ASME B29.22-2001
(Revision of ASME B29.22M-1995)

DROP FORGED RIVETLESS CHAINS, SPROCKET TEETH DRIVE CHAIN/DRIVE DOGS

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CORRESPONDENCE WITH B29 COMMITTEE

General. ASME standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Standard may interact with the Committee by requesting interpretations, proposing revisions, and attending Committee meetings. Correspondence should be addressed to:

Secretary, B29 Main Committee
The American Society of Mechanical Engineers
Three Park Avenue
New York, NY 10016-5990

Proposing Revisions. Revisions are made periodically to the Standard to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the Standard. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Standard. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation.

Interpretations. Upon request, the B29 Committee will render an interpretation of any requirement of the Standard. Interpretations can only be rendered in response to a written request sent to the Secretary of the B29 Main Committee.

The request for interpretation should be clear and unambiguous. It is further recommended that the inquirer submit his/her request in the following format:

Subject:	Cite the applicable paragraph number(s) and the topic of the inquiry.
Edition:	Cite the applicable edition of the Standard for which the interpretation is being requested.
Question:	Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. The inquirer may also include any plans or drawings, which are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in this format will be rewritten in this format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME Committee or Subcommittee. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

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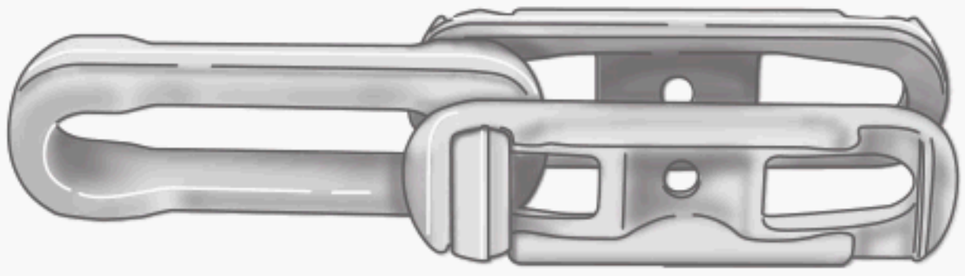

FIG. 3 X-TYPE DROP FORGED RIVETLESS CHAIN

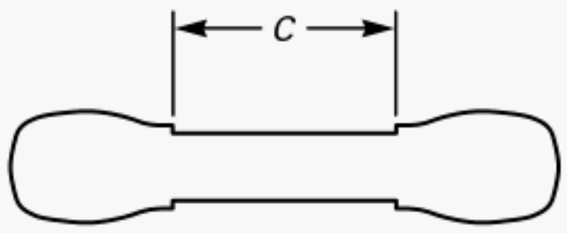

FIG. 4 X-TYPE CHAIN

4 MEASURING LOAD

The measuring load is determined as five times the weight of a 10 ft strand rounded to the nearest 100 lb. This value is then converted to kilonewtons for the metric equivalent.

5 STRAND LENGTH TOLERANCE

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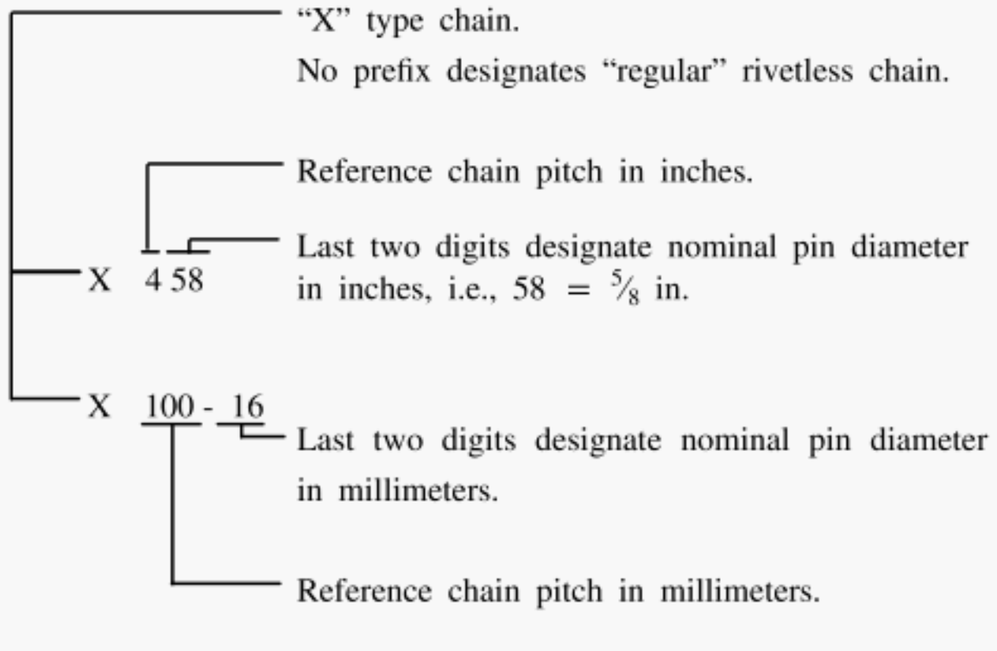
7 FINISH

Sharp edges and protrusions shall be absent from the pin seating and driving face areas of the center link.

8 NUMBERING SYSTEM

The numbering system for the rivetless chain gives significance to the chain number as shown.



NOTE: Modified X-type chain is identified as X-type without additional notation on the chain.

9 CHAIN ASSEMBLY

See Fig. 5 and Tables 2, 3, and 4.

10 SPROCKETS

Two sprocket tooth forms are included: Forms A and B. The major difference between these two forms is in the method of generating the tooth form. Form A produces a curved tooth face and Form B a straight tooth face. Either form may be used. See Tables 5, 6, and 7, and Figs. 6 and 7.

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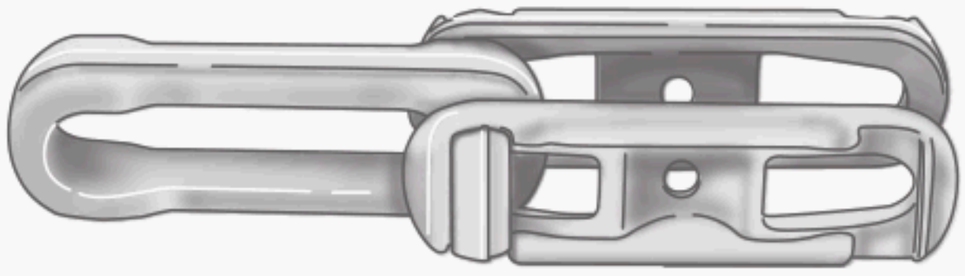

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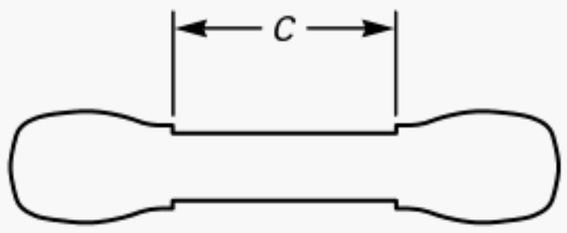

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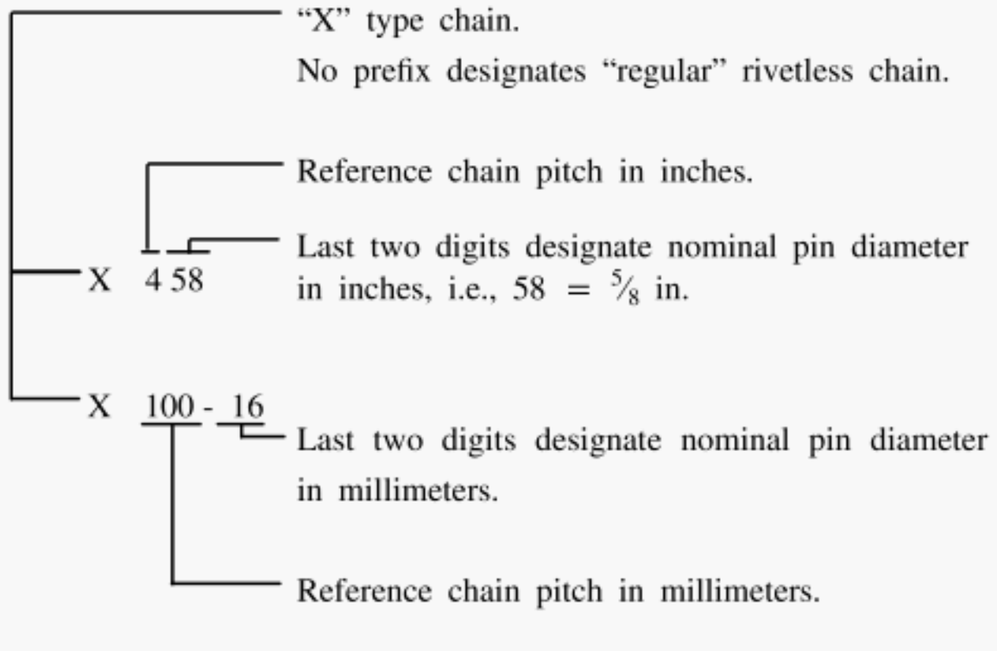

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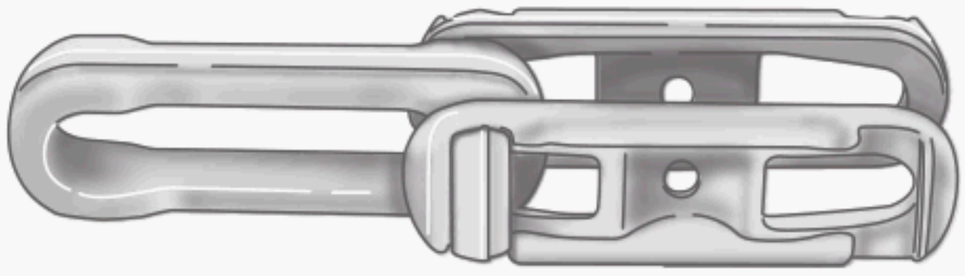

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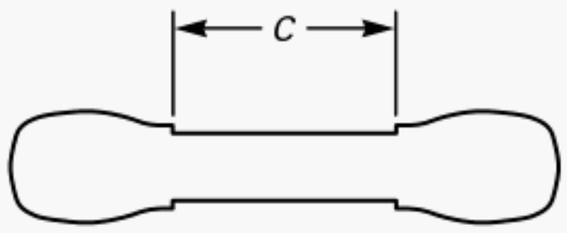

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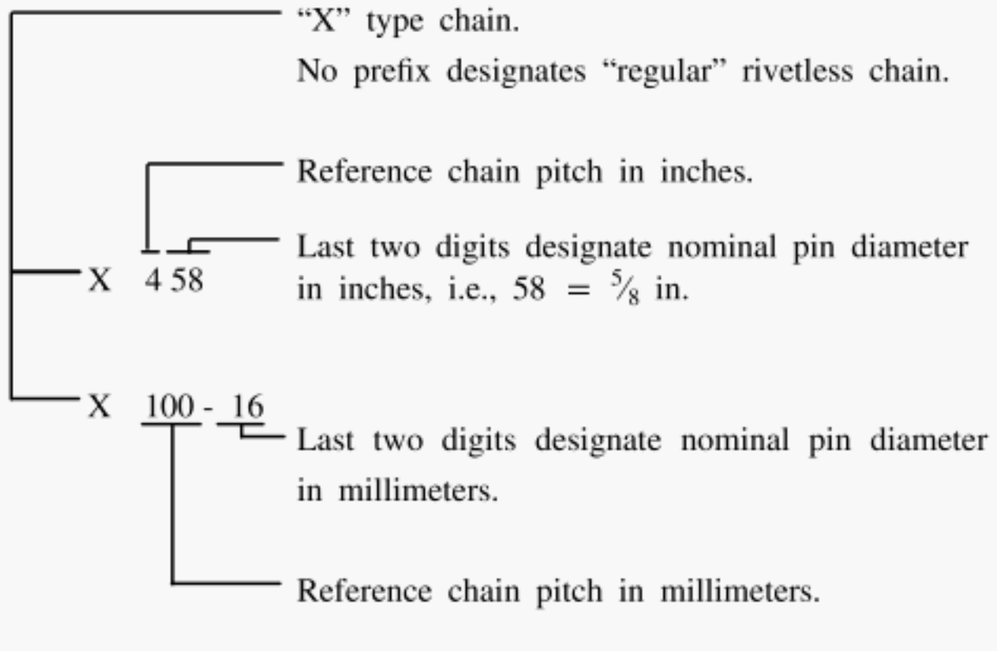

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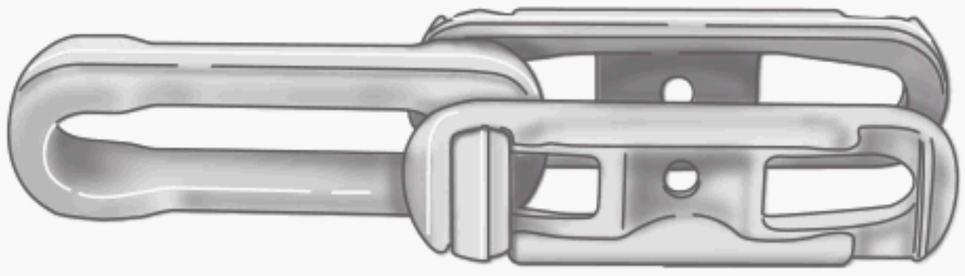

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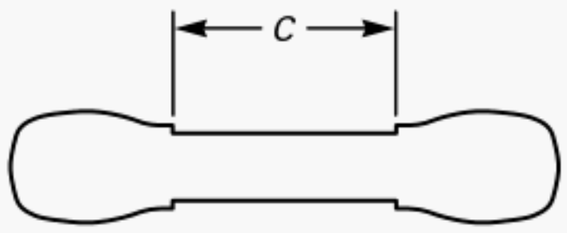

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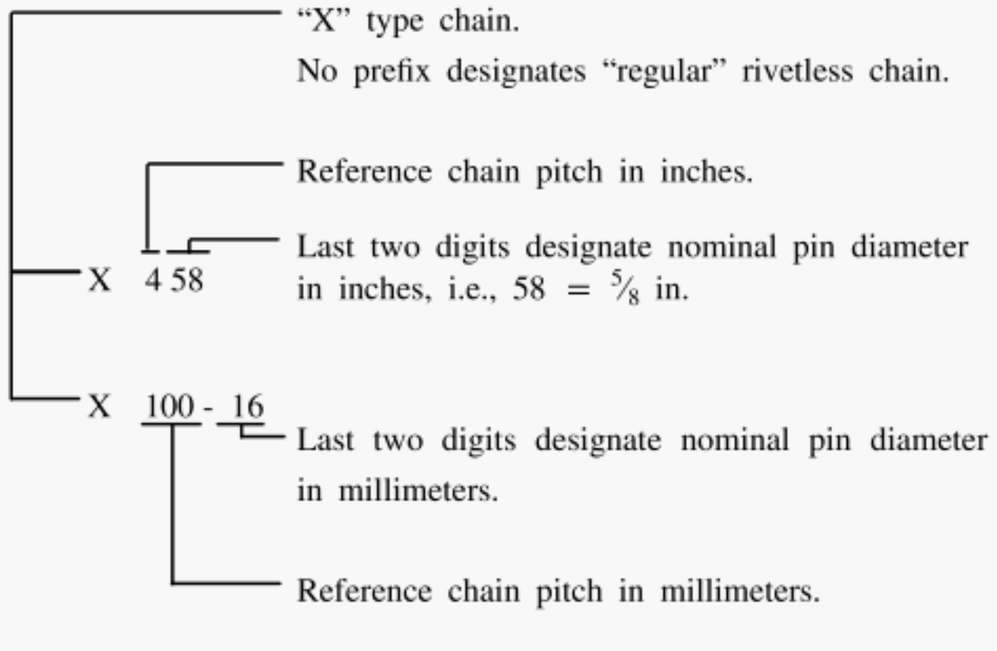

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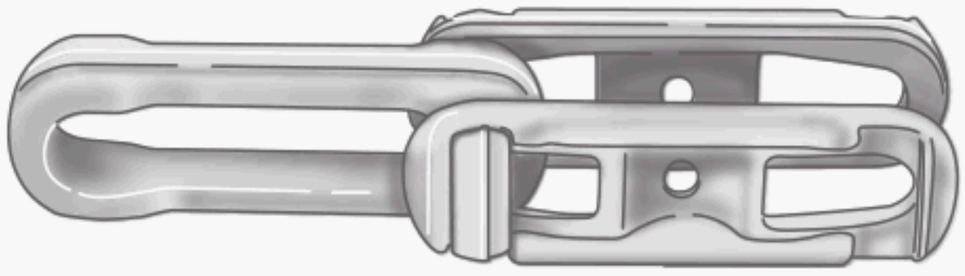

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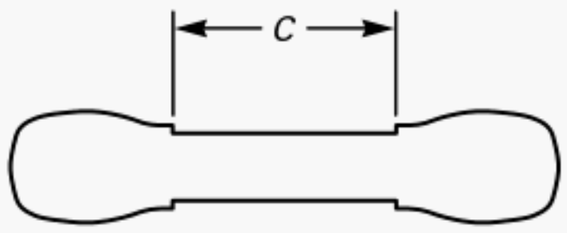

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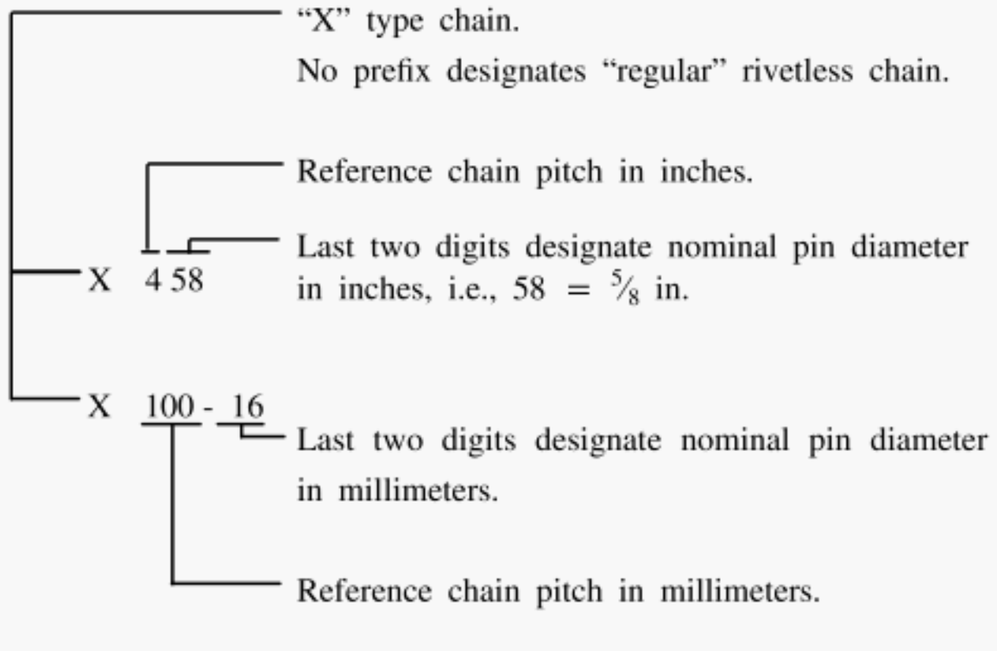

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TABLE 4 MODIFIED X-TYPE DROP FORGED RIVETLESS CHAIN
General Chain Dimensions, Minimum Ultimate Strength Rating, Strand Length, and Measuring Load for Checking Chain Lengths

	Dimensions, in. (mm)					
	X348 (X75-13)		X458 (X100-16)		X678 (X150-22)	
Chain No.	in.	(mm)	in.	(mm)	in.	(mm)
Reference pitch	3	(75)	4	(100)	6	(150)
P	3.015	(76.6)	4.031	(102.4)	6.031	(153.2)
B –Min.	0.53	(13.5)	0.66	(16.8)	0.95	(24.1)
C –Min.	1.59	(40.4)	2.31	(58.7)	3.34	(84.8)
D	0.49	(12.4)	0.63	(16.0)	0.87	(22.1)
F –Max.	1.10	(27.9)	1.44	(36.6)	2.03	(51.6)
L –Max.	1.73	(43.9)	2.25	(57.2)	3.03	(77.0)
T	0.40	(10.2)	0.48	(12.2)	0.70	(17.8)
X	0.74	(18.8)	1.00	(25.4)	1.28	(32.5)
X_a	0.51	(13.0)	0.64	(16.3)	0.83	(21.1)
Z	0.79	(20.1)	1.07	(27.2)	1.35	(34.3)
Minimum ultimate tensile strength, lb (kN)	22,000	(98)	42,000	(187)	72,000	(320)
No. of chain pitches in standard measuring length	40	(40)	30	(30)	20	(20)
Standard measuring length (in.)						
Max.	121.85	(3095.0)	121.68	(3090.7)	121.37	(3082.8)
Min.	120.10	(3050.5)	120.43	(3058.9)	120.37	(3057.4)
Measuring load, lb (kN)	100	(0.4)	200	(0.9)	300	(1.3)

CAUTION: The numerical values in this table must be read in conjunction with the definition and explanatory note appearing in Section 6, "Dimesions for Chain Links." The M.U.T.S. values do not provide a sufficient or appropriate basis for determining chain application.

TABLE 5 SPROCKETS:
Maximum Eccentricity and Face Runout at Root Diameter

Pitch Diameter						Max. Face Runout TIR		Max. Eccentricity TIR	
Over, in.		Including, in.	Over, mm		Including, mm	in.	mm	in.	mm
0	up to	12	0	up to	305	0.06	1.52	0.09	2.29
12	up to	24	305	up to	610	0.12	3.05	0.15	3.81
24	up to	36	610	up to	915	0.20	5.08	0.21	5.33
36	up to	48	915	up to	1220	0.30	7.62	0.27	6.86
48	up to	60	1220	up to	1524	0.33	8.38	0.33	8.38
60	up to	72	1524	up to	1830	0.36	9.14	0.39	9.91

GENERAL NOTE: For pitch diameter over 72 in. (1830 mm), consult manufacturer.

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L –Max.	1.73	(43.9)	2.25	(57.2)	3.03	(77.0)
T	0.40	(10.2)	0.48	(12.2)	0.70	(17.8)
X	0.74	(18.8)	1.00	(25.4)	1.28	(32.5)
X_a	0.51	(13.0)	0.64	(16.3)	0.83	(21.1)
Z	0.79	(20.1)	1.07	(27.2)	1.35	(34.3)
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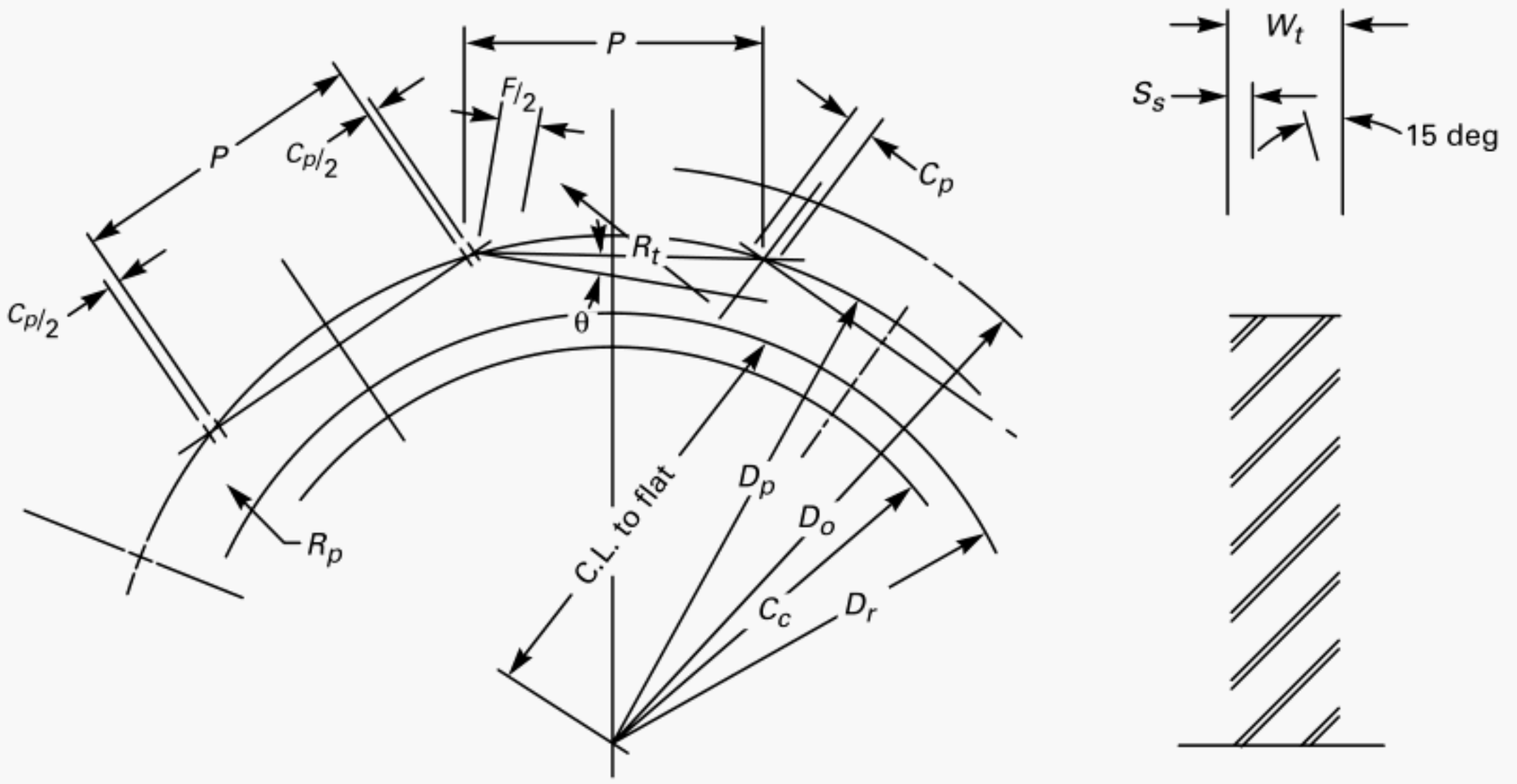
No. of chain pitches in standard measuring length	40	(40)	30	(30)	20	(20)
Standard measuring length (in.)						
Max.	121.85	(3095.0)	121.68	(3090.7)	121.37	(3082.8)
Min.	120.10	(3050.5)	120.43	(3058.9)	120.37	(3057.4)
Measuring load, lb (kN)	100	(0.4)	200	(0.9)	300	(1.3)

CAUTION: The numerical values in this table must be read in conjunction with the definition and explanatory note appearing in Section 6, "Dimesions for Chain Links." The M.U.T.S. values do not provide a sufficient or appropriate basis for determining chain application.

TABLE 5 SPROCKETS:
Maximum Eccentricity and Face Runout at Root Diameter

Pitch Diameter						Max. Face Runout TIR		Max. Eccentricity TIR	
Over, in.		Including, in.	Over, mm		Including, mm	in.	mm	in.	mm
0	up to	12	0	up to	305	0.06	1.52	0.09	2.29
12	up to	24	305	up to	610	0.12	3.05	0.15	3.81
24	up to	36	610	up to	915	0.20	5.08	0.21	5.33
36	up to	48	915	up to	1220	0.30	7.62	0.27	6.86
48	up to	60	1220	up to	1524	0.33	8.38	0.33	8.38
60	up to	72	1524	up to	1830	0.36	9.14	0.39	9.91

GENERAL NOTE: For pitch diameter over 72 in. (1830 mm), consult manufacturer.



The elements of sprocket tooth form may be determined by the following:

Pitch diameter, $D_p = P \times D_{pf}$
Root diameter (max.), $D_r = 2 \times$ (C.L. to Flat)

$$\text{C.L. to Flat} = \sqrt{\left(\frac{D_p}{2}\right)^2 - \left(\frac{p}{2}\right)^2} - \frac{1}{2}F$$

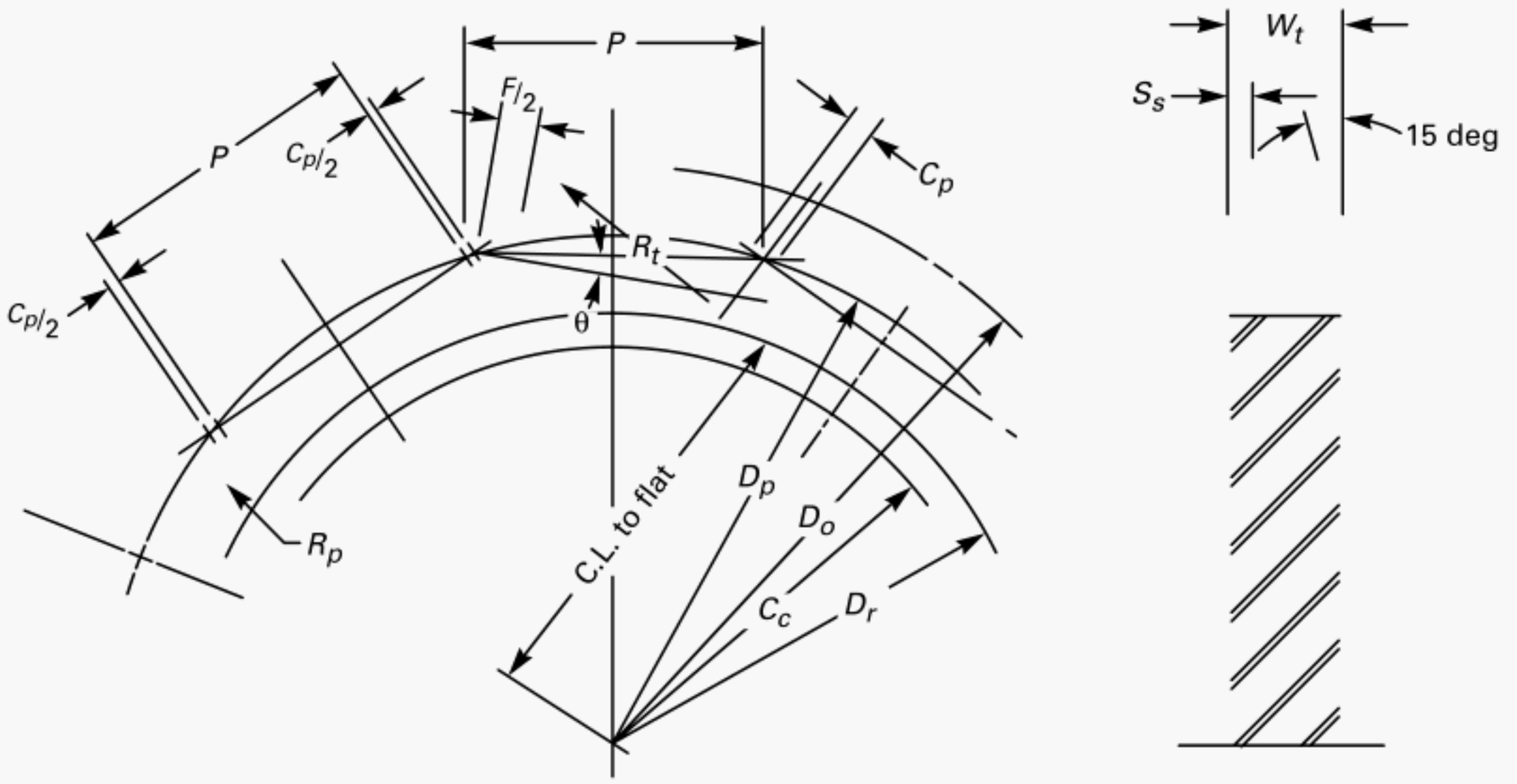
Chain clearance circle (max.), $C_c = 2 \times$ (C.L. to Flat) – $^1/_4$ in. (6.4 mm)
Outside diameter, $D_o = D_p \times$ K (see Table 6)
Total pitch line clearance, $C_p = D$
Pitch diameter factor, $D_{pf} =$ (see Table 6)
Topping radius, $R_t = 0.63 \times P$
Pressure angle, $\theta =$ (see Table 6)

$$\text{Pocket radius (max.)}, R_p = \frac{F}{2}$$

Total width (max.), $W_t = 0.95 \times Z$
Side slope, $S_s =$ approx. $0.12 \times W_t$ [not to exceed 0.38 in. (9.6 mm)]

Nomenclature:
D = pin diameter (see Tables 2, 3, 4)
$D_{pf} =$ cosecant $\frac{180}{N_p}$
F = chain height (see Tables 2, 3, 4)
N_p = number of pitches = $2 \times N_t$
N_t = number of sprocket teeth
P = chain pitch (see Tables 2, 3, 4)
Z = width between sidebars (see Tables 2, 3, 4)

FIG. 6 SPROCKET TOOTH FORM A



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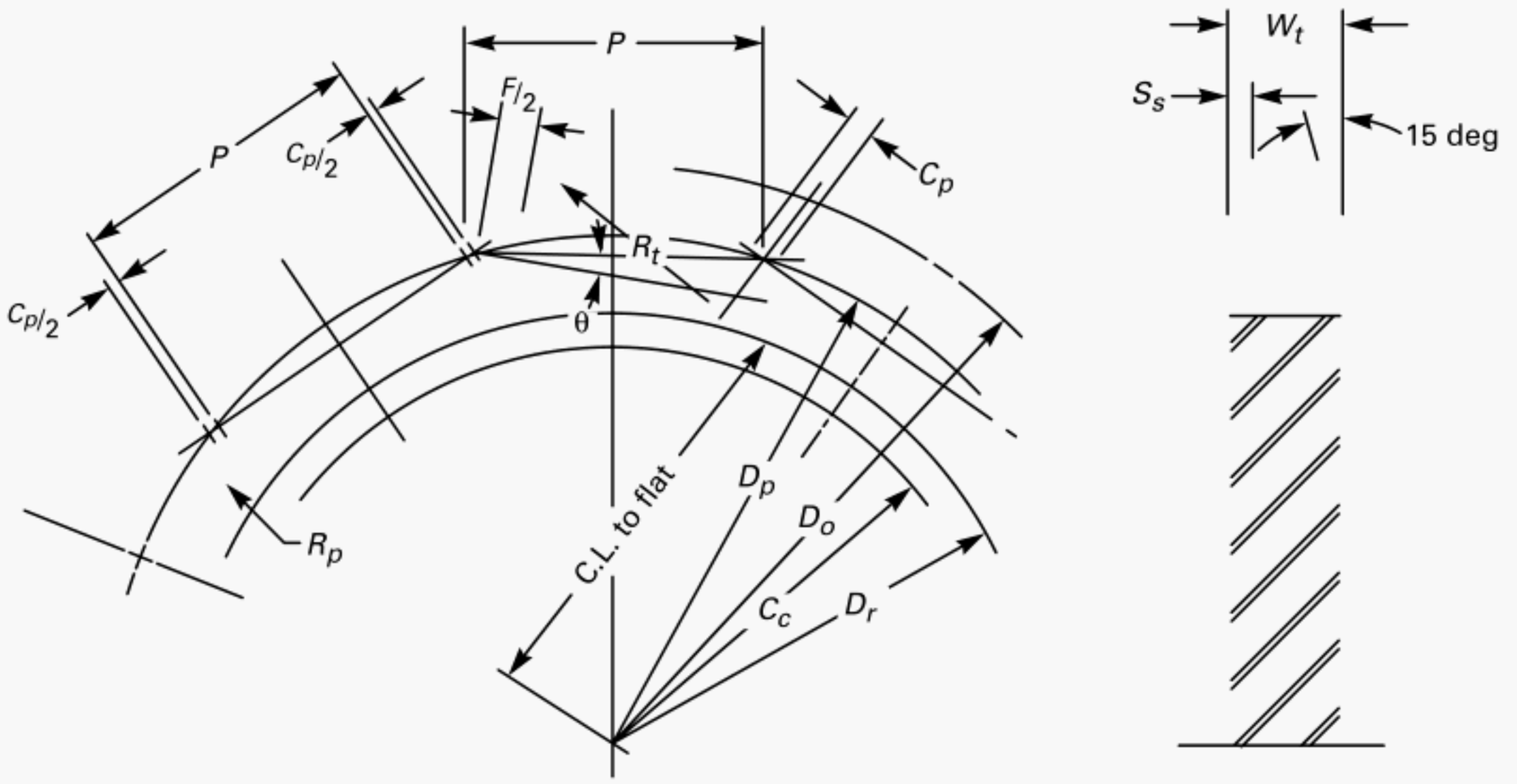

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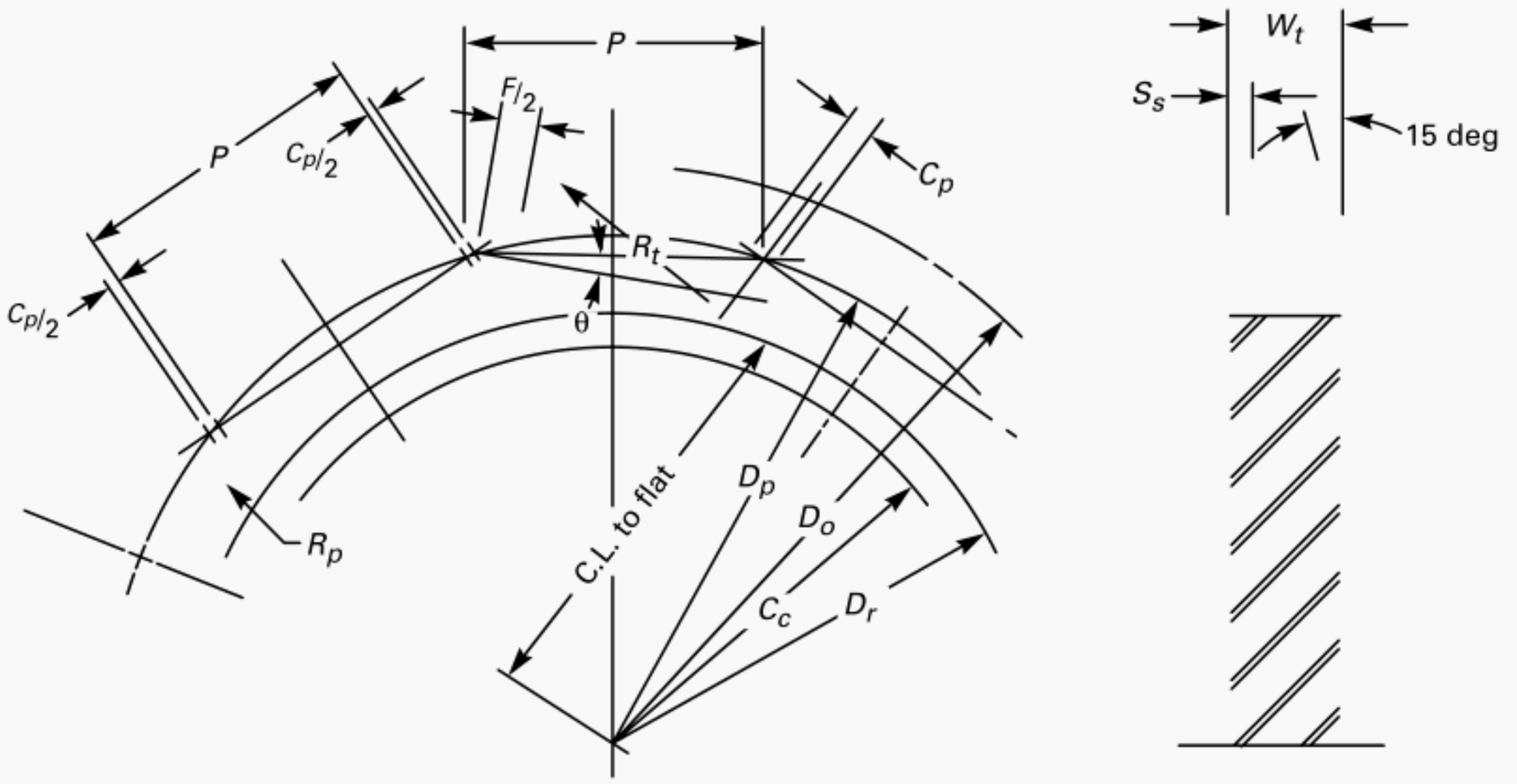

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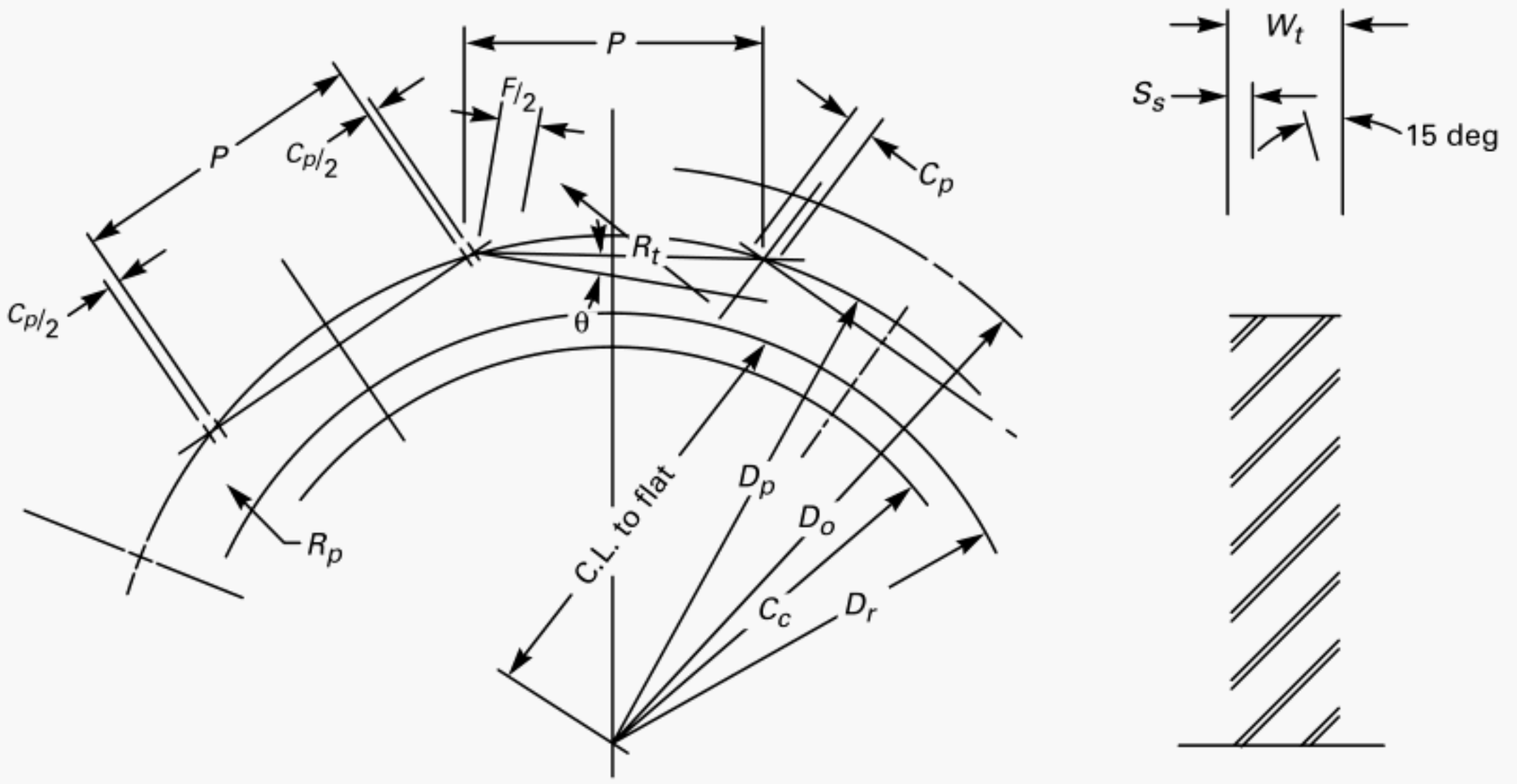

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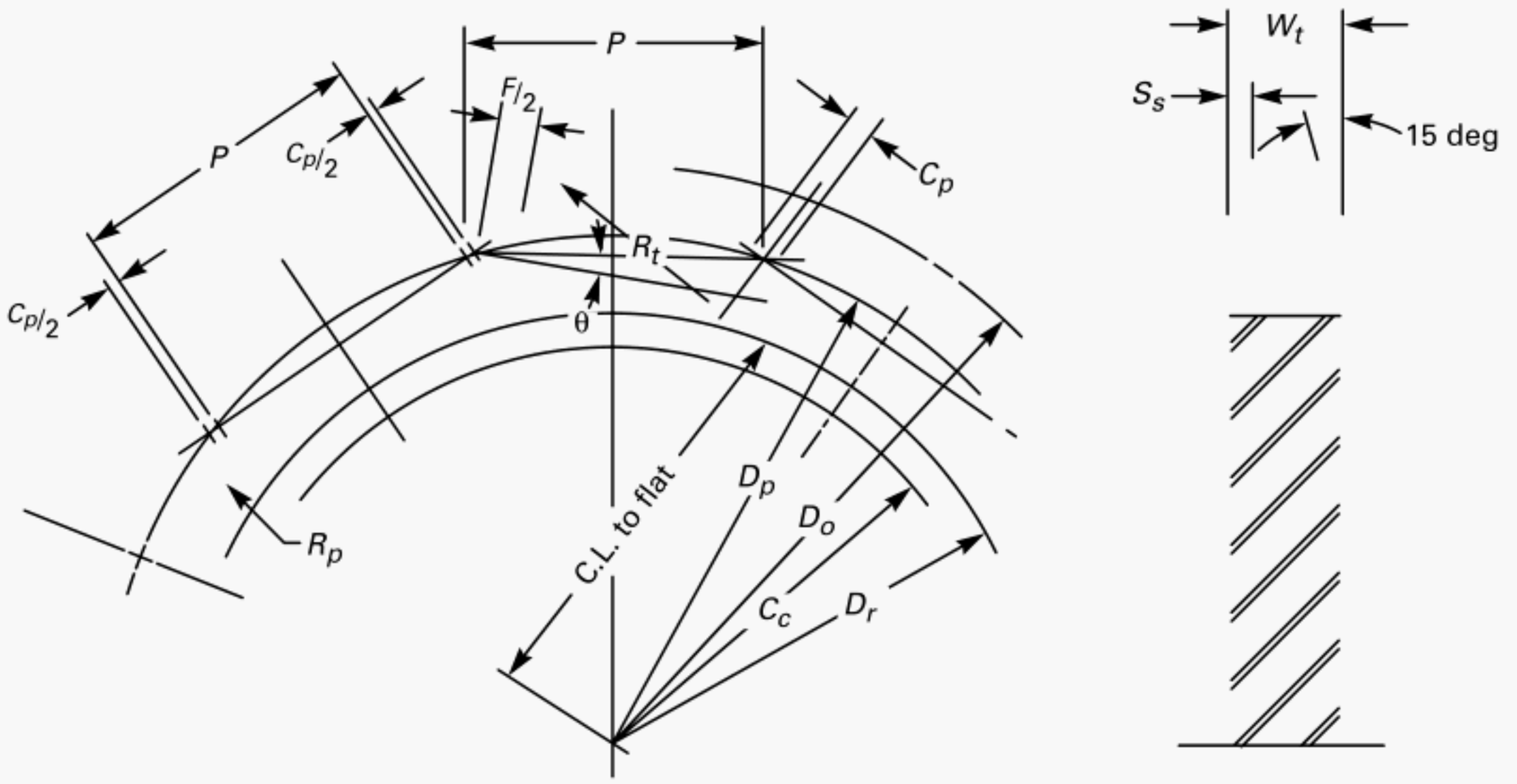

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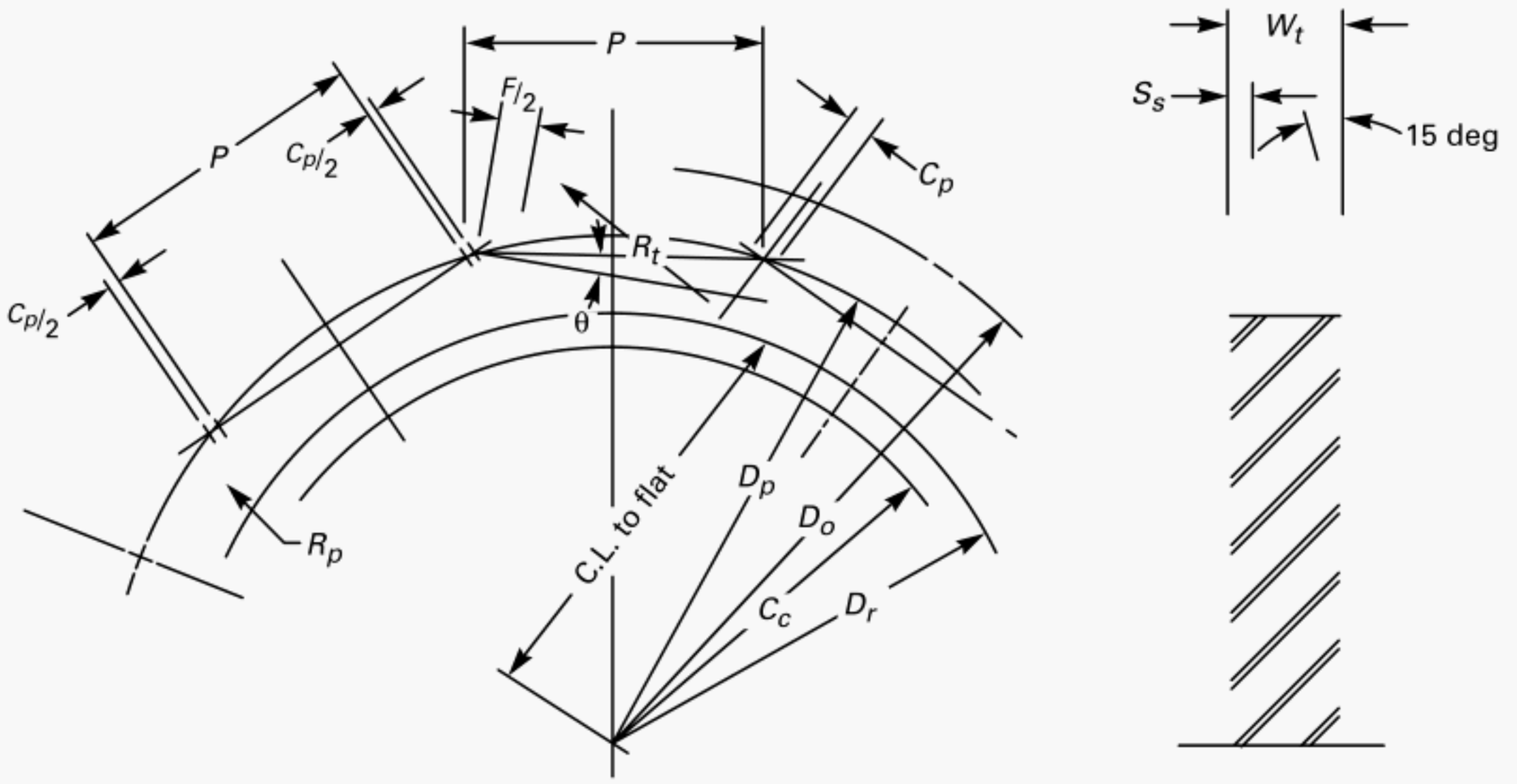

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