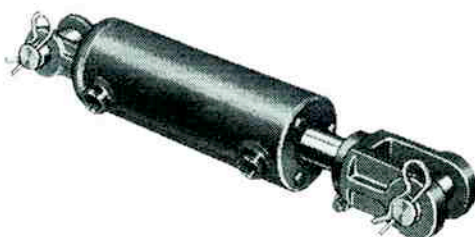
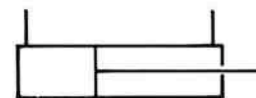




# HYDRAULIC CYLINDERS

WELDED CYLINDERS  
NU, NW SERIES  
Specification Sheets



CROSS **NW** and **NU** Series cylinders feature cylinder barrels that are skived burnished and precision finished. They are carefully inspected for smoothness and cylindricity to provide longer seal life. Rods are induction hardened and hard chrome plated to resist dirt and corrosion. Each cylinder is pressure tested before shipping. **NW** cylinders are available in a variety of stroke and mounting combinations. **NU** cylinders are a standard clevis-mounted series available in standardized strokes only.

## GENERAL SPECIFICATIONS

Rated working pressure for NW and standard NU series ..... 2500 psi\*(172 bar)  
*(see pin recommendations p.3)*

Rated working pressure for heavy duty NU series ..... 3000 psi(206 bar)

Maximum shock and surge pressure for NW and standard NU ..... 4000 psi(276 bar)

Proof pressure for heavy duty NU ..... 6000 psi (413 bar)

Bore diameters.....	1.50	2.00	2.50	3.00	3.50	4.00	5.00	in.
	38	51	64	76	89	102	127	mm

*(1.50 bore size not available in NU series.)*

## MATERIAL SPECIFICATIONS:

Cylinder barrels ..... ST52.3 steel alloy

Pistons ..... Aluminum alloy

Rods ..... Induction hardened and hard chrome plated C1045 steel alloy  
Rods over 3/4" diameter, strokes up to 65" (1651mm)

Base and head castings ..... Steel

Rod clevises ..... Ductile iron

Seals ..... 70 durometer Buna N o-rings with polyurethane back-up rings  
Double lipped polyurethane u-cup rod seal

(Heavy duty NU ..... Polyurethane u-cup piston seals)

## STANDARD FEATURES:

- Cylinder barrels are skived burnished precision finished to provide long seal life
- Rods are hardened, chrome plated and polished for long wear life
- Rod wipers clean dirt and foreign matter from rod to insure long seal life
- Steel base clevis mounting and ductile rod end clevis

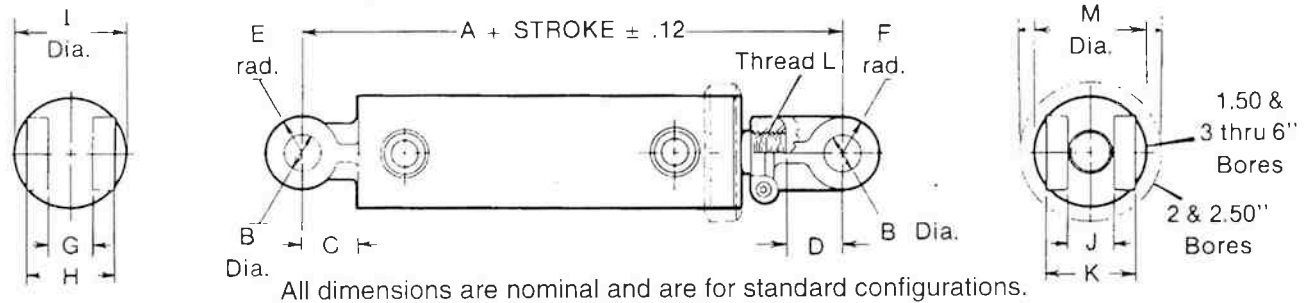
## OPTIONAL FEATURES AVAILABLE

- Welded rod end mounts: pineye, single lug or clevis
- SAE straight thread o-ring ports or NPTF dryseal pipe thread ports
- Ports at 90° or in line with pins
- Hardened steel pins and bushings
- Grease fittings
- Self-aligning spherical bushings



**NW Series**

DIMENSIONAL DATA in inches and (millimeters)



All dimensions are nominal and are for standard configurations.

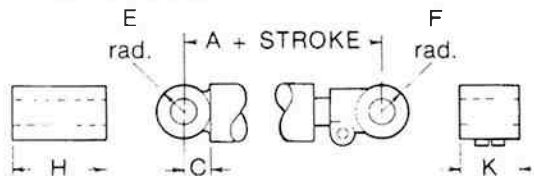
BORE DIA	A	B	C	D	E	F	G	H	I	J	K	L	M
1.50 (38)	7.81 (198.4)	.765 (19.4)	1.19 (30.2)	1.50 (38.1)	.94 (23.9)	.94 (23.9)	.81 (20.6)	1.56 (39.6)	1.88 (47.7)	.875 (22.2)	1.88 (47.7)	3/4 -16	1.88 (47.7)
2.00 (51)	10.75 (273.0)	1.015 (25.8)	2.25 (57.2)	2.12 (53.8)	1.00 (25.4)	1.00 (25.4)	1.12 (28.4)	2.12 (53.8)	2.38 (60.4)	1.12 (28.4)	2.62 (66.5)	1 1/16 -12	2.88 (73.1)
2.50 (64)	10.75 (273.0)	1.015 (25.8)	2.25 (57.2)	2.12 (53.8)	1.00 (25.4)	1.00 (25.4)	1.12 (28.4)	2.12 (53.8)	2.88 (73.1)	1.12 (28.4)	2.62 (66.5)	1 1/4 -12	3.38 (85.8)
3.00 (76)	10.62 (269.7)	1.015 (25.8)	2.12 (53.8)	2.12 (53.8)	1.00 (25.4)	1.00 (25.4)	1.12 (28.4)	2.12 (53.8)	3.38 (85.8)	1.12 (28.4)	2.62 (66.5)	1 1/4 -12	3.38 (85.8)
3.50 (89)	11.00 (279.4)	1.015 (25.8)	2.06 (52.3)	2.12 (53.8)	1.00 (25.4)	1.00 (25.4)	1.12 (28.4)	2.12 (53.8)	3.88 (98.5)	1.25 (31.8)	2.75 (69.8)	1 1/4 -12	3.88 (98.5)
4.00 (102)	11.12 (282.4)	1.015 (25.8)	2.12 (53.8)	2.12 (53.8)	1.00 (25.4)	1.00 (25.4)	1.25 (31.8)	2.50 (63.5)	4.50 (114.3)	1.25 (31.8)	2.75 (69.8)	1 1/4 -12	4.50 (114.3)
5.00 (127)	11.75 (298.4)	1.265 (32.1)	2.00 (50.8)	2.00 (50.8)	1.25 (31.8)	1.25 (31.8)	1.50 (38.1)	3.00 (76.2)	5.50 (139.7)	1.50 (38.1)	3.00 (76.2)	1 1/2 -12	5.50 (139.7)

**NU Series**

NU dimensions are as noted above except for dimension "A" as shown at right.

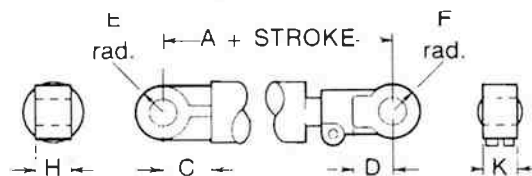
2, 2 1/2" Bore	Stroke + 11 1/2" = Closed Center
3, 3 1/2" Bore	Stroke + 11 1/4" = Closed Center
4, 5" Bore	Stroke + 12" = Closed Center

**OPTIONAL PINEYE MOUNT**



BORE DIA	A	C	E	F	H	K
1.50 (38)	6.75 (171.4)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	1.88 (47.8)	2.25 (57.2)
2.00 (51)	8.12 (206.2)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	3.00 (76.2)	2.25 (57.2)
2.50 (64)	8.12 (206.2)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	3.25 (82.6)	2.25 (57.2)
3.00 (76)	8.12 (206.2)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	4.00 (101.6)	2.75 (69.8)
3.50 (89)	8.56 (217.4)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	4.50 (114.3)	2.75 (69.8)
4.00 (102)	8.62 (218.9)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	5.00 (127)	2.75 (69.8)
5.00 (127)	10.12 (257.0)	1.25 (31.8)	1.25 (31.8)	1.25 (31.8)	6.00 (152.4)	3.25 (82.6)

**OPTIONAL SINGLE LUG MOUNT**



BORE DIA	A	C	D	E	F	H	K
1.50 (38)	8.19 (208)	1.19 (30.2)	1.50 (38.1)	.94 (23.9)	1.25 (31.8)	.75 (19)	.75 (19)
2.00 (51)	10.75 (273)	2.25 (57.2)	1.50 (38.1)	1.18 (30.0)	1.25 (31.8)	.75 (19)	.75 (19)
2.50 (64)	10.75 (273)	2.25 (57.2)	1.50 (38.1)	1.25 (31.8)	1.25 (31.8)	.75 (19)	.75 (19)
3.00 (76)	10.62 (269.7)	2.12 (53.8)	1.50 (38.1)	1.25 (31.8)	1.25 (31.8)	1.12 (28.4)	1.12 (28.4)
3.50 (89)	11.00 (279.4)	2.06 (52.3)	1.62 (41.1)	1.25 (31.8)	1.25 (31.8)	1.12 (28.4)	1.12 (28.4)
4.00 (102)	11.12 (282.4)	2.12 (53.8)	1.62 (41.1)	1.25 (31.8)	1.25 (31.8)	1.12 (28.4)	1.12 (28.4)
5.00 (127)	11.75 (298.4)	2.00 (50.8)	2.00 (50.8)	1.50 (38.1)	1.50 (38.1)	1.50 (38.1)	2.00 (50.8)



# HYDRAULIC CYLINDERS

**WELDED CYLINDERS  
NU, NW SERIES  
Specification Sheets**

## NW SERIES

### CYLINDER PORTS AND RODS

BORE DIA.	SIZE & TYPE PORTS		STANDARD RODS		OPTIONAL RODS		CONTACT CROSS MFG. INC. ENGINEERING DEPT. FOR MAXIMUM RECOMMENDED STROKE
	STANDARD	OPTIONAL	DIA.	MAX. STROKE*	DIA.	MAX. STROKE*	
1.50 (38)	9/16 - 18 SAE	1/4 NPTF	.750 (19.0)	22" (559)	NONE		
2.00 (51)	9/16 - 18 SAE	1/4, 3/8 NPTF	1.062 (27.0)	24" (610)	1.125 (28.6)	1.250 (31.8)	
2.50 (64)	9/16 - 18 SAE	1/4, 3/8 NPTF	1.062 (27.0)	16" (406)	1.125 (28.6)	1.250 (31.8) 1.500 (38.1)	
3.00 (76)	3/4 - 16 SAE	9/16 - 18 SAE 3/8, 1/2 NPTF	1.250 (31.8)	22" (559)	1.125 (28.6)	1.500 (38.1)	
3.50 (89)	3/4 - 16 SAE	3/8, 1/2 NPTF	1.250 (31.8)	17" (432)	1.500 (38.1)	2.000 (50.8)	
4.00 (102)	3/4 - 16 SAE	3/8, 1/2 NPTF	1.500 (38.1)	19" (483)	2.000 (50.8)		
5.00 (127)	1 1/16 - 12 SAE	3/4 - 16 SAE 1/2, 3/4 NPTF	2.000 (50.8)	35" (889)	2.500 (63.5)		

\* At 2500 psi rated operating pressure. Longer strokes are possible at reduced pressures. Additionally, smaller diameter rods can be provided for use at lower pressures or shorter length strokes. Consult CROSS Sales Dept. for maximum stroke at given pressure. For extended cylinder lengths of over 30" (762 mm), 1" (25.4 mm) of stop tubing must be used for each 10" (254 mm) of stroke. Stroke limitation applies to compressive loading only.

## NW SERIES

### CLEVIS PINS

BORE DIA.	STANDARD PINS		OPTIONAL PINS	
	DIA. / MAT'L	MAX. PRESSURE	DIA. / MAT'L	MAX. PRESSURE
1.50 (38)	1.00 (25.4) Steel	2500 psi (172 bar)	NONE	
2.00 (51)	1.00 (25.4) Steel	2500 psi (172 bar)	NONE	
2.50 (64)	1.00 (25.4) Steel	2500 psi (172 bar)	NONE	
3.00 (76)	1.00 (25.4) Steel	2500 psi (172 bar)	NONE	
3.50 (89)	1.00 (25.4) Steel	2000 psi (138 bar)	1.00 Hard (25.4) Steel	2500 psi (172 bar)
4.00 (102)	1.00 (25.4) Steel	1500 psi (104 bar)	1.00 Hard (25.4) Steel	2500 psi (172 bar)
5.00 (127)	1.00 (25.4) Steel	2100 psi (144 bar)	1.25 Hard (31.8) Steel	2500 psi (172 bar)

(Hardened steel bushings are provided with hardened steel pins)



NW SERIES ORDERING INFORMATION

SERIES	BORE DIA. INCH x100	STROKE INCH x100	ROD DIA. INCH x100	PORT SIZE & TYPE	END MOUNTING	CLEVIS PIN	PORT LOCATION	OTHER
NW	150	As Required	075	C 9/16-18 SAE	C* Clevis	A 1.00 Steel	A In Line with Pins	X speci- fy
	200		106	D 3/4-16 SAE				
	250	250	125	E 7/8-14 SAE	P Pineye	B 1.00 Hard	B 90° to Pins	
	300		150	F 1 1/16-12 SAE				
	350		200	N 1/4" NPTF	S <sup>(1)</sup> Single Lug	C 1.25 Hard		
	400		250	P 3/8" NPTF				
	500			R 1/2" NPTF	X Other (Specify)			
			S 3/4" NPTF					

NOTE: Cylinders are painted "CROSS Red" unless otherwise stated. <sup>(1)</sup> Single lug and pineye mounts may be welded rather than screw-on type. Consult the CROSS Sales Department for other optional features.

NU SERIES

NU Series are available in sizes listed below only. All have clevis mounting on both ends. Specify standard (2500 psi) or heavy duty (3000 psi).

- Ports — in line with pins. 3/8" NPTF in on 2" bore; 1/2" NPTF on 2 1/2" through 4" bores; 3/4" NPTF on 5" bore
- Pins — 1" diameter on 2" through 4" bores; 1 1/4" diameter on 5" bore

MODEL NUMBER	BORE DIA. (INCH)	STROKE (INCH)	CL. (INCH)	CENTERS (INCH)	ROD DIA. (INCH)	MODEL NUMBER	BORE DIA. (INCH)	STROKE (INCH)	CL. (INCH)	CENTERS (INCH)	ROD DIA. (INCH)
208 NU	2	8		19.50	1 1/4	3508 NU	3 1/2	8		19.25	1 3/4
210 NU		10		21.50		3510 NU		10	21.25		
212 NU		12		23.50		3512 NU		12	23.25		
216 NU		16		27.50		3516 NU		16	27.25		
220 NU*		20		31.50		3520 NU		20	31.25		
224 NU*		24		35.50		3524 NU		24	35.25		
2508 NU	2 1/2	8		19.50	1 1/4	3530 NU	4	30		41.25	2
2510 NU		10		21.50		3536 NU*		36	47.25		
2512 NU		12		23.50		408 NU		8	20.00		
2516 NU		16		27.50		410 NU		10	22.00		
2520 NU		20		31.50		412 NU		12	24.00		
2524 NU*		24		35.50		416 NU		16	28.00		
308 NU	3	8		19.25	1 1/2	418 NU	5	18		30.00	2
310 NU		10		21.25		420 NU		20	32.00		
312 NU		12		23.25		424 NU		24	36.00		
316 NU		16		27.25		430 NU		30	42.00		
320 NU		20		31.25		436 NU		36	48.00		
324 NU		24		35.25		448 NU*		48	60.00		
330 NU*		30		41.25		508 NU		8	20.00		
336 NU*		36		47.25		510 NU		10	22.00		
						512 NU		12	24.00		
						516 NU		16	28.00		
				520 NU	20	32.00					

\*These cylinders are rated for 2500 psi service but the safe operating pressure is greatly reduced due to rod buckling considerations when operated in the push mode. Please contact CROSS Engineering for recommendations.



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