

Box Culvert Top Section Lifting Detail
 (BC-2A = 37,500 lbs, BC-1A&BC-3A = 50,000 lbs)

W_{LL} = LIVE LOAD APPLIED TO COMPONENT
 W_{CAP} = WORKING LOAD CAPACITY OF COMPONENT

$W_{LL} = 50000 \text{ lb}$
 $W_{CAP} = 111000 \text{ lb}$

$W_{LL} = 25000 \text{ lb.}$
 $W_{CAP} = 42000 \text{ lb.}$

$W_{LL} = 12500 \text{ lb}$
 $W_{CAP} = 53000 \text{ lb}$

$W_{LL} = 12500 \text{ lb}$
 $W_{CAP} = 25000 \text{ lb}$

$W_{LL} = 12500 \text{ lb}$
 $W_{CAP} = 15000 \text{ lb.}$

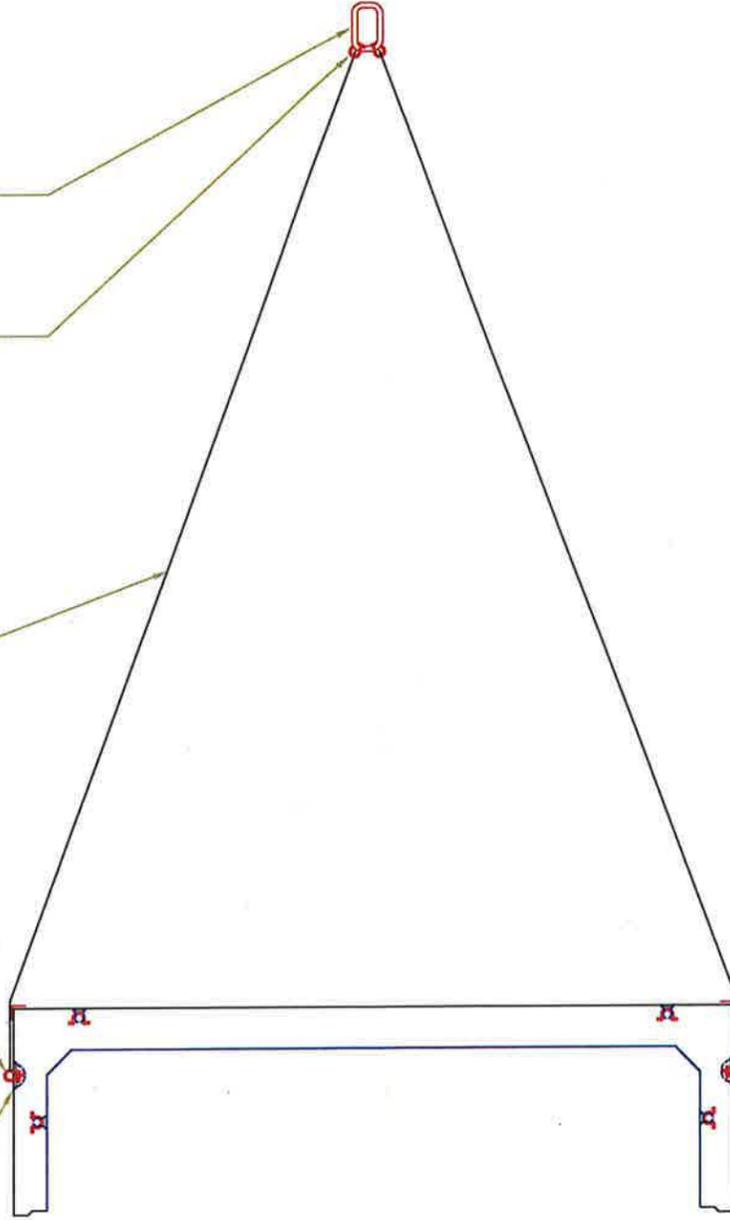
Oxford A750 Lifting Device
 -Allow 6" movement to avoid rebar conflicts

(1) Masterlink 55.5T

(2) 21T Shackle

(4) 32' Tuflex EN600 Slings

(4) 12.5T Shackle



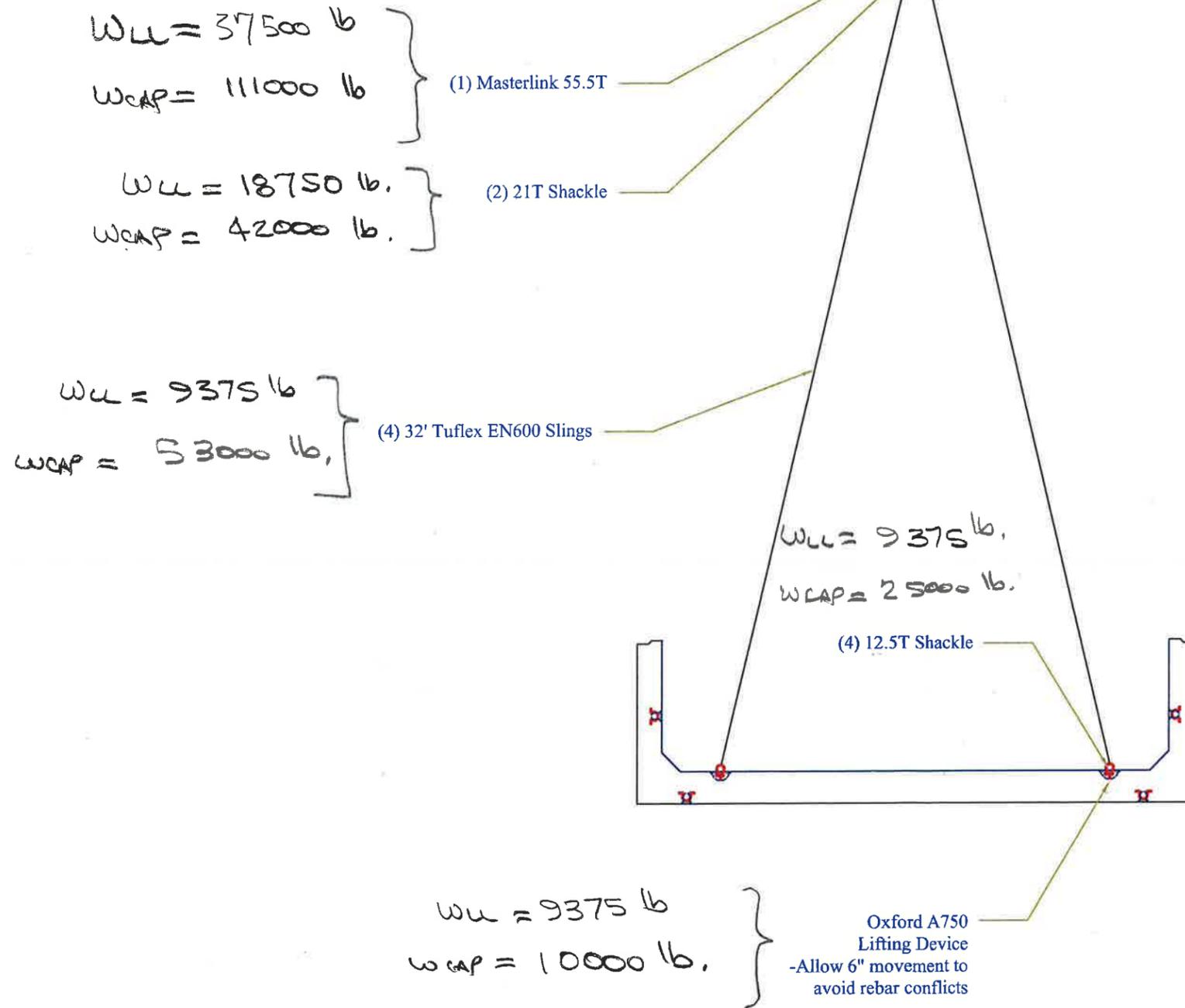
STRUCTURAL DESIGN ONLY

Gary K. Munkelt
 4/28/15

CONTRACTORS VISPE:	PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #15428)		Peckham Road Corp. 1557 St. Rt. 9, #3 Lake George, NY 12845 Ph: (518) 747-3353	FABRICATOR: 193 INDUSTRIAL AVE. WILLISTON, VT 05495 Ph: (802) 658-0201	SD Ireland PRECAST
	SUPERVISOR: M. WHEELER DETAILER: I. ADAMS CHECKER: E. Barendse ENGINEER: G. K. Munkelt	PROJECT NAME: Bridport PROJECT #: CULV(29) Br.#2 LOCATION: Bridport, VT	04/23/15	LIFTING_SKETCH	

Box Culvert Bottom Section Lifting Detail
(37,500 lbs)

W_{LL} = LIVE LOAD APPLIED TO COMPONENT
 W_{CAP} = WORKING LOAD CAPACITY OF COMPONENT



STRUCTURAL DESIGN ONLY

Gary K. Munkelt
 4/23/15
 STATE OF VERMONT
 GARY K. MUNKELT
 NO. 6281
 REGISTERED PROFESSIONAL ENGINEER

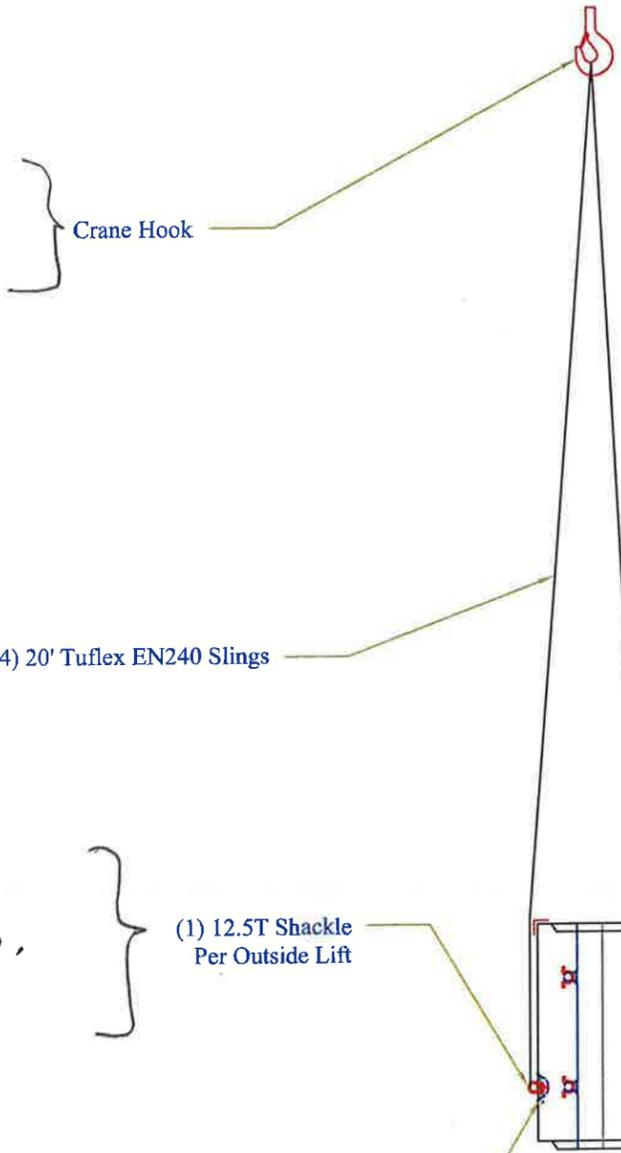
CONTRACTORS VISPE:	PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #15428)		Peckham Road Corp.	FABRICATOR:
	SUPERVISOR: M. WHEELER	PROJECT NAME: Bridport	1557 St. Rt. 9, #3	193 INDUSTRIAL AVE.
	DETAILER: I. ADAMS	PROJECT #: CULV(29) Br.#2	Lake George, NY 12845	WILLISTON, VT 05495
	CHECKER: E. Barendse	LOCATION: Bridport, VT	Ph: (518) 747-3353	Ph: (802) 658-0201
	ENGINEER: G. K. Munkelt			
			04/23/15	LIFTING_SKETCH
				2_OF_4



Box Culvert Section Stripping Detail
(37,500 lbs)

W_{LL} = LIVE LOAD APPLIED TO COMPONENT
 W_{CAP} = WORKING LOAD CAPACITY OF COMPONENT

CRANE CAPACITY
 IS 40000 lbs,
 WHICH IS HOOK CAPACITY
 $W_{LL} = 37500$ lbs.



$W_{LL} = 9375$ lb
 $W_{CAP} = 21200$ lb

$W_{LL} = 9375$ lb
 $W_{CAP} = 25000$ lb.

$W_{LL} = 9375$ lb
 $W_{CAP} = 15000$ lb

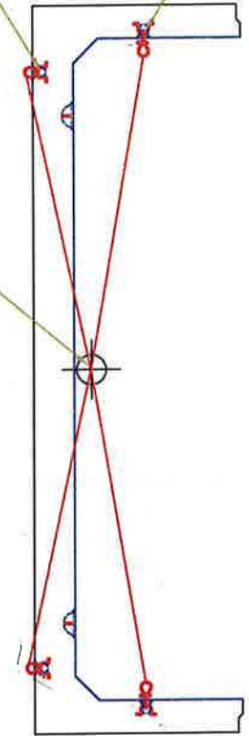
(1) 12.5T Shackle Per Outside Lift

(2) 12.5T Shackle Per Inside Lift

$W_{LL} = 9375$ lb
 $W_{CAP} = 25000$ lb.

Crane Hook

(2) 12.5T Shackle Per Inside Lift



STRUCTURAL DESIGN ONLY

[Handwritten Signature]
 4/28/15

STATE OF VERMONT
 GARY K. MUNKELT
 NO. 6291
 REGISTERED PROFESSIONAL ENGINEER

CONTRACTORS VISPE:

PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #15428)
 SUPERVISOR: M. WHEELER
 DETAILER: I. ADAMS
 CHECKER: E. Barendse
 ENGINEER: G. K. Munkelt

PROJECT NAME: Bridport
 PROJECT #: CULV(29) Br.#2
 LOCATION: Bridport, VT

Peckham Road Corp.
 1557 St. Rt. 9, #3
 Lake George, NY 12845
 Ph: (518) 747-3353

FABRICATOR:
 193 INDUSTRIAL AVE.
 WILLISTON, VT 05495
 Ph: (802) 658-0201



04/23/15

STRIPPING_SKETCH

3_OF_4

Wingwall Lifting Detail
 WW-2 Shown (Heaviest One - 48,500 lbs)

W_{LL} = LIVELOAD APPLIED TO COMPONENT
 W_{CAP} = WORKING LOAD CAPACITY OF COMPONENT

$W_{LL} = 48500 \text{ lb}$
 $W_{CAP} = 11000 \text{ lb}$

$W_{LL} = 12125 \text{ lb}$
 $W_{CAP} = 21200 \text{ lb}$

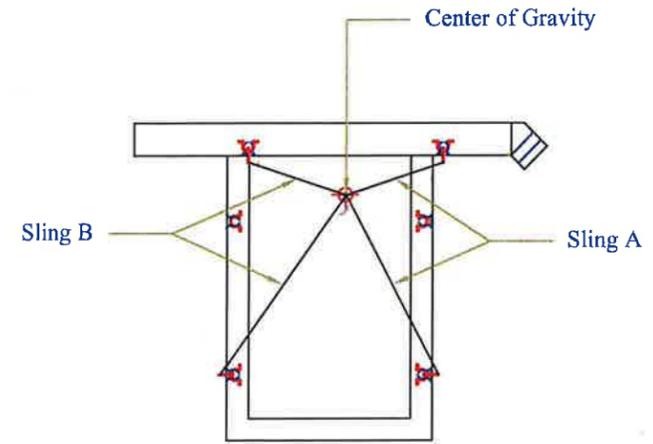
(1) Masterlink 55.5T

(2) 32' Tuflex EN600 Slings

(4) 12.5T Shackle

$W_{LL} = 12125 \text{ lb}$
 $W_{CAP} = 15000 \text{ lb}$

Oxford A750 Lifting Device
 -Allow 6" movement to avoid rebar conflicts



$W_{LL} = 12125 \text{ lb}$
 $W_{CAP} = 24250 \text{ lb}$

STRUCTURAL DESIGN ONLY

STATE OF VERMONT
 GARY K. MUNKEL
 No. 6291
 REGISTERED PROFESSIONAL ENGINEER

[Signature]
 4/28/15

CONTRACTORS VISPE:

PRECAST CONCRETE BOX CULVERT SHOP DRAWINGS (SDI JOB #15428)
 SUPERVISOR: M. WHEELER
 DETAILER: I. ADAMS
 CHECKER: E. Barendse
 ENGINEER: G. K. Munkel

Peckham Road Corp.
 1557 St. Rt. 9, #3
 Lake George, NY 12845
 Ph: (518) 747-3353

FABRICATOR:
 193 INDUSTRIAL AVE.
 WILLISTON, VT 05495
 Ph: (802) 658-0201

SD Ireland
 PRECAST

04/23/15

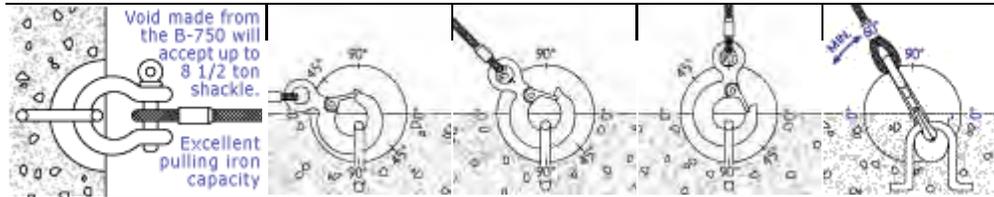
WINGWALL_LIFTING

4_OF_4



PO Box 736 • Stevenson, CT 06491
 www.oxfordtechusa.com
 Phone: (203) 268-6030
 Fax: (203) 445-1240
 info@oxfordtechusa.com

Oxford Lift System®



Anchor Product Code	Slab Min. Inches	Safe Working Load @ 90 degree Shear-0 degree Pull	Safe Working Load @ 90 degree Shear-45 degree Pull	Safe Working Load @ 90 degree Tension-90 degree Pull	Safe Working Load @ 90 degree Shear-60 degree Pull
A 500-3	4.00"	4,500	4,000	3,500	4,000
A 500-4	5.00"	8,000	5,500	4,000	5,000
A 500-5	6.00"	10,500	6,500	5,000	5,500
A 750-5	6.00"	12,500	8,000	7,000	7,000
A 750-7	8.00"	15,000	12,500	10,000	10,000

Note: Safe Working Load provides a factor of safety of approximately 4:1

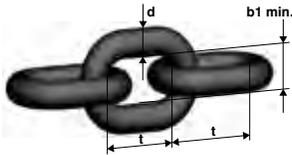
Test Results are based on a minimum concrete compressive strength of 4,000 psi.

[<back](#) [next>](#)

Home	B-500 & B-750	S-150	S-300	Lift Anchor & Order Form	Concrete Products
Pull Iron Capacity	Anchors & Accessories	Toggle-Lok	Insert/Lift Anchor	Grid-Lok/Rebar Chair	Helpful Calculations <small>COMING SOON!</small>

NI | Round Steel Chain

Round steel chains for use in lifting. Maximum working temperature: 400°F. Standard surface: blasted, clear painted.



NEW

Code	Size	Nominal diameter d	Standard delivery length [feet]	Pitch t	Inside width b1 min.	Outside width b2 max.	WLL [lb]	Breaking force [lb]	Weight [lb/ft]
NI5.50	7/32"	0.217	400	0.67	0.31	0.83	2,700	10,800	0.470
NI70	9/32"	0.276	800	0.83	0.39	0.98	4,300	17,200	0.738
NI80	5/16"	0.315	500	0.94	0.43	1.14	5,700	22,800	0.939
NI100	3/8"	0.394	400	1.18	0.55	1.42	8,800	35,200	1.475
NI130	1/2"	0.512	200	1.54	0.71	1.85	15,000	60,000	2.548
NI160	5/8"	0.630	150	1.89	0.87	2.28	22,600	90,400	3.830
NI200	3/4"	0.787	100	2.44	1.02	2.80	35,300	141,200	5.780
NI220	7/8"	0.866	100	2.60	1.18	3.11	42,700	170,800	7.324
NI260	1"	1.024	100	3.07	1.38	3.70	59,700	238,800	10.214
NI320	1-1/4"	1.260	50	3.78	1.69	4.53	90,400	361,600	15.455

A | Master Link

Master link for 1 or 2 leg chain sling.



→

Code	WLL 0-45° [lb]	d [Inch]	t [Inch]	w [Inch]	s [Inch]	Weight [lb/pc.]	Master link for chain	
							1-leg	2-leg
A100	3,800	0.39	3.15	1.97	0.39	0.31	7/32"	-
A130	5,800	0.51	4.33	2.36	0.39	0.75	9/32"	7/32"
A160	7,500	0.63	4.33	2.36	0.55	1.17	5/16"	9/32"
A180	10,000	0.75	5.31	2.95	0.55	2.03	3/8"	5/16"
A220	16,700	0.91	6.30	3.54	0.67	3.53	1/2"	3/8"
A260	26,000	1.06	7.09	3.94	0.79	5.42	5/8"	1/2"
A320	39,100	1.30	7.87	4.33	1.02	9.13	3/4"	5/8"
A360	61,100	1.42	10.24	5.51	-	13.72	7/8"	3/4"
A450	83,100	1.77	13.39	7.09	-	28.27	1"	7/8"
A500	111,000	1.97	13.78	7.48	-	36.49	1-1/4"	1"
A560	156,600	2.36	15.75	7.87	-	59.56	-	1-1/4"
A720	234,900	2.76	18.11	9.84	-	99.23	-	-

TUFLEX ENDLESS ROUNDSLINGS

Tuflex Endless (EN)
The Most Versatile Tuflex Roundsliding

Features, Advantages and Benefits

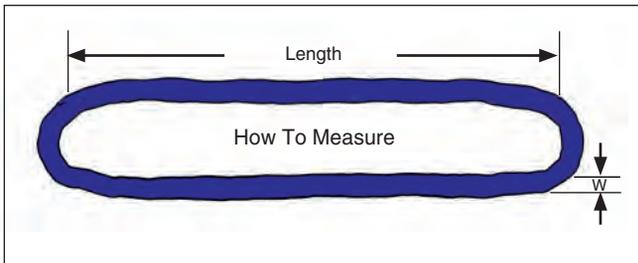
Maintains all the basic Tuflex features plus...

Promotes Safety

- Load stability and balance can be achieved by spreading sling legs.

Saves Money

- Wear points can be shifted to extend sling life
- The most flexible style of sling



Tuflex

Part No.	Color	Rated Capacity (lbs.)*				Minimum Length (ft.)	Approximate Measurements			
		Vertical	Choker	Basket @ 90°	Basket @ 45°		Weight (lbs. / ft.)	Body Dia. Relaxed (in.)	(W) Width at Load (in.)	Minimum Hardware Dia. ** (in.)
EN30	Purple	2,600	2,100	5,200	3,600	1 1/2	.2	5/8	1	7/16
EN60	Green	5,300	4,200	10,600	7,400	1 1/2	.3	7/8	1 3/8	5/8
EN90	Yellow	8,400	6,700	16,800	11,800	3	.5	1 1/8	1 3/4	3/4
EN120	Tan	10,600	8,500	21,200	14,000	3	.6	1 1/8	1 7/8	7/8
EN150	Red	13,200	10,600	26,400	18,000	3	.8	1 3/8	2	1
EN180	White	16,800	13,400	33,600	23,000	3	.9	1 3/8	2 1/8	1 1/8
→ EN240	Blue	21,200	17,000	42,400	29,000	3	1.3	1 3/4	2 5/8	1 3/16
→ EN360	Grey	31,000	24,800	62,000	43,000	3	1.7	2 1/4	3 1/4	1 1/2
EN600	Brown	53,000	42,400	106,000	74,000	8	2.8	2 3/4	4	2
EN800	Olive	66,000	52,800	132,000	93,000	8	3.4	3 1/8	4 5/8	2 1/8
EN1000	Black	90,000	72,000	180,000	127,000	8	4.3	3 5/8	5 1/4	2 1/2

* **WARNING** Do not exceed rated capacities. Sling capacity decreases as the angle from horizontal decreases. Slings should not be used at angles of less than 30°. Refer to Effect of Angle chart page 12.

** This is the smallest recommended connection hardware diameter to be used for a vertical hitch.

Crosby® Alloy Screw Pin Shackles

Load Rated®



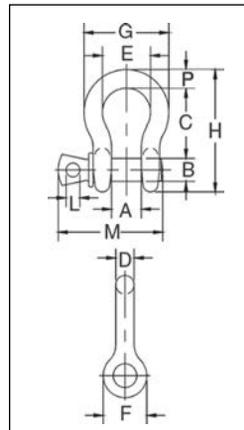
APPLICATION INSTRUCTIONS
SEE PAGE 89 OF THE GENERAL CATALOG

G-209A



G-209A Screw pin anchor shackles meet the performance requirements of Federal Specification RR-C-271F Type IVA, Grade B, Class 2, except for those provisions required of the contractor. For additional information, see page 444.

- Capacities 2 thru 21 metric tons. Meets performance requirements of Grade 8 shackles.
- Forged Alloy Steel – Quenched and Tempered, with alloy pins.
- Working Load Limit permanently shown on every shackle.
- Hot Dip Galvanized.
- Shackles can be furnished proof tested with certificates to designated standards, such as ABS, DNV, Lloyds, or other certification. Charges for proof testing and certification available when requested at the time of order.
- Approved for use at -40 degree C (-40 degree F) to 204 degree C (400 degree F).
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these shackles meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.



G-209A Crosby® Alloy Screw Pin Shackles

Nominal Size (in.)	Working Load Limit (t)*	G-209A Stock No.	Weight Each (lbs.)	Dimensions (in.)											Tolerance +/-	
				A	B	C	D	E	F	G	H	L	M	P	C	A
3/8	2	1017450	.31	.66	.44	1.44	.38	1.03	.91	1.78	2.49	.25	2.03	.38	.13	.06
7/16	2-2/3	1017472	.38	.75	.50	1.69	.44	1.16	1.06	2.03	2.91	.31	2.38	.44	.13	.06
1/2	3-1/3	1017494	.63	.81	.63	1.88	.50	1.31	1.19	2.31	3.28	.38	2.69	.50	.13	.06
5/8	5	1017516	1.38	1.06	.75	2.38	.63	1.69	1.50	2.94	4.19	.44	3.34	.69	.13	.06
3/4	7	1017538	2.35	1.25	.88	2.81	.75	2.00	1.81	3.50	4.97	.50	3.97	.81	.25	.06
7/8	9-1/2	1017560	3.61	1.44	1.00	3.31	.88	2.28	2.09	4.03	5.83	.50	4.50	.97	.25	.06
1	12-1/2	1017582	5.32	1.69	1.13	3.75	1.00	2.69	2.38	4.69	6.56	.56	5.07	1.06	.25	.06
1-1/8	15	1017604	7.25	1.81	1.25	4.25	1.16	2.91	2.69	5.16	7.47	.63	5.59	1.25	.25	.06
1-1/4	18	1017626	9.88	2.03	1.38	4.69	1.29	3.25	3.00	5.75	8.25	.69	6.16	1.38	.25	.06
1-3/8	21	1017648	13.25	2.25	1.50	5.25	1.42	3.63	3.31	6.38	9.16	.75	6.84	1.50	.25	.13

* Maximum Proof Load is 2 times the Working Load Limit (metric tons) and 2.2 times the Working Load Limit (short tons). Minimum Ultimate Strength is 4.5 times the Working Load Limit for metric tonnes, and 5 times the Working Load Limit for short tons. For Working Load Limit reduction due to side loading applications, see page 91.

Load Rated®



APPLICATION INSTRUCTIONS
SEE PAGE 89 OF THE GENERAL CATALOG

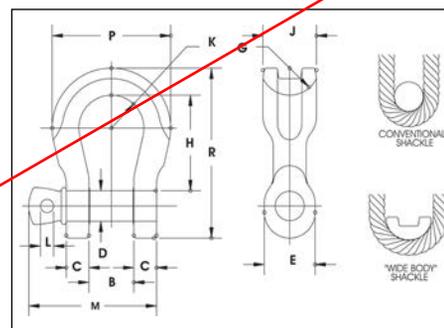
G-2169



S-2169



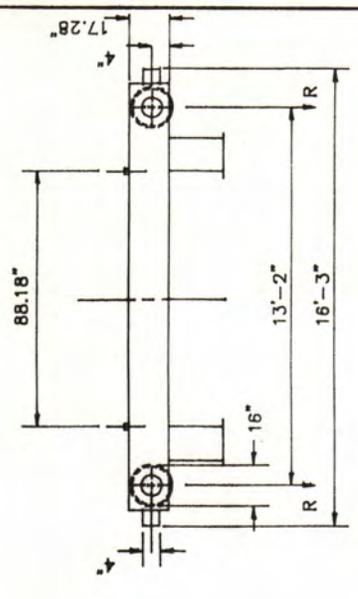
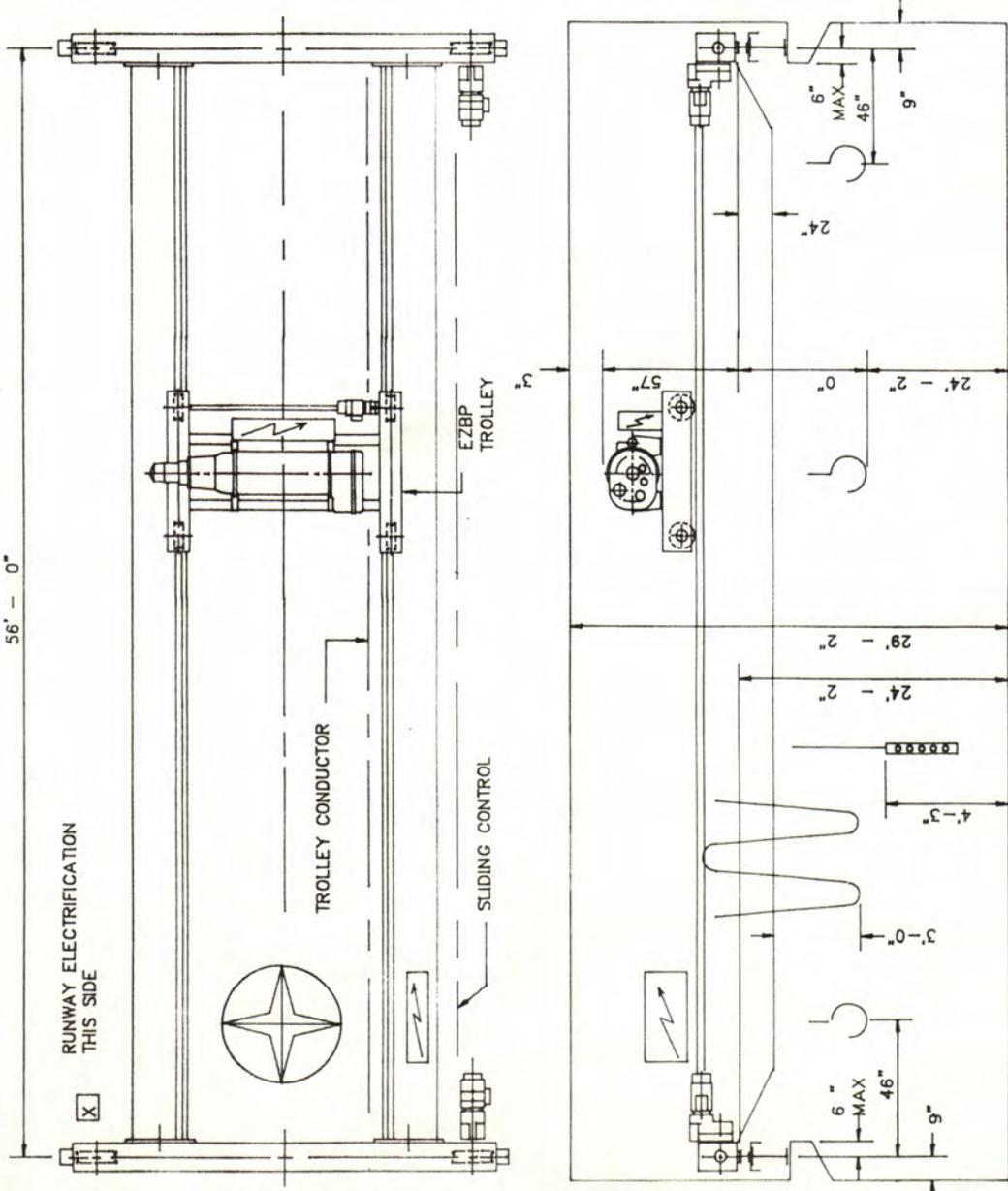
- Capacities of 7, 12.5 and 18 metric tons.
- Quenched and Tempered for maximum strength.
- Forged Alloy Steel.
- Available in galvanized and self colored finished.
- Individually proof tested and magnetic particle inspected. Crosby certification available at time of order.
- Meets or exceeds all requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements. Importantly, these shackles meet other critical performance requirements including fatigue life, impact properties and material traceability, not addressed by ASME B30.26.
- Look for the Red Pin®... the mark of genuine Crosby quality.



G-2169 / S-2169 Screw Pin "Wide Body" Shackles

Working Load Limit (t)*	G-2169 Stock No.	S-2169 Stock No.	Weight Each (lbs.)	Dimensions (in.)													
				B +/- .25	C	D +/- .02	E	G	H	J	K	L	M	P	R		
7	1021655	1021664	3.5	1.25	.69	.88	1.82	1.25	3.56	1.60	1.25	.50	3.97	4.10	5.87		
12.5	1021673	1021682	8.8	1.69	.92	1.13	2.38	1.37	4.63	2.13	1.63	.56	5.13	5.51	7.63		
18	1021691	1021699	13	2.03	1.16	1.38	2.69	1.50	5.81	2.50	2.00	.69	6.25	6.76	9.38		

* Ultimate Load is 5 times the Working Load Limit. Forged Alloy Steel. Proof Load is 2 times the Working Load Limit.



CRANE CAPACITY 20 TONS
TROLLEY TYPE EZBP
HOIST TYPE P1000H20L4/1F10
CRANE TRAVEL SPEED 160/40 FPM 2x 3.06 / .68 HP
TROLLEY TRAVEL SPEED 80/20 FPM 1x 1.29 / .32 HP
HOIST LIFTING SPEED 20/2 FPM 30/3.2 HP
ENDTRUCK TYPE KTL-BZ 400/4000
WHEEL LOAD R = 25578 LB
RUNWAY BEAM 40 LB A.S.C.E.
RAIL SIZE (ASCE) 200 FT
LENGTH OF RUNWAY 460/3/60
RUNWAY ELECTRIFICATION INDOOR
SERVICE 7268 LB
BOX GIRDER (1) WT. 4100 LB
ENDTRUCK (2) WT. 4950 LB
TROLLEY (1) WT. 23486 LB
SHIPPING WT.

REMARKS: IP-55 PACKAGE, NO DRIP SHIELDS

CUSTOMER	APPROVED
ROBERT ABEL & CO. P.O. BOX 2119 WOBURN, MA 01888	
JOB NO. 640587	SERIAL NO. 86042

UNLESS OTHERWISE SPECIFIED		CLASS. NO.	
STRUCTURAL FRAMES	±.125	IDENT. NO.	
MACHINED PARTS	±.01	F U.A. S SHT. OF	
ANGULAR DIMENSIONS	±.30	3 3 E	
ALL MACHINED SURFACES TO BE CONCENTRIC		REPLACED BY:	
DIAMETER MARKED TO BE CONCENTRIC		21362149	
WITHIN .003 T.I.R.		REPLACEMENT FOR:	
MANNESMANN DEAG Corporation Material Handling Div. Cleveland, Ohio		DESCRIPTION	
REV. REC.		ZKKE Installation Drawing	
M. FILM		TYPE	
1986		SCALE:	
DRAWN	DATE	INITIALS	
CHECKED	02-04	DHR	
APPR.	2-6		
DEPT. NO.		DEPT. CODE	
ORIGINATED FROM:		CLASSIFICATION:	
		SK AZ	

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