

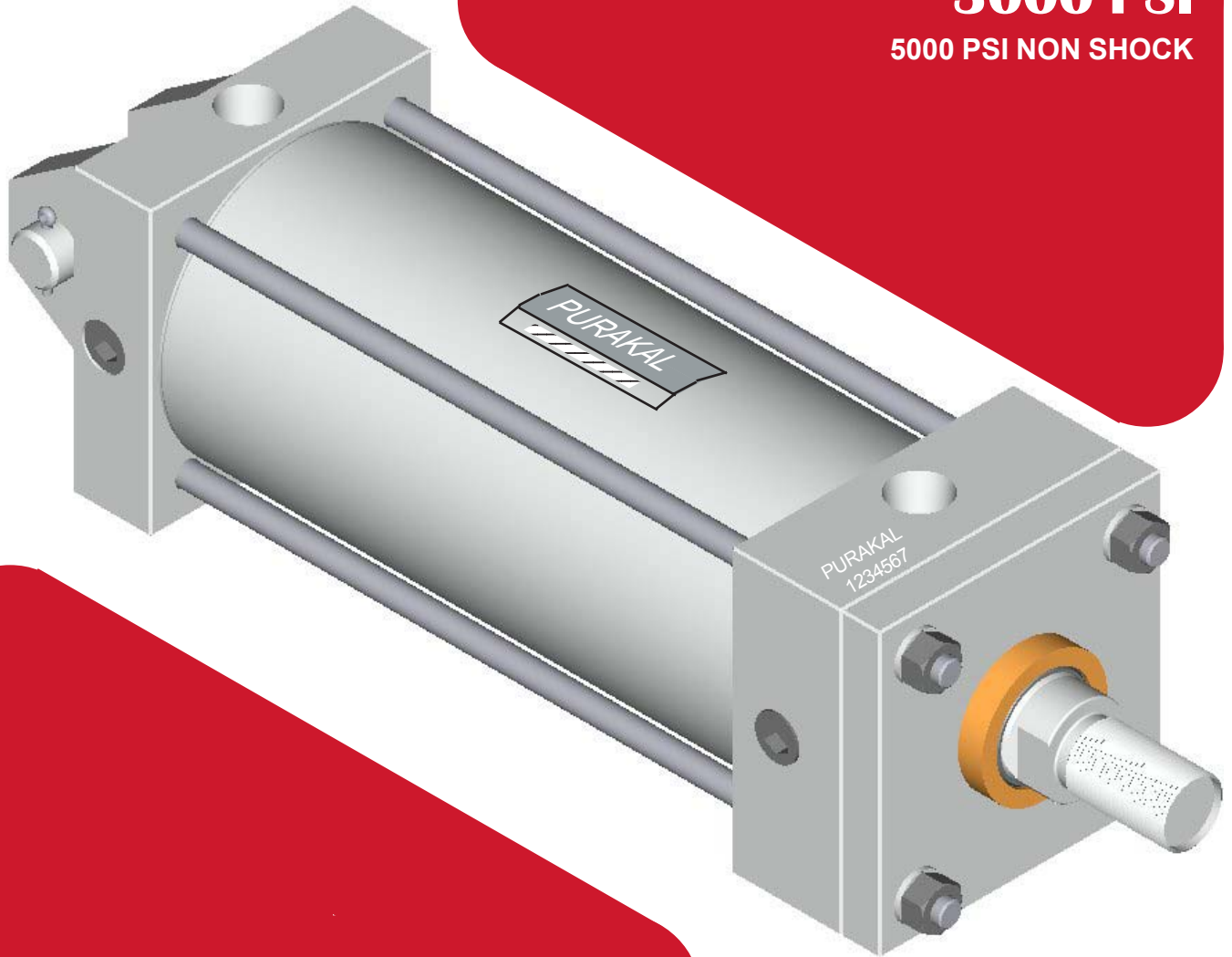
# PURAKAL

CYLINDERS, INC

## SERIES 3000

### 3000 PSI

5000 PSI NON SHOCK



## HYDRAULIC CYLINDER

### PURAKAL CYLINDERS, INC

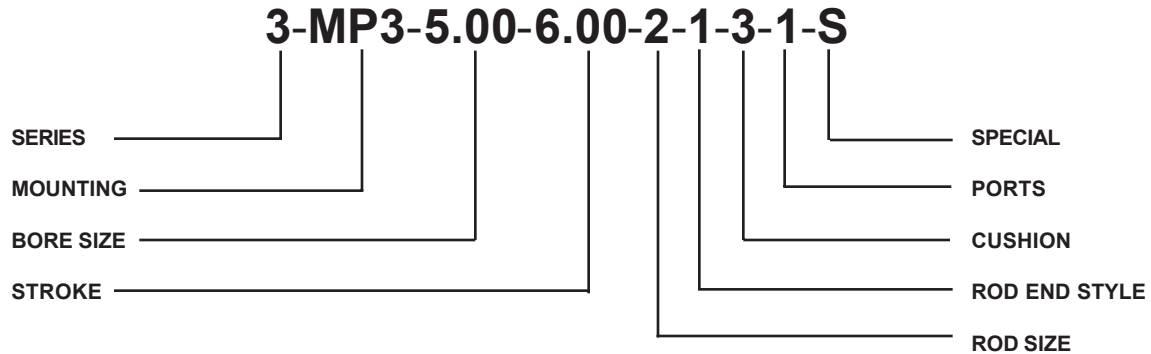
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Catalog 300001

# ORDER INFORMATION

The example that follows illustrates the basic order code system. Use this code system for accurate and efficient processing of your cylinder order.



## SERIES

- 1 = 100 (Air and low pressure hydraulic)
- 2 = 2500 (Welded hydraulic)
- 3 = 3000 (Hydraulic)
- 4 = 3050 (Transducer positioning)
- 5 = 3500 (Extra heavy duty hydraulic)

## MOUNTING

- |     |      |
|-----|------|
| MX0 | ME5  |
| MX1 | ME6  |
| MX2 | MT1  |
| MX3 | MT2  |
| MD  | MT4  |
| MF1 | MS2  |
| MF2 | MS4  |
| MF5 | MP1  |
| MF6 | MP3  |
|     | MPU3 |

## BORE SIZE (INCHES)

- |      |       |
|------|-------|
| 1.50 | 5.00  |
| 2.00 | 6.00  |
| 2.50 | 8.00  |
| 3.25 | 10.00 |
| 4.00 | 12.00 |

(7, 14, and other special sizes available on request)

## STROKE (INCHES)

XXX.XX

## ROD SIZE

- 1 = Standard #1 (smallest standard)
- 2 = Standard #2
- 3 = Oversized

## ROD END STYLE

- 1 = Standard male thread (KK)
- 2 = Oversized male thread (CC)
- 3 = Female thread (KK)
- 4 = Special thread size
- 5 = Safety coupler

## CUSHIONING

- 0 = Non cushioned
- 1 = Cushioned on rod end only
- 2 = Cushioned on blind end only
- 3 = Cushioned on both ends

## PORTS

- 1 = NPT
- 2 = SAE

## SPECIAL

Specify any special features. A sketch may be submitted to facilitate your order.

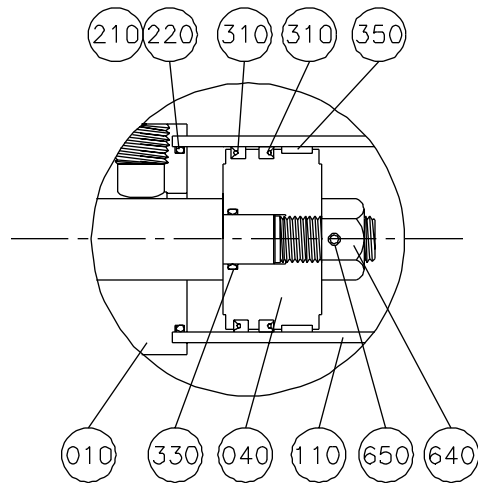
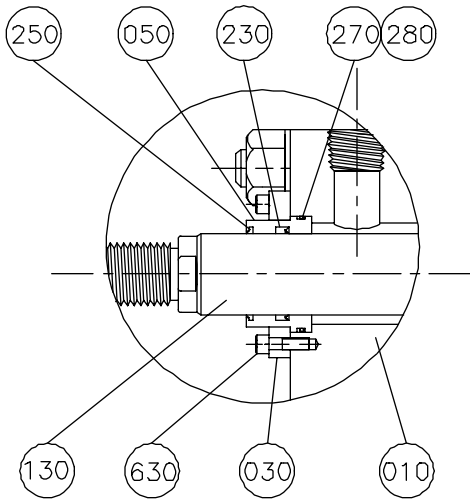
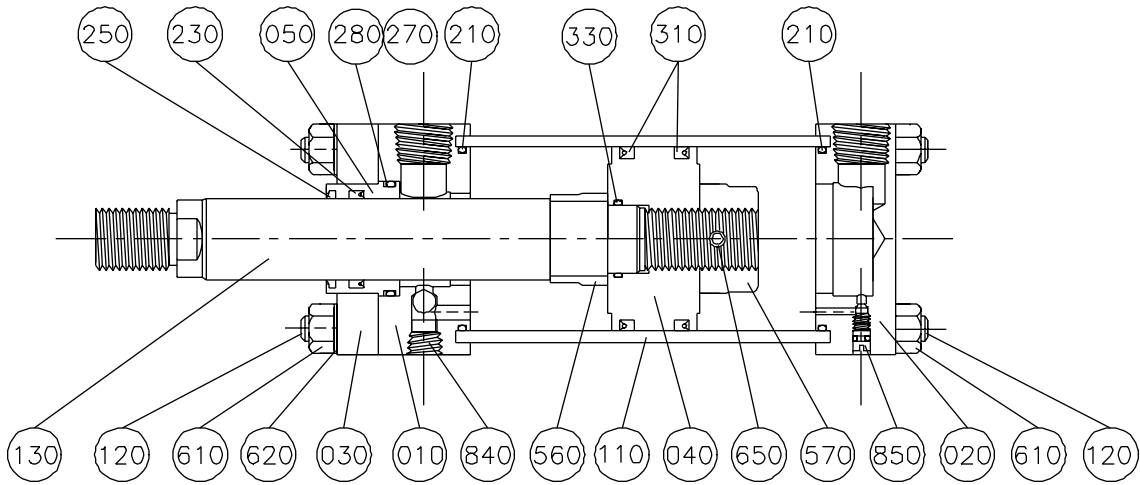
# PURAKAL SERIES 3000

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**WARRANTY:** Our products are warranted for one year to be free from defects in workmanship and material. We will replace or repair at our election, including lowest transportation costs, any product that our inspection shows to be defective. Any claim under this warranty must be made within ten days after Buyer's receipt of the product shipped or, in the event the defect is incapable of discovery until in use or in processing in the manufacture of other products, within ten days after buyer learns of the alleged defect giving rise to the claim. In any event, any such claim must be made within the one year period covered by this warranty. We assume no liability for consequential damages of any kind, or for damages arising from a claim of negligence. Our liability is limited to the replacement or repair of the defective part.

## PURAKAL SERIES 3000 PARTS LIST



- |  |  |
|--|--|
| 010 Rod Head   | 310 Piston O.D. Seal (Cup)             |
| 020 Blind Head   | 330 Piston I.D. Seal ('O' Ring)        |
| 030 Retainer Plate (through 5" bore)<br>Retainer Cap (6" and larger) | 350 Piston Wear Ring (5" and larger)   |
| 040 Piston   | 560 Rod End Cushion Sleeve             |
| 050 Rod Bearing  | 570 Blind End Cushion Sleeve           |
| 110 Barrel   | 610 Tie Rod Nut                        |
| 120 Tie Rod  | 620 Hardened Washer                    |
| 130 Piston Rod   | 630 Retainer Cap Screw (6" and larger) |
| 210 Barrel Seal ('O' Ring)   | 640 Piston Nut                         |
| 220 Barrel Seal Backup (7" and larger)                               | 650 Piston Lock                        |
| 230 Rod Seal (Deep Cup)  | 840 Ball Check Assembly                |
| 250 Rod Wiper  | 850 Cushion Adjusting Valve Assembly   |
| 270 Bearing O.D. Seal ('O' Ring)                                     | 860 Seal Kit                           |
| 280 Bearing O.D. Seal (Backup)                                       | 870 Repair Kit                         |

**REPAIR KIT CONTENTS:**  
**ITEMS 050 210 220 230 250 270 280 310 330 350**

**SEAL KIT CONTENTS:**  
**ITEMS 210 220 230 250 270 280 310 330 350**

To insure the proper components and to speed your order please specify:

1. Serial number of cylinder.
2. Part number or drawing number of cylinder (if applicable).
3. Model (series and mounting style).
4. Bore of cylinder.
5. Stroke of cylinder.
6. Piston rod diameter.

## **PURAKAL SERIES 3000 CYLINDER FEATURES**

<b>ADJUSTABLE CUSHION VALVE:</b>	This infinite adjustment feature can be obtained at an additional cost for all bores and rod sizes that are not fixed cushioned. Standard position is #2.
<b>BALL CHECK ASSEMBLY:</b>	Ball check assemblies are supplied as standard for most cushioned cylinders. Standard position is #4.
<b>BARREL:</b>	Standard material is cold drawn seamless honed steel tubing, grade 1026.
<b>CUSHIONS:</b>	All cylinders are supplied as non-cushioned unless otherwise requested. Certain 1 1/2", 2", and 2 1/2" bore cylinders are limited to fixed, non adjustable cushions. For longer cushions, check with the factory.
<b>FLUID:</b>	Series 3000 cylinders are designed for operation with mineral based hydraulic fluid. Specify any special fluids or lubricants if required.
<b>MOUNTINGS:</b>	All cylinder mountings are interchangeable with standard NFPA envelope mounting dimensions. Special mountings can be obtained if needed.
<b>PISTON:</b>	The one piece design gives our pistons longer life. For strength, the piston is threaded to the rod and is mechanically locked to the rod through the piston nut or cushion sleeve.
<b>PISTON ROD:</b>	Standard supplied rods are hard chrome plated with a 90,000 PSI or better tensile strength. Special material or strength requirements can be obtained upon request.
<b>PORTING:</b>	Standard cylinders will be supplied with SAE 'O' ring ports. NPT ports of appropriate size are an option at no extra cost. The standard location for ports is position #1. Specify any position (1, 2, 3, or 4) for either head end.
<b>PRESSURES:</b>	Series 3000 hydraulic cylinders are rated at 3000 PSI non shock service. See the table on page 4.
<b>RETAINERS:</b>	A retainer plate is used for all cylinders through 5" bore. Retainer caps are used for cylinders 6" and above.
<b>ROD BEARINGS:</b>	Longer length and 660 bronze material give our bearings extended life.
<b>ROD WIPER:</b>	Wipers are made of urethane. Brass wipers are available at extra cost.
<b>SEALS:</b>	Piston O.D. seals are "square" cross-section polyurethane cups. "Deep" cups are used for the rod seal. 'O' rings are used for the static seals.
<b>TEMPERATURES:</b>	Series 3000 cylinders operate continuously at -10 degrees F to 165 degrees F. For special temperature or medium, contact our engineering department.
<b>TOLERANCES:</b>	All dimensions are in inches with tolerances of $\pm 1/32$ ". There will be an additional cost for closer tolerances.

# PURAKAL SERIES 3000 CYLINDER SELECTION

## SELECT THE BORE SIZE

Use the table below to select the cylinder bore size that provides the required force at the desired working pressure. As a general guideline, select a cylinder that provides about 10% more force than the minimum requirement.

After selecting the proper size cylinder for the job use the envelope and mounting dimension charts to determine cylinder dimensions.

CYL BORE DIA	PISTON ROD DIA	PRESSURE RATING		CYL WORK ACTION	WORK AREA SQ IN	WORKING PRESSURE PSI										FLUID REQUIRED PER INCH OF STROKE	
		HEAVY DUTY SERVICE	4:1 SAFETY FACTOR			250	500	750	1000	1250	1500	1750	2000	2500	3000	GAL	CU FT
1 1/2	5/8 1	3000	1800	PUSH	1.767	442	884	1325	1767	2209	2651	3093	3534	4418	5301	.0077	.00102
				PULL	1.460	365	730	1095	1460	1825	2191	2556	2921	3651	4381	.0063	.00084
				PULL	0.982	245	491	736	982	1227	1473	1718	1963	2454	2945	.0043	.00057
2	1 1 3/8	3000	3400	PUSH	3.141	785	1571	2356	3142	3927	4712	5498	6283	7854	9425	.0136	.00182
				PULL	2.356	589	1178	1767	2356	2945	3534	4123	4712	5890	7069	.0102	.00136
				PULL	1.656	414	828	1243	1657	2071	2485	2899	3313	4142	4970	.0072	.00096
2 1/2	1 1 3/8 1 3/4	3000	2000	PUSH	4.909	1227	2454	3682	4909	6136	7363	8590	9817	12272	14726	.0213	.00284
				PULL	4.124	1031	2062	3093	4123	5154	6185	7216	8247	10308	12370	.0179	.00239
				PULL	3.424	856	1712	2568	3424	4280	5136	5992	6848	8560	10272	.0148	.00198
				PULL	2.504	626	1252	1878	2503	3129	3755	4381	5007	6259	7510	.0108	.00145
3 1/4	1 3/8 1 3/4 2	3000	2200	PUSH	8.296	2074	4148	6222	8296	10370	12444	14518	16592	20739	24887	.0359	.00480
				PULL	6.811	1703	3405	5108	6811	8514	10216	11919	13622	17027	20433	.0295	.00394
				PULL	5.891	1473	2945	4418	5890	7363	8836	10308	11781	14726	17671	.0255	.00341
				PULL	5.154	1289	2577	3866	5154	6443	7731	9020	10308	12885	15463	.0223	.00298
4	1 3/4 2 2 1/2	3000	2300	PUSH	12.566	3142	6283	9425	12566	15708	18850	21991	25133	31416	37699	.0544	.00727
				PULL	10.161	2540	5081	7621	10161	12701	15242	17782	20322	25403	30483	.0440	.00588
				PULL	9.424	2356	4712	7069	9425	11781	14137	16493	18850	23562	28274	.0408	.00545
				PULL	7.657	1914	3829	5743	7658	9572	11486	13401	15315	19144	22973	.0331	.00443
5	2 2 1/2 3 1/2	3000	2500	PUSH	19.635	4909	9817	14726	19635	24544	29452	34361	39270	49087	58905	.0850	.01136
				PULL	16.492	4123	8247	12370	16493	20617	24740	28863	32987	41233	49480	.0714	.00954
				PULL	14.726	3682	7363	11045	14726	18408	22089	25771	29452	36816	44179	.0637	.00852
				PULL	10.014	2503	5007	7510	10014	12517	15021	17524	20028	25035	30041	.0433	.00580
6	2 1/2 3 4	3000	2300	PUSH	28.274	7069	14137	21206	28274	35343	42411	49480	56549	70686	84823	.1224	.01636
				PULL	23.365	5841	11683	17524	23366	29207	35048	40890	46731	58414	70997	.1011	.01352
				PULL	21.205	5301	10603	15904	21206	26507	31809	37110	42411	53014	63617	.0918	.01227
				PULL	15.708	3927	7854	11781	15708	19635	23562	27489	31416	39270	47124	.0680	.00909
8	3 1/2 4 5 1/2	3000	2300	PUSH	50.265	12566	25133	37699	50265	62832	75398	87965	100531	125664	150796	.2176	.02909
				PULL	40.644	10161	20322	30483	40644	50805	60966	71128	81289	101611	121933	.1759	.02352
				PULL	37.699	9425	18850	28274	37699	47124	56549	65973	75398	94248	113097	.1632	.02182
				PULL	26.507	6627	13254	19880	26507	33134	39761	46388	53014	66268	79521	.1147	.01534
10	4 1/2 5 1/2 7	3000	2700	PUSH	78.540	19635	39270	58905	78540	98175	117810	137445	157080	196349	235619	.3400	.04545
				PULL	62.636	15659	31318	46977	62635	78294	93953	109612	125271	156589	187906	.2717	.03625
				PULL	54.782	13695	27391	41086	54781	68477	82172	95868	109563	136954	164344	.2372	.03170
				PULL	40.055	10014	20028	30041	40055	50069	60083	70097	80111	100138	120166	.1740	.02319
12	5 1/2 7 8	3000	3300	PUSH	113.100	28274	56549	84823	113097	141372	169646	197920	226194	282743	339292	.4896	.06545
				PULL	89.339	22335	44669	67004	89339	111674	134008	156343	178678	223347	268017	.3868	.05170
				PULL	74.613	18653	37306	55960	74613	93266	111919	130572	149226	186532	223838	.3230	.04333
				PULL	62.830	15708	31416	47124	62832	78540	94248	109956	125664	157080	188495	.2719	.03636

## SELECT THE PISTON ROD SIZE

For most tension applications, the smallest standard rod diameter is adequate. For a push application, determine the proper rod size using the following procedure.

Determine the maximum load that will be imposed on the rod.

Identify the mounting style and the corresponding "L" dimension from the Mounting Style illustration on the following page.

Determine the stop tube length, if required, from the

discussion at right. For mounting styles B, C, D, and J, add the stop tube length to the "L" dimension to obtain the basic column length.

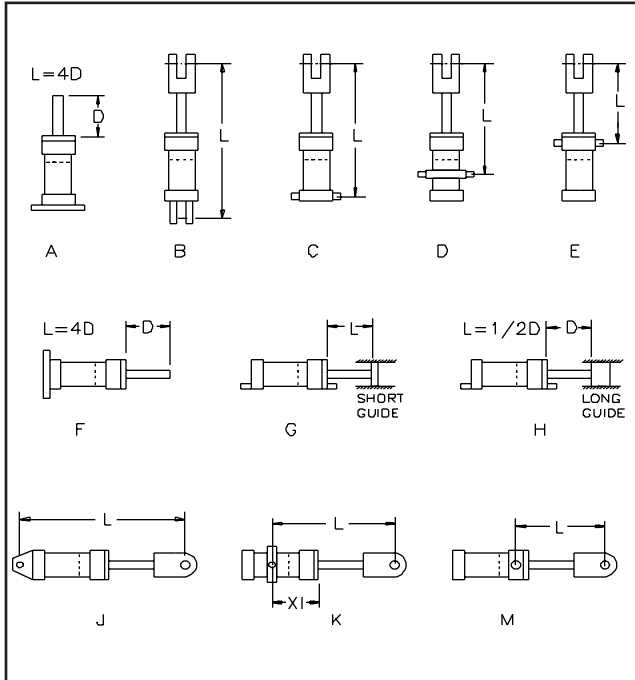
Refer to the Allowable Column Load table on page 5 and select the line with a thrust load greater than or equal to your requirement.

Scan to the right until a length greater than or equal to your basic column length is encountered.

Read the required piston rod diameter at the top of the column.

## PURAKAL SERIES 3000 PISTON ROD SIZES

### MOUNTING STYLES



### STOP TUBE LENGTH

Stop tubes are spacers which increase the distance between the piston and rod head, maintaining alignment of the piston rod and cylinder bore. This reduces the eccentricity in the column, resulting in lower bending stress in the rod. The increased span also reduces the bearing stress on the piston and rod bearings.

Stop tubes are advisable for long stroke push cylinders mounted as styles A, B, C, D, J, and K. When the value of "L" exceeds 50 inches, use one whole inch of stop tube for each 10 inches of length in excess of 50 inches.

For a horizontally mounted cylinder with piston rod unsupported and no weight added to the rod (style F), use one whole inch of stop tube for every 10 inches of length in excess of 50 inches.

For horizontally mounted styles J, K, and M, it is advisable to calculate the bearing loads with the rod fully extended. The bearing loads should be limited to 200 psi for smooth operation and long life and not more than 350 psi under any condition.

For style K (center trunnion cylinder), the most favorable rod bearing load is obtained with the XI dimension equal to about 1/3 the total collapsed cylinder length.

### ALLOWABLE COLUMN LOAD

THRUST (LBS)	PISTON ROD DIAMETER												
	5/8	1	1 3/8	1 3/4	2	2 1/2	3	3 1/2	4	4 1/2	5 1/2	7	8
50	62												
100	55	112											
200	47	99											
300	44	88	142										
500	38	75	130	180									
750	28	70	122	170	198	272							
1,000	25	60	103	156	191	258	332						
1,250	21	52	94	140	183	251	316	400					
1,500	19	50	92	136	168	240	300	390					
2,000	15	43	81	113	150	229	291	360	430	500			
4,000	12	31	62	96	120	170	252	309	380	445			
6,000		25	52	80	100	160	197	262	346	407			
8,000		22	45	75	99	134	189	230	310	372			
10,000		21	40	67	89	121	173	210	268	334	480		
20,000			27	48	63	104	142	171	216	275	375		
30,000				40	51	81	115	155	204	233	320		
40,000				30	45	70	99	135	176	225	292	420	
50,000					35	62	90	121	162	198	260	407	
60,000						56	82	110	144	181	254	382	
70,000						48	74	103	133	168	246	366	
80,000						43	70	96	125	157	234	352	400
90,000						37	66	90	119	149	225	340	387
100,000							60	84	112	141	212	330	373
125,000							48	76	100	125	190	308	344
150,000								64	91	115	174	288	320
200,000								55	69	100	150	259	281
250,000									80	134	233	254	
300,000										121	212	232	
350,000										105	196	217	
400,000										85	180	200	
450,000											163	187	
500,000												172	

## **PURAKAL SERIES 3000 CYLINDER INSTALLATION**

**WARNING:** Hydraulic systems may contain large levels of stored energy. Do not attempt to connect, disconnect, test, or repair a hydraulic device unless properly trained. Always exhaust the pressure from a system before performing any service work. Make certain all ports are properly connected or vented before pressurizing a cylinder. Disregarding this warning could result in serious, possibly fatal, injury.

### **General Recommendations**

Before plumbing the cylinder, all lines in the system should be flushed to remove any contamination. The shipping plugs on the cylinder should not be removed until immediately before the lines are connected. Clean fluid is essential for long life and satisfactory operation of not only cylinders but pumps and valves as well. Keep oil tanks covered and provide proper filtration.

The most important consideration in mounting your cylinder is proper alignment that does not induce excessive side loads. Side loads or off-center thrust will result in accelerated wear of the rod bearing and seals and can cause chatter and binding. Forcing the mounting bolts or clevis pins into position indicates improper alignment.

The piston should not be allowed to bottom out against the cylinder head at the end of stroke. Either provide external stops or use a cushioned cylinder which will stop the piston just before it reaches the end of its stroke. (Cushions are not a substitute for speed controls or deceleration valves. Standard cushions will not handle large inertial loads.)

### **Flush Mounts (MS-2, MS-4)**

These cylinders should be pinned or keyed to prevent shifting from load application. Keys should be bolted or welded against the cylinder heads in maximum pressure or shock applications. Pins or keys must be large enough to withstand the full force developed by the cylinder. Always use top quality, high strength bolts to fasten the cylinder.

### **Flange Mounts (MF-1, MF-2, MF-5, MF-6, ME-5, ME-6)**

The rod bearing can be used for precise alignment of the cylinder. After centering, the flange should be pinned to the mounting surface to prevent shifting under load.

### **Trunnion Mounts (MT-1, MT-2, MT-4)**

Trunnion mounted cylinders swivel in one direction only with trunnion pins designed to carry shear loads only. The pins must fit the pillow block bearings closely and pillow blocks must be rigid and accurately aligned.

### **Clevis/Pivot Mounts (MP-1, MP-3, MPU-3)**

The pin and/or clevis centerlines of the cylinder and the attached linkage must all be held parallel to each other. Use an MPU-3 universal clevis mount if this alignment cannot be guaranteed. An MPU-3 automatically compensates for 5 to 10 degrees of misalignment in any direction.

### **Cushion Adjustment**

A noncushioned cylinder requires no further adjustment after it has been installed and properly aligned. A cushioned cylinder, after installation and alignment, must be adjusted to obtain the degree of cushioning required. An adjustment is provided by a screw-type needle valve in either or both ends of the cylinder. This valve controls the rate at which trapped fluid is allowed to meter from the end of the cylinder when the piston is near the end of its stroke. Turn the needle valve clockwise to increase the amount of cushioning and counter-clockwise to decrease cushioning. The recommended starting point is with the adjuster backed off 1/4 turn from the fully closed position. The normal operating range is from zero to 1/2 turn. Under no circumstances should the valve be adjusted more than 1 1/2 turns from the fully closed position. To obtain the most effective cushioning, final adjustments must be made while the cylinder is operating under normal conditions at normal operating pressure.



# PURAKAL SERIES 3000 CYLINDER MAINTENANCE

## General Recommendations

Cylinders should be visually inspected at frequent intervals for damage, wear and leakage, and if problems are observed the cylinder must be removed for repair. Fluid leakage due to seal wear is the most common problem, however seal life depends on many factors and is difficult to predict. As a guideline, two years or one million cycles of operation should be considered the maximum interval between overhauls.

## Disassembly and Repair

Obtain the appropriate Purakal seal kit before beginning the job. Refer to page 2 for ordering information.

Always exhaust the pressure from a system before performing any service work. Disconnect the lines from both ports of the cylinder. Disassemble the cylinder using the assembly view on page 2 as a guide. The rod assembly normally does not require disassembly. No special tools are required.

Clean the metal parts with an appropriate solvent and blow dry with low pressure air. Examine each part carefully for signs of wear or damage. Look for score marks on the rod, piston, rod bearing, and barrel and replace any component with a sharp edge that would damage seals. Minor scratches or superficial roughness may be smoothed with 400 grit emory cloth and/or "ScotchBright" pads. Take care not to rub through the chrome plating on the piston rod. Particular attention should be given to the rod bearing since cylinder leakage can result from a worn bearing. A scored or rough rod bearing must be replaced before it damages the piston rod and, subsequently, the rod seal.

## Reassembly

1. Use new seals, freely lubricated with system hydraulic fluid. Install in the grooves, using extreme caution to avoid damaging a seal. Even a tiny nick can cause leakage.
2. Install the barrel on the base end head, taking care not to damage the barrel seal.
3. Lubricate the piston and cylinder bore with system hydraulic fluid. Carefully insert the piston in the cylinder barrel, then install the rod end head.
4. For bore size 5" and smaller, install the rod bearing and retainer plate. (Larger sizes use a retainer cap; bearing and

cap are installed later.) Use caution not to nick the rod seal as you slide the bearing over the rod end thread.

5. Install the tie rods and torque to the appropriate value in the table on the inside back cover page. Tie rod nuts should be lubricated in order to produce the expected preload at the specified torque. Tighten the nuts in a crossing pattern, using locking pliers to prevent the tie rods from twisting.

7. For bore sizes 6 inch and larger, the final step is installation of the rod bearing, retained with a cap secured with socket head cap screws. The screws should be installed using Loctite 242 or a comparable thread locking compound (no lubricant). The torque for these cap screws is found on the inside back cover page.

## Test Procedure

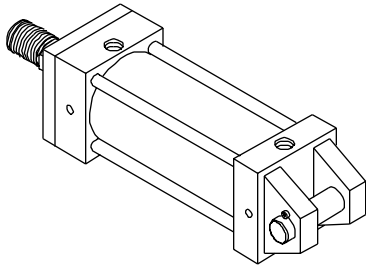
The refurbished cylinder should be tested for leakage and cycled to check for smooth operation and to assure proper operation of cushions, if applicable.

1. For cushioned cylinders, turn the adjusting screw(s) clockwise until seated, then back off 1/4 turn.
2. Remove the line from the rod end port and cap the open line from the valve. Apply supply pressure to the blind head port. The rod should extend smoothly without chatter or binding. For cushioned cylinders, there should be a noticeable deceleration at the end of stroke. To obtain the most effective cushioning, final adjustments must be made while the cylinder is operating under normal conditions at normal operating pressure.
3. Leave the rod stalled in the extended position while maintaining pressure on the base end. Make certain no fluid is leaking by the piston (as evidenced by fluid escaping the open rod port).
4. Measure the extended length to verify that the cylinder has reached full stroke + .03".
5. Reconnect the supply line to the rod end port and connect the base end port to the tank. Apply supply pressure to the rod end port. The rod should retract smoothly, and for cushioned cylinders there should be noticeable deceleration near the end of stroke.
6. Maintain pressure long enough to verify no leakage at the rod seal or piston seal.

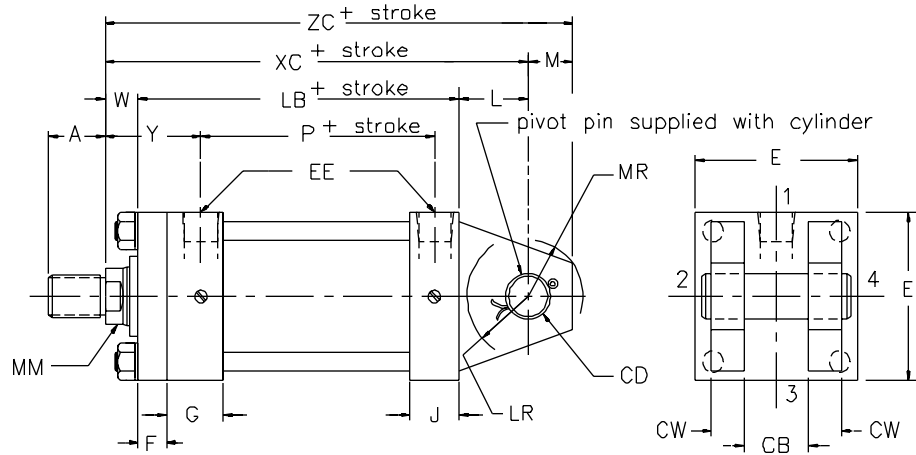
MP-1  
MP-3  
MPU-3

**PURAKAL SERIES 3000**  
**CLEVIS, PIVOT EYE, SPHERICAL MOUNTINGS**  
**1 1/2" - 5" BORE**

BASE CLEVIS MOUNTING

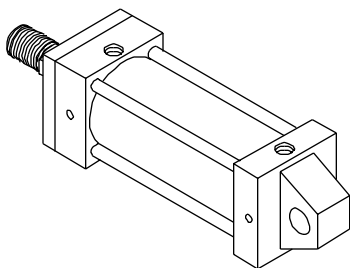


**MP-1**

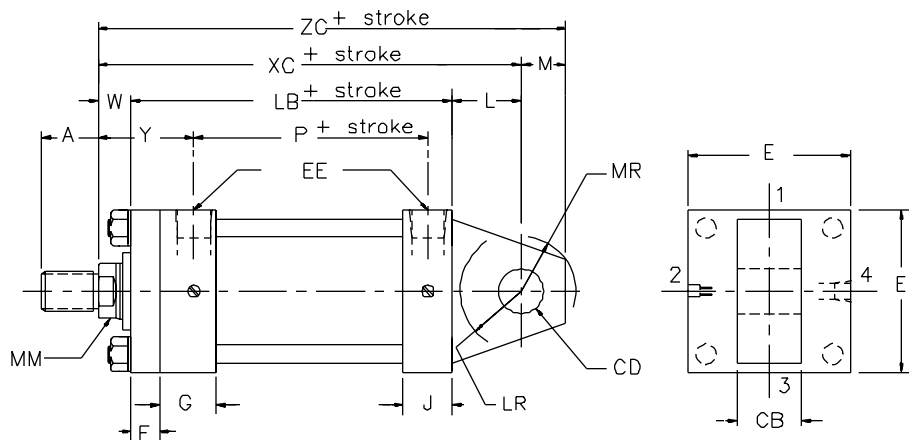


For mounting accessories see pages 32 through 39.

BASE PIVOT EYE MOUNTING

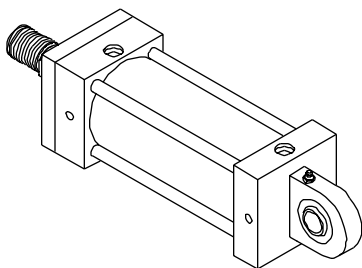


**MP-3**

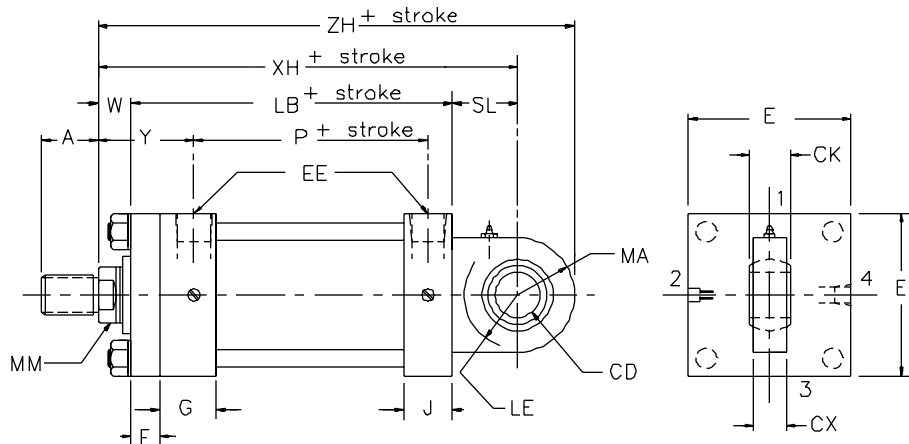


For mounting accessories see pages 32 through 39.

SPHERICAL TANG MOUNTING



**MPU-3**



For mounting accessories see pages 32 through 39.

**PURAKAL SERIES 3000**  
**CLEVIS, PIVOT EYE, SPHERICAL MOUNTINGS**  
**1 1/2" - 5" BORE**

MP-1  
 MP-3  
 MPU-3

**ENVELOPE AND MOUNTING DIMENSIONS AFFECTED BY ROD SIZE**

CYL BORE	ROD DIA									ADD STROKE	ADD STROKE		ADD STROKE	ADD STROKE
	MM	A	B	C	CC	D	KK	V	W	XC	XH	Y	ZC	ZH
1 1/2	5/8	3/4	1.124	3/8	1/2-20	1/2	7/16-20	1/4	5/8	6 3/8	6 7/16	2	6 7/8	7 3/16
	1*	1 1/8	1.499	1/2	7/8-14	7/8	3/4-16	1/2	1	6 3/4	6 13/16	2 3/8	7 1/4	7 9/16
2	1	1 1/8	1.499	1/2	7/8-14	7/8	3/4-16	1/4	3/4	7 1/4	7 3/16	2 3/8	8	8 7/16
	1 3/8*	1 5/8	1.999	5/8	1 1/4-12	1 1/8	1-14	3/8	1	7 1/2	7 7/16	2 5/8	8 1/4	8 11/16
2 1/2	1	1 1/8	1.499	1/2	7/8-14	7/8	3/4-16	1/4	3/4	7 3/8	7 5/16	2 5/16	8 1/8	8 9/16
	1 3/8	1 5/8	1.999	5/8	1 1/4-12	1 1/8	1-14	3/8	1	7 5/8	7 9/16	2 9/16	8 3/8	8 13/16
	1 3/4*	2	2.374	3/4	1 1/2-12	1 1/2	1 1/4-12	1/2	1 1/4	7 7/8	7 13/16	2 13/16	8 5/8	9 1/16
3 1/4	1 3/8	1 5/8	1.999	5/8	1 1/4-12	1 1/8	1-14	1/4	7/8	8 5/8	8 11/16	2 9/16	9 5/8	10 3/16
	1 3/4	2	2.374	3/4	1 1/2-12	1 1/2	1 1/4-12	3/8	1 1/8	8 7/8	8 15/16	2 13/16	9 7/8	10 7/16
	2	2 1/4	2.624	7/8	1 3/4-12	1 11/16	1 1/2-12	3/8	1 1/4	9	9 1/16	2 15/16	10	10 9/16
4	1 3/4	2	2.374	3/4	1 1/2-12	1 1/2	1 1/4-12	1/4	1	9 3/4	9 9/16	2 15/16	11 1/8	11 5/16
	2	2 1/4	2.624	7/8	1 3/4-12	1 11/16	1 1/2-12	1/4	1 1/8	9 7/8	9 11/16	3 1/16	11 1/4	11 7/16
	2 1/2	3	3.124	1	2 1/4-12	2 1/16	1 7/8-12	3/8	1 3/8	10 1/8	9 15/16	3 5/16	11 1/2	11 11/16
5	2	2 1/4	2.624	7/8	1 3/4-12	1 11/16	1 1/2-12	1/4	1 1/8	10 1/2	10 11/16	3 1/16	12 1/4	12 15/16
	2 1/2	3	3.124	1	2 1/4-12	2 1/16	1 7/8-12	3/8	1 3/8	10 3/4	10 15/16	3 5/16	12 1/2	13 3/16
	3 1/2	3 1/2	4.249	1	3 1/4-12	3	2 1/2-12	3/8	1 3/8	10 3/4	10 15/16	3 5/16	12 1/2	13 3/16

\* Rod end cushion is non-adjustable.

**ENVELOPE AND MOUNTING DIMENSIONS**

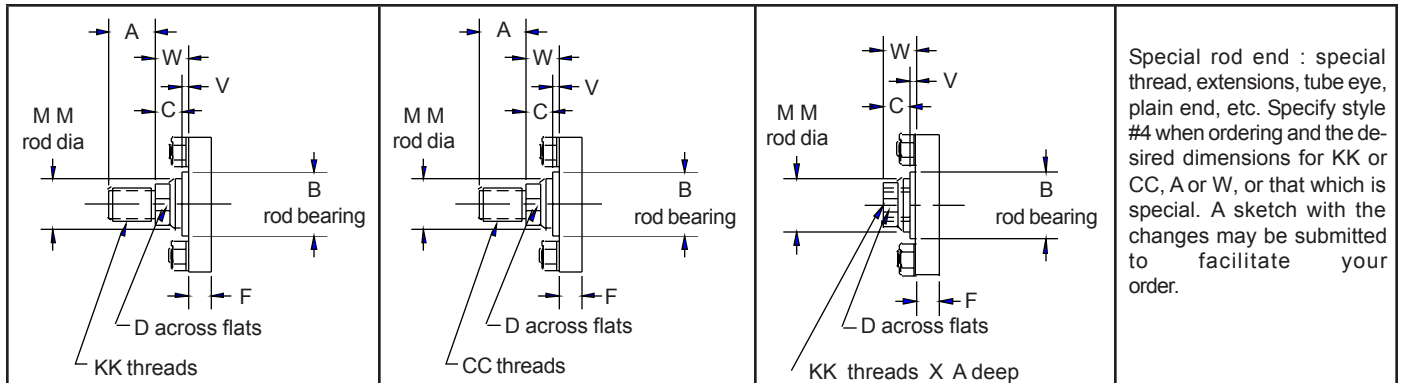
CYL. BORE												ADD STROKE								ADD STROKE
	CB	CD	CK	CW	CX	E	EE	EE	F	G	J	L	LB	LE	LR	M	MA	MR	P	SL
1 1/2	3/4	.500	7/16	1/2	3/8	2 1/2	1/2	#8	3/8	1 3/4	1 1/2	3/4	5	9/16	9/16	1/2	3/4	11/16	2 15/16	13/16
2	1 1/4	.750	21/32	5/8	5/8	3	1/2	#8	5/8	1 3/4	1 1/2	1 1/4	5 1/4	7/8	15/16	3/4	1 1/4	15/16	2 15/16	1 3/16
2 1/2	1 1/4	.750	21/32	5/8	5/8	3 1/2	1/2	#8	5/8	1 3/4	1 1/2	1 1/4	5 3/8	7/8	15/16	3/4	1 1/4	15/16	3 1/8	1 3/16
3 1/4	1 1/2	1.000	7/8	3/4	3/4	4 1/2	3/4	#12	3/4	2	1 3/4	1 1/2	6 1/4	1 1/8	1 3/16	1	1 3/8	1 3/16	3 13/16	1 9/16
4	2	1.375	1 3/16	1	1	5	3/4	#12	7/8	2	1 3/4	2 1/8	6 5/8	1 1/2	1 3/4	1 3/8	1 3/4	1 11/16	4	1 15/16
5	2 1/2	1.750	1 17/32	1 1/4	1 3/8	6 1/2	3/4	#12	7/8	2 1/8	1 7/8	2 1/4	7 1/8	1 15/16	1 13/16	1 3/4	2 1/4	2 1/8	4 7/16	2 7/16

**STYLE 1 ROD END**

**STYLE 2 ROD END**

**STYLE 3 ROD END**

**STYLE 4 ROD END**

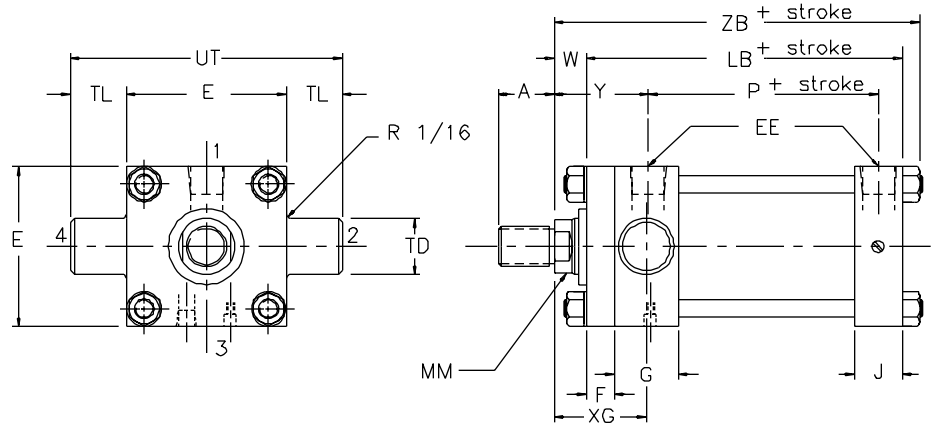
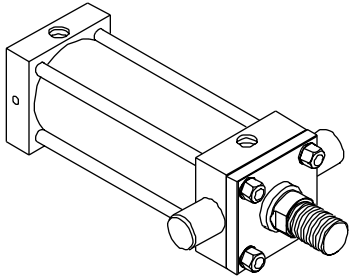


Special rod end : special thread, extensions, tube eye, plain end, etc. Specify style #4 when ordering and the desired dimensions for KK or CC, A or W, or that which is special. A sketch with the changes may be submitted to facilitate your order.

MT-1  
 MT-2  
 MT-4

**PURAKAL SERIES 3000  
 TRUNNION MOUNTINGS  
 1 1/2" - 5" BORE**

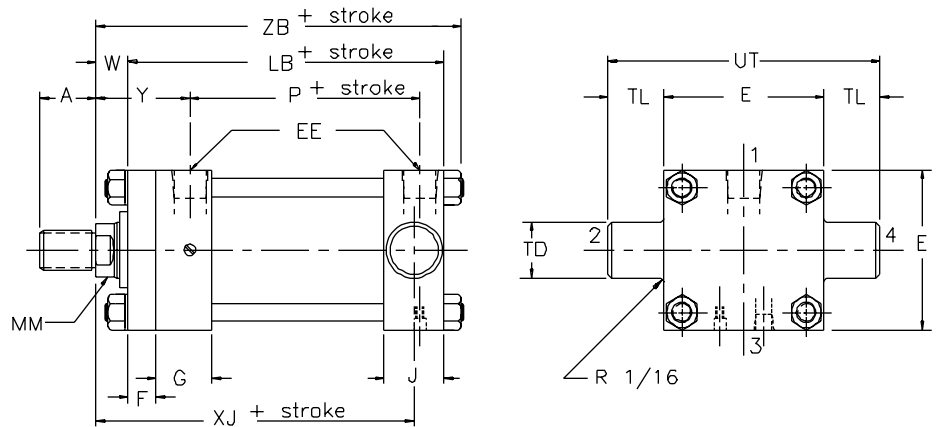
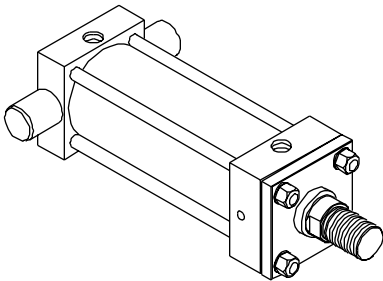
ROD END TRUNNION MOUNTING



**MT-1**

For mounting accessories see pages 32 through 39.

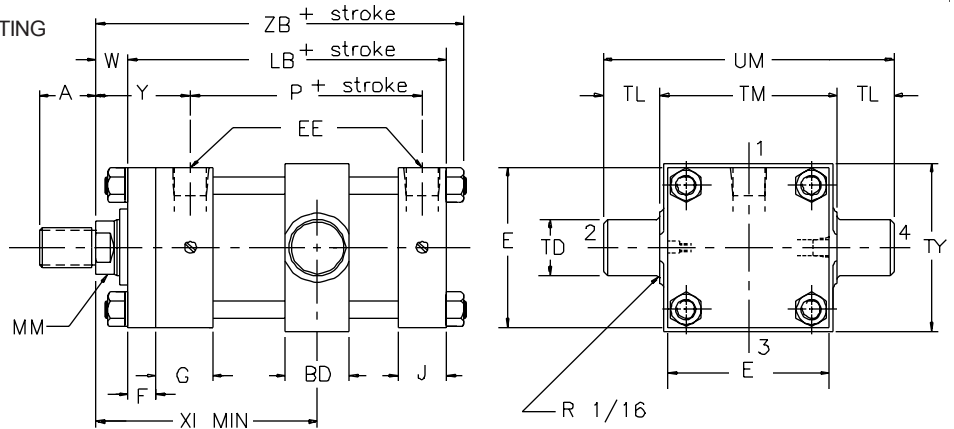
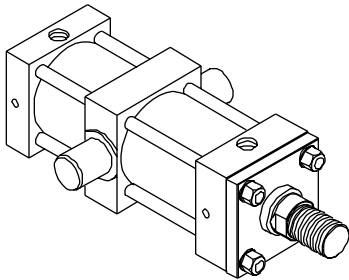
BLIND END TRUNNION MOUNTING



**MT-2**

For mounting accessories see pages 32 through 39.

INTERMEDIATE TRUNNION MOUNTING



**MT-4**

For mounting accessories see pages 32 through 39.

**PURAKAL SERIES 3000  
TRUNNION MOUNTINGS  
1 1/2" - 5" BORE**

MT-1  
MT-2  
MT-4

**ENVELOPE AND MOUNTING DIMENSIONS AFFECTED BY ROD SIZE**

CYL BORE	ROD DIA											ADD STROKE		ADD STROKE
	MM	A	B	C	CC	D	KK	V	W	XG	XI MIN	XJ	Y	ZB
1 1/2	5/8	3/4	1.124	3/8	1/2-20	1/2	7/16-20	1/4	5/8	1 7/8	3 3/8	4 7/8	2	6 1/8
	1*	1 1/8	1.499	1/2	7/8-14	7/8	3/4-16	1/2	1	2 1/4	3 3/4	5 1/4	2 3/8	6 1/2
2	1	1 1/8	1.499	1/2	7/8-14	7/8	3/4-16	1/4	3/4	2 1/4	3 7/8	5 1/4	2 3/8	6 5/8
	1 3/8*	1 5/8	1.999	5/8	1 1/4-12	1 1/8	1-14	3/8	1	2 1/2	4 1/8	5 1/2	2 5/8	6 7/8
2 1/2	1	1 1/8	1.499	1/2	7/8-14	7/8	3/4-16	1/4	3/4	2 1/4	3 7/8	5 3/8	2 5/16	6 3/4
	1 3/8	1 5/8	1.999	5/8	1 1/4-12	1 1/8	1-14	3/8	1	2 1/2	4 1/8	5 5/8	2 9/16	7
	1 3/4*	2	2.374	3/4	1 1/2-12	1 1/2	1 1/4-12	1/2	1 1/4	2 3/4	4 3/8	5 7/8	2 13/16	7 1/4
3 1/4	1 3/8	1 5/8	1.999	5/8	1 1/4-12	1 1/8	1-14	1/4	7/8	2 5/8	4 5/8	6 1/4	2 9/16	7 7/8
	1 3/4	2	2.374	3/4	1 1/2-12	1 1/2	1 1/4-12	3/8	1 1/8	2 7/8	4 7/8	6 1/2	2 13/16	8 1/8
	2	2 1/4	2.624	7/8	1 3/4-12	1 11/16	1 1/2-12	3/8	1 1/4	3	5	6 5/8	2 15/16	8 1/4
4	1 3/4	2	2.374	3/4	1 1/2-12	1 1/2	1 1/4-12	1/4	1	2 7/8	5	6 3/4	2 15/16	8 3/8
	2	2 1/4	2.624	7/8	1 3/4-12	1 11/16	1 1/2-12	1/4	1 1/8	3	5 1/8	6 7/8	3 1/16	8 1/2
	2 1/2	3	3.124	1	2 1/4-12	2 1/16	1 7/8-12	3/8	1 3/8	3 1/4	5 3/8	7 1/8	3 5/16	8 3/4
5	2	2 1/4	2.624	7/8	1 3/4-12	1 11/16	1 1/2-12	1/4	1 1/8	3	5 1/8	7 1/4	3 1/16	9 1/4
	2 1/2	3	3.124	1	2 1/4-12	2 1/16	1 7/8-12	3/8	1 3/8	3 1/4	5 3/8	7 1/2	3 5/16	9 1/2
	3 1/2	3 1/2	4.249	1	3 1/4-12	3	2 1/2-12	3/8	1 3/8	3 1/4	5 3/8	7 1/2	3 5/16	9 1/2

\* Rod end cushion is non-adjustable.

**ENVELOPE AND MOUNTING DIMENSIONS**

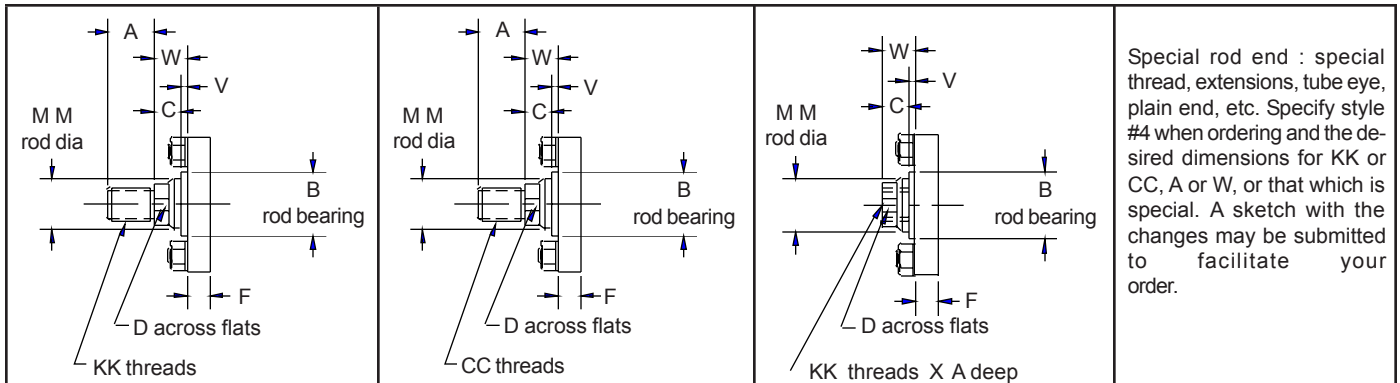
CYL. BORE			NPT	SAE				ADD STROKE	ADD STROKE						
	BD	E	EE	EE	F	G	J	LB	P	TD	TL	TM	TY	UM	UT
1 1/2	1 1/4	2 1/2	1/2	#8	3/8	1 3/4	1 1/2	5	2 15/16	1	1	3	2 3/4	5	4 1/2
2	1 1/2	3	1/2	#8	5/8	1 3/4	1 1/2	5 1/4	2 15/16	1 3/8	1 3/8	3 1/2	3 1/4	6 1/4	5 3/4
2 1/2	1 1/2	3 1/2	1/2	#8	5/8	1 3/4	1 1/2	5 3/8	3 1/8	1 3/8	1 3/8	4	3 3/4	6 3/4	6 1/4
3 1/4	2	4 1/2	3/4	#12	3/4	2	1 3/4	6 1/4	3 13/16	1 3/4	1 3/4	5	4 3/4	8 1/2	8
4	2	5	3/4	#12	7/8	2	1 3/4	6 5/8	4	1 3/4	1 3/4	5 1/2	5 1/4	9	8 1/2
5	2	6 1/2	3/4	#12	7/8	2 1/8	1 7/8	7 1/8	4 7/16	1 3/4	1 3/4	7	6 3/4	10 1/2	10

**STYLE 1 ROD END**

**STYLE 2 ROD END**

**STYLE 3 ROD END**

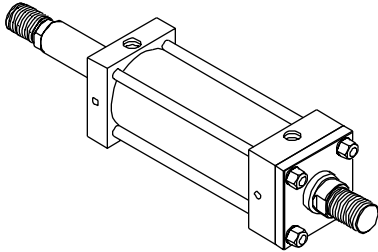
**STYLE 4 ROD END**



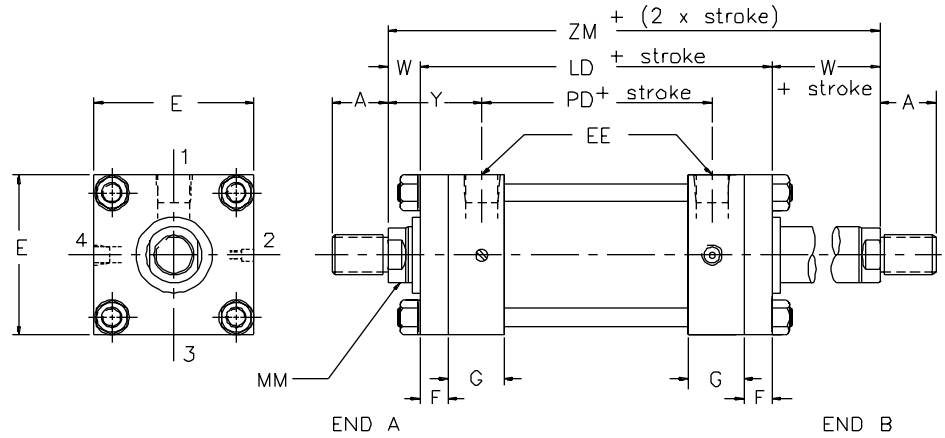
MD  
MS-2  
MS-4

**PURAKAL SERIES 3000**  
**DOUBLE ROD, SIDE LUG, SIDE TAPPED MOUNTINGS**  
**1 1/2" - 5" BORE**

DOUBLE ROD MOUNTING



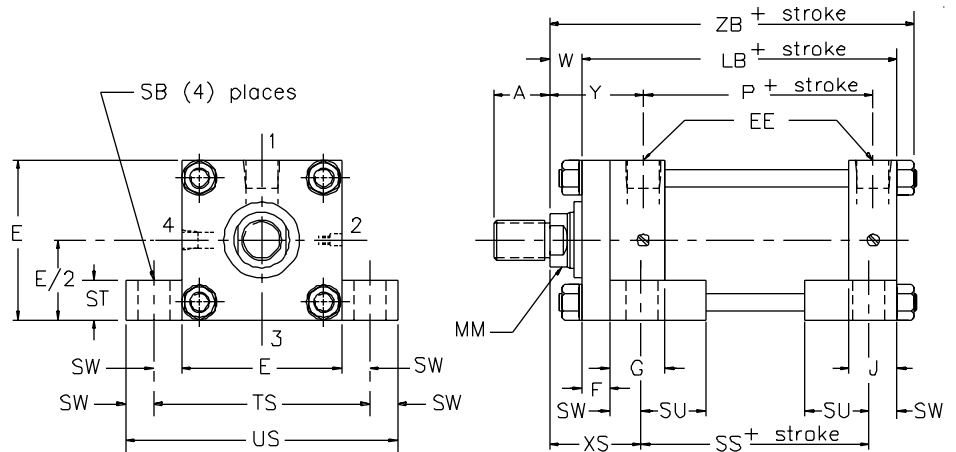
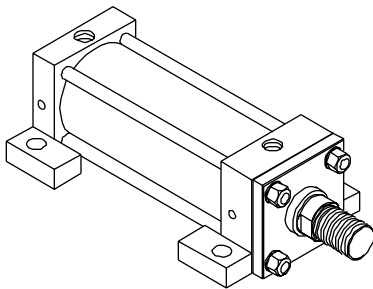
Most mounting styles available.  
Consult factory for details.



**MD**

For mounting accessories see pages 32 through 39.

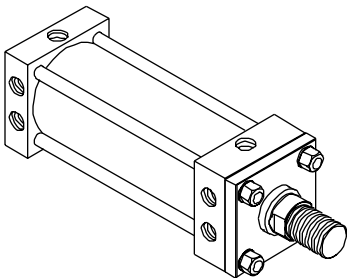
SIDE LUG MOUNTING



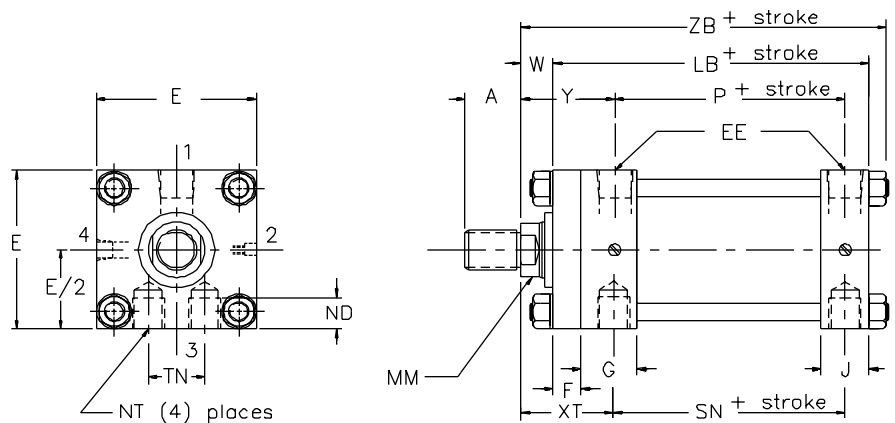
**MS-2**

For mounting accessories see pages 32 through 39.

SIDE TAPPED MOUNTING



Tapped holes are rotated to show in this view. Standard location is Position #3.



**MS-4**

For mounting accessories see pages 32 through 39.

**PURAKAL SERIES 3000**  
**DOUBLE ROD, SIDE LUG, SIDE TAPPED MOUNTINGS**  
**1 1/2" - 5" BORE**

MD  
MS-2  
MS-4

**ENVELOPE AND MOUNTING DIMENSIONS AFFECTED BY ROD SIZE**

CYL BORE	ROD DIA	A	B	C	CC	D	KK	V	W	XS	ADD STROKE	Y	ADD STROKE	ADD 2X STROKE
	MM										XT		ZB	ZM
1 1/2	5/8	3/4	1.124	3/8	1/2-20	1/2	7/16-20	1/4	5/8	1 3/8	2	2	6 1/8	6 7/8
	1*	1 1/8	1.499	1/2	7/8-14	7/8	3/4-16	1/2	1	1 3/4	2 3/8	2 3/8	6 1/2	7 5/8
2	1	1 1/8	1.499	1/2	7/8-14	7/8	3/4-16	1/4	3/4	1 7/8	2 3/8	2 3/8	6 5/8	7 5/8
	1 3/8*	1 5/8	1.999	5/8	1 1/4-12	1 1/8	1-14	3/8	1	2 1/8	2 5/8	2 5/8	6 7/8	8 1/8
2 1/2	1	1 1/8	1.499	1/2	7/8-14	7/8	3/4-16	1/4	3/4	2 1/16	2 3/8	2 5/16	6 3/4	7 3/4
	1 3/8	1 5/8	1.999	5/8	1 1/4-12	1 1/8	1-14	3/8	1	2 5/16	2 5/8	2 9/16	7	8 1/4
	1 3/4*	2	2.374	3/4	1 1/2-12	1 1/2	1 1/4-12	1/2	1 1/4	2 9/16	2 7/8	2 13/16	7 1/4	8 3/4
3 1/4	1 3/8	1 5/8	1.999	5/8	1 1/4-12	1 1/8	1-14	1/4	7/8	2 5/16	2 3/4	2 9/16	7 7/8	9
	1 3/4	2	2.374	3/4	1 1/2-12	1 1/2	1 1/4-12	3/8	1 1/8	2 9/16	3	2 13/16	8 1/8	9 1/2
	2	2 1/4	2.624	7/8	1 3/4-12	1 11/16	1 1/2-12	3/8	1 1/4	2 11/16	3 1/8	2 15/16	8 1/4	9 3/4
4	1 3/4	2	2.374	3/4	1 1/2-12	1 1/2	1 1/4-12	1/4	1	2 3/4	3	2 15/16	8 3/8	9 7/8
	2	2 1/4	2.624	7/8	1 3/4-12	1 11/16	1 1/2-12	1/4	1 1/8	2 7/8	3 1/8	3 1/16	8 1/2	10 1/8
	2 1/2	3	3.124	1	2 1/4-12	2 1/16	1 7/8-12	3/8	1 3/8	3 1/8	3 3/8	3 5/16	8 3/4	10 5/8
5	2	2 1/4	2.624	7/8	1 3/4-12	1 11/16	1 1/2-12	1/4	1 1/8	2 7/8	3 1/8	3 1/16	9 1/4	10 1/2
	2 1/2	3	3.124	1	2 1/4-12	2 1/16	1 7/8-12	3/8	1 3/8	3 1/8	3 3/8	3 5/16	9 1/2	11
	3 1/2	3 1/2	4.249	1	3 1/4-12	3	2 1/2-12	3/8	1 3/8	3 1/8	3 3/8	3 5/16	9 1/2	11

\* Rod end cushion is non-adjustable.

**ENVELOPE AND MOUNTING DIMENSIONS**

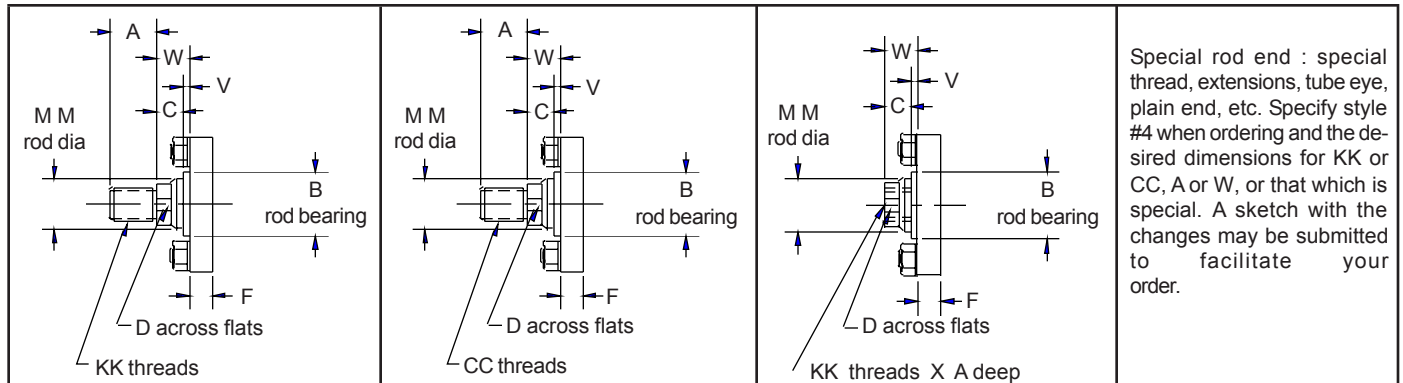
CYL. BORE	NPT		SAE		ADD STRK		ADD STRK		ADD STRK		ADD STRK		ADD STRK		ADD STRK		ADD STRK		ADD STRK		
	E	EE	EE	F	G	J	LB	LD	ND	NT	P	PD	SB	SN	SS	ST	SU	SW	TN	TS	US
1 1/2	2 1/2	1/2	#8	3/8	1 3/4	1 1/2	5	5 5/8	7/16	3/8-16	2 15/16	2 7/8	7/16	2 7/8	3 7/8	1/2	15/16	3/8	3/4	3 1/4	4
2	3	1/2	#8	5/8	1 3/4	1 1/2	5 1/4	6 1/8	7/16	1/2-13	2 15/16	2 7/8	9/16	2 7/8	3 5/8	3/4	1 1/4	1/2	15/16	4	5
2 1/2	3 1/2	1/2	#8	5/8	1 3/4	1 1/2	5 3/8	6 1/4	5/8	5/8-11	3 1/8	3 1/8	13/16	3	3 3/8	1	1 9/16	11/16	1 5/16	4 7/8	6 1/4
3 1/4	4 1/2	3/4	#12	3/4	2	1 3/4	6 1/4	7 1/4	3/4	3/4-10	3 13/16	3 3/4	13/16	3 1/2	4 1/8	1	1 9/16	11/16	1 1/2	5 7/8	7 1/4
4	5	3/4	#12	7/8	2	1 3/4	6 5/8	7 3/4	1	1-8	4	3 7/8	1 1/16	3 3/4	4	1 1/4	2	7/8	2 1/16	6 3/4	8 1/2
5	6 1/2	3/4	#12	7/8	2 1/8	1 7/8	7 1/8	8 1/4	1	1-8	4 7/16	4 3/8	1 1/16	4 1/4	4 1/2	1 1/4	2	7/8	2 15/16	8 1/4	10

**STYLE 1 ROD END**

**STYLE 2 ROD END**

**STYLE 3 ROD END**

**STYLE 4 ROD END**

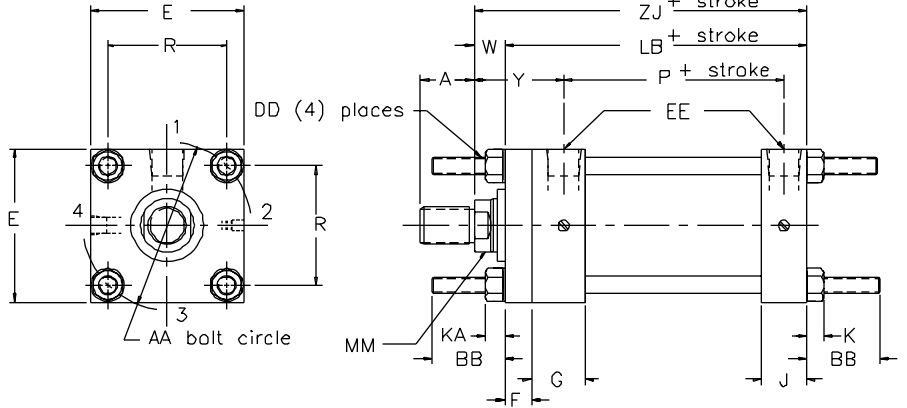
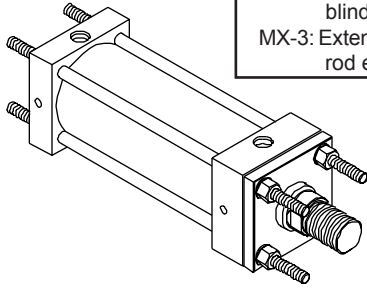


MX  
MF-1  
MF-2

## PURAKAL SERIES 3000 TIE ROD AND RECTANGULAR FLANGE MOUNTINGS 1 1/2" - 5" BORE

TIE ROD MOUNTING

MX-0: Not extended  
MX-1: Extended on both ends  
MX-2: Extended on blind end  
MX-3: Extended on rod end



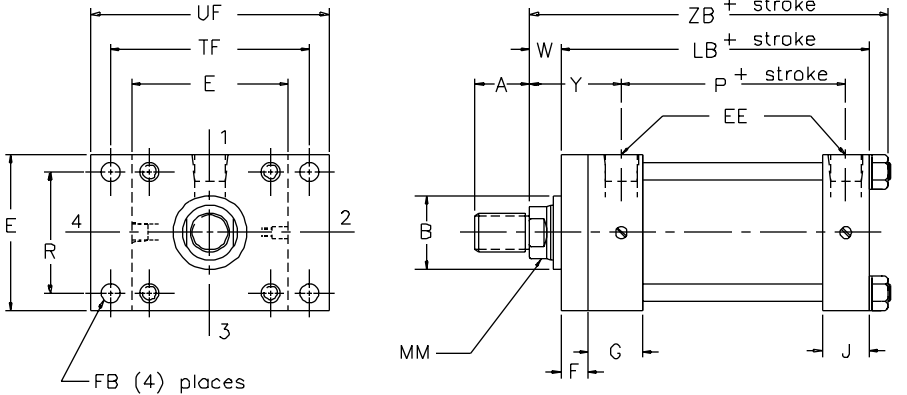
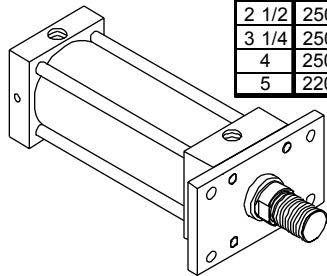
# MX

For mounting accessories see pages 32 through 39.

ROD END RECTANGULAR FLANGE MOUNTING

Allowable Pressure, push

BORE	ROD SIZE		
	1	2	3
1 1/2	2500	1500	
2	2500	1500	
2 1/2	2500	1900	1500
3 1/4	2500	2100	1500
4	2500	1800	1500
5	2200	1650	750



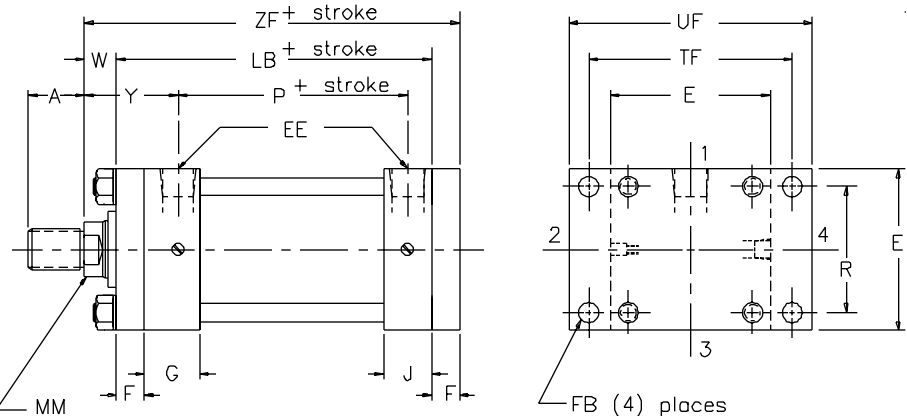
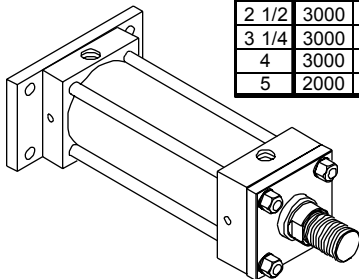
# MF-1

For mounting accessories see pages 32 through 39.

BLIND END RECTANGULAR FLANGE MOUNTING

Allowable Pressure, pull

BORE	ROD SIZE		
	1	2	3
1 1/2	3000	3000	
2	3000	3000	
2 1/2	3000	3000	3000
3 1/4	3000	3000	3000
4	3000	3000	3000
5	2000	2500	3000



# MF-2

For mounting accessories see pages 32 through 39.



**PURAKAL SERIES 3000**  
**TIE ROD AND RECTANGULAR FLANGE MOUNTINGS**  
**1 1/2" - 5" BORE**

MX  
MF-1  
MF-2

**ENVELOPE AND MOUNTING DIMENSIONS AFFECTED BY ROD SIZE**

CYL BORE	ROD DIA										ADD STROKE	ADD STROKE	ADD STROKE
	MM	A	B	C	CC	D	KK	V	W	Y	ZB	ZF	ZJ
1 1/2	5/8	3/4	1.124	3/8	1/2-20	1/2	7/16-20	1/4	5/8	2	6 1/8	6	5 5/8
	1*	1 1/8	1.499	1/2	7/8-14	7/8	3/4-16	1/2	1	2 3/8	6 1/2	6 3/8	6
2	1	1 1/8	1.499	1/2	7/8-14	7/8	3/4-16	1/4	3/4	2 3/8	6 5/8	6 5/8	6
	1 3/8*	1 5/8	1.999	5/8	1 1/4-12	1 1/8	1-14	3/8	1	2 5/8	6 7/8	6 7/8	6 1/4
2 1/2	1	1 1/8	1.499	1/2	7/8-14	7/8	3/4-16	1/4	3/4	2 5/16	6 3/4	6 3/4	6 1/8
	1 3/8	1 5/8	1.999	5/8	1 1/4-12	1 1/8	1-14	3/8	1	2 9/16	7	7	6 3/8
	1 3/4*	2	2.374	3/4	1 1/2-12	1 1/2	1 1/4-12	1/2	1 1/4	2 13/16	7 1/4	7 1/4	6 5/8
3 1/4	1 3/8	1 5/8	1.999	5/8	1 1/4-12	1 1/8	1-14	1/4	7/8	2 9/16	7 7/8	7 7/8	7 1/8
	1 3/4	2	2.374	3/4	1 1/2-12	1 1/2	1 1/4-12	3/8	1 1/8	2 13/16	8 1/8	8 1/8	7 3/8
	2	2 1/4	2.624	7/8	1 3/4-12	1 11/16	1 1/2-12	3/8	1 1/4	2 15/16	8 1/4	8 1/4	7 1/2
4	1 3/4	2	2.374	3/4	1 1/2-12	1 1/2	1 1/4-12	1/4	1	2 15/16	8 3/8	8 1/2	7 5/8
	2	2 1/4	2.624	7/8	1 3/4-12	1 11/16	1 1/2-12	1/4	1 1/8	3 1/16	8 1/2	8 5/8	7 3/4
	2 1/2	3	3.124	1	2 1/4-12	2 1/16	1 7/8-12	3/8	1 3/8	3 5/16	8 3/4	8 7/8	8
5	2	2 1/4	2.624	7/8	1 3/4-12	1 11/16	1 1/2-12	1/4	1 1/8	3 1/16	9 1/4	9 1/8	8 1/4
	2 1/2	3	3.124	1	2 1/4-12	2 1/16	1 7/8-12	3/8	1 3/8	3 5/16	9 1/2	9 3/8	8 1/2
	3 1/2	3 1/2	4.249	1	3 1/4-12	3	2 1/2-12	3/8	1 3/8	3 5/16	9 1/2	9 3/8	8 1/2

\* Rod end cushion is non-adjustable.

**ENVELOPE AND MOUNTING DIMENSIONS**

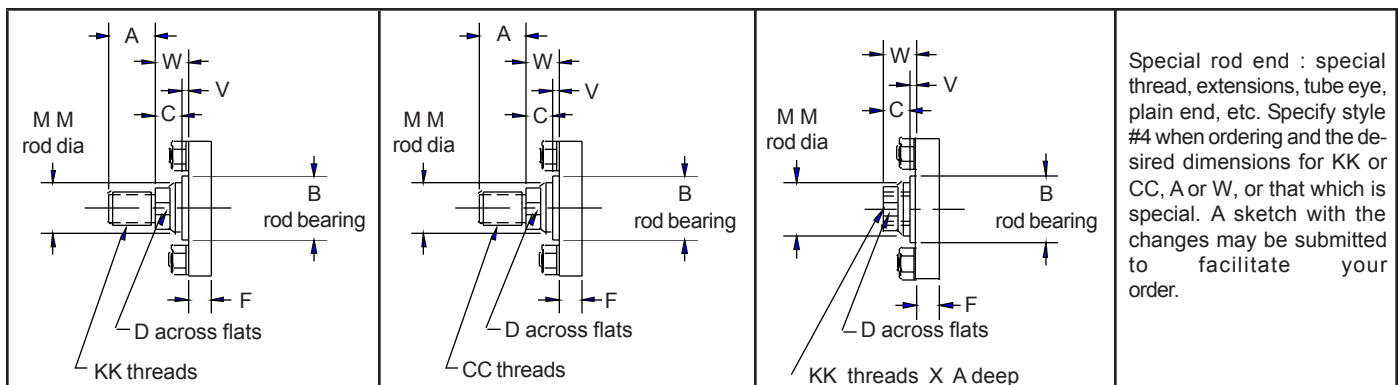
CYL. BORE												ADD STROKE	ADD STROKE				
	AA	BB	DD	E	NPT	SAE	F	FB	G	J	K	KA	LB	P	R	TF	UF
1 1/2	2.31	1 3/8	3/8-24	2 1/2	1/2	#8	3/8	7/16	1 3/4	1 1/2	21/64	25/64	5	2 15/16	1.63	3 7/16	4 1/4
2	2.90	1 13/16	1/2-20	3	1/2	#8	5/8	9/16	1 3/4	1 1/2	7/16	1/2	5 1/4	2 15/16	2.05	4 1/8	5 1/8
2 1/2	3.60	1 13/16	1/2-20	3 1/2	1/2	#8	5/8	9/16	1 3/4	1 1/2	7/16	1/2	5 3/8	3 1/8	2.55	4 5/8	5 5/8
3 1/4	4.60	2 5/16	5/8-18	4 1/2	3/4	#12	3/4	11/16	2	1 3/4	35/64	9/16	6 1/4	3 13/16	3.25	5 7/8	7 1/8
4	5.40	2 5/16	5/8-18	5	3/4	#12	7/8	11/16	2	1 3/4	35/64	9/16	6 5/8	4	3.82	6 3/8	7 5/8
5	7.00	3 3/16	7/8-14	6 1/2	3/4	#12	7/8	15/16	2 1/8	1 7/8	3/4	27/32	7 1/8	4 7/16	4.95	8 3/16	9 3/4

**STYLE 1 ROD END**

**STYLE 2 ROD END**

**STYLE 3 ROD END**

**STYLE 4 ROD END**



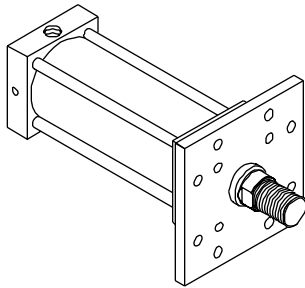
MF-5  
MF-6

**PURAKAL SERIES 3000  
SQUARE FLANGE MOUNTINGS  
1 1/2" - 5" BORE**

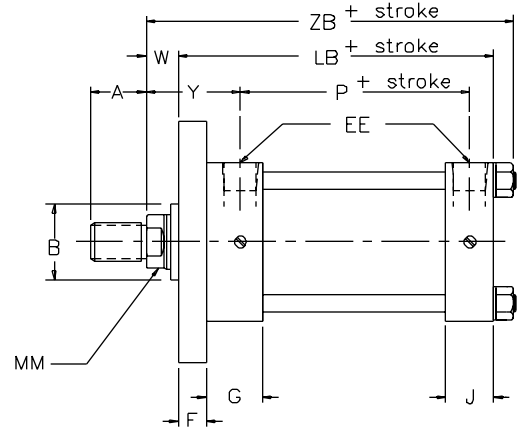
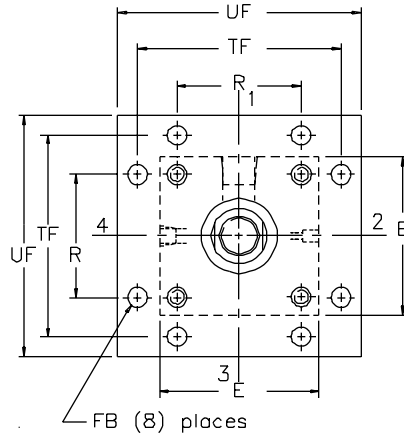
ROD END  
SQUARE FLANGE MOUNTING

Allowable Pressure, push

BORE	ROD SIZE		
	1	2	3
1 1/2	2500	1500	
2	2500	1500	
2 1/2	2500	1900	1500
3 1/4	2500	2100	1500
4	2500	1800	1500
5	2200	1650	750



**MF-5**

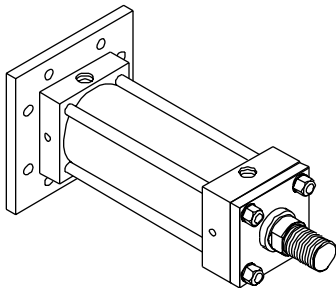


For mounting accessories see pages 32 through 39.

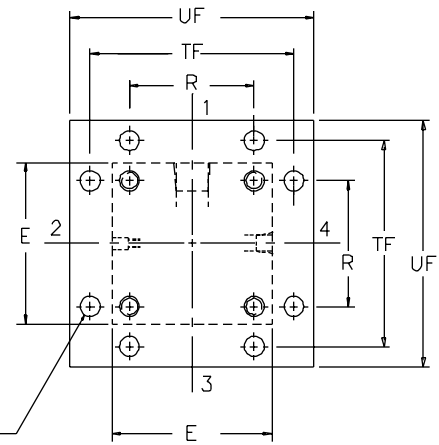
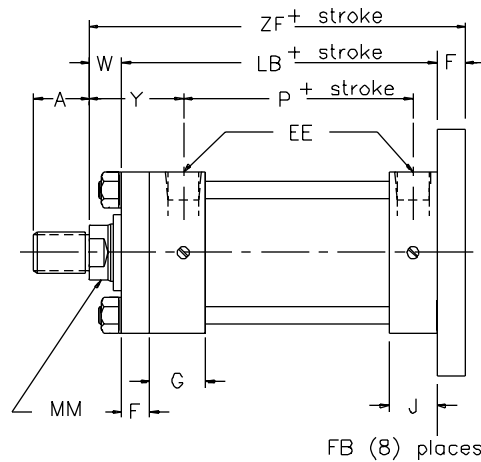
BLIND END  
SQUARE FLANGE MOUNTING

Allowable Pressure, pull

BORE	ROD SIZE		
	1	2	3
1 1/2	3000	3000	
2	3000	3000	
2 1/2	3000	3000	3000
3 1/4	3000	3000	3000
4	3000	3000	3000
5	2000	2500	3000



**MF-6**



For mounting accessories see pages 32 through 39.

**PURAKAL SERIES 3000**  
**SQUARE FLANGE MOUNTINGS**  
**1 1/2" - 5" BORE**

MF-5  
MF-6

**ENVELOPE AND MOUNTING DIMENSIONS AFFECTED BY ROD SIZE**

CYL BORE	ROD DIA										ADD STROKE	ADD STROKE
	MM	A	B	C	CC	D	KK	V	W	Y	ZB	ZF
1 1/2	5/8	3/4	1.124	3/8	1/2-20	1/2	7/16-20	1/4	5/8	2	6 1/8	6
	1*	1 1/8	1.499	1/2	7/8-14	7/8	3/4-16	1/2	1	2 3/8	6 1/2	6 3/8
2	1	1 1/8	1.499	1/2	7/8-14	7/8	3/4-16	1/4	3/4	2 3/8	6 5/8	6 5/8
	1 3/8*	1 5/8	1.999	5/8	1 1/4-12	1 1/8	1-14	3/8	1	2 5/8	6 7/8	6 7/8
2 1/2	1	1 1/8	1.499	1/2	7/8-14	7/8	3/4-16	1/4	3/4	2 5/16	6 3/4	6 3/4
	1 3/8	1 5/8	1.999	5/8	1 1/4-12	1 1/8	1-14	3/8	1	2 9/16	7	7
	1 3/4*	2	2.374	3/4	1 1/2-12	1 1/2	1 1/4-12	1/2	1 1/4	2 13/16	7 1/4	7 1/4
3 1/4	1 3/8	1 5/8	1.999	5/8	1 1/4-12	1 1/8	1-14	1/4	7/8	2 9/16	7 7/8	7 7/8
	1 3/4	2	2.374	3/4	1 1/2-12	1 1/2	1 1/4-12	3/8	1 1/8	2 13/16	8 1/8	8 1/8
	2	2 1/4	2.624	7/8	1 3/4-12	1 11/16	1 1/2-12	3/8	1 1/4	2 15/16	8 1/4	8 1/4
4	1 3/4	2	2.374	3/4	1 1/2-12	1 1/2	1 1/4-12	1/4	1	2 15/16	8 3/8	8 1/2
	2	2 1/4	2.624	7/8	1 3/4-12	1 11/16	1 1/2-12	1/4	1 1/8	3 1/16	8 1/2	8 5/8
	2 1/2	3	3.124	1	2 1/4-12	2 1/16	1 7/8-12	3/8	1 3/8	3 5/16	8 3/4	8 7/8
5	2	2 1/4	2.624	7/8	1 3/4-12	1 11/16	1 1/2-12	1/4	1 1/8	3 1/16	9 1/4	9 1/8
	2 1/2	3	3.124	1	2 1/4-12	2 1/16	1 7/8-12	3/8	1 3/8	3 5/16	9 1/2	9 3/8
	3 1/2	3 1/2	4.249	1	3 1/4-12	3	2 1/2-12	3/8	1 3/8	3 5/16	9 1/2	9 3/8

\* Rod end cushion is non-adjustable.

**ENVELOPE AND MOUNTING DIMENSIONS**

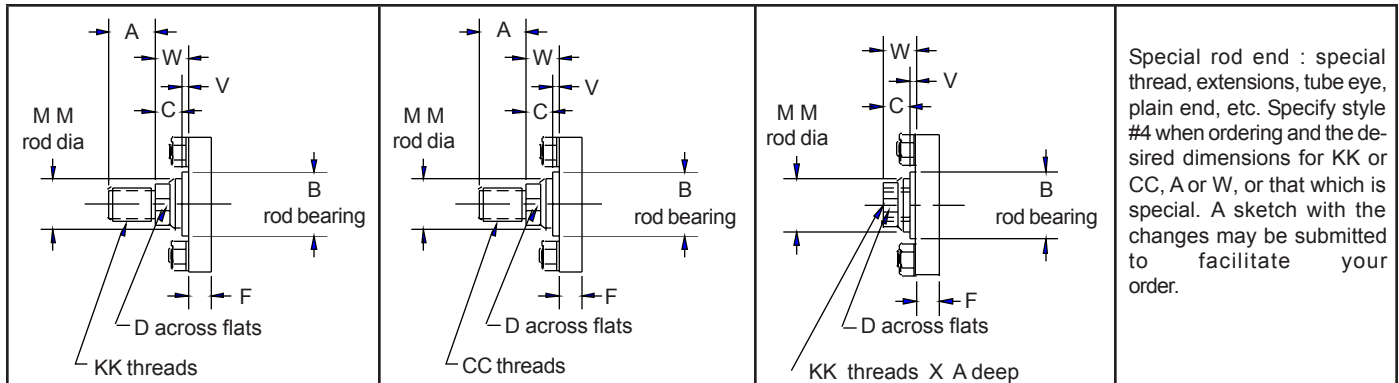
CYL. BORE		NPT	SAE					ADD STROKE	ADD STROKE			
	E	EE	EE	F	FB	G	J	LB	P	R	TF	UF
1 1/2	2 1/2	1/2	#8	3/8	7/16	1 3/4	1 1/2	5	2 15/16	1.63	3 7/16	4 1/4
2	3	1/2	#8	5/8	9/16	1 3/4	1 1/2	5 1/4	2 15/16	2.05	4 1/8	5 1/8
2 1/2	3 1/2	1/2	#8	5/8	9/16	1 3/4	1 1/2	5 3/8	3 1/8	2.55	4 5/8	5 5/8
3 1/4	4 1/2	3/4	#12	3/4	11/16	2	1 3/4	6 1/4	3 13/16	3.25	5 7/8	7 1/8
4	5	3/4	#12	7/8	11/16	2	1 3/4	6 5/8	4	3.82	6 3/8	7 5/8
5	6 1/2	3/4	#12	7/8	15/16	2 1/8	1 7/8	7 1/8	4 7/16	4.95	8 3/16	9 3/4

**STYLE 1 ROD END**

**STYLE 2 ROD END**

**STYLE 3 ROD END**

**STYLE 4 ROD END**

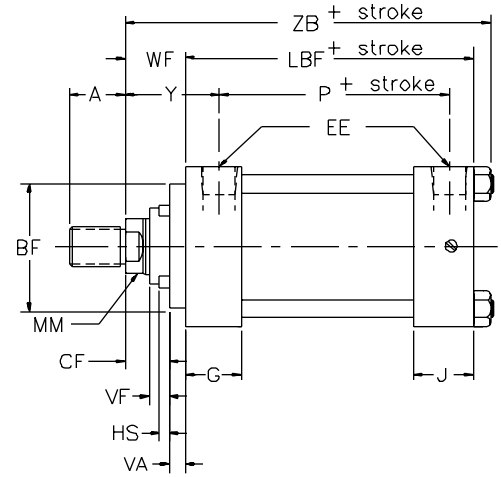
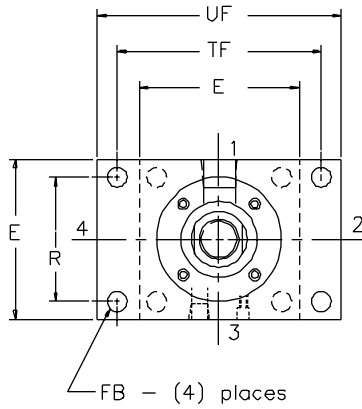
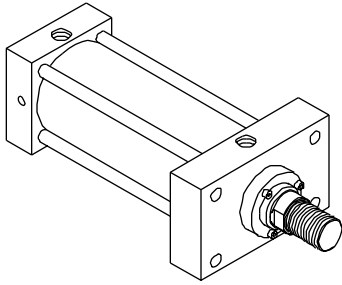


Special rod end : special thread, extensions, tube eye, plain end, etc. Specify style #4 when ordering and the desired dimensions for KK or CC, A or W, or that which is special. A sketch with the changes may be submitted to facilitate your order.

ME-5  
ME-6

**PURAKAL SERIES 3000  
INTEGRAL FLANGE MOUNTINGS  
1 1/2" - 5" BORE**

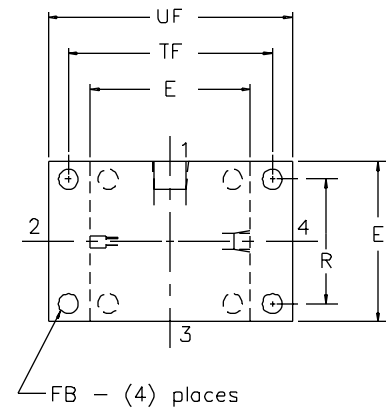
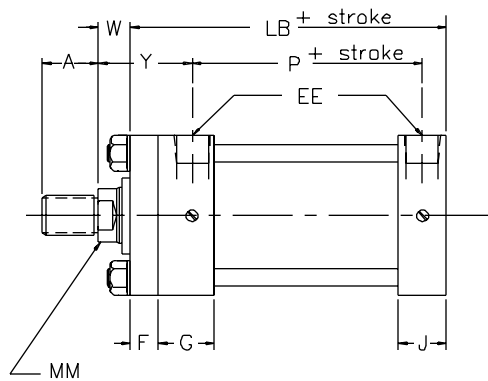
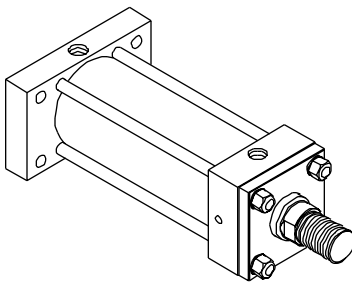
ROD END  
INTEGRAL FLANGE MOUNTING



**ME-5**

For mounting accessories see pages 32 through 39.

BLIND END  
INTEGRAL FLANGE MOUNTING



**ME-6**

For mounting accessories see pages 32 through 39.

**PURAKAL SERIES 3000**  
**INTEGRAL FLANGE MOUNTINGS**  
**1 1/2" - 5" BORE**

ME-5  
ME-6

**ENVELOPE AND MOUNTING DIMENSIONS AFFECTED BY ROD SIZE**

CYL BORE	ROD DIA																ADD STROKE
	MM	A	B	BF	C	CF	CC	D	HS	KK	V	VA	VF	W	WF	Y	ZB
1 1/2	5/8	3/4	1.124	2 1/8	3/8	9/16	1/2-20	1/2	1/4	7/16-20	1/4	7/16	3/16	5/8	1	2	6 1/8
	1*	1 1/8	1.499	2 1/2	1/2	15/16	7/8-14	7/8	1/4	3/4-16	1/2	7/16	7/16	1	1 3/8	2 3/8	6 1/2
2	1	1 1/8	1.499	2 1/2	1/2	15/16	7/8-14	7/8	1/4	3/4-16	1/4	7/16	7/16	3/4	1 3/8	2 3/8	6 5/8
	1 3/8*	1 5/8	1.999	3	5/8	1 3/16	1 1/4-12	1 1/8	1/4	1-14	3/8	7/16	9/16	1	1 5/8	2 5/8	6 7/8
2 1/2	1	1 1/8	1.499	2 1/2	1/2	15/16	7/8-14	7/8	1/4	3/4-16	1/4	7/16	7/16	3/4	1 3/8	2 5/16	6 3/4
	1 3/8	1 5/8	1.999	3	5/8	1 3/16	1 1/4-12	1 1/8	1/4	1-14	3/8	7/16	9/16	1	1 5/8	2 9/16	7
	1 3/4*	2	2.374	3 3/4	3/4	1 7/16	1 1/2-12	1 1/2	3/8	1 1/4-12	1/2	7/16	11/16	1 1/4	1 7/8	2 13/16	7 1/4
3 1/4	1 3/8	1 5/8	1.999	3	5/8	1 3/16	1 1/4-12	1 1/8	1/4	1-14	1/4	7/16	9/16	7/8	1 5/8	2 9/16	7 7/8
	1 3/4	2	2.374	3 3/4	3/4	1 7/16	1 1/2-12	1 1/2	3/8	1 1/4-12	3/8	7/16	11/16	1 1/8	1 7/8	2 13/16	8 1/8
	2	2 1/4	2.624	4	7/8	1 7/16	1 3/4-12	1 11/16	3/8	1 1/2-12	3/8	9/16	9/16	1 1/4	2	2 15/16	8 1/4
4	1 3/4	2	2.374	3 3/4	3/4	1 7/16	1 1/2-12	1 1/2	3/8	1 1/4-12	1/4	7/16	9/16	1	1 7/8	2 15/16	8 3/8
	2	2 1/4	2.624	4	7/8	1 7/16	1 3/4-12	1 11/16	3/8	1 1/2-12	1/4	9/16	9/16	1 1/8	2	3 1/16	8 1/2
	2 1/2	3	3.124	4 1/2	1	1 11/16	2 1/4-12	2 1/16	3/8	1 7/8-12	3/8	9/16	11/16	1 3/8	2 1/4	3 5/16	8 3/4
5	2	2 1/4	2.624	4	7/8	1 7/16	1 3/4-12	1 11/16	3/8	1 1/2-12	1/4	9/16	9/16	1 1/8	2	3 1/16	9 1/4
	2 1/2	3	3.124	4 1/2	1	1 11/16	2 1/4-12	2 1/16	3/8	1 7/8-12	3/8	9/16	11/16	1 3/8	2 1/4	3 5/16	9 1/2
	3 1/2	3 1/2	4.249	6	1	1 9/16	3 1/4-12	3	3/8	2 1/2-12	3/8	11/16	9/16	1 3/8	2 1/4	3 5/16	9 1/2

\* Rod end cushion is non-adjustable.

**ENVELOPE AND MOUNTING DIMENSIONS**

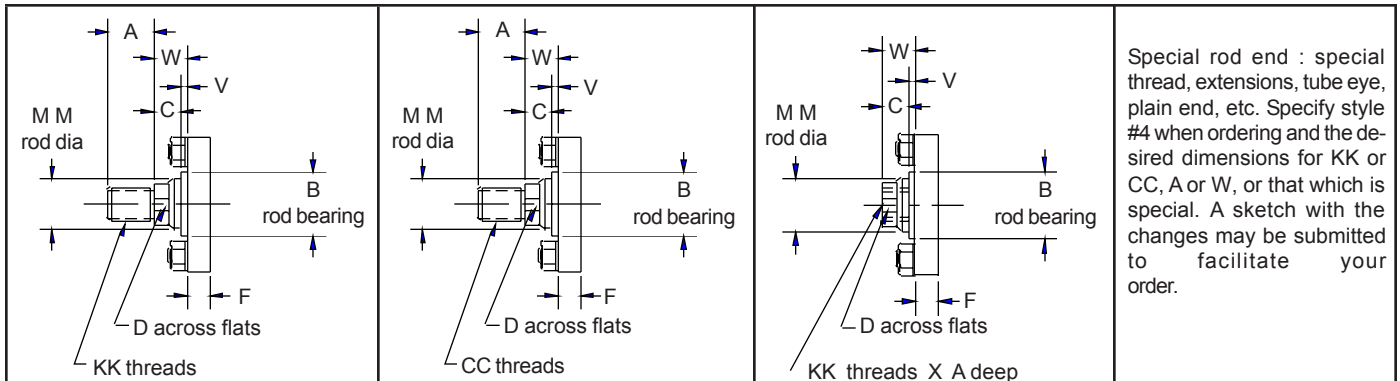
CYL. BORE		NPT	SAE					ADD STROKE	ADD STROKE	ADD STROKE	ADD STROKE		
	E	EE	EE	F	FB	G	J	LB	LBF	P	R	TF	UF
1 1/2	2 1/2	1/2	#8	3/8	7/16	1 3/4	1 1/2	5	4 5/8	2 15/16	1.63	3 7/16	4 1/4
2	3	1/2	#8	5/8	9/16	1 3/4	1 1/2	5 1/4	4 5/8	2 15/16	2.05	4 1/8	5 1/8
2 1/2	3 1/2	1/2	#8	5/8	9/16	1 3/4	1 1/2	5 3/8	4 3/4	3 1/8	2.55	4 5/8	5 5/8
3 1/4	4 1/2	3/4	#12	3/4	11/16	2	1 3/4	6 1/4	5 1/2	3 13/16	3.25	5 7/8	7 1/8
4	5	3/4	#12	7/8	11/16	2	1 3/4	6 5/8	5 3/4	4	3.82	6 3/8	7 5/8
5	6 1/2	3/4	#12	7/8	15/16	2 1/8	1 7/8	7 1/8	6 1/4	4 7/16	4.95	8 3/16	9 3/4

**STYLE 1 ROD END**

**STYLE 2 ROD END**

**STYLE 3 ROD END**

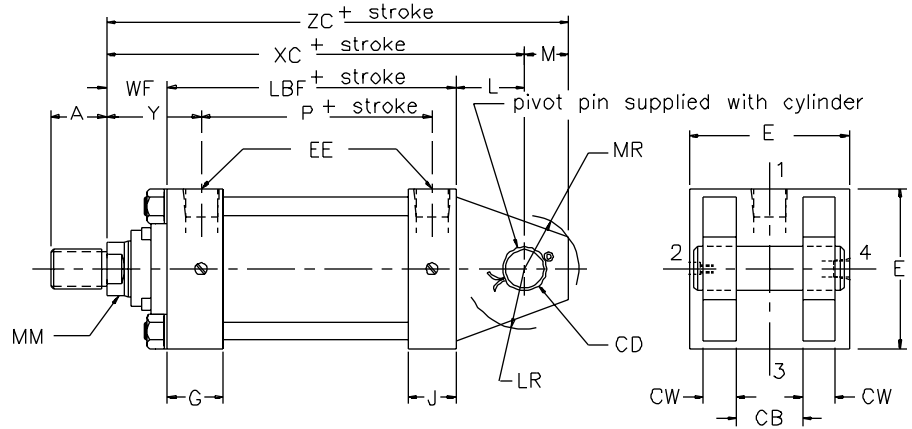
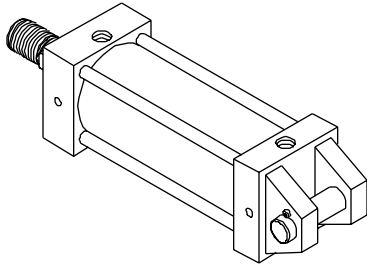
**STYLE 4 ROD END**



MP-1  
MP-3  
MPU-3

**PURAKAL SERIES 3000**  
**CLEVIS, PIVOT EYE, SPHERICAL MOUNTINGS**  
**6" - 12" BORE**

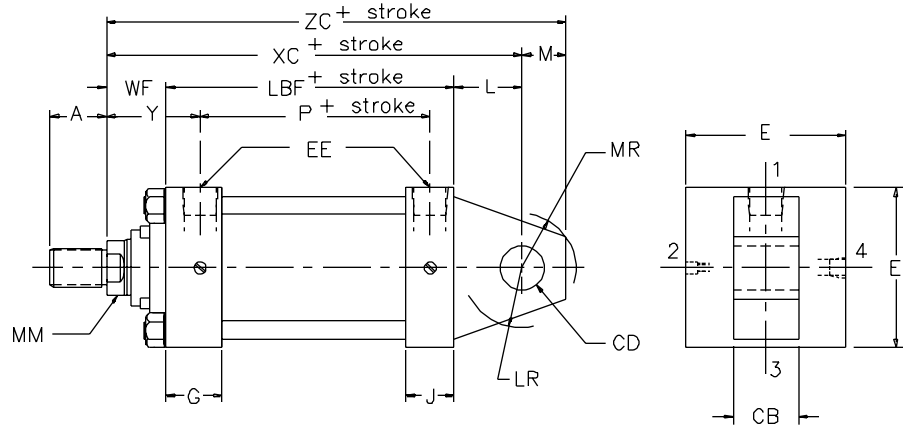
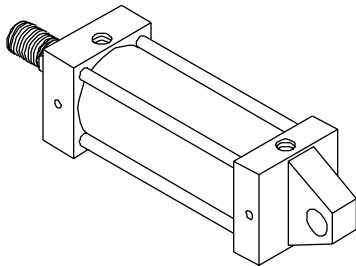
BASE CLEVIS MOUNTING



**MP-1**

For mounting accessories see pages 32 through 39.

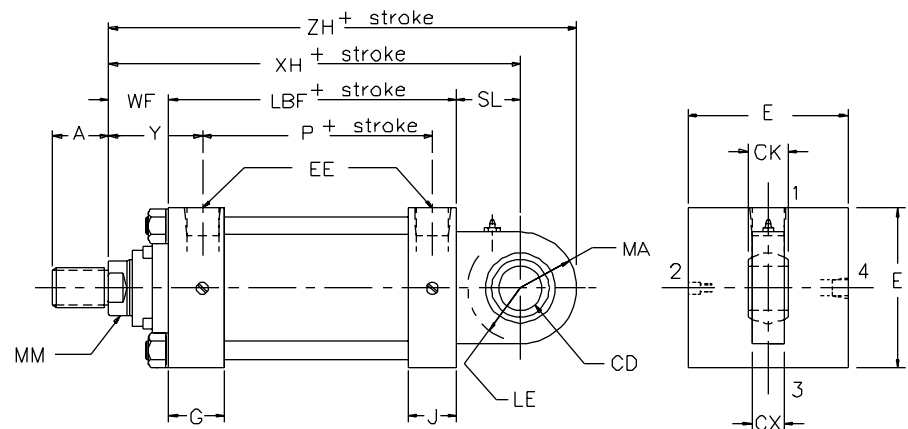
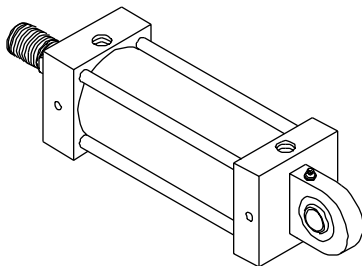
BASE PIVOT EYE MOUNTING



**MP-3**

For mounting accessories see pages 32 through 39.

SPHERICAL TANG MOUNTING



**MPU-3**

For mounting accessories see pages 32 through 39.

**PURAKAL SERIES 3000**  
**CLEVIS, PIVOT EYE, SPHERICAL MOUNTINGS**  
**6" - 12" BORE**

MP-1  
 MP-3  
 MPU-3

**ENVELOPE AND MOUNTING DIMENSIONS AFFECTED BY ROD SIZE**

CYL. BORE	ROD DIA												ADD STROKE	ADD STROKE		ADD STROKE	ADD STROKE
	MM	A	B	BF	C	CC	D	HS	KK	VA	VF	WF	XC	XH	Y	ZC	ZH
6	2 1/2	3	3.124	4 1/2	1	2 1/4-12	2 1/16	3/8	1 7/8-12	9/16	11/16	2 1/4	12 1/8	12 5/16	3 3/8	14 1/8	15 1/16
	3	3 1/2	3.749	5 1/2	1	2 3/4-12	2 5/8	3/8	2 1/4-12	9/16	11/16	2 1/4	12 1/8	12 5/16	3 3/8	14 1/8	15 1/16
	4	4	4.749	6 3/8	1	3 3/4-12	3 3/8	3/8	3-12	11/16	9/16	2 1/4	12 1/8	12 5/16	3 3/8	14 1/8	15 1/16
8	3 1/2	3 1/2	4.249	6	1	3 1/4-12	3	3/8	2 1/2-12	11/16	9/16	2 1/4	15	----	4 1/8	17 3/4	----
	4	4	4.749	6 3/8	1	3 3/4-12	3 3/8	3/8	3-12	11/16	9/16	2 1/4	15	----	4 1/8	17 3/4	----
	5 1/2	5 1/2	6.249	8	1	5 1/4-12	4 5/8	3/8	4-12	15/16	5/16	2 1/4	15	----	4 1/8	17 3/4	----
10	4 1/2	4 1/2	5.249	7	1	4 1/4-12	3 7/8	3/8	3 1/4-12	11/16	1 1/4	2 15/16	19 1/16	----	5	22 9/16	----
	5 1/2	5 1/2	6.249	8	1	5 1/4-12	4 5/8	3/8	4-12	15/16	1 1/4	3 3/16	19 5/16	----	5 1/4	22 13/16	----
	7	5 1/2	7.749	9 1/2	1	5 1/2-12	6	3/8	4-12	15/16	1 1/4	3 3/16	19 5/16	----	5 1/4	22 13/16	----
12	5 1/2	5 1/2	6.249	8	1	5 1/4-12	4 5/8	3/8	4-12	15/16	1 1/4	3 3/16	22 3/16	----	5 5/8	26 3/16	----
	7	5 1/2	7.749	9 1/2	1 1/4	5 1/2-12	6	3/8	4-12	15/16	1 1/4	3 7/16	22 7/16	----	5 7/8	26 7/16	----
	8	8	8.749	10 1/2	1	6-12	7 1/4	3/8	4 1/2-12	15/16	1 1/2	3 7/16	22 7/16	----	5 7/8	26 7/16	----

**ENVELOPE AND MOUNTING DIMENSIONS**

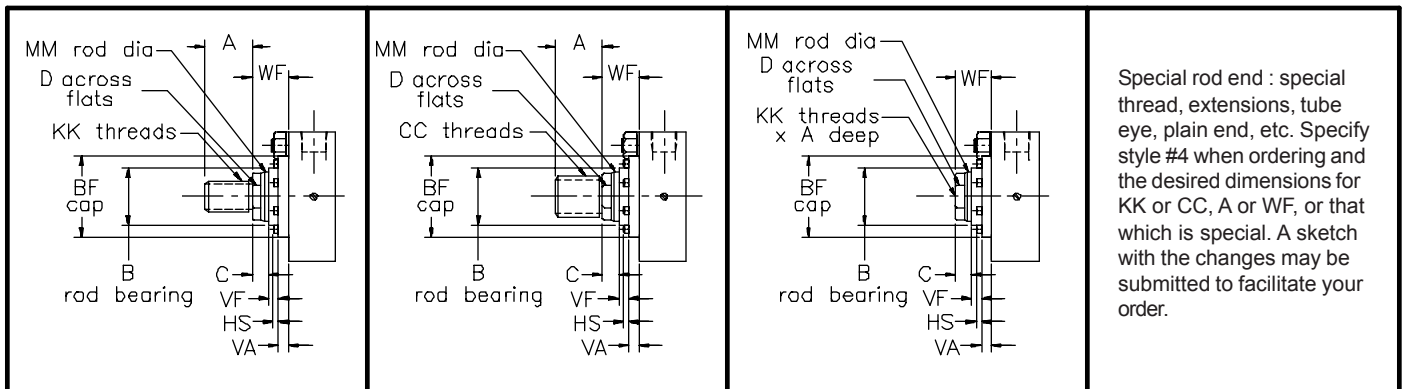
CYL. BORE							NPT	SAE				ADD STROKE					ADD STROKE		
	CB	CD	CK	CW	CX	E	EE	EE	G	J	L	LBF	LE	LR	M	MA	MR	P	SL
6	2 1/2	2.000	1 3/4	1 1/4	1 1/2	7 1/2	1	#16	2 1/4	2 1/4	2 1/2	7 3/8	2 3/16	2 1/16	2	2 3/4	2 1/2	5 1/4	2 11/16
8	3	3.000	---	1 1/2	---	9 1/2	1 1/2	#24	3 1/2	3	3 1/4	9 1/2	---	2 7/8	3	---	3 1/4	6 1/4	---
10	4	3.500	---	2	---	12 5/8	2	#32	3 15/16	3 11/16	4	12 1/8	---	3 3/4	3 1/2	---	4 1/4	8 1/4	---
12	4 1/2	4.000	---	2 1/4	---	14 7/8	2 1/2	#32	4 15/16	4 7/16	4 1/2	14 1/2	---	4 1/4	4	---	4 5/8	10 1/8	---

**STYLE 1 ROD END**

**STYLE 2 ROD END**

**STYLE 3 ROD END**

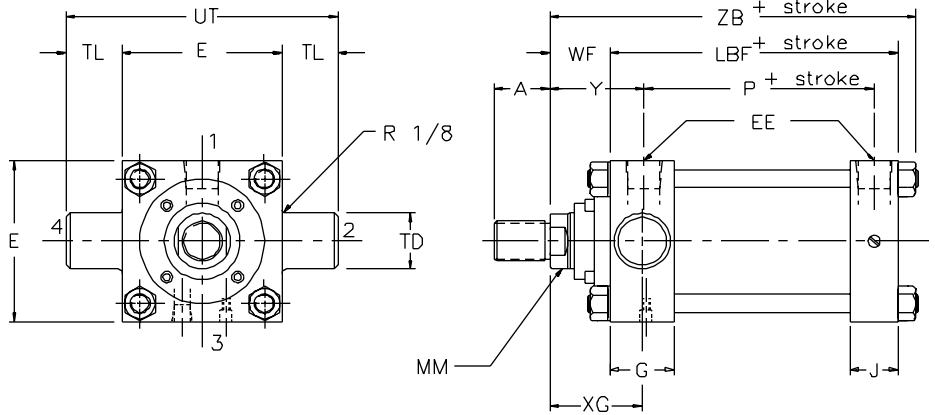
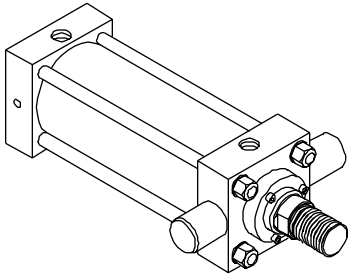
**STYLE 4 ROD END**



MT-1  
 MT-2  
 MT-4

**PURAKAL SERIES 3000  
 TRUNNION MOUNTINGS  
 6" - 12" BORE**

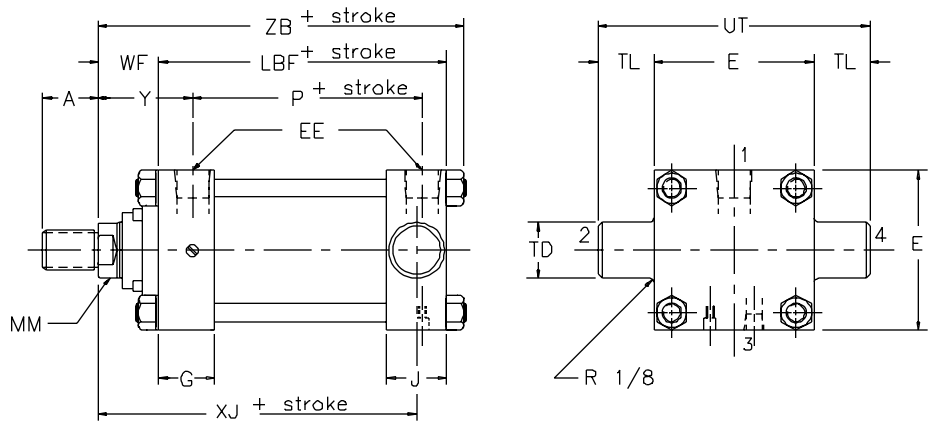
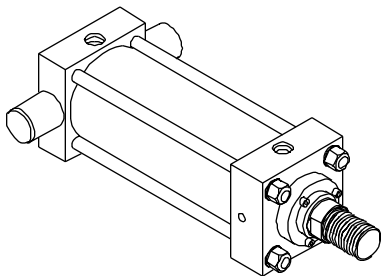
HEAD TRUNNION MOUNTING



**MT-1**

For mounting accessories see pages 32 through 39.

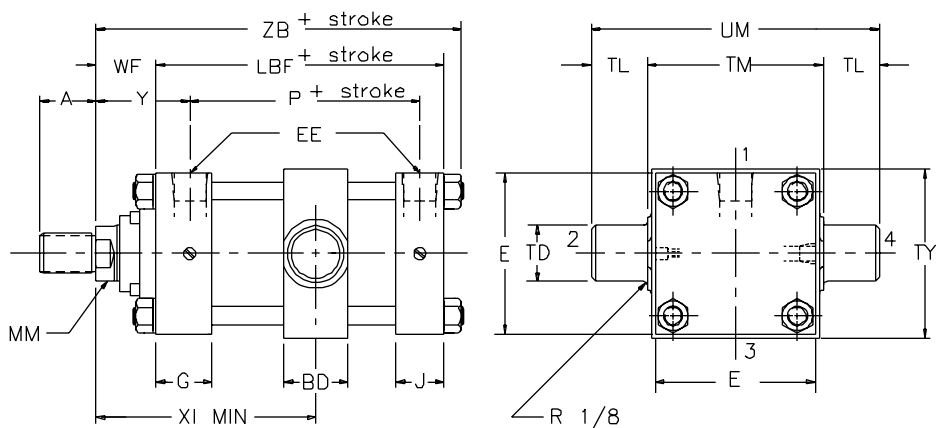
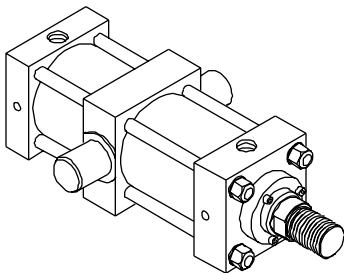
BASE TRUNNION MOUNTING



**MT-2**

For mounting accessories see pages 32 through 39.

INTERMEDIATE TRUNNION MOUNTING



**MT-4**

For mounting accessories see pages 32 through 39.



**PURAKAL SERIES 3000  
TRUNNION MOUNTINGS  
6" - 12" BORE**

MT-1  
MT-2  
MT-4

**ENVELOPE AND MOUNTING DIMENSIONS AFFECTED BY ROD SIZE**

CYL BORE	ROD DIA														ADD STROKE		ADD STROKE
	MM	A	B	BF	C	CC	D	HS	KK	VA	VF	WF	XG	XI MIN	XJ	Y	ZB
6	2 1/2	3	3.124	4 1/2	1	2 1/4-12	2 1/16	3/8	1 7/8-12	9/16	11/16	2 1/4	3 3/8	6	8 3/8	3 3/8	10 3/4
	3	3 1/2	3.749	5 1/2	1	2 3/4-12	2 5/8	3/8	2 1/4-12	9/16	11/16	2 1/4	3 3/8	6	8 3/8	3 3/8	10 3/4
	4	4	4.749	6 3/8	1	3 3/4-12	3 3/8	3/8	3-12	11/16	9/16	2 1/4	3 3/8	6	8 3/8	3 3/8	10 3/4
8	3 1/2	3 1/2	4.249	6	1	3 1/4-12	3	3/8	2 1/2-12	11/16	9/16	2 1/4	3 13/16	7 1/2	10 1/4	4 1/8	13 1/4
	4	4	4.749	6 3/8	1	3 3/4-12	3 3/8	3/8	3-12	11/16	9/16	2 1/4	3 13/16	7 1/2	10 1/4	4 1/8	13 1/4
	5 1/2	5 1/2	6.249	8	1	5 1/4-12	4 5/8	3/8	4-12	15/16	5/16	2 1/4	3 13/16	7 1/2	10 1/4	4 1/8	13 1/4
10	4 1/2	4 1/2	5.249	7	1	4 1/4-12	3 7/8	3/8	3 1/4-12	11/16	1 1/4	2 15/16	4 3/4	---	13 1/4	5	17 1/16
	5 1/2	5 1/2	6.249	8	1	5 1/4-12	4 5/8	3/8	4-12	15/16	1 1/4	3 3/16	5	---	13 1/2	5 1/4	17 5/16
	7	5 1/2	7.749	9 1/2	1	5 1/2-12	6	3/8	4-12	15/16	1 1/4	3 3/16	5	---	13 1/2	5 1/4	17 5/16
12	5 1/2	5 1/2	6.249	8	1	5 1/4-12	4 5/8	3/8	4-12	15/16	1 1/4	3 3/16	5 3/8	---	15 1/2	5 3/8	19 15/16
	7	5 1/2	7.749	9 1/2	1 1/4	5 1/2-12	6	3/8	4-12	15/16	1 1/4	3 7/16	5 5/8	---	15 3/4	5 7/8	20 3/16
	8	8	8.749	10 1/2	1	6-12	7 1/4	3/8	4 1/2-12	15/16	1 1/2	3 7/16	5 5/8	---	15 3/4	5 7/8	20 3/16

**ENVELOPE AND MOUNTING DIMENSIONS**

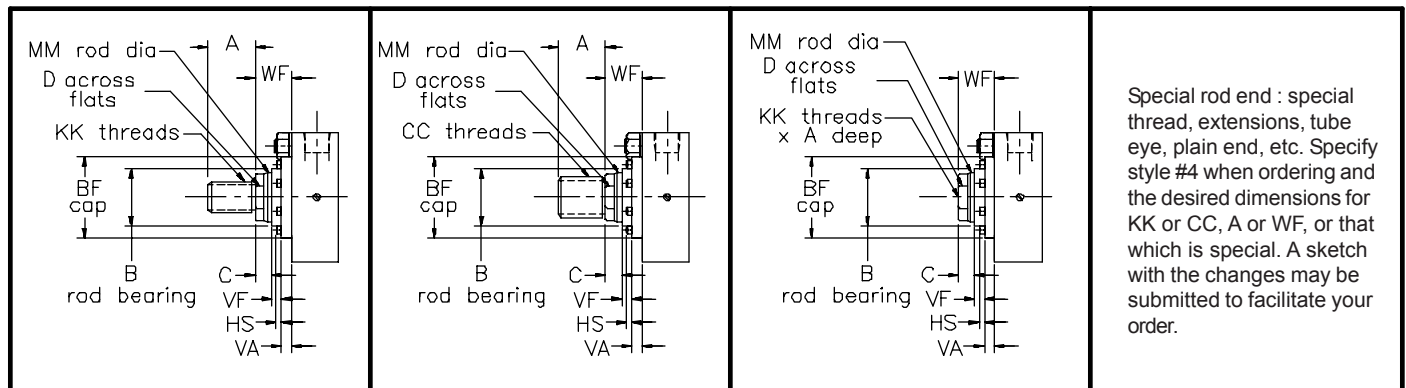
CYL. BORE			NPT	SAE			ADD STROKE	ADD STROKE						
	BD	E	EE	EE	G	J	LBF	P	TD	TL	TM	TY	UM	UT
6	3	7 1/2	1	#16	2 1/4	2 1/4	7 3/8	5 1/4	2.000	2	8 1/2	7 3/4	12 1/2	11 1/2
8	3 1/2	9 1/2	1 1/2	#24	3 1/2	3	9 1/2	6 1/4	3.000	3	11	9 3/4	17	15 1/2
10	---	12 5/8	2	#32	3 15/16	3 11/16	12 1/8	8 1/4	3.500	3 1/2	---	---	---	19 5/8
12	---	14 7/8	2 1/2	#32	4 15/16	4 7/16	14 1/2	10 1/8	4.000	4	---	---	---	22 7/8

**STYLE 1 ROD END**

**STYLE 2 ROD END**

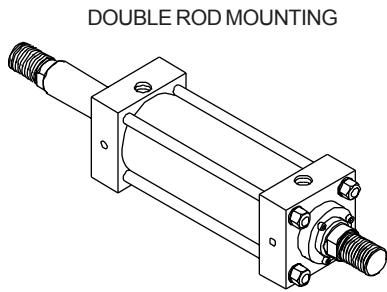
**STYLE 3 ROD END**

**STYLE 4 ROD END**

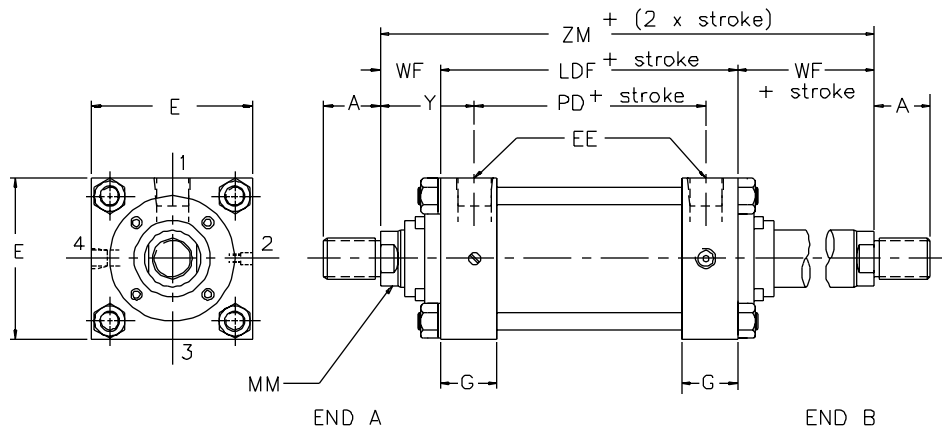


MD  
MS-2  
MS-4

## PURAKAL SERIES 3000 DOUBLE ROD, SIDE LUG, SIDE TAPPED MOUNTINGS 6" - 12" BORE



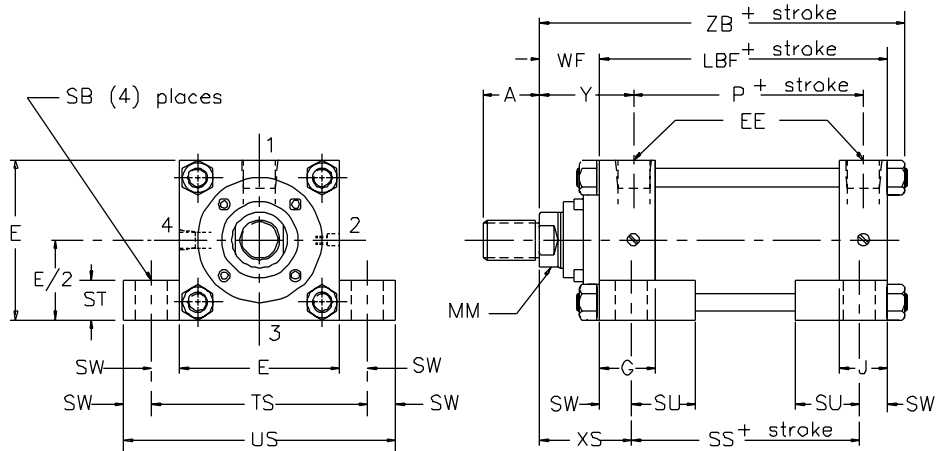
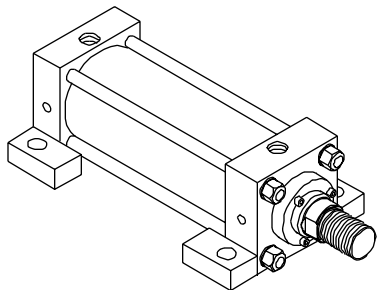
Most mounting styles available.  
Consult factory for details.



# MD

For mounting accessories see pages 32 through 39.

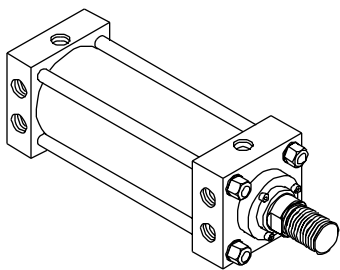
SIDE LUG MOUNTING



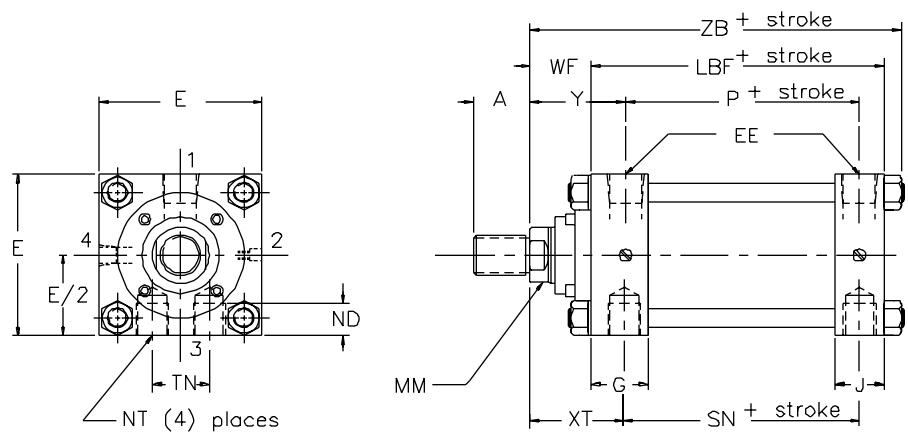
# MS-2

For mounting accessories see pages 32 through 39.

SIDE TAPPED MOUNTING



Tapped holes are rotated to show in this view.  
Standard location is Position #3.



# MS-4

For mounting accessories see pages 32 through 39.

**PURAKAL SERIES 3000**  
**DOUBLE ROD, SIDE LUG, SIDE TAPPED MOUNTINGS**  
**6" - 12" BORE**

MD  
MS-2  
MS-4

**ENVELOPE AND MOUNTING DIMENSIONS AFFECTED BY ROD SIZE**

CYL BORE	ROD DIA															ADD STROKE	ADD 2X STROKE
	MM	A	B	BF	C	CC	D	HS	KK	VA	VF	WF	XS	XT	Y	ZB	ZM
6	2 1/2	3	3.124	4 1/2	1	2 1/4-12	2 1/16	3/8	1 7/8-12	9/16	11/16	2 1/4	3 3/8	3 1/2	3 3/8	10 3/4	11 7/8
	3	3 1/2	3.749	5 1/2	1	2 3/4-12	2 5/8	3/8	2 1/4-12	9/16	11/16	2 1/4	3 3/8	3 1/2	3 3/8	10 3/4	11 7/8
	4	4	4.749	6 3/8	1	3 3/4-12	3 3/8	3/8	3-12	11/16	9/16	2 1/4	3 3/8	3 1/2	3 3/8	10 3/4	11 7/8
8	3 1/2	3 1/2	4.249	6	1	3 1/4-12	3	3/8	2 1/2-12	11/16	9/16	2 1/4	3 5/8	3 15/16	4 1/8	13 1/4	14 1/2
	4	4	4.749	6 3/8	1	3 3/4-12	3 3/8	3/8	3-12	11/16	9/16	2 1/4	3 5/8	3 15/16	4 1/8	13 1/4	14 1/2
	5 1/2	5 1/2	6.249	8	1	5 1/4-12	4 5/8	3/8	4-12	15/16	5/16	2 1/4	3 5/8	3 15/16	4 1/8	13 1/4	14 1/2
10	4 1/2	4 1/2	5.249	7	1	4 1/4-12	3 7/8	3/8	3 1/4-12	11/16	1 1/4	2 15/16	4 9/16	---	5	17 1/16	18 1/4
	5 1/2	5 1/2	6.249	8	1	5 1/4-12	4 5/8	3/8	4-12	15/16	1 1/4	3 3/16	4 13/16	---	5 1/4	17 5/16	18 3/4
	7	5 1/2	7.749	9 1/2	1	5 1/2-12	6	3/8	4-12	15/16	1 1/4	3 3/16	4 13/16	---	5 1/4	17 5/16	18 3/4
12	5 1/2	5 1/2	6.249	8	1	5 1/4-12	4 5/8	3/8	4-12	15/16	1 1/4	3 3/16	5 3/16	---	5 3/8	19 15/16	21 3/8
	7	5 1/2	7.749	9 1/2	1 1/4	5 1/2-12	6	3/8	4-12	15/16	1 1/4	3 7/16	5 7/16	---	5 7/8	20 3/16	21 7/8
	8	8	8.749	10 1/2	1	6-12	7 1/4	3/8	4 1/2-12	15/16	1 1/2	3 7/16	5 7/16	---	5 7/8	20 3/16	21 7/8

**ENVELOPE AND MOUNTING DIMENSIONS**

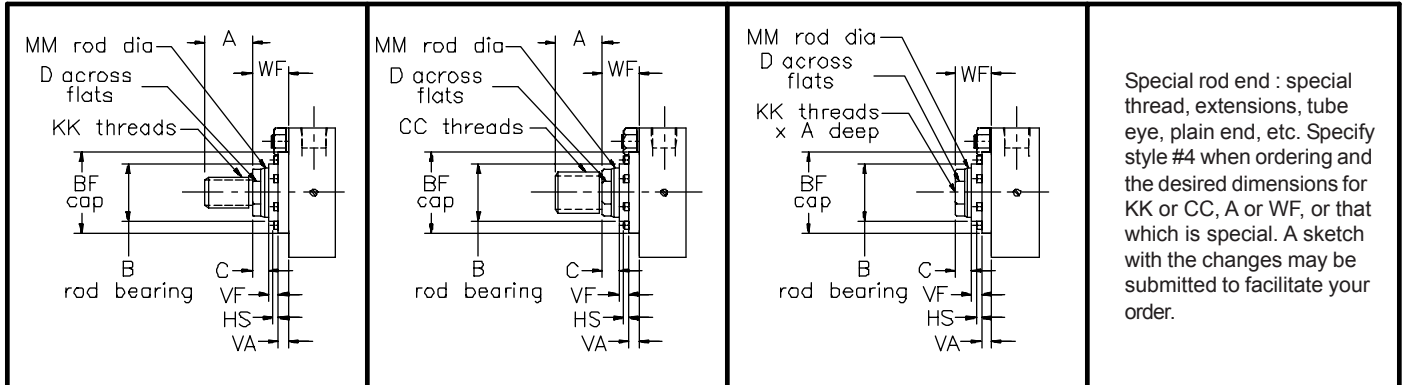
CYL. BORE	NPT		SAE		ADD STRK				ADD STRK		ADD STRK		ADD STRK		ADD STRK					
	E	EE	EE	G	J	LBF	LDF	ND	NT	P	PD	SB	SN	SS	ST	SU	SW	TN	TS	US
6	7 1/2	1	#16	2 1/4	2 1/4	7 3/8	7 3/8	1 1/8	1 1/4-7	5 1/4	5 1/8	1 5/16	5 1/8	5 1/8	1 1/2	2 1/2	1 1/8	3 5/16	9 3/4	12
8	9 1/2	1 1/2	#24	3 1/2	3	9 1/2	10	1 1/2	1 1/2-6	6 1/4	6 1/4	1 9/16	6 5/8	6 3/4	1 3/4	2 7/8	1 3/8	4 1/4	12 1/4	15
10	12 5/8	2	#32	3 15/16	3 11/16	12 1/8	12 3/8	---	---	8 1/4	8 1/4	1 9/16	---	8 7/8	2 1/4	3 1/2	1 5/8	---	15 7/8	19 1/8
12	14 7/8	2 1/2	#32	4 15/16	4 7/16	14 1/2	15	---	---	10 1/8	10 1/8	1 9/16	---	10 1/2	3	4 1/4	2	---	18 7/8	22 7/8

**STYLE 1 ROD END**

**STYLE 2 ROD END**

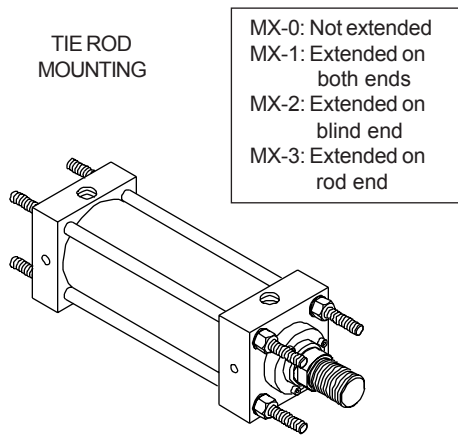
**STYLE 3 ROD END**

**STYLE 4 ROD END**

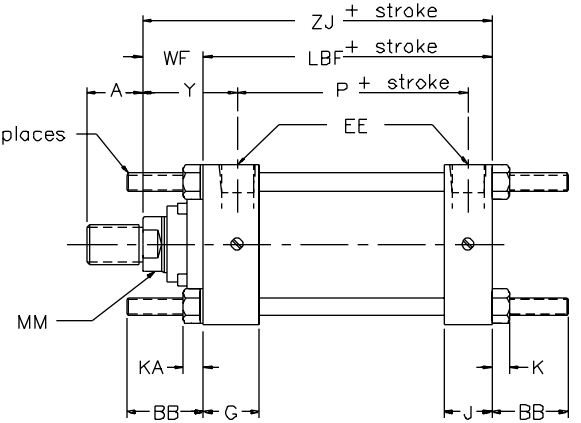
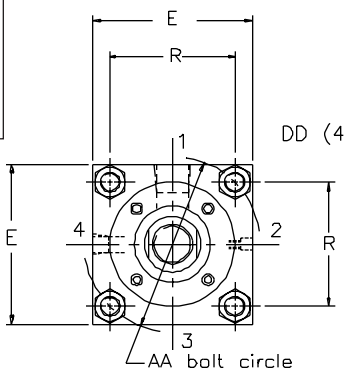


MX  
MF-1  
MF-2

## PURAKAL SERIES 3000 TIE ROD AND RECTANGULAR FLANGE MOUNTINGS 6" - 12" BORE

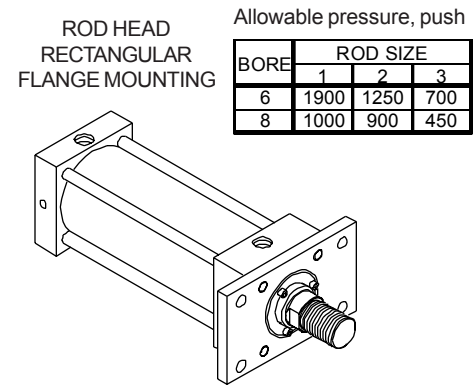


MX-0: Not extended  
MX-1: Extended on both ends  
MX-2: Extended on blind end  
MX-3: Extended on rod end



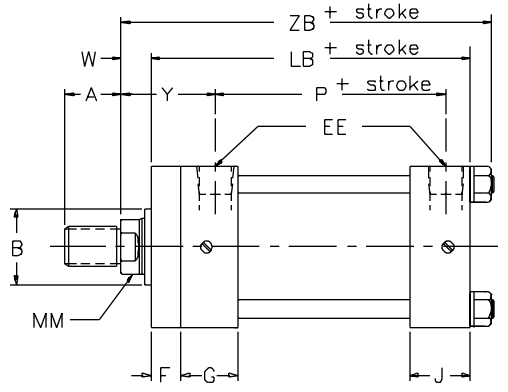
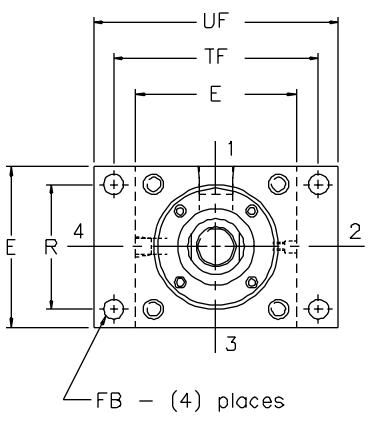
# MX

For mounting accessories see pages 32 through 39.



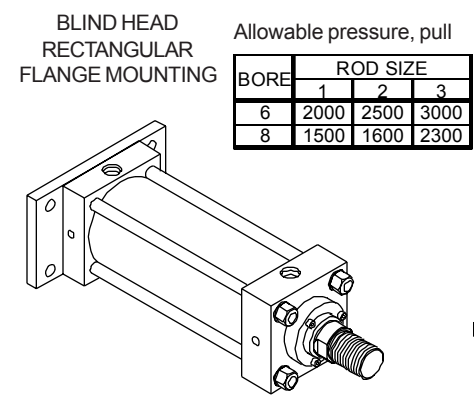
Allowable pressure, push

BORE	ROD SIZE		
	1	2	3
6	1900	1250	700
8	1000	900	450



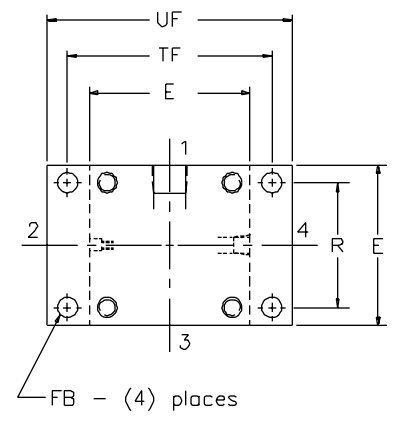
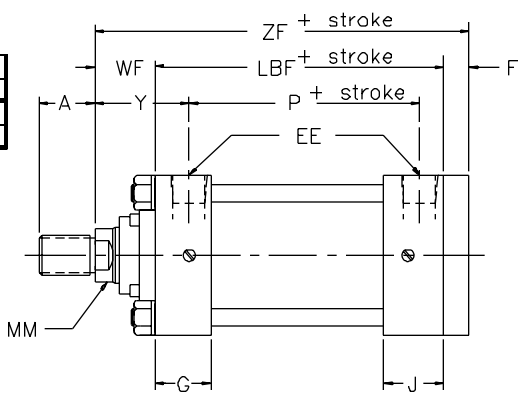
# MF-1

For mounting accessories see pages 32 through 39.



Allowable pressure, pull

BORE	ROD SIZE		
	1	2	3
6	2000	2500	3000
8	1500	1600	2300



# MF-2

For mounting accessories see pages 32 through 39.

**PURAKAL SERIES 3000**  
**TIE ROD AND RECTANGULAR FLANGE MOUNTINGS**  
**6" - 12" BORE**

MX  
MF-1  
MF-2

**ENVELOPE AND MOUNTING DIMENSIONS AFFECTED BY ROD SIZE**

CYL BORE	ROD DIA														ADD STROKE	ADD STROKE	ADD STROKE
	MM	A	B	BF	C	CC	D	HS	KK	VA	VF	W	WF	Y	ZB	ZF	ZJ
6	2 1/2	3	3.124	4 1/2	1	2 1/4-12	2 1/16	3/8	1 7/8-12	9/16	11/16	1 1/4	2 1/4	3 3/8	10 3/4	10 5/8	9 5/8
	3	3 1/2	3.749	5 1/2	1	2 3/4-12	2 5/8	3/8	2 1/4-12	9/16	11/16	1 1/4	2 1/4	3 3/8	10 3/4	10 5/8	9 5/8
	4	4	4.749	6 3/8	1	3 3/4-12	3 3/8	3/8	3-12	11/16	9/16	1 1/4	2 1/4	3 3/8	10 3/4	10 5/8	9 5/8
8	3 1/2	3 1/2	4.249	6	1	3 1/4-12	3	3/8	2 1/2-12	11/16	9/16	1 1/4	2 1/4	4 1/8	13 1/4	12 3/4	11 3/4
	4	4	4.749	6 3/8	1	3 3/4-12	3 3/8	3/8	3-12	11/16	9/16	1 1/4	2 1/4	4 1/8	13 1/4	12 3/4	11 3/4
	5 1/2	5 1/2	6.249	8	1	5 1/4-12	4 5/8	3/8	4-12	15/16	5/16	1 1/4	2 1/4	4 1/8	13 1/4	12 3/4	11 3/4

**ENVELOPE AND MOUNTING DIMENSIONS**

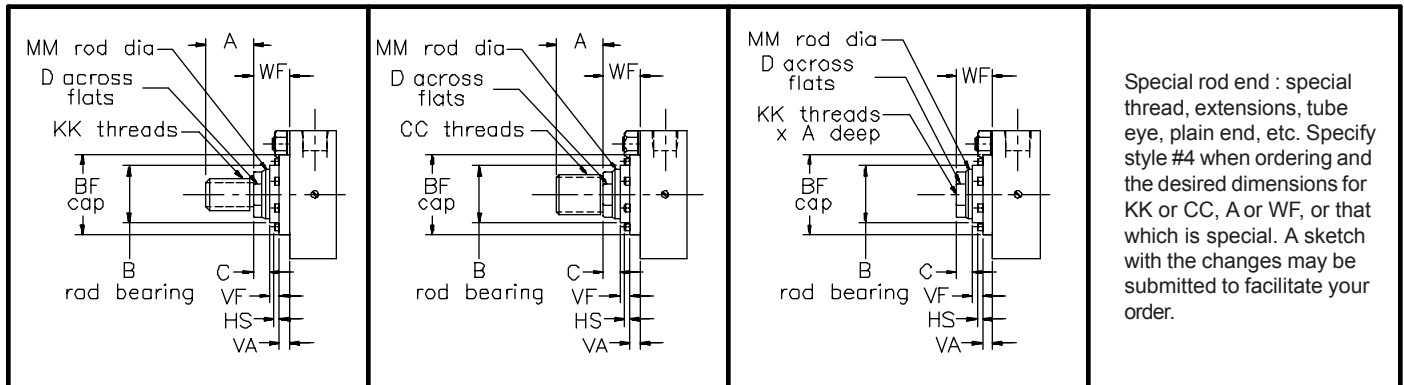
CYL. BORE					NPT	SAE							ADD STROKE	ADD STROKE	ADD STROKE			
	AA	BB	DD	E	EE	EE	F	FB	G	J	K	KA	LB	LBF	P	R	TF	UF
6	8.10	3 5/8	1-14	7 1/2	1	#16	1	1 1/16	2 1/4	2 1/4	55/64	15/16	8 3/8	7 3/8	5 1/4	5.73	9 7/16	11 1/4
8	10.60	4 1/2	1 1/4-12	9 1/2	1 1/2	#24	1	1 5/16	3 1/2	3	1 1/16	1 3/16	10 1/2	9 1/2	6 1/4	7.50	11 13/16	14

**STYLE 1 ROD END**

**STYLE 2 ROD END**

**STYLE 3 ROD END**

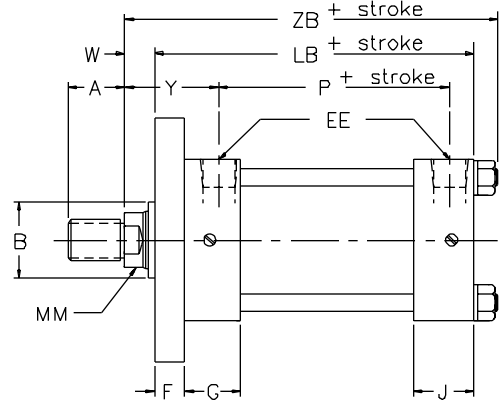
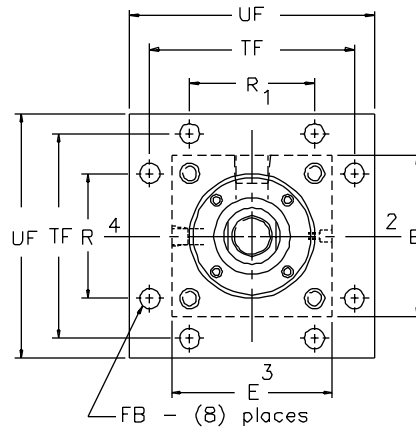
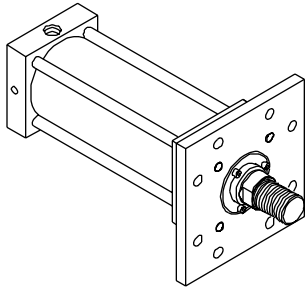
**STYLE 4 ROD END**



MF-5  
MF-6

**PURAKAL SERIES 3000  
SQUARE FLANGE MOUNTINGS  
6" AND 8" BORE**

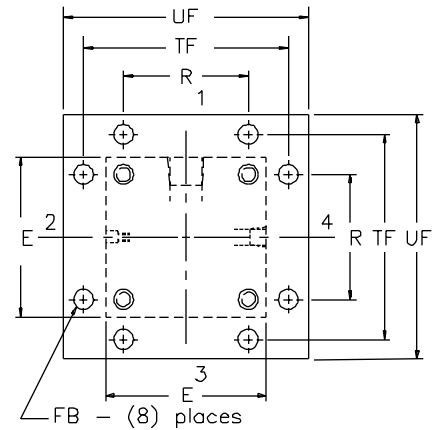
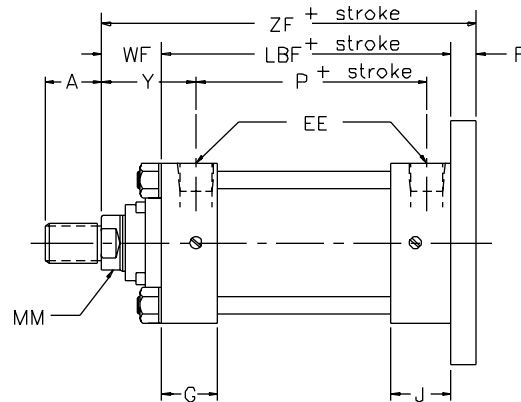
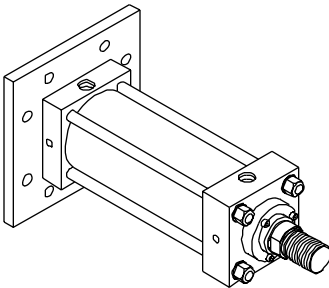
ROD HEAD  
SQUARE FLANGE MOUNTING



**MF-5**

For mounting accessories see pages 32 through 39.

BLIND HEAD  
SQUARE FLANGE MOUNTING



**MF-6**

For mounting accessories see pages 32 through 39.

**PURAKAL SERIES 3000**  
**SQUARE FLANGE MOUNTINGS**  
**6" AND 8" BORE**

MF-5  
MF-6

**ENVELOPE AND MOUNTING DIMENSIONS AFFECTED BY ROD SIZE**

CYL BORE	ROD DIA													ADD STROKE	ADD STROKE	
	MM	A	B	BF	C	CC	D	HS	KK	VA	VF	W	WF	Y	ZB	ZF
6	2 1/2	3	3.124	4 1/2	1	2 1/4-12	2 1/16	3/8	1 7/8-12	9/16	11/16	1 1/4	2 1/4	3 3/8	10 3/4	10 5/8
	3	3 1/2	3.749	5 1/2	1	2 3/4-12	2 5/8	3/8	2 1/4-12	9/16	11/16	1 1/4	2 1/4	3 3/8	10 3/4	10 5/8
	4	4	4.749	6 3/8	1	3 3/4-12	3 3/8	3/8	3-12	11/16	9/16	1 1/4	2 1/4	3 3/8	10 3/4	10 5/8
8	3 1/2	3 1/2	4.249	6	1	3 1/4-12	3	3/8	2 1/2-12	11/16	9/16	1 1/4	2 1/4	4 1/8	13 1/4	12 3/4
	4	4	4.749	6 3/8	1	3 3/4-12	3 3/8	3/8	3-12	11/16	9/16	1 1/4	2 1/4	4 1/8	13 1/4	12 3/4
	5 1/2	5 1/2	6.249	8	1	5 1/4-12	4 5/8	3/8	4-12	15/16	5/16	1 1/4	2 1/4	4 1/8	13 1/4	12 3/4

**ENVELOPE AND MOUNTING DIMENSIONS**

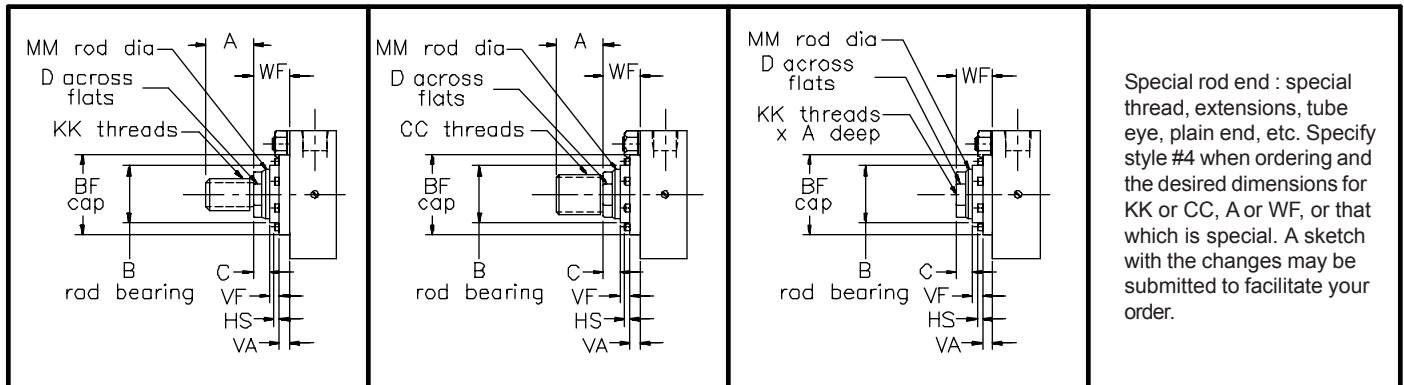
CYL. BORE		NPT	SAE					ADD STROKE	ADD STROKE	ADD STROKE			
	E	EE	EE	F	FB	G	J	LB	LBF	P	R	TF	UF
6	7 1/2	1	#16	1	1 1/16	2 1/4	2 1/4	8 3/8	7 3/8	5 1/4	5.73	9 7/16	11 1/4
8	9 1/2	1 1/2	#24	1	1 5/16	3 1/2	3	10 1/2	9 1/2	6 1/4	7.50	11 13/16	14

**STYLE 1 ROD END**

**STYLE 2 ROD END**

**STYLE 3 ROD END**

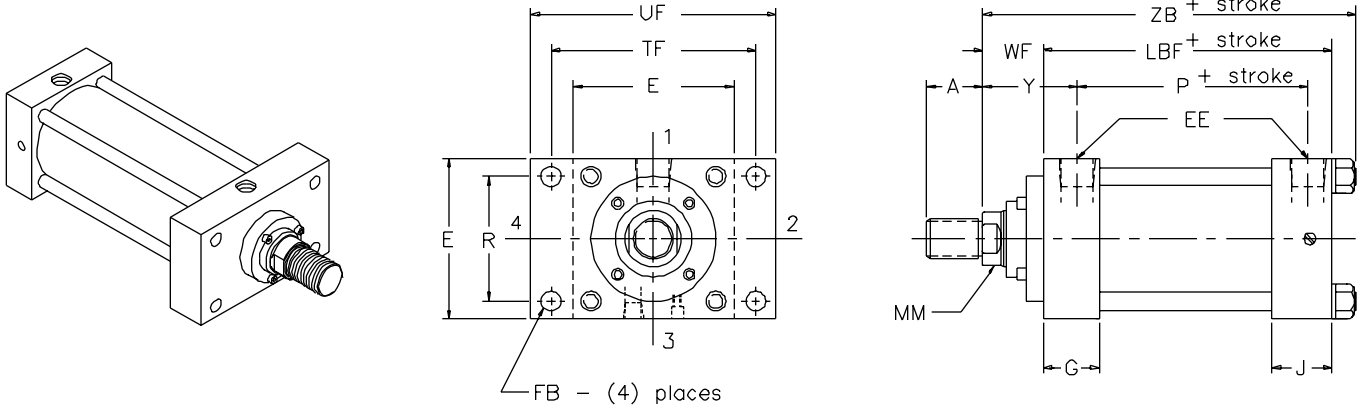
**STYLE 4 ROD END**



ME-5  
ME-6

**PURAKAL SERIES 3000  
INTEGRAL FLANGE MOUNTINGS  
6" - 12" BORE**

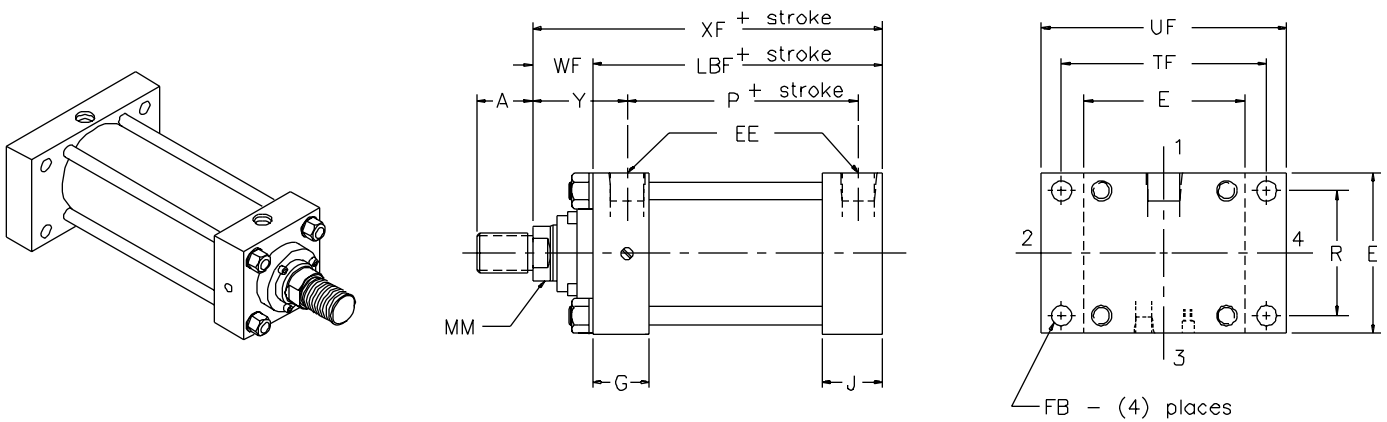
ROD HEAD  
INTEGRAL FLANGE MOUNTING



**ME-5**

For mounting accessories see pages 32 through 39.

BLIND HEAD  
INTEGRAL FLANGE MOUNTING



**ME-6**

For mounting accessories see pages 32 through 39.



**PURAKAL SERIES 3000  
INTEGRAL FLANGE MOUNTINGS  
6" - 12" BORE**

ME-5  
ME-6

**ENVELOPE AND MOUNTING DIMENSIONS AFFECTED BY ROD SIZE**

CYL BORE	ROD DIA												ADD STROKE		ADD STROKE
	MM	A	B	BF	C	CC	D	HS	KK	VA	VF	WF	XF	Y	ZB
6	2 1/2	3	3.124	4 1/2	1	2 1/4-12	2 1/16	3/8	1 7/8-12	9/16	11/16	2 1/4	9 5/8	3 3/8	10 3/4
	3	3 1/2	3.749	5 1/2	1	2 3/4-12	2 5/8	3/8	2 1/4-12	9/16	11/16	2 1/4	9 5/8	3 3/8	10 3/4
	4	4	4.749	6 3/8	1	3 3/4-12	3 3/8	3/8	3-12	11/16	9/16	2 1/4	9 5/8	3 3/8	10 3/4
8	3 1/2	3 1/2	4.249	6	1	3 1/4-12	3	3/8	2 1/2-12	11/16	9/16	2 1/4	11 3/4	4 1/8	13 1/4
	4	4	4.749	6 3/8	1	3 3/4-12	3 3/8	3/8	3-12	11/16	9/16	2 1/4	11 3/4	4 1/8	13 1/4
	5 1/2	5 1/2	6.249	8	1	5 1/4-12	4 5/8	3/8	4-12	15/16	5/16	2 1/4	11 3/4	4 1/8	13 1/4
10	4 1/2	4 1/2	5.249	7	1	4 1/4-12	3 7/8	3/8	3 1/4-12	11/16	1 1/4	2 15/16	15 1/16	5	17 1/16
	5 1/2	5 1/2	6.249	8	1	5 1/4-12	4 5/8	3/8	4-12	15/16	1 1/4	3 3/16	15 5/16	5 1/4	17 5/16
	7	5 1/2	7.749	9 1/2	1	5 1/2-12	6	3/8	4-12	15/16	1 1/4	3 3/16	15 5/16	5 1/4	17 5/16
12	5 1/2	5 1/2	6.249	8	1	5 1/4-12	4 5/8	3/8	4-12	15/16	1 1/4	3 3/16	17 11/16	5 3/8	19 15/16
	7	5 1/2	7.749	9 1/2	1 1/4	5 1/2-12	6	3/8	4-12	15/16	1 1/4	3 7/16	17 15/16	5 7/8	20 3/16
	8	8	8.749	10 1/2	1	6-12	7 1/4	3/8	4 1/2-12	15/16	1 1/2	3 7/16	17 15/16	5 7/8	20 3/16

**ENVELOPE AND MOUNTING DIMENSIONS**

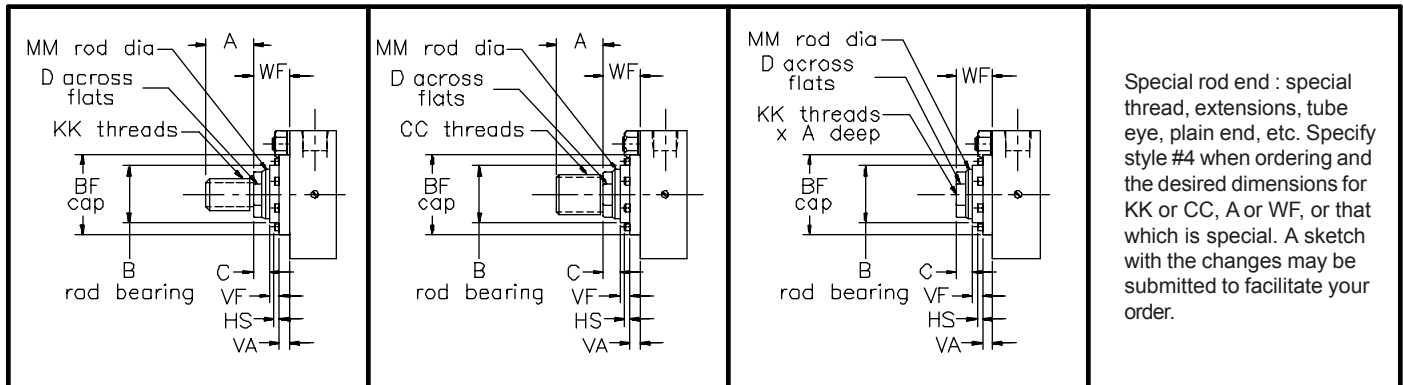
CYL. BORE		NPT	SAE				ADD STROKE	ADD STROKE			
	E	EE	EE	FB	G	J	LBF	P	R	TF	UF
6	7 1/2	1	#16	1 1/16	2 1/4	2 1/4	7 3/8	5 1/4	5.73	9 7/16	11 1/4
8	9 1/2	1 1/2	#24	1 5/16	3 1/2	3	9 1/2	6 1/4	7.50	11 13/16	14
10	12 5/8	2	#32	1 13/16	3 15/16	3 11/16	12 1/8	8 1/4	9.62	15 7/8	19
12	14 7/8	2 1/2	#32	2 1/16	4 15/16	4 7/16	14 1/2	10 1/8	11.45	18 1/2	22

**STYLE 1 ROD END**

**STYLE 2 ROD END**

**STYLE 3 ROD END**

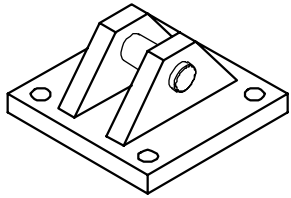
**STYLE 4 ROD END**



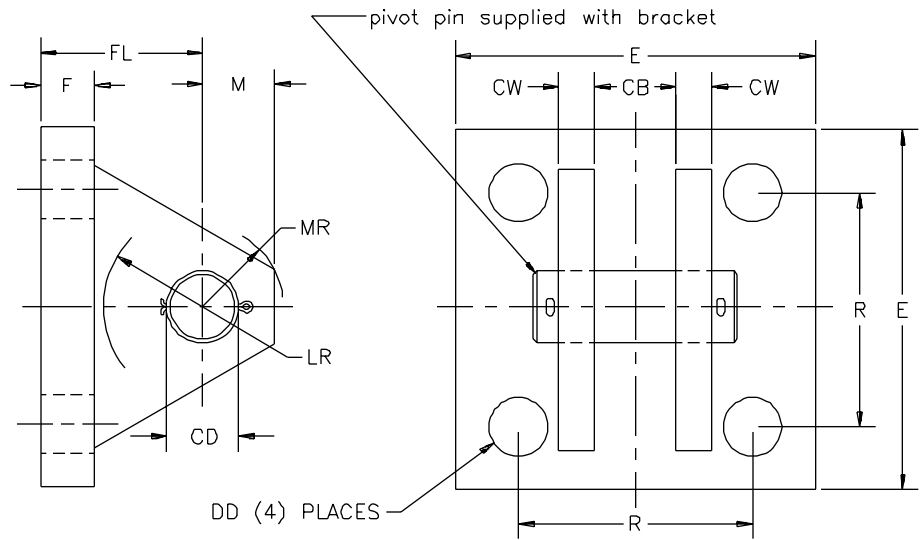
PCB  
PME  
PSE

## PURAKAL SERIES 3000 MOUNTING ACCESSORIES

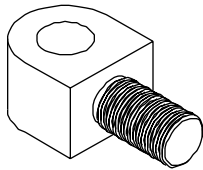
CLEVIS BRACKET



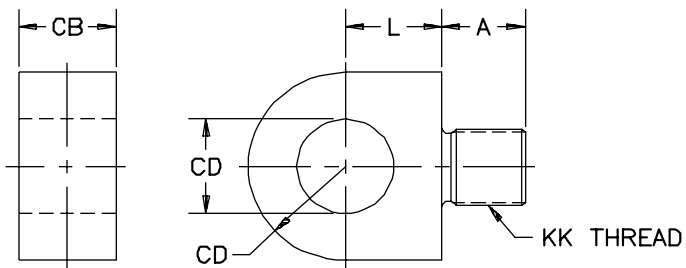
**PCB**



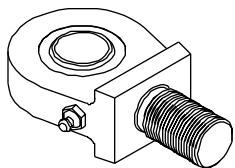
MALE ROD EYE



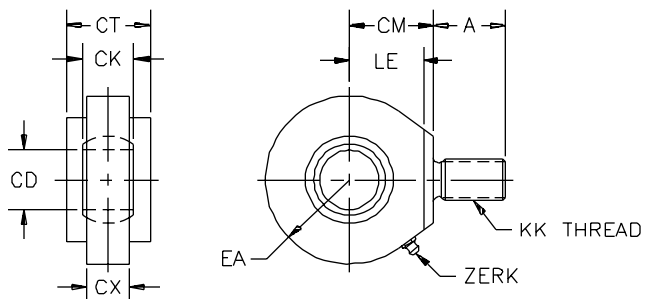
**PME**



SELFALIGNING ROD EYE



**PSE**



**PURAKAL SERIES 3000  
MOUNTING ACCESSORIES**

PCB  
PME  
PSE

**CLEVIS BRACKET**

	PART NUMBER											
	PCB-05	PCB-07	PCB-10	PCB-13	PCB-17	PCB-20	PCB-25	PCB-30	PCB-30-35	PCB-35	PCB-40	PCB-40-50
CB	3/4	1 1/4	1 1/2	2	2 1/2	2 1/2	3	3	3 1/2	4	4 1/2	5
CD	1/2	3/4	1	1 3/8	1 3/4	2	2 1/2	3	3	3 1/2	4	4
CW	1/2	5/8	3/4	1	1 1/4	1 1/2	1 1/2	1 1/2	1 1/2	2	2	2
DD	13/32	17/32	21/32	21/32	29/32	1 1/16	1 3/16	1 5/16	1 5/16	1 13/16	2 1/16	2 1/16
E	3 1/2	5	6 1/2	7 1/2	9 1/2	12 3/4	12 3/4	12 3/4	12 3/4	15 1/2	17 1/2	17 1/2
F	1/2	5/8	3/4	7/8	7/8	1	1	1	1	1 11/16	1 15/16	1 15/16
FL	1 1/2	1 7/8	2 1/4	3	3 5/8	4 1/4	4 1/2	6	6	6 11/16	7 11/16	7 11/16
LR	3/4	1 3/16	1 1/2	2	2 3/4	3 3/16	3 1/2	4 1/4	4 1/4	5	5 3/4	5 3/4
M	1/2	3/4	1	1 3/8	1 3/4	2	2 1/2	3	3	3 1/2	4	4
MR	5/8	1 1/16	1 1/4	1 3/4	2 7/32	2 3/4	3 1/8	3 5/8	3 5/8	4 1/8	4 7/8	4 7/8
R	2.55	3.82	4.95	5.73	7.50	9.40	9.40	9.40	9.40	12.00	13.75	13.75

**MALE ROD EYE**

	PART NUMBER															
	PME-05	PME-07	PME-10-08	PME-10	PME-13	PME-17	PME-20	PME-20-18	PME-25	PME-30	PME-30-27	PME-35	PME-35-35	PME-40	PME-40-45	
A	3/4	3/4	1 1/8	1 1/8	1 5/8	2	2 1/4	2 1/4	3	3 1/2	3 1/2	4	5	5 1/2	5 1/2	
CB	3/4	3/4	1 1/4	1 1/2	1 1/2	2	2 1/2	2 1/2	2 1/2	3	3	3 1/2	4	4	4 1/2	5
CD	1/2	1/2	3/4	1	1	1 3/8	1 3/4	2	2	2 1/2	3	3	3 1/2	3 1/2	4	4
L	5/8	5/8	7/8	7/8	1 1/8	1 5/8	2	2	2 1/4	2 3/4	4 1/4	4 1/4	5	5	5 3/4	5 3/4
KK	7/16-20	1/2-20	3/4-16	7/8-14	1-14	1 1/4-12	1 1/2-12	1 3/4-12	1 7/8-12	2 1/4-12	2 1/2-12	2 3/4-12	3 1/4-12	3 1/2-12	4-12	4 1/2-12

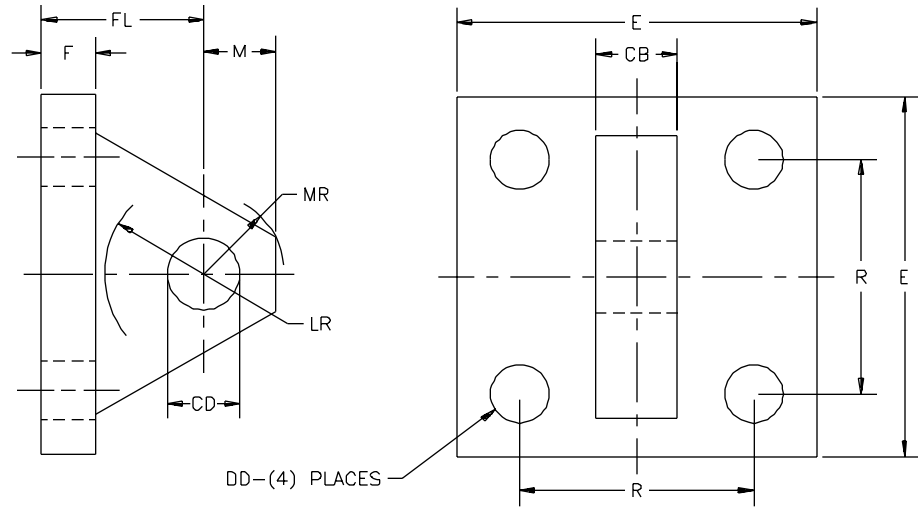
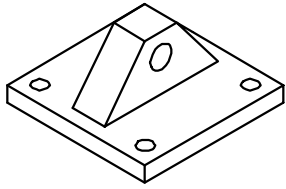
**SELF ALIGNING ROD EYE**

	PART NUMBER					
	PSE-05	PSE-07	PSE-10	PSE-13	PSE-17	PSE-20
A	3/4	1 1/8	1 5/8	2	2 1/4	3
CD	1/2	3/4	1	1 3/8	1 3/4	2
CK	7/16	21/32	7/8	1 3/16	1 17/32	1 3/4
CM	7/8	1 1/4	1 7/8	2 1/8	2 1/2	2 3/4
CT	1/2	7/8	1 1/8	1 1/2	1 3/4	2
CX	3/8	9/16	3/4	1 1/32	1 5/16	1 1/2
EA	7/8	1 1/4	1 3/8	1 13/16	2 3/16	2 1/2
LE	3/4	1 1/16	1 7/16	1 7/8	2 1/4	2 1/2
KK	7/16-20	3/4-16	1-14	1 1/4-12	1 1/2-12	1 7/8-12

PEB  
PC  
PE

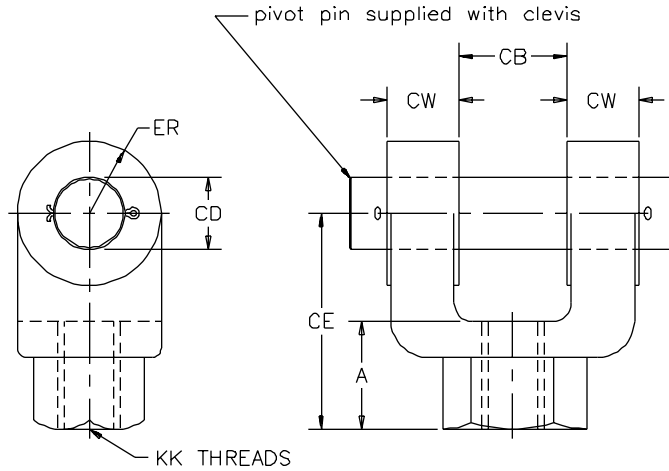
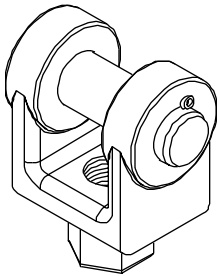
# PURAKAL SERIES 3000 MOUNTING ACCESSORIES

EYE BRACKET



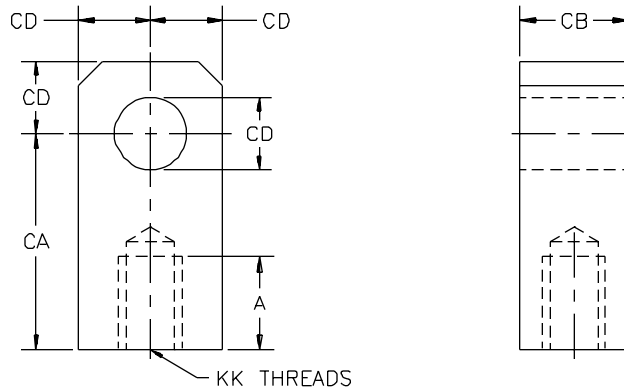
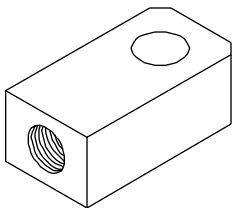
## PEB

FEMALE ROD CLEVIS



## PC

FEMALE ROD EYE



## PE

**PURAKAL SERIES 3000  
MOUNTING ACCESSORIES**

PEB  
PC  
PE

**EYE BRACKET**

	PART NUMBER									
	PEB-05	PEB-07	PEB-10	PEB-13	PEB-17	PEB-20	PEB-25	PEB-30	PEB-35	PEB-40
CB	3/4	1 1/4	1 1/2	2	2 1/2	2 1/2	3	3	4	4 1/2
CD	1/2	3/4	1	1 3/8	1 3/4	2	2 1/2	3	3 1/2	4
DD	13/32	17/32	21/32	21/32	29/32	1 1/16	1 3/16	1 5/16	1 13/16	2 1/16
E	2 1/2	3 1/2	4 1/2	5	6 1/2	7 1/2	8 1/2	9 1/2	12 5/8	14 7/8
F	3/8	5/8	3/4	7/8	7/8	1	1	1	1 11/16	1 15/16
FL	1 1/8	1 7/8	2 1/4	3	3 1/8	3 1/2	4	4 1/4	5 11/16	6 7/16
LR	3/4	1 1/4	1 1/2	2 1/8	2 1/4	2 1/2	3	3 1/4	4	4 1/2
M	1/2	3/4	1	1 3/8	1 3/4	2	2 1/2	2 3/4	3 1/2	4
MR	9/16	7/8	1 1/4	1 5/8	2 1/8	2 7/16	3	3 1/4	4 1/8	5 1/4
R	1.63	2.55	3.25	3.82	4.95	5.73	6.58	7.50	9.62	11.45

**FEMALE ROD CLEVIS**

	PART NUMBER														
	PC -05	PC -05-05	PC -07	PC -10-08	PC -10	PC -13	PC -17	PC -20	PC -20-18	PC -25	PC -30	PC -30-27	PC -35	PC -40-35	PC -40
A	3/4	3/4	1 1/8	1 5/8	1 5/8	2	2 1/4	3	3	3 1/2	3 1/2	3 1/2	4 1/2	5	5 1/2
CB	3/4	3/4	1 1/4	1 1/2	1 1/2	2	2 1/2	2 1/2	2 1/2	3	3	3	4	4 1/2	4 1/2
CD	1/2	1/2	3/4	1	1	1 3/8	1 3/4	2	2	2 1/2	3	3	3 1/2	4	4
CE	1 1/2	1 1/2	2 3/8	3 1/8	3 1/8	4 1/8	4 1/2	5 1/2	5 1/2	6 1/2	6 3/4	6 3/4	8 1/2	9 13/16	10
CW	1/2	1/2	5/8	3/4	3/4	1	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	2	2 1/4	2 1/4
ER	1/2	1/2	3/4	1	1	1 3/8	1 3/4	2	2	2 1/2	2 3/4	2 3/4	3 1/2	4	4
KK	7/16-20	1/2-20	3/4-16	7/8-14	1-14	1 1/4-12	1 1/2-12	1 3/4-12	1 7/8-12	2 1/4-12	2 1/2-12	2 3/4-12	3 1/4-12	3 1/2-12	4-12

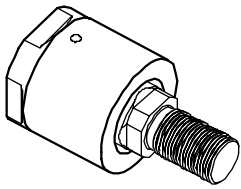
**FEMALE ROD EYE**

	PART NUMBER															
	PE -05	PE -05-05	PE -07	PE -10-08	PE -10	PE -13	PE -17	PE -20	PE -20-18	PE -25	PE -30	PE -30-27	PE -35	PE -35-35	PE -40	PE -40-45
A	3/4	3/4	1 1/8	1 1/8	1 5/8	2	2 1/4	2 1/4	3	3 1/2	3 1/2	3 5/8	4 1/2	5	5 1/2	5 1/2
CA	1 1/2	1 1/2	2 1/16	2 3/8	2 13/16	3 7/16	4	4 3/8	5	5 13/16	6 1/8	6 1/2	7 5/8	7 5/8	9 1/8	9 1/8
CB	3/4	3/4	1 1/4	1 1/2	1 1/2	2	2 1/2	2 1/2	2 1/2	3	3	3 1/2	4	4	4 1/2	5
CD	1/2	1/2	3/4	1	1	1 3/8	1 3/4	2	2	2 1/2	3	3	3 1/2	3 1/2	4	4
KK	7/16-20	1/2-20	3/4-16	7/8-14	1-14	1 1/4-12	1 1/2-12	1 3/4-12	1 7/8-12	2 1/4-12	2 1/2-12	2 3/4-12	3 1/4-12	3 1/2-12	4-12	4 1/2-12

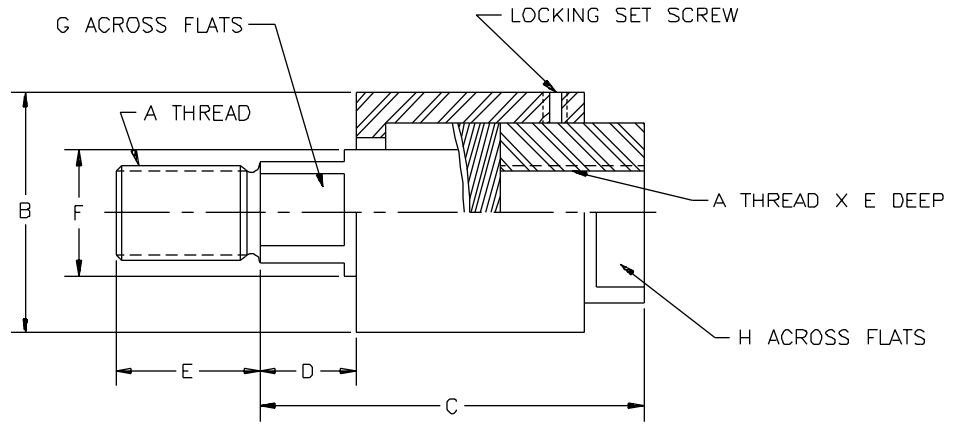
PAC  
PP

# PURAKAL SERIES 3000 MOUNTING ACCESSORIES

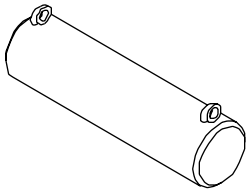
ALIGNMENT COUPLER



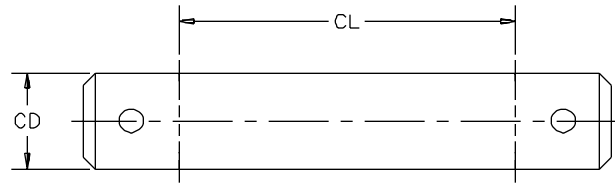
PAC



PIVOT PIN



PP



**PURAKAL SERIES 3000  
MOUNTING ACCESSORIES**

PAC  
PP

**ALIGNMENT COUPLER**

	PART NUMBER									
	PAC-04	PAC-05	PAC-07	PAC-08	PAC-10	PAC-12	PAC-15	PAC-17	PAC-18	PAC-20
<b>A</b>	7/16-20	1/2-20	3/4-16	7/8-14	1-14	1 1/4-12	1 1/2-12	1 3/4-12	1 7/8-12	2-12
<b>B</b>	1 1/4	1 1/4	1 3/4	1 3/4	2 1/2	2 1/2	3 1/4	3 1/4	3 3/4	3 3/4
<b>C</b>	2	2	2 5/16	2 5/16	2 15/16	2 15/16	4 3/8	4 3/8	5 7/16	5 7/16
<b>D</b>	1/2	1/2	1/2	1/2	1/2	1/2	13/16	13/16	7/8	7/8
<b>E</b>	3/4	3/4	1 1/8	1 1/8	1 5/8	1 5/8	2 1/4	2 1/4	3	3
<b>F</b>	5/8	5/8	31/32	31/32	1 3/8	1 3/8	1 3/4	1 3/4	2	2
<b>G</b>	1/2	1/2	13/16	13/16	1 5/32	1 5/32	1 1/2	1 1/2	1 7/8	1 7/8
<b>H</b>	1	1	1 1/2	1 1/2	2 1/4	2 1/4	3	3	3 1/2	3 1/2
<b>MAX PULL</b>	10,000	14,000	34,000	39,000	64,000	78,000	134,000	134,000	240,000	240,000

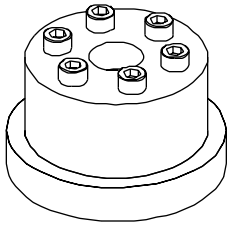
**PIVOT PIN**

	PART NUMBER												
	PP-05	PP-07	PP-10	PP-13	PP-17	PP-20	PP-20-55	PP-25	PP-30	PP-30-65	PP-35	PP-40-85	PP-40
<b>CD</b>	1/2	3/4	1	1 3/8	1 3/4	2	2	2 1/2	3	3	3 1/2	4	4
<b>CL</b>	1 3/4	2 1/2	3	4	5	5	5 1/2	6	6	6 1/2	8	8 1/2	9

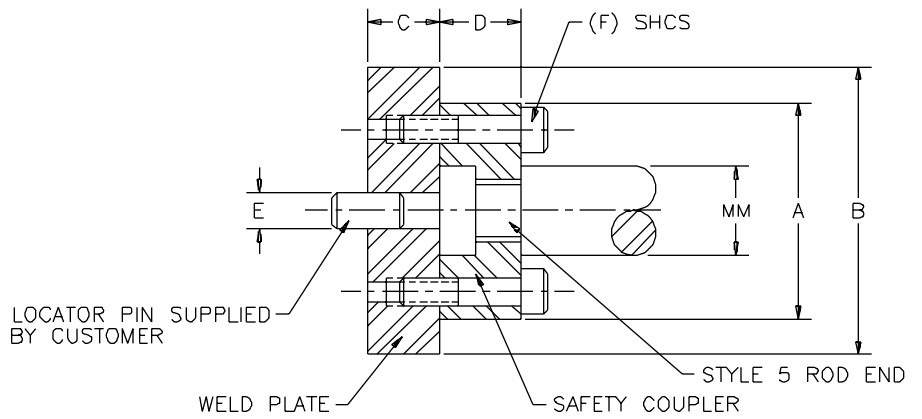
PSC

## PURAKAL SERIES 3000 MOUNTING ACCESSORIES

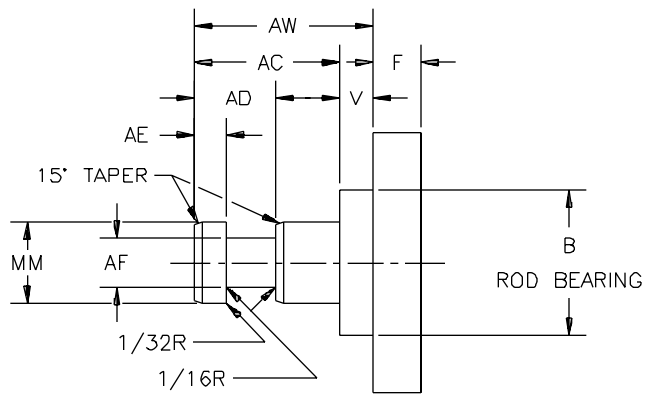
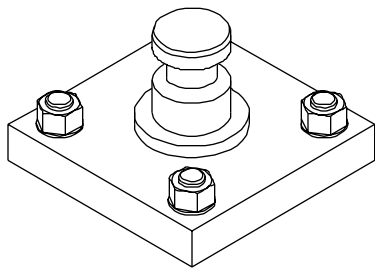
SAFETY COUPLER



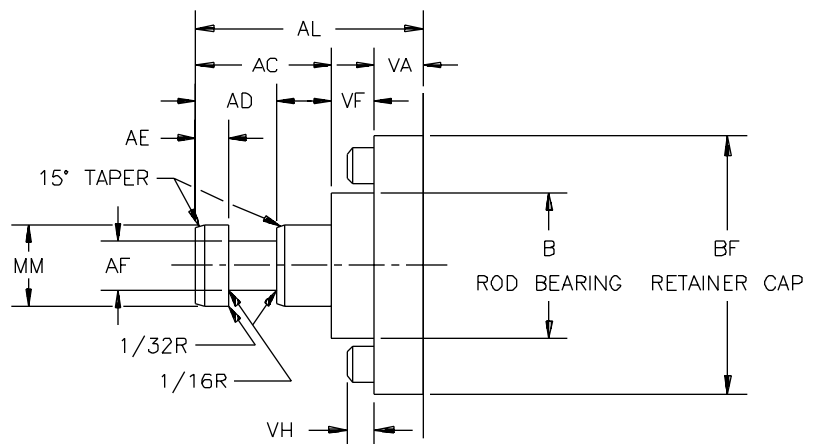
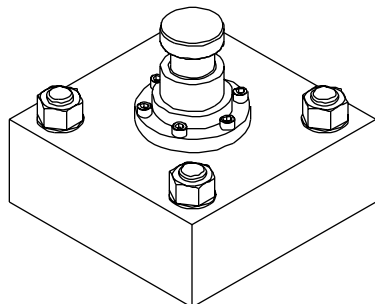
# PSC



SAFETY COUPLER  
ROD END  
1 1/2" TO 5" BORE



SAFETY COUPLER  
ROD END  
6" TO 12" BORE





**PURAKAL SERIES 3000  
MOUNTING ACCESSORIES**

PSC

**SAFETY COUPLER**

	PART NUMBER								
	PSC-06	PSC-10	PSC-13	PSC-17	PSC-20	PSC-25	PSC-30	PSC-35	PSC-40
MM	5/8	1	1 3/8	1 3/4	2	2 1/2	3	3 1/2	4
A	1.50	2.00	2.50	3.00	3.50	4.00	5.00	5.88	6.38
B	2.00	2.50	3.00	4.00	4.00	4.50	5.50	7.00	7.00
C	.50	.50	.62	.62	.75	.75	1.00	1.00	1.00
D	.56	.88	1.00	1.25	1.62	1.88	2.38	2.62	2.62
E	.250	.250	.250	.250	.375	.375	.375	.375	.375
F	4	6	6	8	12	12	12	12	12
SHCS	#10-24X .94	1/4-20X1.25	5/16-18X1.50	5/16-18X1.75	3/8-16X2.25	3/8-16X2.50	1/2-13X3.25	5/8-11X3.50	5/8-11X3.50

**SAFETY COUPLER ROD END  
1 1/2" to 5" BORE**

CYL BORE	ROD DIA MM	AC	AD	AE	AF	AW	B	F	V
1 1/2	5/8	1 1/8	5/8	1/4	3/8	1 3/8	1.124	3/8	1/4
	1	1 1/2	15/16	3/8	11/16	2	1.499	3/8	1/2
2	1	1 1/2	15/16	3/8	11/16	1 3/4	1.499	5/8	1/4
	1 3/8	1 3/4	1 1/16	3/8	7/8	2 1/8	1.999	5/8	3/8
2 1/2	1	1 5/8	15/16	3/8	11/16	1 7/8	1.499	5/8	1/4
	1 3/8	1 3/4	1 1/16	3/8	7/8	2 1/8	1.999	5/8	3/8
	1 3/4	2	1 5/16	1/2	1 1/8	2 1/2	2.374	5/8	1/2
3 1/4	1 3/8	1 3/4	1 1/16	3/8	7/8	2	1.999	3/4	1/4
	1 3/4	2	1 5/16	1/2	1 1/8	2 3/8	2.374	3/4	3/8
	2	2 5/8	1 11/16	5/8	1 3/8	3	2.624	3/4	3/8
4	1 3/4	2	1 5/16	1/2	1 1/8	2 1/4	2.374	7/8	1/4
	2	2 5/8	1 11/16	5/8	1 3/8	2 7/8	2.624	7/8	1/4
	2 1/2	3 1/4	1 15/16	3/4	1 3/4	3 5/8	3.124	7/8	3/8
5	2	2 5/8	1 11/16	5/8	1 3/8	2 7/8	2.624	7/8	1/4
	2 1/2	3 1/4	1 15/16	3/4	1 3/4	3 5/8	3.124	7/8	3/8
	3 1/2	4 3/8	2 11/16	1	2 1/2	4 3/4	4.249	7/8	3/8

**SAFETY COUPLER ROD END  
6" to 12" BORE**

CYL BORE	ROD DIA MM	AC	AD	AE	AF	AL	B	BF	VA	VF	VH
6	2 1/2	3 1/4	1 15/16	3/4	1 3/4	4 1/2	3.124	4 1/4	5/8	5/8	3/8
	3	3 5/8	2 7/16	7/8	2 1/4	4 7/8	3.749	5 7/16	15/16	5/16	3/8
	4	4 1/2	2 11/16	1	3	5 3/4	4.749	6 5/16	15/16	5/16	3/8
8	3 1/2	4 3/8	2 11/16	1	2 1/2	5 5/8	4.249	5 15/16	15/16	5/16	3/8
	5	5 3/8	3 3/16	1 1/2	3 7/8	6 5/8	5.749	7 7/16	15/16	5/16	3/8
	5 1/2	6 1/4	3 15/16	1 7/8	4 3/8	7 1/2	6.249	7 15/16	15/16	5/16	3/8
10	4 1/2	5 1/4	3 3/16	1 1/2	3 1/2	7 3/16	5.249	6 15/16	15/16	1	3/8
	5 1/2	6 1/4	3 15/16	1 7/8	4 3/8	8 7/16	6.249	7 15/16	15/16	1 1/4	3/8
	7	6 1/2	4 1/16	2	5 3/4	8 11/16	7.749	9 7/8	15/16	1 1/4	3/8
12	5 1/2	6 1/4	3 15/16	1 7/8	4 3/8	8 7/16	6.249	7 15/16	15/16	1 1/4	3/8
	7	6 1/2	4 1/16	2	5 3/4	8 11/16	7.749	9 7/8	15/16	1 1/4	3/8
	8	6 1/2	4 1/16	2	6 1/2	8 15/16	8.749	10 15/16	15/16	1 1/2	3/8

**PURAKAL SERIES 3000  
ACCESSORY COMPARISON**

ROD DIA													
KK	CC	THREAD	PIN	CLEVIS	ROD EYE	MALE ROD END	SELF ALIGNING ROD EYE	PIN	EYE BRACKET	CLEVIS BRACKET	SERIES 100	SERIES 2500	SERIES 3000
5/8		7/16-20	PP-05	PC-05	PE-05	PME-05	PSE-05	PP-05	PEB-05	PCB-05	1 1/2, 2, 2 1/2	1 1/2	1 1/2
	5/8	1/2-20	PP-05	PC-05-05	PE-05-05			PP-05	PEB-05	PCB-05	1 1/2, 2, 2 1/2	1 1/2	1 1/2
1		3/4-16	PP-07	PC-07	PE-07	PME-07	PSE-07	PP-07	PEB-07	PCB-07	3 1/4, 4, 5	2, 2 1/2	2, 2 1/2
	1	7/8-14	PP-10	PC-10-08	PE-10-08	PME-10-08		PP-10	PEB-10	PCB-10	6, 8	3 1/4	3 1/4
1 3/8		1-14	PP-10	PC-10	PE-10	PME-10	PSE-10	PP-10	PEB-10	PCB-10	6, 8	3 1/4	3 1/4
1 3/4	1 3/8	1 1/4-12	PP-13	PC-13	PE-13	PME-13	PSE-13	PP-13	PEB-13	PCB-13	10	4	4
2	1 3/4	1 1/2-12	PP-17	PC-17	PE-17	PME-17	PSE-17	PP-17	PEB-17	PCB-17	12	5	5
	2	1 3/4-12	PP-20	PC-20	PE-20	PME-20		PP-20	PEB-20	PCB-20		6	6
2 1/2		1 7/8-12	PP-20	PC-20-18	PE-20-18	PME-20-18	PSE-20	PP-25	PEB-25	PCB-25		7	7
3	2 1/2	2 1/4-12	PP-25	PC-25	PE-25	PME-25		PP-30	PEB-30	PCB-30		8	8
3 1/2		2 1/2-12	PP-30	PC-30	PE-30	PME-30		PP-30	PEB-30	PCB-30		8	8
	3	2 3/4-12	PP-30	PC-30-27	PE-30-27	PME-30-27							
4		3-12						PP-35	PEB-35	PCB-35		10	10
4 1/2	3 1/2	3 1/4-12	PP-35	PC-35	PE-35	PME-35		PP-35	PEB-35	PCB-35		10	10
5		3 1/2-12	PP-35		PE-35-35	PME-35-35		PP-40	PEB-40	PCB-40		12	12
5		3 1/2-12	PP-40	PC-40-35									
	4	3 3/4-12						PP-40	PEB-40	PCB-40		12	12
5 1/2, 7		4-12	PP-40	PC-40	PE-40	PME-40							
	4 1/2	4 1/4-12						PP-40	PEB-40	PCB-40		12	12
8, 8 1/2		4 1/2-12	PP-40		PE-40-45	PME-40-45							
	5	4 3/4-12											
	5 1/2	5 1/4-12											
	7	5 1/2-12											
	8 1/2	6-12											

**PURAKAL SERIES 3000**  
**CYLINDER WEIGHT, RECOMMENDED TORQUE**

**APPROXIMATE NET WEIGHTS OF 3000 SERIES CYLINDERS**  
**BASED ON STANDARD ROD DIAMETERS**

BORE	MODEL NUMBER											ADD PER INCH OF STROKE
	MX-0	MX-1	MX-2 MX-3	MS-2	MP-1 MP-3	MF-1	MF-2	MF-5	MF-6	MT-1 MT-2	MT-4	
1 1/2	7.8	8.2	8.0	8.3	8.1	8.2	8.3	8.4	9.2	8.2	11.1	0.49
2	12.1	12.9	12.5	13.5	13.7	13.2	14.5	14.6	16.2	13.1	18.5	0.81
2 1/2	16.5	17.3	16.9	20.0	17.9	17.6	19.6	19.5	21.5	17.5	23.4	1.05
3 1/4	31.6	33.0	32.3	34.3	34.5	34.6	40.1	37.3	41.0	33.5	47.0	1.76
4	42.3	43.8	43.0	49.1	50.6	45.3	50.9	49.6	55.3	44.5	59.5	2.23
5	79.7	82.3	81.0	85.0	93.4	85.3	93.1	92.0	99.4	80.3	102.0	4.02
6	127	133	130	141	146	136	149	148	156	130	160	5.17
8	256	270	263	280	300	271	291	292	309	267	330	8.91
10	578	---	---	605	641	635	700	695	761	583	753	15.65
12	900	---	---	990	1017	1025	1090	1116	1181	934	1223	21.86

**RECOMMENDED TIE ROD TORQUE VALUES**  
**FOR 3000 SERIES CYLINDERS**  
**(FT-LB)**

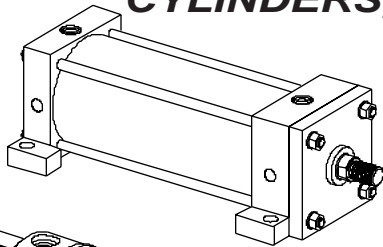
BORE	1 1/2	2	2 1/2	3 1/4	4	5	6	8	10	12
TIE ROD THREAD	3/8-24	1/2-20	1/2-20	5/8-18	5/8-18	7/8-14	1-14	1 1/4-12	1 3/4-12	2-12
MODELS MF1 MF2 MF5 MF6	15	45	60	90	115	270	400	640	2100	3100
ALL OTHER MODELS	25	45	60	90	145	310	500	1150	2500	4300

**RECOMMENDED RETAINER SCREW TORQUE VALUES**  
**FOR 3000 SERIES CYLINDERS**  
**(FT-LB)**

SCREW SIZE	1/4-28 UNF	3/8-24 UNF
TORQUE	15	60



## CYLINDERS, INC

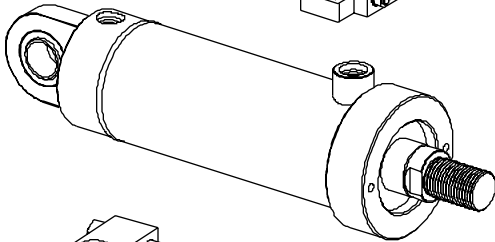


### 100 SERIES PNEUMATIC CYLINDER

250 PSI air/750 PSI hydraulic operating pressure

1 1/2" to 12" Bore

Tie rod cylinder \* Ground and polished hard chrome plated piston rod \* Honed and chrome plated barrel I.D. \* Polyurethane seals \* All NFPA mountings available

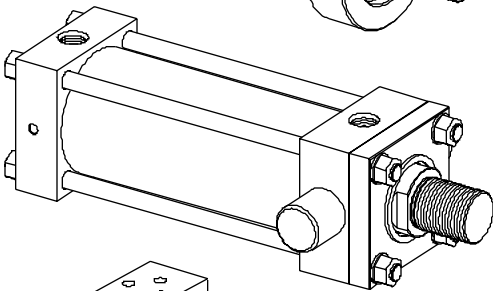


### 2500 SERIES HEAVY DUTY HYDRAULIC CYLINDER

3000 PSI operating pressure

1 1/2" to 6" Bore

Welded construction \* Ground and polished hard chrome plated piston rod \* Heavy wall honed barrel I.D. \* Polyurethane seals \* Clevis, Pin Eye, Single Lug, and Blind End Plate mounts \* NFPA interchangeable mounting dimensions

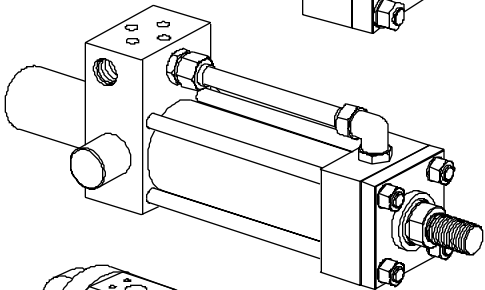


### 3000 SERIES HYDRAULIC CYLINDER

3000 PSI operating pressure

1 1/2" to 12" Bore

Tie rod cylinder \* Ground and polished hard chrome plated piston rod \* Heavy wall honed barrel I.D. \* Polyurethane seals \* All NFPA mountings available

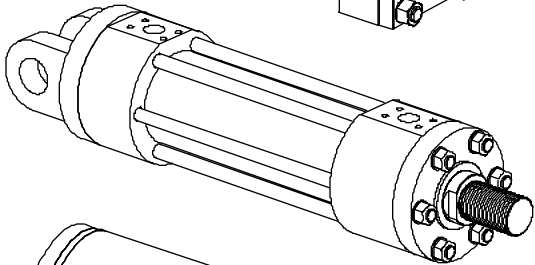


### 3050 SERIES LINEAR POSITIONING HYDRAULIC CYLINDER

3000 PSI operating pressure

2" to 5" Bore

Tie rod cylinder \* Ground and polished hard chrome plated piston rod \* Heavy wall honed barrel I.D. \* Low friction seals \* Most NFPA mountings available \* Direct Servo Valve Mounting \* Transducer position sensing \* Large bore models available on request

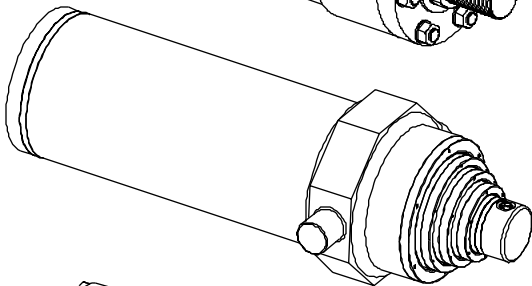


### 3500 SERIES SUPER HEAVY DUTY HYDRAULIC CYLINDER

3500 PSI operating pressure

2 1/2" to 6" Bore

Tie rod cylinder for extreme service requirements\* Ground and polished heavy chrome plated piston rod \* 4-Bolt Flange ports \* Polyurethane seals \* Tie rod, Clevis, Single Lug, Trunnion mounts \* Heavy duty cushions for high inertial loads

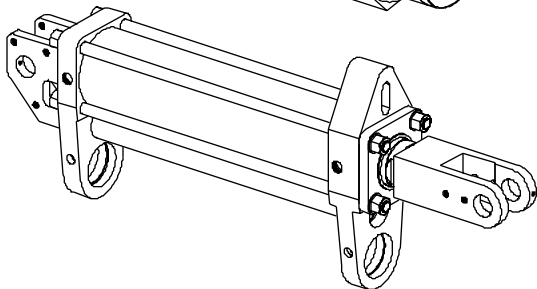


### 2100 SERIES TELESCOPIC HYDRAULIC CYLINDER

2000 PSI operating pressure

3 1/2" to 13 3/4" Bore

Multi-Stage telescopic cylinder for long strokes in a compact package \* Double Acting or Single Acting \* Ground and polished, hard chrome plated rods \* Quick and easy rod seal replacement in the field \* Bronze filled teflon piston bearings \* Available with trunnion mounts, eye mounts, and other special designs.



### SPECIAL DESIGNS

1 1/2" to 36" Bore Pneumatic, 1 1/2" to 24" Bore Hydraulic  
Up to 240" Stroke

Intensifier cylinders \* Accumulators \* Multiport swivels \* Spring Loaded cylinders\*  
Computer aided design and analysis by an experienced engineering staff

Consult the PURAKAL distributor in your area or call our factory direct to discuss your unique applications.