

Canadian  
Coast Guard

Garde côtière  
canadienne

TP12245E

**WEB SLING STANDARD**

Ship  
Safety  
Branch

Direction  
de la Sécurité  
des Navires

## CANADIAN COAST GUARD WEB SLING

### STANDARD TP12245E

#### INTERPRETATION

**Actual Load Allowed to be Lifted:** Is the resultant load derived by applying the hook mode and other mode factors to the SWL marked on the sling so that the prescribed Safety Factor is always maintained.

**The “basic configuration”:** of a sling for test purposes means configuration in its basic form as shown in the diagram below:-

Endless sling



Eye sling



**Hook Mode Factor:** The mode factor applied to the rated S.W.L. (based on Standard Pin Test) of a sling which is to be used on a curved hook profile that is not more severe than the Standard Hook profile.

$$\text{Hook Mode Factor} = \frac{\text{Standard Hook Test}}{\text{Standard Pin Test}}$$

**Minimum Specified Tensile Strength:** The minimum tensile strength for which the sewn webbing component has been designed. This has to be established by the “Standard Pin” test or “Manner of Use” test as required for the purpose of use.

**Mode Factor:** The factor that takes into account the geometry of the lift assembly, the multiplicity of parts, the appropriate lifting angles and any other stress effects such as choking.

**Multi-Use Sling:** A sling that is manufactured and approved for continuous general service use.

**One-Way Sling:** A sling that is manufactured and approved for one series of handling operations.

**Pin:** A pin is considered to have a straight profile and a load bearing surface which is fully and uniformly radiused over the width of the section of the pin.

**Radius of Curvature:** The minimum radius of curvature of the inner surface of the load bearing portion of the hook in profile in way of the sling.

**Representative Sling:** a sling representative of a production run or a batch of slings of the same type. For prototype testing and where reasonable a representative sling may be of different length than the production sling.

**Safe Working Load (S.W.L.):** means the lifting capacity in basic configuration or manner of use based on the results of the required tests that the sling can be marked for at the time of its manufacture in compliance with the required Safety Factor. In field use all mode factors applicable shall be applied to this rated Safe Working Load to obtain the actual load allowed to be lifted to ensure that the required Safety Factor shall always be maintained during a lift.

**Safety Factor:** the number of times that the load carried by a sling can be increased, before failure occurs.

**Bar Thickness** or **Section Thickness (T):** the maximum thickness of the load bearing surface when viewed in cross section. (In a straight pin the cross section thickness is the diameter).

**Standard Pin:** means a pin of 1½" diameter, circular in cross section in way of the sling bearing surface.

**Standard Hook:** means a hook of 1½" bar width, fully radiused cross section, and radius of curvature equal to half the width of the sling for which the hook factor is being evaluated.

### **Types of Inspections**

**Working Check:** Visual check just prior to use by the person using the sling. After inspection the slings may be placed directly on the load.

Dock check: Careful visual inspection by a competent person as required by owner/operator done at the terminal, prior to the time of use by persons working under direction.

Depot Check: Thorough visual inspection as required by owner/operator done by competent person. (Note: The words “depot check”, mean checked at the stevedore’s locker, or sling maker’s shop or at a place run by a person versed in that type of work, in Canada or abroad. A record shall be kept of the check.

**Ultimate Tensile Strength (U.T.S.):** the maximum force attained by the sewn webbing component when loaded in tension in the prescribed manner for load testing.

## **1. General**

- 1.0 Multi-use slings are to be manufactured tested, marked and otherwise comply with International Standard ISO 4878; one way slings shall similarly comply with BS1 Standard BS 3481 Part 3. Additional Canadian modifications/requirements are as contained herein and are to be complied with. The owner shall ensure that slings and lifting gear meet the requirements of the Tackle Regulations.
- 1.1 A batch shall comprise of a maximum of 500 slings.
- 1.2 At the manufacturing level minimum specified tensile strength of slings shall be determined based on a sufficiently large number of tests to reliably establish the least breaking strength of the sling, which would ensure satisfactory results when representative tests are taken during the production run and for certification purposes.
- 1.3 A safe working load initially established for a sling before use at the manufacturing level shall prevail throughout the life of that sling. Slings are not to be derated.

## **2. Certification**

- 2.0 A certificate, which identifies and reflects a batch of slings, shall be issued by the manufacturer, or an independent responsible organization for each batch of new slings. All relevant information required in this section shall be under one certificate.
- 2.1 Slings shall be provided with test certificates which contain the information shown on the example Canadian certificates shown in Appendices 1 or 2. The certificate shall give all relevant descriptions of the tests and shall always be available to the user. Tests shall be carried out by a responsible and competent person and the owner shall ensure this. Further information on the certificate shall be as per ISO.4878, with statement of conformity to Canadian requirements. (See Section 4.10)

### **3. Marking**

- 3.0 Slings shall be properly and durably marked with relevant information which shall be sufficient to identify them to their test certificate and the manufacturers. Each batch with up to 500 slings shall be separately shown on the test certificate together with the break test for the representative slings. Each batch of slings shall have a different mark. All the units in a batch of up to 500 slings, shall have the same mark.
- 3.1 In addition to the marking on the slings required by the ISO Standard, the batch number shall be included.

### **4. Testing**

- 4.0 To establish the breaking strength applicable to a class of slings at the time of manufacture, at least three representative slings are taken and tested to destruction one after the other, and the value of the lowest break is taken as the representative breaking strength for all of the slings of that manufacture, material and design.
- 4.1 For multi-use slings, production check tests of at least 1 per 500 slings manufactured, and more where required, shall be carried out to confirm that the required Safety Factor on the rated safe working load for that group is being met.
- 4.2 Except as provided in Section 4.3 & 4.9(f) all slings shall be tested before use and marked with the rated safe working load using a Safety Factor of not less than 6:1 for repeat use slings, based on the Standard Pin Test. This would allow the sling to be used on straight hooks that are fully radiused on the load bearing area and not more severe than the Standard Pin.
- 4.3 A Standard pin and/or Standard Hook Test is not required when the manner of use test has been carried out. (See Section 4.9(f)).
- 4.4 A sling test for establishing the S.W.L. shall be carried out in the straight basic configuration of the sling or manner of use. The breaking load so obtained when divided by the safety factor would yield the rated safe working load. In field use all mode factors such as those related to the sling bridle angle, or hook effect shall be applied to this rated safe working load to obtain the actual load allowed to be lifted to ensure that the required safety factor will be maintained during a lift.
- 4.5 A "Standard Pin Test" is made with the sling in a basic straight line or eye to eye configuration with at least one end on a 1½" diameter straight pin type anchor. The other end shall be on a larger pin. The 1½" diameter straight pin shall be fully radiused in the load bearing area and shall be referred to as "Standard Pin".

- 4.6 As an alternative to Manner of Use Test, a Hook Mode Factor may be established so as to permit the use of slings on a curved hook under prescribed conditions. (See Section 4.7)
- 4.7 A "Standard Hook Test" is made on a hook of 1.5 inches bar thickness, fully radiused in cross section and having a radius of curvature of half the sling width, at least 3 representative slings shall be consecutively tested to destruction and the least value found shall be used in conjunction with the standard pin test value for the same slings, to establish a ratio which will be referred to as the hook mode factor. The hook test described above would be referred to as the Standard Hook Test. The hook shall be referred to as the standard hook and denoted by "R½W 1.5"T".

R = Hooks radius of curvature at the sling bearing area

W = Width of the sling

T = Bar thickness of the cross section in the sling bearing area

$$\text{Hook Mode Factor} = \frac{\text{Standard Hook Test}}{\text{Standard Pin Test}}$$

- 4.8 For slings up to 4 inches in width the user may determine the maximum load allowed to be lifted on a curved hook that is not more severe than 1½" bar diameter, and radius of curvature not less than half the width of the sling, by applying the hook mode factor to the safe working load determined by the standard pin test. Where necessary other mode factors shall be applied in addition to the hook mode factor to accommodate bridle angle, choke effect or basket effect etc. to determine the actual load allowed to be lifted so that the appropriate safety factor shall always be maintained during the lift.
- 4.9 A Manner Of Use test shall be carried out under the following conditions:-
- (a) Slings of over 4 inches in width.
  - (b) Slings of unusual construction.
  - (c) Unusual sling-hook combination.
  - (d) When hook profile is more severe than the standard pin or standard hook.
  - (e) Slings of questionable quality or suitability.

- (f) When standard pin test and/or standard hook test have not been carried out.
- (g) Any other relevant condition.

4.10 For a Manner Of Use test, slings shall be tested to destruction on a hook profile identical to the hook in actual use. This shall be based on the least breaking strength of at least 3 consecutive tests of representative slings. Details including hooks radius of curvature, the bar thickness of the sling bearing surface and the description of the sling bearing surface shall be specified on the hook/sling test certificate. The test description shall also include stress raisers eg. corner effect, bridle effect etc. where required. Slings tested as such shall only be used on hook profiles not more severe than the test hook.

4.11 Mode factors shall be applied where required to the Manner Of Use test to obtain the actual load allowed to be lifted so that the appropriate Safety Factor shall always be maintained.

## **5. Inspection and Re-Testing**

Once a sling has been manufactured according to the aforementioned requirements and put into service, its longevity is determined by a large number of factors. Some of these include type of service, material of manufacture, exposure to materials and the elements, etc. Application of the provisions of this standard should be guided by the history of the slings in operational use with recognition of the factors involved.

### **5.0 Inspection of Slings Before Re-Use**

This concerns the large scale use of slings in cargo operations.

Types of Slings:

- 1) Disposable one way slings
- 2) Light slings (single ply webbing)
- 3) standard slings (multiple ply webbing)



**Types of Inspection:** This may consist of a working check a dock check or a depot check as outlined in the interpretation. Where during the normal course of such checks a sufficient number of slings in a group being inspected is found to warrant a more enhanced type check this should be carried out, for the whole group being inspected, as follows:

Degree of Inspection Required on Re-Use

Disposable Slings	- no inspection and no reuse
Light Slings	- dock check or where found necessary a depot check.
Standard Slings	- working check or where found necessary a dock check or depot check.

During the course of such checks or inspections, all slings found not to meet the requirements of the Wear Standards shall be culled.

**Re-Testing**

- 5.1 (a) Used slings are to be retested to destruction every four years to confirm their residual strength is within the Wear Standard limits and a certificate shall be issued accordingly, clearly identifying the slings tested and indicating that this is a re-test certificate. All other relevant information is to be indicated as per section 2, and 4.10 as applicable.
- (b) The number of slings re-tested to destruction shall be governed by the actual existing Safety Factor (S.F.) as follows:-
- |             |              |   |
|-------------|--------------|---|
| <u>S.F.</u> | 6 & above:   | 1 sling per year of same manufacturer, type and material  |
|             | 5 to 6:      | 3 slings per year of same manufacturer, type and material |
|             | less than 5: | 3 slings per 500 of same manufacturer, type and material  |
- (c) Used slings to be re-tested shall be the worst of the representative slings.

- 5.2 (a) When the safety factor of slings has fallen to the allowed safety for last voyage use, they are to be sprayed with a contrasting colour to the sling background colour to clearly identify the “last voyage” status.

A Certificate shall be issued indicating the following:

- (a) Title of certificate: “culling certificate”.
  - (b) Name of the Company culling, address, phone & fax number.
  - (c) Name of the owner.
  - (d) Number of slings culled.
  - (e) Identifying marks of the sling culled.
  - (f) Statement that the slings have been effectively culled.
  - (g) Spray “colour” that indicates last voyage status
  - (h) The date that the slings are to be removed from service at the end of voyage, depending on voyage length. [See Section 5.2(b)].
  - (i) The date the slings are delivered to the vessel.
  - (j) Any other relevant information.
- (b) The maximum time these slings can remain in service from the date of culling to the end of voyage shall not exceed 90 days.

- 5.3 When slings are tested and found to have reached the lower acceptable safety factor as contained in the Wear Standard, the whole batch of these slings is to be removed from service. If during testing, the breaking of an individual sling indicates the lower acceptable safety factor has been reached, three representative slings from the batch shall be taken and tested to destruction one after the other. The value of the lowest break is taken as the representative breaking strength for all the slings of that batch.

## **6. Operational Use**

- 6.0 If slings cannot be identified from the certificate issued or otherwise found to be deficient, they must be removed from service. It is the responsibility of the owner of the slings to verify that slings being utilized have an accompanying certificate giving all relevant information as per Sections 2, 4.10, and 5 as applicable.
- 6.1 Mode factors - i.e. sling configuration, type of hook etc. - to be considered when determining the actual load allowed to be lifted and this load shall not be exceeded in order that the required safety factor is always maintained.
- 6.2 When slings have reached the parameters contained in the Wear Standards they are to be removed from service.
- 6.3 Other than when used in conjunction with a lifting frame or bar, only two slings are to be used on each lift.
- 6.4 Dragging of load bearing slings should be avoided at all times.
- 6.5 Where practicable, all efforts shall be made to protect slings from the exposure to sun and chemicals, water and any other adverse conditions.
- 6.6 Sling bins shall always be lifted by appropriate lifting gear only.
- 6.7 During the deck loading, slings used on the outside wall units to be secured and appropriate precautions taken to ensure slings cannot foul the crane(s).
- 6.8 Only compatible hooks as prescribed in this Standard shall be used with web slings.
- 6.9 Sling angles are to be kept to the least possible at all times. Care is to be exercised to ensure that slings used at an angle from the vertical will not slip along the load. Appropriate allowance to be made for the stress due to the sling angle.
- 6.10 Certified slings may be required to be tested if safety concerns arise. Slings that do not meet the requirements of this standard shall be removed from service. (See Section 5)

6.11 Hooks used for web-sling operations shall:-

- (a) Have an identifying mark relating to the hooks proof test certificate. Hook certificate shall always be available to the user. The hook certificate shall give all relevant descriptions of the hook test and shall include breaking stress of the prototype, safety factor applied, bar thickness and the radius of curvature.
- (b) Be fully radiused in cross section in the web bearing area.
- (c)
  - i. The lifting surface of the hook shall be a straight bar form and have a diameter of at least 1½”.
  - ii. In lieu of subsection (c)i., slings may be used on hooks of forms other than of a straight bar form provided that they have been specifically matched by manner of use test or are used in accordance with the hook mode factor established for the sling.

6.12 In general, the use of a sling in conjunction with a hook shall be governed by the hooks radius of curvature and bar thickness. These provisions will ensure the prescribed safety factor of a sling is maintained at all stages of a lift.

6.13 Lap joints of cloverleaf slings shall be located at the bottom of the sling clear of the lifting loops and the lifting loops are to be equal in length to within two (2) percent.

## 7. **Repair**

7.0 Web slings shall not be structurally altered or repaired at this time.

**Note:** This standard has been drafted based on current experience and methods and the requirements of International Standards whereby structural alteration or repair of web slings is not permitted. This does not preclude the possibility of amending the standard in the future so as to allow structural alterations or repairs should methods evolve that would ensure that slings would retain an acceptable degree of safety after such alterations or repair. Any such alterations or repairs must be at least to the same standards as ordinary used slings in accordance with the Wear Standards.

**WEAR STANDARD**  
(Extracted from CCG "Wear Standards for Cargo Gear")

- 13.1 With respect to general deterioration, and where doubt exists as to the remaining strength of webbing or rope slings, then one or more sample slings representing the quality of the slings in question shall be tested to destruction. Obviously, poor slings should be culled out.
- 13.2 Where the safety factor is found to be:
- .1 4.5 or better; slings to remain in service without qualification.
  - .2 4.0 to 4.5; slings to be retired after current cargo operation is completed.
  - .3 less than 4; slings to be removed from service.

With respect to damage occurring on slings and provided that the above safety factors are maintained, the limits of acceptable wear are as follows:

- .1 Edge Damage - Maximum penetration of any actual cutting, not to exceed an amount equal to the thickness of the webbing.
- .2 Abrasion - This may be extensive in areas covering the whole width of the webbing and may be of sufficient depth to sever the surface cordage, particularly in multiple webbing. In any case, the penetration of the abrasion is not to exceed an approximate 15% of the thickness of the webbing, taken as a proportion of all plies. The abrasion, where it approaches the above limit should occur on one side of the webbing only, or proportionate wear on both sides.
- .3 Local Damage (a) Warp thread damage up to 50% of sling thickness but not extending to within 1/4 width of the edge, and damaged area not exceeding 1/4 width of the sling, or proportionately warp thread damage to full depth, but not extending to within 1/4 width of the edge, and damaged area not exceeding 1/8 width of the sling.

- (b) Weft thread damage allowing warp thread separation up to 1/4 width of sling - and extending in length not more than twice the sling width.
- .4 Reasonable combinations of the above types of damage of approximate equal total effect are acceptable.
- .5 Areas of damage reasonably separated should be considered independently.

APPENDIX 1

CERTIFICATE OF TEST



DEPARTMENT OF TRANSPORT  
MINISTÈRE DES TRANSPORTS

CERTIFICATE NO.  
CERTIFICAT N° 001-C.C.G.

APPENDIX 1

CERTIFICATE OF TEST  
AND EXAMINATION OF

CHAINS, RINGS, HOOKS, SHACKLES,  
SWIVELS AND PULLEY BLOCKS

(FORM PRESCRIBED UNDER THE REGULATIONS FOR THE PROTECTION AGAINST  
ACCIDENT OF WORKERS EMPLOYED IN LOADING OR UNLOADING SHIPS)

CERTIFICAT D'ESSAI  
ET VÉRIFICATION DE

CHAÎNES, ANNEAUX, CROCHETS, MANILLES,  
ÉMERILLONS ET POULIES

(FORMULE PRESCRITE PAR LE RÉGLEMENT CONTRE LES ACCIDENTS DES TRAVAILLEURS  
OCCUPÉS AU CHARGEMENT OU AU DÉCHARGEMENT DES NAVIRES)

DISTINGUISHING NO. OR MARK N° OU MARQUE DISTINCTIF	DESCRIPTION OF GEAR DESCRIPTION DE L'ENGIN *	NUMBER TESTED NOMBRE ESSAYÉ	DATE OF TEST DATE DE L'ESSAI	PROOF LOAD APPLIED CHARGE D'ÉPREUVE APPLIQUÉE (1)	SAFE WORKING LO- CHARGE PRATIQUE DE SÉCURITÉ (1)
<b>TEST OF SYNTHETIC FIBRE WEB SLINGS - NEW, AS PER CANADIAN COAST GUARD WEB SLING STANDARD</b>					
<b>A. STANDARD PIN TEST</b>					
4" DOUBLE PLY POLYESTER RING SLING 20' LONG (40' CIR). THREE (3) "REPRESENTATIVE" SLINGS HAVE BEEN TESTED TO DESTRUCTION ON A 1.5" DIAMETER STRAIGHT PIN (STANDARD PIN).					
<b>GROUP MARK</b>				<b>Breaking Load</b>	
AA2	Width	1	1.04:93	30.0 MT	5.0 MT (S.F.6:1)
AA3	D.P.P. Length 20' (Units 500)	1	" "	32.0	
AA4	" " " "	1	" "	31.0	
<b>OPTIONAL</b>					
<b>B. STANDARD HOOK TEST</b>					
ADDITIONALLY 3 "REPRESENTATIVE" SLINGS HAVE BEEN TESTED TO DESTRUCTION ON A "STANDARD HOOK (R <sub>1/2</sub> W 1.5" T). THE HOOK MODE FACTOR WHEN USED ON A HOOK NOT MORE SEVERE THAN THE STANDARD HOOK IS 0.85".					
EXAMPLE: IN THE CASE OF THE "STANDARD HOOK" THE RADIUS OF CURVATURE WOULD BE R <sub>1/2</sub> W IE. 1/2 X 4 2". THE BAR THICKNESS IS CONSTANT 1.5". THE ACTUAL LOAD ALLOWED TO BE LIFTED = 5.0 X 0.85 LES ANY OTHER MODE FACTOR(S) SUCH AS CHOKING BRIDLE EFFECT, ETC.					

\* THE DIMENSIONS OF THE GEAR, THE TYPE OF MATERIAL OF WHICH IT IS MADE AND, WHERE APPLICABLE, THE HEAT TREATMENT RECEIVED IN MANUFACTURE SHOULD BE STATED UNLESS FORM T8 (88-0101) IS USED FOR THIS PURPOSE.  
MENTIONNER LES DIMENSIONS DE L'ENGIN, LE GENRE DE MATERIAU AVEC LEQUEL IL EST FABRIQUÉ, ET S'IL Y A LIEU LE TRAITEMENT THERMIQUE QU'IL A RECU LORS DE LA FABRICATION, À MOINS QUE LA FORMULE T8 (88-0101) NE SOIT UTILISÉE DANS CE BUT.

10 METRIC TON OF 1000 KILOGRAMS - UNE TONNE METRIQUE DE 1000 KILOGRAMMES

	NAME - NOM	ADDRESS - ADRESSE
MAKERS OR SUPPLIERS FABRICANTS OU FOURNISSEURS	G.M.T.B. Slings Ltd.	1876 Richards Square, Vancouver, B.C. V6K 2L6 Ph: 604-222-0000 Telex: 604-222-X100 Fax: 604-222-XX01
PUBLIC SERVICE, ASSOCIATION, COMPANY OR FIRM MAKING THE TEST AND EXAMINATION SERVICE PUBLIC, ASSOCIATION, COMPAGNIE OU FIRME EFFECTUANT L'ESSAI ET LA VÉRIFICATION	Doyle Marine Industries	7166 Lucknow Ave. Vancouver, B.C. V7K 2L8 Ph: 604-202-0000 Telex: 604-222-X000 Fax: 604-222-0XXX

POSITION OF SIGNATORY  
FONCTION DU SIGNATAIRE Superintendent, Quality Control

I CERTIFY THAT ON THE \_\_\_\_\_ DAY OF \_\_\_\_\_, 19\_\_\_\_, THE ABOVE GEAR WAS TESTED AND EXAMINED BY ME IN THE MANNER SET FORTH ON THE REVERSE SIDE OF THIS CERTIFICATE, THAT THE EXAMINATION SHOWED THAT THE GEAR WITHSTOOD THE PROOF LOAD WITHOUT INJURY OR DEFORMATION, AND THAT THE SAFE WORKING LOAD ON THIS GEAR IS AS SHOWN IN COLUMN "SAFE WORKING LOAD".

J'ATTESTE QUE LES ENGIS DÉCRITS CI-DESSUS ONT ÉTÉ ESSAYÉS ET VÉRIFIÉS PAR MOI LE \_\_\_\_\_ JOUR DE \_\_\_\_\_, 19\_\_\_\_, DE LA MANIÈRE INDICUÉE AU VERSO DU PRÉSENT CERTIFICAT, QUE LA VÉRIFICATION A DÉMONTRÉ QUE LES ENGIS ONT SUBI LA CHARGE D'ÉPREUVE SANS AVARIE NI DÉFORMATION ET QUE LA CHARGE PRATIQUE DE SÉCURITÉ APPLIQUÉE À CES ENGIS EST CELLE QUI EST INDICUÉE À LA COLONNE "CHARGE PRATIQUE DE SÉCURITÉ".

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

## APPENDIX 2

## CERTIFICATE OF TEST

DEPARTMENT OF TRANSPORT  
MINISTÈRE DES TRANSPORTSCERTIFICATE NO  
CERTIFICAT N° 002-C.C.G.

## APPENDIX 2

CERTIFICATE OF TEST  
AND EXAMINATION OFCHAINS, RINGS, HOOKS, SHACKLES,  
SWIVELS AND PULLEY BLOCKS(FORM PRESCRIBED UNDER THE REGULATIONS FOR THE PROTECTION AGAINST  
ACCIDENT OF WORKERS EMPLOYED IN LOADING OR UNLOADING SHIPS)CERTIFICAT D'ESSAI  
ET VÉRIFICATION DECHAÎNES, ANNEAUX, CROCHETS, MANILLES,  
ÉMERILLONS ET POULIES(FORMULE PRESCRITE PAR LE RÉGLEMENT CONTRE LES ACCIDENTS DES TRAVAILLEURS  
OCCUPÉS AU CHARGEMENT OU AU DÉCHARGEMENT DES NAVIRES.)

DISTINGUISHING NO. OR MARK N° OU MARQUE DISTINCTIF	DESCRIPTION OF GEAR DESCRIPTION DE L'ENGIN *	NUMBER TESTED NOMBRE ESSAYÉ	DATE OF TEST DATE DE L'ESSAI	PROOF LOAD APPLIED CHARGE D'ÉPREUVE APPLIQUÉE (1)	SAFE WORKING LOAD CHARGE PRATIQUE DE SÉCURITÉ (1)
<b>TEST OF SYNTHETIC FIBRE WEB SLING - NEW, AS PER CANADIAN COAST GUARD WEB SLING STANDARD</b>					
<b>MANNER OF USE TEST</b>					
4½" DOUBLE PLY POLYESTER RING SLING 20' LONG (40' CIR). THREE (3) "REPRESENTATIVE" SLINGS HAV: BEEN TESTED TO DESTRUCTION IN A "MANNER OF USE TEST" ON A HOOK FORM, FULLY RADIUSED AT THE LOA: BEARING AREA, RADIUS OF CURVATURE 1.8" AND BAR THICKNESS 1.4"					
<b>Breaking Load</b>					
AA1	4½" D.P.P. Length 20'	1	1.04.93	27.0 MT	
AA1	" " " "	1	" "	24.0	4.0 MT
AA1	" " " "	1	" "	29.3	(S.F. 6:1)
NOTE: THIS MANNER OF USE TEST WOULD ALLOW THE SLING TO BE USED ON HOOKS NOT MORE SEVERE THAN THE HOOK DESCRIBED ABOVE. MODE FACTORS SUCH AS CHOKING BRIDLE EFFECT ETC. IF ANY SHALL B: APPLIED TO THE SWL TO OBTAIN THE ACTUAL LOAD ALLOWED TO BE LIFTED.					

\* THE DIMENSIONS OF THE GEAR, THE TYPE OF MATERIAL OF WHICH IT IS MADE AND, WHERE APPLICABLE, THE HEAT TREATMENT RECEIVED IN MANUFACTURE SHOULD BE STATED UNLESS FORM TB (86-019) IS USED FOR THIS PURPOSE.  
MENTIONNER LES DIMENSIONS DE L'ENGIN, LE GENRE DE MATÉRIAU AVEC LEQUEL IL EST FABRIQUÉ, ET S'IL Y A LIEU LE TRAITEMENT THERMIQUE QU'IL A REÇU LORS DE LA FABRICATION, À MOINS QUE LA FORMULE TB (86-019) NE SOIT UTILISÉE DANS CE BUT.

(1) METRIC TON OF 1000 KILOGRAMS - UNE TONNE MÉTRIQUE DE 1000 KILOGRAMMES

	NAME - NOM	ADDRESS - ADRESSE
MAKERS OR SUPPLIERS FABRICANTS OU FOURNISSEURS	G.M.T.B. Slings Ltd.	1876 Richards Square, Vancouver, B.C. V6K 2L6 Ph: 604-222-0000 Telex: 604-222-X100 Fax: 604-222-XX01
PUBLIC SERVICE, ASSOCIATION, COMPANY OR FIRM MAKING THE TEST AND EXAMINATION SERVICE PUBLIC, ASSOCIATION, COMPAGNIE OU FIRME EFFECTUANT L'ESSAI ET LA VÉRIFICATION	Doyle Marine Industries	7166 Lucknow Ave. Vancouver, B.C. V7K 2L8 Ph: 604-202-0000 Telex: 604-222-X000 Fax: 604-222-0XXX

POSITION OF SIGNATORY  
FONCTION DU SIGNATAIRE Superintendent, Quality Control

I CERTIFY THAT ON THE \_\_\_\_\_ DAY OF \_\_\_\_\_, 19\_\_\_\_,  
THE ABOVE GEAR WAS TESTED AND EXAMINED BY ME IN THE MANNER SET FORTH ON THE  
REVERSE SIDE OF THIS CERTIFICATE. THAT THE EXAMINATION SHOWED THAT THE GEAR WITH  
STOOD THE PROOF LOAD WITHOUT INJURY OR DEFORMATION; AND THAT THE SAFE WORKING  
LOAD ON THIS GEAR IS AS SHOWN IN COLUMN "SAFE WORKING LOAD".

J'ATTESTE QUE LES ENGIS DÉCRITS CI-DESSUS ONT ÉTÉ ESSAYÉS ET VÉRIFIÉS PAR M.  
LE \_\_\_\_\_ JOUR DE \_\_\_\_\_, 19\_\_\_\_, DE LA MANIÈRE  
INDIQUÉE AU VERSO DU PRÉSENT CERTIFICAT. QUE LA VÉRIFICATION A DÉMONTRÉ QUE L'  
ENGIS ONT SUBI LA CHARGE D'ÉPREUVE SANS AVARIE NI DÉFORMATION ET QUE LA CHARGE  
PRATIQUE DE SÉCURITÉ APPLIQUÉE À CES ENGIS EST CELLE QUI EST INDICUÉE À LA COLONNE  
"CHARGE PRATIQUE DE SÉCURITÉ".

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_



Chains, rings, shackles and other loose gear (whether accessory to a machine or not) shall be tested with a proof load equal to that shown against the article in the following table:

ARTICLE OF GEAR	PROOF LOAD
Chain, ring, hook, shackle or swivel.	100 per cent in excess of the safe working load
Pulley blocks- Single sheave block	300 per cent in excess of the safe working load
Multiple sheave block with safe load up to and including 20.32 t	100 per cent in excess of the safe working load
Multiple sheave block with safe load over 20.32 t up to and including 40.64 L	20.32 t n excess of the safe working load.
Multiple sheave block with safe load over 40.64 t.	50 per cent in excess of the safe working load
Pitched chains used with hand-operated pulley blocks and rings, hooks shackles or swivels permanently attached thereto	50 per cent in excess of the safe working load
Hand-operated pulley blocks used with pitched chains and rings, hooks, shackles or swivels permanently attached thereto	50 per cent in excess of the safe working load
<p>After being tested, all the gear shall be examined, the sheaves and the pins of the pulley blocks being removed for the purpose, to see whether any part has been injured or permanently deformed by the test.</p> <p>“Competent person” for the purpose of making these tests and examinations means,</p> <p>(a) a Steamship Inspector, an inspector of Ships’ tackle or a surveyor employed by one of the following classification societies, namely, Lloyd’s Register of Shipping, the Bureau Veritas, the American Bureau of Shipping or the Det Norske Veritas or the supervisor of any testing laboratory of the Government of Canada or of any Province, or any other person, company, firm or association approved by the Board of Steamship Inspection: or</p> <p>(b) a responsible person having the necessary and appropriate technical qualifications who is employed by a company or firm engaged in the manufacture or repair of the gear concerned.</p>	

Les chaînes, anneaux, crochets et autres engins détachés (faisant partie ou non des accessoires d'un appareil) seront soumis à la charge d'épreuve indiquée au tableau suivant:

ENGINS		CHARGE ÉPREUVE
Chaînes; anneaux, crochets, manilles ou émerillons		100 p. 100 de plus que la charge pratique de sécurité
Poulies:	Poulie à un réa	300 p. 100 de plus que la charge pratique de sécurité
	Poulies à plusieurs réas pour une charge sécurité allant jusqu'à 20.32 t inclusivement	100 p. 100 de plus que la charge pratique de sécurité
	Poulies à plusieurs réas pour une charge de sécurité allant de plus de 20.32 à 40.64 t inclusivement	20.32 t de plus que la charge pratique de sécurité
	Poulies à plusieurs réas pour une charge de sécurité de plus de 40.64 t	50 p. 100 de plus que la charge pratique de sécurité
Chaînes calibrées utilisées avec: les poulies actionnées à la main et les anneaux, crochets, manilles ou émerillons fixés à demeure		50 p. 100 de plus que la charge pratique de sécurité
Poulies actionnées à la main et utilisées avec les chaînes calibrées et les anneaux, crochets, manilles ou émerillons fixés à demeure.		50 p. 100 de plus que la charge pratique de sécurité

Après exécution des essais, vérifier tous les engins, les réas et axes des poulies étant démontés, afin de s'assurer qu'aucune pièce n'a subi d'avarie ni de déformation permanente au cours de l'épreuve.

Par «personne compétente» on entend, aux fins de ces essais et vérifications.

- a) un inspecteur de navires à vapeur, un inspecteur d'outillage de chargement ou un visiteur au service de l'une des sociétés de classification suivantes: le Lloyd's Register of Shipping, le Bureau Veritas, l'American Bureau of Shipping ou le Det Norske Veritas ou le surveillant d'un laboratoire d'essais du gouvernement du Canada ou d'une province, ou toute autre personne, compagnie, firme ou association approuvée par le Bureau d'inspection des navires à vapeur,
- b) une personne responsable possède les qualités techniques nécessaires et appropriées qui est au service d'une compagnie ou d'une firme qui construit ou répare les engins en question.