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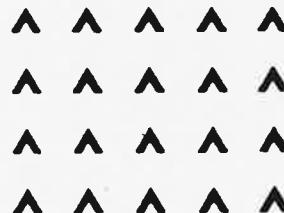
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**Log Scaling Procedures in Japan, Their
Relationship to Her Log Sources and
Influence on Trade Statistics**

1991

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ABSTRACT

Log measurement systems vary widely among different countries and regions within a country, sometimes with large and inconsistent differences. A lack of understanding of these systems and their differences can sour buyer-seller relationships and cause confusion for analysts who work with trade data.

Historically, major log trade flows have been between Japan and other countries, primarily the US for softwoods and southeast Asia for hardwoods. Recently, Japan's log sources have diversified to include New Zealand, Chile, and the USSR. This paper describes Japan's log measurement systems and traditional (*kokу*) and metric units of measure. It also presents information on log measurement systems in supplier countries and clarifies how these are treated and reported in Japan.

Acknowledgments

This study could not have been completed without the cooperation and help of many individuals in Japan and the United States who have been engaged in the log trade business or the art of log scaling. Much of the library research and background work was done by Mr. Slade Gleaton who was employed as a Graduate Research Assistant on this study. Ms. Nancye Iwata translated the two Japanese log scaling documents in Appendices A and B, which were indispensable in understanding log scaling practices in Japan.

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I. Introduction

Log measurement systems, both within and between countries that buy and sell timber, are both complex and inconsistent. The complexity is a reflection of the difficulty of describing the utility of wood to a consumer or when manufactured and placed in service. The fact that product outturn and performance may be quite different for pieces that have the same gross appearance adds to this complexity. Inconsistency occurs when identical pieces are assigned different measures of size, volume, or utility depending on the local measurements and customs, *i. e.*, the measuring (scaling) and grading systems used.

As wood products have increased in value, increased attention has been given to refining traditional measurement and grading systems to provide more accurate estimates of actual or potentially recoverable value. Many traditional systems remain or underlie modern systems. Their historical rationale and relationship to present markets and to each other is often unclear. Two such systems of importance to international trade in roundwood are the *koku* measure and metric systems for measuring logs in Japan and the Brereton, Scribner, and cubic systems used in the US. Both *koku* and Brereton have an extensive history of use but appear to have declined since World War II. As these have been replaced, it is unclear how relationships between Japanese and US log measures have changed and there is concern that historical time series reflecting log trade between these countries may be tainted by poorly understood and inconsistent conversion factors and less well known timing of changes among systems within each country. These effects could lead to distortions of trade analyses that rely on trade time series as their basis.

In addition to log trade with the US, Japan has acquired hardwood logs from the South Seas region and has diversified softwood log sources to include Chile, New Zealand, and the USSR. It is not clear what units of measure, scaling systems, and reporting mechanisms are used in expressing these log flows.

II. Objectives

The overall objective of this study was to estimate the effects of past use of the *ku* and Brereton log measurement systems on consistency of log trade statistics and to examine the nature and consistency of log measurement systems in Japan and her suppliers. Specific objectives are:

- 1. Japan Log Measurement.** Determine the details of application of *ku* measure in Japan and the products to which it is applied. Determine what systems, if any, have replaced this measure and when. Develop appropriate conversions between *ku* and modern measures. Determine the variations, if any, in Japanese log measurement systems.
- 2. US Log Measurement.** Determine the timing of transition from Brereton log measure to Scribner and determine if this change has an important influence on post-1960 log trade statistics.
- 3. Other Suppliers of Logs to Japan.** Determine the nature of log measurement systems for South Sea hardwood logs and softwoods from Chile, New Zealand, and the USSR. Discuss consistency between these systems and how they are reported in Japan.

III. Procedure

An intensive library search was conducted for materials describing the scaling systems and when and where they are applied. Given this background, scaling experts in the US and Japan were interviewed to clarify questions and gain further insights on the use of these systems and conversion factors. Two documents related to Japanese log scaling were obtained and translated (Appendices A and B).

IV. Results--Japan

A. *Koku* measure

The *koku* is part of an old, traditional Japanese measurement system (see Appendix B, p. 110). For example, the terms *shaku* and *sun* refer to distance measures. A *shaku* is 10 *sun*. In terms of other measurement systems, a *shaku* is

$$30.303 \text{ cm} \quad \text{or} \quad .303 \text{ m}$$

$$11.93 \text{ in} \quad \text{or} \quad .994 \text{ ft}$$

In the traditional Japanese system a *koku* is a measure of volume equivalent to 10 cubic *shaku*. If the equivalents of a *shaku* are substituted, one can calculate that

$$1 \text{ koku} = 0.2783 \text{ m}^3 \quad 1 \text{ m}^3 = 3.594 \text{ koku}$$

$$1 \text{ koku} = 9.82 \text{ ft}^3 \quad 1 \text{ ft}^3 = 0.1018 \text{ koku}$$

The *koku* measure could be used for any commodity, wood or otherwise. Its use in the wood products industry has been largely replaced by the change to the metric system in 1961 (Nakai 1990) but it is still used in certain locales and appears in some price reports.

Assuming 12 bf/ft³, the 9.82 ft³/koku converts to 117.84 bf/koku. This equivalent, rounded to either 118 or 120, appears frequently in various reports and trade journals. For example, articles in the *Japan Lumber Journal* often use 118, while the *Japan Lumber Reports* often use 120. In general, the only discrepancies among various sources using these basic conversions between the traditional and metric systems is the rounding employed.

These figures and conversions are also given by Freese (1974, p. 47), and *Japan Lumber Reports* (1989) and were verified by Sasabe (1990), Nakai (1990) and Fukabori (1990). Given the conversion to metric in 1961 and the consistent nature of conversions from the traditional system, it

is unlikely that Japanese forest products statistics include anomalies due to the switch to metric measures.

Appendix B (pp. 10-70) presents JAS log volume tables (see Section B.2 below) in cubic meters and *koku* by log diameter and length. These tables are based on the fact that $1\text{ m}^3 = 3.6\text{ koku}$. Similarly, pp. 97-98 convert directly between cubic meters and *koku* with this same conversion factor. Finally, p. 99 presents a list of price equivalents between m^3 and *koku*; *i.e.*, 1000 yen per m^3 is equivalent to 278 yen per *koku*.

B. Log Scaling Procedures

Log volumes in Japan are generally reported in cubic meters but one must be careful in interpreting reported volumes because of the following factors:

- Each country from which Japan purchases logs has its own unique log scaling system. While some yield volumes in cubic meters, they are not truly equivalent because of differences in measurement procedures and formulas used. In cases where the original scale is not in cubic meters, various conversion factors exist; these are often poorly documented.
- All logs that enter Japan are rescaled in cubic meters but Japan itself has four scaling systems: the South Sea Log (Brereton), the Hiragoku (also called Hirakoku or Heiseki), JAS, and United American Investigation forms (Appendix B, p. 91). As explained below, these yield different volumes for a given log.
- Depending on the source of logs, Japanese log buyers typically report on customs declarations the minimum of the seller's scale and the rescale in Japan. In other cases there is a standard conversion factor. This is an important consideration since the scale on the customs declaration is usually the basis for paying for transportation and any duties. The customs volume is the basis for summary statistics published by some Japanese agencies. Other agencies base their

statistics on log receipts reported by mills and there can be a substantial difference between the mill receipt volume and the volume reported in customs declaration.

The following sections provide a review of the scaling procedures used in Japan and by its suppliers and discuss the customs declaration strategy in each supplier case.

1. South Sea Log ("Brereton") Scale Hardwood logs from tropical Asian sources are scaled in the metric version of the subneiloid cubic formula. Since the Brereton scale in the US is also based on the subneiloid formula, this method of scaling tropical Asian hardwoods is sometimes referred to as "Brereton".

In this system (Appendix A, p. 107-110, Appendix B, p. 90), log scaling length (L) is measured in 20 cm intervals and rounded down (*i. e.*, 7.76 m --> 7.6 m). Scaling diameter (D) is derived as follows:

- measure the long and short axis on each end and round each down to 2 cm class (*i. e.*, 69.1 cm and 63.5 cm measures on one end become 68 and 62 respectively).
- average the two measures and record to 1 cm.
- average the above results for each log end and round down to 1 cm interval.

The volume is calculated as:

$$m^3 = (\pi/4)D^2L/0.0001 = 0.7854 D^2L/0.0001$$

Volumes so calculated are recorded to three places and are tabulated by diameter and length for convenient reference (Appendix A, p. 6-77).

The South Sea Log scale is reported by Japanese buyers on customs declarations for all tropical Asian hardwood logs. Logs are rescaled in this system when they enter Japan. It has been reported that the original and rescales are normally within 2-3% (Fukabori 1990).

2. JAS Scale This system was developed after World War II. It measures log scaling length in the same fashion previously described for South Sea logs. Scaling diameter estimation and volume calculations are different (Appendix A, p. 111-117, Appendix B, p. 73-76, 91). One difference is the resolution of log scaling diameter; for logs less than or equal to 14 cm (5.5 in), diameters are recorded in 1 cm classes while logs larger than 14 cm diameter are recorded in 2 cm classes. Thus a log 11.8 cm in diameter is scaled as 11 cm while a log 21.6 cm in diameter is scaled as 20 cm. Also, for logs larger than 14 cm there is a procedure for measuring scaling diameter of oval logs. First, the long and short axes are measured and each is recorded in the appropriate 2 cm class. Next the difference between these recorded measures is found. If the difference is

< 6 cm	add 0 cm to the short axis
= 6 cm	add 2 cm to the short axis
6 to 12 cm	add 4 cm to the short axis
12 to 18 cm	add 6 cm to the short axis

The adjusted short axis is the scaling diameter.

Volume in cubic meters is calculated as follows:

if the scaling length is ≤ 6 m

$$m^3 = D^2 L / 10000$$

if the scaling length is > 6 m

$$m^3 = (D - (INT(L)-4)/2)^2 L / 10000$$

where L = scaling length, m

D = scaling diameter, cm

INT(L) = scaling length rounded down to whole meter

The term $(INT(L)-4)/2$ is a taper adjustment that is 1 cm per meter of length. This is about 1 inch (0.96 inch exactly) per 8 feet.

Example: An oval log measures 9.73 m long and is 29.6 cm long axis and 20.3 cm short axis on the small end. Scaling length is 9.6 m. The axis measures become 28 and 20 cm respectively. Using the above rule, the difference is 8 cm so the scaling diameter is 20 + 4 or 24 cm. The volume is

$$m^3 = (24 + (9 - 4) / 2)^2 * 9.6 / 10000 = .674$$

Appendix A, p. 80-103 presents a tabulation of JAS volumes by diameter and length and Appendix B, p. 10-70 presents JAS volumes by diameter and length with equivalents in *koku* where 1 m³ = 3.6 *koku*.

3. Hiragoku (Hirakoku or Helseki) Scale This is a very old Japanese log scaling system that has been adapted to metric (Appendix B, p. 91, Fukabori 1990). Scaling length is in the same 20 cm intervals described previously and scaling diameter is the same as measured for South Sea Logs but is measured only at the small end. The volume in cubic meters is calculated as

$$m^3 = D^2 L / 10000$$

4. United American Investigation Form This rule (Appendix B, p. 91), was an attempt in 1968 to standardize scaling of American logs throughout Japan. It was never widely adopted and has only been used in Port Shimizu in Shizuoka Prefecture. It attempts to "refine" the JAS procedure for logs 6 m and longer as follows:

- logs > 60 cm diameter use the JAS form with taper adjustment
- logs 30 - 58 cm diameter use the formula

$$(D + (INT(L)-4)/2 * .8)^2 L / 10000$$

- logs < = 28 cm diameter replace the .8 by .6

All logs less than 6 m long use the short log JAS formula.

5. Comparison of Japanese rules The JAS rule is applied northeast of Nagoya and the Hiragoku southwest of Nagoya (Appendix B, p. 90, Sasabe 1990, Fukabori 1990).

Both the JAS and Hiragoku systems view the log as a square cant with a side equal to the small end scaling diameter. The main differences are the use of 1 cm diameter classes throughout the Hiragoku rather than the 1 and 2 cm classes in JAS and the taper adjustment for long logs in the JAS system. Compared to JAS, Hiragoku yields higher volumes for logs shorter than 6 m and lower volumes for logs that are 6 m or longer.

When viewed from the perspective of accurate measurement of the total wood fiber present in a log, Hiragoku is likely to underestimate the true volume since it always ignores log taper. The JAS rule compensates this in longer logs with its taper adjustment but may underestimate or overestimate the true volume depending on the difference between the assumed and actual taper.

Table 1 presents measurements of a random sample of logs. Although these logs happen to be Douglas-fir, they will be used to illustrate the Japanese rules and compare them to each other and to US rules. The bottom half of the table presents the scaling length in meters and scaling diameters and volumes for the JAS, Hiragoku and South Sea Log systems. Since all but the last log exceed 6 meters, JAS yields higher volumes than Hiragoku which does not have an adjustment for taper in long logs. For this particular sample, JAS scale exceeds Hiragoku by 17.6%. The South Sea Log scale is higher than JAS by 4.2% since it reflects actual taper rather than the JAS assumption of 1 cm/m and also uses a 1 cm rather than 2 cm diameter resolution.

Note that it is erroneous to directly compare the tabulated volumes of JAS and South Sea Log scales. For the same scaling diameter and length, the JAS gives a higher volume than found for the same scaling dimensions in the South Sea Log tables (see Appendix A). However, the JAS scale is based on a scaling diameter that reflects the small end of the log while the South Sea Log scale is based on a scaling diameter that reflects the average of both end diameters. Therefore, for the same scaling diameter, JAS is considering a much larger log.

Table 1. Comparison of Scribner, Cubic Task Force and Japanese Scales for a Log Sample

Diameter Small in	Large in	Length ft	Scribner		Task Force ft ³	Length m	JAS		Hiragoku		South Sea Log	
			West bf	East bf			Diam cm	Vol m ³	Diam cm	Vol m ³	Diam cm	Vol m ³
13.8	20.4	27.0	160	240	38	8.2	34	1.063	35	1.005	43	1.191
17.0	27.5	41.0	460	700	103	12.4	42	2.624	43	2.293	56	3.054
12.5	19.4	44.9	270	370	59	13.6	30	1.619	31	1.307	40	1.709
14.3	22.1	44.3	370	500	74	13.4	36	2.198	36	1.737	46	2.227
7.2	13.0	20.9	30	30	9	6.4	18	0.231	18	0.207	25	0.314
6.0	10.6	28.8	30	50	10	8.8	14	0.225	15	0.198	20	0.276
17.7	27.3	27.1	300	480	68	8.2	44	1.735	44	1.588	56	2.020
6.3	12.8	23.5	30	40	10	7.2	16	0.221	16	0.184	24	0.326
10.4	16.1	26.9	90	120	22	8.2	26	0.643	26	0.554	33	0.701
17.4	23.2	35.3	390	500	70	10.8	44	2.386	44	2.091	51	2.206
5.5	9.0	39.0	40	60	11	11.8	14	0.361	13	0.199	17	0.268
7.0	15.0	40.9	70	110	24	12.4	16	0.496	17	0.358	27	0.710
15.0	17.2	34.7	300	320	46	10.6	38	1.782	38	1.531	40	1.332
12.6	18.3	34.9	170	280	43	10.6	32	1.299	32	1.085	39	1.266
6.4	8.3	14.9	20	20	2	4.4	16	0.113	16	0.113	18	0.112
TOTAL			2730	3820	589			16.994		14.450	17.713	

C. Log Scaling by Japan's Log Sources

1. United States Softwood Logs Although logs leaving the US are scaled in West side (coast) Scribner, they are rescaled in Japan in either JAS or Hiragoku depending on whether they are imported Northeast or Southwest of Nagoya. However, the volume basis for customs declaration is neither the original Scribner scale nor the rescale. Rather, a conversion factor of $4000 \text{ m}^3 = 1000000 \text{ bf}$ Scribner ($4.0 \text{ m}^3/\text{mbf}$, Appendix B, p. 96) has been used for many years for customs declaration. Some Japanese agencies such as the Ministry of Trade and Industry report log statistics based on customs declarations. In these cases, the $4.0 \text{ m}^3/\text{mbf}$ is the appropriate factor to convert back to Scribner.

In contrast, other Japanese log statistics are based on mill receipts and the conversion factor in this case is reported to be $5.0 \text{ m}^3/\text{mbf}$ (Appendix B, p. 96). Therefore, customs declarations report only 80% of the Scribner volume reported as mill receipts. This differential may be even greater as Fukabori (1990) suggested that the true conversion is about $5.5 \text{ m}^3/\text{mbf}$.

In US terms note that:

$$2.36 \text{ m}^3/\text{mbf} = 424 \text{ bf/m}^3 = 12.0 \text{ bf/ft}^3$$

$$4.00 \text{ m}^3/\text{mbf} = 250 \text{ bf/m}^3 = 7.1 \text{ bf/ft}^3$$

$$5.50 \text{ m}^3/\text{mbf} = 182 \text{ bf/m}^3 = 5.1 \text{ bf/ft}^3$$

In general, one can convert from board feet per cubic foot to cubic meters per thousand board feet as follows:

$$\text{m}^3 \text{ per mbf} = 1000 / (\text{bf per ft}^3 * 35.313)$$

Figure 1 presents this relationship along with the customs declaration of $4.0 \text{ m}^3/\text{mbf}$. This figure shows that the relationship is sensitive to the character of the logs involved.

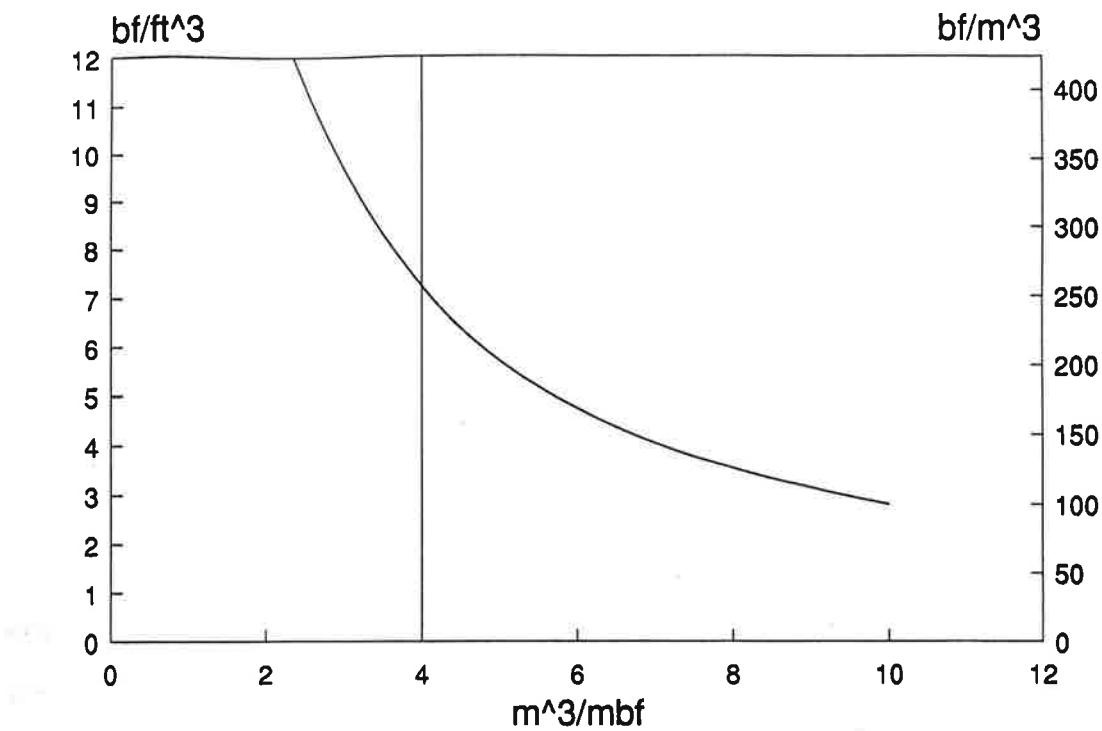


Figure 1: Conversion Factors: bf/ft^3 , bf/m^3 , and m^3/mbf

Table 1 also shows both West and East side Scribner scales and cubic foot scale according to the proposed Interagency Task Force Cubic scale (USDA 1978) for the random log sample. These logs have a total scale of 2730 BF west side and 3820 BF east side, 16.994 m^3 JAS and 589 cubic feet Task Force. The following tabulation summarizes ratios between total scales.

Numerator -->	West Scribner BF	East Scribner BF	JAS m^3	Task Force ft^3
West Scribner, BF	1.0	1.40	.0062	.216
East Scribner, BF	.71	1.0	.0044	.154
JAS, m^3	161.0	225.0	1.0	34.6
Task Force, ft^3	4.6	6.5	.0288	1.0

Examination of these ratios reveals some interesting observations.

- The ratio of .0062 JAS cubic meters per BF west side Scribner is the same as $6.2 \text{ m}^3/\text{mbf}$. This is 55% higher than the customs declaration of 4.0 that would be used for these logs and 24% higher than the mill receipt factor of $5.0 \text{ m}^3/\text{mbf}$. In fact, the smallest ratio of the individual logs in this sample is $5.6 \text{ m}^3/\text{mbf}$. This means that the real volume of wood fiber imported is underrepresented. Consequently, unit prices derived from official statistics based on either customs declarations or mill receipts are likely to be incorrect. It is likely that log conversion efficiencies calculated from these sources may be similarly incorrect. For this log sample, the customs declaration is would be much closer to reality if the logs were sold on their East side Scribner scale.
- The ratio of the JAS and Task Force cubic rules, $34.6 \text{ ft}^3/\text{m}^3$, differs from the theoretical value of 35.3 by about 2%. In practice, this difference could probably be ignored. For the Hiragoku and South Sea Log systems, the ratios to the Task Force cubic are 40.8 and $33.2 \text{ ft}^3/\text{m}^3$ respectively. These larger differences from the theoretical conversion simply reflect differences in measurement procedures used in the rules, especially taper, as well as fundamental differences between the formulas.

2. South Seas Hardwood Logs The South Sea Log scaling system previously described is generally used and this is the basis for customs declaration.

3. USSR Logs. The USSR scaling system "GOST" is briefly discussed in Appendix B, p. 94-95. The term GOST refers to an official standard similar to US ANSI standards. The pertinent USSR standard for log volume is GOST 2708-75 which contains volume tables by diameter and length (Tamminen 1979). GOST yields a volume in cubic meters that is about 10% below JAS rescale. The volume obtained with GOST is used as the basis for customs declaration.

4. New Zealand *Radiata* Pine Logs The local scale in New Zealand is Haakondahl (Appendix B, p. 95) and this is converted to JAS. Logs are rescaled in Japan with either JAS or Hiragoku and there is apparently little difference between the New Zealand conversion and the rescale. JAS is used as the basis of customs declaration (Fukabori 1990). Appendix B, p. 104-107 presents Haakondahl tables and conversions.

5. Chile *Radiata* Pine Logs Chile uses the JAS scaling system to measure logs sold to Japan and these are rescaled in Japan with little difference between the Chilean and rescales (Fukabori 1990). The JAS scale is the basis for customs declaration.

6. Summary In general customs declarations involve use of the scale with the minimum cubic volume and therefore underrepresents the total wood fiber present in a shipment. Consequently, Japanese trade statistics will report somewhat smaller volumes than seller countries. Further, while statistics within a particular log trade pathway seem to have been consistent for many years, volumes among different pathways (*i. e.*, USSR/Japan vs US/Japan) are not consistent. This could be a problem where statistics from different pathways have been aggregated and this inconsistency would be compounded by relative shifts among the pathways. The scaling/invoicing differences could distort the relative importance of the different paths.

Obviously, these customs declaration procedures are important to Japanese log buyers. Since these are the values invoiced for shipping, these "minimized" volumes help subsidize transportation costs. The difficulty for analysts in selling countries is probably not a lack of consistency within a trade flow but rather erroneous assumptions as to what the Japanese statistics represent. These would lead to incorrect conversion factors and derived log prices that do not make sense.

V. Results--US Shift from Brereton to Scribner

Aside from descriptions of the basis of the Brereton formula (the subneiloid cubic foot volume formula multiplied by 12 bf/ft³) and procedures for taking measurements, little information was found

in a library search on the history of its use and the degree to which it has been abandoned. Since this approach proved fruitless, an attempt was made to interview people associated with log scaling and the log trading business.

There seems to be a general consensus that Brereton was the log rule used for scaling export logs from the Pacific Northwest before World War II. After World War II, Brereton was rapidly abandoned in favor of West side Scribner. By 1961 Scribner scaling almost completely dominated. However, there are occasional situations where Brereton is still used. For example, Turkey and India were cited as cases where export logs are scaled in Brereton. Since these markets are quite small, the overall impact in aggregate statistics should be minimal.

The only other case where Brereton is sometimes used is by the stevedoring firms. Anyone using data from stevedoring firms may encounter volume statistics based on Brereton or some conversion to this scale.

VI. Summary and Conclusions

The objectives of this study were to understand and clarify Japan's traditional unit of measure (*koku*), her log scaling systems and their relationship to seller countries and to document the conversion from Brereton to Scribner scaling of export logs in the US.

With respect to Japan, it was found:

1. *Koku* is a term that originates from a traditional system of measures. Just as other cultures developed measures of distance, area, volume and weight, Japan developed its own system (Appendix B, p. 110). *Koku* is part of this system and is a measure of volume. Conversions to metric and English measures are straightforward. A cubic meter is 3.6 *koku* and a cubic foot is 0.102 *koku*. With the assumption of 12 board feet per cubic foot, a *koku* is 118 or 120 board feet depending on rounding.

2. Although references to the traditional measures still occur, Japan officially converted to metric in 1961.
3. All log volumes in Japan are in cubic meters but one must be aware of the three main systems for log scaling; the "Brereton" variation for South Sea Logs, the Hiragoku, and the JAS. As these do not give the same volume for a log, one must be aware of the log source to which each is applied. Table 2 presents summary statistics (mean, standard deviation and coefficient of variation) for ratios between various log scales applied to the log sample in Table 1. The great degree of variation and hence caution in assuming that any particular constant ratio is always valid is clearly evident. Numbers in this table may not exactly match values presented earlier in this paper. This difference is due to the effect of using individual logs in Table 2 while previous ratio comparisons were based on using total volumes.
4. Official statistics published by some Japanese agencies are based on volumes reported on customs declarations. The volume declared for most sources is typically the minimum of the seller's scale and the scale that would be obtained by the appropriate rule in Japan. In the case of US softwoods, a standard conversion factor of 4.0 m³/mbf West side Scribner is normally used. Thus it is important to distinguish between the volumes that occur among buyer and seller in a transaction and the customs declaration. However, other agencies base their statistics on receipts by Japanese mills and a conversion factor of 5.0 m³/mbf is commonly used in this case.

Therefore, there can be substantial differences between agencies in their reports of imported log volume from the US.

Table 2. Summary statistics of log rule ratios for sample logs in Table 1. The three values for each comparison are the average ratio, standard deviation and coefficient of variation.

	West Scribner bf	East Scribner bf	Task Force ft ³	JAS m ³	Hiragoku m ³	South Sea Log m ³
West Scribner bf	x x x	0.74 0.13 17%	4.58 1.73 38%	151.00 20.09 13%	180.16 21.46 12%	142.99 35.06 25%
East Scribner bf	1.38 0.21 15%	x x x	6.11 1.54 25%	207.69 36.97 18%	249.32 48.09 19%	195.02 42.19 22%
Task Force ft ³	0.241 0.066 28%	0.175 0.048 28%	x x x	35.47 7.6 21%	42.95 11.13 26%	32.46 4.74 15%
JAS m ³	0.0067 0.00096 14%	0.005 0.00099 20%	0.0299 0.0084 28%	x x x	1.21 0.18 15%	0.94 0.19 20%
Hiragoku m ³	0.0056 0.00069 12%	0.0042 0.00098 23%	0.0255 0.0094 37%	0.84 0.10 12%	x x x	0.79 0.16 20%
South Sea Log m ³	0.0074 0.0019 25%	0.0055 0.0017 31%	0.0318 0.0069 22%	1.10 0.21 19%	1.32 0.27 21%	x x x

With respect to use of Brereton board feet in the US:

1. Brereton scale was quickly abandoned in favor of coast Scribner following World War II.
2. Brereton is occasionally used for logs exported to some markets but these volumes are only a tiny fraction of today's export business. Brereton is also used by some stevedoring companies. Thus it is important to inquire whether Brereton is involved when a new or small log market is being examined or if data from stevedoring firms is used.

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Appendix A

Translation by Nancye Iwata

Imported Wood Scaling Tables

	Page
South Sea Logs	
$\frac{F}{K} \propto L^x$ = length 1.00 - 8.80 m	(6)
length 9.00 - 15.00 m	(42)
Other than South Sea Logs (JAS)	
length 1.00 - 7.80 m	(80)
length 8.00 - 15.00 m	(92)
Scaling the Volume of Imported Logs	(107)

NOTE: Source document pagination is indicated in translated text by: ----- (#) -----

長さ (m)	最大 1.00 ~ 8.80 m 平均径 1 ~ 7 cm						
	1	2	3	4	5	6	7
1.00	0.000	0.000	0.001	0.002	0.003	0.004	
1.20	0.000	0.000	0.001	0.002	0.003	0.005	
1.40	0.000	0.000	0.001	0.002	0.003	0.004	
1.60	0.000	0.000	0.001	0.002	0.003	0.005	
1.80	0.000	0.000	0.001	0.002	0.004	0.005	
2.00	0.000	0.000	0.001	0.003	0.004	0.006	0.008
2.20	0.000	0.000	0.001	0.002	0.003	0.006	0.009
2.40	0.000	0.000	0.001	0.002	0.003	0.005	0.007
2.60	0.000	0.000	0.001	0.002	0.003	0.005	0.007
2.80	0.000	0.000	0.001	0.002	0.004	0.005	0.008
3.00	0.000	0.000	0.001	0.002	0.004	0.006	0.008
3.20	0.000	0.000	0.001	0.002	0.004	0.006	0.009
3.40	0.000	0.000	0.001	0.002	0.004	0.007	0.010
3.60	0.000	0.000	0.001	0.003	0.005	0.007	0.010
3.80	0.000	0.000	0.001	0.003	0.005	0.007	0.011
4.00	0.000	0.000	0.001	0.003	0.005	0.008	0.012
4.20	0.000	0.000	0.001	0.003	0.005	0.008	0.012
4.40	0.000	0.000	0.001	0.003	0.006	0.009	0.012
4.60	0.000	0.000	0.001	0.003	0.006	0.009	0.013
4.80	0.000	0.000	0.001	0.003	0.005	0.008	0.015
5.00	0.000	0.000	0.002	0.004	0.006	0.008	0.012
5.20	0.000	0.000	0.002	0.004	0.007	0.010	0.015
5.40	0.000	0.000	0.002	0.004	0.007	0.011	0.015
5.60	0.000	0.000	0.002	0.004	0.007	0.011	0.016
5.80	0.000	0.000	0.002	0.004	0.007	0.011	0.016
6.00	0.000	0.000	0.002	0.004	0.008	0.014	0.019
6.20	0.000	0.000	0.002	0.005	0.008	0.012	0.018
6.40	0.000	0.000	0.001	0.002	0.005	0.011	0.015
6.60	0.000	0.000	0.001	0.002	0.005	0.008	0.013
6.80	0.000	0.000	0.001	0.002	0.005	0.009	0.013
7.00	0.000	0.000	0.002	0.005	0.009	0.014	0.020
7.20	0.000	0.000	0.002	0.005	0.009	0.014	0.020
7.40	0.000	0.000	0.002	0.005	0.008	0.013	0.019
7.60	0.000	0.000	0.001	0.002	0.005	0.011	0.016
7.80	0.000	0.000	0.001	0.002	0.006	0.010	0.015
8.00	0.000	0.000	0.001	0.002	0.005	0.009	0.014
8.20	0.000	0.000	0.001	0.003	0.006	0.010	0.016
8.40	0.000	0.000	0.001	0.003	0.006	0.011	0.017
8.60	0.000	0.000	0.001	0.003	0.006	0.011	0.017
8.80	0.000	0.000	0.001	0.003	0.006	0.011	0.025

(6)

長さ (m)	最大 1.00 ~ 8.80 m 平均径 8 ~ 14 cm						
	8	9	10	11	12	13	14
1.00	0.005	0.006	0.008	0.010	0.011	0.013	0.015
1.20	0.006	0.007	0.009	0.011	0.013	0.016	0.018
1.40	0.008	0.010	0.013	0.015	0.018	0.021	0.025
1.60	0.009	0.011	0.014	0.017	0.020	0.024	0.028
1.80	0.010	0.013	0.016	0.019	0.023	0.027	0.031
2.00	0.011	0.014	0.017	0.021	0.025	0.029	0.034
2.20	0.012	0.015	0.019	0.023	0.027	0.032	0.037
2.40	0.013	0.017	0.020	0.025	0.029	0.035	0.040
2.60	0.014	0.018	0.022	0.027	0.032	0.037	0.043
2.80	0.015	0.019	0.024	0.029	0.034	0.040	0.046
3.00	0.016	0.020	0.025	0.030	0.036	0.042	0.049
3.20	0.017	0.022	0.027	0.032	0.038	0.045	0.052
3.40	0.018	0.023	0.028	0.034	0.041	0.048	0.055
3.60	0.019	0.024	0.030	0.036	0.043	0.050	0.058
3.80	0.020	0.025	0.031	0.038	0.045	0.053	0.062
4.00	0.021	0.027	0.033	0.040	0.048	0.056	0.065
4.20	0.022	0.028	0.035	0.042	0.050	0.058	0.068
4.40	0.023	0.030	0.036	0.044	0.052	0.061	0.071
4.60	0.024	0.031	0.038	0.046	0.054	0.064	0.074
4.80	0.025	0.032	0.039	0.048	0.057	0.066	0.077
5.00	0.026	0.033	0.041	0.049	0.059	0.069	0.080
5.20	0.027	0.034	0.042	0.051	0.061	0.072	0.083
5.40	0.028	0.036	0.044	0.053	0.063	0.074	0.086
5.60	0.029	0.037	0.046	0.055	0.066	0.077	0.089
5.80	0.030	0.038	0.048	0.057	0.068	0.080	0.092
6.00	0.031	0.039	0.049	0.059	0.070	0.082	0.095
6.20	0.032	0.041	0.050	0.061	0.072	0.085	0.099
6.40	0.033	0.042	0.052	0.063	0.075	0.088	0.102
6.60	0.034	0.043	0.053	0.065	0.077	0.090	0.105
6.80	0.035	0.045	0.057	0.067	0.079	0.093	0.108
7.00	0.036	0.046	0.058	0.068	0.081	0.096	0.111
7.20	0.037	0.047	0.058	0.070	0.084	0.098	0.114
7.40	0.038	0.048	0.060	0.072	0.086	0.101	0.117
7.60	0.039	0.050	0.061	0.074	0.088	0.104	0.120
7.80	0.040	0.051	0.063	0.076	0.090	0.106	0.123
8.00	0.041	0.052	0.064	0.078	0.093	0.109	0.126
8.20	0.042	0.053	0.066	0.080	0.095	0.111	0.129
8.40	0.043	0.055	0.068	0.082	0.097	0.114	0.132
8.60	0.044	0.056	0.069	0.084	0.100	0.117	0.135
8.80	0.045	0.057	0.070	0.086	0.104	0.120	0.140

(7)

長さ (m)	最大 1.00 ~ 8.80 m 平均径 8 ~ 14 cm						
	8	9	10	11	12	13	14
1.00	0.005	0.006	0.008	0.010	0.011	0.013	0.015
1.20	0.006	0.007	0.009	0.011	0.013	0.016	0.018
1.40	0.008	0.010	0.013	0.015	0.018	0.021	0.025
1.60	0.009	0.011	0.014	0.017	0.020	0.023	0.028
1.80	0.010	0.013	0.016	0.019	0.023	0.027	0.032
2.00	0.011	0.014	0.017	0.021	0.025	0.029	0.034
2.20	0.012	0.015	0.019	0.023	0.027	0.032	0.037
2.40	0.013	0.017	0.021	0.025	0.030	0.035	0.040
2.60	0.014	0.018	0.023	0.027	0.032	0.037	0.042
2.80	0.015	0.019	0.024	0.029	0.034	0.039	0.044
3.00	0.016	0.020	0.025	0.030	0.035	0.040	0.045
3.20	0.017	0.021	0.026	0.031	0.036	0.041	0.046
3.40	0.018	0.022	0.027	0.032	0.037	0.042	0.047
3.60	0.019	0.023	0.028	0.033	0.038	0.043	0.048
3.80	0.020	0.024	0.029	0.034	0.039	0.044	0.049
4.00	0.021	0.025	0.030	0.035	0.040	0.045	0.050
4.20	0.022	0.026	0.031	0.036	0.041	0.046	0.051
4.40	0.023	0.027	0.032	0.037	0.042	0.047	0.052
4.60	0.024	0.028	0.033	0.038	0.043	0.048	0.053
4.80	0.025	0.029	0.034	0.039	0.044	0.049	0.054
5.00	0.026	0.030	0.035	0.040	0.045	0.050	0.055
5.20	0.027	0.031	0.036	0.041	0.046	0.051	0.056
5.40	0.028	0.032	0.037	0.042	0.047	0.052	0.057
5.60	0.029	0.033	0.038	0.043	0.048	0.053	0.058
5.80	0.030	0.034	0.039	0.044	0.049	0.054	0.059
6.00	0.031	0.035	0.040	0.045	0.050	0.055	0.060
6.20	0.032	0.036	0.041	0.046	0.051	0.056	0.061
6.40	0.033	0.037	0.042	0.047	0.052	0.057	0.062
6.60	0.034	0.038	0.043	0.048	0.053	0.058	0.063
6.80	0.035	0.039	0.044	0.049	0.054	0.059	0.064
7.00	0.036	0.040	0.045	0.050	0.055	0.060	0.065
7.20	0.037	0.041	0.046	0.051	0.056	0.061	0.066
7.40	0.038	0.042	0.047	0.052	0.057	0.062	0.067
7.60	0.039	0.043	0.048	0.053	0.058	0.063	0.068
7.80	0.040	0.044	0.049	0.054	0.059	0.064	0.069
8.00	0.041	0.045	0.050	0.055	0.060	0.065	0.070
8.20	0.042	0.046	0.051	0.056	0.061	0.066	0.071
8.40	0.043	0.047	0.052	0.057	0.062	0.067	0.072
8.60	0.044	0.048	0.053	0.058	0.063	0.068	0.073</td

長さ 1.00 ~ 8.80 m
平均径 15 ~ 21 cm
(単位=m³)

長さ (m)	平均径 (cm)						長さ (m)
	15	16	17	18	19	20	
1.00	0.018	0.020	0.023	0.025	0.028	0.031	0.035
1.20	0.021	0.024	0.027	0.031	0.034	0.038	0.042
1.40	0.025	0.028	0.032	0.036	0.040	0.044	0.048
1.60	0.028	0.032	0.036	0.041	0.045	0.050	0.055
1.80	0.032	0.036	0.041	0.046	0.051	0.057	0.062
2.00	0.035	0.040	0.045	0.051	0.057	0.063	0.069
2.20	0.039	0.044	0.050	0.056	0.062	0.069	0.076
2.40	0.042	0.048	0.054	0.061	0.068	0.075	0.083
2.60	0.046	0.052	0.059	0.066	0.074	0.082	0.090
2.80	0.049	0.056	0.064	0.071	0.079	0.088	0.097
3.00	0.053	0.060	0.068	0.076	0.085	0.094	0.104
3.20	0.057	0.064	0.073	0.081	0.091	0.101	0.111
3.40	0.060	0.068	0.077	0.087	0.096	0.107	0.118
3.60	0.064	0.072	0.082	0.092	0.102	0.113	0.125
3.80	0.067	0.076	0.086	0.097	0.108	0.119	0.132
4.00	0.071	0.080	0.091	0.102	0.113	0.126	0.139
4.20	0.074*	0.084	0.095	0.107	0.119	0.132	0.145
4.40	0.078	0.088	0.100	0.112	0.125	0.138	0.152
4.60	0.081	0.092	0.104	0.117	0.130	0.145	0.159
4.80	0.085	0.097	0.109	0.122	0.136	0.151	0.166
5.00	0.088	0.101	0.113	0.127	0.142	0.157	0.173
5.20	0.092	0.105	0.118	0.132	0.147	0.163	0.180
5.40	0.095	0.109	0.123	0.137	0.153	0.170	0.187
5.60	0.099	0.113	0.127	0.143	0.159	0.176	0.194
5.80	0.102	0.117	0.132	0.148	0.164	0.182	0.201
6.00	0.106	0.121	0.136	0.153	0.170	0.188	0.208
6.20	0.110	0.125	0.141	0.158	0.176	0.195	0.215
6.40	0.113	0.129	0.145	0.163	0.181	0.201	0.222
6.60	0.117	0.133	0.150	0.168	0.187	0.207	0.229
6.80	0.120	0.137	0.154	0.173	0.193	0.214	0.236
7.00	0.124	0.141	0.159	0.178	0.198	0.220	0.242
7.20	0.127	0.145	0.163	0.183	0.204	0.226	0.249
7.40	0.131	0.149	0.168	0.186	0.210	0.232	0.256
7.60	0.134	0.153	0.173	0.193	0.215	0.239	0.263
7.80	0.138	0.157	0.177	0.193	0.221	0.245	0.270
8.00	0.141	0.161	0.182	0.202	0.227	0.251	0.277
8.20	0.145	0.165	0.186	0.209	0.232	0.258	0.284
8.40	0.148	0.169	0.191	0.214	0.238	0.264	0.291
8.60	0.152	0.173	0.195	0.219	0.244	0.270	0.298
8.80	0.156	0.177	0.200	0.224	0.250	0.276	0.305

長さ 1.00 ~ 8.80 m
平均径 22 ~ 28 cm

長さ (m)	平均径 (cm)						長さ (m)
	22	23	24	25	26	27	
1.00	0.038	0.042	0.045	0.049	0.053	0.057	0.062
1.20	0.046	0.050	0.054	0.059	0.064	0.069	0.074
1.40	0.053	0.058	0.063	0.069	0.074	0.080	0.086
1.60	0.061	0.066	0.072	0.079	0.085	0.092	0.099
1.80	0.068	0.075	0.081	0.088	0.096	0.103	0.111
2.00	0.075	0.082	0.089	0.096	0.103	0.110	0.118
2.20	0.084	0.091	0.098	0.105	0.112	0.119	0.126
2.40	0.091	0.100	0.109	0.118	0.127	0.137	0.148
2.60	0.099	0.108	0.118	0.128	0.138	0.149	0.160
2.80	0.106	0.116	0.127	0.137	0.147	0.159	0.172
3.00	0.114	0.125	0.136	0.147	0.159	0.172	0.185
3.20	0.122	0.133	0.145	0.157	0.170	0.183	0.197
3.40	0.129	0.141	0.154	0.167	0.181	0.195	0.209
3.60	0.137	0.150	0.163	0.177	0.191	0.206	0.222
3.80	0.144	0.158	0.172	0.187	0.202	0.218	0.234
4.00	0.152	0.166	0.181	0.196	0.212	0.229	0.246
4.20	0.160	0.175	0.190	0.206	0.223	0.240	0.259
4.40	0.167	0.183	0.199	0.216	0.234	0.252	0.271
4.60	0.175	0.191	0.208	0.226	0.244	0.263	0.283
4.80	0.182	0.199	0.217	0.236	0.255	0.275	0.296
5.00	0.190	0.208	0.226	0.245	0.265	0.286	0.308
5.20	0.198	0.216	0.235	0.255	0.276	0.298	0.320
5.40	0.205	0.224	0.244	0.265	0.287	0.309	0.333
5.60	0.213	0.233	0.253	0.275	0.297	0.321	0.345
5.80	0.220	0.241	0.262	0.285	0.308	0.332	0.357
6.00	0.228	0.249	0.271	0.295	0.319	0.344	0.369
6.20	0.236	0.258	0.280	0.304	0.329	0.355	0.382
6.40	0.244	0.266	0.288	0.314	0.340	0.366	0.394
6.60	0.251	0.274	0.299	0.324	0.350	0.378	0.406
6.80	0.259	0.283	0.308	0.334	0.361	0.389	0.419
7.00	0.267	0.291	0.317	0.344	0.372	0.401	0.431
7.20	0.274	0.299	0.326	0.353	0.382	0.412	0.443
7.40	0.281	0.307	0.335	0.363	0.393	0.424	0.456
7.60	0.289	0.316	0.344	0.373	0.404	0.435	0.468
7.80	0.297	0.324	0.353	0.383	0.414	0.447	0.480
8.00	0.304	0.332	0.362	0.393	0.425	0.458	0.493
8.20	0.312	0.341	0.371	0.403	0.435	0.469	0.505
8.40	0.319	0.349	0.379	0.412	0.446	0.477	0.517
8.60	0.327	0.357	0.389	0.422	0.457	0.492	0.530
8.80	0.335	0.366	0.398	0.432	0.467	0.504	0.542

長さ (m)	平均径 (cm)						長さ (m)
	22	23	24	25	26	27	
1.00	0.038	0.042	0.045	0.049	0.053	0.057	0.062
1.20	0.046	0.050	0.054	0.059	0.064	0.069	0.074
1.40	0.053	0.058	0.063	0.069	0.074	0.080	0.086
1.60	0.061	0.066	0.072	0.079	0.085	0.092	0.099
1.80	0.068	0.075	0.081	0.088	0.096	0.103	0.111
2.00	0.075	0.082	0.089	0.096	0.103	0.110	0.118
2.20	0.084	0.091	0.098	0.105	0.112	0.119	0.126
2.40	0.091	0.100	0.109	0.118	0.127	0.137	0.146
2.60	0.099	0.108	0.117	0.126	0.135	0.145	0.154
2.80	0.106	0.116	0.127	0.136	0.145	0.155	0.164
3.00	0.114	0.125	0.136	0.147	0.158	0.168	0.177
3.20	0.122	0.133	0.145	0.157	0.169	0.180	0.189
3.40	0.130	0.142	0.155	0.168	0.181	0.194	0.203
3.60	0.138	0.150	0.163	0.176	0.189	0.202	0.211
3.80	0.146	0.159	0.172	0.185	0.200	0.213	0.222
4.00	0.154	0.167	0.181	0.194	0.208	0.222	0.231
4.20	0.162	0.175	0.188	0.202	0.216	0.230	0.239
4.40	0.170	0.183	0.196	0.210	0.224	0.238	0.247
4.60	0.178	0.191	0.204	0.218	0.232	0.246	0.255
4.80	0.186	0.200	0.214	0.228	0.242	0.256	0.265
5.00	0.194	0.208	0.222	0.236	0.250	0.264	0.273
5.20	0.202	0.216	0.230	0.244	0.258	0.272	0.281
5.40	0.210	0.224	0.238	0.252	0.266	0.280	0.289
5.60	0.218	0.232	0.246	0.260	0.274	0.288	0.297
5.80	0.226	0.241	0.255	0.269	0.283	0.300	0.309
6.00	0.234	0.249	0.263	0.277	0.291	0.308	0.317
6.20	0.242	0.256	0.270	0.284	0.298	0.312	0.321
6.40	0.250	0.264	0.278	0.292	0.306	0.320	0.329
6.60	0.258	0.272	0.286	0.300	0.314	0.330	0.339
6.80	0.266	0.280	0.294	0.308	0.322	0.339	0.348
7.00	0.274	0.288	0.302	0.316	0.330	0.346	0.355
7.20	0.282	0.296	0.310	0.324	0.340	0.355	0.364
7.40	0.290	0.304	0.318	0.332	0.346	0.361	0.370
7.60	0.298	0.312	0.326	0.340	0.354	0.370	0.379
7.80	0.306	0.318	0.332	0.346	0.360	0.376	0.385
8.00	0.314	0.326	0.340	0.354	0.368	0.384	0.393
8.20	0.322	0.334	0.348	0.362	0.376	0.390	0.399
8.40	0.330	0.342	0.356	0.370	0.384	0.398	0.407

長さ 1.00 ~ 8.80 m
平均径 29 ~ 35 cm
(単位=m³)

長さ (m)	平均径 (cm)					長さ (m)	
	29	30	31	32	33		
4.00	0.264	0.283	0.302	0.322	0.342	0.363	0.385
4.20	0.277	0.297	0.317	0.338	0.359	0.381	0.401
4.40	0.291	0.311	0.332	0.354	0.376	0.399	0.422
4.60	0.304	0.325	0.347	0.370	0.393	0.418	0.443
4.80	0.317	0.339	0.362	0.386	0.411	0.436	0.462
5.00	0.330	0.353	0.377	0.402	0.428	0.454	0.481
5.20	0.343	0.368	0.392	0.418	0.445	0.472	0.500
5.40	0.357	0.382	0.403	0.434	0.462	0.490	0.520
5.60	0.370	0.396	0.423	0.450	0.479	0.508	0.539
5.80	0.383	0.410	0.438	0.466	0.496	0.527	0.558
6.00	0.396	0.424	0.453	0.482	0.513	0.545	0.577
6.20	0.410	0.438	0.468	0.499	0.530	0.563	0.597
6.40	0.423	0.452	0.483	0.515	0.547	0.581	0.616
6.60	0.436	0.467	0.498	0.531	0.564	0.599	0.635
6.80	0.449	0.481	0.513	0.547	0.582	0.617	0.654
7.00	0.462	0.495	0.528	0.559	0.593	0.636	0.673
7.20	0.476	0.509	0.543	0.579	0.616	0.654	0.693
7.40	0.489	0.523	0.559	0.595	0.633	0.672	0.712
7.60	0.502	0.537	0.574	0.611	0.650	0.690	0.731
7.80	0.515	0.551	0.589	0.627	0.667	0.708	0.750
8.00	0.528	0.565	0.604	0.643	0.684	0.726	0.770
8.20	0.542	0.580	0.619	0.659	0.701	0.744	0.789
8.40	0.555	0.594	0.634	0.676	0.718	0.763	0.808
8.60	0.568	0.608	0.649	0.692	0.736	0.781	0.827
8.80	0.581	0.622	0.664	0.708	0.753	0.799	0.847

長さ 1.00 ~ 8.80 m
平均径 36 ~ 42 cm
(単位=m³)

長さ (m)	平均径 (cm)					長さ (m)	
	36	37	38	39	40		
1.00	0.066	0.071	0.075	0.080	0.086	0.091	0.096
1.20	0.079	0.085	0.091	0.097	0.103	0.109	0.115
1.40	0.092	0.099	0.106	0.113	0.120	0.127	0.135
1.60	0.106	0.113	0.121	0.129	0.137	0.145	0.154
1.80	0.119	0.127	0.136	0.145	0.163	0.173	0.183
2.00	0.132	0.141	0.151	0.161	0.171	0.182	0.192
2.20	0.145	0.156	0.166	0.177	0.188	0.200	0.212
2.40	0.159	0.170	0.181	0.193	0.205	0.218	0.231
2.60	0.172	0.184	0.196	0.209	0.222	0.236	0.250
2.80	0.185	0.198	0.211	0.225	0.239	0.254	0.269
3.00	0.198	0.212	0.226	0.241	0.257	0.272	0.289
3.20	0.211	0.226	0.242	0.257	0.274	0.291	0.308
3.40	0.225	0.240	0.257	0.273	0.291	0.309	0.327
3.60	0.238	0.254	0.272	0.290	0.308	0.327	0.346
3.80	0.251	0.269	0.287	0.306	0.325	0.345	0.366
4.00	0.264	0.283	0.302	0.322	0.342	0.363	0.385
4.20	0.277	0.297	0.317	0.338	0.359	0.381	0.401
4.40	0.291	0.311	0.332	0.354	0.376	0.399	0.422
4.60	0.304	0.325	0.347	0.370	0.393	0.418	0.443
4.80	0.317	0.339	0.362	0.386	0.411	0.436	0.462
5.00	0.330	0.353	0.377	0.402	0.428	0.454	0.481
5.20	0.343	0.368	0.392	0.418	0.445	0.472	0.500
5.40	0.357	0.382	0.403	0.434	0.462	0.490	0.520
5.60	0.370	0.396	0.423	0.450	0.479	0.508	0.539
5.80	0.383	0.410	0.438	0.466	0.496	0.527	0.558
6.00	0.396	0.424	0.453	0.482	0.513	0.545	0.577
6.20	0.410	0.438	0.468	0.499	0.530	0.563	0.597
6.40	0.423	0.452	0.483	0.515	0.547	0.581	0.616
6.60	0.436	0.467	0.498	0.531	0.564	0.600	0.635
6.80	0.449	0.481	0.513	0.547	0.582	0.617	0.654
7.00	0.462	0.495	0.528	0.559	0.593	0.636	0.673
7.20	0.476	0.509	0.543	0.579	0.616	0.654	0.693
7.40	0.489	0.523	0.559	0.595	0.633	0.672	0.712
7.60	0.502	0.537	0.574	0.611	0.650	0.690	0.731
7.80	0.515	0.551	0.589	0.627	0.667	0.708	0.750
8.00	0.528	0.565	0.604	0.643	0.684	0.726	0.770
8.20	0.542	0.580	0.619	0.659	0.701	0.744	0.789
8.40	0.555	0.594	0.634	0.676	0.718	0.763	0.808
8.60	0.568	0.608	0.649	0.692	0.736	0.781	0.827
8.80	0.581	0.622	0.664	0.708	0.753	0.799	0.847

長さ 1.00 ~ 8.80 m
平均径 36 ~ 42 cm
(単位=m³)

長さ 1.00 ~ 8.80 m
平均径 43 ~ 49 cm
(単位=m³)

長さ (m)	平均径 (cm)						長さ (m)
	43	44	45	46	47	48	
1.00	0.145	0.152	0.159	0.166	0.173	0.181	0.189
1.20	0.174	0.182	0.191	0.199	0.208	0.217	0.226
1.40	0.203	0.213	0.223	0.233	0.243	0.253	0.264
1.60	0.232	0.243	0.254	0.266	0.278	0.290	0.302
1.80	0.261	0.274	0.286	0.299	0.312	0.326	0.339
2.00	0.290	0.304	0.318	0.332	0.347	0.362	0.377
2.20	0.319	0.335	0.350	0.366	0.382	0.398	0.415
2.40	0.349	0.365	0.382	0.399	0.416	0.434	0.453
2.60	0.378	0.395	0.414	0.432	0.451	0.470	0.490
2.80	0.407	0.426	0.445	0.465	0.486	0.507	0.528
3.00	0.436	0.456	0.477	0.499	0.520	0.543	0.566
3.20	0.465	0.487	0.509	0.532	0.555	0.579	0.603
3.40	0.494	0.517	0.541	0.565	0.590	0.615	0.641
3.60	0.523	0.547	0.573	0.598	0.625	0.651	0.679
3.80	0.552	0.578	0.604	0.632	0.659	0.688	0.717
4.00	0.581	0.608	0.636	0.665	0.694	0.724	0.754
4.20	0.610	0.639	0.668	0.698	0.729	0.760	0.792
4.40	0.639	0.669	0.700	0.731	0.763	0.796	0.830
4.60	0.668	0.699	0.732	0.764	0.798	0.832	0.867
4.80	0.697	0.730	0.763	0.798	0.833	0.869	0.905
5.00	0.726	0.760	0.795	0.831	0.867	0.905	0.943
5.20	0.755	0.791	0.827	0.864	0.902	0.941	0.981
5.40	0.784	0.821	0.859	0.897	0.937	0.977	1.018
5.60	0.813	0.851	0.891	0.931	0.972	1.013	1.056
5.80	0.842	0.882	0.922	0.964	1.006	1.050	1.094
6.00	0.871	0.912	0.954	0.997	1.041	1.086	1.131
6.20	0.900	0.943	0.986	1.030	1.076	1.122	1.169
6.40	0.929	0.973	1.018	1.064	1.110	1.158	1.207
6.60	0.958	1.004	1.050	1.097	1.145	1.194	1.245
6.80	0.987	1.034	1.081	1.130	1.180	1.231	1.282
7.00	1.017	1.061	1.113	1.163	1.214	1.267	1.320
7.20	1.046	1.095	1.145	1.197	1.249	1.303	1.358
7.40	1.075	1.125	1.177	1.220	1.284	1.339	1.395
7.60	1.104	1.156	1.209	1.263	1.319	1.375	1.433
7.80	1.133	1.186	1.241	1.296	1.353	1.411	1.471
8.00	1.162	1.216	1.272	1.330	1.388	1.448	1.509
8.20	1.191	1.247	1.304	1.363	1.423	1.484	1.546
8.40	1.220	1.277	1.336	1.395	1.457	1.520	1.584
8.60	1.249	1.308	1.368	1.429	1.492	1.556	1.622
8.80	1.278	1.338	1.400	1.462	1.527	1.592	1.659

長さ 1.00 ~ 8.80 m
平均径 50 ~ 56 cm
(単位=m³)

長さ (m)	平均径 (cm)						長さ (m)
	50	51	52	53	54	55	
0.196	0.204	0.212	0.221	0.229	0.238	0.246	1.00
0.236	0.245	0.255	0.265	0.275	0.285	0.296	1.20
0.275	0.286	0.297	0.309	0.321	0.333	0.345	1.40
0.314	0.327	0.340	0.353	0.366	0.380	0.394	1.60
0.353	0.368	0.382	0.397	0.412	0.428	0.443	1.80
0.393	0.409	0.425	0.441	0.458	0.475	0.493	2.00
0.432	0.449	0.467	0.485	0.504	0.523	0.542	2.20
0.471	0.490	0.510	0.529	0.550	0.570	0.591	2.40
0.511	0.531	0.552	0.574	0.595	0.618	0.640	2.60
0.550	0.572	0.595	0.618	0.641	0.665	0.690	2.80
0.589	0.613	0.637	0.662	0.687	0.713	0.739	3.00
0.628	0.654	0.680	0.706	0.733	0.760	0.788	3.20
0.668	0.695	0.722	0.750	0.779	0.808	0.837	3.40
0.707	0.735	0.765	0.794	0.824	0.855	0.887	3.60
0.746	0.776	0.807	0.838	0.870	0.903	0.936	3.80
0.785	0.817	0.849	0.882	0.916	0.950	0.985	4.00
0.825	0.858	0.892	0.927	0.962	0.998	1.034	4.20
0.864	0.899	0.934	0.971	1.008	1.045	1.084	4.40
0.903	0.940	0.977	1.015	1.054	1.093	1.133	4.60
0.942	0.981	1.019	1.059	1.140	1.182	1.232	4.80
0.982	1.021	1.062	1.103	1.145	1.188	1.232	5.00
1.021	1.062	1.104	1.147	1.191	1.235	1.281	5.20
1.060	1.103	1.147	1.191	1.237	1.283	1.330	5.40
1.100	1.144	1.189	1.235	1.283	1.330	1.379	5.60
1.139	1.185	1.232	1.280	1.328	1.378	1.429	5.80
1.178	1.226	1.274	1.324	1.374	1.426	1.478	6.00
1.227	1.277	1.327	1.377	1.427	1.477	1.527	6.20
1.257	1.307	1.357	1.407	1.456	1.506	1.556	6.40
1.296	1.348	1.398	1.448	1.496	1.546	1.596	6.60
1.335	1.389	1.444	1.494	1.544	1.593	1.644	6.80
1.374	1.430	1.487	1.544	1.603	1.663	1.724	7.00
1.414	1.471	1.529	1.588	1.649	1.711	1.773	7.20
1.453	1.512	1.572	1.633	1.695	1.758	1.823	7.40
1.492	1.553	1.614	1.677	1.741	1.806	1.872	7.60
1.532	1.593	1.657	1.721	1.786	1.853	1.921	7.80
1.571	1.634	1.699	1.765	1.832	1.901	1.970	8.00
1.610	1.675	1.741	1.809	1.878	1.948	2.020	8.20
1.649	1.716	1.784	1.853	1.924	1.996	2.069	8.40
1.689	1.757	1.826	1.897	1.970	2.043	2.118	8.60
1.728	1.798	1.869	1.941	2.015	2.091	2.167	8.80

長さ 1.00~8.80 m
平均径 57~63 cm
(単位=m³)

長さ (m)	平均径 (cm)					長さ (m)
	57	58	59	60	61	
4.00	1.021	1.057	1.094	1.131	1.169	1.247
4.20	1.072	1.110	1.148	1.188	1.227	1.298
4.40	1.123	1.163	1.203	1.244	1.286	1.338
4.60	1.174	1.215	1.253	1.291	1.344	1.434
4.80	1.225	1.268	1.312	1.357	1.403	1.496
5.00	1.276	1.321	1.367	1.414	1.461	1.559
5.20	1.327	1.374	1.422	1.470	1.520	1.621
5.40	1.378	1.427	1.476	1.527	1.578	1.683
5.60	1.429	1.480	1.531	1.583	1.637	1.746
5.80	1.480	1.532	1.586	1.640	1.695	1.751
6.00	1.531	1.585	1.640	1.696	1.753	1.811
6.20	1.582	1.638	1.695	1.753	1.812	1.872
6.40	1.633	1.691	1.750	1.810	1.870	1.932
6.60	1.684	1.480	1.531	1.583	1.637	1.691
6.80	1.735	1.797	1.859	1.923	1.987	2.053
7.00	1.786	1.849	1.914	1.979	2.046	2.113
7.20	1.837	1.902	1.968	2.036	2.104	2.174
7.40	1.888	1.955	2.023	2.092	2.163	2.234
7.60	1.939	2.008	2.078	2.149	2.221	2.294
7.80	1.990	2.061	2.133	2.195	2.265	2.338
8.00	2.041	2.114	2.187	2.252	2.324	2.398
8.20	2.092	2.167	2.242	2.319	2.396	2.476
8.40	2.143	2.219	2.297	2.375	2.455	2.536
8.60	2.195	2.272	2.351	2.432	2.513	2.596
8.80	2.246	2.325	2.406	2.488	2.572	2.743

長さ 1.00~8.80 m
平均径 64~70 cm

(単位=m³)

長さ (m)	平均径 (cm)					長さ (m)
	64	65	66	67	68	
1.00	0.255	0.264	0.273	0.283	0.292	0.312
1.20	0.306	0.317	0.328	0.339	0.351	0.374
1.40	0.357	0.370	0.383	0.396	0.409	0.436
1.60	0.408	0.423	0.437	0.452	0.468	0.499
1.80	0.459	0.476	0.492	0.509	0.526	0.561
2.00	0.510	0.528	0.547	0.565	0.584	0.604
2.20	0.561	0.611	0.622	0.643	0.664	0.686
2.40	0.612	0.634	0.656	0.679	0.701	0.725
2.60	0.663	0.687	0.711	0.735	0.760	0.785
2.80	0.714	0.740	0.766	0.792	0.818	0.845
3.00	0.766	0.793	0.820	0.848	0.877	0.906
3.20	0.817	0.845	0.875	0.905	0.935	0.966
3.40	0.868	0.898	0.930	0.961	0.994	1.026
3.60	0.919	0.951	0.984	1.018	1.052	1.087
3.80	0.970	1.004	1.039	1.074	1.111	1.147
4.00	1.021	1.057	1.094	1.131	1.169	1.208
4.20	1.072	1.110	1.148	1.188	1.227	1.268
4.40	1.123	1.163	1.203	1.244	1.286	1.338
4.60	1.174	1.215	1.253	1.291	1.344	1.389
4.80	1.225	1.268	1.312	1.357	1.403	1.449
5.00	1.276	1.321	1.367	1.414	1.461	1.510
5.20	1.327	1.374	1.422	1.470	1.520	1.570
5.40	1.378	1.427	1.476	1.527	1.578	1.630
5.60	1.429	1.480	1.531	1.583	1.637	1.691
5.80	1.480	1.532	1.586	1.640	1.695	1.751
6.00	1.531	1.585	1.640	1.696	1.753	1.811
6.20	1.582	1.638	1.695	1.753	1.812	1.872
6.40	1.633	1.691	1.750	1.810	1.870	1.932
6.60	1.684	1.480	1.531	1.583	1.637	1.691
6.80	1.735	1.797	1.859	1.923	1.987	2.053
7.00	1.786	1.849	1.914	1.979	2.046	2.113
7.20	1.837	1.902	1.968	2.036	2.104	2.174
7.40	1.888	1.955	2.023	2.092	2.163	2.234
7.60	1.939	2.008	2.078	2.149	2.221	2.294
7.80	1.990	2.061	2.133	2.195	2.265	2.338
8.00	2.041	2.114	2.187	2.252	2.324	2.398
8.20	2.092	2.167	2.242	2.319	2.396	2.476
8.40	2.143	2.219	2.297	2.375	2.455	2.536
8.60	2.195	2.272	2.351	2.432	2.513	2.596
8.80	2.246	2.325	2.406	2.488	2.572	2.743

長さ 1.00~8.80 m
平均径 64~70 cm

(単位=m³)

長さ (m)	平均径 (cm)					長さ (m)
	64	65	66	67	68	
1.00	0.255	0.264	0.273	0.283	0.292	0.312
1.20	0.306	0.317	0.328	0.339	0.351	0.374
1.40	0.357	0.370	0.383	0.396	0.409	0.436
1.60	0.408	0.423	0.437	0.452	0.468	0.499
1.80	0.459	0.476	0.492	0.509	0.526	0.561
2.00	0.510	0.528	0.547	0.565	0.584	0.604
2.20	0.561	0.611	0.622	0.643	0.664	0.686
2.40	0.612	0.634	0.656	0.679	0.701	0.725
2.60	0.663	0.687	0.711	0.735	0.760	0.785
2.80	0.714	0.740	0.766	0.792	0.818	0.845
3.00	0.766	0.793	0.820	0.848	0.877	0.906
3.20	0.817	0.845	0.875	0.905	0.935	0.966
3.40	0.868	0.898	0.930	0.961	0.994	1.026
3.60	0.919	0.951	0.984	1.018	1.052	1.087
3.80	0.970	1.004	1.039	1.074	1.111	1.147
4.00	1.021	1.057	1.094	1.131	1.169	1.208
4.20	1.072	1.110	1.148	1.188	1.227	1.268
4.40	1.123	1.163	1.203	1.244	1.286	1.338
4.60	1.174	1.215	1.253	1.291	1.344	1.389
4.80	1.225	1.268	1.312	1.357	1.403	1.449
5.00	1.276	1.321	1.367	1.414	1.461	1.510
5.20	1.327	1.374	1.422	1.470	1.520	1.570
5.40	1.378	1.427	1.476	1.527	1.578	1.630
5.60	1.429	1.480	1.531	1.583	1.637	1.691
5.80	1.480	1.532	1.586	1.640	1.695	1.751
6.00	1.531	1.585	1.640	1.696	1.753	1.811
6.20	1.582	1.638	1.695	1.753	1.812	1.872
6.40	1.633	1.691	1.750	1.810	1.870	1.932
6.60	1.684	1.480	1.531	1.583	1.637	1.691
6.80	1.735	1.797	1.859	1.923	1.987	2.053
7.00	1.786	1.849	1.914	1.979	2.046	2.113
7.20	1.837	1.902	1.968	2.036	2.104	2.174
7.40	1.888	1.955	2.023	2.092	2.163	2.234
7.60	1.939	2.008	2.078	2.149	2.221	2.294
7.80	1.990	2.061	2.133	2.195	2.265	2.338
8.00	2.041	2.114	2.187	2.252	2.324	2.398
8.20	2.092	2.167	2.242	2.319	2.396	2.476
8.40	2.143	2.219	2.297	2.375	2.455	2.536
8.60	2.195	2.272	2.351	2.432	2.513	2.596
8.80	2.246	2.325	2.406	2.488	2.572	2.743

(15)

長さ 1.00 ~ 8.80 m
平均径 71 ~ 77 cm
(単位=m³)

長さ (m)	平均 径 (cm)						長さ (m)
	71	72	73	74	75	76	
1.00	0.396	0.407	0.419	0.430	0.442	0.454	0.466
1.20	0.425	0.489	0.502	0.516	0.530	0.544	0.559
1.40	0.534	0.570	0.586	0.602	0.619	0.635	0.652
1.60	0.633	0.651	0.670	0.688	0.707	0.726	0.745
1.80	0.713	0.733	0.753	0.774	0.795	0.817	0.838
2.00	0.792	0.814	0.837	0.860	0.884	0.907	0.931
2.20	0.871	0.896	0.921	0.946	0.972	0.998	1.024
2.40	0.950	0.977	1.004	1.032	1.060	1.089	1.118
2.60	1.029	1.059	1.088	1.118	1.149	1.179	1.211
2.80	1.109	1.140	1.172	1.204	1.237	1.270	1.304
3.00	1.188	1.221	1.256	1.290	1.325	1.361	1.397
3.20	1.267	1.303	1.339	1.376	1.414	1.452	1.490
3.40	1.346	1.384	1.423	1.462	1.502	1.542	1.583
3.60	1.425	1.466	1.507	1.548	1.590	1.633	1.676
3.80	1.504	1.547	1.590	1.634	1.679	1.721	1.770
4.00	1.584	1.629	1.674	1.720	1.767	1.815	1.863
4.20	1.663	1.710	1.758	1.806	1.856	1.905	1.956
4.40	1.742	1.791	1.842	1.892	1.944	1.996	2.049
4.60	1.821	1.873	1.925	1.978	2.032	2.087	2.142
4.80	1.900	1.954	2.009	2.064	2.121	2.178	2.235
5.00	1.980	2.036	2.093	2.150	2.209	2.268	2.328
5.20	2.059	2.117	2.176	2.236	2.297	2.359	2.421
5.40	2.138	2.199	2.260	2.326	2.403	2.474	2.540
5.60	2.217	2.280	2.344	2.408	2.486	2.562	2.631
5.80	2.296	2.361	2.428	2.494	2.562	2.631	2.701
6.00	2.376	2.443	2.511	2.581	2.651	2.722	2.794
6.20	2.455	2.524	2.595	2.667	2.739	2.813	2.887
6.40	2.534	2.606	2.679	2.753	2.839	2.916	2.990
6.60	2.613	2.687	2.762	2.839	2.916	2.994	3.073
6.80	2.692	2.769	2.846	2.925	3.004	3.085	3.167
7.00	2.771	2.850	2.930	3.011	3.093	3.176	3.260
7.20	2.851	2.931	3.013	3.097	3.181	3.266	3.353
7.40	2.930	3.013	3.097	3.183	3.269	3.357	3.446
7.60	3.009	3.094	3.181	3.269	3.358	3.448	3.539
7.80	3.088	3.176	3.265	3.255	3.446	3.538	3.632
8.00	3.167	3.257	3.343	3.434	3.534	3.629	3.725
8.20	3.247	3.339	3.432	3.527	3.623	3.720	3.818
8.40	3.326	3.420	3.516	3.613	3.711	3.811	3.912
8.60	3.405	3.502	3.599	3.699	3.799	3.901	4.005
8.80	3.484	3.583	3.683	3.785	3.888	3.992	4.098

長さ 1.00 ~ 8.80 m
平均径 78 ~ 84 cm
(単位=m³)

長さ (m)	平均 径 (cm)						長さ (m)
	78	79	80	81	82	83	
1.00	0.478	0.490	0.503	0.515	0.528	0.541	0.554
1.20	0.573	0.588	0.603	0.618	0.634	0.649	0.665
1.40	0.669	0.686	0.704	0.721	0.739	0.757	0.776
1.60	0.765	0.784	0.804	0.824	0.845	0.866	0.887
1.80	0.860	0.882	0.905	0.928	0.951	0.974	0.998
2.00	0.956	0.980	1.005	1.031	1.056	1.082	1.108
2.20	1.051	1.078	1.106	1.134	1.162	1.190	1.219
2.40	1.147	1.176	1.206	1.237	1.267	1.299	1.330
2.60	1.242	1.274	1.307	1.340	1.373	1.407	1.441
2.80	1.338	1.372	1.407	1.443	1.479	1.515	1.552
3.00	1.434	1.471	1.508	1.546	1.584	1.623	1.663
3.20	1.529	1.569	1.608	1.649	1.690	1.731	1.773
3.40	1.625	1.667	1.709	1.752	1.796	1.840	1.884
3.60	1.720	1.765	1.810	1.855	1.901	1.948	1.995
3.80	1.816	1.863	1.910	1.958	2.007	2.056	2.106
4.00	1.911	1.961	2.011	2.061	2.112	2.164	2.217
4.20	2.007	2.059	2.111	2.164	2.218	2.272	2.323
4.40	2.102	2.157	2.212	2.267	2.324	2.381	2.433
4.60	2.198	2.255	2.312	2.370	2.429	2.489	2.549
4.80	2.294	2.353	2.413	2.473	2.535	2.597	2.660
5.00	2.389	2.451	2.513	2.577	2.641	2.705	2.771
5.20	2.485	2.549	2.614	2.680	2.746	2.814	2.882
5.40	2.580	2.647	2.714	2.783	2.852	2.922	2.993
5.60	2.676	2.745	2.815	2.886	2.957	3.030	3.103
5.80	2.771	2.843	2.915	2.989	3.063	3.138	3.214
6.00	2.867	2.941	3.016	3.092	3.169	3.246	3.325
6.20	2.963	3.039	3.116	3.195	3.274	3.355	3.436
6.40	3.058	3.137	3.217	3.298	3.380	3.463	3.547
6.60	3.154	3.235	3.318	3.401	3.485	3.571	3.658
6.80	3.249	3.333	3.418	3.504	3.591	3.679	3.768
7.00	3.345	3.431	3.519	3.607	3.697	3.787	3.879
7.20	3.440	3.529	3.619	3.710	3.802	3.896	3.990
7.40	3.536	3.627	3.720	3.813	3.908	4.004	4.101
7.60	3.632	3.725	3.820	3.916	4.014	4.112	4.212
7.80	3.727	3.823	3.921	4.019	4.119	4.220	4.323
8.00	3.823	3.921	4.021	4.122	4.225	4.328	4.433
8.20	3.918	4.019	4.122	4.225	4.330	4.437	4.544
8.40	4.014	4.117	4.222	4.329	4.436	4.545	4.655
8.60	4.109	4.215	4.323	4.432	4.542	4.653	4.766
8.80	4.205	4.313	4.423	4.535	4.647	4.761	4.877

(16)

(17)

長さ 1.00 ~ 8.80 m
平均径 92 ~ 98 cm
(単位=m³)

長さ (m)	平均均 径 (cm)						長さ (m)
	85	86	87	88	89	90	
1.00	0.567	0.581	0.594	0.608	0.622	0.636	0.650
1.20	0.681	0.697	0.713	0.730	0.747	0.763	0.780
1.40	0.794	0.813	0.832	0.851	0.871	0.891	0.911
1.60	0.908	0.929	0.951	0.973	0.995	1.018	1.041
1.80	1.021	1.046	1.070	1.095	1.120	1.145	1.171
2.00	1.135	1.162	1.189	1.216	1.244	1.272	1.301
2.20	1.248	1.278	1.308	1.338	1.369	1.400	1.431
2.40	1.362	1.394	1.427	1.460	1.493	1.527	1.561
2.60	1.475	1.510	1.546	1.581	1.617	1.654	1.691
2.80	1.589	1.626	1.665	1.703	1.742	1.781	1.821
3.00	1.702	1.743	1.783	1.825	1.866	1.909	1.951
3.20	1.816	1.859	1.902	1.946	1.991	2.036	2.081
3.40	1.929	1.975	2.021	2.068	2.115	2.163	2.211
3.60	2.043	2.091	2.140	2.190	2.240	2.290	2.341
3.80	2.156	2.207	2.259	2.311	2.364	2.417	2.471
4.00	2.270	2.324	2.378	2.433	2.488	2.545	2.602
4.20	2.383	2.440	2.497	2.556	2.616	2.676	2.732
4.40	2.497	2.556	2.616	2.676	2.735	2.799	2.862
4.60	2.610	2.672	2.735	2.798	2.862	2.926	2.992
4.80	2.724	2.788	2.853	2.919	2.986	3.054	3.122
5.00	2.837	2.904	2.972	3.041	3.111	3.181	3.252
5.20	2.951	3.021	3.091	3.163	3.235	3.308	3.382
5.40	3.064	3.137	3.210	3.284	3.359	3.435	3.512
5.60	3.178	3.253	3.329	3.406	3.484	3.563	3.642
5.80	3.291	3.369	3.448	3.528	3.608	3.690	3.772
6.00	3.405	3.485	3.567	3.649	3.733	3.817	3.902
6.20	3.518	3.601	3.686	3.771	3.857	3.944	4.032
6.40	3.632	3.718	3.805	3.893	3.982	4.072	4.162
6.60	3.745	3.834	3.923	4.014	4.106	4.199	4.293
6.80	3.859	3.950	4.042	4.136	4.230	4.326	4.423
7.00	3.972	4.066	4.161	4.257	4.355	4.453	4.553
7.20	4.086	4.182	4.280	4.379	4.479	4.580	4.683
7.40	4.199	4.299	4.399	4.501	4.604	4.708	4.813
7.60	4.313	4.415	4.518	4.622	4.728	4.835	4.943
7.80	4.426	4.531	4.637	4.744	4.852	4.962	5.073
8.00	4.540	4.647	4.756	4.866	4.977	5.089	5.203
8.20	4.653	4.763	4.875	4.987	5.101	5.217	5.333
8.40	4.767	4.879	4.994	5.109	5.226	5.344	5.463
8.60	4.880	4.996	5.112	5.350	5.471	5.593	5.717
8.80	4.994	5.112	5.231	5.352	5.475	5.598	5.723

長さ (m)	平均均 径 (cm)						長さ (m)
	92	93	94	95	96	97	
1.00	0.565	0.679	0.694	0.709	0.724	0.739	0.754
1.20	0.681	0.798	0.815	0.833	0.851	0.869	0.887
1.40	0.794	0.901	0.918	0.931	0.951	0.972	1.005
1.60	0.908	0.929	0.945	0.964	0.987	1.110	1.134
1.80	1.021	1.046	1.095	1.120	1.171	1.223	1.276
2.00	1.135	1.162	1.189	1.216	1.244	1.272	1.301
2.20	1.248	1.278	1.308	1.338	1.369	1.400	1.431
2.40	1.362	1.394	1.427	1.460	1.493	1.527	1.561
2.60	1.475	1.510	1.546	1.581	1.617	1.654	1.691
2.80	1.589	1.626	1.665	1.703	1.742	1.781	1.821
3.00	1.702	1.743	1.783	1.825	1.866	1.909	1.951
3.20	1.816	1.859	1.902	1.946	1.991	2.036	2.081
3.40	1.929	1.975	2.021	2.068	2.115	2.163	2.211
3.60	2.043	2.091	2.140	2.190	2.240	2.290	2.341
3.80	2.156	2.207	2.259	2.311	2.364	2.417	2.471
4.00	2.270	2.324	2.378	2.433	2.488	2.545	2.602
4.20	2.383	2.440	2.497	2.556	2.613	2.672	2.732
4.40	2.497	2.556	2.616	2.676	2.735	2.799	2.862
4.60	2.610	2.672	2.735	2.798	2.862	2.926	2.992
4.80	2.724	2.788	2.853	2.919	2.986	3.054	3.122
5.00	2.837	2.904	2.972	3.041	3.111	3.181	3.252
5.20	2.951	3.021	3.091	3.163	3.235	3.308	3.382
5.40	3.064	3.137	3.210	3.284	3.359	3.435	3.512
5.60	3.178	3.253	3.329	3.406	3.484	3.563	3.642
5.80	3.291	3.369	3.448	3.528	3.608	3.690	3.772
6.00	3.405	3.485	3.567	3.649	3.733	3.817	3.902
6.20	3.518	3.601	3.686	3.771	3.857	3.944	4.032
6.40	3.632	3.718	3.805	3.893	3.982	4.072	4.162
6.60	3.745	3.834	3.923	4.014	4.106	4.199	4.293
6.80	3.859	3.950	4.042	4.136	4.230	4.326	4.423
7.00	3.972	4.066	4.161	4.257	4.355	4.453	4.553
7.20	4.086	4.182	4.280	4.379	4.479	4.580	4.683
7.40	4.199	4.299	4.399	4.501	4.604	4.708	4.813
7.60	4.313	4.415	4.518	4.622	4.728	4.835	4.943
7.80	4.426	4.531	4.637	4.744	4.852	4.962	5.073
8.00	4.540	4.647	4.756	4.866	4.977	5.089	5.203
8.20	4.653	4.763	4.875	4.987	5.101	5.217	5.333
8.40	4.767	4.879	4.994	5.109	5.226	5.344	5.463
8.60	4.880	4.996	5.112	5.350	5.471	5.593	5.717
8.80	4.994	5.112	5.231	5.352	5.475	5.598	5.723

(19)

(18)

長さ 1.00 ~ 8.80 m
平均径 99 ~ 105 cm

(単位=m³)

長さ (m)	平均均 径 (cm)					長さ (m)
	99	100	101	102	103	
3.00	3.142	3.205	3.269	3.333	3.398	3.464
3.20	3.299	3.365	3.432	3.500	3.568	3.637
3.40	3.387	3.456	3.525	3.595	3.666	3.738
3.60	3.541	3.613	3.685	3.759	3.833	3.908
3.80	3.925	2.985	3.045	3.105	3.166	3.228
4.00	3.079	2.356	2.404	2.451	2.500	2.558
4.20	2.463	2.513	2.564	2.615	2.666	2.718
4.40	2.617	2.670	2.724	2.778	2.833	2.888
4.60	2.771	2.827	2.884	2.942	3.000	3.058
4.80	2.925	2.985	3.045	3.105	3.166	3.228
5.00	3.849	3.927	4.006	4.086	4.166	4.247
5.20	4.003	4.084	4.166	4.249	4.333	4.417
5.40	4.157	4.241	4.326	4.413	4.499	4.587
5.60	4.311	4.398	4.487	4.576	4.666	4.757
5.80	4.465	4.555	4.647	4.739	4.833	4.927
6.00	4.619	4.712	4.807	4.903	4.999	5.097
6.20	4.773	4.869	4.967	5.066	5.166	5.267
6.40	4.927	5.027	5.123	5.230	5.333	5.437
6.60	5.080	5.184	5.298	5.393	5.499	5.607
6.80	5.234	5.341	5.448	5.556	5.666	5.777
7.00	5.388	5.498	5.608	5.720	5.833	5.946
7.20	5.542	5.655	5.769	5.883	5.999	6.116
7.40	5.696	5.812	5.929	6.047	6.166	6.286
7.60	5.850	5.969	6.089	6.210	6.333	6.456
7.80	6.004	6.126	6.249	6.374	6.499	6.626
8.00	6.158	6.283	6.409	6.537	6.666	6.796
8.20	6.312	6.440	6.570	6.700	6.832	6.966
8.40	6.466	6.597	6.730	6.864	6.999	7.136
8.60	6.620	6.754	6.890	7.027	7.166	7.306
8.80	6.774	6.912	7.050	7.191	7.332	7.476

(20)

長さ 1.00 ~ 8.80 m
平均径 106 ~ 112 cm

(単位=m³)

長さ (m)	平均均 径 (cm)					長さ (m)
	106	107	108	109	110	
1.00	0.770	0.785	0.801	0.817	0.833	0.849
1.20	0.924	0.942	0.961	0.981	1.000	1.019
1.40	1.078	1.100	1.122	1.144	1.167	1.189
1.60	1.232	1.257	1.282	1.307	1.333	1.359
1.80	1.386	1.414	1.442	1.471	1.500	1.529
2.00	1.540	1.571	1.602	1.634	1.666	1.699
2.20	1.693	1.728	1.763	1.798	1.833	1.869
2.40	1.847	1.885	1.923	1.961	2.000	2.039
2.60	2.001	2.042	2.083	2.125	2.166	2.209
2.80	2.155	2.199	2.243	2.288	2.333	2.379
3.00	2.309	2.356	2.404	2.451	2.500	2.548
3.20	2.463	2.513	2.564	2.615	2.666	2.718
3.40	2.617	2.670	2.724	2.778	2.833	2.944
3.60	2.771	2.827	2.884	2.942	3.000	3.058
3.80	2.925	2.985	3.045	3.105	3.166	3.228
4.00	3.079	3.142	3.205	3.269	3.333	3.398
4.20	3.233	3.299	3.365	3.432	3.500	3.568
4.40	3.387	3.456	3.525	3.595	3.666	3.738
4.60	3.541	3.613	3.685	3.759	3.833	3.908
4.80	3.695	3.770	3.846	3.922	4.000	4.078
5.00	3.849	3.927	4.006	4.086	4.166	4.247
5.20	4.003	4.084	4.166	4.249	4.333	4.417
5.40	4.157	4.241	4.326	4.413	4.499	4.587
5.60	4.311	4.398	4.487	4.576	4.666	4.757
5.80	4.465	4.555	4.647	4.739	4.833	4.927
6.00	4.619	4.712	4.807	4.903	4.999	5.097
6.20	4.773	4.869	4.967	5.066	5.166	5.267
6.40	4.927	5.027	5.123	5.230	5.333	5.437
6.60	5.080	5.184	5.298	5.393	5.499	5.607
6.80	5.234	5.341	5.448	5.556	5.666	5.777
7.00	5.388	5.498	5.608	5.720	5.833	5.946
7.20	5.542	5.655	5.769	5.883	5.999	6.116
7.40	5.696	5.812	5.929	6.047	6.166	6.286
7.60	5.850	5.969	6.089	6.210	6.333	6.456
7.80	6.004	6.126	6.249	6.374	6.499	6.626
8.00	6.158	6.283	6.409	6.537	6.666	6.796
8.20	6.312	6.440	6.570	6.700	6.832	6.966
8.40	6.466	6.597	6.730	6.864	6.999	7.136
8.60	6.620	6.754	6.890	7.027	7.166	7.306
8.80	6.774	6.912	7.050	7.191	7.332	7.476

(21)

長さ 1.00 ~ 8.80 m
平均径 106 ~ 112 cm

(単位=m³)

長さ (m)	平均均 径 (cm)					長さ (m)
	106	107	108	109	110	
1.00	0.770	0.785	0.801	0.817	0.833	0.849
1.20	0.924	0.942	0.961	0.981	1.000	1.019
1.40	1.078	1.100	1.122	1.144	1.167	1.189
1.60	1.232	1.257	1.282	1.307	1.333	1.359
1.80	1.386	1.414	1.442	1.471	1.500	1.529
2.00	1.540	1.571	1.602	1.634	1.666	1.699
2.20	1.693	1.728	1.763	1.798	1.833	1.869
2.40	1.847	1.885	1.923	1.961	2.000	2.039
2.60	2.001	2.042	2.083	2.125	2.166	2.209
2.80	2.155	2.199	2.243	2.288	2.333	2.379
3.00	2.309	2.356	2.404	2.451	2.500	2.548
3.20	2.463	2.513	2.564	2.615	2.666	2.718
3.40	2.617	2.670	2.724	2.778	2.833	2.888
3.60	2.771	2.827	2.884	2.942	3.000	3.058
3.80	2.925	2.985	3.045	3.105	3.166	3.228
4.00	3.079	3.142	3.205	3.269	3.333	3.398
4.20	3.233	3.299	3.365	3.432	3.500	3.568
4.40	3.387	3.456	3.525	3.595	3.666	3.738
4.60	3.541	3.613	3.685	3.759	3.833	3.908
4.80	3.695	3.770	3.846	3.922	4.000	4.078
5.00	3.849	3.927	4.006	4.086	4.166	4.247
5.20	4.003	4.084	4.166	4.249	4.333	4.417
5.40	4.157	4.241	4.326	4.413	4.499	4.587
5.60	4.311	4.398	4.487	4.576	4.666	4.757
5.80	4.465	4.555	4.647	4.739	4.833	4.927
6.00	4.619	4.712	4.807	4.903	4.999	5.097
6.20	4.773	4.869	4.967	5.066	5.166	5.267
6.40	4.927	5.027	5.123	5.230	5.333	5.437
6.60	5.080	5.184	5.298	5.393	5.499	5.607
6.80	5.234	5.341	5.448	5.556	5.666	5.777
7.00	5.388	5.498	5.608	5.720	5.833	5.946
7.20	5.542	5.655	5.769	5.883	5.999	6.116
7.40	5.696	5.812	5.929	6.047	6.166	6.286
7.60	5.850	5.969	6.089	6.210	6.333	6.456
7.80	6.004	6.126	6.249	6.374	6.499	6.626
8.00	6.158	6.283	6.409	6.537	6.666	6.796
8.20	6.312	6.440	6.570	6.700	6.832	6.966
8.40	6.466	6.597	6.730	6.864	6.999	7.136
8.60	6.620	6.754	6.890	7.027	7.166	7.306
8.80	6.774	6.912	7.050	7.191	7.332	7.476

長さ 1.00 ~ 8.80 m
平均径 113 ~ 119 cm
(単位=cm)

長さ (m)	平均径 (cm)					長さ (m)	
	113	114	115	116	117		
5.00	5.014	5.104	5.193	5.284	5.376	5.468	5.561
5.20	5.215	5.308	5.401	5.496	5.591	5.687	5.783
5.40	5.416	5.512	5.609	5.707	5.806	5.905	6.006
5.60	5.616	5.716	5.817	5.918	6.021	6.124	6.228
5.80	5.817	5.920	6.024	6.130	6.236	6.342	6.451
6.00	6.017	6.124	6.232	6.341	6.451	6.562	6.673
6.20	6.218	6.328	6.440	6.552	6.666	6.780	6.896
6.40	6.418	6.533	6.648	6.764	6.881	6.999	7.118
6.60	6.619	6.737	6.855	6.975	7.096	7.218	7.341
6.80	6.820	6.941	7.063	7.186	7.311	7.436	7.563
7.00	7.020	7.145	7.271	7.398	7.526	7.655	7.785
7.20	7.221	7.349	7.479	7.609	7.741	7.874	8.008
7.40	7.421	7.553	7.686	7.821	7.956	8.093	8.230
7.60	7.622	7.757	7.894	8.032	8.171	8.311	8.453
7.80	7.822	7.962	8.102	8.243	8.386	8.530	8.675
8.00	8.023	8.166	8.310	8.455	8.601	8.749	8.898
8.20	8.224	8.370	8.517	8.666	8.816	8.967	9.120
8.40	8.424	8.574	8.725	8.877	9.031	9.186	9.343
8.60	8.625	8.778	8.933	9.089	9.246	9.405	9.565
8.80	8.825	8.982	9.140	9.300	9.461	9.624	9.787

長さ 1.00 ~ 8.80 m
平均径 120 ~ 126 cm

(単位=cm)

長さ (m)	平均径 (cm)					長さ (m)	
	120	121	122	123	124		
1.00	1.003	1.021	1.039	1.057	1.075	1.094	1.112
1.20	1.203	1.225	1.246	1.268	1.290	1.312	1.335
1.40	1.404	1.429	1.454	1.480	1.505	1.531	1.557
1.60	1.605	1.633	1.662	1.691	1.720	1.750	1.780
1.80	1.805	1.837	1.870	1.902	1.935	1.968	2.002
2.00	2.006	2.041	2.077	2.114	2.150	2.187	2.224
2.20	2.206	2.246	2.285	2.325	2.365	2.406	2.447
2.40	2.407	2.450	2.493	2.536	2.580	2.625	2.669
2.60	2.607	2.654	2.701	2.748	2.795	2.843	2.892
2.80	2.808	2.858	2.908	2.959	3.010	3.062	3.114
3.00	3.009	3.062	3.116	3.171	3.225	3.281	3.337
3.20	3.209	3.266	3.324	3.382	3.440	3.499	3.559
3.40	3.410	3.470	3.532	3.593	3.655	3.718	3.781
3.60	3.610	3.675	3.739	3.805	3.870	3.937	4.004
3.80	3.811	3.879	3.947	4.016	4.086	4.156	4.226
4.00	4.012	4.083	4.155	4.227	4.301	4.374	4.449
4.20	4.212	4.287	4.363	4.439	4.516	4.593	4.671
4.40	4.413	4.491	4.570	4.650	4.731	4.812	4.894
4.60	4.613	4.695	4.778	4.861	4.946	5.031	5.116
4.80	4.814	4.899	4.966	5.073	5.161	5.249	5.339
5.00	5.014	5.104	5.193	5.284	5.376	5.468	5.561
5.20	5.215	5.308	5.401	5.496	5.591	5.687	5.783
5.40	5.416	5.512	5.609	5.707	5.806	5.905	6.006
5.60	5.616	5.716	5.817	5.918	6.021	6.124	6.228
5.80	5.817	5.920	6.024	6.130	6.236	6.342	6.451
6.00	6.017	6.124	6.232	6.341	6.451	6.562	6.673
6.20	6.218	6.328	6.440	6.552	6.666	6.780	6.896
6.40	6.418	6.533	6.648	6.764	6.881	6.999	7.118
6.60	6.619	6.737	6.855	6.975	7.096	7.218	7.341
6.80	6.820	6.941	7.063	7.186	7.311	7.436	7.563
7.00	7.020	7.145	7.271	7.398	7.526	7.655	7.785
7.20	7.221	7.349	7.479	7.609	7.741	7.874	8.008
7.40	7.421	7.553	7.686	7.821	7.956	8.093	8.230
7.60	7.622	7.757	7.894	8.032	8.171	8.311	8.453
7.80	7.822	7.962	8.102	8.243	8.386	8.530	8.675
8.00	8.023	8.166	8.310	8.455	8.601	8.749	8.898
8.20	8.224	8.370	8.517	8.666	8.816	8.967	9.120
8.40	8.424	8.574	8.725	8.877	9.031	9.186	9.343
8.60	8.625	8.778	8.933	9.089	9.246	9.405	9.565
8.80	8.825	8.982	9.140	9.300	9.461	9.624	9.787

長さ (m)	平均径 (cm)					長さ (m)	
	120	121	122	123	124		
1.00	1.003	1.021	1.039	1.057	1.075	1.094	1.112
1.20	1.203	1.225	1.246	1.268	1.290	1.312	1.335
1.40	1.404	1.429	1.454	1.480	1.505	1.531	1.557
1.60	1.605	1.633	1.662	1.691	1.720	1.750	1.780
1.80	1.805	1.837	1.870	1.902	1.935	1.968	2.002
2.00	2.006	2.041	2.077	2.114	2.150	2.187	2.224
2.20	2.206	2.246	2.285	2.325	2.365	2.406	2.447
2.40	2.407	2.450	2.493	2.536	2.580	2.625	2.669
2.60	2.607	2.654	2.701	2.748	2.795	2.843	2.892
2.80	2.808	2.858	2.908	2.959	3.010	3.062	3.114
3.00	3.009	3.062	3.116	3.171	3.225	3.281	3.337
3.20	3.209	3.266	3.324	3.382	3.440	3.499	3.559
3.40	3.410	3.470	3.532	3.593	3.655	3.718	3.781
3.60	3.610	3.675	3.739	3.805	3.870	3.937	4.004
3.80	3.811	3.879	3.947	4.016	4.086	4.156	4.226
4.00	4.012	4.083	4.155	4.227	4.301	4.374	4.449
4.20	4.212	4.287	4.363	4.439	4.516	4.593	4.671
4.40	4.413	4.491	4.570	4.650	4.731	4.812	4.894
4.60	4.613	4.695	4.778	4.861	4.946	5.031	5.116
4.80	4.814	4.899	4.966	5.073	5.161	5.249	5.339
5.00	5.014	5.104	5.193	5.284	5.376	5.468	5.561
5.20	5.215	5.308	5.401	5.496	5.591	5.687	5.783
5.40	5.416	5.512	5.609	5.707	5.806	5.905	6.006
5.60	5.616	5.716	5.817	5.918	6.021	6.124	6.228
5.80	5.817	5.920	6.024	6.130	6.236	6.342	6.451
6.00	6.017	6.124	6.232	6.341	6.451	6.562	6.673
6.20	6.218	6.328	6.440	6.552	6.666	6.780	6.896
6.40	6.418	6.533	6.648	6.764	6.881	6.999	7.118
6.60	6.619	6.737	6.855	6.975	7.096	7.218	7.341
6.80	6.820	6.941	7.063	7.186	7.311	7.436	7.563
7.00	7.020	7.145	7.271	7.398	7.526	7.655	7.785
7.20	7.221	7.349	7.479	7.609	7.741	7.874	8.008
7.40	7.421	7.553	7.686	7.821	7.956	8.093	8.230
7.60	7.622	7.757	7.894	8.032	8.171	8.311	8.453
7.80	7.822	7.962	8.102	8.243	8.386	8.530	8.675
8.00	8.023	8.166	8.310	8.455	8.601	8.749	8.898
8.20	8.224	8.370	8.517	8.666	8.816	8.967	9.120
8.40	8.424	8.574	8.725	8.877	9.031	9.186	9.343
8.60	8.625	8.778	8.933	9.089	9.246	9.405	9.565
8.80	8.825	8.982	9.140	9.300	9.461	9.624	9.787

(22)

長さ (m)	平均径 (cm)					長さ (m)	
	120	121	122	123	124		
1.00	1.003	1.021	1.039	1.057	1.075	1.094	1.112
1.20	1.203	1.225	1.246	1.268	1.290	1.312	1.335
1.40	1.404	1.429	1.454	1.480	1.505	1.531	1.557
1.60	1.605	1.633	1.662	1.691	1.720	1.750	1.780
1.80	1.805	1.837	1.870	1.902	1.935	1.968	2.002
2.00	2.006	2.041	2.077	2.114	2.150	2.187	2.224
2.20	2.206	2.246	2.285	2.325	2.365	2.406	2.447
2.40	2.407	2.450	2.493	2.536	2.580	2.625	2.669
2.60	2.607	2.654	2.701	2.748	2.795	2.843	2.892
2.80	2.808	2.858	2.908	2.959	3.010	3.062	3.114
3.00	3.009	3.062	3.116	3.171	3.225	3.281	3.337
3.20	3.209	3.266	3.324	3.382	3.440	3.499	3.559

長さ 1.00 ~ 8.80 m
平均径 127 ~ 133 cm

(単位=m³)

長さ (m)	平均径 (cm)						長さ (m)	
	127	128	129	130	131	132	133	
1.00	1.267	1.287	1.307	1.327	1.348	1.368	1.389	1.00
1.20	1.520	1.544	1.568	1.593	1.617	1.642	1.667	1.20
1.40	1.773	1.802	1.830	1.858	1.887	1.916	1.945	1.40
1.60	2.027	2.059	2.091	2.124	2.157	2.190	2.223	1.60
1.80	2.280	2.316	2.353	2.389	2.426	2.463	2.501	1.80
2.00	2.534	2.574	2.614	2.655	2.696	2.737	2.779	2.00
2.20	2.787	2.831	2.875	2.920	2.965	3.011	3.056	2.20
2.40	3.040	3.088	3.137	3.186	3.235	3.284	3.334	2.40
2.60	3.294	3.346	3.398	3.451	3.504	3.558	3.612	2.60
2.80	3.547	3.603	3.660	3.717	3.774	3.832	3.890	2.80
3.00	3.800	3.860	3.921	3.982	4.043	4.105	4.168	3.00
3.20	4.054	4.118	4.182	4.247	4.313	4.379	4.446	3.20
3.40	4.307	4.375	4.444	4.513	4.583	4.653	4.724	3.40
3.60	4.560	4.632	4.705	4.778	4.852	4.927	5.001	3.60
3.80	4.814	4.890	4.967	5.044	5.122	5.200	5.279	3.80
4.00	5.067	5.147	5.228	5.309	5.391	5.474	5.557	4.00
4.20	5.320	5.405	5.489	5.575	5.661	5.748	5.835	4.20
4.40	5.574	5.662	5.751	5.840	5.930	6.021	6.113	4.40
4.60	5.827	5.919	6.012	6.106	6.200	6.295	6.391	4.60
4.80	6.081	6.177	6.274	6.371	6.470	6.569	6.669	4.80
5.00	6.334	6.434	6.535	6.637	6.739	6.842	6.946	5.00
5.20	6.587	6.691	6.796	6.902	7.009	7.116	7.224	5.20
5.40	6.841	6.949	7.058	7.168	7.278	7.390	7.502	5.40
5.60	7.094	7.206	7.319	7.433	7.548	7.663	7.780	5.60
5.80	7.347	7.463	7.581	7.698	7.817	8.058	8.336	5.80
6.00	7.601	7.721	7.842	7.964	8.087	8.211	8.435	6.00
6.20	7.854	7.978	8.103	8.229	8.357	8.485	8.614	6.20
6.40	8.107	8.236	8.365	8.495	8.626	8.758	8.891	6.40
6.60	8.361	8.493	8.626	8.760	8.896	9.032	9.169	6.60
6.80	8.614	8.750	8.887	9.026	9.165	9.306	9.447	6.80
7.00	8.867	9.008	9.149	9.291	9.435	9.579	9.725	7.00
7.20	9.121	9.265	9.410	9.557	9.704	9.853	10.003	7.20
7.40	9.374	9.522	9.672	9.822	9.974	10.127	10.281	7.40
7.60	9.627	9.780	9.933	10.088	10.243	10.400	10.559	7.60
7.80	9.881	10.037	10.194	10.353	10.513	10.674	10.836	7.80
8.00	10.134	10.294	10.456	10.619	10.783	10.948	11.114	8.00
8.20	10.388	10.552	10.717	10.884	11.052	11.222	11.392	8.20
8.40	10.641	10.809	10.979	11.150	11.322	11.495	11.670	8.40
8.60	10.894	11.066	11.240	11.415	11.591	11.769	11.948	8.60
8.80	11.148	11.324	11.501	11.680	11.861	12.043	12.226	8.80

(24)

長さ 1.00 ~ 8.80 m
平均径 134 ~ 140 cm

(単位=m³)

長さ (m)	平均径 (cm)						長さ (m)	
	134	135	136	137	138	139	140	
1.40	1.410	1.431	1.453	1.474	1.496	1.517	1.539	1.00
1.60	1.692	1.718	1.743	1.769	1.795	1.821	1.847	1.20
1.80	1.974	2.004	2.034	2.064	2.094	2.124	2.155	1.40
2.00	2.256	2.290	2.324	2.359	2.393	2.428	2.463	1.60
2.20	2.538	2.577	2.615	2.653	2.692	2.731	2.771	1.80
2.40	2.821	2.863	2.905	2.948	2.991	3.035	3.079	2.00
2.60	3.103	3.149	3.196	3.243	3.291	3.338	3.387	2.20
2.80	3.385	3.435	3.486	3.538	3.590	3.642	3.695	2.40
3.00	3.667	3.722	3.777	3.833	3.889	3.945	4.002	2.60
3.20	3.949	4.008	4.067	4.128	4.188	4.249	4.310	2.80
3.40	4.231	4.294	4.358	4.422	4.487	4.552	4.618	3.00
3.60	4.513	4.580	4.649	4.717	4.786	4.856	4.926	3.20
3.80	4.795	4.867	4.939	5.012	5.085	5.159	5.234	3.40
4.00	5.077	5.153	5.230	5.307	5.385	5.463	5.542	3.60
4.20	5.359	5.439	5.520	5.602	5.684	5.766	5.850	3.80
4.40	5.641	5.726	5.811	5.896	5.983	6.070	6.158	4.00
4.60	5.923	6.012	6.101	6.191	6.282	6.373	6.465	4.20
4.80	6.205	6.298	6.392	6.486	6.581	6.677	6.773	4.40
5.00	6.487	6.584	6.682	6.781	6.880	6.980	7.081	4.60
5.20	6.769	6.871	6.973	7.076	7.179	7.284	7.389	4.80
5.40	7.157	7.263	7.371	7.479	7.587	7.697	7.797	5.00
5.60	7.333	7.443	7.554	7.665	7.778	7.891	8.005	5.20
5.80	7.615	7.730	7.844	7.960	8.077	8.194	8.313	5.40
6.00	7.897	8.016	8.135	8.255	8.376	8.498	8.621	5.60
6.20	8.180	8.302	8.426	8.550	8.675	8.801	8.928	5.80
6.40	8.462	8.588	8.716	8.845	8.974	9.105	9.236	6.00
6.60	8.744	8.875	8.975	9.104	9.273	9.408	9.544	6.20
6.80	9.026	9.161	9.297	9.434	9.573	9.712	9.852	6.40
7.00	9.308	9.447	9.588	9.729	9.872	10.015	10.160	6.60
7.20	9.590	9.733	9.878	10.024	10.171	10.319	10.468	6.80
7.40	9.733	9.878	10.024	10.171	10.319	10.468	10.622	7.00
7.60	10.020	10.169	10.319	10.470	10.622	10.776	10.926	7.20
7.80	10.306	10.459	10.614	10.769	10.908	11.048	11.194	7.40
8.00	10.436	10.592	10.750	10.908	11.068	11.229	11.391	7.60
8.20	10.718	10.879	11.040	11.203	11.333	11.498	11.667	7.80
8.40	11.000	11.165	11.331	11.498	11.667	11.836	12.007	8.00
8.60	11.282	11.451	11.621	11.793	11.966	12.140	12.315	8.20
8.80	11.564	11.737	11.912	12.088	12.265	12.443	12.623	8.40
9.00	11.846	12.024	12.202	12.383	12.564	12.747	12.931	8.60
9.20	12.128	12.310	12.493	12.683	12.863	13.050	13.239	8.80
9.40	12.410	12.596	12.784	12.972	13.162	13.354	13.547	9.00

(25)

長さ 1.00 ~ 8.80 m
平均径 141 ~ 147 cm
(単位=m³)

長さ (m)	平 均 径 (cm)					長さ (m)
	141	142	143	144	145	
1.00	1.561	1.584	1.606	1.629	1.651	1.697
1.20	1.874	1.900	1.927	1.954	1.982	2.037
1.40	2.186	2.217	2.248	2.280	2.312	2.376
1.60	2.498	2.534	2.570	2.606	2.642	2.715
1.80	2.811	2.851	2.891	2.931	2.972	3.055
2.00	3.123	3.167	3.212	3.257	3.303	3.348
2.20	3.435	3.484	3.533	3.583	3.633	3.734
2.40	3.747	3.801	3.855	3.909	3.963	4.018
2.60	4.060	4.118	4.176	4.234	4.293	4.353
2.80	4.372	4.434	4.497	4.560	4.624	4.752
3.00	4.684	4.751	4.818	4.886	4.954	5.022
3.20	4.997	5.068	5.139	5.212	5.284	5.357
3.40	5.309	5.385	5.461	5.537	5.614	5.770
3.60	5.621	5.701	5.782	5.863	5.945	6.027
3.80	5.934	6.018	6.103	6.189	6.275	6.449
4.00	6.246	6.335	6.424	6.514	6.605	6.697
4.20	6.558	6.651	6.745	6.840	6.935	7.031
4.40	6.870	6.968	7.067	7.166	7.266	7.366
4.60	7.183	7.285	7.388	7.492	7.596	7.807
4.80	7.495	7.602	7.709	7.817	7.926	8.036
5.00	7.807	7.918	8.030	8.143	8.257	8.371
5.20	8.120	8.235	8.352	8.469	8.587	8.706
5.40	8.432	8.552	8.673	8.794	8.917	9.040
5.60	8.744	8.869	8.994	9.120	9.247	9.375
5.80	9.056	9.185	9.315	9.446	9.578	9.710
6.00	9.369	9.502	9.636	9.772	9.908	10.045
6.20	9.681	9.819	9.958	10.097	10.238	10.380
6.40	9.993	10.136	10.279	10.423	10.568	10.715
6.60	10.306	10.452	10.600	10.749	10.899	11.049
6.80	10.618	10.769	10.921	11.075	11.229	11.541
7.00	10.930	11.086	11.242	11.400	11.559	11.719
7.20	11.242	11.403	11.564	11.726	11.889	12.054
7.40	11.555	11.719	11.885	12.052	12.220	12.389
7.60	11.867	12.036	12.206	12.377	12.550	12.724
7.80	12.179	12.353	12.527	12.703	12.880	13.058
8.00	12.492	12.669	12.849	13.029	13.210	13.577
8.20	12.804	12.986	13.170	13.355	13.541	13.917
8.40	13.116	13.303	13.491	13.680	13.871	14.063
8.60	13.429	13.620	13.812	14.006	14.201	14.398
8.80	13.741	13.936	14.133	14.332	14.531	14.733

(26)

長さ 1.00 ~ 8.80 m
平均径 143 ~ 154 cm
(単位=m³)

長さ (m)	平 均 径 (cm)					長さ (m)
	148	149	150	151	152	
1.00	1.561	1.584	1.606	1.629	1.651	1.697
1.20	1.874	1.900	1.927	1.954	1.982	2.037
1.40	2.186	2.217	2.248	2.280	2.312	2.376
1.60	2.498	2.534	2.570	2.606	2.642	2.715
1.80	2.811	2.851	2.891	2.931	2.972	3.055
2.00	3.123	3.167	3.212	3.257	3.303	3.348
2.20	3.435	3.484	3.533	3.583	3.633	3.734
2.40	3.747	3.801	3.855	3.909	3.963	4.018
2.60	4.060	4.118	4.176	4.234	4.293	4.353
2.80	4.372	4.434	4.497	4.560	4.624	4.752
3.00	4.684	4.751	4.818	4.886	4.954	5.022
3.20	4.997	5.068	5.139	5.212	5.284	5.357
3.40	5.309	5.385	5.461	5.537	5.614	5.770
3.60	5.621	5.701	5.782	5.863	5.945	6.110
3.80	5.934	6.018	6.103	6.189	6.275	6.449
4.00	6.246	6.335	6.424	6.514	6.605	6.697
4.20	6.558	6.651	6.745	6.840	6.935	7.031
4.40	6.870	6.968	7.067	7.166	7.266	7.366
4.60	7.183	7.285	7.388	7.492	7.596	7.807
4.80	7.495	7.602	7.709	7.817	7.926	8.146
5.00	7.807	7.918	8.030	8.143	8.257	8.371
5.20	8.120	8.235	8.352	8.469	8.587	8.706
5.40	8.432	8.552	8.673	8.794	8.917	9.040
5.60	8.744	8.869	8.994	9.120	9.247	9.375
5.80	9.056	9.185	9.315	9.446	9.578	9.710
6.00	9.369	9.502	9.636	9.772	9.908	10.045
6.20	9.681	9.819	9.958	10.097	10.238	10.380
6.40	9.993	10.136	10.279	10.423	10.568	10.715
6.60	10.306	10.452	10.600	10.749	10.899	11.049
6.80	10.618	10.769	10.921	11.075	11.229	11.541
7.00	10.930	11.086	11.242	11.400	11.559	11.719
7.20	11.242	11.403	11.564	11.726	11.889	12.054
7.40	11.555	11.719	11.885	12.052	12.220	12.389
7.60	11.867	12.036	12.206	12.377	12.550	12.724
7.80	12.179	12.353	12.527	12.703	12.880	13.058
8.00	12.492	12.669	12.849	13.029	13.210	13.577
8.20	12.804	12.986	13.170	13.355	13.541	13.917
8.40	13.116	13.303	13.491	13.680	13.871	14.063
8.60	13.429	13.620	13.812	14.006	14.201	14.398
8.80	13.741	13.936	14.133	14.332	14.531	14.733

(27)

長さ 1.00 ~ 8.80 m
平均径 155 ~ 161 cm
(単位=m³)

長さ (m)	平均径 (cm)					長さ (m)	
	155	156	157	158	159		
1.00	1.887	1.911	1.936	1.961	1.986	2.011	2.036
1.20	2.264	2.294	2.323	2.353	2.383	2.413	2.443
1.40	2.642	2.676	2.710	2.745	2.780	2.815	2.850
1.60	3.019	3.058	3.097	3.137	3.177	3.217	3.257
1.80	3.396	3.440	3.485	3.529	3.574	3.619	3.665
2.00	3.774	3.823	3.872	3.921	3.971	4.021	4.072
2.20	4.151	4.205	4.259	4.313	4.368	4.423	4.479
2.40	4.529	4.587	4.646	4.706	4.765	4.825	4.886
2.60	4.906	4.970	5.033	5.098	5.162	5.228	5.293
2.80	5.283	5.352	5.421	5.490	5.560	5.630	5.700
3.00	5.661	5.734	5.808	5.882	5.957	6.032	6.108
3.20	6.038	6.116	6.195	6.274	6.354	6.434	6.515
3.40	6.416	6.499	6.582	6.666	6.751	6.836	6.922
3.60	6.793	6.881	6.969	7.058	7.148	7.238	7.329
3.80	7.170	7.263	7.357	7.451	7.545	7.640	7.736
4.00	7.548	7.645	7.744	7.843	7.942	8.042	8.143
4.20	7.925	8.033	8.131	8.235	8.339	8.445	8.551
4.40	8.302	8.410	8.518	8.627	8.737	8.847	8.958
4.60	8.680	8.792	8.905	9.019	9.134	9.249	9.365
4.80	9.057	9.174	9.292	9.411	9.531	9.651	9.772
5.00	9.435	9.557	9.680	9.803	9.928	10.053	10.179
5.20	9.812	9.939	10.067	10.195	10.325	10.455	10.586
5.40	10.189	10.321	10.454	10.588	10.722	10.857	10.994
5.60	10.567	10.704	10.841	10.980	11.119	11.259	11.401
5.80	10.944	11.086	11.228	11.372	11.516	11.662	11.808
6.00	11.322	11.468	11.616	11.764	11.913	12.064	12.215
6.20	11.696	11.859	12.003	12.156	12.311	12.466	12.622
6.40	12.076	12.233	12.390	12.548	12.708	12.863	13.029
6.60	12.454	12.615	12.777	12.940	13.105	13.270	13.437
6.80	12.831	12.997	13.164	13.333	13.502	13.672	13.844
7.00	13.208	13.370	13.552	13.725	13.899	14.074	14.251
7.20	13.586	13.762	13.939	14.117	14.296	14.476	14.658
7.40	13.963	14.144	14.326	14.509	14.693	14.879	15.065
7.60	14.341	14.525	14.713	14.901	15.090	15.281	15.472
7.80	14.718	14.919	15.100	15.293	15.487	15.683	15.880
8.00	15.095	15.291	15.487	15.685	15.885	16.085	16.287
8.20	15.473	15.673	15.875	16.078	16.282	16.487	16.694
8.40	15.850	16.055	16.250	16.450	16.679	16.889	17.101
8.60	16.228	16.438	16.649	16.862	17.076	17.291	17.508
8.80	16.605	16.820	17.036	17.254	17.473	17.693	17.915

(28)

長さ 1.00 ~ 8.80 m
平均径 162 ~ 168 cm
(単位=m³)

長さ (m)	平均径 (cm)					長さ (m)
	162	163	164	165	166	
1.00	2.061	2.087	2.112	2.138	2.164	2.190
1.20	2.473	2.504	2.535	2.566	2.597	2.628
1.40	2.886	2.921	2.957	2.994	3.030	3.067
1.60	3.298	3.339	3.380	3.421	3.463	3.505
1.80	3.710	3.756	3.802	3.849	3.943	3.990
2.00	4.122	4.173	4.225	4.277	4.328	4.381
2.20	4.535	4.591	4.647	4.704	4.761	4.819
2.40	4.947	5.008	5.070	5.132	5.194	5.257
2.60	5.359	5.425	5.492	5.559	5.627	5.695
2.80	5.771	5.843	5.915	5.987	6.060	6.133
3.00	6.184	6.260	6.337	6.415	6.493	6.571
3.20	6.596	6.678	6.750	6.842	6.926	7.009
3.40	7.008	7.095	7.182	7.270	7.358	7.447
3.60	7.420	7.512	7.605	7.698	7.791	7.885
3.80	7.833	7.930	8.027	8.125	8.224	8.424
4.00	8.245	8.347	8.450	8.553	8.657	8.867
4.20	8.657	8.764	8.872	8.981	9.090	9.200
4.40	9.069	9.182	9.295	9.405	9.523	9.638
4.60	9.482	9.599	9.717	9.836	9.956	10.197
4.80	9.894	10.016	10.140	10.264	10.388	10.514
5.00	10.306	10.434	10.562	10.691	10.821	10.952
5.20	10.718	10.851	10.985	11.119	11.254	11.390
5.40	11.131	11.268	11.407	11.547	11.687	11.828
5.60	11.543	11.686	11.830	11.974	12.120	12.266
5.80	11.955	12.103	12.252	12.402	12.553	12.704
6.00	12.367	12.520	12.674	12.830	12.985	13.142
6.20	12.779	12.938	13.097	13.257	13.418	13.580
6.40	13.192	13.355	13.519	13.685	13.851	14.019
6.60	13.604	13.772	13.942	14.112	14.234	14.457
6.80	14.016	14.190	14.364	14.540	14.717	14.895
7.00	14.428	14.607	14.787	14.968	15.150	15.333
7.20	14.841	15.024	15.210	15.395	15.583	15.771
7.40	15.253	15.442	15.632	15.823	16.015	16.209
7.60	15.665	15.859	16.054	16.251	16.448	16.647
7.80	16.077	16.276	16.477	16.678	16.881	17.085
8.00	16.490	16.694	16.899	17.106	17.314	17.523
8.20	16.902	17.111	17.322	17.534	17.747	17.961
8.40	17.314	17.529	17.735	17.941	18.150	18.359
8.60	17.726	17.946	18.167	18.389	18.613	18.837
8.80	18.139	18.363	18.559	18.817	19.035	19.276

(29)

長さ 1.00 ~ 8.80 m
平均径 162 ~ 168 cm
(単位=m³)

長さ 1.00 ~ 0.80 m
平均径 169 ~ 175 cm
(単位=m)

長さ (m)	平均 均 径 (cm)					長さ (m)	
	169	170	171	172	173		
1.00	2.243	2.270	2.297	2.324	2.351	2.378	2.405
1.20	2.692	2.724	2.756	2.788	2.821	2.853	2.886
1.40	3.140	3.178	3.215	3.253	3.291	3.329	3.367
1.60	3.569	3.632	3.675	3.718	3.761	3.805	3.848
1.80	4.038	4.086	4.134	4.182	4.231	4.280	4.330
2.00	4.486	4.540	4.593	4.647	4.701	4.756	4.811
2.20	4.935	4.994	5.052	5.112	5.171	5.231	5.292
2.40	5.384	5.448	5.512	5.576	5.641	5.707	5.773
2.60	5.832	5.901	5.971	6.041	6.112	6.182	6.254
2.80	6.281	6.355	6.430	6.506	6.582	6.658	6.735
3.00	6.730	6.809	6.890	6.971	7.052	7.134	7.216
3.20	7.178	7.263	7.349	7.435	7.522	7.609	7.697
3.40	7.627	7.717	7.808	7.900	7.992	8.085	8.178
3.60	8.077	8.171	8.268	8.365	8.462	8.560	8.659
3.80	8.524	8.625	8.727	8.829	8.932	9.036	9.140
4.00	8.973	9.079	9.186	9.294	9.402	9.512	9.621
4.20	9.421	9.533	9.646	9.759	9.873	9.987	10.102
4.40	9.870	9.987	10.105	10.224	10.343	10.463	10.583
4.60	10.319	10.441	10.564	10.688	10.813	10.938	11.064
4.80	10.767	10.895	11.024	11.153	11.283	11.414	11.545
5.00	11.216	11.349	11.483	11.618	11.753	11.889	12.026
5.20	11.665	11.803	11.942	12.082	12.223	12.365	12.507
5.40	12.113	12.257	12.402	12.547	12.693	12.841	12.989
5.60	12.562	12.711	12.861	13.012	13.163	13.316	13.470
5.80	13.010	13.165	13.320	13.476	13.634	13.792	13.951
6.00	13.459	13.619	13.780	13.941	14.104	14.267	14.432
6.20	13.908	14.073	14.239	14.406	14.574	14.743	14.913
6.40	14.356	14.527	14.698	14.871	15.044	15.218	15.394
6.60	14.805	14.981	15.157	15.335	15.514	15.875	16.694
6.80	15.254	15.435	15.617	15.800	15.984	16.170	16.356
7.00	15.702	15.889	16.076	16.265	16.454	16.645	16.837
7.20	16.151	16.343	16.535	16.729	16.924	17.121	17.318
7.40	16.600	16.797	16.995	17.194	17.395	17.596	17.799
7.60	17.048	17.251	17.454	17.659	17.865	18.072	18.280
7.80	17.497	17.704	17.913	18.121	18.335	18.547	18.761
8.00	17.945	18.158	18.373	18.588	18.805	19.023	19.242
8.20	18.394	18.612	18.832	19.053	19.275	19.499	19.723
8.40	18.843	19.066	19.291	19.518	19.74	20.204	20.450
8.60	19.291	19.520	19.751	19.982	20.515	20.685	21.401
8.80	19.740	19.974	20.210	20.447	20.685	21.167	21.925

(30)

長さ 1.00 ~ 0.80 m
平均径 176 ~ 182 cm
(単位=m)

長さ (m)	平均 均 径 (cm)					長さ (m)	
	176	177	178	179	180		
2.00	2.433	2.461	2.488	2.517	2.545	2.573	2.602
2.20	2.892	2.953	2.986	3.020	3.054	3.088	3.122
2.40	3.345	3.406	3.445	3.523	3.563	3.602	3.642
2.60	3.893	3.937	3.982	4.026	4.072	4.117	4.162
2.80	4.379	4.379	4.429	4.530	4.580	4.631	4.683
3.00	4.866	4.921	4.977	5.033	5.089	5.146	5.203
3.20	5.352	5.413	5.475	5.536	5.598	5.661	5.723
3.40	5.839	5.905	5.972	6.040	6.107	6.175	6.244
3.60	6.325	6.398	6.470	6.543	6.616	6.690	6.764
3.80	6.812	6.890	6.968	7.046	7.125	7.205	7.284
4.00	7.299	7.382	7.465	7.550	7.634	7.719	7.805
4.20	7.785	7.874	7.963	8.053	8.143	8.234	8.320
4.40	8.272	8.366	8.461	8.556	8.652	8.748	8.845
4.60	8.758	8.858	8.958	9.059	9.161	9.263	9.366
4.80	9.245	9.350	9.456	9.563	9.670	9.778	9.886
5.00	9.731	9.842	9.954	10.066	10.179	10.292	10.406
5.20	10.218	10.334	10.452	10.569	10.688	10.807	10.927
5.40	10.705	10.827	10.949	11.073	11.197	11.321	11.447
5.60	11.191	11.319	11.447	11.576	11.706	11.836	11.967
5.80	11.678	11.811	11.945	12.079	12.215	12.351	12.487
6.00	12.164	12.303	12.442	12.583	12.723	12.865	13.008
6.20	12.651	12.795	12.940	13.086	13.232	13.380	13.528
6.40	13.137	13.287	13.438	13.589	13.741	13.894	14.048
6.60	13.624	13.779	13.935	14.092	14.250	14.409	14.569
6.80	14.111	14.271	14.433	14.596	14.759	14.924	15.089
7.00	14.597	14.763	14.931	15.099	15.268	15.438	15.609
7.20	15.084	15.256	15.428	15.602	15.777	15.953	16.130
7.40	15.570	15.747	15.918	16.092	16.268	16.468	16.650
7.60	16.057	16.240	16.424	16.609	16.785	16.982	17.170
7.80	16.543	16.732	16.922	17.112	17.304	17.497	17.691
8.00	17.030	17.224	17.419	17.616	17.813	18.011	18.211
8.20	17.517	17.716	17.917	18.119	18.322	18.521	18.731
8.40	18.003	18.208	18.415	18.622	18.831	19.041	19.252
8.60	18.490	18.700	18.912	19.125	19.340	19.555	19.772
8.80	18.976	19.193	19.410	19.629	19.849	20.070	20.292
9.00	19.463	19.685	19.908	20.132	20.358	20.584	20.812
9.20	19.949	20.177	20.405	20.635	20.867	21.099	21.333
9.40	20.436	20.669	20.903	21.139	21.375	21.614	21.853
9.60	20.923	21.161	21.401	21.642	21.884	22.128	22.373
9.80	21.409	21.653	21.898	22.145	22.393	22.643	22.894

(31)

長さ 1.00 ~ 8.90 m
平均径 183 ~ 189 cm
(単位=m³)

長さ (m)	平均径 (cm)					長さ (m)
	183	184	185	186	187	
1.00	2.630	2.659	2.688	2.717	2.746	2.806
1.20	3.156	3.191	3.226	3.296	3.331	3.367
1.40	3.682	3.723	3.763	3.804	3.845	3.928
1.60	4.208	4.254	4.301	4.347	4.394	4.441
1.80	4.734	4.786	4.838	4.891	4.944	5.050
2.00	5.260	5.318	5.376	5.434	5.493	5.552
2.20	5.786	5.850	5.914	5.978	6.107	6.172
2.40	6.313	6.382	6.451	6.521	6.592	6.743
2.60	6.839	6.914	6.989	7.065	7.141	7.294
2.80	7.365	7.445	7.526	7.608	7.690	7.773
3.00	7.891	7.977	8.064	8.152	8.239	8.328
3.20	8.417	8.509	8.602	8.695	8.789	8.883
3.40	8.943	9.041	9.139	9.238	9.338	9.539
3.60	9.469	9.573	9.677	9.782	9.887	9.993
3.80	9.995	10.104	10.215	10.325	10.437	10.548
4.00	10.521	10.636	10.752	10.869	11.104	11.222
4.20	11.047	11.168	11.290	11.412	11.535	11.783
4.40	11.573	11.700	11.827	11.956	12.084	12.344
4.60	12.099	12.232	12.365	12.499	12.634	12.769
4.80	12.625	12.763	12.903	13.042	13.183	13.324
5.00	13.151	13.295	13.440	13.586	13.732	13.880
5.20	13.677	13.827	13.978	14.129	14.282	14.435
5.40	14.203	14.359	14.515	14.673	14.831	14.990
5.60	14.729	14.891	15.053	15.216	15.350	15.545
5.80	15.255	15.422	15.591	15.760	15.929	16.100
6.00	15.781	15.954	16.128	16.303	16.479	16.656
6.20	16.307	16.486	16.666	16.846	17.028	17.211
6.40	16.833	17.018	17.203	17.390	17.577	17.766
6.60	17.359	17.550	17.741	17.933	18.127	18.321
6.80	17.886	18.032	18.279	18.477	18.676	19.078
7.00	18.412	18.613	18.816	19.020	19.225	19.431
7.20	18.938	19.145	19.354	19.564	19.987	20.200
7.40	19.464	19.677	19.891	20.107	20.324	20.542
7.60	19.990	20.209	20.429	20.650	21.097	21.322
7.80	20.516	20.741	20.967	21.194	21.422	21.652
8.00	21.042	21.272	21.504	21.737	21.972	22.207
8.20	21.568	21.801	22.042	22.321	22.521	22.763
8.40	22.094	22.336	22.579	22.824	23.070	23.318
8.60	22.620	22.868	23.117	23.368	23.620	23.873
8.80	23.146	23.400	23.655	23.911	24.169	24.428

長さ 1.00 ~ 8.90 m
平均径 183 ~ 189 cm
(単位=m³)

長さ (m)	平均径 (cm)					長さ (m)
	190	191	192	193	194	
1.00	2.835	2.865	2.895	2.926	2.956	2.986
1.20	3.402	3.438	3.474	3.511	3.547	3.584
1.40	3.969	4.011	4.053	4.096	4.138	4.181
1.60	4.536	4.584	4.632	4.681	4.729	4.828
1.80	5.104	5.157	5.212	5.266	5.321	5.431
2.00	5.671	5.730	5.791	5.851	5.912	5.973
2.20	6.238	6.303	6.436	6.503	6.638	6.720
2.40	6.805	6.877	6.949	7.021	7.094	7.241
2.60	7.372	7.450	7.528	7.606	7.685	7.845
2.80	7.939	8.023	8.107	8.192	8.277	8.448
3.00	8.506	8.596	8.686	8.777	8.868	8.959
3.20	9.073	9.169	9.265	9.362	9.459	9.655
3.40	9.640	9.742	9.844	9.947	10.054	10.258
3.60	10.207	10.315	10.423	10.532	10.641	10.862
3.80	10.774	10.888	11.002	11.117	11.233	11.465
4.00	11.341	11.461	11.581	11.702	11.824	12.069
4.20	11.908	12.034	12.160	12.287	12.415	12.672
4.40	12.475	12.607	12.739	12.872	13.006	13.276
4.60	13.022	13.160	13.318	13.457	13.597	13.879
4.80	13.609	13.753	13.897	14.043	14.188	14.483
5.00	14.176	14.326	14.476	14.628	14.780	14.932
5.20	14.744	14.899	15.056	15.213	15.371	15.530
5.40	15.311	15.472	15.635	15.798	15.962	16.127
5.60	15.878	16.045	16.214	16.383	16.553	16.724
5.80	16.445	16.618	16.793	16.968	17.144	17.322
6.00	17.012	17.191	17.372	17.553	17.736	17.919
6.20	17.579	17.764	17.951	18.138	18.337	18.516
6.40	18.146	18.337	18.530	18.723	18.918	19.310
6.60	18.713	18.910	19.109	19.309	19.509	19.913
6.80	19.280	19.483	19.688	19.894	20.100	20.308
7.00	19.847	20.057	20.267	20.479	20.692	21.120
7.20	20.414	20.630	20.846	21.064	21.283	21.724
7.40	20.981	21.203	21.425	21.649	21.874	22.327
7.60	21.548	21.776	22.004	22.234	22.465	22.931
7.80	22.115	22.349	22.583	22.819	23.056	23.534
8.00	22.682	22.922	23.162	23.404	23.647	24.138
8.20	23.295	23.521	23.741	23.989	24.239	24.741
8.40	23.816	24.068	24.321	24.575	24.830	25.066
8.60	24.384	24.641	24.900	25.160	25.421	25.684
8.80	24.951	25.214	25.479	25.745	26.012	26.281

長さ 1.00 ~ 8.80 m
平均径 197 ~ 203 cm
(単位=m³)

長さ (m)	197	198	199	200	201	202	203	平 均 径 (cm)
1.00	3.048	3.079	3.110	3.142	3.173	3.205	3.237	3.237
1.20	3.658	3.695	3.732	3.770	3.808	3.846	3.884	3.884
1.40	4.267	4.311	4.354	4.398	4.442	4.487	4.531	4.531
1.60	4.877	4.927	4.976	5.027	5.077	5.128	5.178	5.178
1.80	5.487	5.542	5.598	5.655	5.712	5.769	5.826	5.826
2.00	6.096	6.158	6.221	6.283	6.346	6.409	6.473	6.473
2.20	6.706	6.774	6.843	6.912	6.981	7.050	7.120	7.120
2.40	7.315	7.390	7.465	7.540	7.615	7.691	7.768	7.768
2.60	7.925	8.006	8.087	8.168	8.250	8.332	8.415	8.415
2.80	8.535	8.621	8.709	8.796	8.885	8.973	9.062	9.062
3.00	9.144	9.237	9.331	9.425	9.519	9.614	9.710	9.710
3.20	9.754	9.853	9.953	10.053	10.154	10.255	10.357	10.357
3.40	10.363	10.469	10.575	10.681	10.789	10.896	11.004	11.004
3.60	10.973	11.085	11.197	11.310	11.423	11.537	11.652	11.652
3.80	11.583	11.701	11.819	11.938	12.058	12.178	12.299	12.299
4.00	12.192	12.316	12.441	12.566	12.692	12.819	12.946	12.946
4.20	12.802	12.932	13.063	13.195	13.327	13.460	13.594	13.594
4.40	13.411	13.548	13.685	13.823	13.962	14.101	14.241	14.241
4.60	14.021	14.164	14.307	14.451	14.596	14.742	14.888	14.888
4.80	14.631	14.780	14.929	15.080	15.231	15.383	15.535	15.535
5.00	15.240	15.395	15.551	15.708	15.865	16.024	16.183	16.183
5.20	15.850	16.011	16.173	16.336	16.500	16.665	16.830	16.830
5.40	16.460	16.627	16.795	16.965	17.135	17.306	17.477	17.477
5.60	17.069	17.243	17.417	17.593	17.769	17.947	18.125	18.125
5.80	17.679	17.859	18.040	18.221	18.404	18.588	18.772	18.772
6.00	18.288	18.474	18.662	18.850	19.039	19.228	19.419	19.419
6.20	18.898	19.090	19.284	19.478	19.673	19.869	20.067	20.067
6.40	19.508	19.706	19.906	20.106	20.308	20.510	20.714	20.714
6.60	20.117	20.322	20.528	20.735	21.042	21.361	21.772	21.772
6.80	20.727	20.938	21.150	21.363	21.577	21.792	22.009	22.009
7.00	21.336	21.554	21.772	21.991	22.212	22.433	22.656	22.656
7.20	21.946	22.169	22.394	22.620	22.846	23.074	23.303	23.303
7.40	22.556	22.785	23.016	23.248	23.481	23.715	23.951	23.951
7.60	23.165	23.401	23.638	23.876	24.116	24.356	24.598	24.598
7.80	23.775	24.017	24.260	24.504	24.750	24.997	25.245	25.245
8.00	24.384	24.633	24.882	25.133	25.385	25.638	25.892	25.892
8.20	24.994	25.243	25.504	25.761	26.019	26.279	26.540	26.540
8.40	25.604	25.864	26.126	26.389	26.654	26.920	27.187	27.187
8.60	26.213	26.480	26.748	27.018	27.289	27.561	27.834	27.834
8.80	26.823	27.096	27.370	27.646	27.933	28.202	28.482	28.482

長さ (m)	204	205	206	207	208	209	210	長さ (m)
3.048	3.269	3.301	3.333	3.365	3.398	3.431	3.464	3.464
3.658	3.392	3.961	4.000	4.038	4.078	4.117	4.156	4.156
4.267	4.311	4.354	4.487	4.531	4.576	4.621	4.712	4.757
4.877	4.927	4.976	5.027	5.077	5.230	5.281	5.333	5.437
5.487	5.542	5.598	5.655	5.712	5.883	5.941	5.999	5.999
6.096	6.158	6.221	6.283	6.346	6.409	6.473	6.537	6.537
6.706	6.774	6.843	6.912	6.981	7.050	7.120	7.191	7.191
7.315	7.390	7.465	7.540	7.615	7.691	7.768	7.844	7.844
7.925	8.006	8.087	8.168	8.250	8.332	8.415	8.498	8.498
8.535	8.621	8.709	8.796	8.885	8.973	9.062	9.152	9.152
9.144	9.237	9.331	9.425	9.519	9.614	9.710	9.806	9.806
9.754	9.853	9.953	10.053	10.154	10.255	10.357	10.459	10.459
10.363	10.469	10.575	10.681	10.789	10.896	11.004	11.113	11.113
10.973	11.085	11.197	11.310	11.423	11.537	11.652	11.767	11.767
11.583	11.701	11.819	11.938	12.058	12.178	12.299	12.420	12.420
12.192	12.316	12.441	12.566	12.692	12.819	12.946	13.074	13.074
12.802	12.932	13.063	13.195	13.327	13.460	13.594	13.728	13.728
13.411	13.548	13.685	13.823	13.962	14.101	14.241	14.381	14.381
14.021	14.164	14.307	14.451	14.596	14.742	14.888	15.035	15.035
14.631	14.780	14.929	15.080	15.231	15.383	15.535	15.689	15.689
15.240	15.395	15.551	15.708	15.865	16.024	16.183	16.343	16.343
15.850	16.011	16.173	16.336	16.500	16.665	16.830	16.996	16.996
16.460	16.627	16.795	16.965	17.135	17.306	17.477	17.650	17.650
17.069	17.243	17.417	17.593	17.769	17.947	18.125	18.304	18.304
17.679	17.859	18.040	18.221	18.404	18.588	18.772	18.957	18.957
18.288	18.474	18.662	18.850	19.039	19.228	19.419	19.611	19.611
18.898	19.090	19.284	19.478	19.673	19.869	20.067	20.265	20.265
19.508	19.706	19.906	20.106	20.308	20.510	20.714	20.919	20.919
20.117	20.322	20.528	20.735	20.942	21.151	21.361	21.572	21.572
20.727	20.938	21.150	21.363	21.577	21.792	22.009	22.226	22.226
21.336	21.554	21.772	21.991	22.212	22.433	22.656	22.880	22.880
21.946	22.169	22.394	22.620	22.846	23.074	23.303	23.533	23.533
22.556	22.785	23.016	23.248	23.481	23.715	23.951	24.187	24.187
23.165	23.401	23.638	23.876	24.116	24.356	24.598	24.841	24.841
23.775	24.017	24.260	24.504	24.750	24.997	25.245	25.494	25.494
24.384	24.633	24.882	25.133	25.385	25.638	25.892	26.148	26.148
24.994	25.243	25.504	25.761	26.019	26.279	26.540	26.405	26.405
25.604	25.864	26.126	26.389	26.654	26.920	27.187	27.456	27.456
26.213	26.480	26.748	26.748	27.018	27.289	27.561	27.725	27.725
26.823	27.096	27.370	27.370	27.646	27.933	28.202	28.482	28.482

長さ (m)	204	205	206	207	208	209	210	長さ (m)
3.048	3.269	3.301	3.333	3.365	3.398	3.431	3.464	3.464
3.658	3.392	3.961	4.000	4.038	4.078	4.117	4.156	4.156
4.267	4.311	4.354	4.487	4.531	4.576	4.621	4.757	4.757
4.877	4.927	4.976	5.027	5.077	5.230	5.281	5.437	5.437
5.487	5.542	5.598	5.655	5.712	5.883	5.941	6.116	6.116
6.096	6.158	6.221	6.283	6.346	6.409	6.473	6.537	6.537
6.706	6.774	6.843	6.912	6.981	7.050	7.120	7.191	7.191
7.315	7.390	7.465	7.540	7.615	7.691	7.768	7.844	7.844
7.925	8.006	8.087	8.168	8.250	8.332	8.415	8.498	8.498
8.535	8.621	8.709	8.796	8.885	8.973	9.062	9.152	9.152
9.144	9.237	9.331	9.425	9.519	9.614	9.710	9.806	9.806
9.754	9.853	9.953	10.053	10.154	10.255	10.357	10.459	10.459
10.363	10.469	10.575	10.681	10.789	10.896	11.004	11.113	11.113
10.973	11.085	11.197	11.310	11.423	11.537	11.652	11.767	11.767
11.583	11.701	11.819	11.938	12.058	12.178	12.299	12.420	12.420
12.192	12.316	12.441	12.566	12.692	12.819	12.946	13.074	13.074
12.802	12.932	13.063	13.195	13.327	13.460	13.594	13.728	13.728
13.411	13.548	13.685	13.823	13.962	14.101	14.241	14.381	14.381
14.021	14.164	14.307	14.451	14.596	14.742	14.888	15.035	15.035
14.631	14.780	14.929	15.080	15.231	15.383	15.535	15.689	15.689
15.240	15.395	15.551	15.708	15.865	16.024	16.183	16.343	16.343
15.850	16.011	16.173						

長さ 1.00 ~ 8.80 m
平均径 211 ~ 217 cm
(単位=m³)

長さ (m)	平均径 (cm)						長さ (m)
	211	212	213	214	215	216	
1.00	3.497	3.530	3.563	3.597	3.631	3.664	3.698
1.20	4.196	4.236	4.276	4.316	4.357	4.397	4.438
1.40	4.895	4.942	4.989	5.036	5.083	5.130	5.178
1.60	5.595	5.648	5.701	5.755	5.809	5.863	5.917
1.80	6.294	6.354	6.414	6.474	6.535	6.596	6.657
2.00	6.993	7.060	7.127	7.194	7.261	7.329	7.397
2.20	7.693	7.766	7.839	7.913	7.987	8.062	8.136
2.40	8.392	8.472	8.552	8.632	8.713	8.794	8.876
2.60	9.091	9.178	9.265	9.352	9.439	9.527	9.616
2.80	9.791	9.884	9.977	10.071	10.165	10.260	10.355
3.00	10.490	10.590	10.690	10.790	10.892	10.993	11.095
3.20	11.189	11.296	11.403	11.510	11.618	11.726	11.835
3.40	11.889	12.002	12.115	12.229	12.344	12.459	12.574
3.60	12.588	12.708	12.828	12.949	13.070	13.192	13.314
3.80	13.287	13.414	13.540	13.668	13.796	13.925	14.054
4.00	13.987	14.120	14.253	14.387	14.522	14.657	14.793
4.20	14.686	14.826	14.966	15.107	15.248	15.390	15.533
4.40	15.385	15.532	15.678	15.826	15.974	16.123	16.273
4.60	16.085	16.238	16.391	16.545	16.700	16.856	17.013
4.80	16.784	16.944	17.104	17.265	17.426	17.589	17.752
5.00	17.483	17.650	17.816	17.984	18.153	18.322	18.492
5.20	18.183	18.355	18.529	18.703	18.879	19.055	19.232
5.40	18.832	19.061	19.232	19.423	19.605	19.788	19.971
5.60	19.531	19.767	19.934	20.142	20.331	20.520	20.711
5.80	20.281	20.473	20.667	20.862	21.057	21.253	21.451
6.00	20.980	21.179	21.350	21.581	21.783	22.190	22.509
6.20	21.679	21.895	22.102	22.300	22.509	22.719	23.930
6.40	22.379	22.591	22.805	23.020	23.235	23.452	23.670
6.60	23.078	23.297	23.518	23.739	23.961	24.185	24.409
6.80	23.777	24.003	24.230	24.458	24.687	24.918	25.149
7.00	24.477	24.709	24.943	25.178	25.414	25.651	25.889
7.20	25.176	25.415	25.656	25.897	26.140	26.383	26.628
7.40	25.875	26.121	26.368	26.616	26.866	27.116	27.368
7.60	26.575	26.827	27.081	27.336	27.592	27.849	28.108
7.80	27.274	27.533	27.794	28.055	28.318	28.582	28.847
8.00	27.973	28.239	28.506	28.775	29.044	29.315	29.587
8.20	28.673	28.945	29.219	29.494	29.770	30.048	30.327
8.40	29.372	29.651	29.932	30.496	30.781	31.066	31.348
8.60	30.071	30.644	31.222	31.806	31.514	32.222	32.846
8.80	30.771	31.063	31.357	31.652	32.246	32.546	33.148

(36)

長さ (m)	平均径 (cm)						長さ (m)
	218	219	220	221	222	223	
1.00	3.733	3.767	3.801	3.836	3.871	3.906	3.941
1.20	4.479	4.520	4.562	4.603	4.645	4.687	4.729
1.40	5.226	5.274	5.322	5.370	5.419	5.468	5.517
1.60	6.027	6.082	6.138	6.193	6.249	6.305	6.360
1.80	6.719	6.780	6.842	6.905	6.967	7.030	7.093
2.00	7.465	7.534	7.603	7.672	7.742	7.811	7.882
2.20	8.212	8.287	8.363	8.439	8.516	8.593	8.670
2.40	8.958	9.040	9.123	9.206	9.290	9.374	9.458
2.80	9.705	9.794	9.883	9.974	10.064	10.155	10.246
3.00	10.451	10.547	10.644	10.741	10.838	10.936	11.034
3.20	11.198	11.301	11.404	11.508	11.612	11.717	11.822
3.40	11.944	12.054	12.164	12.275	12.386	12.498	12.611
3.60	12.691	12.807	12.925	13.042	13.161	13.279	13.399
3.80	13.437	13.561	13.685	13.809	13.935	14.061	14.187
4.00	14.184	14.314	14.445	14.577	14.709	14.842	14.975
4.20	14.930	15.067	15.205	15.344	15.483	15.623	15.763
4.40	15.677	15.821	15.966	16.111	16.257	16.404	16.551
4.60	16.423	16.574	16.726	16.878	17.031	17.185	17.340
4.80	17.170	17.328	17.486	17.645	17.806	17.966	18.128
5.00	17.916	18.081	18.216	18.413	18.550	18.747	18.916
5.20	18.663	18.834	19.007	19.180	19.354	19.529	19.704
5.40	19.409	19.588	19.767	19.967	20.147	20.310	20.492
5.60	20.156	20.341	20.537	20.714	20.902	21.091	21.280
5.80	20.902	21.094	21.287	21.481	21.676	21.872	22.069
6.00	21.649	21.848	22.043	22.249	22.450	22.653	22.857
6.20	22.395	22.601	22.808	23.016	23.225	23.431	23.645
6.40	23.142	23.355	23.568	23.783	23.999	24.215	24.433
6.60	23.888	24.108	24.329	24.550	24.773	25.007	25.221
6.80	24.635	24.861	25.089	25.317	25.547	25.773	26.019
7.00	25.381	25.615	25.839	26.085	26.321	26.553	26.793
7.20	26.128	26.368	26.609	26.852	27.095	27.340	27.586
7.40	26.874	27.121	27.370	27.619	27.857	28.121	28.374
7.60	27.621	27.75	28.130	28.386	28.641	28.902	29.162
7.80	28.367	28.628	28.890	29.153	29.418	29.653	29.950
8.00	29.114	29.381	29.650	29.921	30.192	30.455	30.738
8.20	29.860	30.135	30.411	30.688	30.966	31.256	31.527
8.40	30.607	30.888	31.171	31.455	31.740	32.037	32.315
8.60	31.353	31.642	31.931	32.222	32.514	32.808	33.103
8.80	32.100	32.395	32.691	32.989	33.289	33.569	33.860

(37)

長さ 1.00 ~ 8.80 m
平均径 225 ~ 231 cm

(単位=m³)

長さ (m)	平均径 (cm)					長さ (m)	
	225	226	227	228	229		
1.00	3.976	4.012	4.047	4.083	4.119	4.155	4.191
1.20	4.771	4.814	4.857	4.899	4.942	4.986	5.029
1.40	5.567	5.616	5.666	5.716	5.766	5.817	5.867
1.60	6.362	6.418	6.475	6.533	6.590	6.648	6.706
1.80	7.157	7.221	7.285	7.349	7.414	7.479	7.544
2.00	7.952	8.023	8.094	8.166	8.237	8.310	8.382
2.20	8.747	8.825	8.904	8.982	9.061	9.140	9.220
2.40	9.543	9.628	9.713	9.799	9.885	9.971	10.058
2.60	10.338	10.430	10.522	10.615	10.709	10.802	10.897
2.80	11.133	11.232	11.332	11.432	11.532	11.633	11.735
3.00	11.928	12.035	12.141	12.248	12.356	12.464	12.573
3.20	12.723	12.837	12.951	13.065	13.180	13.295	13.411
3.40	13.519	13.639	13.760	13.882	14.004	14.126	14.249
3.60	14.314	14.441	14.570	14.698	14.827	14.957	15.088
3.80	15.109	15.244	15.379	15.515	15.651	15.788	15.926
4.00	15.904	16.046	16.188	16.331	16.475	16.619	16.764
4.20	16.700	16.848	16.998	17.148	17.299	17.450	17.602
4.40	17.495	17.651	17.807	17.964	18.122	18.281	18.440
4.60	18.290	18.453	18.617	18.781	18.946	19.112	19.278
4.80	19.085	19.255	19.426	19.598	19.770	19.943	20.117
5.00	19.880	20.058	20.235	20.414	20.594	20.774	20.955
5.20	20.676	20.860	21.045	21.231	21.417	21.605	21.793
5.40	21.471	21.662	21.851	22.047	22.241	22.436	22.631
5.60	22.266	22.464	22.664	22.864	23.065	23.267	23.469
5.80	23.061	23.267	23.473	23.680	23.889	24.098	24.308
6.00	23.857	24.069	24.283	24.497	24.712	24.929	25.146
6.20	24.652	24.871	25.092	25.314	25.536	25.760	25.984
6.40	25.447	25.674	25.901	26.130	26.360	26.591	26.822
6.60	26.242	26.476	26.711	26.947	27.184	27.421	27.660
6.80	27.037	27.278	27.520	27.763	28.007	28.252	28.499
7.00	27.833	28.081	28.330	28.580	28.831	29.083	29.337
7.20	28.628	28.883	29.139	29.396	29.655	29.914	30.175
7.40	29.423	29.685	29.948	30.213	30.478	30.745	31.013
7.60	30.218	30.487	30.758	31.029	31.302	31.576	31.851
7.80	31.013	31.290	31.567	31.846	32.126	32.407	32.690
8.00	31.809	32.092	32.377	32.663	32.950	33.238	33.528
8.20	32.604	32.894	33.186	33.479	33.773	34.069	34.366
8.40	33.399	33.697	33.996	34.296	34.597	34.900	35.204
8.60	34.194	34.499	34.805	35.112	35.421	35.731	36.042
8.80	34.990	35.301	35.614	35.929	36.245	36.562	36.881

長さ 1.00 ~ 8.80 m
平均径 232 ~ 238 cm

(単位=m³)

長さ (m)	平均径 (cm)					長さ (m)	
	232	233	234	235	236		
1.00	4.227	4.264	4.301	4.337	4.374	4.412	4.449
1.20	5.073	5.117	5.161	5.205	5.249	5.294	5.339
1.40	5.918	5.969	6.021	6.072	6.124	6.176	6.228
1.60	6.764	6.822	6.881	6.940	6.999	7.058	7.118
1.80	7.609	7.675	7.741	7.807	7.874	7.941	8.008
2.00	8.455	8.528	8.601	8.675	8.749	8.823	8.898
2.20	9.300	9.380	9.461	9.542	9.624	9.705	9.787
2.40	10.146	10.233	10.321	10.410	10.498	10.588	10.677
2.60	10.991	11.086	11.181	11.277	11.373	11.470	11.567
2.80	11.837	11.939	12.042	12.145	12.248	12.352	12.457
3.00	12.682	12.792	12.902	13.012	13.123	13.235	13.346
3.20	13.527	13.644	13.762	13.880	13.997	14.117	14.236
3.40	14.373	14.497	14.622	14.747	14.873	14.999	15.126
3.60	15.218	15.350	15.482	15.615	15.748	15.881	16.016
3.80	16.064	16.203	16.342	16.482	16.623	16.764	16.906
4.00	16.909	17.055	17.202	17.349	17.497	17.646	17.795
4.20	17.755	17.908	18.062	18.217	18.372	18.528	18.685
4.40	18.600	18.761	18.922	19.084	19.247	19.411	19.575
4.60	19.446	19.614	19.782	19.952	20.122	20.293	20.465
4.80	20.291	20.467	20.643	20.819	20.997	21.175	21.354
5.00	21.137	21.319	21.503	21.687	21.872	22.058	22.244
5.20	21.982	22.172	22.363	22.554	22.747	22.940	23.134
5.40	22.828	23.025	23.223	23.422	23.622	23.824	24.024
5.60	23.673	23.878	24.083	24.289	24.496	24.704	24.913
5.80	24.519	24.730	24.943	25.157	25.371	25.587	25.803
6.00	25.364	25.583	25.803	26.024	26.246	26.469	26.693
6.20	26.209	26.436	26.663	26.892	27.121	27.351	27.583
6.40	27.055	27.289	27.533	27.759	27.996	28.234	28.472
6.60	27.900	28.141	28.384	28.627	28.871	29.116	29.362
6.80	28.746	28.994	29.244	29.494	29.746	29.998	30.252
7.00	29.591	29.847	30.104	30.362	30.621	30.881	31.142
7.20	30.437	30.700	30.964	31.229	31.495	31.763	32.032
7.40	31.282	31.553	31.824	32.097	32.370	32.645	32.921
7.60	32.128	32.405	32.684	32.964	33.245	33.528	33.811
7.80	32.973	33.258	33.544	33.831	34.120	34.410	34.701
8.00	33.819	34.111	34.404	34.699	34.995	35.292	35.591
8.20	34.664	34.964	35.264	35.566	35.870	36.174	36.450
8.40	35.510	35.816	36.125	36.434	36.745	37.057	37.370
8.60	36.355	36.669	36.985	37.301	37.620	37.939	38.260
8.80	37.201	37.522	37.845	38.169	38.494	38.821	39.150

長さ 1.00 ~ 8.80 m
平均径 239 ~ 245 cm
(単位=m³)

長さ (m)	平均 焦 筒 (cm)					長さ (m)	
	239	240	241	242	243		
1.00	4.486	4.524	4.562	4.600	4.638	4.676	4.714
1.20	5.384	5.429	5.474	5.511	5.549	5.587	5.625
1.40	6.281	6.333	6.386	6.439	6.493	6.546	6.600
1.60	7.178	7.238	7.299	7.359	7.420	7.482	7.543
1.80	8.075	8.143	8.211	8.279	8.348	8.417	8.486
2.00	8.973	9.048	9.123	9.199	9.275	9.352	9.429
2.20	9.870	9.953	10.036	10.119	10.203	10.287	10.372
2.40	10.767	10.857	10.948	11.039	11.131	11.222	11.314
2.60	11.664	11.762	11.860	11.959	12.058	12.157	12.257
2.80	12.562	12.667	12.773	12.879	12.986	13.093	13.200
3.00	13.459	13.572	13.685	13.799	13.913	14.028	14.143
3.20	14.356	14.476	14.597	14.719	14.841	14.963	15.086
3.40	15.253	15.381	15.510	15.639	15.768	15.898	16.029
3.60	16.151	16.286	16.422	16.559	16.696	16.833	16.972
3.80	17.048	17.191	17.334	17.479	17.623	17.769	17.915
4.00	17.945	18.096	18.247	18.398	18.551	18.704	18.857
4.20	18.842	19.000	19.159	19.318	19.478	19.639	19.800
4.40	19.740	19.905	20.071	20.238	20.406	20.574	20.743
4.60	20.637	20.810	20.984	21.158	21.333	21.509	21.686
4.80	21.534	21.715	21.896	22.078	22.261	22.445	22.629
5.00	22.431	22.620	22.808	22.998	23.189	23.380	23.572
5.20	23.329	23.524	23.721	23.918	24.116	24.315	24.515
5.40	24.226	24.429	24.633	24.838	25.044	25.250	25.458
5.60	25.123	25.334	25.545	25.758	25.971	26.185	26.400
5.80	26.020	26.239	26.458	26.678	26.899	27.121	27.343
6.00	26.918	27.143	27.370	27.598	27.826	28.056	28.286
6.20	27.815	28.043	28.282	28.518	28.754	28.991	29.229
6.40	28.712	28.953	29.195	29.438	29.681	29.926	30.172
6.60	29.609	29.858	30.107	30.357	30.609	30.861	31.115
6.80	30.507	30.763	31.019	31.277	31.536	31.797	32.058
7.00	31.404	31.667	31.932	32.197	32.464	32.732	33.001
7.20	32.301	32.572	32.844	33.117	33.392	33.667	33.943
7.40	33.198	33.477	33.756	34.037	34.319	34.602	34.886
7.60	34.096	34.382	34.669	34.957	35.247	35.537	35.829
7.80	34.993	35.286	35.581	35.877	36.174	36.472	36.772
8.00	35.890	36.191	36.493	36.797	37.102	37.408	37.715
8.20	36.788	37.096	37.406	37.717	38.029	38.343	38.658
8.40	37.685	38.001	38.318	38.637	38.957	39.278	39.601
8.60	38.582	38.906	39.230	39.557	39.884	40.213	40.544
8.80	39.479	39.810	40.143	40.477	40.812	41.148	41.486

長さ (m)	平均 径 246 ~ 250 cm					長さ (m)	
	246	247	248	249	250		
1.00	4.486	4.524	4.562	4.600	4.638	4.676	4.714
1.20	5.384	5.429	5.474	5.511	5.549	5.587	5.625
1.40	6.281	6.333	6.386	6.439	6.493	6.546	6.600
1.60	7.178	7.238	7.299	7.359	7.420	7.482	7.543
1.80	8.075	8.143	8.211	8.279	8.348	8.417	8.486
2.00	8.973	9.048	9.123	9.199	9.275	9.352	9.429
2.20	9.870	9.953	10.036	10.119	10.203	10.287	10.372
2.40	10.767	10.857	10.948	11.039	11.131	11.222	11.314
2.60	11.664	11.762	11.860	11.959	12.058	12.157	12.257
2.80	12.562	12.667	12.773	12.879	12.986	13.093	13.200
3.00	13.459	13.572	13.685	13.799	13.913	14.028	14.143
3.20	14.356	14.476	14.597	14.719	14.841	14.963	15.086
3.40	15.253	15.381	15.510	15.639	15.768	15.898	16.029
3.60	16.151	16.286	16.422	16.559	16.696	16.833	16.972
3.80	17.048	17.191	17.334	17.479	17.623	17.769	17.915
4.00	17.945	18.096	18.247	18.398	18.551	18.704	18.857
4.20	18.842	19.000	19.159	19.318	19.478	19.639	19.800
4.40	19.740	19.905	20.071	20.238	20.406	20.574	20.743
4.60	20.637	20.810	20.984	21.158	21.333	21.509	21.686
4.80	21.534	21.715	21.896	22.078	22.261	22.445	22.629
5.00	22.431	22.620	22.808	22.998	23.189	23.380	23.572
5.20	23.329	23.524	23.721	23.918	24.116	24.315	24.515
5.40	24.226	24.429	24.633	24.838	25.044	25.250	25.458
5.60	25.123	25.334	25.545	25.758	25.971	26.185	26.400
5.80	26.020	26.239	26.458	26.678	26.899	27.121	27.343
6.00	26.918	27.143	27.370	27.598	27.826	28.056	28.286
6.20	27.815	28.043	28.282	28.518	28.754	28.991	29.229
6.40	28.712	28.953	29.195	29.438	29.681	29.926	30.172
6.60	29.609	29.858	30.107	30.357	30.609	30.861	31.115
6.80	30.507	30.763	31.019	31.277	31.536	31.797	32.058
7.00	31.404	31.667	31.932	32.197	32.464	32.732	33.001
7.20	32.301	32.572	32.844	33.117	33.392	33.667	33.943
7.40	33.198	33.477	33.756	34.037	34.319	34.602	34.886
7.60	34.096	34.382	34.669	34.957	35.247	35.537	35.829
7.80	34.993	35.286	35.581	35.877	36.174	36.472	36.772
8.00	35.890	36.191	36.493	36.797	37.102	37.408	37.715
8.20	36.788	37.096	37.406	37.717	38.029	38.343	38.658
8.40	37.685	38.001	38.318	38.637	38.957	39.278	39.601
8.60	38.582	38.906	39.230	39.557	39.884	40.213	40.544
8.80	39.479	39.810	40.143	40.477	40.812	41.148	41.486

長さ (m)	平均 径 246 ~ 250 cm					長さ (m)	
	246	247	248	249	250		
1.00	4.486	4.524	4.562	4.600	4.638	4.676	4.714
1.20	5.384	5.429	5.474	5.511	5.549	5.587	5.625
1.40	6.281	6.333	6.386	6.439	6.493	6.546	6.600
1.60	7.178	7.238	7.299	7.359	7.420	7.482	7.543
1.80	8.075	8.143	8.211	8.279	8.348	8.417	8.486
2.00	8.973	9.048	9.123	9.199	9.275	9.352	9.429
2.20	9.870	9.953	10.036	10.119	10.203	10.287	10.372
2.40	10.767	10.857	10.948	11.039	11.131	11.222	11.314
2.60	11.664	11.762	11.860	11.959	12.058	12.157	12.257
2.80	12.562	12.667	12.773	12.879	12.986	13.093	13.200
3.00	13.459	13.572	13.685	13.799	13.913	14.028	14.143
3.20	14.356	14.476	14.597	14.719	14.841	14.963	15.086
3.40	15.253	15.381	15.510	15.639	15.768	15.898	16.029
3.60	16.151	16.286	16.422	16.559	16.696	16.833	16.972
3.80	17.048	17.191	17.334	17.479	17.623	17.769	17.915
4.00	17.945	18.096	18.247	18.398	18.551	18.704	18.857
4.20	18.842	19.000	19.159	19.318	19.478	19.639	19.800
4.40	19.740	19.905	20.071	20.238	20.406	20.574	20.743
4.60	20.637	20.810	20.984	21.158	21.333	21.509	21.686
4.80	21.534	21.715	21.896	22.078	22.261	22.445	22.629
5.00	22.431	22.620	22.808	22.998	23.189	23.380	23.572
5.20	23.329	23.524	23.721	23.918	24.116	24.315	24.515
5.40	24.226	24.429	24.633	24.838	25.044	25.250	25.458
5.60	25.123	25.334	25.545	25.758	25.971	26.185	26.400
5.80	26.020	26.239	26.458	26.678	26.899	27.121	27.343
6.00	26.918	27.143	27.370	27.598	27.826	28.056	28.286
6.20	27.815	28.043	28.282	28.518	28.754	28.991	29.229
6.40	28.712	28.953	29.195	29.438	29.681	29.926	30.172
6.60	29.609	29.858	30.107	30.357	30.609	30.861	31.115
6.80	30.507	30.763	31.019	31.277	31.536	31.797	32.058
7.00	31.404	31.667	31.932	32			

長さ 9.00~15.00 m
平均径 1~7 cm
(単位=m³)

長さ (m)	平均径 (cm)						長さ (m)
	1	2	3	4	5	6	
9.00	0.001	0.003	0.006	0.011	0.018	0.025	0.035
9.20	0.001	0.003	0.007	0.012	0.018	0.026	0.035
9.40	0.001	0.003	0.007	0.012	0.018	0.027	0.036
9.60	0.001	0.003	0.007	0.012	0.019	0.027	0.037
9.80	0.001	0.003	0.007	0.012	0.019	0.028	0.038
10.00	0.001	0.003	0.007	0.013	0.020	0.028	0.038
10.20	0.001	0.003	0.007	0.013	0.020	0.029	0.039
10.40	0.001	0.003	0.007	0.013	0.020	0.029	0.040
10.60	0.001	0.003	0.007	0.013	0.021	0.030	0.041
10.80	0.001	0.003	0.008	0.014	0.021	0.031	0.042
11.00	0.001	0.003	0.008	0.014	0.022	0.031	0.042
11.20	0.001	0.004	0.008	0.014	0.022	0.032	0.043
11.40	0.001	0.004	0.008	0.014	0.022	0.032	0.044
11.60	0.001	0.004	0.008	0.015	0.023	0.033	0.045
11.80	0.001	0.004	0.008	0.015	0.023	0.033	0.045
12.00	0.001	0.004	0.008	0.015	0.024	0.034	0.046
12.20	0.001	0.004	0.009	0.015	0.024	0.034	0.047
12.40	0.001	0.004	0.009	0.016	0.024	0.035	0.048
12.60	0.001	0.004	0.009	0.016	0.025	0.036	0.048
12.80	0.001	0.004	0.009	0.016	0.025	0.036	0.049
13.00	0.001	0.004	0.009	0.016	0.026	0.037	0.050
13.20	0.001	0.004	0.009	0.017	0.026	0.037	0.051
13.40	0.001	0.004	0.009	0.017	0.026	0.038	0.052
13.60	0.001	0.004	0.009	0.017	0.027	0.038	0.052
13.80	0.001	0.004	0.010	0.017	0.027	0.039	0.053
14.00	0.001	0.004	0.010	0.018	0.027	0.040	0.054
14.20	0.001	0.004	0.010	0.018	0.028	0.040	0.055
14.40	0.001	0.005	0.010	0.018	0.028	0.041	0.055
14.60	0.001	0.005	0.010	0.018	0.029	0.041	0.056
14.80	0.001	0.005	0.010	0.019	0.029	0.042	0.057
15.00	0.001	0.005	0.011	0.019	0.029	0.042	0.058

長さ 9.00~15.00 m
平均径 8~14 cm

長さ (m)	平均径 (cm)						長さ (m)
	8	9	10	11	12	13	
9.00	0.045	0.057	0.071	0.086	0.102	0.119	0.139
9.20	0.046	0.059	0.072	0.089	0.104	0.122	0.142
9.40	0.047	0.060	0.074	0.091	0.106	0.125	0.145
9.60	0.048	0.061	0.075	0.093	0.109	0.127	0.148
9.80	0.049	0.062	0.077	0.093	0.111	0.130	0.151
10.00	0.050	0.064	0.079	0.095	0.113	0.133	0.154
10.20	0.051	0.065	0.080	0.097	0.115	0.135	0.157
10.40	0.052	0.066	0.082	0.099	0.118	0.138	0.160
10.60	0.053	0.067	0.083	0.101	0.120	0.141	0.163
10.80	0.054	0.069	0.085	0.103	0.122	0.143	0.166
11.00	0.055	0.070	0.086	0.105	0.124	0.146	0.169
11.20	0.056	0.071	0.088	0.106	0.127	0.149	0.172
11.40	0.057	0.073	0.090	0.108	0.129	0.151	0.175
11.60	0.058	0.074	0.091	0.110	0.131	0.154	0.179
11.80	0.059	0.075	0.093	0.112	0.133	0.157	0.182
12.00	0.060	0.076	0.094	0.114	0.136	0.159	0.185
12.20	0.061	0.078	0.096	0.116	0.138	0.162	0.188
12.40	0.062	0.079	0.097	0.118	0.140	0.165	0.191
12.60	0.063	0.080	0.099	0.120	0.143	0.167	0.194
12.80	0.064	0.081	0.101	0.122	0.145	0.170	0.197
13.00	0.065	0.083	0.102	0.124	0.147	0.173	0.200
13.20	0.066	0.084	0.104	0.125	0.149	0.175	0.203
13.40	0.067	0.085	0.105	0.127	0.152	0.178	0.206
13.60	0.068	0.087	0.107	0.129	0.154	0.181	0.209
13.80	0.069	0.088	0.108	0.131	0.156	0.183	0.212
14.00	0.070	0.089	0.110	0.133	0.158	0.186	0.216
14.20	0.071	0.090	0.112	0.135	0.161	0.188	0.219
14.40	0.072	0.092	0.113	0.137	0.163	0.191	0.222
14.60	0.073	0.093	0.115	0.139	0.165	0.194	0.225
14.80	0.074	0.094	0.116	0.141	0.167	0.196	0.228
15.00	0.075	0.095	0.118	0.143	0.170	0.199	0.231

長さ 9.00 ~ 15.00 m
平均径 15 ~ 21 cm
(単位=m³)

長さ (m)	平均均 均 径 (cm)						長さ (m)
	15	16	17	18	19	20	
9.00	0.159	0.181	0.204	0.229	0.255	0.283	0.312
9.20	0.163	0.185	0.209	0.234	0.261	0.289	0.319
9.40	0.166	0.189	0.213	0.239	0.267	0.295	0.326
9.60	0.170	0.193	0.218	0.244	0.272	0.302	0.333
9.80	0.173	0.197	0.222	0.249	0.278	0.308	0.339
10.00	0.177	0.201	0.227	0.254	0.284	0.314	0.346
10.20	0.180	0.205	0.232	0.260	0.289	0.320	0.353
10.40	0.184	0.209	0.236	0.265	0.295	0.327	0.360
10.60	0.187	0.213	0.241	0.270	0.301	0.333	0.367
10.80	0.191	0.217	0.245	0.275	0.306	0.339	0.374
11.00	0.194	0.221	0.250	0.280	0.312	0.346	0.381
11.20	0.198	0.225	0.254	0.285	0.318	0.352	0.388
11.40	0.201	0.229	0.259	0.290	0.323	0.358	0.395
11.60	0.205	0.233	0.263	0.295	0.329	0.364	0.402
11.80	0.209	0.237	0.268	0.300	0.335	0.371	0.409
12.00	0.212	0.241	0.272	0.305	0.340	0.377	0.416
12.20	0.216	0.245	0.277	0.310	0.346	0.383	0.423
12.40	0.219	0.249	0.281	0.316	0.352	0.390	0.429
12.60	0.223	0.253	0.286	0.321	0.357	0.396	0.436
12.80	0.226	0.257	0.291	0.326	0.363	0.402	0.443
13.00	0.230	0.261	0.295	0.331	0.369	0.408	0.450
13.20	0.233	0.265	0.300	0.336	0.374	0.415	0.457
13.40	0.237	0.269	0.304	0.341	0.380	0.421	0.464
13.60	0.240	0.273	0.309	0.346	0.386	0.427	0.471
13.80	0.244	0.277	0.313	0.351	0.391	0.434	0.478
14.00	0.247	0.281	0.318	0.356	0.397	0.440	0.485
14.20	0.251	0.286	0.322	0.361	0.403	0.446	0.492
14.40	0.254	0.290	0.327	0.366	0.408	0.452	0.499
14.60	0.258	0.294	0.331	0.372	0.414	0.459	0.506
14.80	0.262	0.298	0.336	0.377	0.420	0.465	0.513
15.00	0.265	0.302	0.340	0.382	0.425	0.471	0.520

長さ 9.00 ~ 15.00 m
平均径 22 ~ 28 cm
(単位=m³)

長さ (m)	平均均 均 径 (cm)						長さ (m)
	22	23	24	25	26	27	
9.00	0.342	0.374	0.407	0.442	0.478	0.515	0.554
9.20	0.350	0.382	0.416	0.452	0.488	0.527	0.566
9.40	0.357	0.391	0.425	0.461	0.499	0.538	0.579
9.60	0.365	0.399	0.434	0.471	0.510	0.550	0.591
9.80	0.373	0.407	0.443	0.481	0.520	0.561	0.603
10.00	0.380	0.415	0.452	0.491	0.531	0.573	0.616
10.20	0.388	0.424	0.461	0.501	0.542	0.584	0.628
10.40	0.395	0.432	0.470	0.511	0.552	0.595	0.640
10.60	0.403	0.440	0.480	0.520	0.563	0.607	0.653
10.80	0.411	0.449	0.489	0.530	0.573	0.618	0.665
11.00	0.418	0.457	0.498	0.540	0.584	0.630	0.677
11.20	0.426	0.465	0.507	0.550	0.595	0.641	0.690
11.40	0.433	0.474	0.516	0.560	0.605	0.653	0.702
11.60	0.441	0.482	0.525	0.569	0.616	0.664	0.714
11.80	0.449	0.490	0.534	0.579	0.626	0.676	0.727
12.00	0.456	0.499	0.543	0.589	0.637	0.687	0.739
12.20	0.464	0.507	0.552	0.599	0.648	0.699	0.751
12.40	0.471	0.515	0.561	0.609	0.658	0.710	0.764
12.60	0.479	0.524	0.570	0.619	0.669	0.721	0.776
12.80	0.487	0.532	0.579	0.628	0.680	0.733	0.788
13.00	0.494	0.540	0.588	0.638	0.690	0.744	0.800
13.20	0.502	0.548	0.597	0.648	0.701	0.756	0.813
13.40	0.509	0.557	0.606	0.658	0.711	0.767	0.825
13.60	0.517	0.565	0.615	0.668	0.722	0.779	0.837
13.80	0.525	0.573	0.624	0.677	0.733	0.790	0.850
14.00	0.532	0.582	0.633	0.687	0.743	0.802	0.862
14.20	0.540	0.590	0.642	0.697	0.754	0.813	0.874
14.40	0.547	0.598	0.651	0.707	0.765	0.824	0.887
14.60	0.555	0.607	0.660	0.717	0.775	0.836	0.899
14.80	0.563	0.615	0.670	0.736	0.796	0.859	0.911
15.00	0.570	0.623	0.679	0.736	0.796	0.859	0.924

長さ 9.00 ~ 15.00 m
平均径 29 ~ 35 cm
(単位=m³)

長さ (m)	平均径 cm)					長さ (m)	
	29	30	31	32	33		
9.00	0.594	0.636	0.679	0.724	0.770	0.817	0.866
9.20	0.608	0.650	0.694	0.740	0.787	0.835	0.885
9.40	0.621	0.664	0.709	0.756	0.804	0.853	0.904
9.60	0.634	0.679	0.725	0.772	0.821	0.872	0.924
9.80	0.647	0.693	0.740	0.788	0.838	0.890	0.943
10.00	0.661	0.707	0.755	0.804	0.855	0.908	0.962
10.20	0.674	0.721	0.770	0.820	0.872	0.926	0.981
10.40	0.687	0.735	0.785	0.836	0.889	0.944	1.001
10.60	0.700	0.749	0.799	0.850	0.907	0.962	1.020
10.80	0.713	0.763	0.815	0.869	0.924	0.981	1.039
11.00	0.727	0.778	0.830	0.885	0.941	0.999	1.058
11.20	0.740	0.792	0.845	0.897	0.958	1.017	1.078
11.40	0.753	0.806	0.860	0.917	0.975	1.035	1.097
11.60	0.766	0.820	0.876	0.933	0.992	1.116	1.053
11.80	0.779	0.834	0.891	0.949	1.009	1.135	1.101
12.00	0.793	0.848	0.906	0.965	1.026	1.155	1.155
12.20	0.806	0.862	0.921	0.981	1.043	1.108	1.143
12.40	0.819	0.877	0.936	0.997	1.061	1.126	1.193
12.60	0.832	0.889	0.951	1.013	1.078	1.144	1.212
12.80	0.845	0.905	0.966	1.029	1.095	1.162	1.232
13.00	0.859	0.919	0.981	1.046	1.112	1.180	1.251
13.20	0.872	0.933	0.996	1.062	1.129	1.198	1.270
13.40	0.885	0.947	1.011	1.078	1.146	1.217	1.289
13.60	0.898	0.961	1.026	1.094	1.163	1.235	1.308
13.80	0.912	0.975	1.042	1.110	1.180	1.253	1.328
14.00	0.925	0.990	1.057	1.126	1.197	1.271	1.347
14.20	0.938	1.004	1.072	1.142	1.215	1.289	1.366
14.40	0.951	1.018	1.087	1.158	1.232	1.307	1.385
14.60	0.964	1.032	1.102	1.174	1.249	1.326	1.405
14.80	0.978	1.046	1.117	1.190	1.266	1.344	1.424
15.00	0.991	1.060	1.132	1.206	1.283	1.362	1.443

長さ 9.00 ~ 15.00 m
平均径 36 ~ 42 cm
(単位=m³)

長さ (m)	平均径 cm)					長さ (m)
	36	37	38	39	40	
9.00	0.916	0.968	1.021	1.075	1.131	1.188
9.20	0.936	0.989	1.043	1.099	1.156	1.215
9.40	0.957	1.011	1.066	1.123	1.181	1.241
9.60	0.977	1.032	1.089	1.147	1.206	1.267
9.80	0.998	1.054	1.111	1.171	1.232	1.294
10.00	1.018	1.075	1.134	1.195	1.257	1.320
10.20	1.038	1.097	1.157	1.218	1.282	1.347
10.40	1.059	1.118	1.179	1.242	1.307	1.373
10.60	1.079	1.140	1.202	1.266	1.332	1.399
10.80	1.099	1.161	1.225	1.290	1.357	1.426
11.00	1.120	1.183	1.248	1.314	1.382	1.452
11.20	1.140	1.204	1.270	1.338	1.407	1.479
11.40	1.160	1.226	1.293	1.362	1.433	1.505
11.60	1.181	1.247	1.316	1.386	1.458	1.531
11.80	1.201	1.269	1.338	1.410	1.483	1.558
12.00	1.221	1.290	1.361	1.434	1.508	1.584
12.20	1.242	1.312	1.384	1.457	1.533	1.611
12.40	1.262	1.333	1.406	1.481	1.558	1.637
12.60	1.283	1.355	1.429	1.505	1.583	1.664
12.80	1.303	1.376	1.452	1.529	1.608	1.690
13.00	1.323	1.398	1.474	1.553	1.634	1.716
13.20	1.344	1.419	1.497	1.577	1.659	1.743
13.40	1.364	1.441	1.520	1.601	1.684	1.769
13.60	1.384	1.462	1.542	1.625	1.709	1.796
13.80	1.405	1.484	1.565	1.649	1.734	1.822
14.00	1.425	1.505	1.588	1.672	1.759	1.848
14.20	1.445	1.527	1.610	1.696	1.784	1.875
14.40	1.466	1.548	1.633	1.720	1.810	1.901
14.60	1.486	1.570	1.656	1.744	1.835	1.928
14.80	1.506	1.591	1.678	1.768	1.860	1.954
15.00	1.527	1.613	1.701	1.792	1.885	1.980

長さ 9.00 ~ 15.00 m
平均径 43 ~ 49 cm
(単位=m³)

長さ (m)	平均 径 (cm)					長さ (m)
	43	44	45	46	47	
9.00	1.307	1.368	1.431	1.496	1.561	1.697
9.20	1.336	1.399	1.463	1.529	1.596	1.735
9.40	1.365	1.429	1.495	1.562	1.631	1.773
9.60	1.394	1.460	1.527	1.595	1.666	1.810
9.80	1.423	1.490	1.559	1.629	1.697	1.848
10.00	1.452	1.521	1.590	1.662	1.735	1.886
10.20	1.481	1.551	1.622	1.695	1.770	1.933
10.40	1.510	1.581	1.654	1.728	1.804	1.882
10.60	1.539	1.612	1.686	1.762	1.839	1.918
10.80	1.568	1.642	1.718	1.795	1.874	1.954
11.00	1.597	1.673	1.749	1.828	1.903	1.991
11.20	1.626	1.703	1.781	1.861	1.943	2.027
11.40	1.655	1.733	1.813	1.895	1.978	2.063
11.60	1.685	1.764	1.845	1.928	2.013	2.099
11.80	1.714	1.794	1.877	1.961	2.047	2.135
12.00	1.743	1.825	1.909	1.994	2.082	2.171
12.20	1.772	1.855	1.940	2.028	2.117	2.208
12.40	1.801	1.885	1.972	2.061	2.151	2.244
12.60	1.830	1.916	2.004	2.094	2.186	2.280
12.80	1.859	1.946	2.036	2.127	2.221	2.316
13.00	1.888	1.977	2.069	2.055	2.160	2.255
13.20	1.917	2.007	2.099	2.194	2.290	2.389
13.40	1.946	2.038	2.131	2.227	2.327	2.425
13.60	1.975	2.068	2.163	2.260	2.360	2.461
13.80	2.004	2.098	2.195	2.293	2.394	2.497
14.00	2.033	2.129	2.227	2.327	2.429	2.533
14.20	2.062	2.159	2.258	2.360	2.464	2.570
14.40	2.091	2.190	2.290	2.393	2.498	2.606
14.60	2.120	2.220	2.322	2.426	2.533	2.642
14.80	2.149	2.250	2.354	2.460	2.568	2.678
15.00	2.178	2.281	2.386	2.493	2.602	2.829

長さ 9.00 ~ 15.00 m
平均径 50 ~ 56 cm
(単位=m³)

長さ (m)	平均 径 (cm)					長さ (m)
	50	51	52	53	54	
9.00	1.767	1.839	1.911	1.986	2.061	2.138
9.20	1.806	1.879	1.954	2.030	2.107	2.186
9.40	1.846	1.920	1.996	2.074	2.153	2.233
9.60	1.885	1.961	2.039	2.118	2.199	2.281
9.80	1.924	2.002	2.081	2.162	2.244	2.328
10.00	1.964	2.043	2.124	2.206	2.290	2.376
10.20	2.003	2.084	2.166	2.250	2.336	2.423
10.40	2.042	2.125	2.209	2.294	2.382	2.471
10.60	2.081	2.165	2.251	2.329	2.418	2.511
10.80	2.121	2.206	2.294	2.383	2.473	2.566
11.00	2.160	2.247	2.336	2.427	2.519	2.709
11.20	2.199	2.288	2.379	2.471	2.565	2.759
11.40	2.238	2.329	2.421	2.515	2.611	2.808
11.60	2.278	2.370	2.464	2.559	2.657	2.857
11.80	2.317	2.411	2.506	2.603	2.702	2.903
12.00	2.356	2.451	2.548	2.647	2.748	2.956
12.20	2.395	2.492	2.591	2.692	2.794	3.005
12.40	2.435	2.533	2.633	2.736	2.840	3.054
12.60	2.474	2.574	2.676	2.780	2.886	3.103
12.80	2.513	2.615	2.718	2.824	2.931	3.153
13.00	2.553	2.656	2.761	2.868	2.977	3.089
13.20	2.592	2.697	2.803	2.912	3.023	3.251
13.40	2.631	2.737	2.816	2.916	3.029	3.300
13.60	2.670	2.778	2.888	2.988	3.115	3.350
13.80	2.710	2.819	2.931	3.045	3.161	3.399
14.00	2.749	2.860	2.973	3.089	3.206	3.448
14.20	2.788	2.901	3.016	3.133	3.252	3.497
14.40	2.827	2.942	3.058	3.177	3.298	3.547
14.60	2.867	2.983	3.101	3.221	3.344	3.596
14.80	2.906	3.023	3.143	3.265	3.390	3.645
15.00	2.945	3.064	3.186	3.309	3.435	3.695

長さ 9.00 ~ 15.00 m
平均径 57 ~ 63 cm
(単位=m³)

長さ (m)	平均 径 (cm)						長さ (m)
	57	58	59	60	61	62	
9.00	2.297	2.378	2.461	2.545	2.630	2.717	2.806
9.20	2.348	2.431	2.515	2.601	2.689	2.778	2.868
9.40	2.399	2.484	2.570	2.658	2.747	2.838	2.930
9.60	2.450	2.536	2.625	2.714	2.806	2.898	2.993
9.80	2.501	2.589	2.679	2.771	2.864	2.959	3.055
10.00	2.552	2.642	2.734	2.827	2.922	3.019	3.117
10.20	2.603	2.695	2.789	2.884	2.981	3.079	3.180
10.40	2.654	2.748	2.843	2.941	3.039	3.140	3.242
10.60	2.705	2.801	2.898	2.997	3.098	3.204	3.304
10.80	2.756	2.853	2.953	3.054	3.156	3.261	3.367
11.00	2.807	2.906	3.007	3.110	3.215	3.321	3.429
11.20	2.858	2.959	3.062	3.167	3.273	3.381	3.491
11.40	2.909	3.012	3.117	3.223	3.332	3.442	3.554
11.60	2.960	3.065	3.171	3.280	3.390	3.502	3.616
11.80	3.011	3.118	3.226	3.336	3.449	3.563	3.678
12.00	3.062	3.171	3.281	3.393	3.507	3.623	3.741
12.20	3.113	3.223	3.335	3.449	3.565	3.683	3.803
12.40	3.164	3.276	3.390	3.506	3.624	3.744	3.865
12.60	3.215	3.329	3.445	3.563	3.682	3.804	3.928
12.80	3.266	3.382	3.499	3.619	3.741	3.864	3.990
13.00	3.317	3.435	3.554	3.676	3.799	3.925	4.052
13.20	3.368	3.488	3.609	3.732	3.858	3.985	4.115
13.40	3.419	3.540	3.664	3.789	3.916	4.046	4.177
13.60	3.470	3.593	3.718	3.845	3.975	4.106	4.239
13.80	3.521	3.646	3.773	3.902	4.033	4.166	4.302
14.00	3.572	3.699	3.828	3.958	4.091	4.227	4.364
14.20	3.624	3.752	3.882	4.015	4.150	4.287	4.426
14.40	3.675	3.805	3.937	4.072	4.208	4.347	4.489
14.60	3.726	3.857	3.992	4.128	4.267	4.408	4.551
14.80	3.777	3.910	4.046	4.185	4.325	4.468	4.614
15.00	3.828	3.963	4.101	4.241	4.384	4.529	4.676

長さ 9.00 ~ 15.00 m
平均径 64 ~ 70 cm
(単位=m³)

長さ (m)	平均 径 (cm)						長さ (m)
	64	65	66	67	68	69	
9.00	2.895	2.986	3.079	3.173	3.269	3.365	3.464
9.20	2.960	3.053	3.148	3.244	3.341	3.440	3.541
9.40	3.024	3.119	3.216	3.314	3.414	3.515	3.618
9.60	3.088	3.186	3.284	3.385	3.486	3.590	3.695
9.80	3.153	3.252	3.353	3.455	3.559	3.665	3.771
10.00	3.217	3.318	3.421	3.526	3.632	3.739	3.848
10.20	3.281	3.385	3.490	3.596	3.704	3.814	3.925
10.40	3.346	3.451	3.558	3.667	3.777	3.889	4.002
10.60	3.410	3.517	3.626	3.737	3.850	3.964	4.079
10.80	3.474	3.584	3.695	3.808	3.922	4.038	4.156
11.00	3.539	3.650	3.763	3.878	3.995	4.113	4.233
11.20	3.603	3.717	3.832	3.949	4.067	4.188	4.310
11.40	3.667	3.783	3.900	4.019	4.140	4.263	4.387
11.60	3.732	3.849	3.969	4.090	4.213	4.338	4.464
11.80	3.796	3.916	4.037	4.160	4.285	4.412	4.541
12.00	3.860	3.982	4.105	4.231	4.358	4.487	4.618
12.20	3.925	4.048	4.174	4.301	4.431	4.562	4.695
12.40	3.989	4.115	4.242	4.372	4.503	4.637	4.772
12.60	4.053	4.181	4.311	4.442	4.576	4.712	4.849
12.80	4.118	4.247	4.379	4.513	4.649	4.786	4.926
13.00	4.182	4.314	4.448	4.583	4.721	4.861	5.003
13.20	4.246	4.360	4.516	4.654	4.794	4.936	5.080
13.40	4.311	4.447	4.584	4.724	4.866	5.011	5.157
13.60	4.375	4.513	4.653	4.795	4.939	5.085	5.234
13.80	4.439	4.579	4.721	4.865	5.012	5.160	5.311
14.00	4.504	4.646	4.790	4.936	5.084	5.235	5.388
14.20	4.568	4.712	4.858	5.006	5.157	5.310	5.465
14.40	4.632	4.775	4.927	5.077	5.230	5.385	5.542
14.60	4.697	4.845	4.995	5.147	5.302	5.459	5.619
14.80	4.761	4.911	5.063	5.218	5.375	5.534	5.696
15.00	4.825	4.977	5.132	5.288	5.448	5.609	5.773

(51)

(50)

長さ 9.00~15.00 m
平均径 71~77 cm
(単位=m³)

長さ (m)	平均均 径 (cm)						長さ (m)
	71	72	73	74	75	76	
9.00	3.563	3.664	3.767	3.871	3.976	4.083	4.191
9.20	3.642	3.746	3.851	3.957	4.064	4.174	4.284
9.40	3.722	3.827	3.934	4.048	4.153	4.264	4.377
9.60	3.801	3.909	4.018	4.129	4.241	4.355	4.470
9.80	3.880	3.990	4.102	4.215	4.330	4.446	4.564
10.00	3.959	4.072	4.185	4.301	4.418	4.536	4.657
10.20	4.038	4.153	4.269	4.387	4.506	4.627	4.750
10.40	4.118	4.234	4.353	4.473	4.595	4.718	4.843
10.60	4.197	4.316	4.437	4.559	4.683	4.809	4.936
10.80	4.276	4.397	4.520	4.645	4.771	4.899	5.029
11.00	4.355	4.479	4.604	4.731	4.860	4.990	5.122
11.20	4.434	4.560	4.688	4.817	4.948	5.081	5.215
11.40	4.513	4.642	4.771	4.903	5.036	5.172	5.309
11.60	4.593	4.723	4.855	4.989	5.125	5.262	5.402
11.80	4.672	4.804	4.939	5.075	5.213	5.353	5.495
12.00	4.751	4.886	5.022	5.161	5.301	5.444	5.588
12.20	4.830	4.967	5.106	5.247	5.390	5.534	5.681
12.40	4.919	5.019	5.190	5.333	5.478	5.625	5.774
12.60	4.959	5.130	5.274	5.419	5.567	5.716	5.867
12.80	5.068	5.212	5.357	5.505	5.655	5.807	5.960
13.00	5.147	5.293	5.441	5.591	5.743	5.897	6.054
13.20	5.226	5.374	5.525	5.677	5.832	5.989	6.147
13.40	5.305	5.456	5.603	5.763	5.920	6.079	6.240
13.60	5.385	5.537	5.692	5.849	6.008	6.170	6.333
13.80	5.464	5.619	5.776	5.935	6.097	6.260	6.426
14.00	5.543	5.700	5.860	6.021	6.185	6.351	6.519
14.20	5.622	5.782	5.943	6.107	6.273	6.442	6.612
14.40	5.671	5.833	6.027	6.193	6.362	6.533	6.706
14.60	5.750	5.914	6.111	6.279	6.450	6.633	6.799
14.80	5.860	6.026	6.194	6.365	6.538	6.714	6.892
15.00	5.939	6.107	6.278	6.451	6.627	6.805	6.985

長さ 9.00~15.00 m
平均径 78~84 cm
(単位=m³)

長さ (m)	平均均 径 (cm)						長さ (m)
	78	79	80	81	82	83	
9.00	4.301	4.412	4.524	4.638	4.753	4.870	4.988
9.20	4.396	4.510	4.624	4.741	4.859	4.978	5.098
9.40	4.492	4.608	4.725	4.844	4.964	5.086	5.209
9.60	4.587	4.706	4.825	4.947	5.070	5.194	5.320
9.80	4.683	4.804	4.926	5.050	5.175	5.302	5.431
10.00	4.778	4.902	5.027	5.153	5.281	5.411	5.542
10.20	4.874	5.000	5.127	5.256	5.387	5.519	5.653
10.40	4.970	5.098	5.228	5.359	5.492	5.627	5.763
10.60	5.065	5.196	5.328	5.462	5.598	5.735	5.874
10.80	5.161	5.294	5.429	5.565	5.704	5.843	5.985
11.00	5.256	5.392	5.529	5.668	5.809	5.952	6.096
11.20	5.352	5.490	5.630	5.771	5.915	6.060	6.207
11.40	5.447	5.588	5.730	5.874	6.020	6.168	6.318
11.60	5.543	5.686	5.831	5.977	6.126	6.276	6.428
11.80	5.638	5.784	5.931	6.081	6.232	6.385	6.539
12.00	5.734	5.882	6.032	6.184	6.337	6.493	6.650
12.20	5.830	5.950	6.132	6.287	6.443	6.601	6.761
12.40	5.925	6.078	6.233	6.390	6.548	6.709	6.872
12.60	6.021	6.176	6.333	6.493	6.654	6.817	6.983
12.80	6.116	6.274	6.434	6.596	6.750	6.926	7.093
13.00	6.212	6.372	6.535	6.699	6.865	7.034	7.204
13.20	6.307	6.470	6.635	6.802	6.971	7.142	7.315
13.40	6.403	6.568	6.736	6.905	7.077	7.250	7.426
13.60	6.499	6.666	6.836	7.008	7.182	7.358	7.537
13.80	6.594	6.764	6.937	7.111	7.288	7.467	7.648
14.00	6.690	6.862	7.037	7.214	7.393	7.575	7.758
14.20	6.785	6.960	7.133	7.317	7.499	7.669	7.840
14.40	6.881	7.058	7.238	7.420	7.605	7.791	7.980
14.60	6.976	7.156	7.339	7.523	7.710	7.900	8.091
14.80	7.072	7.254	7.439	7.626	7.816	8.008	8.202
15.00	7.168	7.353	7.540	7.730	7.922	8.116	8.313

長さ 9.00~15.00 m
平均径 85~91 cm

(単位=m³)

長さ (m)	平均径(cm)						長さ (m)
	85	86	87	88	89	90	
9.00	5.107	5.228	5.350	5.474	5.599	5.726	5.854
9.20	5.221	5.344	5.469	5.596	5.723	5.853	5.984
9.40	5.334	5.460	5.588	5.717	5.848	5.980	6.114
9.60	5.448	5.576	5.707	5.839	5.972	6.107	6.244
9.80	5.561	5.693	5.826	5.960	6.097	6.235	6.374
10.00	5.675	5.809	5.945	6.082	6.221	6.362	6.504
10.20	5.788	5.925	6.064	6.204	6.346	6.489	6.631
10.40	5.901	6.041	6.182	6.325	6.470	6.616	6.764
10.60	6.015	6.157	6.301	6.447	6.594	6.743	6.894
10.80	6.128	6.274	6.420	6.569	6.719	6.871	7.024
11.00	6.242	6.390	6.539	6.690	6.843	6.998	7.154
11.20	6.355	6.506	6.658	6.812	6.968	7.125	7.284
11.40	6.469	6.622	6.777	6.934	7.092	7.252	7.414
11.60	6.582	6.738	6.896	7.055	7.217	7.380	7.545
11.80	6.696	6.854	7.015	7.177	7.341	7.507	7.675
12.00	6.809	6.971	7.134	7.299	7.465	7.634	7.805
12.20	6.923	7.087	7.253	7.420	7.590	7.761	7.935
12.40	7.036	7.203	7.371	7.542	7.714	7.889	8.065
12.60	7.150	7.319	7.490	7.663	7.839	8.016	8.195
12.80	7.263	7.435	7.609	7.785	7.963	8.143	8.325
13.00	7.377	7.551	7.728	7.907	8.087	8.270	8.455
13.20	7.490	7.668	7.847	8.028	8.212	8.397	8.585
13.40	7.604	7.784	7.966	8.150	8.336	8.525	8.715
13.60	7.717	7.900	8.085	8.272	8.461	8.652	8.845
13.80	7.831	8.016	8.204	8.393	8.585	8.779	8.975
14.00	7.944	8.132	8.323	8.515	8.710	8.906	9.105
14.20	8.058	8.249	8.441	8.637	8.834	9.034	9.236
14.40	8.171	8.365	8.560	8.758	8.958	9.161	9.366
14.60	8.285	8.481	8.679	8.880	9.083	9.288	9.486
14.80	8.398	8.597	8.798	9.002	9.207	9.415	9.626
15.00	8.512	8.713	8.917	9.123	9.332	9.543	9.756

長さ 9.00~15.00 m
平均径 92~98 cm

(単位=m³)

長さ (m)	平均径(cm)						長さ (m)
	92	93	94	95	96	97	
9.00	5.983	6.114	6.246	6.379	6.514	6.651	6.789
9.20	6.116	6.249	6.385	6.521	6.659	6.799	6.940
9.40	6.249	6.385	6.523	6.663	6.804	6.946	7.090
9.60	6.382	6.521	6.662	6.805	6.949	7.094	7.241
9.80	6.515	6.657	6.801	6.946	7.093	7.242	7.392
10.00	6.648	6.793	6.940	7.088	7.238	7.390	7.543
10.20	6.781	6.929	7.079	7.230	7.383	7.538	7.694
10.40	6.914	7.065	7.217	7.372	7.528	7.685	7.845
10.60	7.046	7.201	7.356	7.514	7.673	7.833	7.996
10.80	7.179	7.336	7.495	7.655	7.817	7.981	8.146
11.00	7.312	7.472	7.634	7.797	7.962	8.129	8.297
11.20	7.445	7.608	7.773	7.939	8.107	8.277	8.448
11.40	7.578	7.744	7.911	8.081	8.252	8.424	8.599
11.60	7.711	7.880	8.050	8.222	8.396	8.572	8.750
11.80	7.844	8.016	8.189	8.364	8.541	8.720	8.901
12.00	7.977	8.152	8.328	8.506	8.686	8.868	9.052
12.20	8.110	8.287	8.467	8.648	8.831	9.016	9.202
12.40	8.243	8.423	8.605	8.789	8.975	9.163	9.353
12.60	8.376	8.559	8.744	8.931	9.120	9.311	9.504
12.80	8.509	8.695	8.883	9.073	9.265	9.459	9.655
13.00	8.642	8.831	9.022	9.215	9.410	9.607	9.806
13.20	8.775	8.967	9.161	9.356	9.554	9.755	9.957
13.40	8.908	9.103	9.299	9.498	9.699	9.902	10.108
13.60	9.041	9.238	9.438	9.640	9.844	10.050	10.258
13.80	9.174	9.377	9.577	9.782	9.939	10.198	10.409
14.00	9.307	9.510	9.716	9.924	10.134	10.346	10.560
14.20	9.440	9.646	9.855	10.065	10.273	10.494	10.711
14.40	9.573	9.782	9.993	10.207	10.423	10.641	10.862
14.60	9.706	9.918	10.132	10.349	10.568	10.789	11.013
14.80	9.838	10.054	10.271	10.491	10.713	10.937	11.164
15.00	9.971	10.189	10.410	10.632	10.857	11.085	11.314

長さ 9.00 ~ 15.00 m
平均径 99 ~ 105 cm
(単位=m³)

長さ (m)	平均 約 径 (cm)					長さ (m)	
	99	100	101	102	103		
9.00	6.928	7.069	7.211	7.354	7.499	7.645	7.793
9.20	7.082	7.226	7.371	7.518	7.666	7.815	7.966
9.40	7.236	7.383	7.531	7.681	7.832	7.985	8.139
9.60	7.390	7.540	7.691	7.844	7.999	8.155	8.313
9.80	7.544	7.697	7.852	8.008	8.166	8.325	8.486
10.00	7.698	7.854	8.012	8.171	8.332	8.495	8.659
10.20	7.852	8.011	8.172	8.335	8.499	8.665	8.832
10.40	8.006	8.168	8.332	8.498	8.666	8.835	9.005
10.60	8.160	8.325	8.493	8.662	8.832	9.005	9.179
10.80	8.314	8.482	8.653	8.825	8.999	9.174	9.352
11.00	8.467	8.639	8.813	8.988	9.166	9.344	9.525
11.20	8.621	8.796	8.973	9.152	9.332	9.514	9.698
11.40	8.775	8.954	9.134	9.315	9.499	9.684	9.871
11.60	8.929	9.111	9.294	9.479	9.665	9.854	10.044
11.80	9.083	9.268	9.454	9.642	9.832	10.024	10.218
12.00	9.237	9.425	9.614	9.806	9.999	10.194	10.391
12.20	9.391	9.582	9.774	9.969	10.165	10.364	10.564
12.40	9.545	9.739	9.935	10.132	10.332	10.534	10.737
12.60	9.699	9.896	10.095	10.296	10.499	10.704	10.910
12.80	9.853	10.053	10.255	10.459	10.665	10.873	11.084
13.00	10.007	10.210	10.415	10.623	10.832	11.043	11.257
13.20	10.161	10.367	10.576	10.786	10.999	11.213	11.430
13.40	10.315	10.524	10.736	10.950	11.165	11.383	11.603
13.60	10.469	10.681	10.896	11.113	11.332	11.553	11.776
13.80	10.623	10.839	11.056	11.276	11.499	11.723	11.949
14.00	10.777	10.996	11.217	11.440	11.665	11.893	12.123
14.20	10.931	11.153	11.377	11.603	11.832	12.063	12.296
14.40	11.085	11.310	11.537	11.767	11.999	12.233	12.469
14.60	11.239	11.467	11.697	11.930	12.165	12.403	12.642
14.80	11.393	11.624	11.838	12.094	12.332	12.572	12.815
15.00	11.547	11.781	12.018	12.257	12.498	12.742	12.989

長さ 9.00 ~ 15.00 m
平均径 106 ~ 112 cm

長さ (m)	平均 約 径 (cm)					長さ (m)
	106	107	108	109	110	
9.00	7.942	8.093	8.245	8.398	8.553	8.709
9.20	8.119	8.273	8.428	8.585	8.743	8.903
9.40	8.295	8.453	8.611	8.771	8.933	9.096
9.60	8.472	8.632	8.794	8.958	9.123	9.290
9.80	8.648	8.812	8.978	9.145	9.313	9.483
10.00	8.825	8.992	9.161	9.331	9.503	9.677
10.20	9.001	9.172	9.344	9.518	9.693	9.852
10.40	9.178	9.352	9.527	9.705	9.883	10.049
10.60	9.354	9.532	9.711	9.891	10.074	10.258
10.80	9.531	9.711	9.894	10.078	10.264	10.451
11.00	9.707	9.891	10.077	10.264	10.454	10.645
11.20	9.884	10.071	10.260	10.451	10.644	10.838
11.40	10.060	10.251	10.443	10.638	10.834	11.032
11.60	10.237	10.431	10.627	10.824	11.024	11.225
11.80	10.413	10.611	10.810	11.011	11.214	11.425
12.00	10.590	10.790	10.993	11.198	11.404	11.612
12.20	10.766	10.970	11.176	11.384	11.594	11.806
12.40	10.943	11.150	11.360	11.571	11.784	11.999
12.60	11.119	11.330	11.543	11.757	11.974	12.193
12.80	11.296	11.510	11.726	11.944	12.164	12.386
13.00	11.472	11.690	11.909	12.131	12.354	12.580
13.20	11.649	11.869	12.092	12.317	12.544	12.774
13.40	11.825	12.049	12.276	12.504	12.734	12.967
13.60	12.002	12.229	12.459	12.691	12.925	13.161
13.80	12.178	12.409	12.642	12.877	13.115	13.354
14.00	12.355	12.580	12.825	13.064	13.305	13.548
14.20	12.531	12.769	13.008	13.250	13.495	13.741
14.40	12.708	12.949	13.192	13.437	13.685	13.935
14.60	12.884	13.128	13.375	13.624	13.875	14.128
14.80	13.061	13.308	13.558	13.810	14.065	14.322
15.00	13.237	13.488	13.741	13.997	14.255	14.515

長さ 9.00 ~ 15.00 m
平均径 113 ~ 119 cm
(単位=m³)

長さ (m)	平均 均 径 (cm)						長さ (m)
	113	114	115	116	117	118	
9.00	9.026	9.186	9.348	9.512	9.676	9.842	10.010
9.20	9.226	9.390	9.556	9.723	9.891	10.061	10.232
9.40	9.427	9.595	9.764	9.934	10.106	10.280	10.455
9.60	9.628	9.799	9.971	10.146	10.321	10.498	10.677
9.80	9.828	10.003	10.179	10.357	10.536	10.717	10.900
10.00	10.029	10.207	10.387	10.568	10.751	10.936	11.122
10.20	10.229	10.411	10.595	10.780	10.966	11.155	11.344
10.40	10.430	10.615	10.802	10.991	11.181	11.373	11.567
10.60	10.630	10.819	11.010	11.202	11.396	11.592	11.789
10.80	10.831	11.024	11.218	11.414	11.611	11.811	12.012
11.00	11.032	11.228	11.426	11.625	11.826	12.030	12.234
11.20	11.232	11.432	11.633	11.837	12.042	12.248	12.457
11.40	11.433	11.636	11.841	12.048	12.257	12.467	12.679
11.60	11.633	11.840	12.049	12.259	12.472	12.686	12.902
11.80	11.834	12.044	12.257	12.471	12.687	12.904	13.124
12.00	12.035	12.248	12.464	12.682	12.902	13.123	13.346
12.20	12.235	12.453	12.672	12.893	13.117	13.342	13.569
12.40	12.436	12.657	12.880	13.105	13.332	13.561	13.791
12.60	12.636	12.861	13.088	13.316	13.547	13.779	14.014
12.80	12.837	13.065	13.295	13.527	13.762	13.998	14.236
13.00	13.037	13.269	13.503	13.739	13.977	14.217	14.459
13.20	13.238	13.473	13.711	13.950	14.192	14.435	14.681
13.40	13.439	13.677	13.918	14.162	14.407	14.654	14.904
13.60	13.639	13.882	14.126	14.373	14.622	14.873	15.126
13.80	13.840	14.086	14.334	14.584	14.837	15.092	15.348
14.00	14.040	14.290	14.542	14.796	15.052	15.310	15.571
14.20	14.043	14.494	14.749	15.007	15.267	15.529	15.793
14.40	14.441	14.698	14.957	15.218	15.482	15.748	16.016
14.60	14.642	14.902	15.165	15.430	15.966	16.238	16.461
14.80	14.843	15.106	15.373	15.641	15.912	16.185	16.461
15.00	15.043	15.311	15.580	15.853	16.127	16.404	16.683

長さ 9.00 ~ 15.00 m
平均径 113 ~ 119 cm
(単位=m³)

長さ (m)	平均 均 径 (cm)						長さ (m)
	120	121	122	123	124	125	
9.00	10.179	10.349	10.521	10.694	10.869	11.045	11.222
9.20	10.405	10.579	10.755	10.932	11.110	11.290	11.471
9.40	10.631	10.809	10.988	11.169	11.352	11.536	11.721
9.60	10.857	11.039	11.222	11.407	11.593	11.781	11.960
9.80	11.084	11.269	11.456	11.645	11.835	12.026	12.220
10.00	11.310	11.499	11.690	11.882	12.076	12.272	12.469
10.20	11.536	11.729	11.924	12.120	12.318	12.517	12.718
10.40	11.762	11.959	12.157	12.358	12.559	12.763	12.968
10.60	11.988	12.189	12.391	12.595	12.801	13.008	13.217
10.80	12.215	12.419	12.625	12.833	13.042	13.254	13.467
11.00	12.441	12.649	12.859	13.071	13.284	13.499	13.716
11.20	12.667	12.879	13.093	13.308	13.525	13.745	13.965
11.40	12.893	13.109	13.326	13.546	13.767	13.990	14.215
11.60	13.119	13.339	13.560	13.783	14.009	14.235	14.464
11.80	13.346	13.569	13.794	14.021	14.250	14.481	14.713
12.00	13.572	13.799	14.028	14.259	14.492	14.726	14.963
12.20	13.798	14.029	14.262	14.496	14.733	14.972	15.212
12.40	14.024	14.259	14.495	14.734	14.975	15.217	15.462
12.60	14.250	14.489	14.729	14.972	15.216	15.463	15.711
12.80	14.476	14.719	14.963	15.209	15.458	15.708	15.960
13.00	14.703	14.949	15.197	15.447	15.699	15.953	16.210
13.20	14.929	15.179	15.431	15.685	15.941	16.199	16.459
13.40	15.155	15.409	15.664	15.922	16.182	16.444	16.708
13.60	15.250	15.489	15.729	16.000	16.424	16.690	16.958
13.80	15.607	15.869	16.132	16.398	16.665	16.935	17.207
14.00	15.834	16.099	16.366	16.635	16.907	17.181	17.457
14.20	16.060	16.329	16.600	16.873	17.148	17.426	17.706
14.40	16.286	16.559	16.833	17.111	17.390	17.672	17.955
14.60	16.512	16.789	17.067	17.348	17.631	17.917	18.205
14.80	16.738	17.019	17.301	17.586	17.873	18.162	18.454
15.00	16.965	17.249	17.535	17.823	18.114	18.408	18.704

長さ 9.00 ~ 15.00 m
平均径 127 ~ 133 cm

(単位=m³)

長さ (m)	平均 均 径 (cm)				
	127	128	129	130	131
9.00	11.401	11.581	11.763	11.946	12.130
9.20	11.654	11.839	12.024	12.211	12.400
9.40	11.908	12.096	12.286	12.477	12.670
9.60	12.161	12.353	12.547	12.742	12.939
9.80	12.414	12.611	12.808	13.008	13.209
10.00	12.668	12.868	13.070	13.273	13.478
10.20	12.921	13.125	13.331	13.539	13.748
10.40	13.174	13.383	13.593	13.804	14.017
10.60	13.428	13.640	13.854	14.070	14.287
10.80	13.681	13.897	14.115	14.335	14.557
11.00	13.934	14.155	14.377	14.601	14.826
11.20	14.188	14.412	14.638	14.866	15.096
11.40	14.441	14.670	14.900	15.132	15.365
11.60	14.695	14.927	15.161	15.397	15.635
11.80	14.948	15.184	15.422	15.662	15.904
12.00	15.201	15.442	15.699	15.945	16.193
12.20	15.455	15.699	15.956	16.207	16.459
12.40	15.708	15.956	16.214	16.468	16.724
12.60	15.961	16.214	16.471	16.729	16.990
12.80	16.215	16.471	16.758	17.036	17.252
13.00	16.468	16.728	16.986	17.252	17.521
13.20	16.721	16.986	17.243	17.522	17.791
13.40	16.975	17.243	17.514	17.786	18.064
13.60	17.228	17.500	17.775	18.052	18.330
13.80	17.481	17.758	18.036	18.317	18.600
14.00	17.735	18.015	18.298	18.583	18.870
14.20	17.988	18.273	18.559	18.848	19.139
14.40	18.242	18.530	18.821	19.113	19.409
14.60	18.495	18.787	19.082	19.379	19.678
14.80	18.748	19.045	19.343	19.644	19.948
15.00	19.002	19.302	19.605	19.910	20.217

長さ 9.00 ~ 15.00 m
平均径 134 ~ 140 cm

(単位=m³)

長さ (m)	平均 均 径 (cm)				
	134	135	136	137	138
12.692	12.883	13.074	13.267	13.461	13.657
12.974	13.169	13.365	13.562	13.761	13.961
13.256	13.455	13.655	13.857	14.060	14.264
13.539	13.741	13.946	14.152	14.359	14.568
13.821	14.028	14.236	14.446	14.658	14.871
14.103	14.314	14.527	14.741	14.957	15.175
14.385	14.600	14.817	15.036	15.256	15.478
14.667	14.886	15.108	15.331	15.555	15.782
14.949	15.173	15.398	15.626	15.855	16.095
15.231	15.459	15.689	15.920	16.154	16.625
15.513	15.745	15.979	16.215	16.453	16.933
15.795	16.032	16.270	16.510	16.752	17.996
16.077	16.318	16.561	16.805	17.051	17.299
16.359	16.604	16.851	17.100	17.350	17.603
16.641	16.890	17.142	17.395	17.649	18.165
16.923	17.177	17.432	17.689	17.949	18.473
17.205	17.463	17.723	17.984	18.248	18.780
17.487	17.749	18.013	18.279	18.547	19.088
17.769	18.036	18.304	18.574	18.846	19.396
18.051	18.322	18.594	18.869	19.145	19.424
18.333	18.608	18.885	19.164	19.444	19.727
18.615	18.894	19.175	19.458	19.743	20.031
18.898	19.181	19.466	19.753	20.043	20.334
19.150	19.467	19.756	20.048	20.342	20.638
19.462	19.753	20.047	20.343	20.641	21.243
19.744	20.039	20.337	20.638	20.940	21.245
20.026	20.326	20.638	20.932	21.239	21.548
20.308	20.612	20.919	21.227	21.538	22.167
20.590	20.893	21.209	21.525	21.837	22.475
20.872	21.185	21.500	21.817	22.137	22.459
21.154	21.471	21.790	22.112	22.436	22.762

長さ 9.00 ~ 15.00 m
平均径 141 ~ 147 cm

(単位=m")

長さ (m)	平均径 (cm)					長さ (m)	
	141	142	143	144	145		
9.00	14.053	14.253	14.455	14.657	14.862	15.067	15.275
9.20	14.365	14.570	14.776	14.983	15.192	15.614	15.402
9.40	14.678	14.887	15.097	15.309	15.522	15.737	15.953
9.60	14.990	15.203	15.418	15.635	15.853	16.072	16.293
9.80	15.302	15.520	15.739	15.950	16.183	16.407	16.632
10.00	15.615	15.837	16.061	16.286	16.513	16.742	16.972
10.20	15.927	16.154	16.382	16.612	16.843	17.076	17.311
10.40	16.239	16.470	16.703	16.937	17.174	17.411	17.651
10.60	16.551	16.787	17.024	17.263	17.504	17.746	17.990
10.80	16.864	17.104	17.345	17.589	17.834	18.081	18.329
11.00	17.176	17.420	17.667	17.915	18.164	18.416	18.669
11.20	17.488	17.737	17.988	18.240	18.495	18.751	19.008
11.40	17.801	18.054	18.309	18.566	18.825	19.085	19.348
11.60	18.113	18.371	18.630	18.892	19.155	19.420	19.687
11.80	18.425	18.687	18.952	19.218	19.485	19.755	20.027
12.00	18.737	19.004	19.273	19.543	19.816	20.090	20.366
12.20	19.050	19.321	19.594	19.869	20.146	20.425	20.705
12.40	19.362	19.638	19.915	20.195	20.476	20.760	21.045
12.60	19.674	19.954	20.236	20.520	20.806	21.094	21.384
12.80	19.987	20.271	20.558	20.846	21.137	21.429	21.724
13.00	20.299	20.588	20.879	21.172	21.467	21.764	22.063
13.20	20.611	20.905	21.200	21.498	21.797	22.099	22.403
13.40	20.923	21.221	21.521	21.823	22.127	22.434	22.742
13.60	21.236	21.538	21.842	22.149	22.458	22.769	23.082
13.80	21.548	21.855	22.164	22.475	22.788	23.103	23.421
14.00	21.860	22.172	22.485	22.800	23.118	23.438	23.760
14.20	22.611	22.173	22.488	22.806	23.126	23.449	23.773
14.40	22.923	22.455	22.805	23.127	23.452	23.779	24.108
14.60	22.797	23.122	23.449	23.778	24.109	24.443	24.779
14.80	23.110	23.438	23.770	24.103	24.439	24.778	25.118
15.00	23.422	23.755	24.091	24.429	24.770	25.112	25.458

長さ 9.00 ~ 15.00 m
平均径 148 ~ 154 cm

(単位=m")

長さ (m)	平均径 (cm)					長さ (m)	
	148	149	150	151	152		
9.00	15.483	15.693	15.904	16.117	16.331	16.547	16.764
9.20	15.827	16.042	16.258	16.475	16.694	16.915	17.136
9.40	16.171	16.390	16.611	16.833	17.057	17.282	17.509
9.60	16.515	16.739	16.965	17.192	17.420	17.650	17.881
9.80	16.859	17.088	17.318	17.550	17.783	18.018	18.254
10.00	17.203	17.437	17.672	17.908	18.146	18.385	18.627
10.20	17.547	17.765	18.025	18.266	18.509	18.753	18.999
10.40	17.892	18.134	18.378	18.624	18.872	19.121	19.372
10.60	18.236	18.483	18.732	18.982	19.235	19.489	19.744
10.80	18.580	18.832	19.085	19.341	19.598	19.856	20.117
11.00	18.924	19.180	19.439	19.699	19.960	20.224	20.489
11.20	19.268	19.539	19.792	20.057	20.323	20.592	20.862
11.40	19.612	19.878	20.146	20.415	20.686	20.959	21.234
11.60	19.956	20.227	20.499	20.773	21.049	21.327	21.607
11.80	20.300	20.575	20.852	21.131	21.412	21.695	21.979
12.00	20.644	20.924	21.206	21.489	21.775	22.063	22.352
12.20	21.273	21.559	21.848	22.138	22.430	22.724	23.020
12.40	21.332	21.621	21.913	22.206	22.501	22.798	23.097
12.60	21.676	21.970	22.266	22.564	22.864	23.166	23.469
12.80	22.020	22.319	22.620	22.922	23.227	23.533	23.842
13.00	22.364	22.668	22.973	23.280	23.590	23.901	24.215
13.20	22.708	23.016	23.326	23.638	23.953	24.269	24.587
13.40	23.053	23.355	23.680	23.997	24.315	24.636	24.960
13.60	23.397	23.714	24.033	24.355	24.678	25.004	25.332
13.80	23.741	24.063	24.387	24.713	25.041	25.372	25.705
14.00	24.085	24.411	24.740	25.071	25.404	25.740	26.077
14.20	24.429	24.760	25.094	25.429	25.767	26.107	26.450
14.40	24.773	25.109	25.447	25.787	26.130	26.475	26.822
14.60	25.117	25.458	25.800	26.146	26.493	26.843	27.195
14.80	25.461	25.806	26.154	26.504	26.856	27.210	27.567
15.00	25.805	26.155	26.507	26.862	27.219	27.573	27.940

長さ 9.00 ~ 15.00 m
平均径 155 ~ 161 cm

(単位=m³)

長さ (m)	平均径(cm)					長さ (m)	
	155	156	157	158	159		
9.00	16.982	17.202	17.423	17.646	17.870	18.096	18.323
9.20	17.360	17.584	17.811	18.038	18.267	18.498	18.730
9.40	17.737	17.967	18.198	18.430	18.664	18.900	19.137
9.60	18.114	18.349	18.585	18.822	19.061	19.302	19.544
9.80	18.492	18.731	18.972	19.215	19.459	19.704	19.951
10.00	18.869	19.113	19.359	19.607	19.856	20.106	20.358
10.20	19.247	19.496	19.747	19.999	20.253	20.508	20.766
10.40	19.624	19.878	20.134	20.391	20.650	20.910	21.173
10.60	20.001	20.260	20.521	20.783	21.047	21.313	21.580
10.80	20.379	20.643	20.908	21.175	21.444	21.715	21.987
11.00	20.756	21.025	21.295	21.567	21.841	22.117	22.394
11.20	21.134	21.407	21.682	21.960	22.238	22.519	22.801
11.40	21.511	21.789	22.070	22.352	22.635	22.921	23.209
11.60	21.888	22.172	22.457	22.744	23.033	23.323	23.616
11.80	22.266	22.554	22.844	23.136	23.430	23.725	24.023
12.00	22.643	22.936	23.231	23.528	23.827	24.127	24.430
12.20	23.020	23.318	23.618	23.920	24.224	24.530	24.837
12.40	23.398	23.701	24.006	24.312	24.621	24.932	25.244
12.60	23.775	24.083	24.393	24.704	25.018	25.334	25.652
12.80	24.153	24.465	24.780	25.097	25.415	25.736	26.059
13.00	24.530	24.838	25.167	25.489	25.812	26.138	26.466
13.20	24.907	25.230	25.554	25.881	26.210	26.540	26.873
13.40	25.285	25.612	25.941	26.273	26.607	26.942	27.280
13.60	25.662	25.994	26.329	26.665	27.004	27.344	27.687
13.80	26.040	26.377	26.716	27.057	27.401	27.747	28.095
14.00	26.417	26.759	27.103	27.449	27.798	28.149	28.502
14.20	26.794	27.141	27.490	27.842	28.195	28.551	28.909
14.40	27.172	27.523	27.877	28.234	28.592	28.953	29.316
14.60	27.549	27.906	28.265	28.626	28.989	29.355	29.723
14.80	27.926	28.288	28.652	29.018	29.386	29.757	30.130
15.00	28.304	28.670	29.039	29.410	29.784	30.159	30.538

長さ 9.00 ~ 15.00 m
平均径 162 ~ 168 cm

(単位=m³)

長さ (m)	平均径(cm)					長さ (m)	
	162	163	164	165	166		
9.00	18.551	18.781	19.012	19.244	19.478	19.714	19.950
9.20	18.963	19.198	19.434	19.672	19.911	20.152	20.394
9.40	19.375	19.615	19.857	20.100	20.344	20.590	20.837
9.60	19.788	20.033	20.279	20.527	20.777	21.028	21.280
9.80	20.200	20.450	20.702	20.955	21.210	21.466	21.724
10.00	20.612	20.867	21.124	21.383	21.642	21.904	22.167
10.20	21.024	21.285	21.547	21.810	22.075	22.342	22.610
10.40	21.437	21.702	21.969	22.238	22.508	22.780	23.054
10.60	21.849	22.119	22.392	22.665	22.941	23.218	23.497
10.80	22.261	22.537	22.814	23.093	23.374	23.656	23.940
11.00	22.673	22.954	23.237	23.521	23.807	24.094	24.384
11.20	23.085	23.371	23.650	23.948	24.081	24.376	24.533
11.40	23.498	23.789	24.081	24.380	24.672	24.971	25.271
11.60	23.910	24.206	24.504	24.804	25.105	25.409	25.714
11.80	24.322	24.623	24.926	25.231	25.538	25.847	26.157
12.00	24.734	25.041	25.349	25.659	25.971	26.285	26.601
12.20	25.147	25.458	25.771	26.087	26.404	26.723	27.044
12.40	25.559	25.875	26.194	26.514	26.837	27.161	27.487
12.60	25.971	26.293	26.616	26.942	27.270	27.599	27.931
12.80	26.383	26.710	27.039	27.370	27.702	28.037	28.374
13.00	26.796	27.127	27.461	27.797	28.135	28.475	28.817
13.20	27.208	27.545	27.884	28.225	28.568	28.913	29.261
13.40	27.620	27.962	28.306	28.653	29.001	29.351	29.704
13.60	28.032	28.380	28.729	29.080	29.434	29.789	30.147
13.80	28.445	28.797	29.151	29.508	29.867	30.228	30.591
14.00	28.857	29.214	29.574	29.936	30.299	30.666	31.034
14.20	29.260	29.632	29.996	30.363	30.732	31.104	31.477
14.40	29.631	30.019	30.419	30.791	31.165	31.522	31.921
14.60	30.094	30.466	30.841	31.218	31.598	31.980	32.364
14.80	30.506	30.884	31.264	31.646	32.031	32.418	32.807
15.00	30.918	31.301	31.686	32.074	32.464	32.856	33.251

長さ 9.00~15.00m
平均径 169~175cm
(単位=m³)

長さ (m)	平均径 径(cm)					長さ (m)	
	169	170	171	172	173		
9.00	20.189	20.428	20.669	20.912	21.156	21.401	21.648
9.20	20.637	20.882	21.129	21.376	21.626	21.876	22.129
9.40	21.086	21.336	21.588	21.841	22.096	22.352	22.610
9.60	21.535	21.790	22.047	22.306	22.566	22.828	23.091
9.80	21.983	22.244	22.507	22.771	23.036	23.303	23.572
10.00	22.432	22.698	22.966	23.235	23.506	23.779	24.053
10.20	22.880	23.152	23.425	23.700	23.976	24.254	24.534
10.40	23.329	23.606	23.885	24.165	24.446	24.730	25.015
10.60	23.778	24.060	24.344	24.629	24.917	25.205	25.496
10.80	24.226	24.514	24.803	25.094	25.387	25.681	25.977
11.00	24.675	24.968	25.262	25.559	25.857	26.157	26.458
11.20	25.124	25.422	25.722	26.024	26.327	26.632	26.939
11.40	25.572	25.876	26.181	26.488	26.797	27.108	27.420
11.60	26.021	26.330	26.640	26.953	27.267	27.583	27.901
11.80	26.470	26.784	27.100	27.418	27.737	28.059	28.382
12.00	26.918	27.238	27.559	27.882	28.207	28.535	28.863
12.20	27.367	27.692	28.018	28.347	28.678	29.010	29.345
12.40	27.815	28.146	28.478	28.812	29.148	29.486	29.826
12.60	28.264	28.600	28.937	29.276	29.618	29.961	30.307
12.80	28.713	29.054	29.396	29.741	30.088	30.437	30.788
13.00	29.161	29.507	29.856	30.206	30.558	30.912	31.269
13.20	29.610	29.961	30.315	30.671	31.028	31.388	31.750
13.40	30.059	30.415	30.774	31.135	31.498	31.864	32.231
13.60	30.507	30.869	31.234	31.600	31.968	32.339	32.712
13.80	30.956	31.323	31.693	32.065	32.439	32.815	33.193
14.00	31.405	31.777	32.152	32.529	32.909	33.290	33.671
14.20	31.853	32.233	32.612	33.094	33.476	33.849	34.155
14.40	32.302	32.685	33.071	33.559	33.948	34.241	34.636
14.60	32.750	33.139	33.530	33.923	34.319	34.717	35.117
14.80	33.199	33.593	33.990	34.388	34.789	35.193	35.598
15.00	33.648	34.047	34.449	34.553	35.259	35.668	36.079

長さ 9.00~15.00m
平均径 176~182cm
(単位=m³)

長さ (m)	平均径 径(cm)					長さ (m)	
	176	177	178	179	180		
9.00	21.896	22.145	22.396	22.649	22.902	23.157	23.414
9.20	22.382	22.637	22.894	23.152	23.411	23.672	23.934
9.40	22.869	23.129	23.392	23.655	23.920	24.187	24.455
9.60	23.355	23.622	23.889	24.158	24.429	24.701	24.975
9.80	23.842	24.114	24.387	24.662	24.938	25.216	25.495
10.00	24.329	24.606	24.885	25.165	25.447	25.730	26.016
10.20	24.815	25.098	25.382	25.668	25.956	26.245	26.536
10.40	25.302	25.590	25.880	26.172	26.465	26.760	27.056
10.60	25.788	26.082	26.378	26.675	26.974	27.274	27.577
10.80	26.275	26.574	26.875	27.178	27.483	27.789	28.097
11.00	26.761	27.066	27.373	27.682	27.992	28.304	28.617
11.20	27.248	27.558	27.871	28.185	28.501	28.818	29.137
11.40	27.735	28.051	28.368	28.688	29.010	29.333	29.658
11.60	28.221	28.543	28.866	29.191	29.518	29.847	30.178
11.80	28.708	29.035	29.364	29.695	30.027	30.362	30.698
12.00	29.194	29.527	29.862	30.198	30.536	30.877	31.219
12.20	29.681	30.019	30.359	30.701	31.045	31.391	31.739
12.40	30.167	30.511	30.857	31.205	31.554	31.906	32.259
12.60	30.654	31.003	31.355	31.708	32.063	32.420	32.780
12.80	31.141	31.495	31.852	32.211	32.572	32.935	33.300
13.00	31.627	31.988	32.350	32.715	33.081	33.450	33.820
13.20	32.114	32.460	32.848	33.218	33.590	33.964	34.341
13.40	32.600	32.972	33.345	33.721	34.099	34.479	34.861
13.60	33.087	33.464	33.843	34.224	34.608	34.993	35.381
13.80	33.573	33.956	34.341	34.728	35.117	35.508	35.902
14.00	34.060	34.448	34.838	35.231	35.626	36.023	36.422
14.20	34.547	34.940	35.336	35.734	36.135	36.537	36.932
14.40	35.033	35.432	35.834	36.238	36.644	37.052	37.462
14.60	35.520	35.924	36.332	36.741	37.153	37.567	37.963
14.80	36.006	36.417	36.829	37.244	37.662	38.081	38.303
15.00	36.493	36.909	37.327	37.748	38.170	38.596	39.023

長さ 9.00 ~ 15.00 m
平均径 183 ~ 189 cm
($\text{M}^3 = \text{m}^3$)

長さ (m)	平均 均 径 (cm)					長さ (m)	
	183	184	185	186	187		
9.00	23.672	23.931	24.192	24.455	24.718	24.983	25.250
9.20	24.198	24.463	24.730	24.998	25.267	25.538	25.811
9.40	24.724	24.995	25.267	25.541	25.817	26.094	26.372
9.60	25.250	25.527	25.805	26.085	26.366	26.649	26.933
9.80	25.776	26.059	26.343	26.628	26.915	27.204	27.494
10.00	26.302	26.591	26.880	27.172	27.465	27.759	28.055
10.20	26.828	27.122	27.418	27.715	28.014	28.314	28.616
10.40	27.354	27.654	27.956	28.259	28.563	28.870	29.177
10.60	27.880	28.186	28.480	28.782	29.113	29.425	29.739
10.80	28.406	28.718	29.031	29.345	29.662	29.980	30.300
11.00	28.932	29.250	29.568	29.889	30.211	30.535	30.861
11.20	29.459	29.781	30.106	30.432	30.760	31.090	31.422
11.40	29.985	30.313	30.644	30.976	31.310	31.645	31.983
11.60	30.511	30.845	31.181	31.519	31.859	32.201	32.544
11.80	31.037	31.377	31.719	32.063	32.408	32.756	33.105
12.00	31.563	31.909	32.256	32.606	32.958	33.311	33.666
12.20	32.089	32.440	32.794	33.149	33.507	33.866	34.227
12.40	32.615	32.972	33.332	33.693	34.056	34.421	34.789
12.60	33.141	33.504	33.869	34.236	34.605	34.977	35.350
12.80	33.667	34.036	34.407	34.780	35.155	35.532	35.911
13.00	34.193	34.568	34.944	35.323	35.704	36.087	36.472
13.20	34.719	35.099	35.452	35.867	36.253	36.642	37.033
13.40	35.245	35.631	36.020	36.410	36.803	37.197	37.594
13.60	35.771	36.163	36.557	36.954	37.352	37.752	38.155
13.80	36.297	36.695	37.095	37.497	37.901	38.308	38.716
14.00	36.823	37.227	37.632	38.040	38.451	38.863	39.277
14.20	37.349	37.759	38.170	38.534	39.000	39.418	39.833
14.40	37.875	38.290	38.703	39.127	39.549	39.973	40.400
14.60	38.401	38.822	39.245	39.671	40.098	40.523	40.961
14.80	38.927	39.354	39.753	40.214	40.648	41.084	41.522
15.00	39.453	39.886	40.320	40.758	41.197	41.639	42.083

長さ 9.00 ~ 15.00 m
平均径 190 ~ 196 cm
($\text{M}^3 = \text{m}^3$)

長さ (m)	平均 均 径 (cm)					長さ (m)	
	190	191	192	193	194		
9.00	25.518	25.787	26.058	26.330	26.603	26.878	27.155
9.20	26.085	26.360	26.637	26.915	27.195	27.476	27.758
9.40	26.632	26.933	27.216	27.500	27.786	28.073	28.362
9.60	27.219	27.506	27.795	28.085	28.377	28.670	28.965
9.80	27.786	28.079	28.374	28.670	28.968	29.268	29.568
10.00	28.353	28.652	28.953	29.255	29.559	29.865	30.172
10.20	28.920	29.225	29.532	29.840	30.151	30.462	30.775
10.40	29.487	29.798	30.111	30.426	30.742	31.059	31.379
10.60	30.054	30.371	30.690	31.011	31.333	31.657	31.982
10.80	30.621	30.944	31.269	31.596	31.924	32.254	32.586
11.00	31.188	31.517	31.848	32.181	32.515	32.851	33.189
11.20	31.755	32.090	32.427	32.766	33.106	33.449	33.793
11.40	32.322	32.663	33.006	33.351	33.698	34.046	34.396
11.60	32.889	33.237	33.585	33.936	34.289	34.643	34.999
11.80	33.456	33.810	34.165	34.521	34.880	35.241	35.603
12.00	34.024	34.383	34.744	35.106	35.471	35.838	36.206
12.20	34.591	34.956	35.323	35.692	36.062	36.435	36.810
12.40	35.158	35.529	35.902	36.277	36.654	37.032	37.413
12.60	35.725	36.102	36.481	36.862	37.245	37.630	38.017
12.80	36.292	36.675	37.060	37.447	37.836	38.227	38.620
13.00	36.859	37.248	37.639	38.032	38.427	38.824	39.227
13.20	37.426	37.821	38.218	38.617	39.018	39.422	39.827
13.40	37.993	38.394	38.797	39.202	39.609	40.019	40.460
13.60	38.560	38.967	39.376	39.787	40.201	40.616	41.034
13.80	39.127	39.540	39.955	40.372	40.792	41.213	41.637
14.00	39.694	40.113	40.534	40.958	41.383	41.811	42.241
14.20	40.261	40.686	41.113	41.543	41.974	42.408	42.844
14.40	40.828	41.259	41.692	42.128	42.565	43.005	43.448
14.60	41.395	41.832	42.272	42.713	43.157	43.603	44.051
14.80	41.962	42.405	42.850	43.298	43.748	44.200	44.654
15.00	42.529	42.978	43.429	43.883	44.339	44.797	45.258

長さ 9.00 ~ 15.00 m
平均径 197 ~ 203 cm
(単位=m³)

長さ (m)	平均 焦 径 (cm)					長さ (m)	
	197	198	199	200	201		
9.00	27.433	27.712	27.992	28.274	28.558	28.843	29.129
9.20	28.042	28.328	28.614	28.903	29.192	29.484	29.776
9.40	28.652	28.943	29.236	29.531	29.827	30.125	30.424
9.60	29.261	29.559	29.859	30.159	30.462	30.766	31.071
9.80	29.871	30.175	30.481	30.788	31.096	31.407	31.718
10.00	30.481	30.791	31.103	31.416	31.731	32.047	32.366
10.20	31.090	31.407	31.725	32.044	32.366	32.688	33.013
10.40	31.700	32.022	32.347	32.673	33.000	33.329	33.660
10.60	32.309	32.638	33.301	33.969	33.301	33.635	34.307
10.80	32.919	33.254	33.591	33.929	34.269	34.611	34.955
11.00	33.529	33.870	34.213	34.558	34.904	35.252	35.602
11.20	34.138	34.486	34.835	35.186	35.539	35.893	36.249
11.40	34.748	35.102	35.457	35.814	36.173	36.534	36.897
11.60	35.357	35.717	36.079	36.443	36.808	37.175	37.544
11.80	35.967	36.333	36.701	37.071	37.443	37.816	38.191
12.00	36.577	36.949	37.323	37.699	38.077	38.457	38.839
12.20	37.186	37.565	37.945	38.328	38.712	39.098	39.486
12.40	37.796	38.181	38.567	38.956	39.346	39.739	40.133
12.60	38.406	38.796	39.189	39.584	39.981	40.380	40.781
12.80	39.015	39.412	39.811	40.212	40.616	41.021	41.428
13.00	39.625	40.028	40.433	40.841	41.250	41.662	42.075
13.20	40.234	40.644	41.055	41.469	41.885	42.303	42.723
13.40	40.844	41.260	41.678	42.097	42.519	42.944	43.370
13.60	41.454	41.876	42.300	42.726	43.154	43.585	44.017
13.80	42.063	42.491	42.922	43.354	43.789	44.225	44.664
14.00	42.675	43.107	43.544	43.982	44.423	44.866	45.312
14.20	43.282	43.723	44.166	44.611	45.058	45.507	45.959
14.40	43.892	44.339	44.768	45.239	45.693	46.148	46.606
14.60	44.502	44.955	45.410	45.867	46.327	46.789	47.254
14.80	45.111	45.570	46.032	46.496	46.962	47.430	47.901
15.00	45.721	46.186	46.654	47.124	47.596	48.071	48.548

長さ 9.00 ~ 15.00 m
平均径 204 ~ 210 cm
(単位=m³)

長さ (m)	平均 焦 径 (cm)					長さ (m)	
	204	205	206	207	208		
9.00	29.417	29.706	29.996	30.288	30.582	30.876	31.173
9.20	30.470	30.766	30.663	30.961	31.261	31.562	31.865
9.40	31.024	31.322	31.329	31.634	31.941	32.249	32.558
9.60	31.378	31.686	31.996	32.307	32.620	32.935	33.251
9.80	32.032	32.346	32.663	32.981	33.300	33.621	33.943
10.00	32.685	33.006	33.329	33.654	33.980	34.307	34.636
10.20	33.329	33.667	33.996	34.327	34.659	34.993	35.329
10.40	34.093	34.327	34.662	35.000	35.339	35.679	36.022
10.60	34.646	34.987	35.329	35.673	36.018	36.365	36.714
10.80	35.300	35.647	35.996	36.346	36.698	37.052	37.407
11.00	35.954	36.307	36.662	37.019	37.378	38.100	38.738
11.20	36.607	36.967	37.329	37.692	38.057	38.424	38.792
11.40	37.261	37.627	37.995	38.365	38.737	39.110	39.485
11.60	37.915	38.287	38.662	39.038	39.416	39.796	40.176
11.80	38.569	38.948	39.328	39.711	40.096	40.482	40.871
12.00	39.222	39.608	39.995	40.384	40.775	41.168	41.563
12.20	39.876	40.268	40.662	41.057	41.455	41.855	42.256
12.40	40.530	40.928	41.328	41.730	42.135	42.541	42.949
12.60	41.183	41.588	41.995	42.404	42.814	43.227	43.642
12.80	41.837	42.248	42.661	43.077	43.494	43.913	44.334
13.00	42.491	42.908	43.328	43.750	44.173	44.599	45.027
13.20	43.144	43.568	43.995	44.423	44.853	45.285	45.720
13.40	43.798	44.229	44.661	45.096	45.533	45.971	46.412
13.60	44.152	44.889	45.328	45.769	46.212	46.658	47.105
13.80	45.106	45.549	45.994	46.442	46.892	47.344	47.798
14.00	45.759	46.209	46.661	47.115	47.571	48.030	48.49
14.20	46.413	46.869	47.328	47.788	48.251	48.716	49.183
14.40	47.067	47.529	47.994	48.461	48.931	49.402	49.876
14.60	47.720	48.189	48.661	49.134	49.610	50.088	50.569
14.80	48.374	48.850	49.327	49.807	50.290	50.774	51.261
15.00	49.028	49.510	49.994	50.480	50.969	51.461	51.954

長さ 9.00 ~ 15.00 m
平均径 211 ~ 217 cm
(単位=m³)

長さ (m)	平均均 径 (cm)					長さ (m)	
	211	212	213	214	215		
9.00	31.470	31.769	32.070	32.371	32.675	32.979	33.285
9.20	32.169	32.475	32.782	33.091	33.401	33.712	34.025
9.40	32.865	33.181	33.495	33.810	34.127	34.445	34.765
9.60	33.568	33.887	34.207	34.529	34.853	35.173	35.504
9.80	34.267	34.593	34.920	35.249	35.579	35.911	36.244
10.00	34.967	35.299	35.633	35.968	36.305	36.644	36.984
10.20	35.666	36.005	36.345	36.688	37.031	37.376	37.723
10.40	36.365	36.711	37.417	37.771	38.126	38.483	38.842
10.60	37.065	37.417	37.771	38.126	38.483	38.846	39.203
10.80	37.764	38.123	38.483	38.846	39.210	39.575	39.942
11.00	38.463	38.829	39.196	39.565	39.936	40.308	40.682
11.20	39.163	39.535	39.909	40.284	40.662	41.041	41.422
11.40	39.862	40.241	40.621	41.004	41.388	41.774	42.161
11.60	40.561	40.947	41.334	41.723	42.114	42.507	42.901
11.80	41.261	41.653	42.047	42.442	42.840	43.239	43.641
12.00	41.960	42.359	42.759	43.162	43.566	43.972	44.380
12.20	42.659	43.065	43.472	43.881	44.292	44.705	45.120
12.40	43.359	43.771	44.185	44.601	45.018	45.433	45.860
12.60	44.058	44.477	44.897	45.320	45.744	46.171	46.599
12.80	44.757	45.183	45.610	46.039	46.471	46.904	47.339
13.00	45.457	45.889	46.323	46.759	47.197	47.637	48.079
13.20	46.156	46.595	46.035	47.035	47.478	47.923	48.818
13.40	46.856	47.301	47.743	48.197	48.649	49.102	49.558
13.60	47.555	48.007	48.461	48.917	49.375	49.935	50.298
13.80	48.254	48.713	49.173	49.636	50.101	50.568	51.038
14.00	48.954	49.419	49.686	49.886	50.355	50.827	51.301
14.20	49.653	50.125	50.599	51.075	51.553	52.034	52.517
14.40	50.352	50.831	51.311	51.794*	52.279	52.767	53.257
14.60	51.052	51.537	52.024	52.514	53.005	53.500	53.996
14.80	51.751	52.243	52.737	53.233	53.732	54.233	54.736
15.00	52.450	52.949	53.449	53.932	54.458	54.965	55.476

長さ 9.00 ~ 15.00 m
平均径 218 ~ 224 cm
(単位=m³)

長さ (m)	平均均 径 (cm)					長さ (m)	
	218	219	220	221	222		
9.00	33.593	33.902	34.212	34.524	34.837	35.151	35.467
9.20	34.339	34.655	34.972	35.291	35.611	35.933	36.256
9.40	35.086	35.408	35.733	36.058	36.385	36.714	37.044
9.60	35.832	36.162	36.493	36.825	37.159	37.495	37.832
9.80	36.579	36.915	37.253	37.593	37.934	38.276	38.620
10.00	37.325	37.669	38.013	38.360	38.708	39.057	39.408
10.20	38.072	38.422	38.774	39.127	39.482	39.838	40.196
10.40	38.818	39.175	39.534	39.894	40.256	40.619	40.985
10.60	39.565	39.929	40.294	40.661	41.030	41.401	41.773
10.80	40.311	40.682	41.054	41.428	41.804	42.182	42.561
11.00	41.058	41.435	41.815	42.196	42.578	42.963	43.349
11.20	41.804	42.189	42.575	42.963	43.353	43.744	44.137
11.40	42.551	42.942	43.335	43.730	44.127	44.525	44.925
11.60	43.297	43.696	44.095	44.497	44.901	45.306	45.714
11.80	44.044	44.449	44.856	45.264	45.675	46.087	46.502
12.00	44.790	45.202	45.616	46.032	46.449	46.869	47.290
12.20	45.537	45.956	46.376	46.799	47.223	47.650	48.078
12.40	46.283	46.709	47.137	47.566	47.997	48.431	48.866
12.60	47.030	47.462	47.897	48.333	48.772	49.212	49.654
12.80	47.776	48.216	48.657	49.100	49.546	49.993	50.443
13.00	48.523	48.969	49.417	49.868	50.320	50.774	51.231
13.20	49.269	49.723	50.173	50.635	51.094	51.555	52.019
13.40	50.016	50.476	50.938	51.402	51.868	52.337	52.807
13.60	50.762	51.229	51.698	52.169	52.642	53.118	53.595
13.80	51.509	51.983	52.458	52.936	53.417	53.899	54.383
14.00	52.255	52.736	53.219	53.704	54.191	54.680	55.172
14.20	53.002	53.489	53.979	54.471	54.965	55.461	55.960
14.40	53.793	54.238	54.739	55.238	55.739	56.242	56.748
14.60	54.495	54.996	55.500	56.005	56.533	57.023	57.536
14.80	55.242	55.749	56.260	56.772	57.287	57.805	58.324
15.00	55.988	56.503	57.020	57.540	58.061	58.586	59.112

長さ 9.00 ~ 15.00 m
平均径 225 ~ 231 cm
(単位=m³)

長さ (m)	平 均 径 (cm)						長さ (m)
	225	226	227	228	229	230	
9.00	35.785	36.104	36.424	36.745	37.068	37.393	37.719
9.20	36.580	36.906	37.233	37.562	37.892	38.224	38.557
9.40	37.375	37.708	38.043	38.379	38.716	39.055	39.395
9.60	38.170	38.510	38.852	39.195	39.540	39.886	40.233
9.80	38.966	39.313	39.661	40.012	40.363	40.717	41.072
10.00	39.761	40.115	40.471	40.828	41.187	41.548	41.910
10.20	40.556	40.917	41.280	41.645	42.011	42.379	42.748
10.40	41.351	41.720	42.090	42.461	42.835	43.210	43.586
10.60	42.147	42.522	42.899	43.278	43.658	44.041	44.424
10.80	42.942	43.324	43.709	44.094	44.482	44.871	45.263
11.00	43.737	44.127	44.518	44.911	45.306	45.702	46.101
11.20	44.532	44.929	45.327	45.728	46.130	46.533	46.939
11.40	45.327	45.731	46.137	46.544	46.953	47.364	47.777
11.60	46.123	46.534	46.946	47.361	47.777	48.195	48.615
11.80	46.918	47.336	47.756	48.177	48.601	49.026	49.453
12.00	47.713	48.138	48.565	48.994	49.425	49.857	50.292
12.20	48.508	48.940	49.374	49.810	50.248	50.688	51.130
12.40	49.303	49.743	50.184	50.627	51.072	51.519	51.963
12.60	50.099	50.545	50.993	51.444	51.896	52.350	52.806
12.80	50.894	51.347	51.803	52.260	52.720	53.181	53.644
13.00	51.689	52.150	52.612	53.077	53.543	54.012	54.483
13.20	52.484	52.952	53.422	53.893	54.367	54.843	55.321
13.40	53.280	53.754	54.231	54.710	55.191	55.674	56.159
13.60	54.075	54.557	55.040	55.526	56.015	56.505	56.997
13.80	54.870	55.359	55.850	56.343	56.838	57.336	57.935
14.00	55.665	56.161	56.659	57.160	57.662	58.167	58.674
14.20	56.460	56.963	57.469	57.976	58.486	58.998	59.512
14.40	57.256	57.766	58.278	58.793	59.310	59.829	60.350
14.60	58.051	58.568	59.087	59.609	60.133	60.660	61.188
14.80	58.846	59.370	59.897	60.426	60.957	61.491	62.026
15.00	59.641	60.173	60.706	61.242	61.781	62.321	62.865

長さ 9.00 ~ 15.00 m
平均径 232 ~ 238 cm
(単位=m³)

長さ (m)	平 均 径 (cm)						長さ (m)
	232	233	234	235	236	237	
9.00	38.046	38.375	38.705	39.036	39.369	39.704	40.039
9.20	38.892	39.227	39.565	39.904	40.244	40.586	40.929
9.40	39.737	40.080	40.425	40.771	41.119	41.468	41.819
9.60	40.582	40.933	41.285	41.639	41.994	42.351	42.709
9.80	41.428	41.786	42.145	42.506	42.869	43.233	43.598
10.00	42.273	42.639	43.005	43.374	43.744	44.115	44.488
10.20	43.119	43.491	43.865	44.241	44.619	44.997	45.378
10.40	43.964	44.344	44.726	45.109	45.493	45.880	46.268
10.60	44.810	45.197	45.586	45.976	46.368	46.762	47.157
10.80	45.655	46.050	46.446	46.844	47.243	47.644	48.047
11.00	46.501	46.902	47.306	47.711	48.118	48.527	48.937
11.20	47.346	47.755	48.166	48.579	48.983	49.409	49.827
11.40	48.192	48.608	49.026	49.446	49.868	50.291	50.717
11.60	48.937	49.461	49.886	50.314	50.743	51.174	51.606
11.80	49.883	50.314	50.746	51.181	51.617	52.056	52.496
12.00	51.166	51.606	52.048	52.492	52.938	53.386	53.836
12.20	52.019	52.467	52.916	53.367	53.820	54.276	54.726
12.40	52.419	52.872	53.327	53.783	54.242	54.703	55.165
12.60	53.264	53.725	54.187	54.651	55.117	55.585	56.055
12.80	54.110	54.577	55.047	55.518	55.997	56.467	56.945
13.00	55.430	55.907	56.386	56.867	57.350	57.835	58.335
13.20	56.801	56.283	56.767	57.253	57.742	58.232	58.724
13.40	56.646	57.136	57.627	58.121	58.616	59.114	59.614
13.60	57.492	57.988	58.487	58.988	59.491	59.997	60.504
13.80	58.337	58.841	59.347	59.856	60.366	60.879	61.394
14.00	59.183	59.694	60.208	60.723	61.241	61.761	62.283
14.20	60.028	60.547	61.068	61.591	62.116	62.643	63.173
14.40	60.874	61.400	61.928	62.458	62.991	63.526	64.063
14.60	61.719	62.252	62.788	63.326	63.866	64.408	64.953
14.80	62.565	63.105	63.648	64.193	64.741	65.290	65.843
15.00	63.410	63.958	64.508	65.061	65.615	66.173	66.732

長さ 9.00 ~ 15.00 m
平均径 239 ~ 245 cm
(単位=m³)

長さ (m)	平均 均 径 (cm)					長さ (m)	
	239	240	241	242	243		
9.00	40.377	40.715	41.055	41.397	41.739	42.084	42.429
9.20	41.274	41.620	41.967	42.316	42.667	43.019	43.372
9.40	42.171	42.525	42.880	43.236	43.594	43.954	44.315
9.60	43.429	43.792	44.156	44.522	44.889	45.258	45.628
9.80	43.966	44.334	44.704	45.076	45.450	45.824	46.201
10.00	44.863	45.239	45.617	45.996	46.377	46.760	47.144
10.20	45.760	46.144	46.529	46.916	47.305	47.695	48.087
10.40	46.657	47.049	47.441	47.836	48.232	48.630	49.029
10.60	47.555	47.953	48.354	48.756	49.160	49.565	49.972
10.80	48.452	48.858	49.266	49.676	50.087	50.500	50.915
11.00	49.349	49.763	50.178	50.596	51.015	51.436	51.858
11.20	50.246	50.668	51.091	51.516	51.942	52.371	52.801
11.40	51.144	51.573	52.003	52.436	52.870	53.306	53.744
11.60	52.041	52.477	52.916	53.356	53.797	54.241	54.687
11.80	52.938	53.392	53.828	54.275	54.725	55.176	55.629
12.00	53.835	54.287	54.740	55.195	55.653	56.111	56.572
12.20	54.733	55.192	55.653	56.115	56.580	57.047	57.515
12.40	55.630	56.096	56.565	57.035	57.508	57.982	58.455
12.60	56.527	57.001	57.477	57.555	58.435	58.917	59.401
12.80	57.424	57.906	58.390	58.875	59.363	59.852	60.344
13.00	58.322	58.811	59.302	59.795	60.290	60.787	61.287
13.20	59.219	59.716	60.214	60.715	61.218	61.723	62.230
13.40	60.116	60.620	61.127	61.635	62.145	62.658	63.152
13.60	61.013	61.525	62.039	62.555	63.073	63.593	64.115
13.80	61.911	62.430	62.951	63.475	64.000	64.528	65.058
14.00	62.808	63.335	63.864	64.395	64.928	65.463	66.001
14.20	63.705	64.239	64.776	65.315	65.855	66.339	66.944
14.40	64.602	65.144	65.688	66.234	66.783	67.334	67.887
14.60	65.500	66.049	66.601	67.154	67.711	68.269	68.830
14.80	66.397	66.554	67.513	68.074	68.638	69.204	69.773
15.00	67.294	67.859	68.425	68.994	69.566	70.139	70.715

長さ (m)	平均 均 径 (cm)					長さ (m)
	246	247	248	249	250	
9.00	42.776	43.125	43.475	43.826	44.179	9.00
9.20	43.727	44.083	44.441	44.800	45.161	9.20
9.40	44.678	45.041	45.407	45.774	46.142	9.40
9.60	45.628	46.000	46.373	46.748	47.124	9.60
9.80	46.579	46.958	47.339	47.722	48.106	9.80
10.00	47.529	47.916	48.305	48.696	49.088	10.00
10.20	48.460	48.875	49.271	49.669	50.059	10.20
10.40	49.430	49.833	50.237	50.643	51.051	10.40
10.60	50.381	50.791	51.204	51.617	52.033	10.60
10.80	51.332	51.750	52.170	52.591	53.015	10.80
11.00	52.282	52.708	53.136	53.565	53.996	11.00
11.20	53.233	53.666	54.102	54.539	54.978	11.20
11.40	54.183	54.625	55.068	55.513	55.960	11.40
11.60	55.134	55.583	56.034	56.487	56.942	11.60
11.80	56.085	56.541	57.000	57.461	57.923	11.80
12.00	57.035	57.500	57.966	58.435	58.905	12.00
12.20	57.986	58.458	58.932	59.409	59.887	12.20
12.40	58.936	59.416	59.898	60.383	60.869	12.40
12.60	59.887	60.375	60.865	61.356	61.850	12.60
12.80	60.837	61.333	61.831	62.330	62.832	12.80
13.00	61.788	62.291	62.797	63.304	63.814	13.00
13.20	62.739	63.250	63.763	64.278	64.796	13.20
13.40	63.689	64.208	64.729	65.252	65.777	13.40
13.60	64.640	65.166	65.695	66.226	66.759	13.60
13.80	65.590	66.125	66.661	67.200	67.741	13.80
14.00	66.541	67.083	67.627	68.174	68.723	14.00
14.20	67.492	68.041	68.593	69.148	69.704	14.20
14.40	68.442	69.000	69.560	70.122	70.686	14.40
14.60	69.393	69.558	70.526	71.096	71.668	14.60
14.80	70.348	70.916	71.492	72.069	72.650	14.80
15.00	71.294	71.875	72.458	73.043	73.631	15.00

長さ 1.00 ~ 7.80 m
最大末口径 1 ~ 7 cm
(単位=m³)

長さ (m)	未口径 (cm)						長さ (m)
	1	2	3	4	5	6	
1.00	0.000	0.000	0.001	0.002	0.003	0.004	0.005
1.20	0.000	0.000	0.001	0.002	0.003	0.004	0.006
1.40	0.000	0.000	0.001	0.002	0.004	0.005	0.007
1.60	0.000	0.000	0.001	0.003	0.004	0.006	0.008
1.80	0.000	0.000	0.001	0.002	0.003	0.005	0.009
2.00	0.000	0.000	0.001	0.002	0.003	0.005	0.007
2.20	0.000	0.000	0.001	0.002	0.003	0.005	0.008
2.40	0.000	0.000	0.001	0.002	0.004	0.006	0.009
2.60	0.000	0.000	0.001	0.002	0.004	0.007	0.009
2.70	0.000	0.000	0.001	0.002	0.004	0.007	0.010
2.80	0.000	0.000	0.001	0.002	0.004	0.007	0.011
3.00	0.000	0.000	0.001	0.003	0.005	0.008	0.015
3.20	0.000	0.000	0.001	0.003	0.005	0.008	0.016
3.30	0.000	0.000	0.001	0.003	0.005	0.008	0.013
3.40	0.000	0.000	0.001	0.003	0.005	0.009	0.017
3.60	0.000	0.000	0.001	0.003	0.006	0.009	0.018
3.80	0.000	0.000	0.002	0.003	0.005	0.010	0.014
4.00	0.000	0.000	0.002	0.004	0.006	0.010	0.014
4.20	0.000	0.000	0.002	0.004	0.006	0.011	0.015
4.30	0.000	0.000	0.002	0.004	0.007	0.011	0.015
4.40	0.000	0.000	0.002	0.004	0.007	0.011	0.016
4.60	0.000	0.000	0.002	0.004	0.007	0.012	0.017
4.80	0.000	0.000	0.002	0.004	0.008	0.012	0.017
5.00	0.001	0.001	0.002	0.005	0.008	0.013	0.018
5.20	0.001	0.001	0.002	0.005	0.008	0.013	0.019
5.40	0.001	0.001	0.002	0.004	0.009	0.014	0.023
5.60	0.001	0.001	0.002	0.005	0.009	0.014	0.020
5.80	0.001	0.001	0.002	0.005	0.009	0.015	0.021
6.00	0.002	0.002	0.005	0.010	0.015	0.022	0.038
6.20	0.002	0.002	0.006	0.010	0.016	0.022	0.030
6.40	0.003	0.003	0.006	0.010	0.016	0.023	0.031
6.60	0.003	0.003	0.006	0.011	0.017	0.024	0.032
6.80	0.003	0.003	0.006	0.011	0.017	0.024	0.033
7.00	0.004	0.004	0.009	0.014	0.021	0.030	0.039
7.20	0.005	0.005	0.009	0.015	0.022	0.030	0.041
7.40	0.005	0.005	0.009	0.015	0.022	0.031	0.042
7.60	0.005	0.005	0.009	0.015	0.023	0.032	0.043
7.80	0.005	0.005	0.010	0.016	0.024	0.033	0.044

長さ 1.00 ~ 7.80 m

最大末口径 8 ~ 14 cm

(単位=m³)

長さ (m)	未口径 (cm)						長さ (m)
	8	9	10	11	12	13	
0.006	0.008	0.010	0.012	0.014	0.017	0.020	1.00
0.008	0.010	0.012	0.015	0.017	0.020	0.024	1.20
0.009	0.011	0.014	0.017	0.020	0.023	0.027	1.40
0.010	0.013	0.016	0.019	0.023	0.027	0.031	1.60
0.012	0.015	0.018	0.022	0.026	0.030	0.035	1.80
0.012	0.015	0.019	0.023	0.027	0.032	0.037	2.00
0.013	0.016	0.020	0.024	0.029	0.034	0.039	2.20
0.013	0.017	0.021	0.025	0.030	0.035	0.041	2.40
0.014	0.018	0.022	0.027	0.032	0.037	0.043	2.60
0.015	0.019	0.024	0.029	0.035	0.041	0.047	2.80
0.015	0.021	0.026	0.031	0.037	0.044	0.051	3.00
0.017	0.022	0.027	0.033	0.039	0.046	0.053	3.20
0.017	0.023	0.028	0.034	0.040	0.047	0.055	3.40
0.018	0.023	0.029	0.036	0.044	0.052	0.061	3.60
0.019	0.024	0.031	0.038	0.046	0.053	0.064	3.80
0.020	0.025	0.032	0.040	0.048	0.058	0.068	4.00
0.021	0.027	0.033	0.040	0.048	0.056	0.065	4.20
0.022	0.028	0.034	0.041	0.049	0.057	0.067	4.40
0.023	0.029	0.036	0.044	0.052	0.061	0.071	4.60
0.024	0.031	0.038	0.046	0.055	0.064	0.074	4.80
0.025	0.032	0.040	0.048	0.058	0.066	0.078	5.00
0.026	0.034	0.042	0.051	0.060	0.071	0.082	5.20
0.027	0.034	0.043	0.052	0.062	0.073	0.084	5.40
0.028	0.035	0.044	0.053	0.063	0.074	0.086	5.60
0.029	0.036	0.044	0.053	0.063	0.074	0.086	5.80
0.031	0.039	0.048	0.058	0.069	0.081	0.094	6.00
0.032	0.041	0.050	0.061	0.072	0.085	0.098	6.20
0.033	0.042	0.052	0.063	0.075	0.088	0.102	6.40
0.033	0.043	0.052	0.064	0.076	0.091	0.106	6.60
0.035	0.044	0.054	0.065	0.078	0.095	0.110	6.80
0.036	0.045	0.056	0.068	0.081	0.095	0.114	7.00
0.037	0.047	0.058	0.070	0.084	0.098	0.118	7.20
0.037	0.048	0.060	0.073	0.086	0.101	0.135	7.40
0.038	0.049	0.062	0.075	0.089	0.105	0.140	7.60
0.039	0.050	0.064	0.077	0.092	0.108	0.125	7.80
0.040	0.051	0.065	0.078	0.093	0.109	0.131	8.00
0.041	0.052	0.066	0.080	0.095	0.116	0.135	8.20
0.041	0.053	0.067	0.082	0.098	0.119	0.139	8.40
0.042	0.054	0.068	0.083	0.099	0.122	0.142	8.60

長さ 1.00~7.80 m
末口径 16~28 cm
(単位=m³)

長さ (m)	未 口 径 (cm)						長さ (m)
	16	18	20	22	24	26	
1.00	0.026	0.032	0.040	0.048	0.058	0.068	0.078
1.20	0.031	0.039	0.048	0.058	0.069	0.081	0.094
1.40	0.036	0.045	0.056	0.068	0.081	0.095	0.110
1.60	0.041	0.052	0.064	0.077	0.092	0.108	0.125
1.80	0.046	0.058	0.072	0.087	0.104	0.122	0.141
2.00	0.049	0.062	0.076	0.092	0.109	0.128	0.149
2.20	0.051	0.065	0.080	0.097	0.115	0.135	0.157
2.40	0.054	0.068	0.084	0.102	0.121	0.142	0.165
2.60	0.056	0.071	0.088	0.106	0.127	0.149	0.172
2.80	0.061	0.078	0.096	0.116	0.138	0.162	0.188
3.00	0.067	0.084	0.104	0.126	0.150	0.176	0.204
3.20	0.069	0.087	0.108	0.131	0.156	0.183	0.212
3.40	0.072	0.091	0.112	0.136	0.161	0.189	0.220
3.60	0.077	0.097	0.120	0.145	0.173	0.203	0.235
3.80	0.082	0.104	0.128	0.155	0.184	0.216	0.251
4.00	0.102	0.130	0.160	0.190	0.223	0.259	0.304
4.20	0.108	0.136	0.172	0.203	0.242	0.284	0.329
4.30	0.110	0.139	0.172	0.208	0.248	0.291	0.337
4.40	0.113	0.143	0.176	0.213	0.253	0.297	0.345
4.60	0.118	0.149	0.184	0.223	0.255	0.311	0.361
4.80	0.123	0.156	0.192	0.232	0.276	0.324	0.376
5.00	0.128	0.162	0.200	0.242	0.288	0.338	0.392
5.20	0.133	0.168	0.208	0.252	0.300	0.352	0.408
5.40	0.138	0.175	0.216	0.261	0.311	0.365	0.423
5.60	0.143	0.181	0.224	0.271	0.323	0.379	0.439
5.80	0.148	0.188	0.232	0.281	0.334	0.392	0.455
6.00	0.173	0.217	0.265	0.317	0.375	0.437	0.505
6.20	0.179	0.224	0.273	0.323	0.388	0.452	0.521
6.40	0.185	0.231	0.282	0.339	0.400	0.467	0.538
6.60	0.191	0.238	0.291	0.349	0.413	0.481	0.555
6.80	0.197	0.245	0.300	0.360	0.425	0.496	0.572
7.00	0.214	0.266	0.324	0.387	0.455	0.529	0.609
7.20	0.221	0.274	0.333	0.398	0.468	0.545	0.627
7.40	0.227	0.281	0.342	0.409	0.481	0.560	0.644
7.60	0.233	0.289	0.351	0.420	0.494	0.575	0.661
7.80	0.239	0.297	0.361	0.431	0.507	0.590	0.679

長さ 1.00~7.80 m
末口径 30~42 cm
(単位=m³)

長さ (m)	未 口 径 (cm)						長さ (m)
	30	32	34	36	38	40	
0.090	0.102	0.116	0.130	0.144	0.160	0.176	1.00
0.108	0.123	0.139	0.156	0.173	0.192	0.212	1.20
0.126	0.143	0.162	0.181	0.202	0.221	0.247	1.40
0.144	0.164	0.185	0.207	0.231	0.256	0.282	1.60
0.162	0.184	0.208	0.233	0.260	0.288	0.318	1.80
0.181	0.205	0.231	0.259	0.289	0.318	0.347	2.00
0.198	0.225	0.254	0.285	0.318	0.352	0.388	2.20
0.216	0.246	0.277	0.311	0.347	0.384	0.423	2.40
0.234	0.266	0.301	0.337	0.375	0.416	0.459	2.60
0.243	0.276	0.312	0.350	0.390	0.432	0.476	2.70
0.252	0.287	0.324	0.363	0.404	0.448	0.494	2.80
0.270	0.307	0.347	0.389	0.433	0.472	0.529	3.00
0.288	0.328	0.370	0.415	0.462	0.512	0.564	3.20
0.297	0.338	0.381	0.428	0.477	0.528	0.582	3.30
0.306	0.348	0.393	0.441	0.491	0.544	0.600	3.40
0.324	0.369	0.416	0.467	0.520	0.576	0.635	3.60
0.342	0.389	0.439	0.492	0.549	0.608	0.670	3.80
0.360	0.410	0.462	0.518	0.578	0.640	0.706	4.00
0.378	0.430	0.486	0.544	0.606	0.672	0.741	4.20
0.387	0.440	0.497	0.557	0.621	0.688	0.759	4.30
0.396	0.451	0.509	0.570	0.635	0.704	0.776	4.40
0.414	0.471	0.532	0.596	0.664	0.736	0.811	4.60
0.432	0.492	0.555	0.622	0.693	0.768	0.847	4.80
0.450	0.512	0.578	0.648	0.722	0.800	0.882	5.00
0.468	0.532	0.597	0.674	0.751	0.832	0.917	5.20
0.486	0.553	0.624	0.700	0.780	0.864	0.953	5.40
0.504	0.573	0.647	0.726	0.809	0.886	0.983	5.60
0.522	0.594	0.670	0.752	0.838	0.928	1.023	5.80
0.540	0.613	0.693	0.773	0.853	0.934	1.123	6.00
0.558	0.633	0.713	0.794	0.874	0.953	1.223	6.20
0.576	0.653	0.733	0.814	0.894	0.973	1.323	6.40
0.595	0.675	0.755	0.835	0.915	1.004	1.422	6.60
0.615	0.697	0.776	0.856	0.936	1.020	1.521	6.80
0.634	0.719	0.809	0.890	0.971	1.059	1.620	7.00
0.653	0.741	0.833	0.913	0.993	1.099	1.719	7.20
0.672	0.773	0.864	0.944	1.024	1.109	1.818	7.40
0.691	0.805	0.886	0.966	1.046	1.143	1.917	7.60
0.710	0.837	0.917	1.000	1.080	1.169	2.006	7.80

長さ 1.00~7.80 m
末口径 44~56 cm
(単位=m³)

長さ (m)	未					口径 (cm)	直径 (cm)	長さ (m)
	44	46	48	50	52			
1.00	0.194	0.212	0.230	0.250	0.270	0.292	0.314	1.00
1.20	0.232	0.254	0.276	0.300	0.324	0.350	0.376	1.20
1.40	0.271	0.296	0.323	0.350	0.379	0.408	0.439	1.40
1.60	0.310	0.339	0.369	0.400	0.433	0.467	0.502	1.60
1.80	0.348	0.381	0.415	0.450	0.487	0.525	0.564	1.80
1.90	0.368	0.402	0.438	0.475	0.514	0.554	0.596	1.90
2.00	0.387	0.423	0.461	0.500	0.541	0.583	0.627	2.00
2.10	0.407	0.444	0.484	0.525	0.568	0.612	0.659	2.10
2.20	0.426	0.466	0.507	0.550	0.595	0.632	0.690	2.20
2.40	0.465	0.508	0.553	0.600	0.649	0.700	0.753	2.40
2.60	0.503	0.550	0.599	0.650	0.703	0.758	0.815	2.60
2.70	0.523	0.571	0.622	0.675	0.730	0.787	0.847	2.70
2.80	0.542	0.592	0.645	0.700	0.757	0.816	0.878	2.80
3.00	0.581	0.635	0.691	0.750	0.811	0.875	0.941	3.00
3.20	0.620	0.677	0.737	0.800	0.855	0.933	1.004	3.20
3.30	0.639	0.698	0.760	0.825	0.892	0.962	1.035	3.30
3.40	0.658	0.719	0.783	0.850	0.919	0.991	1.066	3.40
3.60	0.697	0.762	0.829	0.900	0.973	1.050	1.129	3.60
3.80	0.736	0.804	0.876	0.950	1.028	1.108	1.192	3.80
4.00	0.774	0.846	0.922	1.000	1.082	1.166	1.254	4.00
4.20	0.813	0.859	0.968	1.050	1.136	1.225	1.317	4.20
4.30	0.832	0.910	0.991	1.075	1.163	1.254	1.348	4.30
4.40	0.852	0.931	1.014	1.100	1.190	1.283	1.380	4.40
4.60	0.891	0.973	1.060	1.150	1.214	1.341	1.443	4.60
4.80	0.929	1.016	1.106	1.200	1.298	1.400	1.505	4.80
5.00	0.968	1.058	1.152	1.250	1.352	1.458	1.568	5.00
5.20	1.007	1.100	1.193	1.300	1.406	1.516	1.631	5.20
5.40	1.045	1.143	1.244	1.350	1.460	1.575	1.693	5.40
5.60	1.084	1.185	1.290	1.400	1.514	1.633	1.756	5.60
5.80	1.123	1.227	1.336	1.450	1.568	1.691	1.819	5.80
6.00	1.215	1.325	1.441	1.552	1.685	1.815	1.949	6.00
6.20	1.256	1.370	1.489	1.613	1.742	1.876	2.011	6.20
6.40	1.296	1.414	1.537	1.665	1.798	1.936	2.079	6.40
6.60	1.337	1.458	1.585	1.717	1.854	1.997	2.114	6.60
6.80	1.377	1.502	1.633	1.769	1.910	2.057	2.209	6.80
7.00	1.449	1.579	1.715	1.857	2.004	2.156	2.314	7.00
7.20	1.491	1.625	1.764	1.910	2.061	2.218	2.381	7.20
7.40	1.532	1.670	1.813	1.963	2.118	2.279	2.447	7.40
7.60	1.573	1.715	1.862	2.016	2.175	2.341	2.513	7.60
7.80	1.615	1.760	1.911	2.233	2.403	2.579	2.761	7.80

長さ 1.00~7.80 m
末口径 58~70 cm
(単位=m³)

長さ (m)	未					口径 (cm)	直径 (cm)	長さ (m)
	58	60	62	64	66			
0.336	0.360	0.384	0.410	0.436	0.462	0.490	0.523	1.00
0.404	0.432	0.461	0.492	0.523	0.555	0.588	0.610	1.20
0.471	0.504	0.538	0.576	0.615	0.655	0.686	0.710	1.40
0.639	0.684	0.730	0.778	0.828	0.879	0.931	0.953	1.60
0.673	0.720	0.769	0.819	0.871	0.925	0.980	1.029	1.80
0.706	0.756	0.807	0.860	0.915	0.971	1.029	1.078	2.10
0.740	0.792	0.846	0.901	0.958	1.017	1.078	1.130	2.40
0.807	0.864	0.923	0.983	1.045	1.110	1.176	1.242	2.70
0.875	0.936	0.999	1.065	1.133	1.202	1.274	1.323	3.00
0.908	0.972	1.038	1.106	1.176	1.245	1.323	1.372	3.20
0.942	1.008	1.076	1.147	1.220	1.295	1.372	1.447	3.40
1.009	1.080	1.153	1.229	1.307	1.387	1.460	1.538	3.60
1.076	1.152	1.230	1.311	1.394	1.480	1.568	1.638	3.80
1.110	1.188	1.269	1.352	1.437	1.526	1.617	1.696	4.00
1.144	1.224	1.307	1.393	1.481	1.572	1.666	1.754	4.20
1.211	1.296	1.384	1.475	1.568	1.655	1.744	1.832	4.40
1.278	1.368	1.461	1.556	1.655	1.757	1.842	1.932	4.60
1.346	1.440	1.538	1.638	1.738	1.832	1.922	2.011	4.80
1.413	1.512	1.614	1.720	1.830	1.912	2.008	2.097	5.00
1.447	1.518	1.653	1.761	1.873	1.963	2.058	2.147	5.20
1.480	1.584	1.691	1.802	1.917	2.035	2.125	2.215	5.40
1.547	1.656	1.768	1.884	1.994	2.104	2.194	2.284	5.60
1.615	1.728	1.845	1.966	2.084	2.194	2.284	2.374	5.80
1.682	1.800	1.922	2.048	2.178	2.272	2.362	2.452	6.00
1.749	1.872	1.999	2.130	2.265	2.352	2.442	2.532	6.20
1.817	1.944	2.076	2.212	2.352	2.449	2.539	2.629	6.40
1.884	2.016	2.153	2.294	2.439	2.539	2.629	2.719	6.60
1.951	2.088	2.230	2.376	2.526	2.622	2.712	2.802	6.80
2.089	2.233	2.381	2.535	2.693	2.857	2.947	3.037	7.00
2.158	2.307	2.461	2.620	2.783	2.932	3.025	3.125	7.20
2.233	2.391	2.549	2.704	2.873	2.963	3.057	3.157	7.40
2.307	2.461	2.620	2.789	2.943	3.033	3.127	3.226	7.60
2.367	2.530	2.699	2.873	2.963	3.053	3.142	3.237	7.80
2.438	2.601	2.763	2.923	3.089	3.178	3.268	3.358	8.00
2.509	2.671	2.831	2.991	3.159	3.249	3.339	3.429	8.20
2.579	2.741	2.903	3.069	3.237	3.327	3.417	3.507	8.40
2.651	2.811	2.973	3.141	3.311	3.401	3.491	3.581	8.60
2.723	2.903	3.089	3.251	3.421	3.511	3.601	3.691	8.80
2.799	2.984	3.175	3.344	3.514	3.604	3.694	3.784	9.00
2.865	3.065	3.251	3.421	3.591	3.681	3.771	3.861	9.20
2.931	3.121	3.301	3.471	3.641	3.731	3.821	3.911	9.40
3.003	3.189	3.369	3.539	3.709	3.799	3.889	3.979	9.60
3.073	3.259	3.439	3.609	3.779	3.869	3.959	4.049	9.80
3.145	3.334	3.514	3.684	3.854	3.944	4.034	4.124	10.00

長さ 1.00~7.80 m
未口径 72~84 cm
(単位=m³)

長さ (m)	未 口 径 (cm)						長さ (m)	
	72	74	76	78	80	82	84	
1.00	0.518	0.548	0.578	0.608	0.640	0.672	0.706	0.740
1.20	0.622	0.657	0.693	0.730	0.768	0.807	0.847	0.888
1.40	0.726	0.767	0.809	0.852	0.896	0.941	0.988	1.035
1.60	0.829	0.876	0.924	0.973	1.024	1.076	1.129	1.183
1.80	0.933	0.966	1.040	1.095	1.152	1.210	1.270	1.331
1.90	0.985	1.040	1.097	1.156	1.216	1.278	1.341	1.405
2.00	1.037	1.095	1.155	1.217	1.280	1.345	1.411	1.479
2.10	1.089	1.150	1.213	1.278	1.344	1.412	1.482	1.553
2.20	1.140	1.205	1.271	1.338	1.408	1.479	1.552	1.627
2.40	1.244	1.314	1.386	1.460	1.536	1.614	1.693	1.775
2.60	1.348	1.424	1.502	1.582	1.664	1.748	1.835	1.923
2.70	1.400	1.479	1.560	1.643	1.728	1.815	1.905	1.997
2.80	1.452	1.533	1.617	1.704	1.792	1.883	1.976	2.071
3.00	1.555	1.643	1.733	1.825	1.920	2.017	2.117	2.199
3.20	1.659	1.752	1.848	1.947	2.048	2.152	2.258	2.367
3.30	1.711	1.807	1.906	2.008	2.112	2.219	2.328	2.441
3.40	1.763	1.862	1.964	2.069	2.176	2.286	2.399	2.515
3.60	1.866	1.971	2.079	2.190	2.304	2.421	2.540	2.663
3.80	1.970	2.081	2.195	2.312	2.432	2.555	2.681	2.910
4.00	2.074	2.190	2.310	2.434	2.560	2.690	2.822	2.958
4.20	2.177	2.300	2.426	2.555	2.688	2.824	2.965	3.106
4.30	2.229	2.355	2.484	2.616	2.752	2.891	3.034	3.254
4.40	2.281	2.409	2.541	2.677	2.816	2.959	3.105	3.402
4.60	2.365	2.519	2.657	2.799	2.944	3.093	3.246	3.550
4.80	2.488	2.628	2.772	2.920	3.072	3.228	3.387	3.757
5.00	2.592	2.738	2.888	3.042	3.200	3.352	3.528	3.846
5.20	2.696	2.848	3.004	3.164	3.328	3.496	3.669	3.994
5.40	2.799	2.957	3.119	3.285	3.456	3.631	3.810	4.182
5.60	2.903	3.067	3.235	3.355	3.407	3.584	3.765	4.142
5.80	3.007	3.176	3.350	3.529	3.712	3.900	4.092	4.290
6.00	3.197	3.375	3.557	3.745	3.937	4.133	4.335	4.541
6.20	3.304	3.488	3.676	3.869	4.068	4.271	4.480	4.693
6.40	3.411	3.600	3.795	3.994	4.199	4.409	4.624	4.844
6.60	3.517	3.713	3.913	4.119	4.330	4.547	4.769	5.147
6.80	3.624	3.825	4.032	4.244	4.461	4.685	4.913	5.359
7.00	3.782	3.990	4.204	4.424	4.650	4.881	5.117	5.513
7.20	3.890	4.104	4.325	4.551	4.782	5.020	5.263	5.666
7.40	3.998	4.218	4.445	4.677	4.915	5.159	5.410	5.819
7.60	4.106	4.332	4.565	4.803	5.048	5.299	5.556	6.044
7.80	4.214	4.446	4.685	4.930	5.181	5.438	5.702	6.530

長さ 1.00~7.80 m
未口径 86~98 cm
(単位=m³)

長さ (m)	未 口 径 (cm)						長さ (m)	
	86	88	90	92	94	96	98	
1.00	0.518	0.548	0.578	0.608	0.640	0.672	0.706	0.740
1.20	0.622	0.657	0.693	0.730	0.768	0.807	0.847	0.888
1.40	0.726	0.767	0.809	0.852	0.896	0.941	0.988	1.035
1.60	0.829	0.876	0.924	0.973	1.024	1.076	1.129	1.183
1.80	0.933	0.966	1.040	1.095	1.152	1.210	1.270	1.331
1.90	0.985	1.040	1.097	1.156	1.216	1.278	1.341	1.405
2.00	1.037	1.095	1.155	1.217	1.280	1.345	1.411	1.479
2.10	1.089	1.150	1.213	1.278	1.344	1.412	1.482	1.553
2.20	1.140	1.205	1.271	1.338	1.408	1.479	1.552	1.627
2.40	1.244	1.314	1.386	1.460	1.536	1.614	1.693	1.775
2.60	1.348	1.424	1.502	1.582	1.664	1.748	1.835	1.923
2.70	1.400	1.479	1.560	1.643	1.728	1.815	1.905	1.997
2.80	1.452	1.533	1.617	1.704	1.792	1.883	1.976	2.071
3.00	1.555	1.643	1.733	1.825	1.920	2.017	2.117	2.199
3.20	1.659	1.752	1.848	1.947	2.048	2.152	2.258	2.367
3.30	1.711	1.807	1.906	2.008	2.112	2.219	2.328	2.441
3.40	1.763	1.862	1.964	2.069	2.176	2.286	2.399	2.515
3.60	1.866	1.971	2.079	2.190	2.304	2.421	2.540	2.663
3.80	1.970	2.081	2.195	2.312	2.432	2.555	2.681	2.810
4.00	2.074	2.190	2.310	2.434	2.560	2.690	2.822	2.958
4.20	2.177	2.300	2.426	2.555	2.688	2.824	2.965	3.106
4.30	2.229	2.355	2.484	2.616	2.752	2.891	3.034	3.254
4.40	2.281	2.409	2.541	2.677	2.816	2.959	3.105	3.402
4.60	2.365	2.519	2.657	2.799	2.944	3.093	3.246	3.550
4.80	2.488	2.628	2.772	2.920	3.072	3.228	3.387	3.757
5.00	2.592	2.738	2.888	3.042	3.200	3.352	3.528	3.846
5.20	2.696	2.848	3.004	3.164	3.328	3.496	3.669	3.994
5.40	2.799	2.957	3.119	3.285	3.456	3.631	3.810	4.182
5.60	2.903	3.067	3.235	3.355	3.407	3.584	3.765	4.142
5.80	3.007	3.176	3.350	3.529	3.712	3.900	4.092	4.290
6.00	3.197	3.375	3.557	3.745	3.937	4.133	4.335	4.541
6.20	3.304	3.488	3.676	3.869	4.068	4.271	4.480	4.693
6.40	3.411	3.600	3.795	3.994	4.199	4.409	4.624	4.844
6.60	3.517	3.713	3.913	4.119	4.330	4.547	4.769	5.147
6.80	3.624	3.825	4.032	4.244	4.461	4.685	4.913	5.359
7.00	3.782	3.990	4.204	4.424	4.650	4.881	5.117	5.513
7.20	3.890	4.104	4.325	4.551	4.782	5.020	5.263	5.666
7.40	3.998	4.218	4.445	4.677	4.915	5.159	5.410	5.819
7.60	4.106	4.332	4.565	4.803	5.048	5.299	5.556	6.044
7.80	4.214	4.446	4.685	4.930	5.181	5.438	5.702	6.530

(87)

(86)

長さ 1.00 ~ 7.80 m
末口径 100 ~ 112 cm
(単位=m³)

長さ (m)	未口径 直 (cm)					114	116	118	120	122	124	126	長さ (m)
	100	102	104	106	110								
1.00	1.000	1.040	1.082	1.124	1.166	1.210	1.254	1.300	1.346	1.392	1.440	1.488	1.538
1.20	1.200	1.248	1.298	1.348	1.400	1.452	1.505	1.560	1.615	1.671	1.738	1.786	1.845
1.40	1.400	1.457	1.514	1.573	1.633	1.694	1.756	1.819	1.884	1.949	2.016	2.084	2.153
1.60	1.600	1.665	1.731	1.798	1.866	1.936	2.007	2.079	2.153	2.228	2.304	2.381	2.460
1.80	1.800	1.873	1.947	2.022	2.100	2.178	2.258	2.339	2.422	2.506	2.592	2.679	2.768
1.90	1.900	1.977	2.055	2.135	2.216	2.299	2.383	2.469	2.557	2.646	2.736	2.828	2.921
2.00	2.000	2.081	2.163	2.247	2.333	2.420	2.509	2.599	2.691	2.785	2.880	2.977	3.075
2.10	2.100	2.185	2.271	2.360	2.449	2.541	2.634	2.729	2.826	2.924	3.024	3.126	3.229
2.20	2.200	2.289	2.380	2.472	2.566	2.662	2.760	2.859	2.960	3.063	3.168	3.274	3.383
2.40	2.400	2.497	2.596	2.697	2.799	2.904	3.011	3.119	3.229	3.342	3.456	3.572	3.690
2.60	2.600	2.705	2.812	2.921	3.033	3.146	3.261	3.379	3.499	3.620	3.744	3.870	3.998
2.70	2.700	2.809	2.920	3.034	3.149	3.267	3.387	3.509	3.633	3.759	3.888	3.999	4.128
2.80	2.800	2.913	3.028	3.146	3.266	3.388	3.512	3.639	3.768	3.899	4.032	4.165	4.305
3.00	3.000	3.000	3.121	3.245	3.371	3.499	3.630	3.763	3.899	4.037	4.177	4.320	4.465
3.20	3.200	3.329	3.461	3.596	3.732	3.872	4.014	4.159	4.306	4.456	4.608	4.763	4.920
3.30	3.300	3.433	3.569	3.708	3.849	3.993	4.140	4.299	4.440	4.595	4.752	4.912	5.074
3.40	3.400	3.537	3.677	3.820	3.966	4.114	4.265	4.419	4.575	4.734	4.896	5.061	5.228
3.60	3.600	3.745	3.894	4.045	4.199	4.356	4.516	4.679	4.844	5.013	5.184	5.358	5.535
3.80	3.800	3.954	4.110	4.270	4.432	4.598	4.767	4.938	5.113	5.291	5.472	5.656	5.843
4.00	4.000	4.162	4.326	4.494	4.666	4.840	5.018	5.198	5.382	5.570	5.760	5.954	6.150
4.20	4.200	4.370	4.537	4.711	4.899	5.082	5.268	5.455	5.652	5.848	6.048	6.251	6.458
4.30	4.300	4.474	4.657	4.831	5.016	5.203	5.394	5.588	5.786	5.987	6.192	6.400	6.627
4.40	4.400	4.573	4.759	4.944	5.132	5.324	5.519	5.718	5.921	6.127	6.336	6.549	6.765
4.60	4.600	4.786	4.975	5.169	5.365	5.566	5.770	5.978	6.190	6.405	6.624	6.847	7.073
4.80	4.800	4.994	5.192	5.393	5.599	5.808	6.021	6.238	6.459	6.684	6.912	7.144	7.380
5.00	5.000	5.202	5.408	5.618	5.832	6.050	6.272	6.498	6.729	6.962	7.240	7.442	7.688
5.20	5.200	5.405	5.624	5.843	6.065	6.292	6.523	6.997	7.240	7.488	7.740	7.996	8.256
5.40	5.400	5.400	5.618	5.841	6.067	6.299	6.534	6.774	7.018	7.266	7.519	7.776	8.037
5.60	5.600	5.600	5.826	6.057	6.292	6.532	6.776	7.025	7.278	7.535	7.797	8.064	8.335
5.80	5.800	5.800	6.034	6.273	6.517	6.765	7.018	7.276	7.538	7.804	8.076	8.352	8.633
6.00	6.121	6.365	6.615	6.869	7.129	7.393	7.661	7.935	8.213	8.497	8.785	9.077	9.375
6.20	6.325	6.578	6.836	7.098	7.366	7.639	7.917	8.200	8.487	8.780	9.077	9.380	9.688
6.40	6.529	6.790	7.056	7.327	7.604	7.885	8.172	8.464	8.761	9.063	9.370	9.683	10.000
6.60	6.733	7.002	7.277	7.556	7.841	8.132	8.428	8.729	9.035	9.346	9.663	9.985	10.313
6.80	6.937	7.214	7.497	7.785	8.079	8.378	8.683	8.993	9.309	9.629	9.956	10.288	10.625
7.00	7.212	7.499	7.791	8.089	8.393	8.703	9.018	9.338	9.664	9.996	10.334	10.677	11.025
7.20	7.418	7.713	8.014	8.321	8.633	8.951	9.275	9.605	9.941	10.282	10.629	11.082	11.340
7.40	7.624	7.927	8.236	8.552	8.873	9.200	9.533	9.872	10.217	10.567	10.924	11.287	11.655
7.60	7.830	8.141	8.459	8.783	9.113	9.449	9.791	10.139	10.493	10.853	11.219	11.592	12.355
7.80	8.036	8.356	8.662	9.014	9.352	9.697	10.048	10.405	10.769	11.139	11.515	11.897	12.285

長さ 1.00 ~ 7.80 m
末口径 114 ~ 126 cm
(単位=m³)

長さ (m)	未口径 直 (cm)					114	116	118	120	122	124	126	長さ (m)
	100	102	104	106	110								
1.00	1.000	1.040	1.082	1.124	1.166	1.210	1.254	1.300	1.346	1.392	1.440	1.488	1.538
1.20	1.200	1.248	1.298	1.348	1.400	1.452	1.505	1.560	1.615	1.671	1.738	1.786	1.845
1.40	1.400	1.457	1.514	1.573	1.633	1.694	1.756	1.819	1.884	1.949	2.016	2.084	2.153
1.60	1.600	1.665	1.731	1.798	1.866	1.936	2.007	2.079	2.153	2.228	2.304	2.381	2.460
1.80	1.800	1.873	1.947	2.022	2.100	2.178	2.258	2.339	2.422	2.506	2.592	2.679	2.768
1.90	1.900	1.977	2.055	2.135	2.216	2.299	2.383	2.469	2.557	2.646	2.736	2.828	2.921
2.00	2.000	2.081	2.163	2.247	2.333	2.420	2.509	2.599	2.691	2.785	2.880	2.977	3.075
2.10	2.100	2.185	2.271	2.360	2.449	2.541	2.634	2.729	2.826	2.924	3.024	3.126	3.334
2.20	2.200	2.289	2.380	2.472	2.566	2.662	2.760	2.859	2.960	3.063	3.168	3.274	3.493
2.40	2.400	2.497	2.596	2.697	2.799	2.904	3.011	3.119	3.229	3.342	3.456	3.572	3.690
2.60	2.600	2.705	2.812	2.921	3.033	3.146	3.261	3.379	3.499	3.620	3.744	3.870	3.998
2.70	2.700	2.809	2.920	3.034	3.149	3.267	3.387	3.509	3.633	3.759	3.888	4.019	4.152
2.80	2.800	2.913	3.028	3.146	3.266	3.388	3.512	3.639	3.768	3.899	4.032	4.165	4.445
3.00	3.000	3.000	3.121	3.245	3.371	3.499	3.630	3.763	3.899	4.037	4.177	4.320	4.473
3.20	3.200	3.329	3.461	3.596	3.732	3.872	4.014	4.159	4.306	4.456	4.608	4.763	4.920
3.30	3.300	3.433	3.569	3.708	3.849	3.993	4.140	4.299	4.440	4.595	4.752	4.912	5.074
3.40	3.400	3.537	3.677	3.820	3.966	4.114	4.265	4.419	4.575	4.734	4.896	5.061	5.228
3.60	3.600	3.745	3.894	4.045	4.199	4.356	4.516	4.679	4.844	5.013	5.184	5.358	5.535
3.80	3.800	3.954	4.110	4.270	4.432	4.598	4.767	4.938	5.113	5.291	5.472	5.656	5.843
4.00	4.000	4.162	4.326	4.494	4.666	4.840	5.018	5.198	5.382	5.570	5.760	5.954	6.150
4.20	4.200	4.370	4.537	4.711	4.899	5.082	5.268	5.455	5.652	5.848	6.048	6.251	6.458
4.30	4.300	4.474	4.657	4.831	5.016	5.203	5.394	5.588	5.786	5.987	6.192	6.400	6.627
4.40	4.400	4.573	4.759	4.944	5.132	5.324	5.519	5.718	5.921	6.127	6.336	6.549	6.765
4.60	4.600	4.786	4.975	5.169	5.365	5.566	5.770	5.978	6.190	6.405	6.624	6.847	7.073
4.80	4.800	4.994	5.192	5.393	5.599	5.808	6.021	6.238	6.459	6.684	6.912	7.144	7.380
5.00	5.000	5.202	5.408	5.618	5.832	6.050	6.272	6.498	6.729	6.962	7.240	7.442	7.688
5.20	5.200	5.405	5.624	5.843	6.065	6.292	6.523	6.997	7.240	7.488	7.740	7.996	8.256
5.40	5.400	5.400	5.618	5.841	6.067	6.299	6.534	6.774	7.018	7.266	7.519	7.776	8.037
5.													

長さ 1.00~7.80m
末口径 128~140cm
(単位=m³)

長さ (m)	未 口 径 直 径 (cm)					長さ (m)	
	128	130	132	134	136		
1.00	1.638	1.690	1.742	1.796	1.850	1.904	1.960
1.20	1.966	2.028	2.091	2.155	2.220	2.285	2.352
1.40	2.294	2.366	2.439	2.514	2.589	2.666	2.744
1.60	2.621	2.704	2.788	2.873	2.959	3.047	3.136
1.80	2.949	3.042	3.136	3.232	3.329	3.428	3.528
1.90	3.113	3.211	3.311	3.412	3.514	3.618	3.724
2.00	3.277	3.380	3.485	3.591	3.699	3.809	3.920
2.10	3.441	3.549	3.659	3.771	3.884	3.999	4.116
2.20	3.604	3.718	3.833	3.950	4.069	4.190	4.312
2.40	3.932	4.056	4.182	4.309	4.439	4.571	4.704
2.60	4.260	4.394	4.530	4.669	4.809	4.951	5.096
2.70	4.424	4.563	4.704	4.848	4.994	5.142	5.292
2.80	4.588	4.732	4.879	5.028	5.179	5.322	5.488
3.00	4.915	5.070	5.227	5.387	5.549	5.713	5.880
3.20	5.243	5.408	5.576	5.746	5.919	6.094	6.272
3.30	5.407	5.577	5.750	5.925	6.104	6.285	6.468
3.40	5.571	5.746	5.924	6.105	6.289	6.475	6.664
3.60	5.898	6.084	6.273	6.464	6.659	6.856	7.056
3.80	6.226	6.422	6.621	6.823	7.028	7.237	7.448
4.00	6.554	6.760	6.970	7.182	7.398	7.618	7.840
4.20	6.881	7.098	7.318	7.542	7.768	7.998	8.232
4.30	7.045	7.267	7.492	7.721	7.953	8.189	8.428
4.40	7.209	7.436	7.667	7.901	8.138	8.379	8.624
4.60	7.537	7.774	8.015	8.260	8.508	8.760	9.016
4.80	7.864	8.112	8.364	8.619	8.878	9.141	9.408
5.00	8.192	8.450	8.712	8.978	9.248	9.522	9.800
5.20	8.520	8.788	9.060	9.337	9.618	9.903	10.192
5.40	8.847	9.126	9.409	9.696	9.988	10.384	10.584
5.60	9.175	9.464	9.757	10.055	10.358	10.665	10.976
5.80	9.503	9.802	10.106	10.414	10.728	11.146	11.368
6.00	9.985	10.297	10.613	10.935	11.261	11.593	11.929
6.20	10.317	10.640	10.967	11.300	11.637	11.979	12.326
6.40	10.650	10.983	11.321	11.664	12.012	12.365	12.724
6.60	10.983	11.326	11.675	12.029	12.388	12.752	13.121
6.80	11.316	11.669	12.029	12.393	12.763	13.138	13.519
7.00	11.739	12.105	12.476	12.852	13.234	13.622	14.016
7.20	12.075	12.450	12.832	13.219	13.613	14.011	14.416
7.40	12.410	12.796	13.188	13.587	13.991	14.401	14.816
7.60	12.745	13.142	13.545	13.954	14.369	14.790	15.217
7.80	13.081	13.488	13.901	14.321	14.747	15.179	15.617

長さ 1.00~7.80m
末口径 142~150cm
(単位=m³)

長さ (m)	未 口 径 直 径 (cm)					長さ (m)
	128	130	132	134	136	
1.42	1.42	1.44	1.46	1.48	1.50	1.00
1.60	1.616	1.674	1.732	1.790	1.848	1.250
1.80	1.820	1.880	1.940	2.000	2.060	1.700
2.00	2.023	2.083	2.143	2.203	2.263	1.950
2.20	2.226	2.286	2.346	2.406	2.466	2.000
2.40	2.330	2.390	2.450	2.510	2.570	2.100
2.60	2.434	2.504	2.574	2.644	2.714	2.200
2.80	2.538	2.608	2.678	2.748	2.818	2.300
3.00	2.642	2.712	2.782	2.852	2.922	2.400
3.20	2.746	2.816	2.886	2.956	3.026	2.500
3.40	2.850	2.920	2.990	3.060	3.130	2.600
3.60	2.954	3.024	3.094	3.164	3.234	2.700
3.80	3.058	3.128	3.198	3.268	3.338	2.800
4.00	3.162	3.232	3.302	3.372	3.442	2.900
4.20	3.266	3.336	3.406	3.476	3.546	3.300
4.40	3.370	3.440	3.510	3.580	3.650	3.400
4.60	3.474	3.544	3.614	3.684	3.754	3.500
4.80	3.578	3.648	3.718	3.788	3.858	3.600
5.00	3.682	3.752	3.822	3.892	3.962	3.700
5.20	3.786	3.856	3.926	3.996	4.066	3.800
5.40	3.890	3.960	4.030	4.100	4.170	3.900
5.60	4.004	4.074	4.144	4.214	4.284	4.000
5.80	4.108	4.178	4.248	4.318	4.388	4.100
6.00	4.212	4.282	4.352	4.422	4.492	4.200
6.20	4.326	4.396	4.466	4.536	4.606	4.300
6.40	4.440	4.510	4.580	4.650	4.720	4.400
6.60	4.554	4.624	4.694	4.764	4.834	4.500
6.80	4.668	4.738	4.808	4.878	4.948	4.600
7.00	4.782	4.852	4.922	4.992	5.062	4.700
7.20	4.896	4.966	5.036	5.106	5.176	4.800
7.40	5.010	5.080	5.150	5.220	5.290	4.900
7.60	5.124	5.194	5.264	5.334	5.404	5.000
7.80	5.238	5.308	5.378	5.448	5.518	5.100

長さ 8.00 ~ 15.00 m
末口径 1 ~ 7 cm
(単位=m³)

長さ (m)	末口径 (cm)						長さ (m)
	1	2	3	4	5	6	
8.00	0.007	0.013	0.020	0.029	0.039	0.051	0.065
8.20	0.007	0.013	0.021	0.030	0.040	0.052	0.066
8.40	0.008	0.013	0.021	0.030	0.041	0.054	0.068
8.60	0.008	0.014	0.022	0.031	0.042	0.055	0.070
8.80	0.008	0.014	0.022	0.032	0.043	0.056	0.071
9.00	0.011	0.018	0.027	0.038	0.051	0.065	0.081
9.20	0.011	0.019	0.028	0.039	0.052	0.066	0.083
9.40	0.012	0.019	0.028	0.040	0.053	0.068	0.085
9.60	0.012	0.019	0.029	0.041	0.054	0.069	0.087
9.80	0.012	0.020	0.030	0.041	0.055	0.071	0.088
10.00	0.016	0.025	0.036	0.049	0.064	0.081	0.100
10.20	0.016	0.026	0.037	0.050	0.065	0.083	0.102
10.40	0.017	0.026	0.037	0.051	0.067	0.084	0.104
10.60	0.017	0.027	0.038	0.052	0.068	0.086	0.106
10.80	0.017	0.027	0.039	0.053	0.069	0.087	0.108
11.00	0.022	0.033	0.046	0.062	0.079	0.099	0.121
11.20	0.023	0.034	0.047	0.063	0.081	0.101	0.123
11.40	0.023	0.034	0.048	0.064	0.082	0.103	0.126
11.60	0.023	0.035	0.049	0.065	0.084	0.105	0.128
11.80	0.024	0.036	0.050	0.066	0.085	0.106	0.130
12.00	0.030	0.043	0.059	0.077	0.097	0.120	0.145
12.20	0.031	0.044	0.060	0.078	0.099	0.122	0.148
12.40	0.031	0.045	0.061	0.079	0.100	0.124	0.150
12.60	0.032	0.045	0.062	0.081	0.102	0.126	0.152
12.80	0.032	0.046	0.063	0.082	0.104	0.128	0.155
13.00	0.039	0.055	0.073	0.094	0.117	0.143	0.172
13.20	0.040	0.056	0.074	0.095	0.119	0.146	0.175
13.40	0.041	0.057	0.075	0.097	0.121	0.148	0.177
13.60	0.041	0.057	0.077	0.098	0.123	0.150	0.180
13.80	0.042	0.058	0.078	0.100	0.125	0.152	0.183
14.00	0.050	0.069	0.090	0.113	0.140	0.169	0.202
14.20	0.051	0.070	0.091	0.115	0.142	0.172	0.204
14.40	0.052	0.071	0.092	0.117	0.144	0.174	0.207
14.60	0.053	0.072	0.093	0.118	0.146	0.177	0.210
14.80	0.053	0.073	0.095	0.120	0.148	0.179	0.213
15.00	0.063	0.084	0.108	0.135	0.165	0.198	0.234

長さ 8.00 ~ 15.00 m
末口径 8 ~ 14 cm
(単位=m³)

長さ (m)	末口径 (cm)						長さ (m)
	8	9	10	11	12	13	
8.00	0.080	0.097	0.115	0.135	0.157	0.180	0.205
8.20	0.082	0.099	0.118	0.139	0.161	0.185	0.210
8.40	0.084	0.102	0.121	0.142	0.165	0.189	0.215
8.60	0.086	0.104	0.124	0.145	0.169	0.194	0.220
8.80	0.088	0.106	0.127	0.149	0.172	0.198	0.225
9.00	0.091	0.119	0.141	0.164	0.189	0.216	0.245
9.20	0.101	0.122	0.144	0.168	0.193	0.221	0.250
9.40	0.104	0.124	0.147	0.171	0.198	0.226	0.256
9.60	0.106	0.127	0.150	0.175	0.202	0.231	0.261
9.80	0.108	0.130	0.153	0.179	0.206	0.235	0.267
10.00	0.121	0.144	0.169	0.196	0.225	0.256	0.289
10.20	0.123	0.147	0.172	0.200	0.230	0.261	0.295
10.40	0.126	0.150	0.176	0.204	0.234	0.266	0.301
10.60	0.128	0.153	0.179	0.208	0.239	0.271	0.306
10.80	0.131	0.156	0.183	0.212	0.243	0.276	0.312
11.00	0.145	0.172	0.200	0.231	0.264	0.299	0.337
11.20	0.148	0.175	0.204	0.235	0.269	0.305	0.343
11.40	0.151	0.178	0.208	0.239	0.274	0.310	0.349
11.60	0.153	0.181	0.211	0.244	0.279	0.316	0.355
11.80	0.156	0.184	0.215	0.248	0.283	0.321	0.361
12.00	0.173	0.203	0.235	0.270	0.307	0.347	0.389
12.20	0.176	0.206	0.239	0.275	0.312	0.353	0.395
12.40	0.179	0.210	0.243	0.279	0.317	0.358	0.402
12.60	0.181	0.213	0.247	0.284	0.323	0.364	0.408
12.80	0.184	0.216	0.251	0.288	0.328	0.370	0.415
13.00	0.203	0.237	0.273	0.312	0.354	0.398	0.445
13.20	0.206	0.241	0.278	0.317	0.359	0.404	0.452
13.40	0.209	0.244	0.282	0.322	0.365	0.410	0.459
13.60	0.213	0.248	0.286	0.327	0.370	0.417	0.465
13.80	0.216	0.252	0.290	0.332	0.376	0.423	0.472
14.00	0.237	0.274	0.315	0.358	0.405	0.454	0.505
14.20	0.240	0.278	0.320	0.364	0.410	0.460	0.513
14.40	0.243	0.282	0.324	0.369	0.416	0.467	0.520
14.60	0.247	0.286	0.329	0.374	0.422	0.473	0.527
14.80	0.250	0.290	0.333	0.379	0.428	0.480	0.534
15.00	0.273	0.315	0.360	0.408	0.459	0.513	0.570

長さ 8.00~15.00 m
末口径 16~28 cm
(単位=m³)

長さ (m)	未 口 径 (cm)						長さ (cm)
	16	18	20	22	24	26	
8.00	0.259	0.320	0.387	0.461	0.541	0.627	0.720
8.20	0.266	0.328	0.397	0.472	0.554	0.643	0.738
8.40	0.272	0.336	0.407	0.484	0.568	0.659	0.756
8.60	0.279	0.344	0.416	0.495	0.581	0.674	0.774
8.80	0.285	0.352	0.426	0.507	0.595	0.680	0.792
9.00	0.308	0.378	0.456	0.540	0.632	0.731	0.837
9.20	0.315	0.387	0.466	0.552	0.646	0.747	0.856
9.40	0.322	0.395	0.476	0.564	0.660	0.764	0.874
9.60	0.329	0.403	0.486	0.576	0.674	0.780	0.893
9.80	0.335	0.412	0.496	0.588	0.688	0.796	0.912
10.00	0.361	0.441	0.529	0.625	0.729	0.841	0.961
10.20	0.368	0.450	0.540	0.638	0.744	0.858	0.980
10.40	0.375	0.459	0.550	0.650	0.758	0.875	0.999
10.60	0.383	0.467	0.561	0.663	0.773	0.891	1.019
10.80	0.390	0.476	0.571	0.675	0.787	0.908	1.038
11.00	0.418	0.508	0.607	0.715	0.832	0.957	1.091
11.20	0.426	0.518	0.619	0.728	0.847	0.975	1.111
11.40	0.443	0.537	0.630	0.741	0.862	0.992	1.131
11.60	0.441	0.536	0.641	0.754	0.877	1.009	1.151
11.80	0.449	0.545	0.652	0.767	0.892	1.027	1.171
12.00	0.480	0.581	0.691	0.811	0.941	1.080	1.229
12.20	0.488	0.590	0.703	0.825	0.956	1.098	1.249
12.40	0.496	0.600	0.714	0.838	0.972	1.116	1.270
12.60	0.504	0.610	0.726	0.852	0.988	1.134	1.290
12.80	0.512	0.620	0.737	0.865	1.004	1.152	1.311
13.00	0.546	0.658	0.780	0.913	1.056	1.209	1.373
13.20	0.555	0.668	0.792	0.927	1.072	1.228	1.394
13.40	0.563	0.678	0.804	0.941	1.088	1.247	1.415
13.60	0.572	0.689	0.816	0.955	1.105	1.295	1.437
13.80	0.580	0.699	0.828	0.969	1.121	1.284	1.458
14.00	0.617	0.741	0.875	1.021	1.177	1.345	1.525
14.20	0.626	0.751	0.888	1.035	1.194	1.365	1.546
14.40	0.635	0.762	0.900	1.050	1.211	1.384	1.568
14.60	0.644	0.772	0.913	1.064	1.228	1.403	1.590
14.80	0.653	0.783	0.925	1.079	1.245	1.422	1.612
15.00	0.693	0.828	0.975	1.305	1.488	1.683	1.890

長さ 8.00~15.00 m
末口径 30~42 cm
(単位=m³)

長さ (m)	未 口 径 (cm)						長さ (cm)
	30	32	34	36	38	40	
8.00	0.819	0.925	1.037	1.155	1.280	1.411	1.549
8.20	0.840	0.948	1.063	1.184	1.312	1.446	1.588
8.40	0.860	0.971	1.089	1.213	1.344	1.482	1.626
8.60	0.881	0.984	1.115	1.242	1.376	1.517	1.665
8.80	0.901	1.017	1.140	1.271	1.408	1.552	1.704
9.00	0.951	1.071	1.199	1.334	1.476	1.626	1.782
9.20	0.972	1.095	1.226	1.364	1.509	1.662	1.822
9.40	0.993	1.119	1.252	1.393	1.542	1.698	1.861
9.60	1.014	1.143	1.279	1.423	1.575	1.734	1.901
9.80	1.035	1.166	1.306	1.453	1.607	1.770	1.941
10.00	1.089	1.225	1.369	1.521	1.681	1.849	2.025
10.20	1.111	1.250	1.396	1.551	1.715	1.886	2.066
10.40	1.133	1.274	1.424	1.582	1.748	1.923	2.106
10.60	1.154	1.299	1.451	1.612	1.782	1.960	2.147
10.80	1.176	1.323	1.479	1.643	1.815	1.997	2.187
11.00	1.234	1.386	1.547	1.716	1.894	2.081	2.277
11.20	1.257	1.411	1.575	1.747	1.929	2.119	2.319
11.40	1.279	1.437	1.603	1.779	1.963	2.157	2.360
11.60	1.302	1.462	1.631	1.810	1.998	2.195	2.401
11.80	1.324	1.487	1.659	1.841	2.032	2.233	2.443
12.00	1.387	1.555	1.733	1.920	2.117	2.323	2.539
12.20	1.410	1.581	1.762	1.952	2.152	2.362	2.582
12.40	1.433	1.607	1.791	1.984	2.187	2.401	2.624
12.60	1.457	1.633	1.819	2.016	2.233	2.439	2.666
12.80	1.480	1.659	1.848	2.048	2.258	2.478	2.703
13.00	1.517	1.732	1.927	2.132	2.348	2.574	2.811
13.20	1.571	1.759	1.957	2.165	2.384	2.614	2.854
13.40	1.595	1.785	1.986	2.198	2.420	2.654	2.897
13.60	1.619	1.812	2.016	2.231	2.457	2.693	2.941
13.80	1.643	1.839	2.046	2.264	2.493	2.733	2.984
14.00	1.715	1.917	2.129	2.353	2.589	2.835	3.093
14.20	1.740	1.944	2.160	2.387	2.626	2.876	3.137
14.40	1.764	1.971	2.190	2.421	2.663	2.916	3.181
14.60	1.789	1.999	2.221	2.454	2.700	2.957	3.225
14.80	1.813	2.026	2.251	2.488	2.737	2.997	3.269
15.00	1.890	2.109	2.340	2.583	2.838	3.105	3.384

**長さ 8.00~15.00 m
末口径 44~56 cm**

(単位=m³)

長さ (m)	未 口 径 (cm)						長さ (m)
	44	46	48	50	52	54	
8.00	1.693	1.843	2.000	2.163	2.333	2.509	2.691
8.20	1.735	1.889	2.050	2.217	2.391	2.572	2.758
8.40	1.777	1.935	2.100	2.271	2.449	2.634	2.826
8.60	1.820	1.981	2.150	2.325	2.508	2.697	2.893
8.80	1.862	2.028	2.200	2.380	2.566	2.760	2.960
9.00	1.946	2.117	2.295	2.481	2.673	2.873	3.069
9.20	1.989	2.164	2.346	2.536	2.733	2.937	3.148
9.40	2.033	2.211	2.397	2.591	2.792	3.001	3.217
9.60	2.076	2.258	2.448	2.646	2.851	3.065	3.285
9.80	2.119	2.305	2.499	2.701	2.911	3.128	3.354
10.00	2.209	2.401	2.601	2.809	3.025	3.249	3.481
10.20	2.253	2.449	2.653	2.865	3.086	3.314	3.551
10.40	2.297	2.497	2.705	2.921	3.146	3.379	3.620
10.60	2.342	2.545	2.757	2.978	3.207	3.444	3.690
10.80	2.386	2.593	2.809	3.034	3.267	3.509	3.759
11.00	2.482	2.695	2.917	3.148	3.388	3.637	3.894
11.20	2.527	2.754	2.971	3.206	3.450	3.703	3.965
11.40	2.572	2.793	3.024	3.263	3.511	3.769	4.036
11.60	2.617	2.842	3.077	3.320	3.573	3.835	4.107
11.80	2.662	2.891	3.130	3.377	3.635	3.901	4.177
12.00	2.765	3.000	3.245	3.499	3.768	4.037	4.320
12.20	2.811	3.050	3.299	3.558	3.826	4.104	4.392
12.40	2.857	3.100	3.353	3.616	3.889	4.171	4.461
12.60	2.903	3.150	3.407	3.674	3.951	4.239	4.536
12.80	2.949	3.200	3.461	3.732	4.014	4.306	4.608
13.00	3.058	3.315	3.583	3.861	4.150	4.449	4.758
13.20	3.105	3.366	3.638	3.921	4.214	4.517	4.832
13.40	3.152	3.417	3.800	4.174	4.278	4.586	4.905
13.60	3.199	3.468	3.749	4.040	4.341	4.654	4.978
13.80	3.246	3.519	3.804	4.099	4.405	4.723	5.051
14.00	3.305	3.641	3.933	4.235	4.549	4.873	5.209
14.20	3.352	3.693	3.989	4.296	4.614	4.943	5.284
14.40	3.407	3.745	4.045	4.356	4.679	5.013	5.358
14.60	3.505	3.797	4.101	4.417	4.744	5.082	5.433
14.80	3.553	3.849	4.157	4.777	4.809	5.152	5.507
15.00	3.675	3.978	4.293	4.620	4.959	5.310	5.673

**長さ 8.00~15.00 m
末口径 58~70 cm**

(単位=m³)

長さ (m)	未 口 径 (cm)						長さ (m)
	58	60	62	64	66	68	
8.00	2.880	3.075	3.277	3.485	3.699	3.920	4.147
8.20	2.952	3.152	3.359	3.572	3.792	4.018	4.251
8.40	3.024	3.229	3.441	3.659	3.884	4.116	4.355
8.60	3.096	3.306	3.523	3.746	3.977	4.214	4.458
8.80	3.168	3.383	3.604	3.833	4.069	4.312	4.562
9.00	3.294	3.516	3.744	3.980	4.223	4.473	4.731
9.20	3.367	3.594	3.827	4.068	4.317	4.573	4.836
9.40	3.441	3.672	3.911	4.157	4.411	4.672	4.941
9.60	3.514	3.750	3.994	4.245	4.505	4.771	5.046
9.80	3.587	3.828	4.077	4.334	4.598	4.871	5.151
10.00	3.721	3.969	4.225	4.489	4.761	5.041	5.329
10.20	3.795	4.048	4.310	4.579	4.856	5.142	5.436
10.40	3.870	4.128	4.394	4.669	4.951	5.243	5.542
10.60	3.944	4.207	4.479	4.758	5.047	5.343	5.649
10.80	4.019	4.287	4.563	4.848	5.142	5.444	5.755
11.00	4.160	4.435	4.719	5.012	5.313	5.623	5.942
11.20	4.236	4.516	4.805	5.103	5.410	5.726	6.051
11.40	4.312	4.597	4.891	5.194	5.506	5.828	6.159
11.60	4.387	4.677	4.977	5.285	5.603	5.930	6.267
11.80	4.463	4.758	5.062	5.376	5.700	6.032	6.375
12.00	4.613	4.915	5.227	5.549	5.880	6.221	6.571
12.20	4.690	4.997	5.314	5.641	5.978	6.324	6.681
12.40	4.767	5.079	5.401	5.734	6.076	6.428	6.790
12.60	4.843	5.161	5.489	5.826	6.174	6.532	6.900
12.80	4.920	5.243	5.576	5.919	6.272	6.636	7.009
13.00	5.078	5.408	5.749	6.100	6.461	6.833	7.215
13.20	5.156	5.492	5.837	6.194	6.561	6.938	7.326
13.40	5.234	5.575	5.926	6.288	6.660	7.043	7.437
13.60	5.313	5.658	6.014	6.381	6.760	7.149	7.548
13.80	5.391	5.741	6.103	6.475	6.859	7.254	7.659
14.00	5.557	5.915	6.285	6.665	7.057	7.461	7.875
14.20	5.636	6.000	6.374	6.761	7.158	7.567	7.988
14.40	5.715	6.084	6.464	6.856	7.259	7.674	8.100
14.60	5.795	6.169	6.554	6.951	7.360	7.780	8.233
14.80	5.874	6.253	6.644	7.046	7.461	7.887	8.325
15.00	6.048	6.435	6.834	7.245	7.668	8.103	8.550

長さ 8.00~15.00m
末口径 72~84cm
(単位=m³)

長さ (m)	未 口 径 (cm)					
	72	74	76	78	80	82
8.00	4.381	4.621	4.867	5.120	5.379	5.645
8.20	4.490	4.736	4.989	5.248	5.514	5.786
8.40	4.600	4.852	5.111	5.376	5.648	5.927
8.60	4.709	4.967	5.232	5.504	5.783	6.068
8.80	4.819	5.083	5.354	5.632	5.917	6.209
9.00	4.995	5.267	5.546	5.832	6.126	6.426
9.20	5.106	5.384	5.669	5.962	6.262	6.569
9.40	5.217	5.501	5.793	6.091	6.398	6.712
9.60	5.328	5.618	5.916	6.221	6.534	6.855
9.80	5.439	5.735	6.039	6.351	6.670	6.997
10.00	5.625	5.929	6.241	6.561	6.899	7.225
10.20	5.738	6.043	6.366	6.692	7.027	7.370
10.40	5.850	6.166	6.491	6.823	7.165	7.514
10.60	5.963	6.285	6.615	6.955	7.302	7.659
10.80	6.075	6.403	6.740	7.086	7.440	7.803
11.00	6.270	6.607	6.952	7.306	7.669	8.041
11.20	6.384	6.727	7.079	7.439	7.809	8.187
11.40	6.498	6.847	7.205	7.572	7.948	8.334
11.60	6.612	6.967	7.331	7.705	8.088	8.480
11.80	6.726	7.087	7.458	7.838	8.227	8.626
12.00	6.931	7.301	7.680	8.069	8.467	8.875
12.20	7.047	7.422	7.808	8.203	8.608	9.023
12.40	7.162	7.544	7.936	8.338	8.749	9.171
12.60	7.278	7.666	8.064	8.472	8.891	9.319
12.80	7.393	7.788	8.192	8.607	9.032	9.467
13.00	7.608	8.011	8.424	8.848	9.282	9.727
13.20	7.725	8.134	8.554	8.984	9.425	9.877
13.40	7.842	8.257	8.684	9.120	9.568	10.026
13.60	7.959	8.381	8.813	9.257	9.711	10.176
13.80	8.076	8.504	8.943	9.393	9.854	10.326
14.00	8.301	8.737	9.185	9.645	10.115	10.597
14.20	8.419	8.862	9.317	9.782	10.260	10.748
14.40	8.538	8.987	9.448	9.920	10.404	10.899
14.60	8.656	9.112	9.579	10.058	10.549	11.565
14.80	8.775	9.237	9.710	10.196	10.693	11.202
15.00	9.009	9.480	9.963	10.458	10.965	11.484

長さ 8.00~15.00m
末口径 86~98cm
(単位=m³)

長さ (m)	未 口 径 (cm)						長さ (m)
	86	88	90	92	94	96	
6.195	6.480	6.771	7.069	7.373	7.683	8.000	8.00
6.350	6.642	6.940	7.246	7.557	7.875	8.200	8.20
6.505	6.804	7.110	7.422	7.741	8.067	8.400	8.40
6.660	6.966	7.279	7.599	7.926	8.259	8.600	8.60
6.815	7.128	7.448	7.776	8.110	8.452	8.800	8.80
7.049	7.371	7.701	8.037	8.381	8.732	9.090	9.00
7.206	7.535	7.872	8.216	8.567	8.926	9.292	9.20
7.362	7.699	8.043	8.394	8.754	9.120	9.494	9.40
7.519	7.863	8.214	8.573	8.940	9.314	9.696	9.60
7.676	8.026	8.355	8.752	9.126	9.508	9.898	9.80
7.921	8.281	8.649	9.025	9.409	9.801	10.201	10.20
8.079	8.447	8.822	9.205	9.597	10.045	10.405	10.20
8.238	8.612	8.995	9.386	9.785	10.193	10.609	10.40
8.396	8.778	9.168	9.567	9.974	10.389	10.813	10.60
8.555	8.943	9.341	9.747	10.162	10.585	11.017	10.80
8.811	9.209	9.616	10.032	10.457	10.890	11.332	11.00
9.071	9.377	9.791	10.215	10.647	11.088	11.539	11.20
9.132	9.544	9.966	10.397	10.837	11.286	11.745	11.40
9.292	9.712	10.141	10.579	11.027	11.484	11.951	11.60
9.452	9.879	10.316	10.762	11.217	11.682	12.157	11.80
9.520	9.720	10.157	10.603	11.059	11.525	12.000	12.485
9.882	10.326	10.780	11.244	11.717	12.200	12.693	12.20
10.044	10.495	10.957	11.428	11.909	12.400	12.901	12.40
10.206	10.665	11.133	11.612	12.101	12.600	13.109	12.60
10.368	10.834	11.310	11.796	12.293	12.800	13.317	12.80
10.563	11.069	11.623	12.106	12.613	13.130	13.658	13.00
10.755	11.294	11.788	12.292	12.807	13.332	13.868	13.20
10.975	11.465	11.967	12.478	13.001	13.534	14.078	13.40
11.139	11.637	12.145	12.665	13.195	13.736	14.289	13.60
11.303	11.808	12.324	12.851	13.389	13.938	14.499	13.80
11.593	12.109	12.635	13.173	13.721	14.281	14.853	14.00
11.759	12.282	12.816	13.361	13.917	14.485	15.065	14.20
11.925	12.455	12.996	13.549	14.113	14.689	15.277	14.40
12.090	12.628	13.177	13.737	14.309	14.893	15.489	14.60
12.256	12.801	13.357	13.925	14.505	15.097	15.701	14.80
12.558	13.113	13.680	14.259	14.850	15.453	16.068	15.00

長さ 8.00 ~ 15.00 m
末口径 100 ~ 112 cm
(単位=m³)

長さ (m)	未口径 (cm)					末口径 (cm)				
	100	102	104	106	108	110	112	114	116	118
8.00	8.323	8.653	8.989	9.331	9.680	10.035	10.397	10.765	11.139	11.520
8.20	8.531	8.869	9.214	9.564	9.922	10.286	10.657	11.034	11.418	11.808
8.40	8.739	9.085	9.438	9.798	10.164	10.537	10.917	11.303	11.696	12.053
8.60	8.947	9.302	9.663	10.031	10.406	10.788	11.177	11.572	12.034	12.384
8.80	9.156	9.518	9.888	10.264	10.648	11.039	11.436	11.841	12.253	12.672
9.00	9.456	9.828	10.208	10.595	10.989	11.391	11.799	12.215	12.638	13.068
9.20	9.666	10.047	10.435	10.830	11.233	11.644	12.061	12.486	12.919	13.359
9.40	9.876	10.265	10.662	11.056	11.478	11.897	12.324	12.758	13.200	13.649
9.60	10.086	10.483	10.889	11.301	11.722	12.150	12.586	13.029	13.481	13.939
9.80	10.296	10.702	11.115	11.537	11.966	12.403	12.848	13.301	13.761	14.230
10.00	10.609	11.025	11.449	11.881	12.321	12.769	13.225	13.689	14.161	14.641
10.20	10.821	11.247	11.678	12.119	12.567	13.024	13.490	13.963	14.444	14.934
10.40	11.033	11.466	11.907	12.356	12.814	13.280	13.754	14.237	14.727	15.227
10.60	11.246	11.687	12.136	12.594	13.060	13.535	14.019	14.510	15.011	15.519
10.80	11.458	11.907	12.365	12.831	13.307	13.791	14.283	14.784	15.294	15.812
11.00	11.783	12.243	12.712	13.189	13.675	14.170	14.674	15.187	15.708	16.238
11.20	11.998	12.466	12.943	13.429	13.924	14.428	14.941	15.463	15.994	16.534
11.40	12.212	12.688	13.174	13.669	14.173	14.686	15.208	15.739	16.279	16.829
11.60	12.426	12.911	13.405	13.909	14.421	14.943	15.475	16.015	16.565	17.124
11.80	12.640	13.134	13.636	14.148	14.670	15.201	15.741	16.291	16.851	17.419
12.00	12.979	13.483	13.997	14.520	15.053	15.595	16.147	16.709	17.280	17.777
12.20	13.196	13.708	14.230	14.762	15.304	15.855	16.416	16.987	17.568	18.158
12.40	13.412	13.933	14.446	15.004	15.555	16.115	16.685	17.266	17.856	18.456
12.60	13.628	14.157	14.697	15.246	15.805	16.375	16.955	17.544	18.144	18.754
12.80	13.844	14.382	14.930	15.488	16.056	16.635	17.224	17.823	18.432	19.052
13.00	14.196	14.745	15.304	15.873	16.453	17.043	17.644	18.255	18.876	19.508
13.20	14.415	15.539	16.118	16.706	17.306	17.915	18.416	18.836	19.167	19.568
13.40	14.633	15.199	15.775	16.362	16.959	17.568	18.187	18.317	19.457	19.866
13.60	14.852	15.425	16.010	16.606	17.213	17.830	18.458	19.097	19.748	20.409
13.80	15.070	15.652	16.246	16.850	17.466	18.092	18.730	19.378	20.038	20.709
14.00	15.435	16.029	16.633	17.249	17.877	18.515	19.165	19.825	20.497	21.181
14.20	15.656	16.258	16.871	17.496	18.132	18.780	19.438	20.109	20.790	21.483
14.40	15.876	16.487	17.109	17.742	18.387	19.044	19.712	20.392	21.083	21.786
14.60	16.097	16.716	17.346	17.989	18.643	19.309	19.986	20.675	21.376	22.088
14.80	16.317	16.945	17.584	18.235	18.898	19.573	20.260	21.669	22.391	23.125
15.00	16.635	17.334	17.985	18.648	19.323	20.010	20.709	21.420	22.143	22.878

長さ (m)	未口径 (cm)					末口径 (cm)				
	114	116	118	120	122	124	126	128	130	132
8.00	10.765	11.139	11.520	11.907	12.301	12.701	13.107	13.493	13.808	14.00
8.20	11.034	11.418	11.808	12.205	12.503	12.906	13.306	13.693	14.090	8.40
8.40	11.303	11.696	12.086	12.484	12.884	13.284	13.683	14.082	14.481	13.763
8.60	11.572	11.874	12.263	12.662	13.061	13.461	13.860	14.259	14.658	14.418
8.80	11.841	12.253	12.652	13.051	13.451	13.851	14.250	14.649	15.048	14.80
9.00	12.215	12.638	13.056	13.456	13.856	14.256	14.655	15.054	15.453	15.20
9.20	12.486	12.919	13.359	13.806	14.206	14.606	15.005	15.404	15.803	15.522
9.40	12.758	13.200	13.649	14.046	14.406	14.806	15.205	15.604	16.003	9.60
9.60	13.029	13.481	13.939	14.306	14.706	15.106	15.505	15.862	16.362	15.852
9.80	13.301	13.761	14.230	14.630	15.030	15.430	15.830	16.230	16.630	16.182
10.00	13.689	14.161	14.641	15.041	15.441	15.841	16.241	16.641	17.041	16.641
10.20	13.963	14.444	14.934	15.334	15.734	16.134	16.534	16.934	17.334	16.934
10.40	14.237	14.727	15.227	15.627	16.027	16.427	16.827	17.227	17.627	17.227
10.60	14.510	15.011	15.510	15.910	16.310	16.710	17.110	17.510	17.910	17.510
10.80	14.784	15.294	15.794	16.194	16.594	17.094	17.494	17.894	18.294	17.894
11.00	15.187	15.708	16.208	16.608	17.008	17.408	17.808	18.208	18.608	18.208
11.20	15.463	15.994	16.534	17.034	17.534	18.034	18.534	19.034	19.534	19.134
11.40	15.739	16.279	16.829	17.329	17.829	18.329	18.829	19.329	19.829	19.429
11.60	16.015	16.565	17.124	17.624	18.124	18.624	19.124	19.624	20.124	19.624
11.80	16.291	16.851	17.419	17.919	18.419	18.919	19.419	19.919	20.419	19.819
12.00	16.709	17.280	17.777	18.277	18.777	19.277	19.777	20.277	20.777	20.277
12.20	17.098	17.698	18.198	18.698	19.198	19.698	20.198	20.698	21.198	20.698
12.40	17.398	17.998	18.498	18.998	19.498	19.998	20.498	20.998	21.498	20.998
12.60	17.686	18.286	18.786	19.286	19.786	20.286	20.786	21.286	21.786	21.286
12.80	18.086	18.686	19.186	19.686	20.186	20.686	21.186	21.686	22.186	21.686
13.00	18.386	18.986	19.486	19.986	20.486	20.986	21.486	21.986	22.486	21.986
13.20	18.686	19.286	19.786	20.286	20.786	21.286	21.786	22.286	22.786	22.286
13.40	19.086	19.686	20.186	20.686	21.186	21.686	22.186	22.686	23.186	22.686
13.60	19.386	19.986	20.486	20.986	21.486	21.986	22.486	22.986	23.486	22.986
13.80	19.686	20.286	20.786	21.286	21.786	22.286	22.786	23.286	23.786	23.286
14.00	19.986	20.586	21.086	21.586	22.086	22.586	23.086	23.586	24.086	23.586
14.20	20.286	20.886	21.386	21.886	22.386	22.886	23.386	23.886	24.386	23.886
14.40	20.586	21.186	21.686	22.186	22.686	23.186	23.686	24.186	24.686	24.186
14.60	20.886	21.486	21.986	22.486	22.986	23.486	23.986	24.486	24.986	24.486
14.80	21.186	21.786	22.286	22.786	23.286	23.786	24.286	24.786	25.286	24.786
15.00	21.486	22.086	22.586	23.086	23.586	24.086	24.586	25.086	25.586	25.086

(101)

(100)

長さ 8.00 ~ 15.00 m
末口径 128 ~ 140 cm
(単位=m³)

長さ (m)	末口径 (cm)					長さ (m)
	128	130	132	134	136	
8.00	13.520	13.939	14.365	14.797	15.235	15.680
8.20	13.858	14.288	14.724	15.167	15.616	16.131
8.40	14.196	14.636	15.083	15.537	15.997	16.534
8.60	14.534	14.985	15.442	15.907	16.378	16.464
8.80	14.872	15.333	15.801	16.276	16.759	17.248
9.00	15.327	15.801	16.281	16.769	17.264	17.766
9.20	15.668	16.152	16.643	17.142	17.648	18.161
9.40	16.008	16.503	17.005	17.514	18.031	18.556
9.60	16.349	16.854	17.367	17.887	18.415	18.951
9.80	16.690	17.205	17.728	18.260	18.799	19.345
10.00	17.161	17.689	18.225	18.769	19.321	19.881
10.20	17.504	18.043	18.590	19.144	19.707	20.279
10.40	17.847	18.397	18.954	19.502	20.094	20.676
10.60	18.191	18.750	19.319	19.895	20.480	21.074
10.80	18.534	19.104	19.683	20.271	20.867	21.471
11.00	19.021	19.604	20.196	20.797	21.406	22.024
11.20	19.367	19.961	20.563	21.175	21.795	22.425
11.40	19.713	20.317	20.931	21.533	22.185	22.825
11.60	20.059	20.674	21.298	21.931	22.574	23.226
11.80	20.405	21.030	21.665	22.309	22.963	23.626
12.00	20.909	21.547	22.195	22.853	23.520	24.197
12.20	21.257	21.906	22.565	23.234	23.912	24.600
12.40	21.606	22.265	22.935	23.615	24.304	25.003
12.60	21.954	22.625	23.305	23.995	24.696	25.407
12.80	22.303	22.984	23.675	24.376	25.088	26.542
13.00	22.823	23.517	24.222	24.937	25.662	26.398
13.20	23.174	23.879	24.595	25.321	26.057	26.804
13.40	23.525	24.241	24.967	25.704	26.452	27.210
13.60	23.877	24.603	25.340	26.088	26.847	27.617
13.80	24.228	24.965	25.713	26.472	27.242	28.023
14.00	24.765	25.515	26.277	27.049	27.833	28.629
14.20	25.118	25.880	26.652	27.436	28.231	29.038
14.40	25.472	26.244	27.027	27.822	28.629	29.447
14.60	25.826	26.609	27.403	28.209	29.026	29.856
14.80	26.180	26.973	27.778	28.595	29.424	30.265
15.00	26.733	27.540	28.359	29.190	30.033	30.888

長さ 8.00 ~ 15.00 m
末口径 142 ~ 150 cm
(単位=m³)

長さ (m)	末口径 (cm)					長さ (m)
	142	144	146	148	150	
16.589	17.053	17.523	18.000	18.483		8.00
17.004	17.479	17.961	18.450	18.945		8.20
17.418	17.905	18.399	18.900	19.407		8.40
17.833	18.332	18.837	19.350	19.859		8.60
18.248	18.758	19.276	19.800	20.332		8.80
18.792	19.316	19.847	20.385	20.931		9.00
19.210	19.745	20.288	20.838	21.336		9.20
19.627	20.175	20.729	21.291	21.861		9.40
20.045	20.604	21.170	21.744	22.326		9.60
20.463	21.033	21.611	22.197	22.791		9.80
21.025	21.609	22.201	22.801	23.409		10.00
21.446	22.041	22.645	23.257	23.877		10.20
21.866	22.473	23.089	23.713	24.345		10.40
22.287	22.906	23.533	24.169	24.814		10.60
22.707	23.338	23.977	24.625	25.282		10.80
23.287	23.932	24.585	25.247	25.918		11.00
23.711	24.367	25.032	25.707	26.390		11.20
24.134	24.802	25.479	26.166	26.861		11.40
24.557	25.237	25.926	26.625	27.332		11.60
24.981	25.672	26.373	27.084	27.803		11.80
25.579	26.285	26.900	27.725	28.459		12.00
26.006	26.723	27.450	28.187	28.934		12.20
26.432	27.161	27.900	28.649	29.408		12.40
26.858	27.559	28.350	29.111	29.892		12.60
27.284	28.037	28.800	29.573	30.356		12.80
27.901	28.668	29.445	30.233	31.031		13.00
28.330	29.109	29.898	30.698	31.509		13.20
28.759	29.550	30.351	31.163	31.966		13.40
29.189	29.991	30.804	31.629	32.404		13.60
29.618	30.432	31.257	32.094	32.941		13.80
31.117	31.969	32.833	33.709	34.556		14.00
31.549	32.413	33.289	34.177	35.077		14.20
31.981	32.557	33.745	34.645	35.557		14.40
32.634	33.525	34.428	35.343	36.270		14.60

(103)

(102)

Scaling the Volume of Imported Logs

Section 1: South Pacific

I. Method of Measurement

A. Measuring diameter

1. Take the shortest diameter and the longest diameter of the top end and measure each in 2 cm units. The average of both becomes the diameter of the top end.
2. Take the shortest diameter and the longest diameter of the bottom end and measure each in 2 cm units. The average of both becomes the diameter of the bottom end.
3. Consequently, the diameter of the top end and the diameter of the bottom end will each be in 1 cm units.
4. The entire log's diameter is obtained by averaging the top and bottom diameters. In this case, any fractional amount smaller than 1 cm is disregarded.

B. Measuring Length

1. The shortest length between the two ends becomes the length of the log. However, if part of the log has a diameter of less than 3 cm, or has a wedge missing where the tree was cut down, or has a hole through the trunk, then those portions are not included.
2. The length of a log is measured in 20 cm units; parts that don't measure up to 20 cm are disregarded.

C. Calculating Volume

1. The volume is calculated by using this equation:

$$V = D^2 \times L \times 0.7854 \times 1/10,000$$

where

V is the volume of the log

(107)

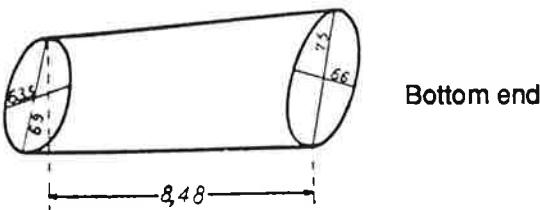
D is the diameter of the log in centimeters

L is the length of the log in meters

2. The volume is represented in cubic meters rounded off at the third decimal.

II. Explanatory Example

Top end



Bottom end

Top end: The shortest diameter goes from 63.5 to 62 cm. The longest diameter goes from 66 cm to 74 cm (disregarding anything less than 2 cm units)

Therefore the diameter of the top end is: $(62 + 68) / 2 = 65$

Bottom end: The shortest diameter is 66 cm. The longest diameter goes from 75 cm to 74 cm.

Therefore the diameter of the bottom end is: $(66 + 74) / 2 = 70$

Diameter of the log: The diameter of the log is the average of the top and bottom diameters:

$(65 + 70) / 2 = 67.5$, but the diameter must be in 1 cm units, so 67.5 becomes 67.

Length: The length is measured in 20 cm units disregarding any smaller lengths, so 8.48 m becomes 8.40 m

Volume: Use the equation to find the volume:

$$67^2 \times 8.4 \times 0.7854 \times 1/10,000 = 2.961554904$$

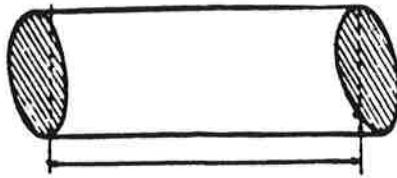
----- (108) -----

$$= 2.962 \text{ (round off to the third decimal)}$$

Reading the volume graph: Looking at the column for a log with a diameter of 67 cm and a length of 8.4 m, the volume must be 2.962 m^3 . In the volume graph, the lengths are arranged in groups from 1 m to 8.8 m, so that the volume for all logs, except for extremely long ones, can be seen. Lengths from 9 m to 15 m are arranged in another group and only unusually long lengths are edited from the graph to make it easier to see volumes.

About measuring length: When measuring length, the Japanese Timber Agricultural Standard of measuring the shortest distance must be strictly complied with. But because it is difficult to measure accurately the length of a log with a large diameter

cut at an angle as shown in the diagram, the Japan Wood Import Association agreed to allow 10 cm of leeway at a meter law research committee meeting. When cutting right angles at plywood factories, in the case of lauan wood, sometimes there is from as little as 5 cm to more than 20 cm of angled end pieces. Therefore, it is extremely necessary to have the 10 cm leeway. At each import receiving port we definitely would like to reserve the right to have 10 cm leeway when measuring lauan wood, as well as other imported wood with large diameters.



III. Comparing the Previous Method

1. Average the longest and shortest and shortest diameters of the top and bottom ends to find the diameter of the log. Square the diameter and multiply that by the length times 0.7854 to find the volume, same as in the previous method.
2. Previously, the longest and shortest diameters of the top (or bottom) ends were measured by 1 inch (2.5 cm) units, disregarding any excess. Now they will be measured in 2 cm units disregarding any excess. Because the unit of measurement is smaller, there is less waste and the volume becomes that much greater.

----- (109) -----

3. Until now, to find the diameter of a log, the diameters of the top and bottom ends were averaged to the quarter inch, but now we will stop at the 1 cm unit and disregard any excess. Therefore, the log volume will be that much smaller.
4. Until now the length was measured in feet (1 foot - 30 cm) disregarding any left over, but now 20 cm units will be used disregarding any left over. Because the unit of measurement is smaller, less will be disregarded, which will increase the volume respectively.
5. In summary, this was how 100,000 BM of decided lengths of Tambogon, 100,000 BM of disordered lengths each of Warisbei (Selaya), Putsuan, and Lianga, 100,000 BM of disordered lengths each of Macow (Apiton), 36,000 BM Salawaku (MLH), 28,000 BM totalling up to 564,000 BM was measured:

Considering that 374 logs is 564,720 BM and if 1 *shaku* (10 cubic feet) = 120 BM, then there would be 4,706 *shaku*. In the new method if log length had a 10 cm allowance, then the parts actually measured becomes $1,322.241 \text{ m}^3 = 4,751.73 \text{ shaku}$. Therefore, there is an

increase in volume of .97% over the previous method. Also, it became evident after actually measuring 560,000 BM, that if 10 cm weren't allowed for then the volume would increase by 2.73%. This shows that in comparison with the previous method of measurement, allowing 10 cm leeway when measuring length is by no means an impossibility.

6. Until now 120 BM have equalled 1 *shaku* but now it has been decided that 424 BM should equal 1 m³, so this factor also deserves consideration. (Exact scale: 1 *shaku* = 117.94 BM, 1 m³ = 424.056 BM.)

IV. About Subtracting Log Volumes

At first, the person measuring the logs estimates intuitively how much to subtract for splits and knots, etc., because there are no standard regulations at this time. Because the South Pacific logs have different defects from domestic logs, the timber agriculture standards do not apply. There is an immediate need for research on subtraction regulations.

----- (110) -----

Section 2: Wood Other than the South Pacific's

Unlike South Pacific wood, the evergreen type wood imported from the US, USSR and New Zealand resembles domestic wood in shape, so Japanese timber agricultural standards as well as the improvements can all be strictly adhered to. This makes domestic business run smoothly, enhancing the revisions making them even more marketable. Also, this wood can be mixed up and business can take place on the same ground. Because doing this allows price comparisons to be easily done, this is probably a widely used practice.

I. Differences from the Japanese Timber Agricultural Standards

- A. Timber standards measure the diameter at a right angle from the shortest diameter, but on imported logs the longest and shortest diameters are measured.
- B. When measuring an extremely crooked deciduous log using agricultural standards when the shortest diameter is 40 cm or more, if the diameter at right angles from the shortest is 80 cm or more longer than the shortest diameter, then 2 cm are added for every 6 cm difference. However, the imported evergreen wood generally is not as crooked, so for logs with short diameters of 14 cm or more, 2 cm are added for every 6 cm difference on all the logs.

II. Quantity Investigation Rule Data of the Timber Agricultural Standards (excerpt)

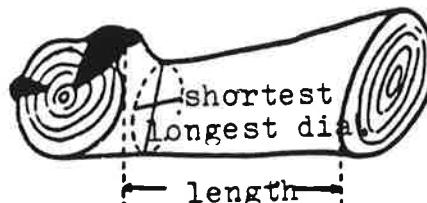
- A. **Article 4:** Parts where the bark is missing from the log, the length and diameter are figured separately.
- B. **Article 5:** The log's diameter is the shortest diameter. But with logs that have shortest diameters of 14 cm or more, if the diameter at right angles from the shortest diameter has a difference of 6 cm or more (if the shortest diameter is 40 cm or more, then 8 cm), then increase the shortest diameter by 2 cm for every 6 cm difference. For imported wood use shortest diameters and longest diameters.
- C. **Article 7:** The length of the material is the shortest distance measured between both ends. But if the shortest length in consideration has a part with a diameter that measures less than
----- (111) -----
3 cm, or an angled wedge missing, or a part with a hole through it, then those parts are excluded.
- D. **Article 8:** The log diameter units of measurement for smaller materials (with a diameter of less than 14 cm) is 1 cm, and for other material it is 2 cm. Parts that don't fit into the units of measurement are not included.

The log length unit of measurement is 20 cm, and any parts that do not measure up to 20 cm are not included. But lengths from 2.1-2.2 m, 2.7-2.8 m, 3.3-3.4 m, and 4.3-4.4 m each are measured as 2.1 m, 2.7 m, 3.3 m, and 4.3 m, respectively.
- E. **Article 10:** Calculate the volume of the material by using the following equations:
 1. For lengths less than 6 m:
$$D^2 \times L \times 1/10,000,$$
where D is the value of the log diameter in cm units and L is the value of the log length in m units
 2. For lengths 6 m and over:
$$(D + [L^1 - 4]/2)^2 \times L \times 1/10,000,$$
where D and L are the same as in (1) above and L^1 is the length excluding any fraction of a meter.

The volume of the material is m^3 and any values smaller than the third decimal are rounded off.

III. Explanatory Example

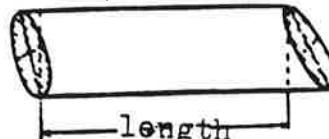
All examples illustrate cases with imported logs.



(112)

In Article 5, the diameter of the log was found by measuring the shortest diameter. Therefore, this does not necessarily mean the diameter of the top end. As in the diagram, if there is a place narrower than the top end, as in the instance of a knot or bump, then it is that narrowest part that is measured. Also, in Article 5 when the difference between the shortest and longest diameter is 6 cm or more, it says to add 2 cm for every 6 cm difference, so even if the difference is 10 cm, only 2 cm are added.

Article 7 states how to measure length. In cases with large diameters just as with South Pacific wood, it is technically and economically difficult to accurately measure logs cut at angles, just as in the diagram, so for logs with diameters of 60 cm or more there must be 10 cm of leeway in the measurements, just as with South Pacific Logs.



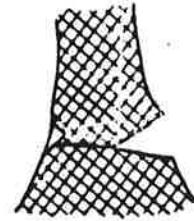
The following diagrams show a diameter of less than 3 cm, a wedge missing from when the tree was cut, and a hole in the log:



a.



b.

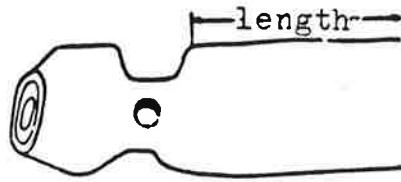


c.

- a. **Narrow diameter:** Lumber is from 3 cm in diameter up, so any parts narrow than 3 cm are not included into the volume. This explains the diagonal line in the above diagram.
- b. **Missing wedge (tokin):** At the time when wood shipping flow was heavy, almost all logs were cut like in the above diagram to prevent damage. Even now trees with large diameters have wedges cut out to make the tree fall in a certain direction. This causes the missing wedge. When measuring length this must be excluded.

(113)

- c. **Holes:** Constricted sections or sometimes holes as in the above diagram both are from pulling the logs for long distances grouped into rafts. This must be excluded when measuring log length.



Article 8 shows the units of measurement used when measuring diameter and length so it shouldn't need an explanation. 2.1 m, 2.7 m, 3.3 m, and 4.3 m are the right lengths to use for cross ties, pillars and girders.

Article 10 describes how to measure volume. There should be no problems with multiplying the length times the diameter squared for lengths less than 6 m. Because volume is in m^3 and because the diameter is in cm units, the units are 2 digits off, and because the diameter is squared the units become 4 digits off so it must be adjusted by multiplying by one over ten thousand.

For lengths over 6 m, $(L^1 - 4)/2$ is added and then squared, but this applies correspondingly to the equation previously used to find volume of telephone poles. To put it simply, our own country's wood consists of mainly cedar, cypress, pine and other medium sized logs that generally are 1/10 ft thicker for every 6 feet, so about 4 cm for every 4 m. Because the diameter of the top end of a 4 m long piece of wood is measured, subtract 4 from the approximate length and add 1/2 of any part longer than that and the result is very close to what was gotten by squaring the top end of a 4 m wood. For example, the volume of a log with a length of 8 m and a top diameter of 20 cm is

$$(20 + (8-4)/2)^3 \times 8 \times 1/10,000 = 0.387 \text{ m}^3$$

Cutting this log into 4 m sections and the two following pieces would result (keeping in mind that for every m there is 1 cm of thickness added):

length 4 m diameter 20 cm

length 4 m diameter 24 cm

----- (114) -----

The way to find the volume for these is:

$$20^2 \times 4 \times 1/10,000 + 24^2 \times 4 \times 1/10,000 = 0.390 \text{ m}^3$$

Therefore, there is a difference of .003 m^3 and a 1% reduction. By cutting 4 m lengths in this way, a quite accurate volume measurement can be obtained.

With $D + (L^1 - 4)/2$ of course there may be odd numbers, and there is also the possibility of excluding 0.5 cm. But even if it is an odd number or if there is a part excluded it is squared as it is without readjusting. In the business world, if D is 42 cm and L is 9.6 m, just by looking at the 42 cm and 9.6 m column of the wood volume graph the result 1.90 m^3 can be found, so there is no need to go to the trouble of adding the coefficient $L^1 - 4$.

----- (115) -----

Appendix B

Translation by Nancye Iwata

Log Volume Graph

NOTE: Source document pagination is indicated in translated text by: ----- -#- -----

Introduction

This log volume graph is based on "Agricultural Standards for Wood" (December 8, 1967, *Bulletin of Japanese Agricultural Standards* #1841). The specific volume of any standard log can be produced and a *koku* conversion table is also included. It is in pocket-book form so it can conveniently be carried all the time. In the appendix, "Japanese Agricultural Standards for Wood," "Quality Investigation Laws for Foreign Logs," "Unit Cost Conversion Chart for m³ and *koku*," and more are recorded. This reprint is meant to be more useful because of its pocket-book size and because the *koku* conversion tables are included.

January 1985

Wood Products Daily Newspaper

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ATTENTION USERS

This book is based on the regulations of the "Japanese Agriculture Standards of Wood" (Dec. 8, 1967 Bulletin of Japanese Agriculture #1841 which goes into effect on January 10, 1968) and was combined with the *koku* conversion chart in the following way.

1. Measurements

length 1 m - 12 m

top diameter 2 cm - 100 cm

2. How to Calculate Volume

a) for lengths under 6 m

$$[\text{diameter (cm)}^2 \times \text{length (m)}]/0.0001 = \text{Volume (m}^3\text{)}$$

b) for lengths over 6m

$$[\text{diameter (cm)} + [(\text{L}'-4)/2]^2 \times \text{length (m)}]/0.0001 = \text{Volume (m}^3\text{)}$$

L' is the value of extra discarded length that was less than a full meter.

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3. Volume Units

The unit of measurement for Volume is m³ and fractional numbers are stopped at the third decimal (rounding off). Numbers smaller than the third decimal are rounded off at the fourth.

4. *Koku* Conversion Chart is calculated at $1 \text{ m}^3 = 3.6 \text{ koku}$

How to read the graph

Example: A log with a length of 4 m and a top diameter of 30 cm. Look on page 29 for 4.0 m length under the *koku* column for 30 cm top diameter, in the m^3 column the corresponding number is 0.360, and the *koku* conversion ($1 \text{ m}^3 = 3.6 \text{ koku}$) is 1.296.

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	1.4 m	12
	1.6 m	13
	1.8 m	14
	2.0 m	15
	2.1 m	16
	2.2 m	17
	2.4 m	18
	2.6 m	19
	2.7 m	20
	2.8 m	21
	3.0 m	22
	3.2 m	23
	3.3 m	24
	3.4 m	25
	3.6 m	26
	3.65 m	27
	3.8 m	28
	4.0 m	29
	4.2 m	30
	4.3 m	31
	4.4 m	32
	4.6 m	33
	4.8 m	34
	5.0 m	35
	5.2 m	36
	5.4 m	37
	5.6 m	38
	5.8 m	39
	6.0 m	39
	6.2 m	41
	6.4 m	42
	6.6 m	43
	6.8 m	44

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7.0 m	45
7.2 m	46
7.4 m	47
7.6 m	48
7.8 m	49
8.0 m	50
8.2 m	51
8.4 m	52
8.6 m	53
8.8 m	54
9.8 m	59
10.0 m	60
10.2 m	61
10.4 m	62
10.6 m	63
10.8 m	64

11.0 m	65
11.2 m	66
11.4 m	67
11.6 m	68
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LOG VOLUME GRAPHS



lengths: 1.0 m - 12.0 m



top diameter: 2 cm - 100 cm

Koku (石) Conversion Charts Included

(Converted at $1 m^3 = 3.6 koku$)

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長さ 1.0m

未口徑	m ³	石	未口徑	m ³	石
cm 2	0.0004	0.0014	cm 46	0.212	0.763
3	0.0009	0.0032	48	0.230	0.828
4	0.002	0.007	50	0.250	0.900
5	0.003	0.011	52	0.270	0.972
6	0.004	0.014	54	0.292	1.051
7	0.005	0.018	56	0.314	1.130
8	0.006	0.022	58	0.336	1.210
9	0.008	0.029	60	0.360	1.296
10	0.010	0.036	62	0.384	1.382
11	0.012	0.043	64	0.410	1.476
12	0.014	0.050	66	0.436	1.570
13	0.017	0.061	68	0.462	1.663
14	0.020	0.072	70	0.490	1.764
16	0.026	0.094	72	0.518	1.865
18	0.032	0.115	74	0.548	1.973
20	0.040	0.144	76	0.578	2.081
22	0.048	0.173	78	0.608	2.189
24	0.058	0.209	80	0.640	2.304
26	0.068	0.245	82	0.672	2.419
28	0.078	0.281	84	0.706	2.542
30	0.090	0.324	86	0.740	2.664
32	0.102	0.367	88	0.774	2.786
34	0.116	0.418	90	0.810	2.916
36	0.130	0.468	92	0.846	3.046
38	0.144	0.518	94	0.884	3.182
40	0.160	0.576	96	0.922	3.319
42	0.176	0.634	98	0.960	3.456
44	0.194	0.698	100	1.000	3.600

長さ 1.2m

未口徑	m ³	石	未口徑	m ³	石
cm 2	0.0005	0.0018	cm 46	0.254	0.914
3	0.001	0.004	48	0.276	0.994
4	0.002	0.007	50	0.300	1.080
5	0.003	0.011	52	0.324	1.166
6	0.004	0.014	54	0.350	1.260
7	0.006	0.022	56	0.376	1.354
8	0.008	0.029	58	0.404	1.454
9	0.010	0.036	60	0.432	1.555
10	0.012	0.043	62	0.461	1.660
11	0.015	0.054	64	0.492	1.771
12	0.017	0.061	66	0.523	1.883
13	0.020	0.072	68	0.555	1.998
14	0.024	0.086	70	0.588	2.117
16	0.031	0.112	72	0.622	2.239
18	0.039	0.140	74	0.657	2.365
20	0.048	0.173	76	0.693	2.495
22	0.058	0.209	78	0.730	2.628
24	0.069	0.248	80	0.768	2.765
26	0.081	0.292	82	0.807	2.905
28	0.094	0.338	84	0.847	3.049
30	0.108	0.389	86	0.888	3.197
32	0.123	0.443	88	0.929	3.344
34	0.139	0.500	90	0.972	3.499
36	0.156	0.562	92	1.016	3.658
38	0.173	0.623	94	1.060	3.816
40	0.192	0.691	96	1.106	3.982
42	0.212	0.763	98	1.152	4.147
44	0.232	0.835	100	1.200	4.320

長さ 1.4m

未口徑	m ³	石	未口徑	m ³	石
cm			cm		
2	0.0006	0.0022	46	0.296	1.066
3	0.001	0.004	48	0.323	1.163
4	0.002	0.007	50	0.350	1.260
5	0.004	0.014	52	0.379	1.364
6	0.005	0.018	54	0.408	1.469
7	0.007	0.025	56	0.439	1.580
8	0.009	0.032	58	0.471	1.696
9	0.011	0.040	60	0.504	1.814
10	0.014	0.050	62	0.538	1.937
11	0.017	0.061	64	0.573	2.063
12	0.020	0.072	66	0.610	2.196
13	0.024	0.086	68	0.647	2.329
14	0.027	0.097	70	0.686	2.470
16	0.036	0.130	72	0.726	2.614
18	0.045	0.162	74	0.767	2.761
20	0.056	0.202	76	0.809	2.912
22	0.068	0.245	78	0.852	3.067
24	0.081	0.292	80	0.896	3.226
26	0.095	0.342	82	0.941	3.388
28	0.110	0.396	84	0.988	3.557
30	0.126	0.454	86	1.035	3.726
32	0.143	0.515	88	1.084	3.902
34	0.162	0.583	90	1.134	4.082
36	0.181	0.652	92	1.185	4.266
38	0.202	0.727	94	1.237	4.453
40	0.224	0.806	96	1.290	4.644
42	0.247	0.889	98	1.345	4.842
44	0.271	0.976	100	1.400	5.040

長さ 1.6m

未口徑	m ³	石	未口徑	m ³	石
cm			cm		
2	0.0006	0.0022	46	0.0006	0.0022
3	0.001	0.004	48	0.001	0.004
4	0.002	0.007	50	0.003	0.011
5	0.004	0.014	52	0.004	0.014
6	0.005	0.018	54	0.006	0.022
7	0.007	0.025	56	0.008	0.029
8	0.009	0.032	58	0.010	0.036
9	0.011	0.040	60	0.013	0.047
10	0.014	0.050	62	0.016	0.058
11	0.017	0.061	64	0.019	0.068
12	0.020	0.072	66	0.023	0.083
13	0.024	0.086	68	0.027	0.097
14	0.027	0.097	70	0.031	0.112
16	0.036	0.130	72	0.041	0.148
18	0.045	0.162	74	0.052	0.187
20	0.056	0.202	76	0.064	0.230
22	0.068	0.245	78	0.077	0.277
24	0.081	0.292	80	0.092	0.331
26	0.095	0.342	82	0.108	0.389
28	0.110	0.396	84	0.125	0.450
30	0.126	0.454	86	0.144	0.518
32	0.143	0.515	88	0.164	0.590
34	0.162	0.583	90	0.185	0.666
36	0.181	0.652	92	0.207	0.745
38	0.202	0.727	94	0.231	0.832
40	0.224	0.806	96	0.256	0.922
42	0.247	0.889	98	0.282	1.015
44	0.271	0.976	100	0.310	1.116

長さ 1.8m			
未口径	m ³	石	未口径
cm	cm	cm	cm ³
2	0.0007	0.0025	46
3	0.002	0.007	48
4	0.003	0.011	50
5	0.005	0.018	52
6	0.006	0.022	54
7	0.009	0.032	56
8	0.012	0.043	58
9	0.015	0.054	60
10	0.018	0.065	62
11	0.022	0.079	64
12	0.026	0.094	66
13	0.030	0.108	68
14	0.035	0.126	70
16	0.046	0.166	72
18	0.058	0.209	74
20	0.072	0.259	76
22	0.087	0.313	78
24	0.104	0.374	80
26	0.122	0.439	82
28	0.141	0.508	84
30	0.162	0.583	86
32	0.184	0.662	88
34	0.208	0.749	90
36	0.233	0.839	92
38	0.260	0.936	94
40	0.288	1.037	96
42	0.318	1.145	98
44	0.348	1.253	100

長さ 2.0m			
未口径	m ³	石	未口径
cm	cm	cm	cm ³
2	—	—	46
3	0.002	0.007	48
4	0.003	0.003	50
5	0.005	0.005	52
6	0.007	0.007	54
7	0.010	0.013	56
8	0.013	0.016	58
9	0.016	0.016	60
10	0.020	0.020	62
11	0.024	0.024	64
12	0.029	0.029	66
13	0.034	0.034	68
14	0.039	0.039	70
16	0.051	0.051	72
18	0.065	0.065	74
20	0.080	0.080	76
22	0.097	0.097	78
24	0.115	0.115	80
26	0.135	0.135	82
28	0.157	0.157	84
30	0.180	0.180	86
32	0.205	0.205	88
34	0.231	0.231	90
36	0.259	0.259	92
38	0.289	0.289	94
40	0.320	0.320	96
42	0.353	0.353	98
44	0.387	0.387	100

長さ 2.1m					
末口径	m ³	石	末口径	m ³	石
cm 2	—	—	cm 4.6	0.444	1.598
3	0.002	0.007	4.8	0.484	1.742
4	0.003	0.011	5.0	0.525	1.890
5	0.005	0.018	5.2	0.568	2.045
6	0.008	0.029	5.4	0.612	2.203
7	0.010	0.036	5.6	0.659	2.372
8	0.013	0.047	5.8	0.706	2.542
9	0.017	0.061	6.0	0.756	2.722
10	0.021	0.076	6.2	0.807	2.905
11	0.025	0.090	6.4	0.860	3.096
12	0.030	0.108	6.6	0.915	3.294
13	0.035	0.126	6.8	0.971	3.496
14	0.041	0.148	7.0	1.029	3.704
16	0.054	0.194	7.2	1.089	3.920
18	0.068	0.245	7.4	1.150	4.140
20	0.084	0.302	7.6	1.213	4.367
22	0.102	0.367	7.8	1.278	4.601
24	0.121	0.436	8.0	1.344	4.838
26	0.142	0.511	8.2	1.412	5.083
28	0.165	0.594	8.4	1.482	5.335
30	0.189	0.680	8.6	1.553	5.591
32	0.215	0.774	8.8	1.626	5.854
34	0.243	0.875	9.0	1.701	6.124
36	0.272	0.979	9.2	1.777	6.397
38	0.303	1.091	9.4	1.856	6.682
40	0.336	1.210	9.6	1.935	6.966
42	0.370	1.332	9.8	2.017	7.261
44	0.407	1.465	10.0	2.100	7.560

長さ 2.2m

長さ 2.2m					
末口径	m ³	石	末口径	m ³	石
cm 2	—	—	cm 2	—	—
3	0.002	0.007	3	0.002	0.007
4	0.003	0.011	4	0.004	0.014
5	0.005	0.018	5	0.006	0.022
6	0.008	0.029	6	0.008	0.029
7	0.010	0.036	7	0.011	0.040
8	0.013	0.047	8	0.014	0.050
9	0.017	0.061	9	0.018	0.065
10	0.021	0.076	10	0.022	0.079
11	0.025	0.090	11	0.027	0.097
12	0.030	0.108	12	0.032	0.115
13	0.035	0.126	13	0.037	0.133
14	0.041	0.148	14	0.043	0.155
16	0.054	0.194	16	0.056	0.202
18	0.068	0.245	18	0.071	0.256
20	0.084	0.302	20	0.088	0.317
22	0.102	0.367	22	0.106	0.382
24	0.121	0.436	24	0.127	0.457
26	0.142	0.511	26	0.149	0.536
28	0.165	0.594	28	0.172	0.619
30	0.189	0.680	30	0.198	0.713
32	0.215	0.774	32	0.225	0.810
34	0.243	0.875	34	0.254	0.914
36	0.272	0.979	36	0.285	1.026
38	0.303	1.091	38	0.318	1.145
40	0.336	1.210	40	0.352	1.267
42	0.370	1.332	42	0.388	1.397
44	0.407	1.465	44	0.426	1.534

長さ 2.4m

未口徑 cm	m ³	石	未口徑 cm	m ³	石
2	—	—	46	0.508	1.829
3	0.002	0.007	48	0.553	1.991
4	0.004	0.014	50	0.600	2.160
5	0.006	0.022	52	0.649	2.336
6	0.009	0.032	54	0.700	2.520
7	0.012	0.043	56	0.753	2.711
8	0.015	0.054	58	0.807	2.905
9	0.019	0.068	60	0.864	3.110
10	0.024	0.086	62	0.923	3.323
11	0.029	0.104	64	0.983	3.539
12	0.035	0.126	66	1.045	3.762
13	0.041	0.148	68	1.110	3.996
14	0.047	0.169	70	1.176	4.234
16	0.061	0.220	72	1.244	4.478
18	0.078	0.281	74	1.314	4.730
20	0.096	0.346	76	1.386	4.990
22	0.116	0.418	78	1.460	5.256
24	0.138	0.497	80	1.536	5.530
26	0.162	0.583	82	1.614	5.810
28	0.188	0.677	84	1.693	6.095
30	0.216	0.778	86	1.775	6.390
32	0.246	0.886	88	1.859	6.692
34	0.277	0.997	90	1.944	6.998
36	0.311	1.120	92	2.031	7.312
38	0.347	1.249	94	2.121	7.636
40	0.384	1.382	96	2.212	7.963
42	0.423	1.523	98	2.305	8.298
44	0.465	1.674	100	2.400	8.640

長さ 2.6m

未口徑 cm	m ³	石	未口徑 cm	m ³	石
2	—	—	46	0.550	1.980
3	0.002	0.007	48	0.599	2.156
4	0.004	0.014	50	0.650	2.340
5	0.006	0.022	52	0.703	2.531
6	0.009	0.032	54	0.758	2.729
7	0.012	0.043	56	0.813	2.934
8	0.015	0.054	58	0.875	3.150
9	0.019	0.068	60	0.936	3.370
10	0.024	0.086	62	0.999	3.596
11	0.029	0.104	64	1.065	3.834
12	0.035	0.126	66	1.045	3.762
13	0.041	0.148	68	1.110	3.996
14	0.047	0.169	70	1.176	4.234
16	0.061	0.220	72	1.244	4.478
18	0.078	0.281	74	1.314	4.730
20	0.096	0.346	76	1.386	4.990
22	0.116	0.418	78	1.460	5.256
24	0.138	0.497	80	1.536	5.530
26	0.162	0.583	82	1.614	5.810
28	0.188	0.677	84	1.693	6.095
30	0.216	0.778	86	1.775	6.390
32	0.246	0.886	88	1.859	6.692
34	0.277	0.997	90	1.944	6.998
36	0.311	1.120	92	2.031	7.312
38	0.347	1.249	94	2.121	7.636
40	0.384	1.382	96	2.212	7.963
42	0.423	1.523	98	2.305	8.298
44	0.465	1.674	100	2.400	8.640

長さ 2.7 m.

末口徑	m ³	石	末口徑	m ³	石
cm			cm		
2	—	—	46	0.571	2.056
3	0.002	0.007	48	0.622	2.239
4	0.004	0.014	50	0.675	2.430
5	0.007	0.025	52	0.730	2.628
6	0.010	0.036	54	0.787	2.833
7	0.013	0.047	56	0.847	3.049
8	0.017	0.061	58	0.908	3.269
9	0.022	0.079	60	0.972	3.499
10	0.027	0.097	62	1.038	3.737
11	0.033	0.119	64	1.106	3.982
12	0.039	0.140	66	1.176	4.234
13	0.046	0.166	68	1.248	4.493
14	0.053	0.191	70	1.323	4.763
15	0.069	0.248	72	1.400	5.040
16	0.087	0.313	74	1.479	5.324
17	—	—	76	1.560	5.616
18	—	—	78	1.643	5.915
19	—	—	80	1.728	6.221
20	0.108	0.389	82	1.815	6.534
21	0.131	0.472	84	1.905	6.858
22	0.156	0.562	86	1.997	7.189
23	0.183	0.659	88	2.091	7.528
24	0.212	0.763	90	2.187	7.873
25	0.243	0.875	92	2.285	8.226
26	0.276	0.994	94	2.386	8.590
27	0.312	1.123	96	2.488	8.957
28	0.350	1.260	98	2.593	9.335
29	0.390	1.404	100	2.700	9.720
30	0.432	1.555	102	2.883	10.083
31	0.476	1.714	104	3.083	10.483
32	0.523	1.883	106	3.283	10.883

長さ 2.8 m.

末口徑	m ³	石	末口徑	m ³	石
cm			cm		
2	—	—	2	0.003	0.011
3	0.002	0.007	3	0.004	0.014
4	0.004	0.014	4	0.007	0.025
5	0.007	0.025	5	0.010	0.036
6	0.010	0.036	6	0.010	0.036
7	0.013	0.047	7	0.014	0.050
8	0.017	0.061	8	0.018	0.065
9	0.022	0.079	9	0.023	0.083
10	0.027	0.097	10	0.028	0.101
11	0.033	0.119	11	0.034	0.122
12	0.039	0.140	12	0.040	0.144
13	0.046	0.166	13	0.047	0.169
14	0.053	0.191	14	0.055	0.198
15	0.069	0.248	15	0.072	0.259
16	0.087	0.313	16	0.091	0.328
17	—	—	17	—	—
18	—	—	18	—	—
19	—	—	19	—	—
20	0.108	0.389	20	0.112	0.403
21	0.131	0.472	21	0.136	0.480
22	0.156	0.562	22	0.161	0.580
23	0.183	0.659	23	0.189	0.680
24	0.212	0.763	24	0.220	0.792
25	0.243	0.875	25	0.252	0.907
26	0.276	0.994	26	0.287	1.033
27	0.312	1.123	27	0.324	1.166
28	0.350	1.260	28	0.363	1.307
29	0.390	1.404	29	0.404	1.454
30	0.432	1.555	30	0.448	1.613
31	0.476	1.714	31	0.494	1.778
32	0.523	1.883	32	0.542	1.951

長さ 3.0m

末口径	m ³	石	末口径	m ³	石
cm			cm		
2	—	—	46	0.635	2.286
3	0.003	0.011	48	0.691	2.488
4	0.005	0.018	50	0.750	2.700
5	0.008	0.029	52	0.811	2.920
6	0.011	0.040	54	0.875	3.150
7	0.015	0.054	56	0.941	3.388
8	0.019	0.068	58	1.009	3.632
9	0.024	0.086	60	1.080	3.888
10	0.030	0.108	62	1.153	4.151
11	0.036	0.130	64	1.229	4.424
12	0.043	0.155	66	1.307	4.705
13	0.051	0.184	68	1.387	4.993
14	0.059	0.212	70	1.470	5.292
15	0.077	0.277	72	1.555	5.598
16	0.097	0.349	74	1.643	5.915
17	0.097	0.349	76	1.733	6.239
20	0.120	0.432	78	1.825	6.570
22	0.145	0.522	80	1.920	6.912
24	0.173	0.623	82	2.017	7.261
26	0.203	0.731	84	2.117	7.621
28	0.235	0.846	86	2.219	7.988
30	0.270	0.972	88	2.323	8.363
32	0.307	1.105	90	2.430	8.748
34	0.347	1.249	92	2.539	9.140
36	0.389	1.400	94	2.651	9.544
38	0.433	1.559	96	2.765	9.954
40	0.480	1.728	98	2.881	10.372
42	0.529	1.904	100	3.000	10.800
44	0.581	2.092			

長さ 3.2m

末口径	m ³	石	末口径	m ³	石
cm			cm		
2	—	—	2	—	—
3	0.003	0.011	3	0.003	0.011
4	0.005	0.018	4	0.005	0.018
5	0.008	0.029	5	0.008	0.029
6	0.011	0.040	6	0.012	0.043
7	0.015	0.054	7	0.016	0.058
8	0.019	0.068	8	0.020	0.072
9	0.024	0.086	9	0.026	0.094
10	0.030	0.108	10	0.032	0.115
11	0.036	0.130	11	0.039	0.140
12	0.043	0.155	12	0.046	0.166
13	0.051	0.184	13	0.054	0.194
14	0.059	0.212	14	0.063	0.227
15	0.077	0.277	15	0.082	0.295
16	0.097	0.349	16	0.104	0.374
17	0.097	0.349	17	0.128	0.461
20	0.120	0.432	20	0.155	0.558
22	0.145	0.522	22	0.184	0.662
24	0.173	0.623	24	0.216	0.778
26	0.203	0.731	26	0.251	0.904
28	0.235	0.846	28	0.251	0.904
30	0.270	0.972	30	0.288	1.037
32	0.307	1.105	32	0.328	1.181
34	0.347	1.249	34	0.370	1.332
36	0.389	1.400	36	0.415	1.494
38	0.433	1.559	38	0.462	1.663
40	0.480	1.728	40	0.512	1.843
42	0.529	1.904	42	0.564	2.030
44	0.581	2.092	44	0.620	2.232

長さ 3.3 m

末口径	m ³	石	未口径	m ³	石
cm 2	—	—	cm 46	0.698	2.513
3	0.003	0.011	48	0.760	2.736
4	0.005	0.018	50	0.825	2.970
5	0.008	0.029	52	0.892	3.211
6	0.012	0.043	54	0.962	3.463
7	0.016	0.058	56	1.035	3.726
8	0.021	0.076	58	1.110	3.996
9	0.027	0.097	60	1.188	4.277
10	0.033	0.119	62	1.269	4.568
11	0.040	0.144	64	1.352	4.867
12	0.048	0.173	66	1.437	5.173
13	0.056	0.202	68	1.526	5.494
14	0.065	0.234	70	1.617	5.821
15	0.084	0.302	72	1.711	6.160
16	0.107	0.385	74	1.807	6.505
18	0.132	0.475	76	1.906	6.862
20	0.160	0.576	78	2.008	7.229
22	0.190	0.684	80	2.112	7.603
24	0.223	0.803	82	2.219	7.988
26	0.259	0.932	84	2.328	8.381
28	0.297	1.069	86	2.441	8.788
30	0.338	1.217	88	2.556	9.202
32	0.381	1.372	90	2.673	9.623
34	0.428	1.541	92	2.793	10.055
36	0.477	1.717	94	2.916	10.498
38	0.528	1.901	96	3.041	10.948
40	0.582	2.095	98	3.169	11.408
42	0.639	2.300	100	3.300	11.880

長さ 3.4 m

cm 2	—	—	cm 2	—	—	cm 2	—	—	cm 2	—	—
3	—	0.003	3	0.005	0.011	4	0.009	0.018	5	0.032	0.043
4	—	0.018	4	0.005	0.018	5	0.009	0.032	5	0.122	0.043
5	—	0.029	5	0.005	0.018	6	0.012	0.041	6	0.148	0.148
6	—	0.043	6	0.003	0.018	7	0.017	0.061	7	0.079	0.079
7	—	0.058	7	0.003	0.022	8	0.028	0.101	8	0.101	0.101
8	—	0.076	8	0.005	0.028	9	0.034	0.122	9	0.122	0.122
9	—	0.097	9	0.009	0.034	10	0.041	0.148	10	0.148	0.148
10	—	0.119	10	0.012	0.041	11	0.041	0.148	11	0.148	0.148
11	—	0.144	12	—	0.049	13	—	0.176	12	0.176	0.176
12	—	0.173	13	—	0.057	14	—	0.205	13	0.205	0.205
13	—	0.202	14	—	0.067	15	—	0.241	14	0.241	0.241
14	—	0.234	16	—	0.087	17	—	0.313	16	0.313	0.313
15	—	0.302	18	—	0.110	19	—	0.396	18	0.396	0.396
16	—	0.385	20	—	0.136	21	—	0.490	20	0.490	0.490
18	—	0.475	22	—	0.165	23	—	0.594	22	0.594	0.594
20	—	0.576	24	—	0.196	25	—	0.706	24	0.706	0.706
22	—	0.684	26	—	0.230	27	—	0.828	26	0.828	0.828
24	—	0.803	28	—	0.267	29	—	0.961	28	0.961	0.961
26	—	0.932	30	—	0.306	31	—	1.102	30	1.102	1.102
28	—	0.998	32	—	0.348	33	—	1.253	32	1.253	1.253
30	—	1.069	34	—	0.393	35	—	1.415	34	1.415	1.415
32	—	1.217	36	—	0.441	37	—	1.588	36	1.588	1.588
34	—	1.372	38	—	0.491	39	—	1.768	38	1.768	1.768
36	—	1.541	40	—	0.544	41	—	1.958	40	1.958	1.958
38	—	1.717	42	—	0.600	43	—	2.160	42	2.160	2.160
40	—	1.901	44	—	0.658	45	—	2.369	44	2.369	2.369
42	—	2.095	46	—	0.783	47	—	2.633	46	2.633	2.633
44	—	2.300	48	—	0.850	49	—	2.754	48	2.754	2.754
46	—	2.473	50	—	0.919	51	—	2.878	49	2.878	2.878
48	—	2.641	52	—	0.991	53	—	3.004	50	3.004	3.004
50	—	2.808	54	—	1.066	55	—	3.133	51	3.133	3.133
52	—	3.008	56	—	1.144	57	—	3.265	52	3.265	3.265
54	—	3.202	58	—	1.224	59	—	3.400	53	3.400	3.400
56	—	3.401	60	—	1.307	61	—	3.544	54	3.544	3.544

長さ 3.6m

cm	m ³	石	未口徑	m ³	石
2	—	—	46	0.762	2.743
3	0.003	0.011	48	0.829	2.984
4	0.006	0.022	50	0.900	3.240
5	0.009	0.032	52	0.973	3.503
6	0.013	0.047	54	1.050	3.780
7	0.018	0.065	56	1.129	4.064
8	0.023	0.083	58	1.211	4.360
9	0.029	0.104	60	1.296	4.666
10	0.036	0.130	62	1.384	4.982
11	0.044	0.158	64	1.475	5.310
12	0.052	0.187	66	1.568	5.645
13	0.061	0.220	68	1.665	5.994
14	0.071	0.256	70	1.764	6.350
15	0.092	0.331	72	1.866	6.718
16	0.117	0.421	74	1.971	7.096
17	—	—	76	2.079	7.484
18	0.144	0.518	78	2.190	7.884
19	0.174	0.626	80	2.304	8.294
20	0.207	0.745	82	2.421	8.716
21	0.243	0.875	84	2.540	9.144
22	0.282	1.015	86	2.663	9.587
23	0.324	1.166	88	2.788	10.037
24	0.369	1.328	90	2.916	10.498
25	0.416	1.498	92	3.047	10.969
26	0.467	1.681	94	3.181	11.452
27	0.520	1.872	96	3.318	11.945
28	0.324	1.166	98	3.457	12.445
29	0.369	1.328	100	3.600	12.960
30	0.416	1.498	—	—	—
31	0.467	1.681	—	—	—
32	0.520	1.872	—	—	—
33	0.576	2.074	—	—	—
34	0.635	2.286	—	—	—
35	0.697	2.509	—	—	—

長さ 3.65m

cm	m ³	石	未口徑	m ³	石
3	0.003	0.011	46	0.762	2.743
4	0.006	0.022	48	0.829	2.984
5	0.009	0.032	50	0.900	3.240
6	0.013	0.047	52	0.973	3.503
7	0.018	0.065	54	1.050	3.780
8	0.023	0.083	56	1.129	4.064
9	0.029	0.104	58	1.211	4.360
10	0.036	0.130	60	1.296	4.666
11	0.044	0.158	62	1.384	4.982
12	0.052	0.187	64	1.475	5.310
13	0.061	0.220	66	1.568	5.645
14	0.071	0.256	68	1.665	5.994
15	0.092	0.331	70	1.764	6.350
16	0.117	0.421	72	1.866	6.718
17	—	—	74	1.971	7.096
18	0.144	0.518	76	2.079	7.484
19	0.174	0.626	78	2.190	7.884
20	0.207	0.745	80	2.304	8.294
21	0.243	0.875	82	2.421	8.716
22	0.282	1.015	84	2.540	9.144
23	0.324	1.166	86	2.663	9.587
24	0.369	1.328	88	2.788	10.037
25	0.416	1.498	90	2.916	10.498
26	0.467	1.681	92	3.047	10.969
27	0.520	1.872	94	3.181	11.452
28	0.576	2.074	96	3.318	11.945
29	0.635	2.286	98	3.457	12.445
30	0.697	2.509	100	3.600	12.960

長さ 3.8m

cm	末口径 m ³	石	末口径 m ³	石
2	—	—	cm	—
3	0.003	0.011	46	0.804
4	0.006	0.022	48	0.876
5	0.010	0.036	50	0.950
6	0.014	0.050	52	1.028
7	0.019	0.068	56	1.192
8	0.024	0.086	58	1.278
9	0.031	0.112	60	1.368
10	0.038	0.137	62	1.461
11	0.046	0.166	64	1.556
12	0.055	0.198	66	1.655
13	0.064	0.230	68	1.757
14	0.074	0.266	70	1.862
16	0.097	0.349	72	1.970
18	0.123	0.443	74	2.081
20	0.152	0.547	76	2.195
22	0.184	0.662	78	2.312
24	0.219	0.788	80	2.432
26	0.257	0.925	82	2.555
28	0.298	1.073	84	2.681
30	0.342	1.231	86	2.810
32	0.389	1.400	88	2.943
34	0.439	1.580	90	3.078
36	0.492	1.771	92	3.216
38	0.549	1.976	94	3.358
40	0.608	2.189	96	3.502
42	0.670	2.412	98	3.650
44	0.736	2.650	100	3.800

長さ 4.0m

cm	末口径 m ³	石	末口径 m ³	石
2	—	—	cm	—
3	0.004	0.014	46	0.846
4	0.006	0.022	48	0.922
5	0.010	0.036	50	1.000
6	0.014	0.050	52	1.082
7	0.020	0.072	56	1.254
8	0.026	0.094	58	1.346
9	0.032	0.115	60	1.440
10	0.040	0.144	62	1.538
11	0.048	0.173	64	1.638
12	0.058	0.209	66	1.742
13	0.068	0.245	68	1.850
14	0.078	0.281	70	1.960
16	0.102	0.367	72	2.074
18	0.130	0.468	74	2.190
20	0.160	0.576	76	2.310
22	0.194	0.698	78	2.434
24	0.230	0.828	80	2.560
26	0.270	0.972	82	2.690
28	0.314	1.130	84	2.822
30	0.360	1.296	86	2.958
32	0.410	1.476	88	3.098
34	0.462	1.663	90	3.240
36	0.518	1.865	92	3.386
38	0.578	2.081	94	3.534
40	0.640	2.304	96	3.686
42	0.706	2.542	98	3.842
44	0.774	2.786	100	4.000

長さ 4.2m				
末口径	m ³	石	未口径	m ³
cm 2	—	—	cm 46	3.200
3 0.004	0.014	48	0.889	3.485
4 0.007	0.025	50	0.968	3.780
5 0.011	0.040	52	1.136	4.090
6 0.015	0.054	54	1.225	4.410
7 0.021	0.076	56	1.317	4.741
8 0.027	0.097	58	1.413	5.087
9 0.034	0.122	60	1.512	5.443
10 0.042	0.151	62	1.614	5.810
11 0.051	0.184	64	1.720	6.192
12 0.060	0.216	66	1.830	6.588
13 0.071	0.256	68	1.942	6.991
14 0.082	0.295	70	2.058	7.409
16 0.108	0.389	72	2.177	7.837
18 0.136	0.490	74	2.300	8.280
20 0.168	0.605	76	2.426	8.734
22 0.203	0.731	78	2.555	9.198
24 0.242	0.871	80	2.688	9.677
26 0.284	1.022	82	2.824	10.166
28 0.329	1.184	84	2.964	10.670
30 0.378	1.361	86	3.106	11.182
32 0.430	1.548	88	3.252	11.707
34 0.486	1.750	90	3.402	12.247
36 0.544	1.958	92	3.555	12.798
38 0.606	2.182	94	3.711	13.360
40 0.672	2.419	96	3.871	13.936
42 0.741	2.668	98	4.034	14.522
44 0.813	2.927	100	4.200	15.120

長さ 4.3m

末口径	m ³	石	未口径	m ³	石
cm 2	—	—	cm 46	0.910	3.276
3 0.004	0.004	48	0.014	0.991	3.568
4 0.007	0.007	50	0.025	1.075	3.870
5 0.011	0.011	52	0.040	52	4.187
6 0.015	0.015	54	0.054	54	4.514
7 0.021	0.076	56	0.021	0.076	56
8 0.027	0.097	58	0.028	0.101	58
9 0.034	0.122	60	0.035	0.126	60
10 0.042	0.151	62	0.043	0.155	62
11 0.051	0.184	64	0.052	0.187	64
12 0.060	0.216	66	0.062	0.223	66
13 0.071	0.256	68	0.073	0.263	68
14 0.082	0.295	70	0.084	0.302	70
16 0.108	0.389	72	0.110	0.396	72
18 0.136	0.490	74	0.139	0.500	74
20 0.168	0.605	76	0.172	0.619	76
22 0.203	0.731	78	0.208	0.749	78
24 0.242	0.871	80	0.248	0.893	80
26 0.284	1.022	82	0.291	1.048	82
28 0.329	1.184	84	0.337	1.213	84
30 0.378	1.361	86	0.387	1.393	86
32 0.430	1.548	88	0.440	1.584	88
34 0.486	1.750	90	0.497	1.789	90
36 0.544	1.958	92	0.557	2.005	92
38 0.606	2.182	94	0.621	2.236	94
40 0.672	2.419	96	0.688	2.477	96
42 0.741	2.668	98	0.759	2.732	98
44 0.813	2.927	100	0.832	2.995	100

長さ 4.4m				
末口径	m ³	石	末口径	m ³
cm 2	—	—	cm 46	0.931
3	0.004	0.014	48	1.014
4	0.007	0.025	50	1.100
5	0.011	0.040	52	1.190
6	0.016	0.058	54	1.283
7	0.022	0.079	56	1.380
8	0.028	0.101	58	1.480
9	0.036	0.130	60	1.584
10	0.044	0.158	62	1.691
11	0.053	0.191	64	1.802
12	0.063	0.227	66	1.917
13	0.074	0.266	68	2.035
14	0.086	0.310	70	2.156
15	0.113	0.407	72	2.281
16	0.143	0.515	74	2.409
17	0.176	0.634	76	2.541
18	0.213	0.767	78	2.677
19	0.253	0.911	80	2.816
20	0.297	1.069	82	2.959
21	0.345	1.242	84	3.105
22	0.396	1.426	86	3.254
23	0.451	1.624	88	3.407
24	0.509	1.832	90	3.564
25	0.570	2.052	92	3.724
26	0.635	2.286	94	3.888
27	0.704	2.534	96	4.055
28	0.776	2.794	98	4.226
29	0.852	3.067	100	4.400

長さ 4.6m				
末口径	m ³	石	末口径	m ³
cm 2	—	—	cm 2	—
3	0.004	0.014	3	0.004
4	0.007	0.025	4	0.007
5	0.011	0.040	5	0.012
6	0.016	0.058	6	0.017
7	0.022	0.079	7	0.023
8	0.028	0.101	8	0.029
9	0.036	0.130	9	0.037
10	0.044	0.158	10	0.046
11	0.053	0.191	11	0.056
12	0.063	0.227	12	0.066
13	0.074	0.266	13	0.078
14	0.086	0.310	14	0.090
15	0.113	0.407	15	0.118
16	0.143	0.515	16	0.149
17	0.176	0.634	17	0.184
18	0.213	0.767	18	0.203
19	0.253	0.911	19	0.223
20	0.297	1.069	20	0.243
21	0.345	1.242	21	0.263
22	0.396	1.426	22	0.283
23	0.451	1.624	23	0.303
24	0.509	1.832	24	0.323
25	0.570	2.052	25	0.343
26	0.635	2.286	26	0.363
27	0.704	2.534	27	0.383
28	0.776	2.794	28	0.403
29	0.852	3.067	29	0.423

長さ 4.8m

未口徑	m ³	石	未口徑	m ³	石
cm	cm	cm	cm	cm	cm
2	—	—	46	1.016	3.658
3	0.004	0.014	48	1.106	3.982
4	0.008	0.029	50	1.200	4.320
5	0.012	0.043	52	1.298	4.673
6	0.017	0.061	54	1.400	5.040
7	0.024	0.086	56	1.505	5.418
8	0.031	0.112	58	1.615	5.814
9	0.039	0.140	60	1.728	6.221
10	0.048	0.173	62	1.845	6.642
11	0.058	0.209	64	1.966	7.078
12	0.069	0.248	66	2.091	7.528
13	0.081	0.292	68	2.220	7.992
14	0.094	0.338	70	2.352	8.467
16	0.123	0.443	72	2.488	8.957
18	0.156	0.562	74	2.628	9.461
20	0.192	0.691	76	2.772	9.979
22	0.232	0.835	78	2.920	10.512
24	0.276	0.994	80	3.072	11.059
26	0.324	1.166	82	3.228	11.621
28	0.376	1.354	84	3.387	12.193
30	0.432	1.555	86	3.550	12.780
32	0.492	1.771	88	3.717	13.381
34	0.555	1.998	90	3.888	13.997
36	0.622	2.239	92	4.063	14.627
38	0.693	2.495	94	4.241	15.268
40	0.768	2.765	96	4.424	15.926
42	0.847	3.049	98	4.610	16.596
44	0.929	3.344	100	4.800	17.280

長さ 5.0m

未口徑	m ³	石	未口徑	m ³	石
cm	cm	cm	cm	cm	cm
2	—	—	3	0.005	0.018
3	—	—	4	0.008	0.029
4	—	—	5	0.013	0.047
5	—	—	6	0.018	0.065
6	—	—	7	0.025	0.090
7	—	—	8	0.032	0.115
8	—	—	9	0.041	0.148
9	—	—	10	0.050	0.180
10	—	—	11	0.061	0.220
12	—	—	13	0.072	0.259
13	—	—	14	0.085	0.306
14	—	—	15	0.098	0.353
16	—	—	17	0.128	0.461
18	—	—	19	0.162	0.583
20	—	—	21	0.200	0.720
22	—	—	23	0.242	0.871
24	—	—	25	0.288	1.037
26	—	—	27	0.338	1.217
28	—	—	29	0.392	1.411
30	—	—	31	0.450	1.620
32	—	—	33	0.512	1.843
34	—	—	35	0.578	2.081
36	—	—	37	0.648	2.333
38	—	—	39	0.722	2.599
40	—	—	41	0.800	2.880
42	—	—	43	0.882	3.175
44	—	—	45	0.968	3.485

長さ 5.2m					
末口径	m ³	石	末口径	m ³	石
cm 2	—	—	cm 46	1.100	3.960
3	0.005	0.018	48	1.198	4.313
4	0.008	0.029	50	1.300	4.680
5	0.013	0.047	52	1.406	5.062
6	0.019	0.068	54	1.516	5.458
7	0.025	0.090	56	1.631	5.872
8	0.033	0.119	58	1.749	6.296
9	0.042	0.151	60	1.872	6.739
10	0.052	0.187	62	1.999	7.196
11	0.063	0.227	64	2.130	7.668
12	0.075	0.270	66	2.265	8.154
13	0.088	0.317	68	2.404	8.654
14	0.102	0.367	70	2.548	9.173
15	0.133	0.479	72	2.696	9.706
16	0.168	0.605	74	2.848	10.253
17	0.208	0.749	76	3.004	10.814
22	0.252	0.907	78	3.164	11.390
24	0.300	1.080	80	3.328	11.981
26	0.352	1.267	82	3.496	12.586
28	0.408	1.469	84	3.669	13.208
30	0.468	1.685	86	3.846	13.846
32	0.532	1.915	88	4.027	14.497
34	0.601	2.164	90	4.212	15.163
36	0.674	2.426	92	4.401	15.844
38	0.751	2.704	94	4.595	16.542
40	0.832	2.995	96	4.792	17.251
42	0.917	3.301	98	4.994	17.978
44	1.007	3.625	100	5.200	18.720

長さ 5.4m

長さ 5.4m					
末口径	m ³	石	末口径	m ³	石
cm 2	—	—	cm 2	—	—
3	0.005	0.018	3	0.005	0.018
4	0.008	0.029	4	0.009	0.032
5	0.013	0.047	5	0.014	0.050
6	0.019	0.068	6	0.019	0.068
7	0.025	0.090	7	0.026	0.094
8	0.033	0.119	8	0.035	0.126
9	0.042	0.151	9	0.044	0.158
10	0.052	0.187	10	0.054	0.194
11	0.063	0.227	11	0.065	0.234
12	0.075	0.270	12	0.078	0.281
13	0.088	0.317	13	0.091	0.328
14	0.102	0.367	14	0.106	0.382
15	0.133	0.479	15	0.138	0.497
16	0.168	0.605	16	0.175	0.630
17	0.208	0.749	17	0.216	0.778
22	0.252	0.907	22	0.261	0.940
24	0.300	1.080	24	0.311	1.120
26	0.352	1.267	26	0.365	1.314
28	0.408	1.469	28	0.423	1.523
30	0.468	1.685	30	0.486	1.750
32	0.532	1.915	32	0.553	1.991
34	0.601	2.164	34	0.624	2.246
36	0.674	2.426	36	0.700	2.520
38	0.751	2.704	38	0.780	2.808
40	0.832	2.995	40	0.864	3.110
42	0.917	3.301	42	0.953	3.431
44	1.007	3.625	44	1.045	3.762

長さ 5.6m

cm	m ³	石	末口径	m ³	石
2	—	—	46	1.185	4.266
3	0.005	0.018	48	1.290	4.644
4	0.009	0.032	50	1.400	5.040
5	0.014	0.050	52	1.514	5.450
6	0.020	0.072	54	1.633	5.879
7	0.027	0.097	56	1.756	6.322
8	0.036	0.130	58	1.884	6.782
9	0.045	0.162	60	2.016	7.258
10	0.056	0.202	62	2.153	7.751
11	0.068	0.245	64	2.294	8.258
12	0.081	0.292	66	2.439	8.780
13	0.095	0.342	68	2.589	9.320
14	0.110	0.396	70	2.744	9.878
16	0.143	0.515	72	2.903	10.451
18	0.181	0.652	74	3.067	11.041
20	0.224	0.806	76	3.235	11.646
22	0.271	0.976	78	3.407	12.265
24	0.323	1.163	80	3.584	12.902
26	0.379	1.364	82	3.765	13.554
28	0.439	1.580	84	3.951	14.224
30	0.504	1.814	86	4.142	14.911
32	0.573	2.063	88	4.337	15.613
34	0.647	2.329	90	4.536	16.330
36	0.726	2.614	92	4.740	17.064
38	0.809	2.912	94	4.948	17.813
40	0.896	3.226	96	5.161	18.580
42	0.988	3.557	98	5.378	19.361
44	1.084	3.902	100	5.600	20.160

長さ 5.8m

cm	cm	cm	cm	cm	cm
2	—	—	—	—	—
3	0.005	0.018	0.005	0.018	46
4	0.009	0.032	0.009	0.032	48
5	0.014	0.050	0.015	0.054	50
6	0.020	0.072	0.021	0.076	52
7	0.027	0.097	0.028	0.101	56
8	0.036	0.130	0.037	0.133	58
9	0.045	0.162	0.047	0.169	60
10	0.056	0.202	0.058	0.209	62
11	0.068	0.245	0.070	0.252	64
12	0.081	0.292	0.084	0.302	66
13	0.095	0.342	0.098	0.353	68
14	0.110	0.396	0.114	0.410	70
16	0.143	0.515	0.148	0.533	72
18	0.181	0.652	0.188	0.677	74
20	0.224	0.806	0.232	0.835	76
22	0.271	0.976	0.281	0.912	78
24	0.323	1.163	0.334	1.202	80
26	0.379	1.364	0.392	1.411	82
28	0.439	1.580	0.455	1.638	84
30	0.504	1.814	0.522	1.879	86
32	0.573	2.063	0.594	2.138	88
34	0.647	2.329	0.670	2.412	90
36	0.726	2.614	0.752	2.707	92
38	0.809	2.912	0.838	3.017	94
40	0.896	3.226	0.928	3.341	96
42	0.988	3.557	1.023	3.683	98
44	1.084	3.902	1.123	4.043	100

長さ 6.0m			
未口径	m ³	石	未口径
cm	m ³	石	cm
3	0.010	0.036	48
4	0.015	0.054	50
5	0.022	0.079	52
6	0.029	0.104	54
7	0.038	0.137	56
8	0.049	0.176	58
9	0.060	0.216	60
10	0.073	0.263	62
11	0.086	0.310	64
12	0.101	0.364	66
13	0.118	0.425	68
14	0.135	0.486	70
16	0.173	0.623	72
18	0.217	0.781	74
20	0.265	0.954	76
22	0.317	1.141	78
24	0.375	1.350	80
26	0.437	1.573	82
28	0.505	1.818	84
30	0.577	2.077	86
32	0.653	2.351	88
34	0.735	2.646	90
36	0.821	2.956	92
38	0.913	3.287	94
40	1.009	3.632	96
42	1.109	3.992	98
44	1.215	4.374	100
46	1.325	4.770	

長さ 6.2m

長さ 6.2m			
未口径	m ³	石	未口径
cm	m ³	石	cm
3	0.010	0.036	48
4	0.015	0.054	50
5	0.022	0.079	52
6	0.029	0.104	54
7	0.038	0.137	56
8	0.049	0.176	58
9	0.060	0.216	60
10	0.073	0.263	62
11	0.086	0.310	64
12	0.101	0.364	66
13	0.118	0.425	68
14	0.135	0.486	70
16	0.173	0.623	72
18	0.217	0.781	74
20	0.265	0.954	76
22	0.317	1.141	78
24	0.375	1.350	80
26	0.437	1.573	82
28	0.505	1.818	84
30	0.577	2.077	86
32	0.653	2.351	88
34	0.735	2.646	90
36	0.821	2.956	92
38	0.913	3.287	94
40	1.009	3.632	96
42	1.109	3.992	98
44	1.215	4.374	100
46	1.325	4.770	

長さ 6.4m

未口径	m ³	石	未口径	m ³	石
cm 3	0.010	0.036	cm 48	1.537	5.532
4	0.016	0.058	50	1.665	5.994
5	0.023	0.083	52	1.798	6.473
6	0.031	0.112	54	1.936	6.970
7	0.041	0.148	56	2.079	7.484
8	0.052	0.187	58	2.228	8.021
9	0.064	0.230	60	2.381	8.572
10	0.077	0.277	62	2.540	9.144
11	0.092	0.331	64	2.704	9.734
12	0.108	0.389	66	2.873	10.343
13	0.125	0.450	68	3.047	10.969
14	0.144	0.518	70	3.226	11.614
16	0.185	0.666	72	3.411	12.280
18	0.231	0.832	74	3.600	12.960
20	0.282	1.015	76	3.795	13.662
22	0.339	1.220	78	3.994	14.378
24	0.400	1.440	80	4.199	15.116
26	0.467	1.681	82	4.409	15.872
28	0.538	1.937	84	4.624	16.646
30	0.615	2.214	86	4.844	17.438
32	0.697	2.509	88	5.069	18.248
34	0.784	2.822	90	5.300	19.080
36	0.876	3.154	92	5.535	19.926
38	0.973	3.503	94	5.776	20.794
40	1.076	3.874	96	6.022	21.679
42	1.183	4.259	98	6.273	22.583
44	1.296	4.666	100	6.529	23.504
46	1.414	5.090			

長さ 6.6m

未口径	m ³	石	未口径	m ³	石	未口径	m ³	石
cm 3	0.011	0.040	cm 48	1.585	5.706			
4	0.017	0.061	50	1.717	6.181			
5	0.024	0.086	52	1.854	6.674			
6	0.032	0.115	54	1.997	7.189			
7	0.042	0.151	56	2.144	7.718			
8	0.053	0.191	58	2.297	8.269			
9	0.066	0.238	60	2.456	8.842			
10	0.080	0.288	62	2.620	9.432			
11	0.095	0.342	64	2.789	10.040			
12	0.112	0.403	66	2.963	10.667			
13	0.129	0.464	68	3.142	11.311			
14	0.149	0.536	70	3.327	11.977			
16	0.191	0.688	72	3.517	12.661			
18	0.238	0.857	74	3.713	13.367			
20	0.291	1.048	76	3.913	14.087			
22	0.349	1.256	78	4.119	14.828			
24	0.413	1.487	80	4.330	15.588			
26	0.481	1.732	82	4.547	16.369			
28	0.555	1.998	84	4.769	17.168			
30	0.634	2.282	86	4.996	17.986			
32	0.719	2.588	88	5.228	18.821			
34	0.809	2.912	90	5.465	19.674			
36	0.904	3.254	92	5.708	20.549			
38	1.004	3.614	94	5.957	21.445			
40	1.109	3.992	96	6.210	22.356			
42	1.220	4.392	98	6.469	23.288			
44	1.337	4.813	100	6.733	24.239			
46	1.458	5.249						

長さ 6.8m				
末口径	m ³	石	木口径	m ³
cm 3	0.011	0.040	48	1.633
4	0.017	0.061	50	1.769
5	0.024	0.086	52	1.910
6	0.033	0.119	54	2.057
7	0.044	0.158	56	2.209
8	0.055	0.198	58	2.367
9	0.068	0.245	60	2.530
10	0.082	0.295	62	2.699
11	0.098	0.353	64	2.873
12	0.115	0.414	66	3.053
13	0.133	0.479	68	3.237
14	0.153	0.551	70	3.428
16	0.197	0.709	72	3.624
18	0.245	0.882	74	3.825
20	0.300	1.080	76	4.032
22	0.360	1.296	78	4.244
24	0.425	1.530	80	4.461
26	0.496	1.786	82	4.685
28	0.572	2.059	84	4.913
30	0.653	2.351	86	5.147
32	0.741	2.668	88	5.386
34	0.833	2.999	90	5.631
36	0.931	3.352	92	5.881
38	1.034	3.722	94	6.137
40	1.143	4.115	96	6.398
42	1.257	4.525	98	6.665
44	1.377	4.957	100	6.937
46	1.502	5.407		

長さ 7.0m

長さ 7.0m				
末口径	m ³	石	木口径	m ³
cm 3	0.014	0.050	48	1.715
4	0.021	0.076	50	1.857
5	0.030	0.108	52	2.004
6	0.039	0.140	54	2.156
7	0.051	0.184	56	2.314
8	0.063	0.227	58	2.478
9	0.077	0.277	60	2.648
10	0.093	0.335	62	2.823
11	0.109	0.392	64	3.003
12	0.128	0.461	66	3.189
13	0.147	0.529	68	3.381
14	0.168	0.605	70	3.579
16	0.214	0.770	72	3.782
18	0.266	0.958	74	3.990
20	0.324	1.166	76	4.204
22	0.387	1.393	78	4.424
24	0.455	1.638	80	4.650
26	0.529	1.904	82	4.881
28	0.609	2.192	84	5.117
30	0.695	2.502	86	5.359
32	0.786	2.830	88	5.607
34	0.882	3.175	90	5.861
36	0.984	3.542	92	6.120
38	1.092	3.931	94	6.384
40	1.206	4.342	96	6.654
42	1.325	4.770	98	6.930
44	1.449	5.216	100	7.212
46	1.579	5.684		25.963

長さ 7.2m

末口徑	m ³	石	未口徑	m ³	石
cm 3	0.015	0.054	cm 48	1.764	6.350
4	0.022	0.079	50	1.910	6.876
5	0.030	0.108	52	2.061	7.420
6	0.041	0.148	54	2.218	7.985
7	0.052	0.187	56	2.381	8.572
8	0.065	0.234	58	2.549	9.176
9	0.079	0.284	60	2.723	9.803
10	0.095	0.342	62	2.903	10.451
11	0.113	0.407	64	3.089	11.120
12	0.131	0.472	66	3.281	11.812
13	0.151	0.544	68	3.478	12.521
14	0.173	0.623	70	3.681	13.252
16	0.221	0.796	72	3.890	14.004
18	0.274	0.986	74	4.104	14.774
20	0.333	1.199	76	4.325	15.570
22	0.398	1.433	78	4.551	16.384
24	0.468	1.685	80	4.782	17.215
26	0.545	1.962	82	5.020	18.072
28	0.627	2.257	84	5.263	18.947
30	0.714	2.570	86	5.513	19.847
32	0.808	2.909	88	5.767	20.761
34	0.907	3.265	90	6.028	21.701
36	1.013	3.647	92	6.294	22.658
38	1.123	4.043	94	6.567	23.641
40	1.240	4.464	96	6.845	24.642
42	1.362	4.903	98	7.128	25.661
44	1.491	5.368	100	7.418	26.705
46	1.625	5.850			

長さ 7.4m

未口徑	m ³	石	未口徑	m ³	石
cm 3	0.015	0.054	cm 48	1.813	6.527
4	0.022	0.079	50	1.963	7.067
5	0.031	0.112	52	2.118	7.625
6	0.042	0.151	54	2.279	8.204
7	0.052	0.187	56	0.053	0.191
8	0.065	0.234	58	0.067	0.241
9	0.079	0.284	60	0.082	0.295
10	0.095	0.342	62	0.098	0.353
11	0.113	0.407	64	0.116	0.418
12	0.131	0.472	66	0.135	0.486
13	0.151	0.544	68	0.156	0.562
14	0.173	0.623	70	0.178	0.641
16	0.221	0.796	72	0.227	0.817
18	0.274	0.986	74	0.281	1.012
20	0.333	1.199	76	0.342	1.231
22	0.398	1.433	78	0.409	1.472
24	0.468	1.685	80	0.481	1.732
26	0.545	1.962	82	0.560	2.016
28	0.627	2.257	84	0.644	2.318
30	0.714	2.570	86	0.734	2.642
32	0.808	2.909	88	0.830	2.988
34	0.907	3.265	90	0.933	3.359
36	1.013	3.647	92	1.041	3.748
38	1.123	4.043	94	1.155	4.158
40	1.240	4.464	96	1.274	4.586
42	1.362	4.903	98	1.400	5.040
44	1.491	5.368	100	1.532	5.515
46	1.625	5.850		1.670	6.012

長さ 7.6 m

末口徑	m ³	石	未口徑	m ³	石
cm 3	0.015	0.054	48	1.862	6.703
4	0.023	0.083	50	2.016	7.258
5	0.032	0.115	52	2.175	7.830
6	0.043	0.155	54	2.341	8.428
7	0.055	0.198	56	2.513	9.047
8	0.069	0.248	58	2.691	9.688
9	0.084	0.302	60	2.875	10.350
10	0.101	0.364	62	3.065	11.034
11	0.119	0.428	64	3.261	11.740
12	0.139	0.500	66	3.463	12.467
13	0.160	0.576	68	3.671	13.216
14	0.183	0.659	70	3.885	13.986
16	0.233	0.839	72	4.106	14.782
18	0.289	1.040	74	4.332	15.595
20	0.351	1.264	76	4.565	16.434
22	0.420	1.512	78	4.803	17.291
24	0.494	1.778	80	5.048	18.173
26	0.575	2.070	82	5.299	19.076
28	0.661	2.380	84	5.556	20.002
30	0.754	2.714	86	5.819	20.948
32	0.853	3.071	88	6.088	21.917
34	0.958	3.449	90	6.363	22.907
36	1.069	3.848	92	6.644	23.918
38	1.186	4.270	94	6.931	24.952
40	1.309	4.712	96	7.225	26.010
42	1.438	5.177	98	7.524	27.086
44	1.573	5.663	100	7.830	28.188
46	1.715	6.174			

長さ 7.8 m

末口徑	m ³	石	未口徑	m ³	石
cm 3	0.015	0.054	48	0.016	0.058
4	0.023	0.083	50	0.024	0.086
5	0.032	0.115	52	0.033	0.119
6	0.043	0.155	54	0.044	0.158
7	0.055	0.198	56	0.056	0.202
8	0.069	0.248	58	0.070	0.252
9	0.084	0.302	60	0.086	0.310
10	0.101	0.364	62	0.103	0.371
11	0.119	0.428	64	0.122	0.439
12	0.139	0.500	66	0.142	0.511
13	0.160	0.576	68	0.164	0.590
14	0.183	0.659	70	0.187	0.673
16	0.233	0.839	72	0.239	0.860
18	0.289	1.040	74	0.297	1.069
20	0.351	1.264	76	0.361	1.300
22	0.420	1.512	78	0.431	1.552
24	0.494	1.778	80	0.507	1.825
26	0.575	2.070	82	0.590	2.124
28	0.661	2.380	84	0.679	2.444
30	0.754	2.714	86	0.774	2.786
32	0.853	3.071	88	0.875	3.150
34	0.958	3.449	90	0.983	3.539
36	1.069	3.848	92	1.097	3.949
38	1.186	4.270	94	1.217	4.381
40	1.309	4.712	96	1.343	4.835
42	1.438	5.177	98	1.476	5.314
44	1.573	5.663	100	1.615	5.814
46	1.715	6.174			6.336

長さ 8.0m					YJK
末口径	m ³	石	末口径	m ³	石
cm 3	0.020	0.072	cm 48	2.000	7.200
4	0.029	0.104	50	2.163	7.787
5	0.039	0.140	52	2.333	8.399
6	0.051	0.184	54	2.509	9.032
7	0.065	0.234	56	2.691	9.688
8	0.080	0.288	58	2.880	10.368
9	0.097	0.349	60	3.075	11.070
10	0.115	0.414	62	3.277	11.797
11	0.135	0.486	64	3.485	12.546
12	0.157	0.565	66	3.699	13.316
13	0.180	0.648	68	3.920	14.112
14	0.205	0.738	70	4.147	14.929
16	0.259	0.932	72	4.381	15.772
18	0.320	1.152	74	4.621	16.636
20	0.387	1.393	76	4.867	17.521
22	0.461	1.660	78	5.120	18.432
24	0.541	1.948	80	5.379	19.364
26	0.627	2.257	82	5.645	20.322
28	0.720	2.592	84	5.917	21.301
30	0.819	2.948	86	6.195	22.302
32	0.925	3.330	88	6.480	23.328
34	1.037	3.733	90	6.771	24.376
36	1.155	4.158	92	7.069	25.448
38	1.280	4.608	94	7.373	26.543
40	1.411	5.080	96	7.683	27.659
42	1.549	5.576	98	8.000	28.800
44	1.693	6.095	100	8.323	29.963
46	1.843	6.635			

長さ 8.2m					YJK
未口径	m ³	石	未口径	m ³	石
cm 3	0.020	0.072	cm 3	0.021	0.076
4	0.029	0.104	4	0.030	0.108
5	0.039	0.140	5	0.040	0.144
6	0.051	0.184	6	0.052	0.187
7	0.065	0.234	7	0.066	0.238
8	0.080	0.288	8	0.082	0.295
9	0.097	0.349	9	0.099	0.356
10	0.115	0.414	10	0.118	0.425
11	0.135	0.486	11	0.139	0.500
12	0.157	0.565	12	0.161	0.580
13	0.180	0.648	13	0.185	0.666
14	0.205	0.738	14	0.210	0.756
16	0.259	0.932	16	0.266	0.958
18	0.320	1.152	18	0.328	1.181
20	0.387	1.393	20	0.397	1.429
22	0.461	1.660	22	0.472	1.699
24	0.541	1.948	24	0.554	1.994
26	0.627	2.257	26	0.643	2.315
28	0.720	2.592	28	0.738	2.657
30	0.819	2.948	30	0.840	3.024
32	0.925	3.330	32	0.948	3.413
34	1.037	3.733	34	1.063	3.827
36	1.155	4.158	36	1.184	4.262
38	1.280	4.608	38	1.312	4.723
40	1.411	5.080	40	1.446	5.206
42	1.549	5.576	42	1.588	5.717
44	1.693	6.095	44	1.735	6.246
46	1.843	6.635	46	1.889	6.800

長さ 8.4m

末口徑	m ³	石	未口徑	m ³	石
cm 3	0.021	0.076	cm 48	2.100	7.560
4	0.030	0.108	50	2.271	8.176
5	0.041	0.148	52	2.449	8.816
6	0.054	0.194	54	2.634	9.482
7	0.068	0.245	56	2.826	10.174
8	0.084	0.302	58	3.024	10.886
9	0.102	0.367	60	3.229	11.624
10	0.121	0.436	62	3.441	12.388
11	0.142	0.511	64	3.659	13.172
12	0.165	0.594	66	3.884	13.982
13	0.189	0.680	68	4.116	14.818
14	0.215	0.774	70	4.355	15.678
16	0.272	0.979	72	4.600	16.560
18	0.336	1.210	74	4.852	17.467
20	0.407	1.465	76	5.111	18.400
22	0.484	1.742	78	5.376	19.354
24	0.568	2.045	80	5.648	20.333
26	0.659	2.372	82	5.927	21.337
28	0.756	2.722	84	6.213	22.367
30	0.860	3.096	86	6.505	23.418
32	0.971	3.496	88	6.804	24.494
34	1.089	3.920	90	7.110	25.596
36	1.213	4.367	92	7.422	26.719
38	1.344	4.838	94	7.741	27.868
40	1.482	5.335	96	8.067	29.041
42	1.626	5.854	98	8.400	30.240
44	1.777	6.397	100	8.739	31.460
46	1.935	6.966			

長さ 8.6m

末口徑	m ³	石	未口徑	m ³	石
cm 3	0.022	0.079	cm 48	2.150	7.740
4	0.031	0.112	50	2.325	8.370
5	0.042	0.151	52	2.508	9.029
6	0.055	0.198	54	2.697	9.709
7	0.070	0.252	56	2.893	10.415
8	0.086	0.310	58	3.096	11.146
9	0.104	0.374	60	3.306	11.902
10	0.124	0.446	62	3.523	12.683
11	0.145	0.522	64	3.746	13.486
12	0.169	0.608	66	3.977	14.317
13	0.194	0.698	68	4.214	15.170
14	0.220	0.792	70	4.453	16.031
16	0.279	1.004	72	4.709	16.952
18	0.344	1.238	74	4.967	17.881
20	0.416	1.498	76	5.232	18.835
22	0.495	1.782	78	5.504	19.814
24	0.581	2.092	80	5.783	20.819
26	0.674	2.426	82	6.068	21.845
28	0.774	2.786	84	6.361	22.900
30	0.881	3.172	86	6.660	23.976
32	0.994	3.578	88	6.966	25.078
34	1.115	4.014	90	7.279	26.204
36	1.242	4.471	92	7.599	27.356
38	1.376	4.954	94	7.926	28.534
40	1.517	5.461	96	8.259	29.732
42	1.665	5.994	98	8.600	30.960
44	1.820	6.552	100	8.947	32.209
46	1.981	7.132			

長さ 8.8m

未口徑	m ³	石	未口徑	m ³	石
cm 3	0.022	0.079	cm 48	2.200	7.920
4	0.032	0.115	50	2.380	8.568
5	0.043	0.155	52	2.566	9.238
6	0.056	0.202	54	2.760	9.936
7	0.071	0.256	56	2.960	10.656
8	0.088	0.317	58	3.168	11.405
9	0.106	0.382	60	3.383	12.179
10	0.127	0.457	62	3.604	12.974
11	0.149	0.536	64	3.833	13.799
12	0.172	0.619	66	4.069	14.648
13	0.198	0.713	68	4.312	15.523
14	0.225	0.810	70	4.562	16.423
16	0.285	1.026	72	4.819	17.348
18	0.352	1.267	74	5.083	18.299
20	0.426	1.534	76	5.354	19.274
22	0.507	1.825	78	5.632	20.275
24	0.595	2.142	80	5.917	21.301
26	0.690	2.484	82	6.209	22.352
28	0.792	2.851	84	6.508	23.429
30	0.901	3.244	86	6.815	24.534
32	1.017	3.661	88	7.128	25.661
34	1.140	4.104	90	7.448	26.813
36	1.271	4.576	92	7.776	27.994
38	1.408	5.069	94	8.110	29.196
40	1.552	5.587	96	8.452	30.427
42	1.704	6.134	98	8.800	31.680
44	1.862	6.703	100	9.156	32.962
46	2.028	7.301			

長さ 9.0m

未口徑	m ³	石	未口徑	m ³	石
cm 3	0.022	0.079	cm 3	0.027	0.097
4	0.032	0.115	4	0.038	0.137
5	0.043	0.155	5	0.051	0.184
6	0.056	0.202	6	0.065	0.234
7	0.071	0.256	7	0.081	0.292
8	0.088	0.317	8	0.099	0.357
9	0.106	0.382	9	0.119	0.428
10	0.127	0.457	10	0.141	0.508
11	0.149	0.536	11	0.164	0.590
12	0.172	0.619	12	0.189	0.680
13	0.198	0.713	13	0.216	0.778
14	0.225	0.810	14	0.245	0.882
16	0.285	1.026	16	0.308	1.109
18	0.352	1.267	18	0.378	1.361
20	0.426	1.534	20	0.456	1.642
22	0.507	1.825	22	0.540	1.944
24	0.595	2.142	24	0.632	2.275
26	0.690	2.484	26	0.731	2.632
28	0.792	2.851	28	0.837	3.013
30	0.901	3.244	30	0.951	3.424
32	1.017	3.661	32	1.071	3.856
34	1.140	4.104	34	1.199	4.316
36	1.271	4.576	36	1.334	4.802
38	1.408	5.069	38	1.476	5.314
40	1.552	5.587	40	1.626	5.854
42	1.704	6.134	42	1.782	6.415
44	1.862	6.703	44	1.946	7.006
46	2.028	7.301	46	2.117	7.621

長さ 9.2m				
未口径	m ³	石	未口径	m ³
cm 3	0.028	0.101	48	2.346
4	0.039	0.140	50	2.536
5	0.052	0.187	52	2.733
6	0.066	0.238	54	2.937
7	0.083	0.299	56	3.148
8	0.101	0.364	58	3.367
9	0.122	0.439	60	3.594
10	0.144	0.518	62	3.827
11	0.168	0.605	64	4.068
12	0.193	0.695	66	4.317
13	0.221	0.796	68	4.573
14	0.250	0.900	70	4.836
16	0.315	1.134	72	5.106
18	0.387	1.393	74	5.384
20	0.466	1.678	76	5.669
22	0.552	1.987	78	5.962
24	0.646	2.326	80	6.262
26	0.747	2.689	82	6.569
28	0.856	3.082	84	6.884
30	0.972	3.499	86	7.206
32	1.095	3.942	88	7.535
34	1.226	4.414	90	7.872
36	1.364	4.910	92	8.216
38	1.509	5.432	94	8.567
40	1.662	5.983	96	8.926
42	1.822	6.559	98	9.292
44	1.989	7.160	100	9.666
46	2.164	7.790		

長さ 9.4m				
未口径	m ³	石	未口径	m ³
cm 3	0.028	0.101	48	2.446
4	0.039	0.140	50	2.130
5	0.052	0.187	52	2.839
6	0.066	0.238	54	10.573
7	0.083	0.299	56	11.333
8	0.101	0.364	58	12.121
9	0.122	0.439	60	12.938
10	0.144	0.518	62	13.777
11	0.168	0.605	64	14.645
12	0.193	0.695	66	15.541
13	0.221	0.796	68	16.463
14	0.250	0.900	70	17.410
16	0.315	1.134	72	18.382
18	0.387	1.393	74	19.382
20	0.466	1.678	76	20.408
22	0.552	1.987	78	21.463
24	0.646	2.326	80	22.543
26	0.747	2.689	82	23.648
28	0.856	3.082	84	24.782
30	0.972	3.499	86	25.942
32	1.095	3.942	88	27.126
34	1.226	4.414	90	28.339
36	1.364	4.910	92	29.578
38	1.509	5.432	94	30.841
40	1.662	5.983	96	32.134
42	1.822	6.559	98	33.451
44	1.989	7.160	100	34.798
46	2.164	7.790		

長さ 9.6m

未口徑 cm	m ³	石	未口徑 cm	m ³	石
3	0.029	0.104	48	2.448	8.813
4	0.041	0.148	50	2.646	9.526
5	0.054	0.194	52	2.851	10.264
6	0.069	0.248	54	3.065	11.034
7	0.087	0.313	56	3.285	11.826
8	0.106	0.382	58	3.514	12.650
9	0.127	0.457	60	3.750	13.500
10	0.150	0.540	62	3.994	14.378
11	0.175	0.630	64	4.245	15.282
12	0.202	0.727	66	4.505	16.218
13	0.231	0.832	68	4.771	17.176
14	0.261	0.940	70	5.046	18.166
16	0.329	1.184	72	5.328	19.181
18	0.403	1.451	74	5.618	20.225
20	0.486	1.750	76	5.916	21.298
22	0.576	2.074	78	6.221	22.396
24	0.674	2.426	80	6.534	23.522
26	0.780	2.808	82	6.855	24.678
28	0.893	3.215	84	7.183	25.859
30	1.014	3.650	86	7.519	27.068
32	1.143	4.115	88	7.863	28.307
34	1.279	4.604	90	8.214	29.570
36	1.423	5.123	92	8.573	30.863
38	1.575	5.670	94	8.940	32.184
40	1.734	6.242	96	9.314	33.530
42	1.901	6.844	98	9.696	34.906
44	2.076	7.474	100	10.086	36.310
46	2.258	8.129			

長さ 9.8m

未口徑 cm	m ³	石	未口徑 cm	m ³	石
3	0.030	0.108	48	2.499	8.996
4	0.041	0.148	50	2.701	9.724
5	0.055	0.198	52	2.911	10.480
6	0.071	0.256	54	3.128	11.261
7	0.088	0.317	56	3.354	12.074
8	0.108	0.389	58	3.587	12.913
9	0.130	0.468	60	3.828	13.781
10	0.153	0.551	62	4.077	14.677
11	0.179	0.644	64	4.334	15.602
12	0.206	0.742	66	4.598	16.553
13	0.235	0.846	68	4.871	17.536
14	0.267	0.961	70	5.151	18.544
16	0.335	1.206	72	5.439	19.580
18	0.412	1.483	74	5.735	20.646
20	0.496	1.786	76	6.039	21.740
22	0.588	2.117	78	6.351	22.864
24	0.688	2.477	80	6.670	24.012
26	0.796	2.866	82	6.997	25.189
28	0.912	3.283	84	7.333	26.399
30	1.035	3.726	86	7.676	27.634

長さ 10.0 m

末口径	m ³	石	末口径	m ³	石
cm	cm	cm	cm	cm	cm
3	0.036	0.130	48	2.601	9.364
4	0.049	0.176	50	2.809	10.112
5	0.064	0.230	52	3.025	10.890
6	0.081	0.292	54	3.249	11.696
7	0.100	0.360	56	3.481	12.532
8	0.121	0.436	58	3.721	13.396
9	0.144	0.518	60	3.969	14.288
10	0.169	0.608	62	4.225	15.210
11	0.196	0.706	64	4.489	16.160
12	0.225	0.810	66	4.761	17.140
13	0.256	0.922	68	5.041	18.148
14	0.289	1.040	70	5.329	19.184
16	0.361	1.300	72	5.625	20.250
18	0.441	1.588	74	5.929	21.344
20	0.529	1.904	76	6.241	22.468
22	0.625	2.250	78	6.561	23.620
24	0.729	2.624	80	6.889	24.800
26	0.841	3.028	82	7.225	26.010
28	0.961	3.460	84	7.569	27.248
30	1.089	3.920	86	7.921	28.516
32	1.225	4.410	88	8.281	29.812
34	1.369	4.928	90	8.649	31.136
36	1.521	5.476	92	9.0 ^a	32.490
38	1.681	6.052	94	9.409	33.872
40	1.849	6.656	96	9.801	35.284
42	2.025	7.290	98	10.201	36.724
44	2.209	7.952	100	10.609	38.192
46	2.401	8.644			

長さ 10.2 m

末口径	m ³	石	末口径	m ³	石
cm	cm	cm	cm	cm	cm
3	0.037	0.133	48	2.653	9.551
4	0.050	0.180	50	2.865	10.314
5	0.065	0.234	52	3.086	11.110
6	0.083	0.299	54	3.314	11.930
7	0.102	0.367	56	3.551	12.784
8	0.123	0.443	58	3.795	13.662
9	0.147	0.529	60	4.048	14.573
10	0.172	0.619	62	4.310	15.516
11	0.200	0.720	64	4.579	16.484
12	0.230	0.828	66	4.856	17.482
13	0.261	0.940	68	5.142	18.511
14	0.295	1.062	70	5.436	19.570
16	0.368	1.325	72	5.738	20.657
18	0.450	1.620	74	6.048	21.773
20	0.540	1.944	76	6.366	22.918
22	0.638	2.297	78	6.692	24.091
24	0.744	2.678	80	7.027	25.297
26	0.858	3.089	82	7.370	26.532
28	0.980	3.528	84	7.720	27.792
30	1.111	4.000	86	8.079	29.084
32	1.250	4.500	88	8.447	30.409
34	1.396	5.026	90	8.822	31.759
36	1.551	5.584	92	9.206	33.142
38	1.715	6.174	94	9.597	34.549
40	1.886	6.790	96	9.997	35.989
42	2.066	7.438	98	10.405	37.458
44	2.253	8.111	100	10.821	38.956
46	2.449	8.816			

長さ 10.4m

末口径	m ³	石	末口径	m ³	石
cm 3	0.037	0.133	cm 48	2.705	9.738
4	0.051	0.184	50	2.921	10.516
5	0.067	0.241	52	3.146	11.326
6	0.084	0.302	54	3.379	12.164
7	0.104	0.374	56	3.620	13.032
8	0.126	0.454	58	3.870	13.932
9	0.150	0.540	60	4.128	14.861
10	0.176	0.634	62	4.394	15.818
11	0.204	0.734	64	4.669	16.808
12	0.234	0.842	66	4.951	17.824
13	0.266	0.958	68	5.243	18.875
14	0.301	1.084	70	5.542	19.951
16	0.375	1.350	72	5.850	21.060
18	0.459	1.652	74	6.166	22.198
20	0.550	1.980	76	6.491	23.368
22	0.650	2.340	78	6.823	24.563
24	0.758	2.729	80	7.165	25.794
26	0.875	3.150	82	7.514	27.050
28	0.999	3.596	84	7.872	28.339
30	1.133	4.079	86	8.238	29.657
32	1.274	4.586	88	8.612	31.003
34	1.424	5.126	90	8.995	32.382
36	1.582	5.695	92	9.386	33.790
38	1.748	6.293	94	9.785	35.226
40	1.923	6.923	96	10.193	36.695
42	2.106	7.582	98	10.609	38.192
44	2.297	8.269	100	11.033	39.719
46	2.497	8.989			

長さ 10.6m

末口径	m ³	石	末口径	m ³	石
cm 3	0.038	0.137	cm 48	2.757	9.925
4	0.052	0.187	50	2.978	10.721
5	0.068	0.245	52	3.207	11.545
6	0.086	0.310	54	3.444	12.398
7	0.106	0.382	56	3.690	13.284
8	0.128	0.461	58	3.944	14.198
9	0.153	0.551	60	4.207	15.145
10	0.179	0.644	62	4.479	16.124
11	0.208	0.749	64	4.758	17.129
12	0.239	0.860	66	5.047	18.169
13	0.271	0.976	68	5.343	19.235
14	0.306	1.102	70	5.649	20.336
16	0.383	1.379	72	5.963	21.467
18	0.467	1.681	74	6.285	22.626
20	0.561	2.020	76	6.615	23.814
22	0.663	2.387	78	6.955	25.038
24	0.773	2.783	80	7.302	26.287
26	0.891	3.208	82	7.659	27.572
28	1.019	3.668	84	8.023	28.883
30	1.154	4.154	86	8.396	30.226
32	1.299	4.676	88	8.778	31.601
34	1.451	5.224	90	9.168	33.005
36	1.612	5.803	92	9.567	34.441
38	1.782	6.415	94	9.974	35.906
40	1.960	7.056	96	10.389	37.400
42	2.147	7.729	98	10.813	38.927
44	2.342	8.431	100	11.246	40.486
46	2.545	9.162			

長さ 10.8m

未口径	m ³	石	未口径	m ³	石
cm 3	0.039	0.140	48	2.809	10.112
4	0.053	0.191	50	3.034	10.922
5	0.069	0.248	52	3.267	11.761
6	0.087	0.313	54	3.509	12.632
7	0.108	0.389	56	3.759	13.532
8	0.131	0.472	58	4.019	14.468
9	0.156	0.562	60	4.287	15.433
10	0.183	0.659	62	4.563	16.427
11	0.212	0.763	64	4.848	17.453
12	0.243	0.875	66	5.142	18.511
13	0.276	0.994	68	5.444	19.598
14	0.312	1.123	70	5.755	20.718
16	0.390	1.404	72	6.075	21.870
18	0.476	1.714	74	6.403	23.051
20	0.571	2.056	76	6.740	24.264
22	0.675	2.430	78	7.086	25.510
24	0.787	2.833	80	7.440	26.784
26	0.908	3.269	82	7.803	28.091
28	1.038	3.737	84	8.175	29.430
30	1.176	4.234	86	8.555	30.798
32	1.323	4.763	88	8.943	32.195
34	1.479	5.324	90	9.341	33.628
36	1.643	5.915	92	9.747	35.089
38	1.815	6.534	94	10.162	36.583
40	1.997	7.189	96	10.585	38.106
42	2.187	7.873	98	11.017	39.661
44	2.386	8.590	100	11.458	41.249
46	2.593	9.335			

長さ 11.0m

未口径	m ³	石	未口径	m ³	石
cm 3	0.046	0.166	48	2.917	10.501
4	0.062	0.223	50	3.148	11.333
5	0.079	0.284	52	3.388	12.197
6	0.099	0.356	54	3.637	13.093
7	0.121	0.436	56	3.894	14.018
8	0.145	0.522	58	4.160	14.976
9	0.172	0.619	60	4.435	15.966
10	0.200	0.720	62	4.719	16.988
11	0.231	0.832	64	5.012	18.043
12	0.264	0.950	66	5.313	19.127
13	0.299	1.076	68	5.623	20.243
14	0.337	1.213	70	5.942	21.391
16	0.418	1.505	72	6.270	22.572
18	0.508	1.829	74	6.607	23.785
20	0.607	2.185	76	6.952	25.027
22	0.715	2.574	78	7.306	26.302
24	0.832	2.995	80	7.669	27.608
26	0.957	3.445	82	8.041	28.948
28	1.091	3.928	84	8.422	30.319
30	1.234	4.442	86	8.811	31.720
32	1.386	4.990	88	9.209	33.152
34	1.547	5.569	90	9.616	34.618
36	1.716	6.178	92	10.032	36.115
38	1.894	6.818	94	10.457	37.645
40	2.081	7.492	96	10.890	39.204
42	2.277	8.197	98	11.332	40.795
44	2.482	8.935	100	11.783	42.419
46	2.695	9.702			

長さ 11.2m				
未口徑	m ³	石	未口徑	m ³
cm				
3	0.047	0.169	48	2.971
4	0.063	0.227	50	3.206
5	0.081	0.292	52	3.450
6	0.101	0.364	54	3.703
7	0.123	0.443	56	3.965
8	0.148	0.533	58	4.236
9	0.175	0.630	60	4.516
10	0.204	0.734	62	4.805
11	0.235	0.846	64	5.103
12	0.269	0.968	66	5.410
13	0.305	1.098	68	5.726
14	0.343	1.235	70	6.051
16	0.426	1.534	72	6.384
18	0.518	1.865	74	6.727
20	0.619	2.228	76	7.079
22	0.728	2.621	78	7.439
24	0.847	3.049	80	7.809
26	0.975	3.510	82	8.187
28	1.111	4.000	84	8.575
30	1.257	4.525	86	8.971
32	1.411	5.080	88	9.377
34	1.575	5.670	90	9.791
36	1.747	6.289	92	10.215
38	1.929	6.944	94	10.647
40	2.119	7.628	96	11.088
42	2.319	8.348	98	11.539
44	2.527	9.097	100	11.998
46	2.744	9.878		

長さ 11.4m

長さ 11.4m				
未口徑	m ³	石	未口徑	m ³
cm				
3	0.047	0.169	48	10.696
4	0.063	0.227	50	11.542
5	0.081	0.292	52	12.420
6	0.101	0.364	54	13.331
7	0.123	0.443	56	14.274
8	0.148	0.533	58	15.250
9	0.175	0.630	60	16.258
10	0.204	0.734	62	17.298
11	0.235	0.846	64	18.371
12	0.269	0.968	66	19.476
13	0.305	1.098	68	20.614
14	0.343	1.235	70	21.784
16	0.426	1.534	72	22.982
18	0.518	1.865	74	24.217
20	0.619	2.228	76	25.484
22	0.728	2.621	78	26.780
24	0.847	3.049	80	28.112
26	0.975	3.510	82	29.473
28	1.111	4.000	84	30.878
30	1.257	4.525	86	32.296
32	1.411	5.080	88	33.757
34	1.575	5.670	90	35.248
36	1.747	6.289	92	36.774
38	1.929	6.944	94	38.329
40	2.119	7.628	96	39.917
42	2.319	8.348	98	41.540
44	2.527	9.097	100	43.193
46	2.744	9.878		

長さ 11.6m

未口径	m ³	石	未口径	m ³	石
cm			cm		
3	0.049	0.176	48	3.077	11.077
4	0.065	0.234	50	3.320	11.952
5	0.084	0.302	52	3.573	12.863
6	0.105	0.378	54	3.835	13.806
7	0.128	0.461	56	4.107	14.785
8	0.153	0.551	58	4.387	15.793
9	0.181	0.652	60	4.677	16.837
10	0.211	0.760	62	4.977	17.917
11	0.244	0.878	64	5.285	19.026
12	0.279	1.004	66	5.603	20.171
13	0.316	1.138	68	5.930	21.348
14	0.355	1.278	70	6.267	22.561
15	0.441	1.588	72	6.612	23.803
16	0.536	1.930	74	6.967	25.081
17	0.641	2.308	76	7.331	26.392
18	0.754	2.714	78	7.705	27.738
19					
20					
21					
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43					
44					
45					
46					

長さ 11.8m

未口径	m ³	石	未口径	m ³	石	未口径	m ³	石
cm			cm			cm		
3	0.049	0.176	48	3.077	11.077	48	3.130	11.268
4	0.065	0.234	50	3.320	11.952	50	3.377	12.157
5	0.084	0.302	52	3.573	12.863	52	3.635	13.086
6	0.105	0.378	54	3.835	13.806	54	3.901	14.044
7	0.128	0.461	56	4.107	14.785	7	0.130	0.468
8	0.153	0.551	58	4.387	15.793	8	0.156	0.562
9	0.181	0.652	60	4.677	16.837	9	0.184	0.662
10	0.211	0.760	62	4.977	17.917	10	0.215	0.774
11	0.244	0.878	64	5.285	19.026	11	0.248	0.893
12	0.279	1.004	66	5.603	20.171	12	0.283	1.019
13	0.316	1.138	68	5.930	21.348	13	0.321	1.156
14	0.355	1.278	70	6.267	22.561	14	0.361	1.300
15						16	0.449	1.616
16						17	0.449	2.72
17						18	0.545	1.962
18						19	0.545	2.347
19						20	0.652	2.347
20						21	0.767	2.761
21						22	0.767	2.761
22						23	0.767	2.761
23						24	0.892	3.211
24						25	1.027	3.697
25						26	1.171	4.216
26						27	1.324	4.766
27						28	1.324	4.766
28						29	1.324	4.766
29						30	1.324	4.766
30						31	1.324	4.766
31						32	1.487	5.353
32						33	1.659	5.972
33						34	1.841	6.628
34						35	2.032	7.315
35						36	2.032	7.315
36						37	2.032	7.315
37						38	2.032	7.315
38						39	2.032	7.315
39						40	2.032	7.315
40						41	2.342	8.039
41						42	3.024	8.795
42						43	4.734	9.583
43						44	5.734	10.408
44						45	6.734	10.408
45						46	7.734	10.408
46						47	8.734	10.408

長さ 12.0m

cm	未口径 m ³	石	未口径 m ³	m ³	石
3	0.059	0.212	48	3.245	11.682
4	0.077	0.277	50	3.499	12.596
5	0.097	0.349	52	3.763	13.547
6	0.120	0.432	54	4.037	14.533
7	0.145	0.522	56	4.320	15.552
8	0.173	0.623	58	4.613	16.607
9	0.203	0.731	60	4.915	17.694
10	0.235	0.846	62	5.227	18.817
11	0.270	0.972	64	5.549	19.976
12	0.307	1.105	66	5.880	21.168
13	0.347	1.249	68	6.221	22.396
14	0.389	1.400	70	6.571	23.656
16	0.480	1.728	72	6.931	24.952
18	0.581	2.092	74	7.301	26.284
20	0.691	2.488	76	7.680	27.648
22	0.811	2.920	78	8.069	29.048
24	0.941	3.388	80	8.467	30.481
26	1.080	3.888	82	8.875	31.950
28	1.229	4.424	84	9.293	33.455
30	1.387	4.993	86	9.720	34.992
32	1.555	5.598	88	10.157	36.565
34	1.733	6.239	90	10.603	38.171
36	1.920	6.912	92	11.059	39.812
38	2.117	7.621	94	11.525	41.490
40	2.323	8.363	96	12.000	43.200
42	2.539	9.140	98	12.485	44.946
44	2.765	9.954	100	12.979	46.724
46	3.000	10.800			

Appendix 1

JAPANESE AGRICULTURE STANDARDS FOR WOOD

(Dec. 8, 1967 Japanese Agricultural Bulletin #1841)

Section 1: Scope of Common Applications

This rule applies to wood used for building as well as other general purposes excluding the following:

1. Things that fall under the jurisdiction of other Japanese Agricultural rules.
2. Wood with inscriptions
3. Waste materials
4. Rotten wood where more than 50% of the volume of a log is unusable.

Section 2: Definition

1. In this rule "wood with inscriptions" refers to logs that corresponds with one of the following:
 - a. Cases of exceedingly rare quality or shape
 - b. Cases of exceedingly superior quality
 - c. Cases of exceedingly appreciable value
 - d. Cases where all of the above can be applied
2. In this rule, "waste materials" refers to logs with inferior shape that has very low use value.
3. In this rule "log plane" is when a log is divided length-wise into 4 equal plane lengths; this is called squared timber.

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Section 3: Separating Timber Varieties

Wood volume for the log is determined by the diameter and for squared timber is determined by width and is divided in the following manner.

1. Small cases with less than 14 cm.
2. Medium cases 14 cm and over and less than 30 cm
3. Large cases 30 cm and over

Section 4: Wood Measurement Classification

Wood measurement (disregarding bark) for the log is done using the diameter and length; for squared timber it is done using thickness, width and length.

Section 5: Log Diameter

The log's diameter is the shortest diameter. However, if the shortest diameter is 14 cm or over, 2cm are added to the shortest diameter for every 6 cm difference between the shortest diameter and the diameter at right angles from the shortest diameter (if the shortest diameter is 40 cm or more than every 8 cm difference).

Section 6: Thickness and Width of Squared Timber

The thickness of squared timber is the short side of the square of the smallest intersecting planes, filling any gaps on the edges, and the width of squared timber would be the longer sides of the square.

Section 7: Wood Length

The length of a log is the shortest distance between the two ends. However, if part of the shortest distance in question either has a diameter of less than 3 cm, has a missing wedge, or has a hole through it, then those parts are left out.

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Section 8: Units of Measurement for Wood

1. For smaller materials the unit of measurement for the diameter of a log or for the thickness and width of squared timber is 1 cm, for other materials it is 2 cm, and anything less than the unit of measurement is excluded.
2. The unit of measurement for the length of both logs and squared timber is 20 cm and anything less is not counted. However, for lengths 1.9 m or over and less than 2.0 m, 2.1 m or over and less than 2.2 m, 2.7 m or over and less than 2.8 m, 3.3 m or over and less than 3.4 m, 3.65 m or over and less than 3.8 m and 4.3 m or over and less than 4.4 m, this is not the limit.

Section 9: Units for wood quantity

The unit for wood quantity is *hon*.

Section 10: Units and equations for calculating wood volume

1. Wood volume is calculated by using the following equation:
 - a. Logs
 - i. a case where the length is less than 6 m
- $$D^2 \times L \times 0.0001$$

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D is the diameter of the log in centimeter units.

L is the length of the log in meter units.

- ii. For lengths 6 m and over

$$(D + [L^1-4]/2)^2 \times L \times 0.0001$$

D and L are the same as in a.

L^1 is the length that was excluded because it wasn't an entire meter unit.

- b. Squared Timber

$$T \times W \times L \times 0.0001$$

T is the thickness of the squared timber in cm units.

W is the width of the squared timber in cm units.

L is the length of the squared timber in meter units.

2. Log volume is in cubic meters and anything smaller than the third decimal is rounded off. However, if the number is smaller than the third decimal then it should be rounded off at the fifth decimal.
3. To find the volume of hollow logs (hollow log includes totally rotten wood and wherever "hollow log" is read in this section this definition applies) the hollow volume should be subtracted from the material volume. However, this is not the case if the ratio of the existing wood in the diameter of a log, or if the thickness of a squared timber is less than 20%, or for small materials.

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4. The diameter of a hollow is the average diameter of the hollow log (the average of the longest diameter and the diameter at right angles from the longest diameter. This is the same throughout). In this case if the hollow part is connected with deep spreading roots, the connected part should be overlooked when measuring the average diameter.
5. For logs when measuring the diameters of the ends, the diameter of the top end is the diameter of the log, and the diameter of the base end (in the case of deep spreading roots overlook the part. This is the same throughout this paragraph) the shortest diameter is used. However, for base ends where the difference between the shortest diameter and the diameter at right angles from the shortest diameter is 6cm or over (for shortest diameter of 40 cm or over, 8cm) 2cm are added to the shortest diameter for every 6cm difference to get the end diameter.
6. The volume for the hollow is measured using the following equation.
- a. For when only part of the material is hollow.
- $$d^2 \times L/2 \times 0.0001$$
- d is the value of the hollow's diameter as described in the rule in paragraph 4 in cm units and anything smaller than 2 is disregarded.

L is the value of the log's length in meter units.

- b. For when both ends of the log are hollow

$$(d^1)^2 \times L \times 0.0001$$

d^1 is the average of the hollow diameter of both ends as stated in the 4th rule in cm
units disregarding any parts less than 2.

L is the same as in the previous equation.

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Section 11: Whole Log Division of Squared Timber

If the ratio of the total of the gaps in the square of the smallest intersecting planes to the total of the four sides with gaps filled is 80% or more, then the squared timber is called a log.

*Section 12: Rules for Wood Taken from Coniferous Trees

*Section 13: Rules for Material Taken from Broadleaf Trees

*(Please refer to tables on the following pages (Working Paper pages 114-117) as
translated from Agricultural Standards for Wood pages 78-84.)

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Defects /	First Class	Second Class	Third Class	Fourth Class
Crooked < 25%	Anything over the limit to the left			
Other defects Inconspicuous				
II.	Medium materials (excluding any Japanese cypresses 150 years or more old.)			
	Knot (excluding anything with a long diameter < 1 cm)	Anything to which the following may be applied:	Anything over the limits to the left	
	Anything to which the following may be applied:	1. Material without more than 3 sides 2. Where 2 adjoining sides have a long diameter < 5 cm		
		diameter < 10 cm		
Crooked	The amount is < 10% for 1	< 30%	Anything over the limits to the left	
Split end or wedge	< 10%. However, this is limited to splits that are not deeper than 1/3 of the diameter of the end (for squared timber, the thickness)	< 30%	Anything over the limits to the left	
Ring shakes (excluding the part outside of 9/10 of the distance from the center to the rim of the existing end)	Anything < 10%		Anything < 30%, however, this is limited to piled ring shakes where the piled part has the center of the end going through at right angles, divided into two with only one side	Anything over the limits to the left

SECTION 12: RULES FOR WOOD TAKEN FROM CONIFEROUS TREES

I. Small materials (exclude logs with diameters of less than 8 cm and squared timbers with width of less than 8 cm.

Crooked
 < 25%

Other defects
 Inconspicuous

II. Medium materials (excluding any Japanese cypresses 150 years or more old.)

Knot (excluding anything with a long diameter < 1 cm)

Anything to which the following may be applied:

1. Material without more than 3 sides
2. Where 2 adjoining sides have a long diameter < 5 cm

Crooked
The amount is < 10% for 1

< 30%

Split end or wedge

< 10%. However, this is limited to splits that are not deeper than 1/3 of the diameter of the end (for squared timber, the thickness)

Ring shakes (excluding the part outside of 9/10 of the distance from the center to the rim of the existing end)

Anything < 10%

Defects /	First Class	Second Class	Third Class	Fourth Class
Rot (excluding silver fir, <i>Todomatu</i> and Japanese cypress where < 20% of the middle of each end is rotten), Insect damage and hollow logs Plane surface/Nothing Log ends/Nothing	Insignificant damage on < 2 sides	Anything over the limits to the left		
Snake hangdown "hebisagari" Not existing on a side without knots and < 5% on the other sides	Not existing on a side without knots and < 15% on the other sides	Anything over the limits to the left		
Other defects Insignificantly defected items	Not overtly defected items	Anything over the limits to the left		
III. Large materials (including medium sized Japanese Cypress that are 150 or more years old)				
Knots (excluding ones with long diameters of < 1 cm) Without > 3 sides	Two adjoining sides (In the case of hiba, two adjoining sides)	Things that apply to one of the following:	Anything over the limits to the left	
		1. 2 or 3 sides (for hiba, 3 sides); 2. On 4 sides with a long diameter of < 15 cm (10 cm for medium sized Japanese cypress); 3. on 4, 2 or 3 sides with a long diameter < 10 cm (5 cm for medium sized cypress)		
Crooked With an amount of 1, < 5% (10% for medium sized Japanese cypress)	With an amount of 1, < 10% (20% for medium sized Japanese cypress)	< 20% (30% for Japanese cypress)	Anything over the limits to the left	
Split ends or wedges (stump shot) < 10%; however, this is limited to items where depth of the split is < 30% of the end diameter	< 20%; however, this is limited to items where depth of the split is < 30% of the end diameter	< 40%	Anything over the limits to the left	

Defects /	First Class	Second Class	Third Class	Fourth Class
Ring shake (excluding the part outside of 9/10 of the distance from the center to the outside rim)	< 10%	< 20%	<30%, however, this is limited to piled ring shakes where the piled part has the center of the ring going through it at right angles divided into two with only one side	Anything over the limits to the left
Rot (excluding silver fir, <i>Todomatsu</i> and Japanese cypress where < 20% of the middle of each end is rotten), Insect damage and hollow logs	Plane surface/None	Insignificant damage on one surface < 30%	Insignificant < 50%	Anything over the limits to the left
Snake hangdown "heblagari"	None on surfaces without knots and < 5% on other surfaces	None on surfaces without knots and < 15% on other surfaces	< 30%	Anything over the limits to the left
Other defects	Extremely insignificant	Insignificant	Not overly defected	Anything over the limits to the left

Notes

¹Excluding items that are almost first grade, if material is not crooked or hollow and does not have rot and has less than 2 of any other defects besides these and if the degree of those defects is close to the smallest limit, then raise the material up one grade.

²Excluding items that are almost in the fourth grade, material that has four or more kinds of defects and the degree of the four or more kinds of defects is close to the highest limits, then lower the material by one grade.

Defects /	First Class	Second Class	Third Class	Fourth Class
SECTION 13: THE RULES FOR MATERIAL TAKEN FROM BROADLEAF TREES (EXCLUDING LOGS WITH DIAMETERS LESS THAN 24 CM AND SQUARED TIMBERS WITH WIDTHS OF LESS THAN 24 CM) ARE AS FOLLOW.				
Knots (excluding long diameters of less than 1 cm and including material where useful influence of cuts and holes can be exercised)				
Material where the following apply:	Material where the following apply:	Material where the following apply:	Material where the following apply:	Material where the following apply:
1. Not on 4 sides	1. Only on 1 side	1. On 2 adjoining sides	1. On 2 sides where the long diameter is < 15 cm	Anything over the limits to the left
2. Only living knots on 1 side and have < 1 knot for every 2 m and for any left over length	2. For material with long diameters of 15 cm or less only on 2 adjoining sides with < 2 for every 2 m and for any left over length	2. On 2 sides where a long diameter is < 10 cm	2. On 3 sides where a long diameter is < 10 cm	
Crooked	Amount of 1 and < 10%	< 20%	< 40%	Anything over the limits to the left
Splits or wedges (stump shot)	< 10%; however this is limited to items where split depth is < 1/3 of the end diameter (thickness for squared timber)	< 20%	< 40%	Anything over the limits to the left
Ring shakes (excluding the part outside of 9/10 of the distance from the center to the outside rim)	< 10%	< 20%	< 40%; however, this is limited to piled ring Any shakes where the piled part has the center of the ring going through it at right angles divided into 2 with only one side	
Rot (excluding material where < 20% of the center only of each end is rotten), Insect damage or hollow logs	Plane surfaces/None Log ends/None	Insignificant damage on one side < 40%	Insignificant damage < 50%	Anything over the limits to the left Anything over the limits to the left

Notes

- 1 For logs with diameters of > 50 cm, or for squared timbers with widths of > 50 cm, add 5 cm to the diameter limit for living knots, dead knots and rotten knots.
 2 Excluding items that are nearly grade 1 level, raise material that is not crooked, hollow or rotten and has less than 2 other kinds of defects the degree of which are close to the smallest limit, up one grade.

How to Measure Material Defects

[In the preceding table], the highlighted term on the left margin mentions the defects from the first two sections and the following columns describe how to measure the defects. In this case, if the defect is connected to a part with an extension or with deep spreading roots, the concerned extension or deep spreading roots are excluded and then the defect is measured.

Knot

1. The long diameter of a dead knot or a rotten knot (excluding dead knots or rotten knots with long diameters of < 1 cm) is twice the long diameter of the actual survey.
2. The long diameter of a hidden knot is 1.5 times the actual survey of the long diameter of the largest knot in the material (excluding knots with long diameters < 1 cm).
3. In the case that the log with a hidden knot doesn't have another knot besides one with a long diameter less than 1 cm, then the long diameter of the hidden knot becomes 10 cm. However, if the long diameter of the upheaval connected to the hidden knot is over 10 cm, then the long diameter of the knot is made the same as the long diameter of the upheaval.

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Crooked

1. The percentage depends on the proportions of the highest point of the curve's inner side relating to the diameter of a log, or the thickness of a squared timber.
2. The percentage for cases with 2 or more curves depends on the ratio of 1.5 times the total of the ratio of each curve.

Split Log or Wedges (*Stump Shot*)

1. The percentage for splits or wedges is the ratio of the log length to the split length.
2. When there are 2 or more splits in one end, take the length of the longest one, or when there are splits in both ends, take the total of the longest ones and make these the lengths for each. Do the same to find the length for wedges (*stump shots*).
3. When the depth of the split log end is more than half of the diameter of the log end (for squared timber the thickness), then 1.5 times the actual surveyed length becomes the length of the split.

4. For splits that go toward the center of the log end, the depth is the length of the split, but for other kinds, the distance from the deepest part of the split in the log end (the end of the split is the direct line connecting the center of the log end and the end of the split, and in the case where the angle is $< 90^\circ$, the perpendicular line from the center of the wood end and the split is the node) to the distance leading to green material in the opposite direction of the center of the log end.
-

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Ring Shake

1. The percentage depends on the ratio of the length of the arc and the length of the circumference of the log end it came from (for squared timber the total of the four corner edges with gaps filled in the square).
2. The percentage for cases when there are two or more ring shakes in the same end depends on the ratio of the arc length of each (concerning the part marked off with the most direct line connecting both ends of the outside ring shake and the tree center and the inside of other ring shakes arcs and exclude any length added to the concerned part totalled and the length of the circumference of the log).
3. When they exist in both ends, it depends on the totalled one or two ratio of each end.

Rot, Insect Damage and Hallowness

Material surface: The level depends on the size of influence exercised on the material's useful value.

Wood ends: The percentage depends on the ratio of the average diameter of the decay, insect damage, or hallowness (if there are two or more on one end, take the total of their average diameters) to the diameter of the end they exist in (thickness for squared timber).

Snake Hanging Down "Hebisagari"

1. the percentage depends on the ratio of the length (if there are 2 or more the total of the lengths) and the material length.
2. When there are 2 or more almost parallel on one side, measure each one's length as 1 snake hanging down.

Other Defects

The level depends on the size of influence exercised on the material's useful value.

Date of Effectiveness: 10 January 1968

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FORMING AND EXPRESSING GRADING RULES FOR GENERAL MATERIAL
(August 1, 1950 Extra Agricultural Bulletin #228)

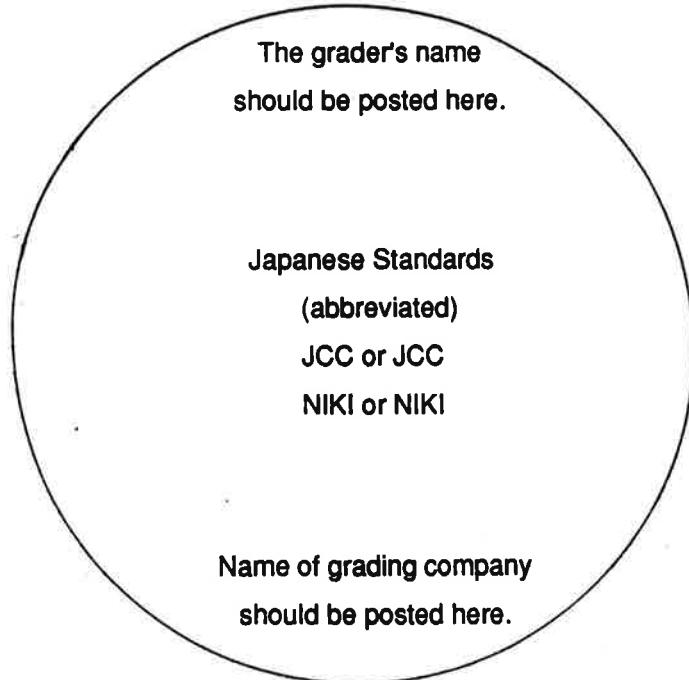
Excerpt from Amendment June 19, 1970
Agricultural Standards Bulletin #829

Rule of Agriculture Commodity Standards Law Effectiveness 1950
(Agricultural Standards Ministerial Ordinance #62)

Based on the provision of Section 34, the following laws of the accepted form and method of standard grading for general wood (excluding lumber and compiled wood throughout) mine pillars, post logs, ship building material, telephone poles, railroad ties, brackets, wooden box construction boards and single planks takes effect from October 1, 1950.

Form 1

1. General wood and shipbuilding materials, mine pillars, post logs, telephone poles, as well as railroad ties.



Direct diameter:
from 23 mm through 37 mm
Color: black or red

2. General wood and ship building lumber material, brackets as well as wooden box construction boards



Diameter:
45 mm through 76 mm
Color: black

Date of effectiveness
Takes effect on June 20, 1970

Method of Grading General Wood Material
(Japanese Agriculture Standard Bulletin, #467, December 27, 1951)

Amendment

1st part

September 2, 1978, Japanese Agriculture Marine Bulletin #200, Rule of Agricultural Standard Law effectiveness (Agriculture Ministerial Ordinance 1950 #62). Based on provision #1 of Chapter 2 of Section 33, the following is about how laws on the method of grading general wood materials (excluding lumber compiled wood and single plane volume class, throughout) mine pillars, post logs, shipbuilding materials, telephone poles, railroad ties, brackets, wooden box construction material and single plans are made and goes into effect on January 1st, 1952.

Grading investigation for general wood, mine pillars, post logs, ship building materials, telephone poles, railroad ties, brackets, wooden box construction boards, and single plans is done on each.

Date of effectiveness:

Goes into effect on September 2, 1978

Quantity Investigation Laws for Foreign Wood

Quantity Investigation in Domestic Business

1. Wood from the South Seas

It is called the Centi Brereton form and is used only on South Sea material.

$$D^2 \times 0.7854 \times L \times 0.0001 = m^3$$

D = the average diameter of the top end and the bottom end (cm).

Way of Measuring

- a. Measure the longest and shortest diameters of both the top end and the bottom end in 2 cm units, and calculate the average of each in 1 cm units.
- b. Make the average of the top end's diameter and the bottom end's diameter the diameter of the log (D), excluding anything less than 1 cm.

L = the length of the log (m)

Way of Measuring

Measure the shortest straight line but because it is difficult to measure large diameter logs that are crooked accurately a 10 cm allowance over the actual measurement is given.

$$0.7854 = \pi/r \quad (\pi \text{ is the circumference calculation at } 3.1416)$$

2. United States Logs

The entire country isn't unified; in Eastern Japan the New Agricultural (JAS form) is used in business with trading firms. In Port Shimizu in Shizuoka Prefecture the United American Investigation Form is used and in Western Japan the Heiseki form is used.

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a. New Agriculture or JAS Form

i) Log lengths less than 6 m

$$D^2 \times L \times 0.0001 = m^3$$

D = shortest diameter of the top end (cm). However, when the differences between the shortest diameter and the longest diameter is 6 cm (8 cm for

shortest diameters of 40 cm or more) or more, add 2 cm to the shortest diameter for every 6 cm.

L = length in 20 cm units (m)

- ii) log lengths of 6 m or more

$$(D + [L^1-4]/2)^2 \times L \times 0.0001 = m^3$$

D = the same as the D for "less than 6 m"

L^1 = length, however, in meter units and any extra is excluded

L = the same as "less than 6 m"

b. Heiseki Form

$$D^2 \times L \times 0.0001 = m^3$$

D = the average of the shortest and longest diameters of the top end (cm). When using the average diameter of the top and as a standard, by using the same calculations for long material disregarding the difference, on the one hand, the volume for less than 6 m is a little larger than JAS, and on the contrary, the volume for 65 m or more tends to be smaller.

c. United American Investigation Form

In 1968, at a Japanese Conference on American material this form was adopted with the goal of uniting the country but at present it isn't used anywhere except Port Shimizu in Shizuoka Prefecture.

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- i) logs with lengths less than 6 m (same as JAS)

$$D^2 \times L \times 0.0001 = m^3$$

- ii) logs 6 m or longer with diameters of less than 28 cm

$$(D + [L^1-4]/2 \times 0.6)^2 \times L \times 0.0001 = m^3$$

L^1 = length. However, throw out anything less than a meter.

- iii) logs 6 m or longer with diameters from 30-58 cm.

$$(D + [L^1-4]/2 \times 0.8)^2 \times L \times 0.0001 = m^3$$

- iv) logs 6 m or longer with diameters of 60 cm or more (same as JAS' 6 m or longer)

$$(D + [L^1-4]/2)^2 \times L \times 0.0001 = m^3$$

3. Northern Seas Material, New Zealand, etc.

The Japanese Agricultural Standards are applied when investigating quantity the same as JAS forms for U.S. material.

Quality Investigation of Foreign Wood Producing Areas

1. South Seas Logs

a. Philippine = Centi Brereton

$$D^2 \times 0.7854 \times L \times 0.0001 = m^3$$

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D = the average diameters of both ends (cm stopped at an even #)

L = log length (m = 20 cm units)

b. SABA state = Quarter girth rule

To find the diameter, the circumferences of the top and bottom ends are measured using the appointed Diameter Tape.

$$(D_1 + D_2)/2 \times 0.7854 \times L \times 0.0001 = m^3$$

D_1 = top end diameter (circumference/ π) round off to 1 cm units

D_2 = bottom end diameter (circumference/ π) round off to 1 cm units

L = tie both ends of the log and measure in 20cm units (for under 1 meter round off to 10)

example: 6.09 m = 6.0 m

6.10 m = 6.2 m

Round off volume to the nearest thousandth.

c. Indonesia = Centi Brereton (However, the method of measuring both log ends and the log length is slightly different from the Philippine form.)

2. British Columbia, Canada's Quantity Investigation Law

$$(D - 15)^2 \times 0.7854 \times 7/11 \times 1/12 \times L = BM$$

D = average diameter of top end (inches)

L = length (feet)

3. Soviet Union's GOST (Gost form)

Gost 2708-75 log volume graph is used with a four-level method where German forestry researcher Fuberu's formula of divided mensuration law in which the log volume is calculated for each 1 m and experienced value theory is applied.

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Therefore, there is no regular form and to find close similar value Centi Brereton form may also be used. However, the way to measure diameter is complicated.

$$D^2 \times \pi/4 \times L = m^3$$

D = the log's midway diameter = top end diameter + (0.5 x L) x (0.4 + 0.02 x top end diameter)

L = log length (in meters measured until cm)

GOST's log diameter is by every 2 cm but 20 cm includes 19.0-20.9 cm, taking again the top end's average diameter. Because of this, Japan's JAS with a 3.8-4 m log, 6-7%; a 7.6-8 m log, 2-3%; so an average gap of 3-4% is produced which is even higher for thin logs of short material.

4. Haakondahl (HDF) measure 1/10 of a foot investigation

The representative measurement investigation law of New Zealand *Radiata* pine (New Zealand pine) is the same as the Hoppus wrapped string law, but because in actuality it is impossible to measure the circumference of the center of a log with its skin peeled off a volume graph of the top end's diameter has conveniently been made. However, there are several kinds of area specific log volume graphs and not a national one, and because there are many defects Tomen knit together an independent log volume graph about logs imported to Japan. This form became the log volume graph for imported logs after this received official recognition from the field and forest authorities.

Converting Essential Transaction Units

Unit log volume

1 m³ = 1 m x 1 m x 1 m
1 koku = 1 shaku (30 cm) x 1 shaku x 1 shaku
1 BM = 12 inch x 12 inch x 1 inch

Business units of wood

1m³ = 3.6 koku = 424 BM
0.278 m³ = 8.48 koku = 12,000 BM

Business units of national place of production for United States wood

1,000 scribner BM = about 2,100 BM (Brereton)
= about 5 m³ (converted to 4 m³ at Customs)
= about 18 koku

New Zealand's log business units

100 Haakondahl feet = about 127.4 BM
= about 0.3 m³
= about 1.08 koku

Transaction units for veneer board and building material

1 m² = 0.303 tsubo = 10.9 square shaku = 10.76 square feet
3.3 m² = 1 tsubo = 36 square shaku = 35.6 square feet
.93 m² = .28 tsubo = 1.01 square shaku = 1 square foot

Conversion from *m*³ to *Koku*
(1 *m*³ = 3.6 *koku*)

<i>m</i> ³	石	<i>m</i> ³	石	<i>m</i> ³	石	<i>m</i> ³	石
1	3.6	26	93.6	51	183.6	76	273.6
2	7.2	27	97.2	52	187.2	77	277.2
3	10.8	28	100.8	53	190.8	78	280.8
4	14.4	29	104.4	54	194.4	79	284.4
5	18.0	30	108.0	55	198.0	80	288.0
6	21.6	31	111.6	56	201.6	81	291.6
7	25.2	32	115.2	57	205.2	82	295.2
8	28.8	33	118.8	58	208.8	83	298.8
9	32.4	34	122.4	59	212.4	84	302.4
10	36.0	35	126.0	60	216.0	85	306.0
11	39.6	36	129.6	61	219.6	86	309.6
12	43.2	37	133.2	62	223.2	87	313.2
13	46.8	38	136.8	63	226.8	88	316.8
14	50.4	39	140.4	64	230.4	89	320.4
15	54.0	40	144.0	65	234.0	90	324.0
16	57.6	41	147.6	66	237.6	91	327.6
17	61.2	42	151.2	67	241.2	92	331.2
18	64.8	43	154.8	68	244.8	93	334.8
19	68.4	44	158.4	69	248.4	94	338.4
20	72.0	45	162.0	70	252.0	95	342.0
21	75.6	46	165.6	71	255.6	96	345.6
22	79.2	47	169.2	72	259.2	97	349.2
23	82.8	48	172.8	73	262.8	98	352.8
24	86.4	49	176.4	74	266.4	99	356.4
25	90.0	50	180.0	75	270.0	100	360.0

Conversion from *Koku* to *m*³
(1 *koku* = 0.278 *m*³)

<i>m</i> ³	石	<i>m</i> ³	石	<i>m</i> ³	石	<i>m</i> ³	石	<i>m</i> ³
1	0.278	26	7.228	51	14.178	76	21.128	
2	0.556	27	7.506	52	14.456	77	21.406	
3	0.834	28	7.784	53	14.734	78	21.684	
4	1.112	29	8.062	54	15.012	79	21.962	
5	1.390	30	8.340	55	15.290	80	22.240	
6	1.668	31	8.618	56	15.568	81	22.518	
7	1.946	32	8.896	57	15.846	82	22.796	
8	2.224	33	9.174	58	16.124	83	23.074	
9	2.502	34	9.452	59	16.402	84	23.352	
10	2.780	35	9.730	60	16.680	85	23.630	
11	3.058	36	10.008	61	16.958	86	23.908	
12	3.336	37	10.286	62	17.236	87	24.186	
13	3.614	38	10.564	63	17.514	88	24.464	
14	3.892	39	10.842	64	17.792	89	24.742	
15	4.170	40	11.120	65	18.070	90	25.020	
16	4.448	41	11.398	66	18.348	91	25.298	
17	4.726	42	11.676	67	18.626	92	25.576	
18	5.004	43	11.954	68	18.904	93	25.854	
19	5.282	44	12.232	69	19.182	94	26.132	
20	5.560	45	12.510	70	19.460	95	26.410	
21	5.838	46	12.788	71	19.738	96	26.688	
22	6.116	47	13.066	72	20.016	97	26.966	
23	6.394	48	13.344	73	20.294	98	27.244	
24	6.672	49	13.622	74	20.572	99	27.522	
25	6.950	50	13.900	75	20.850	100	27.800	

Unit Price Conversion Table

(1 koku = 0.278 m³; 1 m³ = 3.6 koku)

= koku = yen

m ³ 当り → 石当り	石当り → m ³ 当り
1,000円	278円
2,000円	556円
3,000円	834円
4,000円	1,112円
5,000円	1,390円
6,000円	1,668円
7,000円	1,946円
8,000円	2,224円
9,000円	2,502円
10,000円	2,780円
20,000円	5,560円
30,000円	8,340円
40,000円	11,120円
50,000円	13,900円
60,000円	16,680円
70,000円	19,460円
80,000円	22,240円
90,000円	25,020円
100,000円	27,800円
200,000円	55,600円
300,000円	83,400円
400,000円	111,200円
500,000円	139,000円
	100円
	200円
	300円
	400円
	500円
	600円
	700円
	800円
	900円
	1,000円
	2,000円
	3,000円
	4,000円
	5,000円
	6,000円
	7,000円
	8,000円
	9,000円
	10,000円
	20,000円
	30,000円
	40,000円
	50,000円
	60,000円
	70,000円
	80,000円
	90,000円
	100,000円
	200,000円
	300,000円
	400,000円
	500,000円
	360円
	720円
	1,080円
	1,440円
	1,800円
	2,160円
	2,520円
	2,880円
	3,240円
	3,600円
	7,200円
	10,800円
	14,400円
	18,000円
	21,600円
	25,200円
	28,800円
	32,400円
	36,000円
	72,000円
	108,000円
	144,000円
	180,000円

Conversion Table of Board Foot Measure to *Koku* and m^3
 (1 *koku* = 120 BM; 1 m^3 = 424 BM)

BM	石	m^3	BM		m^3
			BM	石	
100	0.83	0.236	360	3.00	0.849
120	1.00	0.283	370	3.08	0.873
130	1.08	0.307	380	3.17	0.896
140	1.17	0.330	390	3.25	0.920
150	1.25	0.354	400	3.33	0.943
160	1.33	0.377	410	3.42	0.967
170	1.42	0.401	420	3.50	0.991
180	1.50	0.425	430	3.58	1.014
190	1.58	0.448	440	3.67	1.038
200	1.67	0.472	450	3.75	1.061
210	1.75	0.495	460	3.83	1.085
220	1.83	0.519	470	3.92	1.108
230	1.92	0.542	480	4.00	1.132
240	2.00	0.566	490	4.08	1.156
250	2.08	0.590	500	4.17	1.189
260	2.17	0.613	510	4.25	1.203
270	2.25	0.637	520	4.33	1.226
280	2.33	0.660	530	4.42	1.250
290	2.42	0.684	540	4.50	1.274
300	2.50	0.708	550	4.58	1.297
310	2.58	0.731	560	4.67	1.321
320	2.67	0.755	570	4.75	1.344
330	2.75	0.778	580	4.83	1.368
340	2.83	0.802	590	4.92	1.392
350	2.92	0.825	600	5.00	1.415

Conversion Table of Board Foot Measure to Koku and m³ (cont.)

(1 koku = 120 BM; 1 m³ = 424 BM)

BM	石	m ³	BM	石	m ³
610	5.08	1.439	860	7.17	2.028
620	5.17	1.462	870	7.25	2.052
630	5.25	1.486	880	7.33	2.075
640	5.33	1.509	890	7.42	2.099
650	5.42	1.533	900	7.50	2.123
660	5.50	1.557	910	7.58	2.146
670	5.58	1.580	920	7.67	2.170
680	5.67	1.604	930	7.75	2.193
690	5.75	1.627	940	7.83	2.217
700	5.83	1.651	950	7.92	2.241
710	5.92	1.675	960	8.00	2.264
720	6.00	1.693	970	8.08	2.288
730	6.08	1.722	980	8.17	2.311
740	6.17	1.745	990	8.25	2.335
750	6.25	1.769	1,000	8.33	2.358
760	6.33	1.792	5,000	41.67	117.925
770	6.42	1.816	10,000	83.33	23.585
780	6.50	1.840	50,000	416.67	1,179.245
790	6.58	1.863	100,000	833.33	235.849
800	6.67	1.880	500,000	4,166.67	11,792.453
810	6.75	1.910	1,000,000	8,333.33	2,358.491
820	6.83	1.934	5,000,000	41,666.67	23,584.906
830	6.92	1.958	10,000,000	83,333.33	117.924.528
840	7.00	1.981	50,000,000	416,666.67	235,849.057
850	7.08	2.005	100,000,000	833,333.33	

Haakondahl Log Volume Graph for New Zealand Radiata Pine (HDF Units)
 For oval logs, the top diameter is the average of the shortest and longest diameters.

木口徑 (インチ)	長さ (ワイヤー)					未口徑 (インチ)	長さ (ワイヤー)				
	13	16	18	20	23		26	30	39	40	
8	46	61	68	76	87	8	114	131	195	200	
8½	53	65	73	82	94	8½	130	150	221	227	
9	57	75	84	94	108	9	147	170	234	240	
9½	65	80	90	100	115	9½	156	181	263	270	
10	74	91	102	113	130	10	175	202	278	285	
10½	78	102	115	128	147	10½	185	214	309	317	
11	88	108	121	135	155	11	206	238	325	333	
11½	93	120	135	150	173	11½	217	250	359	367	
12	103	127	143	158	182	12	239	276	394	403	
12½	108	140	158	175	201	12½	262	302	411	421	
13	119	147	165	184	211	13	274	331	449	460	
13½	131	161	181	202	232	13½	299	345	468	480	
14	137	176	198	220	253	14	312	360	507	521	
14½	150	184	207	230	265	14½	339	391	528	542	
15	156	192	225	240	276	15	352	406	571	585	
15½	169	208	234	260	299	15½	380	439	614	630	
16	176	225	253	282	324	16	410	473	637	665	
16½	190	234	263	293	336	16½	425	490	683	701	
17	205	252	284	315	362	17	456	526	707	725	
17½	212	271	305	338	389	17½	471	544	756	775	
18	228	280	315	350	403	18	504	581	780	800	
18½	236	290	326	363	417	18½	521	601	832	852	
19	252	310	349	388	446	19	555	640	885	907	
19½	260	320	360	400	460	19½	590	681	911	935	
20	277	341	384	427	491	20	608	701	967	991	
20½	295	363	408	454	522	20½	645	744	995	1,021	
21	304	374	421	468	538	21	664	766	1,053	1,079	
21½	322	397	446	496	570	21½	702	810	1,082	1,110	
22	332	408	459	510	587	22	722	833	1,143	1,171	
22½	351	432	486	540	638	22½	762	879	1,229	1,259	
23	361	444	500	555	674	23	803	902	1,236	1,266	

Conversion of Haakondahl feet (HDF) to Board Measure and m³
 100 HDF = 127.4 BM; 100 HDF = 0.30045 m³

HDF	BM	m ³	HDF	BM	m ³	HDF	BM	m ³
100	127.4	0.300	330	420.4	0.991	560	713.4	1.683
110	140.1	0.330	340	433.1	1.022	570	726.1	1.713
120	152.9	0.361	350	445.9	1.052	580	738.9	1.743
130	165.6	0.391	360	458.6	1.082	590	751.6	1.773
140	178.3	0.421	370	471.3	1.112	600	764.3	1.803
150	191.1	0.451	380	484.1	1.142	610	777.1	1.833
160	203.8	0.481	390	496.8	1.172	620	789.8	1.863
170	216.6	0.511	400	509.6	1.202	630	802.6	1.893
180	229.3	0.541	410	522.3	1.232	640	815.3	1.923
190	242.0	0.571	420	535.0	1.262	650	828.0	1.953
200	254.8	0.601	430	547.8	1.292	660	840.8	1.983
210	267.5	0.631	440	560.5	1.322	670	853.5	2.013
220	280.3	0.661	450	573.3	1.352	680	866.3	2.043
230	293.0	0.691	460	586.0	1.382	690	879.0	2.073
240	305.7	0.721	470	598.7	1.412	700	891.7	2.103
250	318.5	0.751	480	611.5	1.442	710	904.5	2.133
260	331.2	0.781	490	624.2	1.472	720	917.2	2.163
270	344.0	0.811	500	637.0	1.502	730	929.9	2.193
280	356.7	0.841	510	649.7	1.532	740	942.7	2.223
290	369.4	0.871	520	662.4	1.562	750	955.4	2.253
300	382.2	0.901	530	675.2	1.592	760	968.2	2.283
310	394.9	0.931	540	687.9	1.622	770	980.9	2.313
320	407.6	0.961	550	700.6	1.652	780	993.6	2.344

m³ Volume of Imported US Lumber
1 m³ = 424 BM

寸法名(1ンチ)					
(尺 丈 寸 寸 寸 寸)	3½ × 3¾	3½ × 3½	3½ × 3½	4 × 4	4½ × 4½
9 (7½ - ト)	—	—	—	—	0.0301
10	0.0224	0.0241	0.0249	0.0314	0.0334
12	0.0269	0.0289	0.0299	0.0377	0.0401
12½	—	—	—	—	—
13	0.0291	0.0313	0.0324	0.0409	0.0435
14	0.0313	0.0337	0.0349	0.0440	0.0468
16	0.0358	0.0385	0.0399	0.0503	0.0535
18	0.0403	0.0433	0.0449	0.0566	0.0602
20	0.0448	0.0482	0.0499	0.0629	0.0669

寸法名(1ンチ)					
(尺 丈 寸 寸 寸 寸)	4½ × 4½	4 × 6吋	4 × 8吋	4 × 10	4 × 12
9 (7½ - ト)	0.0320	0.0425	0.0566	0.0708	0.0849
10	0.0355	0.0472	0.0629	0.0786	0.0943
12	0.0426	0.0566	0.0755	0.0943	0.1132
12½	0.0444	—	—	—	—
13	0.0462	0.0613	0.0813	0.1022	0.1226
14	0.0497	0.0660	0.0881	0.1101	0.1321
16	0.0568	0.0755	0.1006	0.1258	0.1509
18	0.0639	0.0849	0.1132	0.1415	0.1698
20	0.0710	0.0943	0.1258	0.1572	0.1887

Inches to Centimeters

寸法名(1ンチ)					
cm	1 ン チ	cm	1 ン チ	cm	1 ン チ
1	—	2.54	—	5½ (5.50)	13.97
1½	(1.125)	2.85	—	6	15.24
1¼	(1.25)	3.17	—	6½ (6.50)	16.51
1¾	(1.375)	3.49	—	7½ (7.125)	18.09
1½	(1.50)	3.81	—	8	20.32
1¾	(1.562)	3.96	—	8¾ (8.375)	21.27
1½	(1.625)	4.12	—	8½ (8.50)	21.59
1¾	(1.75)	4.44	—	8¾ (8.75)	22.23
1½	(1.875)	4.76	—	9	22.86
2	—	5.08	—	10½ (10.25)	26.03
3	—	7.62	—	10¾ (10.75)	27.30
3½	(3.375)	8.57	—	12	30.48
3½	(3.50)	8.89	—	14	35.56
3¾	(3.5625)	9.04	—	15	38.10
3½	(3.625)	9.20	—	16	40.64
4	—	10.16	—	17	43.18
4½	(4.125)	10.47	—	18	45.72
4¾	(4.1875)	10.63	—	20	50.80
4½	(4.25)	10.79	—	22	55.88
5	—	12.70	—	24	60.96

Conversion Table of Essential Quantity Investigation Units

Volume	<i>shaku</i> ³	<i>koku</i>	<i>age</i>	m ³	BM	ft ³
	1.0	0.1	8.333	0.028	11.792	0.983
	10	1.0	83.333	0.278	117.922	9.827
	0.12	0.012	1.0	0.003	0.142	0.118
	35.937	3.594	299.475	1.0	423.776	35.317
	0.085	0.008	0.707	0.002	1.0	0.083
	1.018	0.102	8.479	0.028	12	1.0

Distance	<i>sun</i>	<i>shaku</i>	cm	m	in	ft
	1.0	0.1	3.03	0.0303	1.193	0.099
	10	1.0	30.303	0.30303	11.93	0.9942
	0.33	0.033	1.0	0.01	0.3937	0.033
	33	3.3	100	1.0	39.37	3.281
	0.8382	0.084	2.54	0.0254	1.0	0.083
	10.06	1.006	30.48	0.3048	12	1.0

Weight	<i>kwan</i>	kg	pound	metric ton
	1.0	3.75	8.267	0.0038
	0.267	1.0	2.205	0.001
	0.121	0.454	1.0	0.0005
	266.67	1000	2205	1.0

Area	<i>tsobo</i>	<i>cho</i>	m ³	ft ²	acre
	1.0	0.0003	3.306	35.58	0.0008
	3000	1.0	9917	...	2.451
	0.303	0.0001	1.0	10.76	0.0002
	0.128	...	0.093	1.0	...
	1224	0.408	4047	43560	1.0

