



MORSE

**Specialty and
Attachment
Chain
Design Manual**



the power of
EPT


EMERSON
Industrial Automation

EMERSON. CONSIDER IT SOLVED.



Legendary Quality

For more than 100 years, Emerson Power Transmission has been manufacturing high quality roller chain designed to meet and exceed industry standards. This is accomplished through total quality commitment of our staff and the involvement of our suppliers. We perform constant audits of our products and processes to ensure compliance to our specifications.



Engineered Solutions

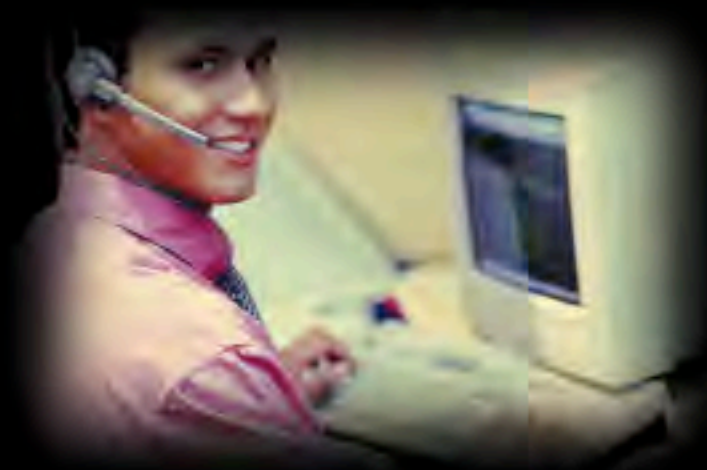
Morse® recognizes that not all applications can be serviced from "standard" item. Our Specialty Chain Center has custom design and manufacturing capabilities to support prototype development.



Unmatched Service

Attachment chain is nothing without great service! We have the tools required to address the uniqueness of each attachment chain order while maintaining the quality you expect.

Call us direct at 1-888-EPT-SCC3.



A Wide Variety of Attachment Chain for Quality Conscious Consumers

- Extensive attachment chain selection
- Engineering capabilities
- Dedicated specialty chain center facility
- Outstanding customer service

Choose from straight, bent, extended pin, wide tab and special attachments in your choice of materials:

Carbon Steel
Roller CHAIN

Nickel Plated
Roller CHAIN

Stainless Steel
Roller CHAIN

chain material characteristics

| Material | Strength and Working Load (based on published ratings) | Corrosion Resistance | | | Wear Resistance | Cost |
|-----------------|---|----------------------|-----------|-----------|-----------------|----------|
| | | Water and Salt Water | Acid | Alkali | | |
| Stainless Steel | Fair | Excellent | Excellent | Excellent | Fair | \$\$\$\$ |
| Moisture Guard | Excellent | Very Good | Good | Good | Excellent | \$\$\$ |
| Nickel Plated | Excellent | Good | Fair | Fair | Excellent | \$\$ |
| Carbon Steel | Excellent | Poor | Poor | Poor | Excellent | \$ |

Moisture Guard
Roller CHAIN

- Corrosion protection with high strength and lower stretch/wear resistance
- Plated before assembly for uniform corrosion protection
- Outperforms competitive products in salt spray testing

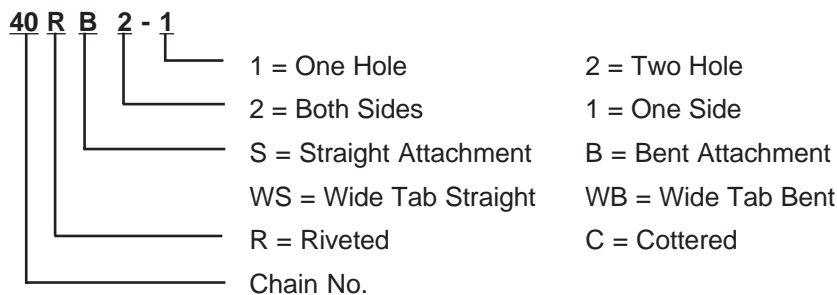
Custom Moisture Guard
Roller CHAIN

Have an especially tough attachment chain application?
Let us design the perfect solution.



Contact the Specialty Chain Center at 1-888-EPT-SCC3 for all your attachment chain needs.

| | |
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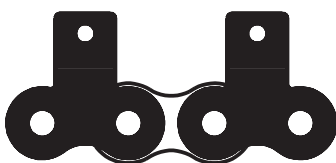
See page 15 for interchange information

For Extended Pin:

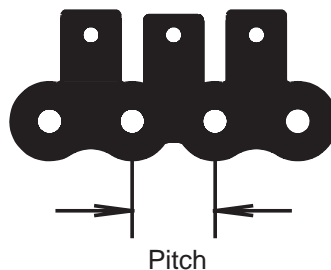
- D-1 Extended Pin Every Other Pin
- D-3 Extended Pin Every Pin
- D-5 Special Large Diameter Extended Pin

Attachment Location:

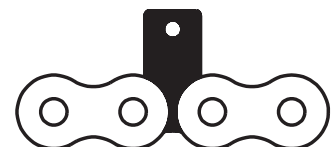
Every Pin Link - Outside



Every Pitch



Every Roller Link - Inside



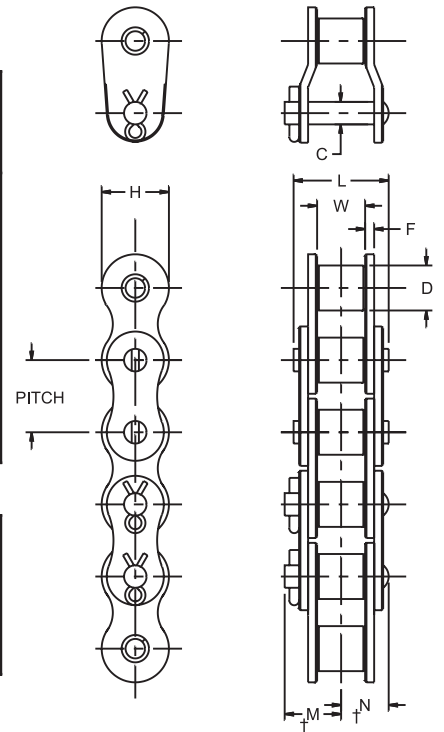
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Basic Chain Construction

High quality Morse roller chain is used as the foundation for an infinite number of attachment chain possibilities.

standard series—single strand

| Catalog No. | Dimensions (Inches) | | | | | | | | | Average Tensile Strength | Weight Per Foot |
|-------------|---------------------|----------------|---------------|------------|-------------------|-------------------|-----------------------|-------|-------|--------------------------|-----------------|
| | Pitch | W-Roller Width | D-Roller Dia. | C-Pin Dia. | F-Plate Thickness | L-Width Over Pins | H-Inside Plate Height | † N | † M | | |
| *25 | 1/4 | 1/8 | .130 | .0905 | .030 | .312 | .234 | .156 | .188 | 875 | .09 |
| *35 | 3/8 | 3/16 | .200 | .141 | .050 | .466 | .350 | .233 | .267 | 2100 | .21 |
| 41 | 1/2 | 1/4 | .306 | .141 | .050 | .530 | .383 | .256 | .322 | 2000 | .25 |
| 40 | 1/2 | 5/16 | .312 | .156 | .060 | .630 | .466 | .315 | .380 | 3700 | .42 |
| 50 | 5/8 | 3/8 | .400 | .200 | .080 | .790 | .584 | .395 | .460 | 6100 | .69 |
| 60 | 3/4 | 1/2 | .468 | .234 | .094 | .990 | .700 | .495 | .586 | 8500 | 1.00 |
| 80 | 1 | 5/8 | .625 | .312 | .125 | 1.274 | .934 | .637 | .741 | 14500 | 1.71 |
| 100 | 1-1/4 | 3/4 | .750 | .375 | .156 | 1.555 | 1.166 | .778 | .923 | 24000 | 2.58 |
| 120 | 1-1/2 | 1 | .875 | .437 | .187 | 1.960 | 1.400 | .980 | 1.150 | 34000 | 3.87 |
| 140 | 1-3/4 | 1 | 1.000 | .500 | .219 | 2.117 | 1.634 | 1.059 | 1.215 | 46000 | 4.95 |
| 160 | 2 | 1-1/4 | 1.125 | .562 | .250 | 2.522 | 1.866 | 1.261 | 1.451 | 58000 | 6.61 |
| 200 | 2-1/2 | 1-1/2 | 1.562 | .781 | .312 | 3.120 | 2.250 | 1.560 | 1.777 | 95000 | 10.96 |



heavy series—single strand

| | | | | | | | | | | | |
|-------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|
| 60-H | 3/4 | 1/2 | .468 | .234 | .125 | 1.115 | .700 | .558 | .627 | 8500 | 1.22 |
| 80-H | 1 | 5/8 | .625 | .312 | .156 | 1.400 | .934 | .700 | .804 | 14500 | 2.03 |
| 100-H | 1-1/4 | 3/4 | .750 | .375 | .187 | 1.684 | 1.166 | .842 | .986 | 24000 | 3.00 |
| 120-H | 1-1/2 | 1 | .875 | .437 | .219 | 2.090 | 1.400 | 1.045 | 1.214 | 34000 | 4.30 |
| 140-H | 1-3/4 | 1 | 1.000 | .500 | .250 | 2.241 | 1.634 | 1.121 | 1.276 | 46000 | 5.50 |
| 160-H | 2 | 1-1/4 | 1.125 | .562 | .281 | 2.646 | 1.866 | 1.323 | 1.513 | 58000 | 7.20 |
| 200-H | 2-1/2 | 1-1/2 | 1.562 | .781 | .375 | 3.374 | 2.334 | 1.687 | 1.904 | 95000 | 12.30 |

*Rollerless.

†For cotter chain and connector link clearance.

conveyor series

Conveyor series double pitch roller chain has heavy series thickness sideplates with full-contact edges for longer wear. This style chain is designed especially for conveyor applications where the chain will slide over a surface. Conveyor series is also available with large rollers to eliminate normal sliding friction losses. Conveyor chains that support the load should have large rollers to minimize the horsepower requirements.

conveyor series—standard rollers

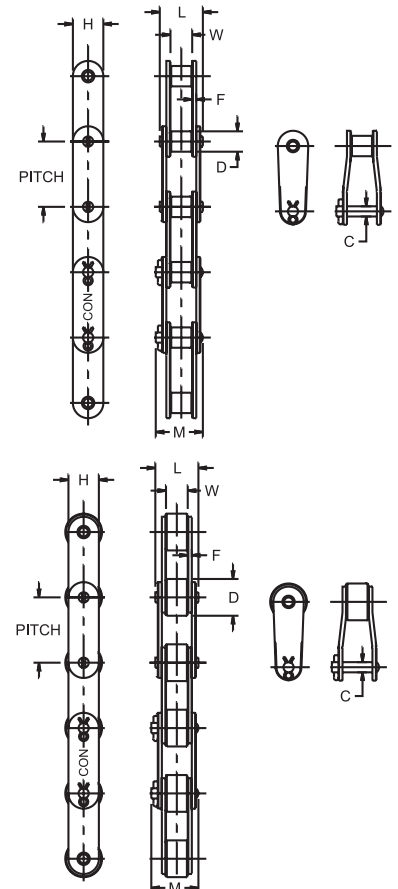
| Chain No. | Dimensions (Inches) | | | | | | | | Wt. Per Ft. Lbs. | Av. Ult. Strength Lbs. |
|-----------|---------------------|---------|---------|-------------|------------|----------|------------|---------|------------------|------------------------|
| | Pitch | Roller | | Pin Diam. C | Pin Length | | Side Plate | | | |
| | | Diam. D | Width W | | Riveted L | Cotter M | Height H | Thick F | | |
| C-2040 | 1 | .312 | 5/16 | .156 | .630 | .700† | .466 | .060 | .34 | 3700 |
| C-2050 | 1-1/4 | .400 | 3/8 | .200 | .790 | .870† | .584 | .080 | .56 | 6100 |
| C-2060H | 1-1/2 | .468 | 1/2 | .234 | 1.115 | 1.207 | .700 | .125 | 1.01 | 8500 |
| C-2080H | 2 | .625 | 5/8 | .312 | 1.400 | 1.504 | .934 | .156 | 1.67 | 14500 |
| C-2100H | 2-1/2 | .750 | 3/4 | .375 | 1.684 | 1.828 | 1.166 | .187 | 2.47 | 24000 |
| C-2120H | 3 | .875 | 1 | .437 | 2.090 | 2.259 | 1.400 | .219 | 3.56 | 34000 |

†1" and 1 1/4" pitches are stocked in rivet type only. Cottered pin length is pin length for connecting link.

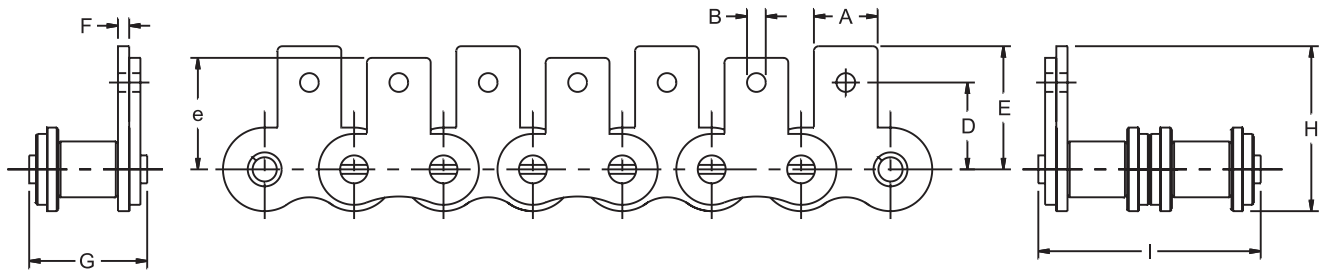
conveyor series—large rollers

| Chain No. | Dimensions (Inches) | | | | | | | | Wt. Per Ft. Lbs. | Av. Ult. Strength Lbs. |
|------------|---------------------|---------|---------|-------------|------------|----------|------------|---------|------------------|------------------------|
| | Pitch | Roller | | Pin Diam. C | Pin Length | | Side Plate | | | |
| | | Diam. D | Width W | | Riveted L | Cotter M | Height H | Thick F | | |
| C-2042 | 1 | .625 | 5/16 | .156 | .630 | .700 | .466 | .060 | .58 | 3700 |
| C-2052 | 1-1/4 | .750 | 3/8 | .200 | .790 | .870 | .584 | .080 | .88 | 6100 |
| C-2062H | 1-1/2 | .875 | 1/2 | .234 | 1.115 | 1.207 | .700 | .125 | 1.48 | 8500 |
| C-2062H-T* | 1-1/2 | .875 | 1/2 | .234 | 1.115 | 1.207 | .700 | .125 | 1.00 | 8500 |
| C-2082H | 2 | 1.125 | 5/8 | .312 | 1.400 | 1.504 | .934 | .156 | 2.40 | 14500 |
| C-2102H | 2-1/2 | 1.562 | 3/4 | .375 | 1.684 | 1.828 | 1.166 | .187 | 3.96 | 24000 |
| C-2122H | 3 | 1.750 | 1 | .437 | 2.090 | 2.259 | 1.400 | .219 | 5.56 | 34000 |

*Morse Thermoplastic Roller Chain offers a smooth, quiet chain with reduced weight.



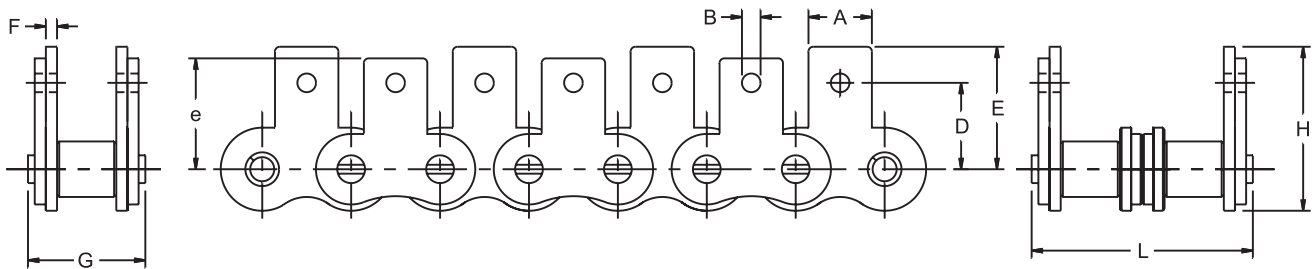
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S-1 straight attachments – ANSI roller chain

| Chain No. | Pitch | Roller | | Pin Diam. | Dimensions (Inches) | | | | | | | | | Chain Wt. Per Ft. (Lbs.) Single | Chain Wt. Per Ft. (Lbs.) Double | Each S-1 Attach. Wt. (Lbs.) |
|-------------|-------|--------|-------|-----------|---------------------|-------|--------|---------|---------|------|-------|-----------------------|-------|---------------------------------|---------------------------------|-----------------------------|
| | | Width | Diam. | | A | B | D | e | E | F | G | H-Inside Plate Height | I | | | |
| †35 & 35-2 | 3/8 | 3/16 | .200 | .141 | 5/16 | 7/64 | 3/8 | 17/32 | 17/32 | .050 | .466 | 45/64 | .866 | .21 | .40 | .002 |
| 41 | 1/2 | 1/4 | .306 | .141 | 3/8 | 1/8 | 31/64 | 45/64 | 45/64 | .050 | .512 | 57/64 | - | .25 | - | .003 |
| 40 & 40-2 | 1/2 | 5/16 | .312 | .156 | 3/8 | 9/64 | 1/2 | 11/16 | 3/4 | .060 | .630 | 63/64 | 1.194 | .42 | .82 | .003 |
| 50 & 50-2 | 5/8 | 3/8 | .400 | .200 | 1/2 | 13/64 | 5/8 | 57/64 | 31/32 | .080 | .790 | 1-17/64 | 1.507 | .69 | 1.36 | .008 |
| 60 & 60-2 | 3/4 | 1/2 | .468 | .234 | 5/8 | 13/64 | 23/32 | 1-1/32 | 1-1/8 | .094 | .990 | 1-15/32 | 1.893 | 1.00 | 1.99 | .013 |
| 80 & 80-2 | 1 | 5/8 | .625 | .312 | 3/4 | 17/64 | 31/32 | 1-11/32 | 1-1/2 | .125 | 1.274 | 1-31/32 | 2.432 | 1.71 | 3.40 | .027 |
| 100 & 100-2 | 1-1/4 | 3/4 | .750 | .375 | 1 | 21/64 | 1-1/4 | 1-21/32 | 1-53/64 | .156 | 1.555 | 2-13/32 | 2.963 | 2.58 | 5.10 | .055 |
| 120 & 120-2 | 1-1/2 | 1 | .875 | .437 | 1-1/8 | 25/64 | 1-7/16 | 1-15/16 | 2-1/8 | .187 | 1.960 | 2-53/64 | 3.749 | 3.87 | 7.65 | .082 |
| 140 & 140-2 | 1-3/4 | 1 | 1.000 | .500 | 1-3/8 | 29/64 | 1-3/4 | 2-9/32 | 2-1/2 | .219 | 2.117 | 3-5/16 | 4.041 | 4.95 | 9.80 | .141 |
| 160 & 160-2 | 2 | 1-1/4 | 1.125 | .562 | 1-1/2 | 32/64 | 2 | 2-39/64 | 2-7/8 | .250 | 2.522 | 3-13/16 | 4.827 | 6.61 | 13.10 | .198 |

† Rollerless



S-2 straight attachments – ANSI roller chain

| Chain No. | Pitch | Roller | | Pin Diam. | Dimensions (Inches) | | | | | | | | | Chain Wt. Per Ft. (Lbs.) Single | Chain Wt. Per Ft. (Lbs.) Double | Each S-2 Attach. Wt. (Lbs.) |
|-------------|-------|--------|-------|-----------|---------------------|-------|--------|---------|---------|------|-------|-----------------------|-------|---------------------------------|---------------------------------|-----------------------------|
| | | Width | Diam. | | A | B | D | e | E | F | G | H-Inside Plate Height | L | | | |
| †35 & 35-2 | 3/8 | 3/16 | .200 | .141 | 5/16 | 7/64 | 3/8 | 17/32 | 17/32 | .050 | .466 | 45/64 | .866 | .21 | .40 | .004 |
| 41 | 1/2 | 1/4 | .306 | .141 | 3/8 | 1/8 | 31/64 | 45/64 | 45/64 | .050 | .512 | 57/64 | - | .25 | - | .006 |
| 40 & 40-2 | 1/2 | 5/16 | .312 | .156 | 3/8 | 9/64 | 1/2 | 11/16 | 3/4 | .060 | .630 | 63/64 | 1.194 | .42 | .82 | .006 |
| 50 & 50-2 | 5/8 | 3/8 | .400 | .200 | 1/2 | 13/64 | 5/8 | 57/64 | 31/32 | .080 | .790 | 1-17/64 | 1.507 | .69 | 1.36 | .016 |
| 60 & 60-2 | 3/4 | 1/2 | .468 | .234 | 5/8 | 13/64 | 23/32 | 1-1/32 | 1-1/8 | .094 | .990 | 1-15/32 | 1.893 | 1.00 | 1.99 | .026 |
| 80 & 80-2 | 1 | 5/8 | .625 | .312 | 3/4 | 17/64 | 31/32 | 1-11/32 | 1-1/2 | .125 | 1.274 | 1-31/32 | 2.432 | 1.71 | 3.40 | .054 |
| 100 & 100-2 | 1-1/4 | 3/4 | .750 | .375 | 1 | 21/64 | 1-1/4 | 1-21/32 | 1-53/64 | .156 | 1.555 | 2-13/32 | 2.963 | 2.58 | 5.10 | .110 |
| 120 & 120-2 | 1-1/2 | 1 | .875 | .437 | 1-1/8 | 25/64 | 1-7/16 | 1-15/16 | 2-1/8 | .187 | 1.960 | 2-53/64 | 3.749 | 3.87 | 7.65 | .164 |
| 140 & 140-2 | 1-3/4 | 1 | 1.000 | .500 | 1-3/8 | 29/64 | 1-3/4 | 2-9/32 | 2-1/2 | .219 | 2.117 | 3-5/16 | 4.041 | 4.95 | 9.80 | .282 |
| 160 & 160-2 | 2 | 1-1/4 | 1.125 | .562 | 1-1/2 | 33/64 | 2 | 2-39/64 | 2-7/8 | .250 | 2.522 | 3-13/16 | 4.827 | 6.61 | 13.10 | .396 |

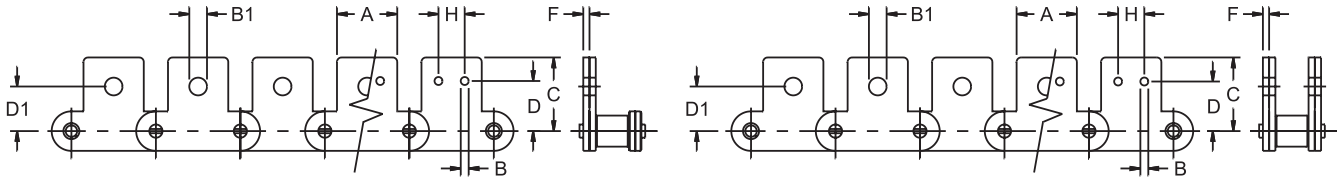
† Rollerless

All sizes available in riveted construction. Sizes 60 and above available in cottered construction. Please specify desired construction when ordering.

Call us direct at 1-888-EPT-SCC3

S-1 & S-2 STRAIGHT ATTACHMENTS

Double Pitch Roller Chain, Standard Series



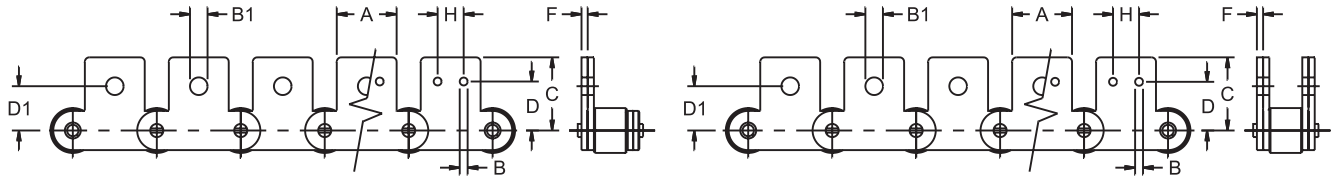
S-1

S-2

conveyor series – standard rollers straight attachments

| Chain No. | Pitch | Dimensions (Inches) | | | | | | | | | | | Weight in Lbs. | | |
|-----------|-------|---------------------|-------|-----------|-------|---------|------|----------------|----------------|---------------|---------|-------|----------------|--------------|------|
| | | Roller | | Pin Diam. | A | C | F | †With 1 Hole | | †With 2 Holes | | | Chain Per Ft. | Each Attach. | |
| | | Width | Diam. | | | | | B ₁ | D ₁ | B | D | H | | S-1 | S-2 |
| C-2040 | 1 | 5/16 | .312 | .156 | 3/4 | 25/32 | .060 | 13/64 | 7/16 | 9/64 | 17/32 | 3/8 | .34 | .004 | .008 |
| C-2050 | 1-1/4 | 3/8 | .400 | .200 | 1 | 63/64 | .080 | 17/64 | 9/16 | 13/64 | 5/8 | 15/32 | .56 | .014 | .028 |
| C-2060H | 1-1/2 | 1/2 | .468 | .234 | 1-1/8 | 1-11/64 | .125 | 21/64 | 11/16 | 13/64 | 3/4 | 9/16 | 1.01 | .035 | .070 |
| C-2080H | 2 | 5/8 | .625 | .312 | 1-1/2 | 1-37/64 | .156 | 25/64 | 7/8 | 17/64 | 1 | 3/4 | 1.67 | .074 | .148 |
| C-2100H | 2-1/2 | 3/4 | .750 | .375 | 1-7/8 | 1-63/64 | .187 | 33/64 | 1-1/8 | 21/64 | 1-1/4 | 15/16 | 2.47 | .132 | .264 |
| C-2120H | 3 | 1 | .875 | .437 | 2-1/4 | 2-11/32 | .219 | 37/64 | 1-5/16 | 25/64 | 1-15/32 | 1-1/8 | 3.56 | .216 | .432 |

† When ordering double pitch attachment chain, specify either one hole or two holes in the attachment tab.
 All sizes available in riveted construction. Size C2062 and above available in cottered construction. Please specify desired construction when ordering.



S-1

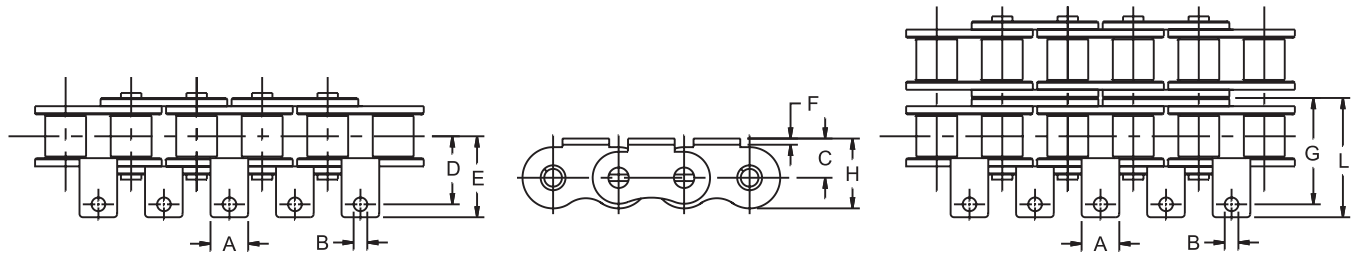
S-2

conveyor series – large rollers straight attachments

| Chain No. | Pitch | Dimensions (Inches) | | | | | | | | | | | Weight in Lbs. | | |
|------------|-------|---------------------|-------|-----------|-------|---------|------|------------------------|----------------|-------------------------|---------|-------|----------------|--------------|------|
| | | Roller | | Pin Diam. | A | C | F | †With One Attach. Hole | | †With Two Attach. Holes | | | Chain Per Ft. | Each Attach. | |
| | | Width | Diam. | | | | | B ₁ | D ₁ | B | D | H | | S-1 | S-2 |
| C-2042 | 1 | 5/16 | .625 | .156 | 3/4 | 25/32 | .060 | 13/64 | 7/16 | 9/64 | 17/32 | 3/8 | .58 | .004 | .008 |
| C-2052 | 1-1/4 | 3/8 | .750 | .200 | 1 | 63/64 | .080 | 17/64 | 9/16 | 13/64 | 5/8 | 15/32 | .88 | .014 | .028 |
| C-2062H | 1-1/2 | 1/2 | .875 | .234 | 1-1/8 | 1-11/64 | .125 | 21/64 | 11/16 | 13/64 | 3/4 | 9/16 | 1.48 | .035 | .070 |
| C-2062H-T* | 1-1/2 | 1/2 | .875 | .234 | 1-1/8 | 1-11/64 | .125 | 21/64 | 11/16 | 13/64 | 3/4 | 9/16 | 1.00 | .035 | .070 |
| C-2082H | 2 | 5/8 | 1.125 | .312 | 1-1/2 | 1-37/64 | .156 | 25/64 | 7/8 | 17/64 | 1 | 3/4 | 2.40 | .074 | .148 |
| C-2102H | 2-1/2 | 3/4 | 1.562 | .375 | 1-7/8 | 1-63/64 | .187 | 33/64 | 1-1/8 | 21/64 | 1-1/4 | 15/16 | 4.56 | .132 | .264 |
| C-2122H | 3 | 1 | 1.750 | .437 | 2-1/4 | 2-11/32 | .219 | 37/64 | 1-5/16 | 25/64 | 1-15/32 | 1-1/8 | 5.56 | .216 | .432 |

* Morse Thermoplastic Roller Chain offers a smooth, quiet chain with reduced weight.
 † When ordering double pitch attachment chain, specify either one hole or two holes in the attachment tab.
 All sizes available in riveted construction. Size C2062 and above available in cottered construction. Please specify desired construction when ordering.

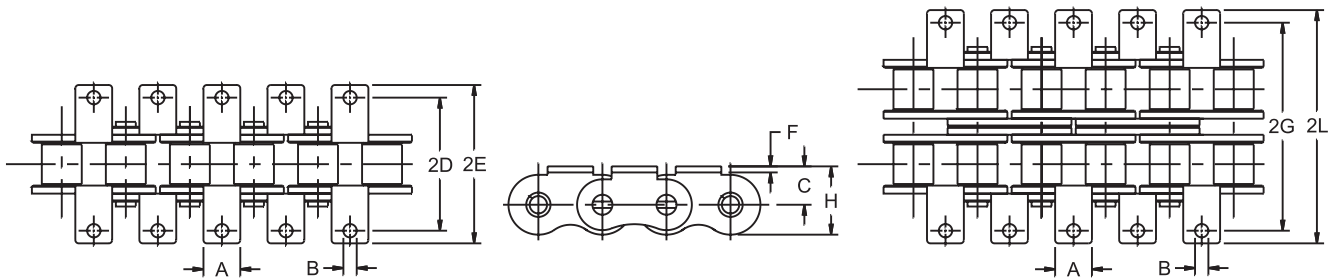
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B-1 bent attachments – ANSI roller chain

| Chain No. | Pitch | Roller | | Pin Diam. | Dimensions (Inches) | | | | | | | | Chain Wt. Per Ft. (Lbs.) Single | Chain Wt. Per Ft. (Lbs.) Double | Each B-1 Attach. Wt. (Lbs.) | |
|-------------|-------|--------|-------|-----------|---------------------|-------|-------|-------|---------|------|---------|-----------------------|---------------------------------|---------------------------------|-----------------------------|------|
| | | Width | Diam. | | A | B | C | D | E | F | G | H-Inside Plate Height | | | | L |
| †35 & 35-2 | 3/8 | 3/16 | .200 | .141 | 5/16 | 7/64 | 1/4 | 3/8 | 17/32 | .050 | 37/64 | 27/64 | 47/64 | .21 | .40 | .002 |
| 41 | 1/2 | 1/4 | .306 | .141 | 3/8 | 1/8 | 9/32 | 15/32 | 11/16 | .050 | - | 15/32 | - | .25 | - | .003 |
| 40 & 40-2 | 1/2 | 5/16 | .312 | .156 | 3/8 | 9/64 | 5/16 | 1/2 | 23/32 | .060 | 25/32 | 35/64 | 1 | .42 | .82 | .003 |
| 50 & 50-2 | 5/8 | 3/8 | .400 | .200 | 1/2 | 13/64 | 13/32 | 5/8 | 29/32 | .080 | 63/64 | 45/64 | 1-17/64 | .69 | 1.36 | .008 |
| 60 & 60-2 | 3/4 | 1/2 | .468 | .234 | 5/8 | 13/64 | 15/32 | 3/4 | 1-5/64 | .094 | 1-13/64 | 13/16 | 1-17/32 | 1.00 | 1.99 | .013 |
| 80 & 80-2 | 1 | 5/8 | .625 | .312 | 3/4 | 17/64 | 5/8 | 1 | 1-25/64 | .125 | 1-37/64 | 1-3/32 | 1-31/32 | 1.71 | 3.40 | .027 |
| 100 & 100-2 | 1-1/4 | 3/4 | .750 | .375 | 1 | 21/64 | 25/32 | 1-1/4 | 1-11/16 | .156 | 1-61/64 | 1-23/64 | 2-25/64 | 2.50 | 5.10 | .055 |
| 120 & 120-2 | 1-1/2 | 1 | .875 | .437 | 1-1/8 | 25/64 | 29/32 | 1-1/2 | 2-1/16 | .187 | 2-25/64 | 1-39/64 | 2-61/64 | 3.87 | 7.65 | .082 |
| 140 & 140-2 | 1-3/4 | 1 | 1.000 | .500 | 1-3/8 | 29/64 | 1-1/8 | 1-3/4 | 2-17/64 | .219 | 2-23/32 | 1-15/16 | 3-15/64 | 4.95 | 9.80 | .141 |
| 160 & 160-2 | 2 | 1-1/4 | 1.125 | .562 | 1-1/2 | 33/64 | 1-1/4 | 2 | 2-11/16 | .250 | 3-5/32 | 2-3/16 | 3-27/32 | 6.61 | 13.10 | .198 |

† Rollerless



B-2 bent attachments – ANSI roller chain

| Chain No. | Pitch | Roller | | Pin Diam. | Dimensions (Inches) | | | | | | | | Chain Wt. Per Ft. (Lbs.) Single | Chain Wt. Per Ft. (Lbs.) Double | Each B-2 Attach. Wt. (Lbs.) | |
|-------------|-------|--------|-------|-----------|---------------------|-------|-------|-------|---------|------|---------|-----------------------|---------------------------------|---------------------------------|-----------------------------|------|
| | | Width | Diam. | | A | B | C | 2D | 2E | F | 2G | H-Inside Plate Height | | | | 2L |
| †35 & 35-2 | 3/8 | 3/16 | .200 | .141 | 5/16 | 7/64 | 1/4 | 3/4 | 1-1/16 | .050 | 1-5/32 | 27/64 | 1-1/2 | .21 | .40 | .004 |
| 41 | 1/2 | 1/4 | .306 | .141 | 3/8 | 1/8 | 5/16 | 15/16 | 1-3/8 | .050 | - | 15/32 | - | .25 | - | .006 |
| 40 & 40-2 | 1/2 | 5/16 | .312 | .156 | 3/8 | 9/64 | 5/16 | 1 | 1-7/16 | .060 | 1-9/16 | 35/64 | 2 | .42 | .82 | .006 |
| 50 & 50-2 | 5/8 | 3/8 | .400 | .200 | 1/2 | 13/64 | 13/32 | 1-1/4 | 1-13/16 | .080 | 1-31/32 | 45/64 | 2-17/32 | .69 | 1.36 | .016 |
| 60 & 60-2 | 3/4 | 1/2 | .468 | .234 | 5/8 | 13/64 | 15/32 | 1-1/2 | 2-5/32 | .094 | 2-13/32 | 13/16 | 3-1/16 | 1.00 | 1.99 | .026 |
| 80 & 80-2 | 1 | 5/8 | .625 | .312 | 3/4 | 17/64 | 5/8 | 2 | 2-25/32 | .125 | 3-5/32 | 1-3/32 | 3-15/16 | 1.71 | 3.40 | .054 |
| 100 & 100-2 | 1-1/4 | 3/4 | .750 | .375 | 1 | 21/64 | 25/32 | 2-1/2 | 3-3/8 | .156 | 3-29/32 | 1-23/64 | 4-25/32 | 2.58 | 5.10 | .110 |
| 120 & 120-2 | 1-1/2 | 1 | .875 | .437 | 1-1/8 | 25/64 | 29/32 | 3 | 4-1/8 | .187 | 4-25/32 | 1-39/64 | 5-29/32 | 3.87 | 7.65 | .164 |
| 140 & 140-2 | 1-3/4 | 1 | 1.000 | .500 | 1-3/8 | 29/64 | 1-1/8 | 3-1/2 | 4-17/32 | .219 | 5-7/16 | 1-15/16 | 6-15/32 | 4.95 | 9.80 | .282 |
| 160 & 160-2 | 2 | 1-1/4 | 1.125 | .562 | 1-1/2 | 33/64 | 1-1/4 | 4 | 5-3/8 | .250 | 6-5/16 | 2-3/16 | 7-11/16 | 6.61 | 13.10 | .396 |

† Rollerless

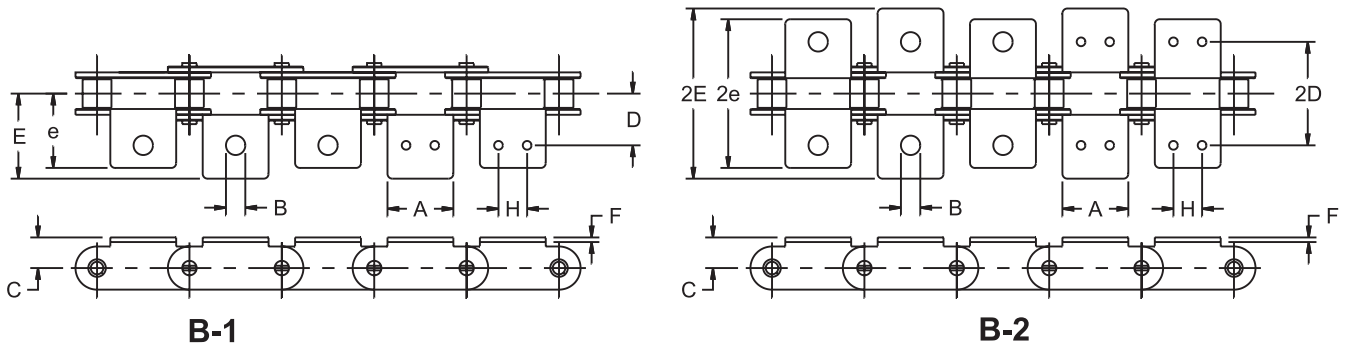
All sizes available in riveted construction. Sizes 60 and above available in cottered construction. Please specify desired construction when ordering.

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B-1 & B-2 BENT ATTACHMENTS



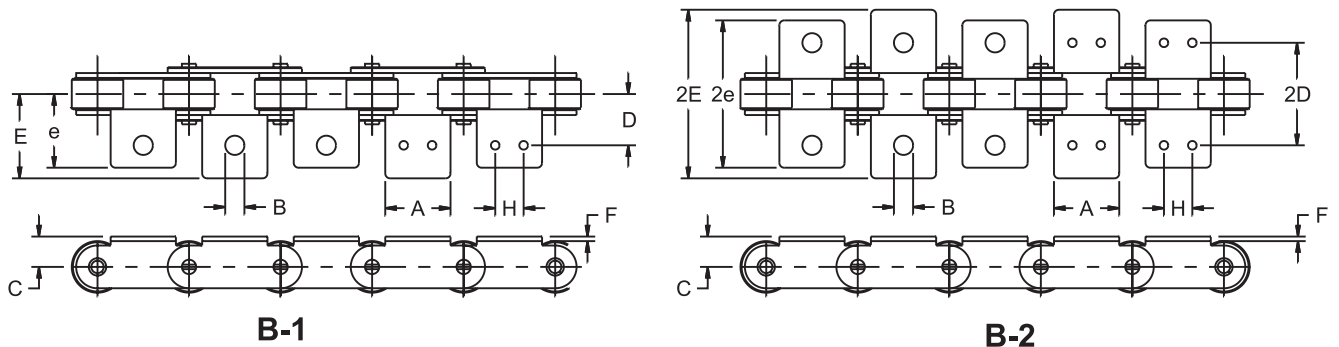
Double Pitch Roller Chain, Standard Series



conveyor series – standard rollers bent attachments

| Chain No. | Pitch | Dimensions (Inches) | | | | | | | | | | | | | | Weight in Lbs. | | |
|-----------|-------|---------------------|-------|-----------|-------|-------|--------|--------|---------|------------------|---------|---------------|---------|------|-------|----------------|--------------|------|
| | | Roller | | Pin Diam. | A | B † | C | D | 2D | Over Roller Link | | Over Pin Link | | F | H | Chain Per Ft. | Each Attach. | |
| | | Width | Diam. | | | | | | | e | 2e | E | 2E | | | | B-1 | B-2 |
| C-2040 | 1 | 5/16 | .312 | .156 | 3/4 | 9/64 | 23/64 | 1/2 | 1 | 11/16 | 1-3/8 | 49/64 | 1-17/32 | .060 | 3/8 | .34 | .004 | .008 |
| C-2050 | 1-1/4 | 3/8 | .400 | .200 | 1 | 13/64 | 7/16 | 5/8 | 1-1/4 | 29/32 | 1-13/16 | 63/64 | 1-31/32 | .080 | 15/32 | .56 | .014 | .028 |
| C-2060H | 1-1/2 | 1/2 | .468 | .234 | 1-1/8 | 13/64 | 37/64 | 27/32 | 1-11/16 | 1-5/64 | 2-5/32 | 1-13/64 | 2-13/32 | .125 | 9/16 | 1.01 | .035 | .070 |
| C-2080H | 2 | 5/8 | .625 | .312 | 1-1/2 | 17/64 | 3/4 | 1-3/32 | 2-3/16 | 1-13/32 | 2-13/16 | 1-9/16 | 3-1/8 | .156 | 3/4 | 1.67 | .074 | .148 |
| C-2100H | 2-1/2 | 3/4 | .750 | .375 | 1-7/8 | 21/64 | 59/64 | 1-5/16 | 2-5/8 | 1-25/32 | 3-9/16 | 1-31/32 | 3-15/16 | .187 | 15/16 | 2.47 | .132 | .264 |
| C-2120H | 3 | 1 | .875 | .437 | 2-1/4 | 25/64 | 1-3/32 | 1-9/16 | 3-1/8 | 2-9/64 | 4-9/32 | 2-3/8 | 4-3/4 | .219 | 1-1/8 | 3.56 | .216 | .432 |

† When ordering double pitch attachment chain, specify either one hole or two holes in the attachment tab.
 All sizes available in riveted construction. Size C2062 and above available in cottered construction. Please specify desired construction when ordering.

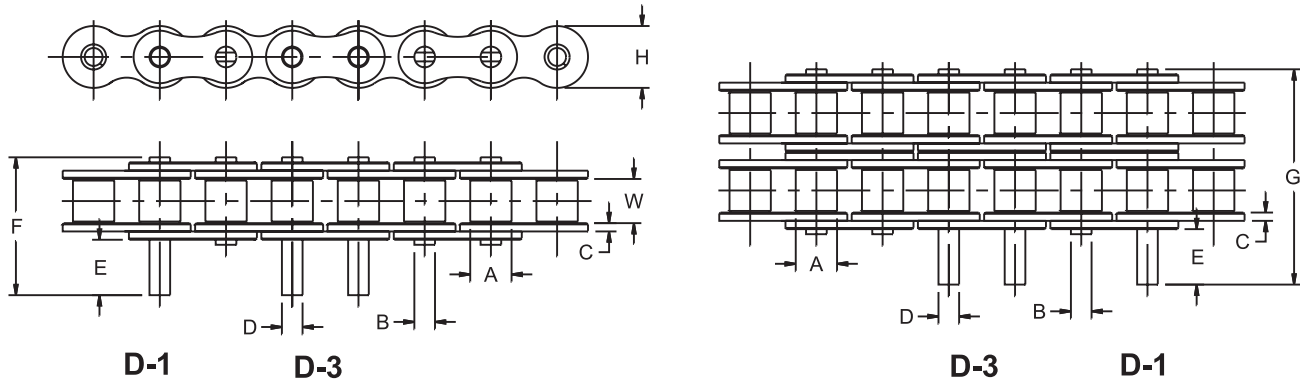


conveyor series – large rollers bent attachments

| Chain No. | Pitch | Dimensions (Inches) | | | | | | | | | | | | | | Weight in Lbs. | | |
|------------|-------|---------------------|-------|-----------|-------|-------|--------|--------|---------|------------------|---------|---------------|---------|------|-------|----------------|--------------|------|
| | | Roller | | Pin Diam. | A | B † | C | D | 2D | Over Roller Link | | Over Pin Link | | F | H | Chain Per Ft. | Each Attach. | |
| | | Width | Diam. | | | | | | | e | 2e | E | 2E | | | | B-1 | B-2 |
| C-2042 | 1 | 5/16 | .625 | .156 | 3/4 | 9/64 | 23/64 | 1/2 | 1 | 11/16 | 1-3/8 | 49/64 | 1-17/32 | .060 | 3/8 | .58 | .004 | .008 |
| C-2052 | 1-1/4 | 3/8 | .750 | .200 | 1 | 13/64 | 7/16 | 5/8 | 1-1/4 | 29/32 | 1-13/16 | 63/64 | 1-31/32 | .080 | 15/32 | .88 | .014 | .028 |
| C-2062H | 1-1/2 | 1/2 | .875 | .234 | 1-1/8 | 13/64 | 37/64 | 27/32 | 1-11/16 | 1-5/64 | 2-5/32 | 1-13/64 | 2-13/32 | .125 | 9/16 | 1.48 | .035 | .070 |
| C-2062H-T* | 1-1/2 | 1/2 | .875 | .234 | 1-1/8 | 13/64 | 37/64 | 27/32 | 1-11/16 | 1-5/64 | 2-5/32 | 1-13/64 | 2-13/32 | .125 | 9/16 | 1.00 | .035 | .070 |
| C-2082H | 2 | 5/8 | 1.125 | .312 | 1-1/2 | 17/64 | 3/4 | 1-3/32 | 2-3/16 | 1-13/32 | 2-13/16 | 1-9/16 | 3-1/8 | .156 | 3/4 | 2.40 | .074 | .148 |
| C-2102H | 2-1/2 | 3/4 | 1.562 | .375 | 1-7/8 | 21/64 | 59/64 | 1-5/16 | 2-5/8 | 1-25/32 | 3-9/16 | 1-31/32 | 3-15/16 | .187 | 15/16 | 4.56 | .132 | .264 |
| C-2122H | 3 | 1 | 1.750 | .437 | 2-1/4 | 25/64 | 1-3/32 | 1-9/16 | 3-1/8 | 2-9/64 | 4-9/32 | 2-3/8 | 4-3/4 | .219 | 1-1/8 | 5.56 | .216 | .432 |

* Morse Thermoplastic Roller Chain offers a smooth, quiet chain with reduced weight.
 † When ordering double pitch attachment chain, specify either one hole or two holes in the attachment tab.
 All sizes available in riveted construction. Size C2062, and above available in cottered construction. Please specify desired construction when ordering.

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extended pins – ANSI roller chain

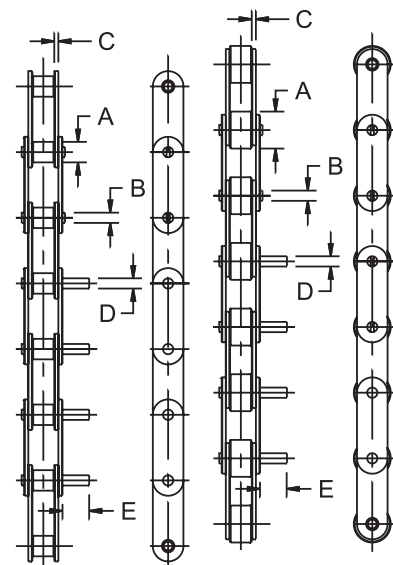
| Chain No. | Pitch | Roller Width W | Dimensions (Inches) | | | | | | | |
|-------------|-------|----------------|---------------------|-------------------|------------------------|-----------------------------|------------------------------------|---------|---------|-------|
| | | | Roller Diam. A | Chain Pin Diam. B | Side Plate Thickness C | Diameter of Extended Pins D | Standard Length of Extended Pins E | F | G | H |
| †35 & 35-2 | 3/8 | 3/16 | .200 | .141 | .050 | .141 | 3/8 | 13/16 | 1-7/32 | .350 |
| 41 | 1/2 | 1/4 | .306 | .141 | .050 | .141 | 3/8 | 55/64 | - | .383 |
| 40 & 40-2 | 1/2 | 5/16 | .312 | .156 | .060 | .156 | 3/8 | 31/32 | 1-17/32 | .466 |
| 50 & 50-2 | 5/8 | 3/8 | .400 | .200 | .080 | .200 | 15/32 | 1-7/32 | 1-15/16 | .584 |
| 60 & 60-2 | 3/4 | 1/2 | .468 | .234 | .094 | .234 | 9/16 | 1-1/2 | 2-13/32 | .700 |
| 80 & 80-2 | 1 | 5/8 | .625 | .312 | .125 | .312 | 3/4 | 1-31/32 | 3-1/8 | .934 |
| 100 & 100-2 | 1-1/4 | 3/4 | .750 | .375 | .156 | .375 | 15/16 | 2-27/64 | 3-53/64 | 1.166 |
| 120 & 120-2 | 1-1/2 | 1 | .875 | .437 | .187 | .437 | 1-1/8 | 3 | 4-25/32 | 1.400 |
| 140 & 140-2 | 1-3/4 | 1 | 1.000 | .500 | .219 | .500 | 1-5/16 | 3-21/64 | 5-1/4 | 1.634 |
| 160 & 160-2 | 2 | 1-1/4 | 1.125 | .562 | .250 | .562 | 1-1/2 | 3-29/32 | 6-7/32 | 1.866 |

† Rollerless

All sizes available in riveted construction. Sizes 60 and above available in cottered construction. Please specify desired construction when ordering.

conveyor series – extended pins

| Chain No. | Dimensions (Inches) | | | | | | |
|------------------------|---------------------|--------------|----------------|-------------------|------------------------|-------------------------|--------------------------|
| | Pitch | Roller Width | Roller Diam. A | Chain Pin Diam. B | Side Plate Thickness C | Diam. of Extended Pin D | Length of Extended Pin E |
| Standard Roller | | | | | | | |
| C-2040 | 1 | 5/16 | .312 | .156 | .060 | .156 | 3/8 |
| C-2050 | 1-1/4 | 3/8 | .400 | .200 | .080 | .200 | 15/32 |
| C-2060H | 1-1/2 | 1/2 | .468 | .234 | .125 | .234 | 9/16 |
| C-2080H | 2 | 5/8 | .625 | .312 | .156 | .312 | 3/4 |
| C-2100H | 2-1/2 | 3/4 | .750 | .375 | .187 | .375 | 15/16 |
| C-2120H | 3 | 1 | .875 | .437 | .219 | .437 | 1-1/8 |
| Large Rollers | | | | | | | |
| C-2042 | 1 | 5/16 | .625 | .156 | .060 | .156 | 3/8 |
| C-2052 | 1-1/4 | 3/8 | .750 | .200 | .080 | .200 | 15/32 |
| C-2062H | 1-1/2 | 1/2 | .875 | .234 | .125 | .234 | 9/16 |
| C-2062H-T* | 1-1/2 | 1/2 | .875 | .234 | .125 | .234 | 9/16 |
| C-2082H | 2 | 5/8 | 1.125 | .312 | .156 | .312 | 3/4 |
| C-2102H | 2-1/2 | 3/4 | 1.562 | .375 | .187 | .375 | 15/16 |
| C-2122H | 3 | 1 | 1.750 | .437 | .219 | .437 | 1-1/8 |



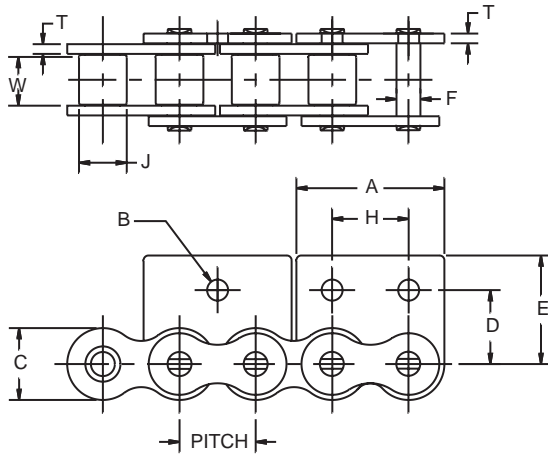
STANDARD ROLLERS

LARGE ROLLERS

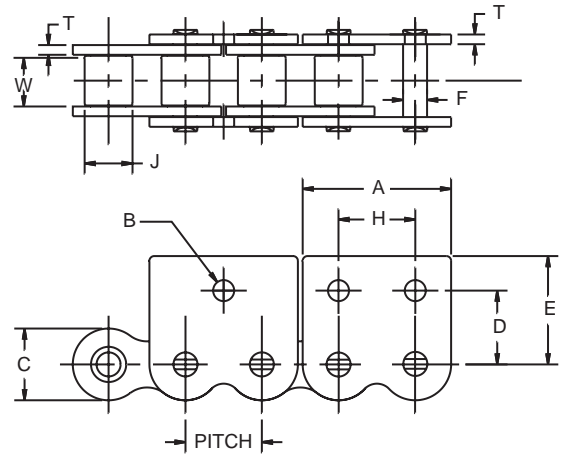
* Morse Thermoplastic Roller Chain offers a smooth, quiet chain with reduced weight.

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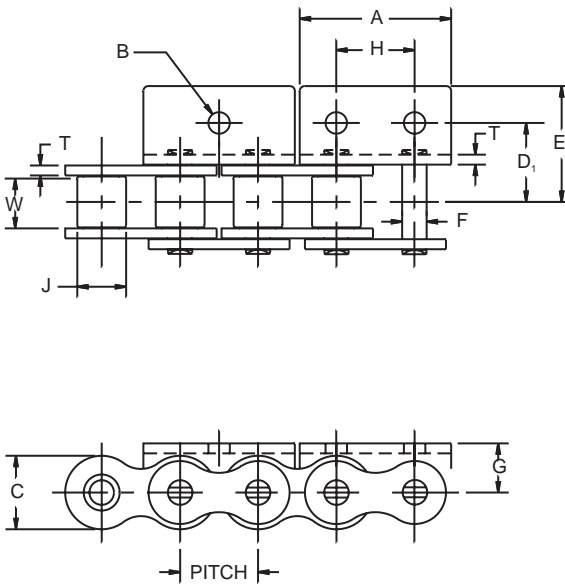
WS & WB WIDE-TAB Standard Series



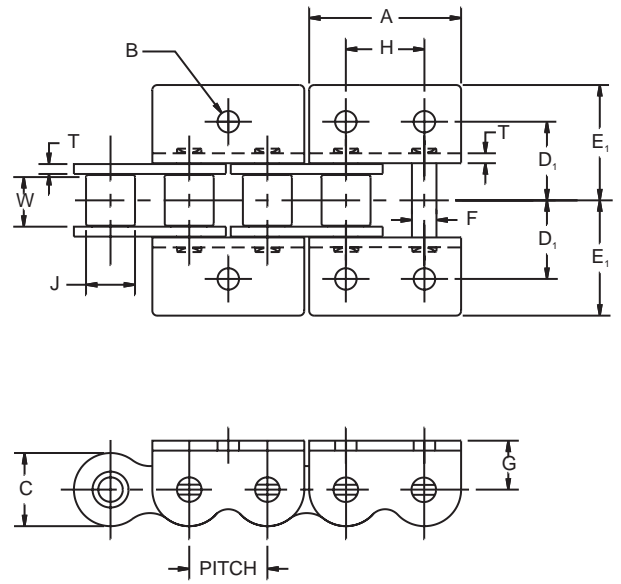
WS-1



WS-2



WB-1



WB-2

wide tab attachments – ANSI roller chain

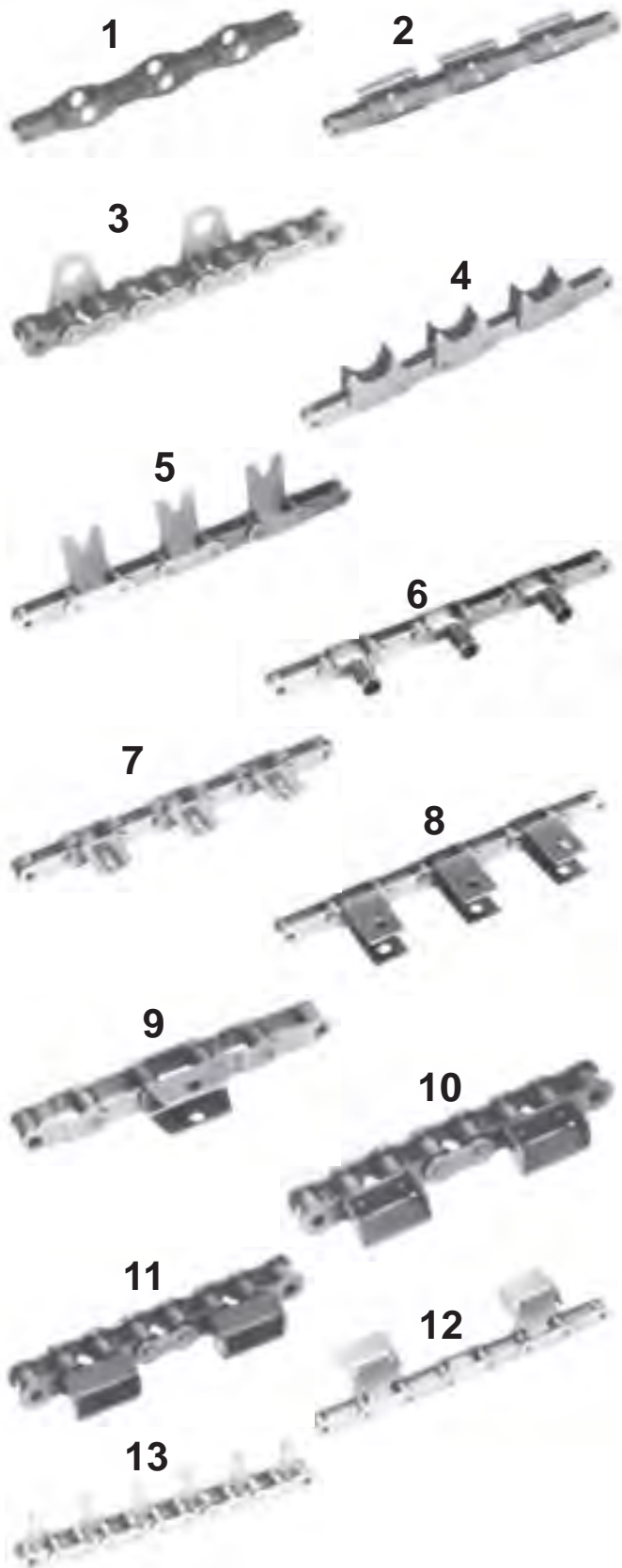
| Chain No. | Pitch | Dimensions (Inches) | | | | | | | | | | | | | |
|-----------|-------|---------------------|---------|-------------|-------|-------|-----------------------|-------|-------|-------|-------|----------------------|----------------|-------------------------|----------------|
| | | Roller | | Pin Diam. F | A | B | Inside Plate Height C | D | E | G | H | Bent Pin Attachments | | Bent Roller Attachments | |
| | | Width W | Diam. J | | | | | | | | | D ₁ | E ₁ | D ₂ | E ₂ |
| 40 | 1/2 | 5/16 | 0.312 | 0.156 | 0.966 | 0.140 | 0.466 | 0.500 | 0.686 | 0.312 | 0.500 | 0.500 | 45/64" | 0.500 | 21/32 |
| 50 | 5/8 | 3/8 | 0.400 | 0.200 | 1.209 | 0.205 | 0.584 | 0.625 | 0.907 | 0.406 | 0.625 | 0.625 | 59/64 | 0.625 | 27/32 |
| 60 | 3/4 | 1/2 | 0.468 | 0.234 | 1.450 | 0.205 | 0.700 | 0.720 | 1.057 | 0.468 | 0.750 | 0.750 | 1 3/32 | 0.750 | 1 |
| 80 | 1 | 5/8 | 0.625 | 0.312 | 1.934 | 0.265 | 0.934 | 0.969 | 1.396 | 0.625 | 1.000 | 1.000 | 1 7/16 | 1.000 | 1 19/64 |

When ordering wide tab attachment chain, specify one hole or two holes in the attachment tab.

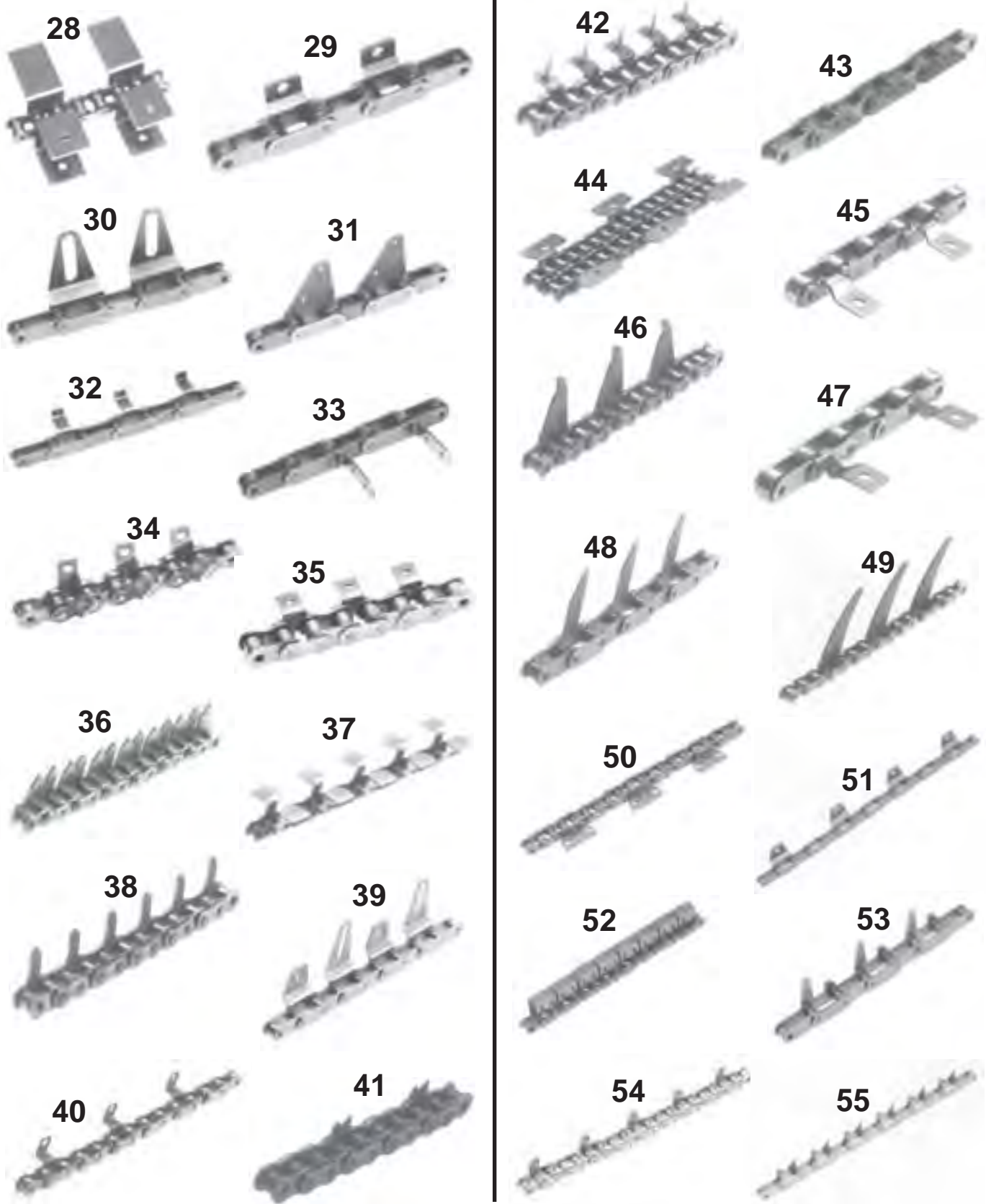
Call us direct at 1-888-EPT-SCC3

These are a few examples

For additional attachments, call us



of our attachments. direct at 1-888-EPT-SCC3.



connecting and offset links

| Pitch | Power Trans. Series (1) | Conveyor Series | | Connecting Link Types | | | Connecting Links Furnished With Stock Lgth Chain | Offset Link |
|----------------------|-------------------------|------------------|------------------|-----------------------|----------|-----------------------------|--|-------------|
| | | | | "SF" Link (Slip Fit) | | "PF" Link (Light Press Fit) | | |
| | | Standard | Large Rollers | Spring Clip | Cotter | Cotter | | Standard |
| 1/4, 3/8, 1/2 & 5/8" | 25,35,40,41,50 | - | - | Standard | None | None | 1 each 10' | Cotter |
| 3/4" | 60 | - | - | Optional | Standard | Optional | 1 each 10' | |
| 1" | 80 | - | - | Optional | Standard | Optional | 1 each 10' | |
| 1-1/4, 1-1/2, 1-3/4" | 100,120,140 | - | - | None | Standard | Optional | 1 each 10' | |
| 2, 2-1/2" | 160,200 | - | - | None | Standard | Optional | 1 each 10' | |
| 1 & 1-1/4" | 2040,2050 | C-2040, C-2050 | C-2042, C-2052 | Standard | None | None | 1 each 10' | |
| 1-1/2" | 2060 | C-2060H | C-2062, C-2062HT | Optional | Standard | Optional | 1 each 10' | |
| 2" | 2080 | C-2080H | C-2082H | None | Standard | Optional | 1 each 10' | |
| 2-1/2" & 3" | None | C-2100H, C-2120H | C-2102H, C-2122H | None | Standard | Optional | 1 each 10' | |

(1) Includes Standard, Sintered Bush, and Double Pitch
 Note: Use of slip fit and offset connecting links should be avoided in highly loaded drives.
 Heavy, "8" heavy, 60 and above are light press fit connectors.



Connecting Link ("C" or "SF")

Used to create chain with an even number of pitches.



Connecting Link ("Con" or "PF")



Single Pitch Offset Cotter Type

Used to create chain with an odd number of pitches.



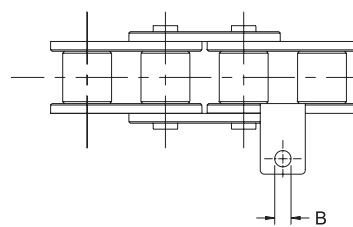
Two Pitch Offset Rivet Type

attachment hole dimensions

Morse attachment hole sizes are designed for the following screw sizes:

| Attachment Hole Dimensions | | | |
|----------------------------|----------|------------|----------------|
| Chain Size | Hole "B" | Screw Size | Screw Diameter |
| 35 | .109 | #2 | .086 |
| 41 | .125 | #5 | .125 |
| 40 | .141 | #5 | .125 |
| 50 | .203 | #10 | .190 |
| 60 | .203 | #10 | .190 |
| 80 | .266 | 1/4" | .250 |
| 100 | .328 | 5/16 | .312 |
| 120 | .391 | 3/8 | .375 |
| 140 | .453 | 7/16 | .438 |
| C2040 | .141 | #5 | .125 |
| C2050 | .203 | #10 | .190 |
| C2060H | .203 | #10 | .190 |
| C2080H | .266 | 1/4 | 1/4 |
| C2100H | .328 | 5/16 | 5/16 |
| C2120H | .391 | 3/8 | 3/8 |

Oversized and undersized holes also available.



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Interchange

For selecting/sizing single pitch attachment chains, consult the roller chain horsepower tables in DC-98 catalog (pg. G-19), or contact Technical Service at 1-800-626-2093. For double pitch chains see pages 16-18 in this catalog.

General Design Recommendations

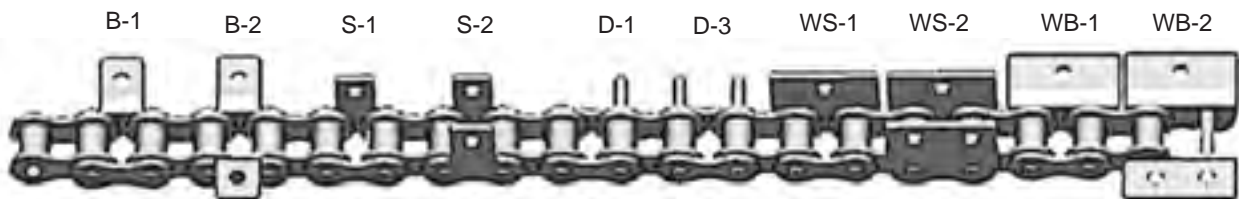
When designing new chains, the following points should be considered:

- ❶ Attachments are best located on pin links to add versatility and flexibility to an application.
- ❷ Variations of height and shape in attachment design can be derived from standard linkplates or from made-to-order designs. Many chain parts can be manufactured in non-standard material thicknesses to increase strength or improve durability for specific applications.
- ❸ Many different hole sizes and locations can be supplied using basic linkplate configurations.
- ❹ Morse attachment links are soft enough to permit such further operations as reaming, drilling and tapping.
- ❺ Note that when standard bent attachments are turned inward over the chain, the holes do not fall on the center line of the chain.
- ❻ Standard extended pins are carburized and hardened for maximum wear life. For additional shock resistance, consider through-hardened pins.
- ❼ To ensure proper sprocket engagement, standard length tolerance for chains without attachments is -0.000 to + 0.016 inches/foot; tolerance for chains with attachments is -.000 to + 0.031 inches/foot.
- ❽ To prevent unequal chain loading on parallel multiple strand conveyors, the teeth on each drive sprocket must be accurately aligned with the teeth on each of the other drive sprockets.
- ❾ Conveyor chains that support a load should have large rollers to minimize horsepower requirements.

Chains in this catalog should not be used for hoisting applications. Consult Technical Services for hoist application recommendations.

| Competitive Comparison | | | | |
|---|---------|----------|--------------------------------|----------------|
| Description | Morse | Diamond* | Rexnord* | U.S Tsubaki |
| Bent Attachment One Side | B-1 ● | B-1 | A-1 | A-1 A-2 ●●● |
| Bent Attachment Both Sides | B-2 ● | B-2 | K-1 K-2 ●●● | K-1 |
| Straight Attachment One Side | S-1 ● | S-1 | M-35 M-0 ●●●● M-35-2 ●●● | SA-1 |
| Straight Attachment Both Sides | S-2 ● | S-2 | M-1 M-2 MM-0 ●●●● | SK-1 |
| Extended Pin One Pin per Pin Link | D-1 | E-1 | D-1 | D-1 |
| Extended Pin Two Pins per Pin Link | D-3 | E-2 | D-3 | D-3 |
| Wide Tab Bent Attachment One Side | WB-1 ●● | WCB1 | - | WA-1 WA-2 |
| Wide Tab Bent Attachment Both Sides | WB-2 ●● | WCB2 | - | WK-1 WK-2 |
| Wide Tab Straight Attachment One Side | WS-1 ●● | WCS1 | - | WSA-1 WSA-2 |
| Wide Tab Straight Attachment Both Sides | WS-2 ●● | WCS2 | - | WSK-1 WSK-2 |

- Standard pitch lugs have one hole
- Available with either one or two holes in lug
- Supplied with two holes in lug
- Supplied with no holes in lug



*Rexnord is a trademark of Rexnord Corporation. *Diamond is a trademark of Amsted Industries Incorporated.

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conveyor series selection

Conveyor chain selection is usually based on the working load capacity of the chain rather than horsepower capacity. The allowable working loads are presented in the table below.

The following information provides the necessary formulas and factors needed to select the proper chain for a conveying application. The basic procedure is to determine the chain pull or working load, choose an appropriate chain size, and calculate the power required to operate the conveyor.

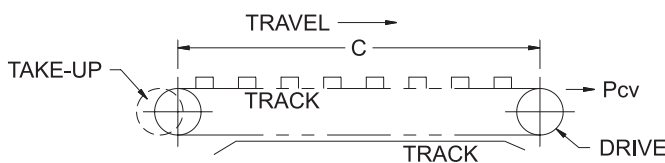
working loads for conveyor series chains

| Chain No. | Pitch (in.) | Chain speed (ft/min) | | | | | | | | | |
|-----------|-------------|----------------------|------|------|------|------|------|------|------|------|--|
| | | 5 | 25 | 50 | 75 | 100 | 200 | 300 | 400 | 500 | |
| C2040 | 1.00 | 530 | 525 | 510 | 490 | 465 | 335 | 230 | 160 | 115 | |
| C2050 | 1.25 | 870 | 865 | 840 | 805 | 765 | 555 | 380 | 265 | 190 | |
| C2060H | 1.50 | 1215 | 1205 | 1170 | 1125 | 1065 | 775 | 530 | 370 | 265 | |
| C2080H | 2.00 | 2070 | 2055 | 2000 | 1915 | 1815 | 1320 | 905 | 630 | 455 | |
| C2100H | 2.50 | 3425 | 3400 | 3310 | 3175 | 3000 | 2180 | 1500 | 1040 | 750 | |
| C2120H | 3.00 | 4855 | 4815 | 4690 | 4495 | 4250 | 3090 | 2125 | 1480 | 1065 | |

The working load or chain pull is calculated by using one of the following three formulas in conjunction with the coefficient of friction factors found in the tables.

For each of the following conveyor arrangements, there are formulas for the two most common conditions: the load supported by the chain and the load moved but not supported by the chain. The coefficients of friction for sliding material are listed in the table on the following page.

horizontal arrangement



- Conveyed material moved but not supported by the chain:

$$P_a = C (2.1Mf + Wf_w) + J$$
- Conveyed material supported by chain. In this case, $f_w = f$ (of the chain—that is, f_s or f_r) and the formula becomes

$$P_b = Cf (2.1M + W) + J$$
 (J applies only when sidewalls are stationary).

The total conveyor pull is the sum of the following:

| | |
|-------------------------------------|--------------------------|
| Pull on loaded run | $P = P_a$ or P_b |
| Pull on return run | $P_R = MCf'$ |
| Take-up pull* | P_{TU} or P_c |
| Pull to operate tail sprocket | $P_R \times .1$ |
| Pull from other factors | $\frac{P_o}{\text{---}}$ |
| Total conveyor pull | P_{cv} |

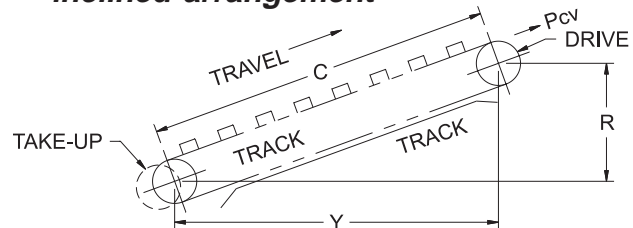
Calculate the total chain pull per strand (P_T) by dividing P_{cv} by the number of strands taking the load.

Horsepower required to operate the conveyor

$$HP = \frac{(P_{cv} - P_{TU} \text{ or } P_c) \times 1.2 \times S}{33,000}$$

* Usually the takeup pull is known. If not, use 0.3% of the chain's ultimate strength as a reasonable estimate.

inclined arrangement



- Conveyed material moved but not supported by the chain conveyor:

$$P_a = C (2Mf \cos \alpha + Wf_w \cos \alpha + W \sin \alpha) + J$$
- Conveyed material fully supported by the conveyor. In this case, $f_w = f$ and the formula becomes

$$P_b = Cf \cos \alpha (2M + W) = (CW \sin \alpha) + J$$
 - When Y and R are known:

$$\cos \alpha = \frac{Y}{C} \text{ and } \sin \alpha = \frac{R}{C}$$
 - When $(Mf \cos \alpha - MF \sin \alpha)$ is a positive quantity, multiply the difference by 1.1 for tail shaft friction.

The total conveyor pull is the sum of the following:

| | |
|-------------------------------------|--------------------------|
| Pull on loaded run | $P = P_a$ or P_b |
| Pull on return run** | $P_R = MCf'$ |
| Take-up pull* | P_{TU} or P_c |
| Pull to operate tail sprocket | $P_R \times .1$ |
| Pull from other factors | $\frac{P_o}{\text{---}}$ |
| Total conveyor pull | P_{cv} |

Calculate the total chain pull per strand (P_T) by dividing P_{cv} by the number of strands taking the load.

Horsepower required to operate the conveyor

$$HP = \frac{(P_{cv} - P_{TU} \text{ or } P_c) \times 1.2 \times S}{33,000}$$

* Usually the takeup pull is known. If not, use 0.3% of the chain's ultimate strength as a reasonable estimate.

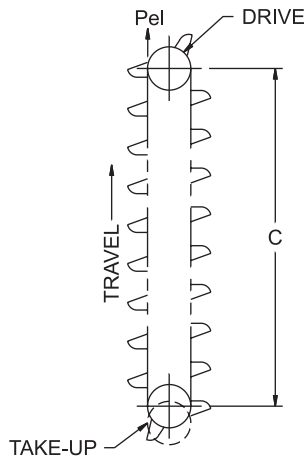
** Disregard when $\frac{R}{Y}$ is greater than factor f.

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DOUBLE PITCH Conveyor Chain Selection



vertical arrangement



$$P = C(M + W)$$

The total conveyor pull is the sum of the following:

- Pull on loaded run $P = (M+W)C$
- Take-up pull* P_{TU}
- Digging pull $P_B = x d$
- Pull to operate tail sprocket $\frac{P_{TU} \times .1}{}$
- Total elevator pull P_{EL}

Calculate the total chain pull per strand (P_T) by dividing P_{EL} by the number of chain strands used in the elevator.

Horsepower required to operate the conveyor

$$HP = \frac{(P_{EL} - (P_{TU} + MC)) \times 1.2 \times S}{33,000}$$

* Usually, the takeup pull is known. If not, use 0.3% of the chain's ultimate strength as a reasonable estimate.

For material with small lumps, multiply M by the sprocket diameter. For fine or fluffy materials, multiply M by the sprocket radius.

friction factors f_r for double-pitch roller chains equipped with large rollers

| Chain Number | Static† | | Rolling | |
|--------------|---------|------------|---------|------------|
| | Dry | Lubricated | Dry | Lubricated |
| C-2042 | 0.17 | 0.12 | 0.14 | 0.10 |
| C-2052 | 0.16 | 0.11 | 0.13 | 0.09 |
| C-2062H | 0.16 | 0.11 | 0.13 | 0.09 |
| C-2082H | 0.15 | 0.10 | 0.12 | 0.08 |
| C-2102H | 0.14 | 0.09 | 0.11 | 0.07 |
| C-2122H | 0.14 | 0.09 | 0.11 | 0.07 |

† Use static coefficient of friction for speeds of 3 ft/min or less.

friction factors f_w for sliding of materials

| Material | Coefficient |
|--------------------------------|-------------|
| Coal on steel | 0.33 |
| Crushed stone or sand on steel | 0.33 |
| Cement on steel | 0.80 |
| Wood on wood | 0.55 |

definitions

- M**, weight, in pounds per foot, of the moving elements of the conveyor as carried by the chains.
- W**, weight of material carried in pounds per foot of conveyor. (for unit materials, sum up the average weight of units expected to be on the conveyor at maximum capacity, and divide by the conveyor length in feet.)
- f**, coefficient of friction of chain, sliding or rolling (f_s or f_r), as given in the tables.
- f_w** , coefficient of friction of material sliding in trough, as given in the table or from other references. (Note: When material is entirely carried by conveyor, $f_w = f$.)
- J**, additional pull from drag of material on stationary sides of trough, given in the tables.
- S**, conveyor speed, in feet per minute.
- P**, conveyor pull, in pounds. (P_a or P_b).
- P_a** = Pull due to digging material from elevator boot, pounds
- P_c** = Centrifugal Pull = $\frac{\text{Chain Weight per Foot} \times (\text{FPM})^2}{115,900}$
- P_L** = Conveyor or elevator pull on loaded run, pounds
- P_o** = Conveyor pull from other sources, pounds
- P_R** = Conveyor pull on return run, pounds
- P_{CV}** = Total calculated conveyor pull, pounds
- P_{EL}** = Total calculated elevator pull, pounds
- P_{TU}** = Conveyor take-up pull, pounds
- HP** = Horsepower at head shaft
- C** = Length of conveyor in feet
- α** = Angle of conveyor incline (from horizontal)

friction factors f_s for sliding roller conveyor chains

| Condition | Dry | Lubricated |
|-----------|------|------------|
| Static* | 0.33 | 0.24 |
| Sliding | 0.27 | 0.21 |

* Use static coefficient of friction for speeds of 3 ft/min or less.

trough drag friction factor J for materials

| Material | R |
|-----------|------|
| Coal | 14.0 |
| Coke | 35.0 |
| Limestone | 7.5 |
| Gravel | 7.0 |
| Sand | 5.5 |
| Ashes | 14.0 |

$J = \frac{Ch^2}{R}$ Where:

- h** = height of material in inches
- R** = variable factor for different materials
- C** = length of conveyor in feet

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Chain Conveying Applications

The following information should be used in conjunction with the conveyor chain selection. Formulas are listed on the previous pages.

Table 1A gives friction factor FRS for chains with standard small rollers supporting the weight of the chain and conveyed products. Supporting heavy conveyed loads with standard small rollers is not normally recommended, as the rollers may not turn and develop flat spots.

Table 1A - Friction Factors for Small Rollers - FRS

| Condition | Dry | Lubricated |
|-----------|------|------------|
| Static | 0.33 | .24 |
| Rolling | 0.20 | .14 |

Maximum speed should be limited to 70 FPM.

Table 2A gives allowable load supported by the rollers. Permissible load includes the weight of the chain, as well as conveyed products. The table includes limits for both large and standard small rollers along with plastic large rollers.

Table 2A - Roller Load Rating

| Chain Size | Allowable Pounds Per Roller | | |
|------------|-----------------------------|--------------|--------------------|
| | Hardened Steel | | Plastic (Large **) |
| | (Large *) | (Std. Small) | |
| 40-2040 | - | 30 | - |
| C2040/2 | 145 | 30 | 40 |
| 50-2050 | - | 45 | - |
| C2050/2 | 210 | 45 | 60 |
| 60/2060 | - | 65 | - |
| C2060H/2 | 340 | 65 | 100 |
| 80-2080 | - | 120 | - |
| C2080H/2 | 570 | 120 | 165 |
| 100-2100 | - | 175 | - |
| C2100H/2 | 825 | 175 | - |
| 120-2120 | - | 250 | - |
| C2120H/2 | 1285 | 250 | - |

* Based on 2000 PSI Bearing Load.

** Based on 575 PSI Bearing Load.
Load or Force in Pounds.

**CAUTION
WHEN CONNECTING/DISCONNECTING CHAIN:**

1. Always lock out equipment power switch before removing or installing chains.
2. Always USE SAFETY GLASSES to protect your eyes.
3. Wear protective clothing, gloves and safety shoes as appropriate.
4. REMOVE COTTER KEYS OR GRIND OFF RIVETED PIN END. SUPPORT THE CHAIN TO PREVENT UNCONTROLLED MOVEMENT OF CHAIN AND PARTS.
5. USE OF PRESSING EQUIPMENT IS RECOMMENDED. TOOLS MUST BE IN GOOD CONDITION AND PROPERLY USED.
6. DO NOT ATTEMPT TO CONNECT OR DISCONNECT CHAIN UNLESS YOU KNOW THE CHAIN CONSTRUCTION.
7. Damaged chain may be weakened and therefore should not be used.
8. Discard removed components. Components should not be reused.
9. Use NEW sub-assemblies for rework and not individual components.

CONSULT TECHNICAL SERVICES OR AN AUTHORIZED DISTRIBUTOR FOR COMPLETE ASSEMBLY OR DISASSEMBLY PROCEDURES.

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Specialty & Attachment Chain Design Sheet



SPECIALTY CHAIN CENTER

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Name _____ Company _____ Acct. No. _____

Distributor _____ City, State, Zip Code _____

Phone _____ Fax _____

Base Chain Size _____ single double triple riveted cottered

Length _____ pitches inches

If odd no. pitches, I'd like roller links at both ends pin links at both ends riveted offset link cottered offset link

Attachment (or extended pin) Spacing: every _____ pitches inches on the pin link roller link both

No. of Strands _____ one-time order annual qty (for qty discounts) _____

Material/Plating carbon steel stainless steel nickel plated Moisture Guard other _____

Standard Attachments:

(see catalog for dimensions on standard attachments and extended pin offering)

B Bent

S Straight 1 One Side 1 One Hole

WB Wide Tab Bent 2 Both Sides 2 Two Holes

WS Wide Tab Straight

D Extended Pin 1 One Pin per Link
3 Both Pins in Link

Other Instructions/Requirements

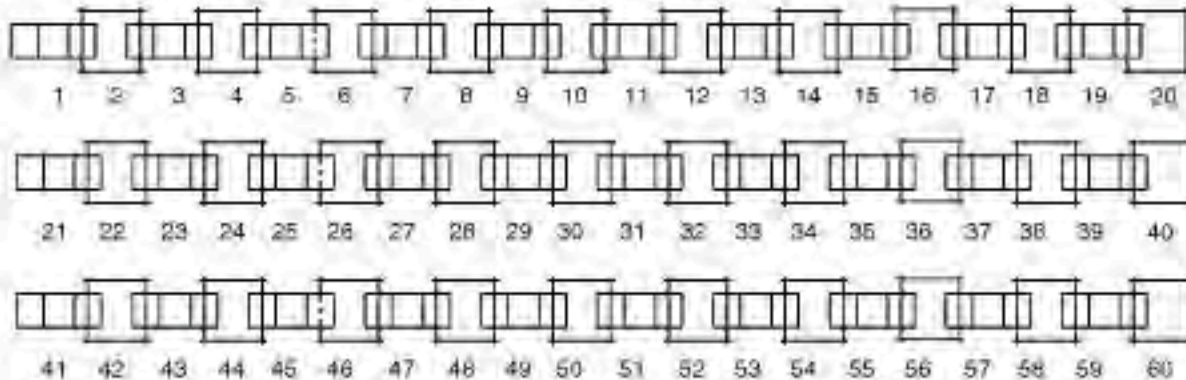
Special Attachments:

drawing attached

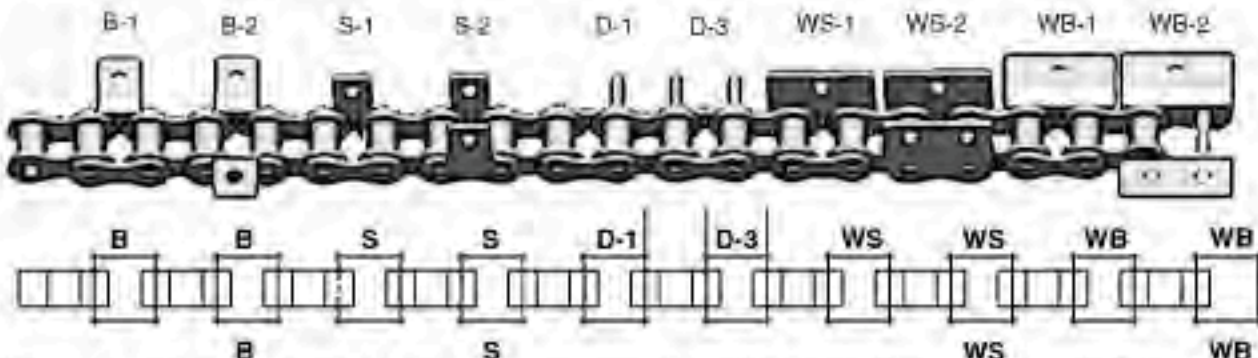
here's my sketch, please confirm with me:



ATTACHMENT SPACING



EXAMPLE



Upon receipt of order, you will receive an Attachment Chain Order Confirmation from the Morse Specialty Chain Center. If the confirmation is correct, no action need be taken. If not correct, please scb@sc.us immediately so that corrective action can be taken.



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Valparaiso, IN 46383
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Aerospace Bearings Fax 219-465-2290

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APPLICATION CONSIDERATIONS

The proper selection and application of power transmission products and components, including the intended use of product, falls within the responsibility of the customer. Operating and performance requirements and potential associated issues will vary according to the application of the use and application of such products and components. The scope of the technical and application information included in this publication is necessarily limited. Unusual operating environments and conditions, installation requirements, loading supports, and other factors can adversely affect the application and operating results of the products and components, and the customer should carefully review its requirements. Any technical advice or service furnished by Emerson Power Transmission Corporation and its divisions will be based on the use of products and components in given conditions and without charge, and Emerson assumes no obligation or liability for the success (or failure) of results obtained, all such advice and review being given and accepted at customer's risk.

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