

**ORDERING INFORMATION:** #TPL20-{STROKE}-{CYL}-{SWITCH}-{ASSY}

20 to 100mm STROKE  
 WEL1(NPT) or WEL2(G)  
 SEE SWITCH CHART  
 "-LH" SHOWN & "-RH" FOR OPPOSITE ASSY

**CYLINDER OPTIONS:**  
 WEL1 - NUMATICS PART #UND-SA050-{STROKE}-D (1/4 NPT PORTS)  
 WEL2 - NUMATICS PART #UGD-SA050-{STROKE}-D (1/4 G PORTS)

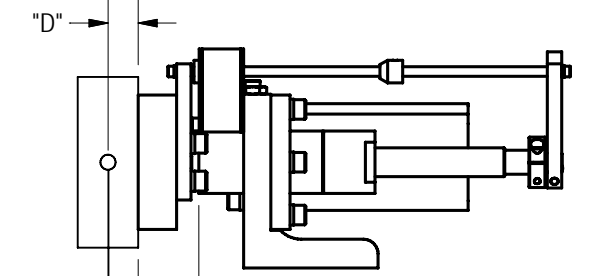
**ASSY OPTIONS:**  
 "-RH" - LOCATE SWITCH ASSEMBLY ON OPPOSITE SIDE FROM SHOWN

**ORDERING EXAMPLE:**  
 100mm STROKE, NPT PORTS, DC TURCK PNP, SENSOR S02 IN RETRACT POSITION, & LH ASSY, ORDER AS: #TPL20-100-WEL1-AR-LH

**Switch Options**

Switch Option	S01 Sensor Position - "E"xtended Pos. "R"etracted Pos.	Manufacturer's Part Number	Manufacturer	Description
0	0	NONE		
A	E or R	NI2-Q6.5-AP6-0.1-FS 4.4X3/S304	Turck	3-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect
B	E or R	NI2-Q6.5-ADZ32-0.1-FSB 5.4X4/S304	Turck	4-Wire, 5-Pin, AC/DC 1/2-20 (N.O.) Quick Disconnect
C	E or R	NI2-Q6.5-AN6-0.1-FS 4.4X3/S304	Turck	3-Wire, 4-Pin, DC M12 X 1 (NPN) Quick Disconnect
D	E or R	NBN2-F581-100S6-E8-V1	Pepperl & Fuchs	3-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect
E	E or R	BES-Z02KR2-PSC20F-P100-S04-V	Balluff	3-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect
F	E or R	871D-MW2GP100A-D4	Allen Bradley	4-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect
H	E or R	NI2-Q6.5-0.1M-BDS-2AP6X3-H1141/S34	Turck	3-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect
J	E or R	IN5374	Efector	4-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect

Ordering Example: For Allen Bradley DC world switch with the S01 in the extended position and the S02 sensor in the retracted position; Order switch option "FE"



$A = 40.1 [1.58] + \text{STROKE}$   
 $\text{EFFECTIVE LOAD} = W (A + D) / A$

**FIG. 1**  
 IF EFFECTIVE LOAD FOR HORIZONTAL APPLICATIONS IS OVER 50lbs., CONTACT WELKER. MAX LOAD FOR VERTICAL LIFT AT 80psi IS 240lbs.(PUSH) & 200lbs.(PULL). CYLINDER IS 50mm BORE W/ MAGNETIC PISTON.

UNITS ARE MILLIMETERS  
 (i.e.X.XXmm [x.xxx"])  
 DO NOT SCALE DRAWING

EXCEPT AS NOTED  
 DECIMAL TOL. SHALL BE:  
 0 PLACE (FRACTIONS) ± .400 [1/64"]  
 1 PLACE ± .200 [0.010"]  
 2 PLACE ± .100 [0.005"]  
 3 PLACE ± .010 [0.0005"]  
 ALL DOWEL LOC ± 0.010 [0.0005"] BETWEEN HOLES

EXCEPT AS NOTED, MAXIMUM ALLOWABLE ROUGHNESS SHALL BE:  
 1 PLACE FINISH 6 MICRONS (250 MICROINCHES)  
 2 PLACE FINISH 3 MICRONS (125 MICROINCHES)  
 3 PLACE FINISH 1.6 MICRONS (63 MICROINCHES)

REV	DATE	STATUS	DESCRIPTION
2	12/1/2006	Released	ADDED TPL20E13

**WELKER BEARING COMPANY**

TOOL NAME: LIFTER

DRAWN BY: DJH	DATE: 1/9/2007	CHKD BY: JMP	ENG APPROVAL:
SHEET 2 OF 2	FILE NAME:	TPL20L01	
SCALE: HALF			

# WELKER

ISO 9001:2000  
CERTIFIED

## COMPACT METRIC LIFTERS



including

# Synchrolift™

U.S. Patent Numbers 5,690,315 - 6,408,736 - 6,408,740



## SAFETY FEATURES

- Welker Locking cylinder stops load in mid-stroke in both directions upon air loss.
- Spiral retaining ring construction won't come apart if fasteners loosen.
- Manual lockouts standard
- 18mm Prox bosses and targets standard.
- Welker MRP Spring Extend Lock-out Pin can be added.

## DESIGN FEATURES

- Compact closed height (no protruding shafts).
- Strokes up to 40" / 1000mm.
- Slim footprint
- Mounting from base or side.
- 4",6",8" bore cylinders available with appropriate shaft sizes (English and Metric)
- Extremely rigid in extended position = High repeatability.
- Symmetrically reversible.
- Can lift overhung loads.
- Synchrolift synchronizes remotely mounted units.

U.S. Patent Numbers 5,690,315 - 6,408,736 - 6,408,740

## MAINTENANCE

- Lube free cylinder.
- Lube free bearings and seals.
- Easy bearing replacement.
- Shafts can be individually removed.
- One side open for easy cylinder replacement.

## DURABILITY

- Bearing spread in two directions.
- Hard chromed shafts standard.
- Lubrication free linear bearings with integrated seals.
- Floating cylinder rod coupling.
- Dual shocks in both directions.
- Dual hard stops in both directions.

DOWNLOAD PRINTS @  
[WWW.WELKERBEARING.COM](http://WWW.WELKERBEARING.COM)

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# WELKER

## SYNCHROLIFT™

Lifters may be covered under one or more of the following or other patents: U.S. Patent No. 5,690,315  
U.S. Patent No. 6,408,736 or U.S. Patent No.6,408,740

## METRIC LIFTER

Part Number:  
**SLM40-STROKE-CYLINDER OPTION**

Examples:  
SLM40-300-WEL1  
(300mm Stroke, NON-LOCK)

SLM40-500-WEL4  
(500mm Stroke, LOCK)

SLM40-275-800-WEL8  
(275mm Midpoint - 800mm Total  
Stroke, NON-LOCK, 3 POS.)



Part Number:  
**CLM40-STROKE-CYLINDER OPTION**

Examples:  
CLM40-300-WEL1  
(300mm Stroke, NON-LOCK)

CLM40-500-WEL4  
(500mm Stroke, LOCK)

CLM40-275-800-WEL8  
(275mm Midpoint - 800mm Total  
Stroke, NON-LOCK, 3 POS.)

Lifts in tandem within 5mm tolerance  
Patented "Synchro Cylinder"  
Presently synchronized up to 4 lifters  
Connection leaves center of tool open



**SSL  
SHORT STROKE  
METRIC LIFTER**

See Page 6 for print  
& specifications



## METRIC LIFTER PART SPECIFICATIONS

PART NUMBER	CLM40	CLM40	CLM50	CLM50	CLM50
	Nonlock *	Lock *	Nonlock*	Lock *	Lrg. Bore-NL*
Stroke Increment	5mm	5mm	5mm	5mm	5mm
Maximum Stroke	1000mm	1000mm	1000mm	1000mm	1000mm
Extend Capacity	375	375	850	850	1510
Retract Capacity	330	330	805	805	1465
Recommended Max. Overhung Load lbf-ft.	150 lbf-ft.	150 lbf-ft.	300 lbf-ft.	300 lbf-ft.	300
Recommended Max. CG Offset	36"	36"	36"	36"	36"
Cylinder Options	See Cylinder Chart				
Weight	215 lbs. +2.71 lbf./ 25mm stroke	230 lbs.	450 lbs.	475 lbs.	475 lbf. +3.88 lbf./ 25mm stroke

\* Welker Cylinder

DOWNLOAD CAD DRAWINGS FROM WEB SITE [www.welkerbearing.com](http://www.welkerbearing.com)



# METRIC LIFTERS & SYNCHROLIFT

## CYLINDER OPTIONS FOR ALL METRIC LIFTERS

CYLINDER OPTION	CYLINDER TYPE	CYLINDER BORE	CYLINDER BRAKE PORTS	MAIN CYLINDER PORTS
<b>CLM40</b>	<b>SLM40</b>			
-VEL 1	NON-LOCK	4"	N/A	1/2 NPT
-VEL 2	NON-LOCK	4"	N/A	# 10 SAE
-VEL 3	NON-LOCK	4"	N/A	1/2 ISO G
-VEL 4	LOCK	4"	1/4 NPT	1/2 NPT
-VEL 5	LOCK	4"	# 4 SAE	# 10 SAE
-VEL 6	LOCK	4"	1/4 ISO G	1/2 ISO G
-VEL 7	NL 3 POS	4"	N/A	1/2 NPT
-VEL 8	NL 3 POS	4"	N/A	# 10 SAE
-VEL 9	NL 3 POS	4"	N/A	1/2 ISO G
-VEL 10	LOCK 3 POS	4"	1/4 NPT	1/2 NPT
-VEL 11	LOCK 3 POS	4"	# 4 SAE	# 10 SAE
-VEL 12	LOCK 3 POS	4"	1/4 ISO G	1/2 ISO G
<b>CLM50</b>	<b>SLM50</b>			
-VEL 1	NON-LOCK	6"	N/A	3/4 NPT
-VEL 2	NON-LOCK	6"	N/A	# 12 SAE
-VEL 3	NON-LOCK	6"	N/A	3/4 G
-VEL 4	LOCK	6"	1/4 NPT	3/4 NPT
-VEL 5	LOCK	6"	# 4 SAE	# 12 SAE
-VEL 6	LOCK	6"	1/4 G	3/4 G
-VEL 7	NON-LOCK	8"	N/A	3/4 NPT
-VEL 8	NON-LOCK	8"	N/A	# 12 SAE
-VEL 9	NON-LOCK	8"	N/A	3/4 G

3 Position cylinder provides a hard & repeatable midpoint (Patent Pending)