

PROPOSEDCRANE CO.ENGINEERING PURCHASE SPECIFICATION
ENGINEERING AND RESEARCH DIVISIONNovember 20, 1942
Engineering Purchase
Specification No. 81

Sheet 1 of 3

"GRANITE" SHEET PACKING1 - SCOPE

These specifications cover compressed asbestos composition sheet packing known as "Granite", which is suitable for use as a gasket material on a wide variety of liquids and gases encountered in pressure-piping systems.

NOTE:

The name "Granite" is registered in the United States Patent Office.

PLAINTIFF'S
EXHIBIT
CRA-47

2 - DETAIL REQUIREMENTS

- (a) Packing shall be suitable for use on steam, water, oil, air, acids, ammonia, alkali, gasoline, gases and for temperatures up to 750 degrees F.
- (b) Sheets shall have a natural asbestos color, parallel smooth surfaces, uniform hardness and density. They shall be pliable, resilient and suitable for gaskets to prevent the leakage of fluids on pressure joints.
- (c) The finished sheet shall not be graphited or otherwise coated.
- (d) Sheets shall be cross-laminated, i.e., the plies are at right angles to each other. The plies shall be 1/64" thick.
- (e) The finished sheets shall be free from solvents used in the process of manufacture.
- (f) Every square foot of packing shall be plainly marked on one surface only in accordance with Crane Co. drawing. All marking shall be in Crane Orange. Color sample to be obtained from Crane Co.
- (g) Packing shall not deteriorate with age while in stock, and shall not cause objectionable corrosion of finished metal surfaces due to contact.
- (h) Material shall be suitable for cutting into gaskets by ordinary means.

3 - MATERIAL

- (a) Packing shall consist basically of an asbestos-rubber mixture together with other essential ingredients properly assembled and processed to produce a sheet which meets the requirements specified herein.
- (b) Packing which manufacturer proposes to furnish to these specifications must have the approval of the Underwriters' Laboratory (National Board of Fire Underwriters), Chicago, Illinois, for use on hazardous liquids.

4 - DIMENSIONS

Dimensions of sheets shall be as specified on purchase order, and thickness shall be within the following tolerances:

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4 - DIMENSIONS (Continued)

Thickness	Tolerances
1/64"	±.0015"
1/32"	±.003"
1/16"	±.006" (.062" to .067" thickness desired)
3/32"	±.009"
1/8"	±.012"
3/16"	±.012"
1/4"	±.012"

5 - PHYSICAL PROPERTIES (AT ROOM TEMPERATURE)

When tested in accordance with Section 6, packing shall have the following:

Tensile strength - Pounds per square inch - - - - - 4,500 Minimum
Compression strength - Pounds per square inch - - - - - 48,000 Minimum

(This test is only required on the sheets 1/16" thick.)

6 - TESTS

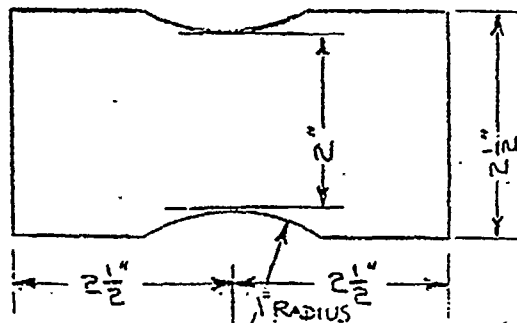
(a) Tensile Strength

Three specimens, of size and shape shown below Fig. 1, shall be cut longitudinal wise of the sheet (longitudinal) and three specimens at right angles thereto (transverse). Specimens shall be pulled* in tension at a rate not exceeding 0.4" per minute and the results obtained from the six specimens will be used to determine the tensile strength.

The breaking load is computed in pounds per square inch, using the smallest cross-sectional area at the breaking section of specimen.

If in any case the result of a single longitudinal or a single transverse specimen is below specification requirement, it will be discarded and a retest made. When the results of the six specimens are inconsistent, a retest of a complete set will be made.

*NOTE: The specimen should be aligned carefully so as to produce axial pull and avoid tearing.



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6 - TESTS (Continued)

(b) Compression Strength

Three specimens, each 3" square, shall be tested by forcing the raised face or compression ring (one square in area) of a special steel block against specimen as shown in Fig. 2 and noting the load required to crush the specimen.

The specimen shall be compressed at a rate not exceeding .09" per minute.

The compression strength shall be determined by the force required to collapse the packing in contact with the raised face.

If in any case the result of a single specimen is below specification requirements, it will be discarded and a retest made. When the results of the three specimens are inconsistent, a retest of the complete set will be made.

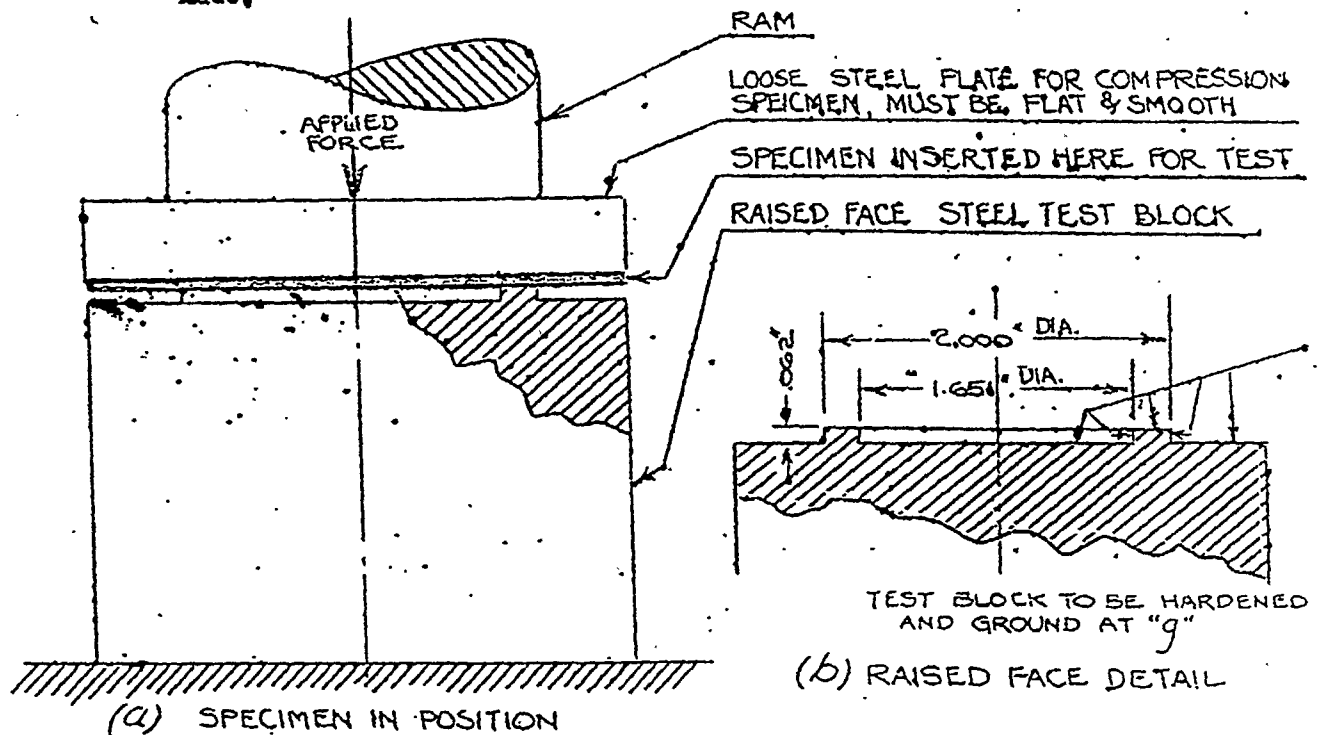


FIG. 2. (UNIT FOR COMPRESSION TEST)

IMPORTANT!

During the compression test it is very important that the applied load be perpendicular to the surface of the raised face on test block and that all horizontal surfaces of each member in the assembly Fig. 2 be flat, parallel and smooth.

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6 - TESTS (Continued)

(a) Weight Loss at Temperature

Three specimens, 3/4" wide x 5" long, shall be subjected to dry heat at a temperature of 900 degrees F. for a period of 24 hours. The weight loss shall not exceed 15%.

7 - WORKMANSHIP

Packing shall be free from imperfections and any injurious foreign particles.

8 - WEIGHT

The weights of the finished packing shall conform to the following:

Thickness	Pounds per Square Yard	
	Minimum	Maximum
1/64"	1.00	1.3
1/32"	2.2	2.7
1/16"	4.4	5.4
3/32"	6.6	8.1
1/8"	8.8	10.8
3/16"	13.2	16.2
1/4"	17.6	21.6

9 - PATENTS

The vendor must agree to defend any and all infringement suits in which Crane Co. and/or its customer is (are) made a defendant (or defendants) by reason of the sale and use of this material. Further, the vendor agrees that it shall pay all costs and expenses incident to any such litigations and, further, that it shall hold Crane Co. and/or its customers safe and harmless, absolutely and at all events, against all claims or demands of every kind to which Crane Co. and/or its customers may be subjected under the patent laws in connection with the sale and use of this material.

10 - INSPECTION (BY CRANE CO.)

Each shipment of material received shall be inspected by the Inspection and Metallurgical Departments for compliance with these specifications, and approved before releasing to the shop for use.

11 - REJECTION

Crane Co. reserves the right to reject any portion or all material purchased to these specifications which fails to conform to the requirements specified herein or which is found to have injurious defects during fabrication.

12 - PACKING FOR SHIPMENT

All material shall be suitably protected against damage during shipment and ordinary handling.

All material shall be properly separated by size and order number.

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12 - PACKING FOR SHIPMENT (Continued)

Sheets shall be packed in suitable containers so they can be handled conveniently at destination, and the weight of each package shall not exceed that specified on purchase order.

Each container shall be marked to designate:

Size and thickness of sheet.
Engineering Purchase Specification number.
Name of manufacturer.
Purchase order number.
Net weight.

13 - ORDERING

Orders should designate:

Size and thickness.
Quantity.
Engineering Purchase Specification No. WO-_____.
Maximum weight of package.
Purchase order number.

APPROVED BY:

WRITTEN BY:

Directing Engineer
Valve and Fitting Engineering Department

J. G. Cokal

Metallurgical Department

Standards Department
Manufacturing Research Division