MIL-STD-421B
11 March 1975
SUPERSEDING
MIL-STD-421A
4 December 1967

MILITARY STANDARD

CHAIN, ROLLER; POWER TRANSMISSION AND CONVEYOR, FLAT LINK PLATES; BASE PITCH, SINGLE AND MULTIPLE STRAND; CONNECTING LINKS AND ATTACHMENT LINKS

FSC 3020

DEPARTMENT OF DEFENSE

WASHINGTON, DC 20301

Chain, Roller; Power Transmission and Conveyor, Flat Link Plates; Base Pitch, Single and Multiple Strand; Connecting Links and Attachment Links.

MIL-STD-421B

1. This Military Standard is approved for use by all Departments and Agencies of the Department of Defense.

2. Recommended corrections, additions, or deletions should be addressed to Commander, U.S. Army Mobility Equipment Research and Development Center, ATTN: STSFB-DS, Fort Belvoir, VA 22060.

FOREWORD

The American Standards Association Sectional Committee B29, Transmission Chain, Sprockets and Cutters was organized in 1924, redesignated the United States of America Standards Institute in 1966, and again redesignated the American National Standards Institute in 1969. The ANSI Standard B29.1 "Transmission Roller Chains and Sprocket Teeth" and B29.5 "Attachments for Transmission Roller Chains" represent many years of study and research. Prior to organizing sectional committees, the original design of precision roller chains dates back to the 1890's, although various types of drive chains have been used for centuries.

Chain attachments have been in use for many years with numerous configurations and applications; however, the attachments were not interchangeable from one manufacturers chain to another, restricting the user to one source of supply. The need for standardization of dimensions and tolerances to accomplish interchangeability for attachments for roller chain was reviewed and a subcommittee of the Roller Chain Technical Committee of the Association was established in 1947 to propose standards that would obtain interchangeability. The result of this work was reviewed and approved by the Sectional Committee B29.

ANSI B29.1 is broad in scope, covering base pitch, single and multiple strand chains of straight link design, lending themselves to a great number of transmission-conveying usage.

ANSI B29.5 contains modifications of standard chain components to adapt chains for use in conveying, elevating and timing operations. The components most commonly modified are the pin link plate, roller link plate and chain pin.

The developed standards, ANSI B29.1 and ANSI B29.5, insure physical and functional interchangeability, with very few exceptions. The uses for industry and the Government are identical.

CONTENTS

FIGURES

TABLES

1. SCOPE

1.1 Coverage. This is a design standard covering Type 1 RC, Chain, Roller: Power Transmission and Conveyor, Flat Link Plates; Base Pitch, Single and Multiple Strand, and Connecting Links (CL) and Attachment Links.

1.2 Application. Chains and components covered by this standard with technical characteristics specified herein shall be installed on all new equipment where such types are applicable. This standard does not apply to equipment presently in the military supply system, except as technical characteristics will permit.

2. REFERENCED DOCUMENTS

2.1 The issues of the following documents in effect on the date of invitation for bids form a part of this standard to the extent specified herein:

GOVERNMENTAL

Military Specification:

MIL-C-52058 - Chains, Roller: Power Transmission and Conveyor, with Connecting Links and Attachment Links.

(Copies of specification required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

NONGOVERNMENTAL

AMERICAN NATIONAL STANDARDS INSTITUTE, INC. (ANSI)

B29.1 - Transmission Roller Chains and Sprocket Teeth.
B29.5 - Attachments for Transmission Roller Chains.

(Application for copies should be addressed to the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.)

3. DEFINITIONS

3.1 All military and ANSI chain numbers referenced herein are based on chain numbers of ANSI B29.1 and attachment numbers from ANSI B29.5.

4. GENERAL REQUIREMENTS

(Not applicable.)

5. DETAILED REQUIREMENTS

5.1 Requirements and technical characteristics shall be as specified herein and in MIL-C-52058.

Custodians:

Army - ME
Navy - YD

Preparing activity:

Army - ME

Review activity:

DSA - CS

Project No. 3020-0083

User activities:

Army - AT, MI
Navy - SH

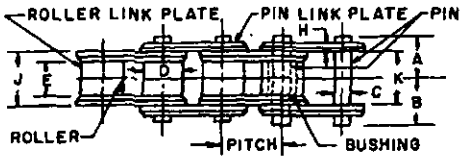

FIGURE 1. SINGLE STRAND CHAIN

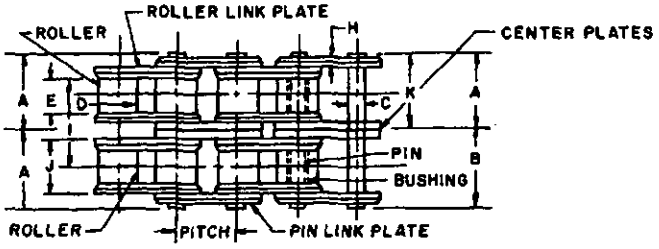

FIGURE 2. MULTIPLE STRAND CHAIN

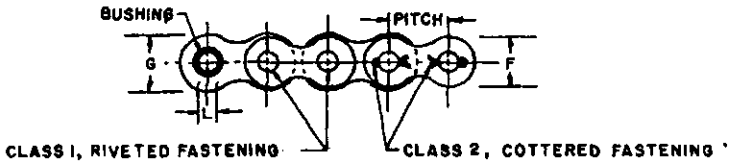

FIGURE 3. SIDE VIEW OF SINGLE AND MULTIPLE STRAND CHAINS

LEGEND:

A = Nominal distance from pin head to center line of chain.
B = Nominal distance from pin end to center line of chain.
C = Nominal diameter of pin.
D = Nominal diameter of roller.
E = Nominal chain width between roller link plates.
F = Maximum width of pin link plates.
G = Maximum width of roller link plates.
H = Nominal thickness of link plates.
I = Transverse pitch.
J = Maximum width of roller link.
K = Minimum distance between pin link plates.
L = Minimum hole in bushing.

REQUIREMENTS:

1. Tolerances;

Maximum A = A + 0.020	Nominal I = E + (4.22 x H)
Maximum B = B + 0.020	Maximum J = E + (2.12 x H)
Maximum C = C + 0.0005	Minimum K = J + 0.002
Maximum D = Nominal D	Minimum L = C + 0.0015

2. Grade A, carbon and alloy steel chains.
3. Grade B, Austenitic steel - corrosive resistant chains.
4. Grade C, Martensitic steel - corrosive resistant - magnetic chains.
5. Grade A, ANSI Chain numbers 25 through 50 shall be supplied with Class 1, riveted fastening.
6. Grade A, ANSI Chain numbers 60 through 240 shall be supplied with Class 2, cottered fastening, unless otherwise specified.

NOTES:

1. See Table I for dimensions.
2. All dimensions are in inches.
3. ANSI chain numbers 25 and 35 are rollerless.
4. Dashed numbers (e.g. -2) affixed to ANSI chain numbers (e.g. 40-2) indicate numbers of strands.
5. Class 2, cottered fastening may consist of a single cotter through pin holes, or double cotters as shown in figure 3 above, positioned at the option of the manufacturer.
6. Material for cotter fasteners shall be compatible with the grade of chain.

TABLE I

TYPE 1RC, CHAIN ROLLER: POWER TRANSMISSION AND CONVEYING, FLAT LINK PLATES, BASE PITCH, SINGLE AND MULTIPLE STRAND

MIL-STD CHAIN NUMBER	ANSI CHAIN NUMBER	PITCH	MINIMUM ULTIMATE TENSILE STRENGTH POUNDS	APPROX WT/FT POUNDS	NOMINAL WIDTH A	NOMINAL WIDTH B	PIN DIA. C NOM.	ROLLER DIA. D NOM.	WIDTH E NOM.	LINK PLATES WIDTH F MAX.	LINK PLATES WIDTH G MAX.	LINK PLATES THICK H NOM.	GRADE
25-1RC-A	25	1/4	780	.085	0.16		.0905	.130	.125	.205	.238	.030	A
35-1RC-A	35		1,760	.22									A
35-1RC-B	35	3/8	1,450	.22	0.24								B
35-1RC-C	35		1,450	.22									C
35-2-1RC	35-2		3,520	.43	0.44								A
35-3-1RC	35-3		5,280	.64	0.64		.141	.200	.187	.307	.356	.050	A
35-4-1RC	35-4		7,040	.85	0.84								A
40-1RC-A	40		3,125	.41	0.33								A
40-1RC-B	40		2,600	.41	0.33								B
40-1RC-C	40	1/2	2,600	.41	0.33		.156	.312	.312	.410	.475	.060	C
40-2-1RC	40-2		6,250	.82	0.61								A
40-3-1RC	40-3		9,375	1.30	0.90								A
40-4-1RC	40-4		12,500	1.58	1.18								A
41-1RC-A	41		1,500	.28	0.28								A
41-1RC-B	41	1/2	1,450	.28	0.28		.141	.306	.250	.340	.390	.050	B
41-1RC-C	41		1,450	.28	0.28								C
50-1RC-A	50		4,880	.68	0.41								A
50-1RC-B	50		4,100	.68	0.41								B
50-1RC-C	50		4,100	.68	0.41								C
50-2-1RC	50-2	5/8	9,760	1.40	0.76		.200	.400	.375	.512	.594	.080	A
50-3-1RC	50-3		14,640	2.21	1.12								A
50-4-1RC	50-4		19,520	2.80	1.48								A
50-5-1RC	50-5		24,400	3.40	1.84								A
50-6-1RC	50-6		29,280	4.00	2.19								A
60-1RC-A	60		7,050	1.03	0.51	0.64							A
60-1RC-B	60		5,900	1.03	0.51	0.64							B
60-1RC-C	60		5,900	1.03	0.51	0.64							C
60-2-1RC	60-2		14,100	2.02	0.96	1.07							A
60-3-1RC	60-3	3/4	21,150	3.02	1.40	1.52	.234	.469	.500	.615	.712	.094	A
60-4-1RC	60-4		28,200	4.02	1.85	1.97							A
60-5-1RC	60-5		35,250	5.02	2.30	2.42							A
60-6-1RC	60-6		42,300	6.02	2.75	2.89							A
80-1RC-A	80		12,500	1.69	0.64	0.79							A
80-1RC-B	80		10,500	1.69	0.64	0.79							B
80-1RC-C	80		10,500	1.69	0.64	0.79							C
80-2-1RC	80-2	1----	25,000	3.32	1.23	1.37	.312	.625	.625	.820	.950	.125	A
80-3-1RC	80-3		37,500	4.95	1.81	1.95							A
80-4-1RC	80-4		50,000	6.70	2.39	2.52							A
80-5-1RC	80-5		62,500	8.21	2.96	3.10							A
80-6-1RC	80-6		75,000	9.84	3.54	3.67							A
100-1RC	100		19,500	2.70	0.79	0.95							A
100-2-1RC	100-2	1-1/4	39,000	5.20	1.50	1.65	.375	.750	.750	1.025	1.188	.156	A
100-3-1RC	100-3		58,500	7.80	2.20	2.36							A
100-4-1RC	100-4		78,000	10.40	2.91	3.06							A
120-1RC	120		28,100	4.00	0.98	1.15							A
120-2-1RC	120-2	1-1/2	56,200	7.90	1.88	2.05	.437	.875	1.000	1.230	1.425	.187	A
120-3-1RC	120-3		84,300	11.05	2.78	2.94							A
120-4-1RC	120-4		112,400	14.70	3.68	3.84							A
140-1RC	140		38,300	5.20	1.06	1.27							A
140-2-1RC	140-2	1-3/4	76,600	10.10	2.03	2.23	.500	1.000	1.000	1.435	1.662	.219	A
140-3-1RC	140-3		114,900	13.75	3.00	3.19							A
140-4-1RC	140-4		153,200	20.00	3.96	4.15							A
160-1RC	160		50,000	6.80	1.27	1.47							A
160-2-1RC	160-2	2----	100,000	12.85	2.42	2.63	.562	1.125	1.250	1.640	1.900	.250	A
160-3-1RC	160-3		150,000	19.20	3.57	3.78							A
160-4-1RC	160-4		200,000	25.55	4.73	4.93							A
180-1RC	180		63,300	9.30	1.43	1.77							A
180-2-1RC	180-2	2-1/4	126,600	18.25	2.73	3.00	.687	1.406	1.406	1.845	2.137	.281	A
180-3-1RC	180-3		189,900	27.20	4.02	4.30							A
180-4-1RC	180-4		253,200	36.30	5.32	5.59							A
200-1RC	200		78,000	11.10	1.56	1.91							A
200-2-1RC	200-2	2-1/2	156,000	21.81	2.96	3.31	.781	1.562	1.500	2.050	2.375	.312	A
200-3-1RC	200-3		234,000	32.51	4.45	4.80							A
200-4-1RC	200-4		312,000	43.21	5.80	6.15							A
240-1RC	240		112,500	16.70	1.85	2.20							A
240-2-1RC	240-2	3----	225,000	33.04	3.58	3.93	.937	1.875	1.875	2.460	2.850	.375	A
240-3-1RC	240-3		337,500	49.37	5.31	5.66							A
240-4-1RC	240-4		450,000	65.70	7.04	7.39							A

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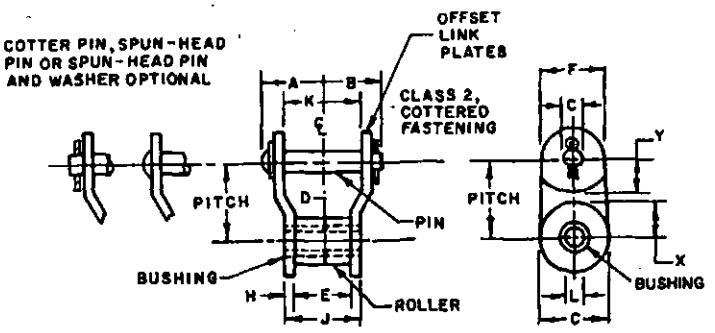

FIGURE 4. SINGLE STRAND LINK

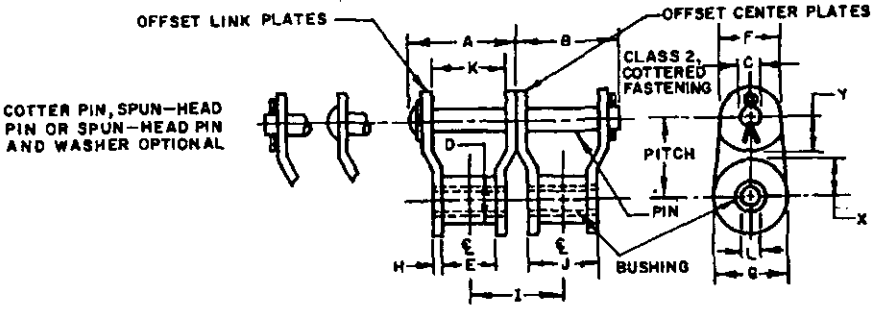

FIGURE 5. MULTIPLE STRAND LINK

LEGEND:

A = Nominal distance from pin head to center line.
B = Nominal distance from pin end to center line.
C = Nominal diameter of pin.
D = Nominal diameter of roller.
E = Nominal chain width between offset link plates at end where bushing is installed.
F = Maximum width of offset link plate at end of plate where pin is installed.
G = Maximum width of offset link plate at end of plate where bushing is installed.
H = Nominal thickness of link plates.
I = Transverse pitch.
J = Maximum width of offset link at end where bushing is installed.
K = Minimum distance between offset link plates.
L = Minimum hole in bushing.
X = Distance from center of bushing to point of offset.
Y = Distance from center of pin to point of offset.

REQUIREMENTS:

1. Tolerances;

Maximum A = A + 0.020	Maximum J = E + (2.12 x H)
Maximum B = B + 0.020	Minimum K = J + 0.002
Maximum C = C + 0.0005	Minimum L = C + 0.0015
Maximum D = Nominal D	Minimum X = 0.41 x pitch + 0.008
Nominal I = E + (4.22 x H)	Minimum Y = 0.475 x pitch + 0.008

2. Grade A, carbon and alloy steel - connecting links.
3. Grade B, Austenitic steel - corrosive resistant connecting links.
4. Type 1 offset links shall not be used with chains intended for use on military aircraft.

NOTES:

1. See Table II for dimensions.
2. All dimensions are in inches.
3. Offset links for ANSI Chain numbers 25 and 35 are roller-less.
4. Type 1 connecting links are for use with Type 1 RC, ANSI Chain numbers 60 through 240, see Tables I and II.
5. Where type 1 offset links are required for use with Grade C chains, use Grade B connecting links.
6. All type 1 offset links have Class 2, Cottered Fastening.
7. Dash numbers (e.g. -2) affixed to ANSI chain numbers (e.g. 40-2) indicate number of strands.

TABLE II

TYPE 1CL, LINK; OFFSET, ROLLER CHAIN TRANSMISSION AND CONVEYOR, BASE PITCH, SINGLE AND MULTIPLE STRAND

MIL-STD CONNECTING LINK NUMBER	ANSI CHAIN NUMBER	PITCH	MINIMUM ULTIMATE TENSILE STRENGTH POUNDS	APPROX WT/FT POUNDS	NOMINAL WIDTH		PIN DIA.	ROLLER DIA.	WIDTH	LINK PLATES			GRADE
										WIDTH		THICK	
					A	B	C NOM.	D NOM.	E NOM.	F MAX.	G MAX.	H NOM.	
60-1RC-1CL-A	60		7,050	0.06	0.64	0.64							A
60-1RC-1CL-B	60		5,300	0.06	0.64	0.64							B
60-2-1RC-1CL	60-2		14,100	0.13	1.07	1.07							A
60-3-1RC-1CL	60-3	3/4	21,150	0.19	1.52	1.52	.234	.469	.500	.615	.712	.094	A
60-4-1RC-1CL	60-4		28,200	0.25	1.97	1.97							A
60-5-1RC-1CL	60-5		35,250	0.32	2.42	2.42							A
60-6-1RC-1CL	60-6		42,300	0.38	2.89	2.89							A
80-1RC-1CL-A	80		12,500	0.14	0.79	0.79							A
80-1RC-1CL-A	80		9,500	0.14	0.79	0.79							B
80-2-1RC-1CL	80-2		25,000	0.27	1.37	1.37							A
80-3-1RC-1CL	80-3	1---	37,500	0.41	1.95	1.95	.312	.625	.625	.820	.950	.125	A
80-4-1RC-1CL	80-4		50,000	0.56	2.52	2.52							A
80-5-1RC-1CL	80-5		62,600	0.68	3.10	3.10							A
80-6-1RC-1CL	80-6		75,000	0.82	3.67	3.67							A
100-1RC-1CL	100		19,500	0.28	0.95	0.95							A
100-2-1RC-1CL	100-2	1-1/4	39,000	0.54	1.65	1.65	.375	.750	.750	1.025	1.188	.156	A
100-3-1RC-1CL	100-3		58,500	0.81	2.36	2.36							A
100-4-1RC-1CL	100-4		78,000	1.08	3.06	3.06							A
120-1RC-1CL	120		28,100	0.50	1.15	1.15							A
120-2-1RC-1CL	120-2	1-1/2	56,200	0.99	2.05	2.05	.437	.875	1.000	1.230	1.425	.187	A
120-3-1RC-1CL	120-3		84,300	1.38	2.94	2.94							A
120-4-1RC-1CL	120-4		112,400	1.84	3.84	3.84							A
140-1RC-1CL	140		38,300	0.76	1.27	1.27							A
140-2-1RC-1CL	140-2	1-3/4	76,600	1.47	2.23	2.23	.500	1.000	1.000	1.435	1.662	.219	A
140-3-1RC-1CL	140-3		114,900	2.00	3.19	3.19							A
140-4-1RC-1CL	140-4		153,200	2.92	4.15	4.15							A
160-1RC-1CL	160		50,000	1.13	1.47	1.47							A
160-2-1RC-1CL	160-2	2---	100,000	2.14	2.63	2.63	.562	1.125	1.250	1.640	1.900	.250	A
160-3-1RC-1CL	160-3		150,000	3.20	3.78	3.78							A
160-4-1RC-1CL	160-4		200,000	4.26	4.93	4.93							A
180-1RC-1CL	180		63,300	1.74	1.77	1.77							A
180-2-1RC-1CL	180-2	2-1/4	126,600	3.42	3.00	3.00	.687	1.406	1.406	1.845	2.137	.281	A
180-3-1RC-1CL	180-3		189,900	5.10	4.30	4.30							A
180-4-1RC-1CL	180-4		253,200	6.81	5.59	5.59							A
200-1RC-1CL	200		78,000	2.31	1.91	1.91							A
200-2-1RC-1CL	200-2		156,000	4.55	3.31	3.31							A
200-3-1RC-1CL	200-3	2-1/2	234,000	6.77	4.80	4.80	.781	1.562	1.500	2.050	2.375	.312	A
200-4-1RC-1CL	200-4		312,000	9.00	6.15	6.15							A
240-1RC-1CL	240		112,500	4.56	2.01	2.20							A
240-2-1RC-1CL	240-2	3---	225,000	9.12	3.74	3.93	.937	1.875	1.875	2.46	2.85	.375	A
240-3-1RC-1CL	240-3		337,500	13.68	5.47	5.66							A
240-4-1RC-1CL	240-4		450,000	18.24	7.20	7.38							A

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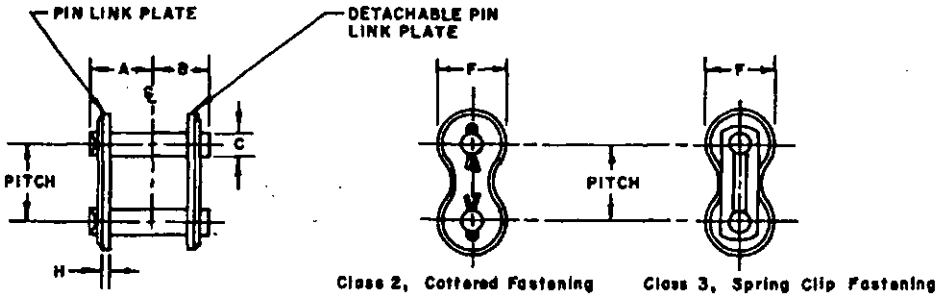

FIGURE 6. SINGLE STRAND LINK PLAN AND SIDE VIEWS

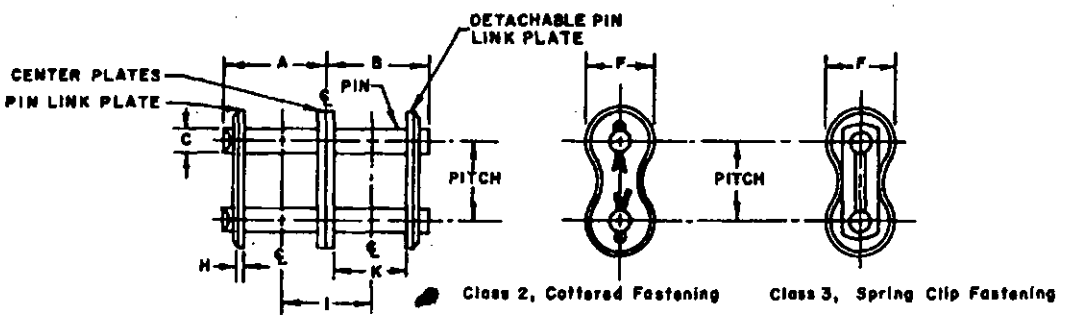

FIGURE 7. MULTIPLE STRAND LINK PLAN AND SIDE VIEWS

LEGEND:

A = Nominal distance from pin head to center line.
B = Nominal distance from pin end to center line.
C = Nominal diameter of pin.
E = Nominal chain width between roller link plates, dimension used here for determining distance between pin link plates and transverse pitch.
F = Maximum width of pin link plates.
H = Nominal thickness of link plates.
I = Transverse pitch.
K = Minimum distance between pin link plates.

REQUIREMENTS:

1. Tolerances:
   Maximum A = A + 0.020
   Maximum B = B + 0.020
   Maximum C = C + 0.0005
   Nominal I = E + (4.22 x H)
   Minimum K = E + (2.12 x H) + 0.002
2. Grade A, carbon and alloy steel-connecting links.
3. Grade B, Austenitic steel-corrosive resistant connecting links.
4. Grade C, Martensitic steel - corrosive resistant - magnetic - connecting links.
5. Type 2, connecting links, Grades B and C, for ANSI chain numbers 35 through 80 shall be provided with Class 2, cottered fastening, with two cotters as shown in figures 6 and 7 above.

NOTES:

1. See Table III for dimensions.
2. All dimensions are in inches.
3. Type 2 connecting links, Grade A, for ANSI chain number 25 through 50 supplied with Class 3, spring clip fastening.
4. Type 2 connecting links, Grade A, for ANSI chain numbers 60 through 240 supplied with Class 2, cottered fastening. Class 2, cottered fastening may consist of a single cotter through pin holes, or a double cotter as shown in figures 6 and 7 above, positioned at the option of the manufacturer.
5. Dash numbers (e.g. -2) affixed to ANSI Chain numbers (e.g. 40-2) indicate number of strands.

TYPE 2CL, LINK CONNECTING, ROLLER CHAIN: POWER TRANSMISSION AND CONVEYOR, FLAT LINK PLATES, BASE PITCH, SINGLE AND MULTIPLE STRANDS

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TABLE III

TYPE 2CL, LINK CONNECTING, ROLLER CHAIN: POWER TRANSMISSION AND CONVEYOR, FLAT LINK PLATES, BASE PITCH, SINGLE AND MULTIPLE STRANDS

MIL-STD CONNECTING LINK NUMBER	LINK FOR ANSI CHAIN NUMBER	PITCH	MINIMUM ULTIMATE TENSILE STRENGTH POUNDS	APPROX WT/FT POUNDS	NOMINAL WIDTH		PIN DIA	WIDTH	LINK PLATES		GRADE
									WIDTH	THICK	
					A	B	C NOM.	E NOM.	F MAX.	H NOM.	
25-1RC-2CL-A	25	1/4	780	0.01	0.16	0.19	.0905	.125	.205	.030	A
35-1RC-2CL-A	35	3/8	1,760	0.01	0.24	0.34	.141	.187	.307	.050	A
35-1RC-2CL-B	35		1,450	0.01	0.24	0.34					B
35-1RC-2CL-C	35		1,450	0.01	0.24	0.34					C
35-2-1RC-2CL	35-2		3,520	0.02	0.44	0.50					A
35-3-1RC-2CL	35-3		5,280	0.02	0.64	0.70					A
35-4-1RC-2CL	35-4		7,040	0.03	0.84	0.90					A
40-1RC-2CL-A	40	1/2	3,125	0.02	0.33	0.42	.156	.312	.410	.060	A
40-1RC-2CL-A	40		2,600	0.02	0.33	0.42					B
40-1RC-2CL-C	40		2,600	0.02	0.33	0.42					C
40-2-1RC-2CL	40-2		6,250	0.03	0.61	0.68					A
40-3-1RC-2CL	40-3		9,375	0.05	0.90	0.97					A
40-4-1RC-2CL	40-4		12,500	0.07	1.18	1.25					A
41-1RC-2CL-A	41	1/2	1,500	0.01	0.28	0.37	.141	.250	.340	.050	A
41-1RC-2CL-B	41		1,450	0.01	0.28	0.37					B
41-1RC-2CL-C	41		1,450	0.01	0.28	0.37					C
50-1RC-2CL-A	50	5/8	4,880	0.04	0.41	0.48	.200	.375	.512	.080	A
50-1RC-2CL-B	50		4,100	0.04	0.41	0.48					B
50-1RC-2CL-C	50		4,100	0.04	0.41	0.48					C
50-2-1RC-2CL	50-2		9,760	0.07	0.76	0.84					A
50-3-1RC-2CL	50-3		14,640	0.12	1.12	1.20					A
50-4-1RC-2CL	50-4		19,520	0.15	1.48	1.55					A
50-5-1RC-2CL	50-5		24,400	0.18	1.84	1.91					A
50-6-1RC-2CL	50-6		29,280	0.21	2.19	2.27					A
60-1RC-2CL-A	60	3/4	7,050	0.06	0.51	0.64	.234	.500	.615	.094	A
60-1RC-2CL-B	60		5,900	0.06	0.51	0.64					B
60-1RC-2CL-C	60		5,900	0.06	0.51	0.64					C
60-2-1RC-2CL	60-2		14,100	0.13	0.96	1.07					A
60-3-1RC-2CL	60-3		21,150	0.19	1.40	1.52					A
60-4-1RC-2CL	60-4		28,200	0.25	1.85	1.97					A
60-5-1RC-2CL	60-5		35,250	0.32	2.30	2.42					A
60-6-1RC-2CL	60-6		42,300	0.38	2.75	2.89					A
80-1RC-2CL-A	80	1--	12,500	0.14	0.64	0.79	.312	.625	.820	.125	A
80-1RC-2CL-B	80		10,500	0.14	0.64	0.79					B
80-1RC-2CL-C	80		10,500	0.14	0.64	0.79					C
80-2-1RC-2CL	80-2		25,000	0.27	1.23	1.37					A
80-3-1RC-2CL	80-3		37,500	0.41	1.81	1.95					A
80-4-1RC-2CL	80-4		50,000	0.56	2.39	2.52					A
80-5-1RC-2CL	80-5		62,500	0.68	2.96	3.10					A
80-6-1RC-2CL	80-6		75,000	0.82	3.54	3.67					A
100-1RC-2CL	100	1-1/4	19,500	0.28	0.79	0.95	.375	.750	1.025	.156	A
100-2-1RC-2CL	100-2		39,000	0.54	1.50	1.65					A
100-3-1RC-2CL	100-3		58,500	0.81	2.20	2.36					A
100-4-1RC-2CL	100-4		78,000	1.08	2.91	3.06					A
120-1RC-2CL	120	1-1/2	28,100	0.50	0.98	1.15	.437	1.000	1.230	.187	A
120-2-1RC-2CL	120-2		56,200	0.99	1.88	2.05					A
120-3-1RC-2CL	120-3		84,300	1.38	2.78	2.94					A
120-4-1RC-2CL	120-4		112,400	1.84	3.68	3.84					A
140-1RC-2CL	140	1-3/4	38,300	0.76	1.06	1.27	.500	1.000	1.435	.219	A
140-2-1RC-2CL	140-2		76,600	1.47	2.03	2.23					A
140-3-1RC-2CL	140-3		114,900	2.00	3.00	3.19					A
140-4-1RC-2CL	140-4		153,200	2.92	3.95	4.15					A
160-1RC-2CL	160	2--	50,000	1.13	1.27	1.47	.562	1.250	1.640	.250	A
160-2-1RC-2CL	160-2		100,000	2.14	2.42	2.63					A
160-3-1RC-2CL	160-3		150,000	3.20	3.57	3.78					A
160-4-1RC-2CL	160-4		200,000	4.26	4.73	4.93					A
180-1RC-2CL	180	2-1/4	63,300	1.74	1.43	1.77	.687	1.406	1.845	.281	A
180-2-1RC-2CL	180-2		126,600	3.42	2.73	3.00					A
180-3-1RC-2CL	180-3		189,900	5.10	4.02	4.30					A
180-4-1RC-2CL	180-4		253,200	6.81	5.32	5.59					A
200-1RC-2CL	200	2-1/2	78,000	2.31	1.56	1.91	.781	1.500	2.050	.312	A
200-2-1RC-2CL	200-2		156,000	4.55	2.96	3.31					A
200-3-1RC-2CL	200-3		234,000	6.77	4.45	4.80					A
200-4-1RC-2CL	200-4		312,000	9.00	5.80	6.15					A
240-1RC-2CL	240	3--	112,500	3.56	1.85	2.20	.937	1.875	2.46	.375	A
240-2-1RC-2CL	240-2		225,000	7.12	3.58	3.93					A
240-3-1RC-2CL	240-3		337,500	10.68	5.31	5.66					A
240-4-1RC-2CL	240-4		450,000	14.24	7.04	7.38					A

X963A

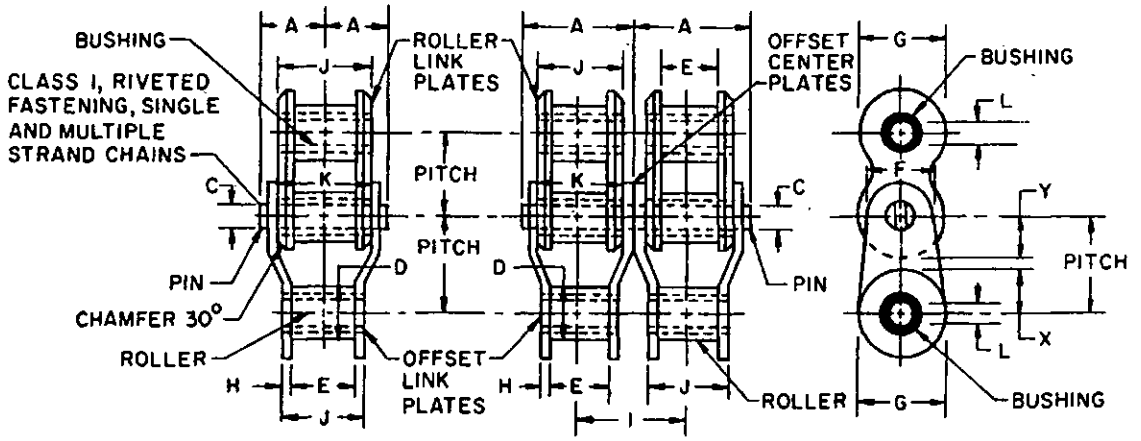


FIGURE 8
SINGLE STRAND LINK
PLAIN VIEW

FIGURE 9
MULTIPLE STRAND LINK
PLAIN VIEW

FIGURE 10
SIDE VIEW OF SINGLE AND
MULTIPLE STRAND LINK

LEGEND:

A = Nominal distance from pin head to center line of chain.
C = Nominal diameter of pin.
D = Nominal diameter of roller.
E = Nominal chain width between offset link plates at end where bushing is installed and nominal width between roller link plates.
F = Maximum width of offset link plate at end of plate where pin is installed.
G = Maximum width of offset link plate at end of plate where bushing is installed.
H = Nominal thickness of link plates.
I = Transverse pitch.
J = Maximum width of roller link and maximum width of offset link at end of link where bushing is installed.
K = Minimum distance between offset link plates.
L = Minimum hole in bushing.
X = Distance from center of bushing to point of offset.
Y = Distance from center of pin to point of offset.

REQUIREMENTS:

1. Tolerances;

Maximum A = A + 0.020	Minimum K = J + 0.002
Maximum C = C + 0.0005	Minimum L = C + 0.0015
Maximum D = Nominal D	Minimum X = 0.41 x pitch + 0.008
Nominal I = E + (4.22 x H)	Minimum Y = 0.475 x pitch + 0.008
Maximum J = E + (2.12 x H)	

2. Grade A, carbon and alloy steel - connecting links.
3. Grade B, Austenitic steel - corrosive resistant offset links.

NOTES:

1. See Table IV for dimensions.
2. All dimensions are in inches.
3. Type 3 connecting links for ANSI chain numbers 25 and 35 are rollerless.
4. Dash numbers (e.g. -2) affixed to ANSI chain numbers (e.g. 40-2) indicate number of strands.
5. Where type 3 offset links are required for use with Grade C chains, Grade B offset links may be used.

TYPE 3CL, LINK COMBINATION OFFSET, ROLLER CHAIN: POWER TRANSMISSION AND CONVEYOR, BASE PITCH, SINGLE AND MULTIPLE STRAND

X964A

TABLE IV

TYPE 3CL, LINK COMBINATION OFFSET, ROLLER CHAIN: POWER TRANSMISSION AND CONVEYOR BASE PITCH, SINGLE AND MULTIPLE STRAND

MIL-STD CONNECTING LINK NUMBER	LINK FOR ANSI CHAIN NUMBER	PITCH	MINIMUM ULTIMATE TENSILE STRENGTH POUNDS	APPROX WT/FT POUNDS	NOMINAL WIDTH	PIN DIA.	ROLLER DIA.	WIDTH	LINK PLATES			GRADE
									WIDTH		THICK	
					A	C NOM.	D NOM.	E NOM.	F MAX.	G MAX.	H NOM.	
25-1RC-3CL-A	25	1/4	780	0.01	0.16	.0905	.130	.125	.205	.238	.030	A
35-1RC-3CL-A	35	3/8	1,760	0.02	0.24	.141	.200	.187	.307	.356	.050	A
35-1RC-3CL-B	35		1,300	0.02	0.24							B
35-2-1RC-3CL	35-2		3,520	0.03	.435							A
35-3-1RC-3CL	35-3		5,280	0.04	.634							A
35-4-1RC-3CL	35-4		7,040	0.05	.834							A
40-1RC-3CL-A	40	1/2	3,125	0.04	0.33	.236	.312	.312	.410	.475	.060	A
40-1RC-3CL-B	40		2,350	0.04	0.33							B
40-2-1RC-3CL	40-2		6,250	0.06	0.61							A
40-3-1RC-3CL	40-3		9,375	0.10	0.90							A
40-4-1RC-3CL	40-4		12,500	0.14	1.18							A
41-1RC-3CL-A	41	1/2	1,500	0.02	0.28	.141	.306	.250	.340	.390	.050	A
41-1RC-3CL-B	41		1,300	0.02	0.28							B
50-1RC-3CL-A	50	5/8	4,880	0.08	0.41	.200	.400	.375	.512	.594	.080	A
50-1RC-3CL-B	50		2,350	0.08	0.41							B
50-2-1RC-3CL	50-2		9,760	0.14	0.76							A
50-3-1RC-3CL	50-3		14,640	0.24	1.12							A
50-4-1RC-3CL	50-4		19,520	0.30	1.48							A
50-5-1RC-3CL	50-5		24,400	0.36	1.84							A
50-6-1RC-3CL	50-6		29,280	0.42	2.19							A
60-1RC-3CL	60	3/4	7,050	0.12	0.51	.234	.469	.500	.615	.712	.094	A
60-2-1RC-3CL	60-2		14,100	0.26	0.96							A
60-3-1RC-3CL	60-3		21,150	0.38	1.40							A
60-4-1RC-3CL	60-4		28,200	0.50	1.85							A
60-5-1RC-3CL	60-5		35,250	0.64	2.30							A
60-6-1RC-3CL	60-6		42,300	0.76	2.75							A
80-1RC-3CL	80	1---	12,500	0.28	0.64	.312	.625	.625	.820	.950	.125	A
80-2-1RC-3CL	80-2		25,000	0.54	1.23							A
80-3-1RC-3CL	80-3		37,500	0.82	1.81							A
80-4-1RC-3CL	80-4		50,000	1.12	2.39							A
80-5-1RC-3CL	80-5		62,500	1.36	2.96							A
80-6-1RC-3CL	80-6		75,000	1.64	3.54							A
100-1RC-3CL	100	1-1/4	19,500	0.56	0.79	.375	.750	.750	1.025	1.188	.156	A
100-2-1RC-3CL	100-2		39,000	1.08	1.50							A
100-3-1RC-3CL	100-3		58,500	1.62	2.20							A
100-4-1RC-3CL	100-4		78,000	2.16	2.91							A
120-1RC-3CL	120	1-1/2	28,100	1.00	0.98	.437	.875	1.000	1.230	1.425	.187	A
120-2-1RC-3CL	120-2		56,200	1.98	1.88							A
120-3-1RC-3CL	120-3		84,300	2.76	2.78							A
120-4-1RC-3CL	120-4		112,400	3.68	3.68							A
140-1RC-3CL	140	1-3/4	38,300	1.52	1.06	.500	1.000	1.000	1.435	1.662	.219	A
140-2-1RC-3CL	140-2		76,600	2.94	2.03							A
140-3-1RC-3CL	140-3		114,900	4.00	3.00							A
140-4-1RC-3CL	140-4		153,200	5.84	3.96							A
160-1RC-3CL	160	2---	50,000	2.26	1.27	.562	1.125	1.250	1.640	1.900	.250	A
160-2-1RC-3CL	160-2		100,000	4.38	2.42							A
160-3-1RC-3CL	160-3		150,000	6.40	3.57							A
160-4-1RC-3CL	160-4		200,000	8.52	4.73							A
180-1RC-3CL	180	2-1/4	63,300	3.48	1.43	.687	1.406	1.406	1.845	2.137	.281	A
180-2-1RC-3CL	180-2		126,600	6.84	2.73							A
180-3-1RC-3CL	180-3		189,900	10.20	4.02							A
180-4-1RC-3CL	180-4		253,200	13.62	5.32							A
200-1RC-3CL	200	2-1/2	78,000	4.62	1.56	.781	1.562	1.500	2.050	2.375	.312	A
200-2-1RC-3CL	200-2		156,000	9.10	2.96							A
200-3-1RC-3CL	200-3		234,000	13.54	4.45							A
200-4-1RC-3CL	200-4		312,000	18.00	5.80							A
240-1RC-3CL	240	3---	112,500	8.12	1.85	.937	1.875	1.875	2.46	2.85	.375	A
240-2-1RC-3CL	240-2		225,000	16.24	3.58							A
240-3-1RC-3CL	240-3		337,500	24.36	5.31							A
240-4-1RC-3CL	240-4		450,000	32.48	7.04							A

X965A

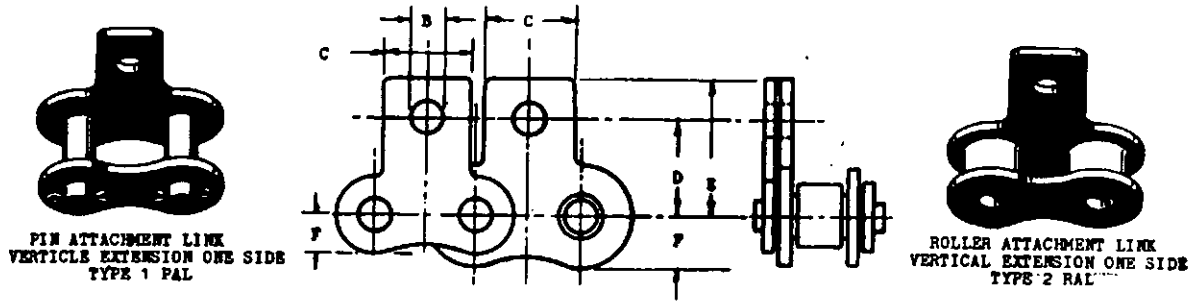


FIGURE 11

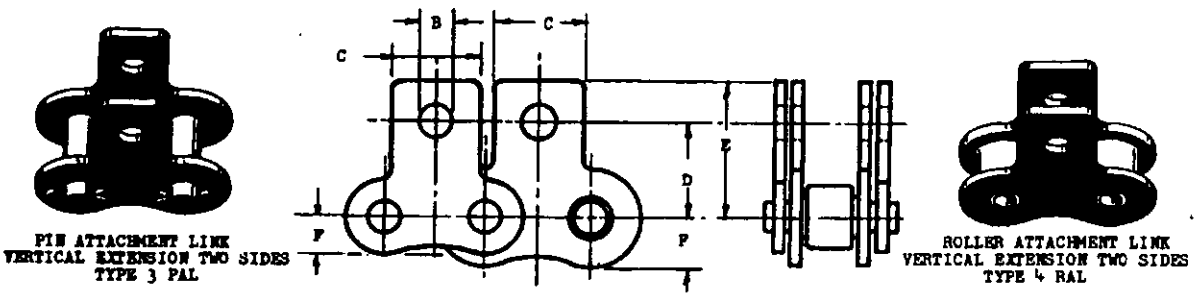


FIGURE 12

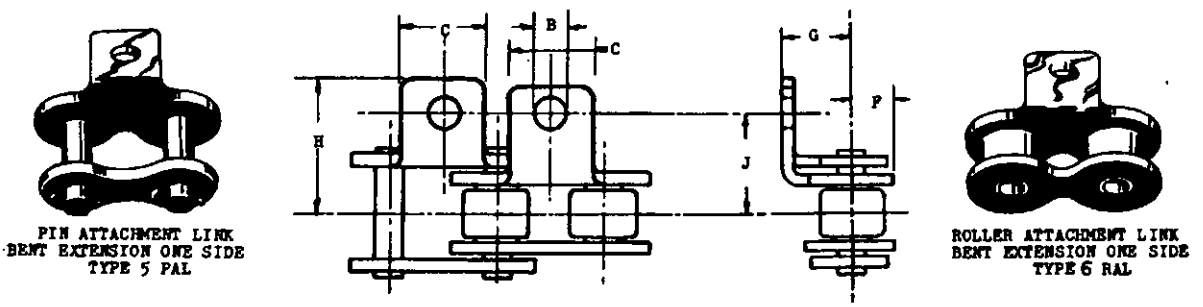
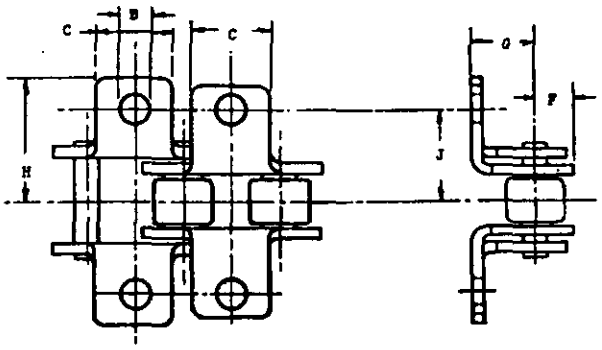


FIGURE 13

PIN AND ROLLER ATTACHMENT LINKS
FOR
TYPE 1 ROLLER CHAINS

X966

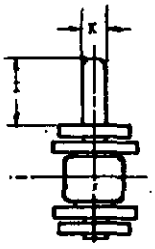
PIN ATTACHMENT LINK
BENT EXTENSION TWO SIDES
TYPE 7 PAL



ROLLER ATTACHMENT LINK
BENT EXTENSION TWO SIDES
TYPE 8 RAL

FIGURE 14

PIN ATTACHMENT LINK
ONE EXTENDED PIN ONE SIDE
TYPE 9 PAL



PIN ATTACHMENT LINK
TWO EXTENDED PINS ONE SIDE
TYPE 10 PAL

FIGURE 15

TABLE V

ANSI CHAIN NUMBER	CHAIN PITCH	B MIN.	C NOM.	D	E MAX.	F MAX.	G NOM.	H MAX.	I	J NOM.	K NOM.
35	3/8	.102	.312	.375	.578	.178	.250	.547	.375	.375	.141
40	1/2	.131	.375	.500	.734	.237	.312	.703	.375	.500	.156
50	5/8	.200	.500	.625	1.031	.297	.406	.938	.468	.625	.200
60	3/4	.200	.625	.719	1.172	.356	.469	1.109	.562	.750	.234
80	1----	.261	.750	.969	1.516	.475	.625	1.500	.750	1.000	.312
100	1-1/4	.323	1.000	1.250	1.906	.594	.781	1.859	.938	1.250	.375
120	1-1/2	.386	1.125	1.438	2.141	.712	.906	2.172	1.125	1.500	.437
140	1-3/4	.448	1.375	1.750	2.750	.831	1.125	2.625	1.312	1.750	.500
160	2----	.516	1.500	2.000	3.219	.950	1.250	3.000	1.500	2.000	.562

REQUIREMENTS:

1. With the exception of dimensions shown in table V, dimensions of link plates, rollers, bushing, and pins for attachment links shall conform to dimensions shown in table 1 for Type 1 Roller Chains.
2. Tolerances for attachment links are the same as tolerances shown for Type 1 Roller Chains.
3. Attachment links shall be grade A, (carbon and alloy steels) unless otherwise specified.
4. Attachment links carried in stock as separate supply items for ANSI chain Nos. 35 through 50 shall be supplied with Class 3, spring clip fastening and shall be so specified.
5. Attachment links carried in stock as separate supply items for ANSI chain Nos. 60 through 160 shall be supplied with Class 2, cotter fastening and shall be so specified.

NOTES:

1. For MILITARY STANDARD ATTACHMENT LINK NUMBERS see TABLE VI
2. Attachment links for ANSI chain No. 35 are rollerless.

PIN AND ROLLER ATTACHMENT LINKS
FOR
TYPE 1 ROLLER CHAINS

X967A

TABLE VI

PIN AND ROLLER ATTACHMENT LINKS FOR TYPE 1 ROLLER LINKS

MIL-STD ATTACHMENT LINK NUMBER	TYPE	FOR ANSI CHAIN NUMBER	MIL-STD ATTACHMENT LINK NUMBER	TYPE	FOR ANSI CHAIN NUMBER
35-1RC-1PAL	1 PAL		100-1RC-1PAL	1 PAL	
35-1RC-2RAL	2 RAL		100-1RC-2RAL	2 RAL	
35-1RC-3PAL	3 PAL		100-1RC-3PAL	3 PAL	
35-1RC-4RAL	4 RAL		100-1RC-4RAL	4 RAL	
35-1RC-5PAL	5 PAL	35	100-1RC-5PAL	5 PAL	100
35-1RC-6RAL	6 RAL		100-1RC-6RAL	6 RAL	
35-1RC-7PAL	7 PAL		100-1RC-7PAL	7 PAL	
35-1RC-8RAL	8 RAL		100-1RC-8RAL	8 RAL	
35-1RC-9PAL	9 PAL		100-1RC-9PAL	9 PAL	
35-1RC-10PAL	10 PAL		100-1RC-10PAL	10 PAL	
40-1RC-1PAL	1 PAL		120-1RC-1PAL	1 PAL	
40-1RC-2RAL	2 RAL		120-1RC-2RAL	2 RAL	
40-1RC-3PAL	3 PAL		120-1RC-3PAL	3 PAL	
40-1RC-4RAL	4 RAL		120-1RC-4RAL	4 RAL	
40-1RC-5PAL	5 PAL	40	120-1RC-5PAL	5 PAL	120
40-1RC-6RAL	6 RAL		120-1RC-6RAL	6 RAL	
40-1RC-7PAL	7 PAL		120-1RC-7PAL	7 PAL	
40-1RC-8RAL	8 RAL		120-1RC-8RAL	8 RAL	
40-1RC-9PAL	9 PAL		120-1RC-9PAL	9 PAL	
40-1RC-10PAL	10 PAL		120-1RC-10PAL	10 PAL	
50-1RC-1PAL	1 PAL		140-1RC-1PAL	1 PAL	
50-1RC-2RAL	2 RAL		140-1RC-2RAL	2 RAL	
50-1RC-3PAL	3 PAL		140-1RC-3PAL	3 PAL	
50-1RC-4RAL	4 RAL		140-1RC-4RAL	4 RAL	
50-1RC-5PAL	5 PAL	50	140-1RC-5PAL	5 PAL	140
50-1RC-6RAL	6 RAL		140-1RC-6RAL	6 RAL	
50-1RC-7PAL	7 PAL		140-1RC-7PAL	7 PAL	
50-1RC-8RAL	8 RAL		140-1RC-8RAL	8 RAL	
50-1RC-9PAL	9 PAL		140-1RC-9PAL	9 PAL	
50-1RC-10PAL	10 PAL		140-1RC-10PAL	10 PAL	
60-1RC-1PAL	1 PAL		160-1RC-1PAL	1 PAL	
60-1RC-2RAL	2 RAL		160-1RC-2RAL	2 RAL	
60-1RC-3PAL	3 PAL		160-1RC-3PAL	3 PAL	
60-1RC-4RAL	4 RAL		160-1RC-4RAL	4 RAL	
60-1RC-5PAL	5 PAL	60	160-1RC-5PAL	5 PAL	160
60-1RC-6RAL	6 RAL		160-1RC-6RAL	6 RAL	
60-1RC-7PAL	7 PAL		160-1RC-7PAL	7 PAL	
60-1RC-8RAL	8 RAL		160-1RC-8RAL	8 RAL	
60-1RC-9PAL	9 PAL		160-1RC-9PAL	9 PAL	
60-1RC-10PAL	10 PAL		160-1RC-10PAL	10 PAL	
80-1RC-1PAL	1 PAL				
80-1RC-2RAL	2 RAL				
80-1RC-3PAL	3 PAL				
80-1RC-4RAL	4 RAL				
80-1RC-5PAL	5 PAL	80			
80-1RC-6RAL	6 RAL				
80-1RC-7PAL	7 PAL				
80-1RC-8RAL	8 RAL				
80-1RC-9PAL	9 PAL				
80-1RC-10PAL	10 PAL				

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