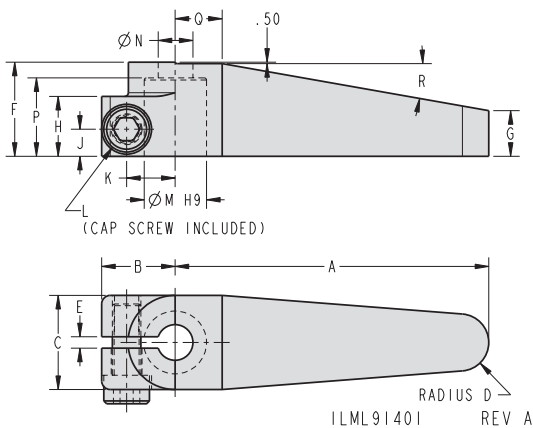
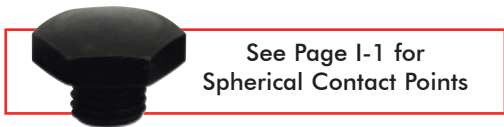
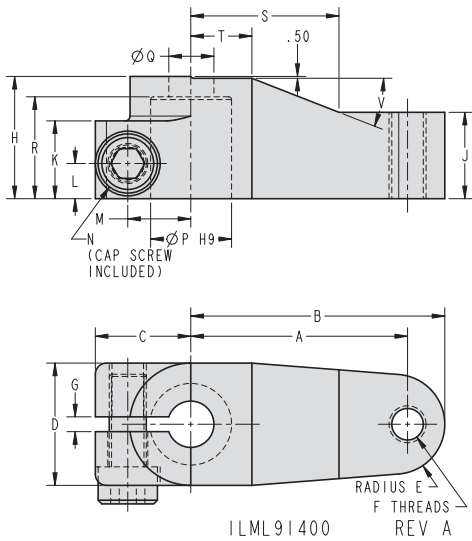


# TuffCam™ 7 MPa Swing Clamp Arms

## Arm Dimensions



**D-2**



## Standard 7 MPa Arm Dimensions

Model No.	L9-1425-01	L9-1432-01	L9-1440-01	L9-1450-01	L9-1463-01	L9-1480-01
-----------	------------	------------	------------	------------	------------	------------

Model numbers above have a threaded hole (dimension "F") positioned on work support centerline, the model numbers below do not have a threaded hole.

Model No.	L9-1425-00	L9-1432-00	L9-1440-00	L9-1450-00	L9-1463-00	L9-1480-00
-----------	------------	------------	------------	------------	------------	------------

Cylinder Capacity (kN)	1.9	3.3	5.2	8.0	12.5	20.4
Bore Size (mm)	25	32	40	50	63	80
A	45.5	49	58.5	68	80.5	89.5
B	51.5	57	68.5	80	96.5	109.5
C	17.13	21.25	25.75	30.75	39.75	49.25
D	22.5	27	33	42	54	67.5
E	8.8	11.1	13.5	17.5	23.1	29.9
F	M6 x 1	M8 x 1.25	M10 x 1.5	M12 x 1.75	M16 x 2	M20 x 2.5
G	4	4	4	4	4	4
H	22.5	27	33	42	54	67.5
J	15.5	19.5	23.3	30.5	40.2	52.4
K	15	18	21	28	35	45
L	6	7.75	9.5	10.75	14	17
M	11.5	14	17	21	27	33.5
N	M6 x 1	M8 x 1.25	M10 x 1.5	M12 x 1.75	M16 x 2	M20 x 2.5
P	15	18	22	28	36	45
Q	8.5	10.5	12.5	14.5	18.5	22.5
R	18.75	22.5	27.5	35	45	56.25
S	29	32.25	40	49	56	67.5
T	11.25	13.5	16.5	21	27	33.75
V	20	20	21	21	25	24

ILML91400 REV A

- See page C-11 for suggested hole location for use with the clocking feature.
- All dimensions are in mm.

## Extended 7 MPa Arm Dimensions

Model No.	L9-1425-02	L9-1432-02	L9-1440-02	L9-1450-02	L9-1463-02	L9-1480-02
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Extended Arms have no pre-drilled or tapped holes. Swing speed must be reduced.

Cylinder Capacity (kN)	1.9	3.3	5.2	8.0	12.5	20.4
Bore Size (mm)	25	32	40	50	63	80
A	86	98	110	142	176	220
B	17.13	21.25	25.75	30.75	39.75	49.25
C	22.5	27	33	42	54	67.5
D	6	8	10	12	16	20
E	4	4	4	4	4	4
F	22.5	27	33	42	54	67.5
G	10	13	16	19	25	31
H	15	18	21	28	35	45
J	6	7.75	9.5	10.75	14	17
K	11.5	14	17	21	27	33.5
L	M6 x 1	M8 x 1.25	M10 x 1.5	M12 x 1.75	M16 x 2	M20 x 2.5
M	15	18	22	28	36	45
N	8.5	10.5	12.5	14.5	18.5	22.5
P	18.75	22.5	27.5	35	45	56.25
Q	11.25	13.5	16.5	21	27	33.75
R	9	9	10	11	11	11

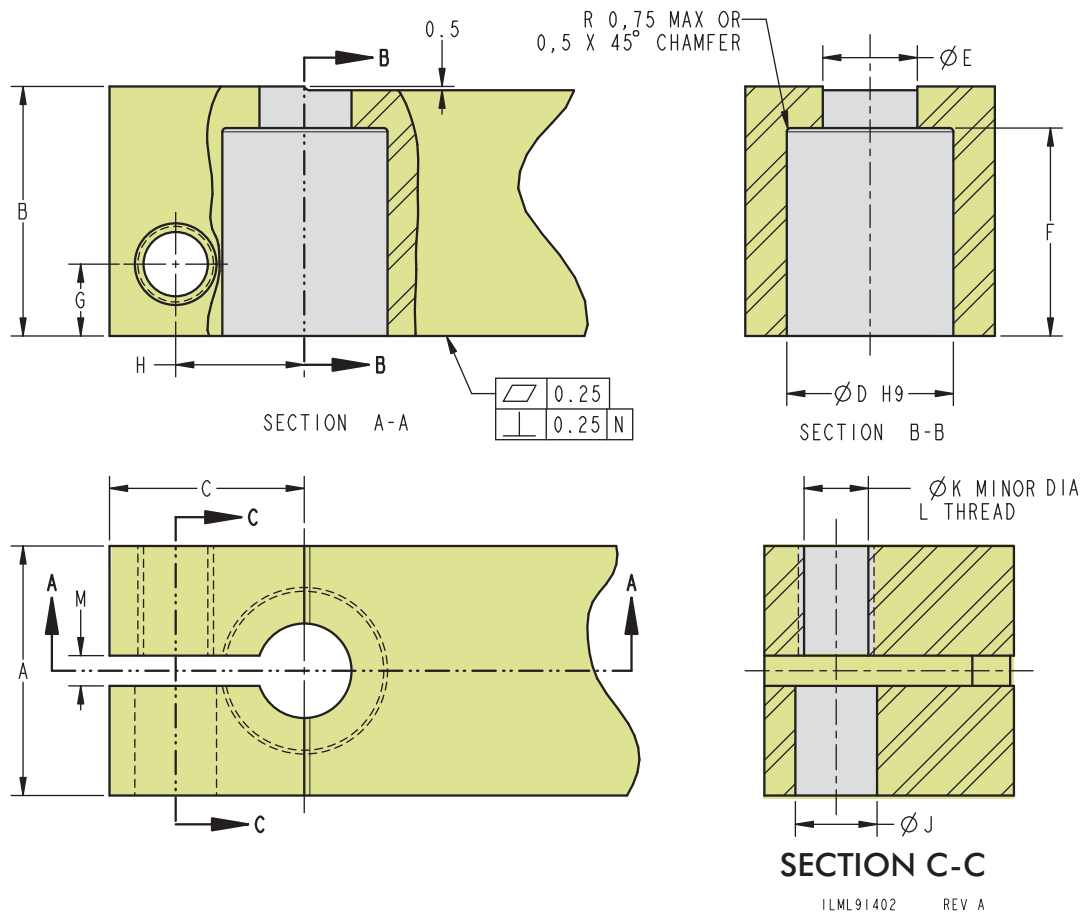
ILML91401 REV A

- See page C-11 for suggested hole location for use with the clocking feature.
- All dimensions are in mm.



# TuffCam™ 7 MPa Swing Clamp Arms

Self-produced Clamp Arm



D-3

## Dimensions

Arm Series	L9-1425-XX	L9-1432-XX	L9-1440-XX	L9-1450-XX	L9-1463-XX	L9-1480-XX
Recommended Machining Dimensions for Self-produced Clamp Arms.						
Cylinder Capacity (kN)	1.9	3.3	5.2	8.0	12.5	20.4
Bore Size (mm)	25	32	40	50	63	80
A	22.5	27	33	42	54	67.5
B	22.5	27	33	42	54	67.5
C	17.13	21.25	25.75	30.75	39.75	49.25
ØD	15	18	22	28	36	45
ØE	8.5	10.5	12.5	14.5	18.5	22.5
F	18.75	22.5	27.5	35	45	56.25
G	6	7.75	9.5	10.75	14	17
H	11.5	14	17	21	27	33.5
ØJ	6.8	8.8	10.8	12.8	16.75	20.75
ØK	4.92 - 5.15	6.65 - 6.91	8.38 - 8.68	10.11 - 10.44	13.83 - 14.21	17.29 - 17.74
L	M6 x 1-6H	M8 x 1.25-6H	M10 x 1.5-6H	M12 x 1.75-6H	M16 x 2-6H	M20 x 2.5-6H
M	3	3	3	4	4	5

- All dimensions in mm
- See page C-11 to prepare arms for use with the clcking features.



# TuffCam™ 7 MPa Swing Clamp Arms

## Clamping Force Tables

D-4

L1-4X25-00										
Operating Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN)								Max Arm Length "L" (mm)
		Arm Length "L" (mm)								
		30	<b>45.5</b>	60	75	<b>86</b>	100	120	150	
10.0	3.1	2.7	2.4	2.1	1.9	1.8	1.7	1.5		143
9.0	2.8	2.5	2.1	1.9	1.7	1.6	1.5	1.4	1.2	150
8.0	2.5	2.2	1.9	1.7	1.6	1.5	1.4	1.2	1.1	150
7.0	2.2	1.9	1.7	1.5	1.4	1.3	1.2	1.1	0.9	150
6.0	1.9	1.6	1.4	1.3	1.2	1.1	1.0	0.9	0.8	150
5.0	1.6	1.4	1.2	1.1	1.0	0.9	0.8	0.8	0.7	150
4.0	1.3	1.1	0.9	0.9	0.8	0.7	0.7	0.6	0.5	150
3.0	0.9	0.8	0.7	0.6	0.6	0.5	0.5	0.5	0.4	150
2.0	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	150
1.0	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	150
Max Op. Pressure (MPa)		10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.8	

ILML14007-25 REV B

L1-4X32-00										
Operating Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN)								Max Arm Length "L" (mm)
		Arm Length "L" (mm)								
		30	40	<b>49</b>	60	80	<b>98</b>	120	150	
10.0	5.5	5.1	4.8	4.5	4.2	3.9				92
9.0	4.9	4.6	4.3	4.1	3.8	3.5	3.3			109
8.0	4.4	4.1	3.8	3.6	3.4	3.1	2.9	2.7		132
7.0	3.8	3.6	3.3	3.2	3.0	2.7	2.5	2.3	2.1	150
6.0	3.3	3.1	2.9	2.7	2.5	2.3	2.2	2.0	1.8	150
5.0	2.7	2.6	2.4	2.3	2.1	1.9	1.8	1.7	1.5	150
4.0	2.2	2.1	1.9	1.8	1.7	1.6	1.4	1.3	1.2	150
3.0	1.6	1.5	1.4	1.4	1.3	1.2	1.1	1.0	0.9	150
2.0	1.1	1.0	1.0	0.9	0.8	0.8	0.7	0.7	0.6	150
1.0	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	150
Max Op. Pressure (MPa)		10.0	10.0	10.0	10.0	10.0	9.6	8.4	7.4	

ILML14007-32 REV B

L1-4X40-00										
Operating Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN)								Max Arm Length "L" (mm)
		Arm Length "L" (mm)								
		35	45	<b>58.5</b>	70	90	<b>110</b>	155	200	
10.0	8.8	8.3	7.8	7.3	7.0	6.5				97
9.0	7.9	7.5	7.1	6.6	6.3	5.8	5.5			114
8.0	7.0	6.7	6.3	5.9	5.6	5.2	4.9			137
7.0	6.1	5.8	5.5	5.1	4.9	4.5	4.3	3.8		170
6.0	5.3	5.0	4.7	4.4	4.2	3.9	3.7	3.3	3.0	200
5.0	4.4	4.2	3.9	3.7	3.5	3.2	3.0	2.7	2.5	200
4.0	3.5	3.3	3.1	2.9	2.8	2.6	2.4	2.2	2.0	200
3.0	2.6	2.5	2.4	2.2	2.1	1.9	1.8	1.6	1.5	200
2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.0	200
1.0	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.5	0.5	200
Max Op. Pressure (MPa)		10.0	10.0	10.0	10.0	10.0	9.2	7.4	6.3	

ILML14007-40 REV B

L1-4X50-00										
Operating Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN)								Max Arm Length "L" (mm)
		Arm Length "L" (mm)								
		42	55	<b>68</b>	90	115	<b>142</b>	170	200	
10.0	13.5	12.2	11.4	10.8	9.9	9.2	8.6			156
9.0	12.1	11.0	10.3	9.7	8.9	8.3	7.7	7.2		186
8.0	10.8	9.8	9.1	8.6	8.0	7.4	6.9	6.4	6.0	200
7.0	9.4	8.6	8.0	7.6	7.0	6.4	6.0	5.6	5.3	200
6.0	8.1	7.3	6.9	6.5	6.0	5.5	5.1	4.8	4.5	200
5.0	6.7	6.1	5.7	5.4	5.0	4.6	4.3	4.0	3.8	200
4.0	5.4	4.9	4.6	4.3	4.0	3.7	3.4	3.2	3.0	200
3.0	4.0	3.7	3.4	3.2	3.0	2.8	2.6	2.4	2.3	200
2.0	2.7	2.4	2.3	2.2	2.0	1.8	1.7	1.6	1.5	200
1.0	1.3	1.2	1.1	1.1	1.0	0.9	0.9	0.8	0.8	
Max Op. Pressure (MPa)		10.0	10.0	10.0	10.0	10.0	10.0	9.5	8.6	

ILML14007-50 REV B

L1-4X63-00										
Operating Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN)								Max Arm Length "L" (mm)
		Arm Length "L" (mm)								
		50	65	<b>80.5</b>	110	140	<b>176</b>	210	250	
10.0	21.0	19.1	18.0	17.2	15.9	15.0	14.1			200
9.0	18.9	17.2	16.2	15.5	14.3	13.5	12.7	12.0		233
8.0	16.8	15.2	14.4	13.7	12.7	12.0	11.3	10.7	10.1	250
7.0	14.7	13.3	12.6	12.0	11.1	10.5	9.8	9.4	8.9	250
6.0	12.6	11.4	10.8	10.3	9.6	9.0	8.4	8.0	7.6	250
5.0	10.5	9.5	9.0	8.6	8.0	7.5	7.0	6.7	6.3	250
4.0	8.4	7.6	7.2	6.9	6.4	6.0	5.6	5.3	5.1	250
3.0	6.3	5.7	5.4	5.2	4.8	4.5	4.2	4.0	3.8	250
2.0	4.2	3.8	3.6	3.4	3.2	3.0	2.8	2.7	2.5	250
1.0	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.3	
Max Op. Pressure (MPa)		10.0	10.0	10.0	10.0	10.0	10.0	9.6	8.6	

ILML14007-63 REV B

L1-4X80-00										
Operating Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN)								Max Arm Length "L" (mm)
		Arm Length "L" (mm)								
		60	<b>89.5</b>	120	150	180	<b>220</b>	260	300	
10.0	34.4	31.3	28.7	26.8	25.4	24.2	22.9			243
9.0	30.9	28.2	25.9	24.1	22.9	21.8	20.6	19.7		284
8.0	27.5	25.0	23.0	21.5	20.3	19.4	18.3	17.5	16.7	300
7.0	24.1	21.9	20.1	18.8	17.8	16.9	16.0	15.3	14.6	300
6.0	20.6	18.8	17.2	16.1	15.2	14.5	13.7	13.1	12.5	300
5.0	17.2	15.7	14.4	13.4	12.7	12.1	11.5	10.9	10.5	300
4.0	13.7	12.5	11.5	10.7	10.2	9.7	9.2	8.7	8.4	300
3.0	10.3	9.4	8.6	8.0	7.6	7.3	6.9	6.6	6.3	300
2.0	6.9	6.3	5.7	5.4	5.1	4.8	4.6	4.4	4.2	300
1.0	3.4	3.1	2.9	2.7	2.5	2.4	2.3	2.2	2.1	
Max Op. Pressure (MPa)		10.0	10.0	10.0	10.0	10.0	10.0	9.5	8.6	

ILML14007-80 REV B

### How to Use the Clamping Force Tables

- 1) Start by choosing the arm length you need for your application.
- 2) Then move along the line and select the clamping force and operating pressure or operating pressure and clamping force needed.

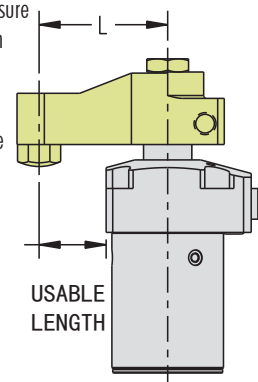
Example: Using a L1-4X25-00 with a 30 mm arm;  
the clamping force would be 1.4 kN at 5.0 MPa

L1-4X25-00										
Operating Pressure (MPa)	Cylinder Force (kN)	Clamping Force (kN)								Max Arm Length "L" (mm)
		Arm Length "L" (mm)								
		30	<b>45.5</b>	60	75	<b>86</b>	100	120	150	
10.0	3.1	2.7	2.4	2.1	1.9	1.8	1.7	1.5		143
9.0	2.8	2.5	2.1	1.9	1.7	1.6	1.5	1.4	1.2	150
8.0	2.5	2.2	1.9	1.7	1.6	1.5	1.4	1.2	1.1	150
7.0	2.2	1.9	1.7	1.5	1.4	1.3	1.2	1.1	0.9	150
6.0	1.9	1.6	1.4	1.3	1.2	1.1	1.0	0.9	0.8	150
5.0	1.6	1.4	1.2	1.1	1.0	0.9	0.8	0.8	0.7	150
4.0	1.3	1.1	0.9	0.9	0.8	0.7	0.7	0.6	0.5	150
3.0	0.9	0.8	0.7	0.6	0.6	0.5	0.5	0.5	0.4	150
2.0	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	150
1.0	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	150
Max Op. Pressure (MPa)		10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.8	

ILML14008 REV B

■ = Non-Usable Range

- The tables and graphs show the relationship between arm length, operating pressure and clamping force.
- The arm lengths shown in parentheses (page D-5) are the usable length from the edge of the clamp body to the contact bolt.
- Tables include maximum operating pressure associated with the arm length shown in the header rows of the table.
- The column on the right of the table is the maximum arm length allowed at the associated operating pressure.
- Operating the clamp in the non-usable range will damage the clamp and void product warranty.

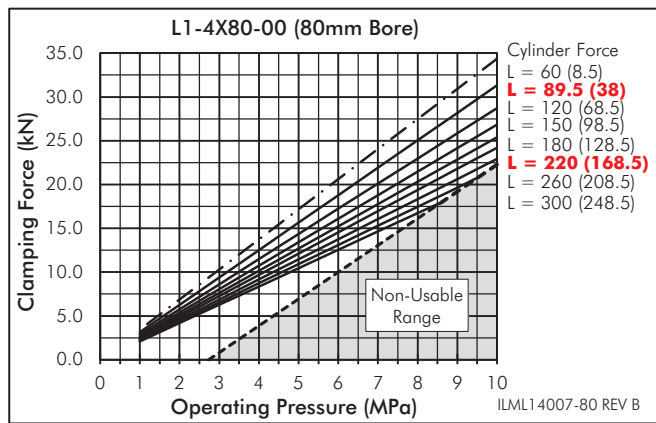
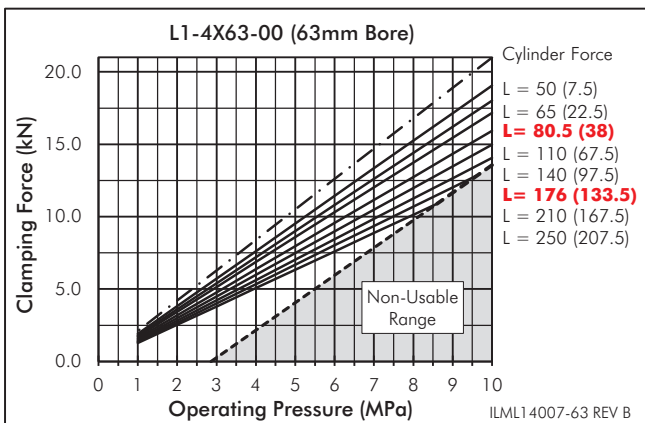
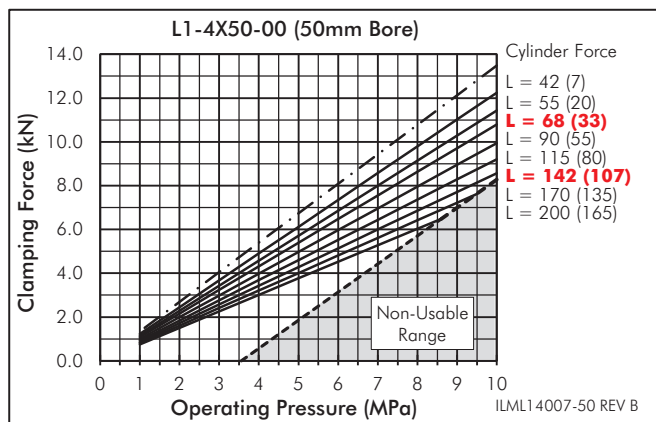
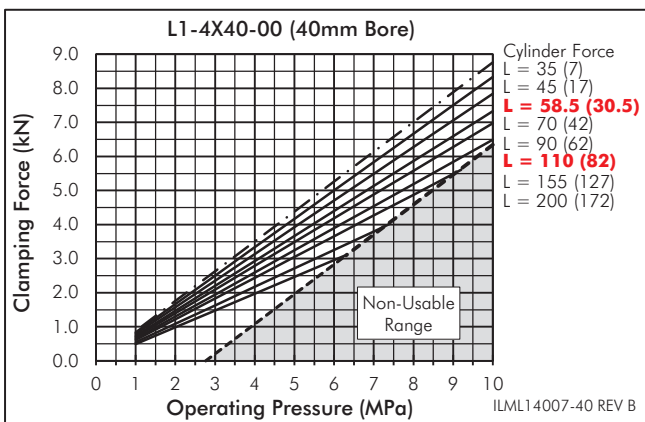
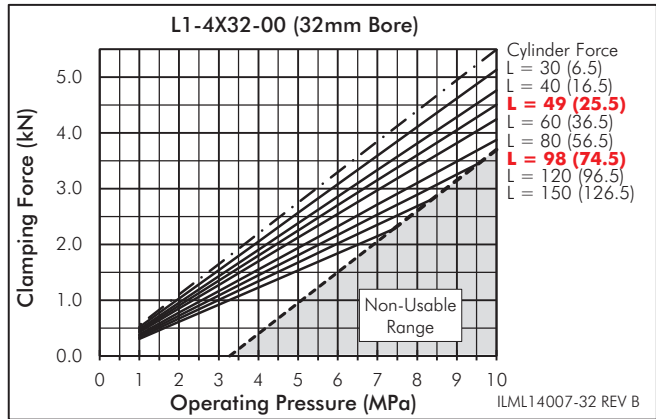
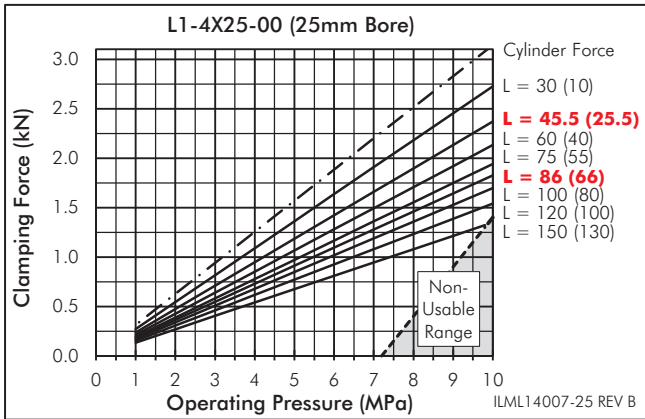


ILML14010 REV A

# TuffCam™ 7 MPa Swing Clamp Arms

## Clamping Force Graphs

D-5



### How to Use the Clamping Force Graphs

- 1) Start by choosing the arm length you need for your application.
- 2) Then move along the line and select the clamping force and operating pressure or operating pressure and clamping force needed.

Example: Using a L1-4X25-00 with a 30 mm lever (10mm usable length); the clamping force would be 1.5 kN at 5.5 MPa

