

CS90E-41

Cranes, lifting; Excavators, clamshell and dragline;
and Shovels, power

U. S. DEPARTMENT OF COMMERCE

JESSE H. JONES, Secretary

NATIONAL BUREAU OF STANDARDS

LYMAN J. BRIGGS, Director

**CRAWLER MOUNTED, REVOLVING POWER
SHOVELS, LIFTING CRANES, DRAGLINE AND
CLAMSHELL EXCAVATORS (EXPORT
CLASSIFICATIONS)**

COMMERCIAL STANDARD CS90E-41

Effective Date for New Orders from January 9, 1941



**A RECORDED VOLUNTARY STANDARD
OF THE TRADE**

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1941

PROMULGATION

of

COMMERCIAL STANDARD CS90E-41

for

CRAWLER MOUNTED, REVOLVING POWER SHOVELS,
LIFTING CRANES, DRAGLINE AND CLAMSHELL
EXCAVATORS (EXPORT CLASSIFICATIONS)

On June 6, 1940, a conference of representative manufacturers adopted a recommended commercial standard for crawler mounted, revolving power shovels, lifting cranes, dragline and clamshell excavators (export classifications). Those concerned have since accepted and approved for promulgation by the United States Department of Commerce, through the National Bureau of Standards, the standard as shown herein.

The standard is effective for new orders from January 9, 1941.

Promulgation recommended.

I. J. Fairchild,
Chief, Division of Trade Standards.

Promulgated.

Lyman J. Briggs,
Director, National Bureau of Standards.

Promulgation approved.

Jesse H. Jones,
Secretary of Commerce.

CRAWLER MOUNTED, REVOLVING POWER SHOVELS, LIFTING CRANES, DRAGLINE AND CLAMSHELL EXCAVATORS (EXPORT CLASSIFICATIONS)

COMMERCIAL STANDARD CS90E-41

PURPOSE

1. The purpose of this commercial standard is to set up definitions and requirements for fair competition and a better understanding between buyers and sellers of crawler mounted, revolving power shovels, lifting cranes, and dragline and clamshell excavators in export from the United States of America, and to provide a uniform basis for compliance through the use of labels or certificates.

SCOPE

2. This standard provides nomenclature, definitions, and requirements for crawler mounted, revolving power shovels, lifting cranes, and dragline and clamshell excavators. It covers shovel dipper capacities ranging from $\frac{3}{8}$ to $2\frac{1}{2}$ cubic yards, and crane sizes from $2\frac{1}{2}$ to 50 tons. It sets up uniform methods of taking dimensions and determining working ranges, power, line speeds, line pulls, crane sizes, and lifting capacities which are to be furnished for comparison of models offered by manufacturers for export from the United States of America. It also covers a uniform method of labeling or certifying compliance with the standard.

NOMENCLATURE AND DEFINITIONS

3. *Boom angle.*—The boom angle is the angle between the horizontal and a straight line drawn between the center of the boom socket or boom foot pin and the center of the boom point main hoist sheave pin.

4. *Boom—Base rating length.*—The base rating length of lifting booms on machines for lifting loads are as follows for machines having nominal shovel dipper capacities as indicated:

Shovel dip- per ca- pacity	Base rating length of boom ¹	Shovel dip- per ca- pacity	Base rating length of boom ¹
<i>Cubic yards</i>	<i>Feet</i>	<i>Cubic yards</i>	<i>Feet</i>
$\frac{3}{8}$	25	$1\frac{1}{4}$	45
$\frac{1}{2}$	30	$1\frac{1}{2}$	45
$\frac{3}{4}$	35	2	50
1	40	$2\frac{1}{2}$	60

¹ Other lengths are available over a wide range.

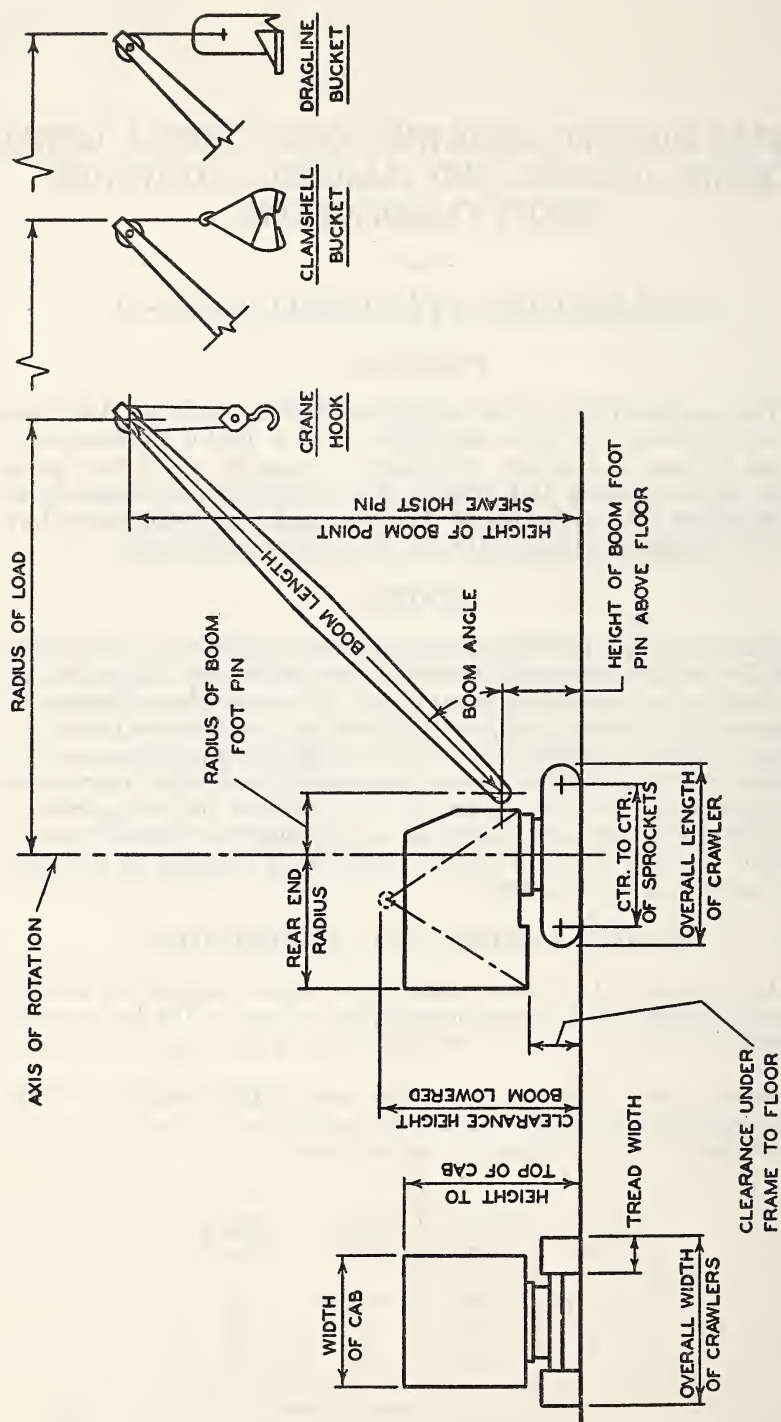


FIGURE 1.—Lifting crane, clamshell and dragline excavators.

5. *Boom length.*—The length of the boom is the straight-line distance in feet from the center of the boom foot pin to the center of the boom point main hoist sheave pin.

6. *Crawler bearing length.*—The length of the crawler bearing on the ground is computed as not more than the normal distance from center to center of the crawler end sprocket or tumbler wheels, plus 35 percent of the over-all crawler height at center of end sprocket or tumbler wheels. (This takes into account the bearing of about one additional pitch of the crawler shoes.)

7. *Governed engine speed.*—The governed engine speed is that speed at which the engine operates to develop full-load torque for that particular governor setting.

8. *Handled.*—The term "handled" shall comprise the lifting and swinging of rated loads through maximum arc of swing with the machine resting upon a firm, level, supporting surface.

9. *Least stable position.*—In determining the least stable position, the load shall be lifted with the machine resting upon a firm, level supporting surface, and the machine shall then be rotated in an arc about the axis of rotation of the machine with the load tied to the boom foot to prevent outward swing on rotation. The least stable position is the position of the boom in rotation which provides the minimum of stability. (Generally with the boom at right angles to the crawlers.)

10. *Line pull.*—The single line pull is the maximum pull in pounds at the drum, based on full-load torque at governed engine speed.

11. *Line speed.*—The line hoist speed is the speed in feet per minute of a single line based on the governed engine speed.

12. *Bail.*—The bail is a member which is sometimes used to attach the padlock or bail block or hoisting line to the dipper of the shovel.

13. *Crowding and retracting.*—Crowding and retracting are the functions of thrusting the dipper and the dipper stick (dipper handle) outward or inward.

14. *Padlock.*—The padlock, sometimes called bail block, is a sheave and its housing by which the hoist line is connected to the dipper, either directly or through a bail.

15. *Shovel.*—Shovel dimensions, working ranges, clearances, and terms, see figure 2 and paragraphs 37, 38, 39, 40, and 41.

16. *Shovel dipper capacity rating.*—The rated capacity of the shovel dipper shall be not more than the number of cubic yards, or fraction thereof, obtained by multiplying the mean height of the dipper by the inside cross-sectional area of the dipper at one-half the minimum height. A variation of two percent (2%) is allowed. The mean height is determined by taking one-half of the sum of the maximum and minimum heights of the dipper body including its minimum lip projection without teeth. If the dipper is of special shape, proper allowance shall be made for the increased or decreased volume.

17. *Crane, lifting.*—For lifting crane dimensions, capacities, speeds, and terms, see figure 1 and paragraphs 37 and 43.

18. *Crane size, lifting.*—The designated rating size of a lifting crane shall be expressed in short tons of 2,000 pounds, and shall not exceed the maximum rated load without the use of blocking or outriggers, at a radius of 12 feet from the center of rotation of the machine when it is equipped with the base rating length of boom. This 12-

foot radius is for rating purposes only, and may be more or less than the practical minimum operating radius.

19. *Lifting capacity—Lifting crane.*—The lifting capacity in pounds of a lifting crane in working order (cooling system full, fuel tank half full) at any given radius shall not exceed seventy-five percent (75%)

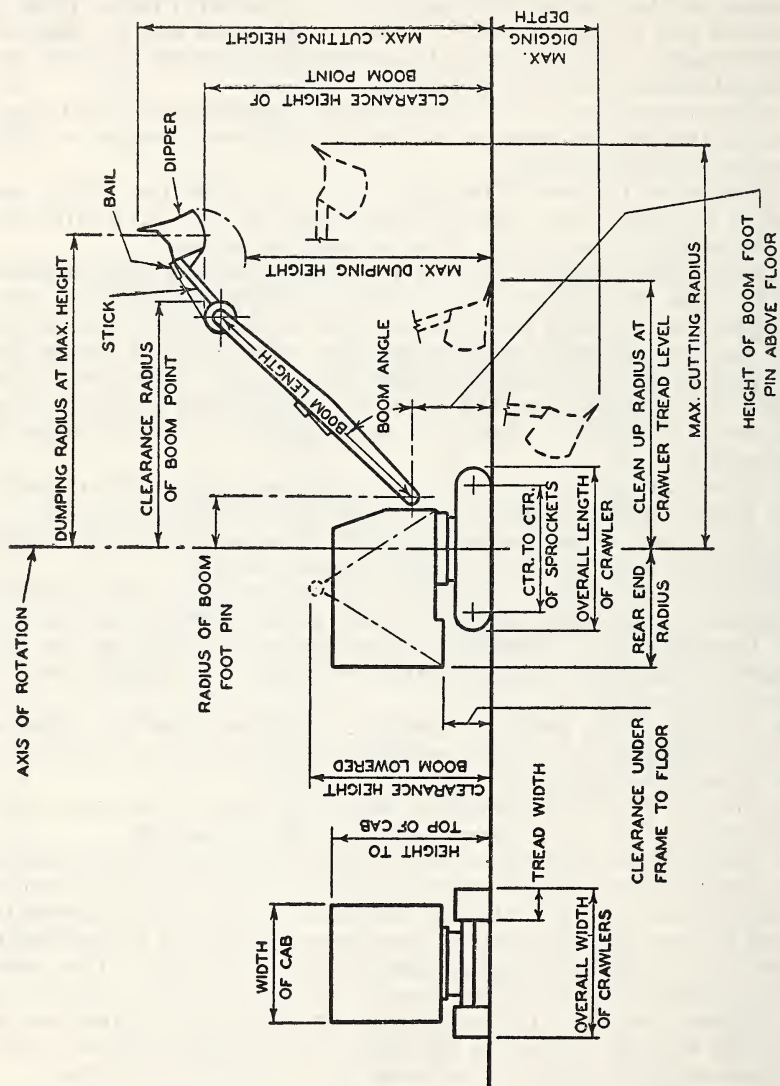


FIGURE 2.—Shovel dimensions and working ranges.

of the tipover load at the same radius when working without the use of blocking at the least stable position, with the machine standing on a firm, level, and uniformly even supporting surface.

20. *Lifting capacity—Net load.*—In determining the load that can be lifted at any given radius or in determining the radius at which a given load can be lifted, buckets, fall blocks, slings, equalizer beams, and all similarly used auxiliary load-handling devices shall be con-

sidered as part of the load. Purchaser shall make allowance for all special conditions; such as, for instance, soft or uneven or inclined supporting surface, and suction or sticking of material in a bucket.

21. *Lifting capacity—Tabulation.*—Each declaration of lifting capacity in pounds shall always be accompanied by a figure showing the corresponding load radius in feet. A table showing the lifting capacities at various corresponding radii fulfills this requirement.

22. *Radius of load.*—The radius of load is the horizontal distance from the axis of rotation of the machine to a plumb line through the center of gravity of the suspended load with the machine standing on a level surface. (The outward swing of the load due to fast operation will reduce the safety factor, and should be considered by the purchaser in determining the safe load.)

23. *Rated load.*—Same as lifting capacity.

24. *Tipover load.*—The tipover load at any given radius for crawler mounted types of lifting cranes with tight tread belts resting on a firm, level, and even supporting surface, shall be that load which overcomes the stability of the machine in the least stable direction, to the extent that fifty percent (50%) of the length of either crawler bearing on the supporting surface is lifted away from contact with the surface.

25. *Working radius.*—Same as radius of load.

26. *Dragline excavator.*—For dragline excavator dimensions, capacities, speeds, etc., see figure 1 and paragraphs 37, 43, and 44.

27. *Lifting capacity—Dragline or clamshell excavator.*—The rated lifting capacity of a dragline or clamshell excavator and the percentage of the tipover load on which it is based when working under the conditions described in paragraph 19 are to be stated by the manufacturer in his tender; see paragraphs 43 (d) and (e).

28. *Clamshell excavator.*—For clamshell excavator dimensions, capacities, speeds, and terms, see figure 1 and paragraphs 37 and 43.

GENERAL REQUIREMENTS

29. Requirements for Diesel, oil-, or gasoline-powered machines are given herein. Electric and steam-powered machines of similar ratings are also available.

30. All machines sold as conforming to this standard shall meet the following general requirements.

31. *Backward stability.*—To avoid excessive or unsafe counterweighting of machines and to insure proper backward stability when used as a lifting crane, dragline, or clamshell excavator, the center of gravity of any crawler-mounted type machine, resting on a firm, level, and uniformly even supporting surface, in working order (cooling system full, fuel tank half full), without load, with the base rating length of boom at its minimum working radius, shall not be farther from the axis of rotation than seventy percent (70%) of the radial distance from the axis of rotation to the tipping fulcrum in the least stable direction.

32. *Propulsion.*—Each machine shall be capable of propelling itself either forward or backward.

33. *Steering.*—Each machine shall be capable of being steered either way in either direction of travel.

34. *Controls*.—Complete control of the traveling and steering functions shall be from the operator's position in the cab.

35. *Traction lock or brake*.—A traction lock or brake shall be standard equipment.

36. *Climb*.—Each machine shall have sufficient propelling power to climb a 30 percent grade (30 ft rise in 100 ft horizontal) on smooth, firm, dry ground.

37. *Data*.—For each machine offered, the manufacturer shall furnish, for purposes of comparison, the general data indicated below:

- (a) Clearance height with boom lowered.
- (b) Height to top of cab.
- (c) Width of cab.
- (d) Rear end clearance radius of revolving frame.
- (e) Arc of swing, degrees.
- (f) Width of crawler treads.
- (g) Overall width of crawlers.
- (h) Overall length of crawler.
- (i) Length from center to center of crawler end sprocket or tumbler wheel shafts.
- (j) Approximate working weight.
- (k) Bearing area.
- (l) Developed brake horsepower of motor at governed speed, with statement as to whether horsepower ratings are with or without accessories.
- (m) Governed speed in revolutions per minute.

DETAIL REQUIREMENTS

SHOVEL

38. *Shovel sizes*.—The standard sizes of shovels (dipper capacity ratings) generally available from American manufacturers are as follows: $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2, and $2\frac{1}{2}$ cu yd. Other sizes are available.

39. *Dipper size*.—The shovel dipper shall be of such proportions that it will handle its rated capacity as defined in paragraph 16.

40. *Shovel working range*.—The working ranges and dimensions for shovels shall be given for a boom angle of 45° .

41. *Shovel data*.—For each power shovel offered, the manufacturer shall furnish, for purposes of comparison, the detail data indicated below, in addition to those required by paragraph 37:

- (a) Shovel dipper capacity in cubic yards.
- (b) Length of boom.
- (c) Length of stick (handle).
- (d) Maximum dumping height for 45° angle of boom.
- (e) Dumping radius at maximum height for 45° angle of boom.
- (f) Maximum dumping radius for 45° angle of boom.
- (g) Maximum cutting height for 45° angle of boom.
- (h) Maximum clean-up radius at crawler tread level for 45° angle of boom.
- (i) Maximum digging depth below floor level.
- (j) Dipper single line speed.
- (k) Dipper single line pull.

LIFTING CRANE AND DRAGLINE OR CLAMSHELL EXCAVATORS

42. *Boom length*.—The base rating boom length for lifting cranes and dragline and clamshell excavators shall be as shown in paragraph 4, and will be furnished unless other available lengths are specified.

43. *Lifting crane and excavator data*.—For each lifting crane, dragline, or clamshell excavator offered, the manufacturer shall furnish,

for purposes of comparison, the detail data indicated below, in addition to those required by paragraph 37:

- (a) Lifting crane size in short tons at 12-ft radius.
- (b) Length of boom.
- (c) Minimum practical operating radius.
- (d) Lifting capacities at 5-ft increments of radius for the length of boom offered.
- (e) Assumed ratio of lifting capacity to tipover load in percent.
- (f) Hoistline speed (single line).
- (g) Hoistline pull (single line).

44. *Dragline excavator data.*—For each dragline excavator offered, the manufacturer shall furnish, for purposes of comparison, the following detail data, in addition to those required by paragraph 43:

- (a) Dragline speed (single line).
- (b) Dragline pull (single line).

LABELING

45. The name of the manufacturer, model number, and serial number shall be shown in a conspicuous place in or on the machine.

CERTIFICATION

46. In order to assure the purchaser that he is receiving a power shovel, lifting crane, dragline, or clamshell excavator which complies with the requirements of this standard, it is recommended that a plate on the machine or a certificate to the purchaser bearing the following wording shall be furnished with each machine:

The manufacturer certifies that this machine complies with all requirements of Commercial Standard CS90E-41, as issued by the National Bureau of Standards of the United States Department of Commerce.

Name of manufacturer.

EFFECTIVE DATE

The standard is effective for new orders from January 9, 1941.

STANDING COMMITTEE

The following individuals comprise the membership of the standing committee, which is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Each organization nominated its own representative. Comment concerning the standard and suggestions for revision may be addressed to any member of the committee or to the Division of Trade Standards, National Bureau of Standards, which acts as secretary for the committee.

Bucyrus-Erie Co., South Milwaukee, Wis.

H. C. HETTELSATER, Harnischfeger Corporation, 4400 West National Avenue, Milwaukee, Wis.

A. E. HOLCOMB, Koehring Co., 3026 West Concordia Ave., Milwaukee, Wis.

G. H. OLSON, Link-Belt Speeder Corporation, 301 West Pershing Road, Chicago, Ill.

HARRY FIES, The Marion Steam Shovel Co., Marion, Ohio.

HISTORY OF PROJECT

On December 14, 1939, a conference of representative manufacturers, held in Chicago, Ill., indicated its interest in the establishment of a commercial standard for exports of power shovels and cranes. The conference reviewed a tentative draft which had been prepared by the National Bureau of Standards, and requested that it be redrafted along the lines of classifications rather than definite specifications.

Accordingly, a revised draft was prepared and submitted to interested manufacturers for comment. The Bureau of Foreign and Domestic Commerce cooperated in obtaining comment on this draft from Latin-American countries and from Canada, which was placed before the American manufacturers and which indicated that such a standard would be very helpful in bringing about better understandings between buyers and sellers.

A subsequent conference of representative manufacturers held in Chicago on June 6, 1940, adjusted the revised draft in detail, and recommended its circulation to the industry for written acceptance. The recommended commercial standard was accordingly circulated for written acceptance on June 18, and upon receipt of written acceptances by a satisfactory majority, Commercial Standard CS90E-41 as shown herein was promulgated in mimeographed form on November 9, 1940, to be effective for new orders from January 9, 1941.

ACCEPTANCE OF COMMERCIAL STANDARD

If acceptance has not previously been filed, this sheet properly filled in, signed, and returned will provide for the recording of your organization as an acceptor of this commercial standard.

Date_____

Division of Trade Standards,
National Bureau of Standards,
Washington, D. C.

Gentlemen:

Having considered the statements on the reverse side of this sheet, we accept the Commercial Standard CS90E-41 as our standard of practice in the production, labeling, and descriptions of *crawler mounted, revolving power shovels, lifting cranes, dragline and clamshell excavators (export classifications)*.

We will assist in securing its general recognition and use, and will cooperate with the standing committee to effect revisions of the standard when necessary.

Signature of individual officer ¹ _____
(in ink)

(Kindly typewrite or print the following lines)

Name and title of above officer_____

Organization _____
(Fill in exactly as it should be listed)

Street address_____

City and State_____

¹ Please file separate acceptances for all subsidiary companies and affiliates which should be listed separately as acceptors. In the case of related interests desiring to record their general approval, the words "in principle" should be added after the signature.

TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance:

1. *Enforcement.*—Commercial standards for exports are commodity specifications voluntarily established by mutual consent of those concerned. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but their provisions through usage soon become established as trade customs, and are made effective through incorporation into sales contracts by means of labels, invoices, and the like.

2. *The acceptor's responsibility.*—The purpose of commercial standards is to establish for specific commodities, nationally recognized grades or consumer criteria and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the commercial standard where practicable, in the production or exportation of the article in question.

3. *The Department's responsibility.*—The major function performed by the Department of Commerce in the voluntary establishment of commercial standards for exports on a Nation-wide basis is fourfold: first, to act as an unbiased coordinator to bring all interested parties together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers and exporters; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. *Announcement and promulgation.*—When the standard for exports has been endorsed by a satisfactory majority of production in the absence of active, valid opposition, the success of the project is announced. If, however, in the opinion of the standing committee or the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.

ACCEPTORS

The organizations and individuals listed below have accepted this recorded standard of the industry as their standard of practice in the production, labeling, and descriptions of crawler mounted, revolving power shovels, lifting cranes, dragline and clamshell excavators (export classifications). Such endorsement does not signify that they may not find it necessary to deviate from the standard, nor that producers so listed guarantee all of their products in this field to conform with the requirements of this standard. Therefore, specific evidence of compliance should be obtained where required.

American Hoist & Derrick Co., St. Paul, Minn.	Koehring Co., Milwaukee, Wis.
Bay City Shovels, Inc., Bay City, Mich.	Lima Locomotive Works, Inc., Shovel & Crane Div., Lima, Ohio.
Bucyrus-Erie Co., South Milwaukee, Wis.	Link-Belt Speeder Corporation, Chicago, Ill.
Byers Machine Co., The, Ravenna, Ohio.	Manitowoc Engineering Works, Manitowoc, Wis.
General Excavator Co., The, Marion, Ohio.	Marion Steam Shovel Co., The, Marion, Ohio.
Hanson Clutch & Machinery Co., The, Hanson Excavator Works Div., Tiffin, Ohio.	Michigan Power Shovel Co., The, Benton Harbor, Mich.
Harnischfeger Corporation, Milwaukee, Wis.	New York Testing Laboratories, Inc., New York, N. Y.
Hunt Co., Robert W., Chicago, Ill.	Osgood Co., The, Marion, Ohio.
Industrial Brownhoist Corporation, Bay City, Mich.	Thew Shovel Co., The, Lorain, Ohio.
Insley Manufacturing Corporation, Indianapolis, Ind.	Universal Power Shovel Corporation, West Allis, Wis.
	Waukesha Motor Co., Waukesha, Wis.

COMMERCIAL STANDARDS

CS No.	Item	CS No.	Item
0-40.	Commercial standards and their value to business (third edition).	50-34.	Binders board for bookbinding and other purposes.
1-32.	Clinical thermometers (second edition).	51-35.	Marking articles made of silver in combination with gold.
2-30.	Mopsticks.	52-35.	Mohair pile fabrics (100-percent mohair plain velvet, 100-percent mohair plain frieze, and 50-percent mohair plain frieze).
3-40.	Stoddard solvent (third edition).	53-35.	Colors and finishes for cast stone.
4-29.	Staple porcelain (all-clay) plumbing fixtures.	54-35.	Mattresses for hospitals.
5-40.	Pipe nipples; brass, copper, steel, and wrought iron.	55-35.	Mattresses for institutions.
6-31.	Wrought-iron pipe nipples (second edition). Superseded by CS5-40.	56-41.	Oak flooring (second edition).
7-29.	Standard weight malleable iron or steel screwed unions.	56E-41.	Oak flooring (exports).
8-41.	Gage blanks (third edition).	57-40.	Book cloths, buckrams, and impregnated fabrics for bookbinding purposes except library bindings (second edition).
9-33.	Builders' template hardware (second edition).	58-36.	Woven elastic fabrics for use in overalls (overall elastic webbing).
10-29.	Brass pipe nipples. Superseded by CS5-40.	59-39.	Woven dress fabrics—testing and reporting (second edition).
11-29.	Regain of mercerized cotton yarns.	60-36.	Hardwood dimension lumber.
12-40.	Fuel oils (fifth edition).	61-37.	Wood-slat venetian blinds.
13-39.	Dress patterns (second edition).	62-38.	Colors for kitchen accessories.
14-39.	Boys' button-on waists, shirts, junior and polo shirts (made from woven fabrics) (second edition).	63-38.	Colors for bathroom accessories.
15-29.	Men's pajamas.	64-37.	Walnut veneers.
16-29.	Wall paper.	65-38.	Wool and part-wool fabrics.
17-32.	Diamond core drill fittings (second edition).	66-38.	Marking of articles made wholly or in part of platinum.
18-29.	Hickory golf shafts.	67-38.	Marking articles made of karat gold.
19-32.	Foundry patterns of wood (second edition).	68-38.	Liquid hypochlorite disinfectant, deodorant, and germicide.
20-36.	Staple vitreous china plumbing fixtures (second edition).	69-38.	Pine oil disinfectant.
21-39.	Interchangeable ground-glass joints, stopcocks, and stoppers (fourth edition).	70-38.	Coal tar disinfectant (emulsifying type).
22-40.	Builders' hardware (nontemplate) (second edition).	71-38.	Cresylic disinfectants.
23-30.	Feldspar.	72-38.	Household insecticide (liquid spray type).
24-30.	Standard screw threads.	73-38.	Old growth Douglas fir standard stock doors.
25-30.	Special screw threads.	74-39.	Solid hardwood wall paneling.
26-30.	Aromatic red cedar closet lining.	75-39.	Automatic mechanical draft oil burners.
27-36.	Mirrors (second edition).	76-39.	Hardwood interior trim and molding.
28-32.	Cotton fabric tents, tarpaulins and covers.	77-40.	Sanitary cast-iron enameled ware.
29-31.	Staple seats for water-closet bowls.	78-40.	Ground-and-polished lenses for sun glasses (second edition) (published with 79-40).
30-31.	Colors for sanitary ware.	79-40.	Blown, drawn, and dropped lenses for sun glasses (second edition) (published with 78-40).
31-38.	Wood shingles (fourth edition).	80-41.	Electric direction signal systems other than semaphore type for commercial and other vehicles subject to special motor vehicle laws (after market).
32-31.	Cotton cloth for rubber and pyroxylin coating.	81-41.	Adverse-weather lamps for vehicles (after market).
33-32.	Knit underwear (exclusive of rayon).	82-41.	Inner-controlled spotlamps for vehicles (after market).
34-31.	Bag, case, and strap leather.	83-41.	Clearance, marker, and identification lamps for vehicles (after market).
35-31.	Plywood (hardwood and eastern red cedar).	84-41.	Electric tail lamps for vehicles (after market).
36-33.	Fourdrinier wire cloth (second edition).	85-41.	Electric license-plate lamps for vehicles (after market).
37-31.	Steel bone plates and screws.	86-41.	Electric stop lamps for vehicles (after market).
38-32.	Hospital rubber sheeting.	87-41.	Red electric warning lanterns.
39-37.	Wool and part wool blankets (second edition).	88-41.	Liquid-burning flares.
40-32.	Surgeons' rubber gloves.	89-40.	Hardwood stair treads and risers.
41-32.	Surgeons' latex gloves.	90E-41.	Crawler mounted, revolving power shovels, lifting cranes, dragline and clamshell excavators (export classifications).
42-35.	Fiber insulating board (second edition).	91-41.	Factory fitted Douglas-fir entrance door.
43-32.	Grading of sulphonated oils.		
44-32.	Apple wraps.		
45-40.	Douglas fir plywood (domestic grades) (fourth edition).		
45E-36.	Douglas fir plywood (export grades).		
46-40.	Hosiery lengths and sizes (third edition).		
47-34.	Marking of gold-filled and rolled-gold-plate articles other than watch cases.		
48-40.	Domestic burners for Pennsylvania anthracite (underfeed type) (second edition).		
49-34.	Chip board, laminated chip board, and miscellaneous boards for bookbinding purposes.		

NOTICE.—Those interested in commercial standards with a view toward accepting them as a basis of everyday practice may secure copies of the above standards, while the supply lasts, by addressing the Division of Trade Standards, National Bureau of Standards, Washington, D. C.



