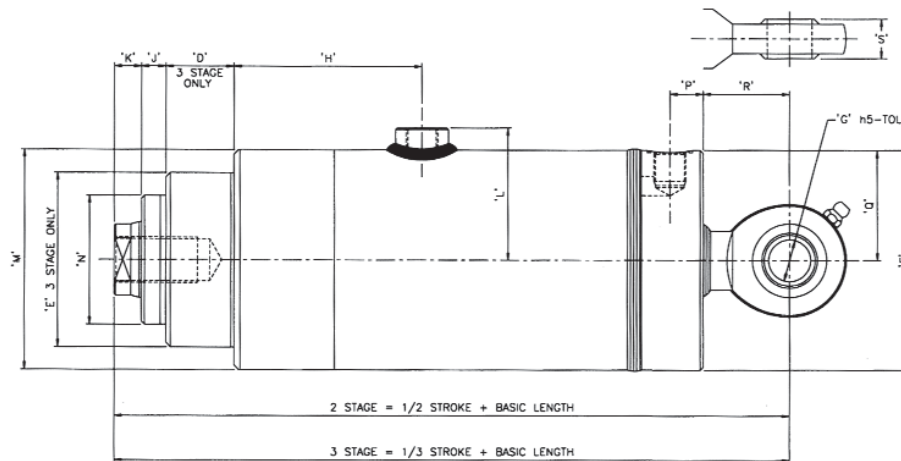


All dimensions in millimeters unless otherwise stated.

Type No.	D	E Ø	F Ø	G ØH8	H	J	K	L	M Ø	N Ø	P	Q	Basic Length	Stroke Range
50/2-TDM16	-	-	70	17	81	20	10	43	60	38	17	32	170 220 270	10-500 501-1000 1001-1500
63/2-TDM16	-	-	80	20	91	17	15	50	73	48	18	40	180 230 280	10-610 611-1000 1001-1500
70/3-TDM16	42	60	82.6	17	85	20	10	55	82.6	38	17	41.3	220 270 320	10-600 601-1200 1201-1800
80/2-TDM16	-	-	100	25	90	17	15	60	95	63	18	48	190 240 290	10-400 401-750 751-1100
90/3-TDM16	43	75	105	20	95	17	15	66	105	48	18	52.5	240 290 340	10-800 801-1400 1401-1900
100/2-TDM16	-	-	115	30	105	16	18	71	115	85	24	57.5	210 260 310	10-500 501-850 851-1200
110/3-TDM16	39	95	125	25	108	17	15	76	125	63	18	62.5	255 305 355	10-600 601-1200 1201-1700
125/2-TDM16	-	-	150	40	135	37	24	87	145	96	27	75	285 335 385	10-1000 1001-1620 1621-2200
130/3-TDM16	45	115	145	30	124	16	18	87	145	85	22	72.5	280 330 380	10-700 701-1300 1301-1900
160/2-TDM16	-	-	195	50	135	42	25	115	190	120	36	97.5	315 395 475	10-1100 1101-1900 1901-2700
160/3-TDM16	67	140	190	40	135	37	24	115	190	96	27	95	355 405 455	10-1300 1301-1900 1901-2500
200/2-TDM16	-	-	235	60	181	80	32	135	230	150	39	117.5	415 515 615	10-1900 1901-2300 2301-3300
203/3-TDM16	34	185	228.6	50	193	42	25	136.5	228.6	120	36	114.3	410 490 570	10-1300 1301-2200 2201-3000
250/3-TDM16	18	228.6	278	60	255	80	32	162	278	150	40	139	520 620 720	10-2100 2101-3000 3001-3900

## TELESCOPIC DOUBLE ACTING METRIC RANGE

### ◀ SPHERICAL EYE MOUNTED RAMS ▶

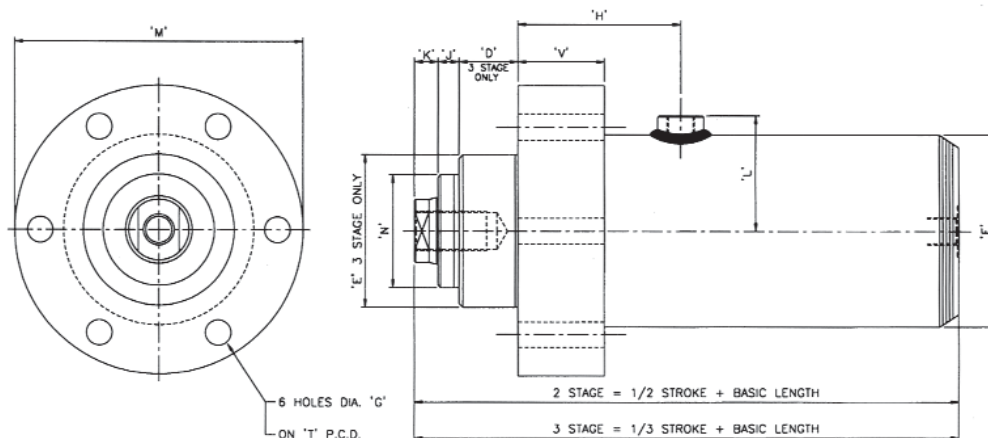


All dimensions in millimeters unless otherwise stated.

Type No.	D	E Ø	F Ø	G ØH5	H	J	K	L	M Ø	N Ø	P	Q	R	S	Basic Length	Stroke Range
50/2-TDM32	-	-	70	17	81	20	10	43	60	38	17	32	35	14	222 272 322	10-500 501-1000 1001-1500
63/2-TDM32	-	-	80	20	91	17	15	50	73	48	18	40	38	16	236 286 336	10-610 611-1000 1001-1500
70/3-TDM32	42	60	82.6	17	85	20	10	55	82.6	38	17	41.3	35	14	272 322 372	10-600 601-1200 1201-1800
80/2-TDM32	-	-	100	25	90	17	15	60	95	63	18	48	45	20	253 303 353	10-400 401-750 751-1100
90/3-TDM32	43	75	105	20	95	17	15	66	105	48	18	52.5	38	16	296 346 396	10-800 801-1400 1401-1900
100/2-TDM32	-	-	115	30	105	16	18	71	115	85	24	57.5	51	22	285 335 385	10-500 501-850 851-1200
110/3-TDM32	39	95	125	25	108	17	15	76	125	63	18	62.5	45	20	318 368 418	10-600 601-1200 1201-1700
125/2-TDM32	-	-	150	40	135	37	24	87	145	96	27	75	69	28	381 431 481	10-1000 1001-1620 1621-2200
130/3-TDM32	45	115	145	30	124	16	18	87	145	85	22	72.5	51	22	353 403 453	10-700 701-1300 1301-1900
160/2-TDM32	-	-	195	50	135	42	25	115	190	120	36	97.5	88	35	420 500 580	10-1100 1101-1900 1901-2700
160/3-TDM32	67	140	190	40	135	37	24	115	190	96	24	95	69	28	446 496 546	10-1300 1301-1900 1901-2500
200/2-TDM32	-	-	235	60	181	80	32	135	230	150	39	117.5	100	44	554 654 754	10-1900 1901-2300 2301-3300
203/3-TDM32	34	185	228.6	50	193	42	25	136.5	228.6	120	36	114.3	88	35	534 614 694	10-1300 1301-2200 2201-3000
250/3-TDM32	18	228.6	278	60	255	80	32	162	278	150	40	139	100	44	660 760 860	10-2100 2101-3000 3001-3900

## TELESCOPIC DOUBLE ACTING METRIC RANGE

### ◀ FRONT FLANGE MOUNTED RAMS ▶

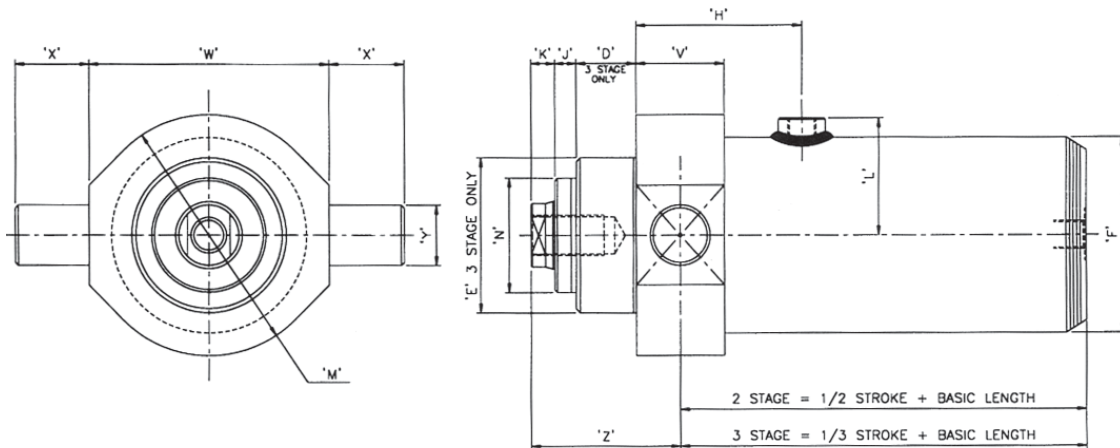


All dimensions in millimeters unless otherwise stated.

Type No.	D	E Ø	F Ø	G Ø	H	J	K	L	M Ø	N Ø	T P.C.D.	V	Basic Length	Stroke Range
50/2-TDM48	-	-	60	11	81	20	10	43	100	38	82	34	170 220 270	10-500 501-1000 1001-1500
63/2-TDM48	-	-	73	13	91	17	15	50	120	48	100	34	184 234 284	10-610 611-1000 1001-1500
70/3-TDM48	42	60	82.6	13	85	20	10	55	130	38	106	34	220 270 320	10-600 601-1200 1201-1800
80/2-TDM48	-	-	95	17	90	17	15	60	150	63	125	38	190 240 290	10-400 401-750 751-1100
90/3-TDM48	43	75	105	17	95	17	15	66	165	48	136	38	240 290 340	10-800 801-1400 1401-1900
100/2-TDM48	-	-	115	21	105	16	18	71	186	85	152	52	205 255 315	10-500 501-850 851-1200
110/3-TDM48	39	95	125	21	108	17	15	76	200	63	165	52	260 310 360	10-600 601-1200 1201-1700
125/2-TDM48	-	-	145	25	135	37	24	87	230	96	188	66	272 322 372	10-1000 1001-1620 1621-2200
130/3-TDM48	45	115	145	25	124	16	18	87	235	85	190	66	280 330 380	10-700 701-1300 1301-1900
160/2-TDM48	-	-	190	37	135	42	25	115	320	120	258	76	296 376 456	10-1100 1101-1900 1901-2700
160/3-TDM48	67	140	190	37	135	37	24	115	320	96	258	76	355 405 455	10-1300 1301-1900 1901-2500
200/2-TDM48	-	-	230	49	181	80	32	135	405	150	320	106	388 488 588	10-1900 1901-2300 2301-3300
203/3-TDM48	34	185	228.6	49	193	42	25	136.5	405	120	320	106	405 485 565	10-1300 1301-2200 2201-3000
250/3-TDM48	18	228.6	278	65	255	80	32	162	500	150	392	150	510 610 710	10-2100 2101-3000 3001-3900

## TELESCOPIC DOUBLE ACTING METRIC RANGE

### ◀ FRONT FLANGE MOUNTED RAMS ▶



All dimensions in millimeters unless otherwise stated.

Type No.	D	E Ø	F Ø	H	J	K	L	M Ø	N Ø	V	W	X	Y F7Ø	Z	Basic Length	Stroke Range
50/2-TDM96	-	-	60	81	20	10	43	80	38	34	80	25	20	47	123 173 223	10-500 501-1000 1001-1500
63/2-TDM96	-	-	73	91	17	15	50	95	48	34	100	35	25	49	135 185 235	10-610 611-1000 1001-1500
70/3-TDM96	42	60	82.6	85	20	10	55	95	38	34	100	35	25	89	131 181 231	10-600 601-1200 1201-1800
80/2-TDM96	-	-	95	90	17	15	60	120	63	38	120	45	30	51	139 189 239	10-400 401-750 751-1100
90/3-TDM96	43	75	105	95	17	15	66	120	48	38	120	45	30	94	146 196 246	10-800 801-1400 1401-1900
100/2-TDM96	-	-	115	105	16	18	71	140	85	52	140	50	40	60	145 195 245	10-500 501-850 851-1200
110/3-TDM96	39	95	125	108	17	15	76	140	63	52	140	50	40	97	163 213 263	10-600 601-1200 1201-1700
125/2-TDM96	-	-	145	135	37	24	87	180	96	66	180	60	50	94	178 228 278	10-1000 1001-1620 1621-2200
130/3-TDM96	45	115	145	124	16	18	87	180	85	66	180	60	50	112	168 218 268	10-700 701-1300 1301-1900
160/2-TDM96	-	-	190	135	42	25	115	240	120	76	240	80	60	105	191 271 351	10-1100 1101-1900 1901-2700
160/3-TDM96	67	140	190	135	37	24	115	240	96	76	240	80	60	166	189 239 289	10-1300 1301-1900 1901-2500
200/2-TDM96	-	-	230	181	80	32	135	280	150	106	280	100	80	165	223 323 423	10-1900 1901-2300 2301-3300
203/3-TDM96	34	185	228.6	193	42	25	136.5	280	120	106	280	100	80	154	251 331 411	10-1300 1301-2200 2201-3000
250/3-TDM96	18	228.6	278	255	80	32	162	350	150	150	350	100	100	205	305 405 505	10-2100 2101-3000 3001-3900