

# HOIST CHAINS

for manual and motor-driven hoists

ENG  
EDITION\_3



# HOIST CHAINS

for manual and  
motor-driven hoists

**FOR US THERE IS ONLY ONE OBJECTIVE: BEING BETTER**

|                                                   |    |
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## CHAIN HARDNESS

Uniform surface hardness  
and depth, particularly in  
the joints, excellent wear  
resistance, long service life.

## STRENGTH

Outstanding dynamic  
strength, maximum  
operating safety.

## GEOMETRY

Narrow dimensional  
tolerances, symmetrical  
link shape, fine control  
using take-up wheels.

## IDENTIFICATION

Chain identification  
is essential for clear  
safety information  
and traceability.

## CALIBRATION

All RUD Hoist Chains  
are 100% calibrated.

## CHAIN DIMENSIONS

RUD makes the smallest  
and largest hoist chains  
in the world, with sizes  
3 x 9 to 32 x 90 mm.

## PRODUCTION

Made in Germany,  
at our Aalen-  
Unterkochen plant.

## SERVICE

Reliable delivery,  
consultation and  
technical assistance  
worldwide from our  
RUD representatives.

## DEVELOPMENT

Collaboration with  
German technical  
institutes and  
hoist equipment  
manufacturers.

**WE SUPPLY ALL LEADING OEMS WORLDWIDE  
WITH OUR RUD HOIST CHAINS - „MADE IN  
GERMANY“**

# HOIST CHAINS

for manual and  
motor-driven hoists

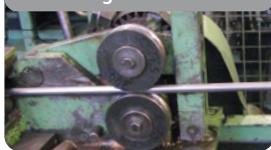
## RUD HOIST CHAINS: PERFORMANCE - OVERVIEW

### 1. Raw materials



Available in a variety of qualities and sizes on coil or as rods.

### 2. Drawing the wire



The drawing machine draws the material to precisely the desired diameter.

### 3. Bending



Bending of the individual chain links: Each link is cleanly bent and laced into the next link.

### 4. Welding



Welding the links after bending.

### 5. Stamping



Stamping the welded chain with critical information: The RUD emblem, quality rating, manufacturing number and batch number.

### 6. Heat treatment



Case hardened and quenched and tempered chains

### 7. Surface treatment



Black phosphated, galvanised, special coatings

### 8. Final calibration



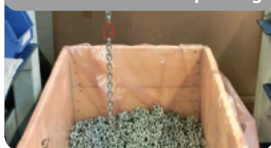
The chain is precisely sized and loaded with manufacturing proof force.

### 9. Final acceptance



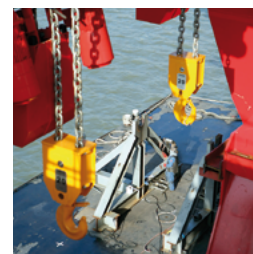
Quality assurance and acceptance.

### 10. Lubrication and packing



Warehousing and shipping.

## APPLICATION FOR RUD HOIST CHAINS: INDUSTRY · WIND POWER STATIONS · STAGE TECHNOLOGY · OFFSHORE

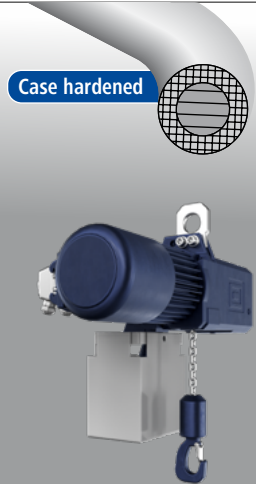




## RUD ROUND LINK CHAIN – DAT TYPE

FOR HIGH WEAR RESISTANCE PER EN 818-7-DAT,  
USING MOTOR-DRIVEN HOISTS

| DAT/T quality class execution          |                                     |                                   | Quality and designation |  |  | RTS | RTD | RTB |
|----------------------------------------|-------------------------------------|-----------------------------------|-------------------------|--|--|-----|-----|-----|
| Mechanism group ISO 4301-1 (FEM 9.511) | Nominal stress [N/mm <sup>2</sup> ] | Limit stress [N/mm <sup>2</sup> ] |                         |  |  |     |     |     |
| M1 (1Dm)                               | 200                                 | 250                               |                         |  |  |     |     |     |
| M2 (1Cm)                               | 160                                 | 225                               |                         |  |  |     |     |     |
| M3 (1Bm)                               | 160                                 | 200                               |                         |  |  |     |     |     |
| M4 (1Am)                               | 140                                 | 180                               |                         |  |  |     |     |     |
| M5 (2m)                                | 125                                 | 160                               |                         |  |  |     |     |     |
| M6 (3m)                                | 112                                 | 140                               |                         |  |  |     |     |     |
| M7 (4m)                                | 100                                 | 125                               |                         |  |  |     |     |     |
| M8 (5m)                                | 90                                  | 112                               |                         |  |  |     |     |     |



Case hardened

| Stress at manufacturing proof force            | $\sigma_{FPmin}$                                   | N/mm <sup>2</sup> | 500                                                                                                                      |                                                                                         |           |
|------------------------------------------------|----------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------|
| Stress at breaking force                       | $\sigma_{Bmin}$                                    | N/mm <sup>2</sup> | 800                                                                                                                      |                                                                                         |           |
| Total ultimate elongation                      | $A_{min}$                                          | %                 | 10                                                                                                                       |                                                                                         |           |
| Surface hardened according to DIN EN 818-7     | $d \leq 6,5 \varnothing$<br>$d \geq 7 \varnothing$ | HV 5<br>HV10      | 500 - 650                                                                                                                |                                                                                         |           |
| Case depth in the joint (after macro-etching)) | $\dots d$<br>$\pm 0,01 d$                          | mm                | $\leq \varnothing 4 / 0,05$<br>$\varnothing 4,1-7 / 0,04$<br>$\varnothing 8-16 / 0,03$<br>$\geq \varnothing 16,1 / 0,02$ | $< \varnothing 8 / 0,05$<br>$\varnothing 8-11,5 / 0,04$<br>$\geq \varnothing 12 / 0,03$ |           |
| Fatigue strength                               |                                                    | N/mm <sup>2</sup> | 130 ± 80                                                                                                                 | 130 ± 90                                                                                | 130 ± 100 |

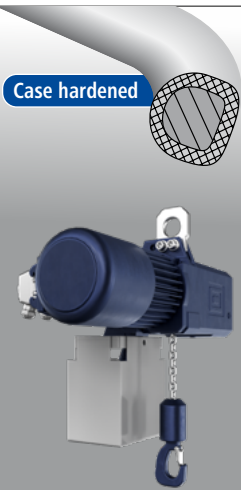
| Dimensions [ mm ]       | Material No. | Load capacity F <sub>tr</sub> [kg] according to mechanism group |                                          |                                          |                                          | Manufacturing proof force<br><br>FFPmin [kN] | Breaking force<br><br>FBmin [kN] | RTS | RTD | RTB | Weight<br><br>kg/m |
|-------------------------|--------------|-----------------------------------------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|----------------------------------------------|----------------------------------|-----|-----|-----|--------------------|
|                         |              | M3 (1Bm)                                                        | M4 (1Am)                                 | M5 (2m)                                  | M6 (3m)                                  |                                              |                                  |     |     |     |                    |
|                         |              | Nominal stress:<br>160 N/mm <sup>2</sup>                        | Nominal stress:<br>140 N/mm <sup>2</sup> | Nominal stress:<br>125 N/mm <sup>2</sup> | Nominal stress:<br>112 N/mm <sup>2</sup> |                                              |                                  |     |     |     |                    |
|                         |              | Safety factor<br>5                                              | Safety factor<br>5,7                     | Safety factor<br>6,4                     | Safety factor<br>7,1                     |                                              |                                  |     |     |     |                    |
| 3 <sup>1)</sup> x 9     | 7985902      | 230                                                             | 200                                      | 180                                      | 160                                      | 7                                            | 11,3                             | x   |     |     | 0,19               |
| 4 x 12                  | 7100183      | 410                                                             | 350                                      | 320                                      | 280                                      | 12,6                                         | 20,1                             | x   | x   | x   | 0,35               |
| 5 x 15                  | 7100184      | 640                                                             | 560                                      | 500                                      | 440                                      | 19,6                                         | 31,4                             | x   | x   | x   | 0,54               |
| 6 x 18                  | 7101362      | 920                                                             | 800                                      | 720                                      | 640                                      | 28,3                                         | 45,2                             | x   | x   |     | 0,78               |
| 6,3 x 19                | 7983648      | 1000                                                            | 880                                      | 790                                      | 710                                      | 31,2                                         | 49,9                             | x   |     |     | 0,86               |
| 6,3 x 19,1              | 7102922      | 1000                                                            | 880                                      | 790                                      | 710                                      | 31,2                                         | 49,9                             | x   |     |     | 0,86               |
| 7 x 21                  | 7102168      | 1250                                                            | 1090                                     | 980                                      | 870                                      | 38,5                                         | 61,6                             | x   | x   | x   | 1,1                |
| 7 x 22                  | 7100185      | 1250                                                            | 1090                                     | 980                                      | 870                                      | 38,5                                         | 61,6                             | x   | x   |     | 1,1                |
| 7,1 x 20,2              | 7103637      | 1250                                                            | 1090                                     | 980                                      | 870                                      | 39,6                                         | 63,3                             | x   |     | x   | 1,1                |
| 7,1 x 21,2              | 7102924      | 1290                                                            | 1130                                     | 1000                                     | 900                                      | 39,6                                         | 63,3                             | x   |     |     | 1,1                |
| 8 x 24                  | 7101363      | 1640                                                            | 1430                                     | 1280                                     | 1140                                     | 50,3                                         | 80,4                             | x   |     |     | 1,4                |
| 9 x 27                  | 7100186      | 2070                                                            | 1810                                     | 1620                                     | 1450                                     | 63,6                                         | 102                              | x   | x   | x   | 1,8                |
| 10 x 28                 | 7102169      | 2560                                                            | 2240                                     | 2000                                     | 1790                                     | 78,5                                         | 126                              | x   |     |     | 2,2                |
| 10 x 30,2               | 7102926      | 2560                                                            | 2240                                     | 2000                                     | 1790                                     | 78,5                                         | 126                              | x   |     |     | 2,2                |
| 11 x 31                 | 7102955      | 3100                                                            | 2700                                     | 2420                                     | 2160                                     | 95                                           | 152                              | x   |     |     | 2,7                |
| 11,2 x 34               | 7993063      | 3200                                                            | 2800                                     | 2500                                     | 2240                                     | 98,5                                         | 157,6                            | x   |     |     | 2,7                |
| 11,2 x 34,4             | 7102930      | 3200                                                            | 2800                                     | 2500                                     | 2240                                     | 98,5                                         | 157,6                            | x   |     |     | 2,7                |
| 11,3 x 31               | 7992923      | 3270                                                            | 2860                                     | 2550                                     | 2280                                     | 100,3                                        | 160,5                            | x   | x   | x   | 2,85               |
| 13 x 36                 | 59733        | 4330                                                            | 3780                                     | 3380                                     | 3030                                     | 132,7                                        | 212,3                            | x   |     | x   | 3,8                |
| 16 x 45                 | 55004        | 6550                                                            | 5730                                     | 5120                                     | 4590                                     | 201                                          | 322                              | x   |     | x   | 5,7                |
| 23,5 <sup>1)</sup> x 66 | 7993516      | 14100                                                           | 12370                                    | 11000                                    | 9900                                     | 434                                          | 694                              | x   |     |     | 12,2               |

<sup>1)</sup> Dimensions outside of EN 818-7. Other dimensions on request.

The nominal stresses and the limit stresses may not exceed the stresses specified in the respective mechanism groups. Operating temperature - 20° C to + 200° C.

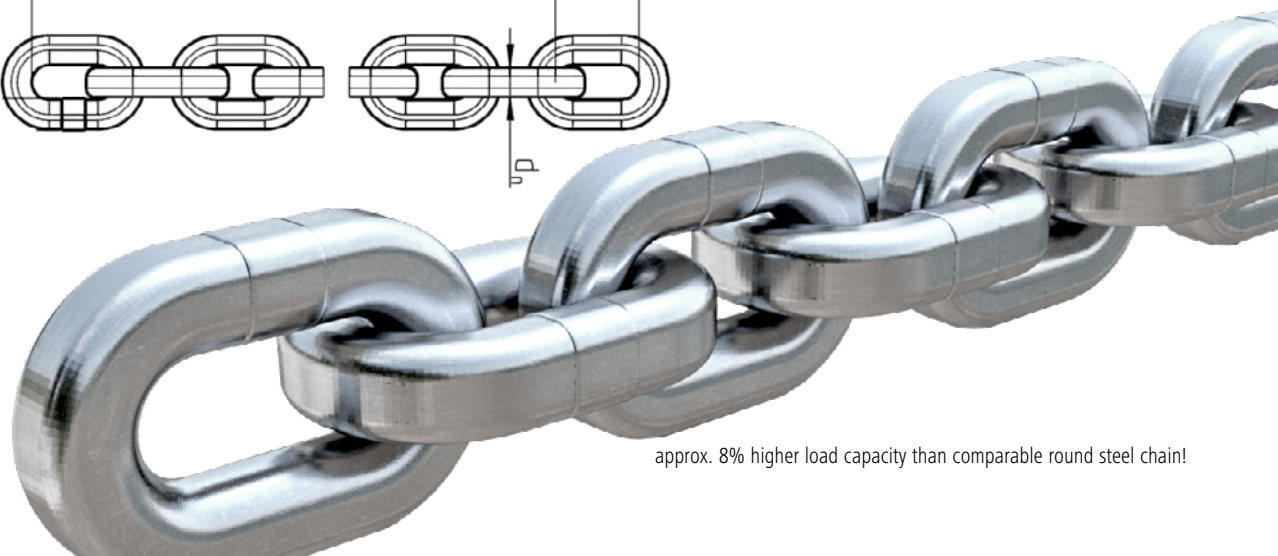
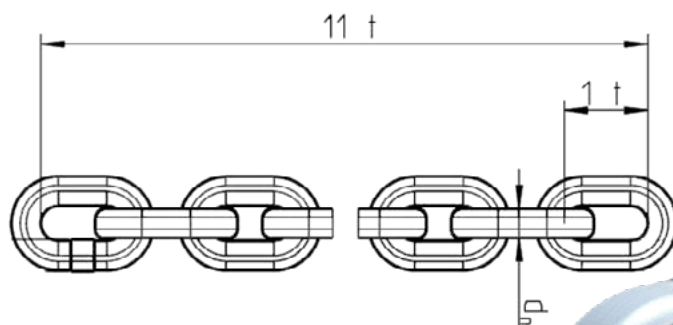
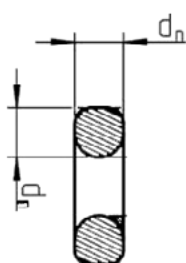
## RUD D-PROFILE-CHAIN – DAT TYPE

FOR HIGH WEAR RESISTANCE PER EN 818-7-DAT,  
USING MOTOR-DRIVEN HOISTS

| DAT/T quality class execution          |                        |                      | <div><div>Case hardened</div></div> |
|----------------------------------------|------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------|
| Mechanism group ISO 4301-1 (FEM 9.511) | Nominal stress [N/mm²] | Limit stress [N/mm²] |                                                                                                                      |
| M1 (1Dm)                               | 200                    | 250                  |                                                                                                                      |
| M2 (1Cm)                               | 160                    | 225                  |                                                                                                                      |
| M3 (1Bm)                               | 160                    | 200                  |                                                                                                                      |
| M4 (1Am)                               | 140                    | 180                  |                                                                                                                      |
| M5 (2m)                                | 125                    | 160                  |                                                                                                                      |
| M6 (3m)                                | 112                    | 140                  |                                                                                                                      |
| M7 (4m)                                | 100                    | 125                  |                                                                                                                      |
| M8 (5m)                                | 90                     | 112                  |                                                                                                                      |

| Quality and designation                       |                                                    |              | RTS                                                                                                                      | RTD                                                                                     | RTB       |
|-----------------------------------------------|----------------------------------------------------|--------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------|
| Stress at manufacturing proof force           | $\sigma_{FPmin}$                                   | N/mm²        | 500                                                                                                                      |                                                                                         |           |
| Stress at breaking force                      | $\sigma_{Bmin}$                                    | N/mm²        | 800                                                                                                                      |                                                                                         |           |
| Total ultimate elongation                     | $A_{min}$                                          | %            | 10                                                                                                                       |                                                                                         |           |
| Surface hardness according to DIN EN 818-7    | $d \leq 6,5 \varnothing$<br>$d \geq 7 \varnothing$ | HV 5<br>HV10 | 500 - 650                                                                                                                |                                                                                         |           |
| Case depth in the joint (after macro-etching) | ...d<br>$\pm 0,01 d$                               | mm           | $\leq \varnothing 4 / 0,05$<br>$\varnothing 4,1-7 / 0,04$<br>$\varnothing 8-16 / 0,03$<br>$\geq \varnothing 16,1 / 0,02$ | $< \varnothing 8 / 0,05$<br>$\varnothing 8-11,5 / 0,04$<br>$\geq \varnothing 12 / 0,03$ |           |
| Fatigue strength                              |                                                    | N/mm²        | 130 ± 80                                                                                                                 | 130 ± 90                                                                                | 130 ± 100 |

| Dimensions [ mm ] | Quality | Material No. | Load capacity F <sub>tr</sub> [kg] according to mechanism group |                                          |                                          |                                          | Manu-<br>facturing<br>proof force<br><br>F <sub>FPmin</sub> [kN] | Breaking<br>force<br><br>F <sub>Bmin</sub> [kN] | Manufacturing<br>length | Weight<br><br>kg/m |
|-------------------|---------|--------------|-----------------------------------------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|------------------------------------------------------------------|-------------------------------------------------|-------------------------|--------------------|
|                   |         |              | M3 (1Bm)                                                        | M4 (1Am)                                 | M5 (2m)                                  | M6 (3m)                                  |                                                                  |                                                 |                         |                    |
|                   |         |              | Nominal stress:<br>160 N/mm <sup>2</sup>                        | Nominal stress:<br>140 N/mm <sup>2</sup> | Nominal stress:<br>125 N/mm <sup>2</sup> | Nominal stress:<br>112 N/mm <sup>2</sup> |                                                                  |                                                 |                         |                    |
|                   |         |              | Safety factor 5                                                 | Safety factor 5,7                        | Safety factor 6,4                        | Safety factor 7,1                        |                                                                  |                                                 |                         |                    |
| 3,7 x 12          | RTD     | 7907103      | 380                                                             | 340                                      | 320                                      | 270                                      | 12,6                                                             | 20,1                                            | 200 m                   | 0,34               |
| 3,75 x 10,75      | RTS     | 7909389      | 380                                                             | 340                                      | 320                                      | 270                                      | 12,6                                                             | 20,1                                            | 200 m                   | 0,34               |
| 5 x 14,3          | RTD     | 7907401      | 630                                                             | 600                                      | 540                                      | 480                                      | 21,3                                                             | 34,0                                            | 200 m                   | 0,61               |
| 5,25 x 15         | RTS     | 7908823      | 800                                                             | 670                                      | 630                                      | 530                                      | 24,7                                                             | 39,5                                            | 200 m                   | 0,59               |
| 7 x 21            | RTD     | 7903473      | 1400                                                            | 1220                                     | 1090                                     | 970                                      | 43                                                               | 68,8                                            | 100 m                   | 1,20               |
| 7,45 x 23         | RTS     | 7909391      | 1540                                                            | 1350                                     | 1200                                     | 1080                                     | 50                                                               | 80                                              | 150 m                   | 1,35               |
| 9,6 x 30          | RTD     | 7907402      | 2560                                                            | 2240                                     | 2000                                     | 1790                                     | 78,5                                                             | 126                                             | 100 m                   | 2,15               |



approx. 8% higher load capacity than comparable round steel chain!

## RUD HOISTING CHAINS - T TYPE

FOR LOW/MODERATE WEAR APPLICATIONS PER EN 818-7-T,  
SPECIAL DESIGNED FOR MANUAL HOISTS

| <div>Quenched and tempered</div>   | Quality and designation             |                  |                   | RT  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|------------------|-------------------|-----|
|                                                                                                                                                                                                      | Stress at manufacturing proof force | $\sigma_{FPmin}$ | N/mm <sup>2</sup> | 500 |
|                                                                                                                                                                                                      | Stress at breaking force            | $\sigma_{Bmin}$  | N/mm <sup>2</sup> | 800 |
|                                                                                                                                                                                                      | Total ultimate elongation           | A <sub>min</sub> | %                 | 10  |
|                                                                                                                                                                                                      | Surface hardness in the joint       |                  | HV10              | 360 |

| Dimensions [mm]         | Material No. | Load capacity F <sub>tr</sub> [kg] according to mechanism group |                                       |                                       |                                       |                                       | Manufacturing proof force FFP <sub>min</sub> [kN] | Breaking force FB <sub>min</sub> [kN] | Weight kg / m |
|-------------------------|--------------|-----------------------------------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------------------|---------------------------------------|---------------|
|                         |              | Hand (1Dm)                                                      | M3 (1Bm)                              | M4 (1Am)                              | M5 (2m)                               | M6 (3m)                               |                                                   |                                       |               |
|                         |              | Nominal stress: 200 N/mm <sup>2</sup>                           | Nominal stress: 160 N/mm <sup>2</sup> | Nominal stress: 140 N/mm <sup>2</sup> | Nominal stress: 125 N/mm <sup>2</sup> | Nominal stress: 112 N/mm <sup>2</sup> |                                                   |                                       |               |
|                         |              | Safety factor 4                                                 | Safety factor 5                       | Safety factor 5,7                     | Safety factor 6,4                     | Safety factor 7,1                     |                                                   |                                       |               |
| 3 <sup>1)</sup> x 9     | 7989206      | 280                                                             | 230                                   | 140                                   | 180                                   | 160                                   | 7                                                 | 11,3                                  | 0,19          |
| 4 x 12                  | 53804        | 510                                                             | 410                                   | 350                                   | 320                                   | 280                                   | 12,6                                              | 20,1                                  | 0,35          |
| 4,2 x 12,2              | 7983725      | 560                                                             | 440                                   | 390                                   | 350                                   | 310                                   | 13,8                                              | 22,0                                  | 0,38          |
| 5 x 15                  | 53008        | 800                                                             | 640                                   | 560                                   | 500                                   | 440                                   | 19,6                                              | 31,4                                  | 0,54          |
| 5,6 x 15,8              | 7990657      | 1000                                                            | 800                                   | 700                                   | 630                                   | 560                                   | 24,6                                              | 39,4                                  | 0,70          |
| 5,6 x 17                | 57165        | 1000                                                            | 800                                   | 700                                   | 630                                   | 560                                   | 24,6                                              | 39,4                                  | 0,68          |
| 6 x 18                  | 56680        | 1150                                                            | 920                                   | 800                                   | 720                                   | 640                                   | 28,3                                              | 45,2                                  | 0,78          |
| 6 x 18,5                | 60144        | 1150                                                            | 920                                   | 800                                   | 720                                   | 640                                   | 28,3                                              | 45,2                                  | 0,8           |
| 6,3 x 19                | 7985347      | 1270                                                            | 1010                                  | 880                                   | 790                                   | 710                                   | 31,2                                              | 49,9                                  | 0,86          |
| 6,3 x 19,1              | 53012        | 1270                                                            | 1010                                  | 880                                   | 790                                   | 710                                   | 31,2                                              | 49,9                                  | 0,86          |
| 7 x 22                  | 7901147      | 1560                                                            | 1250                                  | 1090                                  | 980                                   | 870                                   | 38,5                                              | 61,6                                  | 1,1           |
| 7,1 x 20,1              | 7990660      | 1560                                                            | 1250                                  | 1090                                  | 980                                   | 870                                   | 39,6                                              | 63,3                                  | 1,09          |
| 7,1 x 21                | 53016        | 1560                                                            | 1250                                  | 1090                                  | 980                                   | 870                                   | 39,6                                              | 63,3                                  | 1,1           |
| 7,1 x 21,2              | 62168        | 1560                                                            | 1250                                  | 1090                                  | 980                                   | 870                                   | 40                                                | 67                                    | 1,1           |
| 8 x 24                  | 62162        | 2050                                                            | 1640                                  | 1430                                  | 1280                                  | 1140                                  | 50,3                                              | 80,4                                  | 1,4           |
| 9 x 24,8                | 7990664      | 2,590                                                           | 2070                                  | 1810                                  | 1620                                  | 1470                                  | 63,6                                              | 102,0                                 | 1,82          |
| 9 x 27                  | 55376        | 2590                                                            | 2070                                  | 1810                                  | 1620                                  | 1470                                  | 63,6                                              | 102                                   | 1,8           |
| 10 x 28                 | 7101451      | 3200                                                            | 2560                                  | 2240                                  | 2000                                  | 1790                                  | 78,5                                              | 126                                   | 2,2           |
| 10 x 28,1               | 7990789      | 3200                                                            | 2560                                  | 2240                                  | 2000                                  | 1790                                  | 78,5                                              | 126,0                                 | 2,23          |
| 10 x 30                 | 57862        | 3200                                                            | 2560                                  | 2240                                  | 2000                                  | 1790                                  | 78,5                                              | 126                                   | 2,2           |
| 11 x 31                 | 60931        | 3870                                                            | 3100                                  | 2710                                  | 2420                                  | 2170                                  | 95                                                | 152                                   | 2,7           |
| 11,2 x 34               | 53028        | 4010                                                            | 3200                                  | 2810                                  | 2500                                  | 2250                                  | 98,5                                              | 157,6                                 | 2,7           |
| 13 x 36                 | 53030        | 5400                                                            | 4320                                  | 3780                                  | 3380                                  | 3030                                  | 132,7                                             | 212,3                                 | 3,8           |
| 16 x 45                 | 53017        | 8150                                                            | 6550                                  | 5730                                  | 5110                                  | 4590                                  | 201                                               | 322                                   | 5,7           |
| 22 x 66                 | 7989369      | 15500                                                           | 12500                                 | 10840                                 | 9680                                  | 8680                                  | 400                                               | 630                                   | 10,7          |
| 23,5 <sup>1)</sup> x 66 | 7992988      | 17680                                                           | 14140                                 | 12380                                 | 11050                                 | 9900                                  | 434                                               | 694                                   | 12,2          |
| 32 <sup>1)</sup> x 90   | 7993904      | 32790                                                           | 26200                                 | 22950                                 | 20480                                 | 18360                                 | 780                                               | 1286                                  | 21,3          |

<sup>1)</sup> Dimensions outside of above mentioned standards. Other dimensions on request.

The nominal stresses and the limit stresses may not exceed the stresses specified in the respective mechanism groups. Operating temperature - 40° C to + 200° C

## RUD ROUND LINK CHAIN – TYPE VH

FOR USE IN MANUAL HOISTS  
ISO 16872

| <br>Quenched and tempered | Quality and designation             |                  |                   | VH       |
|-----------------------------------------------------------------------------------------------------------|-------------------------------------|------------------|-------------------|----------|
|                                                                                                           | Stress at manufacturing proof force | $\sigma_{FPmin}$ | N/mm <sup>2</sup> | 625      |
|                                                                                                           | Stress at breaking force            | $\sigma_{Bmin}$  | N/mm <sup>2</sup> | 1000     |
|                                                                                                           | Total ultimate elongation           | $A_{min}$        | %                 | 17       |
|                                                                                                           | Surface hardness in the joint       |                  | HV10              | min. 430 |

| Dimensions<br>[mm] | Material No.<br>„nature black“ | Load capacity $F_{tr}$ [kg] according to mechanism group | Manufacturing<br>proof force<br>$F_{FPmin}$ [kN] | Breaking<br>force<br>$F_{Bmin}$ [kN] | Weight<br>kg /m |
|--------------------|--------------------------------|----------------------------------------------------------|--------------------------------------------------|--------------------------------------|-----------------|
|                    |                                | Load traction force: 250 N/mm <sup>2</sup>               |                                                  |                                      |                 |
|                    |                                | Safety factor 4                                          |                                                  |                                      |                 |
| 4 x 12             | 7905884                        | 630                                                      | 15,7                                             | 25,1                                 | 0,35            |
| 5 x 15             | 7901430                        | 1250                                                     | 30,8                                             | 49,3                                 | 0,68            |
| 6,3 x 19,1         | 7900646                        | 1600                                                     | 39                                               | 62,3                                 | 0,86            |
| 7,1 x 21           | 7901086                        | 2000                                                     | 49,5                                             | 79,2                                 | 1,1             |
| 8 x 24             | 7900679                        | 2500                                                     | 62,8                                             | 101                                  | 1,4             |
| 9 x 27             | 7900680                        | 3150                                                     | 79,5                                             | 127                                  | 1,8             |
| 10 x 30            | 7900925                        | 4000                                                     | 98,2                                             | 157                                  | 2,2             |
| 10 x 30,2          | 7901061                        | 4000                                                     | 98,2                                             | 157                                  | 2,2             |

Chains in accordance with ISO 16872 may only be installed/used in manually operated hoists.  
Operating temperature - 40° C to + 150° C

## RUD HAND CHAINS – FOR MANUAL HOIST

| Galvanised hand chain, not certificated |                       |                    |
|-----------------------------------------|-----------------------|--------------------|
| Dimensions                              | Designation           | P/n [100 m length] |
| 5 x 18,5                                | galvanised hand chain | 8502628            |
| 5 x 23,5                                | galvanised hand chain | 8502627            |
| 5 x 23,8                                | galvanised hand chain | 8502970            |
| 5 x 24                                  | galvanised hand chain | 8502626            |
| 5 x 25                                  | galvanised hand chain | 8502563            |
| 5 x 25,2                                | galvanised hand chain | 8502629            |
| 5 x 26                                  | galvanised hand chain | 8502632            |
| 5 x 18,5                                | open chain link       | 7101773            |
| 5 x 24                                  | open chain link       | 7101770            |
| 5 x 25                                  | open chain link       | 59381              |

| 1.4404 stainless steel hand chain, not certificated |                            |         |
|-----------------------------------------------------|----------------------------|---------|
| Dimensions                                          | Designation                | P/n     |
| 5 x 18,5                                            | stainless steel hand chain | 63656   |
| 5 x 24                                              | stainless steel hand chain | 7103866 |
| 5 x 25                                              | Stainless steel hand chain | 53943   |
| 5 x 25,2                                            | stainless steel hand chain | 62473   |
| 5 x 18,5                                            | open chain link            | 8500193 |
| 5 x 25                                              | open chain link            | 8500194 |



## RUD ROUND LINK CHAIN RUST AND ACID RESISTANT QUALITY

SIMILAR TO DIN 5684 PARTS 1 AND 2,  
FOR MOTOR-DRIVEN AND MANUAL HOISTS



| Quality classes RPA and RSA                  |                                         |     |                                      |     |
|----------------------------------------------|-----------------------------------------|-----|--------------------------------------|-----|
| Mechanism group<br>ISO 4301-1<br>(FEM 9.511) | Nominal stress:<br>[N/mm <sup>2</sup> ] |     | Limit stress<br>[N/mm <sup>2</sup> ] |     |
|                                              | RPA                                     | RSA | RPA                                  | RSA |
| M1 (1Dm)                                     | 125                                     | 160 | 187,5                                | 240 |
| M2 (1Cm)                                     | 100                                     | 125 | 138                                  | 175 |
| M3 (1Bm)                                     | 100                                     | 125 | 125                                  | 160 |
| M4 (1Am)                                     | 90                                      | 112 | 112                                  | 140 |
| M5 (2m)                                      | 80                                      | 100 | 100                                  | 125 |
| M6 (3m)                                      | 70                                      | 90  | 90                                   | 112 |
| M7 (4m)                                      | 60                                      | 80  | 80                                   | 100 |
| M8 (5m)                                      | 55                                      | 70  | 70                                   | 90  |



| Quality and designation             |                      |                   | Quality class P<br>RPA | Quality class S<br>RSA |
|-------------------------------------|----------------------|-------------------|------------------------|------------------------|
| Material                            |                      |                   | AISI 316               |                        |
| Stress at manufacturing proof force | $\sigma_{FPmin}$     | N/mm <sup>2</sup> | 315                    | 400                    |
| Stress at breaking force            | $\sigma_{Bmin}$      | N/mm <sup>2</sup> | 500                    | 630                    |
| Total ultimate elongation           | A <sub>min</sub>     | %                 | 15                     |                        |
| Surface hardness in the joint       | d ≤ 6,5 Ø<br>d ≤ 7 Ø | HV 5<br>HV10      | ca. 250                |                        |

| Dimensions<br>[mm] | Material No. | Quality class | Load capacity F <sub>tr</sub> [kg] according to mechanism group                   |                                                                                   |                                                                                  |                                                                                  |                                                                                 | Manufacturing proof force<br>F <sub>FPmin</sub> [kN] | Breaking force<br>F <sub>Bmin</sub> [kN] | Weight<br>kg / m |
|--------------------|--------------|---------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------|------------------------------------------|------------------|
|                    |              |               | Hand (1Dm)                                                                        | M3 (1Bm)                                                                          | M4 (1Am)                                                                         | M5 (2m)                                                                          | M6 (3m)                                                                         |                                                      |                                          |                  |
|                    |              |               | Nominal stress:<br>≤ Ø 7 = 160 N/mm <sup>2</sup><br>≥ Ø 8 = 125 N/mm <sup>2</sup> | Nominal stress:<br>≤ Ø 7 = 125 N/mm <sup>2</sup><br>≥ Ø 8 = 100 N/mm <sup>2</sup> | Nominal stress:<br>≤ Ø 7 = 110 N/mm <sup>2</sup><br>≥ Ø 8 = 90 N/mm <sup>2</sup> | Nominal stress:<br>≤ Ø 7 = 100 N/mm <sup>2</sup><br>≥ Ø 8 = 80 N/mm <sup>2</sup> | Nominal stress:<br>≤ Ø 7 = 90 N/mm <sup>2</sup><br>≥ Ø 8 = 70 N/mm <sup>2</sup> |                                                      |                                          |                  |
|                    |              |               | Safety factor 4                                                                   | Safety factor 5                                                                   | Safety factor 5,7                                                                | Safety factor 6,4                                                                | Safety factor 7,1                                                               |                                                      |                                          |                  |
| 4 x 12             | 54079        | S             | 400                                                                               | 320                                                                               | 280                                                                              | 250                                                                              | 230                                                                             | 10                                                   | 16                                       | 0,35             |
| 5 x 15             | 54100        | S             | 630                                                                               | 500                                                                               | 440                                                                              | 400                                                                              | 360                                                                             | 16                                                   | 25                                       | 0,54             |
| 6 x 18             | 54333        | S             | 900                                                                               | 720                                                                               | 630                                                                              | 570                                                                              | 510                                                                             | 22,4                                                 | 36                                       | 0,78             |
| 6,3 x 19,1         | 53998        | S             | 1010                                                                              | 790                                                                               | 700                                                                              | 635                                                                              | 570                                                                             | 25                                                   | 40                                       | 0,86             |
| 7 x 21             | 54130        | S             | 1250                                                                              | 1000                                                                              | 860                                                                              | 780                                                                              | 700                                                                             | 32                                                   | 50                                       | 1,1              |
| 8 x 24             | 58778        | P             | 1250                                                                              | 1000                                                                              | 920                                                                              | 820                                                                              | 710                                                                             | 32                                                   | 50                                       | 1,4              |
| 9 x 27             | 58779        | P             | 1600                                                                              | 1250                                                                              | 1160                                                                             | 1000                                                                             | 900                                                                             | 40                                                   | 63                                       | 1,8              |
| 10 x 28            | 58780        | P             | 2000                                                                              | 1600                                                                              | 1440                                                                             | 1250                                                                             | 1120                                                                            | 50                                                   | 80                                       | 2,2              |
| 10 x 30            | 52303        | P             | 2000                                                                              | 1600                                                                              | 1440                                                                             | 1250                                                                             | 1120                                                                            | 50                                                   | 80                                       | 2,2              |
| 11,3 x 31          | 7984841      | P             | 2500                                                                              | 2000                                                                              | 1800                                                                             | 1600                                                                             | 1400                                                                            | 63                                                   | 100                                      | 2,85             |
| 13 x 36            | 58784        | P             | 3350                                                                              | 2650                                                                              | 2430                                                                             | 2100                                                                             | 1890                                                                            | 85                                                   | 132                                      | 3,8              |
| 16 x 45            | 7988746      | P             | 5000                                                                              | 4000                                                                              | 3680                                                                             | 3270                                                                             | 2860                                                                            | 125                                                  | 200                                      | 5,7              |

Other dimensions  
on request.

The nominal stresses and the limit stresses  
may not exceed the stresses specified  
in the respective mechanism groups.

Attention: Because of the austenitic materials with low hardness,  
reduction of the nominal stress and good lubrication of the chain will  
produce a satisfactory service life.  
For continuous operation, a nominal stress of  $\sigma_v = 80$  N/mm<sup>2</sup> should not  
be exceeded for motor-driven hoists.



## CORROSION PROTECTION COATINGS FOR RUD HOIS T CHAINS

| Surfaces                       | Short description of surface coating                                                          | New condition                                                                       |
|--------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Natural dark blue oil polished | Thick oxide layer with corrosion protection oil                                               |  |
| Phosphated oil polished (POP)  | Zinc phosphate with corrosion protection oil (5 µm)                                           |  |
| Electrolytic galvanised        | Electrolytic metal deposition                                                                 |  |
| Corrud-DT coating              | Inorganic zinc-plated coating with a combination of zinc and aluminium plates                 |  |
| Topcoat SI                     | An organic high networked micro layer with prevailing ingredients of aluminum and epoxy resin |  |

## STANDARD PACKING RUD HOIST CHAINS



- Disposable packaging RUD 1: 80 x 60 x 55 cm
- Disposable packaging RUD 2: 80 x 60 x 75 cm
- Disposable packaging RUD 3: 80 x 60 x 95 cm

Including VCI film for each packaging size.



## RUD PORTAL FOR RUD HOIST CHAINS

THE RUD PORTAL IS OUR SECURE PLATFORM FOR OUR CUSTOMERS WITH ACCESS TO INFORMATION AND APPLICATIONS.

In our RUD portal, you will find everything you need for a safe and efficient use of hoist chains: from easy-to-understand operating instructions for the proper use of hoist chains to lubricant recommendations that optimize the lifespan of your chains. Discover our products in detailed product presentations and use our discard criteria to determine the wear level of your hoist chains. Our catalogs provide you with a comprehensive overview of our range of hoist chains and ensure that you are always up-to-date.



### Easy registration:



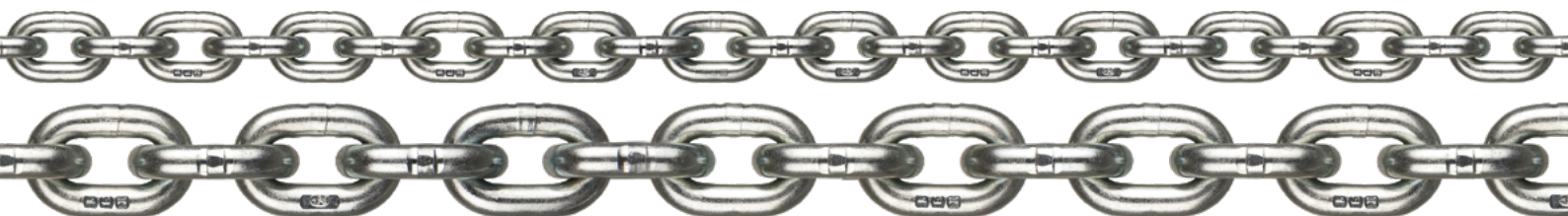
[www2.rud.com](http://www2.rud.com)

or by email to:

[hoistchains@rud.com](mailto:hoistchains@rud.com)

More information about RUD  
hoist chains at:

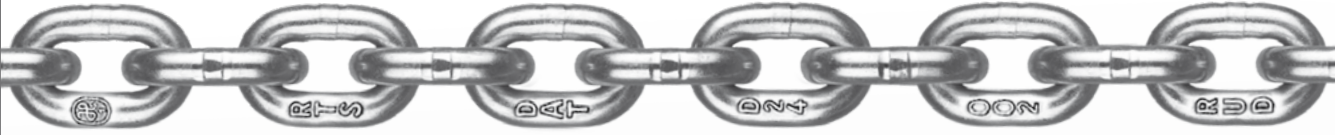
[www.hoistchains.rud.com](http://www.hoistchains.rud.com)



## TEST CERTIFICATE – RUD HEBEZEUGKETTEN

### UNIQUELY TRACEABLE FROM THE CUSTOMER TO THE STEEL MILL

Thanks to the RUD test certificate and the clearly identifiable stamping, RUD hoist chains guarantee 100% traceability. In addition to the chain RUD hoist chains guarantee 100% traceability. In addition to the chain type and quality, the production number (e.g., D24) and batch number (e.g., 002) are stamped on each chain. These numbers form the clearly identifiable manufacturing number printed on the test certificate. With identifiable manufacturing number printed on the test certificate. With these numbers we guarantee the clear allocation of the inspections these numbers we guarantee the clear allocation of the inspections and tests at RUD. Thus, we create a further security feature.



Official company inspection stamp      chain type      Quality denomination      Serial no.      Batch no.      Manufacturer

Kommanditgesellschaft  
Sitz Aalen-Unterkochen  
Amtsgericht Ulm  
HRA 500160

Komplementärin  
RUD-Kettenfabrik  
Gebr. Rieger GmbH  
Sitz Aalen-Unterkochen  
Amtsgericht Ulm  
HRB 500065

Geschäftsführer:  
Dr. Hansjörg Rieger  
Jörg S. Rieger, Ph.D.  
Johannes W. Rieger  
Benjamin T. Rieger

RUD Ketten Rieger & Dietz GmbH u. Co. KG D-73428 Aalen, Germany      Certified acc. to ISO 9001 and ISO 14001

**S A M P L E !!**  
=====

customer order no.: XXXXXX  
from: XXXXXX  
our ref.: HR/JSR/TEQ/  
telephone: 07361/504-  
Aalen, 01.03.2015  
RUD order no.: XXX  
cert.-No.: XXX  
quant. desp.: XXXX  
weight: XX

**serial-no.: XXXXXX**

**Inspection Certificate 3.1 acc. to DIN EN 10204**

description: chain 4,00 x 12,20      RUD ref.  
quality grade: T      customer ref.:  
type: DAT  
quality: RTS  
material: special chain steel  
condition of surface: galvanized

working load limit / stress at working load limit:

|            |            |
|------------|------------|
| XXXX       | XXXX       |
| XXXXXXXXXX | XXXXXXXXXX |
| XXX        | XXX        |

- **Grade designation + design**  
Grade designation according to standard DIN EN 818-7 or according to other standards for hoist chains.
- **Quality**  
The RUD quality designation.
- **Production and batch number**  
RUD production and batch number for clear traceability of the chain.



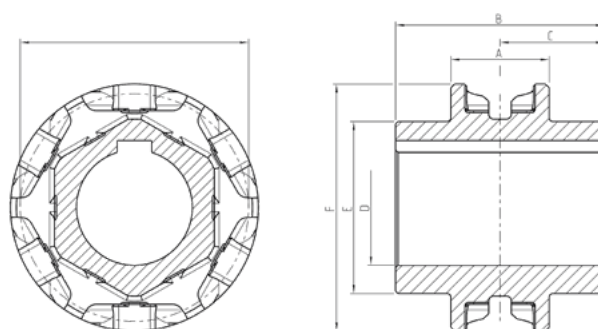
RUD wheels and guides are the optimum solution for every hoist. Classic pocket wheels and X-drive wheels from RUD have optimally matched pocket numbers and are individually adapted to each customer requirement. RUD chain guides complement the portfolio and ensure a fully comprehensive complete package for every hoist.

Proven RUD design and know-how in the construction and production of chains, wheels and guides make the difference.

We also design and produce wheels and guides for any hoist, regardless of the chain used.

## INFORMATION REQUIRED FOR ORDERING RUD POCKET CHAIN WHEELS::

- Chain dimensions and number of pockets
- Hub length E + C
- Drill-Ø D with fit (if no details are given, fit H7 and bore chambers 1.5 x 45° are used)
- Groove for feather key DIN 6885 Bl. 1 P9 or IS9 or keyway with details about key insertion direction
- Possibly threaded hole for set screw with indication of position

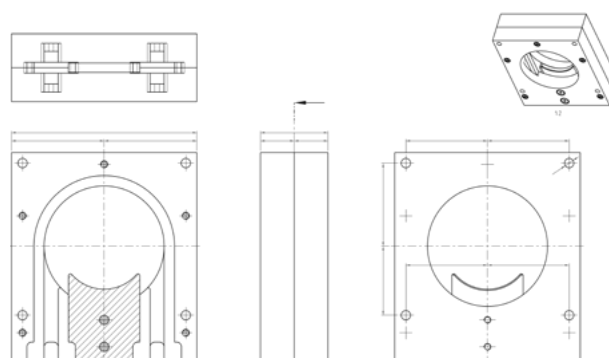


| Chain<br>d x t (mm) | Number of<br>pockets | Pitch circle<br>Ø | Crown width<br>A | Max. boring<br>B |
|---------------------|----------------------|-------------------|------------------|------------------|
| 5 x 15              | 5                    | 48                | 25               | 20               |
| 7 x 21              | 6                    | 81                | 35               | 40               |
| 9 x 27              | 6                    | 104               | 45               | 50               |
| 13 x 36             | 6                    | 139               | 65               | 70               |
| 16 x 45             | 6                    | 174               | 80               | 90               |
| 23,5 x 66           | 5                    | 212               | 88               | 95               |

Further wheel types available on request. The design and selection of shaft/hub coupling must be handled by the plant manufacturer in relation to the forces in play. Recommendation:  $E \approx 1,7 \times B$

## INDIVIDUALLY ADJUSTABLE FOR EVERY WHEEL AND EVERY CUSTOMER REQUEST.

- Chain dimension required for determination
- Pocket wheel required for determination





## RUD LIMIT GAUGE FOR HOIST CHAINS

| Manufacture                  | Motor driven Hoist | Manual driven Hoist | Article number |
|------------------------------|--------------------|---------------------|----------------|
| CM / Yale                    |                    | ×                   | 7993866        |
| CM / Yale                    | ×                  |                     | 7996272        |
| DEMAG (DK / DC + PK)         | ×                  |                     | 7101452        |
| GIS                          | ×                  |                     | 51622          |
| HADEF                        |                    | ×                   | 7995835        |
| HADEF (AK + GEDI)            | ×                  |                     | 7900303        |
| KITO                         |                    | ×                   | 7994684        |
| LIFTKET                      | ×                  |                     | 7992010        |
| J.D. NEUHAUS                 | ×                  |                     | 62540          |
| R.STAHL / STAHL CRANESYSTEMS | ×                  |                     | 7994103        |
| TIGER (T + VH)               |                    | ×                   | 7907394        |
| VERLINDE / KONE / SWF        | ×                  |                     | 7993092        |
| ABUS                         | ×                  |                     | 7909386        |
| INGERSOLL RAND               | ×                  |                     | 7913718        |

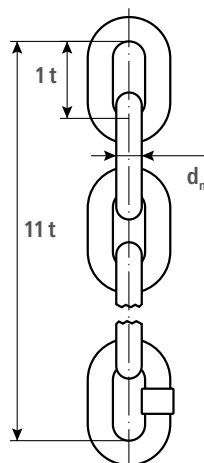
13

### ...SIMPLE SETUP FOR FAST RESULTS...



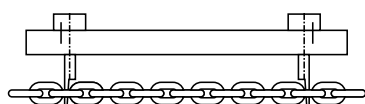
- Our RUD limit gauge consists of a sturdy aluminium strip with guide holes for the measuring pins as well as locking holes for the locking studs attached to the measuring pin.
- The size of the chain to be tested –  $d_n \times t$  – is engraved below the guide holes.

The two galvanised measuring pins provided with locking studs are located, together with the limit gauge, in a high-quality softshell pocket.

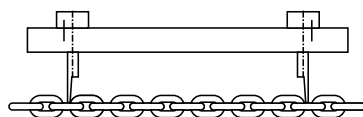


$d_n$  = Nominal diameter  
 $t$  = Inner pitch attachment  
 11 t = Length over 11 links

More information about the RUD limit gauge in our brochure or in RUD Portal.



Gauge to be introduced: chain is alright



Gauge cannot be introduced:  
 chain has to be replaced wear  
 > 2 % respectively 3 %

# REQUIREMENTS ON RUD HOIST CHAINS

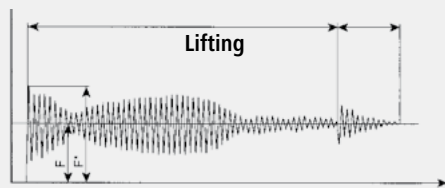
## LOADS · HARDNESS · WEAR

### Dynamic chain loading

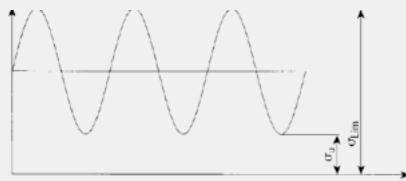
Requirements per DIN EN 818-7

RUD meets the challenge of dynamic chain loading with the most modern fabrication and testing methods.

#### Example of dynamic chain loading in the hoist during the lifting cycle



#### Dynamic chain testing in the pulsator



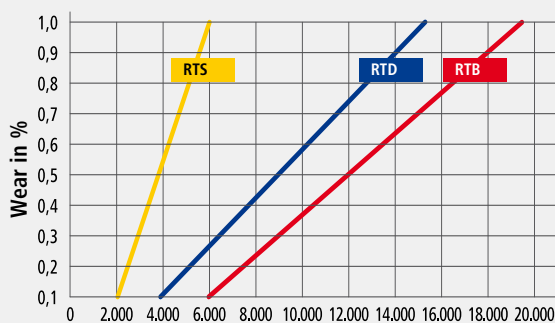
Traction relationship  $R = \frac{\sigma_u}{\sigma_o} = 0,2$   
 Limit vibration  $n = 2 \times 10^6$   
 Permitted limit traction  $= \sigma_o = \sigma_{lim}$

### Wear testing

Parameter:

Load traction  $\sigma_t = 100 \text{ N/mm}^2$   
 Pocket number  $Z = 5$   
 Speed  $v = 8 \text{ m/min.}$   
 Dry, ungreased chain  
 1 chain

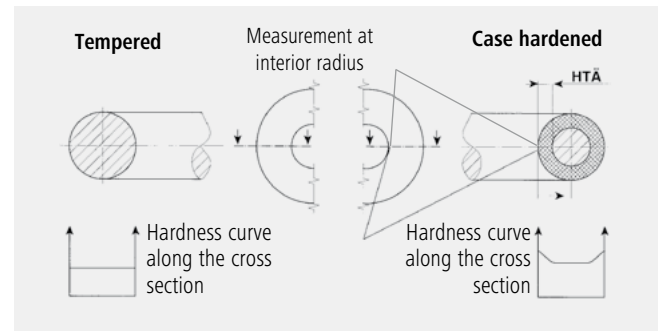
A well lubricated chain and properly designed chain drive make for several times higher load alternation. As a rule of thumb: up to 15 times greater. The RTB quality can yield load cycles of up to 300.000.



The quality classes relate to material, chain design and production process. Values given in case of test stand testing. Drive wheel, chain guide and scraper all designed and fabricated to to the state of the art.

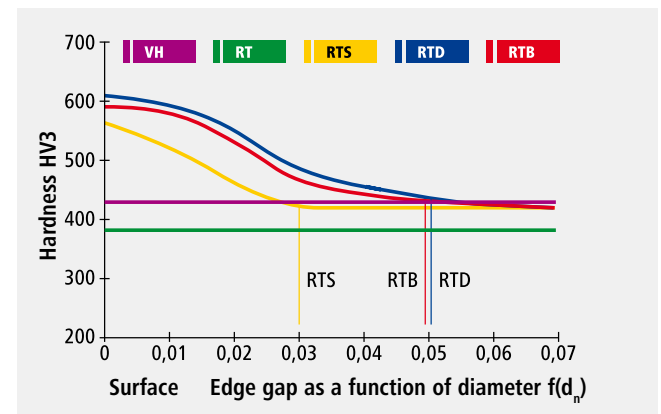
Tip: For RT chains, the load change number < 1000. Conditions such as abrasive dust reduce the load change number for all chains.

### Surface hardness and hardness curve

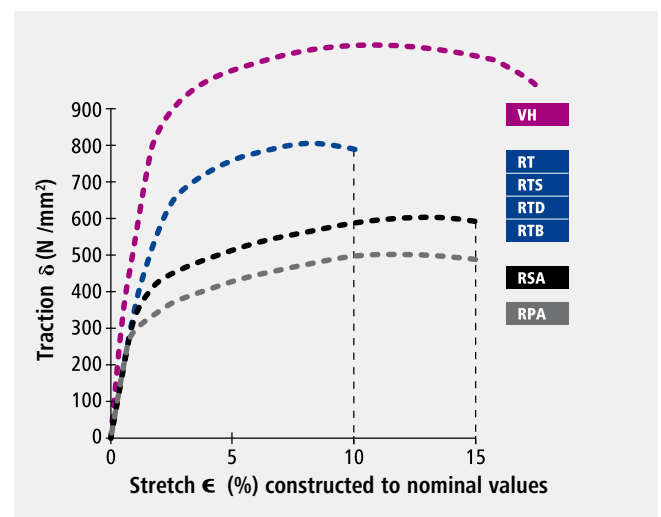


### Example hardness curves

**RTS quality** = conventional heat treatment, low case hardening depth  
**RTD quality** = modified fabrication process  
**RTB quality** = chain with especially high wear resistance. In addition, this quality is optimised for vibration resistance.



### Traction - stretch diagram



## THE FUCHS LUBRITECH LUBRICANTS LISTED BELOW HAVE PROVED THEIR VALUE FOR LUBRICATING HOIST CHAINS IN PRACTICE.



**STABYLAN 2001** Partly synthetic lubricant with creep and outstanding lubricating qualities, as well as excellent corrosion proofing. Application range  $-15^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$ . Available as spray, open canisters or drums. Tried and tested **standard RUD lubricant** for general applications.

**CEPLATTYN 300** Graphite paste with high-pressure and adhesion agents, creates an almost dry dust-repellent solid lubricant film, application from  $-30^{\circ}\text{C}$  to  $+250^{\circ}\text{C}$ . Available in open containers or as spray. **For use per mining hygiene regulations (GesBergV) above and below ground.**

**STABYLAN 5006** Fully synthetic high temperature chain lubricant (chain honey) **for extreme temperatures up to  $240^{\circ}\text{C}$ .** Salt water resistant, mineral oil resistant, penetrates and displaces water, outstanding adhesion. Available as a spray, in canisters and drums.

**CASSIDA CHAIN OIL 1500** Fully synthetic high performance chain lubricant with very good adhesion and extreme resistance to being washed off. Temperature range  $-10^{\circ}\text{C}$  to  $+140^{\circ}\text{C}$ . Available in canisters, drums, or as a spray. Listed per NSF H1 and suited **to use in the vicinity of food.** Especially suited to meat processing applications, approved for KOSHER and HALAL processing.

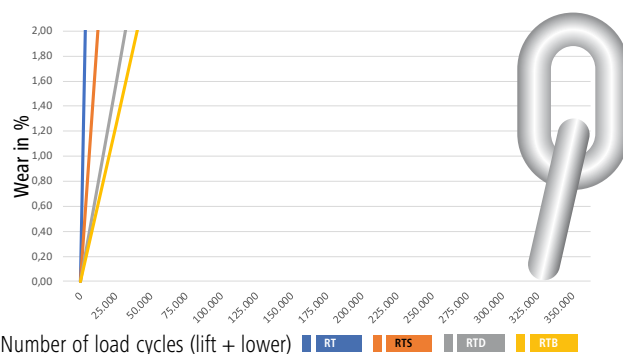
**DECORDYN 350** High adhesion corrosion proofing film with good lubrication qualities, for temperatures  $-40^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ . used in wind power installations, offshore and for general protection in aggressive environments.

### YOUR CONSULTANCY PARTNER

FUCHS LUBRITECH GMBH Phone: +49 (0) 6301 3206-0  
Werner-Heisenberg-Straße 1 Mail: [lubritech@fuchs.com](mailto:lubritech@fuchs.com)  
67661 Kaiserslautern <https://www.fuchs.com/lubritech/>

## Chain lubrication - An important contribution to reducing wear

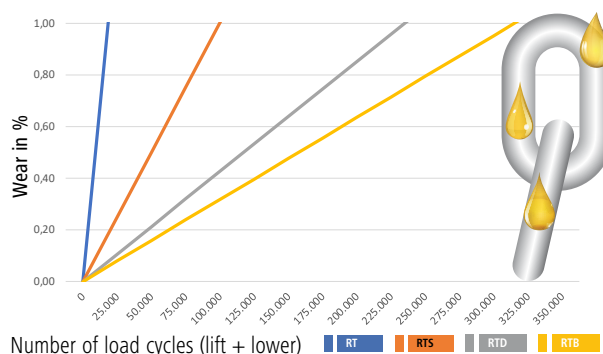
### WITHOUT CHAIN LUBRICATION LOAD CYCLES WITH UNLUBRICATED CHAIN:



- When running over drive and reversing wheels, the chains links are angled under load.
- In order to minimise the resulting joint friction, hoist chains should be lubricated at regular intervals according to the conditions of use.

The indicated load cycles are achieved with a ungreased chain with load traction force of  $100 \text{ N/mm}^2$ , pocket wheel  $Z = 5$  and speed  $V = 8 \text{ m/min}$ .

### REGULAR CHAIN LUBRICATION LOAD CYCLES WITH LUBRICATED CHAIN:



- Through a regular lubrication a 15-20 times higher number of cycles can be obtained than with a dry, unlubricated chain.
- During lubrication, ensure that the lubricant penetrates into the chain links most susceptible to wear.

The indicated load cycles are achieved with a unlubricated chain with load traction force of  $100 \text{ N/mm}^2$ , pocket wheel  $Z = 5$  and speed  $V = 8 \text{ m/min}$ .



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