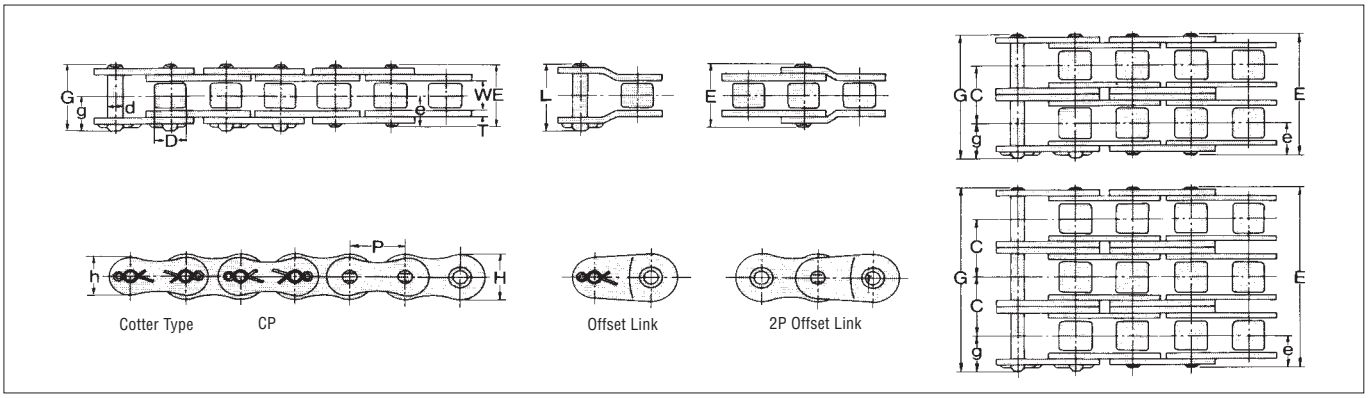
# 2-2 D.I.D Ultimate Power Series Roller Chain

# 2-2-1 D.I.D HI*PWR K Series Roller Chain

## Features

D.I.D K Series roller chain is designed to obtain higher tensile strength and shock load capacity with the same physical dimensions as ANSI standard roller chain. K Series roller chain is recommended for slow to moderate speed drive and heavy load conditions.




### Max. Horsepower Ratings

Unit (inch)

| Chain No. DID | ANSI | Pitch | Roller Link Width | Roller (Bush) Dia. | Pin | | | | | | Trans-verse Pitch | Plate | | | DID Avg. Tensile Strength | DID Max. Allowable Load | Approx. Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | W | D | d | E | G | L | e | g | C | T | H | h | lbs | lbs | (lbs/FT) |
| RC80K | 80 | 1 | 0.625 | 0.625 | 0.313 | 1.283 | 1.394 | 1.461 | 0.646 | 0.748 | 1.154 | 0.126 | 0.945 | 0.819 | 17,820.00 | 3,520.00 | 1.8 |
| RC80K-2 | 80-2 | | | | | 2.437 | 2.547 | 2.610 | | | | | | | 35,640.00 | 5,984.00 | 3.5 |
| RC80K-3 | 80-3 | | | | | 3.594 | 3.701 | 3.744 | | | | | | | 53,460.00 | 8,800.00 | 5.3 |
| RC80K-4 | 80-4 | | | | | 4.748 | 4.854 | 4.898 | | | | | | | 80,080.00 | 11,616.00 | 7.0 |
| RC100K | 100 | 1.25 | 0.750 | 0.750 | 0.376 | 1.555 | 1.673 | 1.780 | 0.780 | 0.894 | 1.409 | 0.157 | 1.177 | 1.024 | 27,280.00 | 5,500.00 | 2.7 |
| RC100K-2 | 100-2 | | | | | 2.965 | 3.083 | 3.193 | | | | | | | 54,560.00 | 9,350.00 | 5.3 |
| RC100K-3 | 100-3 | | | | | 4.378 | 4.496 | 4.535 | | | | | | | 81,840.00 | 13,750.00 | 7.9 |
| RC100K-4 | 100-4 | | | | | 5.787 | 5.906 | 5.945 | | | | | | | 109,120.00 | 18,150.00 | 10.4 |
| RC120K | 120 | 1.5 | 1.000 | 0.875 | 0.437 | 1.957 | 2.087 | 2.209 | 0.980 | 1.110 | 1.787 | 0.189 | 1.413 | 1.228 | 39,600.00 | 7,480.00 | 3.9 |
| RC120K-2 | 120-2 | | | | | 3.748 | 3.878 | 3.921 | | | | | | | 79,200.00 | 12,716.00 | 7.7 |
| RC120K-3 | 120-3 | | | | | 5.535 | 5.665 | 5.709 | | | | | | | 118,800.00 | 18,700.00 | 11.5 |
| RC120K-4 | 120-4 | | | | | 7.327 | 7.457 | 7.500 | | | | | | | 158,400.00 | 24,684.00 | 15.3 |
| RC140K | 140 | 1.75 | 1.000 | 1.000 | 0.500 | 2.110 | 2.299 | 2.346 | 1.055 | 1.248 | 1.925 | 0.220 | 1.650 | 1.429 | 52,800 | 99,000 | 5.1 |
| RC140K-2 | 140-2 | | | | | 4.039 | 4.228 | 4.276 | | | | | | | 105,600 | 16,830 | 10.1 |
| RC140K-3 | 140-3 | | | | | 5.965 | 6.154 | 6.201 | | | | | | | 158,400 | 24,750 | 15.2 |
| RC140K-4 | 140-4 | | | | | 7.894 | 8.083 | 8.130 | | | | | | | 211,200 | 32,670 | 20.2 |
| RC160K | 160 | 2 | 1.250 | 1.125 | 0.563 | 2.504 | 2.685 | 2.744 | 1.256 | 1.437 | 2.303 | 0.252 | 1.882 | 1.630 | 68,200 | 12,760 | 6.8 |
| RC160K-2 | 160-2 | | | | | 4.811 | 4.992 | 5.051 | | | | | | | 136,400 | 21,692 | 13.1 |
| RC160K-3 | 160-3 | | | | | 7.118 | 7.299 | 7.358 | | | | | | | 204,600 | 31,900 | 19.4 |
| RC160K-4 | 160-4 | | | | | 9.421 | 9.598 | 9.661 | | | | | | | 272,800 | 42,108 | 25.5 |
| RC180K | 180 | 2.25 | 1.406 | 1.406 | 0.687 | 2.815 | 3.043 | 3.122 | 1.409 | 1.638 | 2.591 | 0.280 | 2.118 | 1.835 | 88,000 | 15,180 | 9.1 |
| RC180K-2 | 180-2 | | | | | 5.409 | 5.638 | 5.717 | | | | | | | 176,000 | 25,806 | 17.3 |
| RC180K-3 | 180-3 | | | | | 8.004 | 8.232 | 8.311 | | | | | | | 264,000 | 37,950 | 25.5 |
| RC180K-4 | 180-4 | | | | | 10.594 | 10.823 | 10.902 | | | | | | | 352,000 | 50,094 | 33.8 |
| RC200K | 200 | 2.5 | 1.500 | 1.562 | 0.781 | 3.067 | 3.346 | 3.437 | 1.535 | 1.811 | 2.819 | 0.315 | 2.362 | 2.047 | 106,700 | 17,160 | 11.3 |
| RC200K-2 | 200-2 | | | | | 5.890 | 6.165 | 6.260 | | | | | | | 213,400 | 29,172 | 21.1 |
| RC200K-3 | 200-3 | | | | | 8.713 | 8.988 | 9.079 | | | | | | | 320,100 | 42,900 | 31.0 |
| RC200K-4 | 200-4 | | | | | 11.531 | 11.807 | 11.898 | | | | | | | 426,800 | 56,628 | 40.8 |
| RC240K | 240 | 3 | 1.875 | 1.875 | 0.937 | 3.748 | 4.051 | 4.150 | 1.878 | 2.177 | 3.457 | 0.374 | 2.815 | 2.441 | 155,100 | 22,880 | 16.3 |
| RC240K-2 | 240-2 | | | | | 7.209 | 7.512 | 7.610 | | | | | | | 310,200 | 38,896 | 29.8 |
| RC240K-3 | 240-3 | | | | | 10.665 | 10.969 | 11.067 | | | | | | | 465,300 | 57,200 | 43.3 |
| RC240K-4 | 240-4 | | | | | 14.122 | 14.425 | 14.524 | | | | | | | 620,400 | 75,306 | 56.9 |

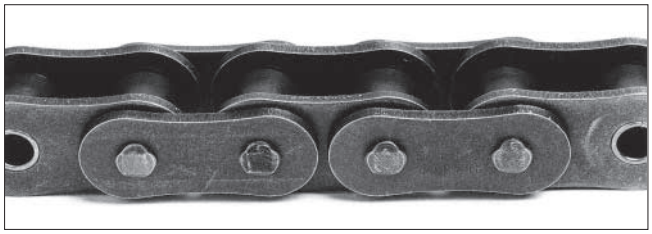
Note: Value in above table is for single strand chain only.
For multiplex chain, please apply the coefficient of Multi-strand. (Please refer to Chain selection on P.91.)

# 2-2-2 DID HI*PWR KS Series Roller Chain

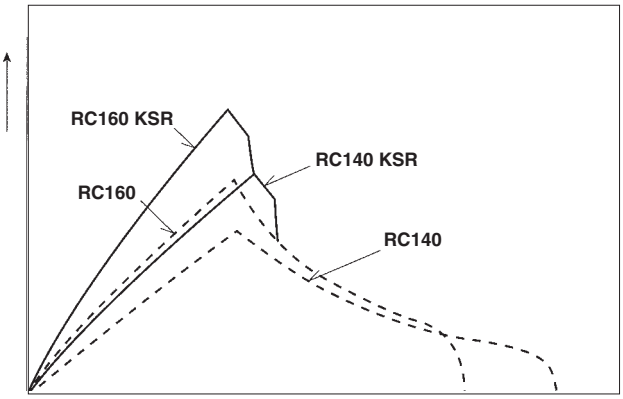


## Features

KS type roller chain are enhanced in fatigue strength and shock strength without changing the dimension in the pin length direction of standard roller chains. Plates are enlarged, and the machining accuracy and assembling accuracy of components are improved. The roller chains hold high transmission efficiency for applications from low to high speeds and are powerful enough to withstand long-term use.



## Maximum Horsepower rating diagram




## Applications

Compared to standard roller chain, KS type roller chain are higher in maximum horsepower rating by about 30 percent in a medium to low speed range. They perform excellent in places where large shock loads apply, frequent start/stop drives, and also in relatively high speed applications.

<Applications> Civil engineering machines such as power shovels, trenchers, trucks, cranes and truck mixers agitators, and shock-applied drives for conveyors, elevators, stackers,etc.

## Cautions for use

1. As connecting links, use semi-press fit type connecting links for KS Series. In a semi-press fit type connecting link, the pins are lightly interference-fitted with the connecting plate. For the connection between the connecting plate and the connecting pins, roll pins are used instead of the cotter pins. Never make the holes of the connecting plate larger and never make the pins thinner to facilitate the work for fitting the pins into the connecting plate, since otherwise the fatigue strength will be reduced. The intermediate plates of a semi-press fit type connecting link for multiplex chain has bushings pressed in.
2. KS type roller chain do not have offset links. Use in an even number of links.
3. In general, select your chain with reference to “Designing of roller chain transmission” (P. 91 - 96) and also to the tables of maximum horsepower ratings and dimensions of KS type roller chains (P.31 - 39).
4. The avaiable number of strands is up to triple strands.

### Dimensions

Unit (inch)

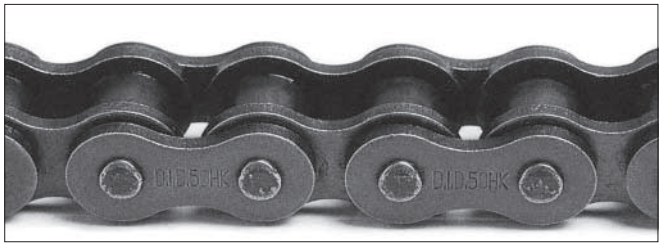
| Chain No. DID | Chain No. Equivalent to ANSI | Pitch P | Roller Link Width W | Roller Dia. D | Pin d | Pin E | Pin G | Pin L | Pin g | Trans-verse Pitch C | Plate T | Plate H | Plate h | JIS Min. Tensile Strength lbs | DID Min. Tensile Strength lbs | DID Avg. Tensile Strength lbs | DID Max. Allowable Load lbs | Approx. Weight (lbs/FT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RC80KSR | 80 | 1.000 | 0.625 | 0.625 | 0.313 | 1.283 | 1.394 | 0.646 | 0.748 | 1.154 | 0.126 | 0.949 | 0.819 | 12474 | 16940 | 18920 | 4180 | 1.89 |
| RC100KSR | 100 | 1.250 | 0.750 | 0.750 | 0.376 | 1.555 | 1.673 | 0.780 | 0.894 | 1.409 | 0.157 | 1.185 | 1.024 | 19450 | 26180 | 28600 | 6820 | 2.80 |
| RC120KSR | 120 | 1.500 | 1.000 | 0.875 | 0.437 | 1.957 | 2.087 | 0.980 | 1.110 | 1.787 | 0.189 | 1.425 | 1.228 | 27953 | 38500 | 41800 | 9020 | 4.10 |
| RC140KSR | 140 | 1.750 | 1.000 | 1.000 | 0.500 | 2.110 | 2.299 | 1.055 | 1.248 | 1.925 | 0.220 | 1.661 | 1.429 | 37913 | 50600 | 55000 | 12100 | 5.17 |
| RC160KSR | 160 | 2.000 | 1.250 | 1.125 | 0.563 | 2.504 | 2.685 | 1.256 | 1.437 | 2.303 | 0.252 | 1.898 | 1.630 | 49892 | 64680 | 70400 | 15840 | 7.04 |
| RC180KSR | 180 | 2.250 | 1.406 | 1.406 | 0.687 | 2.815 | 3.043 | 1.409 | 1.638 | 2.591 | 0.280 | 2.134 | 1.835 |  | 84920 | 92400 | 18700 | 9.66 |
| RC200KSR | 200 | 2.500 | 1.500 | 1.562 | 0.781 | 3.067 | 3.346 | 1.535 | 1.811 | 2.819 | 0.315 | 2.370 | 2.047 | 77845 | 103180 | 112200 | 22000 | 11.73 |
| RC240KSR | 240 | 3.000 | 1.875 | 1.875 | 0.937 | 3.748 | 4.051 | 1.878 | 2.177 | 3.457 | 0.374 | 2.843 | 2.441 | 114459 | 149600 | 162800 | 29700 | 16.56 |

Note: Value in above table is for single strand chain only.
For multiplex chain, please apply the coefficient of Multi-strand. (Please refer to Chain selection on P.91.)

# 2-2-3 DID HI*PWR HK Series Roller Chain

## Features

HK type roller chain conform to H type of ANSI, and their inner and outer plates are equal in thickness to those of the next larger size of standard roller chain. Therefore, the tensile strength is higher by approximately 20% and the maximum allowable load is higher by approximately 15% compared to D.I.D ANSI standard roller chain. However, since the weight of the chain is also larger, the performance at high speed declines. So, HK type roller chain are suitable for heavy duty at low speed.




## Multiplex chain and sprockets

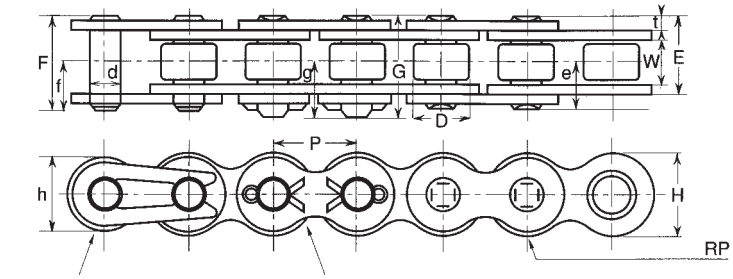
HK type roller chain are available up to triplex. Since the transverse pitches (C dimension: see P.41) are larger than those of standard chain in the case of duplex or triplex, standard sprockets cannot be used. Refer to the sprocket toothprofiles for HK (see P.76).

## Selection of chain

. Select a proper HK type roller chain based on “Slow-speed selection” (P.92). For the maximum allowable load,see the following table of dimensions.
. The tensile strength of connecting links and offset links are listed below, but the maximum allowable load is somewhat lower than that of the base chain.

### HK Series Connecting Link and Offset Link

| | Connecting Link | | Offset Link | |
|---|---|---|---|---|
| | Clearance Fit | Interference Fit | Clearance Fit | Interference Fit<br>2 Pitch Offset Link |
| Connecting Link Applicable | Clip: RC50 & under<br>Clip/Cotter: RC60 | Clip: RC50 & under<br>Roll Pin: RC80 & over<br>Clip/Cotter: RC60 | Offset Link<br>Unavailable for<br>RC40HK & Smaller | 2 Pitch Offset Link<br>Unavailable for<br>RC40HK & Smaller |
| Tensile Strength | Same as<br>chain body | Same as<br>chain body | Same as<br>chain body | Same as<br>chain body |



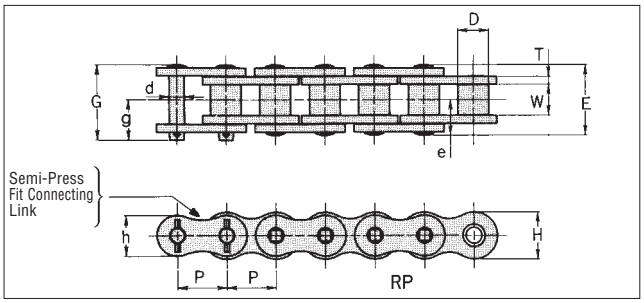

Clip Type Cotter Type

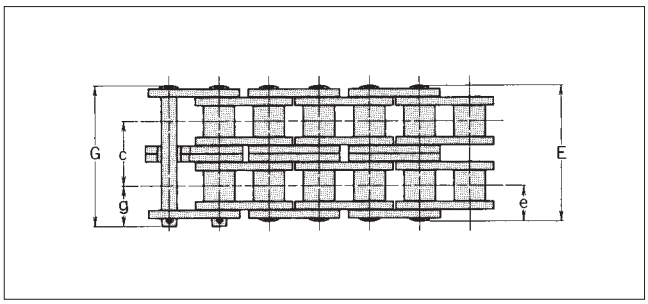
### Dimensions

Unit (inch)

| Chain No. | Pitch | Roller Link Width | Roller Dia. | Pin | | | | | | Plate | | | Min. Tensile Strength | Avg. Tensile Strength | Max Allowable Load | Approx. Weight (lbs/ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DID | P | W | D | d | E | F | G | f | g | T | H | h | lbs | lbs | lbs | |
| RC50HK | 0.625 | 0.375 | 0.400 | 0.200 | 0.858 | 0.921 | | 0.496 | | 0.094 | 0.591 | 0.512 | 7480 | 8140 | 1936 | 0.75 |
| RC60HK | 0.750 | 0.500 | 0.469 | 0.235 | 1.130 | 1.201 | 1.228 | 0.634 | 0.665 | 0.126 | 0.713 | 0.614 | 10560 | 11660 | 2420 | 1.21 |

# HI*PWR HK Series Roller Chain






## Dimensions

Unit (inch)

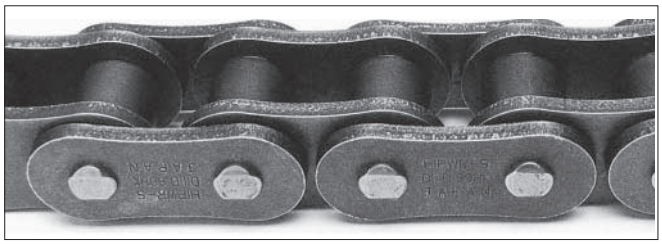
| Chain No. | Pitch | Roller Link Width | Roller Dia. | Pin | | | | | | Plate | | | Min. Tensile Strength | Avg. Tensile Strength | Max Allowable Load | Approx. Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DID | P | W | D | d | E | G | e | G | C | T | H | h | lbs | lbs | lbs | (lbs/ft) |
| **RC80HK** | | | | | | 1.524 | 0.713 | | | | | | 18260 | 21560 | 3740 | 1.99 |
| **RC80HK-2** | 1.000 | 0.625 | 0.625 | 0.313 | 1.421 | 2.697 | 2.807 | 0.811 | 1.283 | 0.157 | 0.945 | 0.819 | 36520 | 43120 | 6358 | 3.94 |
| **RC80HK-3** | | | | | | 3.984 | 4.094 | | | | | | 54780 | 64680 | 9350 | 5.87 |
| **RC100HK** | | | | | | 1.819 | 0.858 | | | | | | 27720 | 31900 | 5940 | 2.79 |
| **RC100HK-2** | 1.250 | 0.750 | 0.750 | 0.376 | 1.717 | 3.228 | 3.350 | 0.961 | 1.539 | 0.189 | 1.177 | 1.024 | 55440 | 63800 | 10098 | 5.52 |
| **RC100HK-3** | | | | | | 4.768 | 4.886 | | | | | | 83160 | 95700 | 14850 | 8.23 |
| **RC120HK** | | | | | | 2.244 | 1.067 | | | | | | 37400 | 42900 | 7700 | 4.08 |
| **RC120HK-2** | 1.500 | 1.000 | 0.875 | 0.437 | 2.130 | 4.024 | 4.154 | 1.177 | 1.925 | 0.220 | 1.413 | 1.228 | 74800 | 85800 | 13090 | 8.07 |
| **RC120HK-3** | | | | | | 5.949 | 6.079 | | | | | | 112200 | 128700 | 19250 | 12.03 |
| **RC140HK** | | | | | | 2.445 | 1.142 | | | | | | 48840 | 56100 | 10120 | 5.91 |
| **RC140HK-2** | 1.750 | 1.000 | 1.000 | 0.500 | 2.280 | 4.299 | 4.488 | 1.311 | 2.055 | 0.252 | 1.650 | 1.429 | 97680 | 112200 | 17204 | 11.69 |
| **RC140HK-3** | | | | | | 6.354 | 6.543 | | | | | | 146520 | 168300 | 25300 | 17.43 |
| **RC160HK** | | | | | | 2.843 | 1.339 | | | | | | 62260 | 71500 | 13200 | 7.33 |
| **RC160HK-2** | 2.000 | 1.250 | 1.125 | 0.563 | 2.677 | 5.272 | 5.319 | 1.504 | 2.437 | 0.280 | 1.882 | 1.630 | 124520 | 143000 | 22440 | 14.51 |
| **RC160HK-3** | | | | | | 7.701 | 7.760 | | | | | | 186780 | 214500 | 33000 | 21.62 |
| **RC180HK** | | | | | | 3.189 | 1.488 | | | | | | 90200 | 99000 | 16060 | 9.93 |
| **RC180HK-2** | 2.250 | 1.406 | 1.406 | 0.687 | 2.972 | 5.906 | 5.984 | 1.705 | 2.724 | 0.315 | 2.118 | 1.835 | 180400 | 198000 | 27302 | 19.66 |
| **RC180HK-3** | | | | | | 8.634 | 8.713 | | | | | | 270600 | 297000 | 40150 | 29.30 |
| **RC200HK** | | | | | | 3.594 | 1.661 | | | | | | 109120 | 125400 | 18700 | 12.85 |
| **RC200HK-2** | 2.500 | 1.500 | 1.562 | 0.781 | 3.323 | 6.693 | 6.783 | 1.945 | 3.083 | 0.374 | 2.362 | 2.047 | 218240 | 250800 | 31790 | 25.45 |
| **RC200HK-3** | | | | | | 9.780 | 9.870 | | | | | | 327360 | 376200 | 46750 | 37.92 |
| **RC240HK** | | | | | | 4.551 | 2.126 | | | | | | 172260 | 198000 | 25300 | 18.98 |
| **RC240HK-2** | 3.000 | 1.875 | 1.875 | 0.937 | 4.252 | 8.567 | 8.665 | 2.429 | 3.984 | 0.500 | 2.815 | 2.441 | 344520 | 396000 | 43010 | 37.57 |
| **RC240HK-3** | | | | | | 12.551 | 12.650 | | | | | | 516780 | 594000 | 63250 | 55.98 |

Note: The above chains are of riveted pin type (RP). As for cottered pin type (CP), please consult us.

# 2-2-4 D.I.D HI*PWR HKS Series Roller Chain

## Features

The DID HKS series roller chain have thicker linkplates than KS type roller chain, and are the highest in tensile strength and allowable load among general application chains. Thus being suitable for low speed heavy duty transmission.
The HKS roller chains are 20 percent higher in tensile strength and 50 percent higher in maximum allowable load than the standard roller chain, but since they are also higher in weight, they are lower in performance at high speed. So, they are suitable for heavy duty at low speed.



## Number of strands and sprockets

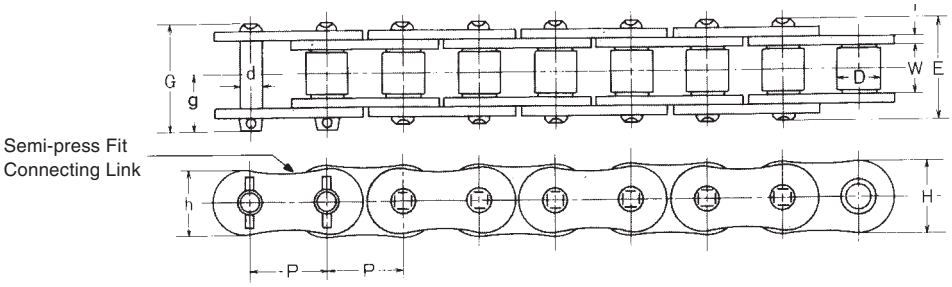
The HKS type roller chain are simplex. As for sprockets, standard sprockets for simplex chain can be used.
For multiplex chain, please consult us.

## Selection of chain

Select a proper HKS type chain based on “Slow-speed selection” (P. 92). For the maximum allowable load, see the following table of dimensions.

## Connecting links

The best feature of the HKS type roller chains is that they are high in maximum allowable load. Therefore, interference-fitted connecting links are used. The connection between the connecting plate and theconnecting pins is achieved by roll pins. The tensile strength of connecting link is equivalent to that of the base chain but the maximum allowable load is somewhat lower than that of the base chain.




### Dimensions

Unit (inch)

| Chain No. DID | Pitch | Roller Link Width | Roller Dia. | Pin | | | | Plate | | | Min. Tensile Strength | Avg. Tensile Strength | Max Allowable Load | Approx. Weight (lbs/ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | W | D | d | E | G | g | T | H | h | lbs | lbs | lbs | |
| RC80HKSR | 1.000 | 0.625 | 0.625 | 0.313 | 1.421 | 1.524 | 0.811 | 0.157 | 0.949 | 0.819 | 19,140 | 22,000 | 5,060 | 2.09 |
| RC100HKSR | 1.250 | 0.750 | 0.750 | 0.376 | 1.717 | 1.819 | 0.961 | 0.189 | 1.185 | 1.024 | 28,380 | 32,560 | 7,700 | 2.93 |
| RC120HKSR | 1.500 | 1.000 | 0.875 | 0.437 | 2.130 | 2.244 | 1.177 | 0.220 | 1.425 | 1.228 | 38,280 | 44,000 | 10,120 | 4.28 |
| RC140HKSR | 1.750 | 1.000 | 1.000 | 0.500 | 2.280 | 2.445 | 1.311 | 0.252 | 1.669 | 1.429 | 49,720 | 57,200 | 13,640 | 6.20 |
| RC160HKSR | 2.000 | 1.250 | 1.125 | 0.563 | 2.677 | 2.843 | 1.504 | 0.280 | 1.898 | 1.630 | 63,140 | 72,600 | 17,380 | 7.70 |
| RC180HKSR | 2.250 | 1.406 | 1.406 | 0.687 | 2.972 | 3.189 | 1.705 | 0.315 | 2.134 | 1.835 | 94,600 | 103,400 | 20,460 | 10.43 |
| RC200HKSR | 2.500 | 1.500 | 1.562 | 0.781 | 3.323 | 3.594 | 1.945 | 0.374 | 2.370 | 2.047 | 116,600 | 134,200 | 25,300 | 13.50 |
| RC240HKSR | 3.000 | 1.875 | 1.875 | 0.937 | 4.252 | 4.551 | 2.429 | 0.500 | 2.843 | 2.441 | 179,960 | 206,800 | 34,980 | 19.93 |