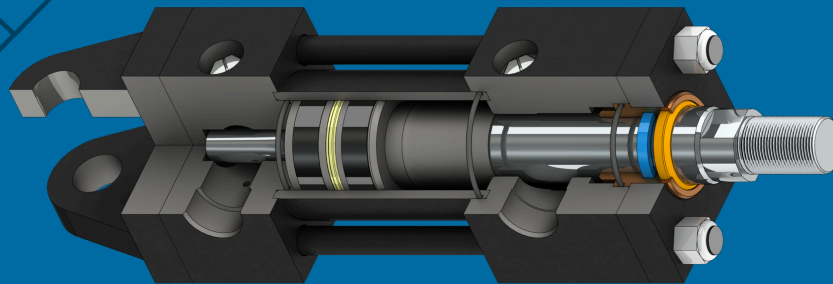


● Hydraulic Cylinders

3500
psi rating

Heavy Duty High Shock & Impact

Series



Custom Sizes and Features Available. Contact us Sales@RoyalCylinders.com



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DESIGN OVERVIEW

The XH-Series Cylinders take over where regular NFPA hydraulic cylinders leave off. The XH Series has been designed to serve the applications where high speed and severe shock are present. It provides long cushions for smooth deceleration of fast moving loads while still providing fast breakaway.

FEATURES

Rated to 3500 psi working pressure.
 Oversize Mounts and Tie Rods.
 Extra large heads allow for larger ports and longer cushions.
 Longer Cushions profiled to provide constant cushioning force to reduce shock and bounce.
 Triple Ball Checks at each end for fast breakaway. Needle valve is located at position 4.
 Hard Chrome Plated Piston Rod (CPO) C1045/C1050 material. Optional Induction Hardened Chrome Plated (I.H.C.P) Piston Rods and optional Rod Stud.
 Cast Iron Piston Rings to cope with pressure spikes.
 Oversize pinholes - on Pin-mounted styles.
 Thicker lugs and wider spacing for increased bearing area.

MOUNTING STYLES

Clevis Mount.
 Pivot Eye Mount.
 Rod End Rectangular Flange Mount.
 Blind End Rectangular Flange Mount.
 Self-Aligning Eye Mount.
 Mid Trunnion Mount.
 Note: rear pin-mounted styles have detachable mounts. Other mounting styles are available upon request.

APPLICATIONS

The robust design of the XH series cylinder makes it suitable for applications where shock and impact are present. The large pin diameters and wide lug spacing provide ample bearing area for mounting longevity. Oversized tie rods ensure the cylinder heads stay rigidly located even with extreme extension loads. The cushion profile provides a more consistent deceleration, by maintaining an even back pressure during deceleration.

The XH series is also suitable for use in high-speed applications. The larger heads accept large SAE Flange ports for high flow. Triple ball checks allow for fast break out of the cushion area, while the longer cushion provides ample deceleration time.

Westcoast Cylinders Inc.:

The Company has been manufacturing high quality, reliable ROYAL cylinders for over 60 years. Production started with a single cylinder design and expanded to a full range of multi-use, hydraulic, pneumatic cylinders and accessories.

Quality:

ROYAL is a leader in the design and manufacture of custom heavy duty cylinders. The materials, machinery and tools used to produce our products are continuously being updated. Our cylinders are built to the highest standards utilizing the latest technology and processes.

Delivery:

ROYAL maintains a large range of stock parts which gives us the flexibility to respond to your needs in emergency situations. Please contact the factory to expedite your special requirements.



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 Website: www.RoyalCylinders.com

“for Severe Applications...”

Description

Contents

FeaturesDescription

MountingDimensions

- C** Clevis Mount
- E** Pivot Eye
- R** Rod End Rectangular Flange
- B** Blind End Rectangular Flange
- W** Self-aligning Eye
- T** Mid Trunnion

Accessories

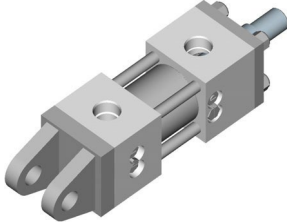
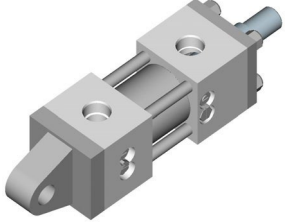
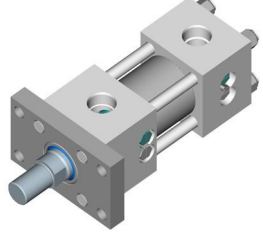
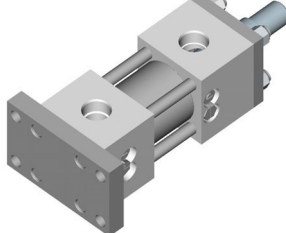
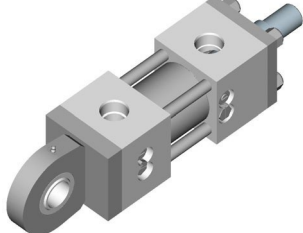
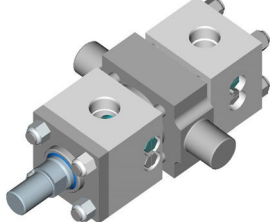
Accessories, Rod End Styles

Accessories

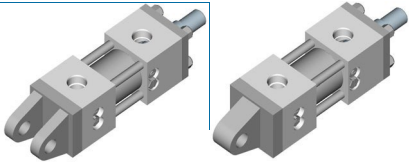
Technical Data

Technical Data, Torque Specs

Cylinder Nomenclature

 <p>● <i>Clevis Mount</i></p>	 <p>● <i>Pivot Eye</i></p>
 <p>● <i>Rod End Rectangular Flange</i></p>	 <p>● <i>Blind End Rectangular Flange</i></p>
 <p>● <i>Self-Aligning Eye</i></p>	 <p>● <i>Mid Trunnion</i></p>

...High Speeds”



XHC, XHE Clevis Mount, Pivot Eye

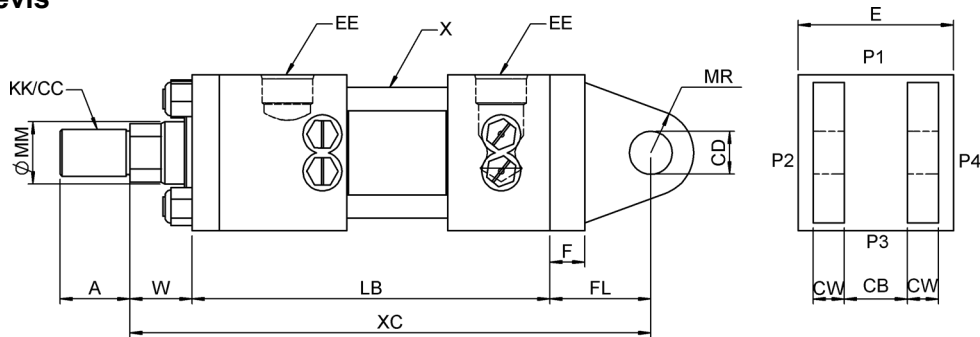
BORE	ROD DIA			CC	A	W	+ STROKE		E	+ STR		XHC	XHE	CD	CW	EE	MR	F	FL	X
	ROD	MM	KK				XC	LB		CB	CB	SAE								
2 1/2	1	1 3/8	1-14	1 1/4-12	1	5/8	2	16 1/8	4	11 1/2	1 17/32	1 1/2	1	3/4	-16	1	1 1/8	2 5/8	5/8	
	2	1 3/4	1 1/4-12	1 1/2-12	2	2	2	16 1/8	4	11 1/2	1 17/32	1 1/2	1	3/4	-16	1	1 1/8	2 5/8	5/8	
3 1/4	1	1 3/4	1 1/4-12	1 1/2-12	2	2	2	16 3/4	5	11 1/2	2 1/32	2	1	3/8	1	-20	1 3/8	1 1/8	3 1/4	3/4
	2	2	1 1/2-12	1 3/4-12	2	1/4	2	16 3/4	5	11 1/2	2 1/32	2	1	3/8	1	-20	1 3/8	1 1/8	3 1/4	3/4
4	1	2	1 1/2-12	1 3/4-12	2	1/4	2	16 7/8	6	11 1/2	2 17/32	2 1/2	1	3/4	1 1/4	-20	1 3/4	1 1/8	3 3/8	7/8
	2	2 1/2	1 7/8-12	2 1/4-12	3	2	2	16 7/8	6	11 1/2	2 17/32	2 1/2	1	3/4	1 1/4	-20	1 3/4	1 1/8	3 3/8	7/8

Notes:

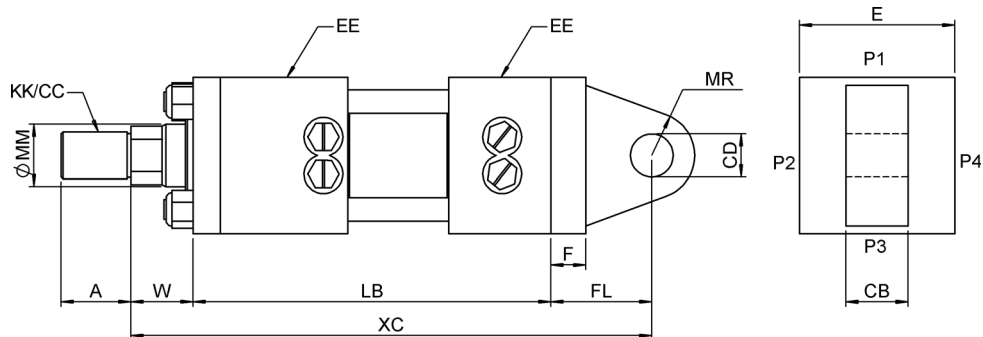
- All dimensions in inches.
- EE standard port is SAE See Cylinder Nomenclature for SAE flange or Alternate port size.
- See Cylinder Nomenclature for thread options.

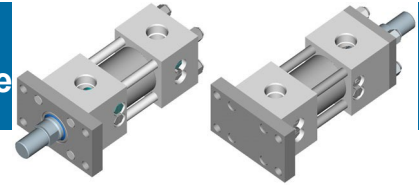
Blind End Mounting is oversize as standard. Extra large mounting is also available and is also NFPA compatible. Please contact the factory for this option.

Model XHC Fixed Clevis Style MP1



Model XHE Pivot Eye Style MP3



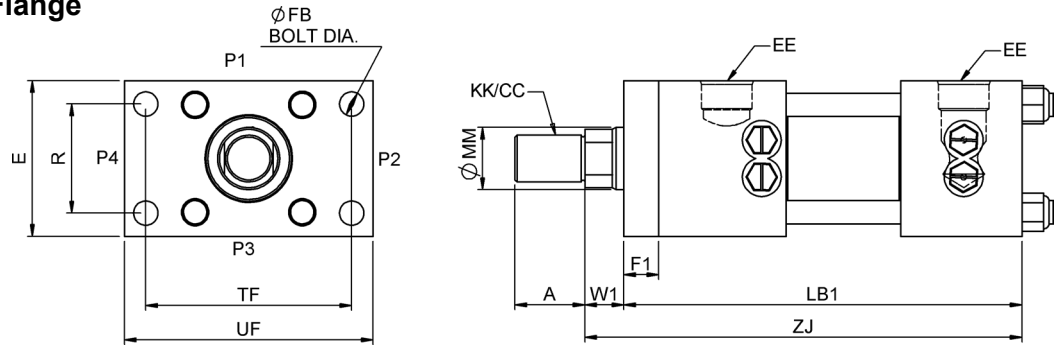


BORE	ROD DIA		KK	CC	A	F1	W	W1	ADD STROKE		E	+ STR	EE	R	FB	TF	UF		
	ROD	MM							ZF	ZJ									
2 1/2	1	1 3/8	1-14	1 1/4-12 1	5/8	1 1/8	2	1 7/8	14	5/8	13	1/2	4	11 5/8	-16	2.75	5/8	5 3/8	6 5/8
	2	1 3/4	1 1/4-12 1	1/2-12 2		1 1/8	2	1 7/8	14	5/8	13	1/2	4	11 5/8	-16	2.75	5/8	5 3/8	6 5/8
3 1/4	1	1 3/4	1 1/4-12 1	1/2-12 2		1 1/8	2	1 7/8	14	5/8	13	1/2	5	11 5/8	-20	3.50	5/8	6 5/8	8
	2	2	1 1/2-12 1	3/4-12 2	1/4	1 1/8	2	1 7/8	14	5/8	13	1/2	5	11 5/8	-20	3.50	5/8	6 5/8	8
4	1	2	1 1/2-12 1	3/4-12 2	1/4	1 1/8	2	1 7/8	14	5/8	13	1/2	6	11 5/8	-20	4.25	7/8	7 3/4	9 1/4
	2	2 1/2	1 7/8-12 2	1/4-12 3		1 1/8	2	1 7/8	14	5/8	13	1/2	6	11 5/8	-20	4.25	7/8	7 3/4	9 1/4

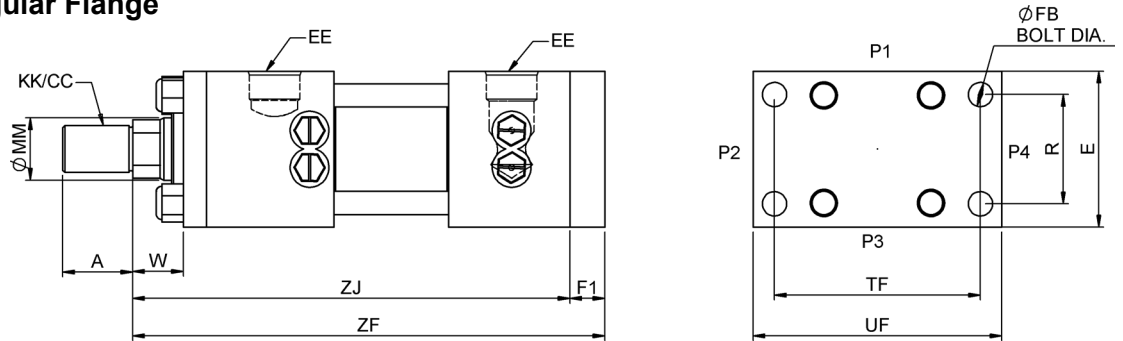
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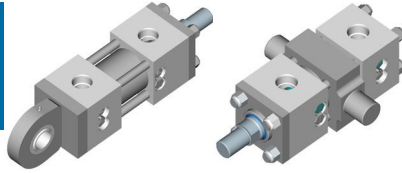
1. All dimensions in inches.
2. EE standard port is SAE See Cylinder Nomenclature for SAE flange or Alternate port size.
3. See Cylinder Nomenclature for thread options.

Model XHR
Rod End Rectangular Flange
 Style MF1



Model XHB
Blind End Rectangular Flange
 Style MF2





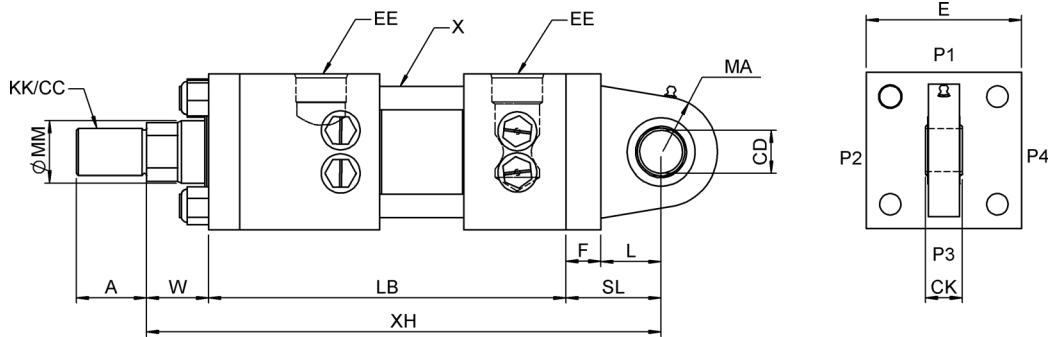
XHW, XHT Self-aligning Eye, Mid Trunnion

BORE	ROD	ROD DIA		KK	CC	A	W	+ STROKE		E	+ STROKE		CD	CK	EE		MA	F	SL	L	X
		MM						XH	LB		SAE										
2 1/2	1	1 3/8	1-14	1 1/4-12	1 5/8	2	16	3/16	4	11 1/2	1	7/8	-16	1 1/2	1 1/8	2 11/16	1 9/16	5/8			
	2	1 3/4	1 1/4-12	1 1/2-12	2	2	16	3/16	4	11 1/2	1	7/8	-16	1 1/2	1 1/8	2 11/16	1 9/16	5/8			
3 1/4	1	1 3/4	1 1/4-12	1 1/2-12	2	2	16	9/16	5	11 1/2	1 3/8	1 3/16	-20	1 3/4	1 1/8	3 1/16	1 15/16	3/4			
	2	2	1 1/2-12	1 3/4-12	2 1/4	2	16	9/16	5	11 1/2	1 3/8	1 3/16	-20	1 3/4	1 1/8	3 1/16	1 15/16	3/4			
4	1	2	1 1/2-12	1 3/4-12	2 1/4	2	17	1/16	6	11 1/2	1 3/4	1 17/32	-20	2 1/4	1 1/8	3 9/16	2 7/16	7/8			
	2	2 1/2	1 7/8-12	2 1/4-12	3	2	17	1/16	6	11 1/2	1 3/4	1 17/32	-20	2 1/4	1 1/8	3 9/16	2 7/16	7/8			

Notes:

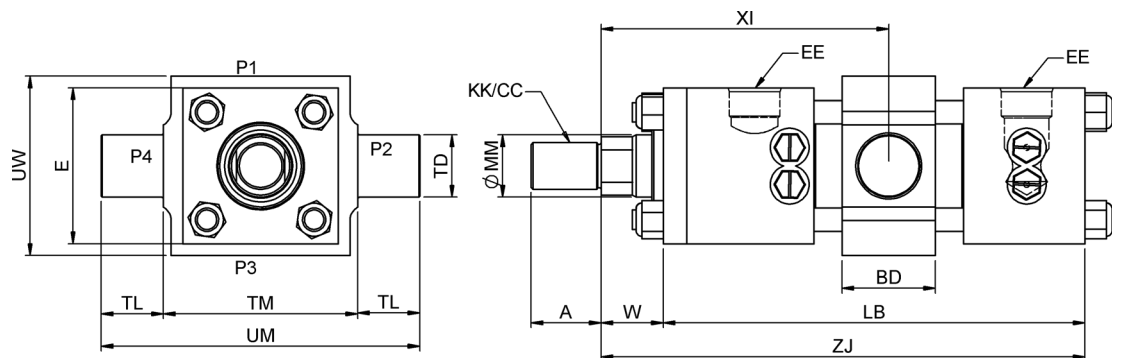
1. All dimensions in inches.
2. EE standard port is SAE. See Cylinder Nomenclature for SAE flange or Alternate port size.
3. See Cylinder Nomenclature for thread options.

Model XHW
Self-Aligning Eye
Style MPU3



BORE	ROD	ROD DIA		KK	CC	A	W	+ STROKE		XI (min)	E	+ STROKE		EE		BD	TD	TL	TM	UM	UW
		MM						ZJ	LB			SAE									
2 1/2	1	1 3/8	1-14	1 1/4-12	1 5/8	2	13	1/2	8 3/8	4	11 1/2	-16	2	1 3/4	1 3/4	5	8 1/2	4 1/2			
	2	1 3/4	1 1/4-12	1 1/2-12	2	2	13	1/2	8 3/8	4	11 1/2	-16	2	1 3/4	1 3/4	5	8 1/2	4 1/2			
3 1/4	1	1 3/4	1 1/4-12	1 1/2-12	2	2	13	1/2	8 7/8	5	11 1/2	-20	3	2	2	6 1/4	10 1/4	5 3/4			
	2	2	1 1/2-12	1 3/4-12	2 1/4	2	13	1/2	8 7/8	5	11 1/2	-20	3	2	2	6 1/4	10 1/4	5 3/4			
4	1	2	1 1/2-12	1 3/4-12	2 1/4	2	13	1/2	8 7/8	6	11 1/2	-20	3	2 1/2	2 1/2	7	12	6 1/2			
	2	2 1/2	1 7/8-12	2 1/4-12	3	2	13	1/2	8 7/8	6	11 1/2	-20	3	2 1/2	2 1/2	7	12	6 1/2			

Model XHT
Mid Trunnion
Style MT4



Warning: Trunnion mounted cylinders swivel in one direction and are designed to carry shear loads only. Pins must be held rigidly and in accurate alignment. Improper mounting may result in failure of pins or mount.

CYLINDER DEVELOPED FORCE

BORE in	ROD DIA in	Work Major Area (in ²)	Work Minor Area (in ²)	Developed Force (lb)											
				@ Differential Pressure											
				1000		1500		2000		2500		3000		3500	
				push	pull	push	pull	push	pull	push	pull	push	pull	push	pull
2 1/2	1 3/8	4.91	3.42	4909	3424	7363	5136	9817	6848	12272	8560	14726	10272	17181	11983
	1 3/4	4.91	2.50	4909	2503	7363	3755	9817	5007	12272	6259	14726	7510	17181	8762
3 1/4	1 3/4	8.30	5.89	8296	5890	12444	8836	16592	11781	20739	14726	24887	17671	29035	20617
	2	8.30	5.15	8296	5154	12444	7731	16592	10308	20739	12885	24887	15463	29035	18040
4	2	12.57	9.42	12566	9425	18850	14137	25133	18850	31416	23562	37699	28274	43982	32987
	2 1/2	12.57	7.66	12566	7658	18850	11486	25133	15315	31416	19144	37699	22973	43982	26802

CYLINDER SIZING

- A cylinder must generate sufficient force to accelerate a load and overcome friction losses.
- System pressure losses must also be considered.
- The cylinder developed force table does not take into account friction, pressure losses or acceleration force.

Accessories for Rod End

	BORE	ROD DIA. MM	THREAD SIZE	ROD CLEVIS	LUG		ROD EYE	CLEVIS		SELF ALIGNING	
					MOUNTING BRACKET	PIVOT PIN		MOUNTING BRACKET	ROD EYE	MOUNTING BRACKET	PIVOT PIN
3 1/4	2 1/2	1 3/8	1-14	HC32	HM32	P6	HE32	HCM32	HWE32	HWM32	HWP32
		1 3/8	1 1/4-12	HC4	HM4	HP4	HE4	HCM4	HWE4	HWM4	HWP4
		1 3/4	1 1/4-12	HC4	HM4	HP4	HE4	HCM4	HWE4	HWM4	HWP4
		1 3/4	1 1/2-12	HC5	HM5	P12	HE5	HCM5	HWE5	HWM5	HWP5
	4	2	1 1/2-12	HC5	HM5	P12	HE5	HCM5	HWE5	HWM5	HWP5
		2	1 3/4-12	HC5C	HM6	HP6	HE5C	HCM6	N/A	N/A	N/A
		2 1/2	2 1/2-12	HC6	HM6	HP6	HE6	HCM6	HWE6	HWM6	HWP6
		2 1/2	2 3/4-12	HC7	HM7	HP7	HE7	HCM7	N/A	N/A	N/A

**Warning**

These products are intended for industrial use only. Do not use these products in applications where the pressure and temperature exceeds the values listed below.

Through misuse, age or malfunction, components used in fluid power systems can fail. A designer utilizing these products must consider all modes of failure when designing machines and provide safeguards or warn the end user of possible modes of failure.

Cylinder Pressure and Temperature Ratings

XH-Series cylinders are rated to 3500 psig hydraulic pressure for normal use.

Temperature ratings for cylinders are limited to the maximum published temperature range of the least resistant seal component. In most cases that would be the standard buna-n o-ring seals. For higher temperatures specify a high temperature seal such as Viton. Buna-N temperature ratings: -30°F to 200°F (-34°C to 93°C).

Published Design Data

Westcoast Cylinders Inc. reserves the right to change specifications and other information included in this catalogue without notice. All information, data and dimension tables in this catalogue have been carefully compiled and thoroughly checked. However, no responsibility for possible errors or omissions can be assumed.

