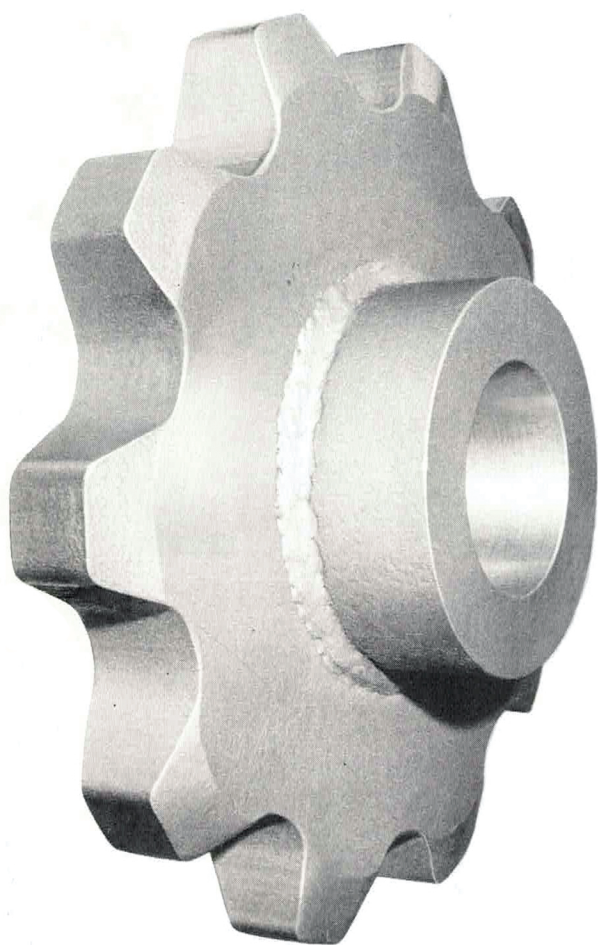


MURRAY TRU-CUT SPROCKETS

FLAME-CUT STEEL

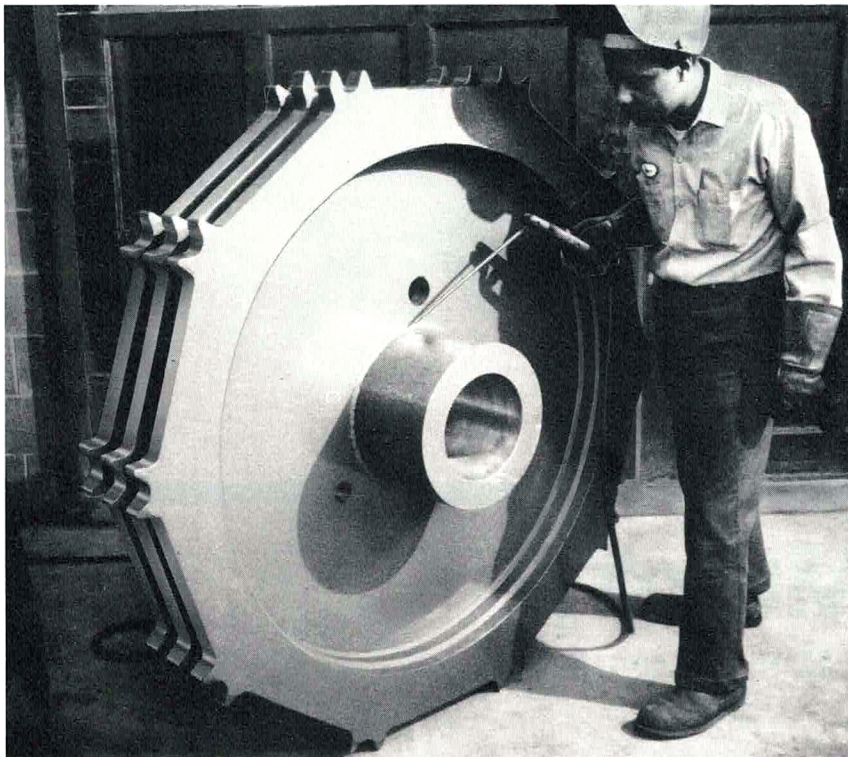
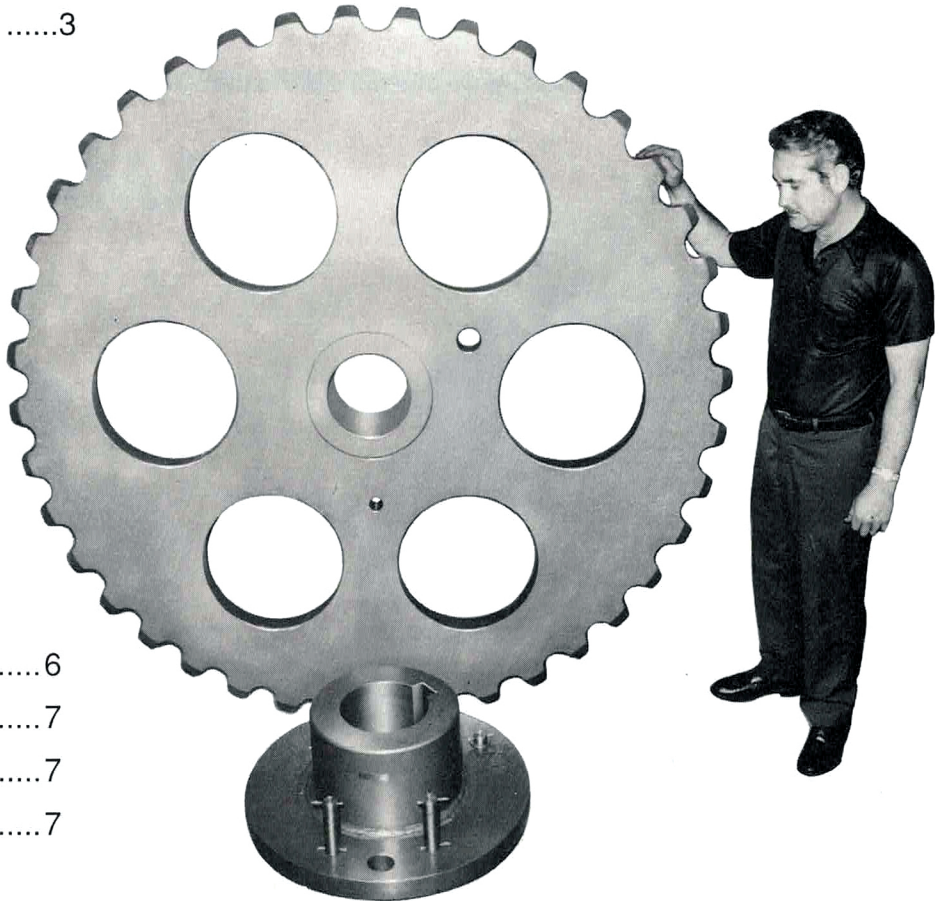


FOR
Conveyor and Elevator Chains
Engineering Class Chains
Large Pitch ANSI Roller Chains

Murray
EQUIPMENT COMPANY, INC.

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**OVER 6000
FLAME-CUT
SPROCKET
PATTERNS
ON HAND**

SPROCKETS



TRU-CUT STEEL SPROCKETS – Why and How

Tru-Cut flame cut sprockets are more accurate, tougher and harder than cast tooth sprockets.

Widely used with "Engineering-Class" chains for slow speed power transmission and conveyor applications, these sprockets will also effectively and economically operate with ANSI roller chains (size RC #120 through RC #240).

TRU-CUT steel sprockets have many advantages

- 1.** Being made from high carbon steel plate, Tru-Cut sprockets have a 300% higher tensile strength than cast iron sprockets.
- 2.** Steel sprockets are unbreakable.
- 3.** Since 1045 plate is used, the "as burned" tooth hardness of flame-cuts averages 30-35 Rockwell C, and is harder than all iron sprockets except heat treated alloy iron castings which approach 40 Rockwell C. The tooth hardness of Tru-Cut sprockets can be increased to 55 Rockwell C by flame hardening. Harder tooth surfaces will wear longer.
- 4.** When used with ANSI roller chains the hard tooth surface (30-35 Rockwell C) resulting from the flame cutting process is a distinct advantage. Plate steel sprockets with machined teeth are much softer and having them heat treated to increase hardness costs extra.
- 5.** Tru-Cut sprockets usually cost more than cast iron sprockets, but the quality, service and longer life more than offset the higher initial cost.



Tru-Cut sprockets are normally available in three to four weeks. This includes so-called special sprockets, regardless of pattern availability or size of the sprockets.



Tru-Cut sprockets can be furnished to 96" outside diameter in one piece. Larger sprockets are made in two or more mated sections. Plate thicknesses vary from 1/4" through 4", in commercial widths. Smallest practical chain pitch for flame cutting is 1 1/2" and the minimum burned pitch diameter is approximately 3". Maximum diameter, in segments, is unlimited.



Many types of special sprockets can be furnished. These include split construction, gap-tooth, skip-tooth, segmental rims, multiple width (two through four rims), ring sprockets, adjustable-hub, short-chord segments, hunting tooth, double-duty, compensating, etc. sprockets. Any type hub is available (A, B, C, D, Shear pin, Taperlock, QD, and Shear Coupling).

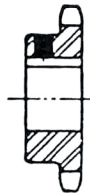
TRU-CUT SPROCKET SELECTION

I. SPROCKETS FOR STANDARD CHAINS, SPECIFY:

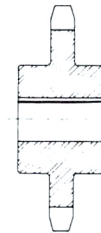
1. Chain size (number marked on barrel or side bar).
2. Number of teeth required.
3. Bore, keyseat, setscrew.
4. Hub Type (B or C) see page 7 for minimum standard sizes.
5. Hardness required (Rockwell C 30-35 is hardness as flame cut. Rockwell C 47-55 is achieved with standard heat treating).
6. Is sprocket one-piece or of split construction?
7. Is bronze bushed bore required?
8. If Type A plate-type sprocket (no hub), specify: - center hole; bolt circle; number and size of bolt holes.
9. If minimum plain bore (stock bore) is required, specify ultimate or maximum bore required.
10. Any special tooth contour (please supply print).



TYPE A



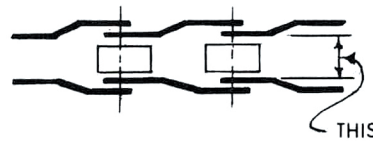
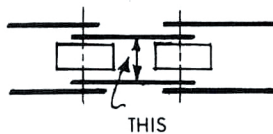
TYPE B



TYPE C

II. TO DETERMINE PITCH DIAMETER AND PLATE THICKNESS WHEN NOT KNOWN.

1. To determine sprocket pitch diameter, multiply chain pitch by tooth constant shown in table on page 6. For Skip Tooth sprockets or Traction Wheels, use number of chain pitches on pitch diameter and not number of teeth.
2. Determine plate thickness from table and sketches below.



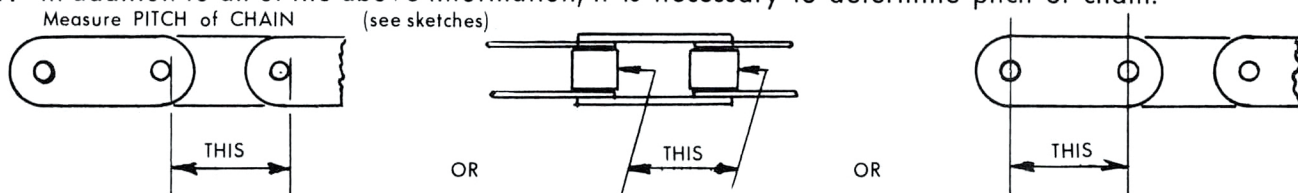
STANDARD TOOTH THICKNESSES

Inside Width of Chain	Sprocket Face	Inside Width of Chain	Sprocket Face	Inside Width of Chain	Sprocket Face
$\frac{7}{16}$ to $\frac{1}{2}$ "	$\frac{3}{8}$ "	$\frac{13}{8}$ to $1\frac{15}{32}$ "	$1\frac{1}{4}$ "	$2\frac{5}{8}$ to $2\frac{13}{16}$ "	$2\frac{1}{2}$ "
$\frac{9}{16}$ to $1\frac{1}{16}$	$\frac{1}{2}$	$1\frac{1}{2}$ to $1\frac{19}{32}$	$1\frac{3}{8}$	$2\frac{7}{8}$ to $3\frac{1}{8}$	$2\frac{3}{4}$
$\frac{3}{4}$ to $2\frac{7}{32}$	$\frac{5}{8}$	$1\frac{5}{8}$ to $1\frac{23}{32}$	$1\frac{1}{2}$	$3\frac{3}{16}$ to $3\frac{3}{8}$	3
$\frac{7}{8}$ to $3\frac{1}{32}$	$\frac{3}{4}$	$1\frac{3}{4}$ to $1\frac{27}{32}$	$1\frac{5}{8}$	$3\frac{7}{16}$ to $3\frac{5}{8}$	$3\frac{1}{4}$
1 to $1\frac{13}{32}$	$\frac{7}{8}$	$1\frac{7}{8}$ to $2\frac{1}{8}$	$1\frac{3}{4}$	$3\frac{11}{16}$ to $3\frac{15}{16}$	$3\frac{1}{2}$
$1\frac{1}{8}$ to $1\frac{17}{32}$	1	$2\frac{3}{16}$ to $2\frac{5}{16}$	2	4 to $4\frac{1}{4}$	$3\frac{3}{4}$
$1\frac{1}{4}$ to $1\frac{11}{32}$	$1\frac{1}{8}$	$2\frac{3}{8}$ to $2\frac{9}{16}$	$2\frac{1}{4}$	$4\frac{5}{16}$ to $4\frac{1}{2}$	4

SPROCKETS

III. SPROCKETS FOR SPECIAL CHAINS:

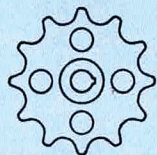
1. In addition to all of the above information, it is necessary to determine pitch of chain:



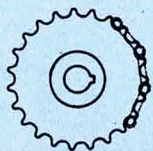
Remember — wear elongates pitch and reduces part size. Do your best to estimate the original dimension. Measure the smallest width between the side bars.

2. Measure roller diameter. If badly worn, try to determine original size.
3. Measure height of chain side-bar.
4. Is there any O.D. interference with chain attachments, guards, etc.?
5. Are there rods or bars thru chain sidebars between the rollers? If so, please locate and list size of thru rods.

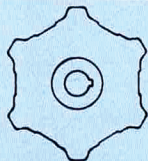
IN ADDITION TO STANDARD SPROCKETS—THE FOLLOWING TYPES CAN BE FURNISHED



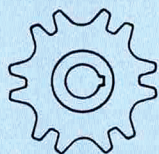
Double Duty sprockets have two teeth for each pitch so when one set of teeth is worn the chain can be advanced one half pitch to a new set of teeth. Often used with long pitch chains. These are similar to Hunting Tooth sprockets.



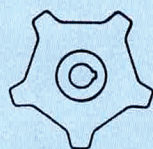
Hunting Tooth sprockets have an odd number of teeth with the pitch of the teeth one-half of the chain pitch. This causes the chain roller to advance one half pitch for each revolution, doubling the number of contacts and doubling the sprocket life.



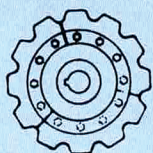
Skip Tooth sprockets have a pitch diameter with an even number of chain pitches with a tooth omitted at every other pitch. To figure the pitch diameter use twice the number of teeth. Drop-forged chains require this type sprocket because of their solid "roller link."



Gap Tooth sprockets are used with chains having through rods or rollers located between the chain pin rollers that articulate over the sprocket. Clearance in the tooth form is provided for these rods.



Draw Bench chains often have alternate pitches of different lengths and are skip tooth design, when "roller" link is solid bar. The higher tensile of steel sprockets is advantageous.



Segmental Rim sprockets have bolt-on rims in 3, 4 or more pieces. The sprocket rim can be replaced without removing the chain from the sprocket or the sprocket from the shaft. This type is ideal for elevators. The hubs can be made in solid or split construction.

SPROCKET PITCH DIAMETER CONSTANTS

To obtain the pitch diameter of a sprocket, multiply the constant for the number of teeth from the table below by the chain pitch.

Number of Teeth	Constant	Number of Teeth	Constant	Number of Teeth	Constant
4	1.4142	53	16.8803	102	32.473
5	1.7013	54	17.1984	103	32.791
6	2.0000	55	17.5166	104	33.109
7	2.3048	56	17.8347	105	33.427
8	2.6131	57	18.1529	106	33.746
9	2.9238	58	18.4710	107	34.064
10	3.2361	59	18.7892	108	34.382
11	3.5495	60	19.1073	109	34.701
12	3.8637	61	19.4255	110	35.019
13	4.1785	62	19.7437	111	35.337
14	4.4940	63	20.0618	112	35.655
15	4.8097	64	20.3800	113	35.974
16	5.1259	65	20.6982	114	36.292
17	5.4423	66	21.0164	115	36.610
18	5.7588	67	21.3346	116	36.929
19	6.0756	68	21.6528	117	37.247
20	6.3925	69	21.9710	118	37.565
21	6.7095	70	22.2892	119	37.883
22	7.0266	71	22.6074	120	38.201
23	7.3439	72	22.9256	121	38.519
24	7.6613	73	23.2438	122	38.837
25	7.9787	74	23.5620	123	39.156
26	8.2962	75	23.8802	124	39.475
27	8.6138	76	24.1984	125	39.794
28	8.9315	77	24.5166	126	40.112
29	9.2491	78	24.8349	127	40.430
30	9.5668	79	25.1531	128	40.748
31	9.8845	80	25.4713	129	41.066
32	10.2023	81	25.7896	130	41.384
33	10.5201	82	26.1079	131	41.702
34	10.8380	83	26.4261	132	42.020
35	11.1558	84	26.7442	133	42.338
36	11.4737	85	27.0626	134	42.656
37	11.7917	86	27.3807	135	42.975
38	12.1096	87	27.6989	136	43.293
39	12.4275	88	28.0170	137	43.611
40	12.7455	89	28.3355	138	43.930
41	13.0635	90	28.6537	139	44.249
42	13.3815	91	28.9723	140	44.567
43	13.6995	92	29.2901	141	44.885
44	14.0175	93	29.6082	142	45.203
45	14.3356	94	29.9268	143	45.521
46	14.6536	95	30.2447	144	45.840
47	14.9717	96	30.5632	145	46.158
48	15.2898	97	30.8815	146	46.477
49	15.6079	98	31.1999	147	46.796
50	15.9260	99	31.5177	148	47.114
51	16.2441	100	31.8362	149	47.432
52	16.5619	101	32.1540	150	47.750

Example: To determine pitch diameter of 27-tooth sprocket for C-131 chain. C-131 chain is 3.075 pitch. Constant for 27 teeth is 8.6138. Pitch diameter is $8.6138 \times 3.075 = 26.487''$.

SPROCKETS

STANDARD HUB SIZES

FABRICATED STEEL

Each hub size serves a normal range of bores. For bores outside this range, determine hub dimensions as explained in the note in the lower left or upper right of the table. The minimum "Hub Diameter" for each hub size letter is the first diameter shown in the row of the hub size letter and is in bold face type.

Hub Variations: In each size (A, B, C, etc.) the hub diameter varies with shaft diameter, but hub length remains constant.

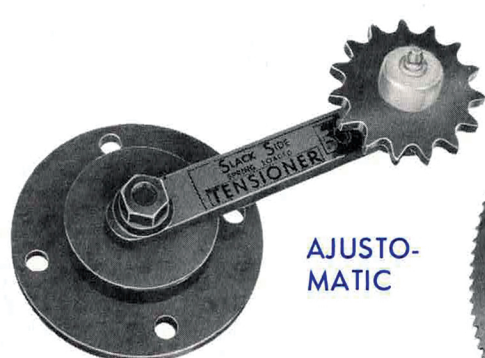
Length Tolerance: Each faced (machined) end has a tolerance of $\pm \frac{1}{16}$ inch from centerline. For overall length, double these amounts.

Bore		15/16	17/16	17/8	111/16	115/16	23/16	27/16	211/16	215/16	33/16	37/16	311/16	315/16	47/16	415/16	57/16	515/16	61/2	7	7 1/2	8	8 1/2	9	9 1/2	10							
Key	Size	Width	1/4	1/4	3/8	3/8	1/2	1/2	5/8	5/8	3/4	3/4	7/8	7/8	1	1	1 1/4	1 1/4	1 1/2	1 1/2	1 3/4	1 3/4	2	2	2	2 1/2	2 1/2						
		Height	1/4	1/4	3/8	3/8	1/2	1/2	5/8	5/8	3/4	3/4	7/8	7/8	1	1	1 1/4	1 1/4	1 1/2	1 1/2	1 3/4	1 3/4	1 1/2	1 1/2	1 1/2	1 3/4	1 3/4						
Hub Size Letter	Allowable Torque Inch pounds	Hub Lgth.	SQUARE KEY																	FLAT KEY													
	DIAMETERS OF HUB—KEYSEATED (Minimum) THESE DIAMETERS ARE NORMALLY EXCEEDED BY STANDARD UNITS																																
A	500	1 1/4	1 7/8	2	2 1/2	3	3 1/2	3 1/2	4	4 1/2	5	5								When hub size letter and bore intersect in one of these blank spaces, use the first hub diameter below in the same column. The correct hub length is found in the same row as the hub diameter used.													
B	1,000	1 1/2	1 7/8	2	2 1/2	3	3 1/2	3 1/2	4	4 1/2	5	5	5 1/2																				
C	2,000	1 3/4	1 7/8	2	2 1/2	3	3 1/2	3 1/2	4	4 1/2	5	5	5 1/2	5 1/2																			
D	3,500	2	1 7/8	2	2 1/2	3	3 1/2	3 1/2	4	4 1/2	5	5	5 1/2	5 1/2	6																		
E	5,600	2 1/2		2	2 1/2	3	3 1/2	3 1/2	4	4 1/2	5	5	5 1/2	5 1/2	6	6 1/2																	
F	8,500	2 3/4			2 1/2	3	3 1/2	3 1/2	4	4 1/2	5	5	5 1/2	5 1/2	6	6 1/2	7 1/2																
G	12,500	3 1/4				3	3 1/2	3 1/2	4	4 1/2	5	5	5 1/2	5 1/2	6	6 1/2	7 1/2	8															
H	17,000	3 1/2					3 1/2	3 1/2	4	4 1/2	5	5	5 1/2	5 1/2	6	6 1/2	7 1/2	8	9														
I	23,000	4						3 1/2	4	4 1/2	5	5	5 1/2	5 1/2	6	6 1/2	7 1/2	8	9	9 1/2													
J	30,000	4 1/4							4	4 1/2	5	5	5 1/2	5 1/2	6	6 1/2	7 1/2	8	9	9 1/2	10												
K	38,000	4 1/2								4 1/2	5	5	5 1/2	5 1/2	6	6 1/2	7 1/2	8	9	9 1/2	10	10 1/2											
L	47,000	5									5	5	5 1/2	5 1/2	6	6 1/2	7 1/2	8	9	9 1/2	10	10 1/2	11										
M	60,000	5 1/4										5	5 1/2	5 1/2	6	6 1/2	7 1/2	8	9	9 1/2	10	10 1/2	11	11 1/2									
N	70,000	5 1/2											5 1/2	5 1/2	6	6 1/2	7 1/2	8	9	9 1/2	10	10 1/2	11	11 1/2	12								
O	100,000	6												6	6	6 1/2	7 1/2	8	9	9 1/2	10	10 1/2	11	11 1/2	12	13							
P	140,000	6 1/2													6 1/2	6 1/2	7 1/2	8	9	9 1/2	10	10 1/2	11	11 1/2	12	13	13 1/2						
Q	190,000	7														7	7 1/2	8	9	9 1/2	10	10 1/2	11	11 1/2	12	13	13 1/2						
R	245,000	7 1/4															8	8	9	9 1/2	10	10 1/2	11	11 1/2	12	13	13 1/2						
S	320,000	8 1/2																9	9	9 1/2	10	10 1/2	11	11 1/2	12	13	13 1/2						
T	400,000	9 1/2																	9	9 1/2	10 1/2	10 1/2	11 1/2	11 1/2	12	13	13 1/2						
U	500,000	10																		10	10 1/2	11	11 1/2	12	12 1/2	13 1/2	13 1/2						
V	600,000	10 1/2																			10 1/2	11	11 1/2	12	12 1/2	13 1/2	14						
W	720,000	11																				11 1/2	12	12 1/2	12 1/2	13 1/2	14						
X	850,000	11 1/2																					12	12 1/2	13	14	14						
Y	1,000,000	12																						12 1/2	13	14	14 1/2						
Z	1,250,000	12 1/2																							13 1/2	14 1/2	14 1/2						

TRU-CUT STEEL **SPROCKETS**

- ACCURATELY MATCH THE CHAIN
- WITHSTAND SHOCK LOADS
- ARE UNBREAKABLE
- HAVE LONG WEAR LIFE
- ARE READILY AVAILABLE

OTHER *SPECIALTY* PRODUCTS

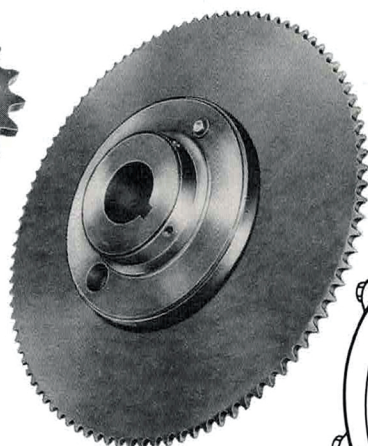


AJUSTO-MATIC

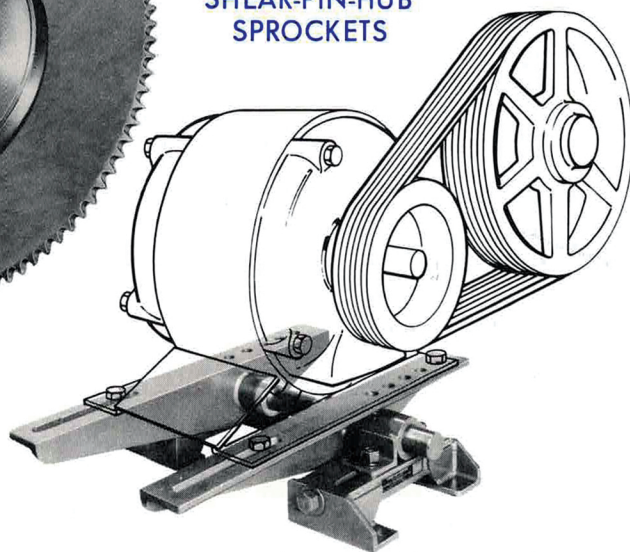
CHAIN TENSIONERS



AJUSTO-SCREW



**TORK-TROL
SHEAR-PIN-HUB
SPROCKETS**



TENS-A-MATIC PIVOTED MOTOR BASE

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